Rose & Westra
A Division of GZA

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

The Widdicomb Building
601 Fifth Street NW
Suite 102
Grand Rapids, MI 49504
T: 616.956.6123
F: 616.288.3327
www.rosewestra.com
www.gza.com

Submitted Via Email Only

July 1, 2024

Leah Gies, Project Manager
Grand Rapids District Office
Remediation and Redevelopment Division
Michigan Department of Environment, Great Lakes, and Energy
350 Ottawa Avenue NW, Unit 10
Grand Rapids, MI 49503
GiesL@michigan.gov

Re: Compliance Communication

Dear Ms. Gies:

On behalf of Wolverine World Wide, Inc., Rose & Westra, a Division of GZA GeoEnvironmental, Inc. (R&W/GZA), submits the enclosed revised Investigation Summary in response to EGLE's May 30, 2024, Compliance Communication to Wolverine regarding properties located at 9300 and 9341 Courtland Drive NE, Rockford, Michigan (the "Courtland Properties").

The May 30 Compliance Communication suggests that Wolverine is not diligently pursuing response activities. In fact, Wolverine is actively pursuing appropriate response activities. As we have previously shared with EGLE, Wolverine has already undertaken soil and groundwater investigation to help determine potential sources of PFAS at the Courtland Properties as well as groundwater flow in the area. As reflected in the revised Investigation Summary, those results have informed Wolverine's proposed next steps, and Wolverine is now proposing to undertake additional investigation to the northeast and to the west of the Courtland Properties—in an area where no investigation has yet occurred.

In addition, drinking water receptors have been addressed. Our understanding is that filters have already been provided where appropriate. These are the same highly effective filters the State has been providing to residences across the state. Wolverine is committed to continuing to work with EGLE to ensure that any potential exposures identified by Wolverine's investigation of the Courtland Properties will be properly addressed.

We will continue to consult with EGLE, as we have in the past, regarding those efforts. If you have any questions, please contact us.

Very truly yours,
Rose & Westra, a Division of GZA GeoEnvironmental, Inc.

Mark A. Westra
Principal

Loretta J. Powers, CHMM
Associate Principal

Enclosure: Investigation Summary, Revised July 1, 2023
cc: Karen Vorce, EGLE, VorceK@michigan.gov
j:\62000\626xx\62677.92 - courtland\report\62677.92-courtland-respletter-f.docx

Rose & Westra
A Division of GZA

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

The Widdicomb Building
601 Fifth Street NW
Suite 102
Grand Rapids, MI 49504
T: 616.956.6123
F: 616.288.3327
www.rosewestra.com
www.gza.com

April 17, 2024; Revised July 1, 2024
File No.: 16.0062677.92

Ms. Karen Vorce
Remediation and Redevelopment Division
Michigan Department of Environment, Great Lakes, and Energy
350 Ottawa Avenue NW, Unit 10
Grand Rapids, MI 49503-2341

Re: Investigation Summary – Wolverine World Wide, Inc.
9300 and 9341 Courtland Drive NE, Rockford, Michigan 49341

Dear Ms. Vorce:

On April 12, 2023, a purchaser of property located at 5312 11 Mile Road NE submitted a Baseline Environmental Assessment (BEA) to EGLE identifying two per- and polyfluorinated substances (PFAS), perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), in shallow groundwater exceeding Michigan Part 201 Generic Cleanup Criteria (GCC).

EGLE began investigating the potential presence of PFAS at neighboring properties, and on July 10, 2023, Wolverine World Wide, Inc. (Wolverine) received a Letter (Letter; refer to **Appendix A**) from EGLE regarding Wolverine's adjacent property located at 9300 Courtland Drive NE (herein referred to as Distribution Center or DC). Based on the groundwater results and additional testing of residential wells in the area, EGLE requested Wolverine conduct an investigation in this area. On behalf of Wolverine, Rose & Westra, a Division of GZA GeoEnvironmental, Inc. (R&W/GZA) developed investigation scopes in coordination with EGLE to investigate the potential presence of PFAS at the DC property and Wolverine's nearby office property (herein referred to as Office and/or HQ, and jointly with the DC property as the Site.) The purpose of this Investigation Summary (Summary) is to compile data collected from the completed investigations and to propose additional steps.

BACKGROUND

The DC property has been a warehousing location for Wolverine since the 1960s. It is directly north of the BEA property at 5312 11 Mile Road NE.

The Office is across the street from the DC property at 9341 Courtland Drive. Available documentation indicated in 1984, Wolverine received the first of four Part 301 Inland Lakes and Streams Act Permits from the State to dredge river sediments from the Rogue River near the water intake at Wolverine's former Rockford tannery, approximately a quarter mile upstream of the Rockford Dam. Wolverine received three other Inland Lakes and Streams Act permits from the State to dredge varying volumes of sediment from the same location in front of the tannery in 1990, 1998, and 2001. The MDEQ/EGLE permits were provided for the dredged material to be placed on the Office property.

In 2019, three groundwater monitoring wells were installed at the Office property. The well designations (CTL-MW-1, CTL-MW-2, and CTL-MW-3) and locations are shown on **Figure 1** and boring/well installation logs can be found in **Appendix B**.

The wells were sampled in May 2019 for PFAS. CTL-MW-2 was resampled in July of the same year. All three wells were sampled again in January 2020. All samples were below applicable criteria for PFAS. See **Table 1** (attached) for a summary of the analytical results as compared to EGLE Part 201 GCC for groundwater.

PROJECT OBJECTIVES

Work was performed in accordance with a December 13, 2023, scope of work for the following two objectives:

- Further investigate geologic and groundwater conditions at the Site via drilling and vertical aquifer profile (VAP) groundwater sampling.
- Conduct soil investigation activities to identify, where Rogue River sediment from the dredging under the 1984, 1990, 1998, and 2001 Inland Lakes and Streams Act Permits may have been placed at the Site.

FIELD ACTIVITIES

The field activities included VAP and soil sampling at both the DC and HQ properties.

VAP

The four VAP locations were as follows: VAP-01 on the east side of the HQ property, just northwest of Courtland Drive; VAP-02 at the northwest corner of the DC property; VAP-03 at the northeast corner of the DC property; and VAP-04 on the southern edge of the DC property (**Figure 1**). The VAP sampling locations were collected by R&W/GZA on a map hosted on GZA's ESRI Enterprise System with a Trimble R1 Global Positioning System unit (**Figure 1**). The unit is accurate up to 2 horizontal feet.

The VAP borings were drilled using hollow-stem auger methods in accordance with Standard Operating Procedures (SOPs) A03 through A06 of the previously established Wolverine QAPP[1] written for work completed under the Consent Decree in northern Kent County. Significant confining layers were encountered during drilling at VAP-02 and VAP-03 below the upper groundwater formation. To prevent the migration of groundwater in upper formations into the lower saturated zone, steel casing was installed within the encountered confining layer before drilling continued.

Drilling at VAP-01 did not encounter a water bearing unit and therefore no VAP samples were collected. Drilling at VAP-04 encountered clay at 24 feet below ground surface (bgs) at which depth the boring was terminated. The boring logs from the VAP drilling can be found in **Appendix C.**

Per QAPP *SOP A25, "Vertical Aquifer Profiling"*, temporary wells were constructed of 2-inch diameter, threaded polyvinyl chloride (PVC) risers and 5-foot long, 2-inch diameter, 0.010-inch slotted wire-wrapped PVC well screens. The screens were set in water-bearing and permeable formation(s) at an interval of 10 feet from the groundwater table to the borehole terminus. Following temporary well installation, the augers were pulled up approximately 5 feet to expose and allow natural sand to collapse around the well screen. The temporary wells were developed using a Mega-Monsoon® 12-Volt Plastic Pump until the water began to clear and turbidity stabilized. Turbidity was measured using HACH 2100Q Portable Turbidimeter. The pump was decontaminated between monitoring points using a water and Alconox® wash with a reverse osmosis filtered-water rinse. All purge water was contained in graduated tanks for volume approximation and disposal.

Following the stabilization of turbidity, VAP samples were collected for PFAS analysis in accordance with QAPP *SOP B01, PFAS Sampling.* Samples were collected from three different intervals at VAP-02, seven intervals at VAP-03, and two intervals at VAP-04. VAP logs from this event can also be found in **Appendix C.**

[1] *Quality Assurance Project Plan Former Wolverine Tannery, House Street Property, and Wolven/Jewell Area, Per- and Polyfluoroalkyl Substances Investigation Program*, November 1, 2018; Revision June 2022.

Soil Investigation

The drilling locations were based on information from the historical permits and ground disturbances visible in historical aerial photographs. **Table 1.1** explains the rationale behind the investigation areas, and the number of borings completed per area. The investigation locations are also shown on **Figure 1.** It should be noted area DC-1 is on the DC property and other areas, as denoted with "HQ", are located on the Office property.

Table 1.1
Exploration Areas

Area I.D.	Reason	Number of Borings
HQ-1	Approximate location of sediment deposition as shown in the 2001 EGLE permit	3
HQ-2	Approximate location of sediment deposition as shown in the EGLE permits from 1984 and 1998	3
HQ-3	Potential soil disturbances of unknown origin shown on aerial photographs beginning as early as circa 1968	4
HQ-4	Potential soil disturbances of unknown origin shown on aerial photographs beginning as early as circa 1968	4
DC-1	Potential soil disturbance of unknown origin as shown in aerial photographs	4

The soil borings were advanced using a Geoprobe® equipped with direct-push technology and soil cores were collected using a 5-foot long, 2-inch diameter Macro-core® sampler equipped with an acetate liner. A new acetate liner was used in the Macro-core® sampler for each depth interval. The Macro-core® sampler was decontaminated between borings and the Macro-core® drive shoe on the end of the sampler was decontaminated between soil core collection at each depth interval. Following retrieval of the Macro-core® sampler from each depth interval, the acetate liner was removed from the Macro-core® sampler and laid out on a folding table for visual observations and lithologic description by GZA personal. The soil was logged using GZA's Modified Burmeister Classification System. The boring logs are included in **Appendix D**.

Each boring was sampled at two intervals: a shallow interval, ranging from 1 to 5 feet bgs, and a deeper interval ranging from 5 to 8 feet bgs. This method was followed unless evidence of potential sediment, fill, or other notable changes in the geology were observed. In this case, samples were collected at set intervals of 2 to 3 and 4 to 5 feet bgs. As denoted, this deviation occurred four times at HQ-2-SB-3, HQ-4-SB-3, DC-1-SB-2, and DC-1-SB-3. **Table 1.2** summarizes the sample locations.

Table 1.2
Sample Summary

Area I.D.	Boring I.D.	Interval (feet bgs)
HQ-1	HQ-1-SB-1	3-4
		5-6
	HQ-1-SB-2	3-4
		7-8
	HQ-1-SB-3	3-4
		5-6
HQ-2	HQ-2-SB-1	1-2
		7-8
	HQ-2-SB-2	3-4
		6-7
	HQ-2-SB-3*	2-3
		4-5

Area I.D.	Boring I.D.	Interval (feet bgs)
HQ-3	HQ-3-SB-1	2-3
		5-6
	HQ-3-SB-2	3-4
		7-8
	HQ-3-SB-3	2-3
		7-8
	HQ-3-SB-4	2-3
		6-7
HQ-4	HQ-4-SB-1	2-3
		6-7
	HQ-4-SB-2	2-3
		5-6
	HQ-4-SB-3*	2-3
		4-5
	HQ-4-SB-4	3-4
		5-6
DC-1	DC-1-SB-1	2-3
		5-6
	DC-1-SB-2*	2-3
		4-5
	DC-1-SB-3*	2-3
		4-5
	DC-1-SB-4	3-4
		5-6

*Denotes no samples at deep interval

Based on potential constituents present in dredged Rogue Rover sediment, the samples were submitted to Pace Laboratories in South Carolina for PFAS using DOD QSM Table B-15 Method 5.4, and the following metals: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium (total), chromium iii, chromium vi, cobalt, copper, iron, lead, magnesium, mercury, molybdenum, nickel, selenium, silver, sodium, thallium, titanium, vanadium, and zinc. The metals were analyzed using U.S. Environmental Protection Agency (EPA) Methods 6010D and 7470A.

VAP SAMPLING RESULTS

The following section summarizes the groundwater analytical results collected during the VAP investigation activities. Groundwater testing data is compared to EGLE Part 201 GCC. EGLE's values for Residential and Nonresidential drinking water criteria for PFAS are the same. **Table 2.1** summarizes the most restrictive criteria for PFOA and PFOS.

Table 2.1
Comparison Criteria

Compound	Most Restrictive Value (µg/L)	Basis for Value
PFOA	0.008	GCC for Residential and Nonresidential Drinking Water (DW)
PFOS	0.012	GCC for Groundwater Surface Water Interface (GSI)

There are no analytical results for VAP-01 as there were no water bearing units encountered. VAP-02 encountered exceedances of PFOA and PFOS at 118 and 129 feet bgs. PFAS were not detected in the shallower VAP-02 sample, 79 feet bgs. The PFOA concentrations in the groundwater samples from the upper 54 feet bgs at VAP-03 exceeded GCC. There were no water bearing units encountered from 55 to 210 feet bgs in VAP-03. The PFAS concentrations in groundwater samples from 210 to 230 feet bgs in VAP-03 were below GCC. VAP-04 had samples collected at 10 and 20 feet bgs and both contained PFOA above GCC.

These VAP sampling event results are summarized on **Table 2** (attached) and exceedances are shown on **Figure 2.** Laboratory reports are included in **Appendix E**.

SOIL SAMPLING RESULTS

The following section summarizes the soil analytical results collected during the soil investigation activities. Soil data was evaluated against the most restrictive of EGLE Part 201 Nonresidential Generic Soil Cleanup Criteria (NRGCC). Per MCL 324.20101(e), if state-wide default background levels are available and greater than a risk-based GCC, then the state-wide default background levels are used as a substitute for that GCC. The Site is within Saginaw Glacial lobe. Most of the samples were taken from sand; therefore, the background values for sand in Saginaw lobe were used. The samples were analyzed for a list of 28 PFAS compounds using DOD QSM Table B-15 Method 5.4 and 25 metals (aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium (total), chromium iii, chromium vi, cobalt, copper, iron, lead, magnesium, mercury, molybdenum, nickel, selenium, silver, sodium, thallium, titanium, vanadium, and zinc) using EPA Methods 6010D and 7471B.

In summary, four metals exceeded the NRGCC for drinking water protection (DWP) and groundwater surface water interface protection (GSIP): aluminum, boron, hexavalent chromium, and magnesium. These metals only exceed screening levels related to the potential for those metals to leach from soil to groundwater. So, after receiving the total metal results, a Synthetic Precipitation Leaching Procedure (SPLP) using EPA Method 1312 was completed. The SPLP results for aluminum, boron, total chromium, and magnesium were compared to NRGCC for groundwater to determine if metals had the potential to leach into the groundwater above applicable criteria. SPLP results for hexavalent chromium could not be obtained because the samples were out of laboratory-established holding time upon submittal for SPLP analysis.

SPLP concentrations of boron, total chromium, and magnesium were not above their respective groundwater GNRCC for drinking water. As such, it is unlikely these metals have leached from soil to groundwater at concentrations exceeding their respective drinking water criteria. Aluminum SPLP concentrations were above the aluminum GNRCC for drinking water.

No GCC are established for PFAS in soil; hence, no criteria comparisons are relevant. There were detections of at least one PFAS compound in 13 out of the 18 soil boring locations. Of note, only one PFAS compound was detected in one interval from the samples collected at DC-1.

These results are summarized on **Tables 3, 4,** and **5** (attached). **Figures 3** and **4** present summaries of the metals and PFAS exceedances in soil, respectively. Laboratory reports are included in **Appendix E**.

PROPOSED ACTIVITIES

Based on the initial results discussed above, on April 17, 2024, WWW proposed and is already implementing the following additional activities at the properties: additional VAP drilling locations on both the DC and Office properties (**Figure 5**). Following evaluation of the VAP data and discussion with EGLE, permanent monitoring wells will be installed and sampled for aluminum, hexavalent chromium, and PFAS. The permanent wells will also be used to identify groundwater flow direction. Additional soil borings are proposed at 25-foot step outs from the four borings where metals were identified above NRGCC in soil. The step-out borings will be used to better delineate where sediments may have been placed using the extent of metals above NRGCC (**Figure 6**) as a determining factor. In conjunction with

the step-out borings, samples will be collected proximate to the former soil sample locations where hexavalent chromium was detected (HQ-3-SB-1 and HQ-4-SB-2) for hexavalent chromium SPLP analysis. The three locations where magnesium was the only metal exceeding GNRCC will not be further investigated because the SPLP leachate results demonstrate magnesium is not likely to leach from the soils at concentrations above drinking water criteria.

The vertical and horizontal extent of PFAS concentrations in groundwater will be evaluated at proposed boring locations VAP-101, located in the southwestern portion of Office property; VAP-102 located in the middle of the Office property, just east of 720 Northland Drive NE; VAP-103 just north of VAP-01 along the eastern Office property boundary; and VAP-104 located in the southwest corner of the DC property. VAP will be conducted at these locations using investigative methods to allow for the continuous observation of changing lithology (i.e., hollow-stem auger or rotosonic drilling) completed in accordance with SOPs A03 through A06 of the QAPP. Soil cuttings generated during the investigation work will be containerized in either 55-gallon drums or roll-off boxes and staged either onsite or at Wolverine's House Street property before being properly characterized and disposed offsite. Permanent wells will be installed at the locations where groundwater is encountered. Well installation depths are not predetermined. Based on the profiling data, encountered geology, and nearby drinking water well elevations, R&W/GZA will determine the depth(s) of up to four wells installed at each nest location. The monitoring wells will be developed in accordance with *SOP A13, Well Development* in the QAPP. Upon completion, the wells will also be surveyed by a licensed surveyor.

Once installed and developed, the permanent monitoring wells will be sampled according to methods established in SOPs A14, A15, A16, and B01 of the QAPP. As discussed, based on the SPLP results, groundwater sampling includes aluminum to assess if leaching/migration has reached potable aquifers. Hexavalent chromium will also be tested in groundwater and compared to DW criteria, unless hexavalent chromium SPLP results demonstrate that such sampling is not necessary. The samples will be analyzed using DoD QSM 5.4 guidelines for PFAS by isotope dilution methodology and for aluminum and hexavalent chromium using EPA Method 6010D and SW7196A, as applicable.

In addition to the VAP drilling, step-out delineation borings will be conducted at HQ-2-SB-1, HQ-2-SB-3, HQ-3-SB-1, and HQ-4-SB-2. To determine the extents of the metal detections, drilling will be completed at 25-foot step outs in all cardinal directions from the location of the original boring. A second round of step-out borings will be completed an additional 25 feet in each direction (when sampling does not overlap with other sampling points). To delineate vertically at HQ-2-SB-1, HQ-2-SB-3, and HQ-3-SB-1, a boring directly adjacent to the original boring will be completed and sampled within the intervals of 10 to 15 and 15 to 20 feet bgs. Each step out boring will be sampled at a shallow interval, 1 to 5 feet bgs and a deeper interval at 5 to 8 feet bgs. The secondary step-out location samples and 15 to 20 feet bgs interval samples will be held by the laboratory pending results from the initial step-out and shallower sampling. The secondary step-out and deeper samples will only be analyzed if needed to delineate the metal exceedances. Since there are no established criteria for PFAS in soil, the previously discussed metals list will be used for delineation: aluminum, boron, hexavalent chromium, and magnesium. Despite each area having a unique group of metals that exceeded criteria, this list will be applied to each sample during this program due to the variation in the metal detections. A proposed soil step-out delineation plan is included as **Figure 6.**

The proposed scope of work contained within this Summary began in May 2024 and is on-going. **Table 3.1** outlines the next investigative steps and approximate timeframes for task completion.

Table 3.1
Timeframes for Tasks

Task	Estimated Schedule
Additional VAP Drilling	2 to 3 weeks per location (pending installation of steel casing)
VAP Analysis	4 to 5 weeks (current standard PFAS laboratory turnaround time)
Monitoring Well Installation	1 week per location (pending number of wells to be installed per location)
Soil Delineation Drilling	1 week
Soil Metals Analysis	3 weeks
Groundwater Sampling and Analysis	4 to 5 weeks

Once the data is received, R&W/GZA will evaluate the results and schedule a time to review the data with EGLE.

On May 30, 2024 Wolverine received a Compliance Communication regarding the Site from EGLE. At the time of receipt of the Compliance Communication, Wolverine was already implementing the scope of investigation identified in the April 17, 2024 Investigation Summary as set out above. As of the date of this revision, that investigation is well underway, including near completion of the VAP drilling locations. Wolverine is proposing additional drilling locations based on and informed by the recently completed portions of the investigation proposed on April 17, 2024. In particular, based on its ongoing, iterative investigation, including the additional information it has gathered since April 17, Wolverine is proposing to drill two additional offsite locations: one northeast of the Site within the immediate residential area, and one west of the Site, between the Site and the Rogue River. The exact locations have not yet been determined as the analytical data from the on-going on-Site drilling will help inform these locations and Wolverine's ability to gain access to private property. R&W/GZA will coordinate with EGLE about these drilling locations once access inquiries have been made. These locations will be drilled in the same manner as those described in the Proposed Services section of this document.

Wolverine will also continue to implement the April 17, 2024 scope, including the identified soil investigation and permanent well installations, pending the VAP laboratory data.

Upon completion of these tasks, R&W/GZA will evaluate the results and coordinate with EGLE regarding potential next steps.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Makayla Myers
Assistant Project Manager

Brian A. Beach, CPG
Senior Project Manager

Loretta J. Powers, CHMM
Associate Principal

Enclosures: Figures 1-6
Tables 1-5
Appendix A – EGLE Compliance Communication Letter
Appendix B– 2019 Boring and Well Logs
Appendix C– 2023 VAP Boring and Sample Logs
Appendix D– Soil Investigation Logs
Appendix E – Laboratory Reports

FIGURES 1 – 6

NOTES:

1. Locations are approximate based on GZA collection with a Trimble R1 GPS unit (accurate up to 2 feet).

2. Aerial photograph credits: Source: Esri, Maxar, Earthstar Geographics, IGN, and the GIS User Community.

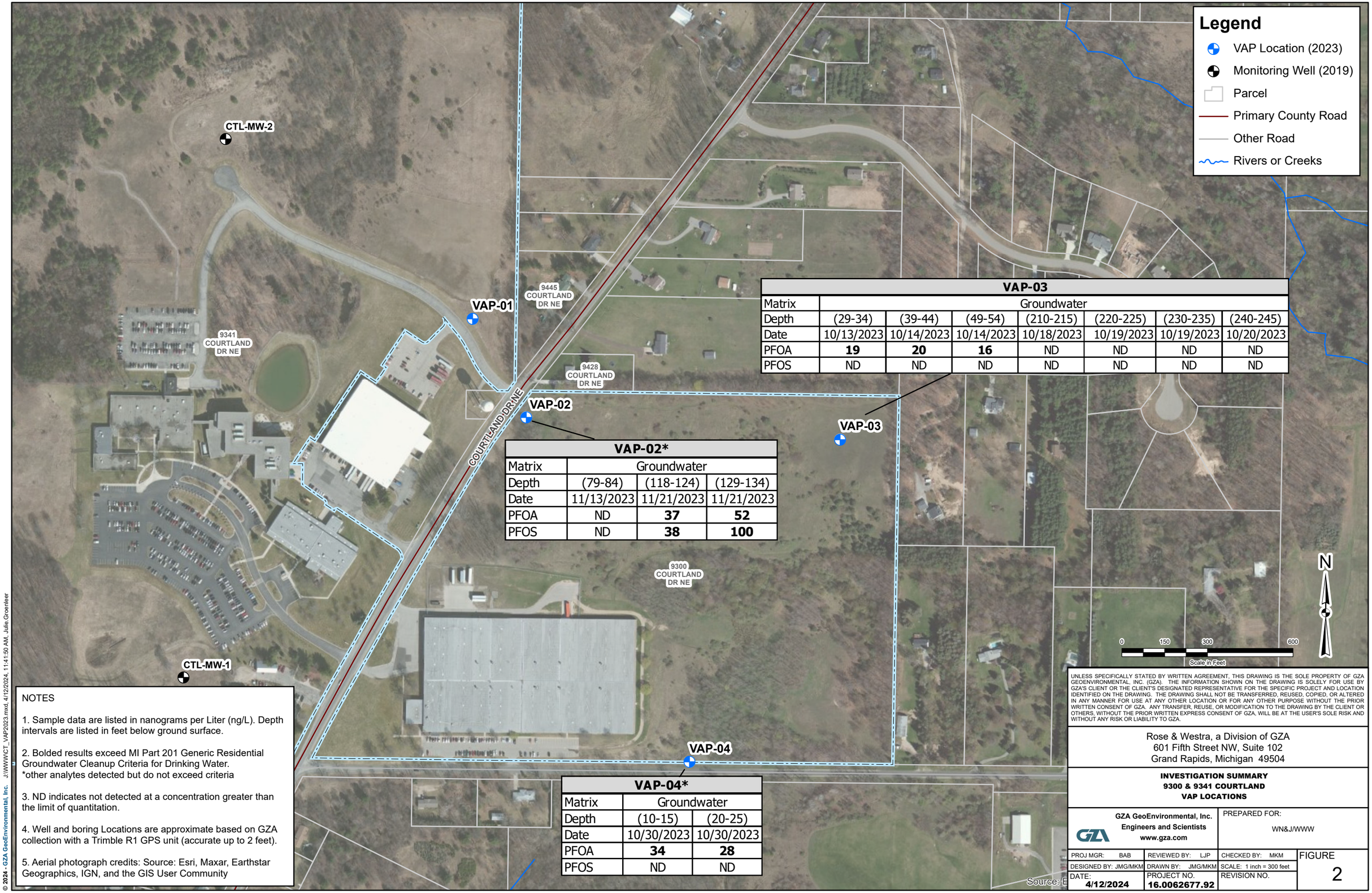
Rose & Westra, a Division of GZA
601 Fifth Street NW, Suite 102
Grand Rapids, Michigan 49504

INVESTIGATION SUMMARY
9300 & 9341 COURTLAND
SAMPLING LOCATION PLAN

GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR: WN&J/WWW

PROJ MGR: BAB	REVIEWED BY: LJP	CHECKED BY: MKM	FIGURE 1
DESIGNED BY: JMG/MKM	DRAWN BY: JMG/MKM	SCALE: 1 inch = 400 feet	
DATE: 4/12/2024	PROJECT NO. 16.0062677.92	REVISION NO.	



VAP-03							
Matrix	Groundwater						
Depth	(29-34)	(39-44)	(49-54)	(210-215)	(220-225)	(230-235)	(240-245)
Date	10/13/2023	10/14/2023	10/14/2023	10/18/2023	10/19/2023	10/19/2023	10/20/2023
PFOA	**19**	**20**	**16**	ND	ND	ND	ND
PFOS	ND	ND	ND	ND	ND	ND	ND

VAP-02*			
Matrix	Groundwater		
Depth	(79-84)	(118-124)	(129-134)
Date	11/13/2023	11/21/2023	11/21/2023
PFOA	ND	**37**	**52**
PFOS	ND	**38**	**100**

VAP-04*		
Matrix	Groundwater	
Depth	(10-15)	(20-25)
Date	10/30/2023	10/30/2023
PFOA	**34**	**28**
PFOS	ND	ND

NOTES

1. Sample data are listed in nanograms per Liter (ng/L). Depth intervals are listed in feet below ground surface.

2. Bolded results exceed MI Part 201 Generic Residential Groundwater Cleanup Criteria for Drinking Water.
*other analytes detected but do not exceed criteria

3. ND indicates not detected at a concentration greater than the limit of quantitation.

4. Well and boring Locations are approximate based on GZA collection with a Trimble R1 GPS unit (accurate up to 2 feet).

5. Aerial photograph credits: Source: Esri, Maxar, Earthstar Geographics, IGN, and the GIS User Community

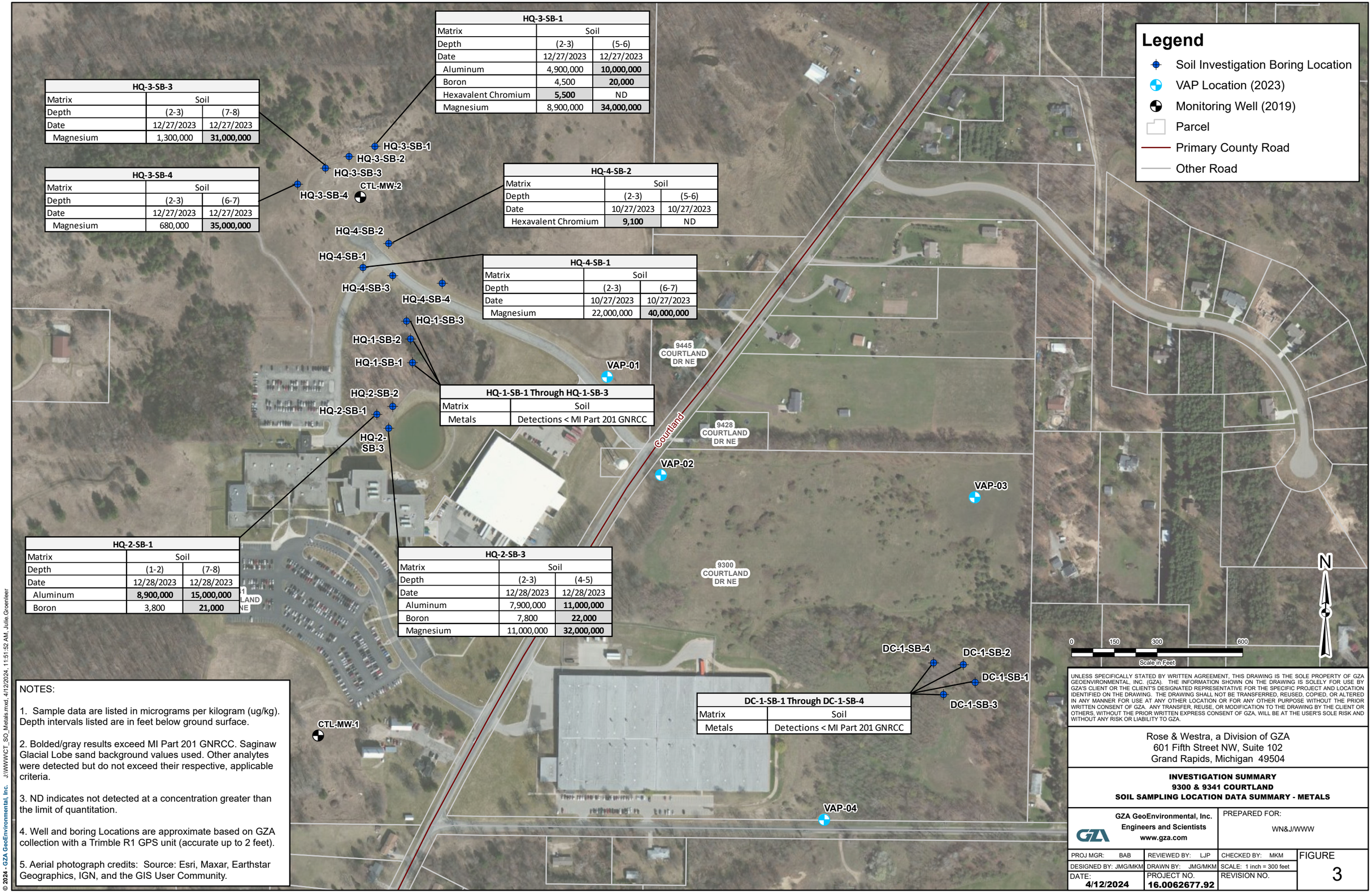
Rose & Westra, a Division of GZA
601 Fifth Street NW, Suite 102
Grand Rapids, Michigan 49504

INVESTIGATION SUMMARY
9300 & 9341 COURTLAND
VAP LOCATIONS

GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR: WN&J/WWW

PROJ MGR: BAB	REVIEWED BY: LJP	CHECKED BY: MKM	FIGURE 2
DESIGNED BY: JMG/MKM	DRAWN BY: JMG/MKM	SCALE: 1 inch = 300 feet	
DATE: 4/12/2024	PROJECT NO. 16.0062677.92	REVISION NO.	



HQ-3-SB-1		
Matrix	Soil	
Depth	(2-3)	(5-6)
Date	12/27/2023	12/27/2023
Aluminum	4,900,000	**10,000,000**
Boron	4,500	**20,000**
Hexavalent Chromium	**5,500**	ND
Magnesium	8,900,000	**34,000,000**

HQ-3-SB-3		
Matrix	Soil	
Depth	(2-3)	(7-8)
Date	12/27/2023	12/27/2023
Magnesium	1,300,000	**31,000,000**

HQ-3-SB-4		
Matrix	Soil	
Depth	(2-3)	(6-7)
Date	12/27/2023	12/27/2023
Magnesium	680,000	**35,000,000**

HQ-4-SB-2		
Matrix	Soil	
Depth	(2-3)	(5-6)
Date	10/27/2023	10/27/2023
Hexavalent Chromium	**9,100**	ND

HQ-4-SB-1		
Matrix	Soil	
Depth	(2-3)	(6-7)
Date	10/27/2023	10/27/2023
Magnesium	22,000,000	**40,000,000**

HQ-1-SB-1 Through HQ-1-SB-3	
Matrix	Soil
Metals	Detections < MI Part 201 GNRCC

HQ-2-SB-1		
Matrix	Soil	
Depth	(1-2)	(7-8)
Date	12/28/2023	12/28/2023
Aluminum	**8,900,000**	**15,000,000**
Boron	3,800	**21,000**

HQ-2-SB-3		
Matrix	Soil	
Depth	(2-3)	(4-5)
Date	12/28/2023	12/28/2023
Aluminum	7,900,000	**11,000,000**
Boron	7,800	**22,000**
Magnesium	11,000,000	**32,000,000**

DC-1-SB-1 Through DC-1-SB-4	
Matrix	Soil
Metals	Detections < MI Part 201 GNRCC

NOTES:

1. Sample data are listed in micrograms per kilogram (ug/kg). Depth intervals listed are in feet below ground surface.

2. Bolded/gray results exceed MI Part 201 GNRCC. Saginaw Glacial Lobe sand background values used. Other analytes were detected but do not exceed their respective, applicable criteria.

3. ND indicates not detected at a concentration greater than the limit of quantitation.

4. Well and boring Locations are approximate based on GZA collection with a Trimble R1 GPS unit (accurate up to 2 feet).

5. Aerial photograph credits: Source: Esri, Maxar, Earthstar Geographics, IGN, and the GIS User Community.

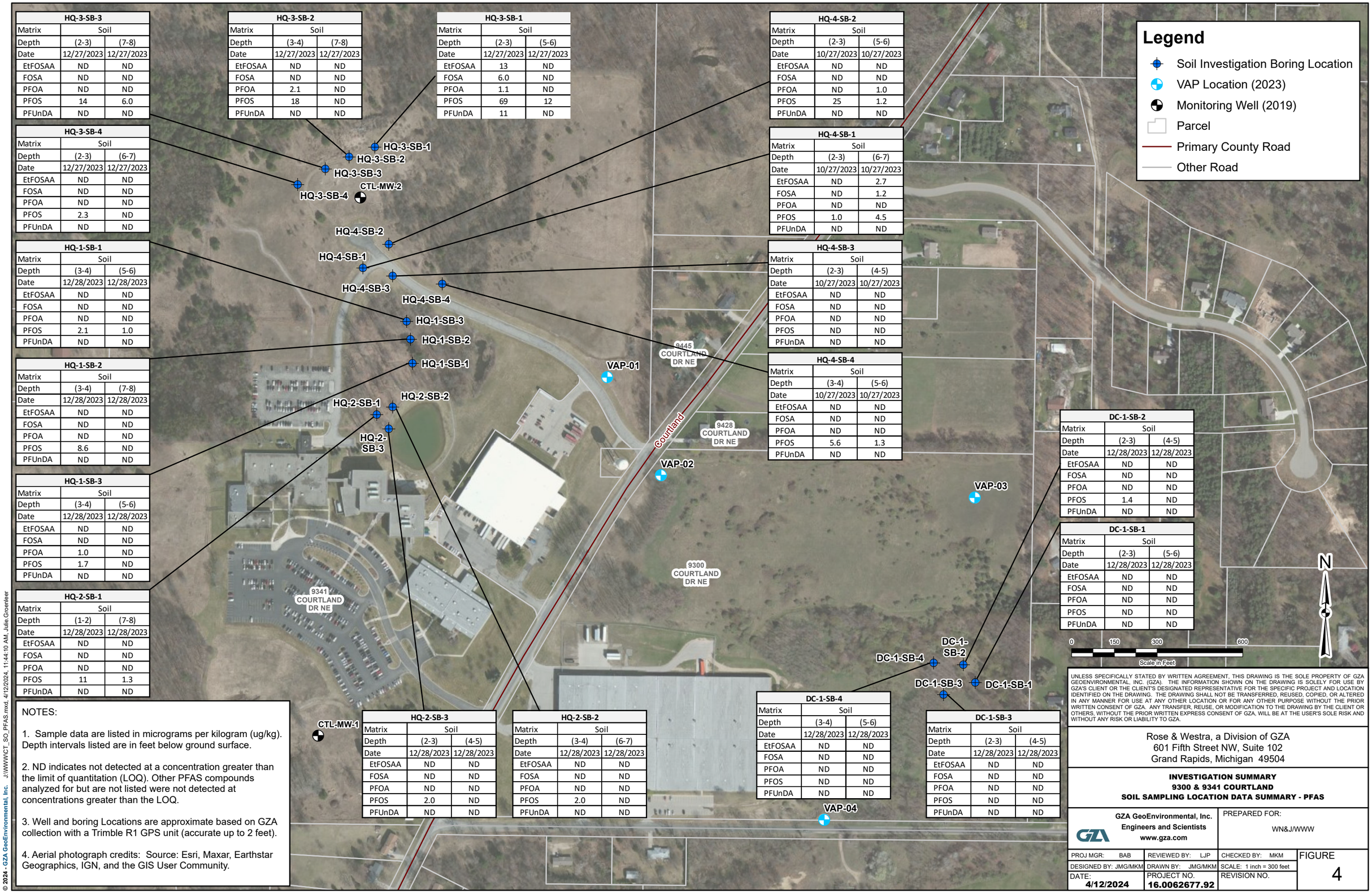
Rose & Westra, a Division of GZA
601 Fifth Street NW, Suite 102
Grand Rapids, Michigan 49504

INVESTIGATION SUMMARY
9300 & 9341 COURTLAND
SOIL SAMPLING LOCATION DATA SUMMARY - METALS

GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR: WN&J/WWW

PROJ MGR: BAB	REVIEWED BY: LJP	CHECKED BY: MKM	FIGURE 3
DESIGNED BY: JMG/MKM	DRAWN BY: JMG/MKM	SCALE: 1 inch = 300 feet	
DATE: **4/12/2024**	PROJECT NO. **16.0062677.92**	REVISION NO.	



HQ-3-SB-3		
Matrix	Soil	
Depth	(2-3)	(7-8)
Date	12/27/2023	12/27/2023
EtFOSAA	ND	ND
FOSA	ND	ND
PFOA	ND	ND
PFOS	14	6.0
PFUnDA	ND	ND

HQ-3-SB-2		
Matrix	Soil	
Depth	(3-4)	(7-8)
Date	12/27/2023	12/27/2023
EtFOSAA	ND	ND
FOSA	ND	ND
PFOA	2.1	ND
PFOS	18	ND
PFUnDA	ND	ND

HQ-3-SB-1		
Matrix	Soil	
Depth	(2-3)	(5-6)
Date	12/27/2023	12/27/2023
EtFOSAA	13	ND
FOSA	6.0	ND
PFOA	1.1	ND
PFOS	69	12
PFUnDA	11	ND

HQ-4-SB-2		
Matrix	Soil	
Depth	(2-3)	(5-6)
Date	10/27/2023	10/27/2023
EtFOSAA	ND	ND
FOSA	ND	ND
PFOA	ND	1.0
PFOS	25	1.2
PFUnDA	ND	ND

HQ-3-SB-4		
Matrix	Soil	
Depth	(2-3)	(6-7)
Date	12/27/2023	12/27/2023
EtFOSAA	ND	ND
FOSA	ND	ND
PFOA	ND	ND
PFOS	2.3	ND
PFUnDA	ND	ND

HQ-4-SB-1		
Matrix	Soil	
Depth	(2-3)	(6-7)
Date	10/27/2023	10/27/2023
EtFOSAA	ND	2.7
FOSA	ND	1.2
PFOA	ND	ND
PFOS	1.0	4.5
PFUnDA	ND	ND

HQ-1-SB-1		
Matrix	Soil	
Depth	(3-4)	(5-6)
Date	12/28/2023	12/28/2023
EtFOSAA	ND	ND
FOSA	ND	ND
PFOA	ND	ND
PFOS	2.1	1.0
PFUnDA	ND	ND

HQ-4-SB-3		
Matrix	Soil	
Depth	(2-3)	(4-5)
Date	10/27/2023	10/27/2023
EtFOSAA	ND	ND
FOSA	ND	ND
PFOA	ND	ND
PFOS	ND	ND
PFUnDA	ND	ND

HQ-1-SB-2		
Matrix	Soil	
Depth	(3-4)	(7-8)
Date	12/28/2023	12/28/2023
EtFOSAA	ND	ND
FOSA	ND	ND
PFOA	ND	ND
PFOS	8.6	ND
PFUnDA	ND	ND

HQ-4-SB-4		
Matrix	Soil	
Depth	(3-4)	(5-6)
Date	10/27/2023	10/27/2023
EtFOSAA	ND	ND
FOSA	ND	ND
PFOA	ND	ND
PFOS	5.6	1.3
PFUnDA	ND	ND

DC-1-SB-2		
Matrix	Soil	
Depth	(2-3)	(4-5)
Date	12/28/2023	12/28/2023
EtFOSAA	ND	ND
FOSA	ND	ND
PFOA	ND	ND
PFOS	1.4	ND
PFUnDA	ND	ND

HQ-1-SB-3		
Matrix	Soil	
Depth	(3-4)	(5-6)
Date	12/28/2023	12/28/2023
EtFOSAA	ND	ND
FOSA	ND	ND
PFOA	1.0	ND
PFOS	1.7	ND
PFUnDA	ND	ND

DC-1-SB-1		
Matrix	Soil	
Depth	(2-3)	(5-6)
Date	12/28/2023	12/28/2023
EtFOSAA	ND	ND
FOSA	ND	ND
PFOA	ND	ND
PFOS	ND	ND
PFUnDA	ND	ND

HQ-2-SB-1		
Matrix	Soil	
Depth	(1-2)	(7-8)
Date	12/28/2023	12/28/2023
EtFOSAA	ND	ND
FOSA	ND	ND
PFOA	ND	ND
PFOS	11	1.3
PFUnDA	ND	ND

HQ-2-SB-3		
Matrix	Soil	
Depth	(2-3)	(4-5)
Date	12/28/2023	12/28/2023
EtFOSAA	ND	ND
FOSA	ND	ND
PFOA	ND	ND
PFOS	2.0	ND
PFUnDA	ND	ND

HQ-2-SB-2		
Matrix	Soil	
Depth	(3-4)	(6-7)
Date	12/28/2023	12/28/2023
EtFOSAA	ND	ND
FOSA	ND	ND
PFOA	ND	ND
PFOS	2.0	ND
PFUnDA	ND	ND

DC-1-SB-4		
Matrix	Soil	
Depth	(3-4)	(5-6)
Date	12/28/2023	12/28/2023
EtFOSAA	ND	ND
FOSA	ND	ND
PFOA	ND	ND
PFOS	ND	ND
PFUnDA	ND	ND

DC-1-SB-3		
Matrix	Soil	
Depth	(2-3)	(4-5)
Date	12/28/2023	12/28/2023
EtFOSAA	ND	ND
FOSA	ND	ND
PFOA	ND	ND
PFOS	ND	ND
PFUnDA	ND	ND

NOTES:

1. Sample data are listed in micrograms per kilogram (ug/kg). Depth intervals listed are in feet below ground surface.

2. ND indicates not detected at a concentration greater than the limit of quantitation (LOQ). Other PFAS compounds analyzed for but are not listed were not detected at concentrations greater than the LOQ.

3. Well and boring Locations are approximate based on GZA collection with a Trimble R1 GPS unit (accurate up to 2 feet).

4. Aerial photograph credits: Source: Esri, Maxar, Earthstar Geographics, IGN, and the GIS User Community.

Rose & Westra, a Division of GZA
601 Fifth Street NW, Suite 102
Grand Rapids, Michigan 49504

INVESTIGATION SUMMARY
9300 & 9341 COURTLAND
SOIL SAMPLING LOCATION DATA SUMMARY - PFAS

GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR: WN&J/WWW

PROJ MGR: BAB	REVIEWED BY: LJP	CHECKED BY: MKM	FIGURE 4
DESIGNED BY: JMG/MKM	DRAWN BY: JMG/MKM	SCALE: 1 inch = 300 feet	
DATE: 4/12/2024	PROJECT NO. 16.0062677.92	REVISION NO.	

NOTES:

1. Well and boring Locations are approximate based on GZA collection with a Trimble R1 GPS unit (accurate up to 2 feet).

2. Aerial photograph credits: Source: Esri, Maxar, Earthstar Geographics, IGN, and the GIS User Community.

Rose & Westra, a Division of GZA
601 Fifth Street NW, Suite 102
Grand Rapids, Michigan 49504

INVESTIGATION SUMMARY
9300 & 9341 COURTLAND
ADDITIONAL PROPOSED VAP SAMPLING LOCATIONS

GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR: WN&J/WWW

PROJ MGR: BAB	REVIEWED BY: LJP	CHECKED BY: MKM	FIGURE 5
DESIGNED BY: JMG/MKM	DRAWN BY: JMG/MKM	SCALE: 1 inch = 731.28 feet	
DATE: 4/12/2024	PROJECT NO. 16.0062677.92	REVISION NO.	

Legend

Soil Investigation Boring Location

MI Part 201 Non-Residential Generic Clean-up Criteria

- No Exceedance
- Exceedance < 5 ft bgs
- Exceedance < & > 5 ft bgs

Proposed Locations

- 25-foot Step-Outs
- 50-foot Step-outs
- VAP Location (2023)
- Monitoring Well (2019)
- Parcel
- Primary County Road

NOTES:

1: Areas "DC-1" (not shown) and "HQ-1" from the inital soil investigation did not have any metals GCC exceedances

2. Well and boring Locations are approximate based on GZA collection with a Trimble R1 GPS unit (accurate up to 2 feet).

3. Proposed location are approximate and are expected to change based on field conditions

3. Aerial photograph credits: Source: Esri, Maxar, Earthstar Geographics, IGN, and the GIS User Community.

Rose & Westra, a Division of GZA
601 Fifth Street NW, Suite 102
Grand Rapids, Michigan 49504

INVESTIGATION SUMMARY
9300 & 9341 COURTLAND
SOIL STEP-OUT DELINATION LOCATION PLAN

GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR: WN&J/WWW

PROJ MGR: BAB	REVIEWED BY: LJP	CHECKED BY: MKM	FIGURE 6
DESIGNED BY: JMG/MKM	DRAWN BY: JMG/MKM	SCALE: 1 inch = 150 feet	
DATE: 4/12/2024	PROJECT NO. 16.0062677.92	REVISION NO.	

TABLES 1-5

TABLE 1
SUMMARY OF MONITORING WELL GROUNDWATER SAMPLE ANALYSIS - PFAS
Courtland
Rockford, Michigan

Sample Location	Part 201 Generic Nonresidential Groundwater Cleanup Criteria - Drinking Water[2]	Part 201 Generic Groundwater Cleanup Criteria - Groundwater Surface Water Interface[2]	CTL-MW-1	CTL-MW-1	CTL-MW-2	CTL-MW-2	CTL-MW-2	CTL-MW-3	CTL-MW-3	CTL-MW-3
Sample Name			CTL-MW-1	CTL-MW-1	CTL-MW-2	CTL-MW-2	CTL-MW-2	CTL-MW-3	CTL-MW-3	CTL-MW-3 DUP
Lab ID			UE18018-001	VA21005-004	UE24002-001	UG16010-001	VA21005-001	UE18018-002	VA21005-002	VA21005-003
Sample Date			17 May 2019	17 Jan 2020	20 May 2019	15 Jul 2019	17 Jan 2020	17 May 2019	17 Jan 2020	17 Jan 2020
Parameter (µg/L)										
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
Perfluorobutane sulfonic acid (PFBS)	0.42 (A)	670	< 0.0035	< 0.0035	0.006	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	< 0.0069	< 0.007	< 0.0069	< 0.0068	< 0.0076	< 0.0069	< 0.0072	< 0.0074
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
Perfluorohexane sulfonic acid (PFHxS)	0.051 (A)	0.21	< 0.0035	< 0.0035	0.0035	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
Perfluorobutanoic acid (PFBA)	NCL	NCL	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
Perfluorodecanoic acid (PFDA)	NCL	NCL	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
Perfluorohexanoic acid (PFHxA)	400 (A)	NA	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
Perfluorononanoic acid (PFNA)	0.006 (A)	0.03	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
Perfluorooctanoic acid (PFOA)	0.008 (A)	0.17	< 0.0017	< 0.0018	0.0072	< 0.0017	0.0014 J	< 0.0017	< 0.0018	< 0.0019
Perfluorooctane sulfonic acid (PFOS)	0.016 (A)	0.012	< 0.0035	< 0.0035	0.011	0.0067	0.0075	< 0.0035	< 0.0036	< 0.0037
Perfluoropentanoic acid (PFPeA)	NCL	NCL	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	NCL	NCL	< 0.0069	< 0.007	< 0.0069	< 0.0068	< 0.0076	< 0.0069	< 0.0072	< 0.0074
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	NCL	NCL	< 0.0035	< 0.0035	< 0.0034	< 0.0034	< 0.0038	< 0.0035	< 0.0036	< 0.0037

NOTES:

1. Concentration and criteria units are micrograms per Liter (µg/L) or parts per billion (ppb).
2. Michigan Part 201 Groundwater Cleanup Criteria are based on "Table 1, Groundwater: Residential and Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Tier I Risk Based Screening Levels," Michigan Administrative Code, Cleanup Criteria Requirements for Response Activity, Rules 299.44 and 299.49, effective December 30, 2013; last updated October 12, 2023.
   Abbreviations Include:
   "NCL" indicates no criterion listed in Michigan Part 201 Table 1.
   "NA" indicates not available.
   Footnotes Include:
   (A) - The criterion is the State of Michigan drinking water standard.
3. Bold, italic number with thick line border or italic parameter name indicates that parameter was detected above the Michigan Part 201 Groundwater Cleanup Criteria listed.
4. Abbreviations include:
   "< LOQ" indicates the parameter was analyzed for but not detected above the limit of quantitation (LOQ).
   "DUP" indicates a duplicate sample.
   "J" indicates the parameter was detected at a concentration greater than the limit of quantitation (LOQ) but less than the detection limit (DL) and the result is estimated.

TABLE 2
SUMMARY OF VERTICAL AQUIFER PROFILING GROUNDWATER SAMPLE ANALYSIS - PFAS
Courtland
Rockford, Michigan

Sample Location	Part 201 Generic Nonresidential Groundwater Cleanup Criteria - Drinking Water[2]	Part 201 Generic Groundwater Cleanup Criteria - Groundwater Surface Water Interface[2]	VAP-02	VAP-02	VAP-02	VAP-03	VAP-03	VAP-03	VAP-03	VAP-03	VAP-03	VAP-03	VAP-03	VAP-04	VAP-04
Sample Name			VAP-02(79-84)	VAP-02(118-124)	VAP-02(129-134)	VAP-03(29-34)	VAP-03(29-34) DUP	VAP-03(39-44)	VAP-03(49-54)	VAP-03(210-215)	VAP-03(220-225)	VAP-03(230-235)	VAP-03 (240-245)	VAP-04(10-15)	VAP-04(20-25)
Screen Interval (feet below ground surface)			79-84	118-124	129-134	29-34	29-34	39-44	49-54	210-215	220-225	230-235	240-245	10-15	20-25
Laboratory Sample ID			YL01074-001	YL01074-003	YL01074-002	YJ21013-001	YJ21013-002	YJ21013-003	YJ21013-004	YJ21013-005	YJ21013-006	YJ21013-007	YJ28008-001	YK11014-001	YK11014-002
Sample Date			13 Nov 2023	21 Nov 2023	21 Nov 2023	13 Oct 2023	13 Oct 2023	14 Oct 2023	14 Oct 2023	18 Oct 2023	19 Oct 2023	19 Oct 2023	20 Oct 2023	30 Oct 2023	30 Oct 2023
Parameter (µg/L)															
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	NCL	NCL	< 0.007	< 0.0068	< 0.0072	< 0.0071	< 0.0072	< 0.0073	< 0.0071	< 0.0076	< 0.0071	< 0.0071	< 0.007	< 0.0069	< 0.0074
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	NCL	NCL	< 0.007	< 0.0068	< 0.0072	< 0.0071	< 0.0072	< 0.0073	< 0.0071	< 0.0076	< 0.0071	< 0.0071	< 0.007	< 0.0069	< 0.0074
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NCL	NCL	< 0.007	< 0.0068	< 0.0072	< 0.0071	< 0.0072	< 0.0073	< 0.0071	< 0.0076	< 0.0071	< 0.0071	< 0.007	< 0.0069	< 0.0074
1H,1H,2H,2H-perfluorohexane sulfonate (4:2FTS)	NCL	NCL	< 0.007	< 0.0068	< 0.0072	< 0.0071	< 0.0072	< 0.0073	< 0.0071	< 0.0076	< 0.0071	< 0.0071	< 0.007	< 0.0069	< 0.0074
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	< 0.007	< 0.0068	< 0.0072	< 0.0071	< 0.0072	< 0.0073	< 0.0071	< 0.0076	< 0.0071	< 0.0071	< 0.007	< 0.0069	< 0.0074
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	< 0.007	< 0.0068	< 0.0072	< 0.0071	< 0.0072	< 0.0073	< 0.0071	< 0.0076	< 0.0071	< 0.0071	< 0.007	< 0.0069	< 0.0074
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	NCL	NCL	< 0.007	< 0.0068	< 0.0072	< 0.0071	< 0.0072	< 0.0073	< 0.0071	< 0.0076	< 0.0071	< 0.0071	< 0.007	< 0.0069	< 0.0074
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	NCL	NCL	< 0.007	< 0.0068	< 0.0072	< 0.0071	< 0.0072	< 0.0073	< 0.0071	< 0.0076	< 0.0071	< 0.0071	< 0.007	< 0.0069	< 0.0074
Perfluorobutane sulfonic acid (PFBS)	0.42 (A)	670	< 0.0035	0.014	0.015	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	0.0065	0.0073
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	< 0.0035	< 0.0034	< 0.0036	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	< 0.0035	< 0.0037
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	< 0.0035	< 0.0034	0.0046	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	< 0.0035	< 0.0037
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	< 0.0035	< 0.0034	< 0.0036	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	< 0.0035	< 0.0037
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	< 0.0035	< 0.0034	< 0.0036	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	< 0.0035	< 0.0037
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	< 0.0035	0.0038	< 0.0036	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	< 0.0035	< 0.0037
Perfluorohexane sulfonic acid (PFHxS)	0.051 (A)	0.21	< 0.0035	0.013	0.017	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	0.013	0.0087
Perfluorobutanoic acid (PFBA)	NCL	NCL	< 0.0035	0.0042	0.0049	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	< 0.0035	< 0.0037
Perfluorodecanoic acid (PFDA)	NCL	NCL	< 0.0035	< 0.0034	< 0.0036	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	< 0.0035	< 0.0037
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	< 0.0035	< 0.0034	< 0.0036	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	< 0.0035	< 0.0037
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	< 0.0035	0.0049	0.0061	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	0.0051	< 0.0037
Perfluorohexanoic acid (PFHxA)	400 (A)	NA	< 0.0035	0.0058	0.0055	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	< 0.0035	< 0.0037
Perfluorononanoic acid (PFNA)	0.006 (A)	0.03	< 0.0035	< 0.0034	< 0.0036	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	< 0.0035	< 0.0037
Perfluorooctanoic acid (PFOA)	0.008 (A)	0.17	< 0.0035	***0.037***	***0.052***	***0.019***	***0.019***	***0.02***	***0.016***	< 0.0038	< 0.0035	< 0.0036	< 0.0035	***0.034***	***0.028***
Perfluorooctane sulfonic acid (PFOS)	0.016 (A)	0.012	< 0.0035	***0.038***	***0.1***	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	0.01	0.0058
Perfluoropentanoic acid (PFPeA)	NCL	NCL	< 0.0035	< 0.0034	0.0037	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	< 0.0035	< 0.0037
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	< 0.0035	< 0.0034	< 0.0036	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	< 0.0035	< 0.0037
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	< 0.0035	< 0.0034	< 0.0036	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	< 0.0035	< 0.0037
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	< 0.0035	< 0.0034	< 0.0036	< 0.0036	< 0.0036	< 0.0037	< 0.0035	< 0.0038	< 0.0035	< 0.0036	< 0.0035	< 0.0035	< 0.0037
Tetrafluoro-2-(heptafluoropropoxy)propanoic acid (GenX)	0.37 (A)	NA	< 0.007	< 0.0068	< 0.0072	< 0.0071	< 0.0072	< 0.0073	< 0.0071	< 0.0076	< 0.0071	< 0.0071	< 0.007	< 0.0069	< 0.0074

NOTES:

1. Concentration and criteria units are micrograms per Liter (µg/L) or parts per billion (ppb). Calculated concentrations are rounded to two significant digits.
2. Michigan Part 201 Groundwater Cleanup Criteria are based on "Table 1, Groundwater: Residential and Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Tier I Risk Based Screening Levels," Michigan Administrative Code, Cleanup Criteria Requirements for Response Activity, Rules 299.44 and 299.49, effective December 30, 2013; last updated October 12, 2023.
   Abbreviations Include:
   "NCL" indicates no criterion listed in Michigan Part 201 Table 1.
   "NA" indicates not available.
   Footnotes Include:
   (A) - The criterion is the State of Michigan drinking water standard.
3. Bold, italic number with thick line border or italic parameter name indicates tl Bold, italic number with thick line border or italic parameter name indicates that parameter was detected above the Michigan Part 201 Groundwater Cleanup Criteria listed.
4. Abbreviations include:
   "< LOQ" indicates the parameter was analyzed for but not detected above the limit of quantitation (LOQ).
   "DUP" indicates a duplicate sample.
   "ND" indicates the parameters used in the calculation were not detected.
5. Screen interval presented is the top of the screen to the bottom of the screen in feet below ground surface.

TABLE 3
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Courtland
Rockford, Michigan

Sample Location	Statewide Default Background[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Drinking Water Protection[2]	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Particulate Soil Inhalation[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Direct Contact[2]	DC-1-SB-1	DC-1-SB-1	DC-1-SB-2	DC-1-SB-2	DC-1-SB-3	DC-1-SB-3	DC-1-SB-4	DC-1-SB-4	HQ-1-SB-1	HQ-1-SB-1
Sample Name								DC-1-SB-1 (2-3)	DC-1-SB-1 (5-6)	DC-1-SB-2 (2-3)	DC-1-SB-2 (4-5)	DC-1-SB-3 (2-3)	DC-1-SB-3 (4-5)	DC-1-SB-4 (3-4)	DC-1-SB-4 (5-6)	HQ-1-SB-1 (3-4)	HQ-1-SB-1 (5-6)
Lab ID								YL29025-029	YL29025-030	YL29025-031	YL29025-032	YL29025-033	YL29025-034	YL29025-035	YL29025-036	YL29025-001	YL29025-002
Depth Interval (Feet below ground surface)								2 - 3	5 - 6	2 - 3	4 - 5	2 - 3	4 - 5	3 - 4	5 - 6	3 - 4	5 - 6
Sample Date								28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023
Parameter (µg/kg)																	
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.9	< 1.9	< 2	< 1.9	< 2	< 1.8	< 2	< 1.8	< 2	< 1.9
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.9	< 1.9	< 2	< 1.9	< 2	< 1.8	< 2	< 1.8	< 2	< 1.9
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.9	< 1.9	< 2	< 1.9	< 2	< 1.8	< 2	< 1.8	< 2	< 1.9
1H,1H,2H,2H-perfluorohexane sulfonate (4:2FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.9	< 1.9	< 2	< 1.9	< 2	< 1.8	< 2	< 1.8	< 2	< 1.9
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.9	< 1.9	< 2	< 1.9	< 2	< 1.8	< 2	< 1.8	< 2	< 1.9
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.9	< 1.9	< 2	< 1.9	< 2	< 1.8	< 2	< 1.8	< 2	< 1.9
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.9	< 1.9	< 2	< 1.9	< 2	< 1.8	< 2	< 1.8	< 2	< 1.9
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.9	< 1.9	< 2	< 1.9	< 2	< 1.8	< 2	< 1.8	< 2	< 1.9
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 0.99	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 0.99	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 0.99	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 0.99	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 0.99	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 0.99	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 0.99	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 0.99	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 0.99	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 0.99	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 0.99	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 1	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 0.99	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluorooctanoic acid (PFOA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 1	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluorooctane sulfonic acid (PFOS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	1.4	< 0.94	< 0.98	< 0.89	< 1	< 0.91	2.1	1
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 0.99	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 0.99	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 0.99	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.95	< 0.93	< 0.99	< 0.94	< 0.98	< 0.89	< 1	< 0.91	< 1	< 0.94
Tetrafluoro-2-(heptafluoropropoxy)propanoic acid (GenX)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 3.8	< 3.7	< 4	< 3.7	< 3.9	< 3.6	< 4	< 3.6	< 4	< 3.8

TABLE 3
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Courtland
Rockford, Michigan

Sample Location	Statewide Default Background[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Drinking Water Protection[2]	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Particulate Soil Inhalation[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Direct Contact[2]	HQ-1-SB-2	HQ-1-SB-2	HQ-1-SB-3	HQ-1-SB-3	HQ-2-SB-1	HQ-2-SB-1	HQ-2-SB-2	HQ-2-SB-2	HQ-2-SB-3	HQ-2-SB-3
Sample Name								HQ-1-SB-2 (3-4)	HQ-1-SB-2 (7-8)	HQ-1-SB-3 (3-4)	HQ-1-SB-3 (5-6)	HQ-2-SB-1 (1-2)	HQ-2-SB-1 (7-8)	HQ-2-SB-2 (3-4)	HQ-2-SB-2 (6-7)	HQ-2-SB-3 (2-3)	HQ-2-SB-3 (4-5)
Lab ID								YL29025-003	YL29025-004	YL29025-005	YL29025-006	YL29025-007	YL29025-008	YL29025-009	YL29025-010	YL29025-011	YL29025-012
Depth Interval (Feet below ground surface)								3 - 4	7 - 8	3 - 4	5 - 6	1 - 2	7 - 8	3 - 4	6 - 7	2 - 3	4 - 5
Sample Date								28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023
Parameter (µg/kg)																	
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2	< 1.8	< 2	< 1.8	< 2.1	< 1.8 H	< 2	< 1.8	< 2 H	< 2.1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2	< 1.8	< 2	< 1.8	< 2.1	< 1.8 H	< 2	< 1.8	< 2 H	< 2.1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2	< 1.8	< 2	< 1.8	< 2.1	< 1.8 H	< 2	< 1.8	< 2 H	< 2.1
1H,1H,2H,2H-perfluorohexane sulfonate (4:2FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2	< 1.8	< 2	< 1.8	< 2.1	< 1.8 H	< 2	< 1.8	< 2	< 2.1
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2 H	< 1.8	< 2	< 1.8	< 2.1	< 1.8 H	< 2	< 1.8	< 2 H	< 2.1
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2	< 1.8	< 2	< 1.8	< 2.1	< 1.8 H	< 2	< 1.8	< 2 H	< 2.1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2	< 1.8	< 2	< 1.8	< 2.1	< 1.8 H	< 2	< 1.8	< 2 H	< 2 H
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2	< 1.8	< 2	< 1.8	< 2.1	< 1.8 H	< 2	< 1.8	< 2 H	< 2.1
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	< 1	< 0.92	< 1.1	< 0.9 H	< 0.99	< 0.96 H	< 1 H	< 1.1
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	< 1	< 0.92	< 1.1	< 0.9 H	< 0.99	< 0.89	< 1 H	< 1.1
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	< 1	< 0.92	< 1.1	< 0.9 H	< 0.99	< 0.89	< 1 H	< 1.1
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	< 1	< 0.92	< 1.1	< 0.9 H	< 0.99	< 0.89	< 1 H	< 1.1
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	< 1	< 0.92	< 0.96 H	< 0.9 H	< 0.99	< 0.89	< 1 H	< 1.1
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	< 1	< 0.92	< 1.1	< 0.9 H	< 0.99	< 0.96 H	< 1 H	< 1.1
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	< 1	< 0.92	< 1.1	< 0.94	< 0.99	< 0.89	< 1	< 1.1
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	< 1	< 0.92	< 1.1	< 0.9 H	< 0.99	< 0.89	< 1	< 1.1
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	< 1	< 0.92	< 1.1	< 0.9 H	< 0.99	< 0.89	< 1 H	< 1.1
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	< 1	< 0.92	< 0.96 H	< 0.9 H	< 0.99	< 0.89	< 1 H	< 1.1
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	< 1	< 0.92	< 1.1	< 0.9 H	< 0.99	< 0.89	< 1	< 1.1
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	< 1	< 0.92	< 1.1	< 0.9 H	< 0.99	< 0.89	< 1 H	< 1.1
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	< 1	< 0.92	< 1.1	< 0.9 H	< 0.99	< 0.96 H	< 1	< 1.1
Perfluorooctanoic acid (PFOA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	1	< 0.92	< 1.1	< 0.9 H	< 0.99	< 0.89	< 1	< 1.1
Perfluorooctane sulfonic acid (PFOS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	8.6	< 0.91	1.7	< 0.92	11	1.3 H	2	< 0.89	2	< 1.1
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	< 1	< 0.92	< 1.1	< 0.9 H	< 0.99	< 0.89	< 1	< 1.1
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.9 H	< 1	< 0.92	< 0.96 H	< 0.9 H	< 0.99	< 0.96 H	< 1 H	< 0.98 H
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	< 1	< 0.92	< 0.96 H	< 0.9 H	< 0.99	< 0.89	< 1 H	< 1.1
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.98	< 0.91	< 1	< 0.92	< 0.96 H	< 0.9 H	< 0.99	< 0.96 H	< 1 H	< 1.1
Tetrafluoro-2-(heptafluoropropoxy)propanoic acid (GenX)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 3.9	< 3.7	< 4	< 3.7	< 4.3	< 3.8	< 3.9	< 3.6	< 4	< 4.2

TABLE 3
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Courtland
Rockford, Michigan

Sample Location	Statewide Default Background[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Drinking Water Protection[2]	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Particulate Soil Inhalation[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Direct Contact[2]	HQ-3-SB-1	HQ-3-SB-1	HQ-3-SB-2	HQ-3-SB-2	HQ-3-SB-3	HQ-3-SB-3	HQ-3-SB-4	HQ-3-SB-4	HQ-4-SB-1	HQ-4-SB-1
Sample Name								HQ-3-SB-1 (2-3)	HQ-3-SB-1 (5-6)	HQ-3-SB-2 (3-4)	HQ-3-SB-2 (7-8)	HQ-3-SB-3 (2-3)	HQ-3-SB-3 (7-8)	HQ-3-SB-4 (2-3)	HQ-3-SB-4 (6-7)	HQ-4-SB-1 (2-3)	HQ-4-SB-1 (6-7)
Lab ID								YL29025-013	YL29025-014	YL29025-015	YL29025-016	YL29025-017	YL29025-018	YL29025-019	YL29025-020	YL29025-021	YL29025-022
Depth Interval (Feet below ground surface)								2 - 3	5 - 6	3 - 4	7 - 8	2 - 3	7 - 8	2 - 3	6 - 7	2 - 3	6 - 7
Sample Date								27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023
Parameter (µg/kg)																	
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2.1 H	< 2	< 1.9	< 1.8	< 2	< 1.8	< 1.9	< 1.7	< 2	< 2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2.1 H	< 2	< 1.9	< 1.8	< 2	< 1.8	< 1.9	< 1.7	< 2	< 2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2	< 2	< 1.9	< 1.8	< 2	< 1.9	< 1.9	< 1.7	< 2	< 2
1H,1H,2H,2H-perfluorohexane sulfonate (4:2FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2	< 2	< 1.9	< 1.8	< 2	< 1.9	< 1.9	< 1.7	< 2	< 1.8
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2.1 H	< 2	< 1.9	< 1.8	< 2	< 1.8	< 1.9	< 1.7	< 2	< 2
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2	< 2	< 1.9	< 1.8	< 2	< 1.8	< 1.9	< 1.7	< 2	< 1.8
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	13 H	< 2	< 1.9	< 1.8	< 2	< 1.8	< 1.9	< 1.7	< 2	2.7
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2.1 H	< 2	< 1.9	< 1.8	< 2	< 1.8	< 1.9	< 1.7	< 2	< 2
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1 H	< 1	< 0.97	< 0.92	< 0.98	< 0.88	< 0.97	< 0.87	< 1	< 0.99
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1 H	< 1	< 0.97	< 0.92	< 0.98	< 0.88	< 0.97	< 0.87	< 1	< 0.99
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.99	< 1	< 0.97	< 0.92	< 0.98	< 0.95	< 0.97	< 0.87	< 1	< 0.99
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1 H	< 1	< 0.97	< 0.92	< 0.98	< 0.88	< 0.97	< 0.87	< 1	< 0.99
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	6 H	< 1	< 0.97	< 0.92	< 0.98	< 0.88	< 0.97	< 0.87	< 1	1.2
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1 H	< 1	< 0.97	< 0.92	< 0.98	< 0.88	< 0.97	< 0.87	< 1	< 0.99
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.99	< 1	< 0.97	< 0.92	< 0.98	< 0.95	< 0.97	< 0.87	< 1	< 0.99
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1 H	< 1	< 0.97	< 0.92	< 0.98	< 0.95	< 0.97	< 0.87	< 1	< 0.99
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.99	< 1	< 0.97	< 0.92	< 0.98	< 0.88	< 0.97	< 0.95	< 1	< 0.99
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.99	< 1	< 0.97	< 0.92	< 0.98	< 0.95	< 0.97	< 0.87	< 1	< 0.99
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1 H	< 1	< 0.97	< 0.92	< 0.98	< 0.88	< 0.97	< 0.87	< 1	< 0.99
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1 H	< 1	< 0.97	< 0.92	< 0.98	< 0.95	< 0.97	< 0.87	< 1	< 0.99
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1 H	< 1	< 0.97	< 0.92	< 0.98	< 0.88	< 0.97	< 0.87	< 1	< 0.99
Perfluorooctanoic acid (PFOA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1.1 H	< 1	2.1	< 0.92	< 0.98	< 0.88	< 0.97	< 0.87	< 1	< 0.99
Perfluorooctane sulfonic acid (PFOS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	69 H	12	18	< 0.92	14	6	2.3	< 0.87	1	4.5
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1 H	< 1	< 0.97	< 0.92	< 0.98	< 0.95	< 0.97	< 0.87	< 1	< 0.99
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.99	< 1	< 0.97	< 0.93	< 0.98	< 0.88	< 0.92	< 0.87	< 1	< 0.99
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 0.99	< 1	< 0.97	< 0.92	< 0.98	< 0.95	< 0.97	< 0.87	< 1	< 0.99
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	11 H	< 1	< 0.97	< 0.92	< 0.98	< 0.88	< 0.97	< 0.87	< 1	< 0.99
Tetrafluoro-2-(heptafluoropropoxy)propanoic acid (GenX)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 4	< 4	< 3.9	< 3.7	< 3.9	< 3.8	< 3.9	< 3.5	< 4.1	< 4

TABLE 3
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Courtland
Rockford, Michigan

Sample Location	Statewide Default Background[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Drinking Water Protection[2]	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Particulate Soil Inhalation[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Direct Contact[2]	HQ-4-SB-2	HQ-4-SB-2	HQ-4-SB-3	HQ-4-SB-3	HQ-4-SB-4	HQ-4-SB-4
Sample Name								HQ-4-SB-2 (2-3)	HQ-4-SB-2 (5-6)	HQ-4-SB-3 (2-3)	HQ-4-SB-3 (4-5)	HQ-4-SB-4 (3-4)	HQ-4-SB-4 (5-6)
Lab ID								YL29025-023	YL29025-024	YL29025-025	YL29025-026	YL29025-027	YL29025-028
Depth Interval (Feet below ground surface)								2 - 3	5 - 6	2 - 3	4 - 5	3 - 4	5 - 6
Sample Date								27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023
Parameter (µg/kg)													
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2.2	< 1.9	< 1.8	< 1.9	< 1.9	< 2.1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2.2	< 1.9	< 1.8	< 1.9	< 1.9	< 2.1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2.2	< 1.9	< 1.8	< 1.9	< 1.9	< 2.1
1H,1H,2H,2H-perfluorohexane sulfonate (4:2FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2.2	< 1.9	< 1.8	< 1.9	< 1.9	< 2.1
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2.2	< 1.9	< 1.8	< 1.9	< 1.9	< 2.1
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2.2	< 1.9	< 1.8	< 1.9	< 2.1	< 2.1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2.2	< 1.9	< 1.8	< 1.9	< 2.1	< 2.1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 2.2	< 1.9	< 1.8	< 1.9	< 2.1	< 2.1
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 0.97	< 1
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 0.97	< 1
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 0.97	< 1
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 0.97	< 1
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 1	< 1
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 0.97	< 1
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 0.97	< 1
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 0.97	< 1
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 0.97	< 1
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 0.97	< 1
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 0.97	< 1
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 0.97	< 1
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 0.97	< 1
Perfluorooctanoic acid (PFOA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	1	< 0.92	< 0.96	< 0.97	< 1
Perfluorooctane sulfonic acid (PFOS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	25	1.2	< 0.92	< 0.96	5.6	1.3
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 0.97	< 1
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 0.97	< 1
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 0.97	< 1
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 1.1	< 0.95	< 0.92	< 0.96	< 0.97	< 1
Tetrafluoro-2-(heptafluoropropoxy)propanoic acid (GenX)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	< 4.4	< 3.8	< 3.7	< 3.8	< 4.2	< 4.2

TABLE 3 NOTES

SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS

Courtland

Rockford, Michigan

NOTES:

1. Concentration and criteria units are micrograms per kilogram (µg/kg) or parts per billion (ppb).
2. Michigan Part 201 Soil Cleanup Criteria are based on "Table 3, Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Tier I Risk Based Screening Levels," Michigan Administrative Code, Cleanup Criteria Requirements for Response Activity, Rules 299.48 and 299.49, effective December 30, 2013; updated October 12, 2013.
   Abbreviations Include:
   "NCL" indicates no criterion listed in Michigan Part 201 Table 3.
3. Bold, italic number with thick line border or italic parameter name indicates that parameter was detected above the Michigan Part 201 Soil Cleanup Criteria. Per MCL 324.20101(e)(i), if state-wide default background levels are available and greater than a risk-based generic cleanup criterion, then the state-wide default background levels are used as a substitute for that generic cleanup criterion.
4. Abbreviations include:
   "< LOQ" indicates the parameter was analyzed for but not detected above the limit of quantitation (LOQ).
   "H" indicates that the parameter was analzyed out of holding time.

TABLE 4
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Courtland
Rockford, Michigan

Sample Location	2015 Michigan Background Soil Survey - Saginaw Glacial Lobe (Sand)[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Drinking Water Protection[3]	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface[3]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation[3]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation[3]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Particulate Soil Inhalation[3]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Direct Contact[3]	DC-1-SB-1	DC-1-SB-1	DC-1-SB-2	DC-1-SB-2	DC-1-SB-3	DC-1-SB-3	DC-1-SB-4	DC-1-SB-4	HQ-1-SB-1	HQ-1-SB-1
Sample Name								DC-1-SB-1 (2-3)	DC-1-SB-1 (5-6)	DC-1-SB-2 (2-3)	DC-1-SB-2 (4-5)	DC-1-SB-3 (2-3)	DC-1-SB-3 (4-5)	DC-1-SB-4 (3-4)	DC-1-SB-4 (5-6)	HQ-1-SB-1 (3-4)	HQ-1-SB-1 (5-6)
Lab ID								YL29025-029	YL29025-030	YL29025-031	YL29025-032	YL29025-033	YL29025-034	YL29025-035	YL29025-036	YL29025-001	YL29025-002
Depth Interval (Feet below ground surface)								2 - 3	5 - 6	2 - 3	4 - 5	2 - 3	4 - 5	3 - 4	5 - 6	3 - 4	5 - 6
Soil Type of Sample								Sand	Sand	Clay & Silt	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Sample Date								28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023
Parameter (µg/kg)																	
Aluminum	8,218,000	1,000	NA	NLV	NLV	ID	370,000,000 (DD)	1,700,000	1,500,000	5,100,000	1,500,000	2,500,000	1,300,000	1,100,000	1,300,000	4,700,000	1,900,000
Antimony	10,800	4,300	94,000	NLV	NLV	5,900,000	670,000	< 960	< 870	< 950	< 900	< 980	< 900	< 900	< 900	< 1,100	< 1,000
Arsenic	17,000	4,600	4,600	NLV	NLV	910,000	37,000	770	810	1,200	760	850	900	< 670	730	1,500	1,300
Barium	66,200	1,300,000	660,000	NLV	NLV	150,000,000	130,000,000	5,800	6,500	19,000	4,800	10,000	5,200	3,600	4,000	20,000	6,700
Beryllium	1,000	51,000	320,000	NLV	NLV	590,000	1,600,000	< 240	< 220	< 240	< 230	< 240	< 230	< 220	< 220	< 260	< 250
Boron	NL	10,000	140,000	NLV	NLV	ID	350,000,000 (DD)	< 2,400	< 2,200	< 2,400	< 2,300	< 2,400	< 2,300	< 2,200	< 2,200	< 2,600	< 2,500
Cadmium	2,000	6,000	3,000	NLV	NLV	2,200,000	2,100,000	< 240	< 220	< 240	< 230	< 240	< 230	< 220	< 220	< 260	< 250
Chromium (Total)	19,700	NCL	NCL	NCL	NCL	NCL	NCL	2,300	3,100	6,400	2,200	3,100	2,500	1,800	2,700	6,100	3,500
Trivalent Chromium (Laboratory Calculated)	NL	1,000,000,000	1,000,000,000 (G, D)	NLV	NLV	150,000,000	1,000,000,000	2,200	2,900	5,900	2,000	2,900	2,400	1,500	2,500	5,700	3,300
Hexavalent Chromium	NL	30,000	3,300	NLV	NLV	240,000	9,200,000	< 1,000 H	< 1,000 H	< 1,100 H	< 1,000 H	< 1,100 H	< 1,000 H	< 1,000 H	< 1,000 H	< 1,100 H	< 1,100 H
Cobalt	15,300	2,000	2,000	NLV	NLV	5,900,000	9,000,000	< 1,200	1,100	2,400	< 1,200	< 1,300	< 1,200	< 1,200	< 1,200	2,400	1,400
Copper	20,200	5,800,000	100,000	NLV	NLV	59,000,000	73,000,000	930	1,200	1,800	900	1,200	1,200	650	1,100	2,300	1,900
Iron	19,972,000	6,000	NA	NLV	NLV	ID	580,000,000	1,900,000	2,200,000	4,800,000	1,700,000	2,300,000	2,400,000	1,500,000	2,400,000	4,500,000	3,100,000
Lead	18,000	700,000	2,500,000	NLV	NLV	44,000,000	900,000 (DD)	1,800	1,100	2,300	870	1,200	1,200	740	950	2,600	1,700
Magnesium	18,063,000	22,000,000	NA	NLV	NLV	2,900,000,000	1,000,000,000	330,000	450,000	640,000	330,000	410,000	330,000	270,000	350,000	680,000	850,000
Mercury	230	1,700	50 (M)	89,000	62,000	8,800,000	580,000	< 72	< 79	< 73	< 78	< 75	< 81	< 74	< 80	< 78	< 77
Molybdenum	5,000	4,200	64,000	NLV	NLV	ID	9,600,000	< 1,900	< 1,700	< 1,900	< 1,800	< 2,000	< 1,800	< 1,800	< 1,800	< 2,100	< 2,000
Nickel	18,500	100,000	100,000	NLV	NLV	16,000,000	150,000,000	2,000	2,200	4,200	2,000	2,400	2,000	< 1,800	1,800	4,900	2,800
Selenium	1,100	4,000	400	NLV	NLV	59,000,000	9,600,000	< 960	< 870	< 950	< 900	< 980	< 900	< 900	< 900	< 1,100	< 1,000
Silver	2,000	13,000	100 (M)	NLV	NLV	2,900,000	9,000,000	< 480	< 430	< 480	< 450	< 490	< 450	< 450	< 450	< 530	< 500
Sodium	567,000	NCL	NCL	NCL	NCL	NCL	NCL	< 240,000	< 220,000	< 240,000	< 230,000	< 240,000	< 230,000	< 220,000	< 220,000	< 260,000	< 250,000
Thallium	2,000	2,300	4,200	NLV	NLV	5,900,000	130,000	< 2,400	< 2,200	< 2,400	< 2,300	< 2,400	< 2,300	< 2,200	< 2,200	< 2,600	< 2,500
Titanium	194,000	NCL	NCL	NCL	NCL	NCL	NCL	61,000	87,000	190,000	61,000	93,000	120,000	54,000	96,000	150,000	120,000
Vanadium	37,100	990,000	430,000	NLV	NLV	ID	5,500,000 (DD)	3,700	5,300	13,000	3,500	5,100	6,400	2,800	5,100	9,900	7,600
Zinc	73,600	5,000,000	230,000	NLV	NLV	ID	630,000,000	5,800	5,300	12,000	2,800	5,300	3,900	< 2,200	3,400	13,000	6,300

,

TABLE 4
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Courtland
Rockford, Michigan

Sample Location	2015 Michigan Background Soil Survey - Saginaw Glacial Lobe (Sand)[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Drinking Water Protection[3]	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface[3]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation[3]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation[3]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Particulate Soil Inhalation[3]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Direct Contact[3]	HQ-1-SB-2	HQ-1-SB-2	HQ-1-SB-3	HQ-1-SB-3	HQ-2-SB-1	HQ-2-SB-1	HQ-2-SB-2	HQ-2-SB-2	HQ-2-SB-3	HQ-2-SB-3
Sample Name								HQ-1-SB-2 (3-4)	HQ-1-SB-2 (7-8)	HQ-1-SB-3 (3-4)	HQ-1-SB-3 (5-6)	HQ-2-SB-1 (1-2)	HQ-2-SB-1 (7-8)	HQ-2-SB-2 (3-4)	HQ-2-SB-2 (6-7)	HQ-2-SB-3 (2-3)	HQ-2-SB-3 (4-5)
Lab ID								YL29025-003	YL29025-004	YL29025-005	YL29025-006	YL29025-007	YL29025-008	YL29025-009	YL29025-010	YL29025-011	YL29025-012
Depth Interval (Feet below ground surface)								3 - 4	7 - 8	3 - 4	5 - 6	1 - 2	7 - 8	3 - 4	6 - 7	2 - 3	4 - 5
Soil Type of Sample								Sand	Sand	Sand	Sand	Clay	Clay	Sand	Sand	Clay	Clay
Sample Date								28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023
Parameter (µg/kg)																	
Aluminum	8,218,000	1,000	NA	NLV	NLV	ID	370,000,000 (DD)	4,000,000	4,200,000	3,600,000	960,000	***8,900,000***	***15,000,000***	4,600,000	2,200,000	7,900,000	***11,000,000***
Antimony	10,800	4,300	94,000	NLV	NLV	5,900,000	670,000	< 1,100	< 960	< 1,000	< 970	< 1,100	< 1,000	< 990	< 820	< 1,000	< 1,000
Arsenic	17,000	4,600	4,600	NLV	NLV	910,000	37,000	1,400	2,600	3,000	990	2,900	3,700	1,300	1,400	2,800	2,700
Barium	66,200	1,300,000	660,000	NLV	NLV	150,000,000	130,000,000	16,000	16,000	12,000	4,300	30,000	51,000	21,000	8,800	27,000	40,000
Beryllium	1,000	51,000	320,000	NLV	NLV	590,000	1,600,000	< 260	< 240	< 250	< 240	340	790	< 250	< 200	370	570
Boron	NL	10,000	140,000	NLV	NLV	ID	350,000,000 (DD)	< 2,600	2,700	3,500	< 2,400	3,800	***21,000***	< 2,500	< 2,000	7,800	***22,000***
Cadmium	2,000	6,000	3,000	NLV	NLV	2,200,000	2,100,000	< 260	< 240	< 250	< 240	< 270	< 250	< 250	< 200	< 250	< 260
Chromium (Total)	19,700	NCL	NCL	NCL	NCL	NCL	NCL	8,400	7,400	5,800	2,200	13,000	27,000	6,600	4,600	12,000	17,000
Trivalent Chromium (Laboratory Calculated)	NL	1,000,000,000	1,000,000,000 (G, D)	NLV	NLV	150,000,000	1,000,000,000	8,000	7,000	5,400	2,000	12,000	26,000	6,100	4,400	11,000	17,000
Hexavalent Chromium	NL	30,000	3,300	NLV	NLV	240,000	9,200,000	< 1,100 H	< 1,000 H	< 1,000 H	< 1,000 H	< 1,100 H	< 1,100 H	< 1,000 H	< 1,000 H	< 1,100 H	< 1,100 H
Cobalt	15,300	2,000	2,000	NLV	NLV	5,900,000	9,000,000	2,900	2,600	2,200	< 1,300	7,000	6,600	2,900	1,900	3,800	5,700
Copper	20,200	5,800,000	100,000	NLV	NLV	59,000,000	73,000,000	2,400	6,100	4,400	1,200	5,800	16,000	2,200	3,400	7,200	11,000
Iron	19,972,000	6,000	NA	NLV	NLV	ID	580,000,000	5,600,000	6,400,000	5,700,000	2,100,000	9,900,000	14,000,000	5,200,000	3,800,000	8,900,000	11,000,000
Lead	18,000	700,000	2,500,000	NLV	NLV	44,000,000	900,000 (DD)	2,400	3,200	2,700	1,000	6,000	6,400	2,800	1,800	4,100	4,600
Magnesium	18,063,000	22,000,000	NA	NLV	NLV	2,900,000,000	1,000,000,000	1,000,000	1,200,000	7,500,000	5,900,000	1,600,000	17,000,000	860,000	650,000	11,000,000	***32,000,000***
Mercury	230	1,700	50 (M)	89,000	62,000	8,800,000	580,000	< 83	< 81	< 80	< 73	< 78	< 73	< 76	< 79	< 81	< 77
Molybdenum	5,000	4,200	64,000	NLV	NLV	ID	9,600,000	< 2,100	< 1,900	< 2,000	< 1,900	< 2,100	< 2,000	< 2,000	< 1,600	< 2,000	< 2,100
Nickel	18,500	100,000	100,000	NLV	NLV	16,000,000	150,000,000	5,800	6,500	5,300	< 1,900	8,700	18,000	5,200	4,000	9,900	15,000
Selenium	1,100	4,000	400	NLV	NLV	59,000,000	9,600,000	< 1,100	< 960	< 1,000	< 970	< 1,100	< 1,000	< 990	< 820	< 1,000	< 1,000
Silver	2,000	13,000	100 (M)	NLV	NLV	2,900,000	9,000,000	< 530	< 480	< 500	< 490	< 530	< 510	< 490	< 410	< 500	< 520
Sodium	567,000	NCL	NCL	NCL	NCL	NCL	NCL	< 260,000	< 240,000	< 250,000	< 240,000	< 270,000	< 250,000	< 250,000	< 200,000	< 250,000	< 260,000
Thallium	2,000	2,300	4,200	NLV	NLV	5,900,000	130,000	< 2,600	< 2,400	< 2,500	< 2,400	< 2,700	< 2,500	< 2,500	< 2,000	< 2,500	< 2,600
Titanium	194,000	NCL	NCL	NCL	NCL	NCL	NCL	210,000	140,000	110,000	95,000	270,000	390,000	180,000	170,000	220,000	340,000
Vanadium	37,100	990,000	430,000	NLV	NLV	ID	5,500,000 (DD)	12,000	13,000	8,900	5,400	23,000	30,000	12,000	8,500	19,000	23,000
Zinc	73,600	5,000,000	230,000	NLV	NLV	ID	630,000,000	9,300	13,000	13,000	3,500	25,000	27,000	14,000	7,400	15,000	23,000

,

TABLE 4
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Courtland
Rockford, Michigan

Sample Location	2015 Michigan Background Soil Survey - Saginaw Glacial Lobe (Sand)[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Drinking Water Protection[3]	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface[3]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation[3]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation[3]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Particulate Soil Inhalation[3]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Direct Contact[3]	HQ-3-SB-1	HQ-3-SB-1	HQ-3-SB-2	HQ-3-SB-2	HQ-3-SB-3	HQ-3-SB-3	HQ-3-SB-4	HQ-3-SB-4	HQ-4-SB-1	HQ-4-SB-1
Sample Name								HQ-3-SB-1 (2-3)	HQ-3-SB-1 (5-6)	HQ-3-SB-2 (3-4)	HQ-3-SB-2 (7-8)	HQ-3-SB-3 (2-3)	HQ-3-SB-3 (7-8)	HQ-3-SB-4 (2-3)	HQ-3-SB-4 (6-7)	HQ-4-SB-1 (2-3)	HQ-4-SB-1 (6-7)
Lab ID								YL29025-013	YL29025-014	YL29025-015	YL29025-016	YL29025-017	YL29025-018	YL29025-019	YL29025-020	YL29025-021	YL29025-022
Depth Interval (Feet below ground surface)								2 - 3	5 - 6	3 - 4	7 - 8	2 - 3	7 - 8	2 - 3	6 - 7	2 - 3	6 - 7
Soil Type of Sample								Fill	Clay	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Sample Date								27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023
Parameter (µg/kg)																	
Aluminum	8,218,000	1,000	NA	NLV	NLV	ID	370,000,000 (DD)	4,900,000	***10,000,000***	6,100,000	2,100,000	6,200,000	3,000,000	3,700,000	2,600,000	4,100,000	2,500,000
Antimony	10,800	4,300	94,000	NLV	NLV	5,900,000	670,000	< 5,200	< 1,100	< 1,000	< 950	< 1,000	< 980	< 960	< 970	< 920	< 940
Arsenic	17,000	4,600	4,600	NLV	NLV	910,000	37,000	7,300	3,300	3,300	1,900	2,400	2,600	1,000	2,200	2,600	2,600
Barium	66,200	1,300,000	660,000	NLV	NLV	150,000,000	130,000,000	51,000	37,000	42,000	7,000	38,000	7,400	26,000	8,000	10,000	20,000
Beryllium	1,000	51,000	320,000	NLV	NLV	590,000	1,600,000	< 260	550	260	< 240	270	< 250	< 240	< 240	< 230	< 230
Boron	NL	10,000	140,000	NLV	NLV	ID	350,000,000 (DD)	4,500	***20,000***	< 2,600	< 2,400	< 2,500	6,300	< 2,400	4,100	3,700	7,000
Cadmium	2,000	6,000	3,000	NLV	NLV	2,200,000	2,100,000	290	< 270	< 260	< 240	< 250	< 250	< 240	< 240	< 230	< 230
Chromium (Total)	19,700	NCL	NCL	NCL	NCL	NCL	NCL	270,000	16,000	13,000	4,300	9,500	7,300	4,600	6,200	12,000	5,600
Trivalent Chromium (Laboratory Calculated)	NL	1,000,000,000	1,000,000,000 (G, D)	NLV	NLV	150,000,000	1,000,000,000	270,000	16,000	13,000	4,200	9,000	7,100	4,300	6,000	11,000	5,400
Hexavalent Chromium	NL	30,000	3,300	NLV	NLV	240,000	9,200,000	***5,500 H***	< 1,100 H	< 1,100 H	< 1,000 H	< 1,100 H	< 1,000 H	< 1,000 H	< 1,000 H	< 1,000 H	< 1,100 H
Cobalt	15,300	2,000	2,000	NLV	NLV	5,900,000	9,000,000	3,100	5,400	5,600	2,000	3,800	2,900	1,400	2,300	3,400	1,900
Copper	20,200	5,800,000	100,000	NLV	NLV	59,000,000	73,000,000	13,000	12,000	6,000	3,700	4,400	7,400	1,900	5,800	6,500	5,100
Iron	19,972,000	6,000	NA	NLV	NLV	ID	580,000,000	7,700,000	11,000,000	10,000,000	3,800,000	8,400,000	5,800,000	3,500,000	6,700,000	7,600,000	10,000,000
Lead	18,000	700,000	2,500,000	NLV	NLV	44,000,000	900,000 (DD)	22,000	5,000	7,700	1,600	4,800	2,200	1,600	1,500	2,600	2,600
Magnesium	18,063,000	22,000,000	NA	NLV	NLV	2,900,000,000	1,000,000,000	8,900,000	***34,000,000***	2,000,000	9000000	1,300,000	***31,000,000***	680,000	***35,000,000***	22,000,000	***40,000,000***
Mercury	230	1,700	50 (M)	89,000	62,000	8,800,000	580,000	140	< 76	< 77	< 78	< 79	< 75	< 75	< 76	< 75	< 76
Molybdenum	5,000	4,200	64,000	NLV	NLV	ID	9,600,000	< 2,100	< 2,100	< 2,100	< 1,900	< 2,000	< 2,000	< 1,900	< 1,900	< 1,800	< 1,900
Nickel	18,500	100,000	100,000	NLV	NLV	16,000,000	150,000,000	6,700	13,000	13,000	4,900	7,700	6,000	4,000	4,700	7,800	5,100
Selenium	1,100	4,000	400	NLV	NLV	59,000,000	9,600,000	< 1,000	< 1,100	< 1,000	< 950	1,000	< 980	< 960	< 970	< 920	< 940
Silver	2,000	13,000	100 (M)	NLV	NLV	2,900,000	9,000,000	< 520	< 530	< 510	< 480	< 500	< 490	< 480	< 480	< 460	< 470
Sodium	567,000	NCL	NCL	NCL	NCL	NCL	NCL	< 260,000	< 270,000	< 260,000	< 240,000	< 250,000	260,000	< 240,000	< 240,000	< 230,000	< 230,000
Thallium	2,000	2,300	4,200	NLV	NLV	5,900,000	130,000	< 2,600	< 2,700	< 2,600	< 2,400	< 2,500	< 2,500	< 2,400	< 2,400	< 2,300	< 2,300
Titanium	194,000	NCL	NCL	NCL	NCL	NCL	NCL	220,000	310,000	380,000	100,000	280,000	160,000	100,000	150,000	250,000	92,000
Vanadium	37,100	990,000	430,000	NLV	NLV	ID	5,500,000 (DD)	13,000	23,000	18,000	7,400	14,000	12,000	6,500	9,900	13,000	7,600
Zinc	73,600	5,000,000	230,000	NLV	NLV	ID	630,000,000	70,000	21,000	19,000	8,100	27,000	17,000	13,000	12,000	16,000	10,000

,

TABLE 4
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Courtland
Rockford, Michigan

Sample Location	2015 Michigan Background Soil Survey - Saginaw Glacial Lobe (Sand)[2]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Drinking Water Protection[3]	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface[3]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation[3]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation[3]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Particulate Soil Inhalation[3]	Part 201 Generic Nonresidential Soil Cleanup Criteria – Direct Contact[3]	HQ-4-SB-2	HQ-4-SB-2	HQ-4-SB-3	HQ-4-SB-3	HQ-4-SB-4	HQ-4-SB-4
Sample Name								HQ-4-SB-2 (2-3)	HQ-4-SB-2 (5-6)	HQ-4-SB-3 (2-3)	HQ-4-SB-3 (4-5)	HQ-4-SB-4 (3-4)	HQ-4-SB-4 (5-6)
Lab ID								YL29025-023	YL29025-024	YL29025-025	YL29025-026	YL29025-027	YL29025-028
Depth Interval (Feet below ground surface)								2 - 3	5 - 6	2 - 3	4 - 5	3 - 4	5 - 6
Soil Type of Sample								Sand	Sand	Sand	Sand	Silt	Silt
Sample Date								27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023
Parameter (µg/kg)													
Aluminum	8,218,000	1,000	NA	NLV	NLV	ID	370,000,000 (DD)	5,800,000	4,800,000	3,400,000	940,000	7,100,000	6,300,000
Antimony	10,800	4,300	94,000	NLV	NLV	5,900,000	670,000	< 1,000	< 1,000	< 1,000	< 990	< 970	< 990
Arsenic	17,000	4,600	4,600	NLV	NLV	910,000	37,000	7,800	2,200	2,200	850	1,500	2,000
Barium	66,200	1,300,000	660,000	NLV	NLV	150,000,000	130,000,000	47,000	28,000	11,000	3,900	53,000	22,000
Beryllium	1,000	51,000	320,000	NLV	NLV	590,000	1,600,000	440	< 250	< 250	< 250	250	< 250
Boron	NL	10,000	140,000	NLV	NLV	ID	350,000,000 (DD)	5,900	3,000	3,900	< 2,500	< 2,400	< 2,500
Cadmium	2,000	6,000	3,000	NLV	NLV	2,200,000	2,100,000	< 250	< 250	< 250	< 250	< 240	< 250
Chromium (Total)	19,700	NCL	NCL	NCL	NCL	NCL	NCL	180,000	8,100	6,200	2,600	7,600	8,700
Trivalent Chromium (Laboratory Calculated)	NL	1,000,000,000	1,000,000,000 (G, D)	NLV	NLV	150,000,000	1,000,000,000	170,000	7,700	6,000	2,400	7,200	8,100
Hexavalent Chromium	NL	30,000	3,300	NLV	NLV	240,000	9,200,000	***9,100 H***	< 1,000 H	< 1,100 H	< 1,000 H	< 1,100 H	< 1,100 H
Cobalt	15,300	2,000	2,000	NLV	NLV	5,900,000	9,000,000	4,900	3,100	2,300	< 1,300	3,200	3,400
Copper	20,200	5,800,000	100,000	NLV	NLV	59,000,000	73,000,000	17,000	4,900	4,100	1,500	2,100	2,800
Iron	19,972,000	6,000	NA	NLV	NLV	ID	580,000,000	10,000,000	6,900,000	5,400,000	2,200,000	6,200,000	6,200,000
Lead	18,000	700,000	2,500,000	NLV	NLV	44,000,000	900,000 (DD)	20,000	3,600	2,400	1,100	3,900	4,300
Magnesium	18,063,000	22,000,000	NA	NLV	NLV	2,900,000,000	1,000,000,000	7,500,000	20,000,000	19,000,000	11,000,000	790,000	1,000,000
Mercury	230	1,700	50 (M)	89,000	62,000	8,800,000	580,000	140	< 76	< 72	< 79	< 72	< 77
Molybdenum	5,000	4,200	64,000	NLV	NLV	ID	9,600,000	< 2,000	< 2,000	< 2,000	< 2,000	< 1,900	< 2,000
Nickel	18,500	100,000	100,000	NLV	NLV	16,000,000	150,000,000	11,000	5,800	4,300	< 2,000	4,800	6,800
Selenium	1,100	4,000	400	NLV	NLV	59,000,000	9,600,000	< 1,000	< 1,000	< 1,000	< 990	< 970	< 990
Silver	2,000	13,000	100 (M)	NLV	NLV	2,900,000	9,000,000	< 500	< 500	< 500	< 490	< 490	< 500
Sodium	567,000	NCL	NCL	NCL	NCL	NCL	NCL	< 250,000	< 250,000	< 250,000	< 250,000	< 240,000	< 250,000
Thallium	2,000	2,300	4,200	NLV	NLV	5,900,000	130,000	< 2,500	< 2,500	< 2,500	< 2,500	< 2,400	< 2,500
Titanium	194,000	NCL	NCL	NCL	NCL	NCL	NCL	270,000	180,000	210,000	97,000	210,000	230,000
Vanadium	37,100	990,000	430,000	NLV	NLV	ID	5,500,000 (DD)	20,000	12,000	12,000	5,700	13,000	17,000
Zinc	73,600	5,000,000	230,000	NLV	NLV	ID	630,000,000	58,000	19,000	9,500	4,100	26,000	15,000

,

TABLE 4 NOTES
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Courtland
Rockford, Michigan

NOTES:

1. Concentration and criteria units are micrograms per kilogram (µg/kg) or parts per billion (ppb). Calculated criteria are rounded to two significant digits.
2. 2015 Michigan Background Soil Survey - Saginaw Glacial Lobe (Sand) values are based on Appendix C, Table 3 in the resource materials titled "Soil Background and Use of the 2005 Michigan Background Soil Survey," Michigan Department of Environment, Great Lakes, and Energy (EGLE) Remediation and Redevelopment Division, dated Septebmer 2019, revised January 2023.
   Abbreviations Include:
   "NL" indicates not listed in Appendix C, Table 3.
3. Michigan Part 201 Soil Cleanup Criteria are based on "Table 3, Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Tier I Risk Based Screening Levels," Michigan Administrative Code, Cleanup Criteria Requirements for Response Activity, Rules 299.48 and 299.49, effective December 30, 2013; updated October 12, 2013.
   Abbreviations Include:
   "ID" indicates insufficient data to develop criterion.
   "NA" indicates a criterion or value is not available or, in the case of background, not applicable.
   "NCL" indicates no criterion listed in Michigan Part 201 Table 3.
   "NLV" indicates the substance is not likely to volatilize under most conditions.
   Footnotes Include:
   (B) - Background, as defined in R 299.1(b), may be substituted if higher than the calculated cleanup criterion. Background levels may be less than criteria for some inorganic compounds.
   (D) - The calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 ppb.
   (G) - Groundwater surface water interface protection (GSIP) criterion depends on the pH or water hardness, or both, of the receiving surface water.
   EGLE's Footnote (G) GSI/GSIPC Calculation spreadsheet was utilized to calculate GSI criterion presented. The Rogue River is the receiving surface water for the Site. Hardness (220 mg $CaCO_3$/L) and pH (7.5 standard units) used in the calculations were the lowest (most-conservative) of the calculated mean and median of the Rogue River surface water samples collected in Rockford, MI at the former tannery (TA-SW-01, TA-SW-02, TA-SW-03, TA-SW-05, and TA-SW-07) rounded to two significant digits and water hardness or pH for the Rogue River near Rockford published in United States Geological Survey Circular 323, "Water Resources of the Grand Rapids Area, Michigan," Table 1, 1954.
   (M) - Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
   (DD) - Residential direct contact criteria are protective of both prenatal and postnatal exposure.
4. Bold, italic number with thick line border or italic parameter name indicates that parameter was detected above the Michigan Part 201 Soil Cleanup Criteria. Per MCL 324.20101(e)(i), if background levels are available and greater than a risk-based generic cleanup criterion, then the background levels are used as a substitute for that generic cleanup criterion.
5. Abbreviations include:
   "< LOQ" indicates the parameter was analyzed for but not detected above the limit of quantitation (LOQ).
   "H" indicates that the parameter was analyzed out of holding time.

TABLE 5
SUMMARY OF SOIL SAMPLE ANALYSIS - SPLP METALS
Courtland
Rockford, Michigan

Sample Location	Part 201 Generic Nonresidential Groundwater Cleanup Criteria - Drinking Water[2]	HQ-2-SB-1	HQ-2-SB-1	HQ-2-SB-3	HQ-2-SB-3	HQ-3-SB-1	HQ-3-SB-1	HQ-3-SB-3	HQ-3-SB-3	HQ-3-SB-4	HQ-3-SB-4	HQ-4-SB-1	HQ-4-SB-1	HQ-4-SB-2	HQ-4-SB-2	HQ-4-SB-4	HQ-4-SB-4
Sample Name		HQ-2-SB-1 (1-2)	HQ-2-SB-1 (7-8)	HQ-2-SB-3 (2-3)	HQ-2-SB-3 (4-5)	HQ-3-SB-1 (2-3)	HQ-3-SB-1 (5-6)	HQ-3-SB-3 (2-3)	HQ-3-SB-3 (7-8)	HQ-3-SB-4 (2-3)	HQ-3-SB-4 (6-7)	HQ-4-SB-1 (2-3)	HQ-4-SB-1 (6-7)	HQ-4-SB-2 (2-3)	HQ-4-SB-2 (5-6)	HQ-4-SB-4 (3-4)	HQ-4-SB-4 (5-6)
Lab ID		ZC15040-007	ZC15040-008	ZC15040-011	ZC15040-012	ZC15040-013	ZC15040-014	ZC15040-017	ZC15040-018	ZC15040-019	ZC15040-020	ZC15040-021	ZC15040-022	ZC15040-023	ZC15040-024	ZC15040-027	ZC15040-028
Depth Interval		1 - 2	7 - 8	2 - 3	4 - 5	2 - 3	5 - 6	2 - 3	7 - 8	2 - 3	6 - 7	2 - 3	6 - 7	2 - 3	5 - 6	3 - 4	5 - 6
Sample Date		28 Dec 2023	28 Dec 2023	28 Dec 2023	28 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023	27 Dec 2023
Parameter (µg/L)																	
Aluminum	50 (V)	***45,000***	***42,000***	***12,000***	***22,000***	***1,600***	***18,000***	***16,000***	< 400	***13,000***	< 400	***1,100***	***460***	***1,300***	***6,100***	***9,800***	***20,000***
Boron	500 (F)	< 50	64	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Chromium (Total)	100 (H)	47	55	12	23	66	19	13	< 10	< 10	< 10	< 10	< 10	55	< 10	< 10	16
Magnesium	1,100,000	5,800	13,000	5,500	9,700	< 5,000	6,700	< 5,000	< 5,000	< 5,000	< 5,000	< 5,000	< 5,000	< 5,000	< 5,000	< 5,000	< 5,000

NOTES:

1. Concentration and criteria units are micrograms per Liter (µg/L) or parts per billion (ppb).
2. Michigan Part 201 Groundwater Cleanup Criteria are based on "Table 1, Groundwater: Residential and Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Tier I Risk Based Screening Levels," Michigan Administrative Code, Cleanup Criteria Requirements for Response Activity, Rules 299.44 and 299.49, effective December 30, 2013; updated October 12, 2023.
   Footnotes Include:
   (H) - If analytical data are provided for total chromium only, they shall be compared to the cleanup criteria for hexavalent chromium.
   (F) - Criterion is based on adverse impacts to plant life and phytotoxicity.
   (V) - Criterion is the aesthetic drinking water value as required by Section 20120(a)(f) of the Natural Resources and Environmental Protection Act, 1994, Act 451, as amended.
3. Bold, italic number with thick line border or italic parameter name indicates that parameter was detected above the Michigan Part 201 Groundwater Cleanup Criteria.
4. Abbreviations include:
   "< LOQ" indicates the parameter was analyzed for but not detected above the limit of quantitation (LOQ).
   "SPLP" indicates synthetic precipitation leaching procedure.

APPENDIX A – EGLE COMPLIANCE COMMUNICATION LETTER

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
GRAND RAPIDS DISTRICT OFFICE

GRETCHEN WHITMER
GOVERNOR

AARON B. KEATLEY
ACTING DIRECTOR

July 10, 2023

VIA EMAIL AND CERTIFIED MAIL – 7018 2290 0001 5105 8984
RETURN RECEIPT REQUESTED

Dave Latchana
Associate General Counsel
Wolverine World Wide, Incorporated
9341 Courtland Drive, NE
Rockford, Michigan 49351

Dear Dave Latchana:

SUBJECT: Compliance Communication Regarding
9300 Courtland Drive NE, Rockford, Kent County, Michigan
Related to Facility ID No.: 41002510

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) has information indicating environmental contamination may be present on the property at 9300 Courtland Drive NE, Rockford, Kent County, Michigan (Property). EGLE's records indicate that Wolverine World Wide, Incorporated (Wolverine) is an owner of the Property. Michigan's environmental cleanup law, Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, spells out what actions or precautions a person needs to take with respect to environmental contamination. Owners and operators of contaminated property may have responsibilities associated with that contamination.

In April 2023, EGLE received a Baseline Environmental Assessment (BEA) for the property at 5312 11 Mile Road NE, Rockford, Kent County, Michigan. The BEA identified perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) in shallow groundwater near a creek above the Michigan Part 201 criteria. The creek appears to run south from the Property, under 11 Mile Road NE, and through the western portion of 5312 11 Mile Road NE. PFOS and PFOA are hazardous substances under Part 201. An area where hazardous substances exceed the criteria for unrestricted residential use is known as a Facility.

In response to the identified concentrations, EGLE sampled 14 residential drinking water wells around the 5312 11 Mile Road NE property. Three of the drinking water wells detected PFOA at concentrations above the Part 201 criteria. These wells are located west-adjacent to the creek at 9124 Courtland Drive NE, as well as north-adjacent to the Property at 9670 and 9428 Courtland Drive NE.

The Property appears to be located on a topographic high, with elevations decreasing to the north towards Shaw Creek and to the south towards the creek that continues onto

the 5312 11 Mile Road NE site. Based on the data collected thus far, the Property may be the source for the hazardous substances identified in the vicinity.

Owners and operators who have knowledge their property is a Part 201 Facility need to take certain measures, commonly called due care, to ensure that the contamination on the property does not cause unacceptable risks and is not exacerbated. Part 201's due care requirements are found in Section 20107a and include:

- Preventing exacerbation of the existing contamination;
- Preventing unacceptable human exposure and mitigating fire and explosion hazards to allow for the intended use of the Facility in a manner that protects the public health and safety;
- Taking reasonable precautions against the reasonably foreseeable acts or omissions of a third party;
- Providing cooperation and access to authorized persons to conduct response activities; and
- Complying with any land use or resource use restrictions in connection with response activities.

Additional guidance on complying with due care is available in Part 10 (Compliance with Section 20107a of Act) of the Part 201 Administrative Rules.

Persons liable under Part 201 are required to take steps to clean up the contamination. The obligations under Section 20114 of Part 201 include, as applicable:

- Immediately taking measures to contain or remove the contamination source;
- Immediately identifying and eliminating any threat of fire or explosion or direct contact hazards;
- Notifying EGLE and affected neighbors if contamination has migrated off the property;
- Delineating the extent of the contamination; and
- Undertaking the cleanup of the contamination.

Additional requirements under Section 20114 of Part 201 may apply to this situation. Section 20126 of Part 201 establishes when a person is liable under Part 201.

EGLE encourages Wolverine to become familiar with Part 201, and requests that Wolverine take the necessary steps to comply with the provisions of the law that may apply, including determining if a source of contamination exists on the Property, and if so, delineating the nature and extent of contamination.

The explanations of Part 201 in this letter should not be considered a complete listing of Wolverine's legal obligations under the law. Part 201 and its rules can be accessed by clicking "Laws & Rules" at the following link:
https://www.michigan.gov/egle/about/organization/remediation-and-redevelopment/remediation-and-investigation

The information used to prepare this letter is located in EGLE's Grand Rapids District Office. If you wish to review these files or have questions regarding this Compliance Communication, please contact: Leah Gies, Project Manager, at 616-215-4781, GiesL1@Michigan.gov, or at the EGLE-RRD Grand Rapids District Office at 350 Ottawa Avenue NW, Grand Rapids, Michigan 49503. EGLE looks forward to your cooperation in resolving this matter.

Sincerely,

Karen Vorce

Karen Vorce
District Supervisor
Grand Rapids District Office
Remediation and Redevelopment Division
616-439-8008

cc/via email: John Byl, Warner Norcross & Judd LLP
Loretta Powers, GZA
Brian Beach, GZA
Amy Peterson, Michigan PFAS Action Response Team
Dan Yordanich, EGLE
Ashley Coplin, EGLE
Nancy Johnson, EGLE
Leah Gies, EGLE

APPENDIX B –2019 BORING AND WELL LOGS

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: CTL-MW-1
Page: 1 of 3
File No.: 16.0062677.91
Check: Leslie Nelson

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: C. Melby/J. Markosky
Date Start/Finish: 3-29-19 / 4-2-19
Boring Location: South of Parking Lot
GS Elev.: See Survey **Datum:** See Survey

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	4.25"	2.0"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab
NM				

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/14	0-2	1-3 3-2	0.0 ppm	Loose, brown, fine to medium SAND, little Silt, with Gravel at bottom 1.0 inch, damp.	SAND	1	PROTECTIVE CASING
2									
3									
4	2	24/6	4-6	4-9 13-7	0.0 ppm	Medium dense, brown, fine to medium SAND, little Silt, with Gravel at the bottom 3.0 inches, damp.			
5									
6									
7									
8	3	24/24	9-11	5-3 3-4	0.0 ppm	Loose, brown, fine to medium SAND, little Silt, moist.			
9									
10									
11									
12	4	24/12	14-16	2-2 2-3	0.0 ppm	Very loose, brown, fine to medium SAND, little Silt, wet.			
13									
14									
15									
16									
17									
18									
19	5	24/12	19-21	7-9 13-15	0.0 ppm	Medium dense, coarse SAND and Gravel, trace Silt, wet. Changing at 19.8 feet to: Brown, CLAY & SILT, wet.	19.8' CLAY & SILT		
20									
21	6	24/8	21-23	8-10 12-21	0.0 ppm	Brown, CLAY & SILT, wet. Changing at 21.2 feet to: Medium dense, brown, fine to medium SAND, trace Silt, wet.	21.2' SAND		
22									
23									
24	7	24/22	24-26	7-9 16-24	0.0 ppm	Medium dense, brown, fine to medium SAND, wet.			
25									
26									
27									
28									
29	8	24/20	29-31	2-8 16-23	0.0 ppm	Medium dense, brown, fine to medium SAND, wet.			
30									
31									
32									
33									
34	9	17/17	34-35.4	5-25-50/5"	0.0 ppm	Very dense, brown, fine to medium SAND, trace Silt, wet. Changing at 34.5 feet to: Brown, SILT, wet. Changing at 35.5 feet to: Brown, Clayey SILT, wet.	34.5' SILT	2	
35									
36	10	24/24	36-38	3-16 33-37	0.1 ppm		36' SILT & CLAY		
37									
38						Hard, brown and gray, SILT & CLAY, moist.	38' CLAY & SILT		
39	11	24/24	39-41	10-16 16-16	0.2 ppm	Hard, gray, CLAY & SILT, moist.			
40									
41									
42									
43									
44	12	24/24	44-46	6-12 16-19	0.2 ppm	Very stiff, gray, Silty CLAY, some medium to coarse Sand embedded in Clay, moist.	44' Silty CLAY		
45									
46									
47									
48									
49	13	24/24	49-51	6-18	0.2 ppm	Hard, gray, Silty CLAY, some medium to			

REMARKS

1. Field screening of samples for organic vapors was peformed with a MiniRae 3000 photoionization detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm to 0.3 ppm.
2. Water added due to soil bailer.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: CTL-MW-1
Page: 2 **of** 3
File No.: 16.0062677.91
Check: Leslie Nelson

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
51				22-21		coarse Sand embedded in Clay, moist.	Silty CLAY		
54	14	24/24	54-56	3-7 11-12	0.2 ppm	Very stiff, gray, Silty CLAY, some medium to coarse Sand embedded in Clay, moist.			
59	15	24/24	59-61	7-14 15-21	0.3 ppm	Very stiff, gray, Silty CLAY, some medium to coarse Sand embedded in Clay, moist.			Bentonite Grout
64	16	24/24	64-66	7-7 12-24	0.3 ppm	Very stiff, gray, Silty CLAY, some medium to coarse Sand embedded in Clay, moist.			
69	17	24/24	69-71	11-15 26-24	0.3 ppm	Hard, gray, Silty CLAY, some medium to coarse Sand embedded in Clay, moist.			
74	18	24/24	74-76	5-11 20-30	0.3 ppm	Hard, gray, Silty CLAY, some medium to coarse Sand embedded in Clay, moist.	75' SAND		
79	19	20/20	79-80.7	24-45-50/3"	0.3 ppm	Hard, gray, Silty CLAY, some medium to coarse Sand embedded in Clay, moist. Changing at 80.0 feet to: Gray to grayish green, fine to medium SAND, little Silt, dry.			
84	20	10/10	84-84.8	30-50/4"	0.2 ppm	Very dense, brown to gray, fine to medium SAND, little Silt, moist.			
89	21	10/10	89-89.8	32-50/4"	0.2 ppm	Very dense, brown to gray, fine to medium SAND, little Silt, moist.			
94	22	18/16	94-95.5	20-33-50/6"	0.2 ppm	Very dense, brown to gray, fine to medium SAND, little Silt, moist.			
99	23	24/24	99-101	16-28 32-43	0.3 ppm	Very dense, brown to gray, fine to medium SAND, some Silt, moist.			
104	24	24/24	104-106	24-45 23-43	0.3 ppm	Very dense, brown to gray, fine to medium SAND, little Silt, moist. Changing at 105.0 feet to: Gray, CLAY & SILT, moist.	105' CLAY & SILT	3	

REMARKS

3. Based on drill rates, Clay & Silt from 105.0 to 106.0 feet.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: CTL-MW-1
Page: 3 **of** 3
File No.: 16.0062677.91
Check: Leslie Nelson

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
109	25	24/24	109-111	24-24 33-49	0.3 ppm	Very dense, gray, fine to medium SAND and Silt, moist.	109' SAND		
114	26	24/24	114-116	20-20 20-35	0.3 ppm	Hard, gray, Clayey SILT, little fine Sand, moist.	114' Clayey SILT		
119	27	24/24	119-121	16-30 43-50/6"	0.3 ppm	Hard, gray, Clayey SILT, little fine Sand, moist. Changing at 120.0 feet to: Brown, to gray, fine to medium SAND, little Silt, wet.	120' SAND	4	
124	28	15/15	124-125.3	16-40-50/3"	0.3 ppm	Very dense, brown to gray, fine to medium SAND, wet.			Filter Sand Pack Top of Well Screen
129	29	24/24	129-131	32-43 31-26	0.2 ppm	Very dense, brown to gray, fine to coarse SAND, some Gravel, little Silt, wet.			2-Inch PVC Well Screen
134	30	10/10	134-134.8	37-50/4"	0.2 ppm	Very dense, gray, fine to coarse SAND, some Silt, wet. Changing at 134.8 feet to: Very dense, gray, fine to coarse SAND, some Silt, trace Clay, wet.			Bottom of Well Screen
139	31	24/10	139-141	24-50/4"	0.2 ppm	Hard, gray, CLAY & SILT, little fine to medium Sand, moist.	139' CLAY & SILT 141'		
141						Bottom of Borehole at 141.0 Feet		5	

REMARKS

4. Groundwater was encountered at approximately 120.0 feet below ground surface.
5. Monitoring well was installed in borehole upon completion. Well screen set from 125.0 to 135.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: CTL-MW-2
Page: 1 **of** 4
File No.: 16.0062677.91
Check: Leslie Nelson

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: C. Melby/J. Markosky
Date Start/Finish: 4-3-19 / 4-9-19
Boring Location: Cul-de-sac
GS Elev.: See Survey **Datum:** See Survey

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	4.25"	2.0"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab
NM				

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1							SAND		PROTECTIVE CASING
5	1	24/12	4-6	10-4 26-13	0.0 ppm	Medium dense, brown, fine to coarse SAND, little Silt, little Gravel, moist.		1	
10	2	24/22	9-11	2-3 2-3	0.1 ppm	Loose, brown, fine to medium SAND, little Silt, moist.			
14							14.2' Clayey SILT		
15	3	24/22	14-16	3-6 8-7	0.1 ppm 0.1 ppm	Loose, brown, fine to medium SAND, little Silt, wet. Changing at 14.2 feet to: Gray, Clayey SILT, little fine to medium Sand, dry.			
20	4	24/22	19-21	4-8 9-6	0.2 ppm	Very stiff, Gray, Clayey SILT, little fine to medium Sand, dry.			
25	5	24/24	24-26	6-9 11-7	0.2 ppm	Very stiff, Gray, Clayey SILT, little fine to medium Sand, dry.			
30	6	24/22	29-31	4-8 8-12	0.2 ppm	Very stiff, Gray, Clayey SILT, little fine to medium Sand, dry.			
34							34' CLAY & SILT		
35	7	24/24	34-36	5-10 15-14	0.2 ppm	Very stiff, gray, CLAY & SILT, little fine to medium Sand, dry.			
39							39' Silty CLAY		
40	8	24/24	39-41	6-12 20-27	0.2 ppm	Hard, gray, Silty CLAY, little fine to medium Sand, dry.			
45	9	24/24	44-46	7-10 16-27	0.3 ppm	Very stiff, gray, Silty CLAY, little fine to medium Sand, dry.			
50	10	24/24	49-51	10-17 23-40	0.2 ppm	Hard, gray, Silty CLAY, little fine to medium Sand, dry.			
55	11	24/24	54-56	12-20 28-40	0.0 ppm	Hard, gray, Silty CLAY, little fine to medium Sand, dry.			
59		24/8		2-2	0.1 ppm		59.2'		

REMARKS

1. Field screening of samples for organic vapors was peformed with a MiniRae 3000 photoionization detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm to 0.3 ppm.
2. 3.0" split spoon sampler was used from 59.0 to 61.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: CTL-MW-2
Page: 2 **of** 4
File No.: 16.0062677.91
Check: Leslie Nelson

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
61	12		59-61	0-1		Very loose, gray, Silty CLAY, little fine to medium Sand, dry. Changing at 59.2 feet to: Brown to gray, fine to coarse SAND, little Silt, moist.	SAND	2	
64	13	24/20	64-66	5-12 22-33	0.2 ppm	Dense, brown to gray, fine to coarse SAND, little Silt, moist.			
69	14	24/24	69-71	14-21 29-32	0.2 ppm	Hard, gray, Silty CLAY, little fine to medium Sand, dry.	69' Silty CLAY		
74	15	22/22	74-75.8	11-23 30-50/4"	0.2 ppm	Hard, gray, Silty CLAY, little fine to medium Sand, dry.			
79	16	10/10	79-79.8	50-50/4"	0.2 ppm	Hard, gray, Silty CLAY, little fine to medium Sand, dry.			
84	17	22/22	84-85.8	15-28 40-50/4"	0.2 ppm	Hard, gray, Silty CLAY, little fine to medium Sand, dry.			
89	18	24/24	89-91	20-25 33-47	0.1 ppm	Hard, gray, Silty CLAY, little fine to medium Sand, dry.			
94	19	24/2	94-96	50/2"	0.1 ppm	Hard, gray, Silty CLAY, little fine to medium Sand, dry.			
99	20	9/9	99-99.8	32-50/3'	0.1 ppm	Hard, gray, Silty CLAY, little fine to medium Sand, dry.		3	
104	21	2/1	104-104.2	50/2"	0.1 ppm	Hard, gray, Silty CLAY, little fine to medium Sand, dry.		4	
109	22	11/11	109-109.9	35-58/5"	0.0 ppm	Very dense, brown, fine to medium SAND, little Silt, damp.	109' SAND		Bentonite Grout
114	23	10/10	114-114.8	30-50/4"	0.0 ppm	Very dense, brown, fine to medium SAND, little Silt, moist.			
119	24	17/17	119-120.4	22-38-50/5"	0.0 ppm	Very dense, brown, fine to medium SAND, little Silt, moist.		5	
124	25	12/12	124-125	23-50/6"	0.0 ppm	Very dense, brown, fine to medium SAND, little Silt, moist.			
129		6/6		50/6"	0.0 ppm				

REMARKS

3. 3.0" split spoon sampler was used from 99.0 to 101.0 feet below ground surface.
4. 3.0" split spoon sampler was used from 104.0 to 106.0 feet below ground surface.
5. 3.0" split spoon sampler was used from 119.0 to 121.0 feet below ground surface.
6. 3.0" split spoon sampler was used from 129.0 to 131.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: CTL-MW-2
Page: 3 **of** 4
File No.: 16.0062677.91
Check: Leslie Nelson

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
131	26		129-129.5			Very dense, brown, fine to medium SAND, little Silt, moist.	SAND	6	
134	27	24/24	134-136	18-31 33-43	0.0 ppm	Hard, gray, Silty CLAY, little Sand, dry.	134' Silty CLAY	7	
139	28	24/24	139-141	15-24 30-50/6"	0.0 ppm	Very dense, gray, fine to medium SAND, little Silt, little Clay, moist.	139' SAND		
144	29	11/11	144-144.9	37-50/5"		Hard, gray, SILT & CLAY, little fine to medium Sand, moist with brown, fine to medium Sand in the bottom 1.0".	144' SILT & CLAY		
149	30	11/11	149-149.9	36-50/5"	0.1 ppm	Hard, gray, Clayey SILT, little fine to medium Sand, dry.	149' Clayey SILT	8	
154	31	17/17	154-155.4	30-46-50/5"	0.1 ppm	Hard, gray, Clayey SILT, little fine to medium Sand, dry.			
159	32	4/4	159-159.3	50/4"	0.1 ppm	Hard, gray, Clayey SILT, little fine to medium Sand, dry.			
164	33	5/5	164-164.4	50/5"	0.2 ppm	Hard, gray, Clayey SILT, little fine to medium Sand, dry.		9	
169	34	3/3	169-169.3	50/3"		Very dense, gray, fine to medium SAND, some Silt, little Clay, moist.	169' SAND		
174	35	3/3	174-174.3	50/3"	0.2 ppm	Very dense, gray, fine to medium SAND, some Silt, little Clay, moist.			
179	36	4/4	179-179.3	50/4"	0.1 ppm	Very dense, gray, fine to medium SAND, some Silt, little Clay, moist.		10	
184	37	4/1	184-184.3	100/4"		Very dense, gray, fine to medium SAND, some Silt, little Clay, moist.		11	
189	38	11/11	189-189.9	47-100/5"	0.1 ppm	Hard, gray, SILT & CLAY, little fine to coarse Sand, dry.	189' SILT & CLAY		
194	39	2/2	194-194.2	100/2"	0.1 ppm	Very dense, gray, fine to medium SAND, some Silt, dry.	194' SAND		
199		3/3		100/3"	0.1 ppm				

REMARKS

7. 3.0" split spoon sampler was used from 134.0 to 136.0 feet below ground surface.
8. 3.0" split spoon sampler was used from 149.0 to 151.0 feet below ground surface.
9. 3.0" split spoon sampler was used from 164.0 to 166.0 feet below ground surface.
10. 3.0" split spoon sampler was used from 179.0 to 181.0 feet below ground surface.
11. Refusal due to stone in shoe.
12. 3.0" split spoon sampler was used from 199.0 to 201.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: CTL-MW-2
Page: 4 **of** 4
File No.: 16.0062677.91
Check: Leslie Nelson

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
201	40		199-199.3			Very dense, gray, fine to medium SAND, some Silt, moist.	SAND	12	
204	41	4/4	204-204.3	100/4"	0.1 ppm	Hard, gray, Clayey SILT, some fine to medium Sand, dry.	204' Clayey SILT	13	
209	42	2/2	209-209.2	100/2"	0.1 ppm	Hard, gray, Clayey SILT, some fine to medium Sand, dry. Changing at 209.1 feet to: Gray, fine to coarse SAND, little Silt, little Gravel, wet.	209.1' SAND		
214	43	2/2	214-214.2	100/2"	0.2 ppm	Very dense, gray, fine to medium SAND, little Silt, wet.		14	
219	44	8/8	219-219.7	60-75/2"	0.0 ppm	Very dense, brown to gray, fine to medium SAND, little Silt, wet.		15	Filter Sand Pack; Top of Well Screen
224	45	3/3	224-224.3	100/3"	0.0 ppm	Very dense, brown to gray, fine to medium SAND, little Silt, wet.			2-Inch PVC Well Screen
229	46	3/3	229-229.3	100/3"	0.1 ppm	Very dense, brown to gray, fine to medium SAND, little Silt, wet.		16	Bottom of Well Screen
234	47	5/5	234-234.4	75/5"	0.1 ppm	Very dense, brown to gray, fine to medium SAND, little Silt, wet.			
239	48	2/2	239-239.2	75/2"	0.1 ppm	Very dense, gray, fine SAND, some Silt, wet.	241'	17	
241						Bottom of Borehole at 241.0 Feet		18	

REMARKS

13. 3.0" split spoon sampler was used from 204.0 to 206.0 feet below ground surface.
14. Groundwater was encountered at approximately 214.0 feet below ground surface.
15. 3.0" split spoon sampler was used from 219.0 to 221.0 feet below ground surface.
16. 3.0" split spoon sampler was used from 229.0 to 231.0 feet below ground surface.
17. 3.0" split spoon sampler was used from 239.0 to 241.0 feet below ground surface.
18. Monitoring well was installed in borehole upon completion. Well screen set from 220.0 to 230.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: CTL-MW-3
Page: 1 **of** 5
File No.: 16.0062677.91
Check: Leslie Nelson

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: C. Melby/J. Markosky
Date Start/Finish: 4-9-19 / 4-9-19
Boring Location: Northland Drive
GS Elev.: See Survey **Datum:** See Survey

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	4.25"	2.0"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

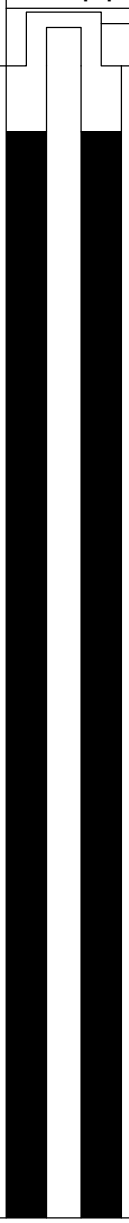
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab
NM				

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
1								
2								
3								
4	1	24/24	4-6	1-2 2-2	0.0 ppm	Very loose, brown, fine to medium SAND, little Silt, dry.	SAND	1
5								
6								
7								
8								
9	2	24/20	9-11	4-3 3-4	0.0 ppm	Loose, brown, fine to coarse SAND, little Silt, little Gravel, dry.		
10								
11								
12								
13								
14	3	24/22	14-16	2-3 5-6	0.0 ppm	Loose, brown, fine to coarse SAND, little Silt, little Gravel, dry.		
15								
16								
17								
18								
19	4	24/20	19-21	12-12 13-13	0.0 ppm	Medium dense, brown, fine to coarse SAND, little Silt, little Gravel, dry.		
20								
21								
22								
23								
24	5	24/20	24-26	8-12 17-16	0.0 ppm	Medium dense, brown, fine to coarse SAND, little Silt, little Gravel, dry.		
25								
26								
27								
28								
29	6	24/24	29-31	7-10 9-14	0.1 ppm	Medium dense, brown, fine to coarse SAND, little Silt, little Gravel, dry.		
30								
31								
32								
33								
34	7	24/24	34-36	12-14 14-17	0.1 ppm	Medium dense, brown, fine to medium		

Equipment Installed



REMARKS

1. Field screening of samples for organic vapors was peformed with a MiniRae 3000 photoionization detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm to 0.3 ppm.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: CTL-MW-3
Page: 2 **of** 5
File No.: 16.0062677.91
Check: Leslie Nelson

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
36						SAND, little Silt, dry.	SAND		
37									
38									
39	8	24/24	39-41	6-13 22-16	0.1 ppm	Medium dense, brown, fine to medium SAND, little Silt, dry.			
40									
41									
42									
43									
44	9	24/10	44-46	15-25 19-14		Dense, brown, fine to medium SAND, little Silt, dry with stone from 44.0 to 44.1 feet.			
45									
46									
47									
48									
49	10	24/17	49-51	5-13 14-11	0.1 ppm 0.1 ppm	Medium dense, brown, fine to medium SAND, little Silt, damp. Changing at 50.0 feet to: Brown, SILT & CLAY, little fine to medium Sand, dry.	50' SILT & CLAY		
50									
51									
52									
53									
54	11	24/24	54-56	11-11 30-34	0.1 ppm	Dense, brown, fine to coarse SAND, little Silt, little Gravel, wet. Changing at 55.0 feet to: Brown, fine to medium SAND, some Silt, dry.	54' SAND		
55									
56									
57									
58									
59	12	24/24	59-61	22-26 33-36	0.1 ppm	Brown, fine to medium SAND, some Silt, moist. Changing at 60.5 feet to: Brown to gray, CLAY & SILT, little Sand, dry.	60.5' CLAY & SILT		
60									
61									
62									
63									
64	13	18/18	64-65.5	12-44-50/6"	0.1 ppm	Hard, gray, CLAY & SILT, little Sand, dry.			
65									
66									
67									
68									
69	14	10/10	69-69.8	25-50/4"	0.2 ppm	Hard, gray, SILT & CLAY, little fine to medium Sand, dry.	69' SILT & CLAY		
70									
71									
72									
73									
74	15	11/11	74-74.9	32-50/5"	0.1 ppm	Hard, gray, SILT & CLAY, little fine to medium Sand, dry.			
75									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: CTL-MW-3
Page: 3 **of** 5
File No.: 16.0062677.91
Check: Leslie Nelson

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
77							SILT & CLAY		
78									
79	16	10/10	79-79.8	11-50/4"	0.0 ppm	Hard, gray, SILT & CLAY, little fine to medium Sand, dry.		2	Bentonite Grout
80									
81									
82									
83									
84	17	5/5	84-84.4	50/5"	0.0 ppm	Hard, gray, SILT & CLAY, little fine to medium Sand, dry.			
85									
86									
87									
88									
89	18	4/4	89-89.3	50/4"	0.1 ppm	Hard, gray, SILT & CLAY, little fine to medium Sand, dry.		3	
90									
91									
92									
93									
94	19	6/6	94-94.5	50/6"	0.1 ppm	Hard, gray, SILT & CLAY, little fine to medium Sand, dry.		4	
95									
96									
97									
98									
99	20	6/6	99-99.5	50/6"	0.1 ppm	Hard, gray, Silty CLAY, little fine to medium Sand, dry.	99' Silty CLAY	5	
100									
101									
102									
103									
104	21	22/22	104-105.8	7-11 17-50/4"	0.1 ppm	Very stiff, gray, Silty CLAY, moist with some medium to coarse Sand embeded in Clay (2"x2"x2" stone in shoe).		6	
105									
106									
107									
108									
109	22	11/11	109-109.9	31-50/5"	0.0 ppm	Hard, gray, Silty CLAY, little medium to coarse Sand, dry.		7	
110									
111									
112									
113									
114	23	16/16	114-115.3	14-33-50/4"	0.1 ppm	Hard, gray, Silty CLAY, little medium to coarse Sand, dry. Changing at 115.0 feet to: Gray, fine to coarse SAND, some Gravel,	115' SAND	8	
115									
116									

REMARKS

2. 3.0" split spoon sampler was used from 79.0 to 81.0 feet below ground surface.
3. 3.0" split spoon sampler was used from 89.0 to 91.0 feet below ground surface.
4. 3.0" split spoon sampler was used from 94.0 to 96.0 feet below ground surface.
5. 3.0" split spoon sampler was used from 99.0 to 101.0 feet below ground surface.
6. 3.0" split spoon sampler was used from 104.0 to 106.0 feet below ground surface.
7. 3.0" split spoon sampler was used from 109.0 to 111.0 feet below ground surface.
8. 3.0" split spoon sampler was used from 114.0 to 116.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: CTL-MW-3
Page: 4 **of** 5
File No.: 16.0062677.91
Check: Leslie Nelson

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
117						little Silt, moist.	SAND		
118									
119	24	10/10	119-119.8	28-50/4"	0.2 ppm	Hard, gray, Silty CLAY, some fine to coarse Sand, dry.	119' Silty CLAY	9	
120									
121									
122									
123									
124	25	16/16	124-125.3	9-38-50/4"	0.2 ppm	Hard, gray, Silty CLAY, little fine Sand, dry.		10	
125									
126									
127									
128									
129	26	9/9	129-129.8	23-50/3"	0.1 ppm	Hard, gray, Clayey SILT, little fine Sand, dry.	129' Clayey SILT	11	
130									
131									
132									
133									
134	25	4/4	134-134.3	50/4"	0.1 ppm	Hard, gray, Silty CLAY, some fine to coarse Sand, dry. Changing at 134.2 feet to: Gray, Silty CLAY, little fine Sand, dry.	134.2' Silty CLAY	12	
135									
136									
137									
138									
139	26	4/4	139-139.3	50/4"	0.1 ppm	Hard, gray, Silty CLAY, little fine Sand, dry.		13	
140									
141									
142									
143									
144	27	4/4	144-144.3	50/4"	0.0 ppm	Hard, gray, Silty CLAY, little fine Sand, dry.		14	
145								15	
146									
147									
148									
149	28	6/6	149-149.5	50/6"	0.0 ppm	Hard, gray, Silty CLAY, little fine Sand, dry.		16	
150									
151									
152									
153									
154	29	10/10	154-154.8	25-50/4"	0.0 ppm	Hard, gray, Silty CLAY, little fine Sand, dry.		17	
155								18	
156									
157									

REMARKS

9. 3.0" split spoon sampler was used from 119.0 to 121.0 feet below ground surface.
10. 3.0" split spoon sampler was used from 124.0 to 126.0 feet below ground surface.
11. 3.0" split spoon sampler was used from 129.0 to 131.0 feet below ground surface.
12. 3.0" split spoon sampler was used from 134.0 to 136.0 feet below ground surface.
13. 3.0" split spoon sampler was used from 139.0 to 141.0 feet below ground surface.
14. 3.0" split spoon sampler was used from 144.0 to 146.0 feet below ground surface.
15. 3.0" split spoon sampler was used from 145.0 to 147.0 feet below ground surface.
16. 3.0" split spoon sampler was used from 149.0 to 151.0 feet below ground surface.
17. Groundwater was encountered at approximately 154.0 feet below ground surface.
18. 3.0" split spoon sampler was used from 154.0 to 156.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: CTL-MW-3
Page: 5 **of** 5
File No.: 16.0062677.91
Check: Leslie Nelson

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
158–159	30	24/24	159-161	10-10 11-8	0.0 ppm	Medium dense, brown to gray, fine to medium SAND, little Silt, wet.	Silty CLAY 159' SAND	19	Filter Sand Pack Top of Well Screen
160–164									
164–165	31	5/5	164-164.4	50/5"	0.0 ppm	Medium dense, brown to gray, fine to medium SAND, little Silt, wet.		20	2-Inch PVC Well Screen
166–169									
169–170	32	5/5	169-169.4	50/5"	0.0 ppm	Medium dense, brown to gray, fine to medium SAND, little Silt, wet.		21	Bottom of Well Screen
171						Bottom of Borehole at 171.0 Feet	171'	22	
172–198									

REMARKS

19. 3.0" split spoon sampler was used from 159.0 to 161.0 feet below ground surface.
20. 3.0" split spoon sampler was used from 164.0 to 166.0 feet below ground surface.
21. 3.0" split spoon sampler was used from 169.0 to 171.0 feet below ground surface.
22. Monitoring well was installed in borehole upon completion. Well screen set from 160.0 to 170.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

APPENDIX C - 2023 VAP BORING AND SAMPLE LOGS

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-01
Page: 1 of 6
File No.: 16.0062335.60
Check: N. Kampfschulte

Contractor: Stearns Drilling
Foreman: Huntoon
Logged by: N. Kampfschulte
Date Start/Finish: 10-31-23 / 11-10-23
Boring Location:
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	7 5/8 / 4 1/4	2"
Hammer Wt.:	140 lbs	NA
Hammer Fall:	30"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1–41									None
4–5	1	24/18	4-6	4-7 6-5		Soft, brown, Clayey SILT and fine to medium Sand, moist.	Clayey SILT		
9–10	2	24/0	9-11	4-4 7-7		NO RECOVERY.	9' NO RECOVERY	1	
14–15	3	24/24	14-16	9-14 25-20		Very stiff, red and brown, Clayey SILT, moist.	14' Clayey SILT		
19–20	4	24/24	19-21	5-10 15-16		Stiff, brown, Clayey SILT, moist.			
24–25	5	24/6	24-26	9-17 21-31		Very stiff, brown, Clayey SILT, moist.		2	
29–30	6	24/6	29-31	4-7 12-16		Stiff, brown, SILT and Sand, with stiff, brown Clay in spoon tip with rock, moist.	29' SILT and Sand	2	
34–35	7	24/6	34-36	10-12 24-26		Very stiff, brown, SILT & CLAY, moist.	34' SILT & CLAY		
39–40	8	24/24	39-41	3-10 22-32		Very stiff, brown, Clayey SILT, moist.	39' Clayey SILT		

REMARKS

1. No recovery due to possible rock obstruction in spoon.
2. Rock in spoon tip.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-01
Page: 2 **of** 6
File No.: 16.0062335.60
Check: N. Kampfschulte

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
43							Clayey SILT		
44	9	24	44-46	4-12 11-19		Stiff, brown, Clayey SILT, moist.			
45									
46									
47									
48									
49	10	11/11	49-49.9	32-50/5"		Hard, brown, Clayey SILT, moist.			
50									
51									
52									
53									
54	11	11/11	54-54.9	20-50/5"		Hard, brown, Clayey SILT, little coarse Sand, moist.			
55									
56									
57									
58									
59	12	16/16	59-60.3	10-24-50/4"		Hard, brown, Clayey SILT, little coarse Sand, trace fine Gravel, moist.			
60									
61									
62									
63									
64	13	24/24	64-66	8-14 22-25		Very stiff, Clayey SILT, litle coarse Sand, trace fine Gravel, moist.			
65									
66									
67									
68									
69	14	24	69-71	9-14 23-27		Very stiff, Clayey SILT, little coarse Sand, trace fine Gravel, moist.			
70									
71									
72									
73									
74	15	24/24	74-76	10-17 18-17		Very stiff, brown, Clayey SILT, trace coarse Sand, moist.			
75									
76									
77									
78									
79	16	24/24	79-81	7-12 19-28		Stiff, brown, Clayey SILT, trace coarse Sand, moist.			
80									
81									
82									
83									
84	17	24/24	84-86	7-10 13-22		Medium dense, black and green, SAND, moist. Changing at 84.25 feet to: Stiff, brown, Clayey SILT, trace coarse Sand, moist.	84' 84.3' SAND Clayey SILT		
85									
86									
87									
88									
89	18	24/24	89-91	11-29 37-50/6"		Hard, brown, Clayey SILT interbedded with medium Sand, moist.			
90									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-01
Page: 3 **of** 6
File No.: 16.0062335.60
Check: N. Kampfschulte

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
92							Clayey SILT		
93									
94	19	5/5	94-94.4	75/5"		Very dense, fine GRAVEL and hard, brown, Clayey Silt, moist.	94' GRAVEL		
95									
96									
97									
98									
99	20	1/1	99-99.1	50/1"		Very dense, coarse to fine GRAVEL and hard, brown, Silt, moist.			
100									
101									
102									
103									
104	21	12	104-105	8-50/6"		Hard, brown, Clayey SILT and medium to fine Sand, moist.	104' Clayey SILT		
105									
106									
107									
108									
109	22	1/0	109-109.1	50/1"		NO RECOVERY.	109' NO RECOVERY	1	
110									
111									
112									
113									
114									
115	23	5/5	115-115.4	50/5"		Hard, brown, Clayey SILT, moist.	115' Clayey SILT		
116									
117									
118									
119	24	2/2	119-119.2	50/2"		Very dense, light brown, fine SAND and Silt, moist.	119' SAND		
120									
121									
122									
123									
124	25	1/1	124-124.1	50/1"		Very hard, red and brown, fine SAND, moist.			
125									
126									
127									
128									
129	26	5/5	129-129.4	50/5"		Very hard, red and brown, fine SAND, moist.			
130									
131									
132									
133									
134	27	4/4	134-134.3	50/4"		Hard, brown, Clayey SILT, moist.	134' Clayey SILT		
135									
136									
137									
138									
139	28	2/2	139-139.2	50/2"		Hard, brown, Clayey SILT, moist.			

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-01
Page: 4 **of** 6
File No.: 16.0062335.60
Check: N. Kampfschulte

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
141							Clayey SILT		
142									
143									
144	29	8/8	144-144.7	43-50/2"		Hard, brown, Clayey SILT, moist.			
145									
146									
147									
148									
149	30	5/5	149-149.4	50/5"		Hard, brown, Clayey SILT, trace coarse Sand, moist.			
150									
151									
152									
153									
154	31	6/6	154-154.5	50/6"		Hard, brown, Clayey SILT, trace coarse Sand, moist.			
155									
156									
157									
158									
159	32	12/12	159-160	15-50/6"		Hard, brown, Clayey SILT, trace coarse Sand, moist.			
160									
161									
162									
163									
164	33	5/5	164-164.4	50/5"		Hard, brown, Clayey SILT, trace coarse Sand, moist.			
165									
166									
167									
168									
169	34	5/5	169-169.4	50/5"		Hard, brown, Clayey SILT, trace coarse Sand, moist.			
170									
171									
172									
173									
174	35	6/6	174-174.5	43-50/6"		Hard, brown, Clayey SILT, trace coarse Sand, moist.			
175									
176									
177									
178									
179	36	5/5	179-179.4	50/5"		Hard, brown, Clayey SILT, some fine Sand, moist.			
180									
181									
182									
183									
184	37	9/9	184-184.8	36-50/3"		Hard, brown, Clayey SILT, some fine Sand, moist.			
185									
186									
187									
188							189'		

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-01
Page: 5 **of** 6
File No.: 16.0062335.60
Check: N. Kampfschulte

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
190	38	6/6	189-189.5	50/6"		Hard, brown, SILT and fine Sand, moist.	SILT and Sand		
194	39	10	194-194.8	47-50/4"		Hard, brown, SILT and fine Sand, moist.			
199	40	9/9	199-199.8	32-50/3"		Very dense, brown, fine to medium SAND and Silt, moist.	199' SAND and Silt		
204	41	24/24	204-206	5-6 12-18		Very dense, brown, fine to medium SAND and Silt, moist. Changing at 205.5 feet to: Very stiff, brown, SILT, moist.	205.5' SILT		
209	42	6/6	209-209.5	50/6"		Hard, brown, SILT, moist with Sand, wet in spoon tip.			
214	43	9/9	214-214.8	19-50/3"		Hard, brown, SILT & CLAY, moist.	214' SILT & CLAY		
219	44	2/2	219-219.2	50/2"		Hard, brown, Clayey SILT, moist.	219' Clayey SILT		
224	45	3/3	224-224.3	50/3"		Hard, brown, Clayey SILT, moist.			
229	46	5/5	229-229.4	50/5"		Hard, brown, Clayey SILT, moist.			
234	47	3/3	234-234.3	50/3"		Hard, brown, Clayey SILT, moist.			
237									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-01
Page: 6 **of** 6
File No.: 16.0062335.60
Check: N. Kampfschulte

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
239	48	1/1	239-239.1	50/1"		Hard, brown, Clayey SILT, some fine to medium Sand, moist.	Clayey SILT		
244	49	1/1	244-244.1	50/1"		Hard, brown, Clayey SILT, moist.			
249	50	2/2	249-249.2	75/2"		Hard, brown, CLAY & SILT, moist.	249' CLAY & SILT		
254	51	3/3	254-254.3	50/3"		Hard, brown, CLAY & SILT, moist.			
257						Bottom of Borehole at 254.3 Feet	257'	3 4 5	

REMARKS

3. Refusal due to possible Bedrock.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite grout upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-02
Page: 1 **of** 4
File No.: 16.0062335.60
Check: N. Kampfschulte

Contractor: Stearns Drilling
Foreman: Huntoon
Logged by: N. Kampfschulte
Date Start/Finish: 11-13-23 / 11-27-23
Boring Location:
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	7 5/8 / 4 1/4	2"
Hammer Wt.:	140 lbs	NA
Hammer Fall:	30"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1–8									None
4–5	1	24/24	4-6	4-6 6-5		Medium stiff, red and brown, CLAY & SILT, some fine Sand, moist.	CLAY & SILT		
9							9' Silty CLAY		
9–10	2	24/24	9-11	3-9 13-17		Stiff, red and brown, Silty CLAY, trace fine Gravel, moist.			
14–15	3	24/24	14-16	5-17 27-24		Stiff, red and brown, Silty CLAY, trace fine Gravel, moist. Changing at 14.5 feet to: Medium dense, light brown, fine to medium SAND, moist.		1	
19–20	4	24/20	19-21	12-19 27-36		Very stiff, brown, Silty CLAY, trace fine to medium Sand, moist.			
24–25	5	24/20	24-26	12-25 43-44		Hard, brown, Silty CLAY, trace fine to medium Sand, moist.			
29–30	6	14/12	29-30.2	8-18-50/2"		Hard, brown, Silty CLAY, trace fine to medium Sand, moist.			
34–35	7	24/18	34-36	21-23 17-17		Very stiff, brown, Silty CLAY, trace fine to medium Sand, moist.			

REMARKS

1. Groundwater was encountered at approximately 14.5 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-02
Page: 2 **of** 4
File No.: 16.0062335.60
Check: N. Kampfschulte

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
38							Silty CLAY		
39	8	24/20	39-41	10-16 33-29		Very stiff, brown, SILT & CLAY, moist.	39' SILT & CLAY		
44	9	24/18	44-46	6-13 15-20		Stiff, brown, SILT & CLAY, moist.			
49	10	24/18	49-51	10-12 15-20		Stiff, brown, SILT & CLAY, moist.			
54	11	24/18	54-56	8-12 18-17		Stiff, brown, SILT & CLAY, moist.			
59	12	24/20	59-61	11-19 30-17		Very stiff, brown, SILT & CLAY, moist.			
64	13	24/20	64-66	9-11 13-16		Stiff, brown, SILT & CLAY, moist.			
69	14	24	69-71	8-16 24-32		Very stiff, brown, Silty CLAY, moist.	69' Silty CLAY		
74	15	24/20	74-76	13-21 39-45		Hard to very stiff, brown, Silty CLAY, moist.			
79	16	24/24	79-81	1-1 2-2		Very loose, brown, fine to medium SAND,	79' SAND		

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-02
Page: 3 **of** 4
File No.: 16.0062335.60
Check: N. Kampfschulte

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
81						some coarse Sand, trace fine Gravel, wet.	SAND		
82									
83									
84	17	24/24	84-86	6-8 23-42		Hard, brown, Silty CLAY, moist.	84' Silty CLAY		
85									
86									
87									
88									
89	18	24/24	89-91	9-14 19-20		Hard, gray and brown, Silty CLAY, trace fine Sand, moist.			
90									
91									
92									
93									
94	19	24/24	94-96	13-18 20-23		Hard, gray and brown, Silty CLAY, trace fine Sand, moist.			
95									
96									
97									
98									
99	20	24/24	99-101	9-12 16-20		Stiff, gray and brown, Silty CLAY, trace fine Sand, moist.			
100									
101									
102									
103									
104	21	24/24	104-106	6-21 30-38		Hard, gray and brown, Silty CLAY, trace fine Sand, moist.			
105									
106									
107									
108									
109	22	24/24	109-111	9-16 23-30		Hard, gray and brown, Silty CLAY, trace fine Sand, moist.			
110									
111									
112									
113									
114	23	24/24	114-116	5-8 13-17		Very stiff, gray and brown, Silty CLAY, trace fine Sand, moist.			
115									
116									
117									
118									
119	24	5/5	119-119.4	50/5"		Very dense, brown, fine to coarse SAND, little Silt, wet.	119' SAND		
120									
121									
122									
123									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-02
Page: 4 **of** 4
File No.: 16.0062335.60
Check: N. Kampfschulte

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
124–125	25	24/16	124-126	6-8 19-27		Medium dense, gray and brown, fine to coarse SAND and interbedded Silty Clay, wet to moist.	SAND		
129–130	26	5/5	129-129.4	50/5"		Very dense, gray, fine SAND and Silt, wet to moist.			
134–135	27	3/3	134-134.3	50/3"		Very dense, gray, GRAVEL, some fine to medium Sand, little Silty Clay, moist to wet.	134' GRAVEL		
139–140	28	5/5	139-139.4	50/5"		Hard, gray, SILT, some fine to medium Sand, moist.	139' SILT		
144–145	29	8/8	144-144.7	45-50/2"		Hard, gray, Silty CLAY, trace fine Sand, moist. Bottom of Borehole at 144.6 Feet	144' 144.6'Silty CLAY	2	

REMARKS

2. Borehole was backfilled with bentonite grout upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-03
Page: 1 **of** 6
File No.: 16.0062335.60
Check: N. Kampfschulte

Contractor: Stearns Drilling
Foreman: Huntoon
Logged by: S. Martin
Date Start/Finish: 10-13-23 / 10-23-23
Boring Location:
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	7 5/8 / 4 1/4	2"
Hammer Wt.:	140 lbs	NA
Hammer Fall:	30"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1–3									None
4–5	1	24/24	4-6	2-2 2-2		Loose, tan, fine to medium SAND, trace Silt, moist.	SAND		
6–8									
9–10	2	24/24	9-11	2-2 2-2		Loose, tan, fine to medium SAND, trace Silt, moist.			
11–13									
14–15	3	24/18	14-16	2-2 2-2		Loose, tan, fine to medium SAND, trace Silt, moist.			
16–18									
19–20	4	24/18	19-21	3-5 7-10		Loose, tan, fine to medium SAND, trace Silt, moist.			
21–23									
24–25	5	24/24	24-26	15-21 21-25		Medium stiff, tan and brown, fine to medium SAND and Silt, wet.	24' SAND and Silt	1	
26–28									
29–30	6	24/18	29-31	3-9 13-16		Loose, tan, fine to medium SAND and Silt, wet.		2	
31–33									
34–35	7	24/24	34-36	14-21 31-37		Loose, tan, fine to medium SAND and Silt, wet.			
36–38									
39–40	8	24/24	39-41	4-12 16-20		Loose, brown, fine to medium SAND and Silt, moist.			
41									

REMARKS

1. Groundwater was encountered at approximately 24.0 feet below ground surface.
2. Groundwater sample collected from approximately 29.0 to 34.0 feet below ground surface and submitted for analytical laboratory testing.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-03
Page: 2 **of** 6
File No.: 16.0062335.60
Check: N. Kampfschulte

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
43							SAND and Silt		
44	9	24/24	44-46	24-9-17		Medium dense, brown, fine to medium SAND and Silt, trace Gravel, moist.			
45									
46									
47									
48									
49	10	24/12	49-51	2-6 14-19		Loose to medium dense, brown fine to medium SAND, trace Silt, moist.	49' SAND	3	
50									
51									
52									
53									
54	11	24/16	54-56	17-20 29-43		Medium dense, tan, fine to medium SAND and Silt, moist. Changing at 55.0 feet to: Hard, CLAY & SILT, moist.	54' 55' SAND and Silt CLAY & SILT		
55									
56									
57									
58									
59	12	24/24	59-61	0-15 27-44		Hard, CLAY, trace Silt, moist.	59' CLAY		
60									
61									
62									
63									
64	13	24/24	64-66	13-23 32-46		Hard, CLAY, trace Silt, moist.			
65									
66									
67									
68									
69	14	24/16	69-71	5-5 18-31		Very stiff, brown, CLAY, trace Silt, trace Gravel, moist.			
70									
71									
72									
73									
74	15	24/24	74-76	13-28 35-59		Hard, brown, CLAY, trace Silt, moist.			
75									
76									
77									
78									
79	16	24/24	79-81	7-13 30-50		Very stiff, brown and tan, CLAY, trace interebedded Sand, moist.			
80									
81									
82									
83									
84	17	24/24	84-86	20-35 44-48		Hard, gray, CLAY, trace interbedded fine to medium Sand and Siltk.			
85									
86									
87									
88									
89	18	24/24	89-91	9-11 14-21		Stiff, gray, CLAY, interebedded fine to medium Sand, moist.			
90									

REMARKS

3. Groundwater sample collected from approximately 49.0 to 54.0 feet below ground surface and submitted for analytical laboratory testing.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-03
Page: 3 **of** 6
File No.: 16.0062335.60
Check: N. Kampfschulte

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
92							CLAY		
93									
94	19	24/24	94-96	8-6 13-15		Medium stiff to stiff, gray, CLAY, trace Gravel, moist.			
95									
96									
97									
98									
99	20	24/20	99-101	9-11 14-17		Stiff, brown and gray, CLAY, trace Silt, moist.			
100									
101									
102									
103									
104	21	24/24	104-106	10-10 16-21		Stiff, brown and gray, CLAY, trace Silt, moist.			
105									
106									
107									
108									
109	22	24/24	109-111	10-13 18-23		Stiff, brown and gray, CLAY, trace Silt, moist.			
110									
111									
112									
113									
114	23	24/24	114-116	11-20 21-32		Stiff, gray, CLAY, trace Silt, moist. Changing at 115.0 feet to: Hard, gray, CLAY, moist.			
115									
116									
117									
118							119'		
119	24	24/24	119-121	42-47 48-56		Hard, Clayey SILT, trace fine to medium Sand, moist.	Clayey SILT		
120									
121									
122									
123									
124	25	24/12	124-126	33-52/6"		Hard, Clayey SILT, trace fine to medium Sand, moist.			
125									
126									
127									
128									
129	26	24/6	129-131	50/6"		Gray, CLAY, interbedded fine to medium Sand and Silt, moist.	129' CLAY		
130									
131									
132									
133									
134	27	24/12	134-136	14-21/6"		Gray, CLAY, interbedded fine to medium Sand and Silt, moist.			
135									
136									
137									
138									
139	28	24/16	139-141	4-1-56/3"		Gray, fine to medium SAND and Gravel,	139' SAND and Gravel		

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-03
Page: 4 **of** 6
File No.: 16.0062335.60
Check: N. Kampfschulte

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
141						trace Silt, moist.	SAND and Gravel		
142									
143									
144	29	24/18	144-146	9-13-50/5"		Hard, gray, CLAY, little Silt, moist.	144' CLAY		
145									
146									
147									
148									
149	30	24/5	149-151	50/5"		Hard, gray, CLAY, little Silt, moist.			
150									
151									
152									
153									
154	31	24/24	154-156	50-47-51/5"		Hard, gray, CLAY, little Silt, moist.			
155									
156									
157									
158									
159	32	24/19	159-161	18-38-50/5"		Hard, gray, CLAY, trace Silt, moist.			
160									
161									
162									
163									
164	33	24/14	164-166	25-29 29-36		Hard, gray, CLAY, trace Silt, moist.			
165									
166									
167									
168									
169	34	24/20	169-171	35-50/6"		Hard, gray, CLAY, trace Silt, moist.			
170									
171									
172									
173									
174	35	24/20	174-176	50/5"		Hard, gray, CLAY, trace Silt, moist.			
175									
176									
177									
178									
179	36	24/20	179-181	30-50/5"		Hard, gray, CLAY, trace Silt, moist.	179' Clayey SILT		
180									
181									
182									
183									
184	37	24/24	184-186	15-28-50/6"		Very stiff, brown and gray, Clayey SILT with interbedded Sand, moist.			
185									
186									
187									
188									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-03
Page: 5 **of** 6
File No.: 16.0062335.60
Check: N. Kampfschulte

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
190	38	24/20	189-191	21-32-50/5"		Very stiff, brown and gray, Clayey SILT with interbedded Sand, moist.	Clayey SILT		
194	39	24/18	194-196	28-37-50/3"		Very stiff, brown and gray, Clayey SILT with interbedded Sand, moist.			
199	40	24/16	199-201	31-50/6"		Hard to very stiff, brown, Clayey SILT, moist.			
204	41	24/24	204-206	20-37-50/2"		Hard to very stiff, brown, Clayey SILT, moist.			
209	42	24/20	209-211	50/4"		Hard to very dense, brown and gray, CLAY and fine to medium Sand, moist.	209' CLAY	4	
214	43	24/4	214-216	50/4"		Very dense, tan to brown, fine to medium SAND, trace Silt, trace Gravel, moist.	214' SAND		
219	44	24/9	219-221	24-50/3"		Dense, gray, fine to medium SAND and Silt, trace Gravel, wet.	219' SAND and Silt	5	
224	45	24/6	224-226	50/6"		Dense, gray, fine to medium SAND and Silt, trace Gravel, wet.			
229	46	24/18	229-231	7-20-50/5"		Dense, tan and gray, fine to medium SAND, trace Silt, moist.	229' SAND		
234	47	24/6	234-236	75/6"		Very dense, tan and gray, fine to medium SAND, trace Silt, moist.			

REMARKS

4. Groundwater sample collected from approximately 210.0 to 215.0 feet below ground surface and submitted for analytical laboratory testing.
5. Groundwater sample collected from approximately 220.0 to 225.0 feet below ground surface and submitted for analytical laboratory testing.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-03
Page: 6 **of** 6
File No.: 16.0062335.60
Check: N. Kampfschulte

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
							SAND		
239–240	48	24/6	239-241	50/6"		Very dense, tan and brown, fine to medium SAND, little Gravel, trace Silt, moist.			
244–245	49	24/6	244-246	50/6"		Very dense, tan and brown, fine to medium SAND, little Gravel, trace Silt, moist.			
249–251	50	24/24	249-251	10-40-50/5"		Very dense, tan and brown, fine to medium SAND, little Gravel, trace Silt, moist.			
251	51		251				252'		
252						Bottom of Borehole at 252.0 Feet		6	

REMARKS

6. Groundwater sample collected from temporary well. Subsequently, borehole was backfilled with bentonite grout.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: VAP-04
Page: 1 of 1
File No.: 16.0062335.60
Check: N. Kampfschulte

Contractor: Stearns Drilling
Foreman: Huntoon
Logged by: N. Kampfschulte
Date Start/Finish: 10-30-23 / 10-30-23
Boring Location:
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	7 5/8 / 4 1/4	2"
Hammer Wt.:	140 lbs	NA
Hammer Fall:	30"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
									None
4	1	24/18	4-6	2-3 4-4		Very loose, ORGANICS, moist. Changing at 4.7 feet to: Very loose, light brown, fine to medium SAND, moist.	4.7' ORGANICS SAND		
9	2	24/20	9-11	5-6 8-12		Loose, light brown, fine to medium SAND, wet.		1 2	
14	3	24/20	14-16	3-2 2-2		Very loose, light brown, fine to medium SAND, wet.			
19	4	24/18	19-21	11-14 14-11		Medium dense, fine to coarse GRAVEL, little fine to medium Sand, wet.	19' GRAVEL	3	
24	5	24/20	24-26	12-21 25-25		Very stiff, brown, CLAY & SILT, trace fine Sand, moist. Bottom of Borehole at 25.0 Feet	24' CLAY & SILT 25'	4	

REMARKS

1. Groundwater was encountered at approximately 9.0 feet below ground surface.
2. Groundwater sample collected from approximately 10.0 to 15.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater sample collected from approximately 20.0 to 25.0 feet below ground surface and submitted for analytical laboratory testing.
4. Borehole was backfilled with bentonite grout upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

APPENDIX D –SOIL INVESTIGATION LOGS

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: DC-1-SB-1
Page: 1 **of** 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-28-23 / 12-28-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/40	0-4			ORGANIC MATTER (wood) / TOPSOIL. Changing at 0.3 feet to: Light brown, fine SAND, little Silt, moist (SM).	0.3' ORGANIC MATTER / TOPSOIL SAND	1	None
2									
3									
4	2	48/42	4-8			Light brown, fine SAND, little Silt, moist (SM).			
5								2	
6									
7									
8							8'	3	
						Bottom of Borehole at 8.0 Feet		4	
9									

REMARKS

1. Soil sample was collected from approximately 2.0 to 3.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 5.0 to 6.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: DC-1-SB-2
Page: 1 of 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-28-23 / 12-28-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1–2	1	48/38	0-4			ORGANIC MATTER (wood) / TOPSOIL. Changing at 0.3 feet to: Brown, CLAY & SILT, little fine Sand, moist (CL). Changing at 2.0 feet to: Gray, CLAY & SILT, little fine Sand, moist (CL). Changing at 3.0 feet to: Brown, fine to medium SAND, little Silt, moist (SM).	0.3' ORGANIC MATTER / TOPSOIL; CLAY & SILT; 3' SAND	1	None
4–5	2	48/42	4-8			Brown, fine to medium SAND, little Silt, moist (SM).		2	
8						Bottom of Borehole at 8.0 Feet	8'	3 4	

REMARKS

1. Soil sample was collected from approximately 2.0 to 3.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 4.0 to 5.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: DC-1-SB-3
Page: 1 **of** 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-28-23 / 12-28-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/38	0-4			ORGANIC MATTER (wood) / TOPSOIL. Changing at 1.0 foot to: Light brown, fine SAND, little Silt, moist (SM).	ORGANIC MATTER / TOPSOIL 1' SAND	1	None
4	2	48/41	4-8			Light brown, fine SAND, little Silt, moist (SM).	8'	2	
8						Bottom of Borehole at 8.0 Feet		3 4	

REMARKS

1. Soil sample was collected from approximately 2.0 to 3.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 4.0 to 5.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: DC-1-SB-4
Page: 1 **of** 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-28-23 / 12-28-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/44	0-4			ORGANIC MATTER (wood) / TOPSOIL. Changing at 0.3 feet to: Light brown, fine SAND, little Silt, moist (SM).	0.3' ORGANIC MATTER / TOPSOIL	1	None
2									
3									
4	2	48/40	4-8			Light brown, fine SAND, little Silt, moist (SM).		2	
5									
6									
7									
8							8'	3 4	
8						Bottom of Borehole at 8.0 Feet			
9									

REMARKS

1. Soil sample was collected from approximately 3.0 to 4.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 5.0 to 6.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: HQ-1-SB-1
Page: 1 **of** 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-28-23 / 12-28-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/32	0-4			Dark brown, fine to medium SAND, some Silt, moist (SM). Changing at 0.3 feet to: Light brown, fine to medium SAND, little Silt, moist (SM).	SAND	1	None
4	2	48/24	4-8			Light brown, fine to medium SAND, little Silt, moist (SM).		2	
8						Bottom of Borehole at 8.0 Feet	8'	3 4	

REMARKS

1. Soil sample was collected from approximately 3.0 to 4.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 5.0 to 6.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: HQ-1-SB-2
Page: 1 **of** 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-28-23 / 12-28-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/30	0-4			Dark brown, fine to medium SAND, some Silt, some Organic Matter (wood, leaves), dry (SM). Changing at 0.3 feet to: Light brown, fine to medium SAND, little Silt, dry (SM).	SAND	1	None
4	2	48/22	4-8			Light brown, fine to medium SAND, little Silt, dry (SM).	8'	2	
8						Bottom of Borehole at 8.0 Feet		3 4	

REMARKS

1. Soil sample was collected from approximately 3.0 to 4.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 7.0 to 8.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: HQ-1-SB-3
Page: 1 **of** 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-28-23 / 12-28-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/28	0-4			TOPSOIL / ORGANIC MATTER (wood). Changing at 0.3 feet to: Brown, fine to coarse SAND, little Silt, dry (SM). Changing at 1.0 foot to: Light brown, fine to medium SAND, little Silt, dry (SM).	0.3' TOPSOIL / ORGANICS SAND	1	None
2									
3									
4	2	48/30	4-8			Light brown, fine to medium SAND, little Silt, dry (SM).		2	
5									
6									
7									
8							8'	3 4	
						Bottom of Borehole at 8.0 Feet			
9									

REMARKS

1. Soil sample was collected from approximately 3.0 to 4.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 5.0 to 6.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: HQ-2-SB-1
Page: 1 **of** 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-28-23 / 12-28-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/30	0-4			Oragnic Matter (wood). Changing at 0.3 feet to: Brown, Silty CLAY, little fine to medium Sand, damp (CL).	0.3' ORGANIC MATTER / Silty CLAY	1	None
4	2	48/32	4-8			Brown, Silty CLAY, little fine to medium Sand, damp (CL).		2	
8						Bottom of Borehole at 8.0 Feet	8'	3 4	

REMARKS

1. Soil sample was collected from approximately 1.0 to 2.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 7.0 to 8.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: HQ-2-SB-2
Page: 1 **of** 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-28-23 / 12-28-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/30	0-4			ORGANIC MATTER (wood). Changing at 0.3 feet to: Brown, fine SAND, little Silt, moist (SM).	0.3' ORGANIC MATTER / SAND	1	None
2									
3									
4	2	48/36	4-8			Brown, fine SAND, little Silt, moist (SM).		2	
5									
6									
7									
8							8'	3 4	
						Bottom of Borehole at 8.0 Feet			
9									

REMARKS

1. Soil sample was collected from approximately 3.0 to 4.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 6.0 to 7.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: HQ-2-SB-3
Page: 1 **of** 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-28-23 / 12-28-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/46	0-4			TOPSOIL. Changing at 0.3 feet to: Brown, Silty CLAY, trace fine Sand, moist (CL). Changing at 1.0 foot to: Brown and slightly gray, Silty CLAY, trace fine Sand, moist (CL).	TOPSOIL 0.3' Silty CLAY	1	None
2									
3									
4	2	48/48	4-8			Brown and slightly gray, Silty CLAY, trace fine Sand, moist (CL).		2	
5									
6									
7									
8							8'	3 4	
						Bottom of Borehole at 8.0 Feet			
9									

REMARKS

1. Soil sample was collected from approximately 2.0 to 3.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 4.0 to 5.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: HQ-3-SB-1
Page: 1 of 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-27-23 / 12-27-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/30	0-4			Brown and gray, GRAVEL and fine Sand (CONCRETE / FILL). Changing at 3.0 feet to: Brown, Silty CLAY, trace fine to medium Sand, damp (CL).	CONCRETE / FILL	1	None
3							3' Silty CLAY		
4	2	48/31	4-8			Brown, Silty CLAY, trace fine to medium Sand, damp (CL).		2	
8						Bottom of Borehole at 8.0 Feet		3 4	
9							9'		

REMARKS

1. Soil sample was collected from approximately 2.0 to 3.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 5.0 to 6.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: HQ-3-SB-2
Page: 1 of 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-27-23 / 12-27-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/26	0-4			TOPSOIL. Changing at 0.2 feet to: Dark brown, fine to coarse SAND, little Gravel, trace Silt, moist (SW).	0.2' TOPSOIL / SAND	1	None
4	2	48/30	4-8			Brown, fine to coarse SAND, little Gravel, trace Silt, moist (SW).	8'	2	
8						Bottom of Borehole at 8.0 Feet		3 4	

REMARKS

1. Soil sample was collected from approximately 3.0 to 4.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 7.0 to 8.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: HQ-3-SB-3
Page: 1 of 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-27-23 / 12-27-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/31	0-4			TOPSOIL. Changing at 0.4 feet to: Brown, fine to coarse SAND, little Silt, moist (SM).	TOPSOIL 0.4' SAND	1	None
4	2	48/30	4-8			Brown, fine to coarse SAND, little Silt, moist (SM).	8'	2	
8						Bottom of Borehole at 8.0 Feet		3 4	

REMARKS

1. Soil sample was collected from approximately 2.0 to 3.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 7.0 to 8.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: HQ-3-SB-4
Page: 1 **of** 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-27-23 / 12-27-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
0	1	48/32	0-4			TOPSOIL. Changing at 0.2 feet to: Light brown, fine to medium SAND, trace Silt, moist (SP).	0.2' TOPSOIL / SAND	1	None
4	2	48/28	4-8			Light brown, fine to coarse SAND, trace Silt, moist (SW).	8'	2	
8						Bottom of Borehole at 8.0 Feet		3 4	

REMARKS

1. Soil sample was collected from approximately 2.0 to 3.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 6.0 to 7.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: HQ-4-SB-1
Page: 1 of 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-27-23 / 12-27-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/31	0-4			Brown, fine to medium SAND, little Silt, moist to wet (TOPSOIL). Changing at 0.7 feet to: Brown, fine to medium SAND, trace Silt, moist.	TOPSOIL 0.7' SAND	1	None
2									
3									
4	2	48/29	4-8			Brown, fine to medium SAND, trace Silt, moist.			
5									
6								2	
7									
8							8'	3 4	
						Bottom of Borehole at 8.0 Feet			
9									

REMARKS

1. Soil sample was collected from approximately 2.0 to 3.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 6.0 to 7.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: HQ-4-SB-2
Page: 1 **of** 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-27-23 / 12-27-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/30	0-4			Brown, fine to medium SAND, some Silt, moist (TOPSOIL). Changing at 0.3 feet to: Brown, Silty CLAY, trace fine to medium Sand, moist (CL). Changing at 1.3 feet to: Brown to black to gray, fine to coarse SAND, trace Silt, moist (SW).	TOPSOIL 0.3' Silty CLAY 1.3' SAND	1	None
4	2	48/32	4-8			Brown, fine to coarse SAND, some Silty Clay, moist (SC). Changing at 5.0 feet to: Light brown, fine to medium SAND, trace Silt, moist (SP).	8'	2	
8						Bottom of Borehole at 8.0 Feet		3 4	

REMARKS

1. Soil sample was collected from approximately 2.0 to 3.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 5.0 to 6.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: HQ-4-SB-3
Page: 1 of 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-27-23 / 12-27-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/30	0-4			TOPSOIL. Changing at 0.2 feet to: Brown, fine to medium SAND, little Silt, moist (SM). Changing at 1.0 foot to: Light brown, fine SAND, some Silt, moist (SM).	0.2' TOPSOIL SAND	1	None
2									
3									
4	2	48/28	4-8			Light brown, fine SAND, some Silt, moist (SM). Changing at 5.0 feet to: Brown, Silty CLAY, trace fine to medium Sand embedded, moist (CL). Changing at 6.0 feet to: Light brown, fine to medium SAND, little Silt, moist (SM).		2	
5							5' Silty CLAY		
6							6' SAND		
7									
8							8'	3 4	
8						Bottom of Borehole at 8.0 Feet			
9									

REMARKS

1. Soil sample was collected from approximately 2.0 to 3.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 4.0 to 5.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Courtland
Rockford, Michigan

Boring No.: HQ-4-SB-4
Page: 1 of 1
File No.: 16.0062677.92
Check:

Contractor: Terra Probe
Foreman: S. Slenosk
Logged by: C. Melby
Date Start/Finish: 12-27-23 / 12-27-23
Boring Location: N/A
GS Elev.: N/A **Datum:** N/A

	Auger/ Casing	Sampler
Type:	Geoprobe	Direct Push
O.D. / I.D.:	N/A	2"
Hammer Wt.:	N/A	140lbs
Hammer Fall:	N/A	30"
TOC Elev.:	N/A	N/A

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: N/A **Survey Date:**

Depth	Sample Information No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/36	0-4			TOPSOIL. Changing at 0.3 feet to: Brown, fine to medium SAND, little Silt, moist to wet (SM). Changing at 1.0 foot to: Brown, fine to medium SAND, little to trace Silt, moist (SP). Changing at 3.0 feet to: Gray, Organic Rich SILT, trace fine to medium Sand, moist (ML).	TOPSOIL 0.3' SAND		None
2									
3							3' SILT	1	
4	2	48/32	4-8			Gray, Organic Rich SILT, trace fine to medium Sand, moist (ML). Changing at 6.0 feet to: Brown, Silty CLAY, some fine to medium Sand embedded, moist (CL).			
5								2	
6							6' Silty CLAY		
7									
8							8'	3 4	
8						Bottom of Borehole at 8.0 Feet			
9									

REMARKS

1. Soil sample was collected from approximately 3.0 to 4.0 feet below ground surface and submitted for analytical laboratory testing.
2. Soil sample was collected from approximately 5.0 to 6.0 feet below ground surface and submitted for analytical laboratory testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

APPENDIX E – LABORATORY REPORTS