McDowell & Associates

Geotechnical, Environmental & Hydrogeological Services • Materials Testing & Inspection

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January 2, 2023

Ms. Bukurije Logu
1497 Walton Boulevard
Rochester Hills, Michigan 48309

Job No. 22-16348

Attention: Ms. Bukurije Logu

Subject: Limited Phase II Environmental Site Assessment
Approximate 32.49-Acre Parcel
1406 E. Avon Road
Rochester Hills, Oakland County, Michigan

Dear Ms. Logu,

Pursuant to your request, McDowell & Associates has completed a Limited Phase II Environmental Site Assessment (ESA) for the subject property. A Site Location Map, which shows the approximate location of the subject property, accompanies this report as Attachment I.

The purpose of this Limited Phase II ESA was to investigate fill on the subject property to support completion of a Baseline Environmental Assessment.

As part of this investigation, a total of six test pits were made and five soil samples, plus one duplicate soil sample, were obtained and submitted for chemical testing.

Results of chemical testing showed metals and PNAs in soil at concentrations above EGLE Generic Residential Criteria and EGLE Residential VIAP Screening Levels.

Test results indicate the subject property meets the definition of a "facility" under Part 201 of Michigan Public Act 451 and a Baseline Environmental Assessment could be performed. The "facility" owner and operator will have due care obligations. The scope of work for this Limited Phase II ESA was completed to support a new BEA. A supplemental investigation is required at the property to address due care.

This report was completed for the exclusive use of United Tech Construction LLC , and they may rely on its contents.

The results of our investigation are presented below.

Mid-Michigan Office
3730 James Savage Road, Midland, MI 48642
Phone: (989) 496-3610 • Fax: (989) 496-3190

Background

McDowell & Associates was retained on December 13, 2022 to complete a Phase II ESA for the subject property. It was indicated that a Phase I ESA was underway by others and anticipated to be completed on December 28, 2022.

Prior to completion of field work, McDowell & Associates reviewed in-house historical sources for the subject property including aerial photographs, topographic maps, the USDA Soil Survey, and a Baseline Environmental Assessment (BEA) for the west adjoining property. Also included in the BEA for the west adjoining property was a "Draft" Preliminary Soils Investigation prepared by McDowell & Associates for the subject property and the west adjoining property on April 6, 2004 (McDowell & Associates' Job No. 04-142).

As part of the "Draft" Preliminary Soils Investigation, McDowell & Associates witnessed 16 test pits and one hand auger boring on the property. Fourteen of the test pits (TP-1 through TP-7, TP-9 through TP-13, TP-16, and TP-17) were made on the subject property. The approximate locations in which test pits and soil borings were made are shown on the accompanying Soil Boring, Test Pit, and Sample Location Map.

Test pits made on the subject property encountered fill containing varying amounts of tree stumps and limbs, concrete, and general household refuse such as bottles to depths up to 12' underlain by brown, gray, and variegated sand with silt and gravel content. The Log of Test Pit Sheets from that investigation, are attached.

The scope of work for this Phase II ESA was completed to investigate fill on the subject property to support completion of a Baseline Environmental Assessment.

Previous Phase I ESA

McDowell & Associates was provided a copy of a Phase I ESA prepared by Michigan Consulting & Environmental, dated December 28, 2022. That Phase I ESA also referenced the BEA (including Phase I ESA and Phase II ESA) for the west adjoining property, the "Draft" Preliminary Soils Investigation by McDowell & Associates, and a Brownfield Redevelopment Assessment Report prepared by MDEQ [now EGLE] for the subject property and adjoining land to the west in 2011.

That report identified the following recognized environmental conditions in connection with the subject property:

1. "The listing of the Property as part of a parent parcel which was identified as a facility where contaminants above Part 201 CCRRA [cleanup criteria requirements for response activities] are known to exist from the Property's historical use as a woodfill, tree farm and reported dumping of household refuse …."

2. "The presence of a 55-gallon drum which was reported to have leaked an unknown liquid to the subsurface environment based on prior reports …."

3. "The listing of the east and southeast adjacent parcels as the former SOCRRA landfill and composting facility identified under multiple regulatory facility listings and their close proximity to the Property …."

4. "The listing of two LUST sites within the minimum prescribed search distance which were up gradient to the Property …."

5. "Due to the presence of several contaminants in the soil above multiple Part 201 CCRRA, a VEC [vapor encroachment condition] to future buildings and/or structures cannot be ruled out."

Field Work

On December 22, 2022, McDowell & Associates witnessed six test pits, designated 1 through 6, on the subject property. Test pit locations were biased to areas with known suspect fill. A Soil Boring, Test Pit, and Sample Location Map, which shows the approximate locations in which test pits were made, accompanies this report as Attachment II.

Subsurface conditions encountered in TP-2 through TP-6 generally consisted of sandy topsoil and sand fill with varying amounts of debris including glass, metal, brick, concrete, possible slag, tire, ceramic, and wood to depths up to 6' underlain by moist brown sand. No suspect fill was noted in TP-1. Subsurface conditions encountered at each test pit location are shown on the Log of Test Pit Sheets which are included as Attachment III.

Test pit spoils were screened with a MiniRAE 2000 photoionization detector (PID) to estimate the presence of volatile organic compound (VOC) vapors. No VOC vapors were detected with the PID.

Soil samples obtained as part of this assessment were placed in labeled, pre-cleaned jars and stored in an ice-chest until delivery to a representative of Merit Laboratories, Inc. of East Lansing, Michigan for chemical testing. Soil samples were preserved for VOC analyses in general accordance with EPA Method 5035A. Sample chain-of-custody documentation accompanies this report with chemical test results.

Chemical Testing Program

The following table summarizes sampling completed at the property as part of this Limited Phase II ESA.

Sample ID	Date	Matrix	Sample Depth	Chemical Testing Program
2a	12/22/2022	Soil	2'- 3'	10 MM, PNAs
2a-D	12/22/2022	Soil	Duplicate	10 MM, PNAs
3a	12/22/2022	Soil	2'- 3'	10MM, VOCs, PNAs, PCBs
3b	12/22/2022	Soil	5'- 6'	10MM, VOCs
4a	12/22/2022	Soil	1'- 2'	10MM, pesticides
5a	12/22/2022	Soil	0'- 1'	10MM, pesticides, PNAs, PCBs

VOCs- volatile organic compounds (Method 8260C- soil)
PNAs- polynuclear aromatic hydrocarbons (Method 8270D)

PCBs- polychlorinated biphenyls (Method 8082)
Pesticides- Method 8081
10MM- 10 Michigan Metals: arsenic, barium, cadmium chromium, copper, lead, selenium, silver, zinc (Method 6020) and mercury (Method 7471)

Chemical Test Results

The accompanying Tables 1 through 4 summarize chemical test results in comparison to current EGLE Generic Residential Criteria (December 2013) and EGLE Residential and Non-Residential Volatilization to Indoor Air Pathway (VIAP) Screening Levels (September 2020).

Individual chemical test results accompany this report as Attachment IV.

Metals

Arsenic was detected in 2a, 2a-D, 3a, and 4a and total lead was detected 2a-D, 3a, and 4a at concentrations above EGLE Statewide Default Background Levels and EGLE Generic Residential Direct Contact and Groundwater Protection Criteria. Fine and coarse fraction lead testing would be required to investigate total lead concentrations at 2a, 3b, and 5a.

Barium, cadmium, total chromium, copper, selenium, silver, and zinc were detected in some or all of soil samples 2a, 2a-D, 3a, 3b, and 4a above EGLE Statewide Default Background Levels and EGLE Generic Residential Groundwater Protection Criteria.

Total chromium was detected in 3a at a concentration above the EGLE Generic Residential Particulate Soil Inhalation Criterion for hexavalent chromium. Additional testing would be required to investigate the chromium type.

Mercury was detected in each of the soil samples above the Statewide Default Background Level, the EGLE Generic Residential GSI Groundwater Protection Criterion, and EGLE VIAP Screening Level.

Volatile Organic Compounds

2-Methylnaphthalene, naphthalene, toluene, and xylenes were detected in Soil Sample 3a at concentrations below EGLE Generic Residential Criteria. The detected concentration of naphthalene in 3a exceeds the EGLE Residential VIAP Screening Level.

p-Isopropyltoluene was detected in Soil Samples 3a and 3b at a concentration of 100 ug/kg. There are no published EGLE Generic Residential Criteria or EGLE VIAP Screening Levels for p-isopropyltoluene.

Polynuclear Aromatic Hydrocarbons

PNAs were detected in Soil Samples 2a, 2a-D, 3a, and 5a.

The detected concentrations of benzo(a)pyrene in 2a, 2a-D, and 3a exceed the EGLE Generic Residential Direct Contact Criterion.

The detected concentrations of fluoranthene in 2a and 3a exceed the EGLE Generic Residential Groundwater Surface Water Interface (GSI) Groundwater Protection Criterion.

The detected concentrations of phenanthene in 2a, 2a-D, and 3a exceed the EGLE Generic Residential GSI Groundwater Protection Criterion and the EGLE Residential VIAP Screening Level.

Polychlorinated Biphenyls

No PCBs were detected in Soil Sample 4a.

PCBs were detected in Soil Sample 4a, but at concentrations below EGLE Generic Residential Criteria. EGLE has not published Residential VIAP Screening Levels for PCBs. According to a Footnote, EGLE indicates insufficient physical chemical parameters to calculate a VIAP Screening Level for soil. “If detections are present in specified media, health-based soil vapor value should be used to evaluate risk.”

Pesticides

The pesticides 4,4-DDD, 4,4-DDE, and/or 4,4-DDT were detected in Soil Samples 3a and 4a, but at concentrations below EGLE Generic Residential Criteria and EGLE Residential VIAP Screening Levels.

Limitations

McDowell & Associates was retained on December 13, 2022 to complete a Phase II ESA for the subject property. Work associated with this report was completed in a rapid manner with limited time to review existing data due to this late retention date. In order to meet the timeline for completion of a Baseline Environmental Assessment, field work was conducted prior to receipt of a Phase I ESA prepared by others on December 28, 2022. This timing had a negative effect on scope of work and data available from which to make recommendations.

No environmental assessment can eliminate uncertainty regarding the potential for recognized environmental conditions or the presence of contaminants in connection with a property. This environmental assessment is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with the property within reasonable limits of time and cost. The conclusions represent our professional opinion based upon information obtained during assessment procedures and may not represent those that would be made under other conditions.

Nothing in this report constitutes a legal opinion or legal advice. It is suggested that environmental counsel be retained to evaluate site conditions and transaction-related issues from a legal perspective.

Property lines shown on maps are estimates and are limited by scale inaccuracies. The approximate boundaries shown on report attachments are not intended to be exact, but rather approximations to assist with review.

Conclusions

McDowell & Associates has completed a Limited Phase II Environmental Site Assessment (ESA) for the subject property. The purpose of this Limited Phase II ESA was to investigate fill on the subject property to support completion of a Baseline Environmental Assessment.

As part of this investigation, a total of six test pits were made and five soil samples, plus one duplicate soil sample, were obtained and submitted for chemical testing.

Results of chemical testing showed metals and PNAs in soil at concentrations above EGLE Generic Residential Criteria and EGLE Residential VIAP Screening Levels.

Test results indicate the subject property meets the definition of a "facility" under Part 201 of Michigan Public Act 451 and a Baseline Environmental Assessment could be performed. The "facility" owner and operator will have due care obligations. The scope of work for this Limited Phase II ESA was completed to support a new BEA. A supplemental investigation is required at the property to address due care.

If you have any questions regarding the information contained in this report, or if we can be of further service, please do not hesitate to call.

Very truly yours,

McDOWELL & ASSOCIATES

Jennifer Lagerbohm, M.S., CHMM
Senior Industrial Hygienist

Douglas M. McDowell, M.S., P.E.
Vice President

JL/jl

Attachments

Table 1: Summary of Metals Chemistry Results (Soil)
Table 2: Summary of Detected SVOCs Chemistry Results (Soil)
Table 3: Summary of Detected VOCs Chemistry Results (Soil)
Table 4: Summary of Pesticides and PCBs Chemistry Results (Soil)

Attachment I- Site Location Map
Attachment II- Test Pit and Sample Location Map
Attachment III- Log of Test Pit Sheets
Attachment IV- Chemical Test Results with Chain-of-Custody Documentation

Table 1

Summary of Metals Chemistry Results (Soil)

McDowell Job No. 22-16348

JL 1/2/2023

TABLE 1 - SUMMARY OF METALS CHEMISTRY RESULTS (Soil)

Sample	Date	Description	Arsenic 7440382	Barium 7440393	Cadmium 7440439	Total Chromium 18540299	Copper 7440508
2a	12/22/2022	2'- 3'	**13.3**	**844**	**4.71**	**22.2**	**131**
2a-D	12/22/2022	duplicate	**13.9**	**727**	**6.86**	**19.8**	**494**
3a	12/22/2022	2'- 3'	**24.5**	**862**	**7.64**	**303**	**1,710**
3b	12/22/2022	5'- 6'	**6.88**	**271**	0.92	**8.86**	**69.4**
4a	12/22/2022	1'- 2'	**17.3**	**598**	**6.50**	**24.6**	**167**
5a	12/22/2022	0'- 1'	4.65	63.5	0.50	14.2	31.6
EGLE Statewide Default Background Levels			**5.8**	**75**	**1.2**	**18**	**32**
EGLE Generic Residential Groundwater Protection Criteria			**4.6/4.6**	**1,300/440(7)**	**6.0/3.6(7)**	**30/3.3**	**5,800/75(7)**
EGLE Generic Residential Particulate Soil Inhalation Criteria			**720**	**330,000**	**1,700**	**260**	**130,000**
EGLE Generic Non-Residential Particulate Soil Inhalation Criteria			**910**	**150,000**	**2,200**	**240**	**59,000**
EGLE Generic Residential Volatile Soil Inhalation Criteria (VSIC)			**NLV**	**NLV**	**NLV**	**NLV**	**NLV**
EGLE Generic Residential Direct Contact Criteria			**7.6**	**37,000**	**550**	**2,500**	**20,000**
EGLE Generic Non-Residential Direct Contact Criteria			**37**	**130,000**	**2,100**	**9,200**	**73,000**

Sample	Date	Description	Total Lead 7439921	Mercury 7439976	Selenium 7782492	Silver 7440224	Zinc 7440666
2a	12/22/2022	2'- 3'	**322**	**0.357**	**0.63**	**1.13**	**489**
2a-D	12/22/2022	duplicate	**999**	**0.323**	**1.01**	**2.31**	**723**
3a	12/22/2022	2'- 3'	**1,370**	**0.812**	**1.67**	**4.95**	**1,050**
3b	12/22/2022	5'- 6'	**270**	**0.228**	**0.60**	**1.62**	**215**
4a	12/22/2022	1'- 2'	**966**	**1.014**	**1.11**	**1.33**	**2,220**
5a	12/22/2022	0'- 1'	**164**	**0.183**	<0.40	<0.20	**124**
EGLE Statewide Default Background Levels			**21**	**0.13**	**0.41**	**1.0**	**47**
EGLE Residential Volatilizataion to Indoor Air Pathway (VIAP) Screening Level				**0.022**			
EGLE Generic Residential Groundwater Protection Criteria			**700/5,100(7)**	**1.7/0.05**	**4.0/0.4**	**4.5/0.1**	**2,400/169(7)**
EGLE Generic Residential Particulate Soil Inhalation Criteria			**100,000**	**52 (48-indoor)**	**130,000**	**6,700**	**ID**
EGLE Generic Non-Residential Particulate Soil Inhalation Criteria			**44,000**	**62 (89- indoor)**	**59,000**	**2,900**	**ID**
EGLE Generic Residential Volatile Soil Inhalation Criteria (VSIC)			**NLV**	**0.52**	**NLV**	**NLV**	**NLV**
EGLE Generic Residential Direct Contact Criteria			**400**	**160**	**2,600**	**2,500**	**170,000**
EGLE Generic Non-Residential Direct Contact Criteria			**900**	**580**	**9,600**	**9,000**	**630,000**

NOTES:

1. All values expressed in mg/kg
2. Michigan Department of Environment, Great Lakes, and Energy (EGLE) Generic Criteria from Table 2. Soil: Residential, and Table 3. Soil: Nonresidential. Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels," dated December 30, 2013.
   EGLE Residential Volatilization to Indoor Air Pathway (VIAP) Screening Levels, dated September 4, 2020.
3. Most rigorous of Ambient Air Criteria presented.
4. Groundwater Protection Criteria presented as Drinking Water/Ground Water Surface Water Interface (GSI)
5. Chemical Abstract Service (CAS) Numbers are presented below chemicals as provided by EGLE.
6. "ID" = EGLE indicates inadequate data to develop criterion.
7. EGLE indicates that some chemical-specific GSI criteria are based upon the hardness of the receiving waters, and for the purpose of evaluating the potential need for remedial activities, EGLE allows an estimated hardness value of 150 mg/L to be used. Final determination of compliance with criteria must be based on site specific hardness. The estimated GSI value shown is not protective of surface water used as a drinking water source.
8. Boldface values exceed EGLE Statewide Default Background Levels or Facility-Specific Background Levels.
9. Values shown thus **value** exceed Statewide Default and EGLE Generic Residential Groundwater Protection Criteria.
10. Values shown thus **value** exceed Statewide Default and EGLE Generic Residential Direct Contact Criteria.
11. "NT" = not tested.
12. Distinctive testing would be required to determine the relative concentrarions of chromium III and VI. For the purposes of this table chromium VI comparative criteria are used.

Table 2

Summary of Detected SVOCs Chemistry Results (Soil)

McDowell Job No. 22-16348
JL 1/2/2023

TABLE 2 - SUMMARY OF PNAs CHEMISTRY RESULTS (Soil

Sample	Date	Description	Acenaphthene 83329	Acenaphthylene 208968	Anthracene 120127	Benzo(a)anthracene 56553	Benzo(a)pyrene 50328	Benzo(b)fluoranthene 205992
2a	12/22/2022	2'- 3'	<300	<300	1,100	2,800	2,500	3,300
2a-D	12/22/2022	duplicate	<300	<300	700	2,000	2,000	3,600
3a	12/22/2022	2'- 3'	400	<300	1,600	3,900	3,300	6,200
5a	12/22/2022	0'- 1'	<300	<300	<300	700	700	1,100
EGLE Residential Volatilization to Indoor Air Pathway (VIAP) Screening Levels			**200,000**	**DATA**	**13,000,000**	**160,000**	**NA**	**NA**
EGLE Non-Residential Volatilization to Indoor Air Pathway (VIAP) Screening Levels			**3,600,000**	**DATA**	**220,000,000**	**11,000,000**	**NA**	**NA**
EGLE Generic Residential Groundwater Protection Criteria			**300,000/8,700**	**5,900/ID**	**41,000/ID**	**NLL/NLL**	**NLL/NLL**	**NLL/NLL**
EGLE Generic Residential Indoor Air Inhalation Criteria			**190,000,000**	**1,600,000**	**1,000,000,000**	**NLV**	**NLV**	**ID**
EGLE Generic Non-Residential Indoor Air Inhalation Criteria			**350,000,000**	**3,000,000**	**1,000,000,000**	**NLV**	**NLV**	**ID**
EGLE Generic Residential Volatile Soil Inhalation Criteria (VSIC)			**81,000,000**	**2,200,000**	**1,400,000,000**	**NLV (ID)**	**1,500,000**	**ID**
EGLE Generic Residential Particulate Soil Inhalation Criteria			**14,000,000,000**	**2,300,000,000**	**67,000,000,000**	**ID**	**1,500,000**	**ID**
EGLE Generic Residential Direct Contact Criteria			**41,000,000**	**1,600,000**	**230,000,000**	**20,000**	**2,000**	**20,000**
EGLE Generic Non-Residential Direct Contact Criteria			**130,000,000**	**5,200,000**	**730,000,000**	**80,000**	**8,000**	**80,000**

Sample	Date	Description	Benzo(g,h,i)perylene 191242	Benzo(k)fluoranthene 207089	Chrysene 218019	Dibenzo(a,h)anthracene 53703	Fluoranthene 206440	Fluorene 86737
2a	12/22/2022	2'- 3'	1,300	3,700	2,800	<300	**6,100**	500
2a-D	12/22/2022	duplicate	1,200	4,000	2,200	500	4,500	<300
3a	12/22/2022	2'- 3'	1,700	6,900	4,200	600	**9,100**	500
5a	12/22/2022	0'- 1'	300	1,300	700	<300	1,300	<300
EGLE Residential Volatilization to Indoor Air Pathway (VIAP) Screening Levels			**NA**	**NA**	**NA**	**NA**	**NA**	**470,000**
EGLE Non-Residential Volatilization to Indoor Air Pathway (VIAP) Screening Levels			**NA**	**NA**	**NA**	**NA**	**NA**	**8,300,000**
EGLE Generic Residential Groundwater Protection Criteria			**NLL/NLL**	**NLL/NLL**	**NLL/NLL**	**NLL/NLL**	**730,000/5,500**	**390,000/5,300**
EGLE Generic Residential Indoor Air Inhalation Criteria			**NLV**	**NLV**	**ID**	**NLV**	**1,000,000,000**	**580,000,000**
EGLE Generic Non-Residential Indoor Air Inhalation Criteria			**NLV**	**NLV**	**ID**	**NLV**	**1,000,000,000**	**1,000,000,000**
EGLE Generic Residential Volatile Soil Inhalation Criteria (VSIC)			**NLV**	**NLV**	**ID**	**NLV**	**740,000,000**	**130,000,000**
EGLE Generic Residential Particulate Soil Inhalation Criteria			**800,000,000**	**NLV (ID)**	**ID**	**NLV (ID)**	**740,000,000**	**130,000,000**
EGLE Generic Residential Direct Contact Criteria			**2,500,000**	**200,000**	**2,000,000**	**2,000**	**46,000,000**	**27,000,000**
EGLE Generic Non-Residential Direct Contact Criteria			**7,000,000**	**800,000**	**8,000,000**	**8,000**	**130,000,000**	**87,000,000**

Sample	Date	Description	Indeno(1,2,3-cd)pyrene 193395	2-Methylnaphthalene 91576	Naphthalene 91203	Phenanthrene 85018	Pyrene 129000
2a	12/22/2022	2'- 3'	1,300	<300	<300	**4,200**	4,900
2a-D	12/22/2022	duplicate	1,100	<300	<300	**2,600**	3,800
3a	12/22/2022	2'- 3'	1,700	<300	<300	**5,800**	7,400
5a	12/22/2022	0'- 1'	300	<300	<300	700	1,100
EGLE Residential Volatilization to Indoor Air Pathway (VIAP) Screening Levels			**NA**	**1,700**	**67**	**1,700**	**25,000,000**
EGLE Non-Residential Volatilization to Indoor Air Pathway (VIAP) Screening Levels			**NA**	**30,000**	**1,900**	**29,000**	**440,000,000**
EGLE Generic Residential Groundwater Protection Criteria			**NLL/NLL**	**57,000/4,200**	**35,000/730**	**56,000/2,100**	**480,000/ID**
EGLE Generic Residential Indoor Air Inhalation Criteria			**NLV**	**2,700,000**	**250,000**	**2,800,000**	**1,000,000,000**
EGLE Generic Non-Residential Indoor Air Inhalation Criteria			**NLV**	**4,900,000**	**470,000**	**5,100,000**	**1,000,000,000**
EGLE Generic Residential Volatile Soil Inhalation Criteria (VSIC)			**NLV (ID)**	**1,500,000**	**300,000**	**160,000**	**650,000,000**
EGLE Generic Residential Particulate Soil Inhalation Criteria			**ID**	**670,000,000**	**200,000,000**	**6,700,000**	**6,700,000,000**
EGLE Generic Residential Direct Contact Criteria			**20,000**	**8,100,000**	**16,000,000**	**1,600,000**	**29,000,000**
EGLE Generic Non-Residential Direct Contact Criteria			**80,000**	**26,000,000**	**52,000,000**	**5,200,000**	**84,000,000**

NOTES:

1. All values expressed in µg/kg
2. Michigan Department of Environment, Great Lakes, and Energy (EGLE) Generic Criteria from Table 2. Soil: Residential, and Table 3. Soil: Nonresidential. Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels," dated December 30, 2013. EGLE VIAP Screening Levels dated September 4, 2020.
3. Most rigorous of Ambient Air Criteria presented.
4. Groundwater Protection Criteria presented as Drinking Water/Ground Water Surface Water Interface (GSI)
5. Chemical Abstract Service (CAS) Numbers are presented below chemicals as provided by EGLE.
6. "ID" = EGLE indicates inadequate data to develop criterion.
7. "NLL" = EGLE indicates not likely to leach.
8. "NLV" = EGLE indicates not likely to volatilize.
9. Boldfaced values exceed EGLE Generic Residential Groundwater Protection Criteria.
10. Values shown thus [ ] exceed EGLE Generic Residential Indoor Air Inhalation Criteri
11. Values shown thus [ ] exceed EGLE Generic Residential Direct Contact Criteria.
12. Values shown thus [ ] exceed EGLE Generic Residential Ambient Air Inhalation Criteria.
13. "*" = Value exceeds multiple EGLE Generic Residential Criteria.

Table 3

Summary of Detected VOCs Chemistry Results (Soil)

McDowell Job No. 22-16348

JL 1/2/2023

TABLE 3 - SUMMARY OF DETECTED VOLATILE ORGANICS CHEMISTRY RESULTS (Soil)

Sample	Date	Description	p-Isopropyltoluene	2-Methylnaphthalene 91576	Naphthalene 91203	Toluene 108883	Trichloroethene 79016	Xylenes 1330207
3a	12/22/2022	2'- 3'	100	200	300	200	<60	170
3b	12/22/2022	5'- 6'	100	<100	<300	<60	<60	<160
EGLE Residential Volatilization to Indoor Air Pathway (VIAP) Screening Levels			**NC**	**1,700**	**67**	**3,700**	**0.33**	**280**
EGLE Non-Residential Volatilization to Indoor Air Pathway (VIAP) Screening Levels			**NC**	**30,000**	**1,900**	**64,000**	**4.0**	**5,000**
EGLE Generic Residential Groundwater Protection Criteria			**NC**	**57,000/4,200**	**35,000/730**	**16,000/5,400**	**100/4,000**	**5,600/820**
EGLE Generic Non-Residential Groundwater Protection Criteria			**NC**	**170,000/4,200**	**100,000/730**	**16,000/5,400**	**100/4,000**	**5,600/820**
EGLE Generic Residential Indoor Air Inhalation Criteria			**NC**	**2,700,000**	**250,000**	**330,000**	**1,000**	**6,300,000**
EGLE Generic Non-Residential Indoor Air Inhalation Criteria			**NC**	**4,900,000**	**470,000**	**610,000**	**1,900**	**12,000,000**
EGLE Generic Residential Volatile Soil Inhalation Criteria (VSIC)			**NC**	**1,500,000**	**300,000**	**2,800,000**	**11,000**	**46,000,000**
EGLE Generic Non-Residential Volatile Soil Inhalation Criteria (VSIC)			**NC**	**1,800,000**	**350,000**	**3,300,000**	**14,000**	**54,000,000**
EGLE Generic Residential Particulate Soil Inhalation Criteria			**NC**	**670,000,000**	**200,000,000**	**27,000,000,000**	**130,000,000**	**290,000,000,000**
EGLE Generic Non-Residential Particulate Soil Inhalation Criteria			**NC**	**290,000,000**	**88,000,000**	**12,000,000,000**	**59,000,000**	**1.3E+11**
EGLE Generic Residential Direct Contact Criteria			**NC**	**8,100,000**	**16,000,000**	**50,000,000**	**110,000**	**410,000,000**
EGLE Generic Non-Residential Direct Contact Criteria			**NC**	**26,000,000**	**52,000,000**	**160,000,000**	**660,000**	**1,000,000,000**

NOTES:

1. All values expressed in µg/kg
2. Michigan Department of Environment, Great Lakes, and Energy (EGLE) Generic Criteria from Table 2. Soil: Residential, and Table 3. Soil: Nonresidential. Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels," dated December 30, 2013. EGLE VIAP Screening Levels dated September 4, 2020.
3. Most rigorous of Ambient Air Criteria presented.
4. Groundwater Protection Criteria presented as Drinking Water/Ground Water Surface Water Interface (GSI)
5. Chemical Abstract Service (CAS) Numbers are presented below chemicals as provided by EGLE.
6. Boldfaced values exceed EGLE Generic Residential Drinking Water Groundwater Protection Criteria.
7. Values shown thus [ ] exceed EGLE Generic Residential GSI Groundwater Protection Criteria
8. Values shown thus [ ] exceed EGLE Generic Residential Direct Contact Criteria.
9. Values shown thus [ ] exceed EGLE Residential VIAP Screening Levels.
10. NC- no published criteria or screening levels.

Table 4

Summary of Pesticides and PCBs Chemistry Results (Soil)

McDowell Job No. 22-16348

JL 1/2/2023

TABLE 4 - SUMMARY OF PESTICIDES AND PCBs CHEMISTRY RESULTS (Soil)

Sample	Date	Description	4,4-DDD 72548	4,4-DDE 72559	4,4-DDT 50293	Chlordane 57749	Endosulfans 115297	Polychlorinated Biphenyls 1336363
3a	12/22/2022	2'- 3'	NT	NT	NT	NT	NT	<300
4a	12/22/2022	1'- 2'	<20	120	80	<100	<20	NT
5a	12/22/2022	0'- 1'	20	20	30	<100	<20	400
EGLE Residential Volatilization to Indoor Air Pathway (VIAP) Screening Levels			**NA**	**39,000**	**NA**	**13,000**	**TX**	**DATA**
EGLE Generic Residential Groundwater Protection Criteria			**NLL/NLL**	**NLL/NLL**	**NLL/NLL**	**NLL/NLL**	**NLL/NLL**	**NLL/NLL**
EGLE Generic Residential Indoor Air Inhalation Criteria			**NLV**	**NLV**	**NLV**	**11,000,000**	**ID**	**3,000,000**
EGLE Generic Residential Ambient Air Inhalation Criteria			**44,000,000**	**32,000,000**	**32,000,000**	**31,000,000**	**ID**	**240,000**
EGLE Generic Residential Direct Contact Criteria			**95,000**	**45,000**	**57,000**	**31,000**	**1,400,000**	**4,000**

NOTES:

1. All values expressed in µg/kg
2. Michigan Department of Environment, Great Lakes, and Energy (EGLE) Generic Criteria from Table 2. Soil: Residential, and Table 3. Soil: Nonresidential. Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels," dated December 30, 2013.
3. Most rigorous of Ambient Air Criteria presented.
4. Groundwater Protection Criteria presented as Drinking Water/Ground Water Surface Water Interface (GSI)
5. Chemical Abstract Service (CAS) Numbers are presented below chemicals as provided by EGLE.
6. "NLL" = EGLE indicates not likely to leach.
7. "NLV" = EGLE indicates not likely to volatilize.
8. Boldfaced values exceed EGLE Generic Residential Drinking Water Groundwater Protection Criteria.
9. Values shown thus [ ] exceed EGLE Generic Residential Ambient Air Inhalation Criteria.
10. TX- EGLE indicates an inhalation toxicity value has not been identifed.
11. DATA- EGLE indicates insufficient chemical parameters have been identified to allow development of a VIAP Screening Level. If detections are identified, health-based soil vapor should be used to evaluate risk.

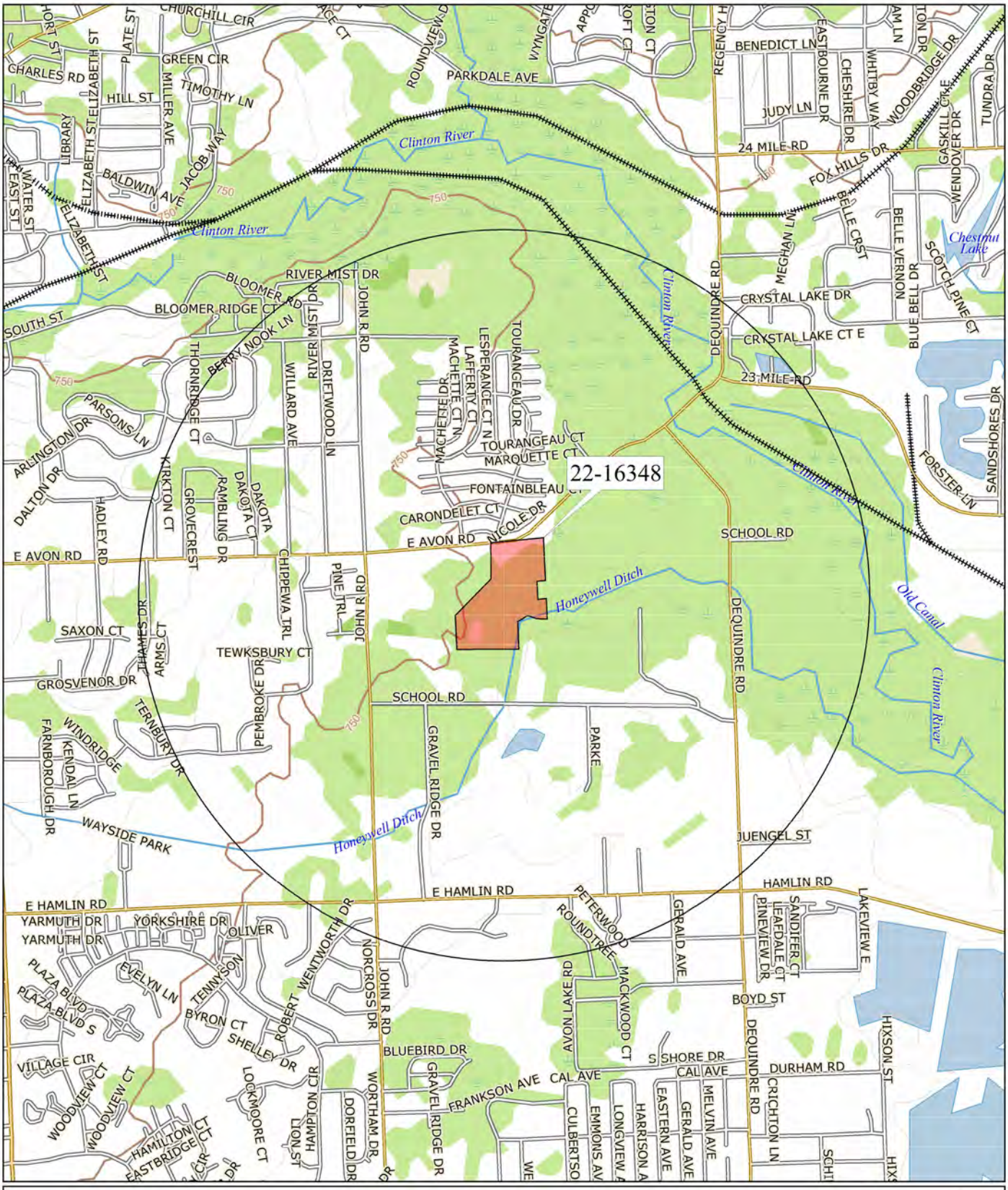
Attachment I

Site Location Map

McDowell & Associates

JOB NUMBER: 22-16348

SITE LOCATION MAP



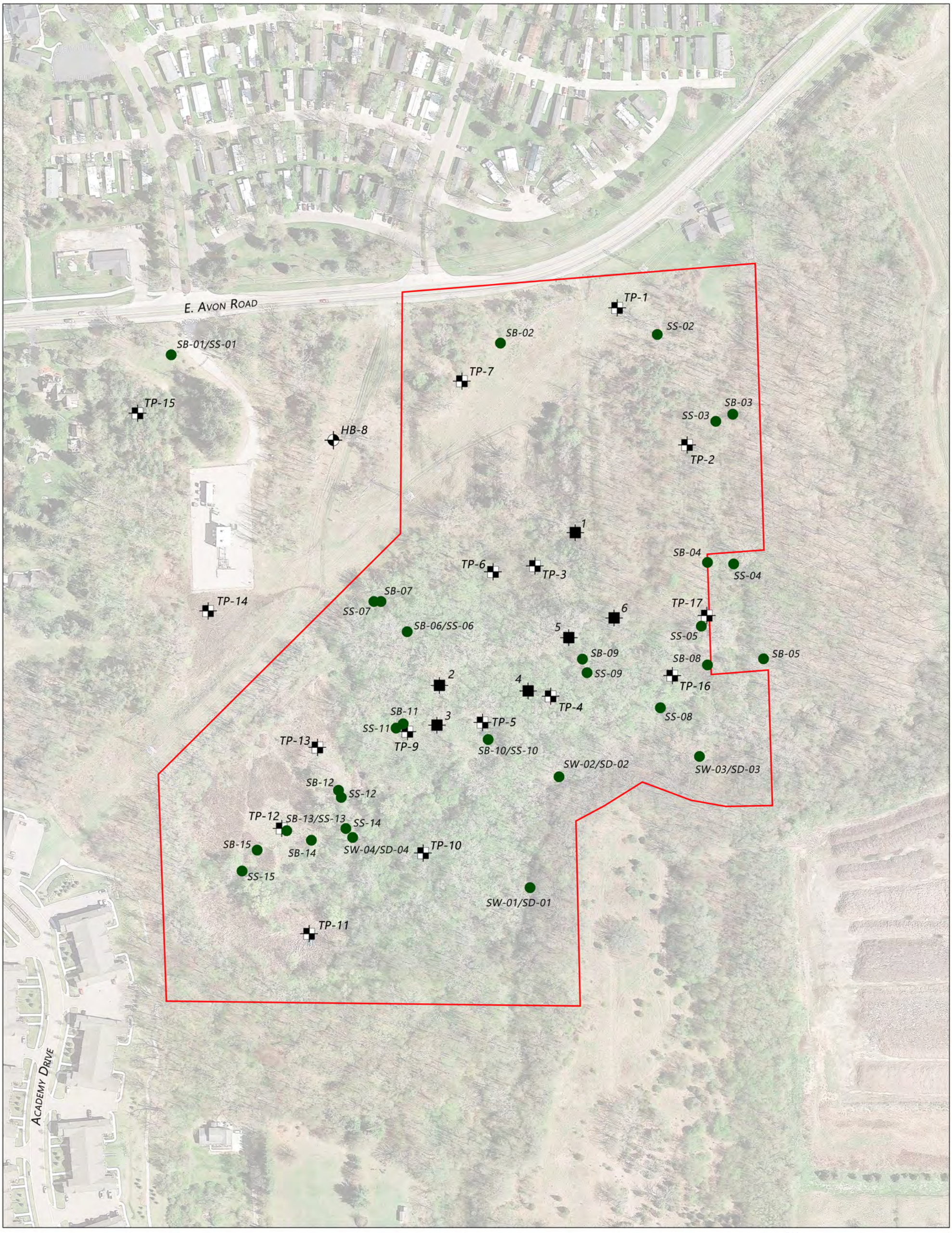
Attachment II

Test Pit, Soil Boring, and Sample Location Map

McDowell & Associates

JOB NUMBER: 22-16348

SOIL BORING, TEST PIT AND SAMPLE LOCATION MAP



LEGEND

- TEST PIT (M&A 2022)
- SOIL BORING (M&A 04-142)
- TEST PIT (M&A 04-142)
- SOIL BORING/SOIL, WATER OR SEDIMENT SAMPLE (2011 BY OTHERS)
- APPROXIMATE PROPERTY BOUNDARY

NOTES:

- 2022 AERIAL PHOTOGRAPH
- ALL LOCATIONS APPROXIMATE

N

1" = 200'

0 100' 200'

Attachment III

Log of Test Pit Sheets

McDOWELL & ASSOCIATES
Geotechnical, Environmental, & Hydrogeologic Services
21355 Hatcher Avenue • Ferndale, MI 48220
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Test Pit Log

PROJECT Environmental Site Assessment

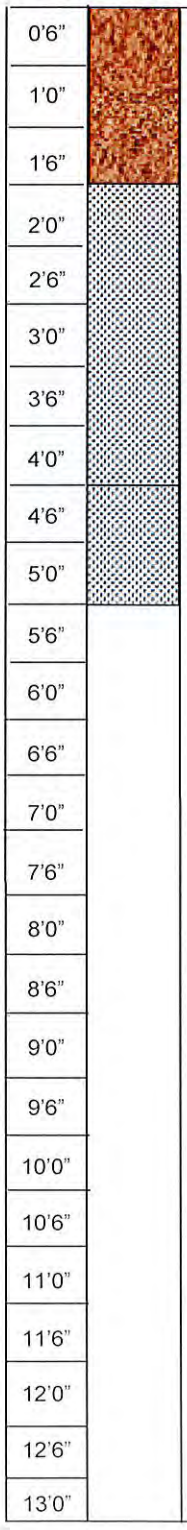
JOB NO. 22-16348

LOCATION 1406 Avon Road

TEST PIT NO. 1

DATE 12/22/22

Rochester Hills, Oakland County, Michigan



No groundwater encountered.

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Test Pit Log

PROJECT Environmental Site Assessment

JOB NO. 22-16348

LOCATION 1406 Avon Road

TEST PIT NO. 2

DATE 12/22/22

Rochester Hills, Oakland County, Michigan

DEPTH	SOIL	SOIL DESCRIPTION	PID
0'6"		Moist dark brown sandy TOPSOIL, fill	
1'0"		0'6"	ND
1'6"			
2'0"			
2'6"			ND
3'0"		Moist brown to dark brown SAND with glass, metal, ceramic, brick and concrete, fill	
3'6"			
4'0"			ND
4'6"			
5'0"			
5'6"		5'0"	
6'0"		Moist brown silty SAND	ND
6'6"		6'0"	
7'0"		Moist brown clayey SAND	ND
7'6"		7'0"	
8'0"			
8'6"			
9'0"			
9'6"			
10'0"			
10'6"		Notes:	
11'0"		PID Readings from MiniRAE 3000 photoionization detector as parts per million (ppm, calibrated to isobutylene).	
11'6"			
12'0"		ND = None Detected	
12'6"			
13'0"			

No groundwater encountered.

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Test Pit Log

PROJECT Environmental Site Assessment

JOB NO. 22-16348

LOCATION 1406 Avon Road

TEST PIT NO. 3

DATE 12/22/22

Rochester Hills, Oakland County, Michigan

DEPTH	SOIL	SOIL DESCRIPTION	PID
0'6"			
1'0"			
1'6"			
2'0"			ND
2'6"			
3'0"		Moist brown to dark brown SAND with metal, slag, tire, brick, glass, organics, concrete and bottles, fill	
3'6"			
4'0"			ND
4'6"			
5'0"			
5'6"			
6'0"			ND
		6'0"	
6'6"		Moist brown silty SAND	
7'0"			ND
		7'0"	
7'6"			
8'0"			
8'6"			
9'0"			
9'6"			
10'0"			
10'6"		Notes:	
11'0"		PID Readings from MiniRAE 3000 photoionization detector as parts per million (ppm, calibrated to isobutylene).	
11'6"			
12'0"		ND = None Detected	
12'6"			
13'0"			

No groundwater encountered.

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Test Pit Log

PROJECT Environmental Site Assessment

JOB NO. 22-16348

LOCATION 1406 Avon Road

TEST PIT NO. 4

DATE 12/22/22

Rochester Hills, Oakland County, Michigan

DEPTH	SOIL	SOIL DESCRIPTION	PID
0'6"		Moist dark brown sandy TOPSOIL, fill	
1'0"		0'6"	ND
1'6"		Moist brown to dark brown sandy TOPSOIL with wood and trace of ceramic pieces, fill	
2'0"		2'0"	
2'6"			
3'0"			ND
3'6"			
4'0"		Moist dark brown SAND with metal, glass, ceramic and wood, fill	
4'6"			
5'0"			ND
5'6"		5'6"	
6'0"		Moist brown silty SAND	ND
6'6"		6'6"	
7'0"			
7'6"			
8'0"			
8'6"			
9'0"			
9'6"			
10'0"			
10'6"		Notes:	
11'0"		PID Readings from MiniRAE 3000 photoionization detector as parts per million (ppm, calibrated to isobutylene).	
11'6"			
12'0"		ND = None Detected	
12'6"			
13'0"			

No groundwater encountered.

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Test Pit Log

PROJECT Environmental Site Assessment

JOB NO. 22-16348

LOCATION 1406 Avon Road

TEST PIT NO. 5

DATE 12/22/22

Rochester Hills, Oakland County, Michigan

DEPTH	SOIL	SOIL DESCRIPTION	PID
0'6"			
1'0"		Moist dark brown clayey sandy TOPSOIL with trace of brick, fill	ND
		1'0"	
1'6"		Moist brown to dark brown clayey SAND with topsoil and wood, fill	
2'0"			
		2'0"	
2'6"			ND
3'0"		Moist brown silty SAND, fill	
3'6"			ND
		3'6"	
4'0"			
4'6"		Moist brown to dark brown clayey SAND with trace of concrete and brick, fill	
5'0"			ND
5'6"			
		5'6"	
6'0"			
6'6"		Moist brown silty fine SAND	ND
7'0"			
		7'0"	
7'6"			
8'0"			
8'6"			
9'0"			
9'6"			
10'0"			
10'6"		Notes:	
11'0"		PID Readings from MiniRAE 3000 photoionization detector as parts per million (ppm, calibrated to isobutylene).	
11'6"			
12'0"		ND = None Detected	
12'6"			
13'0"			

No groundwater encountered.

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Test Pit Log

PROJECT Environmental Site Assessment

JOB NO. 22-16348

LOCATION 1406 Avon Road

TEST PIT NO. 6

DATE 12/22/22

Rochester Hills, Oakland County, Michigan

DEPTH	SOIL	SOIL DESCRIPTION	PID
0'6"		Moist dark brown sandy TOPSOIL with trace of brick, fill	
1'0"			ND
1'6"		Moist brown clayey SAND with gravel and brick, fill	
2'0"			
2'6"			
3'0"		Moist dark brown sandy TOPSOIL	ND
3'6"			
4'0"		Moist brown silty fine SAND	
4'6"			
5'0"			ND
5'6"			
6'0"			
6'6"			
7'0"			
7'6"			
8'0"			
8'6"			
9'0"			
9'6"			
10'0"			
10'6"		Notes:	
11'0"		PID Readings from MiniRAE 3000 photoionization detector as parts per million (ppm, calibrated to isobutylene).	
11'6"			
12'0"		ND = None Detected	
12'6"			
13'0"			

0'6"
2'6"
3'0"
5'0"

No groundwater encountered.

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LOG OF TEST PIT NO. TP-1

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. _____ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Str. %
	1		Moist dark brown silty sandy TOPSOIL, VEGETATION & ROOTS, fill						
	2		2'0" Moist brown silty CLAY						
	3		2'6" Wet brown silty fine SAND with pebbles and occasional stones						
	4		4'0"						
	5								
	6		Wet brown fine to medium SAND with gravel						
	7		7'3"						
	8		Wet gray fine to medium SAND with gravel						
	9		8'4"						
	10								
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								

TYPE OF SAMPLE
D. - DISTURBED
U.I. - UNDIST. LINER
S.T. - SHELBY TUBE
S.S. - SPLIT SPOON
R.C. - ROCK CORE
( ) - PENETROMETER

REMARKS:

Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30": Count Made at 6" Intervals

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT	2	FT.	8	INS.
G.W. ENCOUNTERED AT		FT.		INS.
G.W. AFTER COMPLETION	4	FT.	10	INS.
G.W. AFTER 7½ HRS.	3	FT.	0	INS.

G.W. VOLUMES heavy cave in @ 3'±

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LOG OF TEST PIT NO. TP-2

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. _____ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Str. %
			Moist dark brown silty sandy TOPSOIL						
	1		1'0"						
	2								
	3		Moist to wet brown silty fine to medium SAND with gravel						
	4								
	5								
	6		6'0"						
	7								
	8								
	9								
	10								
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19		Note: Adjacent excavation (tree planting hole) had water level at 1'6" below existing ground surface.						
	20								
	21								
	22								
	23								
	24								
	25								

TYPE OF SAMPLE
D... - DISTURBED
U.L. - UNDIST. LINER
S.T. - SHELBY TUBE
S.S. - SPLIT SPOON
R.C. - ROCK CORE
( ) - PENETROMETER

REMARKS:

Standard Penetration Test - Driving 2" OD Sampler 1" With 140# Hammer Falling 30": Count Made at 6" Intervals

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT	3	FT.	0	INS.
G.W. ENCOUNTERED AT		FT.		INS.
G.W. AFTER COMPLETION	3	FT.	0	INS.
G.W. AFTER HRS.		FT.		INS.

G.W. VOLUMES heavy cave in @ 2'±

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LOG OF TEST PIT NO. TP-3

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. _____ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Str. %
	1		Moist dark brown and black silty sandy TOPSOIL & VEGETATION, fill						
			1'4"						
	2								
	3		Moist to wet brown silty fine to medium SAND with gravel						
	4								
	5								
	6		6'0"						
	7								
	8								
	9								
	10								
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								

TYPE OF SAMPLE
D. - DISTURBED
U.L. - UNDIST. LINER
S.T. - SHELBY TUBE
S.S. - SPLIT SPOON
R.C. - ROCK CORE
( ) - PENETROMETER

REMARKS:

Standard Penetration Test - Driving 2" OD Sampler 1" With 140# Hammer Falling 30": Count Made at 6" Intervals

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT	2	FT.	4	INS.
G.W. ENCOUNTERED AT		FT.		INS.
G.W. AFTER COMPLETION		FT.		INS.
G.W. AFTER	5 HRS.	2	FT.	2	INS.

G.W. VOLUMES heavy cave in @ 2'±

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LOG OF TEST PIT NO. TP-4

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. _____ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Sat. %
	1		Moist brown and dark brown fine sandy TOPSOIL & VEGETATION, fill						
			1'0"						
	2		STUMPS, TREE LIMBS and moist brown oxidized silty SAND, fill						
	3		2'6"						
	4		Moist oxidized fine SAND mixed with broken glass, fill						
	5		5'0"						
	6		Wet brown silty fine SAND						
	7								
	8		8'0"						
	9		Wet gray sandy SILT						
			9'6"						
	10								
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								

TYPE OF SAMPLE
D. - DISTURBED
U.L. - UNDIST. LINER
S.T. - SHELBY TUBE
S.S. - SPLIT SPOON
R.C. - ROCK CORE
( ) - PENETROMETER

REMARKS:

Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made at 6" Intervals

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT	5	FT.	0	INS.
G.W. ENCOUNTERED AT		FT.		INS.
G.W. AFTER COMPLETION	5	FT.	0	INS.
G.W. AFTER HRS.		FT.		INS.
G.W. VOLUMES heavy cave in @ 5'±				

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LOG OF TEST PIT NO. TP-5

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. _____ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Str. %
	1		Moist brown oxidized sandy silty clayey TOPSOIL						
			1'0"						
	2								
	3								
	4		STUMPS, TREE LIMBS (6" to 12" diameter 5' to 6' in length) oxidized clayey silty SAND & BROKEN CONCRETE, fill						
	5								
	6								
	7								
	8								
			8'0" Wet gray sandy SILT mixed with decomposed wood, fill						
	9		9'0"						
	10								
	11		Wet decomposed WOOD, fill						
	12								
			12'0"						
	13		Wet gray clayey SILT (P.P. = 1,000 psf)						
			13'0"						
	14								
	15								
	16								
	17								
	18								
	19		Note: Stumps as large as 6' to 7' long, 18" to 24" diameter.						
	20								
	21								
	22								
	23								
	24								
	25								

TYPE OF SAMPLE
D. - DISTURBED
U.L. - UNDIST. LINER
S.T. - SHELBY TUBE
S.S. - SPLIT SPOON
R.C. - ROCK CORE
( ) - PENETROMETER

REMARKS:

Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30": Count Made at 6" Intervals

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT	8	FT.	0	INS.
G.W. ENCOUNTERED AT		FT.		INS.
G.W. AFTER COMPLETION	8	FT.	0	INS.
G.W. AFTER HRS.		FT.		INS.

G.W. VOLUMES heavy cave in @ 2'±

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LOG OF TEST PIT NO. TP-6

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. _____ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Str. %
	1		Moist dark brown and black silty fine sandy TOPSOIL & VEGETATION, fill						
	2		1'6"						
	3		Moist to wet brown fine SAND with occasional pebbles and bottles, fill						
	4		3'6"						
	5		Wet brown fine to medium SAND with gravel						
	6		5'5"						
	7								
	8								
	9								
	10								
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								

TYPE OF SAMPLE
D. - DISTURBED
U.L. - UNDIST. LINER
S.T. - SHELBY TUBE
S.S. - SPLIT SPOON
R.C. - ROCK CORE
( ) - PENETROMETER

REMARKS:

Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30": Count Made at 6" Intervals

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT	1	FT.	10	INS.
G.W. ENCOUNTERED AT		FT.		INS.
G.W. AFTER COMPLETION	1	FT.	10	INS.
G.W. AFTER HRS.		FT.		INS.

G.W. VOLUMES heavy cave in @ 1'±

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LOG OF TEST PIT NO. TP-7

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. _____ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp., Strength PSF.	Str. %
	1		Moist dark brown silty sandy TOPSOIL & VEGETATION, fill						
			0'10"						
	2								
	3		Wet brown fine SAND						
	4								
	5								
			5'3"						
	6		Wet gray fine to medium SAND with gravel						
			6'6"						
	7								
	8								
	9								
	10								
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								

TYPE OF SAMPLE
D. - DISTURBED
U.L. - UNDIST. LINER
S.T. - SHELBY TUBE
S.S. - SPLIT SPOON
R.C. - ROCK CORE
( ) - PENETROMETER

REMARKS:

Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made at 6" Intervals

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT	0	FT.	10	INS.
G.W. ENCOUNTERED AT		FT.		INS.
G.W. AFTER COMPLETION	0	FT.	10	INS.
G.W. AFTER HRS.		FT.		INS.
G.W. VOLUMES heavy	cave in @ 0'10"			

McDOWELL & ASSOCIATES
Geotechnical, Environmental, & Hydrogeologic Services
21355 Hatcher Avenue • Ferndale, MI 48220
Phone: (248) 399-2066 • Fax: (248) 399-2157

LOG OF TEST PIT NO. TP-9

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. _____ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Str. %
			0'6" Moist brown oxidized silty sandy TOPSOIL & VEGETATION, fill						
	1								
	2								
	3		TREE STUMPS, METAL DEBRIS, BROKEN CONCRETE mixed with discolored sand						
	4								
	5		5'0"						
	6		Moist brown oxidized silty fine SAND, fill						
	7								
	8		8'0"						
	9		Wet brown and gray fine to medium SAND with gravel						
	10								
	11		10'6"						
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								

TYPE OF SAMPLE
D. - DISTURBED
U.L. - UNDIST. LINER
S.T. - SHELBY TUBE
S.S. - SPLIT SPOON
R.C. - ROCK CORE
( ) - PENETROMETER

REMARKS:

Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30": Count Made at 6" Intervals

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT	8	FT.	0	INS.
G.W. ENCOUNTERED AT		FT.		INS.
G.W. AFTER COMPLETION	8	FT.	0	INS.
G.W. AFTER HRS.		FT.		INS.

G.W. VOLUMES heavy cave in @ 8'±

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LOG OF TEST PIT NO. TP-10

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. _____ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Str. %
	1		Moist dark brown silty sandy TOPSOIL & VEGETATION, fill						
			1'2"						
	2		Moist brown fine SAND with some silt content						
	3		2'9"						
	4		Moist to wet brown fine to medium SAND with gravel and slight silt content						
	5		5'0"						
			Wet gray clayey SILT						
	6		5'10"						
	7		Moist blue silty CLAY						
	8								
			8'6"						
	9								
	10								
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								

TYPE OF SAMPLE
D. - DISTURBED
U.L. - UNDIST. LINER
S.T. - SHELBY TUBE
S.S. - SPLIT SPOON
R.C. - ROCK CORE
( ) - PENETROMETER

REMARKS:

Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30": Count Made at 6" Intervals

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT	5	FT.	0	INS.
G.W. ENCOUNTERED AT		FT.		INS.
G.W. AFTER COMPLETION	5	FT.	0	INS.
G.W. AFTER HRS.		FT.		INS.
G.W. VOLUMES Medium				

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LOG OF TEST PIT NO. TP-11

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. _____ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Str. %
	1		Moist brown and black silty sandy TOPSOIL & VEGETATION, fill						
	2		2'0"						
	3		Moist brown fine SAND with some silty content						
	4								
	5								
	6		5'9" Moist to wet brown fine to medium SAND with gravel						
	7		7'0"						
	8		Wet gray sandy SILT						
	9		8'6"						
	10								
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								

TYPE OF SAMPLE
D. - DISTURBED
U.L. - UNDIST. LINER
S.T. - SHELBY TUBE
S.S. - SPLIT SPOON
R.C. - ROCK CORE
( ) - PENETROMETER

REMARKS:

Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made at 6" Intervals

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT	7	FT.	0	INS.
G.W. ENCOUNTERED AT		FT.		INS.
G.W. AFTER COMPLETION	7	FT.	0	INS.
G.W. AFTER	HRS.	FT.		INS.

G.W. VOLUMES heavy cave in @ 3'±

McDOWELL & ASSOCIATES
Geotechnical, Environmental, & Hydrogeologic Services
21355 Hawker Avenue • Ferndale, MI 48220
Phone: (248) 399-2066 • Fax: (248) 399-2157

LOG OF TEST PIT NO. TP-12

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. _____ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Str. %
	1		Moist brown sandy CLAY with vegetation, fill 0'8"						
	2								
	3		Moist oxidized clayey SAND mixed with asphalt, gravel and trace of vegetation, fill						
	4								
	5								
	6		6'0"						
	7		TREE STUMPS AND LIMBS, fill						
	8								
	9		9'0"						
	10		Wet gray silty fine SAND						
	11		10'6"						
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19		Note: Stumps as large as 3' diameter.						
	20								
	21								
	22								
	23								
	24								
	25								

TYPE OF SAMPLE
D. - DISTURBED
U.L. - UNDIST. LINER
S.T. - SHELBY TUBE
S.S. - SPLIT SPOON
R.C. - ROCK CORE
( ) - PENETROMETER

REMARKS:

Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30": Count Made at 6" Intervals

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT	9	FT.	0	INS.
G.W. ENCOUNTERED AT		FT.		INS.
G.W. AFTER COMPLETION	9	FT.	0	INS.
G.W. AFTER	HRS.	FT.		INS.
G.W. VOLUMES	heavy	cave in @ 6'±		

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21355 Hatcher Avenue • Ferndale, MI 48220
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LOG OF TEST PIT NO. TP-13

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. _____ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt P.C.F.	Dry Den Wt P.C.F.	Unc. Comp. Strength PSF.	Silt %
			0'7" Moist brown clayey TOPSOIL & VEGETATION, fill						
	1								
	2		Moist brown oxidized silty sandy gravelly CLAY with some decomposed wood, fill						
	3								
	4								
			4'0" Wet brown fine to medium SAND & GRAVEL with some stumps and limbs, fill						
	5								
			5'6"						
	6		6'6" Wet gray sandy clayey SILT						
	7								
	8								
	9								
	10								
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								

TYPE OF SAMPLE
D. - DISTURBED
U.L. - UNDIST. LINER
S.T. - SHELBY TUBE
S.S. - SPLIT SPOON
R.C. - ROCK CORE
( ) - PENETROMETER

REMARKS:

Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30": Count Made at 6" Intervals

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT	4	FT.	0	INS.
G.W. ENCOUNTERED AT		FT.		INS.
G.W. AFTER COMPLETION	4	FT.	0	INS.
G.W. AFTER HRS.		FT.		INS.

G.W. VOLUMES heavy cave in @ 2'±

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Phone: (248) 399-2066 • Fax: (248) 399-2157

LOG OF TEST PIT NO. TP-16

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. _____ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Str. %
	1		Moist dark brown and black silty fine sandy TOPSOIL & VEGETATION with trace of plastic sheeting, fill						
	2								
			2'0"						
	3		Moist brown clayey silty fine SAND with pebbles and occasional stones, fill						
			3'0"						
	4								
	5								
	6		Moist variegated very silty fine SAND with seams and layers of moist brown sandy silt						
	7								
	8								
	9								
	10								
			10'6"						
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19		Note: Gas vents in place.						
	20								
	21								
	22								
	23								
	24								
	25								

TYPE OF SAMPLE
D. - DISTURBED
U.L. - UNDIST. LINER
S.T. - SHELBY TUBE
S.S. - SPLIT SPOON
R.C. - ROCK CORE
( ) - PENETROMETER

REMARKS:

Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30": Count Made at 6" Intervals

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT		FT.	INS.
G.W. ENCOUNTERED AT		FT.	INS.
G.W. AFTER COMPLETION	none	FT.	INS.
G.W. AFTER	HRS.	FT.	INS.
G.W. VOLUMES			

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LOG OF TEST PIT NO. TP-17

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. _____ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt P.C.F.	Dry Den Wt P.C.F.	Unc. Comp. Strength PSF.	Str. %
	1		Moist black silty fine sandy TOPSOIL & VEGETATION, fill						
	2		2'0" Concrete Slab at 2'0"						
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								

Notes:
TP-17 excavated adjacent to old asphalt pavement, unable to find limits of slab. Small diameter trees in and around TP-17.

20' long trench approximately 1.5' to 2' deep, excavated with backhoe.

TYPE OF SAMPLE
D. - DISTURBED
U.I. - UNDIST. LINER
S.T. - SHELBY TUBE
S.S. - SPLIT SPOON
R.C. - ROCK CORE
( ) - PENETROMETER

REMARKS:

Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made at 6" Intervals

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT		FT.	INS.
G.W. ENCOUNTERED AT		FT.	INS.
G.W. AFTER COMPLETION	none	FT.	INS.
G.W. AFTER	HRS.	FT.	INS.
G.W. VOLUMES			

Attachment IV

Chemical Test Results with Chain-of-Custody Documentation

Analytical Laboratory Report

Supplemental Report

Report ID: S43774.01(02)
Generated on 12/30/2022
Replaces report S43774.01(01) generated on 12/30/2022

Report to

Attention: Jennifer Lagerbohm
McDowell & Associates
21355 Hatcher Avenue
Ferndale, MI 48220

Phone: O:248-399-2066 C:248-514-6950 FAX:
Email: jennifer.lagerbohm@mcdowasc.com

Addtional Contacts: John Kemp, Melanie McDowell

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S43774.01-S43774.06
Project: 22-16348
Collected Date(s): 12/22/2022
Submitted Date/Time: 12/22/2022 11:55
Sampled by: Jen L
P.O. #:

Table of Contents

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

All analyses completed

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
SM2540B	Standard Method 2540 B 2015
SW3050B	SW 846 Method 3050B Revision 2 December 1996
SW3546	SW 846 Method 3546 Revision 0 February 2007
SW5035A	SW 846 Method 5035A Revision 1 July 2002
SW5035A/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5035A Revision 1 July 2002
SW6020A	SW 846 Method 6020A Revision 1 February 2007
SW7471B	SW 846 Method 7471B Revision 2 February 2007
SW8081B	SW 846 Method 8081B Revision 2 February 2007
SW8082A	SW 846 Method 8082A Revision 1 February 2007
SW8270D	SW 846 Method 8270D Revision 4 February 2007

Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S43774.01	2a	Soil	12/22/22 08:00
S43774.02	2a-D	Soil	12/22/22 08:00
S43774.03	3a	Soil	12/22/22 08:00
S43774.04	3b	Soil	12/22/22 08:00
S43774.05	4a	Soil	12/22/22 08:00
S43774.06	5a	Soil	12/22/22 10:00

Lab Sample ID: S43774.01
Sample Tag: 2a
Collected Date/Time: 12/22/2022 08:00
Matrix: Soil
COC Reference: 151452

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3050B	12/27/22 10:45	JRH	
PNA Extraction*	Completed	SW3546	12/30/22 12:20	JGH	
Mercury Digestion	Completed	SW7471B	12/29/22 13:56	CTV	

Inorganics

Method: SM2540B, Run Date: 12/22/22 16:12, Analyst: MAM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	89	1		%	1		

Metals

Method: SW6020A, Run Date: 12/27/22 12:52, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	13.3	0.20		mg/kg	256	7440-38-2	
Barium	844	1.0		mg/kg	256	7440-39-3	
Cadmium	4.71	0.20		mg/kg	256	7440-43-9	
Chromium	22.2	0.50		mg/kg	256	7440-47-3	
Copper	131	0.50		mg/kg	256	7440-50-8	
Lead	322	0.30		mg/kg	256	7439-92-1	
Selenium	0.63	0.40		mg/kg	256	7782-49-2	
Silver	1.13	0.20		mg/kg	256	7440-22-4	
Zinc	489	0.50		mg/kg	256	7440-66-6	

Method: SW7471B, Run Date: 12/29/22 15:01, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	0.357	0.050		mg/kg	68	7439-97-6	

Organics - Semi-Volatiles

Polynuclear Aromatics, Method: SW8270D, Run Date: 12/30/22 15:49, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	300		ug/kg	6	83-32-9	
Acenaphthylene	Not detected	300		ug/kg	6	208-96-8	
Anthracene	1,100	300		ug/kg	6	120-12-7	
Benzo(a)anthracene	2,800	300		ug/kg	6	56-55-3	
Benzo(a)pyrene	2,500	300		ug/kg	6	50-32-8	
Benzo(b)fluoranthene	3,300	300		ug/kg	6	205-99-2	p
Benzo(k)fluoranthene	3,700	300		ug/kg	6	207-08-9	p
Benzo(ghi)perylene	1,300	300		ug/kg	6	191-24-2	
Chrysene	2,800	300		ug/kg	6	218-01-9	
Dibenzo(ah)anthracene	Not detected	300		ug/kg	6	53-70-3	
Fluoranthene	6,100	300		ug/kg	6	206-44-0	
Fluorene	500	300		ug/kg	6	86-73-7	

p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Lab Sample ID: S43774.01 (continued)

Sample Tag: 2a

Polynuclear Aromatics, Method: SW8270D, Run Date: 12/30/22 15:49, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Indeno(1,2,3-cd)pyrene	1,300	300		ug/kg	6	193-39-5	
Naphthalene	Not detected	300		ug/kg	6	91-20-3	
Phenanthrene	4,200	300		ug/kg	6	85-01-8	
Pyrene	4,900	300		ug/kg	6	129-00-0	
2-Methylnaphthalene	Not detected	300		ug/kg	6	91-57-6	

Lab Sample ID: S43774.02
Sample Tag: 2a-D
Collected Date/Time: 12/22/2022 08:00
Matrix: Soil
COC Reference: 151452

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3050B	12/27/22 10:45	JRH	
PNA Extraction*	Completed	SW3546	12/30/22 12:20	JGH	
Mercury Digestion	Completed	SW7471B	12/29/22 13:56	CTV	

Inorganics

Method: SM2540B, Run Date: 12/22/22 16:12, Analyst: MAM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	89	1		%	1		

Metals

Method: SW6020A, Run Date: 12/27/22 12:54, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	13.9	0.20		mg/kg	266	7440-38-2	
Barium	727	1.0		mg/kg	266	7440-39-3	
Cadmium	6.86	0.20		mg/kg	266	7440-43-9	
Chromium	19.8	0.50		mg/kg	266	7440-47-3	
Copper	494	0.50		mg/kg	266	7440-50-8	
Lead	999	0.30		mg/kg	266	7439-92-1	
Selenium	1.01	0.40		mg/kg	266	7782-49-2	
Silver	2.31	0.20		mg/kg	266	7440-22-4	
Zinc	723	0.50		mg/kg	266	7440-66-6	

Method: SW7471B, Run Date: 12/29/22 15:04, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	0.323	0.050		mg/kg	66	7439-97-6	

Organics - Semi-Volatiles

Polynuclear Aromatics, Method: SW8270D, Run Date: 12/30/22 16:13, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	300		ug/kg	6	83-32-9	
Acenaphthylene	Not detected	300		ug/kg	6	208-96-8	
Anthracene	700	300		ug/kg	6	120-12-7	
Benzo(a)anthracene	2,000	300		ug/kg	6	56-55-3	
Benzo(a)pyrene	2,000	300		ug/kg	6	50-32-8	
Benzo(b)fluoranthene	3,600	300		ug/kg	6	205-99-2	p
Benzo(k)fluoranthene	4,000	300		ug/kg	6	207-08-9	p
Benzo(ghi)perylene	1,200	300		ug/kg	6	191-24-2	
Chrysene	2,200	300		ug/kg	6	218-01-9	
Dibenzo(ah)anthracene	500	300		ug/kg	6	53-70-3	
Fluoranthene	4,500	300		ug/kg	6	206-44-0	
Fluorene	Not detected	300		ug/kg	6	86-73-7	

p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Lab Sample ID: S43774.02 (continued)

Sample Tag: 2a-D

Polynuclear Aromatics, Method: SW8270D, Run Date: 12/30/22 16:13, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Indeno(1,2,3-cd)pyrene	1,100	300		ug/kg	6	193-39-5	
Naphthalene	Not detected	300		ug/kg	6	91-20-3	
Phenanthrene	2,600	300		ug/kg	6	85-01-8	
Pyrene	3,800	300		ug/kg	6	129-00-0	
2-Methylnaphthalene	Not detected	300		ug/kg	6	91-57-6	

Lab Sample ID: S43774.03
Sample Tag: 3a
Collected Date/Time: 12/22/2022 08:00
Matrix: Soil
COC Reference: 151452

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	5.1	IR
1	40ml Glass	MeOH	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3050B	12/27/22 10:45	JRH	
Extraction, PCB*	Completed	SW3546	12/27/22 13:00	TAW	
PNA Extraction*	Completed	SW3546	12/30/22 12:20	JGH	
Sample wt. (g) / Methanol (ml)*	9.851/10	SW5035A	12/27/22 12:20	BDO	
Mercury Digestion	Completed	SW7471B	12/29/22 13:56	CTV	

Inorganics

Method: SM2540B, Run Date: 12/22/22 16:12, Analyst: MAM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	89	1		%	1		

Metals

Method: SW6020A, Run Date: 12/27/22 12:56, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	24.5	0.20		mg/kg	262	7440-38-2	
Barium	862	1.0		mg/kg	262	7440-39-3	
Cadmium	7.64	0.20		mg/kg	262	7440-43-9	
Chromium	303	0.50		mg/kg	262	7440-47-3	
Copper	1,710	0.50		mg/kg	262	7440-50-8	
Lead	1,370	0.30		mg/kg	262	7439-92-1	
Selenium	1.67	0.40		mg/kg	262	7782-49-2	
Silver	4.95	0.20		mg/kg	262	7440-22-4	
Zinc	1,050	0.50		mg/kg	262	7440-66-6	

Method: SW7471B, Run Date: 12/29/22 15:07, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	0.812	0.050		mg/kg	64	7439-97-6	

Organics - PCBs/Pesticides

PCB List, Method: SW8082A, Run Date: 12/28/22 13:54, Analyst: JANB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PCB-1016	Not detected	330		ug/kg	10	12674-11-2	
PCB-1242	Not detected	330		ug/kg	10	53469-21-9	
PCB-1221	Not detected	330		ug/kg	10	11104-28-2	
PCB-1232	Not detected	330		ug/kg	10	11141-16-5	
PCB-1248	Not detected	330		ug/kg	10	12672-29-6	
PCB-1254	Not detected	330		ug/kg	10	11097-69-1	
PCB-1260	Not detected	330		ug/kg	10	11096-82-5	

Lab Sample ID: S43774.03 (continued)
Sample Tag: 3a

Organics - Semi-Volatiles

Polynuclear Aromatics, Method: SW8270D, Run Date: 12/30/22 16:36, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	400	300		ug/kg	6	83-32-9	
Acenaphthylene	Not detected	300		ug/kg	6	208-96-8	
Anthracene	1,600	300		ug/kg	6	120-12-7	
Benzo(a)anthracene	3,900	300		ug/kg	6	56-55-3	
Benzo(a)pyrene	3,300	300		ug/kg	6	50-32-8	
Benzo(b)fluoranthene	6,200	300		ug/kg	6	205-99-2	p
Benzo(k)fluoranthene	6,900	300		ug/kg	6	207-08-9	p
Benzo(ghi)perylene	1,700	300		ug/kg	6	191-24-2	
Chrysene	4,200	300		ug/kg	6	218-01-9	
Dibenzo(ah)anthracene	600	300		ug/kg	6	53-70-3	
Fluoranthene	9,100	300		ug/kg	6	206-44-0	
Fluorene	500	300		ug/kg	6	86-73-7	
Indeno(1,2,3-cd)pyrene	1,700	300		ug/kg	6	193-39-5	
Naphthalene	Not detected	300		ug/kg	6	91-20-3	
Phenanthrene	5,800	300		ug/kg	6	85-01-8	
Pyrene	7,400	300		ug/kg	6	129-00-0	
2-Methylnaphthalene	Not detected	300		ug/kg	6	91-57-6	

Organics - Volatiles

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 12/28/22 23:12, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	300		ug/kg	63.2	60-29-7	
Acetone	Not detected	1,000		ug/kg	63.2	67-64-1	
Methyl iodide	Not detected	100		ug/kg	63.2	74-88-4	
Carbon disulfide	Not detected	300		ug/kg	63.2	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	300		ug/kg	63.2	1634-04-4	
Acrylonitrile	Not detected	100		ug/kg	63.2	107-13-1	
2-Butanone (MEK)	Not detected	950		ug/kg	63.2	78-93-3	
Dichlorodifluoromethane	Not detected	300		ug/kg	63.2	75-71-8	
Chloromethane	Not detected	300		ug/kg	63.2	74-87-3	
Vinyl chloride	Not detected	60		ug/kg	63.2	75-01-4	
Bromomethane	Not detected	300		ug/kg	63.2	74-83-9	
Chloroethane	Not detected	300		ug/kg	63.2	75-00-3	
Trichlorofluoromethane	Not detected	100		ug/kg	63.2	75-69-4	
1,1-Dichloroethene	Not detected	60		ug/kg	63.2	75-35-4	
Methylene chloride	Not detected	100		ug/kg	63.2	75-09-2	
trans-1,2-Dichloroethene	Not detected	60		ug/kg	63.2	156-60-5	
1,1-Dichloroethane	Not detected	60		ug/kg	63.2	75-34-3	
cis-1,2-Dichloroethene	Not detected	60		ug/kg	63.2	156-59-2	
Tetrahydrofuran*	Not detected	1,000		ug/kg	63.2	109-99-9	
Chloroform	Not detected	60		ug/kg	63.2	67-66-3	
Bromochloromethane	Not detected	100		ug/kg	63.2	74-97-5	
1,1,1-Trichloroethane	Not detected	60		ug/kg	63.2	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	3,000		ug/kg	63.2	108-10-1	
2-Hexanone	Not detected	3,000		ug/kg	63.2	591-78-6	
Carbon tetrachloride	Not detected	60		ug/kg	63.2	56-23-5	
Benzene	Not detected	60		ug/kg	63.2	71-43-2	
1,2-Dichloroethane	Not detected	60		ug/kg	63.2	107-06-2	

p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Lab Sample ID: S43774.03 (continued)

Sample Tag: 3a

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 12/28/22 23:12, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Trichloroethene	Not detected	60		ug/kg	63.2	79-01-6	
1,2-Dichloropropane	Not detected	60		ug/kg	63.2	78-87-5	
Bromodichloromethane	Not detected	100		ug/kg	63.2	75-27-4	
Dibromomethane	Not detected	300		ug/kg	63.2	74-95-3	
cis-1,3-Dichloropropene	Not detected	60		ug/kg	63.2	10061-01-5	
Toluene	200	60		ug/kg	63.2	108-88-3	
trans-1,3-Dichloropropene	Not detected	60		ug/kg	63.2	10061-02-6	
1,1,2-Trichloroethane	Not detected	60		ug/kg	63.2	79-00-5	
Tetrachloroethene	Not detected	60		ug/kg	63.2	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	60		ug/kg	63.2	110-57-6	
Dibromochloromethane	Not detected	100		ug/kg	63.2	124-48-1	
1,2-Dibromoethane	Not detected	30		ug/kg	63.2	106-93-4	M
Chlorobenzene	Not detected	60		ug/kg	63.2	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	100		ug/kg	63.2	630-20-6	
Ethylbenzene	Not detected	60		ug/kg	63.2	100-41-4	
p,m-Xylene	100	100		ug/kg	63.2		
o-Xylene	70	60		ug/kg	63.2	95-47-6	
Styrene	Not detected	60		ug/kg	63.2	100-42-5	
Isopropylbenzene	Not detected	300		ug/kg	63.2	98-82-8	
Bromoform	Not detected	100		ug/kg	63.2	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	60		ug/kg	63.2	79-34-5	
1,2,3-Trichloropropane	Not detected	100		ug/kg	63.2	96-18-4	
n-Propylbenzene	Not detected	60		ug/kg	63.2	103-65-1	
Bromobenzene	Not detected	100		ug/kg	63.2	108-86-1	
1,3,5-Trimethylbenzene	Not detected	60		ug/kg	63.2	108-67-8	
tert-Butylbenzene	Not detected	60		ug/kg	63.2	98-06-6	
1,2,4-Trimethylbenzene	Not detected	60		ug/kg	63.2	95-63-6	
sec-Butylbenzene	Not detected	60		ug/kg	63.2	135-98-8	
p-Isopropyltoluene	100	100		ug/kg	63.2	99-87-6	
1,3-Dichlorobenzene	Not detected	100		ug/kg	63.2	541-73-1	
1,4-Dichlorobenzene	Not detected	100		ug/kg	63.2	106-46-7	
1,2-Dichlorobenzene	Not detected	100		ug/kg	63.2	95-50-1	
1,2,3-Trimethylbenzene	Not detected	60		ug/kg	63.2	526-73-8	
n-Butylbenzene	Not detected	60		ug/kg	63.2	104-51-8	
Hexachloroethane	Not detected	400		ug/kg	63.2	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	300		ug/kg	63.2	96-12-8	
1,2,4-Trichlorobenzene	Not detected	420		ug/kg	63.2	120-82-1	
1,2,3-Trichlorobenzene	Not detected	420		ug/kg	63.2	87-61-6	
Naphthalene	300	300		ug/kg	63.2	91-20-3	
2-Methylnaphthalene	200	100		ug/kg	63.2	91-57-6	

M-Result reported to MDL not RDL

Lab Sample ID: S43774.04
Sample Tag: 3b
Collected Date/Time: 12/22/2022 08:00
Matrix: Soil
COC Reference: 151452

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	5.1	IR
1	40ml Glass	MeOH	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3050B	12/27/22 10:45	JRH	
Sample wt. (g) / Methanol (ml)*	12.519/12	SW5035A	12/27/22 12:20	BDO	
Mercury Digestion	Completed	SW7471B	12/29/22 13:56	CTV	

Inorganics

Method: SM2540B, Run Date: 12/22/22 16:12, Analyst: MAM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	92	1		%	1		

Metals

Method: SW6020A, Run Date: 12/27/22 12:58, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	6.88	0.20		mg/kg	243	7440-38-2	
Barium	271	1.0		mg/kg	243	7440-39-3	
Cadmium	0.92	0.20		mg/kg	243	7440-43-9	
Chromium	8.86	0.50		mg/kg	243	7440-47-3	
Copper	69.4	0.50		mg/kg	243	7440-50-8	
Lead	270	0.30		mg/kg	243	7439-92-1	
Selenium	0.60	0.40		mg/kg	243	7782-49-2	
Silver	1.62	0.20		mg/kg	243	7440-22-4	
Zinc	215	0.50		mg/kg	243	7440-66-6	

Method: SW7471B, Run Date: 12/29/22 15:11, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	0.228	0.050		mg/kg	61	7439-97-6	

Organics - Volatiles

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 12/28/22 23:37, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	200		ug/kg	56.4	60-29-7	
Acetone	Not detected	1,000		ug/kg	56.4	67-64-1	
Methyl iodide	Not detected	100		ug/kg	56.4	74-88-4	
Carbon disulfide	Not detected	300		ug/kg	56.4	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	200		ug/kg	56.4	1634-04-4	
Acrylonitrile	Not detected	100		ug/kg	56.4	107-13-1	
2-Butanone (MEK)	Not detected	850		ug/kg	56.4	78-93-3	
Dichlorodifluoromethane	Not detected	300		ug/kg	56.4	75-71-8	
Chloromethane	Not detected	300		ug/kg	56.4	74-87-3	
Vinyl chloride	Not detected	60		ug/kg	56.4	75-01-4	
Bromomethane	Not detected	200		ug/kg	56.4	74-83-9	
Chloroethane	Not detected	300		ug/kg	56.4	75-00-3	

Lab Sample ID: S43774.04 (continued)

Sample Tag: 3b

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 12/28/22 23:37, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Trichlorofluoromethane	Not detected	100		ug/kg	56.4	75-69-4	
1,1-Dichloroethene	Not detected	60		ug/kg	56.4	75-35-4	
Methylene chloride	Not detected	100		ug/kg	56.4	75-09-2	
trans-1,2-Dichloroethene	Not detected	60		ug/kg	56.4	156-60-5	
1,1-Dichloroethane	Not detected	60		ug/kg	56.4	75-34-3	
cis-1,2-Dichloroethene	Not detected	60		ug/kg	56.4	156-59-2	
Tetrahydrofuran*	Not detected	1,000		ug/kg	56.4	109-99-9	
Chloroform	Not detected	60		ug/kg	56.4	67-66-3	
Bromochloromethane	Not detected	100		ug/kg	56.4	74-97-5	
1,1,1-Trichloroethane	Not detected	60		ug/kg	56.4	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	3,000		ug/kg	56.4	108-10-1	
2-Hexanone	Not detected	3,000		ug/kg	56.4	591-78-6	
Carbon tetrachloride	Not detected	60		ug/kg	56.4	56-23-5	
Benzene	Not detected	60		ug/kg	56.4	71-43-2	
1,2-Dichloroethane	Not detected	60		ug/kg	56.4	107-06-2	
Trichloroethene	Not detected	60		ug/kg	56.4	79-01-6	
1,2-Dichloropropane	Not detected	60		ug/kg	56.4	78-87-5	
Bromodichloromethane	Not detected	100		ug/kg	56.4	75-27-4	
Dibromomethane	Not detected	300		ug/kg	56.4	74-95-3	
cis-1,3-Dichloropropene	Not detected	60		ug/kg	56.4	10061-01-5	
Toluene	Not detected	60		ug/kg	56.4	108-88-3	
trans-1,3-Dichloropropene	Not detected	60		ug/kg	56.4	10061-02-6	
1,1,2-Trichloroethane	Not detected	60		ug/kg	56.4	79-00-5	
Tetrachloroethene	Not detected	60		ug/kg	56.4	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	60		ug/kg	56.4	110-57-6	
Dibromochloromethane	Not detected	100		ug/kg	56.4	124-48-1	
1,2-Dibromoethane	Not detected	20		ug/kg	56.4	106-93-4	M
Chlorobenzene	Not detected	60		ug/kg	56.4	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	100		ug/kg	56.4	630-20-6	
Ethylbenzene	Not detected	60		ug/kg	56.4	100-41-4	
p,m-Xylene	Not detected	100		ug/kg	56.4		
o-Xylene	Not detected	60		ug/kg	56.4	95-47-6	
Styrene	Not detected	60		ug/kg	56.4	100-42-5	
Isopropylbenzene	Not detected	300		ug/kg	56.4	98-82-8	
Bromoform	Not detected	100		ug/kg	56.4	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	60		ug/kg	56.4	79-34-5	
1,2,3-Trichloropropane	Not detected	100		ug/kg	56.4	96-18-4	
n-Propylbenzene	Not detected	60		ug/kg	56.4	103-65-1	
Bromobenzene	Not detected	100		ug/kg	56.4	108-86-1	
1,3,5-Trimethylbenzene	Not detected	60		ug/kg	56.4	108-67-8	
tert-Butylbenzene	Not detected	60		ug/kg	56.4	98-06-6	
1,2,4-Trimethylbenzene	Not detected	60		ug/kg	56.4	95-63-6	
sec-Butylbenzene	Not detected	60		ug/kg	56.4	135-98-8	
p-Isopropyltoluene	100	100		ug/kg	56.4	99-87-6	
1,3-Dichlorobenzene	Not detected	100		ug/kg	56.4	541-73-1	
1,4-Dichlorobenzene	Not detected	100		ug/kg	56.4	106-46-7	
1,2-Dichlorobenzene	Not detected	100		ug/kg	56.4	95-50-1	
1,2,3-Trimethylbenzene	Not detected	60		ug/kg	56.4	526-73-8	
n-Butylbenzene	Not detected	60		ug/kg	56.4	104-51-8	

M-Result reported to MDL not RDL

Lab Sample ID: S43774.04 (continued)

Sample Tag: 3b

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 12/28/22 23:37, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Hexachloroethane	Not detected	300		ug/kg	56.4	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	300		ug/kg	56.4	96-12-8	
1,2,4-Trichlorobenzene	Not detected	370		ug/kg	56.4	120-82-1	
1,2,3-Trichlorobenzene	Not detected	370		ug/kg	56.4	87-61-6	
Naphthalene	Not detected	300		ug/kg	56.4	91-20-3	
2-Methylnaphthalene	Not detected	100		ug/kg	56.4	91-57-6	

Lab Sample ID: S43774.05
Sample Tag: 4a
Collected Date/Time: 12/22/2022 08:00
Matrix: Soil
COC Reference: 151452

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3050B	12/27/22 10:45	JRH	
Pesticides Extraction*	Completed	SW3546	12/27/22 13:00	TAW	
Mercury Digestion	Completed	SW7471B	12/29/22 13:56	CTV	

Inorganics

Method: SM2540B, Run Date: 12/22/22 16:12, Analyst: MAM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	83	1		%	1		

Metals

Method: SW6020A, Run Date: 12/27/22 13:00, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	17.3	0.20		mg/kg	272	7440-38-2	
Barium	598	1.0		mg/kg	272	7440-39-3	
Cadmium	6.50	0.20		mg/kg	272	7440-43-9	
Chromium	24.6	0.50		mg/kg	272	7440-47-3	
Copper	167	0.50		mg/kg	272	7440-50-8	
Lead	966	0.30		mg/kg	272	7439-92-1	
Selenium	1.11	0.40		mg/kg	272	7782-49-2	
Silver	1.33	0.20		mg/kg	272	7440-22-4	
Zinc	2,220	0.50		mg/kg	272	7440-66-6	

Method: SW7471B, Run Date: 12/29/22 15:14, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	1.014	0.050		mg/kg	73	7439-97-6	

Organics - PCBs/Pesticides

Organochlorine Pesticides, Method: SW8081B, Run Date: 12/27/22 17:50, Analyst: JANB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Aldrin	Not detected	20		ug/kg	10	309-00-2	
a-BHC	Not detected	20		ug/kg	10	319-84-6	
b-BHC	Not detected	20		ug/kg	10	319-85-7	
d-BHC	Not detected	20		ug/kg	10	319-86-8	
g-BHC (Lindane)	Not detected	20		ug/kg	10	58-89-9	
Chlordane	Not detected	100		ug/kg	10	57-74-9	
4,4'-DDD	Not detected	20		ug/kg	10	72-54-8	
4,4'-DDE	120	20		ug/kg	10	72-55-9	
4,4'-DDT	80	20		ug/kg	10	50-29-3	
Dieldrin	Not detected	20		ug/kg	10	60-57-1	
Endosulfan I	Not detected	20		ug/kg	10	959-98-8	
Endosulfan II	Not detected	20		ug/kg	10	33213-65-9	
Endosulfan sulfate	Not detected	20		ug/kg	10	1031-07-8	

Lab Sample ID: S43774.05 (continued)

Sample Tag: 4a

Organochlorine Pesticides, Method: SW8081B, Run Date: 12/27/22 17:50, Analyst: JANB (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Endrin	Not detected	20		ug/kg	10	72-20-8	
Endrin aldehyde	Not detected	20		ug/kg	10	7421-93-4	
Heptachlor	Not detected	20		ug/kg	10	76-44-8	
Heptachlor epoxide	Not detected	20		ug/kg	10	1024-57-3	
Methoxychlor	Not detected	50		ug/kg	10	72-43-5	
Toxaphene	Not detected	170		ug/kg	10	8001-35-2	
Endrin Ketone	Not detected	20		ug/kg	10	53494-70-5	

Lab Sample ID: S43774.06
Sample Tag: 5a
Collected Date/Time: 12/22/2022 10:00
Matrix: Soil
COC Reference: 151452

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3050B	12/27/22 10:45	JRH	
Extraction, PCB*	Completed	SW3546	12/27/22 13:00	TAW	
Pesticides Extraction*	Completed	SW3546	12/27/22 13:00	TAW	
PNA Extraction*	Completed	SW3546	12/30/22 12:20	JGH	
Mercury Digestion	Completed	SW7471B	12/29/22 13:56	CTV	

Inorganics

Method: SM2540B, Run Date: 12/22/22 16:12, Analyst: MAM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	85	1		%	1		

Metals

Method: SW6020A, Run Date: 12/27/22 13:02, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	4.65	0.20		mg/kg	248	7440-38-2	
Barium	63.5	1.0		mg/kg	248	7440-39-3	
Cadmium	0.50	0.20		mg/kg	248	7440-43-9	
Chromium	14.2	0.50		mg/kg	248	7440-47-3	
Copper	31.6	0.50		mg/kg	248	7440-50-8	
Lead	164	0.30		mg/kg	248	7439-92-1	
Selenium	Not detected	0.40		mg/kg	248	7782-49-2	
Silver	Not detected	0.20		mg/kg	248	7440-22-4	
Zinc	124	0.50		mg/kg	248	7440-66-6	

Method: SW7471B, Run Date: 12/29/22 15:17, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	0.183	0.050		mg/kg	72	7439-97-6	

Organics - PCBs/Pesticides

Organochlorine Pesticides, Method: SW8081B, Run Date: 12/27/22 18:06, Analyst: JANB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Aldrin	Not detected	20		ug/kg	10	309-00-2	
a-BHC	Not detected	20		ug/kg	10	319-84-6	
b-BHC	Not detected	20		ug/kg	10	319-85-7	
d-BHC	Not detected	20		ug/kg	10	319-86-8	
g-BHC (Lindane)	Not detected	20		ug/kg	10	58-89-9	
Chlordane	Not detected	100		ug/kg	10	57-74-9	
4,4'-DDD	20	20		ug/kg	10	72-54-8	
4,4'-DDE	20	20		ug/kg	10	72-55-9	
4,4'-DDT	30	20		ug/kg	10	50-29-3	
Dieldrin	Not detected	20		ug/kg	10	60-57-1	
Endosulfan I	Not detected	20		ug/kg	10	959-98-8	

Lab Sample ID: S43774.06 (continued)

Sample Tag: 5a

Organochlorine Pesticides, Method: SW8081B, Run Date: 12/27/22 18:06, Analyst: JANB (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Endosulfan II	20	20		ug/kg	10	33213-65-9	
Endosulfan sulfate	Not detected	20		ug/kg	10	1031-07-8	
Endrin	Not detected	20		ug/kg	10	72-20-8	
Endrin aldehyde	Not detected	20		ug/kg	10	7421-93-4	
Heptachlor	Not detected	20		ug/kg	10	76-44-8	
Heptachlor epoxide	Not detected	20		ug/kg	10	1024-57-3	
Methoxychlor	Not detected	50		ug/kg	10	72-43-5	
Toxaphene	Not detected	170		ug/kg	10	8001-35-2	
Endrin Ketone	Not detected	20		ug/kg	10	53494-70-5	

PCB List, Method: SW8082A, Run Date: 12/27/22 20:12, Analyst: JANB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PCB-1016	Not detected	330		ug/kg	10	12674-11-2	
PCB-1242	Not detected	330		ug/kg	10	53469-21-9	
PCB-1221	Not detected	330		ug/kg	10	11104-28-2	
PCB-1232	Not detected	330		ug/kg	10	11141-16-5	
PCB-1248	Not detected	330		ug/kg	10	12672-29-6	
PCB-1254	Not detected	330		ug/kg	10	11097-69-1	
PCB-1260	400	330		ug/kg	10	11096-82-5	

Organics - Semi-Volatiles

Polynuclear Aromatics, Method: SW8270D, Run Date: 12/30/22 17:00, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	300		ug/kg	6	83-32-9	
Acenaphthylene	Not detected	300		ug/kg	6	208-96-8	
Anthracene	Not detected	300		ug/kg	6	120-12-7	
Benzo(a)anthracene	700	300		ug/kg	6	56-55-3	
Benzo(a)pyrene	700	300		ug/kg	6	50-32-8	
Benzo(b)fluoranthene	1,100	300		ug/kg	6	205-99-2	p
Benzo(k)fluoranthene	1,300	300		ug/kg	6	207-08-9	p
Benzo(ghi)perylene	300	300		ug/kg	6	191-24-2	
Chrysene	700	300		ug/kg	6	218-01-9	
Dibenzo(ah)anthracene	Not detected	300		ug/kg	6	53-70-3	
Fluoranthene	1,300	300		ug/kg	6	206-44-0	
Fluorene	Not detected	300		ug/kg	6	86-73-7	
Indeno(1,2,3-cd)pyrene	300	300		ug/kg	6	193-39-5	
Naphthalene	Not detected	300		ug/kg	6	91-20-3	
Phenanthrene	700	300		ug/kg	6	85-01-8	
Pyrene	1,100	300		ug/kg	6	129-00-0	
2-Methylnaphthalene	Not detected	300		ug/kg	6	91-57-6	

p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Merit Laboratories Login Checklist

Lab Set ID: S43774
Client: MCDOWELL (McDowell & Associates)
Project: 22-16348
Submitted: 12/22/2022 11:55 Login User: MMC

Attention: Jennifer Lagerbohm
Address: McDowell & Associates
21355 Hatcher Avenue
Ferndale, MI 48220

Phone: O:248-399-2066 FAX:
Email: jennifer.lagerbohm@mcdowasc.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.1
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1 151452

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jennifer Laderbohm
COMPANY: McDowell & Associates
ADDRESS: 21355 Hatcher Ave
CITY: Ferndale STATE: MI ZIP CODE: 48220
PHONE NO.: 248 544-6050 CELL NO.: P.O. NO.:
E-MAIL ADDRESS: jennifer.laderbohm@mcdowellasc.com QUOTE NO.:
PROJECT NO./NAME: 22-16348 SAMPLER(S) - PLEASE PRINT/SIGN NAME: Jeni

INVOICE TO

CONTACT NAME: X SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☒ 3 DAYS ☐ STANDARD ☐ OTHER
DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	10HM	Pesticides	VOCs	PNAs	PCBs
43774.01	12/22/22	800	2a	S	1	1							X			X	
.02		1000	2a-D	S	1	1							X			X	
.03			3a	S	2	1					1		X		X	X	X
.04			3D	S	2	1					1		X		X		
.05			4a	S	1	1							X	X			
.06			5a	S	1	1							X	X		X	X

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐ Sampler	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

12/22/22 1020
12/22/22 1155
12/22/22 1155

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 5.1

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 1.26.22