Environmental Restoration Program
(Orchard-Whitney Site)
415 Orchard Street and 354 Whitney Street
MONROE COUNTY
ROCHESTER, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: #E828123

Prepared for:
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Rochester, New York 14614

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Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

October 2016

CERTIFICATION STATEMENT

I Robert Hutter certify that I am currently a [NYS registered professional engineer or Qualified Environmental Professional as in defined in 6 NYCRR Part 375] and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

[P.E., QEP]

10-12-16 DATE

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415 Orchard Street
MONROE COUNTY
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SITE MANAGEMENT PLAN

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List of Acronyms

ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
CLP	Contract Laboratory Program
COC	Certificate of Completion
CO2	Carbon Dioxide
CP	Commissioner Policy
DER	Division of Environmental Remediation
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
HASP	Health and Safety Plan
IC	Institutional Control
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PID	Photoionization Detector
PRP	Potentially Responsible Party
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective

List of Acronyms (Contd.)

RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SAC	State Assistance Contract
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SOP	Standard Operating Procedures
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program

ES EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance and reporting activities required by this Site Management Plan:

Site Identification:	Site #: E828123 Orchard-Whitney Site
Institutional Controls:	1. The property may be developed for commercial or industrial use only.
	2. Implement, maintain, and monitor the Site cover system.
	3. Prevent future exposure to remaining contamination by controlling disturbances of the surface contamination.
	4. City of Rochester Building Information System (BIS) – Activities use limitation flag.
Engineering Controls:	1. Site cover system (Cap)
Inspections:	Frequency
1. Cover inspection	Annually
Monitoring:	
1. Groundwater Monitoring Well Sampling	Quarterly
2. Potential asbestos containing material (PACM) sampling	As needed
Maintenance:	
1. Site cover	As needed
Reporting:	
1. Periodic Review Report	Annually

Further descriptions of the above requirements are provided in detail in the latter sections of this Site Management Plan (SMP).

1.0 INTRODUCTION

1.1 General

This Site Management Plan (SMP) is a required element of the remedial program for the Orchard-Whitney Site located in Rochester, New York (hereinafter referred to as the "Site"). See Figure 1. The Site is currently in the New York State (NYS) Environmental Restoration Program (ERP), Site No. E828123, administered by New York State Department of Environmental Conservation (NYSDEC).

The City of Rochester secured grants from the United States Environmental Protection Agency's (USEPA's) Brownfield Assistance Program to partially fund Site investigation and remediation. In addition, the City also secured a State Assistance Contract (SAC) under the NYDEC's ERP to assist with remedial investigation (RI) and interim remedial measures (IRM) work.

A figure showing the Site location and boundaries of this Site is provided in Figure 2. The boundaries of the Site are more fully described in the metes and bounds Site description that is part of the Environmental Easement provided in Appendix D.

After completion of the remedial work, some contamination was left at this Site, which is hereafter referred to as "remaining contamination". Institutional and Engineering Controls (ICs and ECs) have been incorporated into the Site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Monroe County Clerk's Office, requires compliance with this SMP and all ECs and ICs placed on the Site.

This SMP was prepared to manage remaining contamination at the Site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

It is important to note that:

- This SMP details the Site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion (COC);

- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the SAC (Site #E828123) for the Site, and thereby subject to applicable penalties.

All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the Site is provided in Appendix A of this SMP.

This SMP was prepared by Lu Engineers, on behalf of the City of Rochester, in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 3, 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs and/or ECs that are required by the Environmental Easement for the Site.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shut-down of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the Site conditions. In accordance with the Environmental Easement for the Site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner to the NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons:

- 60-day advance notice of any proposed changes in Site use that are required under the terms of the BCA, 6NYCRR Part 375 and/or Environmental Conservation Law.

- 7-day advance notice of any field activity associated with the remedial program.

- 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan.

- Notice within 48-hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.

- Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the Site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the Brownfield Assistant Program (BAP), State Assistance Contract (SAC), and all approved work plans and reports, including this SMP.

- Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table 1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of Site-related contact information is provided in Appendix A.

Table 1: Notifications*

Name	**Contact Information**
Todd M. Caffoe	(585) 226-5350 Todd.Caffoe@dec.ny.gov
NYSDEC Regional HW Engineer	(585) 226-2466

* Note: Notifications are subject to change and will be updated as necessary.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL

2.1 Site Location and Description

The Site is located in the City of Rochester, Monroe County, New York and is identified as Sections 105.66-3-24 (354 Whitney Street) and 105.66-3-23 (415 Orchard Street) on the City of Rochester Tax Map (included as part of Appendix D). The Site is an approximately 4.073-acre area and is bounded by mixed residential and commercial/industrial uses on Lyell Avenue to the north, an operating commercial/industrial use structure to the south, Orchard Street to the east, and Whitney Street to the west (see Figure 2 – Site Plan). The boundaries of the Site are more fully described in Appendix D –Environmental Easement. The owner(s) of the Site parcel(s) at the time of issuance of this SMP is the City of Rochester.

2.2 Physical Setting

2.2.1 Land Use

The Site is currently a fenced vacant lot covered mainly with concrete slabs under a one (1) foot layer of crushed demolition debris as a Site cap. The Site is zoned for commercial or light industrial use.

Crushed masonry, brick, concrete and stone building materials generated during the demolition process of the 354 Whitney Street and 415 Orchard Street parcels was used as the Site cover material and to create a sloped berm against the wall remaining along the southern property line of 415 Orchard Street.

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 with frontage on Lyell Avenue, to the north.

2.2.2 Geology

According to the New York State Museum Map of New York, Finger Lakes Sheet, native soils beneath the Site consist mainly of lacustrine sands and silts; soils are underlain by Upper Silurian Dolostones of the Lockport Group. Bedrock depths vary from a minimum depth of approximately seven (7) feet to a maximum depth of greater than 38 feet below grade.

Bedrock is generally characterized as hard, slightly weathered, massively bedded Dolostone with few water-bearing fractures. Rock quality designations were generally found to be between 50 and 75%. Based on the characteristics of the bedrock at the Site, it is concluded that groundwater flow is through the saturated overburden and the bedrock/overburden interface.

During the intrusive work completed as part of historic and recent Site investigations, very little weathered bedrock was observed, but the majority of bedrock fractures appeared to be within two (2) to three (3) feet of the bedrock surface. Higher permeability overburden was also observed in direct contact with the bedrock surface. The bedrock/overburden interface appears to represent a zone of higher permeability with the potential to increase contaminant mobility.

Geologic cross sections are shown in Figures 3 and 4. Site specific boring logs are provided in

Appendix E.

2.2.3 Hydrogeology

Overburden groundwater flow patterns at the Site were generated using groundwater level measurements from the on-Site wells. Groundwater flow direction is oriented perpendicular to the projected groundwater contour lines and trends down-gradient. Groundwater elevations are highest on the southwestern portion of the property and lowest along the northeastern portion, resulting in a general northeastward groundwater flow direction. Groundwater elevations decrease by up to 9 ft north-eastward across the Site. This is consistent with findings of the September 2005 EPA Targeted Site Assessment Project, and local topography (i.e., Barge Canal and Genesee River Gorge northeast of the Site).

Hydraulic conductivity and groundwater level data collected during the SI have indicated the following:

- Overburden material underlying the Site consists of a combination of sand, silt, and gravel (fill material) overlying a glacial till (silt, sand and gravel).
- Bedrock at the Site is located at an average depth of 14 ft bgs.
- Hydraulic conductivity measurements for on-Site wells (MW-9, MW-10, MW-14, MW-20 & MW-22) averaged 1.47 x 10-5 ft/min.
- The approximate maximum groundwater flow velocity has been calculated to be 1.46 x 10-6 ft/sec (0.126 ft/day).
- Depth to groundwater in the uppermost water bearing zone ranged between 5.5 and 10 ft bgs Site-wide during the historic sampling event in December 2012 (maximum of approximately 22 ft bgs at MW-25 on raised berm).
- Depth to groundwater ranged between 5.7 and 16.65 ft bgs Site-wide during the most recent groundwater measurement event in November 2015.
- Overall groundwater flow in the uppermost water bearing zone at the Site is generally from the southwest to the northeast.
- Well casing elevations were surveyed and established using survey-grade GPS to NAD 83 coordinates on August 14, 2015. Groundwater appears to primarily flow generally northeast across the Site. Subsequent data obtained in November, 2015 suggests a south eastward migration vector, primarily due to the unusually low groundwater elevation observed in MW-25.
- Overall groundwater flow appears to follow a general east, northeast flow direction. It is noted that MW-27 was omitted from the data used for the Figure 5 Groundwater Contour Map development due to its anomalously low elevation representative of deeper flow conditions than observed within the SI/IRM areas. This estimation is based, in part, on the deeper screen interval used in construction of this well and previous observations of subsurface conditions in the immediate vicinity of MW-27. Bedrock depth at MW-27 is substantially deeper at the south end of the former petroleum storage/plating area(s). No environmental impacts have been identified in deeper soil or groundwater in this area of the Site in previous or the current 2015 investigation effort.

A groundwater contour map is shown in Figure 5 generated using measurements collected in November 2015. Groundwater elevation data is provided in Table 2. Groundwater monitoring well construction logs are provided in Appendix E.

2.3 Investigation and Remedial History

Previous additional IRMs were performed in accordance with the *Remedial Investigation and Interim Remedial Measures Work Plan (April 2011)* and included:

- Detailed evaluation of tunnels and underground utilities;
- Partial excavation of USTs to evaluate subsurface conditions;
- Excavation of twenty-three (23) test pits (TP-19 through TP-39 and TP-7A through TP-7E);
- High resolution test boring program within the former plating area;
- Installation and sampling of sixteen (16) mini-wells, including three nested pairs, within former plating area;
- Installation of three (3) monitoring wells (MW-23 through MW-25);
- Pre-demolition Phase investigation;
    - PCB assessment;
    - Hazardous materials inventory and characterization;
    - Limited lead survey;
    - Pre-demolition asbestos survey of 354 Whitney Street and 415 Orchard Street;
    - Demolition inspection;
- Post-demolition Phase Site-wide investigation (2008-2009);
    - Test pits;
    - Background soil borings;
    - Site-wide soil borings and sampling;
    - Monitoring well installation and subsequent groundwater sampling;
    - Aquifer testing;
    - Surface soil sampling;
- AOC investigation and IRMs (2011-2012);
    - UST investigation;
    - Plating area investigation;
    - Abandoned Hydraulic Lift
    - Former Gasoline Storage and Dispenser
    - Drain System Evaluation
    - Underground Tunnels and Buried Utility Evaluation
    - Former “Low-Rise” Sub-Slab Investigation
    - Former Coal Storage; and
    - Additional groundwater sampling.

The Scope of Work for the IRMs detailed in this report included:

- Abatement of 4.45 tons of asbestos containing materials (ACM) from the previously undocumented utility pipe trench depicted on the attached figures prior to accessing petroleum-contaminated soils. Abatement included approximately 120 linear feet of asbestos pipe wrap materials as well as contaminated concrete.
- Excavation and off-Site disposal of an approximate total of 690 tons petroleum-impacted subsurface soils;
- Placement of existing on-Site clean cover materials across portions of the Site;
- Removal and disposal of trash, woody vegetation, and wood debris.

The following narrative provides a remedial history timeline and a brief summary of the available

project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8.0 - References.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the Record of Decision (ROD) are as follows:

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

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

2.5 Remaining Contamination

Access to the most heavily contaminated soils identified during the SSI and IRM process was not substantially restricted by the presence of massive concrete foundation components. The foundations appeared to rest directly on bedrock indicating that the overburden/bedrock interface migration pathway does not exist in these locations. Small areas of low-level contaminated soils not accessible due to excavation collapse or other factors during IRM implementation are considered likely to biodegrade over time. The source area(s) for petroleum contamination at this Site have been removed to the extent possible. Based on confirmatory soil sample data, the excavation of the source area has been successful in removing accessible petroleum-impacted soils.

Previous investigations have shown that elemental lead exists in the concrete slab on-Site. Lead was commonly used to seal cracks and penetrations in floor slabs in industrial plants in the past. Small nodes of lead have been observed in the remaining slabs at the Site in a number of locations. Prior attempts to quantify the amount of lead remaining in the slabs have been complicated by the

presence of varying amounts of dust and debris at the surface. Since large portions of the slab will remain, elemental lead will remain on-Site and as a result will be addressed in the SMP, as necessary. It is noted that exposure to elemental lead has been diminished due to the Site Cover System (Cap) completion.

Remaining asbestos pipe wrap in the existing underground tunnel system presents an existing condition and potential for exposure during future subsurface disturbances or activities. The presence of asbestos in the subsurface will be addressed in the SMP, as necessary.

2.5.1 Soil

As discussed in the above section, excavation of the source area had successfully removed accessible petroleum-impacted soils. Remaining contamination in the subsurface soils was limited to chromium and cadmium in exceedance of Unrestricted Use SCOs, however, detections were below Commercial Use guidelines.

Remaining elemental lead beneath the Site cover exists and therefore any disturbance to the Site cover or concrete slabs must be done so in accordance with the excavation work plan (EWP) included as Appendix B of this document.

Table 3 and Figure 7 summarize the results of all soil samples collected that exceed the Unrestricted Use SCOs at the Site after completion of remedial action. Figure 9 summarizes the results of confirmatory soil samples that exceed Commercial Use SCOs following remedial action.

2.5.2 Groundwater

On July 24, 2015 groundwater was collected from new and existing monitoring wells and analyzed for EPA Method 8260 VOCs. Analytical results are tabulated and included as Table 6. On July 26, 2014 groundwater was collected from newly installed and existing monitoring wells and analyzed for EPA Method 6010 RCRA Metals and EPA Method 8082 PCBs.

Groundwater was analyzed for VOCs by EPA Method 8260, RCRA Metals by EPA Method 6010, and PCBs by EPA Method 8082. Groundwater analytical results indicated exceedances above NYS Groundwater Class GA Standard for RCRA metals. Metals were encountered in all of the monitoring wells with the exception of MW-23. Exceedances in analytical results are tabulated on Table 4 and exceedance locations are illustrated in Figure 7.

2.5.3 Surface Water

Surface water runoff at the Site is collected in the combined Monroe County Sewer System. There are no surface water bodies within ½- mile radius of the Site. There are no public/private drinking water supply wells within ½- mile of the Site.

Former utilities ran the length of Orchard and Whitney Streets; both of these included municipal sanitary and water utilities. Electric service is located aboveground along Orchard and Whitney Streets.

Runoff from paved areas flowed to private stormwater catch basins located in the eastern central portion of the Whitney Street Parcel as well as the northeastern and northwestern portions. Two

municipal stormwater catch basins are located along Orchard Street and one municipal catch basin is located along Whitney Street.

Surface water did not require sampling as part of the remedial action.

2.5.4 Soil Vapor

Since the Site is vacant and there are low or nonexistent levels of VOCs in the groundwater, soil vapor data was not collected as part of the remedial action. Should future development or Site use change occur on the Site, soil vapor intrusion sampling and any subsequent or necessary mitigation must be performed for any new buildings constructed on-Site.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since remaining contamination exists at the Site, Institutional Controls (ICs) and Engineering Controls (ECs) are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs at the Site. The IC/EC Plan is one component of the SMP and is subject to revision by the NYSDEC.

This plan provides:

- A description of all IC/ECs on the Site;
- The basic implementation and intended role of each IC/EC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of IC/ECs, such as the implementation of the Excavation Work Plan (EWP) (as provided in Appendix B) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the Site; and
- Any other provisions necessary to identify or establish methods for implementing the IC/ECs required by the Site remedy, as determined by the NYSDEC.

3.2 Institutional Controls

The Site remedy requires that an environmental easement (through deed restrictions) be placed on the property to (1) implement, maintain and monitor any Engineering Controls; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the Site to Commercial and Industrial uses only. Adherence to these Institutional Controls (ICs) on the Site will be required by the Declaration of Covenants and Restrictions (DCR) and will implement under this SMP. ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement. These ICs are:

- The property may be used for: commercial or light industrial use;
- City permit restriction flag in accordance with BIS;
- All ECs must be operated and maintained as specified in this SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP.
- The use of groundwater underlying the property is prohibited without necessary water

quality treatment as determined by the NYSDOH or the Monroe County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department.

- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;

- Data and information pertinent to Site management must be reported at the frequency and in a manner as defined in this SMP;

- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;

- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;

- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP;

- Access to the Site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement.

- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on Figure 7, and any potential impacts that are identified must be monitored or mitigated; and

- Vegetable gardens and farming on the Site are prohibited;

3.3 Engineering Controls

The final remedy will be chosen by the NYSDEC in a Proposed Remedial Action Plan (PRAP). It is anticipated that part of the PRAP requirements will be: (1) a long-term groundwater monitoring program; and (2) certification and annual inspection of the Site cover (Cap). Figure 8 illustrates the Engineering Controls location and boundary.

3.3.1 Cover (or Cap)

Exposure to remaining contamination at the Site is prevented by a cover system placed over the Site. Demolition debris (crushed brick and stone) has been re-used as on-Site backfill cover material throughout the Site as an engineering control. Areas of exposed soils have been covered with a minimum of one (1) foot of crushed demolition rubble material. One area of exposed tunnel void space has been covered with a steel plate bolted to the concrete pad, and subsequently covered with a one (1) layer of crushed demolition debris, in order to prevent exposure to human health and environment. The Site cover system will be inspected annually as a requirement to the SMP.

The EWP provided in Appendix B outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining

contamination is disturbed. Procedures for the inspection of this cover are provided in the Monitoring and Sampling Plan included in Section 4.0 of this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and associated Community Air Monitoring Plan (CAMP) prepared for the Site and provided in Appendices G and H, respectively.

3.3.3 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10.

3.3.3.1 Cover (or Cap)

The composite cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in accordance with this SMP in perpetuity.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring and Sampling Plan may only be revised with the approval of the NYSDEC. Details regarding the sampling procedures, data quality usability objectives, analytical methods, etc. for all samples collected as part of Site management for the Site are included in the Quality Assurance Project Plan provided in Appendix G.

This Monitoring and Sampling Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs), particularly groundwater standards and Part 375 SCOs for soil; and
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment;

To adequately address these issues, this Monitoring and Sampling Plan provides information on:

- Sampling locations, protocol and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP.

4.2 Site-Wide Inspection

Site-wide inspections will be performed at a minimum of once per year. Modification to the frequency or duration of the inspections will require approval from the NYSDEC. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed as provided in Appendix J. The Site-Wide Inspection form will compile sufficient information to assess the following:

- Compliance with all ICs, including Site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General Site conditions at the time of the inspection;
- The Site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and
- Confirm that Site records are up to date.

Inspections of all remedial components installed at the Site will be conducted. A comprehensive Site-wide inspection will be conducted and documented according to the SMP schedule, regardless

of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria; and
- If Site records are complete and up to date; and

Reporting requirements are outlined in Section 7.0 of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, verbal notice to the NYSDEC must be given by noon of the following day. In addition, an inspection of the Site will be conducted within 5 days of the event to verify the effectiveness of the IC/ECs implemented at the Site by a qualified environmental professional, as determined by the NYSDEC. Written confirmation must be provided to the NYSDEC within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

4.4.1 Soil Sampling

Soil sampling will be performed as needed if any future subsurface disturbances occur to assess the quality of the soil. The sampling frequency may only be modified with the approval of the NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by the NYSDEC.

Deliverables for soil sampling are specified in Section 7.0 – Reporting Requirements.

4.4.3 Groundwater Sampling

Quarterly groundwater sampling will be performed for the first year after issuance of the certificate of completion (COC). After completion of four (4) quarters of sampling, the sampling plan can be modified based upon the results.

The network of monitoring wells has been installed to monitor upgradient, on-Site and downgradient groundwater conditions at the Site.

Table 5 summarizes the wells identification number, as well as the purpose, location, depths, diameter and screened intervals of the wells. As part of the groundwater monitoring, seven (7) on-Site wells will be sampled to evaluate any decrease in remaining residual contamination.

If groundwater sample results indicate a significant chromium rebound in the plating area, additional molasses injections will be considered and implemented as necessary.

Table 5 – Monitoring Well Construction Details

MW ID	Well Loc	Coordinates (longitude/latitude)	Well Diameter	Elevation (above mean sea level)			
				Exterior Casing	Top of PVC	Screen Top	Screen Bottom
MW-16	On-Site	43.1634° N, 77.6353° W	2”	512.21	511.81	15.00	24.9
MW-22	On-Site	43.1635° N, 77.6347° W	2”	509.30	508.91	11.00	16.00
MW-23	On-Site	43.1637° N, 77.6350° W	2”	512.44	512.00	12.00	22.00
MW-26	On-Site	43.1633° N, 77.6348° W	2”	511.91	511.56	11.88	16.88
MW-27	On-Site	43.1640° N, 77.6359° W	2”	512.18	511.81	28.65	33.65
MW-28	On-Site	43.1634° N, 77.6350° W	2”	512.00	511.67	13.00	18.00
MW-29	On-Site	43.1633° N, 77.6353° W	2”	512.11	511.73	11.75	16.75

Monitoring well construction logs are included in Appendix E of this document.

If biofouling or silt accumulation occurs in the on-Site and/or off-Site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced, if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of any monitoring well for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent Periodic Review Report. Well decommissioning without replacement will be done only with the prior approval of the NYSDEC. Well abandonment will be performed in accordance with NYSDEC’s guidance entitled “CP-43: Groundwater Monitoring Well Decommissioning Procedures.” Monitoring wells that are decommissioned because they have been rendered unusable will be replaced in kind in the nearest available location, unless otherwise approved by the NYSDEC.

Deliverables for the groundwater monitoring program are specified in Section 7.0 – Reporting Requirements.

The sampling frequency may only be modified with the approval of the NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by the NYSDEC.

4.4.5 Soil Vapor Sampling

Since the Site is vacant and devoid of any structures soil vapor sampling will be only performed if any building(s) are constructed on the Site. The frequency or sampling requirements will require

approval from the NYSDEC.

If required, the network of on-Site soil vapor sample locations will be designed based on criteria approved by the NYSDEC.

The sampling frequency may only be modified with the approval of the NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by the NYSDEC.

Deliverables for future required soil vapor sampling program are specified in Section 7.0 – Reporting Requirements.

4.4.6 Soil Vapor Intrusion Sampling

Since the Site is vacant and devoid of any structures soil vapor intrusion sampling will be only performed if any building(s) are constructed on the Site. The frequency or sampling requirements will require approval from the NYSDEC.

If required, the network of on-Site soil vapor intrusion sample locations will be designed based on criteria approved by the NYSDEC.

The sampling frequency may only be modified with the approval of the NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by the NYSDEC.

Deliverables for future required soil vapor intrusion sampling program are specified in Section 7.0 – Reporting Requirements.

4.4.7 Monitoring and Sampling Protocol

All sampling activities will be recorded in a field book and associated sampling log as provided in Appendix F – Groundwater Sampling Field Record. Other observations (e.g., groundwater monitoring well integrity, etc.) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network. Additional detail regarding monitoring and sampling protocols are provided in the QAPP provided as Appendix G of this document.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

The Site remedy does not rely on any mechanical systems, such as groundwater treatment systems, sub-slab depressurization systems or air sparge/soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given Site and associated remedial systems. Vulnerability assessments provide information so that the Site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

The Site is not in a flood plain or in a sensitive area that could potentially be impacted by increase in storm events; therefore, a vulnerability assessment was not required at this time. If the status of Site's vulnerability changes, or if an assessment is required as part of this SMP, then an appropriate assessment will be conducted at that time.

7.0. REPORTING REQUIREMENTS

7.1 Site Management Reports

All Site management inspection, maintenance and monitoring events will be recorded on the appropriate Forms provided in Appendices F and J. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 6 and summarized in the Periodic Review Report.

Table 6: Schedule of Interim Monitoring/Inspection Reports

Monitoring/Inspection	Frequency	Report
Groundwater Monitoring	Annual	Summary Report
Site-Wide Inspection	Annual	Summary Report
	Annual	Periodic Review Report (PRR)

* The frequency of events will be conducted as specified until otherwise approved by the NYSDEC.

All interim monitoring/inspections reports will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether contaminant conditions have changed since the last reporting event.

Routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting maintenance activities;
- Description of maintenance activities performed;
- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and,
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

Non-routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

Data will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link http://www.dec.ny.gov/chemical/62440.html.

7.2 Periodic Review Report

A Periodic Review Report (PRR) will be submitted to the Department beginning sixteen (16) months after the Certificate of Completion or equivalent document is issued. After submittal of the initial Periodic Review Report, the next PRR shall be submitted annually to the Department or at another frequency as may be required by the Department. In the event that the Site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the Site described in Appendix D -Environmental Easement. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the Site.

- Results of the required annual Site inspections and severe condition inspections, if applicable.

- All applicable Site management forms and other records generated for the Site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.

- A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions.

- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends.

- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.

- A Site evaluation, which includes the following:
- The compliance of the remedy with the requirements of the Site-specific RAWP, ROD or Decision Document;

- Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored;

- Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan; and

- Trends in contaminant levels in the affected media will be evaluated to determine if the remedy continues to be effective in achieving remedial goals as specified by the Decision Document.

- The overall performance and effectiveness of the remedy.

7.2.1 Certification of Institutional and Engineering Controls

Following the last inspection of the reporting period, a qualified environmental professional or Professional Engineer licensed to practice in New York State will prepare, and include in the Periodic Review Report, the following certification as per the requirements of NYSDEC DER-10:

"*For each institutional or engineering control identified for the Site, I certify that all of the following statements are true:*

- *The inspection of the Site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*

- *The institutional control and/or engineering control employed at this Site is unchanged from the date the control was put in place, or last approved by the Department;*

- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*

- *Nothing has occurred that would constitute a violation or failure to comply with any Site management plan for this control;*

- *Access to the Site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*

- *If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document;*

- *Use of the Site is compliant with the environmental easement;*

- *The engineering control systems are performing as designed and are effective;*

- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program [and generally accepted engineering practices]; and*

- *The information presented in this report is accurate and complete.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner/Remedial Party or Owner's/Remedial Party's Designated Site Representative] for the Site."

At the end of each certifying period, as determined by the NYSDEC, the following certification will be provided to the Department:

"For each institutional or engineering control identified for the Site, I certify that all of the following statements are true:

- *The institutional control employed at this Site is unchanged from the date the control was put in place, or last approved by the Department;*

- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*

- *Nothing has occurred that would constitute a violation or failure to comply with any Site management plan for this control;*

- *Access to the Site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*

- *If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document;*

- *Use of the Site is compliant with the environmental easement.*

- *The information presented in this report is accurate and complete.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner or Owner's Designated Site Representative] for the Site."

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Work Plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency

condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC.

8.0 REFERENCES

6NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.

NYSDEC DER-10 – "Technical Guidance for Site Investigation and Remediation".

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

Tables

Table 2
Groundwater Elevation Measurements

COR - Orchard-Whitney		Measurements Taken November 2015[1]		
MW ID	Rim Elevation[1]	Total Well Depth	Depth to Water	GW Elevation
MW-16	512.21	21.4	7.5	504.29
MW-22	509.30	15.4	5.7	502.53
MW-23	512.44	21	9.35	502.65
MW-26	511.91	16.88	7.95	503.61
MW-27[2]	512.18	33.65	16.65	495.16
MW-28	512.00	18	7.4	504.27
MW-29	512.11	16.75	7.96	503.77

Notes:

1 - All measurements are represented in feet.

2 - MW-27 not used in groundwater contouring due to much deeper total well depth level.

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City of Rochester
Orchard-Whitney
(Samples Collected 10/12/15 - 10/15/15)

Table 3: Remaining Soil Sample Exceedances

Analyzed Parameters[1]	Unrestricted Use[2]	Commercial Use[3]	Industrial Use[3]	OW-BOT-01-101215	OW-SW-01-101315	OW-BOT-02-101315	OW-SW-02-101315	OW-SW-03-101315	OW-BOT-03-101415	OW-SW-04-101415	OW-BOT-04-101515
RCRA Metals											
Arsenic	13	16	16	1.39	4.24	1.18	1.54	1.78	5.03	1.69	3.69
Barium	350	400	10,000	20	131	24.3	21.9	20.3	296	20.0	29.7
Cadmium	2.5	9.3	2,700	< 0.255	< 0.249	< 0.277	< 0.278	< 0.273	3.07	< 0.260	3.12
Chromium	1	400	800	5.9	8.87	7.21	4.73	6.04	14.1	6.98	9.41
Lead	63	1,000	3,900	3.56	22.9	2.45	9.32	1.95	25.9	3.00	9.72
Mercury	0.18	2.8	5.7	< 0.00816	0.026	0.00596	0.322	0.00527	0.119	0.0127	0.0353
Selenium	3.9	1,500	6,800	< 0.511	< 0.498	< 0.553	< 0.556	< 0.546	< 0.617	< 0.520	< 0.572
Silver	2	1,500	6,800	0.26	< 0.498	< 0.553	< 0.556	< 0.546	< 0.617	< 0.520	< 0.572

1- All values for metals are presented in milligrams per kilograms (mg/kg)

2 - 6 NYCRR Part 375-6.8 - Table 375-6.8(a): Unrestricted Use Soil Cleanup Objectives

3 - 6 NYCRR Part 375-6.8 - Table 375-6.8(b): Restricted Use Soil Cleanup Objectives

ND- Not detected above reporting limit

J- value is estimated

D- all compounds identified in an analysis at secondary dilution factor

M- matrix spike recoveries outside QC limits; matrix bias indicated

E- value is estimated or not reported due to interference (for metals)

N- spike sample recovery is not within QC limits (for metals)

NU- Not detected (for metals)

*- spike or duplicate analysis is not within QC limits (for metals)

Value Exceeds Unrestricted SCOs

Value Exceeds Commercial Use SCOs

Value Exceeds Industrial Use SCOs

Analysis not performed on this parameter

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City of Rochester
Orchard-Whitney
(Samples Collected 07/28/15)

Table 4: Groundwater Exceedances

Analyzed Parameters[1]	NYS Groundwater Standard Class GA[2]	MW-16_072815	MW-22_072815	MW-23_072815	MW-26_072815	MW-27_072815	MW-28_072815	MW-29_072815
EPA 6010-Metals[3]								
Arsenic	0.025*	**0.0714**	0.0214	0.0121	0.00623 J	**0.124**	**0.0306**	0.0157
Barium	1	0.663	0.360	0.213	0.0843 J	**1.06**	0.325	0.153
Cadmium	0.005	**0.658**	<0.00500	<0.00500	<0.00500	0.00487 J	<0.00500	**0.0169**
Chromium	0.05	**0.317**	0.0343	0.0171	0.00619 J	**0.227**	**0.052**	0.0154
Lead	0.025	**0.0632**	0.0216	0.0131	<0.0100	**0.114**	**0.0453**	<0.0100
Mercury	0.0007	0.000589	<0.000200	<0.000200	<0.000200	0.000328	<0.000200	<0.000200
Selenium	0.01	<0.0100	**0.0168**	0.00907 J	**0.0116**	**0.013**	**0.015**	**0.016**
Silver	.05*	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100

1 - All values presented in micrograms per kilogram (µg/L).

2 - NYS Ambient Groundwater Standard (6 NYCRR Part 703.5)

3- All values for metals are presented in milligrams per kilogram (mg/L)

Value Exceeds NYS Ambient Groundwater Standards

ND - not detected above method detection limit

* - NYSDEC Guidance Value (TOGS 1.1.1)

J - compound detected below the laboratory quantitation limit

B - compound detected in associated method blank

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Figures

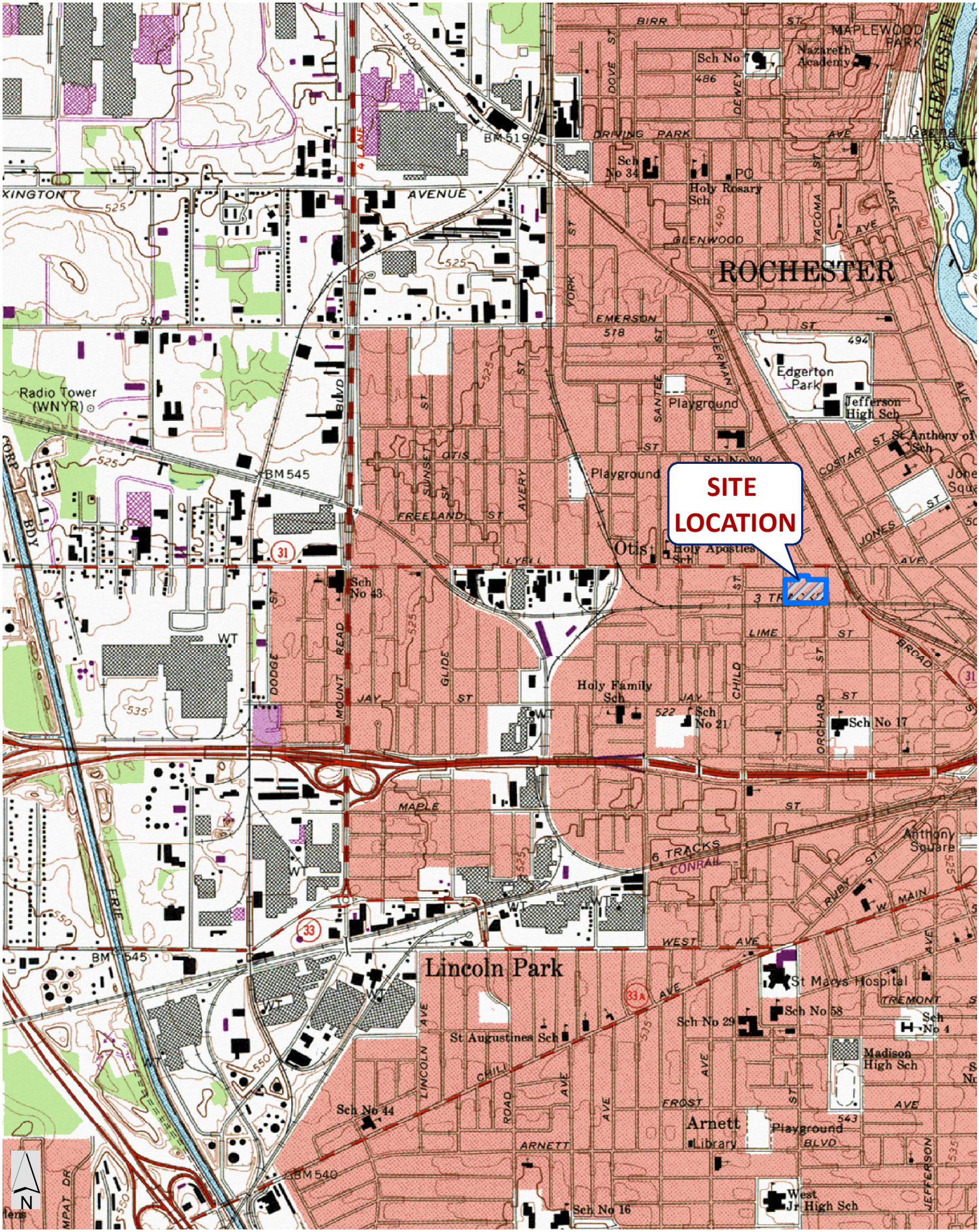

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FIGURE 1.
ORCHARD WHITNEY SITE LOCATION
ERP SITE #EB28123
ROCHESTER, NY

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

DATE: NOVEMBER 2015
SCALE: N/A
DRAWN/CHECKED: CSB/GLA
DATA SOURCE: ROCHESTER WEST QUAD. NEW YOR-MON ROE COUNTY 7.5 MINUTES SERIES (TOPO) 1971: REVISED 1978

DATE: DECEMBER 2015
SCALE: AS NOTED
DRAWN/CHECKED: CSB/GLA
DATA SOURCE: PICTOMETRY

FIGURE. 2 - SITE PLAN
ORCHARD WHITNEY SITE

ERP SITE #E828123
ROCHESTER, NY

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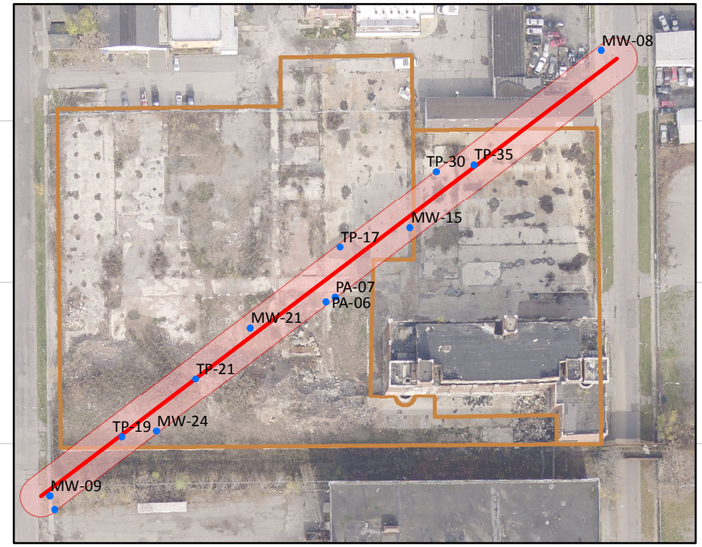
Legend

- Monitoring Well
- Plating Area 1" well
- Plating Area 2" well
- Soil Boring
- Soil Sample
- Property Line
- Test Pit Locations
- Monroe County Tax Parcel
- Test Pit
- Area of Inferred Contamination Requiring Removal/ Disposal Screening and Possible (3,353 sq. ft.)

0 25 50 100 Feet

1 inch = 50 feet

N W E S



550
540
530
520
510
500
490
480

MW-09 TP-19 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: OCTOBER 2013
SCALE: as noted
DRAWN/CHECKED: SMK/GLA
DATA SOURCE:

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

FIGURE 3
GEOLOGIC CROSS SECTION A-A'
ERP SITE #E828123
ROCHESTER, NY

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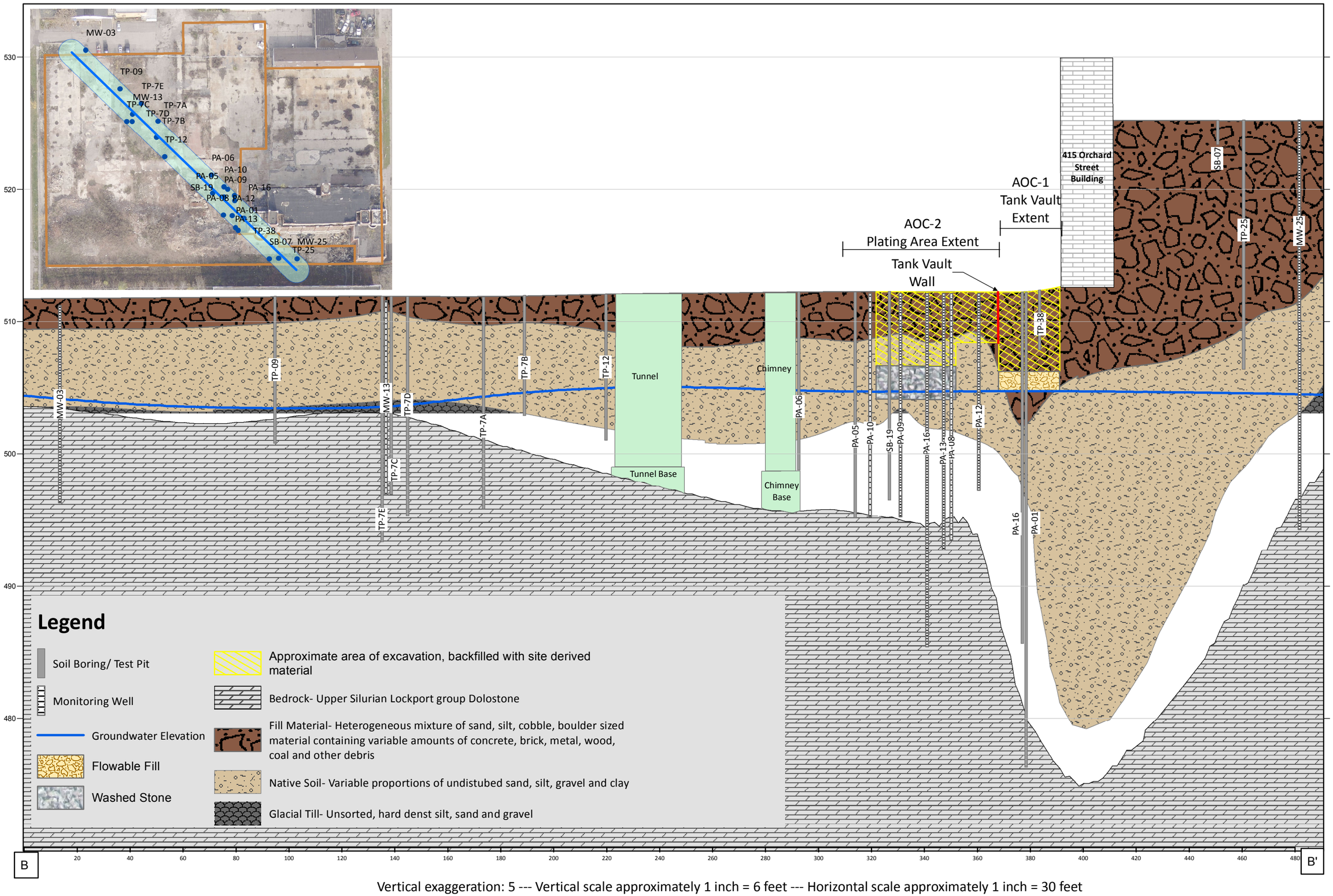

Vertical exaggeration: 5 --- Vertical scale approximately 1 inch = 6 feet --- Horizontal scale approximately 1 inch = 30 feet

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

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

FIGURE 4
GEOLOGIC CROSS SECTION B-B'
ERP SITE #E828123
ROCHESTER, NY

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DATE: NOVEMBER 2015
SCALE: AS NOTED
DRAWN/CHECKED: CSB/GLA
DATA SOURCE: PICTOMETRY

Figure 5. Groundwater Contour Map for Entire Site
415 ORCHARD STREET
ERP SITE #E828123
ROCHESTER, NY

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MW-06
(505.97 ft)

MW-12
(504.63 ft)

MW-23
(502.37 ft)

MW-16
(503.82 ft)

MW-22
(502.94 ft)

MW-28
(503.8 ft)

MW-29
(504.2 ft)

MW-26
(503.43 ft)

MW-25
(501.18 ft)

505.5
505
504.5
504
503.5
503
502.5
502
501.5

Inferred General Hydraulic Gradient

Lasalle

Whitney

Legend

- Monitoring Well
- Groundwater Contour
- Test Pit Locations
- Area of Contamination Removal
- Property Line
- Monroe County Tax Parcel

*Note: Wells not shown were not accessible for monitoring 11/15

N
W E
S

0 20 40 80 Feet
1 inch = 40 feet

MW-16
Arsenic 0.0714
Cadmium 0.658
Chromium 0.317
Lead 0.0632

OW-TP-12-2015
Barium: 439
Chromium: 7.66
Medium Weight PHC: 711
Mineral Oil: 808

OW-TP-16-2015
Chromium: 9.47

OW-TP-15-2015
Chromium: 10.4

MW-22
Selenium 0.0168

MW-22

MW-28
Chromium: 7.19
Acetone: 62.2

MW-28
Arsenic 0.0306
Chromium 0.052
Lead 0.0453
Selenium 0.015

OW-TP-10-2015
Chromium: 18.4
Heavy Weight PHC: 143
Medium Weight PHC: 523
Mineral Oil: 504

Pipe Chase
(Asbestos)

OW-TP-03-2015
Chromium: 5.78

SUBSURFACE
MIGRATION
FROM WEST

PERSONAL
ELEVATOR SHAFT

OW-TP-01-2015
Chromium: 7.4

MW-26
Selenium 0.0116

MW-27
Chromium: 3.35
Acetone: 57.4

CHEMICAL
STORAGE

MW-26
Chromium: 5.56
Acetone 55.6

MW-27
Arsenic 0.124
Barium 1.06
Chromium 0.227
Lead 0.114
Selenium 0.013

FREIGHT
ELEVATOR
SHAFT

OW-TP-06-2015
Chromium: 8.67

FREIGHT
ELEVATOR
SHAFT

OW-TP-02-2015
Chromium: 6.15

OW-TP-14-2015
Chromium: 10.4

OW-TP-09-2015
Chromium: 11.2

OW-TP-05-2015
Chromium: 6.76

OW-TP-04-2015
Chromium: 6.36

OW-TP-11-2015
Chromium: 4.63

OW-TP-13-2015
Chromium: 7.23

MW-29
Cadmium 0.0169
Selenium 0.016

OW-TP-08-2015
Arsenic: 59.3
Barium: 95.6
Lead: 190
Chromium: 13.8

OW-TP-07-2015
Arsenic: 29.2
Barium: 727
Chromium: 19.6
Lead: 383

MW-29
Chromium: 5.17

MW-25

Orchard

Legend

- Monitoring Well
- Plating Area 1" well
- Plating Area 2" well
- Soil Boring
- Soil Sample
- Test Pit
- Pipe Chase (Asbestos)
- Property Line
- Test Pit Locations
- Suspected Areas Contaminated Soil/Groundwater Below 415 Orchard St.
- Monroe County Tax Parcel
- Value Exceeds Unrestricted SCOs
- Value Exceeds Commercial Use SCOs
- Groundwater Sample Results
- Soil Sample Results
- Area of Inferred Contamination Requiring Removal/ Disposal Screening and Possible (3,353 sq. ft.)

Analytical values indicated exceed NYCRR Part 375 Commercial Reuse Criteria

Water samples displayed in ug/L
Soil sample data displayed in mg/kg

0 10 20 40 Feet

1 inch = 20 feet

DATE: NOVEMBER 2015
SCALE: AS NOTED
DRAWN/CHECKED: CSB/GLA
DATA SOURCE: PICTOMETRY

Figure 6. Test Pit and Monitoring Well Analytical Exceedances (Pre-IRM)
415 ORCHARD STREET
ERP SITE #E828123
ROCHESTER, NY

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MW-16
Arsenic 0.0714
Cadmium 0.658
Chromium 0.317
Lead 0.0632

OW-BOT-02-101315
Chromium: 7.21

OW-SW-01-101315
Chromium: 8.87

OW-SW-02-101315
Chromium: 4.73

MW-22
Selenium 0.0168

MW-28
Arsenic 0.0306
Chromium 0.052
Lead 0.0453
Selenium 0.015

OW-BOT-01-101215
Chromium: 5.9

Pipe Chase
(asbestos abated September 2015)

OW-SW-03-101315
Chromium: 6.04

MW-26
Selenium 0.0116

OW-BOT-03-101415
Cadmium: 3.07
Chromium: 14.1

MW-27
Arsenic 0.124
Barium 1.06
Chromium 0.227
Lead 0.114
Selenium 0.013

MW-29
Cadmium 0.0169
Selenium 0.016

OW-BOT-04-101513
Cadmium: 3.12
Chromium: 9.41

OW-SW-04-101415
Chromium: 6.98

MW-16
MW-22
MW-28
MW-29
MW-26
MW-27
MW-25

Legend

- Monitoring Well
- Confirmatory Sample Locations
- Property Line
- Area of Contamination Removal
- Value Exceeds Unrestricted SCOs
- Pipe Chase
- Test Pit Locations
- Groundwater Sample Results

Analytical values indicated exceed NYCRR Part 375 Commercial Reuse Criteria
All PID readings displayed in ppm

N W E S

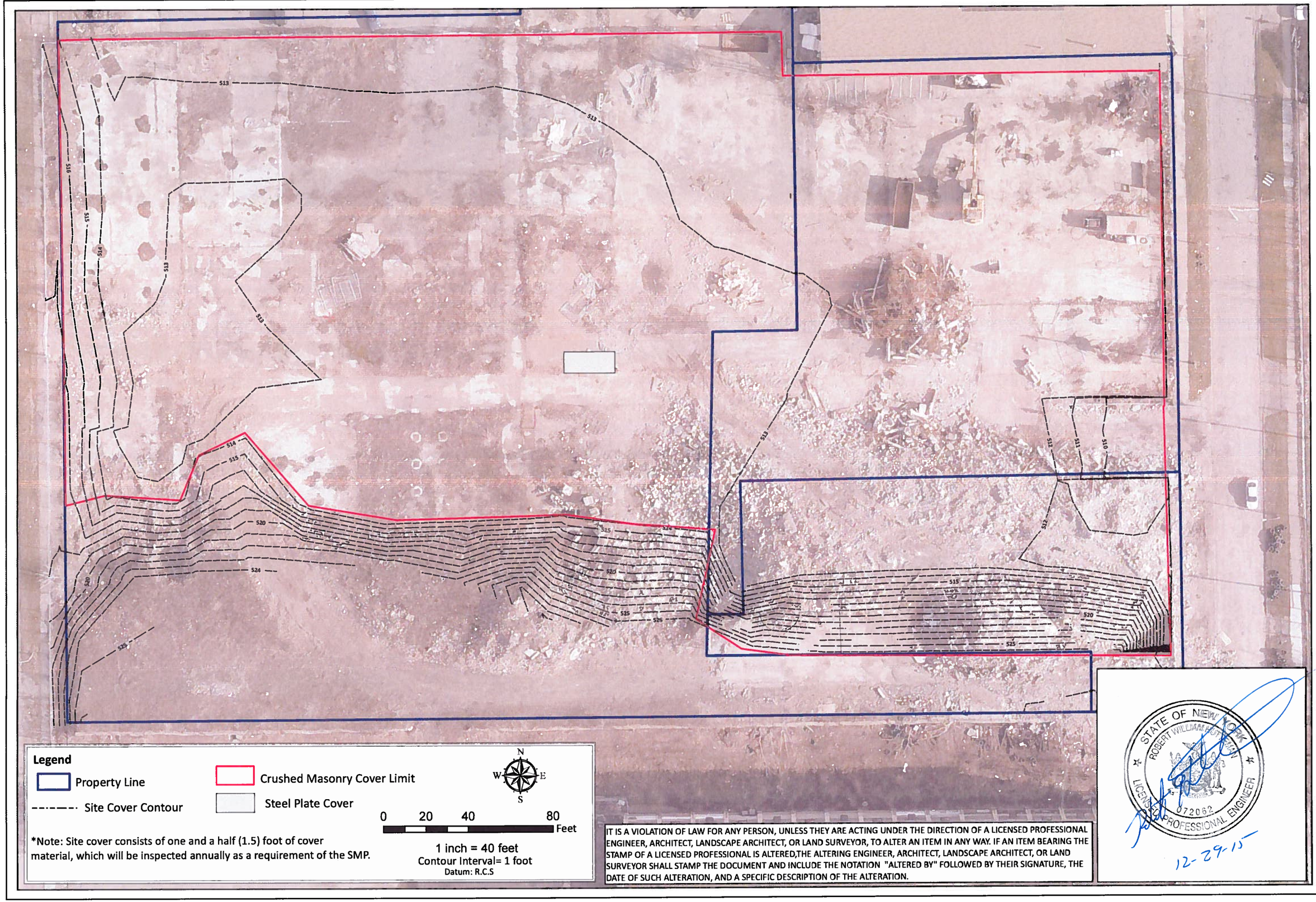
0 10 20 40 Feet
1 inch = 20 feet

DATE: NOVEMBER 2015
SCALE: AS NOTED
DRAWN/CHECKED: CSB/GLA
DATA SOURCE: PICTOMETRY

Figure 7 - IRM-EXCAVATION LIMITS & CONFIRMATORY SAMPLE LOCATIONS

ERP SITE #E828123
ROCHESTER, NY

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL



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.

STATE OF NEW YORK
ROBERT WILLIAM HUTCHINSON
LICENSED
072062
PROFESSIONAL ENGINEER

12-29-15

Figure 8. ENGINEERING CONTROL PLAN
EXISTING GRADE (CAP)
ORCHARD-WHITNEY SITE
ERP SITE #E828123
ROCHESTER, NY

DATE: DECEMBER 2015	
SCALE: AS NOTED	
DRAWN/CHECKED: CSB/GLA	
DATA SOURCE: PICTOMETRY	

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

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TP-29: (7.5')
Benzo(b)fluoranthene: 1,050 ug/Kg
Indeno(1,2,3-cd)pyrene: 736 ug/Kg

SS-02: (ug/Kg)
Benzo(a)pyrene: 1,500 J

TP-18: (8-15')
Barium: 1,570 mg/Kg
Benzo(a)anthracene: 27,000 ug/Kg
Benzo(a)pyrene: 30,000 ug/Kg
Benzo(b)fluoranthene: 33,000 ug/Kg
Dibenzo(a,h)anthracene: 5,500 ug/Kg
Indeno(1,2,3-cd)pyrene: 19,000 ug/Kg

TP-19: (12-15')
Benzo(a)anthracene: 8,380 ug/Kg
Benzo(a)pyrene: 6,930 ug/Kg
Benzo(b)fluoranthene: 6,500 ug/Kg
Dibenzo(a,h)anthracene: 1,750 ug/Kg

SS-01: (ug/Kg)
Benzo(a)pyrene: 2,000 J

SB-19: (16')
Chromium: 584 ug/Kg

Berm 1: (10-10.5')
Barium: 1,040 mg/Kg
Benzo(a)anthracene: 23,100 ug/Kg
Benzo(a)pyrene: 28,100 ug/Kg
Benzo(b)fluoranthene: 33,000 ug/Kg
Dibenzo(a,h)anthracene: 6,480 ug/Kg

TP-35: (11')
Acetone: 62.1 ug/Kg

SS-03: (ug/Kg)
Benzo(a)pyrene: 3,400
Dibenzo(a,h)anthracene: 620 J
Barium: 792

SS-04: (ug/Kg)
Benzo(a)antracene: 8,900 J
Benzo(a)pyrene: 9,500 J
Benzo(b)flouranthene: 12,000 J
Cadmium: 17.4

TP-32: (0-6')
Barium: 455 (mg/Kg)

SB-07: (11')
Benzo(b)pyrene: 2,400 ug/Kg

MW-10, MW-03, MW-19, MW-14, MW-08, MW-07, MW-06, MW-05, TP-01, TP-03, TP-02, TP-08, TP-16, TP-09, TP-7F, TP-7E, MW-18, SB-20, TP-30, TP-35, TP-34, OW-SS-03, TP-29, MW-12, TP-10, MW-13, TP-07, TP-04, TP-7A, MW-20, TP-7C, TP-7D, OW-SS-02, MW-15, TP-36, TP-37, MW-23, TP-7B, TP-17, TP-11, TP-06, TP-13, TP-12, TP-33, OW-SS-04, Lasalle, PA-07, PA-11, PA-15, PA-06, MW-17, PA-17, PA-14, SB-05, TP-28, TP-14, MW-11, TP-05, TP-15, MW-21, PA-10, SB-19, PA-05, PA-09, PA-19, PA-13, PA-18, MW-16, TP-31, TP-32, MW-22, MW-28, Orchard, MW-26, PA-04, PA-08, PA-12, MW-29, PA-16, MW-27, TP-18, PA-03, PA-02, PA-01, TP-21, TP-20, TP-38/BERM-1, TP-23, TP-24, SB-01, Whitney, TP-19, MW-24, TP-22, SB-26A, SB-26B, SB-07, TP-25, MW-25, TP-27, TP-26, MW-09, OW-SS-01

Legend

- MONITORING WELL
- PLATING AREA 1-INCH WELL
- PLATING AREA 2-INCH WELL
- SOIL BORING
- SOIL SAMPLE
- TEST PIT
- PROPERTY LINE
- STREET CENTERLINES
- TAX PARCELS
- 415 ORCHARD STREET "HIGH-RISE" FOOTPRINT

soil sample data displayed in ug/kg

N

1 inch = 50 feet

0 12.5 25 50
Feet

Analytical values indicated exceed NYCRR Part 375 Commercial Reuse Criteria

DATE: OCTOBER 2016
SCALE: 1 Inch= 50 Feet
DRAWN/CHECKED: CSB/AC
DATA SOURCE: PICTOMETRY

Figure 9. POST-IRM COMMERCIAL EXCEEDANCES

ERP SITE #E828123
ROCHESTER, NY

APPENDIX A – LIST OF SITE CONTACTS

Site Contact	Organization	Phone Number
Todd M. Caffoe	NYSDEC	585-226-5350
Bridget K. Boyd	NYSDOH	866-881-2809
Jane M.H. Forbes	City of Rochester	585-428-7892
Gregory L. Andrus	Lu Engineers	585-385-7417 ext. 215

APPENDIX B – EXCAVATION WORK PLAN (EWP)

B-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the Site owner or their representative will notify the NYSDEC.

New York State Department of Environmental Conservation (NYSDEC)
Division of Environmental Remediation
Regional Hazardous Waste Remediation Engineer
6274 East Avon Lima Road
Avon, New York 14414
(585) 226-2466

Table 1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of Site-related contact information is provided in Appendix A.

This notification will include:

- A detailed excavation work plan describing how and where excavated soils will be managed. The plan must include a Health and Safety Plan (HASP) and a Community Air Monitoring Plan (CAMP)

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for Site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;

- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;

- A schedule for the work, detailing the start and completion of all intrusive work;

- A summary of the applicable components of this EWP;

- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;

- A copy of the contractor's HASP, in electronic format, if it differs from the HASP provided in Appendix H of this SMP;

- Identification of disposal facilities for potential waste streams; and

- Identification of sources of any anticipated backfill, along with all required chemical testing

results.

B-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed by a qualified environmental professional during all excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-Site disposal and material that requires testing to determine if the material can be reused on-Site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-Site disposal of materials and on-Site reuse is provided in Section B-3 through B-7 of this Appendix.

B-3 SOIL STAGING METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by the NYSDEC.

B-4 MATERIALS EXCAVATION AND LOAD-OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and remedial party (if applicable) and its contractors are responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the Site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the Site.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-Site, as appropriate. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the Site until the activities performed under this section are complete Truck wash waters will be collected and disposed of off-Site in an appropriate manner.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the Site are clean of dirt and other materials derived from the Site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

B-5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the Site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

Truck transport routes are as follows: Ingress onto the Site will be through the Orchard Street gate. Egress will be via the same Orchard Street gate, to Broad Street, to highway. All trucks loaded with Site materials will exit the vicinity of the Site using only these approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport; (g) community input if necessary.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project Site.

Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site remediation and development.

Queuing of trucks will be performed on-Site in order to minimize off-Site disturbance. Off-Site queuing will be prohibited.

B-6 MATERIALS DISPOSAL OFF-SITE

All material excavated and removed from the Site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of material from this Site is proposed for unregulated off-Site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-Site management of materials from this Site will not occur without formal NYSDEC approval.

Off-Site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC

in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-Site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

B-7 MATERIALS REUSE ON-SITE

The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-Site. Contaminated on-Site material, including historic fill and contaminated soil, that is acceptable for reuse on-Site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-Site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-Site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site will not be reused on-Site.

B-8 FLUIDS MANAGEMENT

All liquids to be removed from the Site, including but not limited to, excavation dewatering, decontamination waters and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the Site, and will be managed off-Site, unless prior approval is obtained from NYSDEC.

Water generated during large-scale construction activities will be discharged to surface waters (i.e. a local pond, stream or river) under a SPDES permit.

B-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the Record of Decision (ROD). The existing cover system is comprised of a one (1) foot layer of either clean backfill soil material or existing on-Site crushed demolition debris as illustrated in Figure 8 of this SMP. The existing concrete throughout the Site will serve as a demarcation layer to provide a visual reference to the top of the remaining contamination zone, the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this SMP.

If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the remaining contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in an updated SMP.

B-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the Site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the Site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the Site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Solid waste will not be imported onto the Site.

Trucks entering the Site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

B-11 STORMWATER POLLUTION PREVENTION

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by the NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

B-12 EXCAVATION CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will

be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the Site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive Site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the Periodic Review Report.

B-13 COMMUNITY AIR MONITORING PLAN

A Community Air Monitoring Plan is included as Appendix I of the SMP. A Generic Community Air Monitoring Plan can be found in Appendix 1A of DER-10 if required.

CAMP monitoring locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations. Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

B-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-Site. If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-Site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils; [add other elements as appropriate]. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods [add others as necessary].

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-Site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

B-15 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-Site work will include,

at a minimum, the items listed below:

- Dust suppression will be achieved though the use of a dedicated on-Site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.

- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.

- Gravel will be used on roadways to provide a clean and dust-free road surface.

- On-Site roads will be limited in total area to minimize the area required for water truck sprinkling.

B-16 OTHER NUISANCES

A plan for rodent control will be developed and utilized by the contractor prior to and during Site clearing and Site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

APPENDIX C – RESPONSIBILITIES of OWNER and REMEDIAL PARTY

Responsibilities

The City of Rochester is responsible for implementing the Site Management Plan ("SMP") for the City of Rochester Orchard-Whitney Site (the "Site"), number # E828123. The owner is currently listed as:

City or Rochester
Department of Environmental Quality
City Hall
30 Church Street, Room 300B
Rochester, New York 14614

Solely for the purposes of this document and based upon the facts related to a particular Site and the remedial program being carried out, the term Remedial Party ("RP") refers to any of the following: certificate of completion holder, volunteer, applicant, responsible party, and, in the event the New York State Department of Environmental Conservation ("NYSDEC") is carrying out remediation or Site management, the NYSDEC and/or an agent acting on its behalf. The RP is:
The City of Rochester.

Nothing on this page shall supersede the provisions of an Environmental Easement, Consent Order, Consent Decree, agreement, or other legally binding document that affects rights and obligations relating to the Site.

Site Owner's Responsibilities:

1) The owner shall follow the provisions of the SMP as they relate to future construction and excavation at the Site.

2) In accordance with a periodic time frame determined by the NYSDEC, the owner shall periodically certify, in writing, that all Institutional Controls set forth in the Environmental Easement remain in place and continue to be complied with.

3) In the event the Site is delisted, the owner remains bound by the Environmental Easement and shall submit, upon request by the NYSDEC, a written certification that the Environmental Easement is still in place and has been complied with.

4) The owner shall grant access to the Site to the NYSDEC and its agents for the purposes of performing activities required under the SMP and assuring compliance with the SMP.

5) The owner is responsible for assuring the security of the remedial components located on its property to the best of its ability. In the event that damage to the remedial components or vandalism is evident, the owner shall notify the NYSDEC in accordance with the timeframes indicated in Section 1.3 – Notifications.

6) In the event some action or inaction by the owner adversely impacts the Site, the owner must notify the NYSDEC in accordance with the time frame indicated in Section 1.3 – Notifications and (ii) coordinate the performance of necessary corrective actions.

7) The owner must notify the NYSDEC of any change in ownership of the Site property (identifying the tax map numbers in any correspondence) and provide contact information for the new owner of the Site property/ies. 6 NYCRR Part contains notification requirements applicable to any construction or activity changes and changes in ownership. Among the notification requirements is the following: Sixty days prior written notification must be made to the NYSDEC. Notification is to be submitted to the NYSDEC Division of Environmental Remediation's Site Control Section. Notification requirements for a change in use are detailed in Section 2.4 of the SMP. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html.

Remedial Party Responsibilities

(Not Applicable at this time as the City of Rochester is owner and as a result the remedial responsible party).

1) The RP must follow the SMP provisions regarding any construction and/or excavation it undertakes at the Site.

2) The RP shall report to the NYSDEC all activities required for remediation, operation, maintenance, monitoring, and reporting. Such reporting includes, but is not limited to, periodic review reports and certifications, electronic data deliverables, corrective action work plans and reports, and updated SMPs.

3) Before accessing the Site property to undertake a specific activity, the RP shall provide the owner advance notification that shall include an explanation of the work expected to be completed. The RP shall provide to (i) the owner, upon the owner's request, (ii) the NYSDEC, and (iii) other entities, if required by the SMP, a copy of any data generated during the Site visit and/or any final report produced.

4) If the NYSDEC determines that an update of the SMP is necessary, the RP shall update the SMP and obtain final approval from the NYSDEC. Within 5 business days after NYSDEC approval, the RP shall submit a copy of the approved SMP to the owner(s).

5) The RP shall notify the NYSDEC and the owner of any changes in RP ownership and/or control and of any changes in the party/entity responsible for the operation, maintenance, and monitoring of and reporting with respect to any remedial system (Engineering Controls). The RP shall provide contact information for the new party/entity. Such activity constitutes a Change of Use pursuant to 375-1.11(d) and requires 60-days prior notice to the NYSDEC. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html.

6) The RP shall notify the NYSDEC of any damage to or modification of the systems as required under Section 1.3 – Notifications of the SMP.

7) The RP is responsible for the proper maintenance of any installed vapor intrusion mitigation

systems associated with the Site, if required and installed.

9) Prior to a change in use that impacts the remedial system or requirements and/or responsibilities for implementing the SMP, the RP shall submit to the NYSDEC for approval an amended SMP.

10) Any change in use, change in ownership, change in Site classification (*e.g.*, delisting), reduction or expansion of remediation, and other significant changes related to the Site may result in a change in responsibilities and, therefore, necessitate an update to the SMP and/or updated legal documents. The RP shall contact the Department to discuss the need to update such documents.

Change in RP ownership and/or control and/or Site ownership does not affect the RP's obligations with respect to the site unless a legally binding document executed by the NYSDEC releases the RP of its obligations.

Future Site owners and RPs and their successors and assigns are required to carry out the activities set forth above.

APPENDIX D – ENVIRONMENTAL EASEMENT

This Appendix includes a copy of the Environmental Easements and/or appropriate deed restrictions, environmental notices, etc. The survey figure that shows the restricted areas is included in this Appendix.

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made this 26th day of September, 20 16 between Owner(s) City of Rochester, having an office at 30 Church Street, Rochester, New York 14614-1290, County of Monroe, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee."), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 354 Whitney Street in the City of Rochester, County of Monroe and State of New York, known and designated on the tax map of the County Clerk of Monroe as tax map parcel numbers: Section 105.66 Block 3 Lot 24, being the same as that property conveyed to Grantor by deed dated August 15, 2006 and recorded in the Monroe County Clerk's Office in Liber and Page 10342/568. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 2.771 +/- acres, and is hereinafter more fully described in the Land Title Survey dated December 22, 2015 and last revised August 2, 2016 prepared by Daniel J. MacDonald, P.L.S., which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A, and is identified as Parcel A;

WHEREAS, Grantor, is the owner of real property located at the address of 415 Orchard Street in the City of Rochester, County of Monroe and State of New York, known and designated on the tax map of the County Clerk of Monroe as tax map parcel numbers: Section 105.66 Block

3 Lot 23, being the same as that property conveyed to Grantor by deed dated December 29, 2008 and recorded in the Monroe County Clerk's Office in Liber and Page 10705/335. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 1.302 +/- acres, and is hereinafter more fully described in the Land Title Survey dated December 22, 2015 and last revised August 2, 2016 prepared by Daniel J. MacDonald, P.L.S., which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A, and is identified as Parcel B; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of State Assistance Contract Number: C303000, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Monroe County Department of Health to render it safe for use as drinking water or for industrial purposes, and

the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential or Restricted Residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the

property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to:

Site Number: E828123
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

Site Control Section

Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

Remainder of Page Intentionally Left Blank

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

City of Rochester:

By: _____

Print Name: MARK D GREGOR

Title: MANAGER DEQ Date: 9-13-16

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF Monroe)

On the 13th day of Sept, in the year 2016, before me, the undersigned, personally appeared Mark D. Gregor, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Vicki Brawn
Notary Public - State of New York

VICKI BRAWN
Notary Public in the State of New York
MONROE COUNTY
Commission Expires August 18, 2018
01BR4868858

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner.

By: _____
Robert W. Schick, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the 26th day of September, in the year 2016, before me, the undersigned, personally appeared Robert W. Schick, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2018

SCHEDULE "A" PROPERTY DESCRIPTION

PARCEL A (354 WHITNEY STREET)

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 AN IRON PIN IN THE EASTERLY LINE OF WHITNEY STREET WHICH IRON PIN IS LOCATED 499.44 FEET SOUTH OF THE INTERSECTION OF THE EASTERLY LINE OF WHITNEY STREET WITH THE SOUTH LINE OF LYELL AVENUE; THENCE

1) NORTHERLY ALONG THE EASTERLY LINE OF EASTERLY LINE OF WHITNEY STREET A DISTANCE OF 332.28 FEET TO A POINT; THENCE
2) EASTERLY AND MAKING AN INTERIOR ANGLE WITH THE LAST DESCRIBED COURSE OF 89°55'44" A DISTANCE OF 218.98 FEET TO A POINT: THENCE
3) NORTHERLY AND MAKING AN INTERIOR ANGLE WITH THE LAST DESCRIBED COURSE OF 270°04'00" A DISTANCE OF 48.43 FEET TO A POINT; THENCE
4) EASTERLY AND MAKING AN INTERIOR ANGLE WITH THE LAST DESCRIBED COURSE OF 90°01'10" A DISTANCE OF 128.51 FEET TO A POINT; THENCE
5) SOUTHERLY AND MAKING AN INTERIOR ANGLE WITH THE LAST DESCRIBED COURSE OF 90°00'00" A DISTANCE OF 200.20 FEET TO A POINT; THENCE
6) WESTERLY AND MAKING AN INTERIOR ANGLE WITH THE LAST DESCRIBED COURSE OF 90°00'20" A DISTANCE OF 40.20 FEET TO A POINT; THENCE
7) SOUTHERLY AND MAKING AN INTERIOR ANGLE WITH THE LAST DESCRIBED COURSE OF 270°00'40" A DISTANCE 132.45 FEET TO A POINT; THENCE
8) EASTERLY AND MAKING AN INTERIOR ANGLE WITH THE LAST DESCRIBED COURSE OF 269°57'00" A DISTANCE OF 26.08 FEET TO A POINT; THENCE
9) SOUTHEASTERLY ON A CURVE TO THE LEFT, HAVING A RADIUS OF 7.44 FEET, A DISTANCE OF 18.46 FEET TO A POINT, SAID POINT BEING 14 FEET FROM THE END OF COURSE #8 EXTENDED; THENCE
10) EASTERLY ON THE LINE OF COURSE #8 EXTENDED, A DISTANCE OF 20.43 FEET TO A POINT; THENCE
11) SOUTHERLY AND MAKING AN INTERIOR ANGLE WITH THE LAST DESCRIBED COURSE OF 90°00'00" A DISTANCE OF 20.58 FEET TO A POINT; THENCE
12) EASTERLY AND MAKING AN INTERIOR ANGLE WITH THE LAST DESCRIBED COURSE OF 270°00'00" A DISTANCE OF 118.06 FEET TO A POINT; THENCE
13) SOUTHERLY AND MAKING AN INTERIOR ANGLE WITH THE LAST DESCRIBED COURSE OF 89°43'50" A DISTANCE OF 28.18 FEET TO A POINT; THENCE
14) WESTERLY AND MAKING AN INTERIOR ANGLE WITH THE LAST DESCRIBED COURSE OF 90°10'10" A DISTANCE OF 485.84 FEET TO THE POINT AND PLACE OF BEGINNING.

CONTAINING AN AREA OF APPROXIMATELY 120,697 SQUARE FEET OR 2.771 ACRES MORE OR LESS.

PARCEL B (415 ORCHARD STREET)

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 IN THE WEST LINE OF ORCHARD STREET 192.42 FEET DISTANT SOUTH OF THE INTERSECTION OF THE INTERSECTION OF LYELL AVENUE WITH THE WEST LINE OF ORCHARD STREET; RUNNING THENCE THE FOLLOWING BEARINGS AND DISTANCES: THENCE

1) SOUTH ALONG THE WEST LINE OF ORCHARD STREET A DISTANCE OF 308.22 FEET TO ITS INTERSECTION WITH THE NORTH LINE OF LANDS NOW OR FORMERLY OF THE NEW YORK CENTRAL RAILROAD; THENCE
2) WEST AT AN INTERIOR ANGLE WITH COURSE No. 1 OF 89°53'50" AND ALONG THE NORTH LINE OF SAID NEW YORK CENTRAL RAILROAD LANDS A DISTANCE OF 42.49 FEET TO A POINT; THENCE
3) NORTH AT AN INTERIOR ANGLE WITH COURSE No. 2 OF 89°49'35" A DISTANCE OF 28.18 FEET; THENCE
4) WEST AT AN INTERIOR ANGLE WITH COURSE No. 3 OF 270°16'10" A DISTANCE OF 118.06 FEET; THENCE
5) NORTH AT AN INTERIOR ANGLE WITH COURSE No. 4 OF 90°00'00" A DISTANCE OF 20.58 FEET; THENCE
6) WEST AT AN INTERIOR ANGLE WITH COURSE No. 5 OF 270°00'00" A DISTANCE OF 20.43 FEET; THENCE
7) NORTHWESTERLY ON A CURVE TO THE RIGHT, A DISTANCE OF 18.23 FEET ON A CURVE HAVING A RADIUS OF 7.44 FEET; THENCE
8) WEST AND A CONTINUATION OF COURSE No. 6 A DISTANCE OF 26.08 FEET; THENCE
9) NORTH AT AN INTERIOR ANGLE WITH COURSE No. 8 OF 90°03'00" A DISTANCE OF 132.45 FEET; THENCE
10) EAST AT AN INTERIOR ANGLE WITH COURSE No. 9 OF 89°59'20" A DISTANCE OF 40.20; THENCE
11) NORTH AT AN INTERIOR ANGLE WITH COURSE No. 10 OF 269°59'40" A DISTANCE OF 126.20 FEET; THENCE
12) EAST AT AN INTERIOR ANGLE WITH COURSE No. 11 OF 90°11'30" A DISTANCE OF 180.86 FEET TO THE PLACE OF THE BEGINNING. THE LAST COURSE MAKING AN INTERIOR ANGLE WITH THE FIRST COURSE OF 89°46'51" TO THE POINT OR PLACE OF BEGINNING.

CONTAINING AN AREA OF APPROXIMATELY 56,702 SQUARE FEET OR 1.302 ACRES MORE OR LESS.

EASEMENT DESCRIPTION:
PARCEL B

EASEMENT DESCRIPTION:

PARCEL B

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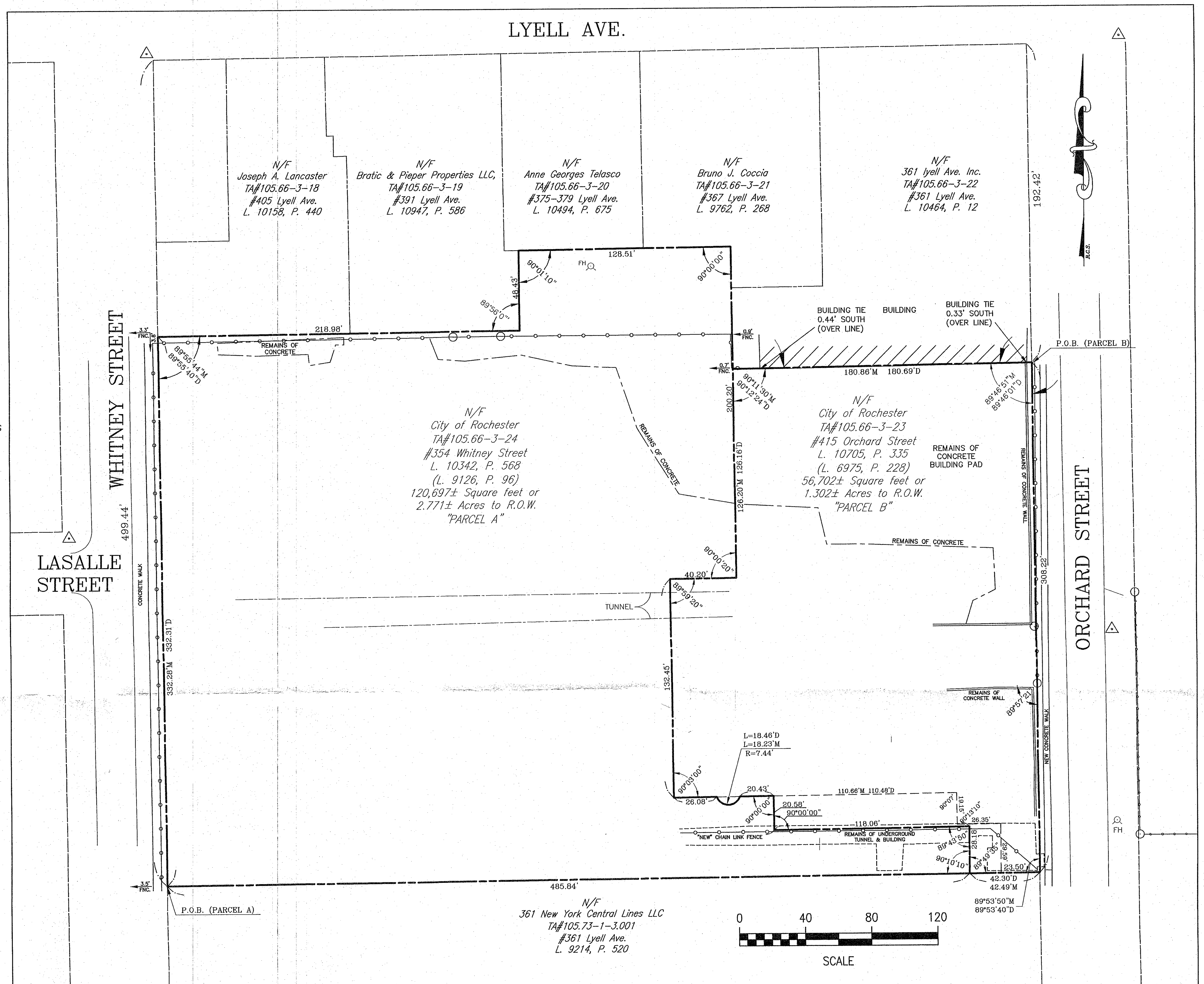

EASEMENT DESCRIPTION:
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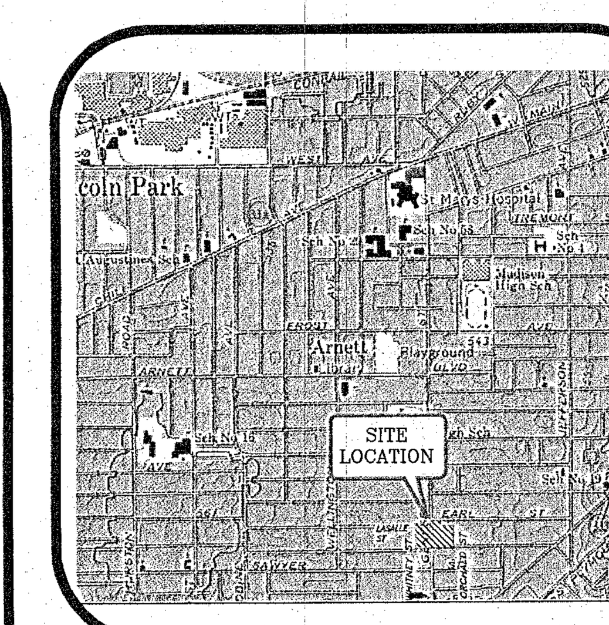
LEGEND

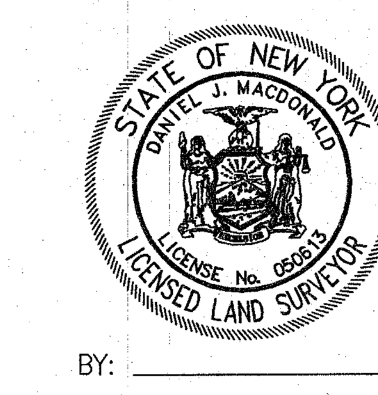
- APPROXIMATE RIGHT-OF-WAY
- EASEMENT BOUNDARIES
- EXISTING BUILDING
- EXISTING ADJOINING PROPERTY LINES
- CHAIN LINK FENCE
- SURVEY CONTROL POINT/MONUMENT
- FH FIRE HYDRANT



DATE	REVISIONS	BY
8/2/16	REVISED PARCEL "B" DESCRIPTION	

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 • CIVIL
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 #E828123
CITY OF ROCHESTER,
COUNTY OF MONROE
STATE OF NEW YORK

CLIENT:

CITY OF ROCHESTER
ROCHESTER, NEW YORK

DRAWING TITLE:

SHOWING EASEMENT TO N.Y.S.D.E.C. PARCELS A & B

DESIGNED BY: GA	SCALE: 1"=40'
DRAWN BY: DJM	DATE: 12-22-15
CHECKED BY: AC	PROJECT No. 4216
SHEET 1 OF 1	DRAWING No. SU-1

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.

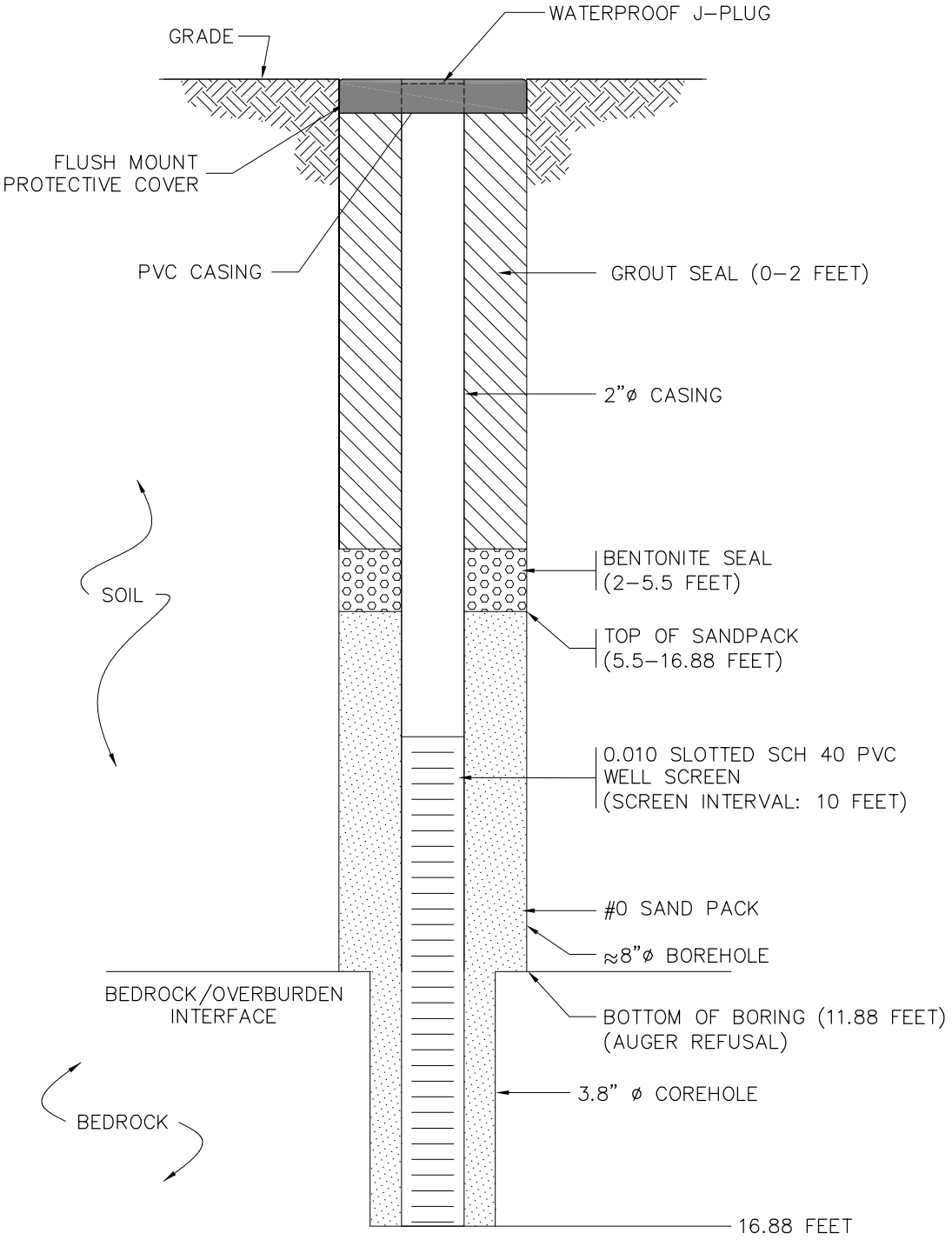
THE PROPERTY IS SUBJECT TO AN ENVIRONMENTAL EASEMENT HELD BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION PURSUANT TO TITLE 36 OF ARTICLE 71 OF THE NEW YORK ENVIRONMENTAL CONSERVATION LAW. THE ENGINEERING AND INSTUTIONAL CONTROLS FOR THIS EASEMENT ARE SET FORTH IN MORE DETAIL IN THE SITE 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, NY 12233 OR AT derweb@dec.ny.gov

CERTIFICATION:

WE, JOSEPH C. LU ENGINEERS AND LAND SURVEYING, P.C. CERTIFY THAT THIS SURVEY MAP WAS PREPARED ON DECEMBER 22, 2015 FROM NOTES OF A SURVEY COMPLETED ON DECEMBER 18, 2015.

DANIEL J. MACDONALD, N.Y.S. P.L.S. 050613 — 9/2/16 DATE

APPENDIX E – MONITORING WELL AND CONSTRUCTION LOGS



MW-26 CONSTRUCTION DETAIL

NOT TO SCALE

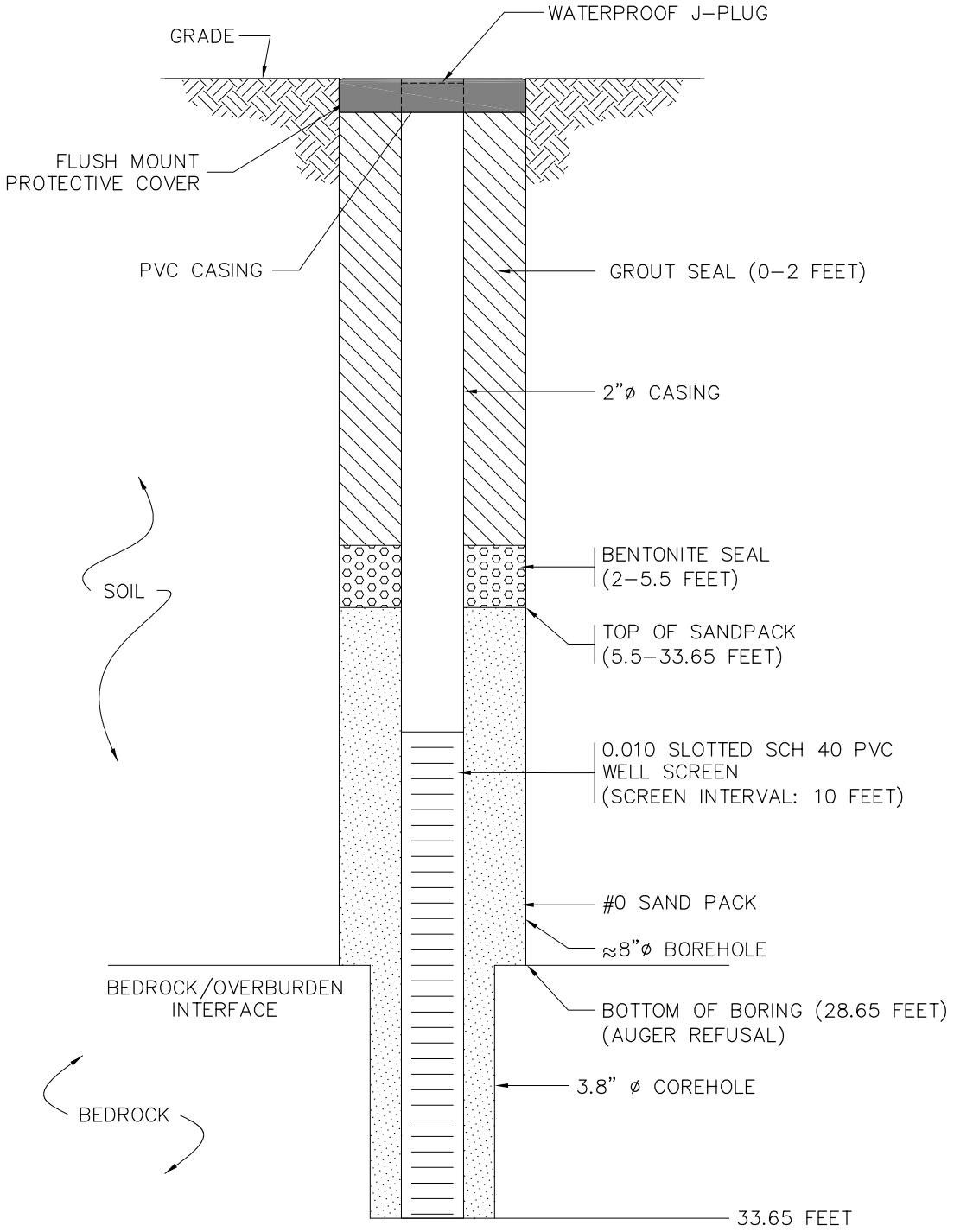
Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

FLUSH MOUNT WELL DIAGRAM

MONITORING WELL 26
CITY OF ROCHESTER
ORCHARD WHITNEY

DATE:	AUGUST 2015
SCALE:	NONE
DRAWN/CHECKED	JRM/LG
P.N.	4216-07

J:\Projects\4200 Rochester\4216-06 Orchard Whitney Supp. RI Work Plan\Cadd\MWs_Aug. 2015.dwg, 8/14/2015 1:30:33 PM, JMessenger



MW-27 CONSTRUCTION DETAIL

NOT TO SCALE

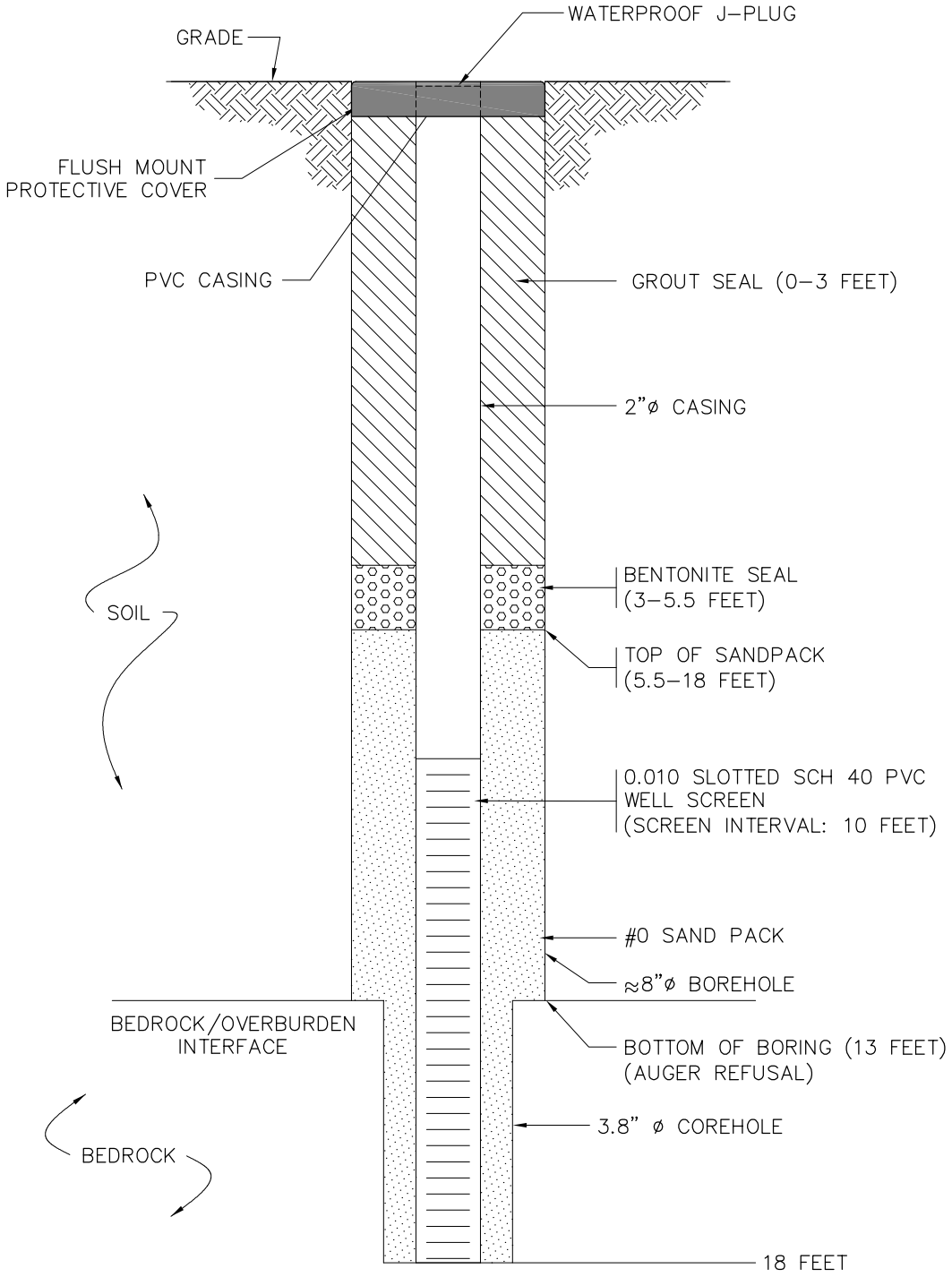
Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

FLUSH MOUNT WELL DIAGRAM

MONITORING WELL 27
CITY OF ROCHESTER
ORCHARD WHITNEY

DATE:	AUGUST 2015
SCALE:	NONE
DRAWN/CHECKED	JRM/LG
P.N.	4216-07

J:\Projects\4200 Rochester\4216-06 Orchard Whitney Supp. RI Work Plan\Cadd\WWs_Aug. 2015.dwg, 8/14/2015 1:30:34 PM, JMessenger



MW-28 CONSTRUCTION DETAIL

NOT TO SCALE

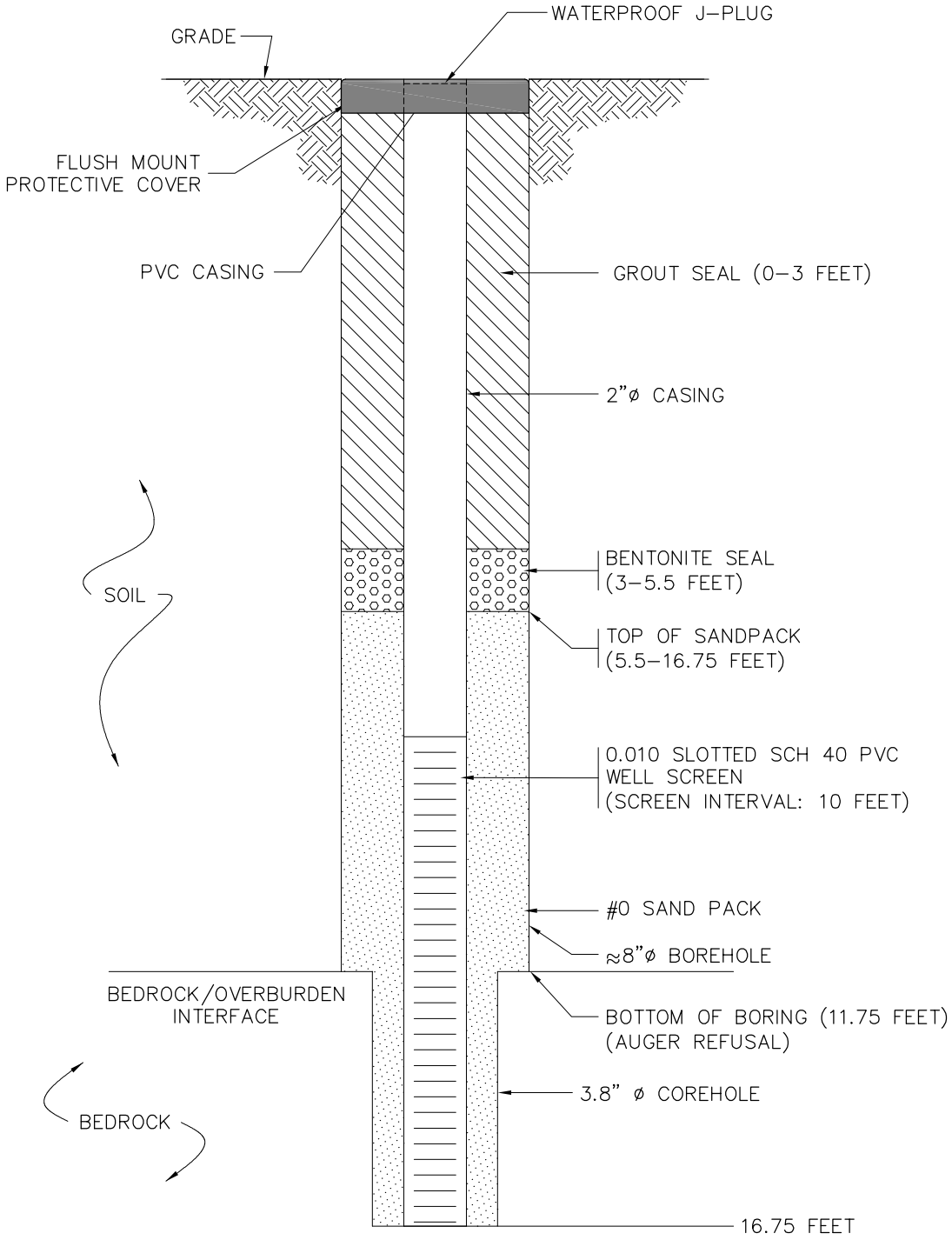
Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

FLUSH MOUNT WELL DIAGRAM

MONITORING WELL 28
CITY OF ROCHESTER
ORCHARD WHITNEY

DATE:	AUGUST 2015
SCALE:	NONE
DRAWN/CHECKED	JRM/LG
P.N.	4216-07

J:\Projects\4200 Rochester\4216-06 Orchard Whitney Supp. RI Work Plan\Cadd\WWs_Aug. 2015.dwg, 8/14/2015 1:30:34 PM, JMessenger



MW-29 CONSTRUCTION DETAIL

NOT TO SCALE

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

FLUSH MOUNT WELL DIAGRAM

MONITORING WELL 29
CITY OF ROCHESTER
ORCHARD WHITNEY

DATE:	AUGUST 2015
SCALE:	NONE
DRAWN/CHECKED	JRM/LG
P.N.	4216-07

J:\Projects\4200 Rochester\4216-06 Orchard Whitney Supp. RI Work Plan\Cadd\WWs_Aug. 2015.dwg, 8/14/2015 1:30:34 PM, JMessenger

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

175 Sullys Trail, Suite 202
Corporate Crossings Office Park

PROJECT	
Orchard-Whitney	

BORING MW-26
SHEET 1 OF 1
JOB #: 4216-06
CHKD. BY: G. Andrus

DRILLER: Nothnagle- NS
JCL GEOLOGIST: G. Andrus, L.Gregor

GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 7/20/15 END DATE: 7/20/15

TYPE OF DRILL RIG:
CASING SIZE AND TYPE:
OVERBURDEN SAMPLING METHOD:
ROCK DRILLING METHOD:

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
						Concrete core to 0.5' bgs	N/D
1					50%	Concrete subbase cmf SAND, and cmf GRAVEL	
2						brown fine SAND, some mf GRAVEL, little cm SAND, trace silt, firm, moist, no odor	N/D
3							
4						brown similar soil with cmf GRAVEL/cmf SAND cinder lense at 5'-5.5' (loose, black, moist, no odor)	N/D
5							
6						brown, fine SAND (wet) 5.5'-6'	N/D
7						brown mf SAND some cmf GRAVEL, trace SILT, wet, loose, no odor	
8							
9						similar soil becoming looser and more saturated	N/D
10						Soil sample taken @ 9.5' MW-26 gravel becoming brown cmf SAND and silt, some cmf GRAVEL, firmer, wet, no odor	N/D
11							
12						brown-grey glacial till (fine SAND) and SILT, some cm SAND, some cmf GRAVEL, firm, moist, no odor.	N/D
13						Switched to coring tools (NX). Cored to approx. 17' TD. RQD determined to be approximately 80%. Rock is massively bedded dolostone, hard, slightly weathered, with moderately close fracture/joint spacing with few voids.	
14							
15							
16							
17						17' (16.88) Core hole terminated	
18							
19							
20							

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

Bedrock encountered at 12.1'

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 #

Lu Engineers
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175 Sullys Trail, Suite 202
Corporate Crossings Office Park

PROJECT	BORING MW-27
Orchard-Whitney	SHEET 1 OF 1
	JOB #: 4216-06
	CHKD. BY: G. Andrus

DRILLER: Nothnagle- NS
JCL GEOLOGIST: G. Andrus, L.Gregor

GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 7/20/15 END DATE: 7/21/15

TYPE OF DRILL RIG:
CASING SIZE AND TYPE:
OVERBURDEN SAMPLING METHOD:
ROCK DRILLING METHOD:

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
1						12-14' concrete- balck cinders/concrete	N/D
					40%	brown, fine SAND, little mf GRAVEL	
2						firm, moist, no odor	N/D
3						brown mf SAND, some mf GRAVEL, loose, moist, no odor	N/D
4					25%	brown similar soil loose, saturated, no odor	N/D
5							
6							
7							
8					50%	light brown fine SAND and SILT, some cmf GRAVEL, firm, saturated, no odor	N/D
9							
10							
11						grey/brown SILT, little cmf SAND, little mf GRAVEL, trace CLAY, firm, moist, no odor	N/D
12						soil sample @ 12' MW-27A	
					30%	grey, fine SAND and cmf GRAVEL, little cm SAND, firm, saturated, no odor	N/D
13							
14							
15							
16							
					100%	similar soil	N/D
17							
			29-32.5			brown/grey mf SAND, little coarse SAND, trace mf GRAVEL, firm, wet, no odor	
						soil sample @ 30'-32' MW-27B	N/D
			34-36.7			brown/grey mf SAND and cmf GRAVEL, some SILT, saturated, loose, no odor	

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

Boring terminated at 33.65

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 #

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175 Sullys Trail, Suite 202
Corporate Crossings Office Park

PROJECT	BORING MW-28
Orchard-Whitney	SHEET 1 OF 1
	JOB #: 4216-06
	CHKD. BY: G. Andrus

DRILLER: Nothnagle- NS
JCL GEOLOGIST: C. Bok, L. Gregor

GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 7/21/15 END DATE: 7/22/15

TYPE OF DRILL RIG:
CASING SIZE AND TYPE:
OVERBURDEN SAMPLING METHOD:
ROCK DRILLING METHOD:

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
1					30%	concrete @ 0.5	N/D
4						No sampling (similar soil)	
10					60%	10-12.5 brown, saturated, silt, trace clay,	N/D
11						Soil sample @ 11' MW-28	N/D
13						Bedrock encountered @ 13.0'	
17						Used rotary (tri-cone) bit with water to 18'	

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

Bedrock encountered @ 12.7'
Total depth of 18'

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 #

Lu Engineers
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175 Sullys Trail, Suite 202
Corporate Crossings Office Park

PROJECT	BORING MW-29
	SHEET 1 OF 1
Orchard-Whitney	JOB #: 4216-06
	CHKD. BY: G. Andrus

DRILLER: Nothnagle- NS
JCL GEOLOGIST: C. Bok, L. Gregor

GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 7/22/15 END DATE: 7/22/15

TYPE OF DRILL RIG:
CASING SIZE AND TYPE:
OVERBURDEN SAMPLING METHOD:
ROCK DRILLING METHOD:

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
1					30%	concrete @ 0.5	N/D
10					50%	light brown sand and silt, no gravel, hard clay, grey,	N/D
11						Soil sample @ 11' MW-29	N/D
12						Refusal @12' (11.75'). Bedrock encountered	
14						Used rotary (tri-cone) bit with water to 16.75'	

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

Total depth 16.75'

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 #

APPENDIX F – GROUNDWATER SAMPLING FIELD RECORD

Groundwater sampling will be conducted as outlined in the Quality Assurance Project Plan (QAPP) included as Appendix G. The QAPP is consistent with the protocols developed during the investigation phase of the project, and includes methodology for the following:

- Well gauging;
- Well purging;
- Sampling methodology;
- Analytical methodology:
- Lab certification;
- Analytical methods; and
- Analytes.

Groundwater sampling activities will be recorded on the attached Groundwater Sampling Field Record and submitted as an attachment to the annual Periodic Review Report.

Groundwater Sampling
Field Record

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

Project Name _____ Job #_____
Location ID _____ Field Sample ID _____ Sampling Event # _ _
Activity Time _____ Sample Time _____ Date _____

SAMPLING NOTES

Initial Depth to Water _____ feet Measurement Point TOR _____ Well Diameter _____
Final Depth to Water _____ feet Well Depth _____ feet Well Integrity:
Screen Length _____ feet Pump Intake Depth _____ Cap _____
Total Volume Purged _____ gallons PID Well Head _____ Casing _____
[purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter] Locked _____
Volume of Water in casing – 2" diameter = 0.163 gallons per foot of depth, 4" diameter = 0.653 gallons per foot of depth Collar _____

PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	ORP (mV)	Comments

Purge Observations: _____
Purge Water Containerized: _____

EQUIPMENT DOCUMENTATION

Type of Pump:_____
Type of Tubing: ¼" HDPE
Type of Water Quality Meter: Horiba U-22; LaMotte 2020 Calibrated: _____

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	

LOCATION NOTES

Signature: _____
Checked By: _____

ADDITIONAL PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	Redox (mV)	Comments

APPENDIX G – QUALITY ASSURANCE PROJECT PLAN

All sampling and analyses will be performed in accordance with the requirements of the attached Quality Assurance Project Plan (QAPP) prepared for the Site. The main components of the QAPP include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:
- Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
- Sample holding times will be in accordance with the NYSDEC ASP requirements.
- Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.
- Sample Tracking and Custody;
- Calibration Procedures:
- All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.
- The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.
- Analytical Procedures;
- Preparation of a Data Usability Summary Report (DUSR), which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules;
- Corrective Action Measures.
- Assessing achievement of the remedial performance criteria.
- Preparing the necessary reports for the various monitoring activities.
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;

QUALITY ASSURANCE PROJECT PLAN

Supplemental Site Investigation
415 Orchard Street

City of Rochester
Environmental Restoration Project
415 Orchard Street and 354 Whitney Street
Monroe County, New York

Prepared For:

City of Rochester
Department of Environmental Services
Division of Environmental Quality
30 Church Street
Rochester, New York 14614

Prepared By:

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

Lu Engineers
175 Sully's Trail
Suite 202
Pittsford, New York 14534

May 2015

Project No: 4216-06

Table of Contents

1.0 Introduction

This Quality Assurance Project Plan (QAPP) was prepared as an integral part of the Supplemental Site Investigation Work Plan for the Orchard/Whitney Site and is subject to the review and approval by the New York State Department of Environmental Conservation (NYSDEC). The project work will be performed by Lu Engineers, or conducted under their discretion by NYSDEC-approved contractors. Project-specific descriptions can be found in the Supplemental Site Investigation Work Plan.

This QAPP presents the policies, organization, objectives, functional activities, and specific quality assurance (QA) and quality control (QC) activities that will be implemented by Lu Engineers for this project. This QAPP is designed to ensure that all technical data generated by Lu Engineers is accurate, representative, and will ultimately withstand judicial scrutiny.

All QA/QC procedures are implemented in accordance with applicable professional technical standards, NYSDEC and EPA requirements, government regulations and guidelines, and specific project goals and requirements. This QAPP is prepared in accordance with all NYSDEC and EPA QAPP guidance documents.

This QAPP incorporates the following activities:

- Sample Management and chain of custody;
- Document control;
- Laboratory quality control; and
- Review of project deliverables.

Analytical samples will be collected in the field utilizing standard operating procedures (SOPs) and sent to the contracted NYSDOH ELAP CLP-certified laboratory for analysis. Field data compilation, tabulation, and analysis will be checked for accuracy. Calculations and other post-field tasks will be reviewed by field personnel and the project manager.

Equipment used to take field measurements will be maintained and calibrated in accordance with established procedures. Records of calibration and maintenance will be kept by assigned personnel. Field testing and data acquisition will be performed in standard fashion following strict guidelines.

Document control procedures will be used to coordinate the distribution, coding, storage, retrieval, and review of all data collected during all sampling tasks. These include, but are not limited to, the sampling of soil/sediment, groundwater, and wastes.

In addition, the laboratory has developed SOPs for individual analytical methods and internal QC procedures. These documents are an important aspect of their QA program and are available for review upon request.

2.0 Project Objectives

The intent of this project is to further delineate the nature and extent of contamination at the Orchard/Whitney Site, specifically the area beneath the former 415 Orchard Street building. Sampling of soil and groundwater will be used to identify potential exposure pathways and evaluate the Site for future use. The identification of significant Site characteristics, extent of contamination, and exposure pathways (if completed exposure pathways are indicated) will provide the basis for developing remedial alternatives. The scope of work is described in the Supplemental Site Investigation Work Plan Section 3.0.

A complete project description, including Site history and background information, is given in Section 2.0 of the Supplemental Site Investigation Work Plan.

3.0 Project Organization and Responsibility

In accordance with Lu Engineers' quality assurance (QA) program, experienced senior technical staff will be assigned to the project QA/QC functions. The management structure provides for direct and constant operational responsibility, clear lines of authority, and the integration of QA activities. The various QA functions are explained below.

QA contacts include Lu Engineers project manager and Quality Assurance Officer. Qualifications of key personnel are included in Appendix D of the Supplemental Site Investigation Work Plan.

Upstate Laboratories, a NYSDOH ELAP-CLP certified laboratory, will provide analytical services for the project. A list of their certifications and accreditations is attached in Appendix D.

Project Director
The project director for this project will be Robert Hutteman, P.E. As project director, Mr. Hutteman will have overall responsibility for ensuring that the project meets client objectives and Lu Engineers' quality standards. In addition, the project director will be responsible for technical quality control and project oversight and will provide the project manager with access to upper management.

Project Manager
The project manager for this project will be Greg Andrus, CHMM. As project manager, he will be responsible for implementing the project and will have the authority to commit the resources necessary to meet project objectives and requirements. The project manager's primary function is to ensure that technical, financial, and scheduling objectives are achieved. The project manager will provide the major point of contact and control for matters concerning the project. The project manager will:

- Work directly with the NYSDEC Regional Office to complete and implement a work plan for the project;

- Define project objectives and schedule;
- Establish project policy and procedures to address the specific needs of the project as a whole, as well as the objectives of each task;
- Acquire and apply technical managerial resources as needed to ensure performance within budget and schedule constraints;
- Orient all staff concerning the project's special considerations;
- Develop and meet ongoing project and/or task staffing requirements, including mechanisms to review and evaluate each task product;
- Review the work performed on each task to ensure its quality, responsiveness, and timeliness;
- Review and analyze overall task performance with respect to planned requirements and authorizations;
- Approve all external reports (deliverables) before their submission to the client;
- Ultimately be responsible for the preparation and quality of interim and final reports; and
- Represent the project team at meetings.

Quality Assurance Officer (QAO)
The QA officer is Susan Hilton, P.E. She will be responsible for maintaining QA for a specific program and the projects within that program. Specific functions and duties include:

- Providing an external and, thereby, independent QA function to the project;
- Responsibility for field and sampling audits conducted by qualified QA personnel;
- Coordinating with client personnel, Lu Engineers' project manager, laboratory management, and staff to ensure that QA objectives appropriate to the project are set and that personnel are aware of these objectives;
- Coordinating with project management and personnel to ensure that QC procedures appropriate to demonstrating data validity sufficient to meet QA objectives are developed and in place;
- Interfacing with the data validator (if necessary) and development of a project specific data usability report;
- Coordinating with QA personnel to ensure that QC procedures are followed and documented;
- Requiring and/or reviewing corrective actions taken in the event of QC failures;
- Reporting non-conformance with QC criteria or QA objectives, including an assessment of the impact on data quality or project objectives, to the project manager.

Technical Staff
The technical staff (team members) for this project will be drawn from Lu Engineers pool of resources. The technical team staff will be utilized to gather and analyze data and to prepare

various task reports and support materials. All of the designated technical team members are experienced professionals who possess the degree of specialization, training and technical competence required to effectively and efficiently perform the required work.

Data Validation and QA Staff

If necessary, data validation and QA staff will include data validation chemists, QA auditors, and other technical specialists who remain independent of the laboratory and project management. The staff will independently validate analytical data to assess and summarize their accuracy, precision, and reliability and determine their usability. The staff will also perform audits and document the historical record of project activities, including any factors affecting data usability, such as data discrepancies and deviations from standard practices. The staff will act under the direction of the QA officer and project manager in accordance with specific project requirements. A third party data validation staff is to be determined.

4.0 Sampling Procedures

4.1 Sampling Design

The sampling for this project is designed to fully delineate the nature and extent of contamination remaining beneath the footprint of the former 415 Orchard Street building. Soil borings, test pit excavations, groundwater monitoring well installation, and soil and groundwater sampling will be used to evaluate Site conditions.

An estimated total of nine (9) test pit excavations are anticipated for the area beneath the former 415 Orchard Street building footprint in efforts to further evaluate of subsurface conditions. It is estimated that at minimum, one (1) sample be taken from each test pit location.

Five (5) proposed soil borings are planned for installation beneath the former 415 Orchard Street building footprint to establish local background concentrations for metals and PAHs. It is projected that four (4) of these boring locations will be converted to 2-inch diameter groundwater monitoring wells.

It is anticipated that at minimum, one (1) soil sample will be collected from each of the five (5) soil borings and at minimum one (1) groundwater sample will be collected from each of the four (4) newly installed monitoring wells.

Soil and groundwater samples will be analyzed for RCRA metals, EPA 8260 volatile organic compounds (VOCs), and PCBs using Contract Laboratory Protocol (CLP).

Continuous perimeter and work zone air monitoring for VOCs will also be conducted during all soil removal and staging activities using a PID to ensure health and safety of workers and the public.

A Site map showing proposed sample locations is provided as Figure 3.

4.2 QC Samples

Various types of field QC samples are used to check the cleanliness and effectiveness of field handling methods. They are analyzed in the laboratory as samples, and their purpose is to assess the sampling and transport procedures as possible sources of sample contamination and document overall sampling and analytical precision. Rigorous documentation of all field QC samples in the site logbooks is mandatory.

- **Trip Blanks** are similar to field blanks with the exception that they are not exposed to field conditions. Their analytical results give the overall level of contamination from everything except ambient field conditions. Trip blanks are prepared at the lab prior to the sampling event and shipped with the sample bottles. Trip blanks are prepared by adding organic-free water to a 40-ml VOA vial. One (1) trip blank will be used with every

batch of water samples shipped for volatile organic analysis. Each trip blank will be transported to the sampling location, handled like a sample, and returned to the laboratory for analysis without being opened in the field.

- **Field Equipment/Rinsate Blanks** are blank samples designed to demonstrate that sampling equipment has been properly prepared and cleaned before field use and that cleaning procedures between samples are sufficient to minimize cross-contamination. Rinsate blanks are prepared by passing analyte-free water over sampling equipment and analyzing the samples for all applicable parameters. If a sampling team is familiar with a particular site, its members may be able to predict which areas or samples are likely to have the highest concentration of contaminants. Unless other constraints apply, these samples should be taken last to avoid excessive contamination of sampling equipment. Rinsate blanks are not required if dedicated sampling equipment is used for sample collection.
- **Field Duplicates** consist of a set of two (2) samples collected independently at a sampling location during a single sampling event. Field duplicates can be sent to the laboratory so that they are indistinguishable from other analytical samples and personnel performing the analysis are not able to determine which of the samples are field duplicates. Field duplicates are designed to assess the consistency of the overall sampling and analytical system.

Field QC samples and the frequency of analysis for this project are summarized in Table 1 *Summary of Sampling and Laboratory Analysis* at the end of this QAPP and in Section 3.6 of the SSI Work Plan. It is noted that sample quantities are estimated. Additional samples may be required according to actual field, subsurface soil, and groundwater conditions as encountered during Supplemental Site Investigation work activities.

4.3 Decontamination Procedures

All decontamination will be performed in accordance with NYSDEC-approved procedures. Sampling methods and equipment have been chosen to minimize decontamination requirements and prevent the possibility of cross-contamination. All drilling equipment will be decontaminated prior to drilling, after drilling each boring/monitoring well, and after the completion of all drilling. Special attention will be given to the drilling assembly, augers, split-spoons, and PVC casing. Split-spoons will be decontaminated prior to and following each use.

Split-spoons and other non-disposable sampling equipment, and stainless steel spoons will be decontaminated using the following procedure:

- Initially cleaning equipment of all foreign matter;
- Scrubbing equipment with brushes in Alconox® solution;
- Rinsing equipment with distilled water; and
- Rinsing equipment with 10% nitric acid (when sampling for metals only);

- Triple-rinsing equipment with distilled water; and
- Allowing equipment to air dry.

All drill cuttings and water generated during drilling boring and monitoring well installation will remain on-Site. All waters generated by decontamination or by developing, purging, or pumping the monitoring wells will be stored in drums or an on-Site holding tank.

A temporary decontamination pool will be established in a secure area on Site using 6-mil polyethylene sheeting. The drill rig and associated tooling will be decontaminated using steam-cleaning methods at the designated location. Fluids generated during decontamination will be collected in the plastic-lined pool. All decontamination wastes will be transferred into drums or an on-Site holding tank for appropriate staging and disposal. The City will be responsible for proper staging and disposal of all investigation-derived wastes. Final disposal of soils and water will be dependent on the results of the soil and groundwater analyses to be conducted during this investigation.

4.4 Sampling Methods

This section describes the sampling procedures to be utilized for each environmental medium that will be collected and analyzed in accordance with the SSI Work Plan and Tables 1 and 5.1 of this plan. All sampling procedures described are consistent with United States Environmental Protection Agency (USEPA) sampling procedures as described in SW-846, third edition and the NYSDEC Analytical Services Protocols (ASP), or equivalent.

4.4.4 Test Pit Investigations

Test pits will be excavated to bedrock, but not into groundwater, using a backhoe. All materials removed from the pit will be returned and the pit will be completely filled before the backhoe leaves the Site. A PID will be used to continuously monitor gases exiting the test pits during excavation and sampling operations.

Prior to initiating excavation activities and between test pits, the backhoe will be cleaned and decontaminated according to procedures outlined in Section 4.3.

Soil samples will be obtained according to the Site work plan using a stainless steel spoon or trowel. Samples can be collected from the walls of the test pit or from the backhoe bucket if appropriate. Soil samples will be placed in 8-ounce wide-mouth glass jars.

The sample exhibiting the highest levels of contamination from each test pit based on field screening will be submitted for laboratory analysis. One discreet sample from each test pit will be submitted.

A log of the test pit will be maintained similar to a borehole log, indicating such information as distinctive soil horizons, soil texture, color, groundwater, PID and OVA readings, and location of soil samples.

4.4.5 Subsurface Soil Samples

All soil samples will be screened for the presence of volatile organic compounds (VOCs) with a photoionization detector (PID). Screening will be performed by placing a representative soil sample into a Ziploc® (or equivalent) plastic bag, sealing the bag, and then allowing the sample to volatilize for at least 15 minutes. The concentration of VOCs will then be measured by inserting the tip of the PID or equivalent device into the sample's headspace and taking a reading. VOC measurements will be entered on the boring log. All soil borings will be constructed into monitoring wells.

The field geologist will also evaluate soil samples for the presence of staining or other unusual observations. Samples noted to have these characteristics may require analysis even though no PID readings may have been observed.

4.4.6 Groundwater Investigation

The groundwater sampling plan outlined in this subsection has been prepared in general accordance with RCRA Groundwater Monitoring Technical Enforcement Guidance Document 9950.1 (September 1986), Office of Solid Waste and Emergency Response as modified by NYSDEC-specific request.

Well Installation
Prior to initiating drilling activities, the drilling rig, augers, rods, split spoons, pertinent equipment, well pipe and screens will be steam cleaned. These activities will be performed in a designated decontamination area. Throughout and after the cleaning processes, direct contact between the equipment and the ground surface will be avoided. Plastic sheeting and/or clean support structures (e.g., pallets, sawhorses) will be used. The drilling rig and all equipment will be steam cleaned upon completion of the investigation and prior to leaving the Site.

Samples will be collected continuously in 2-foot intervals as the augers are advanced. The sampler will be decontaminated between sampling locations. Decontamination will be accomplished by disassembling the split spoons, removing gross debris, washing the parts in an Alconox solution, and rinsing with distilled water. Each soil sample will be described at the time it is retrieved, and a subsurface log will be produced by an on-site geologist based upon visual examination and other field observations. Sample descriptions will be based on either the Unified or Burmister Soil Classification System.

Upon reaching competent bedrock, the borehole will be advanced using rotary drilling techniques and coring. All borings will be advanced ten feet (10 ft.) into bedrock where the groundwater monitoring wells will be installed.

Drilling fluids, other than water from a NYSDEC-approved source, will not be allowed without special consideration and agreement from NYSDEC. The use of lubricants is also not allowed unless approved by the NYSDEC representative. During the drilling, a portable VOC monitor, and an O_2/explosimeter will be used to monitor the gases exiting the hole.

Well Casing (Riser)
The well riser shall consist of 2- or 3-inch diameter, threaded flush-joint polyvinyl chloride (PVC) pipe. All well risers will conform to the requirements of ASTM-D 1785 Schedule 40 pipe, and shall bear markings that will identify the material as that which is specified. All materials used to construct the wells will be NSF/ASTM approved.

Well Screen
Generally, wells will be constructed with 10-foot machine-slotted screens, unless otherwise specified in the work plan or dictated by field conditions (i.e., screens of less than 10-ft in length may be used, depending on the characteristics of the well). Screen and riser sections shall be joined by flush-threaded coupling to form watertight unions that retain 100% of the strength of the casing. Solvent PVC glues shall not be used at any time in the construction of the wells. The bottom of the screen shall be sealed with a treated cap or plug. No lead shot or lead wool is to be employed in sealing the bottom of the well or for sealant at any point in the well.

All risers and screens shall be set round, plumb, and true to line.

Artificial Sand Pack
Granular backfill will be chemically and texturally clean inert, siliceous, and of appropriate grain size for the screen slot size and the host environment. The well screen and riser casing will be installed, and the sand pack placed around the screen and casing to a depth approximately two (2) feet above the top of the well screen.

Bentonite Seal
A minimum 2-ft thick seal of bentonite pellets/chips and water slurry will be placed directly on top of the sand pack, and care will be taken to avoid bridging. The seal will be measured immediately after placement, without allowance for swelling.

Grout Mixture
Upon completion of the bentonite seal, the well will be grouted with a non-shrinking cement grout mix to be placed from the top of the bentonite seal to the ground surface. The cement grout shall consist of a mixture of Portland cement (ASTM C 150) and water, in the proportion of not more than 7 gallons of clean water per bag of cement (1 cubic foot or 94 pounds). Additionally, 3% by weight of bentonite powder shall be added, if permitted.

Surface Protection

At all times during the progress of the work, precautions shall be used to prevent tampering with or the entrance of foreign material into the well. Upon completion of the well, a suitable vented cap shall be installed to prevent material from entering the well. The PVC well riser shall be flush mount or surrounded by a steel casing rising 24 to 36 inches above ground level and set into a concrete pad. The steel casing shall be provided with a cap and lock. A concrete pad, sloped away from the well, shall be constructed around the well casing at ground level. The steel protective casing shall be painted with permanent high-visibility paint. The ground immediately around the top of the well shall be sloped away from the well. There shall be an opening in the protective casing wall at the top of the cement pad to allow for internal drainage.

Any well that is to be temporarily removed from service or left incomplete due to delay in construction, shall be capped with a watertight cap and equipped with a "vandal-proof" cover, satisfying applicable NYSDEC regulations or recommendations.

Surveying

Coordinates and elevations will be established by a New York State licensed land surveyor for each boring, monitoring well, sampling location, and other key contour points. A map of each will be prepared for inclusion into the final report for the Site.

Elevations (0.01') will be established for the ground surface at each boring, monitoring well, sampling location, the top of each monitoring well casing (T.C), and at least one other permanent object (i.e., property corner markers, corners of buildings, bridges, etc.) in the vicinity of the borings and wells. Elevations will be relative to a regional, local, or project specific datum. USGS benchmarks will be used if within ½ mile of the Site being surveyed and will take precedence over the use of a project specific datum.

Unsurveyed data, (i.e., approximate Site and property boundaries), developed through the use of current tax maps and initial Site visits, also will be shown on the survey map. The location and extent of filled areas, buried tanks and drums, other items pertinent to Site usage will be indicated on the survey maps based on the best available data.

Well Development

After completion of the well, but not sooner than 48 hours after grouting is completed, development will be accomplished using air surging, surge blocking, pumping, or bailing. The air-lift surge method may be supplemented with a bottom-filling bailer if a well has an extremely low yield. No dispersing agents, acids, disinfectants, or other additives will be used during development nor be introduced into the well at any other time. During development, water will be removed throughout the entire water column by periodically lowering and raising the pump intake (or bailer stopping point).

Well development will include washing the entire well cap and the interior of the well casing above the water table, using only water from the well itself. As a result of the operation, the well casing will be free of extraneous materials (grout, bentonite, and sand) inside the riser, well cap, and blank casing between top of the well casing and water table. This washing will be conducted before and/or during development; not after development. Development water will be properly contained and treated as waste until the results of chemical analysis of samples are obtained.

The development process will continue until a stabilization of pH, specific conductance, temperature, and clarity (goal of <50 NTUs) of the discharge is achieved or for a maximum of two hours. If, after two hours, substantial improvement has been noted through the development process but the goal of 50 NTUs has not been met, an additional one to two hours may be authorized to achieve the 50 NTU goal.

Geologic Logging and Sampling

At each well location, the boring will be advanced through overburden using a drill rig and hollow-stem auger, and soils will be visually inspected for stains and monitored with a PID and OVA. Soil samples will be collected continuously over the entire depth of the well. The sampling device will be decontaminated according to procedures outlined in Section 4.3.

The split-spoon sampler will be driven into the soil using a 140-pound safety hammer and allowed to free-fall 30 inches, in accordance with ASTM-D 1586-84 specifications. The number of blows required to drive the sampler each 6 inches of penetration will be recorded. Soil samples will be screened in the field for volatile organic vapors using a PID, and will be classified in accordance with Unified Soil Classification System (ISCS) specifications, and logged. Samples will be stored in glass jars until they are needed for testing or the project is complete.

Information regarding analytical requirements for soil borings can be found in the Supplemental Site Investigation Work Plan.

Monitoring well borings will be installed to a depth determined through the examination of boring logs and water levels encountered as well as on-Site discussions and agreement between the NYSDEC representative and Lu Engineers' field team leader. All significant discrepancies between the prepared work plan and actual Site conditions will be noted and countersigned by both parties in the project's on-Site logbook.

If hydrogeologic conditions are favorable for well installation at a depth less than design, the well will be installed at the boring or coring termination depth. In the event that maximum design depth is reached and hydrogeologic conditions are not suitable for well installation, the maximum drilling depth will be revised. Hydrogeologic suitability for well emplacement will be determined by the supervising geologist in consultation with NYSDEC, based on thickness and estimated hydraulic conductivity to the saturated zone encountered. If necessary, the borehole will be advanced to water or abandoned.

Drilling logs will be prepared by an experienced geologist who will be present during all drilling operations. One copy of each field boring log, well construction log and groundwater data will be submitted as part of the report. Information provided in the logs shall include, but not be limited to, the following:

- Date, test hole identification, and project identification;
- Name of individual developing the log;
- Name of driller and assistant(s);
- Drill, make and model, auger size;
- Identification of alternative drilling methods used and justification thereof (e.g., rotary drilling with a specific bit type to remove material from within the hollow stem augers);
- Standard penetration test (ASTM D-1586) blow counts;
- Field diagram of each monitoring well installed with the depth to bottom of screen, top of screen, and pack, bentonite seal, etc.;
- Reference elevation for all depth measurements;
- Depth of each change of stratum;
- Thickness of each stratum;
- Identification of the material of which each stratum is composed, according to the USCS system or standard rock nomenclature, as appropriate;
- Depth interval from which each sample was taken;
- Depth at which hole diameters (bit sizes) change;
- Depth at which groundwater is encountered;
- Depth to static water level;
- Total depth of completed well;
- Depth or location of any loss of tools or equipment;
- Location of any fractures, joints, faults, cavities, or weathered zones;
- Depth of any grouting or sealing;
- Nominal hole diameters;
- Amount of cement used for grouting or sealing;
- Depth and type of well casing;
- Description of well screen (to include depth, length, location, diameter, slot sizes, material, and manufacturer);
- Any sealing-off of water-bearing strata;
- Static water level upon completion of the well and after development;
- Drilling date or dates;
- Construction details of well; and

- An explanation of any variations from the work plan.

Groundwater Sampling Procedures
Static water levels will be measured to within 0.01 foot prior to purging and sampling. Purging and sampling of each well will be accomplished using pre-cleaned dedicated PVC bailers on new polypropylene line. All wells will be purged a minimum of three (3) volumes of water standing in the casing or to dryness. Temperature, pH, conductivity, and turbidity will be measured and recorded during purging.

After purging, the turbidity of each well will be measured. If the well water exhibits turbidity above the 50 NTU limit, sampling of the well water for metals only will be delayed for 24 hours. Sample volumes for all other parameters will be collected immediately following purging, with the volatile sample collected first. Upon returning to the well, the turbidity will be remeasured and recorded. No additional purging will be performed.

Groundwater samples will be collected according to the following procedures.

- Water clarity will be quantified during sampling with a turbidity meter;
- When transferring water from the bailer or pump line to sample containers, care will be taken to avoid agitating the sample, since agitation promotes the loss of volatile constituents;
- Any observable physical characteristics of the groundwater (e.g., color, sheen, odor, turbidity) at the time of sampling will be recorded; and
- Weather conditions (i.e., air temperature, sky condition, recent heavy rainfall, drought conditions) at the time of sampling will be recorded.

All groundwater samples and their accompanying QA/QC samples will be analyzed as specified in the Work Plan. One complete round of groundwater sampling will be performed as part of the Supplemental Site investigation.

4.5 Sample Documentation

4.5.1 Logbooks

All field activities will be documented in a field logbook. This logbook will provide a record of activities conducted at the Site. All entries will be signed and dated at the end of each day of fieldwork. The field logbook will include the following: date and time of all entries; names of all personnel on Site; weather conditions (temperature, precipitation, etc.); location of activity; and description of activity.

In addition, Lu Engineers will complete the following standard field forms as necessary:

- Test boring/probing log
- Groundwater elevations, development, sampling and conductivity logs
- Field sampling record

- Chain of custody for all analytical laboratory sampling.

As with any data logbooks, no pages will be removed for any reason. If corrections are necessary, these must be made by drawing a single line through the original entry (so that the original entry can still be read) and writing the corrected entry alongside it. The correction must be initialed and dated. Most corrected errors will require a footnote explaining the correction.

4.5.2 Sample Identification

All containers of samples collected by Lu Engineers from the project will be identified using a format identified in the field on a label affixed to the sample container (labels are to be covered with Mylar tape). Generally, the format will include two letters identifying the Site (OW – Orchard Whitney), two letters identifying the type of sample (GW – Groundwater), two numbers identifying a sample location, 2-4 additional numbers identifying a sample depth if appropriate, additional letters identifying special parameters (MS/MSD – Matrix Spike/Matrix Spike Duplicate).

Each sample will be labeled and sealed immediately after collection. To minimize handling of sample containers, labels will be filled out prior to sample collection. The sample label will be filled out using waterproof ink and will be firmly affixed to the sample containers and protected with Mylar tape. The sample label will give the sample number, the date of the collection, analysis required, and pH and preservation, if appropriate.

The laboratory sample number will appear on a barcode label affixed to each sample, extract, or digestate.

4.6 Field Instrumentation

All instruments and equipment used during sampling and analysis will be operated, calibrated, and maintained according to manufacturer's guidelines and recommendations. Operation, calibration, and maintenance will be performed by personnel properly trained in these procedures. Documentation of calibration information will be maintained in the appropriate log book or reference file and will be available upon request. Instruments will be calibrated before each use.

5.0 Sample Handling and Custody

This section describes procedures for sample handling and chain-of-custody to be followed by Lu Engineers' sampling personnel and the analytical laboratory. The purpose of these procedures is to ensure that the integrity of the samples is maintained during their collection, transportation, storage, and analysis. All chain-of-custody requirements comply with SOPs indicated in EPA sample-handling protocol.

Sample identification documents will be carefully prepared so that sample identification and chain-of-custody can be maintained and sample disposition controlled. Sample identification documents include field notebooks, sample labels, custody seals, chain-of-custody records, and laboratory sample log-in and tracking forms.

The primary objective of the chain-of-custody procedures is to provide an accurate written record that can be used to trace the possession and handling of a sample from the moment of its collection through it analyses. A sample is in custody if it is:

- In someone's physical possession;
- In someone's view;
- Locked up; or
- Kept in a secured area that is restricted to authorized personnel.

5.1 Sample Containers and Preservation

For sampling performed by Lu Engineers, prewashed sample containers obtained from a reliable supplier will be provided by the analytical laboratory. All containers provided by the laboratory are pre-cleaned (Level 1), with certificates of analysis available for each bottle type. Certifications of Analysis provided by the vendor are kept on file by the laboratory.

All samples will be stored on ice pending delivery to the laboratory. In addition, all water samples for volatile analysis will be preserved with HCl to a pH of less than 2.0. All water samples for metals analysis will be preserved by adding concentrated nitric acid until the sample pH is lowered to 2.0 standard units or less. Sample pH will be checked in the field using indicator paper. A list of preservatives and holding times for each type of analysis is included in the following Table.

Table 5.1
Sample Preservation and Holding Times

Sample Matrix	Analysis	Container Type and Size	Preservation	Holding Time
Soil	VOC	2-4 oz. wide mouth glass jar with Teflon-lined cap	Cool to 4°C; minimize headspace	14 days
	Metals	glass	Cool to 4°C	6 months
	PCBs	2-4 oz. glass jar with Teflon-lined cap	Cool to 4°C	14 days
Groundwater	VOC	3 - 40-ml.glass vial with Teflon-lined cap	Cool to 4°C; minimize headspace	7 days, unpreserved 14 days, preserved
	Metals	40-ml. polyethylene or glass	HNO_3 to a pH <2	6 months
	PCBs	2 - ½ L Amber Jugs	Cool to 4°C	7 days

* Holding times are based on verified time of sample receipt

Sample preservation will be verified at the lab just prior to extraction, digestion, and/or analysis and the pH will be recorded in the extraction/digestion logbook. The pH may be checked upon arrival, if desired. If the samples are improperly preserved, a QA/QC discrepancy form will be submitted to the lab manager and QA coordinator for appropriate follow-up action (i.e., evaluation of the data during the data validation process and, if necessary, additional instruction of personnel regarding proper procedures).

5.2 Field Custody Procedures

- Sample bottles must be obtained pre-cleaned from the laboratory or directly from an approved retail source. All containers will be prepared in a manner consistent with the NYSDEC ASP 1991 bottle-washing procedures. Coolers or boxes containing cleaned bottles should be sealed with a custody tape seal during transport to the field or while in storage prior to use.
- All containers will have assigned lot numbers to ensure traceability through the supplier.
- As few persons as possible should handle samples.
- The sample collector is personally responsible for the care and custody of samples collected until the samples are transferred to another person or dispatched properly under chain-of-custody rules.
- The sample collector will record sample data in the field notebook.
- The project manager will determine whether proper custody procedures were followed during the fieldwork and decide if additional samples are required.

5.2.1 Custody Seals

Custody seals are preprinted adhesive-backed seals with security slots designed to break if the seals are disturbed. A custody seal is placed over the cap of individual sample bottles by the sampling technician. Sample shipping containers (coolers, cardboard boxed, etc., as appropriate) are sealed in as many places as necessary to ensure security. Seals must be signed and dated before use. Strapping tape should be placed around the lid to ensure that seals are not accidentally broken during shipment and in a manner that allows easy removal by laboratory personnel. On receipt at the laboratory, the custodian must check (and certify, by completing logbook entries) that seals on boxes and bottles are intact.

5.2.2 Chain-of-Custody Record

The chain-of-custody record must be fully completed in duplicate, using black carbon paper where possible, by the field technician who has been designated by the project manager as responsible for sample shipment to the appropriate laboratory for analysis. In addition, if samples are known to require rapid turnaround in the laboratory because of project time constraints or analytical concerns (e.g., extraction time or sample retention period limitations, etc.), the person completing the chain-of-custody record should note these constraints in the "Remarks" section of the custody record.

5.3 Sample Handling, Packaging and Shipping

The transportation and handling of samples must be accomplished in a manner that not only protects the integrity of the sample but also prevents any detrimental effects due to the possible hazardous nature of samples. Regulations for packaging, marking, labeling, and shipping hazardous materials are promulgated by the United States Department of Transportation (DOT) in the Code of Federal Regulations, 49 CFR 171 through 177.

5.3.1 Sample Packaging

Samples must be packaged carefully to avoid breakage or contamination and must be shipped to the laboratory at proper temperatures. The following sample packaging requirements will be followed:

- Sample bottle lids must never be mixed. All sample lids must stay with the original containers.
- The sample bottle should never be completely filled except for VOA bottles. At a minimum, a 10% void space should be left in the bottle to allow for expansion. The sample volume level should be marked with a grease pencil or by placing the top of the label at the appropriate sample height.
- All sample bottles must be sealed around the neck or the jar lid with clear tape. Any custody seals should be affixed prior to sealing the bottle.
- All sample bottles shall be placed in plastic Ziploc® bags to minimize contact with inert packing material, unless foam inserts are used.

- Foam inserts should be used as inert packing material when shipping low hazard water samples via a common carrier to the laboratory.
- Low-hazard environmental samples are to be cooled. “Blue ice” or some other artificial icing material, or ice placed in plastic bags, may be used. Ice will not be used as a substitute for packing material.
- A duplicate custody record must be placed in a plastic bag and taped to the inside of the cooler lid. Custody seals are affixed to the sample cooler.
- The cooler will be labeled as containing a hazardous material if it contains medium or high-hazard samples. Labeling requirements differ depending on the type of material being shipped; the majority of soil samples may be shipped as a class “9” hazardous material with the proper shipping name “OTHER REGULATED SUBSTANCES (ENVIRONMENTAL SAMPLES).”
- A hazardous material shipping manifest will be completed for each cooler of medium to high-hazard samples and affixed to the lid of the cooler.
- Low-hazard environmental samples do not require a hazardous material shipping manifest. The words “LABORATORY SAMPLES” should be printed on the top of the cooler for low-hazard samples.
- Samples packaged and shipped as limited-quantity radioactive material must comply with DOT and shipper regulations for package contamination limits, surface exposure rate, and air bill completion.

5.3.2 Shipping Containers

Environmental samples will be properly packaged and labeled for transport and dispatched for analysis to the appropriate subcontracted laboratory for geotechnical analyses. A separate chain-of-custody record must be prepared for each container. The following requirements for marking and labeling of shipping containers will be observed:

- Use abbreviations only where specified;
- The words “This End Up” or “This Side Up” must be clearly printed on the top of the outer package. Upward-pointing arrows should be placed on the sides of the package. The words “Laboratory Samples” should also be printed on the top of the package; and
- After a container has been closed, two custody seals are placed on the container – one on the front and one on the back. The seals are protected from accidental damage by placing strapping tape over them.

Field personnel will make timely arrangements for transportation of samples to the laboratory. When custody is relinquished to a shipper, field personnel will telephone the laboratory custodian to inform him of the expected time of arrival of the sample shipment and to advise him of any time constraints on sample analysis.

5.3.3 Shipping Procedures

- The coolers in which the samples are packed must be accompanied by a chain-of-custody record. When transferring samples, the individuals relinquishing and receiving them must sign, date, and note the time on the record. This record documents sample custody transfer.
- Samples must be dispatched to the laboratory for analysis with a separate chain-of-custody record accompanying each shipment. Shipping containers must be sealed with custody seals for shipment to the laboratory. The method of shipment, name of courier, and other pertinent information are entered in the "Remarks" section of the chain-of-custody record.
- All shipments must be accompanied by the chain-of-custody record identifying their contents. The original record accompanies the shipment, and the yellow copy is retained by the Site team leader.
- If sent by mail, the package is registered with return receipt requested. If sent by common carrier, a bill of lading is used. Freight bills, Postal Service receipts, and bills of lading are retained as part of the permanent documentation.
- Samples must be shipped to the analytical laboratory within 24 to 48 hours from the time of collection.

5.4 Laboratory Custody Procedures

The designated sample custodian at the laboratory will be responsible for maintaining the chain-of-custody for samples received at the lab. Among other things, the custodian must adhere to the following basic requirements:

- When the sample arrives at the lab, the custodian will complete a Cooler Receipt & Preservation Form for each cooler/package container.
- Upon receipt, the coolers are examined for the presence and condition of custody seals, locks, shipping papers, etc. Shipping labels are removed and placed on scrap paper and added to the receiving paper work. The custodian then completes the chain-of-custody record by signing and recording the date and time the package is opened.
- Acceptance criteria for cooler temperature is 0-6^{o}C. If a cooler exhibits a temperature outside this range, the anomalies are noted on the Cooler Receipt & Preservation Form.
- The custodian will then unload the samples from the cooler(s)/container(s), assign an identification number to each sample container, and affix a barcode label to each sample container for logging in and out of the LIMS system.

Adherence to this procedure will ensure that all samples can be referenced in the computer tracking system. All sample control and chain-of-custody procedures applicable to the analytical laboratory are presented in laboratory SOPs available for review.

6.0 Analytical Methods

All laboratory analyses will be performed by Upstate Laboratories, an accredited and appropriately (NYSDEC ELAP CLP) certified analytical laboratory. Inorganic, general analytical and organic methods to be performed by the laboratory for this project are listed in Table 1 of this QAPP.

6.1 Analytical Capabilities

The analytical laboratory is fully equipped for analysis of all types of water, air, and soil samples for chemical contaminants, bacteriological quality, and general characterization. Proven and approved analytical techniques are used, backed up by a rigorous system of QC and QA checks to ensure reliable and defensible data. All laboratory work is performed in accordance with guidelines established by EPA, the New York State Department of Health (NYSDOH), and the National Institute of Occupational Safety and Health (NIOSH), if applicable.

Organic analysis is accomplished by gas chromatography (GC), high performance liquid chromatography (HPLC), and or GC/mass spectrometry (MS). Liquid, soil, and air samples are analyzed routinely for pesticides, polychlorinated biphenyls (PCBs), volatile organics, extractable organics, and other groups of compounds, as necessary. The laboratory uses two types of instruments for analysis of metals in various matrices: AAS and ICP.

Laboratory procedures to be utilized for sample preparation and analysis are referenced in the NYSDEC Analytical Services Protocol.

Method Detection Limits
Method detection limits are determined according to procedures outlined in 40 CFR Part 136, Appendix B or EPA Contract Laboratory Protocol. General analytical detection limits are usually determined by the lowest point on the curve. Detection limits are determined at least annually for all appropriate analytical methods. A listing of the laboratory's method detection limits is available upon request.

6.2 Quality Control Samples

Laboratory QC consists of analysis of laboratory blanks, duplicates, spikes, standards, and QC check samples as appropriate to the methodology. These laboratory QC samples are described below.

6.2.1 Laboratory Blanks

Three types of laboratory blanks, one or more of which will be utilized depending on the analysis are described below:

- Method blanks consist of analyte-free water and are subjected to every step of the analytical procedure to determine possible contamination.

- Reagent blanks are similar to method blanks but incorporate only one of the preparation reagents in the analysis. When a method blank indicates significant contamination, one or more reagent blanks are analyzed to determine the source.
- Calibration blanks consist of pure reagent matrix and are used to zero an instrument's response, thus establishing the baseline.

6.2.2 Calibration Standards

A calibration standard may be prepared in the laboratory by dissolving a known amount of a pure compound in an appropriate matrix. The final concentration calculated from the known quantities is the true value of the standard. The results obtained from these standards are used to generate a standard curve and thereby quantitate the compound in the environmental sample. A minimum of three calibration standards will be used to generate a standard curve for all analyses.

6.2.3 Reference Standard

A reference standard is prepared in the same manner as a calibration standard but from a different source. Reference standards may be obtained from the EPA. The final concentration calculated from the known quantities is the "true" value of the standard. The important difference in a reference standard is that it is not carried through the same process used for the environmental samples, but is analyzed without digestion or extraction. A reference standard result is used to validate an existing concentration calibration standard file or calibration curve.

6.2.4 Spike Sample

A sample spike is prepared by adding to an environmental sample (before extraction or digestion) a known amount of pure compound of the same type that is to be assayed for in the environmental sample. Spikes are added at one to 10 times the expected sample concentration or approximately 10 times the method detection limit. These spikes simulate the background and interferences found in the actual samples, and the calculated percent recovery of the spike is taken as a measure of the accuracy of the total analytical method.

A blank spike is the same as a spike sample except the spike is added to analyte-free water. The blank spike is used to determine whether the sample preparation and analysis are under control.

6.2.5 Surrogate Standard

A surrogate is prepared by adding a known amount of pure compound to the environmental sample; the compound selected is not one expected to be found in the sample, but is similar in nature to the compound of interest. Surrogate compounds are added to the sample prior to extraction or digestion. Surrogate spike concentrations indicate the percent recovery of the analytes and, therefore, the efficiency of the methodology.

6.2.6 Internal Standard

Internal standards are similar to surrogate standards in chemical composition but are used to quantify the concentration of analytes sampled based on the relative response factor. Internal standards are added to the environmental sample just prior to instrumental analysis.

6.2.7 Laboratory Duplicate or Matrix Spike Duplicate

Laboratory duplicates are aliquots of the same sample that are split prior to analysis and treated exactly the same throughout the analytical method. Spikes and duplicates for the batch are normally aliquots of the same sample. For organics, spikes are added at approximately 10 times the method detection limit. The RPD between the values of the matrix spike and matrix spike duplicate for organics or between the original and the duplicate for inorganics is taken as a measure of the precision of the analytical method.

In general, the tolerance limit for RPDs between laboratory duplicates should not exceed 20% for validation in homogeneous samples.

6.2.8 Check Standard/Samples

Inorganic and organic check standards or samples are prepared with reference standards or are available from the EPA. They are used as a means of evaluating analytical techniques of the analyst. Check standards or samples are subjected to the entire sample procedure, including extraction, digestion, etc., as appropriate for the analytical method utilized. The check standard or sample can provide information on the accuracy of the analytical method independent of various sample matrices.

6.3 Laboratory Instrumentation

Laboratory capabilities will be demonstrated initially for instrument and reagent/ standards performance as well as accuracy and precision of analytical methodology. A discussion of reagent/standard procedures and brief descriptions of calibration procedures for major instrument types follow.

All standards are obtained directly from EPA or through a reliable commercial supplier with a proven record for quality standards. All commercially supplied standards will be traceable to EPA or NIST reference standards and appropriate documentation will be obtained from the supplier. In cases where documentation is not available, the laboratory will analyze the standard and compare the results to a known EPA-supplied or previous NIST-traceable standard.

All sections of the laboratory will have SOP for standard and reagent procedures to document specific standard receipt, documentation, and preparation activities. In general, the individual SOPs incorporate the following items:

- Documentation and labeling of date received, lot number, date opened, and expiration date;
- Documentation of traceability;
- Preparation, storage, and labeling of stock and working solutions; and
- Establishing and documenting expiration dates and disposal of unusable standards.

Each laboratory instrument will be labeled clearly with a unique identifier that relates to all laboratory calibration documentation. Laboratory SOPs and calibration procedures are detailed in the laboratory's Quality Assurance Manual, available upon request.

7.0 Data Reporting and Validation

7.1 Deliverables

Once the contract laboratory has provided all analytical data and hydrogeologic information has been evaluated, Lu Engineers will develop a report on the findings of the investigation and remedial measures. The report will be prepared as indicated by the following outline:

1.0 SUMMARY OF FIELD ACTIVITIES
2.0 CONTAMINATION EVALUATION
  2.1 Findings
  2.2 Data Evaluation
  2.3 Regulatory Review
  2.4 Exposure Pathways
3.0 CONCLUSIONS AND RECOMMENDATIONS

The report will carefully document all findings of the investigation and will be supplemented with photographic documentation, subsurface soil logs, cross sections, and study area plans indicating groundwater flow direction and sub aerial contaminant distribution.

7.1.1 Category B Data Package

All analytical data will be reported by the laboratory with NYSDEC ASP Category B deliverables. The Category B data package includes:

1. A detailed summary of the report contents and any quality control outliers or corrective actions taken.
2. Chain of Custody documentation
3. Sample Information including: date collected, date extracted, date analyzed, and analytical methods.
4. Data (including raw data) for:
   - samples
   - laboratory duplicates
   - method blanks
   - spikes and spike duplicates
   - surrogate recoveries
   - internal standard recoveries
   - calibrations
   - any other applicable QC data
5. Method detection limits and/or instrument detection limits
6. Run logs, standard preparation logs, and sample preparation logs
7. Percent solids (where applicable).

7.1.2 Quality Assurance Reports

For the laboratory, a general QA report summarizing problems encountered throughout the laboratory effort, including sample custody, analyses, and reporting, is provided to Lu Engineers' project QA management by the QA coordinator. This report identifies areas of concern and possible resolutions in an effort to ensure data quality.

Upon completion of a project sampling effort, analytical and QC data will be included in a comprehensive report that summarizes the work and provides a data evaluation. A discussion of the validity of the results in the context of QA/QC procedures will be made, as well as a summation of all QA/QC activity.

Serious analytical or sampling problems will be reported to NYSDEC. Time and type of corrective action, if needed, will depend on the severity of the problem and relative overall project importance. Corrective actions may include altering procedures in the field, conducting an audit, or modifying laboratory protocol. All corrective actions will be implemented after notification and approval of NYSDEC.

In addition to the laboratory report narrative, QA data validation reports that include any contractual requirements will also be provided to NYSDEC. These QA reports will be submitted with the analytical data, on a monthly basis, or at the conclusion of the project.

7.2 Data Validation and Usability

Prior to the submission of the report to NYSDEC, all data will be evaluated for precision, accuracy, and completeness.

QA/QC requirements from both methodology and company protocols will be strictly adhered to during sampling and analytical work. All data generated will be reviewed by comparing and interpreting results from instrumental responses, retention time, determination of percent recovery of spiked samples or blanks, and reproducibility of duplicate sample results. All calculations and data manipulations are included in the appropriate methodology references. Control charts and calibration curves will be used to review the data and identify outlying results.

7.2.1 Data Validation

If necessary, a third-party validator will be responsible for an independent review of all analytical work performed under the NYSDEC ASP-CLP protocol. The functions will be to assess and summarize the quality and reliability of the data for the purpose of determining its usability and to document for the historical record of each Site any factors affecting data usability, such as discrepancies, poor laboratory practices, and Site locations that are difficult to analyze. The data validator will be responsible for determining completeness and compliance. Lu Engineers' QA officer will be responsible for determining data usability and overseeing the work of the data validator.

Information available to the data validator and the QA officer for performance of these functions include the NYSDEC ASP Category B data package, information from the sampling team regarding field conditions and field QA samples, chain-of-custody and shipping forms. The data package is designed to provide all necessary documentation to verify compliance with NYSDEC ASP CLP protocol and the accuracy and reliability of the reported results.

The laboratory will deliver the data package to the project QA coordinator for processing prior to submission to the data validator. The project QA coordinator will review the report for immediate problems, summarize the data for in-house use, and process the work order for the third-party data-validation subcontract within five working days.

In order to effectively review the data package, the data validator will obtain a general overview of each case. This includes the exact number of samples, their assigned numbers, and their matrix. The data validator will deliver the data validation report within 30 days of receipt of the data package.

If a problem arises between the data validator and the laboratory, the data validator must submit written questions to the laboratory. The laboratory will be required to respond in writing within 10 working days to correct any deficiencies. If the data validator does not receive a written response from the laboratory within the specified time period, the data in question shall be considered noncompliant.

Sampling locations will be obtained from the sampling records, such as the chain-of-custody forms. This information is necessary for preparation of the data summary, evaluation of adherence to sample holding times, discussion of matrix problems, and discussion of contaminants detected in the samples.

The following is a brief outline of the data validation process:

- Compilation of all samples with the dates of sampling, laboratory receipt, and analysis;
- Compilation of all QC samples, such as field blanks, field duplicates, MS/MSD samples, laboratory blanks, and laboratory replicates;
- Review of chain-of-custody documents for completeness and correctness;
- Review of laboratory analytical procedure and instrument performance criteria;
- Qualification of data outside acceptable QC criteria ranges;
- Preparation of a memorandum summarizing any problems encountered and the potential effects on data usability;
- Preparation of a data summary, including validated results, with sample matrix, location, and identification; and
- Tabulation of field duplicates, laboratory replicate, and blank results.

Copies of all data validation and usability reports, as well as all data summary packages, will be provided to the NYSDEC project manager. In addition, copies of all analytical raw data will be provided to NYSDEC upon request.

7.2.2 Data Usability

A Data Usability Summary Report (DUSR) will be provided after review and evaluation of the analytical data package. The DUSR will contain required elements listed in Appendix 2B of *DER-10 Technical Guidance for Site Investigation and Remediation*.

The DUSR will include a description of the samples and analytical procedures used. Any data deficiencies, protocol deviations, or quality control problems will be discussed as to their effect on data results. The report will also include any suggestions for resampling or reanalysis.

TABLE 1
SAMPLING AND ANALYSIS SUMMARY

Sample Type	Sample Location	Analytical Parameter	Analytical Method	Reporting Level	# Field Samples	Field Duplicates	Blanks		MS/MSD	Total
							Equip	Trip		
Subsurface Soils – Test Pit Excavations and Soil Borings	9 test pit excavations	TCL VOC RCRA Metals PCBs	8260 6020 8082	Category B (Level IV)	**9**	**1**	**1**		**1/1**	**13**
	5 soil borings (for monitoring wells)	TCL VOC RCRA Metals PCBs	8260 6020 8082		**5**	**1**	**1**		**1/1**	**9**
Groundwater – New Monitoring Wells	4 newly installed wells	TCL VOC TAL Metals PCBs	8260 6020 8082		**4**	**1**	**1**	**1**	**1/1**	**9**

Note: Sample quantities are estimated. Additional samples may be required according to actual field, subsurface soil, and groundwater conditions as encountered during Supplemental Site Investigation work activities.

APPENDIX H – HEALTH AND SAFETY PLAN

The attached Health and Safety plan (HASP) was prepared by a qualified person in accordance with the most recently adopted and applicable general industry (29 CFR 1910) and construction (29 CFR 1926) standards of OSHA, the U.S. Department of Labor, as well as any other federal, state or local applicable statutes or regulations. The HASP was prepared in accordance with NYSDEC's DER-10 and includes a description of the health and safety procedures associated with both performance monitoring of the remedial system(s) and effectiveness monitoring. A copy of the HASP will be available at the Site during the conduct of all activities to which it is applicable.

HEALTH AND SAFETY PLAN

Supplemental Site Investigation Work Plan
415 Orchard Street

City of Rochester
Environmental Restoration Project
415 Orchard Street and 354 Whitney Street
Monroe County, New York

Prepared For:

City of Rochester
Department of Environmental Services
Division of Environmental Quality
30 Church Street
Rochester, New York 14614

Prepared By:

Lu Engineers
175 Sully's Trail
Suite 202
Pittsford, New York 14534

May 2015

Project No. 4216-06

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LU ENGINEERS
SITE SAFETY PLAN

A. GENERAL INFORMATION

Project Title: Orchard/Whitney Site
City of Rochester
Environmental Restoration
Supplemental Site Investigation

Lu Project No. 4216-06

Project Manager: Gregory L. Andrus, CHMM

Project Director: Robert Hutteman, P.E.

Location: 415 Orchard Street
City of Rochester, Monroe County, New York

Prepared by: Ariadna Cheremeteff

Date Prepared: May 2015

Date Revised:

Approved by:

Date Approved:

Site Safety Officer Review: Susan Hilton

Date Reviewed:

Scope/Objective of Work: Remedial Investigation of Site. The following tasks will be included:

- Task 1: Test Pit Excavations
- Task 2: Soil Borings
- Task 3: Subsurface Soil Sampling
- Task 4: Well Installations
- Task 5: Groundwater Sampling

Proposed Date of Field Activities: July 2015

Background Information: [ ] Complete [X]* Preliminary (limited analytical data)
* Background information provided by NYSDEC and City of Rochester

Overall Chemical Hazard: [ ] Serious [X] Moderate
[ ] Low [ ] Unknown

Overall Physical Hazard: [ ] Serious [X] Moderate
[ ]Low [ ] Unknown

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

[X] Liquid [X] Solid [X] Sludge [ ] Gas/Vapor

Characteristic(s):

[ ] Flammable/Ignitable [X] Volatile [ ] Corrosive [ ] Acutely Toxic
[ ] Explosive (moderate) [ ] Reactive [X] Carcinogen [ ] Radioactive
Other: _____

Physical Hazards:

[X] Overhead [ ] Confined Space [ ] Below Grade [X] Trip/Fall
[X] Puncture [X] Burn [X] Cut [X] Splash
[X] Noise [X] Other: Heat Stress

Site History/Description and Unusual Features:

The Site has been used for various commercial and industrial uses since the early 1900s. From 1915 to 1922, the North East Electric Company operated on the Site. General Motors occupied the Site from 1930 to 1967. Industrial activities including the production of electrical equipment, heat treating, plating, coal storage, boiler operations, petroleum fuel storage and industrial wastewater treatment were performed on the Site.

After General Motors closed operations, other industrial operations took place at the Site including; metal finishing, synthetic foam production, printing, plastics manufacturing and warehousing. These operations took place at the Site until the early 1990s.

The Orchard/Whitney Site (Site) is located at 415 Orchard Street and 354 Whitney Street in the City of Rochester, New York (Figure 1). The Site has a combined area of 3.9 acres and is located near the intersection of Lyell Avenue and Broad Street. One multi-story structure of approximately 128,900 square feet, formerly located on Whitney Street, and was demolished in 2008. There was also one multi-story structure of approximately 371,600 square feet formerly located on Orchard Street and was demolished in 2015.

Previous environmental investigations have revealed that volatile organic compounds (VOCs), several metals, and semi-volatile organic compounds (SVOCs) have been detected in subsurface soils and groundwater above NYSDEC Soil Guidance Values on the Whitney Street parcel. Information on the Orchard Street parcel is limited. There are no local private wells in the area of the Site and the surrounding community is on public water and sewer service.

Locations of Chemicals/Wastes: Soil, sediment, surface water and/or groundwater.

Estimated Volume of Chemicals/Wastes: Unknown.

Site Currently in Operation: [ ] Yes [X] No [ ] Not Applicable

C. HAZARD EVALUATION

PHYSICAL HAZARD EVALUATION:		
TASK	**HAZARD(S)**	**HAZARD PREVENTION**
Task 1 - 5	Contact with or inhalation of contaminants, potentially in high concentration in sampling media and/or fire and explosion.	To minimize exposure to chemical contaminants, a thorough review of suspected contaminants should be completed and implementation of an adequate protection program. Under-ground vaults to be ventilated during inspections. Field safety equipment will be used to minimize hazards.
Task 1, 2, & 4	Standard Drilling Rig Hazards	Wear hard hat, keep back from drilling operations, only driller and helper are to be in "drilling zone"
Task 1 - 5	Drum opening/sampling	Proper protective equipment, drum opening techniques, equipment and the use of remote sampling when possible.
Task 1 - 4	Overhead Hazards/ Falling Objects	**See Appendix B**
Task 1 - 5	Back strain and muscle fatigue, ergonomic stress due to lifting.	Use proper lifting techniques and limit load to prevent back strain.
Task 1 - 5	Heat stress/ cold stress exposure.	Implement heat stress management techniques such as shifting work hours, increasing fluid intake, and monitoring employees**. See Appendix A.**
Task 1 - 5	Slip/ tripping/ fall.	Observe terrain and drilling equipment while walking to minimize slips and falls. Steel-toed boots provide additional support and stability. Use adequate lighting. Inspect Site and mark existing hazards.
Task 1 - 5	Medical Waste (Sharps)	Carefully observe terrain while walking and any on-Site materials before handling. Gloves should be worn for any contact with on-Site materials.
Task 1 - 5	Noise	**See Appendix B**
Task 1 - 5	Native wildlife presents the possibility of insect bites and associated diseases.	Avoid wildlife when possible.
Task 1 - 5	Sunburn.	Apply sunscreen, wear appropriate clothing.
Task 1, 2, & 4	Utility Lines.	**See Appendix B**
Task 1 - 5	Weather Extremes.	Establish Site-specific contingencies for severe weather situations. Discontinue work in severe weather.

Physical Hazard Evaluation: Basic health and safety protection (steel-toed boots, work clothes, and safety glasses or goggles) will be worn by all personnel at all times. Any allergies should be reported to the Site Safety Officer prior to the start of the project.

D. SITE SAFETY WORK PLAN

Site Control: Site perimeter is fenced and gated, though continued evidence of vandalism suggests Site is not fully secure.

Perimeter Identified? [Y] **Site Secured? [N]**

Work Areas Designated? [Y] **Zone(s) of contamination identified? [N]**

Anticipated Level of Protection (cross-reference task numbers in Section C):

	A	B	C	D
Task 1-5			Available	X

All Site work will be performed at Level D (steel-toed boots, work clothes, eye protection, gloves and hard hats) unless monitoring indicates otherwise. Gloves will be worn if contact with Site soil, sediment or water is anticipated, due to concerns of PCB contamination. Level C will be available, and used when indicated by PID of 1 ppm or greater above ambient air.

See Appendices A, B and C for specific Site safety requirements.

Air Monitoring:
Lu Engineers will conduct air monitoring during the intrusive investigations. If action levels are exceeded during intrusive investigation, appropriate precautions will be taken.

Action Levels:
PID readings of 1 to 5 ppm above background at breathing zone and sustained for 1 minute, Action: Upgrade to Level C protection, continuous air monitoring.

PID readings of 5 to 300 ppm above background at breathing zone and sustained for 1 minute, Action: Upgrade to Level B protection, continuous air monitoring.

PID readings of >300 ppm above background at breathing zone and sustained for 1 minute, Action: Stop work, evacuate work zone and evaluate with continuous air monitoring.

O_2 readings must remain between 19.5% and 22.0%. Explosivity must be above 10% LEL. The area must be evacuated and ignition sources eliminated if levels are not within their standard. These atmosphere factors will be measured at a position that would give the earliest indication of a hazardous condition forming not at the breathing zone. Appropriate actions, initially evacuation of the immediate work area, will be taken if established action levels area exceeded.

If particulate levels exceed a level of 2.5 times background (upwind levels subtracted from downwind concentration) or a level of 150 mcg/m^3, dust control measures will be initiated and the dust generating activity suspended until levels decrease below the action level. Perimeter monitoring will be conducted if the action level is obtained at the work area.

All air monitoring results as well as wind direction and speed (estimates) will be documented in the Site specific log book.

Decontamination Solutions and Procedures for Equipment, Sampling Gear, etc.:
Disposable sampling equipment will be used where possible. If decon is necessary, distilled or deionized water and alconox will be used. A 10% nitric acid rinse will be added if metals sampling is to be conducted.

Personnel Decon Protocol:
Personal protective clothing will be removed in a manner that will minimize the potential of contaminant to skin contact. Visible contamination will be removed from protective clothing prior to the individual doffing the articles. Soap, water and paper towels will be available for all personnel and will be used before eating, drinking or leaving the Site. Personnel will shower upon return to home or hotel. Disposable PPE will be double-bagged and disposed of as non-hazardous waste unless PCBs are detected. If PCBs are detected, the PPE will be disposed of accordingly.

Decontamination Solution Monitoring Procedures, if Applicable:
All decontamination procedures will take place in a well ventilated area. Decontamination solutions will be collected and sampled for proper disposal.

Special Site Equipment, Facilities or Procedures
(Sanitary Facilities and Lighting Must Meet 29CFR 1910.120):
All personnel will be required to maintain the Buddy System at all times. A portable toilet and potable water will be available on Site. All parties will be required to attend an on-Site briefing, which will identify the roles of each organization's personnel and will integrate emergency procedures for all Site participants.

Site Entry Procedures and Special Considerations:
Any confined spaces will be marked and access restricted. All overhead hazards should be marked, tripping/floor hazards should be marked and barricaded if necessary, other sharp edges, drop offs, flooded areas or hazardous debris appropriately identified. Electrical hazards should be identified if power is activated. Ventilation will be provided, to the extent necessary, to reduce hazardous atmospheres.

Entry to the Site should be limited through the Whitney Street gate. The gate should be closed and locked when not in use both when personnel are on or off-Site in order to restrict unauthorized individuals. The Buddy System should be employed at all times on-Site and entering and exiting the Site, along with the work zone areas.

Work Limitations (time of day, weather conditions, etc.) and Heat/Cold Stress Requirements:
All work will be completed during daylights hours. Severe inclement weather may be cause to suspend outdoor activities. Heat stress protocol will dictate work/rest regimen. Heavy equipment will not be used during electrical storms.

General Spill Control, if Applicable:
Absorbent material will be available to control spills during the collection of liquid samples (e.g. USTs, drums, floor drains, and sumps).

Investigation Derived Material (i.e., Expendables, Decon Waste, Cuttings) Disposal:
Investigation derived waste soils and water will be collected in drums and/or an on-Site tank and stored securely on-Site prior to being sampled for disposal. Expendables such as disposable sampling equipment, gloves and towels, will be bagged for disposal. Expendables that have contacted PCB-containing oils will be bagged separately and labeled for appropriate disposal.

Sampling Handling Procedures Including Protective Wear:
Samples collected from drums, sumps, USTs and floor drains will be handled with neoprene outer gloves prior to decontamination. At minimum nitrile surgical gloves will be worn while handling all other samples during labeling, documentation and packaging.

Team Member*	Responsibility
Greg Andrus	Field Team Leader
Greg Andrus	Site Safety Officer
Ari Cheremeteff	Team Member
Casey Bok	Team Member
Laura Gregor	Team Member

* All entries into the work zone require "Buddy System" use. All Lu Engineers' field staff participate in a medical monitoring program and have completed applicable training per 29CFR 1910.120. Respiratory protection program meets requirements of 29CFR 1910.134.

E. EMERGENCY INFORMATION

LOCAL RESOURCES

Ambulance:	911
Hospital Emergency Room:	Strong Memorial Hospital (585) 275-4551
	601 Elmwood Avenue, Rochester, New York
Poison Control Center:	911
Police (include local, county sheriff, state):	911
Fire Department:	911
Airport:	N/A
Laboratory:	TBD
UPS/Federal Express:	N/A

SITE RESOURCES

Site Emergency Evaluation Alarm Method:	Sound vehicle horn.
Water Supply Source:	Gallons of water will be available in vehicles.
Telephone Location, Number:	None available
Cellular Phone, if Available:	TBD
Radio:	TBD
Other:	TBD

EMERGENCY CONTACTS

1.	Fire/Police:	911
2.	Lu Engineers, Safety Director:	(585) 385-7417, Ext. 215 (office)
3.	Lu Engineers, Greg Andrus:	(585) 385-7417, Ext. 215 (office)

EMERGENCY ROUTES

Note: Field team must know route(s) prior to start of work.

Directions from the Site to Strong Memorial Hospital (map on following page):
Turn right onto Whitney Street. Take a right onto Lyell Avenue. Turn right onto Broad Street (1 mile). Stay straight to go onto Ford Street. Turn slight right onto South Plymouth Avenue NY-383 (1.6 miles). Turn left on Elmwood Avenue, the hospital is at 601 Elmwood Avenue.

On-Site Assembly Area: At site entry point at Whitney Street Gate.

Off-Site Assembly Area: The intersection of Whitney Street and Lyell Avenue.

Emergency egress routes to get off-Site: N/A .

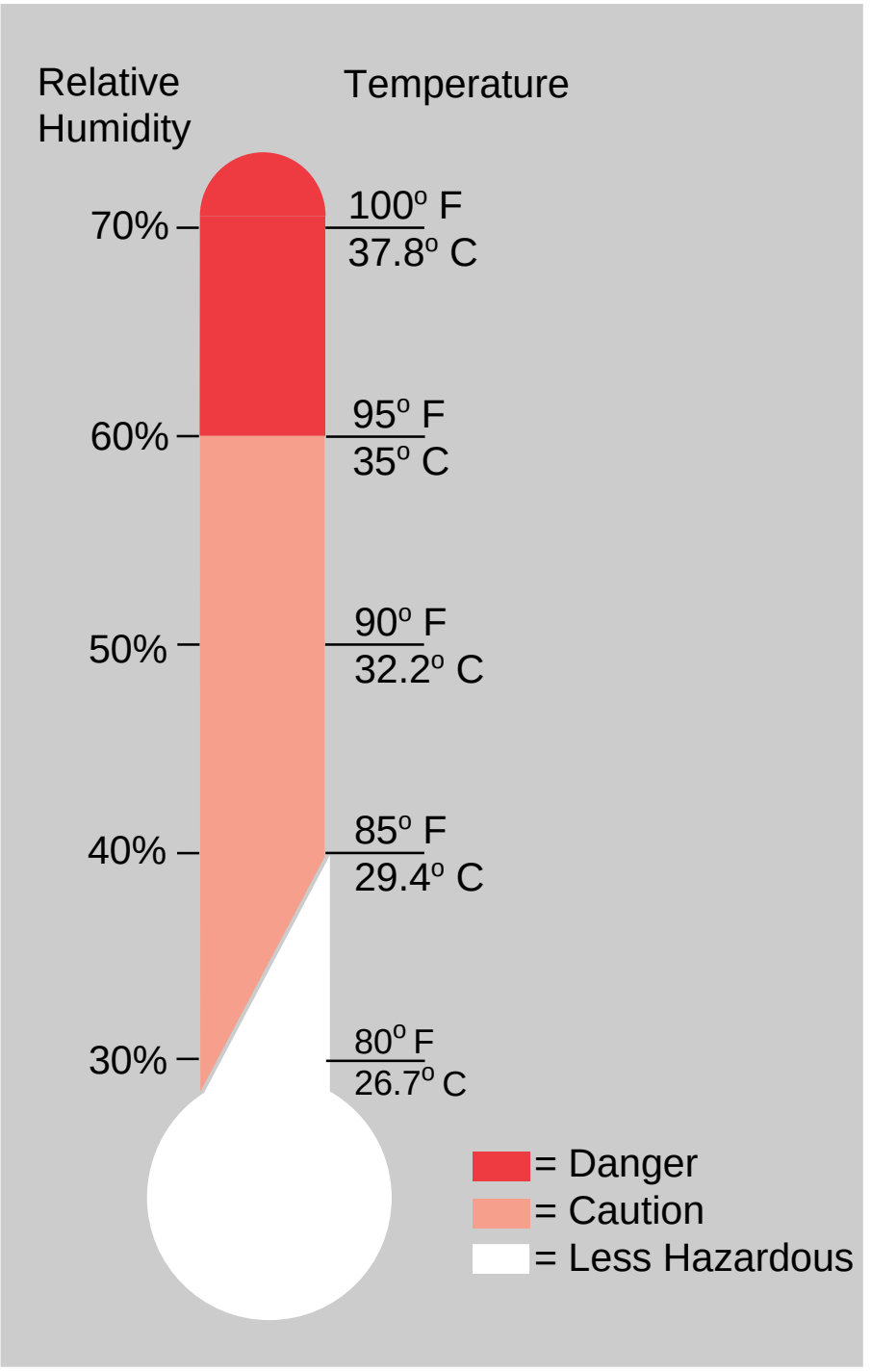
APPENDIX A

HEAT STRESS EXPOSURE

THE HEAT EQUATION

HIGH TEMPERATURE + HIGH HUMIDITY + PHYSICAL WORK = HEAT ILLNESS

When the body is unable to cool itself through sweating, **serious** heat illnesses may occur. The most severe heat-induced illnesses are **heat exhaustion** and **heat stroke**. If actions are not taken to treat heat exhaustion, the illness could progress to heat stroke and possible **death**.



U.S. Department of Labor
Occupational Safety and Health Administration
OSHA 3154
1998

HEAT EXHAUSTION

What Happens to the Body:

HEADACHES, DIZZINESS/LIGHT HEADEDNESS, WEAKNESS, MOOD CHANGES (irritable, or confused/can't think straight), FEELING SICK TO YOUR STOMACH, VOMITING/THROWING UP, DECREASED and DARK COLORED URINE, FAINTING/PASSING OUT, and PALE CLAMMY SKIN.

What Should Be Done:

- Move the person to a cool shaded area to rest. Don't leave the person alone. If the person is dizzy or light headed, lay them on their back and raise their legs about 6-8 inches. If the person is sick to their stomach lay them on their side.
- Loosen and remove any heavy clothing.
- Have the person drink some cool water (a small cup every 15 minutes) if they are not feeling sick to their stomach.
- Try to cool the person by fanning them. Cool the skin with a cool spray mist of water or wet cloth.
- If the person does not feel better in a few minutes call for emergency help (Ambulance or Call 911).

(If heat exhaustion is not treated, the illness may advance to heat stroke.)

HEAT STROKE—A MEDICAL EMERGENCY

What Happens to the Body:

DRY PALE SKIN (no sweating), HOT RED SKIN (looks like a sunburn), MOOD CHANGES (irritable, confused/not making any sense), SEIZURES/FITS, and COLLAPSE/PASSED OUT (will not respond).

What Should Be Done:

- Call for emergency help (Ambulance or Call 911).
- Move the person to a cool shaded area. Don't leave the person alone. Lay them on their back and if the person is having seizures/fits remove any objects close to them so they won't strike against them. If the person is sick to their stomach lay them on their side.
- Remove any heavy and outer clothing.
- Have the person drink some cool water (a small cup every 15 minutes) if they are alert enough to drink anything and not feeling sick to their stomach.
- Try to cool the person by fanning them. Cool the skin with a cool spray mist of water, wet cloth, or wet sheet.
- If ice is available, place ice packs under the arm pits and groin area.

How to Protect Workers

- Learn the signs and symptoms of heat-induced illnesses and what to do to help the worker.
- Train the workforce about heat-induced illnesses.
- Perform the heaviest work in the coolest part of the day.
- Slowly build up tolerance to the heat and the work activity (usually takes up to 2 weeks).
- Use the buddy system (work in pairs).
- Drink plenty of cool water (one small cup every 15-20 minutes)
- Wear light, loose-fitting, breathable (like cotton) clothing.
- Take frequent short breaks in cool shaded areas (allow your body to cool down).
- Avoid eating large meals before working in hot environments.
- Avoid caffeine and alcoholic beverages (these beverages make the body lose water and increase the risk for heat illnesses).

Workers Are at Increased Risk When

- They take certain medication (check with your doctor, nurse, or pharmacy and ask if any medicines you are taking affect you when working in hot environments).
- They have had a heat-induced illness in the past.
- They wear personal protective equipment (like respirators or suits).

APPENDIX B

ADDITIONAL POTENTIAL PHYSICAL AND CHEMICAL HAZARDS

ADDITIONAL POTENTIAL PHYSICAL AND CHEMICAL HAZARDS	
POTENTIAL PHYSICAL HAZARDS	**CONTROL METHODS**
Overhead Hazards/Falling Objects	Overhead hazards will be identified prior to each task (i.e., inspecting drill rig mast, building structure). Hard hats will be required for each task that poses an overhead hazard.
Contact with Utilities	Prior to initiating Site activities, all utilities will be located by the appropriate utility company and will be marked and/or barricaded to minimize the potential of accidental contact. A minimum distance of 25 feet between the derrick and overhead power lines must be maintained at all times.
Noise Exposure	Areas of potentially high sound pressure levels (>85 dBA) will be restricted to authorized personnel only. Engineering controls will be used to the extent possible. Hearing protection will be made available to all workers on-Site. Exposure to time-weighted average levels in excess of 85 dBA is not anticipated.
POTENTIAL CHEMICAL HAZARDS	**GENERAL CONTROL METHODS**
Contaminant Inhalation	Direct reading instruments will be used to monitor airborne contaminants. Established Lu Engineers' action levels will limit exposure to safe levels. Respiratory protection will be used as appropriate.
Contaminant Ingestion	Standard safety procedures such as restricting eating, drinking, and smoking to the support zone and utilizing proper personal decontamination procedures will minimize ingestion as a potential route of exposure.
Dermal Contaminant Contact	The proper selection and use of personal protective clothing and decontamination procedures will minimize dermal contaminant contact.
Potential contact with lower concentration waste and naturally occurring contaminants (i.e., methane)	Dermal contact with contaminants will be minimized by proper use of the following PPE: • Tyvex coveralls • Neoprene gloves • Booties (latex) or over-boots.

APPENDIX C

HAZARD EVALUATION SHEETS / MSDS

CHEMICAL HAZARD EVALUATION										
Task Number	Compound	Exposure Limits (TWA)			Dermal Hazard (Y/N)	Route(s) of Exposure	Acute Symptoms	Odor Threshold/ Description	FID/PID	
		PEL	REL	TLV					Relative Response	Ioniz. Poten. (eV)
1 - 5	Aroclor 1254 Polychlorinated biphenyl (PCB)*	0.5 ^{sk} mg/m^3	---	0.5 ^{sk} mg/m^3	Y	Abs, Inh, Ing	Irritation to eyes and skin; dermatitis, liver damage	Mild hydrocarbon odor	---	---
1 - 5	Aroclor 1242 Polychlorinated biphenyl (PCB)*	1.0 ^{sk} mg/m^3	---	1.0 ^{sk} mg/m^3	Y	Abs, Inh, Ing	Irritation to eyes and skin; dermatitis, liver damage	Mild hydrocarbon odor	---	---
1 - 5	Aroclor 1260 Polychlorinated biphenyl (PCB)*	0.5 ^{sk} mg/m^3	---	0.5 ^{sk} mg/m^3	Y	Abs, Inh, Ing	Irritation to eyes and skin; dermatitis, liver damage	---	---	---
1 - 5	Benzene*	1 ppm	---	10 ppm	Y	Inh, Abs, Ing, Con	Irritation to eyes, skin, nose, respiratory system; headache, nausea, dizziness, drowsiness, unconsciousness, harmful, fatal if aspirated into lungs	Colorless to light yellow liquid, sweet aromatic odor	0.5	9.25
1 - 5	Ethylbenzene	100 ppm	---	100 ppm	Y	Inh, Ing, Con	Irritation to eyes, skin, mucous membranes; dermatitis, narcosis, , trouble breathing, paralysis, headache, nausea, headache, dizziness, coma	Colorless liquid, aromatic odor	0.5	8.77

CHEMICAL HAZARD EVALUATION

Task Number	Compound	Exposure Limits (TWA)			Dermal Hazard (Y/N)	Route(s) of Exposure	Acute Symptoms	Odor Threshold/ Description	FID/PID	
		PEL	REL	TLV					Relative Response	Ioniz. Poten. (eV)
1 - 5	Mercury	0.1 ^{sk} mg/m^3 ceiling	0.1 mg/m^3 ceiling 0.05 mg/m^3 ceiling	0.025 ^{sk} mg/m^3	Y	Inh, Abs, Ing, Con	Severe respiratory tract damage, sore throat, coughing, pain, tightness in chest, breathing difficulties, headache, muscle weakness, anorexia, GI disturbances, ringing in ear, liver changes fever, bronchitis, pneumonitis, burning in mouth, abdominal pain, vomiting, corrosive ulceration, bloody diarrhea, weak & rapid pulse, paleness, exhaustion, tremors, collapse, thirst, burns and irritates skin, eyes, blurred vision, pain in eyes	Silver-white, heavy, odorless liquid metal	---	N/A
1 - 5	Trichloroethene*(TCE)	100 ppm (per 6/97 NIOSH Pocket Guide)			Y	Inh, Abs, Ing, Con	Irritation to eyes, skin, mucous membranes and GI, headache, vertigo, fatigue, giddiness, tremors, vomiting, nausea, may burn skin, visual disturbance, paresthesia, cardiac arrhythmias	Colorless liquid, sometimes dyed blue, chloroform odor	---	9.45

CHEMICAL HAZARD EVALUATION

Task Number	Compound	Exposure Limits (TWA)			Dermal Hazard (Y/N)	Route(s) of Exposure	Acute Symptoms	Odor Threshold/ Description	FID/PID	
		PEL	REL	TLV					Relative Response	Ioniz. Poten. (eV)
1 - 5	Toluene	200 ppm	---	50 ppm	Y	Inh, Abs, Ing, Con	Irritation to eyes, skin, nose; upper respiratory tract, fatigue, weak, confusion, dizziness, headache, drowsiness, abdominal spasms, dilated pupils, euphoria	Colorless liquid, sweet pungent, benzene like odor	0.5	8.82
1 - 5	Xylene(s)	100 ppm	---	100 ppm	Y	Inh, Ing, Abs, Con	Irritation to eyes, nose, throat, skin; nausea, vomiting, headache, ringing in ears, severe breathing difficulties (that may be delayed in onset), substernal pain, coughing hoarseness, dizziness, excited, burning in mouth, stomach, dermatitis (removes oils from skin), corneal burns	Colorless liquid, aromatic odor (solid below 56 F	.5	8.44

KEY:

PEL = Permissible Exposure Limit
REL = Recommended Exposure Limit
--- = Information not available
TLV = Threshold Limit Value(ACGIH)

Inh = Inhalation
Ing = Ingestion
mg/m^3 = Milligrams per cubic meter
* = Chemical is a known or suspected carcinogen

Abs = Skin Absorption
Con = Skin and/or eye Contact
ppm = Parts per million
sk = Skin notation

APPENDIX D

EQUIPMENT CHECKLIST

EQUIPMENT CHECKLIST

PROTECTIVE GEAR			
LEVEL A	**N/A**	**LEVEL B**	**N/A**
SCBA		SCBA	
SPARE AIR TANKS		SPARE AIR TANKS	
ENCAPSULATING SUITE (Type)		PROTECTIVE COVERALL (Type)	
SURGICAL GLOVES		RAIN SUIT	
NEOPRENE SAFETY BOOTS		BUTYL APRON	
BOOTIES		SURGICAL GLOVES	
GLOVES (Type)		GLOVES (Type)	
OUTER WORK GLOVES		OUTER WORK GLOVES	
HARD HAT		NEOPRENE SAFETY BOOTS	
CASCADE SYSTEM		BOOTIES	
5-MINUTE COOLING VEST		HARD HAT WITH FACE SHIELD	
		CASCADE SYSTEM	
		MANIFOLD SYSTEM	
LEVEL C		**LEVEL D**	
ULTRA-TWIN RESPIRATOR	X	ULTRA-TWIN RESPIRATOR (available)	X
POWER AIR PURIFYING RESPIRATOR		CARTRIDGES (Type GMC-H)(available)	X
CARTRIDGES (Type GMC-H)	X	5-MINUTE ESCAPE MASK (available)	
5-MINUTE ESCAPE MASK		PROTECTIVE COVERALL (Type Tyvek/Saranax)	X
PROTECTIVE COVERALL (Type Tyvek/Saranax)	X	RAIN SUIT (available)	X
RAIN SUIT		NEOPRENE SAFETY BOOTS	
BUTYL APRON		BOOTIES (available)	X
SURGICAL GLOVES	X	NITRILE	
GLOVES (Type: Nitrite/Neoprene)	X	HARD HAT WITH FACE SHIELD (available)	X
OUTER WORK GLOVES		SAFETY GLASSES	X
NEOPRENE SAFETY BOOTS		GLOVES (Type: Surgical)	X
HARD HAT WITH FACE SHIELD	X	WORK GLOVES (Type: Neoprene/Nitrile)(available)	X
BOOTIES	X	SAFETY BOOTS	X
HARD HAT		BLAZE ORANGE VEST	X

EQUIPMENT CHECKLIST

INSTRUMENTATION	NO.	FIRST AID EQUIPMENT	NO.
OVA		FIRST AID KIT	X
THERMAL DESORBER		OXYGEN ADMINISTRATOR	
O_2/EXPLOSIMETER W/CAL.KIT (Drilling)	X	STRETCHER	
PHOTOVAC TIP		PORTABLE EYE WASH	
PID	X	BLOOD PRESSURE MONITOR	
MAGNETOMETER		FIRE EXTINGUISHER	X
PIPE LOCATOR			
WEATHER STATION		**DECON EQUIPMENT**	
DRAEGER PUMP, TUBES ( )		WASH TUBS	
BRUNTON COMPASS		BUCKETS	X
MONITOX CYANIDE		SCRUB BRUSHES	X
HEAT STRESS MONITOR		PRESSURIZED SPRAYER	
NOISE EQUIPMENT		DETERGENT (Type: Alconox) = TSP	X
PERSONAL SAMPLING PUMPS		SOLVENT (HEXANE)	
MINI-RAM (Particulates) (Drilling)	X	PLASTIC SHEETING	X
		TARPS AND POLES	
		TRASH BAGS	X
RADIATION EQUIPMENT		TRASH CANS	
DOCUMENTATION FORMS		MASKING TAPE	
PORTABLE RATEMETER		DUCT TAPE	X
SCALER/RATEMETER		PAPER TOWELS	X
NaI Probe		FACE MASK	
ZnS Probe		FACE MASK SANITIZER	
GM Pancake Probe		FOLDING CHAIRS	
GM Side Window Probe		STEP LADDERS	
MICRO R METER		DISTILLED WATER	X
ION CHAMBER			
ALERT DOSIMETER			
MINI-RAD			

EQUIPMENT CHECKLIST

SAMPLING EQUIPMENT	NO.	MISCELLANEOUS (cont.)	NO.
4-OZ BOTTLES	X	BUNG WRENCH	X
1 LITER AMBER BOTTLES	X	SOIL AUGER	X
VOA BOTTLES	X	PICK	
SOIL SAMPLING (CORING) TOOL	X	SHOVEL	X
SOIL VAPOR PROBE		CATALYTIC HEATER	
THIEVING RODS WITH BULBS	X	PROPANE GAS	
SPOONS	X	BANNER TAPE	X
GENERAL TOOL KIT	X	SURVEYING METER STICK	X
FILTER PAPER		CHAINING PINS AND RING	
PERSONAL SAMPLING PUMP SUPPLIES		TABLES	
4-OZ JARS	X	WEATHER RADIO	
		BINOCULARS	
VAN EQUIPMENT		MEGAPHONE	
TOOL KIT		PORTABLE RADIOS (4)	X
HYDRAULIC JACK		CELL PHONE	X
LUG WRENCH		CAMERA	X
TOW CHAIN		HEARING PROTECTION	X
VAN CHECK OUT			
GAS		**SHIPPING EQUIPMENT**	
OIL		COOLERS	X
ANTIFREEZE		PAINT CANS WITH LIDS, 7 CMIPS EACH	
BATTERY		VERMICULITE	
WINDSHIELD WASH		SHIPPING LABELS	X
TIRE PRESSURE		DOT LABELS: “DANGER”, “UP”;	
		“INSIDE CONTAINER COMPLIES...”;	
MISCELLANEOUS		“HAZARD GROUP”	
PITCHER PUMP		STRAPPING TAPE	X
SURVEYOR’S TAPE	X	BOTTLE LABELS	X
100 FIBERGLASS TAPE	X	BAGGIES	X
300 NYLON ROPE		CUSTODY SEALS	X
NYLON STRING	X	CHAIN-OF-CUSTODY FORMS	X
SURVEYING FLAGS	X	FEDERAL EXPRESS FORMS	X
FILM		CLEAR PACKING TAPE	X
WHEEL BARROW			

APPENDIX I – COMMUNITY AIR MONITORING PLAN

The attached Community Air Monitoring Plan (CAMP) was prepared by a qualified person in accordance with the most recently adopted and applicable general industry (29 CFR 1910) and construction (29 CFR 1926) standards of OSHA, the U.S. Department of Labor, as well as any other federal, state or local applicable statutes or regulations. The CAMP includes the appropriate requirements identified by the NYSDOH and was prepared in accordance with NYSDEC's DER-10.

COMMUNITY AIR MONITORING PLAN

Supplemental Site Investigation

City of Rochester
Environmental Restoration Project
415 Orchard Street and 354 Whitney Street
Monroe County, New York

Prepared For:

City of Rochester
Department of Environmental Services
Division of Environmental Quality
30 Church Street
Rochester, New York 14614

Prepared By:

Lu Engineers
175 Sully's Trail
Suite 202
Pittsford, New York 14534

May 2015

Project No: 4216-06

Table of Contents

1.0 Introduction

This Community Air Monitoring Plan (CAMP) has been prepared by Lu Engineers on behalf of the City of Rochester. This CAMP addresses potential volatile organic compound (VOC) and particulate air quality issues which may arise during planned Supplemental Site Investigation (SSI) activities at the Orchard/Whitney Site located at 415 Orchard Street and 354 Whitney Street, Rochester, New York.

The investigation activities planned during the portion of the project covered by this CAMP include test pit excavations, soil borings, groundwater monitoring well installations, and groundwater sampling.

Based on previous studies completed at the Site and the Site's history, the primary chemicals of concern at the subject site are various volatile organic compounds (VOCs) and metals. Disturbance of soils and/or groundwater could result in volatilization of the organic compounds and fugitive dust releases to the ambient air creating possible nuisance or health threats to the neighborhood.

This CAMP details real-time monitoring activities to be carried out during the remedial investigation activities, to minimize the potential for neighborhood exposure to airborne hazards resulting from fugitive emissions during field work.

Air monitoring and response actions for VOCs and particulates are included in this CAMP. VOC and particulate monitoring of the work areas will also be conducted as part of the Health and Safety Plan (HASP) that will be implemented during Remedial Investigation activities by Lu Engineers. The following monitoring, response levels and actions are adapted from DER-10 NYSDOH Generic Community Air Monitoring Plan.

2.0 Methodology

The Remedial Investigation activities at the Site will consist primarily of test pit excavations, soil borings, groundwater well installations, and groundwater sampling. The following programs will be implemented to monitor and, if necessary, control the potential migration of fugitive VOCs and particulates on the property.

Continuous monitoring will be required for all ground intrusive activities, and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from newly

installed wells. Periodic monitoring during sampling may reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well bailing/purging, and taking a reading prior to leaving a sample location.

2.1 Perimeter Monitoring

For each day of intrusive field work, a wind sock or flag will be used to monitor wind direction in the area of the work zone. Based upon the daily wind direction, two temporary monitoring points will be identified, one upwind and one downwind of the work area, at the perimeter of the site or field work location.

VOC monitoring will be done with a photoionization detector (PID-MiniRAE Model 2000 or its equivalent) fitted with a 10.6 eV lamp. Prior to the commencement of field work each day, background measurements of VOC concentrations will be logged at the upwind and downwind locations with the drill rig engine and any other gas/diesel engines operation on Site. Thereafter, readings will be recorded at approximate 15-minute intervals. These readings will be used to observe the difference between upwind and downwind VOC levels. If at any time, the downwind VOC levels exceed upwind levels (adjusted for engine exhaust) by 5 ppm (sustained), the work will be temporarily halted. The Contractor will then be required to implement the means necessary to control VOCs and explosive gases, similar to those discussed in Section 2.3.

Monitoring for explosivity using an explosive gas meter will be routinely conducted during site activities as a precautionary measure to ensure site personnel are not subjected to any dangerous conditions.

Particulate monitoring will be done with a real time particulate meter (Mini Ram) capable of monitoring particulate matter less than 10 microns in size (PM-10). Prior to the commencement of field work each day, background measurements of particulate levels will be logged at the upwind and downwind locations. Thereafter, readings and visual observations will be recorded at approximate 15-minute intervals. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed.

Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

2.2 Work Area Monitoring

In addition to perimeter monitoring, monitoring for VOCs, particulates and explosive gases will be carried out continuously within the work area to monitor personal exposures and to compare work area readings with downwind and upwind readings. The first readings of the day will be obtained prior to the commencement of work to obtain daily background readings. Readings will be logged along with the perimeter measurements. Specific monitoring procedures to be used in the work zone can be found in the Health and Safety Plan (HASP) prepared for this site.

2.3 Minor Vapor Emissions Response Plan

If the ambient air concentration of total organic vapors exceeds 5 ppm (sustained) above the background at the perimeter of the work area, activities will be halted and monitoring continued.

If the total organic vapor level decreases below 5 ppm above background, work activities can resume, with emphasis given to observing spikes in levels. If the total organic vapor levels are greater than 5 ppm over background but less that 25 ppm over background at the perimeter of the work area, activities can resume provided the organic level 200 ft. downwind of the work area or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over the background. (The locations of structures in the subject neighborhood may not allow the 200 ft. buffer zone to be used).

If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown. When work shutdown occurs, downwind air monitoring as directed by the Safety Officer will be implemented to evaluate if the vapor emission levels exceed those specified in Section 2.4, Major Vapor Emission Response Plan.

2.4 Major Vapor Emission Response Plan

If total organic vapor levels greater than 5 ppm over background are identified 200 ft. downwind from the work area or half the distance to the nearest residential or commercial structure, whichever is less, all work activities must be halted.

If, following the cessation of the work activities, or as the result of an emergency, total organic vapor levels greater than 5 ppm above background persist 200 ft. downwind or half the distance to the nearest residential or commercial structure, then the air quality must be monitored within 20 ft. of the perimeter of the nearest residential or commercial structure (20-foot zone).

If efforts to abate the emission source area are unsuccessful and if the organic vapor levels continue to persist at or near 5 ppm above background for more than 30 minutes in the 20-foot zone, then the Major Vapor Emission Response Plan shall automatically be placed into effect.

The Major Vapor Emission Response Plan shall also be immediately placed into effect if organic vapor levels are greater than 10 ppm above background at the 20-foot zone.

Upon activation, the following activities will be undertaken:

1. All Emergency Response Contacts as listed in the Health and Safety Plan will be contacted.
2. The local police authorities will immediately be contacted by the Safety Officer and advised of the situation. Evacuation or neighborhood notification plans can be discussed at that time.
3. Air monitoring will be conducted at 30-minute intervals within the 20-foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Safety Officer.

3.0 Record Keeping and Quality Control

For the duration of the field activities, a monitoring log book will be kept to record calibration, operational notes and monitoring readings. All readings must be recorded and available for State review. Instantaneous readings, if any, used for decision purposes should also be recorded. The results of the Community Air Monitoring Program will be incorporated by Lu Engineers into required reports.

Instrumentation will be calibrated and/or operationally checked, either daily or at intervals recommended by the manufacturer. Only approved calibration gases will be used. All operators will have been trained in the proper use, maintenance, limitation, and interpretation of results of the monitoring equipment.

APPENDIX J – SITE-WIDE INSPECTION FORM

The attached Site-wide inspection form will be completed during Site maintenance activities and provided to the NYSDEC in electronic format in accordance with the reporting requirements specified in Section 7.0 of this SMP. This form is subject to approval of the NYSDEC and includes the minimum reporting requirements as described in Section 7.0.

SITE-WIDE INSPECTION FORM

Orchard-Whitney #E828123
City of Rochester, Monroe County

NAME OF INSPECTOR: _____

COMPANY OF INSPECTOR: _____

DATE OF INSPECTION: _____

CURRENT USE OF SITE: _____

HAS A CHANGE OF USE OCCURRED SINCE THE LAST CERTIFICATION?
_____ YES _____ NO
IF YES, THEN EXPLAIN: _____
_____
_____

GENERAL DESCRIPTION OF SITE CONTROLS: _____
_____
_____
_____
_____

HAS THE SITE COVER (CAP) BEEN COMPROMISED? _____YES _____NO
IF YES, THEN EXPLAIN: _____
_____
_____
_____
_____

HAVE ANY STRUCTURES BEEN CONSTRUCTED ON THE SITE SINCE THE LAST INSPECTION?
_____ YES _____NO
IF YES, THEN EXPLAIN: _____
_____
_____

HAVE COVER CONDITIONS CHANGED SINCE THE LAST INSPECTION?
_____YES _____NO
IF YES, THEN EXPLAIN: _____
_____
_____

IS ANY MAINTENANCE OF THE SITE CONTROLS REQUIRED?
_____YES _____NO
IF YES, THEN EXPLAIN: _____
_____
_____

ADDITIONAL OBSERVATIONS, CONCLUSIONS OR RECCOMMENDATIONS:
_____
_____
_____
_____

ANY CHANGES TO THE SITE OR REQUIRED MAINTENANCE SHOULD BE
MARKED IN THE CORRESPONDING LOCATION ON THE ATTACHED MAP