Gardiner Firehouse Upgrades
57 Gardiner Avenue
City of Rochester
Monroe County, New York

SOIL MANAGEMENT PLAN

NYSDEC Spill Number: 1811925

Prepared for:

City of Rochester
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ENVIRONMENTAL • TRANSPORTATION • CIVIL

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Table of Contents

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 Overview and Objectives

1.1 Soil Management Plan Summary

The Gardiner Firehouse (the Site) is located at 57 Gardiner Avenue in City of Rochester, Monroe County, New York. The Site is currently owned by the City of Rochester and is the home of City of Rochester's Fire Department Truck 5.

The objective of this Soil Management Plan (SMP) is to consolidate available data and information on soil conditions of the Site and provide guidelines for management of impacted soil. This plan was prepared with consideration to the proposed upgrades of the Site including portions of the firehouse slab/apron. This SMP has been reviewed and approved by the City of Rochester Department of Environmental Quality (DEQ).

This SMP was prepared by Lu Engineers, on behalf of the City of Rochester (the City), in accordance with guidelines provided by New York State Department of Environmental Conservation (NYSDEC) and City DEQ.

2.0 Site Background

2.1 Site Location and Description

The Site is a 0.56-acre parcel located at 57 Gardiner Avenue in the City of Rochester, Monroe County, New York (Figure 1- Site Location). The Site is developed with one (1) building occupied by the City of Rochester's Fire Department Truck 5. An asphalt driveway and parking lot are located east and north of the building. The remaining portion of the parcel consists of maintained lawn and trees. A chain-link fence defines the northern boundary of the Site.

The topography of the Site consists of level land with groundwater appearing to flow north. The surrounding land use is primarily residential. The Site is bounded by Grover Street and a recreation/playground area (Roxie Ann Sinkler Recreation Center) to the south and west of the Site at 75 Gardiner Avenue. Residential homes are located north of the Site. A church (Trinity Inter-Faith Church) and residential houses are located south of the Site along Forbes Street. Gardiner Avenue is located east of the Site with residential homes beyond.

2.2 Site History

The Site consists of a one (1)-story, brick building owned by the City of Rochester Fire Department with a two (2) truck bay garage. The building has been used as a firehouse since its construction in 1960. Available records indicate that a 550-gallon underground storage tank (UST) was located in the driveway east of the north apparatus bay door (Figure 2). This UST was reportedly removed in 1982; however, no NYSDEC tank closure documentation was available upon request.

2.3 Geologic Conditions

Soils at the Site are comprised mainly of urban soil. Urban soil consists of areas that have been so altered or obscured by urban works and structures that reliable identification of the soils is not feasible. Characteristics of urban soil also include restricted aeration and water drainage due to modified soil structure leading to compaction.

The areas that contain urban soil are located mainly in the closely built-up parts of the City of Rochester. The bedrock in this area consists of the Paleozoic Era, Upper Silurian Series. There are no wetlands or floodplains at or in the immediate vicinity of the Site.

3.0 Summary of Previous Investigations

The following environmental assessments/investigations have been completed on behalf of the City at the Site:

- Asbestos Management Plan (Lu Engineers, May 2004)
  - White lag cloth, white mag pipe insulation, and grey mudded pipe fittings were identified as asbestos containing material (ACM)
  - Presence of transite ceiling could not be verified in Storage 2.14G or Closet 2.14H
- Asbestos, Lead Paint and PCB Caulk Survey Report (Lu Engineers, December 2018)
  - ACM was identified throughout the inspected areas (refer to the report)
  - No PCB containing caulks were identified as part of this survey
  - Lead paint was identified as part of this survey
- Asbestos, Lead Paint and PCB Caulk Survey Report (Lu Engineers, March 2019)
  - No membrane was located under the apparatus bay floor
- Limited Subsurface Investigation (Lu Engineers, March 2019)
  - The investigation was completed to characterize subsurface environmental conditions prior to planned fire house upgrades. Six (6) soil borings were advanced to refusal (or bedrock) in the documented location of the former UST and within the bay of the building near existing floor drains. Figure 2 provides a layout of relevant Site features and Figure 3 provides soil boring locations and subsurface soil findings.
  - Elevated photoionization detector (PID) readings were observed in the three (3) soil borings advanced in the asphalt driveway adjacent to the northern apparatus door, presumably in the location of the former UST. Visual and olfactory indications also suggested the presence of subsurface petroleum impacts at depths between 4- feet below ground surface (bgs) and 10-feet bgs. Refusal was encountered between 10-feet bgs and 10.7- bgs. Refer to Figure 3 for additional subsurface soil findings.
    - The City was notified of the petroleum impacts and the NYSDEC Spill Hotline was called by the City; Spill #1811925 was assigned.
  - Three (3) subsurface soil samples were collected for analysis of the following constituents:
    - GP-01 (3.5'-4')- Target compound list (TCL) Volatile Organic Compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method 8260 and TCLP Lead by USEPA 6010;
    - Comp-outside- Volatile Organics (Petroleum- CP-51) by USEPA 8260 and TCLP Lead by USEPA 6010
    - Comp-inside- TCL Volatile Organics by USEPA Method 8260, TCL SVOCS by USEPA 8270, RCRA Metals by USEPA 6010, PCBs by USEPA Method 8082, Flashpoint by USEPA 1010 and TCLP Lead by USEPA 6010
  - Soil analytical findings indicated subsurface impacts in the driveway adjacent to the northern apparatus door, presumably in the location of the former UST. Elevated concentrations of petroleum-related constituents, including 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, and xylenes were detected in exceedance of 6 New York Code, Rules, and Regulations (NYCRR) Part 375-6.8(a) Unrestricted Use

Soil Cleanup Objectives (SCOs); it is noted that no residential use or commercial use exceedances were detected.

- No elevated PID readings or visual/olfactory observations indicated subsurface impacts beneath the bay and in the vicinity of two (2) floor drains. An unrestricted use exceedance concentration of chromium was detected in the indoor composite sample (Comp-inside).

4.0 Applicable Regulatory Guidelines and Compliance

Applicable standards, criteria and guidance (SCG) values that will be used for this project are outlined below:

4.1 Solid Waste

Applicable standards for handling and disposing of on-Site solid waste, such as buried demolished building material, will include 6 NYCRR Subchapter B: Part 360 Solid Wates and 6 NYCRR Part 364 Waste Transporter Permits. It is noted that uncontaminated soils requiring off-Site disposal or re-use also require handling in accordance with applicable NYSDEC regulations regardless of regulated contaminant impacts.

4.2 Hazardous Waste and Hazardous Substances

Appropriate SCOs and other applicable guidance material will be adhered to during Site upgrades as set forth in 6 NYCRR Part 375-6 Environmental Remediation Programs and guidelines referenced in the NYSDEC Division of Environmental Remediation (DER-10) *Technical Guidance for Site Investigation and Remediation*, May 2010. NYSDEC's DER CP-51 (CP-51) Soil Cleanup Guidance, October 2010, will be adhered to when applicable.

4.3 Groundwater

If groundwater is encountered and subsequent sampling to determine method of disposal occurs, appropriate groundwater quality standards and guidance values (WQS/GV) will be adhered to.

Applicable guidelines are set forth in NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 document titled, "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations," June 1998 and amended by a January 1999 Errata Sheet, an April 2000 Addendum and a June 2004 Addendum.

If municipal sewer discharge of on-Site groundwater is determined to be practicable, applicable guidelines set forth by the Monroe County Pure Waters (MCPW) Sewer Use Permit Effluent Standards will be adhered to in characterization sampling.

4.4 Petroleum Bulk Storage Tanks

One (1) petroleum storage tank was reportedly removed from the Site in 1982; however no documentation was available for review. If additional tanks are encountered during Site upgrades and soil removal activities, tank removal will be completed in accordance with 6 NYCRR Part 613. Tank decommissioning procedures will occur in accordance with 6 NYCRR Part 613-3.5 and NYSDEC Permanent Closure of Storage Tanks Memorandum,

Modified December 3, 2003. Appropriate decommissioning and disposal documentation will be presented in the associated Tank Closure Report.

If a petroleum spill associated with storage tanks is encountered, a call will be placed immediately to the NYSDEC Spill Hotline Number (1-800-457-7362) and the spill will be remediated and closed in accordance with 6 NYCRR Part 613-6. A Spill Closure Report will be issued to the NYSDEC for review and approval for closure.

4.5 Asbestos-Containing Material

Asbestos containing material (ACM) will be sampled and removed in accordance with New York State Department of Labor (NYSDOL) Code Rule 56. Additional federal regulations pertaining to asbestos that may be applicable for the duration of the Site upgrades include:

1. 29 CFR 1910.1001, "Asbestos" (OSHA)
2. 29 CFR 1910.1200, "Hazard Communication" (OSHA)
3. 29 CFR 1910.134, "Respiratory Protection" (OSHA)
4. 29 CFR 1910.145, "Specification for Accident Prevention Signs and Tags" (OSHA)
5. 29 CFR 1910.146 “Permit Required Confined Space” (OSHA)
6. 29 CFR 1926, "Safety And Health Regulations for Construction" (OSHA)
7. 29 CFR 1926.1101, "Asbestos" (OSHA)
8. 40 CFR 61, Subpart A, "General Provisions" (EPA)
9. 40 CFR 61, Subpart M, "National Emission Standard for Asbestos" (EPA)
10. 49 CFR 171-172, Transportation Standards (DOT)

Applicable New York State Asbestos Regulations that may apply during this Site Redevelopment project include:

1. 12 NYCRR, Part 56, "Asbestos", Industrial Code Rule 56 (DOL)
2. 6 NYCRR, Parts 360, 364, Disposal and Transportation (DEC)
3. 10 NYCRR, Part 73, "Asbestos Safety Program Requirements" (DOH)

Additional Standards and Guidance Documents:

1. American National Standard Institute (ANSI) Z88.2-80, Practices for Respiratory Protection
2. ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems
3. Environmental Protection Agency (EPA) 560/585-024, Guidance for Controlling Asbestos Containing Materials in Buildings (Purple Book)
4. EPA 530-SW-85-007, Asbestos Waste Management Guidance

5.0 Soil Management Plan

This SMP provides procedures to identify and manage impacted soil, including, but not limited to, subsurface petroleum impacts associated with NYSDEC Spill #1811925. Section 5.2 provides details specific to Spill #1811925. The procedures presented herein are intended to reduce potential exposure to workers conducting subsurface activities as part of Site upgrades. On-Site environmental monitoring will be completed during intrusive Site work.

5.1 General Procedures

5.1.1 Field Screening Methods

During intrusive Site work, including removal of impacted subsurface soil associated with NYSDEC Spill #1811925, a qualified environmental scientist will periodically screen soils by visually examining for evidence of impacts (e.g. staining, unusual odors) and screening with a PID. If observations indicate potential impacts, portions of the soil samples will be placed in sealable Ziploc® plastic bags for headspace field screening analysis. Each field sample will be agitated and homogenized for at least 30 seconds and allowed to equilibrate for at least three (3) minutes.

5.1.2 Identification of Petroleum-Impacted Soils

Several methods may be used to identify petroleum-impacted soils. These methodologies may include visual observations including appearance of gray to black staining consistent with petroleum, olfactory observation indicating the presence of petroleum-like odors, or elevated PID readings exceeding background measurements on ambient air above soil.

Petroleum-impacted soil that is encountered must be managed in accordance with applicable federal, state and local regulations. During intrusive Site work, soil being disturbed or removed must be assessed for field evidence of petroleum contamination (e.g. petroleum-type odors, staining, free product, sheen). The following provides general guidance for the handling of materials that are potentially impacted with petroleum:

- Soils should be considered petroleum-impacted if: 1) PID headspace readings for soil exceed 20 ppm; or 2) the soil exhibits a petroleum odor, sheen or free product. Petroleum-impacted soil that is excavated or disturbed should be segregated from non-impacted media.

5.1.3 Characterization of Petroleum-Impacted Soils

Petroleum-impacted soil must be characterized in accordance with applicable federal, state and local regulations and disposal facility requirements. The following is general guidance for characterizing these media:

- Representative samples of stockpiled soil will be collected and the samples will be submitted to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory for testing of appropriate waste characterization parameters. The proposed waste disposal company will identify the number of samples and the test parameters required.

Based on the results of previous analytical laboratory testing and disposal facility requirements in the Greater Rochester area, it is anticipated that the waste characterization sampling and analysis program required by the disposal facility may include, but not be limited to, one (1) or more of the following:

- One (1) sample for the first 500 tons of soil, and one (1) sample for each 1,000 tons thereafter.
- Test each sample at a NYSDOH ELAP-certified analytical laboratory for:
  - USEPA TCL VOCs using USEPA Method 8260;

- USEPA TCL SVOCs using USEPA Method 8270;
- Total lead using USEPA Method 6010; and
- Flashpoint using USEPA Method 1010 or 1030.

5.1.4 Disposal and Re-Use Options

If petroleum-impacted soil is to be disposed of, a waste profile will be prepared and submitted to the waste disposal company (e.g. Waste Management, Inc.) to obtain approval for disposal at an appropriate waste facility (e.g., regulated landfill). Once approved, load the petroleum-contaminated soil and any plastic sheeting onto NYSDEC Part 364 permitted trucks or trailers, and transport the material to the approved waste disposal facility for disposal.

As an option, waste characterization samples can be collected and analyzed and waste profiling can be approved for a designated waste disposal facility (e.g., regulated landfill) prior to excavation so that the material can be direct-loaded onto NYSDEC Part 364 permitted trucks and transported to the designated waste disposal facility for disposal.

The NYSDEC must be notified if displaced soil is being considered for on-site or off-site re-use. In this case, the NYSDEC may require additional sampling and analytical laboratory testing of petroleum-impacted soil, and the re-use options will depend on the test results. If soil is to be re-used, its geotechnical properties should also be considered. Potential outcomes include, but may not be limited to, the following:

- With approval from the NYSDEC, displaced soil that does not exceed 6 NYCRR Part 375 Unrestricted Use SCOs or NYSDEC CP-51 SCLs may be re-used on-Site or re-used off-Site.
- With approval from the NYSDEC, soil that exceeds 6 NYCRR Part 375 Unrestricted Use SCOs, or NYSDEC CP-51 SCLs may be allowed to be re-used on-site at depths greater than four feet bgs.

5.1.5 Analytical Testing

Confirmatory samples will be obtained for analysis in accordance with the requirements set forth in DER-10. The analytical sampling format for petroleum impacted soil excavation(s) will conform to Sections 5.4(a)2 and 5.4(a)2(iii) of the NYSDEC Draft DER-10 of which the following sample schemes are referenced:

- *Section 5.4(a)2- " For subsurface spills, one sample from the bottom of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area."*

- *Section 5.4(a)2(iii)- "for larger excavations, sampling frequency may be reduced if documentation acceptable to the DER is provided in the remedial action report, in accordance with 5.8, specifying why the sample frequency was considered adequate."*

Confirmatory soil or groundwater (if encountered) samples, and any additional soil samples collected from removal areas, will be analyzed for TCL parameters for VOCs EPA Method 8260 and for SVOCs by EPA Method 8270. Confirmatory samples collected from removal areas that exhibited elevated detections for certain RCRA metals will only be analyzed for those metals by EPA Methods 6010/7470/7471.

Soil analytical results will be evaluated against NYSDEC criteria presented in 6 NYCRR Part 375 Environmental Remediation Programs SCOs for Commercial Use.

A representative sample of groundwater pumped from the excavation will also be collected for laboratory analyses as required by either MCPW or if applicable the disposal facility. The analysis will be at the cost of the Contractor. If untreated groundwater is to be disposed of off-Site, the number of samples to be collected and the laboratory analyses to be performed will be dependent on the criteria required by the disposal facility.

Specific soil sampling procedures to be followed for confirmatory soil samples and any additional soil samples collected from removal areas include the following:

1) A discrete soil sample will be collected by advancing the bucket of the excavator to a pre-determined depth, based on conditions found at each location. Confirmatory soil samples from the bucket with a new pair of disposable gloves will be collected.

2) Sample container labels will be include sample location, sample depth, sampler's initials, date and time. The client, project name, Site location, matrix, sample type (grab/composite) and laboratory analysis to be performed will also be recorded on the sample label.

3) Immediately upon collecting soil samples, they will be put directly into pre-cleaned glass jars, and the jars will be sealed. Sealed samples will immediately be stored on ice in a pre-chilled cooler. Sampling personnel will wear a new pair of disposable gloves for each sample interval retrieved. A portion of the remaining soil will be placed in a new plastic Ziploc® bag, not more than one-half full, and sealed. This bagged sample will be screened for headspace analysis of VOCs using a PID meter and the readings will be recorded.

4) Soil samples and associated locations, detected PID readings, and headspace readings will be logged in the field book as they are collected.

5) Sampling equipment will be decontaminated as necessary and as outlined in Section 8.0.

Analytical samples will be delivered to Paradigm Environmental or another appropriately qualified laboratory at the end of each work day, as applicable. Once analytical data results are provided by the laboratory, results will be tabulate and distributed to the project stakeholders during the appropriate summary report submittals.

5.2 Former UST Location (Spill #1811925)

Based on the proposed firehouse upgrades, contaminated soils are not expected to be encountered during construction. It is anticipated that impacted soil associated with the former UST (Spill #1811925) will be delineated and characterized in a supplemental subsurface investigation at a later date. Findings from the investigation will determine the nature and extent of soil requiring localized removal for off-Site disposal. Soil will also be waste characterized in accordance to the approved receiving facility's requirements during this investigation.

On-Site environmental monitoring during soil removal within the former UST location and over-excavation to clean soil will be required. A qualified environmental scientist will regularly screen soils by visually examining for evidence of soil impacts (e.g. staining and odors) and screening with a PID. Soils exhibiting elevated PID readings in exceedance of 20 ppm as well as soils exhibiting petroleum odor will be staged on 6-mil polyethylene sheeting in a designated on-Site location for off-Site disposal or live-loaded onto NYSDEC Part 364 permitted trucks for an approved landfill. Live-loading is preferred, however, If impacted soils require overnight on-Site storage, stockpiles will be covered and secured with 6-mil polyethylene sheeting and shored with either hay bales or equivalent to prevent migration and/or infiltration during rain events. Clean soil, exhibiting no odor and PID readings less than 20 ppm, will be staged for on-Site backfill purposes. It is noted that subsurface materials will be observed for potential asbestos containing material (PACM) during excavation. If PACM is encountered, procedures outlined in 5.5 will be followed.

Confirmatory samples will be required for post-removal activities, prior to backfilling with clean fill material. Confirmatory soil samples will be collected from excavation sidewalls and the bottom in accordance with the NYSDEC CP-51 and the NYSDEC DER-10. A Spill Closure Report will be prepared and submitted to the NYSDEC for review and closure.

Future redevelopment may require excavation of areas where residual BTEX concentrations (petroleum-related constituents) remain. If residual impacts are encountered during future Site upgrades, it is recommended that they be handled and/or tested by a qualified environmental professional in accordance with applicable regulatory criteria.

5.3 Unknown Soil Impacts

The City will be responsible for remediation and/or disposal if additional impacted subsurface material is encountered at the Site. Soils will be sampled to determine contaminant concentration levels and whether localized removal is necessary based on predetermined Use SCOs. If a petroleum spill associated with an unknown storage tank is encountered, a call will be placed immediately to the NYSDEC Spill Hotline and the spill will be remediated and closed in accordance with 6 NYCRR Part 613-6.

If abandoned petroleum storage tanks are encountered during intrusive Site activities, removal will be completed in accordance with 6 NYCRR Part 613. Tank decommissioning procedures will occur following 6 NYCRR Subpart 613-3.5 and NSYDEC Permanent Closure of Storage Tanks Memorandum, Modified December 3, 2003. Appropriate decommissioning and disposal documentation will be presented in the final report.

Confirmatory samples will be required for post-removal activities, prior to backfilling with clean fill material. Confirmatory soil samples will be collected from excavation sidewalls and the bottom in accordance with the NYSDEC CP-51 and the NYSDEC DER-10.

5.4 Groundwater

If groundwater is encountered during subsurface soil removal, it will be pumped into on-Site storage drums or holding tanks and sampled in accordance with requirements for obtaining a temporary discharge permit from MCPW.

Groundwater characterization analytical results will determine whether:

- Temporary sewer discharge is approved by the County;
- Pre-treatment will be required prior to approved temporary discharge; or
- Off-Site disposal will need to be coordinated.

Groundwater sampling, discharge permitting, and/or off-Site disposal will be coordinated as directed by City DEQ.

5.5 Management of Asbestos-Containing Materials

During subsurface soil removal, potential exists for ACM (PACM) to be unearthed. A NYSDOL certified asbestos building inspector will be available during urban fill removal to sample PACM. If PACM is encountered, stop work will be issued for the immediate area, a building inspector will collected samples and submit to a NYSDOH ELAP-certified laboratory for immediate turnaround time. If analytical results indicate the presence of ACM, a variance will be applied and submitted to the NYSDOL in order for the soil removal work to resume. ACM will be sampled and removed pursuant to applicable regulations outlined in Section 4.5.

6.0 Equipment Decontamination

Field construction equipment coming into contact with impacted Site soils will require decontamination prior to leaving the Site. The Construction Contractor will construct a temporary decontamination pad to ensure trucks and construction vehicles involved in intrusive activities are properly decontaminated prior to Site egress or continuing work on another portion of the Site. Construction or waste hauling vehicles will be decontaminated by at least one (1) of the following methods:

- Brush cleaned of any loose dirt or debris;
- Steam cleaning within the dedicated decontamination area; or
- Spray with compressed air removing on-Site debris within the dedicated decontamination area.

Re-usable sampling equipment will be washed with a mixture of water and Alconox or equivalent soap, rinsed with ionized or distilled water then air or paper towel dried.

7.0 Health and Safety Plan

The Site owner (currently the City) is responsible for ensuring that Site workers involved with intrusive activities (e.g., excavation, dewatering, etc.) are aware of potential chemical exposures that may be present in subsurface media at the Site. This SMP should be provided to Site workers for review. The Site owner will discuss with Site workers the proper identification, handling, and disposal methods described herein and will caution Site workers to avoid or minimize disturbance of impacted material in order to reduce or eliminate exposure to contaminants. Areas that have been disturbed (e.g., excavated, etc.) that contain petroleum-impacted material should be restored (e.g., backfilled/covered with clean soil/fill cover, paved, etc.).

The entity conducting intrusive activities (e.g., excavation, dewatering, etc.) having or with potential to disturb petroleum-contaminated media must conduct its work in accordance with a

DEQ-approved Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP). The entity can implement the attached HASP, included as an Appendix of this document or develop and implement its own HASP, which must first be accepted by City DEQ.

8.0 Community Air Monitoring Plan

Air monitoring of the work areas will be conducted using the following (or equivalent) instrumentation:

- An aerosol particulate meter (Dust Trak or equivalent)
- A PID equipped with a 10.2 eV lamp (or equivalent)

A CAMP will be followed during intrusive Site activities. The CAMP for Site work is attached as Appendix C.

9.0 Quality Assurance/Quality Control

As part of this SMP, QA/QC protocol and procedures have been developed and are described below. The objective of the QA/QC protocol and procedures is to ensure that the information, data, and decisions associated with this project are technically sound and properly documented. The QA/QC protocol and procedures also pertain to the collection, evaluation, and review of activities and data that are part of this project.

9.1 Operation and Calibration of On-Site Monitoring Equipment

On-Site monitoring equipment will determine the appropriate personal protective equipment (PPE) as noted in the HASP. On-Site monitoring equipment includes VOC monitors, particulate monitors, and global position system (GPS). Operation and calibration of on-Site monitoring equipment that are anticipated for use during Site work are discussed below.

9.1.1 VOC Monitoring Equipment

Real-time monitoring for VOCs will be conducted to evaluate the nature and extent of petroleum and/or chlorinated solvents (if encountered) at the Site and to determine the appropriate personal protective equipment as noted in the HASP. The primary field instrument for monitoring VOCs during the Site Redevelopment will be a photoionization detector (PID). It is anticipated that a Minirae 3000 PID (or equivalent) equipped with a 10.6 eV lamp will be used during this project. An accredited firm/testing laboratory will calibrate the equipment on a yearly basis. During fieldwork, the PID will be calibrated on a daily basis in accordance with the manufacturer's specifications. Isobutylene gas will be used to calibrate the PID prior to use and as necessary during fieldwork. Measurements will be collected and logged in the project field book before operations begin in an area to determine the amount of VOCs naturally occurring in the air (e.g., background concentrations).

9.1.2 Particulate Monitoring Equipment

Particulate monitoring will be conducted during intrusive activities as noted in the CAMP. It is anticipated that the particulate air monitoring will be conducted using a real-time aerosol monitor (RTAM) particulate meter (Dust Trak or equivalent). An accredited firm/testing laboratory will calibrate the equipment on a yearly basis. During fieldwork, the particulate meter will be regularly calibrated in accordance with the manufacturer's specifications. Measurements will be collected along the upwind perimeter of the intrusive investigation activities to

determine the amount of particulates naturally occurring in the air (e.g., background concentrations) as per the requirements of the CAMP.

9.1.3 Global Positioning System Equipment

A GPS unit will be used to obtain the precise locations of sampling points and significant Site features if feasible based on tree cover and other features. It is anticipated that a Trimble Geo7X will be used during this project. The GPS location accuracy of approximately less than 1 horizontal foot is the GPS data quality objective for this project. The GPS unit will be calibrated as needed in accordance with the manufacturer's specifications. The GPS location data will conform to Rochester's GIS coordinate system (NAD 1983 State Plane New York West) to match data gathered during the Removal Area and associated impacted material removal activities and adjacent features that may affect potential migration, if applicable, such as underground utilities.

10.0 Engineering Controls

Prior to construction of new enclosed structures (e.g., buildings) on the Site, the potential for soil vapor intrusion (SVI) must be evaluated and potential SVI impacts that are identified must be mitigated. Mitigation measures may include, but are not limited to, the use of engineering controls such as a vapor barrier and sub-slab depressurization system (SSDS). Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York" and construction details of planned enclosed structures. The City and the NYSDEC must be notified and consulted to approve SVI evaluation and mitigation measures associated with planned enclosed structures.

11.0 Institutional Controls

As an institutional control (IC), the Site will be flagged in the City Building Information System (BIS), which requires the City DEQ to be consulted prior to issuing permits for those properties. This IC would ensure that environmental conditions at the Site are evaluated prior to planned construction. If a permit is approved that has the potential to result in encountering impacted material, City DEQ will notify the involved parties of the environmental conditions at the Site and provide a copy of this SMP. Work will be required to be completed in accordance with the SMP.

Chapter 59 (Health and Sanitation), Article III (Nuisances and Sanitation) § 59-27 (Water Supply) of the current Charter and Code of the City of Rochester, New York states:

A. No person shall use for drinking purposes, or in the preparation of food intended for human consumption, any water except the potable water supply authorized for public use by the City of Rochester; and

B. Other water supplies, wells or springs used for cooling and washing purposes only, where food is prepared or sold for human consumption, shall be tested and approved by the Monroe County Health Director. All auxiliary water supplies used for commercial or industrial use shall have all hydrants and faucets conspicuously posted indicating that

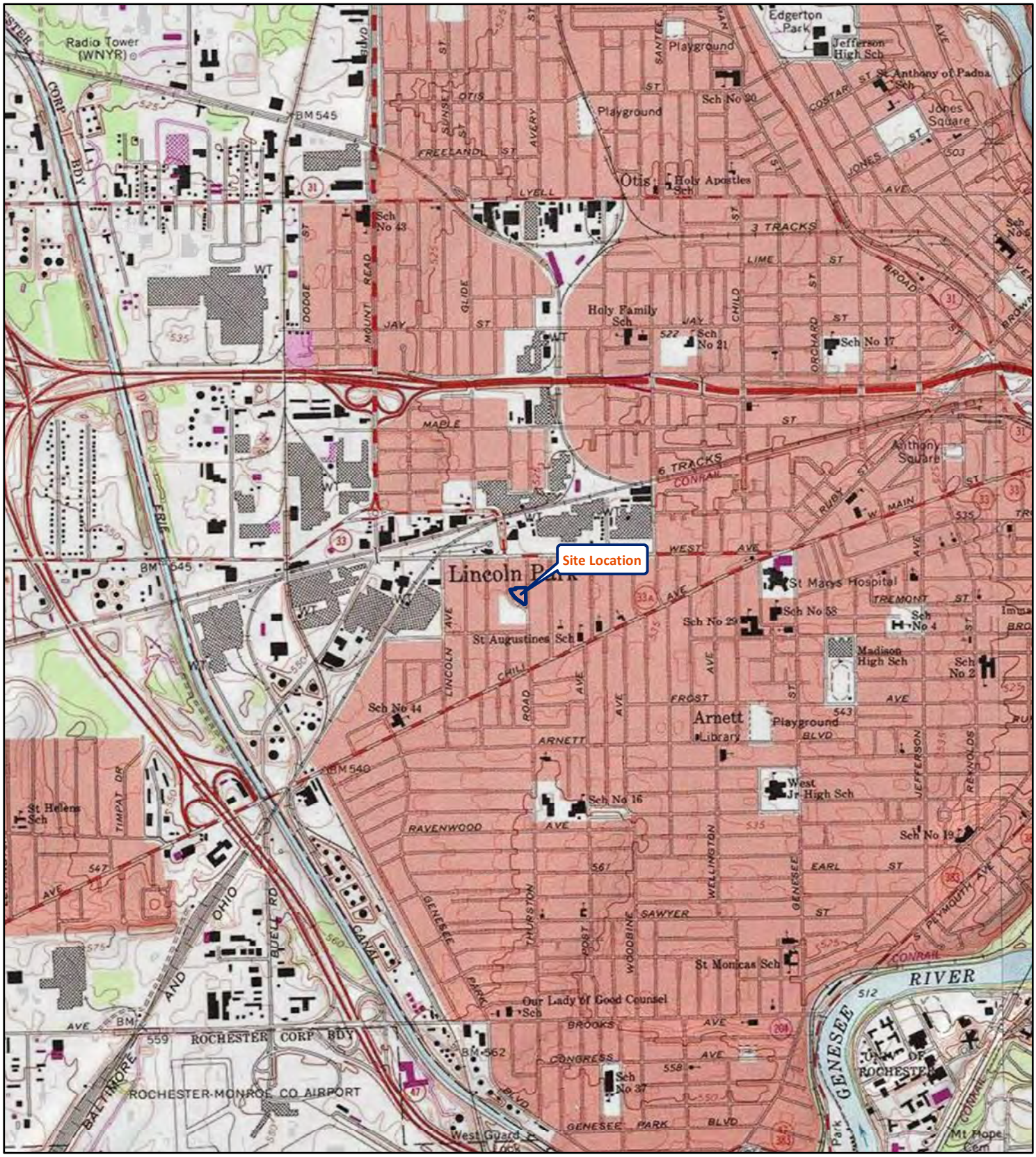
> such water is not for drinking use, and such water supplies shall not be cross-connected or interconnected with the public water supply."

This City Code has been interpreted to represent an IC that prohibits groundwater within the City limits, including the Site, from being used as a source of potable water.

12.0 Reporting

Upon completion of soil removal activities, a report will be developed that will document subsurface soil removal and/or remedial activities throughout the duration of Site upgrades. Analytical results, appropriate disposal information and documentation, applicable photographic documentation, field logs and notes, and finalized mapping will be included the final report. In addition, upon project completion, this SMP will be revised to address potential remaining impacts at the Site that may be encountered during any future Site development or subsurface disturbances.

Figures



Scale 1:24,000

Contour Interval: 5 feet

1,000 0 1,000 2,000 3,000 4,000

Feet

N

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Figure 1. Site Location Plan
City of Rochester
57 Gardiner Avenue, Rochester, NY
Monroe County

FLOUR CITY-FLOWER CITY-CITY OF ROCHESTER, NY

DATE: March 2019
PROJECT #:
DRAWN/CHECKED: BGS/LG
DATA SOURCE: ESRI ArcGIS Online Basemap

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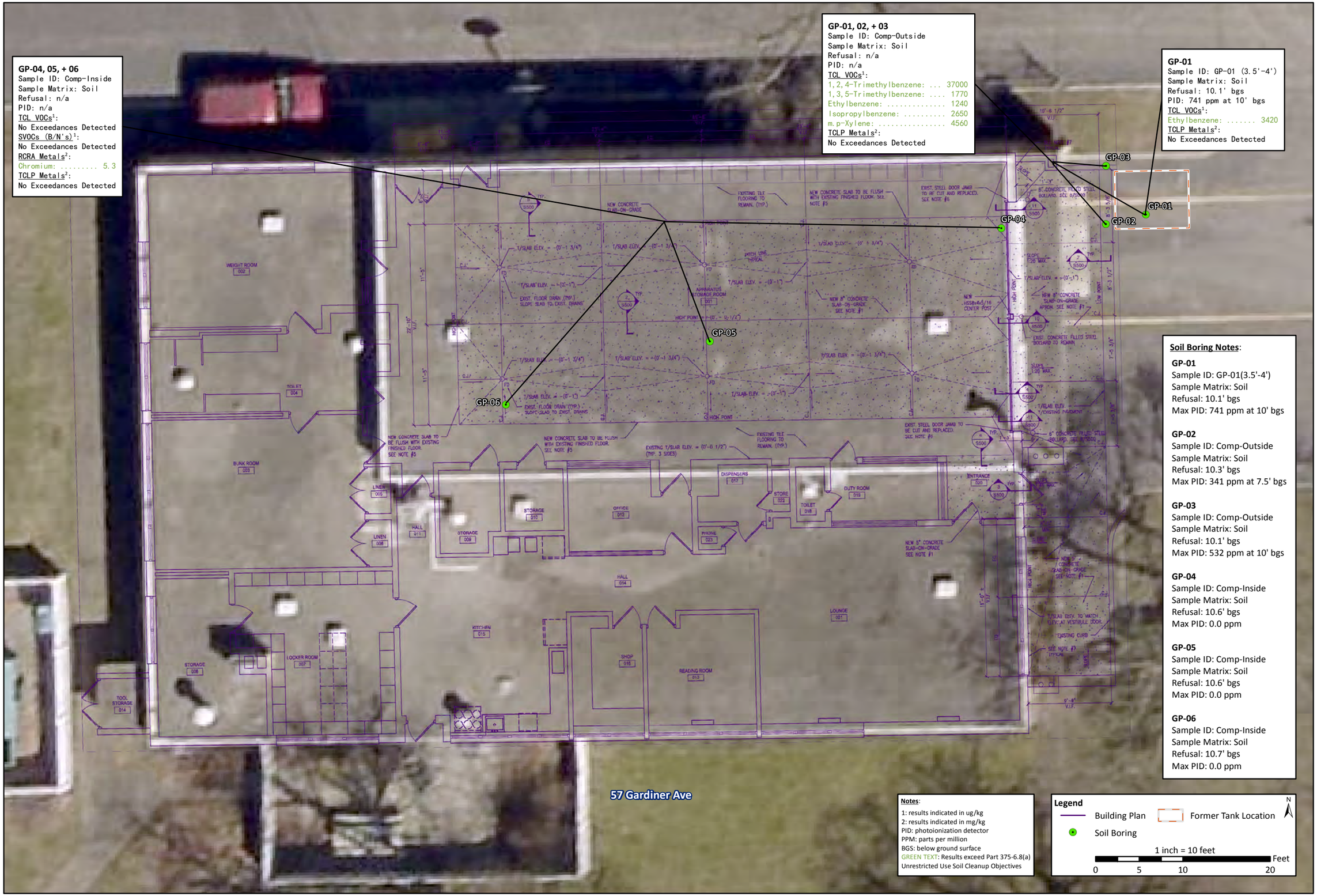
Figure 2. Site Layout Plan
City of Rochester
57 Gardiner Avenue, Rochester, NY
Monroe County

DATE: March 2019
Project Number:
DRAWN/CHECKED: BGS/LG
DATA SOURCE: NYS GIS Clearinghouse Pictometry, Client Provided Data



DATE: March 2019

Project Number:

DRAWN/CHECKED: BGS/LG

DATA SOURCE: NYS GIS Clearinghouse Pictometry, Client Provided Data

Figure 3. Soil Sample Analytical Results
City of Rochester
57 Gardiner Avenue, Rochester, NY
Monroe County

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Tables

City of Rochester
57 Gardiner Avenue
Limited Subsurface Investigation
March 2019

Table 1: Subsurface Soil VOC/SVOC Results

					57 Gardiner Avenue		
Detected Parameters[1]	**Unrestricted Use[2]**	**Residential Use[3]**	**Restricted-Residential Use[3]**	**Commercial Use[3]**	**GP-01 (3.5'-4')**	**Comp-Ouside**	**Comp-Inside**
Sample Date:					**3/1/2019**	**3/1/2019**	**3/1/2019**
EPA 8260 - TCL Volatile Organics							
1,1,1-Trichloroethane	6,800	100,000	100,000	500,000	<123	<123	<8.05
1,1,2,2-Tetrachloroethane	-	-	-	-	<123	<123	<8.05
1,1,2-Trichloroethane	-	-	-	-	<123	<123	<8.05
1,1-Dichloroethane	2,700	19,000	26,000	240,000	<123	<123	<8.05
1,1-Dichloroethene	330	100,000	100,000	500,000	<123	<123	<8.05
1,2,3-Trichlorobenzene	-	-	-	-	<123	<123	<8.05
1,2,4-Trimethylbenzene	3,600	47,000	52,000	190,000	<123	**37,000**	<20.1
1,3,5-Trimethylbenzene	8,400	47,000	52,000	190,000	<123	**1,770**	<20.1
1,2-Dibromo-3-Chloropropane	-	-	-	-	<123	<123	<8.05
1,2-Dibromoethane	-	-	-	-	<123	<123	<8.05
Dichlorodifluoromethane	-	-	-	-	<123	<123	<8.05
Ethylbenzene	1,000	30,000	41,000	390,000	**3,420**	**1,240**	<8.05
Freon 113	-	-	-	-	<123	<123	<8.05
Isopropylbenzene	-	-	-	-	**1,460**	**2,650**	<8.05
m,p-Xylene	-	-	-	-	**9,100**	**4,560**	<8.05
Methyl acetate				-	<123	<123	<8.05
Methyl tert-butyl Ether	930	62,000	100,000	500,000	<123	<123	<8.05
Methylcyclohexane	-	-	-	-	**146**	<123	<8.05
Methylene chloride	50	51,000	100,000	500,000	<308	<123	<8.05
Naphthalene	12,000	100,000	100,000	500,000	<123	**3,280**	<8.05
n-Butylbenzene	12,000	-	-	-	<123	**9,940**	<8.05
n-Propylbenzene	3,900	100,000	100,000	500,000	<123	**12,900**	<8.05
o-Xylene	-	-	-	-	**808**	<123	<8.05
p-Isopropyltoluene	-	-	-	-	<308	**1,630**	<8.05
sec-Butylbenzene	11,000	100,000	100,000	500,000	<123	**2,920**	<8.05
tert-Butylbenzene	5,900	-	-	-	<123	<123	<8.05
Styrene	-	-	-	-	<308	<308	<8.05
Tetrachloroethene	1,300	5,500	19,000	150,000	<123	<123	<8.05
Toluene	700	100,000	100,000	500,000	<123	<123	<8.05
trans-1,2-Dichloroethene	190	100,000	100,000	500,000	<123	<123	<8.05
trans-1,3-Dichloropropene	-	-	-	-	<123	<123	<8.05
Trichloroethene	470	10,000	21,000	150,000	<123	<123	<8.05
Trichloroethene	-	-	-	-	<123	<123	<8.05
Trichlorofluoromethane	-	-	-	-	<123	<123	<8.05
Vinyl Chloride	20	210	900	130,000	<123	<123	<20.1
EPA 8270 - Semi-Volatile Organics (B/Ns)							
2-Methylnapthalene	-	-	-	-	NA	NA	<325
Acenaphthene	20,000	100,000	100,000	500,000	NA	NA	<325
Anthracene	100,000	100,000	100,000	500,000	NA	NA	<325
Benzaldehyde	-	-	-	-	NA	NA	<325
Benzo(a)anthracene	1,000	1,000	1,000	5,600	NA	NA	<325
Benzo(a)pyrene	1,000	1,000	1,000	1,000	NA	NA	<325
Benzo(b)fluoranthene	1,000	1,000	1,000	5,600	NA	NA	<325
Benzo(g,h,i)perylene	100,000	100,000	100,000	500,000	NA	NA	<325
Benzo(k)fluoranthene	800	1,000	3,900	5,600	NA	NA	<325
Bis(2-ethylhexyl) phthalate	-	-	-	-	NA	NA	<325
Carbozole	-	-	-	-	NA	NA	<325
Chrysene	1,000	1,000	3,900	56,000	NA	NA	<325
Dibenzo(a,h)anthracene	330	330	330	560	NA	NA	<325
Dibenzofuran	7,000	14,000	59,000	350,000	NA	NA	<325
Fluoranthene	100,000	100,000	100,000	500,000	NA	NA	<325
Fluorene	30,000	100,000	100,000	500,000	NA	NA	<325
Indeno(1,2,3-cd)pyrene	500	500	500	5,600	NA	NA	<325
Isophorone	-	-	-	-	NA	NA	<325
Naphthalene	12,000	100,000	100,000	500,000	NA	NA	<325
Phenanthrene	100,000	100,000	100,000	500,000	NA	NA	<325
Phenol	330	100,000	100,000	500,000	NA	NA	<325
Pyrene	100,000	100,000	100,000	500,000	NA	NA	<325

1 - All values presented in micrograms per kilogram (ug/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-Residential Use Soil Cleanup Objectives
ND- Not detected above reporting limit
J- value is estimated
D- Sample results above relative percent difference limit
Value Exceeds Unrestricted SCOs
Value Exceeds Residential Use SCOs
Value Exceeds Restricted-Residential Use SCOs

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City of Rochestesr
57 Gardiner Avenue
Limited Subsurface Investigation
March 2019

Table 2: Subsurface Soil Metals, TCLP Lead, PCBs and Flashpoint Results

					57 Gardiner Avenue		
Detected Parameters	**Unrestricted Use[2]**	**Residential Use[3]**	**Restricted Residential Use[3]**	**Commercial Use[3]**	**GP-01 (3.5'-4')**	**Comp-Outside**	**Comp-Inside**
Sample Date:					**3/1/2019**	**3/1/2019**	**3/1/2019**
RCRA Metals[1]							
Arsenic	13	16	16	16	NA	NA	**2.05**
Barium	350	350	400	400	NA	NA	**19.4**
Cadmium	2.5	2.5	4.3	9.3	NA	NA	<0.269
Chromium	1	36	180	1500	NA	NA	**5.3**
Lead	63	400	400	1,000	NA	NA	**1.95**
Mercury	0.18	0.81	0.81	2.8	NA	NA	**<0.00908**
Selenium	3.9	36	180	1,500	NA	NA	<1.08
Silver	2	36	180	1,500	NA	NA	<0.538
TCLP Metals[4]	**Regulatory Limit**						
Lead	5				<0.500	<0.500	<0.500
Flash Point, Celsius	NA						>70.0
EPA-8081 PCBs[1]							
PCB-1016	0.1	1	1	1	NA	NA	<0.174
PCB-1221	0.1	1	1	1	NA	NA	<0.174
PCB-1232	0.1	1	1	1	NA	NA	<0.174
PCB-1248	0.1	1	1	1	NA	NA	<0.174
PCB-1254	0.1	1	1	1	NA	NA	<0.174
PCB-1260	0.1	1	1	1	NA	NA	<0.174
PCB-1262	0.1	1	1	1	NA	NA	<0.174
PCB-1268	0.1	1	1	1	NA	NA	<0.174

1- All values for metals and PCBs 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-Residential Use Soil Cleanup Objectives
4- mg/L
ND- Not detected above reporting limit
J- value is estimated
NA- Not Analyzed
Value Exceeds Unrestricted SCOs
Value Exceeds Residential Use SCOs
Value Exceeds Restricted-Residential Use SCOs

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PARADIGM

PARADIGM
ENVIRONMENTAL SERVICES, INC

Analytical Report For

Lu Engineers, Inc.

For Lab Project ID

190838

Referencing

Gardiner Avenue

Prepared

Friday, March 8, 2019

Any noncompliant QC parameters or other notes impacting data interpretation are flagged or documented on the final report or are noted below.

Certifies that this report has been approved by the Technical Director or Designee

179 Lake Avenue • Rochester, NY 14608 • (585) 647-2530 • Fax (585) 647-3311 • ELAP ID# 10958

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 190838

Client: **Lu Engineers, Inc.**

Project Reference: Gardiner Avenue

Sample Identifier: GP-01 (3.5'-4')
Lab Sample ID: 190838-01 **Date Sampled:** 3/1/2019
Matrix: Soil **Date Received:** 3/1/2019

Volatile Organics

Analyte	Result	Units	Qualifier	Date Analyzed
1,1,1-Trichloroethane	< 123	ug/Kg		3/5/2019 15:19
1,1,2,2-Tetrachloroethane	< 123	ug/Kg		3/5/2019 15:19
1,1,2-Trichloroethane	< 123	ug/Kg		3/5/2019 15:19
1,1-Dichloroethane	< 123	ug/Kg		3/5/2019 15:19
1,1-Dichloroethene	< 123	ug/Kg		3/5/2019 15:19
1,2,3-Trichlorobenzene	< 308	ug/Kg		3/5/2019 15:19
1,2,4-Trichlorobenzene	< 308	ug/Kg		3/5/2019 15:19
1,2-Dibromo-3-Chloropropane	< 615	ug/Kg		3/5/2019 15:19
1,2-Dibromoethane	< 123	ug/Kg		3/5/2019 15:19
1,2-Dichlorobenzene	< 123	ug/Kg		3/5/2019 15:19
1,2-Dichloroethane	< 123	ug/Kg		3/5/2019 15:19
1,2-Dichloropropane	< 123	ug/Kg		3/5/2019 15:19
1,3-Dichlorobenzene	< 123	ug/Kg		3/5/2019 15:19
1,4-Dichlorobenzene	< 123	ug/Kg		3/5/2019 15:19
1,4-Dioxane	< 1230	ug/Kg		3/5/2019 15:19
2-Butanone	< 615	ug/Kg		3/5/2019 15:19
2-Hexanone	< 308	ug/Kg		3/5/2019 15:19
4-Methyl-2-pentanone	< 308	ug/Kg		3/5/2019 15:19
Acetone	< 615	ug/Kg		3/5/2019 15:19
Benzene	< 123	ug/Kg		3/5/2019 15:19
Bromochloromethane	< 308	ug/Kg		3/5/2019 15:19
Bromodichloromethane	< 123	ug/Kg		3/5/2019 15:19
Bromoform	< 308	ug/Kg		3/5/2019 15:19
Bromomethane	< 123	ug/Kg		3/5/2019 15:19
Carbon disulfide	< 123	ug/Kg		3/5/2019 15:19
Carbon Tetrachloride	< 123	ug/Kg		3/5/2019 15:19
Chlorobenzene	< 123	ug/Kg		3/5/2019 15:19
Chloroethane	< 123	ug/Kg		3/5/2019 15:19
Chloroform	< 123	ug/Kg		3/5/2019 15:19

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 190838

Client: **Lu Engineers, Inc.**

Project Reference: Gardiner Avenue

Sample Identifier:	GP-01 (3.5'-4')		
Lab Sample ID:	190838-01	**Date Sampled:**	3/1/2019
Matrix:	Soil	**Date Received:**	3/1/2019

Chloromethane	< 123	ug/Kg	3/5/2019	15:19
cis-1,2-Dichloroethene	< 123	ug/Kg	3/5/2019	15:19
cis-1,3-Dichloropropene	< 123	ug/Kg	3/5/2019	15:19
Cyclohexane	< 615	ug/Kg	3/5/2019	15:19
Dibromochloromethane	< 123	ug/Kg	3/5/2019	15:19
Dichlorodifluoromethane	< 123	ug/Kg	3/5/2019	15:19
Ethylbenzene	**3420**	ug/Kg	3/5/2019	15:19
Freon 113	< 123	ug/Kg	3/5/2019	15:19
Isopropylbenzene	**1460**	ug/Kg	3/5/2019	15:19
m,p-Xylene	**9100**	ug/Kg	3/5/2019	15:19
Methyl acetate	< 123	ug/Kg	3/5/2019	15:19
Methyl tert-butyl Ether	< 123	ug/Kg	3/5/2019	15:19
Methylcyclohexane	**146**	ug/Kg	3/5/2019	15:19
Methylene chloride	< 308	ug/Kg	3/5/2019	15:19
o-Xylene	**808**	ug/Kg	3/5/2019	15:19
Styrene	< 308	ug/Kg	3/5/2019	15:19
Tetrachloroethene	< 123	ug/Kg	3/5/2019	15:19
Toluene	< 123	ug/Kg	3/5/2019	15:19
trans-1,2-Dichloroethene	< 123	ug/Kg	3/5/2019	15:19
trans-1,3-Dichloropropene	< 123	ug/Kg	3/5/2019	15:19
Trichloroethene	< 123	ug/Kg	3/5/2019	15:19
Trichlorofluoromethane	< 123	ug/Kg	3/5/2019	15:19
Vinyl chloride	< 123	ug/Kg	3/5/2019	15:19

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 190838

Client: **Lu Engineers, Inc.**

Project Reference: Gardiner Avenue

Sample Identifier: GP-01 (3.5'-4')
Lab Sample ID: 190838-01 **Date Sampled:** 3/1/2019
Matrix: Soil **Date Received:** 3/1/2019

Surrogate	Percent Recovery	Limits	Outliers	Date Analyzed	
1,2-Dichloroethane-d4	**108**	75 - 132		3/5/2019	15:19
4-Bromofluorobenzene	**111**	70.2 - 120		3/5/2019	15:19
Pentafluorobenzene	**95.1**	86.1 - 109		3/5/2019	15:19
Toluene-D8	**104**	83.2 - 113		3/5/2019	15:19

Method Reference(s): EPA 8260C
EPA 5035A - L
Data File: x59048.D

This sample was not collected following SW846 5035A specifications. Accordingly, any Volatiles soil results that are less than 200 ug/Kg, including Non Detects, may be biased low, per ELAP method 5035 guidance document from 11/15/2012.

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 190838

Client: **Lu Engineers, Inc.**

Project Reference: Gardiner Avenue

Sample Identifier:	GP-01 (3.5'-4')		
Lab Sample ID:	190838-01A	**Date Sampled:**	3/1/2019
Matrix:	TCLP Extract	**Date Received:**	3/1/2019

TCLP Metals (ICP)

Analyte	Result	Units	Regulatory Limit	Qualifier	Date Analyzed
Lead	< 0.500	mg/L	5		3/6/2019 17:44

Method Reference(s): EPA 6010C
EPA 1311 / 3005A
Preparation Date: 3/6/2019
Data File: 190306B

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 190838

Client: **Lu Engineers, Inc.**

Project Reference: Gardiner Avenue

Sample Identifier:	Comp-Outside		
Lab Sample ID:	190838-02	**Date Sampled:**	3/1/2019
Matrix:	Soil	**Date Received:**	3/1/2019

Volatile Organics (Petroleum)

Analyte	Result	Units	Qualifier	Date Analyzed
1,2,4-Trimethylbenzene	**37000**	ug/Kg		3/4/2019 18:51
1,3,5-Trimethylbenzene	**1770**	ug/Kg		3/4/2019 18:51
Benzene	< 769	ug/Kg		3/4/2019 18:51
Ethylbenzene	**1240**	ug/Kg		3/4/2019 18:51
Isopropylbenzene	**2650**	ug/Kg		3/4/2019 18:51
m,p-Xylene	**4560**	ug/Kg		3/4/2019 18:51
Methyl tert-butyl Ether	< 769	ug/Kg		3/4/2019 18:51
Naphthalene	**3280**	ug/Kg		3/4/2019 18:51
n-Butylbenzene	**9940**	ug/Kg		3/4/2019 18:51
n-Propylbenzene	**12900**	ug/Kg		3/4/2019 18:51
o-Xylene	< 769	ug/Kg		3/4/2019 18:51
p-Isopropyltoluene	**1630**	ug/Kg		3/4/2019 18:51
sec-Butylbenzene	**2920**	ug/Kg		3/4/2019 18:51
tert-Butylbenzene	< 769	ug/Kg		3/4/2019 18:51
Toluene	< 769	ug/Kg		3/4/2019 18:51

Surrogate	Percent Recovery	Limits	Outliers	Date Analyzed
1,2-Dichloroethane-d4	**99.1**	75 - 132		3/4/2019 18:51
4-Bromofluorobenzene	**108**	70.2 - 120		3/4/2019 18:51
Pentafluorobenzene	**101**	86.1 - 109		3/4/2019 18:51
Toluene-D8	**107**	83.2 - 113		3/4/2019 18:51

Method Reference(s): EPA 8260C
EPA 5035A -- H

Data File: x59028.D

This sample was not collected following SW846 5035A specifications. Accordingly, any Volatiles soil results that are less than 200 ug/Kg, including Non Detects, may be biased low, per ELAP method 5035 guidance document from 11/15/2012.

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 190838

Client: **Lu Engineers, Inc.**

Project Reference: Gardiner Avenue

Sample Identifier:	Comp-Outside		
Lab Sample ID:	190838-02A	**Date Sampled:**	3/1/2019
Matrix:	TCLP Extract	**Date Received:**	3/1/2019

TCLP Metals (ICP)

Analyte	Result	Units	Regulatory Limit	Qualifier	Date Analyzed
Lead	< 0.500	mg/L	5		3/6/2019 17:49

Method Reference(s): EPA 6010C
EPA 1311 / 3005A
Preparation Date: 3/6/2019
Data File: 190306B

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 190838

Client: **Lu Engineers, Inc.**

Project Reference: Gardiner Avenue

Sample Identifier:	Comp-Inside		
Lab Sample ID:	190838-03	**Date Sampled:**	3/1/2019
Matrix:	Soil	**Date Received:**	3/1/2019

Flash Point

Analyte	Result	Units	Qualifier	Date Analyzed
Flash Point, Celsius	>70.0	C		3/6/2019

Method Reference(s): EPA 1010A

Mercury

Analyte	Result	Units	Qualifier	Date Analyzed
Mercury	< 0.00908	mg/Kg		3/7/2019 15:47

Method Reference(s): EPA 7471B
Preparation Date: 3/7/2019
Data File: Hg190307B

RCRA Metals (ICP)

Analyte	Result	Units	Qualifier	Date Analyzed
Arsenic	**2.05**	mg/Kg		3/7/2019 13:06
Barium	**19.4**	mg/Kg		3/6/2019 20:02
Cadmium	< 0.269	mg/Kg		3/6/2019 20:02
Chromium	**5.30**	mg/Kg		3/6/2019 20:02
Lead	**1.95**	mg/Kg		3/6/2019 20:02
Selenium	< 1.08	mg/Kg		3/6/2019 20:02
Silver	< 0.538	mg/Kg		3/6/2019 20:02

Method Reference(s): EPA 6010C
EPA 3050B
Preparation Date: 3/5/2019
Data File: 190307B

PCBs

Analyte	Result	Units	Qualifier	Date Analyzed
PCB-1016	< 0.174	mg/Kg		3/5/2019 07:20
PCB-1221	< 0.174	mg/Kg		3/5/2019 07:20
PCB-1232	< 0.174	mg/Kg		3/5/2019 07:20
PCB-1242	< 0.174	mg/Kg		3/5/2019 07:20
PCB-1248	< 0.174	mg/Kg		3/5/2019 07:20

Client: **Lu Engineers, Inc.**

Project Reference: Gardiner Avenue

Sample Identifier: Comp-Inside
Lab Sample ID: 190838-03 **Date Sampled:** 3/1/2019
Matrix: Soil **Date Received:** 3/1/2019

PCB-1254	< 0.174	mg/Kg		3/5/2019 07:20
PCB-1260	< 0.174	mg/Kg		3/5/2019 07:20
PCB-1262	< 0.174	mg/Kg		3/5/2019 07:20
PCB-1268	< 0.174	mg/Kg		3/5/2019 07:20

Surrogate	Percent Recovery	Limits	Outliers	Date Analyzed
Tetrachloro-m-xylene	**88.8**	18 - 103		3/5/2019 07:20

Method Reference(s): EPA 8082A
EPA 3546
Preparation Date: 3/4/2019

Semi-Volatile Organics (Acid/Base Neutrals)

Analyte	Result	Units	Qualifier	Date Analyzed
1,1-Biphenyl	< 325	ug/Kg		3/4/2019 19:13
1,2,4,5-Tetrachlorobenzene	< 325	ug/Kg		3/4/2019 19:13
1,2,4-Trichlorobenzene	< 325	ug/Kg		3/4/2019 19:13
1,2-Dichlorobenzene	< 325	ug/Kg		3/4/2019 19:13
1,3-Dichlorobenzene	< 325	ug/Kg		3/4/2019 19:13
1,4-Dichlorobenzene	< 325	ug/Kg		3/4/2019 19:13
2,2-Oxybis (1-chloropropane)	< 325	ug/Kg		3/4/2019 19:13
2,3,4,6-Tetrachlorophenol	< 325	ug/Kg		3/4/2019 19:13
2,4,5-Trichlorophenol	< 325	ug/Kg		3/4/2019 19:13
2,4,6-Trichlorophenol	< 325	ug/Kg		3/4/2019 19:13
2,4-Dichlorophenol	< 325	ug/Kg		3/4/2019 19:13
2,4-Dimethylphenol	< 325	ug/Kg		3/4/2019 19:13
2,4-Dinitrophenol	< 1300	ug/Kg		3/4/2019 19:13
2,4-Dinitrotoluene	< 325	ug/Kg		3/4/2019 19:13
2,6-Dinitrotoluene	< 325	ug/Kg		3/4/2019 19:13
2-Chloronaphthalene	< 325	ug/Kg		3/4/2019 19:13
2-Chlorophenol	< 325	ug/Kg		3/4/2019 19:13
2-Methylnapthalene	< 325	ug/Kg		3/4/2019 19:13
2-Methylphenol	< 325	ug/Kg		3/4/2019 19:13
2-Nitroaniline	< 325	ug/Kg		3/4/2019 19:13
2-Nitrophenol	< 325	ug/Kg		3/4/2019 19:13

PARADIGM ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 190838

Client: **Lu Engineers, Inc.**

Project Reference: Gardiner Avenue

Sample Identifier:	Comp-Inside		
Lab Sample ID:	190838-03	**Date Sampled:**	3/1/2019
Matrix:	Soil	**Date Received:**	3/1/2019

3&4-Methylphenol	< 325	ug/Kg	3/4/2019	19:13
3,3'-Dichlorobenzidine	< 325	ug/Kg	3/4/2019	19:13
3-Nitroaniline	< 325	ug/Kg	3/4/2019	19:13
4,6-Dinitro-2-methylphenol	< 435	ug/Kg	3/4/2019	19:13
4-Bromophenyl phenyl ether	< 325	ug/Kg	3/4/2019	19:13
4-Chloro-3-methylphenol	< 325	ug/Kg	3/4/2019	19:13
4-Chloroaniline	< 325	ug/Kg	3/4/2019	19:13
4-Chlorophenyl phenyl ether	< 325	ug/Kg	3/4/2019	19:13
4-Nitroaniline	< 325	ug/Kg	3/4/2019	19:13
4-Nitrophenol	< 325	ug/Kg	3/4/2019	19:13
Acenaphthene	< 325	ug/Kg	3/4/2019	19:13
Acenaphthylene	< 325	ug/Kg	3/4/2019	19:13
Acetophenone	< 325	ug/Kg	3/4/2019	19:13
Anthracene	< 325	ug/Kg	3/4/2019	19:13
Atrazine	< 325	ug/Kg	3/4/2019	19:13
Benzaldehyde	< 325	ug/Kg	3/4/2019	19:13
Benzo (a) anthracene	< 325	ug/Kg	3/4/2019	19:13
Benzo (a) pyrene	< 325	ug/Kg	3/4/2019	19:13
Benzo (b) fluoranthene	< 325	ug/Kg	3/4/2019	19:13
Benzo (g,h,i) perylene	< 325	ug/Kg	3/4/2019	19:13
Benzo (k) fluoranthene	< 325	ug/Kg	3/4/2019	19:13
Bis (2-chloroethoxy) methane	< 325	ug/Kg	3/4/2019	19:13
Bis (2-chloroethyl) ether	< 325	ug/Kg	3/4/2019	19:13
Bis (2-ethylhexyl) phthalate	< 325	ug/Kg	3/4/2019	19:13
Butylbenzylphthalate	< 325	ug/Kg	3/4/2019	19:13
Caprolactam	< 325	ug/Kg	3/4/2019	19:13
Carbazole	< 325	ug/Kg	3/4/2019	19:13
Chrysene	< 325	ug/Kg	3/4/2019	19:13
Dibenz (a,h) anthracene	< 325	ug/Kg	3/4/2019	19:13
Dibenzofuran	< 325	ug/Kg	3/4/2019	19:13
Diethyl phthalate	< 325	ug/Kg	3/4/2019	19:13
Dimethyl phthalate	< 325	ug/Kg	3/4/2019	19:13

Lab Project ID: 190838

Client: **Lu Engineers, Inc.**

Project Reference: Gardiner Avenue

Sample Identifier: Comp-Inside
Lab Sample ID: 190838-03 **Date Sampled:** 3/1/2019
Matrix: Soil **Date Received:** 3/1/2019

Di-n-butyl phthalate	< 325	ug/Kg	3/4/2019	19:13
Di-n-octylphthalate	< 325	ug/Kg	3/4/2019	19:13
Fluoranthene	< 325	ug/Kg	3/4/2019	19:13
Fluorene	< 325	ug/Kg	3/4/2019	19:13
Hexachlorobenzene	< 325	ug/Kg	3/4/2019	19:13
Hexachlorobutadiene	< 325	ug/Kg	3/4/2019	19:13
Hexachlorocyclopentadiene	< 1300	ug/Kg	3/4/2019	19:13
Hexachloroethane	< 325	ug/Kg	3/4/2019	19:13
Indeno (1,2,3-cd) pyrene	< 325	ug/Kg	3/4/2019	19:13
Isophorone	< 325	ug/Kg	3/4/2019	19:13
Naphthalene	< 325	ug/Kg	3/4/2019	19:13
Nitrobenzene	< 325	ug/Kg	3/4/2019	19:13
N-Nitroso-di-n-propylamine	< 325	ug/Kg	3/4/2019	19:13
N-Nitrosodiphenylamine	< 325	ug/Kg	3/4/2019	19:13
Pentachlorophenol	< 650	ug/Kg	3/4/2019	19:13
Phenanthrene	< 325	ug/Kg	3/4/2019	19:13
Phenol	< 325	ug/Kg	3/4/2019	19:13
Pyrene	< 325	ug/Kg	3/4/2019	19:13

Surrogate	Percent Recovery	Limits	Outliers	Date Analyzed	
2,4,6-Tribromophenol	**71.6**	31.6 - 97.7		3/4/2019	19:13
2-Fluorobiphenyl	**69.8**	32.3 - 86.7		3/4/2019	19:13
2-Fluorophenol	**72.6**	34.7 - 82.2		3/4/2019	19:13
Nitrobenzene-d5	**66.2**	28.6 - 81.3		3/4/2019	19:13
Phenol-d5	**71.6**	34.8 - 85.2		3/4/2019	19:13
Terphenyl-d14	**84.4**	37.3 - 102		3/4/2019	19:13

Method Reference(s): EPA 8270D
EPA 3546
Preparation Date: 3/4/2019
Data File: B36097.D

Volatile Organics

Analyte	Result	Units	Qualifier	Date Analyzed	
1,1,1-Trichloroethane	< 8.05	ug/Kg		3/4/2019	14:56

PARADIGM ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 190838

Client: **Lu Engineers, Inc.**

Project Reference: Gardiner Avenue

Sample Identifier:	Comp-Inside		
Lab Sample ID:	190838-03	**Date Sampled:**	3/1/2019
Matrix:	Soil	**Date Received:**	3/1/2019

1,1,2,2-Tetrachloroethane	< 8.05	ug/Kg	M, D	3/4/2019	14:56
1,1,2-Trichloroethane	< 8.05	ug/Kg		3/4/2019	14:56
1,1-Dichloroethane	< 8.05	ug/Kg		3/4/2019	14:56
1,1-Dichloroethene	< 8.05	ug/Kg		3/4/2019	14:56
1,2,3-Trichlorobenzene	< 20.1	ug/Kg		3/4/2019	14:56
1,2,4-Trichlorobenzene	< 20.1	ug/Kg		3/4/2019	14:56
1,2-Dibromo-3-Chloropropane	< 40.2	ug/Kg		3/4/2019	14:56
1,2-Dibromoethane	< 8.05	ug/Kg		3/4/2019	14:56
1,2-Dichlorobenzene	< 8.05	ug/Kg		3/4/2019	14:56
1,2-Dichloroethane	< 8.05	ug/Kg		3/4/2019	14:56
1,2-Dichloropropane	< 8.05	ug/Kg		3/4/2019	14:56
1,3-Dichlorobenzene	< 8.05	ug/Kg		3/4/2019	14:56
1,4-Dichlorobenzene	< 8.05	ug/Kg		3/4/2019	14:56
1,4-Dioxane	< 80.5	ug/Kg		3/4/2019	14:56
2-Butanone	< 40.2	ug/Kg		3/4/2019	14:56
2-Hexanone	< 20.1	ug/Kg		3/4/2019	14:56
4-Methyl-2-pentanone	< 20.1	ug/Kg		3/4/2019	14:56
Acetone	< 40.2	ug/Kg		3/4/2019	14:56
Benzene	< 8.05	ug/Kg		3/4/2019	14:56
Bromochloromethane	< 20.1	ug/Kg		3/4/2019	14:56
Bromodichloromethane	< 8.05	ug/Kg		3/4/2019	14:56
Bromoform	< 20.1	ug/Kg	M	3/4/2019	14:56
Bromomethane	< 8.05	ug/Kg		3/4/2019	14:56
Carbon disulfide	< 8.05	ug/Kg		3/4/2019	14:56
Carbon Tetrachloride	< 8.05	ug/Kg		3/4/2019	14:56
Chlorobenzene	< 8.05	ug/Kg		3/4/2019	14:56
Chloroethane	< 8.05	ug/Kg		3/4/2019	14:56
Chloroform	< 8.05	ug/Kg		3/4/2019	14:56
Chloromethane	< 8.05	ug/Kg		3/4/2019	14:56
cis-1,2-Dichloroethene	< 8.05	ug/Kg		3/4/2019	14:56
cis-1,3-Dichloropropene	< 8.05	ug/Kg		3/4/2019	14:56
Cyclohexane	< 40.2	ug/Kg		3/4/2019	14:56

PARADIGM ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 190838

Client: **Lu Engineers, Inc.**

Project Reference: Gardiner Avenue

Sample Identifier: Comp-Inside
Lab Sample ID: 190838-03 **Date Sampled:** 3/1/2019
Matrix: Soil **Date Received:** 3/1/2019

Dibromochloromethane	< 8.05	ug/Kg		3/4/2019	14:56
Dichlorodifluoromethane	< 8.05	ug/Kg		3/4/2019	14:56
Ethylbenzene	< 8.05	ug/Kg		3/4/2019	14:56
Freon 113	< 8.05	ug/Kg		3/4/2019	14:56
Isopropylbenzene	< 8.05	ug/Kg		3/4/2019	14:56
m,p-Xylene	< 8.05	ug/Kg		3/4/2019	14:56
Methyl acetate	< 8.05	ug/Kg		3/4/2019	14:56
Methyl tert-butyl Ether	< 8.05	ug/Kg		3/4/2019	14:56
Methylcyclohexane	< 8.05	ug/Kg		3/4/2019	14:56
Methylene chloride	< 20.1	ug/Kg		3/4/2019	14:56
o-Xylene	< 8.05	ug/Kg		3/4/2019	14:56
Styrene	< 20.1	ug/Kg		3/4/2019	14:56
Tetrachloroethene	< 8.05	ug/Kg	M	3/4/2019	14:56
Toluene	< 8.05	ug/Kg		3/4/2019	14:56
trans-1,2-Dichloroethene	< 8.05	ug/Kg		3/4/2019	14:56
trans-1,3-Dichloropropene	< 8.05	ug/Kg		3/4/2019	14:56
Trichloroethene	< 8.05	ug/Kg	M	3/4/2019	14:56
Trichlorofluoromethane	< 8.05	ug/Kg		3/4/2019	14:56
Vinyl chloride	< 8.05	ug/Kg		3/4/2019	14:56

Surrogate	Percent Recovery	Limits	Outliers	Date Analyzed	
1,2-Dichloroethane-d4	**113**	75 - 132		3/4/2019	14:56
4-Bromofluorobenzene	**86.5**	70.2 - 120		3/4/2019	14:56
Pentafluorobenzene	**92.0**	86.1 - 109		3/4/2019	14:56
Toluene-D8	**93.1**	83.2 - 113		3/4/2019	14:56

Method Reference(s): EPA 8260C
EPA 5035A - L

Data File: x59018.D

This sample was not collected following SW846 5035A specifications. Accordingly, any Volatiles soil results that are less than 200 ug/Kg, including Non Detects, may be biased low, per ELAP method 5035 guidance document from 11/15/2012.

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 190838

Client: **Lu Engineers, Inc.**

Project Reference: Gardiner Avenue

Sample Identifier:	Comp-Inside		
Lab Sample ID:	190838-03A	**Date Sampled:**	3/1/2019
Matrix:	TCLP Extract	**Date Received:**	3/1/2019

TCLP Metals (ICP)

Analyte	Result	Units	Regulatory Limit	Qualifier	Date Analyzed
Lead	< 0.500	mg/L	5		3/6/2019 17:53

Method Reference(s): EPA 6010C
EPA 1311 / 3005A
Preparation Date: 3/6/2019
Data File: 190306B

Analytical Report Appendix

The reported results relate only to the samples as they have been received by the laboratory.

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All soil/sludge samples have been reported on a dry weight basis, unless qualified “reported as received”. Other solids are reported as received.

Low level Volatiles blank reports for soil/solid matrix are based on a nominal 5 gram weight. Sample results and reporting limits are based on actual weight, which may be more or less than 5 grams.

The Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt. Sample condition requirements are defined under the 2003 NELAC Standard, sections 5.5.8.3.1 and 5.5.8.3.2.

NYSDOH ELAP does not certify for all parameters. Paradigm Environmental Services or the indicated subcontracted laboratory does hold certification for all analytes where certification is offered by ELAP unless otherwise specified. Aliquots separated for certain tests, such as TCLP, are indicated on the Chain of Custody and final reports with an “A” suffix.

Data qualifiers are used, when necessary, to provide additional information about the data. This information may be communicated as a flag or as text at the bottom of the report. Please refer to the following list of analyte-specific, frequently used data flags and their meaning:

“<” = Analyzed for but not detected at or above the quantitation limit.
“E” = Result has been estimated, calibration limit exceeded.
“Z” = See case narrative.
“D” = Sample, Laboratory Control Sample, or Matrix Spike Duplicate results above Relative Percent Difference limit.
“M” = Matrix spike recoveries outside QC limits. Matrix bias indicated.
“B” = Method blank contained trace levels of analyte. Refer to included method blank report.
“J” = Result estimated between the quantitation limit and half the quantitation limit.
"L" = Laboratory Control Sample recovery outside accepted QC limits.
“P” = Concentration differs by more than 40% between the primary and secondary analytical columns.
"NC" = Not calculable. Applicable to RPD if sample or duplicate result is non-detect or estimated (see primary report for data flags). Applicable to MS if sample is greater or equal to ten times the spike added. Applicable to sample surrogates or MS if sample dilution is 10x or higher.
"" = Indicates any recoveries outside associated acceptance windows. Surrogate outliers in samples are presumed matrix effects. LCS demonstrates method compliance unless otherwise noted.*
"(1)" = Indicates data from primary column used for QC calculation.
"A" = denotes a parameter for which ELAP does not offer approval as part of their laboratory certification program.
"F" = denotes a parameter for which Paradigm does not carry certification, the results for which should therefore only be used where ELAP certification is not required, such as personal exposure assessment.

GENERAL TERMS AND CONDITIONS
LABORATORY SERVICES

These Terms and Conditions embody the whole agreement of the parties in the absence of a signed and executed contract between the Laboratory (LAB) and Client. They shall supersede all previous communications, representations, or agreements, either verbal or written, between the parties. The LAB specifically rejects all additional, inconsistent, or conflicting terms, whether printed or otherwise set forth in any purchase order or other communication from the Client to the LAB. The invalidity or unenforceability in whole or in part of any provision, tern or condition hereof shall not affect in any way the validity or enforceability of the remainder of the Terms and Conditions. No waiver by LAB of any provision, term, or condition hereof or of any breach by or obligation of the Client hereunder shall constitute a waiver of such provision, term, or condition on any other occasion or a waiver of any other breach by or obligation of the Client. This agreement shall be administered and interpreted under the laws of the state which services are procured.

Warranty. Recognizing that the nature of many samples is unknown and that some may contain potentially hazardous components, LAB warrants only that it will perform testing services, obtain findings, and prepare reports in accordance with generally accepted analytical laboratory principles and practices at the time of performance of services. LAB makes no other warranty, express or implied.

Scope and Compensation. LAB agrees to perform the services described in the chain of custody to which these terms and conditions are attached. Unless the parties agree in writing to the contrary, the duties of LAB shall not be construed to exceed the services specifically described. LAB wi use LAB default method for all tests unless specified otherwise on the Work Order.
Payment terms are net 30 days from the date of invoice. All overdue payments are subject to an interest charge of one and one-half percent (1-1/2%) per month or a portion thereof. Client shall also be responsible for costs of collection, including payment of reasonable attorney fees if such expense is incurred. The prices, unless stated, do not include any sale, use or other taxes. Such taxes will be added to invoice prices when required.

Prices. Compensation for services performed will be based on the current Lab Analytical Fee Schedule or on quotations agreed to in writing by the parties. Turnaround time based charges are determined from the time of resolution of all work order questions. Testimony, court appearances or data compilation for legal action will be charged separately. Evaluation and reporting of initial screening runs may incur additional fees.

Limitations of Liability. In the event of any error, omission, or other professional negligence, the sole and exclusive responsibility of LAB shall be to re-perform the deficient work at its own expense and LAB shall have no other liability whatsoever. All claims shall be deemed waived unless made in writing and received by LAB within ninety (90) days following completion of services.
LAB shall have no liability, obligation, or responsibility of any kind for losses, costs, expenses, or other damages (including but not limited to any special, direct, incidental or consequential damages) with respect to LAB's services or results.
All results provided by LAB are strictly for the use of its clients and LAB is in no way responsible for the use of such results by clients or third parties. All reports should be considered in their entirety, and LAB is not responsible for the separation, detachment, or other use of any portion of these reports. Client may not assign the lab report without the written consent of the LAB.
Client covenants and agrees, at its/his/her sole expense, to indemnify, protect, defend, and save harmless the LAB from and against any and all damages, losses, liabilities, obligations, penalties, claims, litigation, demands, defenses, judgments, suits, actions, proceedings, costs, disbursements and/or expenses (including, without limitation attorneys' and experts' fees and disbursements) of any kind whatsoever which may at any time be imposed upon, incurred by or asserted or awarded against client relating to, resulting from or arising out of (a) the breach of this agreement by this client, (b) the negligence of the client in handling, delivering or disclosing any hazardous substance, (c) the violation of the Client of any applicable law, (d) non-compliance by the Client with any environmental permit or (e) a material misrepresentation in disclosing the materials to be tested.

Hazard Disclosure. Client represents and warrants that any sample delivered to LAB will be preceded or accompanied by complete written disclosure of the presence of any hazardous substances known or suspected by Client. Client further warrants that any sample containing any hazardous substance that is to be delivered to LAB will be packaged, labeled, transported, and delivered properly and in accordance with applicable laws.

Sample Handling. Prior to LAB's acceptance of any sample (or after any revocation of acceptance), the entire risk of loss or of damage to such sample remains with Client. Samples are accepted when receipt is acknowledged on chain of custody documentation. In no event will LAB have any responsibility for the action or inaction of any carrier shipping or delivering any sample to or from LAB premises.
Client authorizes LAB to proceed with the analysis of samples as received by the laboratory, recognizing that any samples not in compliance with all current DOH-ELAP-NELAP requirements for containers, preservation or holding time will be noted as such on th final report.
Disposal of hazardous waste samples is the responsibility of the Client. If the Client does not wish such samples returned, LAB may add storage and disposal fees to the final invoice. Maximum storage time for samples is 30 days after completion of analysis unless modified by applicable state or federal laws. Client will be required to give the LAB written instructions concerning disposal of these samples.
LAB reserves the absolute right, exercisable at any time, to refuse to receive delivery of, refuse to accept, or revoke acceptance of any sample, which, in the sole judgment of LAB (a) is of unsuitable volume, (b) may be or become unsuitable for or may pose a risk in handling, transport, or processing for any health, safety, environmental or other reason whether or not due to the presence in the sample of any hazardous substance, and whether or not such presence has been disclosed to LAB by Client or (c) if the condition or sample date make the sample unsuitable for analysis.

Legal Responsibility. LAB is solely responsible for performance of this contract, and no affiliated company, director, officer, employee, or agent shall have any legal responsibility hereunder, whether in contract or tort including negligence.

Assignment. LAB may assign its performance obligations under this contract to other parties, as it deems necessary. LAB shall disclose to Client any assignee (subcontractor) by ELAP ID # on the submitted final report.

Force Majeure. LAB shall have no responsibility or liability to the Client for any failure or delay in performance by LAB, which results in whole or in part from any cause or circumstance beyond the reasonable control of LAB. Such causes and circumstances shall include, but not limited to, acts of God, acts or orders of any government authority, strikes or other labor disputes, natural disasters, accidents, wars, civil disturbances, difficulties or delays in transportation, mail or delivery services, inability to obtain sufficient services or supplies from LAB's usual suppliers, or any other cause beyond LAB's reasonable control.

Law. This contract shall be continued under the laws of the State of New York without regard to its conflicts of laws provision.

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

CHAIN OF CUSTODY

PARADIGM

REPORT TO:		INVOICE TO:		
CLIENT:	LU Engineers	CLIENT:		LAB PROJECT ID: 190838
ADDRESS:	339 East Avenue, Suite 200	ADDRESS:		
CITY:	Rochester STATE: NY ZIP 14604	CITY: SAME	STATE: ZIP:	Quotation #:
PHONE:	585-385-7417	PHONE:		Email: gregandrus@luengineers.com LGregor@luengineers.com
ATTN:	Greg Andrus / Laura Gregor	ATTN:		

PROJECT REFERENCE

Gardiner Avenue

Matrix Codes:

AQ - Aqueous Liquid; NQ - Non-Aqueous Liquid; WA - Water; WG - Groundwater; DW - Drinking Water; WW - Wastewater; SO - Soil; SL - Sludge; SD - Solid; PT - Paint; WP - Wipe; CK - Caulk; OL - Oil; AR - Air

REQUESTED ANALYSIS

DATE COLLECTED	TIME COLLECTED	COMPOSITE	GRAB	SAMPLE IDENTIFIER	MATRIX CODES	NUMBER OF CONTAINERS	TCL VOCs 8260	VOCs (CP-51)	TCLP Lead	RCRA Metals	TCL VOCs 8260	TCL SVOCs 8270	Flashpoint	PCBs			REMARKS	PARADIGM LAB SAMPLE NUMBER
3/1/19	9:35		X	GP-01 (3.5'-4')	SO	2	✓		✓			TCL					TCL, SVOA per client 3/1/19	01A
3/1/19	10:30	X		Comp-outside	SO	2		✓	✓								@ 1440	02A
3/1/19	11:30	X		Comp-INSIDE	SO	3	✓		✓	✓		✓	✓	✓				03A
						per visual MW 3/1/19												
																	A for TCLP extract MW 3/1/19	
																	14°C iced started in field 3/1/19 1441	

Turnaround Time		Report Supplements			
Availability contingent upon lab approval; additional fees may apply.					
Standard 5 day	☒	None Required	☒	None Required	☒
10 day	☐	Batch QC	☐	Basic EDD	☐
Rush 3 day	☐	Category A	☐	NYSDEC EDD	☐
Rush 2 day	☐	Category B	☐		
Rush 1 day	☐				
Other please indicate date needed:	☐	Other please indicate package needed:	☐	Other EDD please indicate EDD needed:	☐

Laura K Gregor	3/1/19 / 14:00	Total Cost:
Sampled By	Date/Time	
Laura K Gregor	3/1/19 14:32	
Relinquished By	Date/Time	
Jane Q Public	3/1/19 1432	rec'd on ice
Received By	Date/Time	P.I.F.
Mail Mail	3/1/19 1443	
Received @ Lab By	Date/Time	

By signing this form, client agrees to Paradigm Terms and Conditions (reverse).

See additional page for sample conditions.

Chain of Custody Supplement

Client: Lu Eng **Completed by:** MollyKail

Lab Project ID: 190838 **Date:** 3/1/19

Sample Condition Requirements

Per NELAC/ELAP 210/241/242/243/244

Condition	NELAC compliance with the sample condition requirements upon receipt Yes	No	N/A
Container Type	X	5035	
Comments			
Transferred to method-compliant container			X
Headspace (<1 mL)			X
Comments			
Preservation			X
Comments			
Chlorine Absent (<0.10 ppm per test strip)			X
Comments			
Holding Time	X		
Comments			
Temperature	X		met
Comments	14°C iced started in field		
Sufficient Sample Quantity	X		
Comments			

179 Lake Avenue • Rochester, NY 14608 • (585) 647-2530 • Fax (585) 647-3311 • ELAP ID# 10958

Gardiner Firehouse Upgrades
57 Gardiner Avenue
Rochester, New York
MONROE COUNTY
ROCHESTER, NEW YORK

NYSDEC Spill Number: 1811925

HEALTH AND SAFETY PLAN

Prepared For:

City of Rochester
City Hall, Room 300B
30 Church Street
Rochester, New York 14614

Prepared By:

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

339 East Avenue Suite 200
Rochester, New York 14604

March 2019

Table of Contents

HEALTH AND SAFETY PLAN

A. GENERAL INFORMATION

Project Title: 57 Gardiner Avenue-Firehouse Upgrades
Monroe County, New York
Soil Management Plan
Spill Number 1811925

Project Manager: Jane MH Forbes (City) Project Manager: Greg Andrus (Lu Engineers)

Location: 57 Gardiner Avenue
City of Rochester, Monroe County, New York

Prepared by: Lu Engineers Date Prepared: March 2019
Date Revised:
Approved by: Date Approved:

Site Safety Officer Review: Date Reviewed:

Introduction/Objective:
The objective of the Soil Management Plan (SMP) is to consolidate available data and information on the environmental status of the Site and provide guidelines for the management of soil. Lu Engineers prepared this Health and Safety Plan (HASP) with City of Rochester Department of Environmental Quality (DEQ) oversight to outline policies and procedures to protect workers and the public from potential environmental hazards as described in the Soil Management Plan (SMP). The Site is comprised of a 0.56 acre parcel addressed as 57 Gardiner Avenue, City of Rochester, County of Monroe, New York (Site).

Proposed Date of Field Activities: TBD

Background Information: [ ] Complete [X] Preliminary (limited analytical data)

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

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

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

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

Characteristic(s):

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

Physical Hazards:

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

Site History/Description and Unusual Features:

The Site is located at 57 Gardiner Avenue in the City of Rochester, Monroe County, New York. There is currently one (1) building (square foot), located in the center of the parcel that is owned and occupied by the City of Rochester Fire Department. An asphalt driveway and parking lot are located east and north of the building. The remaining portion of the parcel consists of maintained lawn and trees. A chain-link fence is located along the north side of the Site.

The topography of the Site consists of level land with groundwater appearing to flow north. The surrounding land use is primarily residential. The Site is bounded by Grover Street and a recreation/playground area (Roxie Ann Sinkler Recreation Center) to the south and west of the Site at 75 Gardiner Avenue. Residential houses are located north of the Site. A church (Trinity Inter-Faith Church) and residential houses are located south of the Site along Forbes Street. Gardiner Avenue is located east of the Site with residential homes beyond.

A limited subsurface investigation was completed by Lu Engineers in March 2019 to evaluate conditions prior to planned fire house upgrades. Six (6) soil borings were advanced to refusal in the documented location of the former UST and within the bay of the building near existing floor drains. Elevated photoionization detector (PID) readings were observed in the three (3) soil borings advanced in the asphalt driveway adjacent to the northern apparatus door, presumably in the location of the former UST. Visual and olfactory indications also suggested the presence of subsurface petroleum impacts at depths between 4 feet below ground surface (bgs) and 10 feet bgs. Refusal was encountered between 10 feet bgs and 10.7 bgs.

The City of Rochester was notified of the petroleum impacts and the NYSDEC Spill Hotline was called by the City of Rochester; Spill #1811925 was assigned.

Soil analytical findings indicated subsurface impacts in the driveway adjacent to the northern apparatus door, presumably in the location of the former UST. Elevated concentrations of petroleum-related constituents, including 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, and xylenes were detected in exceedance of 6 NYCRR Part 375-6.8(a) Unrestricted Use SCOs; it is noted that no residential use or commercial use exceedances were detected.

No elevated PID readings or visual/olfactory observations indicated subsurface impacts beneath the bay and in the vicinity of two (2) floor drains. An unrestricted use exceedance concentration in chromium was detected in the indoor composite sample (Comp-inside).

Locations of Chemicals/Wastes: Soil and groundwater.

Estimated Volume of Chemicals/Wastes: TBD

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

C. HAZARD EVALUATION

HAZARD EVALUATION:	
HAZARD(S)	**HAZARD PREVENTION**
General physical hazards associated with soil removal operations including excavation equipment (excavator, dump trucks), excavation safety, sloping/sidewall stability, slip/trip/fall. Also drill rig and geoprobe operations (overhead equipment, spinning augers, noise, drill rig movement).	Hard hats, eye protection, and steel-toed boots required at all times. Keep safe distance from excavation sidewalls, heavy equipment, machines and all moving parts. Only operator and helper are to be in "work zone". Do not enter excavations to screen soil or obtain soil samples.
Contact with or inhalation of contaminants, potentially in high concentration, in subsurface media	Direct reading instruments and/or olfactory indications will be used to monitor airborne contaminants. Respiratory protection will be used as appropriate. 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. Vapor suppression techniques may be implemented, as necessary.
Utilities (above and underground)	Identify location(s) prior to start of work, maintain 25-foot minimum distance to overhead utilities.
Slip/ trip/ fall	Observe terrain and equipment while walking to minimize slips and falls. Steel-toed boots provide additional support and stability. Use adequate lighting. Wear hard hat. Inspect all lifting equipment prior to use. Be aware of open excavation areas.
Back strain and muscle fatigue, ergonomic stress due to lifting	Use proper lifting techniques and limit load to prevent back strain. Lift with legs when possible.
Noise	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.
Heat/Cold stress	Implement heat/cold stress management techniques such as shifting work hours, increasing fluid intake, and monitoring employees**. See Appendix A.**
Sunburn	Apply sunscreen, and wear appropriate clothing.
Weather Extremes	Establish Site-specific contingencies for severe weather situations. Discontinue work in severe weather, including lightening.
Native wildlife presents the possibility of insect bites and associated diseases	Avoid wildlife when possible. Use insect repellant.

Compound	Exposure Limits (TWA)			Dermal Hazard (Y/N)	Route(s) of Exposure	Acute Symptoms	Odor Threshold/ Description	PID	
	OSHA PEL	NIOSH REL	IDLH					Relative Response	Ioniz. Poten. (eV)
Benzene*	1 ppm	0.1 ppm	500 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	200	9.24
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	185	8.77
n-Propylbenzene (per mfg. Recommended exposure is 100 ppm)	N/A	N/A	N/A	Y	Inh, Ing, Con	Irritation to eyes, skin, respiratory tract, mucous membranes of nose & throat, depresses CNS, vertigo, fatigue, chest constriction, may invoke aspiration if swallowed	Clear colorless liquid, mild odor	---	---
Toluene	200 ppm	100 ppm	20 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	200	8.82

Compound	Exposure Limits (TWA)			Dermal Hazard (Y/N)	Route(s) of Exposure	Acute Symptoms	Odor Threshold/ Description	PID	
	OSHA PEL	NIOSH REL	IDLH					Relative Response	Ioniz. Poten. (eV)
1,2,4-Trimethylbenzene	---	25ppm	Not Determined	Y	Inh, Ing, Con	Irritation to eyes, skin nose throat, respiratory system, hypochromic anemia, headache, drowsiness, fatigue, dizziness, nausea, in-coordination, vomiting confusion, aspiration.	Clear colorless liquid, distinctive aromatic odor		8.27
1,3,5-Trimethylbenzene	---	25ppm	Not Determined	Y	Inh, Ing, Con	Irritation to eyes, skin nose throat, respiratory system, hypochromic anemia, headache, drowsiness, fatigue, dizziness, nausea, in-coordination, vomiting confusion, aspiration.	Clear colorless liquid, distinctive aromatic odor	300	8.39
Xylene(mixed)	100 ppm	100 ppm	900 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	140	8.44

Compound	Exposure Limits (TWA)			Dermal Hazard (Y/N)	Route(s) of Exposure	Acute Symptoms	Odor Threshold/ Description	PID	
	OSHA PEL	NIOSH REL	IDLH					Relative Response	Ioniz. Poten. (eV)
Isopropylbenzene	50 ppm	50 ppm	50 ppm	Y	Inh, Inj, Con	Irritation, nausea, difficulty breathing, headache, drowsiness, dizziness, and loss of coordination. Skin and eye irritation. Vomiting, stomach pain, drowsiness, aspiration, and central nervous system depression.	1.2 ppm Colorless liquid, distinct odor, pungent odor	---	---
Benzo(a)anthracene	N/A	N/A	N/A	Y	Inh,Ing, Con, Abs	Irritation to eyes, skin, digestive tract, respiratory tract (prevent contact to skin and eyes)	Yellow to green	---	---
Benzo (a) pyrene*	0.2 mg/m^3	---	A2	Y	Ing, Inh, Abs, Con	Irritation to eyes, skin, lungs harmful if swallowed (all hazards and toxic properties not fully known)	Yellow green powder	---	---
Benzo(b)fluoranthene*	0.2 mg/m^3	0.1 mg/m^3	A2	Y	Inh, Ing, Con	No signs or symptoms of acute exposure to benzo(b)fluoranthene have been reported in humans	Colorless	---	---

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

D. SITE SAFETY WORK PLAN

Site Control:

Perimeter Identified?	**[Y]**	**Site Secured?**	**[Y]**
Work Areas Designated?	**[Y]**	**Zone(s) of contamination identified?**	**[Y]**

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

A	B	C	D
		Available	X

Site work will be performed in Level D safety equipment (steel-toed boots, work clothes, eye protection, gloves, hard hats, and hearing protection (as necessary)) unless monitoring indicates otherwise. Gloves will be worn if contact with Site soil, sediment or water is anticipated, due to concerns of impacted subsurface material.

If conditions are encountered that require Level A or Level B Personal Protective Equipment (PPE), the work will immediately be stopped. The appropriate government agencies (i.e., City, NYSDEC, NYSDOH, MCDPH, etc.) will be notified and the proper health and safety measures will be implemented (e.g., develop and implement engineering controls, upgrade in PPE, etc.). If conditions are encountered (as indicated by PID and particulate readings) that require Level C PPE, the work will be temporarily suspended and the work Site will be evaluated to limit exposure prior to implementing Level C PPE. Engineering controls may be implemented, as necessary, in an effort to maintain Level D PPE required Site conditions.

Respiratory Protection

Any respirator used will meet the requirements of the OSHA 29 CFR 1910.134. Both the respirator and cartridges specified shall be fit-tested prior to use in accordance with OSHA regulations (29 CFR 1910). Air purifying respirators shall not be worn if contaminant levels exceed designated use concentrations. The workers will wear respirators with approval for: organic vapors <1,000 ppm; and dusts, fumes and mists with a TWA < 0.05 milligrams per cubic meter (mg/m^3).

No personnel who have facial hair, which interferes with respirator sealing surface, will be permitted to wear a respirator and will not be permitted to work in areas requiring respirator use.

Only workers who have been certified by a physician as being physically capable of respirator usage shall be issued a respirator. Personnel unable to pass a respiratory fit test or without medical clearance for respirator use will not be permitted to enter or work in areas that require respiratory protection.

Air Monitoring*:

Contaminant	Monitoring Device	Frequency
Organic Vapors	MiniRAE 3000 PID	Continuous
Ignition Sources	O2/Explosimeter	Continuous
Particulate	Dustrak	Continuous

*Continuous perimeter air monitoring for VOCs and particulates will be performed during ground intrusive activities and is described in the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan (CAMP).

Lu will also conduct continuous air monitoring of worker breathing zone air during excavation activities. If action levels are exceeded during excavation, appropriate precautions will be taken, as described below.

VOCs

VOCs in worker's breathing zone air will be monitored with a PID during activities that have the potential to disturb contaminated material to aid in determining if respiratory protection and/or vapor suppression is necessary. This ensures that respiratory protection is adequate to protect personnel from the chemical vapors and particulates they may be exposed to. Readings will be recorded in the Site logbook or log sheets.

Action Levels:

PID readings of **25 ppm to 100 ppm** above background at breathing zone, sustained for greater than 5 minutes,
Action: Stop work and implement vapor suppression techniques, such as application of Biosolve. If vapors cannot be brought below 25 ppm, upgrade PPE to Level C.

PID readings of **>100 ppm** above background at breathing zone, sustained for greater than 5 minutes,
Action: Stop work, evaluate the use of engineering controls, upgrade PPE to Level B or Level A.

Depending on circumstances observed during excavation and related IRM activities, alternative action levels and corresponding PPE levels to those described above may be considered and implemented at the discretion of the field team leader and City project manager.

O_2

O_2 readings must remain between 19.5% and 22.0%. Explosivity must be above 10% lower explosive level (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.

Particulates

During activities where contaminated materials (i.e., soil, fill, etc.) may be disturbed, air monitoring will include real-time monitoring for particulates using a real-time aerosol monitor (RTAM) particulate meter at the perimeter of the work zone in accordance with the *Final DER-10 Technical Guidance for Site Investigation and Remediation* dated May 2010. DER-10 uses an action level of 100 g/m^3 (0.10 mg/m^3) over background conditions for an integrated period not to exceed 15 minutes. If the action level is exceeded, or

if visible dust leaving the Site is observed, then work shall be discontinued until corrective actions are implemented. Corrective actions may include dust suppression, change in the way work is performed, and/or upgrade of personal protective equipment. If dust suppression is deemed necessary, clean water will be applied to excavation area.

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the work zone at temporary particulate monitoring stations. The particulate monitoring should be performed using RTAM capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during work activities.

Action Levels:
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 or log sheets.

Decontamination Solutions and Procedures for Equipment, Sampling Gear, etc: Specified in the Work Plan.

Personnel Decon Protocol: Soap, water, and paper towels or baby wipes 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 rendered unusable and disposed of as stated in work plan.

Decon Solution Monitoring Procedures, if Applicable: Contractor's controlled/ decon waste container.

Special Site Equipment, Facilities or Procedures (Sanitary Facilities and Lighting Must Meet 29CFR 1910.120):
A restroom and bottled water will be available.

Site Entry Procedures and Special Considerations: Entry to the Site should be limited through the entrance along Gardiner Avenue. The Buddy System should be employed at all times on Site. All personnel entering the Site shall have current 40-hr OSHA HAZWOPER training.

Personnel admitted into the work zone shall be properly trained in health and safety techniques and equipment usage. No personnel shall be admitted into the work zone without the property safety equipment.

Work Limitations (time of day, weather conditions, etc.) and Heat/Cold Stress Requirements:
All work will be completed during daylights hours. Heavy equipment, including drill rigs, will not be used during electrical storms.

General Spill Control, if applicable: N/A

Investigation Derived Material (i.e., Expendables, Decon Waste, Cuttings) Disposal: Specified in the Work Plan.

Sample Handling Procedures Including Protective Wear: Sample handling will be performed while wearing chemically-resistant gloves. To minimize hazards to lab personnel, sample volumes will be no larger than necessary, and the outside of all sample containers will be wiped clean prior to shipment. Additional sampling protocols and procedures are outlined in the QAPP.

Accident and Injury Reporting: Any work-related incident, accident, injury, illness, exposure, or property loss must be immediately reported to the Lu Engineers project manager and the City of Rochester project manager. This includes:

- Accident, injury, illness, or exposure of an employee;
- Injury of a subcontractor;
- Damage, loss, or theft of property, and/or
- Any motor vehicle accident regardless of fault, which involves a company vehicle, rental vehicle, or personal vehicle while employee is acting in the course of employment.

E. TRAINING REQUIREMENTS

Personnel conducting field activities on Site are required to have completed training sessions in accordance with Occupational Safety and Health Administration (OSHA) for Parts 1926 and 1910 (Title 29 Code of Federal Regulations [CFR] Part 1926.65 and Part 1910.120 - Hazardous Waste Operations and Emergency Response- 'HazWOPER'). This training shall consist of a minimum of 40 hours of instruction off-Site and three days of actual field experience under the direct supervision of a trained, experienced supervisor. Each employer will maintain documentation stating that its on-Site personnel have complied with this regulation.

In addition, all personnel will have reviewed this HASP and received a Site-specific health and safety briefing prior to participating in field work.

Visitors entering the work area must review the HASP and be equipped with the proper PPE. All Site personnel and visitors shall sign the last page of the HASP as an acknowledgement that they have read and understand the Site health and safety requirements.

Medical Surveillance Requirements: All Lu Engineers field staff who engage in on Site activities for 30 days or more per year participate in a medical monitoring program and have completed applicable training per 29CFR 1910.120. Lu's Respiratory Protection Program meets requirements of 29CFR 1910.134.

Key Personnel and Management
The Project Manager (PM) and Site Safety Officer (SSO) are responsible for formulating health and safety requirements, and implementing the HASP.

Project Manager
The PM has the overall responsibility for the project and will coordinate with the SSO to ensure that the goals of the project are attained in a manner consistent with the HASP requirements.

Site Safety Officer
The SSO has responsibility for administering the HASP relative to Site activities, and will be in the field while activities are in progress. The SSO's operational responsibilities will be monitoring, including personal and environmental monitoring, ensuring personal protective equipment (PPE) maintenance, and identification of protection levels. The air monitoring data obtained by the SSO will be available for review by the City, regulatory agencies, and other on-Site personnel.

Employee Safety Responsibility
Each employee is responsible for personal safety as well as the safety of others in the area. The employee will use the equipment provided in a safe and responsible manner as directed by the SSO.

Key Safety Personnel

The following individuals are anticipated to share responsibility for health and safety of Lu representatives at the Site.

Team Member*	Responsibility
Gregory Andrus	Project Manager
Steven Campbell	Quality Assurance Officer/ Site Safety Officer

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

F. EMERGENCY INFORMATION

The following telephone numbers are listed in case there is an emergency at the Site:

Fire/Police Department:	911
Poison Control Center:	(800) 222-1222
NYSDEC	
Mike Zamiarski	(585) 226-5438
Spills Hotline	(585) 226-2466
City of Rochester	
Jane Forbes	(585) 428-7892; (585) 314-1719 (cell)
Joseph Biondolillo	(585) 428-6649; (585) 314-1617 (cell)
Lu Engineers	
Gregory Andrus	(585) 385-7417 x215/ (585) 732-5786 (cell)
Nearest Hospital	Strong Memorial Hospital 601 Elmwood Avenue, Rochester, NY 14620 (585) 275-2100 (Main) (585) 275-4551 (Emergency Department)

SITE RESOURCES

Site Emergency Evaluation Alarm Method:	Sound vehicle horn.
Water Supply Source:	Water will be available through a City issued Hydrant Permit.
Telephone Location, Number:	None available
Cellular Phone, if Available:	Greg Andrus (585) 732-5786
Radio:	TBD
Other:	TBD

EMERGENCY ROUTES

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

Directions from the Site to Highland Hospital:

Route is 3.1 miles, about 9 minutes. Head south on Gardiner Avenue toward Grover Street (0.2 miles); continue onto Thurston Road (1.3 miles); turn left onto Genesee Park Boulevard (0.6 miles); turn right onto Genesee Street and use the left two (2) lanes to turn left onto Elmwood Avenue (0.8 miles); turn right onto Thomas H Jackson Drive. Follow signs to Emergency Medical Services.

On-Site Assembly Area: At Site entry point.

Off-Site Assembly Area: 75 Grover Street (located adjacent to the southeast of the Site).

Emergency egress routes to get off-Site: Follow Gardiner Avenue, north or south.

Personnel shall exit the Site and shall congregate in an area designated by the SSO. The SSO shall ensure that all personnel are accounted for. If someone is missing, the SSO will alert emergency personnel. The appropriate government agencies will be notified as soon as possible regarding the evacuation, and any necessary measures that may be required to mitigate the reason for the evacuation.

G. Additional Information

Contamination Emergency
It is unlikely that a contamination emergency will occur; however, if such an emergency does occur, the specific work area shall be shut down and immediately secured. If an emergency rescue is needed, notify Police, Fire Department and EMS units immediately. Advise them of the situation and request an expedient response. The appropriate government agencies shall be notified immediately. The area in which the contamination occurred shall not be entered until the arrival of trained personnel who are properly equipped with the appropriate PPE and monitoring instrumentation as outlined in Section D of this HASP.

Spill or Air Release
In the event of a spill or air release of hazardous materials on-Site, the specific area of the spill or release shall be shut down and immediately secured. The area in which the spill or release occurred shall not be entered until the cause can be determined and Site safety can be evaluated. Non-essential Site personnel shall be evacuated to a safe and secure area. The appropriate government agencies shall be notified as soon as possible. The spilled or released material shall be immediately identified and appropriate containment measures shall be implemented, if possible. Real-time air monitoring shall be implemented as outlined in Section 8.0 of this HASP. If the materials are unknown, Level B protection is mandatory. If warranted, samples of the materials shall be acquired to facilitate identification.

Locating Containerized Waste and/or Underground Storage Tanks
In the event that unanticipated containerized waste (e.g., drums) and/or USTs are located during remedial activities, the work will be stopped in the specific area until Site safety can be evaluated and addressed. Non-essential Site personnel shall not work in the immediate area until conditions including possible

exposure hazards are addressed. The appropriate government agencies shall be notified as soon as possible. The SSO shall monitor the area as outlined in Section D of this HASP.

Prior to any handling, unanticipated containers will be visually assessed by the SSO to gain as much information as possible about their contents. As a precautionary measure, personnel shall assume that unlabelled containers and/or tanks contain hazardous materials until their contents are characterized. To the extent possible based upon the nature of the containers encountered, actions may be taken to stabilize the area and prevent migration (e.g., placement of berms, etc.). Subsequent to initial visual assessment and any required stabilization, properly trained personnel will sample, test, remove, and dispose of any containers and/or tanks, and their contents. After visual assessment and air monitoring, if the material remains unknown, Level B protection is mandatory.

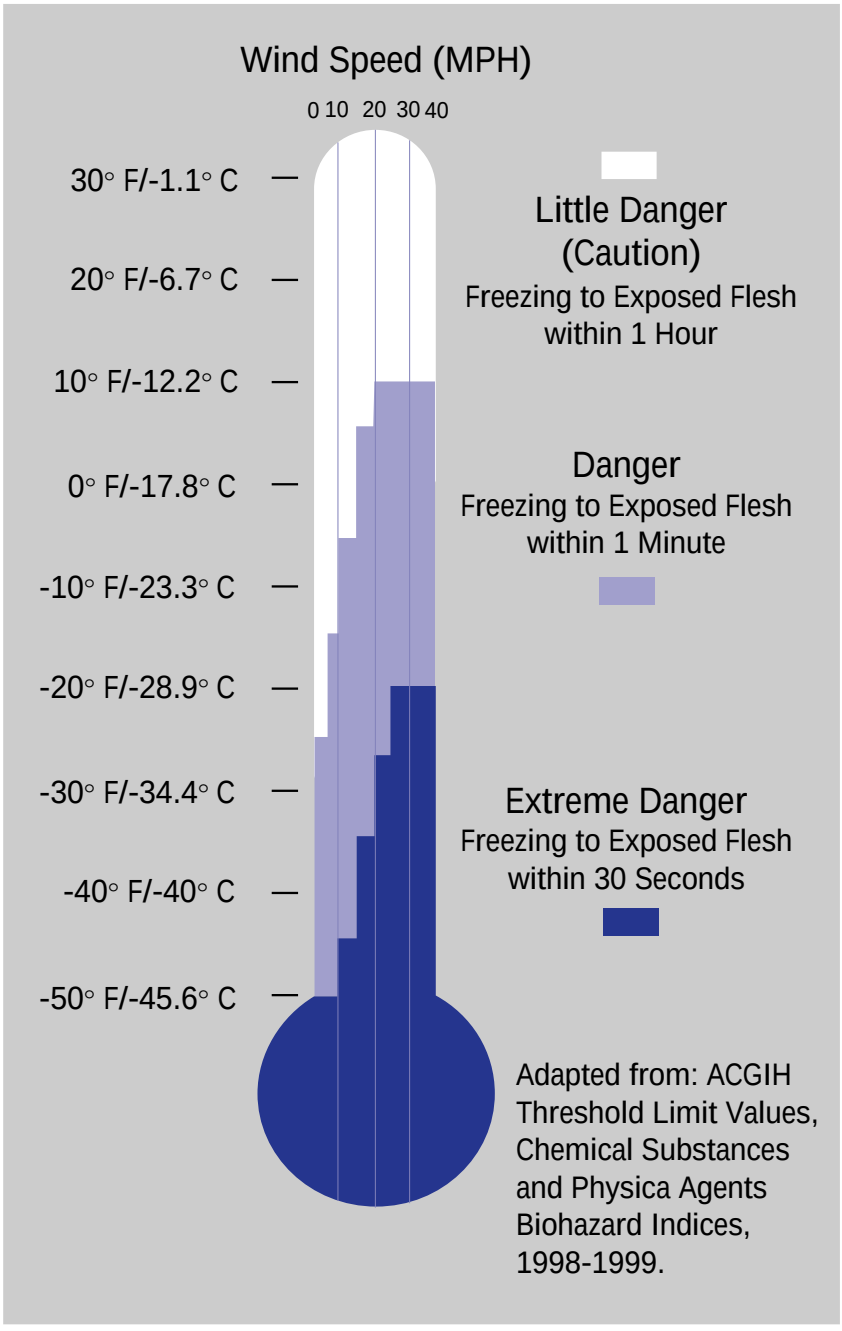
APPENDIX B-1

HEAT AND COLD STRESS INFORMATION

THE COLD STRESS EQUATION

LOW TEMPERATURE + WIND SPEED + WETNESS = INJURIES & ILLNESS

When the body is unable to warm itself, serious cold-related illnesses and injuries may occur, and permanent tissue damage and death may result. **Hypothermia** can occur when *land temperatures* are **above** freezing or *water temperatures* are below 98.6°F/ 37°C. Cold-related illnesses can slowly overcome a person who has been chilled by low temperatures, brisk winds, or wet clothing.



U.S. Department of Labor
Occupational Safety and Health Administration

OSHA 3156
1998

FROST BITE

What Happens to the Body:

FREEZING IN DEEP LAYERS OF SKIN AND TISSUE; PALE, WAXY-WHITE SKIN COLOR; SKIN BECOMES HARD and NUMB; USUALLY AFFECTS THE FINGERS, HANDS, TOES, FEET, EARS, and NOSE.

What Should Be Done: (land temperatures)

- Move the person to a warm dry area. Don't leave the person alone.
- Remove any wet or tight clothing that may cut off blood flow to the affected area.
- **DO NOT** rub the affected area, because rubbing causes damage to the skin and tissue.
- **Gently** place the affected area in a warm (105°F) water bath and monitor the water temperature to **slowly** warm the tissue. Don't pour warm water directly on the affected area because it will warm the tissue too fast causing tissue damage. Warming takes about 25-40 minutes.
- After the affected area has been warmed, it may become puffy and blister. The affected area may have a burning feeling or numbness. When normal feeling, movement, and skin color have returned, the affected area should be dried and wrapped to keep it warm. **NOTE:** If there is a chance the affected area may get cold again, do not warm the skin. If the skin is warmed and then becomes cold again, it will cause severe tissue damage.
- Seek medical attention as soon as possible.

HYPOTHERMIA - (Medical Emergency)

What Happens to the Body:

NORMAL BODY TEMPERATURE (98.6° F/37°C) DROPS TO OR BELOW 95°F (35^0 C); FATIGUE OR DROWSINESS; UNCONTROLLED SHIVERING; COOL BLUISH SKIN; SLURRED SPEECH; CLUMSY MOVEMENTS; IRRITABLE, IRRATIONAL OR CONFUSED BEHAVIOR.

What Should Be Done: (land temperatures)

- Call for emergency help (i.e., Ambulance or Call 911).
- Move the person to a warm, dry area. Don't leave the person alone. Remove any wet clothing and replace with warm, dry clothing or wrap the person in blankets.
- Have the person drink warm, sweet drinks (sugar water or sports-type drinks) if they are alert. **Avoid drinks with caffeine** (coffee, tea, or hot chocolate) or alcohol.
- Have the person move their arms and legs to create muscle heat. If they are unable to do this, place warm bottles or hot packs in the arm pits, groin, neck, and head areas. **DO NOT** rub the person's body or place them in warm water bath. This may stop their heart.

What Should Be Done: (water temperatures)

- Call for emergency help (Ambulance or Call 911). Body heat is lost up to 25 times faster in water.
- **DO NOT** remove any clothing. Button, buckle, zip, and tighten any collars, cuffs, shoes, and hoods because the layer of trapped water closest to the body provides a layer of insulation that slows the loss of heat. Keep the head out of the water and put on a hat or hood.
- Get out of the water as quickly as possible or climb on anything floating. **DO NOT** attempt to swim unless a floating object or another person can be reached because swimming or other physical activity uses the body's heat and reduces survival time by about 50 percent.
- If getting out of the water is not possible, wait quietly and conserve body heat by folding arms across the chest, keeping thighs together, bending knees, and crossing ankles. If another person is in the water, huddle together with chests held closely.

How to Protect Workers

- Recognize the environmental and workplace conditions that lead to potential cold-induced illnesses and injuries.
- Learn the signs and symptoms of cold-induced illnesses/injuries and what to do to help the worker.
- Train the workforce about cold-induced illnesses and injuries.
- Select proper clothing for cold, wet, and windy conditions. Layer clothing to adjust to changing environmental temperatures. Wear a hat and gloves, in addition to underwear that will keep water away from the skin (polypropylene).
- Take frequent short breaks in warm dry shelters to allow the body to warm up.
- Perform work during the warmest part of the day.
- Avoid exhaustion or fatigue because energy is needed to keep muscles warm.
- Use the buddy system (work in pairs).
- Drink warm, sweet beverages (sugar water, sports-type drinks). Avoid drinks with caffeine (coffee, tea, or hot chocolate) or alcohol.
- Eat warm, high-calorie foods like hot pasta dishes.

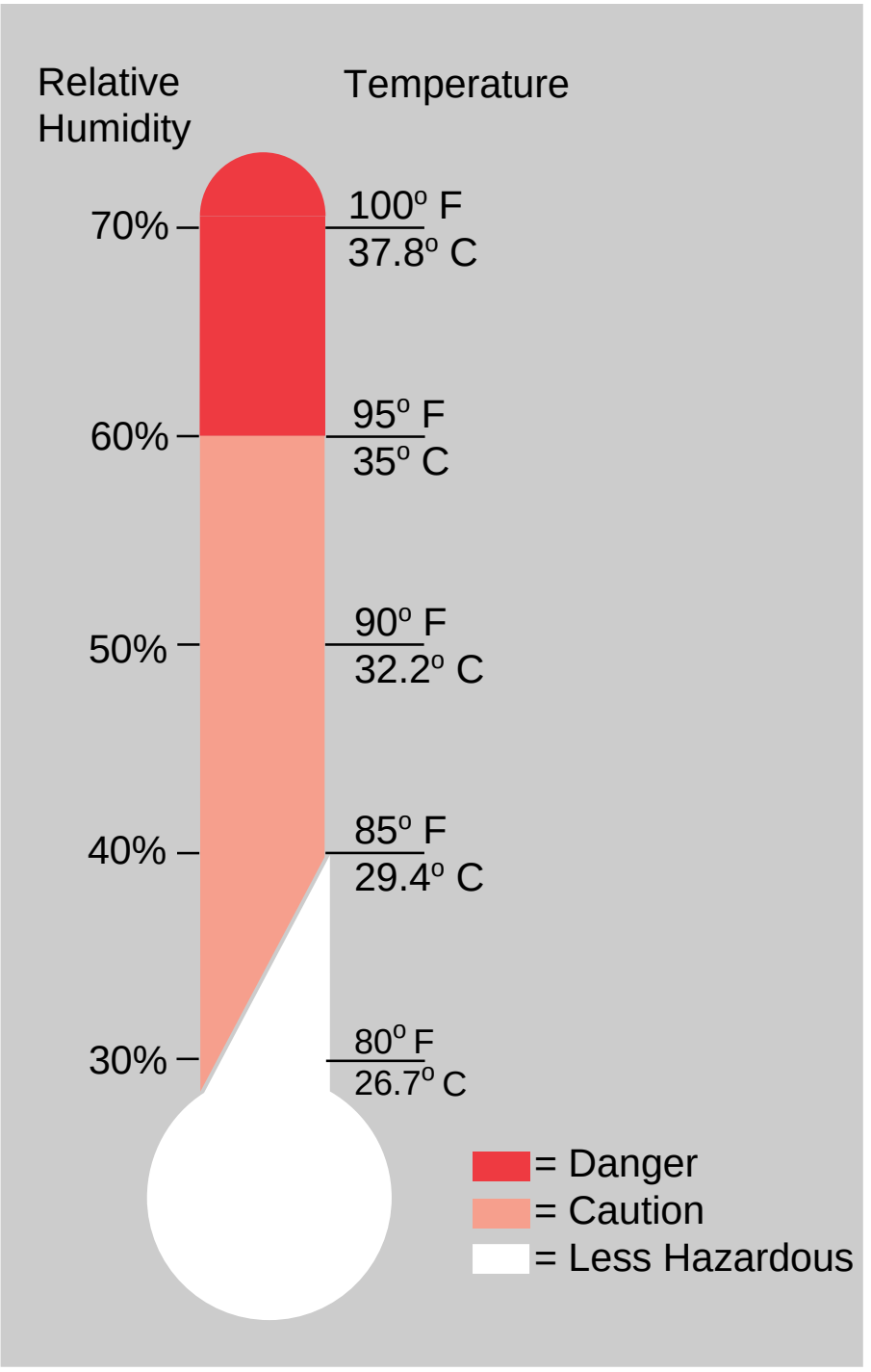
Workers Are at Increased Risk When…

- They have predisposing health conditions such as cardiovascular disease, diabetes, and hypertension.
- They take certain medication (check with your doctor, nurse, or pharmacy and ask if any medicines you are taking affect you while working in cold environments).
- They are in poor physical condition, have a poor diet, or are older.

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**.



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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).

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

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 existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) 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 the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that 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.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

Source: DRAFT DER-10 Technical Guidance for Site Investigation and Remediation, December 2002- Appendix 1A