7428 Rockville Road | Indianapolis, IN 46214 | 317.347.1111 office | iwmconsult.com

June 5, 2026

Ms. Tracey Michael
Indiana Brownfields Program
100 North Senate Avenue, Room 1275
Indianapolis, Indiana 46204

RE: Remediation Work Plan
Railroad Roundhouse
West Clinton Drive & Short Myrtle Street
Frankfort, Clinton County, Indiana
Indiana Brownfields Program Site No. 4070454
ACRES ID No. 145705

Dear Ms. Michael:

Industrial Waste Management Consulting Group, LLC (IWM Consulting) is pleased to submit this Remediation Work Plan (RWP) for the Railroad Roundhouse (site) to the Indiana Brownfields Program (IBP). The proposed work activities are being implemented utilizing funds from a United States Environmental Protection Agency (USEPA) 128(a) Infrastructure Investment and Jobs Act (IIJA) grant. **Figure 1** displays a topographic map illustrating the location of the site. A map displaying the pertinent site features is included as **Figure 2 – Site Map**.

The following asbestos-containing materials (ACMs) were identified within the site structures:

- Approximately 800 square feet (SF) of black, maroon, and gray 9x9 floor tile in the Yard Office Building (no longer present),
- Approximately 36-150 SF of roof shingles above drop ceilings in the Yard Office Building (no longer present),
- An unknown quantity of asphalt roofing sheeting debris pile in Outbuilding No. 3,
- Greater than 5,000 SF of asphalt roofing sheeting debris piles within the Roundhouse,
- Approximately 500 linear feet (LF) of pipe insulation in debris piles underneath overhead pipes within the Roundhouse,
- An unknown quantity of roofing material in poor/damaged condition within the Coach Shop,
- An unknown quantity of pipe insulation in poor/damaged condition within the Coach Shop,
- Approximately 115 LF of pipe insulation in poor/damaged condition within the east and west portions of the Roundhouse.
- An unknown amount of roofing felt in poor/damaged condition within the east portion of the Roundhouse, and
- Approximately 23,900 SF of roofing material debris on the floor of the Machine Shop.
- It should be noted that additional thermal system insulation (TSI) in the form of pipe insulation and/or fittings/elbows may be present within and/or underneath the debris piles.

A table summarizing IWM Consulting bulk ACM sample results has been included as **Table 1,** and the previously completed ACM surveys have been included in **Appendix A**.

The proposed field activities will consist of overseeing properly licensed asbestos abatement contractors line disposal dumpsters, abate the pipe insulation and scattered roofing debris ACMs using industry-standard practices to minimize the airborne emission of asbestos fibers, ensuring proper disposal procedures, and decontaminating the work areas.

IWM Consulting will generate an RWP Implementation Report documenting all the above-referenced remediation activities.

The following sections describe the site background and the tasks to be completed as part of this RWP. If site conditions differ from those assumed initially, the RWP will be modified accordingly.

Site History Summary

According to the earliest available Sanborn® Fire Insurance Map, the Site was owned by Toledo, St. Louis, and Kansas City Railroad (commonly referred to as the "Clover Leaf Railroad") in 1898 and contained eight structures, including a 12-stall roundhouse and turntable. Historical utilization includes locomotive repair and maintenance operations, a paint shop, and multiple machine shops associated with railroad operations. The roundhouse parcel has been vacant since the early 1990s and contains the main facility and supporting structures/outbuildings.

Historical assessment activities, including several Phase I Environmental Site Assessments (ESAs), Phase II ESAs, and Further Site Investigations, have documented subsurface contamination.

Weston Solutions, Inc. prepared a *Phase II Environmental Site Assessment Report* for the *Frankfort Roundhouse Site* on January 14, 2013, which included a facility assessment to identify locations and quantities of friable and non-friable suspected ACMs. The report identified the following ACMs:

- Yard Office Building
  - 9-inch by 9-inch floor tile
  - Roof shingles above a drop ceiling
- Outbuilding No. 3
  - Asphalt roofing sheeting found in debris pile
- Roundhouse Building
  - Asphalt roofing shingles
  - Pipe insulation in debris piles
  - Pipe insulation inside the building.

Environmental Assurance Co., Inc. (EACI) prepared an asbestos survey for the *Frankfort Railroad Roundhouse* on January 21, 2025, which identified the following ACMs:

- Coach Shop
  - Roofing Material (indicated to be significantly damaged and/or burned)
  - Pipe Insulation
- Roundhouse (east)
  - Roofing Felt (indicated to be significantly damaged and/or burned)
  - Pipe Insulation
- Roundhouse (west)
  - Pipe Insulation

IWM Consulting prepared an *Asbestos Survey* focused on debris piles within the Machine Shop and locating pipe insulation on March 12, 2026. The analytical results of the 2026 survey identified the following ACMs:

- Approximately 115 LF of pipe insulation was observed on overhead piping within the Roundhouse.
- Approximately 500 LF of detached pipe insulation/debris was observed on the Roundhouse floors underneath overhead piping.
- Approximately 23,900 SF of scattered, friable, and non-friable roofing debris was observed on the Machine Shop floor.
- Friable and non-friable roofing materials were observed in collapsed piles of roof decking within the Roundhouse (approximately 32,000 SF from footprint prior to collapse), Coach Shop (approximately 13,000 SF from footprint prior to collapse), and Outbuilding No. 3/Transformer Room (approximately 650 SF from footprint).

Remediation Goals and Proposed Remediation Activities

Asbestos is a naturally occurring mineral fiber. Due to its tensile strength and heat resistance, asbestos has been utilized in various building construction materials for insulation, roofing, floor tiles, and fire retardants. The friable nature of the ACM and proposed redevelopment suggest the following human exposure routes represent possible risks for potentially exposed populations:

The primary exposure route of concern is inhalation of asbestos fibers. The effects on the lungs resulting from the inhalation of asbestos fibers are the leading cause of asbestos-related health issues. Due to the unsecured and dilapidated condition of the Roundhouse and supporting structures, the primary risk of inhalation exists for unauthorized entry into the structure and surrounding properties during redevelopment activities.

Remediation will consist of complete abatement of all accessible ACM and disposal as regulated ACM (RACM). An Asbestos Supervisor, licensed in the State of Indiana, would be required on-site during all work hours to identify and segregate all potential ACM at the point of abatement. During abatement activities, personal air monitoring would be required to determine whether airborne asbestos fibers potentially threaten workers onsite. The asbestos mitigation contractor will complete these activities as needed.

The physical removal and off-site disposal of all accessible ACM within the Roundhouse and supporting structures would protect human health and the environment by eliminating potential exposure pathways. By adequately wetting and bagging the ACM before off-site disposal, human health and the environment will be protected during transportation to a disposal facility that accepts regulated asbestos-containing wastes. Protection against worker exposure and potential off-site exposure during abatement actions would be ensured through air monitoring, the provision of suitable personal protective equipment (PPE) for workers in areas undergoing mitigation, and proper off-site disposal. Dust suppression through wetting, physical removal, wrapping and bagging ACM waste, and off-site disposal reduces the contaminant's volume and mobility.

Asbestos removal must be conducted in accordance with all local, state, and federal laws and regulations. Industry standard abatement practices, performed by Licensed Abatement Workers under the direct supervision of a Licensed Asbestos Supervisor, would be performed. Equipment required to abate asbestos (e.g., plastic sheeting for containment, PPE, asbestos disposal bags, gloves, and hand tools) is readily available and easily acquired from local contractors. Both USEPA National Emission Standards for Hazardous Air Pollutants (NESHAP) and the Indiana Department of Environmental Management (IDEM) require a *Notification of Demolition and Renovation Operations* to be submitted to the IDEM Office of Air Quality at least 10 working days before commencing abatement activities. Per the Analysis

of Brownfield Cleanup Alternatives (ABCA), the asbestos abatement is estimated to take 5-weeks. Off-site disposal of regulated ACM waste must be transported to an approved landfill.

The observed amounts of asbestos that require mitigation are summarized on an Asbestos Mitigation Summary Sheet, included in **Appendix B**.

Health & Safety Plan

IWM Consulting will prepare and submit a Site-specific Health & Safety Plan (HASP) to the Indiana Brownfields Program Project Manager (IBP PM) before initiating remediation work activities. Task-specific Standard Operating Procedures (SOPs) and Job Safety Analysis (JSAs) are included as part of the HASP, as well as pertinent information relating to potential chemicals of concern (COCs), onsite hazards, and emergency contact (telephone numbers and directions to the nearest hospital) information. The HASP will be located on-site during all field activities and reviewed by the on-site personnel and subcontractors before initiating the fieldwork.

The previous HASP prepared by IWM Consulting for the asbestos survey and Phase I ESA has been amended to include asbestos mitigation activities and is included in **Appendix C**.

Reporting

Before initiating the fieldwork, IWM Consulting will obtain approval from the IBP project manager (PM) for this RWP, the site-specific ABCA, and the Community Relations Plan (CRP). A Remediation Completion Report will be submitted to the IBP PM after the remediation fieldwork. The Remediation Completion Report will summarize the implemented remediation activities, including the amount of asbestos mitigated, scaled maps, and waste disposal manifests.

Proposed Timeline

IWM Consulting anticipates the following timeline in relation to completing this project:

Proposed Timeline Railroad Roundhouse Frankfort, Indiana		
Task	***Estimated Timeline***	***Comments***
Submittal of Draft RWP, HASP, ABCA, QAPP	April 13, 2026	All documents will be reviewed by the IBP and USEPA
Submit Final RWP, HASP, ABCA, QAPP	April 24, 2026	Incorporates IBP & USEPA comments
State Historical Preservation Organization (SHPO) Review	April 13 - May 13, 2026	30-day review period
Submittal of Draft CRP	April 24, 2027	Dependent on remediation contract.
Public Comment Period	April 27, 2026 – May 27, 2026	Anticipated date and actual date may be different depending upon when the IBP & USEPA approve the ABCA, RWP, and CRP
Decision Memorandum	May 29, 2026	
Asbestos Abatement Activities Initiated	June 1, 2026	Estimate 5-weeks to complete asbestos abatement
Asbestos Abatement Report completed and submitted to IBP	July 15, 2026	-
Final invoice submitted to IBP	August 1, 2026	-

IWM Consulting appreciates the opportunity to provide the Indiana Brownfields Program with this RWP. If you have any questions regarding this transmittal, please contact the undersigned at 317-347-1111.

Sincerely,

IWM CONSULTING GROUP, LLC

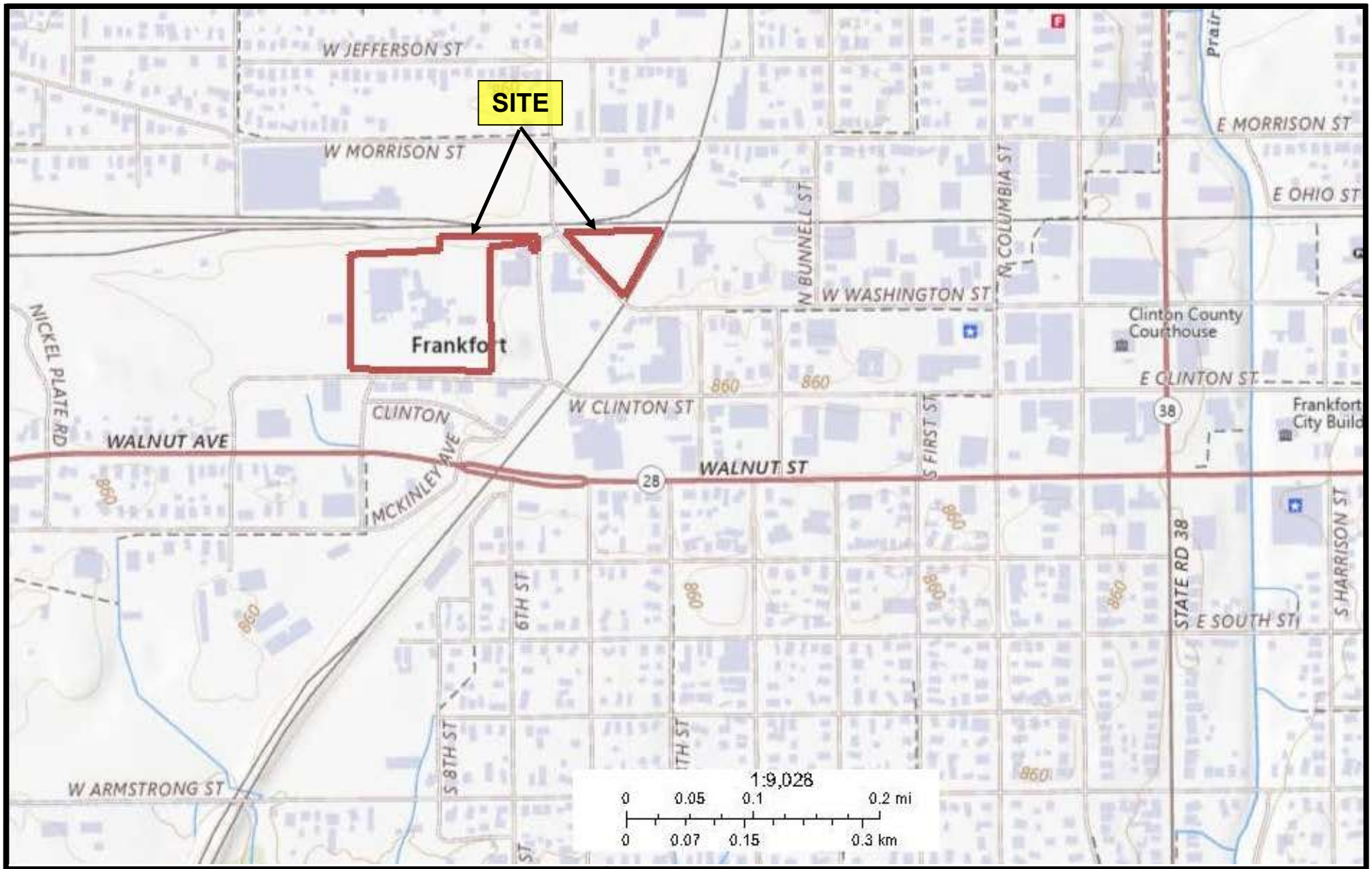
Rebecca Pitcock

Rebecca Pitcock
Associate Project Manager

Christopher D. Parks, LPG #2169
Vice President, Technical Services

cc: Ashley Green, USEPA Region 5 Project Manager

FIGURES



iWM CONSULTING GROUP

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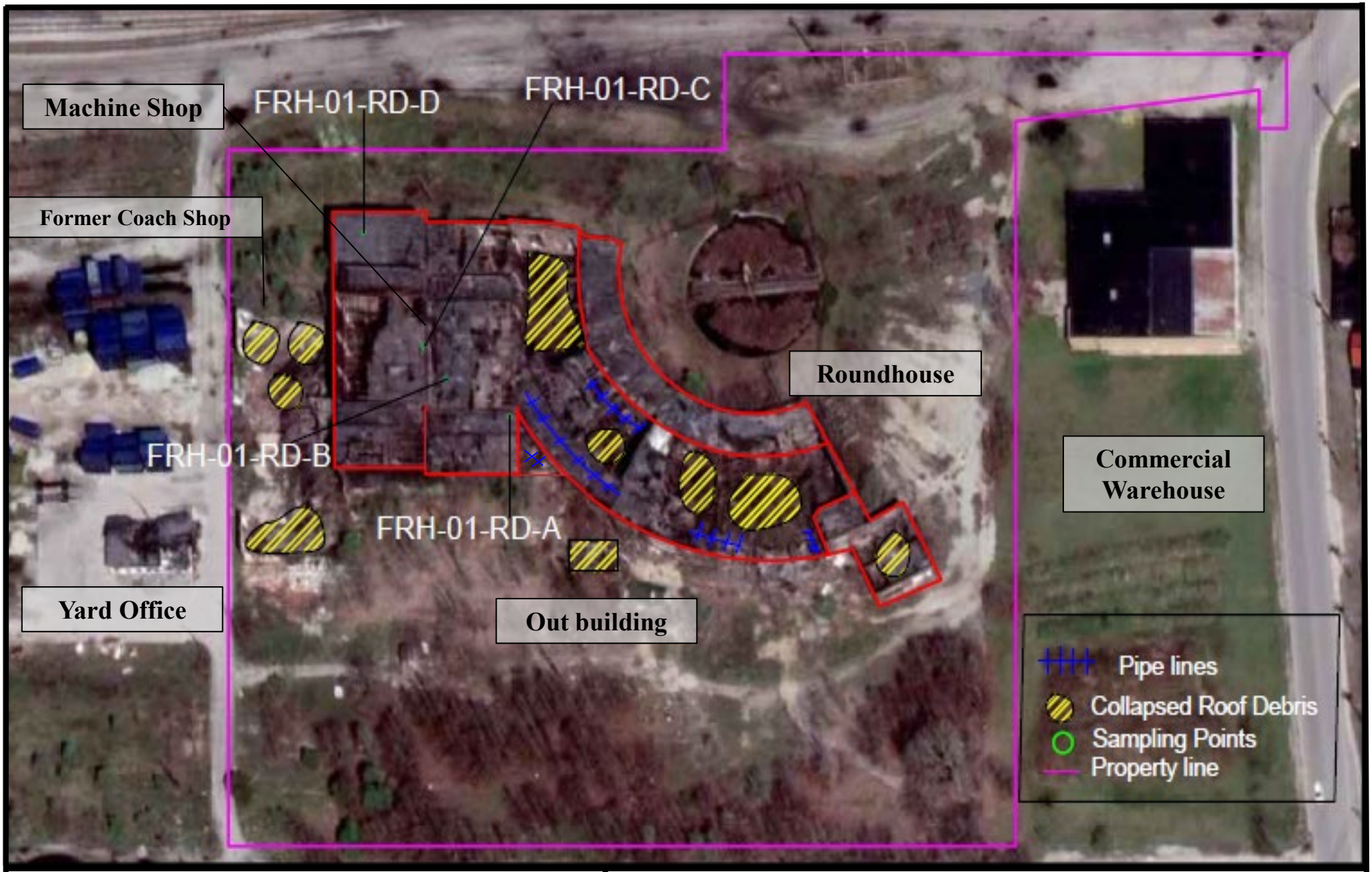
Indianapolis, IN 46214

(317) 347-1111
Fax: (317) 347-9326

Project	Task	Size	Date
IN26004	01	A	01/21/2026

TITLE **FIGURE 1 – Site Location Map**
Railroad Roundhouse
West Clinton Drive & Short Myrtle Street
Frankfort, Clinton County, Kentucky

CLIENT **Indiana Brownfield Program**
Indianapolis, Indiana



IWM CONSULTING GROUP

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Indianapolis, IN 46214

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Project	Task	Size	Date
IN26004	01	A	02/25/2026

TITLE

FIGURE 2: Site Map
Railroad Roundhouse
West Clinton Drive & Short Myrtle Street
Frankfort, Clinton County, Indiana

CLIENT

Indiana Brownfield Program
Indianapolis, Indiana

TABLES

Table 1
Summary of Bulk Asbestos Samples Analytical Results
Railroad Roundhouse
West Clinton Drive Short Myrtle Street
Frankfort, Clinton County, Indiana
Brownfields Site ID No. 4070454

Material Description	Sample ID	HA	Sample Location	ACM Class[1]	Result (% Asbestos)
Roof Debris: Tar Paper (a) and Tar (b)	FRH-01RD-A(a)	1	Machine Shop - Southeast Area Floor	F	**15% Chrysotile**
	FRH-01RD-A(a)				**15% Chrysotile**
	FRH-01RD-A(a)				**15% Chrysotile**
	FRH-01RD-A(b)				None Detected
	FRH-01RD-B(a)		Machine Shop - Central Area Floor		**10% Chrysotile**
	FRH-01RD-B(a)				**10% Chrysotile**
	FRH-01RD-B(a)				None Detected
	FRH-01RD-B(a)				None Detected
	FRH-01RD-B(b)				None Detected
	FRH-01RD-C(a)		Machine Shop - Northeast Area Floor		**20% Chrysotile**
	FRH-01RD-C(a)				None Detected
	FRH-01RD-C(a)				**20% Chrysotile**
	FRH-01RD-C(a)				**20% Chrysotile**
	FRH-01RD-C(b)				None Detected
	FRH-01RD-D(a)		Machine Shop - Northwest Area Floor		**15% Chrysotile**
	FRH-01RD-D(a)				**25% Chrysotile**
	FRH-01RD-D(a)				**30% Chrysotile**
	FRH-01RD-D(b)				None Detected

Survey Date: February 24, 2026
[1]Asbestos Containing Material Classification: Friable (F), Category I (I), Category II (II).
HA - Homogeneous Area
Samples analyzed at EMSL Analytical in Indianapolis, IN using polarized-light microscopy (PLM) method (EPA 600/R-93/116)

APPENDIX A

PREVIOUS ACM SURVEYS

Asbestos Bulk Sampling Records
Frankfort Railroad Roundhouse
S.R. 28 & Boomer Street
Frankfort, IN 46041
December 31, 2024

HA	Sample ID#	Material Description	Material Location	Condition	Asbestos Type/%
1	1	Roofing Material	Coach Shop	Damaged	40% Chrysotile
	2				
	3				
2	4	Pipe Insulation	Coach Shop	Damaged	50% Chrysotile
	5				
	6				
3	7	Pipe Insulation	Coach Shop	Damaged	50% Chrysotile
	8				
	9				
4	10	Fiber Board	Coach Shop	Damaged	None Detected
	11				
	12				
5	13	Corrugated Siding	Machine Shop	Damaged	None Detected
	14				
	15				
6	16	Pipe Insulation	Roadhouse - east	Damaged	60% Chrysotile
	17				
	18				
7	19	Pipe Insulation	Roadhouse - west	Damaged	60% Chrysotile
	20				
	21				
8	22	Roofing felt	Roadhouse - east	Damaged	15% Chrysotile
	23				
	24				
	22a	Roofing tar		Damaged	None Detected
	23a				
	24a				
9	25	Plaster Skim Coat	Roadhouse wall	Damaged	None Detected
	26				
	27				

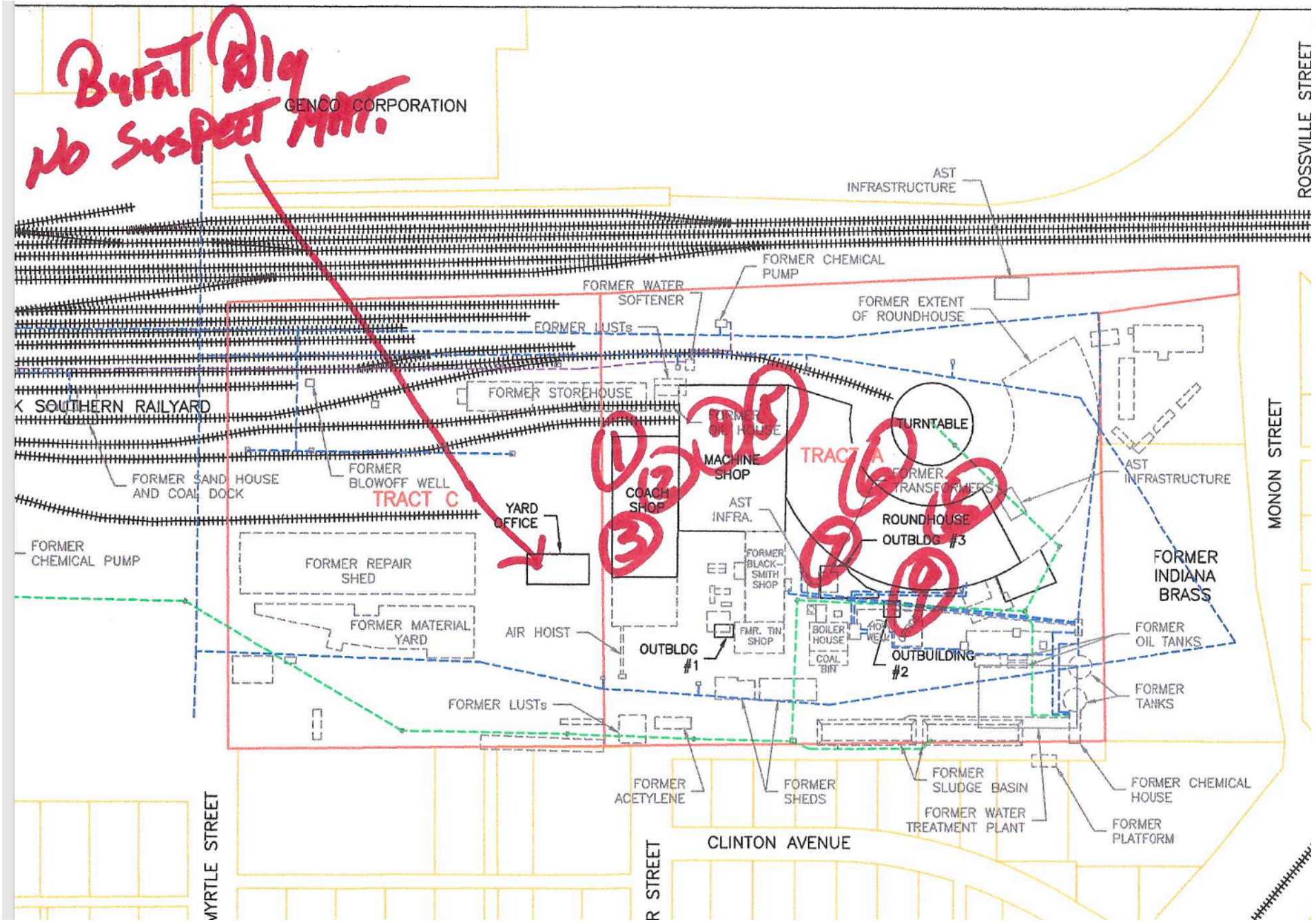

Burial Bldg
No Suspect Matl.
GENCO CORPORATION
ROSSVILLE STREET
AST INFRASTRUCTURE
FORMER CHEMICAL PUMP
FORMER WATER SOFTENER
FORMER LUSTs
FORMER EXTENT OF ROUNDHOUSE
FORMER STOREHOUSE
SOUTHERN RAILYARD
FORMER SAND HOUSE AND COAL DOCK
FORMER BLOWOFF WELL
TRACT C
YARD OFFICE
COACH SHOP
MACHINE SHOP
TRACT A
TURNTABLE
FORMER TRANSFORMERS
AST INFRA.
ROUNDHOUSE
OUTBLDG #3
AST INFRASTRUCTURE
MONON STREET
FORMER CHEMICAL PUMP
FORMER REPAIR SHED
FORMER BLACK-SMITH SHOP
FORMER INDIANA BRASS
FORMER MATERIAL YARD
AIR HOIST
OUTBLDG #1
FMR. TIN SHOP
BOILER HOUSE
COAL BIN
OUTBUILDING #2
FORMER OIL TANKS
FORMER TANKS
FORMER LUSTs
FORMER ACETYLENE
FORMER SHEDS
FORMER SLUDGE BASIN
FORMER WATER TREATMENT PLANT
FORMER CHEMICAL HOUSE
FORMER PLATFORM
CLINTON AVENUE
MYRTLE STREET
R STREET

Table 3-5
Asbestos Analytical Sampling Results
Frankfort Roundhouse Site
Frankfort, Clinton County, Indiana

Building	Material Sampled	Appearance	Location	Sampling Location	Quantity Estimate	Sample Identification	Asbestos Components
Office Yard	9x9 Inch black, maroon, and gray floor tile	Black, maroon, and gray with white speckles	Includes office nos. 1, 2, and 3	Office no. 1	~800 SF	FR-ACM01-101112-A	Chrysotile 1-5%
				Office no. 2		FR-ACM01-101112-B	NA
				Office no. 3		FR-ACM01-101112-C	NA
				Office no. 1		FR-ACM01-101112-D	NA
	Mastic below 9x9 inch black, maroon, and gray floor tile	Black	Includes office nos. 1, 2, and 3	Office no. 1	~800 SF	FR-ACM01-101112-AM	ND
				Office no. 2		FR-ACM01-101112-BM	ND
				Office no. 3		FR-ACM01-101112-CM	ND
				Office no. 1		FR-ACM01-101112-DM	ND
	9x9 Pink floor tile	Pink with white speckles - May be replacement tiles	Includes office nos. 1, 2, and 3	Office no. 1	~20 SF	FR-ACM01-101112-E	ND
				Office no. 2		FR-ACM01-101112-F	ND
	Window caulk	White with black surface	8 Exterior windows	Southwest window	96 LF	FR-ACM02-101112-A	ND
				East window		FR-ACM02-101112-B	ND
				Southeast window		FR-ACM02-101112-C	ND
	2x4 Foot white ceiling tile	White	Office nos. 1 and 2	Office no. 1	~530 SF	FR-ACM03-101112-A	ND
				Office No. 2		FR-ACM03-101112-B	ND
	2x2 Foot white ceiling tile	White	Office no. 3	Office No. 3	~270 SF	FR-ACM04-101112-A	ND
				Office No. 3		FR-ACM04-101112-B	ND
				Office No. 3		FR-ACM04-101112-C	ND
	Paper board insulation in fire doors	Corrugated cardboard appearance	Includes interior of two confirmed doors and 10 unconfirmed	East entrance	~300 SF	FR-ACM05-101112-A	ND
				Men's restroom toilet door		FR-ACM05-101112-B	ND
				East entrance		FR-ACM05-101112-C	ND
	Vinyl base toe board (base board)	Brown or black	Includes office no. 2, locker room, open area, men's room, and storage room no. 2	Office no. 2	~150 LF	FR-ACM06-101112-A	ND
				Locker room		FR-ACM06-101112-B	ND
				Open area		FR-ACM06-101112-C	ND
	Mastic behind vinyl base toe (base board)	Tan glue	Includes office no. 2, locker room, open area, men's room, and storage room no. 2	Office no. 2	~150 LF	FR-ACM06-101112-AM	ND
				Locker room		FR-ACM06-101112-BM	ND
				Open area		FR-ACM06-101112-CM	ND

Table 3-5
Asbestos Analytical Sampling Results
Frankfort Roundhouse Site
Frankfort, Clinton County, Indiana

Building	Material Sampled	Appearance	Location	Sampling Location	Quantity Estimate	Sample Identification	Asbestos Components
Office Yard (Continued)	Dry wall	White chalky material	Within interior wall between office nos. 2 and 3	Office no. 2/no. 3 interior wall	~136 SF	FR-ACM07-101112-A	ND
				Office no. 2/no. 3 interior wall		FR-ACM07-101112-B	ND
				Office no. 2/no. 3 interior wall		FR-ACM07-101112-C	ND
	Roof shingles (interior roofing shingles above drop ceiling)	Black with brown paper cover	Utility room and potential for closet and women's bathroom	Utility room	Between 36 and 150 SF	FR-ACM08-101112-A	1-5% Chrysotile
						FR-ACM08-101112-B	NA
	Ceiling insulation	Tannish brown with brown paper cover	Utility room and potential for closet and women's bathroom	Utility room	Between 36 and 150 SF	FR-ACM09-101112-A	ND
	Particle board	White with brown	Exterior wall of north entrance	North entrance	~60 SF	FR-ACM10-101112-A	ND
				North entrance		FR-ACM10-101112-B	ND
	Particle board	Tan	Interior wall of office no. 1	Office no. 1 - east wall	~600 SF	FR-ACM11-101112-A	ND
				Office no. 1 - south wall		FR-ACM11-101112-B	ND
	A/C caulk	White	Office no. 2	Office no. 2 - A/C unit	1 A/C Unit	FR-ACM27-101112-A	ND
	Asphalt roofing shingles	Black	Roof	Roof	~1,900 SF	FR-ACM23-101112-A	ND
Outbuilding No. 1	No ACM Identified						
Outbuilding No. 2	Transite	Green corrugated debris	Debris pile in large room	Debris pile in large room	3 LF x 6 in (one piece)	FR-ACM12-101112-A	ND
	Ceiling insulation	Tan fibrous and brown	Ceiling of small room	Ceiling of small room	72 SF - Heavily damaged and in debris	FR-ACM13-101112-A	ND
	Window caulk	White	Exterior window frame	Two south facing windows	24 LF	FR-ACM14-101112-A	ND
	Asphalt roofing shingles	Green and black	Roof	Roof	~420 SF	FR-ACM22-101112-A	ND
				Roof		FR-ACM22-101112-B	ND

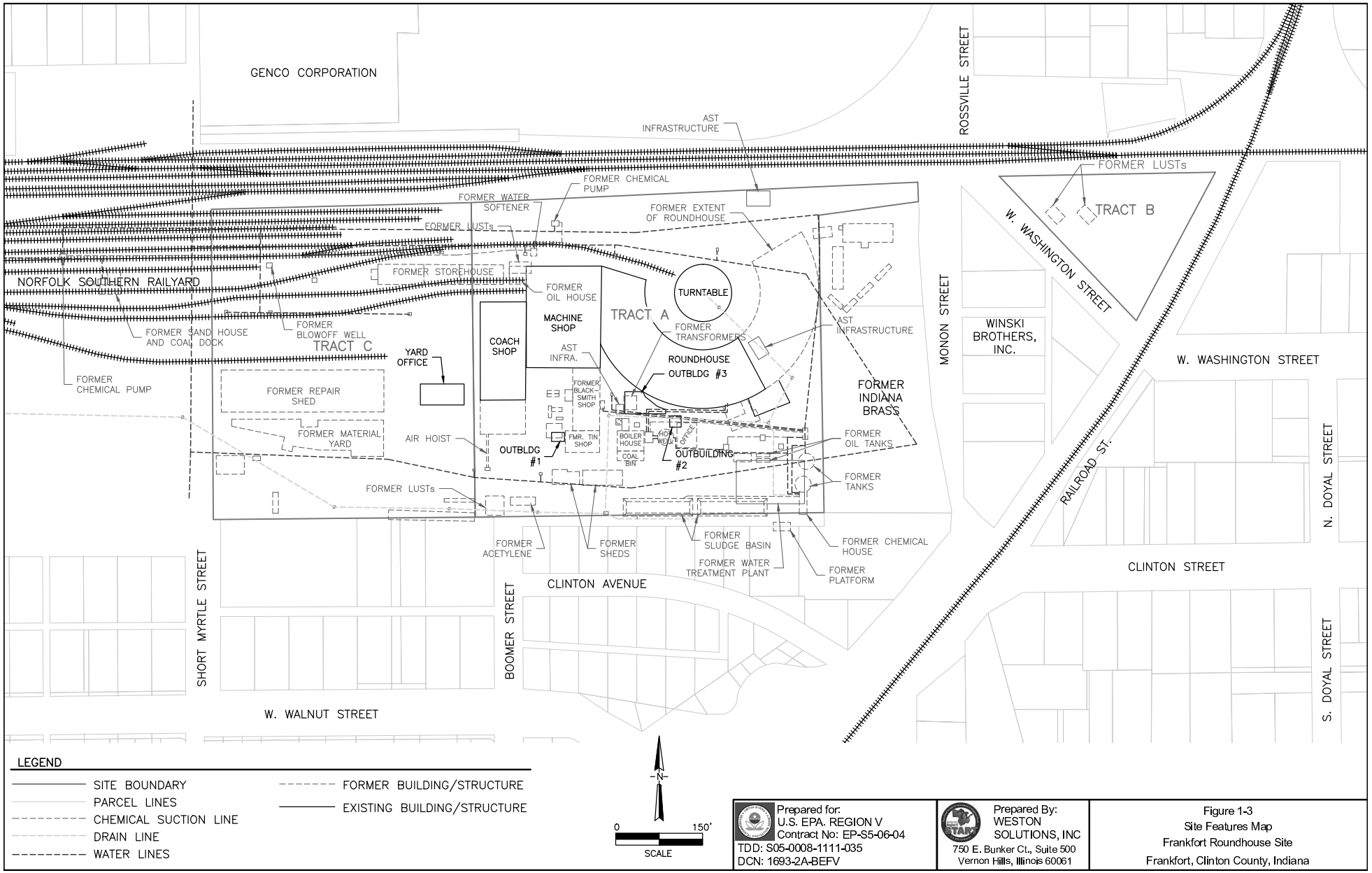
Table 3-5
Asbestos Analytical Sampling Results
Frankfort Roundhouse Site
Frankfort, Clinton County, Indiana

Building	Material Sampled	Appearance	Location	Sampling Location	Quantity Estimate	Sample Identification	Asbestos Components
Outbuilding No. 3	Wall plaster	White concrete-like	Surface of brick interior walls in large room	North wall	>5,000 SF	FR-ACM20-101112-A	ND
				Southeast wall		FR-ACM20-101112-B	ND
	Asphalt roofing sheeting	Black thin sheeting	Debris pile in large room	Debris pile in east room	Unknown	FR-ACM21-101112-A	5-10% Chrysotile
				Debris pile in east room	Unknown	FR-ACM21-101112-B	NA
Roundhouse	Corrugated particle board	Dark brown	Exterior of south roundhouse Wall	Debris pile on south side of roundhouse	>2,000 SF	FR-ACM15-101112-A	ND
				Debris pile on south side of roundhouse		FR-ACM15-101112-B	ND
				Debris pile on south side of roundhouse		FR-ACM15-101112-C	ND
	Corrugated fibrous board	Light tan	Exterior of south roundhouse Wall	Debris pile on south side of roundhouse	>5,000 SF	FR-ACM16-101112-A	ND
				Debris pile on south side of roundhouse		FR-ACM16-101112-B	ND
				Debris pile on south side of roundhouse		FR-ACM16-101112-C	ND
	Asphalt roofing shingles	Black	Exterior of south roundhouse Wall - debris pile	Debris pile on south side of roundhouse	>5,000 SF	FR-ACM17-101112-A	5-10% Chrysotile
				Debris pile on south side of roundhouse		FR-ACM17-101112-B	NA
				Debris pile on south side of roundhouse		FR-ACM17-101112-C	NA
	Particle board	Brown	Exterior of south roundhouse wall - Adjacent to corrugated particle board	Debris pile on south side of roundhouse	>5,000 SF	FR-ACM18-101112-A	ND
	Pipe insulation	White	Exterior and interior of roundhouse building	Debris piles below exterior roundhouse pipes on south side	~500 LF	FR-ACM19-101112-A	10-15% Chrysotile
	Wall plaster	White	Brick interior walls in roundhouse building	South wall	~1,000 SF	FR-ACM24-101112-A	ND
				Southeast wall		FR-ACM24-101112-B	ND
				Debris pile		FR-ACM24-101112-C	ND

Table 3-5
Asbestos Analytical Sampling Results
Frankfort Roundhouse Site
Frankfort, Clinton County, Indiana

Building	Material Sampled	Appearance	Location	Sampling Location	Quantity Estimate	Sample Identification	Asbestos Components
Roundhouse (Continued)	Corrugated ceiling panels	Red and black from roofing	Debris pile in round room	Debris pile	Undetermined - Could be entire roof area	FR-ACM25-101112-A	ND
				Debris pile		FR-ACM25-101112-B	ND
	Pipe insulation	White	Debris pile in round room	Debris pile	Undetermined - Within debris piles	FR-ACM26-101112-A	10-15% Chrysotile

Notes:
Shaded cells indicate that asbestos was detected
LF = Linear feet
NA = Sample was not analyzed due to detection in preceding material sample
ND = Not detected
No. = Number
SF = Square feet



Prepared for:
U.S. EPA. REGION V
Contract No: EP-S5-06-04
TDD: S05-0008-1111-035
DCN: 1693-2A-BEFV

Prepared By:
WESTON SOLUTIONS, INC
750 E. Bunker Ct., Suite 500
Vernon Hills, Illinois 60061

Figure 1-3
Site Features Map
Frankfort Roundhouse Site
Frankfort, Clinton County, Indiana

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APPENDIX B

ASBESTOS MITIGATION SUMMARY SHEET

Table 1
ACM Estimate Work Sheet
Frankfort Railroad Roundhouse
Frankfort, Indiana

Material Description	Locations	Amount	Estimated Cost
Mobilization/Demobilization	Project	1	
TSI pipe insulation (air cell/mag), include fittings/elbows	Roundhouse overhead pipes	~115 LF	
	Roundhouse, under pipes, debris on the floor	~ 500 LF	
Roofing material debris	Debris on the floor of the former Machine Shop	~23,900 SF	
Onsite Abatement Team to assist Contractor, including lining dumpsters, abating any TSI exposed during loading	Entire site during redevelopment	Assume 4 weeks onsite	
Rolloff Dumpsters/ Contractor will load mixed ACM/debris into lined containers	Entire site during redevelopment	20 estimated	*

*Price to be submitted from the Site Contractor (Hoosier Heartland Dirtworks, LLC)

APPENDIX C

HEALTH AND SAFETY PLAN

SITE HEALTH AND SAFETY PLAN

PREPARED FOR:

Railroad Roundhouse
West Clinton Drive & Short Myrtle Street
Frankfort, Clinton County, Indiana
Brownfield Site #4070454

PREPARED BY:

IWM Consulting Group, LLC
7428 Rockville Road
Indianapolis, Indiana

April 2026	Ongoing
(Project Start Date)	(Project End Date)

Approved By:

Chris Parks	Project Manager		April 10, 2026
(Print Name)	(Title)	(Signature)	(Date)
Greg Scarpone	H&S Coordinator		April 10, 2026
(Print Name)	(Title)	(Signature)	(Date)

Purpose: This document defines the Health and Safety considerations for the on-site management activities by IWM personnel and contractors. This document is required by IWM policies and programs and OSHA 29 CFR 1910.120. The basic requirements for the health and safety of the project workers are delineated in the IWM Health and Safety procedures. All personnel on-site will be informed about the pertinent sections of the Health and Safety Plan.

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APPENDICES

I. TYPE OF PROJECT

Check appropriate categories (more than one may apply):

□ Tank Decontamination	□ Geophysical/GPR Survey/Utility Locating
□ Tank Excavation and Removal	□ ORC Application
□ Soil Excavation	□ Drilling/Soil Sampling
□ Filter Press Operation/Dewatering	□ Groundwater Gauging/Sampling
□ Drum Sampling & Management	□ Well Abandonment
□ Other	□ Other – System Operation and Maintenance
■ Asbestos Abatement	

A. Scope of Work

(Detailed description of project, including types of major equipment to be used, quantities of material to be managed, contaminants, number of specific job locations, (i.e., number of tanks, number of wells, sumps, etc.).

1) Conduct asbestos removal

The work activities will be completed on-site.

Appendix A contains a site map(s), which indicates the subject site location, facility layout, work zones, evacuation routes, and other pertinent information for this HASP.

B. Site Location Information

The Site is located at West Clinton Drive and Short Myrtle Street in Frankfort, Clinton County, Indiana. The Site is irregularly shaped and contains a total of approximately 7.8 acres on two non-contiguous parcels. According to the Clinton County Recorder's Office property cards (**Attachment A**), the parcel numbers are 12-10-10-151-002.000-021 (Roundhouse Parcel: 6.93-acres) and 12-10-10-175-001.000-021 (East Parcel: 0.88-acres). The Site is situated in a commercially developed area approximately 0.5 miles west of the Clinton County Courthouse. The Site is surrounded by commercial structures, with rail lines bordering the Site to the north.

Site History

According to the earliest available Sanborn® Fire Insurance Map, the Site was owned by Toledo, St. Louis, and Kansas City Railroad (commonly referred to as the "Clover Leaf Railroad") in 1898 and contained eight (8) structures, including a 12-stall roundhouse and turntable. Historical utilization includes locomotive repair and maintenance operations, a paint shop, and multiple machine shops associated with railroad operations. The roundhouse parcel has been vacant since the early 1990s and contains the main facility and supporting structures/outbuildings.

Area of Concern

Pertinent Site features and the adjoining properties are depicted in **Figure 2-– Site Vicinity Map**. Based upon the Scope of Work provided in the IBP RFP, the following potential contaminant of concern will be characterized during the upcoming Site assessment activities:

- Asbestos

Neighborhood Description

The area surrounding the subject site can be characterized as a mixed residential/commercial area, located approximately 0.5 miles west of the Clinton County Courthouse.

North of site:	Rail lines border the Site to the north.
East of site:	A commercial warehouse, vacant land, and scarp recycling facility are located in between the Roundhouse Parcel and the East Parcel. A lumber yard is located east of the East Parcel.
South of site:	A home improvement store, Gillman Home Center, is located south of the East Parcel. Commercial garage/storage structures and a Dollar General are located south of the Roundhouse Parcel.
West of site:	Rail spurs are located on the property west of the Roundhouse Parcel.

Topography and Site Access

The site has a generally flat topography. A review of the United States Geological Service (USGS) *Frankfort, Indiana Topographic Quadrangle Map* (USGS 2019) indicated ground surface at the site has an elevation of approximately 860 feet above mean sea level (MSL). Regionally, the ground surface generally slopes to the southeast in the direction of Prairie Creek. A copy of a portion of a topographic map, including the subject property location, is provided in **Figure 1 – Site Location Map**.

Additional Information

The following key documents are available for the subject site:

- *Phase II Environmental Site Assessment Report, Weston Solutions Inc., January 14, 2013.*
- *Phase I Environmental Site Assessment, SME, April 3, 2015.*
- *Phase I Environmental Site Assessment Update, SME, July 24, 2015.*
- *Phase II Environmental Site Assessment, SME, October 22, 2015.*
- *FSI Investigation, SME, April 11, 2016.*
- *Phase I Environmental Site Assessment, SME, April 20, 2016.*
- *BRPP Comfort Letter, IDEM, July 27, 2016.*
- *Site Investigation Report, AECOM, February 2022.*
- *Further Site Investigation Work Plan, AECOM, May 2022.*

II. HAZARD EVALUATION

A. Physical Hazards (trenches, utilities, noise, biological, etc.) Check appropriate categories (more than one may apply):

□	Auto and Plant Traffic	□	Uneven Terrain
■	Slip and Fall	□	Trenches
□	Overhead Utilities	□	Noise
□	Underground Utilities	□	Explosion
□	Biological	□	Drilling Equipment
■	Heavy Equipment Use		

Appendix B contains a hazard evaluation for each task that summarizes work tasks, associated risks and hazards, and control measures.

B. Chemical Hazards

Based upon the IWM Consulting Phase I ESA and subsequent discussions with Indiana Brownfield Program (IBP) Project Manager, the potential contaminants listed below will be characterized during the upcoming Site assessment activities. The primary hazard of each contaminant is also listed below.

Tasks: Asbestos Sampling					
Potential Chemicals of Concern	**Possible Affected Media**	**Exposure Routes[1]**	**PELs[2]**	**IDLHs[3] (ppm)**	**Simple Risk Analysis**
Asbestos	Building Materials	Inh, Ing	0.1 fiber /cm^3	NA	Low

1 Inhalation (Inh) and ingestion (Ing)
2 OSHA Permissible Exposure Limits (PELs) in ambient air per 8-hour work day per 40-hour week, unless otherwise noted. PELs obtained from MSDS and/or online sources. Recommended Exposure Limits (REL), or Threshold Limit Value (TLV) values used where noted.
3 NIOSH Immediately Dangerous to Life or Health Concentration (IDLH).
4 NA: Not Applicable

Common Symptoms of exposure include: Irritated eyes and/or skin, headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; and/or liver injury.

First aid steps following exposure include: irrigate and/or water flush immediately, soap wash immediately, seek medical attention immediately, move to fresh air and/or artificial respiration (as applicable).

Appendix C contains copies of Material Safety Data Sheets (MSDSs) and/or other public health statements for the expected Contaminants of Concern (COC).

C. Medical Monitoring

Has the entire crew received baseline physicals? □ YES ■ NO
If No, why not? Not applicable.

List any special tests required and frequency: None required.

III. MANPOWER

A. IWM Personnel Requirements

Crew Personnel	Crew Size	Names
Project Manager/Inspector	1	Rebecca Pitcock
H&S Officer	1	Greg Scarpone
Geologist/Scientist/Inspector	0	
Field Technicians	0	
Other	NA	

IV. EQUIPMENT

A. Check Equipment Needed Below. More than one may apply.

- □ Drill Rig
- ■ Excavators
- ■ Skid Loaders
- □ Vacuum Tanker
- □ Torches
- □ Jackhammer
- □ Pumps
- □ Other: (Describe below)

_____

_____

- □ Geoprobe Rig
- ■ Rolloff Transportation Trucks
- □ Fork Trucks
- ■ Man Lift
- □ Chop Saws/Chain Saws
- □ Compressor/Compressed Air

Is any special training required? 40-Hour OSHA/ Asbestos Building Inspector License

Is any task being performed for which an SOP is in place? ■ Yes □ No □ N/A

If YES, list SOP training below:

Task	Applicable?	Training Required?	Training Completed?
Asbestos Survey	Yes	Yes	Yes
Asbestos Abatement	Yes	Yes	Yes
Confined Space Entry	No		
Grounding & Bonding	No		
Line Breaking	No		
Lockout/Tagout/Tryout	No		
Labelling	No		
Pressure Washer Operation	No		
Container Management	No		
Heavy Equipment Decontamination	No		
Scrap Metal Decontamination	No		
PCB Wipe Sampling	No		
Manifesting Procedures	No		
Vacuum Truck Operation	No		
Operation of Squeeze Filter Presses	No		
Project File Management	No		
Scaffolding	No		
Mundutank Setup	No		

V. LEVELS OF PERSONAL PROTECTION

A. Special protective equipment for each level of protection is as follows:

Level A

- Fully-encapsulating chemical resistant suit
- Pressure demand atmosphere supplying respirator
- Inner chemical resistant gloves
- Radio communications
- Chemical resistant safety boots/shoes
- Disposable gloves and boot covers
- Cooling Unit[1]
- Coveralls[1]
- Hard hat[1]

Level B

- Chemical resistant, protective clothing
- Pressure demand atmosphere supplying respirator
- Inner and outer chemical resistant gloves
- Radio communications
- Chemical resistant safety boots/shoes
- Disposable and boot covers[1]
- Long cotton underwear[1]
- Coveralls[1]
- Hard hat, face shield[1]

Level C

- Chemical resistant, protective clothing
- Full/half face piece air purifying respirator
- Inner and outer chemical resistant gloves
- Chemical resistant safety boots/shoes
- Disposable gloves and boot covers[1]
- Escape mask[1]
- Long cotton underwear[1]
- Coveralls[1]
- Hard hat, Face shield[1]

Level D

- Inner and outer chemical resistant gloves
- Chemical resistant safety boots/shoes
- Safety glasses or goggles
- Hard hat
- Ear plugs[1]
- Escape mask[1]
- Coveralls[1]
- Face shield[1]

[1] Optional.

Safety boots are required on all sites, without respect to the work being performed. Hardhats are required during well installation, construction, drilling and when other overhead hazards are present. Earplugs are required during drilling, jackhammering, and during other such loud activities. In addition, safety glasses and safety vests are advised (and may be required) during gauging and/or sampling activities.

B. Check equipment needed below.

Complete the following form for each work task. Note: this page may be duplicated for separate work tasks.

1. Task Description: Asbestos Abatement

2. Level of Protecting Required: □ Level A □ Level B ■ Level C □ Level D

3. Respiratory Protection Required:

Air Purifying		Supplied Air	
■	Full/Half Mask (circle one if applicable)	□	SCBA
	Cartridge Type (e.g., magenta for asbestos)	□	Airline
□	Dust Mask	□	Escape Bottle
■	Respiratory Protection: Half-face respirator in work area		

Breathing air certificate on file? ■ Yes □ No □ N/A
If No, breathing air tested? □ Yes □ No ■ N/A

Explain: No mask will be required, the materials sampled will be wetted sufficiently as to not produce airborne fibers prior to sampling

4. Protective Clothing Required:

■	Tyvek	■	Hooded	■	Sewn Seam
□	Polytyvek	□	Hooded	□	Sealed Seam
□	Saranex/CPF	□	Hooded	□	Strapped Seam
□	Proshield (polypropylene)	□	Hardhat	□	Reflective Safety Vest[1]
□	Chemical Resistant Goggles	□	Face Shield	■	Safety Glasses[1]
■	Tyvek Booties	□	PVC Booties	□	Poly Booties
□	Latex (Nuke) Booties	□	Rubber Slush Booties	□	Leather Boots[1]
■	Steel Toed Footwear[1]	□	Silvershield Gloves	□	Viton Gloves
□	Butyl Rubber Gloves	□	PVC Gloves	□	Neoprene Gloves
■	Nitrile Gloves	□	Latex Gloves	□	Cotton Gloves
□	Leather Gloves (For Manual Handling of Equipment)			□	Ear Plugs/Ear Muffs[1]
□	Other (e.g., Outer Gloves): _____				

[1] Item may be required by facility.

VI. CONTAMINATION REDUCTION AND DECONTAMINATION

A. Work Zones

Describe how work zone will be set up and maintained. The work area will be defined as the area within and immediately surrounding the former roundhouse and outbuildings.

B. Decontamination Procedures

Personnel and equipment leaving an identified Exclusion Zone (see section VI. A. above), shall be thoroughly decontaminated.

The standard Level "C" decontamination protocol shall be used with the following decontamination approach:

a. Wash equipment, gloves, and/or boot covers using decon wash and water rinse
b. Remove securing tape from wrists and ankles
c. Remove disposable Tyvek/or coverall (without boots)
d. Remove boot covers and/or outer gloves
e. Remove respirator face mask
f. Remove inner gloves

For Level "D" dress-down, follow steps a, d, and f (as applicable to the equipment used/worn).

Describe personnel/equipment decontamination procedures if the procedures described above are not used or do not apply. Disposable sampling equipment and/or gloves will be removed and disposed of in a plastic trash bag.

Describe equipment decontamination procedure. Non-disposable equipment will be cleaned with an alconox wash, followed by a water rinse and/or followed by a DI water rinse (if applicable).
Describe how contaminated equipment is disposed. Disposable sampling equipment and/or gloves will be removed and disposed of in a plastic trash bag.

Describe storage of usable protective equipment. Stored in gear bags.

Describe laundering procedure for uniforms. Not Applicable.

Is a locker room facility provided? □ Yes ■ No

Will a decon trailer be on-site? □ Yes ■ No If NO, how will crew change clothing and shower?
At home after shift.

Describe provisions for drinking water. Available locally or brought on-site in a cooler.

Describe provisions for restrooms. If not available on-site, will use local vendors.

VII. SAFETY EQUIPMENT

Check the safety equipment items that will be available for, or on, the project.

□ Safety Showers	□ Emergency Oxygen Mask	■ Portable Eyewash
■ First Aid Kit	□ Barriers/Cones	□ Fume Hood
□ Warning Signs	□ Air Horns	□ Barrier Tape
□ Lifeline/Harness	□ Decon Trailer	■ Decon Equipment
□ Extraction Devise	□ Portable Lighting	□ Ladders
□ Portable Ventilation Units	□ Air Horns	□ Ground/Bonding Cables

□ Spill Control Supplies (list):

■ Fire Extinguishers (types & sizes): 5 – 10 lb. ABC (In Vehicle)

□ Other (list):

VIII. COMMUNICATION SYSTEMS

Describe on-site communication systems. Telephone, verbal communications, and hand signals.

IX. AMBIENT AIR MONITORING

The following equipment will be used on-site for air monitoring.

□ Radiation Meter	□ Combustible Gas	□ Oxygen Meter
□ Colorimetric Tubes	□ Photo-Ionization Detector	□ Flame-Ionization Detector
□ OVA/FID	□ H_2S Monitor	□ CO Monitor

□ Dust Monitor (type):

■ Personal Monitors (describe):

■ Ambient Air Monitoring Not Required For This Task

Frequency of air monitoring. ■ Continuously □ Hourly □ Twice daily □ N/A

Describe methodology and frequency of air monitoring. Personal air monitoring, continuous while in work area

Calibration. As required by manufacturer

List of air permits required. Not applicable

Guidelines for Air Monitoring Hazards			
Monitoring Instrument	**Potential Hazards**	**Measurement Level**	**Action**
GCI[1] - % LEL[2] of Combustible Gases	Explosive atmosphere in immediate work area	< 10% LEL	Investigate with caution
		> 10% LEL	Explosion hazard, leave area immediately
GCI[1] - % Oxygen	Oxygen Concentration	< 19.5% [3]	Monitor while wearing SCBA [3]
		19.5% - 22.0%	Continue investigation with caution
		> 22.0%	Discontinue investigation monitoring, fire hazard potential, consult H&S Coordinator
Photo-ionization (Hnu)/ Flame-ionization (OVA) meter readings of breathing zone	Volatile Contaminants	Background to 100 ppm	Level D protection [4, 5]
		100 to 300 ppm over background	Level C protection [4, 5]
		300 to 500 ppm over background	Level B protection [4, 5]
		> 500 ppm over background	Evaluate exposure source, consult H&S Coordinator [4, 5]

[1] GCI denotes Combustible Gas Indicator.
[2] LEL denotes Lower Explosive Limit.
[3] Note: combustible gas readings are not valid in atmospheres with < 19.5% oxygen.
[4] Meter readings are not the sole criteria for selecting the level of protection. These are only generalized guidelines and are project specific.
[5] Action taken are based upon sustained and/or frequent readings.

Appendix D contains site specific monitoring results (if applicable).

X. HAZARDOUS WASTE OPERATION CONTINGENCY PLAN

Generator's/Site Name: Railroad Roundhouse

Location, description, and route to the site: West Clinton Drive & Short Myrtle Street, Frankfort, Clinton County, Indiana

From IWM office, head north on I-465 and merge onto I-65 N for 29.4 miles. Take exit 146 from I-65 onto IN-47N. In 1.8 miles, turn left onto IN-39. Continue north on IN-39 for 10.8 miles. Turn left onto E Walnut Street and continue for 0.6 miles. Turn right and head north onto Boomer Street for 0.1 miles, destination will be on your right.

Client Project Manager: Tracey Michael for Indiana Brownfields Program (317) 232-4402

A. Emergency Information

Police: 911 Alternate Number: Not applicable
Fire: 911 Alternate Number: Not applicable
Ambulance: 911 Alternate Number: Not applicable

Hospital Name: IU Health Frankfort Hospital
Hospital Address: 1300 S Jackson Street, Frankfort, IN 46041
Hospital Phone: 765-656-3000

Route to Hospital: From Railroad Roundhouse site:

Head south on Boomer Street. Turn left onto Walnut Avenue. Turn right onto Jackson Street. Turn right into hospital parking lot.

Appendix G depicts a map to the local hospital and/or local medical providers.

Office Resources: Key Personnel Phone Numbers		
Name	**Position**	**Phone**
IWM Fort Wayne Office		260-497-9620
IWM Indianapolis Office		317-347-1111
Brad Gentry	IWM President/Brownfield Coordinator	Ext.: 123 Direct: 317-968-9256 Cell: 317-435-8877
Greg Scarpone	H&S Coordinator	Ext.: 125 Direct: 317-968-9258 Cell: 317-431-0051
Chris Parks	IWM Vice President / Technical Manager	Ext.: 127 Direct: 317-968-9260 Cell: 317-847-2600
Tracey Michael	Indiana Brownfields Project Manager	317-232-4402
IDEM Emergency Response	24 Hour Action Hotline	317-233-7745
Poison Information Center		(800) 962-1253

Has a copy of the contingency plan been received by the hospital? □ Yes ■ No ■ NA

If NO, explain. Not required for the proposed work activities.

Is receipt of the contingency plan by local authorities documented? □ Yes ■ No ■ NA
If NO, explain. Not required for the proposed work activities.

Has the hospital been notified of job site activities and chemical hazards? □ Yes ■ No ■ NA

If NO, explain. Not required for the proposed work activities.

B. Evacuation Route/Emergency Procedures

See attached map in **Appendix A.**

Describe evacuation alarm procedure. Verbal warning to all immediate personnel. Follow with phone call(s) to key personnel.

Evacuation route description. Away from area of danger. Evacuation route map in **Appendix A**.

Assembly Area description. Assemble on site.

C. Safety Plan Amendments

Amendments to this HASP and Contingency Plan are maintained in **Appendix E.**

D. HASP and Contingency Plan Sign-Off

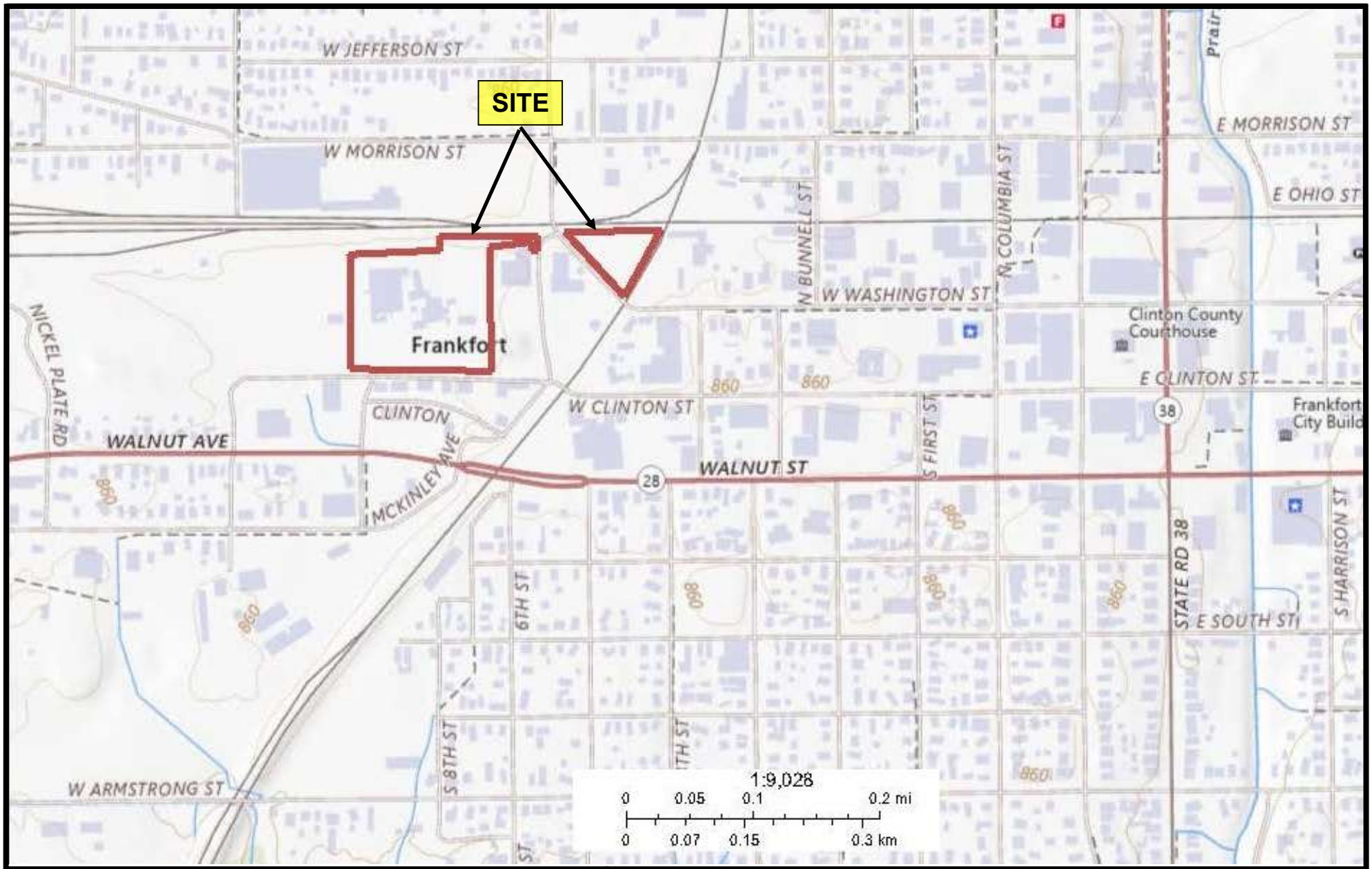
All site personnel (employees and their subcontractors) will review this HASP and Contingency Plan. This plan provides site personnel with an orientation to the job task including:

- ■ Site Overview
- ■ Emergency Response Procedures
- ■ Potential Physical & Health Hazards of on-site hazardous materials
- ■ PPE Requirements
- ■ Site Security
- □ Hazards of Confined Spaces
- □ Site-specific environmental regulatory requirements

Appendix F contains a plan sign-off sheet.

APPENDIX A

SITE MAP(S)



iWM CONSULTING GROUP

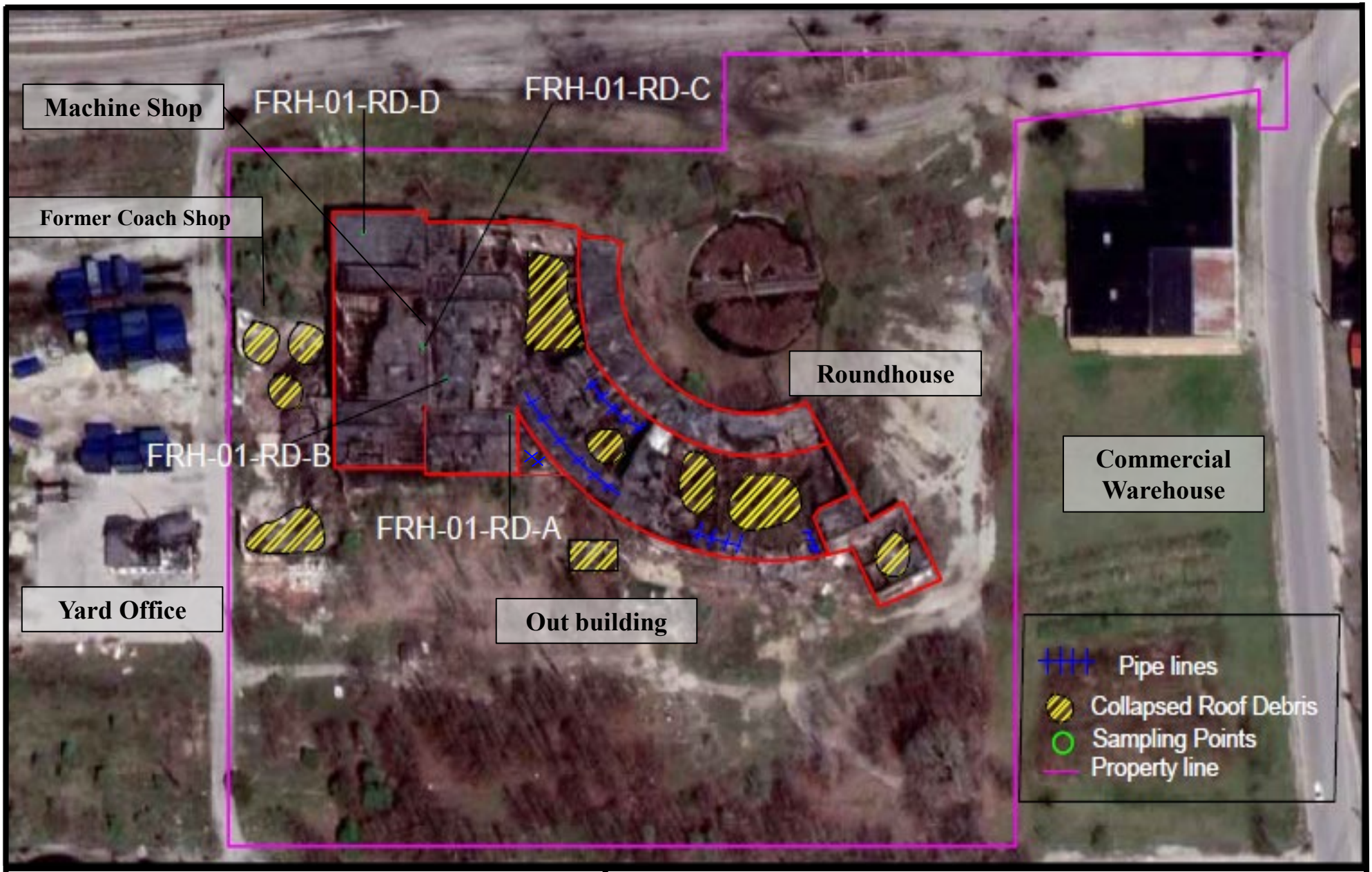
7428 Rockville Road
Indianapolis, IN 46214

(317) 347-1111
Fax: (317) 347-9326

Project	Task	Size	Date
IN26004	01	A	01/21/2026

TITLE **FIGURE 1 – Site Location Map**
Railroad Roundhouse
West Clinton Drive & Short Myrtle Street
Frankfort, Clinton County, Kentucky

CLIENT **Indiana Brownfield Program**
Indianapolis, Indiana



IWM CONSULTING GROUP

7428 Rockville Road
Indianapolis, IN 46214

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Project	Task	Size	Date
IN26004	01	A	02/25/2026

TITLE

FIGURE 2: Site Map
Railroad Roundhouse
West Clinton Drive & Short Myrtle Street
Frankfort, Clinton County, Indiana

CLIENT

Indiana Brownfield Program
Indianapolis, Indiana

APPENDIX B

HAZARD ASSESSMENT/ATTACHMENTS

HAZARD ASSESSMENT/ATTACHMENTS

Railroad Roundhouse West Clinton Drive & Short Myrtle Street Frankfort, Clinton County, Indiana		
Major Tasks/Activities	**Hazards**	**Precautionary Measures/ Controls**
ACM Sampling	See Attached JSA	See Attached JSA
Asbestos Abatement	See Attached JSA	See Attached JSA

Job Safety Analysis

Asbestos Abatement

Principal Steps	Potential Hazards	Recommended Controls
Asbestos Abatement	Electrocution	Use GFI outlets for all powered tools and equipment
	Exposure to Asbestos	Competent person for this activity
		Use approved Respirators
		Wear Disposable suits and booties
		Use shower at containment exit
		Only individuals required to perform work are allowed in the area
	Eye Injury	Wear safety glasses or face shields when doing work
	Public Exposure to Asbestos	Maintain Negative Air Pressure in containment area
		Post signage and warning tape 20 feet from the edge of containment area
		Monitor air quality outside containment area to monitor for contamination
Setup and Tear Down of containment area	Cuts or lacerations	Use scissors instead of knives
	Electrocution	Use GFI outlets for all powered tools and equipment
	Fall from ladders or man-lift	Competent person for this activity
		Tie off ladder when necessary
		Make sure ladder safety locks are engaged before use
		Never lean an "A" framed ladder
		Never stand on top two steps
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
Negative Air Machine	40 hour initial asbestos training and annual 8-hour refresher	Monitor Manometer for Air Pressure; Electrical cord inspection for serviceability and proper GFI function
Floor Buffer	8 hour training	Inspect pad and moving part before each floor buffer use

Job Safety Analysis

Asbestos Survey

Principal Steps	Potential Hazards	Recommended Controls
Safety	Traffic	Traffic control (barricades and/ or cones) Face flow of traffic and use appropriate cones, flags, and/or tape per client and/or Handex protocols. Block off designated sampling area.
	Overhead utilities	Look up before setting up equipment, spotter
	Sharp debris in sample	Wear thick gloves
Sample collection	Inhalation	Nitrile gloves, long pants, and long sleeves (full face respirator and Tyvek coveralls used upon discretion of inspector)
	Inhalation	Wet surfacing material if potentially friable before sampling to prevent airborne particulates
Clean Up	Inhalation / Ingestion	Clean all material / debris left around sampling pint or that has fallen using a wet cloth and disposable baggies.
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
Coring device, knife or blade, baggies, drill, other cutting or coring devices to remove material.		Asbestos Inspector Certification for applicable state

APPENDIX C

MATERIAL SAFETY DATA SHEETS

And/Or

PUBLIC HEALTH STATEMENTS FOR COMPOUNDS OF INTEREST

MATERIAL SAFETY DATA SHEET PACKET

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2300
Gaithersburg, Maryland 20899-2300

SRM Number: 1866b
SRM Name: Common Commercial Asbestos

Date of Issue: 09 January 2007

MSDS Coordinator: Mario Cellarosi
Telephone: 301-975-6776
FAX: 301-926-4751
E-mail: SRMMSDS@nist.gov

Emergency Telephone Chem Trec:
1-800-424-9300 (North America)
+1-703-527-3887 (International)

Description: Standard Reference Material (SRM) 1866b is comprised of three commercial-grade asbestos materials that were, or are, commonly used in commerce. These asbestos materials are typical of the asbestos found in bulk samples during routine asbestos inspections of building materials. The optical properties serve as a primary calibration standard in the identification of asbestos with polarized light microscopy (PLM). A unit of SRM 1866b consists of a set of three bottles: one bottle containing chrysotile, one bottle containing asbestiform grunerite (amosite), and one bottle containing asbestiform riebeckite (crocidolite). Each bottle contains between 1 gram and 3 grams of material.

Chrysotile

Asbestiform Grunerite (Amosite)

Asbestiform Riebeckite (Crocidolite)

An MSDS is provided for each of the three asbestos materials listed above, which contain hazardous components 1 % or greater and/or carcinogens 0.1 % or greater, in compliance with OSHA 29 CFR 1910.1200.

MATERIAL SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2300
Gaithersburg, Maryland 20899-2300

SRM Number: 1866b
MSDS Number: 1866b
SRM Name: Common Commercial Asbestos

Date of Issue: 09 January 2007

MSDS Coordinator: Mario Cellarosi
Telephone: 301-975-6776
FAX: 301-926-4751
E-mail: SRMMSDS@nist.gov

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887 (International)

Description: Standard Reference Material (SRM) 1866b is a set of three individual commercial-grade asbestos materials: **chrysotile**, asbestiform grunerite (amosite), and asbestiform riebeckite (crocidolite). A unit of SRM 1866b consists of three bottles, each containing between 1 gram and 3 grams of individual material.

Substance: **Chrysotile**

2. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS[(a)]

Component:	**Chrysotile**
Other Designations:	**Chrysotile** (metaxite; serpentine chrysotile; asbestos; chrysotile asbestos)
CAS Number:	12001-29-5
EC Number (EINECS):	Not assigned.
SRM Nominal Concentration (% by weight or volume):	> 90
Component:	**Magnetite (as an impurity)**
Other Designation:	**Magnetite** (magnetic iron oxide; black iron oxide; magnetic iron ore; lodestone; black ferric oxide)
CAS Number:	1309-38-2
EC Number (EINECS):	215-169-8
SRM NominalConcentration (% by weight):	< 5
EC Classification:	T Carcinogen Category 1
EC Risk (R No.):	23, 45, 48
EC Safety (S No.):	45, 53

[(a)] Hazardous components 1 % or greater; carcinogens 0.1 % or greater are listed in compliance with OSHA 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

NFPA Ratings (Scale 0–4): Health = 1 Fire = 0 Reactivity = 0

Major Health Hazards: Cancer hazard (in humans)

Potential Health Effects

Inhalation: Inhalation of chrysolite asbestos dust may be irritating. Symptoms include a cough and chest pain. Chronic exposure may cause asbestosis, interstitial fibrosis of the lung tissue, which may develop within 4 years to 9 years, but onset may be typically delayed 20 years to 40 years after first exposure. Death from asbestosis may be due to respiratory or cardiac failure. Secondary lung infections may also occur. Chronic exposure of asbestos to workers may also cause pleural effusion as early as 3 years to 4 years after initial exposure. Chronic exposure of asbestos to workers also increases the chance of pleural and peritoneal mesotheliomas, bronchogenic carcinoma, lung cancer, and cancers of the gastrointestinal tract and larynx. The latent period for mesothelioma is 3 years to 40 years; for lung cancer, 15 years to 30 years.

Skin Contact: Direct contact may cause irritation. Asbestos fibers may penetrate the skin and result in "asbestos corns", due to thickening of the skin around the implanted fiber. These corns usually occur on the hands and forearms, and they disappear on removal of the fibers.

Eye Contact: Direct contact may cause irritation with redness due to mechanical action.

Ingestion: Acute exposure by cause gastrointestinal irritation. Chronic exposure of asbestos fibers may be involved in cancers of the buccal cavity and pharynx, esophagus, stomach, colon, and rectum.

Listed as a Carcinogen/ Potential Carcinogen:

Yes	No	
X		In the National Toxicology Program (NTP) Report on Carcinogens.
X		In the International Agency for Research on Cancer (IARC) Monographs.
X		By the Occupational Safety and Health Administration (OSHA).

4. FIRST AID MEASURES

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration by qualified personnel. Get immediate medical attention.

Skin Contact: Rinse affected area with copious amounts of water followed by washing with soap and water for at least 15 minutes while removing contaminated clothing. Get immediate medical attention.

Eye Contact: Flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Get immediate medical attention.

Ingestion: If a large amount is swallowed, get immediate medical attention.

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Chrysotile is a negligible fire hazard.

Extinguishing Media: Regular dry chemical. Carbon dioxide. Water. Regular foam.

Fire Fighting: If material is involved in a fire, extinguish fire with a medium appropriate for the surrounding fire. Material itself does NOT burn or burns with difficulty. Keep run-off water out of sewers and water sources. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus (SCBA).

Component: **Chrysotile**
Flash Point: Not applicable.
Method Used: Not applicable.

Autoignition Temp.: Not applicable.

Flammability Limits in Air
UPPER (Volume %): Not applicable.
LOWER (Volume %): Not applicable.

6. ACCIDENTAL RELEASE MEASURES

Occupational Release: Do NOT touch or walk through spilled material. Avoid inhalation of asbestos dust (see Section 8, "Exposure Controls and Personal Protection"). Collect small dry spills with a shovel and place material into an appropriate container for disposal. Prevent entry into waterways and sewers. Clean up residue with a HEPA filter vacuum.

Disposal: Refer to Section 13, "Disposal Considerations".

7. HANDLING AND STORAGE

Storage: Store and handle in accordance with all current regulations and standards.

Safe Handling Precautions: See Section 8, "Exposure Controls and Personal Protection".

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: **Chrysotile**
OSHA (PEL): 0.1 fibers/cc TWA
ACGIH (TLV): 0.1 fibers/cc TWA
NIOSH: 0.1 fibers/cc recommended TWA (10 h)

Ventilation: Provide local exhaust ventilation system equipped with a HEPA-filter dust collection system.

Respirator: If workplace conditions warrant a respirator's use, a NIOSH/MSHA approved respirator should be used under an implemented respiratory protection program in accordance with OSHA Standard 29 CFR 1910.134 (General Industry, Use of Respirators) and 29 CFR 1910.1001 for occupational exposure to asbestos.

Eye Protection: Wear safety goggles. An eye wash station should be readily available near areas of use.

Personal Protection: Wear appropriate protective clothing and gloves to prevent skin exposure. Refer to OSHA Regulated Substances: OSHA 29 CFR 1910.1001.

9. PHYSICAL AND CHEMICAL PROPERTIES

Component: **Chrysotile**
Appearance: Fibrous solid to dust-like powder. White to grey-brown. Odorless.
Relative Molecular Mass: Not applicable.
Molecular Formula: $Mg_3(Si_2O_5)(OH)_4$
Water Solubility: Insoluble.
Solvent Solubility: Insoluble in organic solvents.

10. STABILITY AND REACTIVITY

Stability: X Stable ____ Unstable

Stable at normal temperatures and pressure.

Conditions to Avoid: Avoid generating dust. Keep out of water supplies and sewers.

Incompatible Materials: May be attacked by strong acids.

Fire/Explosion Information: See Section 5, "Fire Fighting Measures".

Hazardous Decomposition: Completely decomposes at temperatures of 1 000 °C.

Hazardous Polymerization: ____ Will Occur X Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Entry: X Inhalation X Skin X Ingestion

Toxicity Data: **Chrysotile**
Human, Inhalation TCL_O: 2.8 fibers/cc (5 years)
Rat, Inhalation-Intermittent TCL_O: 8 210 $\mu g/m^3$ (6 h to 20 d)
Rat, Oral-Continuous TDL_O: 10 867 mg/kg (78 weeks)

Tumorigenic, Reproductive, Mutagenic Data: Chrysotile has been investigated as a tumorigenic and mutagenic effector.

Health Effects (Acute and Chronic): See Section 3: "Hazards Identification" for potential health effects.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data: Not available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with all applicable federal, state, and local regulations.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: Asbestos; UN2212; Hazard Class 9
NOTE: This material, as packaged for SRM 1866b, is not subject to the regulations per DOT Special Provision 156 and IATA special Provision A61.

15. REGULATORY INFORMATION

U.S. Regulations: CERCLA Sections 102a/103 (40 CFR 302.4): Asbestos: 1 lbs RQ

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Asbestos.

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE:	No.
CHRONIC:	Yes.
FIRE:	No.
REACTIVE:	No.
SUDDEN RELEASE:	No.

State Regulations: California Proposition 65: Asbestos is known to the state of California to cause cancer (Feb. 17, 1987).

CANADIAN Regulations
WHMIS Classification: Not determined for this material.

EUROPEAN Regulations

EC Classification (assigned):	T	Toxic. Carcinogen Category 1.
EC Risk Phrases:	R45	May cause cancer.
	R23/48	Toxic: danger of serious damage to health by prolonged exposure through inhalation.
EC Safety Phrases:	S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
	S53	Avoid exposure.

National Inventory Status

U.S. Inventory (TSCA):	Asbestos:	Not listed on inventory.
TSCA 12(b) Export Notification:	Asbestos:	CAS No.: 1332-21-4 Section 6

16. OTHER INFORMATION

Sources: MDL Information Systems, Inc., MSDS *Chrysotile*, 15 June 2006.

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use as a guide in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data in the MSDS. The certified values for this material are given in the NIST Certificate of Analysis.

MATERIAL SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2300
Gaithersburg, Maryland 20899-2300

SRM Number: 1866b
MSDS Number: 1866b
SRM Name: Common Commercial Asbestos

Date of Issue: 09 January 2007

MSDS Coordinator: Mario Cellarosi
Telephone: 301-975-6776
FAX: 301-926-4751
E-mail: SRMMSDS@nist.gov

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887 (International)

Description: Standard Reference Material (SRM) 1866b is a set of three individual commercial-grade asbestos materials: chrysotile, **asbestiform grunerite (amosite)**, and asbestiform riebeckite (crocidolite). A unit of SRM 1866b consists of three bottles, each containing between 1 gram and 3 grams of individual material.

Substance: **Asbestiform Grunerite**

2. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS[(a)]

Component:	**Asbestiform Grunerite**
Other Designations:	**Asbestiform Grunerite** (grunerite; amosite; brown asbestos; amosite asbestos)
CAS Number:	12172-73-5
EC Number (EINECS):	Not assigned.
SRM Nominal Concentration (% by weight or volume):	> 90
Component:	**Magnetite (as an impurity)**
Other Designation:	**Magnetite** (magnetic iron oxide; black iron oxide; magnetic iron ore; lodestone; black ferric oxide)
CAS Number:	1309-38-2
EC Number (EINECS):	215-169-8
SRM NominalConcentration (% by weight):	< 5
Component:	**Quartz**
Other Designation:	Quartz (alpha quartz; silicon dioxide; silica; silicic anhydride; agate)
CAS Number:	14808-60-7
EC Number (EINESC):	238-878-4
SRM NominalConcentration (% by weight):	< 5
EC Classification:	T Carcinogen Category 1
EC Risk (R No.):	23, 45, 48
EC Safety (S No.):	45, 53

[(a)] Hazardous components 1 % or greater; carcinogens 0.1 % or greater are listed in compliance with OSHA 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

NFPA Ratings (Scale 0–4): Health = 1 Fire = 0 Reactivity = 0

Major Health Hazards: Cancer hazard (in humans)

Potential Health Effects

Inhalation: Inhalation of grunerite asbestos dust may be irritating. Symptoms include a cough and chest pain. Chronic exposure may cause asbestosis, interstitial fibrosis of the lung tissue, which may develop within 4 years to 9 years, but onset may be typically delayed 20 years to 40 years after first exposure. Death from asbestosis may be due to respiratory or cardiac failure. Secondary lung infections may also occur. Chronic exposure of asbestos to workers may also cause pleural effusion as early as 3 years to 4 years after initial exposure. Chronic exposure of asbestos to workers also increases the chance of pleural and peritoneal mesotheliomas, bronchogenic carcinoma, lung cancer, and cancers of the gastrointestinal tract and larynx. The latent period for mesothelioma is 3 years to 40 years; for lung cancer, 15 years to 30 years.

Skin Contact: Direct contact may cause irritation. Asbestos fibers may penetrate the skin and result in "asbestos corns", due to thickening of the skin around the implanted fiber. These corns usually occur on the hands and forearms, and they disappear on removal of the fibers.

Eye Contact: Direct contact may cause irritation with redness due to mechanical action.

Ingestion: Acute exposure by cause gastrointestinal irritation. Chronic exposure of asbestos fibers may be involved in cancers of the buccal cavity and pharynx, esophagus, stomach, colon, and rectum.

Listed as a Carcinogen/ Potential Carcinogen:

Yes	No	
X		In the National Toxicology Program (NTP) Report on Carcinogens.
X		In the International Agency for Research on Cancer (IARC) Monographs.
X		By the Occupational Safety and Health Administration (OSHA).

4. FIRST AID MEASURES

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration by qualified personnel. Get immediate medical attention.

Skin Contact: Rinse affected area with copious amounts of water followed by washing with soap and water for at least 15 minutes while removing contaminated clothing. Get medical attention, if needed.

Eye Contact: Flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Get immediate medical attention.

Ingestion: If a large amount is swallowed, get immediate medical attention.

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Asbestiform grunerite is a negligible fire hazard.

Extinguishing Media: Regular dry chemical. Carbon dioxide. Water. Regular foam.

Fire Fighting: If material is involved in a fire, extinguish fire with a medium appropriate for the surrounding fire. Material itself does NOT burn or burns with difficulty. Keep run-off water out of sewers and water sources. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus (SCBA).

Component: **Asbestiform Grunerite**
Flash Point: Not applicable.
Method Used: Not applicable.

Autoignition Temp.: Not applicable.

Flammability Limits in Air
UPPER (Volume %): Not applicable.
LOWER (Volume %): Not applicable.

6. ACCIDENTAL RELEASE MEASURES

Occupational Release: Do NOT touch or walk through spilled material. Avoid inhalation of asbestos dust (see Section 8, "Exposure Controls and Personal Protection"). Collect small dry spills with a shovel and place material into an appropriate container for disposal. Prevent entry into waterways and sewers. Clean up residue with a HEPA filter vacuum.

Disposal: Refer to Section 13, "Disposal Considerations".

7. HANDLING AND STORAGE

Storage: Store and handle in accordance with all current regulations and standards.

Safe Handling Precautions: See Section 8, "Exposure Controls and Personal Protection".

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits:

Abestiform Grunerite
OSHA (PEL): 0.1 fibers/cc TWA
ACGIH (TLV): 0.1 fibers/cc TWA
NIOSH: 0.1 fibers/cc recommended TWA (10 h)

Quartz
OSHA (PEL): 0.3 mg/m^3 TWA (total dust) 30 mg/m^3/% SiO^2 + 2, based on size/aerodynamic characteristics)
OSHA (PEL): 0.1 mg/m^3 TWA (respirable dust) 10 mg/m^3/% SiO^2 + 2, based on size/aerodynamic characteristics)
ACGIH (TLV): 0.025 mg m^3 TWA (respirable dust)
NIOSH: 0.05 mg/m^3 recommended TWA (10 h) (respirable dust)

UK WEL: 0.3 mg/m^3 TWA (respirable particulate) (Chemical Hazard Alert Notice issued).

Ventilation: Provide local exhaust ventilation system equipped with a HEPA-filter dust collection system.

Respirator: If workplace conditions warrant a respirator's use, a NIOSH/MSHA approved respirator should be used under an implemented respiratory protection program in accordance with OSHA Standard 29 CFR 1910.134 (General Industry, Use of Respirators) and 29 CFR 1910.1001 for occupational exposure to asbestos.

Eye Protection: Wear safety goggles. An eye wash station should be readily available near areas of use.

Personal Protection: Wear appropriate protective clothing and gloves to prevent skin exposure. Refer to OSHA Regulated Substances: OSHA 29 CFR 1910.1001.

9. PHYSICAL AND CHEMICAL PROPERTIES

Component: **Asbestiform Grunerite**
Appearance: Fibrous solid to dust-like powder. Grey-brown to light brown. Odorless.
Relative Molecular Mass: Not applicable.
Molecular Formula: $Fe^{2+}_7(Si_8O_{22})(OH)_2$
Water Solubility: Insoluble

10. STABILITY AND REACTIVITY

Stability: X Stable _____ Unstable

Stable at normal temperatures and pressure.

Conditions to Avoid: Avoid generating dust. Keep out of water supplies and sewers.

Incompatible Materials: May be attacked by strong acids.

Fire/Explosion Information: See Section 5, "Fire Fighting Measures".

Hazardous Decomposition: Completely decomposes at temperatures of 1 000 °C.

Hazardous Polymerization: ____ Will Occur X Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Entry: X Inhalation X Skin X Ingestion

Toxicity Data: **Asbestiform Grunerite**
Rat, Intrapleural TD_{LO}: 150 mg/kg

Tumorigenic, Reproductive, Mutagenic Data: Asbestiform grunerite has been investigated as a tumorigenic and mutagenic effector.

Health Effects (Acute and Chronic): See Section 3: "Hazards Identification" for potential health effects.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data: Not available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with all applicable federal, state, and local regulations.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: **U.S. DOT and IATA:** Asbestos; UN2212; Hazard Class 9
NOTE: This material, as packaged for SRM 1866b, is not subject to the regulations per DOT Special Provision 156 and IATA special Provision A61.

15. REGULATORY INFORMATION

U.S. Regulations: CERCLA Sections 102a/103 (40 CFR 302.4): Asbestos: 1 lbs RQ.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Asbestos.

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE:	No.
CHRONIC:	Yes.
FIRE:	No.
REACTIVE:	No.
SUDDEN RELEASE:	No.

State Regulations: California Proposition 65: Asbestos is known to the state of California to cause cancer (Feb. 27, 1987).

CANADIAN Regulations
WHMIS Classification: Not determined for this material.

EUROPEAN Regulations

EC Classification (assigned):	T	Toxic. Carcinogen Category 1
EC Risk Phrases:	R45	May cause cancer.
	R23/48	Toxic: danger of serious damage to health by prolonged exposure through inhalation.
EC Safety Phrases:	S45	In case of accident of if you feel unwell, seek medical advice immediately (show the label where possible).
	S53	Avoid exposure.

National Inventory Status

U.S. Inventory (TSCA):	Asbestos:	Not listed on inventory.
TSCA 12(b) Export Notification:	Asbestos:	CAS No.: 1332-21-4 Section 6

16. OTHER INFORMATION

Sources: MDL Information Systems, Inc., MSDS *Amosite*, 16 June 2005.

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use as a guide in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data in the MSDS. The certified values for this material are given in the NIST Certificate of Analysis.

MATERIAL SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2300
Gaithersburg, Maryland 20899-2300

SRM Number: 1866b
MSDS Number: 1866b
SRM Name: Common Commercial Asbestos

Date of Issue: 09 January 2007

MSDS Coordinator: Mario Cellarosi
Telephone: 301-975-6776
FAX: 301-926-4751
E-mail: SRMMSDS@nist.gov

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887 (International)

Description: Standard Reference Material (SRM) 1866b is a set of three individual commercial-grade asbestos materials: chrysotile, asbestiform grunerite (amosite), and **asbestiform riebeckite (crocidolite)**. A unit of SRM 1866b consists of three bottles, each containing between 1 gram and 3 grams of individual material.

Substance: **Asbestiform Riebeckite**

2. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS[(a)]

Component: **Asbestiform Riebeckite**
Other Designations: **Asbestiform Riebeckite** (blue asbestos; crocidolite; asbestos; crocidolite asbestos)
CAS Number: 12001-28-4
EC Number (EINECS): Not assigned.
SRM Nominal Concentration (% by weight or volume): > 90

Component: **Magnetite (as an impurity)**
Other Designation: **Magnetite** (magnetic iron oxide; black iron oxide; magnetic iron ore; lodestone; black ferric oxide)
CAS Number: 1309-38-2
EC Number (EINECS): 215-169-8
SRM NominalConcentration (% by weight): < 5

EC Classification: T
Carcinogen Category 1
EC Risk (R No.): 23, 45, 48
EC Safety (S No.): 45, 53

[(a)] Hazardous components 1 % or greater; carcinogens 0.1 % or greater are listed in compliance with OSHA 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

NFPA Ratings (Scale 0–4): Health = 1 Fire = 0 Reactivity = 0

Major Health Hazards: Cancer hazard (in humans)

Potential Health Effects
Inhalation: Inhalation of riebeckite asbestos dust may be irritating. Symptoms include a cough and chest pain. Chronic exposure may cause asbestosis, interstitial fibrosis of the lung tissue, which may develop within 4 years to 9 years, but onset may be typically delayed 20 years to 40 years after first exposure. Death from asbestosis may be due to respiratory or cardiac failure. Secondary lung infections may also occur. Chronic exposure of asbestos to workers may also cause pleural effusion as early as 3 years to 4 years after initial exposure. Chronic exposure of asbestos to workers also increases the chance of pleural and peritoneal mesotheliomas, bronchogenic carcinoma, lung cancer, and cancers of the gastrointestinal tract and larynx. The latent period for mesothelioma is 3 years to 40 years; for lung cancer, 15 years to 30 years.

Skin Contact: Direct contact may cause irritation. Asbestos fibers may penetrate the skin and result in "asbestos corns", due to thickening of the skin around the implanted fiber. These corns usually occur on the hands and forearms, and they disappear on removal of the fibers.

Eye Contact: Direct contact may cause irritation with redness due to mechanical action.

Ingestion: Acute exposure by cause gastrointestinal irritation. Chronic exposure of asbestos fibers may be involved in cancers of the buccal cavity and pharynx, esophagus, stomach, colon, and rectum.

Listed as a Carcinogen/ Potential Carcinogen:

Yes	No	
X		In the National Toxicology Program (NTP) Report on Carcinogens.
X		In the International Agency for Research on Cancer (IARC) Monographs.
X		By the Occupational Safety and Health Administration (OSHA).

4. First Aid Measures

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration by qualified personnel. Get immediate medical attention.

Skin Contact: Rinse affected area with copious amounts of water followed by washing with soap and water for at least 15 minutes while removing contaminated clothing. Get medical attention, if needed.

Eye Contact: Flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Get immediate medical attention.

Ingestion: Get immediate medical attention. If vomiting occurs, keep head lower than hips to prevent aspiration. Give artificial respiration, if not breathing, by qualified personnel.

5. Fire Fighting Measures

Fire and Explosion Hazards: Asbestiform Riebeckite

Extinguishing Media: Regular dry chemical. Carbon dioxide. Water. Regular foam.

Fire Fighting: If material is involved in a fire, extinguish fire with a medium appropriate for the surrounding fire. Material itself does NOT burn or burns with difficulty. Keep run-off water out of sewers and water sources. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus (SCBA).

Component: **Asbestiform Riebeckite**
Flash Point: Not applicable.
Method Used: Not applicable.

Autoignition Temp.: Not applicable.

Flammability Limits in Air
UPPER (Volume %): Not applicable.
LOWER (Volume %): Not applicable.

6. Accidental Release Measures

Occupational Release: Do NOT touch or walk through spilled material. Avoid inhalation of asbestos dust (see Section 8, "Exposure Controls and Personal Protection"). Collect small dry spills with a shovel and place material into an appropriate container for disposal. Prevent entry into waterways and sewers. Clean up residue with a HEPA filter vacuum.

Disposal: Refer to Section 13, "Disposal Considerations".

7. HANDLING AND STORAGE

Storage: Store and handle in accordance with all current regulations and standards. Store in a cool, dry place.

Safe Handling Precautions: See Section 8, "Exposure Controls and Personal Protection".

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: **Asbestiform Riebeckite**
OSHA (PEL): 0.1 fibers/cc TWA
ACGIH (TLV): 0.1 fibers/cc TWA
NIOSH: 0.1 fibers/cc recommended TWA (10 h)

Ventilation: Provide local exhaust ventilation system equipped with HEPA-filter dust collection system.

Respirator: If workplace conditions warrant a respirator's use, a NIOSH/MSHA approved respirator should be used under an implemented respiratory protection program in accordance with OSHA Standard 29 CFR 1910.134 (General Industry, Use of Respirators) and 29 CFR 1910.1001 for occupational exposure to asbestos.

Eye Protection: Wear safety goggles. An eye wash station should be readily available near areas of use.

Personal Protection: Wear appropriate protective clothing and gloves to prevent skin exposure. Refer to OSHA Regulated Substances: OSHA 29 CFR 1910.1001.

9. PHYSICAL AND CHEMICAL PROPERTIES

Component: **Asbestiform Riebeckite**
Appearance: Fibrous solid to dust-like powder. Blue to purple color. Odorless.
Molecular Formula: $Na_2(Fe^{2+}{}_3Fe^{3+}{}_2)(Si_8O_{22})(OH)_2$
Water Solubility: Insoluble.

10. STABILITY AND REACTIVITY

Stability: X Stable ____ Unstable

Stable at normal temperatures and pressure.

Conditions to Avoid: Avoid generating dust. Keep out of water supplies and sewers.

Incompatible Materials: May be attacked by strong acids.

Fire/Explosion Information: See Section 5, "Fire Fighting Measures".

Hazardous Decomposition: Completely decomposes at temperatures of 1 000 °C.

Hazardous Polymerization: ____ Will Occur X Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Entry: X Inhalation X Skin X Ingestion

Toxicity Data: **Asbestiform Riebeckite**
Rat, Intraperitoneal LD_{LO}: 300 mg/kg
Rat, Inhalation-Intermittent TC_{LO}: 7 200 μg/m^3 (6 h – 20 days)
Rat, Inhalation-Intermittent TC_{LO}: 13 600 μg/m^3 (6 h – 5 days)

Tumorigenic, Reproductive, Mutagenic Data: Riebeckite asbestos has been investigated as a tumorigenic and mutagenic effector.

Health Effects (Acute and Chronic): See Section 3: "Hazards Identification" for potential health effects.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data: Not available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with all applicable federal, state, and local regulations.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: **U.S. DOT and IATA:** Asbestos; UN2212; Hazard Class 9
NOTE: This material, as packaged for SRM 1866b, is not subject to the regulations per DOT Special Provision 156 and IATA special Provision A61.

15. REGULATORY INFORMATION

U.S. Regulations: CERCLA Sections 102a/103 (40 CFR 302.4): Asbestos: 1 lbs RQ.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Asbestos.

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE:	No.
CHRONIC:	Yes.
FIRE:	No.
REACTIVE:	No.
SUDDEN RELEASE:	No.

State Regulations: California Proposition 65: Asbestos is known to the state of California to cause cancer (Feb. 27, 1987)

CANADIAN Regulations
WHMIS Classification: Not determined.

EUROPEAN Regulations

EC Classification (assigned):	T	Toxicity. Carcinogen Category 1.
EC Risk Phrases:	R45	May cause cancer.
	R23/48	Toxic: danger of serious damage to health by prolonged exposure through inhalation.
EC Safety Phrases:	S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
	S53	Avoid exposure.

National Inventory Status

U.S. Inventory (TSCA):	Asbestos:	Not listed on inventory.

TSCA 12(b)

Export Notification:	Asbestos:	CAS No. 1332-21-4 Section 6

16. OTHER INFORMATION

Sources: MDL Information Systems, Inc., MSDS *Crocidolite*, 14 September 2006.

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use as a guide in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data in the MSDS. The certified values for this material are given in the NIST Certificate of Analysis.

APPENDIX D

SITE SPECIFIC MONITORING RESULTS

SITE SPECIFIC MONITORING RESULTS

Railroad Roundhouse West Clinton Drive & Short Myrtle Street Frankfort, Clinton County, Indiana			
Instruments	**Date/Time**	**Reading**	**Location**
Personal monitoring results provided by subcontractor			

APPENDIX E

SAFETY PLAN AMENDMENTS

SAFETY PLAN AMENDMENTS

Site Name:	Railroad Roundhouse	**Date of Plan Amendment:**	
Scope of Work Change/Amendment/Update/Modification Made to the Plan:			
Reason For Change:			
Hazard Evaluation:			
Level of Protection:			
Air Monitoring:			
Person Requesting Change:			
Person Approving Change:			
Title:			
Printed Name:			
Signature & Date:			
Date Approved:			

SAFETY PLAN AMENDMENTS

Site Name:	Railroad Roundhouse	**Date of Plan Amendment:**	
Scope of Work Change/Amendment/Update/Modification Made to the Plan:			
Reason For Change:			
Hazard Evaluation:			
Level of Protection:			
Air Monitoring:			
Person Requesting Change:			
Person Approving Change:			
Title:			
Printed Name:			
Signature & Date:			
Date Approved:			

SAFETY PLAN AMENDMENTS

Site Name:	Railroad Roundhouse	**Date of Plan Amendment:**	
Scope of Work Change/Amendment/Update/Modification Made to the Plan:			
Reason For Change:			
Hazard Evaluation:			
Level of Protection:			
Air Monitoring:			
Person Requesting Change:			
Person Approving Change:			
Title:			
Printed Name:			
Signature & Date:			
Date Approved:			

APPENDIX F

HEALTH AND SAFETY PLAN SIGN-OFF LOG

HEALTH AND SAFETY PLAN SIGN-OFF LOG

I have read this Site Health and Safety Plan and understand it. I agree, to the best of my ability, to conduct activities as specified, giving health and safety concerns the highest priority.

PRINTED NAME	SIGNATURE	COMPANY NAME	DATE

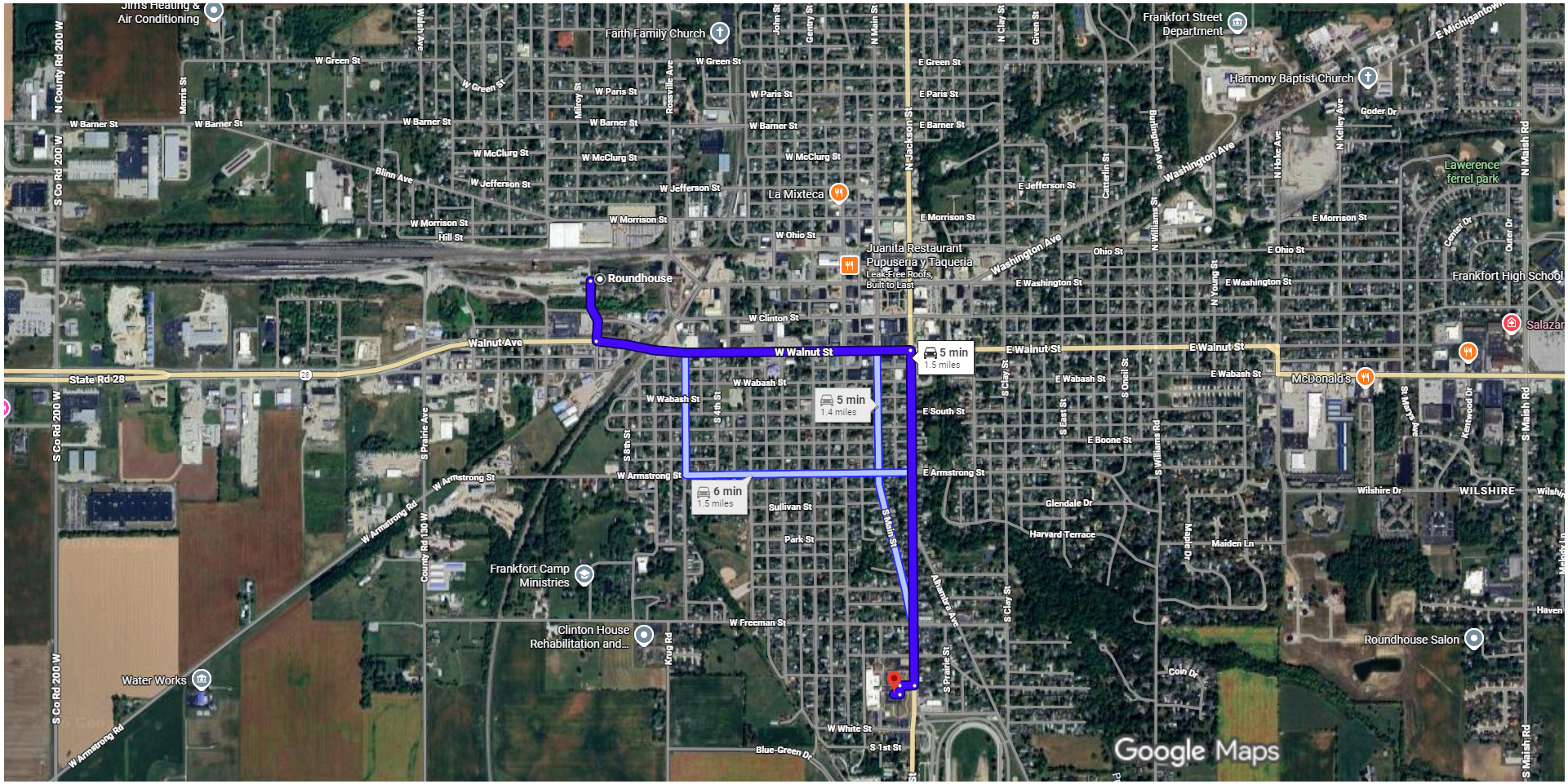
APPENDIX G

HOSPITAL AND/OR LOCAL MEDICAL PROVIDER MAPS

Google Maps

Roundhouse to IU Health Frankfort Hospital

Drive 1.5 miles, 5 min



Imagery ©2026 Airbus, Maxar Technologies, Map data ©2026 Google 1000 ft

via Walnut Ave and S Jackson St	Best route	5 min 1.5 miles
via Walnut Ave and S Main St		5 min 1.4 miles