



SITE INVESTIGATION WORK PLAN Former Trent Tube Property 2188 Church Street

East Troy, Wisconsin BRRTS #02-65-245827

April 19, 2024 File No. 20.0155935.01



PREPARED FOR:

Wisconsin Department of Natural Resources Fitchburg, Wisconsin

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Mr. Jeff Ackerman, Advanced Hydrogeologist Wisconsin Department of Natural Resources 3911 Fish Hatchery Road Fitchburg, Wisconsin 53711-5367

Re: Site Investigation Work Plan

Former Trent Tube Property

2188 Church Street East Troy, Wisconsin BRRTS #02-65-245827

Dear Mr. Ackerman:

GZA GeoEnvironmental, Inc. (GZA) prepared this Site Investigation Work Plan (SIWP), on behalf of EnPro Holdings, Inc. (EnPro), as responsible party for the remedial action site known as the former Trent Tube property located at 2188 Church Street in East Troy, Walworth County, Wisconsin ("Site"). This SIWP is being submitted in response to the Wisconsin Department of Natural Resources' (WDNR) comments in a letter, dated September 29, 2023, to the Site Investigation Report, dated December 7, 2022. The activities proposed in this SIWP are based on specific requests in the WDNR letter and/or comments discussed at the meeting on February 27, 2023 with the WDNR and GZA.

This SIWP provides a scope of work for proposed additional investigation activities, including soil borings and groundwater monitoring wells, soil and groundwater sampling and analysis, and evaluation of aquifer properties at the Site. There is also a narrative in Appendices B and C that provides information and clarification to WDNR comments provided in the letter.

During our meeting on February 27, 2023, we discussed a Site visit to provide the WDNR personnel with an understanding of the physical layout of the Site and to discuss questions that the WDNR may have about the Site. **GZA and EnPro would like to coordinate this meeting as part of the review of this SIWP.** GZA will contact you regarding this request and to coordinate a convenient date for the meeting.

This SIWP and the appropriate review fee (\$700.00) are being submitted to satisfy the requirements of Wisconsin Administrative Code ch. NR 716.15.

GZA and EnPro appreciate your consideration of this report and look forward to meeting with you on-Site. If you have questions or require additional information, please contact the undersigned at (262) 754-2578 or via email at kevin.hedinger@gza.com.

Very truly yours,

GZA GeoEnvironmental, Inc.

Kevin M. Hedinger Senior Hydrogeologist James F. Drought, P.H.
Principal Hydrogeologist

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Attachments

cc: Fern Paterson, EnPro Holdings, Inc.

Benne Hutson, EnPro Holdings, Inc. Ned Witte, Godfrey & Kahn, S.C. William Nelson, Godfrey & Kahn, S.C.

Issac Ross, WDNR



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1.0 INTRODUCTION AND PURPOSE

GZA GeoEnvironmental, Inc. (GZA) prepared this Site Investigation Work Plan (SIWP) on behalf of EnPro Holdings, Inc. (EnPro) as the identified responsible party for the remedial action site known as the Former Trent Tube Property located at 2188 Church Street in East Troy, Walworth County, Wisconsin ("Site"). The SIWP is being submitted in accordance with the requirements of Wisconsin Administrative Code (Wis. Adm. Code) § NR 716.09.

This SIWP addresses many of the Wisconsin Department of Natural Resources' (WDNR) comments on the December 2022 Site Investigation Report (SIR), as provided in a letter dated September 29, 2023 ("WDNR Comment Letter"). Specifically, this SIWP includes EnPro's response to WDNR's specific comments requesting clarification and further understanding of information presented in the SIR to allow WDNR to best evaluate the investigation activities proposed herein. Some of the proposed investigation activities were specifically requested in the WDNR Comment Letter. This SIWP is not intended to address the comments related to report formatting, tables, and figures in the SIR, as these comments will be addressed in future investigation reports submitted upon the completion of the technical field investigation and data collection activities presented in this SIWP. This report is subject to the Limitations provided in **Appendix A**.

This SIWP also provides additional clarifying responses to questions in the WDNR Comment Letter in **Appendix B** (primarily responding to Section 2 of the WDNR Comment Letter) and **Appendix C** (primarily responding to Section 6 of the WDNR Comment Letter). GZA met with the WDNR on February 27, 2024, to discuss these two sections of the WDNR Comment Letter and the information provided in **Appendices A and B** includes the documentation of the material presented and discussed at the meeting.

Finally, below are brief descriptions of the comments in the other sections of the WDNR Comment Letter, which included a total of eight sections, and EnPro's response.

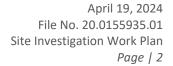
Section 1 of the WDNR Comment Letter addresses the format of the data presented in the SIR as it relates to the source areas identified at the Site. The WDNR requests that specific soil data pertaining to each source area be presented to demonstrate that the contamination is delineated, and the Site investigation is complete. This comment will be addressed in future investigation reports submitted upon the completion of the technical field investigation and data collection activities presented in this SIWP.

Section 3 of the WDNR Comment Letter addresses groundwater contamination with specific comments about individual analytes and a request for other forms of data presentation, such as graphs. The additional investigation activities identified in Section 3 of the WDNR Comment Letter (which are also included in other Sections of the WDNR Comment Letter) are addressed in this SIWP. Comments on the data presentation and comments about specific individual analytes will be addressed in investigation reports submitted upon the completion of the technical field investigation and data collection activities presented in this SIWP.

Section 4 of the WDNR Comment Letter addresses vapor intrusion. Although there are currently no on-Site improvements to be evaluated, WDNR requested clarification on the potential for off-Site migration of vapors. The evaluation of vapor intrusion at the Site will continue through the Site investigation activities proposed in this SIWP and future Site investigation activities.

Section 5 of the WDNR Comment Letter addresses the possible effects to Honey Creek. This SIWP proposes to replace monitoring well MW-5, which was previously removed during the remedial excavation along Honey Creek, with new

¹ Site Investigation Report, Former Trent Tube Property, 2188 Church Street, East Troy, Wisconsin, BRRTS #02-65-245827, dated December 7, 2022, GZA File No. 20.0155935.01.





monitoring well MW-5R, and also to place a staff gauge in Honey Creek in the area of monitoring well MW-5R to evaluate and assess the interaction of the Honey Creek elevation and groundwater elevation. The results of this evaluation will be included in investigation reports submitted as Site investigation activities are completed.

Section 7 of the WDNR Comment Letter addresses proposed and enacted remedial actions. These comments reiterate some comments presented in previous sections of the WDNR Comment Letter and request that the remedial actions completed and proposed consider any changes to the conceptual Site model (CSM). The evaluation of remedial actions is an ongoing process through the Site investigation and remediation of the Site.

Section 8 of the WDNR Comment Letter addresses data presentation and corrections. These comments will be specifically addressed in future investigation reports submitted upon the completion of the technical field investigation and data collection activities presented in this SIWP.

2.0 SITE INFORMATION

The Site is located at 2188 Church Street in the Village of East Troy, Wisconsin. The Site is located in the NW ¼ and SW ¼ of the NW ¼ of Section 29, Township 4 North, Range 18 East in Walworth County, Wisconsin. The WTM coordinates for the approximate center of the Site are 650581, 257788.

The Site includes two full parcels, RXUP 00166 and RXUP 0167, and the southern portion of a third parcel, RXUP 0160, as identified on the Walworth County Parcel Viewer. The Site covers approximately 13.5 acres and is currently vacant. **Figure 1** is a Site Plan showing the Site features and utilities, **Figure 2** is a map showing the former building utilities, and **Figure 3** is a map showing the potential source areas based on historic operations at the Site. These figures were presented in the SIR and have been renumbered for this SIWP.

The contact information for the parties involved in the investigation and remediation of the Site are as follows:

Property Owner

Crucible Materials Corp. Environmental Response Trust Foley & Lardner, LLP 777 East Wisconsin Avenue, Suite 3800 Milwaukee, Wisconsin 53202 Contact: Mr. Bruce Keyes, Trustee

Responsible Party

EnPro Holdings, Inc.

5605 Carnegie Boulevard, Suite 500 Charlotte, North Carolina 28209

Contact: Ms. Fern Paterson, Director Environmental and Sustainability and Deputy General Counsel

Environmental Consultant

GZA GeoEnvironmental, Inc. 17975 West Sarah Lane, Suite 100 Brookfield, Wisconsin 53045

Contact: Mr. Kevin Hedinger, Senior Hydrogeologist



3.0 PROPOSED SCOPE OF WORK

This section presents proposed Site investigation activities to satisfy the NR 716 requirements for Site investigations. The proposed activities are designed to provide soil and groundwater data in areas requiring further definition and to clarify the Site's soil conditions and hydraulic properties. The proposed activities include:

- Monitoring well and piezometer installation;
- Refinement of polychlorinated biphenyl (PCB) grid sampling;
- Evaluation for dense non-aqueous phase liquids (DNAPL);
- Hydraulic conductivity testing; and
- Elevation surveying.

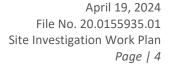
3.1 MONITORING WELL AND PIEZOMETER INSTALLATION

The WDNR Comment Letter requested additional piezometers to evaluate vertical hydraulic gradients and deeper groundwater concentrations. In addition, the WDNR requested that monitoring well MW-5, which was previously abandoned during remedial excavation activities, be reinstalled to evaluate the groundwater conditions at its location.

EnPro proposes to install six piezometers and one monitoring well in select source areas across the Site where groundwater concentrations previously exceeded the NR 140 enforcement standards (ESs). These piezometers will be nested with existing monitoring wells to allow for an evaluation of hydraulic gradient and collection of groundwater samples from the groundwater interval below the existing monitoring wells. The piezometers will also allow for characterization of the hydraulic properties of the presumed aquitard and provide information related to the horizontal extent and vertical thickness of this unit at the Site. The table below identifies each of the proposed piezometers and associated nested wells and **Figure 4** shows the location of each proposed piezometer and associated nested well.

Proposed Piezometer/ Monitoring Well	Existing Monitoring Well	Rationale	
MW-13A	MW-13R	Located in the area of the former septic system, as shown in previous reports.	
MW-15A	MW-15	Located downgradient of the Area of Consolidation (AOC) and former surface impoundment.	
MW-17A	MW-17	Located in the area of a former aboveground storage tank (AST) and vapor degreasing area in the northern portion of the building.	
MW-18A	MW-18	Located near the former flume and conveyance to the former surface impoundment.	
MW-42A	MW-42	Located near the former vapor degreaser in the southern portion of the building.	
MW-5R and MW-5A	MW-5 (former)	Former MW-5, which was formerly located along Honey Creek and was abandoned during the previous remedial excavation activities; will be replaced with MW-5R.	
IVIVV-5A		The replacement monitoring well MW-5R will also be nested with new piezometer MW-5A.	

The piezometers will be installed at least 5 feet from the nested monitoring well using hollow-stem auger (HSA) drilling techniques. Soil samples will be collected throughout the boring depth for visual and olfactory observation, and field





screening. The visual observations will be recorded on a soil boring log. A portion of the sample will be placed in a sealed, plastic bag and allowed to rest prior to measurement of total volatile organic compounds (VOCs) in the headspace of the bag using a photoionization detector (PID) equipped with a 10.6 eV lamp. The field screening measurements will also be recorded on the soil boring log. One soil sample will be collected from the interval below the depth of the nested monitoring well for laboratory analysis of VOCs.

Each piezometer will be installed in a two-step process. The first step is the installation of a surface casing that extends from the ground surface to approximately 1 to 2 feet into the top of the presumed aquitard. The surface casing will seal off the upper portion of the soil and groundwater column to prevent communication through the borehole to the deeper interval during drilling. The depth of the aquitard will be determined based on the existing monitoring well boring logs and field observations.

At the appropriate depth, an 8- to 10-inch solid polyvinyl chloride (PVC) casing with a cap on the bottom will be placed into the borehole and the annular space around the casing will be sealed using a cement-bentonite grout. The cement bentonite grout will be topped off if the grout settles in the borehole after placement and will be allowed to cure for approximately 24 hours.

Following the surface casing installation and curing, the second step will use HSA drilling techniques to advance the boring through the bottom cap of the PVC surface casing to the appropriate piezometer depth. The piezometers are proposed to be installed to a depth of approximately 40 feet depending on the location and depth of the monitoring well screen. The screened sections of the piezometer and monitoring wells are proposed to have a vertical separation distance of at least 10 to 15 feet.

The proposed piezometers will be constructed with a 5-foot Schedule 40 PVC, 0.010-inch factory-slotted well screen and the balance of solid Schedule 40 PVC riser pipe to reach the surface. The piezometers will be completed as above-grade completions. The annular space around the well screen will be filled with a sand filter pack from the bottom of the well screen to approximately 2 feet above the top of the well screen. The annular space above the sand filter pack, including the surface casing, will be filled with bentonite chips to within 1 foot of the surface. A steel protective casing with a locking lid will be placed over the top of the piezometer.

For the reinstallation of the monitoring well at MW-5, the boring will be advanced using HSA drilling techniques. Soil samples will be collected throughout the soil boring. The same protocol used for the upper portion of the piezometers will be followed for the installation of this monitoring well, except that a surface casing will not be installed. Following advancement of the soil boring to the appropriate depth, the monitoring well will be placed in the borehole. The monitoring well will be constructed with a 10-foot, Schedule 40 PVC, 0.010-inch factory-slotted well screen and the balance of solid Schedule 40 PVC riser pipe to reach the surface. The monitoring well will be completed as an above-grade completion. The annular space around the well screen will be filled with a sand filter pack from the bottom of the well screen to approximately 2 feet above the top of the well screen. The annular space above the sand filter pack, including the surface casing, will be filled with bentonite chips to within 1 foot of the surface. A steel protective casing with a locking lid will be placed over the top of the piezometer. The details regarding the well construction will be recorded on the WDNR Monitoring Well Construction Form 4400-113A.

It should be noted that monitoring well MW-5 was previously removed during the remedial excavation along Honey Creek. The proposed location of replacement well MW-5R is within the excavation limit and is likely backfilled with granular material. One purpose of replacement well MW-5R and piezometer MW-5A is to evaluate whether this granular material is in communication with the water in Honey Creek, in which case we would expect to see that groundwater samples are influenced by Honey Creek. This evaluation will be addressed in future investigation reports submitted upon the completion of the technical field investigation and data collection activities presented in this SIWP.



3.2 WELL DEVELOPMENT

Approximately five to seven days after installation, the piezometers and monitoring well will be developed to remove stagnant water and fine-grained sediment from the well screen and sand filter pack.

The piezometers and monitoring well will be developed in accordance with Wis. Adm. Code § NR 141.21. The height of the water column in each piezometer and well will be measured and the well development volume will be calculated using the equation in Wis. Adm. Code § NR 141.21. Each piezometer or monitoring well will be developed by removing 10 well volumes or until the water in the well is sediment-free. During well development, a turbidity meter will be used to periodically measure the turbidity of the development water to determine if development can stop prior to the removal of 10 well volumes. Well development will be considered complete when the turbidity is less than 100 NTU.

The water in the screen will be surged with a bailer or surge block to move water through the screen and sand filter pack to mobilize sediment into the well. Water and entrained fine-grained sediment will be removed from the well casing using a bailer. The purge water generated during well development will be containerized on-Site and labeled until proper disposal can be arranged. Information related to well development will be recorded on the WDNR Well Development Form 4400-113B.

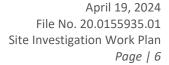
3.3 GROUNDWATER SAMPLING

Following well development, groundwater samples will be collected from each of the six nested piezometers and monitoring wells. Prior to sample collection the depth to groundwater referenced to the top of casing elevation will be measured in each of the piezometers and monitoring wells. The piezometers and monitoring wells will be sampled using low-flow sampling techniques. The wells will be purged using a peristaltic pump equipped with a flow-through cell and multi-meter to measure field parameters (temperature, pH, dissolved oxygen [DO], specific conductance, and oxidation-reduction potential [ORP]). A dedicated polyethylene tube will be lowered into the monitoring well or piezometer to the approximate center of the well screen or water column, if the well screen is not fully submerged. The tubing will be connected to the peristaltic pump. The discharge from the peristaltic pump will be connected to the flow-through cell with the multimeter. During purging, the field parameters will be recorded on a 3- to 5-minute interval. The purge rate will be set at a level that minimizes drawdown and may be different for each well and piezometer. The wells will be purged until the field parameters stabilize within the range established for each field parameter in the WDNR Groundwater Sampling Field Manual. Once stabilization is achieved, the tubing will be disconnected from the flow-through cell and the groundwater sample will be collected either directly or filtered into the laboratory-supplied sample containers.

The groundwater samples will be properly labeled, placed on ice in an insulated cooler, and shipped under chain of custody control to Pace® Analytical (Pace) in Green Bay, Wisconsin for analysis. The groundwater samples from the piezometers and monitoring wells will be analyzed for VOCs by United States Environmental Protection Agency (USEPA) Method 8260 and metals (arsenic, cadmium, chromium, hexavalent chromium, and nickel) by USEPA Method 6020.

3.4 <u>ELEVATION SURVEY</u>

Following piezometer and monitoring well installation, the top of casing and ground surface elevation will be surveyed for each well. The elevations will be referenced to the Site datum used to survey the monitoring wells by using one of the monitoring well's known elevations as a benchmark. The datum for the original survey was selected by a previous consultant and is a datum referenced to mean sea level. The equipment used for the survey will be capable of measuring the vertical elevation to an accuracy of 0.01 feet and the horizontal accuracy to within 1 foot, as required in Wis. Adm. Code § NR 141.065 (2).





Since approximately 1944, some of the grades in different areas of the Site have been altered and soil samples collected at certain locations during previous Site investigation activities in certain areas, such as the Area of Consolidation (AOC), were collected at lower elevations than are present at these locations at the Site today. **Appendix B** provides additional detailed information regarding the historical soil sampling activities at the Site and relevant Site history that altered Site grades and elevations.

To add vertical context to these soil samples collected in specific areas, spot ground surface elevations will also be measured to estimate the previous soil sample elevation. These spot ground surface elevations will include the approximate elevation of the building floor elevation, the elevation of fill material placed in the former impoundment that is currently beneath the AOC, the approximate elevation of the former channel and lagoon on the east side of the Site, the approximate elevation of the bottom of Honey Creek, and other features that may be deemed necessary.

A staff gauge will also be placed in Honey Creek near the southeast corner of the former building in the area of monitoring well MW-5R. The staff gauge will be surveyed into the datum so that the Honey Creek elevation and groundwater elevation and interaction can be assessed.

3.5 VERTICAL GRADIENT EVALUATION

The vertical gradients in the nested piezometers and monitoring wells will be calculated using the depth to groundwater measurements collected during groundwater sampling. The well completion details of each nested piezometer and monitoring well will be reviewed and the well screen separation will be calculated. The groundwater elevations will be calculated from the depth to groundwater measurements. The vertical gradient is calculated by measuring the difference in the groundwater elevations and dividing by the well screen separation.

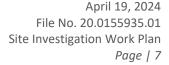
A downward vertical gradient is an indication of groundwater moving from the monitoring well toward the piezometer and the upward gradient is an indication of groundwater moving toward the monitoring well screen. The vertical gradient evaluation is ongoing and can be performed during subsequent groundwater sampling or groundwater elevation measurement events. The vertical gradient in a well nest can fluctuate upward and downward seasonally or with changes in the groundwater elevations at the Site.

In addition to the calculation of the vertical gradients, the groundwater concentrations in each nested piezometer and monitoring well will be compared to evaluate if there is an indication of vertical migration.

3.6 HYDRAULIC CONDUCTIVITY TESTING

Aquifer slug testing was previously performed on select wells across the Site to determine the hydraulic conductivity of the shallow aquifer. To evaluate the hydraulic properties of the presumed aquitard, aquifer testing will be performed on the two existing and six newly installed nested piezometers and the nested monitoring wells (16 total wells).

Prior to performing the slug testing, the depth to groundwater referenced to the top of casing will be measured and recorded in each piezometer and monitoring well. A transducer will be placed into the well casing at a depth below which the slug will be lowered. Placement of the transducer in the well may raise the water level. Therefore, the well will be allowed to equilibrate until the static water level is within 0.01 feet prior to placement of the slug. Following static water level equilibration, a slug of known volume will simultaneously be lowered into the well so that the transducer is not disturbed and the "slug-in" test will begin. The transducer will record pressure measurements as the water level recedes back to the static water level. Once the static water level is reached, the slug will simultaneously be removed and the "slug-out" test will begin. The transducer will record pressure measurements as the water level rises to the static water level.





The pressure measurements recorded by the transducer will be downloaded and evaluated with software using the Bouwer and Rice slug test solution. The hydraulic conductivity will be calculated for the "slug-in" and "slug-out" tests for each piezometer and monitoring well.

3.7 DNAPL EVALUATION

WDNR requested that the Site be evaluated for the presence of DNAPL based on historic soil and groundwater samples that were presented on the tables in the SIR. Based on the CSM developed for the Site, soils are a mixture of sand and silt in the upper 20 feet with a deeper silt unit that is acting as an aquitard. **Appendix C** provides additional and detailed information regarding the characterization of the geology and hydrogeology at the Site.

The existing monitoring wells at the Site are completed to a depth of approximately 20 feet, which generally coincides with the top of the aquitard. The shallow groundwater appears to be flowing horizontally through the shallow silt, sand, and gravel soils and discharging into Honey Creek. The CSM will be further developed and confirmed with the installation of the six piezometers described above.

The proposed DNAPL evaluation includes a review of the well completion details for each well on-Site to determine the depth of the well in comparison to the top of the presumed aquitard. Assuming that the monitoring wells are completed at the top of the presumed aquitard, if DNAPL is present, the monitoring wells are capable of detecting DNAPL.

The existing monitoring wells will be gauged with a free product interface probe capable of detecting chlorinated hydrocarbon products. The probe will first be lowered into the well to the top of the groundwater surface and then slowly lowered through the groundwater until the probe reaches the bottom of the well. If free product is detected, the probe will sound and the depth to the top of the free product will be recorded.

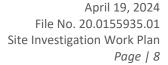
In addition to the measurements with the free product probe, soil samples collected during the advancement of the piezometers will be observed for indications of free product such as odor or staining. The comparison of the groundwater concentrations described above will also be evaluated to determine if there is a potential for free product in the source areas where the nest wells are installed.

3.8 PCB GRID SAMPLING

As described in **Appendix B**, in 2019, a grid was established across the Site for collection of samples to evaluate the soils for potential PCBs. This soil sampling incorporated eight other soil samples collected prior to the establishment of the grid. The PCB soil samples identified seven locations with exceedances of the residual contaminant levels (RCLs); two in the former lagoon area, one in the former channel, one south of the former building, and three within the footprint of the northern portion of the former building. Based on these sample results, additional samples were collected to delineate around these areas. WDNR is requesting that the sampling grid within the building be refined in the area of the exceedances through the collection of additional samples.

The proposed plan is to refine the sampling grid around Samples 4 and 6 in the northern portion of the former building. The original grid had a sampling radius of approximately 70 feet. The revised grid will have a sampling radius of approximately 25 feet. The revised grids are between Samples 3, 4, and 6, and between Samples 1, 2, and 5, as shown on **Figure 5**.

The proposed sampling will include advancing soil borings to a maximum depth of 4 feet below ground surface (bgs) and collecting soil samples at intersections of the grid shown on **Figure 5**. This will result in a total of 58 sample locations. Soil samples will be collected from the 0- to 2- and 2- to 4-foot depth intervals at each sample location.





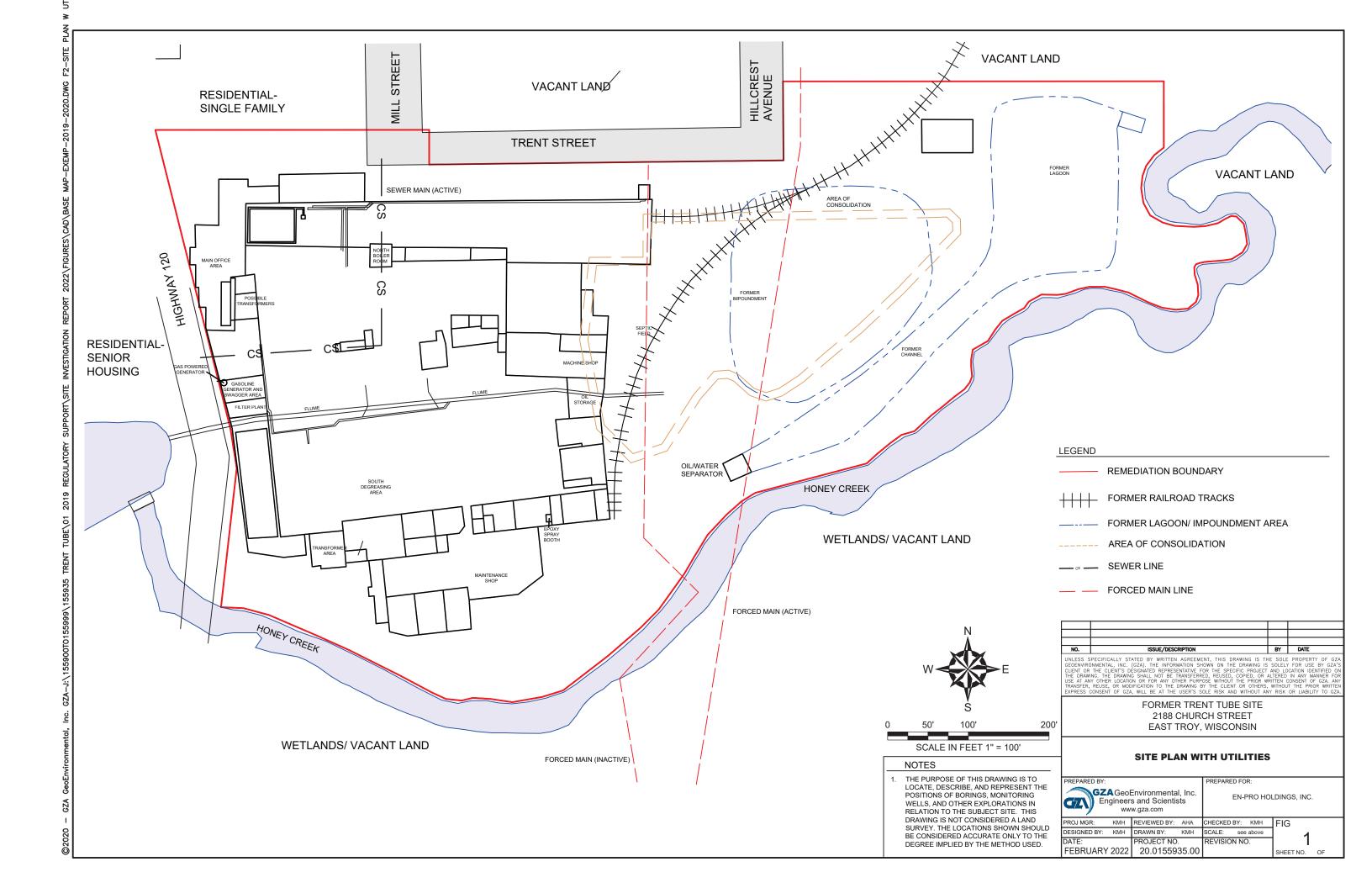
In addition to collecting PCB soil samples at these locations, six of the boring locations around MW-17 will be advanced to approximately 10 feet bgs or the groundwater interval, whichever is deeper, with two soil samples from each boring collected for VOC analyses to provide refinement of the VOC impacts in this area of the Site. If field measurements and observations indicate the presence of VOC impacts in the soil boring advanced to the deeper interval, another boring will be advanced at the next soil boring on the grid outside of this area and samples will be collected from this boring.

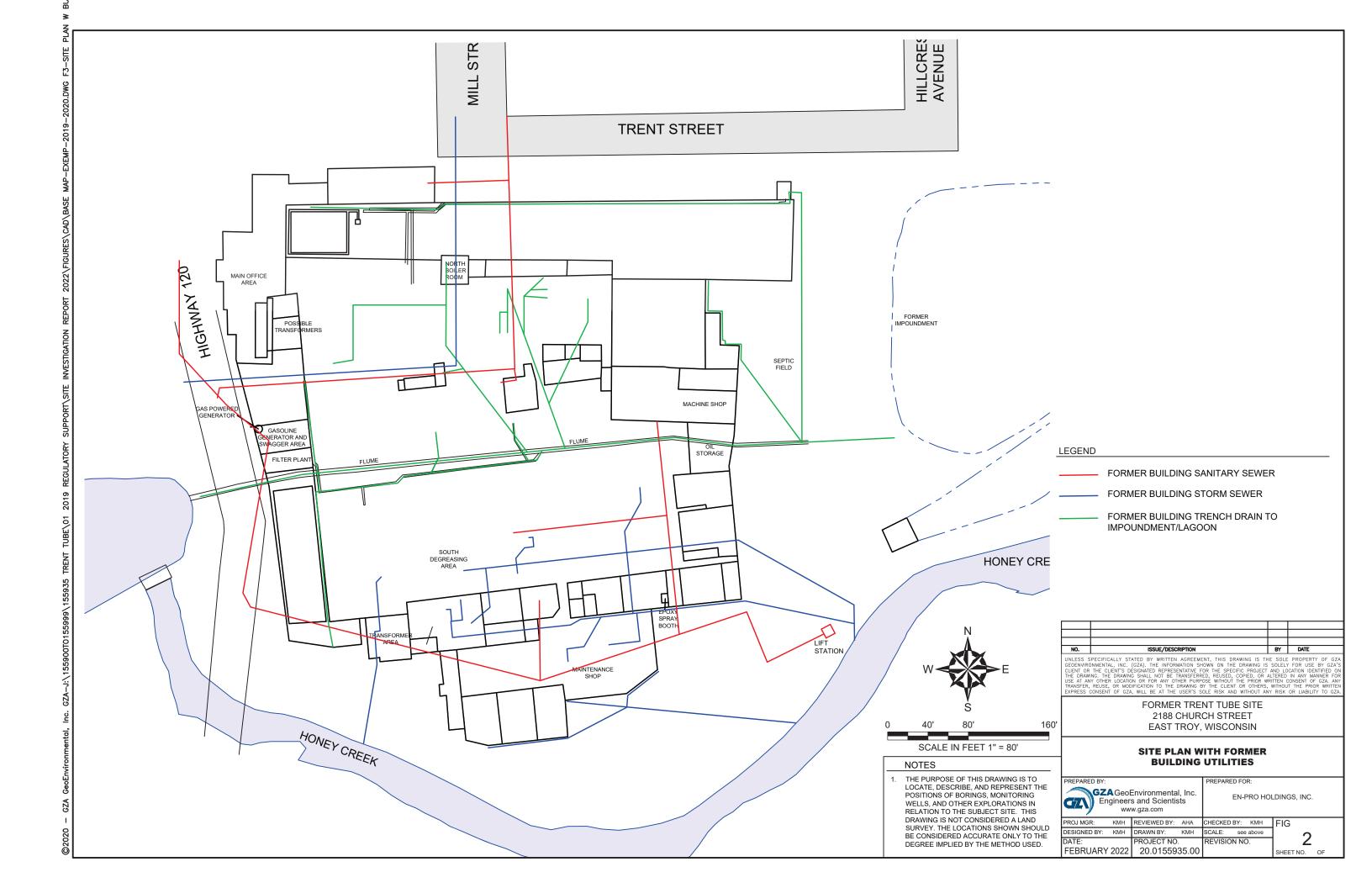
Soil samples will be collected throughout the boring depth for visual and olfactory observation, and field screening. The visual observations will be recorded on a soil boring log. A portion of the sample will be placed in a sealed, plastic bag and allowed to rest prior to measurement of the total VOCs in the headspace of the bag using a PID equipped with a 10.6 eV lamp. The field screening measurements will also be recorded on the soil boring log.

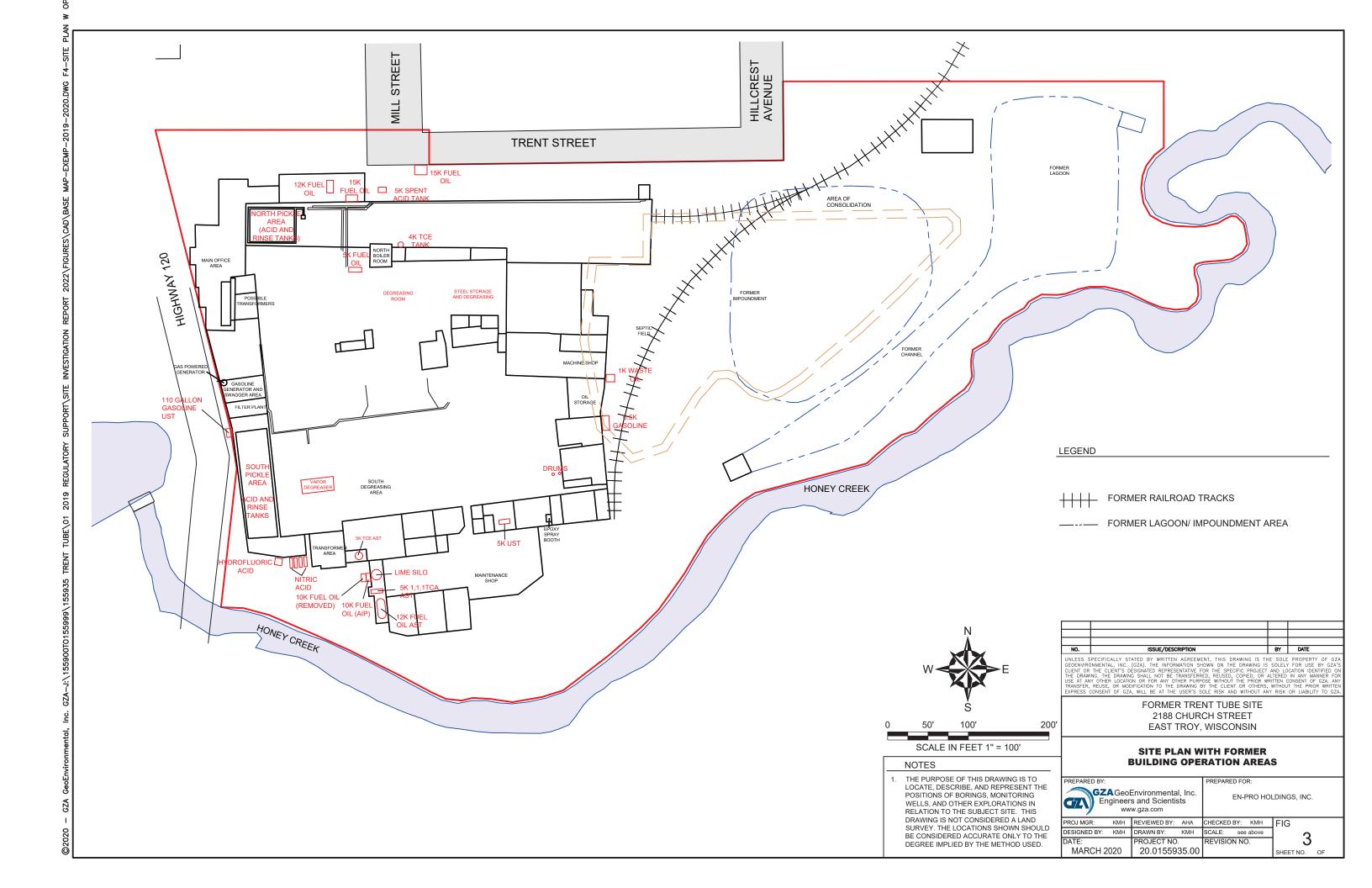
The samples for laboratory analysis will be placed into laboratory-supplied sample containers, placed on ice in an insulated cooler, and shipped under chain of custody control to Pace in Green Bay, Wisconsin for analysis. The soil samples collected from these borings will be submitted for laboratory analysis of PCBs by USEPA 8082 and VOCs by USEPA Method 8260.

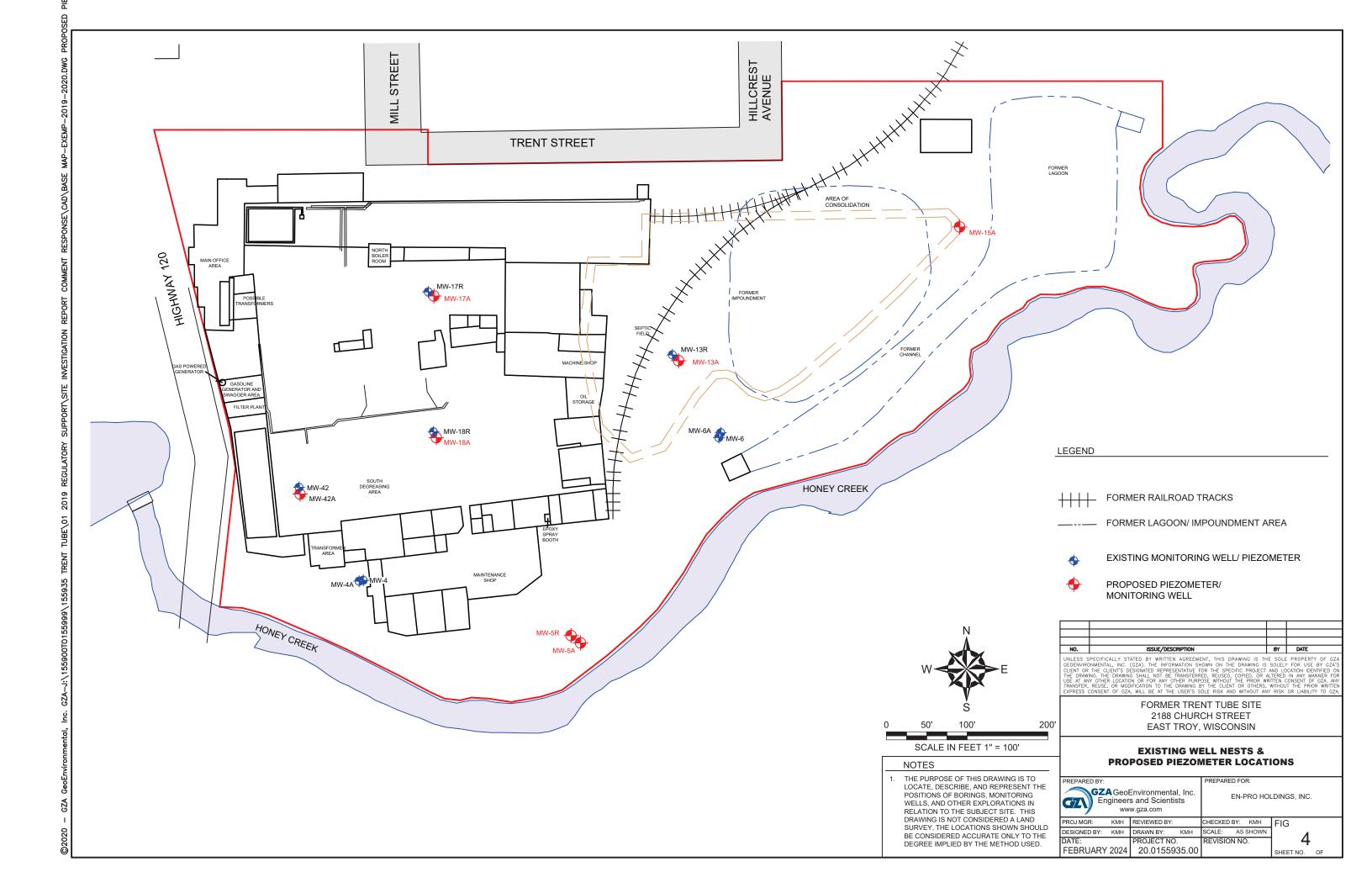


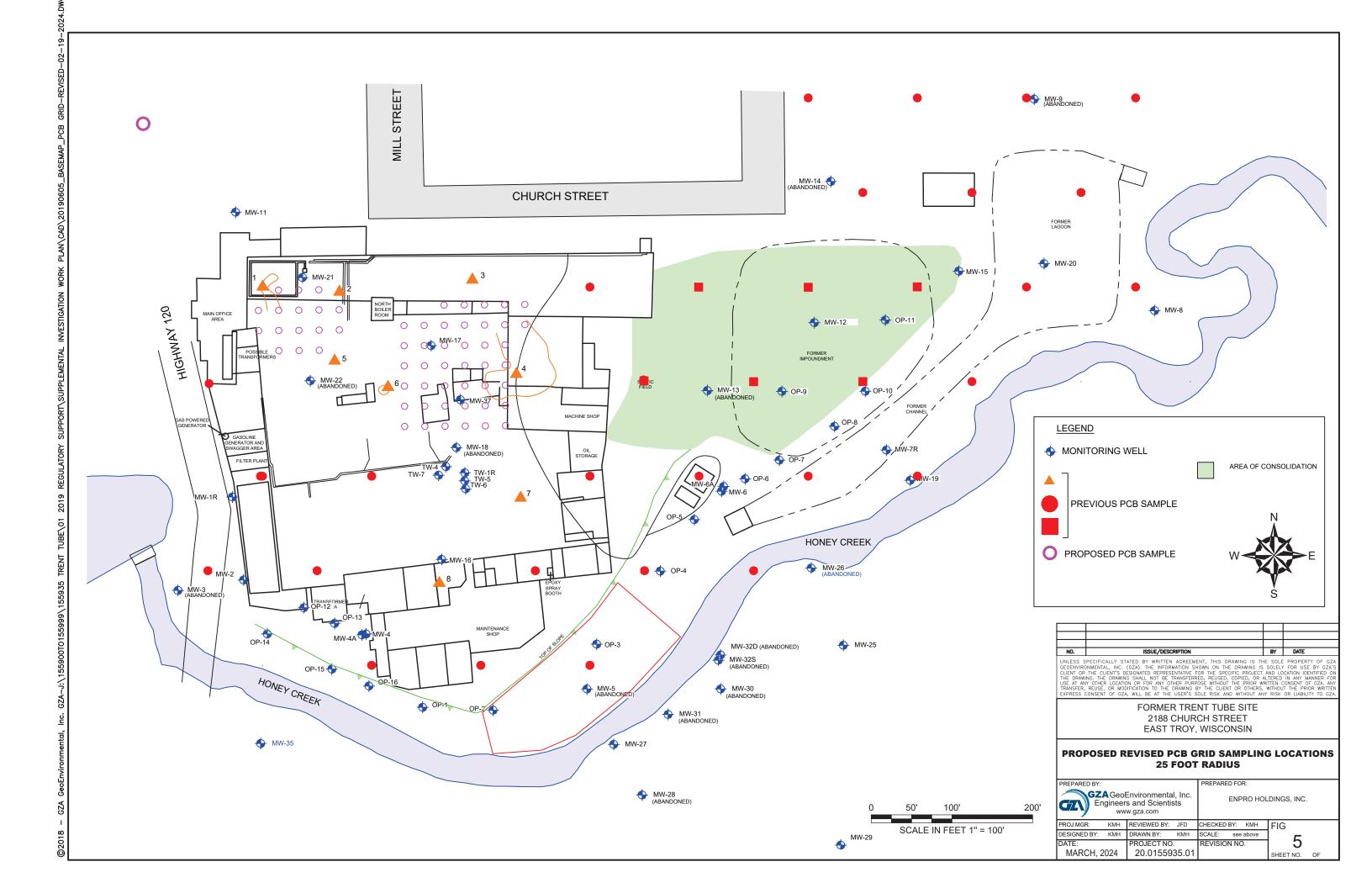
FIGURES













APPENDIX A

LIMITATIONS



LIMITATIONS

Standard of Care

- 1. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the Proposal for Services and/or Report and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. Conditions other than described in this Report may be found at the subject location(s).
- 2. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made. Specifically, GZA does not and cannot represent that the Site contains no hazardous material, oil, or other latent condition beyond that observed by GZA during its study. Additionally, GZA makes no warranty that any response action or recommended action will achieve all of its objectives or that the findings of this study will be upheld by a local, state or federal agency.
- 3. In conducting our work, GZA relied upon certain information made available by public agencies, Client and/or others. GZA did not attempt to independently verify the accuracy or completeness of that information. Inconsistencies in this information which we have noted, if any, are discussed in the Report.

Subsurface Conditions

- 4. The generalized soil profile(s) provided in our Report are based on widely-spaced subsurface explorations and are intended only to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and were based on our assessment of subsurface conditions. The composition of strata, and the transitions between strata, may be more variable and more complex than indicated. For more specific information on soil conditions at a specific location refer to the exploration logs. The nature and extent of variations between these explorations may not become evident until further exploration or construction. If variations or other latent conditions then become evident, it will be necessary to reevaluate the conclusions and recommendations of this Report.
- 5. Water level readings have been made, as described in this Report, in and monitoring wells at the specified times and under the stated conditions. These data have been reviewed and interpretations have been made in this Report. Fluctuations in the level of the groundwater however occur due to temporal or spatial variations in areal recharge rates, soil heterogeneities, the presence of subsurface utilities, and/or natural or artificially induced perturbations. The observed water table may be other than indicated in the Report.

Compliance with Codes and Regulations

6. We used reasonable care in identifying and interpreting applicable codes and regulations necessary to execute our scope of work. These codes and regulations are subject to various, and possibly contradictory, interpretations. Interpretations and compliance with codes and regulations by other parties is beyond our control.

Screening and Analytical Testing

- 7. GZA collected environmental samples at the locations identified in the Report. These samples were analyzed for the specific parameters identified in the Report. Additional constituents, for which analyses were not conducted, may be present in soil, groundwater, surface water, sediment and/or air. Future Site activities and uses may result in a requirement for additional testing.
- 8. Our interpretation of field screening and laboratory data is presented in the Report. Unless otherwise noted, we relied upon the laboratory's QA/QC program to validate these data.



9. Variations in the types and concentrations of contaminants observed at a given location or time may occur due to release mechanisms, disposal practices, changes in flow paths, and/or the influence of various physical, chemical, biological or radiological processes. Subsequently observed concentrations may be other than indicated in the Report.

Interpretation of Data

10. Our opinions are based on available information as described in the Report, and on our professional judgment. Additional observations made over time, and/or space, may not support the opinions provided in the Report.

Conceptual Site Model

11. Our opinions were developed, in part, based upon a comparison of site data to conditions anticipated within our Conceptual Site Model (CSM). The CSM is based on available information, and professional judgment. There are rarely sufficient data to develop a unique CSM. Therefore observations over time, and/or space, may vary from those depicted in the CSM provided in this Report. In addition, the CSM should be evaluated and refined (as appropriate) whenever significant new information and/or data is obtained.

Additional Information

12. In the event that the Client or others authorized to use this Report obtain additional information on environmental or hazardous waste issues at the Site not contained in this Report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this evaluation, may modify the conclusions stated in this Report.

Additional Services

13. GZA recommends that we be retained to provide services during any future investigations, design, implementation activities, construction, and/or property development/ redevelopment at the Site. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.



APPENDIX B

RESPONSE TO SECTION 2 OF WDNR COMMENT LETTER



APPENDIX B RESPONSE TO SECTION 2 OF WDNR COMMENT LETTER

The information presented in the section below was discussed at the meeting on February 27, 2024, and provides detailed information to the comments in Section 2 of the WDNR Comment Letter titled, "Soil contamination and the appropriate residual contaminant level." This information may also address comments in other sections of the comment letter.

Residual Contaminant Level

The WDNR indicates that the applicable residual contaminant levels (RCLs) for this property are non-industrial based on the current zoning of the property as "suburban residential" use. The zoning for this property was industrial from 1944 until 2013, when it was rezoned from industrial to "suburban residential." No suburban residential use is occurring at the Site. The future use of the entire Site has not yet been determined or finalized.

Wisconsin has a general prohibition against building structures of any type (residential, commercial, industrial) on a buried waste site. This would preclude development upon the Area of Consolidation (AOC), which includes the area filled with contaminated material from the stream bank and other remediation activities at the Site. The remainder of the property to the east of the AOC is a low area along Honey Creek and is in the floodplain according to Federal Emergency Management Agency (FEMA) flood insurance maps. As such, the majority of the Site, approximately 9 acres, is legally or practically unavailable for non-industrial redevelopment as shown on **Figure A1**.

EnPro is providing revised soil maps based on the non-residential RCLs in response to WDNR comments and wishes to continue the discussion with the WDNR regarding the appropriate RCLs for the Site.

Arsenic

The soil arsenic exceedances are located in the former channel and lagoon area along the east side of the property and in the former surface impoundment area, which is beneath the existing AOC as shown on the attached **Figure A2** from the SIR.

The samples with arsenic concentrations exceeding the RCL were collected from 1995 through 1998, at a sample depth from 0 to 4 feet below ground surface (bgs). Plant operations ceased in 1984, and various work at the Site both before and after the 1995-1998 sampling events, changed elevations at the Site. Therefore, to understand the elevations of these areas at the time the sampling showing the exceedances, the aerial photographs from the Walworth County One View website (https://gisinfo.co.walworth.wi.us/oneview/) were reviewed.

Channel & Lagoon Areas. The 1980 aerial photograph, which is provided below, shows the channel and lagoon when the plant was operating. The 1995 aerial photograph, which was taken approximately 11 years after operations ceased, shows that the channel and lagoon have been filled. Based on a comparison of these aerial photographs, the channel and lagoon were already filled prior to the time of the soil sampling between 1995 and 1998 in the channel and lagoon area. Therefore, the soil samples collected from 0 to 1 foot bgs in this area were collected from fill material used to fill the channel and lagoon, and not soil from beneath the channel and lagoon. Because the potential extent of the arsenic impacts is limited to the areas of fill (i.e., vertically to the former surface of the channel and lagoon, and horizontally to the areas where fill was applied), EnPro believes the fill material in and around the former channel and lagoon are adequately delineated for Site investigation purposes by numerous soil samples surrounding the former channel and lagoon areas.

Surface Impoundment/AOC Area. The 1980 aerial photograph also shows the area of the former surface impoundment, which was filled following the cessation of operations in 1984, and then subsequently covered by the AOC in 2010. The aerial photographs from 1980 and 1995 were taken prior to construction of the AOC. In the 1995 aerial photograph, the surface impoundment appears to be filled, but the AOC that was constructed in 2008 to 2010 is not yet in existence. The

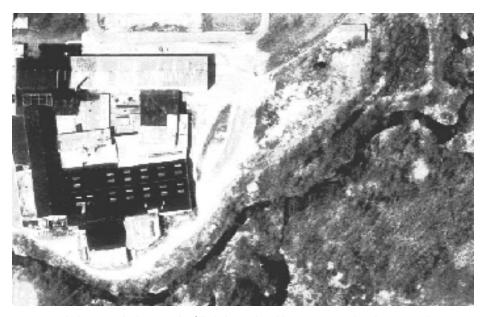


soil samples shown on the map that were collected from 1995 through 1998 in the former surface impoundment and AOC were collected from the surface impoundment fill material, and this fill material is currently covered by the AOC. Therefore, the concentrations exceeding the RCL were collected from soil at or below the base of the AOC, and do not represent a direct contact risk.

On this basis, EnPro offers that the arsenic soil impacts are sufficiently characterized for the purpose of the site investigation and should be addressed in a remedial plan.



1980 Aerial Photograph showing the channel and lagoon in operation (middle upper right side of the photograph)



 $1995\ Aerial\ Photograph\ showing\ the\ filled\ channel\ and\ lagoon\ covered\ with\ trees\ and\ vegetation\ indicating\ it\ was\ filled.$



Polychlorinated Biphenyls (PCBs)

The WDNR is requesting additional sampling to refine the PCB sampling grid that was established at the Site in 2019, for evaluation of the potential for PCB impacts. The historic operations at this Site do not indicate that there was a source of PCBs used in the manufacturing operations from 1941 through 1984. However, the initial samples collected within the former building footprint detected PCBs at concentrations exceeding the RCLs. The Site was historically used as a grist mill prior to 1941, as the former Trent Tube manufacturing facility from 1941 through 1984, as a storage and shipping warehouse from 1984 through 1991, and was vacant from 1991 through present.

In 2017, PCB soil samples were collected from eight locations within the northern portion of the former building. The results indicated three samples (1, 4, and 6) collected from the shallow soils (0 to 4 feet bgs) within the northern portion of the former building footprint had reported concentrations exceeding the individual PCB congener RCLs.

In 2019, at the request of the WDNR project manager, a sampling grid was developed and implemented across the Site to characterize PCBs in the shallow soils. The eight samples previously collected were incorporated into this sampling grid to provide an overall understanding of the potential for PCBs as a contaminant of concern. The 2019 PCB sample results identified PCB concentrations exceeding the RCLs in shallow soils at two sample locations (11 and 15) in the former lagoon, at one sample location (31) in the former channel, and at one sample location (38) located south of the former building.

In response to the 2019 grid sample results, additional PCB soil samples were collected around each of the PCB-affected samples to delineate the extent of the affected soils to the applicable RCL. The results of the eight PCB soil samples collected in 2017 and the PCB grid samples collected in 2019 for the 0- to 2- and 2- to 4-foot depth intervals are shown on **Figures A3 and A4**.

In addition, Figures **A5 through A8** show the delineation sample locations and results for samples 1, 4, 6, 11, 15, 31, and 38, with concentrations with respect to the non-industrial direct contact RCL. The PCBs in samples 6, 11, 15, 31, and 38 have been adequately delineated. Based on our review of the existing data, additional delineation is necessary around sample 1 and 4 in the northern portion of the former building. The scope of work for refining the sampling grid for PCBs in these locations is presented in Section 3.8 of the SIWP.

Polycyclic Aromatic Hydrocarbons (PAHs)

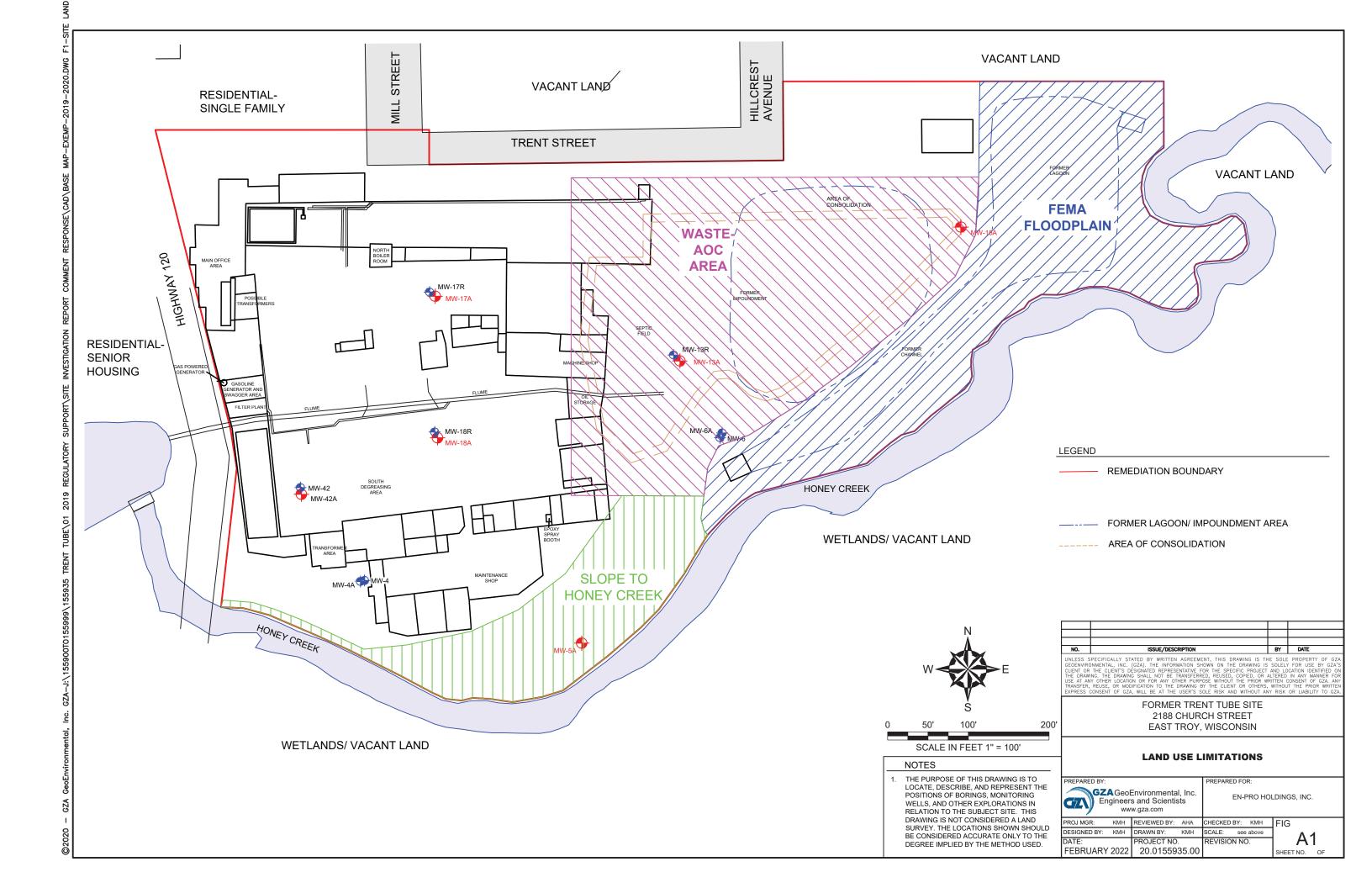
The WDNR Comment Letter requests further clarification of the PAH-affected soils on a map using non-industrial RCLs. As provided in the RCL discussion above, the Site is largely unavailable for residential development and EnPro would like to continue the discussion with the WDNR regarding the appropriate PAH RCLs for this Site. Additional clarification of the PAH-affected soils will be addressed in future submittals.

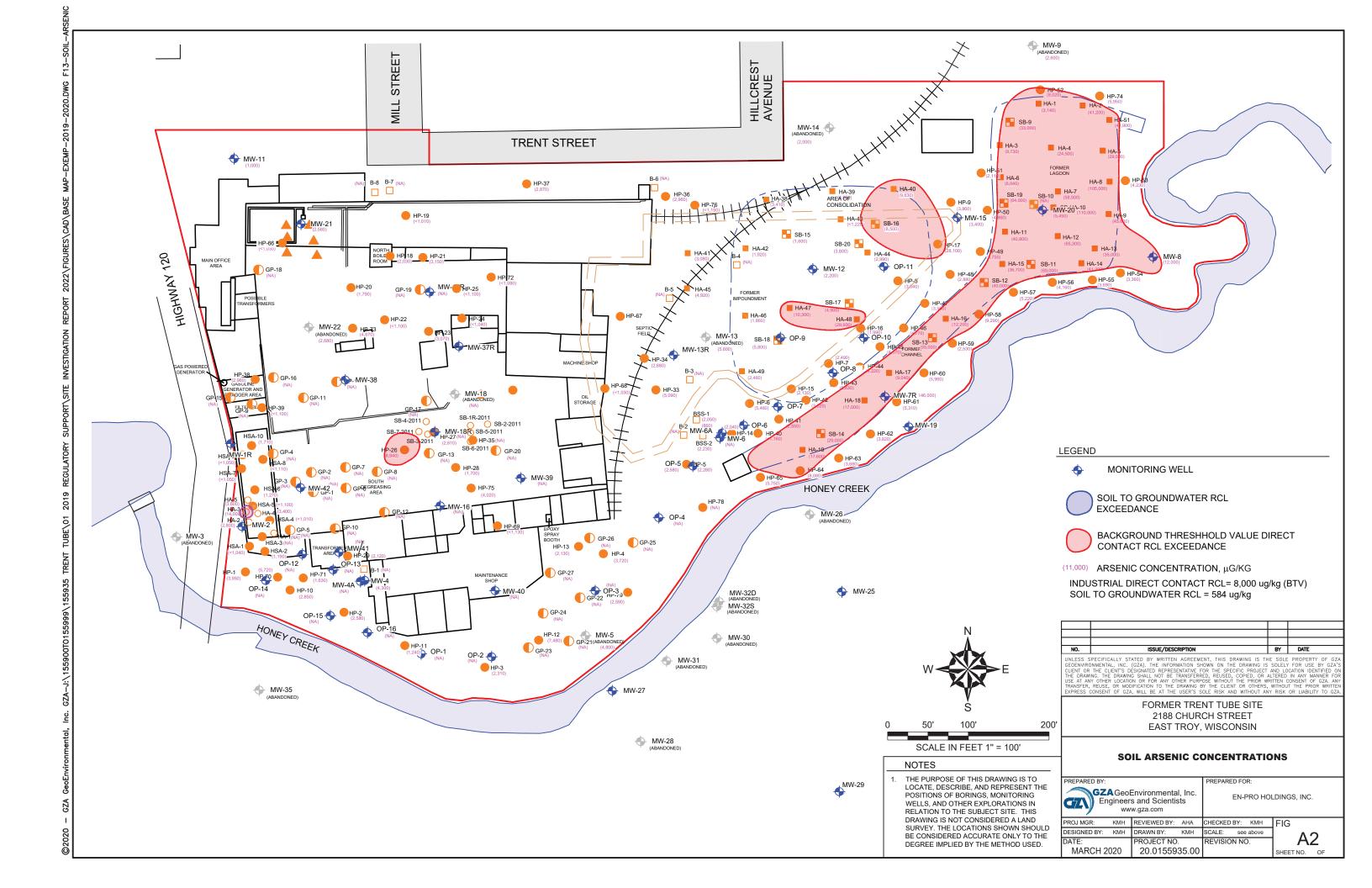
<u>Trichloroethene (TCE)</u>

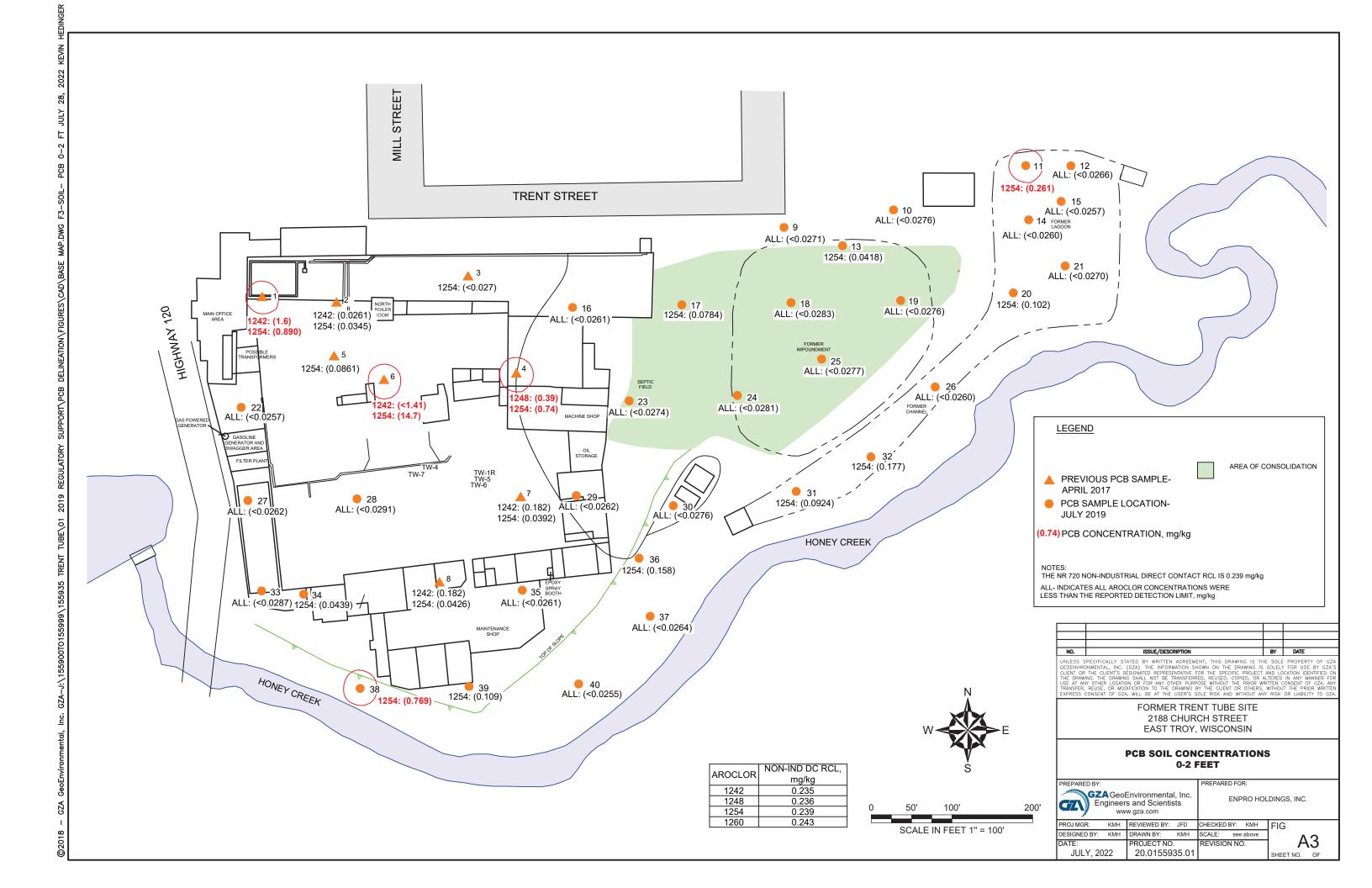
The comments regarding TCE in soil indicate additional investigation is needed around monitoring well MW-17R and identify formatting and data presentation comments. In the area of monitoring well MW-17R there was previously a TCE aboveground storage tank inside of the building and a former vapor degreasing area. TCE is present in the groundwater in monitoring well MW-17 at concentrations exceeding the NR 140 enforcement standard. There are limited borings in this area that evaluate the soil conditions. Additional soil samples are proposed in the SIWP to complete the investigation in this area.

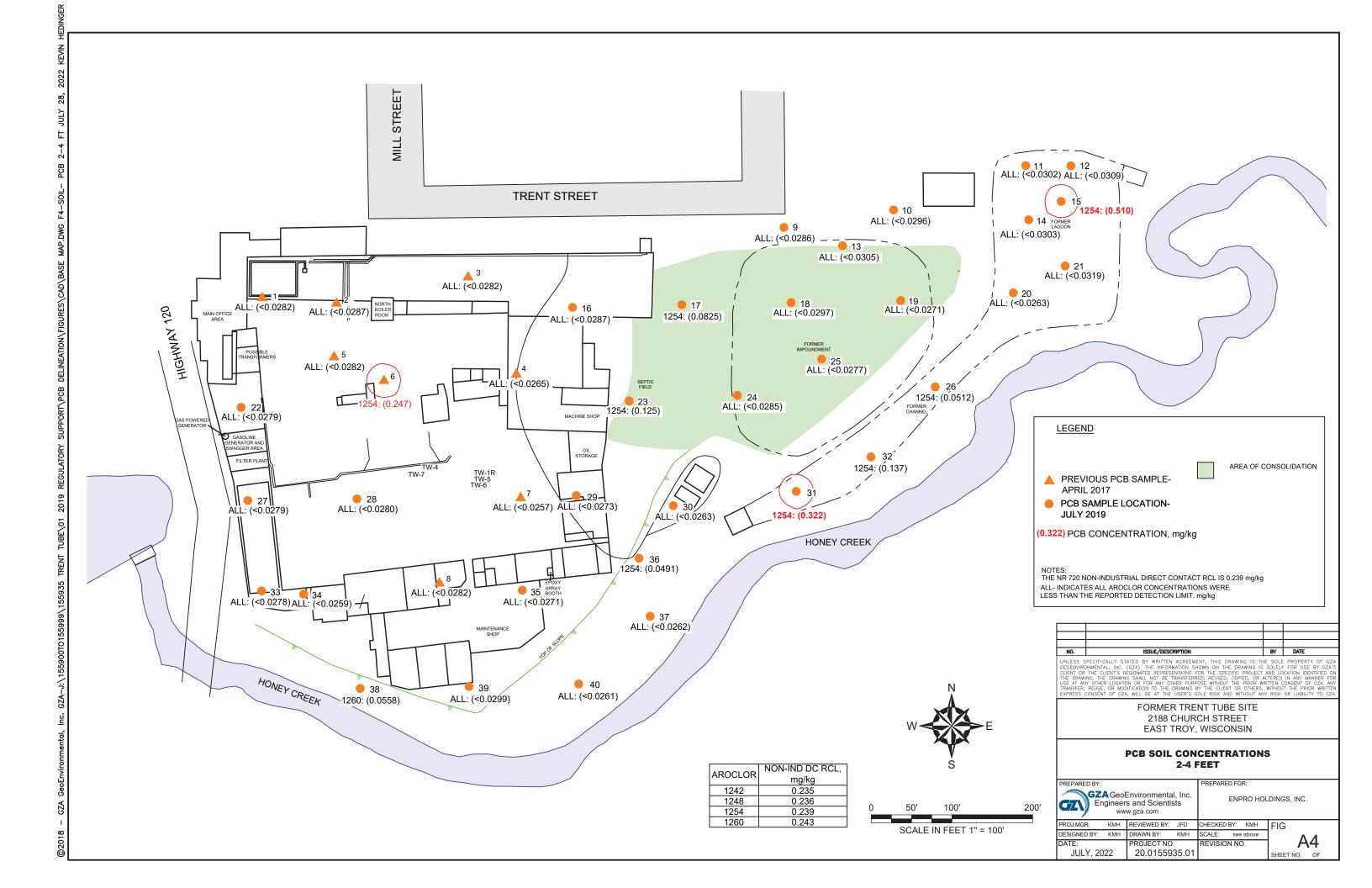


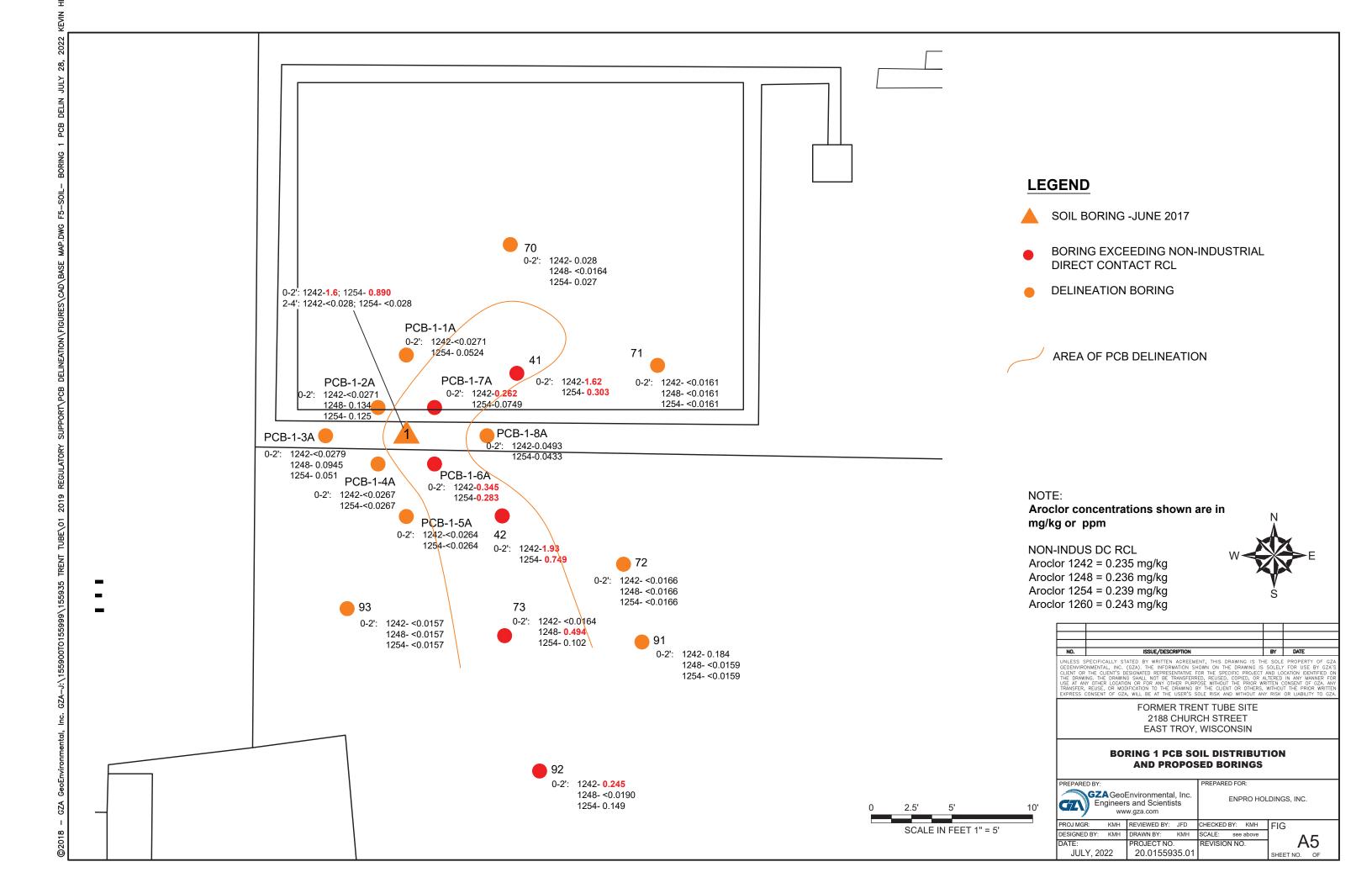
Figures A1 Through A8

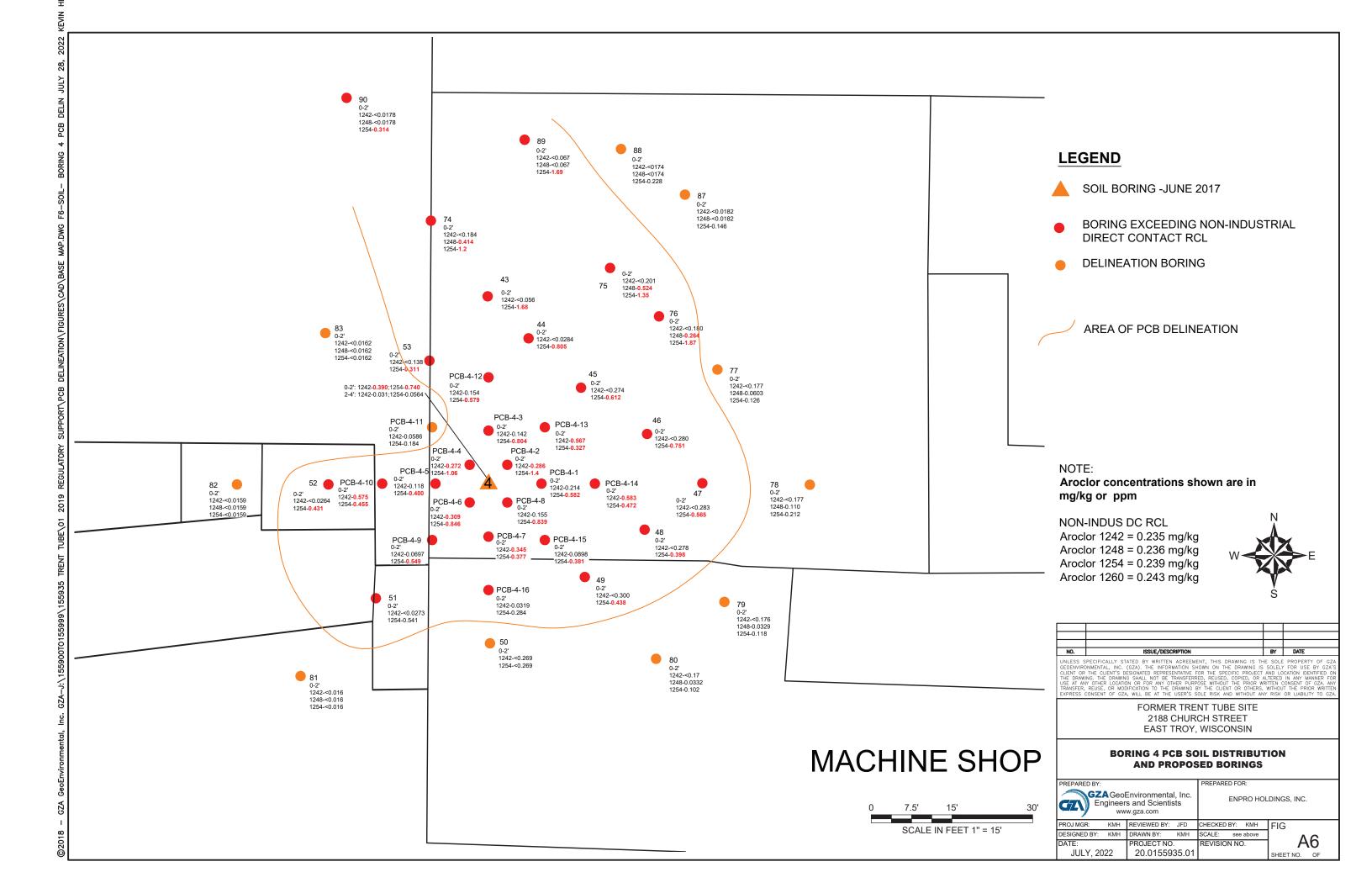


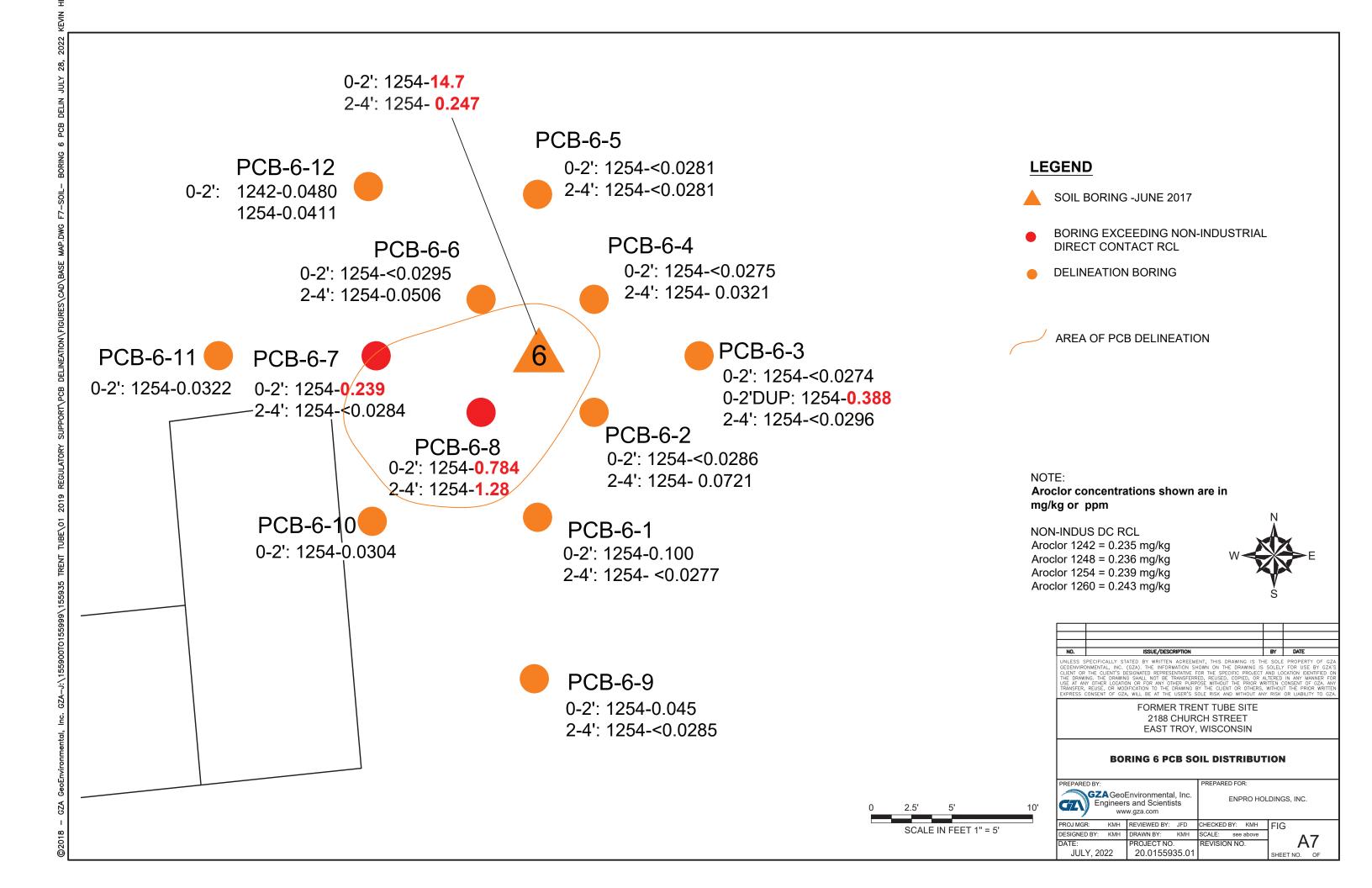


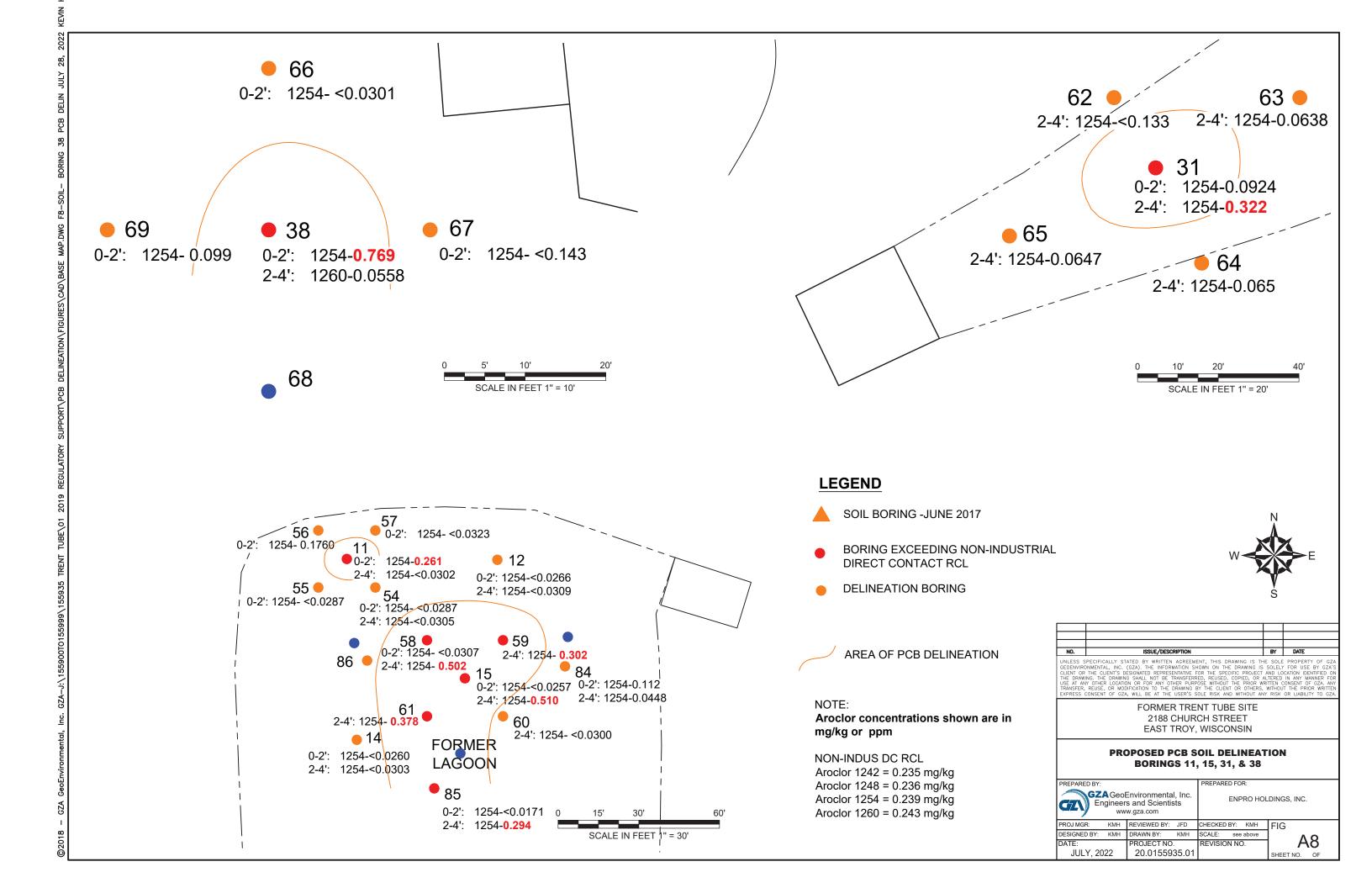














APPENDIX C

RESPONSE TO SECTION 6 OF WDNR COMMENT LETTER



APPENDIX C RESPONSE TO SECTION 6 OF WDNR COMMENT LETTER

The information presented in the section below was discussed at the meeting on February 27, 2024, and provided detailed information to the comments in Section 6 of the WDNR Comment Letter titled, "Characterization of the geology and hydrogeology at the Property." This information also addresses comments in other sections of the WDNR Comment Letter.

Presumed Aquitard

Based on a review of boring logs presented in previous reports submitted to the WDNR for this Site, there appears to be a deeper continuous silt layer underlying the shallow sand, silt, and gravel layers at the Site. GZA installed monitoring wells (MW-38 through MW-42) in certain areas of the Site to provide a more complete monitoring well network in the area of the former building. The boring logs and monitoring well completion records for these wells were included in the previously submitted Site Investigation Report (December 7, 2022).

In addition to the monitoring wells identified in the Site Investigation Report, other monitoring wells, piezometers, and recovery wells were installed by other consultants prior to GZA's involvement in the Site. The data from these wells in combination with the data from the wells installed by GZA provide a fuller picture of the aquitard. These records from work performed by other consultants involved at the Site prior to GZA's involvement were provided to the WDNR in prior reports including, significantly, a Site Investigation Report prepared and submitted by Triad Engineering, Inc. in 1996 (the "1996 Triad Report"). For ease of review, GZA is attaching relevant boring logs and well completion records from the 1996 Triad Report. A summary of this additional information is provided below. If WDNR does not have ready access to the 1996 Triad Report in its files, please let us know and we will provide a full copy of the report.

As described further in the 1996 Triad Report, at least three nested monitoring wells and piezometers (MW-4/ MW-4A, MW-6/MW-6A, and MW-10/MW-10A) were installed and monitored during investigation activities at the Site in the 1990s. The well nest for MW-4/ MW-4A and MW-6/ MW-6A still exist on-Site. The well nest MW-10/MW-10A has not been located.

Piezometer MW-4A is nested with monitoring well MW-4 in the southwest corner of the Site near the location of former aboveground and underground storage tanks used during the period that the Site was in operation. This monitoring well and piezometer are hydraulically downgradient of the former pickling area and former vapor degreaser area that were located in the southwest corner of the building near monitoring well MW-42 and are capable of detecting releases from these areas.

Piezometer MW-6A is nested with monitoring well MW-6 in the eastern portion of the Site near the groundwater extraction treatment system (GETS) buildings. This monitoring well and piezometer are along the east edge of the former impoundment that received neutralized pickling solution and other cooling water from the former operations. This monitoring well and piezometer are capable of detecting groundwater concentrations from historic operations in the northeastern portion of the building and the former impoundment.

Piezometer MW-10A was nested with monitoring well MW-10 in the former parking lot north of Trent Street. These nested wells are not in a potential source area and serve as background wells. The geologic information from the boring logs for these nested wells can be utilized to understand the extent of the underlying silt layer at the Site and the hydraulic gradients at a distance from Honey Creek.

The nested wells cover a triangular area from Honey Creek to north of the Site. The distance from MW-4 and MW-6 along Honey Creek to MW-10 is approximately 500 to 650 feet and the distance along Honey Creek between MW-4 and MW-6 is approximately 500 feet. The deeper silt aquitard was encountered in each of these well nests.



The lithology recorded on the boring logs in MW-4A, MW-6A, and MW-10A indicated the upper portion of the soil column consists of layers of sand, silt, and gravel. Beneath these layers in each boring, the material encountered is identified as silt with some clay. In piezometer MW-4A, the silt was described as "tightly compacted." It is also noted that a 300-pound hammer was used to advance MW-4A instead of a 140-pound hammer. This information indicates a change in vertical hydraulic conductivity that would limit vertical groundwater flow. Below is a table showing the depth at which the aquitard was encountered in each boring and the thickness of silt encountered in each boring. It does not appear that there was a boring advanced at the Site that extended through the full thickness of the silt during the Site investigation drilling activities.

	MW-4A	MW-6A	MW-10A
Depth Silt Encountered	24 feet bgs	21 feet bgs	14 feet bgs
Thickness of Silt Material	25 feet (24' to 49')	17 feet (21' to 38')	26 feet (14' to 40')
Total Boring Depth	50 feet bgs	38 feet	40 feet

Nested wells MW-10/ MW-10A are topographically at a higher ground surface elevation than MW-4 and MW-6. Monitoring wells MW-4 and MW-6 are located closest to Honey Creek. The top of the aquitard in MW-10A was encountered at approximately 14 feet below ground surface (bgs) and in MW-4A and MW-6A was encountered at approximately 24 and 21 feet bgs.

Using estimated ground surface elevations for MW-4 and MW-6, the top of the aquitard is at an elevation of approximately 813 to 814 feet above mean sea level ("amsl"). In MW-10, the top of aquitard elevation is at approximately 826 feet. The elevation difference between the nested wells indicates a surface at the top of the aquitard that slopes to the south toward Honey Creek. The water elevation of Honey Creek is approximately 818 feet amsl. This indicates that there is some sediment from Honey Creek on top of the aquitard, but the creek is flowing across the top of the aquitard. The layers of sand, silt, and gravel encountered above the aquitard are discharging horizontally into Honey Creek.

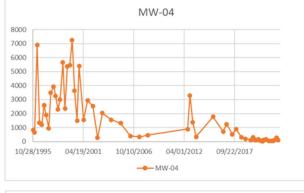
In the 1996 Triad Report, Triad included **Table 1** (attached) titled, Hydraulic Conductivity and Grain Size Analysis Comparison. On this table the hydraulic conductivity is an estimate of the horizontal hydraulic conductivity from a slug test performed on wells at the Site. It is not an estimate of vertical hydraulic conductivity. Based on the grain size analysis, the laboratory data confirms that the material that is recorded on the boring logs is correct and that the material that is described on the boring logs as the aquitard material is indeed silt. In its report, Triad also concluded that the silt layer encountered at about 20 feet is an aquitard limiting vertical migration of contamination.

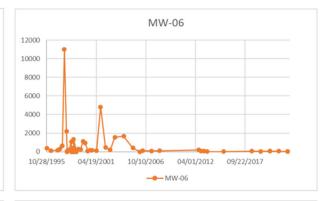
In addition to the lithologic information available for the nested monitoring wells and piezometers, the groundwater analytical results for TCE were graphically compared for the MW-4/ MW-4A and MW-6/ MW-6A well nests. The graphs for each well, each included in 1996 Triad Report, are presented below.

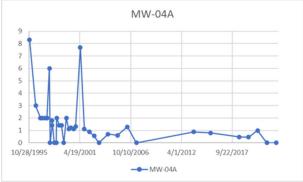
A graphical comparison of the MW-10/ MW-10A well nest was not prepared because it is located upgradient to the north of the property in an area that is not considered in a source area. The groundwater concentrations in the MW-10/MW-10A monitoring well and piezometer were very low to less than the method detection limit. Therefore, a comparison of these wells does not provide insight into the potential vertical migration.

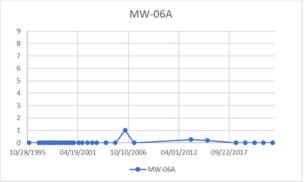
A review of the shallow monitoring wells, MW-4, and MW-6, indicate that the concentrations in these wells have historically been higher than the concentration in MW-4A and MW-6A by a factor of 100 to 1,000. Both of the nested wells are in potential source areas and are capable of detecting TCE concentrations that migrate vertically. Based on this empirical evidence, the aquitard silt layer is acting as an aquitard and is restricting vertical migration of contaminants in these two nested well locations.











Bedrock

The bedrock geology discussion in the Site Investigation Report is based on a review of water well driller logs obtained from the WDNR Water Well Drillers Viewer, a review of the Preliminary bedrock geologic map of Walworth County, Wisconsin published by the Wisconsin Geologic and Natural History Survey in Open-File Report 2004-11A, and a review of the Ground-Water Resources and Geology of Walworth County, Wisconsin, 1976.

The bedrock shown in the northeast corner of Walworth County near the Site on the preliminary bedrock geologic map of Walworth County is the Ordovician-age Maquoketa Shale. The Maquoketa shale is a sequence of interbedded argillaceous shale and dolomite. On the bedrock map and in the Ground-Water and Geology of Walworth County, the Maquoketa Shale is only present in the eastern portion of the County because it has been eroded in the western part of the County. The bedrock in southeastern Wisconsin dips to the east toward Lake Michigan, which causes the west edge of the Maquoketa Shale to be thin. This thinning due to erosion along the west edge can result in areas in which the Maquoketa Shale is not present, even though it is shown on the bedrock map. The Maquoketa Shale can be considered a low permeability layer that restricts vertical groundwater flow with the extent of the restriction in any area dependent on the competency of the bedrock.

In neighboring Waukesha County, a study completed by the Wisconsin Geologic and Natural History Survey found that the upper part of the Maquoketa Shale is fractured, making it more permeable. However, the lower portion is less permeable and does restrict flow. There is no indication at this Site that the groundwater concentrations have affected the bedrock, as shown by the low concentrations in the piezometers on-Site.



Hydrogeology

The hydraulic properties of the geologic materials at the Site were evaluated and the data was presented in the 1996 Triad Report. In this report, there are estimates of horizontal hydraulic conductivity for the upper layers of sand, silt, and gravel and the lower silt layer. A comparison of the hydraulic conductivity from the upper wells and the lower wells indicates 2 orders of magnitude difference in hydraulic conductivity along Honey Creek between MW-4 and MW-4A and MW-6 and MW-6A. Higher hydraulic conductivity was measured in the shallow wells and the lower hydraulic conductivity was measured in the deeper piezometers. The hydraulic conductivity difference with depth causes shallow groundwater flow beneath the Site to be primarily in a horizontal direction within the sand, silt, and gravel layers with limited vertical groundwater flow through the underlying deeper silt aquitard.

The vertical gradient was also evaluated in the 1996 Triad Report for the three nested wells and piezometers. This evaluation indicated a downward vertical hydraulic gradient at MW-4/MW-4A and MW-10/MW-10A and an upward vertical hydraulic gradient at MW-6/MW-6A. MW-10/MW-10A is located approximately 700 feet north of Honey Creek, MW-6/MW-6A is located approximately 100 feet north of Honey Creek, and MW-4/MW-4A is located approximately 70 feet north of Honey Creek. The downward gradient at MW-10/MW-10A and the upward gradient at MW-6/MW-6A are consistent with the local hydrogeology, in which groundwater flow further from Honey Creek follows a curved downward vertical flow path, and groundwater closer to the discharge point, Honey Creek, follows a curved upward flow path.

The historic downward vertical gradient at MW-4/ MW-4A may have been influenced by the mill pond that was previously located west of the Site. The mill pond, which has since been drained, had a dam that retained water in a pond along Honey Creek at a higher elevation than the portion of the creek below the dam, which is adjacent to the south of the Site. This higher water elevation caused a change in the shallow groundwater elevation behind the dam, which can cause the vertical gradient to be in a downward direction. The downward direction at this well nest is an indication that water was flowing through the subsurface around the dam and eventually discharging into Honey Creek.

Honey Creek is the natural groundwater discharge point and is a constant head boundary, meaning that the groundwater elevation and surface water elevation are at approximately the same elevation at the edge of the creek. The horizontal groundwater gradient measured at the Site is based on groundwater elevations measured in shallow monitoring wells installed at approximately the same depth and in similar geologic material. The horizontal hydraulic gradient is determined based on these contours. At this Site, the horizontal hydraulic gradient is shallower on the north side and steepens closer to Honey Creek. Along Honey Creek in the southwestern portion of the Site, there are areas of the creek that have sheet piling to support the streambank and other areas to the east that are natural areas. The elevation of the creek can control the horizontal groundwater gradient, and modifications to the streambank also have an influence. The area in the southwestern portion of the Site has a broad flattened area in the groundwater gradient with the steepest horizontal gradients along the creek. In the area southeast of the degreasing area, from OP-2 to OP-4, the streambank was excavated and filled. In this area the gradient is less steep and there are indications that the fill material is in direct communication with the creek. Further east, closer to the AOC, the horizontal hydraulic gradients are steep, and then flatten again east of the AOC toward the creek. This is an indication that the AOC is causing some infiltration which steepens the gradient.

The AOC was constructed in the middle of the Site for on-Site management of impacted soils. The AOC was constructed with a berm on the east and north sides of the AOC with natural grades used to contain the AOC on the west and south sides. The AOC was constructed to manage storm water on the surface of the AOC, and control surface water runoff, if any, through a discharge point. The AOC was built over a former surface impoundment that was filled. The area to the east of the AOC is the former channel and lagoon that has also been filled and is at the lowest surface elevation at the Site. The groundwater flow and gradient in the area of the AOC appears to be influenced by the construction of the AOC, which retains surface water for infiltration, and the filling of the former surface impoundment.



The radial groundwater flow is based on the groundwater elevation measurements recorded for each well. The highest groundwater elevation at the Site is at MW-11, which is located in the northwest corner of the Site. The groundwater elevations are reviewed and evaluated relative to their spatial position on-Site relative to Honey Creek and the other surrounding wells to determine if they are anomalous. While localized features may cause the elevations in individual monitoring wells to be higher or lower than the natural surrounding material, GZA does not have any specific knowledge of such features and based on a review of the groundwater elevations, there do not appear to be any anomalous elevations.

In the injection application documentation submitted for the pilot test, GZA calculated the average linear groundwater velocity at the Site based on hydraulic conductivity estimates and horizontal hydraulic gradients in the injection area in the southern portion of the former building along Honey Creek. The average linear groundwater velocity was approximately 380 feet per year. This velocity is an estimate of the groundwater movement and is not an indication of contaminant movement. This is also an estimate for average groundwater velocity through the more permeable shallow sand, silt, and gravel layer, not the deeper silt.

The forced mains that cross the Site are shown on the plan view maps in the Site Investigation Report. GZA inquired about the depth of these lines to the Village of East Troy, but has not received a definitive depth for the lines. Assuming that the lines cross beneath the creek and maintain a relatively horizontal to slightly upward pitch, the surface elevations on-Site suggest that, at a minimum, the lines may be 4 to 5 feet bgs near Honey Creek and 15 to 20 feet bgs at Trent Street on the north side of the Site. Assuming these depths and a comparison to the groundwater elevations, the forced main lines appear to be close to the top of the groundwater surface. GZA will continue to try to determine the depth of these lines from the Village, and once determined, appropriately insert them into revised cross-section figures.

The hydraulic conductivity in monitoring wells at the Site have been measured by GZA and Triad. A total of approximately 20 monitoring wells and piezometers have been measured. It is recognized that the slug testing measures the hydraulic conductivity of the most permeable geologic material in the well. These are the same units through which contamination is migrating in the subsurface. The geometric mean of the hydraulic conductivity values was calculated to limit the influence of extreme values. The arithmetic average can be influenced greatly by values that are extremely high or low. The geometric mean reduces this fluctuation and provides a better estimate of the most likely condition at the Site.



Table 1 and Select Boring Logs and Well Completion Records From Triad's 1996 Report

TABLE 1 HYDRAULIC CONDUCTIVITY AND GRAIN SIZE ANALYSIS COMPARISONS TRENT TUBE PLANT NO. 1 SITE INVESTIGATION

LOCATION	K (ft/sec)	K (cm/sec)	UNCONSOL. MAT. (FREEZE AND CHERRY)	GRAIN SIZE ANALYSIS (ASTM)	WELL LOGS
MW-1	3.24E-06	9.86E-05	glacial till, silt, loess, silty sand	NA .	SAND TO SILTY SAND
MW-2	1.68E-04	5.13E-03	slity sand, clean sand	NA NA	SAND TO SILTY SAND
MW-3	NA	NA	NA	NA NA	NA
MW-4	2.63E-05	8.03E-04	glacial till, silt, loess, silty sand	SILTY SAND W/ GRAVEL OR SILTY CLAYEY SAND WITH GRAVEL	SILT TO SILT AND SAND TO SILT
MW-4A	7.87E-08	2.40E-06	glacial till, silt, loess	SANDY SILT OR SANDY SILTY CLAY	SILT
MW-5	2.17E-08	6.61E-05	glacial till, silt, loess	SILTY SAND OR SILTY, CLAYEY SAND OR CLAYEY SAND	SILT TO SAND TO CLAY TO CLAY AND SILT
MW-6	N/A	N/A	N/A	POORLY GRADED SAND WITH SILTY CLAY OR CLAY TO SILTY CLAY	SAND TO SAND AND SILT TO SILT AND CLAY
MW-6A	8.90E-06	2.71E-04	glacial till, sitt loess,silty sand	SILT OR SILTY CLAY	SILT TO CLAY TO SILT
MW-7	N/A	N/A	N/A	SILT WITH SAND OR SILTY CLAY WITH SAND	SILT
MW-8	N/A	N/A	N/A	SILTY SAND WITH GRAVEL OR SILTY CLAYEY SAND WITH GRAVEL	SILT
MW-9	5.50E-06	1.68E-04	glacial till, silt, loess, silty sand	SILT, ELASTIC SILT OR SILTY CLAY	SILT TO CLAY TO SILT AND CLAY TO SILT AND SAND
MW-10	2.58E-05	7.87E-04	glacial till, silt, loess, silty sand	SANDY SILT OR SANDY SILTY CLAY	SILT AND SAND
MW-10A	1.58E-05	4.81E-04	glacial till, silt, losss, silty sand	SILT OR SILTY CLAY	SILT
MW-11	6.66E-06	2.03E-04	glacial till, silt, loess, silty sand	SANDY SILT OR SANDY SILT CLAY	FINE SAND TO CLAY AND SILT TO CLAY
MW-12	1.25E-05	3.82E-04	glacial till, silt, loess, silty sand	SILTY SAND OR SILTY, CLAYEY SAND OR CLAYEY SAND	SILT TO SAND AND SILT
MW-13	1.11E-05	3.38E-04	glacial till, silt, losss, silty sand	POORLY GRADED SAND WITH SILT OR POORLY GRADED SAND WITH CLAY	SILT AND SAND TO SAND TO SILT
MW-14	4.51E-05	1.37E-03	silt, icess, slity sand	SILT OR SILTY CLAY	SILT
MW-15	3.87E-06	1.18E-04	glacial till, sitt, loess, silty sand	NA NA	SILT

NA = NOT AVAILABLE
BOLD WORDS INDICATE DOMINANT SOIL TYPE
filsec = FEET PER SECOND
cm/sec = CENTIMETER PER SECOND

	of Wisco		D	Route		571									OG INFO	ORMA	
Depan	tment of	Natur	ai Keso		id Waste ergency Respon:	⊠H se □U			Tanks			Fon	m 4400	-122			7-91
					stewater			Resou									
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	y/Proje			. 1			Lice	nse/Pe	rmit/M	onitori	ng Nun	nber	_	Numb	er		
	nt Tub			ne and name of crew	chief)		Date	Drilli	ng Star	ed	Date	Drillir	MW.		Drillin	a Meth	nod
_	-	-		Zamow	cinci)		Date		_		Dan		•	picica	1	-	
		(B.)						10/	23/95			10/2	23/95		4.25'	HSA	A
DNR	Facility	Well:	vg. ₩	I:Uroqua:Well:No:	Common Well	l Name	Fina	l Stati	c Water	Level	1	ace Ele			orehole		
					MW-4	-	<u> </u>		Fee	MSL		2.40				25" 1	nches
	g Locati Plane	on	28869	4.95 N, 242859	9.73 E	SYC/N		Lat 4	12° 46	37"	Loc	ai Gric	Locano	•	plicable	_	⊐Е
NW	1/4	of NV		4 of Section 29	T 4 N,R 1	8 E	L	ong	88° 24	¹ 16"	ŀ	Fe	et 🗌]	Feet [
County	•	D 77 I				DNR Cou			Civil T	own/C		Village					
	LWO	KTH	Т	<u> </u>		65			EAS	IIK	UY	1	Soil	Prope			
Sai	nple						Ì					-	301	Trope	Titles		-
	2-	nts	Depth In Feet		ck Description		- 1					=					
5	i (in	Cou	l l		logic Origin			S	ည	E		무음	e =				ent
Number	Length (in) Recovered	Blow Counts	bth	Each	n Major Unit			SC	Graphic Log	Well Diagram	PID/FID	netr ne	ist. nter	Liquid	Plastic Limit	P 200	<u> </u>
Ž	Lei Re	Blc	De					ח	Grap Log	Well Diag		Standard Penetration	Moisture Content	2.2	Pla Lir	P 2	RQD/ Comments
1	20	7 13	-	<u>0-2.7 FEET</u> SA		AVEL,		SW GW	V _D		35.2	31	M				**
1		18	<u>-</u> 0.5	fine-to-coarse g		ellowish		GW	Ø- 2								
		29	F 0.5	brown (10YR 4	/6) to dark y	ellowish											
			-1.0	brown (10YR 3					\$. D.								
1			E 1.0	coal from 0.6 to fragment at 2.5			۱ ۲										
			-1.5	inaginent at 2.5	1001, 110, 040	, moist			\$ 5.00.								
			F 1				ŀ		0 2 4								
]		<u>-</u> 2.0						\$.C.								
2	16	5	- 2.0								94.8	18	M				
		7 11	<u>-</u> 2.5	•					2.0.1	S R							
		9	- 2.5						ن اماري								
			- -3.0	2.7-4.0 FEET S grained, yellow				SP									-
1			- 3.0	5/8), no odor, i		OIK					1	İ					
			-3.5														
			- J.J														
			4.0						<u>::::</u> :								
3	0	18	E 4.0	4.0-6.0 FEET	NO RECOVE	ERY,					-	31	M				
		14 17	- -4.5	grabber bit bro	ke												
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Signati		7	11110		uc and corre		Firm			-	CINI	EDIN	IC IN	COPI	PORA	רבד	
/-		/ 	11/	1.2/											T 53202		
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Sample Sample Soil/Rock Description And Geologic Origin For Each Major Unit	(0)					Soil	Proper	ties		l .
Soil/Rock Description And Geologic Origin For Each Major Unit								1103		
D B B B B B B B B B B B B B B B B B B B	USC	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
16	GP AL GP	Grap Constitution of the constitution of the c	IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	72.9 24.8	out of Solution	M W M Cont	Liqu Limi	Plast Limi	P 200	RQD Com
14.8-16.0 FEET SAND and GRAVEL, medium-to-coarse, some		.0								

Borin	g Numb	er	MW	7-4 Use only as an attachment to Form 44	00-122						Pag	e 3	of 3	,
	nple									Soil	Proper	ties		
Number	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
9	15	17	E	silt, brownish yellow (10YR 6/8),	SP	•	: <u> </u>	56.4	98	W				
		48 50/.5	-16.5 -17.0 -17.5	GRAVEL, medium-to-coarse grained sand, fine-to-medium gravel, brownish yellow (10YR 6/8), trace cobbles, no odor, saturated	GP ML	0 A								
10	0	100/.5	[[[]	gravel, reddish yellow (5YR 6/8), saturated	MIL			_	100					
10			- 18.5 	18.0-20.0 FEET NO RECOVERY										
			-19.0 - - - 19.5											
	,	-	- 20.0 - - 20.5	20.0-20.5 FEET BLIND DRILLED			 							
				* Water level data was collected on January 15, 1996.								,		
				** Boring is in old tank pit.				·					^	
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	of Wisco		al Reso	urces	Route To:	ıst e	⊠н	(az. ˈ	Waste					L BC m 44			G INF	ORM	ATION 7-91
					☐ Emergen	-	_		_	Tanks									
					☐ Wastewa	ter			Resou	rces						Pag	e 1	of	6
	y/Projec					-				rmit/M	onitorir	g Nun	ıber	Bor	ing	Numbe			
	nt Tub												_	M					
_		-		ne and name o Zamow	of crew chief))		Dat		ng Star		Date	Drillin	ig Co	mp	leted	Drillir	ıg Me	thod
										26/95				/1/9			Mud		•
DNR I	Facility	Well N	g V	Umqua: Wel	0.000000000000000	nmon Well I IW-4A	Name	Fin	al Statio	c Water Fee	Level t MSL		ace Ele 2.25				orehole		neter Inches
Boring	Location	on						<u>'</u>					al Grid						
State 1				4.04 N, 2		-	C/N			12º 46				_	_ :				□ E
NW		of NV	V 1/4	of Section	29 т 4		DNR Cou			38° 24 Civil T		tv/ or		et [_ن	S		Feet	□ w
WA	LWO	RTH					65				T TRO							·	
San	nple													S	oil	Proper	ties	т	_
		ıts	eet	: S	oil/Rock D	n						۱ _							
.	re (j.	ont	In F	· An	or		S		п	Q	tion d	<u></u>	_				nts		
Number	gth ove	Blow Counts	Depth In Feet		Each Ma	jor Unit			Ü	phiq	II gra	PID/FID	ndar	istu	E	uid iit	ii ši	8	
N	Length (in) Recovered	Blo	Dep						n s	Graphic Log	Well Diagram	PIC	Standard Penetration	Moisture	اق	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
			_	O-18.0 F	EET BLIN	D DRILL	ED, se	e				1610							*
			- -0.5	MW-4 fo	r soil borir	ng informa	ation								-				
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- 1			- 1.0																
-			_ 1.5										ļ						
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I hereb	y certify	that t		mation on thi	s form is true	and correct	to the be	est of	f my kn	owledg	e.								
Signati	ire		,		7]]	Firm		TRIA									,
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Borin	g Numb	er	MW	/-4A	Use on	ily as an a	ttachmer	nt to Form 4	1 00-122								e 2	of 6	j
Sar	nple														Soi	Prope	rties		
Number	Length (in) Recovered	Blow Counts	Depth In Feet		And Geo	ock Desc logic Or n Major	rigin F	ı or	uscs	Graphic Log	Well	Diny (FIT)	riD/riD	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
Number	Length (in) Recovered		994 III Hdd Debtle III Heel		And Geo	logic O	rigin F	n or	USCS	Graphic	Well		PID/FID	Standard Penetration	Moisture Content	Liquid	Plastic Limit	P 200	RQD/ Comments
			-13.5 -14.0 -15.0 -15.5 -16.0																

7-91

Borin	g Numt	er	MW	V-4A Use only as an attachment to Form 44	00-122						Pag	e 3	of 6	5
Sar	nple									Soil	Proper	ties		
Number	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	uscs	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
2	18	19 17 29 21 7 13 19 26	-16.5 -17.0 -17.5 -18.0 -18.5 -19.0 -19.5 -20.0 -21.0	18.0-19.5 FEET SAND, fine grained, few trace silt, fine gravel, yellowish brown (10YR 5/6), bottom 3 inches with some coarse gravel, grayish brown (10YR 5/2), no odor, saturated 19.5-22.5 FEET SAND, fine-to-medium grained, few fine	SP SM			643.7 180.3	46 32	w				**
3	22	19 31 35 43	-22.0 -22.5 -23.0 -23.5	22.5-23.7 FEET SILT, trace fine sand and gravel. light brownish gray (10YR 6/2), compacted plug, very difficult to break, slightly moist	ML SP	2		4.1	66	М				
4	24	30 41 46 50/.5	-24.0 -24.5	23.7-24.0 FEET SAND and SILT, fine-to-coarse sand, few fine-to-coarse gravel, light brownish grav (10VR 6/2), no oder wet	SP SM ML			3.1	87	М				

Borin	g Numb	er	MW	7-4A Use only as an attachment to Form 4	400-122	! .					Pag	e 4	of 6	5
	mple		Ī		T					Soil	Ргоре	ties		
Number 2	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
5	18 10 A	15 27 32 43 25 31 37 41	27.5 -27.5 -27.5 -28.0 -28.5 -29.0 -30.5 -31.0 -31.5 -32.0 -33.5 -33.0	30.0-38.0 FEET SILT, few fine-grained sand, few fine-to-coarse gravel, brown (7.5YR 5/2), very tightly compacted, no odor, slightly moist to dry at 34 feet	ML		M G	3.3	59 68 50	M M			d	O O
	1		-36.0		<u> L.</u>	иш				1	<u> </u>	<u> </u>		

	g Numb	er	MW	V-4A Use only as an attachment to Form 44	100-122							e 5	of 6	5
San	npie									Soil	Proper	ties		
Number 10	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
	16	46 50/.3	-36.5 -37.0 -37.5 -38.0 -38.5 -39.0 -40.0	38.0-41.0 FEET BLIND DRILLED					50	D				
11	8	29 50/.2	-41.5 -42.0 -42.5 -43.0	41.0-49.0 FEET SILT, few fine-grained sand, few fine-to-coarse gravel, trace clay to 43 feet, olive brown (2.5Y 4/3), no odor, slightly moist	ML				50	М				
12	9	34 50/.3 35 50/.3	-44.0 -44.5						50	M				
			-45.5 -46.0											

Use only as an attachment to Form 4400-122. MW-4A Boring Number 6 of 6 Soil Properties Sample Soil/Rock Description Depth In Feet **Blow Counts** Standard Penetration Length (in) Recovered And Geologic Origin For Moisture Content Well Diagram PID/FID USCS Graphic Liquid Limit Plastic Limit Each Major Unit P 200 46.5 47.0 14 13 26 84 M 34 50/.3 47.5 48.0 48.5 49.0-50.0 FEET BLIND DRILLED -49.5 E.O.B. 50.0 FEET * Water level data was collected on January 15, 1996. ** A 300 pound hammer was used for this well. MW-4 was installed with a 140 pound hammer.

	of Wisco			Route To:						SOI	L BORI	ING LO	G INF	ORMA	TION
Depar	tment of	f Natui	ral Reso	= =		. Waste				For	n 4400-	-122			7-91
						erground									
					Othe	er Resou	rces					Рав	e 1	of 3	,
Facili	y/Proje	ct Nan	ne			cense/Pe	rmit/M	onitorin	g Nun	nber	Boring				
	-		ant No	o. 1					_		MW-	-6A'			
				ne and name of crew chief)	D:	ate Drilli	ng Star	ted	Date	Drillin	g Com	pleted	Drillin	g Meth	od
Boa	rt Lon	igyeai	r Bill	Zamow		10/	19/95			10/1	9/95		4.25	י אכי	
DNR	Facility	Web.1	Vig. W	Uroque: Well: No::::: Common Well Name	Fi	nal Stati	c Water	Level	Surf	ace Ele	vation	В	orehole		
							Fee	t MSL	<u> </u>		Feet M				nches
	g Locati Plan e	оп		N, E SC/N	1	Lat 4	12º 46	' 37"	Loc	al Grid			plicable		- -
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Count		01 14 1			ount	y Code			ty/ or		_			CCL (
	LWO	RTH		65		, 0000	EAS'	TTRO	Ϋ́						
Sar	nple					T					Soil	Prope	ties		
															1
	2-	Blow Counts	Depth In Feet	Soil/Rock Description						=					S
7.	ri (ir	Cou	II.	And Geologic Origin For		တ	ပ္	E	Ω	팔물	2 ±				ent
ф	igth cove	3	pt.	Each Major Unit		sc	ф.,	= E	PID/FID	et a	istu	E E	stic	8	<u></u> ☐
Number	Length (in) Recovered	Blo	Del			l o	Graphic Log	Well Diagram	PI	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	12	3	-	0-4.0 FEET SAND and GRAVEL,		SW	V, 9		4.9	20	М				1
		9	E	fine-to-coarse, dark yellowish brow		GW	: O.								
İ		11 17	-0.5	(10YR 4/4) to very dark gray (10Y)	R		Ŏ,Ď								
		17	F	3/1) at 1.0 feet, trace rootlets to 1.0 feet, large cobbles present, no odor			0.0.4								1
			-1.0	slightly moist	•		8.0				İ				
			E	,											
			-1.5				දු දු								
	!		E												
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2	10	7	ļ				· 1 4.		5.9	18	M	•			
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			3.0				O, O								1
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			-3.5				Ŏ,ŏ								}
			-				\								1
3	4	10	-4.0	4.0-6.0 FEET GRAVEL, coarse,		GW	3.8	i	10.2	26	м				
3	7	13	[very dark gray (10YR 3/1), cobbles	9	""	000		10.2	20	.**		Ì		
		13	4.5	ranging in composition from	•		8:8					1			İ
		12	-	sedimentary sandstone to igneous		•	000								
			E_5.0	granite, no odor, slightly moist			8,8								1
			<u> </u>	· ·			. V .								
			F				8.8								
			-5.5				8,8							İ	1
	 		L				200					1			
ــا			<u></u> −6.0			ب					L	<u> </u>	<u> </u>		<u> </u>
I heret	y certif	y that	the info	rmation on this form is true and correct to the	pest	of my ki	nowiedg	e.							

Firm

TRIAD ENGINEERING INCORPORATED 325 E. CHICAGO ST., MILWAUKEE, WI 53202

Tel: (414) 291-8840 Fax: (414) 291-8841

Signature

MW-6A' Page 2 of 2Boring Number Use only as an attachment to Form 4400-122. Soil Properties Sample Depth In Feet Soil/Rock Description Blow Counts Standard Penetration Length (in) Recovered And Geologic Origin For Moisture Content Well Diagram PID/FID USCS Graphic Log Liquid Limit Plastic Limit Each Major Unit P 200 6.0-6.5 FEET POUNDED ROCK, spoon refusal at 6.5 feet, possibly struck cement drain tile E.O.B. 6.5 FEET Refusal at 6.5'

	of Wisco		al Reso	urces	⊠н	az. V	Vaste					L BOR n 4400	ING LC -122	G INF	ORM	ATION 7-91		
•					☐ Solid Was	y Response	U	nderg	ground	l Tanks								
					☐ Wastewat	er	□o		Resou	rces					Pag	e 1	of	2
	y/Proje								nse/Pe	rmit/M	onitorin	g Nun	nber	Boring	Numb			
			ant No		-6			D	15-:0	C		ID-	. Dailli	MW		D-:11:-	- \((-	h . d
_				ne and name o Zamow	of crew chief)			Date		ing Star		Date	Drillin		pietea	Drillin	_	
										19/95				.9/95		4.25		
DNR	aciloy.	Well I	Vg. W	:Umque:Wel	No. Con	mon Well Na	ime	Fina	I Stati	c Water		Sur	face Ele		i	orehole		
Boring	Locati							<u> </u>			t MSL	Loc	al Grid	Feet M				Inches
State		Oli			N,	E Syc	:/N	- 1		42º 46			ai Oila			pricaor	υ ,	□ E
NW		of NV	V 1/4	of Section	29 т 4					38° 24				et 🗌			Feet	□ w
Count	y LWO	RTH				Di		inty (Code	Civil 7 EAS	Cown/Ci	ity/ or)Y	Village					
Sar	nple													Soi	Prope	ties		
		ş	¥	S	oil/Rock D	escription												
	ed ji	Jung	l Fe	l	d Geologic	•	r					_	T ioi	ى د				ats
ıber	gth over	Blow Counts	등		Each Maj	or Unit			C S	phic	l lan	PID/FID	dar	stur tent	ii ii	tic it	2	ime
Number	Length (in) Recovered	Blo	Depth In Feet						S O	Graphic Log	Well Diagram	PID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
			E	0-4.0 FE	ET BLIND	DRILLED)											1
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- 4			-3.5 -															
- 1			-4.0															
1	4	7	E 4.0		<u>EET</u> SANI				SW GW	0 1 4	1		11	М				
		6 5	-4.5	(10YR 6/	arse, brow 6), no odor	msn yenow . moist	,		Gw	0, 5								
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MW-6B' Use only as an attachment to Form 4400-122. Page 2 of 2 Boring Number Sample Soil Properties Depth In Feet Soil/Rock Description Blow Counts Standard Penetration Length (in) Recovered And Geologic Origin For Moisture Content PID/FID Well Diagram USCS Number Graphic Log Liquid Limit Plastic Limit Each Major Unit P 200 6.0-6.5 FEET POUNDED ROCK, auger refusal at 6.5 feet, possibly struck cement drain tile -6.5 E.O.B. 6.5 FEET Refusal at 6.5'

	f Wisco		- I D		oute To:		57									G INFO	ORMA	TION 7-91
Depart	ment of	Natura	ai Kesoi] Solid Waste] Emergency I	Response	⊠ Ha			Tanks			rom	n 4400-	122			7-91
					Wastewater		□w											
							□ Ot							D	Pag		of 4	
	y/Projec			. 1	A** -			Lice	nse/Pe	rmit/Me	onitorin	g Num	ber	Boring		er		
	nt Tub			ne and name of	crew chief)			Date	Drilli	ng Start	ed	Date	Drillin	MW-		Drillin	o Meth	od
				Zamow	ciew cilici)			Daic		_					,,,,,,,,			
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Number	Length (in) Recovered	Blow Counts	Depth In Feet		Each Major	Unit			SC	Graphic Log	II Igra	PID/FID	nda	istu	Liquid Limit	Plastic Limit	8	7 1
Ē	% E	Blo	Del						2	Grap Log	Well Diagram	PII	Standard Penetration	Moisture Content	EE	Pla Lin	P 200	RQD/ Comments
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Borin	g Numb	er	MW	7-6C' Use only as an attachment to Form 44	00-122						Pag	e 2	of 4	.
Sar	nple									Soil	Proper	ties		
Number	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
5	18	18 10 10 11 11 33 28 18 21	-7.5 -8.0	6.0-6.6 FEET CEMENTED MATERIAL, mottled with flecs of yellow and green, light gray (N 7/), aa-like texture, no odor, slightly moist 6.6-8.6 FEET SAND and GRAVEL, coarse, very dusky red (2.5YR 2.5/2), apparent foundry material, no odor, moist 8.6-8.9 FEET CEMENTED MATERIAL, mottled with flecs of	SW	00000000000000000000000000000000000000		7.7	46	М				
6	11	12 2 8 9	-9.5 -10.0 -11.0	yellow and green, light gray (N 7/), aa-like texture, no odor, moist 8.9-9.8 FEET SAND and GRAVEL, very pale brown (10YR 7/3), with cobbles, no odor, moist 9.8-10.7 FEET GRAVEL, fine-to-coarse, some fine-grained	GW GW			12.8	10	w				*
7	10	6 8 7 7	-12.0 -12.5 -13.0 -13.5	12.0-14.0 FEET SILT, few sand, black (10YR 2/1), no odor, saturated	ML			12.9	15	W				
8	16	22 27 33 18	-14.0 -14.5 -15.0 -15.5	14.0-16.0 FEET SAND and GRAVEL, fine-grained sand, coarse gravel with cobbles, very dark gray (7.5YR 3/1), no odor, waterbearing	GW GW			15.4	60	W				

Borin	g Numb	er	MW	7-6C' Use only as an attachment to Form 44	00-122	!.				Pag	e 3	of 4	ļ .
Sar	mple								Soil	Proper	ties		
o Number	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	uscs	Graphic Log Well	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
9	24	17 16 16 12	16.5 -17.0 -17.5	•	SP SM		13.8	32	W				
10	24	18 22 20 17	18.0 -18.5 -19.0 -19.5	19.0-19.5 FEET SILT and CLAY, light gray (10YR 7/1), no odor, waterbearing	MH		6.2	42	W				and the state of t
11	20	10 21 13 15	20.0 -20.5 -21.0	\(\)\(\)\(\)\(\)\(\)\(\)\(\)\(\)\(\)\(\	GW ML GP ML	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	7.2	34	w				
12	9	18 75 66 42	-22.0 -22.5 -23.0 -23.5	(10YR 7/2) grading to gray (10YR				141	w				
13	12	12 8 7 11	-24.5 -24.5 -25.0 -25.5		МН			15	w				

Borin	g Numb	er	MW	Use only as an attachment to Form 4	400-122						Pag	e 4	of 4	!
San	nple									Soil	Proper	ties		
Number 14	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
14	24	8 6 7 7 8 6 6 4 5	-26.5 -27.0 -27.5 -28.0		ML				13	w				
16	18	5	-29.0 -29.5 -30.0		MH				13	w				
		6 7 8 8	-30.5 -31.0 -31.5 -32.0											

	of Wisco				Route To:	_									G INF	ORMA	
Depai	rtment of	f Natur	ral Reso	urces	Solid Waste			Waste				For	n 4400	-122			7-91
					☐ Emergency Respo ☐ Wastewater			rground Resou	l Tanks								
					The state of the s		ther							Pag	e 1	of :	5
	ty/Proje				3		Lic	ense/Pe	rmit/M	onitorin	g Nun	nber	Boring		er		
	nt Tub					· · · · · · · · · · · · · · · · · · ·		*			- In .	N 111	MW.		- · · · ·	- N. C	
	-	-		ne and name Schoenber	of crew chief)		Dat		ing Star		Date	Drillir		pieted	Drillin	_	
ВОй	ut Lon	gycai	Lite	Schoolioc					18/95				8/95				Rotary
DNR	Facility	Web:1	vo. W	:Umque:Wel		ell Name	Fin	al Stati	c Water	Level	1	ace Ele		1-	orehole		
		ببب	<u>.</u>		MW-6A				Fee	t MSL		6.64			12 /8		Inches
	g Location	on	28886	8.76 N.	2429046.92 E	(S)/C/N		Lat 4	42° 46	' 37"	Loca	al Grid	Locatio	-	рисави		□E
NW		of NV		of Section		18 E	1	Long	88° 24	' 16"		Fe	et 📙]		□ v
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	mple	KIH				63		Τ	EAS	IIKC	,1	Γ	Soil	Prope	ties		T
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	2_	nts	Fee		Soil/Rock Descript					İ							100
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Number	Length (in) Recovered	Blow Counts	Depth In Feet		Each Major Uni	t		sc	Graphic Log	agra	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
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	Low	M	TV!	. 1		l			Tel: (4)								

Boring	g Numb	er	MW	'-6D'	Use only	y as an atta	achment t	o Form 44	00-122	•					Pag	e 2	of 5	; ·
Sar	nple													Soi	Prope	ties		
Number 3	Length (in) Recovered	Blow Counts	Depth In Feet		Soil/Roo And Geol Each	ck Descr ogic Ori Major U	gin For		uscs	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
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Borin	g Numb	er	MW	7-6D'	Use only	as an attacl	hment to Fo	orm 440	00-122						Page	3	of 5	
	mple					FT								Soil	Proper	ties		
Number	Length (in) Recovered	Blow Counts	Depth In Feet		And Geole	k Descrip ogic Origi Major Un	in For		uscs	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
			-16.5 -17.0 -17.5 -18.0 -18.5 -19.0 -19.5 -20.0 -21.0 -21.5 -22.0 -22.5 -23.0 -24.5 -24.5 -25.5 -25.5															**

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Borin	g Numb	er	MW	V-6D' Use only as an attachment to Form 44	100-122	•						e 4	of 5	<u> </u>
Sar	mple									Soil	Prope	rties		
Number	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
6	2	2 2 2 2 4 3 6	-26.5 -27.0 -27.5 -28.0 -29.5 -29.5 -30.0 -31.5	30.0-35.9 FEET SILT, light brownish gray (10YR 6/2), no odor, saturated	ML				4	w				
			- −36.0		<u> </u>		(日:							

Borin	g Numb	er	MW	V-6D' Use only as an attachment to Form 44	00-122						Pag	e 5	of 5	5
Sar	nple									Soil	Proper	ties		1
6 Number	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	uscs	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
9	24		-36.5 -37.0 -37.5 -38.0	gray (101 R 6/2), no odor, saturated	CL				2	W				

	of Wisco		al Reso	urces	Route To:		⊠н	27 \	Vacte					L BOR m 4400		G INF	ORMA	ATION 7-91
z vp					☐ Emergency					i Tank	s							
					☐ Wastewater		□ w		Resou	irces					Pag	e 1	of	2
Facili	y/Projec	t Nam	e					Lice	nse/Po	ermit/N	I onitori	ng Nu	mber	Boring	Numb		01	
	nt Tub			. 1							_			MW	-10			
	-				of crew chief)			Date	e Drill	ing Sta	rted	Da	te Drilli	ng Com	pieted	Drillin	g Met	hod
		-		Zamow					10	/24/9:	5			24/95		4.25		
DNR	Facility:	Wed N	g. W	i:Umque:Wo	li Na Comm		ime	Fina	al Stati		r Level	- 1	rface Ele		- 1	orehole		
				<u></u>	MW C	/-10				Fe	et MSL		43.71 cal Grid					Inches
	g Locatio Plane		28935	33.73 N,	2428932.54 E	© yc	!/N		Lat	42° 40	6' 37"		cai Gilu			pricati		ΠE
NW	1/4	of NV	V 1/4	4 of Section	29 т 4	n,r 18					4' 16"			eet 🗌				□ w
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ıber	yer (ŭ	th L		Each Major	r Unit			c s	hic		FII	dard	stur	멸ᆵ	يز ڍر	9	me >
Number	Length (in) Recovered	Blow Counts	Depth In Feet						n s	Graphic I og	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	12	16	E	0-0.5 FE	ET SAND an	d GRAV	EL,		GW	Q.Ç	NO R	3.1		M				
		12 9	E		to-coarse gra		lowish		SW	000								
		7	─0.5 [IOYR 5/4), me FEET SILT a		 -	-/	ML	Î								
			- -1.0		ned sand, trac				SP	<u> </u>		1						
			- 1.0	and med	ium-grained s	and from	2.0 to	0										
			-1.5		dark brown (to brownish y					}								
	1		-	6/6), mo	ist to saturate													
			E_2.0	approxin	nately 5 feet									1				
2	5	7 10										4.5	21	M				
		11	- -2.5					i				ļ		}				
	j	14										}						
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	_ ,			1.2	Λ					325 E	. CHIC	AGO	ST., MI	LWAUE	ŒE, W			,
	2 [سهرر	N	$\iota \cdot \nearrow$						Tel: (414) 29	1-884) Fax: (414) 29	1-8841			

Borin	g Numt	er	MW	V-10 Use only as an attachment to Form 4	400-122							e 2	of 2	2
Sar	mple									Soil	Proper	ties		
Number 4	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
17N 4	15 24	5 6 7 9 11 14 12 16			S N ML SP	Gra		4.0	13 26 26	W W Cor	Liq	Plar	P2	* RQ
L			14.0	* Water level data was collected on January 15, 1996.										

	of Wisco		ai Reso	urces	Route To: Solid W Emerge Wastew	ncy Response	: 🗆 U	Inder	Waste ground Resou	i Tanks				L BOR! n 4400-		G INFO	ORMA	TION 7-91
						\$ 1-4°		ther							Pag		of 5	5
	y/Proje			4		,		Lice	ense/Pe	rmit/M	onitorin	g Nun	nber	Boring		er		
	nt Tub			. I ne and name	of crew chie	<u> </u>		Date	e Drilli	ing Star	ted	Date	Drillin	MW-		Drillin	o Meti	od -
				Zamow	of crew citie	•,		Dati		_		Date			picted		•	
200		.6,,							10/	/25/95	1		10/3	30/95		HSA.		•
DNR	Facility	Web:N	o. W	:Unique:Wel	`.`.\ ` .`.`.`.	ommon Well	Name	Fina	al Stati	c Water	Level	1	ace Ele			orehole		
					<u></u>	MW-10A		İ		Fee	t MSL		3.71			12 /8		nches
Boring State	g Location		28935	3.42 N,	2428926.7	76 E (S)	C/N	-	Lat 4	42º 46	37"	Loca	al Grid	Locatio		рисави		ΞE
NW		of NV		of Section	29 т	_		L	ong	88° 24	' 16"	1	Fe	et 🗌		1		ั้ w
Count	y						DNR Cou			Civil 7	Town/Ci		Village					
	LWO	RTH					65			EAS	T TRO	Y						
Sar	npie													Soil	Prope	rties		-
		ıts	<u> </u>	S	Soil/Rock	Description	n.						ا ا					
ь.	(i) 5	our	H H	Ar	nd Geolog	ic Origin F	or		S	0	=	Ω	di di	5 T				suts
Number	gth	Blow Counts	Depth In Feet		Each M	ajor Unit			C	id "	Bra	PID/FID	dar etra	istu	ig ig	± ξ;	8	RQD/ Comments
Ž	Length (in) Recovered	Blo	Def						s n	Graphic Log	Well Diagram	PEC	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comm
			E	0-14.0 F	EET BLIN	ND DRILL	ED,											*
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Ŀ	04	A	7	N. V	V					325 E.	CHICA 14) 291	GO ST	r., MIL	WAUK	EE, W			

MW-10A Use only as an attachment to Form 4400-122. Page 2 of 5 Boring Number Soil Properties Sample Depth In Feet Soil/Rock Description Blow Counts Standard Penetration Length (in) Recovered And Geologic Origin For Moisture Content PID/FID Graphic Log USCS Each Major Unit Liquid Limit 6.5 -8.0 -8.5 -9.0 -9.5 -10.0 -10.5 -11.0 -11.5 -12.0 -12.5 -13.0 -13.5 ML 5 W 15 2 14.0-40.0 FEET SILT, light 2 brownish gray (2.5Y 6/2), clay lenses 3 3 at 23.0 to 25.4 feet and 27.0 to 27.5 feet, no odor, waterbearing 15.0 15.5

	g Numb	er	MW	7-10A Use only as an attachment to Form 44	100-122							e 3	of 5	5
Number 2	Length (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic sa Limit	P 200	RQD/ Comments
3	18	2 3 3 2 2 2 2 3 4	17.5 -17.5 -18.0 -18.5 -19.0 -19.5					7.7	5	w				
5	14	6 7 9	-21.0 -21.5 -22.0					5.6	10	w				
6	24	6 5 3 3 3	-23.0 -23.5 -24.0 -24.5 -25.0					9.9	8	w				

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Sample		g Numb	er	MW	′-10A	Use only as an attachment to For	rm 4400-12	2.									ge 4	of :	5
Second S	Sample							T		T		T			Soi	l Prope	rties		
7 24 3 4 5 5 26.5 5 5 6 27.0	Number	Length (in) Recovered		Depth In Feet		And Geologic Origin For	USCS		Graphic	Log	Well	Diagram		Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
5 - 26.5 - 27.0 - 27.5 - 28.0 - 27.5 - 28.0 - 28.5 10 - 29.0 - 29.5 - 29.5 - 30.0 - 31.0 - 31.5 - 31.0	7	24	3	F									891.5	9	W				
8			5	E															
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9 24 8 7 29.0 29.5 30.0 5 30.5 5 30.5 5 31.0 24 3 5 5 32.5 6 33.0 6 33.5 6 33.5 6 6 6 6 6 6 6 6 6 7 235.5 6 6 6 6 7 235.5 6 6 6 7 235.5 6 6 7 235.5 6 6 7 235.5 7 235.5 7	8	24		-28.0 E								ı	450.7	22	w				
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10 24 3 -31.5 -32.0 -33.5 -32.5 6 -33.5 -33.5 10 W 11 18 5 -34.0 6 6 7 -35.5 -35.5 -35.5		24	7	30.5									337.4		. "				
10 24 3 3 32.0 33.5 10 W 11 18 5 34.0 6 6 7 34.5 7 35.0 4.6 12 W			5	E															
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Borin	g Numb	umber MW-10A Use only as an attachment to Form 4400-122.									Page 5 of 5							
	nple									Soil	Proper	ties						
Number	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	uscs	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments				
13	14	3 4 3 3 6 3 2 3	-36.5 -37.0 -37.5 -38.0 -39.0 -39.5 -40.0 -40.5	40.0-41.0 FEET BLIND DRILLED				4.7	5	W								