FORMER SHERWOOD SHOE COMPANY

MONROE COUNTY

ROCHESTER, NEW YORK

INTERIM SITE MANAGEMENT PLAN

NYSDEC Site Number: C828201

Prepared for:

Highland Grove, LLC

301 Exchange Street

Rochester, New York 14608

Prepared by:

LaBella Associates

300 State Street, Rochester, New York 14614

585-454-6110

Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

APRIL 2018

CERTIFICATION STATEMENT

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

D J P [illegible] P.E.

4/23/18 DATE

TABLE OF CONTENTS

FORMER SHERWOOD SHOE COMPANY

MONROE COUNTY

ROCHESTER, NEW YORK

INTERIM SITE MANAGEMENT PLAN

Table of Contents

Section	Description	Page
LIST OF ACRONYMS		
ES	**EXECUTIVE SUMMARY**	1
1.0	**INTRODUCTION**	3
1.1	General	3
1.2	Revisions	4
1.3	Notifications	4
2.0	**SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS**	7
2.1	Site Location and Description	7
2.2	Physical Setting	7
2.2.1	Land Use	7
2.2.2	Geology	8
2.2.3	Hydrogeology	9
2.3	Investigation and Remedial History	9
2.4	Remedial Action Objectives	12
2.5	Remaining Contamination	13

TABLE OF CONTENTS (Continued)

Section	Description	Page
3.0	**INSTITUTIONAL AND ENGINEERING CONTROL PLAN**	14
3.1	General	14
3.2	Criteria for Completion of Remediation/Termination of Remedail Systems	14
4.0	**MONITORING AND SAMPLING PLAN**	15
5.0	**OPERATION AND MAINTENANCE PLAN**	16
6.0	**PERIODIC ASSESSMENTS/EVALUATIONS**	17
6.1	Climate Change Vulnerability Assessment	17
6.2	Green Remediation Evaluation	17
6.3	Remedial System Optimization	18
7.0	**REPORTING REQUIREMENTS**	19
7.1	Site Management Reports	19
7.2	Corrective Measures Work Plan	19
7.3	Remedial Site Optimization Report	19
8.0	**REFERENCES**	20

List of Tables

Notifications 6
Table 1A: Summary of Detected VOCs in Soil ..... Attached
Table 1B: Summary of Detected SVOCs in Soil ..... Attached
Table 1C: Summary of Detected Metals in Soil ..... Attached
Table 1D: Summary of Detected PCBs in Soil ..... Attached
Table 1E: Summary of Detected Pesticides in Soil ..... Attached
Table 2: Summary of Detected VOCs in Groundwater ..... Attached

TABLE OF CONTENTS (Continued)

Section Description Page

List of Figures

Figure 1: Site Location Map .....Attached
Figure 2: City of Rochester Tax Map .....Attached
Figure 3: Site Features .....Attached
Figure 4: Prior Investigation Locations .....Attached
Figure 5: Conceptual Redevelopment.....Attached

List of Appendices

List of Site Contacts..... Appendix 1
Field Logs from Phase II ESA..... Appendix 2
Excavation Work Plan ..... Appendix 3
Health & Safety and Community Air Monitoring Plans ..... Appendix 4
Quality Control Plan ..... Appendix 5

List of Acronyms

AS	Air Sparging
ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
CLP	Contract Laboratory Program
COC	Certificate of Completion
CO2	Carbon Dioxide
CP	Commissioner Policy
DER	Division of Environmental Remediation
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
GHG	Green House Gas
GWE&T	Groundwater Extraction and Treatment
HASP	Health and Safety Plan
IC	Institutional Control
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PID	Photoionization Detector
PRP	Potentially Responsible Party
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SAC	State Assistance Contract
SCG	Standards, Criteria and Guidelines

SCO	Soil Cleanup Objective
SMP	Site Management Plan
SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program

ES EXECUTIVE SUMMARY

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

Site Identification: C828201 Former Sherwood Shoe Company

625 South Goodman Street, Rochester, New York

Institutional Controls:	1. The property is anticipated to be cleaned up to restricted residential use. The property may be used for its current use and redevelopment activities until the final remedy is implemented.
	2. All ECs must be operated and maintained as specified in this ISMP.
	3. The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH, the Monroe County Department of Health and/or the City of Rochester to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department.
	4. Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this ISMP.
	5. All future activities that will disturb potentially contaminated material must be conducted in accordance with this ISMP.
	6. Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this ISMP and the BCA.
	7. The potential for vapor intrusion must be evaluated for any buildings developed in the area within the Site boundaries noted on Figure 3 (i.e., the BCP Site extent), and any potential impacts that are identified must be monitored or mitigated.

	8. Vegetable gardens and farming on the site are prohibited.	
Engineering Controls:	1. Existing surficial material (soil, gravel, etc.). Note that additional shallow/surface soil testing is planned to be completed as part of the Remedial Investigation.	
Inspections:		Frequency
1. Cover inspection		TBD
Monitoring:		
1. TBD		TBD
Maintenance:		
1. TBD		TBD
Reporting:		
1. Monthly Progress Reports		Monthly

Further descriptions of the above requirements will be provided in detail in the final Site Management Plan.

1.0 INTRODUCTION

1.1 General

This Interim Site Management Plan (ISMP) is a required element of the remedial program for the Former Sherwood Shoe Company located in Rochester, New York (hereinafter referred to as the "Site"). See Figure 1. The Site is currently in the New York State (NYS) Brownfield Cleanup Program (BCP Site No. C828201) which is administered by New York State Department of Environmental Conservation (NYSDEC).

Highland Grove, LLC entered into a Brownfield Cleanup Agreement (BCA) on March 20, 2018 with the NYSDEC to remediate the site. A figure showing the site location and boundaries of this site is provided in Figure 1.

This ISMP was prepared to manage contamination at the site during Site regrading and development activities until a Site Remedy and Final SMP are developed and approved by the NYSDEC. ICs and ECs will likely be incorporated into the site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement will be granted to the NYSDEC, and recorded with the Monroe County Clerk, requiring compliance with the final SMP and all ECs and ICs placed on Site.

It is important to note that:

- Failure to comply with this ISMP is a violation of Environmental Conservation Law, 6NYCRR Part 375 and the BCA (Index #C828201-02-18) for the site, and thereby subject to applicable penalties.

All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the site is provided in Appendix 1 of this ISMP.

This ISMP was prepared by LaBella Associates, D.P.C., on behalf of Highland Grove LLC, in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010, and the guidelines provided by the NYSDEC. This ISMP addresses the means for implementing the ICs and/or ECs that will be required prior to placement of an Environmental Easement on the Site and the final SMP as well as the management of contaminated/impacted soil/fill material during development activities prior to COC issuance.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shut-down of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions.

1.3 Notifications

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

- 60-day advance notice of any proposed changes in site use that are required under the terms of the BCA, 6NYCRR Part 375 and/or Environmental Conservation Law.
- 7-day advance notice of any field activity associated with the remedial program.

- 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan, including activities associated with the development of the Site and managed under the approved work plan.

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

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

- Follow-up status reports (or descriptions in the subsequent monthly progress report) on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

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

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the BCA, and all approved work plans and reports, including this ISMP.

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

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

Table A: Notifications*

Name	Contact Information
NYSDEC Project Manager; Charlotte Theobald	595-226-5354, charlotte.theobald@dec.ny.gov
NYSDEC Regional HW Engineer; Ms. Bernette Schilling	585-226-5315, bernette.schilling@dec.ny.gov
NYSDEC Site Control; Ms. Kelly Lewandowski	518-402-9547, kelly.lewandowski@dec.ny.gov

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

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The site is located in Rochester, Monroe County, New York and is identified as Section 121.650 Block 2 and Lot 39 on the City of Rochester, Monroe County Tax Map (see Figure 2). The site is an approximately 1.798-acre area and is bounded by Interstate 490 to the north, Karges Place and Uhlen Place to the south along with various residential properties, South Goodman Street to the east, and various residential properties and commercial businesses to the west (see Figure 3 – Site Features). The owner of the site parcel at the time of issuance of this ISMP is Highland Grove, LLC.

2.2 Physical Setting

2.2.1 Land Use

The Site is undeveloped and covered with a combination of grass/vegetation and gravel parking/roadway. The northeastern and northwestern property lines are fenced with chain link fence. The Site is zoned C-2 Community Center and is currently vacant. The Site was most recently utilized by the NYSDOT for the staging of material and equipment.

The properties adjoining the Site and in the neighborhood surrounding the Site primarily include commercial and residential properties. The properties immediately south of the Site include commercial and residential properties; the properties immediately northeast of the Site include Interstate 490 (I-490) and an associated exit ramp; the properties immediately east of the Site (beyond South Goodman Street) include residential properties; and the properties to the northwest of the Site include commercial properties.

2.2.2 Geology

A Remedial Investigation (RI) has not yet been completed for the Site and as such, the following descriptions of Geology and Hydrogeology (refer to Section 2.2.3) are based on limited data from the Phase II Environmental Site Assessment (ESA) and available regional information.

Based on information obtained from the New York State Museum, the Project Site appears to be underlain by generally laminated lacustrine silt and clay with low permeability. Bedrock beneath the Project Site appears to consist of Guelph Dolostone from the Upper Silurian. Soil borings advanced during the Phase II ESA identified native soils consisting of sand, gravel, silt and clay. Non-native materials at the Site included historical urban fills with construction and demolition debris consisting of cinders, ash, asphalt, brick, glass, wood, metal shards, and concrete.

Geologic cross sections will be included in the Final SMP. Site specific boring logs, test pit logs, and well construction logs from the Phase II ESA are provided in Appendix 2.

2.2.3 Hydrogeology

According to regional mapping, the nearest water body to the Site is the Genesee River, which is located approximately 3500-feet west of the Site. Although this water body is to the west, the presence of I-490 located adjacent to the north of the Site and at an elevation substantially lower than the Site's surface (i.e., at least 20-ft), the presence of the expressway and any associated dewatering infrastructure may be pulling groundwater at the Site to the north. Groundwater at the Site was generally encountered at 19.2-ft. bgs during the Phase II ESA. Groundwater flow direction was not assessed during the Phase II ESA. A groundwater flow study is planned to be completed as part of the RI. The RI report will include groundwater contour mapping and groundwater elevation data.

A City of Rochester ordinance forbids the use of groundwater for potable purposes within City limits. Sources of municipal water primarily include Canadice and Hemlock Lakes (located approximately 25-miles south of the Site).

Groundwater monitoring well construction logs from the Phase II ESA are provided in Appendix 2.

2.3 Investigation and Remedial History

The Site appears to have been generally historically utilized for shoe manufacturing from approximately 1905 to the late 1930's, various industrial and commercial uses from the late 1930s to the late 1960s and appears to have been vacant since the late 1960s. A fire in July 1971 reportedly destroyed several buildings at the Site and remaining Site buildings appear to have been demolished in the 1970s. Prior to acquisition of the property by Highland Grove LLC in September 2016, the Site was most recently owned by the NYSDOT and occasionally utilized for staging and/or storage of vehicles, equipment and materials (e.g., crushed stone, asphalt millings).

The following previous environmental reports were identified for the Site and are summarized below:

- *Phase I Environmental Site Assessment (ESA), completed by Stantec Consulting Services ("Stantec"), December 2012;*

- *Phase II ESA, completed by Stantec, October 2016*

Key findings of the abovementioned reports are summarized as follows.

Phase I ESA – December 2012

This Phase I ESA identified several Recognized Environmental Conditions (RECs), as summarized below:

- Potential for historical uses of the Site to have resulted in releases to the soil or groundwater.
- Former presence of a 6,000-gallon #2 fuel oil underground storage tank (UST) documented in City of Rochester permit mapping dated 1967. Although removal documents have not been identified, the Phase II ESA completed in October 2016 (see below) did not identify any orphan USTs at the Site.
- Use of the Site by the NYSDOT for staging and storage during highway construction projects may have resulted in releases to the Site.
- A geophysical survey of the Site was reportedly performed in November 2012. The survey reportedly identified several magnetic anomalies which indicated the probability of buried metallic objects. The anomalies reportedly did not appear to be related to buried USTs but Stantec indicated they may have been related to features of environmental significance.

Phase II ESA – October 2016

A summary of the Phase II ESA findings is included below; refer to the attached Figure 4 for locations and compounds detected above applicable guidance values. Attached Tables 1A through 1E and 2 include a summary of soil and groundwater data from the 2016 investigation.

Stantec's Phase II ESA was conducted to evaluate the RECs identified by Stantec's 2012 Phase I ESA, summarized above. The Phase II ESA generally consisted of the following:

- Fifteen (15) test pits were excavated to terminal depths between 8-feet (ft) and 10.5-ft below ground surface (bgs). Many of the test pits were advanced in locations to evaluate magnetic anomalies identified by the geophysical survey.

The test pits encountered a fill layer generally 5-ft to 8-ft in thickness through much of the Site. The fill layer reportedly consisted of silty sand and gravel with variable urban fill comprised of ash, cinders, asphalt, brick and construction and demolition debris. Soils were screened with a photoionization detection meter (PID); elevated PID readings were not identified in test pits with the exception of TP-G, in which a maximum reading of 14.5 parts per million (ppm) was measured at a depth of 3.5-ft bgs.

- Four (4) soil borings were advanced to terminal depths between 16-ft and 20.5-ft bgs. Soil borings were designated KU-B-4, KU-B-7, KU-B-8 and KU-B-9. Bedrock appeared to have been encountered between 16-ft and 17-ft along the northern border of the Site and at approximately 20.5-ft bgs on the central portion of the Site.
- Overburden groundwater monitoring wells were reportedly installed in two (2) locations along the northern border of the Site and one (1) location in the central portion of the Site. The wells on the northern portion of the Site (KU-MW-7 and KU-MW-8) were reportedly dry during sampling attempts in October 2016 and January 2017. However, groundwater samples have been collected from well KU-MW-9, located in the vicinity of the former 6,000-gallon #2 fuel oil UST and TP-G (where elevated PID readings were encountered).
- Three (3) shallow soil samples were collected from approximately 2-inches (in) bgs. Two (2) of these samples were collected from a soil pile and berm, respectively.

As depicted on attached Figure 4, Stantec's Phase II ESA identified elevated concentrations of semi-volatile organic compounds, PCBs, cyanide, heavy metals and pesticides in soils at the Site, particularly in shallow soils. Several compounds were detected at levels above New York Codes, Rules and Regulations (NYCRR) Part 375 Unrestricted Use and/or Restricted Residential Use Soil Cleanup Objective (SCOs).

In addition to these impacts, chlorinated volatile organic compounds (CVOCs) were identified in soil and groundwater in the central portion of the Site (refer to Figure 4).

Specifically, trichloroethylene (TCE) was detected at 13,000 ug/kg in the soil sample collected from KU-TP-G (in which elevated PID readings were measured). This concentration is above the Unrestricted Use and Protection of Groundwater SCO of 470 ug/kg for TCE. CVOCs were also identified above laboratory method detection limits (MDLs) but below Unrestricted Use SCOs in soil samples collected from boring KU-B-4, KU-B-9 and KU-TP-C.

In addition, TCE and cis-1,2-dichloroethene (cis-1,2-DCE) were detected above NYSDEC Part 703 Groundwater Quality Standards in samples from well KU-MW-9 (located approximately 20-ft north of TP-G). TCE and cis-1,2-DCE were detected at 85 ug/L and 7.1 ug/L, respectively, in September 2016 and 32 ug/L and 1.5 ug/L in January 2017 in KU-MW-9. The Groundwater Quality Standard for both of these compounds is 5 ug/L. The source of the CVOC impacts is unknown; however, historical Site operations including machining and manufacturing may have utilized chlorinated solvents.

The nature and extent of the impacts to soil and groundwater identified at the Site have not been identified. An RI is planned to be completed at the Site to define the nature and extent of impacts identified by the Phase II ESA.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site are as follows:

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

2.5 Remaining Contamination

Following the completion of the RI, remedial actions (likely primarily in the form of IRMs) are planned for the Site. A summary of remaining contamination following the completion of IRMs will be included in the final SMP.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since contamination exists at the site, Institutional Controls (ICs) and Engineering Controls (ECs) are required to protect human health and the environment. The final SMP for the Site will include all applicable ICs/ECs as defined in the remedy for the Site.

3.2 Criteria for Completion of Remediation/Termination of Remedial Systems

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

4.0 MONITORING AND SAMPLING PLAN

Required monitoring associated with evaluating the overall performance and effectiveness of the remedy will be determined following remedy selection and implementation. If warranted, a Monitoring and Sampling Plan will be included in the final SMP.

5.0 OPERATION AND MAINTENANCE PLAN

If operation and maintenance of any ECs are required following the final remedy, an Operation and Maintenance Plan will be included in the final SMP.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

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

The final SMP will provide a summary of vulnerability assessments that will be conducted for the site during periodic assessments, and briefly summarizes the vulnerability of the site and/or engineering controls to severe storms/weather events and associated flooding.

6.2 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. The final SMP will provide a summary of any green remediation evaluations to be completed for the site during site management, and as reported in the Periodic Review Report (PRR).

6.3 Remedial System Optimization

Remedial Site Optimization (RSO) will be addressed in the final SMP.

7.0. REPORTING REQUIREMENTS

7.1 Site Management Reports

All ISMP activities will be reported in the Site's monthly progress reports. The Site's final SMP will provide details on all relevant inspections. Procedures for any required monitoring and associated forms as well as Periodic Review Reports (including certification of ICs and ECs) will be detailed in the final SMP.

7.2 Corrective Measures Work Plan

If any component of the remedy is found to have failed, a Corrective Measures Work Plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC.

7.3 Remedial Site Optimization Report

In the event that an RSO is to be performed, an RSO report must be submitted to the Department for approval. A general outline for the RSO report will be provided in the final SMP.

8.0 REFERENCES

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

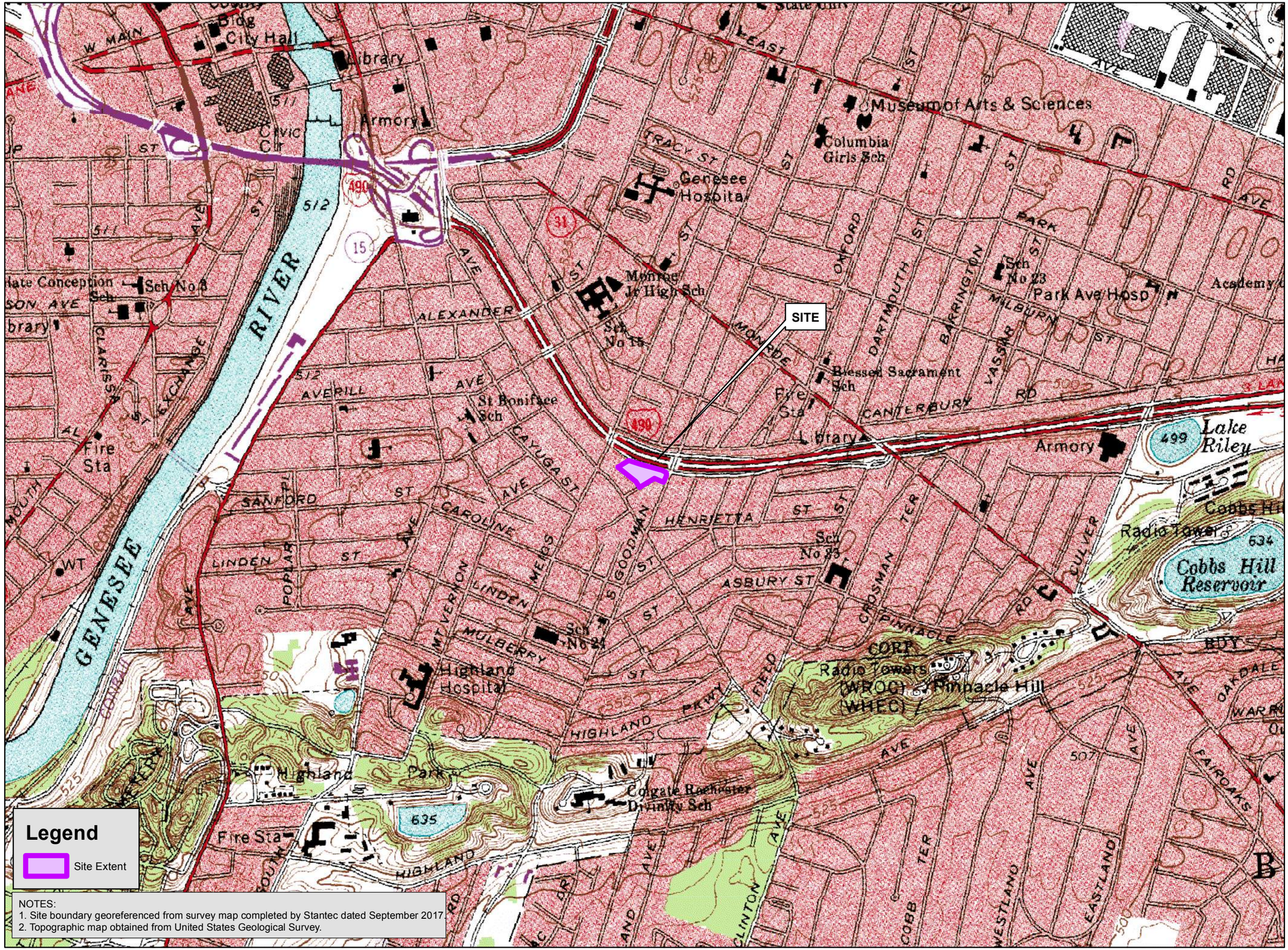
NYSDEC DER-10 – "Technical Guidance for Site Investigation and Remediation".

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

Phase I Environmental Site Assessment (ESA), completed by Stantec Consulting Services ("Stantec"), December 2012;

Phase II ESA, completed by Stantec, October 2016

FIGURES



LaBella
Powered by partnership.

N
W E
S

0 500 1,000
Feet
1 inch = 1,000 feet

INTENDED TO PRINT AS: 11" X 17"

CLIENT:

HIGHLAND GROVE LLC

PROJECT:

**INTERIM SITE MANAGEMENT PLAN
FORMER SHERWOOD SHOE COMPANY
625 SOUTH GOODMAN STREET
ROCHESTER, NEW YORK**

DRAWING NAME:

SITE LOCATION MAP

PROJECT/DRAWING NUMBER:

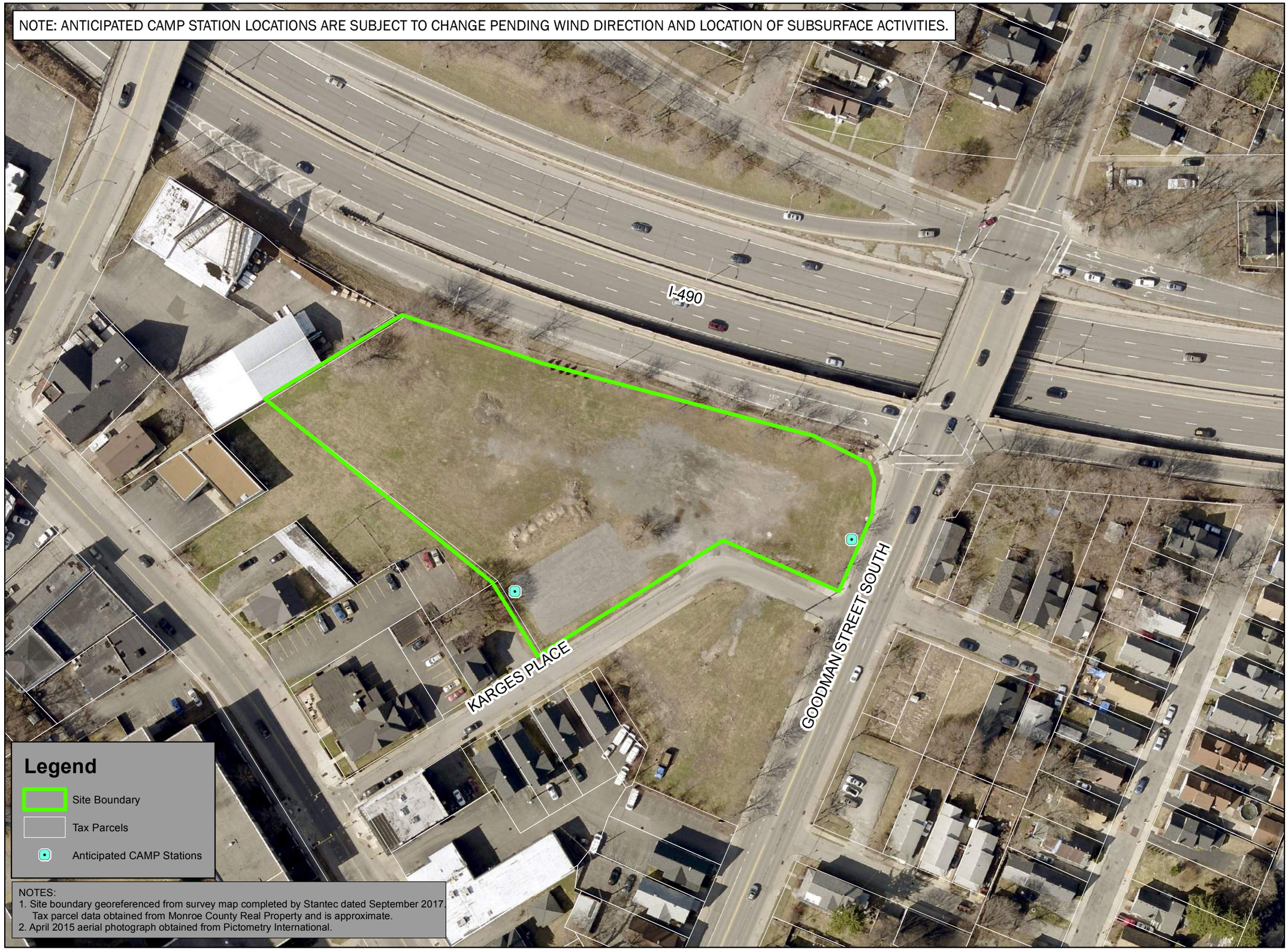
2172056

FIGURE 1

Path: I:\Highland Grove LLC\2172056 - Karges & Uhlen Place BCP App\Drawings\ISMP\FIGURE 1 SITE LOCATION.mxd

SITE
BROADWAY
INTERSTATE
490
(OVERPASS)
SOUTH CLINTON AVENUE
MEIGS STREET
LAWTON ST.
UHLEN PLACE
KARGES PLACE
GREGORY STREET
CAYUGA STREET
BOND STREET
WEIDER STREET
MT. VERNON AVENUE
WHITMORE ST.
GREGORY TRACT
JOHNSON & ATKINSON TRACT
D 22, M: 16, 17, 18, 25, 26 D
30, M: 6, 7, 9, 10
WARNING: Use of monument and penalty for destruction thereof is established by law. Contact the Monroe County Surveyor for exact monument location.
SHEET INDEX
121.56 121.57 121.58
121.64 121.65 121.66
121.72 121.73 121.74
TAX MAP
121.65
CITY OF ROCHESTER
Monroe County, New York
Prepared By
REAL PROPERTY SERVICE AGENCY
SCALE: 1" = 50'
Map Date: June 08, 2017

NOTE: ANTICIPATED CAMP STATION LOCATIONS ARE SUBJECT TO CHANGE PENDING WIND DIRECTION AND LOCATION OF SUBSURFACE ACTIVITIES.



NOTES:
1. Site boundary georeferenced from survey map completed by Stantec dated September 2017. Tax parcel data obtained from Monroe County Real Property and is approximate.
2. April 2015 aerial photograph obtained from Pictometry International.

LaBella
Powered by partnership.

N
W E
S

0 20 40 80
Feet
1 inch = 80 feet
INTENDED TO PRINT AS: 11" X 17"

CLIENT:

HIGHLAND GROVE LLC

PROJECT:

**INTERIM SITE MANAGEMENT PLAN
FORMER SHERWOOD SHOE COMPANY
625 SOUTH GOODMAN STREET
ROCHESTER, NEW YORK**

DRAWING NAME:

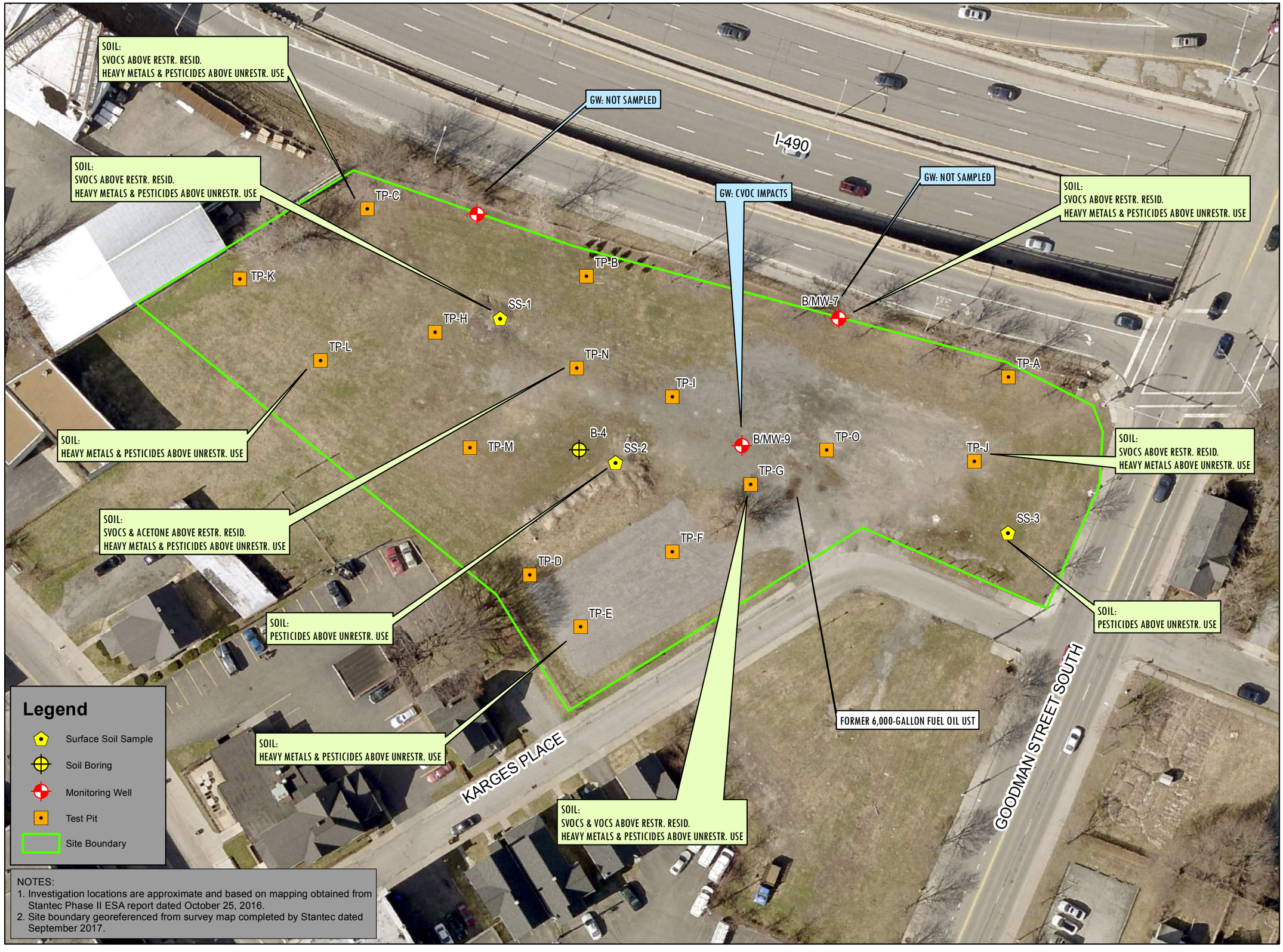
SITE FEATURES

PROJECT/DRAWING NUMBER:

2172056

FIGURE 3

Path: I:\Highland Grove LLC\2172056 - Karges & Uhlen Place BCP App\Drawings\ISMP\FIGURE 3 Site Layout.mxd



NOTES:
1. Investigation locations are approximate and based on mapping obtained from Stantec Phase II ESA report dated October 25, 2016.
2. Site boundary georeferenced from survey map completed by Stantec dated September 2017.

LaBella
Powered by partnership.

N
W E
S

0 25 50
Feet
1 inch = 50 feet

INTENDED TO PRINT AS: 11" X 17"

CLIENT:

HIGHLAND GROVE LLC

PROJECT:

**INTERIM SITE MANAGEMENT PLAN
FORMER SHERWOOD SHOE COMPANY
625 SOUTH GOODMAN STREET
ROCHESTER, NEW YORK**

DRAWING NAME:

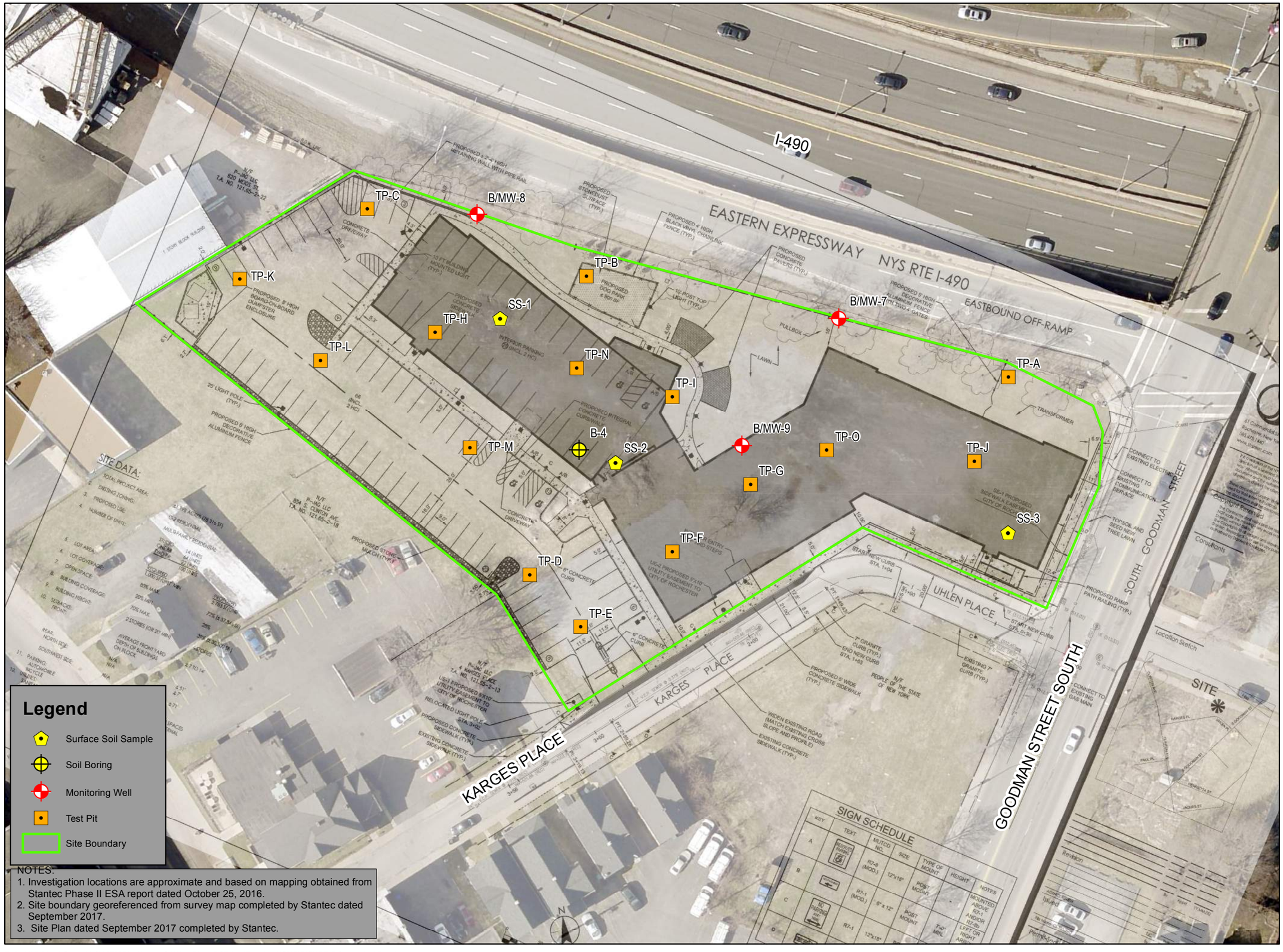
PRIOR INVESTIGATION LOCATIONS

PROJECT/DRAWING NUMBER:

2172056

FIGURE 4

Path: I:\Highland Grove LLC\2172056 - Karges & Uhlen Place BCP App\Drawings\ISMP\FIGURE 4 2016 Investigation.mxd



LaBella
Powered by partnership.

N
W E
S

0 25 50
Feet
1 inch = 50 feet

INTENDED TO PRINT AS: 11" X 17"

CLIENT:

HIGHLAND GROVE LLC

PROJECT:

INTERIM SITE MANAGEMENT PLAN
FORMER SHERWOOD SHOE COMPANY
625 SOUTH GOODMAN STREET
ROCHESTER, NEW YORK

DRAWING NAME:

CONCEPTUAL REDEVELOPMENT

PROJECT/DRAWING NUMBER:

2172056

FIGURE 5

Path: I:\Highland Grove LLC\2172056 - Karges & Uhlen Place BCP App\Drawings\ISMP\FIGURE 5 Conceptual Development.mxd

TABLES

Table 1A
Interim Site Management Plan
Former Sherwood Shoe Factory, 625 South Goodman Street, Rochester, NY
Summary of Detected Volatile Organic Compounds in Soil
LaBella Project No. 2172056

Sample ID	NYCRR Part 375-6 Unrestricted Use (ppb)	NYCRR Part 375-6 Restricted Residential Use (ppb)	KU-B-4-S1	KU-B-4-S2	KU-B-7-S1	KU-B-7-S2	KU-B-8-S1	KU-B-8-S2	KU-B-9-S1	KU-B-9-S2	KU-TP-C-S	KU-TP-E-S	KU-TP-G-S	KU-TP-J-S	KU-TP-L-S	KU-TP-N-S
Sample Depth (feet below ground surface)			**8' - 8.5'**	**17.9' - 18.2'**	**2.5' - 3.2'**	**14' - 14.5'**	**5' - 6'**	**14' - 14.5'**	**7' - 8'**	**15' - 15.5'**	**3.5'**	**4'**	**3.5'**	**2.5'**	**2'**	**2.5'**
Date Collected			**9/26/2016**	**9/26/2016**	**9/26/2016**	**9/26/2016**	**9/26/2016**	**9/26/2016**	**9/27/2016**	**9/27/2016**	**9/12/2016**	**9/12/2016**	**9/12/2016**	**9/12/2016**	**9/12/2016**	**9/12/2016**
Acetone	50	100,000	**46** B	**5.4** BJ	<5.2 U	<5.5 U	<5.1 U	**7.3** BJ	<5.2 U	**5.1** BJ	<5.2 U	<5.4 U	<5.6 U	<5.5 U	<5.2 U	**190** T
Chloroform	370	49,000	<5.8 U	<5.8 U	<5.2 U	<5.5 U	<5.1 U	<5.5 U	<5.2 U	<5.2 U	<5.2 U	<5.4 U	**0.36** BJ	<5.5 U	**0.33** BJ	**0.43** BJ
Tetrachloroethene	1,300	19,000	<5.8 U	<5.8 U	<5.2 U	<5.5 U	<5.1 U	<5.5 U	<5.2 U	<5.2 U	**0.81** J	<5.4 U	<5.6 U	<5.5 U	<5.2 U	<5.6 U
Trichloroethene	470	21,000	<5.8 U	<5.8 U	<5.2 U	<5.5 U	<5.1 U	<5.5 U	**24**	**27** T	<5.2 U	<5.4 U	**13,000**	<5.5 U	<5.2 U	<5.6 U
Cis-1,2-Dichloroethene	250	100,000	<5.8 U	**2.2** J	<5.2 U	<5.5 U	<5.1 U	<5.5 U	<5.2 U	<5.2 U	<5.2 U	<5.4 U	**17**	<5.5 U	<5.2 U	<5.6 U
Trans-1,2-Dichloroethene	190	100,000	<5.8 U	<5.8 U	<5.2 U	<5.5 U	<5.1 U	<5.5 U	<5.2 U	<5.2 U	<5.2 U	<5.4 U	**0.70** J	<5.5 U	<5.2 U	<5.6 U
1,3,5 Trimethylbenzene	8,400	52,000	**1.6** J	<5.8 U	<5.2 U	<5.5 U	<5.1 U	<5.5 U	<5.2 U	<5.2 U	<5.2 U	<5.4 U	<5.6 U	<5.5 U	<5.2 U	<5.6 U
1,2,4-Trimethylbenzene	3,600	52,000	**4.3** J	<5.8 U	<5.2 U	<5.5 U	<5.1 U	<5.5 U	<5.2 U	<5.2 U	<5.2 U	<5.4 U	<5.6 U	<5.5 U	<5.2 U	<5.6 U
Methycyclohexane	100,000	1,000,000	**1.5** J	<5.8 U	<5.2 U	<5.5 U	<5.1 U	<5.5 U	<5.2 U	<5.2 U	<5.2 U	<5.4 U	<5.6 U	<5.5 U	<5.2 U	<5.6 U
Methylene Chloride	50	100,000	<5.8 U	<5.8 U	<5.2 U	<5.5 U	<5.1 U	<5.5 U	<5.2 U	<5.2 U	<5.2 U	**4.6** BJ	**7.6** B	**7.9** B	**7.5** B	**11** B
Naphthalene	12,000	100,000	**2.8** J	<5.8 U	**0.81** J	<5.5 U	<5.1 U	<5.5 U	<5.2 U	<5.2 U	<5.2 U	<5.4 U	<5.6 U	<5.5 U	<5.2 U	<5.6 U
Toluene	700	100,000	<5.8 U	<5.8 U	**0.61** J	<5.5 U	<5.1 U	<5.5 U	<5.2 U	<5.2 U	<5.2 U	<5.4 U	<5.6 U	<5.5 U	<5.2 U	<5.6 U
n-Propylbenzene	3,900	100,000	**0.57** J	<5.8 U	<5.2 U	<5.5 U	<5.1 U	<5.5 U	<5.2 U	<5.2 U	<5.2 U	<5.4 U	<5.6 U	<5.5 U	<5.2 U	<5.6 U
4-Isopropyltoluene	10,000[A]	10,000[A]	**0.52** J	<5.8 U	<5.2 U	<5.5 U	<5.1 U	<5.5 U	<5.2 U	<5.2 U	<5.2 U	<5.4 U	<5.6 U	<5.5 U	<5.2 U	<5.6 U
TOTAL VOCs	*NA*	*NA*	*57.3*	*7.6*	*1.4*	*0.0*	*0.0*	*7.3*	*24.0*	*32.1*	*0.81*	*4.6*	*13,025.66*	*7.9*	*7.83*	*201.43*

Legend:
Data obtained from Stantec Inc. Draft Phase II Environmental Site Assessment dated October 2016. Samples were not collected by LaBella Associates.
VOCs analysis completed by USEPA Method 8260
Concentrations in micrograms per kilogram (ug/kg) or parts per billion (ppb)
J - Analyte detected below quantitation limits
T- Quality control recovery is outside acceptable limits.
B - Analyte was found in blank and sample.
U - Compound analyzed for but not detected.
NA - Not Applicable
[A] Part 375-6 SCO not listed; Commissioner Policy 51 Supplemental Soil Cleanup Objective used.
Bolded font represents concentrations detected above laboratory MDL.
Yellow highlight exceeds NYCRR Part 375-6 Unrestricted Use SCO
Orange highlight exceeds NYCRR Part 375-6 Restricted Residential Use SCO and Unrestricted Use SCO

Table 1B
Interim Site Management Plan
Former Sherwood Shoe Factory, 625 South Goodman Street, Rochester, NY
Summary of Detected Semi-Volatile Organic Compounds in Soil
LaBella Project No. 2172056

Sample ID	NYCRR Part 375-6 Unrestricted Use (ppb)	NYCRR Part 375-6 Restricted Residential (ppb)	KU-B-4-S2	KU-B-7-S1	KU-B-8-S1	KU-B-9-S1	KU-TP-C-S	KU-TP-E-S	KU-TP-G-S	KU-TP-J-S	KU-TP-L-S	KU-TP-N-S	SS-1	SS-2	SS-3
Sample Depth (feet below ground surface)			**17.9' - 18.2'**	**2.5' - 3.2'**	**5' - 6'**	**7' - 8'**	**3.5'**	**4'**	**3.5'**	**2.5'**	**2'**	**2.5'**	**0.2'**	**0.2'**	**0.2'**
Date Collected			**9/26/2016**	**9/26/2016**	**9/26/2016**	**9/27/2016**	**9/12/2016**	**9/12/2016**	**9/12/2016**	**9/12/2016**	**9/12/2016**	**9/12/2016**	**9/26/2016**	**9/27/2016**	**9/27/2016**
Anthracene	100,000	100,000	<200 U	**570** J	<170 U	<170 U	**260** J	**65** J	**320** J	**770** J	<870 U	<3,800 U	<3,500 U	<1,900 U	<960 U
Acenaphthylene	100,000	100,000	<200 U	<170 U	<170 U	<170 U	<880 U	**49** J	**270** J	**450** J	<870 U	<3,800 U	<3,500 U	<1,900 U	<960 U
Acenaphthene	20,000	100,000	<200 U	<170 U	<170 U	<170 U	<880 U	<190 U	<940 U	**220** J	<870 U	<3,800 U	<3,500 U	<1,900 U	<960 U
Benzo(a)anthracene	1,000	1,000	<200 U	**1,700** J	<170 U	<170 U	**880**	**320**	**1,300**	**2,300**	**310** J	**2,400** J	**2,500** J	**510** J	**460** J
Benzo(a)pyrene	1,000	1,000	<200 U	**1,800**	<170 U	<170 U	**970**	**340**	**1,800**	**2,300**	**390** J	**2,200** J	**3,300** J	**510** J	**530** J
Benzo(b)fluoranthene	1,000	1,000	<200 U	**2,400**	<170 U	<170 U	**1,200**	**390**	**2,200**	**3,200**	**610** J	**2,900** J	**4,900**	**600** J	**630** J
Benzo(g,h,i)perylene	100,000	100,000	<200 U	**1,500** J	<170 U	<170 U	**750** J	**260**	**1,700**	**1,900**	**340** J	**1,800** J	**3,800**	**360** J	**480** J
Benzo(k)fluoranthene	800	3,900	<200 U	**1,300** J	<170 U	<170 U	**410** J	**160** J	**670** J	**1,100**	<870 U	**580** J	**1,800** J	**330** J	**400** J
Carbazole			<200 U	**260** J	<170 U	<170 U	<880 U	**23** J	<940 U	**390** J	<870 U	<3,800 U	<3,500 U	<1,900 U	<960 U
Chrysene	1,000	3,900	<200 U	**1,800**	<170 U	<170 U	**1,100**	**350** J	**1,500**	**2,700**	**390** J	**2,600** J	**3,500**	**610** J	**560** J
Dibenzofuran			<200 U	<170 U	<170 U	<170 U	<880 U	<190 U	<940 U	**280** J	<870 U	<3,800 U	<3,500 U	<1,900 U	<960 U
Fluoranthene	100,000		<200 U	3,600	<170 U	<170 U	2,000	**640**	**2,200**	**5,700**	**580** J	**6,200**	**6,900**	**1,000** J	**930** J
Fluorene	30,000		<200 U	<170 U	<170 U	<170 U	<880 U	**24** J	**110** J	**330** J	<870 U	<3,800 U	<3,500 U	<1,900 U	<960 U
Indeno(1,2,3-cd)pyrene	500	500	<200 U	**1,300** J	<170 U	<170 U	**640** J	**230**	**1,400**	**1,700**	**290** J	**1,500** J	**2,900** J	**320** J	**390** J
Naphthalene	12,000		<200 U	<170 U	<170 U	<170 U	<880 U	<190 U	<940 U	**270** J	<870 U	<3,800 U	<3,500 U	<3,500 U	<960 U
Phenanthrene	100,000	100,000	<200 U	**2,500**	<170 U	<170 U	**1,100**	**290**	**1,100**	**4,200**	**310** J	**3,300** J	**2,500** J	**870** J	**360** J
Pyrene	100,000	100,000	<200 U	**2,700**	<170 U	<170 U	**1,600**	**560**	**2,200**	**4,600**	**530** J	**4,200**	**5,200**	**840** J	**750** J

Legend:
Data obtained from Stantec Inc. Draft Phase II Environmental Site Assessment dated October 2016. Samples were not collected by LaBella Associates.
SVOC analysis completed by USEPA Method 8270
Concentrations in micrograms per kilogram (ug/kg) or parts per billion (ppb)
J - Analyte detected below quantitation limits
T- Quality control recovery is outside acceptable limits.
B - Analyte was found in blank and sample.
U - Compound analyzed for but not detected.
NA - Not Applicable
[A] Part 375-6 SCO not listed; Commissioner Policy 51 Supplemental Soil Cleanup Objective used.
Bolded font represents concentrations detected above laboratory MDL.
Yellow highlight exceeds NYCRR Part 375-6 Unrestricted Use SCO
Orange highlight exceeds NYCRR Part 375-6 Restricted Residential Use SCO and Unrestricted Use SCO

Table 1C
Interim Site Management Plan
Former Sherwood Shoe Factory, 625 South Goodman Street, Rochester, NY
Summary of Detected Metals in Soil
LaBella Project No. 2172056

Sample ID	NYCRR Part 375-6 Unrestricted Use (ppm)	NYCRR Part 375-6 Restricted Residential Use (ppm)	KU-B-7-S1	KU-B-8-S1	KU-B-9-S1	KU-TP-C-S	KU-TP-E-S	KU-TP-G-S	KU-TP-J-S	KU-TP-L-S	KU-TP-N-S	SS-1	SS-2	SS-3
Sample Depth (feet below ground surface)			**2.5' - 3.2'**	**5' - 6'**	**7' - 8'**	**3.5'**	**4'**	**3.5'**	**2.5'**	**2'**	**2.5'**	**0.2'**	**0.2'**	**0.2'**
Date Collected			**9/26/2016**	**9/26/2016**	**9/27/2016**	**9/12/2016**	**9/12/2016**	**9/12/2016**	**9/12/2016**	**9/12/2016**	**9/12/2016**	**9/26/2016**	**9/27/2016**	**9/27/2016**
Arsenic	13	16	**5.0**	**3.3**	**8.8**	**3.7**	**5.3**	**4.4**	**4.9**	**5.5**	**4.8**	**3.5**	**3.4**	**3.6**
Barium	350	400	**152**	**33.5**	**60.2**	**59.9** T	**84.8**	**57.5**	**119**	**140**	**96**	**49**	**31.2** T	**39.2**
Cadmium	2.5	4.3	**0.43**	**0.11** J	**0.18** J	**0.41**	**0.38**	**0.19** J	**0.28**	**0.53**	**0.46**	**0.35**	**0.28**	**0.30**
Chromium	30	180	**13.8**	**6.5**	**7.9**	**11.6**	**11**	**9.9**	**14.7**	**16.3**	**13.9**	**93.5**	**7.5**	**10.3**
Lead	63	400	**158.0**	**6.7**	**7.4**	**99.2** T	**236**	**73.3**	**86.3**	**121**	**158**	**70.7**	**52.5**	**56**
Mercury	0.18	0.81	**0.71**	<0.020 U	<0.021 U	**0.093**	**0.17**	**0.17**	**0.23**	**0.15**	**0.18**	**0.0016** J	**0.067**	**0.07**
Selenium	3.9	180	<4.0 U	<4.1 U	<4.5 U	<4.4 U	<4.6 U	<4.5 U	<4.8 U	<4.4 U	<4.4 U	<4.5 U	<4.4 UT	<4.6 U
Silver	2	180	<0.61 U	<0.61 U	<0.67 U	**0.24** J	<0.68 U	<0.68 U	<0.72 U	**0.75**	<0.67 U	<0.67 U	<0.66 UT	<0.68 U
Cyanide	27	27	<0.99 UT	<1.0 UT	<1.0 UT	<0.98 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<0.99 U	**9.4**	<1.1 UT	<1.1 UT

Legend:
Data obtained from Stantec Inc. Draft Phase II Environmental Site Assessment dated October 2016. Samples were not collected by LaBella Associates.
Metals analysis completed by USEPA Methods 6010/7470
Concentrations in milligrams per kilogram (mg/kg) or parts per million (ppm)
J - Analyte detected below quantitation limits
T- Quality control recovery is outside acceptable limits.
B - Analyte was found in blank and sample.
U - Compound analyzed for but not detected.
NA - Not Applicable
[A] Part 375-6 SCO not listed; Commissioner Policy 51 Supplemental Soil Cleanup Objective used.
Bolded font represents concentrations detected above laboratory MDL.
Yellow highlight exceeds NYCRR Part 375-6 Unrestricted Use SCO
Orange highlight exceeds NYCRR Part 375-6 Restricted Residential Use SCO and Unrestricted Use SCO

Table 1D
Interim Site Management Plan
Former Sherwood Shoe Factory, 625 South Goodman Street, Rochester, NY
Summary of Polychlorinated Biphenyls (PCBs) in Soil
LaBella Project No. 2172056

Sample ID	NYCRR Part 375-6 Unrestricted Use (ppb)	NYCRR Part 375-6 Commerical Use (ppb)	KU-B-7-S1	KU-B-8-S1	KU-B-9-S1	KU-TP-C-S	KU-TP-E-S	KU-TP-G-S	KU-TP-J-S	KU-TP-L-S	KU-TP-N-S	SS-1	SS-2	SS-3
Sample Depth (feet below ground surface)			**2.5' - 3.2'**	**5' - 6'**	**7' - 8'**	**3.5'**	**4'**	**3.5'**	**2.5'**	**2'**	**2.5'**	**0.2'**	**0.2'**	**0.2'**
Date Collected			**9/26/2016**	**9/26/2016**	**9/27/2016**	**9/12/2016**	**9/12/2016**	**9/12/2016**	**9/12/2016**	**9/12/2016**	**9/12/2016**	**9/26/2016**	**9/27/2016**	**9/27/2016**
Aroclor 1016	NA	NA	<170 U	<180 U	<200 U	<220 U	<221 U	<223 U	<180 U	<224 U	<222 U	<180 U	<224 U	<170 U
Aroclor 1221	NA	NA	<170 U	<180 U	<200 U	<220 U	<221 U	<223 U	<180 U	<224 U	<222 U	<180 U	<224 U	<170 U
Aroclor 1232	NA	NA	<170 U	<180 U	<200 U	<220 U	<221 U	<223 U	<180 U	<224 U	<222 U	<180 U	<224 U	<170 U
Aroclor 1242	NA	NA	<170 U	<180 U	<200 U	<220 U	<221 U	<223 U	<180 U	<224 U	<222 U	<180 U	<224 U	<170 U
Aroclor 1248	NA	NA	<170 U	<180 U	<200 U	<220 U	<221 U	<223 U	<180 U	<224 U	<222 U	<180 U	<224 U	<170 U
Aroclor 1254	NA	NA	**220**	<180 U	<200 U	<220 U	<221 U	<223 U	<180 U	<224 U	<222 U	<180 U	<224 U	<170 U
Aroclor 1260	NA	NA	<170 U	<180 U	<200 U	<220 U	<221 U	<223 U	<180 U	<224 U	<222 U	<180 U	<224 U	<170 U
Total PCBs	100	1,000	**220**	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected

Legend:
Data obtained from Stantec Inc. Draft Phase II Environmental Site Assessment dated October 2016. Samples were not collected by LaBella Associates.
PCB analysis completed by USEPA Method 8082
Concentrations in micrograms per kilogram (ug/kg) or parts per billion (ppb)
J - Analyte detected below quantitation limits
T- Quality control recovery is outside acceptable limits.
B - Analyte was found in blank and sample.
U - Compound analyzed for but not detected.
NA - Not Applicable
[A] Part 375-6 SCO not listed; Commissioner Policy 51 Supplemental Soil Cle
Bolded font represents concentrations detected above laboratory MDL.
Yellow highlight exceeds NYCRR Part 375-6 Unrestricted Use SCO
Orange highlight exceeds NYCRR Part 375-6 Restricted Residential Use SCO and Unrestricted Use SCO

Table 1E
Interim Site Management Plan
Former Sherwood Shoe Factory, 625 South Goodman Street, Rochester, NY
Summary of Detected Pesticides in Soil
LaBella Project No. 2172056

Sample ID	NYCRR Part 375-6 Unrestricted Use (ppb)	NYCRR Part 375-6 Commerical Use (ppb)	KU-B-7-S1		KU-B-8-S1		KU-B-9-S1		KU-TP-C-S		KU-TP-E-S		KU-TP-G-S		KU-TP-J-S		KU-TP-L-S		KU-TP-N-S		SS-1		SS-2		SS-3	
Sample Depth (feet below ground surface)			**2.5' - 3.2'**		**5' - 6'**		**7' - 8'**		**3.5'**		**4'**		**3.5'**		**2.5'**		**2'**		**2.5'**		**0.2'**		**0.2'**		**0.2'**	
Date Collected			**9/26/2016**		**9/26/2016**		**9/27/2016**		**9/12/2016**		**9/12/2016**		**9/12/2016**		**9/12/2016**		**9/12/2016**		**9/12/2016**		**9/26/2016**		**9/27/2016**		**9/27/2016**	
Alpha Bhc	20	3,400	**7.4**	**BJ**	**0.41**	**BJ**	**0.42**	**BJ**	<8.8	U	<9.3	U	<18	U	<18	U	<3.5	U	<37	U	<87	U	<19	U	<19	U
Beta Bhc	36	3,000	**17**	**J**	<1.7	U	<1.7	U	<8.8	U	<9.3	U	<18	U	<18	U	<3.5	U	<37	U	**18**	**J**	<19	U	<19	U
Dieldrin	5	1,400	**9.5**	**J**	<1.7	U	<1.7	U	<8.8	U	**24**		<18	U	<18	U	<3.5	U	<37	U	<87	U	<19	U	<19	U
Gamma Bhc (Lindane)	100	9,200	<36	U	<1.7	U	<1.7	U	**2.4**	**J**	<9.3	U	<18	U	<18	U	<3.5	U	<37	U	**19**	**J**	<19	U	<19	U
Methoxychlor	1,200[a]	1,200[a]	**15**	**J**	<1.7	U	<1.7	U	**2.9**	**J**	**2.8**	**J**	**6.9**	**J**	**7.0**	**J**	**1.3**	**J**	**8.7**	**J**	<87	U	<19	U	<19	U
4,4'-DDD	3.3	62,000	<36	U	<1.7	U	<1.7	U	**8.0**	**J**	**31**		<18	U	<18	U	<3.5	U	**110**		<87	U	**22**		<19	U
4,4'-DDE	3.3	47,000	<36	U	<1.7	U	<1.7	U	**7.7**	**J**	**81**		**3.9**	**J**	<18	U	**8.0**		**62**		<87	U	**7.9**	**J**	<19	U
4,4'-DDT	3.3	92,000	**9.3**	**J**	**0.52**	**J**	<1.7	U	**11**		**170**		<18	U	<18	U	**13**		**170**		**27**	**J**	**10**	**J**	**6.4**	**J**

Legend:
Data obtained from Stantec Inc. Draft Phase II Environmental Site Assessment dated October 2016. Samples were not collected by LaBella Associates.
Pesticide analysis completed by USEPA Method 8081
Concentrations in micrograms per kilogram (ug/kg) or parts per billion (ppb)
J - Analyte detected below quantitation limits
T- Quality control recovery is outside acceptable limits.
B - Analyte was found in blank and sample.
U - Compound analyzed for but not detected.
NA - Not Applicable
[A] Part 375-6 SCO not listed; Commissioner Policy 51 Supplemental Soil Cleanup Objective used.
Bolded font represents concentrations detected above laboratory MDL.
Yellow highlight exceeds NYCRR Part 375-6 Unrestricted Use SCO
Orange highlight exceeds NYCRR Part 375-6 Restricted Residential Use SCO and Unrestricted Use SCO

Table 2

Interim Site Management Plan

Former Sherwood Shoe Factory, 625 South Goodman Street, Rochester, NY

Summary of Detected Volatile Organic Compounds in Groundwater

LaBella Project No. 2172056

Sample ID	NYSDEC Part 703	**MW-09**		**MW-09**	
Screened interval (feet below ground surface)	Groundwater Quality	**10.3' - 20.3'**		**10.3' - 20.3'**	
Date Collected	Standards	**9/29/2016**		**1/5/2017**	
Carbon Disulfide	60	**0.22**	**J**	**<1.0**	**U**
cis-1,2-Dichloroethane	5	**7.1**		**1.5**	
Trichloroethene	5	**85**		**32**	
Total VOCs	*NA*	*92.3*		*33.5*	

Legend:

Data obtained from Stantec Inc. Draft Phase II Environmental Site Assessment dated October 2016. Samples were not collected by LaBella Associates.

VOC analysis completed by USEPA Method 8260

Concentrations in micrograms per liter (ug/L) or parts per billion (ppb)

J - Analyte detected below quantitation limits

U - Compound analyzed for but not detected.

NA - Not applicable

Yellow highlight exceeds NYSDEC Part 703 Groundwater Quality Standards

APPENDIX 1 – LIST OF SITE CONTACTS

Name	Phone/Email Address
Site Owner:	
Highland Grove LLC Attn: Steve DiMarzo	585-232-1760 sdimarzo@markiventerprises.com
Remedial Party:	
Highland Grove LLC Attn: Steve DiMarzo	585-232-1760 sdimarzo@markiventerprises.com
Qualified Environmental Professional: Daniel Noll, LaBella Associates	585-295-6611 dnoll@labellapc.com
NYSDEC DER Project Manager: Charlotte Theobald	585-226-5354 charlotte.theobald@dec.ny.gov
NYSDEC Regional HW Engineer: Bernette Schilling	585-226-5315 bernette.schilling@dec.ny.gov
NYSDEC Site Control Kelly Lewandowski	518-402-9547 kelly.lewandowski@dec.ny.gov

APPENDIX 2

FIELD LOGS FROM PHASE II ESA

Stantec

Test Pit ID: TP-A

Project:	Karges & Uhlen Ph II	**Contractor:**	Mark IV	**Date:**	9/12/2016
Project #:	190500919	**Operator:**	S. Dimarzo	**Start Time:**	7:05
Client:	Mark IV	**Equip Used:**	CAT322CL	**Completed Time:**	7:45
Location:	Rochester, NY		excavator		
		Weather:	60s, sunny		

0	PID (ppm)	Sample Info ID	Sample Info Depth	Strata Change (ft)	Soil & Stratigraphy Descriptions	Remarks
1	0.0				Brown silty SAND AND GRAVEL, with boulders	Linear piece of steel at 4-6'
2	0.0					
3	0.0					
4	0.0				- FILL -	
5	0.0					
6	0.0			6.5		
					Light brown fine to medium SAND AND SILT	
7	0.0					
8	0.0			8.0		
9	0.0				Gray to light brown fine SAND, some silt	
10	0.0				- NATIVE SOIL -	
11					Bottom of pit at 10.5'	
12						
13						
14						
15						

Notes:
1. PID Model Mini-Rae 3000 with 10.6 eV lamp.
2. Depth to water at completion: N/A

TP Length & Width (ft):
22 x **6**

Remarks (Unusal observations, caving characteristics, sheen or layers on water, odors, boulder count, etc.):

dry - no groundwater observed

Stantec

Test Pit ID: TP-B

Project:	Karges & Uhlen Ph II	**Contractor:**	Mark IV	**Date:**	9/12/2016
Project #:	190500919	**Operator:**	C. Ross	**Start Time:**	7:50
Client:	Mark IV	**Equip Used:**	CAT322CL	**Completed Time:**	8:15
Location:	Rochester, NY		excavator		
		Weather:	60s, sunny		

0	PID (ppm)	Sample Info ID	Sample Info Depth	Strata Change (ft)	Soil & Stratigraphy Descriptions	Remarks
1	0.0				Brown silty SAND AND GRAVEL, with boulders, some brick and asphalt, little cinders	Slight surface slope towards I-490
2	0.0					Scrap metal and other debris throughout
3	0.0					
4	0.9				- FILL -	
5	0.0			5.0		6" iron pipe ⊥ to trench ~33.5' from fence just above 5'
6	0.0				Finer material, lighter in color	
7	0.0				- FILL/NATIVE MIX -	
8	0.0					
9					Bottom of pit at 8.0'	
10						
11						
12						
13						
14						
15						

Notes:
1. PID Model Mini-Rae 3000 with 10.6 eV lamp.
2. Depth to water at completion: N/A

TP Length & Width (ft):
24 x **4**

Remarks (Unusal observations, caving characteristics, sheen or layers on water, odors, boulder count, etc.):

dry - no groundwater observed

Stantec

Test Pit ID: TP-C

Project:	Karges & Uhlen Ph II	**Contractor:**	Mark IV	**Date:**	9/12/2016
Project #:	190500919	**Operator:**	C. Ross	**Start Time:**	8:25
Client:	Mark IV	**Equip Used:**	CAT322CL excavator	**Completed Time:**	8:40
Location:	Rochester, NY	**Weather:**	60s, sunny		

0	PID (ppm)	Sample Info ID	Sample Info Depth	Strata Change (ft)	Soil & Stratigraphy Descriptions	Remarks
1	0.0				Brown silty SAND AND GRAVEL, with cobbles, asphalt, and brick	Asphalt in top 1.5' sloping inward toward property
2	0.0					
3	0.0					
4	0.0	KU-TP-C-s	3.5		Tan from 3-4.5', then dark brown	
5	0.0				- FILL -	
6	0.0					
7	0.0			7.0		2" steel pipe parallel to thrench at 6'
8	0.0				Light brown SAND, some fine gravel	
9	0.0				- NATIVE -	
10	0.0					
11					Bottom of pit at 10.0'	
12						
13						
14						
15						

Notes:
1. PID Model Mini-Rae 3000 with 10.6 eV lamp.
2. Depth to water at completion: N/A

TP Length & Width (ft):
18 x **5**

Remarks (Unusal observations, caving characteristics, sheen or layers on water, odors, boulder count, etc.):

dry - no groundwater observed

Stantec

Test Pit ID: TP-D

Project:	Karges & Uhlen Ph II	**Contractor:**	Mark IV	**Date:**	9/12/2016
Project #:	190500919	**Operator:**	C. Ross	**Start Time:**	11:05
Client:	Mark IV	**Equip Used:**	CAT322CL	**Completed Time:**	11:20
Location:	Rochester, NY		excavator		
		Weather:	70s, sunny		

0	PID (ppm)	Sample Info ID	Sample Info Depth	Strata Change (ft)	Soil & Stratigraphy Descriptions	Remarks
1				1.0	Crushed STONE	
2	0.0				Brown silty SAND AND GRAVEL, little rubble/concrete, with brick and scrap metal	
3	0.0					
4	0.0				- FILL -	
5	0.0					
6	0.0			5.5		
				6.0	Brown coarse SAND - NATIVE SOIL -	
7	0.0				Reddish brown tight coarse SAND AND GRAVEL, some silt and clay	
8	0.0					
9	0.0				- TILL -	
10	0.0					
11					Bottom of pit at 10.5'	
12						
13						
14						
15						

Notes:
1. PID Model Mini-Rae 3000 with 10.6 eV lamp.
2. Depth to water at completion: N/A

TP Length & Width (ft):
17 x **3**

Remarks (Unusal observations, caving characteristics, sheen or layers on water, odors, boulder count, etc.):

dry - no groundwater observed

Stantec

Test Pit ID: TP-E

Project:	Karges & Uhlen Ph II	**Contractor:**	Mark IV	**Date:**	9/12/2016
Project #:	190500919	**Operator:**	C. Ross	**Start Time:**	10:30
Client:	Mark IV	**Equip Used:**	CAT322CL excavator	**Completed Time:**	10:45
Location:	Rochester, NY	**Weather:**	70s, sunny		

0	PID (ppm)	Sample Info ID	Sample Info Depth	Strata Change (ft)	Soil & Stratigraphy Descriptions	Remarks
1				1.0	Crushed STONE	
2	0.0				Brown silty SAND AND GRAVEL, few ash and cinders, brick, and wood fragments	
3	0.0					
4	0.0				- FILL -	
5	0.0	KU-TP-E-s	4.0		Ash and cinders lens 4.5-5.0'	
6	0.0					
7	0.0					
8	0.0			8.0		
9	0.0				Light brown to grayish fine to medium SAND, some silt, little fine to medium gravel	
10	0.0				- NATIVE SOIL -	
11					Bottom of pit at 10.0'	
12						
13						
14						
15						

Notes:
1. PID Model Mini-Rae 3000 with 10.6 eV lamp.
2. Depth to water at completion: N/A

TP Length & Width (ft):
14 x **4**

Remarks (Unusal observations, caving characteristics, sheen or layers on water, odors, boulder count, etc.):

dry - no groundwater observed; "basement" odor

Stantec

Test Pit ID: TP-F

Project:	Karges & Uhlen Ph II	**Contractor:**	Mark IV	**Date:**	9/12/2016
Project #:	190500919	**Operator:**	C. Ross	**Start Time:**	9:55
Client:	Mark IV	**Equip Used:**	CAT322CL excavator	**Completed Time:**	10:20
Location:	Rochester, NY	**Weather:**	70s, sunny		

0	PID (ppm)	Sample Info ID	Sample Info Depth	Strata Change (ft)	Soil & Stratigraphy Descriptions	Remarks
1				1.0	Crushed STONE	
2	0.2				Brown SAND AND GRAVEL, some silt and fine gravel, few cobbles, brick, ash and cinders, and wood fragments	Large concrete blocks
3	0					
4	0				- FILL -	
5	0			5.0		
6	0				Concrete structure and metal pipes/conduit pieces	
7	0			7.0		Building C&D
8	0				Light brown fine to medium SAND, few gravel	
9	0				- NATIVE SOIL -	
10	0					
11					Bottom of pit at 10.0'	
12						
13						
14						
15						

Notes:
1. PID Model Mini-Rae 3000 with 10.6 eV lamp.
2. Depth to water at completion: N/A

TP Length & Width (ft):
20 x **4.5**

Remarks (Unusal observations, caving characteristics, sheen or layers on water, odors, boulder count, etc.):

dry - no groundwater observed; "basement" odor

Stantec

Test Pit ID: TP-G

Project:	Karges & Uhlen Ph II	**Contractor:**	Mark IV	**Date:**	9/12/2016
Project #:	190500919	**Operator:**	C. Ross	**Start Time:**	9:00
Client:	Mark IV	**Equip Used:**	CAT322CL excavator	**Completed Time:**	9:30
Location:	Rochester, NY	**Weather:**	60s-70s, sunny		

0	PID (ppm)	Sample Info ID	Sample Info Depth	Strata Change (ft)	Soil & Stratigraphy Descriptions	Remarks
1					Brown SILTY SAND, some gravel, cobbles, brick, wood, few metal pieces	Large concrete block at 4'
2	1.5-2.0					
3						
4	11.0-14.5					
5	8.0	KU-TP-G-s	3.5			
6						
7	14.0					
8						
9	2.0 - 3.0					
10				9.5	Gray sand - NATIVE SOIL -	
11					End of pit at 10.0'	
12						
13						
14						
15						

Notes:
1. PID Model Mini-Rae 3000 with 10.6 eV lamp.
2. Depth to water at completion: N/A

TP Length & Width (ft):
23 x **5**

Remarks (Unusal observations, caving characteristics, sheen or layers on water, odors, boulder count, etc.):

dry - no groundwater observed

Stantec

Test Pit ID: TP-H

Project:	Karges & Uhlen Ph II	**Contractor:**	Mark IV	**Date:**	9/12/2016
Project #:	190500919	**Operator:**	C. Ross	**Start Time:**	11:25
Client:	Mark IV	**Equip Used:**	CAT322CL	**Completed Time:**	11:45
Location:	Rochester, NY		excavator		
		Weather:	80s, sunny		

0	PID (ppm)	Sample Info ID	Sample Info Depth	Strata Change (ft)	Soil & Stratigraphy Descriptions	Remarks
1	0.0				Brown silty SAND AND GRAVEL, some cobbles, ash and cinders, metal fragments, and brick, asphalt layering	Buried valve and large concrete blocks; foundation at 3.5'
2	0.0					
3	0.0					
4	0.0				- FILL -	
5	0.0					
6	0.0			6.0		
7	0.0				Light brown to gray SILTY SAND, little gravel	
8	0.0					
9	0.0				- NATIVE SOIL -	
10					Bottom of pit at 9.0'	
11						
12						
13						
14						
15						

Notes:
1. PID Model Mini-Rae 3000 with 10.6 eV lamp.
2. Depth to water at completion: N/A

TP Length & Width (ft):
10 x **3** ⊥ **15** x **3**

Remarks (Unusal observations, caving characteristics, sheen or layers on water, odors, boulder count, etc.):

dry - no groundwater observed;

one leg of pit perpindular to I-490 (~10 ft long) with central perpindular extension parallell to I-490 (~15 ft long)

Stantec

Test Pit ID: TP-I

Project:	Karges & Uhlen Ph II	**Contractor:**	Mark IV	**Date:**	9/12/2016
Project #:	190500919	**Operator:**	C. Ross	**Start Time:**	12:40
Client:	Mark IV	**Equip Used:**	CAT322CL excavator	**Completed Time:**	13:15
Location:	Rochester, NY	**Weather:**	80s, sunny		

0	PID (ppm)	Sample Info ID	Sample Info Depth	Strata Change (ft)	Soil & Stratigraphy Descriptions	Remarks
1	0.0				Brown silty SAND AND GRAVEL, some brick, little ash and cinders, glass, with asphalt shavings, cobbles, concrete pieces, and metal scraps/debris	
2	0.0					
3	0.0	KU-TP-I-s*	2.0			
4	0.5 1.5				- FILL -	
5	0.0					
6	0.0			6.0		Concrete footer at 5'
7	0.0				Light brown fine to medium SAND, some silt, little fine gravel	
8	0.0				- NATIVE SOIL -	
9	0.0				Grayish at 8.5'	
10					Bottom of pit at 9.0'	
11						
12						
13						
14						
15						

Notes:
1. PID Model Mini-Rae 3000 with 10.6 eV lamp.
2. Depth to water at completion: N/A
3. *Sample not submitted for laboratory analysis.

TP Length & Width (ft):
17 x **3** ⊥ **16** x **3**

Remarks (Unusal observations, caving characteristics, sheen or layers on water, odors, boulder count, etc.):

dry - no groundwater observed

one leg of pit perpindular to I-490 (~17 ft long) with central perpindular extension parallell to I-490 (~16 ft long)

Stantec

Test Pit ID: TP-J

Project:	Karges & Uhlen Ph II	**Contractor:**	Mark IV	**Date:**	9/12/2016
Project #:	190500919	**Operator:**	C. Ross	**Start Time:**	13:30
Client:	Mark IV	**Equip Used:**	CAT322CL	**Completed Time:**	13:50
Location:	Rochester, NY		excavator		
		Weather:	80s, sunny		

0	PID (ppm)	Sample Info ID	Sample Info Depth	Strata Change (ft)	Soil & Stratigraphy Descriptions	Remarks
1	0.0				Brown silty SAND AND GRAVEL, with cobbles, brick, and little glass	
2	0.0					
3	0.0					
	0.0	KU-TP-J-s	2.5			
4	0.0				- FILL -	
5	0.0					
6	0.0			6.0		
7	0.0				Light brown fine to medium SAND, some silt, little fine to medium gravel	
8	0.0					
9	0.0				- NATIVE SOIL -	
10					Bottom of pit at 9.0'	
11						
12						
13						
14						
15						

Notes:
1. PID Model Mini-Rae 3000 with 10.6 eV lamp.
2. Depth to water at completion: N/A

TP Length & Width (ft):
17 x **4**

Remarks (Unusal observations, caving characteristics, sheen or layers on water, odors, boulder count, etc.):

dry - no groundwater observed

Stantec

Test Pit ID: TP-K

Project:	Karges & Uhlen Ph II	**Contractor:**	Mark IV	**Date:**	9/12/2016
Project #:	190500919	**Operator:**	C. Ross	**Start Time:**	14:00
Client:	Mark IV	**Equip Used:**	CAT322CL	**Completed Time:**	14:10
Location:	Rochester, NY		excavator		
		Weather:	80s, sunny		

0	PID (ppm)	Sample Info ID	Sample Info Depth	Strata Change (ft)	Soil & Stratigraphy Descriptions	Remarks
1	0.0				Light brown silty GRAVEL, little fine to coarse sand, trace cobbles	
2	0.0			2.0		Roots to 1.5'
3	0.0				Dark gray CINDERS and fine to coarse SAND, trace ash, with pockets of brick	
4	0.0				- FILL -	
5	0.0			4.5	Brown silty fine to coarse SAND	
6	0.0					
7	0.0			7.0		
8	0.0				Light brown fine to medium SAND AND SILT	
9	0.0				- NATIVE SOIL -	
10					Bottom of pit at 9.0'	
11						
12						
13						
14						
15						

Notes:
1. PID Model Mini-Rae 3000 with 10.6 eV lamp.
2. Depth to water at completion: N/A

TP Length & Width (ft):
18 x **3**

Remarks (Unusal observations, caving characteristics, sheen or layers on water, odors, boulder count, etc.):

dry - no groundwater observed

Stantec

Test Pit ID: TP-L

Project:	Karges & Uhlen Ph II	**Contractor:**	Mark IV	**Date:**	9/12/2016
Project #:	190500919	**Operator:**	C. Ross	**Start Time:**	14:20
Client:	Mark IV	**Equip Used:**	CAT322CL excavator	**Completed Time:**	14:35
Location:	Rochester, NY	**Weather:**	80s, sunny		

0	PID (ppm)	Sample Info ID	Sample Info Depth	Strata Change (ft)	Soil & Stratigraphy Descriptions	Remarks
1	0.0				Brown silty SAND AND GRAVEL, loittle coarse gravel, few cobbles	
2	0.0			2.0		
3	0.0	KU-TP-L-s	2.0		ASH AND CINDERS, some brown sand and brick	
4	0.0			4	- FILL -	
5	0.0				Brown silty SAND AND GRAVEL, few cobbles and coarse gravel	
6	0.0			6.0		
7	0.0				Light brown fine to medium SAND, some silt, little fine gra	
8	0.0				- NATIVE SOIL -	
9					Bottom of pit at 8.5'	
10						
11						
12						
13						
14						
15						

Notes:
1. PID Model Mini-Rae 3000 with 10.6 eV lamp.
2. Depth to water at completion: N/A

TP Length & Width (ft):
17 x **3**

Remarks (Unusal observations, caving characteristics, sheen or layers on water, odors, boulder count, etc.):

dry - no groundwater observed

Stantec

Test Pit ID: TP-M

Project:	Karges & Uhlen Ph II	**Contractor:**	Mark IV	**Date:**	9/12/2016
Project #:	190500919	**Operator:**	C. Ross	**Start Time:**	14:45
Client:	Mark IV	**Equip Used:**	CAT322CL	**Completed Time:**	15:00
Location:	Rochester, NY		excavator		
		Weather:	70s, sunny		

0	PID (ppm)	Sample Info ID	Sample Info Depth	Strata Change (ft)	Soil & Stratigraphy Descriptions	Remarks
1	0.0				Light brown silty SAND AND GRAVEL, little ash and cinders, and asphalt, few cobbles, trace brick	
2	0.0				- FILL -	
3	0.0			3.0		
4	0.0				ASH, CINDERS, AND BRICK with brown silty sand and gravel	
5	0.0			4.5		
6	0.0				Brown silty SAND AND GRAVEL, little ash and cinders, and asphalt, few cobbles, trace brick	
7	0.0				- FILL -	
8	0.0					
9	0.0			8.5	Light brown silty f-m SAND, little m. gravel	- NATIVE SOIL -
10					Bottom of pit at 9.0'	
11						
12						
13						
14						
15						

Notes:
1. PID Model Mini-Rae 3000 with 10.6 eV lamp.
2. Depth to water at completion: N/A

TP Length & Width (ft):
14 x **3**

Remarks (Unusal observations, caving characteristics, sheen or layers on water, odors, boulder count, etc.):

dry - no groundwater observed

Stantec

Test Pit ID: TP-N

Project:	Karges & Uhlen Ph II	**Contractor:**	Mark IV	**Date:**	9/12/2016
Project #:	190500919	**Operator:**	C. Ross	**Start Time:**	15:05
Client:	Mark IV	**Equip Used:**	CAT322CL excavator	**Completed Time:**	15:15
Location:	Rochester, NY	**Weather:**	70s, sunny		

0	PID (ppm)	Sample Info ID	Sample Info Depth	Strata Change (ft)	Soil & Stratigraphy Descriptions	Remarks
1	0.0			0.5	Weathered ASPHALT	
2	0.0				Dark gray to black gravelly fine to coarse SAND, little silt, mixed asphalt, and gravel	
3	0.0					
	0.0	KU-TP-N-s	2.5			
4	0.0				- FILL -	
5	0.0					
6	0.0			6.0		
7	0.0				Light brown SAND	
8	0.0					
9	0.0				- NATIVE SOIL -	
10					Bottom of pit at 9.0'	
11						
12						
13						
14						
15						

Notes:
1. PID Model Mini-Rae 3000 with 10.6 eV lamp.
2. Depth to water at completion: N/A

TP Length & Width (ft):
14 x **3.5**

Remarks (Unusal observations, caving characteristics, sheen or layers on water, odors, boulder count, etc.):

dry - no groundwater observed

Stantec

Test Pit ID: TP-O

Project:	Karges & Uhlen Ph II	**Contractor:**	Mark IV	**Date:**	9/12/2016
Project #:	190500919	**Operator:**	C. Ross	**Start Time:**	15:30
Client:	Mark IV	**Equip Used:**	CAT322CL	**Completed Time:**	15:45
Location:	Rochester, NY		excavator		
		Weather:	70s, sunny		

0	PID (ppm)	Sample Info ID	Sample Info Depth	Strata Change (ft)	Soil & Stratigraphy Descriptions	Remarks
1	0.0				Brown silty SAND AND GRAVEL, some cobbles, few boulders, asphalt and brick, trace ash and cinders	Asphalt layers ~0.5' thick at 0.5' and 2.0', mixed with sand and gravel fill
2	0.0					
3	0.0					
4	0.0				- FILL -	
5	0.0					
6	0.0			5.5		
7	0.0				Light brown fine to medium SAND, little silt and fine gravel	
8	0.0				- NATIVE SOIL -	
9					Bottom of pit at 8.0'	
10						
11						
12						
13						
14						
15						

Notes:
1. PID Model Mini-Rae 3000 with 10.6 eV lamp.
2. Depth to water at completion: N/A

TP Length & Width (ft):
20 x **3.5**

Remarks (Unusal observations, caving characteristics, sheen or layers on water, odors, boulder count, etc.):

dry - no groundwater observed

Stantec

61 Commercial St
Rochester, NY 14614
(585) 475-1440

Test Boring No.: B-4
Page: 1 of 1

Project:	Karges & Uhlen Phase II ESA	Drill Contractor:	Nothnagle	Start Date:	9/26/2016
Project #:	190500919	Driller:	Thom M.	Completion Date:	9/26/2016
Client:	Mark IV Enterprises	Elevation:	NM	Drilling Method:	Direct Push with Macrocore
Location:	Karges & Uhlen Place Rochester, NY	Weather:	70s, overcast	Supervisor:	L. Best

0	SAMPLE PID (ppm)	SAMPLE No.	SAMPLE Rec. (ft)	SAMPLE Depth (ft)	Depth of Strata Change (ft)	Material Description and Remarks
		1	3.0	0	0.2	Brown TOPSOIL with roots, dry
	0.0					Brown fine to medium SAND, some fine to medium gravel, trace asphalt and coarse gravel, dry
					2.2	- FILL -
	0.0					
	0.0				3.0	Dark gray pulverized COBBLES, dry
				4		
	0.5	2	0.3			Brown fine to medium SAND, some fine to medium gravel, trace asphalt and coarse gravel, dry
5						
				8		
	0.8	3	3.3			Brown fine SAND, little fine to medium gravel, few clay, trace black staining, dry
					8.7	
	0.1					Gray fine SAND with pulverized cobbles, dry
10					9.7	
	0.0					Brown fine SAND, little fine to medium gravel, few clay, dry
						- NATIVE SOIL -
	0.0					
				12		
	0.9	4	3.1			
	0.3					Gray, 13.3-13.5'
					13.7	Reddish brown fine SAND AND SILT, little clay, few coarse gravel, tight, dry
	0.0					
15						
	0.0					Moist at 15.1'
				16		
	0.5	5	2.2			Gray fine SAND, little fine to medium gravel, few clay, dry
	0.4					
					▼	Wet at 17.9'
	0.3					
20				20		
						End boring at 20'

Notes:

1. PID Model Mini-Rae 3000 with 10.6eV lamp.

61 Commercial St
Rochester, NY 14614
(585) 475-1440

Test Boring No.: B-7
Page: 1 of 1

Project:	Karges & Uhlen Phase II ESA	Drill Contractor:	Nothnagle	Start Date:	9/26/2016
Project #:	190500919	Driller:	Thom M.	Completion Date:	9/26/2016
Client:	Mark IV Enterprises	Elevation:	NM	Drilling Method:	HSA with Macrocore
Location:	Karges & Uhlen Place Rochester, NY	Weather:	50s, partly cloudy	Supervisor:	L. Best

	SAMPLE				Depth of Strata Change (ft)	Material Description and Remarks
0	PID (ppm)	No.	Rec. (ft)	Depth (ft)		
		1	3.2	0	0.3	Brown TOPSOIL with roots, dry
	0.0					Light brown fine to medium SAND, some fine to coarse gravel, little dark brown medium sand and brick, dry
	0.0					
					2.6	- FILL -
	0.0				2.7	ASH, dry
	0.0					ASH, CINDERS, AND BRICK, with brown coarse sand, trace glass, dry
				4		
		2	2.7		4.2	Light gray COBBLE fragments, dry
5	0.0				5.1	Gray fine to medium SAND, intermittent orange staining, dry
	0.0					Same, with trace fine gravel, no orange discoloration
					6.7	
	0.0					No recovery
				8		
		3	1.1			Brown fine SAND AND SILT, little medium to coarse gravel, few clay, moist
						- NATIVE SOIL -
10				10		
	0.0	4	2.3			Same, with some fine to coarse gravel, moist
					11.0	
	0.0					Gray fine to medium SAND, little medium gravel, few coarse gravel, moist
	0.0					
				14	▼	
	0.0	5	0.7			Wet at 14'
15						
				16		
						Refusal [TOR] at 16'
20						

Notes:
1. PID Model Mini-Rae 3000 with 10.6eV lamp.

Stantec

61 Commercial St
Rochester, NY 14614
(585) 475-1440

Test Boring No.: B-8
Page: 1 of 1

Project:	Karges & Uhlen Phase II ESA	Drill Contractor:	Nothnagle	Start Date:	9/26/2016
Project #:	190500919	Driller:	Thom M.	Completion Date:	9/26/2016
Client:	Mark IV Enterprises	Elevation:	NM	Drilling Method:	HSA with Macrocore
Location:	Karges & Uhlen Place Rochester, NY	Weather:	50s, partly cloudy	Supervisor:	L. Best

	SAMPLE				Depth of Strata Change (ft)	Material Description and Remarks
0	PID (ppm)	No.	Rec. (ft)	Depth (ft)		
		1	1.5	0	0.2	Brown TOPSOIL with roots, dry
	0.0					Brown fine to medium SAND, some silt and fine to medium gravel, little gray cobble fragments, trace brick and glass, dry
	0.0					
				2.3		- FILL -
						No sample collection (refusal at 2.3'; augered through to 4')
				4		
	0.0	2	2.5		4.5	Same as 0.2'
5						Gray fine to medium SAND, trace medium to coarse gravel, intermittent orange staining, dry
	0.0					
						- NATIVE SOIL -
	0.0					
	0.0			7.6		
				8.0		No sample collection (refusal at 7.6'; augered through to 8')
	0.3	3	0.6	8.5		Same as 4.5', with pulverized gray cobbles
						No sample collection (refusal at 8.5'; augered through to 10')
10				10	10.0	
	0.5	4	2.8			Reddish gray pulverized COBBLES with light brownish gray medium sand
					11.1	
	0.0				11.5	Brown medium to coarse SAND, dry
						Brown fine SAND AND SILT, few medium gravel, trace clay, moist
	0.0					
	0.0					
				14	▼	
	0.0	5	1.8			Gray fine to medium SAND, little fine to medium gravel, wet
15						
	0.0					
	0.0					
				17		
						Refusal [TOR] at 17'
20						

Notes:
1. PID Model Mini-Rae 3000 with 10.6eV lamp.

Stantec

61 Commercial St
Rochester, NY 14614
(585) 475-1440

Test Boring No.: B-9
Page: 1 of 1

Project:	Karges & Uhlen Phase II ESA	Drill Contractor:	Nothnagle	Start Date:	9/27/2016
Project #:	190500919	Driller:	Thom M.	Completion Date:	9/27/2016
Client:	Mark IV Enterprises	Elevation:	NM	Drilling Method:	HSA with Macrocore
Location:	Karges & Uhlen Place Rochester, NY	Weather:	50s, partly sunny	Supervisor:	L. Best

0	SAMPLE PID (ppm)	SAMPLE No.	SAMPLE Rec. (ft)	SAMPLE Depth (ft)	Depth of Strata Change (ft)	Material Description and Remarks
	0.0	1	2.0	0		Brown fine to medium SAND, some fine gravel, little medium to coarse gravel, dry
	0.0					Pulverized gray COBBLES at 1.5' and 2.0'
	0.0					
	0.0			2.3		- FILL -
						No sample collection (refusal at 2.3'; augered through to 4')
				4		
	0.0	2	3.4			Same as 0.0-2.3'
5					5.0	
	0.1					Light brown fine to medium SAND, little clay, intermittent orange staining, dry
	0.9					
	1.5					- NATIVE SOIL -
	0.9			8		
		3	0.0			No recovery (apparent slough in sleeve)
10				10	10.0	
	0.9	4	0.7			Brown fine SAND AND SILT, little clay, trace fine gravel, moist
	0.7					
				12		
						No sample collection (refusal at 12'; augered through to 14')
				14	14.0	
	0.0	5	1.5			Grayish brown fine to medium SAND, some silt and clay, little fine to coarse gravel,
15	0.5				▼	moist; wet at 15.2'
	0.9					
		6	0.3	18		
	0.0					Same
20				20		
		7	0.0	20.5		
						Refusal [TOR] at 20.5'

Notes:
1. PID Model Mini-Rae 3000 with 10.6eV lamp.

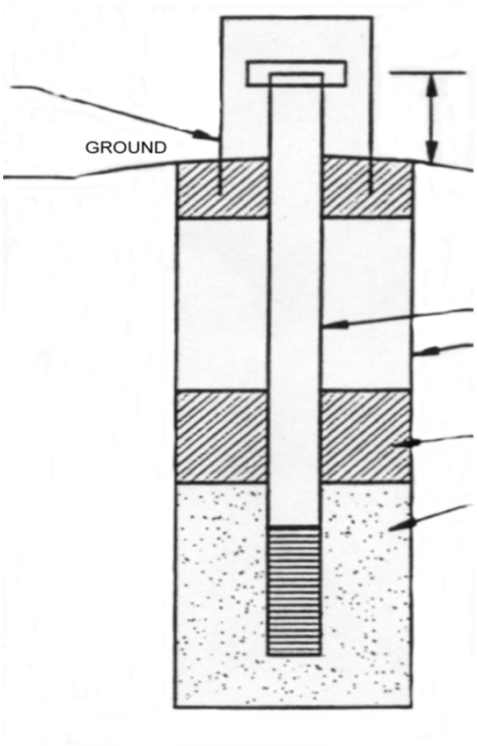
OVERBURDEN MONITORING WELL

DESIGN DETAILS

PROJECT NAME	Karges & Uhlen Phase II ESA	HOLE DESIGNATION	**B/MW-7**
PROJECT NUMBER	190500919	DATE COMPLETED	9/26/2016
CLIENT	Mark IV Enterprises	DRILLING METHOD	Hollow Stem Auger
LOCATION	Karges & Uhlen Place Rochester, NY	SUPERVISOR	Laura Best

CAP TYPE **J-plug**

PROTECTIVE CASING



STICK-UP **0.7** ft

SURFACE SEAL TYPE **N/A**

TOP OF SEAL* AT **1.5** ft

BOTTOM OF SEAL* AT **4.0** ft

TOP OF SCREEN* AT **6.0** ft

BOTTOM OF SCREEN* AT **16.0** ft

BOTTOM OF HOLE* AT **16.0** ft

WELL CASING ANNULUS BACKFILL TYPE: **Soil Cuttings**

SEAL TYPE: **Bentonite**

PACK TYPE: **#00N sand**

- SAND, SIZE

* NOTE:
ALL DIMENSIONS ARE
BELOW GROUND SURFACE (BGS)

SCREEN TYPE: CONTINUOUS SLOT **X** PERFORATED _____ LOUVRE _____ OTHER _____

SCREEN MATERIAL: STAINLESS STEEL _____ PVC **X** OTHER _____

SCREEN LENGTH: **10** ft SCREEN DIAMETER: **2** in SCREEN SLOT SIZE: **0.010**

WELL RISER MATERIAL: **PVC** WELL RISER DIAMETER: **2** in

HOLE DIAMETER: **8** in
AUGER DIAMATER **4.25** in (inner diameter)

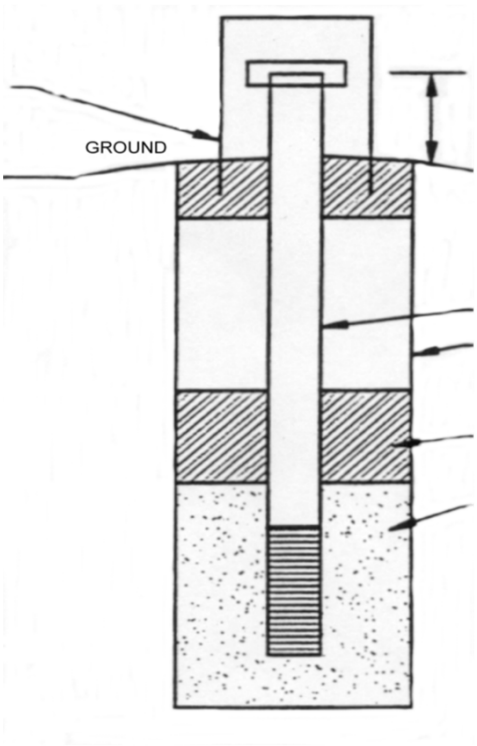
OVERBURDEN MONITORING WELL

DESIGN DETAILS

PROJECT NAME	Karges & Uhlen Phase II ESA	HOLE DESIGNATION	**B/MW-8**
PROJECT NUMBER	190500919	DATE COMPLETED	9/26/2016
CLIENT	Mark IV Enterprises	DRILLING METHOD	Hollow Stem Auger
LOCATION	Karges & Uhlen Place Rochester, NY	SUPERVISOR	Laura Best

CAP TYPE **J-plug**

PROTECTIVE CASING



STICK-UP **0.7** ft

SURFACE SEAL TYPE **N/A**

TOP OF SEAL* AT **2.5** ft

BOTTOM OF SEAL* AT **5.0** ft

TOP OF SCREEN* AT **7.0** ft

BOTTOM OF SCREEN* AT **17.0** ft

BOTTOM OF HOLE* AT **17.0** ft

WELL CASING ANNULUS BACKFILL TYPE: **Soil Cuttings**

SEAL TYPE: **Bentonite**

PACK TYPE: **#00N sand**

- SAND, SIZE

* NOTE:
ALL DIMENSIONS ARE
BELOW GROUND SURFACE (BGS)

SCREEN TYPE: CONTINUOUS SLOT **X** PERFORATED _____ LOUVRE _____ OTHER _____

SCREEN MATERIAL: STAINLESS STEEL _____ PVC **X** OTHER _____

SCREEN LENGTH: **10** ft SCREEN DIAMETER: **2** in SCREEN SLOT SIZE: **0.010**

WELL RISER MATERIAL: **PVC** WELL RISER DIAMETER: **2** in

HOLE DIAMETER: **8** in
AUGER DIAMATER **4.25** in (inner diameter)

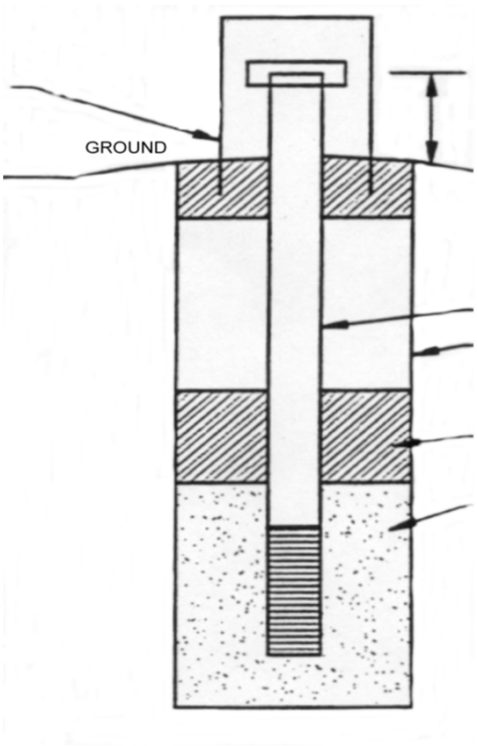
OVERBURDEN MONITORING WELL

DESIGN DETAILS

PROJECT NAME	Karges & Uhlen Phase II ESA	HOLE DESIGNATION	**B/MW-9**
PROJECT NUMBER	190500919	DATE COMPLETED	9/27/2016
CLIENT	Mark IV Enterprises	DRILLING METHOD	Hollow Stem Auger
LOCATION	Karges & Uhlen Place Rochester, NY	SUPERVISOR	Laura Best

CAP TYPE **J-plug**

PROTECTIVE CASING



STICK-UP **0.2** ft

SURFACE SEAL TYPE **N/A**

TOP OF SEAL* AT **5.0** ft

BOTTOM OF SEAL* AT **8.3** ft

TOP OF SCREEN* AT **10.3** ft

BOTTOM OF SCREEN* AT **20.3** ft

BOTTOM OF HOLE* AT **20.3** ft

WELL CASING ANNULUS BACKFILL TYPE: **Soil Cuttings**

SEAL TYPE: **Bentonite**

PACK TYPE: **#00N sand**

- SAND, SIZE

* NOTE:
ALL DIMENSIONS ARE
BELOW GROUND SURFACE (BGS)

SCREEN TYPE: CONTINUOUS SLOT **X** PERFORATED _____ LOUVRE _____ OTHER _____

SCREEN MATERIAL: STAINLESS STEEL _____ PVC **X** OTHER _____

SCREEN LENGTH: **10** ft SCREEN DIAMETER: **2** in SCREEN SLOT SIZE: **0.010**

WELL RISER MATERIAL: **PVC** WELL RISER DIAMETER: **2** in

HOLE DIAMETER: **8** in
AUGER DIAMATER **4.25** in (inner diameter)

APPENDIX 3 – EXCAVATION WORK PLAN (EWP)

3-1 NOTIFICATION

At least 15 days prior to the start of any excavation activities that are no managed within an approved work plan such as activities associated with the development of the Site that is anticipated to encounter contamination, the site owner or their representative will notify the NYSDEC. Table 3-1A includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix 1.

Table 3-1A: Notifications*

NYSDEC Project Manager; Charlotte Theobald	595-226-5354, charlotte.theobald@dec.ny.gov
NYSDEC Regional HW Engineer; Ms. Bernette Schilling	585-226-5315, bernette.schilling@dec.ny.gov
NYSDEC Site Control; Ms. Kelly Lewandowski	518-402-9547, kelly.lewandowski@dec.ny.gov

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

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below the existing Site grade, estimated volumes of contaminated soil to be excavated;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of

concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;

- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix 4 of this SMP;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

3-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed by a qualified environmental professional during all excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC. The PID screening level will be 5 parts per million (PPM).

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-site disposal of materials and on-site reuse is provided in Section 3-6 of this Appendix.

3-3 SOIL STAGING METHODS

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

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

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

3-4 MATERIALS EXCAVATION AND LOAD-OUT

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

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

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

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements). A truck decontamination area will be established at the Site. The qualified environmental professional or person under their supervision will be responsible for ensuring all

outbound trucks are free/decontaminated of site material (not contained in the truck bed/trailer) prior to exiting the Site to the extent practicable, including truck tires.

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

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

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

3-5 MATERIALS TRANSPORT OFF-SITE

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

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

Truck transport routes are to be determined and will be included in the Change of Use or 15 day activity notice. The route will take into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c)

prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

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

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

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

3-6 MATERIALS DISPOSAL OFF-SITE

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

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the subsequent monthly progress report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

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

3-7 MATERIALS REUSE ON-SITE

The qualified environmental professional will ensure that procedures defined for materials reuse in this ISMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for reuse on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines. All material to be reused on-site will be sampled in accordance with DER-10 Table 5.4(e)10. The sampling frequency and number of samples will be dependent on stockpile size. If any material is to be reused as cover material the soil/fill material must meet the Restricted Residential SCOs as presented in DER-10's Appendix 5 for all compounds listed.

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

3-8 FLUIDS MANAGEMENT

All liquids to be removed from the site, including but not limited to, excavation dewatering, decontamination waters and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development

fluids will not be recharged back to the land surface or subsurface of the site, and will be managed off-site, unless prior approval is obtained from NYSDEC.

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

3-9 COVER SYSTEM RESTORATION

The site currently does not have a cover system installed. Therefore, areas which are not covered by a cover system as part of site redevelopment will be restored to the existing site grade. If temporary cover system has been installed the site's excavation areas will be restored in kind to the temporary cover system or with approval from DER PM to another type of cover system. DER approval must be obtained prior to installation.

After the completion of soil removal and any other invasive activities the existing cover will be restored in a manner that complies with this ISMP. The Phase II ESA has identified impacts in the top 2-ft of the Site in at least three (3) locations. Additional shallow/surface soil sampling will be completed as part of the upcoming RI.

The redevelopment of the Site is planned to include construction of a cover system which will primarily be comprised of concrete building slab, concrete sidewalks and asphalt pavement as well as several areas with a minimum of 24-inches of clean soil, recycled masonry or similar acceptable material. The final SMP will have a comprehensive description of the final cover system. Refer to Figure 5 for an overlay of the proposed redevelopment plan.

3-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this ISMP prior to receipt at the site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the

NYSDEC project manager allowing a minimum of 5 business days for review and approval prior to importation to the site.

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

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d) as well as DER-10's Appendix 5 Restricted Residential for all compounds listed. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site. All non-soil material imported to the site for cover and/or backfill must meet DER-10 Section 5.4(e)5.

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

3-11 STORMWATER POLLUTION PREVENTION

A Stormwater Pollution Prevention Plan (SWPPP) is not required for redevelopment based on the discharge of surrounding catch basins, etc. to the municipal combined (sanitary and stormwater) sewer system. However, typical erosion and sediment control measures (e.g., silt fencing) will be utilized during redevelopment.

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

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

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

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

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

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

3-12 EXCAVATION CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

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

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

3-13 COMMUNITY AIR MONITORING PLAN

A figure showing the location of air sampling stations based on generally prevailing wind conditions is shown in Figure 3. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

3-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site. There are currently no Site tenants. Use of specific odor control methods on a routine basis is not anticipated to be necessary. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the subsequent monthly progress report.

All necessary means will be employed to prevent on- and off-site nuisances if nuisance odors are noted. At a minimum, these measures will include: (a) limiting the

area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers as needed; and (c) using foams to cover exposed odorous soils as needed. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

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

3-15 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface, as needed.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

APPENDIX 4

HEALTH AND SAFETY PLAN

&

COMMUNITY AIR MONITORING PLAN

Site Health and Safety Plan

Location:

Former Sherwood Shoe Company
625 South Goodman Street
Rochester, New York

Prepared For:

Highland Grove, LLC
301 Exchange Street
Rochester, New York 14608

LaBella Project No. 2172056

November 2017

Table of Contents

Page

1.0 Introduction 1

2.0 Responsibilities 1

3.0 Activities Covered 1

4.0 Work Area Access and Site Control 1

5.0 Potential Health and Safety Hazards 1

6.0 Work Zones 3

7.0 Decontamination Procedures 4

8.0 Personal Protective Equipment 4

9.0 Air Monitoring 4

10.0 Emergency Action Plan 5

11.0 Medical Surveillance 5

12.0 Employee Training 5

Tables

Table 1 Exposure Limits and Recognition Qualities

SITE HEALTH AND SAFETY PLAN

Project Title:	Former Sherwood Shoe Factory - Brownfield Cleanup Program
Project Number:	2172056
Project Location (Site):	625 South Goodman Street, Rochester, NY 14607
Environmental Director:	To Be Determined
Project Manager:	To Be Determined
Plan Review Date:	October 5, 2017
Plan Approval Date:	October 12, 2017
Plan Approved By:	Mr. Richard Rote, CIH
Site Safety Supervisor:	To Be Determined
Site Contact:	Mr. Steve DiMarzo
Safety Director:	To Be Determined
Proposed Date(s) of Field Activities:	To Be Determined
Site Conditions:	1.798± acres; Site is currently undeveloped.
Site Environmental Information Provided By:	❑ *Phase I Environmental Site Assessment (ESA)*, completed by Stantec, December 2012; ❑ *Phase II ESA*, completed by Stantec, October 2016 ❑
Air Monitoring Provided By:	To Be Determined
Site Control Provided By:	Contractor(s)

EMERGENCY CONTACTS

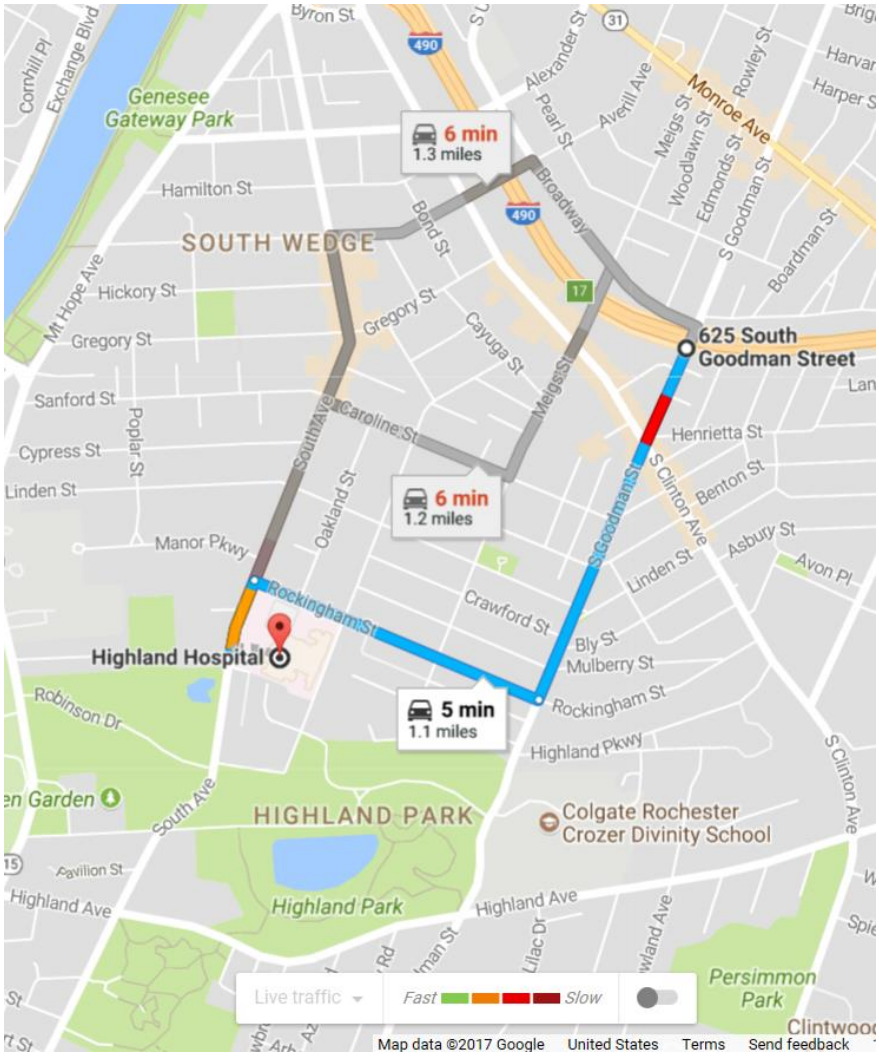
	Name	Phone Number
Ambulance:	As Per Emergency Service	911
Hospital Emergency:	Highland Hospital	585-473-2200
Poison Control Center:	Finger Lakes Poison Control	716-275-5151
Police (local, state):	Rochester Police Department	911
Fire Department:	Rochester Fire Department	911
Site Contact:	Mr. Steve DiMarzo	585-232-1760
Agency Contact:	NYSDEC – Ms. Charlotte Theobald NYSDOH – To Be Determined	585-226-5354 To Be Determined
Environmental Director:	To Be Determined	To Be Determined
Project Manager:	To Be Determined	To Be Determined
Site Safety Supervisor:	To Be Determined	To Be Determined
Safety Director	To Be Determined	To Be Determined

MAP AND DIRECTIONS TO THE MEDICAL FACILITY - HIGHLAND HOSPITAL

Total Est. Time: 5 minutes **Total Est. Distance:** 1.1 miles

1:	Start out going SOUTHWEST on SOUTH GOODMAN ST toward EISENBERG PLACE	0.5 miles
2:	Turn RIGHT onto ROCKINGHAM STREET	0.4 miles
3:	Turn LEFT onto SOUTH AVENUE	0.1 miles

End at **1000 South Avenue**
Rochester, NY 14620



Source: Google Maps 2017

1.0 Introduction

The purpose of this Health and Safety Plan (HASP) is to provide guidelines for responding to potential health and safety issues that may be encountered during the Remedial Investigation (RI) at the Former Sherwood Shoe Company, 625 South Goodman Street in the City of Rochester, Monroe County, New York (Site). This HASP only reflects the policies of LaBella Associates D.P.C. The requirements of this HASP are applicable to all approved LaBella personnel at the work site. This document's project specifications, and the Community Air Monitoring Plan (CAMP), are to be consulted for guidance in preventing and quickly abating any threat to human safety or the environment. The provisions of the HASP do not replace or supersede any regulatory requirements of the USEPA, NYSDEC, OSHA or other regulatory bodies.

2.0 Responsibilities

This HASP presents guidelines to minimize the risk of injury to project personnel, and to provide rapid response in the event of injury. The HASP is applicable only to activities of approved LaBella personnel and their authorized visitors. The Project Manager shall implement the provisions of this HASP for the duration of the project. It is the responsibility of LaBella employees to follow the requirements of this HASP, and all applicable company safety procedures.

3.0 Activities Covered

The activities covered under this HASP are limited to the following:

- Management of environmental investigation and remediation activities
- Environmental Monitoring
- Collection of samples
- Management of excavated soil and fill

4.0 Work Area Access and Site Control

The contractor(s) will have primary responsibility for work area access and site control.

5.0 Potential Health and Safety Hazards

This section lists some potential health and safety hazards that project personnel may encounter at the project site and some actions to be implemented by approved personnel to control and reduce the associated risk to health and safety. This is not intended to be a complete listing of any and all potential health and safety hazards. New or different hazards may be encountered as site environmental and site work conditions change. The suggested actions to be taken under this plan are not to be substituted for good judgment on the part of project personnel. At all times, the Site Safety Officer has responsibility for site safety and his instructions must be followed.

5.1 Hazards Due to Heavy Machinery

Potential Hazard:
Heavy machinery including trucks, drilling rigs, trailers, etc. will be in operation at the site. The presence of such equipment presents the danger of being struck or crushed. Use caution when working near heavy machinery.

Protective Action:
Make sure that operators are aware of your activities, and heed operator's instructions and warnings. Wear bright colored clothing and walk safe distances from heavy equipment. A hard hat, safety glasses and steel toe shoes are required.

5.2 Excavation Hazards

Potential Hazard:
Excavations and trenches can collapse, causing injury or death. Edges of excavations can be unstable and collapse. Toxic and asphyxiant gases can accumulate in confined spaces and trenches. Excavations that require working within the excavation will require air monitoring in the breathing zone (refer to Section 9.0).

Excavations left open create a fall hazard which can cause injury or death.

Protective Action:
Personnel must receive approval from the Project Manager to enter an excavation for any reason. Subsequently, approved personnel are to receive authorization for entry from the Site Safety Officer. Approved personnel are not to enter excavations over 4 feet in depth unless excavations are adequately sloped. Additional personal protective equipment may be required based on the air monitoring.

Personnel should exercise caution near all excavations at the site as it is expected that excavation sidewalls will be unstable. Do not proceed closer than 3 feet to an unsupported or non-sloped excavation side wall.

Fencing and/or barriers accompanied by "no trespassing" signs should be placed around all excavations when left open for any period of time when work is not being conducted.

5.3 Cuts, Punctures and Other Injuries

Potential Hazard:
In any excavation and construction work site there is the potential for the presence of sharp or jagged edges on rock, metal materials, and other sharp objects. Serious cuts and punctures can result in loss of blood and infection.

Protective Action:
The Project Manager is responsible for making First Aid supplies available at the work site to treat minor injuries. The Site Safety Officer is responsible for arranging the transportation of authorized on-site personnel to medical facilities when First Aid treatment in not sufficient. Do not move seriously injured workers. All injuries requiring treatment are to be reported to the Project Manager. Serious injuries are to be reported immediately to the Site Safety Officer

5.4 Injury Due to Exposure of Chemical Hazards

Potential Hazards:
Contaminants identified in testing locations at the Site include various petroleum-related volatile organic compounds (VOCs). Volatile organic vapors, chlorinated solvents or other chemicals may be encountered during subsurface activities at the project work site. Inhalation of high concentrations of volatile organic vapors can cause headache, stupor, drowsiness, confusion and other health effects. Skin contact can cause irritation, chemical burn, or dermatitis.

Protective Action:
The presence of organic vapors may be detected by their odor and by monitoring instrumentation. Approved employees will not work in environments where hazardous concentrations of organic vapors are present. Air monitoring (refer to Section 9.0) of the work area will be performed at least every 60 minutes or more often using a Photoionization Detector (PID). Personnel are to leave the work area whenever PID measurements of ambient air exceed 25 ppm consistently for a 5 minute period. In the event that sustained total volatile organic compound (VOC) readings of 25 ppm are encountered personnel should upgrade personal protective equipment to Level C (refer to Section 8.0) and an Exclusion Zone should be established around the work area to limit and monitor access to this area (refer to Section 6.0).

5.5 Injuries due to extreme hot or cold weather conditions

Potential Hazards:
Extreme hot weather conditions can cause heat exhaustion, heat stress and heat stroke or extreme cold weather conditions can cause hypothermia.

Protective Action:
Precaution measures should be taken such as dress appropriately for the weather conditions and drink plenty of fluid. If personnel should suffer from any of the above conditions, proper techniques should be taken to cool down or heat up the body and taken to the nearest hospital if needed.

6.0 Work Zones

In the event that conditions warrant establishing various work zones (i.e., based on hazards - Section 5.0), the following work zones should be established:

Exclusion Zone (EZ):
The EZ will be established in the immediate vicinity and adjacent downwind direction of site activities that elevate breathing zone VOC concentrations to unacceptable levels based on field screening. These site activities include contaminated soil excavation and soil sampling activities. If access to the site is required to accommodate non-project related personnel then an EZ will be established by constructing a barrier around the work area (yellow caution tape and/or construction fencing). The EZ barrier shall encompass the work area and any equipment staging/soil staging areas necessary to perform the associated work. The contractor(s) will be responsible for establishing the EZ and limiting access to approved personnel. Depending on the condition for establishing the EZ, access to the EZ may require adequate PPE (e.g., Level C).

Contaminant Reduction Zone (CRZ):
The CRZ will be the area where personnel entering the EZ will don proper PPE prior to entering the EZ and the area where PPE may be removed. The CRZ will also be the area where decontamination of equipment and personnel will be conducted as necessary.

7.0 Decontamination Procedures

Upon leaving the work area, approved personnel shall decontaminate footwear as needed. Under normal work conditions, detailed personal decontamination procedures will not be necessary. Work clothing may become contaminated in the event of an unexpected splash or spill or contact with a contaminated substance. Minor splashes on clothing and footwear can be rinsed with clean water. Heavily contaminated clothing should be removed if it cannot be rinsed with water. Personnel assigned to this project should be prepared with a change of clothing whenever on site.

Personnel will use the contractor's disposal container for disposal of PPE.

8.0 Personal Protective Equipment

Generally, site conditions at this work site require level of protection of Level D or modified Level D; however, air monitoring will be conducted to determine if up-grading to Level C PPE is required (refer to Section 9.0). Descriptions of the typical safety equipment associated with Level D and Level C are provided below:

Level D:
Hard hat, safety glasses, rubber nitrile sampling gloves, steel toe construction grade boots, etc.

Level C:
Level D PPE and full or ½-face respirator and tyvek suit (if necessary). [*Note: Organic vapor cartridges are to be changed after each 8-hours of use or more frequently.*]

9.0 Air Monitoring

According to 29 CFR 1910.120(h), air monitoring shall be used to identify and quantify airborne levels of hazardous substances and health hazards in order to determine the appropriate level of employee protection required for personnel working onsite. Air monitoring will consist at a minimum of the procedure listed below. Air monitoring instruments will be calibrated and maintained in accordance with the manufacturer's specifications.

The Air Monitor will utilize a photoionization detector (PID) to screen the ambient air in the work areas (drilling, excavation, soil staging, and soil grading areas) for total Volatile Organic Compounds (VOCs) and a DustTrak tm Model 8520 aerosol monitor or equivalent for measuring particulates. Work area ambient air will generally be monitored in the work area and downwind of the work area. Air monitoring of the work areas and downwind of the work areas will be performed at least every 60 minutes using a PID and the DustTrak meter.

If sustained PID readings of greater than 25 ppm are recorded in the breathing zone, either personnel are to leave the work area until satisfactory readings are obtained or approved personnel may re-enter the

work areas wearing at a minimum a ½ face respirator with organic vapor cartridges for an 8-hour duration (i.e., upgrade to Level C PPE). Organic vapor cartridges are to be changed after each 8-hour use or more frequently, if necessary. If PID readings are sustained, in the work area, at levels above 50 ppm for a 5 minute average, work will be stopped immediately until safe levels of VOCs are encountered or additional PPE will be required (i.e., Level B).

If downwind PID measurements reach or exceed 25 ppm consistently for a 5 minute period downwind of the work area, PID readings will be taken within the buildings (if occupied) on Site to ensure that the vapors are not penetrating any occupied building and effecting the personnel working within. If the PID measurements reach or exceed 25 ppm within the nearby buildings, the personnel should be evacuated via a route in which they would not encounter the work area. The building should then be ventilated until the PID measurements within the building are at or below background levels. It should be noted that the site buildings are currently vacant.

10.0 Emergency Action Plan

In the event of an emergency, employees are to turn off and shut down all powered equipment and leave the work areas immediately. Employees are to walk or drive out of the Site as quickly as possible, wait at the assigned 'safe area' and follow the instructions of the Site Safety Officer.

Employees are not authorized or trained to provide rescue and medical efforts. Rescue and medical efforts will be provided by local authorities.

11.0 Medical Surveillance

Medical surveillance will be provided to all employees who are injured due to overexposure from an emergency incident involving hazardous substances at this site.

12.0 Employee Training

Personnel who are not familiar with this site plan will receive training on its entire content and organization before working at the Site.

Individuals involved with the remedial investigation must be 40-hour OSHA HAZWOPER trained with current 8-hour refresher certification.

Table 1
Exposure Limits and Recognition Qualities

Compound	PEL-TWA (ppm)(b)(d)	TLV-TWA (ppm)(c)(d)	STEL (ppm)(b)	LEL (%)(e)	UEL (%)(f)	IDLH (ppm)(g)(d)	Odor	Odor Threshold (ppm)	Ionization Potential
Acetone	750	500	NA	2.15	13.2	20,000	Sweet	4.58	9.69
Anthracene	.2	.2	NA	NA	NA	NA	Faint aromatic	NA	NA
Benzene	1	0.5	5	1.3	7.9	3000	Pleasant	8.65	9.24
Benzo (a) pyrene (coal tar pitch volatiles)	0.2	0.1	NA	NA	NA	700	NA	NA	NA
Benzo (a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo (b) Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo (g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo (k) Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	10.88
Carbon Disulfide	20	1	NA	1.3	50	500	Odorless or strong garlic type	.096	10.07
Chlorobenzene	75	10	NA	1.3	9.6	2,400	Faint almond	0.741	9.07
Chloroform	50	2	NA	NA	NA	1,000	ethereal odor	11.7	11.42
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethylene	200	200	NA	9.7	12.8	400	Acrid	NA	9.65
1,2-Dichlorobenzene	50	25	NA	2.2	9.2		Pleasant		9.07
Ethyl Alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	100	100	NA	1.0	6.7	2,000	Ether	2.3	8.76
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl Alcohol	400	200	500	2.0	12.7	2,000	Rubbing alcohol	3	10.10
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	500	50	NA	12	23	5,000	Chloroform-like	10.2	11.35
Naphthalene	10, Skin	10	NA	0.9	5.9	250	Moth Balls	0.3	8.12
n-propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphoric Acid	1	1	3	NA	NA	10,000	NA	NA	NA
Polychlorinated Biphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium Hydroxide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethane	NA	NA	NA	NA	NA	NA	Sweet	NA	NA
Toluene	100	100	NA	0.9	9.5	2,000	Sweet	2.1	8.82
Trichloroethylene	100	50	NA	8	12.5	1,000	Chloroform	1.36	9.45
1,2,4-Trimethylbenzene	NA	25	NA	0.9	6.4	NA	Distinct	2.4	NA
1,3,5-Trimethylbenzene	NA	25	NA	NA	NA	NA	Distinct	2.4	NA
Vinyl Chloride	1	1	NA	NA	NA	NA	NA	NA	NA
Xylenes (o,m,p)	100	100	NA	1	7	1,000	Sweet	1.1	8.56
Metals									
Arsenic	0.01	0.2	NA	NA	NA	100, Ca	NA	NA	NA
Cadmium	0.2	0.5	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	1	0.5	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.05	0.15	NA	NA	NA	700	NA	NA	NA
Mercury	0.05	0.05	NA	NA	NA	28	NA	NA	NA
Selenium	0.2	0.02	NA	NA	NA	Unknown	NA	NA	NA

(a) Skin = Skin Absorption
(b) OSHA-PEL Permissible Exposure Limit (flame weighted average, 8-hour): NIOSH Guide, June 1990
(c) ACGIH – 8 hour time weighted average from Threshold Limit Values and Biological Exposure Indices for 2003.
(d) Metal compounds in mg/m3
(e) Lower Exposure Limit (%)
(f) Upper Exposure Limit (%)
(g) Immediately Dangerous to Life or Health Level: NIOSH Guide, June 1990.

Notes:
1. All values are given in parts per million (PPM) unless otherwise indicated.
2. Ca = Possible Human Carcinogen, no IDLH information.

APPENDIX 1A

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.

APPENDIX 5

QUALITY CONTROL PLAN

LABELLA Associates, D.P.C.
Engineering
Architecture
Environmental
Planning

Quality Control (QC) Program

Location:

Former Sherwood Shoe Company
625 South Goodman Street
Rochester, New York

Prepared For:

Highland Grove, LLC
301 Exchange Street
Rochester, New York 14608

LaBella Project No. 2172056

November 2017

Table of Contents

1.0 Introduction 1

2.0 Quality Control Objectives 1

2.1 Accuracy 2
2.2 Precision 2
2.3 Completeness 2
2.4 Representativeness 2
2.5 Comparability 2

3.0 Measurement of Data Quality 3

3.1 Accuracy 3
3.2 Precision 3
3.3 Completeness 4
3.4 Representativeness 4

4.0 Quality Control Targets 4

5.0 Sampling Procedures 4

6.0 Soil & Groundwater Investigation 4

6.1 Test Borings and Well Installation 5
6.1.1 Drilling Equipment 5
6.1.2 Drilling Techniques 5
6.1.3 Artificial Sand Pack 7
6.1.4 Bentonite Seal 7
6.1.5 Grout Mixture 7
6.1.6 Surface Protection 7
6.1.7 Surveying 8
6.1.8 Well Development 8

7.0 Geologic Logging and Sampling 8

8.0 Groundwater Sampling Procedures 10

9.0 Management of Investigative-Derived Waste 11

10.0 Decontamination 12

11.0 Sample Containers 12

12.0 Sample Custody 15

12.1 Chain-of-Custody 15
12.2 Field Custody Procedures 15
12.3 Sample Tags 15
12.4 Transfer of Custody and Shipment 16
12.5 Chain-of-Custody Record 16
12.6 Laboratory Custody Procedures 16
12.7 Custody Seals 16

13.0 Laboratory Requirements and Deliverables 16

14.0 Documentation 17

14.1 Sample Identification 17
14.2 Daily Logs 17

Table of Contents (continued)

Page

15.0 Corrections to Documentation 18
15.1 Notebook 18
15.2 Sampling Forms 18
15.3 Photographs 18
16.0 Sample Handling, Packaging, and Shipping 18
16.1 Sample Packaging 19
16.2 Shipping Containers 19
16.3 Marking and Labeling 19
17.0 Calibration Procedures and Frequency 20
18.0 Field Instrumentation 20
18.1 Photovac/MiniRae Photoionization Detector (PID) 20
18.2 Organic Vapor Analyzer 20
18.3 Conductance, Temperature, and pH Tester 20
18.4 Turbidity Meter 21
19.0 Internal Quality Control Checks 21
19.1 Blank Samples 21
19.2 Field Blanks 21
19.3 Field Duplicates 22
19.4 Quality Control Check Samples 22

1.0 Introduction

LaBella's Quality Control (QC) Program is an integral part of its approach to environmental investigations. By maintaining a rigorous QC program, our firm is able to provide accurate and reliable data. QC also provides safe working conditions for all on-Site workers.

The QC program contains procedures which allow for the proper collection and evaluation of data and documents that QC procedures have been followed during field investigations. The QC program presents the methodology and measurement procedures used in collecting quality field data. This methodology includes the proper use of equipment, documentation of sample collection, and sample handling procedures.

Procedures used in the firm's QC program are compatible with federal, state, and local regulations, as well as, appropriate professional and technical standards.

This QC program has been organized into the following areas:

- QC Objectives and Checks
- Field Equipment, Handling, and Calibration
- Sampling Techniques
- Sample Handling and Packaging

It should be noted that project-specific work plans (e.g., Remedial Investigation Work Plans) may have project specific details that will differ from the procedures in this QC program. In such cases, the project-specific work plan should be followed (subsequent to regulatory approval).

2.0 Quality Control Objectives

The United States Environmental Protection Agency (EPA) has identified five general levels of analytical data quality as being potentially applicable to site investigations conducted under CERCLA. These levels are summarized below:

- **Level I -** Field screening. This level is characterized by the use of portable instruments, which can provide real-time data to assist in the optimization of sampling point locations and for health and safety support. Data can be generated regarding the presence or absence of certain contaminants (especially volatiles) at sampling locations.
- **Level II -** Field analysis. This level is characterized by the use of portable analytical instruments, which can be used on site or in mobile laboratories stationed near a site (close-support labs). Depending upon the types of contaminants, sample matrix, and personnel skills, qualitative and quantitative data can be obtained.
- **Level III -** Laboratory analysis using methods other than the Contract Laboratory Program (CLP) Routine Analytical Services (RAS). This level is used primarily in support of engineering studies using standard EPA-approved procedures. Some procedures may be equivalent to CLP RAS, without the CLP requirements for documentation.
- **Level IV -** CLP Routine Analytical Services. This level is characterized by rigorous QC protocols and documentation and provides qualitative and quantitative analytical data. Some regions have obtained similar support via their own regional laboratories, university

laboratories, or other commercial laboratories.

- **Level V** - Non-standard methods. Analyses, which may require method modification and/or development. CLP Special Analytical Services (SAS) are considered Level V.

Unless stated otherwise, all data will be generated in accordance with Level IV. When CLP methodology is not available, federal and state approved methods will be utilized. Level III will be utilized, as necessary, for non-CLP RAS work which may include ignitability, corrosivity, reactivity, EP toxicity, and other state approved parameters for characterization. Level I will be used throughout the RI for health and safety monitoring activities.

All measurements will be made to provide that analytical results are representative of the media and conditions measured. Unless otherwise specified, all data will be calculated and reported in units consistent with other organizations reporting similar data to allow comparability of data bases among organizations. Data will be reported in micrograms per liter (µg/L) and milligrams (mg)/L for aqueous samples, and µg/ kilogram (kg) and mg/kg (dry weight) for soils, or otherwise as applicable.

The characteristics of major importance for the assessment of generated data are accuracy, precision, completeness, representativeness, and comparability. Application of these characteristics to specific projects is addressed later in this document. The characteristics are defined below.

2.1 Accuracy

Accuracy is the degree of agreement of a measurement or average of measurements with an accepted reference or "true" value and is a measure of bias in the system.

2.2 Precision

Precision is the degree of mutual agreement among individual measurements of a given parameter.

2.3 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount expected to be obtained under correct normal conditions.

2.4 Representativeness

Representativeness expresses the degree to which data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition

Careful choice and use of appropriate methods in the field will ensure that samples are representative. This is relatively easy with water or air samples since these components are homogeneously dispersed. In soil and sediment, contaminants are unlikely to be evenly distributed, and thus it is important for the sampler and analyst to exercise good judgment when removing a sample.

2.5 Comparability

Comparability expresses the confidence with which one data set can be compared to another. The data sets may be inter- or intra- laboratory.

3.0 Measurement of Data Quality

3.1 Accuracy

Accuracy of a particular analysis is measured by assessing its performance with "known" samples. These "knowns" take the form of EPA standard reference materials, or laboratory prepared solutions of target analytes spiked into a pure water or sample matrix. In the case of gas chromatography (GC) or GC/MS (mass spectrometry) analyses, solutions of surrogate compounds are used. These solutions can be spiked into every sample and are designed to mimic the behavior of target analytes without interfering with their determination.

In each case the recovery of the analyte is measured as a percentage, correcting for analytes known to be present in the original sample if necessary, as in the case of a matrix spike analysis. For EPA supplied known solutions, this recovery is compared to the published data that accompany the solution.

For the firm's prepared solutions, the recovery is compared to EPA-developed data or the firm's historical data as available. For surrogate compounds, recoveries are compared to EPA CLP acceptable recovery tables.

If recoveries do not meet required criteria, then the analytical data for the batch (or, in the case of surrogate compounds, for the individual sample) are considered potentially inaccurate. The analyst or his supervisor must initiate an investigation of the cause of the problem and take corrective action. This can include recalibration of the instrument, reanalysis of the QC sample, reanalysis of the samples in the batch, or flagging the data as suspect if the problems cannot be resolved. For highly contaminated samples, recovery of the matrix spike may depend on sample homogeneity. As a rule, analyses are not corrected for recovery of matrix spike or surrogate compounds.

3.2 Precision

Precision of a particular analysis is measured by assessing its performance with duplicate or replicate samples. Duplicate samples are pairs of samples taken in the field and transported to the laboratory as distinct samples. Their identity as duplicates is typically not known to the laboratory. For most purposes, precision is determined by the analysis of replicate pairs (i.e., two samples prepared at the laboratory from one original sample). Often in replicate analysis the sample chosen for replication does not contain target analytes so that quantitation of precision is impossible. For EPA CLP analyses, replicate pairs of spiked samples, known as matrix spike/matrix spike duplicate samples, are used for precision studies. This has the advantage that two real positive values for a target analyte can be compared.

Precision is calculated in terms of Relative Percent Difference (RPD).

- Where X_1 and X_2 represent the individual values found for the target analyte in the two replicate analyses or in the matrix spike/matrix spike duplicate analyses.
- RPDs must be compared to the method RPD for the analysis. The analyst or his supervisor must investigate the cause of RPDs outside stated acceptance limits. This may include a visual inspection of the sample for non-homogeneity, analysis of check samples, etc. Follow-up action may include sample reanalysis or flagging of the data as suspect if problems cannot be resolved.
- During the data review and validation process, field duplicate RPDs are assessed as a

measure of the total variability of both field sampling and laboratory analysis.

3.3 Completeness

Completeness for each parameter is calculated as follows:

- The firm's target value for completeness for all parameters is 100%. A completeness value of 95% will be considered acceptable. Incomplete results will be reported to the site managers. In planning the field sample collection, the site manager will plan to collect field duplicates from identified critical areas. This procedure should assure 100% completeness for these areas.

3.4 Representativeness

The characteristic of representativeness is not quantifiable. Subjective factors to be taken into account are as follows:

- The degree of homogeneity of a site;
- The degree of homogeneity of a sample taken from one point in a site; and
- The available information on which a sampling plan is based.

To maximize representativeness of results, sampling techniques and sample locations will be carefully chosen so that they provide laboratory samples representative of the site and the specific area. Within the laboratory, precautions are taken to extract from the sample bottle an aliquot representative of the whole sample. This includes premixing the sample and discarding pebbles from soil samples.

4.0 Quality Control Targets

Target values for detection limit, percent spike recovery and percent "true" value of known check standards, and RPD of duplicates/replicates are included in the QCP, Analytical Procedures. Note that tabulated values are not always attainable. Instances may arise where high sample concentrations, non-homogeneity of samples, or matrix interferences preclude achievement of target detection limits or other quality control criteria. In such instances, the firm will report reasons for deviations from these detection limits or noncompliance with quality control criteria.

5.0 Sampling Procedures

This section describes the sampling procedures to be utilized for each environmental medium that will be collected and analyzed in accordance with appropriate state and federal requirements. All procedures described are consistent with EPA sampling procedures as described in SW-846, third edition, September 1986, and subsequent updates. All samples will be delivered to the laboratory and analyzed within the holding times specified by the analytical method.

6.0 Soil & Groundwater Investigation

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

Prior to drilling, all drill sites will be cleared with appropriate utility companies to avoid potential accidents relating to underground utilities.

6.1 Test Borings and Well Installation

6.1.1 Drilling Equipment

Direct Push Geoprobe Soil Borings:

Soil borings and monitoring wells may be advanced with a Geoprobe direct push sampling system. The use of direct push technology allows for rapid sampling, observation, and characterization of relatively shallow overburden soils. The Geoprobe utilizes a four-foot or five-foot Macrocore sampler, with disposable polyethylene sleeves. Soil cores will be retrieved in four-foot or five-foot sections, and can be easily cut from the polyethylene sleeves for observation and sampling. The Macrocore sampler will be decontaminated between samples and borings using an alconox and water solution. Any investigative derived waste generated during the advancement of soil borings and monitoring well installations will be containerized and characterized for proper disposal.

Hollow-Stem Auger Advanced Soil Borings:

The drilling and installation of soil borings and monitoring wells may be performed using a rotary drill rig which will have sufficient capacity to perform 4 1/2-inch inside diameter (ID) hollow-stem auger drilling in the overburden, retrieve Macrocore or split-spoon samples, and perform necessary rock coring to provide a minimum 3-inch diameter core, known in the industry as "NX." The borehole may be reamed to 5 1/2-inch diameter prior to monitoring well installation as cased hole in the bedrock, or may be left as open hole, with regulatory concurrence. Equipment sizes and diameters may vary based on project-specific criteria. Any investigative derived waste generated during the advancement of soil borings and monitoring well installations will be containerized and characterized for proper disposal.

6.1.2 Drilling Techniques

Direct Push Geoprobe Advanced Borings:

Prior to initiating drilling activities, the Geoprobe, Macrocores, drive rods and/or other pertinent equipment will be steam cleaned or washed with an alconox and water solution. This cleaning procedure will also be used between each boring. Throughout and after the cleaning processes, direct contact between the equipment and the ground surface will be avoided. Plastic sheeting and/or clean support structures (e.g., pallets, sawhorses) will be used. All sampling equipment will be steam cleaned or washed with an alconox and water solution upon completion of the investigation and prior to leaving the Site.

Test borings will be advanced with 2-inch (or larger) inside diameter (ID) direct push Macrocore through overburden soils. Drilling fluids, other than water from a NYSDEC-approved source, will not be allowed without special consideration and agreement from NYSDEC. The use of lubricants is also not allowed unless approved by the NYSDEC representative.

It will be the responsibility of the consultant to arrange for the appropriate drilling equipment to be present at the Site. Standby time to arrange for additional equipment or a water supply will not be allowed unless caused by unexpected Site conditions.

During the drilling, a properly calibrated photoionization detector (PID) will be used to screen soil cores

retrieved from the Macrocores.

Direct Push Geoprobe advanced groundwater-monitoring wells typically utilize 1.25-inch threaded flush joint PVC pipe with 0.010-in. slotted screen. However, well construction will vary by project and will be specified in the project-specific work plan. PVC piping used for risers and screens will conform to the requirements of ASTM-D 1785 Schedule 40 pipe, and shall bear markings that will identify the material as that which is specified. All materials used to construct the wells will be NSF/ASTM approved. Solvent PVC glue shall not be used at any time in the construction of the wells. The bottom of the screen shall be sealed with a treated cap or plug. No lead shot or lead wool is to be employed in sealing the bottom of the well or for sealant at any point in the well. All risers and screens shall be set round, plumb, and true to line.

Hollow-Stem Auger Advanced Borings:

Prior to initiating drilling activities, the drill rig, augers, rods, Macrocore, split spoons and/or other pertinent equipment will be steam cleaned or washed with an alconox and water solution. This cleaning procedure will also be used between each boring. These activities will be performed in a designated on-site decontamination area. Throughout and after the cleaning processes, direct contact between the equipment and the ground surface will be avoided. Plastic sheeting and/or clean support structures (e.g., pallets, sawhorses) will be used. The drilling rig and all equipment will be steam cleaned or washed with an alconox and water solution upon completion of the investigation and prior to leaving the site.

Test borings completed with the hollow-stem auger will be advanced with 4 1/2-inch (ID) hollow stem augers through overburden, and NX-sized diamond core barrels in competent rock, driven by truck-, track-, or trailer-mounted drilling equipment. Alternative methods of drilling or equipment may be allowed or requested for project-specific criteria, but must be approved by the NYSDEC. Drilling fluids, other than water from a NYSDEC-approved source, will not be allowed without special consideration and agreement from NYSDEC. The use of lubricants is also not allowed unless approved by the NYSDEC representative.

It will be the responsibility of the consultant to arrange for the appropriate drilling equipment to be present at the site. Standby time to arrange for additional equipment or a water supply will not be allowed unless caused by unexpected site conditions.

During the drilling, a (PID) will be used to screen soils retrieved from the split spoons or Macrocores.

If bedrock wells are required, test borings shall be advanced into rock with NX (or similar) coring tools. Only water from an approved source shall be used in rock coring. The consultant shall monitor and record the petrology, core recovery, fractures, rate of advance, water levels, and water lost or produced in each test boring. The Rock Quality Determination (RQD) value shall be calculated for each 5-foot core. Each core shall be screened with a PID upon extraction to determine proper handling procedure. All core samples shall be retained and stored by the consultant in an approved wooden core box for a period of not less than one year. It should be noted that the installation of bedrock wells is not currently planned for this Site.

The method selected may be percussion or rotary drilling at the option of the subcontractor. The method and equipment selected must be capable of penetrating the bedrock at each well location to a depth required by the work plan and will be selected based on the results of the rock coring performed.

Bedrock well installation will involve construction of a rock socket in the weathered bedrock. The

socket will be drilled into the top of rock (typically 1-ft. to 5-ft. into the top of rock) at each bedrock well location to allow a permanent steel casing to be grouted securely in place prior to completion of the well. The purpose for this is to provide a seal at the overburden/bedrock interface and into the upper bedrock surface, to prevent the entrance of overburden water into the bedrock. After the grout and casing have set up for a minimum of 12 hours, the remaining bedrock can be NX (or similar) cored through the steel casing to a depth determined by the project-specific work plan.

Bedrock wells will either be open coreholes in the rock or consist of threaded, flush-joint PVC piping. Construction will vary depending on the project and as such, specific construction of the wells will be detailed in the project-specific work plan. Bedrock wells which do utilized PVC piping for risers and screens will conform to the requirements of ASTM-D 1785 Schedule 40 pipe, and shall bear markings that will identify the material as that which is specified. All materials used to construct the wells will be NSF/ASTM approved.

The well screen slot size will be selected based on the filter pack grain size and the ability to hold back 85 percent or more of the filter pack materials. Screen and riser sections shall be joined by flush-threaded coupling to form watertight unions that retain 100% of the strength of the casing. Solvent PVC glue shall not be used at any time in the construction of the wells. The bottom of the screen shall be sealed with a treated cap or plug. No lead shot or lead wool is to be employed in sealing the bottom of the well or for sealant at any point in the well. All risers and screens shall be set round, plumb, and true to line.

6.1.3 Artificial Sand Pack

When utilized, granular backfill will be chemically and texturally clean, inert, siliceous, and of appropriate grain size for the screen slot size and the host environment. The sand pack will be installed using a tremie pipe, when possible (i.e., a tremie pipe may not fit into smaller, 2-in. diameter boreholes). When utilized, the well screen and casing will be installed, and the sand pack placed around the screen and casing to a depth extending 2-ft. or at least 25 percent of the screen length above the top of the screen.

An artificial sand pack will not be utilized in bedrock wells without screens (i.e., open borehole wells).

6.1.4 Bentonite Seal

A minimum 2-ft. thick seal of tamped bentonite pellets will be placed directly on top of the sand pack, and care will be taken to avoid bridging. In the event that Site geology does not allow for a 2-ft. seal (e.g., only 1-ft. of space remains between the top of the sand pack and ground surface), the remaining space in the annulus will be filled with bentonite. The seal will be measured immediately after placement, without allowance for swelling.

6.1.5 Grout Mixture

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

6.1.6 Surface Protection

At all times during the progress of the work, precautions shall be used to prevent tampering with or the

entrance of foreign material into the well. Upon completion of the well, a suitable lockable cap shall be installed to prevent material from entering the well. Where permanent wells are to be installed, the well riser shall be protected by a flush mounted road box set into a concrete pad. A concrete pad, sloped away from the well, shall be constructed around the flush mount road box at ground level.

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

6.1.7 Surveying

Coordinates and elevations will be established for each monitoring well and sampling location. Elevations to the closest 0.01 foot shall be used for the survey. These elevations shall be referenced to a regional, local, or project-specific datum. USGS benchmarks will be used whenever available. The location, identification, coordinates, and elevations of the wells will be plotted on maps with a scale large enough to show their location with reference to other structures at each site.

6.1.8 Well Development

After completion of the well, but not sooner than 24 hours after grouting is completed, development will be accomplished using pumping, bailing, or surge blocking. No dispersing agents, acids, disinfectants, or other additives will be used during development or introduced into the well at any other time. During development, water will be removed throughout the entire water column by periodically lowering and raising the pump intake (or bailer stopping point).

Development water will be either properly contained and treated as waste until the results of chemical analysis of samples are obtained or discharged on Site as determined by the Site-specific work plans and/or consultation with the NYSDEC representatives on Site.

The development process will continue until a stabilization of pH, specific conductance, temperature, and turbidity (goal of <50 NTUs) of the discharge is achieved for three consecutive intervals following the removal of a minimum of 110% of the water lost during drilling, or three well volumes; whichever is greater. In the event that limited recharge does not allow for the recovery of all drilling water lost in the well or three (3) well volumes, the well will be allowed to stabilize to conditions deemed representative of groundwater conditions. Stabilization periods will vary by project but will be confirmed with the NYSDEC prior to sampling.

7.0 Geologic Logging and Sampling

At each investigative location, borings will be advanced through overburden using either a drill rig and hollow-stem auger or direct push technology. Soils will be evaluated for visual and olfactory evidence of impairment (i.e., staining, odors, and elevated PID readings) by a geologist, engineer or qualified Environmental Professional. Sampling devices will be decontaminated according to procedures outlined in the Decontamination section of this document. When utilized, split-spoon samplers will be driven into the soil using a minimum 140-pound safety hammer and allowed to free-fall 30-inches, in accordance with ASTM-D 1586-84 specifications. The number of blows required to drive the sampler each 6-inches of penetration will be recorded. When required, samples will be stored in glass jars until they are needed for testing or the project is complete.

If hard boulders or bedrock result in auger refusal, rock coring will be used to advance the hole to design

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

Boulders and bedrock encountered during well installation may be cored by standard diamond-core drilling methods using an "NX" size core barrel. All rock cores recovered will be logged by a geologist, labeled and stored in wooden core boxes. The cores will be stored by the firm until the project is completed or for at least one year. Drilling logs will be prepared by an experienced geologist or engineer, who will be present during all drilling operations. One copy of each field boring and well construction log and groundwater data, will typically be submitted as part of the investigation summary report (e.g., Remedial Investigation Report). The RQD value shall be calculated for each 5-foot section. Information provided in the logs shall include, but not be limited to, the following:

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

8.0 Groundwater Sampling Procedures

The groundwater in all new monitoring wells will be allowed to stabilize for at least 24-hours following development. Water levels will be measured to within 0.01 feet prior to purging and sampling. Sampling of each well will typically be accomplished in one of two ways; active or passive.

Active Sampling:

Purging will be completed prior to active sampling. During purging, the following will be recorded in field books or groundwater sampling logs:

- date
- purge start time
- weather conditions
- PID reading immediately after the well cap is removed
- presence of NAPL, if any, and approximate thickness
- pH
- dissolved oxygen
- temperature
- specific conductance
- depth of well
- depth to water
- estimated water volume
- purge end time
- volume of water purged

In general, wells will be purged until the pH, conductivity, temperature, and turbidity of the water being pumped from the well have stabilized with a turbidity goal of 50 NTU. All wells will be purged of at least three well volumes or to dryness.

Passive Sampling:

Groundwater samples will be collected via passive methods (i.e., no-purge) according to the following procedures and in the volumes specified in Table 11-1:

- Samples will be collected via passive diffusion bag (PDB) samplers. PDB samplers are made of low-density polyethylene plastic tubing (typically 4 mil), filled with laboratory grade (ASTM Type II) deionized water and sealed at both ends.
- PDB samplers will only be used to collect groundwater samples which will be analyzed for VOCs.
- PDB samplers will be deployed by hanging in the well at the middle of the well screen unless a low water table, need to deploy multiple samplers or the targeting of a specific depth interval is identified. The PDB samplers will be deployed at least 14 days prior to sampling.
- The PDB samplers will be deployed using a Teflon® coated string or synthetic rope.
- When transferring water from the PDB to sample containers, care will be taken to avoid agitating the sample, since agitation promotes the loss of volatile constituents;
- Any observable physical characteristics of the groundwater (e.g., color, sheen, odor, turbidity) at the time of sampling will be recorded; and
- Weather conditions (i.e., air temperature, sky condition, recent heavy rainfall, drought conditions) at the time of sampling will be recorded.

All groundwater samples and their accompanying QC samples will be run for volatile organic compounds (VOCs) using NYSDEC Analytical Services Protocol (ASP; revised July 2005 and subsequent amendments or revisions).

9.0 Management of Investigative-Derived Waste

Purpose:

The purposes of these guidelines are to ensure the proper holding, storage, transportation, and disposal of materials that may contain hazardous wastes. Investigation-derived waste (IDW) included the following:

- Drill cuttings, discarded soil samples, drilling mud solids, and used sample containers;
- Well development and purge waters and discarded groundwater samples;
- Decontamination waters and associated solids;
- Soiled disposable personal protective equipment (PPE);
- Used disposable sampling equipment;
- Used plastic sheeting and aluminum foil;
- Other equipment or materials that either contain or have been in contact with potentially-impacted environmental media.
- Because these materials may contain regulated chemical constituents, they must be managed as a solid waste. This management may be terminated if characterization analytical results indicate the absence of these constituents.

Procedure:

1. Contain all investigation-derived wastes in Department of Transportation (DOT)-approved 55-gallon drums, roll-off boxes, or other containers suitable for the wastes.
2. Containerize wastes from separate borings or wells in separate containers (i.e. do not combine wastes from several borings/wells in a single container, unless it is a container used specifically for transfer purposes, or unless specific permission to do so has been provided by the LaBella Project Manager. Unused samples from surface sample locations within a given area may be combined.
3. To the extent practicable, separate solids from drilling muds, decontamination waters, and similar liquids. Place solids within separate containers.
4. Transfer all waste containers to a staging area. Access to this area will be controlled. Waste containers must be transferred to the staging area as soon as practicable after the generating activity is complete.
5. Pending transfer, all containers will be covered and secured when not immediately attended,
6. Label all containers with regard to contents, origin, and date of generation. Use indelible ink for all labeling.
7. Collect samples for waste characterization purposes, use boring/well sample analytical data for characterization.
8. For wastes determined to be hazardous in character, be aware on accumulation time limitations. Coordinate the disposal of these wastes with the Owner and NYSDEC.

9. Dispose of investigation-derived wastes as follows;

    - Soil, water, and other environmental media for which analysis does not detect organic constituents, and for which inorganic constituents are at levels consistent with background, may be spread on-site (pending NYSDEC approval) or otherwise treated as a non-waste material.
    - Soils, water, and other environmental media in which organic compounds are detected or metals are present above background will be disposed as industrial waste or hazardous waste, as appropriate. Alternate disposition must be consistent with applicable State and Federal laws.
    - Personal protective equipment, disposable bailers, and similar equipment may be disposed as municipal waste, unless waste characterization results mandate disposal as industrial wastes

10. If waste is determined to be listed hazardous waste, it must be handled as hazardous waste as described above, unless a contained-in determination is accepted by the NYSDEC.

10.0 Decontamination

Sampling methods and equipment have been chosen to minimize decontamination requirements and to prevent the possibility of cross-contamination. Decontamination of equipment will be performed between discrete sampling locations. Equipment used to collect samples between composite sample locations will not require decontamination between collection of samples. All drilling equipment will be decontaminated after the completion of each drilling location. Special attention will be given to the drilling assembly and augers.

Split spoons and other non-disposable equipment will be decontaminated between each sampling event. The sampler will be cleaned prior to each use, by one of the following procedures:

- Initially cleaned of all foreign matter;
- Sanitized with a steam cleaner;

OR

- Initially cleaned of all foreign matter;
- Scrubbed with brushes in alconox solution;
- Rinsed; and
- Allowed to air dry.

11.0 Sample Containers

The containers required for sampling activities are pre-washed and ordered directly from a laboratory, which has the containers prepared in accordance with USEPA bottle washing procedures. The following tables detail sample volumes, containers, preservation and holding time for typical analytes.

Table 11-1
Water Samples

Type of Analysis	Type and Size of Container	Number of Containers and Sample Volume (per sample)	Preservation	Maximum Holding Time
VOCs	40-ml glass vial with Teflon-backed septum	Two (2); fill completely, no air space	Cool to 4° C (ice in cooler), Hydrochloric acid to pH <2	7 days
Semivolatile Organic Compounds (SVOCs)	1,000-ml amber glass jar	One (1); fill completely	Cool to 4° C (ice in cooler)	7/40 days
Pesticides	1,000-ml amber glass jar	One (1); fill completely	Cool to 4° C (ice in cooler)	7/40 days
Polychlorinated biphenyls (PCBs)	1,000-ml amber glass jar	One (1); fill completely	Cool to 4° C (ice in cooler)	7/40 days
Metals	500-ml polyethylene	One (1); fill completely	Cool to 4° C (Nitric acid to pH <2	6 months
Cyanide	500-ml polyethylene	One (1); fill completely	Cool to 4° C (Sodium hydroxide to pH >12, plus 0.6 grams ascorbic acid)	14 days

*Holding time is based on verified time of sample collection.

Note: All sample bottles will be prepared in accordance with USEPA bottle washing procedures.

TABLE 11-2
Soil Samples

Type of Analysis	Type and Size of Container	Number of Containers and Sample Volume (per sample)	Preservation	Maximum Holding Time
VOCs, SVOCs, PCBs, and Pesticides	8-oz, glass jar with Teflon-lined cap	One (1), fill as completely as possible	Cool to 4° C (ice in cooler)	7 days
VOCs by USEPA Method 5035 (if specified in work plan) Closed-system Purge and Trap Method	40-ml glass vial with Teflon-backed septum	Three (3), fill with 5 grams of soil using soil syringe	Cool to 4° C (ice in cooler). Two (2) with 10 mL DI water or 5 mL sodium bisulfate, one (1) with 5 mL methanol.	14 days
RCRA/TAL Metals, and cyanide	8-oz. glass jar with Teflon-lined cap	One (1); fill completely	Cool to 4° C (ice in cooler)	Must be extracted within 10 days; analyzed with 30 days

* Holding time is based on the times from verified time of sample collection.

Note: All sample bottles will be prepared in accordance with USEPA bottle washing procedures.

TABLE 11-3
List of Major Instruments for Sampling and Analysis

- MSA 360 0_2 /Explosimeter
- Hollige Series 963 Nephlometer (turbidity meter)
- EM-31 Geomics Electromagnetic Induction Device
- pH/Temperature/Conductivity Meter - Portable
- Hewlett Packard (HP) 1000 computer with RTE-6 operating system; and HP 9144 computer with RTE-4 operating system equipped with Aquarius software for control and data acquisition from gas chromatograph/mass spectrometer (GC/MS) systems; combined wiley and National Bureau of Standards (NBS) mass spectral library; and data archiving on magnetic tape
- Viriam 6000 and 37000 gas chromatrographs equipped with flame ionization, electron capture, photoionization and wall detectors as appropriate for various analyses,, and interfaced to Variam DS604 or D5634 data systems for processing data.
- Spectra-Physics Model SP 4100 and SP 4270 and Variam 4270 cam puting integrators
- Perkin Eimer (PE) 3000% and 3030% fully Automated Atomic Absorption Spectrophotometers (AAS) with Furnace Atomizer and background correction system
- PE Plasma II Inductively Coupled Argon Plasma (ICAP) Spectre meter with PE7500 laboratory computer
- Dionex 20001 ion chromatograph with conductivity detector for anion analysis, with integrating recorder

12.0 Sample Custody

This section describes standard operating procedures for sample identification and chain-of-custody to be utilized for all field activities. The purpose of these procedures is to ensure that the quality of the samples is maintained during their collection, transportation, and storage through analysis. All chain-of-custody requirements comply with standard operating procedures indicated in USEPA sample handling protocol.

Sample identification documents must be carefully prepared so that sample identification and chain-of-custody can be maintained and sample disposition controlled. Sample identification documents include:

- Field notebooks,
- Sample label,
- Custody seals, and
- Chain-of-custody records.

12.1 Chain-of-Custody

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

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

12.2 Field Custody Procedures

- As few persons as possible should handle samples.
- Sample bottles will be obtained pre-cleaned from a source such as I-Chem. Coolers or boxes containing cleaned bottles should be sealed with a custody tape seal during transport to the field or while in storage prior to use.
- The sample collector is personally responsible for the care and custody of samples collected until they are transferred to another person or dispatched properly under chain-of-custody rules.
- The sample collector will record sample data in the notebook.
- The site manager will determine whether proper custody procedures were followed during the fieldwork and decide if additional samples are required.

12.3 Sample Tags

Sample tags attached to or affixed around the sample container must be used to properly identify all samples collected in the field. The sample tags are to be placed on the bottles so as not to obscure any QC lot numbers on the bottles; sample information must be printed in a legible manner using waterproof ink. Field identification must be sufficient to enable cross-reference with the logbook. For chain-of-custody purposes, all QC samples are subject to exactly the same custodial procedures and documentation as "real" samples.

12.4 Transfer of Custody and Shipment

- The coolers in which the samples are packed must be accompanied by a chain-of-custody record. When transferring samples, the individuals relinquishing and receiving them must sign, date, and note the time on the chain-of-custody record. This record documents sample custody transfer
- Shipping containers must be sealed with custody seals for shipment to the laboratory. The method of shipment, name of courier, and other pertinent information are entered in the "Remarks" section of the chain-of-custody record and traffic reports.
- All shipments must be accompanied by the chain-of-custody record identifying their contents. The original record accompanies the shipment. The other copies are distributed appropriately to the site manager.
- If sent by mail, the package is registered with return receipt requested. If sent by common carrier, a bill of lading is used. Freight bills, Postal Service receipts, and bill of lading are retained as part of the permanent documentation.

12.5 Chain-of-Custody Record

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

12.6 Laboratory Custody Procedures

A designated sample custodian accepts custody of the shipped samples and verifies that the sample identification number matches that on the chain-of-custody record and traffic reports, if required. Pertinent information as to shipment, pickup, and courier is entered in the "Remarks" section.

12.7 Custody Seals

Custody seals are preprinted adhesive-backed seals with security slots designed to break if the seals are disturbed. Sample shipping containers (coolers, cardboard boxes, etc., as appropriate) are sealed in as many places as necessary to ensure security. Seals must be signed and dated before use. On receipt at the laboratory, the custodian must check (and certify, by completing the package receipt log and LABMIS entries) that seals on boxes and bottles are intact. Strapping tape should be placed over the seals to ensure that seals are not accidentally broken during shipment.

13.0 Laboratory Requirements and Deliverables

This section will describe laboratory requirement and procedures to be followed for laboratory analysis. Samples collected in New York State will be analyzed by a New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP)-certified laboratory. When required, analyses will be conducted in accordance with the most current NYSDEC Analytical Services Protocol (ASP). For example, ASP Category B reports will be completed by the laboratory for samples representing the final delineation of the Remedial Investigation, confirmation samples, samples to determine closure of a system, and correlation samples taken using field testing technologies analyzed by an ELAP-certified laboratory to determine correlation to field results. Data Usability Summary Reports

will be completed by a third party for samples requiring ASP Category B format reports. Electronic data deliverables (EDDs) will also be generated by the laboratory in EQUIS format for samples requiring ASP Category B format reports.

14.0 Documentation

14.1 Sample Identification

All containers of samples collected from the project will be identified using the following format on a label or tag fixed to the sample container:

XX-ZZ-O/D-DDMMYYYY

XX:	This set of initials indicates the Site from which the sample was collected.
ZZ:	These initials identify the sample location. Actual sample locations will be recorded in the task log.
O/D:	An "O" designates an original sample; "D" identifies it as a duplicate.
DDMMYYYY:	This set of initials indicates the date the sample was collected

Each sample will be labeled, chemically preserved (if required) and sealed immediately after collection. To minimize handling of sample containers, labels will be filled out prior to sample collection when possible. The sample label will be filled out using waterproof ink and will be firmly affixed to the sample containers. The sample label will give the following information:

- Date and time of collection
- Sample identification
- Analysis required
- Project name/number
- Preservation

14.2 Daily Logs

Daily logs and data forms are necessary to provide sufficient data and observations to enable participants to reconstruct events that occurred during the project and to refresh the memory of the field personnel if called upon to give testimony during legal proceedings.

The site log is the responsibility of the site manager and will include a complete summary of the day's activity at the site.

The **Task Log** will include:

- Name of person making entry (signature).
- Names of team members on-site.
- Levels of personnel protection:
  - Level of protection originally used;
  - Changes in protection, if required; and
  - Reasons for changes.
- Documentation on samples taken, including:
  - Sampling location and depth station numbers;
  - Sampling date and time, sampling personnel;
  - Type of sample (grab, composite, etc.); and
  - Sample matrix.

- On-site measurement data.
- Field observations and remarks.
- Weather conditions, wind direction, etc.
- Unusual circumstances or difficulties.
- Initials of person recording the information.

15.0 Corrections to Documentation

15.1 Notebook

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

15.2 Sampling Forms

As previously stated, all sample identification tags, chain-of-custody records, and other forms must be written in waterproof ink. None of these documents are to be destroyed or thrown away, even if they are illegible or contain inaccuracies that require a replacement document.

If an error is made on a document assigned to one individual, that individual may make corrections simply by crossing a line through the error and entering the corrected information. The incorrect information should not be obliterated. Any subsequent error discovered on a document should be corrected by the person who made the entry. All corrections must be initialed and dated.

15.3 Photographs

Photographs will be taken as directed by the site manager. Documentation of a photograph is crucial to its validity as a representation of an existing situation. The following information will be noted in the task log concerning photographs:

- Date, time, location photograph was taken;
- Photographer
- Description of photograph taken;

16.0 Sample Handling, Packaging, and Shipping

The transportation and handling of samples must be accomplished in a manner that not only protects the integrity of the sample, but also prevents any detrimental effects due to the possible hazardous nature of samples. Regulations for packaging, marking, labeling, and shipping hazardous materials are promulgated by the United States DOT in the Code of Federal Regulation, 49 CFR 171 through 177. All samples will be delivered to the laboratory and analyzed within the holding times specified by the analytical method for that particular analyte.

All chain-of-custody requirements must comply with standard operating procedures in the USEPA sample handling protocol.

16.1 Sample Packaging

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

- Sample bottle lids must never be mixed. All sample lids must stay with the original containers.
- The sample volume level can be marked by placing the top of the label at the appropriate sample height, or with a grease pencil. This procedure will help the laboratory to determine if any leakage occurred during shipment. The label should not cover any bottle preparation QC lot numbers.
- All sample bottles are placed in a plastic bag to minimize the potential for cross-contamination.
- Shipping coolers must be partially filled with packing materials and ice when required, to prevent the bottles from moving during shipment.
- The sample bottles must be placed in the cooler in such a way as to ensure that they do not touch one another. Ice will be added to the cooler to ensure that the samples reach the laboratory at temperatures no greater than 4°C.
- The environmental samples are to be placed in plastic bags. Ice is not to be used as a substitute for packing materials.
- Any remaining space in the cooler should be filled with inert packing material. Under no circumstances should material such as sawdust, sand, etc., be used.
- A duplicate custody record and traffic reports, if required must be placed in a plastic bag and taped to the bottom of the cooler lid. Custody seals are affixed to the sample cooler.

16.2 Shipping Containers

Shipping containers are to be custody-sealed for shipment as appropriate. The container custody seal will consist of filament tape wrapped around the package and custody seals affixed in such a way that access to the container can be gained only by cutting the filament tape and breaking a seal.

Field personnel will make arrangements for transportation of samples to the lab. The lab must be notified as early in the week as possible regarding samples intended for Saturday delivery.

16.3 Marking and Labeling

- Chain of custody seals shall be placed on the container, signed, and dated prior to taping the container to ensure the chain of custody seals will not be destroyed during shipment.
- If samples are designated as medium or high hazard, they must be sealed in metal paint cans, placed in the cooler with vermiculite and labeled and placarded in accordance with DOT regulations.
- In addition, the coolers must also be labeled and placarded in accordance with DOT regulations if shipping medium and high hazard samples.

17.0 Calibration Procedures and Frequency

All instruments and equipment used during sampling and analysis will be operated, calibrated, and maintained according to the manufacturer's guidelines and recommendations as well as criteria set forth in the applicable analytical methodology references. Operation, calibration, and maintenance will be performed by personnel properly trained in these procedures. Section 11 lists the major instruments to be used for sampling and analysis. In addition, brief descriptions of calibration procedures for major field and laboratory instruments follow.

18.0 Field Instrumentation

18.1 Photovac/MiniRae Photoionization Detector (PID)

Standard operating procedures for the PID require that routine maintenance and calibration be performed every six months. The packages used for calibration are non-toxic analyzed gas mixtures available in pressurized containers.

18.2 Organic Vapor Analyzer

Organic vapor analyzers (OVAs) are calibrated and routine maintenance performed every six months when the units are not in use. Calibration is performed and the major system checks are performed prior to the instrument being released for field use.

Calibration of the OVA 128 GC must be performed by a factory-authorized service representative. The instrument is removed from its protective case and the probe is connected to the base unit. After checking for an airtight seal in the sample line (plugging the sample inlet to stop the pump), the hydrogen supply is turned on and the pressure is set to 10 psi. The electronics are turned on and the instrument is allowed to warm up for at least 5 minutes. After warm up, the instrument is zeroed on the "X10" scale using the adjust knob. The flame is then lit and a gas-tight sample bag is filled with a mixture of 100 ppm methane in air. The sample bag is then attached to the probe inlet and the internal pump is allowed to draw in as much sample as is needed. R32 on the control board is adjusted to read 100 ppm on the "X10" scale and then the hydrogen supply is shut down. The pump can now be turned off and the sample bag removed. Using the adjust knob, the meter is set to read 4 ppm on the "X1" scale. Switching back to the "X10" scale the adjust knob is again used to set the meter to 40 ppm. The scale is then set to "X100" and R33 is adjusted until the meter reads 40 ppm on the "X100" scale.

The OVA has a detection limit of 0.1 ppm in methane equivalents and a working range of 0 to 1,000 ppm. During daily field use, system checks are performed which involve calibration and maintenance of the pump systems, gases, and filters. Care is taken to check for and prevent clogging or leaks. Quad rings and the burner chamber are examined on a weekly basis. Routine biannual maintenance includes a thorough cleaning as well as a re-examination of the pump system for leaks and wear. Parts are replaced as necessary. Instrument operation is verified by calibrating and running the OVA for 4 to 6 hours. An instrument specific logbook is maintained with the OVA to document its use and maintenance.

18.3 Conductance, Temperature, and pH Tester

Temperature and conductance instruments are factory calibrated. Temperature accuracy can be checked against an NBS certified thermometer prior to field use if necessary. Conductance accuracy may be checked with a solution of known conductance and recalibration can be instituted, if necessary.

18.4 Turbidity Meter

LaMotte 2020WE Turbidity Meter is calibrated before each use. The default units are set to NTU and the default calibration curve is formazin. A 0 NTU Standard (Code 1480) is included with the meter. To calibrate, rinse a clean tube three times with the blank. Fill the tube to the fill line with the blank. Insert the tube into the chamber, close the lid, and select "scan blank".

19.0 Internal Quality Control Checks

QC data are necessary to determine precision and accuracy and to demonstrate the absence of interferences and/or contamination of field equipment. Field-based QC will comprise at least 10% of each data set generated and will consist of standards, replicates, spikes, and blanks. Field duplicates and field blanks will be analyzed by the laboratory as samples and will not necessarily be identified to the laboratory as duplicates or blanks. For each matrix, field duplicates will be provided at a rate of one per 10 samples collected or one per shipment, whichever is greater. Field blanks which consist of trip, routine field, and rinsate blanks will be provided at a rate of one per 20 samples collected for each parameter group, or one per shipment, whichever is greater.

Calculations will be performed for recoveries and standard deviations along with review of retention times, response factors, chromatograms, calibration, tuning, and all other QC information generated. All QC data, including split samples, will be documented in the site logbook. QC records will be retained and results reported with sample data.

19.1 Blank Samples

Blank samples are analyzed in order to assess possible contamination from the field and/or laboratory so that corrective measures may be taken, if necessary. Field samples are discussed in the following subsection:

19.2 Field Blanks

Various types of blanks are used to check the cleanliness of field handling methods. The following types of blanks may be used: the trip blank, the routine field blank, and the field equipment blank. They are analyzed in the laboratory as samples, and their purpose is to assess the sampling and transport procedures as possible sources of sample contamination. Field staff may add blanks if field circumstances are such that they consider normal procedures are not sufficient to prevent or control sample contamination, or at the direction of the project manager. Rigorous documentation of all blanks in the site logbooks is mandatory.

- **Routine Field Blanks** or bottle blanks are blank samples prepared in the field to access ambient field conditions. They will be prepared by filling empty sample containers with deionized water and any necessary preservatives. They will be handled like a sample and shipped to the laboratory for analysis.
- **Trip Blanks** are similar to routine field blanks with the exception that they are **not** exposed to field conditions. Their analytical results give the overall level of contamination from everything except ambient field conditions. For the RI/FS, one trip blank will be collected with every batch of water samples for VOC analysis. Each trip blank will be prepared by filling a 40-ml vial with deionized water prior to the sampling trip, transported to the site, handled like a sample, and returned to the laboratory for analysis without being opened in the field.

- **Field Equipment Blanks** are blank samples (sometimes called transfer blanks or rinsate blanks) designed to demonstrate that sampling equipment has been properly prepared and cleaned before field use, and that cleaning procedures between samples are sufficient to minimize cross contamination. If a sampling team is familiar with a particular site, they may be able to predict which areas or samples are likely to have the highest concentration of contaminants. Unless other constraints apply, these samples should be taken last to avoid excessive contamination of sampling equipment.

19.3 Field Duplicates

Field duplicate samples consist of a set of two samples collected independently at a sampling location during a single sampling event. In some instances the field duplicate can be a blind duplicate, i.e., indistinguishable from other analytical samples so that personnel performing the analyses are not able to determine which samples are field duplicates. Field duplicates are designed to assess the consistency of the overall sampling and analytical system.

19.4 Quality Control Check Samples

Inorganic and organic control check samples are available from EPA free of charge and are used as a means of evaluating analytical techniques of the analyst. Control check samples are subjected to the entire sample procedure, including extraction, digestion, etc., as appropriate for the analytical method utilized.