



EXTENT OF CONTAMINATION STUDY REMOVAL WORK PLAN

House Street Disposal Area Plainfield Township, Kent County, Michigan

May 29, 2018 File No. 16.0062335.52

PREPARED FOR:

Wolverine World Wide, Inc. Rockford, Michigan

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WATER CONSTRUCTION MANAGEMENT



Submitted Via Email Only

May 29, 2018 File No. 16.0062335.52

Mr. Jeffrey Kimble, On-Scene Coordinator (OSC) United States Environmental Protection Agency - Region 5 9311 Groh Road Grosse Ile, Michigan 48135

Re: Extent of Contamination Study Removal Work Plan House Street Disposal Area Plainfield Township, Kent County, Michigan

Dear Mr. Kimble:

On behalf of Wolverine World Wide, Inc. (Wolverine), Rose & Westra, a Division of GZA GeoEnvironmental, Inc. (R&W/GZA), has prepared this Extent of Contamination Study Removal Work Plan (RWP) for the former Wolverine House Street Disposal Area in Plainfield Township, Kent County, Michigan. This RWP was prepared in response to the EPA Region 5 Unilateral Administrative Order for Removal Actions¹ (UAO) effective February 1, 2018, associated with the Former Wolverine Tannery and House Street Disposal Area. This RWP is submitted pursuant to Paragraph 20(a) of the UAO. This RWP incorporates your comments made in your May 11, 2018 letter and May 23, 2018 electronic-mail.

Very truly yours,

Rose & Westra, A Division of GZA GeoEnvironmental, Inc.

Jiangeng (Jim) Cai, P.E.

Senior Project Manager

John C. Osborne, P.G.

Consultant Reviewer/Senior Vice President

Mark A. Westra **Associate Principal**

Attachment

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^{1.} Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Docket No. V-W-18-C-004.



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Appendices to the QAPP such as Standard Operating Procedures will be incorporated by reference.





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Acronym	Definition
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ARARS Applicable or Relevant and Appropriate Requirements

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act

COC Constituent of Concern
CSM Conceptual Site Model

CSM Update "Conceptual Site Model Update and Status Report," prepared by R&W/GZA,

dated February 9, 2018

EE/CA Engineering Evaluation/Cost Analysis

EPA United States Environmental Protection Agency

FSP Field Sampling Plan

GAC Granular Activated Carbon

Grid Block 400-foot by 400-foot square grid

GRGCC MDEQ Part 201 Generic Residential Groundwater Cleanup Criteria

GRSCC MDEQ Part 201 Generic Residential Soil Cleanup Criteria

GSI Groundwater-Surface Water Interface

HSS House Street Site

MDEQ Michigan Department of Environmental Quality

ng/L nanogram/Liter

PFAS Perfluoroalkyl and Polyfluoroalkyl Substances

PFOA Perfluorooctanoic Acid
PFOS Perfluorooctane Sulfonate

ppt parts per trillion PRT Post Run Tubing

QAPP Quality Assurance Project Plan

R&W/GZA Rose & Westra, a Division of GZA GeoEnvironmental, Inc.

RCRA Resource Conservation and Recovery Act

"Conceptual Site Model and Remedial Investigation Work Plan," prepared by R&W/GZA, dated

November 27, 2017

RRD Remediation and Redevelopment Division

RWP Removal Work Plan

Site House Street Site, 1855 House Street NE, Plainfield Township, Michigan

SOP Standard Operating Procedure SVOCs Semi-Volatile Organic Compounds

TAL Target Analyte List

TCLP Toxicity Characteristic Leaching Procedure

TSCA Toxic Substances Control Act
UAO Unilateral Administrative Order

VAP Vertical Aquifer Profiling
VOCs Volatile Organic Compounds
Wolverine World Wide, Inc.

XRF X-ray fluorescence





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1.0 INTRODUCTION

On behalf of Wolverine World Wide, Inc. (Wolverine), Rose & Westra, a Division of GZA GeoEnvironmental, Inc. (R&W/GZA) prepared this Extent of Contamination Study Removal Work Plan² (RWP) for the House Street Disposal Area located at 1855 House Street NE, Plainfield Township, Kent County, Michigan ("Site"), in response to the EPA's UAO for Removal Actions, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Docket No. V-W-18-C-004, dated January 10, 2018 and effective February 1, 2018. As required in UAO Paragraph 20 (c), this Draft RWP includes a schedule for this proposed investigation. The objectives of the removal actions described in this Draft RWP are to monitor, assess, and evaluate the relevant constituents of concern (COCs) present at the Site.

A Draft Field Sampling Plan (FSP) for the Site (R&W/GZA, 2018) and a Draft Quality Assurance Project Plan (QAPP) (R&W/GZA, 2018), prepared by R&W/GZA, dated March 5, 2018, have been submitted to EPA. EPA has provided comments, dated March 27, 2018, on the FSP and QAPP. R&W/GZA is preparing responses to EPA's comments. In addition, other investigative activities focusing on PFAS are ongoing under the supervision of the MDEQ.

2.0 SITE BACKGROUND

This section provides a summary of the Site background, history, previous investigation activities and data. Refer to the CSM Update for more detailed information.

2.1. SITE LOCATION AND HISTORY

The Site encompasses approximately 76 acres. The Site is located in an area of mixed rural and residential land use according to "Plainfield Charter Township Zoning Map," dated April 13, 2015. See **Figure 2.1-1** for a Site Locus.

The Site was a licensed and regulated disposal facility from the mid-1960s through 1978. Until 1970, the Site received leather tanning waste from Wolverine's Tannery located in Rockford, Michigan. The MDEQ Remediation and Redevelopment Division (RRD) files indicate the Site's disposal license expired in 1978, but it appears no waste was disposed after 1970. Based on past investigation data at the Site and Wolverine's Tannery Site, the waste also contains certain volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), select inorganic compounds, and PFAS including PFOS and PFOA. See **Figure 2.1-2** for a Site Diagram.

^{2.} Under CERCLA definition the term "remove" or "removal" means the cleanup or removal of released hazardous substances from the environment, such actions as may be necessary taken in the event of the threat of release of hazardous substances into the environment, such actions as may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances, the disposal of removed material, or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release. The term includes, in addition, without being limited to, security fencing or other measures to limit access, provision of alternative water supplies, temporary evacuation and housing of threatened individuals not otherwise provided for, action taken under section 9604(b) of this title, and any emergency assistance which may be provided under the Disaster Relief and Emergency Assistance Act [42 U.S.C. 5121 et seq.



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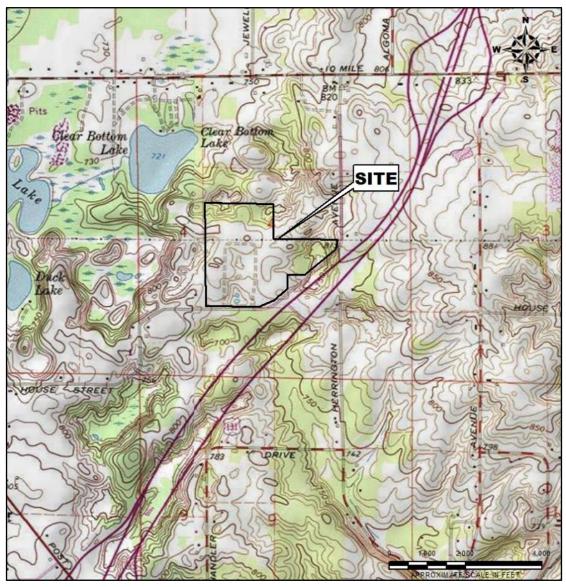


Figure 2.1-1: Site Locus

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Figure 2.1-2: Site Diagram

2.2. PREVIOUS INVESTIGATIONS

As part of the *Conceptual Site Model and Remedial Investigation Work Plan* prepared by R&W/GZA, dated November 27, 2017 (RIWP) implementation under the MDEQ investigation, R&W/GZA reviewed historical aerial photographs and identified potential historical disposal areas at the Site. Sixteen soil borings, identified as WB-1 through WB-16, were completed from November 27 to December 1, 2017 to assess the presence and obtain representative samples for characterization of the waste materials. Waste materials were observed in five (WB-1, WB-2, WB-4, WB-11, and WB-14) of the sixteen (16) borings (See Appendix A for soil boring logs summarizing observations about the soil and waste). Samples were collected from the waste and soil underlying the waste in the five soil borings for laboratory analyses of Michigan 10 metals, hexavalent chromium, VOCs, SVOCs, and PFAS. See Table A for a summary of the analytical results. See Figure 2.2-1 for the boring locations where samples were



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collected for laboratory analysis. Because evidence of waste was not identified, no samples were collected from WB-3, WB-15 through WB-10, WB-12, WB-13, WB-15, and WB-16.

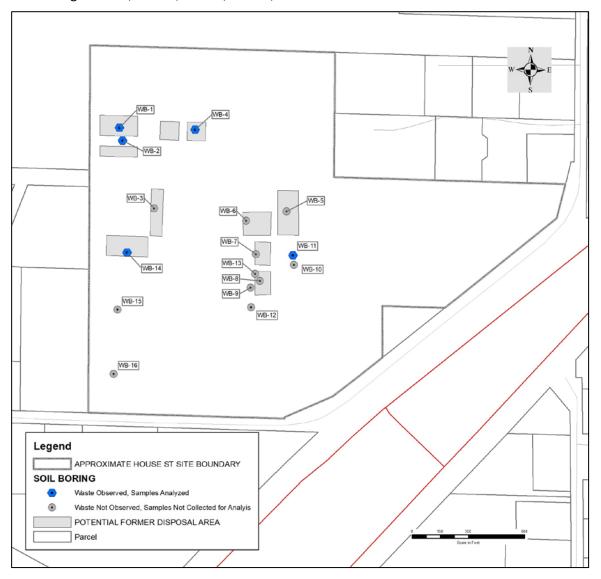


Figure 2.2-1: PREVIOUS SOIL BORING LOCATIONS

Seven soil borings were installed on-site to evaluate geology and hydrogeology, and twelve (12) permanent monitoring wells, MW-1S/1D through MW-7S, were installed at these seven locations. In addition, four borings were installed at properties immediately southeast of the Site, and ten monitoring wells, MW-8 through MW-11S/11M/11D, were installed at these four locations. The following table provides a summary of the well construction date and information.





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Borehole Name	Well Number	Well Installation Date	Top of Casing Elevation	Ground Surface Elevation, Ft.	Screen Depth Interval, Ft.	Depth to the Bottom of well, Ft.
SB-1	MW-1S	9/5/17	790.73	788.7	68.4-73.1	75.0
SB-1	MW-1D	9/5/17	791.01	788.8	170.1-174.7	175.0
SB-2	MW-2S	9/11/17	799.66	797.6	78.5-83.1	83.4
SB-3	MW-3P	9/12/17	790.07	787.5	19.0-24.0	25.0
SB-3	MW-3S	9/12/17	790.62	788.1	69.7-74.6	75.1
SB-4	MW-4S	9/12/17	784.88	782.3	71.1-75.7	76.0
SB-5	MW-5P	9/19/17	781.45	778.9	17.1-21.8	22.3
SB-5	MW-5S	9/19/17	781.61	778.8	61.9-66.6	67.1
SB-5	MW-5D	12/1/17	781.84	779.1	188.0-198.0	198.5
SB-6	MW-6S	9/14/17	772.76	770.3	57.1-61.8	62.3
SB-6	MW-6D	11/2/17	773.33	770.6	155.0-160.0	162.0
SB-7	MW-7S	9/20/17	791.09	788.9	70.1-74.7	75.0
SB-8	MW-8	10/30/17	745.09	742.2	27.7-32.7	36.0
SB-9	MW-9S	11/17/17	820.20	817.8	26.0-31.0	31.0
SB-9	MW-9M	11/17/17	820.66	817.9	126.0-131.0	131.0
SB-9	MW-9D	11/17/17	820.88	818.2	203.0-208.0	220.0
SB-10	MW-10S	11/29/17	780.06	777.2	49.0-59.0	60.0
SB-10	MW-10M	11/29/17	780.64	777.7	125.0-130.0	131.0
SB-10	MW-10D	11/28/17	780.94	778.1	185.0-190.0	192.0
SB-11	MW-11S	11/9/17	744.78	742.1	21.0-31.0	31.5
SB-11	MW-11M	11/9/17	744.96	742.3	95.0-100.0	100.0
SB-11	MW-11D	11/8/17	744.75	742.1	150.0-155.0	162.0

Upon completion of the well installation at MW-1S through MW-7S in September 2017, groundwater samples were collected from the on-site monitoring wells (MW-1S, MW-1D, MW-2S, MW-3S, MW-4S, MW-5S, MW-6S, and MW-7S) for laboratory analyses of inorganic compounds, VOCs, and PFAS from October 12, 2017 to October 16, 2017. After the installation of monitoring wells MW-5D, MW-8, MW-9S/M/D, MW-10S/D/D, and MW-11S/M/D in November and December 2017, these wells were sampled for laboratory analysis of PFAS from December 6, 2017 to January 22, 2018. See Table B for a summary of the analytical results. See Figure 2.2-2 for the monitoring well locations.

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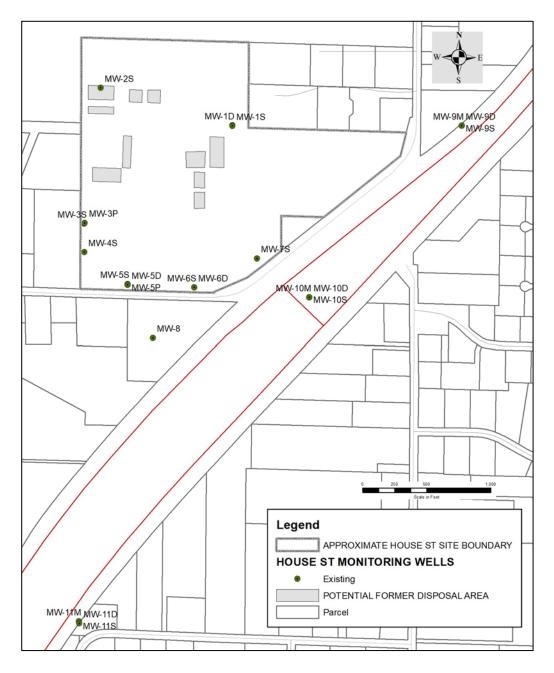


Figure 2.2-2: MONITORING WELL LOCATIONS

2.3. SUMMARY OF PREVIOUS INVESTIGATION FINDINGS

In 2017, Wolverine initiated a limited investigation of suspected waste disposal areas on the Site, underlying soil, and on-site groundwater in the vicinity of suspected former trench locations. Samples collected from 5 of 16 soil borings (WB-1 through WB-16) were submitted for laboratory analysis, based on visual observation of suspected waste in discolored soils. Groundwater samples were collected from 8 on-site monitoring wells in October 2017 for laboratory analyses of inorganic compounds, VOCs, and PFAS, the results of which indicated inorganic compounds and VOCs were of low concern while PFAS were detected at elevated concentrations in select



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monitoring wells. Therefore, the subsequent investigation was focused on PFAS evaluation, and the additional monitoring wells, MW-5D, MW-8, MW-9S/M/D, MW-10S/D/D and MW-11S/M/D, were sampled for PFAS analysis from December 2017 to January 2018.

2.3.1. Waste

Waste appears to occur in trenches often reflected by discrete topographic anomalies. Discrete horizons of blue, black- or grey-colored materials occasionally observed appear to indicate tannery wastewater treatment sludge have been placed in the trench disposal areas. The waste material in the trenches were observed to be finergrained fill material and are unlike natural geologic conditions typically observed across the Site. Waste is mixed with soil at some locations and depths. Inorganic chemicals, metals, VOCs, and SVOCs were detected in waste samples at concentrations greater than the GRSCC³ protective of groundwater for drinking water uses, or the Groundwater-Surface Water Interface (GSI).

Sample Names	Ground Surface Elevation, Ft.	Sample Interval, feet below ground surface	Soil Observation	Results Exceeding GRSCC
WB-11A	788.7	2.8 to 5.6	Waste	Cr+6 and Hg ⁴ > GRSCCs PFOS/PFOA > GRSCCs
WB-4A	794.7	8.3 to 10.7	Waste	Hg > GRSCC 2 VOCs > GRSCCs 1 SVOC > GRSCC PFOS/PFOA > GRSCCs
WB-1A	798.0	4.6 to 14.3	Waste	Hg > GRSCC PFOS/PFOA > GRSCCs
WB-2A	797.7	7.1 to 10.7	Waste	Hg > GRSCC 4 VOCs > GRSCCs
WB-14A	798.7	7.3 to 10.6	Waste	Hg > GRSCC 4 VOCs > GRSCCs PFOS/PFOA > GRSCCs

2.3.2. <u>Soil</u>

Limited samples were collected below the visible waste in the 5 boreholes where waste materials were observed. The following table provides a summary of the sample depths, field observations and results exceeding GRSCCs. See Table A for a summary of the analytical data.

^{3.} Constituent concentrations of the waste samples were compared to the MDEQ Part 201 Generic Soil Cleanup Criteria. However, it is important to note the comparison does not necessarily imply applicability of the Criteria to the waste samples because the physical and chemical properties of the waste samples are expected to be different than the default values or assumptions used to derive the Generic Soil Cleanup Criteria in the Cleanup Criteria Requirements for Response Activity Rules (R299.1-299.50).

^{4.} Cr+6 denotes hexavalent chromium; Hg denotes mercury.



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Sample Names	Ground Surface Elevation, Ft.	Sample Interval, feet below ground surface	Soil Observation	Results Exceeding GRSCC
WB-11B	788.7	9.0 to 9.6	Soil	PFOS/PFOA > GRSCCs
WB-4B	794.7	14.0 to 15.8	Soil	PFOS/PFOA > GRSCCs
WB-1B	798.0	16.3 to 17.9	Soil	PFOS/PFOA > GRSCCs
WB-2B	797.7	14.0 to 15.8	Soil	PFOS/PFOA > GRSCCs
WB-14B	798.7	15.0 to 16.0	Soil	PFOS/PFOA > GRSCCs

2.3.3. Groundwater

Nitrate was detected in one well at a concentration slightly greater than the GRGCC for drinking water uses, but neither ammonia nor nitrite-nitrogen were detected. VOCs were not detected in the monitoring well sample, except for dichlorodifluoromethane and trichlorofluoromethane measured at two locations several orders of magnitude less than the Part 201 GRGCC for drinking water uses. Metals were not found in groundwater at concentrations greater than GRGCC in the wells and depths sampled. Shallow groundwater, if encountered, has not been sampled to date.

2.3.4. Summary

To date, samples have only been collected from 5 of the 16 on-site soil borings. The 16 soil borings were limited to the suspected former disposal areas, and the remaining Site area has not been fully evaluated. Based on the analysis of residual waste samples, materials containing metals, VOCs, and SVOCs (as well as PFOS and PFOA) have been disposed at the Site.

Metals, VOCs, and SVOCs have not been found in groundwater at the Site in concentrations greater than GRGCC to date and at those wells and depths sampled.

Fine-grained soil is present in lacustrine deposits or unstratified moraines beneath waste materials, however, the fine-grained soil stratum is not continuous. Because the waste materials have been found to be placed originally within depressions or trenches and remain buried in the upper 15 feet of the subsurface soils, the potential for surface runoff carrying constituents of interest in sediment or water was and remains unlikely.

3.0 EXTENT OF CONTAMINATION SURVEY PLAN

This section describes the Extent of Contamination Survey Plan designed to evaluate the extent of COCs in soil, soil gas, groundwater, sediment, and surface water. Sampling for PFAS will be performed for the concurrent investigation under MDEQ jurisdiction. The objectives of this survey plan include the following:

- 1. The vertical and horizontal delineation of historically disposed waste materials on-site;
- 2. An evaluation of the potential presence of perched groundwater zones at the Site and their effect on the migration of COCs;





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- 3. An evaluation of the lateral and vertical extents of COCs in soil and groundwater, and surface water if identified; and,
- 4. An evaluation of VOC concentrations in soil gas at the northeast and southwest Site area, which adjoin residential properties

Soil cores collected under this RWP will be first screened in the field using a portable X-ray fluorescence (XRF) instrument and a MiniRAE 2000 Photo Ionization Detector (PID) in 1-foot increments, and the samples will be selected for laboratory analysis based on the XRF measurements, PID screening results, and visual inspection. Detailed subsurface exploration techniques, sampling procedures and laboratory analyses are provided in the FSP. Detailed standard operating procedures (SOPs) including methodology, equipment, and documentation protocols, are provided in Appendix A of the QAPP.

The survey plan consists of biased sampling at the known and suspected former disposal areas, and systematic sampling across the entire Site to search for other potential disposal areas and any surface disposal activities. These sampling strategies are consistent with the guidance and approaches provided in Chapter Nine "Sampling Plan" found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846" (USEPA, 1986) and "Guidance on Choosing a Sampling Design for Environmental Data Collection, for Use in Developing a Quality Assurance Project Plan" (USEPA, 2002). The proposed biased and systematic sampling locations are shown in **Figure A**. The sampling strategies and proposed sampling locations are discussed below.

3.1. <u>SITE CONTROL</u>

To minimize trespassing, warning signs - "Warning: Environmental Contamination Investigation Ongoing at This Site, No Trespassing" - will be posted at the entrance gates and along the north, west, south, and southeast property boundaries.

If any rainfall occurs during the active investigation activities, observations for potential offsite surface water and soil runoff will be made at appropriate locations to be determined during mobilization by the OSC. If potentially affected surface water or soil runoff to adjoining land is observed, appropriate mitigation efforts will be implemented to address the off-Site migration.

3.2. BIASED SAMPLING AT THE AREAS OBSERVED WITH WASTE

R&W/GZA reviewed historical aerial photographs, licensing information, and existing topography to identify potential disposal areas at the Site. Sixteen soil borings, identified as WB-1 through WB-16, were installed to assess the presence of the waste materials, and waste materials were observed in five (WB-1, WB-2, WB-4, WB-11, and WB-14) of the sixteen (16) borings. To delineate the extent of the waste in these five areas, biased sampling strategy is proposed.

A square sampling grid of 25 ft by 25 ft will be overlaid and centered around each of the five locations. At each location, the grid stations located immediately next to the center boring location are named as Tier 1 grid stations. The grid stations located one grid interval outside of the Tier 1 grid stations are named as Tier 2 grid stations. See **Figures B, C, and D** for the proposed sampling grids.

A drilling contractor will perform the soil exploration using a direct-push rig at the Tier 1 grid stations; soil samples will be collected continuously for field screening of metals and organic compounds using a XRF and a PID at 1-foot





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+increments and observed for the presence of waste materials consistent with the methodology described in the QAPP. The soil samples will also be visually classified and logged on soil boring logs. The soil borings will be advanced until no waste materials are observed and XRF measurements, PID readings and visual inspection indicate no potential contamination or to a depth of 20 feet below grade, whichever is deeper. Additional soil samples may be collected from these borings at the discretion of GZA or under the direction of EPA supervising personnel in the field.

In addition, perched groundwater, if encountered, will be documented on soil boring logs, and soil sample collection will be continued for XRF and PID screening and visual inspection as discussed above. If sufficient groundwater is present in the perched zone, a temporary well will be installed, and a groundwater sample will be collected from the temporary well. An initial sample will be collected prior to groundwater purging, and the purging and sampling will be performed following the "Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells," by U.S. EPA, Region I, Revision 4, dated September 19, 2017 (EPA Region I, 2017) (EPA Region I, 2017). If the well is purged dry, an aliquot of the initial sample will be submitted for laboratory analysis.

If waste is encountered or the XRF readings / PID readings indicate potential contamination at any Tier 1 grid stations, additional soil borings will be installed, and soil samples will be collected at the Tier 2 grid stations immediately next to that grid station. If necessary, additional soil borings will be performed at tertiary grid stations immediately next to any Tier 2 grid station where waste is encountered. This process will be repeated until no waste materials are observed and no elevated levels are detected by the XRF and PID at the perimeter grid stations, and the extent of the waste materials considered delineated. The boring locations may be adjusted in the field, based on site access and field observations. As may be deemed necessary to define the extent of waste or COCs, additional soil borings may be performed at the discretion of R&W/GZA or under the direction of EPA supervising personnel in the field.

Once the extent of waste materials is delineated, the perimeter soil borings will be sampled for laboratory analyses to confirm the delineation. At least two samples will be collected from each of the perimeter boring locations, one at the interval where waste material is observed, or the greatest contamination was detected by the XRF or PID, and another within 1 to 2 feet below it. If no waste material is observed, the depth interval of the samples will be based on the intervals in the adjacent borings where waste was observed and/or XRF or PID readings. Additional soil samples from these borings may be collected at the discretion of R&W/GZA or under the direction of EPA supervising personnel in the field.

Each soil sample will be submitted for the analyses of VOCs, SVOCs, metals (aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, total chromium, hexavalent chromium, cobalt, copper, iron, lead, magnesium, mercury, molybdenum, nickel, selenium, silver, sodium, titanium, thallium, vanadium and zinc), total ammonia, nitrate, nitrite, chloride, total and available cyanide, acetate, formate, total phosphorus, sulfate and sulfide in accordance with the methods described in the QAPP and FSP.

Sufficient soil will be collected and submitted to the laboratory so the Toxicity Characteristic Leaching Procedure, SW-846 Method 1311 (TCLP) metal analysis can be performed if the laboratory identifies total metal concentration exceeding 20 times their maximum concentrations TCLP values for hazardous waste.

Sampling for PFAS will be performed for the concurrent investigation under MDEQ jurisdiction. Refer to the FSP and QAPP for detailed subsurface exploration techniques and procedures of soil sampling, sample preservation,





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sample packaging, chain of custody, field quality assurance (QA) and quality control (QC) sample requirement, and laboratory QA/QC requirement.

Matrix	Depth of Samples	Number of Samples	Sampling Strategy	Rationale and Target Area
Subsurface	(TBD)	96 (projected)	Biased Sampling	To evaluate potential presence of waste materials and COCs from identified waste disposal practice areas

3.3. BIASED SAMPLING AT THE REMAINING POTENTIAL DISPOSAL AREAS

Soil borings were previously performed at the remaining disposal areas, but soil samples were not collected for laboratory analysis because waste materials were not observed in the soil. To confirm the absence of waste materials, five soil borings will be installed at each of the seven remaining areas to collect soil samples for laboratory analysis. See **Figure E** for the proposed sampling locations, HT-PWB2-1 through HT-PWB2-35. The boring locations may be adjusted in the field, based on site access and field observation. Additional soil borings may be performed at the discretion of R&W/GZA or under the direction of EPA supervising personnel in the field.

A drilling contractor will use a direct-push drill rig for the soil borings; soil samples will be collected continuously for field screening of metals using a portable XRF instrument and organic compounds using a MiniRAE 2000 PID at 1-foot increments and observed for the presence of waste materials. The soil samples will also be visually classified and logged. Generally, three soil samples will be collected from each boring. The borehole will be advanced until the XRF readings, PID readings and visual inspection indicate no contamination or to a depth of 20 feet below grade, whichever is deeper. If waste materials are observed at a boring location, then one sample will be collected from the upper portion of the waste, one from the lower portion of the waste, and one soil sample will be collected 1 to 2 feet below the observed waste material. If no waste materials are observed at a boring location, the soil sample intervals will be based on visual, olfactory evidence, XRF measurements or PID screening results, and the intervals at the adjacent borings where waste materials were observed. Additional soil samples may be collected at the discretion of R&W/GZA or under the direction of EPA supervising personnel in the field.

In addition, if perched groundwater is encountered, the sampling approach described in Section 3.2 will be used.

Each soil sample will be submitted for the analyses of VOCs, SVOCs, metals (aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, total chromium, hexavalent chromium, cobalt, copper, iron, lead, magnesium, mercury, molybdenum, nickel, selenium, silver, sodium, titanium, thallium, vanadium and zinc), total ammonia, nitrate, nitrite, chloride, total and available cyanide, formate, total phosphorus, sulfate and sulfide in accordance with the methods described in the QAPP and FSP.

Sufficient soil will be collected and submitted to the laboratory so the Toxicity Characteristic Leaching Procedure, SW-846 Method 1311 (TCLP) metal analysis can be performed if the laboratory identifies total metal concentration exceeding 20 times their maximum concentrations TCLP values for hazardous waste.

If the subsurface exploration and analytical data identify areas where waste materials were observed or COC concentrations exceeded GRSCC, these areas will be further assessed using the biased sampling strategy as discussed in **Section 3.2**.





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Sampling for PFAS will be performed for the concurrent investigation under MDEQ jurisdiction. Refer to the FSP and QAPP for detailed subsurface exploration techniques and procedures of soil sampling, sample preservation, sample packaging, chain of custody, field quality assurance (QA) and quality control (QC) sample requirement, and laboratory QA/QC requirement.

Matrix	Depth of Samples	Number of Samples	Sampling Strategy	Rationale and Target Area
Subsurface	(TBD)	105 (projected)	Biased Sampling	To evaluate potential presence of waste materials and COCs from potential historical waste disposal practice areas.

3.4. SYSTEMATIC SAMPLING ACROSS THE SITE

To evaluate the potential presence of COCs resulting from surface disposal or other potential disposal areas at the Site, a systematic sampling strategy is proposed. The systematic sampling locations, combined with the biased sampling locations, will also be used to evaluate Site geology, and the potential presence of perched groundwater.

A 400-foot by 400-foot square grid (Grid Block) will be overlaid onto the Site area, as shown in **Figure F**. To improve the randomness, the Grid Block cells are sub-divided into 100-foot by 100-foot sub-grid cells, and a random number generator was used to select the sample location within the Grid Block. As shown in **Figure F**, sub-grid cell No. 11 is randomly chosen, and soil borings will be positioned at sub-grid cell No. 11 for all the Grid Blocks located on the Site. If sub-grid cell No. 11 is overlapped with the proposed biased sampling locations, the proposed soil boring location is removed. If sub-grid cell No. 11 is located outside of the property boundary, the boring location is arbitrarily relocated inside of the Site boundary.

A drilling contractor will use a direct-push drill rig for the soil borings; soil samples will be collected continuously for field screening of metals using a portable XRF instrument and organic compounds using a MiniRAE 2000 PID and observed for the presence of waste materials. The soil samples will also be visually classified and logged. Generally, two soil samples will be collected from each boring. The borehole will be advanced until the XRF readings, PID readings, and visual inspection indicate no contamination or to a depth of 20 feet below grade, whichever is deeper. If waste materials are observed at a boring location, then one sample will be collected from the waste and another soil sample will be collected from 1 to 2 feet below the observed waste material. If no waste materials are observed at a boring location, the soil sample intervals will be based on visual, olfactory evidence, XRF measurements or PID screening results, and the intervals at the adjacent borings where waste materials were observed.

In addition, if perched groundwater is encountered, the sampling approach described in Section 3.2 will be utilized.

Each soil sample will be submitted for the analyses of VOCs, SVOCs, metals (aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, total chromium, hexavalent chromium, cobalt, copper, iron, lead, magnesium, mercury, molybdenum, nickel, selenium, silver, sodium, titanium, thallium, vanadium and zinc)), total ammonia, nitrate, nitrite, chloride, total and available cyanide, formate, total phosphorus, sulfate and sulfide in accordance with the methods described in the QAPP and FSP.





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Sufficient soil will be collected and submitted to the laboratory so the Toxicity Characteristic Leaching Procedure, SW-846 Method 1311 (TCLP) metal analysis can be performed if the laboratory identifies total metal concentration exceeding 20 times their maximum concentrations TCLP values for hazardous waste. If the subsurface exploration and analytical data identify areas where waste materials were observed or COC concentrations exceeded GRSCC, these areas will be further assessed using the biased sampling strategy as discussed in **Section 3.2**. Additional soil samples may be collected at the discretion of R&W/GZA or under the direction of EPA supervising personnel in the field.

If perched groundwater is encountered, the spatial extent of the perched groundwater zone and the need for additional groundwater sampling will be evaluated.

Matrix	Depth of Samples	Number of Samples	Sampling Strategy	Rationale and Target Area
Soil	TBD	52 (projected)	Systematic Sampling with Random Sub-grid	To evaluate potential presence of COCs from historical waste disposal practice across the Site

3.5. MONITORING WELL SAMPLING

Two rounds of groundwater monitoring well sampling events will be performed to evaluate the potential presence of COCs in groundwater. The following groundwater monitoring wells, located at the Site and on MDOT property, will be sampled:

•	MW-1S	•	MW-5P	•	MW-8	•	MW-10D
•	MW-1D	•	MW-5S	•	MW-9S	•	MW-11S
•	MW-2S	•	MW-5D	•	MW-9M	•	MW-11M
•	MW-3P	•	MW-6S	•	MW-9D	•	MW-11D
•	MW-3S	•	MW-6D	•	MW-10S		
•	MW-4S	•	MW-7S	•	MW-10M		

R&W /GZA will collect groundwater samples following the "Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells," by U.S. EPA, Region I, Revision 4, dated September 19, 2017 (EPA Region I, 2017) (EPA Region I, 2017). For the monitoring wells screened in the perched zone, which are expected to have relatively low recharge rate, an initial sample will be collected prior to groundwater purging. If the well is purged dry, an aliquot of the initial sample will be submitted for laboratory analysis. Each groundwater sample will be submitted for the analyses of VOCs, SVOCs, total metals (aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, total chromium, hexavalent chromium, cobalt, copper, iron, lead, magnesium, mercury, molybdenum, nickel, selenium, silver, sodium, titanium, thallium, vanadium and zinc), total ammonia, nitrate, nitrite, chloride, total and available cyanide, formate, total phosphorus, sulfate and sulfide in accordance with the methods described in the QAPP and FSP.

Refer to the FSP and QAPP for detailed sampling procedures, sample preservation, sample packaging, chain of custody, field quality assurance (QA) and quality control (QC) sample requirement, and laboratory QA/QC requirements.



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Matrix	Number of Samples	Rationale and Target Area
Groundwater	44	To evaluate the potential presence of COCs in groundwater

3.6. SOIL GAS SAMPLING

To evaluate potential vapor intrusion to the adjoining residential properties northeast, southwest, and southeast of the Site, soil gas sampling will be performed. The soil gas sampling activities consist of the following tasks:

- 1. Soil gas monitoring well installation at five locations at the northeast property boundary, six locations at the southwest property boundary, and two locations where residential properties adjoin. See Figure G. At each location, four soil gas monitoring wells will be installed at depths of 5 feet, 8 feet, 11 feet and 14 feet below ground surface; and,
- 2. Two rounds of soil gas monitoring well sampling will be performed at the 13 locations for laboratory analysis.

A drilling contractor will use a direct-push drill rig to install the soil gas monitoring wells. The soil gas monitoring point will be installed in the target intervals described above. The locations and well intervals may be adjusted based on visual, olfactory evidence or PID screening results at adjacent soil boring performed under Sections 3.2, 3.3 and 3.4 and site access with approval from EPA supervising personnel in the field. Additional soil gas monitoring points may be installed under the direction of EPA supervising personnel in the field. If perched groundwater is present, the soil gas monitoring point will be installed at least 2 feet above the water table.

Soil gas monitoring wells will be installed in general accordance with EPA Region IV's SOP (EPA Region IV, 2014) and SOPs contained in MDEQ's guidance document (MDEQ, 2013). Generally, six-inch long vapor implant screens will be positioned at the target depth interval. Prior to the installation of the implant, the borehole annulus will be backfilled with 4 to 6 inches of sand pack. ¼-inch OD (outside diameter) Teflon™ tubing will be attached to the implant and extended above the ground surface. Sand pack will be installed to 6 to 12-inches above the top of the implant screen. Following installation of the implant and filter pack, the remainder of the borehole annulus will be sealed with hydrated bentonite pellets or granules. The tubing will be terminated with Swagelok® caps or valves. The monitoring points will be finished with above-ground protective casings.

Two rounds of soil gas samples will be collected using a laboratory provided, 6-liter summa canisters equipped with dedicated flow controllers following EPA Region IV's SOP and MDEQ's guidance. Procedures will be modified to facilitate the use of the sample containers provided by the laboratory. Samples will be submitted to laboratory for analysis of VOCs following USEPA Method TO-15. The detection limit for TCE will be less than or equal to 0.4 ppbv.

Refer to the FSP and QAPP for detailed subsurface exploration techniques and procedures of soil gas sampling, sample preservation, sample packaging, chain of custody, field quality assurance (QA) and quality control (QC) sample requirement, and laboratory QA/QC requirement.



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3.7. DATA EVALUATION AND REPORTING

The information and data collected during completion of the Extent of Contamination Survey Plan will be evaluated by R&W/GZA relative to the previously-presented Site investigation objectives. The work performed will be summarized, data will be compiled, and conclusions and recommendations presented in a report. The report will include figures and tables summarizing the information collected and results of soil gas, soil, and groundwater analyses.

The report may, if appropriate, include a work plan for proposing activities associated with additional activities selected to address data gaps necessary to select and/or design a removal action.

4.0 REMOVAL IMPLEMENTATION

Upon completion of the above scope of work, a preliminary risk evaluation will be performed to evaluate the potential human health and environmental pathways, and the need for further CERCLA removal actions. The preliminary risk assessment will include comparing Site data to established EPA and State of Michigan ARARs and generic cleanup criteria.

EPA will determine the potential immediate actions at the Site. This section will be updated including a Removal Action Implementation Plan, if appropriate. Such a plan will detail Site preparation and security measures, Site controls to prevent accidental releases and off-site migration, construction and operation areas, waste staging and segregation operation, decontamination zone, air monitoring and dust control, confirmation sampling, waste transportation and disposal plan, Site restoration, etc.

5.0 OFF-SITE MIGRATION CONTROL

Based on the existing data, the waste materials are encountered from approximately 3 feet to 14 feet below ground surface. The Site is generally covered with vegetation or trees. Therefore, the likelihood of off-site COC migration via air deposition is low. If the data from the Extent of Contamination Survey Plan indicate the presence of COCs in surficial soil, the need for off-site migration control via air deposition will be evaluated.

The waste materials present below ground surface are unlikely to migrate via surface run-off. However, if the data from the Extent of Contamination Survey Plan indicate their presence in surficial soil, the likelihood for surface run-off will be evaluated based on the location of detection, detected concentrations and topography, and the need for off-site migration control via surface run-off will be evaluated.

The PFAS-related groundwater investigation under the MDEQ is currently ongoing (see the CSM Update report). The sampling proposed in this work plan will provide additional data about the presence/absence of other COCs in on-site groundwater monitoring wells and immediately south and southeast of the Site. Upon completion of the groundwater monitoring well sampling under **Section 3.5**, the extent of groundwater COCs and the need for off-site groundwater migration control will be evaluated. To date, no such migration has been identified.

6.0 INVESTIGATION DERIVED WASTE DISPOSAL

Investigation-derived soil or solid waste materials from the proposed investigation work will be containerized in 55-gallon drums and staged at the Site before being disposed off-site. The soil or waste will be sampled and analyzed for Toxicity Characteristic Leaching Procedure ([TCLP] VOCs, SVOCs,) metals, PFAS, and waste





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characteristics including ignitability, reactivity, and corrosivity. According to the EPA Off-site Rule (40 CFR 300.440), the waste will be disposed of in a facility operating in compliance with RCRA, Toxic Substances Control Act (TSCA), or other applicable Federal or State requirements.

Groundwater from sampling and well development activities will be contained in a 200-gallon polyethylene tank, and treated using granular activated carbon (GAC), and tested for COCs and PFAS. The water will be treated until the effluent concentrations meet EPA Health Advisory Level for PFOS and PFOA, and MDEQ Part 201 Generic Groundwater Cleanup Criteria protective of drinking water uses for residential properties. The treated water will be discharged to the ground surface adjacent to the sampling/well location where collected if the COC and PFOS concentrations meet GRGCC. The treatment system will include two or more sets of GAC canisters in series. The spent carbon will be removed from the Site by Culligan for off-site incineration.

7.0 ANTICIPATED SCHEDULE

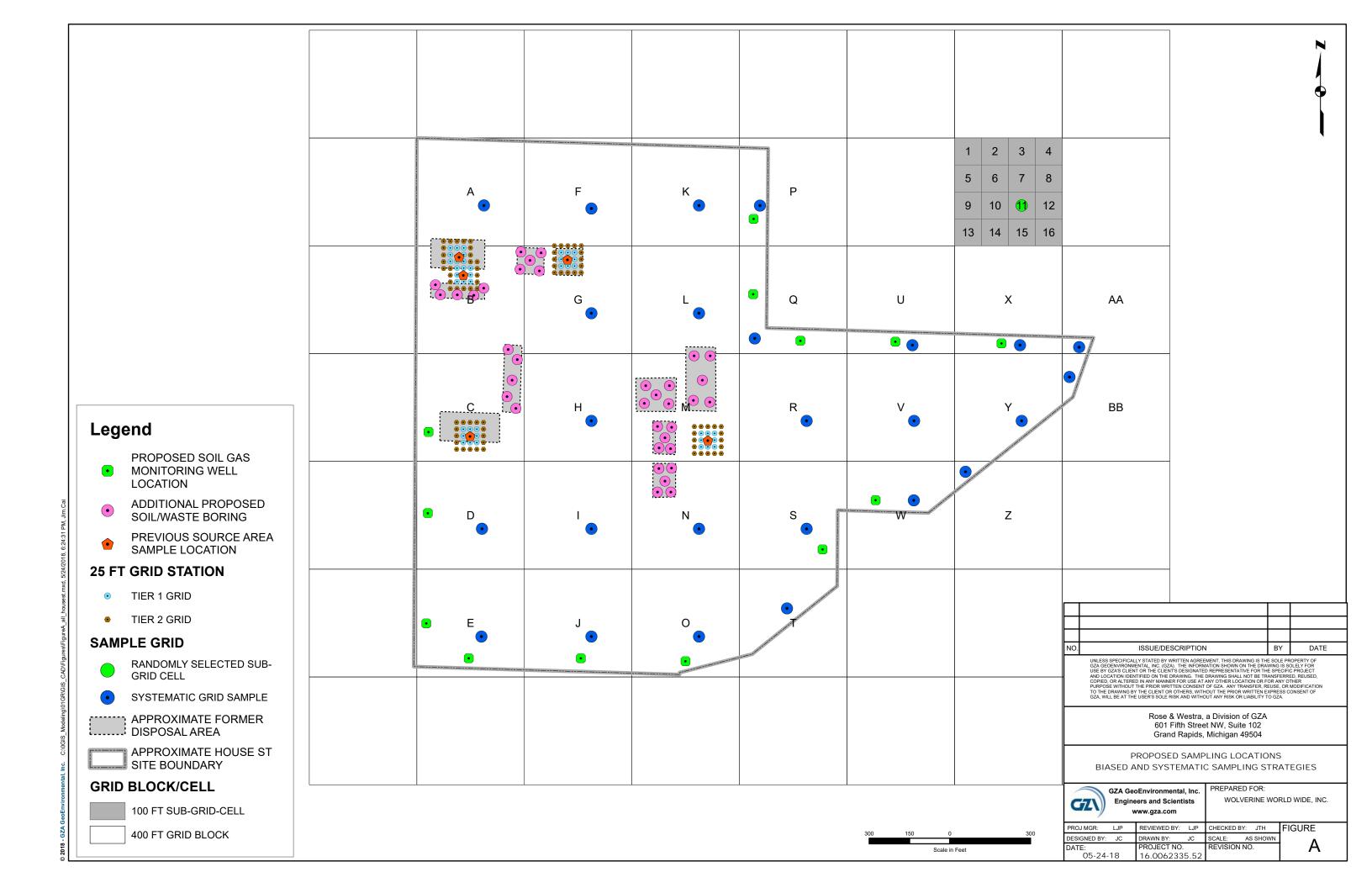
R&W/GZA anticipates that, following Region 5's acceptance of the final RWP, approximately 6 weeks from on-site mobilization will be required to complete the proposed field work. The final report summarizing the data and activities (including data points, photographs, and data tables; refer to **Section 3.7**) will be submitted one calendar month from receipt of the last electronic data deliverable from the lab. See Appendix B for an estimated project schedule. The anticipated schedule does not consider weather-related delays.

8.0 REFERENCES

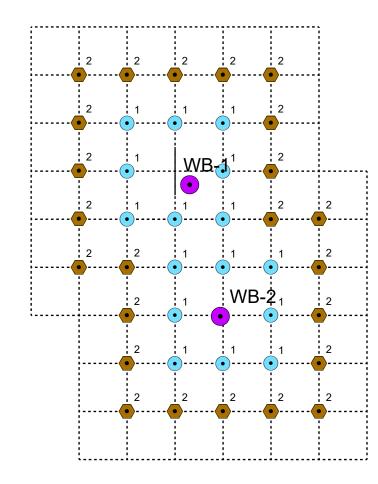
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- USEPA. (1986). Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846. Washington, DC.: USEPA Office of Solid Waste.
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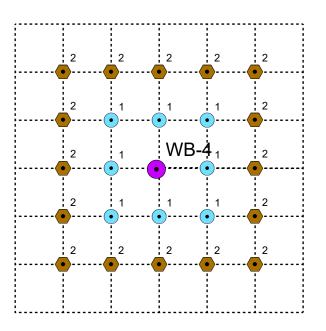


FIGURES









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PREVIOUS SOIL BORINGS

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• TIER 1 GRID

TIER 2 GRID

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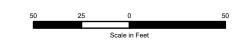
PROPOSED BIASED SAMPLING PLAN WB-1, WB-2 AND WB-4 AREAS

	GZA GeoEnvironmental, Inc.
CT	Engineers and Scientists
GE ()	www.gza.com

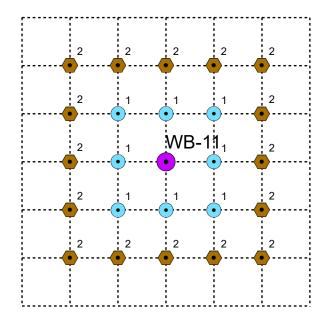
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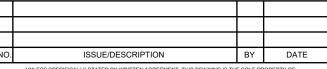
• PREVIOUS SOIL BORINGS

25 FT GRID STATION

• TIER 1 GRID

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PROPOSED BIASED SAMPLING PLAN

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 REVIEWED BY:
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 CHECKED BY:
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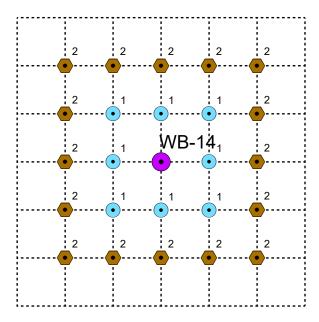
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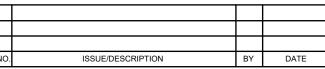
• PREVIOUS SOIL BORINGS

25 FT GRID STATION

TIER 1 GRID

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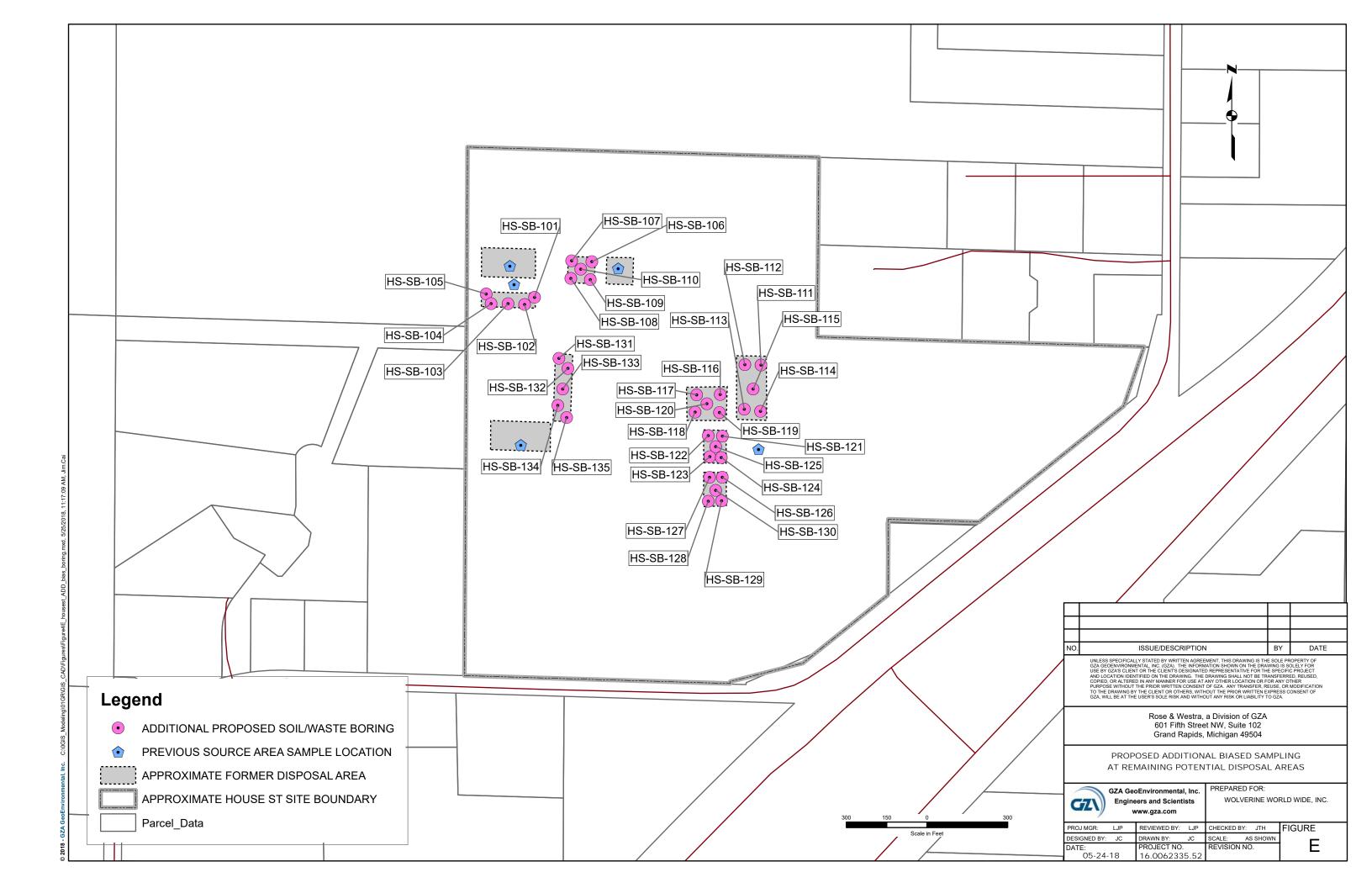
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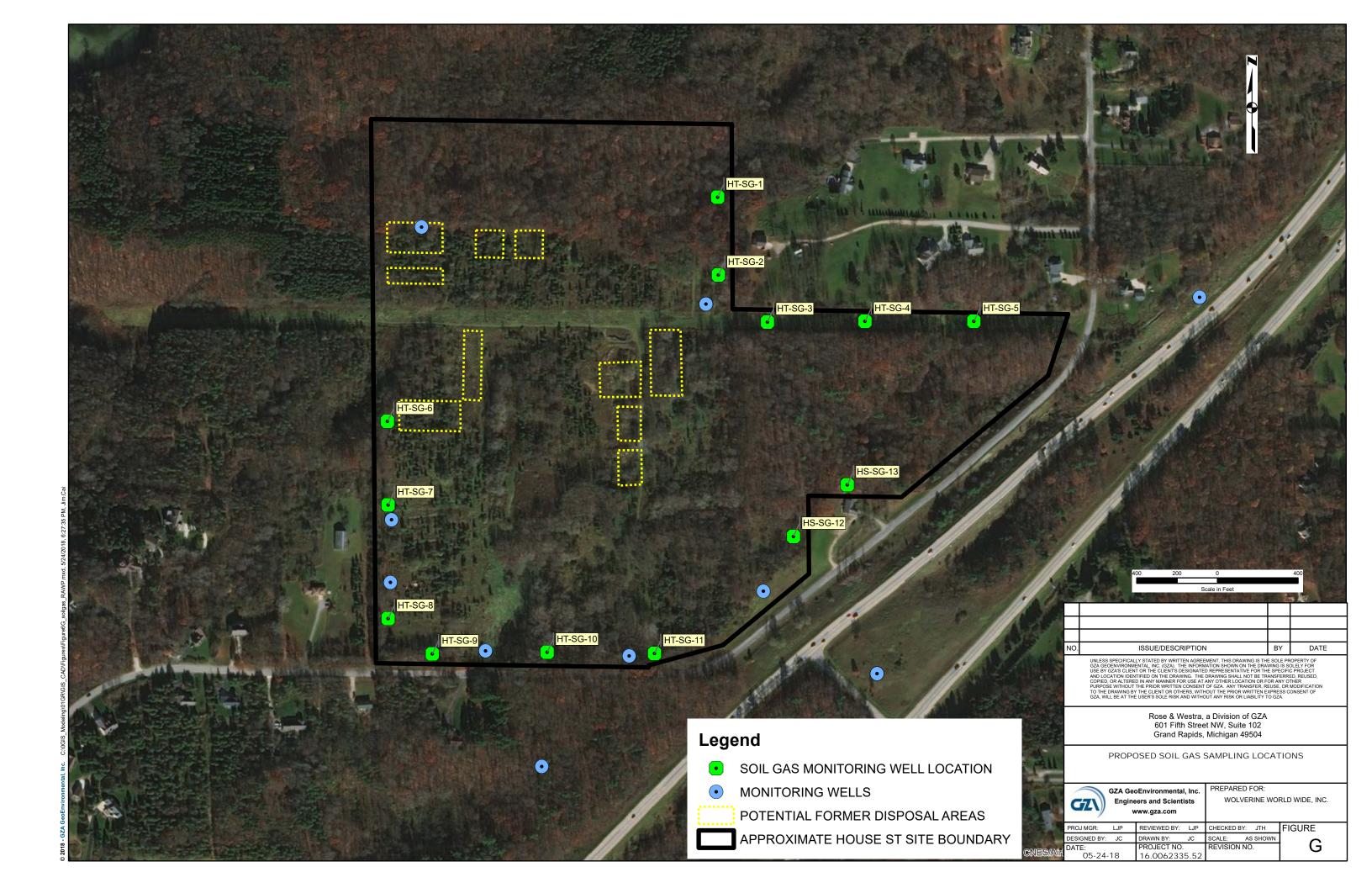
PREPARED FOR: WOLVERINE WORLD WIDE, INC.

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TABLES

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SUMMARY OF SOURCE AREA WASTE AND SOIL ANALYTICAL DATA - PFOS/PFOA HOUSE STREET DISPOSAL AREA PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

FIELDID	MDEQ Proposed Part	MDEQ Proposed	WB-11A (Waste)	WB-11B (Soil)	WB-14A (Waste)	WB-14B (Soil)	WB-1A (Waste)	WB-1B (Soil)	WB-2A (Waste)
DepthInt	201 Residential Soil Cleanup Criteria	Part 201 Residential Soil Cleanup Criteria - Direct Contact	2.8 - 5.6	9 - 9.6	7.3 - 10.6	15 - 16	4.6 - 14.3	16.3 - 17.9	7.1 - 10.7
Sample_ID	Protective of		K1712986-001	K1712986-002	K1712986-011	K1712986-012	K1712986-007	K1712986-008	K1712986-005
SAMPDATE	Groundwater for Drinking Water Uses		11/27/2017	11/27/2017	12/01/2017	12/01/2017	11/30/2017	11/30/2017	11/30/2017
Parameter (ng/Kg)									
Perfluorooctane sulfonic acid (PFOS)	1,400	2,100,000	2,200,000	7,800	18,000,000	100,000	270,000	59,000	<950
Perfluorooctanoic acid (PFOA)	59,000	2,100,000	16,000	6,300	59,000	2,800	2,600	14,000	2,900

SUMMARY OF SOURCE AREA WASTE AND SOIL ANALYTICAL DATA - PFOS/PFOA HOUSE STREET DISPOSAL AREA PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

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FIELDID	MDEQ Proposed Part	MDEQ Proposed	WB-2B (Soil)	WB-4A (Waste)	WB-4B (Soil)	
DepthInt	201 Residential Soil Cleanup Criteria	Part 201	14 - 15.8	8.3 - 10.7	14 - 15.8	
Sample_ID	Protective of	Residential Soil Cleanup Criteria -	K1712986-006	K1712986-003	K1712986-004	
SAMPDATE	Groundwater for Drinking Water Uses	Direct Contact	11/30/2017	11/29/2017	11/29/2017	
Parameter (ng/Kg)						
Perfluorooctane sulfonic acid (PFOS)	1,400	2,100,000	6,900,000	79,000,000	33,000	
Perfluorooctanoic acid (PFOA)	59,000	2,100,000	130,000	240,000	23,000	

SUMMARY OF SOURCE AREA WASTE AND SOIL DATA - DETECTED METALS HOUSE STREET DISPOSAL AREA PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

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FIELDID DepthInt Sample_ID SAMPDATE	State-Wide Default Background	MDEQ Part 201 Residential Drinking Water Protection Criteria	MDEQ Part 201 Groundwater Surface Water Interface Criteria	MDEQ Part 201 Residentail Soil Volatilization to Indoor Air Inhalation Criteria	MDEQ Part 201 Residential Infinite Source Volatile Soil Inhalation Criteria	MDEQ Part 201 Particulate Soil Inhalation Criteria	MDEQ Part 201 Residential Soil Direct Contact Criteria
Detected Inorganics (ug/kg)							
Arsenic	5,800	4,600	4,600	NA	NA	720,000	7,600
Barium	75,000	1,300,000	NA	NA	NA	330,000,000	37,000,000
Chromium (III)	18,000	1,000,000,000	NA	NA	NA	330,000,000	790,000,000
Chromium (VI)	NA	30,000	3,300	NA	NA	260,000	2,500,000
Copper	32,000	5,800,000	NA	NA	NA	130,000,000	20,000,000
Lead	21,000	700,000	NA	NA	NA	100,000,000	400,000
Mercury	130	1,700	50	48,000	52,000	20,000,000	160,000
Zinc	47,000	2,400,000	NA	NA	NA	NA	170,000,000

SUMMARY OF SOURCE AREA WASTE AND SOIL DATA - DETECTED METALS HOUSE STREET DISPOSAL AREA PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

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FIELDID	WB-11A (Waste)	WB-11B (Soil)	WB-14A (Waste)	WB-14B (Soil)	WB-1A (Waste)	WB-1B (Soil)	WB-2A (Waste)	WB-2B (Soil)	WB-4A (Waste)	WB-4B (Soil)
DepthInt	2.8 - 5.6	9 - 9.6	7.3 - 10.6	15 - 16	4.6 - 14.3	16.3 - 17.9	7.1 - 10.7	14 - 15.8	8.3 - 10.7	14 - 15.8
Sample_ID	1712003-01A	1712003-02A	1712016-01A	1712016-02A	1712003-07A	1712003-08A	1712003-05A	1712003-06A	1712003-03A	1712003-04A
SAMPDATE	11/27/2017	11/27/2017	12/01/2017	12/01/2017	11/30/2017	11/30/2017	11/30/2017	11/30/2017	11/29/2017	11/29/2017
Detected Inorganics (ug/kg)										
Arsenic	<10000	1,100	<10000	<1000	<1000	<1000	<10000	<1000	<10000	1,300
Barium	40,000	7,800	36,000	2,600	36,000	6,100	15,000	3,100	47,000	2,400
Chromium (III)	25,977,000	6,300	38,000,000	3,000	2,800,000	3,100	26,000,000	2,500	25,000,000	2,800
Chromium (VI)	23,000	<500	<500	<500	<500	<500	<500	<500	<500	<500
Copper	45,000	2,800	160,000	1,700	15,000	1,500	57,000	1,100	52,000	2,000
Lead	28,000	1,900	59,000	1,000	9,700	1,200	28,000	<1000	26,000	1,400
Mercury	430	<50	820	<50	120	<50	1,400	<50	2,400	<50
Zinc	120,000	9,400	360,000	4,200	40,000	4,500	150,000	2,900	140,000	5,400

SUMMARY OF SOURCE AREA WASTE AND SOIL DATA - VOCS/SVOCs OF INTEREST HOUSE STREET DISPOSAL AREA PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

16.0062335.52 Page 5 of 7 See Page 7 For Notes 5/18/2018

FIELDID			MDEQ Part 201	MDEQ Part 201			
DepthInt	MDEQ Part 201 Residential	MDEQ Part 201 Groundwater	Residentail Soil	Residential	MDEQ Part 201	MDEQ Part 201 Residential Soil	MDEQ Soil
Sample_ID	Drinking Water	Surface Water	Volatilization to Indoor Air	Infinite Source Volatile Soil	Particulate Soil Inhalation Criteria	Direct Contact	Saturation Concentration
SAMPDATE	Protection Criteria	Interface Criteria	Inhalation Criteria	Inhalation Criteria		Criteria	
VOCs of Concern (ug/kg)							
n-Butylbenzene	1.60E+03	NA	NA	NA	2.00E+09	2.50E+06	1.00E+07
sec-Butylbenzene	1.60E+03	NA	NA	NA	4.00E+08	2.50E+06	1.00E+07
1,1-Dichloroethane	1.80E+04	1.50E+04	2.30E+05	2.10E+06	3.30E+10	2.70E+07	8.90E+05
Tetrachloroethene	1.00E+02	1.20E+03	1.10E+04	1.70E+05	2.70E+09	2.00E+05	8.80E+04
Toluene	1.60E+04	5.40E+03	3.30E+05	2.80E+06	2.70E+10	5.00E+07	2.50E+05
1,1,1-Trichloroethane	4.00E+03	1.80E+03	2.50E+05	3.80E+06	6.70E+10	5.00E+08	4.60E+05
Trichloroethene	1.00E+02	4.00E+03	1.00E+03	1.10E+04	1.30E+08	1.10E+05	5.00E+05
1,2,4-Trimethylbenzene	2.10E+03	5.70E+02	4.30E+06	2.10E+07	8.20E+10	3.20E+07	1.10E+05
1,3,5-Trimethylbenzene	1.80E+03	1.10E+03	2.60E+06	1.60E+07	8.20E+10	3.20E+07	9.40E+04
SVOCs (ug/kg)		•				•	
Nitrobenzene	3.30E+02	3.60E+03	9.10E+04	5.40E+04	4.70E+07	1.00E+05	4.90E+05

SUMMARY OF SOURCE AREA WASTE AND SOIL DATA - VOCS/SVOCs OF INTEREST HOUSE STREET DISPOSAL AREA PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

16.0062335.52 Page 6 of 7 See Page 7 For Notes 5/18/2018

FIELDID	WB-11A (Waste)	WB-11B (Soil)	WB-14A (Waste)	WB-14B (Soil)	WB-1A (Waste)	WB-1B (Soil)	WB-2A (Waste)	WB-2B (Soil)	WB-4A (Waste)	WB-4B (Soil)
DepthInt	2.8 - 5.6	9 - 9.6	7.3 - 10.6	15 - 16	4.6 - 14.3	16.3 - 17.9	7.1 - 10.7	14 - 15.8	8.3 - 10.7	14 - 15.8
Sample_ID	1712003-01A	1712003-02A	1712016-01A	1712016-02A	1712003-07A	1712003-08A	1712003-05A	1712003-06A	1712003-03A	1712003-04A
SAMPDATE	11/27/2017	11/27/2017	12/01/2017	12/01/2017	11/30/2017	11/30/2017	11/30/2017	11/30/2017	11/29/2017	11/29/2017
VOCs of Concern (ug/kg)										
n-Butylbenzene	<50	<50	2500	<50	<50	<50	<100	<50	<50	<50
sec-Butylbenzene	<50	<50	1700	<50	<50	<50	<100	<50	<50	<50
1,1-Dichloroethane	<50	<50	<50	<50	<50	<50	17000	<50	<50	<50
Tetrachloroethene	<50	<50	<50	<50	<50	<50	<100	<50	130	<50
Toluene	<50	<50	<50	<50	<50	<50	25000	<50	660	<50
1,1,1-Trichloroethane	<50	<50	<50	<50	<50	<50	15000	<50	<50	<50
Trichloroethene	<50	<50	<50	<50	<50	<50	160	<50	<50	<50
1,2,4-Trimethylbenzene	<50	<50	5300	98	95	<50	350	<50	760	<50
1,3,5-Trimethylbenzene	<50	<50	1700	<50	<50	<50	<100	<50	290	<50
SVOCs (ug/kg)										
Nitrobenzene	<330	<330	<330	<330	<330	<330	<330	<330	1400	<330

TABLE A

SUMMARY OF SOURCE AREA WASTE AND SOIL ANALYTICAL DATA HOUSE STREET DISPOSAL AREA PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

16.0062335.52 Page 7 of 7 See Page 7 For Notes 5/18/2018

NOTES:

- 1. Concentration and criteria units are reported in nano-grams per kilogram (ng/kg) or parts per trillion (ppt) for PFAS, and micro-grams per kilogram (ug/kg) or parts per billion (ppt) for inorganics, volatile organic compounds and semi-volatile organic compounds; "< RL" indicates the compound was analyzed for but not detected above the method detection limit; RL = Reporting Limit.
- 2. MDEQ Proposed Part 201 Residential Cleanup Criteria for Perfluorooctane sulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) were based on the "Proposed Part 201 Cleanup Cirteria Rules," dated August 29, 2017.
- 3. MDEQ Part 201 Residential Soil Cleanup Criteria for inorganics, VOCs and SVOCs were based on MDEQ's Part 201 Cleanup Crtieria and Screening Levels dated December 2013.
- 4. Constituent concentrations of the waste samples were compared to the MDEQ Part 201 Generic Soil Cleanup Criteria. However it is important to note the comparison does not necessarily imply applicability of the Criteria to the waste samples because the physical and chemical properties of the waste samples are expected to be different than the default values or assumptions used to derive the Generic Soil Cleanup Criteria in the Cleanup Criteria Requirements for Response Activity Rules (R299.1-299.50).
- 5. Bold italic number with thick line border or bold italic chemical indicates that compound was detected above one of the listed cleanup cirteria.
- 6. For chromiums, the laboratory reported total chromium and hexvalent chromium concentrations. Chromium (III) concentrations in the table was obtained by deducting hexvalent chromium concentrations from the total chromium concentrations for the purpose of comparing to available cleanup criteria for chromium (III).

SUMMARY OF GROUNDWATER ANALYTICAL DATA - PFOS/PFOA HOUSE STREET DISPOSAL AREA PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

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WELL	PART 201 RESIDENTAIL	MW-10D	MW-10M	MW-10S	MW-11D	MW-11M	MW-11S	MW-1D	MW-1S
LABORATORY ID	GROUNDWATER CLEANUP CRITERIA -	K1800647-002	K1800647-001	K1800647-003	K1713273-012	K1713273-015	K1713273-011	K1711117-004	K1711117-003
SAMPLE DATE	DRINKING WATER USES	01/22/2018	01/22/2018	01/22/2018	12/08/2017	12/08/2017	12/08/2017	10/12/2017	10/12/2017
Parameter (ng/L)									
Perfluorooctane sulfonic acid (PFOS)	70	<4.4	12	37	<4.1	<4.1	<4.3	<4.2	<4.2
Perfluorooctanoic acid (PFOA)	70	<1.8	9.3	15	<1.6	<1.6	<1.7	<1.7	4.2

SUMMARY OF GROUNDWATER ANALYTICAL DATA - PFOS/PFOA HOUSE STREET DISPOSAL AREA PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

16.0062335.52 Page 2 of 6 See Page 6 For Notes 5/18/2018

WELL	PART 201 RESIDENTAIL	MW-2	MW-3S	MW-4S	MW-5D	MW-5S	MW-6D	MW-6S	MW-7S
LABORATORY ID	GROUNDWATER CLEANUP CRITERIA -	K1711117-005	K1711250-001	K1711250-002	K1800647-004	K1711250-003	K1713273-007	K1711250-004	K1711250-005
SAMPLE DATE	DRINKING WATER USES	10/12/2017	10/13/2017	10/13/2017	01/22/2018	10/13/2017	12/07/2017	10/16/2017	10/16/2017
Parameter (ng/L)									
Perfluorooctane sulfonic acid (PFOS)	70	<4.2	22	2000	26	44000	<4.3	<4.2	4.7
Perfluorooctanoic acid (PFOA)	70	<1.7	380	830	8.9	2800	<1.7	9.8	3.3

SUMMARY OF GROUNDWATER ANALYTICAL DATA - PFOS/PFOA HOUSE STREET DISPOSAL AREA PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

16.0062335.52 Page 3 of 6 See Page 6 For Notes 5/18/2018

WELL	PART 201 RESIDENTAIL	MW-8	MW-9D	MW-9M	MW-9S
LABORATORY ID	GROUNDWATER CLEANUP CRITERIA -	K1713273-008	K1713273-004	K1713273-002	K1713273-001
SAMPLE DATE	DRINKING WATER USES	12/07/2017	12/06/2017	12/06/2017	12/06/2017
Parameter (ng/L)					
Perfluorooctane sulfonic acid (PFOS)	70	150	<4.1	<4.3	<4.2
Perfluorooctanoic acid (PFOA)	70	600	<1.6	<1.7	2.4

SUMMARY OF GROUNDWATER ANALYTICAL DATA - CONSTITUENTS OF INTEREST HOUSE STREET DISPOSAL AREA PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

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WELL	PART 201 RESIDENTAIL	_	PART 201 RESIDENTAIL	MW-1D	MW-1S	MW-2	MW-3S	MW-4S	MW-5S
LABORATORY ID	GROUNDWATER CLEANUP CRITERIA - DRINKING WATER	GROUNDWATER CLEANUP CRITERIA - GROUNDWATER	CLEANUP CRITERIA	1710057-02A	1710057-01A	1710057-03A	1710061-01A	1710061-02A	1710061-03A
SAMPLE DATE	USES	SURFACE INTERFACE	- INDOOR AIR INHALATION	10/12/2017	10/12/2017	10/12/2017	10/13/2017	10/13/2017	10/13/2017
Metals (ug/L)									
Aluminum	50	NA	NA	<50	84	68	<50	<50	<50
Water Chemistry (ug/L)									
Nitrogen, Nitrate (As N)	10,000	NA	NA	2700	3100	1700	4400	3500	12000
VOCs (ug/L)									
Dichlorodifluoromethane	1,700.00	NA	220,000.00	<1	<1	<1	2.4	1.8	<1
Trichlorofluoromethane	2,600.00	NA	1,100,000.00	<1	<1	<1	6.5	4.7	<1

TABLE B SUMMARY OF GROUNDWATER ANALYTICAL DATA - CONSTITUENTS OF INTEREST HOUSE STREET DISPOSAL AREA PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

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WELL	PART 201 RESIDENTAIL		PART 201 RESIDENTAIL	MW-6S	MW-7S
LABORATORY ID	GROUNDWATER CLEANUP CRITERIA - DRINKING WATER	GROUNDWATER CLEANUP CRITERIA GROUNDWATER	GROUNDWATER CLEANUP CRITERIA	1710069-01A	1710069-02A
SAMPLE DATE	USES	SURFACE INTERFACE	- INDOOR AIR INHALATION	10/16/2017	10/16/2017
Metals (ug/L)					
Aluminum	50	NA	NA	<50	98
Water Chemistry (ug/L)					
Nitrogen, Nitrate (As N)	10,000	NA	NA	1200	1300
VOCs (ug/L)					
Dichlorodifluoromethane	1,700.00	NA	220,000.00	<1	<1
Trichlorofluoromethane	2,600.00	NA	1,100,000.00	<1	<1

SUMMARY OF GROUNDWATER ANALYTICAL DATA HOUSE STREET DISPOSAL AREA PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

16.0062335.52 Page 6 of 6 See Page 6 For Notes 5/18/2018

NOTES:

- 1. Concentration and criteria units are reported in nano-grams per liter (ng/L) or parts per trillion (ppt) for PFAS, and micro-grams per liter (ug/L) or parts per billion (ppb) for inorganics, and volatile organic compounds; "< RL" indicates the compound was analyzed for but not detected above the method detection limit; RL = Reporting Limit.
- 2. Bold indicates that compound was detected above the RL. Highlighted Italic number with thick line border or italic chemical indicates that compound was detected above one of the listed cleanup criteria or screening levels.
- 3. Michigan Part 201 groundwater cleanup criteria protective of drinking water uses were based on USEPA Health Advisory Level obtained from USEPA Fact sheet: PFOA & PFOS Drinking Water Health Advisories, EPA 800-F-16-003, dated November 2016. The cleanup criteria of 70 ppt was established for the combined concentrations of PFOA and PFOS.
- 4. MDEQ Part 201 Residential Groundwater Cleanup Criteria for inorganics, and VOCs were based on MDEQ's Part 201 Cleanup Crtieria and Screening Levels dated December 2013.



APPENDIX A

SOURCE AREA SOIL BORING LOGS

		GZ					Wolverine W	orld Wide,	Inc.		Bori	ng No	.: WI	B-1
	5 Z\)			mental, I n d Scientists			1855 Hous	se Street N	E		Page	<i>.</i> . —	1 of _	
		•	9					, Michigan			File		16.00623 J Ca	
	tractor:		,	Iling Comp	pany	_	Auger/	Sampler			Ched			<u>!</u>
				Bryan 1orehouse			Casing Iollow Stem Auger	Split Spoon	Date	GROU		ER RI pth	EADINGS Casing	S
ľ	ged by:	inish: _)-17 / 11-3		O.D. / I.D.: _		2.0" / 1 3/8"	Date			Pui	Casing	- 3
		ation: _		,		Hammer Wt.:		NA NA	-					
	Elev.: _	798.0	0' Dat	um:				NA						
		0		4!		TOC Elev.:	NA	NA	Surveyed	l By:	NA	Sur	vey Date:	
Depth	No.	Pen./ Rec.	Depth (Ft.)	Blows (/6")	Test Data	Descript	Sample	tion	Stratum Desc.	Remarks	E	Equip	ment Insta	illed
		(in.)	, ,	' '		-								
1-	1	24/19	0-2	1-2 4-5	0.0 ppm	Very dark grayisl SILT, some fine trace Clay, cohe: (FILL). Changing yellowish-brown, SILT, plastic, col	grained Sand, tr sive, slightly plas g at 0.4 feet to: M poorly sorted, C	ace Gravel, stic, moist Mottled, dark CLAY &	SILT (FILL 0.4' CLAY & SIL (FILL)	´ '			None	
2- - 3-	2	24/14	2-4	4-4 8-8	0.0 ppm	Mottled, dark yel sorted, CLAY & smoist (FILL). Chabrown to light yel fine to medium gmoist (FILL).	SILT, plastic, col anging at 3.0 fee llowish-brown, w	hesive, et to: Pale vell sorted,	3' SAND (FILI	_)				
4- - 5-	3	24/12	4-6	2-1 1-1	0.0 ppm	Pale brown to lig sorted, fine to me Silt, moist (FILL) Black to dark blu at 5.0 feet to: Bro yellowish-brown, trace Gravel, mix Waste, moist (FI	edium grained S). Changing at 4. Ie WASTE (FILL own to dark , CLAY & SILT, s xed with black ar	AND, trace 6 feet to:). Changing some Sand,	4.6' WASTE (FILE 5' SAND (FILE	´ -				
6-	4	24/15	6-8	0-0 0-0	0.0 ppm	Brown to dark ye								

30RING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18 REMARKS

8

9

5

24/18

8-10

0-0 1-1

0.0 ppm

SILT, some Sand, trace Gravel, mixed with black and dark blue Waste, moist (FILL).

Brown to dark yellowish-brown, CLAY & SILT, some Sand, trace Gravel, mixed with

WASTE, moist (FILL). Changing at 9.0 feet

to: Brown to dark yellowish-brown, CLAY &

SILT, some Sand, trace Gravel, mixed with black and dark blue Waste, moist (FILL).

black and dark blue Waste, moist (FILL). Changing at 8.9 feet to: Black to dark blue

8.9' Q' WASTE (FILL)

CLAY & SILT (FILL)

WB-1 _ of ___2 16.0062335.52 J Cai

Stab

^{1.} Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per millilion (ppm) of isobutylene. Background was measured at 0.0ppm.

2. Composite sample was collected from approximately 4.6 to 14.3 feet below ground surface and submitted for laboratory analytical testing.



GZA GeoEnvironmental, Inc. Engineers and Scientists

Wolverine World Wide, Inc. 1855 House Street NE

Belmont, Michigan

WB-1 Boring No.: _ Page: ____2 of ___2

File No.: 16.0062335.52

						Belmont, Michigan			File No.: 10.0002333.32
		Sam	ple Inforn	nation					Check: J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
- 11 — - 12 — - 13 —	7	24/24	10-12 12-14	0-0 3-5 3-3 4-5	0.0 ppm	Brown to dark yellowish-brown, CLAY & SILT, some Sand, trace Gravel, mixed with black and dark blue Waste, moist (FILL). Changing at 11.3 feet to: Black to dark blue WASTE, moist (FILL). Changing at 11.4 feet to: Brown to yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 11.5 feet to: Dark brown to pale brown, poorly sorted, fine to medium SAND, some Silt, little Clay, moderately plastic, moderately cohesive, moist (FILL). Dark brown to pale brown, poorly sorted, fine to medium SAND, some Silt, little Clay, moderately plastic, moderately cohesive, moist (FILL).	CLAY & SILT (FILL) 11.3'		
14 — - 15 —	8	24/8	14-16		0.0 ppm	Dark brown to pale brown, poorly sorted, fine to medium SAND, some Silt, little Clay, moderately plastic, moderately cohesive, moist (FILL). Changing at 14.3 feet to: Black to dark blue WASTE, moist (FILL). Changing at 14.4 feet to: Dark brown, poorly sorted, fine to medium SAND, some Silt, little Clay, moderately plastic, moderately cohesive, moist (FILL).	14.3' 14.WASTE (FILL) SAND (FILL)		
16 — - 17 — -	9	24/22	16-18		0.0 ppm	Brown to pale brown, poorly sorted, fine to coarse grained SAND, trace Silt, trace Gravel, moist (SW). Changing at 16.2 feet to: Grayish brown to dark gray, Silty CLAY, plastic, cohesive, moist (CL). Changing at 16.3 feet to: Very pale brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).	16' 16.26AND (SW) 46% ty CLAY (CL) SAND (SP)	3	
18						Dettern of Develop at 40.0 Foot	18'	4	
-						Bottom of Borehole at 18.0 Feet		5	
19-									
20 —									
21 —									

Soil sample was collected from approximately 16.3 to 17.9 feet below ground surface and submitted for laboratory analytical testing.
 No groundwater was encountered during drilling or upon completion.
 Borehole was backfilled with bentonite grout and tremie pipe placed.

BORING_WELL 6233550 WWW HOU R 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.

Contractor: Silcarins Dilling Company Foreman: Ligged by: John Morehouse Dues Start/Flink: 11:30-17/10-0-17 Berring Location: Sample Information No. Pend (P.) Depth			GZ		montal In	•		Wolverine W				Boring No		B-2
Steams Drilling Company Jum/Bryan Jum/Bryan Jum/Bryan Jum/Bryan Jum/Bryan John Morehouse Joh	C	5 Z\)			,							-		
Contractor Company C		,	_	-				Belmon	<u>t, Michigan</u>					
Depth Depth Casing Depth Casing Depth Casing Depth Casing Depth Casing Depth Casing Depth						рапу	_	_	Sampler		CROUN			
Date Start/Finish: 11:30-17/ 11:30-17 Hammer Wt. 140lbs NA SSEPIOR Location: Service of Part Committee Start Sta						!	 Tyne∙H		Split Spoon					Sta
Boring Location: Hammer Pail: 140 lbs NA	Logs Date	Start/F	inish:	11-30)-17 / 11-3	80-17						1 2 1		
Sample Information TOC Elev.: NA NA SurveyObject NA Survey Date: Survey Date: NA Survey Date: NA Survey Date: Survey Date									NA					
Sample Information No. Rec. Depth Blows Test Description & Classification Desc. Sample Description & Classification Desc. Sitz tum Desc. Sample Description & Classification Desc. Sitz tum Desc. Sample Description & Classification Desc. Description & Classification Description & Clas	GS E	lev.: _	797.70	D' Date	um:				NA					
No. Pen./ Rec. Depth Rec. Pen./ Rec. Description & Classification Stratum Desc. Equipment Install			Sam	nle Inform	nation		TOC Elev.: _	NA	NA	Surveyed	Ву:	NA Sui	rvey Date:	
1 24/18 0-2 3-2 2-3 0 ppm)epth	No	Pen./	•	Blows					Stratum	arks	Equip	ment Insta	alled
SILT, some fine grained Sand, trace Gravel, trace Clay, cohesive, slightly plastic mosts (FILL). Changing at 0.4 feet to: Mottled, dary ellowish brown, poorly sorted, CLAY & SILT, plastic, cohesive, moist (FILL). Changing at 1.5 feet to: Dark yellowish brown, poorly sorted, fine to medium grained SAND, trace SIII, mosts (FILL). Changing at 1.5 feet to: Dark yellowish brown, poorly sorted, fine to medium grained SAND poorly sorted, fine to medium grained SAND some SIII, trace of Gravel, non plastic, moderately cohesive, moist (FILL). Dark yellowish brown, poorly sorted, fine to medium grained SAND some SIII, trace of Gravel, non plastic, moderately cohesive, moist (FILL). Dark yellowish brown, poorly sorted, fine to medium grained SAND, some SIII, trace of Gravel, plastic, cohesive, moist (FILL). Dark yellowish brown, poorly sorted, fine to medium grained SAND, some SIII, trace of Gravel, plastic, cohesive, moist (FILL). Mottled, brown to dark brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL). 1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Reading above background levels are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.		140.	(in.)		, ,									
Comparison of the comparison		1	24/18	0-2		0.0 ppm	SILT, some fine	grained Sand, t	race Gravel,	SILT (FILL)	1		None	
yellowish brown, poorly sorted, CLAY & SILT, Destice, cohesive, moist (FILL). Changing at 1.0 feet to: Pale brown to light yellowish brown, well sorted, fine to medium grained SAND, trace Silt, moist (FILL). Changing at 1.5 feet to: Dark yellowish brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, non plastic, moderately cohesive, moist (FILL). Dark yellowish brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, non plastic, moderately cohesive, moist (FILL). Dark yellowish brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, non plastic, moderately cohesive, moist (FILL). Dark yellowish brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, plastic, cohesive, moist (FILL). Mottled, brown to dark brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL). Their some Sand, trace Gravel, plastic, cohesive, moist (FILL). 1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Reading above background levels are shown in parts per million (ppm) of sebutylene. Background was measured at 0 0 ppm.														
SILT, plastic, cohesive, moist (FILL). Changing at 1.0 feet to: Pale brown to light yellowish brown, well sorted, fine to medium grained SAND, trace Sit, moist (FILL). Changing at 1.3 feet to: Dark yellowish brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, non plastic, moderately cohesive, moist (FILL). Dark yellowish brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, non plastic, moderately cohesive, moist (FILL). Dark yellowish brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, non plastic, moderately cohesive, moist (FILL). Dark yellowish brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, plastic, cohesive, moist (FILL). Mottled, brown to dark brown, poorly sorted, clay 4.4-6 2.2 2.3 0.0 ppm Mottled, brown to dark brown, poorly sorted, clay 4.4-6 clay 4.4-6 plastic, cohesive, moist (FILL). Mottled, brown to dark brown, poorly sorted, clay 4.4-6 clay 4.4-6 clay 4.4-6 plastic, cohesive, moist (FILL). 1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photolonization detector equipped with a 10.6 eV lamp. Reading above background levels are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.	\exists										T			
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grained SAND, trace Silt, moist (FILL). Changing at 1.3 feet to: Dark yellowish brown, poorly sorted, fine to medium grained SAND, some silt, trace Clay, trace Gravel, non plastic, moderately cohesive, moist (FILL). 2 2 2 24/18 2-4 2-2 1-1 0.0 ppm Days plastic, moderately cohesive, moist (FILL). SAND (FILL) 2 3 24/19 4-6 2-2 1-1 0.0 ppm Days plastic, moderately cohesive, moist (FILL). SAND (FILL) 3 4 3 24/19 4-6 2-2 2-3 0.0 ppm Mottled, brown to dark brown, poorly sorted, fine to medium grained SAND, some Sald, trace Clay, trace Gravel, plastic, cohesive, moist (FILL). 4 5 Clay & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL). 5 - 1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photolonization detector equipped with a 10.6 eV lamp. Reading above background levels are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.							Changing at 1.0 t	teet to: Pale bro	own to light					
Changing at 1.3 feet for Dark yellowish brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, non plastic, moderately cohesive, moist (FILL). Dark yellowish brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, moist (FILL). The distribution of the provided of the medium grained SAND, some Silt, trace Clay, trace Gravel, moist (FILL). Changing at 2.6 feet to: Mottled, brown to dark brown, poorly sorted, cLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL). The distribution of the provided of the plastic, cohesive, moist (FILL). The distribution of the provided of the plastic, cohesive, moist (FILL). The distribution of the provided of the provided of the plastic, cohesive, moist (FILL). The distribution of the provided of the plastic, cohesive, moist (FILL). The distribution of the provided of the provided of the plastic, cohesive, moist (FILL). The distribution of the provided of the provided of the plastic, cohesive, moist (FILL). The distribution of the provided of the provided of the provided of the plastic, cohesive, moist (FILL). The distribution of the provided of	1-						grained SAND, tr	ace Silt, moist	(FILL).	1' SAND (FILL)			
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cohesive, moist (FILL). Changing at 2.6 feet to: Mottled, brown to dark brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL). Mottled, brown to dark brown, poorly sorted, (FILL). Mottled, brown to dark brown, poorly sorted, (FILL). Mottled, brown to dark brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL). Mottled, brown to dark brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL).					1-1		medium grained	SAND, some S	ilt, trace					
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1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Reading above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.					2-3				e Gravel,					
Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Reading above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.							plastic, conesive	, moist (FILL).						
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above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.	7	l Eiold	corocnin	of comple	oc for organ	nio venera	was porformed with	a MiniDaa 2000	nhotoicn=oti==	dotootor og:::	anad with	2 10 6 2/1-	mn Doodin	nac.
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REMARKS

WELL

Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

WB-2 Boring No.: _ Page: ____2 __ of ___3 File No.: 16.0062335.52 Check: J Cai

Sample Information Depth Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) CLAY & SILT (FILL) 24/20 6-8 1-2 2-2 0.0 ppm Mottled, brown to dark brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL). Changing at 6.5 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 7.1 feet to: Black to dark blue WASTE, moist (FILL). Changing at 7.3 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand, trace WASTE (FILL) 2 Gravel, mixed with black to dark blue CLAY & SILT Waste, moist (FILL). Changing at 7.6 feet (FILL) to: Black to dark blue WASTE, moist (FILL). WASTE (FILL) 8 5 24/21 8-10 0-0 2-1 0.0 ppm Black to dark blue WASTE, moist (FILL). 9. 10 1-4 8-7 6 24/9 10-12 0.0 ppm Black to dark blue WASTE, moist (FILL). Changing at 10.7 feet to: Brown, poorly sorted, medium to coarse grained SAND, trace Gravel, trace Silt, moist (SW). 10.7' SAND (SW) 11 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18 12 SAND (SP) 7 24/21 12-14 3-4 0.0 ppm Very pale brown, very well sorted, fine to 8-10 medium grained SAND, trace Silt, moist (SP).

2. Composite sample was collected from approximately 7.1 to 10.7 feet below ground surface and submitted for laboratory analytical 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.



WB-2 Boring No.: _ Page: ___3 __ of ___3 File No.: 16.0062335.52

J Cai

		Sam	ple Inforn	nation		Belmont, Michigan			Check: J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
14-	8	24/21	14-16	4-6 7-11	0.0 ppm	Very pale brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).	SAND (SP)	3	
15-									
16-						Bottom of Borehole at 16.0 Feet	16'	4	
-						Bottom of Borenole at 16.0 Feet		5	
17-									
8-									
19-									
1 2 3	3. Soil sa 4. No gra 5. Boreh	ample wa oundwate ole was l	as collected er was enco packfilled w	I from apprountered du it bentoni	oximately iring drilli te grout a	r 14.0 to 15.8 feet below ground surface and submitte ng or upon completion. and tremie pipe placed.	ed for laboratory a	nalyt	ical testing.
Stratific	cation line	s represer	nt approxima	te boundary	between s	oil types, transitions may be gradual. Water level readings	have been made at	times	Boring No.: WB-2

		GZ		_			Wolverine W	orld Wide,	Inc.		_	Boring No.		3-3
G	7 ()			nental, In			1855 Hou	se Street N	ΙE		_	Page:	1 of _	3_
		_		d Scientists			Belmon	, Michigan				File No.: _		
Contr	actor:	S1		lling Com	oany	_	Auger/	Sampler			_	Check:	J Ca	<u> </u>
				Bryan		_	Casing	•				WATER RE		
	-			lorehouse		,,	ollow Stem Auger		Date	Tir	ne	Depth	Casing	Sta
		nish: _)-17 / 11-3		O.D. / I.D.: _ Hammer Wt.:		2.0" / 1 3/8" NA	-					
		797.30		ım:		Hammer vvi.: _ Hammer Fall: _		NA NA	-					
JO L.						TOC Elev.:		NA	Surveved	Bv:	N	IA Surv	ev Date:	
_		Sam	ple Inforn	nation										
Deptn	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descript	Sample ion & Classifica	tion	Stratum Desc.		Remarks	Equipn	nent Insta	lled
+	1	24/16	0-2	2-1	0.0 ppm	Very dark grayish	hrown poorly	sorted	SILT (FILL)		<u>~</u> 1		None	
1-	'	24/10	0-2	1-2	3.0 pp	SILT, some fine trace Clay, coher (FILL). Changing yellowish brown, SILT, some Sand cohesive, moist (grained Sand, tr sive, slightly pla at 0.3 feet to: D poorly sorted, C d, trace Gravel,	ace Gravel, stic, moist oark CLAY &	0.3' CLAY & SIL' (FILL)				None	
2-	2	24/19	2-4	2-3 3-4	0.0 ppm	Dark yellowish b & SILT, some Sa cohesive, moist (ınd, trace Grave							
4	3	24/20	4-6	2-2 4-5	0.0 ppm	Dark yellowish be & SILT, some Sa cohesive, moist (to: Dark yellowist grained, SAND, to Changing at 4.6- brown, poorly so Sand, some San cohesive, moist (ind, trace Grave (FILL). Changing In brown, well so trace Silt, moist feet to: Dark yel ted, CLAY & SI d, trace Gravel,	el, plastic, g at 4.5 feet rted, coarse (FILL). lowish LT, some	4.5' 4.6' SAND (FILL CLAY & SIL' (FILL)					
1.						was performed with per milliion (ppm) of i					with a	a 10.6 eV lan	np. Readin	gs



Sample Information

Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

Boring No.: _ WB-3 Page: ____2 of ____3 File No.: 16.0062335.52

J Cai

ا ک		Jan	ple Inforn					' ^	Т
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
-	4	24/24	6-8	3-4 5-6	0.0 ppm	Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, some Sand, trace Gravel, plastic, cohesive, moist (FILL).	CLAY & SILT (FILL)		
7-									
8-	5	24/24	8-10	3-3 5-6	0.0 ppm	Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, some Sand, trace Gravel, plastic, cohesive, moist (FILL).			
9-									
0-	6	24/24	10-12	2-4 6-10	0.0 ppm	Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, some Sand, trace Gravel, plastic, cohesive, moist (FILL).			
1-									
2-	7	24/24	12-14	4-7 13-39	0.0 ppm	Dark yellowish brown grading to dark grayish brown to dark brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL).			



WB-3 Boring No.: __ Page: ___3__ of ___3 File No.: 16.0062335.52

Check: J Cai

_		Sam	ple Inforn	nation					Check: J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	8	24/21	14-16	6-12 31-32	0.0 ppm	Dark brown, poorly sorted, medium to coarse grained SAND, little Gravel, trace Silt, moist (FILL). Changing at 14.4 feet to: Dark yellowish brown grading to dark grayish brown to dark brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL). Changing at 14.6 feet to: Dark brown, poorly sorted, medium to coarse grained SAND, little Gravel, trace Silt, moist (SW).	CLAY & SILT (FILL) 14' SAND (FILL) 14.4' CLAY & SILT 14.6' (FILL) SAND (SW)	-	
6-						Bottom of Borehole at 16.0 Feet	16'	2 3	
17-									
18 <i>-</i> -									
R	2. No gr 3. Borel	oundwate	er was encc backfilled w	ountered du	uring drilli te grout a	ing or upon completion. and tremie pipe placed.			

	3 2\)		A oEnvironr gineers and				Wolverine V 1855 Hoυ	voria vvide, ise Street N			_	Boring No.	1 of _	B-4 3
	tractor:	S	tearns Dri	lling Comp		_	Auger/	nt, Michigan Sampler			_	File No.: _	J Ca	ıi
_og	ged by:		John M	Bryan Iorehouse			Casing Iollow Stem Auger	Split Spoon	Date	GRO Tir		Depth	EADINGS Casing	Sta
Bori			11-29			O.D. / I.D.: Hammer Wt.: Hammer Fall:	140lbs	2.0" / 1 3/8" NA NA	-					
			ple Inforn			TOC Elev.:		NA NA	Surveyed	l By:	N	IA Sur	vey Date:	
nebtn	No.	Pen./ Rec.	Depth (Ft.)	Blows (/6")	Test Data	Descript	Sample ion & Classific	ation	Stratum Desc.	1	Remarks	Equipr	ment Insta	lled
	1	(in.) 24/19	0-2	2-3	0.0 ppm	Very dark grayis			SILT (FILL		<u>8</u> 1		None	
- 1 <i>-</i> -	·		02	4-4		SILT, some fine trace Clay, cohe (FILL). Changing yellowish brown, SILT, some San cohesive, moist to: Dark yellowis fine to coarse grace Silt, moist	grained Sand, isive, slightly play at 0.2 feet to: poorly sorted, d, trace Gravel, (FILL). Changir h brown, modelained SAND, lit	trace Gravel, astic, moist Dark CLAY & plastic, ng at 1.4 feet rately sorted,	0.2' CLAY & SIL (FILL)				Kelle	
-							` ,		1.4' SAND (FILL	-)				
- - 3-	2	24/24	2-4	1-2 3-4	0.0 ppm	Dark yellowish befine to coarse grace Silt, moist to: Dark yellowis CLAY & SILT, so plastic, cohesive 2.9 feet to: Dark moderately sorte SAND, little Grav Changing at 3.1 brown, poorly so Sand, trace Graviant of the same control of the same contr	ained SAND, lit (FILL). Changin h brown, poorly ome Sand, trace, moist (FILL). yellowish browled, fine to coars wel, trace Silt, m feet to: Dark ye rted, CLAY & S vel, plastic, coh	tle Gravel, ag at 2.5 feet corted, e Gravel, Changing at n, e grained hoist (SW). Billowish GILT, some esive, mosit	2.5' CLAY & SIL (FILL) 2.9' SAND (FILL 3.1' 3.2'CLAY & SIL (FILL) SAND (FILL)	.) T				
4	3	24/15	4-6	1-2 2-2	0.0 ppm ^{\(\)}	(FILL). Changing yellowish brown, coarse grained \$\foatsilf{Silt}\$, moist (FILL) Dark yellowish b & SILT, some \$\foatsilf{Silt}\$, some \$\foatsilf{Silt}\$, woist Dark yellowish b fine to coarse \$\foatsilf{FILL}\$. Ch yellowish brown, SILT, some \$\foatsilf{Silt}\$, some \$\foatsilf{Silt}\$, moist to: Dark yellowis fine to coarse grace \$\foatsilf{Silt}\$, moist	moderately son AND, little Graus Changing at 3 rown, poorly so and, trace Grav (FILL). Town, moderate AND, little Gravanging at 4.3 fe poorly sorted, d, trace Gravel, (FILL). Changing h brown, moderained SAND, little Graval, little Gravel, control of the contr	rted, fine to vel, trace 8.9 feet to: rted, CLAY el, plastic, ely sorted, el, trace Silt, tet to: Dark CLAY & plastic, tg at 4.7 feet rately sorted,	3.9' 4' CLAY & SIL (FILL) SAND (FILL 4.3' CLAY & SIL (FILL) 4.7' SAND (FILL	T				
R						was performed with er milliion (ppm) of					with a	a 10.6 eV lar	mp. Readin	

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



GZA GeoEnvironmental, Inc. Engineers and Scientists

Wolverine World Wide, Inc. 1855 House Street NE

Belmont, Michigan

 Boring No.:
 WB-4

 Page:
 2
 of
 3

 File No.:
 16.0062335.52

 Check:
 J Cai

Sample Information Depth Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) CLAY & SILT (FILL) 24/20 6-8 0.0 ppm Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL). Changing at 6.5 feet to: Black to dark blue WASTE, moist (FILL). 6.5' 6.6WASTE (FILL) Changing at 6.6 feet to: Brown to yellowish brown, well sorted, fine to medium SAND, SAND (FILL) trace Silt, moist (FILL). 8 5 24/15 8-10 2-3 3-2 mag 0.0 Brown to yellowish brown, well sorted, fine to medium SAND, trace Silt, moist (FILL). Changing at 8.3 feet to: Black to dark gray, WASTE (FILL) WASTE, moist (FILL). Changing at 8.7 feet to: Brown to yellowish brown, well sorted, fine to medium SAND, trace Silt, with black SAND (FILL) to dark gray, Waste, moist (FILL). 9 10 0-0 2-4 6 24/20 0.0 ppm Brown to dark yellowish brown, CLAY & CLAY & SILT 10-12 SILT, some Sand, trace Gravel, mixed with (FILL) black to dark blue Waste, moist (FILL). 10.4' WASTE (FILL) Changing at 10.4 feet to: Black to dark gray WASTE, moist (FILL). Changing at 10.7 feet to: Dark blue to purple WASTE, moist (FILL). Changing at 11.3 feet to: Very pale brown, very well sorted, fine to medium 11 SAND, trace Silt, moist (SP). 11.3' SAND (SP) 12 7 24/15 12-14 2-4 6-3 0.0 ppm Very pale brown, very well sorted, fine to medium SAND, trace Silt, moist (SP).

2. Strong odor noted in sample.

6233550 WWW HOUSE STREET NE.GPJ GZA CORP.GDT 5/17/18

E M A R K S

WELL

3. Composite sample was collected from approximately 8.3 to 10.7 feet below ground surface and submitted for laboratory analytical 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.



WB-4 Boring No.: _ Page: ___3 __ of ___3 File No.: 16.0062335.52

J Cai Check:

	Sample Information						_		Check: J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
							SAND (SP)		
Ī									
14-	8	24/21	14-16	1-1 3-4	0.0 ppm	Very pale brown, very well sorted, fine to medium SAND, trace Silt, moist (SP).		4	
						, , ,			
.									
15-									
16-							16'	5	
10						Bottom of Borehole at 16.0 Feet		6	
17-									
"									
18-									
19-									
$oldsymbol{\perp}$									
₹ 5	1. Soil sa	ample wa	as collected er was enco	from apprountered du	oximately ıring drilli	7 14.0 to 15.8 feet below ground surface and submitting or upon completion. and tremie pipe placed.	ed for laboratory a	nalyt	ical testing.
Λ	6. Boreh	ole was l	backfilled w	ith bentoni	te grout a	and tremie pipe placed.			
A R									
8									
\perp									
ratific nd un	cation line der condit	s represer	nt approxima d. Fluctuatio	te boundary ons of ground	between s lwater ma	oil types, transitions may be gradual. Water level readings , occur due to other factors than those present at the time m	nave been made at neasurements were n	times nade.	Boring No.: WB-4

			A oEnvironr gineers and					se Street N	E		Boring No		
on	tractor:	S	tearns Dri	lling Com	pany		Belmon Auger/	t, Michigan			Check: _		
ore	man: _		Jim/l	Bryan		_	Casing	Sampler			NDWATER R		
_				lorehouse		,,	ollow Stem Auger		Date	Time	e Depth	Casing	Sta
	na Loca	inish: _	11-28)-17 / 11-2	.9-17	O.D. / I.D.: _ Hammer Wt.:	140lbs	2.0" / 1 3/8" NA	-				
	Elev.: _		Datu	um:		_		NA					
		Sam	ple Inforn	nation		TOC Elev.: _	NA	NA	Surveyed	l By:	NA Sur	vey Date:	
	No.	Pen./ Rec.	Depth	Blows	Test	December	Sample	-4i	Stratum	Remarks	Equip	ment Insta	lled
		(in.)	(Ft.)	(/6")	Data	•	on & Classifica		Desc.				
	1	24/22	0-2	2-3 3-4	0.0 ppm	Very dark grayish SILT, some fine			SILT (FILL) 0.2'	'		None	
_						trace Clay, cohes (FILL). Changing brown, poorly sor Sand, trace Grav (CL).	sive, slightly pla at 0.2 feet to: \ ted, CLAY & S	stic, moist Yellowish ILT, little	CLAY & SIL' (CL)	T			
	2	24/16	2-4	3-5 5-6	0.0 ppm	Yellowish brown, SILT, little Sand, cohesive, moist (to: Dark yellowish to coarse grained Silt, trace Clay, n moderately cohes	trace Gravel, p CL). Changing n brown, poorly I SAND, little G on to slightly pl	lastic, at 2.9 feet sorted, fine ravel, little astic,	2.9' SAND (SW)			
4 — 5 —	3	24/19	4-6	5-5 6-6	0.0 ppm	Brown, poorly so SAND, little Grav Changing at 4.3 f brown, poorly sor SAND, little Grav to slightly plastic, moist (SW). Chan poorly sorted, find little Gravel, trace	el, trace Silt, meet to: Dark yel ted, fie to coars el, little Silt, trac moderately conging at 4.4 fee e to coarse grai	oist (SW). Ilowish se grained ce Clay, non hesive, et to: Brown, ined SAND,					
						was performed with per milliion (ppm) of is					h a 10.6 eV la	mp. Readin	gs



Boring No.: _ WB-5 Page: ____2 of ____3 File No.: 16.0062335.52

J Cai

		Sam	ple Inforr	nation					Check:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipm	ent Installed
7-	4	24/16	6-8	3-8 6-4	0.0 ppm	Brown, poorly sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (SW). Changing at 6.5 feet to: Dark yellowish brown, poorly sorted, fine to coarse grained SAND, little Gravel, little Silt, trace Clay, non to slightly plastic, moderately cohesive, moist (SW). Changing at 6.6 feet to: Brown, poorly sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (SW). Changing at 6.7 feet to: Dark yellowish brown, poorly sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (SW). Changing at 6.8 feet to: Brown, poorly sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (SW).	SAND (SW)			
9-	5	24/21	8-10	2-3 5-5	0.0 ppm	Brown, poorly sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (SW). Changing at 8.4 feet to: Brown, moderately sorted, CLAY & SILT, little Sand, plastic, cohesive, moist (CL). Changing at 9.5 feet to: Brown, poorly sorted, CLAY & SILT, little Sand, little Gravel, plastic, cohesive, moist (CL).	8.4' CLAY & SILT (CL)			
10 — - 11 —	6	24/16	10-12	3-2 5-7	0.0 ppm	Yellowish brown, moderately sorted, fine to coarse grained SAND, trace Gravel, trace Silt, moist (SW). Changing at 10.8 feet to: Pale brown to light yellowish brown, well sorted, fine to medium grained SAND, trace Silt, moist (SP).	10' SAND (SW) 10.8' SAND (SP)			
- 12 <i>-</i> -							12'			

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.: WB-5

30RING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

E M A R K S



Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

WB-5 Boring No.: ___ Page: ___3__ of ___3 File No.: 16.0062335.52

Check: J Cai

_		Sam	ple Inforn	nation		Beimont, Wichigan			Check: J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
-									
14 —									
_									
15-									
10									
-									
16 —						Bottom of Borehole at 16.0 Feet		2 3	
						Bottom of Borenole at 16.0 Feet		3	
-									
17 —									
_									
18 —									
19 –									
_									
R	2. No gr 3. Boreh	oundwate	er was enco	ountered du	ring drilli te grout s	ng or upon completion. and tremie pipe placed.	1		<u> </u>
E M A					3	- prp - pro			
R K S									
Stratifi ınd ur	cation line der condit	s represer ions state	nt approxima d. Fluctuatio	te boundary ons of ground	between s water ma	oil types, transitions may be gradual. Water level readings , occur due to other factors than those present at the time m	have been made at neasurements were r	times nade.	Boring No.: WB-5

2		GZ Ge		nental, In	c.		Wolverine W				Boring No		B-6 2
	JL\)			d Scientist		-		se Street NE	<u> </u>		Page: File No.:		
Con	tractor:	s	tearns Dri	Iling Com	nany		Belmoni Auger/	t, Michigan			Check: _		
				Bryan	July	<u> </u>	Casing	Sampler		GROUN	DWATER R	FADINGS	
Loa	aed bv:			lorehouse		 Tvpe: [∐]	lollow Stem Auger	Split Spoon	Date	Time	Depth	Casing	Sta
Date	Start/F	inish: _	11-29	9-17 / 11-2	9-17	O.D. / I.D.:		2.0" / 1 3/8"					
						Hammer Wt.:		NA NA					
GS I	Elev.: _	790.60	Date Date	um:				NA					
		Sam	ple Inforr	nation		TOC Elev.:	NA	NA	Surveyed	By:	NA Sui	rvey Date:	
Depth	No.	Pen./ Rec.	Depth	Blows	Test		Sample	_	Stratum	Remarks	Equip	ment Insta	lled
_	110.	(in.)	(Ft.)	(/6")	Data	Descript	ion & Classifica	ition	Desc.	Rem			
1-	1	24/20	0-2	1-2 2-2	0.0 ppm	Yellowish brown, CLAY, some Sar cohesive, with or dark yellowish br sorted, fine to me (FILL).	nd, trace Gravel ccasional very th rown, moderatel	, plastic, nin seams of y well	SILT & CLA			None	
2	2	24/23	2-4	3-4 5-7	0.0 ppm	Yellowish brown, CLAY, some Sar cohesive, with or dark yellowish br sorted, fine to me (FILL).	nd, trace Gravel ccasional very th rown, moderatel	, plastic, nin seams of y well					
4	3	24/19	4-6	2-3 2-5	0.0 ppm	Yellowish brown, CLAY, some Sar cohesive, with or dark yellowish br sorted, fine to me (FILL).	nd, trace Gravel ccasional very th own, moderatel	, plastic, nin seams of y well					
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2						s was performed with per milliion (ppm) of i					a 10.6 eV la	ımp. Readin	gs



WB-6 Boring No.: __ Page: ____2 of ____2 File No.: 16.0062335.52

7-	No. Pen Rec (in. 4 24/2	(Ft.)	Blows (/6") 3-4 5-6	Test Data	Sample Description & Classification Yellowish brown, poorly sorted, SILT & CLAY, some Sand, trace Gravel, plastic, cohesive, with occasional very thin seams of dark yellowish brown, moderately well	Stratum Desc. SILT & CLAY (CL)	Remarks	Equipment Installed
7-	4 24/2	4 6-8	3-4 5-6	0.0 ppm	CLAY, some Sand, trace Gravel, plastic, cohesive, with occasional very thin seams of dark yellowish brown, moderately well	SILT & CLAY (CL)	<u> </u>	
8-		1			sorted, fine to medium grained Sand, moist (FILL). Changing at 7.0 feet to: Brown, well sorted, fine to medium grained SAND, trace Silt, moist (FILL).	7' SAND (FILL)		
	5 24/2	4 8-10	2-4 4-3	0.0 ppm	Dark yellowish brown, poorly sorted, SILT & CLAY, some Sand, trace Gravel, plastic, cohesive, moist (FILL). Changing at 8.6 feet to: Brown, well sorted, fine to medium SAND, trace Silt, moist (FILL). Changing at 9.5 feet to: Light yellowish brown, very well	8' SILT & CLAY (FILL) 8.6' SAND (FILL)		
9-					sorted, fine to medium grained SAND, trace Silt, moist (SP).	9.5' SAND (SP)		
10					Bottom of Borehole at 10.0 Feet	10'	2 3	
11 -								
12 -								
2. ! 3. E W A A R K S	No groundy Borehole w	vater was enc as backfilled v	countered di with benton	uring drilli ite grout a	ng or upon completion. and tremie pipe placed.			

	7 ()		A oEnvironn gineers and				Wolverine W 1855 Hou	se Street N			Boring No	,	
Con	tractor:	_	tearns Dri				Belmon Auger/	t, Michigan			Check: _		
				Bryan Iorehouse			Casing ollow Stem Auger	Sampler Split Spoon	Date	GROU Time	NDWATER R	EADINGS Casing	Sta
_		inish: _		3-17 / 11-2		rype.₁⊵ O.D. / I.D.: _		2.0" / 1 3/8"		11111	, Dopan	Guonig	
	ng Loca					Hammer Wt.: _	140lbs	NA					
SI	Elev.: _	784.20)' Datu	ım:		_ Hammer Fall: _ TOC Elev.: _		NA NA	Surveyed	Bv:	NA Sur	vey Date:	
		Sam	ple Inforn	nation									
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descripti	Sample on & Classifica	ation	Stratum Desc.	Remarks	Equip	ment Insta	lled
-	1	24/24	0-2	1-2 2-2	0.0 ppm	Very dark grayish SILT, some fine of trace Clay, cohes (FILL). Changing brown, poorly sor Sand, trace Gray moderately cohes thin fine Sand len	grained Sand, to sive, slightly pla at 1.3 feet to: \ted, SILT & CL el, moderately sive, with occas	race Gravel, stic, moist Yellowish AY, some plastic, sional very	SILT (FILL)			None	
									1.3'				
$\frac{1}{1}$									SILT & CLA (FILL)	Y			
:	2	24/21	2-4	3-4 4-4	0.0 ppm	Yellowish brown, CLAY, some San moderately plasti with occasional v moist (FILL).	id, trace Gravel c, moderately c	l, cohesive,					
;-													
-	3	24/20	4-6	2-4 4-3	0.0 ppm	Yellowish brown, CLAY, some San moderately plasti with occasional v moist (FILL). Cha yellowish brown, SAND, little Silt, t	nd, trace Gravel c, moderately c ery thin fine Sa anging at 4.5 fe fine to coarse g	l, cohesive, nd lenses, et to: Dark grained	4.5' SAND (FILL 4.8'				
5-						moderately cohes moist (FILL). Cha to dark brown, po little Sand, trace moist (FILL).	sive, non to slig anging at 4.8 fe oorly sorted, CL Gravel, plastic,	htly plastic, et to: Brown AY & SILT, cohesive,	CLAY & SIL' (FILL)				
						was performed with er milliion (ppm) of is					th a 10.6 eV la	mp. Readin	gs



WB-7 Boring No.: _ Page: ____2 __ of ___2 File No.: 16.0062335.52 Check: J Cai

Sample Information Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) CLAY & SILT (FILL) 24/24 6-8 0.0 ppm Brown to dark brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (FILL). Changing at 7.1 feet to: Soft, brown to dark brown, poorly sorted CLAY & SILT, little Sand, little Gravel, moderately plastic, moderately cohesive, moist (FILL). 8 5 24/24 8-10 4-6 6-7 0.0 ppm Dark yellowish brown, moderately sorted, SAND (FILL) fine grained SAND, little Silt, trace Clay, slightly plastic, moderately cohesive, moist (FILL). Changing at 8.6 feet to: Dark yellowish brown, moderately well sorted, fine to medium grained SAND, trace Silt, moist (FILL). Changing at 8.8 feet to: Dark yellowish brown, moderately sorted, fine 9 grained SAND, little Silt, trace Clay, slightly plastic, moderately cohesive, moist (FILL). Changing at 9.8 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, little Gravel, plastic, cohesive, moist (FILL). CLAY & SILT (FILL) 2 10 Bottom of Borehole at 10.0 Feet 11 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18 12 2. No groundwater was encountered during drilling or upon completion.

3. Borehole was backfilled with bentonite grout and tremie pipe placed.

E M A R K S

/		ı GZ	Α				Wolverine W	orld Wide.	Inc.		Boring	No.:	VB-8
C	77	Ge	oEnvironi	mental, In				se Street N			Page:		2
		Eng	gineers an	d Scientists	6	-		t, Michigan			File No		
Cont	ractor:	S	tearns Dri	Iling Com	oany		Auger/				Check	:JC	cai
	man: _			Bryan		_	Casing	Sampler		GROU	NDWATE	R READINGS	S
Logo	ged by:			<u>lorehouse</u>			ollow Stem Auger	Split Spoon	Date	Time	e Dept	h Casing	Sta
				3-17 / 11-2				2.0" / 1 3/8"	-				
	•							NA NA	-				
GS E	Elev.: _	782.10	Dat	um:		Hammer Fall: . TOC Elev.: .		NA NA	. C	D	NΔ	Survey Date	
		Sam	ple Inforr	nation		TOC Elev.:	IVA	INA	Surveyed	ъу: _	IN/A	Survey Date	·
Depth		Pen./							- ·	, X	Eq	uipment Ins	talled
ခ ီ	No.	Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descript	Sample ion & Classifica	tion	Stratum Desc.	Remarks			
1-	1	24/20	0-2	1-1 2-2	0.0 ppm	Very dark grayist SILT, some fine trace Clay, coher (FILL). Changing yellowish brown, SILT, little Sand, cohesive, moist to: Yellowish broworted, CLAY & Gravel, moderate cohesive, moist	grained Sand, treative, slightly plaus at 1.2 feet to: I poorly sorted, C little Gravel, plaus (FILL). Changing wn grading to but SILT, some Sanely plastic, model	race Gravel, stic, moist Dark CLAY & astic, g at 1.5 feet rown, poorly d, trace	SILT (FILL) 1.2' CLAY & SIL (FILL)			None	Э
3-	2	24/24	2-4	3-3 3-5	0.0 ppm	Yellowish brown sorted, CLAY & Gravel, moderate cohesive, moist to: Brown, well s SAND, trace Silt 2.5 feet to: Dark sorted, fine grain Clay, slightly to r moderately cohe at 2.9 feet to: Mowell sorted, CLA plastic, cohesive	SILT, some Sanely plastic, mode (FILL). Changing orted, fine to me, moist (FILL). Cyellowish brown led SAND, some moderately plast sive, moist (SP) ottled, brown, moy & SILT, trace	d, trace erately g at 2.4 feet edium changing at , poorly e Silt, little ic, . Changing oderately	2.4' 2.5' SAND (FILL SAND (SP) 2.9' CLAY & SIL (CL)				
-	3	24/24	4-6	2-4 7-8	0.0 ppm	Mottled, brown, r CLAY & SILT, tra moist (CL). Char yellowish brown, CLAY, some Sar slightly plastic, r (ML). Changing a brown, poorly so Sand, trace Grav (CL).	ace Sand, plastinging at 5.3 feet poorly sorted, Sond, trace Gravel noderately coherat 5.9 feet to: Darted, CLAY & Sl	c, cohesive, to: Dark SILT & , non to sive, moist ark yellowish LT, little	5.3' SILT & CLA (ML)	Y			
1						s was performed with per milliion (ppm) of i				pped wi	th a 10.6 e\	V lamp. Read	lings



Boring No.: __ WB-8 Page: ____2 of ___2 File No.: 16.0062335.52 J Cai

		Sam	ple Inforn	nation		Belmont, Michigan		_	Check: J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
7-	4	24/21	6-8	2-3 4-5	0.0 ppm	Dark yellowish brown, moderately sorted, fine grained SAND, little Silt, trace Clay, moist (SM). Changing at 6.4 feet to: Mottled, brown, moderately well sorted, CLAY & SILT, trace Sand, plastic, cohesive, moist (CL). Changing at 7.0 feet to: Yellowish brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP). Changing at 7.2 feet to: Mottled, brown, moderately well sorted, CLAY & SILT, trace Sand, plastic, cohesive, moist (CL). Changing at 7.3 feet to: Yellowish brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).	(CL) SAND (SM) 6.4' CLAY & SILT (CL) 7' SAND (SP) 7.2' 7.3'CLAY & SILT (CL) SAND (SP)		
8-	5	24/21	8-10	2-4 3-3	0.0 ppm	Dark yellowish brown, moderately sorted, SILT & CLAY, some Sand, moderately plastic, cohesive, moist (ML). Changing at 8.6 feet to: Yellowish brown, well sorted, fine to medium grained SAND, little Silt, moist to wet (SM). Changing at 9.4 feet to: Slightly mottled, brown to dark brown, moderately well sorted, CLAY & SILT, trace Sand, plastic, cohesive, bedded, moist (CL).	8' SILT & CLAY (ML) 8.6' SAND (SM)		
_							9.4' CLAY & SILT (CL)		
10						Bottom of Borehole at 10.0 Feet	10'	2 3	
-									
11 –									
-									
12-									
-									
R E M A R K S	2. No gr 3. Boreł	oundwate nole was I	er was enco packfilled v	ountered divith benton	uring drilli ite grout a	ng or upon completion. and tremie pipe placed.			
 Stratific						soil types, transitions may be gradual. Water level readings of occur due to other factors than those present at the time may			Boring No.: WB-8

		ı GZ	'Δ			,	Wolverine W	orld Wide,	Inc.			Boring No	.: W	B-9
	GZ\)	Ge	oEnvir on r	mental, In				se Street N			_	Page:		2
b		En	gineers an	d Scientists	3			t, Michigan			_	File No.:		335.52
Cor	ntractor:	S	tearns Dri	Iling Com	oany		Auger/				-	Check: _	J Ca	i
	eman: _		Jim/	Bryan			Casing	Sampler		GRC	UNI	DWATER R	EADINGS	
Loc	ged by:		John M	1orehouse		Type: H	ollow Stem Auger	Split Spoon	Date	Ti	ne	Depth	Casing	Stat
Dat	e Start/F	inish: _	11-28	3-17 / 11-2	8-17			2.0" / 1 3/8"						
								NA						
GS	Elev.: _	781.80	0' Dat	um:		Hammer Fall: _	30.0"	NA						
						TOC Elev.:	NA	NA	Surveyed	Ву:	1	NA Sur	vey Date:	
_		San	ple Inforr	nation					1		40			
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descripti	Sample ion & Classifica	tion	Stratum Desc.		Remarks	Equip	ment Insta	illed
- 1- -	1	24/24	0-2	1-1 2-4	0.0 ppm	Very dark grayish to medium gaine Clay, trace Grave moderately cohe at 0.5 feet to: Mo poorly sorted, CL trace Gravel, placoarser with dept	d SAND, some el, slightly plastic isve, moist (FILI ottled, dark yello LAY & SILT, little stic, cohesive, g	Silt, trace c, L) Changing wish brown, e Sand, grades	SAND (FILL 0.5' CLAY & SIL' (CL)		1		None	
2- - 3-	2	24/24	2-4	3-4 4-6	0.0 ppm	Mottled, dark yell CLAY & SILT, litt plastic, cohesive moist (FILL).	tle Sand, trace (Gravel,						
4-	3	24/20	4-6	1-2 4-5	0.0 ppm	Mottled, dark yell CLAY & SILT, litt plastic, cohesive moist (FILL). Cha	tle Sand, trace (, grades coarsei	Gravel, r with depth,						

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.

yellowish brown, very well sorted, fine to

medium SAND, trace Silt, moist (FILL).

Changing at 5.1 feet to: Mottled, dark yellowish brown, poorly sorted, CLAY &

SILT, little Sand, trace Gravel, plastic, cohesive, grades coarser with depth, moist

Clay, moderately plastic, cohesive, moist

Dark yellowish brown, poorly sorted, fine to medium grained SAND, some Silt, little

Clay, moderately plastic, cohesive, moist (SM). Changing at 6.4 feet to: Dark brown, moderately well sorted, fine to medium

SAND, little Silt, trace Clay, slightly plastic,

slightly to moderately cohesive, moist (SM). Changing at 6.6 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, little

Sand, trace Gravel, plastic, cohesive, with occasional very thin fine Sand lenses, moist

Dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, with occasional very thin fine

(FILL). Changing at 5.6 feet to: Dark yellowish brown, poorly sorted, fine to medium grained SAND, some Silt, little 5.1' SAND (FILL)

CLAY & SILT (FILL)

SAND (SM)

CLAY & SILT (CL)

SAND (SP)

6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18 REMARKS WELL

8

9

24/24

24/24

4

5

6-8

8-10

3-2 4-4

3-5 6-7

0.0 ppm

0.0 ppm

(SM).

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.: WB-9

Stab



WB-9 Boring No.: _ Page: ____2 of ___2 File No.: 16.0062335.52 J Cai Check:

		Sam	ple Inforn	nation					Check: J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
- 11 — -	6	24/24	10-12	4-4 3-3	0.0 ppm	Sand lenses, moist (CL). Changing at 8.7 feet to: Yellowish brown, very well sorted, fine to medium SAND, trace Silt, moist (SP). Yellowish brown, very well sorted, fine to medium SAND, trace Silt, moist (SP). Changing at 11.0 feet to: Brown to dark brown, well sorted, CLAY & SILT, trace Sand, plastic, cohesive, moist (CL).	SAND (SP) 11' CLAY & SILT (CL)		
12 — - 13 —	7	24/24	12-14	3-5 5-5	0.0 ppm	Brown to dark brown, well sorted, CLAY & SILT, trace Sand, plastic, cohesive, moist (CL). Changing at 12.5 feet to: Light yellowish brown to very pale brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).	12.5' SAND (SP)		
14 — - 15 —	8	24/21	14-16	2-3 4-4	0.0 ppm	Light yellowish brown to very pale brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).			
16 — - 17 —	9	24/22	16-18	2-4 5-6	0.0 ppm	Light yellowish brown to very pale brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).			
18—	10	24/24	18-20	3-4 5-5	0.0 ppm	Light yellowish brown to very pale brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP). Changing at 19.9 feet to: Dark brown, poorly sorted, fine to coarse grained SAND, little Silt, moist (SM).			
20						Bottom of Borehole at 20.0 Feet	19.9' 20' SAND (SM)	2	
R 3 E M A	2. No gr 3. Boreł	oundwate	er was encc packfilled w	ountered du vith bentoni	uring drilli te grout a	ing or upon completion. and tremie pipe placed.		3	
R K S Stratific	cation line	es renreser	nt approxima	te boundary	between	soil types, transitions may be gradual. Water level readings	have been made at t	imes	
nd un	der condi	tions state	d. Fluctuatio	ons of ground	dwater ma	y occur due to other factors than those present at the time m	easurements were m	nade.	Boring No.: WB-9

GZN	GZA GeoEnvironme Engineers and S

GS Elev.: ____789.30'

Wolverine World Wide, Inc. ental, Inc. 1855 House Street NE Scientists

TOC Elev.: _

WB-10 Boring No.: __ Page: ___1__ of ___2 File No.: 16.0062335.52 Check: __ J Cai

Survey Date:

Stearns Drilling Company Contractor: __ Jim/Bryan Foreman: _ John Morehouse Logged by: _ 11-27-17 / 11-27-17 Date Start/Finish: **Boring Location:**

Datum: _

Casing Type: Hollow Stem Auger Split Spoon O.D. / I.D.: 8.0" / 4.25" 2.0" / 1 3/8" 140lbs Hammer Wt.: ___ NA 30.0" NA Hammer Fall: ___ NA NA

Auger/

Belmont, Michigan

Sampler

Date Depth Casing Stab

NA

Surveyed By: _

GROUNDWATER READINGS

	Sample Information					TOC Elev.: NA NA NA	Surveyed By:		NA Survey Date:		
Depth	No. Pen./ Rec. (Ft.) Blows Test Data					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed		
1-	1	24/20	0-2	1-1 2-3	0.0 ppm	Very dark grayish brown, poorly sorted, fine to medium SAND, some Silt, trace Clay, trace Gravel, slightly plastic, moderately cohesive, moist (FILL). Changing at 0.4 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL).	SAND (FILL) 0.4' CLAY & SILT (FILL) 1.1' SAND (FILL) 1.5' CLAY & SILT	1	None		
2- - 3-	2	24/24	2-4	1-2 2-4	0.0 ppm	Changing at 1.1 feet to: Dark brown, poorly sorted, fine to medium SAND, some Silt, trace Clay, trace Gravel, slightly plastic, moderately cohesive, moist (FILL). Changing at 1.5 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand,	(FILL)				
4- -	3	24/19	4-6	2-3 3-2	0.0 ppm	trace Gravel, mixed with black to dark blue Waste, moist (FILL). Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 3.4 feet to: Yellowish brown, moderately sorted, SILT & CLAY, some	3.4' 9.5'SILT & CLAY (FILL) CLAY & SILT (FILL) 4.4' SAND (FILL)				
5— 6— 7—	4	24/24	6-8	3-4 7-8	0.0 ppm	Sand, moderately plastic, moderately cohesive, moist (FILL). Changing at 3.5 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at Changing at 4.4 feet to: Yellowish brown, moderately sorted, fine to medium grained SAND, some Silt, little Clay, moderately plastic, cohesive, moist					
8- 9-	5	24/24	8-10	5-8 12-16	0.0 ppm	(FILL) Brown, moderately sorted, fine to medium grained SAND, little Silt, trace Clay, trace Gravel, non plastic, slightly cohesive, moist (FILL). Changing at 6.4 feet to: Yellowish brown, moderately sorted, fine to medium grained SAND, some Silt, little Clay, trace Gravel, non plastic, slightly cohesive, moist	8' SILT & CLAY (ML)				
0- 1-	6	24/24	10-12	4-10 9-9	0.0 ppm	(FILL). Changing at 7.8 feet to: Brown, moderately sorted, fine to medium grained SAND, little Sand, trace Clay, trace Gravel, non plastic, slightly cohesive, moist (FILL). Mottled, yellowish brown, moderately sorted, SILT & CLAY, little Sand, trace Gravel, plastic, cohesive, with occasional very thin fine thin Sand lenses, moist (CL). Mottled, yellowish brown, moderately sorted, SILT & CLAY, little Sand, trace Gravel,	10.9' SAND (SP)				

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.

6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18 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.



5/17/18

6233550 WWW HOUSE STREET NE.GPJ GZA CORP.GDT

E M A R K S

WELL

Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

WB-10 Boring No.: _ __2 Page: ____2 of . File No.: <u>16.006233</u>5.52 Check: J Cai

Sample Information Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) SAND (SP) 24/24 12-14 2-5 7-16 0.0 ppm plastic, cohesive, with occasional very fine Sand lenses, moist (ML). Changing at 10.9 feet to: Pale brown, well sorted, fine to medium grained SAND, trace Silt, moist 13 (SP). 3.2CLAY & SILT (CL) Pale brown, well sorted, fine to medium grained SAND, trace Silt, moist (SP). SAND (SW) Changing at 13.1 feet to: Dark yellowish brown, moderately sorted, CLAY & SILT, 8-6 8-14 0.0 ppm 8 24/24 14-16 little Sand, trace Gravel, plastic, cohesive, moist (CL). Changing at 13.2 feet to: Dark CLAY & SILT yellowish brown to yellowish brown, poorly (CL) sorted, fine to coarse SAND, little Gravel, 15 45.2'SAND (SP) trace Silt, moist (SW). CLAY & SILT Dark yellowish brown to yellowish brown, (CL) poorly sorted, fine to coarse SAND, little SAND (SP) Gravel, trace Silt, moist (SW). Changing at 16 24/24 4-5 6-7 0.0 ppm 9 16-18 14.6 feet to: Dark yellowish brown, moderately sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL). Changing at 15.1 feet to: Pale brown, very well sorted, fine grained SAND, trace Silt, moist to wet (SP). Changing at 15.2 feet to: Dark yellowish brown, moderately sorted, CLAY & SILT, little Sand, trace 18 0.0 ppm 10 24/24 18-20 4-7 Gravel, plastic, cohesive, moist (CL). Changing at 15.3 feet to: Very pale brown, very well sorted, fine grained SAND, trace Silt, bedded, moist (SP). 19 Very pale brown, very well sorted, fine grained SAND, trace Silt, bedded, moist (SP). Very pale brown, very well sorted, fine 20' 20 grained SAND, trace Silt, bedded, moist Bottom of Borehole at 20.0 Feet 21 22 23 24 25

2. No groundwater was encountered during drilling or upon completion.

3. Borehole was backfilled with bentonite grout and tremie pipe placed.

CT)
GE (

Contractor:

Foreman: ___

GZA GeoEnvironmental, Inc. Engineers and Scientists

Stearns Drilling Company

Jim/Bryan

Wolverine World Wide, Inc. 1855 House Street NE

WB-11 Boring No.: ___

J Cai

Page: ___1__ of ___2 File No.: <u>16.0062335.52</u>

Belmont, Michigan

Auger/ Sampler Casing

Check: __ **GROUNDWATER READINGS** Depth Stab Date Casing

John Morehouse Logged by: _ 11-27-17 / 11-27-17 Date Start/Finish: _

Type: Hollow Stem Auger Split Spoon O.D. / I.D.: 8.0" / 4.25" 2.0" / 1 3/8" 140lbs Hammer Wt.: ____ NA 30.0" NA Hammer Fall: ___ NA NA

TOC Elev.: _

Survey Date:

NA

Surveyed By: _

Boring Location: GS Elev.: 788.70' _ Datum: _

Sample Information

Depth Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. Description & Classification (Ft.) (/6")Data Desc. (in.) 24/24 0.0 ppm SAND (FILL) 0-2 Very dark grayish brown, poorly sorted, fine None 2-3 to medium grained SAND, some Silt, trace Clay, trace Gravel, slightly plastic, moderately coheisve, moist (FILL). Changing at 0.6 feet to: Dark yellowish brown, moderately sorted, fine to coarse SAND, trace Silt, trace Gravel, moist (FILL). (FILL) Changing at 1.1 feet to: Brown to dark brown, CLAY & SILT, some Sand, trace, SAND (FILL) CLAY & SILT trace Gravel, mixed with black to dark blue 2 SAND (FILL) 2 24/24 2-4 0.0 ppm Waste, moist (FILL). Changing at 1.2 feet to: Dark yellowish brown, moderately sorted, fine to coarse SAND, trace Silt, trace Gravel, moist (FILL). Changing at 1.3 feet to: Brown to dark yellowish brown, CLAY & 2 3 3.1' 3.2WASTE (FILL) SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). SAND (FILL) Changing at 1.4 feet to: Dark yellowish brown, moderately sorted, fine to coarse SAND, trace Silt, trace Gravel, moist (FILL). 24/19 0.0 ppm 3 4-6 1-1 1-1 Dark yellowish brown, moderately sorted, fine to coarse SAND, trace Silt, trace Gravel, moist (FILL). Changing at 3.1 feet to: Black to dark blue WASTE, moist (FILL). Changing at 3.2 feet to: Dark yellowish 5 brown, moderately sorted, fine to coarse WASTE (FILL) SAND, trace Silt, trace Gravel, moist (FILL). Dark yellowish brown, moderately sorted, fine to coarse SAND, trace Silt, trace Gravel, moist (FILL). Changing at 5.1 feet 24/16 mag 0.0 to: Black to dark blue WASTE, moist (FILL). SAND (FILL) 6-8 4 2-1 Dark yellowish brown, moderately well sorted, fine to coarse SAND, trace Silt, trace Gravel, moist (FILL). 8 5 24/19 8-10 mag 0.0 Dark yellowish brown, moderately well sorted, fine to coarse SAND, trace Silt, trace Gravel, moist (FILL). Changing at 8.7 feet to: Light yellowish brown, moderately well SAND (SW) sorted, fine to coarse grained SAND, trace 9 Silt, trace Gravel, grades finer with depth, 3 moist (SW).

5/17/18

CORP.GDT

GZA (

6233550 WWW HOUSE STREET NE.GPJ

WELL S

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A R K

- 1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.
- Composite sample was collected from approximately 2.8 to 5.6 feet below ground surface and submitted for laboratory analytical testing.
- 3. Soil sample was collected from approximately 9.0 to 9.6 feet below ground surface and submitted for laboratory analytical testing.



WB-11 Boring No.: _ Page: ____2 of ___2 File No.: 16.0062335.52

ً ۔		Sam	ple Inforn	nation		Beimont, Michigan			Check: J Cai		
Depth	No.	Pen./ Rec. (in.) Depth (Ft.) Blows (/6") Test Data Description & Classification Description						Remarks	Equipment Installed		
- 1-	6	24/19	10-12	1-1 1-1	0.0 ppm	Light yellowish brown, moderately well sorted, fine to coarse grained SAND, trace Gravel, grades finer with depth, moist (SW). Changing at 10.9 feet to: Light yellowish brown, moderately well sorted, fine to medium grained SAND, trace Silt, trace Gravel, moist (SP).	SAND (SW) 10.9' SAND (SP)				
2- - 3-	7	24/16	12-14	2-2 2-2	0.0 ppm	Light yellowish brown, moderately well sorted, fine to medium grained SAND, trace Silt, trace Gravel, moist (SP). Changing at 12.4 feet to: Dark brown, poorly sorted, SILT & CLAY, some Sand, trace Gravel, slightly plastic, moderately cohesive, moist (ML). Changing at 12.8 feet to: Mottled, brown to grayish brown, well sorted, CLAY & SILT,	12.4' SILT & CLAY 12.8' (ML) CLAY & SILT (CL)	-			
4- - 5-	8	24/13	14-16	1-1 2-2	0.0 ppm	with lenses of light brownish gray, Clay & Silt, plastic, cohesive, moist (CL). Pale brown to very pale brown, very well sorted, fine SAND, trace Silt, moist (SP).	SAND (SP)				
6- - 7-	9	24/18	16-18	2-2 4-4	0.0 ppm	Pale brown to very pale brown, very well sorted, fine SAND, trace Silt, moist (SP).					
8-	10	24/21	18-20	3-3 4-4	0.0 ppm	Pale brown to very pale brown, very well sorted, fine SAND, trace Silt, moist (SP).					
0+						Bottom of Borehole at 20.0 Feet	20'	4 5			
21 —											
4 5	1. No gr 5. Boreh	oundwate	er was enco oackfilled w	ountered du vith bentoni	uring drilli ite grout a	ng or upon completion. and tremie pipe placed.					
rotific	cation line	es represer	nt approxima	ite boundarv	between s	soil types, transitions may be gradual. Water level readings	have been made at	timae	Boring No.: WB-11		

				nental, In			Wolverine World Wide, Inc. 1855 House Street NE					Boring No.: WB-12 Page: 1 of 2			
		Eng	gineers and	d Scientists	S			t, Michigan			-	File No.:			
ont	ractor:	St	tearns Dri	lling Com	pany		Auger/				-	Check: _	J Ca	ıi	
Contractor: Stearns Drilling Company Foreman: Jim/Bryan						_	Casing	Sampler		GRO	UNI	WATER R	FADINGS		
			John M	lorehouse		 Type:H	ollow Stem Auger	Split Spoon	Date		Time Depth Casing				
		inish: _		3-17 / 11-2		O.D. / I.D.: _		2.0" / 1 3/8"					_		
		tion:				Hammer Wt.: _	140lbs	NA	_						
		777.00		um:			30.0"	NA							
			ple Inforn			TOC Elev.:		NA	Surveyed	By:	١	NA Sur	vey Date:		
	No.	Pen./ Rec.	Depth	Blows	Test		Sample Stratu				Remarks	Equip	ment Insta	alled	
.	NO.	(in.)	(Ft.)	(/6")	Data	Descripti	on & Classifica	ation	Desc.		Kem				
\dagger	1	24/22	0-2	0-2 2-2	0.0 ppm	Very dark grayish			SAND (FILL		1		None		
				2-2		to medium graine									
						Clay, trace Grave									
4						cohesive, moist (to: Mottled, dark			0.5' CLAY & SIL	_					
						brown, poorly so			(FILL)	.					
						Sand, trace Grav									
						decaying wood, p									
1						(FILL).									
4															
1	2	24/16	2-4	3-3 3-2	0.0 ppm	Mottled, dark yell	owish brown to	gravish							
	-			3-2		brown, poorly sor									
						Sand, trace Grav			2.4'						
╛						decaying wood, p			SAND (SP)					
7						(FILL). Changing									
						poorly sorted, fine									
						some Silt, trace (
3-						topsoil layer with			3.1'						
						roots at approxim			CLAY & SIL	T					
						Changing at 3.1 f			(CL)						
						yellow grading da									
1						CLAY & SILT, litt									
						bedded, with dec moist (CL).	ayıng vegetatio	on and roots,							
						moist (OL).									
4	,	24/22	16	2-2	0.0 ppm	Very pale brown	to vollou aradi	na darkar							
	3	24/22	4-6	2-2 6-8	υ.υ ρρπι	moderately sorte									
						Sand, plastic, col									
						decaying vegetat									
\forall						Changing at 4.5 f	eet to: Mottled	, brown to							
						dark yellowish br	own to red, CL	AY & SILT,							
						trace Sand, plast									
:						(CL). Changing a	t 4.6 feet to: Ye	ellowish							
; –						brown, moderate									
						little Sand, plastic	c, conesive, be	aaea, moist							
						(CL).									
4															
1	. Field	screening	of sample	s for organ	nic vapors	was performed with	a MiniRae 2000	photoionzation	detector equi	pped v	vith	a 10.6 eV la	mp. Readir	าตร	
'						er milliion (ppm) of is					*****	a 10.0 01 la	mp. rtoadii	190	
L															



 Boring No.:
 WB-12

 Page:
 2
 of
 2

 File No.:
 16.0062335.52

 Check:
 J Cai

Sample Information Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. **Description & Classification** (Ft.) (/6") Data Desc. (in.) 6-7 8-8 Yellowish brown, moderately sorted, CLAY CLAY & SILT (CL) 24/20 6-8 0.0 ppm & SILT, little Sand, plastic, cohesive, bedded, moist (CL). 5 24/20 8-10 0.0 ppm Yellowish brown, moderately sorted, CLAY 4 5-5 & SILT, little Sand, plastic, cohesive, bedded, moist (CL). Changing at 8.4 feet to: Light yellowish brown, very well sorted, fine SAND (SP) to medium grained SAND, trace Silt, moist 9 10 Bottom of Borehole at 10.0 Feet 11 WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18 12 2. No groundwater was encountered during drilling or upon completion. REMARKS 3. Borehole was backfilled with bentonite grout and tremie pipe placed.

	71	- 1	Envir on r	mental, Ind			Wolverine V 1855 Hou	Vorld Wide, se Street NI			Boring No	,	
_		_	•					t, Michigan			Check:		
	tractor:			lling Com	pany	_	Auger/	Sampler					•
	eman: _			Bryan Israhawaa			Casing	_	Data		IDWATER R		Ctol
_	-			lorehouse		• • • • • • • • • • • • • • • • • • • •	ollow Stem Auger		Date	Time	Depth	Casing	Stal
		inish: _		3-17 / 11-2	8-17	O.D. / I.D.: _		2.0" / 1 3/8"					
		tion:				Hammer Wt.: _		NA					
3S I	Elev.: _	789.80	Dati	um:				NA NA	_		NIA -		
		Sam	ple Inforn	nation		TOC Elev.:	NA	NA	Surveyed	I By:	NA Sui	rvey Date:	
Deptn	No.	Pen./ Rec.	Depth	Blows	Test		Sample		Stratum	Remarks	Equip	ment Insta	illed
•		(in.)	(Ft.)	(/6")	Data	Descript	ion & Classifica	ation	Desc.	Ren			
1-	1	24/16	0-2	0-2 2-3	0.0 ppm	Dark brown, poo grained SAND, s Gravel, slightly p moist (FILL).	ome Silt, trace	Clay, trace	SAND (FILL			None	
	2	24/24	2-4	3-3 4-3	0.0 ppm	Very dark grayisl brown, poorly so grained SAND, li Gravel, moderate cohesive, moist (rted, fine to med ttle Silt, trace C ely plastic, mod	dium diay, trace					
	3	24/21	4-6	2-3 4-4	0.0 ppm	Very dark grayisl brown, poorly so grained SAND, li Gravel, moderate cohesive, moist (rted, fine to med ttle Silt, trace C ely plastic, mod	dium diay, trace					
						was performed with er milliion (ppm) of i					n a 10.6 eV la	ımp. Readin	gs



WB-13 Boring No.: __ Page: ____2 of ___2 File No.: 16.0062335.52

Check: J Cai

_ [Sam	ple Inforn	nation			Check: J Cai		
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
7-	4	24/24	6-8	3-5 7-9	0.0 ppm	Very dark grayish brown to dark yellowish brown, poorly sorted, fine to medium grained SAND, little Silt, trace Clay, trace Gravel, moderately plastic, moderately cohesive, moist (FILL).	SAND (FILL)		
							8'		
8-	5	24/20	8-10	5-8 11-15	0.0 ppm	Yellowish brown, poorly sorted, SILT & CLAY, some Sand, trace Gravel, moderately plastic, moderately cohesive, moist (FILL).	SILT & CLAY (FILL)		
9-									
10-						Deltans of Developed 40.0 Feet	10'	2	
						Bottom of Borehole at 10.0 Feet		3	
11-									
12-									
≣	2. No gr 3. Borel	oundwate	er was enco oackfilled w	ountered du	uring drilli te grout a	ng or upon completion. and tremie pipe placed.			
2 3									
tratifi	cation line	es represer	nt approxima	ate boundary	between s	coil types, transitions may be gradual. Water level readings y occur due to other factors than those present at the time r	s have been made at	times	Boring No.: WB-13

	ı GZA	Wolverine V
GZ	GeoEnvironmental, Inc. Engineers and Scientists	1855 Hou
	•	Belmor
Contractor:	Stearns Drilling Company	_ Auger/
Foreman:	Jim/Bryan	_ Casing
Logged by:	John Morehouse	Type: Hollow Stem Auger
Date Start/Fi	nish:11-30-17 / 11-30-17	O.D. / I.D.: 8.0" / 4.25"

Boring Location:

GS Elev.: 798.70'

Sample Information

Vorld Wide, Inc. WB-14 Boring No.: ___ Page: ___1__ of ___2 use Street NE File No.: 16.0062335.52 nt, Michigan Check: __ J Cai

Sampler **GROUNDWATER READINGS** Split Spoon Date Depth Casing Stab O.D. / I.D.: 8.0" / 4.25" 2.0" / 1 3/8" Hammer Wt.: ____140lbs NA 30.0" NA Hammer Fall: ____ NA NA NA TOC Elev.: __ Surveyed By: _ Survey Date:

l _		San	ipie intorn	nation					
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1-	1	24/21	0-2	1-3 4-3	0.0 ppm	Dark brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, slightly plastic, moderately cohesive, moist (FILL). Changing at 0.3 feet to: Dark yellowish brown to brown, poorly sorted, CLAY & SILT, plastic, cohesive, moist (FILL).	SAND (FILL) 0.3' CLAY & SAND (FILL)	1	None
3-	2	24/21	2-4	3-3 3-5	0.0 ppm	Dark yellowish brown to brown, poorly sorted, CLAY & SILT, plastic, cohesive, moist (FILL). Changing at 3.6 feet to: Dark yellowish brown to brown, moderately well sorted, medium to coarse SAND, trace Silt, moist (FILL). Changing at 3.7 feet to: Very soft dark grayish brown to brown, poorly sorted, CLAY & SILT, plastic, cohesive, moist (FILL).	3.6' 3.7' SAND (FILL) CLAY & SILT		
4	3	24	4-6	1-2 2-3	0.0 ppm	Very soft dark grayish brown to brown, poorly sorted, CLAY & SILT, plastic, cohesive, moist (FILL).	(FILL)		-
6	4	24/20	6-8	0-0 0-2	0.0 ppm	Very soft, dark grayish brown to brown, poorly sorted, CLAY & SILT, plastic, cohesive, moist (FILL). Changing at 7.1 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 7.3 feet to: Black to dark blue WASTE, moist (FILL).		2	
8- - 9-	5	24/13	8-10	0-0 0-2	0.0 ppm	Brown to dark yellowish brown, CLAY & SILT, some Sand, trce Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 8.4 feet to: Black to dark blue WASTE, moist (FILL). Changing at 8.5 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand, trce Gravel, mixed with black to dark blue Waste, moist (FILL).			

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per millilion (ppm) of isobutylene. Background was measured at 0.0ppm.

2. Composite sample was collected from approximately 7.3 to 10.6 feet below ground surface and submitted for laboratory analytical testing.



Boring No.: WB-14
Page: 2 of 2
File No.: 16.0062335.52
Check: 1 Cai

Check: Sample Information Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data **Description & Classification** Desc. (in.) 0-0 3-6 24/24 10-12 0.0 ppm Brown to dark yellowish brown, CLAY & 6 SILT, some Sand, trce Gravel, mixed with black to dark blue Waste, moist (FILL). WASTE (FILL) CLAY & SILT Changing at 10.3 feet to: Black to dark blue (FILL) WASTE, moist (FILL). Changing at 10.6 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with SAND (FILL) black to dark blue Waste, moist (FILL). Changing at 11.3 feet to: Dark brown, poorly sorted, medium to coarse grained SAND, 12 7 24/20 12-14 0.0 ppm little Gravel, trace Silt, moist (FILL). 12.1¢LAY & SILT 12.3' (FILL) Dark yellowish brown to brown, poorly SAND (SW) sorted, CLAY & SILT, plastic, cohesive, 12.7CLAY & SILT moist (FILL). Changing at 12.1 feet to: Dark (CL) 13.1SAND (SW) brown, poorly sorted, medium to coarse 13 grained SAND, little Gravel, trace Silt, trace CLAY & SILT Clay, moist (SW). Changing at 12.3 feet to: SAND (SP) Dark yellowish brown to brown, poorly sorted, CLAY & SILT plastic, cohesive, moist (CL). Changing at 12.7 feet to: Dark 14 24/24 0.0 ppm 8 14-16 brown, poorly sorted, medium to coarse 2-2 3-4 grained SAND, little Gravel, trace Silt, trace Clay, moist (SW). Changing at 12.9 feet to: Dark yellowish brown to brown, poorly sorted, CLAY & SILT, plastic, cohesive, 15 moist (CL). Changing at 13.1 feet to: Dark 3 yellowish brown, grading to brown, well sorted, fine to medium SAND, trace Silt, moist (SP). Dark yellowish brown, grading to brown, well 16' 16 sorted, fine to medium SAND, trace Silt, 5 moist (SP) Bottom of Borehole at 16.0 Feet 17 18 19 20 21

3. Soil sample was collected from approximately 15.0 to 16.0 feet below ground surface and submitted for laboratory analytical testing.

4. No groundwater was encountered during drilling or upon completion.

6233550 WWW HOUSE STREET NE.GPJ GZA CORP.GDT 5/17/18

E M

A R K S 5. Borehole was backfilled with bentonite grout and tremie pipe placed.

		GZ	.Α <u>.</u>				Wolverine W	orld Wide,	Inc.		_	Boring No	o.:WB	3-15
			oEnviron r gineers and				1855 Hous	se Street N	ΙE		_	Page:	1 of _	2
			_				Belmont	, Michigan					16.00623	
Cor	ntractor:	S	tearns Dri	lling Com	pany		Auger/				_	Check: _	J Ca	<u> </u>
For	eman: _		Jim/l	Bryan		_	Casing	Sampler		GRC	DUNI	DWATER R	EADINGS	
Log	ged by:		John M	lorehouse)		ollow Stem Auger	Split Spoon	Date	Ti	me	Depth	Casing	Stab
Dat	e Start/F	inish: _	12-1	-17 / 12-1	1-17			2.0" / 1 3/8"	_					
								NA	_					
GS	Elev.: _	791.5	<u>0'</u> Datı	um:		Hammer Fall: _		NA						
		San	nple Inforn	nation		TOC Elev.: _	NA .	NA	Surveyed	l By:	1	NA Sur	vey Date:	
۽ ا		Jan	ipie illioni	liation	_						S			
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descripti	Sample on & Classifica	tion	Stratum Desc.		Remarks	Equip	ment Insta	illed
1- 2- 3- 4-	2	24/24	0-2 2-4 4-6	1-1 2-2 2-2 5-5	0.0 ppm 0.0 ppm	Dark brown, poor grained SAND, see Gravel, slightly ple moist (TOPSOIL/ to: Dark brown to poorly sorted, CL plastic, cohesive, decaying vegetated and the seed of	ome Silt, trace (astic, moderate (FILL). Changing dark yellowish AY & SILT, little moist with Topion at 1.0 foot (lower pown, poorly sord, trace Gravel, FILL).	Clay, trace ly cohesive, g at 0.2 feet brown, e Sand, soil with FILL). ted, CLAY plastic,	SAND 0.2TOPSOIL/FII CLAY & SIL (FILL)	LL)	1		None	
	1 Field	screening	g of sample	es for organ	nic vanors	was performed with	a MiniRae 2000	photoionzation	detector equi	pped	with	a 10 6 eV la	mp Readin	as

 Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0ppm.

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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.: WB-15



WB-15 Boring No.: _ Page: ___2 __ of ___2 File No.: <u>16.006233</u>5.52 Check: J Cai

Sample Information Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. Description & Classification (Ft.) (/6") Data Desc. (in.) 24/20 6-8 3-4 3-3 0.0 ppm Dark yellowish brown, poorly sorted, CLAY CLAY & SILT & SILT, little Sand, trace Gravel, plastic, cohesive, moist (FILL). Changing at 7.1 feet (FILL) to: Dark yellowish brown, moderately sorted, fine to coarse grained SAND, trace Silt, moist (SW). Changing at 7.3 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL). Changing at 7.7 feet to: Dark yellowish brown, moderately sorted, SAND (SW) fine to coarse grained SAND, trace Silt, CLAY & SILT moist (SW). Changing at 7.8 feet to: Dark yellowish brown, poorly sorted, CLAY & (CL) SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL). Changing at 7.9 feet 7.8' SAND (SW) to: Dark vellowish brown, moderately sorted. 7.9'CLAY & SILT fine to coarse grained SAND, trace Silt, (CL) 8 5 24/20 8-10 2-2 2-2 0.0 ppm SAND (SW) moist (SW). Dark yellowish brown, moderately sorted, fine to coarse grained SAND, trace Silt, moist (SW). Changing at 9.3 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL). Changing at 9.5 feet to: Dark yellowish brown, moderately sorted, 9 fine to coarse grained SAND, trace Silt, moist (SW). CLAY & SILT (CL) SAND (SW) 10 Dark yellowish brown, moderately sorted, 24/18 0.0 ppm 10-12 fine to coarse grained SAND, trace Silt, moist (SW). Changing at 11.0 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, coheisve, moist (CL). Changing at 11.1 feet to: Dark yellowish brown, moderately sorted, fine to coarse grained SAND, trace Silt, 11 moist (SW). 11.1CLAY & SILT SAND (SW) CORP.GDT 5/17/18 12 Bottom of Borehole at 12.0 Feet 6233550 WWW HOUSE STREET NE.GPJ GZA

2. No groundwater was encountered during drilling or upon completion.

E M A R K S

WELL

3. Borehole was backfilled with bentonite grout and tremie pipe placed.

/		GZ					Wolverine W	<u>/orld Wide,</u>	Inc.		Boring N	No.:WE	3-16
	7 ()			mental, I n d Scientist			1855 Hou	se Street N	E		Page: _	of	2
		_					Belmon	t, Michigan			File No.: Check:	16.00623 J Ca	
				Iling Com	pany	<u> </u>	Auger/	Sampler					
ore	man: _			Bryan Jarahayaa			Casing	•	Data			READINGS	Cto
_og(ged by:		12-1	<u> lorehouse</u> I-17 / 12-1	17		ollow Stem Auger	2.0" / 1 3/8"	Date	Time	e Depth	Casing	Sta
				1-17 / 12-1				NA	-				
	:lev.: _					Hammer Fall: _		NA					
		0		41		TOC Elev.: _	NA	NA	Surveyed	By: _	NA S	urvey Date:	
ا ج		Sam	ple Inforr	nation						v			
Deptn	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descripti	Sample ion & Classifica	ation	Stratum Desc.	Remarks	Equi	ipment Insta	illed
\dashv	1	24/21	0-2	0-1	0.0 ppm	Dark yellowish bi	rown, well sorte	d, fine	SAND (SM			None	
1-				1-2		grained SAND, li Changing at 0.2 brown grading to sorted, fine grain banded, moist (S	ttle Silt, moist (\$ feet to: Light ye pale brown, ve ed SAND, trace	SM). llowish ry well	0.2' SAND (SP)			
	2	24/24	2-4	2-3 3-4	0.0 ppm	Light yellowish b very well sorted, Silt, banded, moi	fine grained SA	pale brown, ND, trace					
3-													
4-	3	24/16	4-6	2-3 3-4	0.0 ppm	Light yellowish bi very well sorted, Silt, banded, moi	fine grained SA						
5-													
						s was performed with per milliion (ppm) of i					th a 10.6 eV	lamp. Readin	ngs

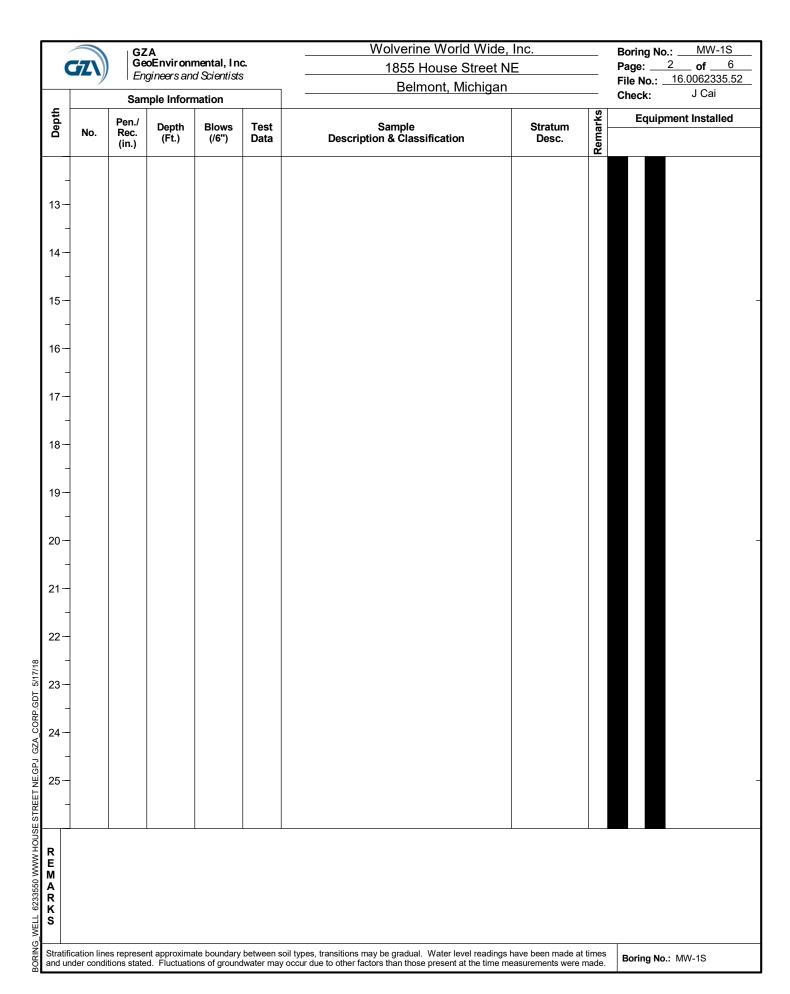


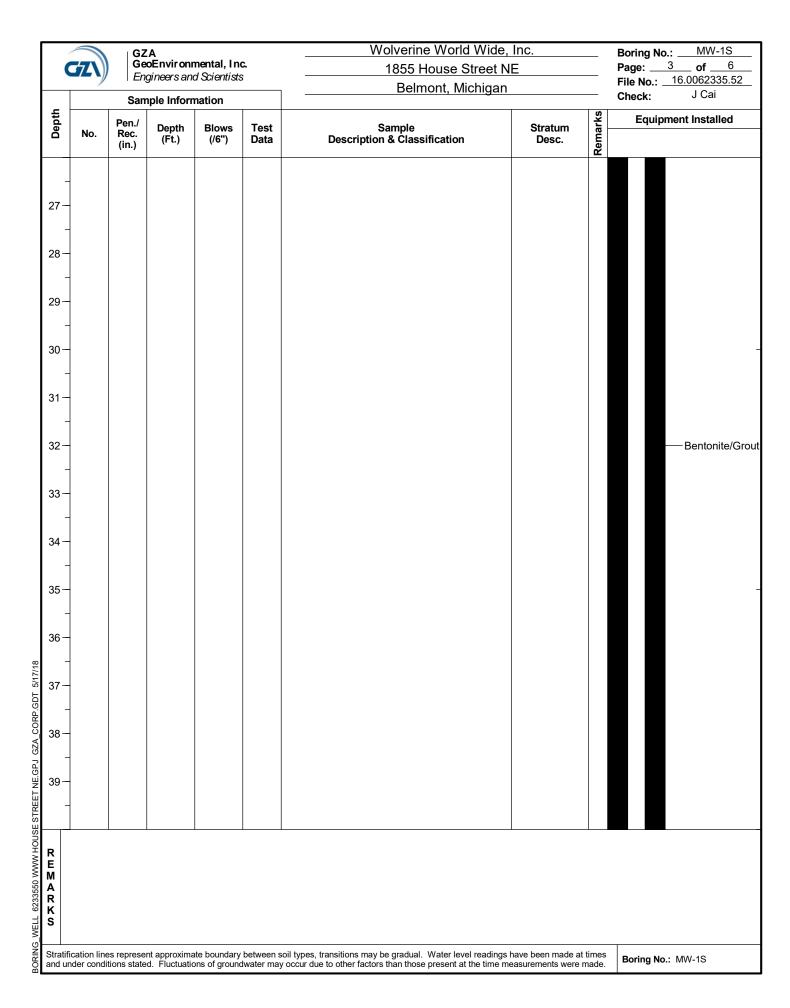
Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

WB-16 Boring No.: __ Page: ____2 of ___2 File No.: 16.0062335.52

	Sample Information Pen./ Denth Blows Test					Belmont, Michigan		Check: J Cai		
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	
7-	4	24/21	6-8	3-4 5-6	0.0 ppm	Light yellowish brown grading to pale brown, very well sorted, fine grained SAND, trace Silt, banded, moist (SP).	SAND (SP)			
8-	5	24/20	8-10	4-6 7-7	0.0 ppm	Light yellowish brown grading to pale brown, very well sorted, fine grained SAND, trace Silt, banded, moist (SP).				
9-										
10-						Bottom of Borehole at 10.0 Feet	10'	2 3		
-										
11-										
12-										
-										
R	2. No gr 3. Borel	oundwate nole was l	er was enco oackfilled v	ountered di vith bentoni	uring drilli ite grout a	ng or upon completion. ind tremie pipe placed.				
tratific	cation line	es represer	nt approxima	ate boundary	between s	oil types, transitions may be gradual. Water level readings occur due to other factors than those present at the time m	have been made at	times	Boring No.: WB-16	

		⊢ GZ	:A				Nolverine V	Vorld Wide,	Inc.		_ !	Boring No	.:MV	V-1S
	GZ\)	Ge	oEnvironı	mental, Ind d Scientists			1855 Hou	se Street NE	=			Page:	1 of .	6
		_	-				Belmon	t, Michigan				File No.: _ Check:		
	ntractor:			Iling Comp	pany		Auger/	Sampler						
For	eman: _			Huntoon Iorehouse			Casing ollow Stem Auger	_	Date	GRO Tin		WATER RI Depth		Stab
Log	gea by:	inich:	9_F	5-17 / 9-5-	17	O.D. / I.D.: _		2.0" / 1 3/8"	Date	_ · · · ·	ile	Бериі	Casing	Stab
				7 17 7 0 0				NA	-					
GS	Flev:	788.70	0' Dat	um:				NA NA						
L.						TOC Elev.: _		NA	Surveyed	Bv:	N/	A Sur	vev Date:	'
ے ا		Sam	ple Inforr	nation										
Depth		Pen./	Depth	Blows	Test		Sample		Stratum	. -	X	Equip	nent Inst	alled
ă	No.	Rec. (in.)	(Ft.)	(/6")	Data	Descripti	on & Classifica	ation	Desc.		Remarks		—PROT	TECTIVE
						See SB-1/MW-1) boring log for	detailed soil		- 1			0/1011	
-	-					descriptions.								ill/Cemen
1-											Š		Pad	
l '														
-	-													
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\sqcup											- 1			
Stratit and u						soil types, transitions ma y occur due to other facto						Boring No.	: MW-1S	
				5. 5		,	prot							





Wolverine World Wide, Inc. GZA GeoEnvironmental, Inc. MW-1S Boring No.: __ Page: ___4__ of ___6 1855 House Street NE Engineers and Scientists File No.: 16.0062335.52 Belmont, Michigan J Cai Check: **Sample Information** Remarks **Equipment Installed** Pen./ Sample Stratum Depth **Blows** Test No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) 46 48 30RING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18 51 52 53 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.

Boring No.: MW-1S

Wolverine World Wide, Inc. GZA GeoEnvironmental, Inc. MW-1S Boring No.: __ Page: ____5__ of ____6 1855 House Street NE Engineers and Scientists File No.: 16.0062335.52 Belmont, Michigan J Cai Check: **Sample Information** Remarks **Equipment Installed** Pen./ Sample Stratum Depth **Blows** Test No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) 55 57 60 62 63 Bentonite Seal 30RING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18 65 66 67 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. Boring No.: MW-1S

GZA GeoEnvir onmental, Inc. Engineers and Scientists Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

 Boring No.:
 MW-1S

 Page:
 6
 of
 6

 File No.:
 16.0062335.52

		Sam	ple Inforn	nation		Beimont, Michigan			Check:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipme	ent Installed
- 69-										Top of Well Screen
- 70 —										−Silica Sand Filter Pack
- 71 –										−2-Inch Dia. 5-Foot PVC Screen (0.010
72-										Slot)
73 -										-Bottom of We
74 — -										Screen
75 -						Bottom of Borehole at 75.0 Feet		1		
76 -										
77 – –										
78 – –										
79 — -										
80 –										
81 - -										
R E M A R K	1. Monit	toring wel	l was instal	led in borel	nole upor	n completion. Well screen set from approximately 68	 3.4 to 73.1 feet belo	ow gr	ound 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.

Boring No.: MW-1S

,		GZ	<u>A</u> .				Wolverine W	/orld Wide, I	nc.			ng No.:		/-5P
	5 Z\)			mental, Ind d Scientists			1855 Hou	se Street NE	Ī		Page	e:1	of _	2
		_					Belmon	t, Michigan				No.: <u>1</u> ck:		
Fore	tractor: eman: _		Jerry F	lling Comp Huntoon		_ _	Auger/ Casing	Sampler			IDWAT	ER REA	DINGS	
Log	ged by:		John M	lorehouse	. 47		ollow Stem Auger		Date	Time	De	epth C	asing	Stab
				9-17 / 9-19		O.D. / I.D.: _		2.0" / 1 3/8"						
				um:				NA NA						
GS	Elev.: _	770.90	Dati	um:		Hammer Fall: _ TOC Elev.: _		NA NA	Surveyed	Rv.	NA	Surve	v Dato.	
ŧ			ple Inforn	nation		100 Liev			Ourveyed			Equipme		
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descripti	Sample on & Classifica	ation	Stratum Desc.	Remarks				ECTIVE
						See SB-5/MW-5S descriptions.	S boring log for	detailed soil					– Backfi Pad	II/Cemen
- 7- -													−Bento	nite/Grou
8-														
9-														
10-														
11 –														
						soil types, transitions ma					Ror	ing No.:	MW-5P	
						y occur due to other factor					Bor	ing No.: 1	VIVV-5P	

Wolverine World Wide, Inc. GZA GeoEnvironmental, Inc. MW-5P Boring No.: _ Page: ___2 __ of ___2 1855 House Street NE Engineers and Scientists File No.: 16.0062335.52 Belmont, Michigan J Cai Check: Sample Information Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) 13 Bentonite Seal 15 Top of Well Screen 18 Silica Sand Filter Pack 2-Inch Dia. 5-Foot PVC 20 Screen (0.010" 21 22 Bottom of Well Screen Bottom of borehole at 22.3 Feet 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18 23 24

1. Monitoring well was installed in borehole upon completion. Well screen set from approximately 17.1 to 21.8 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.

25

REMARKS

Boring No.: MW-5P

		ΙGZ					Volverine W	rona vvide,	IIIC.			lo. : <u>SB-1/I</u>	
G	ZN))		oEnvironn gineers and				1855 Hou	se Street N	E		Page: _	of	13
		_	-					t, Michigan			File No.: Check:	16.00623 J Ca	
			tearns Dri		oany	_	Auger/	Sampler					
Forem	nan: _			luntoon			Casing	•				READINGS	
Logge	d by:		John M	orenouse	47		llow Stem Auger		Date	Time	Depth	Casing	Stab
			9-5			O.D. / I.D.:		2.0" / 1 3/8" NA					
Boring	g Loca	788 80)' Dot			Hammer Wt.: _ Hammer Fall:	30.0"	NA NA					
GS EIE	ev	700.00	Dall	JIII			NA NA		Survoyed	Bv:	NA cı	urvey Date:	
		Sam	ple Inforn	nation		TOO LIEV			Julveyeu	Бу	<u></u> 30	ui vey Date.	
Depth		Pen./								ķ	Egui	pment Insta	alled
	No.	Rec.	Depth (Ft.)	Blows (/6")	Test Data		Sample on & Classifica	ntion	Stratum Desc.	Remarks		<u>. </u>	ECTIVE
		(in.)	()	, ,	Data	•				Rel	Ш.І.І.І	CASI	NG
1-	1	24/20	0-2	3-4 4-7		Yellowish-brown to grained Sand, track dry (ML).			SILT (ML)			Backf Pad	ill/Cement
2-	2	24/22	2-4	4-5 8-9		Yellowish-brown to grained Sand, track dry (ML). Changin Yellowish-brown, i little Silt, moderate	ce Gravel, poor g at 2.6 feet to fine to medium	rly sorted, :: : SAND,	2.6' 2.7' SAND (SM) SILT (ML)				
4- - 5- -	3	24/24	4-6	8-6 7-7		Changing at 2.7 fe yellowish-brown to SILT, little Clay, lit poorly sorted, dry Yellowish-red to d grained SAND, so moderate sorting, feet to: Mottled da gray, SILT, little C grained Sand, slig	eet to: Mottled to light grayish-little Sand, trace (ML). ark brown, me wime Silt, trace of the yellowish-brown, tittle fine to the light plastic, co	dark brown, c Gravel, dium to fine Gravel, nging at 4.5 own to light b medium	4' SAND (SM) 4.5' SILT (ML)				-
6- 7- -	4	24/24	6-8	3-4 5-5		poorly sorted, dry Mottled dark yellc SILT, little Clay, lit Sand, slightly plas sorted, dry (ML). (Mottled grayish-br yellowish-brown, (cohesive, moist (C	owish-brown to ttle fine to med stic, cohesive, p Changing at 7. Town to dark CLAY & SILT, p	lium grained poorly 1 feet to:	7.1' CLAY & SILT (CL)	Г			
8-	5	24	8-10	4-4 3-5		Mottled grayish-br yellowish-brown, (cohesive, moist (CLAY & SILT, I	plastic,					
- 10 - - 11 -	6	24/20	10-12	2-4 2-2		Mottled grayish-br yellowish-brown, (cohesive, moist (C to: Dark gray to da medium grained S medium grained S 11.4 feet to: Dark grayish-brown, fin	CLAY & SILT, p CL). Changing ark grayish-bro SAND, trace Si I, moist (SP). C gray to dark	at 10.4 feet wn, fine to lt, Changing at	10.4' SAND (SP) 11.4' SAND (SW) 12'				-



GZA GeoEnvironmental, Inc. Engineers and Scientists

Wolverine World Wide, Inc. 1855 House Street NE

Belmont, Michigan

Boring No.: SB-1/MW-1D
Page: 2 of 13

File No.: 16.0062335.52 Check: J Cai

ا _		Sam	ple Inforr	nation	Check: J Cai				
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks Equipment	nent Installed
-	7	24/24	12-14	5-6 14-16		Gravel, trace Silt, trace Clay, slightly cohesive, poorly sorted, moist to wet (SW). Dark grayish-brown to very dark grayish-brown, CLAY & SILT, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Changing at 13.6 feet to: Grayish-brown,	CLAY & SILT (CL)		
4-	8	24/24	14-16	4-12 7-7		coarse to medium SAND, trace Gravel, trace Silt, poorly sorted, moist (SP). Changing at 13.7 feet to: Mottled yellowish-brown to light yellowish-brown to dark gray to black, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL).	13.6' 13.7'SAND (SP) CLAY & SILT (CL) 15' 15.1'SAND (SW)		
6-	9	24/18	16-18	3-3 5-6		Mottled yellowish-brown to light yellowish-brown to dark gray to black, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Changing at 15.0 feet to: Black, fine to coarse grained SAND, trace Gravel, trace Silt, poorly sorted, moist (SW). Changing at 15.1 feet to: Brownish-yellow, SILT, very	SILT (ML) 16' SAND (SP)		
3-	10	24/20	18-20	2-4 7-9		well sorted, moist to wet (ML). Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 17.3 feet to: Dark yellowish-brown, fine grained SAND, little Clay, little Silt, slightly to moderately plastic, cohesive, moderately sorted, moist (SC). Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted,	17.3' SAND (SM) 18' SAND (SP) 19' 19.3 SAND (SM)		
- 0 - 1 -	11	24/17	20-22	3-6 7-10		moist (SP). Changing at 19.0 feet to: Yellowish-brown, fine grained SAND, little Clay, little Silt, moderately plastic, cohesive, moderately sorted, moist (SC). Changing at 19.3 feet to: Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)		
2-	12	24/18	22-24	3-5 6-9		Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP).			
4- 5-	13	24/23	24-26	5-9 10-14		Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 25.5 feet to: Yellowish-brown, SILT & CLAY, little Silt, slightly plastic, cohesive, well sorted, moist (CL).	25.5' CLAY & SILT		
							CLAY & SILT (CL)		

REMARKS



GZA GeoEnvironmental, Inc. Engineers and Scientists

Wolverine World Wide, Inc.

1855 House Street NE Belmont, Michigan

Boring No.: SB-1/MW-1D Page: ___3 __ of ___13 File No.: 16.0062335.52

J Cai Check:

- ⊦		Sam	ple Inforn	nation		Belmont, Michigar			eck:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipme	nt Installed
27 —	14	24/24	26-28	6-8 13-13		Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 26.3 feet to: Yellowish-brown, SILT & CLAY, little Silt, slightly plastic, cohesive, well sorted, moist (CL). Changing at 27.7 feet to: Light	26.3',SAND (SP) CLAY & SILT (CL)			
28 —	15	24/23	28-30	4-10 8-13		yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Yellowish-brown, CLAY & SILT, little Sand, slightly plastic, cohesive, well sorted, moist (CL). Changing at 28.9 feet to: Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 29.1 feet:	27.7' 28' SAND (SP) CLAY & SILT (CL) 28.9' 29.1'SAND (SP) 29.3'LAY & SILT (CL)			
30 —	16	24/22	30-32	9-12 16-15		Yellowish-brown, CLAY & SILT, little Sand, slightly plastic, cohesive, well sorted, moist (CL). Changing at 29.3 feet to: Yellowish-brown, SILT, cohesive, well sorted, moist (ML). Changing at 29.9 feet to: Yellowish-brown, CLAY & SILT, little Sand, slightly plastic, cohesive, well sorted, moist	SILT (ML) 29.9' CLAY & SILT (CL) 30.6' SAND (SP) 31' CLAY & SILT (CL)			
32-	17	24/22	32-34	4-10 8-13		\((CL). Yellowish-brown, CLAY & SILT, little Sand, slightly plastic, cohesive, well sorted, moist (CL). Changing at 30.6 feet to: Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 31.0 feet to: Yellowish-brown, CLAY & SILT, little Silt, slightly plastic, cohesive, well sorted, moist	32.5' SAND (SP)			
34 — - 35 —	18	24/23	34-36	7-13 20-25		(CL). Yellowish-brown, CLAY & SILT, little Silt, slightly plastic, cohesive, well sorted, moist (CL). Changing at 32.5 feet to: Light gray to light brownish-gray, fine grained SAND, trace Silt, very well sorted, moist (SP). Light gray to light brownish-gray, fine grained SAND, trace Silt, very well sorted, moist (SP).			ı	
36 — - 37 —	19	24/20	36-38	4-11 18-26		Light gray to light brownish-gray, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing 37.1 feet to: Light gray, fine to medium SAND, trace Silt, well sorted, moist (SP).				
38 — - 39 —	20	24/23	38-40	4-7 12-15		Very pale brown to light yellowish-brown, SILT, little Clay, slightly plastic, coheisve, well sorted, moist (ML). Changingn at 38.2 feet to: Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately well sorted, moist (CL). Changing at 38.4 feet to: Very pale, brown to light yellowish-brown, SILT, little Clay, slightly plastic, cohesive,	38' 38.2' SILT (ML) 38.4°LAY & SILT 38.7' (CL) 38.9' SILT (ML) CLAY & SILT (CL) SILT (ML)			



GZA GeoEnvironmental, Inc. Engineers and Scientists

Sample Information

Wolverine World Wide, Inc. 1855 House Street NE

Belmont, Michigan

Boring No.: SB-1/MW-1D Page: ___4__ of ___13_

File No.: 16.0062335.52 J Cai

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Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
- 41 — - 42 —	21	24/20	40-42 42-44	5-10 14-14 5-5 11-13		moderately well sorted, moist (ML). Changing at 38.7 feet to: Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately well sorted, moist (CL). Changing at 38.9 feet to: Very pale brown to light yellowish-brown, SILT, little Clay, slightly plastic, cohesive, well sorted, moist (ML). Light yellowish-brown, CLAY & SILT, slight plastic, cohesive, very well sorted, moist (CL). Changing at 40.2 feet to: Very pale brown to yellowish-brown, SILT, little Clay,	40.2°LAY & SILT 40.5° (CL) SILT (ML) CLAY & SILT 41° (CL) SAND (SP) 42.2° 42.4° SILT (ML) SAND (SP)		
13 — - 14 — - 15 —	23	24/20	44-46	10-10 15-22		slightly plastic, coheisive, well sorted, moist (ML). Changing at 40.5 feet to: Light yellowish-brown, CLAY & SILT, slight plastic, cohesive, very well sorted, moist (CL). Changing at 41.0 feet to: Very pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Very pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 42.2 feet to: Light yellowish-brown, SILT, trace Clay slightly plactic pelvaging.			
- 46 — - 47 —	24	24/20	46-48	4-13 16-21		trace Clay, slightly plastic, cohesive, well sorted, moist (ML). Changing at 42.4 feet to: Very pale, brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Very pale, brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 45.3 feet to: Brown to yellowish-brown, CLAY & SILT, plastic, cohesive, very well sorted, moist (CL). Changing at 45.6 feet to: Very pale brown, fine grained SAND, trace	45.6' CLAY (CL) SAND (SP)	-	
48 — - 49 —	25	24/17	48-50	5-12 23-28		Silt, very well sorted, moist (SP). Very pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Very pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP).			
50 —	26	24/20	50-52	4-6 15-17		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 51.2 feet to: Yellowish-brown, SILT, trace Clay, cohesive, non to slightly plastic, very well sorted (bedded), moist (ML). Changing at 51.7 feet to: Very pale brown, fine grained SAND, trace Silt, very well sorted, moist,	51.2' SILT (ML) 51.7'	-	
52-	27	24/16	52-54	7-12 16-21		with occasional very thin Silt seams (SP). Very pale brown, fine grained SAND, trace Silt, very well sorted, moist, with occasional very thin Silt seams (SP).	SAND (SP)		



Wolverine World Wide, Inc.

1855 House Street NE Belmont, Michigan

Boring No.: SB-1/MW-1D Page: ___5 of ___13 File No.: 16.0062335.52

		Sam	nple Inforn	nation		Belmont, Michigan		Check: J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum R	Equipment Installed
55 —	28	24/20	54-56	5-11 17-26		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist, with occasional very thin Silt seams (SP). Changing at 54.2 feet to: Very pale brown, fine grained SAND, little Silt, very well sorted, moist (SP).	54.2' SAND (SM)	
56 — - 57 —	29	24/23	56-58	4-9 16-20		Light yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, moist (SP). Changing at 56.3 feet to: Very pale brown, fine grained SAND, little Silt, very well sorted, moist (SM).	56' 56.3'SAND (SP) SAND (SM)	
58 — - 59 —	30	24/24	58-60	9-13 18-24		Very pale brown, fine grained SAND, little Silt, very well sorted, moist (SM). Changing at 59.0 feet to: Brown, fine grained SAND, some Silt, very well sorted, moist to wet (SM).		
60 — - 61 —	31	24/22	60-62	11-13 22-28		Brown, fine grained SAND, little Silt, non plastic, moderately cohesive, very well sorted, moist (SP).		
62 — - 63 —	32	24/22	62-64	6-6 11-14		Brown, fine grained SAND, little Silt, non plastic, moderately cohesive, very well sorted, moist (SM). Changing at 62.7 feet to: Brown, fine to medium grained SAND, trace Silt, grading fine with depth, well sorted, damp (SP). Changing at 63.0 feet to: Brown, fine grained SAND, trace Silt, very	62.7' 63' SAND (SP) SAND (SM)	
64 — - 65 —	33	24/20	64-66	11-3 6-11		well sorted, damp (SP). Brown, fine to medium grained SAND, trace Silt, grading fine with depth, well sorted, damp (SP). Changing at 65.0 feet to: Brown, fine grained SAND, some Silt, very well sorted, damp (SM). Changing at 65.1 feet to: Brown, fine to medium grained SAND, trace Silt, grading fine with depth, well	64' SAND (SP) 65' 65.1'SAND (SM) SAND (SP) 65.6'	
66 — - 67 —	34	24/24	66-68	5-11 12-14		sorted, wet (SP). Changing at 65.6 feet to: Brown, CLAY & SILT, plastic, cohesive, well sorted, moist (CL). Brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP). Changing at 67.0 feet to: Yellowish-brown, fine to medium grained SAND, little Silt, very well sorted wet (SP).	CLAY & SILT 66' (CL) SAND (SP) 67' SAND (SM)	



Boring No.: SB-1/MW-1D Page: ___6__ of ___13 File No.: 16.0062335.52 Check: J Cai

Sample Information Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) SAND (SM) 35 24/13 68-70 2-4 7-13 Yellowish-brown, fine to medium grained SAND, little Silt, very well sorted wet (SP). 69 70 24/18 36 70-72 Yellowish-brown, fine to medium grained SAND, little Silt, very well sorted wet (SP). 71 72 Brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP). Changing at 73.1 feet to: Brown, CLAY & SILT, slightly SAND (SP) 37 24/23 72-74 3-3 5-9 plastic, moderately cohesive, well sorted, 73 moist to wet (CL). CLAY & SILT (CL) 74 24/20 38 74-76 Brown, CLAY & SILT, slightly plastic, moderately cohesive, well sorted, moist to wet (CL). 75 76 2-5 8-11 39 24/19 Brown, CLAY & SILT, slightly plastic, 76-78 moderately cohesive, well sorted, moist to wet (CL). 77 2-4 5-10 24/23 78-80 Brown, CLAY & SILT, slightly plastic, 40 moderately cohesive, well sorted, moist to wet (CL). Changing at 79.3 feet to: 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18 Yellowish-brown, CLAY & SILT, plastic, 79 cohesive, well sorted, moist (CL). Changing at 79.4 feet to: Yellowish-brown, medium to 79.4 SAND (SW) coarse grained SAND, trace Silt, moderately well sorted, wet (SW). 80 SAND (SP) 41 24/22 80-82 Yellowish-brown, fine to medium grained 2-4 6-7 SAND, trace Silt, well sorted, wet (SP). 81

REMARKS



Wolverine World Wide, Inc. 1855 House Street NE

Belmont, Michigan

Boring No.: SB-1/MW-1D Page: ____7 of ___13 File No.: 16.0062335.52 J Cai Check:

		San	nple Inforn	nation		Belmont, Michigan		Check:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum besc.	Equipm	nent Installed
83-	42	24/24	82-84	2-5 11-12		Yellowish-brown, medium to coarse grained SAND, trace Silt, well sorted, wet (SW). Changing at 82.4 feet to: Yellowish-brown, medium to coarse grained SAND, trace Silt, poorly sorted, wet (SW). Changing at 83.2 feet to: Yellowish-brown to gray, GRAVEL, some coarse grained Sand, trace Silt, poorly sorted, wet (GW). Changing at 83.4 feet to:	SAND (SW) 82.4' SAND (SW) 83.4' 43.5°LAY & SILT 88.7' (CL) GRAVEL (GW)		
34 —	43	24/23	84-86	3-6 11-14		Yellowish-brown, CLAY & SILT, plastic, coheisve, well sorted, moist (CL). Changing at 83.5 feet to: Yellowish-brown to gray, GRAVEL, some coarse grained Sand, trace Silt, poorly sorted, wet (GW). Changing at 83.7 feet to: Yellowish-brown, fine to medium SAND, trace Silt, trace Gravel, well sorted, wet (SP).	SAND (SP) 84.7' GRAVEL (GW) 85.2' SAND (SP)		— Grout
36 — - 37 —	44	24/24	86-88	3-4 9-15		Yellowish-brown, fine to medium SAND, trace Silt, trace Gravel, well sorted, wet (SP). Changing at 84.7 feet to: Yellowish-brown to gray, GRAVEL, some coarse to medium grained Sand, trace Silt, poorly sorted, wet (GW). Changing at 85.2 feet to: Yellowish-brown, fine grained SAND, trace Silt, very well sorted, wet (SP).	87.2' SAND (SW)		
38 -	45	24/16	88-90	3-5 8-12		Yellowish-brown, fine grained SAND, trace Silt, very well sorted, wet (SP). Changing at 87.2 feet to: Yellowish-brown, coarse grained SAND, some Gravel, trace Silt, very well sorted, wet (SW). Yellowish-brown, medium to coarse grained SAND, some Gravel, trace Silt, poorly sorted wet (SW).			
90	46	24/22	90-92	3-4 7-11		Yellowish-brown, fine to medium SAND, trace Silt, moderately sorted, wet (SP). Changing at 91.6 feet to: Dark grayish-brown, CLAY & SILT, plastic, cohesive, well sorted, moist (CL). Changing at 91.7 feet to: Yellowish-brown, medium to coarse grained SAND, trace Silt, trace Gravel, grading finer with depth, well sorted.	90' SAND (SP) 91.6' 91.7CLAY & SILT (CL) / 1		
92-	47	24/1	92-94	5-7 12-13		wet (SW). Yellowish-brown, medium to coarse grained SAND, trace Silt, trace Gravel, grading finer with depth, well sorted, wet (SW).	SAND (SW)		
94 — - 95 —	48	24/4	94-96	5-7 9-10		Yellowish-brown, medium to coarse grained SAND, trace Silt, trace Gravel, grading finer with depth, well sorted, wet (SW).			
R E M A R C S	1. Groui	l ndwater v	vas encoun	Lered at ap	l proximat	ely 91.7 feet below ground surface.			
						soil types, transitions may be gradual. Water level readings y occur due to other factors than those present at the time m			SB-1/MW-1D



Wolverine World Wide, Inc. 1855 House Street NE

Boring No.: SB-1/MW-1D Page: 8 of 13 File No.: 16.0062335.52

Belmont, Michigan J Cai Check:

No. 49 97 —	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test	Sample	Stratum	Remarks	Equip	ment Installed
-	24/8	'		Data	Description & Classification	Desc.	Sem S		
977		96-98	2-3 6-12		Yellowish-brown, medium to coarse grained SAND, trace Silt, trace Gravel, grading finer with depth, well sorted, wet (SW).	SAND (SW)	œ		
98 - 50	24/11	98-100	2-3 10-12		Yellowish-brown, medium to coarse grained SAND, trace Silt, trace Gravel, grading finer with depth, well sorted, wet (SW).				
51	24/23	100-102	3-4 9-13		Yellowish-brown, medium to coarse grained SAND, trace Silt, trace Gravel, grading finer with depth, well sorted, wet (SW). Changing at 101.8 feet to: Dark yellowish-brown to yellowish-brown, CLAY & SILT, moderately plastic, cohesive, well sorted, moist (CL).				
02 – 52 03 –	24/11	102-104	1-1 3-9		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).	101.8' 102CLAY & SILT (CL) SAND (SP)			
53	24/11	104-106	4-4 15-26		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).				
06 - 54	24/11	106-108	1-5 15-30		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).				
08-55	24/10	108-110	4-9 25-32		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).				
R E E W A A R R K S									



Sample Information

Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

Boring No.: SB-1/MW-1D Page: 9 of 13 File No.: 16.0062335.52 J Cai Check:

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Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	56	24/10	110-112	4-9 20-31		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).	SAND (SP)		
						, ,			
11-									
12-									
ا ا	57	24/8	112-114	2-5 14-27		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
13-									
14 –	50	24/11	444 440	2-4		Vallantials beauty fine to proditions are in ad-			
4	58	24/11	114-116	10-28		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
15-									
4									
16-	59	24/14	116-118	4-10		Yellowish-brown, fine to medium grained			
4	00		110 110	25-40		SAND, trace Silt, well sorted, wet (SP).			
17-									
-									
18-	60	24/10	118-120	3-7		Yellowish-brown, fine to medium grained			
+				21-25		SAND, trace Silt, well sorted, wet (SP).			
19-									
+									
20-	61	24/16	120-122	4-7 14-31		Yellowish-brown, fine to medium grained			
1						SAND, trace Silt, well sorted, wet (SP).			
21-									
1									
22-	62	24/14	122-124	3-6 22-32		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
_						e, and, and em, wenter, wet (en).			
23-									
1									
,							1		
R E VI									
VI A R									
`									
tratifi	cation line	es represe	ent approxima	ite boundary	between s lwater ma	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 easurements were	t times made.	Boring No.: SB-1/MW-1D



Wolverine World Wide, Inc. 1855 House Street NE

Belmont, Michigan

Boring No.: SB-1/MW-1D Page: ___10__ of __13_ File No.: 16.0062335.52

_		San	nple Inform	nation		Belmont, Michigan			Check:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equip	nent Installed
_	63	24/19	124-126	5-13 29-45		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).	SAND (SP)			
25 –										
26 -	64	24/1	126-128	1-5 18-34		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).				
27 –										
28 — - 29 —	65	24/24	128-130	6-18 34-48		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).				
30 —	66	24/23	130-132	5-10 28-46		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).				
31 -						Changing at 131.5 feet to: Yellowish-brown, medium to coarse grained SAND, trace Silt, moderately sorted, wet (SW). Changing at 131.7 feet to: Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).				
32-	67	24/23	132-134	5-15 30-45		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).				
34 —	68	24/24	134-136	3-5 21-31		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).				
36-	69	24/11	136-138	6-16 29-43		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted,				
37 — -						wet (SP).				
R E M A R C S										
tratific	cation line	es represe	nt approxima	te boundary	between s	soil types, transitions may be gradual. Water level readings h	lave been made at	times	Boring No.	: SB-1/MW-1D



Boring No.: SB-1/MW-1D
Page: 11 of 13
File No.: 16.0062335.52
Check: J Cai

Sample Information Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) SAND (SP) 70 24/6 138-140 2-3 13-33 Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP). 139 140 71 24/11 140-142 Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP). 141 142 72 24/14 3-10 Yellowish-brown, fine to medium grained 142-144 SAND, little Silt, trace Gravel, well sorted, wet (SP). 143 144 9-25-50/5" 73 24/20 144-146 Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP). 145 146 6-27 52-53 74 24/18 146-148 Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP). 147 9-34 75 24/12 148-150 Yellowish-brown, fine to medium grained 48-50/3" SAND, little Silt, trace Gravel, well sorted, 5/17/18 wet (SP). 149 CORP.GDT 150 76 24/0 150-152 6-11 Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP). 151

ING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA

REMARKS



Boring No.: SB-1/MW-1D Page: ___12__ of ___13 File No.: 16.0062335.52 Check: J Cai

Sample Information Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (/6") (Ft.) Data Description & Classification Desc. (in.) SAND (SP) 24/24 152-154 2-8 26-31 Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP). 153 154 78 24/20 154-156 Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP). 155 156 79 24/1 156-158 3-6 Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP). 157 158 80 24/24 158-160 Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP). 159 160 3-10 21-29 81 24/7 160-162 Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP). 161 162 82 24/0 162-164 4-11 Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, 5/17/18 wet (SP). 163 CORP.GDT 164 83 24/6 164-166 1-14 Yellowish-brown, fine to medium grained 6233550 WWW HOUSE STREET NE.GPJ GZA SAND, little Silt, trace Gravel, well sorted, wet (SP). 165



Wolverine World Wide, Inc. 1855 House Street NE

Boring No.: SB-1/MW-1D Page: ___13__ of ___13_ File No.: 16.0062335.52

Belmont, Michigan J Cai Check:

_ L		San	nple Inforn	nation		Belmont, Michigan			Check:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipm	ent Installed
67-	84	24/24	166-168	9-29 51-50/3"		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).	SAND (SP)	<u>«</u>		
68	85	24/13	168-170	3-6 18-34		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).				
70 - 71 -	86	24/1	170-172	5-6 19-44		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).				Top of Well Screen Silica Sand Filter Pack
72 — - 73 —	87	24/16	172-174	2-4 7-14		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).	172' SAND (SM)	_		—2-Inch Dia. 5-Foot PVC Screen (0.01 Slot)
74 — - 75 —	88	24/24	174-176	8-13 21-23		Yellowish-brown, fine to medium grained SAND, little Silt, very well sorted, wet (SP). Changing at 174.7 feet to: Yellowish-brown, SILT, trace Clay, non plastic, cohesive, very well sorted (bedded), moist (ML). Changing at 175.5 feet to: Yellowish-brown, SILT, trace Clay, moderately plastic, cohesive, very well sorted (bedded), wet (ML).	174.7' SILT (ML)	-		—Bottom of W Screen
76 - 77 						Bottom of Borehole at 176.0 Feet	176	2		
78 –										
79-										
R E M A R K S	2. Monit	oring wel	ll was instal	led in borel	hole upor	n completion. Well screen set from approximately 17	0.1 to 174.7 feet b	elow (ground surface	.
						soil types, transitions may be gradual. Water level readings			Boring No.:	SB-1/MW-1D

_		∣GZ				Wolverine V	vona vviao,	1110.		Boring N	U <u>-05 2/1</u>	VIVV-20
			oEnvironr gineers and			1855 Hou	ise Street N	E			of _	
		`	•				nt, Michigan				16.00623 J Ca	
			tearns Dri		oany	Auger/	Sampler			Check: _		
				luntoon		_ Casing	•			DWATER F		
Logg	ed by:		John M 9-11	17 / 0 11	17	Type: Hollow Stem Auger	Split Spoon 2.0" / 1 3/8"	Date	Time	Depth	Casing	Stab
						O.D. / I.D.: 8.0" / 4.25" Hammer Wt.: 140lbs	NA	-				
						Hammer Fall:30.0"	NA NA					
						TOC Elev.: NA	NA	Surveyed	Bv:	NA Su	rvev Date:	
_		Sam	ple Inforn	nation								
Depth	No.	Pen./ Rec.	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classific	ation	Stratum Desc.	Remarks	Equip	ment Insta	alled ECTIVE
		(in.)		, ,							CASI	NG
1-	1	24/18	0-2	7-8 8-10		Dark brown to yellowish-brown, CLAY, some Sand, plastic, cohsorted, moist (CL).	SILT & esive, poorly	CLAY & SILT (CL)			Backfi Pad	ill/Ceme
2-	2	24/23	2-4	8-8 9-9		Dark brown to yellowish-brown, CLAY, some Sand, plastic, coh sorted, moist (CL).	SILT & esive, poorly					
4-	3	24/22	4-6	5-6 7-7		Dark brown to yellowish-brown, SILT, some Sand, plastic, cohe sorted, moist (CL). Changing at Brown to grayish-brown, SILT, s grained Sand, trace Clay, non to plastic, slightly cohesive, model moist (ML). Changing at 5.1 fee	sive, poorly 4.6 feet to: some fine o slightly rately sorted	4.6' SILT (ML) 5.1' CLAY & SILT (CL)				
6-	4	24/22	6-8	4-5 5-6	,	Yellowish-brown to brown, CLA some Sand, moderately plstic, (moderately sorted, moist (CL). Yellowish-brown to brown, CLA some Sand, moderately plstic, (moderately sorted, moist (CL).	Y & SILT, cohesive,					
8-	5	24/17	8-10	2-4 6-6		Yellowish-brown to brown, CLA some Sand, moderately plastic, moderately sorted, moist (CL). 9.0 feet to: Dark yellowish-brow medium SAND, trace Silt, moderately (SP).	cohesive, Changing at n, fine to	9' SAND (SP)				
10 -	6	24/17	10-12	3-4 4-4		Mottled dark yellowish-red to da reddish-brown to dark brown to grayish-brown, SILT, some fine SAND, moderately sorted, mois Changing at 10.5 feet to: Yellow pale brown, fine to medium SAN Silt, well sorted, moist (SP).	dark grained it (ML). vish-brown to	10' SILT (ML) 10.5' SAND (SP)				



Wolverine World Wide, Inc. 1855 House Street NE

Belmont, Michigan

Boring No.: SB-2/MW-2S Page: _____ of ____7 File No.: 16.0062335.52

No. Pen./ Rec. (in.) Depth Rec. (in.) Equipment Pen. (in.) Rec. (in.)	\$\frac{3}{3}\text{SILT} \(\frac{1}{1}\) \(\frac{1}{3}\text{SILT} \(\frac{1}{1}\) \(\frac{1}\text{SILT} \(\frac{1}{1}\) \(\frac{1}{3}\text{SILT} \(\frac{1}\) \(\frac{1}{3}\text{SILT} \(\frac{1}{1}\) \(\frac{1}\text{SILT} \(\frac{1}\) \(\frac{1}\text{SILT} \(\frac{1}
13	\$\frac{3}{3} \text{SILT} \(\frac{1}{1} \) \(\frac{1}{3} \text{SILT} \(\frac{1}{1} \) \(\frac{1}{1} \text{SILT} \(\frac{1}{1} \) \(\frac{1}{1} \text{SILT} \) \(\frac{1}{1} \text{SILT} \(\frac{1}{1} \) \(\frac{1}{1} \text{SILT} \(\frac{1}{1} \) \(\frac{1}{1} \text{SILT} \(\frac{1}{1} \) \(\frac{1}{1} \text{SILT} \) \(\frac{1}{1} \text{SILT} \(\frac{1}{1} \) \(\frac{1}{1} \text{SILT} \) \(\frac{1}{1} \text{SILT} \(\frac{1}{1} \text{SILT} \) \(\frac{1}{1} \text{SILT} \) \(\frac{1}{1} \text{SILT} \) \(\frac{1}{1} \text{SILT} \(\frac{1}{1} \text{SILT} \) \(\frac{1}{1} \text{SILT} \) \(\frac{1}{1} \text{SILT} \) \(\frac{1} \text{SILT} \) \(\frac{1} \text{SILT} \) \(\frac{1} \text{SILT} \) \(\frac{1} \text{SILT}
Tellowish-brown it parts to trived, moist (SP). Changing at 15.2 feet to: Soft, Dark brown, CLAY & SILT, plastic, cohesive, moderately sorted, moist (CL). Changing at 15.3 feet to: Yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, well sorted, moist (SP). Yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, well sorted, moist (SP). Changing at 16.6 feet to: Yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, well sorted, moist (SP). Changing at 16.6 feet to: Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately sorted, moist (CL). Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately sorted, moist (CL). Changing at 18.6 feet to: Yellowish-brown, fie to coarse grained SAND, some Gravel, trace Silt, poorly sorted, moist SW). Changing at 19.0 feet to: Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately sorted, moist (CL). Changing at 19.3 feet to: Yellowish-brown, fine grained SAND, some Gravel, trace Silt, poorly sorted, moist (CL). SAND (SW) (CL). SAND (SW) (SND). Some Gravel, trace Silt, poorly sorted, moist (CL). SAND (SW) (SND). Some Gravel, trace Silt, poorly sorted, moist (CL). Changing at 19.3 feet to: Yellowish-brown, fine grained SAND, some Silt, non plastic, moderately plastic, cohesive, well sorted, moist (CL). Changing at 19.3 feet to: Yellowish-brown to yellowish-brown, SILT & CLAY, moderately plastic, cohesive, well sorted, moist (SP). Dark yellowish-brown to yellowish-brown, grap, fine grained SAND, trace Silt, very well sorted, moist (SP). Dark yellowish-brown to yellowish-brown, grap, fine grained SAND, trace Silt, very well sorted, moist (SP). Dark yellowish-brown to yellowish-brown, grap, fine grained SAND, trace Silt, very well sorted, moist (SP).	L) (SP) 3 SILT L) (SW) 3 SILT L) (SM) 3 SILT L) 4 SILT L) 5 SILT L)
Yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, well sorted, moist (SP). Changing at 16.6 feet to: Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately sorted, moist (CL). Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately sorted, moist (CL). Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately sorted, moist (CL). Changing at 18.6 feet to: Yellowish-brown, fie to coarse grained SAND, some Gravel, trace Silt, poorly sorted, moist SW). Changing at 19.0 feet to: Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately sorted, moist (CL). Changing at 19.0 feet to: Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately sorted, moist (CL). Changing at 19.3 feet to: Yellowish-brown, fine grained SAND, some Silt, non plastic, moderately cohesive, well sorted, moist (SM). Dark yellowish-brown to yellowish-brown, SILT & CLAY, moderately plastic, cohesive, well sorted, moist (CL). Changing at 21.7 feet to: Light gray to light brownish-gray, fine grained SAND, trace Silt, very well sorted, moist (SP). Dark yellowish-brown to yellowish-brown. CLAY & SILT C	(SW) 3 SILT L) (SM) 3 SILT L) 3 SILT L)
Yellowish-brown, fie to coarse grained SAND, some Gravel, trace Silt, poorly sorted, moist SW). Changing at 19.0 feet to: Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately sorted, moist SW). Changing at 19.0 feet to: Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately sorted, moist (CL). Changing at 19.0 feet to: Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately sorted, moist (CL). Changing at 19.0 feet to: Yellowish-brown, fine grained SAND, some SaND (SM) SaND (SM) Sorted, moist (CL). Changing at 19.3 feet to: Yellowish-brown, fine grained SAND, some Silt, non plastic, moderately cohesive, well sorted, moist (SM). Dark yellowish-brown to yellowish-brown, SILT & CLAY, moderately plastic, cohesive, well sorted, moist (CL). Changing at 21.7 feet to: Light gray to light brownish-gray, fine grained SAND, trace Silt, very well sorted, moist (SP). Dark yellowish-brown to yellowish-brown, CLAY & SILT (SL) SAND (SM) CLAY & SILT (CL) SAND (SM) 20' CLAY & SILT (CL) SAND (SM) 21.7 SAND (SP) CLAY & SILT (CL) SAND (SM) 22' SAND (SP) CLAY & SILT 22.4' (CL)	& SILT L) (SM) & SILT L) \$ SILT L)
sorted, moist (CL). Changing at 19.3 feet to: Yellowish-brown, fine grained SAND, some Silt, non plastic, moderately cohesive, well sorted, moist (SM). Dark yellowish-brown to yellowish-brown, SILT & CLAY, moderately plastic, cohesive, well sorted, moist (CL). Changing at 21.7 feet to: Light gray to light brownish-gray, fine grained SAND, trace Silt, very well sorted, moist (SP). Dark yellowish-brown, SILT & CLAY wellowish-brown, SILT & CLAY wello	T(SP) 3 SILT L)
moist (SP). Dark yellowish-brown, SH T & CI AY (moderate) probability as having a probability and participation as having a company of the c	R SILT L)
well sorted, moist (CL). Changing at 22.4 feet to: Light yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).	
Light yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).	



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 Check:
 J Cai

Belmont, Michigan

		Sam	ple Inforr	nation		Belmont, Michigan			Check:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipm	ent Installed
-	14	24/20	26-28	4-5 6-6		Light yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)			
27 –										
28 - -	15	24/18	28-30	6-7 12-12		Light yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).				
29 –						,(/-				
30 –	16	24/22	30-32	7-9 11-13		Light yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, very well				
31 -						sorted, moist (SP). Changing at 31.7 feet to: Light yellowish-brown, fine to medium grained SAND, trace Gravel, trace Silt, moderately well sorted, moist (SP).				
2-	17	24/18	32-34	7-7 7-8		Light yellowish-brown to yellowish-brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 32.2 feet to:	32.2' SAND (SW)			
33-						Pale brown to very pale brown, fine to coarse grained SAND, some Gravel, trace Silt, poorly sorted, moist (SW).				
34 –	18	24/20	34-36	13-38 31-18		Pale brown, fine to coarse grained SAND, some Gravel, trace Silt, poorly sorted, moist (SW).				
35 —						(611).				
86-	19	24/20	36-38	2-4 7-8		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist with occasional	36' SAND (SP)			
37 –						trace Gravel, moist (SP).				— Grout
38-	20	24/19	38-40	2-3 6-7		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist with occasional				Giout
39 –						trace Gravel, moist (SP).				
-										

R 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.

Boring No.: SB-2/MW-2S



Boring No.: SB-2/MW-2S Page: ___4 __ of ___7 File No.: 16.0062335.52 Check: J Cai

Sample Information Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) 21 24/20 40-42 Very pale brown, fine grained SAND, trace SAND (SP) 9-13 Silt, very well sorted, moist with occasional trace Gravel, moist (SP). 41 24/19 22 42-44 Very pale brown, fine grained SAND, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP). 43 23 24/22 44-46 5-8 Very pale brown, fine grained SAND, trace 10-13 Silt, very well sorted, moist with occasional trace Gravel, moist (SP). 45 46 3-5 8-13 24 24/22 46-48 Very pale brown, fine grained SAND, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP). 48 25 24/23 5-7 9-10 Very pale brown, fine grained SAND, trace 48-50 Silt, very well sorted, moist with occasional trace Gravel, moist (SP). 49 26 24/22 50-52 Very pale brown, fine grained SAND, trace 12-13 Silt, very well sorted, moist with occasional trace Gravel, moist (SP). 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18 51 52 27 24/20 52-54 5-9 Very pale brown, fine grained SAND, trace 11-13 Silt, very well sorted, moist with occasional trace Gravel, moist (SP). Changing at 52.8 feet to: Yellowish-brown, CLAY & SILT, well 2.9CLAY & SILT 53 sorted, moist (CL). Changing at 52.9 feet to: (CL) Very pale brown, fine grained SAND, trace SAND (SP) Silt, very well sorted, moist (SP).

REMARKS



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 Check:
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Belmont, Michigan

_		Sam	ple Inforr	nation					Check:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipm	ent Installed
- 55 —	28	24/22	54-56	5-9 13-13		Yellowish-brown, fine to coarse grained SAND, trace Gravel, trace Silt, poorly sorted, moist (SW). Changing at 55.0 feet to: Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, grading to fine to medium grained Sand, trace Silt, very well sorted, moist with	SAND (SW) 55' SAND (SM)			
56 — - 57 —	29	24/22	56-58	3-5 11-14		occasional trace Gravel, moist (SP). Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).			ı	
58 — - 59 —	30	24/20	58-60	8-12 15-20		Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).				
60 — - 61 —	31	24/20	60-62	5-9 10-11		Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).				
62 — - 63 —	32	24/22	62-64	8-11 14-15		Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).				
64 — - 65 —	33	24/18	64-66	2-4 8-14		Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).				
66 — - 67 —	34	24/18	66-68	6-14 17-18		Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).				

BORING_WELL 6233550 WWW HOU



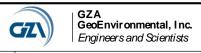
Wolverine World Wide, Inc. 1855 House Street NE

Belmont, Michigan

Boring No.: SB-2/MW-2S Page: ___6 __ of ___7 File No.: 16.0062335.52

	Sample Information								Check: J Cai		
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Ec	quipm	nent Installed
69 — 70 — 71 —	35	24/18	68-70 70-72	5-14 19-24 4-10 17-19		Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP). Changing at 69.3 feet to: Light yellowish-brown, fine to coarse grained SAND, trace Silt, moderately sorted, moist (SW). Changing at 69.4 feet to: Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, grading to fine to medium grained Sand, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP). Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, grading to fine to medium grained Sand, trace Silt, very	SAND (SM) 69.3' 69.4SAND (SW) SAND (SP)				
72 – - 73 –	37	24/18	72-74	6-14 24-23		well sorted, moist with occasional trace Gravel, moist (SP). Brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).					
74 — - 75 —	38	24/23	74-76	2-3 5-10		Brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP). Changing at 75.5 feet to: Brown, fine to coarse grained SAND, trace Silt, trace Gravel, poorly sorted, wet (SW).	75.5' SAND (SW)				
76 — - 77 —	39	24/18	76-78	2-8 14-20		Brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).	. ,				
78 — - 79 —	40	24/18	78-80	3-7 10-18		Brown, fine to coarse grained SAND, trace Silt, trace Gravel, poorly sorted, wet (SW).					Top of Well Screen Silica Sand Filter Pack
30 — - 31 — -	41	24/18	80-82	3-9 9-19		Brown, fine to coarse grained SAND, trace Silt, trace Gravel, poorly sorted, wet (SW). Changing at 80.7 feet to: Brown, fine to medium SAND, trace Silt, trace Gravel, moderately well sorted, wet (SW).	80.7' SAND (SP)				
						ling or upon completion. n completion. Well screen set from approximately 78	82' 8.5 to 83.1 feet belo	w grour	nd surf	face.	Screen (

Groundwater was not encountered during drilling or upon completion.
 Monitoring well was installed in borehole upon completion. Well screen set from approximately 78.5 to 83.1 feet below ground surface.



Sample Information

Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

Boring No.: SB-2/MW-2S Page: _____7__ of ____7 File No.: 16.0062335.52 J Cai

Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipme	nt Installed
-		(,				Bottom of Borehole at 82.0 Feet		1		
+								2		
83										
+										Bottom of W
84 –										Corcon
+										
85-										
+										
86 –										
1										
87 –										
1										
88										
89 –										
90 —										
91 –										
92-										
93-										
94 —										
95 –										
4										
\perp										
3										
Z										
Δ ? <										
3										
						soil types, transitions may be gradual. Water level readings y occur due to other factors than those present at the time m				

		GZ					Wolverine W	orld Wide,	Inc.				o.: SB-3/I	
	GZN)		oEnviron r gineers an				1855 Hou	se Street N	<u>E</u>		P	age:	1 of	
		•	•					t, Michigan				ile No.: . heck: _	16.00623 J Ca	
	ntractor		tearns Dri		pany	_	Auger/	Sampler		0001				
			John M	Huntoon Iorehouse	<u> </u>	— Type:H	Casing ollow Stem Auger	•	Date	GROU		Depth	EADINGS Casing	Stab
	-	Finish: _		2-17 / 9-12				2.0" / 1 3/8"	Date	I		Dopui	Guonig	Ottab
								NA						
	Elev.: _	788.1		um:			30.0"	NA						
		San	nple Inforr	nation		TOC Elev.: _	NA	NA	Surveyed	d By: _	NA	Sur	vey Date:	
ŧ			ipic iiiioii								2	Equip	ment Insta	allod
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descripti	Sample ion & Classifica	ition	Stratum Desc.	ני מינים				TECTIVE
1-	1	24/21	0-2	5-6 6-7	0.0 ppm >4.0 tsf	Hard, brown, CLA Sand, dry (CL).	AY, trace Silt, tr	ace fine	CLAY (CL)				Backfi Pad	ill/Ceme
2-	2	24/21	2-4	7-5 5-4	0.0 ppm	Loose, dark brow SAND, trace Silt,		own, fine	2' SAND (SP	r)				
3-	_													
4- 5-	3	24/14	4-6	3-2 2-3	0.0 ppm	Loose, dark yello trace Silt, damp (to: Loose, dark yellittle Gravel, trace	(SP) Changing a ellowish-brown,	at 5.2 feet fine SAND,						
6-	4	24/21	6-8	2-5 5-5		Loose, yellowish- SAND, damp (SF Loose, pale brow	P). Changing at	7.8 feet to:						
8-	5	24/21	8-10	1-4 5-7		Loose, pale brow trace Silt, damp (ine SAND,						
- 10-	6	24/20	10-12	4-5 6-7		Loose, pale brow trace Silt, damp (ine SAND,						
11-														
R E M A R K S	abov	e backgro	ound levels	are shown	ı in parts p	s was performed with per million (ppm) of is d in tons per square t	sobutylene. Back	ground was mea	asured at 0.0	ppm.			amp. Readi	ngs
Stratit						soil types, transitions may occur due to other fact						Boring No	o.: SB-3/MW	 V-3S



Boring No.: SB-3/MW-3S Page: ____2 of ___6 File No.: __16.0062335.52 J Cai Check:

_		San	ple Inforn	nation		Belmont, Michigan			Check:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipm	nent Installed
13-	7	24/20	12-14	3-5 5-5		Loose, pale brown, well sorted, fine SAND, trace Silt, damp (SP).	SAND (SP)			
- 14 — - 15 —	8	24/20	14-16	4-5 5-5		Loose, pale brown, well sorted, fine SAND, trace Silt, damp (SP).				
16 — - 17 — -	9	24/24	16-18	2-5 9-10	>4.0 tsf	Loose, pale brown, well sorted, fine SAND, trace Silt, damp (SP). Changing at 16.2 feet to: Hard, brown, CLAY, trace Silt, damp (CL). Changing at 17.8 feet to: Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).	16.2' CLAY (CL)	_		
- 19 -	10	24/24	18-20	2-6 7-9		Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Changing at 18.2 feet to: Brown, CLAY, trace Silt, damp (CL). Changing at 19.0 feet to: Medium dense, brown, well sorted, fine to medium SAND, trace Silt, moist (SP).	17.8' SAND (SP) 18.2' CLAY (CL) 19' SAND (SP)			
20 — - 21 — -	11	24/24	20-22	5-6 7-10	>4.0 tsf	Hard, brown, CLAY, trace Silt, damp (CL). Changing at 20.5 feet to: Medium dense, brown, well sorted, fine to medium SAND, trace Silt, moist (SP). Changing at 21.5 feet to: Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).	20' CLAY (CL) 20.5' SAND (SP)			
22 — - 23 —	12	24/22	22-24	4-4 5-6		Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Changing at 23.5 feet to: Medium dense, pale brown, well sorted, fine SAND, some Silt, wet (SM).	23.5'			
- 24 — - 25 —	13	24/22	24-26	4-4 5-6		Medium dense, pale brown, well sorted, fine SAND, some Silt, wet (SM). Changing at 25.3 feet to: Hard, light gray and brown mottled, CLAY, trace Silt, moist (CL). Changing at 25.9 feet to: Loose, pale brown, well sorted, fine SAND, trace Silt, moist (SP).	25.3' CLAY (CL) 25.9'			
R E M A A R K S	3. Doub	le cased	from 0.0 to	25.0 feet c	luring dril	ling.				
Stratific						oil types, transitions may be gradual. Water level readings			Boring No.:	SB-3/MW-3S



Boring No.: SB-3/MW-3S Page: ___3__ of ___6 File No.: <u>16.0062335.52</u> Check: J Cai

Sample Information Depth Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) 2-2 6-8 SAND (SP) 14 24/20 26-28 >4.0 tsf Loose, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 27 28 6-10 10-11 24/20 15 28-30 Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 29 30 24/20 30-32 2-4 9-10 Medium dense, pale brown, well sorted, fine 16 SAND, trace Silt, moist (SP). 31 32 24/21 17 5-12 13-20 32-34 Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Grout 34 8-16 28-40 18 24/19 34-36 Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 35 18-18 19 24/21 36-38 Medium dense, pale brown, well sorted, fine 19-31 SAND, trace Silt, moist (SP). 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18 37 38 20 24 38-40 Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). 39

REMARKS



Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

Boring No.: SB-3/MW-3S Page: ___4__ of ___6_ File No.: 16.0062335.52 J Cai

No. 21 - 41 - 22 - 43 - 44 - 24	Pen./ Rec. (in.) 24	Depth (Ft.) 40-42 42-44	Blows (/6")	Test Data	Sample Description & Classification Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).	Stratum Desc.	Equipmen	t Installed
41 - 22 - 43					Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).		Y .	
- 12- 22 - 13- -	24	42-44						
13 -	24	42-44						
4- 24					Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).		Н	
-	24	44-46			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
45 – - 46 – 26	24	46-48			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
17 – - 18 – 27	24	48-50			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
50 - 28	24	50-52			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
30	24	52-54			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			



Wolverine World Wide, Inc. 1855 House Street NE

Belmont, Michigan

Boring No.: SB-3/MW-3S Page: ___5 of ___6 File No.: 16.0062335.52 J Cai Check:

_		Sam	ple Inforn	nation					Che	CK:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks		Equipme	ent Installed
	31	24	54-56			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)	T			
1						trace ont, very wen sorted, moist (or).					
55 —											
+											
56-	32	24	56-58			Very pale brown, fine to medium SAND,					
-						trace Silt, very well sorted, moist (SP).					
57-											
4											
58-	33	24	58-60			Variational absolute fire to readily a CAND					
	33	24	30-00			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).					
59 —											
,,											
50 —	34	24	60-62			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).					
٦						, , , , , , , , , , , , , , , , , , , ,					
31 –											
1											
52-	35	24	62-64			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).					
-						Changing at 63.0 feet to: Light yellowish-brown to yellowish-brown, fine to					
33-						medium SAND, trace Silt, very well sorted,					
+						moist (SP).					
64 –	36	24	64-66			Yellowish-brown, fine to medium SAND,		4			
+						trace Silt, very well sorted, wet (SP).					
S5 —											
4											
66-	37	24	66-68			Yellowish-brown, fine to medium SAND,					
4	37	24	00-00			trace Silt, very well sorted, wet (SP). Changing at 67.0 feet to: Yellowish-brown,					
57 —						fine to medium SAND, some Silt, very well	67'				
						sorted, wet (SM). Changing at 67.2 feet to: Yellowish-brown, fine to medium SAND,	67.2'SAND (SM) SAND (SP)	1			
						trace Silt, very well sorted, wet (SP).					
۲ ۲	4. Groui	ndwater v	vas encoun	itered at app	roximat	ely 64.0 feet below ground surface.					
1											
۱ ا											
₹ (
'											
tratific	cation line	es represe	nt approxima	ate boundary b	etween s	soil types, transitions may be gradual. Water level reading y occur due to other factors than those present at the time	s have been made at	times	Ba	ina No :	SB-3/MW-3S



Boring No.: SB-3/MW-3S Page: ___6__ of ___6_ File No.: 16.0062335.52 Check: J Cai

_ L		Sam	ple Inforn	nation		_			Check: J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
-69-	38	24	68-70			Yellowish-brown, fine to medium SAND, trace Silt, very well sorted, wet (SP).	SAND (SP)	12	
70 —	39	24	70-72			Yellowish-brown, fine to medium SAND, trace Silt, very well sorted, wet (SP).			Top of Well Screen Silica Sand Filter Pack
72-	40	24	72-74			Yellowish-brown, fine to medium SAND, trace Silt, very well sorted, wet (SP). Changing at 73.8 feet to: Yellowish-brown, fine to medium SAND, some Silt, well sorted, wet (SM).			2-Inch Dia. 5-Foot PVC Screen (0.01 Slot)
74 — - 75 —	41	24	74-76			Yellowish-brown, fine to medium SAND, some Silt, well sorted, wet (SM).	73.8' SAND (SM)		Bottom of W Screen
76						Bottom of Borehole at 76.0 Feet	76'	5	
77 — - 78 — - 79 —						Bottom of Boreliole at 70.0 Feet			
80-									
B1 —									
R E MA A R K S	5. Monit	oring wel	l was instal	Led in borel	nole upor	completion. Well screen set from approximately 6	9.7 to 74.6 feet bel	ow gr	ound surface.
Stratific	cation line	es represei	nt approxima	ate boundary	between s	soil types, transitions may be gradual. Water level reading y occur due to other factors than those present at the time	gs have been made at measurements were	times	Boring No.: SB-3/MW-3S

		GZ	A Environn	nental, I no	r			/orld Wide, I			Boi	ring No.	: SB-3P/	/MW-3P
	GZN			d Scientists				se Street NE			Pag File	ge:	1 of _ 16.00623	335.52
Con	atua at a u	S	tearns Dri	lling Comp	nanv		Belmont	t, Michigan				eck:		
	ntractor: eman: _			luntoon	Jany	<u>—</u>	Auger/ Casing	Sampler		GPOI			ADINGS	
Loc	raed by:			lorehouse		Tvne:Ho	llow Stem Auger	Split Spoon	Date	Tim			Casing	Stab
	e Start/F		9-12	2-17 / 9-12	-17	O.D. / I.D.: _		2.0" / 1 3/8"						
								NA						
	Elev.:					Hammer Fall: _		NA						
						TOC Elev.:		NA NA	Surveyed	Bv:	NA	Surv	ey Date:	
		Sam	ple Inforn	nation						- -		_		
Depth		Pen./							-	ķ	2	Equipn	nent Insta	alled
De	No.	Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Description	Sample on & Classifica	ation	Stratum Desc.	Remarks			—PROT	ECTIVE NG
1						See SB-3/MW-3S descriptions.		detailed soil					Pad	nite/Grout

GZA GeoEnvironmental, Inc. Engineers and Scientists

REMARKS

Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

Boring No.: SB-3P/MW-3P Page: ____2 of _ File No.: 16.0062335.52 J Cai Check:

Sample Information Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) 13 15 Bentonite Seal 18 Top of Well Screen 20 Silica Sand Filter Pack 21 2-Inch Dia. 5-Foot PVC Screen (0.010" Slot) 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18 23 SAND (SP) 1 24/24 23-25 Medium dense, brown, well sorted, fine SAND, trace Silt, wet (SP). Changing at 24.3 feet to: Hard, gray and brown mottled, CLAY, trace Silt, damp (CL). 24 Bottom of Well Screen >4.0 tsf CLAY (CL) 1 25 Bottom of Borehole at 25.0 Feet 2

1. Pocket penetrometer readings were measured in tons per square foot (tsf) and are used to evaluate consistency of cohesive soil. 2. Monitoring well was installed in borehole upon completion. Well screen set from approximately 19.0 to 24.0 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.

Boring No.: SB-3P/MW-3P

,		GZ	Ά				Wolverine V	Vorld Wide,	Inc.		В	oring No	o.: SB-4/I	MW-4S
	3 Z\)		oEnvironr				1855 Hou	ise Street N	IE .		P	age:	_1 of _	6
		,	gineers an				Belmon	nt, Michigan					16.00623 J Ca	
	tractor:		tearns Dri		pany	_	Auger/	Sampler				heck: _		
				<u>Huntoon</u> Iorehouse			Casing lollow Stem Auger	•	Date	GROL Tim		ATER R	READINGS Casing	Stab
_		inish: _		2-17 / 9-12		O.D. / I.D.:		2.0" / 1 3/8"	Date	_ ·····		Бериі	Casing	Otab
	ing Loca					Hammer Wt.:	140lbs	NA						
GS I	Elev.: _	782.3	0' Dat	um:		Hammer Fall:		NA	_					
		San	nple Inforr	nation		TOC Elev.:	NA NA	NA	Surveyed	l By: _	NA	Sui	rvey Date:	
ŧ			ipio illion							U	2	Fauin	ment Insta	alled
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descript	Sample ion & Classific	ation	Stratum Desc.	Romarke				ECTIVE
1-	1	24/14	0-2	1-1 1-1	0.0 ppm	Very loose, yello fine SAND, some trace Silt, dry (SI	e Organic Matte		SAND	1			1	ill/Ceme
2-	2	24/14	2-4	1-2 2-2	0.0 ppm	Loose, pale brow damp (SP).	vn, well sorted,	fine SAND,						
4- 5-	3	24/13	4-6	2-2 4-5	0.1 ppm	Loose, pale brov damp (SP).	vn, well sorted,	fine SAND,						
6-	4	24/14	6-8	2-3 5-7	0.0 ppm	Loose, pale brow damp (SP).	vn, well sorted,	fine SAND,						
8-	5	24/14	8-10	3-3 5-7	0.0 ppm	Loose, pale brow damp (SP).	vn, well sorted,	fine SAND,						
10-	6	24/21	10-12	5-5 7-8	0.0 ppm	Loose, pale brow damp (SP). Chai gray and brown i damp (CL).	nging at 11.0 fe	et to: Hard,	11'					
R E M A R K	above	e backgro	ound levels	are shown	in parts p	s was performed with per million (ppm) of is d in tons per square	sobutylene. Back	ground was me	asured at 0.0	ipped w	ith a ′		amp. Readi	ngs
Stratifi						soil types, transitions m						Soring No	o.: SB-4/MW	/-4S



Boring No.: SB-4/MW-4S Page: _____ of ____6 File No.: 16.0062335.52 Check: J Cai

Sample Information Depth Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6")Data Description & Classification Desc. (in.) 0.0 ppm >4.0 tsf CLAY (CL) 24 12-14 Hard, gray and brown mottled, CLAY, trace Silt, damp (CL). Changing at 13.0 feet to: Medium dense, pale brown and brown mottled, well sorted, fine SAND, trace Silt, 13 damp (SP). SAND (SP) Loose, yellowish-brown, well sorted, fine 24/24 2-2 3-2 0.0 ppm 8 14-16 SAND, trace Silt, damp (SP). 15 16 0.0 ppm 9 24/18 1-1 1-3 Loose, yellowish-brown, well sorted, fine SAND, trace Silt, damp (SP). Changing at 16-18 17.8 feet to: Loose, yellowish-brown, well sorted, fine GRAVEL, trace Silt, damp (GW). 18 0.0 ppm GRAVEL (GW) 24/16 2-3 6-7 10 18-20 Loose, yellowish-brown, well sorted, fine GRAVEL, trace Silt, damp (GW). Changing at 19.0 feet to: Medium dense. yellowish-brown, well sorted, fine SAND, 19' 19 trace Silt, damp (SP). SAND (SP) 20 6-7 9-9 24/15 20-22 0.0 ppm Medium dense, yellowish-brown, well 11 sorted, fine SAND, trace Silt, damp (SP). 21 Medium dense, yellowish-brown, well sorted, fine SAND, trace Silt, moist (SP). 12 24/24 22-24 4-8 0.0 ppm 8-10 Changing at 23.9 feet to: Hard, brown, 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18 CLAY, damp (CL). 23 23.9' 24 CLAY (CL) 13 24/24 24-26 6-7 0.0 ppm Hard, brown, CLAY, damp (CL). 25

REMARKS



Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

Boring No.: SB-4/MW-4S Page: ___3__ of ___6_ File No.: 16.0062335.52 J Cai Check:

_		Jan	ple Inforn	lation			1		
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Equipr	ment Installed
	14	24/0	26-28			NO RECOVERY.	NO RECOVERY		
27-									
4									
28-	15	24/16	28-30	5-9	0.0 ppm	Medium dense, pale brown, well sorted, fine	28' SAND (SP)		
+				11-15		SAND, trace Silt, damp (SP).			
29 –									
_									
30 —	16	24/15	30-32	6-12 13-21	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, damp (SP).			
31 —									
-									
32-	17	24/17	32-34	4-18 31-39	0.0 ppm	Dense, pale brown, well sorted, fine SAND,			
-				31-39		trace Silt, damp (SP).			
33-									Bentonite/G
34 —									
_	18	24/17	34-36	7-10 15-19	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, damp (SP).			
35 —									
-									
36 —	19	24/17	36-38	4-10 15-22	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, trace Gravel, damp (SP).			
_						SAND, trace Sitt, trace Graver, damp (SF).			
37 –									
38-	20	24/20	38-40	10-12	0.0 ppm	Dance note brown well corted fine CAND			
-	20	24/20	30-40	21-24	о.о ррш	Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
39 –									
-									
\top				<u> </u>					
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Wolverine World Wide, Inc. 1855 House Street NE

Belmont, Michigan

Boring No.: SB-4/MW-4S Page: ___4__ of ___6_ File No.: 16.0062335.52 J Cai Check:

No. 21 - 41	Pen./ Rec. (in.) 24/17	Depth (Ft.) 40-42	Blows (/6")	Test Data	Sample Description & Classification Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Encountered Rock at 40.2 feet.	Stratum Desc.	Remarks	Equipme	nt Installed
-	24/17	40-42	10-11 16-19	0.0 ppm	trace Silt, moist (SP). Encountered Rock at	SAND (SP)			
+									
42 – 22 - 43 –	24/19	42-44	7-11 17-25	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).				
23	24/19	44-46	7-12 23-26	0.0 ppm	Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).				
16 — 24 	24/19	46-48	10-14 15-15	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).				
48 – 25 -	24/20	48-50	8-14 36-49	0.0 ppm	Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).				
50 - 26	24/24	50-52	18-37 47-47	0.0 ppm	Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).				
- 52 - 27 - 53	24/21	52-54	33-29 52-50/3"	0.0 ppm	Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).				



Wolverine World Wide, Inc. 1855 House Street NE

Belmont, Michigan

Boring No.: SB-4/MW-4S Page: ___5 of ___6 File No.: 16.0062335.52 J Cai Check:

_		San	ple Inforr	nation						eck:	J Cai	
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks		Equipm	ent Install	ed
	28	24/16	54-56	19-58-50/4"	0.0 ppm	Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).	SAND (SP)					
55 —												
-												
56 –	29	24	56-58			Light yellowish-brown to pale brown, very						
-						well sorted, fine to medium SAND, trace Silt, moist (SP).						
57 —												
58												
_	30	24	58-60			Light yellowish-brown to pale brown, very well sorted, fine to medium SAND, trace						
59 —						Silt, moist (SP). Changing at 59.6 feet to: Brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).						
+						, , , , ,		3				
50 -	31	24	60-62			Brown, very well sorted, fine to medium						
-						SAND, trace Silt, wet (SP).						
51 –												
62-	32	24	62-64			Brown, very well sorted, fine to medium						
4	32	24	02-04			SAND, trace Silt, wet (SP).						
63-												
-												
64 —	33	24	64-66			Brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).						
65												
-												
66-	34	24	66-68			Brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).						
+						SAND, trace Silt, wet (SP).					— Bentoni	te S
67 —									rDC	r D		
$ _ $												
₹ ∣	3. Grou	ndwater v	vas encoun	itered at app	oroximat	ely 59.6 feet below ground surface.						
E VI A												
₹ (
3												
tratific	cation line	es represe	nt approxima	ate boundary	between s	ioil types, transitions may be gradual. Water level readings a occur due to other factors than those present at the time m	have been made a	at time:	В	ring No.:	SB-4/MW-4	ıs



Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

Boring No.: SB-4/MW-4S Page: ___6 __ of ___6 File No.: 16.0062335.52 J Cai Check:

_ L		Sam	ple Inforn	nation		Benneral, merniga		_	Check:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipmen	t Installed
69-	35	24	68-70			Brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).	SAND (SP)			
70 -	36	24	70-72			Brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).				Top of Well
72 — -	37	24	72-74			Brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).				Screen Silica Sand Filter Pack
73 74	38	24	74-76			Brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).				2-Inch Dia. 5-Foot PVC Screen (0.010 Slot)
75 - - 76 -						Bottom of Borehole at 76.0 Feet	76'	4		Bottom of We Screen
77 – - 78 –										
- 79 — -										
80 - 81 -										
R E M A R K S	I. Monit	oring wel	l was instal	led in boreł	nole upoi	n completion. Well screen set from approximately 7	'1.1 to 75.7 feet bel	ow gr	ound surface.	
Stratific	cation line	es represer	nt approxima	ate boundary	between s	soil types, transitions may be gradual. Water level reading y occur due to other factors than those present at the time	gs have been made at measurements were i	times	Boring No.: SE	3-4/MW-4S

Eng St Joe 	e Workma 12-1	I Scientists ling Comp luntoon In/Adam K -17 / 12-5 Im:	oany Kittler -17	O.D. / I.D.: _ Hammer Wt.: _ Hammer Fall: _ TOC Elev.: _	Belmoni Auger/ Casing Illow Stem Auger 17.5" / 12.0" 140lbs 30.0" NA Sample on & Classifica 0 to 20.0 feet. C st of brown, fin ace Silt, damp ng log detailed	2.0" / 1 3/8" NA NA NA Tion Cuttings e to (SP). See soil	Date	By: _	Fi CI INDW e NA	ile No.:heck: /ATER R Depth Sui	Casing vey Date:	Stab
Joe Finish: ation: 779.10 Sam Pen./ Rec.	Jerry H e Workma 12-1 Datu ple Inform	ling Compluntoon In/Adam K -17 / 12-5 Im: Imation Blows	Cittler -17	O.D. / I.D.: Hammer Wt.: Hammer Fall: TOC Elev.: Descripti Blind drill from 0.0 observed to cons medium SAND, tr SB-5/MW-5S bori	Auger/ Casing Illow Stem Auger 17.5" / 12.0" 140lbs 30.0" NA Sample on & Classifica O to 20.0 feet. C st of brown, fin ace Silt, damp ng log detailed	Sampler Split Spoon 2.0" / 1 3/8" NA NA NA tion Cuttings e to (SP). See soil	Surveyed Stratum Desc. SAND (SP)	By: _	CINDW e NA	heck: /ATER R Depth Sui	J Ca EADINGS Casing vey Date: ment Insta	Stab Illed ECTIVE
Joe Finish: ation: 779.10 Sam Pen./ Rec.	Jerry H e Workma 12-1 Datu ple Inform	luntoon In/Adam K -17 / 12-5 Im: Imation Blows	Cittler -17	O.D. / I.D.: Hammer Wt.: Hammer Fall: TOC Elev.: Descripti Blind drill from 0.0 observed to cons medium SAND, tr SB-5/MW-5S bori	Auger/ Casing Illow Stem Auger 17.5" / 12.0" 140lbs 30.0" NA Sample on & Classifica O to 20.0 feet. C st of brown, fin ace Silt, damp ng log detailed	Sampler Split Spoon 2.0" / 1 3/8" NA NA NA tion Cuttings e to (SP). See soil	Surveyed Stratum Desc. SAND (SP)	By: _	e NA	ATER R Depth Sui	Casing rvey Date: ment Insta	Stab Iled ECTIVE
Joe Finish: ation: 779.10 Sam Pen./ Rec.	Workma 12-1 Datu ple Inform Depth	n/Adam k -17 / 12-5 im: nation	-17	O.D. / I.D.: Hammer Wt.: Hammer Fall: TOC Elev.: Descripti Blind drill from 0.0 observed to cons medium SAND, tr SB-5/MW-5S bori	Ilow Stem Auger 17.5" / 12.0" 140lbs 30.0" NA Sample on & Classifica 0 to 20.0 feet. C st of brown, fin ace Silt, damp ng log detailed	Split Spoon 2.0" / 1 3/8" NA NA NA tion Cuttings e to (SP). See soil	Surveyed Stratum Desc. SAND (SP)	By: _	e NA	Depth Sui	Casing vey Date: ment Insta	lled ECTIVE
Finish:ation: 779.10 Sam Pen./ Rec.	12-1 Depth	-17 / 12-5 um: nation Blows	-17	O.D. / I.D.: Hammer Wt.: Hammer Fall: TOC Elev.: Descripti Blind drill from 0.0 observed to cons medium SAND, tr SB-5/MW-5S bori	17.5" / 12.0" 140lbs 30.0" NA Sample on & Classifica 0 to 20.0 feet. C st of brown, fin ace Silt, damp ng log detailed	2.0" / 1 3/8" NA NA NA Tion Cuttings e to (SP). See soil	Surveyed Stratum Desc. SAND (SP)	By: _	NA	Sui	wey Date:	lled ECTIVE
779.10 Sam Pen./ Rec.	Datuple Inform	nation	Test	Hammer Wt.: Hammer Fall: TOC Elev.: Descripti Blind drill from 0.0 observed to cons medium SAND, tr SB-5/MW-5S bori	140lbs 30.0" NA Sample on & Classifica to to 20.0 feet. C st of brown, fin ace Silt, damp ng log detailed	NA NA NA tion Cuttings e to (SP). See soil	Stratum Desc.	Remarke			ment Insta	lled ECTIVE
779.10 Sam Pen./ Rec.	Depth	nation Blows	Test	Hammer Fall: TOC Elev.: Description Blind drill from 0.0 observed to consomedium SAND, to SB-5/MW-5S bori	30.0" NA Sample on & Classifica to to 20.0 feet. C st of brown, fin ace Silt, damp ng log detailed	NA NA tion Cuttings e to (SP). See soil	Stratum Desc.	Remarke			ment Insta	lled ECTIVE
Sam Pen./ Rec.	ple Inform	nation Blows	Test	Description Blind drill from 0.0 observed to consisted medium SAND, to SB-5/MW-5S bori	Sample on & Classifica of to 20.0 feet. C st of brown, fin ace Silt, damp ng log detailed	tion Cuttings e to (SP). See soil	Stratum Desc.	Remarke			ment Insta	lled ECTIVE
Pen./ Rec.	Depth	Blows		Description Blind drill from 0.0 observed to conseque to salar medium SAND, to SB-5/MW-5S bori	Sample on & Classifica of to 20.0 feet. (st of brown, fin ace Silt, damping log detailed	tion Cuttings e to (SP). See soil	Stratum Desc.	Remarks			ment Insta	lled ECTIVE
Pen./ Rec.	Depth	Blows		Blind drill from 0.0 observed to cons medium SAND, to SB-5/MW-5S bori	on & Classifica to 20.0 feet. C st of brown, fin ace Silt, damp ng log detailed	Cuttings e to (SP). See soil	Desc.			Equip	— PROT	ECTIVE
Rec.				Blind drill from 0.0 observed to cons medium SAND, to SB-5/MW-5S bori	on & Classifica to 20.0 feet. C st of brown, fin ace Silt, damp ng log detailed	Cuttings e to (SP). See soil	Desc.			Equip	— PROT	ECTIVE
1				Blind drill from 0.0 observed to cons medium SAND, to SB-5/MW-5S bori	on & Classifica to 20.0 feet. C st of brown, fin ace Silt, damp ng log detailed	Cuttings e to (SP). See soil	Desc.					
()				observed to cons medium SAND, to SB-5/MW-5S bori	st of brown, fin ace Silt, damp ng log detailed	e to (SP). See soil	SAND (SP) (BLIND DRILL				CASIN	IG
				observed to cons medium SAND, to SB-5/MW-5S bori	st of brown, fin ace Silt, damp ng log detailed	e to (SP). See soil	SAND (SP) (BLIND DRILL)				
				medium SAND, tr SB-5/MW-5S bor	ace Silt, damp ng log detailed	(SP). See soil	`					
				SB-5/MW-5S bor	ng log detailed	soil						
							20'					
24/24	20-22	16/24"	2.5 tsf	Very stiff, gray, S	Ity CLAY, trace	fine Sand,		.) 1				
				damp (CL).								
				DI: 1 1	01.0005		22'	╝.				
				Blind drill from 22	.u to 69.0 feet.							
								ا ا				
	et penetro n driven to	et penetrometer reac n driven to confirm d	et penetrometer readings were	et penetrometer readings were measure n driven to confirm depth of confining la	damp (CL). Blind drill from 22	et penetrometer readings were measured in tons per square foot (tsf) and are n driven to confirm depth of confining layer.	damp (CL). Blind drill from 22.0 to 69.0 feet. et penetrometer readings were measured in tons per square foot (tsf) and are used to evaluate n driven to confirm depth of confining layer.	et penetrometer readings were measured in tons per square foot (tsf) and are used to evaluate the consister of driven to confirm depth of confining layer.	24/24 20-22 16/24" 2.5 tsf Very stiff, gray, Silty CLAY, trace fine Sand, damp (CL). Blind drill from 22.0 to 69.0 feet. 22' 23 3 et penetrometer readings were measured in tons per square foot (tsf) and are used to evaluate the consistency of n driven to confirm depth of confining layer.	24/24 20-22 16/24" 2.5 tsf Very stiff, gray, Silty CLAY, trace fine Sand, damp (CL). Blind drill from 22.0 to 69.0 feet. 22' 2 3 et penetrometer readings were measured in tons per square foot (tsf) and are used to evaluate the consistency of cohes n driven to confirm depth of confining layer.	24/24 20-22 16/24" 2.5 tsf Very stiff, gray, Silty CLAY, trace fine Sand, damp (CL). Blind drill from 22.0 to 69.0 feet. 22' 2 3 et penetrometer readings were measured in tons per square foot (tsf) and are used to evaluate the consistency of cohesive soil. In driven to confirm depth of confining layer.	24/24 20-22 16/24" 2.5 tsf Very stiff, gray, Silty CLAY, trace fine Sand, damp (CL). Blind drill from 22.0 to 69.0 feet. 22' 2 3 et penetrometer readings were measured in tons per square foot (tsf) and are used to evaluate the consistency of cohesive soil. In driven to confirm depth of confining layer.



Sample Information

Wolverine World Wide, Inc. 1855 House Street NE

Belmont, Michigan

Boring No.: SB-5/MW-5D Page: ____2 of ___6 File No.: 16.0062335.52

J Cai

No.	i						10	
	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed



Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

Boring No.: SB-5/MW-5D Page: ___3__ of ___6 File No.: 16.0062335.52

_		San	ple Inforn	nation		Belmont, Michigan			Check:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equip	ment Installed
66										
67 – 68 –										
69 —										
70-	34	24/20	69-71	5-7 9-10	0.0 ppm	Loose, brown, well sorted, fine SAND, trace wet (SP).	SAND (SP)	4		
71-										
72-										
73-										
74 –	35	24/13	74-76	7-9 12-17	0.0 ppm	Medium dense, brown, well sorted, fine				
75 –						SAND, trace Silt, moist (SP).				
76 – 77 –										
78 –										
79-	36	24/18	79-81	1-3	0.0 ppm	Loose, pale brown, well sorted, fine SAND,				
30-	00	2 1,7 10	7001	1-3 4-9		trace Silt, moist (SP).				
81-										
32-										
83 — 84 —										
85	37	24/6	84-86	2-5 11-11	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Gravel, trace Silt, moist (SP).				
86-										
87-										
88										
89-	38	24/12	89-91	2-5 10-14	0.0 ppm	Medium dense, pale brown, well sorted, fine				
90-				10 14		SAND, trace Gravel, trace Silt, moist (SP).				
91 — 92 —										
93-										——Bentonite/G
94 –	39	24/18	94-96	3-10	0.0 ppm	Medium dense, pale brown, well sorted, fine				
95-	00		0100	11-24		SAND, trace Silt, moist (SP).				
96 –										
97-										
98 — 99 —	40	04/04	00.404	2.4	0.0	Madina danas malahas Rosa 15				
	40	24/24	99-101	3-4 10-14	0.0 ppm	Medim dense, pale brown, well sorted, fine				
R	4. Field above	screeninį e backgro	g of sample ound levels	es for orgai are shown	nc vapors in parts p	was performed with a MiniRae 2000 photoionization ber million (ppm) of isobutylene. Background was mea	detector equippe asured at 0.0 ppn	ed with	a 10.6 eV la	amp. Readings
tratifi	cation line	es represe	nt approxima d. Fluctuatio		between s	oil types, transitions may be gradual. Water level readings l	nave been made at	times	Bering No	o.: SB-5/MW-5D



Boring No.: SB-5/MW-5D Page: ___4 __ of ___6 File No.: 16.0062335.52

		San	nple Inforn	nation		Belmont, Michigan			Check:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipm	ent Installed
101 —						SAND, trace Silt, trace Gravel, moist (SP).	SAND (SP)			
01 – 02 –										
03										
04-	41	24/9	104-106	2-6	0.0 ppm	Medium dense, pale brown, well sorted, fine				
05	41	24/3	104-100	10-19	о.о ррии	SAND, trace Silt, moist (SP).				
06-										
07										
108 –										
109 —	42	24/14	109-111	4-8 18-26	0.0 ppm	Medium dense, pale brown, well sorted, fine				
110-				.020		SAND, trace Silt, grace Gravel, moist (SP).				
111 <i>-</i>										
112— 113—										
114 –	4.0	0.4/0								
115-	43	24/8	114-116	5-9 16-22	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, trace Gravel, moist (SP).				
116-										
117-										
118-										
119-	44	24/8	119-121	2-4 10-11	0.0 ppm	Medium dense, pale brown, well sorted, fine				
120 —				10-11		SAND, trace Silt, moist (SP).				
121-										
122 — 123 —										
123 124 —										
125 —	45	24/8	124-126	3-11 22-27	0.0 ppm	Dense, pale brown, well sorted, fine SAND, trace Silt, trace Gravel, moist (SP).				
126-										
127-										
128 –										
129 –	46	24/24	129-131	3-8 17-31	0.0 ppm	Medium dense, pale brown, well sorted, fine				
30 —				17-31		SAND, trace Silt, trace Gravel, moist (SP).				
31-										
132-										
133 — 134 —										
154	47	24/13	134-136	10-22-50/6"	0.0 ppm	Very dense, pale brown, well sorted, fine				

BORING_WELL 6233550 WWW HOL 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.



Sample Information

Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

Boring No.: SB-5/MW-5D Page: ___5 of ___6 File No.: 16.0062335.52 J Cai

Sample Description & Classification Stratum Desc. Equipme	pment Installed
136	
137 — 138 — 139 — 48 24/14 139-141 10-23 34-35	
138 — 48 24/14 139-141 10-23 34-35 0.0 ppm Very dense, pale brown, well sorted, fine SAND, little Gravel, trace Silt, moist (SP). 141 — 49 24/6 144-146 4-7 14-21 0.0 ppm Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 144 — 49 24/5 149-151 1-3 8-17 0.0 ppm Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 145 — 50 24/5 149-151 1-3 8-17 0.0 ppm Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 156 — 51 24/3 154-156 4-22-508* 0.0 ppm Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 157 — 5156 — 52 24/18 159-161 10-21 29-34 0.0 ppm Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 166 — 667 — 667 — 668 — 668 — 666 — 667 — 667 — 668	
139 — 48 24/14 139-141 10-23 34-35 24/14 139-141 10-23 34-35 24/12 164-166	
140	
141	
142 - 49	
43 - 44 - 49	
44	
45	
46 - 47 - 48 - 49 - 50 24/5 149-151 1-3 8-17 0.0 ppm Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).	
48 - 49 - 50 24/5 149-151 1-3 8-17 0.0 ppm Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 50 - 51 24/3 154-156 4-22-50/6* 0.0 ppm Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 51 24/3 154-156 4-22-50/6* 0.0 ppm Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 52 24/18 159-161 10-21 29-34 0.0 ppm Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 63 - 64 65 - 66 - 66 - 66 - 66 - 66 - 66 -	
49 - 50	
50	
50 – 51 – 52 – 53 – 54 – 51 – 24/3 154-156 4-22-50/6" 0.0 ppm Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). SAND, trace Silt, moist (SP). Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Medium dense, pale brown, well sorted, fine SAND, trace Gravel, trace Silt, moist (SP).	
52 - 53 - 54 - 51 24/3 154-156 4-22-50/6" 0.0 ppm Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 56 - 57 - 58 - 59 - 52 24/18 159-161 10-21 29-34 0.0 ppm Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 57 - 58 - 59 - 52 24/18 159-161 10-21 29-34 0.0 ppm Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 68 - 68 - 68 - 68 - 68 - 68 - 68 - 68	
53 – 54 – 51 24/3 154-156 4-22-50/6" 0.0 ppm Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 58 – 59 – 52 24/18 159-161 10-21 29-34 Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).	
54 — 51 24/3 154-156 4-22-50/6" 0.0 ppm Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 55 — 56 — 57 — 58 — 59 — 52 24/18 159-161 10-21 29-34 0.0 ppm 60 — 61 — 62 — 63 — 63 — 64 — 65 — 66 — 66 — 66 — 66 — 66 — 66	
55 54 24/3 154-156 4-22-30/8 0.0 ppm Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 56 57 58 52 24/18 159-161 10-21 29-34 0.0 ppm Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). 57 58 59 52 60 60 60 60 60 60 60 6	
SAND, trace Silt, moist (SP). Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Medium dense, pale brown, well sorted, fine SAND, trace Gravel, trace Silt, moist (SP).	
57 — 58 — 59 — 52 24/18 159-161 10-21 29-34 0.0 ppm Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Medium dense, pale brown, well sorted, fine SAND, trace Gravel, trace Silt, moist (SP).	
58 – 52	
59 — 52 24/18 159-161 10-21 29-34 0.0 ppm Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Medium dense, pale brown, well sorted, fine SAND, trace Gravel, trace Silt, moist (SP).	
60 — 62 — 63 — 64 — 53 24/12 164-166 8-11 11-11 0.0 ppm 65 — 66 — 66 — 67 — 67 — 67 — 68 — 67 — 68 — 67 — 68 — 67 — 68 — 67 — 68 — 67 — 68 — 67 — 68 — 67 — 68 — 68	
60— 61— 62— 63— 64— 53	
62 — 63 — 64 — 53 24/12 164-166 8-11 11-11 0.0 ppm Medium dense, pale brown, well sorted, fine SAND, trace Gravel, trace Silt, moist (SP).	
63 — 64 — 53 24/12 164-166 8-11 11-11 0.0 ppm Medium dense, pale brown, well sorted, fine SAND, trace Gravel, trace Silt, moist (SP).	
66 -	
66 -	
66 — 67 —	
67-	
00 7	
60	
54 24/12 169-171 3-3 0.0 ppm Loose, pale brown, well sorted, fine SAND,	



Sample Information

Wolverine World Wide, Inc. 1855 House Street NE

Boring No.: SB-5/MW-5D Page: 6 of 6 File No.: 16.0062335.52 J Cai Check:

Belmont, Michigan

pt			i e	nation				10	
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
74						trace Silt, trace Gravel, moist (SP).	SAND (SP)	1	
71									
72 -									
73-									
74 -	55	24/10	174-176	1-1 1-2	0.0 ppm	Very loose, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
75 – 76 –						CAND, trace out, most (or).			
77-									
78-									
79 —									
80-	56	24/12	179-181	1-3 1-3	0.0 ppm	Very loose, pale brown, well sorted, fine SAND, trace Silt, trace Gravel, moist (SP).			
81-						, , , , , , , , , , , , , , , , , , , ,			
82-									
83									
84		0.4/40	101 100						
35	57	24/18	184-186	1-1 1-1	0.0 ppm	Very loose, pale brown, well sorted, fine SAND, little Gravel, trace Silt, moist (SP).			
36						,			
37-									
88									Top of We
89	50	04/40	400 404	4.0	0.0				Screen
90-	58	24/12	189-191	1-3 10-21	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, little Gravel, trace Silt, moist (SP).			
91-									
92-									Silica Sar Filter Pac
93-									2-Inch Dia
94 –	59	24/8	194-196	32-38-50/4"	0.0 ppm	Very dense, pale brown, well sorted, fine			5-Foot PV Screen (0
95	33	2 1/0	134-130		,	SAND, little Gravel, trace Silt, trace			Slot)
96-						Cobbles, moist (SP).			
97 –									
98-	60	24/0	198-200	50/0"		NO RECOVERY.	198' NO	+	Bottom of
98 — 99 — 00 —							RECOVERY		Screen
00+						Bottom of Borehole at 200.0	200'	5	
01-									
)2-									
03-									

Contractor: Foreman: Logged by: Date Start/Finish: Boring Location: GS Elev.:778	GZA Geol		nental, Inc	C.		Wolverine W	-			_	Bori	ng No.	: <u>SB-5/N</u> 1 of _	/W-5S 5
Foreman: Logged by: Date Start/Finish: Boring Location: GS Elev.: 778 No. Pen. Rec (in.) 1 24/19 - 24/19 - 3 24/19 - 3 24/19 - 6 24/19 - 10 6 24/19 - 11 - RE RE			d Scientists				se Street N			_	File I	, No.:	16.00623	35.52
Foreman: Logged by: Date Start/Finish: Boring Location: GS Elev.: 778 No. Pen. Rec (in.) 1 24/19 - 24/19 - 3 24/19 - 3 24/19 - 6 24/19 - 10 6 24/19 - 11 - RE RE	Ste	earns Dril	lling Comp	nany		Belmoni Auger/	<u>t, Michigan</u>			_		:k:		
Logged by:			luntoon	July	<u> </u>	Casing	Sampler		GRO	JUNE	WAT	FR RF	ADINGS	
Date Start/Finish: Boring Location: GS Elev.: 778 No. Rec (in.) 1 24/19 1 24/19 1 3 24/19 3 24/19 5 4 24/19 7 - 4 24/19 7 - 5 24/11 9 - 6 24/19 11 - 6 24/19 RE						ollow Stem Auger	Split Spoon	Date		ime			Casing	Stab
Boring Location: GS Elev.: 778 S S No. Pen. Rec (in.) 1 24/19 24/19	.h.	9-19)-17 / 9-19	-17	O.D. / I.D.: _		2.0" / 1 3/8"		Τ			- T	- u.ug	
GS Elev.:							NA	-						
No. Pen. Rec (in.) 1 24/19 1 24/19 1 24/19 3 24/19 5 3 24/19 5 4 24/19 7 -							NA NA	-						
No. Pen. Rec (in.)		Datt	uiii		TOC Elev.: _		NA NA	Surveyed	l Bv	N	ΙA	Surv	ey Date:	
(in.) 1 24/19 1 24/19 1 24/19 2 2 24/20 3 -	Samp	ole Inforn	nation		TOC Elev	10.0		_ Surveyed	д Бу.		., .	Juiv	ey Date.	
(in.) 1 24/19 1 24/19 1 24/19 2 2 24/20 3 -										ķ	F	auinn	nent Insta	lled
1- 2- 2- 2- 3- 3- 4- 3- 5- 6- 4- 24/15 7- 8- 5- 24/17 9- 10- 6 24/15 11- 11- RE	ec.	Depth (Ft.)	Blows (/6")	Test Data	Descripti	Sample on & Classifica	ation	Stratum Desc.	1	Remarks		7		ECTIVE
1- 2- 2- 2- 3- 3- 4- 3- 5- 6- 4- 24/15 7- 8- 5- 24/17 9- 10- 6 24/15 11- 11-	1/10	0-2	6-5		Dark yellowish-br	rown fine to cor	arse grained	SAND (FILI)	~ <			CAGII	
2- 2 24/24 3- 3 24/14 5- 6- 4 24/15 7- 8- 5 24/17 9- 6 24/15 11	,,,,	0-2	8-9		SAND, little Grav			07 11 12 (1 12)			\mathbb{X}			
2- 2 24/24 3- 3 24/18 5- 6- 4 24/18 7- 8- 5 24/18 11- 6 24/18					dry to moist (FILL	_). Changing at	0.4 feet to:			K			— Backti Pad	II/Cemen
2- 2 24/24 3- 3 24/18 5- 6- 4 24/18 7- 8- 5 24/18 11- 6 24/18					Light yellowish-br						\boxtimes		Pau	
3 - 24/13 5 - 4 3 24/13 5 - 6 - 4 24/13 7 - 8 - 5 24/13 9 - 6 24/13 11 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 -					SAND, trace Silt,	trace Gravel, n	noderately	1.2' SAND (SP	١					
3 - 24/13 5 - 4 3 24/13 5 - 6 4 24/13 7 - 8 5 24/13 9 - 6 24/13 11 - 6 24/13					sorted, moist (FIL Very dark grayish	L). Changing a Lhrown to dark	it 0.7 feet to.	SAND (SF	′					
3- 4- 3 24/13 5- 6- 4 24/13 7- 8- 5 24/13 9- 10- 6 24/13					yellowish-brown,	fine grained SA	ND, some							
4- 3 24/18 5- 6- 4 24/18 7- 8- 5 24/18 11- 6 24/18	1/20	2-4	4-5		Silt, slightly cohe	sive, moderatel	y sorted,							
4- 3 24/18 5- 6- 4 24/18 7- 8- 5 24/18 11- 6 24/18			5-5		moist (FILL). Cha	anging at 1.2 fee	et to:							
4- 3 24/18 5- 6- 4 24/18 7- 8- 5 24/18 11- 6 24/18					Brownish-yéllow (grading to pale fine grained SA	ND trace							
5- 6- 4 24/19 7- 8- 5 24/19 9- 10- 6 24/19 11-					Silt, well sorted, r		iivD, iiacc							
3 24/18 5 -					Brownish-yellow	grading to pale		2.51						
3 24/18 5 -					very pale brown,			3.5' CLAY & SIL	.T					
3 24/18 5 -					Silt, well sorted, r feet to: Dark yello			(CL)						
6- 4 24/19 7- 8- 5 24/19 9- 10- 6 24/19 11	1/18	4-6	2-3		to medium graine									
6- 4 24/19 7- 8- 5 24/19 9- 10- 6 24/19 11			3-4		Silt, trace Gravel,									
6- 4 24/19 7- 8- 5 24/19 9- 10- 6 24/19 11					cohesive, poorly	sorted, moist (S								
7- 7- 8- 5 24/13 9- 10- 6 24/13					Changing at 3.5 f									
7 - 24/15 7 - 24/15 9 - 24/15 11 - 6 24/15					yellowish-brown, cohesive, modere									
7- 7- 8- 5 24/13 9- 10- 6 24/13					(CL).	salely well solle	a, moist							
7 - 24/15 7 - 24/15 9 - 24/15 11 - 6 24/15					Dark yellowish-br			6'						
8- 5 24/1 9- 10- 6 24/18	1/19	6-8	2-2 2-3		cohesive, modere	eately well sorte	ed, moist	SAND (SP)					
8- 5 24/1 9 10- 6 24/18 11 RE			2-3		│∖(CL). │ Light yellowish-br	rown fine to me	dium							
8 - 5 24/1 9 - 24/18 11 - 6 24/18					SAND, trace Silt,									
9 — 24/11 10 — 6 24/11 11 — — — — — — — — — — — — — — — — — —					(SP).	10.7	۵,							
9 — 24/11 10 — 6 24/11 11 — — — — — — — — — — — — — — — — — —					, ,									
9 — 24/11 10 — 6 24/11 11 — — — — — — — — — — — — — — — — — —														
9 — 24/11 10 — 6 24/11 11 — — — — — — — — — — — — — — — — — —		0.40	0.0			· .								
10— 6 24/18 - 11— - R E	1/1/	8-10	2-2 3-4		Light yellowish-br SAND, trace Silt,									
10— 6 24/18 - 11— - R E					(SP).	very well softer	u, moisi							
10— 6 24/18 - 11— - R					(01).									
11 —														
11— - R E														
11 —														
11 —	1/12	10 12	3-4		Light valleurich be	rown fine to m-	odium							
R E	+/ 10	10-12	3-4 4-6		Light yellowish-br SAND, trace Silt,									
R E					(SP).	vory wen sorter	u, 111013t							
R E														
E					Light yellowish-br									
E					SAND, trace Silt,	very well sorte	d, moist							
E					(SP).									
E														
E														

A														
R														
K														
S														
					soil types, transitions ma y occur due to other fact						Rori	na No ·	SB-5/MW	-58



Wolverine World Wide, Inc. 1855 House Street NE

Belmont, Michigan

Boring No.: SB-5/MW-5S Page: 2 of 5 File No.: 16.0062335.52

ے ا		Sam	ple Inforn	nation	T			Check:	
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Equipr	nent Installed
13-	7	24/23	12-14	2-3 5-9		Light yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Light yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)	K	
4- - 5-	8	24/20	14-16	3-9 10-10		Light yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).		П	
6-7-	9	24/20	16-18	2-4 4-4		Light yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Light yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
8- - 9-	10	24/19	18-20	3-5 5-4		Light yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Changing at 19.5 feet to: Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, moist (SP). Changing at 19.3 feet to: Dark brown to dark yellowish-brown grading to black, fine to		П	
20 -	11	24/18	20-22	3-3 4-3		medium grained SAND, trace Silt, well sorted, moist to wet (SP). Dark yellowish-brown, fine to medium grained SAND, trace Silt, wet sorted, moist to wet (SP). Changing at 20.2 feet to: Dark gray, fine to medium grained SAND, trace Silt, well sorted, wet (SP). Changing at 20.3 feet to: Reddish-gray, fine to medium		П	
2-	12	24/23	22-24	2-5 8-8		grained SAND, trace Silt, well sorted, wet (SP). Changing at 20.7 feet to: Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP). Brown, Silty CLAY, plastic, cohesive, very well sorted, moist (CL).	22' Sitty CLAY (CL)		
4- - 5-	13	24/20	24-26	4-6 6-7		Brown, Silty CLAY, plastic, cohesive, very well sorted, moist (CL).			
\perp							26'		
R E M R C									
				4- h	hotwoon	soil types, transitions may be gradual. Water level readings	have been made at tim		



Sample Information

Wolverine World Wide, Inc. 1855 House Street NE

Boring No.: SB-5/MW-5S Page: ___3__ of ___5_ File No.: 16.0062335.52 J Cai Check:

Belmont, Michigan

۱ _		Jan	ple Inforr	nation				14-1	
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
27-	14	24/17	26-28	3-5 8-9		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)		
28 — - 29 —	15	24/18	28-30	4-6 8-9		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			——Bentonite/Gr
30 — - 31 —	16	24/24	30-32	5-6 9-10		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
- 32- - 33-	17	24/18	32-34	3-5 9-13		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
- 34 — - 35 —	18	24/18	34-36	3-7 13-16		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
36 — - 37 —	19	24/19	36-38	3-7 10-10		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
38 -	20	24/24	38-40	3-5 8-12		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			



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 Check:
 J Cai

_		San	ple Inforr	nation		Belmont, Michigan			Check:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipm	ent Installed
- 41 —	21	24/22	40-42	3-5 11-16		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)			
42-	22	24/24	42-44	3-11 18-21		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).				
44	23	24/20	44-46	5-10 14-17		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).				
- 46 — - 47 —	24	24/24	46-48	4-7 9-9		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).				
- 48 - - 49 -	25	24/20	48-50	3-8 11-15		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).				
50 — - 51 —	26	24/24	50-52	3-10 17-18		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).				
52 — - 53 —	27	24/22	52-54	9-13 21-25		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).				

R E M M M A E R K K R K K S 333220 MANN HONDS

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, Inc. 1855 House Street NE

Belmont, Michigan

Boring No.: SB-5/MW-5S Page: ____5 of ____5 File No.: 16.0062335.52

J Cai Check:

_ L		Sam	ple Inforr	nation		gan	_		Check:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment	Installed
55 —	28	24/24	54-56	4-5 8-10		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP). Changing at 54.5 feet to: Brown to yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).	SAND (SP)	1		
56 — - 57 —	29	24/24	56-58	3-4 5-6		Brown to yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			В	entonite Sea
58 — - 59 —	30	24/16	58-60	2-3 5-5		Brown to yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).				
60 -	31	24/16	60-62	1-1 2-2		Brown to yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP). Brown to yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).				
62-	32	24/5	62-64	1-4 7-11		Brown to yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			S	op of Well creen ilica Sand ilter Pack
64 — - 65 —	33	24/11	64-66	2-6 10-10		Brown to yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			5 S	-Inch Dia. -Foot PVC creen (0.010 lot)
67 —						Bottom of Borehole at 67.0 Feet	67'	2		ottom of Wel creen
R Z E M A A R K S	1. Groui 2. Monit	ndwater v coring wel	vas encour I was instal	itered at ap led in borel	proximat hole upor	ely 54.5 feet below ground surface. n completion. Well screen set from approximately 61	.9 to 66.6 feet bel	low gr	ound surface.	
Stratific	cation line	es represe	nt approxima	ate boundary	between s	soil types, transitions may be gradual. Water level readings y occur due to other factors than those present at the time n	have been made at	t times	Boring No.: SB-	5/MW-5S

Groundwater was encountered at approximately 54.5 feet below ground surface.
 Monitoring well was installed in borehole upon completion. Well screen set from approximately 61.9 to 66.6 feet below ground surface.

		GZ Ge	'.A oEnvironr	mental. In	C.	\	Nolverine W					o.: <u>SB-6/N</u> _1 of _	
			gineers and					se Street N			File No.:	61 61	335.52
Cor	ntractor	S	tearns Dri	llina Comi	pany		Auger/	t, Michigan			Check: _		
For	eman: _		Jerry F	Huntoon		_	Casing	Sampler		GROUNI	DWATER F	READINGS	
Log	ged by:		John M	lorehouse		Type:Ho	llow Stem Auger	Split Spoon	Date	Time	Depth	Casing	Stab
Date	e Start/F	Finish: _	9-13	<u>3-17 / 9-14</u>	-17			2.0" / 1 3/8"	-				
Bor	ing Loc	ation: _				Hammer Wt.: _	140lbs	NA	-				
GS	Elev.: _	770.3	<u>0'</u> Dati	um:		Hammer Fall: _	30.0"	NA			.10 -		
		San	nple Inforn	nation		TOC Elev.: _	NA	NA	Surveyed	By:	NA Su	rvey Date:	
Depth		Pen./			Tool		Commis		Cturatuum	rks	Equip	oment Insta	alled
Õ	No.	Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Description	Sample on & Classifica	ition	Stratum Desc.	Remarks		PROT	ECTIVE NG
1-	1	24/18	0-2	4-3 3-5		Very dark grayish to medium graine sorted, dry (SM). Dark brown, fine t some Silt, modera Changing at 0.4 ft yellowish-brown,fi SAND, some Silt, sorted, dry (SM).	d SAND, some Changing at 0 to medium grain ately sorted, dry eet to: Dark ine to medium	Silt, poorly 2 feet to: ned SAND, y (SM). grained	SAND (SM)			Backfi Pad	ill/Cemen
_		24/10	2-4	11-12		Dark yellowish-bro grained SAND, so	ome Silt, trace	Gravel,	2.01				
3-						moderately sorted 2.8 feet to: Dark y			2.8' 3' SAND (SC)				
3						medium SAND, lit	ttle Clay, little S	Silt, non to	CLAY & SIL	Τ			
4-	3	24/19	4-6	8-9 13-15		slightly plastic, mo sorted, dry (SC). (Mottled dark yello CLAY & SILT, son plastic, cohesive, (CL).	oderately cohes Changing at 3.0 wish-brown to me Sand, trace	sive, poorly) feet to: pale brown, : Gravel,	(02)				
5-	_					Mottled dark yello CLAY & SILT, sor plastic, cohesive,	me Sand, trace poorly sorted,	Gravel, dry to moist	5.2' SAND (SP)				
6- - 7-	4	24/14	6-8	2-2 2-2		(CL). Changing at brown, fine to me very well sorted, r Very pale brown, trace Silt, very we	dium SAND, tra noist (SP). fine to medium	ace Silt, SAND,					
8- - 9-	5	24/20	8-10	1-3 3-4		Very pale brown, trace Silt, very we							
10-	6	24/24	10-12	2-3 3-5		Very pale brown, trace Silt, very we							
11 -													
R E M A R K S													
						soil types, transitions may y occur due to other facto					Boring No	o.: SB-6/MW	/-6S



Wolverine World Wide, Inc. 1855 House Street NE

Boring No.: SB-6/MW-6S Page: ____2 of ____5

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No. 7 13- 14- 8 15- 16- 9 17- 18- 19- 20- 11 21- 22- 12	Pen./ Rec. (in.) 24/22 24/20 24/22	Depth (Ft.) 12-14 14-16 16-18	Blows (/6") 3-4 5-5 2-5 6-11 4-8 9-10	Test Data	Sample Description & Classification Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist with some alternating beds of dark yellowish-brown, fine to medium grained SAND, trace Gravel at 14.6 feet. Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).	Stratum Desc.	Remarks	ipment Installed
13 - 14 - 8 - 15 - 9 - 17 - 18 - 10 - 19 - 11 - 20 - 11 - 21 - 22 - 23 - 23 - 24 - 25 - 25 - 25 - 25 - 25 - 25 - 25	24/20 24/22 24/22	14-16 16-18	2-5 6-11 4-8 9-10		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist with some alternating beds of dark yellowish-brown, fine to medium grained SAND, trace Gravel at 14.6 feet. Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)		
14 8 15 9 16 9 17 10 19 11 20 11	24/22	16-18	6-11 4-8 9-10		trace Silt, very well sorted, moist with some alternating beds of dark yellowish-brown, fine to medium grained SAND, trace Gravel at 14.6 feet. Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Very pale brown, fine to medium SAND,			
17 – 18 – 10 – 19 – 11 – 21 – 22 – 22 – 22 – 22 – 23 – 24 – 25 – 25 – 25 – 25 – 25 – 25 – 25	24/22		9-10 4-5		trace Silt, very well sorted, moist (SP). Very pale brown, fine to medium SAND,			
19 - 10 - 11 - 21 - 21 - 22 - 23 - 23 - 24 - 25 - 25 - 25 - 25 - 25 - 25 - 25		18-20	4-5 7-8		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
21 –	24/19							
22 12		20-22	6-9 14-15		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).		I	
23 —	24/24	22-24	6-10 11-13		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
24 – 13 - 13 - 25 –	24/20	24-26	5-8 13-18		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).		I	
R E E W A A R K K S								



Sample Information

Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

Boring No.: SB-6/MW-6S Page: 3 of 5 File No.: 16.0062335.52 Check: J Cai

Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) 7-10 15-18 SAND (SP) Bentonite/Grout 14 24/22 26-28 Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). 27 28 24/22 Very pale brown, fine to medium SAND. 15 28-30 12-14 trace Silt, very well sorted, moist (SP). 29 30 24/20 30-32 7-14 Very pale brown, fine to medium SAND, 16 trace Silt, very well sorted, moist (SP). 31 32 24/16 7-10 15-21 17 32-34 Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). 34 6-10 18-20 18 24/22 34-36 Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). 35 Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). 19 24/19 36-38 10-16 Changing at 36.8 feet to: Light 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18 yellowish-brown, fine grained SAND, little Silt, very well sorted, moist (SM). Changing SAND (SM) 37 at 37.8 feet to: Light yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, well sorted, moist (SP). SAND (SP) 38 Light yellowish-brown to pale brown, fine to 20 24/19 38-40 9-22 medium grained SAND, trace Silt, well sorted, moist (SP). Changing at 38.5 feet to: SAND (SM) Light yellowish-brown, fine grained SAND, 39 little Silt, very well sorted, moist (SM).

REMARKS



Boring No.: SB-6/MW-6S Page: ___4 __ of ___5 File No.: 16.0062335.52 J Cai Check:

Pen./ Rec. (in.) 24/24 24/19	Depth (Ft.) 40-42 42-44 44-46	Blows (/6") 4-6 7-3 11-22 37-38	Test Data	Sample Description & Classification Light yellowish-brown, fine grained SAND, little Silt, very well sorted, moist (SM). Changing at 40.9 feet to: Yellowish-brown, fine grained SAND, little Silt, well sorted, moist (SM). Yellowish-brown, fine grained SAND, little Silt, well sorted, moist (SM). Changing at 43.1 feet to: Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Changing at 44.8 feet to: Brown, fine to medium grained SAND, trace Silt, well	Stratum Desc. SAND (SM)	Remarks	Equipme	ent Installed
24/24 24/19	42-44 44-46	7-3 11-22 37-38		little Silt, very well sorted, moist (SM). Changing at 40.9 feet to: Yellowish-brown, fine grained SAND, little Silt, well sorted, moist (SM). Yellowish-brown, fine grained SAND, little Silt, well sorted, moist (SM). Changing at 43.1 feet to: Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Changing at 44.8 feet to: Brown, fine to medium grained SAND, trace Silt, well	43.1'	RE		
24/22	44-46	37-38 16-22		Silt, well sorted, moist (SM). Changing at 43.1 feet to: Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Changing at 44.8 feet to: Brown, fine to medium grained SAND, trace Silt, well				
				trace Silt, very well sorted, moist (SP). Changing at 44.8 feet to: Brown, fine to medium grained SAND, trace Silt, well				
24/22	46-48			sorted, moist (SP).				
		6-8 10-11		Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP).		1		
24/18	48-50	4-11 18-21		Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP).				
24/18	50-52	5-11 14-17		Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP).				
24/11	52-54	3-9 18-21		Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP).				—Bentonite Sea
ndwater w	<i>r</i> as encoun	ntered at app	oroximat	ely 46.0 feet below ground surface.				
	24/18 24/11 dwater w	24/18 50-52 24/11 52-54 dwater was encour	24/18 50-52 5-11 14-17 24/11 52-54 3-9 18-21 dwater was encountered at approximate boundary	24/18 50-52 5-11 14-17 24/11 52-54 3-9 18-21 dwater was encountered at approximate serepresent approximate boundary between serepresent approximate	24/18 50-52 5-11 Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP). 24/11 52-54 3-9 Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP). Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP).	24/18 50-52 5-11 Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP). 24/11 52-54 3-9 18-21 Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP). dwater was encountered at approximately 46.0 feet below ground surface.	24/18 50-52 5-11 Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP). 24/11 52-54 3-9 18-21 Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP). dwater was encountered at approximately 46.0 feet below ground surface.	24/18 50-52 5-11 Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP). 24/11 52-54 3-9 Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP). dwater was encountered at approximately 46.0 feet below ground surface.



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 Check:
 J Cai

Sample Information Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (/6") (Ft.) Data Description & Classification Desc. (in.) 3-8 14-15 SAND (SP) 28 24/20 54-56 Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP). 55 56 24/8 2-4 12-12 29 56-58 Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP). Top of Well 57 Screen Silica Sand Filter Pack 58 30 24/12 58-60 3-7 Brown, fine to medium grained SAND, trace 12-11 Silt, trace Gravel, well sorted, wet (SP). 59 2-Inch Dia. 5-Foot PVC Screen (0.010". 60 31 24/7 Brown, fine to medium grained SAND, trace 60-62 Slot) Silt, trace Gravel, well sorted, wet (SP). Bottom of Well 62 Screen Bottom of Borehole at 62.0 Feet 2 63 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18 65 66 67 2. Monitoring well was installed in borehole upon completion. Well screen set from approximately 57.1 to 61.8 feet below ground surface. 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.

,		∣ GZ	:A				Nolverine V	Vorld Wide, I	lnc.		Bor	ing No	o.: SB-6D/	MW-6D		
	57			mental, In			1855 House Street NE					Page:1 of5				
		' En	gineers an	d Scientists	8		Belmont, Michigan					File No.: 16.0062335.52				
Con	ntractor:	S	tearns Dri	Iling Com	oany		Augor/						Check: J Cai			
Fore	eman: _			Huntoon			Casing	Sampler		GROU	NDWA	TER R	EADINGS			
Log	Logged by: Julie Groenleer					Type:Ho	ollow Stem Auger	Split Spoon	Date	Time		epth	Casing	Stab		
Date	Date Start/Finish: 10-31-17 / 11-2-17					O.D. / Î.D.: _		2.0" / 1 3/8"								
		ation: _						NA								
		770.6				Hammer Fall: _		NA								
						TOC Elev.: _	NA	NA	Surveyed	Ву:	NA	_ Sur	vey Date:			
۱ ـ		San	ple Inforr	nation												
Depth		Pen./	Danith	Diama	Test		Sample		Stratum	Remarks		Equip	ment Insta	illed		
8	No.	Rec.	Depth (Ft.)	Blows (/6")	Data	Description	Sample on & Classifica	ation	Stratum Desc.	Шa		$\neg \vdash$	— PROT	ECTIVE		
		(in.)	(/	(,	Julu		on a olacomo		2000.	8			CASI			
						See SB-6/MW-6S	for soil descri	ption from								
1-	†					0.0 to 70.0 feet.										
2-	-															
3-																
1																
4-	1															
5-	1															
6-	1															
1																
7-	1															
8-	†															
9-	1															
10-																
11-	1															
12-	1															
13-	1															
14-	1															
15-	1															
16-	1															
17-																
18-	1															
19-	1															
20-	1															
1																
21-																
22-	1															
23 –	1															
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5 2																
25 –	1															
26-	1															
27 –	1															
28-]															
29 –	1															
22 — 23 — 24 — 25 — 26 — 27 — 28 — 29 — REM ARKS Stratification of the control																
R																
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* * * * * * * * * * * * * * * * * * *																
Stratif	ication line	es represe	nt approxima	ate boundary	between	soil types, transitions ma	v be gradual Wat	ter level readings h	ave been made	e at times			00.00			
and ur						y occur due to other factor					Во	ring No	o.: SB-6D/M	wv-bD		



Boring No.: SB-6D/MW-6D Page: ____2 of ____5 File No.: 16.0062335.52

	Sam	ple Inforn	nation		Belmont, Michigar	1		Check:	J Cai
No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipr	ment Installed
	i l			1					
	No.	No. Rec.	No. Rec. Deptil	No. Rec. Deptil Blows	No. Rec. (E4) (ICII) Dete	No. Rec. (54) (101) Pote	No. Rec. (F4) ((CII) Bota Beautified 9 Clearification	No. Rec. (in.) Depth (Ft) Upon Depth (In.)	No. Rec. (F.) Biows (A.) Data Sample Description & Classification Stratum Desc. Equip (A.) Description & Classification Desc.



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

 Boring No.:
 SB-6D/MW-6D

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 of
 5

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 16.0062335.52

Check: J Cai

		Sam	ple Inforn	nation		Beimont, Michigan		Check:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum R	Equip	ment Installed
66-									
67-									
68-									
69-									
70 – 71 –	1	24/18	70-72	1-2 4-12		Loose, brown, fine to medium SAND, trace Silt, wet (SP).	SAND (SP)		-
72- 73-	2	24/13	72-74	2-3 11-17		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
74 – 75 –	3	24/1	74-76	7-11 19-18		Medium dense, light brown, fine Silty SAND, wet (SM).	74' Silty SAND (SM)		-
76- 77-	4	24/4	76-78	2-3 3-8		Loose, brown, fine to medium SAND, trace Silt, wet (SP).	SAND (SP)		Bentonite/Grout
78 – 79 –	5	24/12	78-80	4-7 15-18		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
80 – 81 –	6	24/20	80-82	2-6 17-25		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			-
82- 83-	7	24/16	82-84	2-2 4-8		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
84 – 85 –	8	24/12	84-86	2-2 2-7		Very loose, brown, fine to medium SAND, trace Silt, wet (SP).			-
86 – 87 –	9	24/20	86-88	5-16 37-35		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
88- 89-	10	24/13	88-90	5-6 56-50		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
90 – 91 –	11	24/24	90-92	6-17 60-30		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			-
92- 93-	12	24/0	92-94	4-7 10-11		NO RECOVERY.	NO RECOVERY		
94 – 95 –	13	24/0	94-96	2-3 4-11		NO RECOVERY.			-
96 – 97 –	14	24/24	96-98	2-7 9-24		Medium dense, brown, fine SAND, trace medium Sand, trace Silt, wet (SP).	96' SAND (SP)		
98 – 99 –	15	24/24	98-100	3-6 13-22		Medium dense, brown, fine SAND, trace medium Sand, trace Silt, wet (SP). Changing at 99.6 feet to: Medium dense,	99.6'		

 BORING_WELL
 6233550
 WWW HOUSE STREET NE.GPJ
 GZA_CORP.GDT
 5/17/18

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Wolverine World Wide, Inc. 1855 House Street NE

Belmont, Michigan

Boring No.: SB-6D/MW-6D Page: 4 of 5 File No.: 16.0062335.52

e No.. <u>10.000200</u> leck: J Cai

		San	nple Inforn	nation	Belmont, Michigar						
Depth	No.	Pen./ Rec. (in.)	Depth Blows Test Sample (Ft) (/6") Data Description & Classification		Stratum a sylvania	Equipme	ent Installed				
101 —	16	24/11	100-102	3-8 20-31	brown, fine Silty SAND, wet (SM). Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	Silty SAND (SM)/ SAND (SP)					
102 — 103 —	17	24/18	102-104	2-3 10-15	Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).						
04 – 05 –	18	24/6	104-106	5-10 23-22	Dense, brown, fine Silty SAND, wet (SM).	Silty SAND (SM)					
06 – 07 –	19	24/17	106-108	9-19 29-29	Dense, brown, fine Silty SAND, wet (SM).						
08- 09-	20	24/12	108-110	5-12 18-18	Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	SAND (SP)					
10 — 11 —	21	24/13	110-112	2-3 5-17	Loose, brown, fine to medium SAND, trace Silt, wet (SP).						
12- 13-	22	24/0	112-114	3-4 7-12	NO RECOVERY.	NO RECOVERY					
14 – 15 –	23	24/0	114-116	3-5 15-17	NO RECOVERY.						
16- 17-	24	24/0	116-118	4-13 30-45	NO RECOVERY (bailed for sample description: Brown, fine to medium SAND,	NO RECOVERY (bailed for					
18 <i>-</i> 19 <i>-</i>	25	24/10	118-120	9-29 46-54	trace Silt, moist (SP)). Very dense, brown, fine to medium SAND, trace Silt, wet (SP).	118' sample description: SAND (SP)) SAND (SP) with					
20 — 21 —	26	24/8	120-122	6-7 9-19	Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	Silty SAND in spoon at 120.0 feet					
22 – 23 –	27	24/24	122-124	10-22 37-39	Very dense, brown, fine to medium SAND, trace Silt, wet (SP).						
24 – 25 –	28	24/24	124-126	6-21 28-28	Dense, brown, fine to medium SAND, trace Silt, wet (SP).						
26 – 27 –	29	24/24	126-128	11-19 33-24	Very dense, brown, fine to medium SAND, trace Silt, wet (SP).						
28 – 29 –	30	24/12	128-130	3-3 3-10	Loose, brown, fine to medium SAND, trace Silt, wet (SP).						
30 — 31 —	31	24/24	130-132	8-25 35-17	Very dense, brown, fine to medium SAND, trace Silt, wet (SP).						
32 — 33 —	32	24/14	132-134	12-29 44-50	Very dense, brown, fine to medium SAND, trace Silt, wet (SP).						
34 —	33	24/20	134-136	2-7 30-50	Dense, brown, fine to medium SAND, trace						



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Boring No.: SB-6D/MW-6D Page: ____5 of ____5 File No.: 16.0062335.52 J Cai Check:

		San	nple Inforn	nation		Belmont, Michigan		Check:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks linba	oment Installed
36 37	34	24/19	136-138	2-4 12-21		Silt, wet (SP). Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	SAND (SP) with Silty SAND in spoon at 120.0 feet		
38 — 39 —	35	24/14	138-140	8-11 11-14		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
40 <i>-</i> 41 <i>-</i>	36	24/12	140-142	5-11 23-24		Dense, brown, fine to medium SAND, trace Silt, trace fine Gravel, wet (SP).			
42- 43-	37	24/12	142-144	4-8 12-18		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
44 — 45 —	38	24/10	144-146	1-3 12-17		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
46— 47—	39	24/8	146-148	1-2 4-8		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
48 <i>-</i> 49 <i>-</i>	40	24/9	148-150	1-3 7-14		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
50 — 51 —	41	24/7	150-152	1-2 5-7		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
52 — 53 —	42	24/0	152-154	3-7 20-32		NO RECOVERY.	NO RECOVERY		
54 — 55 —	43	24/24	154-156	3-8 18-32		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	SAND (SP)		Top of Well
56 — 57 —	44	24/14	156-158	5-12 47-24		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			Screen Silica Sand Filter Pack
58 — 59 —	45	24/24	158-160	3-12 29-36		Dense, brown, fine to medium SAND, trace Silt, wet (SP). Changing at 160.0 feet (in			2-Inch Dia. 5-Foot PVC Screen (0.01 Slot)
60 — 61 —	46	24/24	160-162	1-9 23-36	3.75 tsf >4.0 tsf	shoe) to: Very stiff, gray, CLAY & SILT, some fine Sand, moist (CL). Hard, gray, CLAY & SILT, some fine to coarse Sand, moist (CL).	CLAY & SILT (CL)		Bottom of Wo
162-						Bottom of Borehole at 162.0 Feet	162'		·
63 — 64 —									
165 —									
166 —									
167 —									
168 —									
169 —									
R E M A R K S						in tons per square foot (tsf) and are used to evaluate completion. Well screen set from approximately 155.0			ee.
Stratifi	ication line	es represe	nt approxima	ite boundarv	between s	soil types, transitions may be gradual. Water level readings	have been made at tim	nes p	CD CD/MMA/ CD
						y occur due to other factors than those present at the time me			o.: SB-6D/MW-6D

/		GZ				\	voiverine v	voria vviae,	Inc.			lo.: <u>SB-//</u> ľ			
GeoEnvironmental, Inc. Engineers and Scientists						1855 House Street NE						of _			
								t, Michigan		File No.: 16.0062335.52 Check: J Cai					
	tractor		tearns Dri		oany		Auger/ Sampler				GROUNDWATER READINGS				
Fore	eman: _		Jerry F John M	Huntoon Morebouse			Casing llow Stem Auger	•	Date	GROUNI Time	DWATER I Depth		Stab		
Date	geu by: Start/l		9-19	9-17 / 9-20	-17	O.D. / I.D.: _		2.0" / 1 3/8"	_	Time	Бери	Casing	Otab		
						Hammer Wt.: _		NA							
						Hammer Fall:		NA							
		Com	anla Infarm	mation		TOC Elev.: _	NA	NA	Surveyed	Ву:	NA Su	ırvey Date:			
ج	Sample Information					Ø									
Depth	No.	Pen./ Rec.	Depth	Blows	Test	.	Sample		Stratum	Remarks	Equi	pment Insta	ECTIVE		
_		(in.)	(Ft.)	(/6")	Data	Description	on & Classifica	ation	Desc.	Rel		CASI			
	1	24/18	0-2	2-1 2-1		Very loose, dark b			SAND						
-				2-1		fine grained SANI sorted, dry (TOPS	D, some Silt, m SOIL) Changir	noderately ng at 0.5 feet	0.5' (TOPSOIL)	\longrightarrow			ill/Cement		
4						to: Brownish-yello	w, fine grained	SAND,			\boxtimes	Pad			
1-						little Silt, well sort	ed, dry (SM).								
+															
2-	_	0.11:-		0.5		, , , , , ,			2'						
-	2	24/12	2-4	2-3 3-4		Loose, yellowish-l grained SAND, tra			SAND (SP)						
7						moist (SP).	acc cint, very w	ion dortou,							
3-															
4-	3	24/18	4-6	2-2		Loose, yellowish-l	hrown fine to	medium							
	J	2-7/10	4-0	3-2		grained SAND, tra	ace Silt, very w	vell sorted,							
						moist (SP).									
5-													-		
6-	4	24/5	6-8	2-2		Loose, yellowish-l	brown, fine to r	medium	6.3'						
_				2-2		grained SAND, tra	ace Silt, very w	vell sorted,	CLAY & SIL	Т					
_						moist (SP) with fra Changing at 6.3 fe			(OL)						
7-						& SILT, some Sai	nd, trace Grave								
-						cohesive, mmoist	(CL).								
0									8'						
8-	5	24/12	8-10	2-2 3-4		Loose dark grayis			SAND (SP)						
-						coarse grained SA Silt, poorly sorted		vei, irace							
9-						,, , , , , , , , , , , , , , , , , , , ,									
٦															
-															
10-	6	24/44	10.10	16		Loops down	h brown += -	rk brown					-		
	6	24/11	10-12	4-6 4-4		Loose dark grayis coarse grained SA									
						Silt, poorly sorted		•							
11-															
7															
R															
E															
M A															
R															
K S															
۱															
Stratifi	cation lin	ac rantoco	nt annrovima	ate houndard	hetwoon	coil types transitions may	y be gradual Ma	ter level readings	have been mad	e at times					
						soil types, transitions may y occur due to other facto					Boring N	lo.: SB-7/MW	<i>I-</i> 7S		



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		Sam	nple Inforn	nation		Belmont, Michigan		- Check: J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Equipment Installed
- 13 — - 14 — -	7	24/19	12-14 14-16	4-7 5-5 8-8 9-10		Loose dark grayish-brown to dark brown, coarse grained SAND, little Gravel, trace Silt, poorly sorted, moist (SP). Changing at 12.6 feet to: Stiff, brown, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Changing at 13.2 feet to: Stiff, dark brown, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). NO RECOVERY.	SAND (SP) 12.6' CLAY & SILT 13' (CL) 13.2'SAND (SM) CLAY & SILT (CL)	
- 16- - 17-	9	24/17	16-18	3-4 3-5		Loose, brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 16.4 feet to: Medium brown, CLAY & SILT, some Sand, trace Gravel, moderately plastic, cohesive, poorly sorted, moist (CL).	16' SAND (SP) 16.4' 16. FLAY & SILT (CL) 17' SAND (SP) CLAY & SILT	
- 18 — - 19 —	10	24/22	18-20	4-4 5-6		Changing at 16.7 feet to: Loose, dark yellowish-brown, fine grained SAND, trace Silt, well sorted, moist (SP). Changing at 17.0 feet to: Medium mottled yellowish-brown, CLAY & SILT, plastic, cohesive, well sorted, moist (CL). Medium mottled yellowish-brown, CLAY & SILT, plastic, cohesive, well sorted, moist (CL). Changing at 18.6 feet to: Stiff mottled	(CL) 18.9' 19' SAND (SP) CLAY & SILT	
- 20 — - 21 —	11	24/14	20-22	3-3 4-5		yellowish-brown, CLAY & SILT, plastic, cohesive, well sorted, moist (CL). Changing at 18.9 feet to: Loose, light yellowish-brown to brownish-yellow, fine grained SAND, very well sorted, moist (SP). Changing at 19.0 feet to: Stiff, mottled yellowish-brown, CLAY & SILT, plastic, cohesive, well sorted, moist (CL). Stiff, mottled yellowish-brown, CLAY &	20.6' SAND (SP)	
-23-	12	24/16	22-24	1-1 2-3		SILT, plastic, cohesive, well sorted, moist (CL). Loose to medium dense, very pale brown, fine grained SAND, trace Silt, very well sorted (bedded), moist (SP).		
- 24 — - 25 —	13	24/22	24-26	2-3 3-2		Loose to medium dense, very pale brown, fine grained SAND, trace Silt, very well sorted (bedded), moist (SP).		



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Sample Information

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Belmont, Michigan

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File No.: 16.0062335.52 J Cai

_		San	ple Inforr	nation						
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installe	ed
27-	14	24/22	26-28	2-3 3-3		Loose to medium dense, very pale brown, fine grained SAND, trace Silt, very well sorted (bedded), moist (SP).	SAND (SP)			
- 28 - - 29 -	15	24/22	28-30	2-3 4-3		Loose to medium dense, very pale brown, fine grained SAND, trace Silt, very well sorted (bedded), moist (SP).				
30 -	16	24/20	30-32	1-3 6-8		Loose to medium dense, very pale brown, fine grained SAND, trace Silt, very well sorted (bedded), moist (SP). Changing at 30.3 feet to: Stiff, yellowish-brown, SILT, little Clay, plastic, cohesive, well sorted,	30.3' SILT (ML) 30.7' SAND (SP)			
32 — - 33 —	17	24/23	32-34	5-5 7-8		moist to wet (ML). Changing at 30.7 feet to: Medium dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted (bedded), moist (SP). Medium dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted (bedded), moist (SP). Changing at 32.7 feet to: Soft, dark yellowish-brown, CLAY & SILT, plastic, cohesive, moist (CL).	32.7' - 32.8°LAY & SILT (CL) SAND (SP)		—— Bentonit	e/Gro
- 34 - - 35 -	18	24/20	34-36	4-8 9-8		Changing at 32.8 feet to: Medium dense, very pale brown, fine to coarse grained SAND, some Gravel, trace Silt, poorly sorted, moist (SP). Medium dense, very pale brown, fine to coarse grained SAND, some Gravel, trace Silt, moderately sorted, moist (SP).				
36 — - 87 —	19	24/18	36-38	5-6 7-8		Medium dense, very pale brown, fine to coarse grained SAND, some Gravel, trace Silt, moderately sorted, moist (SP). Changing at 36.1 feet to: Brown to yellowish-brown, CLAY & SILT, plastic, cohesive, well sorted (bedded), moist (CL).	36.1' 36.2CLAY & SILT (CL) SAND (SP)			
- 38 - - 39 -	20	24/18	38-40	3-5 5-7		Chlesive, well softed (bedded), moist (CE). Changing at 36.2 feet to: Medium dense, very pale brown, fine to coarse grained SAND, some Gravel, trace Silt, moderately sorted, moist (SP). Medium dense, very pale brown, fine to coarse grained SAND, some Gravel, trace Silt, moderately sorted, moist (SP). Changing at 38.5 feet to: Medium dense, light yellowish-brown to very pale brown, fine to medium grained SAND, trace Silt,				



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Depth of the content of the conten
Very well sorted, moist (SP). SAND (SP)
pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP). Changing at 42.9 feet to: Medium dense, light yellowish-brown, fine to coarse grained SAND, some Gravel, trace Silt, poorly sorted, moist (SP). Medium dense, light yellowish-brown, fine to coarse grained SAND, trace Silt, poorly sorted, moist (SP). Medium dense, light yellowish-brown fine to coarse grained SAND, trace Silt, poorly sorted, moist (SP). Medium dense, light yellowish-brown grading to dark gray, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Stiff to very stiff yellowish-brown grading to dark gray, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Stiff to very stiff yellowish-brown grading to dark gray, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Stiff to very stiff yellowish-brown grading to dark gray, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Changing 48.6 feet to: Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP). Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP). Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).
coarse grained SAND, trace Silt, poorly sorted, moist (SP). Changing at 45.3 feet to: Stiff to very stiff yellowish-brown grading to dark gray, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Stiff to very stiff yellowish-brown grading to dark gray, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Stiff to very stiff yellowish-brown grading to dark gray, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Stiff to very stiff yellowish-brown grading to dark gray, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Stiff to very stiff yellowish-brown grading to dark gray, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Stiff to very stiff yellowish-brown grading to dark gray, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP). Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).
dark gray, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Stiff to very stiff yellowish-brown grading to dark gray, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Changing 48.6 feet to: Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP). Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP). Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).
dark gray, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Changing 48.6 feet to: Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP). Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP). Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP). Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very
to medium grained SAND, trace Silt, very well sorted, moist (SP). Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very
to medium grained SAND, trace Silt, very



Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

 Boring No.:
 SB-7/MW-7S

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 of
 6

 File No.:
 16.0062335.52

 Check:
 J Cai

		San	ple Inforr	mation		Belmont, Michigan		— c	heck:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipm	ent Installed
55 —	28	24/20	54-56	6-16 17-23		Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)			
- 56 — - 57 —	29	24/23	56-58	6-13 17-21		Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).				
58 — - 59 —	30	24/20	58-60	8-16 20-31		Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).				
60 — - 61 —	31	24/24	60-62	9-17 18-24		Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).				
62 — - 63 —	32	24/18	62-64	4-8 10-11		Medium dense, yellowish-brown, fine to medim grained SAND, trace Silt, well sorted, wet (SP).		1		
64 — - 65 —	33	24/23	64-66	2-3 7-10		Medium dense, yellowish-brown, fine to medim grained SAND, trace Silt, well sorted, wet (SP).				
66 —	34	24/1	66-68	1-3 5-9		Medium dense, yellowish-brown, fine to medim grained SAND, trace Silt, well sorted, wet (SP).				—Bentonite S€

1. Groundwater was encountered at approximately 62.0 feet below ground surface.

BORING_WELL 6233550 WWW HOUSE

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.

Boring No.: SB-7/MW-7S



Wolverine World Wide, Inc. 1855 House Street NE Belmont, Michigan

Boring No.: SB-7/MW-7S Page: ___6__ of ___6_ File No.: 16.0062335.52 Check: J Cai

_ L		Sam	ple Inforn	nation		Bernont, Wieringa			Check:	J Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipme	ent Installed
-	35	24/23	68-70	1-4 7-7		Medium dense, yellowish-brown, fine to medim grained SAND, trace Silt, well sorted, wet (SP).	SAND (SP)			
69 — 70 — 71 —	36	24/8	70-72	2-7 11-11		Medium dense, yellowish-brown, fine to medim grained SAND, trace Silt, well sorted, wet (SP).				−Top of Well Screen −Silica Sand
72-	37	24/5	72-74	1-2 5-9		Medium dense, yellowish-brown, fine to medim grained SAND, trace Silt, well sorted, wet (SP).				Filter Pack - 2-Inch Dia. 5-Foot PVC Screen (0.010 Slot)
74 - - 75 -						Bottom of Borehole at 74.0 Feet	74'	2		–Bottom of We Screen
76 — - 77 —										
78 — - 79 —										
30 -										
81-										
マ エ エ ス ス ス ス ス ス ス ス ス ス ス ス ス	2. Monit	oring wel	ı was instal	led in borel	nole upor	n completion. Well screen set from approximately 7	U.1 to 74.7 feet bel	ow gr	ound surface.	
Stratific	cation line	es represe	nt approxima d. Fluctuation	ite boundary	between s	soil types, transitions may be gradual. Water level reading y occur due to other factors than those present at the time	s have been made at measurements were	times	Boring No.:	SB-7/MW-7S

į.		GZ	Α			\	Nolverine W	/orld Wide, I	nc.		Boring N	o.:MV	/-9M
	SZN	Ge	oEnvironr	nental, Ind				e Street			Page:	_1 of .	4
			-	d Scientists			Belmont	t, Michigan				16.00623	
Con	tractor:	S		lling Comp	any	_	Auger/	Sampler			Check: _	Jim C	aı
				Huntoon			Casing	_				READINGS	
Log	ged by:			lorehouse '-17 / 11-1			ollow Stem Auger		Date	Time	Depth	Casing	Stab
				-1// 11-1		O.D. / I.D.: _ Hammer Wt.: _		2.0" / 1 3/8" NA					
	Elev.: _			um:				NA NA					
						TOC Elev.:		NA	Surveyed	By:	NA Su	rvey Date:	
ا ۔ ا		Sam	ple Inforn	nation									
Depth		Pen./	Depth	Blows	Test		Sample		Stratum	Remarks	Equip	oment Insta	alled
ے ا	No.	Rec. (in.)	(Ft.)	(/6")	Data	Descripti	on & Classifica	ntion	Desc.	l ma			ECTIVE
		(111.)				Con CD O/MW/ OF	Namina la e fan				IJ L	CASI	NG
1-						See SB-9/MW-9E description and c	boring log for lassification.	sample					
						'							
2-													
3-													
4-													
5-													
6-													
7-													
8-													
9-													
10 —													-
11-													
12-													
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14-													
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29 –													
R													
E													
M													
R													
K													
Stratifi	ication line	es represei	nt approxima	ite boundarv	between s	soil types, transitions ma	y be gradual. Wate	er level readings ha	ave been mad	e at times	Davis N	o : NAVA / ONA	
						y occur due to other facto					poring N	o.: MW-9M	

Wolverine World Wide, Inc. GZA GeoEnvironmental, Inc. MW-9M Boring No.: __ Page: ____2 of ___4 **House Street** Engineers and Scientists File No.: 16.0062335.52 Belmont, Michigan Jim Cai Check: **Sample Information** Remarks **Equipment Installed** Pen./ Stratum Depth **Blows** Test Sample No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) 31-32-33-34 -35-36-37-38-39-41-42 43-44-45-46-47-48-49-50-52-54-55-56-57 -58-59-60-61--Grout 62 WELL TEST.GPJ GZA_CORP.GDT 5/17/18 63 64 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.

Boring No.: MW-9M

Wolverine World Wide, Inc. GZA GeoEnvironmental, Inc. MW-9M Boring No.: __ Page: ___3__ of ___4 **House Street** Engineers and Scientists File No.: 16.0062335.52 Belmont, Michigan Jim Cai Check: **Sample Information** Remarks **Equipment Installed** Pen./ Sample Stratum Depth **Blows** Test No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) 66 67-68-69-70-71 72-74-75-76-77-78-79-80-81-82-83-84-85-87-88 89-90-91-92-93-94 -95-96-97 30RING_WELL TEST.GPJ GZA_CORP.GDT 5/17/18 98 99 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.

Boring No.: MW-9M

Wolverine World Wide, Inc. GZA GeoEnvironmental, Inc. MW-9M Boring No.: __ Page: ___4__ of ___4 House Street Engineers and Scientists File No.: 16.0062335.52 Belmont, Michigan Jim Cai Check: Sample Information Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) 101· 102-103-104 105-106 107-108-109-110-111 112 113-114-115-116-117 118-119 120 121· 122· 123 124 125-126-Top of Well Screen 127-Silica Sand Filter Pack 128-2-Inch Dia. 129-5-Foot PVC Screen (0.010" 130 Slot) 131 Bottom of Well Bottom of Borehole at 131.0 Feet Screen 132 133 WELL TEST.GPJ GZA_CORP.GDT 134 1. Monitoring well was installed in borehole upon completion. Well screen set from 126.0 to 131.0 feet below ground surface. 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.

Boring No.: MW-9M

/		GZ			_			orld Wide,	inc.		Boring No		
				nental, I n d Scientists			Hous	e Street			Page:	1 of _	1 25 52
		_						t, Michigan			File No.: . Check: _		
	tractor:			lling Comp	oany	_	Auger/	Sampler		0001111			<u>ui</u>
				Huntoon Iorehouse			Casing low Stem Auger	-	Date	Time	DWATER R Depth	Casing	Stab
Date	geu by. • Start/F	inish:	11-17	'-17 / 11-1	7-17	O.D. / I.D.:		2.0" / 1 3/8"	2010		Jopan	Guomig	Otub
		ation: _				Hammer Wt.:		NA					
		817.80				Hammer Fall:	30"	NA					
		Sam	ple Inforr	nation		TOC Elev.:	NA	NA	Surveyed	l By:	NA Su	rvey Date:	
£			ipic iiiioii							S	Equip	ment Insta	llad
Depth	No.	Pen./ Rec.	Depth	Blows	Test		Sample		Stratum	Remarks	Equip		ECTIVE
		(in.)	(Ft.)	(/6")	Data	Description	n & Classifica	ation	Desc.	Rel		CASIN	
						See SB-9/MW-9D	boring log for	sample			_ _		
1-						description and cla	assification.						
2-													
3-													
4-													
5-													
6-													
7-													
8-													
9-													
10-													
11-												Grout	
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21-												Ponto	nita Caal
22-												- Bento	nite Seal
23 –													
24 –													
25 —]	
26-										:		Top of	
27 –												Scree Silica	
28 –												Filter I	Pack
29 –												2-Inch 5-Foo	
30-												Scree	n (0.010"
31-						Pottom of Daniel	o ot 21 0 F = -4					Slot) Bottor	n of Well
						Bottom of Borehol	e at 31.0 Feet			1		Scree	
30 – 31 – R E M A R K S Stratificand ur	1. Monit	oring well	l was instal	led in bore	hole upoi	n completion. Well scre	een set from 26	6.0 to 31.0 feet b	elow ground	surface.			
Stratifi and ur	ication line	es represer	nt approxima	ate boundary	between s	soil types, transitions may	be gradual. Wat	ter level readings h	ave been mad	e at times ere made.	Boring No	o.: MW-9S	

,		GZ				Wolverine V	Vorld Wide	, Inc.		_	Boring N	lo.: SB-10/N	иW-10D
	JZN)			<mark>mental, Inc</mark> d Scientists		Hous	se Street			_	Page: _	of	10
		_	_			Belmon	ıt, Michigan					16.00623 Jim C	
	tractor			Iling Comp	oany	Auger/	Sampler				Check:		al
	eman: _			Huntoon er/Joe Wo	rkman	Casing	•	Date	GRO Tin		WATER Depth	READINGS Casing	Stab
_	ged by:)-17 / 11-2		Type: Hollow Stem Auger O.D. / I.D.:8.0" / 4.25"	2.0" / 1 3/8"	_ Date		ile	Depui	Casing	Stab
				,			NA	_					
	Elev.: _			um:			NA						
		San	nple Inforr	nation		TOC Elev.: NA	NA	Surveyed	By:	N,	<u>Α</u> Sι	urvey Date:	
표		Jan	ipie illion	liation	Ι			T		Ø.	i		
Depth	No.	Pen./ Rec.	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	ation	Stratum Desc.	·	Remarks	Equi	pment Insta	ECTIVE
		(in.)	(1 (.)		Data					Rei		CASIN	
	1	24/17	0-2	2-2 3-2		TOPSOIL. Changing at 0.6 feet	to: Loose,	TOPSOIL 0.6'					
1-				02		brown, fine to medium SAND, tr damp (SP).	ace Siit,	SAND (SP))				
'													
2-													
-	2	24/16	2-4	2-3 8-7		Medium dense, brown, fine to m SAND, trace Silt, damp (SP).	nedium						
3-													
4-	3	24/0	4-6	4-5		NO RECOVERY.		4' NO	_				
	3	24/0	4-0	6-8		NO RECOVERT.		RECOVER	Y				
5 —													
6-	4	24/18	6-8	3-3		Loose, brown, fine to medium S	AND, trace	6' SAND (SW)				
				4-4		Silt, damp (SP).	,,	,					
7-													
8-	5	24/14	8-10	2-4		Loose, brown, fine to medium S	AND, trace						
				4-4		Silt, damp (SP).							
9-													
40													
10 —	6	24/20	10-12	2-5 7-5		Medium dense, brown, fine to m	nedium						
11-				'		SAND, trace Silt, damp (SP).							
11													
12-													
12	7	24/12	12-14	3-2 3-3		Loose, brown, fine to medium S Silt, damp (SP).	AND, trace						
13 —						, warrip (Or).							
-													
14 —	8	24/21	14-16	3-3		Loose, brown, fine to medium S	AND trace						
	0	24/21	14-10	3-3		Silt, damp (SP).	ีกเขอ, แลต ู						
15 —						. , ,							
16 —	9	24/20	16-18	2-4		Loose, brown, fine to medium S	AND trace						
				4-6		Silt, damp (SP).	,						
17 —													
	I	1	ı	1	1	I		1					
R													
E M													
Α													
R K													
s													
						soil types, transitions may be gradual. Wa					Boring N	lo.: SB-10/M\	N-10D
						y occur due to other factors than those pre-					Doming N	3D-10/1VIV	ע-וטט



Wolverine World Wide, Inc.

House Street
Belmont, Michigan

Boring No.: <u>SB-10/MW-10D</u>
Page: <u>2</u> of <u>10</u>

File No.: 16.0062335.52
Check: Jim Cai

_		San	ple Inforr	mation		Belmont, Michigan			Check:	Jim Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipn	nent Installed
	10	24/18	18-20	3-6 6-6		Medium dense, brown, fine to medium SAND, trace Silt, damp (SP).	SAND (SW)			
19 —						Grave, trace circ, damp (or).				
20-	11	24/17	20-22	3-4		Loose, brown, fine to medium SAND, trace				
21-	''	2-7/17	20-22	3-4 6-7		Silt, damp (SP).				
22-	12	24/19	22-24	3-5 6-7		Medium dense, brown, fine to medium SAND, trace Silt, damp (SP).				
23-										
24 —	13	24/22	24-26	4-6		Medium dense, brown, fine to medium				
25 —				8-8		SAND, trace Silt, damp (SP).				
26-										
	14	24/18	26-28	6-13 13-18		Medium dense, brown, fine to medium SAND, trace Silt, damp (SP).				
27 –										
28 –	15	24/20	28-30	10-13 21-20		Dense, brown, fine to medium SAND, trace				
29 —						Silt, damp (SP).				
30-	16	24/20	30-32	10-16		Dense, brown, fine to medium SAND, trace				
31-	10	24/20	30-32	21-24		Silt, damp (SP).				
32-	17	24/22	32-34	11-16 24-27		Dense, brown, fine to medium SAND, trace Silt, damp (SP).				
33-										
34 —	18	24/18	34-36	10-16		Dense, brown, fine to medium SAND, trace				
35 —				26-32		Silt, damp (SP).				
36-										
	19	24/19	36-38	12-21 25-29		Dense, brown, fine to medium SAND, trace Silt, damp (SP).				
37-										
38-	20	24/16	38-40	8-18 21-27		Dense, brown, fine to medium SAND, trace				
				21-27		Silt, damp (SP).				



Wolverine World Wide, Inc. **House Street**

Boring No.: SB-10/MW-10D

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Belmont, Michigan

ا ہے		Sam	ple Inforn	nation		Belmont, Michigan		_	Check:	Jim Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equip	ment Installed
40 — 41 —	21	24/23	40-42	14-20 22-25		Dense, brown, fine to medium SAND, trace Silt, damp (SP).	SAND (SW)			
12- 13-	22	24/20	42-44	8-12 17-21		Medium dense, brown, fine to medium SAND, trace Silt, damp (SP).				
14 — 15 —	23	24/24	44-46	7-10 10-9		Medium dense, brown, fine to medium SAND, trace Silt, damp (SP).				
16 — 17 —	24	24/18	46-48	7-13 14-14		Medium dense, brown, fine to medium SAND, trace Silt, trace Gravel, damp (SP).				
8- 9-	25	24/24	48-50	9-11 11-12		Medium dense, brown, fine to medium SAND, trace Silt, trace Gravel, damp (SP).				
50-	26	24/16	50-52	9-11 13-10		Medium dense, brown, fine to medium SAND, trace Silt, moist (SP).				
52- 53-	27	24/24	52-54	9-11 11-7		Medium dense, brown, fine to medium SAND, trace Silt, moist (SP). Changing at 53.0 feet to: Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).		1		
54 — 55 —	28	24/17	54-56	3-3 6-8		Loose, brown, fine to medium SAND, trace Silt, wet (SP).				
56 — 57 —	29	24/18	56-58	2-3 7-7		Loose, brown, fine to coarse SAND, trace Silt, trace fine Gravel, wet (SW).				
58 — 59 —	30	24/13	58-60	4-8 8-10		Medium dense, brown, fine to coarse SAND, trace Silt, trace fine Gravel, wet (SW).				
1 R E M A R C S	1. Grou	 ndwater v	vas encoun	 tered at ap	 proximat	ely 53.0 feet below ground surface.				
						soil types, transitions may be gradual. Water level readings h			Boring No	: SB-10/MW-10E

^{1.} Groundwater was encountered at approximately 53.0 feet below ground surface.



Sample Information

Wolverine World Wide, Inc.

House Street
Belmont, Michigan

Boring No.: SB-10/MW-10D

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_		Jan	ibie illion	nation				1 1	
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
61-	31	24/6	60-62	2-4 6-9		Loose, brown, fine to coarse SAND, trace Silt, trace fine Gravel, wet (SW).	SAND (SW)		
62- 63-	32	24/3	62-64	6-8 13-20		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	62' SAND (SP)		
64 — 65 —	33	24/12	64-66	4-9 10-15		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
66- 67-	34	24/12	66-68	2-5 8-11		Medium dense, brown, fine to medium SAND, little Silt, wet (SM).	66' SAND (SM)		
68- 69-	35	24/8	68-70	5-7 13-15		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	68' SAND (SP)		
70 – 71 –	36	24/11	70-72	3-3 7-8		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
72- 73-	37	24/13	72-74	2-4 10-10		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
74- 75-	38	24/20	74-76	2-3 5-12		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
76- 77-	39	24/17	76-78	3-8 10-13		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
78- 79-	40	24/12	78-80	4-5 8-15		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
80-	41	24/21	80-82	4-12 19-22		Dense, brown, fine to medium SAND, trace Silt, wet (SP).			

30RING_WELL TEST.GPJ GZA_CORP.GDT 5/17/18



Wolverine World Wide, Inc.

House Street
Belmont, Michigan

Boring No.: <u>SB-10/MW-10D</u>
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File No.: 16.0062335.52
Check: Jim Cai

_		San	nple Inforn	nation					Check:	Jim Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipn	nent Installed
82- 83-	42	24/13	82-84	4-12 21-25		Dense, brown, fine to medium SAND, trace Silt, wet (SP).	SAND (SP)			
84 – 85 –	43	24/22	84-86	6-10 15-15		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).				
86- 87-	44	24/18	86-88	3-7 7-15		Medium dense, brown, fine to medium SAND, trace Silt, trace coarse Sand, wet (SP).				
88- 89-	45	24/19	88-90	5-11 15-16		Medium dense, brown, fine to medium SAND, trace Silt, trace coarse Sand, wet (SP).				
90 — 91 —	46	24/16	90-92	4-8 20-22		Medium dense, brown, fine to medium SAND, trace Silt, trace coarse Sand, wet (SP).				Overt
92- 93-	47	24/20	92-94	4-7 15-19		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			_	Grout
94 – 95 –	48	20/20	94-95.7	4-12 38-50/4"		Dense, brown, fine to medium SAND, trace Silt, wet (SP).				
96- 97-	49	24/22	96-98	7-14 22-30		Dense, brown, fine to medium SAND, trace Silt, wet (SP).				
98-	50	24/4	98-100	5-8 15-22		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).				
100-	51	24/18	100-102	3-8 13-21		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).				



Wolverine World Wide, Inc.

House Street
Belmont, Michigan

Boring No.: <u>SB-10/MW-10D</u> Page: <u>6</u> of <u>10</u>

File No.: 16.0062335.52
Check: Jim Cai

		San	nple Inforn	nation		Boilliette, Wiletingari		_	Check:	Jim Cai	١
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equip	ment Installed	-
	52	24/20	102-104	4-5 15-19		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	SAND (SP)	Ī			1
103-						SAND, trace ont, wet (or).					١
104 —	53	24/18	104-106	6-7 13-21		Medium dense, brown, fine to medium					
105 —				13-21		SAND, trace Silt, wet (SP).					$\frac{1}{2}$
106 —	54	24/13	106-108	5-13 29-45		Dense, brown, fine to medium SAND, trace Silt, wet (SP).					
107						, (e. <i>)</i> -					١
108-	55	24/17	108-110	5-11 21-35		Dense, brown, fine to medium SAND, little Silt, wet (SM).	108' SAND (SM)				
109-											١
110-	56	24/20	110-112	4-13 32-56		Dense, brown, fine to medium SAND, trace Silt, wet (SP).	110' SAND (SP)				$\frac{1}{2}$
111						, (/-					١
112-	57	24/7	112-114	5-11 18-31		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).					
113											١
114 —	58	24/18	114-116	3-7 18-35		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).					
115											$\frac{1}{2}$
116-	59	24/8	116-118	2-2 3-5		Loose, brown, fine to medium SAND, trace Silt, wet (SP).					
117-						Citt, Wot (Or).					١
118-	60	24/17	118-120	2-8 36-50		Dense, brown, fine to medium SAND, trace					
119-						Silt, wet (SP).					
120-	61	17/8	120-121.4	14-37-50/5"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).					$\frac{1}{2}$
121-						ados on, wor (or).					
P.GDT 5/17/18	62	22/20	122-123.8	11-26 34-50/4"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).					

30RING_WELL TEST.GPJ GZA_CORP.GDT 5/17/18



Wolverine World Wide, Inc.

House Street Belmont, Michigan

Boring No.: SB-10/MW-10D Page: ____7 of ___10 File No.: 16.0062335.52

	San	nple Inforn	nation					Check:	Jim Cai
No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equip	ment Installed
63	24/11	124-126	1-1 15-25		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	SANU (SP)			
64	24/0	126-128	2-3 8-21		NO RECOVERY.	NO RECOVERY			
65	24/21	128-130	6-6 16-23		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	128' SAND (SP)			
66	24/13	130-132	1-10 12-15		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).				
67	24/4	132-134	8-9 23-50		Dense, brown, fine to medium SAND, trace Silt, wet (SP).				
68	20/12	134-135.7	5-12 26-50/4"		Dense, brown, fine to medium SAND, trace Silt, wet (SP).				
69	20/13	136-137.7	3-7 31-50/2"		Dense, brown, fine to medium SAND, trace Silt, wet (SP).				
70	16/11	138-139.3	12-21-50/4"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).				
71	15/15	140-141.3	4-25-50/3"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).				
72	12/12	142-143	19-50/6"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).				
						1			
	63 64 65 66 67 68 69 70	No. Pen./ Rec. (in.) 63 24/11 64 24/0 65 24/21 66 24/13 67 24/4 68 20/12 69 20/13 70 16/11 71 15/15	No. Pen./ Rec. (in.) Depth (Ft.)	No. Pen./ Rec. (in.) Depth (Ft.) Blows (/6") 63 24/11 124-126 1-1 15-25 64 24/0 126-128 2-3 8-21 65 24/21 128-130 6-6 16-23 66 24/13 130-132 1-10 12-15 67 24/4 132-134 8-9 23-50 68 20/12 134-135.7 5-12 26-50/4" 69 20/13 136-137.7 3-7 31-50/2" 70 16/11 138-139.3 12-21-50/4" 71 15/15 140-141.3 4-25-50/3"	No. Pen./ Rec. (in.) Depth (Ft.) Blows (/6") Test Data	No. Pen./ Rec. (in.) Depth (Ft.) Blows (16") Test Data Sample Description & Classification 63 24/11 124-126 1-1 15-25 Medium dense, brown, fine to medium SAND, trace Silt, wet (SP). 64 24/0 126-128 2-3 8-21 NO RECOVERY. 65 24/21 128-130 6-6 16-23 Medium dense, brown, fine to medium SAND, trace Silt, wet (SP). 66 24/13 130-132 1-10 12-15 Medium dense, brown, fine to medium SAND, trace Silt, wet (SP). 67 24/4 132-134 8-9 23-50 Dense, brown, fine to medium SAND, trace Silt, wet (SP). 68 20/12 134-135.7 5-12 26-50/4* Dense, brown, fine to medium SAND, trace Silt, wet (SP). 70 16/11 138-139.3 12-21-50/4* Very dense, brown, fine to medium SAND, trace Silt, wet (SP). 71 15/15 140-141.3 4-25-50/3* Very dense, brown, fine to medium SAND, trace Silt, wet (SP). 72 12/12 142-143 19-50/6* Very dense, brown, fine to medium SAND, trace Silt, wet (SP).	No. Pen./ Rec. (in.) Depth	No. Pen. Depth Rec. (In.) Depth Desc. Desc	No. Pen./ (fr.) Depth (f



Sample Information

Wolverine World Wide, Inc.

House Street
Belmont, Michigan

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File No.: 16.0062335.52
Check: Jim Cai

_ ا	Sample Information					- India					
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	<u> </u>	
145-	73	24/21	144-146	9-13 28-27		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	SAND (SP)				
146 — 147 —	74	18/16	146-147.5	11-29-50/6"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).					
148-	75	24/20	148-150	6-13 32-50		Dense, brown, fine to medium SAND, trace Silt, wet (SP). Changing at 149.7 feet to:					
149 — 150 —	76	15/13	150-151.3	6-21-50/3"		Dense, brown, fine ŠAND, little Silt, wet (SM). Dense, brown, fine SAND, little Silt, wet (SM).	149.7' SAND (SM)	_			
151 — 152 —	77	11/11	152-152.9	11-50/5"		(SM). Changing at 150.6 feet to: Very dense, brown, fine to medium SAND, trace Silt, wet (SP). Very dense, brown, fine to medium SAND,	SAND (SP)				
153-		11/11	152-152.9	11-30/3		trace Silt, wet (SP).					
154 — 155 —	78	14/13	154-155.2	8-41-50/2"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).					
156 — 157 —	79	24/17	156-158	8-15 27-50		Dense, brown, fine to medium SAND, trace Silt, wet (SP).					
158-	80	12/12	158-159	6-14		Dense, brown, fine to medium SAND, trace Silt, wet (SP).					
159 — 160 —	81	24/11	160-162	3-5 10-16		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).					
161 – 162 –	82	16/11	162-163.3	17-43-50/4"		Very dense, brown, fine to medium SAND,					
163-						trace Silt, wet (SP).					
164 –	83	16/16	164-165.3	12-50-50/4"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).					

3ORING_WELL TEST.GPJ GZA_CORP



Wolverine World Wide, Inc.

House Street Belmont, Michigan

Boring No.: SB-10/MW-10D Page: 9 of 10 File No.: 16.0062335.52

	San	nple Inform	ation				CHE		
		ipie iiiioiii	iation			Check: Jim Cai			
No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipmo	ent Installed
84	23/15	166-167.9	10-28 34-50/5"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).	SAND (SP)			
85	24/24	168-170	7-17 23-20		Dense, brown, fine to medium SAND, trace Silt, wet (SP).				
86	23/23	170-171.9	6-12 19-50/5"		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP). Changing at 171.0 feet to: Very dense, gray, fine to medium SAND, little Clay & Silt, trace	171' SAND (SC)			
87	24/24	172-174	16-28 48-36		Very dense, gray, fine to medium SAND, trace Silt, wet (SP). Changing at 173.0 feet to: Very dense, gray, fine to coarse SAND,	172' SAND (SP)		ı	
88	7/7	174-174.6	50-50/1"		little Clay & Silt, little fine Gravel, wet (SC). Changing at 173.5 feet to: Very dense, gray, fine to medium SAND, trace Silt, wet (SP). Changing at 173.9 feet to: Very dense, gray, fine to coarse SAND, little Clay & Silt, little fine Gravel, moist (SC).	SAND (SC) 173.5 SAND (SP) 174 SAND (SC) SAND (SP)			
89	24/24	176-178	12-29 31-35	•	Very dense, gray, fine to medium SAND, trace coarse Sand, trace Clay & Silt, wet (SP). Very dense, gray, fine to coarse SAND, some fine to coarse Gravel, trace Clay & Silt, wet (SW).	176' SAND (SW)			
90	24/24	178-180	16-20 17-42		Very dense, gray, fine to coarse SAND, little fine Gravel, trace Clay & Silt, wet (SW).			ı	
91	17/17	180-181.4	3-16-50/5"		Medium dense, gray, fine to coarse SAND, little fine Gravel, trace Silt, wet (SW). Changing at 181.5 feet to: Very dense, gray, fine to medium SAND, little Silt, wet (SM).	181.5'			
92	10/10	182-182.8	11-50/4"		Very dense, fine to coarse SAND, little fine to coarse Gravel, trace Silt, wet (SW).	SAND (SM) SAND (SW)			-Bentonite S
93	4/4	184-184.3	75/4"		Very dense, gray, fine to medium SAND, little Clay & Silt, trace coarse Sand, trace fine fine Gravel, moist (SC).	184' SAND (SC)			—Top of Well Screen
	84 85 86 87 88 90 91	No. Rec. (in.) 84 23/15 85 24/24 86 23/23 87 24/24 88 7/7 89 24/24 90 24/24 91 17/17 92 10/10	No. Rec. (in.) Depth (Ft.) 84 23/15 166-167.9 85 24/24 168-170 86 23/23 170-171.9 87 24/24 172-174 88 7/7 174-174.6 89 24/24 176-178 90 24/24 178-180 91 17/17 180-181.4 92 10/10 182-182.8	No. Rec. (in.) Depth (Ft.) Blows (/6") 84 23/15 166-167.9 10-28 (/6") 85 24/24 168-170 7-17 (23-20) 86 23/23 170-171.9 6-12 (19-50/5") 87 24/24 172-174 16-28 (48-36) 88 7/7 174-174.6 50-50/1" 89 24/24 176-178 12-29 (31-35) 90 24/24 178-180 16-20 (17-42) 91 17/17 180-181.4 3-16-50/5" 92 10/10 182-182.8 11-50/4"	No. Rec. (in.) Depth (Ft.) Blows (/6") Test Data 84 23/15 166-167.9 10-28 (-17) 10-28 (-17) 10-28 (-17) 10-28 (-17) 10-28 (-17) 10-28 (-17) 10-28 (-17) 10-17 (-17) <td< td=""><td> No. Rec. (Pt.) (Pt.) Data Description & Classification </td><td> No. Rec. Copin (Pt.) Data Description & Classification Desc. </td><td> SAND (SP) SAND (SE) SAND</td><td> SAND (SP) SAND</td></td<>	No. Rec. (Pt.) (Pt.) Data Description & Classification	No. Rec. Copin (Pt.) Data Description & Classification Desc.	SAND (SP) SAND (SE) SAND	SAND (SP) SAND



Wolverine World Wide, Inc.

House Street
Belmont, Michigan

Boring No.: <u>SB-10/MW-10D</u>
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Check: Jim Cai

		Sar	nple Inforn	nation		Belmont, Michigai	<u>1</u>	_	Check:	Jim Cai
Depth	No.	Pen./ Rec.	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipm	ent Installed
	94	(in.)	186-186.3		Data	Very dense, gray, fine to coarse SAND,	SAND (SW)	- R		
187 —			100 100.0			some fine to coarse Gravel, trace Cobble, trace Silt, wet (SW).				─Silica Sand Filter Pack ─2-Inch Dia.
188-	95	2/2	188-188.2	50/2"		Very dense, gray, fine to coarse SAND, some fine to coarse Gravel, trace Cobble,				5-Foot PVC Screen (0.010" Slot)
189 —						trace Silt, wet (SW).				
190 —	96	3/1	190-190.3	50/3"		NO RECOVERY.	NO RECOVERY (Rock Fragment in Tip)			—Bottom of Well- Screen
191 —										
192 —						Bottom of Borehole at 192.0 Feet	192'	2		
193 —	_									
194 —										
195 —										-
196-										
197 —	_									
198 —										
199 —										
200 —										-
201 –										
202-										
203-										
204 —										
205-										-
R E M A R K S										
R	2. Moni	toring we	ll installed u	pon compl	etion.	ı		I	I	
E M A										
R K										
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GZ \	GZA GeoEnvironmental, Inc. Engineers and Scientists
	Engineers and Scientists

Wolverine World Wide, Inc.

House Street

Belmont, Michigan

Auger/

Boring No.: SB-11/MW-11D
Page: 1 of 8
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Check: Jim Cai

 Contractor:
 Stearns Drilling Company

 Foreman:
 Jerry Huntoon

 Logged by:
 Julie Groenleer

 Date Start/Finish:
 11-6-17 / 11-8-17

 Boring Location:
 NB US 131

 GS Elev.:
 Datum:

Sample Information

Date Time Depth Casing Stab

Surveyed By: NA Survey Date:

GROUNDWATER READINGS

_		San	ipie intorr	nation						
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks		nt Installed PROTECTIVE CASING
1-	1 2	24/22	0-2	0-1 1-1	1.5 tsf	TOPSOIL. Changing at 0.2 feet to: Very loose, brown, fine to medium SAND, little Silt, damp (SM). Changing at 0.8 feet to: Stiff, brown, CLAY & SILT, trace fine Sand, moist (CL). Changing at 1.4 feet to: Very	0.5' TOPSOIL 0.8' SAND (SM) 1.4' CLAY & SILT (CL) 2' SAND (SC) SAND (SM)	1		
3-				5-6 7-5		loose, dark brown, fine to medium SAND, little Clay, little Silt, damp (SC). Medium dense, brown, fine to medium SAND, little Silt, moist (SM).	SAND (SIN)			
5-	3	24/18	4-6	4-5 5-5	1.0 tsf	Loose, brown, fine to medium SAND, little Silt, moist (SM). Changing at 5.5 feet to: Sittf, brown, CLAY & SILT, little fine to coarse Sand, moist (CL).	5.5' CLAY & SILT			
6- 7-	4	24/24	6-8	1-1 2-2	1.0 tsf	Sitff, brown, CLAY & SILT, little Sand, moist (CL).	(CL)			
8- 9-	5	24/22	8-10	2-3 2-2		Loose, brown, fine to medium SAND, little Silt, moist (SM).	SAND (SM)			
10- 11-	6	24/22	10-12	2-2 2-2		Very loose, brown, fine to medium SAND, little Silt, moist (SM). Changing at 11.9 feet to: Stiff, brown, CLAY & SILT, little fine to medium Sand, moist (CL).				
12- 13-	7	24/22	12-14	2-5 9-11	2.0 tsf >4.0 tsf	Hard, brown with gray mottling, CLAY & SILT, trace fine to coarse Sand, damp (CL).	CLAY & SILT (CL)			
14 <i>-</i>	8	24/24	14-16	7-14 15-12	>4.0 tsf	Hard, brown with gray mottling, CLAY & SILT, trace fine to coarse Sand, damp (CL).				
16- 17-	9	24/14	16-18	1-3 3-3		Loose, brown, fine to medium SAND, little Silt, moist (SM).	SAND (SM)			
18- 19-	10	24/16	18-20	1-4 3-2	2.25 tsf	Very stiff, brown, CLAY & SILT, trace fine to coarse Sand, moist (CL). Changing at 19.5 feet to: Loose, brown, fine to medium	18' CLAY & SILT (CL) 19.5'			
						SAND, little Silt, moist (SM).	SAND (SM)			

1. Pocket penetrometer readings were measured in tons per square foot (tsf) and are used to evaluate consistency of cohesive soil.

WELL TEST.GPJ GZA_CORP.GDT 5/17/18

SANDEN BAND

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Wolverine World Wide, Inc.

House Street Belmont, Michigan

Boring No.: <u>SB-11/MW-11D</u>
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File No.: 16.0062335.52 Check: Jim Cai

		San	nple Inforr	mation		Belmont, Michigan	I	Chec	c: Jim Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks T	quipment Installed
	11	24/4	20-22	4-6 3-3		Loose, brown, fine to medium SAND, little	SAND (SM)		
21-						Silt, moist (SM).			
22-	40	24/24	20.04	17		Madisus dans busyus fina to use disus Ciles			
	12	24/24	22-24	1-7 7-7		Medium dense, brown, fine to medium Silty SAND, moist (SM). Changing at 22.9 feet	22.9'		
23-					2.25 tsf	to: Very stiff, brown, CLAY & SILT, little fine Sand, damp (CL). Changing at 23.8 feet to:	CLAY & SILT (CL) 23.8'		
24 –	13	24/26	24-26	1-1 1-1		Medium dense, brown, fine to medium SAND, little Silt, moist (SM).	SAND (SM)	2	
25-						Very loose, brown, fine to medium SAND, little Silt, wet (SM).			
26-	4.4	04/04	00.00	4.5		Madison days a boson fire As an allow	26'		
	14	24/24	26-28	1-5 7-10		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	SAND (SP)		
27 –									
28-	15	24/18	28-30	8-9 10-11		Medium dense, brown, fine to medium			
29-				10-11		SAND, trace Silt, wet (SP).			
30-									
	16	24/10	30-32	2-5 8-14		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
31 –									
32-	17	24/15	32-34	2-7 8-9		Medium dense, brown, fine to medium			
33-				8-9		SAND, trace Silt, wet (SP).			
24									
34 —	18	24/10	34-36	3-8 13-11		Medium dense, brown, fine to medium SAND, trace coarse Sand, trace Silt, wet			
35-						(SP).			
36-	19	24/18	36-38	7-8		Medium dense, brown, fine to medium			
37-				10-10		SAND, trace coarse Sand, trace Silt, wet (SP). Changing at 37.4 feet to: Medium			
						dense, brown, fine SAND, little Silt, wet (SM).	37.4' SAND (SM) 38'		
38 –	20	24/18	38-40	2-2 5-6		Loose, brown, fine SAND, trace Silt, wet (SP).	SAND (SP)		
39-						()-			
40-	21	24/12	40-42	2-2		Loose, brown, fine SAND, trace Silt, wet			
41-	۲ ۱	21/12	70-42	5-12		(SP).			
417									
42-	22	24/16	42-44	2-4 5-7		Loose, brown, fine SAND, trace Silt, wet			
43-						(SP).			

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

3ORING_WELL TEST.GPJ GZA_CORF



Wolverine World Wide, Inc.

House Street Belmont, Michigan

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File No.: 16.0062335.52 Check: Jim Cai

	Sample Information							Check: Jim Cai				
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed			
44 – 45 –	23	24/18	44-46	3-8 9-10		Medium dense, brown, fine SAND, trace Silt, wet (SP).	SAND (SP)					
46 – 47 –	24	24/24	46-48	2-7 7-9		Medium dense, brown, fine to coarse SAND, trace fine Gravel, trace Silt, wet (SW).	46' SAND (SW)					
48- 49-	25	24/24	48-50	2-7 10-12		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP). Changing at 49.2 feet to: Medium dense, brown, fine to	48' SAND (SP) 49.2'					
50 – 51 –	26	24/10	50-52	2-11 14-22		coarse SAND, trace fine Gravel, trace Silt, wet (SW). Medium dense, brown, fine SAND, trace Silt, wet (SP).	SAND (SW) 50' SAND (SP)					
52 – 53 –	27	24/6	52-54	4-8 15-22		Medium dense, brown, fine SAND, trace Silt, wet (SP).		3				
54 — 55 —	28	24/14	54-56	2-4 7-11		Medium dense, brown, fine SAND, trace Silt, wet (SP).						
56 — 57 —	29	24/24	56-58	2-4 6-6		Loose, brown, fine SAND, little Silt, wet (SW).	56' SAND (SW)					
58 – 59 –	30	24/24	58-60	2-4 7-11		Medium dense, brown, fine SAND, trace Silt, wet (SP).	58' SAND (SP)					
60 — 61 —	31	24/18	60-62	5-8 13-22		Medium dense, brown, fine SAND, some Silt, wet (SM).	60' SAND (SM)					
62 – 63 –	32	24/20	62-64	3-5 6-6		Medium dense, brown, fine SAND, some Silt, wet (SM).						
64 — 65 —	33	24/18	64-66	3-5 6-6		Medium dense, brown, fine SAND, some Silt, wet (SM).						
66-	34	24/18	66-68	3-7 13-11		Medium dense, brown, fine SAND, some						

3. Low recovery due to rock in tip.



Wolverine World Wide, Inc.

House Street Belmont, Michigan

Boring No.: <u>SB-11/MW-11D</u>
Page: <u>4</u> of <u>8</u>

File No.: 16.0062335.52 Check: Jim Cai

		<u> </u>				Sample Information						
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks Indiupa	ment Installed			
67 –						Silt, wet (SM). Changing at 67.1 feet to: Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	67.1SAND (SM) SAND (SP)					
68 — 69 —	35	24/22	68-70	3-5 8-6		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP). Changing at 68.8 feet to: Medium dense, brown, fine SAND, little Silt, wet (SM).	68.8' SAND (SM)					
70 – 71 –	36	24/23	70-72	2-3 4-5		Loose, brown, fine SAND, trace Silt, wet (SP).	70' SAND (SP)					
72-	37	24/20	72-74	3-4 6-8		Loose, brown, fine SAND, trace Silt, wet (SP).						
73- 74-	38	24/24	74-76	3-3 5-9		Loose, brown, fine SAND, trace Silt, wet (SP).			— Grout			
75 — 76 —	39	24/0	76-78	6-10 15-13		NO RECOVERY.	76' NO RECOVERY					
77 – 78 –	40	24/17	78-80	2-2 5-11		Loose, brown, fine SAND, trace Silt, wet (SP).	78' SAND (SP)					
79 — 30 —	41	24/12	80-82	2-4 9-10		Medium dense, brown, fine SAND, trace Silt, wet (SP).						
31-	42	24/24	82-84	3-3 5-6		Loose, brown, fine SAND, trace Silt, wet (SP).						
33 — 34 —	43	24/0	84-86	2-4 5-9		NO RECOVERY.	84' NO RECOVERY					
85 — 86 —	44	24/18	86-88	1-2 5-12		Loose, brown, fine SAND, trace Silt, wet (SP).	86' SAND (SP)					
87- 88- 89-	45	24/8	88-90	6-5 8-11		Medium dense, brown, fine SAND, trace Silt, wet (SP).						

BORING_WELL TEST.GPJ GZA_CORP.GDT 5/17/18

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.: SB-11/MW-11D



Wolverine World Wide, Inc.

House Street Belmont, Michigan

Boring No.: <u>SB-11/MW-11D</u>
Page: ___5 of ___8

File No.: 16.0062335.52
Check: Jim Cai

_	Sample Information						Check: Jim Cai				
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	September 2 Equipment Installed			
	46	24/18	90-92	2-4 7-11		Medium dense, brown, fine to medium	SAND (SP)				
91-				,		SAND, trace Silt, wet (SP).					
92	47	24/0	92-94	2-3 6-10		NO RECOVERY.	92' NO RECOVERY	$+$ \otimes \otimes			
00				6-10			RECOVERY				
93											
94	48	24/16	94-96	2-4		Loose, brown, fine to medium SAND, trace	94' SAND (SP)				
	40	24/10	94-90	4-8		Silt, wet (SP). Changing at 95.8 feet to:	5,415 (61)				
95 –						Loose, brown, fine SAND, little Silt, wet (SM).					
96						,	95.8' SAND (SM)				
30 -	49	24/12	96-98	2-3 4-5		Loose, brown, fine SAND, little Silt, wet	5, 114D (GWI)				
97						(SM).					
							0.01				
98	50	24/16	98-100	2-3 6-8		Loose, brown, fine SAND, trace Silt, wet	98' SAND (SP)	1 💹 🖾			
00				6-8		(SP).					
99 –											
100-	51	24/4	100-102	2-5		Medium dense, brown, fine SAND, trace					
	31	2-1/-1	100-102	10-14		Silt, wet (SP).					
101 –											
102-											
	52	24/12	102-104	2-7 13-15		Medium dense, brown, fine SAND, trace Silt, wet (SP).					
103-						ont, wet (or).					
							104'				
104 —	53	24/0	104-106	7-14 15-20		NO RECOVERY.	NO RECOVERY				
105				15-20			RECOVERY				
106-	54	24/19	106-108	1-3		Medium dense, brown, fine to medium	106' SAND (SP)	$+ \bowtie \bowtie$			
_	٠.		100 100	1-3 8-13		SAND, trace Silt, wet (SP).					
107—											
108		04/46	400 440	0.4							
	55	24/18	108-110	2-4 6-8		Loose, brown, fine to medium SAND, trace Silt, wet (SP).					
109-											
110-	56	24/10	110-112	7-14 18-17		Dense, brown, fine to medium SAND, trace					
111-						Silt, wet (SP).					
							149				
12-	57	24/0	112-114	4-8 10-13		NO RECOVERY.	NO RECOVERY	$+ \bowtie \bowtie$			
				10-13			RECOVERY				

BORING_WELL TEST.GPJ GZA_CORP.GDT 5/17/18

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.: SB-11/MW-11D



Wolverine World Wide, Inc.

House Street
Belmont, Michigan

Boring No.: <u>SB-11/MW-11D</u>
Page: <u>6</u> of <u>8</u>

File No.: 16.0062335.52
Check: Jim Cai

		Sample Information				Check: Jim Cai				
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	I	Equipment Installed
114 <i>-</i> 115 <i>-</i>	58	24/10	114-116	8-10 11-15		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	114' SAND (SP)	_		
116— 117—	59	24/10	116-118	1-2 2-2		Very loose, brown, fine to medium SAND, trace Silt, wet (SP).				
118— 119—	60	24/19	118-120	2-2 5-7		Loose, brown, fine to medium SAND, trace Silt, wet (SP).				
120 — 121 —	61	24/22	120-122	2-2 5-7		Loose, brown, fine to medium SAND, trace Silt, wet (SP).				
122— 123—	62	24/23	122-124	2-2 7-8		Loose, brown, fine to medium SAND, trace Silt, wet (SP).				
124 — 125 —	63	24/20	124-126	6-7 10-13		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).				
26- 27-	64	24/20	126-128	3-3 4-4		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP). Changing at 127.5 feet to: Soft, gray, CLAY & SILT, little fine to medium Sand, moist (CL).	127.5'			
128- 129-	65	24/12	128-130	3-4 12-14	<0.25 tsf <0.25 tsf	Soft, gray, CLAY & SILT, little fine to medium Sand, moist (CL). Changing at 128.2 feet to: Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	CLAY & SILT 128.2' (CL) SAND (SP)			
30 — 31 —	66	24/9	130-132	2-5 13-15		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).				
32- 33-	67	24/15	132-134	4-10 18-21	0.25 tsf	Medium dense, brown, fine to medium SAND, trace Silt, wet (SP). Changing at 133.2 feet to: Soft, gray, CLAY & SILT, some fine to medium Sand, mosit (CL).	133.2' CLAY & SILT			
34 — 35 —	68	24/16	134-136	6-13 18-23		Changing at 133.9 feet to: Medium dense, brown, fine to medium SAND, trace Silt, wet (SP). Dense, brown, fine to medium SAND, trace Silt, wet (SP).	133.9' (CL) SAND (SP)			
36-	69	24/14	136-138	2-4 12-15		Medium dense, brown, fine to medium				



Wolverine World Wide, Inc.

House Street Belmont, Michigan Boring No.: SB-11/MW-11D Page: ____7__ of ____8_

File No.: 16.0062335.52 Jim Cai

_ L		San	nple Inform	nation					Check: Jim Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
137-						SAND, trace Silt, wet (SP).	SAND (SP)		
138 — 139 —	70	24/8	138-140	3-10 20-21		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
140 — 141 —	71	24/18	140-142	3-4 15-18		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
142 — 143 —	72	24/16	142-144	4-11 19-24		Medium dense, brown, fine to medium SAND, trace Silt, trace fine Gravel, wet (SP).			
144 — 145 —	73	24/18	144-146	11-13 23-33		Medium dense, brown, fine to coarse SAND, trace Silt, trace fine Gravel, wet (SW).	144' SAND (SW)		
146 — 147 —	74	24/10	146-148	9-13 30-30		Dense, brown, fine to medium SAND, trace Silt, trace coarse Sand, wet (SP).	146' SAND (SP)		
148 — 149 —	75	24/10	148-150	9-18 26-34		Dense, brown, fine to medium SAND, trace Silt, trace coarse Sand, wet (SP).			
150 — 151 —	76	24/21	150-152	9-23 29-40		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			Top of Well Screen
152— 153—	77	18/18	152-153.5	25-42-50		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).		4	Filter Pack 2-Inch Dia. 5-Foot PVC
154 — 155 —	78	24/24	154-156	11-13 15-18		Medium dense, brown, fine SAND, some Silt, wet (SM).	154' SAND (SM)		Screen (0.01 Slot)
156 — 157 —	79	24/24	156-158	7-17 37-30		Very dense, brown, fine SAND, some Silt, wet (SM). Changing at 157.7 feet to: Hard, gray, CLAY & SILT, little fine Sand, moist			Wellscreen
158 — 159 —	80	24/24	158-160	8-18 27-26	>4.0 tsf >4.0 tsf	(CL). Hard, gray, CLAY & SILT, little fine Sand, moist (CL). Changing at 159.1 feet to: Dense, gray, fine SAND, some Silt, wet (SM). Changing at 159.9 feet to: Hard, gray, CLAY & SILT, little fine Sand, moist (CL).	157.7' CLAY & SILT (CL) 159.1' SAND (SM) 159.9'		
R E M A R K S	4. Only	drove spo	oon 18.0 ind	thes due to	high blo	,			
						soil types, transitions may be gradual. Water level readings			



Sample Information

Wolverine World Wide, Inc. **House Street**

Boring No.: SB-11/MW-11D Page: 8 of 8 File No.: 16.0062335.52 Jim Cai

Belmont, Michigan

Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
_	81	24/24	160-162	6-10	>4.0 tsf >4.0 tsf	Hard, gray, CLAY & SILT, some fine Sand,	CLAY & SILT	8	
61				18-20	>4.0 tsf	moist (CL).	(CL)		
							162'		
62+						Bottom of Borehole at 162.0 Feet		5	
63									
64-									
65-									
66-									
67-									
58-									
69 –									
70									
71-									
72-									
73-									
74-									
75									
76-									
77-									
78-									
79-									
80-									
81-									
82-									
33-									
₹ 5	5. Monit	oring wel	ll was instal	led in bore	hole upor	n completion. Well screen set from 150.0 to 155.0 fe	eet below ground s	urfac	e.
≣ Λ									
A 2									
8									
		es represe tions state							

		∣ GZ	A				Wolverine W	Vorld Wide.	Inc.			Borina N	lo.: SB-8/	MW-8
C	7 ()	Ge	oEnvir on r	mental, In				se Street				Page: _	1 of _	3
		En	gineers an	d Scientists	3			t, Michigan			_		16.00623	
Cont	tractor:	S		Iling Comp	oany		Auger/				_	Check:	Jim C	aı
				Huntoon			Casing	Sampler					READINGS	
Logo	ged by:		John M	<u>Iorehosue</u>	0.47	• • • • • • • • • • • • • • • • • • • •	ollow Stem Auger		_ Date	Tir	ne	Depth	Casing	Stab
)-17 / 10-3	0-17	O.D. / I.D.: .		2.0" / 1 3/8"	-					
		ation: 742.20		umi		Hammer Wt.: Hammer Fall: .		NA NA	-					
G3 E	iev	7 72.2	Dati	uiii		Halliller Fall TOC Elev.: .		NA NA	Surveyed	l Rv	N	IA Sı	urvey Date:	
		Sam	nple Inforr	nation		TOO LIEV			_ Our veyed	. Бу.		0	ii vey Date.	
Depth		Pen./			T		0		044		rks	Equi	pment Insta	lled
å	No.	Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Descript	Sample ion & Classifica	ation	Stratum Desc.		Remarks		PROT	ECTIVE
\dashv	1	24/20	0-2	1-1		Very loose, very	dark gravish-hr	own well	SAND (SM		<u>~</u>]	CASII	NG
	•	2 .,20	02	1-3		sorted, fine grain	ed SĂNĎ, little	silt, slightly	,					
1-						cohesive, moist			0.9' SAND (SP)					
' 7						to: Very loose, ye fine to medium g			SAIND (SP)	'				
						moist (SP).		,						
2-	2	24/6	2-4	2-2		Very loose, yello	wish-brown, we	ll sorted,						
				2-1		fine to medium g								
3-						moist (SP).								
4	3	24/15	4-6	2-2 2-1		Very loose, yello								
				2-1		fine to medium g	rained SAND, t	race Silt,						
5						moist (SP).								
6-														
0	4	24/17	6-8	2-3 4-6		Loose, yellowish								
						medium grained (SP).	SAND, trace Si	it, moist						
7														
8-	_	24/19	0.40	2.5		Lana vallavijah	harren arrell con							
	5	24/19	8-10	3-5 5-7		Loose, yellowish medium grained			8.5'					
						(SP). Changing a	at 8.5 feet to: Lo	ose, dark	8.8' SAND (SM 8.9' SAND (SP)					
9-						yellowish-brown, SAND, little Silt,			9.1 CLAY & SIL	-				
						(SM). Changing			SAND (SP)	-//				
10	6	24/18	10-12	6-6		yellowish-brown sorted, fine to me			CLAY & SIL	\vdash				
				5-5		Silt, moist (SP).			SAND (SM)					
11-						Dark yellowish-b	rown, moderate	ly well	SAND (SP))				
						sorted, CLAY & moderately plast								
.						Changing at 9.1	feet to: Loose, I	ight` ´						
12-	7	24/17	12-14	3-3 4-4		yellowish-brown								
				4-4		sorted, fine to me Silt, moist (SP).								
13-						Dark yellowish-b	rown, moderate	ly well						
						sorted, CLAY & moderately plast								
,						Medium dense, I	orown, well sorte	ed, fine to						
11	8	24/17	14-16	3-3 4-5		medium grained							Grout	
14-						cohesive, moist	e, dark yellowis							



Wolverine World Wide, Inc.

House Street Belmont, Michigan Boring No.: SB-8/MW-8 Page: ____2 of ____3

File No.: 16.0062335.52 Jim Cai

Depth	No.	Pen./ Rec.	Depth	Blows				S	Equipr	nent Installed
		(in.)	(Ft.)	(/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Ечирі	nent instaned
16-	9	24/18	16-18	3-4 5-5		very well sorted, fine to medium grained SAND, trace Silt, moist (SP). Loose, dark yellowish-brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP). Loose, yellowish-brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP). Loose, dark yellowish-brown, very well	SAND (SP)			
18-	10	24/19	18-20	4-4 4-4		sorted, fine to medium grained SAND, trace Silt, moist (SP). Dark yellowish-brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).				
20-	11	24/16	20-22	2-2 2-3		Very loose, brown to yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, wet (SP).		1		
22-	12	24/18	22-24	1-3 2-2		Very loose, brown to yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, wet (SP).				
24-	13	24/19	24-26	1-0 0-0		Very loose, brown to yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, wet (SP).				
26 – 27 –	14	24/18	26-28	0-0 0-1		Very loose, brown to yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, wet (SP).				
28-	15	24/6	28-30	0-0 0-3		Very loose, brown to yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, wet (SP).				Top of Well Screen
30-	16	24/18	30-32	0-1 0-1		Very loose, brown to yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, wet (SP).				Silica Sand Filter Pack 2-Inch Dia. 5-Foot PVC Screen (0.010' Slot)
32-	18	24/15	32-34	1-1 2-3		Very loose, brown to yellowish-brown, well				Siot)
R E M A R K S	. Grour	ndwater w	as encoun		proximate	ely 20.0 feet below ground surface.			,	
						soil types, transitions may be gradual. Water level readings y occur due to other factors than those present at the time m			Boring No.	: SB-8/MW-8



Wolverine World Wide, Inc. **House Street** Belmont, Michigan

Boring No.: SB-8/MW-8 Page: ___3__ of ___3 File No.: 16.0062335.52

Jim Cai

No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows				ks	Fauinm	ent Installed
		(FL)	(/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Ечири	ent instaned
					sorted, fine to medium grained SAND, trace Silt, wet (SP).	SAND (SP)			—Bottom of We
19	24/17	34-36	0-1 2-3		Very loose, brown to yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, wet (SP).				
					Rottom of Rorobolo at 36.0 Foot	36'			
					BOLLOTT OF BOTEFIOIE At 30.0 Feet		2		
2. Monit	oring wel	l was instal	led in bore	hole upor	n completion. Well screen set from 27.7 to 32.7 feet b	elow ground surf	Face.		
	2. Monit	2. Monitoring well	2. Monitoring well was instal	2. Monitoring well was installed in borel	2. Monitoring well was installed in borehole upor	Bottom of Borehole at 36.0 Feet Bottom of Borehole at 36.0 Feet A completion with the state of	Bottom of Borehole at 36.0 Feet Bottom of Borehole at 36.0 Feet ### Additional Completion #### Additional Completion ### Add	Bottom of Borehole at 36.0 Feet 2 Monitoring well was installed in borehole upon completion. Well screen set from 27.7 to 32.7 feet below ground surface.	Silt, wet (SP). Bottom of Borehole at 36.0 Feet 2

		ı GZ	7Δ			,	Wolverine W	/orld Wide	Inc.			Boring	No.: SB-9	/MW-9D
	5 Z\)		.A :oEnvironr	mental, In	C.			e Street			_	Page:	1 of	16
		En	gineers an	d Scientists	3	-					_	File No	: 16.006	2335.52
Con	tractor:	S	Stearns Dri	llina Com	oanv		Auger/	t, Michigan				Check:		
	man: _			Huntoon	··· ·	_	Casing	Sampler		GRO	DUND	WATER	READING	s
	ged by:		Workman		ehouse	 Type:⊣	ollow Stem Auger	Split Spoon	Date		me	Deptl		
	-	inish: _	11-10)-17 / 11-1	7-17	O.D. / I.D.: _	8.0" / 4.25"	2.0" / 1 3/8"						
	ng Loca					Hammer Wt.: _		NA						
GS E	Elev.: _	818.2	<u>0'</u> Dat	um:				NA				^ -		
		San	nple Inforr	nation		TOC Elev.: _	NA	NA	Surveyed	Ву:		<u>A</u> (Survey Date):
Depth	N.	Pen./	Depth	Blows	Test		Sample		Stratum		Remarks	Equ	uipment Ins	
^	No.	Rec. (in.)	(Ft.)	(/6")	Data	Descripti	ion & Classifica	ation	Desc.		Sem		PRC CAS	TECTIVE ING
	1	24/13	0-2	2-2 1-2	1.0 tsf	Stiff, brown, CLA			CLAY & SIL	Т	1	'		
-				1-2		medium Sand, tra (CL).	ace Organic Ma	atter, damp	(CL)					
						(02).								
1 -														
-														
2-								_						
-	2	24/6	2-4	1-2 3-5	1.5 tsf	Stiff, brown, CLA coarse Sand, trad								
1 1						oodioo odiid, tidi	oc inic Cravel,	adinp (OL).						
3-														
4-	3	24/24	4-6	2-4	3.5 tsf	Very stiff, brown,	CLAY & SILT,	trace fine						
				7-8		Sand, damp (CL)).							
_														
5-														
-														
6-														
	4	24/24	6-8	4-5 9-11	3.0 tsf	Very stiff, brown, Sand, damp (CL)		trace fine						
						cana, aamp (cz)	<i>,</i> -							
7-														
8-	5	24/24	8-10	2-4	2.5 tsf	Very stiff, brown,	CLAY & SILT,	trace fine						
I				7-9		Sand, damp (CL)). Changing at 9	0.0 feet to:						
						Very stiff, brown, coarse Sand, trad								
9-					3.5 tsf	,	,	,						
10-														
10-7	6	24/24	10-12	4-5 13-12	1.0 tsf	Stiff, brown, CLA coarse Sand, trad								
						Changing at 11.0) feet to: Very st	tiff, brown						
11-					25 4-5	and gray, CLAY a inch seams of fin								
					3.5 tsf	(CL).	ie to medium Sa	anu, uamp						

1. Pocket penetrometer readings were measured in tons per square foot (tsf) and are used to evaluate consistency of coheisve soil.



Wolverine World Wide, Inc.

House Street Belmont, Michigan

Boring No.: SB-9/MW-9D Page: ____2 of ___16

File No.: 16.0062335.52 Jim Cai

Sample Information				nation		Belmont, Michigan		— Chec	ck: Jim Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	equipment Installed
13-	7	24/24	12-14	4-8 12-10	3.5 tsf 3.0 tsf	Very stiff, brown and gray, CLAY & SILT with intermittent 1/8 inch seams of fine to medium Sand, damp (CL). Changing at 13.2 feet to: Very stiff, gray, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, damp (CL).	CLAY & SILT (CL)	<u>«</u>	
14 — - 15 —	8	24/24	14-16	3-4 7-11	3.0 tsf	Very stiff, gray, CLAY & SILT, little fine to coarse Sand with intermittent 1/16" seams of fine to medium Sand, damp (CL).			
16 -	9	24/24	16-18	3-5 9-12	3.0 tsf	Very stiff, brown and gray CLAY & SILT, trace fine to medium Sand, damp (CL). Changing at 17.7 feet to: Medium dense, brown, fine to medium SAND, trace Silt, damp (SP).			
18 — - 19 —	10	24/13	18-20	2-6 7-8		Medium dense, brown, fine to medium SAND, trace coarse Sand, trace Silt, damp (SP).	17.7' SAND (SP)	ı	
20	11	24/8	20-22	6-13 12-11	3.0 tsf	Very stiff, brown, CLAY & SILT, little fine to coarse Sand, damp (CL). Changing at 21.0 feet to: Medium dense, brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt, damp (SW).	20' CLAY & SILT (CL) 21' SAND (SP)		
22-	12	24/20	22-24	5-5 7-8		Medium dense, brown, fine to medium SAND, trace coarse Sand, trace fine to coarse Gravel, trace Silt, damp (SP).		ı	
24 — - 25 —	13	24/20	24-26	2-2 2-3		Medium dense, brown, fine to medium SAND, trace coarse Sand, trace fine to coarse Gravel, trace Silt, wet (SP).		2	
2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2. Groui	ndwater v	vas encoun	tered at ap	proximate	ely 24.0 feet below ground surface.			
						oil types, transitions may be gradual. Water level readings occur due to other factors than those present at the time m			ng No.: SB-9/MW-9D



Wolverine World Wide, Inc.

House Street Belmont, Michigan Boring No.: SB-9/MW-9D

Page: ___3 __ of ___16 File No.: 16.0062335.52 Jim Cai

_	Sample Information							Check: Jim Cai		
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equip	ment Installed
- 27 —	14	24/13	26-28	1-1 3-2		Loose, brown, fine to medium SAND, trace coarse Sand, trace Silt, wet (SP).	SAND (SP)	œ		
- 28 — - 29 —	15	24/14	28-30	1-1 2-3		Loose, brown, fine to medium SAND, trace coarse Sand, trace Silt, wet (SP).				
30 — - 31 —	16	24/24	30-32	3-1 3-4	1.0 tsf	Loose, brown, fine to medium SAND, trace coarse Sand, trace Silt, wet (SP). Changing at 31.0 feet to: Stiff, brown, CLAY & SILT, little fine to coarse Sand, moist (CL).	31' CLAY & SILT (CL)			
32 — - 33 —	17	24/8	32-34	2-5 4-4	0.25 tsf	Very soft, brown, CLAY & SILT, some fine to coarse Sand, little fine Gravel, moist (CL).				
- 34 — - 35 —	18	24/14	34-36	6-3 6-7	1.5 tsf	Stiff, brown, CLAY & SILT, some fine to coarse Sand, little fine Gravel, damp (CL).				
36 — - 37 —	19	24/15	36-38	6-8 12-14	2.5 tsf	Very stiff, brown, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, damp (CL).				
- 38 — - 39 —	20	24/14	38-40	8-16 12-12	3.5 tsf	Very stiff, gray, CLAY & SILT, some fine to coarse Sand, trace Cobbles (based on fragments), damp (CL).				
R E M A R K							1			



Sample Information

Wolverine World Wide, Inc.

House Street Belmont, Michigan Boring No.: SB-9/MW-9D Page: ___4 __ of ___16

File No.: 16.0062335.52 Jim Cai

Depth		Sample Information						Olieck.				
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed			
41 –	21	24/16	40-42	2-9 31-17	>4.0 tsf	Hard, gray, CLAY & SILT, some fine to coarse Sand, trace fine to coarse Gravel, damp (CL).	CLAY & SILT (CL)					
12-	22	24/22	42-44	3-4 10-14	2.5 tsf	Very stiff, gray, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, damp (CL).						
14 —	23	24/19	44-46	4-6 15-18	3.0 tsf	Very stiff, gray, CLAY & SILT, little fine to coarse Sand, trace fine to coarse Gravel, damp (CL).						
46 — 47 —	24	24/20	46-48	3-15 32-28	>4.0 tsf	Hard, gray, CLAY & SILT, little fine to coarse Sand, trace fine to coarse Gravel, damp (CL).						
18 —	25	24/20	48-50	4-18 22-30	>4.0 tsf	Hard, gray, CLAY & SILT, little fine to coarse Sand, damp (CL).						
50 —	26	24/0	50-52	25-29 35-45		NO RECOVERY.	50' NO RECOVERY	_				
52-	27	24/20	52-54	26-24 30-31	>4.0 tsf	Hard, gray, CLAY & SILT, some fine to coarse Sand, little fine to coarse Gravel, trace Cobbles (based on fragments), damp (CL).	52' CLAY & SILT (CL)	-				



Wolverine World Wide, Inc.

House Street Belmont, Michigan Boring No.: SB-9/MW-9D Page: ___5 of ___16

File No.: 16.0062335.52 Jim Cai

Sample Information Pen./ Depth Blows Test No. Rec. (Et) ((6") Pata			nation		Belmont, Michigar	Check:	Jim Cai	
No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Equipr	nent Installed
28	24/24	54-56	10-17 20-30	4.0 tsf	Hard, gray, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, damp (CL).	CLAY & SILT (CL)		
29	24/0	56-58	24-40 49-54		NO RECOVERY.	56' NO RECOVERY		
30	24/24	58-60	8-18 20-31	>4.0 tsf	Hard, gray, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, damp (CL).	58' CLAY & SILT (CL)	П	
31	24/24	60-62	5-4 18-24	4.0 tsf	Hard, gray, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, damp (CL).			
32	24/24	62-64	6-14 14-15		Brown, poorly sorted, SILT & CLAY, little Sand, trace gravel, plastic, cohesive, moist (ML).	62' SILT & CLAY (ML)		
33	24/24	64-66	6-12 15-17		Brown, poorly sorted, SILT & CLAY, little Sand, trace gravel, plastic, cohesive, moist (ML).			
34	24/24	66-68	5-9 14-25		Brown, poorly sorted, SILT & CLAY, little Sand, trace gravel, plastic, cohesive, moist (ML).			
-	Z-11/24	00-00	14-25		Sand, trace gravel, plastic, cohesive, moist			



House Street Belmont, Michigan Boring No.: SB-9/MW-9D Page: 6 of 16

File No.: 16.0062335.52 Jim Cai Check:

_		San	ple Inforn	nation		Beimont, Wichigan	_		Check: Jim Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	35	24/24	68-70	9-14 19-26		Brown, poorly sorted, SILT & CLAY, little Sand, trace gravel, plastic, cohesive, moist (ML).	SILT & CLAY (ML)	_	
69 — 70 — 71 —	36	24/23	70-72	5-15 20-26		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).	70' CLAY & SILT (CL)		
- 72- - 73-	37	24/24	72-74	7-14 23-28		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			
- 74 - - 75 -	38	24/24	74-76	9-11 15-20		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			
- 76 — - 77 —	39	24/14	76-78	10-13 33-39		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			
78 — - 79 —	40	24/24	78-80	5-25 19-23		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			
80 — - 81 —	41	24/24	80-82	6-11 15-21		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			



Wolverine World Wide, Inc. GZA GeoEnvironmental, Inc.

House Street

Belmont, Michigan

Boring No.: SB-9/MW-9D

Page: ____7 of ____16 File No.: 16.0062335.52

		Sam	ple Inforr	mation		Belmont, Michigan	I	- Check	c: Jim Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	quipment Installed
_	42	24/24	82-84	10-15 23-25		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).	CLAY & SILT (CL)		
83-									
84 —	43	24/12	84-86	7-14 21-20		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			
85 -									
86-	44	24/24	86-88	8-18 23-25		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace			
87-						Gravel, plastic, cohesive, moist (CL).			
88-	45	24/15	88-90	5-38 33-33		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace			
89-						Gravel, plastic, cohesive, moist (CL).			
90-	46	24/24	90-92	8-14 15-28		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace			
91 —						Gravel, plastic, cohesive, moist (CL).			
92-	47	24/24	92-94	15-16 25-33		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace	92.1' Silty CLAY (CL)		
93-						Gravel, plastic, cohesive, moist (CL). Changing at 92.1 feet to: Dark grayish-brown, well sorted, Silty CLAY, plastic, cohesive, moist (CL).			
94 —	48	24/24	94-96	13-22 37-43		Dark grayish-brown, well sorted, Silty CLAY, plastic, cohesive, moist (CL). Changing at	94.4'		
95 —						94.4 feet to: Dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).	CLAY & SILT (CL)		
_									

BORING_WELL TEST.GPJ GZA_CORP.

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.



House Street

Boring No.: SB-9/MW-9D Page: ___8 of __16 File No.: 16.0062335.52 Check: Jim Cai

Belmont, Michigan Sample Information

Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. Description & Classification (Ft.) (/6") Data Desc. (in.) 8-18 30-23 49 24/24 96-98 Dark grayish-brown, poorly sorted, CLAY & CLAY & SILT (CL) SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL). 97 98 Grout 50 24/24 98-100 Dark grayish-brown, poorly sorted, CLAY & 33-45 SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL). 99 100 51 24/21 100-102 19-29 Dark grayish-brown, poorly sorted, CLAY & 47-50/3.5" SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL). Changing at 101.5 feet to: Dark grayish-brown, very well 101 sorted, SILT, trace Clay, cohesive, non to slighty plastic, moist with occasional very thin lenses of Clayey Silt, moist (ML). SILT (ML) 102 13-26 38-44 52 24/24 102-104 Dark grayish-brown, very well sorted, SILT, trace Clay, cohesive, non to slighty plastic, moist with occasional very thin lenses of Clayey Silt, moist (ML). 103 104 20-30 41-39 24/24 104-106 53 Dark grayish-brown, very well sorted, SILT, trace Clay, cohesive, non to slighty plastic, moist with occasional very thin lenses of Clayey Silt, moist (ML). 105 106 24/24 106-108 22-33 54 Dark grayish-brown, very well sorted, SILT, trace Clay, cohesive, non to slighty plastic, moist with occasional very thin lenses of Clayey Silt, moist (ML). 107 108 55 24/14 108-110 Dark grayish-brown, very well sorted, SILT, 7-9 27-28 trace Clay, cohesive, non to slighty plastic, moist with occasional very thin lenses of Clayey Silt, moist (ML). Changing at 108.8 CLAY (CL) 109 feet to: Dark grayish-brown, well sorted, CLAY, plastic, cohesive, moist (CL).

WELL TEST.GPJ GZA_CORP.GDT 5/17/18 REMARK

S



House Street Belmont, Michigan

Boring No.: SB-9/MW-9D Page: 9 of 16 File No.: 16.0062335.52

		San	nple Inforr	mation		Belmont, Michigan	1	Check:	Jim Cai
Depth		Pen./						ع Equ	uipment Installed
Del	No.	Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	
\dashv	56	24/14	110-112	20-41-50		Dark grayish-brown, well sorted, CLAY,	110.3 ^{CLAY (CL)}		
4						plastic, cohesive, moist (CL). Changing at	SILT (ML)		
						110.3 feet to: Dark grayish-brown, very well sorted, SILT, trace Clay, cohesive, non to			
11-						slightly plastic, moist with occasional very			
						thin lenses of Clayey Silt, moist (ML).			
٦									
12-	57	24/15	112-114	9-30-50/5"		Dark grayish-brown, well sorted, CLAY,	CLAY (CL)		
	51	24/10	112-114	0 00 00/0		plastic, cohesive, moist (CL). Changing at	02(02)		
٦						112.8 feet to: Dark grayish-brown, very well	112.8'		
13-						sorted, SILT, trace Clay, cohesive, non to slightly plastic, moist with occasional very	SILT (ML)		
						thin lenses of Clayey Silt (ML).			
1						- , , , , ,			
14-							114'		
	58	24/24	114-116	15-20 36-50		Dark grayish-brown, well sorted, CLAY, plastic, coesive, moist (CL). Changing at	CLAY (CL) 114.4'		
\dashv						114.4 feet to: Dark grayish-brown, very well	114.6SILT (ML)		
15-						sorted, SILT, trace Clay, cohesive, non to	CLAY (CL) 115.1'		
						slightly plastic, moist with occasional very thin lenses of Clayey Silt, moist (ML).	415.2SILT (ML)		
\dashv						Changing at 114.6 feet to: Dark	CLAY (CL)		
16-						grayish-brown, well sorted, CLAY, plastic,	116'		
16-	59	24/15	116-118	1-1 2-5		cohesive, moist (CL). Changing at 115.2 \ feet to: Dark grayish-brown, well sorted,	SILT (ML)		
4				2-3		CLAY, plastic, cohesive, moist (CL).			
_						Dark grayish-brown, very well sorted, SILT,			
17-						trace Clay, cohesive, non to slightly plastic, moist with occasional very thin lenses of			
						Clayey Silt (ML). Changing at 116.3 feet to:			
						Grayish-brown, very well sorted, SILT, trace			
18-	60	24/13	118-120	4-11		Clay, cohesive, non to slightly plastic, moist with occasional very thin lenses of Clayey			
				23-42		Silt (ML).			
						Grayish-brown, very well sorted, SILT, trace			
19-						Clay, cohesive, non to slightly plastic, moist with occasional very thin lenses of Clayey			
						Silt (ML).			
20 –	61	24/0	120-122	17-55		NO RECOVERY.	120' NO		
	0.		120 122			THE RESOVERT.	RECOVERY		
21 –									
٦									
22-	62	24/12	122-124	26-44-50/3"		Very dense, grayish-brown to brown, very	122' SAND (SP)	3	
	UΖ	27/12	122-124			well sorted, fine to medium grained SAND,	5. 1.15 (61)		
٦						trace Silt, wet (SP). Changing at 122.8 feet	122.8'		
23-						to: Very dense, grayish-brown to brown, very well sorted, fine grained SAND, some	SAND (SM)		
						Silt, wet (SM).			
٦									
							124'		
R E M A R	3. Groui	ndwater v	was encour	ntered at ap	proximat	Silt, wet (SM).	124'		
K									
'									
						soil types, transitions may be gradual. Water level readings			No : SR_0/M\\/_OD
						y occur due to other factors than those present at the time n			No.: SB-9/MW-9D



GZA GeoEnvironmental, Inc. Engineers and Scientists

Sample Information

Wolverine World Wide, Inc.

House Street

Belmont, Michigan

Boring No.: SB-9/MW-9D Page: ___10__ of __16_

Depth									
ے ا	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
25 — — 26 — — 27 —	63	24/12	124-126 126-128	27-50/4" 5-14-50/5"		Very dense, grayish-brown to brown, very well sorted, fine to medium SAND, trace Silt, wet (SP). Changing at 124.4 feet to: Dark gray, poorly sorted, SILT & CLAY, little Sand, trace Gravel, plastic, cohesive, moist (ML). Changing at 124.6 feet to: Very dense, grayish-brown to brown, very well sorted, fine to medium grained SAND, trace Silt, wet (SP). Very dense, grayish-brown to brown, very well sorted, fine to medium grained SAND, trace Silt, wet (SP). Changing at 126.3 feet to: Dark grayish-brown, very well sorted, Silty CLAY, plastic, cohesive, bedded, moist	124.4" 124.55T T & CLAY (CL) SAND (SP) 126.3' Silty CLAY (CL) 127' SAND (SP)		
28 -	65	24/14	128-130	8-46-50/2"		(CL). Changing at 127.0 feet to: Very dense, brown to grayish-brown, very well sorted, fine to medium grained SAND, trace Silt, wet (SP). Very dense, brown to grayish-brown, well sorted, fine to medium grained SAND, little Silt, wet (SM).	128' SAND (SM)		
30-	66	24/6	130-132	36-50/4"		Very dense, brown to grayish-brown, well sorted, fine to medium grained SAND, little Silt, wet (SM).			
32-	67	24/9	132-134	26-50/4.5"		Very dense, brown to grayish-brown, well sorted, fine to medium grained SAND, little Silt, wet (SM). Changing at 132.3 feet to: Very dense, brown to dark brown, moderately sorted, coarse to fine grained SAND, trace Silt, wet (SW). Changing at	132.3' 132.5'AND (SW) SAND (SP)		
34-	68	24/3	134-136	5-10 39-50/4"		132.5 feet to: Very dense, brown to grayish-brown, well sorted, fine to medium SAND, little Silt, wet (SM). Dense, brown to grayish-brown, well sorted, fine to medium SAND, little Silt, wet (SM).			
36-	69	24/6	136-138	9-32-50/5"		Very dense, brown to grayish-brown, well sorted, fine to medium SAND, little Silt, wet (SM).			



House Street

Belmont, Michigan

Boring No.: SB-9/MW-9D
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File No.: 16.0062335.52
Check: Jim Cai

_		San	nple Inforn	nation		Beimont, Michigan		Check:	Jim Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks hba	ipment Installed
	70	24/4	138-140	50/5"		Very dense, grayish-brown, moderately sorted, fine to medium grained SAND, little Silt, trace Clay, trace Gravel, slightly cohesive, wet (SM).	SAND (SP)		
39 - -						corresive, wet (SW).			
40 — -	71	24/6	140-142	50/5.5"		Very dense, grayish-brown, well sorted, fine grained SAND, trace Silt, non to slightly cohesive, wet with occasional very thin			
41 — -						seams of Silty Clay (SP-SC).			
42-	72	24/4	142-144	50/4.5"		Very dense, brown to dark brown, moderately sorted, fine to coarse grained	SAND (SW)		
43 -						SAND, trace Silt, trace Clay, trace Gravel, wet (SW).			
44 –	73	24/8	144-146	12-37-50/2"		Very dense, dark grayish-brown, poorly sorted, fine to coarse grained SAND, trace			
45 — -						Gravel, trace Silt, trace Clay, wet (SW). Changing at 144.4 feet to: Very dense, pale brown grading to brown, moderately sorted, fine to coarse grained SAND, trace Silt, trace Gravel, non to slightly cohesive, wet (SW).			
46 — -	74	24/10	146-148	32-50/3.5"		Very dense, pale brown grading to brown, moderately sorted, fine to coarse grained SAND, trace Silt, trace Gravel, non to			
47 — -						slightly cohesive, wet (SW).			
48 - -	75	24/9	148-150	35-50/3"		Very dense, pale brown grading to brown, moderately sorted, fine to coarse grained SAND, trace Silt, trace Gravel, non to	148.6'		
49 - -						slightly cohesive, wet (SP). Changing at 148.6 feet to: Very dense, pale brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).	SAND (SP)		
50 — -	76	24/4	150-152	50/5"		Very dense, pale brown, moderately sorted, fine to coase grained SAND, trace Silt, trace Gravel, wet (SW).	150' SAND (SW)		
51 — -									
							152'		



Wolverine World Wide, Inc.

House Street Belmont, Michigan Boring No.: SB-9/MW-9D Page: 12 of 16

_		Saii	nple Inforn	iation					
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Besc.	Equip	nent Installed
	77	24/0	152-154	50/4"		NO RECOVERY.	NO RECOVERY		
53-									
-									
54 —	78	24/4	154-156	50/5.5"		Very dense, pale brown, moderately sorted,	154' SAND (SW)		
+						fine to coarse SAND, trace Silt, trace Gravel, wet (SW).			
55 —									
56-									
	79	24/7	156-158	34-50/4"		Very dense, pale brown, moderately sorted, fine to coarse grained SAND, trace Silt, trace Gravel, wet (SW). Changing at 156.5	156.5' SILT (ML)		
57-						feet to: Pale brown, very well sorted, SILT, trace Clay, moderately cohesive, slightly	3.2. (2)		
+						plastic, wet (ML).			
58-	80	24/4	158-160	40-50/2.5"		Very dense, grayish-brown, very well sorted, fine grained SAND, little Silt, wet (SM).	SAND (SM)		
59-						ino gramou o, irio, maio om, mor (om).			
99 –									
60-	81	24/3	160-162	50/5"		Very dense, grayish-brown, very well sorted,			
+						fine grained SAND, little Silt, wet (SM).			
51-									
52-	82	24/4	162-164	41-50/5"		Very dense, brown to dark brown, moderately well sorted, fine grained SAND,			
63-						little Silt, wet (SM).			
+									
64 –	83	24/4	164-166	50/6"		Very dense, brown to dark brown, moderately well sorted, fine grained SAND,			
,						little Silt, wet (SM).			
35 —									
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Sample Information

Wolverine World Wide, Inc.

House Street Belmont, Michigan Boring No.: SB-9/MW-9D Page: ___13__ of ___16_

Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
67 —	84	24/3	166-168	43-50/3"		Very dense, brown to dark brown, moderately well sorted, fine grained SAND, little Silt, wet (SM).	SAND (SM)		
- 68 - - 69 -	85	24/2	168-170	47-50/3"		Very dense, brown, well sorted, fine to medium SAND, little Silt, trace Clay, slightly cohesive, non to slightly plastic, wet (SM).			
70 -	86	24/7	170-172	36-50/4"		Very dense, brown, well sorted, fine to medium SAND, little Silt, trace Clay, slightly cohesive, non to slightly plastic, wet (SM).			
71 — - 72 — - 73 —	88	24/0	172-174	43-50/3"		Very dense, brown, well sorted, fine to medium SAND, little Silt, trace Clay, slightly cohesive, non to slightly plastic, wet (SM).			
74 — - 75 —	89	24/10	174-176	35-50		Very dense, brown, well sorted, fine to medium SAND, little Silt, trace Clay, slightly cohesive, non to slightly plastic, wet (SM). Changing at 174.2 feet to: Grayish-brown, very well sorted, SILT, little fine grained Sand, trace Clay, slightly cohesive, slightly plastic, moist to wet (ML).	174.2' SILT (ML)	_	
76 -	90	24/0	176-178	28-50		NO RECOVERY.	NO RECOVERY		
77 — - 78 — - 79 —	91	24/4	178-180	45-50/3.5"		Grayish-brown, very well sorted, SILT, little fine grained Sand, trace Clay, slightly cohesive, slightly plastaic, moist to wet (ML).	SILT (ML)		
R E M A							180'		



House Street

Belmont, Michigan

Boring No.: SB-9/MW-9D Page: ___14__ of ___16_

돛 누		San	nple Inforn	nation		Belmont, Michigan		Check:	Jim Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks dinba	ment Installed
	92	24/1	180-182	45-50/3.5"		Very dense, brown, well sorted, fine to medium SAND, little Silt, trace Clay, slightly cohesive, non to slightly plastic, wet (SM).	SAND (ML)	<u> </u>	
81 —									
32 - 33 -	93	24/6	182-184	50		Very dense, brown to dark brown, moderately well sorted, fine grained SAND, little Silt, wet (SM). Changing at 182.1 feet to: Brown to dark brown, very well sorted, SILT, moderately cohesive, wet (ML). Changing at 182.2 feet to: Brown to dark	182.1' -182.2'SILT (ML) -182.*SAND (SM) SILT (ML)	П	
34 — - 85 —	94	24/0	184-186	50/5.5"		brown, moderately well sorted, fine grained SAND, little Silt, wet (SM). Changing at 182.4 feet to: Brown to dark brown, very well sorted, SILT, moderately cohesive, wet (ML). NO RECOVERY.	NO RECOVERY	П	
86 — - 87 —	95	24/6	186-188	58/6"		Very dense, grayish-brown, very well sorted, fine to medium SAND, trace Silt, trace Clay, slightly cohesive, wet (SP).	186' SAND (SP)	П	
- 88 - - 89 -	96	24/5	188-190	75/6"		Very dense, grayish-brown, very well sorted, fine to medium SAND, trace Silt, trace Clay, slightly cohesive, wet (SP).			
90 -	97	24/4	190-192	50/6"		Very dense, grayish-brown, very well sorted, fine to medium SAND, trace Silt, trace Clay, slightly cohesive, wet (SP).		П	
92 -	98	24/2	192-194	50/5"		Very dense, grayish-brown, very well sorted, fine to medium SAND, trace Silt, trace Clay, slightly cohesive, wet (SP).			



R

E M A R K

S

Wolverine World Wide, Inc.

House Street Belmont, Michigan Boring No.: SB-9/MW-9D Page: ___15__ of ___16

File No.: <u>16.0062335.52</u> Check: Jim Cai

Sample Information Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data **Description & Classification** Desc. (in.) 194.3 SAND (SP) 42-50/3' 99 24/9 194-196 Grayish-brown, very well sorted, fine to medium SAND, trace Silt, trace Clay, SILT (ML) slightly cohesive, wet (SP). Changing at 194.3 feet to: Grayish-brown, very well 195 sorted, SILT, cohesive, moist to wet (ML). 196 15-38-50/3" 100 24/9 196-198 Grayish-brown, very well sorted, SILT, cohesive, moist to wet (ML). 197 198 101 24/9 198-200 24-50/5" Grayish-brown, poorly sorted, CLAY & SILT, 19802LAY & SILT (CL) some Sand, trace Gravel, slightly plastic, SILT (ML) moderately cohesive, moist (CL). Changing at 198.2 feet to: Grayish-brown, very well 199 sorted, SILT, cohesive, moist to wet (ML). 200 CLAY & SILT 28-50/3" 102 24/4 200-202 Grayish-brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, slightly plastic, moderately cohesive, moist (CL). 201 Silica Sand Filter Pack 202 103 24/3 202-204 50/6 Grayish-brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, slightly plastic, moderately cohesive, moist (CL). Top of Well 203 Screen 104 24/7 204-206 50/6 Grayish-brown, poorly sorted, CLAY & SILT, 204.3' SAND (SM) some Sand, trace Gravel, slightly plastic, moderately cohesive, moist (CL). Changing at 204.3 feet to: Grayish-brown, well sorted, fine to medium grained SAND, litle Silt, 205 moderately cohesive, wet (SM). Changing at 2-Inch Dia. 204.4 feet to: Grayish-brown, moderately 5-Foot PVC well sorted, fine to medium SAND, little Silt, Screen (0.010" 206 trace Gravel, non-plastic, non-cohesive, 105 24/12 206-208 30-50/4" Slot) moist to wet (SM). Grayish-brown, moderately well sorted, fine 206.5SILT (ML) to medium SAND, little Silt, trace Gravel, SAND (SM) WELL TEST.GPJ GZA CORP.GDT 5/17/18 207 non-plastic, non-cohesive, moist to wet (SM). Changing at 206.4 feet to: Grayish-brown, well sorted, SILT, trace Clay, slightly coheisive, moderately

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, Inc.

House Street Belmont, Michigan Boring No.: SB-9/MW-9D Page: 16 of 16 File No.: 16.0062335.52

Jim Cai

		San	nple Inforn	nation		Belmont, Michigan			Check:	Jim Cai
Depth	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipm	nent Installed
+	106	24/9	208-210	19-24 23-25		cohesive, moist to wet (ML). Changing at 206.5 feet to: Dense, grayish-brown,	SAND (SM) 208.4'	ď		Bottom of We Screen
- 09 - 10 - -	107	24/8	210-212			moderately well sorted, fine to medium SAND, little Silt, trace Gravel, non-plastic, non-cohesive, moist to wet (SM). Dense, grayish-brown, moderately well sorted, fine to medium SAND, little Silt, trace Gravel, non-plastic, non-cohesive, moist to wet (SP). Changing at 208.4 feet to: Grayish-brown, well sorted, SILT, trace Clay, slightly cohesive, moderately cohesive, moist to wet (ML). Changing at 208.8 feet to: Grayish-brown, very well	SILT (ML) 208.8' Silty CLAY (CL)			outeen
- 12- -	108	24/15	212-214	19-45-50/3"		sorted, Silty CLAY, plastic, cohesive, moist (CL). Grayish-brown, very well sorted, Silty CLAY, plastic, cohesive, moist (CL). Changing at 211.3 feet to: Grayish-brown, moderately well sorted, fine to medium SAND, little Silt, trace Gravel, non-plastic, non-cohesive, moist to wet (SM).	211.3' SAND (SM) 212' Silty CLAY (CL) 212.9'			
13 —	109	24/12	214-216	34-50/3"		Grayish-brown, very well sorted, Silty CLAY, plastic, cohesive, moist (CL). Changing at 212.9 feet to: Grayish-brown, well sorted, fine to medium SAND, little Silt, trace Clay, wet with occasional very thin Silty Clay seams (SM). Grayish-brown, well sorted, fine to medium SAND, little Silt, trace Clay, wet with	SAND (SM)			
15 — - 16 — -	110	24/18	216-218	18-27-50/5"		occasional very thin Silty Clay seams (SM). Changing at 214.7 feet to: Grayish-brown, moderately well sorted, fine to medium SAND, little Silt, trace Gravel, non-plastic, non-cohesive, moist to wet (SM). Changing at 214.9 feet to: Grayish-brown, well sorted, SILT, trace Clay, slightly to moderately coheisve, moist to wet (ML).	SILT (ML) 216' Silty CLAY (CL)			
17-	111	24/18	218-220	15-32-50/4"		Grayish-brown, very well sorted, Silty CLAY, plastic, cohesive, moist (CL). Changing at 217.4 feet to: Dark gray with reddish-yellow stains, poorly sorted, CLAY & SILT, some Sand, trace Gravel, wet (CL). Grayish-brown, very well sorted, Silty CLAY, plastic, cohesive, moist (CL).	217.4' CLAY & SILT (CL) 218' Silty CLAY (CL)			
19 –										
20						Bottom of Borehole at 220.0 Feet	220'	4		
21 –										
R E M A R K S	1. Monit	oring we	II was instal	led in boreł	nole upor	n completion. Well screen set from 203.0 to 208.0 fe	et below ground su	ırface	.	
Stratific	cation line	es represe	ent approxima	ate boundary	between s	soil types, transitions may be gradual. Water level readings y occur due to other factors than those present at the time n	have been made at the neasurements were m	imes	Boring No.:	SB-9/MW-9D

		∣ GZ	Ά			\	Nolverine W	/orld Wide, I	nc.		Boring N	o.:MW	-10M
	57			mental, In			Hous	e Street			Page:	_1 of _	2
		' ∣ En	gineers an	d Scientists	5			t, Michigan				16.00623	
Con	tractor:	S	tearns Dri	Iling Comp	oany	_	Auger/				Check: _	Jim C	ai
				Huntoon	-		Casing	Sampler		GROUN	DWATER F	READINGS	
				Vorkman		Tvpe:Ho	llow Stem Auger	Split Spoon	Date	Time	Depth	Casing	Stab
Date	e Start/F	inish:	11-20)-17 / 11-2	9-17	O.D. / I.D.: _		2.0" / 1 3/8"					
								NA					
	Elev.: _			um:			30"	NA					
						TOC Elev.: _		NA NA	Surveyed	Ву:	NA Su	rvey Date:	
_		Sam	ple Inforr	nation									
Depth		Pen./	.		T4		0		044	Remarks	Equip	ment Insta	alled
å	No.	Rec.	Depth (Ft.)	Blows (/6")	Test Data	Description	Sample on & Classification	ution	Stratum Desc.	l a		——PROT	ECTIVE
		(in.)	(1 4.)	(10)	Data	Description	on a olassince		Desc.	Re		CASIN	
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	1												
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1 26 =													
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BORING WELL TEST.GPJ GZA CORP.GDT 5/17/18 B W W W W W W W W W W W W W W W W W W													
ĭ Stratifi						soil types, transitions may					Boring No	o.: MW-10M	
and ur	nder condi	itions state	d. Fluctuation	ons of ground	dwater ma	y occur due to other facto	ors than those pres	ent at the time mea	asurements we	ere made.		1717 7 10101	

Wolverine World Wide, Inc. GZA GeoEnvironmental, Inc. MW-10M Boring No.: _ Page: ___2 __ of ___2 House Street Engineers and Scientists File No.: <u>16.0062335.52</u> Belmont, Michigan Jim Cai Check: **Sample Information** Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) Bentonite Seal Top of Well Screen Silica Sand Filter Pack 2-Inch Dia. 5-Foot PVC Bottom of Borehole at 131.0 Feet Screen (0.010". Slot) Bottom of Well Screen

1. Monitoring well was installed in borehole upon completion. Well screen set from 125.0 to 130.0 feet below ground surface.

WELL TEST.GPJ GZA_CORP.GDT 5/17/1

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.

Boring No.: MW-10M

		GZ	Α			1	Nolverine W	/orld Wide, I	nc.		Boring N		-10S
	571	Ge	oEnvir on r	<mark>mental, In</mark> d Scientists				e Street			Page: _	of _	2
			-				Belmon	t, Michigan				16.00623	
Con	tractor:	S		Iling Comp	oany	_	Auger/	Sampler			Check:	Jim C	aı
				Huntoon			Casing	_				READINGS	
				Vorkman)-17 / 11-2	0.17		ollow Stem Auger		Date	Time	Depth	Casing	Stab
		inish: _)-17 / 11-2		O.D. / I.D.: _ Hammer Wt.: _		2.0" / 1 3/8" NA					
	Elev.: _			um:				NA NA					
						TOC Elev.:		NA NA	Surveyed	Bv:	NA Sı	rvey Date:	
۔ ا		Sam	ple Inforn	nation									
Depth		Pen./	Depth	Blows	Test		Sample		Stratum	Remarks	Equi	pment Insta	alled
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Stratif and ur						soil types, transitions ma y occur due to other facto					Boring N	lo.: MW-10S	
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Wolverine World Wide, Inc. GZA GeoEnvironmental, Inc. MW-10S Boring No.: __ Page: ___2 __ of __2 House Street Engineers and Scientists File No.: 16.0062335.52 Belmont, Michigan Jim Cai Check: **Sample Information** Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) 31-32-33-34 -35-36-37-39-41-42-43-44-

1. Monitoring well was installed in borehole upon completion. Well screen set from 49.0 to 59.0 feet below ground surface.

Bottom of Borehole at 60.0 Feet

45 -46 -

47 -48 -

49-

50-

52-

54-

55-

56-

57 -58 -59 -

61 -62 -

63 · 64 ·

WELL TEST.GPJ GZA_CORP.GDT 5/17/18

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.

Boring No.: MW-10S

Bentonite Seal

Top of Well

Silica Sand Filter Pack

2-Inch Dia. 10-Foot PVC

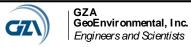
Slot)

Screen (0.010"

Bottom of Well

Screen

/		GZ	<u>A</u> .			Wolverine V	<u>Vorld Wide,</u>	Inc.			Boring No		-11M
	7			mental, Ind d Scientists		Hous	se Street			_	Page:	1 of	3
							t, Michigan					16.00623 Jim C	
Cont	tractor:	S	<u>tearns Dri</u>	lling Comp	oany	Auger/	Sampler				Check: _		
Fore	man: _	lulia	Jerry F	er/Joe Wo	rkman	Casing	-	Date	GROI Tim			EADINGS	Stab
Logo	ged by:	Julie	11 <u>-</u> 8	8-17 / 11-9	<u>18111an</u> -17	Type: Hollow Stem Auger O.D. / I.D.:8.0" / 4.25"		Date	11111	ie	Depth	Casing	Stab
Date Bori	na Loca	ation: _	N	B US 131	-17		NA NA						
						Hammer Fall: NA	NA						
						TOC Elev.: NA	NA	Surveyed I	By: _	N.	A Sur	vey Date:	
ا ے		Sam	ple Inforn	nation	1					' 0			
Depth		Pen./	Depth	Blows	Test	Sample		Stratum		Кетагк	Equip	ment Insta	
۵	No.	Rec. (in.)	(Ft.)	(/6")	Data	Description & Classific	ation	Desc.		Ë			ECTIVE
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34 –													
R E M A R K S													
						soil types, transitions may be gradual. Way occur due to other factors than those pre-					Boring No	.: MW-11M	



Sample Information

Wolverine World Wide, Inc.

House Street Belmont, Michigan Boring No.: MW-11M Page: ____2 of ____3

File No.: 16.0062335.52 Jim Cai

Depth		Sample information						(A)		
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks		Equipment Installed
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36										
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72-				1					\rangle / \rangle	
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Wolverine World Wide, Inc. GZA GeoEnvironmental, Inc. MW-11M Boring No.: __ Page: ___3__ of ___3 House Street Engineers and Scientists File No.: 16.0062335.52 Belmont, Michigan Jim Cai Check: **Sample Information** Remarks **Equipment Installed** Pen./ Depth **Blows** Test Sample Stratum No. Rec. (Ft.) (/6") Data Description & Classification Desc. (in.) 78-79 80 81 82-83 84-85-86 87-88-89 90-91-92 93 94 Top of Well 95 Screen 96-Silica Sand Filter Pack 97-2-Inch Dia. 98 5-Foot PVC 99 Screen (0.010" 100 Slot) Bottom of Borehole at 100.0 Feet Bottom of 101-Wellscreen 102-103 104 -105-106-107-108-109 110 111· 112 113 WELL TEST.GPJ GZA_CORP.GDT 5/17/1 115 116 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.

Boring No.: MW-11M

>		∣GZ				Wolverine W	<u>Vorld Wide,</u>	Inc.			oring No	o.:MW	-11S
	5 Z\		oEnvironr			Hous	se Street					of _	
			gineers and				t, Michigan			Fi		16.00623	
Con	tractor:	S	tearns Dri	Iling Comp	oany	Auger/				CI	neck: _	Jim C	ai
Fore	eman: _		Jerry F	Huntoon		Casing	Sampler		GROL	JNDW	ATER R	EADINGS	
Log	ged by:		Joe V	Vorkman		Type: Hollow Stem Auger		Date	Tim	e	Depth	Casing	Stab
Date	e Start/F	inish: _	11-9	9-17 / 11-9	-17	O.D. / I.D.: 8.0" / 4.25"							
						Hammer Wt.: NA	NA						
GS	Elev.: _		Dati	um:		Hammer Fall:NA	NA NA	. L				_	
		Sam	nple Inforn	nation		TOC Elev.: NA	NA	Surveyed	Ву: _	NA	Su	vey Date:	
Ę										2	Equip	ment Insta	llod
Depth	No.	Pen./ Rec.	Depth	Blows	Test	Sample		Stratum	1 2		Ечигр		ECTIVE
-		(in.)	(Ft.)	(/6")	Data	Description & Classifica	ation	Desc.	Romarke			CASI	
						See SB-11/MW-11D boring log	for detailed						
1-						soil descriptions.							
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l												Filter	
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26-												2-Inch	i Dia. ot PVC
27 –												Scree	n (0.010"
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32-						Bottom of Borehole at 31.5 Feet	t					Wells	creen
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Stratif						soil types, transitions may be gradual. Wat					orina Na	o.: MW-11S	
31 — 32 — 33 — 8 R E M A R K S Stratificand ur	naer cond	itions state	a. Fluctuatio	ons of ground	awater ma	y occur due to other factors than those pres	sent at the time me	easurements we	ere mad	е.			



APPENDIX B

ESTIMATED PROJECT SCHEDULE

R&W/GZA APPENDIX B - ESTIMATED PROJECT SCHEDULE HOUSE STREET DISPOSAL AREA

PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

16.0062335.52

0	Task Mode	Task Name	Duration	Start		June July August September October November December S/13 S/20 S/27 G/3 G/10 G/17 G/24 7/1 7/8 7/15 7/22 7/29 8/5 8/12 8/19 8/26 9/2 9/9 9/16 9/23 9/30 10/7 10/14 10/21 10/28 11/4 11/11 11/18 11/25 12/2 12/9 12/16
1	-5	Unilateral Administrative Order (UAO)	151 days?	Fri 5/18/18	Fri 12/14/18	
2	*	Submittal of Final Removal Work Plan	0 days	Fri 5/18/18	Fri 5/18/18	5/18
3	-5	EPA Approval of Removal Work Plan	0 days	Thu 5/24/18	Thu 5/24/18	5/24
	4	Site Work	136 days?	Mon 5/21/18	Mon 11/26/18	
5	-5	Notify EPA 48 Hours Prior to Performing On-Site Work	1 day	Fri 5/25/18	Fri 5/25/18	
6		Notify EPA and State 7 Days Prior to Sample Collection Activities	1 day	Mon 5/21/18	Mon 5/21/18	
	-5	Mobilization	1 day	Tue 5/29/18	Tue 5/29/18	
	-5	Placement of Warning Signs	2 days	Tue 5/29/18	Wed 5/30/18	
	4	Drilling and Soil Sampling	29 days?	Thu 5/31/18	Tue 7/10/18	
)	4	25 Ft Grid Biased Soil Sampling	10 days	Thu 5/31/18	Wed 6/13/18	
	4	Biased Soil Sampling at Remaining 7 Areas	7 days?	Thu 6/14/18	Fri 6/22/18	
	4	400 Ft Grid Systematic Soil Sampling	7 days	Mon 6/25/18	Tue 7/3/18	
	_ 5	Soil Gas Monitoring Well Installation	5 days	Wed 7/4/18	Tue 7/10/18	
	- 5	Groundwater Sampling	79 days?	Wed 6/20/18	Mon 10/8/18	
	_ 5	First Groundwater Sampling Event	7 days?	Wed 6/20/18	Thu 6/28/18	
	_ 5	Second Groundwater Sampling Event	7 days?	Fri 9/28/18	Mon 10/8/18	
		Soil Gas Sampling	77 days	Wed 7/11/18	Thu 10/25/18	
1		First Soil Gas Sampling Event	6 days	Wed 7/11/18	Wed 7/18/18	
	-5	Second Soil Gas Sampling Event	6 days	Thu 10/18/18	Thu 10/25/18	
	-5	Investigation Derived-Waste Disposal	90 days	Tue 7/24/18	Mon 11/26/18	
	-	Laboratory Analysis	102 days?	Wed 6/20/18	Thu 11/8/18	
	-	Soil Sampling Analytical Data	35 days	Wed 6/20/18	Tue 8/7/18	
	- 5	First Groundwater Sampling Event Data	15 days	Fri 6/29/18	Thu 7/19/18	
ı .	_	First Soil Gas Sampling Data	15 days	Thu 7/19/18	Wed 8/8/18	
5		Receipt of All Soil and First Round Groundwater and Soil Gas	s 0 days?	Wed 8/8/18	Wed 8/8/18	8/8
6	-5	Second Groundwater Sampling Event Data	14 days	Wed 10/10/18	Mon 10/29/18	
7	_ 5	Second Soil Gas Sampling Data	7 days	Wed 10/31/18	Thu 11/8/18	
3 0		Monthly Progress Report	92 days	Thu 7/12/18	Fri 11/16/18	
-	-5	Monthly Progress Report 1	5 days	Thu 7/12/18	Wed 7/18/18	
)	-	Monthly Progress Report 2	5 days	Mon 8/13/18	Fri 8/17/18	
===	-	Monthly Progress Report 3	5 days	Tue 9/11/18	Mon 9/17/18	
==	- 5	Monthly Progress Report 4	5 days	Thu 10/11/18	Wed 10/17/18	
3	-5		5 days	Mon 11/12/18	Fri 11/16/18	
ļ.		Report Preparation	102 days?	Thu 7/26/18	Fri 12/14/18	
	-	Preparation of Report	30 days	Thu 7/26/18	Wed 9/5/18	
5	-3	Submit Final Report (W/O 2nd Round Groundwater and Soil Gas Data)		Thu 9/6/18	Mon 9/10/18	9/10
7	_ 5	EPA Review	10 days	Tue 9/11/18	Mon 9/24/18	
8	-5	Preparation of Report Addendum with 2nd Round Data	15 days	Fri 11/23/18	Thu 12/13/18	
9	- 5	Submit Report Addendum with 2nd Round Data	1 day?	Fri 12/14/18	Fri 12/14/18	▼ 12/1

Manual Summary

External Tasks

Progress

Manual Task

Milestone

Date: Fri 5/18/18

Inactive Task





FIGURES



TABLES



APPENDIX A

SOURCE AREA SOIL BORING LOGS



APPENDIX B

ESTIMATED PROJECT SCHEDULE

