April 1, 2020 Reference No. 11208041

Ms. Christine Aiello
Michigan Department of Environment, Great Lakes, and Energy
525 West Allegan
Lansing, MI 48909

Dear Ms. Aiello:

Re: NPDES Permit Notice of Termination Request (Submission: HNY-B6Y6-TZXKK)
NPDES Permit ID: MI0059042
RACER Nodular Industrial Land - Saginaw, Michigan

This letter was prepared in support of the National Pollutant Discharge Elimination System (NPDES) Permit Notice of Termination (NOT) request (submission: HNY-B6Y6-TZXKK) for Revitalizing Auto Communities Environmental Response Trust's (RACER's) Nodular Industrial Land (Site) in Saginaw, Michigan. Specifically, RACER requests to leave the valves open on Outfalls 21 and 24 in the secondary pond to prevent water from accumulating and overflowing the berm and possibly causing a breach in the berm and to remove the requirement for monitoring from each of the Outfalls (21, 22, and 24). The Site currently maintains an NPDES permit (MI0059042) for discharges from the Site.

The following figures and tables have been prepared in support of this letter:

Figure 1	Site Location Map
Figure 2	Site Plan
Figure 3	Outfall 21 Profile
Figure 4	Secondary Pond Water Sample Locations
Figure 5	North Ditch Water Sample Locations
Table 1	Outfall 21 and Outfall 24 – Discharge Sample Results in Accordance with NPDES Testing Requirements
Table 2	Outfall 22 – Discharge Sample Results in Accordance with NPDES Testing Requirements
Table 3	Secondary Pond –Water Characterization Results
Table 4	Outfall 21 and Outfall 24 – Discharge Sample Results to Support Preparation/Renewal of the NPDES Permit
Table 5	North Ditch – Water Characterization Results

1. Background

The Site is located at 2100 Veterans Memorial Parkway, Saginaw, Michigan, primarily within Buena Vista Township and partially within the City of Saginaw, Michigan (Figure 1). Prior to the General Motors Corporation (GMC) bankruptcy in 2009, the Site was a portion of the larger Saginaw Metal Casting Operations (SMCO) Facility that encompassed approximately 700 acres. Following the bankruptcy,

approximately 315 acres was transferred to RACER and General Motors, LLC now owns the remaining portion. The Site includes a portion of the Former Nodular Iron Plant Area Investigative Unit G (IU G), the Former Waste Water Treatment System and Stormwater Ditch (IU H), a portion of the Former Classified Sands Staging Area (portion of IU I), and an un-impacted strip of land north of IU J (Figure 2). The Site is currently the subject of a Resource Conservation and Recovery Act (RCRA) Section 3008(h) Performance-Based Administrative Order on Consent, RCRA 05 2011 0023 (Order).

Outfall 21 and Outfall 24

Outfall 21 is a controlled outlet for the secondary pond (1-ft diameter pipe with a manually controlled valve that is closed unless intentionally opened) which was installed in the secondary pond embankment to discharge into a nearby county drain (Dieckmunn Drain). Outfall 21 was initially installed on March 8, 2012 at an invert elevation of 591 feet (ft) above mean sea level (AMSL) and was lowered to an invert elevation of 585 ft AMSL on June 23, 2016 when RACER was lowering the water level in the secondary pond to allow for assessment of sediments. A profile of Outfall 21 is presented in Figure 3 and other information related to Outfall 24 is presented in Figure 4. Outfall 24 (1-ft diameter pipe with a manually controlled valve that is normally closed unless intentionally opened) was also constructed during the lowering of the water level in the secondary pond at an elevation of 585 ft AMSL approximately 320-ft to the east of Outfall 21 (eastern portion of the pond). The inlet for both Outfalls are approximately 3-ft above the top of sediment with the installation of a 90 degree elbow and a 1-ft riser section.

Secondary Pond

The secondary pond was part of the Former Waste Water Treatment System that stopped treating water (that was used by the SMCO Plant for foundry operations) in 2010 and now only accumulates storm water from its immediate surrounding area. The Outfalls were installed in the embankment of the secondary pond to be able to prevent overflow of the secondary pond as there was no outlet for the secondary pond. The secondary pond is approximately 1.2 million square feet (28 acres) in area with an average depth of approximately 7.5 ft (from the top of the berm) giving it a volume of approximately 340,000 cubic yards (69 million gallons), and is underlain by clay. The basin was constructed by excavating into the underlying clay and using the excavated clay to construct sidewalls. The basin was used to settle solids remaining in effluent from the primary basins, prior to recirculation.

Because the secondary pond's bottom and dikes are composed of clay, groundwater flow into and out of the secondary pond is thought to be minimal. The only water entering the secondary pond is from direct runoff associated with precipitation, which is limited to a small catchment area around the secondary ponds as it was constructed at a higher elevation than the surrounding area. Yearly precipitation is approximately 33.3-inches and is approximately 10-inches greater than the estimated evapotranspiration, 23-inches/year (USDA 1961). Assuming, reasonably, that losses to underlying saturated units and inputs of surface water drainage from non-pond surfaces are both small and off-setting, the secondary pond's water balance should be slightly positive. This prediction conforms to experience as described in

Section 2, as the water level in the secondary pond has remained relatively stable with only periodic, small discharges during wetter seasons.

Outfall 22

Outfall 22 is an uncontrolled outlet consisting of two storm water catch basins located immediately south of the North Ditch (Figure 5). Discharges occur through Outfall 22 when the North Ditch water level rises as a result of snow melt and/or rainfall. The water discharged through the catch basins includes storm water from the small, vacant vegetated area immediately adjacent to the North Ditch owned by RACER and from other adjacent properties not owned or controlled by RACER. Discharged water is not expected to be contaminated.

North Ditch

The North Ditch is located north of the Former Nodular Iron Plant north parking lot as identified on Figure 2. Between 1965 and 1988 the North Ditch was utilized for discharging treated water from the WWTP to the Saginaw River under a NPDES permitted outfall (Outfall 002). In addition, the North Ditch received water from two basement sumps in the Former Nodular Iron Plant basement and stormwater from surface water runoff. In 1988, at the advent of the recycle water system for the WWTP, the North Ditch no longer received treated water from the WWTP and Outfall 002 was plugged in 1995. In 2004, the closed outlet was found to be leaking. The former discharge pipes were located, filled with flowable fill and clay was placed over the ends of the pipes at the termination in the North Ditch. The North Ditch is 30 feet at its widest point, approximately 900 ft in length, and 8 to 10 ft in depth. Currently, the North Ditch only receives surface water runoff.

2. Discharge Summary

Secondary Pond

Prior to issuance of the NPDES permit on August 24, 2012, there were three controlled discharges to maintain adequate freeboard in the secondary pond. Since obtaining the NPDES permit there have been 87 days of discharge from the secondary pond. Starting on June 21, 2016, in order to allow for assessment of sediments as part of preparation for future work in the pond, RACER initiated discharge of water via gravity and pumping through Outfall 21 to expose the sediments. There were a total of 53 days of discharge until September 12, 2016 when discharges were stopped. No further discharges from the secondary pond were conducted until RACER conducted a polychlorinated biphenyl (PCB)-impacted sediment removal activity in the fall of 2019. During the PCB-impacted removal activities the water level in the western portion of the secondary pond was lowered to expose the sediments. The water was initially managed in other portions of the secondary pond and eventually water was discharged through Outfall 24 via pumping for 14 days. A summary of the discharge days and approximate volumes are provided in Table 1. The amount of discharge from the secondary pond through Outfall 21 under gravity discharge

conditions was dependent on the head above the invert and ranged from 0.31 million gallons per day (MGD) to 2.82 MGD.

North Ditch

Discharges occur through Outfall 22 when the North Ditch water level rises as a result of snow melt and/or rainfall. A summary of the discharge days and approximate volumes are provided in Table 2. Discharges occurred on average 4.7 times per year.

3. Characterization

Secondary Pond

Prior to lowering the water level in the secondary pond in 2016, water samples from the surface, mid-depth, and above the sediment in the secondary pond were collected and submitted for analysis of Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), Metals, PCBs, and general parameters (Ammonia-N, Carbonaceous Biochemical Oxygen Demand (CBOD), and Formaldehyde) to evaluate water quality. A summary of the analytical results are presented in Table 3. Figure 4 presents the approximate locations of the samples. Following removal of water from the secondary pond to allow for assessment of sediments, the secondary pond was monitored but no discharge was necessary until September 2019 during the PCB-impacted sediment removal activity. On September 11, 2017 another round of water samples were collected from the surface, mid-depth, and above the sediments in the secondary pond and submitted for analysis of Metals, PCBs, and general parameters (Ammonia-N, CBOD, Formaldehyde, and Total Suspended Solids (TSS)) to evaluate water quality. A summary of the analytical results are presented in Table 3. Figure 4 presents the approximate locations of the samples.

The results of the analysis were compared to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201 Groundwater Surface Water Interface Criteria (GSI) and EGLE's Rule 57 Water Quality Values (Final Chronic Values [FCV], Human Cancer Drinking Value [HCV], Human non-Cancer Drinking Value [HNV], and Wildlife Value [WV]). There were no exceedances of criteria with the exception of Antimony in the 2017 samples when concentrations ranging from 0.0059 to 0.0063 mg/L were reported, which is above the Rule 57 HNV Drinking Water Value of 0.0017 mg/L. Note the concentrations of Antimony in water are around the same level as the Part 201 Residential Drinking Water Criteria of 0.006 mg/L.

Characterization data was also collected in accordance with the NPDES permit for the 90 discharge days from the secondary pond through Outfall 21 and Outfall 24. Table 1 presents a summary of the results for the samples collected during discharge. The results of the analysis were compared to the NPDES limits. The following is a summary of the exceedances:

- Dissolved Oxygen was less than the minimum level of 6.0 mg/L on one occasion at a concentration of 5.54 mg/L on April 3, 2013.

- pH was outside the acceptable range of 6.5 to 9.0 on one occasion at a pH of 6.29 on May 8, 2013
- CBOD was above the limits in fifteen samples. CBOD was marginally above the limits (7.2 mg/L between May and September) when discharge occurred via gravity through the Outfalls in two of the fifteen samples at 8.5 mg/L on May 23, 2014 and at 7.6 mg/L on July 13, 2016. Note that the sample collected on July 13, 2016 was likely an anomaly since the samples analyzed on the day before and the day after were non-detect for CBOD. CBOD was above the limits (7.2 mg/L between May and September) when discharge occurred via pumping through the Outfalls (when water in the pond was low) ranging from 7.6 mg/L to 29 mg/L.

Table 4 presents the results for samples collected as part of the NPDES permit preparation/renewal process. The results of the analysis were compared to the NPDES limits and the Part 201 Groundwater Surface Water Interface Criteria. The samples collected and analyzed for VOCs and SVOCs were all non-detect. There was one exceedance of the Part 201 Groundwater Surface Water Interface Criteria for zinc (0.17 mg/L) at a concentration of 0.86 mg/L. However, the result was below the NPDES discharge limit of 1.12 mg/L.

Under gravity discharge conditions, the total suspended solids (TSS) readings ranged from non-detect at a detection limit of 4.0 mg/L to 9.0 mg/L, with the majority of the readings being non-detect at a detection limit of 4.0 mg/L. Under pumping discharge conditions, the TSS readings ranged from 5.0 mg/L to 18.0 mg/L.

North Ditch

In 2013, RACER conducted characterization sampling of the North Ditch including water samples from the surface and mid-depth that were submitted for analysis of Metals, PCBs, and general parameters (Ammonia, Ammonia-N, Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Cyanide (amenable), Cyanide (total), Hardness-carbonate, Hardness-magnesium, Nitrate, Oil and Grease (HEM), pH, Phenolics (total), and Total Organic Carbon (TOC) to evaluate water quality. A summary of the analytical results are presented in Table 5. Figure 5 presents the approximate locations of the samples.

The results of the analysis were compared to the EGLE Part 201 GSI Criteria and EGLE's Rule 57 Water Quality Values (FCV, HCV, HNV, and WV). There were no exceedances of criteria.

Characterization data was also collected in accordance with the NPDES permit for the discharges from the North Ditch through Outfall 22. Table 2 presents a summary of the samples collected during discharge. The results were all below or within the acceptable NPDES Limits.

The TSS readings ranged from non-detect at a detection limit ranged of 4.0 mg/L to 7.0 mg/L, with the majority of the readings being non-detect at a detection limit of 4.0 mg/L.

4. Ecological Assessments / Follow-up Activities

Secondary Pond

On behalf of RACER and as a part of RCRA Corrective Action, GHD submitted an Ecological Screening Assessment for the secondary pond under future use scenarios on August 18, 2017 (GHD, 2017) to which U.S. EPA provided comments to on October 18, 2017. On December 4, 2017, RACER, GHD, U.S. EPA, and Booz Allen Hamilton (U.S. EPA contractor) participated in a conference call to discuss the comments. Following the call, GHD prepared and submitted a response to U.S. EPA comments on January 29, 2018 (GHD, 2018a) and also prepared and submitted a sediment pore water sampling Work Plan to address U.S. EPA's comments (GHD, 2018b) to evaluate whether impacts in sediments were affecting ecological receptors. The Work Plan was approved by U.S. EPA on March 2, 2018 and sampling was conducted on April 17, 2018. The results were presented to U.S. EPA on May 11, 2018 and a memorandum summarizing the results was submitted on June 3, 2018 (GHD, 2018c). U.S. EPA provided comments on the pore water sample results on June 13, 2018 and responses to comments were provided to U.S. EPA on July 3, 2018 (GHD, 2018d). U.S. EPA provided email approval on September 17, 2018 (U.S. EPA, 2018) to proceed with removal of PCBs >50 ppm in secondary Pond sediments and following the removal, to provide an institutional control (i.e., deed restriction) to prevent a hydrologic connection with nearby surface waters and allow the secondary ponds to naturalize.

The removal of PCB impacted sediments >50 ppm was completed in the fall of 2019. Approximately 2,500 cubic yards of PCB-impacted sediment were removed and disposed off-Site at the Wayne Disposal, Inc. Site #2 Landfill, a TSCA approved facility. A report summarizing the activities was submitted to U.S. EPA on February 11, 2020 (GHD, 2020).

North Ditch

On behalf of RACER and as part of RCRA Corrective Action, GHD completed and submitted an Ecological Screening Assessment of the North Ditch to U.S. EPA on March 14, 2019 (GHD, 2019). The assessment concluded that the potential ecological risks to aquatic and semi-aquatic biota associated with the North Ditch are acceptable. However, some additional sampling was proposed to confirm some of the assumptions that were used in the assessment. The additional sediment sampling was completed on December 10, 2019 and a revised ecological assessment was prepared and submitted to U.S. EPA on February 12, 2020 (GHD, 2020). The results of the additional sediment sampling were consistent with the initial assessment and therefore no further work was recommended for the North Ditch.

U.S. EPA reviewed the ecological assessment for the North Ditch and responded by email on February 27, 2020 agreeing that no further work is needed at this time (U.S. EPA, 2020).

5. Conclusions

Secondary Pond

The majority of water remaining in the secondary pond is storm water and the remainder may be limited groundwater infiltration (as the secondary pond was constructed into and with clay), since the water level in the secondary pond was drawn down to allow assessment of sediments in 2016 and a substantial amount of water was again removed from the secondary pond in 2019 to facilitate removal of PCB-impacted sediment. Therefore, the water in the ponds is expected to be unimpacted, as evidenced by the quality of the surface water samples that were collected in 2016 and 2017.

The results of secondary pond water characterization sampling conducted in 2016 (prior to removal of the majority of water in the ponds later in 2016) identified no exceedances of screening levels and there was only one exceedance of Rule 57 screening levels (Antimony) in the samples collected in 2017, which were only slightly above Part 201 Residential Drinking Water Criteria. Of the 56 samples collected of the discharges from the secondary pond via gravity through Outfalls 21 and 24, only two samples exceeded discharge for CBOD, one sample reported pH marginally outside the acceptable range, and one sample reported dissolved oxygen below the acceptable level. Therefore, based on the analytical data collected to date the secondary pond water is relatively unimpacted.

Further evaluation of the data was completed in an ecological risk assessment for the secondary pond. The evaluation included some sediment-pore water sampling to assist in identifying whether impacts in sediments were affecting ecological receptors. Based on the risk assessment U.S. EPA provided email approval on September 17, 2018 (U.S. EPA, 2018) to proceed with removal of PCBs >50 ppm in secondary pond sediments and following removal, to provide an institutional control (i.e., deed restriction) to prevent a hydrologic connection with nearby surface waters and allow the secondary ponds to naturalize. The PCB-impacted sediment was removed in the fall of 2019 further reducing the potential for impacted sediments to affect water quality. RACER will place the U.S. EPA required deed restriction as part of a Declaration of Restrictive Covenant recorded before either selling the Site or as a part of final corrective measures implemented to address RCRA Corrective Action requirements, whichever occurs first.

Lastly, Outfall 21 and 24 were constructed so the inlet to the pipe is approximately 3-ft above the sediment, thereby limiting contact of the surface water with sediments or for sediments to be introduced into the discharge, as evidenced by the low TSS levels. In addition, discharges will be limited in volume and will only occur if the water level in the pond rises above the height of the inlet pipe inverts as a result of rainfall/snow melt.

North Ditch

Discharges occur through Outfall 22 when the North Ditch water level rises as a result of snow melt and/or rainfall. The water discharged through the catch basin includes storm water from the small, vacant

vegetated area immediately adjacent to the North Ditch owned by RACER and from other properties not owned or controlled by RACER and is not expected to discharge contaminated storm water.

The results of North Ditch water characterization sampling and the discharge sampling through Outfall 22 were all below screening levels and discharge limits. Therefore, based on the analytical data collected to date from the North Ditch, the water is unimpacted and there is no reason to expect the water will become contaminated as a result of RACER's property or activity.

Further evaluation of the data was completed in an ecological risk assessment for the North Ditch. U.S. EPA reviewed the ecological assessment for the North Ditch and responded by email on February 27, 2020 agreeing that no further work is needed at this time (U.S. EPA, 2020).

Lastly, the construction of Outfall 22 (two catchbasins) only discharges water from the surface of the ditch water so it has not been in contact with the sediments in the ditch and sediments from the bottom of the ditch will not be introduced into the surface water.

In summary, based on the quality of the water, the additional ecological assessments, and the construction of each outlet in the secondary pond and the North Ditch, RACER is requesting the termination of the NPDES permit, to allow the valves on Outfalls 21 and 24 to remain open thereby allowing an uncontrolled discharge, and to discontinue monitoring.

6. References

References listed below can be provided upon request.

GHD. 2017. Ecological Screening Assessment for Secondary Pond under Future Use Scenarios. August 18, 2017 Memorandum.

GHD. 2018a. Re: Ecological Screening Assessment for Secondary Pond Under Future Use Scenarios Memorandum. January 29, 2018 Letter.

GHD. 2018b. Work Plan for Sediment Pore Water Sample Collection in Secondary Pond. January 29, 2018.

GHD, 2018c. Sediment Pore-Water Evaluation Results for Secondary Pond. June 1, 2018 Memorandum.

GHD, 2018d. Re: Response to Technical Review of Sediment Pore-Water Evaluation Results for Secondary Pond Memorandum. July 3, 2018 Letter.

GHD, 2019. North Ditch – Ecological Screening Assessment. March 14, 2019 Memorandum.

GHD, 2020a. PCB Cleanup Completion Summary Report. February 11, 2020.

GHD, 2020b. Re: North Ditch – Updated Ecological Screening Assessment. February 12, 2020 Letter.

USDA. 1961. Mean monthly evaporation from shallow lakes and reservoirs. From https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs141p2_024175.pdf

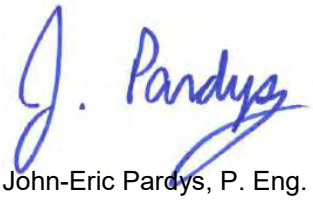
U.S. EPA, 2018. Re: RACER Nodular Iron, Saginaw, Michigan Secondary Pond. September 17, 2018 Email.

U.S. EPA, 2020. Re: Nodular – North Ditch Sample Results and update ERA. February 27, 2020 Email.

Should you have any questions, please do not hesitate to call.

Yours truly,

GHD

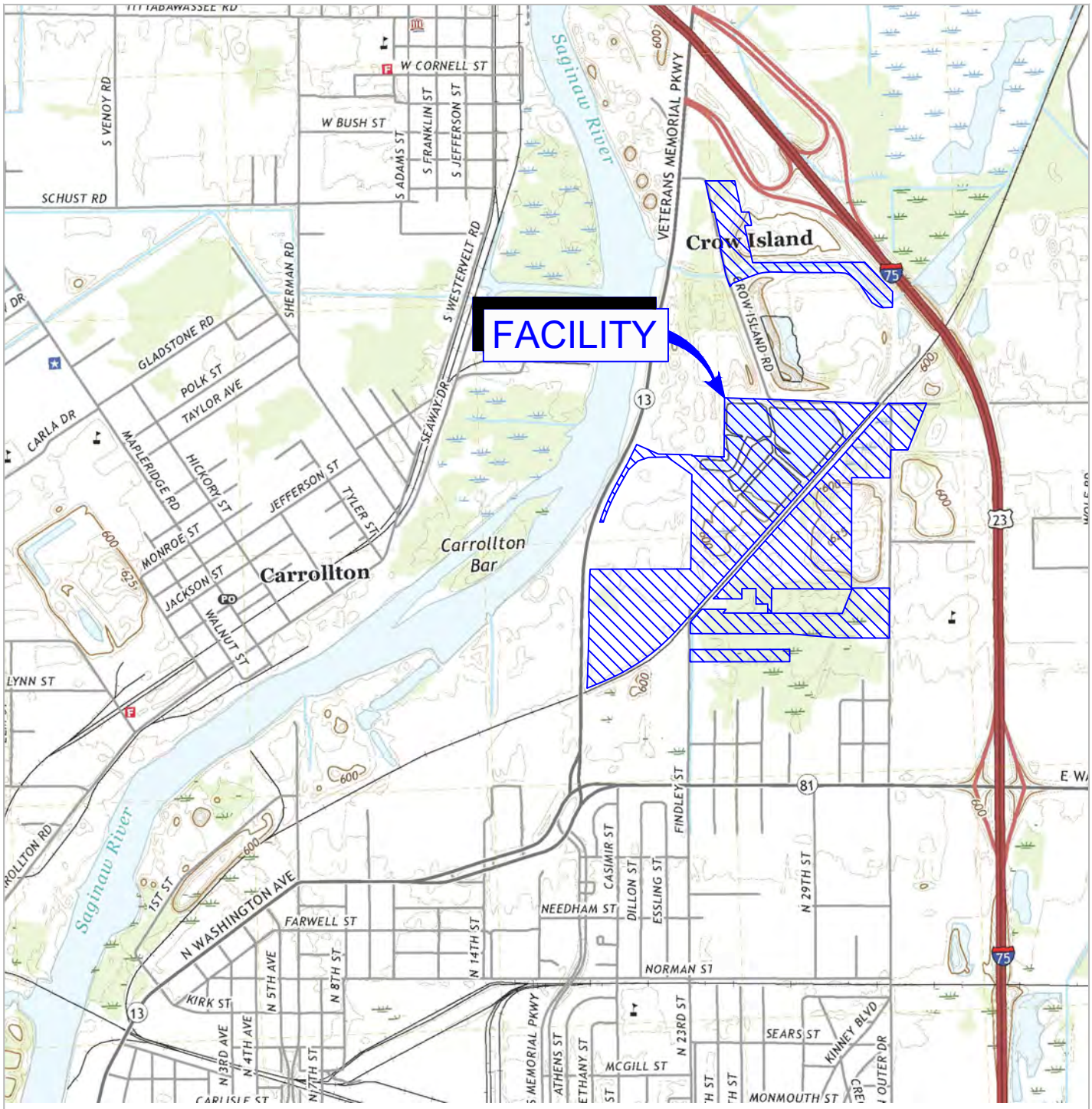


John-Eric Pardys, P. Eng.

JEP/kf/1

Encl.

cc: Dave Favero, RACER
Michael Tomka, GHD



0 1000 2000 ft

N

GHD

RACER TRUST
SAGINAW, MICHIGAN

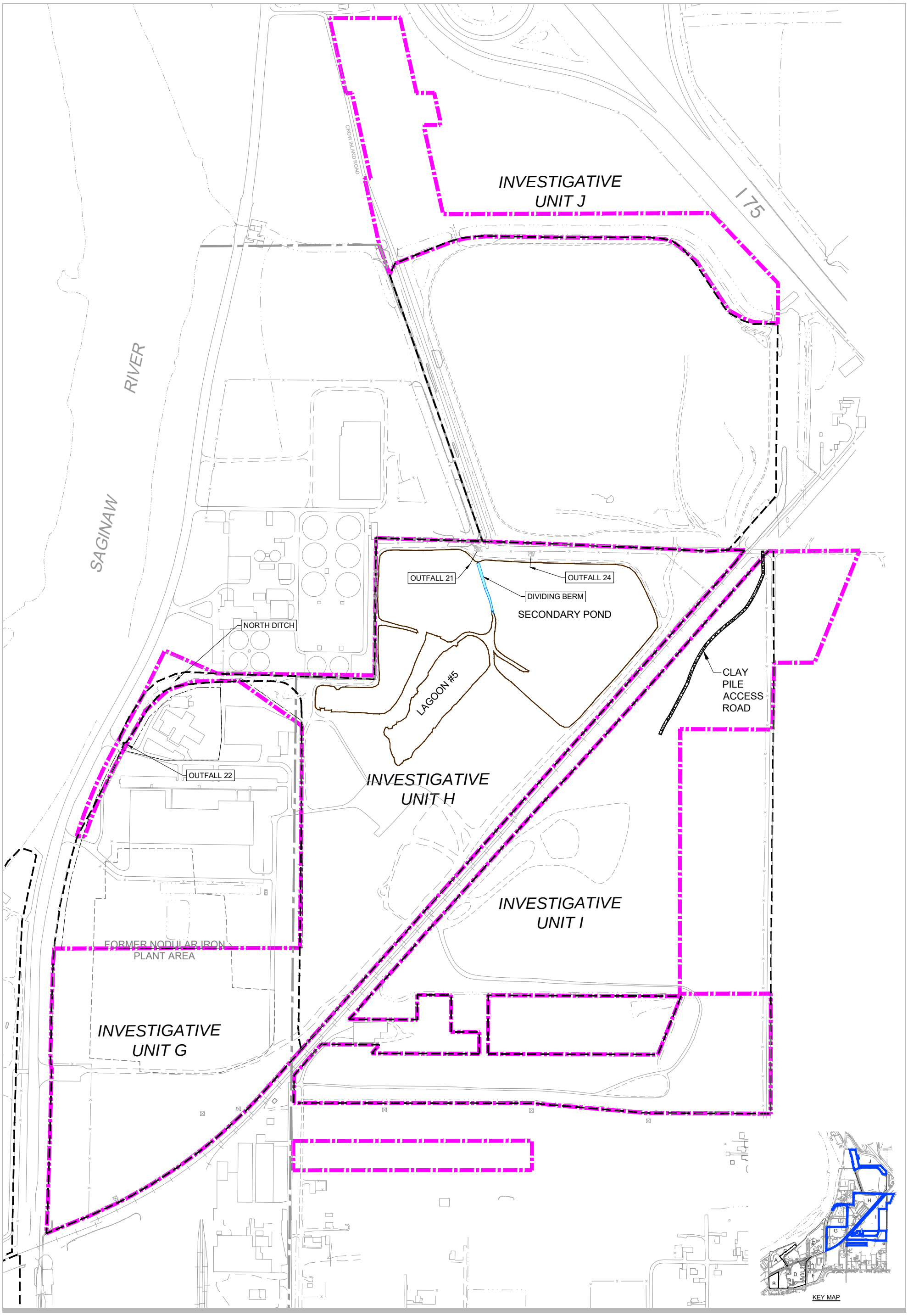
Project No. **11208041**
Date **April 2020**

SITE LOCATION MAP

FIGURE 1

Filename: N:\CA\Waterloo\Projects\662\11208041\Digital_Design\ACAD 2018\Figures\AIELLO1\11208041(AIELLO1)GN-WA001.DWG
Plot Date: 01 April 2020 8:48 AM

Data Source: USGS QUADRANGLE MAP; SAGINAW, MI; 2019



LEGEND

- INVESTIGATIVE UNIT BOUNDARY
- RACER TRUST PROPERTY

0 125 250 500 ft

N

GHD

RACER TRUST
SAGINAW, MICHIGAN

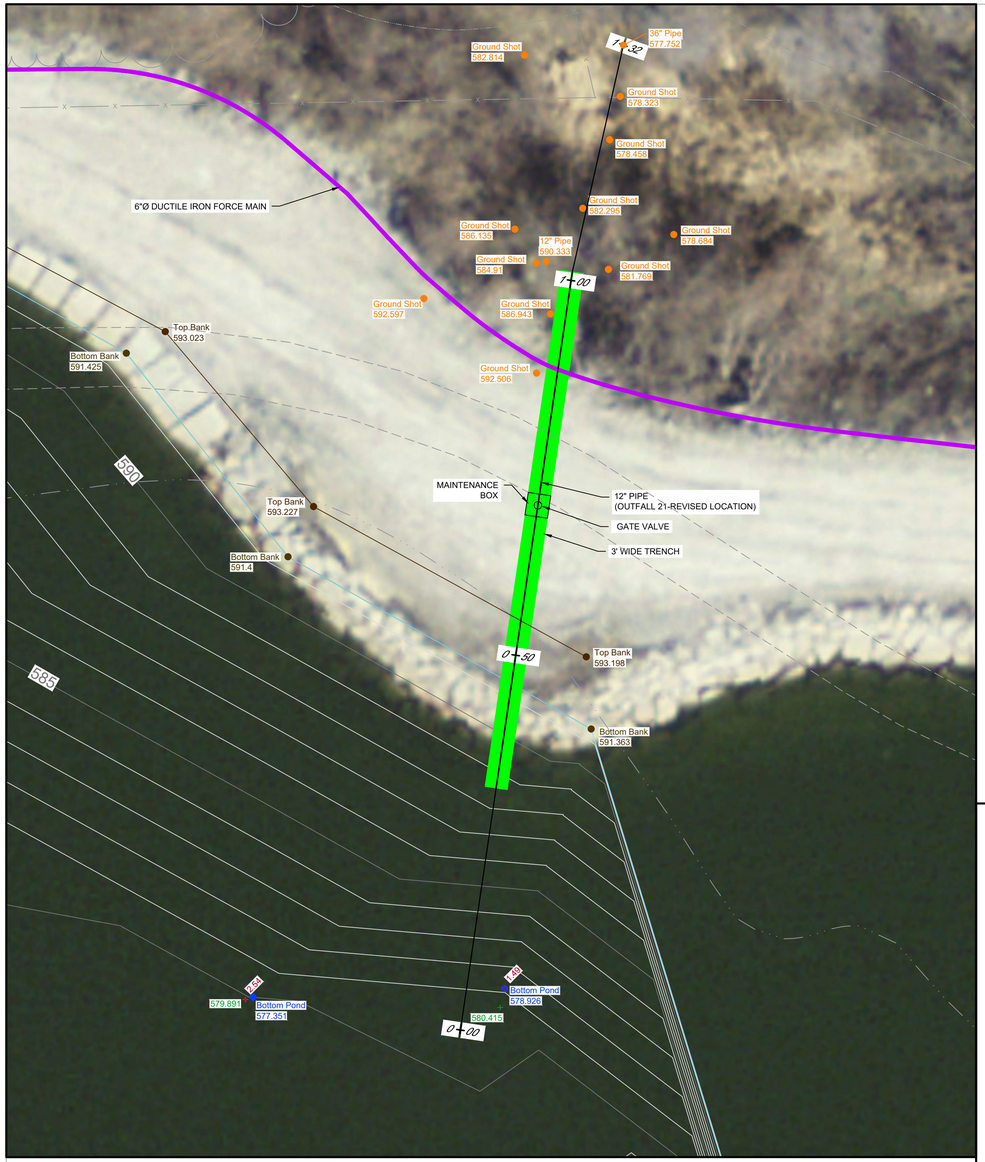
Project No. **11208041**
Date **April 2020**

SITE PLAN

FIGURE 2

Filename: N:\CA\Waterloo\Projects\662\11208041\Digital_Design\ACAD 2018\Figures\AIELLO1\11208041(AIELLO1)GN-WA002.DWG
Plot Date: 01 April 2020 8:48 AM

Data Source: MICHIGAN STATE PLANE SOUTH, NAD 83 USING INTERNATIONAL FEET, NGVD 88 SPICER SURVEY, OCTOBER 2009.

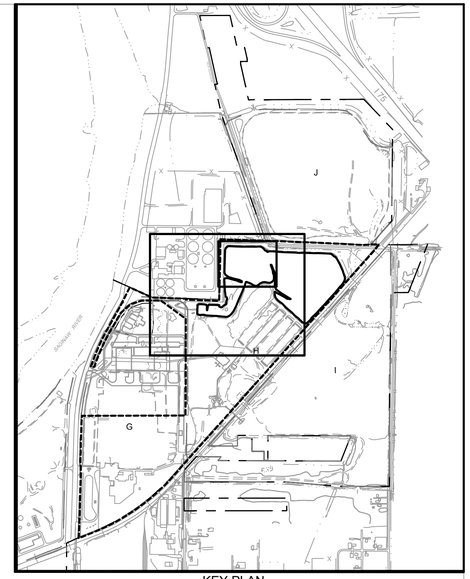


PLAN

0 5 10 20 ft

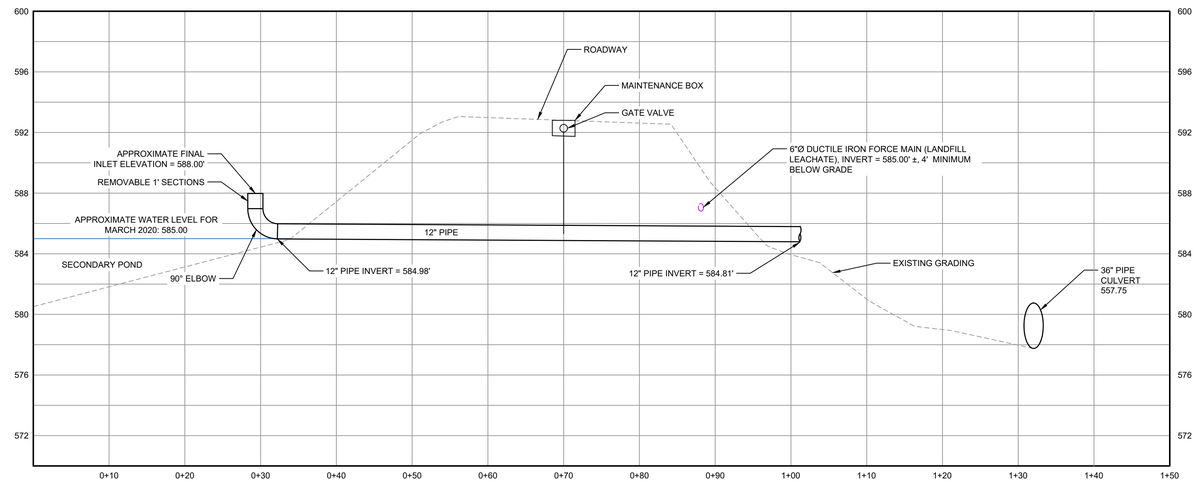
N

SCALE = 1:10



KEY PLAN
SCALE: 1" = 2,000'

SOUTHWEST NORTHEAST



PROFILE FOR OUTFALL 21
SCALE: HORZ. 1" = 10'
VERT. 1" = 5'

GHD

RACER TRUST
SAGINAW, MICHIGAN

OUTFALL 24 PROFILE

Project No. **11208041**
Date **April 2020**

FIGURE 3

Data Source:

Filename: N:\CA\Waterloo\Projects\662\11208041\Digital_Design\ACAD 2018\Figures\AIELLO1\11208041(AIELLO1)GN-WA005.DWG
Plot Date: 01 April 2020 8:48 AM

LEACHATE IS PIPED TO POTW

NPDES PERMITTED OUTFALL 021 (1-FT DIAMETER)
(INLET INVERT = 584.98, OUTLET INVERT = 584.81)

6"Ø DUCTILE IRON LEACHATE FORCE MAIN FROM GM LLC LANDFILL

RIP RAP APRON

RIP RAP APRON

NPDES PERMITTED OUTFALL 024 (1-FT DIAMETER)
(INLET INVERT = 585.05, OUTLET INVERT = 584.81)

GATE VALVE

GATE VALVE

MAINTENANCE BOX

MAINTENANCE BOX

SW-104-17
BD-106-17

SW-107-17
MD-108-17
BD-109-17

DIVIDING BERM

SW-102-17
BD-103-17

SW-347-16
MD-348-16
BD-349-16
MD-350-16

1-ft DIAMETER PIPE THAT CONNECTS LAGOON 5 TO THE EASTERN PORTION OF SECONDARY POND
(BUTTERFLY VALVE IN CLOSED POSITION)

SW-330-16
SW-331-16
SW-332-16
MD-333-16

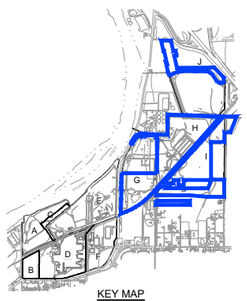
SW-343-16
ME-344-16
BD-345-16

SW-338-16
MD-339-16
BD-340-16

LEGEND

EDGE OF POND

WATER SAMPLE LOCATION



KEY MAP

0 40 80 160 ft

N

RACER TRUST
SAGINAW, MICHIGAN

SECONDARY POND WATER SAMPLE LOCATIONS

Project No. **11208041**
Date **April 2020**

FIGURE 4

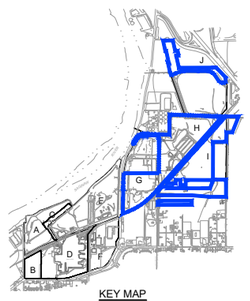
Data Source: MICHIGAN STATE PLANE SOUTH, NAD 83 USING INTERNATIONAL FEET, NGVD 88 SPICER SURVEY, OCTOBER 2009.

Filename: N:\CA\Waterloo\Projects\662\11208041\Digital_Design\ACAD 2018\Figures\AIELLO1\11208041(AIELLO1)GN-WA003.DWG
Plot Date: 01 April 2020 8:48 AM

LEGEND

SURVEYED RACER PROPERTY BOUNDARY

SURFACE WATER SAMPLE LOCATION



KEY MAP

0 25 50 100 ft

N

RACER TRUST
SAGINAW, MICHIGAN

Project No. **11208041**
Date **April 2020**

NORTH DITCH SURFACE WATER SAMPLE LOCATIONS

FIGURE 5

Filename: \\ghdnet\ghd\CA\Waterloo\Projects\662\11208041\Digital_Design\ACAD 2018\Figures\AIELLO1\11208041(AIELLO1)GN-WA004.DWG
Plot Date: 01 April 2020 10:24 AM

Data Source: MICHIGAN STATE PLANE SOUTH, NAD 83 USING INTERNATIONAL FEET, NGVD 88 SPICER SURVEY, OCTOBER 2009. AERIAL: GHD UAV ORTHOIMAGERY - MAY 3, 2016.

Table 1

Outfall 21 and Outfall 24 – Discharge Sample Results in Accordance with NPDES Testing Requirements
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**W-58502-031412-SSH-260**	**W-58502-032912-SSH-261**	**W-58502-051712-SSH-262**	**SW-040313-58502-SSH-263**	**W-58502-041613-SSH-264**	**W-58502-041713-SSH-265**	**W-58502-041913-SSH-266**	**W-58502-042213-SSH-267**	**W-58502-042313-SSH-268**	**W-58502-042413-SSH-269**
Sample Date:			**3/14/2012**	**3/29/2012**	**5/17/2012**	**4/3/2013**	**4/16/2013**	**4/17/2013**	**4/19/2013**	**4/22/2013**	**4/23/2013**	**4/24/2013**
Discharge Method:			**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**
Wet	**Units**	**NPDES Discharge Limits**										
Ammonia	mg/L	(1)	2.0 U	2.0 U	2.0 U	0.96	0.65	0.56	0.50	0.50	0.42	0.41
Ammonia-N	mg/L	(1)	-	-	-	-	-	-	-	-	-	-
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	-	-	-	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.7	2.0 U
Dissolved oxygen (DO)	mg/L	6	-	-	-	**5.54**	8.16	8.14	8.78	8.56	7.86	8.45
pH	s.u.	Between 6.5 and 9.0	-	-	-	6.56	6.68	6.61	6.93	6.88	7.28	7.30
Total suspended solids (TSS)	mg/L	70	4.0 U	4.0 U	4.0 U	4.0 U	6.0	8.0	4.0 U	6.0	9.0	8.0
Estimated Daily Flow	Million Gallons					0.31	0.86	0.95	0.72	1.08	0.62	0.31

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
NM Not Measured
5.54 Result outside NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

	CBOD5	Ammonia-N
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

Outfall 21 and Outfall 24 – Discharge Sample Results in Accordance with NPDES Testing Requirements
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**W-58502-042513-SSH-270**	**W-58502-050713-SSH-271**	**W-58502-050813-SSH-272**	**W-58502-052314-SSH-285**	**W-58502-020416-SSH-1602**	**W-58502-020516-SSH-1611**	**W-58502-021016-SSH-1612**	**W-58502-030116-SSH-1614**	**W-58502-030216-SSH-1615**
Sample Date:			**4/25/2013**	**5/7/2013**	**5/8/2013**	**5/23/2014**	**2/4/2016**	**2/5/2016**	**2/10/2016**	**3/1/2016**	**3/2/2016**
Discharge Method:			**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**
Wet	**Units**	**NPDES Discharge Limits**									
Ammonia	mg/L	(1)	0.42	0.23	0.20 U	0.20 U	-	-	-	-	-
Ammonia-N	mg/L	(1)	-	-	-	-	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.0 U	2.0 U	2.0 U	**8.5 b**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Dissolved oxygen (DO)	mg/L	6	8.08	7.82	7.81	6.77	NM	NM	NM	NM	NM
pH	s.u.	Between 6.5 and 9.0	7.21	6.62	**6.29**	6.59	8.39 J	8.39 J	8.51 J	8.74 J	8.90 J
Total suspended solids (TSS)	mg/L	70	5.0	4.0 U	4.0 U	4.0 U	6.0	6.0	4.0 U	4.0 U	4.0 U
Estimated Daily Flow	Million Gallons		0.60	0.77	0.31	0.62	0.43	0.43	0.43	0.78	0.62

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
NM Not Measured
5.54 Result outside NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

	CBOD5	Ammonia-N
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

Outfall 21 and Outfall 24 – Discharge Sample Results in Accordance with NPDES Testing Requirements
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**W-58502-040716-SSH-1647**	**W-58502-040816-SSH-1648**	**W-58502-041216-SSH-1649**	**W-58502-041316-SSH-1650**	**W-58502-062116-SSH-1651**	**W-58502-062216-SSH-1652**	**W-58502-062316-SSH-1653**	**W-58502-062816-SSH-1654**	**W-58502-062816-SSH-1654**
Sample Date:			**4/7/2016**	**4/8/2016**	**4/12/2016**	**4/13/2016**	**6/21/2016**	**6/22/2016**	**6/23/2016**	**6/27/2016**	**6/28/2016**
Discharge Method:			**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**
Wet	**Units**	**NPDES Discharge Limits**									
Ammonia	mg/L	(1)	-	-	-	-	-	-	-		-
Ammonia-N	mg/L	(1)	0.20 U	-	-	-	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.0 U	2.0 U*	2.0 U	2.0 U	2.0 U	2.0 Ub	2.0 UH	2.0 U	2.0 U
Dissolved oxygen (DO)	mg/L	6	11.84	12.41	11.97	11.96	7.91	7.8	7.07	7.07	7.46
pH	s.u.	Between 6.5 and 9.0	7.17	6.91	7.05	7.21	7.98	7.22	7.09	7.33	7.27
Total suspended solids (TSS)	mg/L	70	4.0 U	-	-	-	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Estimated Daily Flow	Million Gallons		1.51	0.94	1.09	0.62	0.54	0.36	0.36	1.62	1.80

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
NM Not Measured
5.54 Result outside NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

	CBOD5	Ammonia-N
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

Outfall 21 and Outfall 24 – Discharge Sample Results in Accordance with NPDES Testing Requirements
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**W-58502-062916-SSH-1656**	**W-58502-063016-SSH-1657**	**W-58502-070116-SSH-1658**	**W-58502-070516-SSH-1659**	**W-58502-070616-SSH-1660**	**W-58502-070716-SSH-1661**	**W-58502-070816-SSH-1662**	**W-58502-071216-SSH-1663**	**W-58502-071316-SSH-1664**
Sample Date:			**6/29/2016**	**6/30/2016**	**7/1/2016**	**7/5/2016**	**7/6/2016**	**7/7/2016**	**7/8/2016**	**7/12/2016**	**7/13/2016**
Discharge Method:			**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**
Wet	**Units**	**NPDES Discharge Limits**									
Ammonia	mg/L	(1)	-	-	-	-	-	-	-	-	-
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.0 U	2.0 U	2.4 b	2.0 U	2.0 U	2.0 U	2.0 U	2.0 UH	**7.6**
Dissolved oxygen (DO)	mg/L	6	7.54	7.32	13.22	7.83	NM	6.63	6.71	7.63	7.2
pH	s.u.	Between 6.5 and 9.0	7.91	7.55	8.89	7.84	NM	8.81	8.76	7.66	7.12
Total suspended solids (TSS)	mg/L	70	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	5.0	4.0 U	4.0 U
Estimated Daily Flow	Million Gallons		1.62	0.90	0.65	1.54	1.88	2.01	2.01	2.40	1.86

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
NM Not Measured
5.54 Result outside NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

	CBOD5	Ammonia-N
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

Outfall 21 and Outfall 24 – Discharge Sample Results in Accordance with NPDES Testing Requirements
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**W-58502-071416-SSH-1665**	**W-58502-071516-SSH-1666**	**W-58502-071916-SSH-1667**	**W-58502-072016-SSH-1668**	**W-58502-072116-SSH-1669**	**W-58502-072616-SSH-1670**	**W-58502-072716-SSH-1671**	**W-58502-072816-SSH-1672**	**W-58502-072916-SSH-1673**
Sample Date:			**7/14/2016**	**7/15/2016**	**7/19/2016**	**7/20/2016**	**7/21/2016**	**7/26/2016**	**7/27/2016**	**7/28/2016**	**7/29/2016**
Discharge Method:			**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**
Wet	**Units**	**NPDES Discharge Limits**									
Ammonia	mg/L	(1)	-	-	-	-	-	-	-	-	-
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.23	0.20 U	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.0 Ub	2.0 U	2.8 b	2.0 U	2.0 U	2.0 U	2.0 U	2.7 b	2.0 U
Dissolved oxygen (DO)	mg/L	6	7.14	7.47	7.01	7.85	7.63	7.39	7.88	7.03	7.21
pH	s.u.	Between 6.5 and 9.0	6.95	7.26	7.15	6.85	8.49	8.29	7.95	8.2	7.29
Total suspended solids (TSS)	mg/L	70	4.0 U	4.0 U	4.0	4.0 U	4.0 U	4.0 U	4.0	4.0	4.0 U
Estimated Daily Flow	Million Gallons		2.82	1.41	0.91	2.59	2.17	1.69	2.60	1.93	1.09

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
NM Not Measured
5.54 Result outside NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

	CBOD5	Ammonia-N
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

Outfall 21 and Outfall 24 – Discharge Sample Results in Accordance with NPDES Testing Requirements
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**W-58502-080216-SSH-1674**	**W-58502-080316-SSH-1675**	**W-58502-080416-SSH-1676**	**W-58502-080516-SSH-1677**	**W-58502-080916-SSH-1678**	**W-58502-081016-SSH-1679**	**W-58502-081116-SSH-1680**	**W-58502-081616-SSH-1681**	**W-58502-081716-SSH-1683**
Sample Date:			**8/2/2016**	**8/3/2016**	**8/4/2016**	**8/5/2016**	**8/9/2016**	**8/10/2016**	**8/11/2016**	**8/16/2016**	**8/17/2016**
Discharge Method:			**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**
Wet	**Units**	**NPDES Discharge Limits**									
Ammonia	mg/L	(1)	-	-	-	-	-	-	-	-	-
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	3.1 b	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.3	2.4
Dissolved oxygen (DO)	mg/L	6	7.57	8.58	8.47	8.8	6.95	7.88	8.43	NM	6.28
pH	s.u.	Between 6.5 and 9.0	7.49	7.89	8.57	7.9	7.09	7.18	8.29	8.8	7.48
Total suspended solids (TSS)	mg/L	70	5.0	4.0	4.0 U	4.0 U	5.0	4.0 U	4.0 U	4.0 U	4.0 U
Estimated Daily Flow	Million Gallons		1.21	0.73	0.73	0.60	0.60	0.48	0.50	1.23	1.01

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
NM Not Measured
5.54 Result outside NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

	CBOD5	Ammonia-N
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

Outfall 21 and Outfall 24 – Discharge Sample Results in Accordance with NPDES Testing Requirements
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**W-58502-081816-SSH-1684**	**W-58502-081916-SSH-1685**	**W-58502-082416-SSH-1686**	**W-58502-082516-SSH-1687**	**W-58502-082616-SSH-1688**	**W-58502-082716-SSH-1689**	**W-58502-082816-SSH-1690**	**W-58502-082916-SSH-1691**	**W-58502-083116-SSH-1692**
Sample Date:			**8/18/2016**	**8/19/2016**	**8/24/2016**	**8/25/2016**	**8/26/2016**	**8/27/2016**	**8/28/2016**	**8/29/2016**	**8/31/2016**
Discharge Method:			**gravity**	**gravity**	**pumping**	**pumping**	**pumping**	**pumping**	**pumping**	**pumping**	**pumping**
Wet	**Units**	**NPDES Discharge Limits**									
Ammonia	mg/L	(1)	-	-	-	-	-	-	-	-	-
Ammonia-N	mg/L	(1)	0.23	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	3.6	NM	5.8	3.9	5.2	5.9	7.2	**8.3**	**9.1**
Dissolved oxygen (DO)	mg/L	6	6.84	8.1	9.19	9.35	8.81	8.66	8.96	8.77	8.79
pH	s.u.	Between 6.5 and 9.0	7.71	8.6	8.37	8.74	7.99	7.19	7.88	7.87	7.45
Total suspended solids (TSS)	mg/L	70	4.0	4.0 U	6.0	5.0	10	10	8.0	11	9.0
Estimated Daily Flow	Million Gallons		0.85	0.73	1.06	1.19	1.28	1.31	1.50	1.78	3.00

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
NM Not Measured
5.54 Result outside NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

	CBOD5	Ammonia-N
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

Outfall 21 and Outfall 24 – Discharge Sample Results in Accordance with NPDES Testing Requirements
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**W-58502-090116-SSH-1693**	**W-58502-090216-SSH-1694**	**W-58502-090316-SSH-1695**	**W-58502-090416-SSH-1696**	**W-58502-090516-SSH-1697**	**W-58502-090616-SSH-1698**	**W-58502-090716-SSH-1699**	**W-58502-090816-SSH-1700**	**W-58502-090916-SSH-1701**
Sample Date:			**9/1/2016**	**9/2/2016**	**9/3/2016**	**9/4/2016**	**9/5/2016**	**9/6/2016**	**9/7/2016**	**9/8/2016**	**9/9/2016**
Discharge Method:			**pumping**	**pumping**	**pumping**	**pumping**	**pumping**	**pumping**	**pumping**	**pumping**	**pumping**
Wet	**Units**	**NPDES Discharge Limits**									
Ammonia	mg/L	(1)	-	-	-	-	-	-	-	-	-
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.29	0.52	0.58
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	4.6	**7.6**	5.4	4.8	5.3	6.5	**8.3**	3.1	**7.6**
Dissolved oxygen (DO)	mg/L	6	9.44	6.92	9.15	8.86	7.24	9.12	7.05	7.30	7.49
pH	s.u.	Between 6.5 and 9.0	7.06	6.75	7.94	7.99	7.27	6.84	7.02	7.04	7.17
Total suspended solids (TSS)	mg/L	70	8.0	9.0	7.0	10	6.0	12	6.0	7.0	8.0
Estimated Daily Flow	Million Gallons		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
NM Not Measured
5.54 Result outside NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

	CBOD5	Ammonia-N
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

Outfall 21 and Outfall 24 – Discharge Sample Results in Accordance with NPDES Testing Requirements
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**W-58502-091016-SSH-1702**	**W-58502-091116-SSH-1703**	**W-58502-091216-SSH-1704**	**W-58502-091119-SSH-1019**	**W-58502-091219-SSH-1319**	**W-58502-091319-SSH-1419**	**W-58502-091419-SSH-1519**	**W-58502-091519-SSH-1619**	**W-58502-091619-SSH-1719**
Sample Date:			**9/10/2016**	**9/11/2016**	**9/12/2016**	**9/11/2019**	**9/12/2019**	**9/13/2019**	**9/14/2019**	**9/15/2019**	**9/16/2019**
Discharge Method:			**pumping**	**pumping**	**pumping**	**pumping**	**pumping**	**pumping**	**pumping**	**pumping**	**pumping**
Wet	**Units**	**NPDES Discharge Limits**									
Ammonia	mg/L	(1)	-	-	-	-	-	-	-	-	-
Ammonia-N	mg/L	(1)	0.72	1.1	1.0	0.15 J	0.20 U	0.17 J	0.18 J	0.20 U	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	**8.4**	6.9	**7.9**	1.1 Jb	2.9 b	3.0 b	3.3 Hb	6.9 Hb	**14 b**
Dissolved oxygen (DO)	mg/L	6	8.23	8.09	8.09	7.9	8.1	8.6	8.9	8.5	8.8
pH	s.u.	Between 6.5 and 9.0	6.85	6.96	8.2	7.7	7.9	7.9	8	8.2	8.5
Total suspended solids (TSS)	mg/L	70	6.0	11	12	6.0	10	8.0	8.0	12	18
Estimated Daily Flow	Million Gallons		3.00	3.00	1.63	1.00	1.00	1.27	1.44	1.44	1.44

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
NM Not Measured
5.54 Result outside NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

	CBOD5	Ammonia-N
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 1

Outfall 21 and Outfall 24 – Discharge Sample Results in Accordance with NPDES Testing Requirements
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**W-58502-091919-SSH-1819**	**W-58502-092019-SSH-1919**	**W-58502-092419-SSH-2019**	**W-58502-092519-SSH-2119**	**W-58502-092619-SSH-2219**	**W-58502-092719-SSH-2319**	**W-58502-100119-SSH-2419**	**W-58502-100219-SSH-2619**	**W-58502-100319-SSH-2919**
Sample Date:			**9/19/2019**	**9/20/2019**	**9/24/2019**	**9/25/2019**	**9/26/2019**	**9/27/2019**	**10/1/2019**	**10/2/2019**	**10/3/2019**
Discharge Method:			**pumping**	**pumping**	**pumping**	**pumping**	**pumping**	**pumping**	**pumping**	**pumping**	**pumping**
Wet	**Units**	**NPDES Discharge Limits**									
Ammonia	mg/L	(1)	-	-	-	-	-	-	-	-	-
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.11 J	0.14 J
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	**8.2 b**	**9.9 b**	**9.0**	**29 b**	2.8 b	**8.0 b**	11	10 H	9.7
Dissolved oxygen (DO)	mg/L	6	8.6	9.9	9.1	9.3	9.4	9.2	8.7	8.8	9.4
pH	s.u.	Between 6.5 and 9.0	8.8	9	8.3	7.9	7.9	7.8	7.7	7.9	7.8
Total suspended solids (TSS)	mg/L	70	12	9.0	10	13	9.0	11	16	17	14
Estimated Daily Flow	Million Gallons		1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.40	0.90

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
NM Not Measured
5.54 Result outside NPDES discharge limits

(1) Acceptable values for CBOD5 and Ammonia-N are provided below

	CBOD5	Ammonia-N
May - September	7.2	2.5
October - November	13	5.8
December - March	28	10
April	39	(report)

Table 2

Outfall 22 – Discharge Sample Results in Accordance with NPDES Testing Requirements
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:			OUTFALL22	OUTFALL22	OUTFALL22	OUTFALL22	OUTFALL22	OUTFALL22	OUTFALL22	OUTFALL22	OUTFALL22	OUTFALL22
Sample ID:			**W-58502-041414-SSH-283**	**W-58502-051614-SSH-284**	**W-58502-112614-SSH-14011**	**W-58502-041015-SSH-1558**	**W-58502-061615-SSH-1560**	**W-58502-090415-SSH-ND2**	**W-58502-020316-SSH-1601**	**W-58502-022916-SSH-1613**	**W-58502-031016-SSH-1616**	**W-58502-031616-SSH-1617**
Sample Date:			**4/14/2014**	**5/16/2014**	**11/26/2014**	**4/10/2015**	**6/16/2015**	**9/4/2015**	**2/3/2016**	**2/29/2016**	**3/10/2016**	**3/16/2016**
Discharge Method:			**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**
Parameters	**Units**	**NPDES Discharge Limits**										
Wet												
pH	s.u.	Between 6.5 to 9.0	7.6	7.75	7.7	7.84	7.66	7.58	7.44 J	8.22 J	7.68 J	7.79 J
Total suspended solids (TSS)	mg/L	70	5.0	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	5.0	4.0 U	4.0	5.0
Estimated Daily Flow	Million Gallons		0.022	0.096	0.002	0.009	0.010	0.002	0.017	0.002	0.001	0.101

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
NM Not Measured

Table 2

Outfall 22 – Discharge Sample Results in Accordance with NPDES Testing Requirements
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:			**OUTFALL22**	**OUTFALL22**	**OUTFALL22**	**OUTFALL22**	**OUTFALL22**	**OUTFALL22**	**OUTFALL22**	**OUTFALL22**	**OUTFALL22**	**OUTFALL22**
Sample ID:			**SW-58502-033116-JY-001**	**W-58502-081616-SSH-1682**	**W-58502-030117-SSH-17001**	**W-58502-040417-SSH-17002**	**W-58502-041117-SSH-17003**	**W-58502-042017-SSH-17004**	**W-58502-050117-SSH-17005**	**W-58502-022118-SSH-1801**	**W-58502-041718-SSH-1806**	**W-58502-083018-SSH-1850**
Sample Date:			**3/31/2016**	**8/16/2016**	**3/1/2017**	**4/4/2017**	**4/11/2017**	**4/20/2017**	**5/1/2017**	**2/21/2018**	**4/17/2018**	**8/30/2018**
Discharge Method:			**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**
Parameters	**Units**	**NPDES Discharge Limits**										
Wet												
pH	s.u.	Between 6.5 to 9.0	8.3	7.6	7.7	7.7	7.8	7.8	7.8	7.6	7.6	7.6
Total suspended solids (TSS)	mg/L	70	4.0	4.0 U	4.0 U	4.0 U	4.0 U	7.0	4.0 U	4.0 U	4.0 U	4.0 U
Estimated Daily Flow	Million Gallons		0.034	0.580	0.014	0.045	0.139	0.007	0.007	0.231	0.080	0.070

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
NM Not Measured

Table 2

Outfall 22 – Discharge Sample Results in Accordance with NPDES Testing Requirements
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:			**OUTFALL22**	**OUTFALL22**	**OUTFALL22**	**OUTFALL22**	**OUTFALL22**	**OUTFALL22**	**OUTFALL22**	**OUTFALL22**	**OUTFALL22**	**OUTFALL22**
Sample ID:			**W-58502-100218-SSH-1851**	**W-58502-031519-SSH-01019**	**W-58502-041719-SSH-02019**	**W-58502-060619-SSH-04019**	**W-58502-061419-SSH-05019**	**W-58502-100219-SSH-2519**	**W-58502-102819-SSH-3019**	**W-58502-120319-SSH-4719**	**W-58502-011420-SSH-0120**	**W-58502-012820-SSH-0220**
Sample Date:			**10/2/2018**	**3/15/2019**	**4/17/2019**	**6/6/2019**	**6/14/2019**	**10/2/2019**	**10/28/2019**	**12/3/2019**	**1/14/2020**	**1/28/2020**
Discharge Method:			**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**	**gravity**
Parameters	**Units**	**NPDES Discharge Limits**										
Wet												
pH	s.u.	Between 6.5 to 9.0	7.6	7.7	7.7	7.7	7.5	7.7	8.3	7.5	7.4	7.4
Total suspended solids (TSS)	mg/L	70	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	9.0	4.0 U	3.0 J	4.0 U	4.0 U
Estimated Daily Flow	Million Gallons		0.124	0.133	0.058	0.013	0.012	0.099	NM	0.235	0.007	0.023

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
NM Not Measured

Table 3

Secondary Pond –Water Characterization Results
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:							**SW-330-16**	**SW-331-16**	**SW-332-16**	**SW-338-16**	**SW-343-16**	**SW-347-16**	**MD-339-16**
Sample ID:							**W-58502-031616-SSH-1618**	**W-58502-031616-SSH-1619**	**W-58502-031616-SSH-1620**	**W-58502-032416-SSH-1635**	**W-58502-032416-SSH-1632**	**W-58502-031716-SSH-1621**	**W-58502-032416-SSH-1636**
Sample Date:							**3/16/2016**	**3/16/2016**	**3/16/2016**	**3/24/2016**	**3/24/2016**	**3/17/2016**	**3/24/2016**
Parameters	**Units**	**Res/Non_Res/GW SW Interface**	**Rule 57 Surface Water/FCV**	**Rule 57 Surface Water/HCV Drink**	**Rule 57 Surface Water/HNV Drink**	**Rule 57 Surface Water/WV**							
VOAs		a	b	c	d	e							
1,1,1-Trichloroethane	mg/L	0.089	0.089	-	62	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	mg/L	0.078	0.2	0.0032	0.18	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	mg/L	0.33	0.73	0.012	0.11	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	mg/L	0.74	0.74	-	9.8	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	mg/L	0.13	0.13	-	1.2	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2,4-Trichlorobenzene	mg/L	0.099	0.13	-	0.08	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/L	-	-	0.00024	-	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dibromoethane (Ethylene dibromide)	mg/L	0.0057	0.015	0.00017	0.25	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	mg/L	0.013	0.013	-	2	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloroethane	mg/L	0.36	2	0.006	6.9	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	mg/L	0.23	0.23	0.0091	12	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	mg/L	0.028	0.028	-	0.037	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,4-Dichlorobenzene	mg/L	0.017	0.017	0.024	1.1	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/L	2.2	2.2	-	17	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
2-Hexanone	mg/L	-	-	-	9.7	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/L	-	-	-	-	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Acetone	mg/L	1.7	1.7	-	5.6	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzene	mg/L	0.2	0.2	0.012	0.019	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	mg/L	-	-	0.0068	0.17	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromoform	mg/L	-	-	0.052	0.47	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromomethane (Methyl bromide)	mg/L	0.035	0.0042	-	0.039	-	0.001 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.001 U	0.001 U
Carbon disulfide	mg/L	-	-	-	1	-	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Carbon tetrachloride	mg/L	0.045	0.077	0.0047	0.018	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	mg/L	0.025	0.025	-	0.47	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroethane	mg/L	1.1	1.1	0.17	500	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform (Trichloromethane)	mg/L	0.35	0.63	-	0.35	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane (Methyl chloride)	mg/L	-	-	0.11	3.5	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	mg/L	0.62	0.62	-	0.88	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	mg/L	-	0.009	0.0033	0.93	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cyclohexane	mg/L	-	-	-	-	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	mg/L	-	-	0.0068	0.57	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorodifluoromethane (CFC-12)	mg/L	-	-	-	2.9	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Ethylbenzene	mg/L	0.018	0.018	0.025	2.1	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Isopropyl benzene	mg/L	0.028	0.028	-	1.7	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Methyl acetate	mg/L	-	-	-	-	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Methyl cyclohexane	mg/L	-	-	-	-	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Methyl tert butyl ether (MTBE)	mg/L	7.1	32	0.1	0.92	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Methylene chloride	mg/L	1.5	1.5	0.047	1.6	-	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Styrene	mg/L	0.08	0.16	0.02	4.2	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Tetrachloroethene	mg/L	0.06	0.19	0.011	0.32	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Toluene	mg/L	0.27	0.27	-	5.6	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	mg/L	1.5	1.5	-	0.47	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	mg/L	-	0.009	0.0033	0.93	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	mg/L	0.2	0.2	0.029	0.044	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichlorofluoromethane (CFC-11)	mg/L	-	-	-	-	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trifluorotrichloroethane (CFC-113)	mg/L	0.032	0.032	-	444	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	mg/L	0.013	0.93	0.00025	0.083	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Xylenes (total)	mg/L	0.041	0.049	-	3.8	-	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
SVOAs													
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/L	-	-	0.006	0.99	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
2,4,5-Trichlorophenol	mg/L	-	-	-	-	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
2,4,6-Trichlorophenol	mg/L	0.005	0.005	0.041	1.9	-	0.0038 U	0.0038 U	0.0038 U	0.0042 U	0.0042 U	0.0038 U	0.0042 U
2,4-Dichlorophenol	mg/L	0.011	0.011	-	0.22	-	0.0095 U	0.0095 U	0.0095 U	0.01 U	0.01 U	0.0095 U	0.01 U
2,4-Dimethylphenol	mg/L	0.38	0.38	-	0.45	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
2,4-Dinitrophenol	mg/L	-	0.019	-	0.055	-	0.019 U	0.019 U	0.019 U	0.021 U	0.021 U	0.019 U	0.021 U
2,4-Dinitrotoluene	mg/L	-	-	-	-	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
2,6-Dinitrotoluene	mg/L	-	-	-	-	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
2-Chloronaphthalene	mg/L	-	-	-	-	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
2-Chlorophenol	mg/L	0.018	0.018	-	0.19	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
2-Methylnaphthalene	mg/L	0.019	0.019	-	0.6	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
2-Methylphenol	mg/L	0.03	0.076	-	1.4	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
2-Nitroaniline	mg/L	-	-	-	-	-	0.019 U	0.019 U	0.019 U	0.021 U	0.021 U	0.019 U	0.021 U
2-Nitrophenol	mg/L	-	0.056	-	-	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
3&4-Methylphenol	mg/L	0.03	0.025	-	1.4	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
3,3'-Dichlorobenzidine	mg/L	0.0003	0.0045	0.00014	0.65	-	0.00095 U	0.00095 U	0.00095 U	0.001 U	0.001 U	0.00095 U	0.001 U
3-Nitroaniline	mg/L	-	-	-	-	-	0.019 U	0.019 U	0.019 U	0.021 U	0.021 U	0.019 U	0.021 U
4,6-Dinitro-2-methylphenol	mg/L	-	-	-	-	-	0.019 U	0.019 U	0.019 U	0.021 U	0.021 U	0.019 U	0.021 U
4-Bromophenyl phenyl ether	mg/L	-	-	-	-	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
4-Chloro-3-methylphenol	mg/L	0.0074	0.0074	-	6.9	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
4-Chloroaniline	mg/L	-	-	0.002	0.039	-	0.0095 U	0.0095 U	0.0095 U	0.01 U	0.01 U	0.0095 U	0.01 U
4-Chlorophenyl phenyl ether	mg/L	-	-	-	-	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
4-Nitroaniline	mg/L	-	-	-	-	-	0.019 U	0.019 U	0.019 U	0.021 U	0.021 U	0.019 U	0.021 U
4-Nitrophenol	mg/L	-	0.2	-	0.68	-	0.019 U	0.019 U	0.019 U	0.021 U	0.021 U	0.019 U	0.021 U

Table 3

Secondary Pond –Water Characterization Results
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:							SW-330-16	SW-331-16	SW-332-16	SW-338-16	SW-343-16	SW-347-16	MD-339-16
Sample ID:							W-58502-031616-SSH-1618	W-58502-031616-SSH-1619	W-58502-031616-SSH-1620	W-58502-032416-SSH-1635	W-58502-032416-SSH-1632	W-58502-031716-SSH-1621	W-58502-032416-SSH-1636
Sample Date:							3/16/2016	3/16/2016	3/16/2016	3/24/2016	3/24/2016	3/17/2016	3/24/2016
Parameters	**Units**	**Res/Non_Res/GW SW Interface**		**Rule 57 Surface Water/FCV**	**Rule 57 Surface Water/HCV Drink**	**Rule 57 Surface Water/HNV Drink**	**Rule 57 Surface Water/WV**						
SVOAs cont'd													
Acenaphthene	mg/L	0.038		0.038	-	0.58	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Acenaphthylene	mg/L	-		-	-	-	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Acetophenone	mg/L	-		-	-	-	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Anthracene	mg/L	-		-	-	1.9	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Atrazine	mg/L	0.0073		0.0073	-	0.88	-	0.0029 U	0.0029 U	0.0029 U	0.0031 U	0.0031 U	0.0029 U	0.0031 U
Benzaldehyde	mg/L	-		-	-	-	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Benzo(a)anthracene	mg/L	-		-	-	-	-	0.00095 U	0.00095 U	0.00095 U	0.001 U	0.001 U	0.00095 U	0.001 U
Benzo(a)pyrene	mg/L	-		-	-	-	-	0.00095 U	0.00095 U	0.00095 U	0.001 U	0.001 U	0.00095 U	0.001 U
Benzo(b)fluoranthene	mg/L	-		-	-	-	-	0.00095 U	0.00095 U	0.00095 U	0.001 U	0.001 U	0.00095 U	0.001 U
Benzo(g,h,i)perylene	mg/L	-		-	-	-	-	0.00095 U	0.00095 U	0.00095 U	0.001 U	0.001 U	0.00095 U	0.001 U
Benzo(k)fluoranthene	mg/L	-		-	-	-	-	0.00095 U	0.00095 U	0.00095 U	0.001 U	0.001 U	0.00095 U	0.001 U
Biphenyl (1,1-Biphenyl)	mg/L	-		0.013	-	0.46	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
bis(2-Chloroethoxy)methane	mg/L	-		-	-	-	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
bis(2-Chloroethyl)ether	mg/L	0.001		-	0.00079	-	-	0.00095 U	0.00095 U	0.00095 U	0.001 U	0.001 U	0.00095 U	0.001 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/L	0.025		-	0.014	0.12	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Butyl benzylphthalate (BBP)	mg/L	0.067		0.067	-	0.0069	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Caprolactam	mg/L	-		-	-	-	-	0.0095 U	0.0095 U	0.0095 U	0.01 U	0.01 U	0.0095 U	0.01 U
Carbazole	mg/L	0.01		0.004	0.019	-	-	0.0095 U	0.0095 U	0.0095 U	0.01 U	0.01 U	0.0095 U	0.01 U
Chrysene	mg/L	-		-	-	-	-	0.00095 U	0.00095 U	0.00095 U	0.001 U	0.001 U	0.00095 U	0.001 U
Dibenz(a,h)anthracene	mg/L	-		-	-	-	-	0.0019 U	0.0019 U	0.0019 U	0.0021 U	0.0021 U	0.0019 U	0.0021 U
Dibenzofuran	mg/L	0.004		0.004	-	-	-	0.0038 U	0.0038 U	0.0038 U	0.0042 U	0.0042 U	0.0038 U	0.0042 U
Diethyl phthalate	mg/L	0.11		0.11	-	14	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Dimethyl phthalate	mg/L	-		-	-	-	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Di-n-butylphthalate (DBP)	mg/L	0.0097		0.0097	-	0.64	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Di-n-octyl phthalate (DnOP)	mg/L	-		-	-	0.24	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Fluoranthene	mg/L	0.0016		0.0016	-	0.018	-	0.00095 U	0.00095 U	0.00095 U	0.001 U	0.001 U	0.00095 U	0.001 U
Fluorene	mg/L	0.012		0.012	-	0.14	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Hexachlorobenzene	mg/L	0.0002		-	0.00000045	0.000046	0.0000003	0.00019 U	0.00019 U	0.00019 U	0.00021 U	0.00021 U	0.00019 U	0.00021 U
Hexachlorobutadiene	mg/L	0.000053		0.001	0.00033	0.000093	0.000053	0.00095 U	0.00095 U	0.00095 U	0.001 U	0.001 U	0.00095 U	0.001 U
Hexachlorocyclopentadiene	mg/L	-		-	-	0.14	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Hexachloroethane	mg/L	0.0067		0.013	0.0053	0.006	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Indeno(1,2,3-cd)pyrene	mg/L	-		-	-	-	-	0.0019 U	0.0019 U	0.0019 U	0.0021 U	0.0021 U	0.0019 U	0.0021 U
Isophorone	mg/L	1.3		1.3	0.31	4.1	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Naphthalene	mg/L	0.011		0.011	-	1.1	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Nitrobenzene	mg/L	0.18		0.23	0.0047	0.026	-	0.0029 U	0.0029 U	0.0029 U	0.0031 U	0.0031 U	0.0029 U	0.0031 U
N-Nitrosodi-n-propylamine	mg/L	-		-	-	-	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
N-Nitrosodiphenylamine	mg/L	-		-	-	-	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Pentachlorophenol	mg/L	-		-	0.0018	0.3	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Phenanthrene	mg/L	0.002		0.0017	-	-	-	0.0019 U	0.0019 U	0.0019 U	0.0021 U	0.0021 U	0.0019 U	0.0021 U
Phenol	mg/L	0.45		0.45	-	1.1	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Pyrene	mg/L	-		-	-	0.015	-	0.0048 U	0.0048 U	0.0048 U	0.0052 U	0.0052 U	0.0048 U	0.0052 U
Metals														
Aluminum	mg/L	-		-	-	-	-	0.19	0.1	0.14	0.1	0.1	0.078	0.12
Antimony	mg/L	0.13		0.24	-	0.0017	-	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Arsenic	mg/L	0.01		0.15	0.01	0.01	-	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Barium	mg/L	0.69	(1)	-	-	1.9	-	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Beryllium	mg/L	0.0072	(1)	-	-	0.16	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium	mg/L	0.0031	(1)	-	-	0.0025	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	mg/L	-		-	-	-	-	55	53	52	62	67	54	62
Chromium	mg/L	0.11	(1)(2)	-	-	0.12	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	mg/L	0.1		0.1	-	-	-	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Copper	mg/L	0.013	(1)	-	-	0.47	-	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Iron	mg/L	-		-	-	-	-	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Lead	mg/L	0.029	(1)	-	-	0.014	-	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	mg/L	-		-	-	-	-	18	18	18	17	18	18	17
Manganese	mg/L	2.90	(1)	-	-	1.3	-	0.13	0.13	0.13	0.31	0.34	0.17	0.31
Mercury	mg/L	0.0000013		-	-	0.0000018	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	mg/L	0.075	(1)	-	-	2.6	-	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Potassium	mg/L	-		-	-	-	-	12	12	12	13	15	12	13
Selenium	mg/L	0.005		0.005	-	0.12	-	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Silver	mg/L	0.0002		0.00006	-	0.13	-	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Sodium	mg/L	-		-	-	-	-	150	150	150	200	220	150	200
Thallium	mg/L	0.0037		0.0072	-	0.0012	-	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Vanadium	mg/L	0.027		0.027	-	0.053	-	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Zinc	mg/L	0.17	(1)	-	-	3.3	-	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U

Table 3

Secondary Pond –Water Characterization Results
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:								**SW-330-16**	**SW-331-16**	**SW-332-16**	**SW-338-16**	**SW-343-16**	**SW-347-16**	**MD-339-16**
Sample ID:								**W-58502-031616-SSH-1618**	**W-58502-031616-SSH-1619**	**W-58502-031616-SSH-1620**	**W-58502-032416-SSH-1635**	**W-58502-032416-SSH-1632**	**W-58502-031716-SSH-1621**	**W-58502-032416-SSH-1636**
Sample Date:								**3/16/2016**	**3/16/2016**	**3/16/2016**	**3/24/2016**	**3/24/2016**	**3/17/2016**	**3/24/2016**
Parameters	**Units**	**Res/Non_Res/GW SW Interface**		**Rule 57 Surface Water/FCV**	**Rule 57 Surface Water/HCV Drink**	**Rule 57 Surface Water/HNV Drink**	**Rule 57 Surface Water/WV**							
PCBs														
Aroclor-1016 (PCB-1016)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000096 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000096 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000096 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000096 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000096 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000096 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000096 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	-	-	-	-	-	-	-
Aroclor-1268 (PCB-1268)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	-	-	-	-	-	-	-
Wet														
Ammonia-N	mg/L	-		-	-	-	-	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	-	0.20 U
Unionized Ammonia	mg/L	0.42	(4)	0.029	-	-	-							
Biochemical oxygen demand (carbonaceous)	mg/L	-		-	-	-	-	2.0 U	2.0 U	2.0 U	5.6	5.9	-	6.0
Formaldehyde	mg/L	0.12		0.18	-	5	-	-	-	-	0.050 U	0.050 U	-	0.050 U
Total suspended solids (TSS)	mg/L	-		-	-	-	-	-	-	-	-	-	-	-

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
UJ Not detected; associated reporting limit is estimated.
(1) Calculated GSI value, based on assumed value of hardness of 154.3 mg/kg (average calculated in the North Ditch - 2013)
(2) Chromium III criteria utilized since speciated data in the RFI indicated the available chromium was chromium III
(3) PCB TSCA Criteria.
(4) Site-specific unionized ammonia. Unionized ammonia is calculated utilizing the ammonia toxicity equation taken from Steven C. Chapra "Surface Water-Quality Modeling", McGraw-Hill Series in Water Resources and Environmental Engineering 1997. Calculation utilitizes pH (assumed to be 7.5) and temperature (assumed to be 10 degrees C) of the water, as well as, the pH (assumed to be 7.75) and temperature (assumed to be 10 degrees C) of the receiving water (Saginaw River).

Table 3

Secondary Pond –Water Characterization Results
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:							**MD-344-16**	**MD-348-16**	**MD-350-16**	**BD-340-16**	**BD-345-16**	**BD-349-16**	**SW-102-17**
Sample ID:							**W-58502-032416-SSH-1633**	**W-58502-031716-SSH-1622**	**W-58502-032416-SSH-1644**	**W-58502-032416-SSH-1637**	**W-58502-032416-SSH-1634**	**W-58502-031716-SSH-1623**	**W-58502-091117-SSH-102**
Sample Date:							**3/24/2016**	**3/17/2016**	**3/24/2016**	**3/24/2016**	**3/24/2016**	**3/17/2016**	**9/11/2017**
Parameters	**Units**	**Res/Non_Res/GW SW Interface**	**Rule 57 Surface Water/FCV**	**Rule 57 Surface Water/HCV Drink**	**Rule 57 Surface Water/HNV Drink**	**Rule 57 Surface Water/WV**							
VOAs		a	b	c	d	e							
1,1,1-Trichloroethane	mg/L	0.089	0.089	-	62	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
1,1,2,2-Tetrachloroethane	mg/L	0.078	0.2	0.0032	0.18	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
1,1,2-Trichloroethane	mg/L	0.33	0.73	0.012	0.11	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
1,1-Dichloroethane	mg/L	0.74	0.74	-	9.8	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
1,1-Dichloroethene	mg/L	0.13	0.13	-	1.2	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
1,2,4-Trichlorobenzene	mg/L	0.099	0.13	-	0.08	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/L	-	-	0.00024	-	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
1,2-Dibromoethane (Ethylene dibromide)	mg/L	0.0057	0.015	0.00017	0.25	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
1,2-Dichlorobenzene	mg/L	0.013	0.013	-	2	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
1,2-Dichloroethane	mg/L	0.36	2	0.006	6.9	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
1,2-Dichloropropane	mg/L	0.23	0.23	0.0091	12	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
1,3-Dichlorobenzene	mg/L	0.028	0.028	-	0.037	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
1,4-Dichlorobenzene	mg/L	0.017	0.017	0.024	1.1	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/L	2.2	2.2	-	17	-	0.01 U	0.01 U	-	0.01 U	0.01 U	0.01 U	-
2-Hexanone	mg/L	-	-	-	9.7	-	0.01 U	0.01 U	-	0.01 U	0.01 U	0.01 U	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/L	-	-	-	-	-	0.01 U	0.01 U	-	0.01 U	0.01 U	0.01 U	-
Acetone	mg/L	1.7	1.7	-	5.6	-	0.01 U	0.01 U	-	0.01 U	0.01 U	0.01 U	-
Benzene	mg/L	0.2	0.2	0.012	0.019	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Bromodichloromethane	mg/L	-	-	0.0068	0.17	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Bromoform	mg/L	-	-	0.052	0.47	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Bromomethane (Methyl bromide)	mg/L	0.035	0.0042	-	0.039	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Carbon disulfide	mg/L	-	-	-	1	-	0.005 U	0.005 U	-	0.005 U	0.005 U	0.005 U	-
Carbon tetrachloride	mg/L	0.045	0.077	0.0047	0.018	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Chlorobenzene	mg/L	0.025	0.025	-	0.47	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Chloroethane	mg/L	1.1	1.1	0.17	500	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Chloroform (Trichloromethane)	mg/L	0.35	0.63	-	0.35	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Chloromethane (Methyl chloride)	mg/L	-	-	0.11	3.5	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
cis-1,2-Dichloroethene	mg/L	0.62	0.62	-	0.88	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
cis-1,3-Dichloropropene	mg/L	-	0.009	0.0033	0.93	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Cyclohexane	mg/L	-	-	-	-	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Dibromochloromethane	mg/L	-	-	0.0068	0.57	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Dichlorodifluoromethane (CFC-12)	mg/L	-	-	-	2.9	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Ethylbenzene	mg/L	0.018	0.018	0.025	2.1	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Isopropyl benzene	mg/L	0.028	0.028	-	1.7	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Methyl acetate	mg/L	-	-	-	-	-	0.01 U	0.01 U	-	0.01 U	0.01 U	0.01 U	-
Methyl cyclohexane	mg/L	-	-	-	-	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Methyl tert butyl ether (MTBE)	mg/L	7.1	32	0.1	0.92	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Methylene chloride	mg/L	1.5	1.5	0.047	1.6	-	0.005 U	0.005 U	-	0.005 U	0.005 U	0.005 U	-
Styrene	mg/L	0.08	0.16	0.02	4.2	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Tetrachloroethene	mg/L	0.06	0.19	0.011	0.32	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Toluene	mg/L	0.27	0.27	-	5.6	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
trans-1,2-Dichloroethene	mg/L	1.5	1.5	-	0.47	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
trans-1,3-Dichloropropene	mg/L	-	0.009	0.0033	0.93	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Trichloroethene	mg/L	0.2	0.2	0.029	0.044	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Trichlorofluoromethane (CFC-11)	mg/L	-	-	-	-	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Trifluorotrichloroethane (CFC-113)	mg/L	0.032	0.032	-	444	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Vinyl chloride	mg/L	0.013	0.93	0.00025	0.083	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	-
Xylenes (total)	mg/L	0.041	0.049	-	3.8	-	0.002 U	0.002 U	-	0.002 U	0.002 U	0.002 U	-
SVOAs													
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/L	-	-	0.006	0.99	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
2,4,5-Trichlorophenol	mg/L	-	-	-	-	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
2,4,6-Trichlorophenol	mg/L	0.005	0.005	0.041	1.9	-	0.0042 U	0.004 U	-	0.0038 U	0.0042 U	0.0039 U	-
2,4-Dichlorophenol	mg/L	0.011	0.011	-	0.22	-	0.01 U	0.01 U	-	0.0095 U	0.01 U	0.0098 U	-
2,4-Dimethylphenol	mg/L	0.38	0.38	-	0.45	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
2,4-Dinitrophenol	mg/L	-	0.019	-	0.055	-	0.021 U	0.02 U	-	0.019 U	0.021 U	0.02 U	-
2,4-Dinitrotoluene	mg/L	-	-	-	-	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
2,6-Dinitrotoluene	mg/L	-	-	-	-	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
2-Chloronaphthalene	mg/L	-	-	-	-	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
2-Chlorophenol	mg/L	0.018	0.018	-	0.19	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
2-Methylnaphthalene	mg/L	0.019	0.019	-	0.6	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
2-Methylphenol	mg/L	0.03	0.076	-	1.4	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
2-Nitroaniline	mg/L	-	-	-	-	-	0.021 U	0.02 U	-	0.019 U	0.021 U	0.02 U	-
2-Nitrophenol	mg/L	-	0.056	-	-	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
3&4-Methylphenol	mg/L	0.03	0.025	-	1.4	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
3,3'-Dichlorobenzidine	mg/L	0.0003	0.0045	0.00014	0.65	-	0.001 U	0.001 U	-	0.00095 U	0.001 U	0.00098 U	-
3-Nitroaniline	mg/L	-	-	-	-	-	0.021 U	0.02 U	-	0.019 U	0.021 U	0.02 U	-
4,6-Dinitro-2-methylphenol	mg/L	-	-	-	-	-	0.021 U	0.02 U	-	0.019 U	0.021 U	0.02 U	-
4-Bromophenyl phenyl ether	mg/L	-	-	-	-	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
4-Chloro-3-methylphenol	mg/L	0.0074	0.0074	-	6.9	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
4-Chloroaniline	mg/L	-	-	0.002	0.039	-	0.01 U	0.01 U	-	0.0095 U	0.01 U	0.0098 U	-
4-Chlorophenyl phenyl ether	mg/L	-	-	-	-	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
4-Nitroaniline	mg/L	-	-	-	-	-	0.021 U	0.02 U	-	0.019 U	0.021 U	0.02 U	-
4-Nitrophenol	mg/L	-	0.2	-	0.68	-	0.021 U	0.02 U	-	0.019 U	0.021 U	0.02 U	-

Table 3

Secondary Pond –Water Characterization Results
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:							MD-344-16	MD-348-16	MD-350-16	BD-340-16	BD-345-16	BD-349-16	SW-102-17
Sample ID:							W-58502-032416-SSH-1633	W-58502-031716-SSH-1622	W-58502-032416-SSH-1644	W-58502-032416-SSH-1637	W-58502-032416-SSH-1634	W-58502-031716-SSH-1623	W-58502-091117-SSH-102
Sample Date:							3/24/2016	3/17/2016	3/24/2016	3/24/2016	3/24/2016	3/17/2016	9/11/2017
Parameters	**Units**	**Res/Non_Res/GW SW Interface**		**Rule 57 Surface Water/FCV**	**Rule 57 Surface Water/HCV Drink**	**Rule 57 Surface Water/HNV Drink**	**Rule 57 Surface Water/WV**						
SVOAs cont'd													
Acenaphthene	mg/L	0.038		0.038	-	0.58	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Acenaphthylene	mg/L	-		-	-	-	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Acetophenone	mg/L	-		-	-	-	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Anthracene	mg/L	-		-	-	1.9	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Atrazine	mg/L	0.0073		0.0073	-	0.88	-	0.0031 U	0.003 U	-	0.0029 U	0.0031 U	0.0029 U	-
Benzaldehyde	mg/L	-		-	-	-	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Benzo(a)anthracene	mg/L	-		-	-	-	-	0.001 U	0.001 U	-	0.00095 U	0.001 U	0.00098 U	-
Benzo(a)pyrene	mg/L	-		-	-	-	-	0.001 U	0.001 U	-	0.00095 U	0.001 U	0.00098 U	-
Benzo(b)fluoranthene	mg/L	-		-	-	-	-	0.001 U	0.001 U	-	0.00095 U	0.001 U	0.00098 U	-
Benzo(g,h,i)perylene	mg/L	-		-	-	-	-	0.001 U	0.001 U	-	0.00095 U	0.001 U	0.00098 U	-
Benzo(k)fluoranthene	mg/L	-		-	-	-	-	0.001 U	0.001 U	-	0.00095 U	0.001 U	0.00098 U	-
Biphenyl (1,1-Biphenyl)	mg/L	-		0.013	-	0.46	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
bis(2-Chloroethoxy)methane	mg/L	-		-	-	-	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
bis(2-Chloroethyl)ether	mg/L	0.001		-	0.00079	-	-	0.001 U	0.001 U	-	0.00095 U	0.001 U	0.00098 U	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/L	0.025		-	0.014	0.12	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Butyl benzylphthalate (BBP)	mg/L	0.067		0.067	-	0.0069	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Caprolactam	mg/L	-		-	-	-	-	0.01 U	0.01 U	-	0.0095 U	0.01 U	0.0098 U	-
Carbazole	mg/L	0.01		0.004	0.019	-	-	0.01 U	0.01 U	-	0.0095 U	0.01 U	0.0098 U	-
Chrysene	mg/L	-		-	-	-	-	0.001 U	0.001 U	-	0.00095 U	0.001 U	0.00098 U	-
Dibenz(a,h)anthracene	mg/L	-		-	-	-	-	0.0021 U	0.002 U	-	0.0019 U	0.0021 U	0.002 U	-
Dibenzofuran	mg/L	0.004		0.004	-	-	-	0.0042 U	0.004 U	-	0.0038 U	0.0042 U	0.0039 U	-
Diethyl phthalate	mg/L	0.11		0.11	-	14	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Dimethyl phthalate	mg/L	-		-	-	-	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Di-n-butylphthalate (DBP)	mg/L	0.0097		0.0097	-	0.64	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Di-n-octyl phthalate (DnOP)	mg/L	-		-	-	0.24	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Fluoranthene	mg/L	0.0016		0.0016	-	0.018	-	0.001 U	0.001 U	-	0.00095 U	0.001 U	0.00098 U	-
Fluorene	mg/L	0.012		0.012	-	0.14	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Hexachlorobenzene	mg/L	0.0002		-	0.00000045	0.000046	0.0000003	0.00021 U	0.0002 U	-	0.00019 U	0.00021 U	0.0002 U	-
Hexachlorobutadiene	mg/L	0.000053		0.001	0.00033	0.000093	0.000053	0.001 U	0.001 U	-	0.00095 U	0.001 U	0.00098 U	-
Hexachlorocyclopentadiene	mg/L	-		-	-	0.14	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Hexachloroethane	mg/L	0.0067		0.013	0.0053	0.006	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Indeno(1,2,3-cd)pyrene	mg/L	-		-	-	-	-	0.0021 U	0.002 U	-	0.0019 U	0.0021 U	0.002 U	-
Isophorone	mg/L	1.3		1.3	0.31	4.1	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Naphthalene	mg/L	0.011		0.011	-	1.1	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Nitrobenzene	mg/L	0.18		0.23	0.0047	0.026	-	0.0031 U	0.003 U	-	0.0029 U	0.0031 U	0.0029 U	-
N-Nitrosodi-n-propylamine	mg/L	-		-	-	-	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
N-Nitrosodiphenylamine	mg/L	-		-	-	-	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Pentachlorophenol	mg/L	-		-	0.0018	0.3	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Phenanthrene	mg/L	0.002		0.0017	-	-	-	0.0021 U	0.002 U	-	0.0019 U	0.0021 U	0.002 U	-
Phenol	mg/L	0.45		0.45	-	1.1	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Pyrene	mg/L	-		-	-	0.015	-	0.0052 U	0.005 U	-	0.0048 U	0.0052 U	0.0049 U	-
Metals													
Aluminum	mg/L	-		-	-	-	-	0.13	0.092	-	0.1	0.11	0.092	0.053
Antimony	mg/L	0.13		0.24	-	0.0017	-	0.002 U	0.002 U	-	0.002 U	0.002 U	0.002 U	**0.0063**[d]
Arsenic	mg/L	0.01		0.15	0.01	0.01	-	0.005 U	0.005 U	-	0.005 U	0.005 U	0.005 U	0.005 U
Barium	mg/L	0.69	(1)	-	-	1.9	-	0.1 U	0.1 U	-	0.1 U	0.1 U	0.1 U	0.1 U
Beryllium	mg/L	0.0072	(1)	-	-	0.16	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	0.0012
Cadmium	mg/L	0.0031	(1)	-	-	0.0025	-	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	mg/L	-		-	-	-	-	65	54	-	57	63	56	130
Chromium	mg/L	0.11	(1)(2)	-	-	0.12	-	0.01 U	0.01 U	-	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	mg/L	0.1		0.1	-	-	-	0.02 U	0.02 U	-	0.02 U	0.02 U	0.02 U	0.02 U
Copper	mg/L	0.013	(1)	-	-	0.47	-	0.004 U	0.004 U	-	0.004 U	0.004 U	0.004 U	0.004 U
Iron	mg/L	-		-	-	-	-	0.2 U	0.2 U	-	0.2 U	0.2 U	0.2 U	0.2 U
Lead	mg/L	0.029	(1)	-	-	0.014	-	0.003 U	0.003 U	-	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	mg/L	-		-	-	-	-	18	18	-	16	17	18	35
Manganese	mg/L	2.90	(1)	-	-	1.3	-	0.34	0.18	-	0.29	0.32	0.18	0.33
Mercury	mg/L	0.0000013		-	-	0.0000018	0.0000013	0.0002 U	0.0002 U	-	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	mg/L	0.075	(1)	-	-	2.6	-	0.02 U	0.02 U	-	0.02 U	0.02 U	0.02 U	0.02 U
Potassium	mg/L	-		-	-	-	-	14	13	-	12	13	13	19
Selenium	mg/L	0.005		0.005	-	0.12	-	0.005 U	0.005 U	-	0.005 U	0.005 U	0.005 U	0.005 U
Silver	mg/L	0.0002		0.00006	-	0.13	-	0.0002 U	0.0002 U	-	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Sodium	mg/L	-		-	-	-	-	220	150	-	190	210	150	180
Thallium	mg/L	0.0037		0.0072	-	0.0012	-	0.002 U	0.002 U	-	0.002 U	0.002 U	0.002 U	0.002 U
Vanadium	mg/L	0.027		0.027	-	0.053	-	0.004 U	0.004 U	-	0.004 U	0.004 U	0.004 U	0.004 U
Zinc	mg/L	0.17	(1)	-	-	3.3	-	0.05 U	0.05 U	-	0.05 U	0.05 U	0.05 U	0.059

Table 3

Secondary Pond –Water Characterization Results
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:								MD-344-16	MD-348-16	MD-350-16	BD-340-16	BD-345-16	BD-349-16	SW-102-17
Sample ID:								W-58502-032416-SSH-1633	W-58502-031716-SSH-1622	W-58502-032416-SSH-1644	W-58502-032416-SSH-1637	W-58502-032416-SSH-1634	W-58502-031716-SSH-1623	W-58502-091117-SSH-102
Sample Date:								3/24/2016	3/17/2016	3/24/2016	3/24/2016	3/24/2016	3/17/2016	9/11/2017
Parameters	**Units**	**Res/Non_Res/GW SW Interface**		**Rule 57 Surface Water/FCV**	**Rule 57 Surface Water/HCV Drink**	**Rule 57 Surface Water/HNV Drink**	**Rule 57 Surface Water/WV**							
PCBs														
Aroclor-1016 (PCB-1016)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000096 U	-	0.000095 U	0.000095 U	0.000096 U	0.000096 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000096 U	-	0.000095 U	0.000095 U	0.000096 U	0.000096 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000096 U	-	0.000095 U	0.000095 U	0.000096 U	0.000096 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000096 U	-	0.000095 U	0.000095 U	0.000096 U	0.000096 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000096 U	-	0.000095 U	0.000095 U	0.000096 U	0.000096 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000096 U	-	0.000095 U	0.000095 U	0.000096 U	0.000096 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000096 U	-	0.000095 U	0.000095 U	0.000096 U	0.000096 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	-	-	-	-	-	-	0.000096 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	-	-	-	-	-	-	0.000096 U
Wet														
Ammonia-N	mg/L	-		-	-	-	-	0.20 U	0.20 U	-	0.20 U	0.20 U	-	0.28
Unionized Ammonia	mg/L	0.42	(4)	0.029	-	-	-							0.0021
Biochemical oxygen demand (carbonaceous)	mg/L	-		-	-	-	-	5.0	2.0 U	-	6.3	5.4	-	2.0 U
Formaldehyde	mg/L	0.12		0.18	-	5	-	0.050 U	-	0.050 U	0.050 U	0.050 U	-	-
Total suspended solids (TSS)	mg/L	-		-	-	-	-	-	-	-	-	-	-	4.0 U

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
UJ Not detected; associated reporting limit is estimated.
(1) Calculated GSI value, based on assumed value of hardness of 154.3 mg/kg (average calculated in the North Ditch - 2013)
(2) Chromium III criteria utilized since speciated data in the RFI indicated the available chromium was chromium III
(3) PCB TSCA Criteria.
(4) Site-specific unionized ammonia. Unionized ammonia is calculated utilizing the ammonia toxicity equation taken from Steven C. Chapra "Surface Water-Quality Modeling", McGraw-Hill Series in Water Resources and Environmental Engineering 1997. Calculation utilitizes pH (assumed to be 7.5) and temperature (assumed to be 10 degrees C) of the water, as well as, the pH (assumed to be 7.75) and temperature (assumed to be 10 degrees C) of the receiving water (Saginaw River).

Table 3

Secondary Pond –Water Characterization Results
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:							SW-104-17	SW-104-17	SW-107-17	MD-108-17	MD-333-16	BD-109-17
Sample ID:							W-58502-091117-SSH-104	W-58502-091117-SSH-105	W-58502-091117-SSH-107	W-58502-091117-SSH-108	W-58502-032416-SSH-1645	W-58502-091117-SSH-109
Sample Date:							9/11/2017	9/11/2017	9/11/2017	9/11/2017	3/24/2016	9/11/2017
Parameters	**Units**	**Res/Non_Res/GW SW Interface**	**Rule 57 Surface Water/FCV**	**Rule 57 Surface Water/HCV Drink**	**Rule 57 Surface Water/HNV Drink**	**Rule 57 Surface Water/WV**						
VOAs		a	b	c	d	e						
1,1,1-Trichloroethane	mg/L	0.089	0.089	-	62	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/L	0.078	0.2	0.0032	0.18	-	-	-	-	-	-	-
1,1,2-Trichloroethane	mg/L	0.33	0.73	0.012	0.11	-	-	-	-	-	-	-
1,1-Dichloroethane	mg/L	0.74	0.74	-	9.8	-	-	-	-	-	-	-
1,1-Dichloroethene	mg/L	0.13	0.13	-	1.2	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/L	0.099	0.13	-	0.08	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/L	-	-	0.00024	-	-	-	-	-	-	-	-
1,2-Dibromoethane (Ethylene dibromide)	mg/L	0.0057	0.015	0.00017	0.25	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/L	0.013	0.013	-	2	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/L	0.36	2	0.006	6.9	-	-	-	-	-	-	-
1,2-Dichloropropane	mg/L	0.23	0.23	0.0091	12	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/L	0.028	0.028	-	0.037	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/L	0.017	0.017	0.024	1.1	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/L	2.2	2.2	-	17	-	-	-	-	-	-	-
2-Hexanone	mg/L	-	-	-	9.7	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/L	-	-	-	-	-	-	-	-	-	-	-
Acetone	mg/L	1.7	1.7	-	5.6	-	-	-	-	-	-	-
Benzene	mg/L	0.2	0.2	0.012	0.019	-	-	-	-	-	-	-
Bromodichloromethane	mg/L	-	-	0.0068	0.17	-	-	-	-	-	-	-
Bromoform	mg/L	-	-	0.052	0.47	-	-	-	-	-	-	-
Bromomethane (Methyl bromide)	mg/L	0.035	0.0042	-	0.039	-	-	-	-	-	-	-
Carbon disulfide	mg/L	-	-	-	1	-	-	-	-	-	-	-
Carbon tetrachloride	mg/L	0.045	0.077	0.0047	0.018	-	-	-	-	-	-	-
Chlorobenzene	mg/L	0.025	0.025	-	0.47	-	-	-	-	-	-	-
Chloroethane	mg/L	1.1	1.1	0.17	500	-	-	-	-	-	-	-
Chloroform (Trichloromethane)	mg/L	0.35	0.63	-	0.35	-	-	-	-	-	-	-
Chloromethane (Methyl chloride)	mg/L	-	-	0.11	3.5	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	mg/L	0.62	0.62	-	0.88	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	mg/L	-	0.009	0.0033	0.93	-	-	-	-	-	-	-
Cyclohexane	mg/L	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/L	-	-	0.0068	0.57	-	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	mg/L	-	-	-	2.9	-	-	-	-	-	-	-
Ethylbenzene	mg/L	0.018	0.018	0.025	2.1	-	-	-	-	-	-	-
Isopropyl benzene	mg/L	0.028	0.028	-	1.7	-	-	-	-	-	-	-
Methyl acetate	mg/L	-	-	-	-	-	-	-	-	-	-	-
Methyl cyclohexane	mg/L	-	-	-	-	-	-	-	-	-	-	-
Methyl tert butyl ether (MTBE)	mg/L	7.1	32	0.1	0.92	-	-	-	-	-	-	-
Methylene chloride	mg/L	1.5	1.5	0.047	1.6	-	-	-	-	-	-	-
Styrene	mg/L	0.08	0.16	0.02	4.2	-	-	-	-	-	-	-
Tetrachloroethene	mg/L	0.06	0.19	0.011	0.32	-	-	-	-	-	-	-
Toluene	mg/L	0.27	0.27	-	5.6	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	mg/L	1.5	1.5	-	0.47	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	mg/L	-	0.009	0.0033	0.93	-	-	-	-	-	-	-
Trichloroethene	mg/L	0.2	0.2	0.029	0.044	-	-	-	-	-	-	-
Trichlorofluoromethane (CFC-11)	mg/L	-	-	-	-	-	-	-	-	-	-	-
Trifluorotrichloroethane (CFC-113)	mg/L	0.032	0.032	-	444	-	-	-	-	-	-	-
Vinyl chloride	mg/L	0.013	0.93	0.00025	0.083	-	-	-	-	-	-	-
Xylenes (total)	mg/L	0.041	0.049	-	3.8	-	-	-	-	-	-	-
SVOAs												
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/L	-	-	0.006	0.99	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	mg/L	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	mg/L	0.005	0.005	0.041	1.9	-	-	-	-	-	-	-
2,4-Dichlorophenol	mg/L	0.011	0.011	-	0.22	-	-	-	-	-	-	-
2,4-Dimethylphenol	mg/L	0.38	0.38	-	0.45	-	-	-	-	-	-	-
2,4-Dinitrophenol	mg/L	-	0.019	-	0.055	-	-	-	-	-	-	-
2,4-Dinitrotoluene	mg/L	-	-	-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	mg/L	-	-	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	mg/L	-	-	-	-	-	-	-	-	-	-	-
2-Chlorophenol	mg/L	0.018	0.018	-	0.19	-	-	-	-	-	-	-
2-Methylnaphthalene	mg/L	0.019	0.019	-	0.6	-	-	-	-	-	-	-
2-Methylphenol	mg/L	0.03	0.076	-	1.4	-	-	-	-	-	-	-
2-Nitroaniline	mg/L	-	-	-	-	-	-	-	-	-	-	-
2-Nitrophenol	mg/L	-	0.056	-	-	-	-	-	-	-	-	-
3&4-Methylphenol	mg/L	0.03	0.025	-	1.4	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/L	0.0003	0.0045	0.00014	0.65	-	-	-	-	-	-	-
3-Nitroaniline	mg/L	-	-	-	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	mg/L	-	-	-	-	-	-	-	-	-	-	-
4-Bromophenyl phenyl ether	mg/L	-	-	-	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	mg/L	0.0074	0.0074	-	6.9	-	-	-	-	-	-	-
4-Chloroaniline	mg/L	-	-	0.002	0.039	-	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/L	-	-	-	-	-	-	-	-	-	-	-
4-Nitroaniline	mg/L	-	-	-	-	-	-	-	-	-	-	-
4-Nitrophenol	mg/L	-	0.2	-	0.68	-	-	-	-	-	-	-

Table 3

Secondary Pond –Water Characterization Results
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:							SW-104-17	SW-104-17	SW-107-17	MD-108-17	MD-333-16	BD-109-17
Sample ID:							W-58502-091117-SSH-104	W-58502-091117-SSH-105	W-58502-091117-SSH-107	W-58502-091117-SSH-108	W-58502-032416-SSH-1645	W-58502-091117-SSH-109
Sample Date:							9/11/2017	9/11/2017	9/11/2017	9/11/2017	3/24/2016	9/11/2017
Parameters	**Units**	**Res/Non_Res/GW SW Interface**		**Rule 57 Surface Water/FCV**	**Rule 57 Surface Water/HCV Drink**	**Rule 57 Surface Water/HNV Drink**	**Rule 57 Surface Water/WV**					
SVOAs cont'd												
Acenaphthene	mg/L	0.038		0.038	-	0.58	-	-	-	-	-	-
Acenaphthylene	mg/L	-		-	-	-	-	-	-	-	-	-
Acetophenone	mg/L	-		-	-	-	-	-	-	-	-	-
Anthracene	mg/L	-		-	-	1.9	-	-	-	-	-	-
Atrazine	mg/L	0.0073		0.0073	-	0.88	-	-	-	-	-	-
Benzaldehyde	mg/L	-		-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	mg/L	-		-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	mg/L	-		-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	mg/L	-		-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/L	-		-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	mg/L	-		-	-	-	-	-	-	-	-	-
Biphenyl (1,1-Biphenyl)	mg/L	-		0.013	-	0.46	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	mg/L	-		-	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	mg/L	0.001		-	0.00079	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/L	0.025		-	0.014	0.12	-	-	-	-	-	-
Butyl benzylphthalate (BBP)	mg/L	0.067		0.067	-	0.0069	-	-	-	-	-	-
Caprolactam	mg/L	-		-	-	-	-	-	-	-	-	-
Carbazole	mg/L	0.01		0.004	0.019	-	-	-	-	-	-	-
Chrysene	mg/L	-		-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	mg/L	-		-	-	-	-	-	-	-	-	-
Dibenzofuran	mg/L	0.004		0.004	-	-	-	-	-	-	-	-
Diethyl phthalate	mg/L	0.11		0.11	-	14	-	-	-	-	-	-
Dimethyl phthalate	mg/L	-		-	-	-	-	-	-	-	-	-
Di-n-butylphthalate (DBP)	mg/L	0.0097		0.0097	-	0.64	-	-	-	-	-	-
Di-n-octyl phthalate (DnOP)	mg/L	-		-	-	0.24	-	-	-	-	-	-
Fluoranthene	mg/L	0.0016		0.0016	-	0.018	-	-	-	-	-	-
Fluorene	mg/L	0.012		0.012	-	0.14	-	-	-	-	-	-
Hexachlorobenzene	mg/L	0.0002		-	0.00000045	0.000046	0.0000003	-	-	-	-	-
Hexachlorobutadiene	mg/L	0.000053		0.001	0.00033	0.000093	0.000053	-	-	-	-	-
Hexachlorocyclopentadiene	mg/L	-		-	-	0.14	-	-	-	-	-	-
Hexachloroethane	mg/L	0.0067		0.013	0.0053	0.006	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/L	-		-	-	-	-	-	-	-	-	-
Isophorone	mg/L	1.3		1.3	0.31	4.1	-	-	-	-	-	-
Naphthalene	mg/L	0.011		0.011	-	1.1	-	-	-	-	-	-
Nitrobenzene	mg/L	0.18		0.23	0.0047	0.026	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	mg/L	-		-	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	mg/L	-		-	-	-	-	-	-	-	-	-
Pentachlorophenol	mg/L	-		-	0.0018	0.3	-	-	-	-	-	-
Phenanthrene	mg/L	0.002		0.0017	-	-	-	-	-	-	-	-
Phenol	mg/L	0.45		0.45	-	1.1	-	-	-	-	-	-
Pyrene	mg/L	-		-	-	0.015	-	-	-	-	-	-
Metals												
Aluminum	mg/L	-		-	-	-	-	0.05 U	0.05	0.051	0.05 U	-	0.05 U
Antimony	mg/L	0.13		0.24	-	0.0017	-	**0.0059[d]**	**0.0062[d]**	**0.006[d]**	**0.0066[d]**	-	**0.006[d]**
Arsenic	mg/L	0.01		0.15	0.01	0.01	-	0.005 U	0.005 U	0.005 U	0.005 U	-	0.005 U
Barium	mg/L	0.69	(1)	-	-	1.9	-	0.1 U	0.1 U	0.1 U	0.1 U	-	0.1 U
Beryllium	mg/L	0.0072	(1)	-	-	0.16	-	0.001 U	0.001 U	0.001 U	0.001 U	-	0.001 U
Cadmium	mg/L	0.0031	(1)	-	-	0.0025	-	0.001 U	0.001 U	0.001 U	0.001 U	-	0.001 U
Calcium	mg/L	-		-	-	-	-	130	140	130	140	-	130
Chromium	mg/L	0.11	(1)(2)	-	-	0.12	-	0.01 U	0.01 U	0.01 U	0.01 U	-	0.01 U
Cobalt	mg/L	0.1		0.1	-	-	-	0.02 U	0.02 U	0.02 U	0.02 U	-	0.02 U
Copper	mg/L	0.013	(1)	-	-	0.47	-	0.004 U	0.004 U	0.004 U	0.004 U	-	0.004 U
Iron	mg/L	-		-	-	-	-	0.2 U	0.2 U	0.2 U	0.2 U	-	0.2 U
Lead	mg/L	0.029	(1)	-	-	0.014	-	0.003 U	0.003 U	0.003 U	0.003 U	-	0.003 U
Magnesium	mg/L	-		-	-	-	-	35	36	34	35	-	34
Manganese	mg/L	2.90	(1)	-	-	1.3	-	0.34	0.35	0.32	0.34	-	0.37
Mercury	mg/L	0.0000013		-	-	0.0000018	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U	-	0.0002 U
Nickel	mg/L	0.075	(1)	-	-	2.6	-	0.02 U	0.02 U	0.02 U	0.02 U	-	0.02 U
Potassium	mg/L	-		-	-	-	-	20	20	19	20	-	19
Selenium	mg/L	0.005		0.005	-	0.12	-	0.005 U	0.005 U	0.005 U	0.005 U	-	0.005 U
Silver	mg/L	0.0002		0.00006	-	0.13	-	0.0002 U	0.0002 U	0.0002 U	0.0002 U	-	0.0002 U
Sodium	mg/L	-		-	-	-	-	180	180	170	180	-	170
Thallium	mg/L	0.0037		0.0072	-	0.0012	-	0.002 U	0.002 U	0.002 U	0.002 U	-	0.002 U
Vanadium	mg/L	0.027		0.027	-	0.053	-	0.004 U	0.004 U	0.004 U	0.004 U	-	0.004 U
Zinc	mg/L	0.17	(1)	-	-	3.3	-	0.05 U	0.052	0.054	0.05 U	-	0.053

Table 3

Secondary Pond –Water Characterization Results
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:							SW-104-17	SW-104-17	SW-107-17	MD-108-17	MD-333-16	BD-109-17
Sample ID:							W-58502-091117-SSH-104	W-58502-091117-SSH-105	W-58502-091117-SSH-107	W-58502-091117-SSH-108	W-58502-032416-SSH-1645	W-58502-091117-SSH-109
Sample Date:							9/11/2017	9/11/2017	9/11/2017	9/11/2017	3/24/2016	9/11/2017
Parameters	**Units**	**Res/Non_Res/GW SW Interface**		**Rule 57 Surface Water/FCV**	**Rule 57 Surface Water/HCV Drink**	**Rule 57 Surface Water/HNV Drink**	**Rule 57 Surface Water/WV**					
PCBs												
Aroclor-1016 (PCB-1016)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000096 U	0.000096 U	0.000096 U	-	0.000095 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000096 U	0.000096 U	0.000096 U	-	0.000095 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000096 U	0.000096 U	0.000096 U	-	0.000095 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000096 U	0.000096 U	0.000096 U	-	0.000095 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000096 U	0.000096 U	0.000096 U	-	0.000095 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000096 U	0.000096 U	0.000096 U	-	0.000095 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000096 U	0.000096 U	0.000096 U	-	0.000095 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000096 U	0.000096 U	0.000096 U	-	0.000095 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000096 U	0.000096 U	0.000096 U	-	0.000095 U
Wet												
Ammonia-N	mg/L	-		-	-	-	-	0.35	0.33	0.37	0.38	-	0.27
Unionized Ammonia	mg/L	0.42	(4)	0.029	-	-	-	0.0026	0.0025	0.0028	0.0028		0.002
Biochemical oxygen demand (carbonaceous)	mg/L	-		-	-	-	-	2.0 U	2.0 U	2.0 U	2.0 U	-	2.0 U
Formaldehyde	mg/L	0.12		0.18	-	5	-	-	-	-	-	0.050 U	-
Total suspended solids (TSS)	mg/L	-		-	-	-	-	4.0 U	4.0 U	4.0 U	4.0 U	-	4.0 U

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
UJ Not detected; associated reporting limit is estimated.
(1) Calculated GSI value, based on assumed value of hardness of 154.3 mg/kg (average calculated in the North Ditch - 2013)
(2) Chromium III criteria utilized since speciated data in the RFI indicated the available chromium was chromium III
(3) PCB TSCA Criteria.
(4) Site-specific unionized ammonia. Unionized ammonia is calculated utilizing the ammonia toxicity equation taken from Steven C. Chapra "Surface Water-Quality Modeling", McGraw-Hill Series in Water Resources and Environmental Engineering 1997. Calculation utilitizes pH (assumed to be 7.5) and temperature (assumed to be 10 degrees C) of the water, as well as, the pH (assumed to be 7.75) and temperature (assumed to be 10 degrees C) of the receiving water (Saginaw River).

Table 4

Outfall 21 and Outfall 24 – Discharge Sample Results to Support Preparation/Renewal of the NPDES Permit
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:				OUTFALL21	OUTFALL21	OUTFALL21A	OUTFALL21	OUTFALL24	OUTFALL24-DUP	OUTFALL24	OUTFALL24
Sample ID:				W-58502-031412-SSH-260	W-58502-032912-SSH-261	W-58502-051712-SSH-262	SW-58502-022618-SSH-1802	W-58502-091119-SSH-1019	W-58502-091119-SSH-1119	W-58502-100319-SSH-1019	W-58502-100319-SSH-2919
Sample Date:				3/14/2012	3/29/2012	5/17/2012	2/26/2018	9/11/2019	9/11/2019	10/3/2019	10/3/2019
Parameters	**Units**	**Res/Non_Res/GW SW Interface (a)**	**NPDES Discharge Limits (b)**								
VOAs											
1,1,1-Trichloroethane	mg/L	0.089		-	-	-	0.001 U	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/L	0.078		-	-	-	0.001 U	-	-	-	-
1,1,2-Trichloroethane	mg/L	0.33		-	-	-	0.001 U	-	-	-	-
1,1-Dichloroethane	mg/L	0.74		-	-	-	0.001 U	-	-	-	-
1,1-Dichloroethene	mg/L	0.13		-	-	-	0.001 U	-	-	-	-
1,2-Dichlorobenzene	mg/L	0.013		-	-	-	0.001 U	-	-	-	-
1,2-Dichloroethane	mg/L	0.36		-	-	-	0.001 U	-	-	-	-
1,2-Dichloroethene (total)	mg/L	NA		-	-	-	0.001 U	-	-	-	-
1,2-Dichloropropane	mg/L	0.23		-	-	-	0.001 U	-	-	-	-
1,3-Dichlorobenzene	mg/L	0.028		-	-	-	0.001 U	-	-	-	-
1,4-Dichlorobenzene	mg/L	0.017		-	-	-	0.001 U	-	-	-	-
2-Chloroethyl vinyl ether	mg/L	NA		-	-	-	0.002 U	-	-	-	-
Acrolein	mg/L	NA		-	-	-	0.02 U	-	-	-	-
Acrylonitrile	mg/L	0.002		-	-	-	0.02 U	-	-	0.01 U	-
Benzene	mg/L	0.2		-	-	-	0.001 U	-	-	-	-
Bromodichloromethane	mg/L	-		-	-	-	0.001 U	-	-	-	-
Bromoform	mg/L	-		-	-	-	0.001 U	-	-	-	-
Bromomethane (Methyl bromide)	mg/L	0.035		-	-	-	0.002 U	-	-	-	-
Carbon tetrachloride	mg/L	0.045		-	-	-	0.001 U	-	-	-	-
Chlorobenzene	mg/L	0.025		-	-	-	0.001 U	-	-	-	-
Chloroethane	mg/L	1.1		-	-	-	0.002 U	-	-	-	-
Chloroform (Trichloromethane)	mg/L	0.35		-	-	-	0.001 U	-	-	-	-
Chloromethane (Methyl chloride)	mg/L	-		-	-	-	0.002 U	-	-	-	-
cis-1,3-Dichloropropene	mg/L	-		-	-	-	0.001 U	-	-	-	-
Dibromochloromethane	mg/L	-		-	-	-	0.001 U	-	-	-	-
Ethylbenzene	mg/L	0.018		-	-	-	0.001 U	-	-	-	-
Methylene chloride	mg/L	1.5		-	-	-	0.002 U	-	-	-	-
Tetrachloroethene	mg/L	0.06		-	-	-	0.001 U	-	-	-	-
Toluene	mg/L	0.27		-	-	-	0.001 U	-	-	-	-
trans-1,2-Dichloroethene	mg/L	1.5		-	-	-	0.0005 U	-	-	-	-
trans-1,3-Dichloropropene	mg/L	-		-	-	-	0.001 U	-	-	-	-
Trichloroethene	mg/L	0.2		-	-	-	0.001 U	-	-	-	-
Vinyl chloride	mg/L	0.013		-	-	-	0.002 U	-	-	-	-
SVOAs											
1,2,4-Trichlorobenzene	mg/L	0.099		-	-	-	0.0097 U	-	-	-	-
1,2-Diphenylhydrazine	mg/L	NA		-	-	-	0.00097 U	-	-	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/L	-		-	-	-	0.0097 U	-	-	-	-
2,4,6-Trichlorophenol	mg/L	0.005		-	-	-	0.0097 U	-	-	0.001 U	-
2,4-Dichlorophenol	mg/L	0.011		-	-	-	0.0097 U	-	-	-	-
2,4-Dimethylphenol	mg/L	0.38		-	-	-	0.0097 U	-	-	-	-
2,4-Dinitrophenol	mg/L	-		-	-	-	0.049 U	-	-	0.01 U	-
2,4-Dinitrotoluene	mg/L	-		-	-	-	0.0097 U	-	-	-	-
2,6-Dinitrotoluene	mg/L	-		-	-	-	0.0097 U	-	-	-	-
2-Chloronaphthalene	mg/L	-		-	-	-	0.0097 U	-	-	-	-
2-Chlorophenol	mg/L	0.018		-	-	-	0.0097 U	-	-	-	-
2-Nitrophenol	mg/L	-		-	-	-	0.0097 U	-	-	-	-
3,3'-Dichlorobenzidine	mg/L	0.0003		-	-	-	0.0097 U	-	-	0.001 U	-
4,6-Dinitro-2-methylphenol	mg/L	-		-	-	-	0.049 U	-	-	-	-
4-Bromophenyl phenyl ether	mg/L	-		-	-	-	0.0097 U	-	-	-	-
4-Chloro-3-methylphenol	mg/L	0.0074		-	-	-	0.0097 U	-	-	-	-
4-Chlorophenyl phenyl ether	mg/L	-		-	-	-	0.0097 U	-	-	-	-
4-Nitrophenol	mg/L	-		-	-	-	0.049 U	-	-	-	-
Acenaphthene	mg/L	0.038		-	-	-	0.0097 U	-	-	-	-
Acenaphthylene	mg/L	-		-	-	-	0.0097 U	-	-	-	-
Anthracene	mg/L	-		-	-	-	0.0097 U	-	-	-	-
Benzidine	mg/L	0.0003		-	-	-	0.0049 U	-	-	0.0001 U	-
Benzo(a)anthracene	mg/L	-		-	-	-	0.0097 U	-	-	-	-
Benzo(a)pyrene	mg/L	-		-	-	-	0.0097 U	-	-	-	-
Benzo(b)fluoranthene	mg/L	-		-	-	-	0.0097 U	-	-	-	-
Benzo(g,h,i)perylene	mg/L	-		-	-	-	0.0097 U	-	-	-	-
Benzo(k)fluoranthene	mg/L	-		-	-	-	0.0097 U	-	-	-	-
bis(2-Chloroethoxy)methane	mg/L	-		-	-	-	0.0097 U	-	-	-	-
bis(2-Chloroethyl)ether	mg/L	0.001		-	-	-	0.0097 U	-	-	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/L	0.025		-	-	-	0.0097 U	-	-	-	-
Butyl benzylphthalate (BBP)	mg/L	0.067		-	-	-	0.0097 U	-	-	-	-
Chrysene	mg/L	-		-	-	-	0.0097 U	-	-	-	-
Dibenz(a,h)anthracene	mg/L	-		-	-	-	0.0097 U	-	-	-	-
Diethyl phthalate	mg/L	0.11		-	-	-	0.0097 U	-	-	-	-
Dimethyl phthalate	mg/L	-		-	-	-	0.0097 U	-	-	-	-
Di-n-butylphthalate (DBP)	mg/L	0.0097		-	-	-	0.0097 U	-	-	-	-
Di-n-octyl phthalate (DnOP)	mg/L	-		-	-	-	0.0097 U	-	-	-	-
Fluoranthene	mg/L	0.0016		-	-	-	0.0097 U	-	-	0.001 U	-
Fluorene	mg/L	0.012		-	-	-	0.0097 U	-	-	-	-
Hexachlorobenzene	mg/L	0.0002		-	-	-	0.0097 U	-	-	0.00001 U	-
Hexachlorobutadiene	mg/L	0.000053		-	-	-	0.0097 U	-	-	0.00001 U	-
Hexachlorocyclopentadiene	mg/L	-		-	-	-	0.0097 U	-	-	0.00001 U	-
Hexachloroethane	mg/L	0.0067		-	-	-	0.0097 U	-	-	-	-

Table 4

Outfall 21 and Outfall 24 – Discharge Sample Results to Support Preparation/Renewal of the NPDES Permit
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:				**OUTFALL21**	**OUTFALL21**	**OUTFALL21A**	**OUTFALL21**	**OUTFALL24**	**OUTFALL24-DUP**	**OUTFALL24**	**OUTFALL24**
Sample ID:				**W-58502-031412-SSH-260**	**W-58502-032912-SSH-261**	**W-58502-051712-SSH-262**	**SW-58502-022618-SSH-1802**	**W-58502-091119-SSH-1019**	**W-58502-091119-SSH-1119**	**W-58502-100319-SSH-1019**	**W-58502-100319-SSH-2919**
Sample Date:				**3/14/2012**	**3/29/2012**	**5/17/2012**	**2/26/2018**	**9/11/2019**	**9/11/2019**	**10/3/2019**	**10/3/2019**
Parameters	**Units**	**Res/Non_Res/GW SW Interface**	**NPDES Discharge Limits**								
SVOAs cont'd											
Indeno(1,2,3-cd)pyrene	mg/L	-		-	-	-	0.0097 U	-	-	-	-
Isophorone	mg/L	1.3		-	-	-	0.0097 U	-	-	-	-
Naphthalene	mg/L	0.011		-	-	-	0.0097 U	-	-	-	-
Nitrobenzene	mg/L	0.18		-	-	-	0.0097 U	-	-	-	-
N-Nitrosodimethylamine	mg/L	NA		-	-	-	0.00097 U	-	-	-	-
N-Nitrosodi-n-propylamine	mg/L	-		-	-	-	0.0097 U	-	-	-	-
N-Nitrosodiphenylamine	mg/L	-		-	-	-	0.0097 U	-	-	-	-
Pentachlorophenol	mg/L	-		-	-	-	0.0097 U	-	-	0.001 U	-
Phenanthrene	mg/L	0.002		-	-	-	0.0097 U	-	-	0.001 U	-
Phenol	mg/L	0.45		-	-	-	0.0097 U	-	-	-	-
Pyrene	mg/L	-		-	-	-	0.0097 U	-	-	-	-
Metals											
Antimony	mg/L	0.13		-	-	-	0.004	-	-	-	-
Arsenic	mg/L	0.01		0.005 U	0.005 U	0.005 U	0.005 U	-	-	-	-
Barium	mg/L	0.69		0.031	0.031	0.024	-	-	-	-	-
Beryllium	mg/L	0.0072		-	-	-	0.001 U	-	-	-	-
Cadmium	mg/L	0.0031		0.001 U	0.001 U	0.001 U	0.001 U	-	-	-	-
Chromium	mg/L	0.11		0.002 U	0.002 U	0.002 U	0.002 U	-	-	-	-
Copper	mg/L	0.013		0.002 U	0.002 U	0.002 U	0.0024	-	-	-	-
Lead	mg/L	0.029		0.001 U	0.001 U	0.001 U	0.0029	-	-	-	-
Mercury	mg/L	0.0000013	report	0.0002 U	0.0002 U	0.0002 U	0.0000011	0.0000005 U	0.00000014 J	-	-
Nickel	mg/L	0.075		-	-	-	0.0056	-	-	-	-
Selenium	mg/L	0.005		0.005 U	0.005 U	0.005 U	0.005 U	-	-	-	-
Silver	mg/L	0.0002		0.001 U	0.001 U	0.001 U	0.001 UF1*	0.0005 U	-	-	-
Thallium	mg/L	0.0037		-	-	-	0.001 U	-	-	-	-
Zinc	mg/L	0.17	1.12	0.01 U	0.01 U	0.01 U	**0.86a**	0.05 U	-	-	0.048 J
Pesticides											
Aroclor-1016 (PCB-1016)	mg/L	0.0002		0.000095 U	0.000095 U	0.000095 U	0.000095 U	-	-	-	-
Aroclor-1221 (PCB-1221)	mg/L	0.0002		0.000095 U	0.000095 U	0.000095 U	0.000095 U	-	-	-	-
Aroclor-1232 (PCB-1232)	mg/L	0.0002		0.000095 U	0.000095 U	0.000095 U	0.000095 U	-	-	-	-
Aroclor-1242 (PCB-1242)	mg/L	0.0002		0.000095 U	0.000095 U	0.000095 U	0.000095 U	-	-	-	-
Aroclor-1248 (PCB-1248)	mg/L	0.0002		0.000095 U	0.000095 U	0.000095 U	0.000095 U	-	-	-	-
Aroclor-1254 (PCB-1254)	mg/L	0.0002		0.000095 U	0.000095 U	0.000095 U	0.000095 U	-	-	-	-
Aroclor-1260 (PCB-1260)	mg/L	0.0002		0.000095 U	0.000095 U	0.000095 U	0.000095 U	-	-	-	-
Wet											
Cyanide (available)	mg/L	0.0052		-	-	-	0.0020 U	-	-	-	-
Phenolics (total)	mg/L	0.45		-	-	-	0.040 U	-	-	-	-

Footnotes:

U	Not detected at the associated reporting limit.
0.86a	Exceedance of criteria

Table 5

North Ditch – Water Characterization Results
Saginaw Nodular Industrial Land
Saginaw, MI

Sample Location:								MD-312-13	MD-314-13	MD-316-13	SW-310-13	SW-311-13	SW-313-13	SW-315-13
Sample ID:								W-58502-071713-SSH-312	W-58502-071713-SSH-314	W-58502-071713-SSH-316	W-58502-071713-SSH-310	W-58502-071713-SSH-311	W-58502-071713-SSH-313	W-58502-071713-SSH-315
Sample Date:								7/17/2013	7/17/2013	7/17/2013	7/17/2013	7/17/2013 (Duplicate)	7/17/2013	7/17/2013
Parameters	**Units**	**Res/Non_Res/ GW SW Interface**		**Rule 57 Surface Water/FCV**	**Rule 57 Surface Water/HCV Drink**	**Rule 57 Surface Water/HNV Drink**	**Rule 57 Surface Water/WV**							
Metals		a		b	c	d	e							
Antimony	mg/L	0.13		0.24	-	0.0017	-	0.00038 J	0.00045 J	0.00029 J	0.0005 J	0.00036 J	0.00032 J	0.00036 J
Arsenic	mg/L	0.01		0.15	0.01	0.01	-	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Barium	mg/L	0.69	(1)	-	-	1.9	-	0.036 J	0.033 J	0.033 J	0.037 J	0.036 J	0.033 J	0.033 J
Beryllium	mg/L	0.0072	(1)	-	-	0.16	-	0.001 U	0.00013 J	0.000056 J	0.00025 J	0.00015 J	0.00004 J	0.000096 J
Cadmium	mg/L	0.0031	(1)	-	-	0.0025	-	0.00003 J	0.00012 J	0.001 U	0.00014 J	0.000029 J	0.001 U	0.001 U
Chromium	mg/L	0.11	(1)(2)	-	-	0.12	-	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Cobalt	mg/L	0.1		0.1	-	-	-	0.00018 J	0.0002 J	0.000093 J	0.00029 J	0.00018 J	0.000083 J	0.00014 J
Copper	mg/L	0.013	(1)	-	-	0.47	-	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Lead	mg/L	0.029		-	-	0.014	-	0.0014 J	0.001 J	0.00053 J	0.002 J	0.0015 J	0.00062 J	0.001 J
Manganese	mg/L	2.90	(1)	-	-	1.3	-	0.16	0.14	0.14	0.17	0.15	0.11	0.18
Mercury	mg/L	0.0000013		-	-	0.0000018	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	mg/L	0.075	(1)	-	-	2.6	-	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Selenium	mg/L	0.005		0.005	-	0.12	-	0.00067 J	0.00056 J	0.00035 J	0.00083 J	0.00052 J	0.00055 J	0.00049 J
Silver	mg/L	0.0002		0.00006	-	0.13	-	0.000019 J	0.000018 J	0.00001 J	0.000039 J	0.000022 J	0.000017 J	0.000012 J
Thallium	mg/L	0.0037		0.0072	-	0.0012	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vanadium	mg/L	0.027		0.027	-	0.053	-	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Zinc	mg/L	0.17	(1)	-	-	3.3	-	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
PCBs														
Aroclor-1016 (PCB-1016)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.00011 U	0.0001 U	0.0001 U	0.000097 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.00011 U	0.0001 U	0.0001 U	0.000097 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.00011 U	0.0001 U	0.0001 U	0.000097 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.00011 U	0.0001 U	0.0001 U	0.000097 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.00011 U	0.0001 U	0.0001 U	0.000097 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.00011 U	0.0001 U	0.0001 U	0.000097 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.00011 U	0.0001 U	0.0001 U	0.000097 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.00011 U	0.0001 U	0.0001 U	0.000097 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002	(3)	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.00011 U	0.0001 U	0.0001 U	0.000097 U
Wet														
Ammonia	mg/L	-		-	-	-	-	1.4 J	2.0 U	2.0 U	2.0 U	1.1 J	1.1 J	2.0 U
Unionized Ammonia	mg/L	0.42	(4)	0.029	-	-	-	0.0117				0.0091	0.0091	
Biochemical oxygen demand (BOD)	mg/L	-		-	-	-	-	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Chemical oxygen demand (COD)	mg/L	-		-	-	-	-	20	20	22	22	25	17 J	30
Cyanide (amenable)	mg/L	-		-	-	-	-	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Cyanide (total)	mg/L	0.0052		0.0052	-	0.6	-	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Hardness, carbonate	mg/L	-		-	-	-	-	130	130	120	180	180	170	170
Hardness, magnesium	mg/L	-		-	-	-	-	44	45	46	45	44	45	44
Nitrate (as N)	mg/L	-		-	-	-	-	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Oil and grease (HEM), polar	mg/L	-		-	-	-	-	4.7 U	4.8 UJ	4.8 U	4.9 U	4.9 U	4.8 U	4.9 U
pH, lab	s.u.	-		-	-	-	-	7.45 J	7.52 J	7.42 J	7.43 J	7.44 J	7.44 J	7.41 J
Phenolics (total)	mg/L	-		-	-	-	-	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Total organic carbon (TOC)	mg/L	-		-	-	-	-	5.9	6.2	6.1	6.0	6.1	6.0	6.4

Footnotes:

U Not detected at the associated reporting limit.
J Estimated concentration.
UJ Not detected; associated reporting limit is estimated.
(1) Calculated GSI value, based on assumed value of hardness of 154.3 mg/kg (average calculated in the North Ditch - 2013)
(2) Chromium III criteria utilized since speciated data in the RFI indicated the available chromium was chromium III
(3) PCB TSCA Criteria.
(4) Site-specific unionized ammonia. Unionized ammonia is calculated utilizing the ammonia toxicity equation taken from Steven C. Chapra "Surface Water-Quality Modeling", McGraw-Hill Series in Water Resources and Environmental Engineering 1997. Calculation utilitizes pH and temperature (assumed to be 15 degrees C) of the groundwater, as well as, the pH (assumed to be 7.75) and temperature (assumed to be 10 degrees C) of the receiving water (Saginaw River).