ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES

MIFCO Environmental Recycling, Inc. - Old Book Bindery

516 South Wayne Street Portland, Jay County, Indiana BFD# 4170703 CA# BF-00E48101-B

July 2019

Prepared for:

City of Portland 321 North Meridian Street Portland, Indiana 47371

Indiana Brownfields Program Indiana Finance Authority 100 North Senate Avenue, Room 1275 Indianapolis, IN 46204

Prepared by:



Office Locations

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	SITE INFORMATION	1
3.0	PREVIOUS INVESTIGATIONS	1
4.0	SITE CHARACTERIZATION SUMMARY	4
5.0	SUMMARY OF CORRECTIVE ACTION ALTERNATIVES	4
6.0	RECOMMENDATION FOR SITE REMEDY	6

APPENDIX A - FIGURES

Figure 1	Topographic Map
Figure 2	2017 Aerial Photograph
Figure 3	Site Map Soil Testing Borings
Figure 4	Lead In Soil – Potential Affected Area
Figure 5	Fill Soil Testing Results
Figure 6	Native Soil Beneath Fill Testing Results



1.0 INTRODUCTION

This *Analysis of Brownfield Cleanup Alternatives* outlines environmental cleanup alternatives that were evaluated to mitigate blight and facilitate potential redevelopment of a former manufacturing property located at 516 South Wayne Street, Portland, Jay County, Indiana (hereinafter referred to as the site).

The ABCA was prepared in cooperation with the Indiana Finance Authority (IFA)/Indiana Brownfields Program, the City of Portland, Indiana (City), and SES Environmental (SES) as required by the U.S. EPA Revolving Loan Fund stipulations. The City will utilize brownfield funding (i.e., subgrant) from the U.S. EPA Region 5 to/from the IFA to conduct remediation of hazardous substances (contaminated soil) at the subject property/site. Cleanup will help revitalize approximately four acres of blighted property in downtown Portland, Indiana. The City intends to redevelop the site for commercial use.

2.0 SITE INFORMATION

The site is located at 516 South Wayne Street, Portland, Jay County, Indiana. Geographically, the site is located at approximately 40.4269600° north latitude and 84.9745880° west longitude. The parcel is identified by the Jay County Assessor's office as No. 38-07-21-303-023.002-034.

The area surrounding the site includes residences, undeveloped land, and commercial facilities. The north adjacent property consists of a residence and undeveloped land. South Wayne Street borders the site to the east, with Hudson Family Park, a residence, and a commercial facility occupied by Community & Family Services beyond. Railroad tracks border the site to the south, with a commercial facility occupied by United Telephone beyond. The west adjacent property consists of a residence and undeveloped land. A topographic map and aerial photograph depicting the site and surrounding area are provided in Figures 1 & 2.

The site generally consists of 1.48 acres of undeveloped land. The majority of the site is covered with grass and bare soil. The site structures were reportedly demolished in 2014 and 2015.

The City of Portland accepted ownership of the site in January 2018. As previously noted, the site is currently vacant. The City of Portland intends to redevelop the subject property/site for commercial use.

Contact information for involved parties are as follows:

Owner

City of Portland 321 North Meridian Street Portland, IN 47371 Randy Geesaman, Mayor Office: (260) 726-9395 mayorgeesaman@thecityofportland.net

Indiana Brownfields / Indiana Finance Authority

Indiana Brownfields / Indiana Finance Authority 100 North Senate Avenue, Suite 1275 Indianapolis, IN 46204 Mitchell Smith, Project Manager Office: 317-234-8833 mismith@ifa.in.goy

Consultant

SES Environmental
3807 Transportation Drive
Fort Wayne, Indiana 46818
Glen A. Howard, Project Manager
Office: (260) 497-7645
g.howard@sesadvantage.com

3.0 PREVIOUS INVESTIGATIONS

Environmental assessments were conducted at the site in 2017. A summary of each event is provided below. Additional details concerning investigation results are provided in the following documents:



- *Phase I Environmental Site Assessment*, September 8, 2017 prepared by SES for the City of Portland and Indiana Brownfields Program / Indiana Finance Authority
- Phase II Environmental Screening Report, October 24, 2017 prepared by SES for the City of Portland
- Additional Environmental Screening Investigation Report, December 19, 2017 prepared by SES for the City of Portland

Phase I Environmental Site Assessment – September 2017

SES conducted a Phase I Environmental Site Assessment (ESA) in September 2017. The ESA included a visual inspection of the site and limited observations of surrounding properties, a review of historic land use, a review of regulatory listings, and interviews with persons potentially knowledgeable concerning site conditions. The assessment revealed the following *recognized environmental condition* (REC) in connection with the site:

REC#1 Historical review indicates the site was formerly occupied by Haynes Wheel Company, Portland Auto Body Works, a tool and die shop, a petroleum company, a book bindery, a tire recycler, and an auto repair shop. Details concerning operations at these facilities and the potential use of hazardous substances and/or petroleum products were not found during this Phase I ESA.

Additional investigation was recommended to assess the identified REC.

<u>Screening Investigation – October 2017</u>

A Phase II environmental screening investigation was conducted by SES in October 2017 to further assess soil and groundwater conditions and to screen for contaminants of concern. The screening investigation consisted of geophysical survey and advancing six soil borings (identified as SB-1 through SB-6) within and around the footprint of the interconnected buildings that formerly occupied the site. Borings were completed as temporary groundwater sampling points to assess groundwater quality and conditions. Soil and groundwater samples were collected at each boring location and analyzed for VOCs, SVOCs, and metals. Groundwater did not accumulate at SB-5. Near surface soil samples were also analyzed for PCBs. Collectively, borings were used to evaluate overall site conditions. Sampling locations are depicted in Figures 3 and 4. Screening results are summarized below. Laboratory results are depicted in Figures 5 and 6.

- Useable data could not be obtained during geophysical survey due to saturated soil conditions.
- Fill material consisting of silt, clay, sand, gravel, cinders, and brick debris was encountered at sampling locations. This surface fill material extended to depths of 2 to 4 feet, followed by silt to depths of approximately 16 to 19 feet, followed by sand to depths of 20 to 22 feet, followed by clay.
- Water bearing sand was observed at a depth of approximately 18 feet. The inferred groundwater flow direction was to the south-southwest. Further monitoring would be required to more accurately establish seasonal flow patterns.
- Field evidence of contamination, such as elevated photoionization detector responses and odor, was not observed.
- VOCs and PCBs were not detected in soil or fill samples. SVOCs were not detected in soil samples, except for trace concentrations of benzo(a)pyrene at SB-5 and SB-6. Benzo(a)pyrene concentrations did not exceed any *residential* or *commercial/industrial remediation screening level*.
- Metals including barium, chromium, copper, and zinc were detected in soil samples. These metals are known to occur naturally in soils and detected concentrations did not exceed *residential* or *commercial/industrial remediation screening levels*.
- Arsenic was detected in smear zone soil at SB-1 and in near surface sample SB-3. The arsenic concentration in sample SB-1 collected from a depth of 18 feet exceeded the *residential migration to groundwater screening level* and the *residential direct contact screening level*. The arsenic concentration in sample SB-3 collected from the near surface exceeded the *residential migration to groundwater screening level*. However, arsenic is known to occur naturally in soils at levels exceeding *residential remediation screening levels*.



- Lead was detected in all soil samples. Lead concentrations did not exceed *remediation screening levels*, except at SB-2. The lead concentration in fill sample SB-2 was 1050 mg/kg and exceeded *remediation screening levels* that range from the most conservative 270 mg/kg to 1000 mg/kg.
- VOCs and SVOCs were not detected in groundwater samples. Metals including arsenic, cadmium, chromium, copper, mercury, lead, selenium, silver, and zinc were not detected in groundwater samples.
- The metal, barium, was detected in groundwater sample SB-4. The barium concentration was well below the *tap water screening level*.

The Phase II screening results indicated the lead concentration in fill soil was evidence of contamination. SES recommended establishing *remediation objectives*, and conducting additional investigation to characterize the fill soil, extent of lead, and potential exposure pathways. SES concluded that other detected metals in soil including arsenic, were consistent with naturally occurring concentrations, and therefore did not pose a concern. Benzo(a)pyrene detection was not considered evidence of a release at that time, due to the ubiquitous nature of the incomplete combustion byproduct.

Screening Investigation – November/December 2017

Additional screening was conducted by SES in November 2017 as a follow up to the October 2017 investigation. A report was completed in December 2017.

The additional screening investigation consisted of advancing eleven soil borings. Ten samples of fill material and seven samples of native clay soil beneath the fill material were collected and analyzed for lead, arsenic, and polycyclic aromatic hydrocarbons (PAHs). Fill soils with coal, slag, glass and/or cinders were observed at SB-8, SB-10, SB-13, SB-15, and SB-17; therefore, testing at these borings included RCRA 8 metals. The fill soil samples collected at SB-8, SB-13 and SB-17 were also analyzed for polychlorinated biphenyls (PCBs) and the SB-14 samples were also analyzed for volatile organic compounds (VOCs). Testing results are depicted in Appendix A.

- VOCs were not detected in the one fill soil sample.
- PCBs were not detected in the three fill soil samples.
- Lead was the only metal in surface fill samples that exhibited a concentration exceeding the *residential direct* contact screening level. Lead concentrations in two surface fill samples exceeded the *residential direct contact* screening level and one surface fill sample result exceeded the commercial/industrial direct contact screening level.
- PAH constituents were detected in four of the ten surface fill samples. Detected PAH constituent concentrations did not exceed *residential direct contact screening levels*.
- VOCs were not detected in the one native soil sample (SB-14).
- Metals were detected in the native soil samples; however, detected concentrations did not exceed *residential direct* contact screening levels.
- PAH constituents were not detected in the native soil samples.

In summary, additional screening investigation has confirmed various concentrations of metals and polycyclic aromatic hydrocarbons are present in surface fill soils at the site; however, lead is the only parameter that exhibits concentrations exceeding the *residential direct contact screening level*. This additional screening found no evidence of impact extending into the native soils beneath the surface fill.

SES recommended developing a remedial strategy to address the lead in surface fill soils using exposure risk. Typically, surface impact is addressed by (1) removing the impacted media, (2) placing a barrier (pavement/clean soil) over the impact, or (3) a combination of removal and isolation. At a minimum, remedial efforts should focus



on fill soils at and near sampling locations SB-2, SB-10, and SB-12 due to elevated lead concentrations at these locations exceed the *residential direct contact screening level* (See Appendix A).

4.0 SITE CHARACTERIZATION SUMMARY

This section provides general information concerning local and site-specific conditions. This information was obtained from published sources and site reconnaissance.

- The nearest surface-water feature to the site is the Salamonie River located approximately ¼ mile north of the site. Other surface water features in the site vicinity include an unnamed pond located approximately ¼ mile to the east.
- Surface water on the site or in its immediate vicinity is not a source of local drinking water. The site area receives water from the City of Portland. The site is included in a Wellhead Protection Area.
- Fill material consisting of silt, clay, sand, gravel, cinders, and brick debris was encountered at sampling locations. This surface fill material extended to depths of 2 to 4 feet, followed by silt to depths of approximately 16 to 19 feet, followed by sand to depths of 20 to 22 feet, followed by clay.
- Water bearing sand was observed at a depth of approximately 18 feet. This groundwater is not used as a potable source. The inferred groundwater flow direction was to the south-southwest. Further monitoring would be required to more accurately establish seasonal flow patterns.
- Lead concentrations in fill soil samples SB-2 (2-4), SB-10 (2-4), and SB-12 (2-4) exceed the *residential direct* contact screening level. Lead concentrations in fill soil samples SB-2 (2-4) and SB-12 (2-4) exceed the commercial/industrial direct contact screening level. Lead concentrations in fill soils are depicted in the Figures in Appendix A. Investigation found no evidence of impact extending into the native soils beneath the surface fill.
- Potentially susceptible ecological areas were not identified at or adjacent to the site.
- Lead is present in surface soil at levels that pose an exposure risk for visitors, trespassers, and transient site workers
 and maintenance personnel. Exposure pathways include ingestion/inhalation of wind-blown dust particles, direct
 contact/dermal and ingestion, and offsite transport of Chemicals of Concern (COCs) through physical tracking of
 soil by people, vehicles, or equipment.

5.0 SUMMARY OF CORRECTIVE ACTION ALTERNATIVES

Corrective Action Objective

Lead is the only parameter that exhibits concentrations exceeding the *residential direct contact screening level*. Specifically, lead concentrations in surface fill soil samples SB2 (2-4), SB10 (2-4), and SB12 (2-4) exceed screening levels.

- Given the planned redevelopment of the site as senior housing or commercial use, residential direct contact screening levels (RDCSLs) published in the Indiana Department of Environmental Management (IDEM)'s Remediation Closure Guide (RCG) would represent appropriate cleanup standards and sufficiently protective of human health. While this conclusion is subject to review by IDEM and U.S. EPA, we recommend proceeding under the premise that contamination concentrations will only need to be reduced to RDCSLs in order to obtain site closure status from IDEM.
- Based on comparison of soil testing results to RDCSLs, corrective action and remediation should focus on the areas of SB2, SB10, and SB12. See Appendix A where this affected area is shown.
- In response, removal of surface impact should be considered, or a surface barrier should be constructed to prevent direct contact with contaminants.



Remediation alternatives for metals in soil include three options. Each alternative is summarized below, along with conceptual application of isolation and extraction at the site.

- 1. No Action
- 2. Isolation
- 3. Extraction

Analysis of Corrective Action Alternatives

Corrective action alternatives were evaluated based on the following criteria.

1. Effectiveness

- a. The degree in which toxicity, mobility, and contaminant volume is expected to be reduced.
- b. The degree in which a corrective action will protect human health and the environment over time.
- c. Consideration for any adverse impact to human health and the environmental during corrective action implementation.

2. Implementation

- a. Technical feasibility of corrective action at the site.
- b. Availability of materials, equipment, and services needed to carry out corrective action.
- c. Administrative feasibility of corrective action (access agreements, permits, approvals from municipal, state, and/or federal agencies).

3. Cost

- a. Initial costs planning and implementation (contractors, laboratory, etc.)
- b. Annual operation and maintenance costs

Corrective Action Alternatives

<u>Alternative 1 – No Action</u>

If no corrective action is conducted at the site, impacted soil will remain in-place hindering redevelopment of the site. The direct contact exposure issue will remain a potential liability for the City of Portland. This alternative is the least protective of human health and the environment and will continue to be an issue until addressed.

- 1. Effectiveness: None. This alternative does not reduce the impact or exposure issues.
- 2. Implementation: Easy. No actions are required to implement this alternative.
- 3. Cost: None (\$0). This alternative does not require initial costs or annual costs.

Alternative 2 – Isolation

Isolation involves establishing engineering controls (physical barriers) to prevent direct contact with contaminated media and to prevent further migration. Following establishment of the barrier, an administrative or institutional control (IC) consisting of an enforceable legal mechanism for restricting land use and maintaining the barrier would be required.

As conceptually applied at this site, a surface barrier (pavement, membrane, clean soil layer) could be applied over the currently known affected area to address the concern of direct human contact and exposure to contaminants. Implementation would consist of applying pavement as a barrier at the affected area to prevent direct contact. Coordination with property developers would be required to ensure the affected area is properly addressed.



An operations and maintenance plan would be required to maintain the integrity of the barrier following construction. This scenario also requires an Environmental Restrictive Covenant (ERC), with the ERC prohibiting the use of the affected area for residential purposes, prohibiting the installation of water supply wells, requiring that any excavated contaminated soils be managed in accordance with all applicable federal and state laws, and requiring the barrier to be maintained.

- 1. Effectiveness: Medium. Isolation is an effective alternative as long as the barrier is properly maintained. Redevelopment plans would need to incorporate barriers to ensure exposure risk is addressed.
- 2. Implementation: Easy. The site is currently vacant.
- 3. Cost: Moderate (\$10,000 \$15,000). Initial costs would include planning, installation of barrier, and development of operations and maintenance plan. Annual costs would include maintaining area and annual inspections.

Alternative 3 – Extraction

Extraction is a process that consists of removing contaminated soil, followed by treatment or disposal. Typically, offsite disposal at a landfill facility is selected following extraction. As applied to this site, extraction would be a suitable alternative given the nature of contaminants and relatively shallow depth of contaminant occurrence.

As conceptually applied at this site, contaminated soils/debris in the currently known affected area would be removed to address the concern of direct human contact and exposure to contaminants. Fill/soil would be extracted and transported offsite to a local landfill. The excavations would be backfilled and topped with aggregate or topsoil. The surface of the site would be vegetated to prevent erosion and the topsoil/grass surface.

Given that this scenario addresses all direct contact issues, an ERC would not be required.

- 1. Effectiveness: High. Extraction would eliminate the direct contact exposure issue completely as all impacted soil would be removed from the site.
- 2. Implementation: Easy. The site is currently vacant.
- 3. Cost: Significant (\$194,000). Initial costs would include planning, soil removal, disposal, and reporting. There would be no annual costs.

Corrective Action Alternatives with Respect to Climate Change

A review of potential climate change scenarios were evaluated including increased flooding and increase in extreme weather events (tornados, blizzards, etc.). Results indicate the site is not likely to be influenced by the scenarios.

6.0 RECOMMENDATION FOR SITE REMEDY

This ABCA determined that while there may be alternatives for addressing contamination at this particular site, given the known conditions and proposed redevelopment, extraction would be the most effective corrective action alternative to achieve closure without restrictions.

Corrective Alternative	Effective	Estimated Cost
1. No Action	Impractical	\$0
2. Isolation Pavement Barrier	Yes – Includes Restrictions on Property Deed	\$10,000 - \$15,000
3. Extraction Removal/Disposal	Yes	\$194,000



A Decision Document will be provided at the end of the public comment period. It will provide additional details on the selected corrective action alternative. The document will serve as a notice to proceed with federally funded corrective action and will be provided to the public via the Information Repository, along with this ABCA and other site documents.



APPENDIX A

FIGURES

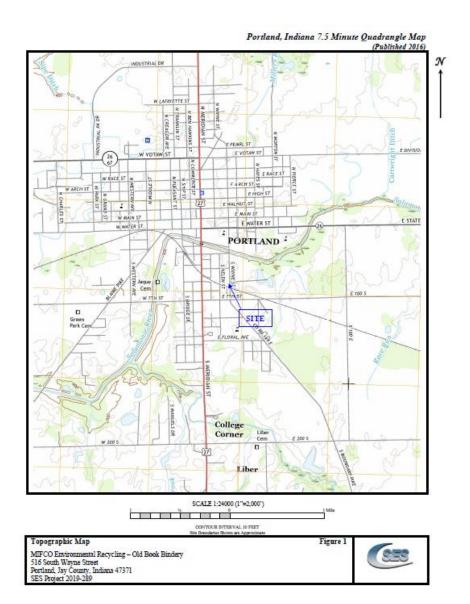




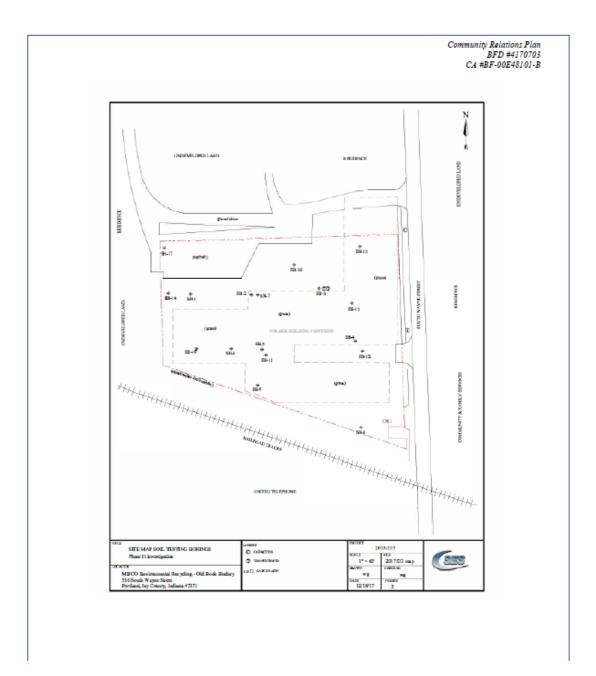


Figure 2. 2017 Aerial Photograph
Approximate Scale: 1" = 100'
MIFCO Environmental Recycling-Old Book Bindery
516 South Wayne Street, Portland, Jay County, Indiana 47371

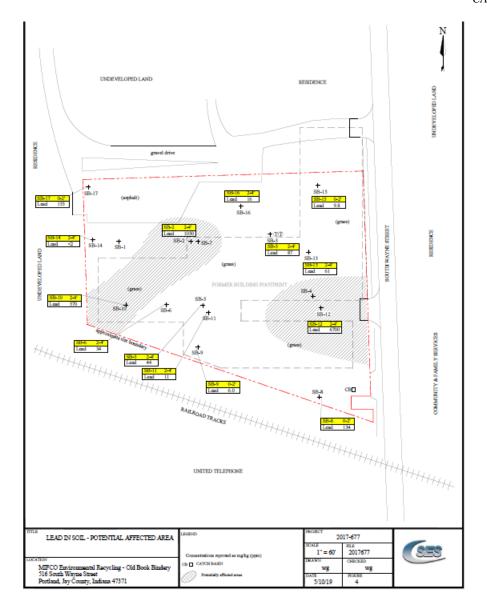
Source: Jay County GIS SES Project Number: 2019-289













								ting Result Portland, In									
	Detected Metals (mg/kg)									Detected SVOCs (mg/kg)							
Sample ID	Date Sampled	Arsanic	Barium	Chromium	Copper	Lead	Zinc	VOCs (mg/kg)	PCBs (mg/kg)	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthen e	Chrysene	Fluoranthene	Phenanthrene	Pyrane	
Residential Migra Screening Level	tion to Groundwater	5.9	1700	1.E+06		270		-	-	2.1	4.7	60	1800	1800	-	260	
Residential Direct Contact Screening Level (me/ke)		9.5	21000	<u>N4</u>		400		=	=	16	1.6	16	1600	3400	=	2500	
Commercial/Industrial Direct Contact Screening Level		30	100000	N4		800		-	-	210	21	210	21000	30000	-	23000	
SB-2 2-4	10/5/2017	<2	77	15	24	1050	89	ND	ND	< 0.39	<0.080	<0.39	< 0.39	< 0.39	<0.36	<0.39	
SB-3 2-4	10/5/2017	8.7	140	15	21	87	116	ND	ND	< 0.38	<0.078	< 0.38	< 0.38	< 0.38	<0.35	<0.38	
SB-5 2-4	10/5/2017	<3	88	6	16	44	59	ND	ND	< 0.41	0.129	<0.41	< 0.41	< 0.41	<0.38	< 0.41	
SB-6 2-4	10/5/2017	<3	104	19	21	34	64	ND	ND	< 0.43	0.538	<0.43	< 0.43	< 0.43	<0.39	<0.43	
SB-8 0-2	11/29/17	5.9	88	9.4	-	134	-	-	ND	< 0.39	0.145	< 0.39	< 0.39	< 0.39	< 0.35	< 0.39	
SB-9 0-2	11/29/17	< 2	-	-	-	6.0	-	-	-	< 0.40	< 0.081	< 0.40	< 0.40	< 0.40	< 0.36	< 0.40	
SB-10 2-4	11/29/17	< 2	76	10	-	570	-	-	-	< 0.38	< 0.078	< 0.38	< 0.38	< 0.38	< 0.35	< 0.38	
SB-11 2-4	11/29/17	< 2	-	-	-	11	-	-	-	< 0.40	< 0.081	< 0.40	< 0.40	< 0.40	< 0.36	< 0.40	
SB-12 2-4	11/29/17	< 2	-	-	-	6700	-	-	-	< 0.39	0.253	< 0.39	< 0.39	< 0.39	< 0.36	0.539	
SB-13 2-4	11/29/17	< 2	85	14	-	61	-	-	ND	< 0.40	< 0.082	< 0.40	< 0.40	< 0.40	< 0.37	< 0.40	
SB-14 2-4	11/29/17	< 2	-	-	-	< 2	-	ND	-	0.572	0.392	0.611	< 0.38	0.586	0.531	0.815	
SB-15 0-2	11/29/17	< 2	146	20	-	9.8	-	-	-	0.695	0.663	0.939	0.539	0.676	< 0.37	0.860	
SB-16 2-4	11/29/17	< 3	-	-	-	16	-	-	-	< 0.42	< 0.085	< 0.42	< 0.42	< 0.42	< 0.38	< 0.42	
SB-17 0-2	11/29/17	60	101	6.5	-	155	-	-	ND	< 0.39	< 0.080	< 0.39	< 0.30	< 0.30	< 0.36	< 0.39	



Table 2. Native Soil Beneath Fill Testing Results 516 South Wavne Street Portland. Indiana																		
516 South Wayne Street, Po Detected Metals (mg/kg)									diana	Detected SVOCs (mg/kg)								
Sample ID	Date Sam pled	Arsenic	Barium	Chromium	Copper	Lead	Zinc	VOCs (mg/kg)	PCBs (mg/kg)	Benzo(a)anthracene	Berzo(a)pyrene	Benzo(b)fluoranthene	Chrysene	Fluoranthene	Phenanthrene	Pyrene		
Residential Migration to Groundwater Screening Level		5.9	1700	1.E+06	920	270	7,500	-	-	2.1	4.7	60	1800	1800	-	260		
Residential Direct Contact Screening Level (me/ke)		9.5	21000	<u>N4</u>	4,300	400	32000	-	<u> </u>	<u>16</u>	1.6	<u>16</u>	1600	3400	:	2500		
Commercial/Industrial Direct Contact Screening Level		30	100000	NA	47,000	800	1E+05	-	-	210	21	210	21000	30000	-	23000		
SB-1 18-20	10/5/2017	12	49	16	24	7.9	73	ND	-	<0.40	< 0.082	<0.40	<0.40	<0.40	⊴0.37	<0.40		
SB-4 14-16	10/5/2017	<2	36	6	11	5.2	28.0	ND	-	< 0.38	< 0.077	<0.38	< 0.38	< 0.38	<0.34	<0.38		
SB2R/SB7 6-8	11/29/17	< 2	-	-	-	5.4	-	-	-	< 0.39	< 0.080	< 0.39	< 0.39	< 0.39	< 0.36	< 0.39		
SB-8 2-4	11/29/17	< 2	159	22	-	10	-	-	-	< 0.40	< 0.082	< 0.40	< 0.40	< 0.40	< 0.37	< 0.40		
SB-10 4-6	11/29/17	< 2	90	13	-	5.4	-	-	-	< 0.40	< 0.081	< 0.40	< 0.40	< 0.40	< 0.36	< 0.40		
SB-13 4-6	11/29/17	< 2	88	18	-	8.8	-	-	-	< 0.39	< 0.079	< 0.39	< 0.39	< 0.39	< 0.35	< 0.39		
SB-14 4-6	11/29/17	7.5	-	-	-	11	-	ND	-	< 0.41	< 0.084	< 0.41	< 0.41	< 0.41	< 0.38	< 0.41		
SB-16 4-6	11/29/17	< 2	-	-	-	6.5	-	-	-	< 0.39	< 0.080	< 0.39	< 0.39	< 0.39	< 0.36	< 0.39		
SB-17 2-4	11/29/17	2.8	97	25	-	9.0	-	-	-	< 0.46	< 0.093	< 0.46	< 0.46	< 0.46	< 0.42	< 0.46		

