



# ENVIRONMENTAL MANAGEMENT PLAN

350 SOUTH FIFTH AVENUE  
ANN ARBOR, MICHIGAN 48104

SME Project No: 085916.00.003.010  
Date: April 24, 2023



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EGLE DUE CARE GUIDE

## 1. INTRODUCTION

This Environmental Management Plan (EMP) was prepared to assist the City of Ann Arbor (Owner) with managing due care responsibilities during redevelopment of 350 South Fifth Avenue, City of Ann Arbor, Michigan (Project Site; Figure 1). This EMP provides an overview of due care obligations to comply with Section 20107a of Part 201 of the Natural Resources and Environmental Protection Act of 1994 as amended (NREPA). Specifically, this EMP addresses the requirements for preventing unacceptable human exposure to impacted soil and measures needed to prevent exacerbation of existing soil contaminating during construction. This EMP does not apply to future site occupancy.

**This EMP is not a health and safety plan. Approved contractors working at the Project Site or third parties who may visit the Project Site will review this information and prepare a project-specific Health and Safety Plan (HASP).**

At least one copy of this EMP shall be on the Project Site throughout construction and made available to the Michigan Department of Environment, Great Lakes and Energy (EGLE) upon request. EGLE's May 2019 Due Care Guide, included in Appendix A, provides additional information on due care obligations.

## 2. SITE DESCRIPTION AND HISTORY

The Project Site consists of approximately 0.8 acres of land developed as a paved parking lot. The Project Site was developed for residential use by 1888. By 1916, the western residential portion of the Project Site was occupied by the City of Ann Arbor YMCA and a carriage house/garage building located near the northwest corner of the Project Site was used as a furniture repair business. By 1960, the residential buildings, carriage house/garages, and church were demolished, and the YMCA building was expanded. The YMCA building remained functional until 2005 when it was abandoned. The former YMCA building was demolished in 2008 and the Project Site was redeveloped as a paved parking lot. The Project Site has remained relatively unchanged since 2008. The current property features and footprint of the YMCA building are shown on Figure 2.

## 3. ENVIRONMENTAL CONDITIONS

The findings from previous environmental assessments are summarized below:

- The soil profile consisted of fill materials including sands, clays, gravels and construction debris (e.g., asphalt, brick, plastic, wood, geofabric, cobbles, and concrete) to depths of 4 feet to 16 feet below ground surface (bgs). No staining or odors were observed, and photoionization detector readings were not detected above 1 ppm. Groundwater was not encountered during previous drilling.
- Concentrations of arsenic, mercury, and selenium were measured in soil above to Part 201 Generic Nonresidential Cleanup Criteria (Part 201 criteria). No concentrations of target analytes were measured in soil gas above EGLE's September 4, 2020, proposed Volatilization to Indoor Air Pathway (VIAP) Screening Levels (SLs).
- A summary of hazardous substances measured at the Project Site above Part 201 nonresidential drinking water protection (DWP) criteria and/or groundwater surface water interface (GSI) criteria are summarized in the following table.

CONSTITUENT MEASURED IN SOIL	CAS NO.	MAXIMUM SOIL CONCENTRATION (MG/KG)	PART 201 NONRESIDENTIAL CRITERIA EXCEEDED
Arsenic	7440-38-2	14,000	DWP/GSIP
Mercury	7439-97-6	2,400	GSIP
Selenium	7782-49-2	1,400	GSIP

A summary of the target analytes in soil and soil gas, results, and comparison to Part 201 criteria and VIAP SLs is provided in Tables 1 and 2 (attached) and Figure 2. Additional detail on the environmental conditions were provided in previous environmental reports, which can be provided upon request.

## 4. EXPOSURE PATHWAY EVALUATION

The cumulative results of previous environmental assessments were compiled and evaluated to identify potential risks associated with 1) human health protection and 2) spreading of existing contamination during earthwork activities on the Project Site. The table below summarizes our evaluation of the completeness of pathways on the Project Site during proposed earthwork.

EXPOSURE PATHWAY	COMPLETE PATHWAY?	RELEVANT PROPERTY CONDITIONS AND EXPLANATION
Drinking Water	No	Municipal water is available to the Project Site, and no potable water wells are currently present on the Project Site.
Direct Contact	Yes	A person could come into contact with contaminated soil when pavements are removed.
Soil Particulate Inhalation	Yes	A person could inhale contaminated ambient air particulates when pavements are removed.
Ambient Air	yes	A person could inhale contaminated ambient air that contains vapors from volatile substances present in soil.
Volatilization to Indoor Air	Yes	A building occupant could inhale indoor air contaminated with vapors from volatile substances present in soil.
Groundwater-Surface Water Interface	No	No surface water exists at the Property or adjacent to the Property.

**No human exposure risks were identified** associated with the contaminants and proposed use because no concentrations of target analytes were measured above Part 201 criteria and screening levels applicable to the complete exposure pathways.

## 5. DUE CARE COMPLIANCE

### 5.1 PREVENTION OF UNACCEPTABLE HUMAN EXPOSURE TO CONTAMINATED SOIL AND GROUNDWATER

Soil and groundwater are not known to be impacted at levels that may pose a threat to human health during nonresidential Property use; therefore, no activities need to be taken to mitigate/prevent unacceptable exposures.

## 5.2 PROTECTION OF THIRD PARTIES

Soil and groundwater are not known to be impacted at levels that may pose a threat to third parties during nonresidential Property use; nevertheless, third parties will be provided a copy of this Plan and will be responsible for communicating potential environmental hazards and risks to their employees and subcontractors in conformance with the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### 5.2.1 SITE CONTROL AND COMMUNICATION

Contractors will control access to and from work areas and communicate potential hazards to workers. The following recommendations should be followed:

- Only construction personnel or other persons authorized by the Owner will be allowed in the work areas. Signs should be posted indicating only authorized persons should enter the work area.
- Contractors and third parties that may disturb the subsurface at the Project Site will receive a copy of this EMP. A representative of each company will sign this EMP acknowledging they have reviewed and communicated the EMP with their workers.
- Contractors and third parties that may disturb the subsurface at the Project Site will review this EMP and prepare a project-specific HASP.
- Contractors will provide their workers and subcontractors with information regarding hazardous substances present at the work area as required under the OSHA Hazard Communication Standard (29 CFR 1910.1200 and Michigan Administrative Code-Construction Safety Standard Part 42). Additional information on the contaminants present in soil is available upon request.
- Contractors will promptly stop work and notify the Owner and Owner's consultant if unusual environmental conditions (e.g., oily liquids, staining, odors, abandoned containers, underground storage tanks, etc.) are encountered.
- The Construction Manager will post emergency contact information, including fire, rescue, and emergency medical care facility information, at the Project Site.
- Groundwater was not encountered during Phase II ESA activities. If groundwater is encountered during site activities and removal (e.g., dewatering) is required, it will be properly characterized, handled and managed according to applicable regulations.

The Owner and Owner's consultant will conduct a pre-construction meeting with contractors prior to commencement of site activities to discuss this EMP and environmental requirements for the Project Site.

## 5.3 PREVENTING THE SPREAD OF CONTAMINATION (EXACERBATION)

Concentrations of metals were measured in soil at concentrations above Part 201 criteria. For purposes of this EMP, all soil on the Project Site will be considered contaminated at levels requiring the use of special management techniques to prevent the spread of contamination (exacerbation) if soil is removed from the ground or otherwise exposed during construction activities.

### 5.3.1 SOIL EROSION AND SEDIMENT CONTROLS

- **Soil erosion and sedimentation controls** will be implemented prior to beginning work that disturbs the surface/subsurface. As required by local, state, and federal requirements, a Soil Erosion and Sedimentation Control Plan (SESC) Plan and permit may be required. Regardless of whether or not an SESC Plan or permit are required, the following measures will be taken:

- Control of dust – The contractor will utilize appropriate dust suppression methods to minimize the generation and spread of dust during all site activities.
- Prevention of soil track-out onto adjacent roadways – The contractor will install sufficient track-out pads or wheel washing stations at all construction vehicle exit points.
- Control of sediment – The contractor will employ appropriate measures to ensure that sediment in storm water is not transported into storm sewers, surface water bodies, or off the Project Site.

### 5.3.2 SOIL EXCAVATION

- Soil and debris will be excavated with mechanical equipment and loaded directly into trucks for relocation within landfill extent or transportation to an off-site licensed landfill.
- Soil removed from excavations will be stockpiled on-site and returned to the excavation when possible/practicable. Contaminated soil or fill material may be reused on-site, with Owner approval, provided it is placed in an area with similar contamination.
- If excess soil is to be generated, the contractor will be required to have a plan for management and off-site disposal prior to commencing activities. The plan must be in compliance with Part 201 and must be approved by the Owner.
- Excess soil will be characterized according to waste disposal site requirements and transported for disposal at a licensed disposal facility in accordance with applicable laws and regulations.
- Dust suppression measures will be used, as necessary, to minimize the release of contaminated dust/soil into the air.

### 5.3.3 UTILITY CONSTRUCTION

- Special precautions may be necessary to protect hollow subsurface utilities (e.g., storm and sanitary) from infiltration. In the event groundwater is encountered during construction of utility trenches on the Project Site the contractor should contact the Owner or Owner's consultant to determine if engineering controls such as upgraded pipe gaskets or fittings are required.
- In the event groundwater is encountered in utility trenches extending offsite, a "trench plug" may be required to mitigate the potential for contaminated groundwater to migrate along the granular backfill in the new trench. The trench plug consists of a low-permeability, flow-able fill or other material approved by the Owner's consultant. The flow-able fill shall be installed in the trench over the installed pipe near the property boundary. The flow-able fill must extend along the pipe a minimum of three feet and fill the entire trench from the bottom to above the groundwater table.

### 5.3.4 GROUNDWATER

- Groundwater was not encountered on the Project Site. In the event groundwater is encountered during excavation work (e.g., deep utilities or foundations), Contractors will:
  - Employ necessary steps to sufficiently drain soil and landfill material prior to loading and relocating within the Project Site or hauling to an off-site licensed landfill. Saturated landfill material and soil will be stockpiled on the Project Site in a manner that allows the material to drain back into the excavation. No saturated material will be placed off the Project Site.
  - Remove and containerize water within the excavation area only to the extent necessary for construction purposes. If necessary, groundwater may be temporarily containerized on-site pending discharge.
  - If evidence of environmental impact that is not consistent with known impact is observed during construction, the Owner will be notified, and this EMP will be evaluated and modified as appropriate. Such impact or conditions will be characterized and managed in accordance with applicable requirements, guidelines, and rules of state and federal law.

## 6. RECORD KEEPING AND CONTACT INFORMATION

### 6.1 RECORD KEEPING

Contractors are responsible for maintaining documentation of its compliance with applicable laws regarding record keeping and contact information. Contractors are responsible for maintaining documentation such as disposal manifests, testing and characterization, and due care notices to subcontractors.

### 6.2 CONTACT INFORMATION

The following table provides emergency contact information. The Owner will periodically review the information for accuracy.

EMERGENCY CONTACT INFORMATION		
Police	Ann Arbor Police Department	Emergency 911
Fire	Ann Arbor Fire Department	Emergency 911
Emergency Rescue	Ann Arbor Emergency Management	Emergency 911
24hr Emergency Care Hospital:	University of Michigan Medical Center	734.936.4000
Construction Manager:	TBD	TBD
Owner Contact:	Ms. Jennifer Hall	734.794.6720
Owner's Consultant Contact:	Mr. Troy Helmick, SME	248.982.5149

## 7. GENERAL COMMENTS

This EMP was developed based on the known environmental conditions at the Project Site at the time it was prepared, and only addresses known soil contamination on the Project Site. It describes general considerations and response activities to address the Owner's due care obligations during construction but may not provide specific details on how these actions should be carried out. The EMP will not be used as a design or specification document. Further, this EMP is not, and will not, be used as a comprehensive HASP. Contractors and other third parties working on the Project Site should review the information in this EMP and other information provided pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and prepare a project-specific HASP for their operations and the hazards to which their employees may be exposed.

This EMP report was prepared by Mr. Troy D. Helmick, CPG and reviewed by Mr. Daniel R. Cassidy, CPG. Contact information for Mr. Helmick is included below.

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### REPORT REVIEWED BY:

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Senior Project Consultant

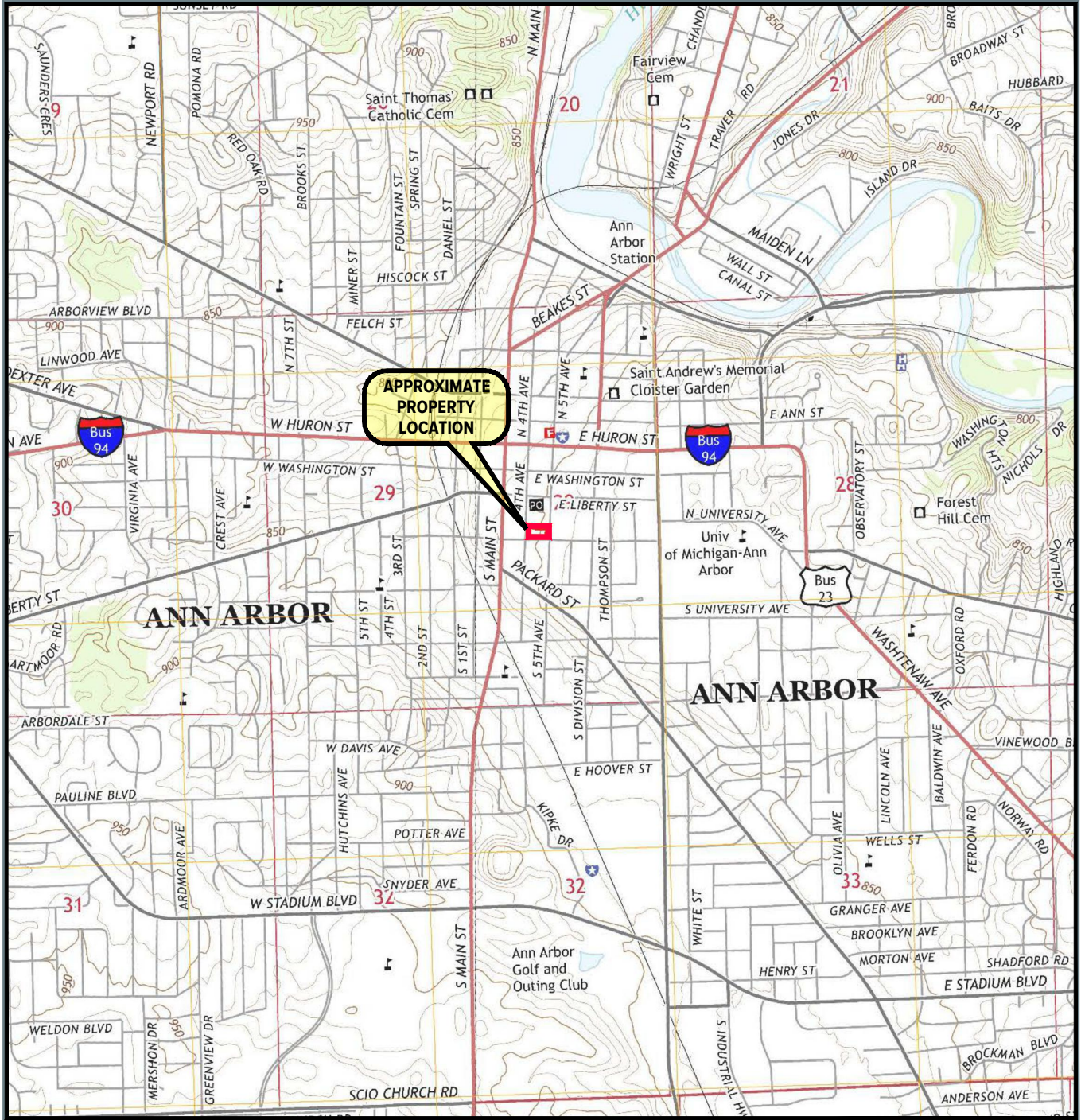
Daniel R. Cassidy, CPG  
Principal / Vice President



## **FIGURES**

**FIGURE 1: PROPERTY LOCATION**

**FIGURE 2: SOIL BORING AND SOIL GAS LOCATIONS AND PART 201 EXCEEDANCE  
DIAGRAM**



**APPROXIMATE  
PROPERTY  
LOCATION**

Base map obtained from EDR®

USGS QUADRANGLE(S) REFERENCED

ANN ARBOR EAST (MI) 2014  
ANN ARBOR WEST (MI) 2014



SCALE: 1" = 2000'

No.	Revision Date	Date
		4-4-2023
	Drawn By	JAB
	Designed By	KJR
	Scale	1" = 2000'
	Project	085916.00.003.010

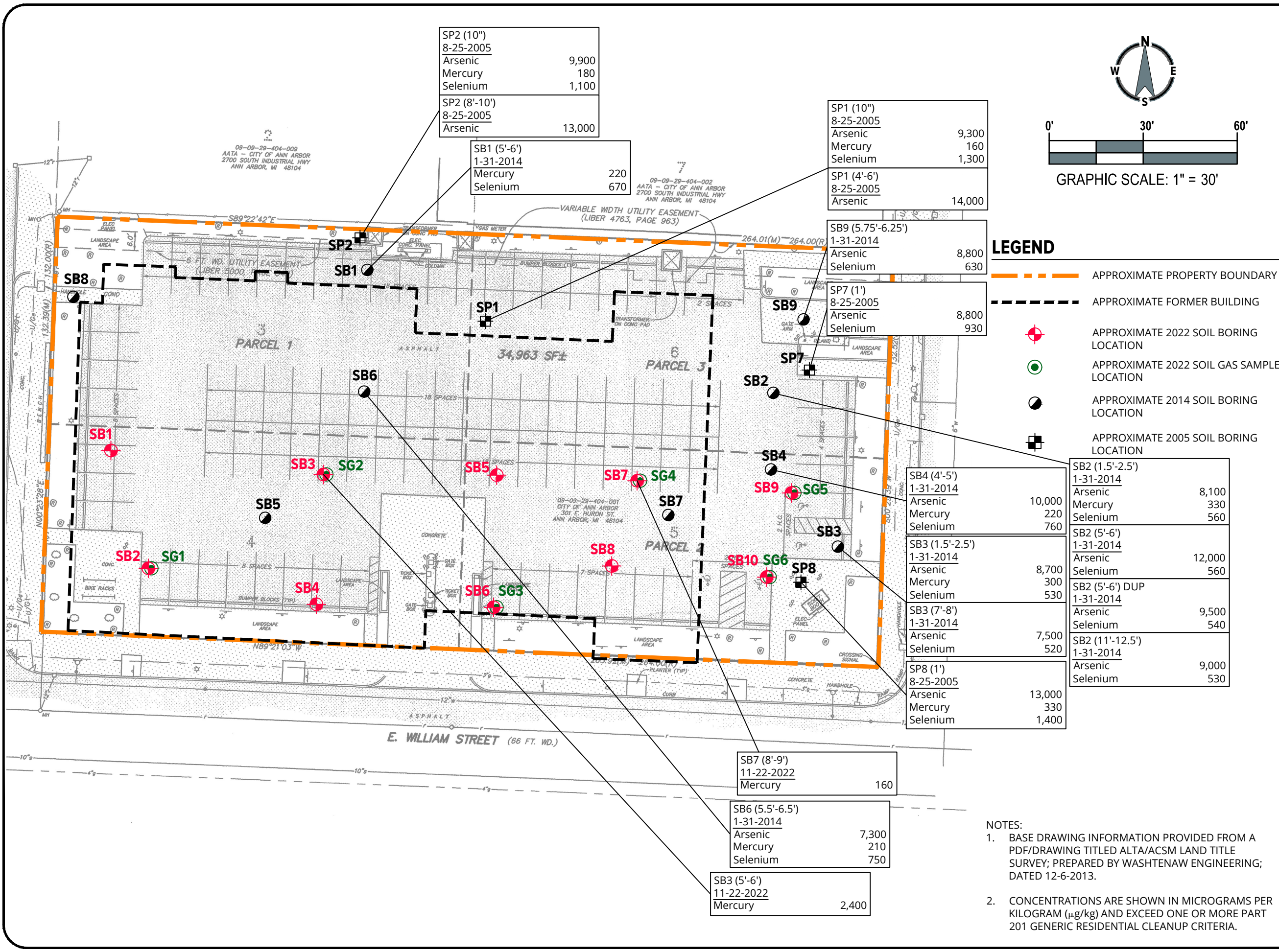
**PROPERTY LOCATION MAP  
350 SOUTH FIFTH AVENUE  
ANN ARBOR, MICHIGAN**



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**Figure No. 1**

Apr 19, 2023 - 4:05pm - matt.novakrochford  
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Project  
**350 SOUTH FIFTH AVENUE**

Project Location  
**ANN ARBOR, MICHIGAN**

Sheet Name  
**SOIL BORING AND SOIL GAS ASSESSMENT LOCATION DIAGRAM AND PART 201 EXCEEDANCE DIAGRAM**

No.	Revision Date

Date  
**4-19-2023**

CADD  
**JAB**

Designer  
**KJR**

Scale  
**AS NOTED**

Project  
**085916.00.003.010**

Figure No.  
**2**

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 11" X 17" AND WILL SCALE INCORRECTLY IF PRINTED ON ANY OTHER SIZE MEDIA  
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**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE FORMER BUILDING
- APPROXIMATE 2022 SOIL BORING LOCATION
- APPROXIMATE 2022 SOIL GAS SAMPLE LOCATION
- APPROXIMATE 2014 SOIL BORING LOCATION
- APPROXIMATE 2005 SOIL BORING LOCATION

- NOTES:
- BASE DRAWING INFORMATION PROVIDED FROM A PDF/DRAWING TITLED ALTA/ACSM LAND TITLE SURVEY; PREPARED BY WASHTENAW ENGINEERING; DATED 12-6-2013.
  - CONCENTRATIONS ARE SHOWN IN MICROGRAMS PER KILOGRAM (µg/kg) AND EXCEED ONE OR MORE PART 201 GENERIC RESIDENTIAL CLEANUP CRITERIA.

## **TABLES**

**TABLE 1: SOIL ANALYTICAL RESULTS**

**TABLE 2: SOIL GAS ANALYTICAL RESULTS**



**TABLE 1**  
**SUMMARY OF ANALYSIS RESULTS - SOIL**  
**350 SOUTH FIFTH AVENUE, ANN ARBOR, MICHIGAN**  
**SME PROJECT NO. 079771.00**  
**PAGE 1 OF 3**

CONSTITUENT	Chemical Abstract Service Number	Statewide Default Background Levels	Part 201 Generic Nonresidential Cleanup Criteria				CHEMICAL ANALYSIS RESULTS								
			Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Sample Identification								
							SP1	SP1	SP2	SP2	SP7	SP8	SB1	SB2	SB2
							10 inches	4.0-6.0	10 inches	8.0-10.0	1.0	1.0	5.0-6.0	1.5-2.5	5.0-6.0
							08/25/05	08/25/05	08/25/05	08/25/05	08/25/05	08/25/05	1/31/2014	1/31/2014	1/31/2014
<b>VOCs</b>															
VOCs	CS	CS	CS	CS	1,000,000,000	CS	NE	<RL	NE	<RL	NE	NE	<RL	NE	NE
<b>SVOCs, PAHs</b>															
Benzo(a)anthracene	56-55-3	NA	NLL	NLL	ID	80,000	<330	<330	<330	NE	<330	<330	<330	<330	<330
Benzo(a)pyrene	50-32-8	NA	NLL	NLL	1,900,000	8,000	<330	<330	<330	NE	<330	<330	<330	<330	<330
Benzo(b)fluoranthene	205-99-2	NA	NLL	NLL	ID	80,000	<330	<330	<330	NE	<330	<330	<330	470	<330
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLL	350,000,000	7,000,000	<330	<330	<330	NE	<330	<330	<330	<330	<330
Benzo(k)fluoranthene	207-08-9	NA	NLL	NLL	ID	800,000	<330	<330	<330	NE	<330	<330	<330	<330	<330
Chrysene	218-01-9	NA	NLL	NLL	ID	8,000,000	<330	<330	<330	NE	<330	<330	<330	<330	<330
Fluoranthene	206-44-0	NA	730,000	5,500	1,000,000,000	130,000,000	<330	<330	<330	NE	<330	430	370	540	<330
Indeno(1,2,3-cd)pyrene	193-39-5	NA	NLL	NLL	ID	80,000	<330	<330	<330	NE	<330	<330	<330	<330	<330
Phenanthrene	85-01-8	NA	160,000	2,100	2,900,000	5,200,000	<330	<330	<330	NE	<330	<330	<330	<330	<330
Pyrene	129-00-0	NA	480,000	ID	1,000,000,000	84,000,000	<330	<330	<330	NE	<330	<330	<330	430	<330
Other SVOCs	CS	CS	CS	CS		CS	<RL	<RL	<RL	NE	<RL	<RL	<RL	<RL	<RL
<b>Metals</b>															
Arsenic	7440-38-2	5,800	5,800	5,800	910,000	37,000	9,300	14,000	9,900	13,000	8,800	13,000	4,600	8,100	12,000
Barium	7440-39-3	75,000	1,300,000	440,000	150,000,000	130,000,000	28,000	NE	99,000	NE	64,000	81,000	39,000	80,000	15,000
Cadmium	7440-43-9	1,200	6,000	3,600	2,200,000	2,100,000	240	330	330	270	250	450	160	310	200
Chromium, Total	7440-47-3	18,000 (total)	1,000,000,000	1,000,000,000	240,000	1,000,000,000	8,400	14,000	13,000	9,600	22,000	17,000	25,000	11,000	6,100
Chromium VI	18540-29-9	NA	30,000	3,300	240,000	9,200,000	NE	<500	NE	NE	NE	NE	<2,200	NE	NE
Copper	7440-50-8	32,000	5,800,000	75,000	59,000,000	73,000,000	18,000	27,000	20,000	14,000	15,000	24,000	9,900	21,000	18,000
Lead	7439-92-1	21,000	700,000	6,000,000	44,000,000	900,000	27,000	320,000	91,000	6,800	58,000	58,000	8,300	73,000	10,000
Mercury	7439-97-6	130	1,700	130	8,800,000	580,000	160	NE	180	NE	50	330	220	330	<50
Selenium	7782-49-2	410	4,000	410	59,000,000	9,600,000	1,300	NE	1,100	NE	930	1,400	670	560	560
Silver	7440-22-4	1,000	13,000	1,000	2,900,000	9,000,000	<100	NE	<100	NE	<100	140	<100	110	<100
Zinc	7440-66-6	47,000	5,000,000	170,000	ID	630,000,000	58,000	NE	100,000	NE	67,000	110,000	28,000	93,000	43,000

Notes are found on the last page of this table.



**TABLE 1**  
**SUMMARY OF ANALYSIS RESULTS - SOIL**  
**350 SOUTH FIFTH AVENUE, ANN ARBOR, MICHIGAN**  
**SME PROJECT NO. 079771.00**  
**PAGE 2 OF 3**

CONSTITUENT	Chemical Abstract Service Number	Statewide Default Background Levels	Part 201 Generic Nonresidential Cleanup Criteria				CHEMICAL ANALYSIS RESULTS								
			Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Sample Identification								
							Depth (feet)								
							DUP-1 (SB2)	SB2	SB3	SB3	SB4	SB5	SB6	SB6	SB7
						5.0-6.0	11.0-12.5	1.5-2.5	7.0-8.0	4.0-5.0	5.0-6.0	2.25-3.25	5.5-6.5	6.0-7.0	
						1/31/2014	1/31/2014	1/31/2014	1/31/2014	1/31/2014	1/31/2014	1/31/2014	1/31/2014	1/31/2014	
<b>VOCs</b>															
VOCs	CS	CS	CS	CS	1,000,000,000	CS	NE	NE	NE	NE	NE	NE	NE	NE	
<b>SVOCs, PAHs</b>															
Benzo(a)anthracene	56-55-3	NA	NLL	NLL	ID	80,000	<330	<330	<330	<330	<330	<330	<330	1,200	<330
Benzo(a)pyrene	50-32-8	NA	NLL	NLL	1,900,000	8,000	<330	<330	<330	<330	<330	<330	<330	910	<330
Benzo(b)fluoranthene	205-99-2	NA	NLL	NLL	ID	80,000	<330	<330	420	<330	420	<330	<330	1,400	<330
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLL	350,000,000	7,000,000	<330	<330	<330	<330	<330	<330	<330	670	<330
Benzo(k)fluoranthene	207-08-9	NA	NLL	NLL	ID	800,000	<330	<330	<330	<330	<330	<330	<330	480	<330
Chrysene	218-01-9	NA	NLL	NLL	ID	8,000,000	<330	<330	<330	<330	<330	<330	<330	950	<330
Fluoranthene	206-44-0	NA	730,000	5,500	1,000,000,000	130,000,000	<330	<330	540	<330	770	<330	<330	3,100	350
Indeno(1,2,3-cd)pyrene	193-39-5	NA	NLL	NLL	ID	80,000	<330	<330	<330	<330	<330	<330	<330	570	<330
Phenanthrene	85-01-8	NA	160,000	2,100	2,900,000	5,200,000	<330	<330	<330	<330	570	<330	<330	980	<330
Pyrene	129-00-0	NA	480,000	ID	1,000,000,000	84,000,000	<330	<330	440	<330	570	<330	<330	2,500	<330
Other SVOCs	CS	CS	CS	CS		CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
<b>Metals</b>															
Arsenic	7440-38-2	5,800	5,800	5,800	910,000	37,000	9,500	9,000	8,700	7,500	10,000	4,700	3,200	7,300	3,500
Barium	7440-39-3	75,000	1,300,000	440,000	150,000,000	130,000,000	23,000	14,000	67,000	11,000	82,000	13,000	9,800	84,000	9,200
Cadmium	7440-43-9	1,200	6,000	3,600	2,200,000	2,100,000	210	220	300	170	340	240	120	460	110
Chromium, Total	7440-47-3	18,000 (total)	1,000,000,000	1,000,000,000	240,000	1,000,000,000	7,200	6,600	11,000	4,900	13,000	4,800	5,000	9,600	4,000
Chromium VI	18540-29-9	NA	30,000	3,300	240,000	9,200,000	NE	NE	NE	NE	<2,300	NE	NE	NE	NE
Copper	7440-50-8	32,000	5,800,000	75,000	59,000,000	73,000,000	20,000	16,000	24,000	15,000	27,000	10,000	8,500	18,000	7,700
Lead	7439-92-1	21,000	700,000	6,000,000	44,000,000	900,000	16,000	6,000	70,000	6,300	60,000	5,600	3,800	38,000	3,900
Mercury	7439-97-6	130	1,700	130	8,800,000	580,000	<50	<50	300	<50	220	<50	<50	210	<50
Selenium	7782-49-2	410	4,000	410	59,000,000	9,600,000	540	530	530	520	760	370	330	750	380
Silver	7440-22-4	1,000	13,000	1,000	2,900,000	9,000,000	<100	<100	130	<100	<100	<100	<100	<100	<100
Zinc	7440-66-6	47,000	5,000,000	170,000	ID	630,000,000	46,000	35,000	89,000	36,000	95,000	35,000	28,000	120,000	23,000

Notes are found on the last page of this table.



**TABLE 1**  
**SUMMARY OF ANALYSIS RESULTS - SOIL**  
**350 SOUTH FIFTH AVENUE, ANN ARBOR, MICHIGAN**  
**SME PROJECT NO. 079771.00**  
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CONSTITUENT	Chemical Abstract Service Number	Statewide Default Background Levels	Part 201 Generic Nonresidential Cleanup Criteria				CHEMICAL ANALYSIS RESULTS									
			Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Sample Identification									
							Depth (feet)	SB9	SB9	SB1	SB3	SB6	SB7	SB9	SB10	Soil Dup (SB9)
							Date Collected	1.0-2.0	5.75-6.25	9.0-10.0	5.0-6.0	15.0-16.0	8.0-9.0	15.0-16.0	15.0-16.0	15.0-16.0
1/31/2014	1/31/2014	1/31/2014	11/22/2022	11/22/2022	11/22/2022	11/22/2022	11/22/2022	11/22/2022	11/22/2022	11/22/2022						
<b>VOCs</b>																
VOCs	CS	CS	CS	CS	1,000,000,000	CS	<RL	<RL	<RL	NE	NE	NE	NE	NE	NE	NE
<b>SVOCs, PAHs</b>																
Benzo(a)anthracene	56-55-3	NA	NLL	NLL	ID	80,000	<330	<330	<330	NE	NE	NE	NE	NE	NE	NE
Benzo(a)pyrene	50-32-8	NA	NLL	NLL	1,900,000	8,000	<330	<330	<330	NE	NE	NE	NE	NE	NE	NE
Benzo(b)fluoranthene	205-99-2	NA	NLL	NLL	ID	80,000	<330	<330	<330	NE	NE	NE	NE	NE	NE	NE
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLL	350,000,000	7,000,000	<330	<330	<330	NE	NE	NE	NE	NE	NE	NE
Benzo(k)fluoranthene	207-08-9	NA	NLL	NLL	ID	800,000	<330	<330	<330	NE	NE	NE	NE	NE	NE	NE
Chrysene	218-01-9	NA	NLL	NLL	ID	8,000,000	<330	<330	<330	NE	NE	NE	NE	NE	NE	NE
Fluoranthene	206-44-0	NA	730,000	5,500	1,000,000,000	130,000,000	<330	<330	<330	NE	NE	NE	NE	NE	NE	NE
Indeno(1,2,3-cd)pyrene	193-39-5	NA	NLL	NLL	ID	80,000	<330	<330	<330	NE	NE	NE	NE	NE	NE	NE
Phenanthrene	85-01-8	NA	160,000	2,100	2,900,000	5,200,000	<330	<330	<330	NE	NE	NE	NE	NE	NE	NE
Pyrene	129-00-0	NA	480,000	ID	1,000,000,000	84,000,000	<330	<330	<330	NE	NE	NE	NE	NE	NE	NE
Other SVOCs	CS	CS	CS	CS		CS	<RL	<RL	<RL	NE	NE	NE	NE	NE	NE	NE
<b>Metals</b>																
Arsenic	7440-38-2	5,800	5,800	5,800	910,000	37,000	3,000	3,300	8,800	NE	NE	NE	NE	NE	NE	NE
Barium	7440-39-3	75,000	1,300,000	440,000	150,000,000	130,000,000	8,800	12,000	44,000	NE	NE	NE	NE	NE	NE	NE
Cadmium	7440-43-9	1,200	6,000	3,600	2,200,000	2,100,000	130	120	160	NE	NE	NE	NE	NE	NE	NE
Chromium, Total	7440-47-3	18,000 (total)	1,000,000,000	1,000,000,000	240,000	1,000,000,000	3,800	3,700	13,000	NE	NE	NE	NE	NE	NE	NE
Chromium VI	18540-29-9	NA	30,000	3,300	240,000	9,200,000	NE	NE	<2,300	NE	NE	NE	NE	NE	NE	NE
Copper	7440-50-8	32,000	5,800,000	75,000	59,000,000	73,000,000	7,900	8,600	22,000	NE	NE	NE	NE	NE	NE	NE
Lead	7439-92-1	21,000	700,000	6,000,000	44,000,000	900,000	4,800	4,100	18,000	NE	NE	NE	NE	NE	NE	NE
Mercury	7439-97-6	130	1,700	130	8,800,000	580,000	<50	<50	<50	<50	2,400	<50	160	<50	<50	<50
Selenium	7782-49-2	410	4,000	410	59,000,000	9,600,000	310	<200	630	NE	NE	NE	NE	NE	NE	NE
Silver	7440-22-4	1,000	13,000	1,000	2,900,000	9,000,000	<100	<100	<100	NE	NE	NE	NE	NE	NE	NE
Zinc	7440-66-6	47,000	5,000,000	170,000	ID	630,000,000	25,000	24,000	59,000	NE	NE	NE	NE	NE	NE	NE

Notes are found on the last page of this table.



**TABLE 1**  
**SUMMARY OF ANALYSIS RESULTS - SOIL**  
**350 SOUTH FIFTH AVENUE, ANN ARBOR, MICHIGAN**  
**SME PROJECT NO. 079771.00**  
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**NOTES:**

1. Concentrations reported in micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ).
2. Analytical results were compared to December 30, 2013; GSI Protection Criteria Updated June 25, 2018; Promulgated Cleanup Criteria, R 299.46, Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels.
3. Results exceeding one or more criteria are shaded, as are the criteria exceeded.
4. VOCs - Volatile Organic Compounds. SVOCs - Semivolatile Organic Compounds. Refer to the analytical report for the full list of VOC and SVOC analytes
5. CS - Criterion is specific to individual constituent.
6. <RL - Analytical result was below laboratory reporting limit(s).
7. ID - Insufficient data to develop criteria.
8. NA - Not applicable.
9. NE - Not evaluated.
10. NLL - Not likely to leach.
11. \* = GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as  $\text{CaCO}_3$  was used to calculate GSI. Results are presented for surface water receiving bodies not protected as a drinking water source.
12. *Italicized* - the respective criterion was below the Statewide Default Background Level (SDBL) and therefore the value defaulted to the SDBL value.
13. \*\* - Total chromium results compared to trivalent chromium criteria because hexavalent chromium was analyzed and not measured above the laboratory reporting limit in the soil sample that had the highest total chromium concentration.
14. Concentrations were also compared to, and found to be below, the ambient and indoor air criteria and the soil saturation concentration screening levels.





**TABLE 2**  
**SUMMARY OF SOIL GAS ANALYTICAL RESULTS**  
**350 SOUTH FIFTH AVENUE, ANN ARBOR, MICHIGAN**  
**SME PROJECT NO. 079771.00**

Constituent	Volatilization to Indoor Air Pathway Screening Levels		Chemical Analysis Results Sample Identification Depth (Feet) Date Collected Environmental Concern						Maximum Concentration Measured at Property	
	Residential	Non Residential	SG-1	SG-2	SG-3	SG-4	SG-5	SG-6		
			5'-5.5'	5'-5.5'	5'-5.5'	5'-5.5'	15'-15.5'	15'-15.5'		
			12/1/2022	12/1/2022	12/1/2022	12/1/2022	12/1/2022	12/1/2022		
<b>Other Analytes</b>										
Mercury	7439-97-6	10	15	<0.48	<0.49	<0.49	<0.47	<0.50	<0.47	0

**NOTES:**

- Concentrations reported in micrograms per cubic meter (µg/m3).
- Analytical results were compared to the EGLE September 4, 2020 Residential and/or Nonresidential Volatilization to Indoor Air Pathway (VIAP) Screening Levels.
- Results exceeding one or more screening levels/criteria are shaded, as are the screening level/criteria exceeded
- Refer to the analytical report for the full list of analytes.
- CS - Criterion is specific to individual constituent.
- <RL - Analytical result was below laboratory reporting limit.
- ID - Insufficient data to develop criteria.
- NA - Not available
- NE - Not evaluated

**APPENDIX A**  
**EGLÉ DUE CARE GUIDE**

# Due Care Obligations

## For Owners or Operators of Contaminated Property

### INTRODUCTION

This guide to Due Care describes the obligations of an owner or operator of contaminated property, which are designed so that contaminated property can be safely used.

Section 20107a of Part 201, Environmental Remediation, and Section 21304c, Leaking Underground Storage Tanks, of Michigan’s Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), requires that owners and operators take measures to ensure that existing contamination on a property does not cause unacceptable risks and is not exacerbated. Such measures include evaluating the contamination and undertaking the necessary actions to address the unacceptable risks. Due care obligations are not related to the owner or operator’s liability for the contaminants; they apply to both non-labile parties and liable parties.

#### NOTE

This document is provided by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for informational purposes. A thorough review of Part 201 and Part 213 Statutes, Part 10 Administrative Rules, and guidelines should be completed before making site-specific decisions. These documents are available at [Michigan.gov/EGLEDueCare](http://Michigan.gov/EGLEDueCare).

### DUE CARE REQUIREMENTS – SECTIONS 20107a & 21304c

An owner or operator of contaminated property shall do all of the following with respect to contamination at the property.

- ▶ Prevent exacerbation of existing contamination.
- ▶ Prevent unacceptable human exposure and mitigate fire and explosion hazards to allow for the intended use of the facility in a manner that is protective of the public health and safety.
- ▶ Take reasonable precautions against reasonably foreseeable acts or omissions of a third party.
- ▶ Provide notification to EGLE and others.

- ▶ Provide reasonable cooperation, assistance, and access to the persons that are authorized to conduct response activities at the property.
- ▶ Comply with any land use or resource use restrictions established or relied on in connection with the response activities.
- ▶ Not impede the effectiveness or integrity of any land use or resource use restriction.

Sections 20101 and 21303 of the NREPA define a facility or a site as property with contamination in soil or groundwater at concentrations above Michigan’s cleanup criteria for residential property.

An owner’s or operator’s “due care” obligations summarized in this document are specified in Part 201, Section 20107a and its Administrative Rules 1001-1021 and in Part 213, Section 21304c. Find more information at [Michigan.gov/EGLEDueCare](http://Michigan.gov/EGLEDueCare), including:

- ▶ Part 201 of NREPA
- ▶ Part 201 Administrative Rules (Part 10)
- ▶ Part 201 Residential Cleanup Criteria
- ▶ Part 213 of NREPA
- ▶ EGLE RRD Guidance Documents
- ▶ Due Care Brochure, Matrix, and Forms

### PREVENT EXACERBATION

Exacerbation occurs when an activity undertaken by the person who owns or operates the property causes the existing contamination to migrate beyond the property boundaries. Examples of exacerbation can include:

- ▶ Mishandling excavated contaminated soil such that contamination now migrates off-site
- ▶ Pumping contaminated water from footing drains into a nearby ditch
- ▶ Creating a new migration pathway by putting a utility line through a zone of highly contaminated groundwater or soil.

An owner or operator can also exacerbate contamination by changing the facility conditions in a manner that would increase the response activity or corrective action costs for the liable party. An example

might be to place a building over the source of the existing contamination. A person that causes exacerbation would be liable for remediation of the contamination they caused or paying the increase in the response activity or corrective action costs.

## PREVENT UNACCEPTABLE HUMAN RISK

Owners and operators must evaluate the existing contamination to determine if the people using or working at the property would be exposed to contamination at levels above the appropriate generic or site-specific criteria. Upon the identification of unacceptable risks, the owner and operators must then undertake the actions that are necessary to prevent unacceptable exposures to contamination in order to demonstrate compliance with their due care obligations. Criteria for differing land uses can be found in the Part 201 Administrative Rules (Rules 1-50).

For example, if groundwater used for drinking is contaminated above the drinking water criteria then the owner and operator must prevent the use of the contaminated drinking water. If soils are contaminated above the direct contact criteria for the appropriate land use at the surface of the property, then people must be prevented from coming into contact with those soils by restricting access, installing a barrier to prevent exposure, or removing contaminated soil. Exposure barriers can be clean soil, concrete, paving, etc. In some instances, remediation of the contamination may be the most cost effective response.

In addition, if there is a potential unacceptable risk for utility workers or people conducting activities in an easement on the property, then utility and/or easement holders must be notified in writing of the conditions by the owner and operator. If there is a fire and explosion hazard, the local fire department must be notified, and the situation must be mitigated.

## TAKE REASONABLE PRECAUTIONS

Taking reasonable precautions against the reasonably foreseeable actions and omissions of a third party means trying to prevent things that could cause a third party to be exposed to an unacceptable risk. This might include:

- ▶ notifying contractors of contamination so they can take proper precautions

- ▶ preventing trespass that would result in an unacceptable exposure (neighborhood kids playing in a vacant industrial yard that has direct contact hazards)
- ▶ taking actions to secure abandoned containers so they don't get damaged by traffic, etc.

## PROVIDE REASONABLE COOPERATION, ASSISTANCE, AND ACCESS

Owners and operators must allow a person authorized to take response activities or corrective actions on the property (such as the liable person, or the state) to take such actions as: installing monitor wells, operating a remediation system, and maintaining the integrity of an exposure barrier, etc. However, the statute specifically states that this shall not be interpreted as providing any right of access not expressly authorized by law. The authorized person must still go through the normal process of acquiring voluntary or court ordered access, including the potential for compensation as the parties and/or court deem reasonable.

## COMPLY WITH AND NOT IMPEDE THE EFFECTIVENESS OF LAND USE AND RESOURCE USE RESTRICTIONS

If there are land use or resource use restrictions on the property, owners and operators must comply with those restrictions and not take actions that would impede their effectiveness. Examples of compliance might include:

- ▶ not installing a well when a restriction on using the groundwater for drinking water purposes
- ▶ not allowing a residential use on a property if there is a restriction limiting the property use to nonresidential
- ▶ not removing a barrier installed to prevent contact with contaminated soil
- ▶ not turning off an operating remediation system.

## EVALUATING THE NEED FOR DUE CARE

The necessity for conducting response actions are determined by evaluating the current/intended property use and the existing contamination. Based on

that evaluation, the actions needed to prevent unacceptable exposures and comply with all due care obligations must be implemented. Environmental professionals often assist with this process (see the Environmental Professionals section).

## DUE CARE DOCUMENTATION

Owners and operators must maintain documentation that an evaluation to identify unacceptable risks was conducted, necessary actions have been taken, and the actions are adequate. Certain response actions (e.g., exposure barriers, mitigation system, etc.) will require continued maintenance, inspections, and repair that must also be documented.

Documentation requirements are described in the Part 201 Administrative Rule 1003. The documentation does not need to be submitted to EGLE but must be available for EGLE to review upon request within eight (8) months of becoming the owner or operator or of having knowledge that the property is contaminated. You may request an EGLE review and determination and submit Documentation of Due Care Compliance pursuant to Sections 20114g or 21323n.

## NOTIFICATION

The Part 10 (“due care”) Rules require notification to EGLE and others in the following circumstances:

- ▶ Notify EGLE if there are discarded or abandoned containers that contain hazardous substances on the property; see Form EQP 4476.
- ▶ Notify EGLE and adjacent property owners if contaminants are migrating off the property; see Form EQP 4482.
- ▶ Notify the local fire department if there is a fire or explosion hazard.
- ▶ Notify utility and easement holders if contaminants could cause unacceptable exposures and/or fire and explosion hazards.

Notices must be made within 45 days of becoming the owner or operator, or of having knowledge of the conditions. Forms are available at EGLE District Offices and online at [Michigan.gov/EGLEDueCare](http://Michigan.gov/EGLEDueCare).

## EXEMPTIONS/LIMITATIONS

Parts 201 and 213 provide exemptions to the “due care” obligations to prevent exacerbation, prevent or mitigate unacceptable exposures, and take reasonable precautions for the following entities:

- ▶ An owner or operator of property where the contamination is migrating onto the property.
- ▶ An owner or operator of a utility franchise on the property.
- ▶ An owner or operator of the severed mineral rights to the property.
- ▶ A local unit of government (LUG) that: involuntarily acquires title or control of property by virtue of its governmental functions, or the property is transferred to the LUG from the state or a LUG that is not liable under Part 201 or 213, or by seizure, receivership or forfeiture or court order, or voluntarily acquired the property and conducted a baseline environmental assessment (BEA).
- ▶ A LUG that has an easement interest or holds a utility franchise for a transportation or utility corridor or public right of way, or for conveying or providing goods and services.
- ▶ A LUG that is not liable and is leasing the property to a non-liaible party.

However, if the state or LUG exempted above offers access to the property and makes it available for public use, such as for parks, schools, municipal office buildings, public works operations, etc., then the person, state, or LUG must comply with all due care obligations for that portion of the property that is accessible to the public.

Additionally, the person, state, or LUG that is exempted above still has due care obligations to provide cooperation, assistance, and access, comply with land use or resource use restrictions, and not impede the integrity or effectiveness of the land or resource use restriction. Further, Sections 20107a(6) and 21304c(6) specify utilities and severed mineral right owners must comply with due care in regard to their own activities.

While Parts 201 and 213 provide these exemptions, it may be in the owner's and operator's best interest to ensure the property is safe for the intended use and that they do not cause a new release by their actions or exacerbate pre-existing conditions.

## ENVIRONMENTAL PROFESSIONALS

Resources for finding an environmental professional, consultant or engineer include online searches for Environmental, Ecological, or Engineering consulting firms; referrals from financial institutions, real estate agencies, or trade associations, etc. It is wise to ask the professional or consultant for references and inquire as to past due care compliance documentation reports they have successfully completed. EGLE does not provide recommendations for environmental professionals, consultants or engineers.

## EGLE RESOURCES

### Environmental Assistance Center:

800-662-9278 | [EGLE-Assist@Michigan.gov](mailto:EGLE-Assist@Michigan.gov)

### Remediation and Redevelopment Division:

[Michigan.gov/EGLEERRD](https://Michigan.gov/EGLEERRD)

#### Due Care

Jeanne Schlaufman

586-753-3823 | [SchlaufmanJ1@Michigan.gov](mailto:SchlaufmanJ1@Michigan.gov)

### Office of Oil, Gas and Minerals Division

[Michigan.gov/EGLEOilGasMinerals](https://Michigan.gov/EGLEOilGasMinerals)

#### Part 615 (Supervisor of Wells – oil/gas wells)

#### Part 625 (Mineral Wells)

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