

August 31, 2021

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Via Email Only to [jeffrey.howard.danko@jci.com](mailto:jeffrey.howard.danko@jci.com) and [scott.wahl@jci.com](mailto:scott.wahl@jci.com)

SUBJECT: Response to Near-Term Bedrock Groundwater Evaluation Work Plan  
JCI/Tyco Stanton (PFAS), 1 Stanton Street, Marinette, WI  
*JCI/Tyco FTC PFAS, 2700 Industrial Parkway South, Marinette, WI\**  
BRRTS #02-38-581955 and #02-38-580694\*  
*\* DNR added this BRRTS case into the tracking of the work plan*

Dear Mr. Danko and Mr. Wahl:

On May 11, 2020 the Wisconsin Department of Natural Resources (DNR) received the *Near-Term Bedrock Groundwater Evaluation Work Plan* ("Bedrock SI Work Plan"), dated May 1, 2020, and submitted by Arcadis U.S., Inc. (Arcadis), on behalf of Johnson Controls, Inc. and Tyco Fire Products LP (JCI/Tyco). The report was accompanied by the appropriate fee of \$700, required under Wisconsin Administrative Code (Wis. Adm. Code) § NR 749.04(1), for formal DNR review and response.

The DNR reviewed the Bedrock SI Work Plan and appreciates JCI/Tyco's patience in awaiting a response. The Bedrock SI Work Plan was submitted as part of JCI/Tyco's on-going site investigation for discharge of per- and polyfluoroalkyl substances (PFAS) at its facility located at 1 Stanton Street, Marinette, Wisconsin (the "Stanton Site") (BRRTS #02-38-581955). However, based on review of the available site investigation data, the DNR finds that the PFAS detected in bedrock on the Stanton property may be associated with JCI/Tyco's other PFAS contamination site in Marinette. JCI/Tyco is also investigating discharges of PFAS to the environment at its Fire Technology Center (FTC), located at 2700 Industrial Parkway South in Marinette, Wisconsin (the "FTC Site") (BRRTS #02-38-580694). The FTC property is approximately 1.5 miles from the Stanton property.

The DNR approves JCI/Tyco's plan to expand the site investigation to include additional monitoring of the shallow bedrock; however, because the proposed investigation of the PFAS migrating in groundwater in shallow bedrock is associated with the on-going site investigations required under Wis. Adm. Code ch. NR 716 for both the Stanton and FTC Sites, the findings and results must be incorporated into future site investigation work plans, reports, and associated updates to the conceptual site models (CSMs) for each Site, where applicable.

## Background

JCI/Tyco is investigating and responding to the discharge of PFAS to the environment at the Stanton Site and the FTC Site. The discharge at the Stanton Site is associated with JCI/Tyco's operations including blending and packaging PFAS-containing aqueous film forming foams (AFFF). Currently, JCI/Tyco blends firefighting foam

concentrate products and manufactures fire extinguishers and other fire suppression system hardware at the Stanton Site. It is the DNR's understanding that JCI/Tyco began distributing firefighting foam in 1964. Up until approximately 1975, it repackaged some foams manufactured by other companies including 3M and starting around 1975 JCI/Tyco began blending and packaging its own firefighting foam at the Stanton Site. The discharge at the FTC Site occurred as the result of fire suppressant training, testing, research and development of PFAS-containing AFFF that started in the early 1960s.

### **DNR's Review of Bedrock Information for the Stanton and FTC Sites**

At the Stanton facility, the JCI/Tyco (Ansul) BRRTS case #02-38-000011 is also open for arsenic contamination that was discovered and investigated starting in 1974 and for which JCI/Tyco has implemented corrective action measures through the Resource Conservation and Recovery Act (RCRA) program. This project includes a network of Wis. Adm. Code ch. NR 141 wells to monitor groundwater in different depth zones, including the shallow bedrock. Between April 2018 and December 2019, JCI/Tyco sampled several of the wells on the property for PFAS, including three of the shallow bedrock monitoring wells (MW003D, MW013D, and MW102D); PFAS were detected in each well that was sampled. The samples from the shallow bedrock wells were analyzed for 14 PFAS compounds, and the primary PFAS detected was perfluorooctanoic acid (PFOA), at concentrations between 1,100 and 1,300 parts per trillion (ppt). The concentration of PFOA in the three bedrock wells was greater than the concentrations of PFOA detected in the wells in the unconsolidated aquifer nested above the bedrock well at each location.

The Wis. Adm. Code ch. NR 716 site investigations to define the degree and extent of PFAS contamination at the FTC and Stanton Sites are on-going. However, data collected to date points to the FTC as a primary source of PFAS contamination in the shallow bedrock. The FTC property is hydraulically upgradient from the Stanton property, and the PFAS concentrations in soil and groundwater in the unconsolidated aquifer on and near the FTC property are significantly greater than on the Stanton property. In addition, JCI/Tyco's CSM says that discharges of PFAS at the Stanton Site were likely incidental releases of PFAS-containing materials at the surface or from structural defects to sewers or other subgrade pipes, and that downward migration of PFAS into shallow bedrock is limited by a low-permeability glacial till that sits on top of the bedrock on the Stanton property. Based on the current CSM for the Stanton Site and the distribution of PFAS detected in the groundwater, it is unlikely that releases of PFAS on or near the surface on the Stanton property are the primary source of PFAS detected in the shallow bedrock wells on this property.

In JCI/Tyco's August 2020 CSM for the Stanton Site, JCI/Tyco presented the following information related to the shallow dolomite bedrock:

- The bedrock is approximately 35 to 50 feet below ground surface (ft bgs).
- In many locations throughout the area, including on the Stanton property, the bedrock is separated from the unconsolidated aquifer by a low-permeability glacial till (Arcadis' Figures 1, 6 and 7 **Attachment A**). Where present, the glacial till limits the downward migration of groundwater from the upper unconsolidated units into the bedrock.
- In some locations, south and west of the Stanton Site, the low-permeability till is absent; medium to coarse sand and gravel is in contact with the bedrock (Arcadis' Figures 1, 6 and 7 in **Attachment A**). The absence of the low-permeability glacial till allows for a hydraulic connection between the unconsolidated aquifer and the bedrock at these locations.
- One of the corrective action measures in place for the arsenic contamination is a groundwater barrier wall that encompasses the Stanton property and that is keyed into the low-permeability glacial till layer that sits on top of the dolomite bedrock (CH2MHill Figure 1-4 in **Attachment A**).
- Flow in bedrock groundwater appears to travel under the barrier wall to the Menominee River.

- Flow of groundwater in the shallow bedrock appears to be predominantly controlled by fracture flow. The shallow dolomite bedrock has moderate permeability at locations where open fractures or weathered bedrock are encountered, and the zones of competent dolomite bedrock without fractures are generally impermeable.

**Summary Bedrock SI Work Plan**

JCI/Tyco’s stated objectives in the Bedrock SI Work Plan were to refine the CSM of PFAS affecting shallow bedrock, to evaluate the groundwater flow pathways in shallow bedrock, identify potential receptors and expand or complete the delineation of PFAS in the shallow bedrock.

JCI/Tyco’s proposed scope of work included:

- Research into potential sources, flow paths and receptors to PFAS in the shallow bedrock using available information. Proposed research included: review for other properties that could be potential sources of PFAS near the Sites, analysis of the PFAS signature to distinguish potential sources, assessment of water elevations and flow direction and survey of the groundwater use for areas in Menominee, Michigan to evaluate potential receptors across the river from the Stanton Site.
- Installation of four new monitoring wells into the top 15 feet of bedrock at locations between the FTC and Stanton properties (MW125D-60, MW126D-40, MW127D-85, and PZ-28-75). (JCI/Tyco installed the wells in November and December 2020.)
- Collection of groundwater samples for analysis for PFAS<sup>1</sup> in the 13 shallow bedrock monitoring wells listed below and shown on Arcadis’ Figures 3 and 4 in **Attachment A**.

Location	Previously Sampled for PFAS		Not Previously Sampled for PFAS	
	# of Wells	Monitoring Well IDs	# of Wells	Monitoring Well IDs
On FTC Property	-	n/a	2	PZ-01D and PZ-04D
Between FTC and Stanton Properties	-	n/a	4	MW125D-60, MW126D-40, MW127D-85, and PZ-28-75
On Stanton Property (Outside Barrier Wall)	3	MW003D, MW013D, and MW102D	-	n/a
On Stanton Property (Inside Barrier Wall)	-	n/a	4	MW040D, MW100D, MW108D, and MW109D

- Measurement one time of the groundwater elevations in the four new bedrock monitoring wells (MW125D-60, MW126D-40, MW127D-85 and PZ-28-75) and other existing wells (not specified). Data will be used to evaluate groundwater flow direction and horizontal and vertical gradients.
- Measurement of groundwater elevations continuously for three months using new pressure transducers in two shallow wells (MW013S and MW040S), new pressure transducers in three bedrock wells (MW003D, MW013D, and MW-102D) and existing pressure transducers already deployed at the Stanton Site (wells not specified). Data will be used to evaluate potential anomalies in the hydraulic gradient around the barrier wall at the Stanton Site.

JCI/Tyco plans to provide a documentation report summarizing the results of the near-term bedrock groundwater evaluation work. The letter report will include well construction details for the four proposed bedrock monitoring

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<sup>1</sup> At the time of this submittal JCI/Tyco proposed analysis for 14 PFAS; however, JCI/Tyco is required to report the 36 PFAS compounds specified in the Quality Assurance Project Plan (QAPP) dated March 16, 2021.

wells, analytical results, potentiometric groundwater elevation contour maps, and figures showing groundwater PFAS analytical data and hydrographs of the continuous water-level data from the pressure transducers.

### **DNR Review**

The DNR reviewed the Bedrock SI Work Plan and agrees with JCI/Tyco's plans to expand the investigation for PFAS in the shallow bedrock groundwater and to conduct research to support the findings and conclusions in the next phase of work.

The DNR finds that JCI/Tyco's stated objectives for the Bedrock SI Work Plan align with requirements of Wis. Adm. Code § NR 716.11(5). However, the investigation of the shallow bedrock is not independent of the site investigations for the FTC and Stanton Sites, and therefore must be integrated into these site investigations as needed to evaluate migration pathways (Wis. Adm. Code § NR 716.11(5)(a)) and the extent, both vertically and horizontally (Wis. Adm. Code § NR 716.11(5)(f)) of the PFAS contamination. Future assessment of potential downward vertical migration of PFAS from the shallow bedrock may be required.

The DNR has identified data gaps that JCI/Tyco must address during this or future investigation activities in order to define the vertical and horizontal extent (Wis. Adm. Code § NR 716.11(5)(f)) of PFAS contamination in groundwater from these Sites and to assess the impacts to receptors along the bedrock migration pathway (Wis. Adm. Code § NR 716.11(5)(b)). This is not an exhaustive list and other data gaps may be found as the site investigations continue and the CSMs are updated. A framework to evaluate the shallow bedrock migration pathway from the Stanton and FTC Sites and summary of the current data gaps are summarized below.

#### ***#1: Sources and entry points for PFAS into shallow bedrock***

Identify locations of hydraulic connection between the unconsolidated aquifer and bedrock. Addressing this data gap is needed to evaluate interim or remedial actions to limit further migration of PFAS into the bedrock (Wis. Adm. Code § NR 716.11(3)(b)) and may be useful in defining source(s) to the PFAS detected in bedrock. JCI/Tyco's CSM for the Sites found that a glacial till layer acts as an aquitard that limits downward migration of groundwater into bedrock. However, fractures or higher permeability zones in the glacial till or locations where glacial till is absent provide opportunities for hydraulic connection and entry points for the PFAS contamination into the bedrock.

#### ***#2: Migration pathway(s) for PFAS within the shallow bedrock***

Because groundwater movement in fractured media and weathered bedrock tend to follow the direction of the open fractures or interconnected zones with higher permeability, measurements from individual well points may not identify the migration pathways for the PFAS in the shallow bedrock. JCI/Tyco's plan to measure water levels one time will provide a general understanding of groundwater flow direction and gradients in the shallow bedrock, but it will not address seasonal shifts in direction and may miss specific migration pathways in the fractured/weathered bedrock. JCI/Tyco must acknowledge these limitations in its interpretation of the groundwater flow and PFAS migration in the shallow bedrock, and work to resolve these limitations to the extent practicable to define the degree and extent of PFAS contamination (Wis. Adm. Code § NR 716.11(5)(f)). Additional work to resolve the degree and extent of contamination in bedrock may include evaluation of dominant fracture orientation in bedrock, mapping the slope and thickness of the weathered bedrock layer and/or monitoring of additional wells over multiple sampling events.

#### ***#3: Receptors to the PFAS impacts migrating in the shallow bedrock***

Identifying the potential receptors to the PFAS contamination migrating in the shallow bedrock is required per Wis. Adm. Code § NR 716.07(7) such that the impact of those receptors can be assessed during the investigation

per Wis. Adm. Code § NR 716.11(5)(b). This is needed to assess the adequacy and completeness of the site investigations. JCI/Tyco is currently testing private drinking water wells in Marinette and south of the FTC Site in the town of Peshtigo, and the DNR agrees with JCI/Tyco's plan to research potential drinking water receptors east of the Stanton Site in Menominee, Michigan during this next phase of work. JCI/Tyco will also need to address the following data gaps in this or future phases of work to ensure the degree and extent of contamination is adequately defined to assess potential receptors.

- Does the PFAS in shallow bedrock discharge to surface water at the Menominee River and/or Bay of Green Bay?
- Does the PFAS contamination in shallow bedrock continue to migrate along the shallow, weathered bedrock surface east of the Menominee River?
- Is the shallow bedrock with PFAS contamination hydraulically connected to locations where the PFAS-impacted groundwater can migrate downward into the deeper bedrock aquifer?

### **Conclusions and Next Steps:**

The DNR may proceed with implementing the Bedrock SI Work Plan. However, although JCI/Tyco submitted the Bedrock SI Work Plan for just the Stanton Site (BRRTS #02-38-581955), JCI/Tyco must also evaluate PFAS contamination migrating in the shallow bedrock from the FTC Site (BRRTS #02-38-580694) as per Wis. Adm. Code §§ NR 716.11(5)(a) and NR 716.11(5)(f). The next steps are summarized below; additional written response to this letter is not needed.

- Within 60 days of receipt of this letter, implement the proposed groundwater sampling (Wis. Adm. Code § NR 716.11(2r)). Complete the work in accordance with the final QAPP dated March 2021; this includes analysis for the 36 PFAS compounds that JCI/Tyco is required to report.
- Within 60 days of receipt of the final laboratory report, submit the documentation report proposed in the Bedrock SI Work Plan with the additions noted below (Wis. Adm. Code § NR 716.15)).<sup>2</sup>
  - Documentation and discussion on the research proposed in the Bedrock SI Work Plan.
  - Discussion of the groundwater flow paths, direction and potential receptors for PFAS migrating in the bedrock, and assessment on the adequacy of the delineation of the horizontal and vertical extent of PFAS contamination migrating in the bedrock.
  - Conclusions and recommendations for next steps, including how the bedrock data will be incorporated into the Wis Adm. Code § NR 716.15 site investigation work plans and reporting for the Stanton and FTC Sites and schedule for next phase of work.
  - Documentation of disposal of investigative derived waste (Wis. Adm. Code § NR 716.11(6)).

As a reminder, the FTC Site is subject to an enforcement action and therefore all submittals to the DNR under Wis. Adm. Code chs. NR 700-799 and submittals directed by the DNR must be accompanied by an Wis. Adm. Code ch. NR 749 fee per Wis. Stat. § 292.94. These fees are not pro-ratable or refundable per Wis. Adm. Code § NR 749.04(1). If you have any questions about whether to include a fee with a submittal, please contact DNR staff prior to submitting a document without a fee.

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<sup>2</sup> The 10-day data notification to the DNR per Wis. Adm. Code § NR 716.14 (2) is not required if JCI/Tyco continues to provide the biweekly updates to the database when the results becomes available and provides the documentation report within 60-days of receipt of the data (Wis. Adm. Code § 716.14(3)). The requirement of 10-day data notification of results to landowners (with copy to DNR) remains in effect for samples collected on property that is not owned by JCI/Tyco.

The DNR appreciates your efforts to investigate and remediate this Site. If you have any questions about this letter, please contact me, the DNR Project Manager, at (608) 622-8606 or [Alyssa.Sellwood@wisconsin.gov](mailto:Alyssa.Sellwood@wisconsin.gov).

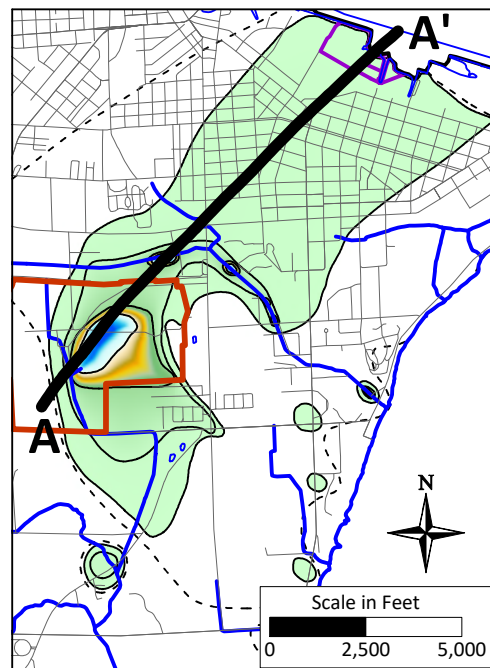
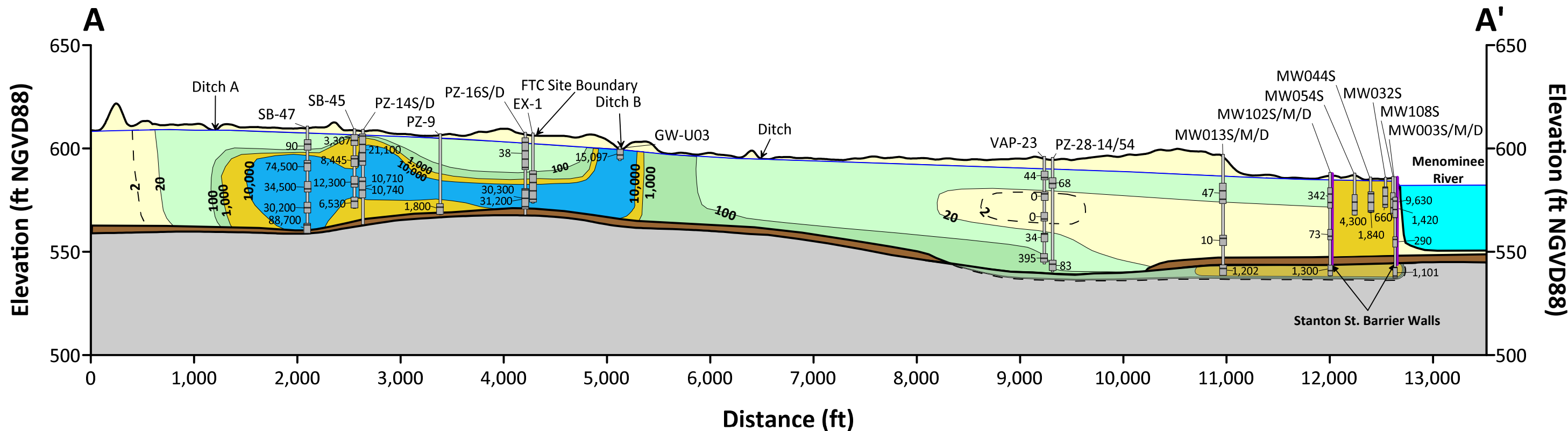
Sincerely,

A handwritten signature in black ink that reads "Alyssa Sellwood". The signature is written in a cursive style with a large, looped initial "A".

Alyssa Sellwood, PE  
Complex Sites Project Manager  
Remediation & Redevelopment Program

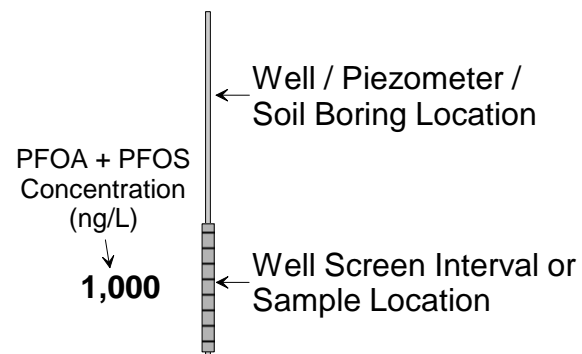
Attachment A: Referenced Figures

cc: Scott Potter, Arcadis (via email: [scott.potter@arcadis.com](mailto:scott.potter@arcadis.com))  
Ben Verburg, Arcadis (via email: [ben.verburg@arcadis.com](mailto:ben.verburg@arcadis.com))  
Christophe Peters, Arcadis (via email: [Christopher.peters@arcadis.com](mailto:Christopher.peters@arcadis.com))  
Bridget Kelly, DNR (via email: [bridgetb.kelly@wisconsin.gov](mailto:bridgetb.kelly@wisconsin.gov))  
Jodie Peotter, DNR (via email: [Jodie.peotter@wisconsin.gov](mailto:Jodie.peotter@wisconsin.gov))

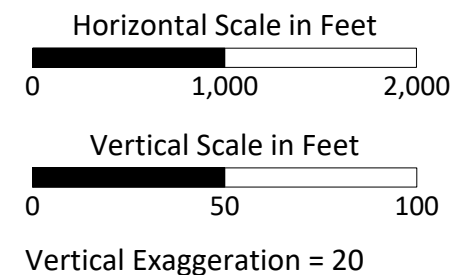
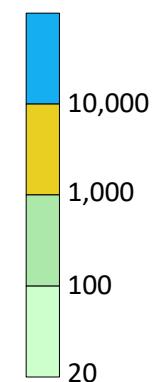


**Legend**

- Aquifer (sand to sandy silt)
- Till (silt with gravel)
- Bedrock (Dolomite)
- Water Table
- Stanton St. Site Barrier Walls



**PFOA+PFOS Concentration (ng/L)**



TYCO FIRE PRODUCTS LP MARINETTE, WISCONSIN	
Cross Section A-A' PFOA+PFOS Plume Contours of Recent Sampling Results	
<b>ARCADIS</b>	FIGURE <b>1</b>

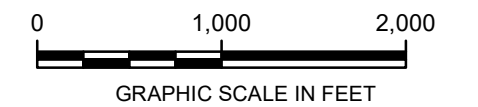


LEGEND:

- BARRIER WALL
- CROSS-SECTION LOCATION
- BEDROCK SURFACE ELEVATION CONTOUR (FT AMSL)
- VAP LOCATION
- ⊕ MONITORING WELL LOCATION
- ⊕ PIEZOMETER LOCATION
- HPT LOCATIONS
- ▲ SURFACE WATER SAMPLE AND VELOCITY MEASUREMENT
- APPROXIMATE SITE PROPERTY BOUNDARY
- APPROXIMATE MARINETTE CITY BOUNDARY
- ROAD
- DITCH/STREAM
- WATERBODY

NOTES:

1. BEDROCK CONTOURS BASED ON SITE-SPECIFIC DATA AND REGIONAL MAPPING IN: TROTTA, L.C. AND COTTER, R.D. 1973. DEPTH TO BEDROCK IN WISCONSIN; WDNR. 2011. DEPTH TO BEDROCK. ECOLOGICAL LANDSCAPES OF WISCONSIN HANDBOOK - 1805.1.; SOLLER, D.R. AND GARRITY, C.P. 2018. QUATERNARY SEDIMENT THICKNESS AND BEDROCK TOPOGRAPHY OF THE GLACIATED UNITED STATES EAST OF THE ROCKY MOUNTAINS: U.S. GEOLOGICAL SURVEY SCIENTIFIC INVESTIGATIONS MAP 3392, 2 SHEETS, SCALE 1:5,000,000.
2. THE BARRIER WALL ENCOMPASSES BOTH THE SHEET PILE WALL AND THE SLURRY WALL.
3. FT AMSL = FEET ABOVE MEAN SEA LEVEL

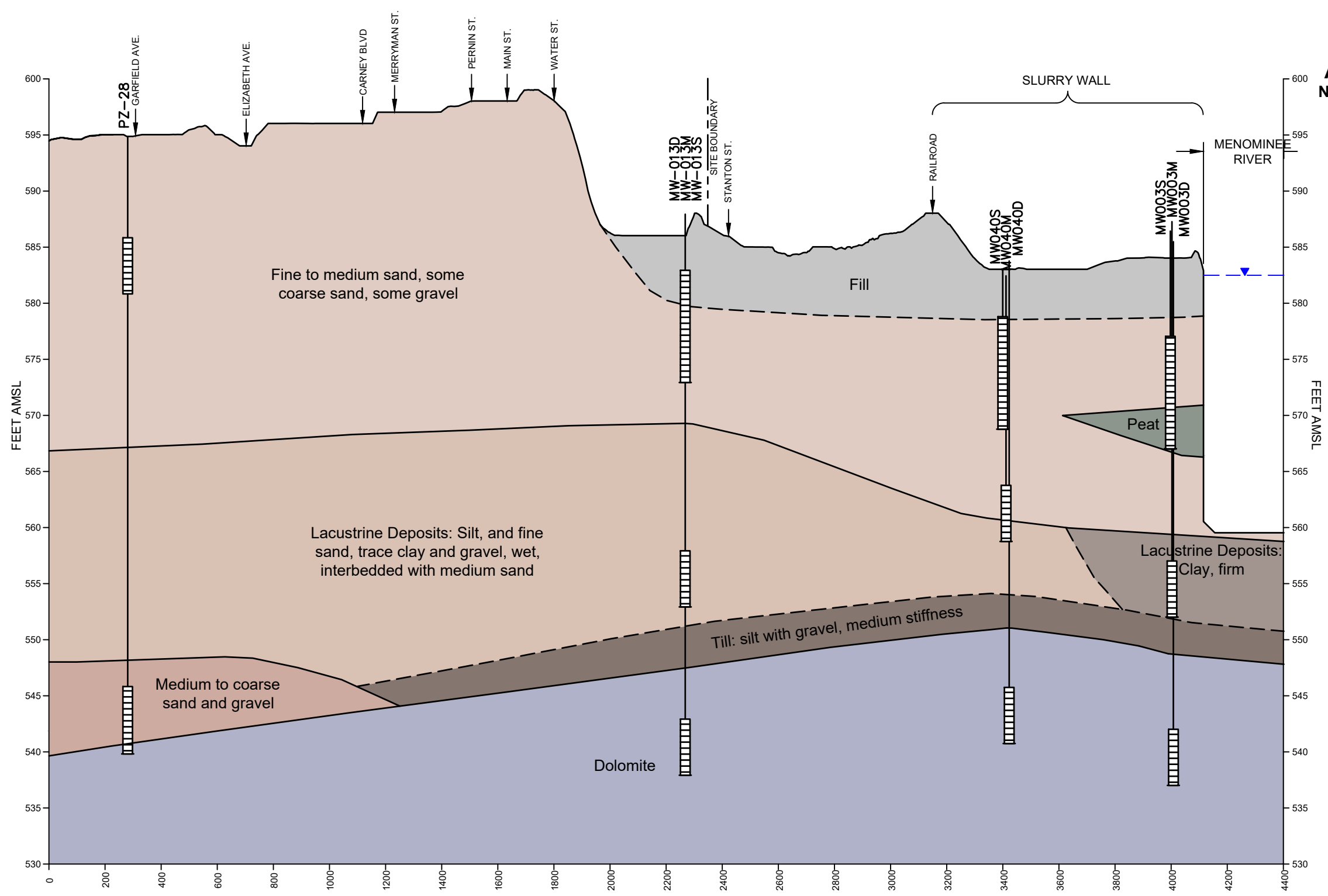


BEDROCK SURFACE AND CROSS-SECTION LOCATIONS



**A**  
SOUTH

**A'**  
NORTH

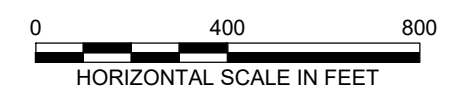


**LEGEND**

- PZ-30 = WELL/BORING ID
- WATER TABLE
- SCREEN INTERVAL
- BOREHOLE

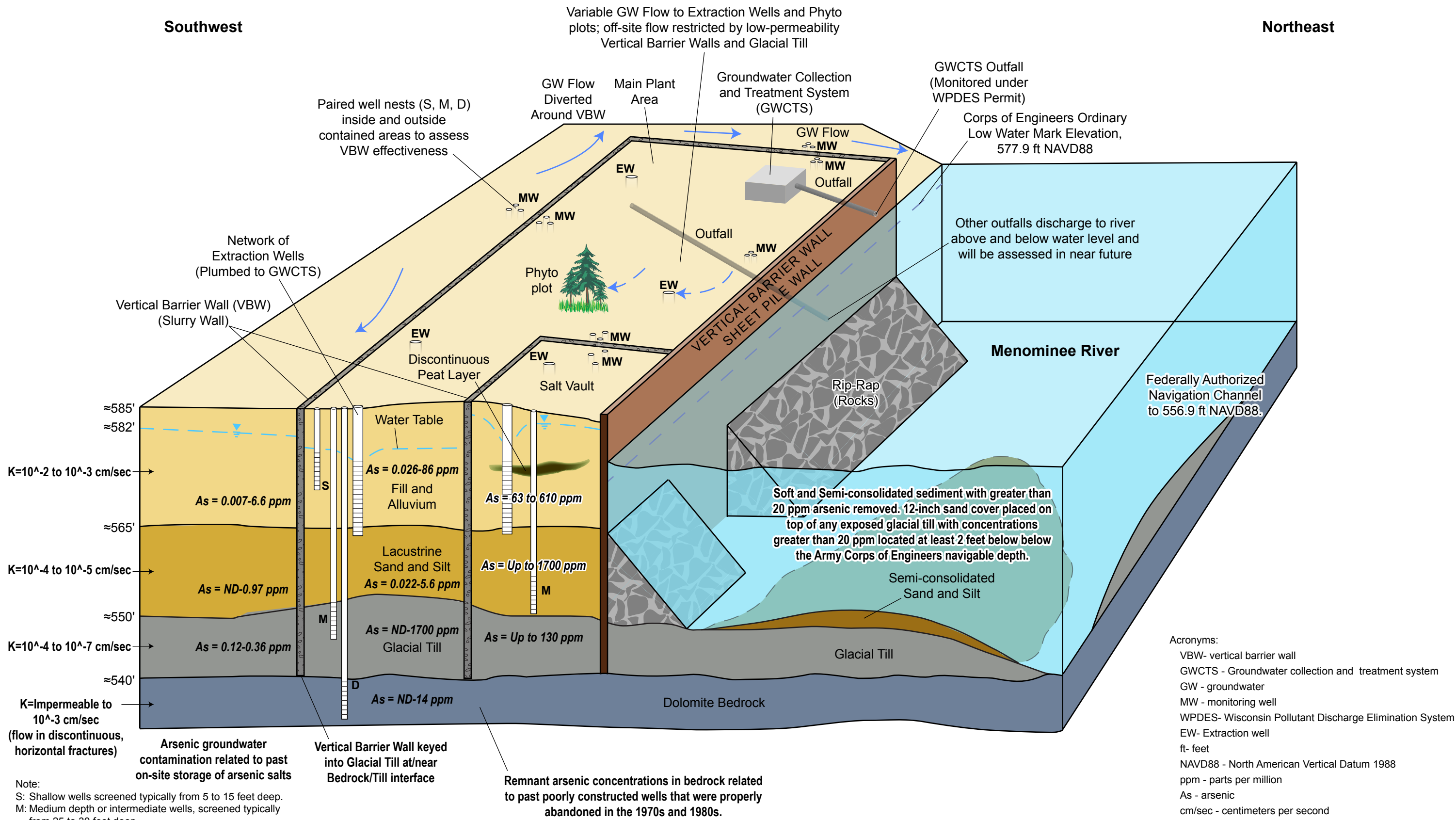
**NOTES:**

1. GEOLOGY GENERALIZED INTO MAJOR HYDROSTRATIGRAPHIC UNITS; EACH UNIT MAY INCLUDE HETEROGENEITIES NOT SHOWN. WHERE MIDDLE AQUITARD NOT PRESENT, CONTACT BETWEEN UPPER AND LOWER SAND UNITS IS ASSUMED WHERE COMBINED THICKNESS EXCEEDS ABOUT 30 FEET.
2. ABBREVIATIONS: AMSL – ABOVE MEAN SEA LEVEL; VAP – VERTICAL AQUIFER PROFILE
3. WATER TABLE APPROXIMATE, BASED ON OCTOBER 2019 WATER-LEVELS.



VERTICAL EXAGGERATION = 40X

TYCO STANTON STREET FACILITY MARINETTE, WISCONSIN <b>CONCEPTUAL SITE MODEL</b>	
<b>CROSS SECTION A-A'</b>	
	FIGURE <b>7</b>



Note:  
 S: Shallow wells screened typically from 5 to 15 feet deep.  
 M: Medium depth or intermediate wells, screened typically from 25 to 30 feet deep.  
 D: Deep wells installed and sealed within the uppermost portion of bedrock using a 5-foot long screen.

Arsenic results are from 2013-2014 and represent highest and lowest arsenic concentrations detected in each area.  
 Bedrock concentrations are the range for the entire site since bedrock is located below the barrier wall system.

Arsenic groundwater contamination related to past on-site storage of arsenic salts

Vertical Barrier Wall keyed into Glacial Till at/near Bedrock/Till interface

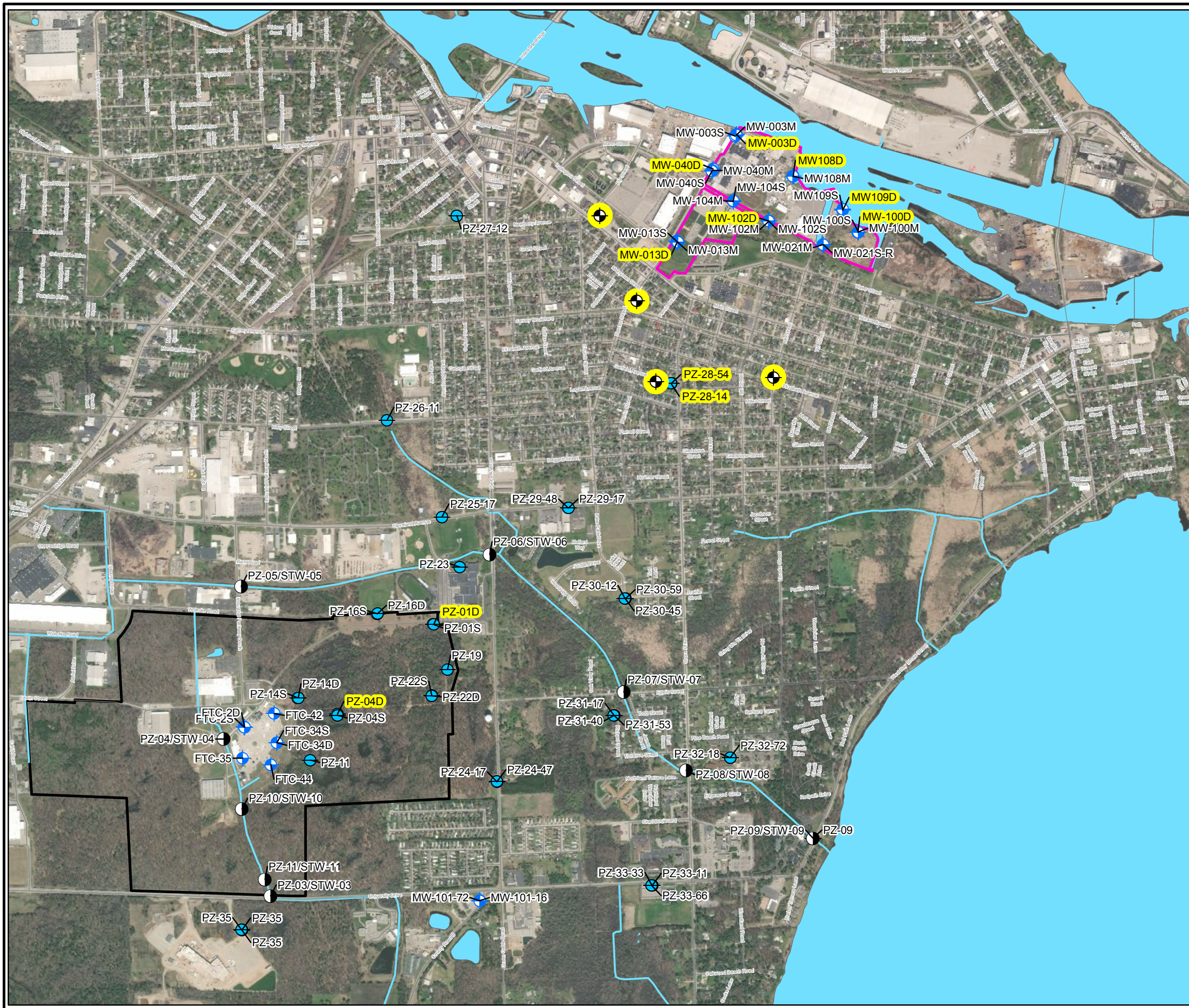
Remnant arsenic concentrations in bedrock related to past poorly constructed wells that were properly abandoned in the 1970s and 1980s.

Recent arsenic concentrations in Wetlands and 8th St Slip areas		
Unit	Wetlands	8th St Slip
Alluvium	0.014 to 1.5 ppm	65 to 120 ppm
Lacustrine sand and silt	ND to 1800 ppm	No data
Till	Up to 2.6 ppm	No data

NOT TO SCALE

- Acronyms:
- VBW- vertical barrier wall
  - GWCTS - Groundwater collection and treatment system
  - GW - groundwater
  - MW - monitoring well
  - WPDES- Wisconsin Pollutant Discharge Elimination System
  - EW- Extraction well
  - ft- feet
  - NAVD88 - North American Vertical Datum 1988
  - ppm - parts per million
  - As - arsenic
  - cm/sec - centimeters per second

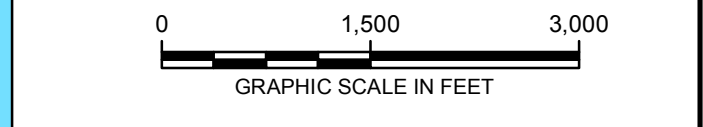
**FIGURE 1-4**  
 Conceptual Site Model Post-barrier Wall  
 Tyco Fire Products LP  
 Marinette, Wisconsin



- LEGEND:**
- PROPOSED SHALLOW BEDROCK MONITORING WELLS (APPROXIMATE)
  - MONITORING WELL
  - PIEZOMETER
  - IN-STREAM PIEZOMETER AND STILLING WELL PAIR
  - APPROXIMATE STANTON ST. SITE PROPERTY BOUNDARY
  - APPROXIMATE FTC SITE PROPERTY BOUNDARY
  - ROAD
  - DITCH/STREAM
  - WATERBODY

- Bedrock Monitoring Well**
- WELL ID**  
OR  
 PROPOSED GROUNDWATER SAMPLING (SEE NOTE 1 FOR COMPLETE LIST OF PROPOSED WELLS)

- NOTES:**
1. WELLS AND PIEZOMETERS PROPOSED FOR SAMPLING INCLUDE: MW003D, MW013D, MW040D, MW100D, MW102D, MW108D, MW109D, PZ-01D, PZ-04D, PZ-28-14, PZ-28-54, AND FOUR PROPOSED NEW SHALLOW BEDROCK WELLS
  2. DITCH/STREAM DATA SOURCE: U.S. GEOLOGICAL SURVEY NATIONAL HYDROGRAPHY DATASET, ACCESSED FALL 2017.
  3. ROAD DATA SOURCE: OPEN STREET MAP, ACCESSED FALL 2017.
  4. AERIAL IMAGERY: 4/27/2016 DIGITALGLOBE, VIVID-USA



TYCO FIRE PRODUCTS, LP  
MARINETTE, WISCONSIN  
NEAR-TERM BEDROCK GROUNDWATER EVALUATION  
WORK PLAN

**PROPOSED GROUNDWATER SAMPLING LOCATIONS**

**ARCADIS** | **FIGURE 3**

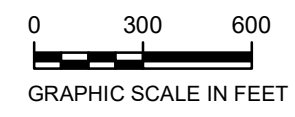
City: Minneapolis/Citrix Div/Group: IMDVC Created By: Last Saved By: MSMiller  
 TYCO Stanton St, Marinette, WI  
 D:\Tyco\_Stanton\2021-01\Figure 5 PROPOSED MONITORING WELL LOCATIONS Stanton\_01202021.mxd 1/28/2021 2:19:21 PM



- LEGEND:**
- MONITORING WELL OR WELL CLUSTER
  - PIEZOMETER
  - APPROXIMATE SITE PROPERTY BOUNDARY
  - SHEET PILE WALL
  - SLURRY WALL

- NOTES:**
1. RIVER DATA SOURCE: U.S. GEOLOGICAL SURVEY NATIONAL HYDROGRAPHY DATASET, ACCESSED FALL 2017.
  2. ROAD DATA SOURCE: OPEN STREET MAP, ACCESSED FALL 2017.
  3. AERIAL IMAGERY: 4/27/2016 DIGITALGLOBE, VIVID-USA.
  4. WELL LETTER SUFFIXES ARE DEFINED AS:  
 S = SHALLOW MONITORING WELL.  
 M = INTERMEDIATE MONITORING WELL.  
 D = DEEP MONITORING WELL.  
 R = REPLACEMENT WELL.
  5. TRANSDUCERS ARE PROPOSED TO BE DEPLOYED IN THE FOLLOWING WELLS: MW003D, MW003S, MW013D, MW013S, AND MW102D IN ACCORDANCE WITH THE MAY 2020 NEAR-TERM BEDROCK GROUNDWATER EVALUATION WORK PLAN.
  6. NOT INCLUDED IN THIS FIGURE ARE SHALLOW BEDROCK WELLS PZ-01D AND PZ-04D, WHICH ARE LOCATED ON THE TYCO FIRE TECHNOLOGY CENTER (FTC) SITE. THESE WELLS ARE PROPOSED TO BE SAMPLED AS PART OF THIS WORK PLAN.
  7. WELLS PZ-28-75, MW127D-85, MW125 CLUSTER, AND MW126 PAIR WERE INSTALLED IN NOVEMBER/DECEMBER 2020.

Bedrock Monitoring Well



TYCO STANTON STREET FACILITY  
 MARINETTE, WISCONSIN  
 SITE INVESTIGATION WORK PLAN

**PROPOSED GROUNDWATER  
 MONITORING LOCATIONS**

**ARCADIS** | **FIGURE 4**