

Au Sable River Boat Launch PFAS Investigation and Monitoring Report

Michigan Department of Environment, Great Lakes, and Energy

Project number: 60612721

June 18, 2021

Prepared for:

Michigan Department of Environment, Great Lakes, and Energy
Remediation and Redevelopment Division, Bay City District
401 Ketchum Street
Bay City, MI 48708

Prepared by:

AECOM Technical Services, Inc.
3950 Sparks Drive Southeast
Grand Rapids, MI 49546
aecom.com

Copyright © 2021 by AECOM

All rights reserved. No part of this copyrighted work may be reproduced, distributed, or transmitted in any form or by any means without the prior written permission of AECOM.

Table of Contents

1.	Introduction	1
2.	Methods	2
2.1	Direct Push Vertical Aquifer Sampling.....	2
2.2	Temporary Monitoring Well Installation.....	2
2.3	Groundwater Monitoring Well Sampling.....	2
2.4	Surface Water Sampling.....	3
2.5	Laboratory Analytical	3
3.	Results and Discussion.....	4
3.1	Groundwater Elevation and Flow Direction	4
3.2	Analytical Results	4
3.2.1	VAS	4
3.2.2	Monitoring Wells	5
3.2.3	Surface Water	5
3.3	Conclusions and Recommendations	5
4.	References.....	6

Figure

- Figure 1. Sample Locations
- Figure 2. November 2019 Groundwater Elevation Contours
- Figure 3. January 2020 Groundwater Elevation Contours
- Figure 4. April 2020 Groundwater Elevation Contours
- Figure 5. July 2020 Groundwater Elevation Contours
- Figure 6. October 2020 Groundwater Elevation Contours
- Figure 7. April 2021 Groundwater Elevation Contours

Tables

- Table 1. Vertical Aquifer Sample Monitoring Well Completion Information
- Table 2. Vertical Aquifer Sample Analytical Results
- Table 3. Monitoring Well Sample Analytical Results
- Table 4. Surface Water Sample Analytical Results

Appendices

- Appendix A. Geologic Boring and Photo Logs
- Appendix B. Groundwater Low-Flow Sampling Field Forms
- Appendix C. Laboratory Analytical Reports

1. Introduction

Since 2010, concentrations of compounds included in a class of emerging contaminants, per and polyfluroalkyl substances (PFAS), have been detected in samples of groundwater, surface-water, soil, sediment, and biota at and near the former Wurtsmith Air Force Base (WAFB). PFAS compounds have also been detected in potable water wells beyond the WAFB property boundaries.

The detection of PFAS compounds outside the former base prompted the Michigan Department of Environment Great Lakes and Energy (EGLE) to sample residential drinking water wells, municipal water supply wells, and to perform subsurface investigations. In 2017 and 2018, EGLE led investigations that included the advancement of soil borings and installation of single and nested monitoring wells (i.e., multiple monitoring wells installed in the same location, but at different depths) to further understand and evaluate the nature and location of PFAS compounds in groundwater beyond the WAFB property boundaries. Two of the nested wells installed during these investigation activities were Remedial Investigation (RI) monitoring wells MW029 and MW031 (**Figure 1**).

Analytical results from samples collected from RI-MW029 and RI-MW031 contained detections that were slightly below the Environmental Protection Agency (EPA) Lifetime Health Advisory (LHA) criterion of 70 ng/L Perfluorooctanoic acid (PFOA) plus Perfluorooctane sulfonic acid (PFOS). Based on these detections, EGLE requested AECOM Technical Services, Inc. (AECOM) to perform a limited investigation in an effort to identify potential source/sources and evaluate the nature and extent of PFAS concentrations identified in the RI monitoring wells near the Au Sable River Boat Launch.

On August 3, 2020 EGLE promulgated state drinking water standards for the following seven (7) PFAS developed under section 5 of the State Drinking Water Act, 1976 PA 299 [MCL 325.1005]: PFOA 8 ng/L, PFOS 16 ng/L, Perfluorononanoic acid (PFNA) 6 ng/L, Perfluorohexane sulfonic acid (PFHxS) 51 ng/L, Perfluoro-2- propoxypropanoic acid (HFPO-DA) 370 ng/L, Perfluorobutane sulfonic acid (PFBS) 420 ng/L, and Perfluorohexanoic acid (PFHxA) 400,000 ng/L.

EGLE had previously developed generic cleanup criteria for groundwater used as drinking water for PFOA and PFOS and, as established under Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended [MCL 324.20120a(5)], the new state drinking water standards became the new PFOA and PFOS generic cleanup criteria. Therefore, the previously developed Part 201 generic cleanup criteria for groundwater used as drinking water for a combined concentration of PFOA and PFOS was lowered from 70 ng/L to 8 ng/L PFOA and 16 ng/L PFOS, individually.

On December 21, 2020, pursuant to Section 20120a(23) of Part 201, EGLE established generic cleanup criteria for groundwater used as drinking water for five (5) additional PFAS compounds including PFNA, PFHxS, HFPO-DA, PFBS, and PFHxA. The generic criteria correspond to the state drinking water standards established for each of these compounds in August 2020.

This report has been prepared to summarize results from limited investigation and subsequent monitoring activities performed between October 2019 to April 2021.

2. Methods

2.1 Direct Push Vertical Aquifer Sampling

Beginning on October 2, 2019 and ending on October 16, 2019, eight (8) Vertical Aquifer Sample (VAS) borings were installed using a Geoprobe® Model 7822DT Soil borings were advanced to a maximum depth of 40 ft below ground surface (bgs) or subsurface refusal. Sediment cores were continuously logged by AECOM personnel using Environmental Sequence Stratigraphy methods, including lithology, grain-size, sorting, moisture, and color. Geologic descriptions were documented on boring-specific, field log sheets and can be found in **Appendix A**. Also included in **Appendix A** are photo logs of sediment cores collected from each location. No soil samples were collected for laboratory analyses as part of this scope of work.

Upon reaching the water table, groundwater samples were collected at 10-foot intervals from the top of the water table to the termination of the boring. Between three (3) and four (4) samples were collected at each location. Groundwater was encountered between two (2) and five (5) feet bgs.

At each sampling interval, the direct-push tooling screen (4-feet in length) was deployed to obtain the sample. The groundwater samples were collected using a peristaltic pump via tubing inserted through the direct push tooling. Sample intervals for each location are presented in **Table 1**.

Prior to sample collection, groundwater pH, specific conductivity, oxidation reduction potential (ORP), temperature, dissolved oxygen (DO), and turbidity were monitored at five-minute intervals. Groundwater samples were collected after the in-situ parameters stabilize within the following criteria: groundwater drawdown <0.33 feet, pH +/- 0.1, conductivity +/- 3%, turbidity +/- 10%, dissolved oxygen (DO) +/- 10%, temperature +/- 5%, and oxygen reduction potential (ORP) +/- 10 millivolts (mV). A minimum of three readings were performed. If parameters did not stabilize after ten readings, the interval was sampled, and documented on the low flow sample record sheet (**Appendix B**). **Table 2** presents the analytical results from the VAS.

2.2 Monitoring Well Installation

One, 1-inch diameter, PVC monitoring well was installed at each of the 8 VAS locations. Each monitoring well was installed with a 5-foot well screen placed across the water table. The annular space of each well was filled with sand pack from the bottom to approximately 1-foot below ground surface. The remaining annular space was sealed with hydrated bentonite chips and completed at-grade (flush mount) with a steel cover and a small concrete pad. Each individual monitoring well was sealed with a j-plug type cap. **Figure 1** shows locations where the monitoring wells were installed. **Table 1** presents well completion data for both temporary monitoring wells and RI monitoring wells MW029 and MW031.

2.3 Groundwater Monitoring Well Sampling

The EGLE approved scope of work included quarterly sampling for at least one year to be performed on monitoring well clusters RI-MW029 and RI-MW031. However, RI-MW031 has been submerged under approximately 1.5-feet of water due to the high-water levels of Lake Huron prior to October of 2019. Monitoring wells ASRBL-MW006, 007, and 008 were included in the quarterly sampling in place of the RI-MW031 well cluster. Through seven (7) quarters of sampling, the RI-MW031 well cluster was accessible for sampling during the two (2) most recent sampling events (January and April 2021). Also, ASRBL-MW002 has been sampled during the five (5) most recent sampling events and ASRBL-MW005 was sampled in April 2021 at the direction of EGLE.

Prior to sampling during each event, static water levels were measured at all accessible monitoring wells throughout the investigation area to determine groundwater elevation and direction of groundwater flow in relation to the monitoring wells being sampled. **Table 1** presents measured static water levels and calculated groundwater elevation for each quarterly sampling event.

Monitoring wells were sampled using EGLE-approved, low-flow, groundwater sampling techniques. Water quality parameters (i.e. pH, temperature, specific conductance, ORP, turbidity and DO) were monitored and recorded approximately every 5 minutes during purging. Groundwater samples were collected after water quality parameters stabilized for three consecutive readings. Stabilization parameters were as follows: depth to water drawdown <0.33 feet, pH +/- 0.1, conductivity +/- 3%, turbidity +/- 10%, DO +/- 10%, temperature +/- 5%, and ORP +/- 10mV. If water quality parameters did not stabilize after 45 to 60 minutes of readings, the well was sampled, and this deviation was documented on the groundwater sample record sheet. Water quality parameters were documented on sample-specific log sheets (**Appendix B**).

After purging, groundwater samples were collected in PFAS-free sample containers (provided by the laboratory), labeled, transferred to a cooler on ice, and submitted to the laboratory, under chain-of-custody documentation, for analysis. Detailed sampling and handling procedures are provided in EGLE PFAS Sampling Guidance documents. **Table 3** presents analytical results from monitoring well samples .

2.4 Surface Water Sampling

Surface water grab samples were collected from five (5) locations (**Figure 1**) during the initial October 2019 mobilization. Location ASRBL-SW005 was sampled quarterly after the initial mobilization. Surface water sample analytical results are presented in **Table 4**.

2.5 Laboratory Analytical

Vista Analytical Laboratory (Vista) in El Dorado Hills, California conducted the PFAS analysis using Modified Environmental Protection Agency's (EPA) Method 537 with isotope dilution. Currently, a published USEPA reference method is not available for the analysis of PFAS in groundwater. In 2009, USEPA published reference Method 537 for finished drinking water, but this method is not appropriate for more complex aqueous matrices. The Modified Method 537 with isotope dilution is an internal standard method. Internal standardization is a determinative technique where a chemical substance similar to the analytes of interest is added to sample extracts to quantify the target analytes. The Department of Defense's accreditation program using DoD QSM Version 5.1 recognizes that isotope dilution is a better technique for quantifying PFAS at low concentrations especially in complex environmental matrices due to these matrix effects and requires isotope dilution quantification where the isotopically labeled analytes of interest are available, and the target compound concentration is not so high that serial dilution or direct injection is appropriate. Isotope Dilution is widely accepted as a better technique for quantification where matrix interference may be present and/or analyte loss may occur during the sample preparation process.

EGLE currently has a recommended list of 28 PFAS to be reported for various environmental matrices (e.g. groundwater, soil, surface water, etc.). This PFAS list was reported for all groundwater samples.

One duplicate sample was collected for every sampling event. Additionally, field and equipment blanks (if non-disposable equipment were used) were collected at a rate of one per every 20 samples collected. **Appendix C** contains the laboratory analytical reports.

3. Results and Discussion

3.1 Groundwater Elevation and Flow Direction

Static water level measurements were collected during each quarterly sampling event (**Table 1**) to observe changes in groundwater elevation and flow direction throughout the year. **Figures 2-7** present groundwater elevation contours from each quarterly sampling event. Due to excess snow cover during the January 2021 sampling event, the majority of the wells were not located and there is insufficient data to construct a groundwater contour map.

General groundwater flow direction during all seven quarters was north-northeast towards the Au Sable River. The highest and lowest elevations measured each quarter were consistently ASRBL-MW007 and ASRBL-MW004, respectively.

Measured groundwater elevations showed spatial variation in hydraulic gradient (i.e. change in groundwater elevation over distance) throughout the investigation area. In general, the hydraulic gradient was greater west of US-12 and shallower to the east, nearer Lake Huron.

3.2 Analytical Results

3.2.1 VAS

Analytical results from the VAS sampling event are presented in **Table 2**. Results were compared to the current Michigan Part 201 criteria for drinking water (DW) and groundwater-surface water interface (GSI).

At each VAS location (ASRBL-B001 through ASRBL-B008) three (3) to four (4) intervals were sampled based on subsurface lithology and terminal depth of the boring. PFAS were detected in at least one VAS sample interval from every boring location.

- No analytical results exceeded Part 201 criteria for PFNA, HPFO-DA, PFBS, PFHxA.
- Analytical results from ASRBL-B006 (14-18 ft and 24-28 ft), ASRBL-B007 (5-9 ft), and ASRBL-B008 (4-8 ft) exceeded the Part 201 drinking water (DW) criterion for PFOA (8 ng/L).
- Analytical results from ASRBL-B002 (5-9 ft) exceeded the GSI criterion for PFOS (12 ng/L).
- Analytical results from ASRBL-B007 (5-9 ft), and ASRBL-B008 (4-8 ft) exceed both the GSI criterion (12 ng/L) and DW criterion for PFOS (16 ng/L).
- Analytical results from ASRBL-B006 (24-28 ft) exceeded the Part 201 DW criteria for PFHxS (51 ng/L).
- No PFAS were detected above laboratory detection limits at ASRBL-B001 (34-35 ft), ASRBL-B007 (25-29 ft), and ASRBL-B008 (14-18 ft), (24-28 ft), and (35-37 ft).

Other PFAS detected in VAS samples above laboratory reporting limits, included: PFBA, PFPeA, PFHxA, PFHpA, PFNA, PFBS, PFPeS, and PFHpS.

VAS analytical results show the aerial extent of PFAS impacted groundwater has not been fully delineated. However, the high total PFAS (i.e. sum of all PFAS) concentrations that were only detected in the shallow VAS intervals of ASRBL-B007 and ASRBL-B008 (256.24 ng/l and 80.91 ng/L respectively) indicate a potential nearby source area.

3.2.2 Monitoring Wells

As previously discussed, the quarterly groundwater monitoring was to include all nested wells at RI-MW029 and RI-MW031; however, high Lake Huron water levels kept RI-MW031 submerged through October of 2020, preventing collection groundwater samples from that location. As directed by EGLE, select monitoring wells were substituted in place of the RI-MW031 wells.

Analytical results from the seven (7) quarters of monitoring well sampling events are presented in **Table 3**. Results were compared to the current Part 201 MCLs for DW and GSI.

- No analytical results from monitoring well samples exceeded Part 201 criteria for PFNA, PFHxS, HPFO-DA, PFBS, or PFHxA.
- PFOA exceeded the Part 201 DW criterion, during one or more sampling events, at ASRBL-MW002, ASRBL-MW-006, ASRBL-MW-007, ASRBL-008, RI-MW-029 (2.5-7.5 ft), and RI-MW031 (2-7 ft).
- PFOS exceeded the Part 201 DW and GSI, during one or more sampling events, at ASRBL-MW002, ASRBL-MW007, ASRBL-MW008, and RI-MW029 (2.5-7.5 ft).

Other PFAS detected in monitoring well samples above laboratory reporting limits, included: PFBA, PFPeA, PFHxA, PFHpA, PFNA, PFBS, PFPeS, PFHxS, and PFHpS.

The total PFAS concentrations detected in each monitoring well over the seven (7) quarters neither showed increasing nor decreasing trends over time.

3.2.3 Surface Water

Analytical results from the surface water sampling events are presented in **Table 4**. PFAS related constituents detected above laboratory reporting limits include: PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, and PFOS. No detected concentrations exceeded Part 201 criteria, including those for GSI.

All surface water samples collected contained measurable levels of PFAS. Those collected from the smaller surface water bodies had an order of magnitude greater concentration of total PFAS than samples collected from the Au Sable River.

Surface water sample location ASRBL-SW005, located on the Au Sable River, was sampled quarterly to monitor temporal variations of PFAS in the Au Sable River. Total PFAS results varied between just above 1 ng/l to just over 6 ng/L. Previous surface water samples collected from locations in the river nearby have had similar results (AECOM 2020).

3.3 Conclusions and Recommendations

Measured groundwater elevations showed that groundwater generally flows from a high at ASRBL-MW007 north-northeast toward the Au Sable River and Lake Huron.

Analytical results from VAS show that the extent of PFAS impacted groundwater has not been fully delineated and that there is a potential source in the vicinity of ASRBL-MW007. Quarterly groundwater monitoring sample analytical results did not show any increase nor decrease in total PFAS concentrations over time.

All the surface water bodies sampled showed impacts from PFAS, but none were above the current Part 201 criteria. Quarterly analytical results from samples collected at ASRBL-SW005, located on the river, showed similar total PFAS results to previously collected nearby river samples (AECOM 2020).

Additional investigation in the vicinity of ASRBL-MW007 is recommended to assist in determining the presence of a potential source area contributing PFAS to groundwater. This may include additional VAS and temporary monitoring wells, and soil sampling.

4. References

AECOM. 2020. Groundwater Flow Direction Evaluation East Side of Van Etten Lake Technical Memorandum.

AECOM. 2020. Oscoda Area PFAS Surface Water Sampling Data Summary Report.

Figure

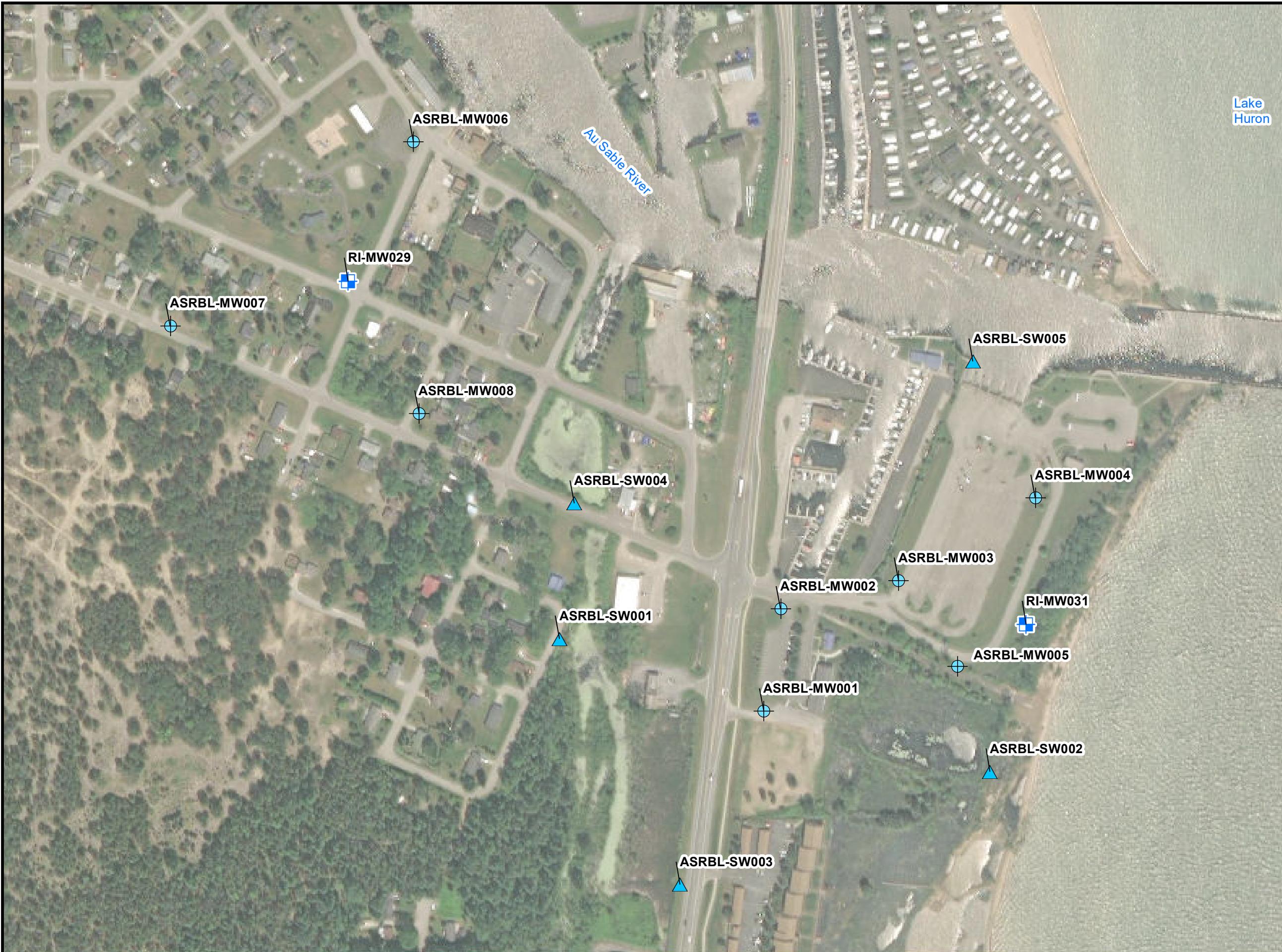
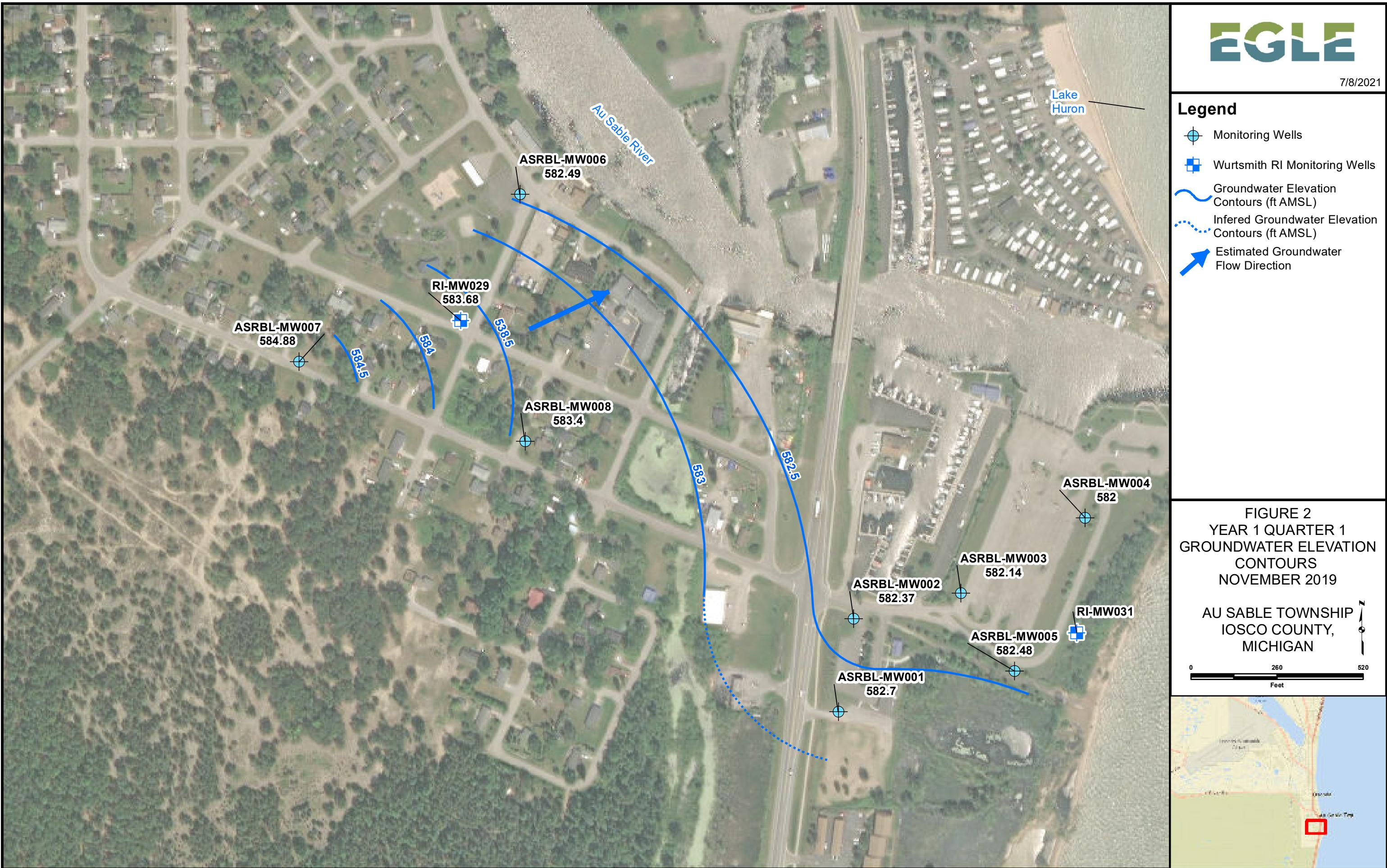


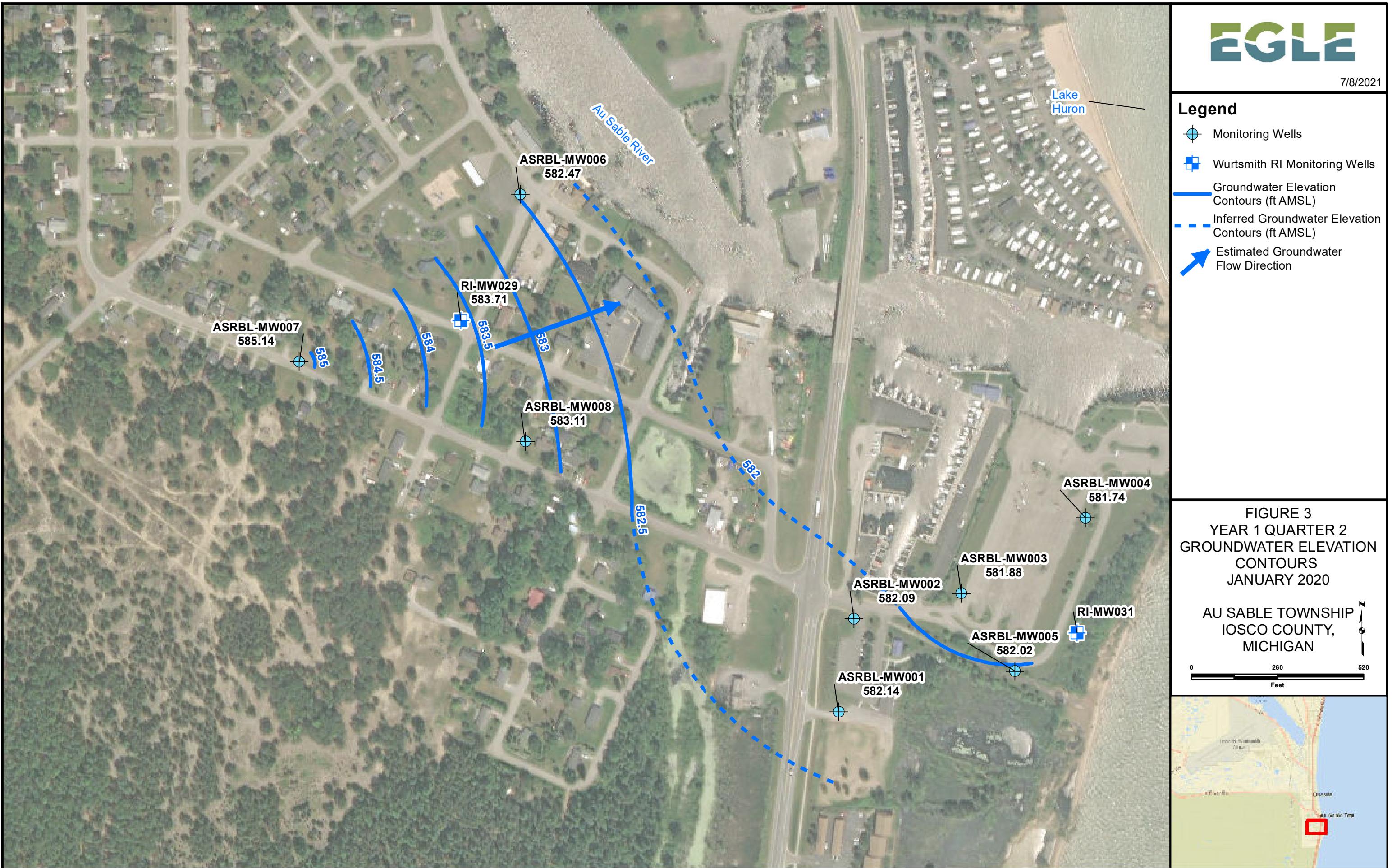
FIGURE 1
SAMPLE LOCATIONS

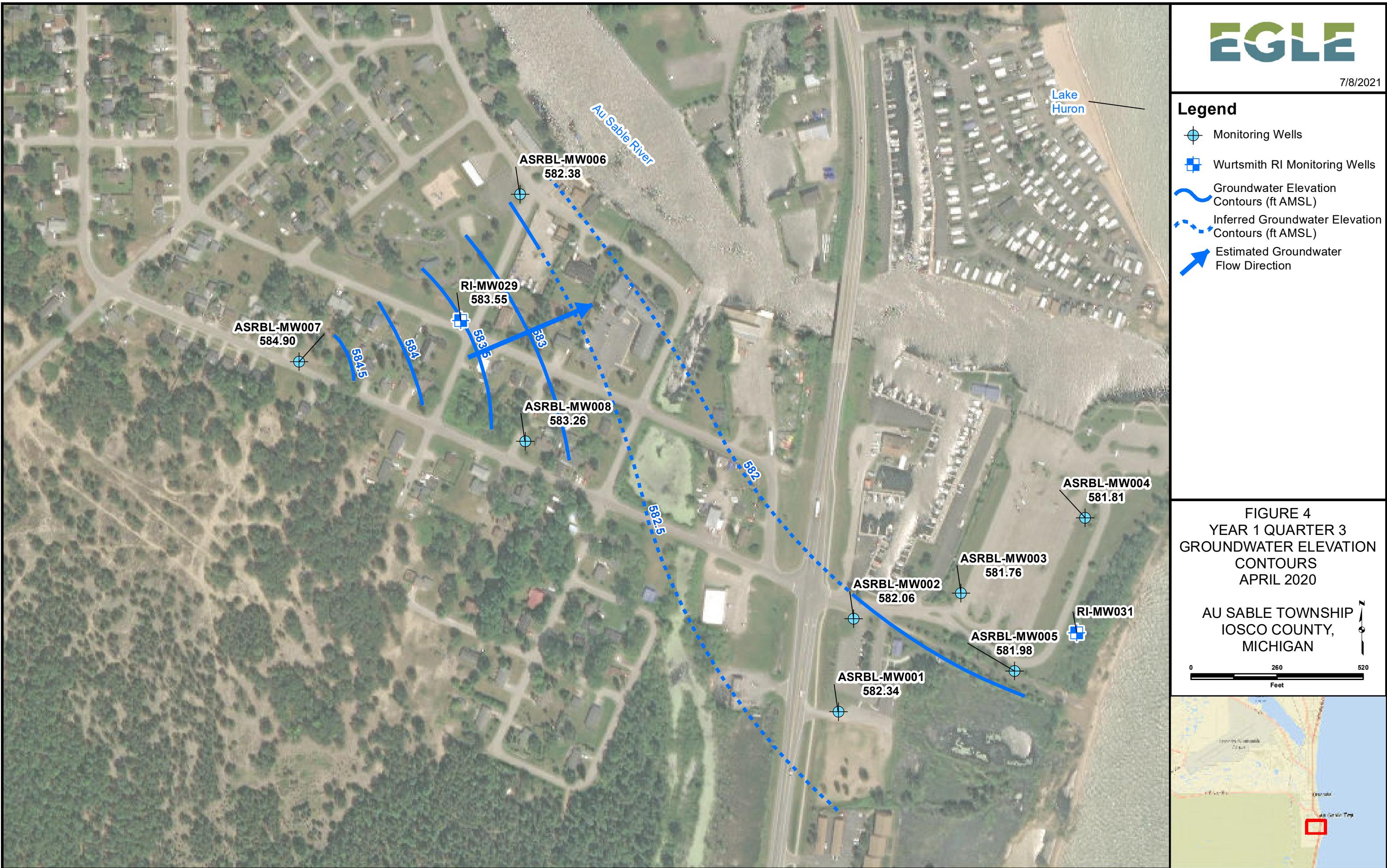
AU SABLE TOWNSHIP
IOSCO COUNTY,
MICHIGAN

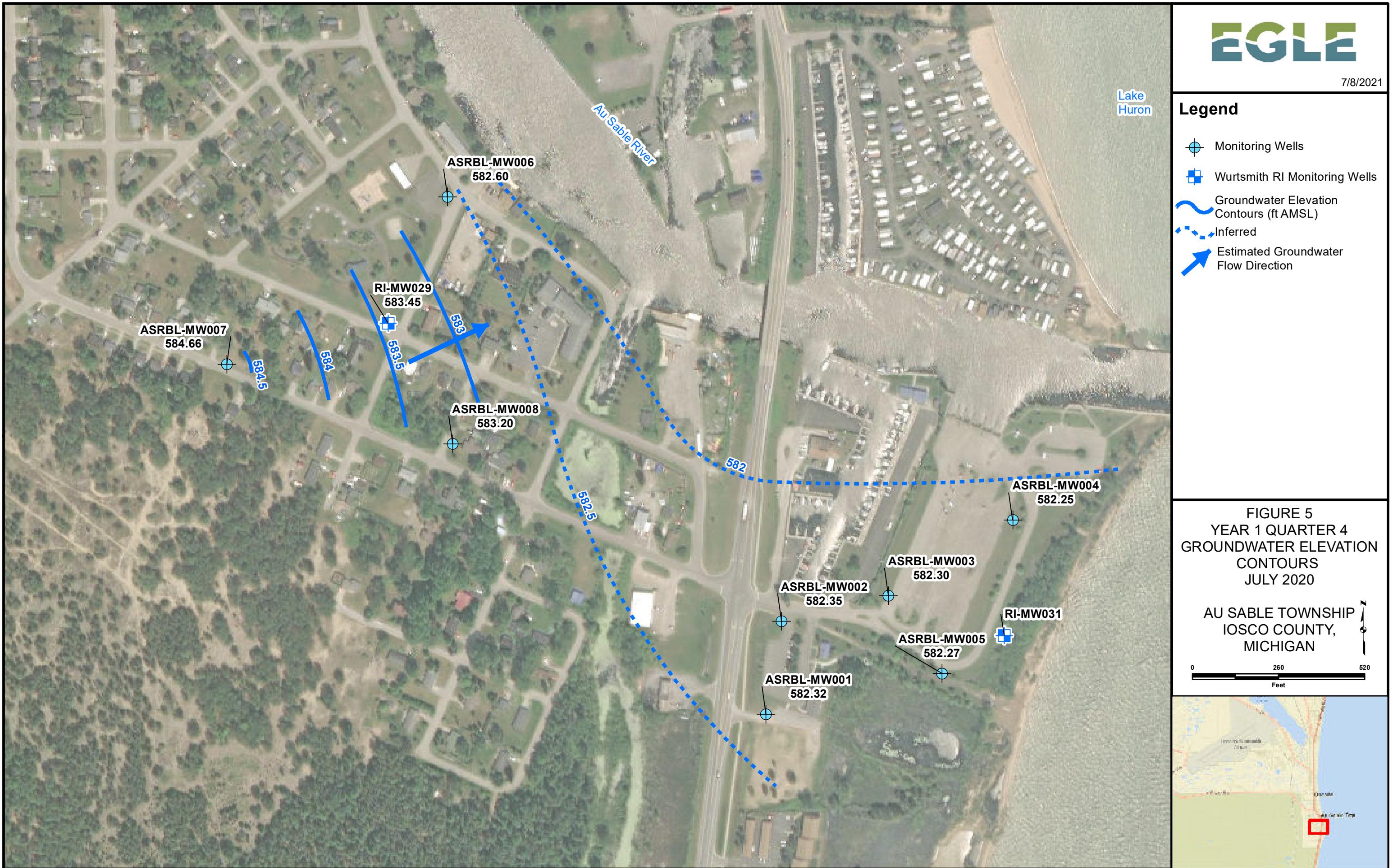
0 260 520
Feet











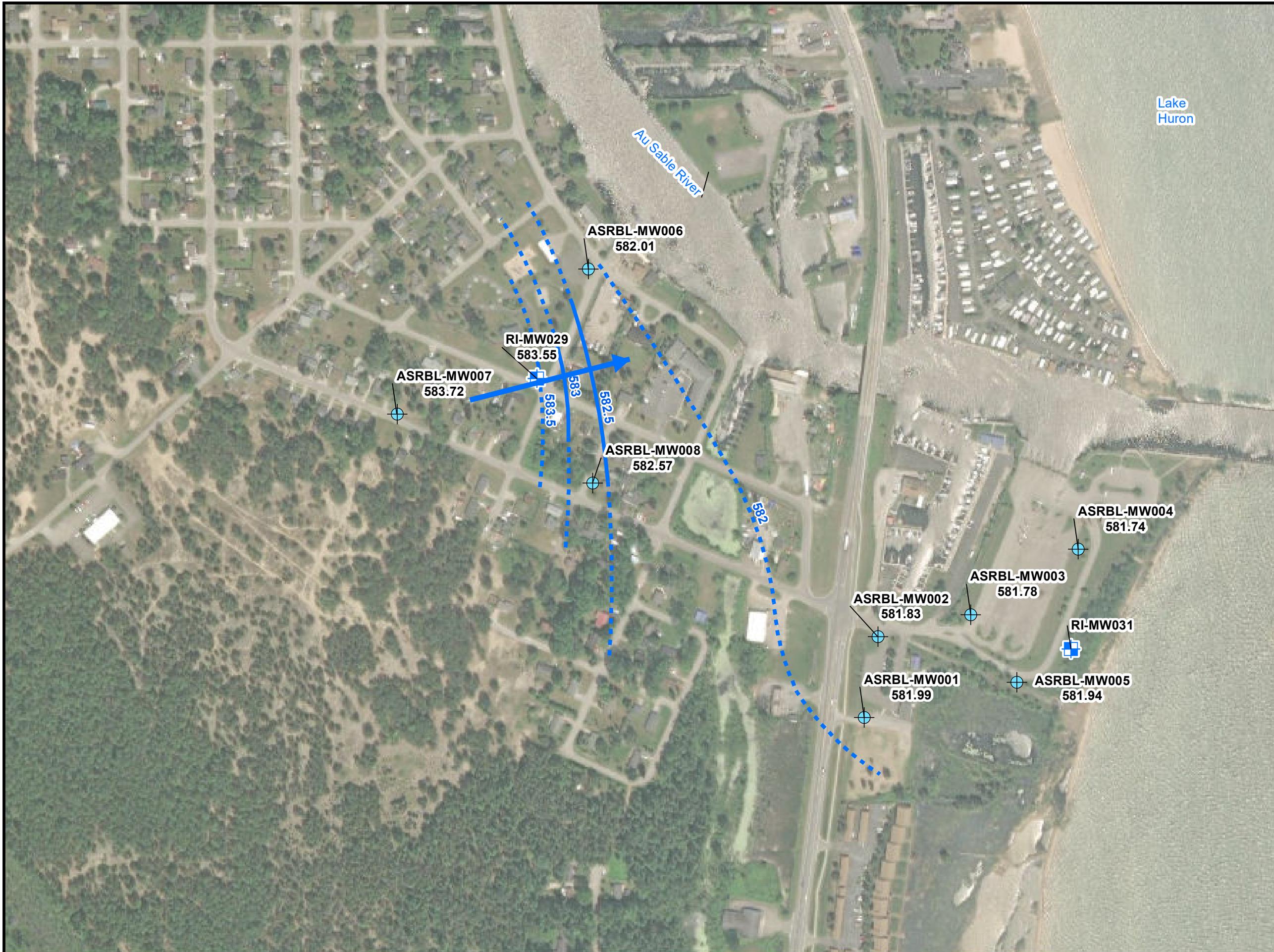
Legend

- Monitoring Wells
- Wurtsmith RI Monitoring Wells
- ~~~~ Groundwater Elevation Contours (ft AMSL)
- ~~~~ Inferred Groundwater Elevation Contours (ft AMSL)
- Estimated Groundwater Flow Direction

FIGURE 6
YEAR 2 QUARTER 1
GROUNDWATER ELEVATION
CONTOURS
OCTOBER 2020

AU SABLE TOWNSHIP
IOSCO COUNTY,
MICHIGAN

0 330 660
Feet



Legend

- Monitoring Wells
- Wurtsmith RI Monitoring Wells
- ~~~~ Groundwater Elevation Contours (ft AMSL)
- ~~~~ Inferred Groundwater Elevation Contours (ft AMSL)
- Estimated Groundwater Flow Direction

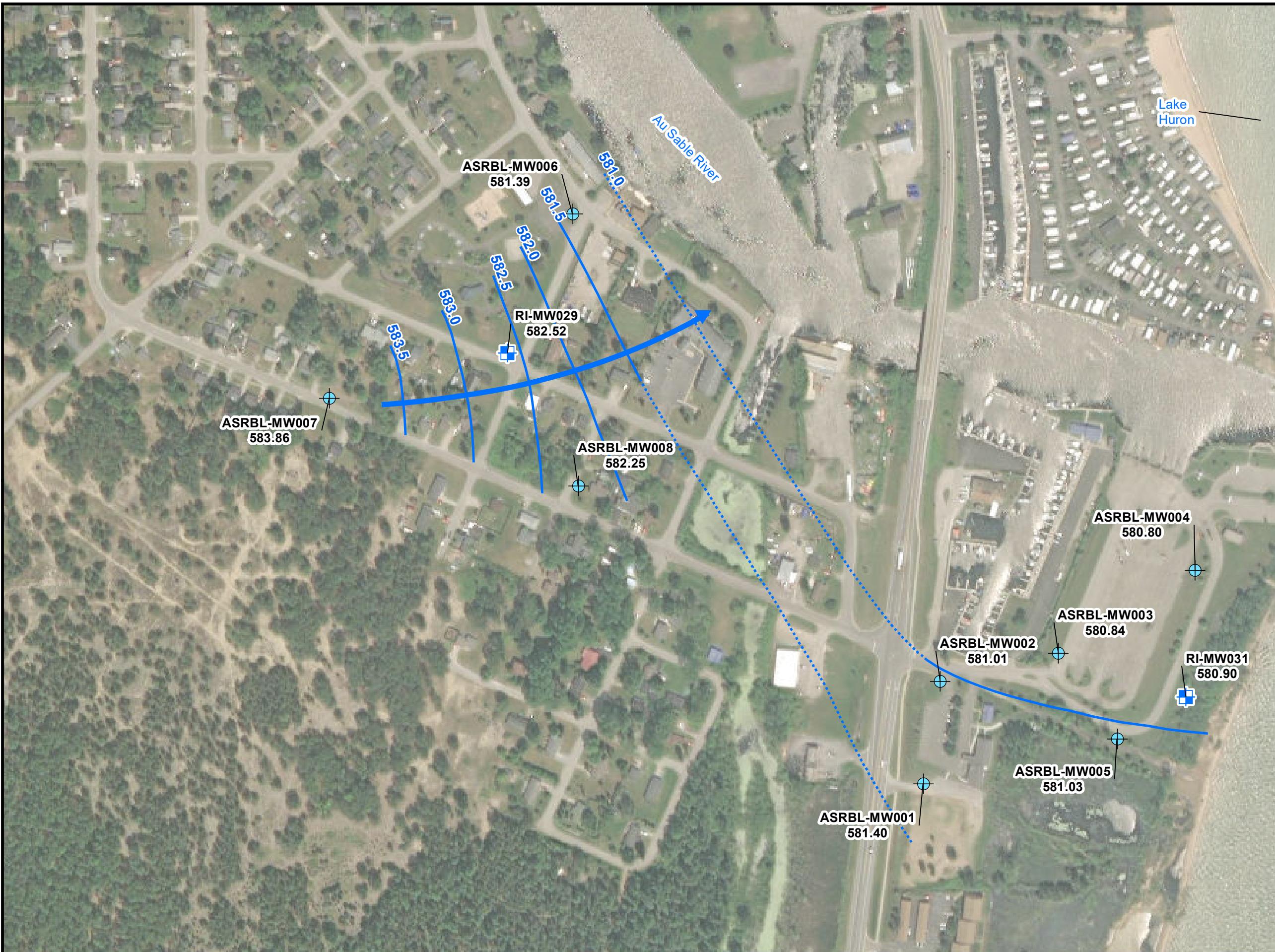


FIGURE 7
YEAR 2 QUARTER 3
GROUNDWATER ELEVATION
CONTOURS
APRIL 2021

AU SABLE TOWNSHIP
IOSCO COUNTY,
MICHIGAN

0 260 520
Feet



Tables

Table 1
Monitoring Well Completion Information
and Groundwater Elevations
AuSable River Boat Launch
60612721

Well ID	Date of Completion	Northing (ft)	Easting (ft)	Surface Elevation (ft AMSL)	Monitoring Well Interval Completion Information								VAS Intervals			
					Interval-1		Interval-2		Interval-3		Interval-4		1	2	3	4
					Screen (ft bgs)	TOC (ft AMSL)	Screen (ft bgs)	TOC (ft AMSL)	Screen (ft bgs)	TOC (ft AMSL)	Screen (ft bgs)	TOC (ft AMSL)				
ASRBL - MW001	October 2019	398146.16	19957269.21	583.23	3-8	583.08	n/a	n/a	n/a	n/a	n/a	n/a	5-9	15-19	25-29	34.5-38.5
ASRBL - MW002	October 2019	398427.10	19957316.00	584.96	3-8	584.38	n/a	n/a	n/a	n/a	n/a	n/a	5-9	15-19	25-29	n/a
ASRBL - MW003	October 2019	398504.48	19957639.31	582.80	3-8	582.46	n/a	n/a	n/a	n/a	n/a	n/a	3-7	13-17	23-27	29.5-33.5
ASRBL - MW004	October 2019	398732.21	19958014.64	583.91	3-8	583.59	n/a	n/a	n/a	n/a	n/a	n/a	5-9	15-19	25-29	33-35
ASRBL - MW005	October 2019	398269.09	19957800.79	583.04	3-8	582.77	n/a	n/a	n/a	n/a	n/a	n/a	5-9	15-19	25-29	32-34
ASRBL - MW006	October 2019	399708.47	19956307.85	585.83	3-8	585.58	n/a	n/a	n/a	n/a	n/a	n/a	4-8	14-18	24-28	n/a
ASRBL - MW007	October 2019	399203.11	19955641.19	588.90	4-9	588.60	n/a	n/a	n/a	n/a	n/a	n/a	5-9	15-19	25-29	n/a
ASRBL - MW008	October 2019	398963.02	19956323.40	586.28	3-8	585.85	n/a	n/a	n/a	n/a	n/a	n/a	4-8	14-18	24-28	35-37
RI - MW029	August 2017	399325.61	19956129.24	585.05	2.5-7.5	584.72	12.5-13.5	584.78	24-25	584.80	31-32	584.79	n/a	n/a	n/a	n/a
RI - MW031	August 2017	398383.21	19957989.39	581.89	2-7	581.49	20.5-21.5	581.52	31-32	581.42	44-45	581.57	n/a	n/a	n/a	n/a

Notes:

ft - Feet

AMSL - Above Mean Sea Level

bgs - Below Ground Surface

n/a - Not Applicable

-- - No Data

NM - Not Measured (underwater)

Table 1
Monitoring Well Completion Information
and Groundwater Elevations
AuSable River Boat Launch
60612721

Well ID	Groundwater Elevations													
	Quarter 1 - Oct 2019		Quarter 2 - Jan 2020		Quarter 3 - Apr 2020		Quarter 4 - Jul 2020		Quarter 5 - Oct 2020		Quarter 6 - Jan 2021		Quarter 7 - Apr 2021	
	Depth to Water (ft-btoc)	Elevation (ft-AMLS)												
ASRBL - MW001	0.38	582.70	0.94	582.14	0.74	582.34	0.76	582.32	1.09	581.99	NM	--	1.68	581.40
ASRBL - MW002	2.01	582.37	2.29	582.09	2.32	582.06	2.03	582.35	2.55	581.83	NM	--	3.37	581.01
ASRBL - MW003	0.32	582.14	0.58	581.88	0.7	581.76	0.16	582.30	0.68	581.78	NM	--	1.62	580.84
ASRBL - MW004	1.59	582.00	1.85	581.74	1.78	581.81	1.34	582.25	1.85	581.74	NM	--	2.79	580.80
ASRBL - MW005	0.29	582.48	0.75	582.02	0.79	581.98	0.5	582.27	0.83	581.94	NM	--	1.74	581.03
ASRBL - MW006	3.09	582.49	3.11	582.47	3.2	582.38	2.98	582.60	3.57	582.01	NM	--	4.19	581.39
ASRBL - MW007	3.72	584.88	3.46	585.14	3.7	584.90	3.94	584.66	4.88	583.72	4.67	583.93	4.74	583.86
ASRBL - MW008	2.45	583.40	2.74	583.11	2.59	583.26	2.65	583.20	3.28	582.57	NM	--	3.60	582.25
RI - MW029	1.1	583.62	1.01	583.71	1.17	583.55	1.27	583.45	1.95	582.77	1.98	582.74	2.20	582.52
RI - MW031	NM - Underwater		2.01	579.48	0.59	580.90								

Notes:

ft - Feet

AMSL - Above Mean Sea Level

bgs - Below Ground Surface

n/a - Not Applicable

-- - No Data

NM - Not Measured (underwater)

Table 2
Vertical Aquifer Sample Analytical Results
Ausable River Boat Launch
60610670

Location			ASRBL-B001					ASRBL-B002					ASRBL-B003				
Well Screen Interval		Sample Lab Report	5 - 9 ft	15 - 19 ft	25 - 29 ft		34.5 - 38.5 ft	5 - 9 ft	15 - 19 ft	25 - 29 ft		34.5 - 37.5 ft	3 - 7 ft	13 - 17 ft	23 - 27 ft	29.5 - 33.5 ft	
			GW1910071325RL 10/7/2019 1903592	GW1910071505RL 10/7/2019 1903592	GW1910080925RL 10/8/2019 1903592	GW1910080930RL-DUP 10/8/2019 1903592	GW1910081310RL 10/8/2019 1903592	GW1910031730RL 10/3/2019 1903542	GW1910040950RL 10/4/2019 1903542	GW1910041200RL 10/4/2019 1903542	GW1910041530RL 10/4/2019 1903542	GW1910021555RL 10/2/2019 1903470	GW1910021810RL 10/2/2019 1903470	GW1910030955RL 10/3/2019 1903470	GW1910031425RL 10/3/2019 1903470		
Compound	Unit	Michigan Part 201 Drinking Water Criteria	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
PFBA	ppt	NC	4.03 J	2.74 J	1.8 J	< 2.16	< 2.05	19.3	5.08	3.7 J	2.07 J	4.71	5.56	5.54	7.64		
PFPeA	ppt	NC	1.97 J	1.73 J	1.98 J	1.56 J	< 2.05	11.1	2.67 J	4.03 J	1.65 J	< 2.31	< 2.27	< 2.31	< 2.26		
PFHxA	ppt	400,000	1.98 J, Q	1.90 J, Q	< 2.16	< 2.16	< 2.05	7.61 Q	2.94 J, Q	3.25 J	1.71 J	2.35 J, Q	< 2.27	2.52 J, Q	< 2.26		
PFHpA	ppt	NC	1.41 J, Q	1.54 J, Q	< 2.16	< 2.16	< 2.05	3.98 J, Q	1.59 J, Q	1.77 J	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
PFOA	ppt	8 (GSI 12,000)	3.73 J	3.24 J	< 2.16	< 2.16	< 2.05	7.50	3.58 J	3.08 J	< 2.24	5.99	< 2.27	< 2.31	< 2.26		
PFNA	ppt	6	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	2.37 J	< 2.18	< 2.20	< 2.24	1.82 J	< 2.27	< 2.31	< 2.26		
PFDA	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
PFUnDA	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
PFDoDA	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
PFTrDA	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
PFTeDA	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
11CI-PF3OuDS	ppt	NC	---	---	---	---	---	---	---	---	---	---	---	---	---		
9CI-PF3ONS	ppt	NC	---	---	---	---	---	---	---	---	---	---	---	---	---		
ADONA	ppt	NC	---	---	---	---	---	---	---	---	---	---	---	---	---		
HFPO-DA	ppt	370	---	---	---	---	---	---	---	---	---	---	---	---	---		
PFDS	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
PFBS	ppt	420	2.12 J, Q	1.84 J	< 2.16	< 2.16	< 2.05	4.27 J	2.04 J	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
PFPeS	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
PFHxS	ppt	51	2.35 J	3.46 J	< 2.16	1.62 J	< 2.05	3.66 J	< 2.18	3.35 J	3.06 J	< 2.31	< 2.27	< 2.31	< 2.26		
PFHpS	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
PFOS	ppt	16 (GSI 12)	1.54 J	< 2.20	< 2.16	< 2.16	< 2.05	12.8	7.64	< 2.20	< 2.24	2.10 J	< 2.27	< 2.31	< 2.26		
PFNS	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
PFOSA	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
L-PFOSA	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
4:2 FTSA	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
6:2 FTSA	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
L-6:2 FTS	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
8:2 FTSA	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
L-8:2 FTS	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
EtFOSAA	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
L-EtFOSAA	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
Br-EtFOSAA	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.05	< 2.40	< 2.18	< 2.20	< 2.24	< 2.31	< 2.27	< 2.31	< 2.26		
MeFOSAA	ppt	NC	< 2.02	< 2.20	< 2.16	< 2.16	< 2.										

Table 2
Vertical Aquifer Sample Analytical Results
Ausable River Boat Launch
60610670

Location			ASRBL-B004				ASRBL-B005				ASRBL-B006			
Well Screen Interval		Sample	5 - 9 ft	15 - 19 ft	25 - 29 ft	33 - 35 ft	5 - 9 ft	15 - 19 ft	25 - 29 ft	32 - 34 ft	4 - 8 ft	14 - 18 ft	24 - 28 ft	
Sample Date		Lab Report	GW1910081600RL 10/8/2019 1903592	GW1910081745RL 10/8/2019 1903592	GW1910090955RL 10/9/2019 1903592	GW1910091320RL 10/9/2019 1903592	GW1910091555RL 10/9/2019 1903592	GW1910091740RL 10/9/2019 1903592	GW1910100910RL 10/10/2019 1903592	GW1910101230RL 10/10/2019 1903592	GW1910160935RL 10/16/2019 1903718	GW1910161120RL 10/16/2019 1903718	GW1910161125RL-DUP 10/16/2019 1903718	GW1910161330RL 10/16/2019 1903718
Compound	Unit	Michigan Part 201 Drinking Water Criteria	Result	Result	Result	Result	Result	Result						
PFBA	ppt	NC	2.95 J	1.54 J	2.20 J	1.5 J	6.88	4.43	2.39 J	2.23 J	10.6	5.78	5.9	1.69 J
PFPeA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	2.09 J	< 2.30	< 2.17	4.28 J	< 2.14	< 2.17	1.94 J
PFHxA	ppt	400,000	< 2.20	< 2.23	< 2.25	< 2.17	2.47 J, Q	1.94 J, Q	< 2.30	1.67 J	< 2.14	< 2.17	6.46	
PFHpA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	1.75 J	< 2.14	< 2.17	2.03 J	
PFOA	ppt	8 (GSI 12,000)	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	5.27	8.39	8.35	22.2
PFNA	ppt	6	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
PFDA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
PFUnDA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
PFDoDA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
PFTrDA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
PFTeDA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
11CI-PF3OUdS	ppt	NC	---	---	---	---	---	---	---	---	---	---	---	---
9CI-PF3ONS	ppt	NC	---	---	---	---	---	---	---	---	---	---	---	---
ADONA	ppt	NC	---	---	---	---	---	---	---	---	---	---	---	---
HFPO-DA	ppt	370	---	---	---	---	---	---	---	---	---	---	---	---
PFDS	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
PFBS	ppt	420	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	1.55 J	< 2.30	< 2.17	2.81 J	4.64	4.55	6.66
PFPeS	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
PFHxS	ppt	51	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	1.78 J	1.75 J	6.43	21.9	23.4	101
PFHpS	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	1.8 J	1.72 J	2.32 J	5.34
PFOS	ppt	16 (GSI 12)	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17				
PFNS	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
PFOSA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
L-PFOSA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
4:2 FTSA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
6:2 FTSA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
L-6:2 FTS	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
8:2 FTSA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
L-8:2 FTS	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
EtFOSAA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
L-EtFOSAA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
Br-EtFOSAA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
MeFOSAA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
L-MeFOSAA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
Br-MeFOSAA	ppt	NC	< 2.20	< 2.23	< 2.25	< 2.17	< 2.15	< 2.19	< 2.30	< 2.17	< 2.15	< 2.14	< 2.17	< 2.16
Total PFAS	ppt	NC	2.95	1.54	2.20	1.5	9.35	10.01	4.17	5.65	35.19	42.43	44.52	147.32

</div

Table 2
Vertical Aquifer Sample Analytical Results
Ausable River Boat Launch
60610670

Location			ASRBL-B007			ASRBL-B008			
Well Screen Interval			5 - 9 ft	15 - 19 ft	25 - 29 ft	4 - 8 ft	14 - 18 ft	24 - 28 ft	35 - 37 ft
Sample	GW1910101720RL	GW1910111025RL	GW1910111245RL	GW1910150935RL	GW1910151115RL	GW1910151320RL	GW1910151635RL		
Sample Date	10/10/2019	10/11/2019	10/11/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019		
Lab Report	1903631	1903631	1903631	1903718	1903718	1903718	1903718		
Compound	Unit	Michigan Part 201 Drinking Water Criteria	Result	Result	Result	Result	Result	Result	Result
PFBA	ppt	NC	6.64	< 1.93	< 2.07	16.5	< 2.13	< 2.15	< 2.13
PFPeA	ppt	NC	9.59	< 1.93	< 2.07	7.30	< 2.13	< 2.15	< 2.13
PFHxA	ppt	400,000	11.4	< 1.93	< 2.07	8.10	< 2.13	< 2.15	< 2.13
PFHpA	ppt	NC	7.72	< 1.93	< 2.07	4.55	< 2.13	< 2.15	< 2.13
PFOA	ppt	8 (GSI 12,000)	67.8	< 1.93	< 2.07	12.9	< 2.13	< 2.15	< 2.13
PFNA	ppt	6	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
PFDA	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
PFUnDA	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
PFDoDA	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
PFTrDA	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
PFTeDA	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
11CI-PF3OuDS	ppt	NC	---	---	---	---	---	---	---
9CI-PF3ONS	ppt	NC	---	---	---	---	---	---	---
ADONA	ppt	NC	---	---	---	---	---	---	---
HFPO-DA	ppt	370	---	---	---	---	---	---	---
PFDS	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
PFBS	ppt	420	39.3	3.78 J	< 2.07	3.95 J	< 2.13	< 2.15	< 2.13
PFPeS	ppt	NC	2.86 J	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
PFHxS	ppt	51	42.6	3.3 J	< 2.07	3.31 J	< 2.13	< 2.15	< 2.13
PFHpS	ppt	NC	3.03 J	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
PFOS	ppt	16 (GSI 12)	65.3	< 1.93	< 2.07	24.3	< 2.13	< 2.15	< 2.13
PFNS	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
PFOSA	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
L-PFOSA	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
4:2 FTSA	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
6:2 FTSA	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
L-6:2 FTS	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
8:2 FTSA	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
L-8:2 FTS	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
EtFOSAA	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
L-EtFOSAA	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
Br-EtFOSAA	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
MeFOSAA	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
L-MeFOSAA	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
Br-MeFOSAA	ppt	NC	< 2.01	< 1.93	< 2.07	< 2.18	< 2.13	< 2.15	< 2.13
Total PFAS	ppt	NC	256.24	7.08	ND	80.91	ND	ND	ND

Footnotes:

1. bgs - Below ground surface
2. ft = feet
3. ND - Result below detection limit
4. ppt - Parts Per Trillion
5. < 2.05 - Result below detection limit
6. --- = Analyte not included in analysis.
7. **BOLD** - Analyte above detection
8. **Highlight** - Exceed EGLE Part 201 Criteria
9. NC - No Criteria
10. GSI - Groundwater Surface Water Interface

Table 3
Monitoring Well Sample Analytical Results
Ausable River Boat Launch
60610670

Location Well Screen Interval		ASRBL-MW002							ASRBL-MW005	
		Sample Sample Date Lab Report	GW2001211425MK 1/21/2020 2000164	GW2004141555RL 4/14/2020 2000907	GW2007151515RL 7/15/2020 2001524	GW2007151515RL-FD 7/15/2020 2001524	GW2010271545RL 10/27/2020 2002371	FD2010271545RL 10/27/2020 2002371	GW2104051655KEM 4/5/2021 2104096	GW2004141640RL 4/14/2020 2000907
Compound	Unit	Michigan Part 201 Drinking Water Criteria	Result	Result	Result	Result	Result	Result	Result	Result
PFBA	ppt	NC	8.97	7.78	5.43	5.45	3.18 J	3.39 J	10.5	22.3
PFPeA	ppt	NC	4.23	12.7	< 2.08	3.25 J	< 2.19	< 2.15	5.66	7.31
PFHxA	ppt	400,000	4.79	3.81 J	4.96	4.48	2.22 J	1.99 J	6.34 Q	5.26
PFHpA	ppt	NC	< 2.11	4.44 Q	4.22	3.65 J, Q	2.03 J	2.07 J	5.43	3.91 J
PFOA	ppt	8 (GSI 12,000)	12.1	9.84	10.5	11.6	6.99	6.67	10.6	5.31
PFNA	ppt	6	1.76 J, Q	< 2.04	3.55 J	3.53 J	5.33	5.87	2.34 J	< 2.06
PFDA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
PFUnDA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
PFDoDA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
PFTrDA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
PFTeDA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
11Ci-PF3Ouds	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
9Ci-PF3ONS	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
ADONA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
HFPO-DA	ppt	370	< 3.16	< 3.06	< 3.13	< 3.13	< 2.19	< 2.15	< 2.09	< 3.09
PFDS	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
PFBS	ppt	420	1.80 J	2.46 J	2.81 J	3.70 J	1.90 J	2.11 J	2.35 J	2.07 J
PFPeS	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
PFHxS	ppt	51	< 2.11	1.47 J	2.1 J	2.62 J	< 2.19	< 2.15	1.08 J	< 2.06
PFHpS	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
PFOS	ppt	16 (GSI 12)	5.71	9.48	15.1	15.5	23.7	23.1	10.8	2.32 J
PFNS	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
PFOSA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
L-PFOSA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
4:2 FTSA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
6:2 FTSA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
L-6:2 FTS	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
8:2 FTSA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
L-8:2 FTS	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
EtFOSAA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
L-EtFOSAA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
Br-EtFOSAA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
MeFOSAA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
L-MeFOSAA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
Br-MeFOSAA	ppt	NC	< 2.11	< 2.04	< 2.08	< 2.08	< 2.19	< 2.15	< 2.09	< 2.06
Total PFAS	ppt	NC	39.36	51.98	48.67	53.78	45.35	45.2	55.1	48.48

Footnotes:

1. bgs - Below ground surface
2. ft = feet
3. ND - Result below detection limit
4. ppt - Parts Per Trillion
5. < 2.05 - Result below detection limit
6. --- = Analyte not included in analysis
7. **BOLD** - Analyte above detection
8. **Highlight** - Exceed EGLE Part 201 Criteria
9. NC - No Criteria
10. GSI - Groundwater Surface Water Interface

Table 3
Monitoring Well Sample Analytical Results
AuSable River Boat Launch
60610670

Location Well Screen Interval		ASRBL-MW006					
		FD2004141100RL 4/14/2020 2000907	GW2001211130MK 1/21/2020 2000164	GW2004141100RL 4/14/2020 2000907	GW2007161155RL 7/16/2020 2001524	GW2010271810RL 10/27/2020 2002371	GW2104051515KEM 4/5/2021 2104096
Compound	Unit	Michigan Part 201 Drinking Water Criteria	Result	Result	Result	Result	Result
PFBA	ppt	NC	6.58	10.7	6.57	9.78	14.2
PFPeA	ppt	NC	3.89 J	4.74	3.52 J	5.8	5.43
PFHxA	ppt	400,000	3.61 J	5.93	3.53 J	4.82	5.33
PFHpA	ppt	NC	< 2.09	< 2.12	1.47 J, Q	3.26 J, Q	1.76 J
PFOA	ppt	8 (GSI 12,000)	5.62	5.08	6.01	6.98	8.55
PFNA	ppt	6	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
PFDA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
PFUnDA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
PFDoDA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
PFTrDA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
PFTeDA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
11Cl-PF3Ouds	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
9CI-PF3ONS	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
ADONA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
HFPO-DA	ppt	370	< 3.14	< 3.18	< 3.07	< 3.07	< 2.03
PFDS	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
PFBS	ppt	420	1.71 J, Q	2.82 J	2.07 J, Q	2.60 J	4.50
PFPeS	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
PFHxS	ppt	51	7.48	8.39	8.96	8.37	10.8
PFHpS	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
PFOS	ppt	16 (GSI 12)	< 2.09	< 2.12	1.54 J	3.95 J	2.45 J
PFNS	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
PFOSA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
L-PFOSA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
4:2 FTSA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
6:2 FTSA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
L-6:2 FTS	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
8:2 FTSA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
L-8:2 FTS	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
EtFOSAA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
L-EtFOSAA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
Br-EtFOSAA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
MeFOSAA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
L-MeFOSAA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
Br-MeFOSAA	ppt	NC	< 2.09	< 2.12	< 2.05	< 2.05	< 2.03
Total PFAS	ppt	NC	28.89	37.66	33.67	45.56	53.02
Total PFAS (GSI 12)							
Total PFAS (GSI 12,000)							

Footnotes:

1. bgs - Below ground surface
2. ft = feet
3. ND - Result below detection limit
4. ppt - Parts Per Trillion
5. < 2.05 - Result below detection limit
6. --- = Analyte not included in analysis.
7. **BOLD** - Analyte above detection
8. **Highlight** - Exceed EGLE Part 201 Criteria
9. NC - No Criteria
10. GSI - Groundwater Surface Water Interface

Table 3
Monitoring Well Sample Analytical Results
AuSable River Boat Launch
60610670

Location Well Screen Interval		ASRBL-MW007					
		Sample Sample Date Lab Report	GW2001211330MK 1/21/2020 2000164	GW2004141430RL 4/14/2020 2000907	GW2007161120RL 7/16/2020 2001524	GW2010271655RL 10/27/2020 2002371	GW2101281155SK 1/28/2021 2102066
Compound	Unit	Michigan Part 201 Drinking Water Criteria	Result	Result	Result	Result	Result
PFBA	ppt	NC	2.91 J	2.05 J	18.6	7.66	6.17
PFPeA	ppt	NC	3.00 J	1.7 J	10.0	1.67 J	2.71 J
PFHxA	ppt	400,000	4.33	2.66 J	14.2	3.95 J	5.06
PFHpA	ppt	NC	2.75 J, Q	2.37 J	5.71 Q	1.33 J, Q	1.21 J, Q
PFOA	ppt	8 (GSI 12,000)	20.2	19.0	30.4	19.1	10.6
PFNA	ppt	6	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
PFDA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
PFUnDA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
PFDoDA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
PFTrDA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
PFTeDA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
11Ci-PF3OuDs	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
9Ci-PF3ONS	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
ADONA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
HFPO-DA	ppt	370	< 3.18	< 3.07	< 3.14	< 2.02	< 2.01
PFDS	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
PFBS	ppt	420	35.6	40	34.5	29.8	21.2
PFPeS	ppt	NC	< 2.12	1.82 J, Q	2.22 J	2.22 J	2.23 J
PFHxS	ppt	51	25.7	16.0	38.3	43.5	22.8
PFHpS	ppt	NC	< 2.12	< 2.05	< 2.09	1.39 J	< 2.01
PFOS	ppt	16 (GSI 12)	22.4	22.1	36.1	64.3	31.7
PFNS	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
PFOSA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
L-PFOSA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
4:2 FTSA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
6:2 FTSA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
L-6:2 FTS	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
8:2 FTSA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
L-8:2 FTS	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
EtFOSAA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
L-EtFOSAA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
Br-EtFOSAA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
MeFOSAA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
L-MeFOSAA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
Br-MeFOSAA	ppt	NC	< 2.12	< 2.05	< 2.09	< 2.02	< 2.01
Total PFAS	ppt	NC	116.89	107.7	190.03	174.92	103.68
							139.35

Footnotes:

1. bgs - Below ground surface
2. ft = feet
3. ND - Result below detection limit
4. ppt - Parts Per Trillion
5. < 2.05 - Result below detection limit
6. --- = Analyte not included in analysis.
7. **BOLD** - Analyte above detection
8. **Highlight** - Exceed EGLE Part 201 Criteria
9. NC - No Criteria
10. GSI - Groundwater Surface Water Interface

Table 3
Monitoring Well Sample Analytical Results
AuSable River Boat Launch
60610670

Location Well Screen Interval		ASRBL-MW008				
		GW2001211235MK 1/21/2020 2000164	GW2004141515RL 4/14/2020 2000907	GW2007161030RL 7/16/2020 2001524	GW2010271730RL 10/27/2020 2002371	GW2104051605KEM 4/5/2021 2104096
Compound	Unit	Michigan Part 201 Drinking Water Criteria	Result	Result	Result	Result
PFBA	ppt	NC	7.31	3.05 J	6.91	21.1
PFPeA	ppt	NC	3.18 J	1.4 J	1.43 J	8.14
PFHxA	ppt	400,000	3.11 J, Q	< 2.04	1.77 J	8.79
PFHpA	ppt	NC	3.17 J, Q	1.41 J, Q	1.66 J, Q	2.19 J
PFOA	ppt	8 (GSI 12,000)	8.55	6.48	7.39	11.0
PFNA	ppt	6	< 2.15	< 2.04	< 2.03	< 2.04
PFDA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
PFUnDA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
PFDoDA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
PFTrDA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
PFTeDA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
11CI-PF3Ouds	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
9CI-PF3ONS	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
ADONA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
HFPO-DA	ppt	370	< 3.22	< 3.06	< 3.05	< 2.04
PFDS	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
PFBS	ppt	420	2.14 J	2.67 J	4.95	3.63 J
PFPeS	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
PFHxS	ppt	51	2.12 J	1.42 J	1.88 J	4.98
PFHpS	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
PFOS	ppt	16 (GSI 12)	9.69	10.9	16.4	12.4
PFNS	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
PFOSA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
L-PFOSA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
4:2 FTSA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
6:2 FTSA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
L-6:2 FTS	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
8:2 FTSA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
L-8:2 FTS	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
EtFOSAA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
L-EtFOSAA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
Br-EtFOSAA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
MeFOSAA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
L-MeFOSAA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
Br-MeFOSAA	ppt	NC	< 2.15	< 2.04	< 2.03	< 2.04
Total PFAS	ppt	NC	39.27	27.33	42.39	72.23
						21.38

Footnotes:

1. bgs - Below ground surface
2. ft = feet
3. ND - Result below detection limit
4. ppt - Parts Per Trillion
5. < 2.05 - Result below detection limit
6. --- = Analyte not included in analysis.
7. **BOLD** - Analyte above detection
8. **Highlight** - Exceed EGLE Part 201 Criteria
9. NC - No Criteria
10. GSI - Groundwater Surface Water Interface

Table 3
Monitoring Well Sample Analytical Results
Ausable River Boat Launch
60610670

Location Well Screen Interval		RI-MW029 2.5 - 7.5 ft						
		GW1910091340GSC 10/9/2019 1903621	GW2001211145RAP 1/21/2020 2000164	GW2004141150RL 4/14/2020 2000907	GW2007152020GSC 7/15/2020 2001524	GW2010290855CM 10/29/2020 2002371	GW2101280810SK 1/28/2021 2102066	GW2104051130KEM 4/5/2021 2104096
Compound	Unit	Michigan Part 201 Drinking Water Criteria	Result	Result	Result	Result	Result	Result
PFBA	ppt	NC	9.82	10.9	21.8	8.54	10.6	12.4
PFPeA	ppt	NC	12.7	3.06 J	5.94	4.31	6.71	5.77
PFHxA	ppt	400,000	12.5	7.07 Q	13.7	8.05	12.9	9.78
PFHpA	ppt	NC	8.03	5.93 Q	10.2	5.11	7.15	6.86
PFOA	ppt	8 (GSI 12,000)	17.1	28.1	32.0	32.5	27.5	25.2
PFNA	ppt	6	1.44 J	< 2.15	< 2.03	< 2.15	1.62 J	1.84 J
PFDA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
PFUnDA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
PFDoDA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
PFTrDA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
PFTeDA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
11CI-PF3OUDs	ppt	NC	---	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
9CI-PF3ONS	ppt	NC	---	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
ADONA	ppt	NC	---	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
HFPO-DA	ppt	370	---	< 3.22	< 3.05	< 3.22	< 1.97	< 2.02
PFDS	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
PFBS	ppt	420	5.85	5.95	10.7	10.0	9.84	6.44
PFPeS	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
PFHxS	ppt	51	8.35	9.21	9.46	16.5	15.1	11.1
PFHpS	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	1.03 J	< 2.02
PFOS	ppt	16 (GSI 12)	15.0	8.33	14.9	22.8	23.4	16.2
PFNS	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
PFOSA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
L-PFOSA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
4:2 FTSA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
6:2 FTSA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
L-6:2 FTSA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
8:2 FTSA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
L-8:2 FTSA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
EtFOSAA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
L-EtFOSAA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
Br-EtFOSAA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
MeFOSAA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
L-MeFOSAA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
Br-MeFOSAA	ppt	NC	< 1.99	< 2.15	< 2.03	< 2.15	< 1.97	< 2.02
Total PFAS	ppt	NC	90.79	78.55	118.7	107.81	115.85	95.59
Total PFAS (GSI) = 116.5								

Footnotes:

1. bgs - Below ground surface
2. ft = feet
3. ND - Result below detection limit
4. ppt - Parts Per Trillion
5. < 2.05 - Result below detection limit
6. --- = Analyte not included in analysis.
7. **BOLD** - Analyte above detection
8. **Highlight** - Exceed EGLE Part 201 Criteria
9. NC - No Criteria
10. GSI - Groundwater Surface Water Interface

Table 3
Monitoring Well Sample Analytical Results
Ausable River Boat Launch
60610670

Location Well Screen Interval		RI-MW029 12.5 - 13.5 ft						
		GW1910091145GSC 10/9/2019 1903621	GW2001211255RAP 1/21/2020 2000164	GW2004141220RL 4/14/2020 2000907	GW2007151950GSC 7/15/2020 2001524	GW2010290925CM 10/29/2020 2002371	GW2101280855SK 1/28/2021 2102066	GW2104051210KEM 4/5/2021 2104096
Compound	Unit	Michigan Part 201 Drinking Water Criteria	Result	Result	Result	Result	Result	Result
PFBA	ppt	NC	7.11	12.9	10.8	9.96	9.51	7.50
PFPeA	ppt	NC	< 1.98	< 2.09	3.39 J	4.43	8.37	4.20
PFHxA	ppt	400,000	< 1.98	1.49 J	2.32 J	2 J, Q	3.41 J	1.72 J
PFHpA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	1.32 J	1.86 J
PFOA	ppt	8 (GSI 12,000)	< 1.98	1.66 J	3.3 J	2.09 J	3.16 J	3.53 J
PFNA	ppt	6	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
PFDA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
PFUnDA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
PFDoDA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
PFTrDA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
PFTeDA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
11Ci-PF3OuDs	ppt	NC	---	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
9Ci-PF3ONS	ppt	NC	---	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
ADONA	ppt	NC	---	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
HFPO-DA	ppt	370	---	< 3.14	< 3.05	< 3.04	< 1.98	< 2.01
PFDS	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
PFBS	ppt	420	2.78 J	4.48	5.95	5.39	7.10	7.52
PFPeS	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
PFHxS	ppt	51	2.78 J	3.24 J	4.07	3.29 J	5.13	4.14
PFHpS	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
PFOS	ppt	16 (GSI 12)	2.06 J	< 2.09	< 2.03	2.96 J	2.80 J	2.73 J
PFNS	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
PFOSA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
L-PFOSA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
4:2 FTSA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
6:2 FTSA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
L-6:2 FTSA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
8:2 FTSA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
L-8:2 FTSA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
EtFOSAA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
L-EtFOSAA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
Br-EtFOSAA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
MeFOSAA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
L-MeFOSAA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
Br-MeFOSAA	ppt	NC	< 1.98	< 2.09	< 2.03	< 2.02	< 1.98	< 2.01
Total PFAS	ppt	NC	14.73	23.77	29.83	30.12	40.8	33.2
Footnotes:								
1.	bgs	- Below ground surface						
2.	ft	= feet						
3.	ND	- Result below detection limit						
4.	ppt	- Parts Per Trillion						
5.	< 2.05	- Result below detection limit						
6.	---	= Analyte not included in analysis.						
7.	BOLD	- Analyte above detection						
8.	Highlight	- Exceed EGLE Part 201 Criteria						
9.	NC	- No Criteria						
10.	GSI	- Groundwater Surface Water Interface						

- Footnotes:
1. bgs - Below ground surface
 2. ft = feet
 3. ND - Result below detection limit
 4. ppt - Parts Per Trillion
 5. < 2.05 - Result below detection limit
 6. --- = Analyte not included in analysis.
 7. **BOLD** - Analyte above detection
 8. **Highlight** - Exceed EGLE Part 201 Criteria
 9. NC - No Criteria
 10. GSI - Groundwater Surface Water Interface

Table 3
Monitoring Well Sample Analytical Results
Ausable River Boat Launch
60610670

Location Well Screen Interval		RI-MW029 24 - 25 ft						
		GW1910091215GSC 10/9/2019 1903621	GW2001211340RAP 1/21/2020 2000164	GW2004141255RL 4/14/2020 2000907	GW2007151915GSC 7/15/2020 2001524	GW2010291020CM 10/29/2020 2002371	GW2101280930SK 1/28/2021 2102066	GW2104051255KEM 4/5/2021 2104096
Compound	Unit	Michigan Part 201 Drinking Water Criteria	Result	Result	Result	Result	Result	Result
PFBA	ppt	NC	< 1.93	< 2.07	2.01 J	< 2.08	1.73 J	< 2.03
PFPeA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
PFHxA	ppt	400,000	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
PFHpA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
PFOA	ppt	8 (GSI 12,000)	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
PFNA	ppt	6	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
PFDA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
PFUnDA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
PFDoDA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
PFTrDA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
PFTeDA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
11CI-PF3OUDs	ppt	NC	---	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
9CI-PF3ONS	ppt	NC	---	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
ADONA	ppt	NC	---	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
HFPO-DA	ppt	370	---	< 3.11	< 2.95	< 3.13	< 2.00	< 2.03
PFDS	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
PFBS	ppt	420	< 1.93	< 2.07	1.76 J, Q	< 2.08	3.33 J	1.72 J
PFPeS	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
PFHxS	ppt	51	< 1.93	< 2.07	< 1.97	< 2.08	1.94 J	1.17 J
PFHpS	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
PFOS	ppt	16 (GSI 12)	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
PFNS	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
PFOSA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
L-PFOSA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
4:2 FTSA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
6:2 FTSA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
L-6:2 FTS	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
8:2 FTSA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
L-8:2 FTS	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
EtFOSAA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
L-EtFOSAA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
Br-EtFOSAA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
MeFOSAA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
L-MeFOSAA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
Br-MeFOSAA	ppt	NC	< 1.93	< 2.07	< 1.97	< 2.08	< 2.00	< 2.03
Total PFAS	ppt	NC	ND	ND	3.77	ND	7	2.89

Footnotes:

1. bgs - Below ground surface
2. ft = feet
3. ND - Result below detection limit
4. ppt - Parts Per Trillion
5. < 2.05 - Result below detection limit
6. --- = Analyte not included in analysis.
7. **BOLD** - Analyte above detection
8. **Highlight** - Exceed EGLE Part 201 Criteria
9. NC - No Criteria
10. GSI - Groundwater Surface Water Interface

Table 3
Monitoring Well Sample Analytical Results
Ausable River Boat Launch
60610670

Location Well Screen Interval		RI-MW029 31 - 32 ft							
		GW1910091300GSC 10/9/2019 1903621	GW2001211430RAP 1/21/2020 2000164	GW2004141330RL 4/14/2020 2000907	GW2007151845GSC 7/15/2020 2001524	GW2010291100CM 10/29/2020 2002371	GW2101271645GSC 1/27/2021 2102066	GW2104051400KEM;W2104051400KEM-F 4/5/2021 2104096	4/5/2021 2104096
Compound	Unit	Michigan Part 201 Drinking Water Criteria	Result	Result	Result	Result	Result	Result	Result
PFBA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
PFPeA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
PFHxA	ppt	400,000	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
PFHpA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
PFOA	ppt	8 (GSI 12,000)	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
PFNA	ppt	6	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
PFDA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
PFUnDA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
PFDoDA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
PFTrDA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
PFTeDA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
11Ci-PF30Uds	ppt	NC	---	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
9Ci-PF3ONS	ppt	NC	---	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
ADONA	ppt	NC	---	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
HFPO-DA	ppt	370	---	< 3.10	< 2.94	< 3.01	< 2.10	< 1.92	< 1.99
PFDS	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
PFBS	ppt	420	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	1.21 J 1.07 J
PFPeS	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 2.04
PFHxS	ppt	51	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
PFHpS	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 2.04
PFOS	ppt	16 (GSI 12)	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
PFNS	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 2.04
PFOSA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
L-PFOSA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
4:2 FTSA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
6:2 FTSA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 2.04
L-6:2 FTS	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 2.04
8:2 FTSA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 2.04
L-8:2 FTS	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 2.04
EtFOSAA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 2.04
L-EtFOSAA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 2.04
Br-EtFOSAA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
MeFOSAA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
L-MeFOSAA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 1.99
Br-MeFOSAA	ppt	NC	< 1.95	< 2.07	< 1.96	< 2.01	< 2.10	< 1.92	< 2.04
Total PFAS	ppt	NC	ND	ND	ND	ND	ND	ND	1.21 1.07

Footnotes:

1. bgs - Below ground surface
2. ft = feet
3. ND - Result below detection limit
4. ppt - Parts Per Trillion
5. < 2.05 - Result below detection limit
6. --- = Analyte not included in analysis
7. **BOLD** - Analyte above detection
8. **Highlight** - Exceed EGLE Part 201 Criteria
9. NC - No Criteria
10. GSI - Groundwater Surface Water Interface

Table 3
Monitoring Well Sample Analytical Results
Ausable River Boat Launch
60610670

Location Well Screen Interval		RI-MW031 2 - 7 ft		RI-MW031 20.5 - 21.5 ft		RI-MW031 31 - 32 ft		RI-MW031 44 - 45 ft			
		Sample Sample Date Lab Report	GW2101271150GSC 1/27/2021 2102066	GW2104051540RLF 4/5/2021 2104096	GW2101271230GSC 1/27/2021 2102066	GW2101271230GSC-FD 1/27/2021 2102066	GW2104051615RLF 4/5/2021 2104096	GW2101271310GSC 1/27/2021 2102066	GW2104051655RLF 4/5/2021 2104096	GW2101271355GSC 1/27/2021 2102066	GW2104061610KEM 4/6/2021 2104096
Compound	Unit	Michigan Part 201 Drinking Water Criteria	Result	Result	Result	Result	Result	Result	Result	Result	
PFBA	ppt	NC	25.7	18.2	4.37	4.35	4.37	3.86 J	1.06 J	< 1.98	< 2.04
PFPeA	ppt	NC	5.84	6.20	< 2.02	1.21 J	2.05 J	1.76 J	< 2.01	< 1.98	< 2.04
PFHxA	ppt	400,000	5.91	5.72	1.52 J	1.59 J	1.73 J, Q	1.22 J	< 2.01	< 1.98	< 2.04
PFHpA	ppt	NC	4.21	4.04 J	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
PFOA	ppt	8 (GSI 12,000)	7.14	8.92	1.36 J	< 2.02	< 2.02	1.03 J	< 2.01	< 1.98	< 2.04
PFNA	ppt	6	< 2.04	1.43 J	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
PFDA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
PFUnDA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
PFDoDA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
PFTrDA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
PFTeDA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
11Ci-PF30UDs	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
9CI-PF3ONS	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
ADONA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
HFPO-DA	ppt	370	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
PFDS	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
PFBS	ppt	420	2.64 J	2.09 J	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
PFPeS	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
PFHxS	ppt	51	1.03 J	1.14 J	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
PFHpS	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
PFOS	ppt	16 (GSI 12)	< 2.04	3.20 J	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
PFNS	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
PFOSA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
L-PFOSA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
4:2 FTSA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
6:2 FTSA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
L-6:2 FTSA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
8:2 FTSA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
L-8:2 FTSA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
EtFOSAA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
L-EtFOSAA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
Br-EtFOSAA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
MeFOSAA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
L-MeFOSAA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
Br-MeFOSAA	ppt	NC	< 2.04	< 2.04	< 2.02	< 2.02	< 2.02	< 2.06	< 2.01	< 1.98	< 2.04
Total PFAS	ppt	NC	52.47	50.94	7.25	7.15	8.15	7.87	1.06	ND	ND

Footnotes:

1. bgs - Below ground surface
2. ft = feet
3. ND - Result below detection limit
4. ppt - Parts Per Trillion
5. < 2.05 - Result below detection limit
6. --- = Analyte not included in analysis
7. **BOLD** - Analyte above detection
8. **Highlight** - Exceed EGLE Part 201 Criteria
9. NC - No Criteria
10. GSI - Groundwater Surface Water Interface

Table 4
Surface Water Sample Analytical Results
AuSable River Boat Launch
60610670

			Sample	ASRBL-SW001	ASRBL-SW002	ASRBL-SW003	ASRBL-SW004						ASRBL-SW005	
			Sample	SW1910081105GSC	SW1910080830GSC	SW1910081120GSC	SW1910081055GSC	SW1910080810GSC	SW2001210855RAP	SW2004141800GSC	SW2007161130GSC	SW2010290745RL	SW2101271750GSC	SW2104051720KEM
			Sample Date	10/8/2019	10/8/2019	10/8/2019	10/8/2019	10/8/2019	1/21/2020	4/14/2020	7/16/2020	10/29/2020	1/27/2021	
Compound	Unit	Michigan Part 201 Drinking Water Criteria	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
PFBA	ppt	NC	6.85	6.35	7.59	4.13	< 2.07	2.42 J	1.61 J	1.66 J	< 2.07	< 1.98	< 2.07	
PFPeA	ppt	NC	4.23 J	< 2.07	5.45	2.36 J	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07	
PFHxA	ppt	400,000	3.77 J	2.87 J	4.15 Q	2.02 J	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07	
PFHpA	ppt	NC	2.41 J	2.62 J	2.59 J	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07	
PFOA	ppt	8 (GSI 12,000)	6.51	4.12 J	5.59	3.71 J	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07	
PFNA	ppt	6	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
PFDA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
PFUnDA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
PFDoDA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
PFTrDA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
PFTeDA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
11Ci-PF3Ouds	ppt	NC	---	---	---	---	---	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07	
9Ci-PF3ONS	ppt	NC	---	---	---	---	---	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07	
ADONA	ppt	NC	---	---	---	---	---	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07	
HFPO-DA	ppt	370	---	---	---	---	---	< 3.28	< 3.04	< 3.14	< 2.07	< 1.98	< 2.07	
PFDS	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
PFBS	ppt	420	1.86 J	2.49 J	1.88 J	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07	
PFPeS	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
PFHxS	ppt	51	2.19 J	2.66 J	3.01 J	3.62 J	2.07 J	2.1 J	< 2.02	< 2.09	1.51 J	2.05 J	< 2.07	
PFHpS	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
PFOS	ppt	16 (GSI 12)	6.39	3.84 J	3.87 J	4.92	1.73 J	1.61 J	1.70 J	4.17 J	1.92 J	2.12 J	1.3 J	
PFNS	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
PFOSA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
L-PFOSA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
4:2 FTSA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
6:2 FTSA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
L-6:2 FTSA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
8:2 FTSA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
L-8:2 FTSA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
EtFOsAA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
L-EtFOsAA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
Br-EtFOsAA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
MeFOsAA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
L-MeFOsAA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
Br-MeFOsAA	ppt	NC	< 2.16	< 2.07	< 2.04	< 2.07	< 2.18	< 2.02	< 2.09	< 2.07	< 1.98	< 2.07		
Total PFAS	ppt	NC	34.21	24.95	34.13	20.76	3.8	6.13	3.31	5.83	3.43	4.17	1.3	

Footnotes:

1. bgs - Below ground surface
2. ft = feet
3. ND - Result below detection limit
4. ppt - Parts Per Trillion
5. < 2.05 - Result below detection limit
6. --- = Analyte not included in analysis.
7. **BOLD** - Analyte above detection
8. **Highlight** - Exceed EGLE Part 201 Criteria
9. NC - No Criteria
10. GSI - Groundwater Surface Water Interface

Appendix A

Appendix B

Appendix C

AECOM
3950 Sparks Drive Southeast
Grand Rapids, MI 49546
aecom.com