Predevelopment Subsurface Conditions Analysis Investigation Report

Site Location: Orchard Whitney Site

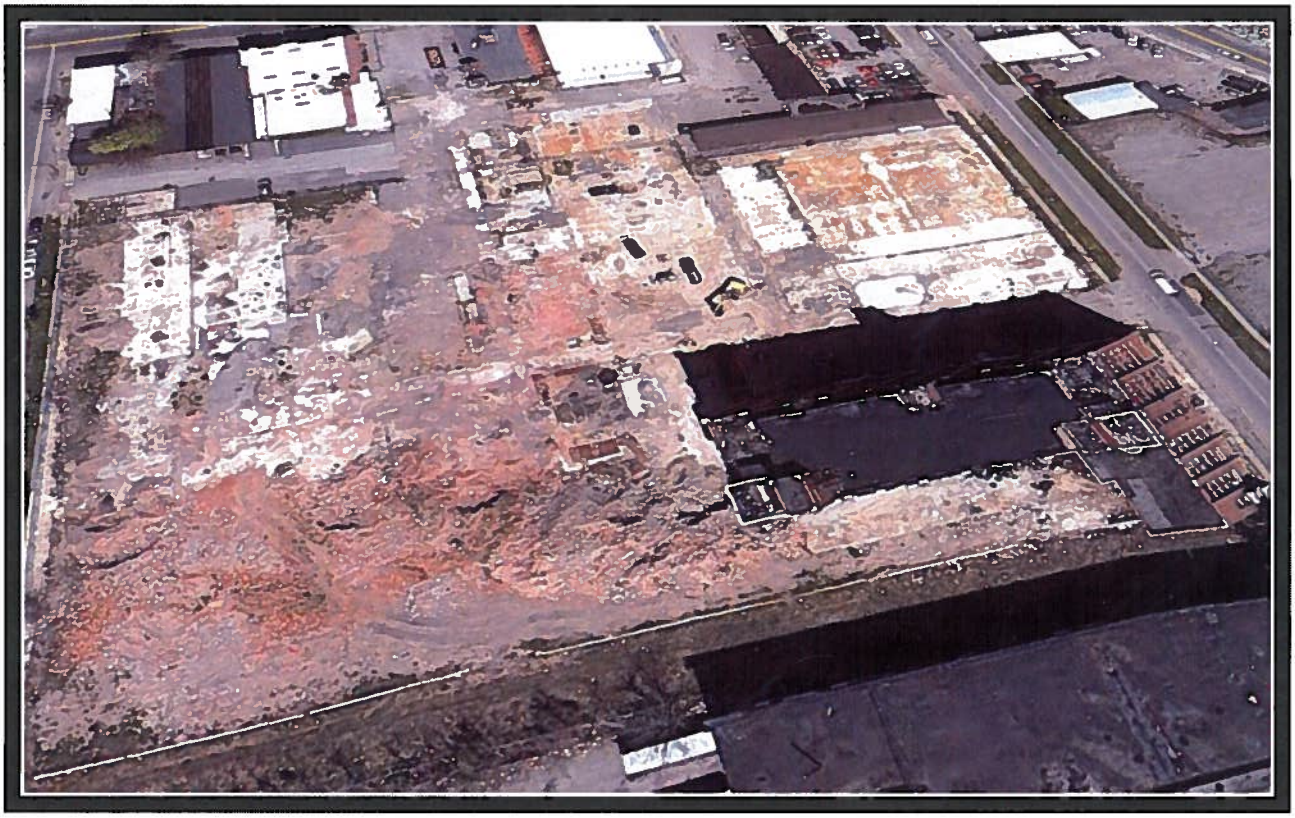

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Table of Contents

1.0 Introduction

Lu Engineers was retained by the City of Rochester to conduct a Predevelopment Subsurface Conditions Analysis Investigation Report at the Orchard Whitney Brownfield Site ("Site") which has been targeted for redevelopment. The property is located immediately south of Lyell Avenue in the LYLAKS Brownfield Opportunity Area (BOA). The property was historically residential until the early 1900s when it was developed into an industrial facility covering both the 415 Orchard Street parcel and the 354 Whitney Street parcel.

The Site is a 3.9-acre site located at 415 Orchard Street and 354 Whitney Street in the City of Rochester (Figure 1). The Site includes mixed commercial and industrial uses. A seven-story structure is the only remaining building present at 415 Orchard Street (Orchard Street parcel). Structures previously occupying 354 Whitney Street (Whitney Street parcel) were demolished due to the unsafe condition of the buildings.

The Site is a fenced vacant lot covered mainly with concrete slabs and building demolition debris. A large berm of brick, concrete, and debris is located on the southern and western edge of the Site. The Site is bordered by Orchard Street to the east, a former railroad right-of-way to the south, Whitney Street to the west, and commercial buildings to the north. Figure 2 is a Site Plan showing current conditions at the Site.

The development considerations discussed in this report are:

- Environmental
- Geotechnical
- Utility Service access.

Each of these considerations is addressed in detail in the sections that follow.

2.0 Site Background and History

According to previous environmental reports for the Site, the area was originally developed with residential housing in the late 1800's. Railroad spurs were extended through the southern adjacent properties circa 1875 and the tracks were used for coal and materials delivery and shipping as the Site developed into manufacturing and industrial uses in the early 1900s.

The Delco Appliance Division of General Motors occupied the Site from 1930 to 1967 and had several processes including the manufacture of electrical equipment, various metal finishing operations, coal storage, boiler operation, power generation, petroleum storage and small scale automotive service.

The facility was expanded to its pre-demolition Site size and configuration by 1935. The plant closed in 1967 and the property continued to be used for metal finishing, synthetic foam production, printing, plastics manufacturing, electronics manufacturing, and warehousing until 1990 when the Site was abandoned.

Site conditions continued to decline after 1990 and in 2003, a large portion of the structure at the Whitney Street parcel was damaged during an arson fire. The City partially demolished the structure in 2005 to reduce the risk of collapse and to eliminate other hazardous conditions at the Site. The City foreclosed on the Whitney Street parcel in August 2006. Figure 3 provides an overlay of the Orchard Whitney site comparing existing conditions to historical buildings and operations.

Due to deteriorating and unsafe conditions of the structure at 354 Whitney Street, the City completed asbestos abatement and demolition of the structure in order to safely complete Remedial Investigation (RI) activities. The remaining building structure on the Whitney Street Site was demolished as an interim remedial measure (IRM) during this investigation in April and May 2008. The northern portion of 415 Orchard ("Low Rise") was demolished in 2010.

IRM activities are summarized in a report titled *Interim Remedial Measures Report* (Lu Engineers, May 2010). A summary of the hazardous and non-hazardous wastes as well as friable and non-friable asbestos waste disposed of from the Site includes the following:

- The investigation included surface soil sampling, soil borings, test excavations and groundwater monitoring well installation and sampling to determine the extent of contaminated soil and groundwater.
- The primary occurrence of contamination was related to metals contaminated soil and groundwater as a result of past metal finishing operations, hydraulic lift, former gasoline storage and pumps, and underground petroleum storage. Semi-volatile organic compounds (SVOCs), in particular polycyclic aromatic hydrocarbons (PAHs) have also been detected on the southeastern portion of the Site, in the vicinity of former plating operations and underground petroleum storage tanks. Sample analytical results show that all compounds detected in soil are below NYSDEC Residential Use Soil Cleanup Objectives (6 New York Codes, Rules, and Regulations (NYCRR) Part 375-6b).
- One (1), seven (7) story brick/stone structure of approximately 371, 600 square feet (ft) remains on the Orchard Street parcel ("High Rise"). An adjacent, heavily dilapidated single-story structure ("Low-Rise") was demolished by the City in December 2010. Crushed masonry and building materials generated during the demolition process are staged on-Site for future use during redevelopment.

Figures 4 thru 7 contain plans showing locations of soil and groundwater testing, a groundwater flow interpretation, bedrock contours, and site Geology cross sections.

3.0 Summary of Previous Environmental Reports

A summary of previous environmental work completed at the Site, shows that the following investigation actions have been performed at the Orchard-Whitney Site:

- Draft Center City Industrial Park Facility Assessment, *Flint, Allen, White & Radley*, April 1999;
- Environmental Protection Agency (EPA) Hazardous Substance Removal Action, 1999

- Phase I Environmental Site Assessment (ESA): 354 Whitney Street and 367, 370, 406, and 415 Orchard Streets, *DAY Environmental, Inc.* December 2000;
- Pre-Demolition Asbestos Inspection of 354 Whitney Street Bldg 1A, *ENSR International*, August 2003;
- Pre-Demolition Asbestos Inspection of 354 Whitney Street Bldg 2/2A/ Brick Mill, *ENSR International*, August 2003;
- Pre-Demolition Asbestos Survey 415 Orchard Street High Rise and Low Rise Structures, *Lu Engineers*, August 2006; and
- Orchard-Whitney Targeted Site Assessment Report, *NYSDEC Region 8,* December 2006.
- 2006 Hazardous Materials Investigation and IRMs, Lu Engineers
- 2008 Remedial Investigation Activities and IRMs, Lu Engineers
- 2011 Remedial Investigation Activities and IRMs, Lu Engineers
- 2012 Remedial Investigation Activities and IRMs, Lu Engineers

Draft Center City Industrial Park Facility Assessment, 1999

The Flint, Allen, White & Radley Draft Center City Industrial Park Facility Assessment consisted of visual inspection and analysis of general structural and Site conditions including interior and exterior roof conditions, floor loading potential and an estimated cost for rehabilitation and/or demolition. The results indicated rehabilitation costs, not including hazardous materials or asbestos abatement could exceed $5.8 million dollars.

USEPA Hazardous Substance Removal Action, 1999

Numerous drums containing suspected hazardous wastes were found in the abandoned 354 Whitney Street building during an inspection conducted by the City and NYSDEC. NYSDEC requested that the USEPA characterize and remove the abandoned wastes to mitigate the significant environmental and human health hazard posed by these substances. USEPA removed and disposed of over 700 drums of various sizes during this removal action. This building was later gutted by fire in 2003 and subsequently demolished by the City in 2006.

Phase I ESA, 2000

A Day Environmental, Inc. Phase I ESA completed in 2000 identified several Recognized Environmental Conditions including:

- The presence or former presence of petroleum or chemical underground storage tanks (USTs), the locations and removal of which could not be confirmed. Laboratory analysis of samples from pre-existing monitoring wells at the Site indicated that petroleum, RCRA metals and chlorinated solvent contaminants were present in groundwater above regulatory guidance values;
- The presence of suspected and confirmed asbestos containing materials (ACM) throughout all structures at the Site;
- Historical uses of the properties and adjacent properties suggestive of use, storage and generation of Resource Conservation and Recovery Act (RCRA) hazardous wastes such as: oil and lead based paints, lubricants, flammable liquids, heavy metals, and polychlorinated biphenyl

(PCB) oils. In addition, the Site is known to have at least two (2) documented NYSDEC spill incidents;

- Visual evidence of additional spills in locations where numerous drums of unknown materials were being staged;
- The presence of several transformers, hydraulic lifts, and other motorized equipment commonly associated with PCB contaminated oils; and
- The presence of floor drains and/or sumps throughout the buildings containing unknown liquids, chemicals and residues. The discharge points of the drains and sumps could not be confirmed.

Asbestos Pre-demolition Surveys, 2003

The ENSR International, Inc. Pre-Demolition Asbestos surveys of the structures on the Whitney Street parcel conducted in 2003 indicated that friable and non-friable asbestos was present throughout all Site buildings including: roofing and flooring materials, window glazing, pipe insulation, wall board and insulation. Portions of the Site were already in decline, and friable asbestos was present where roofing materials had collapsed, windows were vandalized and pipe and wall insulation was damaged.

NYSDEC Investigation, 2006

The NYSDEC conducted a Targeted Site Assessment in the Fall of 2006 to evaluate the 354 Whitney Street Site for potential registry as an Inactive Hazardous Waste Disposal Site (IHWDS). The assessment consisted of:

- A geophysical survey to determine the location of buried metallic anomalies such as USTs or utilities;
- A utility survey to locate major utility right-of-ways and to identify potential contaminant pathways;
- Installation of soil borings and 6 groundwater monitoring wells to assess subsurface soil and groundwater quality and flow direction;
- Collection of surface soil samples to determine the potential for direct contact exposure to contaminants; and
- Collection of basement standing water samples to determine whether it could be a source of contamination to groundwater.

The results of the NYSDEC investigation indicated surface soil samples were contaminated with PAHs and PCBs, as well as metals. However, the investigation was inconclusive as to the source, nature and extent of any subsurface soil or groundwater contamination at the Site. The Site was not listed on the IHWDS registry; however, further investigation was recommended to fully evaluate conditions at the Site.

3.1 Lu Engineers Investigations and Interim Remedial Measures

A variety of RI efforts and IRMs have been completed at various times since Lu Engineers was retained by the City in July 2006. This iterative approach was necessary due to the fact that RI and IRM work needed to be coordinated with the demolition of 354 Whitney Street in 2008 and the "Low-Rise" portion of 415 Orchard Street in 2010. IRMs were required to allow demolition in certain cases and to facilitate

access to areas of the Site requiring additional RI work. IRM and RI efforts to date have been summarized as they were completed in memoranda and correspondence provided to the City, NYSDEC and NYSDOH, as necessary.

It is noted that the RI work completed to date has not included an evaluation of conditions beneath the 415 Orchard Street "High Rise" due to the presence of friable asbestos throughout the building. Evaluation of this portion of the Site will be conducted at a future date once the building has been demolished. To facilitate closure of the remaining portions of the Site under the NYSDEC ERP, the footprint of the 415 Orchard Street is being subdivided from the remaining parcels making up the Site.

Lu Engineers is currently working toward completion of the final RI and Construction Completion Reports (CCR), which should be completed in October 2013. A Site Management Plan will also be prepared once the RI and CCR are reviewed and approved by the NYSDEC and a Record of Decision (ROD) has been drafted.

The main components of the RI and IRM efforts completed to date include the following:

2006 Hazardous Materials Investigation and IRMs

Lu Engineers conducted a detailed inspection of the structures located on the Site at that time including the 415 Orchard Street "High" and "Low-Rise" as well as the various contiguous structures remaining at 354 Whitney Street. This investigation was conducted in order to locate and characterize the presence of hazardous or otherwise contaminated materials other than asbestos that required removal prior to demolition. Small amounts of abandoned waste paints, oils and boiler chemicals were disposed of at that time. Other materials were characterized for removal during demolition by the demolition contractor.

Three non-PCB-containing transformers located on the outer wall of the 6th floor of 415 Orchard Street were also removed and disposed of to prevent them from potentially falling during demolition of the adjacent structure. Vandalism required cleanup of spilled non-PCB oils from the ground surface as part of this process. After demolition of the 354 Whitney structures, a total of 218 tons of arsenic hazardous waste ash from the boiler house chimney was transported and disposed of off-site.

Masonry demolition debris was crushed to approximately 4-6 inches in diameter and staged on Site above the existing pile of demolition debris left after demolition of the westernmost portions of the 354 Whitney Street complex in 2003. Crushed masonry demolition debris was also staged along the western perimeter of the Site along Whitney Street at that time.

2008 RI and IRMs

Once the remaining 354 Whitney structures were demolished, the majority of the Site was accessible facilitating a more comprehensive investigation, which included:

- Installation and sampling of a total of 16 monitoring wells (MW-07 through MW-22)

- Drilling of a total of 6 soil borings (SB-01, 03, 05, 07, 19 and 20 (intervening numbers were completed as wells))
- Excavation of a total of 18 test pits (TP-01 through 18)
- Manual excavation of 4 surface soil samples (SS-01 through 04)

As test pits were installed in the central and southern portion of the Site, elevated screening levels and indications of waste materials were observed present in clay tile crocks associated with the former drainage features present on the ground floor of the former buildings. One drum of non-hazardous, solvent contaminated sludge was removed and disposed of off Site as an IRM during this process.

The findings of the 2008 RI indicated the presence of abandoned USTs and elevated subsurface chromium concentrations adjacent to the western wall of 415 Orchard Street. These locations were designated as Areas of Concern (AOCs) 1 and 2, respectively. An abandoned hydraulic lift was identified (AOC-3) in the north/central portion of the Site. Elevated screening data and petroleum odors were found in the northern portion of the western area of the Site warranting designation as AOC-4.

Surface soils from the immediate vicinity of the Site were found to contain relatively low levels of metals and SVOCs indicative of typical urban background conditions. With the exception of the elevated chromium levels found at AOC2, subsurface soil and groundwater were not observed to be significantly impacted within the study area.

Data gaps remaining after completion of the 2008 RI included the presence of a large tunnel aligned east/west located in the center of the Site with smaller tunnels branching off to the north and south apparently associated with utilities as discussed elsewhere herein. The nature and extent of contamination associated with AOCs 1 through 4 and potential presence of contamination not accessible beneath 415 Orchard Street at that time were also considered to be data gaps requiring additional investigation.

2011 RI and IRMs

RI and IRM efforts were conducted concurrently during 2011 to minimize the mobilization and demobilization of equipment to and from the Site. IRM work focused on the closure of a total of 9 petroleum USTs located within AOC-1. During this process, a total of 14,250 gallons of petroleum and petroleum-contaminated water was removed and disposed of off Site. A total of 11,500 gallons of petroleum-contaminated water were treated on-Site and discharged under permit to the Monroe County sewer line on the western side of Orchard Street. This process also included the removal and proper disposal of 265 tons of petroleum and metals impacted soils. The concrete vaults surrounding the tanks were backfilled with flowable fill to a depth of approximately 5 feet below grade to prevent infiltration of contaminated groundwater from the adjacent AOC-2 (Former Plating Area). The remainder of the backfill was completed with clean imported fill and crushed demolition debris from the materials staged on Site.

The demolition of the 415 "Low Rise" in late 2010 allowed access to the building's former footprint. Other locations including, but not limited to the petroleum–contaminated soils identified as AOC-4 also required additional investigation to determine whether additional IRMs were warranted. Lu Engineers also focused on obtaining detailed data on the nature and extent of soil and groundwater contamination associated with AOC-2 for development of an IRM strategy. RI efforts completed in 2011 concurrently with the AOC-1 IRM included the following:

- Installation of 3 groundwater monitoring wells (MW-23 through 25)
- Installation of 16 temporary monitoring wells within and adjacent to AOC-2 (PA-01 through 16)
- Installation of four additional soil borings (PA-17, PA-18, SB-26A and SB-26B)
- Excavation of 23 additional test pits (TP-19 through 39, TP-7A and TP-7E)

Soil and groundwater conditions within the 415 Orchard "Low Rise" footprint and within the area of AOC-4 were found to be consistent with background levels of VOCs, SVOCs and metals elsewhere on the Site and no additional IRMs were proposed. Detailed data was also obtained from AOC-2 allowing 3-dimensional modeling of the area and development of a coherent plan for remediation of the chromium soil and groundwater contamination observed in this location.

2012 RI and IRMs

The additional RI work conducted in 2012 was limited to re-sampling of all Site groundwater wells once the IRMs were completed with respect to AOC-2 and AOC-3 as well as a more detailed review of the nature and extent of the tunnel systems present on the Site. A subcontracted utility scanning company was brought to the Site to televise accessible portions of the remaining drainage features and tunnels.

The large east/west oriented tunnel was also entered to determine whether hazardous materials were present and to verify that its steel reinforced concrete roof could bear the load trucks and other equipment to be mobilized for remediation of the adjacent AOC-2. Lu Engineers determined that the roof of the tunnel was capable of bearing the weight of all proposed activities above. Inspection of the tunnel also revealed the presence of friable asbestos pipe covering within and approximately 5 feet of standing water (determined previously to be uncontaminated). The tunnel floor and walls are concrete and it is approximately 12 feet deep. Other branching potions of the tunnel system could not be accessed within the Site and are assumed to be primarily associated with utilities which served manufacturing operations in the past. A portion of a closed tunnel was accessed from a commercial property (Turner Bellows, Inc.) to the west of the Site. However this tunnel terminates at the Site's western perimeter.

IRM effort during 2012 focused on remediation of hazardous levels of chromium (hexavalent chromium) and other RCRA metals identified in soil and groundwater within the former plating area (AOC-2). A total of approximately 500 tons of hazardous and non-hazardous soils contaminated with chromium, arsenic and cadmium were removed from AOC-2 and disposed of off Site. Lu Engineers used a portable x-ray fluorescence (XRF) meter to assist in the differentiation of soil contaminant levels during both the AOC-2 RI and IRM process.

Careful planning around seasonal weather and groundwater variations allowed removal of the affected soils without requiring groundwater removal during this process. Hazardous groundwater was treated in-situ during and after backfilling with clean imported crushed stone and select fill. A total of 300 gallons of a molasses and water mixture was fed by gravity into the subsurface. Subsequent groundwater sampling indicated that no hazardous conditions remained. Limited occurrences of elevated, but not hazardous levels of chromium, arsenic and chromium remain after completion of this IRM due to limited access during the excavation process.

AOC-3 was also remediated concurrently with the AOC-2 effort. A small amount (less than 1 ton) of petroleum contaminated soil as well as the hydraulic lift itself were removed and disposed of during the 2012 IRM work.

3.2 Development Considerations

Based on previously completed environmental investigations and cleanup, the following items should be considered for future development of the site.

3.2.1 Environmental

A visual summary of findings from the environmental investigation can be found in Appendix 1. Findings from environmental work completed to date show that groundwater at the site has several compounds that exceed NYSDEC groundwater standards. Most of these compounds are within the former plating area with trace levels of several compounds (chloroform and lead) found in MW-21 and MW-11 respectively.

With the exception of the former plating area and two isolated areas along the southern property boundary, surface soil results do not exceed NYSDEC standards for commercial use. This is also true for subsurface soils with the plating area being the only sampled location showing levels of several metals above NYSDEC commercial use standards.

Unless additional environmental contamination requiring remediation is found during subsurface investigation after the building at 415 Orchard Street is demolished, it is not expected that the NYSDEC will require additional investigation and/or remediation at the site. Continued groundwater monitoring will likely be recommended. Institutional controls such as deed restrictions on future use and perhaps measures for vapor mitigation during building construction are also expected.

3.2.2 Geotechnical

Foundation Design, PC was present during the environmental borings and also reviewed all test pit and boring logs from the investigation. Their interpretation and recommendations for future fill management and foundation design are provided in the sections that follow.

4.0 Geophysical Survey Results

A geophysical survey (Appendix 2) was completed by GeoMatrix on the 354 Whitney Street parcel in August of 2005. The purpose of the survey was to determine the location of large underground conduits

that may act as preferential pathways for environmental concerns. The survey was completed using frequency domain (EM31) and time domain (EM61) electromagnetic techniques. Both technologies are capable of identifying potential buried metallic objects such as tanks and containers as well as utility piping.

The results of the survey were inconclusive with significant interference from reinforced concrete (rebar) and other common anomalies at industrial sites. Graphical representations from the survey do show the presence of tunnels located on the property.

4.3 Development Considerations

The following items should be considered for future development of the site.

4.3.1 Environmental

The 2005 geophysical survey was inconclusive for the presence of tanks and/or containers. Subsequent investigations and remedial measures completed by Lu Engineers from 2008 to present have addressed areas of environmental concern that needed corrective action. A detailed description of corrective actions taken will be found in Lu Engineers Construction Completion Report which will be completed in October 2013.

4.3.2 Geotechnical

There are sub-surface features identified in the geophysical survey and subsequent environmental investigations that could impact future development. These include utility tunnels, and utility lines. Specific impacts should be evaluated as future development options (building loads, proposed subsurface features, and locations) are considered.

5.0 Test Pitting Investigation

Lu Engineers completed 45 test excavations (Test Pits) as part of the remedial investigations and cleanup at the site (2008 to present). Test locations were selected based on previous environmental reports, historical maps and suspected areas of environmental concern. Test locations are shown on Figure 6. All test pit logs were provided to our Geotechnical Engineer (Foundation Design) for review. A discussion of our environmental findings and feedback regarding foundation recommendations is provided below.

Test pits were completed to evaluate potential contamination and to evaluate fill conditions. Test pits were excavated in October 2008, using an excavator equipped with a jack-hammer to investigate sub-slab features. Additional test pits were excavated in March 2011 using a JD 200C IC excavator. Excavation depth varied from 1 to 20 feet (ft) below ground surface (bgs) depending on location, intent, soil characteristics, and depth to bedrock. Excavated material was returned to the appropriate test pit after field screening and sampling was completed.

Soil samples were collected from each test pit and visual observations, characterization of subsurface materials, and field measurements of volatile organic compounds (VOCs) for initial were recorded on test pit logs. Samples were sent to a NYS certified laboratory for analysis as appropriated.

Test excavations show fill materials throughout the site at an average depth of 6 to 8 feet bgs. These depths are consistent with the findings of test borings completed during RI activities. Fill consists of reworked native soil and/or debris. Fill depths vary from 0 to 8 feet (former house basement at TP-34 to 13.7 feet (near the smoke stack foundation). Previous slabs were likely placed over areas of former residences and these areas contain poor quality fills. These areas are shown on the subsurface structure sketch provided in Foundation Design's Pre-Development Geotechnical Assessment, November 2011 (Appendix 3).

Test Pit logs are provided in Appendix 4.

5.4 Findings and Development Considerations

The following items should be considered for future development of the site.

5.4.1 Environmental

Analytical sampling from site test pits indicated the presence of several compounds at levels above NYSDEC cleanup standards for commercial development. Unless otherwise noted, all analytical samples were obtained from the vadose zone located approximately 6-8 feet below grade. Follow-up corrective actions have taken place since the test pits were completed and the site generally meets cleanup standards for commercial use. A detailed description of corrective actions can be found in Lu Engineers Construction Completion Report dated May 2013.

5.4.2 Geotechnical

Based on historical records showing residences along with their estimated fill depths and the type of materials present in the test pits, Foundation Design has concluded that the soil may not acceptable for supporting new structures or floor slabs. Depending on their location, new structures and slabs would be subject to settling over time with new loads. Fill would need to be removed and replaced throughout most of the site prior to new development. This subject is expanded upon in the sections that follow.

6.0 Combined Geotechnical and Environmental Drill Rig Soil Borings and Groundwater Monitoring Wells

Lu Engineers began a RI of the Orchard Whitney site in 2008. During this investigation 50 soil borings were completed. Of these 50 borings 23 were converted to permanent groundwater wells (conventional hollow stem augering methods) and 16 (in the former plating area) were converted to micro wells (geoprobe borings). All of these locations are shown on Figure 6. Soil borings which were not converted to wells are designated as SB points. MW designates monitoring wells. PA-0 thru PA-16 are micro wells and PA-17 and 18 are geoprobe borings.

Boring logs were recorded including soil characteristics, headspace concentrations, water table depth, sample recovery, blow counts and other pertinent information. Boring logs are provided in Appendix 5.

Monitoring well locations were selected to provide representative data relative to conditions throughout the Site. The wells were installed in areas of known former petroleum or chemical storage

and handing, locations of reported surface spills or staining, floor drains, sumps or trench drains, areas containing electrical equipment or hydraulic lifts, and areas of concern identified or incompletely characterized during trenching or building demolition.

Overburden drilling (SB points) was conducted using 4.25-inch ID hollow-stem augers. Continuous split spoon soil samples were collected in accordance with ASTM Method D-1586 at each boring, except for TB-19 located in the former plating area, and characterized using the Burmeister Soil Classification System. All split-spoon samples were logged by a geologist and recorded for reference. Field headspace measurements of VOCs from split-spoon soil samples were recorded using a MiniRae 2000 portable PID meter. Samples were collected using a standard two-inch outer diameter (OD) split-spoon driven by a 140-pound drill rig hammer. Blow counts were recorded for each split-spoon sample and recorded on well/soil boring logs provided in Appendix 4.

Soil was continuously sampled at each PA location using four (4) foot macrocore samplers with acetate sleeves (Geoprobe tooling) and driven by a geoprobehammer. Blow counts were recorded for each four (4)-foot macro-core sample and recorded on well/soil boring logs.

All wells, except MW-24 and MW-25, were completed flush to grade and completed with locking, protective steel casings set in concrete drainage pads. MW-24 and MW-25 were completed with stick-up style protective casings.

6.5 Findings and Development Considerations

Development considerations based on environmental findings at the site were previously discussed in Section 4.2. Maps and drawings showing the findings of the investigations and cleanup work can be found in Appendix 1.

7.0 Fill Management

Test pits, soil borings and monitoring wells completed during the remedial investigation generally show the presence of fill ranging from 0 to 3 feet in most locations. These depths are considerably deeper in the area surrounding the former house basement (8 feet at TP-34) and as much as 13 feet near the former smoke stack location (PA-06). There is also a large area of fill/construction debris located along the southwest corner and western perimeter of the property.

7.6 Development Considerations

The following items should be considered for future development of the site.

7.6.1 Environmental

Based on the proposed location of future structures and/or subsurface site features the management of existing fill will need to be further evaluated for development. Foundation Design has developed a cost estimate to remove and replace existing fill to support new structures. The numbers are conservative based on the fact that former residence basements on the property were likely filled with poor quality materials and the fact that several areas have shown fill at depths of between 8 and 13 feet.

It is our professional opinion that certain areas of the site are more suitable to development than others. Once the City and/or developer have a conceptual future use plan in place, fill management options and costs can be provided with much more accuracy. This is also true for existing and new utilities as current fill may prove to be corrosive to future lines and hookups. It is also noted that the extensive foundations remain in place throughout much of the Site that once supported massive multi-story masonry industrial structures. The precise location of all remaining foundations has not been completely identified but much of these structures are visible at the surface.

7.6.2 Geotechnical

Foundation Design has stressed in their report (Appendix 3) that debris laden fill is not acceptable for support of new structures. They conclude that although it suited the needs of the previous owners for floor slab support, the material will likely settle and compress with time and new loads. Additional work such as test pitting that is based on a proposed site development plan could serve to reduce the level of uncertainty with fill management.

The best way to quantify fill management is to overlay previous development areas with new construction limits and assume an expected removal depth. Foundation Design recommends that for planning they assume that the older, pre-AC Delco development areas will require up to 8 feet of fill removal and replacement. Development near the former stack will require removal of as much as 15 feet. Other AC Delco subsurface features such as the utility tunnel, utility lines or basement areas will require appropriate depths of removal.

Based on existing information Foundation Design prepared a cost estimate for fill management and this is provided in Appendix 3.

8.0 Foundation Recommendations

Although there are fill considerations, soils below the fill are firm native silt/clay and underlain by dense glacial till resting on bedrock at an average depth of approximately 12 bgs. This upper firm material should be sufficient for modest structural loads. The deeper glacial till can support more significant loads such as the existing structure. Bedrock depths should be deep enough to facilitate near-surface construction. Deep basements and or utilities may require bedrock removal. Groundwater appears to be able to be handled using typical construction practices for near surface structures but will pose challenges for deeper permanent structures.

Foundation Design projects that at this stage in planning it is expected that a spread footing foundation system will be utilized. For near surface structures (bear at frost depth) it is expected that footings will bear at low to moderate pressures on the order of 2,000 pounds per square foot (psf). Deeper structures will bear at pressures that that may approach 6,000 psf.

If new construction consists of very heavy loads (greater than 400 kips) deep foundation systems should be considered. In this case a drilled shaft system bearing at a depth of fifteen to twenty feet below grade at a bearing pressure of seven to ten tons per square foot (tsf) should be considered.

Where asphalt and concrete pavements or sidewalks are placed over in-place fill, developers should expect less than typical time before cracking, waviness, and/or potholes form. This risk appears to be acceptable compared to the cost of removing the fill. For estimating purposes budgeting for a slightly thicker than normal pavement, such as .5 inches of asphalt top, 2.5 inches of binder, and 15 inches of crusher-run subbase. Pavement slopes of at least 2.0 percent should be planned for and weeps should be installed at low points to facilitate drainage into the storm system.

Foundation Design also incorporates seismic considerations into their report and their recommendations can be viewed in Appendix 3.

8.7 Development Considerations

Based on the foundation recommendations, the following items should be considered for future development of the site.

8.7.1 Environmental

A soils management plan will be required in order to identify steps to be taken during future excavation and/or construction work. This plan should detail specific procedures to be taken with regard to fill management. As plans are developed for future construction, the soils management plan can be updated to match given areas of the site that will be impacted.

8.7.2 Geotechnical

Discussed in Section 9.0.

9.0 Existing Utility Summary

The site is currently serviced by numerous utilities, the majority of which are under paved roadways, including Whitney Street, Orchard Street, and Lyell Avenue (Figures 8-12 with additional drawings included). The known utilities include:

- Monroe County Pure Water systems – storm and sanitary
- City of Rochester systems – Water & Street Lighting
- Rochester Gas & Electric – Gas & Electric
- Frontier Communications – Communications
- Time Warner Cable- Communications

The City of Rochester New York Developers Guide should be consulted for guidance regarding required permits, and is included in Appendix 6 of this report.

In addition to utility-specific permits, additional connection or installation permits may also be required. These may include a Street Operating Permit and or Excavation Permit, which can be obtained through the City's Department of Environmental Services Permits Office, City Hall, 30 Church Street.

Based on fill materials and native soils present at the site, it is likely that these may be considered corrosive to ductile iron pipe. Polyethylene encasement is recommended for ductile iron pipe installation. In shallow fill, trench improvement may be accomplished by undercutting utility trenches to remove fill and backfilling with sub-base/stone for support. Wrapping the pipe and stone in a geogrid is recommended to span small irregularities that may form under the pipe in areas of deeper fill.

If development results in additional storm or sanitary discharge a Rochester Pure Waters District Permit must be obtained from Monroe County Pure Waters for new connections to sewers. The depth and size of new/relocated storm or sanitary utilities is expected to be similar to the existing. MCPW connections and lines are shown on Figure 8 and sewer as-built drawings are included on Figures 12-1 and 12-2.

Any water service connections must be approved by the City of Rochester Water Bureau. The depth and size of new/relocated water utilities is expected to be similar to the existing. Water service capabilities are shown on Figure 8 with services and connections running along Whitney Street, Lyell Avenue, and Orchard Street.

Other Utilities including Frontier Communications and Rochester Gas and Electric must be contacted separately for evaluation of existing capacity of their utility. If additional utility capacity and infrastructure are necessary, based on specific demands of the propose development, each utility will provide cost estimates for upgrades. If the capacity of the existing utility is adequate, then arrangements should be made with each utility company to connect to existing services.

Service for Frontier Communications is shown on Figure 9. Figure 10 shows RG&E Service areas on Orchard and Whitney Streets and their as-built drawings are also included.

10.0 Site Survey

A Lu Engineers' NYS Licensed Surveyor conducted a Site survey to identify property boundaries, existing site features, structures, and monitoring wells. This information was used to create a base map of the Site using the NAD 83 UTM Zone 18 (NYTM) coordinate system to present these features and the locations of sample points.

The Site survey, completed on October 8, 2008 and updated in June 2013 subsequent to the Whitney Street parcel structure demolition and installation of the groundwater monitoring wells, included the locations and elevations of installed groundwater monitoring wells, and all property boundaries, topographic features, landmarks and known utility corridors and tunnels. All other data collection points, including test pits, and surface sample locations were located using a hand held Global Positioning System (GPS) unit and plotted on the survey map using NAD 1983 State Plane New York West coordinates.

Monitoring well locations were surveyed and the top of casing determined to 0.010 foot accuracy to mean sea level by Lu's survey department. Groundwater depths, laboratory analytical data, Site survey

data and GPS data was used to prepare a groundwater flow models, depth to groundwater and local hydraulic gradient diagrams as well as to prepare contaminant concentration plume maps.

The Site Survey Map completed for the project is included in Appendix 7.

11.0 Conclusions and Recommendation

Lu Engineers was retained by the City of Rochester to conduct a Predevelopment Investigation at the Orchard Whitney Brownfield Site which has been targeted for redevelopment. Details of any proposed development are currently not in place or not available. The development considerations discussed in this report are 1) Environmental; 2) Geotechnical: and 3) Utility Service access. Each of these considerations is discussed below.

Environmental Considerations

A detailed description of the site's history and all associated environmental investigation and cleanup reports is provided in Section 4 of this report.

A visual summary of findings from the environmental investigation can be found in Appendix 1. Findings from environmental work completed to date show that groundwater at the site has several compounds that exceed NYSDEC groundwater standards. Most of these compounds are within the former plating area with trace levels of several compounds (chloroform and lead) found in MW-21 and MW-11 respectively.

With the exception of the former plating area and two isolated areas along the southern property boundary, surface soil results do not exceed NYSDEC standards for commercial use. This is also true for subsurface soils with the plating area being the only sampled location showing levels of several metals above NYSDEC commercial use standards.

Unless additional environmental contamination requiring remediation is found during subsurface investigation after the building at 415 Orchard Street is demolished, it is not expected that the NYSDEC will require additional investigation and/or remediation at the site. Continued groundwater monitoring will likely be recommended. Institutional controls such as deed restrictions on future use and perhaps measures for vapor mitigation during building construction are also expected.

The current environmental conditions at the site are typical of older industrial facilities located within urban locations. Based on previous investigations and cleanup efforts completed to date, there are not expected to be significant environmental issues with commercial development. Proposed development options should be evaluated as they are produced to determine if the presence of fill materials or remaining residual chemical compounds may impact construction or future occupancy. At this time the City plans to conduct additional environmental investigation of the 415 Orchard Street "High Rise" once demolition is completed. It is also recommended that a soils management plan be developed for the site and modified as necessary based on development plans.

Geotechnical Considerations

Foundation Design PC provided insight and opinions for geotechnical considerations at the site. Their professional opinion and associated cost estimates were based on observations during soil boring work and a review of site boring logs and test pit records. Based on their reports and our knowledge of the site, there are 3 areas of consideration related to geotechnical aspects of development.

1. Fill materials present at the site represent a load concern depending on building location, load considerations and slab support. Foundation Design has stressed in their report (Appendix 3) that debris laden fill is not acceptable for support of new structures. They conclude that although it suited the needs of the previous owners for floor slab support, the material will likely settle and compress with time and new loads. Additional work such as test pitting that is based on a proposed site development plan could serve to reduce the level of certainty with fill management.

   The best way to quantify fill management is to overlay previous development areas with new construction limits and assume an expected removal depth. Foundation Design recommends that for planning they assume that the older, pre-AC Delco development areas will require up to 8 feet of fill removal and replacement. Development near the former stack will require removal of as much as 15 feet. Other AC Delco subsurface features such as the utility tunnel, utility lines or basement areas will require appropriate depths of removal.

   It is our professional opinion that certain areas of the site are more suitable to development than others. Once the City and/or developer have a conceptual future use plan in place, fill management options and costs can be provided with much more accuracy. This is also true for existing and new utilities as current fill may prove to be corrosive to future lines and hookups.

   Based on existing information Foundation Design prepared a cost estimate for fill management which is provided in Appendix 3.

2. Foundation design requirements - Although there are fill considerations, soils below the fill are firm native silt/clay and then dense glacial till. This upper firm material should be sufficient for modest structural loads. The deeper glacial till can support more significant loads such as the existing structure. Bedrock depths should be deep enough to facilitate near-surface construction. Deep basements and or utilities may conflict with bedrock and would require fracturing. Groundwater appears to be able to be handled using typical construction practices for near surface structures but will pose challenges for deeper permanent structures.

   Foundation Design projects that at this stage in planning it is expected that a spread footing foundation system will be utilized. For near surface structures (bear at frost depth) it is expected that footings will bear at low to moderate pressures on the order of 2,000 psf. Deeper structures will bear at pressures that that may approach 6,000 psf.

If new construction consists of very heavy loads (greater than 400 kips) deep foundation systems should be considered. In this case a drilled shaft system bearing at a depth of fifteen to twenty feet below grade at a bearing pressure of seven to ten tsf should be considered.

Where asphalt and concrete pavements or sidewalks are placed over in-place fill, developers should expect less than typical time before cracking, waviness, and/or potholes form. This risk appears to be acceptable compared to the cost of removing the fill. For estimating purposes budgeting for a slightly thicker than normal pavement, such as .5 inches of asphalt top, 2.5 inches of binder, and 15 inches of crusher-run subbase. Pavement slopes of at least 2.0 percent should be planned for and weeps should be installed at low points to facilitate drainage into the storm system.

Foundation Design also incorporates seismic considerations into their report and their recommendations can be viewed in Appendix 3.

3. Existing utility tunnels – Figure 11 of this report shows the location of an existing utility tunnel/passage way that currently exists at the site. This tunnel along with remaining subsurface basement structures will pose a load concern to future development if buildings are constructed in their vicinity. Foundation Design's report estimates that these tunnels and any identified void spaces will be filled as part of any future development. Appendix 3 contains estimated costs for filling these areas. We recommend that a Beneficial Use Determination be made for existing fill/debris that is located on site to determine if these materials may be used for fill. We understand that the City may also have materials in other areas of the City that may be suitable for fill.

Utility Service Access

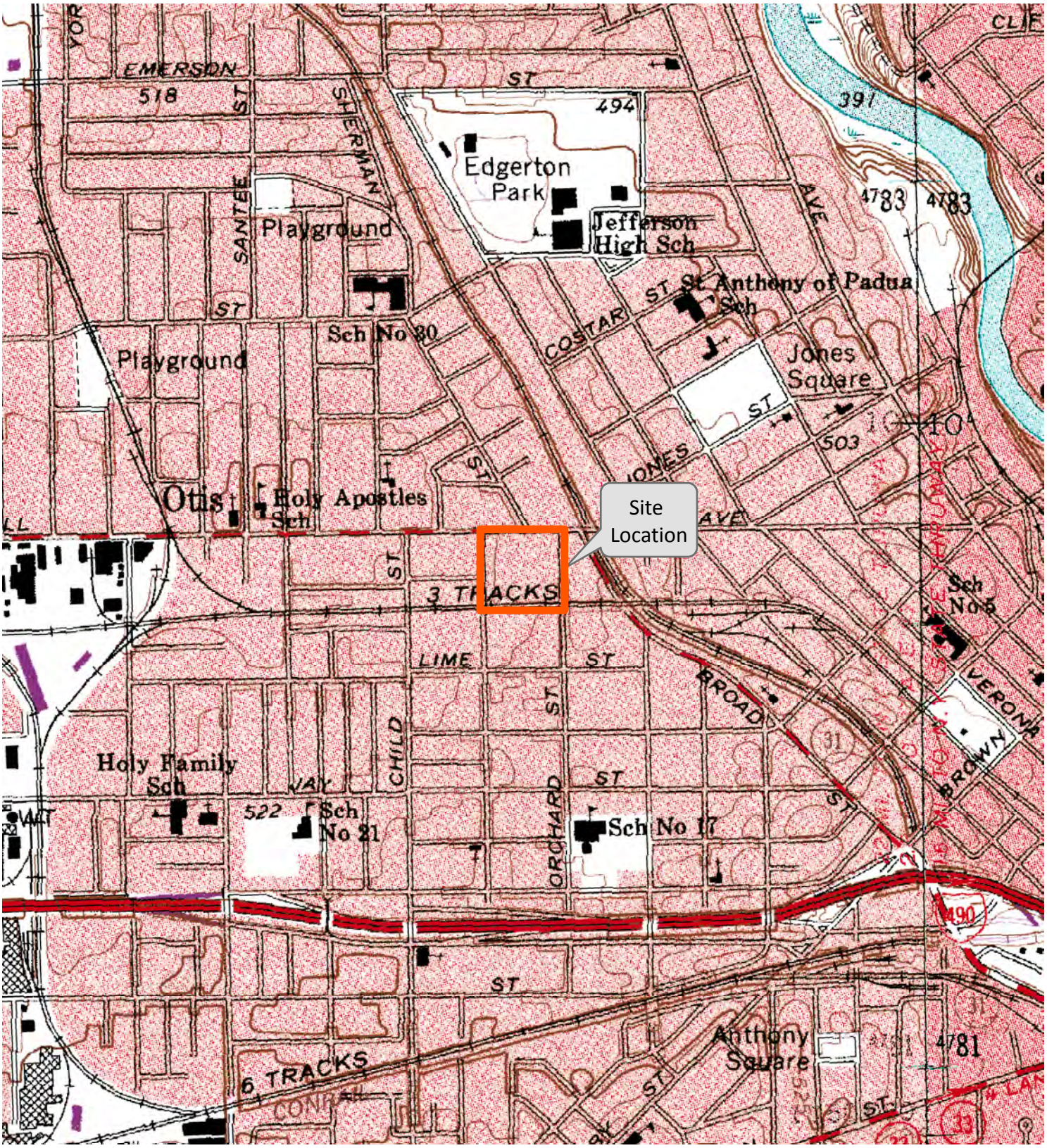
The site is currently serviced by numerous utilities, the majority of which are under paved roadways, including Whitney Street, Orchard Street, and Lyell Avenue (Figures 8-12 with additional drawings included). The known utilities include:

- Monroe County Pure Water systems – storm and sanitary
- City of Rochester systems – Water & Street Lighting
- Rochester Gas & Electric – Gas & Electric
- Frontier Communications – Communications
- Time Warner Cable- Communications

The City of Rochester New York Developers Guide should be consulted for guidance regarding required permits, and is included in Appendix 6 of this report.

Section 10 provides detail on special permits and access considerations that may be established for future development.

Figures



1 inch = 1,000 feet

0 500 1,000 2,000
Feet

N

New York Quadrangle Location

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

FIGURE 1
SITE LOCATION PLAN
ORCHARD WHITNEY PREDEVELOPMENT STUDY
415 ORCHARD STREET/354 WHITNEY STREET
ROCHESTER, NY

DATE: SEPTEMBER 2013
SCALE: 1 INCH = 1000 FEET
DRAWN/CHECKED: SMK/GLA
DATA SOURCE: NYS DOT RASTER QUADRANGLES ROCHESTER E/W, MONROE COUNTY, NY DOT EDITION DATE: 1978 USGS CONTOUR DATE: 1954

Lasalle St

Whitney St

Orchard St

Broad St

415
ORCHARD
STREET

Legend

Street Centerline
Property Line
Parcel Boundary
415 Orchard Street

N

1 inch = 60 feet

0 75 150

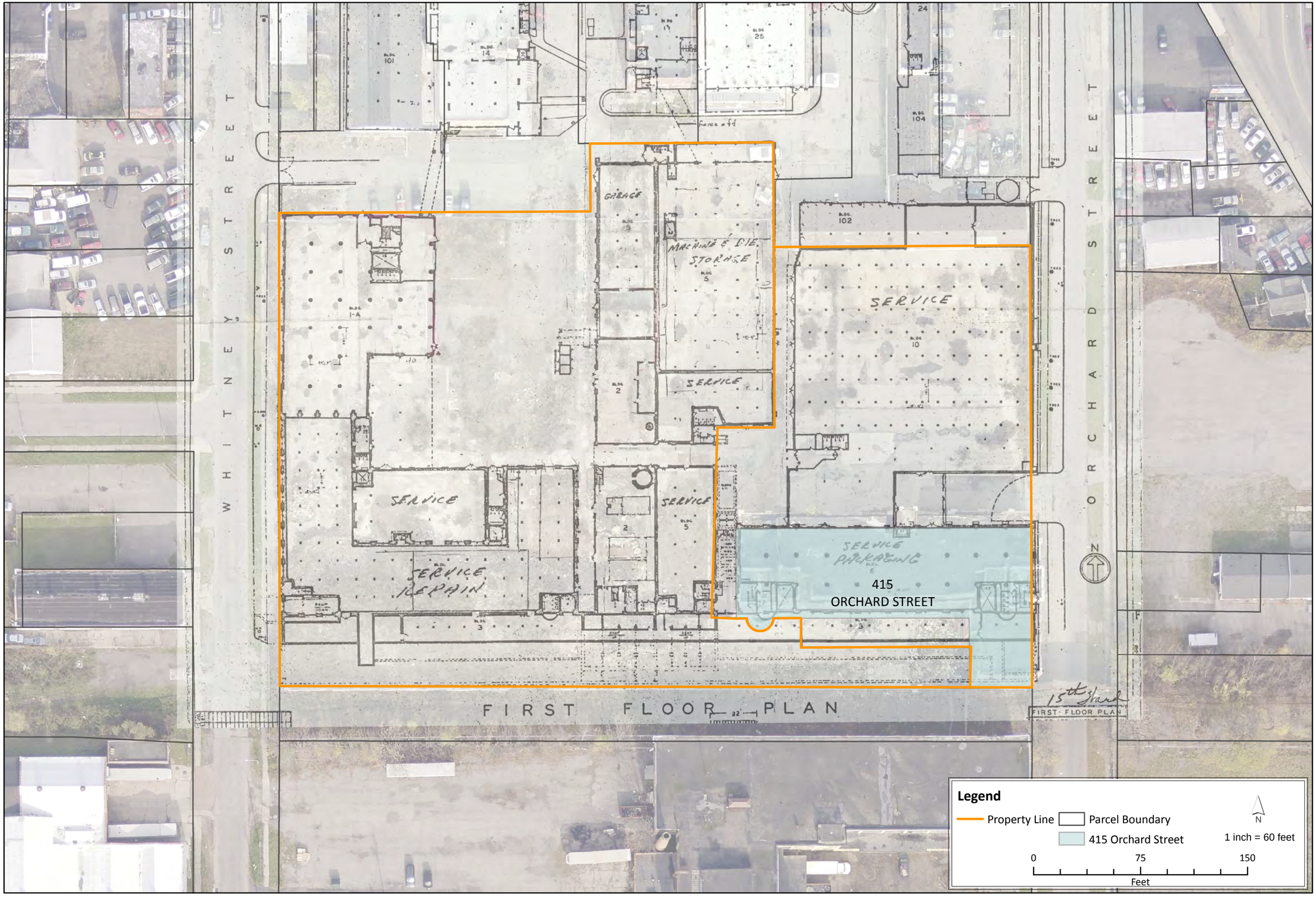
Feet

DATE: SEPTEMBER 2013
SCALE: 1 Inch = 60 Feet
DRAWN/CHECKED: SMK/GLA
DATA SOURCE: PICTOMETRY

FLOWER CITY - FLOUR CITY - CITY OF ROCHESTER N.Y.

FIGURE 2
SITE PLAN
ORCHARD WHITNEY PREDEVELOPMENT STUDY
415 ORCHARD STREET/354 WHITNEY STREET
ROCHESTER, NY

Lu Engineers



DATE: SEPTEMBER 2013
SCALE: 1 Inch = 60 Feet
DRAWN/CHECKED: SMK/GLA
DATA SOURCE: PICTOMETRY

FLOWER CITY - CITY OF ROCHESTER N.Y.

FIGURE 3
HISTORICAL SITE PLAN OVERLAY
ORCHARD WHITNEY PREDEVELOPMENT STUDY
415 ORCHARD STREET/354 WHITNEY STREET
ROCHESTER, NY

Lu Engineers

DATE: SEPTEMBER 2013
SCALE: 1 Inch = 60 Feet
DRAWN/CHECKED: SMK/GLA
DATA SOURCE: PICTOMETRY

FIGURE 4
GROUNDWATER CONTOUR
ORCHARD WHITNEY PREDEVELOPMENT STUDY
415 ORCHARD STREET/354 WHITNEY STREET
ROCHESTER, NY

Broad St
Lasalle St
Whitney St
Orchard St

MW-10
MW-03
MW-07
MW-06
MW-05
MW-19
MW-14
MW-08
MW-18
MW-12
MW-13
MW-20
MW-15
MW-23
MW-11
MW-21
MW-22
MW-16
MW-24
MW-25
MW-09

PA-07 PA-11 PA-15
PA-06 PA-17
MW-17 PA-14
PA-10
PA-05 PA-16
PA-18 PA-09 PA-13
PA-04 PA-12
PA-08 PA-16
PA-03
PA-02 PA-01

501 502 503 504 505 506 507 508 509 510

INFERRED GROUNDWATER FLOW DIRECTION

415 ORCHARD STREET

Legend

- 2012 Groundwater Contour
- Property Line
- Parcel Boundary
- Monitoring Wells

0 75 150
Feet
1 inch = 60 feet
N

DATE: SEPTEMBER 2013
SCALE: 1 Inch = 60 Feet
DRAWN/CHECKED: SMK/GLA
DATA SOURCE: PICTOMETRY

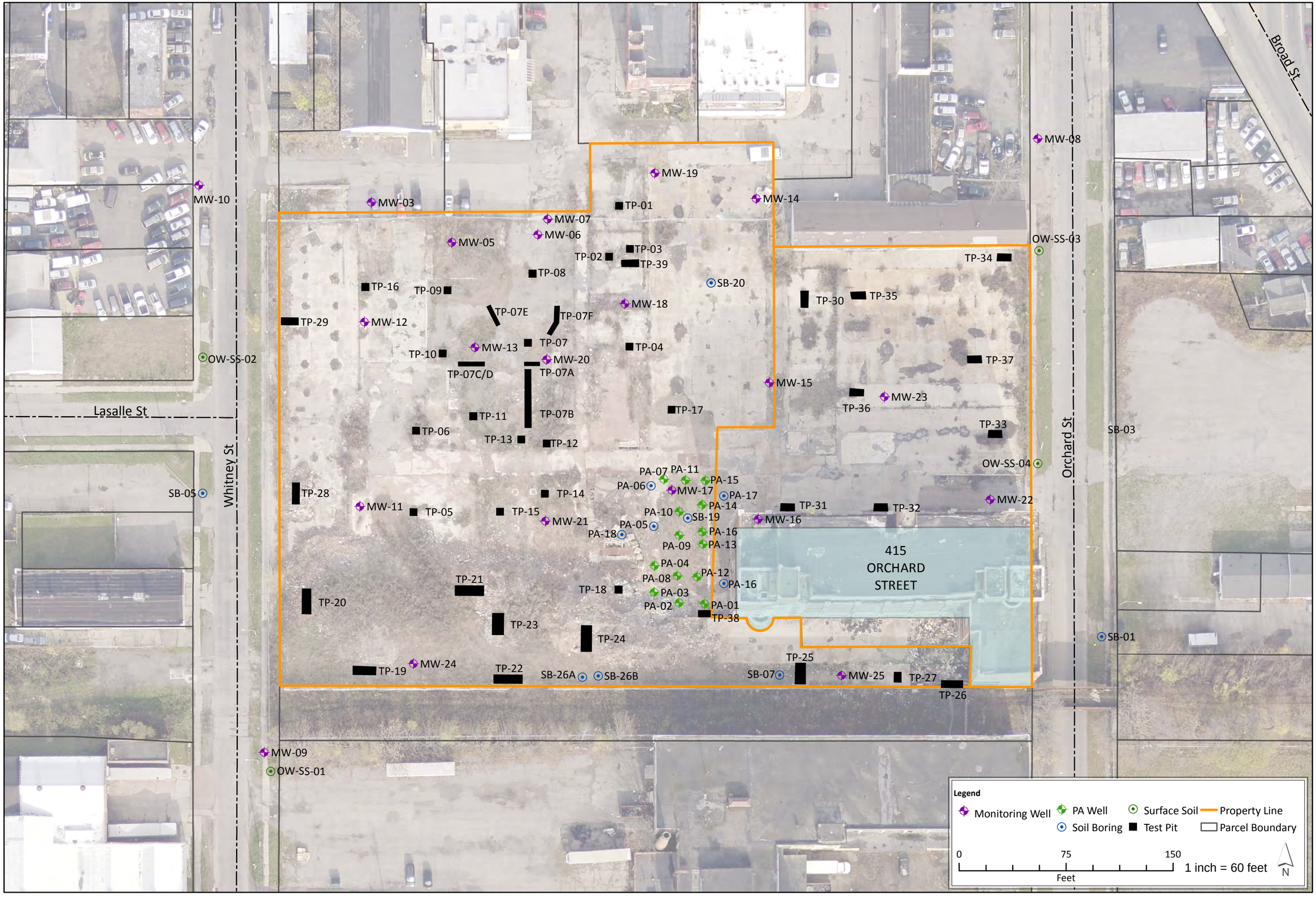
FIGURE 5
BEDROCK CONTOUR
ORCHARD WHITNEY PREDEVELOPMENT STUDY
415 ORCHARD STREET/354 WHITNEY STREET
ROCHESTER, NY

Lu Engineers

Legend

- Property Line
- Parcel Boundary
- Sample Used in Contour

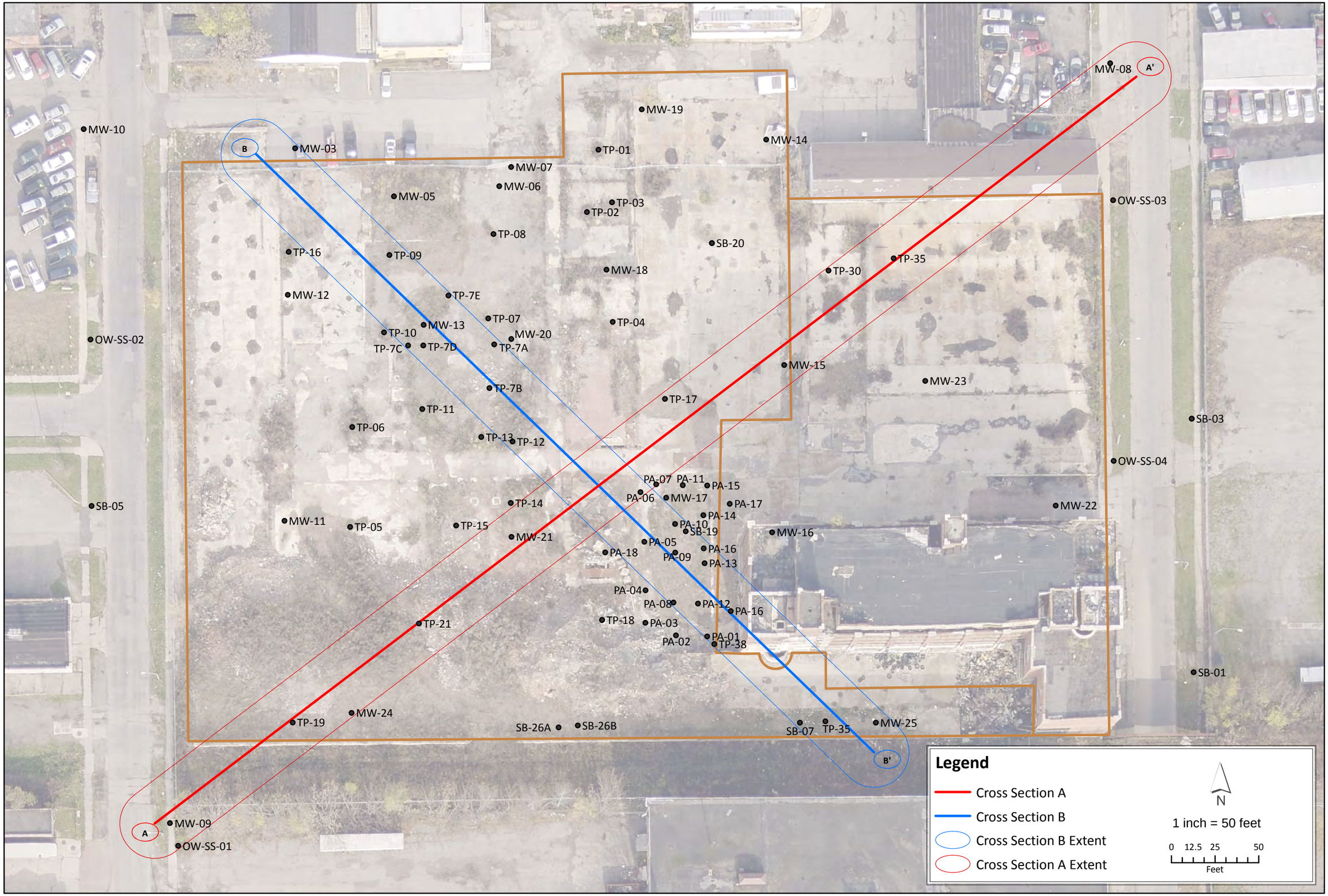
0 75 150
Feet
1 inch = 60 feet
N



DATE: SEPTEMBER 2013
SCALE: 1 Inch = 60 Feet
DRAWN/CHECKED: SMK/GLA
DATA SOURCE: PICTOMETRY

FIGURE 6
SURFACE AND SUBSURFACE INVESTIGATION
ORCHARD WHITNEY PREDEVELOPMENT STUDY
415 ORCHARD STREET/354 WHITNEY STREET
ROCHESTER, NY

Lu Engineers

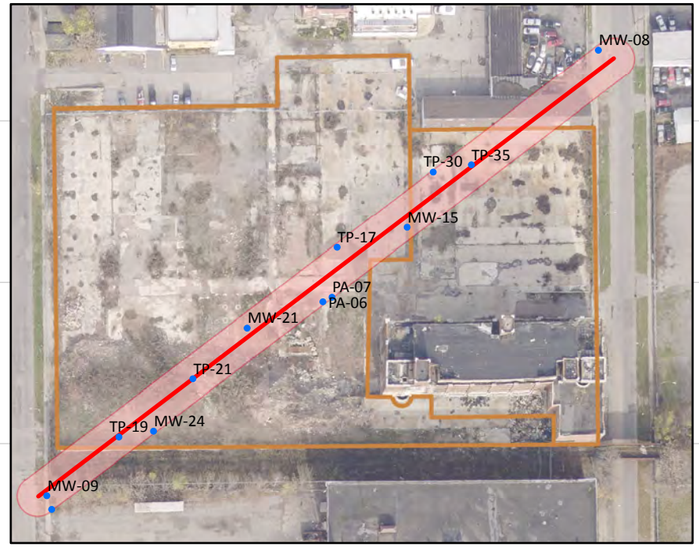


DATE: SEPTEMBER 2013
SCALE: 1 Inch = 50 Feet
DRAWN/CHECKED: GLA/SMK
DATA SOURCE: PICTOMETRY

CITY-FLOWER CITY-N.Y.-CITY OF ROCHESTER

FIGURE 7.1
GEOLOGIC CROSS SECTION TRANSECT LINES
ORCHARD WHITNEY PREDEVELOPMENT STUDY
415 ORCHARD STREET/354 WHITNEY STREET
ROCHESTER, NY

Lu Engineers



550
540
530
520
510
500
490
480

TP-19
MW-09
MW-24
TP-21
Chimney
Tunnel
PA-06
PA-07
MW-21
Tunnel Base
Chimney Base
TP-17
MW-15
TP-30
TP-35
MW-08

Legend

- Soil Boring/ Test Pit
- Monitoring Well
- Groundwater Elevation
- Bedrock- Upper Silurian Lockport Group Dolostone
- Native Soil- Variable proportions of undistubed sand, silt, gravel and clay
- Glacial Till- Unsorted hard dense silt, sand and gravel
- Fill Material- Heterogeneous mixture of sand, silt, cobble, boulder sized material containing various amounts of concrete, brick, metal, wood, coal and other debris

A 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440 460 480 500 520 540 560 580 600 620 640 660 680 A'

Vertical exaggeration: 5 --- Vertical scale approximately 1 inch = 10 feet --- Horizontal scale approximately 1 inch = 50 feet

DATE: SEPTEMBER 2013
SCALE: as noted
DRAWN/CHECKED: GLA/SMK
DATA SOURCE:

CITY-FLOWER CITY-FLOUR CITY-CITY OF ROCHESTER N.Y.

FIGURE 7.2
GEOLOGIC CROSS SECTION A-A'
ORCHARD WHITNEY PREDEVELOPMENT STUDY
415 ORCHARD STREET/354 WHITNEY STREET
ROCHESTER, NY

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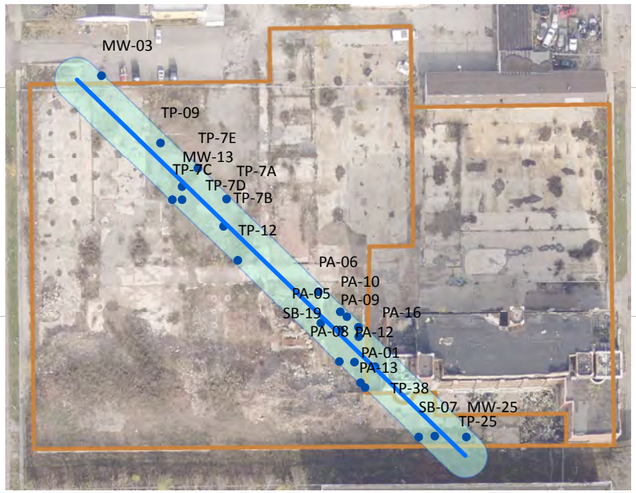


Legend

- Soil Boring/ Test Pit
- Monitoring Well
- Groundwater Elevation
- Flowable Fill
- Washed Stone
- Approximate area of excavation, backfilled with site derived material
- Bedrock- Upper Silurian Lockport group Dolostone
- Fill Material- Heterogeneous mixture of sand, silt, cobble, boulder sized material containing variable amounts of concrete, brick, metal, wood, coal and other debris
- Native Soil- Variable proportions of undistubed sand, silt, gravel and clay
- Glacial Till- Unsorted, hard denst silt, sand and gravel

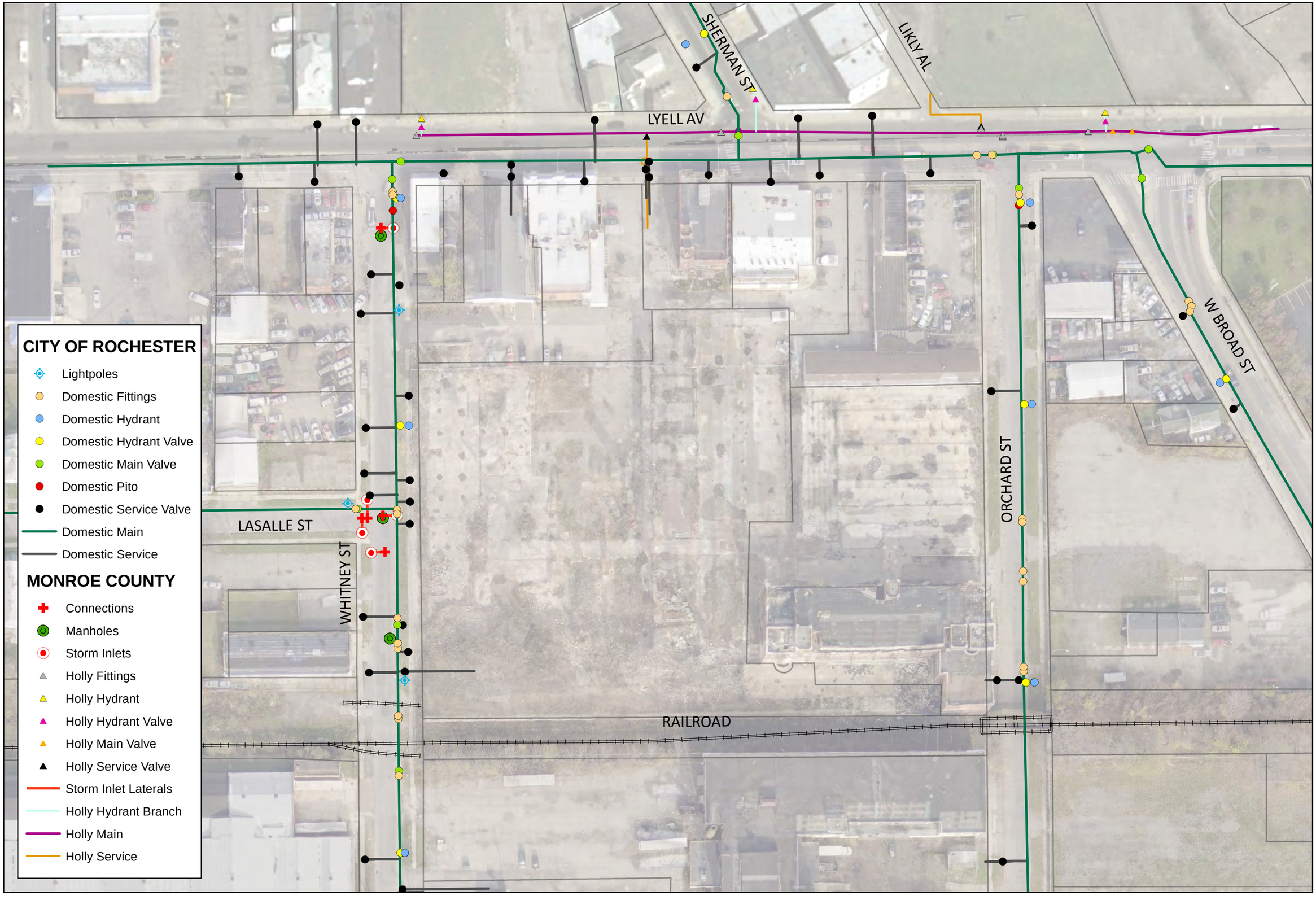
Vertical exaggeration: 5 --- Vertical scale approximately 1 inch = 6 feet --- Horizontal scale approximately 1 inch = 30 feet

DATE: SEPTEMBER 2013
SCALE: as noted
DRAWN/CHECKED: GLA/SMK
DATA SOURCE:

FLOWER CITY · CITY OF ROCHESTER, N.Y.

FIGURE 7.3
GEOLOGIC CROSS SECTION B-B'
ORCHARD WHITNEY PREDEVELOPMENT STUDY
415 ORCHARD STREET/354 WHITNEY STREET
ROCHESTER, NY

Lu Engineers



DATE: SEPTEMBER 2013
SCALE: 1 Inch = 80 Feet
DRAWN/CHECKED: GLA/SMK
DATA SOURCE: PICTOMETRY

FIGURE 8
MONROE COUNTY AND CITY OF ROCHESTER UTILITIES
ORCHARD WHITNEY PREDEVELOPMENT STUDY
415 ORCHARD STREET/354 WHITNEY STREET
ROCHESTER, NY

Lu Engineers

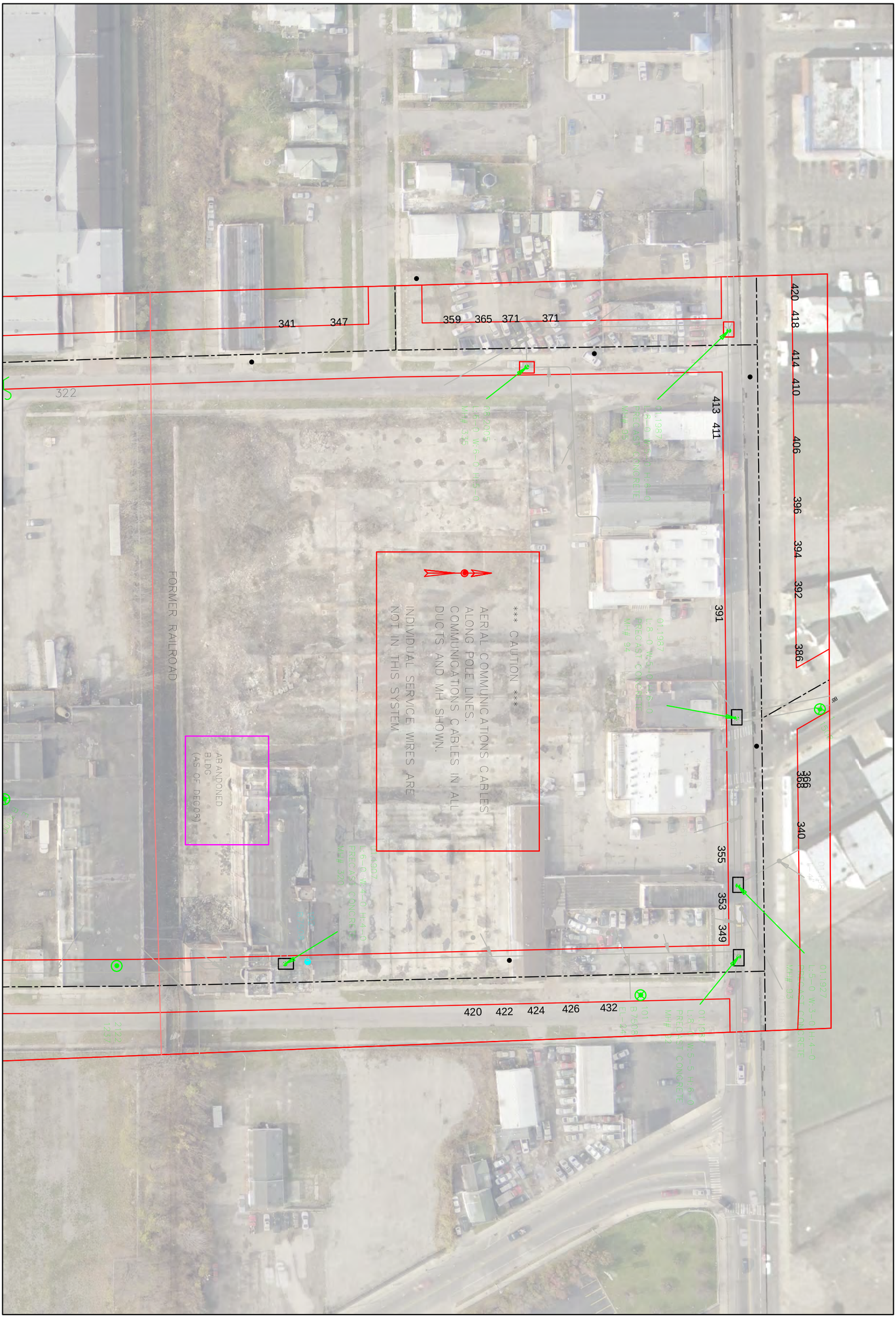


FIGURE 9

FRONTIER UTILITIES

ORCHARD WHITNEY PREDEVELOPMENT STUDY
415 ORCHARD STREET/354 WHITNEY STREET
ROCHESTER, NY

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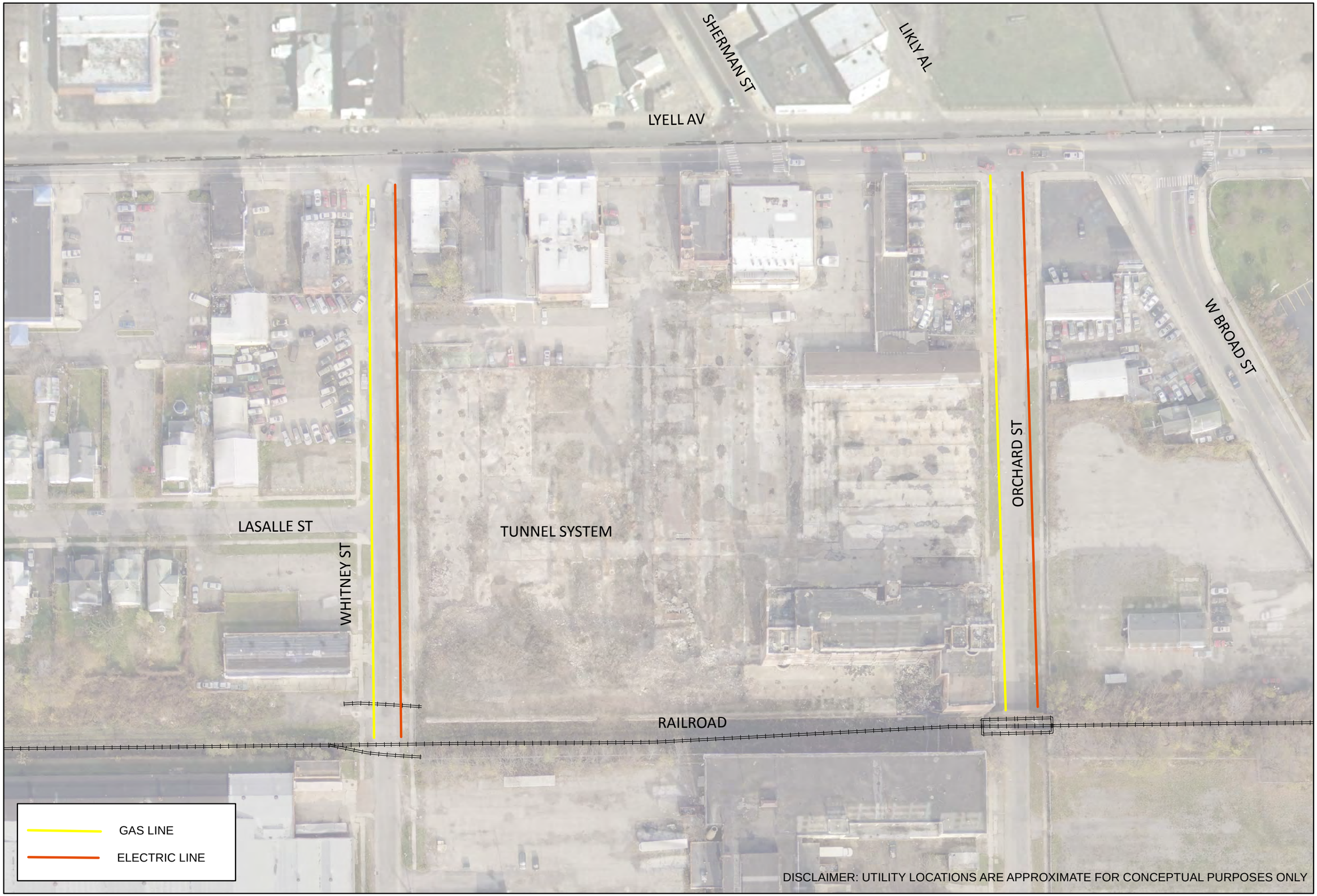
FLOUR CITY-FLOWER CITY-CITY OF ROCHESTER, NY

DATE:	SEPTEMBER 2013
SCALE:	1 Inch = 80 Feet
DRAWN/CHECKED:	GLA/SMK
DATA SOURCE:	PICTOMETRY



DATE: SEPTEMBER 2013
SCALE: 1 Inch = 80 Feet
DRAWN/CHECKED: GLA/SMK
DATA SOURCE: PICTOMETRY

CITY OF ROCHESTER, N.Y. - FLOUR CITY - FLOWER CITY

FIGURE 10
GAS AND ELECTRIC SERVICE
ORCHARD WHITNEY PREDEVELOPMENT STUDY
415 ORCHARD STREET/354 WHITNEY STREET
ROCHESTER, NY

Lu Engineers
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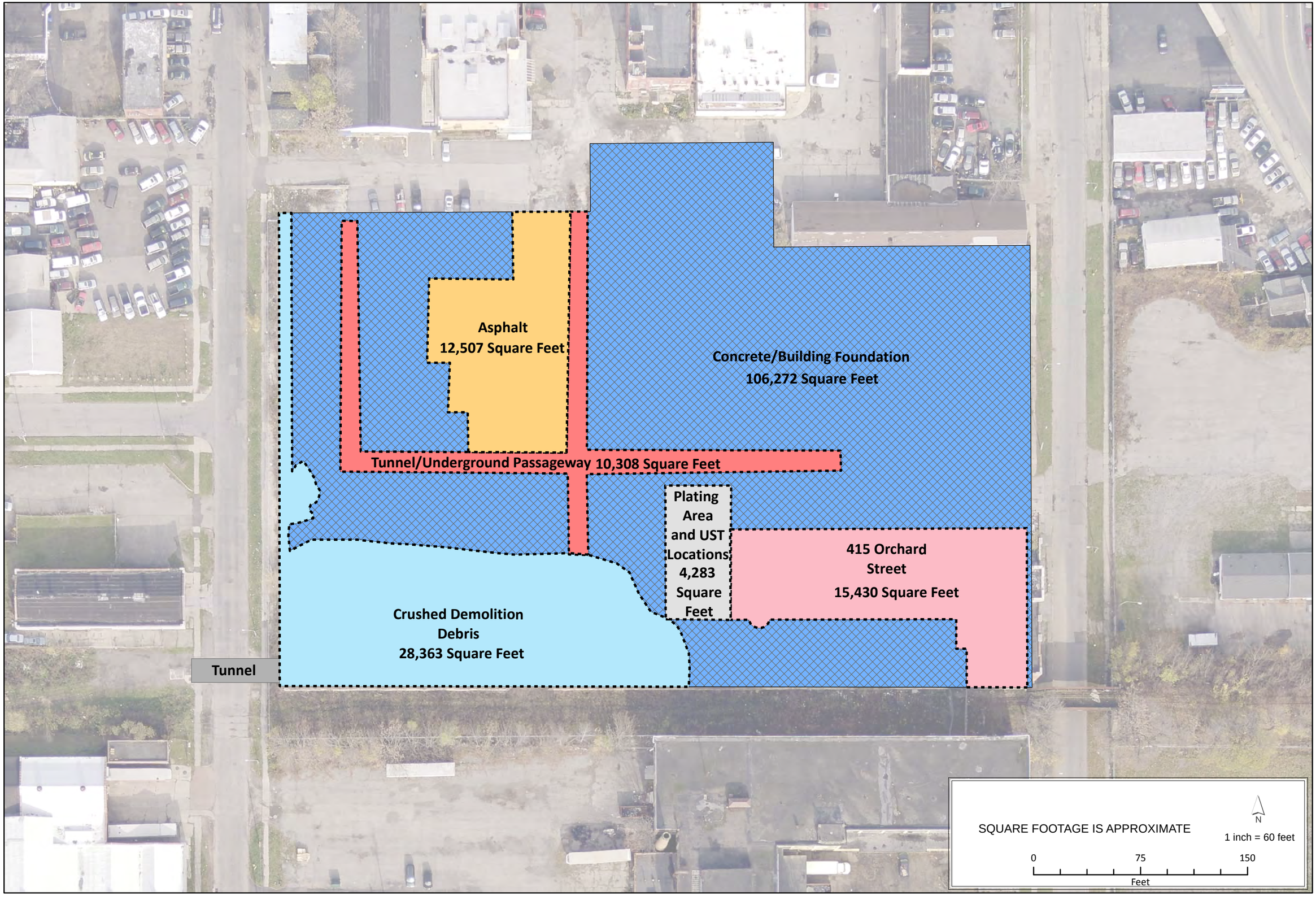
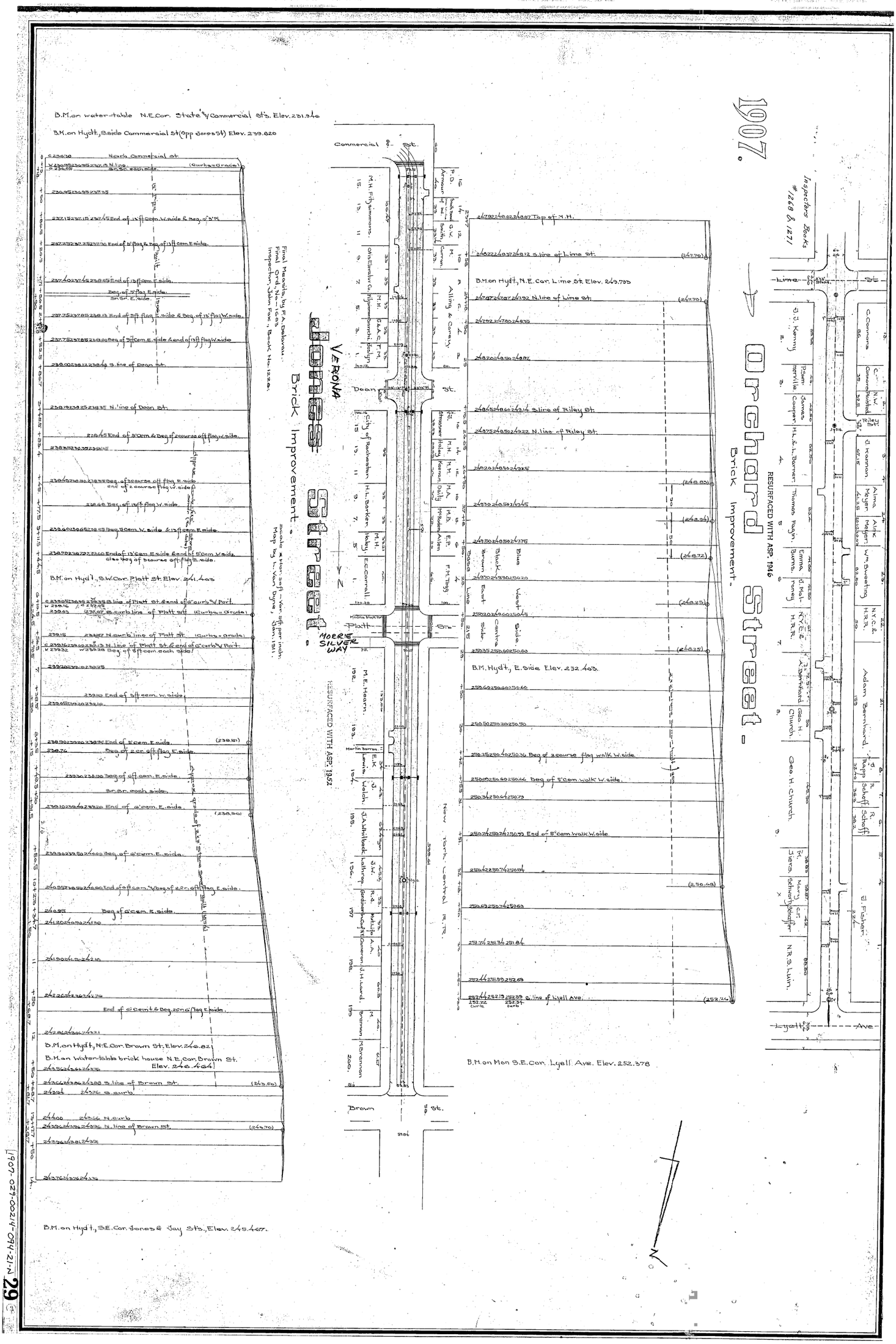


DATE: SEPTEMBER 2013
SCALE: 1 Inch = 60 Feet
DRAWN/CHECKED: SMK/GLA
DATA SOURCE: PICTOMETRY

FIGURE 11
SURFACE MATERIAL
ORCHARD WHITNEY PREDEVELOPMENT STUDY
415 ORCHARD STREET/354 WHITNEY STREET
ROCHESTER, NY

Lu Engineers



1907-027-0214-094-21-N 29

FIGURE 12.1
SEWER AS BUILT DRAWING
ORCHARD WHITNEY PREDEVELOPMENT STUDY
415 ORCHARD STREET/354 WHITNEY STREET
ROCHESTER, NY

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

FLOUR CITY-FLOWER CITY-CITY OF ROCHESTER, NY

DATE: SEPTEMBER 2013	
SCALE: 1 Inch = 60 Feet	
DRAWN/CHECKED: SMK/GLA	
DATA SOURCE: PICTOMETRY	

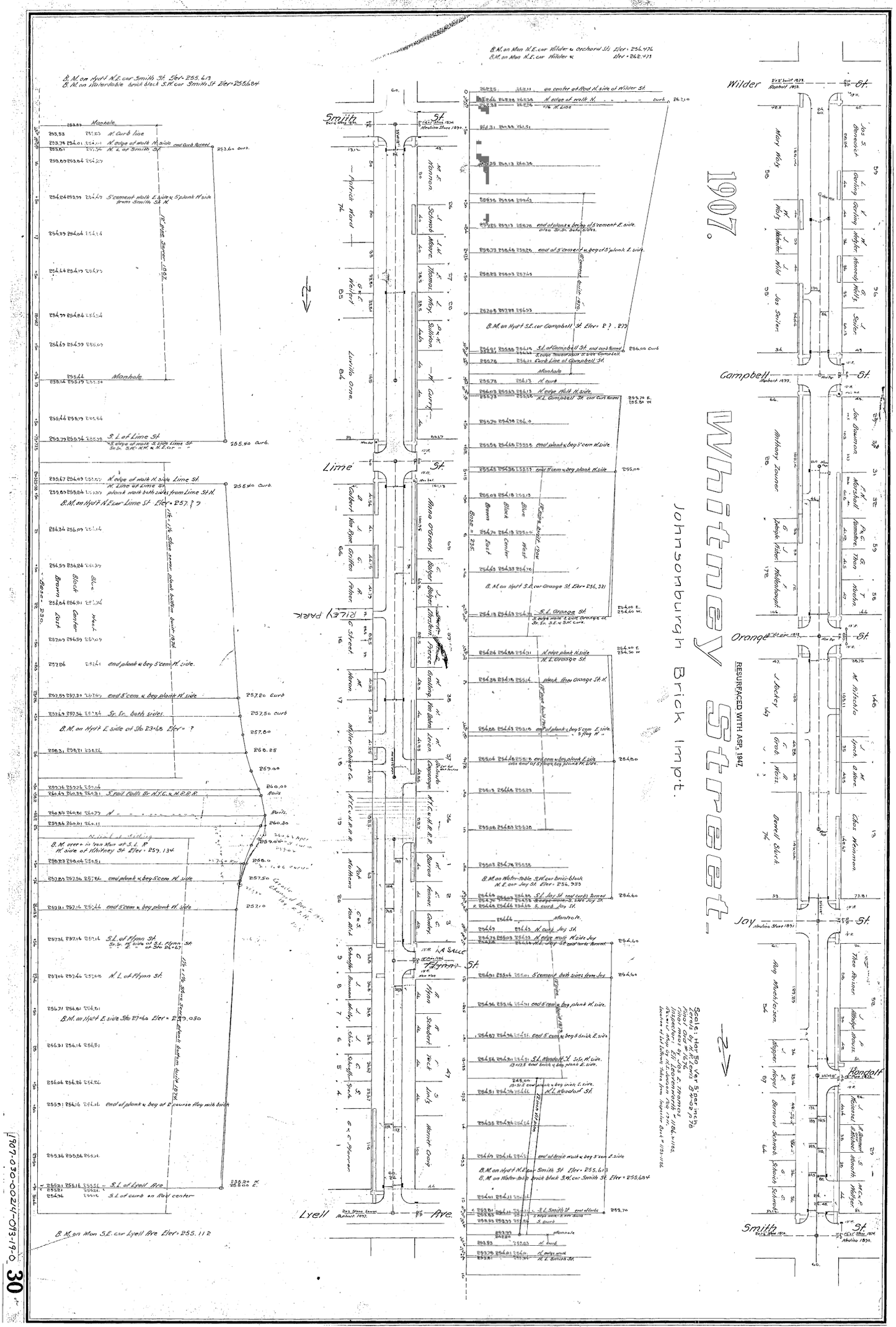
DRAWING NUMBER

DRAWING NUMBER

R.P.W.D. NUM 95%

1907 - 030

DRAWING NUMBER



1907-030-0024/-093-19-0 30

FIGURE 12.2

SEWER AS BUILT DRAWING

ORCHARD WHITNEY PREDEVELOPMENT STUDY

415 ORCHARD STREET/354 WHITNEY STREET

ROCHESTER, NY

Lu Engineers

ENVIRONMENTAL • TRANSPORTATION • CIVIL

FLOUR CITY-FLOWER CITY-CITY OF ROCHESTER, NY

DATE: SEPTEMBER 2013	
SCALE: 1 Inch = 60 Feet	
DRAWN/CHECKED: SMK/GLA	
DATA SOURCE: PICTOMETRY	

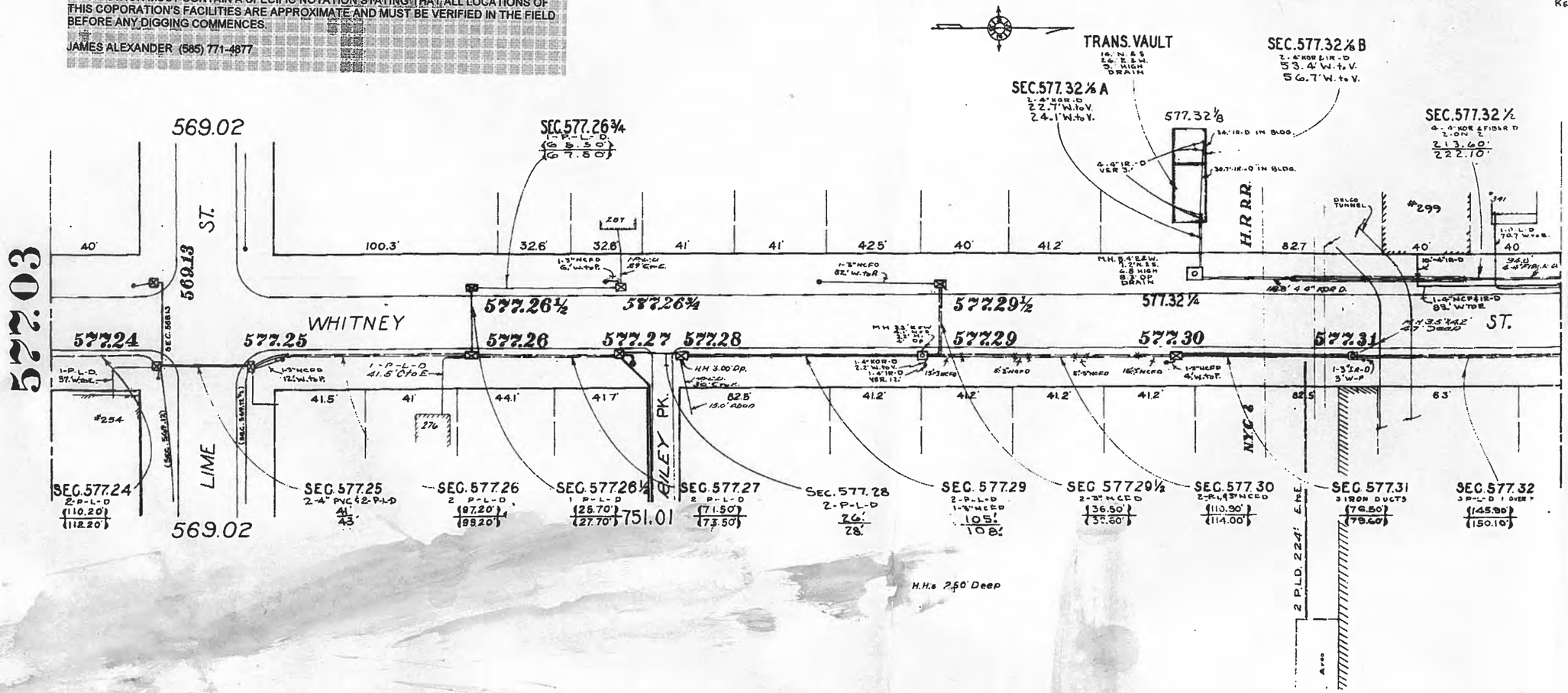
THIS

YOUR ATTENTION IS SPECIFICALLY TO THE FACT, THAT BY SUBMITTING THESE DRAWINGS THE ROCHESTER GAS AND ELECTRIC CORPORATION UNDER NO CIRCUMSTANCES GUARANTEES THE ACCURACY OF THE LOCATIONS OF GAS OR ELECTRIC, SHOWN ON THESE DRAWINGS. IT IS ALSO IMPERATIVE THAT ANY MAPS PREPARED FROM THIS INFORMATION MUST CONTAIN A SPECIFIC NOTATION STATING THAT ALL LOCATIONS OF THIS COPORATION'S FACILITIES ARE APPROXIMATE AND MUST BE VERIFIED IN THE FIELD BEFORE ANY DIGGING COMMENCES.

JAMES ALEXANDER (585) 771-4877

WHITNEY ST. 577.04

REVISED- 1-19-2006



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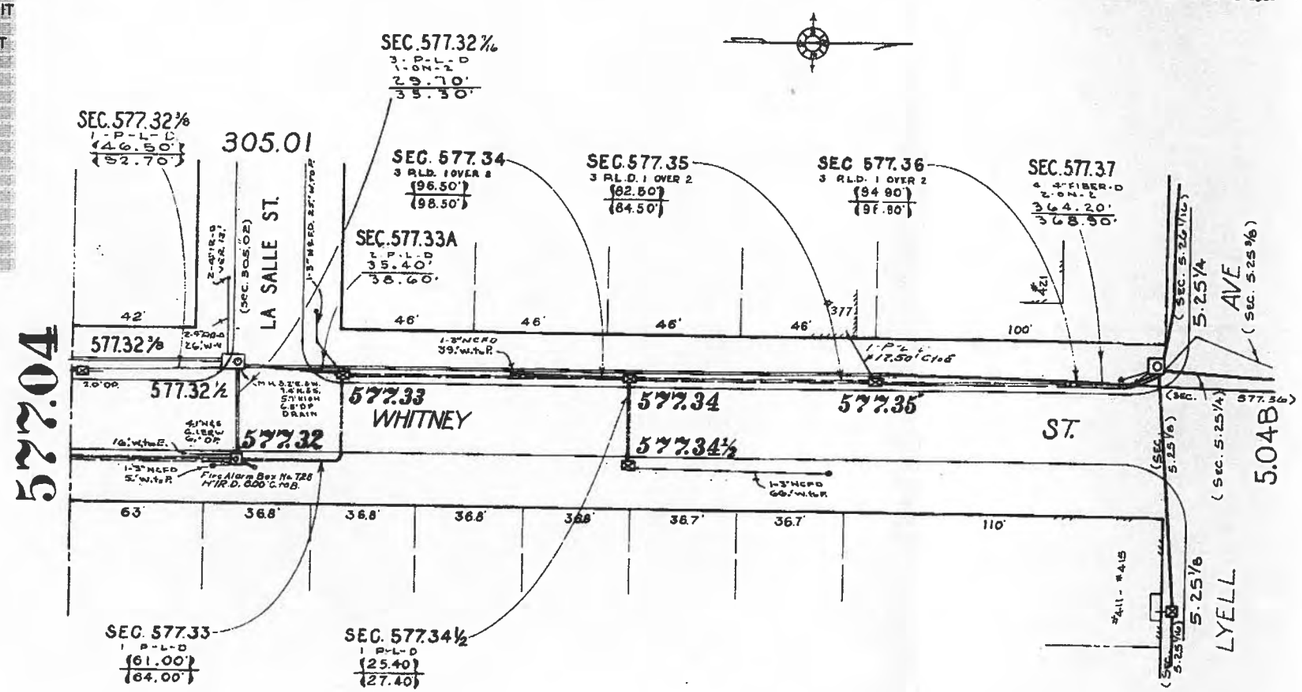
JAMES ALEXANDER (585) 771-4877

TIF3

WHITNEY ST. 577.05

REVISED - 5/1/200



(SPECIALIZED WAREHOUSE)
#350 WHITNEY ST.
(STA.#703)
SEE MAP: #5.04A

H.H's 250 Deep

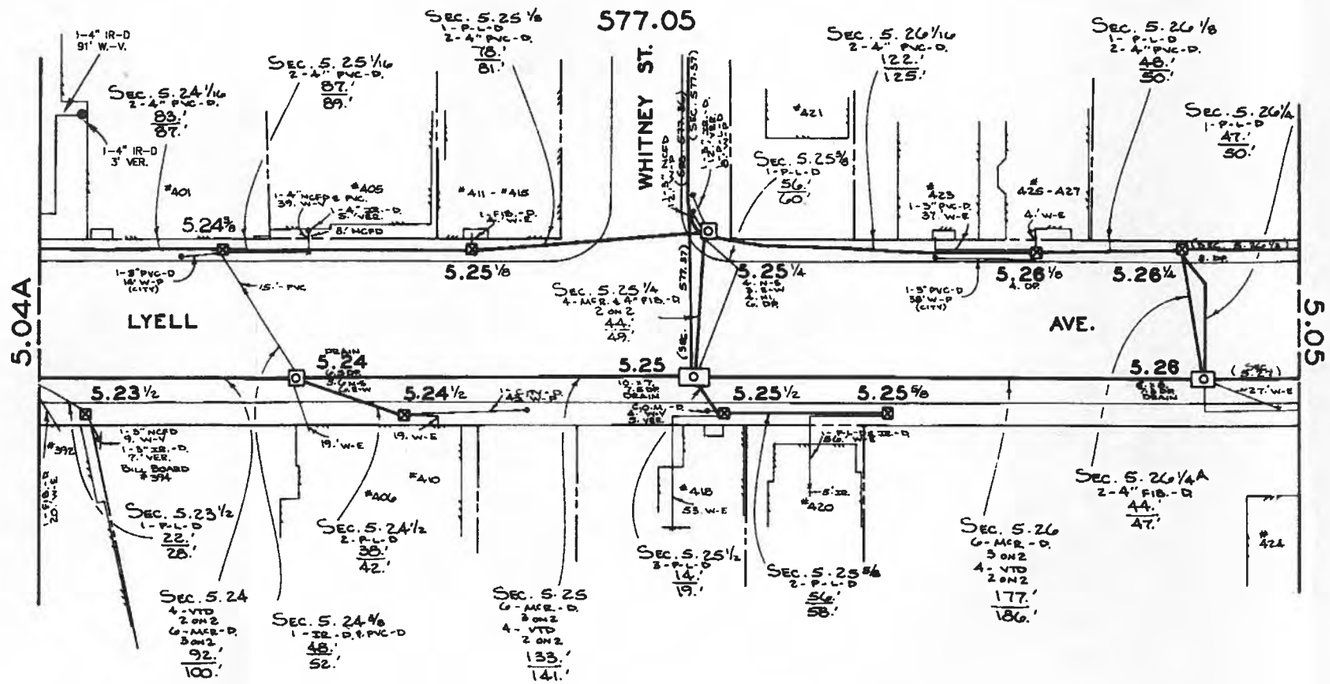
tiff 2

YOUR ATTENTION IS SPECIFICALLY TO THE FACT THAT BY SUBMITTING THESE DRAWINGS: THE ROCHESTER GAS AND ELECTRIC CORPORATION UNDER NO CIRCUMSTANCES GUARANTEES THE ACCURACY OF THE LOCATIONS OF GAS OR ELECTRIC, SHOWN ON THESE DRAWINGS. IT IS ALSO IMPERATIVE THAT ANY MAPS PREPARED FROM THIS INFORMATION MUST CONTAIN A SPECIFIC NOTATION STATING THAT ALL LOCATIONS OF THIS COPORATION'S FACILITIES ARE APPROXIMATE AND MUST BE VERIFIED IN THE FIELD BEFORE ANY DIGGING COMMENCES.

JAMES ALEXANDER (585) 771-4877

LYELL AVE. 5.04B

REVISED
7-27-09



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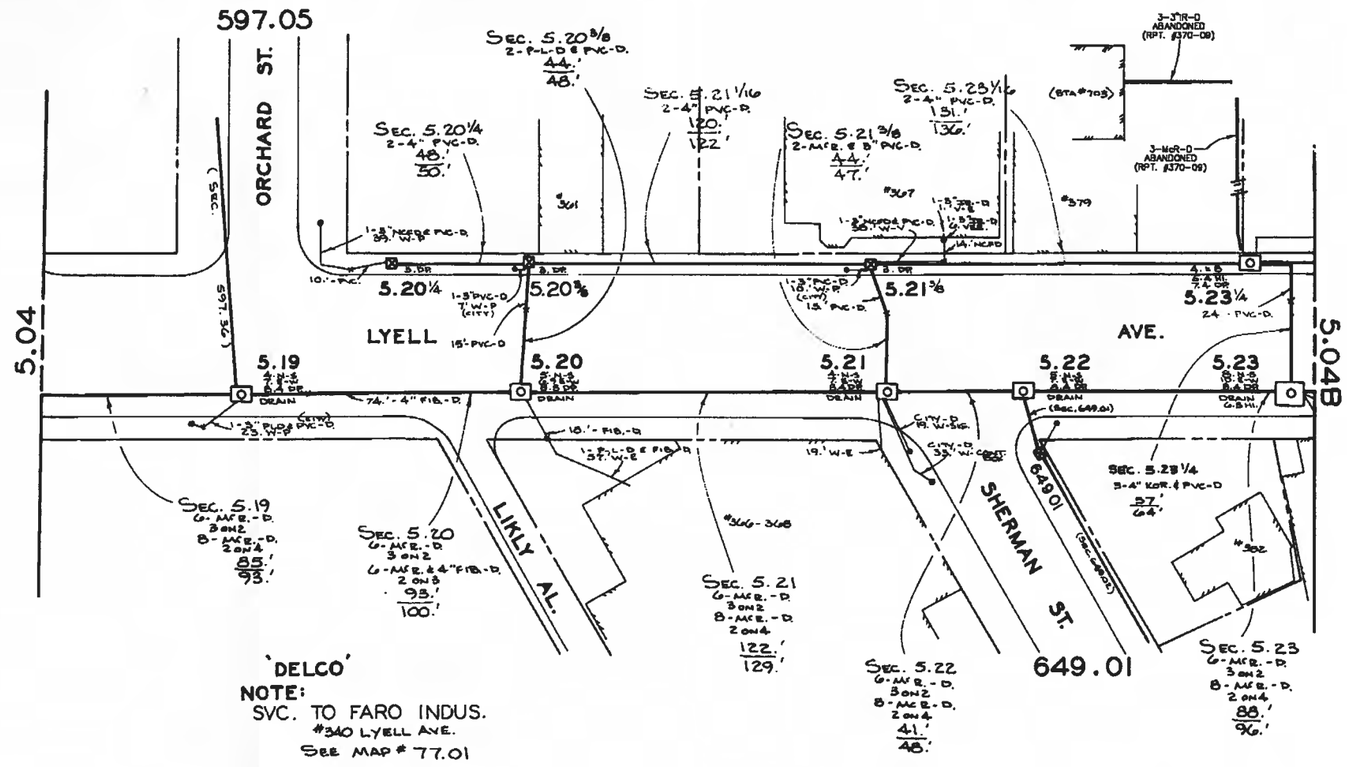
YOUR ATTENTION IS SPECIFICALLY TO THE FACT THAT BY SUBMITTING THESE DRAWINGS, THE ROCHESTER GAS AND ELECTRIC CORPORATION UNDER NO CIRCUMSTANCES GUARANTEES THE ACCURACY OF THE LOCATIONS OF GAS OR ELECTRIC, SHOWN ON THESE DRAWINGS. IT IS ALSO IMPERATIVE THAT ANY MAPS PREPARED FROM THIS INFORMATION MUST CONTAIN A SPECIFIC NOTATION STATING THAT ALL LOCATIONS OF THIS COPORATION'S FACILITIES ARE APPROXIMATE AND MUST BE VERIFIED IN THE FIELD BEFORE ANY DIGGING COMMENCES.

JAMES ALEXANDER (585) 771-4877

LYELL AVE. 5.04A

REVISED
3/16/10



'DELCO'

NOTE:
SVC. TO FARO INDUS.
#340 LYELL AVE.
SEE MAP # 77.01

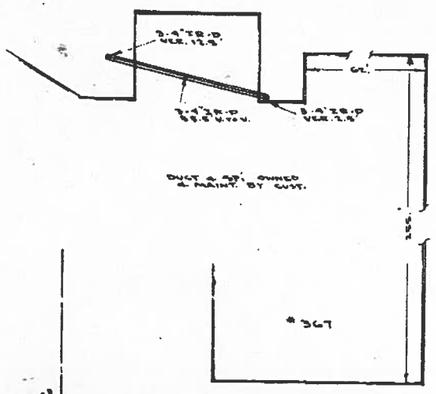
SCALE 1"=30.'
3/20/86
K.T.

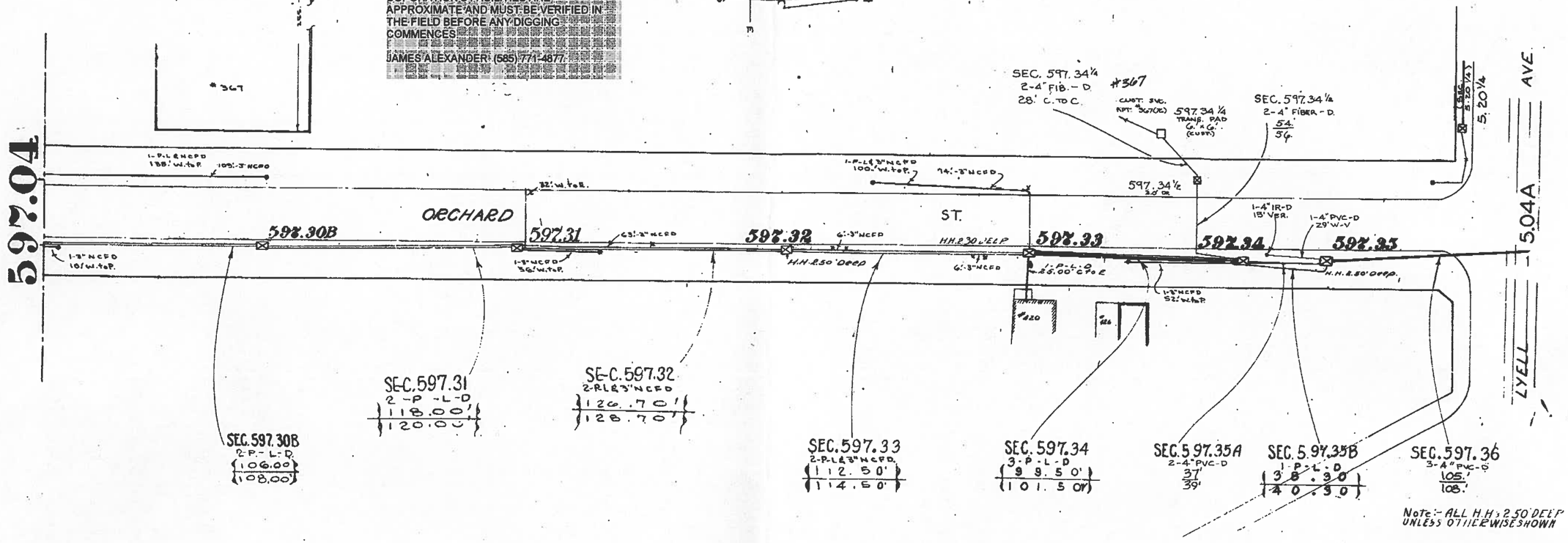
ORCHARD ST. 597.05

REVISED- 8/23/80

YOUR ATTENTION IS SPECIFICALLY TO THE FACT THAT BY SUBMITTING THESE DRAWINGS, THE ROCHESTER GAS AND ELECTRIC CORPORATION UNDER NO CIRCUMSTANCES GUARANTEES THE ACCURACY OF THE LOCATIONS OF GAS OR ELECTRIC SHOWN ON THESE DRAWINGS. IT IS ALSO IMPERATIVE THAT ANY MAPS PREPARED FROM THIS INFORMATION MUST CONTAIN A SPECIFIC NOTATION STATING THAT ALL LOCATIONS OF THIS COPORATION'S FACILITIES ARE APPROXIMATE AND MUST BE VERIFIED IN THE FIELD BEFORE ANY DIGGING COMMENCES.

JAMES ALEXANDER (585) 771-4877





SEC. 597.30B
2-P.-L-D.
106.00'
108.00'

SEC. 597.31
2-P-L-D
118.00'
120.00'

SEC. 597.32
2-RLE3"NCFD
126.70'
126.70'

SEC. 597.33
2-P-L&3"NCFD.
112.50'
114.60'

SEC. 597.34
3-P-L-D
99.50'
101.50'

SEC. 597.35A
2-4"PVC-D
37'
39'

SEC. 597.35B
1-P-L-D
38.30
40.30

SEC. 597.36
3-4"PVC-D
105'
108'

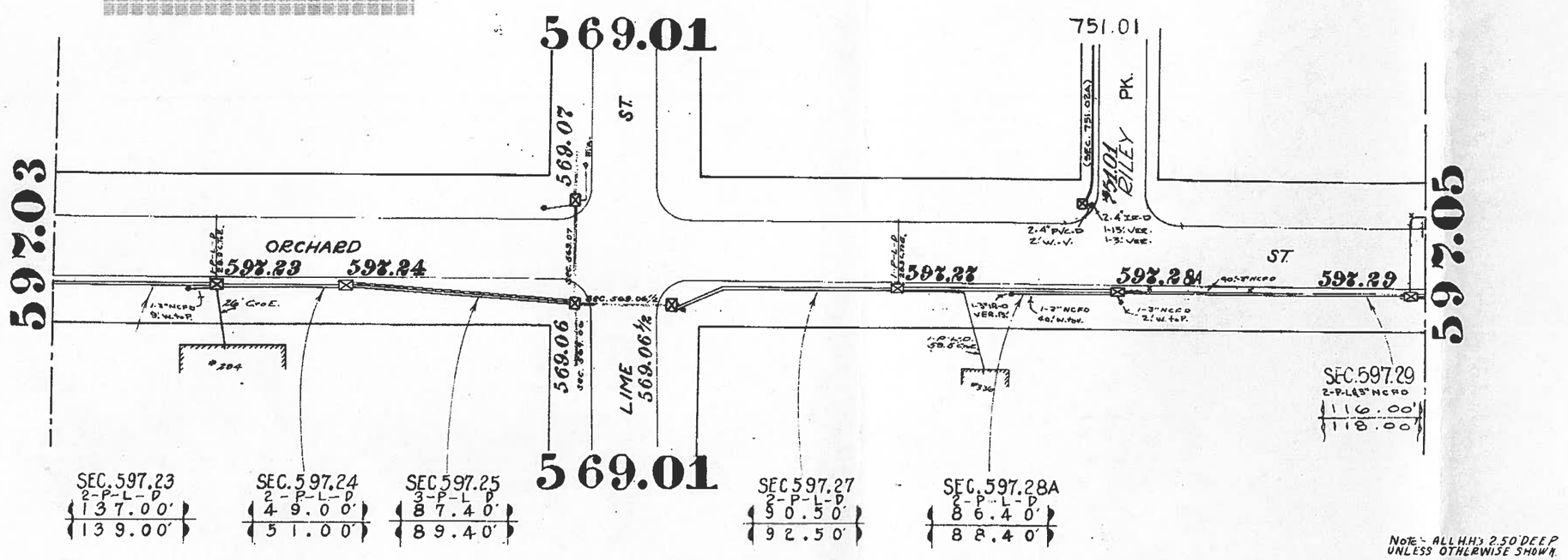
Note:- ALL H.H.'s 250' DEEP UNLESS OTHERWISE SHOWN

YOUR ATTENTION IS SPECIFICALLY TO THE FACT THAT BY SUBMITTING THESE DRAWINGS, THE ROCHESTER GAS AND ELECTRIC CORPORATION UNDER NO CIRCUMSTANCES GUARANTEES THE ACCURACY OF THE LOCATIONS OF GAS OR ELECTRIC, SHOWN ON THESE DRAWINGS. IT IS ALSO IMPERATIVE THAT ANY MAPS PREPARED FROM THIS INFORMATION MUST CONTAIN A SPECIFIC NOTATION STATING THAT ALL LOCATIONS OF THIS COPORATION'S FACILITIES ARE APPROXIMATE AND MUST BE VERIFIED IN THE FIELD BEFORE ANY DIGGING COMMENCES.

JAMES ALEXANDER (585) 771-4877

ORCHARD ST. — 597.04

REVISED - 1-3-2000



Note:- ALL H.H.'s 2.50' DEEP UNLESS OTHERWISE SHOWN.

Appendix 1
Visual Summary of Environmental Findings

MW-07:
Lead: 0.032

MW-14:
Lead: 0.026

PA-15D:
1,4-Dioxane: 39.8
Benzene: 6.74
Vinyl Chloride: 8.32

PA-15-S:
Benzene: 2.30
Vinyl Chloride: 7.40
Chromium 1.11

Lasalle St

Whitney St

Orchard St

MW-11
Lead: 0.07

MW-21:
Chloroform: 7.40

415 ORCHARD STREET

PA-03:
Chloroform: 11.9

PA-04:
Chromium, Hexavalent: 0.06

PA-14:
2-Butanone: 2,620
Acetone: 275
Benzene: 25.8
Toluene: 38.6
Chromium: 1.11
Chromium, Hexavalent: 0.05

Legend

- MONITERING WELL
- PLATING AREA
- SOIL BORING
- SOIL SAMPLE
- TEST PIT
- PROPERTY LINE
- STREET CENTERLINES
- 415 ORCHARD STREET
- TAX PARCELS

water sample data displayed in ug/L

N

1 inch = 50 feet

0 12.5 25 50
Feet

Analytical values indicated exceed NYCRR part 703.5 Ambient Groundwater Standards

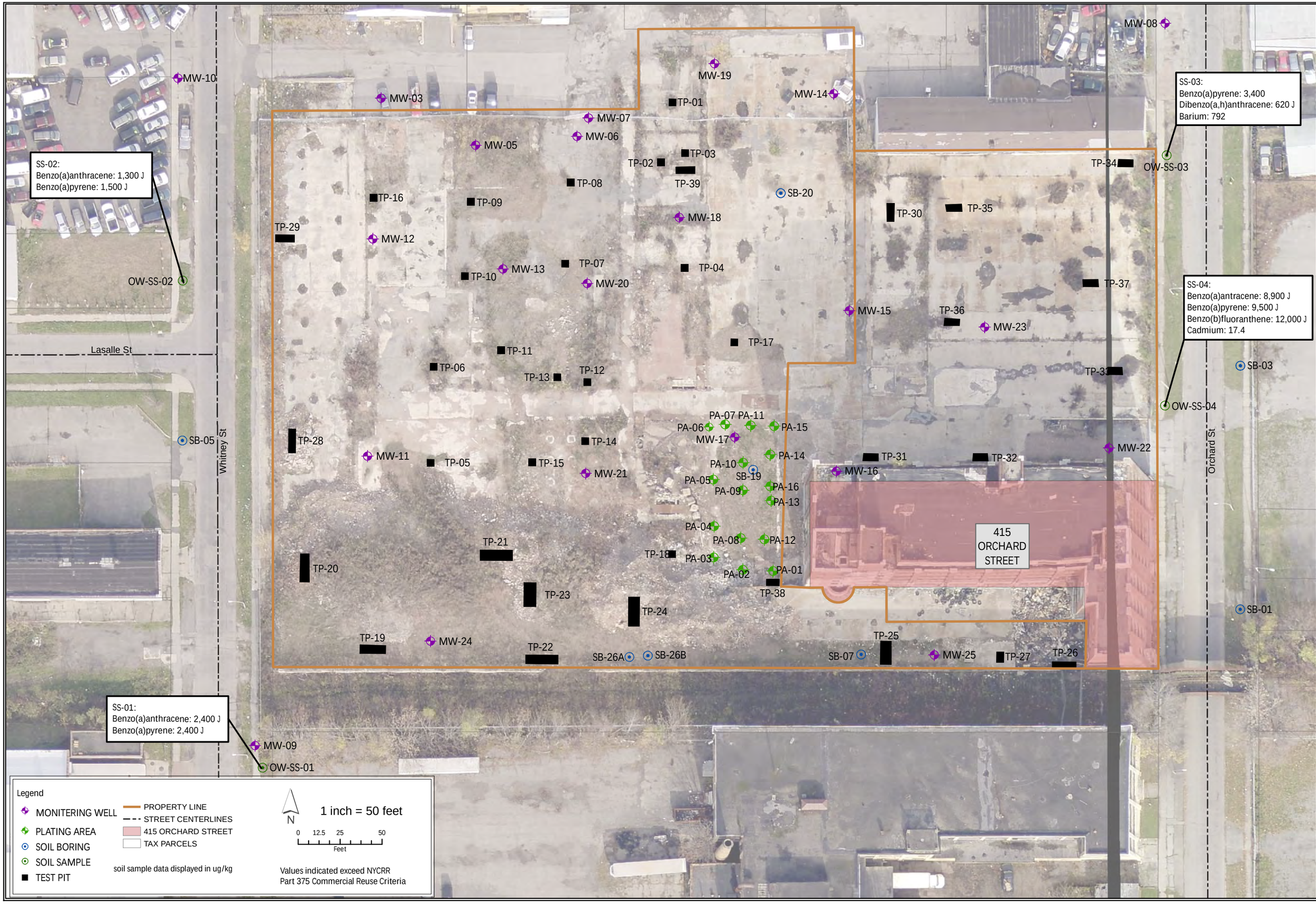
DATE: FEBRUARY 2013
SCALE: 1 Inch= 60 Feet
DRAWN/CHECKED: GLA/SMK
DATA SOURCE: PICTOMETRY

CITY-FLOWER CITY-FLOUR CITY OF ROCHESTER N.Y.

12-03-12 GROUNDWATER EXCEEDANCES ORCHARD/WHITNEY

ERP SITE #EB28123
ROCHESTER, NY

Lu Engineers



DATE: FEBRUARY 2013
SCALE: 1:600
DRAWN/CHECKED: GLA/DLS
DATA SOURCE: PICTOMETRY

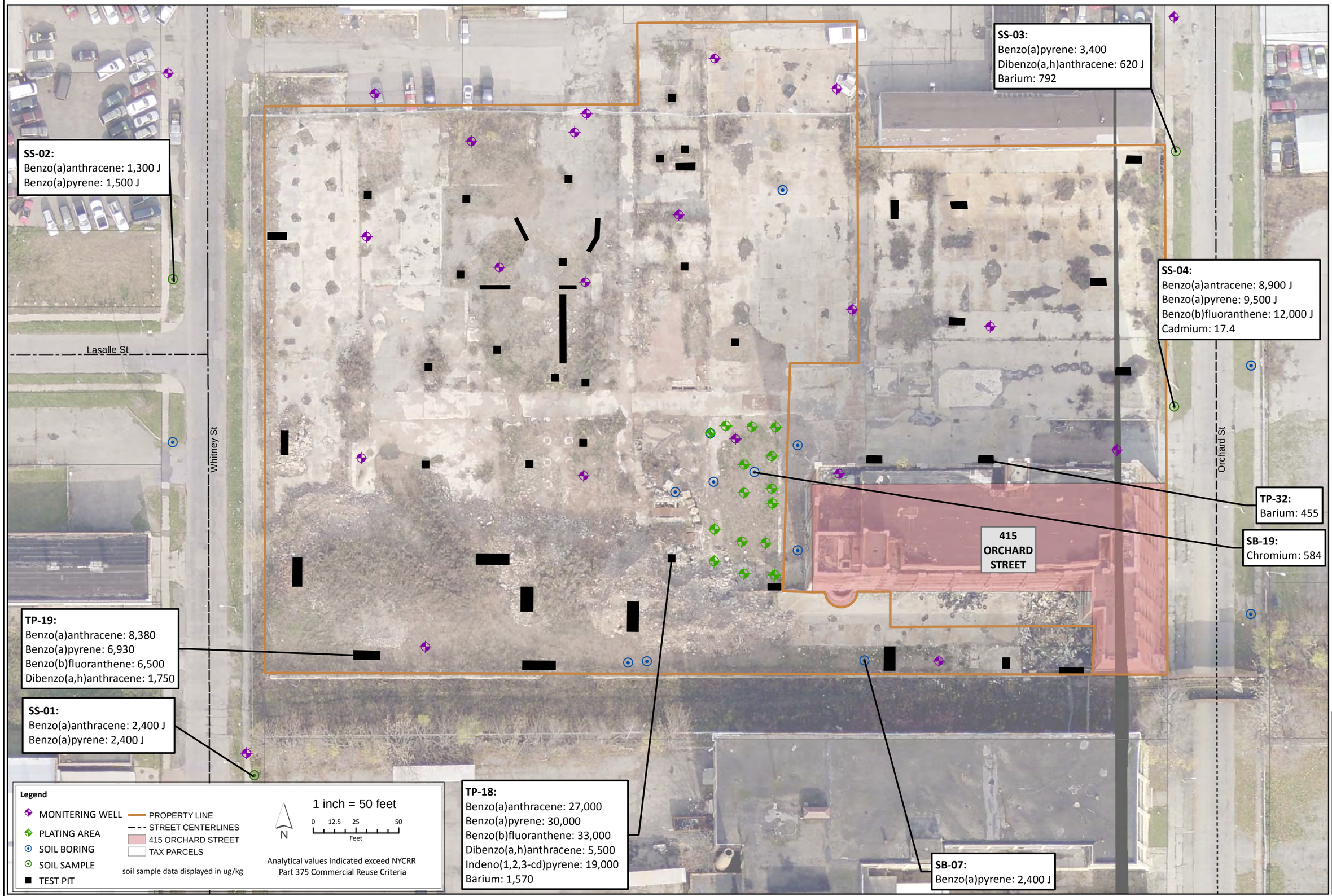
CITY-FLOWER CITY-N.Y.-CITY OF ROCHESTER

SURFACE SOIL COMMERCIAL EXCEEDENCES
ORCHARD WHITNEY

ERP SITE #EB28123
ROCHESTER, NY

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

Document Path: J:\Projects\4200 Rochester\4216 Orchard-Whitney\Env\GIS\GIS_SK\ORCHARD_WHITNEY_EXCEEDENCES.mxd

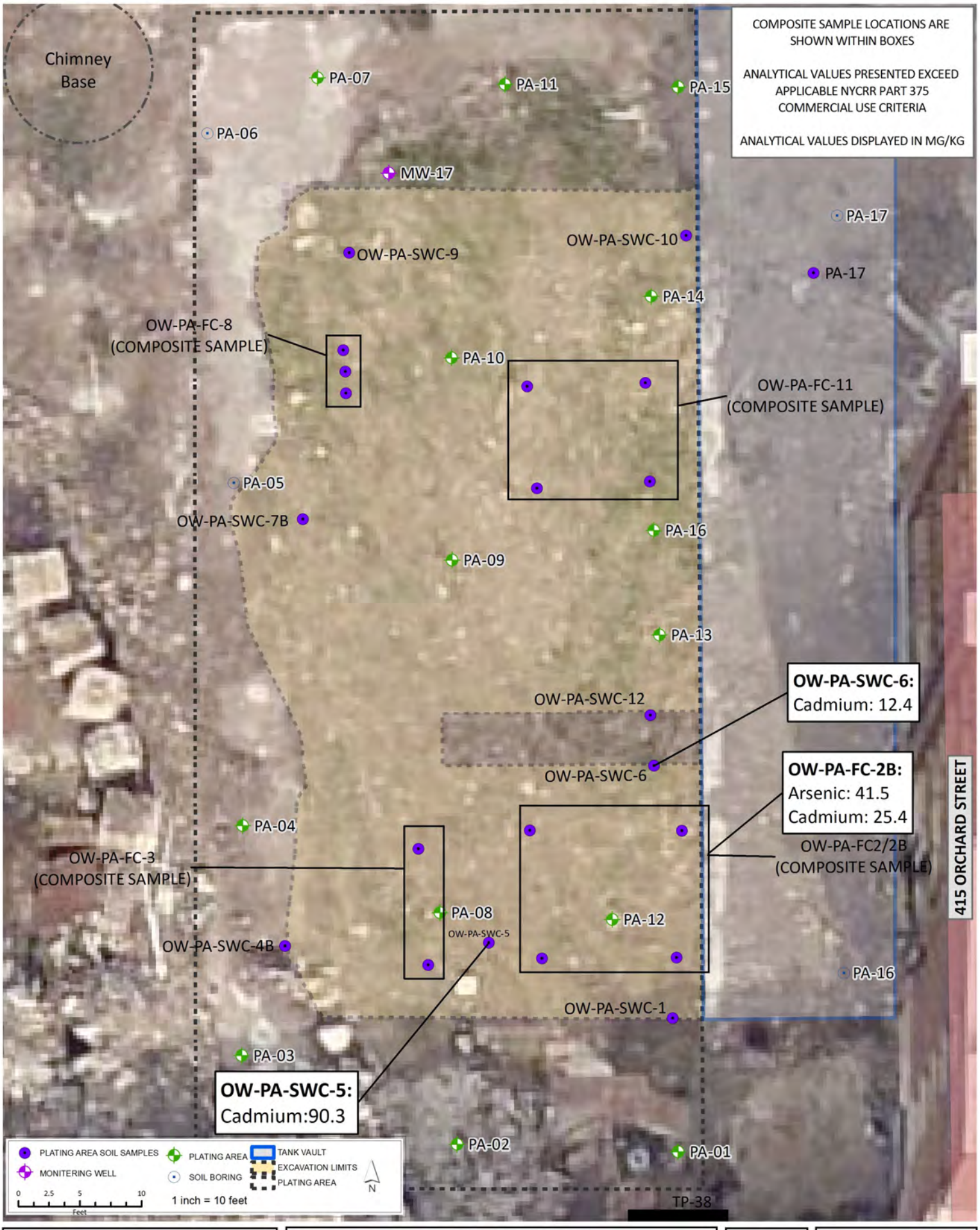


DATE: FEBRUARY 2013
SCALE: 1 Inch= 60 Feet
DRAWN/CHECKED: GLA/SMK
DATA SOURCE: PICTOMETRY

CITY-FLOWER CITY-FLOUR CITY-CITY OF ROCHESTER N.Y.

SOIL SAMPLE COMMERCIAL EXCEEDANCES
ORCHARD/WHITNEY
ERP SITE #E828123
ROCHESTER, NY

Lu Engineers



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PLATING AREA SITE PLAN
ORCHARD WHITNEY
ERP SITE #EB18123
ROCHESTER, NY

DATE:	FEBRUARY 2013
SCALE:	1 inch= 10 feet
DRAWN/CHECKED:	GLA/DLS
DATA SOURCE:	PICTOMETRY

Appendix 2
Geophysical Report (2005)

Geophysical Survey

90B John Muir Drive, Suite 104
Amherst, New York 14228
(716) 565-0624 • Fax (716) 565-0625

GEOMATRIX

August 5, 2005

Charles Guzzetta
Empire Geo-Services, Inc.
535 Summit Point Drive
Henrietta, New York 14467

Subject: Geophysical Survey Results, 354 Whitney St, Rochester, NY

Dear Mr. Guzzetta

1.0 INTRODUCTION

This letter report presents the results of the geophysical investigation performed for SJB Services in support of their environmental investigation of portions of a former GE facility at 354 Whitney St. located in Rochester, NY.

The geophysical investigation was designed to geophysically characterize the subsurface and focus a follow-up intrusive investigation. The information provided herein is intended to assist SJB with their assessment of potential environmental concerns at the Site. The specific objective of the investigation was to explore for large underground conduits that may act as preferential pathways for contaminant migration.

A geophysical investigation was performed at the Site utilizing frequency domain (EM31), and time-domain (EM61) electromagnetic techniques. Geomatrix Consultants, Inc. (Geomatrix) performed data acquisition on July 14, 2005.

2.0 METHODOLOGY

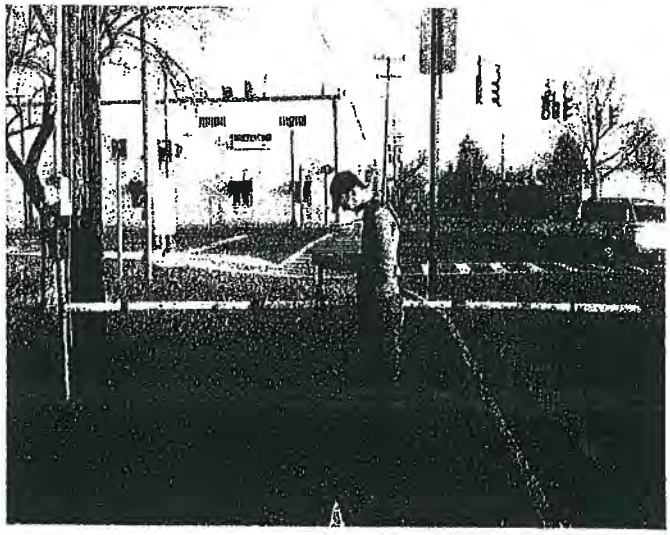
The following sections present the geophysical methodology utilized for this investigation.

2.1 Reference Grid

A reference grid was installed by Geomatrix personnel to facilitate data acquisition along lines spaced 5 feet apart for the EM61 and 10 feet apart for the EM31. Reference grids utilized separate and distinct coordinate systems. The EM61 survey was performed using a local

coordinate system established for the site. The EM31 survey utilized a differential GPS system and the coordinates are based on the WGS 84 datum.

2.2 Electromagnetic EM31 Survey Methodology



EM31 in use (photo not from this site)

A Geonics EM31 Terrain Conductivity meter 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.

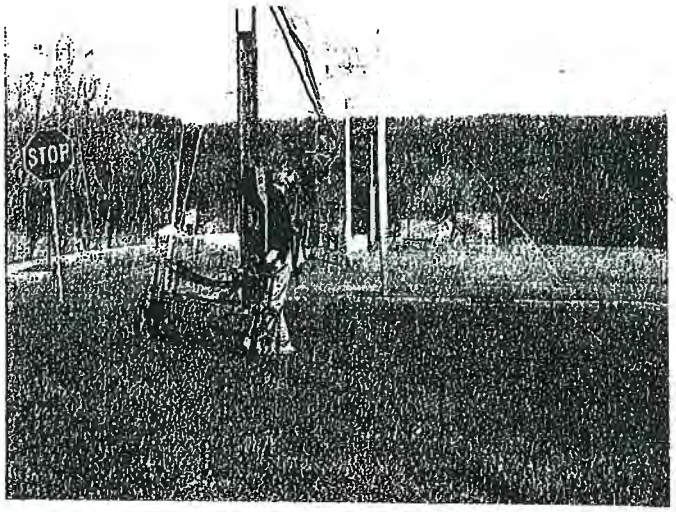
All readings were taken with the instrument oriented parallel to the direction of travel, in the vertical dipole mode and with the instrument at waist height. The depth of penetration with the instrument in this configuration is approximately 12 to 15 feet below ground surface. Data were collected and 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 floppy 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.

2.3 Electromagnetic EM61 Survey Methodology

Portions of both sites 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 5 feet apart.

3.0 RESULTS

The following sections present the results from the geophysical investigation.

The geophysical conductivity and inphase data from the EM31 and EM61 surveys are presented as a series of color contour maps in Figures 1 through 3. Actual data measurement points are superimposed on the maps and are shown as closely spaced tick marks.

3.1 EM31 Results

Terrain Conductivity data for the site is shown in Figure 1. Conductivity values at the site were observed to range from below 0 mS/m to over 100 mS/m. This variation in 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;
- 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.

The EM-31 inphase data for the site is shown in Figure 2. The inphase component of the electromagnetic field, measured by the EM-31, is sensitive to buried metals. Rapid fluctuations in inphase readings over relatively short lateral distances are usually indicative of buried metal objects.

3.2 EM61 Results

The EM61 data for the site are shown in Figure 3. The color bar to the right of the map indicates the colors associated with the respective measured values. Areas suspected to be free of buried metals are shown as color shades of blue. All areas exhibiting a response greater than background (0 to 30 mVolts) likely contain buried metals. These areas are depicted in shades of dark blue through yellow on the figures.

The targets of the survey, underground conduits, were not uniquely detected by the geophysical equipment. A portion of a conduit was observed through a break in the ground surface. This area is identified on the figures with the text "vault". A careful examination of this "vault" revealed subsurface conduit running north-south. There was however no corresponding north-south trending linear anomaly coincident with this known subsurface conduit. The EM61 did detect some subsurface utility lines and these are shown with a solid gray line on Figure 3. These linear anomalies do not appear to be the target of this investigation.

The overall response from both the EM31 and EM61 are typical of an area with reinforced concrete. The presence of metallic reinforcement within the subsurface masks other features of interest, including our target.

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, 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,
GEOMATRIX CONSULTANTS, INC.

John Luttinger
Senior Geophysicist

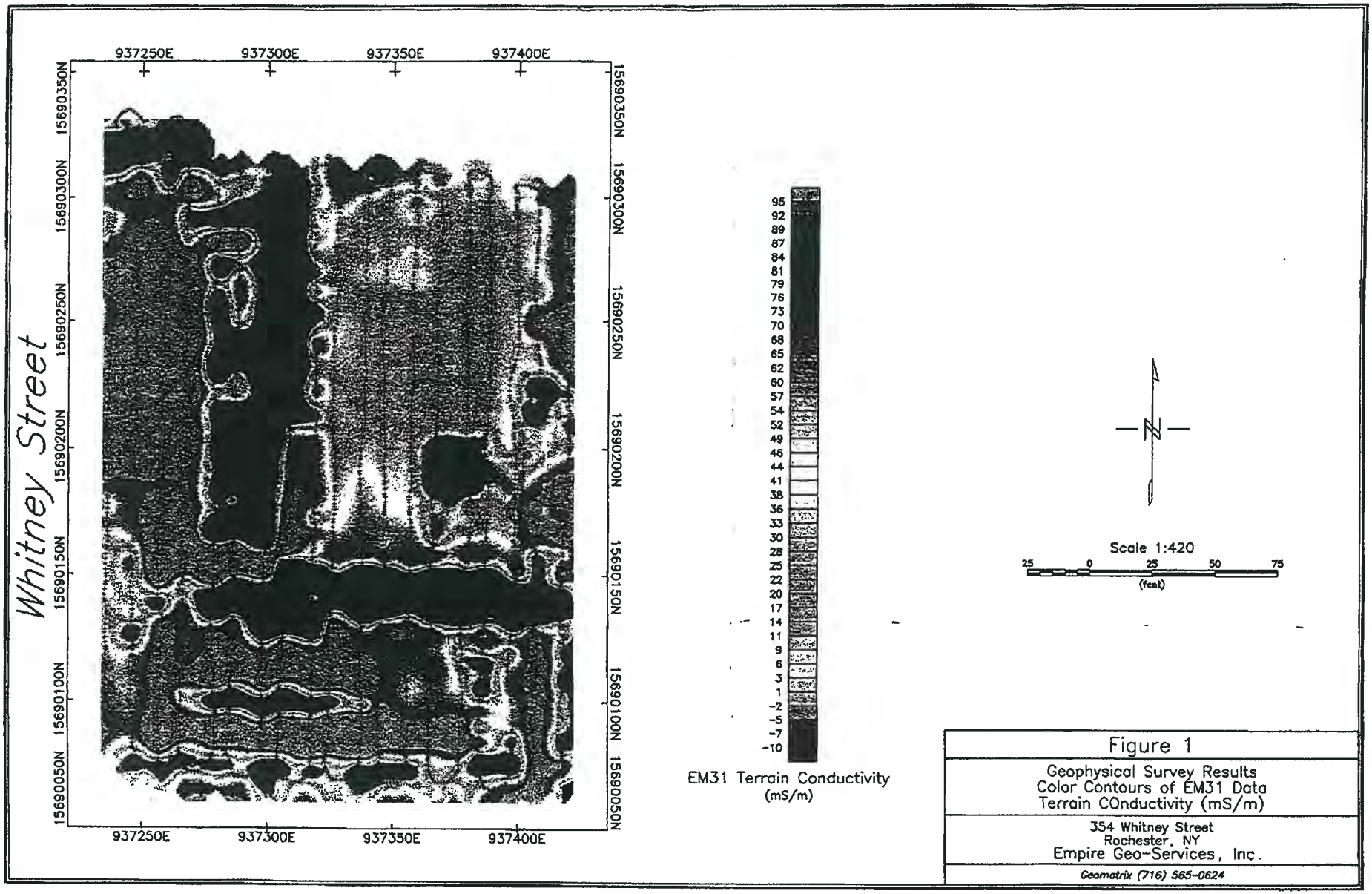
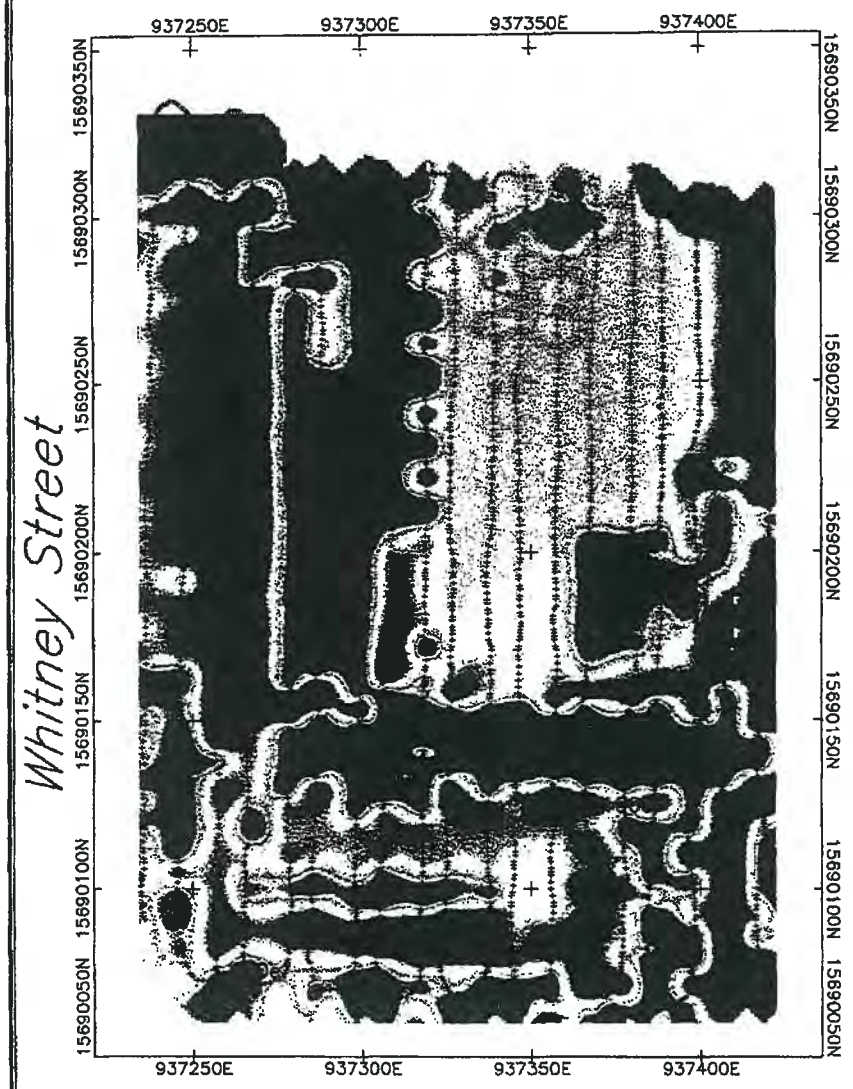


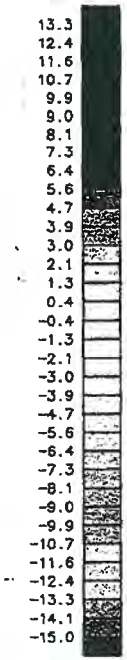
Figure 1

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

354 Whitney Street
Rochester, NY
Empire Geo-Services, Inc.

Geomatrix (716) 565-0624





EM31 Inphase Response
(ppt)

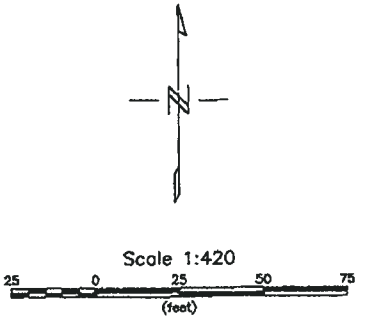


Figure 2

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

354 Whitney Street
Rochester, NY
Empire Geo-Services, Inc.

Geomatrix (716) 565-0624

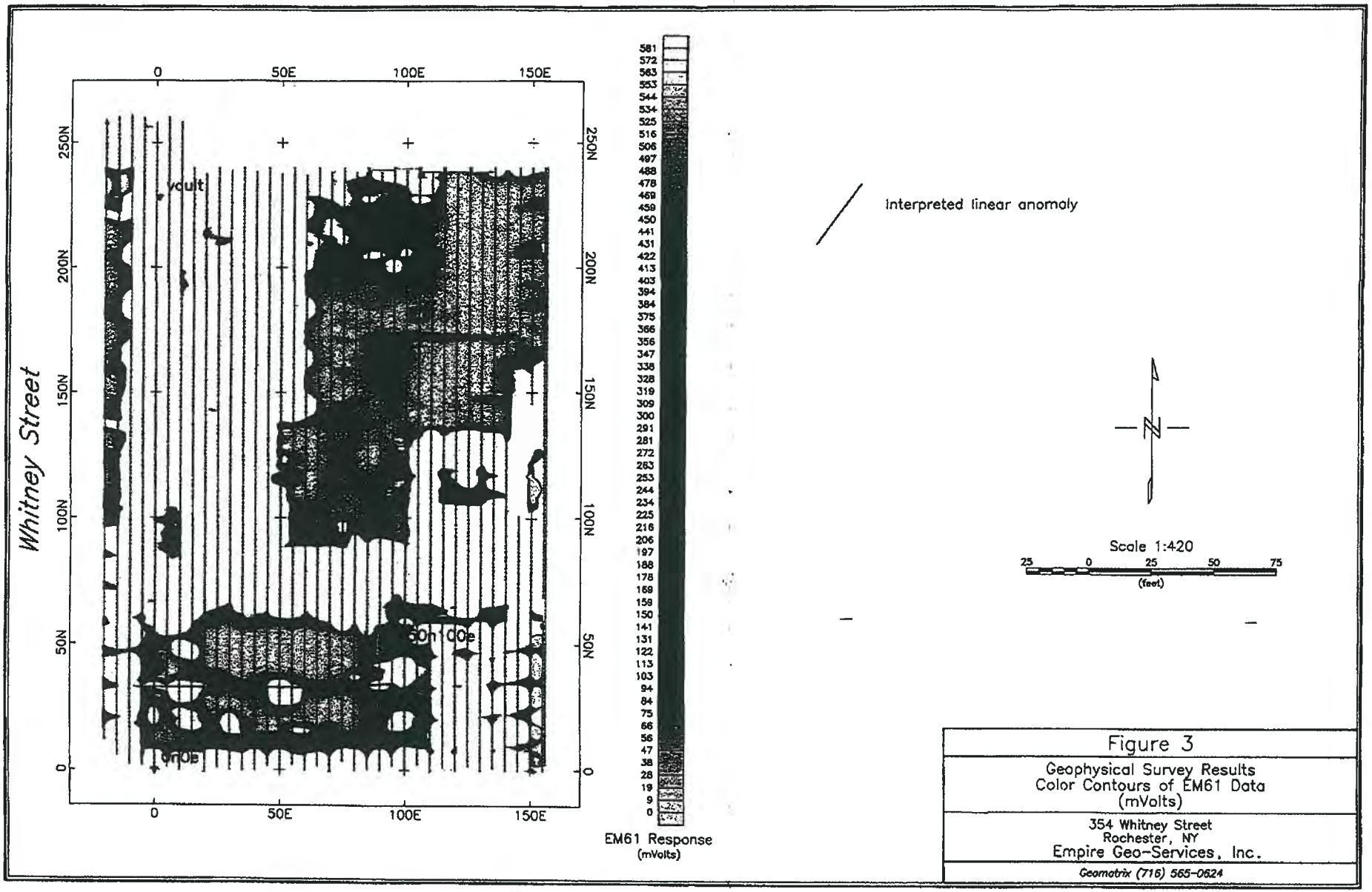


Figure 3

Geophysical Survey Results
Color Contours of EM61 Data
(mVolts)

354 Whitney Street
Rochester, NY
Empire Geo-Services, Inc.

Geomatrix (716) 565-0624

Appendix 3
Predevelopment Geotechnical Assessment Report

Foundation Design, P.C.
SOIL • BEDROCK • GROUNDWATER

415 ORCHARD STREET
ROCHESTER, NEW YORK

PRE-DEVELOPMENT GEOTECHNICAL ASSESSMENT
NOVEMBER 18 2011 DRAFT REPORT

1.0 INTRODUCTION

This report outlines our Pre-Development Assessment for the 415 Orchard Street parcel in Rochester, New York. We base this evaluation on our review of U.S.G.S. and N.Y.S.D.O.T. topographic mapping; historic mapping; old building plans made available for our review, test boring and test pit exploration done as part of the environmental assessment; and consultation with the design team. We intend this report for the use exclusively in assessing geotechnical cost impacts on developing the parcel and conceptual layout of new building(s) on the parcel. A more detailed geotechnical evaluation is required for specific building layouts, designs, and loadings. This study is limited to the geotechnical aspects of the site development; the geo-environmental aspects are being addressed by others.

Lu Engineers retained Foundation Design, P.C. as part of their contract with the City of Rochester to provide the services outlined in our October 17, 2011 *Geotechnical Services Proposal, P2876.0R*. Our services included reviewing the existing information; spot-checking portions of the environmental drilling and reviewing the soil samples; evaluating the results; and developing a list of geotechnical impacts that could be considered a premium cost associated with developing this parcel as compared to a 'green' site. We agreed to submit this report outlining our findings and conclusions.

For this assessment, we have assumed that the future buildings will be less than 5-stories (60 feet) high. The structures envisioned for this parcel consist of three to four story wood-

framed residential housing, or steel-framed residential, office, manufacturing or commercial buildings. We have also assessed the possibility of installing a basement/below-grade parking.

Attached to the end of this text is an ASFE paper entitled *Important Information about Your Geotechnical Engineering Report* that you should read. It describes how we intend this report to be used and discusses risks and risk allocation. We will continue to work cooperatively with you and other interested parties to achieve win/win solutions.

2.0 SITE CONDITIONS/HISTORY

415 Orchard Street lies in the western portion of downtown Rochester, New York. This is an older portion of the City whose development is multi-dimensional and dates back to at least the Erie Canal era. The parcel is roughly delineated by Orchard Street to the east, Whitney Street to the west, a railroad corridor and other industrial structure to the south, and industrial/retail structures and then Lyell Avenue to the north. The parcel contains the remains/debris from a demolished AC Delco plant. This includes some slab(s) on grade, tunnels crossing and connecting the former structures, and mechanical/utility space such as coal storage bins and a smokestack foundation. A multi-story brick structure remains in the southeast corner of the parcel. Opposite this is a large pile of brick and block rubble along with some debris. This material was reportedly generated from previous demolish activities including some undertaken as post-fire cleanup and site stabilization.

Historic mapping dating back to the late 1880's shows that development of this parcel was generally residential. Early in the 1900's the Rochester Lift Company occupied the southwest end of the site. By 1935 (AC) Delco has taken over the site, incorporating the Rochester Lift Company structure into their facility and adding other structures.

3.0 EXPLORATION AND TESTING

As part of this study, we observed portions of the environmental investigation test borings, examined associated samples, and reviewed the (provided) test boring and test pit logs. Outlined

below are the test hole logs we reviewed. Their locations are plotted on the (Lu Engineers test boring location plan) and logs are included in (the appropriate Lu Engineering reports.)

- Oct/Nov 2008 Test Borings and Monitoring Wells done by Paragon.
- Oct 2008 Test Pits number TP-01 through TP-17 logged by Lu Engineers.
- March, 2011 Test Pits number TP-19 through TP-37 logged by Lu Engineers.
- July 2011 Plating Area borings PA-01 through PA-18 and other soil boring/monitoring well logs performed at this time by Nothnagle Drilling for Lu Engineers.

We point out that environmental exploration and sampling is undertaken to investigate and define potential contamination, not to define load-bearing capabilities of soil and bedrock strata. Sampling points are often focused around environmental areas of interest such as tanks, etc. that may occupy a small percentage of the overall site area. The sampling points may not include areas without suspected contamination but still relevant to the geotechnical classification of the site. Therefore environmental sampling protocols and procurement methods differ as well as the type of information recorded on test pit and soil boring logs. This evaluation is based on the environmental test hole data. While we have strived to interpret the soil strata descriptions in terms of their relevant geotechnical engineering properties there is still a fair amount of interpretation that introduces a higher degree of unknowns into the inferred soil profile. Again, this is a planning-level study, not a detailed geotechnical evaluation.

4.0 SOIL, BEDROCK, AND GROUNDWATER CONDITIONS

The following interpretations of the soil, bedrock, and groundwater conditions are based on the available data and our conclusions are subject to the limitations thereof. Variations from the inferred subsurface profile are possible, especially on this historically developed site. Call us immediately if such variations are found so we may evaluate the impact on our conceptual findings.

Soil conditions are somewhat variable and dependant upon previous development within the area under consideration. Fills consist of reworked native soil and/or debris. Fill depths vary between none to eight feet (former house basement at TP-34) to 13.7 feet (smoke stack foundation at PA-

06). As was customary, we expect that the AC Delco floor slabs were constructed over the previous construction such that areas of former houses likely contain poor quality fills. See the attached *Historical Usage Schematic Plan.*

Test holes indicate that beneath the fill is firm native silt/clay and then dense glacial till. The till was generally encountered between six and eight feet below grade. While the soil borings do not contain typical SPT N-values some of them show hammer blows to drive the sampler each four foot increment. This data generally classifies the upper silt/clay as 'firm' and the lower till as 'very dense'. The soil interface between the two native materials is loose/wet due to water perching above the dense glacial till soil. This condition is likely to fluctuate seasonally. Water will also perch within the fills or available void spaces.

Depth to bedrock varies with greater depth towards the southern portion of the site. Bedrock elevations appeared to be between elevation 505 and 500 in the northwest quadrant of the sit, generally near 500 across the middle/diagonal of the site, and below 500 near the plating area. We do not know if this lower depth was a natural condition or if they blasted/fractured the rock to install the tanks. Bedrock is thickly to massively bedded dolomite with few shaley inclusions. The upper foot of the bedrock is weathered, the rock is hard and competent below this. Rock Quality, RQD, is typically 50 percent to percent.

5.0 CONCLUSIONS

We judge that the debris-laden soil is not acceptable for support of new structures or floor slabs. While it appears to have served AC Delco's needs for floor slab support we conclude that this material will likely settle with time and new loads. Quantifying the amount of this material will be difficult with the multiple generations of previous development, additional test pit exploration could serve to reduce the level of uncertainty.

The upper firm and wet natural soil should be sufficient for support of modest structural loads.

The deeper dense glacial till soil can support more significant loads from multi-story, heavy structures such as the existing facility.

Bedrock depths should be deep enough to facilitate typical near-surface construction. Deep utilities or a basement may conflict with the bedrock and require mechanical fracturing. Likewise, the groundwater appears to be able to be handled using typical construction practices for near surface construction but may pose challenges for deeper work or permanent structures.

Based on these findings, we draw the following general conclusions/recommendations:

5.1 Site Preparation: Removal and Replacement

It is our opinion that the in-place fill material is not suitable to support new construction. The in-place fill contains debris and sporadic areas where highly compressible ash and cinders have been deposited. This material would consolidate and compress under new structural loads, leading to unacceptable settlement of the structure and floor slabs. Expect to remove in-place fill from within any future building footprint. The extent of this removal is expected to coincide with the previous areas/types of previous construction. The best way to quantify this is to overlay previous development areas with new construction limits and then assume an expected removal depth. For planning purposes we suggest assuming that the older, pre-AC Delco development areas will require eight feet of removal and replacement. Near the AC Delco smokestack removal depth should be less than fifteen feet. Other AC Delco sub-slab features such as the utility tunnel, utility lines, or basement areas will require appropriate depths of removal. A review of either AC Delco plans or detailed historic mapping such as EDR/Sanborn Fire Insurance mapping may help better define these potential work items.

Backfill for these over-excavations should be a granular material such as sand and gravel or appropriately graded recycled concrete/bricks. The existing rubble pile contains debris from previous fires and site stabilization. Although using this material will require hand-

sorting to remove wood, etc. we believe that it will still yield a workable product. Newly created rubble from controlled demolition of the existing structure and slab, etc. is likely to be a more consistent and higher-quality product.

Utilizing a basement or partial basement could limit the quantity of structural backfill required but could also result in bedrock conflicts. Limit basement/foundation depths to less than seven feet in general or as specific boring logs indicate.

5.2 Foundation System: Spread Footings

As this stage in project planning we expect that you will to utilize a spread footing foundation system. For near-surface footings (bear at typical frost depth) we expect that the footings will bear at low to moderate bearing pressures on the order of 2,000 psf. For deeper footings bearing at least eight feet ± below grade, the design pressure could easily be double or triple that value.

If the new construction consists of very heavy loads (greater than 400 kips) then consideration should be given to a deep foundation system. Plan for a drilled shaft system bearing at a depth of fifteen to twenty feet below grade at a bearing pressure of seven to ten tons per square foot. Again, this system would only be utilized to reduce the size of the near-surface foundations for project economics.

5.3: Seismic Considerations

According to the 2010 NYS Building Code seismic hazard mapping for a Site Classification of B, structures in Rochester, New York may experience short dynamic period spectral accelerations (S_S) of 0.164g and 1-second period spectral response accelerations (S_1) of 0.060g. We recommend assuming a seismic site classification of C (dense soil) in your conceptual estimating. Slab/basement and bedrock elevations could improve this to a site classification of A (hard rock).

5.4 Pavement/Sidewalk Measures

Where asphalt and concrete pavements or sidewalks are placed over the in-place fill, owners and developers should expect less-than-typical time before cracking, waviness, 'bird-baths', and potholes start to form and maintenance is required. Due to the potential exorbitant costs of removing and replacing this material, we recommend that developers/future owners accept these risks.

For your preliminary estimating, we suggest budgeting for a slightly thicker than "normal" pavement, say 1.5 inches of asphalt top, 2.5 inches of asphalt binder, and 15 inches of crusher-run stone subbase. To extend the life and improve expected pavement performance, budget to install a geogrid similar, to Mirafi BXG-12, under the pavement and sidewalk subbase layers. Some undercutting and/or reworking of unsuitable fill will be required to remove the large debris from within the top 24 inches of the pavement subgrade; plan to backfill areas undercut with suitable on-site soil.

Plan for pavement slopes of at least 2.0 percent. Install weeps at low points in the pavement to facilitate drainage out of the granular subbase and into the stormwater system. Plan for higher maintenance costs associated with these pavements.

5.5 Premium Cost Items

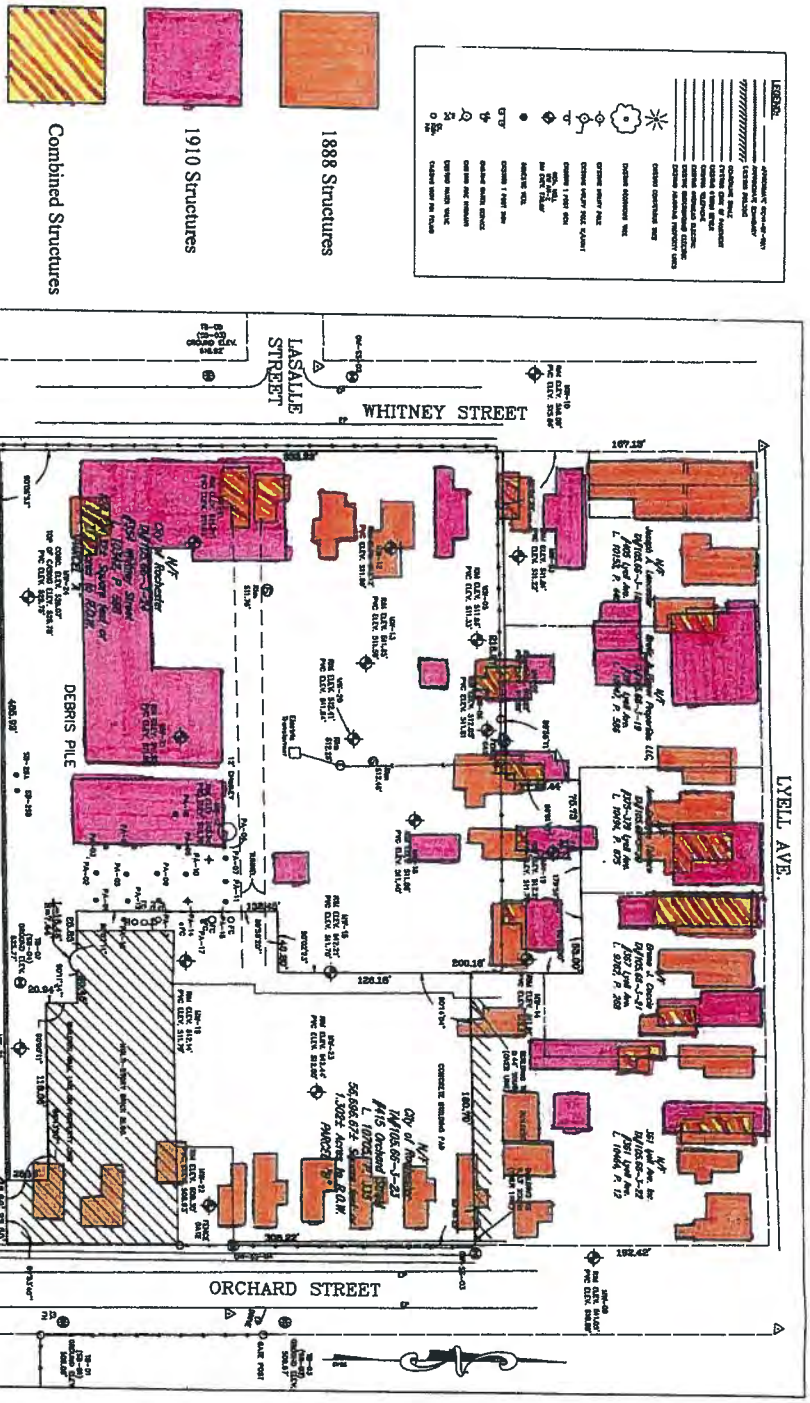
The following is a list of premium cost items for redevelopment of this parcel as compared to construction on a 'green' site.

Structural/Design Costs
Removal/hoe-ramming of existing structure, slab, and buried foundations
Off-site disposal of excavated materials (foundations/utility trenches/debris-laden fill)
Processing of rubble/import of structural fill for undercut backfill
Thicker pavement and sidewalk sections including geogrid

Geotechnical Construction Oversight Costs
Full-time site presence during fill removal/replacement
Periodic site visits during the pavement/sidewalk subgrade preparation work

5.0 CLOSURE

The conclusions outlined in this Pre-Development Geotechnical Assessment are provided with our limited information on the final uses of this parcel. We point out that additional geotechnical exploration, testing, and/or engineering analysis will be required after the building locations, sizes, design loads, and site grading have been established. Call if you have questions regarding our interpretations of the soil, bedrock, and groundwater conditions as you develop concepts to develop this parcel. We look forward to hearing from you again as potential developers assess options for developing this parcel.



Foundation Design, P.C.

335 Colfax Street
Rochester, New York 14606
Phone (585) 458-0824
FAX (585) 458-3323

Pre-Development 415 Orchard Street

415 Orchard Street, Rochester, New York

Historical Usage Schematic Plan

Adapted from: Lu Engineers "Boundary Survey Map"

1888 and 1910 City of Rochester Plat Mapping overlay added by Foundation Design

CHECKED BY: JMB

DRAWN BY: JAG

Scale NA

DATE: 11-18-11

JOB NO.: 3546.0

Foundation Design, P.C.
SOIL • BEDROCK • GROUNDWATER

December 22, 2011

Lu Engineers
175 Sully's Trail
Corporate Crossings Office park
Pittsford, New York 14534

Attention: Greg Andrus, CHMM
Environmental Division Director

Reference: 415 Orchard Street, Rochester, New York
Pre-development Investigation
DRAFT Earthwork Cost Estimate, 3546.0

Dear Mr. Andrus:

This letter is our formal submission of our *Opinion of Probable Earthwork Costs* for the 415 Orchard Street parcel. This *Opinion of Probable Earthwork Costs* is based on remediation of the entire parcel. In estimating these costs, we have made the following assumptions:

- The proposed grades will be near existing.
- Shallow unsuitable fill was identified intermittently in the environment test logs. We estimate that the amount of unsuitable material averages 6-inches (0.5 feet) across the entire site.
- Tunnels and old house basements have been filled with unsuitable material that will be removed from the site. (see the attached sketch)
- Proposed buildings will be supported on shallow spread foundations with slab-on-grade floors.

Other clean up costs that were not included in our estimate include the following:

- Demolition of the existing building.
- Environmental clean up.
- Removal and/or processing of remaining stockpiled rubble

335 Colfax Street, Rochester, NY 14606 • Tel: 585 458-0824 • Fax: 585 458-3323 • foundationdesignpc.com

Foundation Design, P.C.
SOIL • BEDROCK • GROUNDWATER

Opinion of Earthwork Cost for 415 Orchard Street

Undercut areas

Orchard St. Basements: 234 ft x 40 ft x 6 ft deep = 56,000 cubic ft
2,080 cubic yards

East-West Tunnel: 290 ft x 15 ft x 8 ft deep = 34,800 cubic ft
1,289 cubic yards

North-South Tunnel: 150 ft x 35 ft x 8 ft deep = 42,000 cubic ft
1,556 cubic yards

Vaults and Tanks: 3 @ 20 ft x 20 ft x 12 ft deep = 14,000 cubic ft
533 cubic yards

General Shallow Fills: 300 ft x 500 ft x 0.5 ft deep = 75,000 cubic ft
2,778 cubic yards

Total Yards of Removal = 8,236 cubic yards

Cost for Removal of unsuitable fill est: $22/cubic yard

Total cost of Removal = $181,192

Concrete Processing

Concrete Slabs
(32,125 ft^2+27,500ft^2+11,000ft^2+25,800ft^2+15,300ft^2) x 0.5 ft thick
= 55,887 cubic ft

Concrete Foundations (exterior)
(730 + 900 + 1075) lineal feet x 6 ft^2 (4 foot wall with 3 foot foundation)
= 16,230 cubic ft

Concrete Foundations (interior)
290 est. foundations averaging 9 ft^3 = 2,610 cubic ft

Total Yards of Removal = 2,768 cubic yards

Cost for concrete processing and placement est: $25/cubic yard

Total cost of Concrete Processing = $149,472

Rubble Processing (for excavation backfill)

Balance of backfill necessary after concrete processing 8,236 + 698 (foundation removal excavations) - 2,768

= 6,167 cubic yards

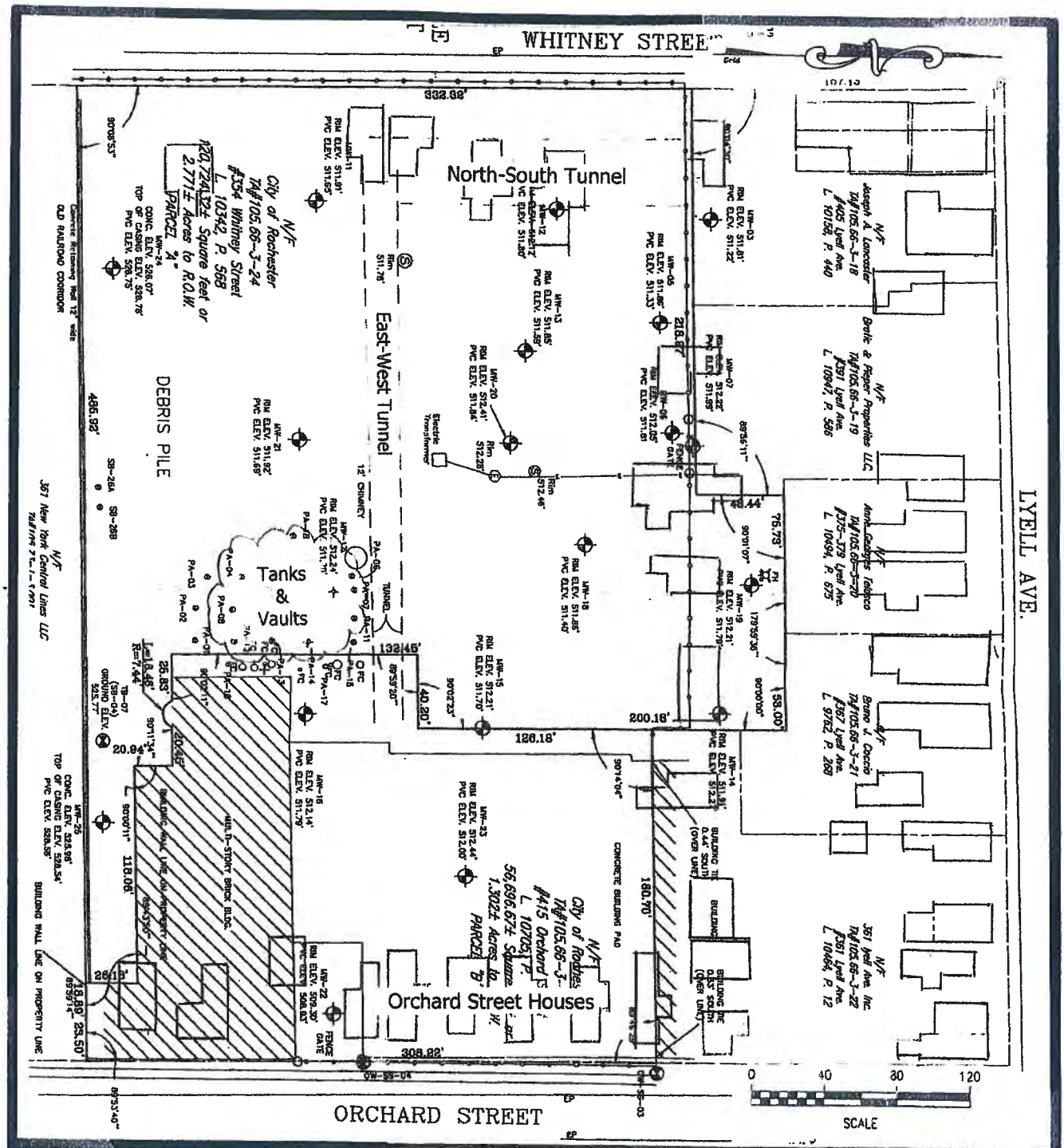
Cost for processing and placement of rubble est: $9 cubic yard

Total Cost of Rubble Processing = $55,503

Oversite and Inspection

Four week of engineering and soils/lab testing = **$20,000**

Total Earthwork Cost: $406,149



Foundation Design, P.C.

335 Colfax Street
Rochester, New York 14606
Phone (585) 458-0824
FAX (585) 458-3323

Pre-Development 415 Orchard Street
415 Orchard Street, Rochester, New York
Subsurface Structure Sketch
Adapted from: Lu Engineers "Boundary Survey Map"
Dated: 8-12-11

CHECKED BY: JMB
DRAWN BY: SCA
Scale NA
DATE: 12/23/11
JOB NO.: 3546.0

Appendix 4
Test Pit Logs

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ENVIRONMENTAL • TRANSPORTATION • CIVIL

Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-01**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 20'x6'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/01/08 **Completed: 10/01/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	
4	TP-01A (waste)		15	0-3' Concrete and sub base material Clay tile drainage "crock" found at 1' bgs containing black sandy sludge with strong odor - clean pipe attached oriented southward
6			0	
8	TP-01B (soil)		0	3-6.5' bgs brown f-m sand and silt , moist w/ building demo fill. Groundwater observed - no sheen or odor Terminated test pit at 6.5' bgs
10			0	
12			0	

Site Photos

No Photo Available

No Photo Available

Remarks: Waste materials from crock staged in 55-gallon drum and secured pending characeterization and disposal. Bedrock not encountered.

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Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-02**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 20'x6'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/01/08 **Completed: 10/01/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	0-2' Loose asphalt underlain by thin gravel layer Clay tile drainage "crock" found at 2' bgs , empty with no odor clean pipe attached oriented southward
4			0	
6	TP-02 (soil)		0	3-5.5' bgs brown f-m sand and silt , moist w/ building demo fill. Groundwater not observed - no odor Terminated test pit at 5.5' bgs
8			0	
10			0	
12			0	

Site Photos

No Photo Available

No Photo Available

Remarks: Bedrock not encountered.

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Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-03**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 20'x9'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/01/08 **Completed: 10/01/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	Concrete and sub base to approximately 2.0' bgs Location looks like an abandoned hydraulic lift
4			0	Brown sand and gravel to 7.0' bgs
6			0	
8	TP-03A (Soil)		15	Sand and gravel soil stained and exhibits petroleum/solvent odor Soils wet at 7.5' bgs, odor and slight sheen noted.
10	TP-03B (oily mtl.)		0	Terminated test pit at 9.0' bgs
12			0	

Remarks: Bedrock not encountered.

Site Photos

No Photo Available

No Photo Available

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Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-04**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 20'x9'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/01/08 **Completed: 10/01/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	
4			0	
6			0	Water present in concrete pit (former basement) at approximately 5.0' bgs, no odor, no sheen
8			15	Concrete floor of former engine room
10	TP-04 (soil)		0	Concrete and gravel to approx 9.0' bgs Native soils below floor slab, saturated brown cmf sand and gravel
12			0	Terminated TP at approximately 11.0' bgs

Remarks: Bedrock not encountered.

Site Photos

No Photo Available

No Photo Available

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Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-05**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 20'x9.5'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/01/08 **Completed: 10/01/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	
4			0	0-3' Concrete and sub base material Clay tile drainage "crock" found at 1' bgs containing black sandy sludge with strong odor - pipe attached containing sludge removed all piping and containerized with TP-01 waste
6			0	
8	TP-05 (soil)		0	3-6.5' bgs brown f-m sand and silt, moist w/ building demo fill. Groundwater observed - no sheen or odor
10			0	Terminated boring on bedrock at 9.5' bgs
12			0	

Site Photos

No Photo Available

No Photo Available

Remarks: Waste materials from crock and pipe staged in 55-gallon drum and secured pending characterization and disposal.

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Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-06**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 20'x9.5'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/01/08 **Completed: 10/01/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	
4	TP-06		28.5	0-3' Concrete and sub base material Moist fill material mixed with native sand and gravel soils Strong solvent odor noted at approximately 4.0' bgs
6			0	No piping or crock observed, odor dissipated quickly.
8			0	3-6.5' bgs brown f-m sand and silt, moist w/ building demo fill. Groundwater observed - no sheen or odor Native brown sand and gravel soils underlain by thin till layer to 9.5' bgs
10			0	Terminated boring on bedrock at 9.5' bgs
12			0	

Site Photos

No Photo Available

No Photo Available

Remarks:

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Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-07**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 20'x9.5'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/01/08 **Completed: 10/01/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	
4	TP-07 (soil)		400	0-3' weathered asphalt and sub base material Brown mf sand, silt and cmf gravel below 3.0' bgs
6			0	
8			0	3-8.5' bgs brown f-m sand and silt, moist mixed native soils and fill. Groundwater observed - no sheen, odor present in soils
10			0	Terminated boring at 8.5' bgs
12			0	

Site Photos

No Photo Available

No Photo Available

Remarks: Bedrock not encountered

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Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-08**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 20'x9.0'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/02/08 **Completed: 10/02/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	
4			0	0-3' weathered asphalt and sub base material, some masonry Brown mf sand, silt and cmf gravel below 3.0' bgs
6			0	
8	TP-08 (Soil)		0	3-8.5' bgs brown f-m sand and silt, moist mixed native soils and fill. Groundwater observed - no sheen, no odor present in soils
10			0	8.5 - 9.0' bgs grey till Terminated boring at 9.0' bgs on bedrock
12			0	

Remarks: Bedrock encountered at 9.0 feet bgs

Site Photos

No Photo Available

No Photo Available

Lu Engineers
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Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-09**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 15'x9.0'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/02/08 **Completed: 10/02/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	
4			0	0-3' weathered asphalt and sub base material, some masonry Brown mf sand, silt and cmf gravel below 3.0' bgs
6			0	
8	TP-09 (Soil)		0	3-8.5' bgs brown f-m sand and silt, moist mixed native soils and fill. Groundwater observed - no sheen, no odor present in soils
10			0	8.5 - 9.0' bgs grey till Terminated boring at 9.0' bgs on bedrock
12			0	

Remarks: Bedrock encountered at 9.0 feet bgs

Site Photos

No Photo Available

No Photo Available

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Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-10**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 15'x9.5'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/02/08 **Completed: 10/02/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	
4			0	0-3' weathered asphalt and sub base material, some masonry Brown mf sand, silt and cmf gravel below 3.0' bgs
6			0	
8	TP-10 (Soil)		0	3-8.5' bgs brown f-m sand and silt, moist mixed native soils and fill. Groundwater observed - no sheen, no odor present in soils
10			0	8.5 - 9.5' bgs grey till Terminated boring at 9.5' bgs on bedrock
12			0	

Remarks: Bedrock encountered at 9.5 feet bgs

Site Photos

No Photo Available

No Photo Available

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Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-11**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 15'x9.5'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/02/08 **Completed: 10/02/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	
4			0	0-3' weathered asphalt and sub base material, some masonry Brown mf sand, silt and cmf gravel below 3.0' bgs
6			0	
8	TP-11 (Soil)		0	3-8.5' bgs brown f-m sand and silt, moist mixed native soils and fill. Groundwater observed - no sheen, faint petrol. odor in soils
10			0	8.5 - 9.5' bgs grey till Terminated boring at 9.5' bgs on bedrock
12			0	

Site Photos

No Photo Available

No Photo Available

Remarks: Bedrock encountered at 9.5 feet bgs

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Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-12**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 15'x3'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/02/08 **Completed: 10/02/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	0-3' masonry debris, sand and gravel - no odor, dry Terminated boring at 3.0' bgs on massive concrete
4			0	
6			0	
8			0	
10			0	
12			0	

Site Photos

No Photo Available

No Photo Available

Remarks: Massive concrete slab encountered at 3.0 feet bgs. No sample taken (all fill material)

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Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-13**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 15'x3'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/02/08 **Completed: 10/02/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	0-3' masonry debris, sand and gravel - no odor, dry Terminated boring at 3.0' bgs on massive concrete
4			0	
6			0	
8			0	
10			0	
12			0	

Site Photos

No Photo Available

No Photo Available

Remarks: Massive concrete slab encountered at 3.0 feet bgs. No sample taken (all fill material)

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Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-14**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 15'x9.0'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/02/08 **Completed: 10/02/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	
4			0	0-3' weathered concrete and sub base material, some masonry TP is adjacent to 4' diam steel caisson Brown mf sand, silt and cmf gravel below 3.0' bgs
6			0	
8	TP-14 (Soil)		0	3-8.5' bgs brown f-m sand and silt, moist mixed native soils and fill. Groundwater observed - no sheen, no odor present in soils
10			0	8.5 - 9.0' bgs grey till Terminated boring at 9.0' bgs. Bedrock not encountered
12			0	

Site Photos

No Photo Available

No Photo Available

Remarks: Bedrock not encountered at 9.0 feet bgs

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Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-15**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 15'x10.5'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/02/08 **Completed: 10/02/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	
4			0	0-3' weathered concrete and sub base material, some masonry Brown mf sand, silt and cmf gravel below 3.0' bgs
6	TP-15 (Soil)		950	4.0-7.0' bgs grey clay and cmf sand layer Solvent odor - dissipates quickly
8			0	7.0-9.5' bgs brown f-m sand and silt, moist mixed native soils . Groundwater observed - no sheen, no odor present in soils
10			0	9.5 - 10.5' bgs grey till
12			0	Terminated boring at 10.5' bgs. Bedrock encountered

Remarks: Bedrock encountered at 10.5 feet bgs

Site Photos

No Photo Available

No Photo Available

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Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-16**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 15'x10.0'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/02/08 **Completed: 10/02/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	
4			0	0-3' weathered concrete and sub base material, some masonry Brown mf sand, silt and cmf gravel below 3.0' bgs
6			0	Drainage tile (empty, no odor)
8			0	7.0-9.5' bgs brown f-m sand and silt, moist mixed native soils . Groundwater observed - no sheen, no odor present in soils
10			0	9.5 - 10.0' bgs grey till
12			0	Terminated boring at 10.0' bgs. Bedrock encountered

Site Photos

No Photo Available

No Photo Available

Remarks: Bedrock encountered at 10.0 feet bgs. No sample obtained due to proximity of MW-12.

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Test Pit Log

Project No.: 4216 **Page 1 of 1** **Test Pit: TP-17**
Project Name: Orchard /Whitney RI/IRM
Client: City of Rochester
Dimensions: 15'x10.0'x10' **Weather: Sunny, 50°** **Tech.:ERD/GLA**
Date Started: 10/02/08 **Completed: 10/02/08** **Oper.: Nate**
Sub-Contractor: Paragon Environmental **Equipment: 200 Series Komatsu**

Depth Below Surface (Ft.)	Sample Number	Depth of Sample	PID (ppm)	Soil & Rock Classifications/Remarks
2			0	
4			0	0-3' weathered concrete and sub base material, some masonry Brown mf sand, silt and cmf gravel below 3.0' bgs
6			0	
8			0	7.0-9.5' bgs brown f-m sand and silt, moist mixed native soils . Groundwater observed - no sheen, no odor present in soils
10	TP-17 (Soil)		0	9.0 - 10.5' bgs grey till
12			0	Terminated boring at 10.5' bgs. Bedrock encountered

Site Photos

No Photo Available

No Photo Available

Remarks: Bedrock encountered at 10.5 feet bgs.

Appendix 5
Boring Logs

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • [illegible]

PROJECT	BORING SB23 PA-01
Orchard Whitney	SHEET 1 OF 2
	JOB #: 4216
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED/GLA

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/5/11 END DATE: 7/6/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
1	35 ↓	1 ↓		NA	50% ↓	Grey-brown silt with cmf sand some cmf gravel, dry	0-4': 0
2						@ 2'; medium brown cmf sand with silt; some cmf gravel; moist	
3							
4			4.0			@ 4'; pushed through concrete (2")	4-8': 0
5		2 ↓			45% ↓		
6						@ 6'; wet	
7						@7'; wet	
8			8.0			@8'; saturated, medium brown silt; little mf sand; little cmf gravel	8-12': 0
9		3 ↓			50% ↓		
10						@ 10'(+/-) grey silt; moist (till)	
11							
12			12			@ 12'; grey silt with f sand; some cmf gravel (rounded); moist-dry	12-14.7': 0
13		4 ↓			10% ↓		
14							
15			14.7				
16	375 ↓	5 ↓			95%	@ 16'; grey-brown f sand with silt and cmf rounded gravel; dense; moist	16-20': 0
17					↓		
18							
19							
20							@ 20': 0.1

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Spoon refusal; no elevated PID readings/odors noted

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA-01
Orchard Whitney	SHEET 2 OF 2
	JOB #: 4216
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED/GLA

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/5/11 END DATE: 7/6/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	370	6	20		75%	@ 20' similar soils but with cmf sand; saturated @ 20.5; moist	20': 0
21	↓	↓			↓	@ 20.5'; moist	21': 0.1
22							22': 0.2
23							23': 0
24							24': 0
	280	7			80%		24-26.5': 0
25	↓	↓			↓	@ 25.5'; saturated; mf gravel lense with silt	
26							
			26.5				
27						Augered from 24 to 28' (through boulder) no sample from 26.5 to 28'	
28					50%	@ 28'; grey mf sand; little to no silt; saturated	
	160	8	28		↓		28-32': 0
29		↓					
30							
31							
32			32				
		9			90%		32-35': 0
33		↓			↓		
34						@ 34'; grey cmf gravel with mf sand; little silt; saturated	
35			35				
					0		
36					↓		
37						T.D. with macrocove= 36' bgs, Augers to 36'	
38							
39							
40							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Build microwell: screen 36-26; sand 36-24, bentonite 24-22'
Cuttings to grade

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA-02
Orchard Whitney	SHEET 1 OF 1
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/6/11 END DATE: 7/6/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
1	22 ↓	1			50% ↓	medium brown silt wih mf sand and cmf gravel; moist	0-4: 0
2							
3						@ 3'; 3" clay lense	
4			4.0				4-8: 0
5	28 ↓	2			40% ↓		
6							
7							
8			8.0			@ 7.5' (+/-); medium brown silt and cmf sand; some cmf gravel; wet	
9	260 ↓	3			75% ↓	@ 8.5'; medium brown f sand withsilt; some cmf gravel, moist @9'; green yellow discoloration (2")	8-12: 0
10						@ 10'; rose-grey till as above	
11							
12			12.0				12-16: 0
13	305 ↓	4			85% ↓	@ 12.5'; grey silt; little f sand; moist-dry; little rounded mf gravel	
14							
15							
16			16.0			@ 16'; wet	
17	250 ↓	5				@ 16.5'; rose-grey	16-17.7: 0
18			17.7				
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Colllected soil sample @9' (discoloration)
Collected soil sample from 16-17.7'
Spoon refusal @ 17.7; Augers to 18.5
Set well @ 18.5 w/ 10' screen; sandpack 18.5-7.5 bentonite 7.5-5.5

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA-03
Orchard Whitney	SHEET 1 OF 1
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/6/11 END DATE: 7/7/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	120	1			30%	Grey-brown silt and mf sand and cmf gravel fill; dry	0': 0
1	↓	↓			↓		1': 0.2
2							2': 0.6
3							3': 0.1
4			4			@ 4'; medium brown cmf sand with silt; cmf gravel; moist	4': 0
	42	2			44%		4-8': 0
5	↓	↓			↓	@ 5' (+/-); 3" clay lense; moist	
6						@ 5.75' (+/-); 2" clay lense; moist	
7							
8			8.0			@ 7.5'; saturated @8'; grey brown silt with f sand; little mf gravel; moist	8-12': 0
		3			88%		
9		↓			↓		
	380					@ 9.5'; grey f sand with silt; some cmf gravel; dry-moist (Till)	
10	↓						
11							
12			12.0				12-16': 0
		4			75%	@ 12.5'; wet	
13		↓			↓	@ 12.75'; moist	
	375					@ 15.0': weathered rock, wet	
14	↓					@ 15.25'; grey silt with f sand; some mf rounded gravel; moist	
15							
16			16.0				16-17.6': 0
	320	5			100%		
17	↓	↓			↓		
18			17.6				
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Spoon refusal= 17.6'; Augers refusal @ 18.3'
Sandpack 18.3-7.3'; Bentonite 7.3-5.3' cuttings to grade

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA-04
Orchard Whitney	SHEET 1 OF 1
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/711 END DATE: 7/7/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
1	24 ↓	1			25% ↓	Brown silt with cmf sand; some cmf gravel; moist	0-4': 0
2							
3						@ 3.8'; brown cmf sand with silt; little mf gravel; moist	
4			4				
5	45 ↓	2			40% ↓	@4.5'; olive-brown silt; little mf sand; trace clay; little cmf gravel; moist-wet	4-8': 0
6						(Perched water over till)	
7							
8			8			@ 7.5'; brown mf sand with silt, and cmf gravel; wet	
9	308 ↓	3			72% ↓	@8.2'; light brown f sand with silt; some cmf rounded gravel (grades to rose/light brown to grey @ 9.5' (+/-)); moist	8-12': 0
10							
11							
12			12				
13	375 ↓	4			80% ↓	@ 12.2'; grey f sand with silt; little cmf gravel; moist	12-16': 0
14							
15							
16			16			@ 15.75'; grey silt with f sand; trace mf rounded gravel, moist	
17	27.5 ↓	5			100% ↓		
18			17.9				
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Spoon refusal= 17.9'; Auger to 18'; set miniwell screen 18.8' sandpack 18.6' bentonite 6'-4' with cuttings to grade

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

BORING # PA-04

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PROJECT	BORING PA-05
Orchard Whitney	SHEET 1 OF 1
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/7/11 END DATE: 7/7/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	44	1			55%	@ 0'; medium brown mf sand; trace silt; trace cmf gravel, gravel	0-4': 0
1	↓				↓		
						@ 1.5'; brown silt and cmf sand with cmf gravel; moist	
2							
3							
4			4.0			@ 3.9'; olive-brown silt with clay; some cmf gravel, moist	
	57	2			23%	@4.5'; trace clay; wet	4-8': 0
5	↓				↓		
6							
7							
8			8.0			@ 8.5'; grey-brown silt with f sand; little cmf gravel; wet; Fe mottling	8-12': 0
	390	3			90%		
9	↓				↓		
						@ 9.4'; grey f sand, some silt and cmf gravel; moist	
10							
11							
12			12.0				
	400	4			90%		12-16': 0
13	↓				↓		
14							
15							
						@15.5'; grey silt; little f sand; trace cmf gravel; moist	
16							
	122	5				@ 16.2'; push through rock (dolostone)	16-16.9': 0
17	↓	↓	16.9			@ 16.0'; grey f sand; some silt and cmf gravel; moist	
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Spoon refusal @ 16.9'; Auger refusal @ 17.3';
Not enough water on roch to install well, plug boring from 16.9- 11' with bentonite to not let perched shallow water downhole

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA-06
Orchard Whitney	SHEET 1 OF 1
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/7/11 END DATE: 7/7/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
1	18 ↓	1			55% ↓	0-0.5' concrete/asphalt @ 0.5'; light brown mf sand and cmf gravel; little silt; moist fill; brick to 1'	0-4': 0
2						@ 2'; grey brown stil with f sand; some cmf gravel; moist	
3							
4			4.0			@4'; trace clay	
5	28 ↓	2			30% ↓		
6							5': 0.6
7							6-8': 0
8			8.0			@7'; medium brown @8'; saturated mf sand with silt; not enough recovery for analytical sample	
9	34 ↓				5% ↓		
10							
11							
12							
13	32 ↓				0% ↓		12-13.7': 0
14						@13.7'; wood on top of concrete in shoe (likely wood from chimney footer form and concrete footer sits on top of rock;	
15						no til observed, likely excavated to bedrock)	
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA-07
Orchard Whitney	SHEET 1 OF 1
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/8/11 END DATE: 7/8/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
	22	1			25%	0- 0.5'; concrete asphalt	
1	↓				↓	0.5'; orange-brown f sand; trace mf gravel; with brick fragments; moist (fill)	1': 1.5
2							
							2-4': 0
3							
4			4.0				
	27	2			35%		
5	↓				↓		
							5': 0.5
6							5.5-8': 0
7						@7'; saturated	
						@7.8'; olive-brown silt; some clay; wet	
8			8.0				
	100	3			45%	@8.3'; grey-brown f sand with silt; some cmf gravel (rounded); moist	8-12': 0
9	↓				↓		
10							
11						@11.0'; grey silt with f sand; trace mf gravel moist	
12			12.0				
	280	4			75%		12-16': 0
13	↓				↓	@13.1'; grey f sand with silt; little cmf gravel; moist	
14							
15						@15'; wet	
16			16.0			@16'; push through weathered bedrock	
	240	5	16.6		100%		16-16.6': 0
17	↓				↓		
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Spoon refusal @ 16.6'; Auger refusal @ 16.7
Set miniwell @ 16.7' (10' screen) sandpack 16.7-5'; bentonite 5'-3'

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA-08
Orchard Whitney	SHEET 1 OF 1
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/8/11 END DATE: 7/8/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
	22	1			35%	0-1'; stone and brown silt; cmf gravel; moist	
1	↓				↓	@ 1': olive-light brown silt with cla; little mf gravel; moist	0-4': 0
2						@ 2'; red-brown silt with mf sand; some cmf gravel; wet	
3						@ 3'; silt with clay as above (@ 1')	
4			4.0			@ 4; no clay; cm gravel; wet	
	30	2			5%		4-8':0
5	↓				↓		
6							
7							
8			8.0				
	380				90%	@ 8.5' (+/-); olive- light brown f sand with silt; little cmf gravel, Fe mottling, moist	8-12': 0
9	↓				↓		
10						@ 9.5'; rose-grey	
11							
12			12				
	260				95%		12-16': 0
13	↓				↓		
14							
15						@ 14.5'; grey silt; some f sand; trace mf gravel; moist	
16			16.0			@ 16'; saturated	
	400				100%		16-18.8': 0
17	↓				↓		
18						@ 18'; weathered bedrock	
19			18.8				
	83						
20	↓		20.4				

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Spoon refusal @ 18.8; Auger to 20'; drive final spoon to refusal @ 20.4'; set nested pair of miniwells; Deep well set @ 20.4' (5' screen) from 20-15'; sandpack 20-14'; 3' bentonite (14-11)'; Shallow well screen 10.5-5.5' and sand 11-4'; bentonite 4-2'

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA-09
Orchard Whitney	SHEET 1 OF 1
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/11/11 END DATE: 7/11/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
1	25 ↓	1			25% ↓	@ 0.0'; brown silt; some cmf sand and cmf gravel; dry @ 0.5'; black cinders/slag fill	0-4': 0
2							
3						@ 3'; brown silt with mf sand; some cm gravel; moist	
4			4.0			@ 4.0'; olive-grey silt/clay lense; moist	
5	21 ↓	2			50% ↓	@ 4.2; brown silt; mf sand and some cmf gravel; moist	4-8': 0
6						@ 6.0' (+/-); wet	
7						@ 7.0'; medium brown f sand; some silt; little mf gravel; saturated	
8			8.0			@8.3'; rose-grey f sand with silt; some cmf rounded gravel; moist	
9	285 ↓	3			90% ↓		8-12': 0
10							
11							
12			12.0				
13	415 ↓				100% ↓	@ 13.0'; grey silt; little f sand; trace mf gravel	12-16': 0
14							
15							
16			16.0			@ 16.0'; grey f sand; trace silt; saturated	
17	210 ↓				100% ↓		16-16.9': 0
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Spoon refusal @ 16.9'; auger refusal @ 17.0'; set miniwell @ 17' with 10' screen; sand pack to 5'; 2.5' bentonite seal

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

BORING # PA-09

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PROJECT	BORING PA-10
Orchard Whitney	SHEET 1 OF 1
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/11/11 END DATE: 7/11/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
1	21 ↓	1			50% ↓	@ 0.0'; brown silt, mf sand and cmf gravel; dry fill @ 0.5'; black cinder/slag/ash layer (6") @ 1' (+/-) brown f sand; some silt; some cmf gravel; moist	0-4:0
4			4.0		50%	@ 4.2'; olive-grey silt/clay layer; moist	4-8: 0
5	44 ↓				↓		
6						@ 5'; orange-brown f sand; little sand; saturated	
7						@ 7'; medium brown silt with f sand and cmf gravel; saturated	
8			8.0				
9	220 ↓				77% ↓	@ 8.75'; light brown f sand; little silt; some cmf gravel; wet	8-12: 0
11						@ 10.5'; grey, moist	
12			12.0				12-16: 0
13	410 ↓				100% ↓	@ 13.1'; grey silt; little trace f sand; moist	
16						@ 16'; grey f sand; little silt; saturated	16-16.9: 0
17	130 ↓		16.9				

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Spoon refusal= 16.9'; set nested pr. of miniwells; Deep: 17 to 12 screen;
Auger refusal= 17

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

Lu Engineers

PROJECT	BORING PA11
Orchard Whitney	SHEET 1 OF 1
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: END DATE:

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	70	1			30%	@ 0'; orange-brown f sand; little silt; moist	0-4': 0
1	↓				↓		
2						@ 2'; encounter rock fragments and concrete	
3							
4			4.0			@ 4.1'; olive-grey clay with silt; moist; medium plasticity	4-8': 0
		2			55%		
5					↓	@ 5'; with mf sand, mf gravel	
						@ 5.2; same as 4.1'	
6							
7							
						@ 7.9'; saturated	
8			8.0			@ 8.2; olive-light brown silt and clay; some cmf gravel; some mf sand; saturated	8-12': 0
	215	3			40%		
9	↓				↓		
10							
11							
12		4	12.0			@ 12.2'; grey silt with f sand; trace of gravel; saturated	12.2': 1.8
	410				80%		12.5': 37
13	↓				↓		13': 10
14						@ 14'; grey f sand with silt; saturated	14': 18
15						@ 15.6'; weather rock; cmf gravel (saturated)	15': 5.7
16			16.0				16': 1
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

12-16'; petrol-type odor (light, degraded)
Miniwell screen= 16'-6'; sandpack= 16'-4', bentonite= 4' to 2' bgs
Auger/spoon refusal @ 16'

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA-12
Orchard Whitney	SHEET 2 OF 2
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/12/11 END DATE: 7/12/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	360				80%		
21	↓				↓	@ 21'; saturated	19-23: 0
22							
23							
	165						
24	↓	24					
25							
26							
27							
28							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Spoon refusal @ 24.1, auger refusal= 24.2'

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA-14
Orchard Whitney	SHEET 1 OF 1
	JOB #: 4316-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/13/11 END DATE: 7/13/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA: BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
	24				50%	@ 0': brown cmf sand; little silt; some cmf gravel; moist	0': 0
1	↓				↓		1': 0
2							2':0
3							3': .2
4			4.0				4': 1.9
	24				50%		
5	↓				↓	@5'; red-brown f sand with silt; litlte mf gravel; wet	5': 2.0
6						@6'; olive-brown silt; little f sand; little cmf gravel; wet; petroleum odor	6': 0.5
7						@7'; saturated	7': 286.4
8			8.0				8': 176.4
					75%		
9					↓		9': 117
	290						
10	↓					@10'; grey f sand; some silt; little cmf gravel; moist	10': 502
11							11': 50
							11.5': 13.6
12			12.0				12': 16.3
					100%	@ 12.5'; grey silt; little f sand; trace mf gravel; moist	
13					↓		13': 63
14	455						14': 66
	↓						
15							15': 86
16			16.0			@ 16.8'; saturated f sand with silt	16': 6.4
	206				100%		
17	↓				↓		17': 1
			17.6				17.6': 0.5
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Spoon refusal= 17.6'; auger 18'
Screen miniwell from 18-8' with sandpack to 6'

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA-13
Orchard Whitney	SHEET 1 OF 1
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/12/111 END DATE: 7/13/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
1	36 ↓				45% ↓	Brown silt with cmf sand and cmf gravel; moist	0-4': 0
2						@ 1.7'; soil behaves similar to asphalt patch, flowing and "sticky"; wet	
3							
4			4.0			@ 3.8'; olive-grey clay lensej; moist	
5	32 ↓				25% ↓	@4.5'; brown cmf sand with silt; some cmf gravel; wet	4-8': 0
6							
7						@ 7'; brown silt; some cmf sand; some cmf gravel; saturated	
8			8.0				
9					75% ↓	@ 8.7'; grey f sand; some silt; some cmf gravel; wet @9'; moist	8.5': 24.6 9': 18
10	275 ↓						9.5': 62 10': 17
11							11': 20
12			12.0				11.5': 6.7 12': 3.4
13							13': 1.2
14	260 ↓						14': 0.3
15							15': 0.2
16							16': 2.4
17	140 ↓						17': 0
18			17.8				17.8': 0
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Boring is west of tank 6 vault (known contamination from UST removals))
Spoon refusal @ 17.8'; Auger refusal @ 19.5'

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA-15
Orchard Whitney	SHEET OF
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/13/11 END DATE: 7/13/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	45	1			12%	@ 0'; brown silt with clay; little cmf sand; cmf gravel; red stone @ 1-2' (very little recovery); moist	0-4': 0
1							
2							
3							
4			4.0				
	55	2			18%		4-8': 0
5						@5' (+/-); black-brown mf sand and slag/cinder fill; dry	
6							
7						@ 7.0'; light brown silt with cmf gravel; trace f sand; saturated	
8			8.0				
		3			70%		
9							
	80						9': 15
10						@ 10'; olive-light brown silt with f sand; moist	10': 5
						@ 10.7'; grey silt; some f sand; trace mf gravel; moist	
11							11': 0.2
12			12.0				12': 0
	316				75%	@ 12.5'; little cmf rounded gravel; moist	
13							
14							
						@ 14.75'; saturated (grey f sand with silt)	
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Set nested pair each with 2.5' screen (16.0-13.5' with sand to 13.0; bentonite from 13 to 10.5'; 2.5 shallow screen fr

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA-12
Orchard Whitney	SHEET 1 OF 2
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/12/11 END DATE: 7/12/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
1	21 ↓	1			50% ↓	Brown silt with cmf sand and cmf gravel; moist	0-4': 0
2							
3						@ 3'; 3" clay lense; olive-grey, moist	
4			4.0				
5	25 ↓	2			50% ↓		4-8': 0
6						@ 5'; wet	
7						@ 7; saturated	
8			8.0			@ 9; rose-grey f sand with silt; some cmf gravel; wet, moist	8-12': 0
9	180 ↓	3			68% ↓		
10						@ 10; grey silt; some f sand; true f gravel; moist	
11							
12			12.0				12-14.6': 0
13	430 ↓				100% ↓	@ 12.2; grey-light brown f sand; some silt; little mf gravel; moist; dense	
14			14.6				
15						@ 15'; grey	15-19': 0
16	440 ↓				95% ↓		
17							
18							
19							
20	360				80% ↓		

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Spoon refusal @ 14.6'; auger to 15' continue sampling

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA16
Orchard Whitney	SHEET 1 OF 2
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/13/11 END DATE: 7/13/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	NA				NA	0-6'; bldg demo material from berm	
1							
2							
3							
4							
5							
6						6-9'; flowable fill material	
7							
8							
9						@9'; concrete vault floor- 1' thick	
10						@ 10'; 2" layer black slag/cmf gravel; little cmf sand; petrol odor; saturated (likely concrete	10': 2.0
	90				70%	@10.2'; grey-brown silt with cmf sand; cmf gravel; sautrated; litght petrol odor; trace clay	10.5': 0.3
11							11': 0
12							12': 0
13							13': 0
14						@ 14'; rose-grey f sand with silt' some cmf gravel; moist	14': 0
	400				100%		
15							15-17': 0
16							
17							
	Auger						
18	400				95%	@ 18'; saturated	18-19.3': 0
19						@ 19'; moist	
	19.3						
20	150				100%	@ 20.5'; some silt; saturated	20-20.9': 0
	20.9					@ 20.7; moist	

U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA16
Orchard Whitney	SHEET 2 OF 2
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/13/11 END DATE: 7/13/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	Auger		20.9				
21							
22							
					60%	@ 23.5'; cobble	22-24': 0
23	210						
24			24.0				
25							
	200						
26					100%	@ 26'; grey mf sand; little silt; saturated	26-26.6': 0
			26.6				
27							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Spoon refusal= 26.6'; auger reufusal 26.8
Encounter natural gas pocket when removing augers
Oxygen= 19.8 ppm, Carbon Monoxide= 55 ppm down augers/no impact in breathing zone, no well installation

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA-17
Orchard Whitney	SHEET 1 OF 1
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/14/11 END DATE: 7/14/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
1						0-6'; Construction and demolition backfill (fill)	
2							
3							
4							
5							
6						@ 6'; flowable fill	
7							
8							
9							
10							
11							
12					75% ↓	@ 11.5'; vault floor @ 12'; black concrete; no odor (1")	12': 0.4
13		1				@ 12.1'; rose-grey f sand with silt; little cmf gravel; moist-wet	12.5': 0.5 13': 0.1
14	↑ 260 ↓						14': 0
15						@ 14.5'; grey silt' some f sand; trace mf gravel; moist	15': 0
16			16.0				16': 0
17	185 ↓						
18			17.6				
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Auger refusal @ 17.8'

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING PA18
Orchard Whitney	SHEET 1 OF 1
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/14/11 END DATE: 7/14/11

TYPE OF DRILL RIG: Bk81 (CME85)
CASING SIZE AND TYPE: 2"
OVERBURDEN SAMPLING METHOD: Autohammer, 4' malvocore band
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
1						Auger to 4' (concrete/sand/gravel)	0-4': NA
2							
3							
4					50%	@ 4'; red-brown mf sand; some silt; some cmf gravel; moist	
5		1			↓	@ 4.75' (+/-); olive-brown clay with silt; moist	4-8': 0
6	↑ 35 ↓						
7							
8						@ 8'; olive-light brown silt with f sand and cmf gravel; saturated	8-12': 0
9	250 ↓				90% ↓	@9'; f sand with silt	
10						@ 10'; rose-grey f sand; some silt; mf gravel; moist	
11						@ 11'; grey silt; little cmf gravel; moist	
12							12-16': 0
13					100% ↓		
14	335 ↓						
15							
16						@ 16.5'; grey f sand; some silt; trace mf gravel	16-17.3': 0
17	250 ↓				100% ↓		
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Spoon refusal @ 17.3'; Auger refusal @ 17.4'; no miniwell construction

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

BORING # PA-18

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PROJECT	BORING MW-23
Orchard Whitney RI/IRM	SHEET 1 OF 1
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/15/11 END DATE: 7/15/11

TYPE OF DRILL RIG: Bk81
CASING SIZE AND TYPE: 2" pvc/4.25" HSA
OVERBURDEN SAMPLING METHOD: Autohammer/continuous
ROCK DRILLING METHOD: Auger to auge refused in rock

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA: BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
					5%	Grey-brown silt; some cmf sand; some cmf gravel; moist	
1	↑						0-4': 0
	24						
2	↓						
3							
4			4.0				
	35				50%	@ 4.5'; brown mf sand; little silt; little mf gravel; moist	4-8': 0
5	↓						
						@ 5.5' (+/-); olive-grey silt; some cmf sand; some cmf gravel; moist	
6							
7							
8			8.0			@ 8'; saturated	
	160				75%		8-12': 0
9	↓						
						@ 9.2'; grey silt; some f sand; trace mf gravel; moist	
10							
11							
12			12.0				
					90%		12-15.1': 0
13							
	330						
14	↓						
15							
			15.1				
16							15.2-17': 0
							No sample
17	315		17.0		95	@ 17'; grey f sand with silt; little cmf gravel; moist	17-20': 0
18							
19							
20			20.0				

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

TD with augers= 22'
Spoon refusal @ 15.1'; auger to 17'; 2nd spoon refusal @ 20'; Auger to 22' (+/-); auger to 2' into bedrock and set interface well from 22-12 (10' screen); sandpack 22-11.5'; bentonite 11.5-8.8'

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING MW-24
Orchard Whitney RI/IRM	SHEET 1 OF 2
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/15/11 END DATE: 7/15/11

TYPE OF DRILL RIG: Bk81
CASING SIZE AND TYPE: 2" pvc/4.25" HSA
VERBURDEN SAMPLING METHOD: Autohammer (140 lb)/continuous @ 22'
ROCK DRILLING METHOD: Rollerbit

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	65	1			50%	@ 0'; Brick, silt, concrete fill; gravel, dry	0-4': 0
1	↓				↓		
2							
3							
4			4.0			@ 4'; stop sampling; already characterized through test pitting	
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING MW24
Orchard Whitney RI/IRM	SHEET 2 OF 2
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/15/11 END DATE: 7/15/11

TYPE OF DRILL RIG: Bk81
CASING SIZE AND TYPE: 2" pvc/4.25" HSA
OVERBURDEN SAMPLING METHOD: Autohammer (140 lb)/continuous @ 22'
ROCK DRILLING METHOD: Rollerbit

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
21							
22		2			0%	@ 22-22.9 No recovery	
23			22.9'				
24							
25		3			70%	@ 25'; grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above and moist 25-29')	25-26': 0
26	405						NO PID hits with meter in augers
27							
28							
29			29.0			@ 29'; encounter bedrock	
30							
31							
32							
33							
34						TD= 34' (construct well @ 33')	
35							
36							
37							
38							
39							
40							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

@ 25-29' spoon and drill rod saturated (at least 5' of water);
Encounter bedrock @ approximately 29'; auger to refusal @ 30.5';
Rollerbit to 34'; construct 33-24' screen; sand to 23.4'

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

BORING # MW-24

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PROJECT	BORING MW 25
Orchard Whitney	SHEET 1 OF 2
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/18/11 END DATE: 7/19/11

TYPE OF DRILL RIG: Bk81
CASING SIZE AND TYPE: 2" pvc/4.25" HSA
OVERBURDEN SAMPLING METHOD: 140 lb. Autohammer/continuous @ 8'
ROCK DRILLING METHOD: Rollerbit

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
1							
2							
3							
4		1			0%	No recovery	4-6': 0
5							
6			6.5				
7							
8		2			50%	medium brown silt and cmf gravel; some cmf sand; moist; fill	8-12': 0
9	34						
10						@ 10'; concrete, cinder/slag	
11							
12			12.0		25%	@ 12'; dark brown silt; some cmf grave; little mf sand, native; moist	12-16': 0
13	26	3					
14							
15							
16			16.0			@ 16'; red-brown f sand; little silt; moist; loose	16-20': 0
17		4			35%		
18	50						
19							
20			20.0				

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Concrete 6.5-8'

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

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PROJECT	BORING MW 25
Orchard Whitney RI/IRM	SHEET 2 OF 2
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/8/11 END DATE: 7/19/11

TYPE OF DRILL RIG: Bk81
CASING SIZE AND TYPE: 2" pvc/4.25" HSA
OVERBURDEN SAMPLING METHOD: 140 lb. Autohammer/continuous @ 8'
ROCK DRILLING METHOD: Rollerbit

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	200	5			60%	@ 20'; red-brown f sand; little silt, loose (native; saturated	20-24': 0
21						@ 21'; gravel and c sand; little silt; saturated	
						@ 22'; medium brown f sand with silt; little mf gravel; saturated	
22							
23						@ 23.1'; olive-brown silt; little mf gravel; saturated	
						@ 24.5'; light brown silt; some f sand; little mf gravel; moist	
24		6	24.0				
	280				95%		24-26.7': 0
25							
26			26.7				
27							
28							
29							
30						TD= 30' (rollerbit to 31' but cave in to 30')	
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Spoon refusal= 26.7; auger refusal= 26.8; rollerbit from 26.7 to 31'; set well @ 30' with 15' of screen (30-15')
Sandpack 31 to 13.8'; bentonite

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

BORING # MW-25

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PROJECT	BORING SB26A (between MW-24, MW-25)
Orchard Whitney	SHEET 1 OF 1
	JOB #:
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/19/11 END DATE: 7/19/11

TYPE OF DRILL RIG: Bk81
CASING SIZE AND TYPE: 2" pvc/4.25" HSA
OVERBURDEN SAMPLING METHOD: Autohammer/continuous
ROCK DRILLING METHOD: Rollerbit

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10	↑				8%	@ 10'; stone, concrete, brick (bldg. demo fill); moist	10-14': 0
11	30 ↓				↓		
12							
13							14-17.5': 0
14			14.0		3%	@ 14'; as above	
15	100 ↓				↓		
16							
17							
18			17.5				
19							
20						Spoon refusal @ 17.5' (initially); auger refusal @ 17.5'	

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

BORING # SB26A

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PROJECT	BORING SB26B
Orchard Whitney	SHEET 1 OF 1
	JOB #: 4216-03
	CHKD. BY:

CONTRACTOR: Nothnagle Drilling
DRILLER: Kevin
JCL PERSONNEL: ED

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: DATUM: N/A
START DATE: 7/19/11 END DATE: 7/19/11

TYPE OF DRILL RIG: Bk81
CASING SIZE AND TYPE: 2" pvc/4.25" HSA
OVERBURDEN SAMPLING METHOD: Autohammer/continuous
ROCK DRILLING METHOD: Rollerbit

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
1							
2							
3							
4							
5							
6							
7						Concrete	
8							
9							10-14': 0
10	↑	1			20%	medium brown silt with mf gravel; trace mf sand; moist	
11	11 ↓				↓		
12							
13							14-17.4': 0
14			14.0		25%		
15	85 ↓				↓		
16						@ 16'; as above with cmf gravel; wet lense	
17							
18			17.4				
19							
20							

Spoon refusal @ 17.4 auger to 17.5' (were making headway but C of R wanted to stop; likely a 2nd layer of concrete

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

BORING # SB26B

LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING MW-11
		Orchard-Whitney ERP #E828123 415 Orchard Street and 354 Whitney Street, Rochester, NY	SHEET 1 OF 1 JOB #: 4216 CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: LMS

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/26/08 END DATE: 9/26/08

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
						Concrete slab	
1			1-2		50%	Medium brown SILT, little cmf sand, little c-f gravel, trace clay, no odor, moist at 2'	0.0
	2						
2	3		2-4			Medium brown SILT, some cmf sand, trace gravel, moist, no odor	0.0
	1						
3	9						
	10						
4	30		4-6		80%	Same as above-moist, no odor	0.0
	6						
5	27					Medium brown to grey SILT, some f gravel, firm, dry, no odor	0.0
	47						
6	50		6-8		80%		
	50/3						
7							
8			8-10		80%	Same as above-with more c-f gracel, moist	0.0
	15						
9	27						
	38						
10	49		10-10.5		10%		
	14					Auger refusal at 10.5'	
11	50/2						
12							
13							
14							
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes: 12'-very fractured, wet, water bearing; 13.1'-water bearing; 14.1'-fractured, sediment, water bearing; 14.8'- very fracutured, wet, water bearing; no significant vertical fractures

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # MW-11

LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING MW-11
		Orchard-Whitney ERP #E828123	SHEET 1 OF 1
		415 Orchard Street and	JOB #: 4216
		354 Whitney Street, Rochester, NY	CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: LMS

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/26/08 END DATE: 9/26/08

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
						Concrete slab	
1			1-2		50%	Medium brown SILT, little cmf sand, little c-f gravel, trace clay, no odor, moist at 2'	0.0
	2						
2	3		2-4			Medium brown SILT, some cmf sand, trace gravel, moist, no odor	0.0
	1						
3	9						
	10						
4	30		4-6		80%	Same as above-moist, no odor	0.0
	6						
5	27					Medium brown to grey SILT, some f gravel, firm, dry, no odor	0.0
	47						
6	50		6-8		80%		
	50/3						
7							
8			8-10		80%	Same as above-with more c-f gracel, moist	0.0
	15						
9	27						
	38						
10	49		10-10.5		10%		
	14						
11	50/2					Auger refusal at 10.5'	
12							
13							
14							
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes: 12'-very fractured, wet, water bearing; 13.1'-water bearing; 14.1'-fractured, sediment, water bearing; 14.8'- very fracutured, wet, water bearing; no significant vertical fractures

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # MW-11

LU ENGINEERS *2230 PENFIELD ROAD*
Civil and Environmental *PENFIELD, NEW YORK 14526*

PROJECT	BORING MW-12
Orchard-Whitney ERP #E828123	SHEET 1 OF 1
415 Orchard Street and	JOB #: 4216
354 Whitney Street, Rochester, NY	CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: RLF

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/26/08 END DATE: 9/26/08

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
						Concrete	
1	3					Fill material	
	20				50%	Medium brown SILT, some cmf sand, little c gravel, moist, no odor	0.0
2	27					Medium brown cmf SAND and SILT, little cmf gravel, moist, no odor	0.0
	26						
3	34				75%		
	45						
4	18					Same as above-wet, no odor	
	4						0.0
5	14						
	11						
6	12					Same as above-wet, no odor	
	21				100%		0.0
7	2						
	37						
8	48				0%	No recovery	
	47						0.0
9	50/3						
						Auger refusal at 9.3'	
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes: Cored rock to 13.8'

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNOER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR OUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # MW-12

LU ENGINEERS *2230 PENFIELD ROAD*
Civil and Environmental *PENFIELD, NEW YORK 14526*

PROJECT	BORING MW-13
Orchard-Whitney ERP #E828123	SHEET 1 OF 1
415 Orchard Street and	JOB #: 4216
354 Whitney Street, Rochester, NY	CHKD. BY: N/A

CONTRACTOR: Robert
DRILLER: Robert
JCL GEOLOGIST: LMS

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/29/08 END DATE: 9/29/08

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
	6					Fill- Brick, coal slag, sand and gravel	0.0
1	13					Medium brown red SILT, some c-f gravel, little clay, trace cmf sand, moist	0.0
	15						
2	23		0-2		60%	Same as above- with more sand and gravel, moist	0.0
	19						
3	18						
	17						
4	32		0-4		40%	Medium brown SILT, little gravel, trace clay, moist	0.0
	13						
5	50		4-5.5		50%	Medium brown SILT; trace gravel, tight, wet	0.0
						Auger refusal at 5.5 fbgs	
6	14					Same as above	
	28						
7	50		5.5-7.5		50%		
						Medium brown SILT and cmf SAND, trace gravel, trace clay, wet	0.0
8	45						
	50/2		7.5-8.7		20%	Top of rock	0.0
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes:

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # MW-13

LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING MW-14
		Orchard-Whitney ERP #E828123 415 Orchard Street and 354 Whitney Street, Rochester, NY	SHEET 1 OF 1 JOB #: 4216 CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: GLA

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/29/08 END DATE: 9/29/08

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
1						0-0.8'-Concrete slab	
	1					Medium brown SILT, some cmf sand and cmf gravel, moist, no odor	0.0
2	1						
	2					Medium brown SILT, some cmf gravel, some cmf sand, trace clay, moist, no odor	0.0
3	4						
	6						
4	14				75%		
	8					Medium brown SILT and cmf SAND, some cmf gravel, trace clay, moist, no odor	0.0
5	13						
	6						
6	8				50%		
	7					Medium brown cmf SAND and SILT, some cmf gravel, moist, no odor	0.0
7	7						
	5				40%		
8	7						
	4					Dark brown SILT, some c-m sand, little cmf gravel, little f sand, trace clay, moist, no odor	0.0
9	5						
	6						
10	4				10%	Red/orange/brown cmf GRAVEL and SILT, some cmf sand, moist, wet at 11.5' with petroleum sheen and odor	0.0
	4						
11	14						
	26						
12	50					Firm red SILT and f SAND, little m-f gravel, little c-m sand, wet with petroleum odor	0.0
	36						
13	50					Loose cmf GRAVEL and SILT, come cmf sand, saturated petroleum odor, slight sheen	
	50						0.0
14	50/.4						
	50/.4						
15						Same as above-saturated	
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes: screen (14-4'?); sand 14-3'; bentonite 2-3'; grount/cement 0-2'

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING MW-15
		Orchard-Whitney ERP #E828123 415 Orchard Street and 354 Whitney Street, Rochester, NY	SHEET 1 OF 1 JOB #: 4216 CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: D. PECK (City)

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: END DATE:

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
1	4					6" Asphalt and conrete	0.0
	4						
2	6		0-2'	8	40%	Brown reworked SAND and SILT, little gravel (fill), moist	
	4						0.0
3	4						
	5						
4	6		2-4'	9	50%		
	6						0.0
5	8						
	8						
6	10		4-6'	16	30%		
	9						0.0
7	15						
	18					Brown CLAY and SILT, little gravel (fill)	
8	14		6-8	33	20%		
	3						0.0
9	9						
	8						
10	7		8-10	17	30%		
	2					Brown c-m SAND, wet	0.0
11	1						
	1						
12	1		10-12	2	40%		
	4						0.0
13	30						
	50/4		12-13.4		60%	Same as above- f SAND, trace silt, rock fragments	
14							0.0
	17						
15	30						
	50/3		14-15.3			Same as above- Grey f SAND, little silt, trace rounded gravel (glacial till)	
16						Augar refusal at 15.5'	0.0
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes:

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # MW-15

LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING MW-16
		Orchard-Whitney ERP #E828123	SHEET 1 OF 2
		415 Orchard Street and	JOB #: 4216
		354 Whitney Street, Rochester, NY	CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Ribert
JCL GEOLOGIST: D. PECK (City)

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/30/08 END DATE: 9/30/08

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
1							
	1			1			
2			0-2		5%		
	3					Brown silty CLAY and GRAVEL, damp (fill)	
3	4						0.0
	6						
4	9		2-4	7	20%		
	10						0.0
5	12						
	9						
6	7		4-6	21	10%		
	3						0.0
7	4						
	3						
8	2		6-8	7	30%		
	4					c-m SAND, trace gravel, little clay, wet	
9	10						0.0
	50						
10	50/4		8-10	60	40%	Same as above- grades to f SAND	
	36						0.0
11	50						
	50/3		10-11.3'		40%	Grey f SAND, little rounded gravel (glacial till)	
12							0.0
	36						
13	50						
	50/4		12-13.4		50%	Same as above- Grey SILT, damp	
14							0.0
	32						
15	50/3		14-14.8		40%		
							0.0
16							
	36						
17	50/3		16-16.8		40%	Same as above- trace gravel, damp	
							0.0
18							
	36		18-19.4				
19	50						0.0
	50/4						
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes:

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

LU ENGINEERS *2230 PENFIELD ROAD*
Civil and Environmental *PENFIELD, NEW YORK 14526*

PROJECT	BORING MW-16
Orchard-Whitney ERP #E828123	SHEET 2 OF 2
415 Orchard Street and	JOB #: 4216
354 Whitney Street, Rochester, NY	CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: D. PECK (City)

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/30/08 END DATE: 9/30/08

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	50/4		20-20.4		40%		
21							0.0
22							
	18						
23	50/4		22-22.9		30%	SAND and GRAVEL, little clay, wet	0.0
24							
	50/4		24-24.4		30%		
25						Augar Refusal at 24.9'	
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes:

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # MW-16

LU ENGINEERS
Civil and Environmental

2230 PENFIELD ROAD
PENFIELD, NEW YORK 14526

PROJECT	BORING MW-17
Orchard-Whitney ERP #E828123	SHEET 1 OF 1
415 Orchard Street and	JOB #: 4216
354 Whitney Street, Rochester, NY	CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: D. PECK (City)

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: END DATE:

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
						Excavated to allow well installation through slab, similar soil to MW-16	
1							
2							
3							
4							
	4				15%	Red-brown cmf GRAVEL and SILT, little cmf sand, little clay, moist, no odor	
5	4						
	6						
6	7						
	8					similar soil to 7'	
7	12						
	14					Brown-grey cmf GRAVEL (cobble) underlain by lense of m sand, orange-brown, moist, no odor	
8	4						
	9					Brown loose SILT and cmf GRAVEL, little cmf sand, little clay, wet/saturated, no odor	
9	4						
	1						
10	10						
	50					Same as above	
11	50/4						
12							
	14						
13	37					Grey f SAND, little silt, trace rounded gravel, no odor, damp	
	50						
14	50/4			87			
	13						
15	28						
	50						
16	50/2			78		Same as above	
						Augar refusal at 16'	
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes: screen 6-16'; sand 4-16-'; bentonite 2-4'; grout/cement 0-2';

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # MW-17

LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING MW-18
		Orchard-Whitney ERP #E828123 415 Orchard Street and 354 Whitney Street, Rochester, NY	SHEET 1 OF 1 JOB #: 4216 CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: D. PECK (City)

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 10/1/08 END DATE: 10/1/08

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
						No recovery	
1	1						
	1						
2	3		0.5-2	2	0%		
	4						
3	8					Brown re-worked silty SAND and GRAVEL, little clay (fill)	0.0
	10						
4	10		2-4'	18	30%		0.0
	8						
5	13						
	12						
6	6		4-6'	25	50%		0.0
	13						
7	2						
	1						
8	1		6-8	3	40%	Yellow-brown CLAY, little sand (fill) wet	0.0
	1						
9	1						
	1						
10	14		8-10	2	30%	Red-brown SAND, little gravel and clay	0.0
	18						
11	40						
	17						
12	50/2		10-11.7	57	30%	Grey SAND, trace silt and gravel	0.0
						Augar Refusal at 11.2'	
13							
14							
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes: core 11.2-16.2'; screen 6-16'; sand 4-16-'; bentonite 2-4'; grout/cement 0-2';lost 400 gallon water

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # MW-18

LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING MW-19
		Orchard-Whitney ERP #E828123 415 Orchard Street and 354 Whitney Street, Rochester, NY	SHEET 1 OF 1 JOB #: 4216 CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: D. PECK (City)

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 10/1/08 END DATE: 10/1/08

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
1							
	8					SAND, SILT, and GRAVEL (fill)	
2	8		1-2		5%		0.0
	7						
3	2						
	1						
4	1		2-4	3	40%	Brown SILT, little sand, trace gravel and clay (fill)	0.0
	3						
5	4					Same as above- little clay	
	4						0.0
6	4		4-6	8			
	3						
7	2					Light brown m SAND, damp	
	2						0.0
8	2		6-8	4			
	12						
9	37						
	50/4		8-9.4		10%	Brown f SAND, little silt, trace gravel, damp	
10							0.0
	24						
11	50/2		10-10.7				
12					10%	Grey-brown f SAND and SILT, trace gravel (till)	
						Augar Refusal at 9.5'	0.0
13							
14							
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes: Rollerbout to 15'; screen 5-15'; sand 4-15'; bentonite 2-4'; grout/cement 0-2'; 500 gallons water used

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # MW-19

LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING MW-20
		Orchard-Whitney ERP #E828123	SHEET 1 OF 1
		415 Orchard Street and	JOB #: 4216
		354 Whitney Street, Rochester, NY	CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: D. PECK (City)

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 10/2/08 END DATE: 10/2/08

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
	20					SAND, SILT, and GRAVEL (fill)	
1	21						
	18						
2	2		0-2	39	50%		0.0
	3						
3	2					Brown f SAND, damp	
	18						
4	6		2-4	18	40%		0.0
	4						
5	4					Brown CLAY and GRAVEL, damp/wet, slight petroleum odor	
	4						
6	4		4-6	16			4.7
	2						
7	52						
	2						
8	17		6-8	7	60%	Same as above- wet, petroleum odor	101.0
	23						
9	34						
	37						
10	27		8-10			Grey vf SAND, wet	0.4
	34						
11	37						
	44						
12	50/.2		12-Oct				
						Augar Refusal	
13							
14							
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes: 275-gallon water used; well 17-5'

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # MW-20

LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING MW-21
		Orchard-Whitney ERP #E828123	SHEET 1 OF 1
		415 Orchard Street and	JOB #: 4216
		354 Whitney Street, Rochester, NY	CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: D. PECK (City)

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 10/3/08 END DATE: 10/3/08

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
1						No Samples 0-4'	
2							
3							
4						Brown SILT, little clay and gravel, damp	0.0
5	1						
6	1		4-6	2			
7	1						
8	2		6-8	8		Same as above- wet, saturated	0.0
9	2					Same as above- petroleum odor	
10	10		8-10	5		Same as above	
11	50/4						
12			10-10.9			Grey f SAND and SILT, trace rounded GRAVEL, damp	0.0
13	35						
14			12-13.3			Same as above- SILT, t gravel	
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING MW-22
		Orchard-Whitney ERP #E828123 415 Orchard Street and 354 Whitney Street, Rochester, NY	SHEET 1 OF 1 JOB #: 4216 CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: D. PECK (City)

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 10/608 END DATE: 10/6/08

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
						Asphalt and stone	
1	7					No recovery	
	2						
2	3		0-2	9	0%	Brown m-f SAND, damp	0.0
	3						
3	3						
	2						
4	2		2-4	5	70%	Same as above-f SAND, little silt, damp, wet	0.0
	7						
5	10						
	10						
6			4-6	20	60%	Same as above- 3" gravel seam at 7'	0.0
	15						
7	12						
	10						
8	14		6-8	24	50%	Brown f SAND and SILT, little rounded gravel, damp	0.0
	11						
9	50/4						
10			8-8.4		30%	Grey SILT, trace sand and rounded gravel, damp	0.0
	15						
11	15					Auger refusal at 11'	
	50/4						
12			10-11.4		60%		
13							
14							
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes: core 11-16'; screen 4-16'; sand 3-16', bentonite 2-3'; grout/cement 0-2'; used 200-gallons water

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # MW-22

Orchard Whitney Soil Boring Depths

			Analytical Information	
Boring	Depth to Bedrock	Highest P.I.D.	Total SVOCs detected	Total Metals Detected
MW-11	10.5 ft	0		
MW-12	9.3 ft	0		
MW-13	8.7 ft	0		
MW-14	15 ft	0		
MW-15	15.5 ft	0		
MW-16	24.9 ft	0		
MW-17	16 ft	0		
MW-18	11.2 ft	0		
MW-19	9.5 ft	0		
MW-20	12 ft	101		
MW-21	13.3 ft	0		
MW-22	11 ft	0		
TB-01	7 ft	7.7		
TB-02	17 ft	0.2		
TB-03	10.6 ft	0		
TB-04	19.2 ft	0		
TB-05	10.7 ft	0		
TB-06	13.4 ft	0		
TB-07	11 ft	0	2,400 ppb	
TB-19	18 ft	1.3		584 ppm- Chromium
TB-20	14.5 ft	0		

LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING TB-01
		Orchard-Whitney ERP #E828123	SHEET 1 OF 1
		415 Orchard Street and	JOB #: 4216
		354 Whitney Street, Rochester, NY	CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: D. PECK (City)

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/23/08 END DATE: 9/23/08

TYPE OF DRILL RIG: Mobil Dill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
1							
2							
3							
4	3				20%	Light brown SILT and f SAND, some m-f gravel, little c-m sand, trace clay, moist, no odor	ND
5	6 8						
6	8 12						
7	15 12				75%	Grey SILT and rock fragments, angular, satruated, no odor Auger refusal at 7'	7.7
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes: 1)Refusal at 4.4'- moved back slightly and re-drilled; 2)Refusal at 3.5'- steel plate. Move south 3' and re-drilled.

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # TB-01

LU ENGINEERS *2230 PENFIELD ROAD*
Civil and Environmental *PENFIELD, NEW YORK 14526*

PROJECT	BORING TB-02/MW-08
Orchard-Whitney ERP #E828123	SHEET 1 OF 1
415 Orchard Street and	JOB #: 4216
354 Whitney Street, Rochester, NY	CHKD. BY: N/A

CONTRACTOR:
DRILLER:
JCL GEOLOGIST:

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/23/08 END DATE: 9/23/08

TYPE OF DRILL RIG: Mobil Dill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
	4				100%	Dark brown SILT and f SAND, some c-m sand, little m-f gravel, moist, no odor	ND
1	7						
	9						
2	4						
	4					Medium brown SILT and f SAND, some c-m sand, little cmf gravel, trace clay, moist, no odor	0.2
3	3						
	4						
4	4						
	7					Same as above	0.1
5	6						
	8						
6	11						
	8						
7	8					Same as above- stiff, no odor	0.0
	8						
8	11						
	1					Brown SILT and m-f SAND, little cmf gravel, little c sand, little clay, moist/wet, no odor	0.1
9	3						
	3						
10	2						
	3					Red brown m-f SAND and SILT, some c sand, trace cmf gravel, saturated, compact, no odor	0.0
11	2						
	1						
12	1						
	1					Red brown cmf SAND and SILT, some cmf gravel, saturated, loose, no odor	0.0
13	2						
	5						
14	4						
	8					Medium brown cmf SAND and SILT, some cmf gravel, trace clay, stiff, drier with saturated zones, no odor	0.1
15	9						
	11						
16	12						
	13				50%		
17	50					Same as above-loose, wet/saturated, no odor	
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes: Setting well in overurden with 12' screen; btwn 18-6'; sand 6-4.5'; grout/cement

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # TB-02/MW-08

LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING TB-03
		Orchard-Whitney ERP #E828123	SHEET 1 OF 1
		415 Orchard Street and	JOB #: 4216
		354 Whitney Street, Rochester, NY	CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Rpbert
JCL GEOLOGIST: D. PECK (City)

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/24/08 END DATE: 9/24/08

TYPE OF DRILL RIG: Mobile Dill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
	6					Brown SILT, trace gravel and roots (fill)	
1	8					Light brown f SAND (fill), dry	0.0
	8						
2	10		0-2	16	50%		
	5						
3	5						
	6						
4	5		2-4	11	0%	No recovery	
	2						
5	3						
	3						
6	2		4-6	6	0%	No recovery	
	5						
7	5						
	9						
8	14		6-8	14	30%	Brown f SAND, little silt, trace clay, wet	0.0
	6						
9	32						
	21						
10	15		8-10	53	40%	Brown f SAND, little clay and gravel, wet	0.0
	46		10-10.6		50%	Auger refusal at 10.6'	
11	50/1						
12							
13							
14							
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes:

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # TB-03

LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING TB-04/MW-09
		Orchard-Whitney ERP #E828123 415 Orchard Street and 354 Whitney Street, Rochester, NY	SHEET 1 OF 1 JOB #: 4216 CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: D. PECK (City)

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/24/08 END DATE: 9/24/08

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
						Concrete sidewalk	
1	9					Light brown f SAND (fill), dry	0.0
	15						
2	17		0-2	24	40%	Brown f SAND and SILT, trace gravel	0.0
	22						
3	24						
	21						
4	26		2-4	45	60%		
	11						
5	10						
	16						
6	19		4-6	26	60%	Same as above	0.0
	42						
7	21						
	14						
8	14		6-8	35	50%	Same as above- wet at 9'	0.0
	23						
9	14						
	4						
10	2		8-10	18	50%		
	2						
11	13						
	16						
12	20		10-12	29	60%	Grey brown f SAND, little silt, wet (glacial till)	0.0
	22						
13	34					Same as above	
	50/4		12-13.4				
14						Light grey SILT, trace f gravel, dry, firm (till)	0.0
	17						
15	50						
	50.4		14-15.4		50%		
16							
	12						
17	44						
	50/3		16-17.3				
18						Same as above-wet at 18.5'	
			18-18.6		70%		0.0
19							
						Auger refusal at 19.2'	
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes: water at 8.25'; BTC at 1530

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
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LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING TB-05
		Orchard-Whitney ERP #E828123 415 Orchard Street and 354 Whitney Street, Rochester, NY	SHEET 1 OF 1 JOB #: 4216 CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: LMS

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/25/08 END DATE: 9/25/08

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	5					Top soil	
1	2					Medium brown SILT and cmf SAND with c-f GRAVEL, dry, loose, trace coal fragments at 1.0' (fill)	0.0
	10						
2	5		0-2		70%	Medium brown SILT, some cmf sand, little gravel, moist	0.0
	4						
3	4						
	3						
4	9		2-4		50%	Medium brown f SAND and SILT, little c-f gravel, moist (till)	0.0
	24						
5	30						
	48						
6	34		4-6		60%	Same as above-compacted	0.0
	22						
7	34						
	40						
8	34		6-8		75%	Same as above-wet at 9'	0.0
	11						
9	27						
	26						
10	25		8-10		60%	Same as above-saturated at 10', no odor	0.0
	50/2					Auger refusal at 10.7'	
11							
12			10-12		80%		0.0
13							
14							
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes:

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
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BORING # TB-05

LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING TB-06/MW-10
		Orchard-Whitney ERP #E828123	SHEET 1 OF 1
		415 Orchard Street and	JOB #: 4216
		354 Whitney Street, Rochester, NY	CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: RLF

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/25/08 END DATE: 9/25/08

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
						Asphalt	
1	1				30%	Medium brown SILT, some f sand, trace f gravel, moist, no odor	0.0
	2						
2	3					Medium brown SILT, some cmf sand, little gravel, trace clay, moist, medium stiff, no odor	0.0
	6						
3	8				75%		
	15						
4	22					Medium brown SILT and f SAND, little cmf gravel, little c-m sand, moist, no odor (till)	0.0
	7						
5	16				80%		
	17						
6	26					Same as above-trace c sand, no odor	0.0
	32						
7	35				100%		
	36						
8	27					Same as above-water at 9.5', no odor	0.0
	4				90%		
9	21						
	30						
10	30					Same as above-saturated at 11.5', no odor	0.0
	1				90%		
11	18						
	26						
12	25					Medium brown SILT and cmf SAND, trace gravel, saturated, no odor	0.0
	28				60%		
13	33						
	50.4					Auger refusal at 13.4'	
14							
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes: 14.6-14.8- highly fractured, iron stained, water bearing; 15.4'-two verticle fractures; 16.9'- water bearing

GENERAL NOTES:
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2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # TB-06/MW-10

LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING TB-07
		Orchard-Whitney ERP #E828123 415 Orchard Street and 354 Whitney Street, Rochester, NY	SHEET 1 OF 1 JOB #: 4216 CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST: RLF

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: END DATE:

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
1						Fill material, crushed brick and concrete, average size- cmf gravel, cobble	
2							
3							
4							
5							
6							
7							
8							
9							
10	9					Medium brown m-f SAND and m-f gravel, little c sand, trace silt, moist, no odor	
	12				25%		
11	50/4						
12							
13							
14							
15							
16							
17							
18							
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes:

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # TB-07

LU ENGINEERS Civil and Environmental	2230 PENFIELD ROAD PENFIELD, NEW YORK 14526	PROJECT	BORING TB-19
		Orchard-Whitney ERP #E828123 415 Orchard Street and 354 Whitney Street, Rochester, NY	SHEET 1 OF 1 JOB #: 4216 CHKD. BY: N/A

CONTRACTOR: Paragon
DRILLER: Robert
JCL GEOLOGIST:

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 10/3/08 END DATE: 10/3/08

TYPE OF DRILL RIG: Mobile Drill B-59
CASING SIZE AND TYPE: 4.25" HAS
OVERBURDEN SAMPLING METHOD: Split Spoon
ROCK DRILLING METHOD: Tri-cone bit (rotary)

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
1							
						Concrete	
2							
3	50/.2					Brown cmf SAND and GRAVEL, dry, no odor	ND
4							
						12 ppm on augers	
5	17					Brown SILT and cmf SAND, some cmf gravel, dry, no odor	ND
	9						
6	8						
	5						
7							
8							
9							
10							
	10						
11	10					Brown SILT and m-f SAND, little c SAND, wet, no odor	ND
	20						
12	10						
13							
14							
15							
	14						
16	38					SILT and f SAND, some c-m SAND, some cmf gravel, wet, compact	1.3 ppm
	15						
17	48						
18						Auger refusal at 18'	
19							
20							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

Notes:

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
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BORING # TB-19

Appendix 6
City of Rochester Developers Guide

City of Rochester New York Developers Guide

INTRODUCTION: The Development Process

Clean air, pure water, unpolluted land, accessible streets, and safe, sound and attractive buildings are among the expectations of the people of Rochester. Residents recognize that development and rehabilitation projects are both necessary and desirable. To meet these goals, the City encourages and assists prospective developers and enforces environmental, zoning and construction standards. This document describes permits required and review processes most frequently involved with major construction and rehabilitation projects in the City of Rochester. The document is organized by department and agency, with the permits and reviews each administers, listed and explained. The City has simplified its development review and approval process by creating a Centralized Permit Office located in Room 121B of City Hall. In this one location, a developer may apply for a variety of permits, thus reducing the number of offices to be visited.

Included in this document is a flowchart which graphically represents the overall review process from beginning to end. To expedite this process, all steps on the same horizontal level should be completed simultaneously. Referring to the chart, all areas (except STATE & COUNTY ENVIRONMENTAL REVIEWS) make use of the Central Permit Office and applications for each step of the process may be obtained there. A department directory appears at the end of this document. You can use either the chart or the table of contents below to follow the development process with the City of Rochester.

For information on development possibilities, contact the Department of Economic Development (industrial) at (585) 428-6965 or the Bureau of Buildings and Zoning at (585) 428-6526.

DEVELOPMENT PROCESS IN THE CITY OF ROCHESTER, NEW YORK

<table>
<tr><td colspan="3">OPTIONAL DEVELOPMENT CONFERENCE WITH BUREAU AND AGENCY REPRESENTATIVES</td></tr>
<tr><td colspan="3">APPLICATION FOR CERTIFICATE OF ZONING COMPLIANCE</td></tr>
<tr><td colspan="2">STATE & COUNTY
ENVIRONMENTAL REVIEW
Monroe County Pure Waters
Monroe County Department of Health
NYS Department of Environmental Conservation</td><td>CITY ZONING AND
ENVIRONMENTAL REVIEWS
Division of Zoning</td></tr>
<tr><td colspan="3">ISSUANCE OF CERTIFICATE OF ZONING COMPLIANCE</td></tr>
<tr><td colspan="3">BUILDING AND CONSTRUCTION REVIEWS</td></tr>
<tr><td>DEPARTMENT OF
COMMUNITY
DEVELOPMENT
Building Code Review
Plumbing Code Review
Electrical Permits
Elevator Permits</td><td>DEPARTMENT OF
ENVIRONMENTAL
SERVICES
Engineering Services Permits</td><td>FIRE DEPARTMENT
Fire Safety Division</td></tr>
<tr><td colspan="3">ISSUANCE OF BUILDING PERMIT</td></tr>
<tr><td colspan="3">INSPECTION OF CONSTRUCTION & ISSUANCE OF CERTIFICATE OFOCCUPANCY BY THE BUILDING INSPECTION DIVISION</td></tr>
</table>

DEVELOPER'S GUIDE TABLE OF CONTENTS

ZONING AND ENVIRONMENTAL REVIEWS

Department of Community Development Bureau of Buildings and Zoning/Division of Zoning Room 125B, City Hall (585) 428-7043

Certificate of Zoning Compliance (Zoning Code: Section 120-189)

Prior to applying for building permits, the developer submits plans and completes an application for a Certificate of Zoning Compliance (CZC). If the project complies with all zoning standards, the application is approved and the developer may then proceed with application for building and construction permits. If the application is denied, the developer may choose to revise the plans or pursue one or more of the following special processes: site plan review, variance, special permit, certificate of appropriateness, etc. Most of these processes would require the filing of an Environmental Assessment Form (EAF).

Site Plan Review (Zoning Code: Section 120-191D)

Site Plan Review is the examination of the design elements of development proposals to ensure that a project does not adversely affect the site or adjacent properties. It is also a vehicle to assist applicants by alerting them to any deficiencies which should be corrected prior to development. Most major projects are subject to this review. Typically, the process requires submission of detailed site plans, landscape plans, building elevations, an Environmental Assessment Form and possible other information about the project, as required by the Director of Zoning.

If a proposal requires site plan review as well as another zoning special process such as a variance, special permit or Certificate of Appropriateness, the site plan review process precedes the public process. The Director of Zoning must issue Preliminary Site Plan Findings and Notice of Environmental Determination prior to the application for the special process.
The preliminary findings identify zoning requirements, project deficiencies and recommended modifications. These findings will accompany the required special process application for the Boards/Commission's review. The Final Site Plan Decision will incorporate any Board/Commission conditions.

Zoning Variance (Zoning Code, Section 120-195B)

A variance is a procedure by which waivers of certain requirements of the Zoning Code are considered by the Zoning Board of Appeals. There are two types of variances: use variance and area variance.
The application should include floor plans, site plan, elevations and a copy of the preliminary site plan findings as issued by the Director of Zoning when site plan review is required. After plans and applications are submitted, the Zoning Board conducts a public hearing at which the applicant's attendance is required. The Board then votes to grant or deny the variance. A decision letter will be issued within ten (10) days of the Board's determination. Due to public notification requirements, the applicant should allow 6 - 8 weeks from the date the application is filed for the Board's decision. If the project requires site plan review, the applicant must wait for the Final Site Plan Approval letter issued by the Director of Zoning. The applicant must post a sign provided by the City, at least twenty (20) days prior to the meeting date.

Rezoning (Zoning Map Amendment) (Zoning Code: Section 120-190C)

This process involves a revision of an area's zoning classification and requires City Council approval.

After the application is submitted, the City Planning Commission holds a public informational meeting, at which the applicant's presence is required. The Commission then makes a recommendation to City Council. City Council conducts a public hearing and votes on the proposal to amend the Zoning Map. The applicant should allow 10-12 weeks for the entire process. The applicant must post a sign provided by the City, at least twenty (20) days prior to the meeting date.

Special Permits (Zoning Code: Section 120-192B)

For certain permissible uses which may have a special impact, the developer must obtain a special permit. A site plan review is required for every special permit application. The application typically includes site plans, floor plans, landscape plans, building elevations, an Environmental Assessment Form and a copy of the Preliminary Site Plan Findings issued by the Director of Zoning. After the plans and a completed application are submitted, the City Planning Commission conducts a public hearing which the applicant or designated representative must attend. Subsequent to the public hearing the Planning Commission makes a decision. A decision letter will be issued within one (1) week of the Planning Commission's determination. Due to the public notification requirements, the applicant should allow 6 - 8 weeks for the entire process. If the project requires site plan review, the applicant must wait for the Final Site Plan Approval letter issued by the Director of Zoning. The applicant must post a sign provided by the City, at least twenty (20) days prior to the meeting date.

Certificate of Appropriateness (Zoning Code: Section 120-194A)

If the project will involve exterior work on a Landmark or on property within a Preservation District, a Certificate of Appropriateness must be approved by the Rochester Preservation Board.

A typical application includes site plans, floor plans, landscape plans, building elevations, material samples, color charts, photographs and possibly a completed Environment Assessment Form. After submission of the plans and application, the Board holds a public hearing which the applicant or designated representative must attend. The Board usually makes its decisions within 4 - 5 weeks of the date the application is submitted unless the Board requests additional information pertaining to the application. If the project requires site plan review, the applicant must wait for the Final Site Plan Approval letter issued by the Director of Zoning. The applicant must post a sign provided by the City, at least twenty (20) days prior to the meeting date.

Subdivisions (Land Subdivision Regulations - Chapter 128 of the Municipal Code)

Some projects which involve the conveyance of land or the use of more than one (1) lot, must be reviewed as a subdivision or resubdivision and be approved by either the City Planning Commission or the Director of Zoning. Site plan review is required for every subdivision application.

There are three types of subdivisions: exempt subdivision, subdivision and resubdivision.

Exempt Subdivision - A subdivision of fewer than five (5) lots with the Director of Zoning having approval authority. Lots must have street frontage and access to qualify.

Resubdivision - Revision of an existing filed plat (map) including subdivisions and minor transfer of land. A minor transfer of land is the procedure by which two (2) or more lots are combined or lot lines are altered such that it does not result in an increase in the number of lots.

Subdivision - Procedure by which one (1) or more lots is divided, thereby increasing the total number of lots. The City Planning Commission has approval authority of subdivisions of five (5) or more lots and other non-exempt subdivisions.

If the project creates one (1) or more new tax accounts or lots, the applicant must submit a subdivision or re-subdivision map (scaled to not less than two (2) inches equaling one (1) mile) prepared by a licensed surveyor. If five (5) or more lots are created, an Environmental Assessment Form must be submitted.

Certification of approval by the Monroe County Department of Health must also be submitted in the case of realty subdivisions created as defined pursuant to Article III of the Monroe County Sanitary Code. In order to receive approval by Monroe County Department of Health, an applicant must show methods of obtaining and furnishing adequate and satisfactory water supply and sewage facilities to the subdivision. The applicant must also supply information regarding the nature and condition of the soil to absorb sewage, the depth to ground water and bedrock, the topography of the land, and the arrangements for proper drainage and disposal of surface water. Applicants should contact the Monroe County Department of Health directly for a complete set of requirements for approval. Prepaid tax certificates from the County and City are required as part of the submission.

The applicant should allow 6 - 8 weeks following submittal of a complete subdivision application for the processing of a case requiring a hearing. If no hearing is necessary, a decision should be available in 1 - 3 weeks.

Official Map Amendment (Zoning Code: Section 115-37)

The Official Map is a subsidiary part of the Comprehensive Plan and indicates the location and width of >streets and the location of parks as laid out and adopted. An amendment to the Official Map may be initiated by filing a completed application with the Division of Zoning, which coordinates a review process involving several agencies, and schedules a City Planning Commission informational meeting. Typical examples of Official Map Amendments include street dedications and abandonments, right-of-way changes, street naming and dedication of city parks.

Amendments to the Official Map can be made only by City Council by the adoption of an ordinance after a Public Hearing. The City Planning Commission makes a recommendation to the City Council on all Official Map Amendment applications. The applicant should allow 10 -12 weeks for the entire process.

Environmental Assessment (New York State Environmental Quality Review (SEQR) Act and Chapter 48 of the Municipal Code)

The decision making body (i.e. Director of Zoning, Zoning Board, Planning Commission, Preservation Board, etc.) has the responsibility for making determinations and administering the local environmental Code as well as SEQR Act of New York. Most projects require Environmental Review.

The first step is completion of an Environmental Assessment Form (EAF) by the applicant. On the basis of the EAF, an environmental assessment is prepared: this is reviewed by the decision making body. If the decision making body determines that the project will not have a significant environmental impact, a Determination of Environmental non-significance is issued and the remaining project reviews continue (i.e. variance, special permit, Certificate of Appropriateness, etc.)

If the decision making body determines that the project may significantly and adversely affect the environment, an Environmental Impact Statement (EIS) is required. The developer prepares and submits a "Draft EIS" following a Public Hearing, the "Final EIS" is prepared. This is used by the decision making body in making is final decision. The EIS process, if applicable, takes a minimum of 12 - 16 weeks.

Monroe County Pure Waters
350 E. Henrietta Road (585) 274-7838

Rochester Pure Waters District Permit

If the proposed project will result in additional storm or sanitary discharge, new connections to sewers and all sanitary combination storm sewer extensions must be approved and a permit obtained from Pure Waters. Initially, one set of complete plans and forms are required, and shall include:

A site plan showing existing and proposed utilities and street sewers (minimum plan size 17" x 22");

Interior plumbing plans, including sizes of pipes for industrial and commercial projects;

Other drawings as required to describe the project.

All required forms as per requirement and any special pre-treatment (if applicable) for all privately constructed sewer in the Rochester Pure Waters District.

The applicant should allow 15 days for initial review of plans. Prior to final approval, four additional sets of plans shall be submitted. These will be stamped and two (2) sets will be returned to the applicant for distribution as the project is reviewed by the Bureau of Buildings and Zoning. The other two (2) sets will remain in Pure Waters files. (Rochester Pure Waters District will administer the sewer construction of the proposed extension.)

Permits will be issued to licensed plumbers when the following conditions have been met:

Applications for new connections have been approved by the Rochester Pure Waters District and a stamped copy of the drawing has been submitted to the Permit Office.

Submission of an acceptable certificate of insurance meeting the District's requirements.

Submittal of an acceptable $5,000.00 plumbers permit bond meeting the District's requirements.

Payment of all applicable permit fees.

Permits shall be signed by the licensed plumber or his/her authorized designee. Sewer connection permits shall be in effect for a one year period commencing on the date of issuance.

Monroe County Department of Health
111 Westfall Road (585) 274-6811

Health Department Permits

If the proposed project will include:

Food service establishments;
Temporary residences (children's camps and mass gatherings);
Sanitary or combined sewer extensions;
Water main extensions;
Realty subdivision;
On-site sewage disposal;
Public swimming pools;
Water supply-cross-connection protection;
Development on a former waste/fill site,

Tthe developer should contact the Division of Environmental Health of the Monroe County Department of Health. The Health Department reviews construction plans to ensure that minimum health standards are met.

In the case of subdivisions, water main extensions and sewer extensions, the Department acts on behalf of the State Departments of Health and Environmental Conservation as required by Part 5 of the State Sanitary Code and Health and Environmental Conservation Laws.

New York State Departments of Environmental Conservation (NYSDEC) and Health (NYSDOH)

The Bureau of Planning can usually inform the developer of NYSDEC or NYSDOH permits which may apply to the project. It is the developer's responsibility, however, to contact those agencies and apply for and receive the necessary permits. Application forms are available from any NYSDEC or NYSDOH office.

NYSDEC Permits6274 East Avon-Lima Road (585) 226-2466

Permits are required if the proposed project includes:

Sources of air contamination within the City boundary;
Disposal, storage and treatment of solid and hazardous waste;
Any work in a protected freshwater wetland;
Dredging and filling in protected rivers, creeks and lakes;
Transport of hazardous and non-hazardous wastes;
Pesticide application.

New York State Department of Health Permits (NYSDOH) 42 S. Washington Street (585) 423-8070

Permits are required if the project includes:

Laboratory facilities;
Health or medical facilities

As noted under the Monroe County Department of Health "Health Department Permits" section, certain NYSDEC permits and NYSDOH permits -- Realty Subdivision Approval, Water Supply Approval -- are obtained through the Monroe County Department of Health, which has been delegated authority to issue these permits by these agencies.

BUILDING AND CONSTRUCTION

Department of Environmental Services (DES)Permits OfficeRoom 121B, City Hall(585) 428-6848

New subdivision and re-subdivision applications require the review and approval of the City Engineer prior to any permits being issued.

New Streets - Any new subdivisions, including the construction of a new street, will require the following:

Submission of three (3) sets of professional licensed engineer stamped plans;
New street permit;
Certificate of Liability and Worker's Compensation Insurance;
Letter of Credit (amount to be determined by the City Engineer).

Upon final acceptance by the City Engineer, the applicant must submit a separate two (2) year Guarantee Bond or Letter of Credit in the amount of twenty-five (25) percent of the estimated cost of the public work; as determined by the City Engineer.

Street Opening Permit - If the project involves a sanitary/combination sewer, sewer or water service connection, an approved contractor must obtain all necessary street opening permits in conjunction with the utility service connection permits.

Connection permits may be obtained from:

Monroe County Pure Waters - Sewers - 274-8100
City of Rochester Water Bureau - Water Dispatch - 428-7500
D.E.S. Permit Office - Excavations - 428-6848

Stake Outs - New York State Industrial Code Rule 53 The DES Permit Office maintains the Central Registry for the City of Rochester. The Central Registry is a master list of all operators or owners of underground facilities within the City. The City maintains this list in accordance with New York State Industrial Code Rule 53. All excavators are responsible for notifying all utility operators with facilities n the area to be excavated at least two (2) full working days before digging.

The Central Registry can be inspected at the DES Permit Office or a copy may be obtained for a nominal charge. The DES Permit Office is located at:

Department of Environmental Services Permit Office, Room 121B
City Hall 30 Church Street Rochester, New York 14614

All operators of underground facilities in the area should be notified to request stake outs. Contractors should refer to the Central Registry listing. Their names and the areas where their facilities are located are listed in the Central Registry. Contractors can telephone UFPO at 1-800-962- 7962 to request a stake out from these major agencies:

City of Rochester Water Bureau
City of Rochester Street Lighting System
Rochester Gas and Electric Corporation
Rochester Telephone Corporation
Greater Rochester Cablevision
Monroe County Water Authority
Rochester District Heating
Monroe County Department of Transportation - Signal Division
Eastman Kodak Company
The University of Rochester

Excavation Permits The DES Permit Office will issue separate excavation permits in conjunction with Monroe County Pure Waters for any work within the City of Rochester right-of-way. The following conditions must be met to obtain a permit:

Submission of three (3) sets of stamped plans;

A minimum security deposit of $1,000 in the form of a letter of credit, certified check or cash. The security deposit requirement may increase when determined to be appropriate by the City Engineer.

Certificate of Liability Insurance, Worker's Compensation and Disability Coverage naming the City of Rochester as additional insured.

The excavation permit fee.

Other Permits Permit applicants are responsible for obtaining all other required permits such as Monroe County Pure Waters, NYSDOT, U.S. Army Corps of Engineers, Railroads.

The Rochester Water Bureau requires Hydrant Use Permits be obtained by the permit holder prior to using any hydrant as a source of water supply. The permit requires the use of a water meter and backflow preventer. The Water Bureau will supply a hydrant wrench, water meter, meter setting and backflow preventer. These permits are available at the City of Rochester Water Bureau, Customer Service Office, 10 Felix Street, Rochester, New York. The telephone number is (585) 428-7506

Department of Community Development
Bureau of Buildings and Zoning
Plan Review and Inspection Division
125B, City Hall (585) 428-6526

Building Permits A building permit must be obtained before any plans to construct, reconstruct, add to, alter, remodel, demolish or change use of a structure may be carried out.

Prior to applying for a building permit, the developer shall have all necessary approvals from the Division of Zoning as well as Monroe County Department of Health, the New York State Department of Environmental Conservation and Rochester Pure Waters District. In addition, the permit will not be issued until required permits and approvals have been obtained from the City Plumbing Division, Department of Environmental Services and Fire Safety Division of the Fire Department.

The building permit application must be accompanied by:

Three sets of detailed construction plans if project cost is $100,000 or more, (two (2) sets if under $100,000), certified by a licensed engineer, architect or owner-designed;

One copy of a site plan approved by the Division of Zoning;

A current certificate of insurance detailing worker's compensation and disability coverage (naming the City as Certificate Holder).

Processing of completed applications usually occurs within fifteen (15) working days, but may be longer for major projects.

If the building permit application is denied, the developer may choose to revise the plans or pursue the process of appeal by submitting a petition to the New York State Board of Review. The applicant should allow a minimum of 12 weeks for a Board of Review Decision.

Plumbing Permits After obtaining all approvals from the Water Bureau, Engineering Bureau, and Pure Waters, a licensed plumber must obtain a permit from the City of Rochester Permit Office in order to perform interior and exterior plumbing work or site work. If the interior structure will be affected by the new plumbing the applicant shall submit one set of mechanical plumbing plans with the application. Connection permits must also be obtained from the Rochester Pure Waters District, City of Rochester Water Bureau and the City's Department of Environmental Services Engineering Permit Office prior to making any connections. Work performed will be inspected and approved by a City of Rochester Plumbing Inspector.

Electrical Permits If electrical work is required for the project, the developer must hire an electrician licensed by the City of Rochester.

Prior to the commencement of work, the licensed electrician is required to apply for an electrical permit from the City. Upon completion of the job and all necessary inspections from the City of Rochester Electrical Inspector, the electrician obtains a certificate of compliance. Work performed will be inspected and approved by a City of Rochester Electrical Inspector.

Fire Safety Permits The Fire Safety Division of the Fire Department reviews plans for construction of all new commercial and multiple dwelling structures, installation of fire alarm systems and fire suppression systems.
To expedite the review process, joint plan reviews are conducted by the Fire Safety Division and the Division of Buildings. Where potentially harmful conditions exist, the Fire Safety Division also reviews permits to maintain, change use of, or remodel a structure.

Elevator Permits Prior to the installation or modification of any conveyance, an elevator permit must be obtained from the City. Applications must be applied for by a licensed installer or maintenance company. Inspections are performed by a licensed inspection agency. Plans and specifications must accompany the application.

Demolition Permits Prior to the razing, disassembly or removal of any structure, essential element of any structure or the removal of any debris, a permit shall be obtained from the Permit Office.

The permit application must be accompanied by:

Site plan or tape location map.
Building material disposal plan.
Photographs of all exterior elevations.
Environmental Assessment Form.
Certificate of Worker's Compensation specifically stating that demolition work is covered
Certificate of rodent control.
Performance Guarantee.
Proposal for site development.
Approved safe school route and pedestrian access plan.
Construction photos of any pre-existing damage to the public right-of-way.
Maintenance and Protection of Traffic plan when work will obstruct the right-of-way.

Certificate of Occupancy (Zoning Code: Section 120 and Building Code: Chapter 39, Section 214-219) Once construction has been completed, the developer must obtain a Certificate of Occupancy. This procedure involves:
A written application, filed at the time of permit application;
An inspection of the property by the Building Construction Inspector;
Final electrical, plumbing and/or elevator inspection approvals;
Fire safety approval.

Following the inspection, the applicant should allow 10 days to receive the Certificate

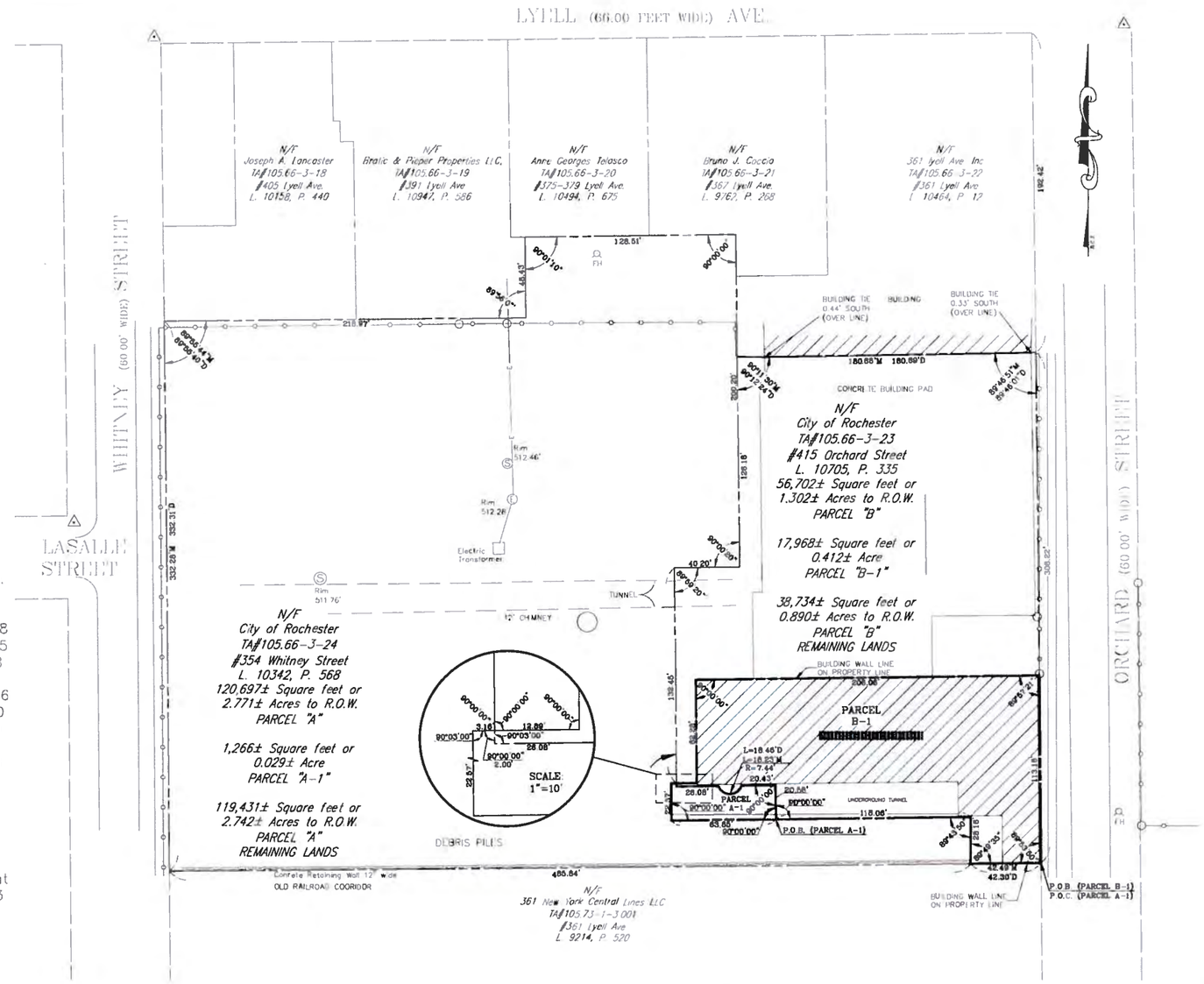
DIRECTORY

- City Hall 30 Church Street Rochester, New York 14614
- Bureau of Buildings and Zoning Permit Office, Department of Community Development Room 121-B, City Hall (585) 428-6526
- Bureau of Buildings and Zoning Division of Zoning, Department of Community Development Room 125-B, City Hall (585) 428-7043
- Bureau of Buildings and Zoning Plan Review and Inspection Division, Department of Community Development Room 125-B, City Hall (585) 428-6561
- Bureau of City Planning Department of Community Development Room 010-A, City Hall (585) 428-6924
- Department of Environmental Services Permit Office Room 121-B, City Hall (585) 428-6848
- Department of Environmental Services Water Bureau10 Felix Street Rochester, New York 14613 (585) 428-7567
- Department of Economic Development Room 005-A, City Hall (585) 428-6808
- New York State Department of Environmental Conservation (NYSDEC) 6274 East Avon-Lima Road Avon, New York 14414 (585) 226-2466
- New York State Department of Health (NYSDOH) 42 S. Washington Street Rochester, New York 14608 (585) 423-8070
- Monroe County Department of Health Division of Environmental Health111 Westfall Road Rochester, New York 14692 (585) 274-6811
- Monroe County Pure Waters Permit Office 350 E. Henrietta Road Building 15 Rochester, New York 14620 (585) 753-7600
- Rochester Pure Waters District Office of Development Review 350 E. Henrietta Road Rochester, New York 14620 (585) 753-7600

Appendix 7
Site Survey

LEGEND:

- APPROXIMATE RIGHT-OF-WAY
- APPROXIMATE BOUNDARY
- EXISTING BUILDING
- EXISTING EDGE OF PAVEMENT
- EXISTING STORM SEWER
- EXISTING TELEPHONE
- EXISTING OVERHEAD ELECTRIC
- EXISTING UNDERGROUND ELECTRIC
- EXISTING ADJOINING PROPERTY LINES
- EXISTING UTILITY POLE
- MON. WELL NW AH-2 RIM ELEV. 730.00'
- DOMESTIC WELL
- EXISTING FIRE HYDRANT
- M MEASURED DIMENSION
- D DEEDED DIMENSION



SCALE

Survey Notes & References:

1. Horizontal Datum is NAD 1983.
2. Coordinates were supplied by City of Rochester Survey Office.
3. Vertical Datum is NAVD 1988 also supplied by City of Rochester Survey Office.
4. Distances shown hereon are ground.
5. Deeds listed in Liber 10705, Page 335 recorded 01-05-09; Liber 10342, Page 568 recorded 08-17-06; Liber 10494, Page 675 recorded 07-30-07; Liber 9762, Page 268 recorded 03-27-03; Liber 10464, Page 12 recorded 05-23-07; Liber 10947, Page 586 recorded 12-02-10; Liber 10158, Page 440 recorded 07-22-05; Liber 9214, Page 520 recorded 09-16-99; Liber 9126, Page 96 recorded 02-19-99; Liber 6975, Page 228 recorded 09-16-86; Liber 9786, Page 105 recorded 05-16-03; Liber 7079, Page 98 recorded 03-10-87.
6. The last two recorded deeds for this parcel do not have a metes and bounds description.
7. There appears to be encumberances that can not be plotted. These lie in Liber 4343 of Deeds Page 1 and Liber 5065 of Deeds Page 194.
8. There does not appear to be any restricted use zones or wetland areas delineated on this site at this time.

THIS SURVEY IS SUBJECT TO THE FOLLOWING STATEMENT. "THE ENGINEERING AND INSTITUTIONAL CONTROLS FOR THIS EASEMENT ARE SET FORTH IN THE SITE MANAGEMENT PLAN (SMP). A COPY OF THE SMP MUST BE OBTAINED BY ANY PARTY WITH AN INTEREST IN THE PROPERTY. THE SMP CAN BE OBTAINED FROM NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION, DIVISION OF ENVIRONMENTAL REMEDIATION, SITE CONTROL SECTION, 625 BROADWAY, ALBANY, NEW YORK, 12233 OR AT derweb@gw.dec.state.ny.us".

CERTIFICATION:

WE, JOSEPH C. LU ENGINEERS AND LAND SURVEYING, P.C. CERTIFY THAT THIS SURVEY MAP WAS PREPARED ON JUNE 21, 2013 FROM NOTES OF A SURVEY COMPLETED ON JULY 3, 2013.
CERTIFIED TO:
1.) PEOPLE OF THE STATE OF NEW YORK ACTING THROUGH ITS COMMISSIONER OF THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
2.) TITLE COMPANY

DANIEL J. MACDONALD, N.Y.S., P.L.S. 050813 — DATE

PARCEL DESCRIPTION:

PARCEL A-1

ALSO "ENVIRONMENTAL EASEMENT DESCRIPTION" FOR DEC SITE #E828123
ALL THAT TRACT OR PARCEL OF LAND SITUATE IN THE CITY OF ROCHESTER, COUNTY OF MONROE, STATE OF NEW YORK, BEING PART OF TOWN LOT 62, 20,000 ACRE TRACT, TOWNSHIP 1, SHORT RANGE, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE INTERSECTION OF THE WESTERLY BOUNDS OF ORCHARD STREET (60.00 FEET WIDE) AND THE NORTHERLY BOUNDS OF LANDS NOW OR FORMERLY BELONGING TO NEW YORK CENTRAL LINES, LLC. AS RECORDED IN LIBER 9214 OF DEEDS AT PAGE 520; THENCE WESTERLY ALONG SAID NORTHERLY BOUNDS AND HAVING AN ANGLE TO THE LEFT OF 89°53'50" WITH THE SAID WESTERLY BOUNDS A DISTANCE OF 42.49 FEET TO A POINT; THENCE NORTHERLY AND HAVING AN ANGLE TO THE LEFT OF 89°49'35" A DISTANCE OF 28.18 FEET TO A POINT; THENCE WESTERLY AND HAVING AN ANGLE TO THE RIGHT OF 89°43'50" A DISTANCE OF 118.06 FEET TO THE POINT OF BEGINNING; THENCE

1) CONTINUING ALONG SAID WESTERLY DIRECTION A DISTANCE OF 63.65 FEET TO A POINT; THENCE
2) NORTHERLY AND HAVING AN ANGLE TO THE LEFT OF 90°00'00" A DISTANCE OF 22.57 FEET TO A POINT THENCE
3) EASTERLY AND HAVING AN ANGLE TO THE LEFT OF 90°03'00" A DISTANCE OF 3.16 FEET TO A POINT, THENCE
4) SOUTHERLY AND HAVING AN ANGLE TO THE LEFT OF 90°00'00" A DISTANCE OF 2.00 FEET TO A POINT; THENCE
5) EASTERLY AND HAVING AN ANGLE TO THE RIGHT OF 90°03'00" A DISTANCE OF 26.08 FEET TO A POINT THENCE
6) EASTERLY ALONG A CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 7.44 FEET AND A ARC LENGTH OF 18.23 FEET TO A POINT, SAID POINT BEING 14.00 FEET FROM THE EXTENSION OF COURSE 5; THENCE
7) THENCE EASTERLY AND CONTINUING ALONG THE EXTENSION OF COURSE 5 A DISTANCE OF 20.43 FEET TO TO A POINT; THENCE
8) SOUTHERLY AND HAVING AN ANGLE TO THE LEFT OF 90°00'00" A DISTANCE OF 20.58 FEET TO THE POINT OF BEGINNING; THE LAST COURSE MAKING AN ANGLE TO THE LEFT WITH COURSE FIRST COURSE OF 90°00'00"

PARCEL B-1

ALSO "ENVIRONMENTAL EASEMENT DESCRIPTION" FOR DEC SITE #E828123
ALL THAT TRACT OR PARCEL OF LAND SITUATE IN THE CITY OF ROCHESTER, COUNTY OF MONROE, STATE OF NEW YORK, BEING PART OF TOWN LOT 62, 20,000 ACRE TRACT, TOWNSHIP 1, SHORT RANGE, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ALONG THE WESTERLY BOUNDS OF ORCHARD STREET (60.00 FEET WIDE) SAID POINT BEING 500.64 FROM THE INTERSECTION OF SAID WESTERLY BOUND AND THE SOUTHERLY BOUNDS OF LYELL AVENUE (66.00 FEET WIDE), SAID POINT ALSO BEING THE INTERSECTION OF THE SAID WESTERLY BOUNDS AND THE NORTHERLY BOUNDS OF LANDS NOW OR FORMERLY BELONGING TO NEW YORK CENTRAL LINES, LLC. AS RECORDED IN LIBER 9214 OF DEEDS AT PAGE 520; THENCE

1) WESTERLY ALONG SAID NORTHERLY BOUNDS AND HAVING AN ANGLE TO THE LEFT OF 89°53'50" A DISTANCE OF 42.49 FEET TO A POINT; THENCE
2) NORTHERLY AND HAVING AN ANGLE TO THE LEFT OF 89°49'35" A DISTANCE OF 28.18 FEET TO A POINT; THENCE
3) WESTERLY AND HAVING AN ANGLE TO THE RIGHT OF 89°43'50" A DISTANCE OF 118.06 FEET TO A POINT. THENCE
4) NORTHERLY AND HAVING AN ANGLE TO THE LEFT OF 90°00'00" A DISTANCE OF 20.58 FEET TO A POINT; THENCE
5) WESTERLY AND HAVING AN ANGLE TO THE RIGHT OF 90°00'00" A DISTANCE OF 20.43 FEET TO A POINT; THENCE
6) WESTERLY ALONG A CURVE TO THE LEFT, SAID CURVE HAVING A RADIUS OF 7.44 FEET AND A ARC LENGTH OF 18.23 FEET TO A POINT, SAID POINT BEING 14.00 FEET FROM THE EXTENSION OF COURSE 5; THENCE
7) THENCE WESTERLY AND CONTINUING ALONG THE EXTENSION OF COURSE 5 A DISTANCE OF 26.08 FEET TO TO A POINT; THENCE
8) NORTHERLY AND HAVING AN ANGLE TO THE LEFT OF 90°03'00" A DISTANCE OF 2.00 FEET TO A POINT, THENCE
9) EASTERLY AND HAVING AN ANGLE TO THE LEFT OF 90°00'00" A DISTANCE OF 12.89 FEET TO A POINT, THENCE
10) NORTHERLY AND HAVING AN ANGLE TO THE RIGHT OF 90°00'00" A DISTANCE OF 62.28 FEET TO A POINT. THENCE
11) EASTERLY AND HAVING AN ANGLE TO THE LEFT OF 90°00'00" A DISTANCE OF 208.06 FEET TO A POINT ALONG THE WESTERLY BOUNDS OF AFORESAID ORCHARD STREET; THENCE
12) SOUTHERLY AND HAVING AN ANGLE TO THE LEFT OF 89°57'21" A DISTANCE OF 113.18 FEET TO THE POINT OF BEGINNING

DRAWING ALTERATION

Note: It is a violation of law for any person, unless they are acting under the direction of a licensed professional engineer, architect, landscape architect or land surveyor to alter an item in any way. If an item bearing the stamp of a licensed professional is altered, the altering engineer, architect, landscape architect or land surveyor shall stamp the document and include the notation "altered by" followed by their signature, the date of such alteration, and a specific description of the alteration.

BY: _____
DATE: _____

Lu Engineers
ENVIRONMENTAL & TRANSPORTATION
175 Sullys Trail, Suite 202
Pittsford, New York 14534
(585) 385-7417
Fax: (585) 385-3741
luengineers.com

PROJECT:
415 ORCHARD STREET & 354 WHITNEY STREET ERP SITE # CITY OF ROCHESTER, COUNTY OF MONROE STATE OF NEW YORK

CLIENT:
CITY OF ROCHESTER ROCHESTER, NEW YORK

DRAWING TITLE:
RE-SUBDIVISION MAP LOTS A&B

DESIGNED BY: GA	SCALE: 1"=40'
DRAWN BY: DJM	DATE: 6-26-2013
CHECKED BY: GA	PROJECT No. 4216
SHEET 1 OF 1	DRAWING No. SU-1

J:\Projects\2000 Rochester\4216\CADD\DEC REGS 7-3-13.dwg