

**PHASE II SAMPLING REPORT  
FOR  
DETROIT LEAD ASSESSMENT PROJECT  
WOLVERINE WHITE METAL – 3421 GIBSON STREET  
DETROIT, WAYNE COUNTY, MICHIGAN**

Prepared for:

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
REMEDATION AND REDEVELOPMENT DIVISION**

Southeast Michigan District Office  
27700 Donald Court  
Warren, Michigan 48092-2793

Prepared by:

**WESTON SOLUTIONS OF MICHIGAN, INC.**

7800 West Outer Drive, Suite 200  
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**August 2007**

W. O. No. 20083.028.001

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FOR  
DETROIT LEAD ASSESSMENT PROJECT  
WOLVERINE WHITE METAL – 3421 GIBSON STREET  
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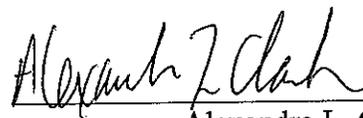
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REMEDIATION AND REDEVELOPMENT DIVISION**

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Alexandra L. Clark  
Project Manager

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**August 2007**

W. O. No. 20083.028.001

## **EXECUTIVE SUMMARY**

Weston Solutions of Michigan, Inc. (WESTON®) was contracted by the Michigan Department of Environmental Quality (MDEQ) Remediation and Redevelopment Division to conduct a data investigation, Phase I off-site sampling, and Phase II on-site sampling for the Detroit Lead Assessment Project in Detroit, Wayne County, Michigan. The project consisted of evaluating 17 facilities in the Detroit Metropolitan Area that had been identified as potential lead smelters.

The former Wolverine White Metal Site (Site) was previously identified as a potential lead smelter by MDEQ. WESTON previously reviewed the available historical information and data pertaining to the Site. Based on this review, WESTON concluded that:

- The former facility was possibly a lead smelter.
- The property is currently owned by DTE Energy and is used for vehicle storage.
- Residential areas were located within potential aerial deposition zones.

Based on the historical information review, WESTON performed Phase I sampling that consisted of collection of surface soil samples from six upwind and six downwind properties for lead analysis. Phase I analytical results indicated lead was not detected in downwind samples above the MDEQ Part 201 Residential/Commercial I Direct Contact Criteria (RCDCC). WESTON subsequently performed Phase II sampling at the Site. Phase II sampling consisted of the collection of six surface soils samples for lead analysis of total, fine, and coarse fractions of soils. Phase II results indicated only one sample exceeded RCDCC and the overall lead concentrations were not indicative of lead smelting operations. Based on these conclusions, WESTON recommends no further action at the Site.

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## SECTION 1

### INTRODUCTION

Weston Solutions of Michigan, Inc. (WESTON®) was contracted by the Michigan Department of Environmental Quality (MDEQ) Remediation and Redevelopment Division (RRD) to perform on-site sampling activities for the Detroit Lead Assessment Project in Detroit, Wayne County, Michigan. This work was performed under WESTON's Level of Effort contract with the State of Michigan (Contract No. 2002). The objective of the previously conducted Phase I sampling efforts was to evaluate off-site conditions near potential lead smelters. Because the presence of lead was identified downwind of the former Wolverine Metals Site (Site) WESTON sampled on-site to further characterize the Site (Phase II) and to determine if a remaining source area of lead contamination exists. This Phase II Summary Report presents a summary of the Phase II analytical results, as well as a recommendation for future activities.

#### 1.1 SITE LOCATION

The Site was located at 3421 Gibson Street in Detroit, Wayne County, Michigan (Detroit Metropolitan Area Map, **Figure 1**). The address 3421 Gibson Street is currently the location of the DTE Energy parking lot and the current property address is 3350 Grand River Avenue, Detroit, Wayne County, Michigan. The Site is bounded by Martin Luther King Boulevard to the north, to the south by Grand River Avenue, to the east by Gibson Street, and to the west by Lincoln Street. The area five blocks north of the Site is residential. The area five blocks south (Grand River Avenue), east (Gibson Street) and west (Lincoln Street) of the Site are both industrial and commercial with residences starting at the five-block fringe.

#### 1.2 PREVIOUS WORK

MDEQ previously identified 17 potential lead smelters in the cities of Detroit and Hamtramck, Michigan. Smelting operations often result in the release of airborne particulate matter to off-site locations. This particulate matter may be contaminated with smelting-related chemicals (primarily heavy metals), and deposition of these particles in soil may be of potential concern to human health.

WESTON was contracted by the MDEQ RRD to perform data investigation and eventual off-site sampling activities associated with 12 of the potential smelters as a part of the Detroit Lead Assessment Project. WESTON initially reviewed historical information related to each facility including Bresser's Directory data, Sanborn Fire Insurance Maps from various years, aerial photographs from various years, fire marshal records, baseline environmental assessments (BEAs), and other available information to evaluate the potential for historical smelting activities to have occurred at the facilities. The results of this effort are summarized in the *Summary Report for Data Investigation and Detroit Lead Assessment Project* (WESTON, 2003).

Following the historical data investigation, WESTON worked with MDEQ and the cities of Detroit and Hamtramck to identify city and state owned properties that were available to be sampled upwind and downwind of the suspected former smelting facilities. WESTON, on behalf of MDEQ collected surface samples from six upwind properties and six downwind properties in the vicinity of the Site. The analytical results were reviewed to determine if spatial and statistically valid trends in concentrations of lead were present in the soils that would indicate the potential for aerial release of lead from smelting activities. The results of this effort are detailed in the *Comprehensive Phase I Summary Report for Detroit Lead Assessment Project* (WESTON, 2004).

Facilities were categorized as Level 1 or Level 2 facilities based on the Phase I sampling results. Level 2 facilities were facilities where samples did not exceed the screening level downwind, but suggested a trend of decreasing concentration with increased distance from the facility that may be representative of aerial deposition. Conversely, Level 2 facility downwind sample data may indicate no characteristics of aerial deposition but contain concentrations of lead above the screening level.

A total of 24 surface soil samples were collected upwind and downwind of the Site for the Phase I sampling. Five of the samples collected upwind of the Site contained concentrations of lead above Part 201 Residential/Commercial I Direct Contact Criteria (RCDCC) (400 milligrams per kilogram [mg/kg]). Lead concentrations in the samples collected at the properties upwind of the Site ranged from 120 mg/kg to 860 mg/kg. None of the downwind samples contained concentrations of lead above the RCDCC. Lead concentrations in the downwind samples ranged from 41 mg/kg to 240 mg/kg. The results are summarized in **Table 1**.

Table 1: Phase I Analytical Results

Sample Address	Sample ID	Concentration of Lead (mg/Kg)
<b>Upwind</b>		
1530 Sycamore	SYC-01530-A-C-0-2	<b>420</b>
1530 Sycamore	SYC-01530-B-C-0-1	210
1535 Sycamore	SYC-01535-A-C-0-1	350
1535 Sycamore	SYC-01535-B-C-0-1	290
1559 Sycamore	SYC-01559-A-C-0-1	<b>420</b>
1559 Sycamore	SYC-01559-B-C-0-2	140
1571 Sycamore	SYC-01571-A-C-0-1	<b>430</b>
1571 Sycamore	SYC-01571-B-C-0-1	<b>860</b>
3335 Cochrane	COC-03335-A-C-0-1	270
3335 Cochrane	COC-03335-B-C-0-1	<b>640</b>
3344 Harrison	HAR-03344-A-C-0-2	200
3344 Harrison	HAR-03344-B-C-0-1	120
<b>Downwind</b>		
939 Fourth St	FRT-00939-A-C-0-1	65
939 Fourth St	FRT-00939-B-C-0-1	170
3139 Fourth St	FRT-03139-A-C-0-2	150
3139 Fourth St	FRT-03139-B-C-0-1	170
3253 Fourth St	FRT-03253-A-C-0-1	210
3253 Fourth St	FRT-03253-B-C-0-1	140
3437 Fourth St	FRT-03437-A-C-0-1	220
3437 Fourth St	FRT-03437-B-C-0-2	240
3466 Lincoln W	LNW-03466-A-C-0-1	71
3466 Lincoln W	LNW-03466-B-C-0-1	110
3490 Lincoln W	LNW-03490-A-C-0-1	41
3490 Lincoln W	LNW-03490-B-C-0-1	95

\*Notes:

1) Bold indicates results greater than 400 mg/kg.

The Site was determined to be a Level 2 facility because there was no indication of an aerial disposition trend.

The Phase I sampling indicated the Site was not likely a source of lead contamination. WESTON recommended Phase II efforts to include performing inspections at the former facilities, performing interviews with personnel, and collecting samples at the former facilities for lead analysis to verify a source of contamination did not remain.

## SECTION 2

### FIELD ACTIVITIES AND PROCEDURES

#### 2.1 OVERVIEW OF SAMPLING ACTIVITIES

MDEQ RRD tasked WESTON to perform on-site sampling activities at the Site for the Detroit Lead Assessment Project. WESTON was directed by the MDEQ to 1) visit seven suspected former smelting facilities that are now commercial/industrial properties; 2) obtain/review available historical documents from each facility that pertain to previous environmental work and/or property transactions; and 3) perform surficial soil sampling for lead analysis at the facilities where possible. The details of these efforts are summarized in the *Detroit Lead Assessment Project – Limited Sampling Plan for the Former Wolverine Metal Site* (WESTON, 2006) (**Appendix A**). WESTON personnel collected six surface soil samples at the Site on 12 December 2006. The samples were submitted to the MDEQ Environmental Laboratory in Lansing, Michigan for lead analysis for total, fine, and coarse fractions soil.

##### 2.1.1 Sampling Approach

A total of six discrete surface soil samples were collected as shown on **Figure 2**, to further characterize the Site.

All discrete soil samples were collected from undisturbed areas (i.e., no signs of recent landscaped areas, gardens, etc.). Soil sampling procedures consisted of removing a volume of soil approximately 3 inches in diameter and 3 inches in depth using a plastic scoop. The removed soil was placed directly into laboratory supplied glass jars. Each sample had its own dedicated scoop. Samples were not collected from within a 5-foot buffer of any painted structure, or from locations where flaked paint, or visibly stained soil existed to prevent the possible false positive from lead-based paint or other wastes. Foreign materials, such as vegetation, large rocks, and pebbles, etc., were removed from the sample and discarded. Following sample collection, the sample hole was filled with the remaining soil not used in the sample.

During sampling, all information regarding soil description, location, and other distinguishable features present at the sample site were recorded in the field logbook. A field sketch was prepared that included all sample locations and their sample number.

Duplicate samples were collected at a one per 10 frequency. In addition, soil samples were designated for matrix spike/matrix spike duplicate analysis at a frequency of one per 20 soil samples.

### **2.1.2 Sampling and Sample Handling Procedures**

Sample containers and disposable sampling equipment were maintained in a clean, segregated area prior to use. Sampling personnel changed gloves between each sample collection/handling. All samples were assembled and catalogued prior to delivery to the MDEQ laboratory. Samples were analyzed for lead (total, fine, and coarse soil fractions) in accordance with United States Environmental Protection Agency (USEPA) solid waste method 6010/6020. MDEQ laboratory's standard hold time for lead analysis is 180 days. The standard hold time was not exceeded for these samples.

## **2.2 FIELD ACTIVITIES**

WESTON personnel, Ms. Lori Kozel and Ms. Alexandra Clark, conducted the field sampling.

### **2.2.1 Sample Custody Procedures**

Due to the evidentiary nature of sample collection, the possession of sample Chain of Custody (COC) must be traceable from the time the samples are collected until they are introduced as evidence in legal proceedings. Following sample collection and identification, the samples were maintained under COC procedures, as described below.

The COC procedures were made available to all personnel involved with the sampling. A typical COC record was completed each time a sample or group of samples was prepared for shipment to the MDEQ laboratory. The record repeated the information on each of the sample labels and served as documentation of handling during shipment. A copy of this record remained with the shipped samples at all times, and another copy was retained by the member of the sampling team

who originally relinquished the samples. WESTON personnel completed a COC form for all samples sent to the MDEQ laboratory.

### **2.2.2 Photographic Documentation**

WESTON took photographs to document Site conditions and sample locations. The photographs showed typical operations and operating conditions.

All photographs were taken with a digital camera. Each photograph was recorded in the logbook with the location of the photograph, the direction the photograph was taken, the subject of the photograph, and its significance (i.e., why the picture was taken). Photographs were labeled using the automated assigned number the digital camera provides. A photographic log is included in **Appendix B**.

## SECTION 3

## PHASE II ANALYTICAL RESULTS

3.1 SUMMARY OF ANALYSIS

In accordance with the Limited Sampling Plan (**Appendix A**), WESTON collected a total of six investigative discrete samples for lead analysis via USEPA solid waste method 6010 for total, fine and coarse fractions of soil. Out of the six samples collected, one of the samples contained concentrations of lead above the RCDCC (400 mg/kg). Lead concentrations ranged from 47 mg/kg to 8,600 mg/kg. The results are shown on **Figure 2** and summarized in **Table 2**.

Table 2: Phase II Analytical Results

Sample Address	Sample ID	Total Concentration (mg/Kg)	Fine Concentration (mg/Kg)	Coarse Concentration (mg/Kg)
3421 Gibson	GIB-3421-01	47	58	46
3421 Gibson	GIB-3421-02	190	230	180
3421 Gibson	GIB-3421-03	120	150	120
3421 Gibson	GIB-3421-04	<b>8,300</b>	<b>6,200</b>	<b>8,600</b>
3421 Gibson	GIB-3421-05	140	170	130
3421 Gibson	GIB-3421-06	140	170	140

\*Notes

1) RCDCC is 400 mg/kg. Bold indicates results greater than 400 mg/kg.

Analytical results indicate some elevated concentrations of lead were present at the Site. However, the overall lead concentrations are not indicative of lead smelting activities.

## **SECTION 4**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **4.1 CONCLUSIONS**

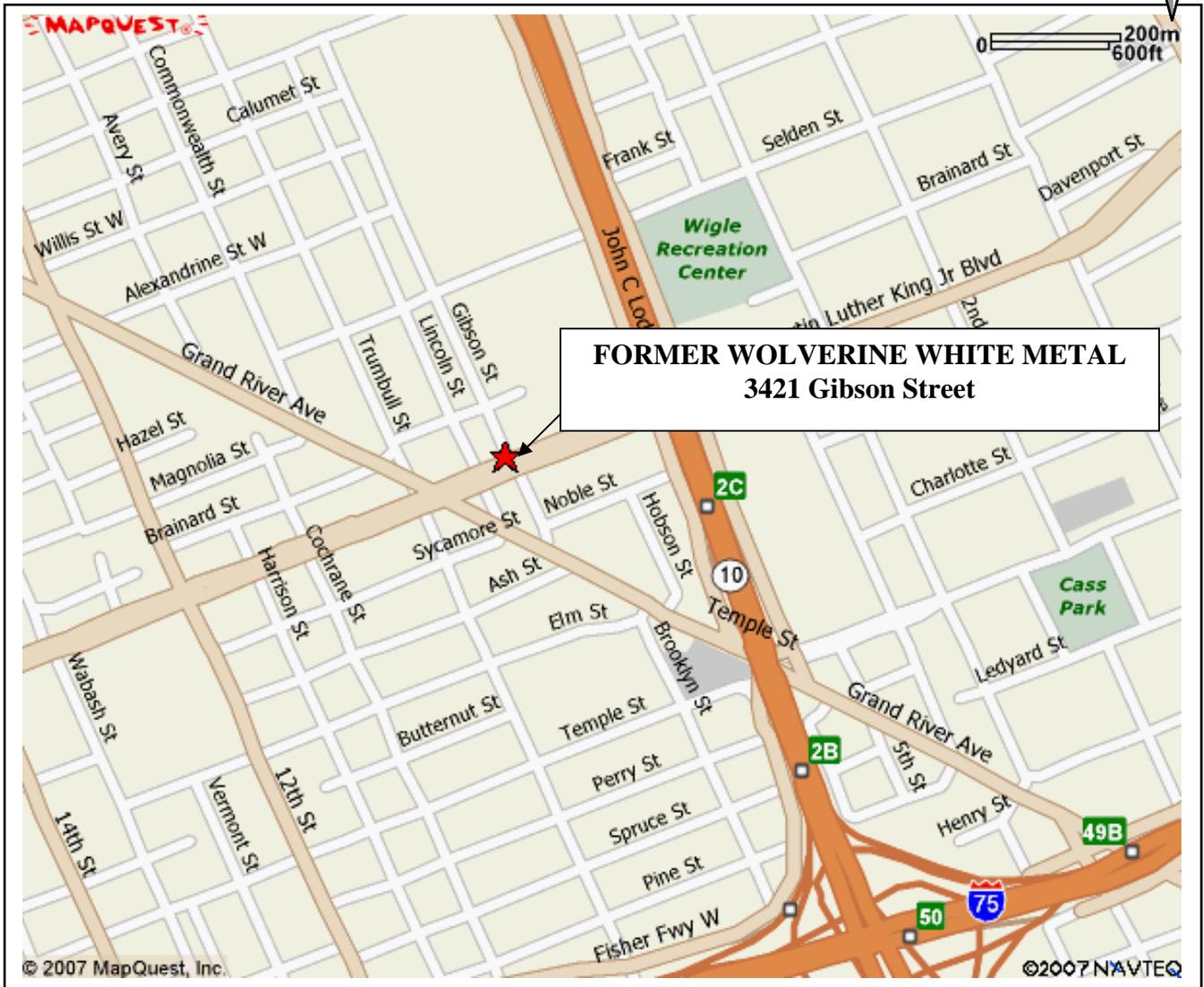
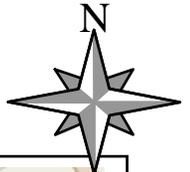
Review of historical information related to the Site indicated the Site was a potential lead smelter. However, Phase I sampling indicated that it was unlikely that aerial lead deposition occurred and on-site Phase II sampling results were not indicative of lead smelting operations. Therefore, WESTON concluded that this property is not a source of lead contamination as a result of smelting operations.

#### **4.2 RECOMMENDATIONS**

WESTON recommends no further action for this Site.

## FIGURES

**FIGURE 1**  
**Detroit Metropolitan Area Map**



**WESTON SOLUTIONS OF MICHIGAN, INC.**



**7800 West Outer Drive, Suite 200  
Detroit, Michigan 48235**

**Detroit Lead Assessment Project  
Detroit, Wayne County, Michigan  
W.O. No. 20083.028.001**

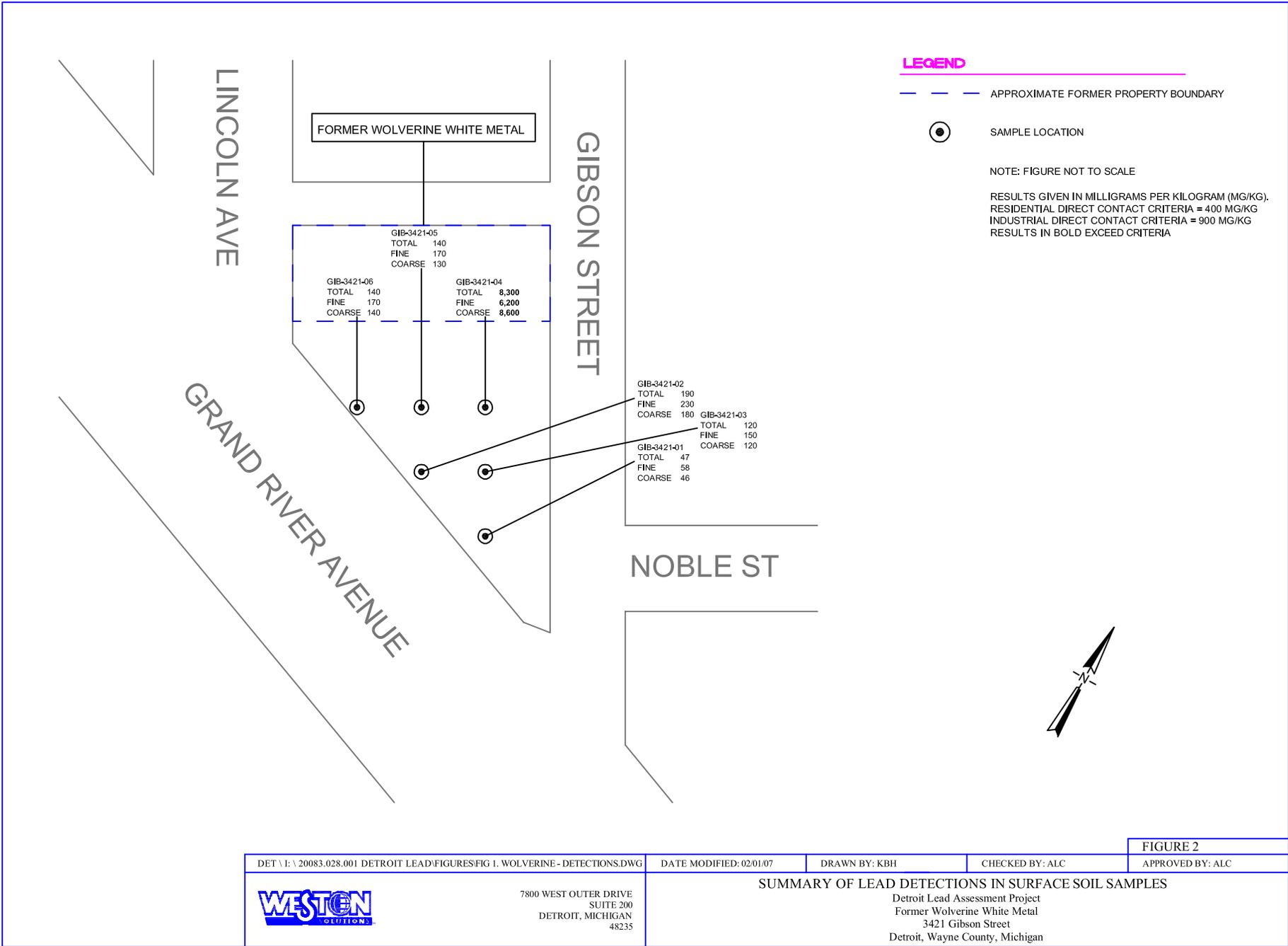


FIGURE 2

DET \ E \ 20083.028.001 DETROIT LEAD\FIGURES\FIG 1. WOLVERINE - DETECTIONS.DWG

DATE MODIFIED: 02/01/07

DRAWN BY: KBH

CHECKED BY: ALC

APPROVED BY: ALC



7800 WEST OUTER DRIVE  
 SUITE 200  
 DETROIT, MICHIGAN  
 48235

SUMMARY OF LEAD DETECTIONS IN SURFACE SOIL SAMPLES

Detroit Lead Assessment Project  
 Former Wolverine White Metal  
 3421 Gibson Street  
 Detroit, Wayne County, Michigan

**APPENDIX A**  
**LIMITED SAMPLING PLAN**



Weston Solutions of Michigan, Inc.  
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7800 West Outer Drive  
Detroit, MI 48235  
313-739-2500 • Fax 313-739-2501  
www.westonsolutions.com

1 December 2006

Mr. Ed Novak  
Michigan Department of Environmental Quality  
Remediation and Redevelopment Division  
Southeastern Michigan District Office  
27700 Donald Court  
Warren, Michigan 48092

Re: Detroit Lead Assessment Project – Limited Sampling Plan W. O. No.: 20083.028.001  
Former Wolverine White Metal  
Detroit, Michigan

Dear Mr. Novak:

Weston Solutions of Michigan, Inc. (WESTON®) has prepared this Limited Sampling Plan for the Former Wolverine White Metal facility in response to a request from the Michigan Department of Environmental Quality (MDEQ) Remediation and Redevelopment Division to perform on-site sampling activities at seven former smelting sites for the Detroit Lead Assessment Project in Detroit, Michigan. WESTON was directed by the MDEQ to 1) visit seven former smelting sites that are now commercial/industrial properties; 2) obtain/review available historical documents from each facility that pertain to previous environmental work and/or property transactions; and 3) perform surficial soil sampling for lead analysis at the facilities where possible.

WESTON arranged for and conducted site visits at each of the facilities between 30 June and 27 October 2006. On 10 August 2006, WESTON visited the DTE Energy Noble property, formerly the location of Wolverine White Metal, located at 3421 Gibson, Detroit, Michigan and met with Ms. Diane Martino. Of note, the address 3421 Gibson is the location of the DTE Energy Noble parking lot and the current property address is 3350 Grand River Avenue, Detroit, Michigan. The following summarizes information obtained during WESTON's site visit to DTE Energy:

- The property is currently owned by DTE Energy and is used for vehicle storage.
- As of 1975, the property was leased from Albert & Caroline Stutz to Michigan Consolidated Gas Company and was purchased by DTE Energy in 2006.
- There were no environmental or property transaction-related documents prepared for the property or available to WESTON.
- The property is mostly paved with few exposed surfaces on or adjacent to the property.





Mr. Ed Novak  
MDEQ-RRD

- 2-

1 December 2006

WESTON also took several photographs of potential sampling locations during the 10 August 2006 site visit. As shown in the photographs, there is limited exposed ground surface on or adjacent to the property. A photographic log is enclosed in **Attachment A**.

Based on the information presented above, WESTON recommends collecting up to six surficial grab samples from the exposed surfaces within the gated area.

Proposed sample locations are shown on the attached **Figure 1**. WESTON will follow the health and safety, sample collection and quality assurance/quality control procedures outlined in the *Phase I Quality Assurance Sampling Plan for Detroit Lead Assessment Project* (WESTON, 2003) provided in **Attachment B**. WESTON will arrange for total, fine, and coarse lead analysis of all soil samples with the MDEQ Environmental Laboratory in Lansing, Michigan.

WESTON appreciates the opportunity to provide continued professional services to MDEQ. Should you have any questions, please feel free to contact me at (313) 739-2533.

Very truly yours,

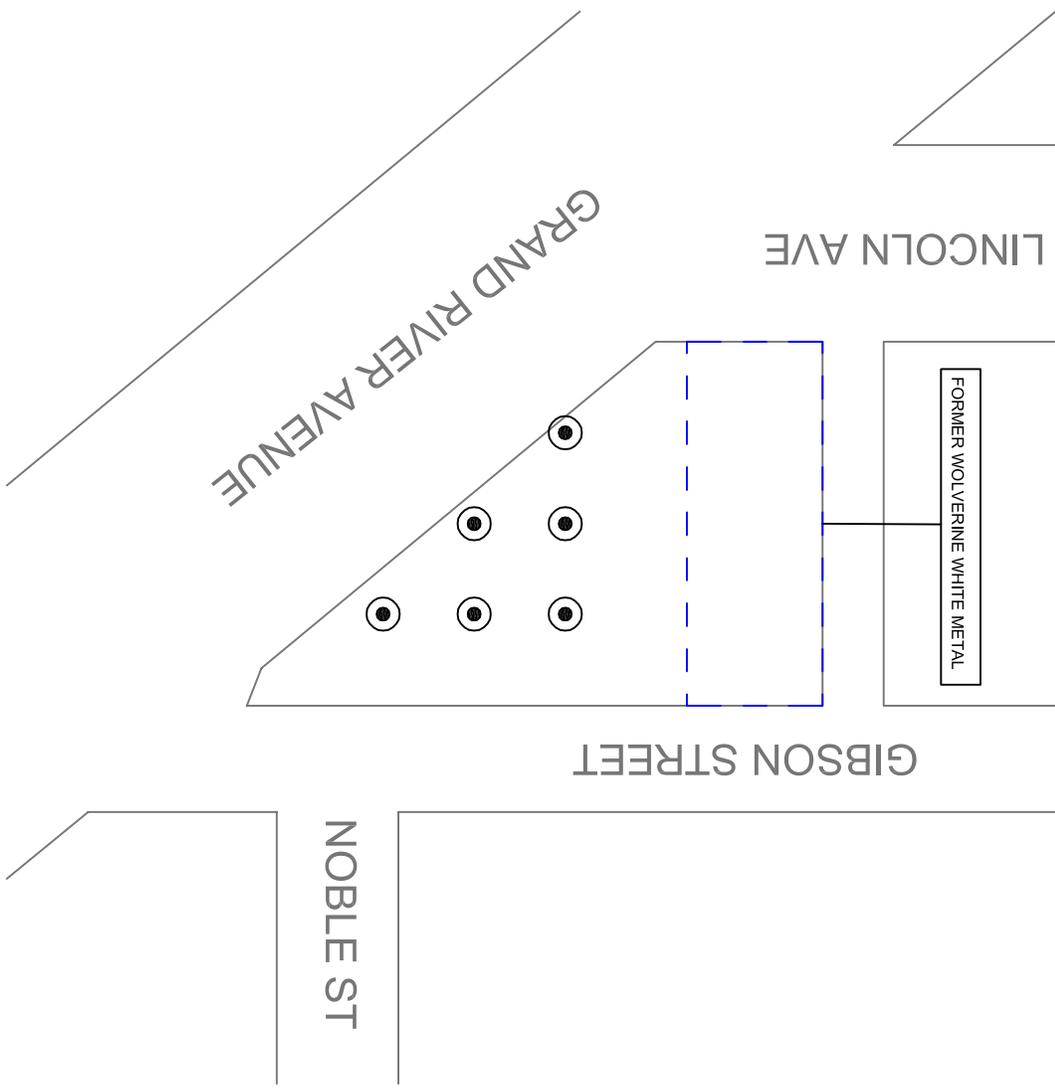
WESTON SOLUTIONS OF MICHIGAN, INC.

A handwritten signature in black ink, appearing to read "Alexandra L. Clark".

Alexandra L. Clark  
Project Manager

Enclosures

**FIGURE**



**LEGEND**

- APPROXIMATE FORMER PROPERTY BOUNDARY
- PROPOSED SAMPLE LOCATION

NOTE: FIGURE NOT TO SCALE

DET: E:\20083.028.001 DETROIT LEAD\FIGURES\FIG X_WOLYBRING.DWG	DATE MODIFIED: 11/16/06	DRAWN BY: KBH	CHECKED BY: ALC	APPROVED BY: ALC
<b>PROPOSED SAMPLING LOCATIONS</b> Detroit Lead Assessment Project Former Wolverine White Metal 3421 Gibson Street Detroit, Wayne County, Michigan				
7800 WEST OUTER DRIVE SUITE 300 DETROIT, MICHIGAN 48225				

## **ATTACHMENT A**

**Photographic Log  
Detroit Lead Assessment Project  
3421 Gibson  
10 August 2006**



**Photograph 1:** Exposed surface on the south portion of the gated area facing northwest.



**Photograph 2:** Sidewalk with no grassy area along Gibson Street facing north.

**Photographic Log  
Detroit Lead Assessment Project  
3421 Gibson  
10 August 2006**



**Photograph 3:** View of gate and asphalt on north portion of gated area facing southwest.



**Photograph 4:** Sidewalk with grassy right-of-way along Martin Luther King Boulevard facing west.

**Photographic Log  
Detroit Lead Assessment Project  
3421 Gibson  
10 August 2006**



**Photograph 5:** Pallets with bricks observed during previous site visit along north side of gated area facing south.



**Photograph 6:** Sidewalk with no grassy area along Lincoln Street facing southeast.

**Photographic Log  
Detroit Lead Assessment Project  
3421 Gibson  
10 August 2006**



**Photograph 7:** Sidewalk with no grassy area along Grand River Avenue facing east.



**Photograph 8:** View of gated area utilized for parking and storage of vehicles facing north.

## **ATTACHMENT B**

**PHASE I  
QUALITY ASSURANCE SAMPLING PLAN  
FOR  
DETROIT LEAD ASSESSMENT PROJECT  
DETROIT, WAYNE COUNTY, MICHIGAN**

Prepared for

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
REMEDATION AND REDEVELOPMENT DIVISION**  
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Prepared by

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**October 2003**

**PHASE I  
QUALITY ASSURANCE SAMPLING PLAN  
FOR  
DETROIT LEAD ASSESSMENT PROJECT  
DETROIT, WAYNE COUNTY, MICHIGAN**

Prepared for

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**October 2003**

W.O. No: 20083.028.001

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**APPENDIX**

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- B List of City and State Owned Properties to be Sampled
- C Wind Rose
- D Greenways Photographs
- E Sample Location Map – Example
- F Table of Sample Location Identifiers

## **SECTION 1**

### **INTRODUCTION**

Weston Solutions of Michigan, Inc. (WESTON®) was contracted by the Michigan Department of Environmental Quality (MDEQ) Remediation and Redevelopment Division (RRD) to perform off-site sampling activities at the Detroit Lead Assessment Project in Detroit, Wayne County, Michigan. The project consists of conducting evaluations of possible lead releases from 12 facilities in the city of Detroit, which have been previously identified as potential lead smelters. The project tasks include soil sampling 6 downwind parcels and 4 upwind parcels located within 1,000 feet of each facility. WESTON will collect 2 composite samples from each parcel. WESTON has prepared this Phase I Quality Assurance Sampling Plan (QASP) to describe the technical scope of work to be completed.

#### **1.1 SAMPLING OBJECTIVES**

The primary objective of this Phase I QASP is to characterize the off-site soil in the immediate vicinity of each of the 12 former smelter facilities identified as requiring additional investigation during WESTON's initial investigation. Soil characterization of off-site soils at properties located within 1,000 feet of the facility is an initial step in evaluating the impact potential smelting operations on neighboring areas located within expected depositional areas. Soil samples will be collected from state and city owned properties upwind and downwind to further evaluate the presence of a smelter-related release. All samples will be analyzed for lead using U.S. EPA Method 6010B.

#### **1.2 PROJECT TEAM**

The Project Team will consist of Mr. Randy Elder, Project Manager (PM); a Site Manager; a Sample Management Coordinator; a Site Health & Safety Coordinator (SHSC); a Data Manager (DM); and other WESTON personnel as necessary. WESTON has available resources throughout the Midwest in its Detroit, MI; Okemos, MI; Chicago, IL; Vernon Hills, IL; Cleveland, OH; Miamisburg, OH; and Indianapolis, IN, offices as necessary.

WESTON personnel will be responsible for performing the sampling activities and will serve as the liaison with MDEQ personnel and the community in the field during the site activities. For all sample collection, the Site Manager will determine the sample locations in the field; collect samples, as necessary; log the activities at each sample location in the field logbook; and verify the sample documentation. Sample documentation and preparation is the responsibility of WESTON.

### **1.3 QASP FORMAT**

This QASP has been organized in a format that is intended to facilitate and effectively meet the objectives of the Phase I investigation. The QASP is organized into the following sections:

- Section 1 – Introduction;
- Section 2 – Site Background;
- Section 3 – Sampling Approach and Procedures; and
- Section 4 – Quality Assurance.

Attachments to this QASP include the following:

- **Appendix A** – Site Location Map for Each of the 12 Former Smelter Facilities;
- **Appendix B** – List of City and State Properties to be Sampled;
- **Appendix C** – Wind Rose;
- **Appendix D** – Greenways Photographs;
- **Appendix E** – Sample Location Map – Example; and
- **Appendix F** – Table of Sample Location Identifiers

## **SECTION 2**

### **SITE INFORMATION**

#### **2.1 SITE DESCRIPTION**

Seventeen facilities in the Detroit, Michigan area were suspected of historical smelting operations and were chosen for investigation by the MDEQ. WESTON performed a preliminary records review including review of Bresser’s city directory information, Sanborn fire insurance maps, aerial photographs, Fire Marshall inspection/permit records, and Baseline Environmental Assessments (BEAs) which may have been performed for each of the seventeen facilities. As a result, WESTON identified the following 12 facilities that require additional investigation:

- 1) Detroit Lead Company – 13521 - 13535 Helen Street;
- 2) Federal Mogul Corporation - 11031 Shoemaker Street;
- 3) Continental Metal Company – 11500 Russell Street;
- 4) Detroit Lead Pipe Works – 7001 Lyndon Street;
- 5) Industrial Smelting – 19430 Mt. Elliot Street;
- 6) Federated Metals Division – 11630 Russell Street;
- 7) Aetna Smelting – 1826 Illinois Street;
- 8) Michigan Smelting – 7885 Joseph Campau Street;
- 9) Great Lakes Smelting – 1640 East Euclid Street;
- 10) Wolverine White Metal – 3421 Gibson Street;
- 11) Acme Metal Company – 1436 Holbrook Street; and
- 12) City Metals Refining – 2945 Hubbard Street.

Details regarding the historical data investigation can be found in the “Summary Report for Data Investigation, Detroit Lead Assessment Project, Detroit Michigan”, prepared by WESTON, dated 19 September 2003.

During this phase of the assessment activities MDEQ will conduct interviews with facility personnel at each of the 12 facilities and WESTON will conduct soil sampling at City of Detroit and State of Michigan owned properties within 1,000 feet of each of the facilities. The sampling includes properties upwind and downwind of the facilities and is designed to further the evaluation of the presence of lead related to potential smelting operations. Four exceptions to this plan are Continental Metal Company – 11500 Russell Street/11630 Russell Street, Detroit Lead Company – 13521 Helen Street and Federal Mogul Corporation - 11031 Shoemaker Street. Extensive sampling and lead containing soil removal has already been performed downwind of the Russell Street properties, so during this assessment only upwind samples will be collected. The U.S. EPA is currently performing work at the Helen Street property, including off site sampling, so assessment will be deferred to that effort. The Shoemaker Street property is scheduled for investigative work under the Clean Michigan Initiative (CMI) and assessment will be deferred to that effort.

Facility location maps for each of the 12 facilities are included in **Appendix A**. The addresses of potential offsite properties to be sampled are given in **Table 1** in **Appendix B**.

## **2.2 SITE CONCERNS**

The primary concern associated with the Detroit Lead Assessment Project is related to the off-site releases of smelter-related metals, through aerial deposition, from potential smelter operations into soil of the surrounding neighborhood near each of the 12 potential former smelter facilities. The goal of the Phase I sampling is to determine if smelter-related releases are present and can be identified at each of the facilities.

## **SECTION 3**

### **SAMPLING APPROACH AND PROCEDURES**

#### **3.1 OVERVIEW OF SAMPLING ACTIVITIES**

Soil samples will be collected from City and/or State owned properties within approximately 1,000 feet of each facility. During Phase I soil sampling activities, upwind and downwind areas will be established within 1,000 feet from each of the 12 facilities based on the mean wind direction from 1984 to 1991 for the Detroit Metropolitan area. A copy of the wind rose plot is provided in **Appendix C**. The City and/or State owned parcels identified for sampling will be those closest to the average wind direction and at varying distances from the former smelting facilities. Where city or state owned parcels are not available, right of ways, utility corridors, and alleyways ('greenways') will be used and have been identified on the figures included in **Appendix A**. Photographs of the potential greenways locations with the exception of downwind from 1436 Holbrook Street, have been included in **Appendix D**. Greenway locations downwind of this facility have not been established and will be identified during field work. Exposure units and appropriate sample grids will be established to guide the sampling activities. WESTON will collect samples from up to of 10 State or City owned parcels near each of the suspected former smelter facilities. When possible, based on access or size of available area, six parcels will be sampled in the downwind direction and four in the upwind direction.

All properties to be sampled will be divided into two units, and soil samples will be collected at random locations within the units based on the size of the area. An example of a typical soil sample location is provided in **Appendix E**. All samples from each exposure unit will be composited prior to analysis and will be analyzed for lead using U.S. EPA SW Method 6010 or equivalent.

WESTON personnel will be responsible for performing the sampling activities. For all sample locations, the WESTON lead sampler will finalize the sample locations in the field; collect

samples; log the activities at each sample location in the field logbook; and verify the sample documentation. Sample documentation and preparation is the responsibility of WESTON. Details of soil sampling collection methodologies and procedures are provided in Subsection 3.2.

### **3.1.1 Health and Safety Plan Implementation**

The WESTON field activities will be conducted in accordance with the site-specific health and safety plan (HASP). In general, the HASP specifies that work will proceed in Level D (coveralls and steel-toed boots) in selected sampling areas. The WESTON Site Health and Safety Coordinator (SHSC) will be responsible for implementation of the HASP during all field investigation activities. In accordance with WESTON's general health and safety operating procedures, the field team will drive the route to the hospital specified in the HASP prior to initiating sampling activities.

### **3.2 SAMPLING APPROACH**

During Phase I soil sampling, WESTON anticipates a total of 240 soil samples will be collected from off-site parcels associated with the 10 smelter properties for subsequent laboratory analysis. Two composite soil samples will be collected from each of the 10 parcels located within 1,000 feet of each of the 10 former smelting facilities. Each composite soil sample will consist of five randomly located discrete surface soil samples (0 to 3 inches) of approximately equal volume collected from the sampling unit. All discrete soil samples will be collected from undisturbed areas (i.e., no signs of recent landscaped areas, gardens, etc.). Soil sampling procedures will consist of removing a volume of soil approximately 3 inches in diameter and 3 inches in depth using a precleaned, stainless-steel bucket auger or trowel. The removed soil will be placed directly into a large, plastic Ziploc® bag. Samples will not be collected from within a 5 foot buffer of any painted structure or from locations where flaked paint or visibly stained soil exist. Greenways samples will be collected from the furthest practicable point from the curb line. Foreign material, such as snow, vegetation, large rocks, and pebbles, etc., will be removed from the sample and discarded.

Following sample collection the sample hole will be filled with topsoil and seeded with a mulch/seed combination.

At the time of sampling, all information regarding soil description, location, and other distinguishable features present at the sample site shall be recorded in the field log book. In addition, a global positioning system (GPS) will be used to record the approximate location of each composite soil sample location within each parcel. A field sketch will be prepared (on 8.5” by 11” graph paper) for each exposure unit, which includes: all sample locations and their sample number, the GPS coordinates of each sample location, physical features (sidewalks, building corners, utility poles), measurements between sample points and physical features, and any information necessary to relocate the area (address, street name, etc.)

Deviations (either additions or deletions) from this procedure may be made due to new observations made while in the field, difficulty in sample collection, limited access, or other conditions. All information pertaining to the deviation, including sample identification, sample location, and reason, must be documented in the field log book.

### **3.2.1 Sampling and Sample Handling Procedures**

All clean, decontaminated sampling equipment and sample containers will be maintained in a clean, segregated area. All soil samples will be collected with clean, decontaminated equipment. Sampling personnel will change gloves between each sample collection/handling. All samples will be assembled and catalogued prior to shipping to the designated MDEQ laboratory. Sampling preservation, containers, and hold times for analytical methods associated with this site are presented in Subsection 3.5. All information relating to sample collection (field notes, chain of custody, sketches) will be maintained as presented in Section 4.

### **3.2.2 Quality Control Samples**

Upon receipt of the samples, the laboratory will be provided with specific sample preparation and analysis procedures. These procedures are not intended to preclude the use of internal laboratory standard operating procedures (SOPs) with regards to analytical methods or preparation but rather are intended to instruct the laboratory of site-specific sampling requirements. Since the preparation and/or analysis of the quality control (QC) samples requires the preparation of laboratory prepared split (duplicate) samples, WESTON will require the laboratory to follow strict confidentiality procedures between the sampling preparation technician and the laboratory analyst.

The sample preparation procedure consists of agitating and mixing, removing rock and vegetation, oven drying, and sieving. Specific sample preparation steps are provided below:

1. Manually agitate the sample contents to mix the soil (i.e., breakup large soil clumps, etc.) using a pre-cleaned, stainless-steel scoop until the mixture appears homogeneous.
2. Following mixing, transfer the sample into a clean drying container so that any rocks or plant material are removed from the sample.
3. Dry the sample in an atmospheric oven at a temperature of 110° Celsius for 2 to 6 hours.
4. After drying, transfer the soil to a mechanical shaking device. The soil will be sieved through a 250 micron (60 mesh) sieve for 10 minutes. The sieve must be constructed of stainless steel and conform to American Society for Testing and Materials (ASTM) E11-95 standards. **DO NOT GRIND SAMPLES.**
5. If the sample has not been designated as a laboratory-prepared split (duplicate) sample, then proceed to Step 7.
6. Ten percent of investigative soil samples will be designated as laboratory prepared split (duplicate) samples. If the sample has been designated as a

**SAMPLING APPROACH AND PROCEDURES**

duplicate sample, the sample preparation technician shall split the sample into an equal aliquot after sieving. The split sample will be assigned a separate sample identification code as indicated on the chain-of-custody. Strict confidentiality between the sampling preparation technician and the laboratory analyst must be ensured to preserve the integrity of this quality assurance procedure.

7. Submit sample to laboratory analyst for Lead (Method 6010B) analysis.

In addition, investigative soil samples will be designated for matrix spike/matrix spike duplicate (MS/MSD) analysis at a frequency of one per five soil samples. When non-dedicated sample equipment (stainless augers/trowels, mixing bowls) is used, equipment blanks will be collected at a rate of one per sampling team per day to assess the effectiveness of decontamination procedures. The samples will be collected following decontamination by running de-ionized water over each piece of equipment a during sampling event.

### **3.3 SAMPLE AND INFORMATION MANAGEMENT**

Specific nomenclature that WESTON will use will provide a consistent means of facilitating the sampling and overall data management for the project are described in the following subsections.

#### **3.3.1 Sample Management**

Each sample will be identified using an 18-character combination of letters, numbers, and dashes in the following format: AAA-BBBBBB-C-D-E. The components of the identifiers are described as follows:

- **Street Abbreviation (AAA):** A three character alphanumeric designation will be used to identify the street (e.g. West First Street – FST). A list of street abbreviations to be used during the Phase I soil sampling is included in the table in **Appendix B**. Where greenways samples are collected the site manager will develop street designations which reflect this guideline.

**SAMPLING APPROACH AND PROCEDURES**

- **Address Street Number (BBBBB):** A five character alphanumeric designation will be used to identify the street number of the house or building that is being sampled (e.g., 14403, 00104, etc.). When the street number is less than five digits, the leading digits will be zeros.
  
- **Exposure Unit (C):** A single character alphanumeric designation will be used to identify the sample location at each parcel. For the Phase I sample event WESTON will designate the letters A and B for the two samples collected from each of the parcels. The sample location identification will be recorded on the sample diagram completed by field personnel.
  
- **Sample Type (D):** One character alphanumeric designation will be used to identify the sample matrix type. Typical sample matrix types that may be used are as follows:
  - C - Composite Soil Sample

Other codes that may be used during subsequent investigations include the following:

- **D** – Discrete soil sample
  - **A** – Air sample
  - **P** – Paint sample
  - **D** – Dust sample
  - **S** – Surface water sample
  - **T** - Concrete sample
- 
- **Depth Identifier (D):** A single digit numeral will be used to identify sample depth, where applicable. The number designation will represent the three inch sampling interval. All two digit depth identifiers are as follows: -0 (0 to 3 inches), -1 (3 to 6 inches), -2 (6 to 9 inches), -3 (9 to 12 inches), etc.

**SAMPLING APPROACH AND PROCEDURES**

- **Quality Control Sample Identifier (E):** A one digit identifier will be used to identify quality control samples collected or prepared in the field. The following designations will be used:
  - 1 – Investigative sample;
  - 2 – Investigative sample with matrix spike/matrix spike duplicate (MS/MSD);
  - 3 – Laboratory prepared split (duplicate) sample;
  - 4 – PE sample; and
  - 5 – Equipment blank sample.

Other codes that may be used during subsequent phases:

- 6 – Confirmation sample; and
- 7 – Trip blank (TB) sample.

Examples of full sample identification numbers are as follows:

- **FST-14431-A-0-1:** Indicates a sample collected at 14431 First Street. The sample is an investigative soil sample collected from soil sampling location A at a sampling interval of 0 to 3 inches.
- **FST-14431-A-0-2:** Indicates a sample collected at 14431 First Street. The sample is an investigative soil sample collected from soil sampling location A at a sampling interval of 0 to 3 inches. This sample is designated as an MS/MSD sample.

**3.3.2 Information Management**

WESTON will incorporate the use of complete field notes and a computer database to facilitate data interpretation and ensure quality data reporting from the field.

**SAMPLING APPROACH AND PROCEDURES**

WESTON will request that the laboratory submit an electronic data deliverable (EDD) simultaneously with the hard copy data package. The EDD will contain the COC information, laboratory ID, date and time of analysis, and the results for the analyses requested.

WESTON will utilize a standard set of GIS tools for use with ArcView. Using these tools, geologists and engineers can quickly query the database and represent the findings on a map. The user can easily represent the concentration of any chemical of concern using colored symbols and apply labels to the base map. The labeling tools display the sample location ID, the date and depth of sample collection, and the concentration of the chemical of concern.

**3.4 DECONTAMINATION**

The nondisposable sampling equipment (soil samplers, hand trowels, etc.) used during the sample collection process will be thoroughly decontaminated before the initial use, between uses, and at the end of the field investigation. Equipment decontamination will be completed as follows:

- Water spray or brush, if needed, to remove soil/sediment from the equipment;
- Nonphosphate detergent and potable water wash to clean the equipment;
- Final potable water rinse;
- Equipment air dried; and
- Wrap equipment in clean aluminum foil for storage and/or transport.

Personnel decontamination procedures will be described in the site-specific HASP, which WESTON will prepare prior to implementing activities at the site.

**3.5 SAMPLE PRESERVATION, CONTAINERS, AND HOLD TIMES**

Once collected, samples will be securely stored in a cooler until they are submitted for analysis. The samples will be sent to the designated MDEQ laboratory by WESTON field personnel or a common carrier, typically on a daily basis. Sample preservatives are not required.

**SAMPLING APPROACH AND PROCEDURES**

It is currently anticipated that WESTON will require a one-week turnaround for analytical results. This turnaround time is initiated when the samples are received at the laboratory and continues until the analytical results are made available to WESTON (either verbally or by providing facsimile copies of the results) for review. Samples that have been analyzed will be disposed of by the designated laboratory in accordance with the laboratory's SOPs.

## **SECTION 4**

### **QUALITY ASSURANCE**

#### **4.1 SAMPLE CUSTODY PROCEDURES**

Because of the evidentiary nature of sample collection, the possession of samples must be traceable from the time the samples are collected until they are introduced as evidence in legal proceedings. Following sample collection and identification, the samples will be maintained under proper chain-of-custody procedures. If the sample collected is to be split, the sample will be allocated into similar sample containers. Sample labels completed with the same information as that on the original sample container will be attached to each of the split samples. All personnel required to package and ship coolers containing potentially hazardous material will be trained accordingly.

The chain-of-custody procedures will be made available to all personnel involved with the sampling. A typical chain-of-custody record will be completed each time a sample or group of samples is prepared for shipment to the MDEQ laboratory. The record will repeat the information on each of the sample labels and will serve as documentation of handling during shipment. A copy of this record will remain with the shipped samples at all times, and another copy will be retained by the member of the sampling team who originally relinquished the samples. WESTON personnel will complete a chain-of-custody form for all samples sent to the MDEQ laboratory.

Samples relinquished to the MDEQ laboratory will be subject to the following procedures for transfer of custody and shipment:

- Samples will be accompanied by the chain-of-custody record. When transferring possession of samples, the individuals relinquishing and receiving the samples will sign, date, and note the time of the sample transfer on the record. This custody record documents transfer of sample custody from the sampler to another person or to the laboratory.

- Samples will be properly packed for shipment and dispatched to the appropriate laboratory for analysis with separate, signed custody records enclosed in each sample box or cooler. Sample shipping containers will be padlocked or custody-sealed for shipment to the laboratory. The preferred procedure includes use of a custody seal wrapped across filament tape. This tape will be wrapped around the package at least twice. The custody seal will be affixed to the container in such a manner that it cannot be opened without breaking the seal.
- If sent by common carrier, a bill of lading or air bill will be used. Bill of lading and air bill receipts will be retained in the project file as part of the permanent documentation of sample shipping and transfer.

## **4.2 FIELD DOCUMENTATION**

WESTON will perform field documentation of site activities during all field work. The primary methods of documentation will include completion of a field logbook and photo documentation. All documents will be completed legibly and in ink. Any corrections or revisions will be made by lining through the original entry and initialing the change. The following sections identify the field documentation that will be maintained.

### **4.2.1 Field Logbook**

The field logbook is a descriptive notebook detailing site activities and observations so that an accurate, factual account of field procedures may be reconstructed. Each entry will be signed by the individual making the entry. Entries should include, at a minimum, the following:

- Site name and project number;
- Names of personnel on-site;
- Dates and times of all entries;

- Descriptions of all site activities, including site entry and exit times;
- Noteworthy events and discussions;
- Weather conditions;
- Site observations;
- Identification and description of samples and locations;
- Subcontractor information and names of on-site personnel;
- Dates and times of sample collections and chain-of-custody information;
- Records of photographs; and
- Site sketches (kept separately on 8.5” by 11” graph paper).

#### **4.2.2 Sample Labels**

Sample labels will be securely affixed to the sample container. They will clearly identify the particular sample and should include the following information:

- Site name and project number;
- Date and time the sample was collected;
- Sample preservation method;
- Analysis requested; and
- Sampling location.

#### **4.2.3 Chain-of-Custody Record**

A chain-of-custody record will be maintained from the time of sample collection until final deposition. Every transfer of custody will be noted and signed, and a copy of the record will be kept by each individual who has signed it. The chain-of-custody procedures are discussed in detail in Subsection 4.1 Sample Custody Procedures.

#### **4.2.4 Custody Seal**

Custody seals demonstrate that a sample container has not been tampered with or opened. The individual with custody of the samples will sign and date the seal and affix it to the container in such a manner that it cannot be opened without breaking the seal.

#### **4.2.5 Photo Documentation**

WESTON will take photographs to document site conditions and activities as site work progresses. Initial site conditions and features that define site-related contamination or special working conditions will be photographically documented. Representative photographs will be taken of each type of site activity. The photographs will show typical operations and operating conditions as well as special situations and conditions that may arise during site activities. Photo documentation will also be used to document final site conditions upon the completion of work.

All photographs should be taken with a digital camera, or a video camera capable of recording the date on the image. Each photograph should be recorded in the logbook with the location of the photographer, the direction the photograph was taken, the subject of the photograph, and its significance (i.e., why the picture was taken). Photographs will be labeled using the street abbreviation/street number-exposure unit-and picture number starting at 01 for each property sampled. Where appropriate, the photograph location, direction, and subject should also be shown on a site sketch.

**APPENDIX B**

**PHOTOGRAPHIC LOG**

**Photographic Log – Phase II Sampling  
Detroit Lead Assessment Project  
3421 Gibson**



**Photograph 1:** View of the non-paved area on the southern portion of the Site. View is facing northwest from the southeast side of the Site from Gibson Street – all samples were collected from this area within the fence line.



**Photograph 2:** Facing north from the west/central side of the Site from Grand River Ave – samples GIB-3421-04 through GIB-3421-06 were collected from this area.