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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

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ENVIRONMENTAL

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CONSTRUCTION MANAGEMENT

The Widdicomb Building 601 Fifth Street NW Suite 102 Grand Rapids, MI 49504 T: 616.956.6123 F: 616.288.3327



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 QAPP¹ 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-SB-1	3-4
	HQ-1-3b-1	5-6
110.1	UO 1 CD 2	3-4
HQ-1	HQ-1-SB-2	7-8
	HQ-1-SB-3	3-4
	ПQ-1-3b-3	5-6
	UO 2 CD 1	1-2
	HQ-2-SB-1	7-8
110.3	110.2 CB.2	3-4
HQ-2	HQ-2-SB-2	6-7
	HQ-2-SB-3*	2-3
	ПQ-2-3Б-3	4-5



Area I.D.	Boring I.D.	Interval (feet bgs)
	HQ-3-SB-1	2-3
	пц-3-36-1	5-6
	HQ-3-SB-2	3-4
HQ-3	ПQ-3-36-2	7-8
nq-3	HQ-3-SB-3	2-3
	ПQ-3-36-3	7-8
	HQ-3-SB-4	2-3
	ПС-3-36-4	6-7
	HQ-4-SB-1	2-3
	ПQ-4-3Б-1	6-7
	HQ-4-SB-2	2-3
HQ-4	пц-4-36-2	5-6
ΠQ-4	HQ-4-SB-3*	2-3
	ПQ-4-3Б-3	4-5
	HQ-4-SB-4	3-4
	ПС-4-36-4	5-6
	DC-1-SB-1	2-3
	DC-1-3B-1	5-6
	DC-1-SB-2*	2-3
DC-1	DC-1-3B-2	4-5
DC-1	DC-1-SB-3*	2-3
	DC-1-3D-3	4-5
	DC-1-SB-4	3-4
	DC-1-3D-4	5-6

^{*}Denotes no samples at deep interval

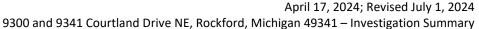
Based on potential constituents present in dredged Rogue Rover sediment, the samples were submitted to Pace Laboratories in South Carolina for PFAS using DOD QSM Table B-15 Method 5.4, and the following metals: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium (total), chromium 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.

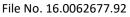
VAP SAMPLING RESULTS

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



April 17, 2024; Revised July 1, 2024 9300 and 9341 Courtland Drive NE, Rockford, Michigan 49341 – Investigation Summary

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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

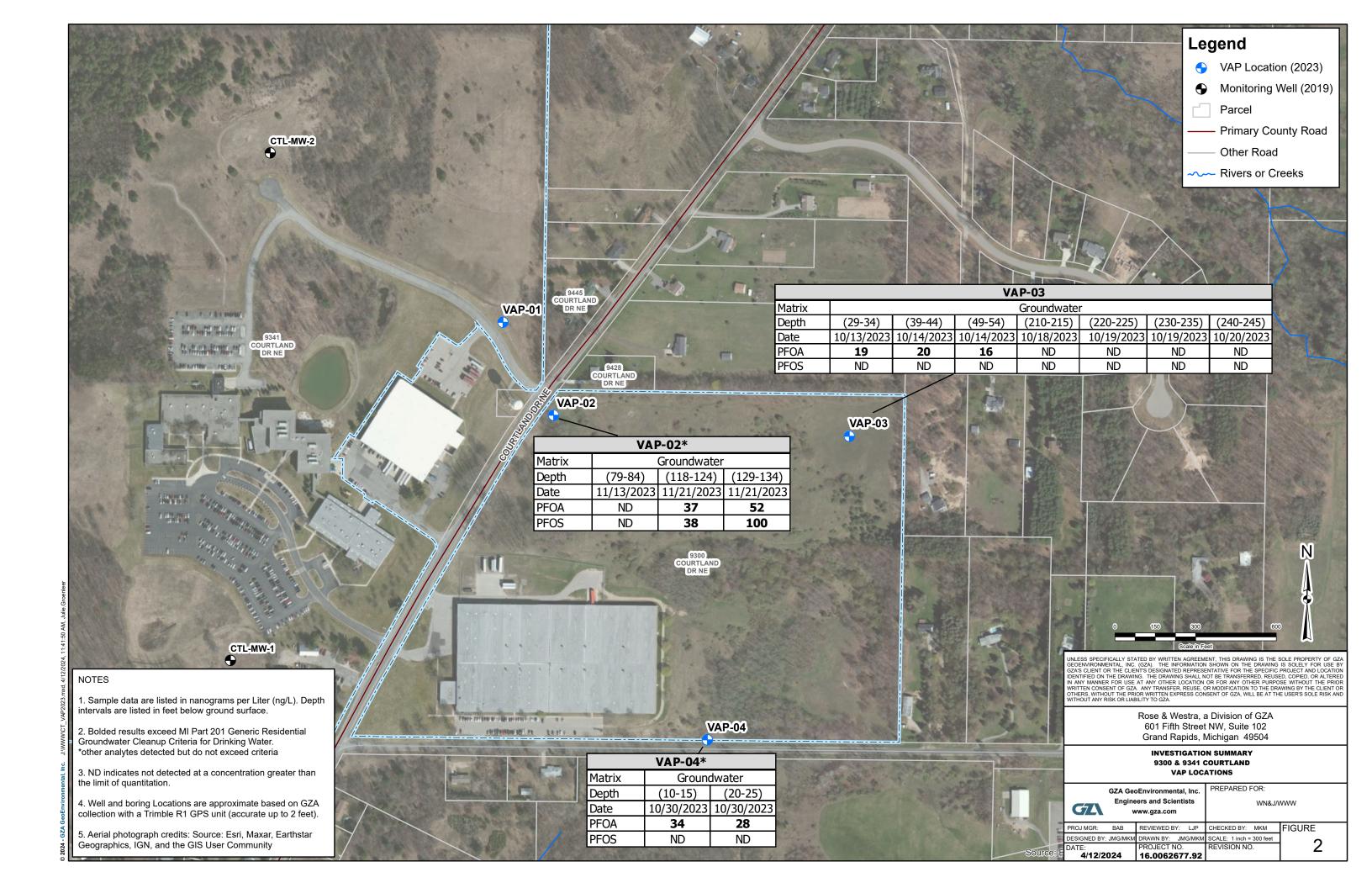
Appendix D— Soil Investigation Logs Appendix E — Laboratory Reports

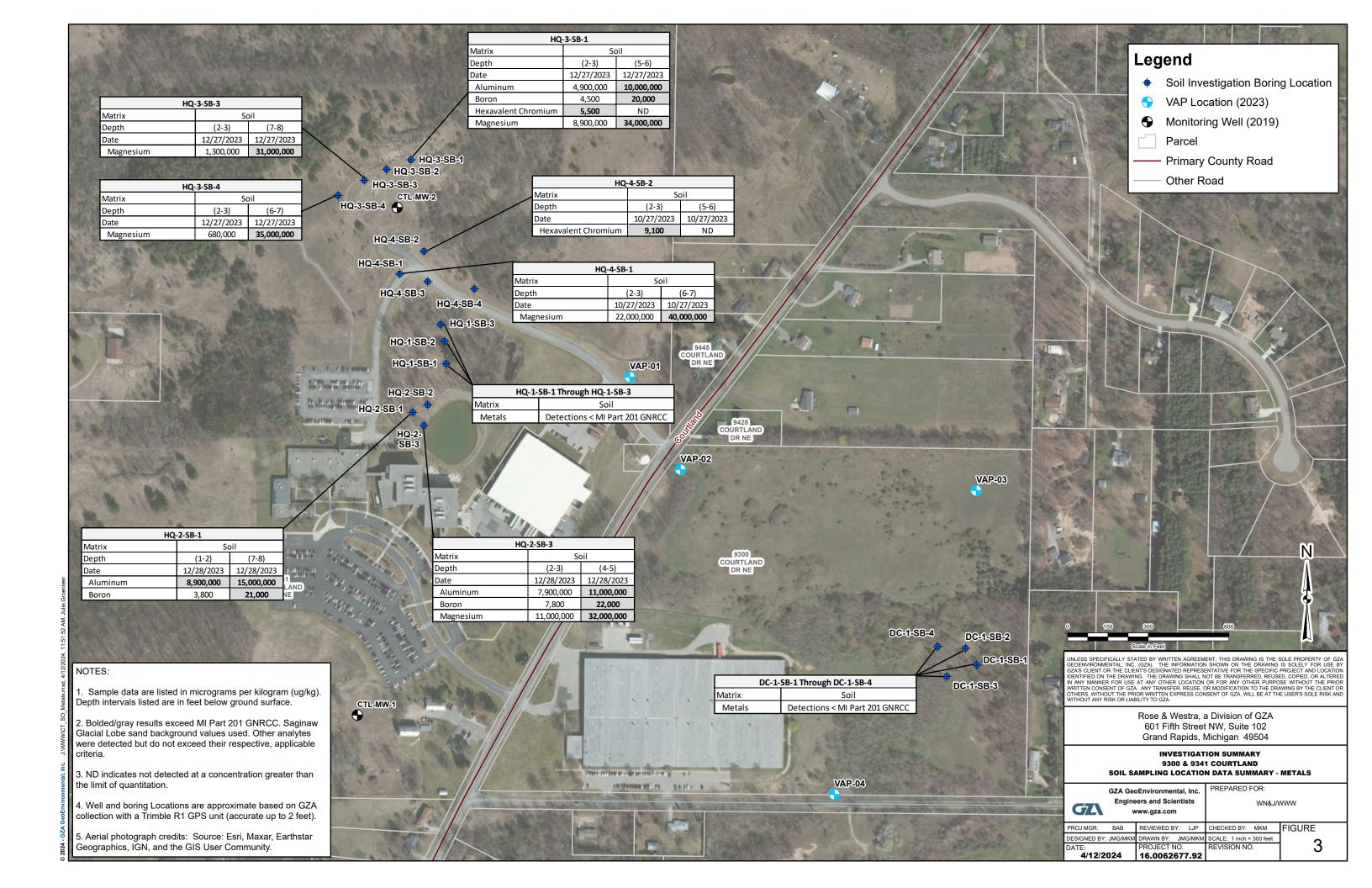
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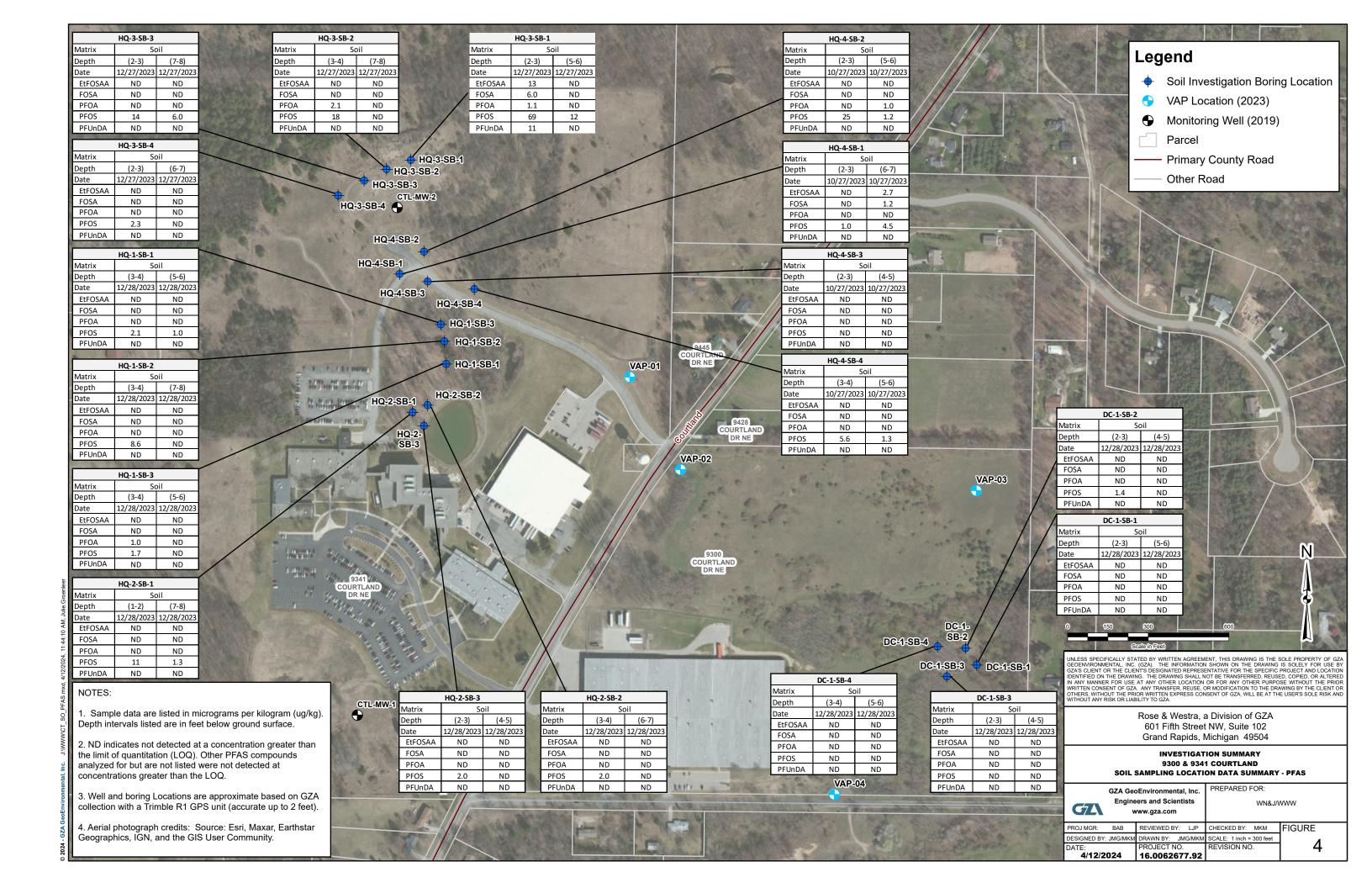


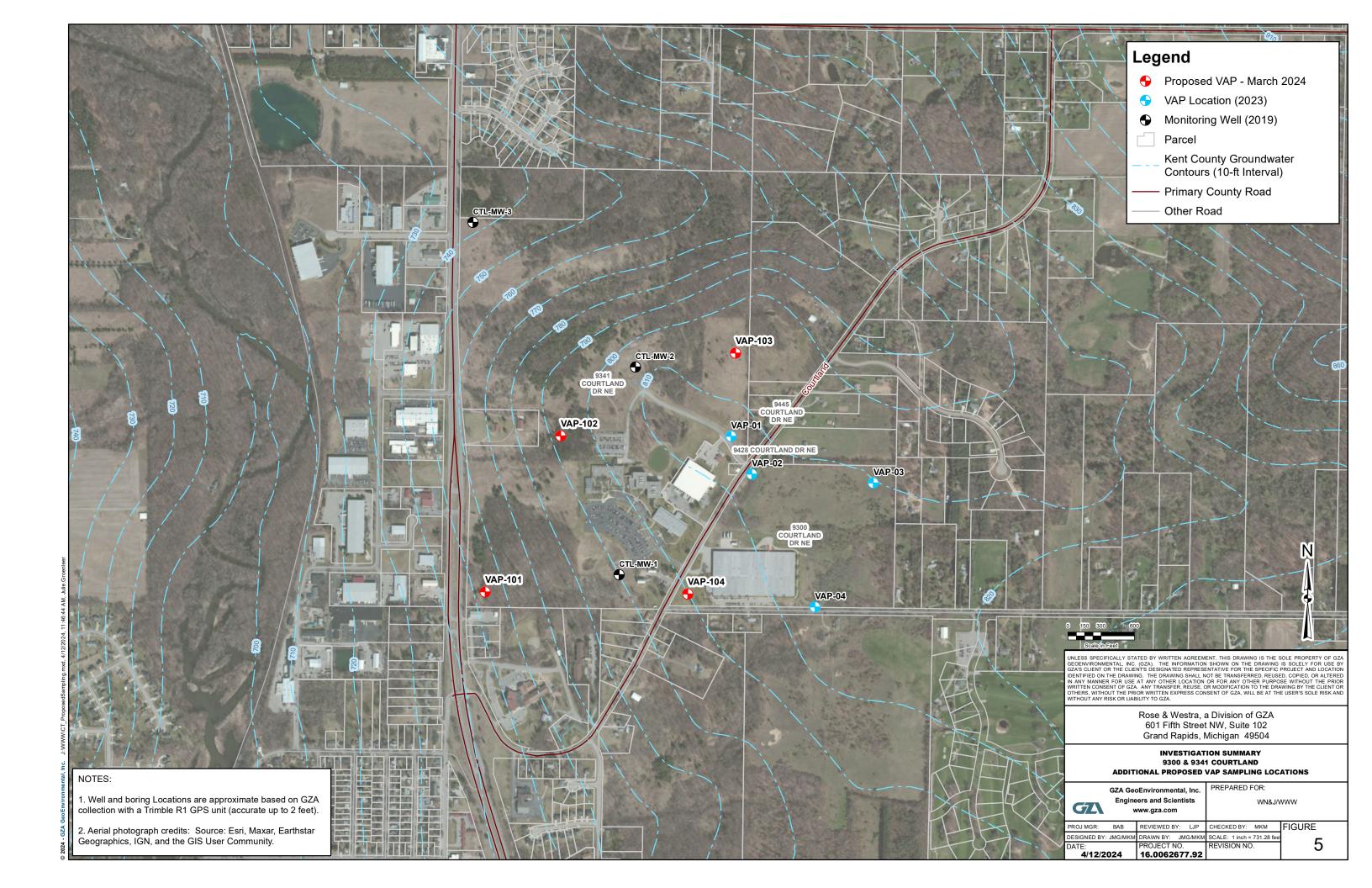
FIGURES 1 – 6















TABLES 1-5

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

Sample Location	Part 201 Generic	Part 201 Generic	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	Nonresidential Groundwater	Groundwater Cleanup Criteria -	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	Cleanup Criteria -	Groundwater Surface Water	UE18018-001	VA21005-004	UE24002-001	UG16010-001	VA21005-001	UE18018-002	VA21005-002	VA21005-003
Sample Date	Drinking Water ²	Interface ²	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

Courtland Rockford, Michigan

Sample Location		Part 201 Generic	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	Part 201 Generic Nonresidential	Groundwater Cleanup Criteria -	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)	GroundwaterCleanup Criteria -	Groundwater	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	Drinking Water ²	Surface Water	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	Drinking Water	Interface ²	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 ti 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. $\label{eq:ndicates} % \begin{center} \begin{center}$
- 5. Screen interval presented is the top of the screen to the bottom of the screen in feet below ground surface.

L	1	1	1	T.		ı	T.	F	l	1				F		T	
Sample Location		Part 201 Generic	Part 201 Generic	Part 201 Generic	Part 201 Generic	Part 201 Generic		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	Statewide Default	Nonresidential Soil	Groundwater Cleanup Criteria –	Nonresidential Soil Cleanup Criteria –	Nonresidential Soil Cleanup Criteria –	Nonresidential Soil	Part 201 Generic Nonresidential Soil	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	Background ²	Cleanup Criteria –	Groundwater	Soil Volatilization to	Infinite Source	Cleanup Criteria –	Cleanup Criteria –	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)	1	Drinking Water Protection ²	Surface Water	Indoor Air	Volatile Soil	Particulate Soil Inhalation ²	Direct Contact ²	2 - 3	5 - 6	2 - 3	4 - 5	2 - 3	4 - 5	3 - 4	5 - 6	3 - 4	5 - 6
Sample Date	1	riotection	Interface ²	Inhalation ²	Inhalation ²	iiiilalatioii		28 Dec 2023									
Parameter (µg/kg)																	1
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

Sample Location	I		T					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	•	Part 201 Generic	Part 201 Generic Groundwater	Part 201 Generic Nonresidential Soil	Part 201 Generic Nonresidential Soil	Part 201 Generic	Part 201 Generic	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)
	Statewide Default	Nonresidential Soil	Cleanup Criteria –	Cleanup Criteria –	Cleanup Criteria –	Nonresidential Soil	Nonresidential Soil		. , ,		. , ,	, , ,			. , ,	, ,	· · · · · ·
Lab ID	Background ²	Cleanup Criteria – Drinking Water	Groundwater	Soil Volatilization to	Infinite Source	Cleanup Criteria – Particulate Soil	Cleanup Criteria –	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)		Protection ²	Surface Water	Indoor Air	Volatile Soil	Inhalation ²	Direct Contact ²	3 - 4	7 - 8	3 - 4	5 - 6	1 - 2	7 - 8	3 - 4	6 - 7	2 - 3	4 - 5
Sample Date			Interface ²	Inhalation ²	Inhalation ²			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	<1H	< 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	<1H	< 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

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Sample Location		Part 201 Generic	Part 201 Generic	Part 201 Generic	Part 201 Generic	Part 201 Generic		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	Statewide Default	Nonresidential Soil	Groundwater	Nonresidential Soil Cleanup Criteria –	Nonresidential Soil Cleanup Criteria –	Nonresidential Soil	Part 201 Generic Nonresidential Soil	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	Background ²	Cleanup Criteria –	Cleanup Criteria – Groundwater	Soil Volatilization to	Infinite Source	Cleanup Criteria –	Cleanup Criteria –	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)	Buckground .	Drinking Water Protection ²	Surface Water	Indoor Air	Volatile Soil	Particulate Soil Inhalation ²	Direct Contact ²	2 - 3	5 - 6	3 - 4	7 - 8	2 - 3	7 - 8	2 - 3	6 - 7	2 - 3	6 - 7
Sample Date	1	Frotection	Interface ²	Inhalation ²	Inhalation ²	IIIIIaiatioii		27 Dec 2023									
Parameter (µg/kg)																	
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-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

Sample Location		D-+ 204 C :	Part 201 Generic	Part 201 Generic	Part 201 Generic	Doub 201 Com :		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		Part 201 Generic Nonresidential Soil	Groundwater	Nonresidential Soil	Nonresidential Soil	Part 201 Generic Nonresidential Soil	Part 201 Generic	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	Statewide Default	Cleanup Criteria –	Cleanup Criteria – Groundwater	Cleanup Criteria – Soil Volatilization to	Cleanup Criteria – Infinite Source	Cleanup Criteria –	Nonresidential Soil Cleanup Criteria –	YL29025-023	YL29025-024	YL29025-025	YL29025-026	YL29025-027	YL29025-028
Depth Interval (Feet below ground surface)	Background ²	Drinking Water	Surface Water	Indoor Air	Volatile Soil	Particulate Soil	Direct Contact ²	2 - 3	5 - 6	2 - 3	4 - 5	3 - 4	5 - 6
Sample Date		Protection ²	Interface ²	Inhalation ²	Inhalation ²	Inhalation ²		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

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).
- 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 analyzed out of holding time.

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Sample Location								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	2015 Michigan	Part 201 Generic Nonresidential Soil	Part 201 Generic Groundwater	Part 201 Generic Nonresidential Soil	Part 201 Generic Nonresidential Soil	Part 201 Generic Nonresidential Soil	Part 201 Generic	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	Background Soil	Cleanup Criteria –	Cleanup Criteria –	Cleanup Criteria –	Cleanup Criteria –	Cleanup Criteria –	Nonresidential Soil Cleanup Criteria –	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)	Survey - Saginaw Glacial Lobe (Sand) ²	Drinking Water	Groundwater Surface		Infinite Source Volatile Soil	Particulate Soil	Direct Contact ³	2 - 3	5 - 6	2 - 3	4 - 5	2 - 3	4 - 5	3 - 4	5 - 6	3 - 4	5 - 6
Soil Type of Sample		Protection	Water Interface ³	Indoor Air Inhalation ³	Inhalation ³	Inhalation		Sand	Sand	Clay & Silt	Sand						
Sample Date								28 Dec 2023									
Parameter (µg/kg)	1							1									
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

R&W/GZA 4/2/2024

Samula Lagation								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 Location								HQ-1-5B-2	HQ-1-5B-2	HQ-1-2B-3	HQ-1-28-3	HQ-2-5B-1	HQ-2-5B-1	HQ-2-5B-2	HQ-2-5B-2	HQ-2-5B-3	HQ-2-5B-3
Sample Name	2015 Michigan	Part 201 Generic Nonresidential Soil	Part 201 Generic Groundwater	Part 201 Generic Nonresidential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation ³	Part 201 Generic Nonresidential Soil	Part 201 Generic Nonresidential Soil	Part 201 Generic	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	Background Soil Survey - Saginaw	Cleanup Criteria –	Cleanup Criteria –		Cleanup Criteria – Infinite Source Volatile Soil	Cleanup Criteria –	Nonresidential Soil	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)	Glacial Lobe (Sand) ²	Drinking Water	Groundwater Surface			Particulate Soil	Cleanup Criteria – Direct Contact ³	3 - 4	7 - 8	3 - 4	5 - 6	1 - 2	7 - 8	3 - 4	6 - 7	2 - 3	4 - 5
Soil Type of Sample		Protection	Water Interface ³		Inhalation ³	Inhalation ³		Sand	Sand	Sand	Sand	Clay	Clay	Sand	Sand	Clay	Clay
Sample Date								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

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Sample Location		Part 201 Generi						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	2015 Michigan	Part 201 Generic Nonresidential Soil	Part 201 Generic Groundwater	Part 201 Generic Nonresidential Soil	Part 201 Generic Nonresidential Soil	Part 201 Generic Nonresidential Soil	Part 201 Generic	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	Background Soil	Cleanup Criteria –	Cleanup Criteria –	Cleanup Criteria –	Cleanup Criteria –	Cleanup Criteria –	Nonresidential Soil	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)	Survey - Saginaw Glacial Lobe (Sand) ²	Drinking Water	Groundwater Surface	e Soil Volatilization to	Infinite Source Volatile Soil Inhalation ³	Particulate Soil	Cleanup Criteria – Direct Contact ³	2 - 3	5 - 6	3 - 4	7 - 8	2 - 3	7 - 8	2 - 3	6 - 7	2 - 3	6 - 7
Soil Type of Sample	,	Protection	Water Interface ³	Indoor Air Inhalation ³		Inhalation ³		Fill	Clay	Sand							
Sample Date								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

R&W/GZA

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Sample Location								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	2015 Michigan	Part 201 Generic Nonresidential Soil	Part 201 Generic Groundwater	Part 201 Generic Nonresidential Soil	Part 201 Generic Nonresidential Soil	Part 201 Generic Nonresidential Soil	Part 201 Generic	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	Background Soil	Cleanup Criteria –	Cleanup Criteria –	Cleanup Criteria –	Cleanup Criteria –	Cleanup Criteria –	Nonresidential Soil Cleanup Criteria –	YL29025-023	YL29025-024	YL29025-025	YL29025-026	YL29025-027	YL29025-028
Depth Interval (Feet below ground surface)	Survey - Saginaw Glacial Lobe (Sand) ²	Drinking Water	Groundwater Surface	Soil Volatilization to	Infinite Source Volatile Soil	Particulate Soil	Direct Contact ³	2 - 3	5 - 6	2 - 3	4 - 5	3 - 4	5 - 6
Soil Type of Sample		Protection ³	Water Interface ³	Indoor Air Inhalation ³	Inhalation ³	Inhalation ³		Sand	Sand	Sand	Sand	Silt	Silt
Sample Date								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 - Soil - Metals-NR.xlsx

TABLE 4 NOTES 16.0062677.92 Page 1 of 1

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.

- (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 1.0F+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) GSJ/GSIPC Calculation spreadsheet was utilized to calculate GSI criterion presented. The Rogue River is the receiving surface water for the Site. Hardness (220 mg CaCO₃/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-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		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	Part 201 Generic Nonresidential Groundwater Cleanup	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	Criteria - Drinking	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	Water ²	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											
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.
- (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



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

5Z \)	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

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

Sample Information

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

GROUNDWATER READINGS Date Depth Casing Stab NM NA Surveyed By: Survey Date:

Pen./ Rec. (in.) 24/14 24/6 24/24 24/12	Depth (Ft.) 0-2 4-6 9-11	Blows (/6") 1-3 3-2 4-9 13-7 5-3 3-4	0.0 ppm 0.0 ppm 0.0 ppm	Sample Description & Classification Loose, brown, fine to medium SAND, little Silt, with Gravel at bottom 1.0 inch, damp. Medium dense, brown, fine to medium SAND, little Silt, with Gravel at the bottom 3.0 inches, damp. Loose, brown, fine to medium SAND, little Silt, moist.	Stratum Desc.	L Remarks	Equ	PRO CASI	ΓΕCTIV
24/6 24/24 24/12	4-6 9-11 14-16	3-2 4-9 13-7 5-3 3-4	0.0 ppm	Silt, with Gravel at bottom 1.0 inch, damp. Medium dense, brown, fine to medium SAND, little Silt, with Gravel at the bottom 3.0 inches, damp. Loose, brown, fine to medium SAND, little	SAND				
24/24	9-11	5-3 3-4	0.0 ppm	SAND, little Silt, with Gravel at the bottom 3.0 inches, damp. Loose, brown, fine to medium SAND, little					
24/12	14-16	2-2							
		2-2 2-3	0.0 ppm			1			
24/12				Very loose, brown, fine to medium SAND, little Silt, wet.					
	19-21	7-9 13-15	0.0 ppm	Medium dense, coarse SAND and Gravel,	19.8' CLAY & SILT	_			
24/8	21-23	8-10 12-21	0.0 ppm	trace Silt, wet. Changing at 19.8 feet to: Brown, CLAY & SILT, wet. Brown, CLAY & SILT, wet. Changing at 21.2	SAND				
24/22	24-26	7-9 16-24	0.0 ppm	feet to: Medium dense, brown, fine to medium SAND, trace Silt, wet. Medium dense, brown, fine to medium SAND, wet.					
24/20	29-31	2-8 16-23	0.0 ppm	Medium dense, brown, fine to medium SAND, wet.					
17/17	34-35.4	5-25-50/5"	0.0 ppm	Very dense, brown, fine to medium SAND,	34.5' SILT	2			
24/24	36-38	3-16 33-37	0.1 ppm	Brown, SILT, wet. Changing at 35.5 feet to: Brown, Clayey SILT, wet.	SILT & CLAY 38'				
24/24	39-41	10-16 16-16	0.2 ppm	Hard, brown and gray, SILT & CLAY, moist. Hard, gray, CLAY & SILT, moist.	CLAY & SIL1				
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				
24/24	49-51	6-18	0.2 ppm	Hard, gray, Silty CLAY, some medium to					
٧	24/20 17/17 24/24 24/24 24/24 3 screeninge backgrown be backgrown backgr	24/20 29-31 17/17 34-35.4 24/24 36-38 24/24 39-41 24/24 44-46 24/24 49-51 It screening of sample to background levels	24/20 29-31 2-8 16-23 17/17 34-35.4 5-25-50/5" 24/24 36-38 3-16 33-37 24/24 39-41 10-16 16-16 24/24 44-46 6-12 16-19 24/24 49-51 6-18	24/20 29-31 2-8 16-23 0.0 ppm 17/17 34-35.4 5-25-50/5" 0.0 ppm 24/24 36-38 3-16 33-37 0.1 ppm 24/24 39-41 10-16 16-16 0.2 ppm 24/24 44-46 6-12 16-19 0.2 ppm 24/24 49-51 6-18 0.2 ppm It screening of samples for organic vapors the background levels are shown in parts parts of the samples for organic vapors the background levels are shown in parts parts parts of the samples for organic vapors the background levels are shown in parts part	Medium dense, brown, fine to medium SAND, wet. 17/17 34-35.4 5-25-50/5" 0.0 ppm SAND, wet. 17/17 34-35.4 5-25-50/5" 0.1 ppm Sand, wet. 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. Hard, brown and gray, SILT & CLAY, moist. Hard, gray, CLAY & SILT, moist. 18 Sand Sand Sand Sand Sand Sand Sand Sand	Medium dense, brown, fine to medium SAND, wet. 17/17 34-35.4 5-25-50/5* 0.0 ppm SAND, wet. 17/17 34-35.4 5-25-50/5* 0.1 ppm SAND, wet. 17/17 34-35.4 5-25-50/5* 0.1 ppm SAND, wet. Changing at 34.5 feet to: Brown, SILT, wet. Changing at 35.5 feet to: Brown, Clayey SILT, wet. Changing at 35.5 feet to: Brown, Clayey SILT, wet. Hard, brown and gray, SILT & CLAY, moist. Hard, gray, CLAY & SILT, moist. 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 S	16-24 Medium dense, brown, fine to medium SAND, wet.	Medium dense, brown, fine to medium SAND, wet. 17/17 34-35.4 5-25-50/5" 0.0 ppm 16-23 No. ppm 24/24 36-38 3-16 33-37 Silt, wet. Changing at 34.5 feet to: Brown, Clayey SILT, wet. Changing at 35.5 feet to: Brown, Clayey SILT, wet. Hard, brown and gray, SILT & CLAY, moist. 24/24 39-41 10-16 16-16 0.2 ppm 16-19 Very stiff, gray, Silty CLAY, some medium to coarse Sand embedded in Clay, moist. 24/24 49-51 6-18 0.2 ppm Hard, gray, Silty CLAY, some medium to serve background levels are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm to 0.3 ppm.	16-24 Medium dense, brown, fine to medium SAND, wet.



Courtland Rockford, Michigan Boring No.: CTL-MW-1 Page: ____2 of ____3

File No.: __16.0062677.91 Leslie Nelson

		San	ple Inforn	nation		Rockford, Michigar			Check: Leslie Nelson
Depth	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		
52 — 53 — 54 — 55 — 56 — 57 —	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.			
58 — 59 — 50 — 51 — 52 —	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
63 — 64 — 65 — 66 —	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.			Grout
58 — 59 — 70 — 71 — 72 —	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.			
73 — 74 — 75 — 76 — 77 —	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		
78 — 79 — 80 — 81 — 82 —	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.			
33 — 34 — 35 — 36 —	20	10/10	84-84.8	30-50/4"	0.2 ppm	Very dense, brown to gray, fine to medium SAND, little Silt, moist.			
88 — 89 — 90 — 91 —	21	10/10	89-89.8	32-50/4"	0.2 ppm	Very dense, brown to gray, fine to medium SAND, little Silt, moist.			
93 — 94 — 95 — 96 — 97 —	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.			
98 — 99 — 90 — 91 — 92 —	23	24/24	99-101	16-28 32-43	0.3 ppm	Very dense, brown to gray, fine to medium SAND, some Silt, moist.			
)3 —)4 —)5 —)6 —)7 —	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	
	3. Base	d on drill	rates, Clay	& Silt from	105.0 to	106.0 feet.			
						oil types, transitions may be gradual. Water level readings			Boring No.: CTL-MW-1



Courtland

Rockford, Michigan

Boring No.: CTL-MW-1 Page: ___3__ of ___3

File No.: 16.0062677.91 Leslie Nelson

		San	nple Inforn	nation		Rockford, Michigan	<u> </u>		Check:	Leslie Nelson
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipr	nent Installed
09- 10- 11- 12-	25	24/24	109-111	24-24 33-49	0.3 ppm	Very dense, gray, fine to medium SAND and Silt, moist.	109' SAND			
13 — 14 — 15 — 16 — 17 —	26	24/24	114-116	20-20 20-35	0.3 ppm	Hard, gray, Clayey SILT, little fine Sand, moist.	114' Clayey SILT			
18 – 19 – 20 – 21 – 22 –	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		
23 — 24 — 25 — 26 — 27 —	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
28 – 29 – 30 – 31 – 32 –	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
33 – 34 – 35 – 36 – 37 –	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 We Screen
38 — 39 — 40 — 41 —	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'	_ _ 		
42 — 43 — 44 —						Bottom of Borehole at 141.0 Feet		5		
45 — 46 — 47 — 48 —										
49 – 50 –										
51 — 52 — 53 —										
54 — 55 — 56 —										
57 — 58 — 59 —										
60 — 61 — 62 —										
63 — 64 — 65 —										
						ely 120.0 feet below ground surface. n completion. Well screen set from 125.0 to 135.0 fee	et below ground s	urface	3 .	
						soil types, transitions may be gradual. Water level readings y occur due to other factors than those present at the time m			Boring No.: CT	ΓL-MW-1

Wolverine World Wide Courtland Rockford, Michigan

Boring No.: CTL-MW-2 Page: ___1__ of ___ File No.: 16.0062677.91 Check: Leslie Nelson

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

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

Auger/

GROUNDWATER READINGS Date Depth Casing Stab NM NA Surveyed By: _ Survey Date:

ا ي		Sam	nple Inform	ΠαιιοΠ			1	ω l					
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equ	——I	Installed PROTECTIVE CASING		
1 -							SAND						
2- 3- 4- 5- 6- 7-	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					
8- 9- 0- 1- 2- 3-	2	24/22	9-11	2-3 2-3	0.1 ppm	Loose, brown, fine to medium SAND, little Silt, moist.							
4 — 5 — 6 — 7 —	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.	14.2' Clayey SILT						
8- 9- 0- 1- 2-	4	24/22	19-21	4-8 9-6	0.2 ppm	Very stiff, Gray, Clayey SILT, little fine to medium Sand, dry.							
3 4 5 6 7	5	24/24	24-26	6-9 11-7	0.2 ppm	Very stiff, Gray, Clayey SILT, little fine to medium Sand, dry.							
8- 9- 0- 1- 2-	6	24/22	29-31	4-8 8-12	0.2 ppm	Very stiff, Gray, Clayey SILT, little fine to medium Sand, dry.							
90123456789012345678901	7	24/24	34-36	5-10 15-14	0.2 ppm	Very stiff, gray, CLAY & SILT, little fine to medium Sand, dry.	34' CLAY & SILT						
8- 9- 0- 1- 2-	8	24/24	39-41	6-12 20-27	0.2 ppm	Hard, gray, Silty CLAY, little fine to medium Sand, dry.	39' Silty CLAY						
2- 3- 4- 5- 6- 7-	9	24/24	44-46	7-10 16-27	0.3 ppm	Very stiff, gray, Silty CLAY, little fine to medium Sand, dry.							
8- 9- 0- 1- 2- 3-	10	24/24	49-51	10-17 23-40	0.2 ppm	Hard, gray, Silty CLAY, little fine to medium Sand, dry.							
4 — 5 — 6 — 7 —	11	24/24	54-56	12-20 28-40	0.0 ppm	Hard, gray, Silty CLAY, little fine to medium Sand, dry.							
8 9 -		24/8		2-2	0.1 ppm		59.2'						



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 Leslie Nelson Check:

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

^{3. 3.0&}quot; 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.



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

_ [Sample Information							Check:	Leslie Nelson
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks Idinba	ment Installed
31 – 32 – 33 –	26		129-129.5			Very dense, brown, fine to medium SAND, little Silt, moist.	SAND	6	
34 — 35 — 36 — 37 —	27	24/24	134-136	18-31 33-43	0.0 ppm	Hard, gray, Silty CLAY, little Sand, dry.	Silty CLAY	7	
38 — 39 — 40 — 41 — 42 —	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		
13 — 14 — 15 — 16 — 17 —	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	-	
18 — 19 — 50 — 51 — 52 —	30	11/11	149-149.9	36-50/5"	0.1 ppm	Hard, gray, Clayey SILT, little fine to medium Sand, dry.	Clayey SILT	8	
53 — 54 — 55 — 56 — 57 —	31	17/17	154-155.4	30-46-50/5"	0.1 ppm	Hard, gray, Clayey SILT, little fine to medium Sand, dry.			
58 — 59 — 50 — 51 — 52 —	32	4/4	159-159.3	50/4"	0.1 ppm	Hard, gray, Clayey SILT, little fine to medium Sand, dry.			
63 — 64 — 65 — 66 — 67 —	33	5/5	164-164.4	50/5"	0.2 ppm	Hard, gray, Clayey SILT, little fine to medium Sand, dry.		9	
88 — 89 — 70 — 71 — 72 —	34	3/3	169-169.3	50/3"		Very dense, gray, fine to medium SAND, some Silt, little Clay, moist.	169' SAND	-	
73— 74— 75— 76— 77—	35	3/3	174-174.3	50/3"	0.2 ppm	Very dense, gray, fine to medium SAND, some Silt, little Clay, moist.			
78 — 79 — 30 — 31 — 32 —	36	4/4	179-179.3	50/4"	0.1 ppm	Very dense, gray, fine to medium SAND, some Silt, little Clay, moist.		10	
33 — 34 — 35 — 36 — 37 —	37	4/1	184-184.3	100/4"		Very dense, gray, fine to medium SAND, some Silt, little Clay, moist.		11	
38 — 39 — 90 — 91 — 92 —	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		
93 — 94 — 95 — 96 — 97 —	39	2/2	194-194.2	100/2"	0.1 ppm	Very dense, gray, fine to medium SAND, some Silt, dry.	194' SAND		
98 - 99 -		3/3		100/3"	0.1 ppm				
7 E S	8. 3.0" s 9. 3.0" s 10. 3.0" 11. Refu	plit spoo plit spoo split spo isal due	n sampler was ampler was ampler was ampler to stone in s	vas used fro vas used fro was used f shoe.	om 149.0 om 164.0 rom 179.	to 136.0 feet below ground surface. to 151.0 feet below ground surface. to 166.0 feet below ground surface. 0 to 181.0 feet below ground surface. 0 to 201.0 feet below ground surface.			
K S	cation line	es represe	ent approxima	ite boundary	between s	0 to 201.0 feet below ground surface. oil types, transitions may be gradual. Water level reading cocur due to other factors than those present at the time	gs have been made at measurements were n	times Boring No.: C	TL-MW-2



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 Leslie Nelson

	Sar	nple Inform	nation		Rockford, Michigan		_	Check:	Leslie Nelson
No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equip	ment Installed
40		199-199.3			Very dense, gray, fine to medium SAND, some Silt, moist.	SAND	12		
41	4/4	204-204.3	100/4"	0.1 ppm	Hard, gray, Clayey SILT, some fine to medium Sand, dry.	Clayey SILT	13		
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			
⊣	2/2	214-214.2	100/2"	0.2 ppm	Very dense, gray, fine to medium SAND, little Silt, wet.		14		
- 43 - 44 - 44 - 45	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
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 Scree
	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 V
47 47	5/5	234-234.4	75/5"	0.1 ppm	Very dense, brown to gray, fine to medium SAND, little Silt, wet.				
48	2/2	239-239.2	75/2"	0.1 ppm	Very dense, gray, fine SAND, some Silt, wet.	241'	17		
48					Bottom of Borehole at 241.0 Feet		18		

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

REMARKS

WELL 62677.91 COURTLAND

Wolverine World Wide Courtland

Rockford, Michigan

Boring No.: ___CTL-MW-3 Page: ___1 __ of ___5 File No.: 16.0062677.91

Contractor: ____ Stearns Drilling Company Foreman: ___ Jerry Huntoon C. Melby/J. Markosky Logged by: _ 4-9-19 / 4-9-19 Date Start/Finish: ___

Auger/ Sampler Casing

Check: Leslie Nelson **GROUNDWATER READINGS**

Depth Casing

Northland Drive Boring Location: __ GS Elev.: See Survey Datum: See Survey Hammer Fall:

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

NA Surveyed By: _ Survey Date:

Date

NM

		San	nple Inforr	nation							
Depth		Pen./	Depth	Blows		Sample	Stratum	rks	Equ	ipment	Installed
മ്	No.	Rec. (in.)	(Ft.)	(/6")	Test Data	Description & Classification	Desc.	Remarks			PROTECTI CASING
1-											
2-											
3-											
4-	1	24/24	4-6	1-2 2-2	0.0 ppm	Very loose, brown, fine to medium SAND,	SAND	1			
5-				2-2		little Silt, dry.					
6 – 7 –											
8-											
9-	2	24/20	9-11	4-3	0.0 ppm	Loose, brown, fine to coarse SAND, little					
10-		24/20	9-11	4-3 3-4	о.о ррпі	Silt, little Gravel, dry.					
11-											
12-											
13-											
14-	3	24/22	14-16	2-3 5-6	0.0 ppm	Loose, brown, fine to coarse SAND, little					
15— 16—						Silt, little Gravel, dry.					
 17-											
18-											
19-	4	24/20	19-21	12-12	0.0 ppm	Medium dense, brown, fine to coarse					
20 –			.0	13-13		SAND, little Silt, little Gravel, dry.					
21 —											
22-											
23 — 24 —											
25 —	5	24/20	24-26	8-12 17-16	0.0 ppm	Medium dense, brown, fine to coarse SAND, little Silt, little Gravel, dry.					
26 –						or and, made one, made orders, any.					
27 –											
28-											
29-	6	24/24	29-31	7-10	0.1 ppm	Medium dense, brown, fine to coarse					
30 –				9-14		SAND, little Silt, little Gravel, dry.					
31 — 32 —											
33 —											
34 —	_	04/04	24.00	10.44	0.1	Madium dans language for the control					
- ,	7	24/24	34-36	12-14 14-17	0.1 ppm	Medium dense, brown, fine to medium					

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.

Boring No.: CTL-MW-3



Courtland

Rockford, Michigan

Boring No.: ____CTL-MW-3
Page: ____2 of ____5

File No.: 16.0062677.91
Check: Leslie Nelson

ا _		San	nple Inforn	nation		Rocktord, Michigan		Check:	Leslie Nelson
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	pment Installed
						SAND, little Silt, dry.	SAND		
36 — 37 —									
37 – 38 –									
39 —					.				
40 –	8	24/24	39-41	6-13 22-16	0.1 ppm	Medium dense, brown, fine to medium SAND, little Silt, dry.			
41-						,, , .			
42-									
43 –									
44 –	9	24/10	44-46	15-25		Dense, brown, fine to medium SAND, little			
45 –				19-14		Silt, dry with stone from 44.0 to 44.1 feet.			
46 -									
47 -									
48 — 49 —									
49 50 –	10	24/17	49-51	5-13 14-11	0.1 ppm	Medium dense, brown, fine to medium SAND, little Silt, damp. Changing at 50.0	50'		
51 –					0.1 ppm	feet to: Brown, SILT & CLAY, little fine to	SILT & CLAY		
52 —						medium Sand, dry.			
53-									
54 –	11	24/24	54-56	11-11	0.1 ppm	Dense, brown, fine to coarse SAND, little	54' SAND		
55 –	'''	2021	34-30	30-34	- FF	Silt, little Gravel, wet. Changing at 55.0 feet			
56 –						to: Brown, fine to medium SAND, some Silt, dry.			
57 –									
58 –									
59 — 60 —	12	24/24	59-61	22-26 33-36	0.1 ppm	Brown, fine to medium SAND, some Silt,			
61 —						moist. Changing at 60.5 feet to: Brown to gray, CLAY & SILT, little Sand, dry.	60.5' CLAY & SILT		
62-									
63 –									
64 –	13	18/18	64-65.5	12-44-50/6"	0.1 ppm	Hard, gray, CLAY & SILT, little Sand, dry.			
65 –	13	10/10	04-00.0	.2 00/0	J ppiii	riard, gray, OLAT & OILT, little Sand, dry.			
66 –									
67 –									
68 –							69'		
69 —	14	10/10	69-69.8	25-50/4"	0.2 ppm	Hard, gray, SILT & CLAY, little fine to	SILT & CLAY		
70 — 71 —						medium Sand, dry.			
71 – 72 –									
72 73 –									
74 –	15	11/11	74.74.0	32-50/5"	0.1 ppm	Hard grov SILT 9 CLAV little fine to			
75 –	15	11/11	74-74.9	32-30/3	υ. ι ρριτί	Hard, gray, SILT & CLAY, little fine to medium Sand, dry.			

BORING_WELL_62677.91 COURTLAND SB.GPJ_GZA_CORP.GDT_7/4/19

BORING_WELL_62677.91 COURTLAND SB.GPJ_GZA_CORP.GDT_7/4/19

BORING_WELL_62677.91 COURTLAND SB.GPJ_GZA_CORP.GDT_7/4/19

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.

Boring No.: CTL-MW-3



Courtland

Rockford, Michigan

Boring No.: CTL-MW-3 Page: ____3__ of ____5

File No.: 16.0062677.91 Leslie Nelson

		San	nple Inforn	nation		Rockford, Michigan		_	Check:	Leslie Nelson
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equip	ment Installed
77 – 78 – 79 – 80 – 81 –	16	10/10	79-79.8	11-50/4"	0.0 ppm	Hard, gray, SILT & CLAY, little fine to medium Sand, dry.	SILT & CLAY	2		Bentonite Grout
82 – 83 – 84 – 85 – 86 –	17	5/5	84-84.4	50/5"	0.0 ppm	Hard, gray, SILT & CLAY, little fine to medium Sand, dry.				
87- 88- 89- 90- 91-	18	4/4	89-89.3	50/4"	0.1 ppm	Hard, gray, SILT & CLAY, little fine to medium Sand, dry.		3		
92 – 93 – 94 – 95 – 96 –	19	6/6	94-94.5	50/6"	0.1 ppm	Hard, gray, SILT & CLAY, little fine to medium Sand, dry.		4		
97 — 98 — 99 — 100 — 101 —	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		
102 — 103 — 104 — 105 — 106 —	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		
107 — 108 — 109 — 110 —	22	11/11	109-109.9	31-50/5"	0.0 ppm	Hard, gray, Silty CLAY, little medium to coarse Sand, dry.		7		
112 — 113 — 114 — 115 — 116 —	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		
R 3 E 4 M 5 A 6 R	3. 3.0" s 4. 3.0" s 5. 3.0" s 6. 3.0" s 7. 3.0" s	plit spoo plit spoo plit spoo plit spoo plit spoo plit spoo	n sampler w n sampler w n sampler w n sampler w n sampler w	vas used fro vas used fro vas used fro vas used fro vas used fro vas used fro	om 89.0 t om 94.0 t om 99.0 t om 104.0 om 109.0	to 81.0 feet below ground surface. to 91.0 feet below ground surface. to 96.0 feet below ground surface. to 101.0 feet below ground surface. to 106.0 feet below ground surface. to 111.0 feet below ground surface. to 116.0 feet below ground surface.	,			
						oil types, transitions may be gradual. Water level readings o occur due to other factors than those present at the time m			Boring No.: 0	TL-MW-3

 ^{3.0&}quot; split spoon sampler was used from 79.0 to 81.0 feet below ground surface.
 3.0" split spoon sampler was used from 89.0 to 91.0 feet below ground surface.
 3.0" split spoon sampler was used from 94.0 to 96.0 feet below ground surface.
 3.0" split spoon sampler was used from 99.0 to 101.0 feet below ground surface.
 3.0" split spoon sampler was used from 104.0 to 106.0 feet below ground surface.
 3.0" split spoon sampler was used from 109.0 to 111.0 feet below ground surface.
 3.0" split spoon sampler was used from 114.0 to 116.0 feet below ground surface.



Courtland

Rockford, Michigan

Boring No.: ___CTL-MW-3 Page: ___4__ of ___5 File No.: 16.0062677.91

Leslie Nelson Check:

ا ج		Sar	nple Inform	nation				u	Check: Leslie Nelson
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
17-						little Silt, moist.	SAND	T-	
18 — 19 — 20 — 21 —	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	
22 — 23 — 24 — 25 — 26 —	25	16/16	124-125.3	9-38-50/4"	0.2 ppm	Hard, gray, Silty CLAY, little fine Sand, dry.		10	
27 — 28 — 29 — 30 —	26	9/9	129-129.8	23-50/3"	0.1 ppm	Hard, gray, Clayey SILT, little fine Sand, dry.	129' Clayey SILT	11	
32 — 33 — 34 — 35 —	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	
87— 88— 89— 10—	26	4/4	139-139.3	50/4"	0.1 ppm	Hard, gray, Silty CLAY, little fine Sand, dry.		13	
2- 3- 4- 5- 6-	27	4/4	144-144.3	50/4"	0.0 ppm	Hard, gray, Silty CLAY, little fine Sand, dry.		14 15	
.7 — .8 — .9 — .60 —	28	6/6	149-149.5	50/6"	0.0 ppm	Hard, gray, Silty CLAY, little fine Sand, dry.		16	
62 - 63 - 64 - 655 - 666 - 67 - 651	29	10/10	154-154.8	25-50/4"	0.0 ppm	Hard, gray, Silty CLAY, little fine Sand, dry.		17 18	

^{9. 3.0&}quot; 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.

^{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.



Courtland Rockford, Michigan Boring No.: CTL-MW-3 Page: ____5 of ____5

File No.: 16.0062677.91 Leslie Nelson

ا ہے		Oai	nple Inform	iatioi.				4-		
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipm	ent Installed
58							Silty CLAY	<u> </u>		—Filter Sand
59	30	24/24	159-161	10-10	0.0 ppm	Medium dense, brown to gray, fine to	159' SAND	19		Pack
60	30	2-1/2-1	133-101	11-8	оло ррии	medium SAND, little Silt, wet.	0, 1,12	13		Top of Well
61-										Screen
62										
63-										
64	31	5/5	164-164.4	50/5"	0.0 ppm	Medium dense, brown to gray, fine to		20		
65	•					medium SAND, little Silt, wet.				-2-Inch PVC
66										Well Screen
67-										
68										
69	32	5/5	169-169.4	50/5"	0.0 ppm	Medium dense, brown to gray, fine to		21		
70						medium SAND, little Silt, wet.	171'			Bottom of V Screen
71+						Bottom of Borehole at 171.0 Feet	171	22	<u> </u>	SUEEII
72										
73-										
74										
75										
76										
77										
78										
79 — 80 —										
81-										
82										
83										
84										
85										
86										
87										
88										
89-										
90-										
91-										
92										
93-										
92 — 93 — 94 —										
95										
96-										
97-										
98_										
₹ 2	19. 3.0"	split spo	on sampler	was used	from 159.	0 to 161.0 feet below ground surface.				
E 2	21. 3.0"	split spo	on sampler	was used t	from 169.	0 to 166.0 feet below ground surface. 0 to 171.0 feet below ground surface.				
	22. Mon	itoring w	ell was İnsta	illed in bor	ehole upo	on completion. Well screen set from 160.0 to 170	.0 feet below ground	surfa	ce.	
A R										
K S										
'										
- 1										



APPENDIX C - 2023 VAP BORING AND SAMPLE LOGS

-		GZ	ZA				Wolverine	World Wi	de			Boring No	O.:VAI	P-01
	5 Z\	Ge	oEnvironr	nental, In	c.		Cou	urtland				Page:	of _	6
		_	gineers and					d, Michigar					16.00623	
Con	tractor:		Stearn	ns Drilling			Auger/	Sampler					N. Kampfs	enuite
Fore	man: _		Hun N. Kam	itoon anfachulto			Casing ollow Stem Auger	•	Date		OUND me	WATER F Depth	READINGS Casing	Sta
Log(Date	ged by: Start/F	inish·	10-31	-23 / 11-1	0-23		7 5/8 / 4 1/4	2"	Date	"	IIC	Берш	Casing	Jia
GS E	Elev.: _		Datu	um:		Hammer Fall: _	30"	NA						
		Sam	nple Inforn	nation		TOC Elev.:	NA	NA	_ Surveyed	By:	N	A Su	rvey Date:	
ŧ			.,								S	Fauir	ment Insta	ılled
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descript	Sample ion & Classifica	ation	Stratum Desc.	1	Remarks	Equip	mont mote	······
1-													None	
2-3-														
4-	1	24/18	4-6	4-7		Soft, brown, Clay	ev SII T and fin	ne to	Clayey SILT	.				
5-	•	0		6-5		medium Sand, m								
6 – 7 –														
, 8–									01					
9-	2	24/0	9-11	4-4 7-7		NO RECOVERY			9' NO RECOVER	RY	1			
0 1				7-7										
2-														
3-									14'					
4 – 5 –	3	24/24	14-16	9-14 25-20		Very stiff, red and	d brown, Clayey	/ SILT,	Clayey SILT					
3-				20-20		moist.								
7-														
3 - 9														
5	4	24/24	19-21	5-10 15-16		Stiff, brown, Clay	ey SILT, moist.							
1-														
2 – 3 –														
3 4	5	24/6	24.26	9-17		Vary stiff beauty	Clayer Cli T	ooiat			,			
5-	Э	24/6	24-26	21-31		Very stiff, brown,	Ciayey SIL1, M	IOISI.			2			
6 — 7 —														
7 – 8 –														
9-	6	24/6	29-31	4-7		Stiff, brown, SILT	and Sand with	n stiff. brown	29' SILT and Sar	nd	2			
0	•			12-16		Clay in spoon tip					_			
1 – 2 –														
3-									34'					
4 5	7	24/6	34-36	10-12 24-26		Very stiff, brown,	SILT & CLAY,	moist.	SILT & CLAY	/ 				
5 — 6 —				24-26										
7-														
8									39'	_				
9 -0	8	24/24	39-41	3-10 22-32		Very stiff, brown,	Clayey SILT, m	noist.	Clayey SILT					
1-														
Τ'.	1 No ro	rovery di	ue to possib	hle rock ob	etruction	in spoon			1					
₹ :		in spoon		OIC TOCK OD	อน นอนป1	пт эрооп.								
1														
2														
3														
\perp														
ratifi	cation line	es represei	nt approxima	te houndary	hetween	soil types, transitions ma	who gradual Wat	or lovel readings	have been mad	la at tiv	mae	Boring No.:		



Wolverine World Wide Courtland

Boring No.: ___ VAP-01 Page: _____ of ____6 File No.: 16.0062335.60

Rockford, Michigan Check: N. Kampfschulte Sample Information Depth Remarks **Equipment Installed** Pen./ Depth Sample Stratum Blows (/6") Test Data No. Rec. (Ft.) Description & Classification Desc. (in.) Clayey SILT 43 44 9 24 44-46 4-12 11-19 Stiff, brown, Clayey SILT, moist. 45 46 47 48-49 11/11 32-50/5" 10 49-49.9 Hard, brown, Clayey SILT, moist. 50-51 52 53 54 20-50/5" 11 11/11 54-54.9 Hard, brown, Clayey SILT, little coarse 55 Sand, moist. 56 57-58-59 12 16/16 59-60.3 10-24-50/4" Hard, brown, Clayey SILT, little coarse 60-Sand, trace fine Gravel, moist. 61-62-63-

Very stiff, Clayey SILT, litle coarse Sand,

Very stiff, Clayey SILT, little coarse Sand,

trace fine Gravel, moist.

trace fine Gravel, moist.

72-73 74 24/24 74-76 10-17 15 Very stiff, brown, Clayey SILT, trace coarse 75 Sand, moist. 76 77 78 79 24/24 79-81 7-12 19-28 16 Stiff, brown, Clayey SILT, trace coarse 80-Sand, moist. 81 82-

8-14 22-25

9-14 23-27

7-10

37-50/6"

SAND Clayey SILT

moist.

Hard, brown, Clayey SILT interbedded with

Medium dense, black and green, SAND,

moist. Changing at 84.25 feet to: Stiff,

brown, Clayey SILT, trace coarse Sand,

medium Sand, moist.

62335.60 COURTLAND VAP.GPJ REMARKS WELL

64 -

65

70-

71

83

84

85

86

87-88

89

90

17

18

24/24

24/24

GZA CORP.GDT

13

14

24/24

24

64-66

69-71

84-86

89-91

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.



Wolverine World Wide

Courtland
Rockford, Michigan

Boring No.: ______ VAP-01 Page: ____3 of ___6

File No.: 16.0062335.60
Check: N. Kampfschulte

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

WELL 62335.60 COURTLAND VAP.GPJ

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.



Wolverine World Wide Courtland Rockford, Michigan

 Boring No.:
 VAP-01

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 of
 6

 File No.:
 16.0062335.60

 Check:
 N. Kampfschulte

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

SLL 62335.60 COURTLAND VAP.GPJ

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.



Wolverine World Wide Courtland

Rockford, Michigan

 Boring No.:
 VAP-01

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 of
 6

 File No.:
 16.0062335.60

 Check:
 N. Kampfschulte

Remarks **Equipment Installed** Pen./ Depth Sample Stratum Test Data No. Rec. (Ft.) Description & Classification Desc. (in.) SII T and Sand 38 189-189.5 50/6' Hard, brown, SILT and fine Sand, moist. 190 191 192· 193 194 47-50/4" 10 39 194-194.8 Hard, brown, SILT and fine Sand, moist. 195 196 197-198⁻ 199 SAND and Silt 40 9/9 199-199.8 32-50/3" Very dense, brown, fine to medium SAND 200and Silt, moist. 201 · 202-203 204 -41 24/24 204-206 Very dense, brown, fine to medium SAND 205and Silt, moist. Changing at 205.5 feet to: Very stiff, brown, SILT, moist. 205.5' SILT 206-207-208-209-42 6/6 209-209.5 50/6" Hard, brown, SILT, moist with Sand, wet in 210spoon tip. 211-212 213 214' 214 SILT & CLAY 43 9/9 214-214.8 19-50/3" Hard, brown, SILT & CLAY, moist. 215· 216⁻ 217 218-219-Clayey SILT 44 2/2 219-219.2 50/2" Hard, brown, Clayey SILT, moist. 220 221· 222 223· 224 50/3" 45 3/3 224-224.3 Hard, brown, Clayey SILT, moist. 225 226 227 228 229 46 5/5 229-229.4 50/5" Hard, brown, Clayey SILT, moist. 230 231 232 233 234 47 50/3" 3/3 234-234.3 Hard, brown, Clayey SILT, moist. 235 236 237

GZA

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.



Wolverine World Wide Courtland Rockford, Michigan

Boring No.: ___ VAP-01 Page: ___6__ of ___6 File No.: 16.0062335.60 Check: N. Kampfschulte

Remarks **Equipment Installed** Pen./ Depth Sample Stratum Blows (/6") Test Data No. Rec. (Ft.) Description & Classification Desc. (in.) Clayey SILT 239 50/1" 48 1/1 239-239.1 Hard, brown, Clayey SILT, some fine to 240 medium Sand, moist. 241· 242 243 244 1/1 244-244.1 50/1" 49 Hard, brown, Clayey SILT, moist. 245-246 247⁻ 248-249 CLAY & SILT 50 2/2 249-249.2 75/2" Hard, brown, CLAY & SILT, moist. 250 -251⁻ 252 253 254 -51 3/3 254-254.3 50/3" Hard, brown, CLAY & SILT, moist. 255-256 257' 257 3 Bottom of Borehole at 254.3 Feet 258 4 5 259 260 261 262 263 264 265 266 267 268 269 270 271 272 · 273 274 275 276 277 278 279 280 281 282 283 284 285 62335.60 COURTLAND VAP. 286

3. Refusal due to possible Bedrock.

- Groundwater was not encountered during drilling or upon completion.
- 5. Borehole was backfilled with bentonite grout upon completion.

E M A R K S

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.

1		GZ	 ZA				Wolverine	World Wid	le			Boring No		
C	74	Ge	oEnviron	mental, Inc	•		Cοι	urtland				Page:	of _	4
		Eng	gıneers an	d Scientists				d, Michigan				File No.:		
Cont	ractor:			ns Drilling			Auger/				_	Check: _	N. Kampfs	chulte
ore	man: _			ntoon			Casing	Sampler		GRO	UND	WATER R	EADINGS	
.ogg	ed by:		N. Kar	npfschulte		Type: H	ollow Stem Auger		Date	Tir	me	Depth	Casing	Sta
)ate	Start/F	inish: _	11-13	3-23 / 11-2	7-23		7 5/8 / 4 1/4		-					
						Hammer Wt.: _								
3S E	lev.: _		Dat	um:		Hammer Fall: _								
\Box		San	nple Infori	mation		TOC Elev.: _	NA NA	NA	Surveyed	By:		Sur	vey Date:	
₽┞											S	Equip	ment Insta	allod
Deptn	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descripti	Sample ion & Classifica	ation	Stratum Desc.	1	Remarks	Equip	ment mate	alleu
1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 —	1	24/24	4-6	4-6 6-5		Medium stiff, red some fine Sand,		AY & SILT,	CLAY & SILT	г			None	
9- 0- 1- 2- 3-	2	24/24	9-11	3-9 13-17		Stiff, red and bro Gravel, moist.	wn, Silty CLAY,	trace fine	Silty CLAY					
1- 5- 6- 7- 8-	3	24/24	14-16	5-17 27-24		Stiff, red and bro Gravel, moist. Ch Medium dense, li SAND, moist.	nanging at 14.5	feet to:			1			
9-	4	24/20	19-21	12-19 27-36		Very stiff, brown, medium Sand, m	Silty CLAY, tra oist.	ce fine to						
1— 5— 6— 7— 8—	5	24/20	24-26	12-25 43-44		Hard, brown, Silt medium Sand, m		ine to						
9- 0- 1- 2- 3-	6	14/12	29-30.2	8-18-50/2"		Hard, brown, Silt medium Sand, m		ine to						
4 — 5 — 6 —	7	24/18	34-36	21-23 17-17		Very stiff, brown, medium Sand, m		ce fine to						
1	. Grou	ndwater v	vas encour	ntered at app	oroximat	ely 14.5 feet below gi	round surface.							
ratific						soil types, transitions may occur due to other fact						Boring No.: \	/AP-02	



Wolverine World Wide Courtland Rockford, Michigan

 Boring No.:
 VAP-02

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 of
 4

 File No.:
 16.0062335.60

Check: N. Kampfschulte

_		Jan	ipie intorn	iation					
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
38- 39- 40- 41- 42-	8	24/20	39-41	10-16 33-29		Very stiff, brown, SILT & CLAY, moist.	Silty CLAY 39' SILT & CLAY		
43 — 44 — 45 — 46 — 47 —	9	24/18	44-46	6-13 15-20		Stiff, brown, SILT & CLAY, moist.			
48 — 49 — 50 — 51 — 52 —	10	24/18	49-51	10-12 15-20		Stiff, brown, SILT & CLAY, moist.			
53 — 54 — 55 — 56 — 57 —	11	24/18	54-56	8-12 18-17		Stiff, brown, SILT & CLAY, moist.			
58- 59- 60- 61- 62-	12	24/20	59-61	11-19 30-17		Very stiff, brown, SILT & CLAY, moist.			
63 — 64 — 65 — 66 — 67 —	13	24/20	64-66	9-11 13-16		Stiff, brown, SILT & CLAY, moist.			
68 — 69 — 70 — 71 — 72 —	14	24	69-71	8-16 24-32		Very stiff, brown, Silty CLAY, moist.	69' Silty CLAY		
73 — 74 — 75 — 76 — 77 —	15	24/20	74-76	13-21 39-45		Hard to very stiff, brown, Silty CLAY, moist.			
78- 79-	16	24/24	79-81	1-1 2-2		Very loose, brown, fine to medium SAND,	79' SAND		

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.



Courtland Rockford, Michigan Boring No.: ____

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VAP-02

Check: N. Kampfschulte

		San	ple Inform	nation					Check:	N. Kampfschulte
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipn	nent Installed
81-						some coarse Sand, trace fine Gravel, wet.	SAND			
82-										
83-										
84	17	24/24	84-86	6-8		Hard, brown, Silty CLAY, moist.	84' Silty CLAY	_		
85	17	24/24	04-00	6-8 23-42		Hald, blown, Silty CLAT, Illoist.	only out.			
86-										
87										
88										
89 –	18	24/24	89-91	9-14		Hard, gray and brown, Silty CLAY, trace fine				
90 —				19-20		Sand, moist.				
91										
92-										
93-										
94	19	24/24	94-96	13-18		Hard, gray and brown, Silty CLAY, trace fine				
95				20-23		Sand, moist.				
96										
97										
98										
99 - 100	20	24/24	99-101	9-12 16-20		Stiff, gray and brown, Silty CLAY, trace fine				
101				.0 20		Sand, moist.				
102										
103										
104										
105	21	24/24	104-106	6-21 30-38		Hard, gray and brown, Silty CLAY, trace fine Sand, moist.				
106						Garia, moist.				
107										
108										
109-	22	24/24	109-111	9-16		Hard, gray and brown, Silty CLAY, trace fine				
110-	22	24/24	109-111	23-30		Sand, moist.				
111										
112-										
113-										
114	23	24/24	114-116	5-8 13-17		Very stiff, gray and brown, Silty CLAY, trace				
115— 116—	_•			13-17		fine Sand, moist.				
116										
117-										
118							119'			
117— 118— 119— 120—	24	5/5	119-119.4	50/5"		Very dense, brown, fine to coarse SAND,	SAND	1		
120						little Silt, wet.				
121-										
122 — 123 —										
		I			I		I	1	I	

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.



Courtland Rockford, Michigan Boring No.: ____ VAP-02

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		0		4!		Rockford, Michigan	1		Check: N. Kampfschulte
ے ا		San	nple Inforn	nation			1	S	
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
24 – 25 – 26 –	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		
27 — 28 — 29 — 30 — 31 —	26	5/5	129-129.4	50/5"		Very dense, gray, fine SAND and Silt, wet to moist.			
32 — 33 — 34 — 35 — 36 —	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		
37 — 38 — 39 — 40 — 41 —	28	5/5	139-139.4	50/5"		Hard, gray, SILT, some fine to medium Sand, moist.	139' SILT		
42 43 44 45	29	8/8	144-144.7	45-50/2"		Hard, gray, Silty CLAY, trace fine Sand,	144' 144.6'Silty CLAY	2	
46 — 47 — 48 — 49 —						Bottom of Borehole at 144.6 Feet			
50 — 51 — 52 — 53 —									
54 — 55 — 56 —									
58 — 59 — 60 — 61 — 62 —									
63 — 64 — 65 —									
₹ 	2. Boreł	nole was	backfilled w	vith bentonid	e grout (upon completion.			
Stratific	cation line	es represe	ent approxima	te boundary	between s	soil types, transitions may be gradual. Water level readings y occur due to other factors than those present at the time m	have been made a	at times	Boring No.: VAP-02

/		GZ	7.Δ				Wolverine	World Wid	е			Boring No).:VAF	P-03
(7 \)	Ge	oEnviron	nental, Inc	c .		Cou	urtland					of _	
		$\mid En_{s}$	gineers and	d Scientists	•		Rockford	d, Michigan				File No.:		
Con	tractor:		Stearr	ns Drilling			Auger/				_	Check: _	N. Kampfso	hulte
				ntoon			Casing	Sampler		GRO	DUNE	WATER R	EADINGS	
Log	ged by:		S. I	Martin		Type: ^H	lollow Stem Auger	Split Spoon	Date	Ti	me	Depth	Casing	Stab
Date	Start/F	inish: _	10-13	3-23 / 10-2	3-23	O.D. / I.D.:	7 5/8 / 4 1/4	2"						
Bori	ng Loca	ation: _						NA						
GS E	Elev.: _		Date	um:		Hammer Fall:	30"	NA	. L					
		Con	anla Infarr	nation		TOC Elev.:	NA NA	NA	Surveye	d By:	1	NA Sur	vey Date:	
Depth	No.	Pen./ Rec.	Depth	Blows	Test Data		Sample		Stratun	1	Remarks	Equip	ment Insta	lled
_		(in.)	(Ft.)	(/6)	Data	Descript	ion & Classifica	ition	Desc.		Sen			
1- 2- 3- 4- 5- 6- 7- 8-	1	24/24	4-6	2-2 2-2		Loose, tan, fine to moist.	to medium SAN	D, trace Silt,	SAND				None	
9 10	2	24/24	9-11	2-2 2-2		Loose, tan, fine	to medium SAN	D, trace Silt,						

Loose, tan, fine to medium SAND, trace Silt,

Loose, tan, fine to medium SAND, trace Silt,

Medium stiff, tan and brown, fine to medium

Loose, tan, fine to medium SAND and Silt,

Loose, tan, fine to medium SAND and Silt,

Loose, brown, fine to medium SAND and

SAND and Silt

2

moist.

moist.

moist.

wet.

wet.

Silt, moist.

SAND and Silt, wet.

1. Groundwater was encountered at approximately 24.0 feet below ground surface.

10

11· 12-13 14-

15

20

25

30-

31-32

33 34

35

36 37-38-39

40-

41

REMARKS

WELL 62335.60 COURTLAND VAP.GPJ GZA_CORP.GDT 4/1/24

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24/18

24/18

24/24

24/18

24/24

24/24

14-16

19-21

24-26

29-31

34-36

39-41

2-2 2-2

3-5 7-10

15-21 21-25

3-9 13-16

14-21 31-37

4-12 16-20

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.



Wolverine World Wide Courtland

 Boring No.:
 VAP-03

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 File No.:
 16.0062335.60

Rockford, Michigan

Check: N. Kampfschulte

Equipment Installed

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

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

30RING_WELL 62335.60 COURTLAND VAP.GPJ GZA_CORP.GDT 4/1/24

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.



Wolverine World Wide Courtland Rockford, Michigan

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 File No.:
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 Check:
 N. Kampfschulte

_		Jan	ipie intorn	IIation					
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
92 – 93 –							CLAY		
94 – 95 – 96 –	19	24/24	94-96	8-6 13-15		Medium stiff to stiff, gray, CLAY, trace Gravel, moist.			
97 — 98 — 99 — 00 —	20	24/20	99-101	9-11 14-17		Stiff, brown and gray, CLAY, trace Silt, moist.			
01- 02- 03- 04-	21	24/24	104-106	10-10		Stiff, brown and gray, CLAY, trace Silt,			
105 — 106 — 107 — 108 —				16-21		moist.			
109 — 110 — 111 — 112 —	22	24/24	109-111	10-13 18-23		Stiff, brown and gray, CLAY, trace Silt, moist.			
113- 114- 115- 116-	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.			
117— 118— 119— 120— 121—	24	24/24	119-121	42-47 48-56		Hard, Clayey SILT, trace fine to medium Sand, moist.	119' Clayey SILT	_	
22 - 23 - 24 - 25 - 26 -	25	24/12	124-126	33-52/6"		Hard, Clayey SILT, trace fine to medium Sand, moist.			
27 – 28 – 29 – 30 –	26	24/6	129-131	50/6"		Gray, CLAY, interbedded fine to medium Sand and Silt, moist.	129' CLAY		
31 32 33 34 35	27	24/12	134-136	14-21/6"		Gray, CLAY, interbedded fine to medium Sand and Silt, moist.			
36 – 37 – 38 – 39 –	28	24/16	139-141	4-1-56/3"		Gray, fine to medium SAND and Gravel,	139' SAND and Gravel		

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.



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

WELL 62335.60 COURTLAND VAP.GPJ

GZA

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.



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 Check:
 N. Kampfschulte

ا ہے ا		San	ple Inforr	mation		Rockford, Michigan			Check: N. Kampfschulte
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
20	38	24/20	189-191	21-32-50/5"		Very stiff, brown and gray, Clayey SILT with	Clayey SILT		
90 — 91 — 92 — 93 —						interbedded Sand, moist.			
94 — 95 — 96 — 97 — 98 —	39	24/18	194-196	28-37-50/3"		Very stiff, brown and gray, Clayey SILT with interbedded Sand, moist.			
99 — 00 — 01 — 02 —	40	24/16	199-201	31-50/6"		Hard to very stiff, brown, Clayey SILT, moist.			
03 — 04 — 05 — 06 — 07 —	41	24/24	204-206	20-37-50/2"		Hard to very stiff, brown, Clayey SILT, moist.			
08 – 09 – 110 –	42	24/20	209-211	50/4"		Hard to very dense, brown and gray, CLAY and fine to medium Sand, moist.	209'	4	
12 — 13 — 14 — 15 — 16 —	43	24/4	214-216	50/4"		Very dense, tan to brown, fine to medium SAND, trace Silt, trace Gravel, moist.	214' SAND	_	
17 — 18 — 19 — 20 — 21 —	44	24/9	219-221	24-50/3"		Dense, gray, fine to medium SAND and Silt, trace Gravel, wet.	219' SAND and Silt	5	
22 — 23 — 24 — 25 — 26 —	45	24/6	224-226	50/6"		Dense, gray, fine to medium SAND and Silt, trace Gravel, wet.			
27 — 28 — 29 — 30 — 31 —	46	24/18	229-231	7-20-50/5"		Dense, tan and gray, fine to medium SAND, trace Silt, moist.	229' SAND		
32 — 33 — 34 — 35 — 36 —	47	24/6	234-236	75/6"		Very dense, tan and gray, fine to medium SAND, trace Silt, moist.			

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

Boring No.: VAP-03

30RING_WELL 62335.60 COURTLAND VAP.GPJ GZA_CORP.GDT 4/1/24

REMARKS



Courtland

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File No.: 16.0062335.60

Rockford, Michigan Check: N. Kampfschulte **Sample Information**

Depth	No.	Pen./ Rec.	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
		(in.)	,				SAND	Re	
239	48	24/6	239-241	50/6"		Very dense, tan and brown, fine to medium	SAND		
240	40	2.70	200 211			SAND, little Gravel, trace Silt, moist.			
241									
242									
243									
244	49	24/6	244-246	50/6"		Very dense, tan and brown, fine to medium			
245 — 246 —						SAND, little Gravel, trace Silt, moist.			
47									
48									
49		0.4/0.4	040.054	40 40 50/5"					
50	50	24/24	249-251	10-40-50/5"		Very dense, tan and brown, fine to medium SAND, little Gravel, trace Silt, moist.			
51	E 1		251			SAND, little Graver, trace Silt, moist.			
52+	51		251			Bottom of Borehole at 252.0 Feet	252'	6	
53						Dottoill Of Dotellole at 202.0 Feet		0	
54									
55									
56									
57									
58									
59									
60									
31									
52 – 53 –									
54									
65									
66									
67									
68									
69									
70									
71									
72									
73									
74									
75									
76									
77									
/8 - 79 -									
80									
81—									
82									
83									
84									
85									
86									
┰┸		<u> </u>				l			1
र	6. Grou	ndwater s	sample coll	ected from t	emporar	ry well. Subsequently, borehole was backfilled with be	entonite grout.		
È									
M									
A									
R K									
s									
Stratific	cation line	s renrece	nt annrovima	ate houndary	hetween	soil types, transitions may be gradual. Water level readings	have heen made at	times	
addiil		tions state	d Eluctuation	one of ground	water mai	y occur due to other factors than those present at the time m	nave been made a	mada	Boring No.: VAP-03

Notice and Scientists Stearns Drilling Huntoon N. Kampfschulte 10-30-23 / 10-30 Datum: e Information Depth (Ft.) 4-6 2-3 4-4 9-11 5-6 8-12	30-23	Rockford Auger/ Casing Type: Hollow Stem Auger O.D. / I.D.: 7 5/8 / 4 1/4 Hammer Wt.: 140 lbs	2" NA NA NA Ion NA	G	Time	File No.: Check: _ DWATER F Depth		335.60 chulte
Stearns Drilling	30-23	Auger/ Casing Type: Hollow Stem Auger O.D. / I.D.: 7 5/8 / 4 1/4 Hammer Wt.: 140 lbs Hammer Fall: 30" TOC Elev.: NA Sample Description & Classificati Very loose, ORGANICS, moist. C 4.7 feet to: Very loose, light brown medium SAND, moist. Loose, light brown, fine to medium	Sampler Split Spoon 2" NA NA NA NA hanging at an, fine to	Date Surveyed E Stratum Desc.	Sy:	Check: _ DWATER F Depth	N. Kampfsc READINGS Casing rvey Date:	Stal
Huntoon N. Kampfschulte 10-30-23 / 10-3 Datum: e Information Depth (Ft.) Blows (/6") 4-6 2-3 4-4	80-23	Casing Type: Hollow Stem Auger O.D. / I.D.: 75/8 / 41/4 Hammer Wt.: 140 lbs Hammer Fall: 30" TOC Elev.: NA Sample Description & Classificati Very loose, ORGANICS, moist. C 4.7 feet to: Very loose, light brown medium SAND, moist. Loose, light brown, fine to medium	Split Spoon 2" NA NA NA Ion	Surveyed E Stratum Desc. 4.7' ORGANICS	Sy:	DWATER F Depth	Casing Casing rvey Date:	Sta
10-30-23 / 10-30 Datum: e Information Depth (Ft.) Blows (/6") 4-6 2-3 4-4	80-23	O.D. / I.D.: 75/8 / 41/4 Hammer Wt.: 140 lbs Hammer Fall: 30" TOC Elev.: NA Sample Description & Classification Very loose, ORGANICS, moist. C 4.7 feet to: Very loose, light brown medium SAND, moist. Loose, light brown, fine to medium	2" NA NA NA Ion NA	Surveyed E Stratum Desc. 4.7' ORGANICS	Remarks	NA Su	rvey Date:	
Datum:e Information		Hammer Wt.: 140 lbs Hammer Fall: 30" TOC Elev.: NA Sample Description & Classificati Very loose, ORGANICS, moist. C 4.7 feet to: Very loose, light brown medium SAND, moist. Loose, light brown, fine to medium	NA NA NA ion hanging at n, fine to	Stratum Desc.	Remarks		oment Insta	
e Information Depth (Ft.) Blows (/6") 4-6 2-3 4-4		Hammer Fall: 30" TOC Elev.: NA Sample Description & Classification of the company of the compa	NA NA ion hanging at n, fine to	Stratum Desc.	Remarks		oment Insta	
e Information Depth (Ft.) Blows (%") 4-6 2-3 4-4		Sample Description & Classificati Very loose, ORGANICS, moist. C 4.7 feet to: Very loose, light brown medium SAND, moist. Loose, light brown, fine to medium	ion hanging at	Stratum Desc.	Remarks		oment Insta	
Depth (Ft.) Blows (/6") 4-6 2-3 4-4	Tost Data	Sample Description & Classification Very loose, ORGANICS, moist. C 4.7 feet to: Very loose, light brown medium SAND, moist. Loose, light brown, fine to medium	ion hanging at n, fine to	Stratum Desc.	Remarks		oment Insta	
(Ft.) (/6") 4-6 2-3 4-4	Test Data	Very loose, ORGANICS, moist. C 4.7 feet to: Very loose, light brown medium SAND, moist.	hanging at n, fine to	Desc.		Equip		alled
9-11 5-6		4.7 feet to: Very loose, light brown medium SAND, moist. Loose, light brown, fine to medium	n, fine to	4.7	1		None	
9-11 5-6		4.7 feet to: Very loose, light brown medium SAND, moist. Loose, light brown, fine to medium	n, fine to	4.7				
9-11 5-6		4.7 feet to: Very loose, light brown medium SAND, moist. Loose, light brown, fine to medium	n, fine to	4.7				
9-11 5-6		4.7 feet to: Very loose, light brown medium SAND, moist. Loose, light brown, fine to medium	n, fine to	4.7	1			
			n SAND,		1			
			n SAND,					
			n SAND,		11			
0-12		wet.			'			
					2			
14-16 3-2 2-2		Very loose, light brown, fine to me	edium					
		SAND, wet.						
				19'	_			
19-21 11-14 14-11		· · · · · · · · · · · · · · · · · · ·	AVEL,	GRAVEL				
		into to modium dand, wet.			3			
24-26 12-21		Very stiff brown CLAV & CILT +-	ace fine	24' CLAY & SILT				
25-25		Sand, moist.	ace iiile	25'	╝.			
		Bottom of Borehole at 25.0 Feet	/		4			
	24-26 12-21 25-25	24-26 12-21 25-25 s encountered at approximate apple collected from a	24-26 12-21 25-25 Very stiff, brown, CLAY & SILT, tr Sand, moist. Bottom of Borehole at 25.0 Feet s encountered at approximately 9.0 feet below ground surface. Inple collected from approximately 10.0 to 15.0 feet below ground surface.	24-26 12-21 25-25 Very stiff, brown, CLAY & SILT, trace fine Sand, moist. Bottom of Borehole at 25.0 Feet s encountered at approximately 9.0 feet below ground surface. Inple collected from approximately 10.0 to 15.0 feet below ground surface and sub-	19-21 11-14 14-11 Medium dense, fine to coarse GRAVEL, little fine to medium Sand, wet. 24-26 12-21 25-25 Very stiff, brown, CLAY & SILT, trace fine Sand, moist. Bottom of Borehole at 25.0 Feet s encountered at approximately 9.0 feet below ground surface. mple collected from approximately 10.0 to 15.0 feet below ground surface and submitted for analy	19-21 11-14 14-11 Medium dense, fine to coarse GRAVEL, little fine to medium Sand, wet. 24-26 12-21 25-25 Very stiff, brown, CLAY & SILT, trace fine Sand, moist. Bottom of Borehole at 25.0 Feet 4 Se encountered at approximately 9.0 feet below ground surface. mple collected from approximately 10.0 to 15.0 feet below ground surface and submitted for analytical late.	19-21 11-14 14-11 Medium dense, fine to coarse GRAVEL, little fine to medium Sand, wet. 24-26 12-21 25-25 Very stiff, brown, CLAY & SILT, trace fine Sand, moist. Bottom of Borehole at 25.0 Feet Se encountered at approximately 9.0 feet below ground surface. mple collected from approximately 10.0 to 15.0 feet below ground surface and submitted for analytical laboratory testing the series of the surface and submitted for analytical laboratory testing the surface and submitted for a	19-21 11-14 14-11 Medium dense, fine to coarse GRAVEL, little fine to medium Sand, wet. 24-26 12-21 25-25 Very stiff, brown, CLAY & SILT, trace fine Sand, moist. Bottom of Borehole at 25.0 Feet Medium dense, fine to coarse GRAVEL, little fine to medium Sand, wet. 3 24' CLAY & SILT 25' 4



APPENDIX D – SOIL INVESTIGATION LOGS

-		GZ	A Engin			Wolverine World Wide Boring No.: DC-1-SB-1									
GeoEnvironmental, Inc. Engineers and Scientists							Courtland Page:1 of1 File No.:16.0062677.9								
Contractor: Terra Probe								ord, Michigan				10.00020			
Foreman: S. Slenosk					Auger/ Casing	Sampler		CRUIN	IDWATER F						
			C.			 Type: _	_	Direct Push	Date	Time		Casing	S		
Date	e Start/F	inish: _	12-28	3-23 / 12-2	28-23	O.D. / I.D.:	N/A	2"	-						
Bori	ing Loc	ation:		N/A		Hammer Wt.: _			-						
GS I	Elev.: _	N/A	Datu	um:	N/A	Hammer Fall:		30" N/A		 D	N/A 2				
		Sam	mple Information		TOC Elev.: _	N/A	N/A	Surveyed	ву:	N/A Su	rvey Date:	_			
Depth	No.	Pen./ Rec.	Depth	Blows (/6")	Test Data	Description	Sample	action	Stratum	Remarks	Equip	ment Insta	allec		
		(in.)	(Ft.)	,			on & Člassifi		Desc.	Ren					
1— 2— 3— 4—	2	48/40	0-4			ORGANIC MATTI Changing at 0.3 fe SAND, little Silt, n	eet to: Light k	prown, fine	ORGANIC 0.3' MATTER/ TOPSOIL SAND	1		None			
5— 6— 7—						(SM).				2					
8-						Bottom of Boreho	le at Q O Eco	t	8'	з					
9-						25.0 5. 25/5/10		-		4					
? E	Soil sGrou	sample wa ndwater w	s collected as not end	from app ountered	roximatel during dri	y 2.0 to 3.0 feet below y 5.0 to 6.0 feet below lling or upon completic upon completion.	ground surfac	ee and submitted ee and submitted	for analytical l for analytical l	aborator aborator	y testing. y testing.				
1															

		GZ	Z A				Wolverin	e World Wide			-		DC-1-	
	GZN)	Ge En	oEnvironn gineers and	nental, In d Scientist	s.		Co	ourtland			_		1 of _	
_	, ,		_					rd, Michigan			_		10.00020	
	ntractor: reman: _		Terra	enosk			Auger/ Casing	Sampler		CPO	LINIE	WATER R		
			C. I				•	Direct Push	Date	Tin		Depth	Casing	Stab
Da	te Start/F	inish: _	12-28	3-23 / 12-2	28-23	O.D. / I.D.: _		2"						
Во	ring Loc	ation: _		N/A				140lbs						
GS	Elev.: _	N/A	Datu	um:	N/A	Hammer Fall: _		30"						
		San	nple Inforn	nation		TOC Elev.: _	N/A	N/A	Surveyed	By: _	N	/A Sur	vey Date:	
ŧ											S.	Equip	ment Insta	llod
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descripti	Sample ion & Classific	ation	Stratum Desc.		Remarks	Ечир	ment mata	illeu
	1	48/38	0-4			ORGANIC MATT			0.3' ORGANIC MATTER / TOPSOIL				None	
1-	_					Changing at 0.3 sILT, little fine Sat 2.0 feet to: Grasand, moist (CL) Brown, fine to maint (SM).	and, moist (CL ay, CLAY & SII). Changing at :). Changing LT, little fine 3.0 feet to:	TOPSOIL CLAY & SILT					
2-	1													
Ζ-											1			
3-									3' SAND					
_	+													
4-	2	48/42	4-8			Brown, fine to me moist (SM).	edium SAND, I	ittle Silt,			2			
5-	-													-
6-														
U														
7-														
8-						Bottom of Boreho	ole at 8.0 Feet		8'		3			
	-					Dottom of Borone	5.5 4. 5.0 1 661				4			
9-	_													
R E M A R K S	 Soil s Grou 	ample wa ndwater v	as collected vas not enc	from app ountered	roximatel during dril	y 2.0 to 3.0 feet belov y 4.0 to 5.0 feet belov ling or upon completi upon completion.	v ground surface							
Strat and	ification line under cond	es represe tions state	nt approxima d. Fluctuatio	ate boundary	y between s dwater ma	soil types, transitions ma y occur due to other fact	ay be gradual. Wa tors than those pre	ter level readings sent at the time m	have been mad leasurements we	e at tim	nes de.	Boring No.: [OC-1-SB-2	

BORING_WELL 62677.92 COURTLAND.GPJ GZA_CORP.GDT 2/16/24

		GZ	ZA .				Wolverir	ne World Wide				DC-1	
	GZ\)	Ge En	oEnvironn gineers and	nental, Ir d Scientist	1 c. ts		С	ourtland				1 of _ 16.00626	
0-			Terra					ord, Michigan				10.00020	
	ntractor: reman: _			enosk			Auger/ Casing	Sampler		GROUN	IDWATER R		_
Lo	aaed by:		C. I			 Type: _	•	Direct Push	Date	Time	Depth	Casing	Stab
Da	te Start/F	inish: _	12-28	3-23 / 12-2	28-23	O.D. / I.D.: _		2"	_				
Во	ring Loca	ation: _		N/A		Hammer Wt.:	N/A	140lbs	-				
GS	Elev.: _	N/A	Datu	um:	N/A	Hammer Fall: _		30"	_				
		San	nple Inforn	nation		TOC Elev.:	N/A	N/A	Surveyed	l By:	N/A Su	rvey Date:	
ŧ										ks	Fauir	ment Insta	ılled
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descript	Sample ion & Classific	ation	Stratum Desc.	Remarks	Equip		
	1	48/38	0-4			ORGANIC MATT	ΓER (wood) / T	OPSOIL.	ORGANIC	<u> </u>		None	
						Changing at 1.0	foot to: Light b		MATTER / TOPSOIL				
	1					SAND, little Silt,	moist (SM).						
1-	_								1'				
ľ									SAND				
	-												
2-	1									1			
3-	_												
	1												
4-	2	48/41	4-8			Light brown, fine	SAND, little S	ilt, moist		2			
	_					(SM).							
5-	-												-
	1												
6-	_												
	-												
_													
/-	7												
	_												
8-						Bottom of Boreho	ole at 8.0 Feet		8'	3			
										4			
	1												
9-	1												
	1												
	1. Soil s	ample w	as collected	from ann	roximatel	y 2.0 to 3.0 feet below	v ground surface	e and submitted	for analytical I	aborator	v testina		
R	Soil s	ample wa	as collected	from app	roximatel	y 4.0 to 5.0 feet below	w ground surface	e and submitted	for analytical l	aborator	y testing.		
E M	Ground Boreh	nowater v nole was	vas not enc backfilled w	ountered vith bentor	auring ari nite chips	lling or upon completi upon completion.	IUI1.						
Α					•	-							
R K													
S													
Strati	ification line under condi	es represe tions state	nt approxima d. Fluctuatio	ate boundar ons of grour	y between ndwater ma	soil types, transitions ma ly occur due to other fact	ay be gradual. Waters than those pre	ater level readings esent at the time m	have been mad easurements we	e at times ere made.	Boring No.: 1	DC-1-SB-3	

BORING_WELL 62677.92 COURTLAND.GPJ GZA_CORP.GDT 2/16/24

		GZ	A			Wolverine World Wide Boring No.: DC-1-SB-4 Courtland Page: 1 of 1								
GeoEnvironmental, Inc. Engineers and Scientists							File No.: 16.0062677.9							
Contractor: Terra Probe								ord, Michigan						
Foreman: S. Slenosk						Auger/ Casing	Sampler		CBUII		Check:			
			C.			 Type: _	_	Direct Push	Date	Time	NDWATER READINGS Depth Casing		s	
Date	Start/F	inish: _	12-28	3-23 / 12-2	28-23	O.D. / I.D.:	N/A	2"						
						Hammer Wt.:			-	-				
GS I	Elev.: _	N/A	Datu	um:	N/A	Hammer Fall: TOC Elev.: _		30" N/A	Cumana	l Dva	N/A Su	mov Doto:		
		Sam	Sample Information		I OC Elev.: _	1 11/71		_ ourveyed	ı by:	_ <u>~~</u> 50	i vey Date:			
Depth	No.	Pen./ Rec.	Depth (Ft.)	Blows (/6")	Test Data	Description	Sample on & Classifi	cation	Stratum Desc.	Remarks	Equi	oment Insta	alled	
		(in.)		. ,					ORGANIC	Re				
1- 2- 3- 4-	2	48/44	0-4			ORGANIC MATTI Changing at 0.3 fe SAND, little Silt, n	eet to: Light k	prown, fine	0.3' MATTER/ TOPSOIL SAND	1		None		
5									8.	3				
9-						Bottom of Boreho	le at 8.0 Fee	t		4				
? ;	 Soil s Grou 	ample wa ndwater w	s collected as not end	from app ountered	roximatel during dri	y 3.0 to 4.0 feet below y 5.0 to 6.0 feet below lling or upon completic upon completion.	ground surface	ce and submitted be and submitted	for analytical for analytical	laborato laborato	ry testing. ry testing.			
	cation line	es represer	nt approxima	ite boundan	/ between	soil types, transitions may	, he gradual M	/	have been mad	lo at timo	9			
ratifi								ater level readings				DC-1-SB-4		

		GZ	Ä			Wolverine World Wide Boring No.: HQ-1-SB-1								
	GZN	Ge	oEnvironi	nental, In	ic.		С	ourtland			Page:	_1 of _	1	
	Contractor: Terra Probe				s		Rockfo	ord, Michigan				16.00626		
Cor	ntractor	:	Terra	a Probe			Auger/	Sampler			Check: _			
For	eman: _			enosk		_	Casing	-	_		IDWATER F			
Log	gged by:		C.	Melby		Type: _		Direct Push	Date	Time	Depth	Casing	Stab	
Dat	te Start/I	Finish: _	12-28	3-23 / 12-2	28-23	O.D. / I.D.: _		2"	-					
Bor	ring Loc	ation:		N/A		Hammer Wt.: _	N/A	140lbs	-					
GS	Elev.: _	N/A	Date	um:	N/A	Hammer Fall: _		30"			N/A 0			
		Sam	ple Inforr	nation		TOC Elev.: _	N/A	N/A	Surveyed	і ву:	N/A Su	rvey Date:		
ŧ			-							(S	Fauir	nment Inst:	alled	
Dep	No. Re (ir		Depth (Ft.)	Blows (/6")		Descripti	Sample on & Classific	cation	Stratum Desc.	Remarks	Equipment Installed			
1- 2- 3- 4- 5-	2	48/32	0-4			Dark brown, fine Silt, moist (SM). Light brown, fine moist (SM). Light brown, fine moist (SM).	Changing at 0 to medium SA	.3 feet to: AND, little Silt,	SAND	1		None		
6- 7- 8- 9-						Bottom of Boreho	ole at 8.0 Feet		8'	3 4				
R E M A R K S	 Soil s Grou 	sample wa ndwater w	as collected vas not end	d from app countered o	roximatel during dri	y 3.0 to 4.0 feet below y 5.0 to 6.0 feet below lling or upon completio upon completion.	/ ground surfac							
Stratif						soil types, transitions ma					Boring No.:	HQ-1-SB-1		

l			GZ	A			-	Wolverir	ne World Wide				O.:HQ-1	
	G Z		Geo	oEnvironi gineers and	<mark>mental, I</mark> nd Scientist	s S		С	ourtland			Page:	1 of _ 16.00626	<u>1</u>
١.			_			~			ord, Michigan				10.00020	
Co	ontract	tor: _		Terra	a Probe			Auger/	Sampler		0001111			
	reman	1:		S. SI C.	Melby			Casing Geoprobe	Direct Push	Date	Time	DWATER R Depth		Stab
	iggea i	by: _	alah.	12-28	1VICIDY 3-23 / 12-1	28-23	Type: _		2"	Date	IIIIe	Deptii	Casing	Stab
							O.D. / I.D.: _ Hammer Wt.: _		140lbs	•				
							Hammer Fall: _		30"					
					u	· ·		N/A		Surveyed	l Bv	N/A Su	rvev Date:	
			Sam	ple Inforr	nation		100 2.01.1			. Gui royou	· - y		voy Dato.	
Depth			Pen./							.	rks	Equip	ment Insta	alled
De	No	э.	Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descripti	Sample on & Classific	cation	Stratum Desc.	Remarks			
1 · 2 · 3 · 4 · 5 · 6 ·	2		48/30	0-4			Dark brown, fine Silt, some Organi dry (SM). Changi brown, fine to me (SM). Light brown, fine dry (SM).	ic Matter (woo ng at 0.3 feet dium SAND, I	d, leaves), to: Light ittle Silt, dry	SAND	1		None	
7	-						Bottom of Boreho	ole at 8.0 Feet		8'	3 4			
REMARKS	2. So 3. G	oil sa round	mple wa Iwater w	as collected as not end	d from app countered	roximatel during dri	y 3.0 to 4.0 feet below y 7.0 to 8.0 feet below lling or upon completion upon completion.	ground surfac	e and submitted f e and submitted f	for analytical for analytical	laboratory	testing.		
S Stra	tification	n lines	represer	nt approxima	ate boundar	y between	soil types, transitions ma	y be gradual. Woors than those pro	ater level readings l	nave been mad	le at times ere made.	Boring No.: 1		

		GZ	A				Wolverir	ne World Wide				O.:HQ-	
	GZN	Geo	oEnvironi gineers and	nental, In	ıc.		C	ourtland				1 of	
					3		Rockfo	ord, Michigan				16.00626	
Cor	ntractor:		Terra	a Probe			Auger/	Sampler			Check: _		
For	eman: _			enosk		_	Casing	•	_		DWATER F		
Log	gged by:		C.	Melby		Type: _		Direct Push	_ Date	Time	Depth	Casing	Stab
Dat	e Start/F	inish: _	12-28	3-23 / 12-2	28-23	O.D. / I.D.: _		2"	-				
						Hammer Wt.: _		140lbs	-				
GS	Elev.: _	N/A	Date	um:	N/A	Hammer Fall: _		30"			N/A 0		
		Sam	ple Inforr	nation		TOC Elev.: _	N/A	N/A	Surveyed	ву:	N/A Su	rvey Date:	
ŧ										S	Fauir	ment Insta	alled
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descripti	Sample on & Classific	ation	Stratum Desc.	Remarks	Equip	ment mate	alleu
	1	48/28	0-4			TOPSOIL / ORGA			TOPSOIL / 0.3' ORGANICS			None	
1	-					Changing at 0.3 f coarse SAND, litt at 1.0 foot to: Ligi SAND, little Silt, o	tle Silt, dry (SN ht brown, fine	/I). Changing	SAND				
3-		48/30	4-8			Light brown fine	to modium CA	ND little Cit		1			
5- - 6-	_	46/30	4-0			Light brown, fine dry (SM).	to medium SA	IND, IIIIE SIII,		2			
7- - 8- - 9-						Bottom of Boreho	ole at 8.0 Feet		8.	3 4			
	Soil s Grou Borel fication lin	eample wandwater wandle was be was a second was be was a second was be was a second wa	as collected vas not end packfilled v	d from app countered (vith bentor	roximatel during dri ite chips	y 3.0 to 4.0 feet below y 5.0 to 6.0 feet below lling or upon completion upon completion.	y ground surface on. ay be gradual. Wa	e and submitted	for analytical l	aborator		HQ-1-SB-3	

		GZ	Ä				Wolverir	ne World Wide			Boring No	O.: HQ-2	!-SB-1
	GZ\) Geo	oEnvironi gineers and	mental, In	ic.		С	ourtland			Page:	1 of _	1
					3			ord, Michigan				16.00626	
Coı	ntractor	·	Terr	a Probe		_	Auger/	Sampler					
For	eman: _		S. SI	enosk			Casing	•	5 /		DWATER R		
Log	gged by:		C.	Melby	20.00	Type: _		Direct Push	_ Date	Time	Depth	Casing	Stab
			12-28					2"	-				
						Hammer Wt.: _		140lbs 30"	_				
GS	Elev.: _	IN/A	Dat	um:	N/A	Hammer Fall: _ TOC Elev.: _				I D	N/A C	m.co Doto.	
		Sam	ple Inforr	nation		TOC Elev.: _	IN/A	IN/A	_ Surveyed	і ву:	N/A Su	rvey Date:	
ŧ		_ ,								ks	Fauir	ment Insta	alled
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descripti	Sample on & Classific	cation	Stratum Desc.	Remarks	Ечин	ment mate	<u> </u>
1	2	48/32	0-4			Oragnic Matter (v to: Brown, Silty C Sand, damp (CL) Brown, Silty CLA Sand, damp (CL)	Y, little fine	to medium	ORGANIC 0.3' MATTER Sitty CLAY	1		None	
7- 8- 9-	 Soil s Grou 	sample wa ndwater w	as collected vas not end	d from app countered	roximatel during dri	Bottom of Boreho y 1.0 to 2.0 feet below y 7.0 to 8.0 feet below y 7.0 to 8.0 feet below	y ground surfac	e and submitted	8' for analytical for analytical	2 3 4	testing.		
M A R K S	4. Bore	hole was t	backfilled v	vith bentor	nite chips	upon completion.		ntor lovel so allow	have been and	do at times			
and u	inder cond	itions state	d. Fluctuation	ons of groun	dwater ma	soil types, transitions ma ay occur due to other factor	ors than those pre	esent at the time m	neasurements w	ere made.	Boring No.: I	HQ-2-SB-1	

		GZ	A E=====					ne World Wide			Boring No).: HQ-2	2-SB-2 1
	GZN	Geo Eng	Environi gineers and	mental, In d Scientist	s.			ourtland			Page:	1 of _ 16.00626	<u> </u>
C	ntvocto:		Terra					ord, Michigan				10.00020	
For	ntractor:		S. SI	enosk			Auger/ Casing	Sampler		GPOLINI	DWATER R		
Loc	aaed by:		C.	Melby		 Type: _	_	Direct Push	Date	Time	Depth	Casing	Sta
Dat	te Start/F	inish: _	12-28	3-23 / 12-2	28-23	O.D. / I.D.: _		2"					
						Hammer Wt.: _		140lbs					
						Hammer Fall: _		30"					
		Sam	ple Inforn	notion		TOC Elev.: _	N/A	N/A	_ Surveyed	Ву:	V/A Sui	rvey Date:	
ţ			ipie illion	IIation						ķ	Fauin	ment Insta	ılled
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Description	Sample on & Classific	cation	Stratum Desc.	Remarks	Ечин	mont moto	······
1-	1	48/30	0-4			ORGANIC MATT 0.3 feet to: Brown moist (SM).			0.3' MATTER SAND			None	
2-	- - -												
3-										1			
4- 5-	2	48/36	4-8			Brown, fine SANE	D, little Silt, mo	oist (SM).					
6-										2			
7-						Bottom of Boreho	lo et 9.0 Feet		8'	3			
9-	_					Solom of Borello	no at 0.0 i 00 1			4			
R E VI A R K S	 Soil s Ground 	ample wa ndwater w	s collected as not end	d from app countered	roximatel during dri	y 3.0 to 4.0 feet below y 6.0 to 7.0 feet below lling or upon completic upon completion.	ground surfac						

		GZ	ZA				Wolverin	e World Wide			Boring No	D.:HQ-2	-SB-3
	GZN	Ge	oEnvironn gineers and				Co	ourtland			Page:	1 of _	1
			_		•		Rockfo	rd, Michigan				16.00626	
			Terra	Probe		_	Auger/	Sampler					
	reman: _			enosk		_	Casing	-			DWATER R		04-1-
Lo	gged by:		C. I	Melby	0.00	Type: _	Geoprobe	Direct Push	Date	Time	Depth	Casing	Stab
			12-28			O.D. / I.D.: _		2"	-				
RO	ring Loca	ation:	Datu	N/A	N/A			140lbs 30"	-				
G	D Elev.: _	IN/A	Dall	um:	IN/A	Hammer Fall: _ TOC Elev.: _		N/A	Surveyed	Rv:	N/A Sui	woy Dato:	
		San	nple Inforn	nation		TOO LIEV	. 47.1		_ Surveyeu	Бу	<u></u> Jui	vey Date.	
Depth		Pen./								ks	Equip	ment Insta	lled
De	No.	Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Description	Sample on & Classific	ation	Stratum Desc.	Remarks			
1-	1	48/46	0-4			TOPSOIL. Chang Silty CLAY, trace Changing at 1.0 f gray, Silty CLAY, (CL).	fine Sand, mo	oist (CL). and slightly	0.3' Silty CLAY	1		None	
3-	_												
4	2	48/48	4-8			Brown and slightly fine Sand, moist (y gray, Silty C (CL).	_AY, trace		2			
5	_												-
6	-												
7	_								8'				
8-	-					Bottom of Boreho	ole at 8.0 Feet			3 4			
9-	-												
R E M A R K S	 Soil s Ground 	ample wa ndwater v	as collected vas not enc	I from approunted o	oximately Iuring drill	/ 2.0 to 3.0 feet below / 4.0 to 5.0 feet below ling or upon completion upon completion.	ground surface						

BORING_WELL 62677.92 COURTLAND.GPJ GZA_CORP.GDT 2/16/24

		GZ	A				Wolverir	ne World Wide			Boring No	D.: HQ-3	3-SB-1
		Geo	oEnvironi gineers and	nental, In	c.		C	ourtland			Page:	1 of _	1
		_			-			ord, Michigan				16.00626	
Cor	ntractor	·	Terra	a Probe			Auger/	Sampler					
For	eman: _		S. SI	enosk			Casing	•			IDWATER R		
Log	ged by:		C.	IVIEIDY	7 72	Type: _		Direct Push 2"	Date	Time	Depth	Casing	Stab
			12-27										
						Hammer Wt.: _		140lbs 30"					
L GS	Elev.: _	IN/A	Dati	um:	N/A	Hammer Fall: _ TOC Elev.: _			Cuprovod	D.	N/A Su	nese Datas	
		Sam	ple Inforr	nation		TOC Elev.: _	IN/A		Surveyed	ву:	<u> </u>	vey Date:	
Ę			-							ķ	Fauir	ment Insta	alled
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Description	Sample on & Classific	cation	Stratum Desc.	Remarks	Equip	ment mate	ilica
1- 2- 3- 4-	2	48/30	0-4			Brown and gray, (CONCRETE / FI to: Brown, Silty C Sand, damp (CL) Brown, Silty CLA' Sand, damp (CL)	LL). Changing: LAY, trace fin	g at 3.0 feet e to medium	CONCRETE / FI			None	
5- 5- 6- 7-										2			
8- - 9-						Bottom of Boreho	ole at 8.0 Feet		9'	3 4			
REMARKS	 Soil s Grou 	sample wa Indwater w	as collected as not end	d from app countered o	roximatel during dri	y 2.0 to 3.0 feet below y 5.0 to 6.0 feet below lling or upon completion upon completion.	ground surfac	e and submitted f e and submitted f	or analytical I or analytical I	aborator	y testing. y testing.		
Stratit and u	nder cond	es represer itions state	nt approxima d. Fluctuation	ate boundary ons of groun	/ between dwater ma	soil types, transitions ma ly occur due to other facto	y be gradual. Wa ors than those pre	ater level readings he esent at the time me	nave been mad easurements we	e at times ere made.	Boring No.: I	HQ-3-SB-1	

Cooling Cool			GZ	Z A				Wolveri	ne World Wide			Boring N	O.:HQ-3	-SB-2
Ontractor: Terra Probe oreman: S. Sienesk Orgod by: C. Melby: Type: Georebe Dred Path O.D. / I.D.: NA. 2 Hammer Wt.: NA. 140be Hammer Rtl: NA. 30' TOC Flev: NA. NA. Surveyed By: NA. Surveyed By: NA. Survey Date: No. Pen / Ft. Sign Na. Na. Debum: NA. Toc Flev: NA. NA. Surveyed By: NA. Survey Date: No. Pen / Ft. Sign Na. Na. Debum: NA. Toc Flev: NA. NA. Surveyed By: NA. Survey Date: TOC Flev: NA. NA. Surveyed By: NA. Surveyed By: NA. Survey Date: TOC Flev: NA. NA. Surveyed By: NA. Surveyed By: NA. Survey Date: TOC Flev: NA. NA. Surveyed By: NA. Surveyed By: NA. Survey Date: Toc Flev: NA. NA. Surveyed By: NA. Survey Date: Toc Flev: NA. NA. Surveyed By: NA. Survey Date: Toc Flev: NA. NA. Surveyed By: NA. Survey Date: Toc Flev: NA. NA. Surveyed By: NA. Survey Date: Toc Flev: NA. NA. Surveyed By: NA. Survey Date: Toc Flev: NA. NA. Surveyed By: NA. Survey Date: Toc Flev: NA. NA. Surveyed By: NA. Survey Date: Toc Flev: NA. NA. Surveyed By: NA. Surveyed By: NA. Survey Date: Toc Flev: NA. NA. Surveyed By: NA. Surveyed By: NA. Surveyed By: NA. Surveyed By: NA. Survey Date: Toc Flev: NA. NA. Surveyed By: NA.		5 Z\	Ge	oEnvironi				С	ourtland					
Auger/ orman: S. Sienosk S. Sienosk Sogged by: C. Melby C		-/	_			s		Rockfo	ord, Michigan					
group by: C. Melby Type: Gesentee Direct Plah OD. II. IN A CONTROLOGISTORY IN A CONTROLOGISTO					a Probe									
atle Start/Finish: 12-27-23 / 12-27-23 O.D. / ID. N/A 2* N/A 1400 Start St								~	•	_				_
Selev: NA Datum:	_og	ged by:		C.	Melby	27.00	Type: _			_ Date	Time	Depth	Casing	Stat
SERVY: NA Datum: NA ANA Surveyd By: NA Survey Date: Sample Information NO POID Roc. (Pft.) 1 48/26 0 0.4									'	-				
Surveyed By: No. Surveyed By	sor	ing Loc	ation:	Det						-				
Sample Information No. Pol. Depth Rev. Depth Rev. Re	<u>ე</u>	⊏iev.: _	IN/A	Dat	um:	IN/A				Surveyed	l Rv	N/A C	rvey Date:	
1 4826 0-4 TOPSOIL Changing at 0.2 feet to Dark brown, fine to coarse SAND, little Gravel, trace Silt, moist (SW). Brown, fine to coarse SAND, little Gravel, trace Silt, moist (SW). Brown, fine to coarse SAND, little Gravel, trace Silt, moist (SW). Brown fine to coarse SAND, little Gravel, trace Silt, moist (SW). Brown fine to coarse SAND, little Gravel, trace Silt, moist (SW). 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 3.0 to 4.0 feet below ground surface and submitted for analytical laboratory testing. 3. Soil sample was collected from approximately 3.0 to 4.0 feet below ground surface and submitted for analytical laboratory testing. 3. Soil sample was collected from approximately 3.0 to 4.0 feet below ground surface and submitted for analytical laboratory testing. 3. Soil sample was collected from approximately 3.0 to 4.0 feet below ground surface and submitted for analytical laboratory testing. 4. Borehole was backfilled with bentonite chips upon completion.			Sam	ple Inforr	mation		100 Liev			_ Our veyed	ъу	Ou	ivey Date.	
1 4826 0-4 TOPSOIL Changing at 0.2 feet to Dark brown, fine to coarse SAND, little Gravel, trace Silt, moist (SW). Brown, fine to coarse SAND, little Gravel, trace Silt, moist (SW). Brown, fine to coarse SAND, little Gravel, trace Silt, moist (SW). Brown fine to coarse SAND, little Gravel, trace Silt, moist (SW). Brown fine to coarse SAND, little Gravel, trace Silt, moist (SW). 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 3.0 to 4.0 feet below ground surface and submitted for analytical laboratory testing. 3. Soil sample was collected from approximately 3.0 to 4.0 feet below ground surface and submitted for analytical laboratory testing. 3. Soil sample was collected from approximately 3.0 to 4.0 feet below ground surface and submitted for analytical laboratory testing. 3. Soil sample was collected from approximately 3.0 to 4.0 feet below ground surface and submitted for analytical laboratory testing. 4. Borehole was backfilled with bentonite chips upon completion.	Depth		Pen./	5 "				0		044	rks	Equip	ment Insta	alled
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	ratif	ication lin	as rantasa	nt annrovima	ate houndar	v hetween	soil types transitions ma	v he gradual M	ater level readings	have been mad	e at times			
												Boring No.:	HQ-3-SB-2	

		GZ	A				Wolveri	ne World Wide				O.:HQ-3	
	GZN	Ge	oEnvironi	mental, In d Scientist	c.		С	ourtland				of _	
		_			S		Rockfo	ord, Michigan				16.00626	
Con	tractor:	:	Terra	a Probe			Auger/	Sampler			Check: _		
				enosk			Casing	-			DWATER F		
Log	ged by:		C.	Melby	7.00	Type: _		Direct Push	Date	Time	Depth	Casing	Stab
				7-23 / 12-2				2"	-				
			D-4		AL/A			140lbs 30"	-				
GS	Elev.: _	IN/A	Dat	um:	N/A	Hammer Fall: _ TOC Elev.: _		N/A	Sumovos	l Dva	N/A Su	myoy Doto:	
		Sam	ple Inforr	nation		TOC Elev	14/7 (14/7	Surveyed	і Бу	Ju-	vey Date.	
oth		Pen./								ks	Equip	ment Insta	alled
Depth	No.	Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descripti	Sample on & Classifi	cation	Stratum Desc.	Remarks			
1— 2— 3— 4— 5— 6—	2	48/31	0-4			Brown, fine to coa (SM).	NĎ, little Silt,	moist (SM).	TOPSOIL 0.4' SAND	1		None	
M A R	 Soil s Grou 	sample wa ndwater w	as collected vas not end	d from appl countered o	roximatel during dri	y 2.0 to 3.0 feet below y 7.0 to 8.0 feet below lling or upon completion.	v ground surfac v ground surfac	ee and submitted					
K S													
						soil types, transitions ma					Boring No.:	HQ-3-SB-3	

Page:1 _ of1 File No.:16.0062677.92 Check:
Check:
DINDWATER READINGS THE Depth Casing State N/A Survey Date: Equipment Installed None
N/A Survey Date: Equipment Installed None
Equipment Installed None
Equipment Installed None
Equipment Installed None
Equipment Installed None
None
None
None
3
ory testing.

		GZ	Ä				Wolveri	ne World Wide				O.: HQ-4	
	GZN	Ge	oEnvironr	nental, In	ic.		С	ourtland			Page:	_1 of _	1
		_	gineers and		3		Rockfo	ord, Michigan				16.00626	
Cor	ntractor	:	Terra	a Probe			Auger/	Sampler			Check: _		
For	eman: _		S. SI	enosk		_	Casing	•	_		DWATER F		
Log	gged by:		C.	Melby		Type: _		Direct Push	Date	Time	Depth	Casing	Stab
			12-27					2"					
						Hammer Wt.: _		140lbs					
GS	Elev.: _	N/A	Dati	um:	N/A	Hammer Fall: _		30"					
		Sam	ple Inforn	nation		TOC Elev.: _	N/A	N/A	Surveyed	l By:	N/A Su	rvey Date:	
ŧ			•							<u>s</u>	Equir	ment Insta	allod
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descripti	Sample on & Classific	cation	Stratum Desc.	Remarks	Equip	mient msta	illeu
1- 2- 3- 4- 5-	2	48/31	0-4			Brown, fine to me moist to wet (TOF feet to: Brown, fin Silt, moist. Brown, fine to me moist.	PSOIL). Chan ne to medium	ging at 0.7 SAND, trace	TOPSOIL 0.7' SAND	1		None	
6 7 8 9						Bottom of Boreho	ole at 8.0 Feet		8'	3 4			
R E M A R K S	 Soil s Grou 	sample wa ndwater w	as collected vas not end	d from appl countered o	roximatel during dri	y 2.0 to 3.0 feet below y 6.0 to 7.0 feet below lling or upon completion upon completion.	ground surfac						
						soil types, transitions ma					Boring No.:	HQ-4-SB-1	

		GZ	ZA				Wolveri	ne World Wide				lo.:	
	GZN	Ge	oEnvironi	mental, In	c.		С	ourtland				of _	
		_	gineers and		3	_	Rockfo	ord, Michigan				16.00626	
			Terra	a Probe			Auger/	Sampler			Check: _		
For	reman: _			enosk			Casing	•			NDWATER		
Lo	gged by:		C.	Melby	.7.00	Type: _		Direct Push	_ Date	Time	<u>Depth</u>	Casing	Stab
Dat	te Start/F	Finish: _	12-27	7-23 / 12-2	27-23	O.D. / I.D.: _		2"	-				
						Hammer Wt.: _		140lbs 30"	-				
GS	Elev.: _	IN/A	Dati	um:	N/A	Hammer Fall: _ TOC Elev.: _		N/A	Sumovod	l Dva	N/A Su	ımıcıı Doto:	
		Sam	ple Inforr	nation		TOC Elev	14// (14/71	_ Surveyed	і Бу	St	ii vey Date.	
oth		Pen./								ķ	Equi	pment Insta	alled
Depth	No.	Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descripti	Sample on & Classific	cation	Stratum Desc.	Remarks			
	1	48/30	0-4			Brown, fine to me			TOPSOIL 0.3'			None	
						moist (TOPSOIL) Brown, Silty CLA). Changing at	0.3 feet to:	Silty CLAY				
						Sand, moist (CL)	. Changing at	1.3 feet to:					
1-						Brown to black to	gray, fine to						
•						SAND, trace Silt,	moist (SW).		1.3'				
									SAND				
2-	-									1			
										'			
	-												
3-													
4-	2	48/32	4-8			Brown, fine to coa							
						Clay, moist (SC).							
						Light brown, fine Silt, moist (SP).	to medium SA	AND, trace					
5-													
J										2			
6-	-												
	-												
7-													
									8'				
8-						Bottom of Boreho	ole at 8.0 Feet			3 4			
										-			
9-													
9													
						y 2.0 to 3.0 feet below							
R E						y 5.0 to 6.0 feet below lling or upon completion		e and submitted	for analytical l	laborato	ry testing.		
М						upon completion.	OII.						
Α					•								
R K													
S													
Strati	ification lin	es reproso	nt approvima	ate hounder	/ hetwoor	soil types, transitions ma	ny he gradual M	ater level readings	have been mad	le at time			
						ay occur due to other fact						HQ-4-SB-2	

		GZ					Wolverin	ne World Wide				O.: HQ-4	
	GZ\	Geo	oEnvironi gineers and	mental, In	ic.		Co	ourtland			Page:	1 of _	1 277.00
					~			ord, Michigan				16.00626	
Coı	ntractor	·	Terra	a Probe		_	Auger/	Sampler					
For	eman: _		S. SI	enosk			Casing	•	5 /		DWATER F		
Log	ged by:		C.	Melby	7 00	Type: _		Direct Push	Date	Time	Depth	Casing	Stab_
			12-27					2"	-			-	
						Hammer Wt.: _		140lbs 30"				+	
GS	Elev.: _	IN/A	Dati	um:	N/A	Hammer Fall: _	N/A		C	L D	NI/A Com		
		Sam	ple Inforr	nation		TOC Elev.: _	IN/A	N/A	Surveyed	і ву:	N/A Su	rvey Date:	
ŧ		_ <i>,</i>	-							ks	Fauir	ment Insta	alled
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descripti	Sample on & Classific	ation	Stratum Desc.	Remarks	Equip	mont mote	<u>ca</u>
1- 2- 3- 4- 5- 6-	2	48/30	0-4 4-8			Light brown, fine (SM). Changing at 1.0 f SAND, some Silt, SAND, some Silt, Changing at CLAY, trace fine embedded, moist to: Light brown, fi Silt, moist (SM).	SAND, some at 5.0 feet to: Eto medium Sat (CL). Changing	, moist (SM). rown, fine Silt, moist Brown, Silty nd ng at 6.0 feet	0.2' TOPSOIL SAND 5' Silty CLAY 6' SAND	1 2		None	
8- - 9-	-					Bottom of Boreho	ole at 8.0 Feet		8'	3 4			
R E M A R K S	 Soil s Grou 	sample wa ndwater w	as collected vas not end	d from app countered	roximatel during dri	y 2.0 to 3.0 feet below y 4.0 to 5.0 feet below lling or upon completion upon completion.	ground surface						
						soil types, transitions ma ay occur due to other factor					Boring No.:	HQ-4-SB-3	

		GZ		nontal I	10			ne World Wide			Boring No).: <u>HQ-4</u> 1 - •	4-SB-4 1
	GZN	Geo Eng	oEnvironr gineers and	nental, In d Scientist	s			ourtland			Page:	ot _ 16.00626	<u>. </u>
۰۰-	ntractor	_	Terra					ord, Michigan					
For	ılı actor: eman:		S. Sl	enosk			Auger/ Casing	Sampler		GROUN			
Log	ged by:		C. l	Melby		 Type: _	U	Direct Push	Date	Time	Depth	Casing	s
Dat	e Start/F	inish: _	12-27	'-23 / 12-2	27-23	O.D. / I.D.: _	N/A	2"					
						Hammer Wt.: _			-				
GS _	Elev.: _	N/A	Datu	um:	N/A	Hammer Fall: _ TOC Elev.: _					N/A 0	new Pote:	
		Sam	ple Inforn	nation		I OC Elev.: _	IN/A		_ Surveyed	ъу:	Sul	vey Date:	
Depth	No.	Pen./ Rec.	Depth (Ft.)	Blows (/6")	Test Data	Description	Sample	cation	Stratum Desc.	narks	Equip	ment Insta	allec
		(in.)	` ,			•				- R			
1- - 2-	1	48/36	0-4			TOPSOIL. Chang fine to medium SA (SM). Changing a medium SAND, lit (SP). Changing at Rich SILT, trace fi (ML).	AND, little Silit 1.0 foot to: lttle to trace Standard to: (3.0 feet to: (4.1)	t, moist to wet Brown, fine to ilt, moist Gray, Organic	0.3' SAND			None	
3-	_								3' SILT	1			
4 5 6	2	48/32	4-8			Gray, Organic Ric medium Sand, mo feet to: Brown, Sil medium Sand em	oist (ML). Cha ty CLAY, sor	anging at 6.0 ne fine to	6'	File No.: 16.00 Check:			
7-									Silty CLAY	3			
9-						Bottom of Boreho	ie ai б.U Fee						
:	 Soil s Grou 	ample wa ndwater w	is collected as not end	from app ountered	roximatel during dril		ground surfac						
44.9	fication lin	ac reproces	nt approvima	ate hounder	, hetwoon	eail types transitions may	, he gradual M		hava baan mad	o at timas			
	wallon lin	es represer	II ADDROXIMA	ue poundar\	v petween :	SOU IVIDES TRANSITIONS MAY							



APPENDIX E – LABORATORY REPORTS