FACILITY NAME:

SAGINAW NODULAR INDUSTRIAL LAND

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

DEQ SWPPP Template (Revised 6/15/2011)

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1.0 GENERAL FACILITY INFORMATION

Name of Facility: **Saginaw Nodular Industrial Land**

Facility Address: **2100 Veterans Memorial Parkway Saginaw, MI**

Standard Industrial Classification (SIC) Code: 6733 **(NAICS Code: 52592)**

Owner or Authorized Representative: **Revitalizing Auto Communities Environmental Response (RACER) Trust (authorized representative Dave Favero)**

Facility Contact

Name: **Dave Favero**

Title: **Deputy Cleanup Manager**

Telephone: **734-879-9525**

Mailing Address: 1505 **Woodward Avenue, Suite 200, Detroit, MI 48226**

Name: **Sam Solomon**

Title: **Site Manager**

Telephone: **248-990-1042**

Mailing Address: 1505 **Woodward Avenue, Suite 200, Detroit, MI 48226**

Certified Storm Water Operator

Name & Certification Number: **Steve Hoevemeyer (GHD) Industrial site certification # I-10477 expires 7/1/20**

Permit Information

Permit	Permit No.	Issue/Effective Date	Expiry Date
NPDES	MI0059042 (Appendix A-1)	July 1, 2018	October 1, 2020
MDEQ Floodplain Permit (North Ditch)	15-73-0000-P (Appendix A.2)	August 11, 2015	August 11, 2020
MDEQ Floodplain Permit (Access to clay pile)	WRP004925 (Appendix A.3)	October 27, 2016	October 27, 2020
Receiving Waters: **Saginaw River**			

Brief Industrial Activity Description

The Saginaw Nodular Industrial Land (Site) is located on an approximate 225-acre plot including an old wastewater treatment system and a clay soil stockpile area. The site is bounded by Veterans Memorial Parkway west, Hack Road to the north and North Outer Drive to the east in Saginaw, MI.

The wastewater treatment plant (WWTP) stopped receiving waters in September 2010 and was decommissioned/demolished in 2015/2016.

Activities at the Site will be limited to area closure (e.g., remediation) activities.

Storm water flows through a series of drainage ditches and discharges through 5 outfalls as identified on Figure 1 at the Site and eventually outlets to the Saginaw River. The five outfalls are identified below:

- Outfall 020 – Discharges surface runoff from a small portion of the Site in the southeast. The ditch is not expected to discharge contaminated storm water as Site related activities are not conducted in the vicinity of this area.
- Outfall 021 – Controlled overflow for the secondary pond – is a controlled outlet (pipe installed through the secondary pond embankment to discharge into nearby ditch, valve on outfall pipe is normally closed) from the secondary pond that allows the owner to discharge water from the secondary pond should freeboard be needed in the secondary pond. As of September 2010 the secondary pond stopped receiving waters from the WWTP and now only accumulates storm water. See Section 4.4 for a summary of the secondary pond water characterization and discharge characterization. Controlled discharges from the secondary pond are not expected to be contaminated.
- Outfall 022 – North Ditch Emergency Overflow – catchbasin located at the south end of the North Ditch, which is only utilized in the event that the water level in the North Ditch rises above a level that would flood the surrounding properties. The water exiting through the catchbasin includes storm water from other properties not owned or controlled by RACER and is not expected to discharge contaminated storm water.
- Outfall 023 – Northeast corner of Site – water that accumulates in the ditching beside the railroad from surface runoff is now directed via a culvert under Outer Drive into ditching that ultimate discharges into Koehler drain which ultimately discharges to the Saginaw River. The ditch is not expected to discharge contaminated storm water as Site related activities are not conducted in the vicinity of this area.
- Outfall 024 – Controlled overflow for the secondary pond (approximately 250 east of Outfall 021) – is a controlled outlet (pipe installed through the secondary pond embankment to discharge into nearby ditch, valve on outfall pipe is normally closed) from the secondary pond that allows the owner to discharge water from the secondary pond should freeboard be needed in the secondary pond. NOTE: This outfall will not be utilized without approval by MDEQ, now referred to as the Michigan Department of Environment, Great Lakes, and Energy (EGLE), (Outfall 024 was included as part of the NPDES application renewal submitted to EGLE on December 22, 2016 and approved by EGLE on June 27, 2018). As of September 2010 the secondary pond stopped receiving waters from the WWTP and now only accumulates storm water. See Section 4.4 for a summary of the secondary pond water characterization and discharge characterization. Controlled discharges from the secondary pond are not expected to be contaminated.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this SWPPP. The members of the team and their primary responsibilities (i.e., implementing, maintaining, record keeping, submitting reports, conducting inspections, employee training, conducting the annual compliance evaluation, testing for non-storm water discharges, signing the required certifications) are as follows:

NAME & TITLE	RESPONSIBILITY
Dave Favero (RACER Trust PM)	Director of works (overall coordination)
John-Eric Pardys (GHD PM)	Coordinating inspections, training, evaluations, and record keep and reporting.
Steve Hoevemeyer (GHD Field Staff)	Conduct inspections and record keeping
Sam Solomon (RACER)	Site Manager

3.0 SITE MAP

The facility's site map includes all applicable items listed in the permit, which include:

1) Buildings and other permanent structures
2) Storage or disposal areas for significant materials
3) Secondary containment structures and descriptions of what they contain in the primary containment structures (None)
4) Storm water discharge outfalls (numbered or otherwise labeled for reference)
5) Location of storm water and non-storm water inlets contributing to each outfall (catch basins, roof drains, conduits, drain tiles, detention pond riser pipes, sump pumps, etc.) (numbered or otherwise labeled for reference) (None)
6) Location of NPDES permitted discharges other than storm water
7) Outlines of the drainage areas contributing to each outfall
8) Structural runoff controls or storm water treatment facilities
9) Areas of vegetation (with brief description such as lawn, old field, marsh, wooded, etc.)
10) Areas of exposed and/or erodible soils
11) Impervious surfaces (roofs, asphalt, concrete, etc.)
12) Name and location of receiving waters
13) Areas of known or suspected impacts on surface waters as designated under Part 201 (Environmental Response) of the Michigan Act. (None)

See Figure 1 for the Site Map and Figure 2 for a 2016 aerial of the Site.

4.0 SIGNIFICANT MATERIALS

Definition: materials are any material which could degrade or impair water quality, including but not limited to:

- ✓ Raw Materials
- ✓ Fuels
- ✓ Solvents
- ✓ Detergents
- ✓ Plastic pellets
- ✓ Finished materials (i.e., metallic products)
- ✓ Hazardous Substances designated under section 101(14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), see 40 CFR 372.65
- ✓ Any chemical the facility is required to report pursuant to section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA)
- ✓ Polluting Materials – Oil and any material, in solid or liquid form, identified as polluting material under the Part 5 Rules (Rules 324.2001 through 324.2009 of the Michigan Administrative Code)
- ✓ Hazardous Wastes as defined in Part 111 of the Michigan Act
- ✓ Fertilizers
- ✓ Pesticides
- ✓ Waste Products (i.e., ashes, slag, sludge, plant waste, animal waste)

Significant materials were identified for all sources of potential storm water contamination including both inside and outside of the facility. Please note the process of identifying significant materials included residual contaminants which may be found on items stored outside.

4.1 Inventory of Exposed Significant Materials

The permit requires a general inventory of significant materials that could enter storm water. For each material listed, the SWPPP includes the ways in which each type of material has been or has reasonable potential to become exposed to storm water (e.g., spillage during handling; leaks from pipes, pumps, or vessels; contact with storage piles, contaminated materials or soils; waste handling and disposal; deposits from dust or overspray; etc.). In addition, the SWPPP identifies the inlet(s) spilled significant materials may enter and the outfall(s) through which the spilled significant material may be discharged.

See Table 1 for the Significant Material Inventory.

4.2 Description of Industrial Activities & Significant Material Storage Areas

The facility was evaluated for reasonable potential for contribution of significant materials to storm water runoff from at least the following areas or activities:

1) Loading, unloading, and other material handling operations
2) Outdoor storage including secondary containment structures
3) Outdoor manufacturing or processing activities
4) Significant dust or particulate generating processes
5) Discharge from vents, stacks, and air emission controls
6) On-site waste disposal practices

7) Maintenance and cleaning of vehicles, machines, and equipment
8) Areas of exposed and/or erodible soils
9) Sites of Environmental Contamination listed under Part 201 (Environmental Response) of the Michigan Act
10) Areas of significant material residues
11) Areas where animals congregate (wild or domestic) and deposit wastes
12) Other areas where storm water may contact significant materials

For each applicable item, the permit requires a written description of the specific activity or storage area. Along with the written description of the activities or storage areas, a description of the significant materials associated with those items must be included.

See Table 1 for a list of industrial activities and a description of the significant materials associated with those activities.

4.3 List of Significant Spills

No spills have been identified, however Table 2 is provided in the report as a placeholder for if and when a spill occurs.

4.4 Summary of Sampling Data

The permit requires a summary of existing storm water discharge sampling data (if available) describing pollutants in storm water discharges associated with industrial activity at the facility. The following is a summary of data that has been recently collected from the secondary pond:

- In June 2011 the secondary pond water and surrounding water features were characterized further. Appendix B.1 includes the characterization results. The data were compared to Michigan Groundwater Surface Water Interface (GSI) Criteria and Rule 57. One sample marginally exceeded the GSI criteria for mercury and one sample marginally exceeded GSI and Rule 57 for cyanide (total). The majority of the samples exceeded GSI and Rule 57 for unionized ammonia, the source of which is unknown. As ammonia degrades naturally, regular measurements of ammonia were collected which confirmed the degradation of ammonia.
- Prior to the issuance of the NPDES permit on August 24, 2012, there were 3 controlled discharges since June 2011 from the secondary pond in order to maintain adequate freeboard. Appendix B.2 includes the results of sampling associated with the discharges. The data were compared to Rule 57 and there were no exceedances.
- Since the NPDES permit was obtained on August 24, 2012 there have been 21 discharges from the secondary pond (Outfall 021) in order to maintain adequate freeboard. Starting June 21, 2016, in order to prepare for future work to be completed on the sediments in the pond, RACER initiated discharge through Outfall 021 to expose the sediments. Water from the Secondary Pond was discharged via gravity and pump for 53 days until discharges were stopped on September 12, 2016. The data collected from the discharges was submitted via the EDMR. Appendix B.3 includes the results of sampling associated with the discharges.
- Since the NPDES permit was obtained on August 24, 2012 there have been 12 discharges from the North Ditch (Outfall 022). The data collected from the discharges was submitted via the EDMR. Appendix B.4 includes the results of sampling associated with discharge.

- In July 2013 the North Ditch water was characterized further. Appendix B.5 includes the characterization results. The data were compared to Michigan GSI Criteria and Rule 57. No samples exceeded criteria.
- In March 2016 and September 2017, the Secondary Pond water was characterized further. Appendix B.6 includes the characterization results. The data were compared to Michigan GSI Criteria and Rule 57. The samples collected in 2017 exceeded the Rule 57 Human non-cancer value drinking water criteria for antimony. There were no other exceedances of criteria.
- In support of the NPDES permit renewal EGLE requested a sample be collected from the Secondary Pond and analyzed for a suite of parameters. Appendix B.7 includes the characterization results.

5.0 NON-STRUCTURAL CONTROLS

Non-structural controls are practices that are relatively simple, fairly inexpensive, and applicable to a wide variety of industries or activities. Non-structural controls are intended to reduce the amount of pollution getting into the surface waters of the state and are generally implemented to address the problem at the source. They do not require any structural changes to the facility. The following non-structural controls have been selected for implementation

5.1 Preventative Maintenance Program (Routine Inspection Program)

Preventative maintenance involves regular inspection of facility equipment (if any) and operational systems. The intent of the inspections are to identify conditions that could lead to the release of materials and allow for maintenance to prevent such a release.

The treatment plant is no longer operational and all materials used for treatment have been removed. There are no significant sources that could affect the stormwater with the exception of areas prone to erosion and vehicle fluids.

Preventative maintenance inspections are conducted at the Site in industrial areas exposed to storm water including drainage ditches, secondary pond, material storage areas, and outfalls. During periods of Site inactivity inspections will be completed monthly and if possible within 24 hours of a major storm event. See Appendix C for the preventative maintenance inspection form.

During periods of activity at the Site (e.g., primary settling basins closure, storm water drainage improvements, North Ditch closure, and secondary pond sediment stabilization) routine inspection of vehicles and vehicle parking and fueling areas will be conducted to identify/reduce the likelihood of leaks/spills. In addition, the number of preventative maintenance inspections will increase from monthly to weekly during periods of activity and within 24 hours of a major storm event. See Appendix C for the routine inspection of vehicles, vehicle parking and vehicle fueling areas.

A log of the inspection and corrective actions shall be maintained on file and shall be retained for three years.

5.2 Comprehensive Site Inspection

The permit requires a schedule for comprehensive site inspection including but not limited to equipment, drainage areas, and structural controls. The inspection includes a review of the routine preventive maintenance/good housekeeping inspections, and any other paperwork associated with the SWPPP. The comprehensive site inspection is conducted by the Certified Storm Water Operator quarterly (March, June, September, and December). The comprehensive site inspection results are retained for three years. The inspections will identify any incidents of non-compliance with the SWPPP or this permit. If there are no reportable incidents of non-compliance, the report shall contain a certification that the facility is in compliance with this permit. The Comprehensive Site Inspection Form is in Appendix C.

5.3 Housekeeping Procedures

The permit requires that the SWPPP include a description of good housekeeping procedures to maintain a clean, orderly facility. Housekeeping procedures are intended to reduce the potential for significant materials to come in contact with storm water. The housekeeping procedures have been incorporated into the preventative maintenance inspection form provided in Appendix C.

Location	Equipment/Area	Task	Frequency
Site	Contractor supplied waste bins for specific activities (sporadically during temporary Site activities)	Waste inspection – identify waste to go off-Site and keep drum inventory	Monthly during inactivity and weekly during activity and within 24 hours of a major storm event
Site	Designated construction vehicle parking area identified at the start of proposed activity (sporadically during temporary Site activities)	Inspect for fluid leaks	Weekly during activity and within 24 hours of a major storm event
Site	Construction vehicles (sporadically during temporary Site activities)	Vehicle inspection – fluid leaks and dirt	Weekly during activity and within 24 hours of a major storm event

5.4 Visual Assessment

A visual assessment shall be conducted of a representative storm water sample collected from each storm water discharge point. Storm water samples shall be visually assessed for conditions that could cause a violation of water quality standards as defined in Section 9 of the NPDES permit provided in Appendix A.

The visual assessment shall be made of the storm water sample in a clean, clear glass or plastic container. Only an Industrial Storm Water Certified Operator shall conduct this visual assessment. Visual assessment of the storm water sample shall be conducted within 48 hours

of sample collection. Written procedures for the visual assessment are presented in Appendix D.1.

Visual assessments will be documented on the EGLE form provided in Appendix D.2. This documentation shall be retained for a minimum of 3 years.

5.5 Material Handling & Spill Prevention/Clean-Up Procedures

5.5.1 Material Handling –Discharge from Outfalls 021/024/022

Discharges may be necessary from Outfall 021/024 (Controlled Overflow Secondary Pond) to maintain sufficient freeboard or lower the level in the secondary pond to evaluate sediment impacts and from Outfall 022 (Emergency Outfall North Ditch) if the level in the North Ditch is too high. Should discharges occur from Outfall 021/024 and Outfall 022, sampling and reporting will be completed in accordance with the NPDES permit herein attached as Appendix A-2 and in accordance with the Standard Operating Procedures (SOPs) included in Appendix E. Please note that the NPDES permit does not require sampling for the other two outfalls; Outfall 020 (located in the southeast corner for the property) and Outfall 023 (northeast corner of Site).

5.5.2 Material Handling – Temporary Construction Activities

There are currently no industrial operations being conducted at the Site. Activity at the Site is limited to those activities related to stormwater drainage improvements, re-use of on-Site clay and clean fill, and environmental remediation/closure of the Site, which will include but is not limited to the stabilization of the north ditch and PCB-impacted soil in a wetland in IU G. Stormwater drainage improvements include:

- Clearing and grubbing of vegetation
- Cleaning out existing ditches and creating new ditches to eliminate the need for pumping storm water
- Removal and disposal of pump
- Installation of drive culverts at driveways
- Abandoning existing sewer lines by plugging and/or filling existing sewers with flowable fill

Re-use of on-Site clay/clean fill will include:

- Maintaining silt fencing around clay and clean fill stockpiles when stockpiles are in use.
- Excavation and hauling clay/clean fill for on-Site or off-Site use.
- Stabilizing exposed clay and clean fill stockpiles, after 30-days of no activity.

The scope of work for the north ditch may include the following:

- Installation of erosion control measures in accordance with the county SES (to be determined) including but not limited to silt fence and filter cloth installed on catchbasin and manholes located nearby the proposed work
- Clearing and grubbing of vegetation
- Install new catchbasin within North Ditch and connect to existing storm sewer
- Remove water from North Ditch, place filter fabric over sediments, sling p-gravel over filter fabric and backfill and grade ditch to drain towards newly installed catchbasin
- Place 3 inches of topsoil and seed

The scope of work for removal of low level PCB impacted soil (within wetlands in IU G) includes:

- Installation of erosion control measures in accordance with the county SESC (to be determined) including but not limited to silt fence
- Clearing and grubbing of vegetation
- Removal and disposal of impacted soil
- Replace excavated soil with clean fill from on-Site
- Re-seed excavation area with wetland vegetation

5.5.3 Material Handling – Waste

There are two waste streams generated at the Site; miscellaneous waste generated from inspections/annual sampling and waste generated from temporary construction activities. The certified storm water operator will dispose of miscellaneous waste generated at the Site and the contractor hired to conduct work at the Site will be responsible for the disposal of waste generated through construction activities.

Inspections of waste bins are included as part of the routine maintenance inspections.

5.5.4 Spill Prevention / Clean-Up Procedures

Spills and leaks together are the largest industrial source of storm water pollution. Thus, this SWPPP specifies material handling procedures and storage requirements for significant materials. In the event of a spill, personnel are trained to respond in a safe and effective manner. An employee may determine that a spill or release has occurred through obvious visible signs, such as a substance on the ground or leaking out of a container, a visible sheen on the water, and/or through odor detection. While maintaining personal safety, the immediate objectives are stopping the release of the oil and containing the release to prevent its migration to a pathway off the property. Any storm drains in the immediate vicinity will be covered. Personal protective equipment shall be worn during all spill response efforts. All employees have been made aware of the proper procedures.

For small spills, all pollutants are to be recovered and stored in drums, characterized, and disposed of as appropriate. In the event of a large spill, sand is to be used to contain the spill. If a spill were to reach areas that drain storm water (i.e., Storm water ditching, secondary pond) sand should be used to block the exit of the drain (if appropriate) before it enters the Saginaw River.

In the event of a spill, notification must be made immediately to:

- Facility Contact - Dave Favero (217-741-6235)
- Storm water operator – Steve Hoevemeyer (616-437-7734)
- The facility contact will make the necessary phone calls to the EGLE district contact (Eric Decker - 989-385-4242). The after-hours pollution emergency alert system number is 1-800-292-4706

See Table 3 for the material handling & spill prevention clean-up procedures and Table 4 for the spill kit inventory. See Appendix C-3 for the EGLE Spill or Release Report.

THE FOLLOWING PLANS ARE AVAILABLE UPON REQUEST (AS THE FACILITY IS VACANT AND NOT MANNED)
SWPPP Health and Safety Plan

5.6 Soil Erosion & Sedimentation Control Measures

Although erosion has not generally been a concern at the Site, certain areas around the drainage ditches and material piles (clean backfill and clay) could become prone to soil erosion and erosion may be a concern after construction activities until a vegetative cover is established. These areas are included in the regular preventative maintenance inspections. The following are recommended control measures for specific tasks that are to be completed and specific areas of the Site prone to erosion.

AREA OF CONCERN:	CONTROL MEASURE:
Future work (North Ditch – Scope not yet finalized): - Stabilization of the North Ditch sediments by Slinging p-gravel over filter fabric and backfill ditch with clay from clay stockpile and grade ditch towards newly installed catchbasin - Will require removal of water from North Ditch and installation of a new catchbasin in North Ditch	• Silt fencing, vegetation barriers, diversions/channels dust suppression measures, erosion control inspections following rainfall, and re-vegetate disturbed area following completion of work or 30-days of inactivity; obtain Soil Erosion Sedimentation Control Permit from Saginaw County Public Works Commission. Following completion of closure activities stabilize disturbed area by placing topsoil and seed
Clean Backfill/Clay Stockpile	• During periods of inactivity, conduct periodic preventative maintenance inspections (minimum one per month) and/or following a rainfall event to identify whether erosion is occurring • During periods of activity, conduct weekly inspections of erosion/sedimentation controls, as necessary. Following completion of closure activities stabilize disturbed area by seeding
Future work (low level PCB-impacted soil removal from wetland): - Removal and disposal of PCB-impacted soil within IU G wetland - Replace excavated soil with clean backfill and re-seed with wetland vegetation	• Silt fencing, mud mats to minimize tracking dirt off-Site, vegetation barriers, diversions/channels dust suppression measures, erosion control inspections following rainfall, obtain Soil Erosion Sedimentation Control Permit from Saginaw County Public Works Commission and EGLE wetland/floodplain permit, as necessary. Following completion of closure activities stabilize disturbed area by placing clean fill and wetland seed

If during the preventative maintenance inspections erosion affects are reported, the Storm Water Operator will assess the situation and develop appropriate measures to reduce and eliminate the erosion. Common erosion control measures implemented include but are not limited to:

- Silt fence
- Diversions/channels
- Check dams
- Use of barriers to prevent vehicles from destroying vegetation
- Stabilization measures including seeding, vegetation mats, or rocks (depending on the severity of the erosion)
- Construction of temporary settling basin
- Mud mats in order to unnecessarily track mud off Site

5.7 Employee Training Program

Employee training is a major component in ensuring the success of the facility's SWPPP since the more knowledgeable the employees are about the facility's SWPPP and what is expected of them, the greater the chance that the plan will be effective. The following is a description of the employee training programs to be implemented to inform appropriate personnel at all levels of responsibility of the components and goals of the SWPPP (i.e., good housekeeping practices, spill prevention and response procedures, waste minimization practices, informing customers of facility policies, etc.). The Employee Training Form is in Appendix F.

EMPLOYEE TRAINING DESCRIPTION & FREQUENCY:

- Review of video on the EGLE Website (https://www.michigan.gov/deq/0,4561,7-135-3308_3333-14035--,00.html)
    - Introduction to the Industrial Storm Water Program
    - Certified Storm Water Operator and Soil Erosion and Sedimentation Control Inspector Training
    - Storm Water Employee Training
    - What to Expect During a DEQ Storm Water Inspection
    - Soil Erosion and Sedimentation Control Notice of Coverage – Common Application Problems
- New Employees to the Site must review and sign off on the Site documents including the SWPPP (good housekeeping practices, spill prevention and response procedures) and HASP

5.8 TMDL Requirements

The Total Maximum Daily Load (TMDL) is the amount of pollutant load a water body can assimilate and still meet water quality standards. If a receiving water body does not meet the water quality standards for a specific pollutant, the EGLE will establish the appropriate daily maximum load for that pollutant to allow the water body to again meet water quality standards. If a permitted facility is expected to discharge that specific pollutant in its storm water to that water body, the General Permit requires the facility to list actions it will take to meet that TMDL requirement.

According to the EGLE website, there are no TMDL requirements for the Saginaw River.

5.9 List of Significant Materials Still Present

Following implementation of non-structural preventative measures and source controls, the potential for fuel or other significant materials at the facility to impact storm water is minimal. Any remaining risk is addressed through the use of structural controls.

Potential significant materials that may be in the storm water runoff after implementation of the other nonstructural controls include:

- Fuels (sporadically during temporary Site activity)

6.0 STRUCTURAL CONTROLS

The permit requires that where implementation of non-structural controls does not control storm water discharges in accordance with water quality standards, the SWPPP shall provide a description of the location, function, and design criteria of structural controls for prevention and treatment. Structural controls may be necessary to prevent uncontaminated storm water from contacting or being contacted by significant materials; or if preventive measures are not feasible or are inadequate to keep significant materials at the site from contaminating storm water. Structural controls shall be used to treat, divert, isolate, recycle, reuse, or otherwise manage storm water in a manner that reduces the level of significant materials in the storm water and provides compliance with the Water Quality Standards. Table 5 presents the structural measures in place at the Site. At this time no additional structural controls are needed beyond those already in place, however, during temporary construction activities sediment and erosion control measures will be put in place in accordance with SESC permit that is obtained for the activity, which includes silt fencing along the north and west sides of the primary settling basins.

7.0 NON-STORM WATER DISCHARGES

The permit requires that all discharge locations be evaluated for the presence of non-storm water discharges. Any unauthorized storm water discharges must be eliminated, or covered under another NPDES permit.

Storm water shall be defined to include all of the following non-storm water discharges provided pollution prevention controls for the non-storm water component are identified in the SWPPP:

1) Discharges from fire hydrant flushing
2) Potable water sources including water line flushing
3) Fire system test water
4) Irrigation drainage
5) Lawn watering
6) Routine building wash down which does not use detergents or other compounds
7) Pavement wash waters where contamination by toxic or hazardous materials have not occurred (unless all contamination by toxic or hazardous materials have been removed) and where detergents are not used
8) Air conditioning condensate

9) Springs
10) Uncontaminated ground water
11) Foundations or footing drains where flows are not contaminated with process materials such as solvents

Discharges from firefighting activities are authorized by the permit, but are exempted from the requirement to be identified in the SWPPP.

8.0 ANNUAL REVIEW

The permit requires that the permittee shall review the SWPPP annually after it is developed and maintain written summaries of the reviews. Based on the review, the permittee shall amend the SWPPP as needed to ensure continued compliance with the terms and conditions of the permit. The annual review is to be retained on site. It does not need to be submitted to the DEQ. The Annual Review Form is in Appendix G. However, it is noted that Permit MI0059042 requires that an annual certification be submitted to the EGLE by January 10 of each year.

In addition, should any changes be made to Site conditions or work being conducted at the Site, the SWPPP will be reviewed and modified as appropriate.

9.0 CERTIFIED STORM WATER OPERATOR UPDATE

The permit requires that if the Certified Storm Water Operator is changed or an additional Certified Storm Water Operator is added, the permittee shall provide the name and certification number of the new Certified Storm Water Operator to the Department. If a facility has multiple Certified Storm Water Operators, the name and certification number of the Certified Storm Water Operators shall be included in the SWPPP.

10.0 RECORD KEEPING

The permit requires that the permittee shall maintain records of all SWPPP related inspection and maintenance activities. Records shall also be kept describing incidents such as spills or other discharges that can affect the quality of storm water runoff. The following forms/records are to be retained for 3 years.

- Preventative maintenance inspections
- Comprehensive inspections
- Spill or Release report
- Non-Storm Water Inspection Report
- Record of Plan Revisions
- Employee Training Record
- Visual Assessments

Record of Plan Revisions

Revision Date	Version No.	Revision Author	Modifications	Revision Authorized by	Revision Approved by
October 2012	1	GHD	Created original document	Dave Favero, Steve Hoevemeyer	Dave Favero, Steve Hoevemeyer
January 2015	2	GHD	Work completed and new work proposed	Dave Favero, Steve Hoevemeyer	Dave Favero, Steve Hoevemeyer
January 2017	3	GHD	Work completed and new work proposed	Dave Favero, Steve Hoevemeyer	Dave Favero, Steve Hoevemeyer
January 2019	4	GHD	Added visual assessment	Dave Favero Steve Hoevemeyer	Dave Favero Steve Hoevemeyer
January 2020	5	GHD	Updated owner address, work completed, new work proposed, and new data collected	Dave Favero Steve Hoevemeyer	Dave Favero Steve Hoevemeyer

SWPPP CERTIFICATION

The permit requires that the SWPPP shall be reviewed and signed by the Certified Storm Water Operator(s) and by either the permittee or an authorized representative in accordance with 40 CFR 122.22. The SWPPP shall be retained on-site at the facility which generates the storm water discharge.

I certify under penalty of law that the storm water drainage system in this SWPPP has been tested or evaluated for the presence of non-storm water discharges either by me, or under my direction and supervision. I certify under penalty of law that this SWPPP has been developed in accordance with the General Permit and with good engineering practices. To the best of my knowledge and belief, the information submitted is true, accurate, and complete. At the time this plan was completed no unauthorized discharges were present. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

Permittee or Authorized Representative	
Printed Name & Title: **David Favero** - **Deputy Cleanup Manager - Michigan**	
Signature & Date: David Favero	1/7/2020

Certified Storm Water Operator	
Printed Name & Certification Number:	**Steve Hoevemeyer - Industrial site certification #: I-10477 expires 7/1/20**
Signature & Date:	1/6/20

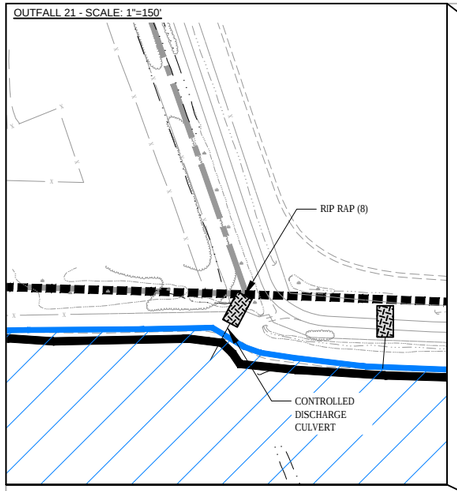
OUTFALL 021 AND
OUTFALL 024(4)
(CONTROLLED
OVERFLOW FOR
SECONDARY POND)

OUTFALL 022 (4)
(NORTH DITCH OVERFLOW)

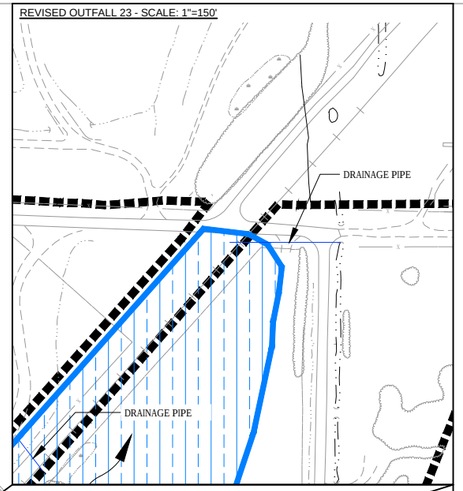
REVISED OUTFALL 023 (4)

OUTFALL
020 (4)

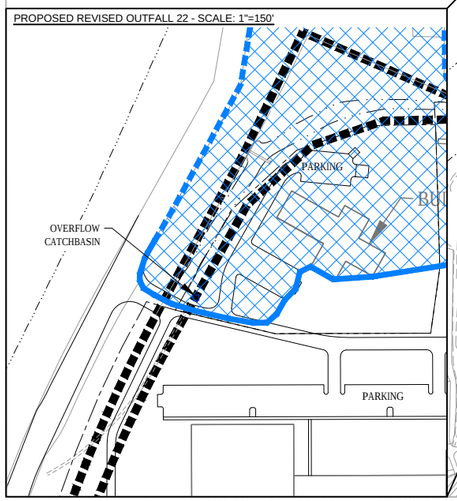
OUTFALL 021 - SCALE: 1"=150'



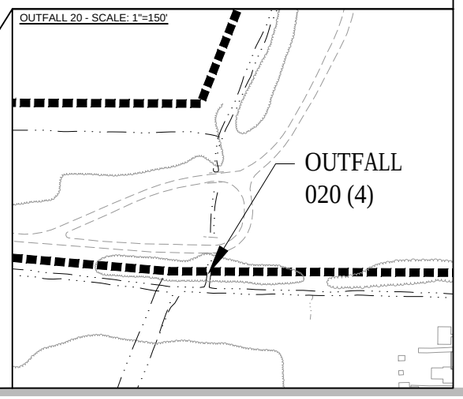
REVISED OUTFALL 23 - SCALE: 1"=150'

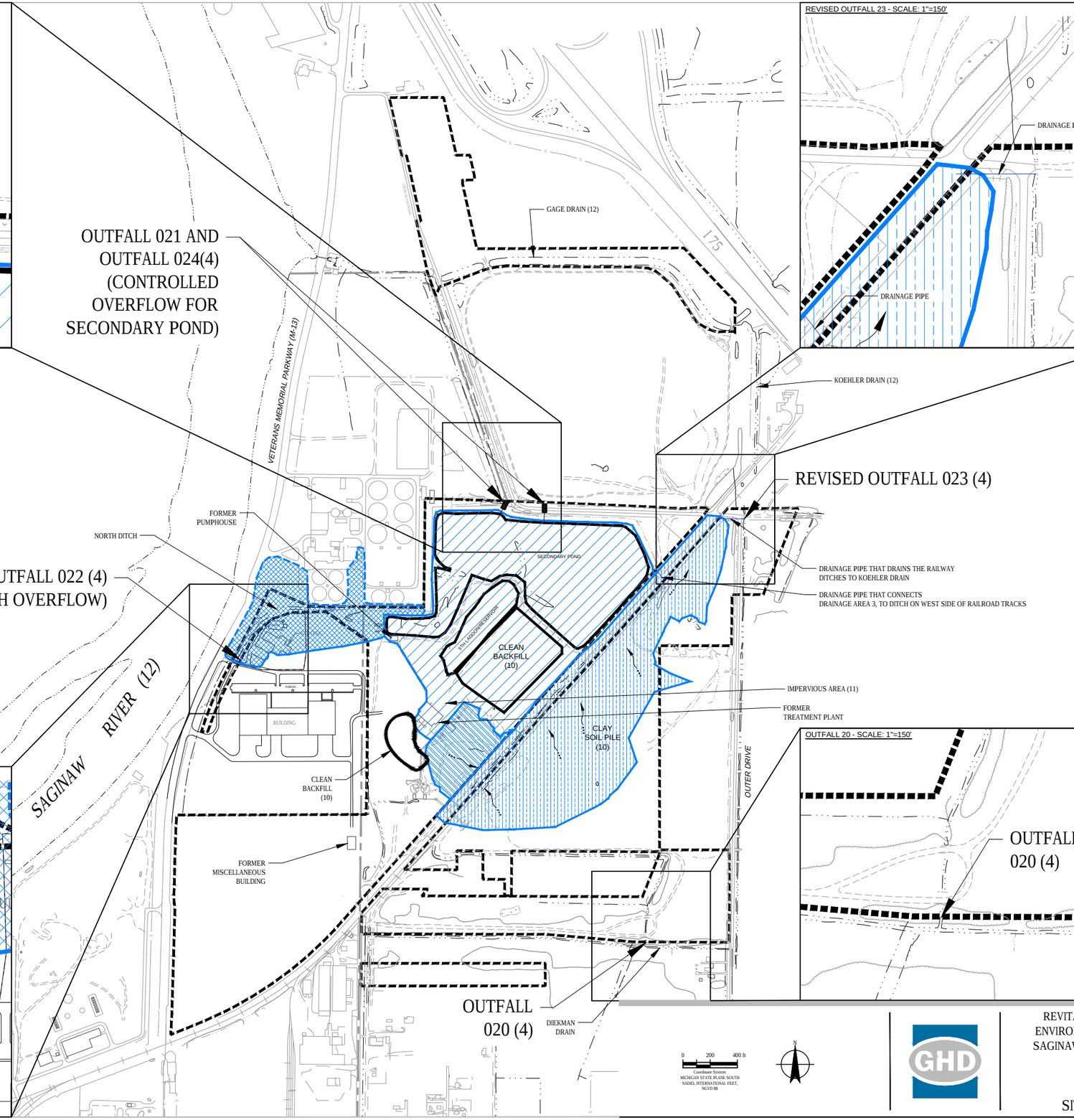


PROPOSED REVISED OUTFALL 22 - SCALE: 1"=150'



OUTFALL 20 - SCALE: 1"=150'





LEGEND

- APPROXIMATE LIMITS OF RACER PROPERTY
- DRAINAGE AREA 1 (46.7 ACRES)
- DRAINAGE AREA 2 (5.2 ACRES)
- DRAINAGE AREA 3 (37.9 ACRES)
- DRAINAGE AREA 4 (12.9 ACRES)
- FLOW DIRECTION

DRAINAGE SUMMARY

STORMWATER IN DRAINAGE AREA 1 OVERLAND FLOWS FROM THE SOUTHWEST TO THE NORTHEAST. AN EMERGENCY OVERFLOW FROM THE SECONDARY POND HAS BEEN INSTALLED THAT DISCHARGES INTO A DITCH TO THE NORTH.

STORMWATER IN DRAINAGE AREA 2 OVERLAND FLOWS TO THE DITCH ALONG THE WEST SIDE OF THE RAILROAD TRACKS WHICH DRAINS TO THE NORTHEAST INTO KOEHLER DRAIN.

STORMWATER IN DRAINAGE AREA 3 OVERLAND FLOWS TO THE DITCHES ALONG THE RAILROAD TRACKS. A DRAINAGE PIPE DIRECTS THE STORMWATER BENEATH THE RAILROAD TRACK TO THE DITCH ON THE EAST SIDE OF OUTER DRIVE WHICH DRAINS TO THE NORTH INTO KOEHLER DRAIN.

STORMWATER IN DRAINAGE AREA 4, TO THE NORTH, FROM THE WWTP IS COLLECTED IN TWO STORM SEWERS AND ONE DITCH WHICH OUTLET INTO THE NORTH DITCH. ALL OTHER STORMWATER THAT FALLS ON DRAINAGE AREA 4 FLOWS OVERLAND AND COLLECTS IN THE NORTH DITCH BEFORE BEING DISCHARGED FROM OUTFALL 022 INTO A STORM SEWER THAT OUTLETS TO THE SAGINAW RIVER.

1. Buildings and other permanent structures
2. Storage or Disposal areas for significant materials
3. Secondary containment structures and descriptions of what they contain (NONE)
4. Storm water discharge outfalls
5. Location of storm water and non-storm water inlets contributing to each outfall (NONE)
6. Location of NDPES permitted discharges other than storm water (NONE)
7. Outlines of the drainage areas contributing to each outfall
8. Structural runoff controls or storm water treatment facilities
9. Areas of vegetation (SEE FIGURE 2)
10. Areas of exposed and/or erodible soils (SEE FIGURE 2)
11. Impervious Surfaces (SEE FIGURE 2)
12. Name and location of receiving waters
13. Areas of known or suspected impacts on surface waters as designated under Part 201 (Environmental Response) of the Michigan Act (NONE)

REVITALIZING AUTO COMMUNITIES
ENVIRONMENTAL RESPONSE (RACER)
SAGINAW NODULAR INDUSTRIAL LAND
SAGINAW, MICHIGAN

SITE MAP FOR SWPPP

Project No. 11208041
Date January 2020

FIGURE 1

Filename: \\ghdnet\ghd\CA\Waterloo\Projects\662\11208041\Digital_Design\ACAD 2018\Figures\RPT1\11208041(RPT1)GN-WA001.dwg
Plot Date: 20 January 2020 3:33 PM

1. Buildings and other permanent structures
2. Storage or Disposal areas for significant materials
3. Secondary containment structures and descriptions of what they contain (NONE)
4. Storm water discharge outfalls (SEE FIGURE 1)
5. Location of storm water and non-storm water inlets contributing to each outfall (NONE)
6. Location of NDPES permitted discharges other than storm water (NONE)
7. Outlines of the drainage areas contributing to each outfall (SEE FIGURE 1)
8. Structural runoff controls or storm water treatment facilities (NONE)
9. Areas of vegetation
10. Areas of exposed and/or erodible soils
11. Impervious Surfaces
12. Name and location of recieving waters (SEE FIGURE 1)
13. Areas of known or suspected impacts on surface waters as designated under Part 201 (Environmental Response) of the Michigan Act (NONE)

Source: U.S. Department of Agriculture (USDA) National Agriculture Imagery Program (NAIP). Acquired 3-Jul-2018

0 350 700 1,050
Feet

Coordinate System:
NAD 1983 StatePlane Michigan
South FIPS 2113 Feet Intl

Legend

- APPROXIMATE LIMITS OF RACER PROPERTY
- Clean Backfill (10)

REVITALIZING AUTO COMMUNITIES ENVIRONMENTAL REPSONSE (RACER)
SAGINAW NODULAR INDUSTRIAL LAND
SAGINAW, MICHIGAN

11208041-A02
Jan 20, 2020

2018 AERIAL

FIGURE 2

GIS File: Q:\GIS\PROJECTS\11208000s\11208041\Layouts\001\11208041-A02(001)GIS-WA001.mxd

TABLE 1

SIGNIFICANT MATERIAL INVENTORY AND DESCRIPTION OF INDUSTRIAL ACTIVITY OR SIGNIFICANT MATERIAL STORAGE AREAS

Section Listed in General Permit	Storage Areas/Activity Areas	Significant Materials	Exposure Method	Reasonable Potential Evaluation (high,medium,low)	Inlet(s)	Outfalls(s)
1) Loading, unloading, and other material handling operations	Fueling (during specific activities) area TBD	Gasoline, diesel fuel, lubricating oils	leaks	low		21/22/23/24
2) Outdoor storage including secondary containment structures						
	Secondary Pond	Stormwater	Direct Contact with stormwater	Low (see Appendix B for characterization)		21/22/24
	Secondary Pond	Sediment	Indirect contact with stormwater through secondary pond water	Low (see Appendix B for characterization)		21/22/24
3) Outdoor manufacturing or processing activities						
4) Significant dust or particulate generating processes	**Temporary:** Construction Activities (Storm water improvements, north ditch and secondary pond closure)	Dust particulate, erosion	Inhalation/direct contact	low		21/22/23/24
5) Discharge from vents, stacks, and air emission controls						
6) On-site waste disposal practices	- Waste bins provided by	Various garbage	Leaks	Low		NA
	Contractor (temporary)					

TABLE 1 (CONTINUED)

SIGNIFICANT MATERIAL INVENTORY AND DESCRIPTION OF INDUSTRIAL ACTIVITY OR SIGNIFICANT MATERIAL STORAGE AREAS

Section Listed in General Permit	Storage Areas/Activity Areas	Significant Materials	Exposure Method	Reasonable Potential Evaluation (high,medium,low)	Inlet(s)	Outfalls(s)
7) Maintenance and cleaning of vehicles, machines and equipment	Construction Vehicles (during specific activities)	Fuel/vehicle fluids	Leaks	Low		21/22/23/24
8) Areas of exposed and/or erodible soils	Stockpiled clay	Stockpiled clay	Direct Contact with stormwater	Low (Material excavated from virgin soil and stockpiled)		
	Clean backfill	Clean backfill	Direct Contact with stormwater	Low (Material characterized as clean)		
9) Sites of Environmental Contamination listed under Part 201						
10) Areas of significant material residues	Secondary ponds	sediments	Direct contact	Low (see Appendix B for characterization)		21/22/24
11) Areas where animals congregate (wild or domestic) and deposit wastes						
12) Other areas where storm water may contact significant materials						

TABLE 2

LIST OF SIGNIFICANT SPILLS

Location & Date	Material & Volume	Corrective Actions Taken

TABLE 3

MATERIAL HANDLING & SPILL PREVENTION/CLEAN-UP PROCEDURES

Potential Spill Area	Material Handling & Storage Procedures	Spill Response Procedures & Equipment
Temporary (construction) - construction vehicles	- maintain area for construction vehicles that are not being used.	- notify necessary parties (project manager, owner, DEQ) - secure area, stop source of spill - limit the extents of spill (using absorbent material) - spill cleanup - report
Erosion potential Areas (ditches, clay pile, clean backfill, secondary pond berms)	- Maintain controls in the SESC Plan - Vegetate exposed soils prone to erosion	- repair sediment and erosion control measures, as necessary - evaluate alternative erosion control measures if repairs are being conducted frequently - implement alternative erosion control measures

TABLE 4

SPILL KIT INVENTORY

List the spill response equipment that will be maintained in each location or locker (refer to MSDSs to determine recommended clean-up methods and supplies):

Person responsible for maintaining this inventory: Steve Hoevemeyer

Locker number or location	**Absorbents (pads, booms, kitty litter, etc.)**	**Tools (shovels, brooms, squeegees, etc.)**	**Personal Protective Equipment (rubber gloves, boots, masks, etc.)**	**Other Supplies (warning tape, labels, markers, MSDSs, etc.)**
Site trailer (during construction activities)	Absorbent pads and sand	Shovels and brooms	Gloves	Cones and warning tape to secure area MSDS (if applicable)

Label each spill kit with the words "SPILL KIT" and the necessary emergency telephone number(s) or pager number(s) of persons to be contacted in case of a spill or leak that is beyond the training and equipment available on or near each spill locker:

Facility Responsible Person/Phone Number: Dave Favero – 734-879-9525, Steve Hoevemeyer - 616-437-7734
Spill Response Contractor (if any)/Phone Number: _____
DEQ District Office Phone Number: Eric Decker - 989-385-4242
DEQ 24-Hour Emergency Spill Reporting Hot-Line: **1-800-292-4706**

Stencil the following warning on each spill kit:

"WARNING: NEVER HOSE DOWN A SPILL!
CLEAN IT UP PROMPTLY AND DISPOSE OF THE WASTE PROPERLY."

TABLE 5

STRUCTURAL CONTOLS USED AT THE FACILITY

Description of Structural Control	Location of Structural Control	Significant Materials intended to be managed
Outfall 020 – ditch		
Outfall 021 – controlled outlet for secondary pond	See Figure 1	Surface water, sediment
Outfall 022 – North Ditch overflow – catch basin	See Figure 1	Surface water
Outfall 023 – ditch	See Figure 1	Surface water
Outfall 024 – controlled outlet for secondary pond	See Figure 1	Surface water
Silt Fence – used to remove sediments from surface water runoff	See Figure 1	Sediment
Splash Pads (at Outfalls) – used to dissipate discharge flow energy and collect sediments	See Figure 1	Sediment, surface water

Appendices

Appendix A
Permits

PERMIT NO. MI0059042

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, 33 U.S.C., Section 1251 *et seq*., as amended; Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); Part 41, Sewerage Systems, of the NREPA; and Michigan Executive Order 2011-1,

Revitalizing Auto Communities Environmental Response (RACER) Trust
500 Woodward Avenue
Suite 2650
Detroit, MI 48226

is authorized to discharge from the **RACER-Saginaw Nodular Industrial Land,** located at

2100 Veterans Memorial Parkway
Saginaw, MI 48601

designated as **RACER-Saginaw Nodular Indust**

to the receiving waters named the Saginaw River and an unnamed tributary to the Saginaw River in accordance with effluent limitations, monitoring requirements, and other conditions set forth in this permit.

This permit is based on a complete application submitted on August 1, 2016, as amended through March 12, 2018.

This permit takes effect on July 1, 2018. The provisions of this permit are severable. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term in accordance with applicable laws and rules. On its effective date, this permit shall supersede National Pollutant Discharge Elimination System (NPDES) Permit No. MI0059042, expiring October 1, 2016.

This permit and the authorization to discharge shall expire at midnight on **October 1, 2020**. In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit an application that contains such information, forms, and fees as are required by the Michigan Department of Environmental Quality (Department) by **April 4, 2020**.

Issued: June 27, 2018

Original signed by Christine Alexander
Christine Alexander, Manager
Permits Section
Water Resources Division

PERMIT FEE REQUIREMENTS

In accordance with Section 324.3120 of the NREPA, the permittee shall make payment of an annual permit fee to the Department for each October 1 the permit is in effect regardless of occurrence of discharge. The permittee shall submit the fee in response to the Department's annual notice. The fee shall be postmarked by January 15 for notices mailed by December 1. The fee is due no later than 45 days after receiving the notice for notices mailed after December 1.

Annual Permit Fee Classification: Industrial-Commercial Minor, high-flow (Individual Permit)

In accordance with Section 324.3118 of the NREPA, the permittee shall make payment of an annual storm water fee to the Department for each January 1 the permit is in effect regardless of occurrence of discharge. The permittee shall submit the fee in response to the Department's annual notice. The fee shall be postmarked by March 15 for notices mailed by February 1. The fee is due no later than 45 days after receiving the notice for notices mailed after February 1.

ANTIDEGRADATION

The Department has determined that the permittee's Antidegradation Demonstration, based on information required by Subrule (4) of R 323.1098, shows that lowering of water quality is necessary to support the identified important social and economic development in the area. This determination is solely for the purpose of satisfying state water quality regulations and is not intended to supplant local requirements, including land use or zoning laws. It is not, and should not be construed as, a finding by the Department that the proposed development meets local requirements or ordinances.

CONTACT INFORMATION

Unless specified otherwise, all contact with the Department required by this permit shall be made to the Saginaw Bay of the Water Resources Division. The Saginaw Bay District Office is located at 401 Ketchum Street, Suite B, Bay City, MI 48708-5430, Telephone: 989-894-6200, Fax: 989-891-9237.

CONTESTED CASE INFORMATION

Any person who is aggrieved by this permit may file a sworn petition with the Michigan Administrative Hearing System within the Michigan Department of Licensing and Regulatory Affairs, c/o the Michigan Department of Environmental Quality, setting forth the conditions of the permit which are being challenged and specifying the grounds for the challenge. The Department of Licensing and Regulatory Affairs may reject any petition filed more than 60 days after issuance as being untimely.

PART I

Section A. Limitations and Monitoring Requirements

1. Effluent Limitations, Monitoring Points 021A and 024A

During the period beginning on the effective date of this permit and lasting until the expiration date of this permit, the permittee is authorized to discharge 5 MGD of storm water from Monitoring Point 021A through Outfall 021, and 5 MGD of storm water from Monitoring Point 024A through Outfall 024. Outfalls 021 and 024 discharge to an unnamed tributary to the Saginaw River at Latitude 43.46521, Longitude -83.90268, and Latitude 43.46476, Longitude -83.90044, respectively. Such discharge shall be limited and monitored by the permittee as specified below.

	Maximum Limits for Quantity or Loading			Maximum Limits for Quality or Concentration			Monitoring Frequency	Sample Type
Parameter	**Monthly**	**Daily**	**Units**	**Monthly**	**Daily**	**Units**		
Flow	(report)	(report)	MGD	---	---	---	Daily	Report Total Daily Flow
Carbonaceous Biochemical Oxygen Demand (CBOD5)								
May – September	---	---	---	---	7.2	mg/l	Daily	Grab
October – November	---	---	---	---	13	mg/l	Daily	Grab
December – March	---	---	---	---	28	mg/l	Daily	Grab
April	---	---	---	---	39	mg/l	Daily	Grab
Ammonia Nitrogen (as N)								
May – September	---	---	---	---	2.5	mg/l	Daily	Grab
October – November	---	---	---	---	5.8	mg/l	Daily	Grab
December – March	---	---	---	---	10	mg/l	Daily	Grab
April	---	---	---	---	(report)	mg/l	Daily	Grab
Total Suspended Solids	---	---	---	35	70	mg/l	See Part I.A.1.c.	3-Portion Composite
Turbidity (See Part I.A.1.d.)	---	---	---	80	160	NTU	See Part I.A.1.c.	Grab
Total Mercury								
Corrected	(report)	(report)	lbs/day	(report)	(report)	ng/l	Quarterly	Calculation
Uncorrected	---	---	---	---	(report)	ng/l	Quarterly	Grab
Field Duplicate	---	---	---	---	(report)	ng/l	Quarterly	Grab
Field Blank	---	---	---	---	(report)	ng/l	Quarterly	Preparation
Laboratory Method Blank	---	---	---	---	(report)	ng/l	Quarterly	Preparation
Total Zinc	---	47	lbs/day	---	1120	ug/l	Monthly	Grab
Outfall Observation	(report)	---	---	---	---	---	Daily	Visual

Parameter	Maximum Limits for Quantity or Loading			Maximum Limits for Quality or Concentration			Monitoring Frequency	Sample Type
	Monthly	Daily	Units	Monthly	Daily	Units		
				Minimum Daily				
pH	---	---	---	6.5	9.0	S.U.	Daily	Grab
Dissolved Oxygen	---	---	---	6.0	---	mg/l	Daily	Grab

a. Narrative Standard
The receiving water shall contain no turbidity, color, oil films, floating solids, foams, settleable solids, or deposits as a result of this discharge in unnatural quantities which are or may become injurious to any designated use.

b. Monitoring Location
Samples, measurements, and observations taken in compliance with the monitoring requirements above shall be taken prior to discharge to the unnamed tributary to the Saginaw River.

c. Frequency of Analysis for Turbidity and Total Suspended Solids
The permittee may determine compliance for the total suspended solids effluent limitations either by direct measurement or by a combination of direct and indirect methods. The method that is used to measure compliance will determine the frequency of analysis required for each parameter, as described below.

1) Direct Measurement

If the permittee only monitors total suspended solids by direct measurement, the monitoring frequency shall be **daily during discharge**. Turbidity requirements will **not** be in effect.

2) Combination of Direct and Indirect Measurement

If the permittee monitors total suspended solids using a combination of direct and indirect methods, the permittee shall monitor turbidity as an indirect, partial substitute for monitoring total suspended solids. The monitoring frequency shall be **daily during discharge for turbidity** and **weekly during discharge for total suspended solids**. Any exceedance of the turbidity limitations shall be considered an exceedance of the total suspended solids limitations.

d. Monitoring Requirements for Turbidity
The monitoring requirements for turbidity are in effect only if the permittee uses turbidity to indirectly determine compliance for total suspended solids as described in Part I.A.1.c. If the permittee does not indirectly determine compliance with the monitoring requirements, the permittee is not required to monitor for turbidity.

Monitoring for turbidity shall be conducted daily during periods of discharge, shall be representative of the discharge, and shall be analyzed using EPA approved methods. **A minimum of four turbidity samples are required daily**. All turbidity samples shall be collected at equal intervals over the discharge period for that day. An average of the results from all of the turbidity monitoring conducted during the day shall be used to determine compliance with the daily maximum effluent limitation. All daily averages for the month shall be averaged to determine compliance with the monthly average effluent limitation.

The permittee may choose to demonstrate that an alternative site-specific turbidity effluent limitation is appropriate. Such request and supporting documentation shall be submitted to the Department. Supporting documentation shall include a calculation of the correlation between turbidity and total suspended solids. If an alternative site-specific turbidity effluent limitation is approved, the permit shall be modified in accordance with applicable laws and rules to incorporate the alternate site-specific turbidity effluent limitation.

e. Quarterly Monitoring
Quarterly samples shall be taken during the months of January, April, July, and October. If the facility does not discharge during these months, the permittee shall sample the next discharge occurring during the period in question. If the facility does not discharge during the period in question, a sample is not required for that period. For any month in which a sample is not taken, the permittee shall enter "*G" on the Discharge Monitoring Report (DMR). (For purposes of reporting on the Daily tab of the DMR, the permittee shall enter “*G” on the first day of the month only).

f. Secondary Pond Discharge Control Measures
On or before August 1, 2018 and prior to the removal of water from the Secondary Pond by means of pumping, the permittee shall submit for Department approval the following: A description of the control measures that will be undertaken to prevent sediment from entering the discharge as a result of pumping operations, and information concerning the location(s) to which the pumped water will be discharged. Upon receipt of written approval from the Department and consistent with such approval, the permittee is authorized to utilize a pump as needed to remove and discharge water from the Secondary Pond. Any removal and discharge of water from the Secondary Pond by means of pumping without prior written approval from the Department is a specific violation of this permit.

g. Outfall Observation
Outfall observation shall be reported as "yes" or "no." The permittee shall report yes if this requirement was completed and no if this requirement was not completed. Any unusual characteristics of the discharge (i.e., unnatural turbidity, color, oil film, floating solids, foams, settleable solids, suspended solids, or deposits) shall be reported within 24 hours to the Department followed with a written report within 5 days detailing the findings of the investigation and the steps taken to correct the condition.

h. Water Treatment Additives
This permit does not authorize the discharge of water treatment additives without approval. Approval of water treatment additives is authorized under separate correspondence. Water treatment additives include any material that is added to water used at the facility or to a wastewater generated by the facility to condition or treat the water. In the event a permittee proposes to discharge water treatment additives, including an increased discharge concentration of a previously approved water treatment additive, the permittee shall submit a request for approval in accordance with Part I.A.3. of this permit.

i. Monitoring Frequency Reduction for CBOD5, Ammonia Nitrogen (as N), Total Suspended Solids, Turbidity, pH, and Dissolved Oxygen
After the submittal of six (6) months of data, the permittee may request, in writing, Department approval for a reduction in monitoring frequency for CBOD5, ammonia nitrogen (as N), total suspended solids, turbidity, pH, and dissolved oxygen. This request shall contain an explanation as to why the reduced monitoring is appropriate. Upon receipt of written approval and consistent with such approval, the permittee may reduce the monitoring frequency indicated in Part I.A.1. of this permit. The monitoring frequency for CBOD5, ammonia nitrogen (as N), total suspended solids, turbidity, pH, and dissolved oxygen shall not be reduced to less than weekly. The Department may revoke the approval for reduced monitoring at any time upon notification to the permittee.

2. Effluent Limitations, Monitoring Point 022A

During the period beginning on the effective date of this permit and lasting until the expiration date of this permit, the permittee is authorized to discharge an unspecified amount of storm water from Monitoring Point 022A through Outfall 022. Outfall 022 discharges to the Saginaw River at Latitude 43.46182, Longitude -83.91046. Such discharge shall be limited and monitored by the permittee as specified below.

	Maximum Limits for Quantity or Loading			Maximum Limits for Quality or Concentration				
Parameter	**Monthly**	**Daily**	**Units**	**Monthly**	**Daily**	**Units**	**Monitoring Frequency**	**Sample Type**
Flow	(report)	(report)	MGD	---	---	---	Weekly	Report Total Daily Flow
Total Suspended Solids	---	---	---	35	70	mg/l	See Part I.A.2.c.	3-Portion Composite
Turbidity (See Part I.A.2.d.)	---	---	---	80	160	NTU	See Part I.A.2.c.	Grab
Outfall Observation	(report)	---	---	---	---	---	Weekly	Visual
				Minimum Daily				
pH	---	---	---	6.5	9.0	S.U.	Weekly	Grab

a. Narrative Standard
The receiving water shall contain no turbidity, color, oil films, floating solids, foams, settleable solids, or deposits as a result of this discharge in unnatural quantities which are or may become injurious to any designated use.

b. Monitoring Location
Samples, measurements, and observations taken in compliance with the monitoring requirements above shall be taken prior to discharge to the Saginaw River.

c. Frequency of Analysis for Turbidity and Total Suspended Solids
The permittee may determine compliance for the total suspended solids effluent limitations either by direct measurement or by a combination of direct and indirect methods. The method that is used to measure compliance will determine the frequency of analysis required for each parameter, as described below.

1) Direct Measurement

If the permittee only monitors total suspended solids by direct measurement, the monitoring frequency shall be **weekly during discharge**. Turbidity requirements will **not** be in effect.

2) Combination of Direct and Indirect Measurement

If the permittee monitors total suspended solids using a combination of direct and indirect methods, the permittee shall monitor turbidity as an indirect, partial substitute for monitoring total suspended solids. The monitoring frequency shall be **weekly during discharge for both turbidity and total suspended solids**. Any exceedance of the turbidity limitations shall be considered an exceedance of the total suspended solids limitations.

d. Monitoring Requirements for Turbidity

The monitoring requirements for turbidity are in effect only if the permittee uses turbidity to indirectly determine compliance for total suspended solids as described in Part I.A.2.c. If the permittee does not indirectly determine compliance with the monitoring requirements, the permittee is not required to monitor for turbidity.

Monitoring for turbidity shall be conducted weekly during periods of discharge, shall be representative of the discharge, and shall be analyzed using EPA approved methods. **A minimum of four turbidity samples are required weekly**. All turbidity samples shall be collected at equal intervals over the discharge period for that week. An average of the results from all of the turbidity monitoring conducted during the week shall be used to determine compliance with the daily maximum effluent limitation. All weekly averages for the month shall be averaged to determine compliance with the monthly average effluent limitation.

The permittee may choose to demonstrate that an alternate site-specific turbidity effluent limitation is appropriate. Such request and supporting documentation shall be submitted to the Department. Supporting documentation shall include a calculation of the correlation between turbidity and total suspended solids. If an alternate site-specific turbidity effluent limitation is approved, the permit shall be modified in accordance with applicable laws and rules to incorporate the alternate site-specific turbidity effluent limitation.

e. Outfall Observation

Outfall observation shall be reported as "yes" or "no." The permittee shall report yes if this requirement was completed and no if this requirement was not completed. Any unusual characteristics of the discharge (i.e., unnatural turbidity, color, oil film, floating solids, foams, settleable solids, suspended solids, or deposits) shall be reported within 24 hours to the Department followed with a written report within 5 days detailing the findings of the investigation and the steps taken to correct the condition.

f. Water Treatment Additives

This permit does not authorize the discharge of water treatment additives without approval. Approval of water treatment additives is authorized under separate correspondence. Water treatment additives include any material that is added to water used at the facility or to a wastewater generated by the facility to condition or treat the water. In the event a permittee proposes to discharge water treatment additives, including an increased discharge concentration of a previously approved water treatment additive, the permittee shall submit a request for approval in accordance with Part I.A.3. of this permit.

3. Request for Approval to Use Water Treatment Additives

Prior to use of any water treatment additive, the permittee shall obtain written approval from the Department. Requests for such approval shall be submitted via the Department's MiWaters system. The MiWaters website is located at https://miwaters.deq.state.mi.us. Instructions for submitting such a request may be obtained at http://www.michigan.gov/deqnpdes (near the bottom of that page, click on one or both of the links located under the Water Treatment Additives banner). Additional monitoring and reporting may be required as a condition for the approval to use the water treatment additive.

A request for approval to use water treatment additives shall include all of the following usage and discharge information for each water treatment additive proposed to be used:

a. The Safety Data Sheet (SDS);

b. Ingredient information, including the name of each ingredient, CAS number for each ingredient, and fractional content by weight for each ingredient;

c. The proposed water treatment additive discharge concentration with supporting calculations;

d. The discharge frequency (i.e., number of hours per day and number of days per year);

e. The outfall(s) and monitoring point(s) from which the water treatment additive is to be discharged;

f. The type of removal treatment, if any, that the water treatment additive receives prior to discharge;

g. The water treatment additive's function (i.e., microbiocide, flocculant, etc.);

h. The SDS shall include a 48-hour LC50 or EC50 for a North American freshwater planktonic crustacean (either Ceriodaphnia sp., Daphnia sp., or Simocephalus sp.); and.). The results shall be based on the whole water treatment additive, shall not be results based on a similar product, and shall not be estimated; and

i. The SDS shall include the results of a toxicity test for one (1) other North American freshwater aquatic species (other than a planktonic crustacean) that meets a minimum requirement of R 323.1057(2) of the Water Quality Standards. The results shall be based on the whole water treatment additive, shall not be results based on a similar product, and shall not be estimated. Examples of tests that would meet this requirement include a 96-hour LC50 for rainbow trout, bluegill, or fathead minnow.

4. Quantification Levels and Analytical Methods for Selected Parameters

Quantification levels (QLs) are specified for selected parameters in the table below. These QLs shall be considered the maximum acceptable unless a higher QL is appropriate because of sample matrix interference. Justification for higher QLs shall be submitted to the Department within 30 days of such determination. Where necessary to help ensure that the QLs specified can be achieved, analytical methods are also specified in the table below. The sampling procedures, preservation and handling, and analytical protocol for all monitoring conducted in compliance with this permit, including monitoring conducted to meet the requirements of the application for permit reissuance, shall be in accordance with the methods specified in the table below, or in accordance with Part II.B.2. of this permit if no method is specified in the table below, unless an alternate method is approved by the Department. With the exception of total mercury, all units are in ug/l. The table is continued on the following page:

Parameter	QL	Units	Analytical Method
1,2-Diphenylhydrazine (as Azobenzene)	3.0	ug/l	
2,4,6-Trichlorophenol	5.0	ug/l	
2,4-Dinitrophenol	19	ug/l	
3,3'-Dichlorobenzidine	1.5	ug/l	EPA Method 605
4,4'-DDD	0.05	ug/l	EPA Method 608
4,4'-DDE	0.01	ug/l	EPA Method 608
4,4'-DDT	0.01	ug/l	EPA Method 608
Acrylonitrile	1.0	ug/l	
Aldrin	0.01	ug/l	EPA Method 608
Alpha-Hexachlorocyclohexane	0.01	ug/l	EPA Method 608
Antimony, Total	1	ug/l	
Arsenic, Total	1	ug/l	
Barium, Total	5	ug/l	
Benzidine	0.1	ug/l	EPA Method 605
Beryllium, Total	1	ug/l	
Beta-Hexachlorocyclohexane	0.01	ug/l	EPA Method 608
Bis (2-Chloroethyl) Ether	1.0	ug/l	
Boron, Total	20	ug/l	
Cadmium, Total	0.2	ug/l	
Chlordane	0.01	ug/l	EPA Method 608
Chromium, Hexavalent	5	ug/l	
Chromium, Total	10	ug/l	
Copper, Total	1	ug/l	
Cyanide, Available	2	ug/l	EPA Method OIA 1677
Cyanide, Total	5	ug/l	
Delta-Hexachlorocyclohexane	0.01	ug/l	EPA Method 608
Dieldrin	0.01	ug/l	EPA Method 608
Di-N-Butyl Phthalate	9.0	ug/l	
Endosulfan I	0.01	ug/l	EPA Method 608
Endosulfan II	0.01	ug/l	EPA Method 608
Endosulfan Sulfate	0.01	ug/l	EPA Method 608
Endrin	0.01	ug/l	EPA Method 608
Endrin Aldehyde	0.01	ug/l	EPA Method 608
Fluoranthene	1.0	ug/l	
Heptachlor	0.01	ug/l	EPA Method 608
Heptachlor Epoxide	0.01	ug/l	EPA Method 608
Hexachlorobenzene	0.01	ug/l	EPA Method 612
Hexachlorobutadiene	0.01	ug/l	EPA Method 612
Hexachlorocyclopentadiene	0.01	ug/l	EPA Method 612

Parameter	QL	Units	Analytical Method
Hexachloroethane	5.0	ug/l	
Lead, Total	1	ug/l	
Lindane	0.01	ug/l	EPA Method 608
Lithium, Total	10	ug/l	
Mercury, Total	0.5	**ng/l**	EPA Method 1631E
Nickel, Total	5	ug/l	
PCB-1016	0.1	ug/l	EPA Method 608
PCB-1221	0.1	ug/l	EPA Method 608
PCB-1232	0.1	ug/l	EPA Method 608
PCB-1242	0.1	ug/l	EPA Method 608
PCB-1248	0.1	ug/l	EPA Method 608
PCB-1254	0.1	ug/l	EPA Method 608
PCB-1260	0.1	ug/l	EPA Method 608
Pentachlorophenol	1.8	ug/l	
Phenanthrene	1.0	ug/l	
Selenium, Total	1.0	ug/l	
Silver, Total	0.5	ug/l	
Strontium, Total	1000	ug/l	
Sulfides, Dissolved	20	ug/l	
Thallium, Total	1	ug/l	
Toxaphene	0.1	ug/l	EPA Method 608
Vinyl Chloride	0.25	ug/l	
Zinc, Total	10	ug/l	

5. Facility Contact

The “Facility Contact” was specified in the application. The permittee may replace the facility contact at any time, and shall notify the Department in writing within 10 days after replacement (including the name, address and telephone number of the new facility contact).

a. The facility contact shall be (or a duly authorized representative of this person):
- for a corporation, a principal executive officer of at least the level of vice president; or a designated representative if the representative is responsible for the overall operation of the facility from which the discharge originates, as described in the permit application or other NPDES form,
- for a partnership, a general partner,
- for a sole proprietorship, the proprietor, or
- for a municipal, state, or other public facility, either a principal executive officer, the mayor, village president, city or village manager or other duly authorized employee.

b. A person is a duly authorized representative only if:
- the authorization is made in writing to the Department by a person described in paragraph a. of this section; and
- the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the facility (a duly authorized representative may thus be either a named individual or any individual occupying a named position).

Nothing in this section obviates the permittee from properly submitting reports and forms as required by law.

6. Additional Monitoring Requirements

As a condition of this permit, the permittee shall monitor the discharge from monitoring points 021A and 024A for the constituents identified below. Monitoring shall be conducted annually beginning July 1 of each year. Samples shall be collected during the first discharge occurring during each year, and the results submitted within 15 days of receipt. If the facility does not discharge during a given year, a sample is not required for that year.

After the submittal of the first year of data, the permittee may request, in writing, Department approval for elimination of monitoring for one (1) or more of the parameters specified herein. This request shall contain an explanation as to why the elimination of monitoring is appropriate, including confirmation that the conditions of Part I.A.4. of this permit have been met. Upon receipt of written approval and consistent with such approval, the permittee may cease monitoring. The Department may revoke the approval for the elimination of monitoring at any time upon notification to the permittee.

	Maximum Limits for Quantity or Loading			Maximum Limits for Quality or Concentration			Monitoring	Sample
Parameter	**Monthly**	**Daily**	**Units**	**Monthly**	**Daily**	**Units**	**Frequency**	**Type**
Total Silver	---	---	---	---	(report)	ug/l	Annually	Grab
2,4-Dinitrophenol	---	---	---	---	(report)	ug/l	Annually	Grab
2,4,6-Trichlorophenol	---	---	---	---	(report)	ug/l	Annually	Grab
3,3'-Dichlorobenzidine	---	---	---	---	(report)	ug/l	Annually	Grab
Acrylonitrile	---	---	---	---	(report)	ug/l	Annually	Grab
Benzidine	---	---	---	---	(report)	ug/l	Annually	Grab
Fluoranthene	---	---	---	---	(report)	ug/l	Annually	Grab
Hexachlorobenzene	---	---	---	---	(report)	ug/l	Annually	Grab
Hexachlorobutadiene	---	---	---	---	(report)	ug/l	Annually	Grab
Hexachlorocyclopentadiene	---	---	---	---	(report)	ug/l	Annually	Grab
Pentachlorophenol	---	---	---	---	(report)	ug/l	Annually	Grab
Phenanthrene	---	---	---	---	(report)	ug/l	Annually	Grab

PART I

Section B. Storm Water Pollution Prevention

1. Final Effluent Limitations and Monitoring Requirements

The permittee is authorized to discharge storm water associated with industrial activity, as defined under 40 CFR 122.26(b)(14)(i-ix), to the surface waters of the state. Such discharge shall be limited and monitored by the permittee as specified below.

a. Narrative Standard
The receiving water shall contain no turbidity, color, oil films, floating solids, foams, settleable solids, suspended solids, or deposits as a result of this discharge in unnatural quantities which are or may become injurious to any designated use.

b. Visual Assessment of Storm Water Discharges
To ensure that storm water discharges from the facility do not violate the narrative standard in the receiving waters, storm water discharges shall be visually assessed in accordance with this permit.

c. Implementation of Storm Water Pollution Prevention Plan
The permittee shall implement an acceptable Storm Water Pollution Prevention Plan (SWPPP) as required by this permit.

d. Certified Operator
The permittee shall have an Industrial Storm Water Certified Operator who has supervision over the facility's storm water treatment and control measures included in the SWPPP.

The Storm Water Pollution Prevention Plan (SWPPP) is a written procedure to reduce the exposure of storm water to significant materials and to reduce the amount of significant materials in the storm water discharge. An acceptable SWPPP shall identify potential sources of contamination and describe the controls necessary to reduce their impacts in accordance with Part I.B.2. through Part I.B.8. of this permit.

2. Source Identification

To identify potential sources of significant materials that can pollute storm water and subsequently be discharged from the facility, the SWPPP shall, at a minimum, include the following:

a. A site map identifying:

1) buildings and other permanent structures;

2) storage or disposal areas for significant materials;

3) secondary containment structures and descriptions of the significant materials contained within the primary containment structures;

4) storm water discharge points (which include outfalls and points of discharge), numbered or otherwise labeled for reference;

5) location of storm water and non-storm water inlets (numbered or otherwise labeled for reference) contributing to each discharge point;

6) location of NPDES-permitted discharges other than storm water;

7) outlines of the drainage areas contributing to each discharge point;

8) structural controls or storm water treatment facilities;

9) areas of vegetation (with brief descriptions such as lawn, old field, marsh, wooded, etc.);

10) areas of exposed and/or erodible soils and gravel lots;

11) impervious surfaces (e.g., roofs, asphalt, concrete, etc.);

12) name and location of receiving water(s); and

13) areas of known or suspected impacts on surface waters as designated under Part 201 (Environmental Response) of the NREPA.

b. A list of all significant materials that could pollute storm water. For each material listed, the SWPPP shall include each of the following descriptions:

1) the ways in which each type of significant material has been, or has reasonable potential to become, exposed to storm water (e.g., spillage during handling; leaks from pipes, pumps, and vessels; contact with storage piles, contaminated materials, or soils; waste handling and disposal; deposits from dust or overspray; etc.);

2) identification of the discharge point(s) and the inlet(s) contributing the significant material to each discharge point through which the significant material may be discharged if released; and

3) an evaluation of the reasonable potential for contribution of significant materials to storm water from at least the following areas or activities:

a) loading, unloading, and other significant material-handling operations;

b) outdoor storage, including secondary containment structures;

c) outdoor manufacturing or processing activities;

d) significant dust- or particulate-generating processes;

e) discharge from vents, stacks, and air emission controls;

f) on-site waste disposal practices;

g) maintenance and cleaning of vehicles, machines, and equipment;

h) areas of exposed and/or erodible soils;

i) Sites of Environmental Contamination listed under Part 201 (Environmental Response) of the NREPA;

j) areas of significant material residues;

k) areas where animals (wild or domestic) congregate and deposit wastes; and

l) other areas where storm water may come into contact with significant materials.

c. A listing of significant spills and significant leaks of polluting materials that occurred in areas that are exposed to precipitation or that discharge to a point source at the facility. The listing shall include spills that occurred over the three (3) years prior to the effective date of a permit authorizing discharge. The listing shall include the date, volume, and exact location of the release, and the action taken to clean up the material and/or prevent exposure to storm water or contamination of surface waters of the state. Any release that occurs after the SWPPP has been developed shall be controlled in accordance with the SWPPP and is cause for the SWPPP to be updated as appropriate within 14 calendar days of obtaining knowledge of the spill or loss.

d. A determination as to whether its facility discharges storm water to a water body for which an EPA-approved Total Maximum Daily Load (TMDL) has been established. If so, the permittee shall assess whether the TMDL requirements for the facility's discharge are being met through the existing SWPPP controls or whether additional control measures are necessary. The permitee's assessment of whether the TMDL requirements are being met shall focus on the effectiveness, adequacy, and implementation of the permitee's SWPPP controls.

e. A summary of existing storm water discharge sampling data (if available), describing pollutants in storm water discharges at the facility. This summary shall be accompanied by a description of the suspected source(s) of the pollutants detected.

3. Nonstructural Controls

To prevent significant materials from contacting storm water at the source, the SWPPP shall, at a minimum, include each of the following nonstructural controls:

a. Written procedures and a schedule for routine preventive maintenance. Preventive maintenance procedures shall describe routine inspections and maintenance of storm water management and control devices (e.g., cleaning of oil/water separators and catch basins, routine housekeeping activities, etc.), as well as inspecting and testing plant equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to the storm sewer system or the surface waters of the state. The routine inspection shall include areas of the facility in which significant materials have the reasonable potential to contaminate storm water. A written report of the inspection and corrective actions shall be retained in accordance with Record Keeping, below.

b. Written procedures and a schedule for good housekeeping to maintain a clean, orderly facility. Good housekeeping procedures shall include routine inspections that focus on the areas of the facility that have a reasonable potential to contaminate storm water entering the property. The routine housekeeping inspections may be combined with the routine inspections for the preventive maintenance program. A written report of the inspection and corrective actions shall be retained in accordance with Record Keeping, below.

c. Written procedures and a schedule for **quarterly** comprehensive site inspections, to be conducted by the Industrial Storm Water Certified Operator. At a minimum, one inspection shall be performed within each of the following quarters: January-March, April-June, July-September, and October-December. The comprehensive site inspections shall include, but not be limited to, inspection of structural controls in use at the facility, and the areas and equipment identified in the routine preventive maintenance and good housekeeping procedures. These inspections shall also include a review of the routine preventive maintenance reports, good housekeeping inspection reports, and any other paperwork associated with the SWPPP. The permittee may request Department approval of an alternate schedule for comprehensive site inspections. A written report of the inspection and corrective actions shall be retained in accordance with Record Keeping, below, and the following shall be included on the comprehensive inspection form/report:

1) Date of the inspection.

2) Name(s), title(s), and certification number(s) of the personnel conducting the inspection.

3) Precipitation information (i.e., a description of recent rainfall/snowmelt events).

4) All observations relating to the implementation of control measures. Items to include if applicable:

   a) updates on corrective actions implemented due to previously identified pollutant and/or discharge issues;

   b) any evidence of, or the potential for, pollutants to discharge to the drainage system or receiving waters and the condition of and around the discharge point including flow dissipation measures needing maintenance or repairs;

   c) any control measures needing maintenance or repairs; and

   d) any additional control measures needed to comply with permit requirements.

5) Any required revisions to the SWPPP resulting from the inspection.

6) A written certification stating the facility is in compliance with this permit and the SWPPP, or, if there are instances of noncompliance, they are identified.

7) Written procedures and a schedule for **quarterly** visual assessments of storm water discharges. At a minimum, one visual assessment shall be conducted within each of the following quarters: January-March, April-June, July-September, and October-December. These assessments shall be conducted as part of the comprehensive site inspection within one month of control measure observations made in accordance with 4), above. If the Department has approved an alternate schedule for the comprehensive site inspection, the visual assessment may likewise be conducted in accordance with the same approved alternate schedule.

The following are the requirements of the visual assessment. The permittee shall develop and clearly document, in writing, procedures for meeting these requirements:

a) Within six (6) months of the effective date of this permit, the permittee shall develop written procedures for conducting the visual assessment and incorporate these procedures into the SWPPP. If Qualified Personnel rather than an Industrial Storm Water Certified Operator will collect storm water samples, these procedures shall include a written description of the training given to these personnel to qualify them to collect the samples, as well as documentation verifying that these personnel have received this training. The first visual assessment shall be conducted in conjunction with the next occurring comprehensive inspection. If changes resulting in altered drainage patterns occur at the facility, the permittee shall modify the procedures for conducting the visual assessment in accordance with the requirements of Keeping SWPPPs Current, below, and these modifications shall be incorporated into the SWPPP prior to conducting the next visual assessment.

b) A visual assessment shall be conducted of a representative storm water **sample** collected **from each storm water discharge point**. Storm water samples shall be visually assessed for conditions that could cause a violation of water quality standards as defined in Water Quality Standards, below. The visual assessment shall be made of the storm water sample in a clean, clear glass or plastic container. Only an Industrial Storm Water Certified Operator shall conduct this visual assessment. Visual assessment of the storm water sample shall be conducted within 48 hours of sample collection.

Representative storm water samples shall be collected:

(1) from each storm water discharge point identified as set forth under Source Identification, above. These samples may be collected by one or more of the following: an Industrial Storm Water Certified Operator; and/or an individual who meets qualifications acceptable to the Department and who is authorized by an Industrial Storm Water Certified Operator to collect the sample ("Qualified Personnel"); and/or an automated sampling device; and

(2) within the first 30 minutes of the start of a discharge from a storm event and on discharges that occur at least 72 hours (3 days) from the previous discharge. If it is not possible to collect the sample within the first 30 minutes of discharge, the sample shall be collected as soon thereafter as practicable, but not exceeding 60 minutes. In the case of snowmelt, samples shall be collected during a period with measurable discharge from the site.

c) A visual assessment shall be conducted of the storm water **discharge at each storm water discharge point**. (If an automated sampling device is used to collect the storm water sample, this requirement is waived). Either an Industrial Storm Water Certified Operator and/or Qualified Personnel may conduct this visual assessment. This visual assessment may be conducted directly – by someone physically present at the storm water discharge at each storm water discharge point; or it may be conducted indirectly – through the use of a visual recording taken of the storm water discharge at each storm water discharge point. Direct visual assessment shall be conducted at the same time that the storm water sample is collected. Indirect visual assessment shall be conducted using a visual recording taken of the storm water discharge at the same time that the storm water sample was collected.

d) Visual assessments shall be documented. This documentation shall be retained in accordance with Record Keeping, below, and shall include the following:

(1) sampling location(s) at the storm water discharge point(s) identified on the site map (see Source Identification, above);

(2) storm event information (i.e., length of event expressed in hours, approximate size of event expressed in inches of precipitation, duration of time since previous event that caused a discharge, and date and time the discharge began);

(3) date and time of the visual assessment of each storm water **discharge** at each storm water discharge point;

(4) name(s) and title(s) of the Industrial Storm Water Certified Operator or Qualified Personnel who conducted the visual assessment of the storm water **discharge** at each storm water discharge point. If an automated sampling device was used to collect the storm water sample associated with this discharge point, this documentation requirement is waived;

(5) observations made during visual assessment of the storm water **discharge** at each storm water discharge point. If an automated sampling device was used to collect the storm water sample associated with this discharge point, this documentation requirement is waived;

(6) if applicable, any visual recordings used to conduct the visual assessment of the storm water **discharge** at each storm water discharge point;

(7) date and time of sample collection for each storm water **sample**;

(8) name(s) and title(s) of the Industrial Storm Water Certified Operator or Qualified Personnel who collected the storm water **sample**. If an automated sampling device was used to collect the storm water sample, the permittee shall document that, instead;

(9) date and time of the visual assessment of each storm water **sample**;

(10) name(s), title(s), and operator number(s) of the Industrial Storm Water Certified Operator(s) who conducted the visual assessment of each storm water **sample**;

(11) observations made during visual assessment of each storm water **sample**;

(12) full-color photographic evidence of the storm water **sample** against a white background;

(13) nature of the discharge (i.e., rainfall or snowmelt);

(14) probable sources of any observed storm water contamination; and

(15) if applicable, an explanation for why it was not possible to collect samples within the first 30 minutes of discharge.

e) When adverse weather conditions prevent a visual assessment during the quarter, a substitute visual assessment shall be conducted during the next qualifying storm event. Documentation of the rationale for no visual assessment during a quarter shall be included with the SWPPP records as described in Record Keeping, below. Adverse conditions are those that are dangerous or create inaccessibility for personnel, such as local flooding, high winds, electrical storms, or situations that otherwise make sampling impractical such as drought or extended frozen conditions.

f) If the facility has two (2) or more discharge points that are believed to discharge substantially identical storm water effluents, the facility may conduct visual assessments of the discharge at just one (1) of the discharge points and report that the results also apply to the other substantially identical discharge point(s). The determination of substantially identical discharge points is to be based on the significant material evaluation conducted as set forth under Source Identification, above, and shall be clearly documented in the SWPPP. Visual assessments shall be conducted on a

rotating basis of each substantially identical discharge point throughout the period of coverage under this permit.

d. A description of material handling procedures and storage requirements for significant materials. Equipment and procedures for cleaning up spills shall be identified in the SWPPP and made available to the appropriate personnel. The procedures shall identify measures to prevent spilled materials or material residues from contaminating storm water entering the property. The SWPPP shall include language describing what a reportable spill or release is and the appropriate reporting requirements in accordance with Part II.C.6. and Part II.C.7. The SWPPP may include, by reference, requirements of either a Pollution Incident Prevention Plan (PIPP) prepared in accordance with the Part 5 Rules (R 324.2001 through R 324.2009 of the Michigan Administrative Code); a Hazardous Waste Contingency Plan prepared in accordance with 40 CFR 264 and 265 Subpart D, as required by Part 111 of the NREPA; or a Spill Prevention Control and Countermeasure (SPCC) plan prepared in accordance with 40 CFR 112.

e. Identification of areas which, due to topography, activities, or other factors, have a high potential for significant soil erosion. Gravel lots shall be included. The SWPPP shall also identify measures used to control soil erosion and sedimentation.

f. A description of the employee training program that will be implemented on an annual basis to inform appropriate personnel at all levels of their responsibility as it relates to the components and goals of the SWPPP. The SWPPP shall identify periodic dates for the employee training program. Records of the employee training program shall be retained in accordance with Record Keeping, below.

g. Identification of actions to limit the discharge of significant materials in order to comply with TMDL requirements, if applicable.

h. Identification of significant materials expected to be present in storm water discharges following implementation of nonstructural preventive measures and source controls.

4. Structural Controls

Where implementation of the measures required by Nonstructural Controls, above, does not control storm water discharges in accordance with Water Quality Standards, below, the SWPPP shall provide a description of the location, function, design criteria, and installation/construction schedule of structural controls for prevention and treatment. Structural controls may be necessary:

a. to prevent uncontaminated storm water from contacting, or being contacted by, significant materials; or

b. if preventive measures are not feasible or are inadequate to keep significant materials at the site from contaminating storm water. Structural controls shall be used to treat, divert, isolate, recycle, reuse, or otherwise manage storm water in a manner that reduces the level of significant materials in the storm water and provides compliance with water quality standards as identified in Water Quality Standards, below.

5. Keeping SWPPPs Current

a. The permittee and/or the Industrial Storm Water Certified Operator shall review the SWPPP annually after it is developed and maintain a written report of the review in accordance with Record Keeping, below. Based on the review, the permittee or the Industrial Storm Water Certified Operator shall amend the SWPPP as needed to ensure continued compliance with the terms and conditions of this permit. The written report shall be submitted to the Department on or before January 10th of each year.

b. The SWPPP developed under the conditions of a previous permit shall be amended as necessary to ensure compliance with this permit.

c. The SWPPP shall be updated or amended whenever changes at the facility have the potential to increase the exposure of significant materials to storm water, significant spills occur at the facility, or when the SWPPP is determined by the permittee or the Department to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity. Updates based on increased activity or spills at the facility shall include a description of how the permittee intends to control any new sources of significant materials, or respond to and prevent spills in accordance with the requirements of this permit (see Source Identification; Nonstructural Controls; and Structural Controls, above).

d. The Department may notify the permittee at any time that the SWPPP does not meet minimum requirements of this permit. Such notification shall identify why the SWPPP does not meet minimum requirements of this permit. The permittee shall make the required changes to the SWPPP within 30 days after such notification from the Department or authorized representative and shall submit to the Department a written certification that the requested changes have been made.

e. Amendments to the SWPPP shall be signed and retained on-site with the SWPPP pursuant to Signature and SWPPP Review, below.

6. Industrial Storm Water Certified Operator Update

If the Industrial Storm Water Certified Operator is changed or an Industrial Storm Water Certified Operator is added, the permittee shall provide the name and certification number of the new Industrial Storm Water Certified Operator to the Department. If a facility has multiple Industrial Storm Water Certified Operators, the names and certification numbers of all shall be included in the SWPPP.

7. Signature and SWPPP Review

a. The SWPPP shall be reviewed and signed by the Industrial Storm Water Certified Operator(s) and by either the permittee or an authorized representative in accordance with 40 CFR 122.22. The SWPPP and associated records shall be retained on-site at the facility that generates the storm water discharge.

b. The permittee shall make the SWPPP, reports, log books, storm water discharge sampling data (if collected), and items required by Record Keeping, below, available upon request to the Department. The Department makes the non-confidential business portions of the SWPPP available to the public.

8. Record Keeping

The permittee shall maintain records of all SWPPP-related inspection and maintenance activities. Records shall also be kept describing incidents such as spills or other discharges that can affect the quality of storm water. All such records shall be retained for three (3) years. The following records are required by this permit (see Nonstructural Controls; and Keeping SWPPPs Current, above):

a. routine preventive maintenance inspection reports;

b. routine good housekeeping inspection reports;

c. comprehensive site inspection reports;

d. documentation of visual assessments;

e. employee training records; and

f. written summaries of the annual SWPPP review.

9. Water Quality Standards

At the time of discharge, there shall be no violation of water quality standards in the receiving waters as a result of the storm water discharge. This requirement includes, but is not limited to, the following conditions:

a. In accordance with R 323.1050 of the Part 4 Rules promulgated pursuant to Part 31 of the NREPA, the receiving waters shall not have any of the following unnatural physical properties as a result of this discharge in quantities which are, or may become, injurious to any designated use: turbidity, color, oil films, floating solids, foams, settleable solids, suspended solids, or deposits.

b. Any unusual characteristics of the discharge (i.e., unnatural turbidity, color, oil film, floating solids, foams, settleable solids, suspended solids, or deposits) shall be reported within 24 hours to the Department, followed by a written report within five (5) days detailing the findings of the investigation and the steps taken to correct the condition.

c. Any pollutant for which a level of control is specified to meet a TMDL established by the Department shall be controlled at the facility so that its discharge is reduced by/to the amount specified in the TMDL.

10. Prohibition of Non-Storm Water Discharges

Discharges of material other than storm water shall be in compliance with an NPDES permit issued for the discharge. Storm water shall be defined to include all of the following non-storm water discharges, provided pollution prevention controls for the non-storm water component are identified in the SWPPP:

a. discharges from fire hydrant flushing;

b. potable water sources, including water line flushing;

c. water from fire system testing and fire-fighting training without burned materials or chemical fire suppressants;

d. irrigation drainage;

e. lawn watering;

f. routine building wash-down that does not use detergents or other compounds;

g. pavement wash waters where contamination by toxic or hazardous materials has not occurred (unless all contamination by toxic or hazardous materials has been removed) and where detergents are not used;

h. uncontaminated condensate from air conditioners, coolers, and other compressors and from the outside storage of refrigerated gases or liquids;

i. springs;

j. uncontaminated groundwater;

k. foundation or footing drains where flows are not contaminated with process materials such as solvents; and

l. discharges from fire-fighting activities. Discharges from fire-fighting activities are exempted from the requirement to be identified in the SWPPP.

11. Tracer Dye Discharges

This permit does not authorize the discharge of tracer dyes without approval from the Department. Requests to discharge tracer dyes shall be submitted to the Department in accordance with Rule 1097 (R 323.1097 of the Michigan Administrative Code).

PART II

Part II may include terms and /or conditions not applicable to discharges covered under this permit.

Section A. Definitions

Acute toxic unit (TU_A) means $100/LC_{50}$ where the LC_{50} is determined from a whole effluent toxicity (WET) test which produces a result that is statistically or graphically estimated to be lethal to 50% of the test organisms.

Annual monitoring frequency refers to a calendar year beginning on January 1 and ending on December 31. When required by this permit, an analytical result, reading, value or observation shall be reported for that period if a discharge occurs during that period.

Authorized public agency means a state, local, or county agency that is designated pursuant to the provisions of section 9110 of Part 91 of the NREPA to implement soil erosion and sedimentation control requirements with regard to construction activities undertaken by that agency.

Best management practices (BMPs) means structural devices or nonstructural practices that are designed to prevent pollutants from entering into storm water, to direct the flow of storm water, or to treat polluted storm water.

Bioaccumulative chemical of concern (BCC) means a chemical which, upon entering the surface waters, by itself or as its toxic transformation product, accumulates in aquatic organisms by a human health bioaccumulation factor of more than 1000 after considering metabolism and other physiochemical properties that might enhance or inhibit bioaccumulation. The human health bioaccumulation factor shall be derived according to R 323.1057(5). Chemicals with half-lives of less than 8 weeks in the water column, sediment, and biota are not BCCs. The minimum bioaccumulation concentration factor (BAF) information needed to define an organic chemical as a BCC is either a field-measured BAF or a BAF derived using the biota-sediment accumulation factor (BSAF) methodology. The minimum BAF information needed to define an inorganic chemical as a BCC, including an organometal, is either a field-measured BAF or a laboratory-measured bioconcentration factor (BCF). The BCCs to which these rules apply are identified in Table 5 of R 323.1057 of the Water Quality Standards.

Biosolids are the solid, semisolid, or liquid residues generated during the treatment of sanitary sewage or domestic sewage in a treatment works. This includes, but is not limited to, scum or solids removed in primary, secondary, or advanced wastewater treatment processes and a derivative of the removed scum or solids.

Bulk biosolids means biosolids that are not sold or given away in a bag or other container for application to a lawn or home garden.

Certificate of Coverage (COC) is a document, issued by the Department, which authorizes a discharge under a general permit.

Chronic toxic unit (TU_C) means $100/MATC$ or $100/IC_{25}$, where the maximum acceptable toxicant concentration (MATC) and IC_{25} are expressed as a percent effluent in the test medium.

Class B biosolids refers to material that has met the Class B pathogen reduction requirements or equivalent treatment by a Process to Significantly Reduce Pathogens (PSRP) in accordance with the Part 24 Rules. Processes include aerobic digestion, composting, anaerobic digestion, lime stabilization and air drying.

Combined sewer system is a sewer system in which storm water runoff is combined with sanitary wastes.

Daily concentration is the sum of the concentrations of the individual samples of a parameter divided by the number of samples taken during any calendar day. The daily concentration will be used to determine compliance with any maximum and minimum daily concentration limitations (except for pH and dissolved oxygen). When required by the permit, report the maximum calculated daily concentration for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the Discharge Monitoring Reports (DMRs).

For pH, report the maximum value of any *individual* sample taken during the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs and the minimum value of any *individual* sample taken during the month in the "MINIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs. For dissolved oxygen, report the minimum concentration of any *individual* sample in the "MINIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs.

Daily loading is the total discharge by weight of a parameter discharged during any calendar day. This value is calculated by multiplying the daily concentration by the total daily flow and by the appropriate conversion factor. The daily loading will be used to determine compliance with any maximum daily loading limitations. When required by the permit, report the maximum calculated daily loading for the month in the "MAXIMUM" column under "QUANTITY OR LOADING" on the DMRs.

Daily monitoring frequency refers to a 24-hour day. When required by this permit, an analytical result, reading, value or observation shall be reported for that period if a discharge occurs during that period.

Department means the Michigan Department of Environmental Quality.

Detection level means the lowest concentration or amount of the target analyte that can be determined to be different from zero by a single measurement at a stated level of probability.

Discharge means the addition of any waste, waste effluent, wastewater, pollutant, or any combination thereof to any surface water of the state.

EC_{50} means a statistically or graphically estimated concentration that is expected to cause 1 or more specified effects in 50% of a group of organisms under specified conditions.

Fecal coliform bacteria monthly
FOR WWSLs THAT COLLECT AND STORE WASTEWATER AND ARE AUTHORIZED TO DISCHARGE ONLY IN THE SPRING AND/OR FALL ON AN INTERMITTENT BASIS – Fecal coliform bacteria monthly is the geometric mean of all daily concentrations determined during a discharge event. Days on which no daily concentration is determined shall not be used to determine the calculated monthly value. The calculated monthly value will be used to determine compliance with the maximum monthly fecal coliform bacteria limitations. When required by the permit, report the calculated monthly value in the "AVERAGE" column under "QUALITY OR CONCENTRATION" on the DMR. If the period in which the discharge event occurred was partially in each of two months, the calculated monthly value shall be reported on the DMR of the month in which the last day of discharge occurred.

FOR ALL OTHER DISCHARGES – Fecal coliform bacteria monthly is the geometric mean of all daily concentrations determined during a reporting month. Days on which no daily concentration is determined shall not be used to determine the calculated monthly value. The calculated monthly value will be used to determine compliance with the maximum monthly fecal coliform bacteria limitations. When required by the permit, report the calculated monthly value in the "AVERAGE" column under "QUALITY OR CONCENTRATION" on the DMR.

Fecal coliform bacteria 7-day
FOR WWSLs THAT COLLECT AND STORE WASTEWATER AND ARE AUTHORIZED TO DISCHARGE ONLY IN THE SPRING AND/OR FALL ON AN INTERMITTENT BASIS – Fecal coliform bacteria 7-day is the geometric mean of the daily concentrations determined during any 7 consecutive days of discharge during a discharge event. If the number of daily concentrations determined during the discharge event is less than 7 days, the number of actual daily concentrations determined shall be used for the calculation. Days on which no daily concentration is determined shall not be used to determine the value. The calculated 7-day value will be used to determine compliance with the maximum 7-day fecal coliform bacteria limitations. When required by the permit, report the maximum calculated 7-day geometric mean value for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs. If the 7-day period was partially in each of two months, the value shall be reported on the DMR of the month in which the last day of discharge occurred.

FOR ALL OTHER DISCHARGES – Fecal coliform bacteria 7-day is the geometric mean of the daily concentrations determined during any 7 consecutive days in a reporting month. If the number of daily concentrations determined is less than 7, the actual number of daily concentrations determined shall be used for the calculation. Days on which no daily concentration is determined shall not be used to determine the value. The calculated 7-day value will be used to determine compliance with the maximum 7-day fecal coliform bacteria limitations. When required by the permit, report the maximum calculated 7-day geometric mean for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs. The first calculation shall be made on day 7 of the reporting month, and the last calculation shall be made on the last day of the reporting month.

Flow-proportioned sample is a composite sample with the sample volume proportional to the effluent flow.

General permit means a National Pollutant Discharge Elimination System permit issued authorizing a category of similar discharges.

Geometric mean is the average of the logarithmic values of a base 10 data set, converted back to a base 10 number.

Grab sample is a single sample taken at neither a set time nor flow.

IC_{25} means the toxicant concentration that would cause a 25% reduction in a nonquantal biological measurement for the test population.

Illicit connection means a physical connection to a municipal separate storm sewer system that primarily conveys non-storm water discharges other than uncontaminated groundwater into the storm sewer; or a physical connection not authorized or permitted by the local authority, where a local authority requires authorization or a permit for physical connections.

Illicit discharge means any discharge to, or seepage into, a municipal separate storm sewer system that is not composed entirely of storm water or uncontaminated groundwater. Illicit discharges include non-storm water discharges through pipes or other physical connections; dumping of motor vehicle fluids, household hazardous wastes, domestic animal wastes, or litter; collection and intentional dumping of grass clippings or leaf litter; or unauthorized discharges of sewage, industrial waste, restaurant wastes, or any other non-storm water waste directly into a separate storm sewer.

Individual permit means a site-specific NPDES permit.

Inlet means a catch basin, roof drain, conduit, drain tile, retention pond riser pipe, sump pump, or other point where storm water or wastewater enters into a closed conveyance system prior to discharge off site or into waters of the state.

Interference is a discharge which, alone or in conjunction with a discharge or discharges from other sources, both: 1) inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and 2) therefore, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or, of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent state or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including state regulations contained in any state sludge management plan prepared pursuant to Subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act. [This definition does not apply to sample matrix interference].

Land application means spraying or spreading biosolids or a biosolids derivative onto the land surface, injecting below the land surface, or incorporating into the soil so that the biosolids or biosolids derivative can either condition the soil or fertilize crops or vegetation grown in the soil.

LC_{50} means a statistically or graphically estimated concentration that is expected to be lethal to 50% of a group of organisms under specified conditions.

Maximum acceptable toxicant concentration (MATC) means the concentration obtained by calculating the geometric mean of the lower and upper chronic limits from a chronic test. A lower chronic limit is the highest tested concentration that did not cause the occurrence of a specific adverse effect. An upper chronic limit is the lowest tested concentration which did cause the occurrence of a specific adverse effect and above which all tested concentrations caused such an occurrence.

Maximum extent practicable means implementation of best management practices by a public body to comply with an approved storm water management program as required by a national permit for a municipal separate storm sewer system, in a manner that is environmentally beneficial, technically feasible, and within the public body’s legal authority.

MGD means million gallons per day.

Monthly concentration is the sum of the daily concentrations determined during a reporting period divided by the number of daily concentrations determined. The calculated monthly concentration will be used to determine compliance with any maximum monthly concentration limitations. Days with no discharge shall not be used to determine the value. When required by the permit, report the calculated monthly concentration in the “AVERAGE” column under “QUALITY OR CONCENTRATION” on the DMR.

For minimum percent removal requirements, the monthly influent concentration and the monthly effluent concentration shall be determined. The calculated monthly percent removal, which is equal to 100 times the quantity [1 minus the quantity (monthly effluent concentration divided by the monthly influent concentration)], shall be reported in the "MINIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs.

Monthly loading is the sum of the daily loadings of a parameter divided by the number of daily loadings determined during a reporting period. The calculated monthly loading will be used to determine compliance with any maximum monthly loading limitations. Days with no discharge shall not be used to determine the value. When required by the permit, report the calculated monthly loading in the “AVERAGE” column under “QUANTITY OR LOADING” on the DMR.

Monthly monitoring frequency refers to a calendar month. When required by this permit, an analytical result, reading, value or observation shall be reported for that period if a discharge occurs during that period.

Municipal separate storm sewer means a conveyance or system of conveyances designed or used for collecting or conveying storm water which is not a combined sewer and which is not part of a publicly-owned treatment works as defined in the Code of Federal Regulations at 40 CFR 122.2.

Municipal separate storm sewer system (MS4) means all separate storm sewers that are owned or operated by the United States, a state, city, village, township, county, district, association, or other public body created by or pursuant to state law, having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under state law, such as a sewer district, flood control district, or drainage district, or similar entity, or a designated or approved management agency under Section 208 of the Federal Act that discharges to the waters of the state. This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

National Pretreatment Standards are the regulations promulgated by or to be promulgated by the Federal Environmental Protection Agency pursuant to Section 307(b) and (c) of the Federal Act. The standards establish nationwide limits for specific industrial categories for discharge to a POTW.

No observed adverse effect level (NOAEL) means the highest tested dose or concentration of a substance which results in no observed adverse effect in exposed test organisms where higher doses or concentrations result in an adverse effect.

Noncontact cooling water is water used for cooling which does not come into direct contact with any raw material, intermediate product, by-product, waste product or finished product.

Nondomestic user is any discharger to a POTW that discharges wastes other than or in addition to water-carried wastes from toilet, kitchen, laundry, bathing or other facilities used for household purposes.

Outfall is the location at which a point source discharge enters the surface waters of the state.

Part 91 agency means an agency that is designated by a county board of commissioners pursuant to the provisions of section 9105 of Part 91 of the NREPA; an agency that is designated by a city, village, or township in accordance with the provisions of section 9106 of Part 91 of the NREPA; or the Department for soil erosion and sedimentation activities under Part 615, Part 631, or Part 632 pursuant to the provisions of section 9115 of Part 91 of the NREPA.

Part 91 permit means a soil erosion and sedimentation control permit issued by a Part 91 agency pursuant to the provisions of Part 91 of the NREPA.

Partially treated sewage is any sewage, sewage and storm water, or sewage and wastewater, from domestic or industrial sources that is treated to a level less than that required by the permittee's National Pollutant Discharge Elimination System permit, or that is not treated to national secondary treatment standards for wastewater, including discharges to surface waters from retention treatment facilities.

Point of discharge is the location of a point source discharge where storm water is discharged directly into a separate storm sewer system.

Point source discharge means a discharge from any discernible, confined, discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, or rolling stock. Changing the surface of land or establishing grading patterns on land will result in a point source discharge where the runoff from the site is ultimately discharged to waters of the state.

Polluting material means any material, in solid or liquid form, identified as a polluting material under the Part 5 Rules (R 324.2001 through R 324.2009 of the Michigan Administrative Code).

POTW is a publicly owned treatment work.

Pretreatment is reducing the amount of pollutants, eliminating pollutants, or altering the nature of pollutant properties to a less harmful state prior to discharge into a public sewer. The reduction or alteration can be by physical, chemical, or biological processes, process changes, or by other means. Dilution is not considered pretreatment unless expressly authorized by an applicable National Pretreatment Standard for a particular industrial category.

Public (as used in the MS4 individual permit) means all persons who potentially could affect the authorized storm water discharges, including, but not limited to, residents, visitors to the area, public employees, businesses, industries, and construction contractors and developers.

Public body means the United States; the state of Michigan; a city, village, township, county, school district, public college or university, or single-purpose governmental agency; or any other body which is created by federal or state statute or law.

Qualified Personnel means an individual who meets qualifications acceptable to the Department and who is authorized by an Industrial Storm Water Certified Operator to collect the storm water sample.

Qualifying storm event means a storm event causing greater than 0.1 inch of rainfall and occurring at least 72 hours after the previous measurable storm event that also caused greater than 0.1 inch of rainfall. Upon request, the Department may approve an alternate definition meeting the condition of a qualifying storm event.

Quantification level means the measurement of the concentration of a contaminant obtained by using a specified laboratory procedure calculated at a specified concentration above the detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant.

Quarterly monitoring frequency refers to a three month period, defined as January through March, April through June, July through September, and October through December. When required by this permit, an analytical result, reading, value or observation shall be reported for that period if a discharge occurs during that period.

Regional Administrator is the Region 5 Administrator, U.S. EPA, located at R-19J, 77 W. Jackson Blvd., Chicago, Illinois 60604.

Regulated area means the permittee's urbanized area, where urbanized area is defined as a place and its adjacent densely-populated territory that together have a minimum population of 50,000 people as defined by the United States Bureau of the Census and as determined by the latest available decennial census.

Secondary containment structure means a unit, other than the primary container, in which significant materials are packaged or held, which is required by State or Federal law to prevent the escape of significant materials by gravity into sewers, drains, or otherwise directly or indirectly into any sewer system or to the surface or ground waters of this state.

Separate storm sewer system means a system of drainage, including, but not limited to, roads, catch basins, curbs, gutters, parking lots, ditches, conduits, pumping devices, or man-made channels, which is not a combined sewer where storm water mixes with sanitary wastes, and is not part of a POTW.

Significant industrial user is a nondomestic user that: 1) is subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; or 2) discharges an average of 25,000 gallons per day or more of process wastewater to a POTW (excluding sanitary, noncontact cooling and boiler blowdown wastewater); contributes a process waste stream which makes up five (5) percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the permittee as defined in 40 CFR 403.12(a) on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's treatment plant operation or violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Significant materials Significant Materials means any material which could degrade or impair water quality, including but not limited to: raw materials; fuels; solvents, detergents, and plastic pellets; finished materials such as metallic products; hazardous substances designated under Section 101(14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (see 40 CFR 372.65); any chemical the facility is required to report pursuant to Section 313 of Emergency Planning and Community Right-to-Know Act (EPCRA); polluting materials as identified under the Part 5 Rules (R 324.2001 through R 324.2009 of the Michigan Administrative Code); Hazardous Wastes as defined in Part 111 of the NREPA; fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges.

Significant spills and significant leaks means any release of a polluting material reportable under the Part 5 Rules (R 324.2001 through R 324.2009 of the Michigan Administrative Code).

Special-use area means secondary containment structures required by state or federal law; lands on Michigan's List of Sites of Environmental Contamination pursuant to Part 201, Environmental Remediation, of the NREPA; and/or areas with other activities that may contribute pollutants to the storm water for which the Department determines monitoring is needed.

Stoichiometric means the quantity of a reagent calculated to be necessary and sufficient for a given chemical reaction.

Storm water means storm water runoff, snow melt runoff, surface runoff and drainage, and non-storm water included under the conditions of this permit.

Storm water discharge point is the location where the point source discharge of storm water is directed to surface waters of the state or to a separate storm sewer. It includes the location of all point source discharges where storm water exits the facility, including *outfalls* which discharge directly to surface waters of the state, and *points of discharge* which discharge directly into separate storm sewer systems.

SWPPP means the Storm Water Pollution Prevention Plan prepared in accordance with this permit.

Tier I value means a value for aquatic life, human health or wildlife calculated under R 323.1057 of the Water Quality Standards using a tier I toxicity database.

Tier II value means a value for aquatic life, human health or wildlife calculated under R 323.1057 of the Water Quality Standards using a tier II toxicity database.

Total maximum daily loads (TMDLs) are required by the Federal Act for waterbodies that do not meet water quality standards. TMDLs represent the maximum daily load of a pollutant that a waterbody can assimilate and meet water quality standards, and an allocation of that load among point sources, nonpoint sources, and a margin of safety.

Toxicity reduction evaluation (TRE) means a site-specific study conducted in a stepwise process designed to identify the causative agents of effluent toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in effluent toxicity.

Water Quality Standards means the Part 4 Water Quality Standards promulgated pursuant to Part 31 of the NREPA, being R 323.1041 through R 323.1117 of the Michigan Administrative Code.

Weekly monitoring frequency refers to a calendar week which begins on Sunday and ends on Saturday. When required by this permit, an analytical result, reading, value or observation shall be reported for that period if a discharge occurs during that period.

WWSL is a wastewater stabilization lagoon.

WWSL discharge event is a discrete occurrence during which effluent is discharged to the surface water up to 10 days of a consecutive 14 day period.

3-portion composite sample is a sample consisting of three equal-volume grab samples collected at equal intervals over an 8-hour period.

7-day concentration
FOR WWSLs THAT COLLECT AND STORE WASTEWATER AND ARE AUTHORIZED TO DISCHARGE ONLY IN THE SPRING AND/OR FALL ON AN INTERMITTENT BASIS – The 7-day concentration is the sum of the daily concentrations determined during any 7 consecutive days of discharge during a WWSL discharge event divided by the number of daily concentrations determined. If the number of daily concentrations determined during the WWSL discharge event is less than 7 days, the number of actual daily concentrations determined shall be used for the calculation. The calculated 7-day concentration will be used to determine compliance with any maximum 7-day concentration limitations. When required by the permit, report the maximum calculated 7-day concentration for the WWSL discharge event in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMR. If the WWSL discharge event was partially in each of two months, the value shall be reported on the DMR of the month in which the last day of discharge occurred.

FOR ALL OTHER DISCHARGES – The 7-day concentration is the sum of the daily concentrations determined during any 7 consecutive days in a reporting month divided by the number of daily concentrations determined. If the number of daily concentrations determined is less than 7, the actual number of daily concentrations determined shall be used for the calculation. The calculated 7-day concentration will be used to determine compliance with any maximum 7-day concentration limitations in the reporting month. When required by the permit, report the maximum calculated 7-day concentration for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMR. The first 7-day calculation shall be made on day 7 of the reporting month, and the last calculation shall be made on the last day of the reporting month.

7-day loading
FOR WWSLs THAT COLLECT AND STORE WASTEWATER AND ARE AUTHORIZED TO DISCHARGE ONLY IN THE SPRING AND/OR FALL ON AN INTERMITTENT BASIS – The 7-day loading is the sum of the daily loadings determined during any 7 consecutive days of discharge during a WWSL discharge event divided by the number of daily loadings determined. If the number of daily loadings determined during the WWSL discharge event is less than 7 days, the number of actual daily loadings determined shall be used for the calculation. The calculated 7-day loading will be used to determine compliance with any maximum 7-day loading limitations. When required by the permit, report the maximum calculated 7-day loading for the WWSL discharge event in the "MAXIMUM" column under "QUANTITY OR LOADING" on the DMR. If the WWSL discharge event was partially in each of two months, the value shall be reported on the DMR of the month in which the last day of discharge occurred

FOR ALL OTHER DISCHARGES – The 7-day loading is the sum of the daily loadings determined during any 7 consecutive days in a reporting month divided by the number of daily loadings determined. If the number of daily loadings determined is less than 7, the actual number of daily loadings determined shall be used for the calculation. The calculated 7-day loading will be used to determine compliance with any maximum 7-day loading limitations in the reporting month. When required by the permit, report the maximum calculated 7-day loading for the month in the "MAXIMUM" column under "QUANTITY OR LOADING" on the DMR. The first 7-day calculation shall be made on day 7 of the reporting month, and the last calculation shall be made on the last day of the reporting month.

24-hour composite sample is a flow-proportioned composite sample consisting of hourly or more frequent portions that are taken over a 24-hour period. A time-proportioned composite sample may be used upon approval of the Department if the permittee demonstrates it is representative of the discharge.

PART II

Section B. Monitoring Procedures

1. Representative Samples

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Test Procedures

Test procedures for the analysis of pollutants shall conform to regulations promulgated pursuant to Section 304(h) of the Federal Act (40 CFR Part 136 – Guidelines Establishing Test Procedures for the Analysis of Pollutants), unless specified otherwise in this permit. **Test procedures used shall be sufficiently sensitive to determine compliance with applicable effluent limitations**. Requests to use test procedures not promulgated under 40 CFR Part 136 for pollutant monitoring required by this permit shall be made in accordance with the Alternate Test Procedures regulations specified in 40 CFR 136.4. These requests shall be submitted to the Section Manager of the Permits Section, Water Resources Division, Michigan Department of Environmental Quality, P.O. Box 30458, Lansing, Michigan, 48909-7958. The permittee may use such procedures upon approval.

The permittee shall periodically calibrate and perform maintenance procedures on all analytical instrumentation at intervals to ensure accuracy of measurements. The calibration and maintenance shall be performed as part of the permittee's laboratory Quality Control/Quality Assurance program.

3. Instrumentation

The permittee shall periodically calibrate and perform maintenance procedures on all monitoring instrumentation at intervals to ensure accuracy of measurements.

4. Recording Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information: 1) the exact place, date, and time of measurement or sampling; 2) the person(s) who performed the measurement or sample collection; 3) the dates the analyses were performed; 4) the person(s) who performed the analyses; 5) the analytical techniques or methods used; 6) the date of and person responsible for equipment calibration; and 7) the results of all required analyses.

5. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years, or longer if requested by the Regional Administrator or the Department.

PART II

Section C. Reporting Requirements

1. Start-up Notification

If the permittee will not discharge during the first 60 days following the effective date of this permit, the permittee shall notify the Department within 14 days following the effective date of this permit, and then 60 days prior to the commencement of the discharge.

2. Submittal Requirements for Self-Monitoring Data

Part 31 of the NREPA (specifically Section 324.3110(7)); and R 323.2155(2) of Part 21, Wastewater Discharge Permits, promulgated under Part 31 of the NREPA, allow the Department to specify the forms to be utilized for reporting the required self-monitoring data. Unless instructed on the effluent limitations page to conduct "Retained Self-Monitoring," the permittee shall submit self-monitoring data via the Department's MiWaters system.

The permittee shall utilize the information provided on the MiWaters website, located at https://miwaters.deq.state.mi.us, to access and submit the electronic forms. Both monthly summary and daily data shall be submitted to the Department no later than the 20th day of the month following each month of the authorized discharge period(s). The permittee may be allowed to submit the electronic forms after this date if the Department has granted an extension to the submittal date.

3. Retained Self-Monitoring Requirements

If instructed on the effluent limits page (or otherwise authorized by the Department in accordance with the provisions of this permit) to conduct retained self-monitoring, the permittee shall maintain a year-to-date log of retained self-monitoring results and, upon request, provide such log for inspection to the staff of the Department. Retained self-monitoring results are public information and shall be promptly provided to the public upon request.

The permittee shall certify, in writing, to the Department, on or before January 10th (April 1st for animal feeding operation facilities) of each year, that: 1) all retained self-monitoring requirements have been complied with and a year-to-date log has been maintained; and 2) the application on which this permit is based still accurately describes the discharge. With this annual certification, the permittee shall submit a summary of the previous year's monitoring data. The summary shall include maximum values for samples to be reported as daily maximums and/or monthly maximums and minimum values for any daily minimum samples.

Retained self-monitoring may be denied to a permittee by notification in writing from the Department. In such cases, the permittee shall submit self-monitoring data in accordance with Part II.C.2., above. Such a denial may be rescinded by the Department upon written notification to the permittee. Reissuance or modification of this permit or reissuance or modification of an individual permittee's authorization to discharge shall not affect previous approval or denial for retained self-monitoring unless the Department provides notification in writing to the permittee.

4. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report. Such increased frequency shall also be indicated.

Monitoring required pursuant to Part 41 of the NREPA or Rule 35 of the Mobile Home Park Commission Act (Act 96 of the Public Acts of 1987) for assurance of proper facility operation shall be submitted as required by the Department.

5. Compliance Dates Notification

Within 14 days of every compliance date specified in this permit, the permittee shall submit a *written* notification to the Department indicating whether or not the particular requirement was accomplished. If the requirement was not accomplished, the notification shall include an explanation of the failure to accomplish the requirement, actions taken or planned by the permittee to correct the situation, and an estimate of when the requirement will be accomplished. If a written report is required to be submitted by a specified date and the permittee accomplishes this, a separate written notification is not required.

6. Noncompliance Notification

Compliance with all applicable requirements set forth in the Federal Act, Parts 31 and 41 of the NREPA, and related regulations and rules is required. All instances of noncompliance shall be reported as follows:

a. 24-Hour Reporting
Any noncompliance which may endanger health or the environment (including maximum and/or minimum daily concentration discharge limitation exceedances) shall be reported, verbally, within 24 hours from the time the permittee becomes aware of the noncompliance. A written submission shall also be provided within five (5) days.

b. Other Reporting
The permittee shall report, in writing, all other instances of noncompliance not described in a. above at the time monitoring reports are submitted; or, in the case of retained self-monitoring, within five (5) days from the time the permittee becomes aware of the noncompliance.

Written reporting shall include: 1) a description of the discharge and cause of noncompliance; and 2) the period of noncompliance, including exact dates and times, or, if not yet corrected, the anticipated time the noncompliance is expected to continue, and the steps taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

7. Spill Notification

The permittee shall immediately report any release of any polluting material which occurs to the surface waters or groundwaters of the state, unless the permittee has determined that the release is not in excess of the threshold reporting quantities specified in the Part 5 Rules (R 324.2001 through R 324.2009 of the Michigan Administrative Code), by calling the Department at the number indicated on the second page of this permit (or, if this is a general permit, on the COC); or, if the notice is provided after regular working hours, call the Department's 24-hour Pollution Emergency Alerting System telephone number, 1-800-292-4706 (calls from **out-of-state** dial 1-517-373-7660).

Within ten (10) days of the release, the permittee shall submit to the Department a full written explanation as to the cause of the release, the discovery of the release, response (clean-up and/or recovery) measures taken, and preventive measures taken or a schedule for completion of measures to be taken to prevent reoccurrence of similar releases.

8. Upset Noncompliance Notification

If a process "upset" (defined as an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee) has occurred, the permittee who wishes to establish the affirmative defense of upset, shall notify the Department by telephone within 24 hours of becoming aware of such conditions; and within five (5) days, provide in writing, the following information:

a. that an upset occurred and that the permittee can identify the specific cause(s) of the upset;

b. that the permitted wastewater treatment facility was, at the time, being properly operated and maintained (note that an upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation); and

c. that the permittee has specified and taken action on all responsible steps to minimize or correct any adverse impact in the environment resulting from noncompliance with this permit.

No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

In any enforcement proceedings, the permittee, seeking to establish the occurrence of an upset, has the burden of proof.

9. Bypass Prohibition and Notification

a. Bypass Prohibition
Bypass is prohibited, and the Department may take an enforcement action, unless:

1) bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

2) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass; and

3) the permittee submitted notices as required under 9.b. or 9.c. below.

b. Notice of Anticipated Bypass
If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Department, if possible at least ten (10) days before the date of the bypass, and provide information about the anticipated bypass as required by the Department. The Department may approve an anticipated bypass, after considering its adverse effects, if it will meet the three (3) conditions listed in 9.a. above.

c. Notice of Unanticipated Bypass
The permittee shall submit notice to the Department of an unanticipated bypass by calling the Department at the number indicated on the second page of this permit (if the notice is provided after regular working hours, use the following number: 1-800-292-4706) as soon as possible, but no later than 24 hours from the time the permittee becomes aware of the circumstances.

d. Written Report of Bypass
A written submission shall be provided within five (5) working days of commencing any bypass to the Department, and at additional times as directed by the Department. The written submission shall contain a description of the bypass and its cause; the period of bypass, including exact dates and times, and if the bypass has not been corrected, the anticipated time it is expected to continue; steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass; and other information as required by the Department.

e. Bypass Not Exceeding Limitations
The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to ensure efficient operation. These bypasses are not subject to the provisions of 9.a., 9.b., 9.c., and 9.d., above. This provision does not relieve the permittee of any notification responsibilities under Part II.C.11. of this permit.

f. Definitions

1) Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

2) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

10. Bioaccumulative Chemicals of Concern (BCC)

Consistent with the requirements of R 323.1098 and R 323.1215 of the Michigan Administrative Code, the permittee is prohibited from undertaking any action that would result in a lowering of water quality from an increased loading of a BCC unless an increased use request and antidegradation demonstration have been submitted and approved by the Department.

11. Notification of Changes in Discharge

The permittee shall notify the Department, in writing, as soon as possible but no later than 10 days of knowing, or having reason to believe, that any activity or change has occurred or will occur which would result in the discharge of: 1) detectable levels of chemicals on the current Michigan Critical Materials Register, priority pollutants or hazardous substances set forth in 40 CFR 122.21, Appendix D, or the Pollutants of Initial Focus in the Great Lakes Water Quality Initiative specified in 40 CFR 132.6, Table 6, which were not acknowledged in the application or listed in the application at less than detectable levels; 2) detectable levels of any other chemical not listed in the application or listed at less than detection, for which the application specifically requested information; or 3) any chemical at levels greater than five times the average level reported in the complete application (see the first page of this permit, for the date(s) the complete application was submitted). Any other monitoring results obtained as a requirement of this permit shall be reported in accordance with the compliance schedules.

12. Changes in Facility Operations

Any anticipated action or activity, including but not limited to facility expansion, production increases, or process modification, which will result in new or increased loadings of pollutants to the receiving waters must be reported to the Department by a) submission of an increased use request (application) and all information required under R 323.1098 (Antidegradation) of the Water Quality Standards or b) by notice if the following conditions are met: 1) the action or activity will not result in a change in the types of wastewater discharged or result in a greater quantity of wastewater than currently authorized by this permit; 2) the action or activity will not result in violations of the effluent limitations specified in this permit; 3) the action or activity is not prohibited by the requirements of Part II.C.10.; and 4) the action or activity will not require notification pursuant to Part II.C.11. Following such notice, the permit or, if applicable, the facility's COC may be modified according to applicable laws and rules to specify and limit any pollutant not previously limited.

13. Transfer of Ownership or Control

In the event of any change in control or ownership of facilities from which the authorized discharge emanates, the permittee shall submit to the Department 30 days prior to the actual transfer of ownership or control a written agreement between the current permittee and the new permittee containing: 1) the legal name and address of the new owner; 2) a specific date for the effective transfer of permit responsibility, coverage and liability; and 3) a certification of the continuity of or any changes in operations, wastewater discharge, or wastewater treatment.

If the new permittee is proposing changes in operations, wastewater discharge, or wastewater treatment, the Department may propose modification of this permit in accordance with applicable laws and rules.

14. Operations and Maintenance Manual

For wastewater treatment facilities that serve the public (and are thus subject to Part 41 of the NREPA), Section 4104 of Part 41 and associated Rule 2957 of the Michigan Administrative Code allow the Department to require an Operations and Maintenance (O&M) Manual from the facility. An up-to-date copy of the O&M Manual shall be kept at the facility and shall be provided to the Department upon request. The Department may review the O&M Manual in whole or in part at its discretion and require modifications to it if portions are determined to be inadequate.

At a minimum, the O&M Manual shall include the following information: permit standards; descriptions and operation information for all equipment; staffing information; laboratory requirements; record keeping requirements; a maintenance plan for equipment; an emergency operating plan; safety program information; and copies of all pertinent forms, as-built plans, and manufacturer's manuals.

Certification of the existence and accuracy of the O&M Manual shall be submitted to the Department at least sixty days prior to start-up of a new wastewater treatment facility. Recertification shall be submitted sixty days prior to start-up of any substantial improvements or modifications made to an existing wastewater treatment facility.

15. Signatory Requirements

All applications, reports, or information submitted to the Department in accordance with the conditions of this permit and that require a signature shall be signed and certified as described in the Federal Act and the NREPA.

The Federal Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

The NREPA (Section 3115(2)) provides that a person who at the time of the violation knew or should have known that he or she discharged a substance contrary to this part, or contrary to a permit, COC, or order issued or rule promulgated under this part, or who intentionally makes a false statement, representation, or certification in an application for or form pertaining to a permit or COC or in a notice or report required by the terms and conditions of an issued permit or COC, or who intentionally renders inaccurate a monitoring device or record required to be maintained by the Department, is guilty of a felony and shall be fined not less than $2,500.00 or more than $25,000.00 for each violation. The court may impose an additional fine of not more than $25,000.00 for each day during which the unlawful discharge occurred. If the conviction is for a violation committed after a first conviction of the person under this subsection, the court shall impose a fine of not less than $25,000.00 per day and not more than $50,000.00 per day of violation. Upon conviction, in addition to a fine, the court in its discretion may sentence the defendant to imprisonment for not more than 2 years or impose probation upon a person for a violation of this part. With the exception of the issuance of criminal complaints, issuance of warrants, and the holding of an arraignment, the circuit court for the county in which the violation occurred has exclusive jurisdiction. However, the person shall not be subject to the penalties of this subsection if the discharge of the effluent is in conformance with and obedient to a rule, order, permit, or COC of the Department. In addition to a fine, the attorney general may file a civil suit in a court of competent jurisdiction to recover the full value of the injuries done to the natural resources of the state and the costs of surveillance and enforcement by the state resulting from the violation.

16. Electronic Reporting

Upon notice by the Department that electronic reporting tools are available for specific reports or notifications, the permittee shall submit electronically all such reports or notifications as required by this permit.

PART II

Section D. Management Responsibilities

1. Duty to Comply

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit, more frequently than, or at a level in excess of, that authorized, shall constitute a violation of the permit.

It is the duty of the permittee to comply with all the terms and conditions of this permit. Any noncompliance with the Effluent Limitations, Special Conditions, or terms of this permit constitutes a violation of the NREPA and/or the Federal Act and constitutes grounds for enforcement action; for permit or Certificate of Coverage (COC) termination, revocation and reissuance, or modification; or denial of an application for permit or COC renewal.

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

2. Operator Certification

The permittee shall have the waste treatment facilities under direct supervision of an operator certified at the appropriate level for the facility certification by the Department, as required by Sections 3110 and 4104 of the NREPA. Permittees authorized to discharge storm water shall have the storm water treatment and/or control measures under direct supervision of a storm water operator certified by the Department, as required by Section 3110 of the NREPA.

3. Facilities Operation

The permittee shall, at all times, properly operate and maintain all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes adequate laboratory controls and appropriate quality assurance procedures.

4. Power Failures

In order to maintain compliance with the effluent limitations of this permit and prevent unauthorized discharges, the permittee shall either:

a. provide an alternative power source sufficient to operate facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit; or

b. upon the reduction, loss, or failure of one or more of the primary sources of power to facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit, the permittee shall halt, reduce or otherwise control production and/or all discharge in order to maintain compliance with the effluent limitations and conditions of this permit.

5. Adverse Impact

The permittee shall take all reasonable steps to minimize or prevent any adverse impact to the surface waters or groundwaters of the state resulting from noncompliance with any effluent limitation specified in this permit including, but not limited to, such accelerated or additional monitoring as necessary to determine the nature and impact of the discharge in noncompliance.

6. Containment Facilities

The permittee shall provide facilities for containment of any accidental losses of polluting materials in accordance with the requirements of the Part 5 Rules (R 324.2001 through R 324.2009 of the Michigan Administrative Code). For a Publicly Owned Treatment Work (POTW), these facilities shall be approved under Part 41 of the NREPA.

7. Waste Treatment Residues

Residuals (i.e. solids, sludges, biosolids, filter backwash, scrubber water, ash, grit, or other pollutants or wastes) removed from or resulting from treatment or control of wastewaters, including those that are generated during treatment or left over after treatment or control has ceased, shall be disposed of in an environmentally compatible manner and according to applicable laws and rules. These laws may include, but are not limited to, the NREPA, Part 31 for protection of water resources, Part 55 for air pollution control, Part 111 for hazardous waste management, Part 115 for solid waste management, Part 121 for liquid industrial wastes, Part 301 for protection of inland lakes and streams, and Part 303 for wetlands protection. Such disposal shall not result in any unlawful pollution of the air, surface waters or groundwaters of the state.

8. Right of Entry

The permittee shall allow the Department, any agent appointed by the Department, or the Regional Administrator, upon the presentation of credentials and, for animal feeding operation facilities, following appropriate biosecurity protocols:

a. to enter upon the permittee's premises where an effluent source is located or any place in which records are required to be kept under the terms and conditions of this permit; and

b. at reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect process facilities, treatment works, monitoring methods and equipment regulated or required under this permit; and to sample any discharge of pollutants.

9. Availability of Reports

Except for data determined to be confidential under Section 308 of the Federal Act and Rule 2128 (R 323.2128 of the Michigan Administrative Code), all reports prepared in accordance with the terms of this permit, shall be available for public inspection at the offices of the Department and the Regional Administrator. As required by the Federal Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Federal Act and Sections 3112, 3115, 4106 and 4110 of the NREPA.

10. Duty to Provide Information

The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or the facility's COC, or to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit.

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

PART II

Section E. Activities Not Authorized by This Permit

1. Discharge to the Groundwaters

This permit does not authorize any discharge to the groundwaters. Such discharge may be authorized by a groundwater discharge permit issued pursuant to the NREPA.

2. POTW Construction

This permit does not authorize or approve the construction or modification of any physical structures or facilities at a POTW. Approval for the construction or modification of any physical structures or facilities at a POTW shall be by permit issued under Part 41 of the NREPA.

3. Civil and Criminal Liability

Except as provided in permit conditions on "Bypass" (Part II.C.9. pursuant to 40 CFR 122.41(m)), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance, whether or not such noncompliance is due to factors beyond the permittee's control, such as accidents, equipment breakdowns, or labor disputes.

4. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee may be subject under Section 311 of the Federal Act except as are exempted by federal regulations.

5. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Federal Act.

6. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize violation of any federal, state or local laws or regulations, nor does it obviate the necessity of obtaining such permits, including any other Department of Environmental Quality permits, or approvals from other units of government as may be required by law.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER RESOURCES DIVISION
PERMIT

ISSUED TO:

RACER Properties
c/o Dave Favero
500 Woodward Avenue, Suite 1500
Detroit, MI 48226

Permit No.	15-73-0003-P
Issued	August 11, 2015
Extended	
Revised	
Expires	August 11, 2020

This permit is being issued by the Michigan Department of Environmental Quality (MDEQ) under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), and specifically:

- ☒ **Part 301, Inland Lakes and Streams**
- ☐ **Part 315, Dam Safety**
- ☐ **Part 325, Great Lakes Submerged Lands**
- ☐ **Part 323, Shorelands Protection and Management**
- ☐ **Part 303, Wetlands Protection**
- ☐ **Part 353, Sand Dunes Protection and Management**
- ☒ **Part 31, Floodplain/Water Resources Protection**

Permission is hereby granted, based on permittee assurance of adherence to State of Michigan requirements and permit conditions, to:

Permitted Activity: 2350 Veterans Memorial Parkway, Saginaw, MI

Place up to 3,826 cubic yards of clean fill and excavate 482 within the 100-year floodplain of the Saginaw River. All work must be completed in accordance with the attached plans.

Water Course Affected: Saginaw River
Property Location: Saginaw **County,** City of Saginaw, **Section** 8
Town/Range 12N, 5E **Property Tax No.** 21-4333-00500

Authority granted by this permit is subject to the following limitations:

A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.
B. The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31, Water Resources Protection, of the NREPA.
C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
D. All work shall be completed in accordance with the approved plans and specifications submitted with the application and/or plans and specifications attached to this permit.
E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved.
F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with Act 53 of the Public Act of 1974 and comply with each of the requirements of that Act.
G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.
H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
I. Permittee shall notify the MDEQ within one week after the completion of the activity authorized by this permit, by completing and forwarding the attached preaddressed postcard to the office addressed thereon.
J. This permit shall not be assigned or transferred without the written approval of the MDEQ.

K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific state act, federal act, and/or rule under which this permit is granted.
L. All dredged or excavated materials shall be disposed of in an upland site (outside of floodplains, unless exempt under Part 31, and wetland).
M. In issuing this permit, the MDEQ has relied on the information and data that the permittee has provided in connection with the submitted application for permit. If, subsequent to the issuance of a permit, such information and data prove to be false, incomplete, or inaccurate, the MDEQ may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.
N. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents, and representatives for any and all claims or causes of action arising from acts or omissions of the permittee, or employees, agents, or representative of the permittee, undertaken in connection with this permit. The permittee's obligation to indemnify the State of Michigan applies only if the State (1) provides the permittee or its designated representative written notice of the claim or cause of action within 30 days after it is received by the State and (2) consents to the permittee's participation in the proceeding on the claim or cause of action. It does not apply to contested case proceedings under the Administrative Procedures Act challenging the permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.
O. Noncompliance with these terms and conditions and/or the initiation of other regulated activities not specifically authorized shall be cause for the modification, suspension, or revocation of this permit, in whole or in part. Further, the MDEQ may initiate criminal and/or civil proceedings as may be deemed necessary to correct project deficiencies, protect natural resource values, and secure compliance with statutes.
P. If any change or deviation from the permitted activity becomes necessary, the permittee shall request, in writing, a revision of the permitted activity from the MDEQ. Such revision request shall include complete documentation supporting the modification and revised plans detailing the proposed modification. Proposed modifications must be approved, in writing, by the MDEQ prior to being implemented.
Q. This permit may be transferred to another person upon written approval of the MDEQ. The permittee must submit a written request to the MDEQ to transfer the permit to the new owner. The new owner must also submit a written request to the MDEQ to accept transfer. The new owner must agree, in writing, to accept all conditions of the permit. A single letter signed by both parties which includes all the above information may be provided to the MDEQ. The MDEQ will review the request and if approved, will provide written notification to the new owner.
R. Prior to initiating permitted construction, the permittee is required to provide a copy of the permit to the contractor(s) for review. The property owner, contractor(s), and any agent involved in exercising the permit are held responsible to ensure that the project is constructed in accordance with all drawings and specifications. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by the permit.
S. Construction must be undertaken and completed during the dry period of the wetland. If the area does not dry out, construction shall be done on equipment mats to prevent compaction of the soil.
T. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent.
U. Authority granted by this permit does not waive permit requirements under the authority of Part 305, Natural Rivers, of the NREPA. A Natural Rivers Zoning Permit may be required for construction, land alteration, streambank stabilization, or vegetation removal along or near a natural river.
V. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.
W. Unless specifically stated in this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the waterbody are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.
X. For projects with potential impacts to fish spawning or migration, no work shall occur within fish spawning or migration timelines (i.e., windows) unless otherwise approved in writing by the MDNR, Fisheries Division.
Y. Work to be done under authority of this permit is further subject to the following special instructions and specifications:

1. The design flood or 1% annual chance (100-year) floodplain elevation at this location on the Saginaw River is 589.3 feet NGVD29.

2. Unless specifically stated under the "Permitted Activity" of this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a floodplain, wetland or on bottomland of the waterbody are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.

3. The compensating cut (excavations) for floodplain fill, as authorized by this permit, shall be completed prior to, or concurrently with, the placement of the fill. The compensating cut and fill areas shall be

properly stabilized to prevent soil erosion and off site sedimentation in conformance with Part 91, Soil Erosion and Sedimentation Control, of the NREPA.

4. Fill shall not be placed to prevent surface water drainage across the site. Site runoff shall be directed to public or natural drainage ways and not unnaturally discharged onto adjacent properties.

5. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.

6. All fill/backfill shall consist of clean inert material that will not cause siltation nor contain soluble chemicals, organic matter, pollutants, or contaminants. All fill shall be contained in such a manner so as not to erode into any surface water, floodplain, or wetland. All raw areas associated with the permitted activity shall be stabilized with sod and/or seed and mulch, riprap, or other technically effective methods as necessary to prevent erosion.

7. Under Appendix G of the Michigan Building Code 2009, a local building permit is required for development located in flood hazard areas.

8. The project is located within a community that participates in the National Flood Insurance Program (NFIP). As a participant in the NFIP, the community must comply with the Michigan Building Code (including Appendix G and listed supporting materials); the Michigan Residential Code; and Title 44 of the Code of Federal Regulations, Part 60, Criteria for Land Management and Use. The community is also responsible to ensure that its floodplain maps and studies are maintained to show changes to flood elevations and flood delineations as described in 44 CFR, Part 65, Identification and Mapping of Special Hazard Areas.

9. The permittee is responsible for acquiring all necessary easements or rights-of-way before commencing any work authorized by this permit. All construction operations relating to or part of this project shall be confined to the existing right-of-way limits or other acquired easements.

10. Authority granted by this permit does not waive any jurisdiction of the United States Army Corps of Engineers or the need for a federal permit, if required.

11. Authority granted by this permit does not waive permit or program requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent (CEA), if applicable. To locate the Soil Erosion Program Administrator for your county visit www.mi.gov/soilerosion and look for Soil Erosion and Sedimentation Control Agencies under "SESC Info".

12. No fill, excess soil, or other material shall be placed in the 100-year floodplain, any wetland or surface water area not specifically authorized by this permit, its plans, and specifications.

13. The authority to conduct the activity as authorized by this permit is granted solely under the provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, state or federal approval or authorization, necessary to conduct the activity.

14. This permit is limited to authorizing the construction as specified above and carries with it no assurances or implications that associated lake, stream, wetland or floodplain areas can be developed and serviced by the structures authorized by this permit.

15. This permit is being issued for the maximum time allowed and no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by the MDEQ, will be for a five-year period beginning at the date of issuance. If the project is not completed by the expiration date, a new permit must be sought.

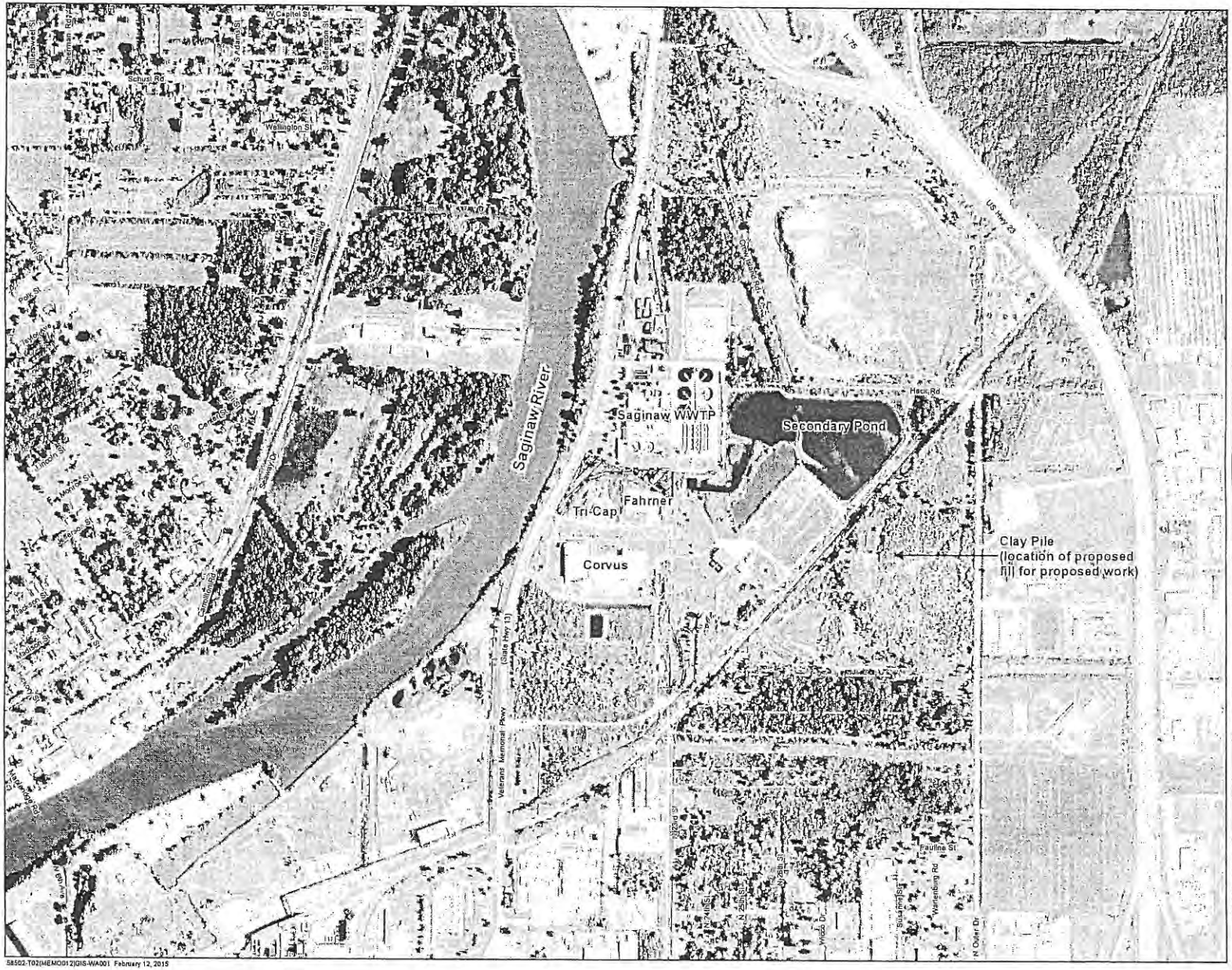
16. The permittee is hereby notified that portions of the parcel, not covered by this permit, fall under the regulatory authority of Part 301, Inland Lakes and Streams, and/or Part 31, Floodplain Regulatory Authority/Water Resources Protection, and/or Part 303, Wetlands Protection, of the NREPA. A permit from the MDEQ's Water Resources Division may be required for certain regulated activities. Failure to comply with the requirements of the NREPA may subject the owner to compliance actions as provided by statute.

By: _____ 8/11/15

Elizabeth Theile
Water Resources Division
989-894-6224

cc: City of Saginaw Clerk
Saginaw Public Works Office
USACE
John-eric Pardys, Conestoga-Rovers & Associates

15-45-0005-P
EMT



0 500 1,000 1,500 Feet

LEGEND

APPROXIMATE LIMITS OF RACER PROPERTY

PROPOSED SITE WORK (NORTH DITCH)

WATER RESOURCES DIVISION
FEB 19 2015

Coordinate System
MICHIGAN STATE PLANE SOUTH; NAD 83 USHRD INTERNATIONAL FEET; HAVD 88

REVITALIZING AUTO COMMUNITIES ENVIRONMENTAL RESPONSE (RACER)
SAGINAW NODULAR INDUSTRIAL LAND

SAGINAW, MICHIGAN

SITE VICINITY MAP

CONESTOGA-ROVERS & ASSOCIATES

Source Reference
IMAGERY - 2014 SAGINAW COUNTY MAP PROVIDED BY USDA
STREETS - PROCESSED TIGER 2010 STREETS, U.S. CENSUS BUREAU

Project Manager	Reviewed By	Date	
M.T.	J.E.P.	FEBRUARY 2015	
Scale	Project No.	Memo No.	Drawing No.
1:10,000	55502-T02	012	1

55502-T02(MEMO012)GIS-WA001 February 12, 2015

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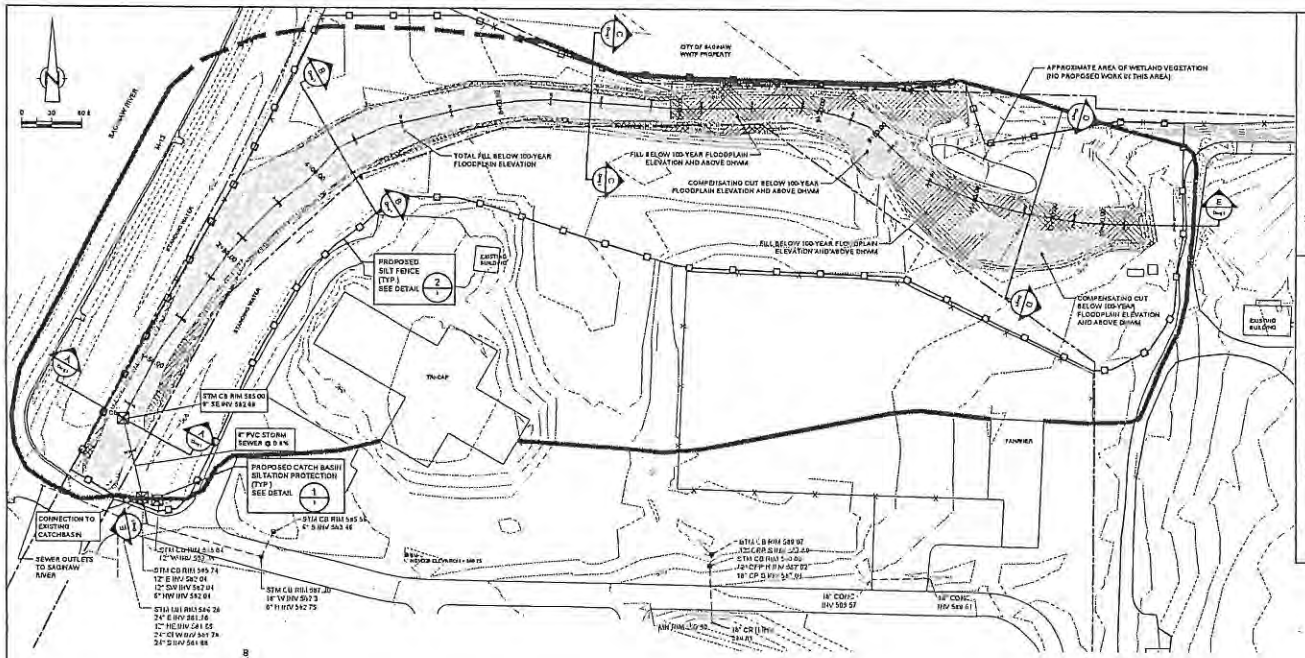
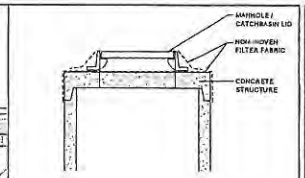
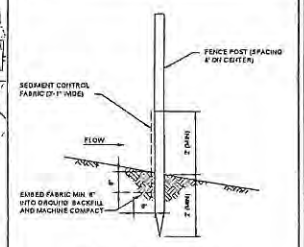
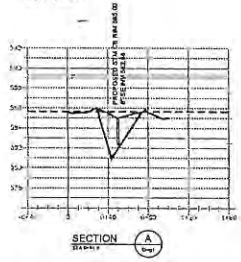




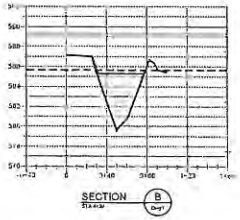
DETAIL 1 MANHOLE/CATCHBASIN TEMPORARY SILTATION PROTECTION



DETAIL 2 SILT FENCE



SECTION A



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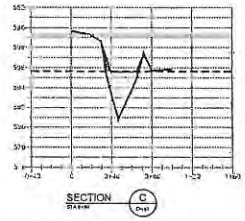

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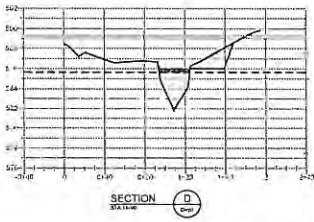

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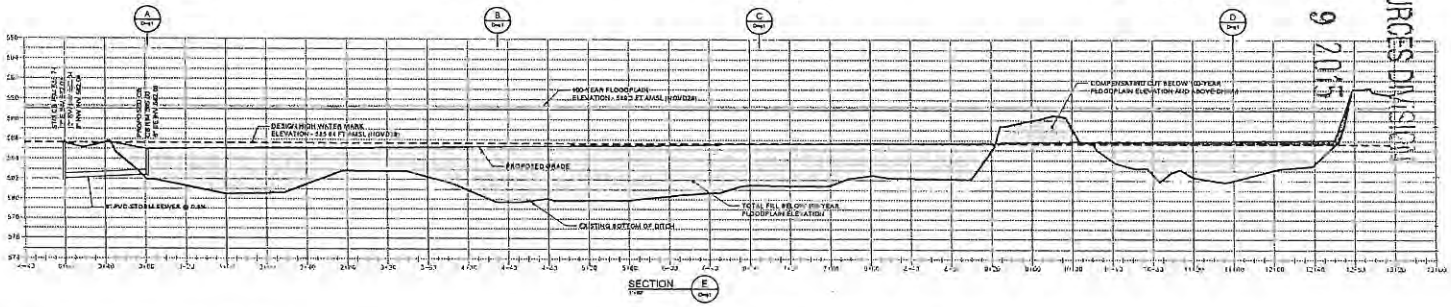


SECTION E

WATER RESOURCES DIVISION
FEB 19 2015

NO	Revision	Date	Initial

LEGEND

- EXISTING GROUND CONTOUR
- EXISTING DITCH
- RACER PROPERTY BOUNDARY
- FENCE
- APPROXIMATE CATCHMENT BOUNDARY
- EXISTING STORM SEWER
- CENTER LINE OF PROPOSED SWALE
- PROPOSED SWALE CONTOUR
- CB PROPOSED CATCHBASIN
- EXISTING CATCHBASIN
- 100-YEAR FLOODPLAIN ELEVATION - 589.3 FT AMSL (NGVD29)
- DESIGN HIGH WATER MARK (DHWM) ELEVATION - 585.64 FT AMSL
- TOTAL FILL BELOW 100-YEAR FLOODPLAIN ELEVATION
- FILL BELOW 100-YEAR FLOODPLAIN ELEVATION AND ABOVE DHWM
- COMPENSATING CUT BELOW 100-YEAR FLOODPLAIN ELEVATION AND ABOVE DHWM
- CATCHBASIN/MANHOLE SILTATION PROTECTION
- PROPOSED SILT FENCE

SEDIMENT AND EROSION CONTROL NOTES:

1. THE SELECTED CONTRACTOR WILL OBTAIN A SOIL EROSION AND SEDIMENTATION CONTROL (SESC) PERMIT THROUGH THE COUNTY OF SAGINAW AND COMPLETE THE WORK IN ACCORDANCE WITH THE SESC PERMIT. THE SESC MEASURES INCLUDED ON THIS DRAWING ARE EXPECTED TO MEET THE REQUIREMENTS OF THE COUNTY OF SAGINAW, HOWEVER, THE SPECIFIC DETAILS WILL BE INCLUDED IN THE PERMIT.
2. SESC MEASURES WILL BE INSTALLED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
3. SESC MEASURES WILL BE INSPECTED AND MAINTAINED THROUGHOUT THE DURATION OF THE CONSTRUCTION ACTIVITIES AND UNTIL THE SITE IS FULLY STABILIZED.
4. DISCHARGE OF WATER FROM THE NORTH DITCH WILL BE CONDUCTED IN ACCORDANCE WITH THE NPDES PERMIT (MI0030902) FOR THE SITE.
5. A FLOATING PULP INTAKE, FILTER SAC, OR AN APPROVED EQUIVALENT WILL BE USED TO LIMIT THE AMOUNT OF SEDIMENT IN DISCHARGES FROM THE NORTH DITCH.

NOTE:
BENCHMARK (BM) ARROW ON HYDRANT SOUTH OF TRI-CAP BUILDING ALONG ASPHALT DRIVE NGVD29 ELEVATION = 589.75

PARAMETER	UNIT	QUANTITY
LENGTH OF EXISTING DITCH	FEET	1315
MAXIMUM WIDTH OF EXISTING DITCH	FEET	62
TOTAL VOLUME OF FILL TO BE PLACED	CUBIC YARDS	3828
TOTAL VOLUME OF FILL ABOVE DHWM	CUBIC YARDS	473
COMPENSATING CUT VOLUME	CUBIC YARDS	574
NET RESULT (CUT ABOVE DHWM)	CUBIC YARDS	101

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY

Approved

DRAWING STATUS

Status	Date	Initial

REVITALIZING AUTO COMMUNITIES ENVIRONMENTAL RESPONSE (RACER)

SAGINAW, MICHIGAN

NORTH DITCH
PLAN AND PLOT

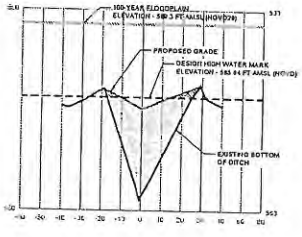
CONESTOGA-ROVERS & ASSOCIATES

Source Reference:		
58502-00(CTS-MEMO003)GN-WA003		
Project Manager: M TOMKA	Reviewed By: J PARDYS	Date: FEBRUARY 2015
Scale: HORZ 1"=60' VERT 1"=6' (10X VERT EX)	Project No.: 58502-T02	Report No.: MEMO012
		Drawing No.: Dwg1

58502-T02(MEMO012)GN-WA001 FEB 19/2015

15-73-0003-P
EMT

1+50



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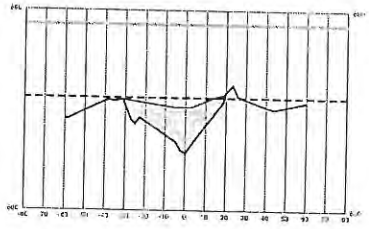

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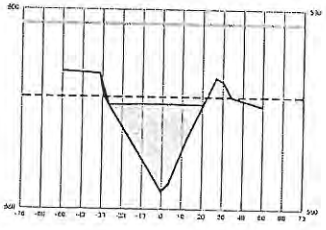

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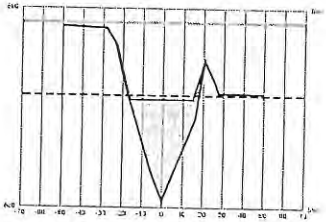

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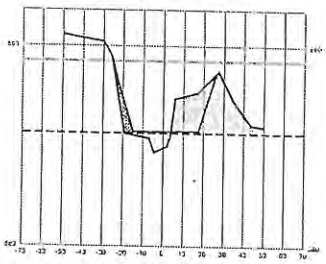

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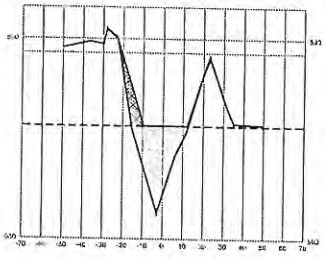

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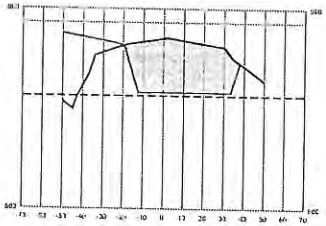

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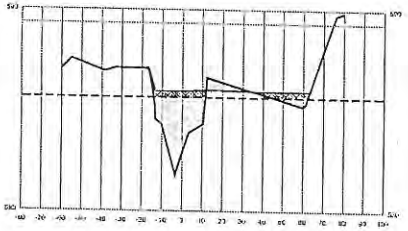

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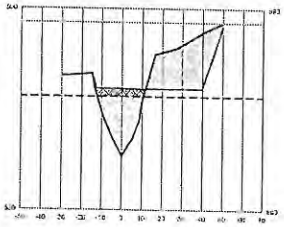

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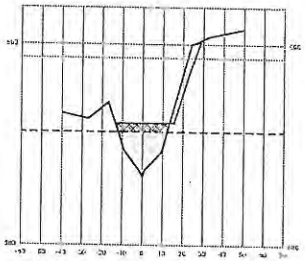


LEGEND

- 100-YEAR FLOODPLAIN ELEVATION - 589.3 FT AMSL (NGVD29)
- DESIGN HIGH WATER MARK (DHWM) ELEVATION - 585.64 FT AMSL (NGVD)
- PROPOSED GRADE
- EXISTING BOTTOM OF DITCH
- TOTAL FILL BELOW 100-YEAR FLOODPLAIN ELEVATION
- FILL BELOW 100-YEAR FLOODPLAIN ELEVATION AND ABOVE DHWM
- COMPENSATING CUT BELOW 100-YEAR FLOODPLAIN ELEVATION AND ABOVE DHWM

NO	Revision	Date	Initial

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

REVITALIZING AUTO COMMUNITIES ENVIRONMENTAL RESPONSE (RACER)

SAGINAW, MICHIGAN

NORTH DITCH SECTIONS

CONESTOGA-ROVERS & ASSOCIATES

Route Reference: - 58502-00(CSO-MEMO003)GN-WA003

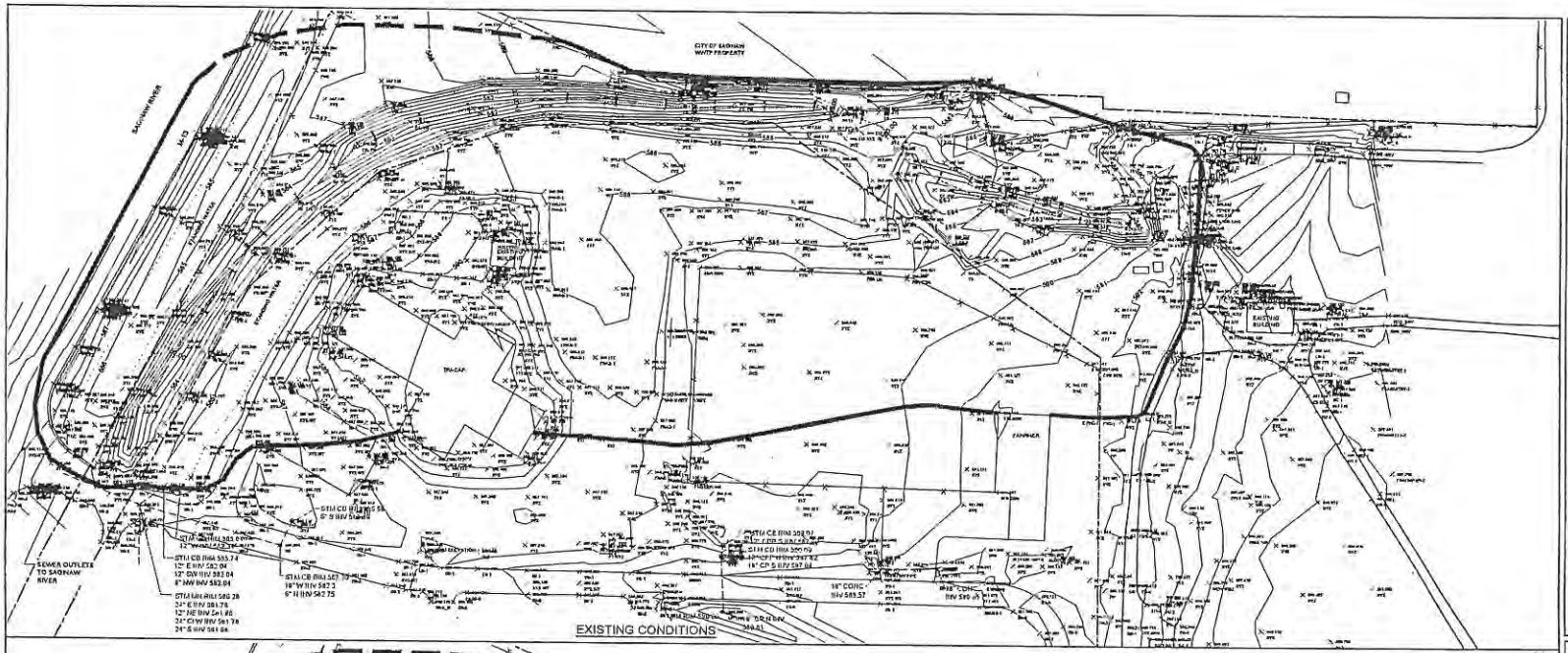
Project Manager:	Reviewed By:	Date:
M TOMKA	J PARDYS	DECEMBER 2014

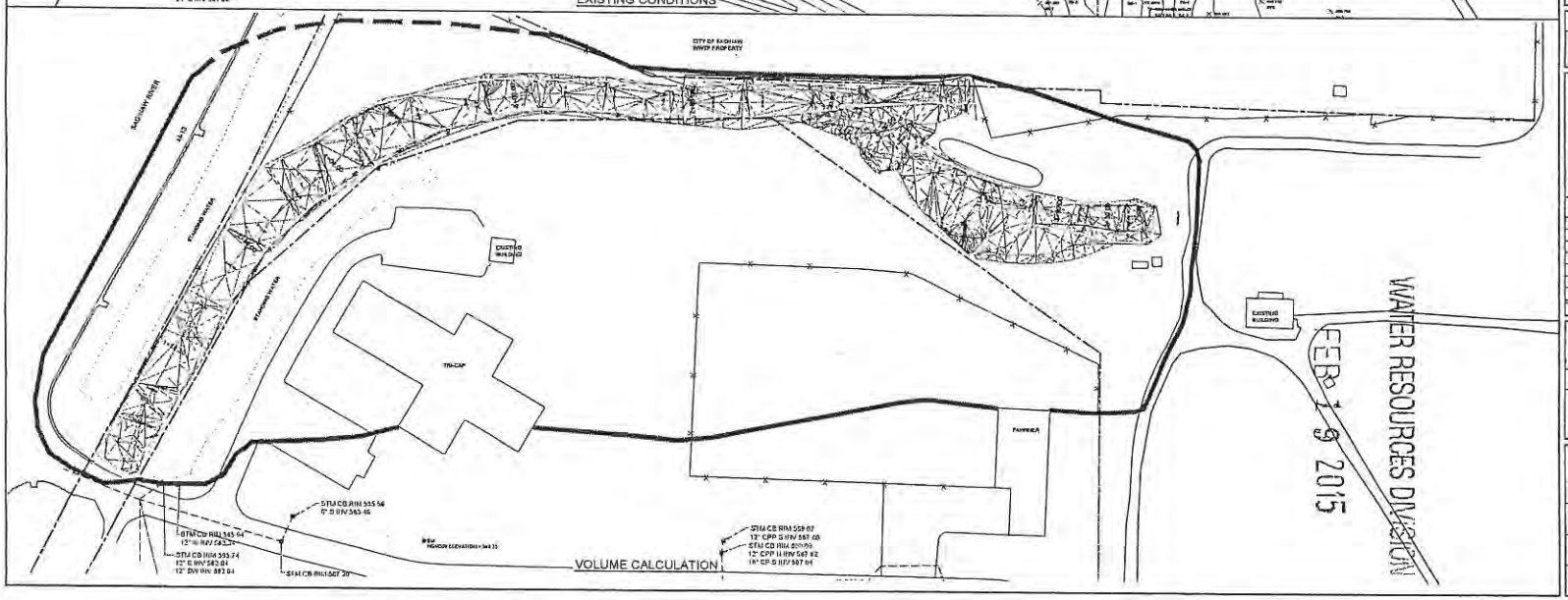
Scale:	Project No:	Report No:	Drawing No:
HORZ 1"=30' VERT 1"=7' (10X VERT EX)	58502-T02	MEMO012	Dwg2

58502-T02(MEMO012)GN-WA001 FEB 13/2015

WATER RESOURCES DIVISION
FEB 19 2015

15-75-0005-P
Emt





NO	Revision	Date	Initial

0 30 60 ft

LEGEND

- EXISTING GROUND CONTOUR
- TOPO SURVEY POINT
- EXISTING DITCH
- RACER PROPERTY BOUNDARY
- FENCE
- APPROXIMATE CATCHMENT BOUNDARY
- EXISTING STORM SEWER
- CENTER LINE OF PROPOSED SWALE
- EXISTING CATCHBASIN
- TIN LINE

NOTE:
BENCHMARK (BM): ARROW OFF HYDRANT SOUTH OF TRI-CAP BUILDING ALONG ASPHALT DRIVE HAVEN ELEVATION = 589.78

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

REVITALIZING AUTO COMMUNITIES ENVIRONMENTAL RESPONSE (RACER)

SAGINAW, MICHIGAN

NORTH DITCH FILL VOLUME SUPPORTING INFORMATION

CONESTOGA-ROVERS & ASSOCIATES

Source Reference: 58502-00(C)(D-MEMO005)GN-WA003

Project Manager:	Reviewed By:	Date:
M TOAKA	J PARQYS	FEBRUARY 2015

Scale:	Project No.:	Report No.:	Drawing No.:
1" = 60'	58502-T02	MEMO012	Dwg3

58502-T02(MEMO012)GN-WA003 FEB 12/2015

EMT

PHOTO 5: NORTH DITCH (7/2013)

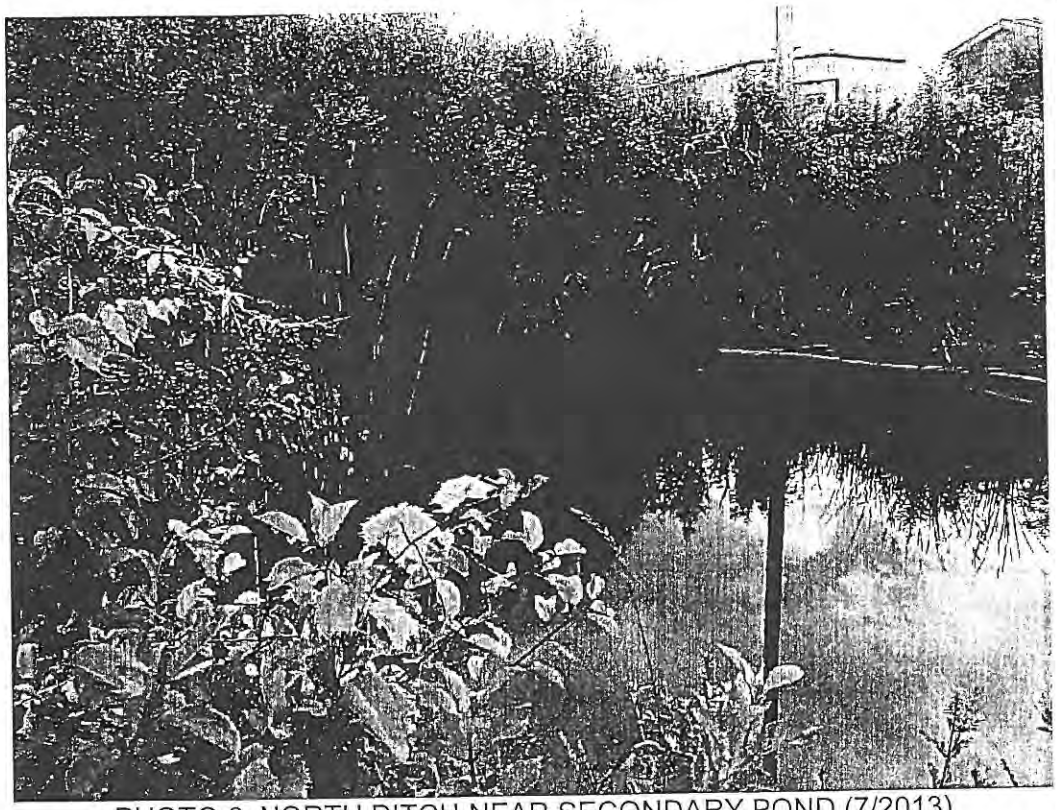


PHOTO 6: NORTH DITCH NEAR SECONDARY POND (7/2013)

SITE PHOTOGRAPHS
NORTH DITCH
NODULAR INDUSTRIAL LAND
SAGINAW, MI

EMT

PHOTO 5: NORTH DITCH (7/2013)

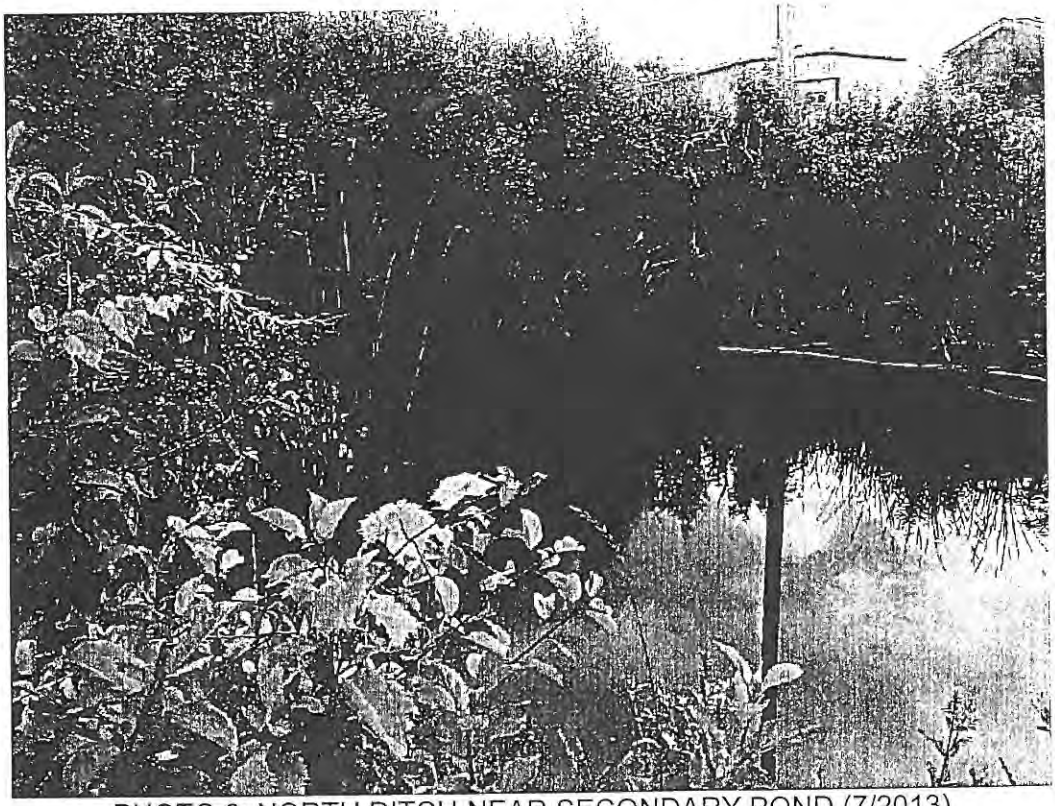


PHOTO 6: NORTH DITCH NEAR SECONDARY POND (7/2013)

SITE PHOTOGRAPHS
NORTH DITCH
NODULAR INDUSTRIAL LAND
SAGINAW, MI

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER RESOURCES DIVISION
PERMIT

ISSUED TO:

Mr. Dave Favero
RACER Properties LLC
500 Woodward Avenue, Suite 2650
Saginaw, Michigan 48601

Permit No.	WRP004925
Issued	October 27, 2016
Extended	
Revised	
Expires	October 27, 2021

This permit is being issued by the Michigan Department of Environmental Quality (MDEQ) under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), and specifically:

- ☐ **Part 301, Inland Lakes and Streams**
- ☐ **Part 315, Dam Safety**
- ☐ **Part 325, Great Lakes Submerged Lands**
- ☐ **Part 323, Shorelands Protection and Management**
- ☐ **Part 303, Wetlands Protection**
- ☐ **Part 353, Sand Dunes Protection and Management**
- ☒ **Part 31, Floodplain/Water Resources Protection**

Permission is hereby granted, based on permittee assurance of adherence to State of Michigan requirements and permit conditions, to:

Permitted Activity:

Place up to 150 cubic yards of clean fill within the 100-year floodplain of the Saginaw River.

All work must be completed in accordance with the attached plans.

Water Course Affected: Saginaw River
Property Location: Saginaw County, Buena Vista Township, Section 08
Town/Range 12N/05E Property Tax No. 10-12-5-08-1001-001

Authority granted by this permit is subject to the following limitations:

A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.
B. The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31, Water Resources Protection, of the NREPA.
C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
D. All work shall be completed in accordance with the approved plans and specifications submitted with the application and/or plans and specifications attached to this permit.
E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved.
F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with Act 53 of the Public Act of 1974 and comply with each of the requirements of that Act.
G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.
H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
I. Permittee shall notify the MDEQ within one week after the completion of the activity authorized by this permit, by completing and forwarding the attached preaddressed postcard to the office addressed thereon.
J. This permit shall not be assigned or transferred without the written approval of the MDEQ.

K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific state act, federal act, and/or rule under which this permit is granted.
L. All dredged or excavated materials shall be disposed of in an upland site (outside of floodplains, unless exempt under Part 31, and wetland).
M. In issuing this permit, the MDEQ has relied on the information and data that the permittee has provided in connection with the submitted application for permit. If, subsequent to the issuance of a permit, such information and data prove to be false, incomplete, or inaccurate, the MDEQ may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.
N. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents and representatives for any and all claims or causes of action arising from acts or omissions of the permittee or employees, agents, or representatives of the permittee undertaken in connection with this permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.
O. Noncompliance with these terms and conditions and/or the initiation of other regulated activities not specifically authorized shall be cause for the modification, suspension, or revocation of this permit, in whole or in part. Further, the MDEQ may initiate criminal and/or civil proceedings as may be deemed necessary to correct project deficiencies, protect natural resource values, and secure compliance with statutes.
P. If any change or deviation from the permitted activity becomes necessary, the permittee shall request, in writing, a revision of the permitted activity from the MDEQ. Such revision request shall include complete documentation supporting the modification and revised plans detailing the proposed modification. Proposed modifications must be approved, in writing, by the MDEQ prior to being implemented.
Q. This permit may be transferred to another person upon written approval of the MDEQ. The permittee must submit a written request to the MDEQ to transfer the permit to the new owner. The new owner must also submit a written request to the MDEQ to accept transfer. The new owner must agree, in writing, to accept all conditions of the permit. A single letter signed by both parties which includes all the above information may be provided to the MDEQ. The MDEQ will review the request and if approved, will provide written notification to the new owner.
R. Prior to initiating permitted construction, the permittee is required to provide a copy of the permit to the contractor(s) for review. The property owner, contractor(s), and any agent involved in exercising the permit are held responsible to ensure that the project is constructed in accordance with all drawings and specifications. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by the permit.
S. Construction must be undertaken and completed during the dry period of the wetland. If the area does not dry out, construction shall be done on equipment mats to prevent compaction of the soil.
T. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent.
U. Authority granted by this permit does not waive permit requirements under the authority of Part 305, Natural Rivers, of the NREPA. A Natural Rivers Zoning Permit may be required for construction, land alteration, streambank stabilization, or vegetation removal along or near a natural river.
V. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.
W. Unless specifically stated in this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the waterbody are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.
X. For projects with potential impacts to fish spawning or migration, no work shall occur within fish spawning or migration timelines (i.e., windows) unless otherwise approved in writing by the MDNR, Fisheries Division.
Y. Work to be done under authority of this permit is further subject to the following special instructions and specifications:

1. The design flood or 1% annual chance (100-year) floodplain elevation at this location on the Saginaw River is 589.3 feet NGVD29.

2. Fill within the 100-year floodplain is limited to 150 cubic yards.

3. Fill shall not be placed to prevent surface water drainage across the site. Site runoff shall be directed to public or natural drainage ways and not unnaturally discharged onto adjacent properties.

4. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.

5. All fill/backfill shall consist of clean inert material that will not cause siltation nor contain soluble chemicals, organic matter, pollutants, or contaminants. All fill shall be contained in such a manner so as not to erode into any surface water, floodplain, or wetland. All raw areas associated with the permitted activity shall be stabilized with sod and/or seed and mulch, riprap, or other technically effective methods as necessary to prevent erosion.

6. All raw areas in uplands resulting from the permitted construction activity shall be effectively stabilized with sod and/or seed and mulch (or other technology specified by this permit or project plans) in a sufficient quantity and manner to prevent erosion and any potential siltation to surface waters, wetlands, and/or floodplains. Temporary stabilization measures shall be installed before or upon

commencement of the permitted activity, and shall be maintained until permanent measures are in place. Permanent measures shall be in place within five (5) days of achieving final grade.

7. No fill, excess soil, or other material shall be placed in the 100-year floodplain, any wetland or surface water area not specifically authorized by this permit, its plans, and specifications.

8. Unless specifically stated under the "Permitted Activity" of this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a floodplain, wetland or on bottomland of the waterbody are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.

9. Under Appendix G of the Michigan Building Code 2009, a local building permit is required for development located in flood hazard areas.

10. The project is located within a community that participates in the National Flood Insurance Program (NFIP). As a participant in the NFIP, the community must comply with the Michigan Building Code (including Appendix G and listed supporting materials); the Michigan Residential Code; and Title 44 of the Code of Federal Regulations, Part 60, Criteria for Land Management and Use. The community is also responsible to ensure that its floodplain maps and studies are maintained to show changes to flood elevations and flood delineations as described in 44 CFR, Part 65, Identification and Mapping of Special Hazard Areas.

11. The permittee is responsible for acquiring all necessary easements or rights-of-way before commencing any work authorized by this permit. All construction operations relating to or part of this project shall be confined to the existing right-of-way limits or other acquired easements.

12. The authority to conduct the activity as authorized by this permit is granted solely under the provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, state or federal approval or authorization, necessary to conduct the activity.

13. This permit is limited to authorizing the construction as specified above and carries with it no assurances or implications that associated lake, stream, wetland or floodplain areas can be developed and serviced by the structures authorized by this permit.

14. This permit is being issued for the maximum time allowed and no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by the MDEQ, will be for a five-year period beginning at the date of issuance. If the project is not completed by the expiration date, a new permit must be sought.

15. The permittee is hereby notified that portions of the parcel, not covered by this permit, fall under the regulatory authority of Part 301, Inland Lakes and Streams, and/or Part 31, Floodplain Regulatory Authority/Water Resources Protection, and/or Part 303, Wetlands Protection, of the NREPA. A permit from the MDEQ's Water Resources Division may be required for certain regulated activities. Failure to comply with the requirements of the NREPA may subject the owner to compliance actions as provided by statute.

By: 

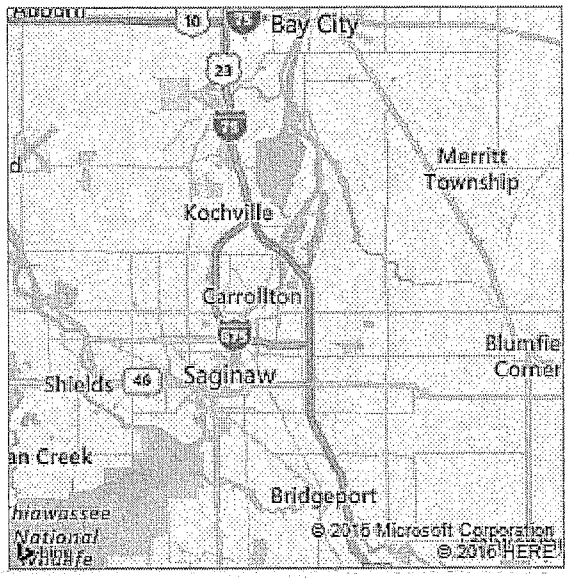
Joy I. Brooks, P.E.
Water Resources Division
989-894-6226

cc: Saginaw CEA
Buena Vista Township Clerk
Buena Vista Township Building Official/Floodplain Administrator
Mr. John-eric Pardys, GHD Services, Inc.

bing Maps

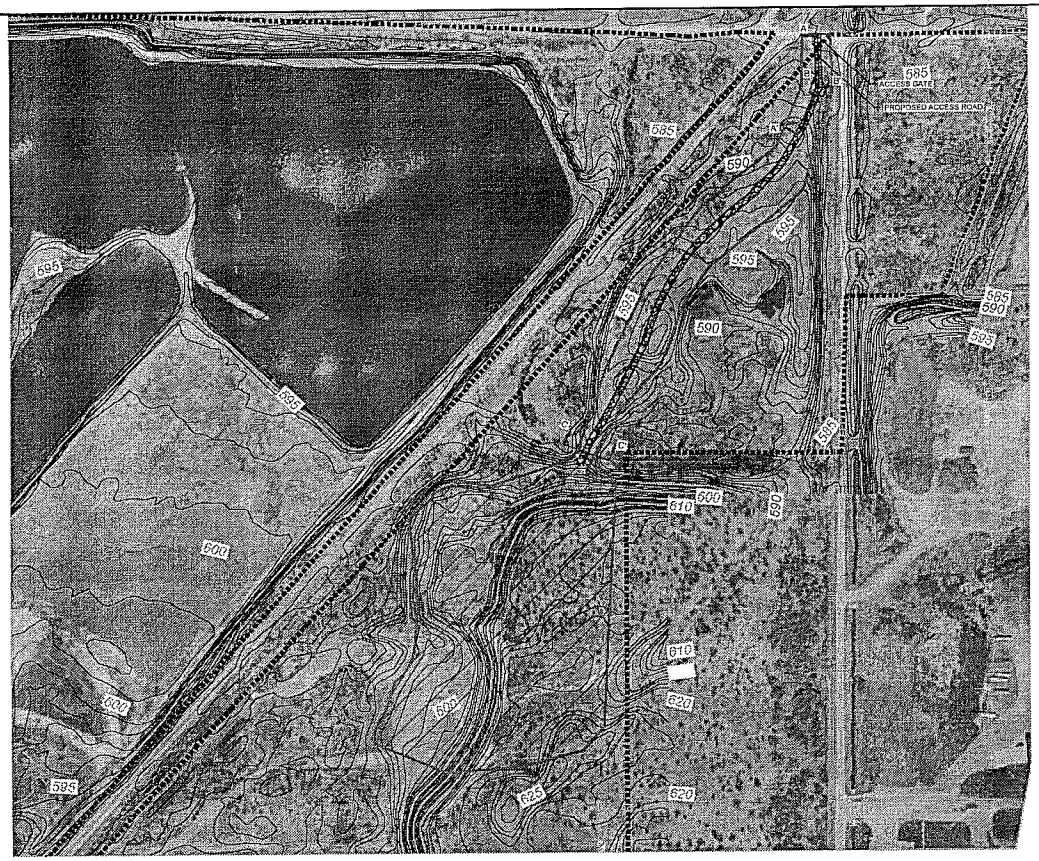
My Notes

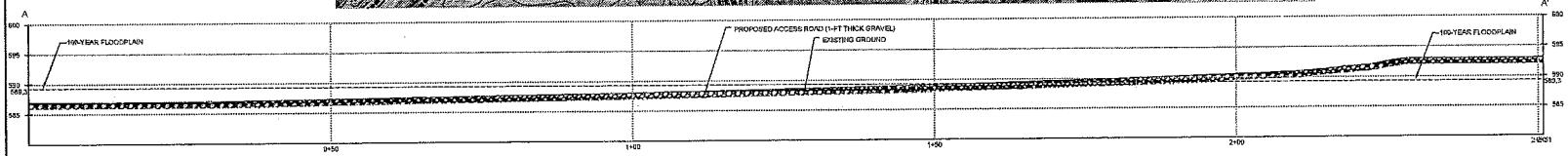
Permit WRP004925
Page 4 of 6
NOTE: Plans may not be to scale



Permit WRP004925
Page 5 of 6
NOTE: Plans may not be to scale

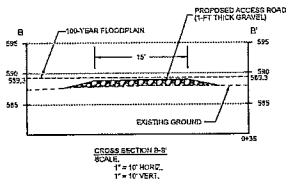
Permit WRP004925
Page 6 of 6
NOTE: Plans may not be to scale



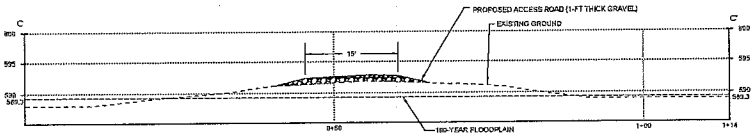


CROSS SECTION A-A'
SCALE:
1" = 10' HORIZ.
1" = 10' VERT.

FILL PROPOSED BELOW 100-YEAR FLOODPLAIN ELEVATION



CROSS SECTION B-B'
SCALE:
1" = 10' HORIZ.
1" = 10' VERT.



CROSS SECTION C-C'
SCALE:
1" = 10' HORIZ.
1" = 10' VERT.

NO.	Revision	Date	Initial

LEGEND

- CONTOUR LINES - MAJOR
- CONTOUR LINES - MINOR
- ESTIMATED FLOODPLAIN CONTOUR (100-YEAR FLOODPLAIN ELEVATION IS 583.3 FT AMSL)
- APPROXIMATELY 40,000 CUBIC YARDS OF CLAY TO BE REMOVED FROM THIS AREA (ABOVE 100-YEAR FLOODPLAIN ELEVATION)
- APPROXIMATE AREA OF PROPOSED WORK
- GRAVEL
- FILL PROPOSED BELOW 100-YEAR FLOODPLAIN
- CROSS SECTION LOCATION

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

REVITALIZING AUTO COMMUNITIES ENVIRONMENTAL RESPONSE (RACER)

NODULAR INDUSTRIAL LAND SAGINAW, MICHIGAN

PLAN AND PROFILE

Ecology and Environment, Inc.

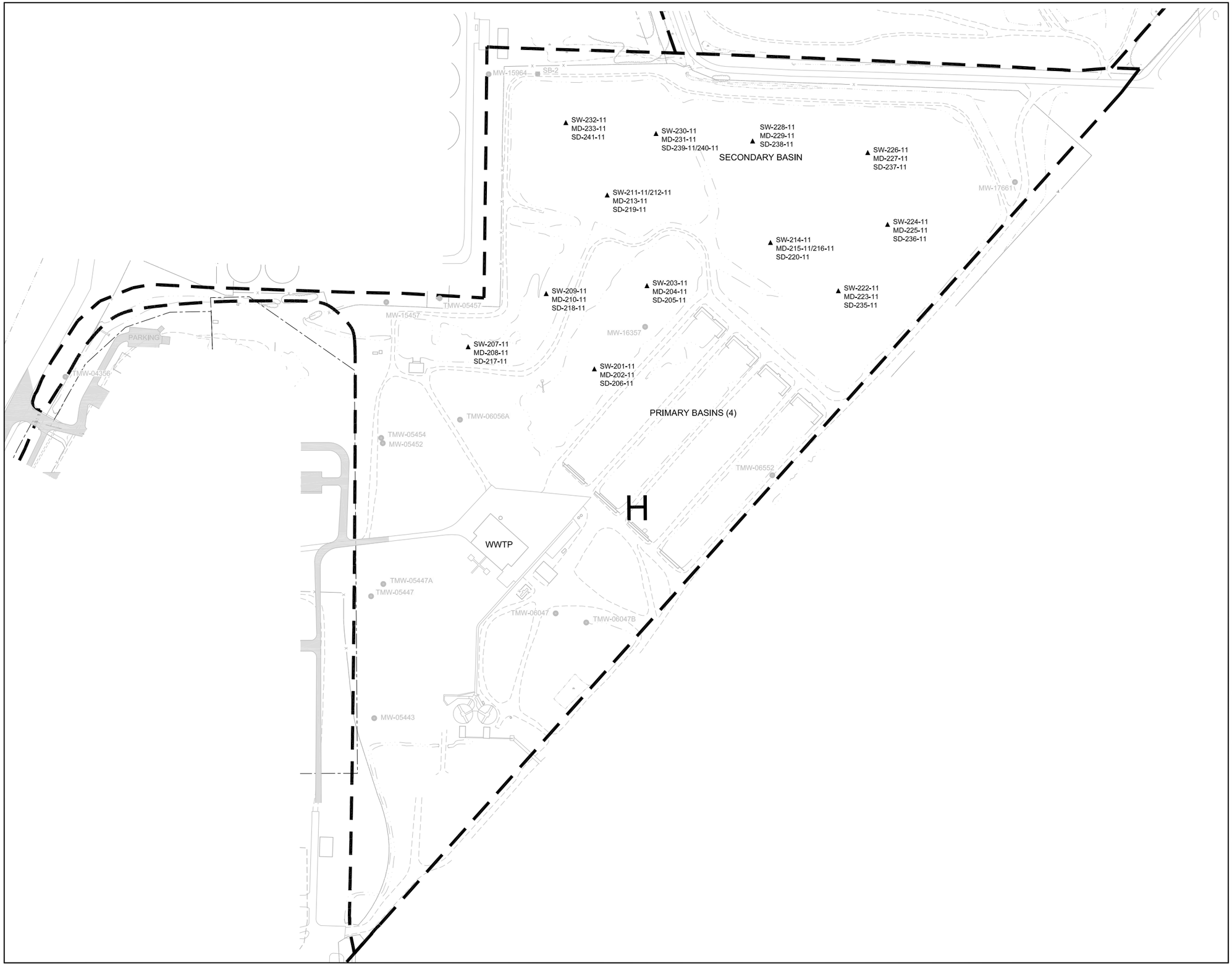
Ecore Reference:

Project Manager:	Reviewed By:	Date:
J.E.P.	J.E.P.	AUGUST 2016

Scale:	Project No:	Report No:	Drawing No:
AS SHOWN	058502-T02	BRO0001	2

058502-T02(BRO0001)GN-DE001 AUG 9/2016

Appendix B
Sampling Data



0 75 150 ft

LEGEND

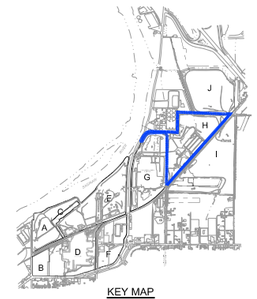
A — — INVESTIGATIVE UNIT BOUNDARY AND IDENTIFIER

MONITORING WELL LOCATION

POND WATER AND SEDIMENT SAMPLE LOCATION

NOTES:

- POND ELEVATION APPROX. 593.00 ft AMSL.
- SW = SURFACE WATER
- MD = MID-DEPTH
- SD = SEDIMENT



KEY MAP

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

REVITALIZING AUTOMOTIVE COMMUNITY ENVIRONMENTAL RESPONSE

SAGINAW, MICHIGAN

POND WATER AND SEDIMENT SAMPLE LOCATIONS

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
MICHIGAN STATE PLANE SOUTH, NAD 83 USING INTERNATIONAL FEET, NGVD 88
TOPO - SANBORN, 1996

Project Manager:	Reviewed By:	Date:	
I.R.	M.T.	JULY 2011	
Scale: 1" = 200'	Project №: 58502-T02	Report №: 005	Drawing №: figure 1

58502-T02(005)GN-WA001 JUL 07/2011

Table B.1.1

Secondary Pond Water Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:							MD-202-11	MD-204-11	MD-208-11	MD-210-11
Sample ID:							SW-58502-062711-SH-202	SW-58502-062711-SH-204	SW-58502-062711-SH-208	SW-58502-062811-SH-210
Sample Date:				Rule 57			6/27/2011	6/27/2011	6/27/2011	6/28/2011
		a	b	c	d	e				
Parameters:	**Units**	GSI	**FCV**	**HCVd**	**HNVd**	**WV**				
Metals										
Antimony, total recoverable	mg/L	0.13	0.24		0.0017		0.00037 J	0.00034 J	0.00055 J	0.00053 J
Arsenic, total recoverable	mg/L	0.01	0.15	0.01	0.01		0.0025 J	0.0026 J	0.0024 J	0.0024 J
Barium, total recoverable (1)	mg/L	0.44	0.44		1.9		0.033 J	0.032 J	0.043 J	0.043 J B
Beryllium, total recoverable (1)	mg/L	0.0024	0.002		0.16		0.001 U	0.001 U	0.001 U	0.001 U
Cadmium, total recoverable (1)	mg/L	0.0022	0.0025		0.0025		0.001 U	0.001 U	0.001 U	0.001 U
Chromium, total recoverable	mg/L	0.011	0.07		0.12		0.005 U	0.005 U	0.005 U	0.005 U
Cobalt, total recoverable	mg/L	0.1	0.10				0.00019 J	0.00015 J	0.00018 J	0.00023 J
Copper, total recoverable (1)	mg/L	0.0090	0.009		0.47		0.00097 J	0.00095 J	0.00068 J	0.00054 J B
Lead, total recoverable (1)	mg/L	0.010	0.04		0.014		0.003 U	0.003 U	0.00027 J	0.00028 J
Manganese, total recoverable (1)	mg/L	1.30	1.93		1.3		0.15	0.12	0.17	0.18
Mercury	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury (convert from ng/L)	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.00000037 J	**0.0000014**	0.00000014 J	0.00000024 J
Nickel, total recoverable (1)	mg/L	0.052	0.05		2.6		0.0011 J	0.00093 J	0.001 J	0.0012 J B
Selenium, total recoverable	mg/L	0.005	0.01		0.12		0.005 U	0.005 U	0.005 U	0.005 U
Silver, total recoverable	mg/L	0.0002	0.00006		0.13		0.0002 U	0.0002 U	0.0002 U	0.0002 U
Thallium, total recoverable	mg/L	0.0037	0.01		0.0012		0.0003 J	0.001 U	0.001 U	0.001 U
Vanadium, total recoverable	mg/L	0.012	0.03		0.053		0.004 U	0.004 U	0.004 U	0.004 U
Zinc, total recoverable (1)	mg/L	0.12	0.12		3.3		0.0055 J B	0.02 U	0.0042 J B	0.02 U
Polychlorinated Biphenyls										
Aroclor-1016 (PCB-1016)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
General Chemistry										
Ammonia	mg/L						0.83 J	0.83 J	3.6	3.6
Unionized Ammonia (calculated)	mg/L	0.056	0.053				**0.10**	**0.09**	**0.40**	**0.40**
Biochemical oxygen demand (BOD)	mg/L	-					2.0 U	2.0 U	2.3	10
Chemical oxygen demand (COD)	mg/L	-					51	20 U	56	53
Cyanide (amenable)	mg/L	-					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
Formaldehyde	mg/L	0.12	0.12		5.0		0.025 J B	0.017 J B	0.022 J B	0.016 J B
Nitrate (as N)	mg/L	-			10		0.27	0.27	0.41	0.53
Oil and grease (HEM), polar	mg/L	-					4.8 U	0.86 J	0.96 J	1.2 J B
pH, lab	s.u.	-					8.18 H	8.50 H	8.55 H	8.43 H
Phenolics (total)	mg/L	-					0.040 U	0.040 U	0.040 U	0.040 U
Total organic carbon (TOC)	mg/L	-					15	16	14	14

Notes:

B - For orgainics Method blank contamintion / For Inorganics = Estimated Value
J - Estimated concentration.
U - Not present at or above the associated value.
0.01 calculated value assuming a hardness of: 100 mg/L
Assuming a temperature of 20 degrees C and an average pH of 8.5 the percentage of NH3 in ammonia is: 11.2%

HCVd = HCV-Human Cancer Value-Drink
HNVd = Human Noncancer Value-Drink
FCV = Final Chronic Value
WV = Wildlife Value

Table B.1.1

Secondary Pond Water Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:							MD-213-11	MD-215-11	MD-215-11	MD-223-11
Sample ID:							SW-58502-062811-SH-213	SW-58502-062811-SH-215	SW-58502-062811-SH-216	SW-58502-062911-SH-223
Sample Date:					Rule 57		6/28/2011	6/28/2011	6/28/2011 (Duplicate)	6/29/2011
		a	b	c	d	e				
Parameters:	**Units**	GSI	**FCV**	**HCVd**	**HNVd**	**WV**				
Metals										
Antimony, total recoverable	mg/L	0.13	0.24		0.0017		0.00052 J	0.00053 J	0.00048 J	0.0005 J
Arsenic, total recoverable	mg/L	0.01	0.15	0.01	0.01		0.0025 J	0.0024 J	0.0023 J	0.0023 J
Barium, total recoverable (1)	mg/L	0.44	0.44		1.9		0.044 J B	0.044 J B	0.042 J B	0.043 J
Beryllium, total recoverable (1)	mg/L	0.0024	0.002		0.16		0.001 U	0.001 U	0.001 U	0.001 U
Cadmium, total recoverable (1)	mg/L	0.0022	0.0025		0.0025		0.001 U	0.001 U	0.001 U	0.001 U
Chromium, total recoverable	mg/L	0.011	0.07		0.12		0.005 U	0.005 U	0.005 U	0.005 U
Cobalt, total recoverable	mg/L	0.1	0.10				0.00024 J	0.00021 J	0.00022 J	0.0002 J
Copper, total recoverable (1)	mg/L	0.0090	0.009		0.47		0.00059 J B	0.00058 J B	0.00054 J B	0.0006 J
Lead, total recoverable (1)	mg/L	0.010	0.04		0.014		0.00019 J	0.003 U	0.003 U	0.003 U
Manganese, total recoverable (1)	mg/L	1.30	1.93		1.3		0.18	0.17	0.16	0.18
Mercury	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury (convert from ng/L)	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0000003 J	0.00000022 J	0.00000027 J	0.00000033 J
Nickel, total recoverable (1)	mg/L	0.052	0.05		2.6		0.0013 J B	0.001 J B	0.0018 J B	0.0012 J
Selenium, total recoverable	mg/L	0.005	0.01		0.12		0.005 U	0.005 U	0.005 U	0.005 U
Silver, total recoverable	mg/L	0.0002	0.00006		0.13		0.0002 U	0.0002 U	0.0002 U	0.0002 U
Thallium, total recoverable	mg/L	0.0037	0.01		0.0012		0.00017 J B	0.001 U	0.001 U	0.001 U
Vanadium, total recoverable	mg/L	0.012	0.03		0.053		0.004 U	0.004 U	0.004 U	0.004 U
Zinc, total recoverable (1)	mg/L	0.12	0.12		3.3		0.0026 J B	0.02 U	0.02 U	0.0042 J B
Polychlorinated Biphenyls										
Aroclor-1016 (PCB-1016)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
General Chemistry										
Ammonia	mg/L						3.9	4.2	4.7	4.2
Unionized Ammonia (calculated)	mg/L	0.056	0.053				**0.44**	**0.47**	**0.53**	**0.47**
Biochemical oxygen demand (BOD)	mg/L	-					9.0	8.7	8.9	4.0 H
Chemical oxygen demand (COD)	mg/L	-					30	56	58	40
Cyanide (amenable)	mg/L	-					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
Formaldehyde	mg/L	0.12	0.12		5.0		0.016 J B	0.018 J B	0.018 J B	0.016 J B
Nitrate (as N)	mg/L	-			10		0.43	0.43	0.45	0.38
Oil and grease (HEM), polar	mg/L	-					0.87 J B	1.0 J B	1.1 J B	1.3 J
pH, lab	s.u.	-					8.40 H	8.40 H	8.46 H	8.22 H
Phenolics (total)	mg/L	-					0.040 U	0.040 U	0.014 J	0.040 U
Total organic carbon (TOC)	mg/L	-					14	14	14	14

Notes:

B - For orgainics Method blank contamintion / For Inorganics = Estimated Value
J - Estimated concentration.
U - Not present at or above the associated value.
0.01 calculated value assuming a hardness of: 100 mg/L
Assuming a temperature of 20 degrees C and an average pH of 8.5 the percentage of NH3 in ammonia is: 11.2%

HCVd = HCV-Human Cancer Value-Drink
HNVd = Human Noncancer Value-Drink
FCV = Final Chronic Value
WV = Wildlife Value

Table B.1.1

Secondary Pond Water Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:							MD-225-11	MD-227-11	MD-229-11	MD-231-11
Sample ID:							SW-58502-062911-SH-225	SW-58502-062911-SH-227	SW-58502-062911-SH-229	SW-58502-062911-SH-231
Sample Date:					Rule 57		6/29/2011	6/29/2011	6/29/2011	6/29/2011
		a	b	c	d	e				
Parameters:	**Units**	GSI	**FCV**	**HCVd**	**HNVd**	**WV**				
Metals										
Antimony, total recoverable	mg/L	0.13	0.24		0.0017		0.00055 J	0.00046 J	0.00051 J	0.00052 J
Arsenic, total recoverable	mg/L	0.01	0.15	0.01	0.01		0.0024 J	0.0022 J	0.0024 J	0.0025 J
Barium, total recoverable (1)	mg/L	0.44	0.44		1.9		0.043 J	0.043 J	0.043 J	0.044 J
Beryllium, total recoverable (1)	mg/L	0.0024	0.002		0.16		0.001 U	0.001 U	0.001 U	0.001 U
Cadmium, total recoverable (1)	mg/L	0.0022	0.0025		0.0025		0.001 U	0.001 U	0.001 U	0.001 U
Chromium, total recoverable	mg/L	0.011	0.07		0.12		0.005 U	0.005 U	0.005 U	0.005 U
Cobalt, total recoverable	mg/L	0.1	0.10				0.00019 J	0.00018 J	0.00019 J	0.00019 J
Copper, total recoverable (1)	mg/L	0.0090	0.009		0.47		0.00058 J	0.00042 J	0.00062 J	0.00056 J
Lead, total recoverable (1)	mg/L	0.010	0.04		0.014		0.003 U	0.003 U	0.003 U	0.003 U
Manganese, total recoverable (1)	mg/L	1.30	1.93		1.3		0.17	0.17	0.17	0.2
Mercury	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury (convert from ng/L)	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.00000015 J	0.00000019 J	0.000001	0.00000023 J
Nickel, total recoverable (1)	mg/L	0.052	0.05		2.6		0.0012 J	0.0011 J	0.0013 J	0.00095 J
Selenium, total recoverable	mg/L	0.005	0.01		0.12		0.005 U	0.005 U	0.005 U	0.005 U
Silver, total recoverable	mg/L	0.0002	0.00006		0.13		0.0002 U	0.0002 U	0.0002 U	0.0002 U
Thallium, total recoverable	mg/L	0.0037	0.01		0.0012		0.0004 J	0.001 U	0.001 U	0.001 U
Vanadium, total recoverable	mg/L	0.012	0.03		0.053		0.004 U	0.004 U	0.004 U	0.004 U
Zinc, total recoverable (1)	mg/L	0.12	0.12		3.3		0.02 U	0.02 U	0.02 U	0.02 U
Polychlorinated Biphenyls										
Aroclor-1016 (PCB-1016)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.00011 U	0.000096 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.00011 U	0.000096 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.00011 U	0.000096 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.00011 U	0.000096 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.00011 U	0.000096 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.00011 U	0.000096 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.00011 U	0.000096 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.00011 U	0.000096 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.00011 U	0.000096 U
General Chemistry										
Ammonia	mg/L						3.6	4.7	3.9	3.3
Unionized Ammonia (calculated)	mg/L	0.056	0.053				**0.40**	**0.53**	**0.44**	**0.37**
Biochemical oxygen demand (BOD)	mg/L	-					8.3	5.7	4.8	4.3
Chemical oxygen demand (COD)	mg/L	-					48	51	56	40
Cyanide (amenable)	mg/L	-					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
Formaldehyde	mg/L	0.12	0.12		5.0		0.017 J B	0.017 J B	0.017 J B	0.019 J B
Nitrate (as N)	mg/L	-			10		0.39	0.38	0.38	0.39
Oil and grease (HEM), polar	mg/L	-					1.4 J	1.6 J	0.77 J	4.8 U
pH, lab	s.u.	-					8.28 H	8.32 H	8.32 H	8.24 H
Phenolics (total)	mg/L	-					0.0094 J	0.0094 J	0.040 U	0.0094 J
Total organic carbon (TOC)	mg/L	-					14	14	14	14

Notes:

B - For orgainics Method blank contamintion / For Inorganics = Estimated Value
J - Estimated concentration.
U - Not present at or above the associated value.
0.01 calculated value assuming a hardness of: 100 mg/L
Assuming a temperature of 20 degrees C and an average pH of 8.5 the percentage of NH3 in ammonia is: 11.2%

HCVd = HCV-Human Cancer Value-Drink
HNVd = Human Noncancer Value-Drink
FCV = Final Chronic Value
WV = Wildlife Value

Table B.1.1

Secondary Pond Water Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:							MD-233-11	SW-201-11	SW-201-11	SW-203-11
Sample ID:							SW-58502-062911-SH-233	SW-58502-062711-SH-201	SW-58502-062711-SH-207	SW-58502-062711-SH-203
Sample Date:				Rule 57			6/29/2011	6/27/2011	6/27/2011	6/27/2011
		a	b	c	d	e				
Parameters:	**Units**	GSI	**FCV**	**HCVd**	**HNVd**	**WV**				
Metals										
Antimony, total recoverable	mg/L	0.13	0.24		0.0017		0.00049 J	0.00031 J	0.00052 J	0.00031 J
Arsenic, total recoverable	mg/L	0.01	0.15	0.01	0.01		0.0025 J	0.0023 J	0.0023 J	0.0026 J
Barium, total recoverable (1)	mg/L	0.44	0.44		1.9		0.042 J	0.032 J	0.041 J	0.033 J
Beryllium, total recoverable (1)	mg/L	0.0024	0.002		0.16		0.001 U	0.001 U	0.001 U	0.001 U
Cadmium, total recoverable (1)	mg/L	0.0022	0.0025		0.0025		0.001 U	0.001 U	0.001 U	0.001 U
Chromium, total recoverable	mg/L	0.011	0.07		0.12		0.005 U	0.005 U	0.005 U	0.005 U
Cobalt, total recoverable	mg/L	0.1	0.10				0.00019 J	0.00016 J	0.00017 J	0.00016 J
Copper, total recoverable (1)	mg/L	0.0090	0.009		0.47		0.00057 J	0.0011 J	0.00045 J	0.00099 J
Lead, total recoverable (1)	mg/L	0.010	0.04		0.014		0.003 U	0.003 U	0.003 U	0.003 U
Manganese, total recoverable (1)	mg/L	1.30	1.93		1.3		0.17	0.13	0.098	0.12
Mercury	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury (convert from ng/L)	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.00000032 J	0.0000004 J	0.0000005 U	0.00000018 J
Nickel, total recoverable (1)	mg/L	0.052	0.05		2.6		0.0011 J	0.0011 J	0.001 J	0.0014 J
Selenium, total recoverable	mg/L	0.005	0.01		0.12		0.005 U	0.005 U	0.005 U	0.005 U
Silver, total recoverable	mg/L	0.0002	0.00006		0.13		0.0002 U	0.0002 U	0.0002 U	0.0002 U
Thallium, total recoverable	mg/L	0.0037	0.01		0.0012		0.001 U	0.00037 J	0.001 U	0.00018 J
Vanadium, total recoverable	mg/L	0.012	0.03		0.053		0.004 U	0.004 U	0.004 U	0.004 U
Zinc, total recoverable (1)	mg/L	0.12	0.12		3.3		0.0025 J B	0.0052 J B	0.0024 J B	0.02 U
Polychlorinated Biphenyls										
Aroclor-1016 (PCB-1016)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U
General Chemistry										
Ammonia	mg/L						3.6	0.83 J	3.9	1.1 J
Unionized Ammonia (calculated)	mg/L	0.056	0.053				**0.40**	**0.09**	**0.44**	**0.12**
Biochemical oxygen demand (BOD)	mg/L	-					4.7	2.0 U	4.2	2.0 U
Chemical oxygen demand (COD)	mg/L	-					45	53	53	51
Cyanide (amenable)	mg/L	-					0.010 U	0.010 U	0.010 U	0.010 U
Cyanide (total)	mg/L	0.0052	0.0052		0.6		**0.0060 J**	0.010 U	0.010 U	0.010 U
Formaldehyde	mg/L	0.12	0.12		5.0		0.016 J B	0.019 J B	0.019 J B	0.022 J B
Nitrate (as N)	mg/L	-			10		0.39	0.27	0.51	0.27
Oil and grease (HEM), polar	mg/L	-					1.0 J	1.1 J	1.3 J	4.9 U
pH, lab	s.u.	-					8.45 H	8.35 H	8.40 H	8.55 H
Phenolics (total)	mg/L	-					0.040 U	0.040 U	0.0073 J	0.040 U
Total organic carbon (TOC)	mg/L	-					14	16	14	15

Notes:

B - For orgainics Method blank contamintion / For Inorganics = Estimated Value
J - Estimated concentration.
U - Not present at or above the associated value.
0.01 calculated value assuming a hardness of: 100 mg/L
Assuming a temperature of 20 degrees C and an average pH of 8.5 the percentage of NH3 in ammonia is: 11.2%

HCVd = HCV-Human Cancer Value-Drink
HNVd = Human Noncancer Value-Drink
FCV = Final Chronic Value
WV = Wildlife Value

Table B.1.1

Secondary Pond Water Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:							SW-209-11	SW-211-11	SW-211-11	SW-214-11
Sample ID:							SW-58502-062811-SH-209	SW-58502-062811-SH-211	SW-58502-062811-SH-212	SW-58502-062811-SH-214
Sample Date:				Rule 57			6/28/2011	6/28/2011	6/28/2011 (Duplicate)	6/28/2011
Parameters:	Units	a GSI	b FCV	c HCVd	d HNVd	e WV				
Metals										
Antimony, total recoverable	mg/L	0.13	0.24		0.0017		0.00055 J	0.00055 J	0.00054 J	0.00053 J
Arsenic, total recoverable	mg/L	0.01	0.15	0.01	0.01		0.0025 J	0.0024 J	0.0023 J	0.0024 J
Barium, total recoverable (1)	mg/L	0.44	0.44		1.9		0.043 J B	0.044 J B	0.042 J B	0.043 J B
Beryllium, total recoverable (1)	mg/L	0.0024	0.002		0.16		0.001 U	0.001 U	0.001 U	0.001 U
Cadmium, total recoverable (1)	mg/L	0.0022	0.0025		0.0025		0.001 U	0.001 U	0.001 U	0.001 U
Chromium, total recoverable	mg/L	0.011	0.07		0.12		0.005 U	0.005 U	0.005 U	0.005 U
Cobalt, total recoverable	mg/L	0.1	0.10				0.00021 J	0.00022 J	0.00021 J	0.00023 J
Copper, total recoverable (1)	mg/L	0.0090	0.009		0.47		0.00058 J B	0.00072 J B	0.0006 J B	0.00055 J B
Lead, total recoverable (1)	mg/L	0.010	0.04		0.014		0.00027 J	0.00018 J	0.00018 J	0.003 U
Manganese, total recoverable (1)	mg/L	1.30	1.93		1.3		0.18	0.17	0.15	0.16
Mercury	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury (convert from ng/L)	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.00000047 J	0.0000005 U	0.00000014 J	0.00000015 J
Nickel, total recoverable (1)	mg/L	0.052	0.05		2.6		0.0011 J B	0.0013 J B	0.0011 J B	0.0012 J B
Selenium, total recoverable	mg/L	0.005	0.01		0.12		0.005 U	0.005 U	0.005 U	0.005 U
Silver, total recoverable	mg/L	0.0002	0.00006		0.13		0.0002 U	0.0002 U	0.0002 U	0.0002 U
Thallium, total recoverable	mg/L	0.0037	0.01		0.0012		0.001 U	0.001 U	0.00021 J B	0.001 U
Vanadium, total recoverable	mg/L	0.012	0.03		0.053		0.004 U	0.004 U	0.004 U	0.004 U
Zinc, total recoverable (1)	mg/L	0.12	0.12		3.3		0.02 U	0.0027 J B	0.0035 J B	0.02 U
Polychlorinated Biphenyls										
Aroclor-1016 (PCB-1016)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000095 U	0.000095 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000095 U	0.000095 U
General Chemistry										
Ammonia	mg/L						4.2	4.2	3.9	4.2
Unionized Ammonia (calculated)	mg/L	0.056	0.053				**0.47**	**0.47**	**0.44**	**0.47**
Biochemical oxygen demand (BOD)	mg/L	-					12	7.6	8.0	7.4
Chemical oxygen demand (COD)	mg/L	-					48	33	30	38
Cyanide (amenable)	mg/L	-					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	**0.0071 J**	0.010 U	0.010 U
Formaldehyde	mg/L	0.12	0.12		5.0		0.018 J B	0.018 J B	0.016 J B	0.018 J B
Nitrate (as N)	mg/L	-			10		0.48	0.46	0.46	0.45
Oil and grease (HEM), polar	mg/L	-					1.2 J B	0.82 J B	1.4 J B	5.2 U
pH, lab	s.u.	-					8.27 H	8.40 H	8.25 H	8.23 H
Phenolics (total)	mg/L	-					0.23	0.040 U	0.040 U	0.011 J
Total organic carbon (TOC)	mg/L	-					15	14	14	14

Notes:

B - For orgainics Method blank contamintion / For Inorganics = Estimated Value
J - Estimated concentration.
U - Not present at or above the associated value.
0.01 calculated value assuming a hardness of: 100 mg/L
Assuming a temperature of 20 degrees C and an average pH of 8.5 the percentage of NH3 in ammonia is: 11.2%

HCVd = HCV-Human Cancer Value-Drink
HNVd = Human Noncancer Value-Drink
FCV = Final Chronic Value
WV = Wildlife Value

Table B.1.1

Secondary Pond Water Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:							**SW-222-11**	**SW-224-11**	**SW-226-11**	**SW-228-11**
Sample ID:							**SW-58502-062911-SH-222**	**SW-58502-062911-SH-224**	**SW-58502-062911-SH-226**	**SW-58502-062911-SH-228**
Sample Date:				Rule 57			**6/29/2011**	**6/29/2011**	**6/29/2011**	**6/29/2011**
		a	**b**	**c**	**d**	e				
Parameters:	**Units**	GSI	**FCV**	**HCVd**	**HNVd**	**WV**				
Metals										
Antimony, total recoverable	mg/L	0.13	0.24		0.0017		0.0005 J	0.00049 J	0.00052 J	0.00055 J
Arsenic, total recoverable	mg/L	0.01	0.15	0.01	0.01		0.0025 J	0.0024 J	0.0023 J	0.0024 J
Barium, total recoverable (1)	mg/L	0.44	0.44		1.9		0.045 J	0.043 J	0.043 J	0.043 J
Beryllium, total recoverable (1)	mg/L	0.0024	0.002		0.16		0.001 U	0.001 U	0.001 U	0.001 U
Cadmium, total recoverable (1)	mg/L	0.0022	0.0025		0.0025		0.001 U	0.001 U	0.001 U	0.001 U
Chromium, total recoverable	mg/L	0.011	0.07		0.12		0.005 U	0.005 U	0.005 U	0.005 U
Cobalt, total recoverable	mg/L	0.1	0.10				0.00021 J	0.00019 J	0.00018 J	0.0002 J
Copper, total recoverable (1)	mg/L	0.0090	0.009		0.47		0.00053 J	0.0007 J	0.00058 J	0.0005 J
Lead, total recoverable (1)	mg/L	0.010	0.04		0.014		0.003 U	0.003 U	0.003 U	0.003 U
Manganese, total recoverable (1)	mg/L	1.30	1.93		1.3		0.19	0.17	0.16	0.17
Mercury	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury (convert from ng/L)	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0000003 J	0.00000026 J	0.0000002 J	0.00000024 J
Nickel, total recoverable (1)	mg/L	0.052	0.05		2.6		0.0013 J	0.001 J	0.00097 J	0.0011 J
Selenium, total recoverable	mg/L	0.005	0.01		0.12		0.005 U	0.005 U	0.005 U	0.005 U
Silver, total recoverable	mg/L	0.0002	0.00006		0.13		0.0002 U	0.0002 U	0.0002 U	0.0002 U
Thallium, total recoverable	mg/L	0.0037	0.01		0.0012		0.001 U	0.001 U	0.001 U	0.001 U
Vanadium, total recoverable	mg/L	0.012	0.03		0.053		0.00066 J	0.004 U	0.004 U	0.004 U
Zinc, total recoverable (1)	mg/L	0.12	0.12		3.3		0.0041 J B	0.0035 J B	0.0031 J B	0.0029 J B
Polychlorinated Biphenyls										
Aroclor-1016 (PCB-1016)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002		0.000000026		0.00000012	0.0001 U	0.000095 U	0.000097 U	0.000095 U
General Chemistry										
Ammonia	mg/L						3.6	3.9	3.6	4.7
Unionized Ammonia (calculated)	mg/L	0.056	0.053				**0.40**	**0.44**	**0.40**	**0.53**
Biochemical oxygen demand (BOD)	mg/L	-					8.5	7.8	8.0	4.3
Chemical oxygen demand (COD)	mg/L	-					40	43	51	51
Cyanide (amenable)	mg/L	-					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
Formaldehyde	mg/L	0.12	0.12		5.0		0.017 J B	0.020 J B	0.017 J B	0.018 J B
Nitrate (as N)	mg/L	-			10		0.38	0.39	0.38	0.37
Oil and grease (HEM), polar	mg/L	-					1.0 J	1.1 J	1.2 J	1.2 J
pH, lab	s.u.	-					8.27 H	8.28 H	8.35 H	8.26 H
Phenolics (total)	mg/L	-					0.040 U	0.0094 J	0.040 U	0.040 U
Total organic carbon (TOC)	mg/L	-					14	14	14	14

Notes:

B - For orgainics Method blank contamintion / For Inorganics = Estimated Value
J - Estimated concentration.
U - Not present at or above the associated value.
0.01 calculated value assuming a hardness of: 100 mg/L
Assuming a temperature of 20 degrees C and an average pH of 8.5 the percentage of NH3 in ammonia is: 11.2%

HCVd = HCV-Human Cancer Value-Drink
HNVd = Human Noncancer Value-Drink
FCV = Final Chronic Value
WV = Wildlife Value

Table B.1.1

Secondary Pond Water Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:							**SW-230-11**	**SW-232-11**
Sample ID:							**SW-58502-062911-SH-230**	**SW-58502-062911-SH-232**
Sample Date:				Rule 57			**6/29/2011**	**6/29/2011**
Parameters:	**Units**	**a** GSI	**b** **FCV**	**c** **HCVd**	**d** **HNVd**	e **WV**		
Metals								
Antimony, total recoverable	mg/L	0.13	0.24		0.0017		0.00076 J	0.00047 J
Arsenic, total recoverable	mg/L	0.01	0.15	0.01	0.01		0.0027 J	0.0025 J
Barium, total recoverable (1)	mg/L	0.44	0.44		1.9		0.046 J	0.042 J
Beryllium, total recoverable (1)	mg/L	0.0024	0.002		0.16		0.001 U	0.001 U
Cadmium, total recoverable (1)	mg/L	0.0022	0.0025		0.0025		0.001 U	0.001 U
Chromium, total recoverable	mg/L	0.011	0.07		0.12		0.005 U	0.005 U
Cobalt, total recoverable	mg/L	0.1	0.10				0.00023 J	0.00019 J
Copper, total recoverable (1)	mg/L	0.0090	0.009		0.47		0.00068 J	0.00051 J
Lead, total recoverable (1)	mg/L	0.010	0.04		0.014		0.00019 J	0.003 U
Manganese, total recoverable (1)	mg/L	1.30	1.93		1.3		0.19 B	0.17
Mercury	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0002 U	0.0002 U
Mercury (convert from ng/L)	mg/L	0.0000013	0.00077		0.0000018	0.0000013	0.0000005 U	0.0000005 U
Nickel, total recoverable (1)	mg/L	0.052	0.05		2.6		0.0013 J	0.0012 J
Selenium, total recoverable	mg/L	0.005	0.01		0.12		0.005 U	0.005 U
Silver, total recoverable	mg/L	0.0002	0.00006		0.13		0.0002 U	0.0002 U
Thallium, total recoverable	mg/L	0.0037	0.01		0.0012		0.0011	0.001 U
Vanadium, total recoverable	mg/L	0.012	0.03		0.053		0.004 U	0.004 U
Zinc, total recoverable (1)	mg/L	0.12	0.12		3.3		0.0024 J	0.0024 J B
Polychlorinated Biphenyls								
Aroclor-1016 (PCB-1016)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U
Aroclor-1221 (PCB-1221)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U
Aroclor-1232 (PCB-1232)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U
Aroclor-1242 (PCB-1242)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U
Aroclor-1248 (PCB-1248)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U
Aroclor-1254 (PCB-1254)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U
Aroclor-1260 (PCB-1260)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U
Aroclor-1262 (PCB-1262)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U
Aroclor-1268 (PCB-1268)	mg/L	0.0002		0.000000026		0.00000012	0.000095 U	0.0001 U
General Chemistry								
Ammonia	mg/L						4.2	3.9
Unionized Ammonia (calculated)	mg/L	0.056	0.053				**0.47**	**0.44**
Biochemical oxygen demand (BOD)	mg/L	-					6.5	6.8
Chemical oxygen demand (COD)	mg/L	-					48	51
Cyanide (amenable)	mg/L	-					0.010 U	0.010 U
Cyanide (total)	mg/L	0.0052	0.0052		0.6		0.010 U	0.010 U
Formaldehyde	mg/L	0.12	0.12		5.0		0.016 J B	0.021 J B
Nitrate (as N)	mg/L	-			10		0.39	0.40
Oil and grease (HEM), polar	mg/L	-					0.91 J	0.81 J
pH, lab	s.u.	-					8.30 H	8.39 H
Phenolics (total)	mg/L	-					0.040 U	0.040 U
Total organic carbon (TOC)	mg/L	-					14	14

Notes:

B - For orgainics Method blank contamintion / For Inorganics = Estimated Value
J - Estimated concentration.
U - Not present at or above the associated value.
0.01 calculated value assuming a hardness of: 100 mg/L
Assuming a temperature of 20 degrees C and an average pH of 8.5 the percentage of NH3 in ammonia is: 11.2%

HCVd = HCV-Human Cancer Value-Drink
HNVd = Human Noncancer Value-Drink
FCV = Final Chronic Value
WV = Wildlife Value

Table B.1.2

Isotope Analysis of Ammonia
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample	Date	Position	Mass (mg)	N2 Ampl (volts)	N2 Area (V/s)	%N	Obs N (µg)	Exp N (µg)	% recovery	$\delta^{15}N$ (‰)	Comments
SH-208	22-Sep-11	5		0.81	19.80		38.31	40.00	95.78	23.82	
SH-208	22-Sep-11	6		0.80	19.53		37.80	40.00	94.50	23.39	
SH-208	22-Sep-11	7		0.82	20.02		38.75	40.00	96.89	23.84	
SH-204	22-Sep-11	8		0.19	4.98		9.63	40.00	24.08	18.18	
SH-204	22-Sep-11	9		0.20	5.49		10.62	40.00	26.55	20.19	
SH-204	22-Sep-11	10		0.21	5.61		10.85	40.00	27.13	17.13	
SH-202	22-Sep-11	11		0.28	7.27		14.08	40.00	35.20	20.01	
SH-202	22-Sep-11	12		0.27	7.09		13.72	40.00	34.31	19.30	
SH-202	22-Sep-11	14		0.27	7.00		13.55	40.00	33.86	19.38	
SH-216	22-Sep-11	15		0.29	7.58		14.68	40.00	36.69	8.66	
SH-216	22-Sep-11	16		0.66	16.08		31.12	40.00	77.80	22.84	
SH-216	22-Sep-11	17		0.66	16.06		31.08	40.00	77.71	22.67	
SH-215	22-Sep-11	18		0.73	17.82		34.50	40.00	86.24	23.58	
SH-215	22-Sep-11	19		0.70	17.11		33.11	40.00	82.76	23.73	
SH-215	22-Sep-11	20		0.71	17.29		33.47	40.00	83.66	23.50	
SH-213	22-Sep-11	21		0.79	19.16		37.08	40.00	92.71	23.81	
SH-213	22-Sep-11	22		0.79	19.13		37.01	40.00	92.54	23.36	
SH-213	22-Sep-11	23		0.77	18.65		36.09	40.00	90.22	23.44	
SH-210	22-Sep-11	24		0.73	17.63		34.12	40.00	85.31	25.27	
SH-210	22-Sep-11	26		0.70	16.79		32.49	40.00	81.23	25.79	
SH-210	22-Sep-11	27		0.72	17.26		33.41	40.00	83.53	25.80	
SH-227	22-Sep-11	28		0.66	15.78		30.54	40.00	76.35	23.73	
SH-227	22-Sep-11	29		0.63	15.28		29.57	40.00	73.92	23.25	
SH-227	22-Sep-11	30		0.66	15.78		30.54	40.00	76.36	23.56	
SH-233	22-Sep-11	31		0.84	20.05		38.81	40.00	97.02	23.77	
SH-233	22-Sep-11	32		0.84	20.08		38.85	40.00	97.13	23.89	
SH-233	22-Sep-11	33		0.83	19.90		38.52	40.00	96.31	23.75	
SH-231	22-Sep-11	34		0.94	22.37		43.29	40.00	108.23	23.75	
SH-231	22-Sep-11	35		0.94	22.37		43.29	40.00	108.23	23.62	
SH-231	22-Sep-11	36		0.90	21.46		41.53	40.00	103.83	22.36	
SH-225	22-Sep-11	38		0.81	20.63		39.93	40.00	99.81	23.72	
SH-225	22-Sep-11	39		0.83	20.75		40.17	40.00	100.42	23.64	
SH-225	22-Sep-11	40		0.84	20.72		40.11	40.00	100.27	23.98	
SH-229	22-Sep-11	41		0.77	18.95		36.67	40.00	91.69	23.72	
SH-229	22-Sep-11	42		0.78	19.06		36.89	40.00	92.23	23.91	
SH-229	22-Sep-11	43		0.74	17.87		34.59	40.00	86.46	26.45	
SH-223	22-Sep-11	44		0.73	17.76		34.38	40.00	85.95	23.89	
SH-223	22-Sep-11	45		0.67	16.47		31.87	40.00	79.67	23.41	
SH-223	22-Sep-11	46		0.51	12.81		24.79	40.00	61.98	12.27	
			min	**0.19**	**4.98**						
			max	**0.94**	**22.37**						
Note: the accuracy of "% recovery" depends on the accuracy of the supplied [NH4] data											
Diffused Standards											**Expected**
IAEA N1	22-Sep-11	70	0.150	0.67	16.82	21.70	32.56	40.00	81.39	0.45	**d15N = 0.43**
IAEA N1	22-Sep-11	71	0.167	0.72	17.56	20.35	33.98	40.00	84.94	0.31	**d15N = 0.43**
IAEA N1	22-Sep-11	72	0.200	0.81	19.64	19.00	38.01	40.00	95.02	0.53	**d15N = 0.43**
									avg	**0.43**	
									sd	**0.12**	
IAEA N2	22-Sep-11	74	0.184	0.85	20.54	21.61	39.76	40.00	99.40	20.29	**d15N = 20.41**
IAEA N2	22-Sep-11	75	0.204	0.95	22.99	21.81	44.50	40.00	111.24	20.52	**d15N = 20.41**
IAEA N2	22-Sep-11	76	0.188	0.89	21.48	22.11	41.57	40.00	103.91	20.42	**d15N = 20.41**
									avg	**20.41**	
									sd	**0.11**	
Lab (NH4)2SO4	22-Sep-11	77		0.77	18.09		35.00	40.00	87.51	0.92	
Lab (NH4)2SO4	22-Sep-11	79		0.74	17.88		34.61	40.00	86.52	0.84	
Lab (NH4)2SO4	22-Sep-11	81		0.75	17.90		34.65	40.00	86.62	0.92	
Lab (NH4)2SO4	22-Sep-11	82		0.74	17.85		34.55	40.00	86.38	1.08	
Lab (NH4)2SO4	22-Sep-11	84		0.75	17.97		34.78	40.00	86.96	1.09	
Lab (NH4)2SO4	22-Sep-11	86		0.74	17.66		34.19	40.00	85.46	0.98	
			min	**0.74**	**17.66**				**avg**	**0.97**	
			max	**0.77**	**18.09**				**sd**	**0.10**	
Blank 1	22-Sep-11	67		-	-	-	-	-	-	-	
Blank 2	22-Sep-11	68		-	-	-	-	-	-	-	
Blank 3	22-Sep-11	69		-	-	-	-	-	-	-	

Isotope Analysis of Ammonia
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample	Date	Position	Mass	N2 Ampl	N2 Area	%N	Obs N	Exp N	%	$\delta^{15}N$	Comments
			(mg)	(volts)	(V/s)		(µg)	(µg)	recovery	(‰)	
Powdered Standards											Expected
IAEA N1	22-Sep-11	87	0.288	1.30	31.59	21.23	61.13			0.43	d15N = 0.43
IAEA N2	22-Sep-11	88	0.286	1.30	31.73	21.47	61.40			20.41	d15N = 20.41
Lab (NH4)2SO4	22-Sep-11	3	0.303	1.36	33.40	21.34	64.65			0.73	
Lab (NH4)2SO4	22-Sep-11	4	0.307	1.41	34.90	22.00	67.54			0.78	
Lab (NH4)2SO4	22-Sep-11	13	0.322	1.44	35.53	21.36	68.76			0.75	
Lab (NH4)2SO4	22-Sep-11	25	0.308	1.42	34.49	21.67	66.75			0.90	
Lab (NH4)2SO4	22-Sep-11	37	0.319	1.39	36.39	22.08	70.44			0.84	
Lab (NH4)2SO4	22-Sep-11	49	0.278	1.26	31.41	21.87	60.80			0.73	
Lab (NH4)2SO4	22-Sep-11	61	0.300	1.37	33.61	21.69	65.06			0.86	
Lab (NH4)2SO4	22-Sep-11	73	0.328	1.47	36.18	21.35	70.02			0.74	
Lab (NH4)2SO4	22-Sep-11	85	0.292	1.35	32.87	21.79	63.62			0.64	
Lab (NH4)2SO4	22-Sep-11	89	1.007	4.72	113.65	21.84	219.95			0.97	
Lab (NH4)2SO4	22-Sep-11	90	0.466	2.18	52.47	21.79	101.55			0.99	
Lab (NH4)2SO4	22-Sep-11	91	0.256	1.17	28.40	21.47	54.97			0.76	
Lab (NH4)2SO4	22-Sep-11	92	0.054	0.23	5.67	20.33	10.98			0.97	
Lab (NH4)2SO4	22-Sep-11	93	0.296	1.36	32.92	21.52	63.70			0.67	
			min	0.23	5.67				avg	0.81	
			max	4.72	113.65				sd	0.11	

Table B.1.3

Field Ammonia Readings
Saginaw Nodular Industrial Land
Saginaw, Michigan

Location	23-Nov-11		2-Dec-11		9-Dec-11		16-Dec-11	
	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated
Lagoon 5			0.44	0.0085	0.35	0.0063	0.11	0.0023
Secondary Pond 1(point)	0.44	0.0113	0.30	0.0058	0.30	0.0053	0.24	0.0050
Secondary Pond 2(pump house)	0.20	0.0051	0.10	0.0019	0.26	0.0046	0.23	0.0049
Secondary Pond 3(NE corner)	0.30	0.0077	0.40	0.0077	0.27	0.0048	0.28	0.0059
Outfall 21								
north ditch					0.02	0.0004		
railroad sump					0.00	0.0000		
Findley Rd. sump					0.25	0.0045	0.22	0.0046
Primary #3					0.68	0.0121	0.57	0.0120
Primary #4								
pH of Saginaw River	8.3		8.2		8.2		8.2 (1)	
Temperature of Saginaw River (^{o}F)	39.75		38.2		35.8		38.3	
Unionized ammonia fraction (%)	2.57%		1.93%		1.78%		2.09%	

Notes:

(1) Value taken from previous reading as current day's data is unavailable
(2) USGS 04157005 SAGINAW RIVER AT HOLLAND AVENUE AT SAGINAW, MI
- Rule 57 Criteria for unionized ammonia in warm water is **0.053 mg/L**
(3) Monthly Estimate from Historical data
(4) Values used to calculate Unionized Ammonia Fraction

Table B.1.3

Field Ammonia Readings
Saginaw Nodular Industrial Land
Saginaw, Michigan

Location	21-Dec-11		4-Jan-12		11-Jan-12		20-Jan-12	
	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated
Lagoon 5	0.21	0.0041	0.14	0.0014	0.35	0.0062	0.18	0.0032
Secondary Pond 1(point)	0.37	0.0072	0.17	0.0017	0.42	0.0075	0.19	0.0034
Secondary Pond 2(pump house)	0.23	0.0044	0.49	0.0047	0.32	0.0057	0.21	0.0037
Secondary Pond 3(NE corner)	0.37	0.0071	0.28	0.0027	0.37	0.0066		
Outfall 21								
north ditch								
railroad sump								
Findley Rd. sump	0.41	0.0080	1.70	0.0165	1.25	0.0223	1.05	0.0187
Primary #3	0.88	0.0170	0.21	0.0020	0.27	0.0048		
Primary #4	0.88	0.0170	1.05	0.0102	1.05	0.0187		
pH of Saginaw River	8.2 (1)		8.0		8.2		8.2	
Temperature of Saginaw River (^{o}F)	36.4		36.4 (1)		34.1		34.1 (1)	
Unionized ammonia fraction (%)	1.93%		0.97%		1.78%		1.78%	

Notes:

(1) Value taken from previous reading as current day's data is unavailable
(2) USGS 04157005 SAGINAW RIVER AT HOLLAND AVENUE AT SAGINAW, MI
- Rule 57 Criteria for unionized ammonia in warm water is **0.053 mg/L**
(3) Monthly Estimate from Historical data
(4) Values used to calculate Unionized Ammonia Fraction

Field Ammonia Readings
Saginaw Nodular Industrial Land
Saginaw, Michigan

Location	26-Jan-12		2-Feb-12		15-Feb-12		29-Feb-12	
	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated
Lagoon 5	0.32	0.0026	0.09	0.0011	0.23	0.0035	0.11	0.0017
Secondary Pond 1(point)	0.41	0.0034	0.12	0.0015	0.12	0.0018	0.12	0.0018
Secondary Pond 2(pump house)	0.25	0.0021	0.08	0.0010	0.09	0.0014	0.02	0.0003
Secondary Pond 3(NE corner)	0.3	0.0025	0.1	0.0013	0.13	0.0020	0.11	0.0017
Outfall 21								
north ditch								
railroad sump								
Findley Rd. sump	0.68	0.0055	0.55	0.0070	1.45	0.022	1.53	0.023
Primary #3			0.11	0.0014	0.62	0.0094	0.12	0.0018
Primary #4	1.45	0.0119	0.28	0.0035	0.88	0.013	0.79	0.0119
pH of Saginaw River	8.0		8.1		8.2		8.2 (1)	
Temperature of Saginaw River (^{o}F)	32.4		34.5		32.5		32.5 (1)	
Unionized ammonia fraction (%)	0.82%		1.27%		1.51%		1.51%	

Notes:

(1) Value taken from previous reading as current day's data is unavailable
(2) USGS 04157005 SAGINAW RIVER AT HOLLAND AVENUE AT SAGINAW, MI
- Rule 57 Criteria for unionized ammonia in warm water is **0.053 mg/L**
(3) Monthly Estimate from Historical data
(4) Values used to calculate Unionized Ammonia Fraction

Table B.1.3

Field Ammonia Readings
Saginaw Nodular Industrial Land
Saginaw, Michigan

Location	24-Apr-12		24-Jan-13	
	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated	Total Ammonia (mg/L)	Unionized Ammonia (mg/L) - calculated
Lagoon 5	0.02	0.00063		
Secondary Pond 1(point)	0.05	0.0016		
Secondary Pond 2(pump house)	0.01	0.00032	0.2	0.0030
Secondary Pond 3(NE corner)	0.05	0.0016	0.15	0.0023
Outfall 21				
north ditch			0.13	0.0019
railroad sump				
Findley Rd. sump	0.06	0.0019		
Primary #3	0.02	0.00063		
Primary #4	0.01	0.00032		
pH of Saginaw River	8.3		8.3	(estimated)
Temperature of Saginaw River (^{o}F)	52.3		32.5	(estimated)
Unionized ammonia fraction (%)	3.16%		1.51%	

Notes:

(1) Value taken from previous reading as current day's data is unavailable
(2) USGS 04157005 SAGINAW RIVER AT HOLLAND AVENUE AT SAGINAW, MI
- Rule 57 Criteria for unionized ammonia in warm water is **0.053 mg/L**
(3) Monthly Estimate from Historical data
(4) Values used to calculate Unionized Ammonia Fraction

Table B.2

Secondary Pond Discharge - Analytical Results (Pre-NPDES)
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample ID:			W-58502-031412-SSH-260	W-58502-032912-SSH-261	W-58502-051712-SSH-262
Sample Date:			3/14/2012	3/29/2012	5/17/2012
Matrix:			SURFACE WATER	SURFACE WATER	SURFACE WATER
Parameters	**Units**	**Rule 57 Water Quality Values- Surface Water Assessment Section Criteria[1]**			
Polychlorinated Biphenyls (PCBs)					
Aroclor-1016	µg/L	-	0.095U	0.095U	0.095U
Aroclor-1221	µg/L	-	0.095U	0.095U	0.095U
Aroclor-1232	µg/L	-	0.095U	0.095U	0.095U
Aroclor-1242	µg/L	-	0.095U	0.095U	0.095U
Aroclor-1248	µg/L	-	0.095U	0.095U	0.095U
Aroclor-1254	µg/L	-	0.095U	0.095U	0.095U
Aroclor-1260	µg/L	-	0.095U	0.095U	0.095U
Total PCBs	µg/L	0.000026	-	-	-
Volatiles					
Silver	µg/L	0.06	1.0U	1.0U	1.0U
Arsenic	µg/L	10	5.0U	5.0U	5.0U
Barium	µg/L	438[2]	31	31	24
Cadmium	µg/L	2.2[2]	1.0U	1.0U	1.0U
Chromium	µg/L	74.1[2]	2.0U	2.0U	2.0U
Copper	µg/L	9[2]	2.0U	2.0U	2.0U
Lead	µg/L	14	1.0U	1.0U	1.0U
Selenium	µg/L	5	5.0U	5.0U	5.0U
Zinc	µg/L	117.2[2]	10U	10U	10U
Other					
Mercury	µg/L	0.0013	0.20U	0.20U	0.20U
Total Suspended Solids (TSS)	mg/L	--	4.0U	4.0U	4.0U
Ammonia	mg/L	0.029	2.0U	2.0U	2.0U

Notes:

µg/L - micrograms per litre
mg/L - milligrams per litre
0.095U - concentrations were not dectable above the stated threshold value
(1) Criteria were selected from Rule 57 under the most stringent category for each parameter
(2) The criteria were calculated using a hardness of 100mg/L

Table B.3

NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL21A**	**OUTFALL21A**	**OUTFALL21A**	**OUTFALL21A**	**OUTFALL21A**
Sample ID:			**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**
Sample Date:			**4/3/2013**	**4/16/2013**	**4/17/2013**	**4/19/2013**	**4/22/2013**
Parameters	**Units**	**NPDES Limits**					
Wet							
Ammonia-N	mg/L	(1)	0.96	0.65	0.56	0.50	0.50
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
pH, lab (2)	s.u.	between 6.5 and 9.0	8.22 HF	8.31 HF	8.24 HF	8.33 HF	8.39 HF
Total suspended solids (TSS)	mg/L	35	4.0 U	6.0	8.0	4.0 U	6.0
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	**5.54**	8.16	8.14	8.78	8.56
Turbidity	NTU	160	3.99	6.04	5.16	9.23	9.17
Field pH (2)		between 6.5 and 9.0	6.56	6.68	6.61	6.93	6.88

Notes:

U Not detected at the associated reporting limit.
J Estimated concentration.
8.5 indicates a parameter exceeding NPDES discharge limits
(1) Acceptabe values for CBOD5 and Ammonia-N are provided below
(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

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

Table B.3

NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL21A**	**OUTFALL21A**	**OUTFALL21A**	**OUTFALL21A**	**OUTFALL21A**
Sample ID:			**W-58502-042313-SSH-268**	**W-58502-042413-SSH-269**	**W-58502-042513-SSH-270**	**W-58502-050713-SSH-271**	**W-58502-050813-SSH-272**
Sample Date:			**4/23/2013**	**4/24/2013**	**4/25/2013**	**5/7/2013**	**5/8/2013**
Parameters	**Units**	**NPDES Limits**					
Wet							
Ammonia-N	mg/L	(1)	0.42	0.41	0.42	0.23	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.7	2.0 U	2.0 U	2.0 U	2.0 U
pH, lab (2)	s.u.	between 6.5 and 9.0	8.47 HF	8.58 HF	8.37 HF	8.53 HF	8.66 HF
Total suspended solids (TSS)	mg/L	35	9.0	8.0	5.0	4.0 U	4.0 U
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	7.86	8.45	8.08	7.82	7.81
Turbidity	NTU	160	7.34	6.91	7.32	2.96	2.75
Field pH (2)		between 6.5 and 9.0	7.28	7.3	7.21	6.62	**6.29**

Notes:

U Not detected at the associated reporting limit.
J Estimated concentration.
8.5 indicates a parameter exceeding NPDES discharge limits
(1) Acceptabe values for CBOD5 and Ammonia-N are provided below
(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

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

Table B.3

NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL21A**	**OUTFALL21A**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**W-58502-050813-SSH-273**	**W-58502-052314-SSH-285**	**W-58502-020416-SSH-1602**	**W-58502-020516-SSH-1611**	**W-58502-021016-SSH-1612**
Sample Date:			**5/8/2013**	**5/23/2014**	**2/4/2016**	**2/5/2016**	**2/10/2016**
Parameters	**Units**	**NPDES Limits**					
Wet							
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	**8.5 b**	2.0 U	2.0 U	2.0 U
pH, lab (2)	s.u.	between 6.5 and 9.0	8.66 HF	8.33	8.39 J	8.39 J	8.51 J
Total suspended solids (TSS)	mg/L	35	4.0 U	4.0 U	6.0	6.0	4.0 U
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)		6.77			
Turbidity	NTU	160		2.10			
Field pH (2)		between 6.5 and 9.0		6.59			

Notes:

U Not detected at the associated reporting limit.
J Estimated concentration.
8.5 indicates a parameter exceeding NPDES discharge limits
(1) Acceptabe values for CBOD5 and Ammonia-N are provided below
(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

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

Table B.3

NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL21A**	**OUTFALL21A**	**OUTFALL21A**	**OUTFALL21A**	**OUTFALL21A**
Sample ID:			**W-58502-030116-SSH-1614**	**W-58502-030216-SSH-1615**	**W-58502-040716-SSH-1647**	**W-58502-040816-SSH-1648**	**W-58502-041216-SSH-1649**
Sample Date:			**3/1/2016**	**3/2/2016**	**4/7/2016**	**4/8/2016**	**4/12/2016**
Parameters	**Units**	**NPDES Limits**					
Wet							
Ammonia-N	mg/L	(1)	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
pH, lab (2)	s.u.	between 6.5 and 9.0	8.74 J	8.90 J	8.24 H	8.25 H	8.19 HF
Total suspended solids (TSS)	mg/L	35	4.0 U	4.0 U	4.0 U	-	-
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)			11.84	12.41	11.97
Turbidity	NTU	160			3.48	4.09	4.94
Field pH (2)		between 6.5 and 9.0			7.17	6.91	7.05

Notes:

U Not detected at the associated reporting limit.
J Estimated concentration.
8.5 indicates a parameter exceeding NPDES discharge limits
(1) Acceptabe values for CBOD5 and Ammonia-N are provided below
(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

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

Table B.3

NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL21A**	**OUTFALL21A**	**OUTFALL21A**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**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**
Sample Date:			**4/13/2016**	**6/21/2016**	**6/22/2016**	**6/23/2016**	**6/28/2016**
Parameters	**Units**	**NPDES Limits**					
Wet							
Ammonia-N	mg/L	(1)	-	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 Ub	2.0 UH	2.0 U
pH, lab (2)	s.u.	between 6.5 and 9.0	8.27 HF	9.05 HF	9.05 HF	9.09	8.90 HF
Total suspended solids (TSS)	mg/L	35	-	4.0 U	4.0 U	4.0 U	4.0 U
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	11.96	7.91	7.80	7.07	7.07
Turbidity	NTU	160	4.09	6.77	8.14	6.69	3.91
Field pH (2)		between 6.5 and 9.0	7.21	7.98	7.22	7.09	7.33

Notes:

U Not detected at the associated reporting limit.
J Estimated concentration.
8.5 indicates a parameter exceeding NPDES discharge limits
(1) Acceptabe values for CBOD5 and Ammonia-N are provided below
(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

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

Table B.3

NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**W-58502-062816-SSH-1655**	**W-58502-062916-SSH-1656**	**W-58502-063016-SSH-1657**	**W-58502-070116-SSH-1658**	**W-58502-070516-SSH-1659**
Sample Date:			**6/28/2016**	**6/29/2016**	**6/30/2016**	**7/1/2016**	**7/5/2016**
Parameters	**Units**	**NPDES Limits**					
Wet							
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	2.4 b	2.0 U
pH, lab (2)	s.u.	between 6.5 and 9.0	8.90 HF	8.90 HF	9.01 HF	9.05 HF	9.07 HF
Total suspended solids (TSS)	mg/L	35	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	7.46	7.54	7.32	13.22	7.83
Turbidity	NTU	160	3.49	2.71	2.68	3.32	2.92
Field pH (2)		between 6.5 and 9.0	7.27	7.91	7.55	8.89	7.84

Notes:

U Not detected at the associated reporting limit.
J Estimated concentration.
8.5 indicates a parameter exceeding NPDES discharge limits
(1) Acceptabe values for CBOD5 and Ammonia-N are provided below
(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

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

Table B.3

NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**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:			**7/6/2016**	**7/7/2016**	**7/8/2016**	**7/12/2016**	**7/13/2016**
Parameters	**Units**	**NPDES Limits**					
Wet							
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	2.0 UH	**7.6**
pH, lab (2)	s.u.	between 6.5 and 9.0	9.04 HF	9.12 HF	9.12 HF	8.74 HF	8.92 HF
Total suspended solids (TSS)	mg/L	35	4.0 U	4.0 U	5.0	4.0 U	4.0 U
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	(1)	6.63	6.71	7.63	7.20
Turbidity	NTU	160	2.64	2.51	3.13	3.51	3.11
Field pH (2)		between 6.5 and 9.0	(1)	8.81	8.76	7.66	7.12

Notes:

U Not detected at the associated reporting limit.
J Estimated concentration.
8.5 indicates a parameter exceeding NPDES discharge limits
(1) Acceptabe values for CBOD5 and Ammonia-N are provided below
(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

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

Table B.3

NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**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**
Sample Date:			**7/14/2016**	**7/15/2016**	**7/19/2016**	**7/20/2016**	**7/21/2016**
Parameters	**Units**	**NPDES Limits**					
Wet							
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 Ub	2.0 U	2.8 b	2.0 U	2.0 U
pH, lab (2)	s.u.	between 6.5 and 9.0	8.87 HF	9.57 HF	8.78 HF	8.88	8.89 HF
Total suspended solids (TSS)	mg/L	35	4.0 U	4.0 U	4.0	4.0 U	4.0 U
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	7.14	7.47	7.01	7.85	7.63
Turbidity	NTU	160	3.84	4.09	4.11	3.88	3.70
Field pH (2)		between 6.5 and 9.0	6.95	7.26	7.15	6.85	8.49

Notes:

U Not detected at the associated reporting limit.
J Estimated concentration.
8.5 indicates a parameter exceeding NPDES discharge limits
(1) Acceptabe values for CBOD5 and Ammonia-N are provided below
(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

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

Table B.3

NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**W-58502-072616-SSH-1670**	**W-58502-072716-SSH-1671**	**W-58502-072816-SSH-1672**	**W-58502-072916-SSH-1673**	**W-58502-080216-SSH-1674**
Sample Date:			**7/26/2016**	**7/27/2016**	**7/28/2016**	**7/29/2016**	**8/2/2016**
Parameters	**Units**	**NPDES Limits**					
Wet							
Ammonia-N	mg/L	(1)	0.23	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	2.7 b	2.0 U	3.1 b
pH, lab (2)	s.u.	between 6.5 and 9.0	9.18 HF	9.24 HF	9.1	9.1 HF	8.7 HF
Total suspended solids (TSS)	mg/L	35	4.0 U	4.0	4.0	4.0 U	5.0
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	7.39	7.88	7.03	7.21	7.57
Turbidity	NTU	160	3.92	4.99	7.16	7.27	6.91
Field pH (2)		between 6.5 and 9.0	8.29	7.95	8.20	7.29	7.49

Notes:

U Not detected at the associated reporting limit.
J Estimated concentration.
8.5 indicates a parameter exceeding NPDES discharge limits
(1) Acceptabe values for CBOD5 and Ammonia-N are provided below
(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

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

Table B.3

NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**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**
Sample Date:			**8/3/2016**	**8/4/2016**	**8/5/2016**	**8/9/2016**	**8/10/2016**
Parameters	**Units**	**NPDES Limits**					
Wet							
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	2.0 U	2.0 U
pH, lab (2)	s.u.	between 6.5 and 9.0	9.0 HF	9.0 HF	9.1 HF	8.7 HF	8.8 HF
Total suspended solids (TSS)	mg/L	35	4.0	4.0 U	4.0 U	5.0	4.0 U
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	8.58	8.47	8.80	6.95	7.88
Turbidity	NTU	160	6.65	8.01	8.12	6.56	4.43
Field pH (2)		between 6.5 and 9.0	7.89	8.57	7.90	7.09	7.18

Notes:

U Not detected at the associated reporting limit.
J Estimated concentration.
8.5 indicates a parameter exceeding NPDES discharge limits
(1) Acceptabe values for CBOD5 and Ammonia-N are provided below
(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

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

Table B.3

NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**W-58502-081116-SSH-1680**	**W-58502-081616-SSH-1681**	**W-58502-081716-SSH-1683**	**W-58502-081816-SSH-1684**	**W-58502-081916-SSH-1685**
Sample Date:			**8/11/2016**	**8/16/2016**	**8/17/2016**	**8/18/2016**	**8/19/2016**
Parameters	**Units**	**NPDES Limits**					
Wet							
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.20 U	0.23	0.20 U
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	2.0 U	2.3	2.4	3.6	-
pH, lab (2)	s.u.	between 6.5 and 9.0	8.8 HF	8.8 HF	8.5 HF	8.7 HF	8.8 HF
Total suspended solids (TSS)	mg/L	35	4.0 U	4.0 U	4.0 U	4.0	4.0 U
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	8.43	(1)	6.28	6.84	8.10
Turbidity	NTU	160	4.14	(1)	7.05	8.12	7.88
Field pH (2)		between 6.5 and 9.0	8.29	(1)	7.48	7.71	8.60

Notes:

U Not detected at the associated reporting limit.
J Estimated concentration.
8.5 indicates a parameter exceeding NPDES discharge limits
(1) Acceptabe values for CBOD5 and Ammonia-N are provided below
(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

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

Table B.3

NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**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**
Sample Date:			**8/24/2016**	**8/25/2016**	**8/26/2016**	**8/27/2016**	**8/28/2016**
Parameters	**Units**	**NPDES Limits**					
Wet							
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)	5.8	3.9	5.2	5.9	7.2
pH, lab (2)	s.u.	between 6.5 and 9.0	9.1 HF	9.1 HF	9.3 HF	9.0 HF	10 HF
Total suspended solids (TSS)	mg/L	35	6.0	5.0	10	10	8.0
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	9.19	9.35	8.81	8.66	8.96
Turbidity	NTU	160	12.40	9.76	16.70	11.70	15.00
Field pH (2)		between 6.5 and 9.0	8.37	8.74	7.99	7.19	7.88

Notes:

U Not detected at the associated reporting limit.
J Estimated concentration.
8.5 indicates a parameter exceeding NPDES discharge limits
(1) Acceptabe values for CBOD5 and Ammonia-N are provided below
(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

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

Table B.3

NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**W-58502-082916-SSH-1691**	**W-58502-083116-SSH-1692**	**W-58502-090116-SSH-1693**	**W-58502-090216-SSH-1694**	**W-58502-090316-SSH-1695**
Sample Date:			**8/29/2016**	**8/31/2016**	**9/1/2016**	**9/2/2016**	**9/3/2016**
Parameters	**Units**	**NPDES Limits**					
Wet							
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)	**8.3**	**9.1**	4.6	**7.6**	5.4
pH, lab (2)	s.u.	between 6.5 and 9.0	9.2 HF	8.5 HF	8.6 HF	8.7	7.8 HF
Total suspended solids (TSS)	mg/L	35	11	9.0	8.0	9.0	7.0
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	8.77	8.79	9.44	6.92	9.15
Turbidity	NTU	160	14.50	19.90	13.80	14.00	14.00
Field pH (2)		between 6.5 and 9.0	7.87	7.45	7.06	6.75	7.94

Notes:

U Not detected at the associated reporting limit.
J Estimated concentration.
8.5 indicates a parameter exceeding NPDES discharge limits
(1) Acceptabe values for CBOD5 and Ammonia-N are provided below
(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

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

Table B.3

NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**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**
Sample Date:			**9/4/2016**	**9/5/2016**	**9/6/2016**	**9/7/2016**	**9/8/2016**
Parameters	**Units**	**NPDES Limits**					
Wet							
Ammonia-N	mg/L	(1)	0.20 U	0.20 U	0.20 U	0.29	0.52
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	4.8	5.3	6.5	**8.3**	3.1
pH, lab (2)	s.u.	between 6.5 and 9.0	8.8 HF	9.2 HF	9.0 HF	8.4 HF	8.1 HF
Total suspended solids (TSS)	mg/L	35	10	6.0	12	6.0	7.0
Field Parameters							
Dissolved Oxygen	mg/l	6 (min)	8.86	7.24	9.12	7.05	7.30
Turbidity	NTU	160	14.30	14.80	18.40	14.10	12.30
Field pH (2)		between 6.5 and 9.0	7.99	7.27	6.84	7.02	7.04

Notes:

U Not detected at the associated reporting limit.
J Estimated concentration.
8.5 indicates a parameter exceeding NPDES discharge limits
(1) Acceptabe values for CBOD5 and Ammonia-N are provided below
(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

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

Table B.3

NPDES Permit Monitoring Results for Outfall 21a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL21**	**OUTFALL21**	**OUTFALL21**	**OUTFALL21**
Sample ID:			**W-58502-090916-SSH-1701**	**W-58502-091016-SSH-1702**	**W-58502-091116-SSH-1703**	**W-58502-091216-SSH-1704**
Sample Date:			**9/9/2016**	**9/10/2016**	**9/11/2016**	**9/12/2016**
Parameters	**Units**	**NPDES Limits**				
Wet						
Ammonia-N	mg/L	(1)	0.58	0.72	1.1	1.0
Biochemical oxygen demand (carbonaceous)	mg/L	(1)	**7.6**	**8.4**	6.9	**7.9**
pH, lab (2)	s.u.	between 6.5 and 9.0	8.0 HF	8.0 HF	7.8 HF	8.2 HF
Total suspended solids (TSS)	mg/L	35	8.0	6.0	11	12
Field Parameters						
Dissolved Oxygen	mg/l	6 (min)	7.49	8.23	8.09	8.09
Turbidity	NTU	160	12.30	17.80	24.60	
Field pH (2)		between 6.5 and 9.0	7.17	6.85	6.96	8.20

Notes:

U Not detected at the associated reporting limit.
J Estimated concentration.
8.5 indicates a parameter exceeding NPDES discharge limits
(1) Acceptabe values for CBOD5 and Ammonia-N are provided below
(2) Measurements for pH are recommended to be taken in the field, therefore, when both field and laboratory pH were taken, the field pH is compared to the NPDES Limits.

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

Table B.4

NPDES Permit Monitoring Results for Outfall 22a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL22A**	**OUTFALL22A**	**OUTFALL22A**	**OUTFALL22A**	**OUTFALL22A**	**OUTFALL22A**
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**
Sample Date:			**4/14/2014**	**5/16/2014**	**11/26/2014**	**4/10/2015**	**6/16/2015**	**9/4/2015**
Parameters	**Units**	**NPDES Limits**						
Wet								
pH, lab	s.u.	between 6.5 and 9.0	7.60 HF	7.75 HF	7.70 HF	7.84 HF	7.66	7.58 HF
Total suspended solids (TSS)	mg/L	35	5.0	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U

Notes:

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

Table B.4

NPDES Permit Monitoring Results for Outfall 22a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL22A**	**OUTFALL22A**	**OUTFALL22A**	**OUTFALL22A**	**OUTFALL22A**	**OUTFALL22**
Sample ID:			**W-58502-020316-SSH-1601**	**W-58502-022916-SSH-1613**	**W-58502-031016-SSH-1616**	**W-58502-031616-SSH-1617**	**SW-58502-033116-JY-001**	**W-58502-081616-SSH-1682**
Sample Date:			**2/3/2016**	**2/29/2016**	**3/10/2016**	**3/16/2016**	**3/31/2016**	**8/16/2016**
Parameters	**Units**	**NPDES Limits**						
Wet								
pH, lab	s.u.	between 6.5 and 9.0	7.44 J	8.22 J	7.68 J	7.79 J	8.30 HF	7.6 HF
Total suspended solids (TSS)	mg/L	35	5.0	4.0 U	4.0	5.0	4.0	4.0 U

Notes:

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

Table B.4

NPDES Permit Monitoring Results for Outfall 22a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL22**	**OUTFALL22**	**OUTFALL22**	**OUTFALL22**	**OUTFALL22**
Sample ID:			**W-58502-030117-SSH-17001**	**W-58502-040417-SSH-17002**	**W-58502-041718-SSH-1806**	**W-58502-042017-SSH-17004**	**W-58502-050117-SSH-17005**
Sample Date:			**3/1/2017**	**4/4/2017**	**4/17/2017**	**4/20/2017**	**5/1/2017**
Parameters	**Units**	**NPDES Limits**					
Wet							
pH, lab	s.u.	between 6.5 and 9.0	7.7 HF	7.7 HF	7.6	7.8 HF	7.8
Total suspended solids (TSS)	mg/L	35	4.0 U	4.0 U	4.0 U	7.0	4.0 U

Notes:

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

Table B.4

NPDES Permit Monitoring Results for Outfall 22a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			**OUTFALL22**	**OUTFALL22A**	**OUTFALL22A**	***OUTFALL22***	***OUTFALL22***	***OUTFALL22***
Sample ID:			**W-58502-022118-SSH-1801**	**W-58502-083018-SSH-1850**	**W-58502-100218-SSH-1851**	***W-58502-031519-SSH-01019***	***W-58502-041719-SSH-02019***	***W-58502-060619-SSH-04019***
Sample Date:			**2/21/2018**	**8/30/2018**	**10/2/2018**	***3/15/2019***	***4/17/2019***	***6/6/2019***
Parameters	**Units**	**NPDES Limits**						
Wet								
pH, lab	s.u.	between 6.5 and 9.0	7.6 HF	7.6 HF	7.6 HF	7.7	7.7	7.7 HF
Total suspended solids (TSS)	mg/L	35	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U

Notes:

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

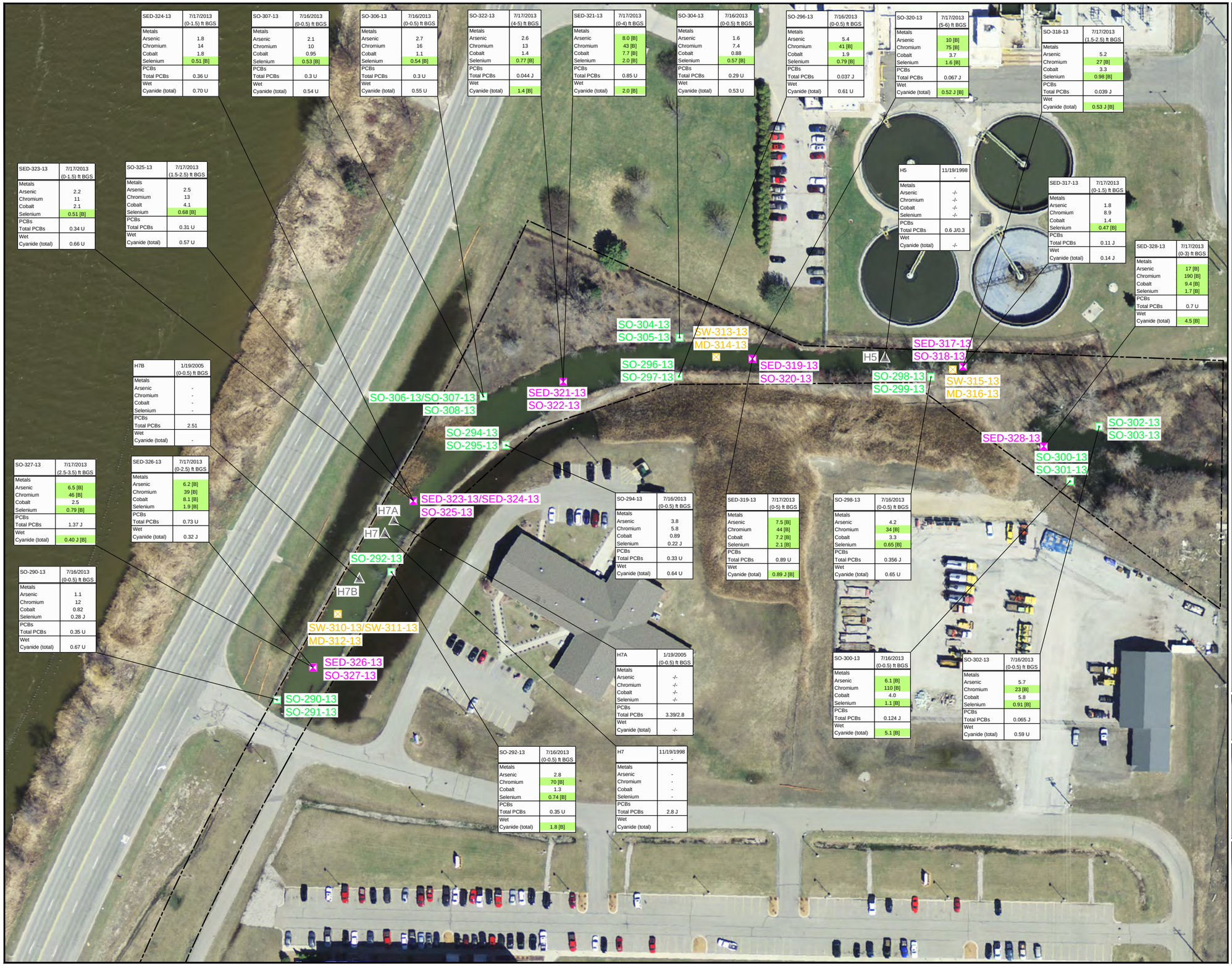
Table B.4

NPDES Permit Monitoring Results for Outfall 22a
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:			***OUTFALL22***	***OUTFALL22***	***OUTFALL22***	***OUTFALL22***
Sample ID:			***W-58502-061419-SSH-05019***	***W-58502-100219-SSH-2519***	***W-58502-102819-SSH-3019***	***W-58502-120319-SSH-4719***
Sample Date:			***6/14/2019***	***10/2/2019***	***10/28/2019***	***12/3/2019***
Parameters	**Units**	**NPDES Limits**				
Wet						
pH, lab	s.u.	between 6.5 and 9.0	7.5 HF	7.7 HF	8.3 HF	7.5 HF
Total suspended solids (TSS)	mg/L	35	4.0 U	9.0	4.0 U	3.0 J

Notes:

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



0 20 50ft

LEGEND

- SURVEYED PROPERTY BOUNDARY
- HISTORICAL SEDIMENT SAMPLE LOCATION
- SEDIMENT SAMPLE LOCATION
- SOIL SAMPLE LOCATION
- SURFACE WATER SAMPLE LOCATION

NOTES:
SO = SOIL
SED = SEDIMENT
SW = SURFACE WATER
MD = DEPTH OF WATER COLUMN

SED-317-13	7/17/2013 (0-1.5) ft BGS
Metals	
Arsenic	1.8
Chromium	8.9
Cobalt	1.4
Selenium	0.47 [B]
PCBs	
Total PCBs	0.11 J
Wet	
Cyanide (total)	0.14 J

SAMPLE LOCATION
SAMPLE DATE
SAMPLE DEPTH
RESULT (mg/kg)
PARAMETER
EXCEEDS CRITERIA

Chemical Name	A	B	C	Unit
Arsenic	5.8	4.6	37	mg/kg
Chromium	18	3.3	9200	mg/kg
Cobalt	6.8	2	9000	mg/kg
Selenium	0.41	0.4	9600	mg/kg
Total PCBs	-	-	16	mg/kg
Cyanide (total)	0.39	0.1	250	mg/kg

A: Statewide Default Background Levels
B: GSI Criteria
C: Non_RES/Direct Contact

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

RACER TRUST
SAGINAW NODULAR INDUSTRIAL LAND

SAGINAW, MICHIGAN

NORTH DITCH SEDIMENT AND SOIL SUMMARY OF EXCEEDANCES

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
MICHIGAN STATE PLANE SOUTH, NAD 83 USING INTERNATIONAL FEET, NGVD 88
AERIAL PHOTO BY USGS, DATED MARCH 2010.

Project Manager:	Reviewed By:	Date:	
M.T.	B.P.	NOVEMBER 2013	
Scale:	Project N°:	Report N°:	Drawing N°:
1" = 50'	58502-T02	MEMO005	figure 3

0 20 50ft

LEGEND

- SURVEYED PROPERTY BOUNDARY
- HISTORICAL SEDIMENT SAMPLE LOCATION
- SEDIMENT SAMPLE LOCATION
- SOIL SAMPLE LOCATION
- SURFACE WATER SAMPLE LOCATION
- 4' WATER DEPTH
- 1.5' SEDIMENT THICKNESS

SOURCE: 2010 USGS

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

RACER TRUST
SAGINAW NODULAR INDUSTRIAL LAND

SAGINAW, MICHIGAN

NORTH DITCH WATER DEPTH AND SEDIMENT THICKNESS

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
MICHIGAN STATE PLANE SOUTH, NAD 83 USING INTERNATIONAL FEET, NGVD 88
AERIAL PHOTO BY USGS, DATED MARCH 2010.

Project Manager:	Reviewed By:	Date:	
M.T.	B.P.	NOVEMBER 2013	
Scale: 1" = 50'	Project N°: 58502-T02	Report N°: MEMO005	Drawing N°: figure 4

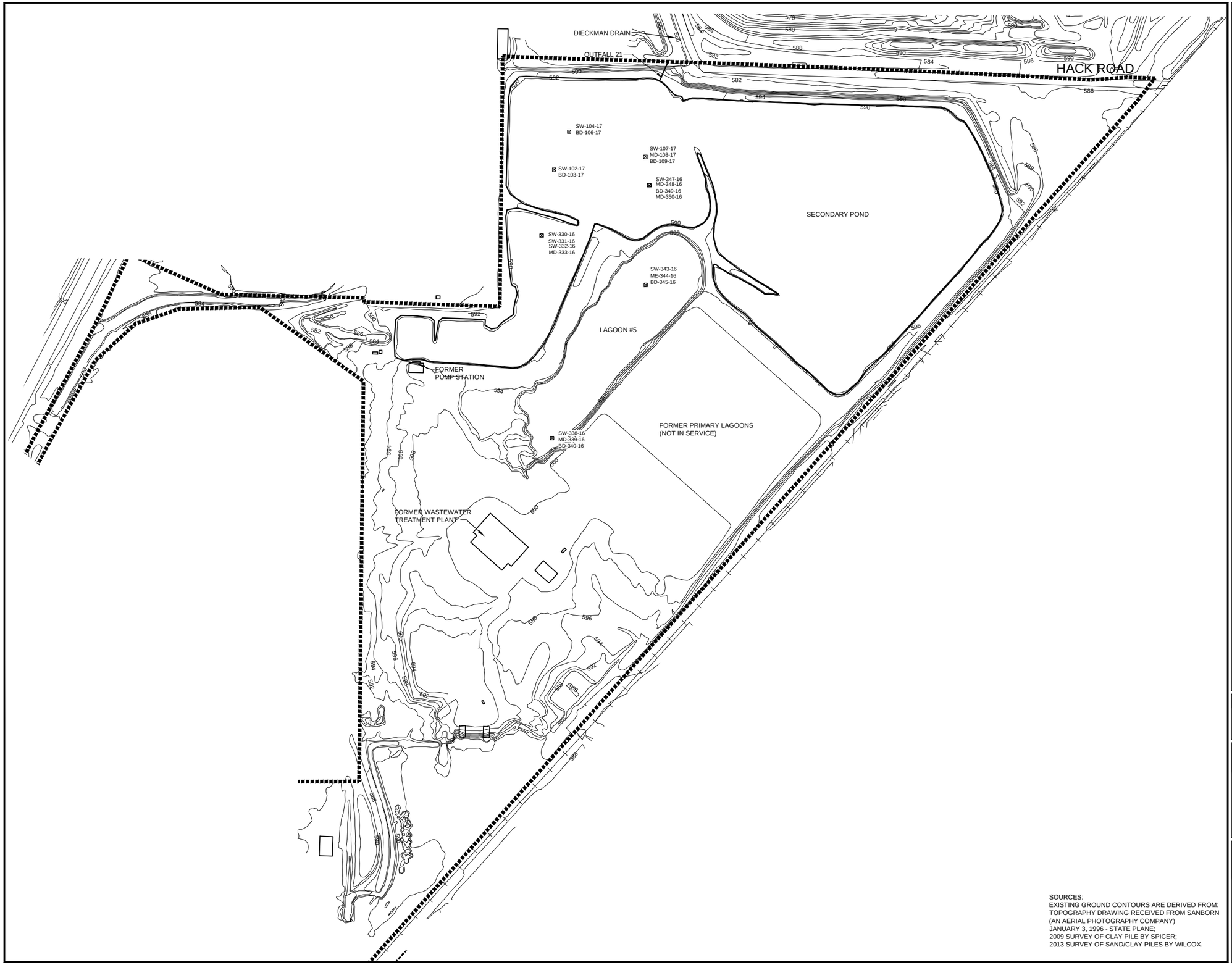
Table B.5

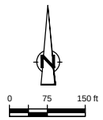
North Ditch Water Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:				H6	MD-312-13	MD-314-13	MD-316-13	SW-310-13	SW-311-13	SW-313-13	SW-315-13
Sample ID:				W00013	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:				11/18/1998	7/17/2013	7/17/2013	7/17/2013	7/17/2013	7/17/2013	7/17/2013	7/17/2013
Sample Depth:				(0-0) ft BWS	(2.5-2.5) ft BWS	(2.5-2.5) ft BWS	(2-2) ft BWS	(0-0) ft BWS	(0-0) ft BWS	(0-0) ft BWS	(0-0) ft BWS
matrix_code				WS	WS	WS	WS	WS	WS	WS	WS
Parameters:	**Units**	**Res/Non_Res/GW SW Interface**	**DEQ Rule 57 - Surface Water Quality Values**								
Metals											
Antimony	mg/L	0.13	0.0017	0.05 U	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	0.01	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Barium	mg/L	-	1.9	0.035	0.036 J	0.033 J	0.033 J	0.037 J	0.036 J	0.033 J	0.033 J
Beryllium	mg/L	-	0.16	0.005 U	0.001 U	0.00013 J	0.000056 J	0.00025 J	0.00015 J	0.00004 J	0.000096 J
Cadmium	mg/L	-	0.0025	0.004 U	0.00003 J	0.00012 J	0.001 U	0.00014 J	0.000029 J	0.001 U	0.001 U
Chromium	mg/L	0.011	0.12	0.005 U	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	0.01 U	0.00018 J	0.0002 J	0.000093 J	0.00029 J	0.00018 J	0.000083 J	0.00014 J
Copper	mg/L	-	0.47	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Lead	mg/L	-	0.014	0.002 U	0.0014 J	0.001 J	0.00053 J	0.002 J	0.0015 J	0.00062 J	0.001 J
Manganese	mg/L	-	1.3	0.093	0.16	0.14	0.14	0.17	0.15	0.11	0.18
Mercury	mg/L	0.0000013	0.0000013	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	mg/L	-	2.6	0.02 U	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	0.005 U	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	0.01 U	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	0.0012	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vanadium	mg/L	0.012	0.027	0.01 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Zinc	mg/L	-	3.3	0.018 UJ	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Polychlorinated Biphenyls											
Aroclor-1016 (PCB-1016)	mg/L	0.0002	0.000000026	0.0002 U	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	0.000000026	0.0002 U	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	0.000000026	0.0002 U	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	0.000000026	0.0002 U	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	0.000000026	0.0002 U	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	0.000000026	0.0002 U	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	0.000000026	0.0002 U	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	0.000000026	0.0002 U	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	0.000000026	0.0002 U	0.000095 U	0.000095 U	0.000095 U	0.00011 U	0.0001 U	0.0001 U	0.000097 U
General Chemistry											
Ammonia	mg/L	-	-	-	1.4 J	2.0 U	2.0 U	2.0 U	1.1 J	1.1 J	2.0 U
Ammonia (unionized)	mg/L	0.053	0.053	-	0.01	-	-	-	0.01	0.01	-
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	-	0.010 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	-	10	-	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

Notes:

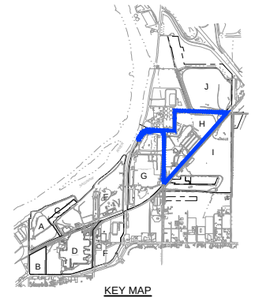
J - Estimated concentration.
U - Not present at or above the associated value.
UJ - Estimated reporting limit.
BWS - Below Water surface
(1) The generic GSI criteria are based on the toxicity of unionized ammonia (NH3); the criteria is 53 µg/L warm water surface water
(2) Temperature of the water was assumed to be approximately 65 degrees F at the criteria is 53 µg/L warm water surface water





LEGEND

- A — — INVESTIGATIVE UNIT BOUNDARY AND IDENTIFIER
- APPROXIMATE LIMITS OF RACER PROPERTY
- 590 EXISTING GROUND CONTOUR (NGVD)
- ⊠ WATER SAMPLE LOCATION



KEY MAP

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

REVITALIZING AUTOMOTIVE COMMUNITY ENVIRONMENTAL RESPONSE

SAGINAW, MICHIGAN

POND WATER SAMPLE LOCATIONS

SOURCES:
EXISTING GROUND CONTOURS ARE DERIVED FROM:
TOPOGRAPHY DRAWING RECEIVED FROM SANBORN (AN AERIAL PHOTOGRAPHY COMPANY)
JANUARY 3, 1996 - STATE PLANE;
2009 SURVEY OF CLAY PILE BY SPICER;
2013 SURVEY OF SAND/CLAY PILES BY WILCOX.

GHD

Source Reference:
MICHIGAN STATE PLANE SOUTH, NAD 83 USING INTERNATIONAL FEET, NGVD 88
TOPO - SANBORN, 1996

Project Manager:	Reviewed By:	Date:	
I.R.	M.T.	JANUARY 2019	
Scale: 1" = 200'	Project N²: 58502-T02	Report N²: 013	Drawing N²: figure 1

P:\drawings\58000s\58502\58502-REPORT\58502-T02(013)\58502-T02(013)GN\58502-T02(013)GN-WA002.dwg Plot Date: JAN 11, 2019

Table B.6

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:							BD-103-17	BD-106-17	BD-109-17	BD-340-16	BD-345-16	BD-349-16	MD-108-17	MD-333-16
Sample ID:							W-58502-091117-SSH-103	W-58502-091117-SSH-106	W-58502-091117-SSH-109	W-58502-032416-SSH-1637	W-58502-032416-SSH-1634	W-58502-031716-SSH-1623	W-58502-091117-SSH-108	W-58502-032416-SSH-1645
Sample Date:							9/11/2017	9/11/2017	9/11/2017	3/24/2016	3/24/2016	3/17/2016	9/11/2017	3/24/2016
		Rule 57												
Parameters	**Units**	**Res/Non_Res/GW SW Interface**	**FCV**	**HCV Drink**	**HNV Drink**	**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	-	-
1,1,2,2-Tetrachloroethane	mg/L	0.078	0.2	0.0032	0.18	-	-	-	-	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	-	-
1,1-Dichloroethane	mg/L	0.74	0.74	-	9.8	-	-	-	-	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	-	-
1,2,4-Trichlorobenzene	mg/L	0.099	0.13	-	0.08	-	-	-	-	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	-	-
1,2-Dibromoethane (Ethylene dibromide)	mg/L	0.0057	0.015	0.00017	0.25	-	-	-	-	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	-	-
1,2-Dichloroethane	mg/L	0.36	2	0.006	6.9	-	-	-	-	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	-	-
1,3-Dichlorobenzene	mg/L	0.028	0.028	-	0.037	-	-	-	-	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	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/L	2.2	2.2	-	17	-	-	-	-	0.01 U	0.01 U	0.01 U	-	-
2-Hexanone	mg/L	-	-	-	9.7	-	-	-	-	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	-	-
Acetone	mg/L	1.7	1.7	-	5.6	-	-	-	-	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	-	-
Bromodichloromethane	mg/L	-	-	0.0068	0.17	-	-	-	-	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	-	-
Bromomethane (Methyl bromide)	mg/L	0.035	0.0042	-	0.039	-	-	-	-	0.001 U	0.001 U	0.001 U	-	-
Carbon disulfide	mg/L	-	-	-	1	-	-	-	-	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	-	-
Chlorobenzene	mg/L	0.025	0.025	-	0.47	-	-	-	-	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	-	-
Chloroform (Trichloromethane)	mg/L	0.35	0.63	-	0.35	-	-	-	-	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	-	-
cis-1,2-Dichloroethene	mg/L	0.62	0.62	-	0.88	-	-	-	-	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	-	-
Cyclohexane	mg/L	-	-	-	-	-	-	-	-	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	-	-
Dichlorodifluoromethane (CFC-12)	mg/L	-	-	-	2.9	-	-	-	-	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	-	-
Isopropyl benzene	mg/L	0.028	0.028	-	1.7	-	-	-	-	0.001 U	0.001 U	0.001 U	-	-
Methyl acetate	mg/L	-	-	-	-	-	-	-	-	0.01 U	0.01 U	0.01 U	-	-
Methyl cyclohexane	mg/L	-	-	-	-	-	-	-	-	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	-	-
Methylene chloride	mg/L	1.5	1.5	0.047	1.6	-	-	-	-	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	-	-
Tetrachloroethene	mg/L	0.06	0.19	0.011	0.32	-	-	-	-	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	-	-
trans-1,2-Dichloroethene	mg/L	1.5	1.5	-	0.47	-	-	-	-	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	-	-
Trichloroethene	mg/L	0.2	0.2	0.029	0.044	-	-	-	-	0.001 U	0.001 U	0.001 U	-	-
Trichlorofluoromethane (CFC-11)	mg/L	-	-	-	-	-	-	-	-	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	-	-
Vinyl chloride	mg/L	0.013	0.93	0.00025	0.083	-	-	-	-	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	-	-
SVOAs														
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/L	-	-	0.006	0.99	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
2,4,5-Trichlorophenol	mg/L	-	-	-	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
2,4,6-Trichlorophenol	mg/L	0.005	0.005	0.041	1.9	-	-	-	-	0.0038 U	0.0042 U	0.0039 U	-	-
2,4-Dichlorophenol	mg/L	0.011	0.011	-	0.22	-	-	-	-	0.0095 U	0.01 U	0.0098 U	-	-
2,4-Dimethylphenol	mg/L	0.38	0.38	-	0.45	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
2,4-Dinitrophenol	mg/L	-	0.019	-	0.055	-	-	-	-	0.019 U	0.021 U	0.02 U	-	-
2,4-Dinitrotoluene	mg/L	-	-	-	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
2,6-Dinitrotoluene	mg/L	-	-	-	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
2-Chloronaphthalene	mg/L	-	-	-	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
2-Chlorophenol	mg/L	0.018	0.018	-	0.19	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
2-Methylnaphthalene	mg/L	0.019	0.019	-	0.6	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
2-Methylphenol	mg/L	0.03	0.076	-	1.4	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
2-Nitroaniline	mg/L	-	-	-	-	-	-	-	-	0.019 U	0.021 U	0.02 U	-	-
2-Nitrophenol	mg/L	-	0.056	-	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
3&4-Methylphenol	mg/L	0.03	0.025	-	1.4	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
3,3'-Dichlorobenzidine	mg/L	0.0003	0.0045	0.00014	0.65	-	-	-	-	0.00095 U	0.001 U	0.00098 U	-	-
3-Nitroaniline	mg/L	-	-	-	-	-	-	-	-	0.019 U	0.021 U	0.02 U	-	-
4,6-Dinitro-2-methylphenol	mg/L	-	-	-	-	-	-	-	-	0.019 U	0.021 U	0.02 U	-	-
4-Bromophenyl phenyl ether	mg/L	-	-	-	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
4-Chloro-3-methylphenol	mg/L	0.0074	0.0074	-	6.9	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
4-Chloroaniline	mg/L	-	-	0.002	0.039	-	-	-	-	0.0095 U	0.01 U	0.0098 U	-	-
4-Chlorophenyl phenyl ether	mg/L	-	-	-	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
4-Nitroaniline	mg/L	-	-	-	-	-	-	-	-	0.019 U	0.021 U	0.02 U	-	-
4-Nitrophenol	mg/L	-	0.2	-	0.68	-	-	-	-	0.019 U	0.021 U	0.02 U	-	-
Acenaphthene	mg/L	0.038	0.038	-	0.58	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-

Table B.6

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:							BD-103-17	BD-106-17	BD-109-17	BD-340-16	BD-345-16	BD-349-16	MD-108-17	MD-333-16
Sample ID:							W-58502-091117-SSH-103	W-58502-091117-SSH-106	W-58502-091117-SSH-109	W-58502-032416-SSH-1637	W-58502-032416-SSH-1634	W-58502-031716-SSH-1623	W-58502-091117-SSH-108	W-58502-032416-SSH-1645
Sample Date:							9/11/2017	9/11/2017	9/11/2017	3/24/2016	3/24/2016	3/17/2016	9/11/2017	3/24/2016
		Rule 57												
Parameters	**Units**	**Res/Non_Res/GW SW Interface**	**FCV**	**HCV Drink**	**HNV Drink**	**WV**								
SVOAs (cont'd)														
Acenaphthylene	mg/L	-	-	-	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Acetophenone	mg/L	-	-	-	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Anthracene	mg/L	-	-	-	1.9	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Atrazine	mg/L	0.0073	0.0073	-	0.88	-	-	-	-	0.0029 U	0.0031 U	0.0029 U	-	-
Benzaldehyde	mg/L	-	-	-	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Benzo(a)anthracene	mg/L	-	-	-	-	-	-	-	-	0.00095 U	0.001 U	0.00098 U	-	-
Benzo(a)pyrene	mg/L	-	-	-	-	-	-	-	-	0.00095 U	0.001 U	0.00098 U	-	-
Benzo(b)fluoranthene	mg/L	-	-	-	-	-	-	-	-	0.00095 U	0.001 U	0.00098 U	-	-
Benzo(g,h,i)perylene	mg/L	-	-	-	-	-	-	-	-	0.00095 U	0.001 U	0.00098 U	-	-
Benzo(k)fluoranthene	mg/L	-	-	-	-	-	-	-	-	0.00095 U	0.001 U	0.00098 U	-	-
Biphenyl (1,1-Biphenyl)	mg/L	-	0.013	-	0.46	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
bis(2-Chloroethoxy)methane	mg/L	-	-	-	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
bis(2-Chloroethyl)ether	mg/L	0.001	-	0.00079	-	-	-	-	-	0.00095 U	0.001 U	0.00098 U	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/L	0.025	-	0.014	0.12	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Butyl benzylphthalate (BBP)	mg/L	0.067	0.067	-	0.0069	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Caprolactam	mg/L	-	-	-	-	-	-	-	-	0.0095 U	0.01 U	0.0098 U	-	-
Carbazole	mg/L	0.01	0.004	0.019	-	-	-	-	-	0.0095 U	0.01 U	0.0098 U	-	-
Chrysene	mg/L	-	-	-	-	-	-	-	-	0.00095 U	0.001 U	0.00098 U	-	-
Dibenz(a,h)anthracene	mg/L	-	-	-	-	-	-	-	-	0.0019 U	0.0021 U	0.002 U	-	-
Dibenzofuran	mg/L	0.004	0.004	-	-	-	-	-	-	0.0038 U	0.0042 U	0.0039 U	-	-
Diethyl phthalate	mg/L	0.11	0.11	-	14	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Dimethyl phthalate	mg/L	-	-	-	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Di-n-butylphthalate (DBP)	mg/L	0.0097	0.0097	-	0.64	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Di-n-octyl phthalate (DnOP)	mg/L	-	-	-	0.24	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Fluoranthene	mg/L	0.0016	0.0016	-	0.018	-	-	-	-	0.00095 U*	0.001 U*	0.00098 U	-	-
Fluorene	mg/L	0.012	0.012	-	0.14	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Hexachlorobenzene	mg/L	0.0002	-	0.00000045	0.000046	0.0000003	-	-	-	0.00019 U	0.00021 U	0.0002 U	-	-
Hexachlorobutadiene	mg/L	0.000053	0.001	0.00033	0.000093	0.000053	-	-	-	0.00095 U	0.001 U	0.00098 U	-	-
Hexachlorocyclopentadiene	mg/L	-	-	-	0.14	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Hexachloroethane	mg/L	0.0067	0.013	0.0053	0.006	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Indeno(1,2,3-cd)pyrene	mg/L	-	-	-	-	-	-	-	-	0.0019 U	0.0021 U	0.002 U	-	-
Isophorone	mg/L	1.3	1.3	0.31	4.1	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Naphthalene	mg/L	0.011	0.011	-	1.1	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Nitrobenzene	mg/L	0.18	0.23	0.0047	0.026	-	-	-	-	0.0029 U	0.0031 U	0.0029 U	-	-
N-Nitrosodi-n-propylamine	mg/L	-	-	-	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
N-Nitrosodiphenylamine	mg/L	-	-	-	-	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Pentachlorophenol	mg/L	-	-	0.0018	0.3	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Phenanthrene	mg/L	0.002	0.0017	-	-	-	-	-	-	0.0019 U	0.0021 U	0.002 U	-	-
Phenol	mg/L	0.45	0.45	-	1.1	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Pyrene	mg/L	-	-	-	0.015	-	-	-	-	0.0048 U	0.0052 U	0.0049 U	-	-
Metals														
Aluminum	mg/L	-	-	-	-	-	0.05 U	0.05 U	0.05 U	0.1	0.11	0.092	0.05 U	-
Antimony	mg/L	0.13	0.24	-	0.0017	-	0.0062[d]	0.0061[d]	0.006[d]	0.002 U	0.002 U	0.002 U	0.0066[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	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	-	-	-	-	-	130	130	130	57	63	56	140	-
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	-	-	-	-	-	35	34	34	16	17	18	35	-
Manganese	mg/L	2.90 [1]	-	-	1.3	-	0.33	0.35	0.37	0.29	0.32	0.18	0.34	-
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	-	-	-	-	-	20	19	19	12	13	13	20	-
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	-	-	-	-	-	170	170	170	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	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	-	0.052	0.05 U	0.053	0.05 U	0.05 U	0.05 U	0.05 U	-
PCBs														
Aroclor-1016 (PCB-1016)	mg/L	0.0002	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000096 U	0.000096 U	-
Aroclor-1221 (PCB-1221)	mg/L	0.0002	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000096 U	0.000096 U	-
Aroclor-1232 (PCB-1232)	mg/L	0.0002	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000096 U	0.000096 U	-
Aroclor-1242 (PCB-1242)	mg/L	0.0002	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000096 U	0.000096 U	-
Aroclor-1248 (PCB-1248)	mg/L	0.0002	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000096 U	0.000096 U	-
Aroclor-1254 (PCB-1254)	mg/L	0.0002	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000096 U	0.000096 U	-

Table B.6

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:							BD-103-17	BD-106-17	BD-109-17	BD-340-16	BD-345-16	BD-349-16	MD-108-17	MD-333-16
Sample ID:							W-58502-091117-SSH-103	W-58502-091117-SSH-106	W-58502-091117-SSH-109	W-58502-032416-SSH-1637	W-58502-032416-SSH-1634	W-58502-031716-SSH-1623	W-58502-091117-SSH-108	W-58502-032416-SSH-1645
Sample Date:							9/11/2017	9/11/2017	9/11/2017	3/24/2016	3/24/2016	3/17/2016	9/11/2017	3/24/2016
		Rule 57												
Parameters	**Units**	**Res/Non_Res/GW SW Interface**	**FCV**	**HCV Drink**	**HNV Drink**	**WV**								
PCBs (cont'd)														
Aroclor-1260 (PCB-1260)	mg/L	0.0002	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000095 U	0.000096 U	0.000096 U	-
Aroclor-1262 (PCB-1262)	mg/L	0.0002	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	-		-	0.000096 U	-
Aroclor-1268 (PCB-1268)	mg/L	0.0002	-	0.000000026	-	0.00000012	0.000095 U	0.000095 U	0.000095 U	-		-	0.000096 U	-
Wet														
Ammonia-N	mg/L	-	-	-	-	-	0.22	0.33	0.27	0.20 U	0.20 U	-	0.38	-
Biochemical oxygen demand (carbonaceous)	mg/L	-	-	-	-	-	2.0 U	2.0 U	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
Total suspended solids (TSS)	mg/L	-	-	-	-	-	4.0 U	4.0 U	4.0 U	-		-	4.0 U	-

Notes:

U Not detected at the associated reporting limit.
(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 that available chromium was Chromium III

Table B.6

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:		MD-339-16	MD-344-16	MD-348-16	MD-350-16	SW-102-17	SW-104-17	SW-104-17	SW-107-17	SW-338-16	SW-343-16	SW-347-16
Sample ID:		W-58502-032416-SSH-1636	W-58502-032416-SSH-1633	W-58502-031716-SSH-1622	W-58502-032416-SSH-1644	W-58502-091117-SSH-102	W-58502-091117-SSH-104	W-58502-091117-SSH-105	W-58502-091117-SSH-107	W-58502-032416-SSH-1635	W-58502-032416-SSH-1632	W-58502-031716-SSH-1621
Sample Date:		3/24/2016	3/24/2016	3/17/2016	3/24/2016	9/11/2017	9/11/2017	9/11/2017	9/11/2017	3/24/2016	3/24/2016	3/17/2016
Parameters	**Units**											
VOAs												
1,1,1-Trichloroethane	mg/L	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	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U*	0.001 UF1	0.001 U
1,1,2-Trichloroethane	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
1,2,4-Trichlorobenzene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 UF1	0.001 U
1,2-Dibromoethane (Ethylene dibromide)	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U*	0.001 U	0.001 U
1,2-Dichlorobenzene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
1,2-Dichloroethane	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 UF1	0.001 U
1,2-Dichloropropane	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 UF2	0.001 U
1,4-Dichlorobenzene	mg/L	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	0.01 U	0.01 U	0.01 U	-	-	-	-	-	0.01 U	0.01 U	0.01 U
2-Hexanone	mg/L	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
Acetone	mg/L	0.01 U	0.01 U	0.01 U	-	-	-	-	-	0.01 U	0.01 U	0.01 U
Benzene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
Bromodichloromethane	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
Bromoform	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 UF1	0.001 U
Bromomethane (Methyl bromide)	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U*	0.001 U	0.001 U
Carbon disulfide	mg/L	0.005 U	0.005 U	0.005 U	-	-	-	-	-	0.005 U	0.005 U	0.005 U
Carbon tetrachloride	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
Chlorobenzene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
Chloroethane	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
Chloroform (Trichloromethane)	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
Chloromethane (Methyl chloride)	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	mg/L	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
Dibromochloromethane	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
Dichlorodifluoromethane (CFC-12)	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 UF1
Ethylbenzene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
Isopropyl benzene	mg/L	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
Methyl cyclohexane	mg/L	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	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
Methylene chloride	mg/L	0.005 U	0.005 U	0.005 U	-	-	-	-	-	0.005 U	0.005 UF1	0.005 U
Styrene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
Tetrachloroethene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
Toluene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
Trichloroethene	mg/L	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
Trifluorotrichloroethane (CFC-113)	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
Vinyl chloride	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.001 U
Xylenes (total)	mg/L	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	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
2,4,5-Trichlorophenol	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
2,4,6-Trichlorophenol	mg/L	0.0042 U	0.0042 U	0.004 U	-	-	-	-	-	0.0042 U	0.0042 U	0.0038 U
2,4-Dichlorophenol	mg/L	0.01 U	0.01 U	0.01 U	-	-	-	-	-	0.01 U	0.01 U	0.0095 U
2,4-Dimethylphenol	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
2,4-Dinitrophenol	mg/L	0.021 U	0.021 U	0.02 U	-	-	-	-	-	0.021 U	0.021 U	0.019 U
2,4-Dinitrotoluene	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
2,6-Dinitrotoluene	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
2-Chloronaphthalene	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
2-Chlorophenol	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
2-Methylnaphthalene	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
2-Methylphenol	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
2-Nitroaniline	mg/L	0.021 U	0.021 U	0.02 U	-	-	-	-	-	0.021 U	0.021 U	0.019 U
2-Nitrophenol	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
3&4-Methylphenol	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
3,3'-Dichlorobenzidine	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.00095 U
3-Nitroaniline	mg/L	0.021 U	0.021 U	0.02 U	-	-	-	-	-	0.021 U	0.021 U	0.019 U
4,6-Dinitro-2-methylphenol	mg/L	0.021 U	0.021 U	0.02 U	-	-	-	-	-	0.021 U	0.021 U	0.019 U
4-Bromophenyl phenyl ether	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
4-Chloro-3-methylphenol	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
4-Chloroaniline	mg/L	0.01 U	0.01 U	0.01 U	-	-	-	-	-	0.01 U	0.01 U	0.0095 U
4-Chlorophenyl phenyl ether	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
4-Nitroaniline	mg/L	0.021 U	0.021 U	0.02 U	-	-	-	-	-	0.021 U	0.021 U	0.019 U
4-Nitrophenol	mg/L	0.021 U	0.021 U	0.02 U	-	-	-	-	-	0.021 U	0.021 U	0.019 U
Acenaphthene	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U

Table B.6

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:		MD-339-16	MD-344-16	MD-348-16	MD-350-16	SW-102-17	SW-104-17	SW-104-17	SW-107-17	SW-338-16	SW-343-16	SW-347-16
Sample ID:		W-58502-032416-SSH-1636	W-58502-032416-SSH-1633	W-58502-031716-SSH-1622	W-58502-032416-SSH-1644	W-58502-091117-SSH-102	W-58502-091117-SSH-104	W-58502-091117-SSH-105	W-58502-091117-SSH-107	W-58502-032416-SSH-1635	W-58502-032416-SSH-1632	W-58502-031716-SSH-1621
Sample Date:		3/24/2016	3/24/2016	3/17/2016	3/24/2016	9/11/2017	9/11/2017	9/11/2017	9/11/2017	3/24/2016	3/24/2016	3/17/2016
Parameters	**Units**											
SVOAs (cont'd)												
Acenaphthylene	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Acetophenone	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Anthracene	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Atrazine	mg/L	0.0031 U	0.0031 U	0.003 U	-	-	-	-	-	0.0031 U	0.0031 U	0.0029 U
Benzaldehyde	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Benzo(a)anthracene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.00095 U
Benzo(a)pyrene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.00095 U
Benzo(b)fluoranthene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.00095 U
Benzo(g,h,i)perylene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.00095 U
Benzo(k)fluoranthene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.00095 U
Biphenyl (1,1-Biphenyl)	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
bis(2-Chloroethoxy)methane	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
bis(2-Chloroethyl)ether	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.00095 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Butyl benzylphthalate (BBP)	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Caprolactam	mg/L	0.01 U	0.01 U	0.01 U	-	-	-	-	-	0.01 U	0.01 U	0.0095 U
Carbazole	mg/L	0.01 U	0.01 U	0.01 U	-	-	-	-	-	0.01 U	0.01 U	0.0095 U
Chrysene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.00095 U
Dibenz(a,h)anthracene	mg/L	0.0021 U	0.0021 U	0.002 U	-	-	-	-	-	0.0021 U	0.0021 U	0.0019 U
Dibenzofuran	mg/L	0.0042 U	0.0042 U	0.004 U	-	-	-	-	-	0.0042 U	0.0042 U	0.0038 U
Diethyl phthalate	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Dimethyl phthalate	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Di-n-butylphthalate (DBP)	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Di-n-octyl phthalate (DnOP)	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Fluoranthene	mg/L	0.001 U*	0.001 U*	0.001 U	-	-	-	-	-	0.001 U*	0.001 U*	0.00095 U
Fluorene	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Hexachlorobenzene	mg/L	0.00021 U	0.00021 U	0.0002 U	-	-	-	-	-	0.00021 U	0.00021 U	0.00019 U
Hexachlorobutadiene	mg/L	0.001 U	0.001 U	0.001 U	-	-	-	-	-	0.001 U	0.001 U	0.00095 U
Hexachlorocyclopentadiene	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Hexachloroethane	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Indeno(1,2,3-cd)pyrene	mg/L	0.0021 U	0.0021 U	0.002 U	-	-	-	-	-	0.0021 U	0.0021 U	0.0019 U
Isophorone	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Naphthalene	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Nitrobenzene	mg/L	0.0031 U	0.0031 U	0.003 U	-	-	-	-	-	0.0031 U	0.0031 U	0.0029 U
N-Nitrosodi-n-propylamine	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
N-Nitrosodiphenylamine	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Pentachlorophenol	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Phenanthrene	mg/L	0.0021 U	0.0021 U	0.002 U	-	-	-	-	-	0.0021 U	0.0021 U	0.0019 U
Phenol	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Pyrene	mg/L	0.0052 U	0.0052 U	0.005 U	-	-	-	-	-	0.0052 U	0.0052 U	0.0048 U
Metals												
Aluminum	mg/L	0.12	0.13	0.092	-	0.053	0.05 U	0.05	0.051	0.1	0.1	0.078
Antimony	mg/L	0.002 U	0.002 U	0.002 U	-	0.0063[d]	0.0059[d]	0.0062[d]	0.006[d]	0.002 U	0.002 U	0.002 U
Arsenic	mg/L	0.005 U	0.005 U	0.005 U	-	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Barium	mg/L	0.1 U	0.1 U	0.1 U	-	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Beryllium	mg/L	0.001 U	0.001 U	0.001 U	-	0.0012	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium	mg/L	0.001 U	0.001 U	0.001 U	-	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	mg/L	62	65	54	-	130	130	140	130	62	67	54
Chromium	mg/L	0.01 U	0.01 U	0.01 U	-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	mg/L	0.02 U	0.02 U	0.02 U	-	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Copper	mg/L	0.004 U	0.004 U	0.004 U	-	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	0.2 U	0.2 U	0.2 U
Lead	mg/L	0.003 U	0.003 U	0.003 U	-	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	mg/L	17	18	18	-	35	35	36	34	17	18	18
Manganese	mg/L	0.31	0.34	0.18	-	0.33	0.34	0.35	0.32	0.31	0.34	0.17
Mercury	mg/L	0.0002 U	0.0002 U	0.0002 U	-	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	mg/L	0.02 U	0.02 U	0.02 U	-	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Potassium	mg/L	13	14	13	-	19	20	20	19	13	15	12
Selenium	mg/L	0.005 U	0.005 U	0.005 U	-	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 U	0.0002 U	0.0002 U	-	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Sodium	mg/L	200	220	150	-	180	180	180	170	200	220	150
Thallium	mg/L	0.002 U	0.002 U	0.002 U	-	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Vanadium	mg/L	0.004 U	0.004 U	0.004 U	-	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Zinc	mg/L	0.05 U	0.05 U	0.05 U	-	0.059	0.05 U	0.052	0.054	0.05 U	0.05 U	0.05 U
PCBs												
Aroclor-1016 (PCB-1016)	mg/L	0.000095 U	0.000095 U	0.000096 U	-	0.000096 U	0.000095 U	0.000096 U	0.000096 U	0.000096 U	0.000095 U	0.000095 U
Aroclor-1221 (PCB-1221)	mg/L	0.000095 U	0.000095 U	0.000096 U	-	0.000096 U	0.000095 U	0.000096 U	0.000096 U	0.000096 U	0.000095 U	0.000095 U
Aroclor-1232 (PCB-1232)	mg/L	0.000095 U	0.000095 U	0.000096 U	-	0.000096 U	0.000095 U	0.000096 U	0.000096 U	0.000096 U	0.000095 U	0.000095 U
Aroclor-1242 (PCB-1242)	mg/L	0.000095 U	0.000095 U	0.000096 U	-	0.000096 U	0.000095 U	0.000096 U	0.000096 U	0.000096 U	0.000095 U	0.000095 U
Aroclor-1248 (PCB-1248)	mg/L	0.000095 U	0.000095 U	0.000096 U	-	0.000096 U	0.000095 U	0.000096 U	0.000096 U	0.000096 U	0.000095 U	0.000095 U
Aroclor-1254 (PCB-1254)	mg/L	0.000095 U	0.000095 U	0.000096 U	-	0.000096 U	0.000095 U	0.000096 U	0.000096 U	0.000096 U	0.000095 U	0.000095 U

Table B.6

Secondary Pond Water - Analytical Results
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:		**MD-339-16**	**MD-344-16**	**MD-348-16**	**MD-350-16**	**SW-102-17**	**SW-104-17**	**SW-104-17**	**SW-107-17**	**SW-338-16**	**SW-343-16**	**SW-347-16**
Sample ID:		**W-58502-032416-SSH-1636**	**W-58502-032416-SSH-1633**	**W-58502-031716-SSH-1622**	**W-58502-032416-SSH-1644**	**W-58502-091117-SSH-102**	**W-58502-091117-SSH-104**	**W-58502-091117-SSH-105**	**W-58502-091117-SSH-107**	**W-58502-032416-SSH-1635**	**W-58502-032416-SSH-1632**	**W-58502-031716-SSH-1621**
Sample Date:		**3/24/2016**	**3/24/2016**	**3/17/2016**	**3/24/2016**	**9/11/2017**	**9/11/2017**	**9/11/2017**	**9/11/2017**	**3/24/2016**	**3/24/2016**	**3/17/2016**
Parameters	**Units**											
PCBs (cont'd)												
Aroclor-1260 (PCB-1260)	mg/L	0.000095 U	0.000095 U	0.000096 U	-	0.000096 U	0.000095 U	0.000096 U	0.000096 U	0.000096 U	0.000095 U	0.000095 U
Aroclor-1262 (PCB-1262)	mg/L	-	-	-	-	0.000096 U	0.000095 U	0.000096 U	0.000096 U	-	-	-
Aroclor-1268 (PCB-1268)	mg/L	-	-	-	-	0.000096 U	0.000095 U	0.000096 U	0.000096 U	-	-	-
Wet												
Ammonia-N	mg/L	0.20 U	0.20 U	0.20 U	-	0.28	0.35	0.33	0.37	0.20 U	0.20 U	-
Biochemical oxygen demand (carbonaceous)	mg/L	6	5	2.0 U	-	2.0 U	2.0 U	2.0 U	2.0 U	5.6	5.9	-
Formaldehyde	mg/L	0.050 U	0.050 U	-	0.050 U	-	-	-	-	0.050 U	0.050 U	-
Total suspended solids (TSS)	mg/L	-	-	-		4.0 U	4.0 U	4.0 U	4.0 U	-	-	-

Notes:

U Not detected at the associated reporting limit.
(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 that available chromium was Chromium III

NPDES Permit Renewal Sample Monitoring Results - Outfall 21
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:		**OUTFALL21**
Sample ID:		**SW-58502-022618-SSH-1802**
Sample Date:		**2/26/2018**
matrix_code		**WM**
Parameters	**Units**	
VOAs		
1,1,1-Trichloroethane	mg/L	0.001 U
1,1,2,2-Tetrachloroethane	mg/L	0.001 U
1,1,2-Trichloroethane	mg/L	0.001 U
1,1-Dichloroethane	mg/L	0.001 U
1,1-Dichloroethene	mg/L	0.001 U
1,2-Dichlorobenzene	mg/L	0.001 U
1,2-Dichloroethane	mg/L	0.001 U
1,2-Dichloroethene (total)	mg/L	0.001 U
1,2-Dichloropropane	mg/L	0.001 U
1,3-Dichlorobenzene	mg/L	0.001 U
1,4-Dichlorobenzene	mg/L	0.001 U
2-Chloroethyl vinyl ether	mg/L	0.002 U
Acrolein	mg/L	0.02 U
Acrylonitrile	mg/L	0.02 U
Benzene	mg/L	0.001 U
Bromodichloromethane	mg/L	0.001 U
Bromoform	mg/L	0.001 U
Bromomethane (Methyl bromide)	mg/L	0.002 U
Carbon tetrachloride	mg/L	0.001 U
Chlorobenzene	mg/L	0.001 U
Chloroethane	mg/L	0.002 U
Chloroform (Trichloromethane)	mg/L	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	0.001 U
Methylene chloride	mg/L	0.002 U
Tetrachloroethene	mg/L	0.001 U
Toluene	mg/L	0.001 U
trans-1,2-Dichloroethene	mg/L	0.0005 U
trans-1,3-Dichloropropene	mg/L	0.001 U
Trichloroethene	mg/L	0.001 U
Vinyl chloride	mg/L	0.002 U
SVOAs		
1,2,4-Trichlorobenzene	mg/L	0.0097 U
1,2-Diphenylhydrazine	mg/L	0.00097 U
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/L	0.0097 U
2,4,6-Trichlorophenol	mg/L	0.0097 U
2,4-Dichlorophenol	mg/L	0.0097 U
2,4-Dimethylphenol	mg/L	0.0097 U
2,4-Dinitrophenol	mg/L	0.049 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	0.0097 U
2-Nitrophenol	mg/L	0.0097 U
3,3'-Dichlorobenzidine	mg/L	0.0097 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	0.0097 U
4-Chlorophenyl phenyl ether	mg/L	0.0097 U

NPDES Permit Renewal Sample Monitoring Results - Outfall 21
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:		**OUTFALL21**
Sample ID:		**SW-58502-022618-SSH-1802**
Sample Date:		**2/26/2018**
matrix_code		**WM**
Parameters	**Units**	
SVOAs (cont'd)		
4-Nitrophenol	mg/L	0.049 U
Acenaphthene	mg/L	0.0097 U
Acenaphthylene	mg/L	0.0097 U
Anthracene	mg/L	0.0097 U
Benzidine	mg/L	0.0049 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	0.0097 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/L	0.0097 U
Butyl benzylphthalate (BBP)	mg/L	0.0097 U
Chrysene	mg/L	0.0097 U
Dibenz(a,h)anthracene	mg/L	0.0097 U
Diethyl phthalate	mg/L	0.0097 U
Dimethyl phthalate	mg/L	0.0097 U
Di-n-butylphthalate (DBP)	mg/L	0.0097 U
Di-n-octyl phthalate (DnOP)	mg/L	0.0097 U
Fluoranthene	mg/L	0.0097 U
Fluorene	mg/L	0.0097 U
Hexachlorobenzene	mg/L	0.0097 U
Hexachlorobutadiene	mg/L	0.0097 U
Hexachlorocyclopentadiene	mg/L	0.0097 U
Hexachloroethane	mg/L	0.0097 U
Indeno(1,2,3-cd)pyrene	mg/L	0.0097 U
Isophorone	mg/L	0.0097 U
Naphthalene	mg/L	0.0097 U
Nitrobenzene	mg/L	0.0097 U
N-Nitrosodimethylamine	mg/L	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
Phenanthrene	mg/L	0.0097 U
Phenol	mg/L	0.0097 U
Pyrene	mg/L	0.0097 U
Metals		
Antimony	mg/L	0.004
Arsenic	mg/L	0.005 U
Beryllium	mg/L	0.001 U
Cadmium	mg/L	0.001 U
Chromium	mg/L	0.002 U
Copper	mg/L	0.0024
Lead	mg/L	0.0029
Mercury	mg/L	0.0000011
Nickel	mg/L	0.0056
Selenium	mg/L	0.005 U
Silver	mg/L	0.001 UF1*
Thallium	mg/L	0.001 U
Zinc	mg/L	0.86

NPDES Permit Renewal Sample Monitoring Results - Outfall 21
Saginaw Nodular Industrial Land
Saginaw, Michigan

Sample Location:		**OUTFALL21**
Sample ID:		**SW-58502-022618-SSH-1802**
Sample Date:		**2/26/2018**
matrix_code		**WM**
Parameters	**Units**	
Pesticides		
Aroclor-1016 (PCB-1016)	mg/L	0.000095 U
Aroclor-1221 (PCB-1221)	mg/L	0.000095 U
Aroclor-1232 (PCB-1232)	mg/L	0.000095 U
Aroclor-1242 (PCB-1242)	mg/L	0.000095 U
Aroclor-1248 (PCB-1248)	mg/L	0.000095 U
Aroclor-1254 (PCB-1254)	mg/L	0.000095 U
Aroclor-1260 (PCB-1260)	mg/L	0.000095 U
Wet		
Cyanide (available)	mg/L	0.0020 U
Phenolics (total)	mg/L	0.040 U

Note:

U - Not detected at the associated reporting limit.

Appendix C
Inspection Forms

APPENDIX C.1

ROUTINE MAINTENANCE STORM WATER INSPECTION FORM
(Once every month during periods of inactivity and weekly during activity or within 24 hours of a storm event)

Inspection Date: _____ Time: _____
Name of Inspector(s): _____
Manager of SWPPP (signature): _____
Weather Conditions: _____

Checklist for visual site inspection - preventative maintenance inspections

Y/N/NA

1. Inspect discharge from outfalls to determine if they are meeting water quality standards
   - Outfall 020 (Southeast corner of property)
   - Outfall 021 (Controlled Overflow for Secondary Pond)
   - Outfall 022 (Emergency Outfall for North Ditch)
   - Outfall 023 (Railroad Sump - Northeast corner of property)
   - Outfall 024 (Controlled Overflow for Secondary Pond)

Area	Stains (y/n)	Oil Sheen (y/n)	Solids/Foam (y/n)	Odors (y/n)	Color/Clarity (y/n)	Abnormal Conditions (y/n)
Outfalls						
Drainage Ditches						
Sump pumps						
Fueling Areas						
Construction Vehicle Parking Areas						

2. Inspect ditches for abnormal conditions

3. Evaluate areas of existing erosion, erosion protection, or erosion susceptible areas
   - classified sand pile
   - clay pile
   - primary settling basin
   - secondary pond berms

Water Level _____

4. Inspect waste container for leaks

Empty Waste Bin: _____ (Y/N)

5. Sump pump operation

Additional Checklist for visual site inspection during periods of activity at the Site

6. Inspect designated parking/fueling areas for construction vehicles for leaks/spills
   - Construction Parking Location _____
   - Construction Refueling Location _____
7. Inspect construction vehicle for signs of fuel and lubricant leaks.

8. Inspect sediment and erosion control measures to ensure compliance with County permit.

Major Observations from Checklist: _____

Actions Taken: _____

APPENDIX C.2

COMPREHENSIVE INSPECTION FORM
(Completed Quarterly)

Inspection Date: _____ Time: _____

Name of Inspector(s): _____

Weather Conditions: _____

Checklist for visual comprehensive inspections

Y/N/NA

_____ 1. Maintain all non-structural controls on outfalls and drainage ditches

_____ 2. Evaluate good housekeeping practices on Site.

_____ 3. Inspect property boundaries and evaluate adequacy of current security measures

_____ 4. Inspect vegetation areas for signs of stress

_____ 5. Evaluate areas of existing erosion, erosion protection, or erosion susceptible areas

_____ 6. Evaluate record keeping and reporting

_____ 7. Evaluate adequacy of spill prevention and response procedures

_____ 8. Evaluate employee training

_____ 9. Review and evaluate routine inspection forms.

Major Observations from Checklist: _____

_____

_____

APPENDIX C.2

COMPREHENSIVE INSPECTION FORM (continued)

Area	Stains (y/n)	Oil Sheen (y/n)	Solids/Foam (y/n)	Odors (y/n)	Color/Clarity (y/n)	Abnormal Conditions (y/n)
Outfalls						
Drainage Ditches						
Sump pumps						
Fueling Areas						
Construction Vehicle Parking Areas						

Major Observations from Checklist:

Corrective Actions:

Implementation Schedule for Corrective Actions:

I certify that a comprehensive evaluation was conducted in accordance with the NPDES Permit. Unless otherwise noted above, the inspected areas are in compliance with the requirements of the SWPPP and NPDES Permit No. MI0059042.

Inspector's Signature Date

Appendix D
Visual Assessment Procedures and Forms

Written Procedures Template for Conducting the Visual Assessment
State of Michigan Industrial Storm Water Program

Michigan Department of Environmental Quality (DEQ)
Water Resources Division (WRD)
Document Date: 3/3/2015

1. List the discharge point(s) (as indicated on the SWPPP map):
   Outfall 20 - Diekman Drain
   Outfall 21/Outfall 24 - Secondary Pond
   Outfall 22 - North Ditch
   Outfall 23 - Koehler Drain (North of Outer Drive)

   a) Is there substantially identical discharge points? ☒ Yes ☐ No
   If "Yes" then complete a) and b) below, if "No" go to Number 2.

   b) Describe the justification for the substantially identical discharge points determination? **Outfall 21 and Outfall 24 control discharges from the Secondary Pond. (purpose of installing the second Outfall (Outfall 24) was to discharge additional water (if needed) and provide flexibilty in the event RACER wanted to section off the Secondary Pond)**

   c) List the schedule for alternating the substantially identical discharge points: **Outfall 21 and Outfall 24 are both valved (discharges are controlled), therefore, the timing of the discharges can be planned and alternated, as necessary.**

2. Describe the monitoring (sampling) location for each discharge point:
   The monitoring location from Outfall 20 is an existing culvert.
   The monitoring location from Outfall 21 is a 1-ft diameter pvc pipe that sticks out from the embankment of the Secondary Pond.
   The monitoring location from Outfall 22, is a catchbasin to the south of the North Ditch just off the driveway.
   The monitoring location from Outfall 23 is an existng culvert.
   The monitoring location from Outfall 24 is a 1-ft diameter pvc pipe that sticks out from the embankment of the Secondary Pond.

3. List the Qualified Personnel that will collect the water sample:
   Steve Hoevemeyer, GHD, I-10477

4. Training for the Qualified Personnel includes viewing the Visual Assessment Webinar and/or the 3 Visual Assessment Tutorials on the DEQ, WRD Industrial Storm Water website. Check the appropriate box below:

   ☒ Yes

   ☐ No, however a copy of the training materials used are included with this procedure.

5. List the sampling equipment used for the collecting the water sample(s):
   Long handled dipper & glass sampling jars

6. Complete a) through c) below to describe the storm event information.

   a) Describe how qualifying storm events are determined (including nature of the event):

For Outfall 20, Outfall 22, and Outfall 23, check to see if heavy rains are forecast & if it has been 3 days since a significant rainfall event. When rain occurs during normal working hours (8:00 am to 5:00 pm).

For Outfall 21/Outfall 24, discharges are controlled and as such we do not expect to discharge during a storm event.

b) Describe how each discharge point was evaluated to determine when a discharge would begin:
For Outfall 20 and Outfall 23, the waters in the ditch are generally stagnant, therefore, if there is any flow identified in the ditch during a rain event, discharge is occurring.

For Outfall 22, the levels in the North Ditch are inspected regularly and a staff gauge assists in determining when the level in the ditch is getting close to the point of discharge. When the level in the ditch is close to discharging, under any rainfall event field staff will stop by the Site as soon as possible.

c) Describe what would constitute an adverse weather condition that would prevent sample collection:
Lightning, the chance of tornados or darkness (there is no lighting at the Site) are conditions that will prevent sample collection.

7. Describe how the samples will be collected (Determine the timing sequence for water sample collection from the discharge points): **On days when rain is predicted, the sampler will be prepared with the needed equipment. If heavy rains fall, the sampler will go to Outfall 22 first, then Outfall 20, and finally Outfall 23 and collect a sample, if warranted.**

8. Describe the water sampling instructions that the Qualified Personnel will follow: **Use the long handled dipper. At Outfall 22, collect the sample from the ditch water falling into the catchbasin. For Outfall 20 and Outfall 23, collect a sample from the flowing ditch water. For Outfall 21/Outfall 24, open the valve to allow some water to start discharging, then collect a sample. Following sample collection, place a lid on the glass jar and conduct the visual assessment in the back of the pick-up truck being used.**

9. Described how observations made by the Qualified Personnel will be documented during the discharge (include nature of the event): **Immediately after the samples are taken at each outfall, the certified stormwater operator will take a picture of the receiving waters downstream from the discharge point.**

10. Describe the sample storage procedures if applicable: **The samples will be assessed within the first hour so there will be no need for storage**

11. Describe the procedures the Industrial Storm Water Certified Operator will follow to perform the visual assessment(s) of the water sample(s): **After recording the sample event observations, the glass jar is gently swirled and placed in front of a white background and photographed with the operator's cell phone. The sample is observed and the characteristics are recorded on the report form (Industrial Storm Water Program - Visual Assessment Report - RACER). Samples will be assessed within one hour after the sample is collected.**

12. List the name(s) of the Industrial Storm Water Certified Operator that will be performing the water sample visual assessment(s): **Steve Hoevemeyer**

13. The DEQ, WRD Visual Assessment Report form should be used to document each water sample visual assessment. Check the appropriate box below:

☒ Yes, the DEQ, WRD Visual Assessment Report form is used.

☐ No, the DEQ, WRD Visual Assessment Report form is not used however the form being used to meet this requirement is included with this procedure.

14. Colored Photos shall be used to record the visual assessment(s). If other methods of recording observations will be used describe those methods: **Recorded on cell phone and then e-mailed to site environmental engineer**

15. All visual assessment documentation should be kept with the SWPPP file. If documentation will be kept at an alternate location state that location: **NA**

16. Describe the follow-up actions that will be taken if unusual characteristics are observed during the visual assessment(s): **If unusual characteristics are observed in the samples a determination is made as to the possible causes. The storm water certified operator will make an inspection of the area surrounding the outfall to determine if there any likely causes. Any noted areas will be fixed as soon as possible. Any corrections are to be documented on the visual assessment form. If it is determined that the discharge may be injurious to the designated uses of the receiving waters, a call will be made to the Department of Environmental Quality - Water Resources Division - Saginaw Bay District office (989)-385-4242.**

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER RESOURCES DIVISION

INDUSTRIAL STORM WATER PROGRAM
QUARTERLY VISUAL ASSESSMENT REPORT

The intent of this compliance assistance document is to provide a Visual Assessment Report Form that permittees can use to meet the conditions of the National Pollutant Discharge Elimination System (NPDES) Wastewater Discharge General Permit for Industrial Storm Water Discharges or NPDES Individual Permits. This document and other compliance assistance documents can be found at the DEQ, WRD Industrial Storm Water website www.mi.gov/deqstormwater (then click on INDUSTRIAL PROGRAM).

Visual Assessment Sample Information		
Facility Name: RACER Nodular Industrial Land	COC No. or NPDES Permit No:MI0059042	
Industrial Storm Water Certified Operator Name: Steve Hoevemeyer		
Name / Title of person collecting sample if other than Cert. Operator:		
Date of Comprehensive Inspection:	Is this a substitute sample? ☐ No ☐ Yes Explain:	
Discharge Point # / Name:	Substantially Identical Discharge Point? ☐No ☐Yes List:	
Description of sample collection location:		
Date / Time Discharge Began:	Date / Time Sample Collected:	Date / Time Sample Examined:
For rain events - if sample was collected > 30 minutes from start of discharge, provide explanation:		
Snowmelt ☐	Rainfall ☐ Inches:	If rain event - previous storm ended > 72 hours prior to start of this event? ☐ No ☐ Yes

Observations	
Color: ☐ None ☐ Yes (describe):	Floating Solids: ☐ No ☐ Yes (describe):
Oil Films / Sheens: ☐None ☐ Flecks ☐Globs ☐Sheen ☐ Other Describe appearance of film/sheen:	
Foam (gently shake sample): ☐ No ☐ Yes	Suspended Solids: ☐ No ☐ Yes (describe):
Settleable Solids: ☐ No ☐ Yes (describe):	
Odor: ☐ None ☐ Musty ☐ Sewage ☐ Sulfur ☐ Sour ☐ Hydrocarbons ☐ Chemical ☐ Other (describe):	
Turbidity/Clarity: ☐ Clear ☐ Slightly Cloudy ☐ Cloudy ☐ Milky ☐ Other (describe):	
Picture of sample taken (required): ☐ No ☐ Yes Storage location:	
Receiving waters observed? ☐ N/A ☐ No ☐ Yes (describe):	

Follow-up:
Based on the visual observation, are there unnatural characteristics in the discharge (cloudiness, color, sheen, etc.)? ☐ No ☐ Yes
Potential sources of observed unnatural characteristics ☐ N/A or describe:
Implemented / recommended corrective action(s) ☐ N/A or describe: Scheduled date for correction:

I certify that the above information is correct	
Certified Operator Signature	Date

RETAIN THIS FORM FOR A MINIMUM OF 3 YEARS

Appendix E
Standard Operating Procedures (SOPs)

STANDARD OPERATING PROCEDURE
OUTFALL 021/024 (SECONDARY POND) NPDES DISCHARGE PROCEDURES

The following sections outline the procedures for discharging from Outfall 021/024 (Secondary Pond) in accordance with the NPDES permit MI0059042 (See Appendix A.1 of the SWPPP). Figure 1 (of the SWPPP) presents the location of Outfall 021/024.

STAFF GAUGE DETAILS - Secondary Pond

- There is currently no staff gauge in the secondary pond as the level has been dropped to expose the sediments
- Discharge pipe diameter is 1 foot

DISCHARGE PROCEDURE - Outfall 021/024 (Secondary Pond)

- In 2016, a significant amount of water was discharged from the Secondary Pond. There is no longer any concern that the level in the pond will overflow the banks. The purpose of future discharges is expected to be associated with stabilizing the secondary pond sediments and will be conducted as necessary through the use of a pump. The pump will be setup in accordance with the memorandum submitted to MDEQ on August 1, 2018 which documented the Secondary Pond Discharge control measures, necessary to minimized the disturbance of sediment and the sediment entering the discharge. Discharge events will involve one sample of 3-aliquots in every 24-hour period of discharge:
  - Samples are submitted to the laboratory for: TSS*, CBOD5, Ammonia-N, pH, Total Mercury, and Total Zinc.
  - Field measurements are taken for each aliquot for: DO, turbidity*, pH, NH3, and staff gauge readings to determine flow.
  - Rainfall amounts are reviewed from the following website: https://secure1.state.mi.us/e2rs/skin/main/FrmLogin.aspx.
  - *Monitoring of turbidity may be used as a partial substitute for monitoring TSS. The monitoring frequency shall be daily during discharge for turbidity and weekly during discharge for total suspended solids.
- During the first discharge event each year, a sample will be collected and submitted to the laboratory for: Total Silver, 2,4-Dinitrophenol, 2,4,6-Trichlorophenol, 3,3'-Dichorobenzidine, Acrylonitrile, Benzidine, Fluoranthene, Hexachlorobenzene, Hexachlorobutadiene, Hexachorocyclopentadiene, Pentachorophenol, and Phenanthrene.

INSPECTIONS - Outfall 021/024 (Secondary Pond)

- Inspection of all outfalls are completed, at a minimum, once per month as per the SWPPP (See Appendix C.1 of the SWPPP)
  - Staff gauge levels are recorded on a separate page that is kept in the field book in the event a copy of the levels requires submittal to the State
  - A Routine Maintenance Inspection form is completed for the outfalls (See Appendix C.1 of the SWPPP) once per month when there are no activities being conducted at the Site and weekly when activities are being completed at the Site
- A comprehensive Site inspection is completed quarterly (See Appendix C.2 of the SWPPP)
- Once a new staff gauge is installed, readings will be collected monthly.
- Visual Assessments will be conducted in accordance with the procedures outlined in Appendix D-1.

STANDARD OPERATING PROCEDURE
OUTFALL 022 (NORTH DITCH) NPDES DISCHARGE PROCEDURES

The following sections outline the procedures for discharging from Outfall 022 (North Ditch) in accordance with the NPDES permit MI0059042 (Appendix A.1 of the SWPPP). Figure 1 (of the SWPPP) presents the location of Outfall 022.

STAFF GAUGE/OUTFALL 022 DETAILS - North Ditch

- CBMH 2590 (closest to Veterans Memorial Parkway) RIM = 585.74
- CB 2591(furthest from Veterans Memorial Parkway) RIM = 585.64
- Staff gauging reading of 4.9 feet – level at which water in North Ditch overflows into the catchbasins
- Staff gauge for the north ditch is located at the most southerly part of the north ditch (see Figure 1 of the SWPPP)

DISCHARGE PROCEDURE - Outfall 022 (North Ditch)

- If inspection identifies water discharging into catchbasins, one sample of 3-aliquots in every 24-hr period is required during discharge:
  - Samples are submitted to the laboratory for: *TSS, pH
  - Field measurements are taken for each aliquot for: turbidity*, staff gauge reading, and approximate flow rate
  - *Monitoring of turbidity may be used as a partial substitute for monitoring TSS. The monitoring frequency shall be daily during discharge for turbidity and weekly during discharge for total suspended solids.
  - Rainfall amounts are reviewed from the following website: https://secure1.state.mi.us/e2rs/skin/main/FrmLogin.aspx
- Discharge is not controlled and will continue until the water level is below catchbasin elevations

INSPECTIONS - Outfall 022 (North Ditch)

- Inspection of all outfalls are completed, at a minimum, once per month as per the SWPPP (See Appendix C.1 of the SWPPP)
  - Staff gauge levels are recorded on a separate page that is kept in the field book in the event a copy of the levels requires submittal to the State
  - A Routine Maintenance Inspection form is completed for the outfalls (See Appendix C.1 of the SWPPP) once per month when there are no activities being conducted at the Site and weekly when activities are being completed at the Site
- A comprehensive Site inspection is completed quarterly (See Appendix C.2 of the SWPPP)
- Frequency of staff gauge readings:
  - A minimum of one staff gauge will be taken monthly during the dry months (July, August, September, December, January, February) and weekly during the wet months (March, April, May, June, October, and November)
  - If the most recent staff gauge reading was greater than 4.5 feet and there was a rain event, a staff gauge reading will be measured the following day
- Visual Assessments will be conducted in accordance with the procedures outlined in Appendix D-1.

Appendix F
Employee Training Form

Appendix F - EMPLOYEE TRAINING FORM

Date of Session:

Trainer	
Print:	Signature:

Topics Covered:

Attendee Name	**Attendee Signature**

Appendix G
Annual SWPPP Review Form

Appendix G - ANNUAL SWPPP REVIEW FORM

Facility Information		
Designated Name:	Certificate of Coverage No.:	
Facility Contact Information		
Name:	Telephone No.:	
Email Address:		Certification No:
Backup Facility Contact Information		
Name:	Telephone No.:	
Email Address:		Certification No:
Certified Operator Information		
Name:	Telephone No.:	
Email Address:		Certification No:

SWPPP Review Checklist

1) Facility general information is current and accurate	Yes	No	
2) Site map is current and accurate	Yes	No	
3) Significant material inventory is current and accurate	Yes	No	
4) New exposures, processes and related controls have been documented appropriately in the SWPPP	Yes	No	NA
5) Spills have been recorded and reported as appropriate	Yes	No	NA
6) Employee SWPPP training was conducted and documented	Yes	No	
7) Records of routine preventative maintenance and housekeeping inspections are available in the SWPPP file	Yes	No	
8) Comprehensive site inspections have been completed, certified and filed in the SWPPP file	Yes	No	
9) Corrective actions noted in the inspection reports have been completed	Yes	No	
10) SWPPP has been reviewed and signed by the Certified Storm Water Operator and the Permittee or designated representative	Yes	No	

Additional Comments (use additional sheets if necessary):

I certify that the above information is correct	
Name:	Signature / Date:

SUBMIT THIS FORM TO THE DISTRICT OFFICE IDENTIFIED ON YOUR CERTIFICATE OF COVERAGE ON OR BEFORE **JANUARY 10TH** OF EACH YEAR