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# Phase II Environmental Site Assessment

**25-37 Canal Street  
City of Rochester  
Monroe County, New York**



Prepared for:

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

Prepared by:

 **Lu Engineers**  
2230 Penfield Road  
Penfield, New York 14526

**September 2009**

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# Table of Contents

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Executive Summary .....	1
<b>1.0 Introduction .....</b>	<b>3</b>
1.1 General.....	3
1.2 Site Location and Description .....	3
1.3 Site History Relating to the Investigation.....	3
1.4 Review of Site History.....	3
1.5 Conclusions Based on Site History .....	5
<b>2.0 Investigation Activities.....</b>	<b>6</b>
2.1 General.....	6
2.2 Monitoring Well Installation .....	6
2.3 Well Development .....	7
2.4 Groundwater Sampling.....	7
2.5 Well Survey .....	8
2.6 Test Pit Investigation .....	8
<b>3.0 Hydrogeologic Conditions .....</b>	<b>9</b>
3.1 General.....	9
3.2 Site Geologic .....	9
3.3 Groundwater Flow .....	9
3.4 Summary of Hydrogeologic Conditions .....	9
<b>4.0 Investigation Results .....</b>	<b>10</b>
4.1 General.....	10
4.2 Subsurface Soil Borings .....	10
4.3 Groundwater Sampling.....	11
4.4 Test Pit Investigation Sampling.....	12
<b>5.0 Conclusions and Recommendations .....</b>	<b>13</b>

## Figures

Appendix A	Well/Soil Boring Logs
Appendix B	Well Construction Detail
Appendix C	Test Pit Logs
Appendix D	Laboratory Analytical Results
Appendix E	Site Photographs

## **Executive Summary**

A subsurface investigation was completed at 25-37 Canal Street (Site), City of Rochester, New York (Figure 1) to collect data necessary to characterize environmental conditions on the subject property.

## **Laboratory Analytical Results and Field Observations**

Laboratory analytical data generated during the project and field observations have indicated the following:

- No VOCs, SVOCs, PCBs, or remaining RCRA Metals were detected above Part 375 Soil Cleanup Objectives or TAGM values for the remaining monitoring well soil samples.
- PCBs were detected in TP-2 and a nearby concrete chip sample below Part 375 Soil Cleanup Objectives and TAGM values.
- Lube oil was detected in TP-2 and in the concrete chip sample, collected from the southeastern portion of the Site.
- Elevated levels of tetrachloroethene (PCE) and trichloroethene (TCE) were detected in the groundwater at MW-1, located on the western portion of the Site and MW-3, located on the southern portion of the Site; and elevated levels of cis-1,2-dichloroethene (cis-1,2-DCE) was detected in the groundwater at MW-1, located on the western portion of the Site and MW-2, located on the northern portion of the Site, above NYSDEC Part 703, Technical and Operational Guidance Series (TOGS) 1.1.1 Groundwater Standards, and TAGM Groundwater Standards Criteria.
- Elevated levels of chromium are present in MW-3 and selenium is present in MW-1 and MW-4.
- No SVOCs, PCBs, or RCRA Metals were detected in the groundwater samples.

## **Conclusions and Recommendations**

Elevated concentrations of chlorinated volatile organic contaminants (i.e., PCE, TCE, and cis-1,2-DCE) were identified in Site groundwater. The character of the detected contaminants is consistent with gradual natural attenuation and oxidation of PCE either within or to the west of the western portion of the Site. The downgradient occurrence of TCE and cis-1,2-DCE, breakdown products of PCE, due to natural processes in subsurface, is consistent with the long-term presence of PCE in the subsurface. A recent release of PCE, TCE or cis-1,2-DCE on or adjacent to the Site is not indicated by the project data.

Past use of the Site and adjacent properties to the south and west include Jason Cunningham Sons & Co. from 1838 to the 1950s/1960s, who manufactured fine carriages prior to the 1900s; automobiles and military tanks during the early to mid 1900s; and various machine shops and factories from the 1960s to the present. These past uses may be possible sources of Site contamination.

Based on information generated during this investigation, Lu Engineers recommends the following:

1. If the City of Rochester plans to identify the source of chlorinated solvent contamination associated with the Site, additional investigation will be required. Additional subsurface soil borings are recommended on the property to further delineate the nature and extent of chlorinated solvents in the subsurface. As part of this process, it is recommended that at least four additional groundwater monitoring wells be installed to further evaluate groundwater quality on the property and nearby accessible City of Rochester property.
2. Lu Engineers also recommends that a detailed evaluation of the occurrence of PCBs be conducted. This evaluation should include the building interior. Information generated from current work in this area and data generated from additional investigation can be used to identify the most appropriate remedial alternative for this area.
3. Should the City of Rochester choose to release the property without conducting additional delineation or investigation, Lu Engineers recommends that a legal means be created to mitigate potential impacts of Site contaminants on human health and/or the environment. Environmental institutional controls should be implemented including, but not limited to, deed restrictions and flagging of the site within the City's Building Information System (BIS). This should be done in order to prevent the use of the Site for purposes which could necessarily result in exposure of future Site occupants/users to contaminated soil, groundwater and/or soil vapor. The redevelopment of the Site to include occupied structures is not recommended without further investigation or remediation.

## **1.0 Introduction**

### **1.1 General**

This report summarizes the findings of a Phase II Environmental Site Assessment (ESA) conducted in August and September 2009 at 25-37 Canal Street in the City of Rochester, Monroe County, New York (Figure 1- “the Site”). The objective of this investigation was to collect data necessary to more fully characterize environmental conditions at the Site.

The following subsections present Site background information, including a description of the Site and the property history relating to this investigation. The remainder of the report is organized as follows:

- Section 2.0 presents an overview of the field investigation activities;
- Section 3.0 discusses Site hydrogeologic conditions;
- Section 4.0 summarizes the findings of the project; and
- Section 5.0 presents the Conclusions and Recommendations.

### **1.2 Site Location and Description**

The subject property is located at 25-37 Canal Street (Site) in the City of Rochester, Monroe County, New York (Figure 1). It consists of one parcel of land that totals approximately 0.83 acres. The parcel is currently undeveloped, although a portion of the building complex to the south appears to encroach on the City property in this parcel.

A manufacturing/factory building which had been located on the parcel since at least the late 1800s was demolished between 1999 and 2005. The Site consists of grass, top soil, and gravel. In addition, the northwestern portion of the building adjoining the property to the southeast, is located on the southeastern portion of the Site.

The surrounding area is largely commercial. Surrounding properties include Bags Unlimited, Inc. to the south and Volunteers of America to the north. The area is supplied with public water and sewers. Site photographs are attached as Appendix F.

### **1.3 Site History Relating to the Investigation**

The Scope of Work for this investigation was based on information obtained from review of a previous Phase I Environmental Site Assessment (LCS, Inc., 2007), street directories, Sanborn maps, aerial photographs, and newspaper articles.

### **1.4 Review of Site History**

Review of historical records indicates that this property was utilized as the northern portion of Jason Cunningham Sons & Co. from late 1800s to the mid 1950, which was addressed as 13 Canal Street. This facility manufactured fine carriages from at least 1892 to 1950 as well as automobiles and military tanks during the early to mid-1900s.

The 1912 Sanborn Map identifies a “Hammer Room” on the northwestern portion of the Site. The central portion of the property was utilized as a foundry and for painting. Foundry operations were also located on the western and southeastern portion of the Site.

The facility was reportedly utilized as the Flower City Foundry and Empire Blower Co. Inc. in the early 1950s. A factory building is identified on the northwestern portion of the Site and in the south central portion of the Site on the 1950 Sanborn Map. A machine shop is identified on the northwestern portion of the building, adjacent to the southeastern of the Site. The facility additionally manufactured floor covering and canvas/leather goods from 1957 to 1974 and circuits and canvas/leather goods from 1967 to 1974. The circuits included special electronic switches, electro-mechanical aircraft controls, army ordnance equipment and various fixtures for house trailers.

9-13 Canal Street is located adjacent to the southeastern portion of the Site. Thirteen Canal Street was occupied by Photo Devices, Inc. in the early 1960s; Communications Associates, Inc. and CDL Tool and Die in the mid-1960s; and Elmar manufacturing and Nelmes DW Machine Works, Inc. in the late 1960s. In the mid-1970s, 13 Canal Street was not listed in the street directories. According to review of the Sanborn Maps in the 1970s, the Site was utilized for storage, parking, and as part of a machine shop associated with puzzle printing and cutting operations. 9 Canal Street was occupied by Ferrari Machine Products from the late 1960s to the present, as well as Quality Packing Supply Corp. in the late 1960s and Carbide Sales Division, and Mill Supply Division Machine Shop in the mid-1970s. It should be noted that the northwestern portion of the building located at 9-13 Canal Street is located on the southeastern portion of the Site.

11 Canal Street was listed as Socket Screw Set from the mid-1970s to the mid-1980s.

From the mid-1950s to the mid-1980s, 7 Canal Street, which is located adjacent to the south central portion of the Site, was utilized as Rosco Manufacturing Company, Great Lakes Press Corp, and Jaymar Specialty Company from the early 1960s to the mid-1980s; and Bags Unlimited from the mid-1980s to the present. In addition, James Palmer Creative Design Artist was also listed at 7 Canal Street in the mid-2000s.

Twenty Litchfield Street is located adjacent to the southwest of the Site and was occupied by Heinrich Serbold from the mid-1970s to the mid-1980s. The property was not listed in the street directories from the mid-1980s to the present. This property is not listed in any other directory and is assumed to be associated with 7 Canal Street.

33 Litchfield Street is located adjacent to the west of the Site, on the opposite side of Litchfield Street and is currently unoccupied and owned by New Life Ministries, Inc. 31-35 Litchfield Street was located adjacent to the west of the Site, on the opposite side of Litchfield Street and utilized as Jason Cunningham Sons & Co from the early 1920s to the early 1960s. 33 Litchfield Street was occupied by Jason Cunningham and Sons machine shop in the early 1960s; Photo Devices, Inc., Elliot Engineering, and Colonial Candy Co. from at least the mid-1960s to the late 1960s; Statewide Machine Inc., and Campus Ind. from the mid-1960s to the late 1970s as well as ITEK Business Product

from at least the late 1960s to the early 1970s; Gregory Designs LTD from the mid-1970s to the mid-1980s. Gas Appliance Specialist Inc., and McMahon MA Installation also occupied the facility in the mid-1970s and Paul's Crafted Welding, Pop Dent Body and Repair and Woods Metals and Distribution, Inc. and Volunteers of America occupied the facility from at least the mid-1980s to the mid-1990s. 31 Litchfield Street was occupied by Automatic Bar Machine Company from the early 1960s to the mid-1970s and was not listed after the mid-1970s in the street directories.

The property adjacent to the north of the Site, Rochester (former) Manufactured Gas Plant (MGP) Site is a voluntary cleanup site (VCP) with the New York State Department of Environmental Conservation (NYSDEC). Reportedly, it is unclear if gas was ever actually produced at this facility; however, it is known that gas was stored at the facility from approximately the 1880s to 1891. By the mid-1890s, the property was sold. According to review of the Sanborn Maps, this facility was utilized as Rochester Railways and Light Co. in the early 1900s and Rochester Gas and Electric (RG&E) from at least the 1950s to the 1970s.

An explosion involving release of hydrogen cyanide gas occurred on this property on May 17, 1951 as indicated by an article which appeared in the Democrat & Chronicle newspaper on May 18, 1951. Review of this article did not indicate environmental impacts to the RG&E or surrounding properties.

It appears that the buildings located at the Site were demolished between 1999 and 2005. No petroleum storage tanks were identified on the Sanborn Maps.

### **1.5 Conclusions Based on Site History**

Based on the above information, it was concluded that additional work was necessary to evaluate potential environmental concerns.

## **2.0 Investigation Activities**

### **2.1 General**

This section discusses the field investigation activities completed to assess soil quality and subsurface conditions at the Site. Field activities completed to date have included:

- Drilling and sampling of four (4) soil borings to determine on-Site soil conditions;
- Installation of four (4) monitoring wells to access Site groundwater;
- Sampling and analysis of groundwater;
- Excavation and sampling of seven (7) test pits to investigate subsurface soil conditions at the Site; and
- Site survey.

### **2.2 Monitoring Well Installation**

Lu Engineers contracted Nothnagle Drilling, Inc. to install a total of four (4) monitoring wells at the Site on August 6, 2009. Overburden drilling was conducted using 4.25-inch ID hollow-stem augers. Continuous split spoon soil samples were collected in accordance with ASTM Method D-1586 at each boring and characterized using the Burmeister Soil Classification System. Split-spoon samples were logged by a geologist and recorded for reference.

Field headspace measurements of volatile organic compounds (VOCs) from soil split-spoon samples were recorded using a MiniRae 2000 portable photoionization detector (PID) meter. PID readings in MW-2 ranged from 3.9 parts per million (ppm) at 0.0 feet to 76 ppm at 7-8 feet (ft) below ground surface (bgs). Samples were collected using a standard two-inch outer diameter (OD) split-spoon driven by a 140-pound drill rig hammer. Blow counts were recorded for each split-spoon sample and recorded on well/soil boring logs provided in Appendix A.

Upon reaching competent bedrock, boreholes were advanced using rotary techniques and coring. HQ rock cores were obtained from all well bores to facilitate development of an accurate picture of Site-wide near surface bedrock hydrogeology via fence diagrams and profiles. Water for coring was obtained from a nearby fire hydrant under a permit issued by the City of Rochester.

Well construction details are provided in Appendix B. All monitoring wells were completed flush to grade. Drill cuttings and water generated during drilling was discharged to the ground surface.



Soil samples were submitted for analysis to Paradigm Environmental Services, Inc., a New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP) certified laboratory. Analytical parameters included:

- VOCs (United States Environmental Protection Agency (USEPA) Method 8260 plus NYSDEC Spill Technology and Remediation Series (STARS) );
- Semi-volatile organic compounds (SVOCs) (USEPA Method 8270 (base neutrals) plus NYSDEC STARS);
- Resource Conservation and Recovery Act (RCRA) Metals; and
- Polychlorinated biphenyls (PCBs).

Boring Logs are included in Appendix A. Boring/monitoring well locations are shown on Figure 2. Laboratory analytical results are included in Appendix E and are discussed in Section 5.

### **2.3 Well Development**

All newly installed monitoring wells were developed by surging and pumping until pH, specific conductivity and temperature stabilized and turbidity of the discharge was 50 nephelometric turbidity units (NTU) or less. All field instrument measurements made during development were recorded. Well development was performed on August 6 and August 11, 2009.

Development water was discharged to the ground surface in the vicinity of the monitoring wells.

### **2.4 Groundwater Sampling**

Groundwater samples were collected from each of the four (4) newly installed groundwater monitoring wells on September 4, 2009. Groundwater samples were submitted for analysis at Paradigm Environmental Services, Inc. Analytical parameters included:

- VOCs (USEPA Method 8260 plus NYSDEC STARS);
- SVOCs (USEPA Method 8270 (base neutrals) plus NYSDEC STARS);
- RCRA Metals; and
- PCBs.

Groundwater Sampling Logs are included in Appendix C. Laboratory analytical results are included in Appendix E and are discussed in Section 4.

## **2.5 Well Survey**

Monitoring well locations were surveyed and the top of casing determined to 0.010 foot accuracy to mean sea level by Lu Engineers. Groundwater depths, laboratory analytical data, and Site survey data were used to evaluate groundwater flow patterns, and local hydraulic gradient diagrams as well as to prepare groundwater and contaminant concentration maps (refer to Figures 3 and 4).

## **2.6 Test Pit Investigation**

A test pit investigation was completed by Lu Engineers to further evaluate subsurface conditions across the Site.

Lu Engineers contracted Nothnagle Drilling, Inc. to complete seven (7) test pits at the Site on August 7, 2009. The test pits were visually classified and logged vertically and horizontally by Lu Engineers and located using hand-held GPS equipment (Trimble Geo XT). Representative samples of the excavated materials were screened for headspace analysis.

Bricks and metal debris was encountered in TP-01, TP-03, TP-04, TP-05, TP-06 and TP-07. Slag and foundry sand was also encountered at TP-04. No petroleum impacted soils were identified. Headspace screening measurements, recorded using a MiniRae 2000 portable PID meter, were 0.0 ppm from 0.0 to 9.0 ft bgs. A sample was collected from TP-02 for laboratory analysis, based on its location to the encroaching building.

A concrete chip sample from the north side of the building encroaching on the southeastern portion of the Site was also collected for laboratory analysis at the time of the test pit investigation. This was done to evaluate staining observed at this location.

The soil and concrete chip sample were submitted for PCB and petroleum hydrocarbon (PHC) analysis. Constituents detected in the soil and paint chip samples are discussed in Section 5.

Test pit logs are presented in Appendix D.

### **3.0 Hydrogeologic Conditions**

#### **3.1 General**

This section describes the geologic and hydrogeologic conditions at 25-37 Canal Street, Rochester, New York. Soil boring logs and well development logs are included in Appendix A and Appendix B, respectively. Figure 2 shows the location of all existing on-Site wells.

#### **3.2 Site Geologic Conditions**

Overburden soils at the Site consist of fill material including concrete, brick, wood, slag, and metal debris, with interbedded sand and gravel, underlain by apparent glacial till. Based on soil boring and monitoring well installations, bedrock (limestone) is present at approximately 8.7 to 9.8 feet below ground surface (bgs). Groundwater at the Site is located at approximately 7 to 8 feet bgs. The composition, grain size and distribution of native Site soils are glacial outwash and lacustrine deposits that have been somewhat disturbed by past Site developments (urban soils “Udorthents”).

#### **3.3 Groundwater Flow**

Figure 3 is a groundwater elevation map generated from water level measurements collected by Lu Engineers on September 3, 2009. Groundwater flow direction is measured as perpendicular to the projected groundwater contour lines.

As indicated on Figure 3, groundwater elevations are highest on the western portion of the property and lowest on the eastern portion of the property. The groundwater flow direction at the Site is generally from west to east. Hydraulic gradient was calculated from MW-1 to the outermost downgradient monitoring well MW-4. The hydraulic gradient (dh/dl) is estimated to be 0.01 feet per foot.

#### **3.4 Summary of Hydrogeologic Conditions**

Geologic data and groundwater level data collected during the project have indicated the following:

- The overburden material underlying the Site consists of fill and interbedded sands and gravels which are consistently heterogenous across the Site;
- Interbedded sands, gravels, and debris is underlain by a layer of dense glacial till and then bedrock;
- Bedrock at the Site is Lockport Group Oak Orchard and Penfield Dolostones, both replaced eastwardly by Sconondoa Formation-limestone, dolostone and occurs at approximately 8.7 to 9.8 feet below grade.
- The depth to groundwater in the uppermost waterbearing zone is approximately 7-8 feet bgs.
- Groundwater flow at the Site is generally eastward.

## 4.0 Investigation Results

### 4.1 General

This section presents the results of field activities and analytical results for all samples collected to date at the Site. Data is discussed for both soil and water samples.

All laboratory reports are included in Appendix E. All samples were analyzed by Paradigm Environmental Services, Inc., a NYSDOH ELAP certified analytical laboratory.

### 4.2 Subsurface Soil Borings

Information from the soil boring portion of the project was used to identify the presence of hazardous substances and/or petroleum. Analytical results for the soil borings were compared to NYSDEC Unrestricted Use Soil Cleanup Objectives and Technical and Administrative Guidance Memorandum (TAGM) values and are summarized in Table 4.1 below.

**Table 4.1:** Summary of Detected Soil Boring Analytical Results

					Part 375 Commercial Use Soil Cleanup Objectives (ppm)	TAGM 4046 Soil Cleanup Objectives (ppm)
Metals	MW-1 (6-8')	MW-2 (7-8')	MW-3 (7-8')	MW-4 (6-8')		
Arsenic	2.16	3.56	2.42	1.76	16	7.5 or SB
Barium	44.1	14.2	51.4	17.2	400	300 or SB
Chromium	14	4.68	11.2	5.57	400	50

					Part 375 Commercial Use Soil Cleanup Objectives (ppm)	TAGM 4046 Soil Cleanup Objectives (ppm)
SVOCs	MW-1 (6-8')	MW-2 (7-8')	MW-3 (7-8')	MW-4 (6-8')		
Pyrene	ND	0.357	ND	ND	500	50

**Bold=Exceedances**

\*All values are reported in mg/kg (ppm)

SB-Site Background

All other constituents (i.e., VOCs and PCBs) were non-detect.

Table 4.1 indicates that soils at the Site contain detectable levels of arsenic, barium and chromium below NYSDEC Commercial Use Soil Cleanup Objectives and TAGM values.

### 4.3 Groundwater Sampling

Information from the groundwater sampling portion of the project was used to identify contaminant concentrations, groundwater quality, and groundwater flow patterns.

Analytical results for the groundwater sampling were compared to NYSDEC Part 703 and Technical and Operational Guidance Series (TOGS) 1.1.1 Groundwater Standards, and TAGM Groundwater Standards Criteria, and are summarized in Table 4.2 below.

**Table 4.2:** Summary of Detected Groundwater Analytical Results

Metals	MW-1	MW-2	MW-3	MW-4	NYCRR Part 703 and TOGS 1.1.1 Groundwater Standards
Barium	0.056	0.091	0.093	ND	1,000
Chromium	ND	ND	0.395	ND	50
Selenium	0.01	0.007	0.009	0.012	10

VOCs	MW-1	MW-2	MW-3	MW-4	NYCRR Part 703 and TOGS 1.1.1 Groundwater Standards
cis-1,2-Dichloroethene	<b>354</b>	<b>9.51</b>	2.73	ND	5
Tetrachloroethene	<b>761</b>	ND	<b>17.1</b>	2.2	5
Trichloroethene	<b>135</b>	ND	<b>64</b>	4.06	5

**Bold=Exceedances**

All values are reported in µg/kg (ppb)

All other constituents (i.e., SVOCs and PCBs) were non-detect.

Table 4.2 indicates that groundwater at the Site contains levels of chlorinated solvents (i.e., tetrachloroethene (PCE), trichloroethene (TCE) and cis-1,2-dichloroethene (cis-1,2-DCE) above NYSDEC, TOGS and TAGM guidance values in MW-1, MW-2 and MW-3. In addition, barium and selenium were detected in all Site wells and chromium was detected at MW-3, but detected metals did not exceed applicable regulatory limits.

Test Pits 5, 6, and 7 were completed in the vicinity of MW-1 on the western portion of the Site, and were found to contain fill material including brick, wood and metal debris. Test Pit 4 was completed in the vicinity of MW-2, on the northern portion of the Site, and was found to contain foundry sand and slag. Test Pit 3 was completed in the vicinity of MW-3, on the southern portion of the Site, and was found to contain brick, metal and concrete debris.

#### 4.4 Test Pit Investigation Sampling

Test excavations were completed at the Site to attempt to identify the source of contamination. The results of the test excavations are discussed below.

Lu Engineers coordinated and oversaw the excavation of seven (7) test excavations on this property. The excavations showed a consistent 8-foot layer of fill material (stone, earth, brick, and concrete) over the majority of the parcel. Fill on the north central portion of the property also contained slag material.

No tanks were encountered in any of the test pit excavations. No stained soils, or elevated PID readings or odors were observed in the test excavations either.

Soil samples were collected from four (4) of the completed excavations; however only one (1) was submitted for laboratory analysis. Based on the physical characteristics of the material encountered, soils from test excavation TP-02 were only analyzed for PCBs and PHCs. Results from the analysis on TP-02 are summarized in Table 4.3.

In addition, one concrete chip sample was collected from the northern wall of the building located on the southeastern portion of the Site, adjacent to TP-02, and is summarized in Table 4.3 below.

**Table 4.3:** Summary of Test Pit and Concrete Chip Analytical Results

<b>Polychlorinated biphenyls<sup>1</sup></b>	<b>Part 375 Unrestricted Use Soil Cleanup Objectives (ppm)</b>	<b>CH-01 (mg/kg)</b>	<b>TP-02 (mg/kg)</b>
Aroclor-1016	100	ND	ND
Aroclor-1221	100	ND	ND
Aroclor-1232	100	ND	ND
Aroclor-1242	100	ND	ND
Aroclor-1248	100	56	ND
Aroclor-1254	100	ND	ND
Aroclor-1260	100	ND	4.64
Total PCBs:	100	56	4.64

<b>PHC</b>	<b>CH-01 (ug/kg)</b>	<b>TP-02 (ug/kg)</b>
Heavy Weight PHC as Lube Oil	37,100,000	121,000

**Bold=Exceedances**

Table 4.3 indicates that soils found in TP-02 and the concrete chip samples contain lube oil. No PID readings were observed in this area and no soil staining was noted. These areas did not appear to be widespread and isolated to the southeastern portion of the Site.

## 5.0 Conclusions and Recommendations

Elevated concentrations of chlorinated volatile organic contaminants (i.e., PCE, TCE, and cis-1,2-DCE) were identified in Site groundwater. The character of the detected contaminants is consistent with gradual natural attenuation and oxidation of PCE either within or to the west of the western portion of the Site. The downgradient occurrence of TCE and cis-1,2-DCE, breakdown products of PCE, due to natural processes in subsurface, is consistent with the long-term presence of PCE in the subsurface. A recent release of PCE, TCE or cis-1,2-DCE on or adjacent to the Site is not indicated by the project data.

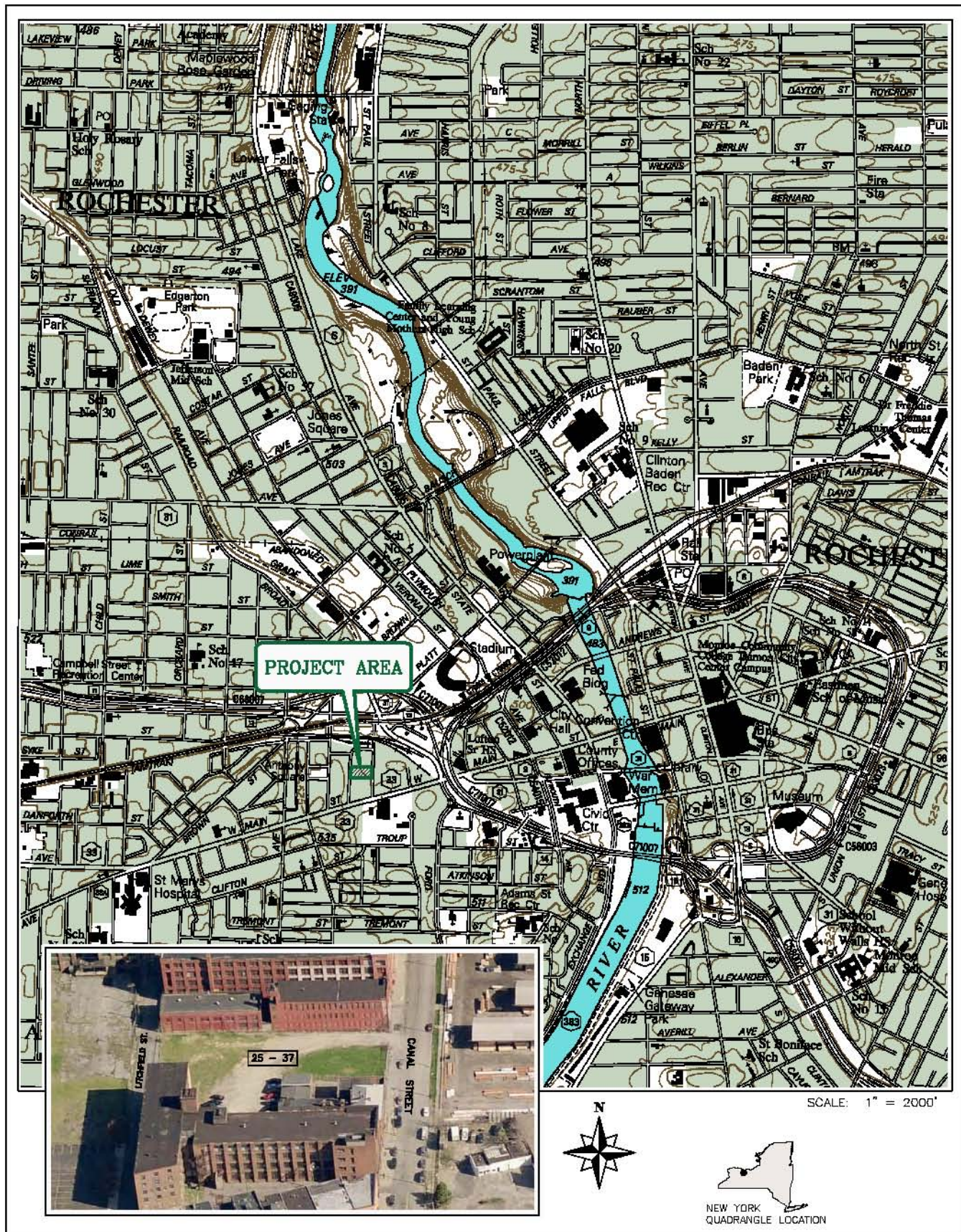
Past use of the Site and adjacent properties to the south and west include Jason Cunningham Sons & Co. from 1838 to the 1950s/1960s, who manufactured fine carriages prior to the 1900s; automobiles and military tanks during the early to mid-1900s; and various machine shops and factories from the 1960s to the present. These past uses may be possible sources of Site contamination.

Based on information generated during this investigation, Lu Engineers recommends the following:

1. If the City of Rochester plans to identify the source of chlorinated solvent contamination associated with the Site, additional investigation will be required. Additional subsurface soil borings are recommended on the property to further delineate the nature and extent of chlorinated solvents in the subsurface. As part of this process, it is recommended that at least four additional groundwater monitoring wells be installed to further evaluate groundwater quality on the property and nearby accessible City of Rochester property.
2. Lu Engineers also recommends that a detailed evaluation of the occurrence of PCBs be conducted. This evaluation should include the building interior. Information generated from current work in this area and data generated from additional investigation can be used to identify the most appropriate remedial alternative for this area.
3. Should the City of Rochester choose to release the property without conducting additional delineation or investigation, Lu Engineers recommends that a legal means be created to mitigate potential impacts of Site contaminants on human health and/or the environment. Environmental institutional controls should be implemented including, but not limited to, deed restrictions and flagging of the site within the City's Building Information System (BIS). This should be done in order to prevent the use of the Site for purposes which could necessarily result in exposure of future Site occupants/users to contaminated soil, groundwater and/or soil vapor. The redevelopment of the Site to include occupied structures is not recommended without further investigation or remediation.







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**FIGURE 1. SITE LOCATION MAP**  
**CITY OF ROCHESTER | PHASE II**  
 25-37 CANAL STREET  
 ROCHESTER - MONROE COUNTY - NEW YORK

P.N. 4215-43

DATE: SEPTEMBER 2009

SCALE: 1:24,000

DRAWN BY: DLS

MAP SOURCE: NYS DOT RASTER QUADRANGLES - ROCHESTER WEST & ROCHESTER EAST / NEW YORK, MONROE COUNTY  
 DOT EDITION DATE: 1987 / USGS CONTOUR DATA: 1971  
 2008 MICROSOFT CORPORATION, MDA GEOSPATIAL SERVICES,  
 2009 PICTOMETRY INTERNATIONAL CORP.



Drawn By: JSB Date: 9/10/09 Revised by: CAC Date: 9/18/09 I:\Projects\4200 Rochester\4215-43 Canal St Phase II\Env\GIS\Groundwater



City of Rochester, NY

City of Rochester  
25-37 Canal Street

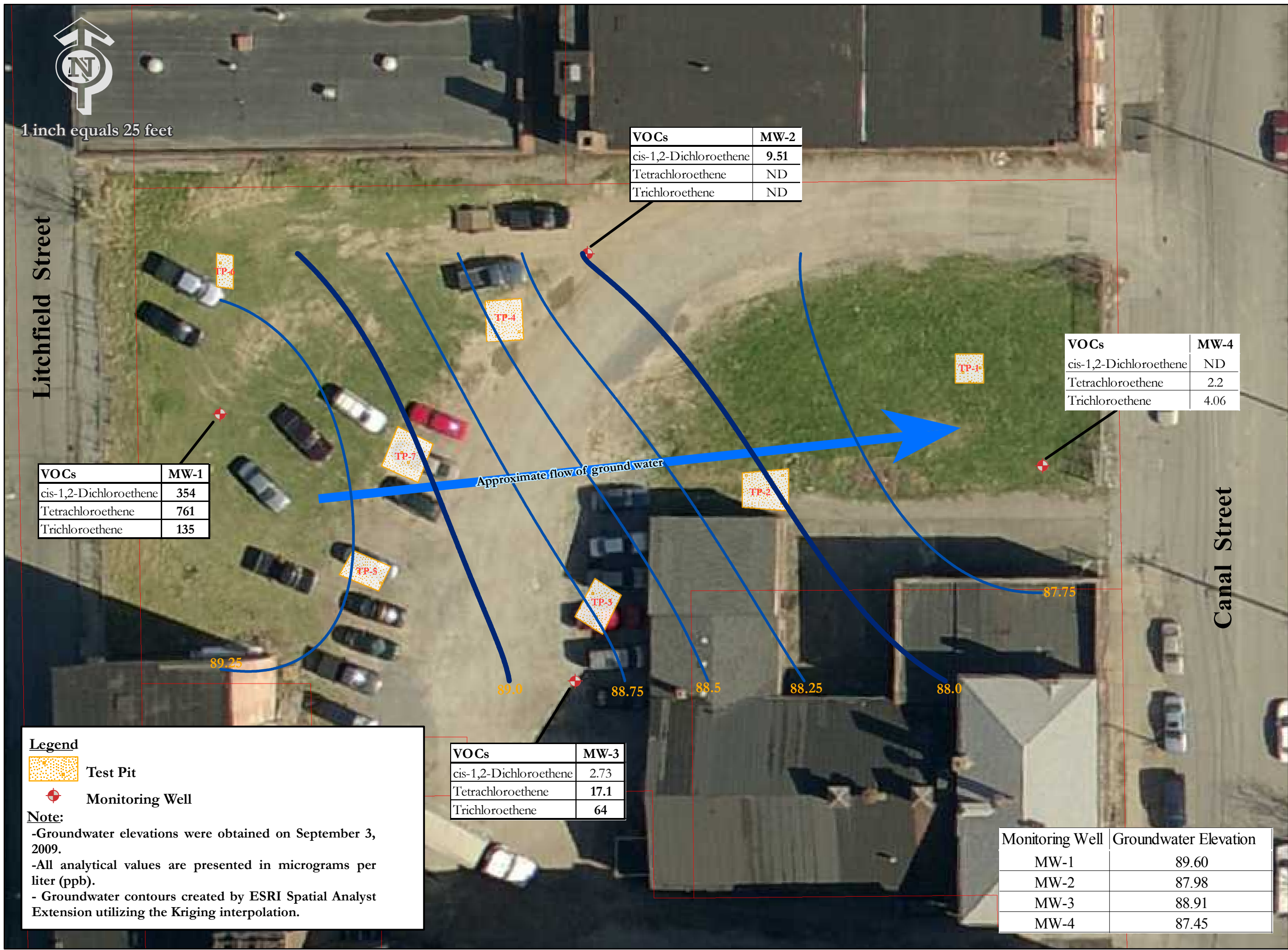
Site Plan  
Figure 2



Lu Engineers




Drawn By: JSB Date: September 10, 2009 Revised: 9/22/09 J:\Projects\4200 Rochester\4215-43 Canal St Phase II\Env\GIS\Groundwater



City of Rochester  
25-37 Canal Street  
Groundwater Elevation Contours  
Figure 3

## Appendix A – Well/Soil Boring Logs

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 <b>LU ENGINEERS</b> , 2230 PENFIELD ROAD Civil and Environmental PENFIELD, NEW YORK 14526		PROJECT		BORING MW-1	
		25 - 37 Canal Street, City of Rochester		SHEET 1 OF JOB #: 4215-43 CHKD. BY: N/A	
CONTRACTOR:		BORING LOCATION: SEE PLAN			
DRILLER:		GROUND SURFACE ELEVATION: N/A		DATUM: N/A	
JCL GEOLOGIST: RCM		START DATE:		END DATE:	

TYPE OF DRILL RIG: CASING SIZE AND TYPE: OVERBURDEN SAMPLING METHOD: Geoprobe Tooling ROCK DRILLING METHOD: HAS + HQ Coring		WATER LEVEL DATA				
		DATE	TIME	WATER	CASING	REMARKS


D E P T H	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
1					70	0 - 1' - Top Soil/Organics	0 ppm
2						1 - 2' - Fill: Cinders/Concrete	0 ppm
3						2 - 3' - Fill: Wood chunks	0 ppm
4						3 - 4' - Fill: Light grey SAND and GRAVEL	0 ppm
5					50	4 - 5' - Fill: Light brown SAND and GRAVEL	0 ppm
6							
7							
8						5 - 8' - Fill: Light grey SAND and GRAVEL moist	0 ppm
9					20	8 - 9.8' - Wet, rock fractures, slight black layer, then reddish brown/brick, bedrock fractures, 9.8-10' - Horizontal fractures with secondary mineralization and oxidation	
10						10-11' - Horizontal fracture with mineralization and oxidation	
11							
12							
13							
14						RQD: 49.4%	
15						Begin Coring: 9.8-15.0'	
16						Complete well to 15' bgs	
17						Screen 15' to 5'	
18						Sand 15' to 3.9'	
19						Bentonite 4' to 1'	
20						Grout curb box 1' to 0'	

<b>LEGEND</b> S- SPLIT SPOON SOIL SAMPLE U- UNDISTURBED SOIL SAMPLE C- ROCK CORE SAMPLE	15' bgs
--------------------------------------------------------------------------------------------------	---------

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

BORING # MW-1

<b>LU ENGINEERS</b> Civil and Environmental 2230 PENFIELD ROAD PENFIELD, NEW YORK 14526		PROJECT		BORING MW-2					
		25 - 37 Canal Street, City of Rochester		SHEET 1 OF JOB #: 4215-43 CHKD. BY: N/A					
CONTRACTOR:		BORING LOCATION: SEE PLAN							
DRILLER:		GROUND SURFACE ELEVATION: N/A		DATUM: N/A					
JCL GEOLOGIST:		START DATE: 8/5/2009 END DATE:							
TYPE OF DRILL RIG: CME CASING SIZE AND TYPE: OVERBURDEN SAMPLING METHOD: Geoprobe Tooling ROCK DRILLING METHOD: HAS + HQ Coring		WATER LEVEL DATA							
		DATE	TIME	WATER	CASING	REMARKS			
D E P T H	SAMPLE DATA					SAMPLE DESCRIPTION	PID		
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)				
					80			0 - 1' - Fill: SAND and GRAVEL	3.9 ppm
	1								
	2							1 - 2' - Fill: Brick, SAND and GRAVEL	0.1 ppm
	3								
	4							2 - 4' - Fill: GRAVEL some asphalt, some concrete	1 ppm
	5								
	6							4 - 6' - Fill: Medium brown SAND and GRAVEL	0 ppm
	7							6 - 7' - Fill: Light brown to grey SAND and GRAVEL	20 ppm
	8							7 - 8' - Grey fill, petroleum odor and staining	48 ppm
	9							8 - 8.7' - Same as above, wet	76 ppm
	10							8.7-11' Horizontal fractures	32 ppm
	11								
	12							11-11.4' - Friable rock	
	13							11.4-13.7- Horizontal fractures	
	14							RQD:62%	
	15							Begin Coring (8.7 - 13.6'):	
	16							Screen 13.6' to 3.6'	
	17							Sand 13.6' to 2.6'	
	18							Bentonite 2.6' to 0.6'	
19									
20									
<b>LEGEND</b> S- SPLIT SPOON SOIL SAMPLE U- UNDISTURBED SOIL SAMPLE C- ROCK CORE SAMPLE					13.6' bgs				
GENERAL NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL. 2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.									
BORING # Mw-2									

<div><b>LU ENGINEERS</b> Civil and Environmental</div> <div>2230 PENFIELD ROAD PENFIELD, NEW YORK 14526</div>						PROJECT 25 - 37 Canal Street, City of Rochester		BORING MW-3 SHEET 1 OF JOB #: 4215-43 CHKD. BY: N/A			
CONTRACTOR: DRILLER: JCL GEOLOGIST: RCM						BORING LOCATION: SEE PLAN GROUND SURFACE ELEVATION: N/A START DATE:                      END DATE:                      DATUM: N/A					
TYPE OF DRILL RIG: CME CASING SIZE AND TYPE: OVERBURDEN SAMPLING METHOD: Geoprobe Tooling ROCK DRILLING METHOD: HAS + HQ Coring						WATER LEVEL DATA					
						DATE	TIME	WATER	CASING	REMARKS	
DEPTH P T H	SAMPLE DATA					SAMPLE DESCRIPTION					PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)						
					60	0 - 1' - Fill: Light grey GRAVEL and SAND (road base)  1 - 2' - Fill: Black to dark brown cinders, SAND, brick  4 - 4' - Fill: Medium brown SAND and GRAVEL moist at 4'  4 - 6' - Fill: Medium brown SAND and GRAVEL  6 - 7' - Fill: Medium brown SAND and GRAVEL  7 - 8' - Medium brown mf SAND, wet  8 - 9' - Same as above  10-11' Horizontal and vertical fractures, mineralization and oxidation  12' - Friable rock  RQD:52%  Start Coring (9 - 13.5'): Screen 15.5' to 3.5' Sand to 3.5' Bentonite to 2'					0 ppm
	1										0 ppm
	2										0 ppm
	3										
	4										0 ppm
	5				80						
	6										0 ppm
	7										0 ppm
	8										0 ppm
	9										
	10										
	11										
	12										
	13										
	14										
	15										
	16										
	17										
	18										
19											
20											
<b>LEGEND</b> S- SPLIT SPOON SOIL SAMPLE U- UNDISTURBED SOIL SAMPLE C- ROCK CORE SAMPLE						13.5' bgs					
GENERAL NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL. 2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.											
BORING # MW-3											



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

PROJECT

25 - 37 Canal Street, City of Rochester

BORING MW-4

SHEET 1 OF

JOB #: 4215-43

CHKD. BY: N/A

CONTRACTOR: Nothnagle

DRILLER:

JCL GEOLOGIST: RCM

BORING LOCATION: SEE PLAN

GROUND SURFACE ELEVATION: N/A

DATUM: N/A

START DATE:

END DATE:

TYPE OF DRILL RIG: CME

CASING SIZE AND TYPE:

OVERBURDEN SAMPLING METHOD: Geoprobe Tooling

ROCK DRILLING METHOD: HAS + HQ Coring

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS
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D E P T H	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
1					40	0 - 1' - Fill, Top Soil	0 ppm
2						1 - 2' - Fill: Grey ash and black cinders	0 ppm
3							
4						2 - 4' - Medium brown fill, SAND some f GRAVEL	0 ppm
5					60		
6						4 - 6' - Medium brown fill, SAND some GRAVEL	0 ppm
7							
8						6 - 8' - Medium brown SAND, some cmf GRAVEL, 6-7' wet, 7-8' moist	0 ppm
9						8.5-10.5' - Horizontal and vertical fractures with secondary mineralization and oxidation	
10							
11						10.5 - 13.5' - Horizontal fractures with little secondary mineralization and sediment	
12							
13							
14							
15							
16						RQD: 45%	
17						Begin coring (8.5' to 13.5'):	
18						Sand to 2.5'	
19						Bentonite to 1.0'	
20							

LEGEND

S- SPLIT SPOON SOIL SAMPLE

U- UNDISTURBED SOIL SAMPLE

C- ROCK CORE SAMPLE

GENERAL NOTES:

1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.

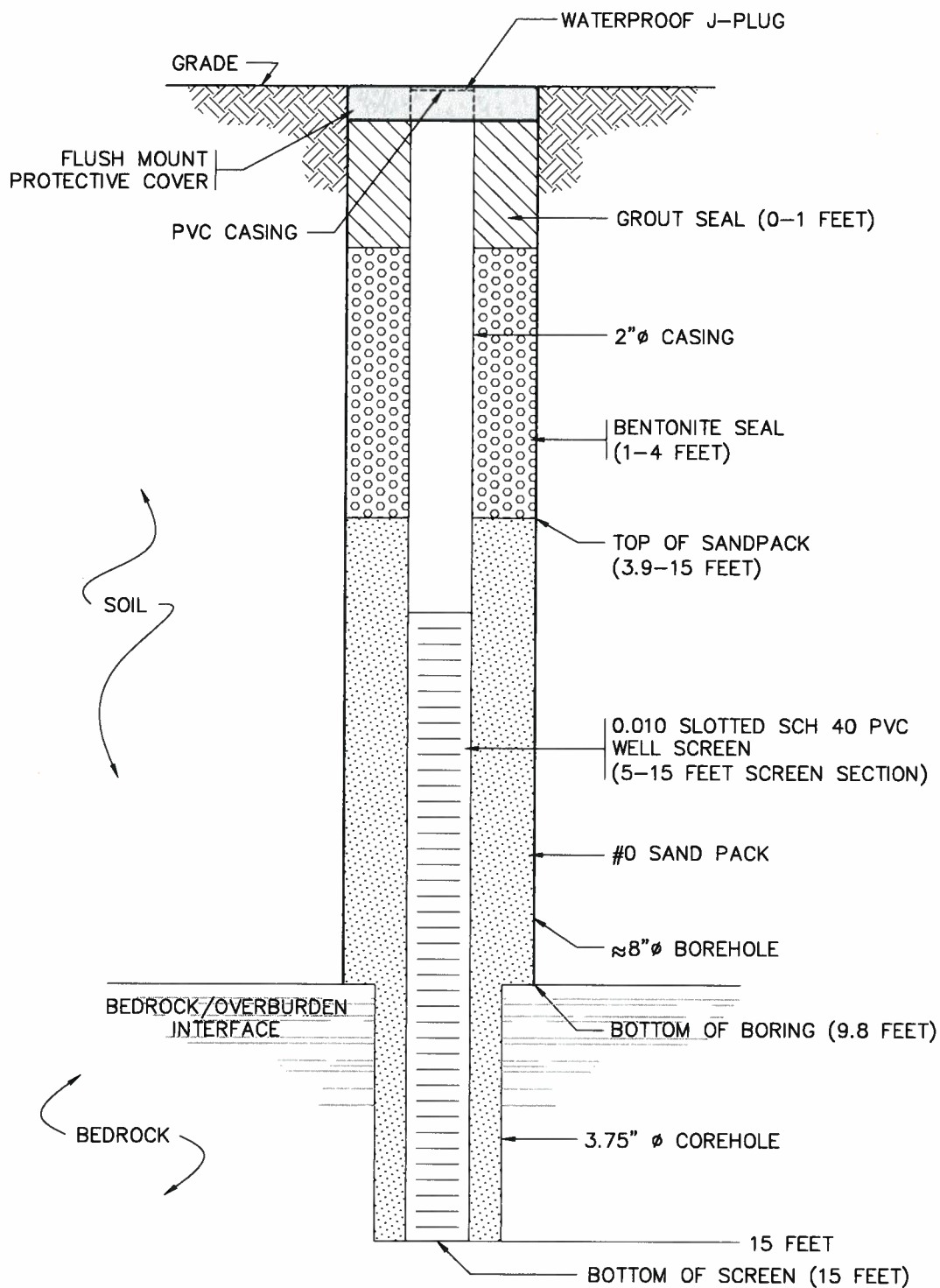
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING # MW-4



## Appendix B – Well Construction Detail

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**MW-01 CONSTRUCTION DETAIL**  
NOT TO SCALE



2230 Penfield Road  
Penfield, New York 14526  
(585) 377-1450  
Fax: (585) 377-1266  
luengineers.com

**FLUSH MOUNT MONITORING WELL -- MW-01**

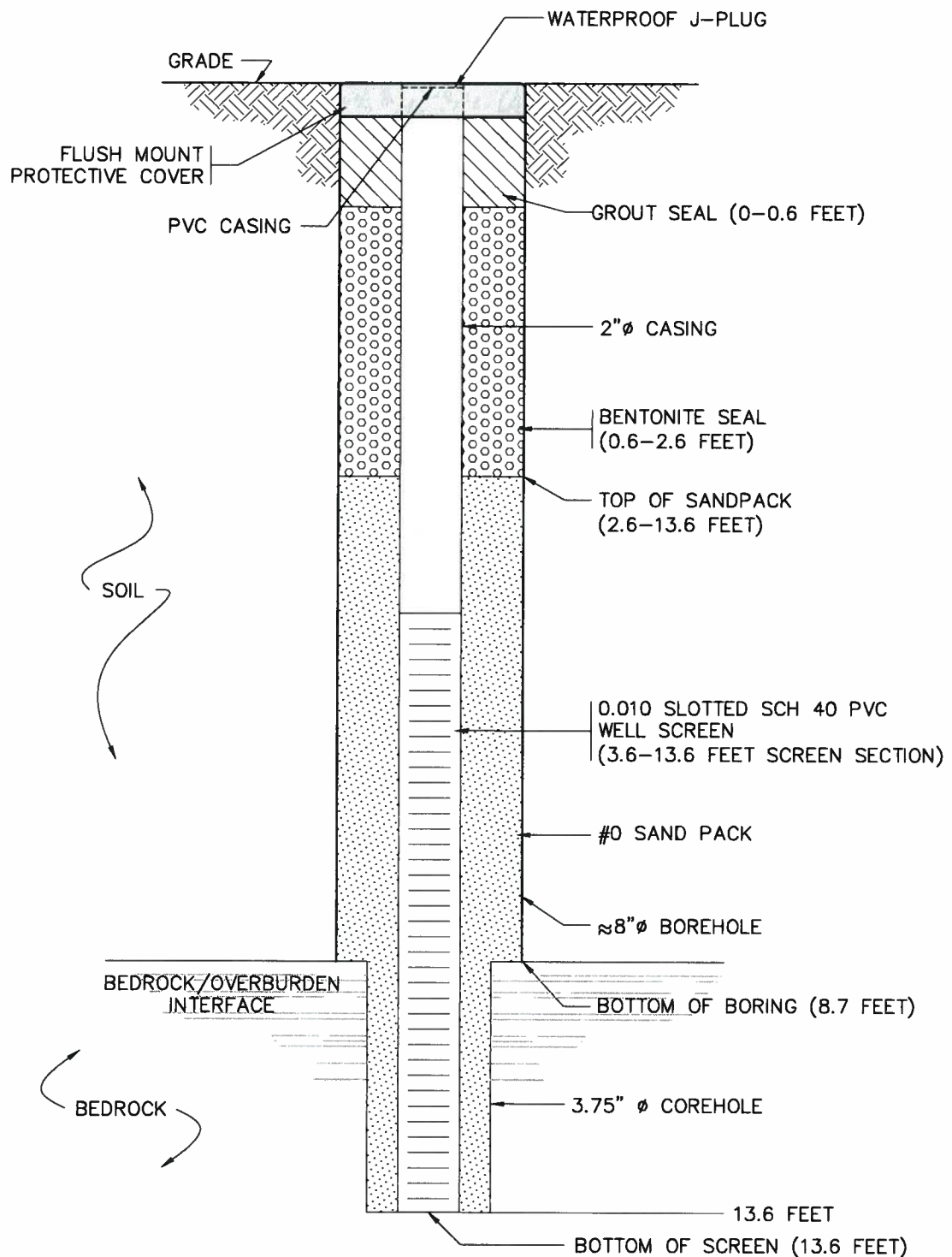
**CITY OF ROCHESTER | PHASE II**  
25-37 CANAL STREET  
ROCHESTER - MONROE COUNTY - NEW YORK  
P.N. 4215-43

DATE: SEPTEMBER 2009

SCALE: NONE

DRAWN/CHECKED DLS/GLA

P.N. 4215-43



**MW-02 CONSTRUCTION DETAIL**  
NOT TO SCALE



2230 Penfield Road  
Penfield, New York 14526  
(585) 377-1450  
Fax: (585) 377-1266  
luengineers.com

**FLUSH MOUNT MONITORING WELL -- MW-02**

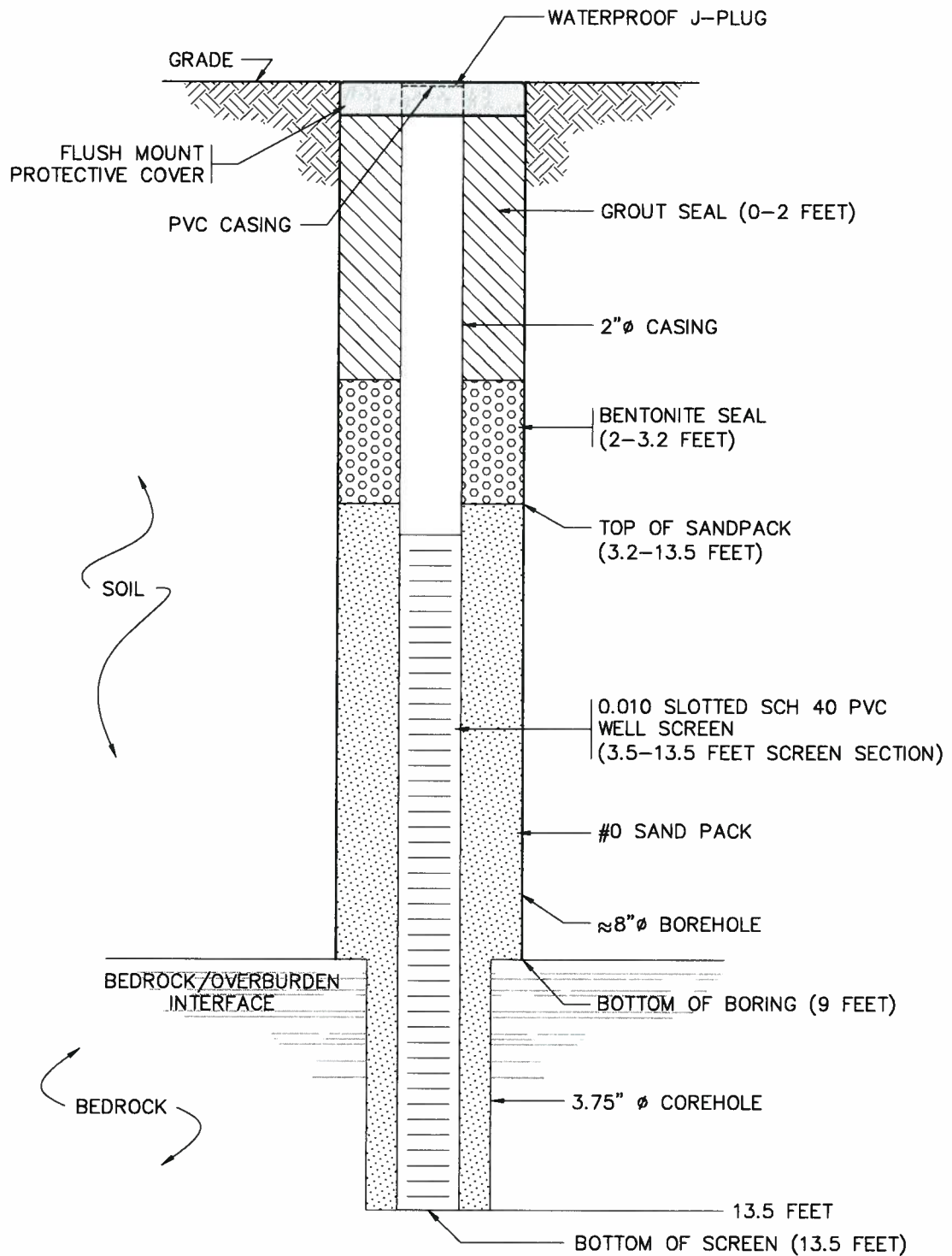
**CITY OF ROCHESTER | PHASE II**  
25-37 CANAL STREET  
ROCHESTER - MONROE COUNTY - NEW YORK  
P.N. 4215-43

DATE: SEPTEMBER 2009

SCALE: NONE

DRAWN/CHECKED DLS/GLA

P.N. 4215-43



**MW-03 CONSTRUCTION DETAIL**  
NOT TO SCALE



2230 Penfield Road  
Penfield, New York 14526  
(585) 377-1450  
Fax: (585) 377-1266  
luengineers.com

**FLUSH MOUNT MONITORING WELL -- MW-03**

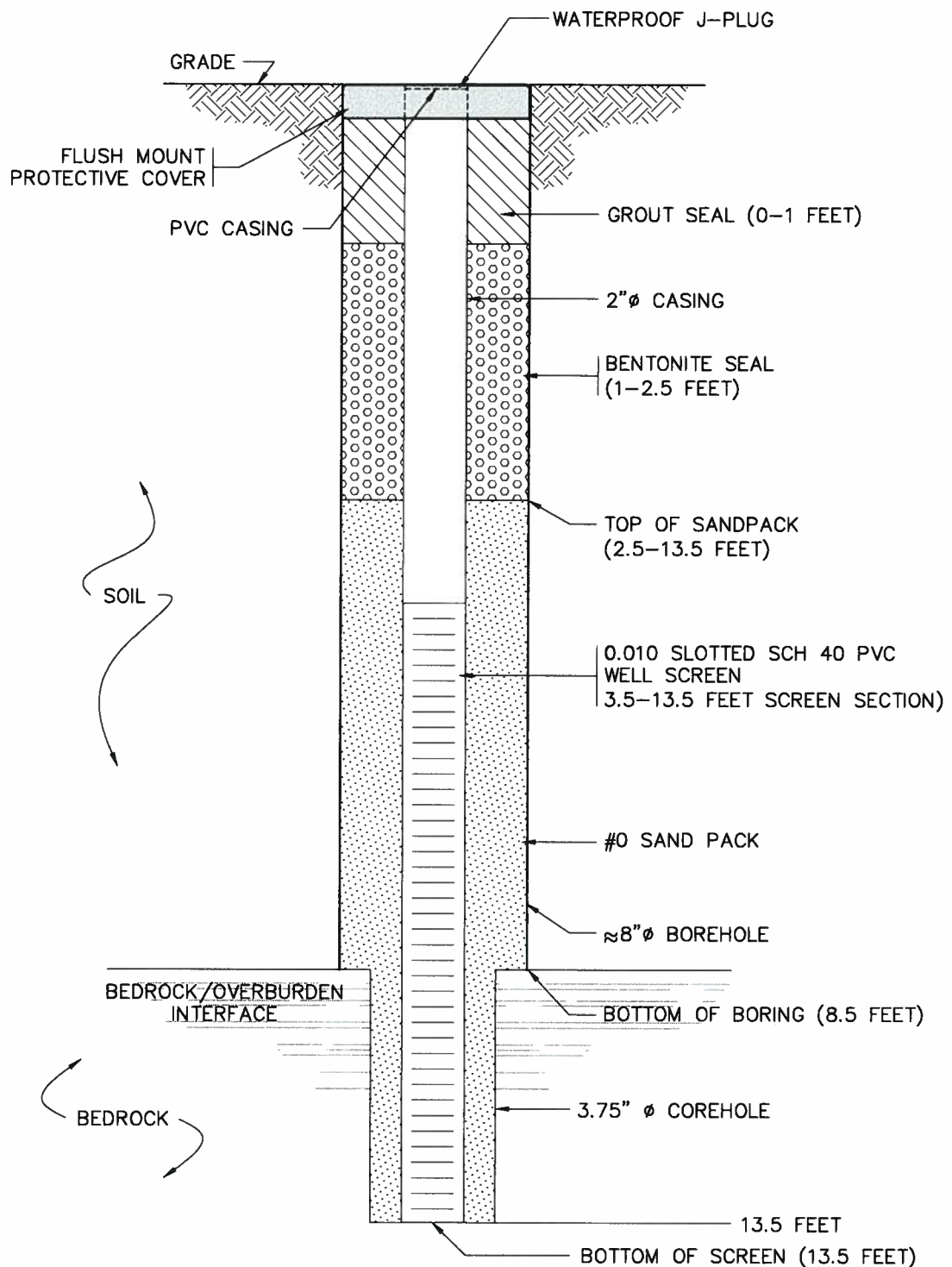
**CITY OF ROCHESTER | PHASE II**  
25-37 CANAL STREET  
ROCHESTER - MONROE COUNTY - NEW YORK  
P.N. 4215-43

DATE: SEPTEMBER 2009

SCALE: NONE

DRAWN/CHECKED DLS/GLA

P.N. 4215-43



**MW-04 CONSTRUCTION DETAIL**  
NOT TO SCALE



2230 Penfield Road  
Penfield, New York 14526  
(585) 377-1450  
Fax: (585) 377-1266  
luengineers.com

**FLUSH MOUNT MONITORING WELL -- MW-04**

**CITY OF ROCHESTER | PHASE II**  
25-37 CANAL STREET  
ROCHESTER - MONROE COUNTY - NEW YORK  
P.N. 4215-43

DATE: SEPTEMBER 2009

SCALE: NONE

DRAWN/CHECKED DLS/GLA

P.N. 4215-43

## Appendix C – Test Pit Logs

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**Lu Engineers**

## Test Pit Log

Test Pit No.: TP-1

Project:

Lu Project No.: 4215-43

Equipment Used: Case Backhoe

Date: August 7, 2009

Weather: Sunny Temp.: 75°

Field Engineer/Geologist: RCM

Test Pit Dimensions: 7 x 7 x 8  
Length Width Depth

Depth	PID Reading	Description
0-4'	0 ppm	Fill, medium to dark brown SAND and GRAVEL, brick, metal debris (steel)
4-8'	0 ppm	Fill, bricks, metal, concrete slab pieces, still dry, consistent bottom, slab or bedrock

### Comments

- ☐ No rock encountered; or  
☒ Rock encountered at 8 feet  
☐ Perch/Seepage water encountered at \_\_\_\_\_ feet  
☒ No groundwater encountered; or  
☐ Ground water encountered at \_\_\_\_\_ feet

Remarks: Sample collected at 8'

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# Lu Engineers

## Test Pit Log

Test Pit No.: TP-2

Project:

Lu Project No.: 4215-43

Equipment Used: Case Backhoe

Date: August 7, 2009

Weather: Sunny Temp.: 75°

Field Engineer/Geologist: RCM

Test Pit Dimensions: 12 x 12 x 9  
Length Width Depth

Depth	PID Reading	Description
0-1'	0 ppm	Fill, top soils and GRAVEL
1-2'	0 ppm	Black layer SAND and CLAY
2-3'	0 ppm	Black layer and clay drainage tile
3-5'	0 ppm	Light brown mf SAND with intermixed debris, scrap metal duct work
5-9'	0 ppm	Light brown mf SAND, some gravel, old foundation (footer) on half of test pit

### Comments

- ☐ No rock encountered; or  
☒ Rock encountered at 9 feet  
☐ Perch/Seepage water encountered at \_\_\_\_\_ feet  
☒ No groundwater encountered; or  
☐ Ground water encountered at \_\_\_\_\_ feet

Remarks: Sample collected at 2'

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# Lu Engineers

## Test Pit Log

Test Pit No.: TP-3

Project:

Lu Project No.: 4215-43

Equipment Used: Case Backhoe

Date: August 9, 2009

Weather: Sunny Temp.: 75°

Field Engineer/Geologist: RCM

Test Pit Dimensions: 12 x 10 x 6  
Length Width Depth

Depth	PID Reading	Description
0-6'	0 ppm	Fill, road base, bricks, concrete, some scrap metal debris
6'	0 ppm	Hit concrete slab foundation floor

### Comments

- ☐ No rock encountered; or  
☒ Rock encountered at 6 feet  
☐ Perch/Seepage water encountered at \_\_\_\_\_ feet  
☒ No groundwater encountered; or  
☐ Ground water encountered at \_\_\_\_\_ feet

Remarks: No sample collected

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# Lu Engineers

## Test Pit Log

Test Pit No.: TP-4

Project:

Lu Project No.: 4215-43

Equipment Used: Case Backhoe

Date: August 9, 2009

Weather: Sunny Temp.: 75°

Field Engineer/Geologist: RCM

Test Pit Dimensions: 11 x 10 x 9  
Length Width Depth

Depth	PID Reading	Description
0-1'	0 ppm	Fill, top soil
1-4'	0 ppm	Fill, black foundry sand, slag
4-5'	0 ppm	Fill, SAND, slag, foundry sand, several electric wires and insulators
5-8/9'	0 ppm	Fill, light brown SAND, ceramic insulators, bedrock

### Comments

- ☐ No rock encountered; or  
☒ Rock encountered at 9 feet  
☐ Perch/Seepage water encountered at \_\_\_\_\_ feet  
☒ No groundwater encountered; or  
☐ Ground water encountered at \_\_\_\_\_ feet

Remarks: Sample collected at 8-9'

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# Lu Engineers

## Test Pit Log

Test Pit No.: TP-5

Project:

Lu Project No.: 4215-43

Equipment Used: Case Backhoe

Date: August 9, 2009

Weather: Sunny Temp.: 75°

Field Engineer/Geologist: RCM

Test Pit Dimensions: 12 x 7 x 8  
Length Width Depth

Depth	PID Reading	Description
0-1'	0 ppm	Fill, top soil
1-3'	0 ppm	Fill, bricks and SAND
3-8'	0 ppm	Fill, concrete slab chunks, brick, some metal and some wood. Refusal on basement floor or bedrock. Unable to get any pieces.

### Comments

- ☐ No rock encountered; or  
☒ Rock encountered at 8 feet  
☐ Perch/Seepage water encountered at \_\_\_\_\_ feet  
☒ No groundwater encountered; or  
☐ Ground water encountered at \_\_\_\_\_ feet

Remarks: Sample collected at 8'

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**Lu Engineers**

## Test Pit Log

Test Pit No.: TP-6

Project:

Lu Project No.: 4215-43

Equipment Used: Case Backhoe

Date: August 9, 2009

Weather: Sunny Temp.: 75°

Field Engineer/Geologist: RCM

Test Pit Dimensions: 10 x 4 x 8  
Length Width Depth

Depth	PID Reading	Description
0-8'	0 ppm	Fill, SAND and GRAVEL, tops soil, concrete, metal, asphalt

### Comments

- ☐ No rock encountered; or  
☒ Rock encountered at 8 feet  
☐ Perch/Seepage water encountered at \_\_\_\_\_ feet  
☒ No groundwater encountered; or  
☐ Ground water encountered at \_\_\_\_\_ feet

Remarks: No sample collected

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**Lu Engineers**

## Test Pit Log

Test Pit No.: TP-7

Project:

Lu Project No.: 4215-43

Equipment Used: Case Backhoe

Date: August 9, 2009

Weather: Sunny Temp.: 75°

Field Engineer/Geologist: RCM

Test Pit Dimensions: 12 x 12 x           
Length Width Depth

Depth	PID Reading	Description
	0 ppm	Fill, top soil, SAND and GRAVEL, bricks

### Comments

- ☐ No rock encountered; or  
☒ Rock encountered at          feet  
☐ Perch/Seepage water encountered at          feet  
☒ No groundwater encountered; or  
☐ Ground water encountered at          feet

Remarks: No sample collected

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## Appendix D – Laboratory Analytical Results

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**25-37 Canal Street, City of Rochester, NY - Phase II Environmental Site Assessment**  
**Soil Sample Results**

Semi-Volatile Organic Compounds <sup>1</sup>	Unrestricted Use <sup>2</sup>	Restricted-Residential <sup>3</sup>	Commercial <sup>3</sup>	MW-1 (6-8')	MW-2 (7-8')	MW-3 (7-8')	MW-4 (6-8')
Acenaphthene	20,000	100,000	500,000	ND	ND	ND	ND
Acenaphthylene	100,000	100,000	500,000	ND	ND	ND	ND
Anthracene	100,000	100,000	500,000	ND	ND	ND	ND
Benzo (a) anthracene	1,000	1,000	5,600	ND	ND	ND	ND
Benzo (a) pyrene	1,000	1,000	1,000	ND	ND	ND	ND
Benzo (b) fluoranthene	1,000	1,000	1,000	ND	ND	ND	ND
Benzo (g,h,i) perylene	100,000	100,000	500,000	ND	ND	ND	ND
Benzo (k) fluoranthene	800	3,900	1,000	ND	ND	ND	ND
Chrysene	1,000	3,900	56,000	ND	ND	ND	ND
Dibenzo (a,h) anthracene	330	330	560	ND	ND	ND	ND
Fluoranthene	100,000	100,000	500,000	ND	ND	ND	ND
Fluorene	30,000	100,000	500,000	ND	ND	ND	ND
Indeno (1,2,3-cd) pyrene	500	500	5,600	ND	ND	ND	ND
Naphthalene	12,000	100,000	500,000	ND	ND	ND	ND
Phenanthrene	100,000	100,000	500,000	ND	ND	ND	ND
Pyrene	100,000	100,000	500,000	ND	357	ND	ND

Semi-Volatile Organic Compounds <sup>1</sup>	NYCRR Part 703	TOGS 1.1.1	MW-1 (6-8')	MW-2 (7-8')	MW-3 (7-8')	MW-4 (6-8')
Acenaphthene	20	20	ND	ND	ND	ND
Acenaphthylene	NA	NA	ND	ND	ND	ND
Anthracene	NA	50	ND	ND	ND	ND
Benzo (a) anthracene	NA	NA	ND	ND	ND	ND
Benzo (a) pyrene	NA	NA	ND	ND	ND	ND
Benzo (b) fluoranthene	NA	0.002	ND	ND	ND	ND
Benzo (g,h,i) perylene	NA	NA	ND	ND	ND	ND
Benzo (k) fluoranthene	NA	0.002	ND	ND	ND	ND
Chrysene	NA	NA	ND	ND	ND	ND
Dibenzo (a,h) anthracene	NA	NA	ND	ND	ND	ND
Fluoranthene	NA	50	ND	ND	ND	ND
Fluorene	NA	50	ND	ND	ND	ND
Indeno (1,2,3-cd) pyrene	NA	0.002	ND	ND	ND	ND
Naphthalene	NA	10	ND	ND	ND	ND
Phenanthrene	NA	50	ND	ND	ND	ND
Pyrene	NA	50	ND	357	ND	ND

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 Use Soil Cleanup Objectives

25-37 Canal Street, City of Rochester, NY - Phase II Environmental Site Assessment

Soil Sample Results

Volatle Organic Compounds <sup>1</sup>	Unrestricted Use <sup>2</sup>	Restricted-Residential <sup>3</sup>	Commercial <sup>3</sup>	MW-1 (6-8')	MW-2 (7-8')	MW-3 (7-8')	MW-4 (6-8')
1,2,4-Trimethylbenzene	3600	0	190,000	ND	ND	ND	ND
1,3,5-Trimethylbenzene	8400	0	190,000	ND	ND	ND	ND
Benzene	60	0	44,000	ND	ND	ND	ND
Ethylbenzene	1000	0	390,000	ND	ND	ND	ND
Isopropylbenzene	N/A	N/A	N/A	ND	ND	ND	ND
m,p-Xylene*	N/A	N/A	N/A	ND	ND	ND	ND
Methyl tert-butyl ether	930	0	500,000	ND	ND	ND	ND
n-Butylbenzene	12000	0	500,000	ND	ND	ND	ND
n-Propylbenzene	3900	0	500,000	ND	ND	ND	ND
Naphthalene	N/A	N/A	N/A	ND	ND	ND	ND
o-Xylene*	N/A	N/A	N/A	ND	ND	ND	ND
p-Isopropyltoluene	N/A	N/A	N/A	ND	ND	ND	ND
sec-Butylbenzene	11000	0	500,000	ND	72.8	ND	ND
tert-Butylbenzene	5900	0	500,000	ND	ND	ND	ND
Toluene	700	0	500,000	ND	ND	ND	ND
Xylene (mixed)	26	10,000	50,000	ND	ND	ND	ND

Note:

\* Applies to the sum of these substances.

Volatle Organic Compounds <sup>1</sup>	NYCRR Part 703	TOGS 1.1.1	MW-1 (6-8')	MW-2 (7-8')	MW-3 (7-8')	MW-4 (6-8')
1,2,4-Trimethylbenzene	*	*	ND	ND	ND	ND
1,3,5-Trimethylbenzene	*	*	ND	ND	ND	ND
Benzene	1	1	ND	ND	ND	ND
cis-1,2-Dichloroethene	*	*	354	9.51	2.73	ND
Ethylbenzene	*	*	ND	ND	ND	ND
Isopropylbenzene	*	**	ND	ND	ND	ND
m,p-Xylene*	NA	NA	ND	ND	ND	ND
Methyl tert-butyl ether	NA	NA	ND	ND	ND	ND
n-Butylbenzene	*	*	ND	ND	ND	ND
n-Propylbenzene	*	*	ND	ND	ND	ND
Naphthalene	10	10	ND	ND	ND	ND
o-Xylene*	NA	NA	ND	ND	ND	ND
p-Isopropyltoluene	NA	NA	ND	ND	ND	ND
sec-Butylbenzene	*	*	ND	ND	ND	ND
tert-Butylbenzene	*	*	ND	ND	ND	ND
Tetrachloroethene	*	*	761	ND	17.1	2.2
Toluene	*	*	ND	ND	ND	ND
Trichloroethene	*	*	135	ND	64	4.06
Xylene (mixed)	NA	NA	ND	ND	ND	ND

\* - 5ug/l

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 Use Soil Cleanup Objectives



**25-37 Canal Street, City of Rochester, NY - Phase II Environmental Site Assessment**  
**Soil Sample Results**

Polychlorinated biphenyls <sup>1</sup>	Unrestricted Use <sup>2</sup>	Restricted-Residential <sup>3</sup>	Commercial <sup>3</sup>	MW-1 (6-8')	MW-2 (7-8')	MW-3 (7-8')	MW-4 (6-8')	CH-01	TP-02
Aroclor-1016	100*	1000*	1000*	ND	ND	ND	ND	ND	ND
Aroclor-1221	100*	1000*	1000*	ND	ND	ND	ND	ND	ND
Aroclor-1232	100*	1000*	1000*	ND	ND	ND	ND	ND	ND
Aroclor-1242	100*	1000*	1000*	ND	ND	ND	ND	ND	ND
Aroclor-1248	100*	1000*	1000*	ND	ND	ND	ND	56	ND
Aroclor-1254	100*	1000*	1000*	ND	ND	ND	ND	ND	ND
Aroclor-1260	100*	1000*	1000*	ND	ND	ND	ND	ND	4.64
Total PCBs:	100	0	0	ND	ND	ND	ND	56	4.64

**Note:**

\* Applies to the sum of these substances.

Polychlorinated biphenyls <sup>1</sup>	NYCRR Part 370	TOGS 1.1.1	MW-1 (6-8')	MW-2 (7-8')	MW-3 (7-8')	MW-4 (6-8')
Aroclor-1016	NA	NA	ND	ND	ND	ND
Aroclor-1221	NA	NA	ND	ND	ND	ND
Aroclor-1232	NA	NA	ND	ND	ND	ND
Aroclor-1242	NA	NA	ND	ND	ND	ND
Aroclor-1248	NA	NA	ND	ND	ND	ND
Aroclor-1254	NA	NA	ND	ND	ND	ND
Aroclor-1260	NA	NA	ND	ND	ND	ND
Total PCBs:	NA	NA	ND	ND	ND	ND

- 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 Use Soil Cleanup Objectives

# 25-37 Canal Street, City of Rochester, NY - Phase II Environmental Site Assessment

## Soil Sample Results

Metals <sup>1</sup>	Unrestricted Use <sup>2</sup>	Restricted-Residential <sup>3</sup>	Commercial <sup>3</sup>	MW-1 (6-8')	MW-2 (7-8')	MW-3 (7-8')	MW-4 (6-8')
Arsenic	13	16	16	2.16	3.56	2.42	1.76
Barium	350	400	400	44.1	14.2	51.4	17.2
Cadmium	2.5	4.3	9.3	ND	ND	ND	ND
Chromium	1	110	400	14	4.68	11.2	5.57
Lead	63	400	1,000	4.24	3	3.86	2.61
Mercury	0.18	0.81	2.8	ND	ND	ND	ND
Selenium	3.9	180	1,500	ND	ND	ND	ND
Silver	2	180	1,500	ND	ND	ND	ND

Metals <sup>1</sup>	NYCRR Part 703	TOGS 1.1.1	MW-1 (6-8')	MW-2 (7-8')	MW-3 (7-8')	MW-4 (6-8')
Arsenic	0.025	0.025	<0.005	<0.005	<0.005	<0.005
Barium	1	1	0.056	0.091	0.093	<0.020
Cadmium	0.005	0.005	<0.005	<0.005	<0.005	<0.005
Chromium	0.05	0.05	<0.010	<0.010	0.395	<0.010
Lead	0.025	0.025	<0.005	<0.005	<0.005	<0.005
Mercury	0.0007	0.0007	<0.0002	<0.005	<0.005	<0.0002
Selenium	0.01	0.01	0.01	0.0007	0.009	0.012
Silver	0.05	0.05	<0.010	<0.010	<0.010	<0.010

1 - All values presented in milligrams per kilogram (mg/Kg).

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

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



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ENVIRONMENTAL SERVICES, INC.

## Analytical Report Cover Page

### **Lu Engineers**

For Lab Project # 09-2907

Issued August 18, 2009

This report contains a total of 22 pages

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

Any noncompliant QC parameters having impact on the data are flagged or documented on the final report.

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

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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.

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 frequently used data flags and their meaning:

**"ND" = analyzed for but not detected.**

**"E" = Result has been estimated, calibration limit exceeded.**

**"D" = Duplicate results outside QC limits. May indicate a non-homogenous matrix.**

**"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.**

**"B" = Method blank contained trace levels of analyte. Refer to included method blank report.**

Client: Lu Engineers

Lab Project No.: 09-2907

Client Job Site: 25-37 Canal Street, Phase II

Lab Sample No.: 9236

Client Job No.: 4215-43

Sample Type: Soil

Field Location: MW-1 (6-8')

Date Sampled: 08/05/2009

Field ID No.: N/A

Date Received: 08/11/2009

### Laboratory Report for Solid Waste Analysis

Parameter	Date Analyzed	Analytical Method	Result (mg/kg)
Arsenic	08/17/2009	EPA 6010	2.16
Barium	08/17/2009	EPA 6010	44.1
Cadmium	08/17/2009	EPA 6010	<0.523
Chromium	08/17/2009	EPA 6010	14.0
Lead	08/17/2009	EPA 6010	4.24
Mercury	08/13/2009	EPA 7471	<0.0078
Selenium	08/17/2009	EPA 6010	<0.523
Silver	08/17/2009	EPA 6010	<1.05

ELAP ID No.:10958

Comments:

Approved By:

  
 Bruce Hoogesteger, Technical Director

Client: Lu Engineers

Lab Project No.: 09-2907

Client Job Site: 25-37 Canal Street, Phase II

Lab Sample No.: 9237

Client Job No.: 4215-43

Sample Type: Soil

Field Location: MW-2 (7-8')

Date Sampled: 08/05/2009

Field ID No.: N/A

Date Received: 08/11/2009

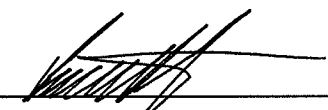
### Laboratory Report for Solid Waste Analysis

Parameter	Date Analyzed	Analytical Method	Result (mg/kg)
Arsenic	08/17/2009	EPA 6010	3.56
Barium	08/17/2009	EPA 6010	14.2
Cadmium	08/17/2009	EPA 6010	<0.364
Chromium	08/17/2009	EPA 6010	4.68
Lead	08/17/2009	EPA 6010	3.00
Mercury	08/13/2009	EPA 7471	<0.0053
Selenium	08/17/2009	EPA 6010	<0.364
Silver	08/17/2009	EPA 6010	<0.729

ELAP ID No.:10958

Comments:

Approved By:

  
 Bruce Hoogesteger, Technical Director



# PARADIGM

ENVIRONMENTAL SERVICES, INC.

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

**Client:** Lu Engineers

**Lab Project No.:** 09-2907

**Lab Sample No.:** 9238

**Client Job Site:** 25-37 Canal Street, Phase II

**Sample Type:** Soil

**Client Job No.:** 4215-43

**Field Location:** MW-3 (7-8')

**Date Sampled:** 08/06/2009

**Field ID No.:** N/A

**Date Received:** 08/11/2009

### Laboratory Report for Solid Waste Analysis

Parameter	Date Analyzed	Analytical Method	Result (mg/kg)
Arsenic	08/17/2009	EPA 6010	2.42
Barium	08/17/2009	EPA 6010	51.4
Cadmium	08/17/2009	EPA 6010	<0.386
Chromium	08/17/2009	EPA 6010	11.2
Lead	08/17/2009	EPA 6010	3.86
Mercury	08/13/2009	EPA 7471	<0.0056
Selenium	08/17/2009	EPA 6010	<0.363
Silver	08/17/2009	EPA 6010	<0.725

ELAP ID No.:10958

Comments:

Approved By: \_\_\_\_\_

Bruce Hoogesteger, Technical Director

Client: Lu Engineers

Lab Project No.: 09-2907

Client Job Site: 25-37 Canal Street, Phase II

Lab Sample No.: 9239

Client Job No.: 4215-43

Sample Type: Soil

Field Location: MW-4 (6-8')

Date Sampled: 08/06/2009

Field ID No.: N/A

Date Received: 08/11/2009

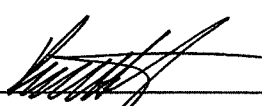
### Laboratory Report for Solid Waste Analysis

Parameter	Date Analyzed	Analytical Method	Result (mg/kg)
Arsenic	08/17/2009	EPA 6010	1.76
Barium	08/17/2009	EPA 6010	17.2
Cadmium	08/17/2009	EPA 6010	<0.416
Chromium	08/17/2009	EPA 6010	5.57
Lead	08/17/2009	EPA 6010	2.61
Mercury	08/13/2009	EPA 7471	<0.0062
Selenium	08/17/2009	EPA 6010	<0.416
Silver	08/17/2009	EPA 6010	<0.833

ELAP ID No.:10958

Comments:

Approved By:

  
 Bruce Hoogesteger, Technical Director

**PCB Analysis Report for Soils/Solids/Sludges**

**Client:** Lu Engineers

**Client Job Site:** 25-37 Canal Street, Phase II  
City of Rochester

**Client Job Number:** 4215-43

**Field Location:** MW-1 (6-8')

**Field ID Number:** N/A

**Sample Type:** Soil

**Lab Project Number:** 09-2907

**Lab Sample Number:** 9236

**Date Sampled:** 08/05/2009

**Date Received:** 08/11/2009

**Date Analyzed:** 08/14/2009


PCB Identification	Results in mg / Kg
Aroclor 1016	ND< 0.343
Aroclor 1221	ND< 0.343
Aroclor 1232	ND< 0.343
Aroclor 1242	ND< 0.343
Aroclor 1248	ND< 0.343
Aroclor 1254	ND< 0.343
Aroclor 1260	ND< 0.343

ELAP Number 10958

Method: EPA 8082

Comments: ND denotes Non Detect  
mg / Kg = milligram per Kilogram

Signature: \_\_\_\_\_

  
Bruce Hoogesteger: Technical Director



**PCB Analysis Report for Soils/Solids/Sludges**

**Client:** Lu Engineers

**Client Job Site:** 25-37 Canal Street, Phase II  
City of Rochester

**Client Job Number:** 4215-43

**Field Location:** MW-2 (7-8')

**Field ID Number:** N/A

**Sample Type:** Soil

**Lab Project Number:** 09-2907

**Lab Sample Number:** 9237

**Date Sampled:** 08/05/2009

**Date Received:** 08/11/2009

**Date Analyzed:** 08/14/2009

PCB Identification	Results in mg / Kg
Aroclor 1016	ND< 0.329
Aroclor 1221	ND< 0.329
Aroclor 1232	ND< 0.329
Aroclor 1242	ND< 0.329
Aroclor 1248	ND< 0.329
Aroclor 1254	ND< 0.329
Aroclor 1260	ND< 0.329

ELAP Number 10958

Method: EPA 8082

Comments: ND denotes Non Detect  
mg / Kg = milligram per Kilogram

Signature: \_\_\_\_\_

Bruce Hoogesteger, Technical Director

**PCB Analysis Report for Soils/Solids/Sludges**

Client: **Lu Engineers**

Client Job Site: 25-37 Canal Street, Phase II  
City of Rochester

Client Job Number: 4215-43

Field Location: MW-3 (7-8')

Field ID Number: N/A

Sample Type: Soil

Lab Project Number: 09-2907

Lab Sample Number: 9238

Date Sampled: 08/06/2009

Date Received: 08/11/2009

Date Analyzed: 08/14/2009

PCB Identification	Results in mg / Kg
Aroclor 1016	ND< 0.331
Aroclor 1221	ND< 0.331
Aroclor 1232	ND< 0.331
Aroclor 1242	ND< 0.331
Aroclor 1248	ND< 0.331
Aroclor 1254	ND< 0.331
Aroclor 1260	ND< 0.331

ELAP Number 10958

Method: EPA 8082

Comments: ND denotes Non Detect  
mg / Kg = milligram per Kilogram

Signature: \_\_\_\_\_

Bruce Hoogesteger: Technical Director

**PCB Analysis Report for Soils/Solids/Sludges**

Client: **Lu Engineers**

Client Job Site: 25-37 Canal Street, Phase II  
City of Rochester

Client Job Number: 4215-43

Field Location: MW-4 (6-8')

Field ID Number: N/A

Sample Type: Soil

Lab Project Number: 09-2907

Lab Sample Number: 9239

Date Sampled: 08/06/2009

Date Received: 08/11/2009

Date Analyzed: 08/14/2009

PCB Identification	Results in mg / Kg
Aroclor 1016	ND< 0.327
Aroclor 1221	ND< 0.327
Aroclor 1232	ND< 0.327
Aroclor 1242	ND< 0.327
Aroclor 1248	ND< 0.327
Aroclor 1254	ND< 0.327
Aroclor 1260	ND< 0.327

ELAP Number 10958

Method: EPA 8082

Comments: ND denotes Non Detect  
mg / Kg = milligram per Kilogram

Signature: \_\_\_\_\_

Bruce Hoogesteger: Technical Director

**PCB Analysis Report for Soils/Solids/Sludges**

Client: **Lu Engineers**

Client Job Site: 25-37 Canal Street, Phase II  
City of Rochester

Client Job Number: 4215-43

Field Location: CH-01

Field ID Number: N/A

Sample Type: Chip

Lab Project Number: 09-2907

Lab Sample Number: 9240

Date Sampled: 08/06/2009

Date Received: 08/11/2009

Date Analyzed: 08/17/2009


PCB Identification	Results in mg / Kg
Aroclor 1016	ND< 14.8
Aroclor 1221	ND< 14.8
Aroclor 1232	ND< 14.8
Aroclor 1242	ND< 14.8
Aroclor 1248	56.0
Aroclor 1254	ND< 14.8
Aroclor 1260	ND< 14.8

ELAP Number 10958

Method: EPA 8082

Comments: ND denotes Non Detect  
mg / Kg = milligram per Kilogram

Signature: \_\_\_\_\_

  
Bruce Hoogesteger: Technical Director

**PCB Analysis Report for Soils/Solids/Sludges**

**Client:** Lu Engineers

**Client Job Site:** 25-37 Canal Street, Phase II  
City of Rochester

**Client Job Number:** 4215-43

**Field Location:** TP-02

**Field ID Number:** N/A

**Sample Type:** Soil

**Lab Project Number:** 09-2907

**Lab Sample Number:** 9241

**Date Sampled:** 08/07/2009

**Date Received:** 08/11/2009

**Date Analyzed:** 08/17/2009

PCB Identification	Results in mg / Kg
Aroclor 1016	ND< 0.693
Aroclor 1221	ND< 0.693
Aroclor 1232	ND< 0.693
Aroclor 1242	ND< 0.693
Aroclor 1248	ND< 0.693
Aroclor 1254	ND< 0.693
Aroclor 1260	4.64

ELAP Number 10958

Method: EPA 8082

Comments: ND denotes Non Detect  
mg / Kg = milligram per Kilogram

Signature: \_\_\_\_\_

Bruce Hoogesteger: Technical Director

**PHC Analysis Report for Soils/Solids/Sludges**

**Client:** Lu Engineers

**Client Job Site:** 25-37 Canal Street, Phase II  
City of Rochester  
**Client Job Number:** 4215-43  
**Field Location:** CH-01  
**Field ID Number:** N/A  
**Sample Type:** Chip

**Lab Project Number:** 09-2907  
**Lab Sample Number:** 9240  
**Date Sampled:** 08/06/2009  
**Date Received:** 08/11/2009  
**Date Analyzed:** 08/17/2009

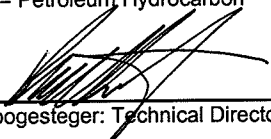
PHC Classification	Results in ug / Kg
Heavy Weight PHC as: Lube Oil	37,100,000

ELAP Number 10958

Method: NYSDOH 310.13

Comments: ND denotes Non Detect  
ug / Kg = microgram per Kilogram  
PHC = Petroleum Hydrocarbon

Signature: \_\_\_\_\_

  
Bruce Hoogesteger: Technical Director

**PHC Analysis Report for Soils/Solids/Sludges**Client: **Lu Engineers**Client Job Site: 25-37 Canal Street, Phase II  
City of Rochester

Client Job Number: 4215-43

Field Location: TP-02

Field ID Number: N/A

Sample Type: Soil

Lab Project Number: 09-2907

Lab Sample Number: 9241

Date Sampled: 08/07/2009

Date Received: 08/11/2009

Date Analyzed: 08/17/2009

PHC Classification	Results in ug / Kg
Heavy Weight PHC as: Lube Oil	121,000

ELAP Number 10958

Method: NYSDOH 310.13

Comments: ND denotes Non Detect

ug / Kg = microgram per Kilogram

PHC = Petroleum Hydrocarbon

Signature: \_\_\_\_\_

Bruce Hoogesteger, Technical Director

**Semi-Volatile STARS Analysis Report for Soils/Solids/Sludges**Client: **Lu Engineers**Client Job Site: 25-37 Canal Street, Phase II  
City of Rochester

Client Job Number: 4215-43

Field Location: MW-1 (6-8')

Field ID Number: N/A

Sample Type: Soil

Lab Project Number: 09-2907

Lab Sample Number: 9236

Date Sampled: 08/05/2009

Date Received: 08/11/2009

Date Analyzed: 08/14/2009

Base / Neutrals	Results in ug / Kg
Acenaphthene	ND< 326
Acenaphthylene	ND< 326
Anthracene	ND< 326
Benzo (a) anthracene	ND< 326
Benzo (a) pyrene	ND< 326
Benzo (b) fluoranthene	ND< 326
Benzo (g,h,i) perylene	ND< 326
Benzo (k) fluoranthene	ND< 326
Chrysene	ND< 326
Dibenz (a,h) anthracene	ND< 326
Fluoranthene	ND< 326
Fluorene	ND< 326
Indeno (1,2,3-cd) pyrene	ND< 326
Naphthalene	ND< 326
Phenanthrene	ND< 326
Pyrene	ND< 326

ELAP Number 10958

Method: EPA 8270C

Data File: S46529.D

Comments: ND denotes Non Detect

ug / Kg = microgram per Kilogram

Signature: \_\_\_\_\_

Bruce Hoogesteger: Technical Director





ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

### Semi-Volatile STARS Analysis Report for Soils/Solids/Sludges

Client: Lu Engineers

Client Job Site: 25-37 Canal Street, Phase II  
City of Rochester  
Client Job Number: 4215-43  
Field Location: MW-2 (7-8')  
Field ID Number: N/A  
Sample Type: Soil

Lab Project Number: 09-2907  
Lab Sample Number: 9237  
Date Sampled: 08/05/2009  
Date Received: 08/11/2009  
Date Analyzed: 08/14/2009

Base / Neutrals	Results in ug / Kg
Acenaphthene	ND< 317
Acenaphthylene	ND< 317
Anthracene	ND< 317
Benzo (a) anthracene	ND< 317
Benzo (a) pyrene	ND< 317
Benzo (b) fluoranthene	ND< 317
Benzo (g,h,i) perylene	ND< 317
Benzo (k) fluoranthene	ND< 317
Chrysene	ND< 317
Dibenz (a,h) anthracene	ND< 317
Fluoranthene	ND< 317
Fluorene	ND< 317
Indeno (1,2,3-cd) pyrene	ND< 317
Naphthalene	ND< 317
Phenanthrene	ND< 317
Pyrene	357

ELAP Number 10958

Method: EPA 8270C

Data File: S46530.D

Comments: ND denotes Non Detect  
ug / Kg = microgram per Kilogram

Signature: \_\_\_\_\_

Bruce Hoogesteger, Technical Director

**Semi-Volatile STARS Analysis Report for Soils/Solids/Sludges**

Client: **Lu Engineers**

Client Job Site: 25-37 Canal Street, Phase II  
City of Rochester  
Client Job Number: 4215-43  
Field Location: MW-3 (7-8')  
Field ID Number: N/A  
Sample Type: Soil

Lab Project Number: 09-2907  
Lab Sample Number: 9238  
Date Sampled: 08/06/2009  
Date Received: 08/11/2009  
Date Analyzed: 08/14/2009

Base / Neutrals	Results in ug / Kg
Acenaphthene	ND< 320
Acenaphthylene	ND< 320
Anthracene	ND< 320
Benzo (a) anthracene	ND< 320
Benzo (a) pyrene	ND< 320
Benzo (b) fluoranthene	ND< 320
Benzo (g,h,i) perylene	ND< 320
Benzo (k) fluoranthene	ND< 320
Chrysene	ND< 320
Dibenz (a,h) anthracene	ND< 320
Fluoranthene	ND< 320
Fluorene	ND< 320
Indeno (1,2,3-cd) pyrene	ND< 320
Naphthalene	ND< 320
Phenanthrene	ND< 320
Pyrene	ND< 320


ELAP Number 10958

Method: EPA 8270C

Data File: S46531.D

Comments: ND denotes Non Detect  
ug / Kg = microgram per Kilogram

Signature: \_\_\_\_\_

  
Bruce Hoogesteger: Technical Director

**Semi-Volatile STARS Analysis Report for Soils/Solids/Sludges**Client: **Lu Engineers**

Client Job Site: 25-37 Canal Street, Phase II  
City of Rochester  
Client Job Number: 4215-43  
Field Location: MW-4 (6-8')  
Field ID Number: N/A  
Sample Type: Soil

Lab Project Number: 09-2907  
Lab Sample Number: 9239  
Date Sampled: 08/06/2009  
Date Received: 08/11/2009  
Date Analyzed: 08/14/2009

Base / Neutrals	Results in ug / Kg
Acenaphthene	ND< 308
Acenaphthylene	ND< 308
Anthracene	ND< 308
Benzo (a) anthracene	ND< 308
Benzo (a) pyrene	ND< 308
Benzo (b) fluoranthene	ND< 308
Benzo (g,h,i) perylene	ND< 308
Benzo (k) fluoranthene	ND< 308
Chrysene	ND< 308
Dibenz (a,h) anthracene	ND< 308
Fluoranthene	ND< 308
Fluorene	ND< 308
Indeno (1,2,3-cd) pyrene	ND< 308
Naphthalene	ND< 308
Phenanthrene	ND< 308
Pyrene	ND< 308

ELAP Number 10958

Method: EPA 8270C

Data File: S46532.D

Comments: ND denotes Non Detect  
ug / Kg = microgram per Kilogram

Signature: \_\_\_\_\_

Bruce Hoogesteger: Technical Director

**Volatile STARS Analysis Report for Soils/Solids/Sludges**Client: **Lu Engineers**

Client Job Site: 25-37 Canal Street Phase II  
City of Rochester  
Client Job Number: 4215-43  
Field Location: MW-1 (6-8')  
Field ID Number: N/A  
Sample Type: Soil

Lab Project Number: 09-2907  
Lab Sample Number: 9236  
Date Sampled: 08/05/2009  
Date Received: 08/11/2009  
Date Analyzed: 08/14/2009

Aromatics	Results in ug / Kg
Benzene	ND< 9.64
n-Butylbenzene	ND< 48.2
sec-Butylbenzene	ND< 9.64
tert-Butylbenzene	ND< 24.1
Ethylbenzene	ND< 9.64
n-Propylbenzene	ND< 9.64
Isopropylbenzene	ND< 48.2
p-Isopropyltoluene	ND< 48.2
Naphthalene	ND< 24.1
Toluene	ND< 9.64
1,2,4-Trimethylbenzene	ND< 9.64
1,3,5-Trimethylbenzene	ND< 9.64
m,p-Xylene	ND< 9.64
o-Xylene	ND< 9.64
<b>Miscellaneous</b>	
Methyl tert-butyl Ether	ND< 9.64

ELAP Number 10958

Method: EPA 8260B

Data File: V68038.D

Comments: ND denotes Non Detect  
ug / Kg = microgram per Kilogram

Signature: \_\_\_\_\_

Bruce Hoogesteger: Technical Director

**Volatile STARS Analysis Report for Soils/Solids/Sludges**Client: **Lu Engineers**

Client Job Site:	25-37 Canal Street Phase II	Lab Project Number:	09-2907
	City of Rochester	Lab Sample Number:	9237
Client Job Number:	4215-43		
Field Location:	MW-2 (7-8')	Date Sampled:	08/05/2009
Field ID Number:	N/A	Date Received:	08/11/2009
Sample Type:	Soil	Date Analyzed:	08/14/2009

Aromatics	Results in ug / Kg
Benzene	ND< 62.1
n-Butylbenzene	ND< 310
sec-Butylbenzene	72.8
tert-Butylbenzene	ND< 155
Ethylbenzene	ND< 62.1
n-Propylbenzene	ND< 62.1
Isopropylbenzene	ND< 310
p-Isopropyltoluene	ND< 310
Naphthalene	ND< 155
Toluene	ND< 62.1
1,2,4-Trimethylbenzene	ND< 62.1
1,3,5-Trimethylbenzene	ND< 62.1
m,p-Xylene	ND< 62.1
o-Xylene	ND< 62.1
<b>Miscellaneous</b>	
Methyl tert-butyl Ether	ND< 62.1

ELAP Number 10958

Method: EPA 8260B

Data File: V68039.D

Comments: ND denotes Non Detect  
ug / Kg = microgram per Kilogram

Signature: \_\_\_\_\_

Bruce Hoogesteger: Technical Director

**Volatile STARS Analysis Report for Soils/Solids/Sludges**Client: **Lu Engineers**

Client Job Site: 25-37 Canal Street Phase II  
City of Rochester  
Client Job Number: 4215-43  
Field Location: MW-3 (7-8')  
Field ID Number: N/A  
Sample Type: Soil

Lab Project Number: 09-2907  
Lab Sample Number: 9238  
Date Sampled: 08/06/2009  
Date Received: 08/11/2009  
Date Analyzed: 08/14/2009

Aromatics	Results in ug / Kg
Benzene	ND< 7.85
n-Butylbenzene	ND< 39.2
sec-Butylbenzene	ND< 7.85
tert-Butylbenzene	ND< 19.6
Ethylbenzene	ND< 7.85
n-Propylbenzene	ND< 7.85
Isopropylbenzene	ND< 39.2
p-Isopropyltoluene	ND< 39.2
Naphthalene	ND< 19.6
Toluene	ND< 7.85
1,2,4-Trimethylbenzene	ND< 7.85
1,3,5-Trimethylbenzene	ND< 7.85
m,p-Xylene	ND< 7.85
o-Xylene	ND< 7.85
<b>Miscellaneous</b>	
Methyl tert-butyl Ether	ND< 7.85

ELAP Number 10958

Method: EPA 8260B

Data File: V68040.D

Comments: ND denotes Non Detect  
ug / Kg = microgram per Kilogram

Signature: \_\_\_\_\_

Bruce Hoogesteger, Technical Director

**Volatile STARS Analysis Report for Soils/Solids/Sludges**Client: **Lu Engineers**

Client Job Site:	25-37 Canal Street Phase II	Lab Project Number:	09-2907
	City of Rochester	Lab Sample Number:	9239
Client Job Number:	4215-43		
Field Location:	MW-4 (6-8')	Date Sampled:	08/06/2009
Field ID Number:	N/A	Date Received:	08/11/2009
Sample Type:	Soil	Date Analyzed:	08/14/2009

Aromatics	Results in ug / Kg
Benzene	ND< 8.31
n-Butylbenzene	ND< 41.5
sec-Butylbenzene	ND< 8.31
tert-Butylbenzene	ND< 20.8
Ethylbenzene	ND< 8.31
n-Propylbenzene	ND< 8.31
Isopropylbenzene	ND< 41.5
p-Isopropyltoluene	ND< 41.5
Naphthalene	ND< 20.8
Toluene	ND< 8.31
1,2,4-Trimethylbenzene	ND< 8.31
1,3,5-Trimethylbenzene	ND< 8.31
m,p-Xylene	ND< 8.31
o-Xylene	ND< 8.31
<b>Miscellaneous</b>	
Methyl tert-butyl Ether	ND< 8.31

ELAP Number 10958

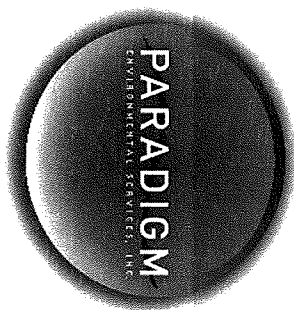
Method: EPA 8260B

Data File: V68041.D

Comments: ND denotes Non Detect  
ug / Kg = microgram per Kilogram

Signature: \_\_\_\_\_

Bruce Hoogesteger: Technical Director

**CHAIN OF CUSTODY**
**PARADIGM**  
 ENVIRONMENTAL SERVICES, INC.

## REPORT TO:

## INVOICE TO:

COMPANY: <b>Lu Engineers</b>	COMPANY: <b>Same</b>	LAB PROJECT #: <b>09-2907</b>	CLIENT PROJECT #: <b>4216-43</b>
ADDRESS: <b>2230 Penfield Road</b>	ADDRESS:	TURNAROUND TIME: (WORKING DAYS)	
CITY: <b>Penfield</b> STATE: <b>NY</b> ZIP: <b>14506</b>	CITY:		
PHONE: <b>377-1450</b> FAX: <b>377-1266</b>	PHONE:		
ATTN: <b>Greg Andrus</b>	ATTN:		
COMMENTS:		<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 5 <input type="checkbox"/> OTHER	

 PROJECT NAME/SITE NAME:  
**2537 Canal Street Phase II**  
**City of Rochester**

## REQUESTED ANALYSIS

Quotation #

DATE	TIME	COMPOSITE	GRADES	SAMPLE LOCATION/FIELD ID	MATERIALS	CONTAMINANTS	STARS VOCs	STARS SVOCs B/V	PCRA Metals	PCBs	310.13 DO#	REMARKS	PARADIGM LAB SAMPLE NUMBER
12-5-09		X		MW-1 (6-8')	Soil	1	X	X	X	X			9236
28-5-09		X		MW-2 (7-8')	Soil	1	X	X	X	X			9237
3-8-09		X		MW-3 (7-8')	Soil	1	X	X	X	X			9238
4-8-09		X		MW-4 (6-8')	Soil	1	X	X	X	X			9239
5-8-09		X		CH-01	Chip	1	X	X	X	X			9240
6-8-09		X		TP-02 (2')	Soil	1	X	X	X	X			9241
7					EAH 8/11								
8													
9													
10													

\*LAB USE ONLY BELOW THIS LINE\*

Sample Condition: Per NELAC/EIAP 210/241/242/243/244

Receipt Parameter NELAC Compliance

Comments:	Container Type:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Comments:	Preservation:	<input type="checkbox"/> Y	<input type="checkbox"/> N
Comments:	Holding Time:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Comments:	Temperature:	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N

 Sampled By: **Rebecca C. Gray** Date/Time: **8/7/09 15:00**

Total Cost:

 Relinquished By: **Rebecca C. Gray** Date/Time: **8/10/09 17:05**

 Received By: **Elizabeth A. Honck** Date/Time: **8/10/09 17:05**

P.I.F.

 Received @ Lab By: **Elizabeth A. Honck** Date/Time: **8/11/09 1040**



## Appendix E– Site Photographs

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**Photo No. 1.** View of site from Canal Street facing west, MW-04 is visible in foreground.



**Photo No. 2.** Facing south, view of center of site from northwest corner.



**Photo No. 3.** Facing north from south side of site, MW-03 in foreground.



**Photo No. 4.** View of chip sample location on north wall of building.