State of Michigan

National Pollutant Discharge Elimination System Permit

Application for Discharge of Stormwater to Surface Waters from a Municipal Separate Storm Sewer System

DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER RESOURCES DIVISION
PERMITS SECTION
P.O. BOX 30458
LANSING, MICHIGAN 48909-7958
TELEPHONE: 517-241-1346
FAX: 517-241-8133

Michigan Department of Environmental Quality – Water Resources Division

STORMWATER DISCHARGE PERMIT APPLICATION

Do Not Return This Page with the Completed Application

PURPOSE AND AUTHORITY

The National Pollutant Discharge Elimination System (NPDES) Program protects the surface waters of the state by assuring that discharges of wastewater comply with state and federal regulations. Anyone discharging or proposing to discharge wastewater to the surface waters of the state shall make application for and obtain a valid NPDES permit prior to the wastewater discharge.

NPDES permits are required under Section 402 of the Federal Clean Water Act (the Federal Act), as amended (33 U.S.C. 1251 et seq., P.L. 92-500, 95-217), and under Part 31, Water Resources Protection, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (the Michigan Act). Part 31 of the Michigan Act also provides authority for the State to issue NPDES permits. The Michigan Department of Environmental Quality (MDEQ) administers the NPDES permit program for the State of Michigan. This application should be used to apply for a stormwater discharge from a regulated Municipal Separate Storm Sewer System (MS4) to the surface waters of the state.

ELIGIBLE PERMITTEES

Except as excluded below, any public body that owns or operates a regulated MS4 may be eligible for permit coverage including, but not limited to, the United States, the State of Michigan, a city, village, township, county, public school district, public college or university, a single purpose governmental agency, or any other governing body which is created by federal or state statute or law.

The DEQ will determine eligibility for permit coverage.

Nongovernmental entities, such as individuals, private schools, private colleges, and private universities, or industrial and commercial entities, are not eligible for permit coverage.

PENALTIES

The information in this Application is required by the Part 21 Rules of the Michigan Act. A municipality, business, or industry that violates the Part 21 Rules may be enjoined by action commenced by the Attorney General in a court of competent jurisdiction.
Federal and State laws provide penalties for submitting false application information. The laws imposing those penalties are cited below.

The Federal Act, Section 309(c)(4): "Any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under this chapter or who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required to be maintained under this chapter, shall upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment shall be a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or by both."

The Michigan Act, Section 3115(2): "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 or order issued or rule promulgated under this part, or who intentionally makes a false statement, representation, or certification in an application form pertaining to a permit or in a notice or report required by the terms and conditions of an issued permit, 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, or permit 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."

Michigan Department of Environmental Quality – Water Resources Division

STORMWATER DISCHARGE PERMIT APPLICATION

PLEASE TYPE OR PRINT

Applicants for either new permit coverage or reissuance of a permit shall include all of the following requested information for Sections I-VIII.

SECTION I. APPLICANT NAME AND MAILING ADDRESS		Current Permit/COC Number (if applicable)
Charter Township of Brighton		MIG619000/MIS040000
Additional Applicant Name Information		
Street Address or P.O. Box 4363 Buno Rd.		e-mail
City or Village Brighton	State MI	ZIP Code 48114
Telephone (with area code) 810-229-0550	FAX Number (with area code) 810-229-1778	

SECTION II. CONTACTS

☒ Application Contact ☐ Stormwater Program Manager ☐ Stormwater Billing	First Name Brian	Last Name Vick	
	Title Township Manager	Business	
	Address 1 4363 Buno Rd.	Address 2	
	City Brighton	State MI	ZIP Code 48114
	Telephone (with area code) 810-229-0550	FAX (with area code) 810-229-1778	e-mail manager@brightontwp.com
☐ Application Contact ☐ Stormwater Program Manager ☐ Stormwater Billing	First Name	Last Name	
	Title	Business	
	Address 1	Address 2	
	City	State	ZIP Code
	Telephone (with area code)	FAX (with area code)	e-mail
☐ Application Contact ☐ Stormwater Program Manager ☐ Stormwater Billing	First Name	Last Name	
	Title	Business	
	Address 1	Address 2	
	City	State	Zip Code
	Telephone (with area code)	FAX (with area code)	e-mail

SECTION III.

PERMIT ACTION REQUESTED:

☐ NEW AUTHORIZATION

☒ REISSUANCE OF PREVIOUS AUTHORIZATION

☐ MODIFICATION OF CURRENT PERMIT

SECTION IV. REGULATED AREA

Provide a map identifying the urbanized area within the applicant's jurisdictional boundary as defined by the 2000 Census. The regulated municipal separate storm sewer system (MS4) means an MS4 owned or operated by a city, village, township, county, district, association, or other public body created by or pursuant to state law and the nested MS4 identified in Section VI. that is

located in an urbanized area and discharges stormwater into surface waters of the state. The 2000 Census maps are located at http://www.michigan.gov/documents/deq/wrd-stormwater-urbanizedareas_374344_7.pdf

SECTION V. OUTFALLS AND POINTS OF DISCHARGE

Identify and provide the surface water of the state that receives the discharge from each of the applicant's outfalls and points of discharge in Table 1 or an alternative format. Please note that an MS4 is not a surface water of the state. For example, an open county drain that is a surface water of the state is not an MS4.

SECTION VI. NESTED JURISDICTIONS

Submit the name and general description of each nested MS4 for which a cooperative agreement has been reached to carry out the terms and conditions of the permit for the nested jurisdiction. The applicant shall be responsible for assuring compliance with the permit for those nested jurisdictions with which they have entered into an agreement and listed as part of the Application. If the primary jurisdiction and the nested jurisdiction agree to cooperate so that the terms and conditions of the permit are met for the nested MS4, the nested jurisdiction does not need to apply for a separate permit. A city, village, or township shall not be a nested jurisdiction.

NESTED JURISDICTION NAME AND GENERAL DESCRIPTION:

_____

SECTION VII. STORMWATER MANAGEMENT PROGRAM

This application requires a description of the Best Management Practices (BMPs) the applicant will implement for each minimum control measure and the applicable water quality requirements during this permit cycle. The applicant shall incorporate the BMPs to develop a Stormwater Management Program (SWMP) as part of the application. The SWMP shall be developed, implemented, and enforced to reduce the discharge of pollutants from the MS4 to the Maximum Extent Practicable and protect water quality in accordance with the appropriate water quality requirements of Michigan Act 451, Public Acts of 1994, Part 31, and the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 *et seq.*). The Maximum Extent Practicable may be met by implementing the BMPs identified in the SWMP and demonstrating the effectiveness of the BMPs. The applicant shall attach any appropriate and necessary documentation to demonstrate compliance with the six minimum control measures and applicable water quality requirements as part of the application.

The applicant shall complete this application to the best of its knowledge and ensure that it is true, accurate, and meets the minimum requirements for a SWMP to the Maximum Extent Practicable.

When answering the questions in this section of the application, the applicant's MS4 encompasses what the applicant identified in Sections IV, V, and VI, above. The applicant shall include a measurable goal for each BMP. Each measurable goal shall include, as appropriate, a schedule for BMP implementation (months and years), including interim milestones and the frequency of the action. Each measurable goal shall have a measure of assessment to measure progress towards achieving the measurable goal. A United States Environmental Protection Agency (USEPA) guidance document on measurable goals available at http://www.epa.gov/npdes/pubs/measurablegoals.pdf.

Several minimum control measures include a statement requesting the applicant to indicate in the response if you are, or will be, working collaboratively with watershed or regional partners on any or all activities to meet the minimum control measure requirements. If the applicant chooses to work collaboratively with watershed or regional partners to implement parts of the SWMP, each applicant will be responsible for complying with the minimum permit requirements.

For purposes of this application a procedure means a written process, policy or other mechanism describing how the applicant will implement minimum requirements. It may be helpful to read all questions in each section first.

Enforcement Response Procedure (ERP)

The applicant shall describe the current and proposed enforcement responses to address violations of the applicant's ordinances and regulatory mechanisms identified in the SWMP. The following question represents the minimum requirement for the ERP. Please complete the question below.

1. Provide the ERP. The ERP shall include the applicant's expected response to violations to compel compliance with an ordinance or regulatory mechanism implemented by the applicant in the SWMP (e.g., written notices, citations, and fines). The ERP shall contain a method for tracking instances of non-compliance, including, as appropriate, the name of the person responsible for violating the applicant's ordinance or regulatory mechanism, the date and location of the violation, a description of the violation, a description of the enforcement response used, a schedule for returning to compliance, and the date the violation was resolved. The applicant may keep an electronic file or hard copy file of the enforcement tracking.

   ERP Reference (page and paragraph of attachments): If a spill occurs on our parking lot, we will call the Fire Dept. or 911.

Public Participation/Involvement Program (PPP)

The applicant shall describe the current and proposed BMPs to meet the minimum control measure requirements for the PPP to the maximum extent practicable, which shall be incorporated into the SWMP. Please indicate in your response if you are, or will be, working collaboratively with watershed or regional partners on any or all activities in the PPP during the permit cycle (i.e., identify collaborative efforts in the procedures). The following questions represent the minimum control measure requirements for the PPP. Please complete all the questions below. A measurable goal with a measure of assessment shall be included for each BMP, and, as appropriate, a schedule for implementation (months and years), including interim milestones and the frequency of the BMP.

2. Provide the procedure for making the SWMP available for public inspection and comment. The procedure shall include a process for notifying the public when and where the SWMP is available and of opportunities to provide comment. The procedure shall also include a process for complying with local public notice requirements, as appropriate.

   Procedure Reference (Page and Paragraph of Attachments): The permit will be on the Township website and a notice posted in the lobby.

3. Provide the procedure for inviting public involvement and participation in the implementation and periodic review of the SWMP.

   Procedure Reference (Page and Paragraph of Attachments): The permit will be on the Township website and a notice posted in the lobby.

Public Education Program (PEP)
The applicant shall describe the current and proposed BMPs to meet the minimum control measure requirements for the PEP to the maximum extent practicable, which shall be incorporated into the SWMP. Please indicate in your response if you are, or will be, working collaboratively with watershed or regional partners on any or all activities in the PEP during the permit cycle. The following questions represent the minimum requirements for the PEP. Please complete all the questions below. A measurable goal with a measure of assessment shall be included for each BMP, and, as appropriate, a schedule for implementation (months and years), including interim milestones and the frequency of the BMP. The responses shall reflect the nested MS4s identified in Section VI.

4. Provide the procedure with the assessment of high priority community-wide issues and targeted issues to reduce pollutants in stormwater runoff as part of the PEP.

   Procedure Reference (Page and Paragraph of Attachments): see p. 7 & 8 - HRWSC stormwater discharge permit application collaborative PEP.

5. The applicant shall identify applicable PEP topics below and prioritize based on the assessment in Question 4. For each applicable topic, identify the target audience; key message; delivery mechanism; year and frequency the BMP will be implemented; and the responsible party.

   For each topic below, complete one or more of the following
   - Fill out Table 2 for each applicable PEP topic.
   - Reference the page number in your existing PEP document.
   - Explain why the PEP activity is not applicable or a priority issue.

   A. Promote public responsibility and stewardship in the applicant's watershed(s).
      Priority # High
      ☐ See Table 2
      ☒ Attach existing approved PEP (page and paragraph of attachments): p. 7
      ☐ Not applicable. Provide explanation below.

   B. Inform and educate the public about the connection of the MS4 to area waterbodies and the potential impacts discharges could have on surface waters of the state.
      Priority # High
      ☐ See Table 2
      ☒ Attach existing approved PEP (page and paragraph of attachments): p. 7.
      ☐ Not applicable. Provide explanation below.

   C. Educate the public on illicit discharges and promote public reporting of illicit discharges and improper disposal of materials into the MS4.
      Priority # Low
      ☐ See Table 2
      ☒ Attach existing approved PEP (page and paragraph of attachments): p. 8
      ☐ Not applicable. Provide explanation below.

D. Promote preferred cleaning materials and procedures for car, pavement, and power washing.
Priority # Low
☐ See Table 2
☒ Attach existing approved PEP (page and paragraph of attachments): p. 8
☐ Not applicable. Provide explanation below.

E. Inform and educate the public on proper application and disposal of pesticides, herbicides, and fertilizers.
Priority # High
☐ See Table 2
☒ Attach existing approved PEP (page and paragraph of attachments): p. 7
☐ Not applicable. Provide explanation below.

F. Promote proper disposal practices for grass clippings, leaf litter, and animal wastes that may enter into the MS4.
Priority # High
☐ See Table 2
☒ Attach existing approved PEP (page and paragraph of attachments): p. 7
☐ Not applicable. Provide explanation below.

G. Identify and promote the availability, location, and requirements of facilities for collection or disposal of household hazardous wastes, travel trailer sanitary wastes, chemicals, yard wastes, and motor vehicle fluids.
Priority # Low
☐ See Table 2
☒ Attach existing approved PEP (page and paragraph of attachments): p. 8
☐ Not applicable. Provide explanation below.

H. Inform and educate the public on proper septic system care and maintenance, and how to recognize system failure.
Priority # Low
☐ See Table 2
☒ Attach existing approved PEP (page and paragraph of attachments): p. 8
☐ Not applicable. Provide explanation below.

I. Educate the public on, and promote the benefits of, green infrastructure and Low Impact Development.
Priority # High
☐ See Table 2
☒ Attach existing approved PEP (page and paragraph of attachments): p. 7
☐ Not applicable. Provide explanation below.

J. Promote methods for managing riparian lands to protect water quality.
Priority # High
☐ See Table 2

☒ Attach existing approved PEP (page and paragraph of attachments): p. 8
☐ Not applicable. Provide explanation on the next page.

K. Identify and educate commercial, industrial, and institutional entities likely to contribute pollutants to stormwater runoff.
Priority # Low
☐ See Table 2
☒ Attach existing approved PEP (page and paragraph of attachments): p. 8
☐ Not applicable. Provide explanation below.

6. Provide the procedure for evaluating and determining the effectiveness of the overall PEP. The procedure shall include a method for assessing changes in public awareness and behavior resulting from the implementation of the PEP and the process for modifying the PEP to address ineffective implementation.

Procedure Reference (page and paragraph of attachments): p. 21

Illicit Discharge Elimination Program (IDEP)
The applicant shall describe the current and proposed BMPs to meet the minimum control measure requirements for the IDEP to the Maximum Extent Practicable, which shall be incorporated into the SWMP. Please indicate in your response if you are or will be working collaboratively with watershed or regional partners on any or all BMPs in the IDEP during the permit cycle (e.g., identify collaborative efforts in the procedures). The following questions represent the minimum control measure requirements for the IDEP. Please complete all the questions below. If the "No" response is selected but a date is requested for the minimum requirement to be available, please provide a date to meet the minimum requirement. All dates provided by the applicant in this application should be on or before May 1, 2013 for fiscal year 2013 applicants and October 1, 2013 for fiscal year 2014 applicants. A measurable goal with a measure of assessment shall be included for each BMP, and, as appropriate, a schedule for implementation (months and years), including interim milestones and the frequency of the BMP. The responses shall reflect the nested MS4s identified in Section VI.

The following definitions apply to the terms used below:
- Illicit Discharge: Any discharge to, or seepage into, an MS4 that is not composed entirely of stormwater or uncontaminated groundwater except discharges pursuant to an NPDES permit.
- Illicit Connection: A physical connection to an MS4 that primarily conveys non-stormwater discharges other than uncontaminated groundwater into the MS4; or a physical connection not authorized or permitted by the local authority, where a local authority requires authorization or a permit for physical connections.

The Center for Watershed Protection has a guide on developing and implementing an IDEP available at http://www.epa.gov/npdes/pubs/idde_manualwithappendices.pdf. This guide is a useful tool to assist with completing the application.

Storm Sewer System Map

7. Provide the location where an up-to-date storm sewer system map(s) is available. The map(s) shall identify the following: the storm sewer system, the location of all outfalls and points of discharge, and the names and location of the surface waters of the state that receive discharges from the permittee's MS4 (for both outfalls and points of discharge). A separate storm sewer system includes: roads, catch basins, curbs, gutters, parking lots, ditches, conduits, pumping devices, and man-made channels. A storm sewer system map(s) may include available diagrams, such as certification maps, road maps showing rights-of-way, as-built drawings, or other hard copy or digital representation of the storm sewer system.

The map (or maps) is available at the following location: See GIS maps and site plans

Illicit Discharge Identification and Investigation

8. Provide the procedure for prioritizing the applicant's MS4 for detecting non-stormwater discharges. The goal of the prioritization process is to target areas with high illicit discharge potential. The procedure shall document the process for selecting each priority area using the list below.
   - Areas with older infrastructure
   - Industrial, commercial, or mixed use areas
   - Areas with a history of past illicit discharges
   - Areas with a history of illegal dumping
   - Areas with onsite sewage disposal systems

- Areas with older sewer lines or with a history of sewer overflows or cross-connections
- Areas with sewer conversions or historic combined sewer systems
- Areas with poor dry-weather water quality
- Areas with water quality impacts, including waterbodies identified in a Total Maximum Daily Load
- Priority areas applicable to the applicant not identified above

☐ Procedure Reference (page and paragraph of attachments): _____
☒ Not applicable – The applicant will perform illicit discharge identification and investigation throughout the entire MS4. Skip to Question 10.

9. Provide the geographical location of each prioritized area using either a narrative description or map and identify the prioritized areas that will be targeted during the permit cycle.

   IDEP Prioritized Areas (page and paragraph of attachments): _____

10. Provide the procedure for performing field observations at all outfalls and points of discharge in the priority areas, as identified in the procedure above, or for the entire MS4 during dry-weather at least once during the permit cycle. The procedure shall include a schedule for completing the field observations during the permit cycle or more expeditiously if the applicant becomes aware of a non-stormwater discharge. *As part of the procedure, the applicant may submit an interagency agreement with the owner or operator of the downstream MS4 identifying responsibilities for ensuring an illicit discharge is eliminated if originating from the applicant's point(s) of discharge. The interagency agreement would eliminate the requirement for performing a field observation at that point(s) of discharge.*

    The focus of the field observation shall be to observe the following:
    - Presence/absence of flow
    - Deposits/stains on the discharge structure or bank
    - Vegetation condition
    - Structural condition
    - Biology, such as bacterial sheens, algae, and slimes
    - Water clarity
    - Color
    - Odor
    - Floatable materials

    Procedure Reference (page and paragraph of attachments): we will inspect our catch basins every other year; will contract for clean out if 50% full

11. Provide the procedure for performing field screening if flow is observed at an outfall or point of discharge and the source of an illicit discharge is not identified during the field observation. Field screening shall include analyzing the discharge for indicator parameters (e.g., ammonia, fluoride, detergents, and pH). The procedure shall include a schedule for performing field screening.

    Procedure Reference (page and paragraph of attachments): we will contract with LCDC or City and follow their protocol - see LCDC IDEP plan

12. Provide the procedure for performing a source investigation if the source of an illicit discharge is not identified by field screening. The procedure shall include a schedule for performing a source investigation.

    Procedure Reference (page and paragraph of attachments): we will contract with LCDC or City and follow their protocol - see LCDC IDEP Plan

13. Provide the procedure for responding to illegal dumping/spills. The procedure shall include a schedule for responding to complaints, performing field observations, and follow-up field screening and source investigations as appropriate.

    Procedure Reference (page and paragraph of attachments): we will contract with LCDC or City and follow their protocol - see LCDC IDEP Plan

14. Provide the procedure for responding to illicit discharges outside of the priority areas. The procedure shall include a schedule for performing field observations, and follow-up field screening and source investigations as appropriate.
    ☐ Procedure Reference (page and paragraph of attachments): _____
    ☒ Not applicable – Field observations will be conducted at all outfalls and points of discharge

15. Provide the procedure that includes a requirement to immediately report any release of any polluting materials from the MS4 to the surface waters or groundwaters of the state, unless a determination is made that the release is not in excess of the threshold reporting quantities in the Part 5 Rules, by calling the appropriate MDEQ District Office, or if the notice is provided after regular working hours call the MDEQ's 24-Hour Pollution Emergency Alerting System telephone number: 800-292-4706.

    Procedure Reference (page and paragraph of attachments): we will contract with LCDC or City and follow their protocol - see LCDC IDEP Plan

16. If the procedures requested in Questions 8 through 14 do not accurately reflect the permittee's procedure(s), describe the

alternative approach to meet the minimum requirements.

Every other year we will monitor the sites for any problems or flow and will call the LCDC if there is an issue and follow their protocol.

☐ Not applicable

17. Provide the procedure for responding to illicit discharges once the source is identified. The procedure shall specify the corrective action, and a schedule to eliminate the illicit discharge and pursue enforcement actions. The procedure shall also address illegal spills/dumping.

Procedure Reference (page and paragraph of attachments): Annually we will monitor the sites for any problems and will call the LCDC if there is a problem.

IDEP Training and Evaluation

18. Provide the program to train staff employed by the applicant on identifying an illicit discharge or connection and the proper procedure for reporting and responding to an illicit discharge or connection. At a minimum, existing staff shall be trained at least once during the permit cycle and new hires within the first year of their hire date. The program shall include a training schedule for the permit cycle. *It is recommended that staff is trained more than once per permit cycle.*

Program Reference (page and paragraph of attachments): Staff will attend LCDC or SEMCOG IDEP Training.

19. Provide the procedure for evaluating and determining the overall effectiveness of the IDEP.

Procedure Reference (page and paragraph of attachments): Check the site annually to see that there is no discharge; if no discharge, we are doing a good job.

Illicit Discharge Ordinance

20. Is an ordinance or regulatory mechanism in effect that prohibits non-stormwater discharges into the applicant's MS4 (except the non-stormwater discharges addressed in Questions 21 and 22)?
☒ Yes, ordinance number(s) or regulatory mechanism title(s) (attach a copy): Township will call the Fire Dept. or LCDC if there's a problem and follow the LCDC IDEP plan.
☐ No, an ordinance or regulatory mechanism will be available on _____

21. Does the ordinance or other regulatory mechanism exclude prohibiting the discharges or flows from firefighting activities to the applicant's MS4 and require that these discharges or flows only be addressed if they are identified as significant sources of pollutants to waters of the State?
☒ Yes, ordinance or regulatory mechanism reference (page and paragraph of attachments): Township IDEP Plan - stated above.
☐ No, the ordinance or regulatory mechanism will be available on _____

22. Does the ordinance or other regulatory mechanism prohibit the following categories of non-stormwater discharges or flows if identified as significant contributors of pollutants to the applicant's MS4?
    a. Water line flushing and discharges from potable water sources
    b. Landscape irrigation runoff, lawn watering runoff, and irrigation waters
    c. Diverted stream flows and flows from riparian habitats and wetlands
    d. Rising groundwaters and springs
    e. Uncontaminated groundwater infiltration and seepage
    f. Uncontaminated pumped groundwater, except for groundwater cleanups specifically authorized by NPDES permits
    g. Foundation drains, water from crawl space pumps, footing drains, and basement sump pumps
    h. Air conditioning condensation
    i. Waters from noncommercial car washing
    j. Street wash water
    k. Dechlorinated swimming pool water from single, two, or three family residences. (A swimming pool operated by the permittee shall not be discharged to a separate storm sewer or to surface waters of the state without NPDES permit authorization from the MDEQ.)

☒ Yes, ordinance or regulatory mechanism reference (page and paragraph of attachments): Township IDEP Plan - stated above.
☐ No, the ordinance or regulatory mechanism will be available on _____

23. Does the ordinance or regulatory mechanism regulate the contribution of pollutants to the applicant's MS4?
☒ Yes, ordinance or regulatory mechanism reference (page and paragraph of attachments): Township IDEP Plan - stated above.
☐ No, the ordinance or regulatory mechanism will be available on _____

24. Does the ordinance or regulatory mechanism prohibit illicit discharges, including illicit connections and the direct dumping or disposal of materials into the applicant's MS4?
☒ Yes, ordinance or regulatory mechanism reference (page and paragraph of attachments): Township IDEP Plan - stated above.
☐ No, the ordinance or regulatory mechanism will be available on _____

25. Does the ordinance or regulatory mechanism establish the authority to inspect, investigate, and monitor suspected illicit discharges into the applicant's MS4?
☒ Yes, ordinance or regulatory mechanism reference (page and paragraph of attachments): Township IDEP Plan - stated above.
☐ No, the ordinance or regulatory mechanism will be available on _____

26. Does the ordinance or regulatory mechanism require and enforce elimination of illicit discharges into the applicant's MS4, including providing the applicant the authority to eliminate the illicit discharge?
☒ Yes, ordinance or regulatory mechanism reference (page and paragraph of attachments): Township IDEP Plan - stated above.
☐ No, the ordinance or regulatory mechanism will be available on _____

27. Does the ordinance or regulatory mechanism include a schedule for eliminating illicit discharge into the applicant's MS4?
☒ Yes, ordinance or regulatory mechanism reference (page and paragraph of attachments): Township IDEP Plan - stated above.
☐ No, the ordinance or regulatory mechanism will be available on _____

Construction Stormwater Runoff Control Program

The applicant shall describe the current and proposed BMPs to meet the minimum control measure requirements for the construction stormwater runoff control program to the maximum extent practicable, which shall be incorporated into the SWMP. Please indicate in your response if you are or will be working collaboratively with watershed or regional partners on any or all requirements of this program during the permit cycle. The following questions represent the minimum control measure requirements for the construction stormwater runoff control program. Please complete all the questions below. A measurable goal with a measure of assessment shall be included for each BMP, and, as appropriate, a schedule for implementation (months and years), including interim milestones and the frequency of the BMP. The responses shall reflect the nested MS4s identified in Section VI.

Qualifying Local Soil Erosion and Sedimentation Control Programs

28. Is the applicant a Part 91 Agency? A list of Part 91 agencies is available at http://www.michigan.gov/deq/0,4561,7-135-3311_4113-8870--,00.html.
Yes. Choose type: ☐ County Enforcing Agency ☐ Municipal Enforcing Agency ☐ Authorized Public Agency
☒ No, the applicant relies on the following Qualifying Local Soil Erosion and Sedimentation Control Program (Part 91 Agency)
LCDC

Construction Stormwater Runoff Control

29. Provide the procedure with the process for notifying the Part 91 Agency or appropriate staff when soil or sediment is discharged to the applicant's MS4 from a construction activity. The procedure shall allow for the receipt and consideration of complaints or other information submitted by the public or identified internally as it relates to construction stormwater runoff control. For non-Part 91 agencies, consideration of complaints may include referring the complaint to the qualifying local Soil Erosion and Sedimentation Control Program as appropriate. Construction activity is defined pursuant to Part 21, Wastewater Discharge Permits, Rule 323.2102 (K). The applicant may consider as part of their procedure when and under what circumstances the Part 91 Agency or appropriate staff will be contacted.

Procedure Reference (page and paragraph of attachments): N/A - It is highly unlikely to have development in our MS4.

30. Provide the procedure for when to notify the MDEQ when soil, sediment, or other pollutants are discharged to the applicant's MS4 from a construction activity. Other pollutants include pesticides, petroleum derivatives, construction chemicals, and solid wastes that may become mobilized when land surfaces are disturbed. The applicant may consider as part of their procedure when and under what circumstances the MDEQ will be contacted.

Procedure Reference (page and paragraph of attachments): N/A - It is highly unlikely to have development in our MS4.

31. Provide the procedure for ensuring that construction activity one acre or greater in total earth disturbance with the potential to discharge to the applicant's MS4 obtains a Part 91 permit, or is conducted by an approved Authorized Public Agency as appropriate. Note: For applicants that conduct site plan review, the procedure must be triggered at the site plan review stage.

Procedure Reference (page and paragraph of attachments): N/A - It is highly unlikely to have development in our MS4.

32. Provide the procedure to advise the landowner or recorded easement holder of the State of Michigan Permit by Rule (Rule

323.2190).

Procedure Reference (page and paragraph of attachments): N/A - It is highly unlikely to have development in our MS4.

Post-Construction Stormwater Runoff Program
Post-construction stormwater runoff controls are necessary to maintain or restore stable hydrology in receiving waters by limiting surface runoff rates and volumes and reducing pollutant loadings from sites that undergo development or significant redevelopment. The applicant shall describe the current and proposed BMPs to meet the minimum control measure requirements for the post-construction stormwater runoff program to the maximum extent practicable, which shall be incorporated into the SWMP. Please complete the questions below as appropriate. If the "No" response is selected but a date is requested for the minimum requirement to be available, please provide a date to meet the minimum requirement. All dates provided by the applicant in this application should be on or before May 1, 2013 for fiscal year 2013 applicants and October 1, 2013 for fiscal year 2014 applicants. Some questions are set up to allow for additional responses to meet the minimum requirements. If space is not available for an additional response, then the minimum requirement must be met in accordance with the question. A measurable goal with a measure of assessment shall be included for each BMP, and, as appropriate, a schedule for implementation (months and years), including interim milestones and the frequency of the BMP. The responses shall reflect the nested MS4s identified in Section VI.

An applicant may reference in its ordinance or regulatory mechanism other technical documents used to implement the post-construction stormwater runoff program. For example, an applicant may answer a question with a reference to a performance or technical standards document in the ordinance **and** the reference in the technical document. When referencing the ordinance, regulatory mechanism, or other technical documents, attach the document and provide the page and paragraph reference.

The MDEQ has a manual with information on post-construction stormwater runoff control available at http://www.semcog.org/LowImpactDevelopment.aspx . Chapter 9 of the *Low Impact Development Manual for Michigan* provides a methodology for addressing post-construction stormwater runoff.

Ordinance or Other Regulatory Mechanism

33. Is an ordinance or other regulatory mechanism in effect to address post-construction stormwater runoff from new development and redevelopment projects, including preventing or minimizing water quality impacts? The ordinance or other regulatory mechanism shall apply to private, commercial, and public projects, including projects where the applicant is the developer. This requirement may be met using a single ordinance or regulatory mechanism or a combination of ordinances and regulatory mechanisms.
    ☐ Yes, ordinance or regulatory mechanism reference (page and paragraph of attachments) _____
    ☒ No, the ordinance or regulatory mechanism will be available on N/A

34. Does the ordinance or other regulatory mechanism apply to projects that disturb at least one or more acres, including projects less than an acre that are part of a larger common plan of development or sale and discharge into the applicant's MS4?
    ☐ Yes, ordinance or regulatory mechanism reference (page and paragraph of attachments) _____
    ☒ No, the ordinance or regulatory mechanism will be available on N/A

Federal Facilities

Federal facilities are subject to the Energy Independence and Security Act of 2007. Section 438 of this legislation establishes post-construction stormwater runoff requirements for federal development and redevelopment projects.

35. Is the applicant the owner or operator of a federal facility with a stormwater discharge?
    ☐ Yes
    ☒ No, skip to Question 37

36. Is the applicant implementing the post-construction stormwater runoff control requirements in Section 438 of the Energy Independence and Security Act? A guidance document is available at http://www.epa.gov/greeningepa/documents/epa_swm_guidance.pdf
    ☐ Yes, regulatory mechanism reference (page and paragraph of attachments) _____
    ☐ No, the regulatory mechanism will be available on _____

The following performance standards questions are intended to establish the minimum post-construction stormwater runoff program requirements. Applicants may be implementing alternative performance standards that may meet the minimum requirements for a post-construction stormwater runoff program. Space is provided below the applicable questions for submitting alternatives. Applicants in fiscal years 2013 and 2014 who submit an alternative that is less restrictive than the water quality treatment and channel protection performance standards included below will be required to submit a demonstration showing that the alternative standard provides equivalent or a greater level of protection as the standards identified below no later than one year prior to permit reissuance. Applicants in fiscal year 2015 and later will be required to submit the demonstration with the application.

Water Quality Treatment Performance Standard

37. Does the ordinance or other regulatory mechanism include one of the following water quality treatment standards?

    ☐ Treat the first one inch of runoff from the entire site. Ordinance or other regulatory mechanism reference (page and paragraph of

attachments) _____ Skip to Question 39.

☐ Treat the runoff generated from 90 percent of all runoff-producing storms. Ordinance or other regulatory mechanism reference (page and paragraph of attachments) _____

☒ No, the ordinance or other regulatory mechanism will be available on N/A

☐ The ordinance or other regulatory mechanism is/will be available on _____ and includes the following water quality treatment standard. Provide an explanation as to how the water quality treatment standard will prevent or minimize water quality impacts.

LCDC

38. What is the source of the rainfall data if the applicant has chosen the water quality treatment standard of requiring the treatment of the runoff generated from 90 percent of all runoff-producing storms?

☐ The MDEQ's memo dated March 24, 2006 providing the 90 percent annual non-exceedance storm statistics. The memo is available at http://www.michigan.gov/documents/deq/lwm-hsu-nps-ninety-percent_198401_7.pdf.

☐ An analysis of at least ten years of local published rain gauge data following the method in the March 25, 2006, MDEQ memo titled *90 Percent Annual Non-Exceedance Storms* cited above.

☒ Other rainfall data source (page and paragraph of attachments) N/A

39. Does the ordinance or other regulatory mechanism require that BMPs be **designed** on a site-specific basis to reduce post-development total suspended solids loadings by 80 percent or achieve a discharge concentration of total suspended solids not to exceed 80 milligram per liter?

☐ Yes, ordinance or other regulatory mechanism reference (page and paragraph of attachments) _____

☒ No, the ordinance or other regulatory mechanism will be available on N/A

☐ The ordinance or other regulatory mechanism defines treatment as follows:

LCDC

Channel Protection Performance Standard

40. Does the ordinance or other regulatory mechanism require that the post-construction runoff rate and volume of discharges not exceed the pre-development rate and volume for all storms up to the two-year, 24-hour storm at the site? At a minimum, pre-development is the last land use prior to the planned new development or redevelopment.

☐ Yes, ordinance or other regulatory mechanism reference (page and paragraph of attachments) _____

☒ No, the ordinance or other regulatory mechanism will be available on N/A

☐ The ordinance or other regulatory mechanism is/will be available on _____and includes the following channel protection standard. Provide an explanation as to how the channel protection standard will prevent or minimize water quality impacts.

LCDC Soil Erosion Standards.

41. Does the ordinance or other regulatory mechanism exclude any waterbodies from the channel protection performance standard? The channel protection performance standard is not required for the following waterbodies: the Great Lakes or connecting channels of the Great Lakes; Rouge River downstream of the Turning Basin; Saginaw River; Mona Lake and Muskegon Lake (Muskegon County); and Lake Macatawa and Spring Lake (Ottawa County).

☐ Yes, ordinance or other regulatory mechanism reference (page and paragraph of attachments) _____

☐ No, the ordinance or other regulatory mechanism will be available on _____

☒ Not applicable

Site-Specific Requirements

42. Provide the procedure for reviewing the use of infiltration BMPs to meet the water quality treatment and channel protection standards for new development or redevelopment projects in areas of soil or groundwater contamination in a manner that does not exacerbate existing conditions. The procedure shall include the process for coordinating with MDEQ staff as appropriate.

Procedure Reference (page and paragraph of attachments) N/A

43. Does the ordinance or other regulatory mechanism require BMPs to address the associated pollutants in potential hot spots as part of meeting the water quality treatment and channel protection standards for new development or redevelopment projects? Hot spots include areas with the potential for significant pollutant loading such as gas stations, commercial vehicle maintenance and repair, auto recyclers, recycling centers, and scrap yards. Hot spots also include areas with the potential for contaminating public water supply intakes.

☐ Yes, ordinance or other regulatory mechanism reference (page and paragraph of attachments) _____

☒ No, the ordinance or other regulatory mechanism will be available on N/A

Off-Site Mitigation and Payment in Lieu Programs

44. Does the ordinance or other regulatory mechanism allow for the approval of off-site mitigation for redevelopment projects that cannot meet 100 percent of the performance standards on-site after maximizing stormwater retention? Off-site mitigation refers to BMPs implemented at another location within the same jurisdiction and watershed/sewershed as the original project. *A watershed is the geographic area included in a10-digit Hydrologic Unit Code and a sewershed is the area where stormwater is conveyed by the applicant's MS4 to a common outfall or point of discharge.*
☐ Yes, ordinance or other regulatory mechanism reference (page and paragraph of attachments) _____
☐ No, the ordinance or other regulatory mechanism will be available on _____
☒ Not pursuing this option

45. Does the ordinance or other regulatory mechanism allow for the approval of payment in lieu for projects that cannot meet 100 percent of the performance standards on-site after maximizing stormwater retention? A payment in lieu program refers to a developer paying a fee to the applicant that is applied to a public stormwater management project within the same jurisdiction and watershed/sewershed as the original project in lieu of installing the required BMPs onsite. The stormwater management project may be either a new BMP or a retrofit to an existing BMP and shall be developed in accordance with the applicant's performance standards. *A watershed is the geographic area included in a 10-digit Hydrologic Unit Code and a sewershed is the area where stormwater is conveyed by the applicant's MS4 to a common outfall or point of discharge.*
☐ Yes, ordinance or other regulatory mechanism reference (page and paragraph of attachments) _____
☐ No, the ordinance or other regulatory mechanism will be available on N/A
☒ Not pursuing this option. If "not pursuing this option" was selected for both Questions 44 and 45, skip to Question 53

46. Does the ordinance or other regulatory mechanism establish criteria for determining the conditions under which off-site mitigation and/or payment in lieu are available and require technical justification as to the infeasibility of on-site management? The determination that performance standards cannot be met on-site shall not be based solely on the difficulty or cost of implementing, but shall be based on multiple criteria related to the physical constraints of the project site, such as: too small of a lot outside of the building footprint to create the necessary infiltrative capacity even with amended soils; soil instability as documented by a thorough geotechnical analysis; a site use that is inconsistent with the capture and reuse of stormwater; too much shade or other physical conditions that preclude adequate use of plants. The criteria shall also include consideration of the stream order and location within the watershed/sewershed as it relates to the water quality impacts from the original project site *(e.g., the water quality impact from a site with a discharge to a small-sized stream would be greater than a site on a large river and an offset downstream of the project site may provide less water quality benefit.)* The highest preference for off-site mitigation and in lieu projects shall be given to locations that yield benefits to the same receiving water that received runoff from the original project site.
☐ Yes, ordinance or other regulatory mechanism reference (page and paragraph of attachments) _____
☐ No, the ordinance or other regulatory mechanism will be available on _____

47. Does the ordinance or other regulatory mechanism establish a minimum amount of stormwater to be managed on-site as a first tier for off-site mitigation or payment in lieu? A higher offset ratio is required if off-site mitigation or payment in lieu is requested for the amount of stormwater identified as the first tier. *For example, a minimum of 0.4 inches of stormwater runoff shall be managed on-site as a first tier.*
☐ Yes, ordinance or other regulatory mechanism reference (page and paragraph of attachments) _____
☐ No, the ordinance or other regulatory mechanism will be available on _____
☐ The ordinance or other regulatory mechanism requires the following:

48. Does the ordinance or other regulatory mechanism require an offset ratio of 1:1.5 for the amount of stormwater above the first tier (identified in Question 47) not managed on-site to the amount of stormwater required to be mitigated at another site or for which in-lieu payments shall be made?
☐ Yes, ordinance or other regulatory mechanism reference (page and paragraph of attachments) _____
☐ No, the ordinance or other regulatory mechanism will be available on _____
☐ The ordinance or other regulatory mechanism requires the following:

49. Does the ordinance or other regulatory mechanism require that if demonstrated by the developer to the applicant that it is completely infeasible to manage the first tier of stormwater identified in Question 47 on-site, the offset ratio for the unmanaged portion is 1:2?
☐ Yes, ordinance or other regulatory mechanism reference (page and paragraph of attachments) _____
☐ No, the ordinance or other regulatory mechanism will be available on _____
☐ The ordinance or other regulatory mechanism requires the following:

50. Does the ordinance or other regulatory mechanism require a schedule for completing off-site mitigation and in-lieu projects? *Off-site mitigation and in-lieu projects should be completed within 24 months after the start of the original project site construction.*
☐ Yes, ordinance or other regulatory mechanism reference (page and paragraph of attachments) _____
☐ No, the ordinance or other regulatory mechanism will be available on _____
☐ The ordinance or other regulatory mechanism requires the following:

51. Does the ordinance or other regulatory mechanism require that offsets and in-lieu projects be preserved and maintained in perpetuity, such as deed restrictions and long-term operation and maintenance?
☐ Yes, ordinance or other regulatory mechanism reference (page and paragraph of attachments) _____
☐ No, the ordinance or other regulatory mechanism will be available on _____
☐ The ordinance or other regulatory mechanism requires the following:

52. Describe the tracking system implemented, or to be implemented, to track off-site mitigation and/or in-lieu projects.

53. Are there any other exceptions to the performance standards, other than off-site mitigation and payment in lieu, being implemented or to be implemented during the permit cycle?
☐ Yes, describe below

☒ No

Site Plan Review

54. Does the ordinance or other regulatory mechanism include a requirement to submit a site plan for review and approval of post-construction stormwater runoff BMPs?
☒ Yes, ordinance or regulatory mechanism reference (page and paragraph of attachments) Brighton Zoning Ordinance p. 18-1 to 18-9
☐ No, the ordinance or regulatory mechanism will be available on _____

55. Provide the procedure for site plan review and approval.

Procedure Reference (page and paragraph of attachments) Brighton Zoning Ordinance p. 18-1 to 18-9

56. Provide the reference in the site plan review and approval procedure to the process for determining how the developer meets the performance standards and ensures long-term operation and maintenance of BMPs.

Procedure Reference (page and paragraph of attachments) Brighton Zoning Ordinance p. 18-1 to 18-9

Long-Term Operation and Maintenance of BMPs

57. Does the ordinance or other regulatory mechanism require the long-term operation and maintenance of all structural and vegetative BMPs installed and implemented to meet the performance standards in perpetuity?
☐ Yes, ordinance or other regulatory mechanism reference (page and paragraph of attachments) _____
☒ No, the ordinance or other regulatory mechanism will be available on N/A

58. Does the ordinance or other regulatory mechanism require a maintenance agreement between the applicant and owners or operators responsible for the long-term operation and maintenance of structural and vegetative BMPs installed and implemented to meet the performance standards?
☐ Yes, ordinance or other regulatory mechanism reference (page and paragraph of attachments) _____
☒ No, the ordinance or other regulatory mechanism will be available on N/A
☐ The ordinance or other regulatory mechanism requires the following:

Not Applicable

59. Does the maintenance agreement or other legal mechanism allow the applicant to complete the following? (Check if yes)
☐ Inspect the structural or vegetative BMP
☐ Perform the necessary maintenance or corrective actions neglected by the BMP owner or operator
☐ Track the transfer of operation and maintenance responsibility of the BMP (e.g., deed restrictions)

If any of the boxes above were not checked, provide a response explaining how the maintenance agreement or other legal mechanism allows the applicant to verify and ensure maintenance of the BMP.

Not Applicable

Pollution Prevention and Good Housekeeping Program
The applicant shall describe the current and proposed BMPs to meet the minimum control measure requirements for the Pollution Prevention and Good Housekeeping Program to the maximum extent practicable, which shall be incorporated into the SWMP. The applicant shall develop and implement a Pollution Prevention and Good Housekeeping Program to prevent or reduce the discharge of pollutants from municipal facilities and operations.

The following definitions apply to the terms used below:
- Fleet: A group of vehicles owned or operated as a unit.
- Maintenance (includes, but not limited to): adding/changing vehicle fluids, fueling, lubrication, painting, mechanical repairs, parts degreasing, and vehicle/equipment washing.
- Storage Yard (includes, but not limited to): areas where vehicles are stored longer than overnight/weekend; areas where road maintenance materials are stored; areas where vehicle maintenance materials are stored; areas where chemicals in bulk are stored; areas where catch basin cleaning wastes are stored; and areas where maintenance equipment such as mowers, tractors, vactor trucks, and sweepers is stored.

Please complete the questions below as appropriate. A "Not Applicable" response is appropriate in cases where the applicant does not own or operate a municipal facility or stormwater structural control or does not perform the operation in the question. A measurable goal with a measure of assessment shall be included for each BMP, and, as appropriate, a schedule for implementation (months and years), including interim milestones and the frequency of the BMP. The responses shall reflect the nested MS4s identified in Section VI.

Municipal Facility and Structural Stormwater Control Inventory

60. Provide an up-to-date inventory of applicant-owned or operated facilities and stormwater structural controls with a discharge of stormwater to surface waters of the state. The inventory shall include the location of each facility and an estimate of the number of structural stormwater controls for each category below (e.g., 100 catch basins and 7 detention basins).

Inventory Reference (Page and Paragraph of Attachments): see GIS maps and site plans - Township Hall (1 catch basin) and Fire Hall (3 catch basins)

Check all applicant-owned or operated facilities with a discharge of stormwater to surface waters of the state:

☒ Administration buildings	☐ Animal Control Building
☐ Airports	☐ Bus Stations and Garages
☐ Cemeteries	☐ Composting facilities
☐ Equipment storage and maintenance facilities	☒ Fire Stations
☐ Fuel Farms	☐ Hazardous waste disposal facilities
☐ Hazardous waste handling and transfer facilities	☐ Landfills
☐ Landscape maintenance facilities	☐ Libraries
☐ Materials storage yards	☐ Mosquito Control Facility
☐ Parks	☐ Pesticide storage facilities
☐ Police stations	☐ Public golf courses

- ☐ Public parking lots
- ☐ Public works yards
- ☐ Salt storage facilities
- ☐ Vacant land and open space
- ☐ Other facilities – Provide a description below:
- ☐ Public schools
- ☐ Recycling facilities
- ☐ Solid waste handling and transfer facilities
- ☐ Vehicle storage and maintenance yards

Check all applicant-owned or operated structural stormwater controls with a discharge of stormwater to surface waters of the state:

- ☒ Catch basins
- ☐ Detention basins
- ☐ Oil/water separators
- ☐ Pump Stations
- ☐ Secondary containment
- ☐ Vegetated swales
- ☐ Other structural stormwater controls – Provide a description below:
- ☐ Constructed wetlands
- ☐ Infiltration basins and trenches
- ☐ Porous pavement
- ☐ Rain gardens
- ☐ Underground storage vaults or tanks

61. Provide the location where an up-to-date map (or maps) is available with the location of the facilities and structural stormwater controls identified in Question 60. *The location of the facilities and structural stormwater controls may be included on the storm sewer system map maintained for the IDEP.*

The map (or maps) is available at the following location: see GIS maps and site plans for Township Hall and Fire Hall

62. Provide the procedure for updating and revising the inventory in Question 60 and map (or maps) identified in Question 61 as facilities and structural stormwater controls are added, removed, or no longer owned or operated by the applicant. *A suggested timeframe for updating/revising the inventory and map(s) is 30 days following adding/removing a facility or structural stormwater control.*

Procedure Reference (page and paragraph of attachments): see GIS maps and site plans for Township Hall and Fire Hall

Facility-Specific Stormwater Management

63. Provide the procedure for assessing each facility identified in Question 60 for the potential to discharge pollutants to surface waters of the state. The procedure shall include a process for updating and revising the assessment. *A recommended timeframe for updating/revising the assessment is 30 days prior to discharging stormwater from a new facility and within 30 days of determining a need to update/revise the facility assessment.*

The applicant should consider the following factors when assessing each facility:

- Amount of urban pollutants stored at the site (e.g., sediment, nutrients, metals, hydrocarbons, pesticides, fertilizers, herbicides, chlorides, trash, bacteria, or other site-specific pollutants)
- Identification of improperly stored materials
- The potential for polluting activities to be conducted outside (e.g., vehicle washing)
- Proximity to waterbodies
- Poor housekeeping practices
- Discharge of pollutants of concern to impaired waters

☒ Procedure Reference (page and paragraph of attachments): Township parking lots have low potential for spills/problems so no priority list needed.

☐ Not Applicable – The applicant does not own a facility that discharges stormwater to surface waters of the state. Skip to Question 71.

64. Provide the list of prioritized facilities using the assessment in Question 63. Each facility shall be prioritized based on having the high, medium, or low potential to discharge pollutants to surface waters of the state. Facilities with the high potential for pollutant runoff shall include, but are not limited to, the applicant's fleet maintenance and storage yards. The applicant may submit a demonstration with a description of how the applicant's fleet maintenance and storage yard has the low potential to discharge pollutants to surface waters of the state.

☒ Prioritized Facility List (page and paragraph of attachments): N/A
☐ Fleet Maintenance and Storage Yard Demonstrations (page and paragraph of attachments): _____

65. Is a site-specific standard operating procedure (SOP) available identifying the structural and non-structural stormwater controls implemented and maintained to prevent or reduce pollutant runoff at each facility with the high potential for pollutant runoff? The SOP shall be available at each facility with the high potential for pollutant runoff and upon request from the MDEQ. The SOP shall identify the person responsible for oversight of the facility. *The MDEQ may request the submission of the SOP during the application review process.*

☐ Yes, a site-specific SOP is available at each facility with the high potential for pollutant runoff
☒ Not Applicable – The applicant does not own or operate any facilities with the high potential for pollutant runoff. Skip to Question 70.

66. Provide the reference in the SOP, for each facility with the high potential for pollutant runoff, to the following: the list of significant materials stored on-site that could pollute stormwater; the description of the handling and storage requirements for each significant material; and the potential to discharge the significant material.

SOP Reference (page and paragraph of attachments): _____

This space is available to reference multiple site-specific SOPs

67. Provide the reference in the SOP, for each facility with the high potential for pollutant runoff, identifying the good housekeeping practices implemented at the site. *Good housekeeping practices include keeping the facility neat and orderly, properly storing and covering materials, and minimizing pollutant sources to prevent or reduce pollutant runoff.*

SOP Reference (page and paragraph of attachments): _____

This space is available to reference multiple site-specific SOPs

68. Provide the reference in the SOP, for each facility with the high potential for pollutant runoff, to the description and schedule for conducting routine maintenance and inspections of stormwater management and control devices to ensure materials and equipment are clean and orderly and to prevent or reduce pollutant runoff. *A biweekly schedule is recommended for routine inspections.*

SOP Reference (page and paragraph of attachments): _____

This space is available to reference multiple site-specific SOPs

69. Provide the reference in the SOP, for each facility with the high potential for pollutant runoff, to the description and schedule for conducting a comprehensive site inspection at least once every six months. The comprehensive inspection shall include an inspection of all structural stormwater controls and a review of non-structural stormwater controls to prevent or reduce pollutant runoff.

SOP Reference (page and paragraph of attachments): _____

This space is available to reference multiple site-specific SOPs

70. Provide the procedure identifying the BMPs currently implemented or to be implemented during the permit cycle to prevent or reduce pollutant runoff at each facility with the medium and lower potential for the discharge of pollutants to surface waters of the state using the assessment and prioritized list in Questions 63 and 64.

Procedure Reference (page and paragraph of attachments): Township will sweep parking lots twice a year and fill all cracks as needed.

Structural Stormwater Control Operation and Maintenance Activities

71. Provide the procedure for prioritizing each catch basin for routine inspection, maintenance, and cleaning based on preventing or

reducing pollutant runoff. The procedure shall include assigning a priority level for each catch basin and the associated inspection, maintenance and cleaning schedule based on preventing or reducing pollutant runoff. The procedure shall include a process for updating/revising the priority level for a catch basin giving consideration to inspection findings and citizen complaints. *A recommended timeframe for updating/revising the procedure is 30 days following the construction of a catch basin or a change in priority level.*

☒ Procedure Reference (page and paragraph of attachments): inspect every other year; will contract with LCDC or City for clean-out if 50% full.
☐ Not Applicable – The applicant does not own or operate catch basins. Skip to Question 75.

72. Provide the geographic location of the catch basins in each priority level using either a narrative description or map.

Catch Basin Priority Location (page and paragraph of attachments): see site plans for Township Hall and Fire Hall

73. Provide the procedure for inspecting, cleaning, and maintaining catch basins to ensure proper performance. Proper cleaning methods include ensuring accumulated pollutants are not discharged during cleaning and are removed prior to discharging to surface waters of the state. *A compliance assistance document titled Catch Basin Cleaning Activities Guidance Document is available at http://www.michigan.gov/documents/deq/wb-stormwater-CatchBasinGuidance_216198_7.pdf.*

Procedure Reference (page and paragraph of attachments): will inspect every other year; will contract with LCDC or City for clean out if 50% full

74. Provide the procedure for dewatering and disposal of materials extracted from catch basins. *A compliance assistance document titled Catch Basin Cleaning Activities Guidance Document is available at http://www.michigan.gov/documents/deq/wb-stormwater-CatchBasinGuidance_216198_7.pdf.*

Procedure Reference (page and paragraph of attachments): will inspect every other year; will contract with LCDC or City for clean out if 50% full

75. Provide the procedure for inspecting and maintaining the structural stormwater controls (other than catch basins) identified in Question 60. The procedure shall include a description and schedule for inspecting and maintaining each structural stormwater control and the process for disposing of maintenance waste materials. The procedure shall require that controls be maintained to reduce to the maximum extent practicable the contribution of pollutants to stormwater. The procedure shall include a process for updating/revising the procedure to ensure a maintenance and inspection program for each structural stormwater control. *A recommended timeframe for updating/revising the procedure is 30 days following the implementation of a new structural stormwater control.*

☒ Procedure Reference (page and paragraph of attachments): will inspect every other year; will contract with LCDC or City for clean out if 50% full
☐ Not Applicable – Applicant does not own or operate any structural stormwater controls

76. Provide the procedure requiring new applicant-owned or operated facilities or new structural stormwater controls for water **quantity** be designed and implemented in accordance with the post-construction stormwater runoff control performance standards and long-term operation and maintenance requirements.

Procedure Reference (page and paragraph of attachments): N/A

Municipal Operations and Maintenance Activities

77. Provide the procedure with the assessment of the applicant's operation and maintenance activities for the potential to discharge pollutants to surface waters of the state. The assessment shall identify all pollutants that could be discharged from each applicable operation and maintenance activity and the BMPs being implemented or to be implemented to prevent or reduce pollutant runoff. The procedure shall include a process for updating and revising the assessment. *A suggested timeframe for updating/revising the assessment is 30 days following adding/removing BMPs to address new and existing operation and maintenance activities.*

At a minimum, the procedure shall include assessing the following municipal operation and maintenance activities if applicable:
- Road, parking lot, and sidewalk maintenance (e.g., pothole, sidewalk, and curb and gutter repair)
- Bridge maintenance
- Right-of-way maintenance
- Unpaved road maintenance
- Cold weather operations (e.g., plowing, sanding, application of deicing agents, and snow pile disposal)
- Vehicle washing and maintenance of applicant-owned vehicles (e.g., police, fire, school bus, public works)

with all pollution prevention and good housekeeping BMPs as appropriate. The procedure shall include the process implemented for providing oversight of contractor activities to ensure compliance.

Procedure Reference (Page and Paragraph of Attachments): will promote training with SEMCOG, LCDC.; will put specs in contract for bid; Township will monitor

Total Maximum Daily Load (TMDL) Implementation Plan

The following questions address discharges to impaired waters with a USEPA approved TMDL that includes a pollutant load allocation assigned to the permittee's MS4. BMPs shall be implemented to reduce the discharge of the TMDL pollutant from the MS4 to make progress in meeting Water Quality Standards. Applicable TMDLs are TMDLs approved prior to the applicant being notified of the need to apply for permit reissuance. Applicable TMDLs for the applicant were provided in the application notice letter.

The applicant shall describe the current and proposed BMPs to meet the minimum requirements for the TMDL Implementation Plan, which shall be incorporated into the SWMP. Please indicate in your response, if you are or will be working collaboratively with watershed or regional partners on any or all activities in the TMDL Implementation Plan during the permit cycle. The following questions represent the minimum requirements for a TMDL Implementation Plan. Please complete the following questions as appropriate. A measurable goal with a measure of assessment shall be included for each BMP, and, as appropriate, a schedule for implementation (months and years), including interim milestones and the frequency of the BMP. The responses shall reflect the nested MS4s identified in Section VI.

The USEPA has a document to assist with developing a TMDL Implementation Plan available at http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/region3_factsheet_tmdl.pdf.

85. Was a TMDL included in the applicant's application notice?
☒ Yes, the following approved USEPA TMDL(s) was included in my application notice letter:

Brighton Lake - Phosphorus and Strawberry Lake - Phosphorus.

☐ No, Skip to Section VIII.

86. Provide the procedure for identifying and prioritizing BMPs currently being implemented or to be implemented during the permit cycle to make progress toward achieving the pollutant load reduction requirement in each TMDL identified in Question 85. The procedure shall include a process for reviewing, updating, and revising BMPs implemented or to be implemented to ensure progress in achieving the TMDL pollutant load reduction.

Procedure Reference (page and paragraph of attachments): Through education we are changing behavior; through catch basin cleaning we are reducing sediment.

87. Provide the list of prioritized BMPs currently being implemented or to be implemented during the permit cycle to make progress toward achieving the pollutant load reduction requirement in each TMDL identified in Question 85. Each BMP shall include a reference to the targeted TMDL pollutant.

TMDL BMP Priority List (page and paragraph of attachments): Township is collaborating with LCDC on monitoring.

88. Provide the monitoring plan for assessing the effectiveness of the BMPs currently being implemented, or to be implemented, in making progress toward achieving the TMDL pollutant load reduction requirement, including a schedule for completing the monitoring. Monitoring shall be specifically for the pollutant identified in the TMDL. Monitoring may include, but is not limited to, outfall monitoring, in-stream monitoring, or modeling. At a minimum, monitoring shall be conducted two times during the permit cycle or at a frequency sufficient to determine if the BMPs are adequate in making progress toward achieving the TMDL pollutant load reduction. *Existing monitoring data may be submitted for review as part of the plan to meet part of the monitoring requirement.*

TMDL Monitoring Plan (page and paragraph of attachments): Township is collaborating with LCDC on monitoring - see LCDC TMDL Plan attached.

SECTION VIII. CERTIFICATION

Rule 323.2114(1-4) of the Part 21 Rules of Michigan Act 451, Public Act of 1994, Part 31, as amended, requires that this Application be signed by either a principal executive officer, the mayor, village president, city or village manager, or other duly authorized employee.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision In accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the

☒ Procedure Reference (page and paragraph of attachments): will inspect every other year and will contract with LCDC or City for clean out if 50% full
☐ Not Applicable – Provide an explanation below.

Township parking lots and yards - have contracts with private companies for lawn cutting and other landscaping duties and snow removal and will provide BMP specifications in bids for contracts.

78. Provide the procedure for prioritizing applicant-owned or operated streets, parking lots, and other impervious infrastructure for street sweeping based on the potential to discharge pollutants to surface waters of the state. The procedure shall include assigning a priority level for each parking lot and street and the associated cleaning schedule (i.e., sweeping frequency and timing) based on preventing or reducing pollutant runoff. The procedure shall include a process for updating/revising the priority level giving consideration to street sweeping findings and citizen complaints. *A recommended timeframe for updating/revising the prioritization is 30 days following the construction of a new street, parking lot, or other applicant-owned or operated impervious surface or within 30 days of identifying a need to revise a priority level.*

☒ Procedure Reference (page and paragraph of attachments): Will sweep parking lots twice a year.
☐ Not Applicable – The applicant does not own or operate any streets, parking lots, or other impervious infrastructure. Skip to Question 82.

79. Provide the geographic location of the streets, parking lots, and other impervious surfaces in each priority level using either a narrative description or map.

Street Sweeping Priority Location (page and paragraph of attachments): see GIS maps for Township Hall and Fire Hall

80. Provide the procedure identifying the sweeping methods based on the applicant's sweeping equipment and use of additional resources in sweeping seasonal leaves or pick-up of other materials. *Proper sweeping methods include operating sweeping equipment according to the manufacturers' operating instructions and to protect water quality.*

Procedure Reference (page and paragraph of attachments): will contract annually; will promote training opps.; will put specs in contract for bid

81. Provide the procedure for dewatering and disposal of street sweeper waste material. *A compliance assistance document titled Catch Basin Cleaning Activities Guidance Document is available at http://www.michigan.gov/documents/deq/wb-stormwater-CatchBasinGuidance_216198_7.pdf,*

Procedure Reference (page and paragraph of attachments): will contract annually with the LCDC or City of Brighton and they have procedures.

Managing Vegetated Properties

82. Provide the procedure requiring the applicant's pesticide applicator to be certified by the State of Michigan as an applicator in the applicable category, to prevent or reduce pollutant runoff from vegetated land. A description of the categories is located at http://www.michigan.gov/mdard/0,4610,7-125-1569_16988_35289-11992--,00.html

☒ Procedure Reference (page and paragraph of attachments): will contract annually; will promote training opps.; will put specs in contract for bid
☐ Not Applicable – Provide an explanation below (e.g., the applicant's pesticide applicator only uses ready-to-use products from the original container).

Employee Training

83. Provide the employee training program to train employees involved in implementing the pollution prevention and good housekeeping program. The program shall include the training schedule. At a minimum, existing staff shall be trained once during the permit cycle and new hires within the first year of their hire date.

Program Reference (Page and Paragraph of Attachments): will utilize SEMCOG, LCDC, and other agencies for training opps.

Contractor Requirements and Oversight

84. Provide the procedure requiring contractors hired by the applicant to perform municipal operation and maintenance activities comply

information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for having knowledge of violations." I understand that my signature constitutes a legal agreement to comply with the requirements of the NPDES Permit. I certify under penalty of law that I possess full authority on behalf of the legal owner/permittee to sign and submit this Application. I certify to the best of my knowledge that it is true, accurate and meets the minimum permit requirements for a SWMP to the MEP.
Print Name: Brian Vick
Title: Township Manager
Representing: Charter Township of Brighton
Signature: B Vick — Date: ~~3/28/13~~ 4/1/13 BV

Please submit this completed Application and attachments to:

DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER RESOURCES DIVISION
PERMITS SECTION
P.O. BOX 30458
LANSING, MICHIGAN 48909-7958

Michigan Department of Environmental Quality – Water Resources Division

STORMWATER DISCHARGE PERMIT APPLICATION

Table 1 – Outfall and Point of Discharge Information

An identification number shall be provided for each outfall and point of discharge. Please note that the latitude and longitude is not required as part of the application. When entering a point of discharge, the receiving water is the point where the stormwater enters a surface water of the state. The following definitions apply to these terms:

- **Outfall** means a discharge point from an MS4 directly to surface waters of the state
- **Point of Discharge** means a discharge from an MS4 to an MS4 owned or operated by another public body

A. Outfall/ Point of Discharge No.:	☒ Outfall ☐ Point of Discharge	Outfall/Point of Discharge Identification No.: 1580 S. Old 23 - Fire Hall
B. Receiving Water:	Receiving Water :	
C. Latitude/Longitude (Optional)	Latitude:	Longitude:
A. Outfall/ Point of Discharge No.:	☒ Outfall ☐ Point of Discharge	Outfall/Point of Discharge Identification No.: 4363 Buno Rd. - Township Hall
B. Receiving Water:	Receiving Water :	
C Latitude/Longitude (Optional)	Latitude:	Longitude:
A. Outfall/ Point of Discharge No.:	☐ Outfall ☐ Point of Discharge	Outfall/Point of Discharge Identification No.:
B. Receiving Water:	Receiving Water :	
C. Latitude/Longitude (Optional)	Latitude:	Longitude:
A. Outfall/ Point of Discharge No.:	☐ Outfall ☐ Point of Discharge	Outfall/Point of Discharge Identification No.:
B. Receiving Water:	Receiving Water:	
C. Latitude/Longitude (Optional)	Latitude:	Longitude:
A. Outfall/ Point of Discharge No.:	☐ Outfall ☐ Point of Discharge	Outfall/Point of Discharge Identification No.:
B. Receiving Water:	Receiving Water :	
C. Latitude/Longitude (Optional)	Latitude:	Longitude:
A. Outfall/ Point of Discharge No.:	☐ Outfall ☐ Point of Discharge	Outfall/Point of Discharge Identification No.:
B. Receiving Water:	Receiving Water :	
C. Latitude/Longitude (Optional)	Latitude:	Longitude:
A. Outfall/ Point of Discharge No.:	☐ Outfall ☐ Point of Discharge	Outfall/Point of Discharge Identification No.:
B. Receiving Water:	Receiving Water :	
C. Latitude/Longitude (Optional)	Latitude:	Longitude:

STORMWATER DISCHARGE PERMIT APPLICATION

Table 2: Public Education Program Best Management Practices (BMPs)

PEP Topic	BMP Identifier	BMP Descriptor	Partner Collaboration	Target Audience	Key Messages	Delivery Mechanism	Year	Frequency	Responsible Party	Measurable Goal

Michigan Department of Environmental Quality – Water Resources Division

STORMWATER DISCHARGE PERMIT APPLICATION

APPENDIX A

LOCAL DISTRICT OFFICE ADDRESSES AND COUNTY JURISDICTIONS

DEQ DISTRICT OFFICES	TELEPHONE #	COUNTY JURISDICTIONS		
CADILLAC DISTRICT OFFICE 120 WEST CHAPIN STREET CADILLAC MI 49601-2158	(231) 775-3960	ALPENA ALCONA ANTRIM BENZIE CHARLEVOIX CHEBOYGAN CRAWFORD EMMET	GRAND TRAVERSE KALKASKA LAKE LEELANAU MANISTEE MASON MISSAUKEE	MONTMORENCY OSCEOLA OSCODA OTSEGO PRESQUE ISLE ROSCOMMON WEXFORD
SOUTHEAST MICHIGAN DISTRICT OFFICE 27700 DONALD COURT WARREN, MI 48092	(586) 753-3700	MACOMB OAKLAND	ST. CLAIR	WAYNE
GRAND RAPIDS DISTRICT OFFICE STATE OFFICE BUILDING, FIFTH FLOOR 350 OTTAWA NW, UNIT 10 GRAND RAPIDS, MI 49503-2341	(616) 356-0500	BARRY IONIA KENT	MECOSTA MONTCALM MUSKEGON	NEWAYGO OCEANA OTTAWA
JACKSON DISTRICT OFFICE 301 EAST LOUIS GLICK HIGHWAY JACKSON MI 49201-1556	(517) 780-7690	HILLSDALE JACKSON	LENAWEE MONROE	WASHTENAW
UPPER PENINSULA DISTRICT OFFICE KI SAWYER INTERNATIONAL AIRPORT AND BUSINESS CENTER 420 FIFTH STREET GWINN, MI 49841	(906) 346-8300	ALGER BARAGA CHIPPEWA DELTA DICKINSON	GOGEBIC HOUGHTON IRON KEWEENAW LUCE	MARQUETTE MACKINAC MENOMINEE ONTONAGON SCHOOLCRAFT
KALAMAZOO DISTRICT OFFICE 7953 ADOBE ROAD KALAMAZOO MI 49009-5026	(269) 567-3500	ALLEGAN BERRIEN BRANCH	CALHOUN CASS KALAMAZOO	ST. JOSEPH VAN BUREN
SAGINAW BAY DISTRICT OFFICE 503 NORTH EUCLID AVENUE, SUITE 1 BAY CITY, MI 48706-2965	(989) 686-8025	ARENAC BAY CLARE GLADWIN	HURON IOSCO ISABELLA MIDLAND	OGEMAW SAGINAW SANILAC TUSCOLA
LANSING DISTRICT OFFICE CONSTITUTION HALL 4TH FLOOR NORTH 525 WEST ALLEGAN PO BOX 30242 LANSING, MI 48909	(517) 335-4598	CLINTON EATON GENESEE	GRATIOT INGHAM LAPEER	LIVINGSTON SHIAWASSEE

FILE NAME: C:/MIRIS_NEW/APR/LIVINGSTON_GENESSEE.MXD

TETRA TECH MPS	N	PHASE II COMMUNITIES & WATERSHED BOUNDARIES	FIGURE
DESIGNED: J. BRESCOL DATE: 08/02/02		2000 CENSUS URBANIZED AREA LIVINGSTON COUNTY	1

STORMWATER DISCHARGE PERMIT APPLICATION
COLLABORATIVE PUBLIC EDUCATION PLAN TABLE

QUESTIONS 4-6 FINAL

Public Education Topic	BMP Activity #	BMP Activity Description	Partner Collaboration	Target Audience	Key Message	Delivery Mechanism	Year	Frequency	Reponsible Party	Goal	Assessment
A-K	1	Public Information Materials	Yes	Public	A-K	Print and/or digital materials	1-5	Annually	Permittees	Increase in public contact to improve visibility, and increase awareness, willingness	Number of materials distributed increased website traffic, specific built-in eval or focus groups, overall evaluative survey
A-J	2	Watershed Community Calendar	Yes	Residents	A-J	Printed 2-year calendar	1, 3, 5	Biannually	HRWC/Permitees	Increase in number of recipients willing to engage in prevention or stewarship	Number distributed, increased website traffic, calendar specific survey, overall evaluative survey
A-K	3	Educational Content	Yes	Public	A-K	Newsletters, social media, websites	1-5	Annually	HRWC/Permitees	Increase in number of recipients willing to engage in prevention or stewarship	Number of newsletters distributed, traffic/following on community sites where materials posted, specific evaluation or overall evaluative survey
A-J	4	Local Newspaper and Web or Other Advertising	Yes	Public	A-J	Advertising	1-5	Annually Seasonal	HRWC/Permittees	Increase in public contact to improve visibility, and increase awareness, willingness	Number and timing of ads placed, increased website traffic, redemption of offers, overall evaluative survey
K primary, A-J secondary	5	Water Resource Protection Workshops	Yes	Residents	A-J	Workshops	1-5	1 per year	Permittees	Increase number of workshop participants	Number of workshop participants or post workshop evaluation survey of participants
A primary, B-J secondary	6	Promote/Support Volunteer Stream Monitoring	Yes	Residents	A-J	HRWC Adopt-A-Stream Program	1-5	Annually 3+ times per year	HRWC/Permittees	Increase program participation and resulting stewardship actions	Number of new and repeat participation in stream monitoring events
A, B, C	7	Promote/Support Stormdrain Labeling	Yes	Residents	A, B, C	HRWC Adopt-A-Stormdrain Program	1-5	On-going	HRWC/Permittees	Increase number of catch basins labeled and program participants	Number of volunteers participating, number of stormdrains labeled, number of flyers distributed
J	8	Riparian Land Management Information	Yes	Riparian Landowners	J	Print and/or digital materials	2, 4	On-going	HRWC/Permittees	Increase in incidents of riparian landowners implementing BMPs	Number of brochures distributed, hits to community and HRWC website where materials are posted
A-J	9	Local/Regional Community Events	Yes	Residents	A-J	Displays at community festivals	1-5	On-going	HRWC/Permittees	Increase in public contact to improve visibility, and increase awareness, willingness	Number of events, materials distributed at events, community volunteers staffing events, contacts made and/or email addresses collected
B, C	10	County Wide Complaint Tracking and Response Systems	Yes (to promote)	Public	B, C	Reporting lines with print and digital promotional information	1-5	On-going	Washtenaw County Environmental Health Div/Livingston County Health Department/Permittees promote	Decrease in number of illicit dishcharges and improper disposals	Number of phone calls to reporting line, reduction in incidents, results of tracking and response system
A, G	11	Livingston County Household Hazardous Waste Reduction	Yes (to promote)	Livingston Residents	G	County-wide collections with print and digital promotional information	1-5	Quarterly	Livingston County Solid Waste Dept/ Drain Commissioner/Permittees promote	Increase in use of program	Number of drop offs/quantity of disposed materials
A	12	Livingston County Prescription Drugs and Personal Care Products Disposal	Yes (to promote)	Livingston Residents	A, G	County-wide collection program with print and digital promotional information	1-5	On-going	Livingston County Solid Waste Dept/Sheriff's Office, Community Alliance /Permittees promote	Increase in use of program	Increase in drop offs of prescription drugs at participating locations
A	13	Livingston County Electronic Waste Reduction	Yes (to promote)	Livingston Residents	A	County-wide collection of used electronics	1-5	Annually	Livingston County Solid Waste Dept/Permittees promote	Increase in use of program	Quantity of devices collected at events
A	14	Stream and River Crossing Road Signs	Yes (to install and/or maintain)	Livingston and Washtenaw Residents and Visitors	A	Roadside Signage	1-5	On-going	Livingston and Washtenaw County Road Commisslons/Permittees promote	Increase awareness of watershed/creekshed existence	Number of signs installed and locations, public report of seeing signs in specific or overall evaluative survey
A-J	15	Washtenaw County Community Partners for Clean Streams	Yes (to promote/participate)	Washtenaw County businesses and Employees	A-J	Stormwater site assessments, planning and education for businesses, institutions and multi-complex land owners	1-5	On-going	Washtenaw County Water Resources Commissioner/Permittees promote	Increase in number of participants in program	Number of participants
K	16	Washtenaw County Pollution Prevention Inspections	Yes (to promote)	Washtenaw County businesses and Employees	K	Inspection of facilities that store, manufacture or use hazardous, toxic or polluting materials	1-5	On-going	Washtenaw County Environmental Health Div/Water Resources Comissioner/Permittees promote	Increase in improvements made as a result of inspection	Number of inspections

STORMWATER DISCHARGE PERMIT APPLICATION
COLLABORATIVE PUBLIC EDUCATION PLAN TABLE

FINAL

Public Education Topic	BMP Activity #	BMP Activity Description	Partner Collaboration	Target Audience	Key Message	Delivery Mechanism	Year	Frequency	Reponsible Party	Goal	Assessment
A-K	17	Washtenaw County Issues of Environment Radio Show	Yes (to promote)	Washtenaw County Residents	A-K	Weekly radio show on WEMU 89.1 FM	1-5	On-going, quarterly water-related topic	Washtenaw County Environmental Health/Permittees promote	Increase in number of listeners recognizing watershed and taking steps to protect and participating in programs	Number of water quality related program topics covered, projected number of listeners
A-K	18	Washtenaw County Environmental Excellence Awards	Yes (to promote)	Washtenaw County Businesses and Employees	A-K	Annual award program recognizing businesses, institutions, and mulit-complex developments	1-5	Annually	Washtenaw County Water Resources Commissioner/Environmental Health Div/Solid Waste/Permittees promote	Increase in number of applicants/participants and award recipients	Number of award recipients
K	19	Washtenaw County Fats, Oils, Grease Reduction	Yes (to promote)	Washtenaw County Businesses and Employees	K	Section of Community Partners for Clean Streams Handbook and coordinated with County Food Inspection Program	1-5	On-going	Washtenaw County Water Resources Commissioner/Environmental Health Div/Solid Waste/Permittees promote	Decrease the number of actions or corrections needed	Number of inspections and improvements made as a result
A-K	20	Washtenaw County RiverSafe Homes Program	Yes (to promote)	Washtenaw County Residents	A-K	Incentive program for participation in survey and receipt of educational resources	1-5	On-going	Washtenaw County Water Resources Commissioner/Permittees promote	Increase number of participants	Number or participants or residents who are deemed to have RiverSafe homes
A, B, I, J	21	Washtenaw County/Ann Arbor Residential Rain Garden Program	Yes (City of Ann Arbor and Washtenaw County others promote)	Washtenaw County Residents	A, B, I, J	Rain garden education and installation assistance	1-5	Annually	Washtenaw County Water Resources Commissioner, City of Ann Arbor/Permittees promote	Increase number of particpants in program	Number of rain gardens installed and number of applicants to program who install a rain garden independently
G	22	Washtenaw County Home Toxics Reduction	Yes (to promote)	Washtenaw County Residents	G	Home toxics collection center and informational materials	1-5	On-going	Washtenaw County Environmental Health Div/Permittees promote	Increase in use of program	Increase in use of home toxics collection center by residents, number of brochures distributed, ads run, etc.
A, G	23	Washtenaw County Drug Take-Back Program	Yes (to promote)	Washtenaw County Residents	A, G	Network of local participating pharmacies and informational materials on program and proper disposal of prescription drugs and personal care products	1-5	On-going	Washtenaw County Environmental Health Div/Water Resources Commissioner/Permittees promote	Increase in use of program	Increase in drop offs of prescription drugs at participating pharmacies

PEP Topics:

A. Promote public responsibility and stewardship in the applicant(s) watershed.

B. Inform and educate the public about the connection of the MS4 to area waterbodies and the potential impacts discharges could have on surface waters of the state.

C. Educate the public on illicit discharges and promote public reporting of illicit discharges and improper disposal of materials into the MS4.

D. Promote preferred cleaning materials and procedures for car, pavement, and power washing.

E. Inform and educate the public on proper application and disposal of pesticides, herbicides, and fertilizers.

F. Promote proper disposal practices for grass clippings, leaf litter, and animal wastes that may enter into the MS4.

G. Identify and promote the availability, location, and requirements of facilities for collection or disposal of household hazardous wastes, travel trailer sanitary wastes, chemicals, yard wastes, and motor vehicle fluids.

H. Inform and educate the public on proper septic system care and maintenance, and how to recognize system failure.

I. Educate the public on and promote the benefits of green infrastructure and Low Impact Development.

J. Promote methods for managing riparian lands to protect water quality.

K. Identify and educate commercial, industrial and institutional entities likely to contribute pollutants to stormwater runoff.

Permittees:

Brighton Township
Charter Township of Ypsilanti
Charter Township of Pittsfield
City of Ann Arbor
City of Brighton
City of Ypsilanti
Eastern Michigan University
Livingston County Drain Commissioner
Livingston County Road Commission
Village of Dexter
Village of Pinckney
Washtenaw County Road Commission
Washtenaw County Water Resources Commissioner

FINAL

QUESTIONS 4-6

STORMWATER DISCHARGE PERMIT APPLICATION COLLABORATIVE PUBLIC EDUCATION PLAN

Brighton Township
Charter Township of Ypsilanti
Charter Township of Pittsfield
City of Ann Arbor
City of Brighton
City of Ypsilanti
Eastern Michigan University
Livingston County Drain Commissioner
Livingston County Road Commission
Village of Dexter
Village of Pinckney
Washtenaw County Road Commission
Washtenaw County Water Resources Commissioner

Table of Contents

I. INTRODUCTION

Purpose of Public Education Plan

In accordance with the permit requirements for Federal Phase II Storm Water Regulations, this Public Education Plan (PEP) was prepared to instill within the residents, businesses, and officials of the communities in regulated watersheds a heightened level of awareness of the connection between individual actions and the health of their watershed and water resources. The objective of this plan is to promote, publicize, and facilitate watershed education for the purpose of encouraging the public to reduce the discharge of pollutants in storm water.

Federal Phase II Storm Water Regulations

A 1987 amendment to the Federal Clean Water Act required the U.S. Environmental Protection Agency (EPA) to develop regulations setting forth National Pollutant Discharge Elimination System (NPDES) permit application requirements for storm water discharges from municipal separate storm sewer systems (MS4s). An MS4 is a drainage system that discharges to waters of the State and is owned or operated by a federal, state, county, city, village, township, district, association or other public body of government. Such drainage systems may include roads, catch basins, curbs, gutters, parking lots, ditches, conduits, pumping devices, or man-made channels.

Phase I of the NPDES regulations went into effect in 1990, which regulated discharges from communities with populations greater than 100,000. The rules for Phase II of the NPDES regulations were issued in 1999, requiring storm water discharge permits for communities with populations under 100,000 that have MS4s in "urbanized areas" as defined by the U.S. Bureau of the Census.

In Michigan the Michigan Department of Environmental Quality (MDEQ) is administering the federal Phase II permitting process.

Required Public Education Plan Elements

The PEP program is designed to promote, publicize, and facilitate education for the purpose of encouraging the public to reduce the discharge of pollutants in stormwater to the maximum extent practicable. The plan describes current and proposed best management practices (BMPs) to meet the minimum control measure requirements in a Public Education Plan (PEP).

The PEP may involve watershed or regional partners collaborating to combine or coordinate existing programs for public stewardship of water resources. Permittees shall indicate if they are or will be working collaboratively with watershed or regional partners on any or all activities in the PEP during the permit cycle, (Stormwater Discharge Permit Application, Public Education Program (PEP) p. 3).

The PEP is designed to implement a sufficient amount of educational activities to ensure that the targeted audiences are reached with the appropriate messages to the maximum extent practicable. The permittee shall identify applicable topics from the topics listed below, (Stormwater Discharge Permit Application, Public Education Program (PEP) p. 3).

Each applicable topic shall be prioritized based on a procedure for assessing high-priority community-wide issues and targeted issues to reduce pollutants in storm water runoff, (Stormwater Discharge Permit Application, Public Education Program (PEP) p. 3).

A. Promote public responsibility and stewardship in the applicant(s) watershed.

B. Inform and educate the public about the connection of the MS4 to area water bodies and the potential impacts discharges could have on surface waters of the state.

C. Educate the public on illicit discharges and promote public reporting of illicit discharges and improper disposal of materials into the MS4.

D. Promote preferred cleaning materials and procedures for car, pavement, and power washing.

E. Inform and educate the public on proper application and disposal of pesticides, herbicides, and fertilizers.

F. Promote proper disposal practices for grass clippings, leaf litter, and animal wastes that may enter into the MS4.

G. Identify and promote the availability, location, and requirements of facilities for collection or disposal of household hazardous wastes, travel trailer sanitary wastes, chemicals, yard wastes, and motor vehicle fluids.

H. Inform and educate the public on proper septic system care and maintenance, and how to recognize system failure.

I. Educate the public on and promote the benefits of green infrastructure and Low Impact Development.

J. Promote methods for managing riparian lands to protect water quality.

K. Identify and educate commercial, industrial and institutional entities likely to contribute pollutants to stormwater runoff.

For all applicable topics, the PEP shall identify:

1. Target audience.
2. Key message.
3. Delivery mechanism.
4. Year and frequency the BMP will be implemented.
5. Responsible party.

A **measurable goal with a measure of assessment shall be included for each BMP** and as appropriate, a schedule for implementation (months and years), including interim milestones and the frequency of the BMP, (Storm water Discharge Permit Application, Public Education Program (PEP) p. 3).

The PEP shall provide the procedure for evaluating and determining the effectiveness of the overall PEP. The procedure shall include a method for assessing changes in public awareness and behavior resulting from the implementation of the PEP and the process for modifying the PEP to address ineffective implementation, (Storm water Discharge Permit Application, Public Education Program (PEP) p. 3).

II. COLLABORATION OF WATERSHED PARTNERS

The permittees identified below have elected to meet the PEP requirements by working with each other and other watershed and regional partners to develop, submit, and implement a PEP that includes both collaborative and individual BMPs:

- Brighton Township
- Charter Township of Ypsilanti
- Charter Township of Pittsfield
- City of Ann Arbor
- City of Brighton
- City of Ypsilanti
- Eastern Michigan University
- Livingston County Drain Commissioner
- Livingston County Road Commission
- Village of Dexter
- Village of Pinckney
- Washtenaw County Road Commission
- Washtenaw County Water Resources Commissioner

III. PROCEDURE FOR IDENTIFYING AND PRIORITIZING APPLICABLE PEP TOPICS

The public education topics A-K listed above in Section II were identified in the permit application. These topics are referred to by their corresponding letter in the Public Education BMPs below as well as on the PEP table.

Watershed-Wide Priority Topics

The procedure for identifying high-priority watershed-wide or targeted issues suited for collaborative public education efforts includes:

- A review of Watershed Management Plans for both the Huron River in the Ann Arbor-Ypsilanti Metropolitan Area (Middle Huron) and the Huron Chain of Lakes including any established Total Maximum Daily Loads for water bodies in each area.
- A review of data from the Water Quality Monitoring Program.

- A review of the effectiveness of PEP activities (both the accumulated measures of the PEP's individual activities and a measure of the sum of all the activities including results from a survey of residents administered in conjunction with the distribution of a Community Watershed Calendar, Activity #2 below and referenced in Section VIII. Evaluation of Effectiveness).
- Topics identified by permittees at quarterly group meetings and periodic subcommittee meetings prior to and throughout the permit cycle.
- Discussion and input from the permitted entities regarding individual jurisdictional versus watershed-wide needs, potential public outreach opportunities, and existing and future programs.

Any additional procedural steps for identifying high-priority or targeted issues by individual permittees include:

The high priority community-wide issues and targeted issues are:

- High levels of phosphorus in storm water runoff from most monitored tributaries indicating broad sources;
- High E. coli counts in some targeted tributaries in the Middle Huron (Mill and Honey Creeks, and tributaries draining to the Huron River between Argo and Geddes Ponds);
- High conductivity levels (indicating potential dissolved contaminants) in most Middle Huron tributaries;
- Flashy flows in Middle Huron streams indicating the need for infiltration and storage across the watershed;
- A need for greater protection of riparian areas to reduce erosion and slow and treat stormwater runoff; and
- Survey results indicating a need for continued education about stormwater pollution and residential responsibilities.

The high priority community-wide issues and targeted issues were used to **prioritize** topics A-K for **collaborative efforts.** Existing and Proposed Collaborative Public Education BMPs include in some way all topics, but the emphasis will be on Collaborative High Priority Topics. Individual permittees may have additional or other priorities for individual education efforts as shown below and may address these in Existing and Proposed Individual Public Education BMPs:

Collaborative Priority Level	Permittee Priority	Topic Letter	Topic Description
High	High	A	Public responsibility and stewardship in the watershed.
High	High	B	The connection of the MS4 to area waterbodies and the potential impacts of discharges.
High	High	F	Proper disposal practices for grass clippings, leaf litter, and animal wastes.
High	High	E	Inform and educate the public on proper application and disposal of pesticides, herbicides, and fertilizers.
High	High	I	Benefits of green infrastructure and Low Impact Development.

High	High	J	Methods for managing riparian lands to protect water quality.
Low	Low	H	Proper septic system care and maintenance, and how to recognize system failure.
Low	Low	C	Illicit discharges and public reporting of illicit discharges and improper disposal of materials.
Low	Low	G	Identify and promote the availability, location, and requirements of facilities for collection or disposal of household hazardous wastes, travel trailer sanitary wastes, chemicals, yard wastes, and motor vehicle fluids.
Low	Low	D	Promote preferred cleaning materials and procedures for car, pavement, and power washing.
Low	Low	K	Identify and educate commercial, industrial and institutional entities likely to contribute pollutants to stormwater runoff.

IV. EXISTING AND PROPOSED COLLABORATIVE PUBLIC EDUCATION BMPs

To address each of the PEP requirements, the permittee will, individually or collaboratively, implement the following specific activities, which include a description, timeline, evaluation component, and the required topic that the activity meets. Activities will be completed with the involvement of responsible parties as noted in each activity description, and/or in cooperation with identified permitted communities.

Time lines for implementation of proposed activities extend from (year 1) when implementation of the PEP begins to (year 5) when the permit expires.

Activity #1: Distribute Informational Materials

Delivery Mechanism: Print and digital materials such as tip cards, brochures, posters, website links, or graphics for emails, websites or social media sites developed by the Huron River Watershed Council (HRWC), or created by the Southeast Michigan Council of Governments (SEMCOG), or others will be utilized. Campaign materials will be distributed at municipal offices, events, on web sites, via cable access or direct mailed as appropriate.

Key Messages: Materials contain information that covers required Topics A-K. For example, the SEMCOG campaign promotes key messages on proper use of fertilizer, car care, landscaping, storm drain awareness, household hazardous wastes, water conservation, pet care, green infrastructure, and riparian protection.

Target Audience: Residents, visitors, public employees, businesses, industries, construction contractors and developers.

Year and Frequency: Materials will be disseminated at least annually throughout the permit cycle.

Goal: To increase visibility and awareness of watershed issues and the impacts of pollutants discharged to the MS4 among residents, visitors, public employees, businesses, industries, construction contractors, and developers through repeat messaging and information.

Assessment: Frequency and number, circulation or amount distributed; tracking of web hits to supporting pages; and/or phone calls and e-mails to the permittee for related information.

Responsible Parties: SEMCOG has materials available free with membership or for purchase, HRWC develops materials under contract for permittees working collaboratively. Permittees will individually ensure distribution of materials to appropriate target audiences through their current channels of distribution, see Section VI Existing and Proposed Individual BMPs.

Topics Addressed: A-K

Remove BPJ

Activity #2: Distribute a Community Watershed Calendar

Delivery Mechanism: Coordinated by HRWC, permittees will participate in the bulk printing and distribution of a Community Watershed Calendar to residents. The calendar will, at least once during the permit cycle, include a mechanism for collecting evaluative feedback to measure the effectiveness of the piece itself or that will measure overall PEP effectiveness, see Section VIII Evaluation of Effectiveness.

Key Messages: Calendars typically feature a different tip each month for increasing public awareness of watershed issues and improving personal actions affecting the health of their watershed. Topics/messages are likely to include key messages associated with A-J of the PEP topics that are suited for homeowners, such as general watershed stewardship; household hazardous waste disposal; proper lawn care; car washing; storm drain pollutants; pet waste; riparian land management; green infrastructure and LID; and illegal dumping in storm drains.

Target Audience: Residents.

Year/Frequency: Biannually.

Goal: Increase in number of recipients reporting willingness to engage in specific MS4 pollution prevention activities and increased awareness of topics.

Assessment: Number of calendars distributed; web site hits; evaluative results of calendar's impact; and broad survey of overall PEP effectiveness.

Responsible Parties: Permittees produce collaboratively but distribute individually.

Topics Addressed: A-J

Activity #3: Content in Community Newsletters, Websites, Social Media

Delivery Mechanism: Permittees will annually publish articles, resources, events and stewardship opportunities in their own newsletters, on websites, through email and/or social media tools. Sources for information include SEMCOG, HRWC, Washtenaw County, and Livingston County, MDEQ and/or EPA, and others. Topics will include watersheds, stewardship activities and events, and individual actions the public can take to protect water resources/prevent the discharge of pollutants to the MS4.

Key Messages: Articles and information will focus on issues represented by all 11 topics.

Target Audience:	Residents, visitors, public employees, businesses, industries, construction contractors and developers.
Year/Frequency:	Published annually throughout the permit cycle.
Goal:	To increase resident awareness of watershed issues and the impacts of pollutants discharged to the MS$ and willingness to engage in pollution prevention activities or watershed stewardship.
Assessment:	Frequency and number of articles, circulation or amount distributed, tracking of web hits to supporting pages and/or phone calls and e-mails for related information.
Responsible Parties:	The permittees will publish newsletter articles and information through various distribution outlets; Livingston and Washtenaw counties, HRWC and others will provide content and information, see Section VI Existing and Proposed Individual BMPs.
Topics Addressed:	A-K

Remove GRD

Activity #4: Local Newspaper and Web Advertisements

Delivery Mechanism:	Coordinated by HRWC, participating permittees will pay for local print news media and online advertising.
Key Messages:	Watershed awareness and protection, connection of storm drains to natural water bodies, hazardous waste disposal, illegal dumping, lawn care, and car washing. Advertisements will use materials developed by Southeast Michigan Partners for Clean Streams, SEMCOG, HRWC and others.
Target Audience:	Residents, visitors, businesses, industries, construction contractors, developers.
Year/Frequency:	Annually
Goal:	To increase visibility of watershed and MS4 pollution issues through repeat messaging.
Assessment:	Frequency and number of advertisements run; circulation/amount distributed; number of inquiry calls and web hits received as a result of advertisements.
Responsible Parties:	HRWC to coordinate ad development, placement and timing and to track resulting inquiry calls and web hits. Permittees to provide funding.
Topics Addressed:	A-J

Activity #5: Promote Water Resource Protection Workshops

Delivery Mechanism:	The permittees will assist in promotion of educational workshops and programs for target audiences that will be organized through agencies such as the Washtenaw County Water Resources Commissioner, the Livingston Drain Commissioner, County Road Commissions, MSU Extension, SEMCOG, the Michigan Water & Environment Association, the natural Shorelines Partnership and others.
Key Messages:	Programs may include the following: Watershed Management Short Course, Master Rain Gardener and Master Composter program, Michigan Water Stewards program, watershed-friendly golf course management workshop, illicit discharge and connections elimination workshop, road salt BMP/de-icing alternatives workshop, land use/storm water planning workshops, and riparian land management workshops.

Target Audience:	Residents, government officials and employees, construction contractors, and developers.
Year/Frequency:	1 per year throughout the permit cycle as workshop dates are established.
Goal:	Number of workshop participants.
Assessment:	Compilation of all promotional efforts; number of attendees from the communities of the permittees. When possible participants will be surveyed by organizer immediately following workshops.
Responsible Parties:	Permittees will promote workshop events as developed by outside agencies.
Topics Addressed:	K in particular, but also A-J

Activity #6: Promote and Support Volunteer Stream Monitoring

Delivery Mechanism:	Permittees will support and assist in promoting the Huron River Watershed Council's Adopt-A-Stream Program. Efforts will include providing Adopt-A-Stream literature and posting volunteer event opportunities at customer service locations, on web sites and social media outlets and in newsletters. HRWC will provide information ongoing to permittees on Adopt-A-Stream volunteer opportunities prior to events.
Key Messages:	Adopt volunteers assess habitat, water quality, and aquatic life in the Huron River and its tributaries as part of an ongoing scientific study. The Program strives to educate watershed residents about their connection to the river and also the current conditions of the Huron River and its tributary streams. In addition, a central goal of the program is to inspire people to take actions that lead to better river protection at home and in their communities.
Target Audience:	Residents.
Year/Frequency:	Annually spring, fall and winter.
Goal:	Increase in participation in volunteer stream monitoring events and resulting stewardship activities (as reported).
Assessment:	Compilation of all promotional efforts; number of citizens participating in events; resulting stewardship actions taken by participants as reported through a paper evaluation at the end of each event.
Responsible Parties:	Permittees, HRWC.
Topics Addressed:	A in particular, but also B-J

Activity #7: Promote and Support Storm Drain Labeling *(for communities with storm drains)*

Delivery Mechanism:	Permittees will support and assist in promoting the Huron River Watershed Council's Adopt-A-Stormdrain program. The program encourages both group and individual homeowner catch basin maintenance and labeling and distribution of information to residential neighbors. Permittee efforts will include designating stormdrains for adoption and recruiting public participation through distribution of promotional information and materials. Additionally The Water Resources Commissioner's Office actively implements a catch basin marker program through the Community Partners for Clean Streams Program and the Homeowner's Handbook. Subdivision/ condominium developments, businesses and institutional landowners must have final approval of the WRC as a Community Partner for Clean Streams (where appropriate) to be eligible. The markers are installed by Homeowner

	Associations/residents/businesses. Permittees may also implement storm drain labeling with the use of school and community volunteers to assist in affixing labels to storm drains. Along streets where storm drains are affixed, communities will distribute flyers to residential units. Limited to locations with occupancy rates of over 80% (i.e. areas not under recent construction).
Key Messages:	The connection of storm drains to local waterways and the impacts of dumping pollutants into these drains.
Target Audience:	Residents, visitors, and commercial businesses and institutions.
Year/Frequency:	Ongoing throughout permit cycle.
Goal:	Increase in number of catch basins labeled and/or maintained by residents and number of residents who can identify the connection between MS4s and waterbodies.
Assessment:	Participation level in HRWC Adopt-A-Stormdrain program, number of drains labeled and flyers distributed.
Responsible Parties:	Washtenaw County Water Resources Commissioner, permittees in Washtenaw County, school and community volunteers, HRWC.
Topics Addressed:	A, B, C in particular

Activity #8: Promote Riparian Land Management Information

Delivery Mechanism:	Coordinated by HRWC, the permittees will distribute a brochure promoting riparian best management practices to riparian landowners via local realtors and nursery/garden retail businesses. Brochures will also be available at municipal offices and distributed by government officials and employees who work with riparian landowners or direct mailed to landowners.
Key Messages:	Brochures will emphasize BMPs such as landscaping with native plants, buffer zones, and minimizing impervious surfaces to facilitate on-site water retention.
Target Audience:	Riparian landowners, realtors, government officials and employees.
Year/Frequency:	Brochure available by year 3.
Goal:	Increase number of riparian landowners who implement BMPs.
Assessment:	Number of brochures distributed, number of hits to supporting web page or phone calls received by HRWC for additional information. Increase in number of riparian landowners reporting willingness to implement BMPs.
Responsible Parties:	Permittees produce collaboratively and distribute individually, HRWC.
Topics Addressed:	J

Activity #9: Conduct Outreach at Local and Regional Fairs and Community Events

Delivery Mechanism:	Coordinated by HRWC and done individually, permittees will promote and support stormwater education displays and outreach at local fairs and community events such as community Earth Day Festivals, Green Fairs, Huron River Days and others. They will also help promote these events through their newsletters and on websites.
Key Messages:	Public awareness of watershed issues and improving personal actions affecting the health of the watershed also including key messages associated with A-J of the PEP topics, such as general watershed stewardship; household hazardous waste disposal; proper lawn care; car washing; storm drain pollutants; pet

	waste; riparian land management; benefits of native plants; and illegal dumping in storm drains.
Target Audience:	Residents, visitors, community leaders.
Year/Frequency:	3 per year.
Goal:	To increase resident awareness of watershed and MS4 pollution issues and willingness to engage in pollution prevention activities or watershed stewardship.
Assessment:	Number of events; number of materials distributed and contacts made, e-mail addresses collected for HRWC or permittee newsletter distribution.
Parties involved:	Permittees and HRWC. See Section VI Existing and Proposed Individual BMPs.
Topics Addressed:	A-J

Activity #10: Promote County-Wide Complaint Tracking and Response Systems

Delivery Mechanism:	Permittees will educate the public on illicit discharges and work with the counties to publicize county-wide public reporting and response system for illicit discharges or improper disposal of materials into local storm drain systems. Environmental Reporting Lines are in place in both Washtenaw and Livingston counties. Washtenaw County Environmental Health administers the Reporting Line for Washtenaw County and Livingston County Health Department administers it in Livingston County. The programs are logged and have an updated brochure ready for distribution. The Counties promote the use of their Environmental Reporting Lines through partner newsletters, cable TV, and web sites.
Key Messages:	Prevention and reporting of illicit discharges and/or improper disposal of materials into MS4s.
Target Audience:	Residents, visitors, commercial and industrial businesses, local government officials and employees.
Year/Frequency:	Ongoing promotional efforts.
Goal:	Decrease in the number of illicit discharges and improper disposal of materials into MS4s.
Assessment:	Promotion/publicizing efforts; Number of calls to Environmental Reporting Line; results of the tracking and response system.
Responsible Parties:	Washtenaw County Health Department, Water Resources Commissioner, Livingston County Health Department, Livingston County Drain Commissioner, Permittees.
Topics Addressed:	B, C

V. EXISTING AND PROPOSED COUNTY-WIDE PUBLIC EDUCATION BMPs

Activity #11: Livingston County Household Hazardous Waste Reduction Program

Delivery Mechanism:	Permittees will work with the County to publicize. Provides the residents of Livingston County with a disposal option for flammable, poisonous, toxic and corrosive materials by providing quarterly county-wide collections at an established center in Howell, along with informational materials for the public

	that promote the collection center and proper disposal of household hazardous waste, and information related to recycling. LCDC's Solid Waste Program developed a "Waste Reduction Guide" to help residents and local businesses dispose of items ranging from batteries to printer cartridges to tires. The LCDC website also identifies services, informational publications, updates on locations and times for disposal and resource links. The LCDC Solid Waste Program gives detailed information on its website on paint disposal and oil recycling. LCDC also sponsors a Mercury Thermometer Exchange to educate residents on the dangers of mercury and reduce the amount being discarded in residential trash. LCDC will also provide information displays for area banks, post offices and public libraries that offer information on travel trailer, vehicle maintenance and other household hazardous waste disposal.
Key Messages:	The program seeks to address the environmental (including water quality) and public health effects resulting from improper handling and disposal of household hazardous waste, and is committed to reducing the use of home toxics and keeping citizens informed about the choices and responsibilities associated with purchasing, handling and disposing of toxic substances.
Target Audience:	Livingston County residents.
Year/Frequency:	On-going quarterly collections.
Goal:	Increase the number of residents using the program to dispose of home toxics.
Assessment:	Promotion/publicizing efforts including display use; Number of drop offs/quantity of disposal materials; web site hits.
Party Involved:	Coordinated by Livingston County Solid Waste Department and LCDC. Promoted by permittees in Livingston County.
Topics Addressed:	G

Activity #12: Livingston County Prescription Drugs and Personal Care Products Disposal Program

Delivery mechanism:	Permittees will work with the county to publicize. County website and brochure outlining proper disposal of unused prescription drugs and personal care products. Permanent collection sites and system established via the Big Red Barrel project.
Key Messages:	Keep Rx Drugs and personal care products out of our water systems, proper medication disposal.
Target Audience:	Livingston County residents.
Year/Frequency:	Ongoing throughout permit cycle.
Goal:	Increase the number of residents using the program to dispose of prescription drugs and personal care products.
Assessment:	Promotion/publicizing efforts; web site hits; Quantity of pharmaceuticals collected at events.
Party Involved:	Livingston County Solid Waste Department, Livingston County Sheriff's Office, Livingston Community Alliance. Promoted by permittees in Livingston County.
Topics Addressed:	A, G

Activity #13: Livingston County Electronic Waste Reduction Program

Delivery Mechanism: County-wide annual event to properly dispose/recycle used electronics (TVs, computers, etc). Promote proper disposal of used electronic devices to keep out of waste stream. Information distributed to public through brochures, website, and various public events.
Key Message: Keep electronic devices out of landfills by properly recycling.
Target Audience: Livingston County residents
Year/Frequency: Annually.
Goal: Increase the number of residents using the program to dispose of electronic waste.
Assessment: Promote/publicize efforts; web site hits; Quantity of devices collected at events.
Party Involved: Livingston County Solid Waste Department. Promoted by permittees in Livingston County
Topics Addressed: A

Activity #14: Stream and River Crossing Road Signs Livingston and Washtenaw Counties

Description: The Washtenaw County Road Commission and the Livingston County Road Commission each will coordinate the design and placement of stream and road crossing signs on primary roads in their respective county in areas where a need for signage has been identified and not met. Existing signs will also be maintained.
Target Audience: Visitors, residents.
Year/Frequency: Ongoing.
Goal: Raise public awareness of area watersheds and creeksheds.
Assessment: Number of signs, maintenance activities; increase in number of people reporting seeing signs over permit cycle as indicated in the measure overall PEP effectiveness, see Section VII Evaluation of Effectiveness.
Parties involved: WCRC, LCRC and local community officials, permittees.
Topics Addressed: A

Activity #15: Washtenaw County Community Partners for Clean Streams

Delivery Mechanism: Community Partners for Clean Streams is a voluntary, no cost to participants, cooperative water quality protection program between the Washtenaw County Water Resources Commissioner's office and Washtenaw County businesses, institutions and multi-complex land owners. Partners assess how their daily site activities affect stormwater quality and commit to proactive ways to improve their activities by way of a Water Quality Action Plan. Partners are recognized for their stewardship in online and newspaper adsPermittees will promote program in newsletters, make referrals to WCWRC regarding potential partners, and display brochures, supplied by WCWRC, promoting the program.
Key Messages: Commitment to protect water quality through on-site daily activities.
Target Audience: Washtenaw County businesses, institutions, multi-complex land owners.
Year/Frequency: On-going.
Goal: Increase in number of participants in program.
Assessment: Number of participants.
Parties Involved: WCWRC. Promoted by permittees in Washtenaw County.

Topics Addressed: A-J

Activity #16: Washtenaw County Pollution Prevention Inspections

Delivery Mechanism: The Pollution Prevention Program is responsible for inspecting facilities that store, manufacture, or use hazardous, toxic, or polluting materials.

Key Messages: Inspectors ensure that facilities utilize and dispose of hazardous materials properly, thereby preventing environmental contamination. This program operates in accordance with the Washtenaw County Pollution Prevention Regulation.

Target Audience: Facilities that store, manufacture or use hazardous, toxic, or polluting materials.

Year/Frequency: On-going. Washtenaw County staff routinely inspects businesses storing 56 gallons or more of hazardous materials. Frequency of inspection depends on the quantity of materials stored and the level of compliance achieved, and varies from once a year to once every four years. However, staff may make site visits as needed to ensure compliance with the P2 Regulation.

Goal: Increase in improvements made as a result of inspection.

Assessment: Number of inspections..

Parties involved: Washtenaw County Environmental Health and Water Resources Commissioner.

Topics Addressed: K

Activity #17: Washtenaw County Issues of the Environment Radio Show

Delivery Mechanism: Weekly radio shows; every Wednesday morning from 8:20-8:30am the Washtenaw County Division of Public Works hosts a special guest speaker on the Issues of the Environment Radio Show on WEMU (89.1 FM).

Key Messages: Varies by show topic, but generally addresses environmental stewardship and related issues. Promotes public awareness of environmental issues, programs and news impacting our community.

Target Audience: Washtenaw County residents and businesses.

Year/Frequency: Ongoing weekly show, frequency of water quality related topics will be quarterly.

Goal: Increase in number of listeners recognizing watershed and taking steps to protect and participating in programs.

Assessment: Number of water quality related program topics covered.

Parties involved: Washtenaw County Environmental Health Division. Promoted by permittees in Washtenaw County.

Topics Addressed: A-K

Activity #18: Washtenaw County Environmental Excellence Awards

Delivery Mechanism: The Environmental Excellence Awards Program recognizes businesses and non-profit organizations in Washtenaw County that practice environmentally sound behavior in the areas of water quality protection, waste reduction and recycling, and pollution prevention. This award is provided once year.

Key Messages: Water quality protection, waste reduction and recycling, and pollution prevention.

Target Audience: Businesses, institutions, multi-complex developments.

Year/Frequency: Annually.

Goal:	Increase in number of applicants/participants and award recipients.
Assessment:	Number of award recipients.
Parties involved:	Washtenaw County Water Resources Commissioner, Environmental Health Division, and Solid Waste Management. Promoted by permittees in Washtenaw County.
Topics Addressed:	A-K

Activity #19: Washtenaw County Fats, Oils, and Grease and Litter Reduction

Delivery Mechanism:	Community Partners for Clean Streams – Handbook Section 9; Fats, Oil and Grease brochure; and FOG presentations. FOG material distribution and presentations are coordinated through the Washtenaw County Environmental Health Department and Water Resources Commissioner's Office.
Key Messages:	Proper disposal of cooking fats, kitchen maintenance practices and recycling best management practices.
Target Audience:	Washtenaw County businesses.
Year/Frequency:	On-going. Materials are available at County offices, distributed by staff, online and at events/presentations. FOG presentations are provided upon request.
Goal:	Decrease the number of actions or corrections needed.
Assessment:	Number of participants and materials distributed.
Parties involved:	Washtenaw County Water Resources Commissioner, Environmental Health Division.
Topics Addressed:	K

Activity #20: Washtenaw County River Safe Homes Program

Delivery Mechanism:	Online and hard copy surveys determine how activities around the home protect water quality. Improvement resources are included. Participants receive a RiverSafe Homes plaque for satisfactorily completing the survey and periodic environmental news via email, website or social media posts.
Key Messages:	Protecting water quality around the home is easy to do and produces significant results.
Target Audience:	Washtenaw County residents. Business, industries.
Year/Frequency:	On-going.
Goal:	Increase number of participants.
Assessment:	Number of participants; results of survey.
Parties Involved:	Washtenaw County Water Resources Commissioner. Promoted by permittees in Washtenaw County.
Topics Addressed:	A-K

Activity #21: Washtenaw County/Ann Arbor Residential Rain Garden Program

Delivery Mechanism:	The City of Ann Arbor and the Washtenaw County Water Resources Commissioner works with several families each year to plan, design and install rain gardens on their properties as funding is available. The WCWRC's website provides extensive information to promote and support "do-it-yourself" rain gardeners.
Key Messages:	Protecting water quality and preventing stormwater runoff through the use of rain gardens with native plants.

Target Audience:	Washtenaw County residents.
Year/Frequency:	Annually.
Goal:	Increase number of participants in program.
Assessment:	Number of participants and number of rain gardens installed and maintained.
Parties Involved:	Washtenaw County Water Resources Commissioner, City of Ann Arbor. Promoted by permittees in Washtenaw County.
Topics Addressed:	A, B, I, J

Activity #22: Washtenaw County Home Toxics Reduction Program

Delivery Mechanism:	Provides the residents of Washtenaw County with a disposal option for flammable, poisonous, toxic and corrosive materials by providing the Washtenaw County Home Toxics Collection Center in Scio Township, along with informational materials for the public that promote the collection center and proper disposal of home toxics.
Key Messages:	The program seeks to address the environmental (including water quality) and public health effects resulting from improper handling and disposal of home toxics, and is committed to reducing the use of home toxics and keeping citizens informed about the choices and responsibilities associated with purchasing, handling and disposing of toxic substances.
Target Audience:	Washtenaw County residents.
Year/Frequency:	On-going.
Goal:	Increase the number of residents using the program to dispose of home toxics.
Assessment:	Promoting/publicizing efforts; web site hits; informational materials distributed; Number of drop offs/quantity of disposal materials.
Party Involved:	Washtenaw County Environmental Health Division and Permittees who promote the Home Toxic Reduction Program. Promoted by permittees in Washtenaw County.
Topics Addressed:	G

Activity #23: Washtenaw County Drug Take-Back Program

Delivery mechanism:	County website, brochure, video, outlining proper disposal of unused prescription drugs and personal care (PDPC) products; network of local pharmacies (currently eight) participating in a drug-take-back program. County funded contractor to provide drug pick up from participating pharmacies, and proper disposal. Brochures are placed at various local pharmacies, doctors' offices, government buildings. (web site : http://www.ewashtenaw.org/government/departments/planning_environment/environmental_issues/medications_disposal/).
Key Messages:	"Don't rush to flush," keep Rx Drugs and personal care products out of our water systems, proper medication disposal.
Target Audience:	Washtenaw County residents.
Year/Frequency:	On-going.
Goal:	Increase the number of residents using the program for disposal of PDPC.
Assessment:	Promotional efforts; Quantity of pharmaceuticals brought into participating pharmacies.
Party Involved:	Washtenaw County Environmental Health and Water Resources Commissioner. Promoted by permittees in Washtenaw County.

Topics Addressed: A, G

VI. EXISTING AND PROPOSED INDIVIDUAL PUBLIC EDUCATION BMPs

Activity #1: Description

Delivery Mechanism: Public Information Materials – SEMCOG tip cards and other materials
Key Messages: Seven Steps to Clean Water, Disposal of Household Cleaners, Earth Friendly Landscaping, Keep Pollution out of Drains, Good Car Care, Clean up after your Pet, Save Water
Target Audience: Residents
Year and Frequency: All year long
Goal: Raise Awareness
Assessment:
Responsible Parties: Township Staff
Topics Addressed: Above

Activity #2: Description

Delivery Mechanism: Public Information Materials – Watershed Tape – on channel 15
Key Messages: Describes the watershed
Target Audience: Residents
Year and Frequency: All year long
Goal: Raise Awareness
Assessment:
Responsible Parties: Township Staff
Topics Addressed: Above

Activity #3: Description

Delivery Mechanism: Public Information Materials – Website links to HRWSC and LCDC
Key Messages: Links to information on the watershed
Target Audience: Residents
Year and Frequency: All year long
Goal: Raise Awareness
Assessment:
Responsible Parties: Township Staff
Topics Addressed: Above

Activity #4: Description

Delivery Mechanism: Public Information Materials – Township Newsletter
Key Messages: Articles regarding watershed topics
Target Audience: Residents
Year and Frequency: All year long
Goal: Raise Awareness
Assessment:
Responsible Parties: Township Staff
Topics Addressed: Above

Activity #5: Description

Delivery Mechanism: See LCDC and SEMCOG's SWPPI's for items conducted on Brighton Township's behalf
Key Messages: Various means regarding watershed topics
Target Audience: Residents
Year and Frequency: All year long
Goal: Raise Awareness
Assessment:
Responsible Parties: LCDC, SEMCOG, and HRWSC
Topics Addressed: Above

VII. OTHER INVOLVED ORGANIZATIONS

In implementing this Public Education Plan, the permittees will pursue cooperative partnerships plus information and resource sharing with several organizations, including but not limited to:

Organization	Program	Contact If Known
Huron-Clinton Metropark Authority and Michigan State Parks	Environmental Education and Interpretive Programs	Dave Moilanen
Huron River Watershed Council	Water Quality Monitoring Program, Facilitation of Collaborative Permittee Activities, Information and Education Campaign	Ric Lawson and Pam Labadie
Livingston County Drain Commissioner	Workshops, Illicit Discharge & Dumping Response System, Educational Literature	Matt Bolang
Livingston County Health Department	Waste Water Management Program, Water Quality Monitoring Program	Matt Bolang
Livingston County Road Commission	Watershed signs	Kim Hiller
Livingston Solid Waste Management	Household Hazardous Waste Collection Site, composting, waste disposal and recycling	Robert Spaulding
MSU Extension – Livingston County	Horticulture & Natural Resources, Watershed Management, Lawn Care and other programs	Gretchen Voyle
MSU Extension -- Washtenaw County	Horticulture & Natural Resources, Watershed Management, Lawn Care and other programs	Bob Bricault
Michigan Department of Environmental Quality	Water Resources Division, Field Operations Section	Christe Alwin (Livingston County) Deb Snell (Washtenaw County)
Michigan Water Environment Association	Water Source Book	Jerry Harte, Executive Director
Southeast Michigan Council of Governments	Workshops, educational events, and public education materials	Amy Mangus

Washtenaw County Environmental Health Department	Water Quality Monitoring Program, Septic systems; Environmental Reporting Hotline	Leon Moore
Washtenaw County Road Commission	Watershed Signs	Steve Puuri
Washtenaw County Solid Waste Program	Household Hazardous Waste Collection, composting, waste disposal and recycling	Dan Moody, Solid Waste Coordinator
Washtenaw County Water Resources Commissioner	Community Partners for Clean Streams, Environmental Reporting Hotline, Educational Literature, River Safe Homes, Rain Garden Program	Evan Pratt

VIII. EVALUATION OF EFFECTIVENESS

Evaluation of the overall effectiveness of the PEP will consist of a combination of both the accumulated measures of the effectiveness of the PEP's individual activities and a measure of the effectiveness of the sum of all the activities through a coordinated survey conducted by the permitted entities.

Evaluation of accumulated measures of the effectiveness of the PEP's individual activities success can be categorized in terms of output (i.e., effort or activity) that measures sort-term goals and milestones. Examples of output measurements include tracking web site hits or the number of literature pieces distributed to a target audience. When practicable, measurements of outcome (i.e., results that indicate actual behavior change) will be incorporated into BMP evaluations. Such measures are expected to include public comment and feedback, level of participation in programs and activities, and tools that measure behavior change. When applicable, these measures will be reasonably coordinated with other communities and organizations.

Permittees will collaboratively administer a broader survey once during the permit cycle in conjunction with Activity #2, the watershed community calendar. The survey's target audience will be residents of the permitted entities. The survey will measure public awareness of stormwater pollution and possible solutions, environmental attitudes, capacity, constraints, behaviors and, when appropriate, effectiveness of specific public education activities. The survey will primarily be conducted over the web with respondents recruited by mail and e-mail, through advertising, direct in-person contact and/or social media. Results will serve to provide a basis for evaluating PEP activities going forward, and will provide an opportunity to benchmark social indicators for subsequent permit cycles. Questions will be designed to reasonably compare with previous survey efforts.

IX. PERIODIC PROGRESS REPORT

Permittees will provide documentation of PEP efforts, a summary of the evaluation of its effectiveness when appropriate, and any proposed revisions or amendments to the PEP program in the periodic stormwater reports to the MDEQ. Reporting on PEP efforts will reflect data gathered on a calendar year basis.

Livingston County Drain Commissioner
Brian Jonckheere

Illicit Discharge Elimination Plan (IDEP)

MDEQ General Permit MIG610202

April 1, 2013

Table of Contents

Objectives

Illicit Discharge Elimination Plan (IDEP) Objectives

The purpose of the IDEP is to develop a program to prohibit and effectively eliminate illicit discharges and connections to storm water conveyances under the jurisdiction of the Livingston County Drain Commissioner (LCDC). The federal law defines "illicit discharge" and "illicit connection" as follows:

> Illicit discharge – Any discharge to, or seepage into, an MS4 that is not composed entirely of stormwater or uncontaminated groundwater except discharges pursuant to an NPDES permit.
>
> Illicit connection – A physical connection to an MS4 that primarily conveys non-stormwater discharges other than uncontaminated groundwater into the MS4; or a physical connection not authorized or permitted by the local authority, where a local authority requires authorization or a permit for physical connections.

The LCDC and Livingston County

The Drain Commissioner maintains approximately 400 drains in Livingston County. The drainage in the County is mainly to the Huron River, Shiawassee River and Red Cedar River watersheds with a small portion in the northwest corner of the County going to the Looking Glass River. Figure 1 is a map of Livingston County showing the county drains, waterbodies, watershed boundaries, community boundaries and major roads. The office of the Drain Commissioner provides a variety of services in the County, including: stormwater drainage services, wastewater treatment operations, soil erosion and sedimentation control permitting, public works, rain gauge networking, lake level operations, lake improvements and environmental and watershed initiatives.

Approximately 80% of Livingston County residents utilize private household wells for their drinking water and about 70% of the County's residents utilize private septic systems, on-site disposal systems (OSDS), for disposal and treatment of their wastewater. The majority of the land use in the County is agricultural although there is considerable residential and commercial use along the I-96 and US-23 roadway corridors.

The stormwater conveyance system under the jurisdiction of the LCDC is intertwined with storm water systems under the ownership and/or jurisdiction of several different entities, including, the Michigan Department of Transportation (MDOT), the LCRC, local municipalities, private entities, and school districts.

Planned Efforts

The following subsections summarize the required elements of the IDEP portion of the 2013 permit application for the reissuance of the MDEQ General Stormwater Permit (MIG610202) and the LCDC's plans for addressing each requirement (application items 7-27).

Storm Sewer System Map

Storm sewer maps are available in an ArcGIS format at the LCDC offices. The maps include location and construction information related to conveyances, outfalls, points of discharge, and structural controls.

LCDC will continue to field verify the storm conveyance system and outfalls that are owned and/or operated by the LCDC, and make any corrections to as warranted. This verification may be completed during the dry weather inspections, follow-up inspections, or as a separate field reconnaissance. The drainage system map and outfall table will be updated based on the field observations and GIS aerial data as needed.

The LCDC will add any new outfalls, due to new construction or redevelopment that discharges to the LCDC MS4. The procedure will involve identifying new outfalls and receiving waters through construction approval process, adding the outfalls to the existing drainage system map, and performing an initial dry weather inspection of the outfall. New drainage systems are required to submit digital as-built data, which will depict new outfall locations and be integrated in the LCDC GIS system. The maps will be updated within 30 days from the completion of the construction project.

Illicit Discharge Identification and Investigation

LCDC will perform illicit discharge and identification activities throughout the entire MS4. LCDC's MS4 is defined as the stormwater system that is owned or operated by LCDC and located in the area within the urbanized area map, based on the 2000 census that falls within Livingston County's municipal boundary. Open county drains are not considered part of the MS4 by definition in this permit; they are considered "waters of the state".

LCDC will inspect each outfall and discharge point at least once during this 5 year permit cycle. Documentation of inspection activities will be managed through LCDC's internal tracking software, and result compared to inspection previously recorded under permits issued (and withdrawn) in past cycles.

Field Screening Procedure

Visual inspections will be conducted of each of the LCDC's known outfalls during dry weather. Dry weather inspections are defined as those conducted when no rain/precipitation event has occurred for a minimum of 48 hours. If flow is observed in the sewer at that time, it will be determined if the flow is natural base flow or due to a potential illicit discharge(s).

In instances where the outfall is submerged, the outfall is connected to another enclosed sewer, or is otherwise inaccessible, the LCDC will visually inspect the nearest upstream accessible location.

For the purposes of this plan, "outfall" and "point source" are defined as the point at which a storm water conveyance under the jurisdiction of one entity discharges into "waters of the state", upland, or into a conveyance or property under the jurisdiction of another entity. During visual observations or sampling, in instances where the storm water outfall is submerged, the outfall is connected to another enclosed conveyance or otherwise inaccessible, the LCDC will inspect the nearest upstream manhole or access point.

Sampling – Investigation of dry weather discharges will be prioritized based on the number of discharges identified, as well as other factors including: location, volume of flow, and suspected contaminants based on color, turbidity, or odor. If flow is observed during the dry weather outfall inspections but visual observations do not lead to a source, the LCDC may decide to sample the flow for pollutant parameters typically found in illicit connections. Sampling can rule out some dry weather discharges such as groundwater. The sampling will typically begin at the outfall and continue upstream from access site to access site until a source is found. The choice of sampling parameters will depend on several factors including:

- Location of the storm outfall (i.e. in residential or commercial area);
- Turbidity and color of discharge which could distinguish between an illicit discharge from a commercial establishment versus a residence;
- Odor associated with discharge such as petroleum odor, or raw sewage odor.

The LCDC may choose to analyze the samples for some or all of the following parameters:

Parameters	Found In	Potential Source(s)
Escherichia coli	Sewage	**Human or Animal Waste**
Surfactants	Soap, Emulsifiers	**Industrial/Commercial/ Residential**
Ammonia	Sewage, Fertilizers, Industrial Chemicals	**Industrial/Residential/ Agricultural**
Nitrates	Sewage, Fertilizers, Industrial Chemicals	**Fertilizers/ Industrial/ Residential/Agricultural**
Nitrites	Sewage, Fertilizers, Industrial Chemicals	**Fertilizers/ Industrial/ Residential/Agricultural**
Conductivity	Industrial Waste, Sewage, Salt	**Industrial/ Residential/ Agricultural**

Parameters	Found In	Potential Source(s)
Total Dissolved Solids	Industrial Waste, Sewage, Salt	**Industrial/Residential/ Agricultural**
Temperature	Cooling Water, Sewage	**Industrial/ Residential**
pH	Acids and Bases	**Industrial/ Residential**

The LCDC may elect to conduct wet weather observations of some outfalls to determine if runoff from certain areas is contaminated. For instance, oil sheen at the outfall may indicate illicit disposal of oils or grease upstream in the service area. All outfall inspections will be documented. See attached field data collection sheet used during inspections.

Source Identification Procedure

LCDC staff will trace suspected illicit discharges to their source using the techniques described below and notify the owner or responsible jurisdiction of the problem in writing. The techniques below are also used in instances where field-screening activities noted above, were unsuccessful in determining the source of the discharge.

If the illicit is a direct discharge to a County Drain then the LCDC will direct the owner of the source to eliminate the illicit connection/discharge within a specified timeframe and require a notification of correction. The goal of the plan is to have most illicit connections/discharges under LCDC jurisdiction eliminated within 6 months of notification. Illicit connections/discharges that are more complex may take considerably longer than 6 months to eliminate.

If the illicit is discharging to another jurisdiction's storm water conveyance and reaches a LCDC conveyance indirectly, then the LCDC will request the owner of the system to provide updates on their investigation and inform the LCDC when the connection has been eliminated. The timeframe for eliminating the connection/discharge will depend on the type and significance of the illicit connection/discharge, and the expense and difficulty in repair.

Tracing techniques – All storm outfalls that are discharging during dry-weather will be investigated further. The LCDC may be able to determine the source of a dry-weather discharge solely through visual observation. Odor, color, turbidity, bacteria growth, quantity of flow, etc., may provide clues to the source of the discharge without additional sampling. As needed, sampling, dye and/or smoke testing, as-built plan review, or other investigative techniques will be used to determine the nature and source of the flow.

1. Televising – Where pipe conditions allow, LCDC may elect to televise those enclosed storm sewers that have suspicious flows to identify pollutant sources that cannot be located through simple visual observation and/or sampling. For example, the LCDC may determine through visual observation and/or sampling that an illicit connection exists between two specific manholes. Video inspection of the stretch of storm sewer between these two manholes could be used to isolate the exact source of the connection/discharge.

2. As-built plan review – Where available, the LCDC will utilize as-built pipe schematic drawings as a tool to determine the source of an illicit connection/discharge.
3. Dye or smoke testing – The LCDC will conduct physical inspection of commercial and/or residential facilities as needed to verify suspected illicit connections that are detected through visual observations/sampling of yards, outfalls and manholes. As necessary, facility inspections will include dye or smoke testing of suspect facility plumbing fixtures to determine if the fixture discharges to the sanitary system or to the storm sewer. All facility inspections will be documented.

Illegal Dumping/Spills Response Procedure

When LCDC is notified of an illegal dumping or spill event, response activities will warrant immediate documentation and site investigation, as appropriate. A complaint will be initiated within the tracking software at LCDC. If the spill or dumping has occurred within or discharging to a LCDC owned stormwater system, immediate field verification is warranted. If the spill or dumping has occurred within another jurisdiction and does not affect the LCDC stormwater system, LCDC will direct the complaint to MDEQ, the local municipality, fire authority, and/or the Livingston County Department of Public Health, as appropriate.

If the spill or dumping has occurred within LCDC's system, an immediate investigation will ensue. If the spill or dumping is of a minor nature (within original containers, or small quantity material spill that is easily identified), LCDC will property remove and/or remediate the material and either dispose of or collect to be manifested and shipped through a licensed environmental contractor. If the spill is of a more serious nature, LCDC will contact the local fire department and law enforcement to assist in protecting any immediate discharge to the stormwater system. If the spill or dumping response activity is beyond the scope of the Livingston County HAZMAT Team, then an outside contractor will be contacted to perform the cleanup activities. LCDC will also contact the MDEQ PEAS hotline to report the event. In some cases, MDEQ has funds to assist with the removal and remediation of orphan barrels for these types of events.

If a responsible party can be identified, LCDC, with the assistance of local law enforcement and county legal council, will pursue enforcement action against the party. These actions must fall within the constraints of The Michigan Drain Code, Act 40 of 1956 as amended (refer to MCL 280.423(3), attached).

Reporting procedure if polluting materials discharge from MS4 to Waters of the State

The LCDC will report the release of polluting materials from the MS4 to "waters of the state" (defined as having a water quality impact), including those of untreated or partially treated sewage, to the MDEQ immediately as appropriate, but within 24 hours after the discharge begins or is discovered and/or corrective actions being taken to eliminate the connection/discharge. If during normal business hours LCDC will contact the appropriate staff person at the MDEQ Lansing District Office, if after hours, LCDC will call the MDEQ PEAS Hotline (800-292-4706).

Corrective Actions of identified illicit discharges

The LCDC will follow up with the owner of the source of an illicit discharge that is going directly to an LCDC drain to ensure that the connection/discharge has been eliminated. If the illicit discharge has not been eliminated, the LCDC will use its legal authority to obtain compliance. If the illicit discharge is an indirect source the LCDC will coordinate follow-up and enforcement with the jurisdiction in which the discharge originates.

Section 423 of the Michigan Drain Code (Act 40 of 1956, as amended, see attached) provides regulatory authority and enforcement related to unauthorized discharges. In certain instances, use of the enforcement mechanisms in Section 423 requires action from MDEQ directing us to proceed with necessary corrections/improvements.

Staff Training

The LCDC will provide training on illicit connections and discharges and the IDEP to appropriate LCDC and other County agency staff. The LCDC will meet with the local communities and the LCRC to attempt to coordinate IDEP training in the County as an individual or coordinated effort. At a minimum, current staff will attend at least one training related to IDEP during the permit cycle. New staff will attend IDEP training with the first year of employment.

LCDC field staff will be trained to identify and investigate illicit discharges by the LCDC Stormwater Manager. These trainings will be specific to procedures developed by LCDC herein. Additional training activities and workshops have already been established by SEMCOG and rotate throughout southeast Michigan every year. These training sessions are very comprehensive and cover many of the elements related to IDEP.

Evaluating the effectiveness of IDEP

The LCDC will evaluate the IDEP program on a yearly basis to determine progress made towards meeting the objectives described above and to make changes in objectives as warranted. Measures of effectiveness include; number of illicit connection found, number of illicit connection corrected, baseline water quality monitoring results (physical, chemical, and biological measures), and comparative water quality studies. Based on the evaluation, the LCDC will prepare an annual summary report for the MDEQ of activities completed and proposed revisions.

Illicit Discharge Ordinance/Regulatory Mechanism

Livingston County Soil Erosion Ordinance details LCDC's authority in matters related to the release of soil from properties in Livingston County. A detailed enforcement mechanism is also in place.

More broadly, LCDC derives authority through the Drain Code. Section 423 of the Michigan Drain Code (Act 40 of 1956, as amended) provides regulatory authority and enforcement related to unauthorized discharges.

This IDEP document has been created as an internal procedure to assist LCDC in investigating and correcting illicit discharges to the county drain system. In some cases, there are discharges to the drainage system that are not defined as stormwater. In these cases, the discharges may be benign in nature, or infrequent and a matter of public safety. Given that, the following discharges are exempt from this document and the regulations of LCDC, unless they are determined to been the cause of a significant source of pollutants:

1. Firefighting activities
2. Municipal water line flushing
3. Landscape irrigation runoff
4. Diverted stream flows
5. Uncontaminated groundwater
6. Foundation drains
7. Air conditioning condensation
8. Water from non-commercial car washing
9. Street wash water
10. Dechlorinated residential swimming pool water
11. Discharges authorized through a NPDES permit from MDEQ

Future Efforts

Investigate the feasibility of coordinating the drainage system and outfall inspection efforts of the other agencies and the local communities in the County.

LCDC has entered into a Memorandum of Understanding with the LCRC and the City of Howell in areas where the MS4s cross jurisdictional boundaries. (See attachments) This effort will help to eliminate duplication of effort for outfall inspections.

The LCDC will meet with local communities and other MS4 permittees, to attempt to coordinate drain and outfall inspections in an effort to eliminate duplication, reduce costs and provide consistency. LCDC may consider a county-wide IDEP training session for municipal staff.

Investigate the feasibility/benefit of conducting baseline and follow-up water quality monitoring

LCDC has been engaged in baseline water quality monitoring with the Huron River Watershed Council under the previous permit cycles. This monitoring was partially funded through a grant from MDEQ administered by LCDC. The emphasis of this monitoring was to identify potential sources of phosphorus that could be impacting two listed TMDLs in the county (Brighton and Strawberry Lakes).

The LCDC may investigate the feasibility and benefit of conducting baseline and periodic follow-up water quality monitoring in select drains, water bodies, and other watershed in the County. Some of the monitoring may help to substantiate the need for improved drain maintenance activities, including habitat restoration. In the urbanized area, the monitoring may also provide a measure of the effectiveness of the IDEP.

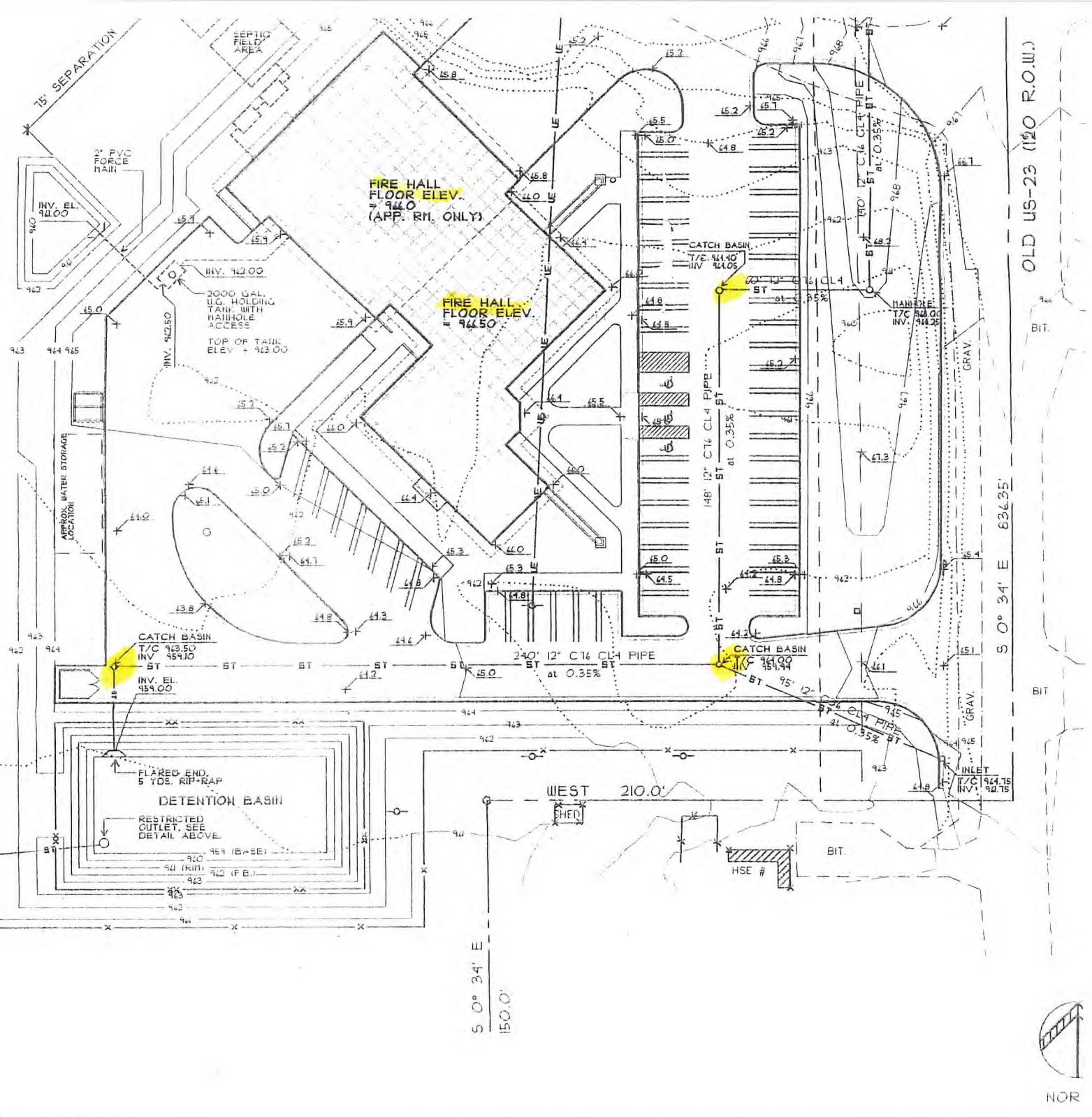
QUESTIONS 7; 60-62; 72; 79

BRIGHTON TOWNSHIP FIRE HALL

N

0 0.0176.035 0.07 0.105 0.14
Miles

Charter Township of Brighton

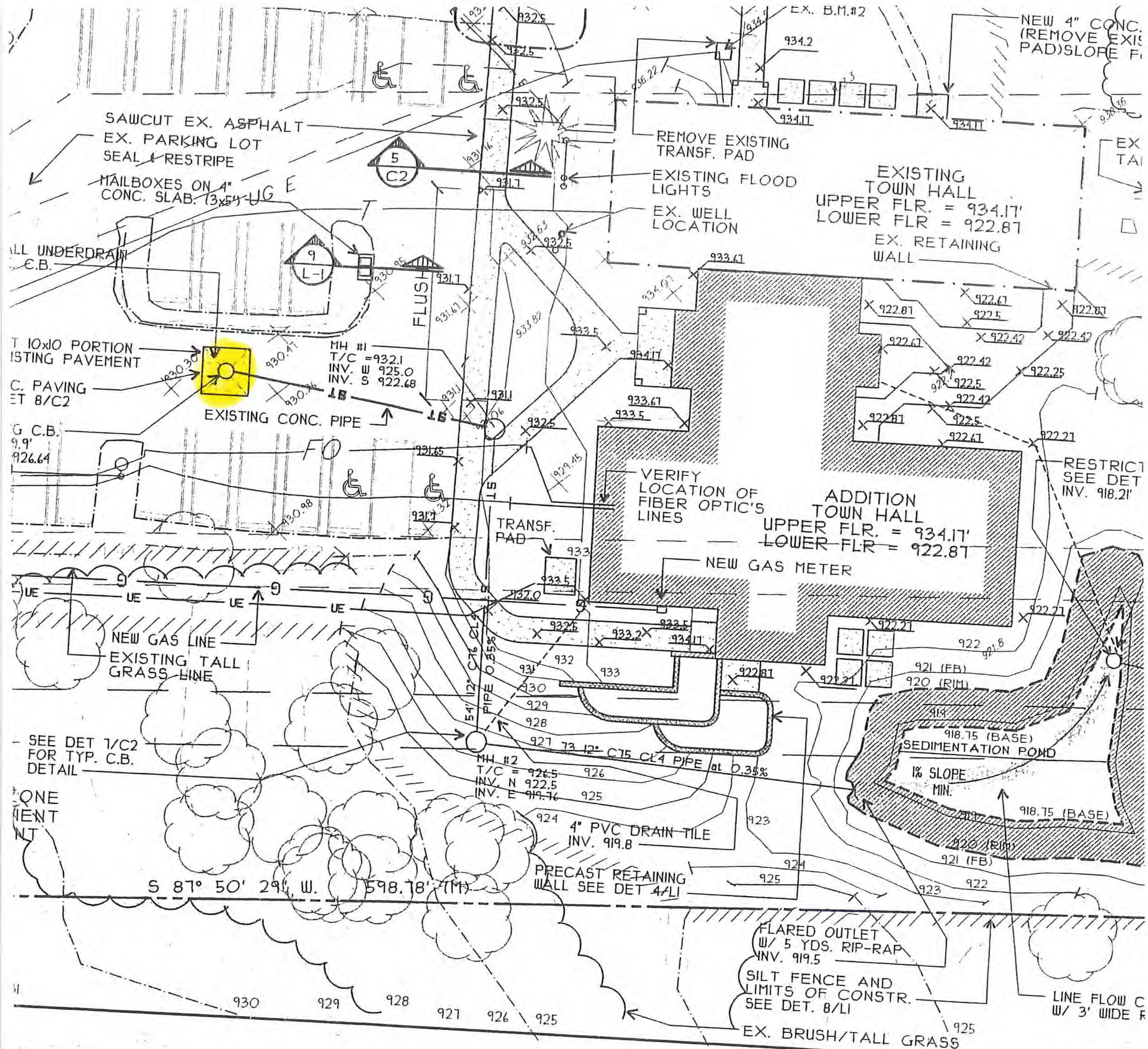

75' SEPARATION
SEPTIC FIELD AREA
2" PVC FORCE MAIN
INV. EL. 941.00
INV. 942.00
2000 GAL. U.G. HOLDING TANK WITH MANHOLE ACCESS
TOP OF TANK ELEV. = 943.00
INV. 942.50
APPROX. WATER STORAGE LOCATION
FIRE HALL FLOOR ELEV. = 944.0 (APP. RM. ONLY)
FIRE HALL FLOOR ELEV. = 944.50
CATCH BASIN T/C 941.10 INV 941.05
148' 12" C76 CL4 PIPE at 0.35%
MANHOLE T/C 938.00 INV. 933.35
OLD US-23 (120 R.O.W.)
S 0° 34' E 836.35'
BIT.
GRAV.
CATCH BASIN T/C 943.50 INV 939.10
INV. EL. 939.00
240' 12" C76 CL4 PIPE at 0.35%
CATCH BASIN T/C 941.00 INV 937.44
95' 12" C76 CL4 PIPE at 0.35%
INLET T/C 939.75 INV. 937.75
FLARED END 5 YDS. RIP-RAP
DETENTION BASIN
RESTRICTED OUTLET, SEE DETAIL ABOVE.
939 (BASE)
941 (RIM)
942 (F.B.)
WEST 210.0'
SHED
HSE #
S 0° 34' E 150.0'
NOR

BRIGHTON TOWNSHIP HALL

N

0 0.015 0.03 0.06 0.09 0.12 Miles

Charter Township of Brighton


EX. B.M.#2
NEW 4" CONC. (REMOVE EXIS PAD)SLOPE F
SAWCUT EX. ASPHALT
EX. PARKING LOT SEAL & RESTRIPE
MAILBOXES ON 4" CONC. SLAB. (3x5')
REMOVE EXISTING TRANSF. PAD
EXISTING FLOOD LIGHTS
EX. WELL LOCATION
EXISTING TOWN HALL
UPPER FLR. = 934.17'
LOWER FLR = 922.87
EX. RETAINING WALL
FLUSH
T 10x10 PORTION ISTING PAVEMENT
C. PAVING ET 8/C2
MH #1
T/C =932.1
INV. W 925.0
INV. S 922.68
EXISTING CONC. PIPE
G C.B.
VERIFY LOCATION OF FIBER OPTIC'S LINES
ADDITION TOWN HALL
UPPER FLR. = 934.17'
LOWER FLR = 922.87
RESTRICT SEE DET INV. 918.21'
TRANSF. PAD
NEW GAS METER
NEW GAS LINE
EXISTING TALL GRASS LINE
SEE DET 1/C2 FOR TYP. C.B. DETAIL
54' 12" C76 CL4 PIPE 0.35%
MH #2
T/C = 926.5
INV. N 922.5
INV. E 919.76
73 12" C75 CL4 PIPE at 0.35%
4" PVC DRAIN TILE INV. 919.8
SEDIMENTATION POND
1% SLOPE MIN.
918.75 (BASE)
921 (FB)
920 (RIM)
PRECAST RETAINING WALL SEE DET 4/L1
S 87° 50' 29" W. 598.78' (M)
FLARED OUTLET W/ 5 YDS. RIP-RAP INV. 919.5
SILT FENCE AND LIMITS OF CONSTR. SEE DET. 8/L1
LINE FLOW C W/ 3' WIDE R
EX. BRUSH/TALL GRASS

ARTICLE 18
SITE REVIEW

Sec. 18-01 Intent

The review procedures and standards set forth herein provide a consistent and uniform method for review of proposed projects, development plans, activities, and use changes, and to ensure full compliance with the requirements and standards contained in this Ordinance, other applicable local Ordinances, standard engineering practices, and state and Federal laws. The procedures set forth herein are further intended to:

(a) Achieve efficient use of the land.

(b) Protect natural resources.

(c) Minimize adverse impacts on adjoining or nearby properties.

(d) Provide a mechanism for review of activities.

(e) Encourage cooperation and consultation between the Township and the applicant to facilitate activities in accordance with the Township's land use objectives.

(f) Protect the private property rights of Township residents through timely, consistent and fair administration of the Township's site review processes.

(Ord. #234, 12/28/06)

Sec. 18-02 Uses Subject to Review

Table 18-02 sets forth the four (4) distinct review processes appropriate for a range of situations, activities and uses. Table 18-02 graphically illustrates the relevant review process for each particular activity for which the Township requires review. For situations and uses requiring a site plan or sketch plan, associated permits shall not be issued until the requisite plan is approved in accordance with the procedures and standards set forth herein and all necessary review, inspection, and permit fees have been fully paid. The following

descriptions (a-d) of the review processes are informational and illustrative; they do not supplement or supersede the review procedures and requirements set forth in this Ordinance.

(a) **Full Site Plan.** The most involved process for large and complex projects, including most new developments and major expansions.

(b) **Sketch Plan.** Small scale projects and expansions or changes in use are permitted to provide less detailed information than a full site plan review. The level of information is intended to be proportionate to the extent of the change and yet insure adequate review for compliance with applicable standards. Sketch plans shall still undergo a formal review by the Planning Commission.

(c) **Administrative Review.** Select small scale projects and expansions or changes in use to sites are required to provide a plan that describes the proposed activity, and do not require review by the Planning Commission; but instead shall undergo a formal review for approval by the Township Planner.

(d) **Exempt.** Select projects and activities are exempt from site review given their relatively low level of impact on adjacent land uses, and given that compliance with applicable zoning regulations can be addressed during the building permit review process.

Table 18-02
Required Review Processes

Activity/Situation/Use	Required Review			
	Full Site Plan	Sketch Plan[1]	Admin. Review[2]	Exempt[3]
New Development				
Construction of 1 Single Family Dwelling Unit on 1 Lot in a Residential Zoning District				X
Multiple Family Dwellings	X			
Construction of any Nonresidential Use or Building	X			
Establishment of Special Land Uses in all Zoning Districts, Except Where Specifically Noted Elsewhere in this Table	X			
Erection of Cellular Phone Towers & other Communication Towers	X			
Construction of Essential Public Service Buildings & Storage Areas	X			
Golf Courses & Public/Private Parks		X[4]		
Minor Changes During Construction such as Changes in Landscape Species to a Similar Variety, Realignment of a Driveway or Road Due to an Unanticipated & Documented Constraint During Construction, or to Improve Safety or Protect Natural Features			X	
Minor Changes During Construction Required by Outside Agencies			X	
Expansions				
Expansion of 1 Single Family Dwelling Unit on 1 Lot in a Residential Zoning District				X

Table 18-02
Required Review Processes

Activity/Situation/Use	Required Review			
	Full Site Plan	Sketch Plan[1]	Admin. Review[2]	Exempt[3]
An Increase in the Floor Area up to 25% of the Existing Floor Area for a Use Requiring Site Plan Approval		X		
An Increase in the Floor Area Greater than that Specified Above	X			
An Increase in Parking or Loading Area of up to 25% or 6,000 sq. ft. of Pavement Area without any Building Changes			X[5]	
An Increase in Parking or Loading Area over 25% or 6,000 sq. ft. of Pavement Area without any Building Changes		X[5]		
Changes to Building Height that do not Add Additional Floor Area			X	
Changes in Use[6]				
Any Change in the Use of Land or a Building to a More Intensive Use, in Terms of Parking Needs, Noise, Traffic Volumes, & Similar Impacts		X		
A Change in Use to a Similar or Less Intense Use Provided the Site shall Not Require any Significant Changes in the Existing Site Facilities such as Parking, Landscaping, Lighting, or Signs			X	
Improvements to Outdoor Recreational Uses & Parks that are Permitted Uses			X	
A Change from a Nonconforming Use, Building or Site, to a More Conforming Situation		X		
Other Types of Projects				
Accessory Open Air Businesses		X		
Accessory Buildings & Structures Constructed or Erected Accessory to a Permitted Single Family Dwelling Unit; & those up to 100 sq. ft. in Area in other Districts				X[4]
Accessory Buildings & Structures Greater than 100 sq. ft associated with a Non-Single Family Residential Use in any Zoning District			X	
Architectural Changes to a Non-Single Family Residential Structure (an Elevation Plan Describing Changes & Construction Materials is Required)			X	
Bikepath, Pathway or Sidewalk Construction or Relocation			X[5]	
Construction of an Entrance Feature Associated with a Non-Single Family Residential Use (Walls, Landscaping, etc.)		X		
Fences Associated with a Non-Single Family Residential Use, Installed or Improved			X[5]	
Grading, Excavation, Filling, Soil Removal, Creation of Basins unless such activity is normally & customarily incidental to Single Family Uses on the Site.			X[5]	
Clearing 5 or more trees if the total number of trees cleared is more than twenty-five percent (25%) of the trees measuring six (6) inch caliper or larger on a Site within a twelve month period.			X[7]	
Home Occupations		X		
Internal Construction or Change in the Floor Plan that Does not Increase Gross Floor Area, Increase the Intensity of Use or Affect Parking Requirements on a Site which Meets all Site Design Standards of this Ordinance				X
Landscape Changes to Similar Species & that are Consistent with the Standards of this Ordinance			X	
Modifications to Upgrade a Non-Single Family Residential Building to Improve Barrier-Free Design, or to Comply with the Americans with			X	

Table 18-02
Required Review Processes

Activity/Situation/Use	Required Review			
	Full Site Plan	Sketch Plan[1]	Admin. Review[2]	Exempt[3]
Disabilities Act or Other Federal, State or County Regulations				
Parking Lot Improvements Provided the Total Number of Spaces shall Remain Constant			X[5]	
Private Roads	X			
Residential Care Facilities Licensed by the State that Require Special Land Use Approval		X		
Sign Relocation or Replacement Provided it Meets the Dimensional & Location Standards of this Ordinance			X	
Site Improvements such as Installation of Walls, Fences, Lighting or Curbing Consistent with Ordinance Standards			X	
Temporary Uses, Sales & Seasonal Events		X		
Utility System Improvements				X[5]
Waste Receptacle Relocation to a More Inconspicuous Location or Installation of Screening around the Waste Receptacle			X	
Other projects not specifically listed in this Table			X	

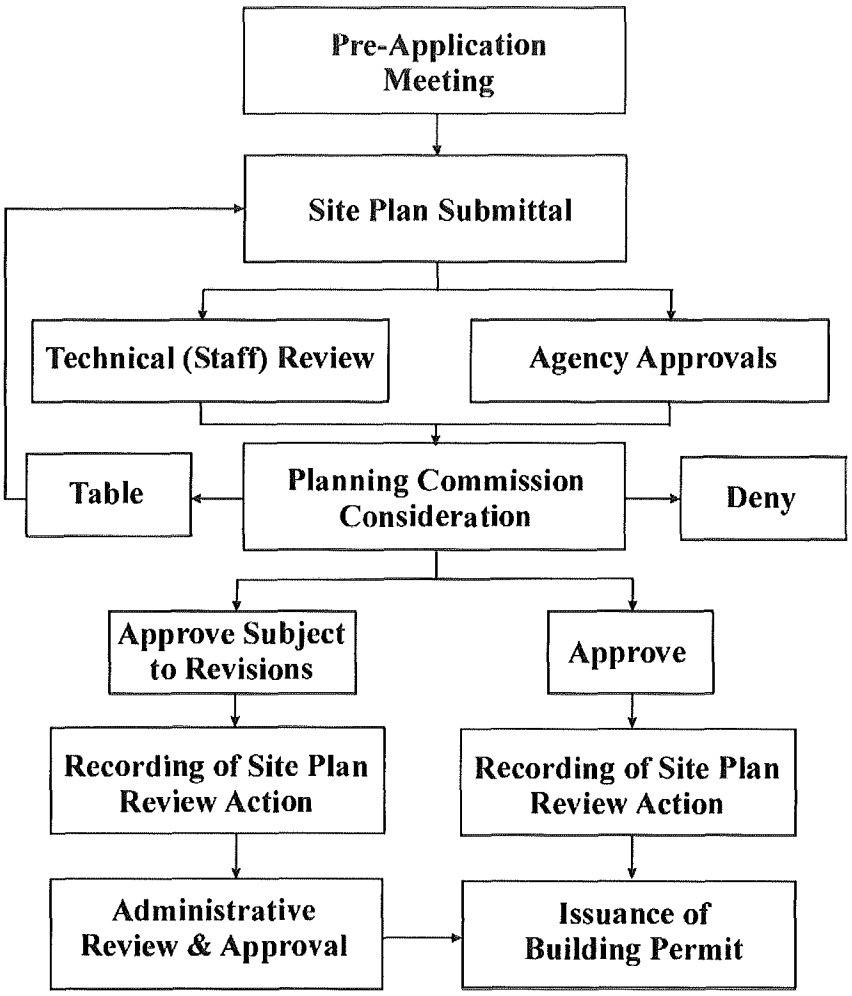
Footnotes:
1 Requires review & approval by the Planning Commission (see ***Section 18-04***)
2 If the modifications are not deemed minor, then normal site plan review by the Planning Commission shall be required. Planning Commission review shall be required for all site plans that involve a request for a variance, or special land use
3 A building permit is still required
4 For a golf course, a general layout of holes, ball trajectory & natural features is required; full site plan review is required for buildings, structures & parking areas that illustrate the area around such facilities
5 Construction plans must be approved by the township engineer
6 The new use must be fully described & all applicable utility fees paid
7 No administrative review fee

(Ord. #243, 8/1/08), (Ord. #234, 12/28/06)

Sec. 18-03 Site Plan and Sketch Plan Review Procedures and Requirements

Except as otherwise set forth in ***Section 18-04***, site plans and sketch plans must be submitted in accordance with the following procedures and requirements:

(a) **Applicant Attendance.** The application shall be submitted by the owner of an interest in the land for which site plan approval is sought, or the designated agent of the owner. The applicant or a designated representative must be present at all scheduled review meetings or consideration of the plan shall be tabled without consideration of the site plan due to lack of representation. The representative must be the property owner or someone designated in writing by the property owner as the authorized representative. The Township Planner may recommend to the Planning Commission that the applicant's



architect or engineer be required to be present at the meeting in order to address technical matters related to the application.

(b) **Pre-Application Meeting.** The applicant may be required to schedule a meeting with the Township Planner to discuss the project, submittal requirements, and review procedures. The purpose of this meeting is to discuss applicable requirements and technical issues, and to determine the appropriate type of review process based on Table 18-02. Sufficient information shall be submitted prior to the meeting that describes the proposed project. Discussion at this meeting is in no way a formal approval or decision on any aspect of a proposed project.

(c) **Site Plan Submittal.** The applicant shall submit copies as outlined in the various submittal applications to the Township Planner. Plans will not be accepted unless all materials are submitted.

(1) Complete application form supplied by the Township.

(2) Written description of the proposed project or use.

(3) Documentation that the applicant has submitted one (1) copy of the application plus two (2) copies of the site plan to the Livingston County Drain Commissioner, the Livingston County Health Department, and all applicable public utility companies.

(4) A complete site plan or sketch plan that includes the information listed in ***Section 18-05***.

(5) Any additional information the Planning Commission finds necessary to make the determinations required herein.

(d) **Technical (Staff) Reviews.** The Township Planner shall forward the application and site plan(s) to the Township Engineer and Fire Department for review and comment.

(e) **Agency Approvals.** The applicant shall be required to obtain all other necessary agency permits from the Livingston County Drain Commissioner, Livingston County Road Commission, the Livingston County Health Department, and all applicable utility companies. Copies of applications and approvals from all applicable outside agencies shall accompany submission of the final site plan.

(f) **Planning Commission Consideration.** Following technical review and comment, and compliance with administrative procedures, the site plan shall be placed on the agenda of the Planning Commission. The Planning Commission shall review the application for site plan review, together with the reports and recommendations from the Township Planner, Township Engineer, Fire Department and other reviewing agencies, as appropriate. The Planning Commission shall then make a determination based on the requirements and standards of this Ordinance. The Planning Commission is authorized to table, grant approval, grant approval subject to conditions, or denial as follows:

(1) **Table.** The application may be tabled if it is determined to be incomplete, the applicant has not fully responded to deficiencies identified in the

technical review, a variance is needed from the Zoning Board of Appeals, or revisions are necessary to bring the site plan into compliance with applicable standards and requirements. The Planning Commission shall direct the applicant to prepare additional information, revise the site plan, or direct the Township staff to conduct additional analysis. The applicant shall be required to prepare revised plans accompanied by a complete list of all changes, signed by the applicant's design professional.

(2) **Approval.** Upon determination that a site plan is in compliance with the standards and requirements of this Ordinance and other applicable Ordinances and laws, approval shall be granted subject to the applicant providing copies of all required outside agency approvals.

(3) **Approval Subject to Revisions.** Upon determination that a site plan is in compliance except for minor revisions, said revisions shall be identified and the applicant shall correct the site plan prior to applying for a building permit. The applicant shall resubmit the site plan, accompanied by a complete list of all changes, signed by the applicant's design professional, to the Township Planner for final approval after the revisions have been completed. The Township Planner shall review and approve the resubmitted plan if all required revisions have been addressed and copies of any permits required by outside agencies have been provided. The Planning Commission may approve subject to the submission of all applicable County permits.

(4) **Denial.** Upon determination that a site plan does not comply with standards and requirements set forth in this Ordinance site plan approval shall be denied. Any resubmittal shall be considered a new site plan and be required to reinitiate the full site plan review process. Any person aggrieved by the decision of the Planning Commission in denial of a site plan shall have the right to appeal the decision to the Zoning Board of Appeals.

(g) **Recording of Site Plan Review Action.** Each action taken with reference to a site plan review shall be duly recorded in the minutes of the Planning Commission's meeting. The grounds for action taken upon each site plan shall also be recorded in the minutes. After action has been taken, one (1) copy of the application and site plan(s) shall be transmitted to each of the applicant,

along with a written transmittal of the grounds of action and any conditions of approval.

(h) **Completion of Site Design**

(1) Following final approval of the site plan or sketch plan and final approval of the engineering plans by the Township Engineer, a building permit may be obtained. It shall be the responsibility of the applicant to obtain all other applicable Township, County, or State permits prior to issuance of a building permit.

(2) If construction has not commenced within one (1) year of site plan approval, approval becomes null and void and a new application for site plan review shall be required. The applicant may request a one (1) year extension by the Planning Commission, provided a written request is received before the expiration date and the site plan complies with current requirements (i.e. any amendments to the Zoning Ordinance since the site plan was approved).

(Ord. #234, 12/28/06), (Ord. #231, 12/27/05)

Sec. 18-04 Administrative Review Procedures and Requirements

For activities, uses and projects requiring administrative review, as identified in Table 18-02, the following procedures and requirements apply:

(a) **Submittal Requirements.** Copies of the plan as outlined in the application package that contains the information listed in ***Section 18-05*** shall be submitted to the Township Planner. The Township Planner may waive some of the submittal requirements if the information is not relevant or necessary to ensure review of and compliance with the applicable zoning requirements.

(b) **Review by Township Planner.** The Township Planner shall confine his/her review to the proposed alterations only, rather than review of the entire use, building or layout. If the Township Planner determines that the proposed alterations do not comply with one or more provisions of this Ordinance, the Township Planner shall disapprove them in writing, and shall cite the section(s) of the Ordinance that would be violated by the alteration. The

Township Planner shall otherwise either approve the plan or approve the plan with a condition that certain revisions be made, if such revisions are necessary to achieve compliance with a provision or provisions of this Ordinance that have been identified, in writing, by the Township Planner.

(c) **Planning Commission Review.** The Township Planner and the applicant have the option to request sketch plan review by the Planning Commission. Each such request must be accompanied by a short narrative statement describing the circumstances that prevent the Township Planner from approving or disapproving the sketch plan, or that justify the referral of the sketch plan to the Planning Commission.

(d) **Issuance of Building Permit.** A building permit shall be issued following review and approval of any construction plans by the Township Engineer, as appropriate.

(Ord. #234, 12/28/06), (Ord. #231, 12/27/05)

Sec. 18-05 Submittal Requirements

The following data shall be included with and as part of the site plan(s) or sketch plan(s) submitted for review:

Table 18-05
Site Plan and Sketch Plan Submittal Requirements[1]

Plan Data	Required for: Site Plan	Required for: Sketch Plan
Application Form		
Name & Address of the Applicant & Property Owner	X	X
Address & Common Description of Property & Complete Legal Description	X	X
Dimensions of Land & Total Acreage	X	X
Zoning on the Site & All Adjacent Properties	X	X
Description of Proposed Project or Use, Type of Building or Structures, & Name of Proposed Development, if Applicable	X	X
Name & Address of Firm or Individual Who Prepared Site Plan	X	X
Proof of Property Ownership	X	X
Site Plan Descriptive & Identification Data		
Site Plans Shall Consist of an Overall Plan for the Entire Development, Drawn to an Engineer's Scale of not Less than 1 in. = 50 ft. for Property Less than 3 Acres, or 1 in. = 100 ft. for Property 3 Acres or More in Size. Sheet Size shall be at Least 24 x 36 in. If a Large Development is Shown in Sections on Multiple Sheets, then One Overall Composite Sheet shall be Included	X	X
Title Block With Sheet Number/Title; Name, Address & Telephone Number of the Applicant	X	X

TMDL Plan

LCDC and Livingston County have two listed TMDLs for Phosphorus (Strawberry and Brighton Lakes). The phosphorus TMDLs listed for Livingston County are defined as "threatened" and not "impaired".

Threatened waterbody
Any waterbody of the United States that currently attains water quality standards, but for which existing and readily available data and information on adverse declining trends indicate that water quality standards will likely be exceeded by the time the next list of impaired or threatened waterbodies is required to be submitted to EPA

Impaired waterbody
A waterbody (i.e., stream reaches, lakes, waterbody segments) with chronic or recurring monitored violations of the applicable numeric and/or narrative water quality criteria

The existing and readily available data for both lakes and associated creeksheds has been updated due to recent phosphorus monitoring (2010 & 2011) funded through a grant administered by MDEQ and awarded to LCDC and coordinated by the Huron River Watershed Council (HRWC). Attached is the report summary from this grant project. Also included is the monitoring data from 2012. The level of monitoring effort in 2012 was identical to that of the grant period with funding attained through contractual agreements with the MS4 partner communities.

Below is a summary of the Cooperative Lakes Monitoring Program (CLMP) phosphorus results for Strawberry Lake. These samples were collected during spring turnover for each year. All the results indicate Strawberry Lake is meeting the phosphorus goal as identified in the TMDL as 25µg/L. Similar data was not available for Brighton Lake.

CLMP Strawberry Lake Phosphorus Monitoring Results

Year	Result (µg/L)
1998	19
1999	21
2000	17
2001	15
2002	16
2003	17
2004	17
2005	15
2006	16
2007	16
2008	24
2009	14
2010	16
2011	11
2012	12

Average 16.4

The currently available data suggest that phosphorus may not be an impending water quality issue for these two Livingston County lakes as previously suggested from past monitoring data. HRWC was unable to identify any potential "hot spots" and can only conclude that we are currently under the target goal for phosphorus in both lakes.

With the reduction in development, continued implementation of LCDC's soil erosion program, and the recent phosphorus fertilizer law, LCDC believes that phosphorus levels will continue to drop.

LCDC will coordinate the collection of at least one grab sample for phosphorus from the discharge point from each lake before July 1, 2018 (the Huron River downstream of Strawberry Lake, and South Ore Creek downstream of Brighton Lake). LCDC will follow the same or equivalent sampling protocol as detailed in HRWC's grant proposal and subsequent field reports. Sample collection will be coordinated to coincide with spring turnover.

LCDC may collaborate with HRWC at some point during this permit cycle to continue some level of phosphorus monitoring within Livingston County that includes points in proximity to both lakes.

If any of the phosphorus results indicate an increase in concentration, or indicates a contributing "hot spot", LCDC will consult with MDEQ on the proper course of action related to monitoring going forward.

Huron Chain of Lakes Watershed Water Quality Monitoring Program: Analysis of Results: 2003-2011

Written by:
Ric Lawson and Debi Weiker
Huron River Watershed Council

October, 2011

For additional information or correspondence, contact:

Huron River Watershed Council
1100 N. Main Street
Ann Arbor, MI 48104
phone: (734) 769-5123
web address: www.hrwc.org
email: rlawson@hrwc.org

The Huron Chain of Lakes Stream Monitoring Program is a project of the Livingston County Watershed Advisory Group -- a watershed-based partnership of local, county and state governments, academic institutions, and concerned citizens working to prevent pollution in the Huron Chain of Lakes Watershed and meet federal water quality standards for Brighton, Ore and Strawberry lakes.

This document was produced as part of a TMDL Implementation Planning project that was funded in part through the Michigan Storm Water Program by the United States Environmental Protection Agency under assistance agreement C600E848-01 to the Livingston County Drain Commissioner for the *TMDL Implementation Planning in the Huron Chain of Lakes Watersheds* project. The contents of the document do not necessarily reflect the views and policies of the EPA, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use.

2010-2011 Volunteer Stream Monitors

On behalf of the Livingston County Stormwater Advisory Group, the Huron River Watershed Council would like to thank the following volunteers for providing their time and energy toward the collection of this valuable monitoring data. We could not have conducted this analysis and gained this understanding without them.

Skip Blunt
Jim Cash
Patty Ann Cosgrove
Bob Finn
Kim Gasior
Jim Hoving
Tim Knittle
Craig Meldrum
Terry Meldrum
Dave Petrak
Dwight Pugsley
Michele Stouffer
Christine Snyder

2009 Volunteers

Mick Lieberman
Yan Yan Zhang
Lee Burton
Roberta Shaw-Reeves

Interns

Mike Chisholm (2009)
Jacqueline Tennis (2009)
Anne Kohl (2010)
Elizabeth Straus (2010)
Jon Doubek (2011)

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APPENDICES

1. INTRODUCTION

Value of the Program

The Huron Chain of Lakes Stream Monitoring Program was developed in response to community interest in establishing a baseline water quality dataset within the Chain of Lakes Watershed system. The data are intended to lead to a better understanding of nutrient and sediment contributions from non-point sources and stormwater runoff in this portion of the watershed. An improved understanding of sources will help the Livingston Watershed Advisory Group (WAG) to focus and track pollution reduction efforts to meet the phosphorus TMDLs for Brighton, Ore and Strawberry lakes.

This Monitoring Program is designed to complement monitoring conducted by the Michigan Department of Environmental Quality (MDEQ), the Cooperative Lakes Monitoring Program at Brighton, Ore and Strawberry Lakes, and other programs. The monitoring sites are visited twice monthly from April to September and all of the parameters measured were measured also by MDEQ. Data are collected from stream locations that facilitate the establishment of relationships between land cover and ecological stream health. The locations were selected based on their proximity to the Huron River and/or a TMDL area, likelihood of significant sub-watershed phosphorus loading based on modeling, and capturing the range of sub-watershed and upstream conditions.

Program Description and Expectations

The Program was launched in late August, 2010, modeled after the successful monitoring program in operation by the HRWC in Washtenaw County. There are six established long-term, baseline sites and 3-4 additional "investigative" sites at any one time, located upstream of the baseline sites. There are 2 long-term sites located at points on the river which are also USGS-monitored sites. The other four sites are located on major tributaries to the river or at inflow/outflow points to the TMDL areas. Water samples are collected and water quality parameters are measured at every long-term site during each field visit.

All long-term sites have continuous water level sensors installed, or permanently fixed (USGS) sensors in place. This provides for sample collection during high-flow periods or wet-weather events to obtain nutrient data outside of baseflow conditions. A programmable autosampler was also donated to the program to allow for manageable storm-event sampling. Current plans are to continue baseline monitoring at the current sites, continue to collect storm event samples, and add new sites for investigation of nutrient sources.

Monitoring Program Partners

Realization of the Monitoring Program requires ample resources, from providing volunteer training and coordination to analyzing water samples and entering and interpreting the results. Many friends of the Huron River and Chain of Lakes watershed dedicated their time, expertise and equipment to the project.

The monitoring program coordinators are grateful for the generous contributions from the following partners who enabled the initiation and growth of this important research and stewardship program.

City of Brighton Waste Water Treatment Plant provided all lab analysis of water samples.

Livingston County Drain Commissioner donated an autosampler for use in storm sampling.

University of Michigan, Occupational Safety and Environmental Health Department, provided sample bottles in 2008 to the Middle Huron Stream Monitoring Program, which have been recycled and shared with the Huron Chain of Lakes Monitoring Program.

Monitoring Program Sites

Monitoring is being conducted at two Huron River sites and four tributary sites, which are located on major tributaries draining to the Huron River between Kent and Strawberry Lakes and represent a mix of land uses and communities.

Long-term monitoring site locations and their designations are listed below and also shown on a map on the following page:

Creek/River	Designation	Monitoring Site
Huron River	HR03	downstream of Kent Lake dam
Woodruff Creek	WC01	at Grand River Avenue
S. Ore Creek	SO01	at S. Third St., Brighton
S. Ore Creek	SO06	downstream of Brighton Lake dam
Davis Creek	COL02B	at Silver Lake Road
Huron River	COL01	at Hamburg Road

Note: The Huron River at Hamburg Road and Davis Creek sites were previously included in the Middle Huron monitoring program during the 2008-2009 field seasons as a pilot effort. During that time, the sites were monitored from May – September, and water sample analysis was done by the Ann Arbor Water Treatment Plant. Results from those sites are included in the discussion section.

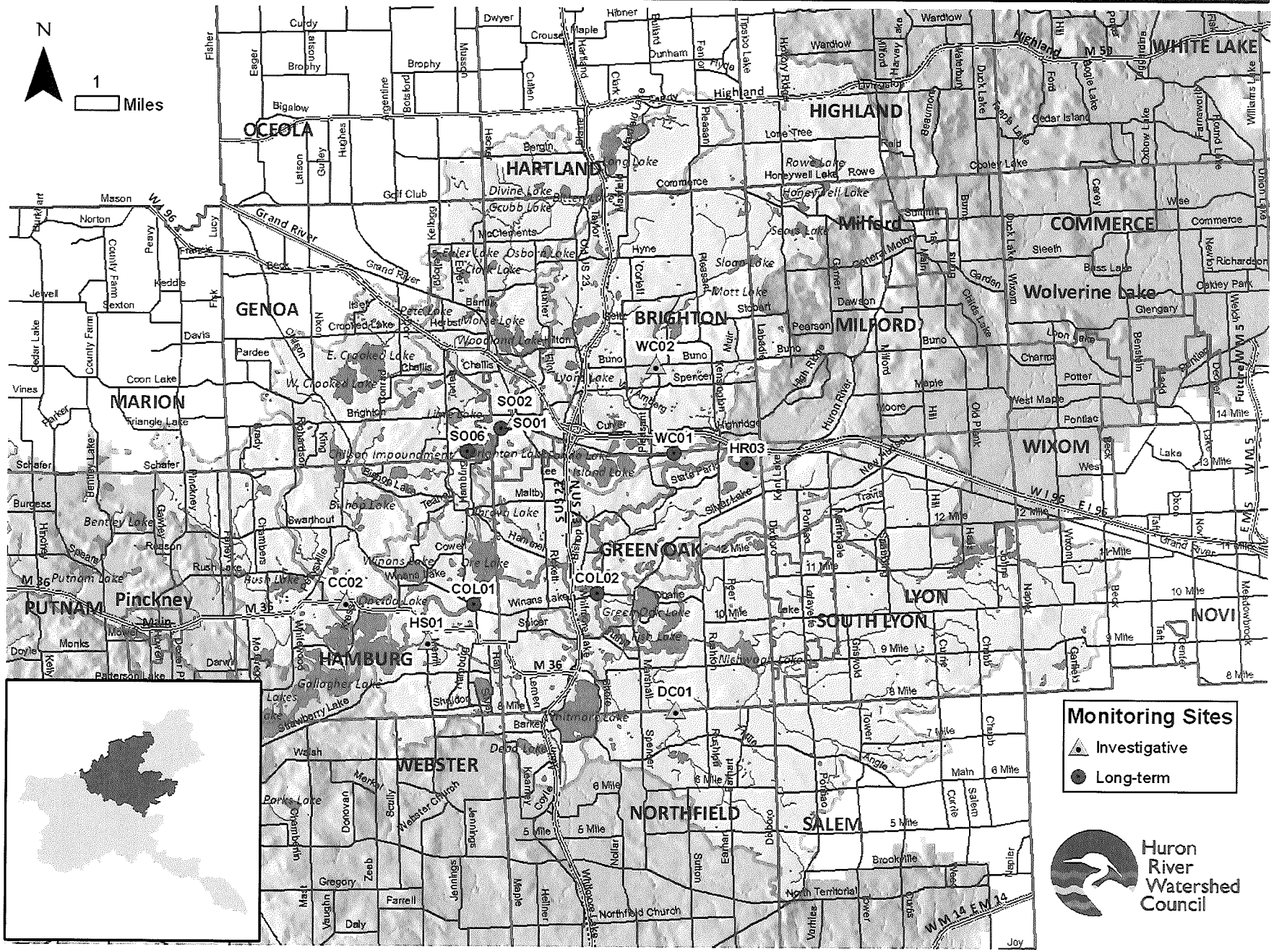
The afore-described monitoring locations are considered long-term sites, which we will revisit year after year to take water samples and make water quality measurements to gather baseline and wet-weather information. There is also another type of monitoring site we include in our studies which is called an "investigative" site. Investigative sites are typically located upstream of long-term sites and chosen each

year based on program goals. For the 2011 field season, 3 investigative sites were selected for water sampling only on each of the three tributaries to the Huron: Woodruff Creek, South Ore Creek and Davis Creek. These sites may be located on smaller streams that feed into the larger tributaries, and often will have different names than their receiving waters. Below is a list of the investigative sites included in this study:

Tobin Drain	DC02	8 Mile Rd, east of Spencer Rd
Mann Creek	WC02	Buno Rd, west of Pleasant Valley Rd
South Ore Creek	SO02	at North St, City of Brighton.

Two additional sites were sampled in this study and are also considered investigative sites, but were not upstream of long-term sites. Both sites discharge into a major water body and are of stormwater management interest due to their potential nutrient inputs to the Huron River and Strawberry Lake. These investigative sites were located on Horseshoe Creek (off Merrill Rd) and Chilson Creek (sampled between Oneida and Zukey Lakes, south of M36). Chilson Creek is being considered for long-term monitoring site, and consequently water quality parameter measurements were also made at that site.

Figure 1. Huron Chain of Lakes Monitoring Sites



2. STREAM MONITORING METHODS

The procedures used in this monitoring program have been reviewed and approved by the Michigan DEQ. Complete procedures are documented thoroughly in the program's Quality Assurance Project Plan (QAPP). The QAPP was written and approved by DEQ in 2008 and again revised and approved in 2010. The following is a summary of those methods and procedures.

Stream Monitoring Field Teams and Training

With any new field program that has limited staff resources, engaging the public is extremely important to the success and continuation of the program. Launching the Huron Chain of Lakes monitoring program was no different. Because the program start-date was later in the summer of 2010 with only 3 scheduled monitoring dates remaining in the field season, our first few volunteer recruits were people who had previous volunteer experience with the HRWC and/or had a vested interest in one of the lakes. For the 2011 field season, we had a very successful recruiting effort with a couple of volunteers returning from the 2010 season. The composition of the 2011 volunteer monitoring teams was diverse, ranging from both working and retired professionals, teachers and a firefighter to interested high school and college students.

HRWC typically provides two types of training for our water quality stream monitoring programs: 1) a classroom-style session to give volunteers an overview of the program and a demonstration of equipment that they would be using in the field and 2) hands-on field training during season-opening site visits. For the 2010 season, this training regimen was conducted back to back with only a one day time lapse in between training and fieldwork. In 2011, the overview session was held 3 weeks prior to the start of the field season, after which monitoring teams were introduced to their sites and taken through field training.

With each site visit, team members committed approximately 2 ½ hours to conduct fieldwork. Volunteers were given a pre-determined baseline monitoring schedule, with field visits usually scheduled on Mondays – Wednesdays on alternating weeks from April through September. This schedule was set up in advance with the Brighton Wastewater Treatment Lab to ensure they could accommodate our water sample load.

Storm-event sampling was also conducted in an effort to determine if pollutant concentrations or loadings are significantly higher during storms. Storm event sampling is by nature unpredictable and therefore cannot be prescheduled. This work was done by HRWC program interns and staff during the 2010/2011 field season using an autosampler. For all unscheduled sampling events, the lab staff was notified ahead of time and had no problems accommodating the additional samples.

Stream Monitoring Protocol

Stream monitoring was conducted monthly from April through September at the designated long-term monitoring sites described in the Introduction. The monitoring teams, after picking up equipment at the HRWC offices (or other designated locations), traveled to the site and first completed a field datasheet that documents the location, date, time, team members and weather conditions for the current and previous days (Appendix A). The field datasheet also was used to record information about the water samples and the water quality measurement results. If stream flow was also measured during a field outing, a separate stream flow datasheet was filled out to record that activity and velocity measurements. Upon completion of the fieldwork, the monitoring team delivered water samples to the Brighton WWTP laboratory for analysis and returned equipment to the HRWC office.

Below are descriptions of the water quality sampling and stream flow methods, and the water quality parameters measured. All field equipment was used as recommended by the equipment manufacturers.

Water Sampling

Collection of water samples was completed first at each site to minimize the disturbance of the stream substrate, which could artificially raise the amount of suspended matter in the water column. For all samples, the team member followed the same "grab" sampling protocol in accordance with the method prescribed in the 1994 MDEQ field procedures manual for wadeable streams. For greater detail, reference the following sections of the manual:

Section 4.A.2 General Sampling Considerations, pp. 4.A.-1
Section 4.A.3.a Grab Sample, pp. 4.A.-2
Section 4.C.2.a.3 Selection of Sampler, pp. 4.C.-5
Section 4.C.2.a.5 Grab Sampling from a River Bank, pp. 4.C.-6 & 7

As suggested in the manual, when water levels were low or on smaller tributaries, it was appropriate to collect samples by hand rather than with a bucket or the more technical sampling equipment.

In-stream samples were collected upstream and at arm's length from where the team member was standing. Where stream depth permitted, water was taken from the middle of the water column and in the middle of the stream cross-section. Exceptions to this method occurred at the "Huron River at Hamburg Bridge" site where samples were collected from the bridge using the bucket method. The bottles were rinsed with stream water prior to taking the baseline sample. Samples were labeled and placed in a cooler with ice packs until they were delivered to the laboratory for analysis.

Baseline samples were collected to measure 1) Total Phosphorus (TP) and 2) Total Suspended Solids (TSS). HDPE plastic bottles were used for stream sampling. If TP samples could not be analyzed within the method-specified holding period after delivery to the lab, they were treated with preservative.

Rain Event Sampling

In 2010, a programmable auto-sampler was purchased and donated to the program by the Livingston County Drain Commission. Utilizing an auto-sampler provides a means to sample streams during very high flow conditions and during the nighttime, when it would otherwise be too difficult or unsafe for monitoring teams to obtain water samples. A storm-sampling protocol was developed and piloted using the auto-sampler. Refinements to the protocol were made for based on operational observations and experience gained during the pilot period.

The auto-sampler was placed at a target site prior to runoff from a rain event. A 48-hour antecedent dry period (no more than 0.10" of precipitation) is required prior to a 24-hour rainfall of at least 0.25" for a sampling event to be considered. The auto-sampler was typically programmed to draw samples once per hour through the duration of the storm. When the event was over and the auto-sampler was retrieved, 6-7 samples were selected for lab analysis. Grab sample duplicates for analysis were also taken either at the time of deployment and/or at the end of the sampling time period. Samples were then delivered to the laboratory for analysis. The analytical results were used to generate a flow-weighted average for the event, known as an Event Mean Concentration (EMC).

Water Quality Testing

Three water quality parameters were measured as part of the monitoring program. Water quality measurements for pH, temperature, and conductivity were made using a Horiba U-10 Water Quality Checker. For all measurements, the multi-probe instrument was placed in the water at the appropriate submerged level at arm's length distance and upstream from the team member. The results were read from the digital displays and recorded on the field data sheet.

Water Flow Measurements

The measurement of water velocity at the monitoring sites, when combined with water samples that are analyzed for nutrient concentration, allows for calculating the "load" of a particular nutrient for a specific moment in time. A "load" is a measure of the amount of a substance entering a water body over a given time period, such as a day or year. Concentration, when coupled with stream discharge, can be used to estimate the export rates of phosphorus (or other nutrients) for the sub-watershed, and to estimate the loading rates of phosphorus in receiving waters.

Water velocity was measured directly in the stream after water samples were collected and water quality testing was completed. Flow velocity was measured at each site by team members across a range of measured water levels. Where stream discharge instrumentation or a water level gage was in place, discharge measurements can be charted against water level to establish a "rating curve." Once established, the rating curves were used to estimate discharge from water level readings. Additional discharge measurements are made periodically to recalibrate the curve. **Error! Reference source not**

found. depicts the rating curve for Davis Creek. USGS water-level sensors are located on the Huron River below the Kent Lake dam and on the Huron River at the Hamburg Bridge. Water-level sensors maintained by HRWC were located at other long-term sites over the course of the program.

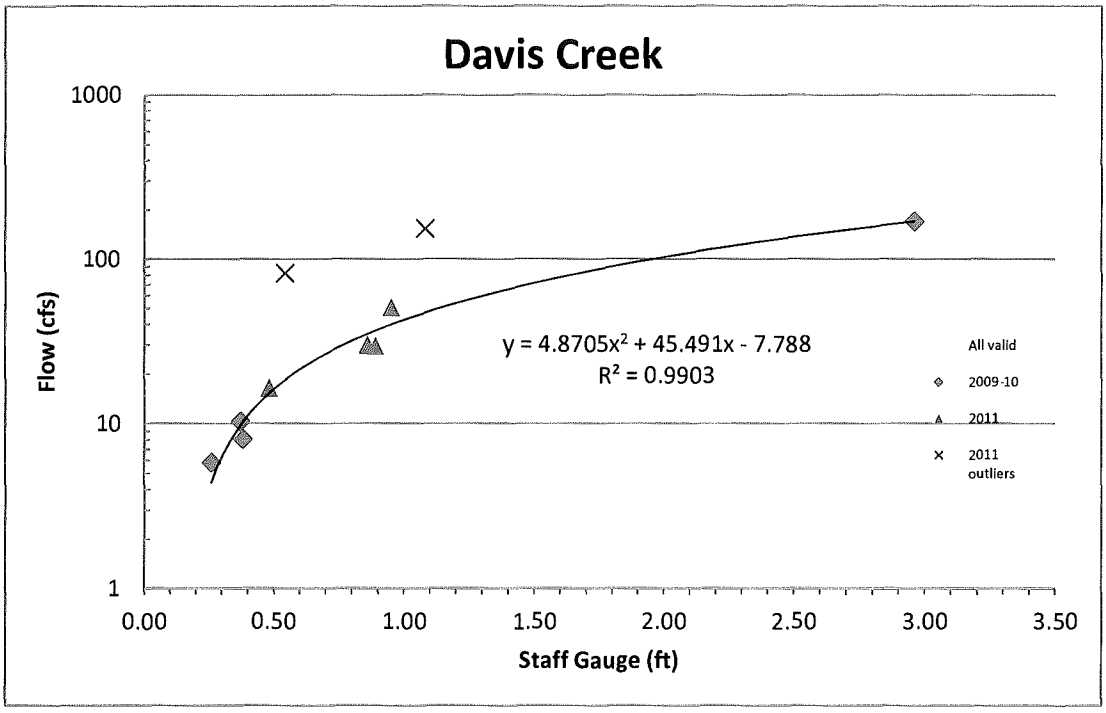


Figure 2. Staff gage rating curve with discharge measures shown.

Flow measurements were recorded by team members on a flow data sheet (Appendix A). Team members selected a cross-section representative of the river or tributary where they measured the distance across from water's edge to water's edge. Depth measurements were taken at regular intervals for at least fifteen points along the transect with more measurements taken depending on stream channel variability. At each point along the transect, water velocity was measured using a flow meter. Data is used to compute water discharge values at each long-term monitoring site over the course of the field season.

Field Equipment

Horiba™ U-10 Water Quality Checker
Parameters measured: pH, temperature, specific conductivity
pH: range 0-14 pH; resolution 0.1 pH; accuracy +/- 0.05 pH
temperature: range 0-50° C; resolution 1° C; accuracy +/- 3° C
specific conductivity: range 0-100 mS/cm; resolution 1 mS/cm; accuracy +/- F.S. (within measurement range)

Marsh McBirney Portable Flo-Mate™ Model 2000
Parameter measured: flow velocity
range: -0.5 to +20 ft/s; accuracy +/- 2% of reading

Teledyne ISCO 6712 programmable autosampler

3. MONITORING RESULTS AND DISCUSSION

Following is a summary discussion of the most important findings regarding the status at each of the monitoring locations, as well as general findings across the Huron Chain of Lakes Watershed. A compendium of graphic results for each tributary is included in Appendix B.

Total Phosphorus (TP)

The most important aspect of this monitoring effort was the analysis of Total Phosphorus (TP) data. Phosphorus is an essential nutrient for all aquatic plants. It is needed for plant growth and many metabolic reactions in plants and animals. In southern Michigan, phosphorus is typically the growth-limiting factor in fresh water systems. Total Phosphorus (TP) is a measure of all forms of phosphorus present in a water sample. The typical background level of TP for a Michigan river is 0.03 mg/L or ppm.

Further, phosphorus is the main parameter of concern in eutrophic lake and stream systems for its role in producing blue-green algae. Excessive concentrations of this element can quickly cause extensive growth of aquatic plants and algae. Abundant algae and plant growth can lead to depletion of dissolved oxygen in the water, and, in turn, adversely affect aquatic animal populations and cause fish kills. This nuisance algal and plant growth interferes with recreation and aesthetic enjoyment by reducing water clarity, tangling boats, and creating unpleasant swimming conditions, foul odors, and blooms of toxic and nontoxic organisms.

Figure 3 below illustrates the TP concentration ranges for each of the long-term monitoring sites. Because the monitoring program is still in its infancy, there has not been enough data collected to run meaningful quantitative trend analyses. However, HRWC observed a significant decrease in mean TP concentrations for the two sites established in 2008, which are the Huron River at Hamburg and Davis Creek at Silver Lake Rd. The mean TP concentrations have decreased by almost half since 2008-2009 time period at both sites, and the Huron River at Hamburg remained fairly stable throughout the 2011 season at levels below 0.03 mg/L. Davis Creek was observed to have slightly higher TP concentrations during 2011 than the Huron at Hamburg, however was still at or below 0.03 mg/L for most of the season.

Further good news is that three of the five monitoring sites established in 2010 have also shown to have TP concentrations consistently below the TMDL designated for Brighton and Strawberry Lakes: Huron River below Kent Lake dam, South Ore Creek at Third St in Brighton, and Chilson Creek upstream of Zukey Lake. Unfortunately, South Ore Creek site below the Brighton Lake dam and Woodruff Creek off Grand River Rd do not follow suit. Although the seasonal mean TP value for Woodruff Creek was 0.03 mg/L, it had higher TP levels in August and September than earlier in the season, with no discernable explanation for the rise in concentration. More surprising was South Ore Creek, which had TP levels

above 0.03 mg/L for over half of the monitoring season, with a seasonal mean value of o.o4 mg/L. This suggests that Brighton Lake is serving as a source of phosphorus since concentrations going into the lake are much lower. Since there is often a correlation between TP and TSS levels, an examination of that relationship will be undertaken to see if that might provide a plausible explanation for the current conditions just downstream of Brighton Lake.

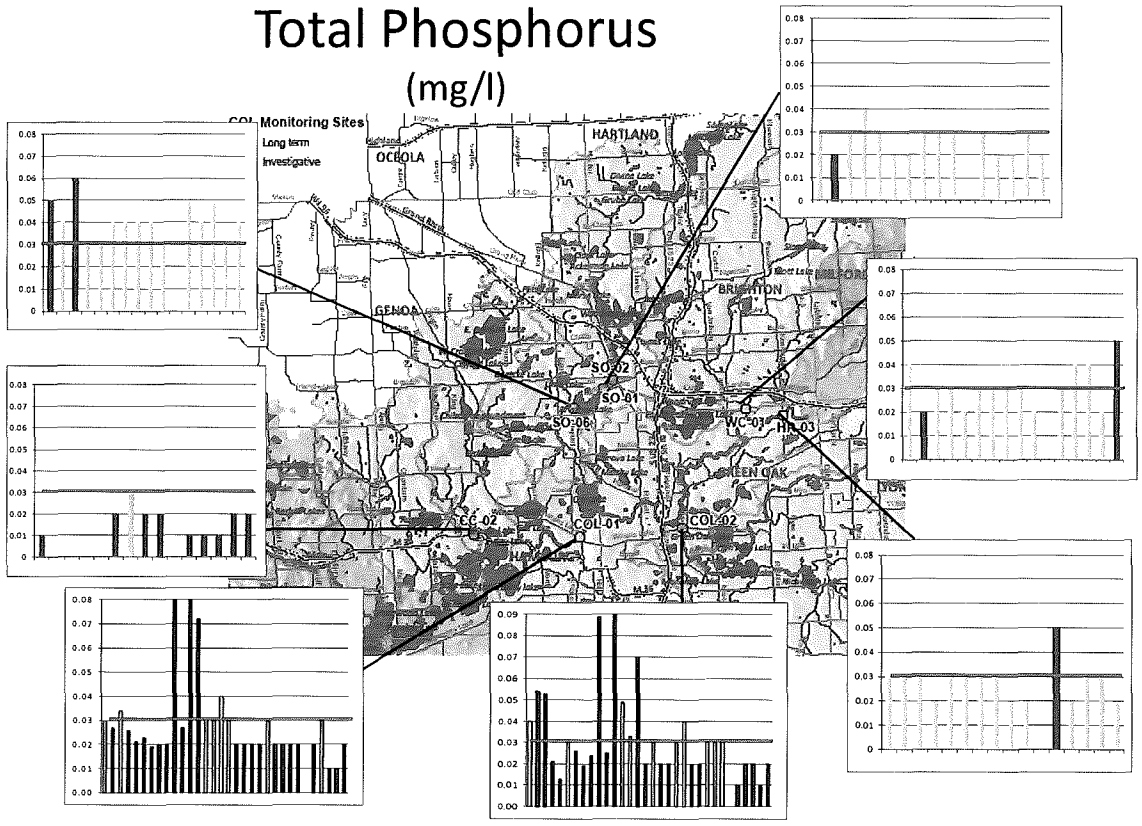


Figure 3. Total Phosphorus concentrations over time at sites in the Huron Chain of Lakes Watershed. The TMDL target level of 0.03 mg/l is indicated. Values in yellow match or exceed this threshold and values in red exceed 0.05 mg/l.

The monitoring program included additional sampling sites in 2011. Monitoring sites were added to the monitoring regime that were located upstream of existing long-term monitoring sites. These new "investigative" sites (see map in Figure 1) were sampled within an hour of their downstream counterparts so that the paired results could be compared. The sites were selected to separate sections of the contributing watershed by different land uses or stormwater system contributions. The intent of this strategy was to determine if pollutant hot spots could be discovered within the watershed. As such, investigative sites were only monitored a few times each and then replaced by a new site in the

program. The number of investigative sites monitored at any point in time was limited by the analytical laboratory's capacity to accept samples.

Comparative results for investigative sampling of TP are displayed in Table 1. Only the Davis Creek investigative site had a mean concentration above the downstream site. This investigative site was located on Tobin Drain, several miles upstream of the Davis Creek long-term site. The surrounding area is very rural, with agriculture as the primary land-use. In particular, there are horse pastures on both sides of the stream and a riding stable and farm along the eastern stream bank. Given the greater intensity of rain storms this past year and the proximity to the stream, stormwater runoff coming from these farms may partially explain why the phosphorus levels are so much higher in this specific area of the watershed. Areas upstream of the Tobin Drain site should be investigated for potential application of agricultural best management practices (BMPs). Given the high TP results at that site, testing for bacterial concentrations would be advisable.

Table 1. Results of Total Phosphorus analysis at investigative sites as compared with long-term sites downstream.

Creek	Site ID	Mean TP (mg/l)	Mean Difference from downstream (mg/l)	Percent Difference	n (# samples)
South Ore	SO02	0.03	0.00	0%	7
Davis	DC02	0.09	0.07	350%	5
Woodruff	WC02	0.04	0.00	0%	4

Two other investigative sites were established on tributaries that did not have paired long-term sites. These sites were used to investigate the tributary phosphorus concentrations and determine if there were potential hot spots upstream. Table 2 summarizes the results from these sites. Concentrations at Chilson Creek were all quite low with no single concentration exceeding 0.030 mg/L. TP concentrations at the Horseshoe Creek, however, were quite a bit higher, with a mean concentration above the target for the Strawberry Lake TMDL. Horseshoe Lake is upstream of this site and may be serving as a phosphorus source. Also, the creek at the sample site is slow-moving and flows through tributary wetlands, which may allow phosphorus concentrations to build up in the water. Other areas upstream should be investigated for potential sources.

Table 2. Total Phosphorus concentration statistics for unpaired investigative sites.

Creek	Site ID	Mean TP (mg/l)	Median TP (mg/l)	Maximum TP (mg/l)	n (# samples)
Chilson	CC02	0.017	0.020	0.030	10
Horseshoe	HS01	0.035	0.035	0.040	6

Total Suspended Solids (TSS)

Total suspended solids include all particles suspended in water which will not pass through a filter. As levels of TSS increase in water, water temperature increases while levels of dissolved oxygen decrease. Fish and aquatic insect species are very sensitive to these changes which can lead to a loss of diversity of aquatic life. While Michigan's Water Quality Standards do not contain numerical limits for TSS, a narrative standard requires that waters not have any of these physical properties: turbidity; unnatural color; oil films; floating solids; foam; settleable solids; suspended solids; and deposits. Water with a TSS concentration <20 mg/L (ppm) is considered clear. Water with levels between 40 and 80 mg/L tends to appear cloudy, and water with concentrations over 150 mg/L usually appears muddy. In streams that have shown impairments to aquatic life due to sedimentation, TSS is used as a surrogate measure for Total Maximum Daily Load (TMDL) regulation, since large amounts of sediment can bury potential habitat for aquatic macroinvertebrates. Suspended solids may originate from point sources such as sanitary wastewater and industrial wastewater, but most tends to originate from nonpoint sources such as soil erosion from construction sites, urban/suburban sites, agriculture and exposed stream or river banks. Michigan DEQ generally uses the following TSS ratings to evaluate the sedimentation impact on a stream's biota:

- Optimum = ≤ 25 mg/l
- Good to Moderate = >25 to 80 mg/l
- Less than moderate = >80 to 400 mg/l
- Poor = >400 mg/l

TSS concentrations for each of the monitoring sites is shown below in Figure 4. Again, since this year represents the first full monitoring season for 5 of the sites, enough data have not been collected for trend analysis. However, there are results from two sites worth noting: the South Ore Creek site below the Brighton Lake dam and the Woodruff Creek site. Compared to the other monitoring sites, including Chilson Creek, the mean TSS concentrations at both these sites are considerably higher than what was observed at all the other monitoring sites in 2011. In fact, they are roughly 60-70% higher than the TSS levels observed at all of the other sites. Results at the site below the Brighton Lake dam are surprising since, often, dams serve to create sediment traps behind them. It is possible that water being released from the dam is scouring the stream bottom or banks, or that lake sediment is accumulating and washing over the dam. Alternatively, although it is premature to make suggestions about the impact of

recreation on lake water quality conditions, it appears as though the TSS levels in South Ore Creek, downstream of Brighton Lake dam, are further elevated at the same time when lake activities, such as boating, increase during the warmer months of summer.

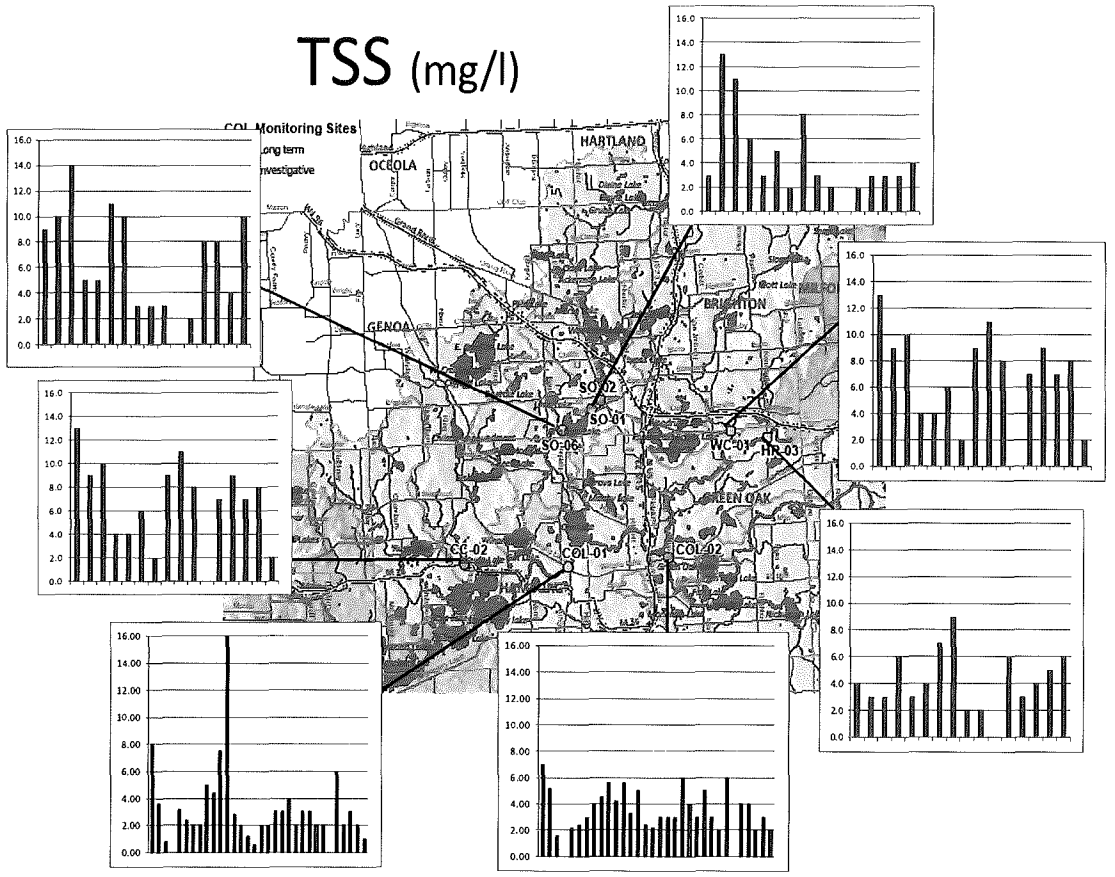


Figure 4. TSS levels at Huron Chain of Lake sites, 2010-2011. Data from 2008-2009 included for Huron River at Hamburg and Davis Creek.

Sediment-phosphorus relationship

Since phosphorus binds to soil particles, it is important to try and understand whether the phosphorus in the streams is coming along with sediment or not. To do this, one can examine TP concentrations with corresponding TSS concentrations. If they are well correlated, then there is some evidence that phosphorus is moving through the stream with sediments. If not, some amount of phosphorus may be moving through the system in dissolved form, unbound to sediment particles. In these cases, while there is some relationship between TP and TSS loads, there is much more variation. This suggests that much of the phosphorus coming by these monitoring points is not bound to sediment.

All of the sampling sites showed some relationship between phosphorus and sediments, but the degree of correlation was highly variable between sites. Overall, correlations between TP and TSS ranged from 0.10 on the low end (South Ore Creek @ Third St) to 0.46 (South Ore Creek @ Brighton Lake dam). This suggests that erosion may be contributing to TP concentrations more below the dam, especially at higher flows. See Appendix B for TSS-TP relationships for all long-term monitoring sites.

Streamflow, Storms and Pollutant Loads

Ultimately, pollutant concentrations can vary widely due to many environmental variables. One important variable is the amount of total discharge of water or flow moving through a measurement site. Storms result in increased flow and can also wash material including soil and pollutants into the stream channels. Further, it is the total load of a pollutant entering the system that water resource managers are ultimately concerned with. Pollutant load is a calculated value based on the concentration and water flow at a given point in time, and it is expressed as pounds or tons per year, taken over an entire year or a season. Measuring the phosphorus load, for example, gives an idea of how much phosphorus is being transported downstream from tributaries to Brighton or Strawberry Lake over the growing season or entire year. Gaining an understanding of load dynamics can help to target management practices and measure their collective impact. By adding wet-weather sampling to the program, it became possible to assess the immediate runoff effects when compared to simple flow relationships measured semi-randomly.

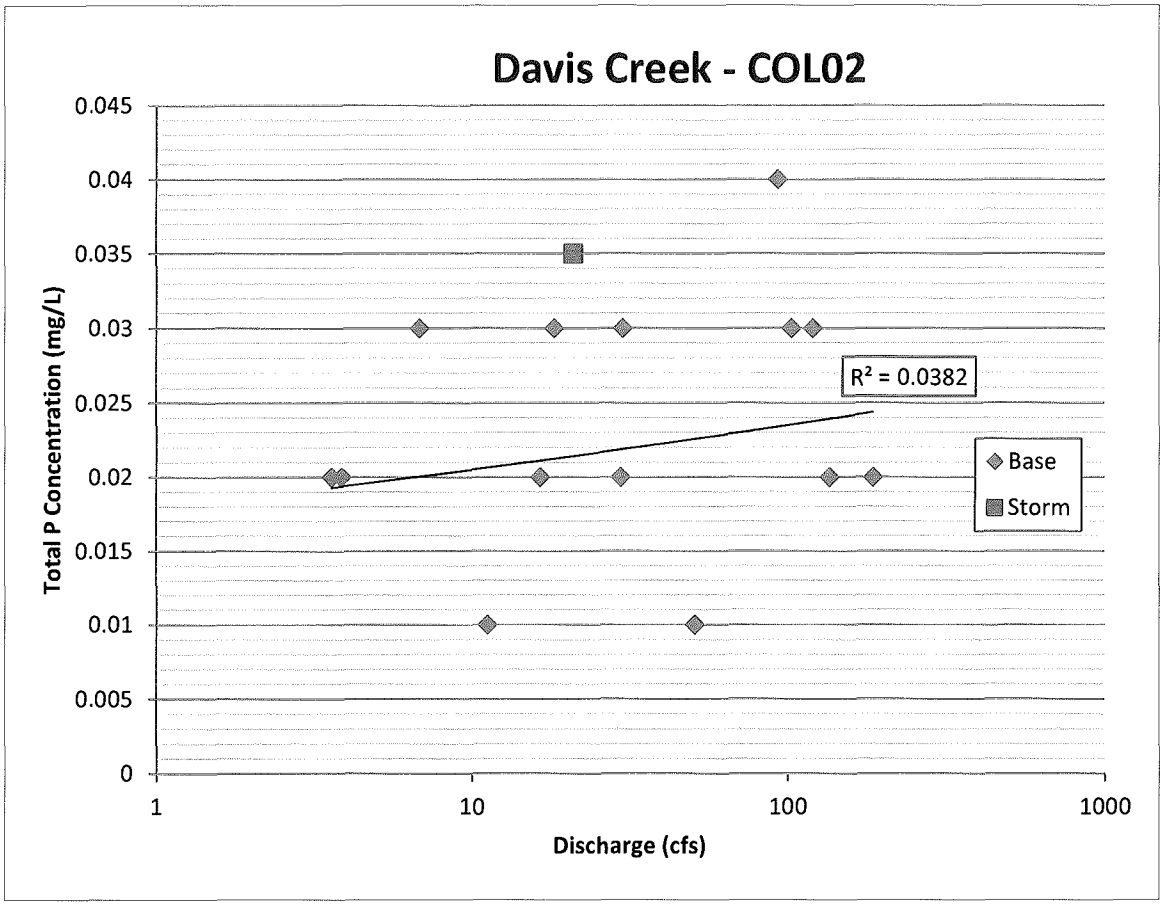


Figure 5. Relationship between discharge and TP concentrations in Davis Creek, showing both standard measures and storm event mean concentration.

All of the long-term monitoring sites exhibit weak relationships between TP concentration and stream discharge. Figure 5 shows the relationship for Davis Creek. Discharge alone can explain only 4% of the variability (R^2) in the data. With this site, as the discharge increases, so does the TP concentration. This is a bit counterintuitive, because, given a constant pollutant input, increased flow should serve to dilute the concentration. The positive relationship suggests that stormwater runoff or streambank erosion is contributing phosphorus as runoff increases. Some other sites exhibit flat or negative relationships with discharge

Storm samples were collected across 4-6 points in time for five wet weather events at three different sites. The resulting TP concentrations were flow-weighted and compiled into Event Mean Concentrations (EMC), or flow-weighted average concentrations over the entire wet weather event. These EMCs can then be compared to concentrations estimated from the standard set of single grab samples. At Davis Creek, the EMC was a bit higher than what would be estimated from the best-fit curve from the baseline monitoring samples (see Figure 5). However, at both South Ore Creek sites, the storm EMCs were lower than estimates from the baseline curve. At this point, it is uncertain if it can be

reasonably assumed that estimates made from regular sampling across varying flow conditions (single sampling) are reasonably accurate at predicting event concentrations (and loads) from wet weather events in the tributaries sampled.

Ultimately, TP concentrations can vary widely due to many environmental variables. One important variable is the amount of total discharge of water or flow moving through a measurement site. Storms result in increased flow and can also wash material including soil and pollutants into the stream channels. Further, it is the total load of phosphorus entering the system that managers are ultimately concerned with. TP load is a calculated value based on the phosphorus concentration and water flow at a given point in time, and it is expressed as pounds per day. This expression gives an idea of how much phosphorus is being transported downstream from tributaries to Brighton and Strawberry Lakes. Gaining an understanding of load dynamics can help to target management practices and measure their collective impact. TP loads were estimated for each sampling event. These instantaneous loads can be seen in Figure 6. TP load and concentration graphs for all tributaries are included in Appendix B.

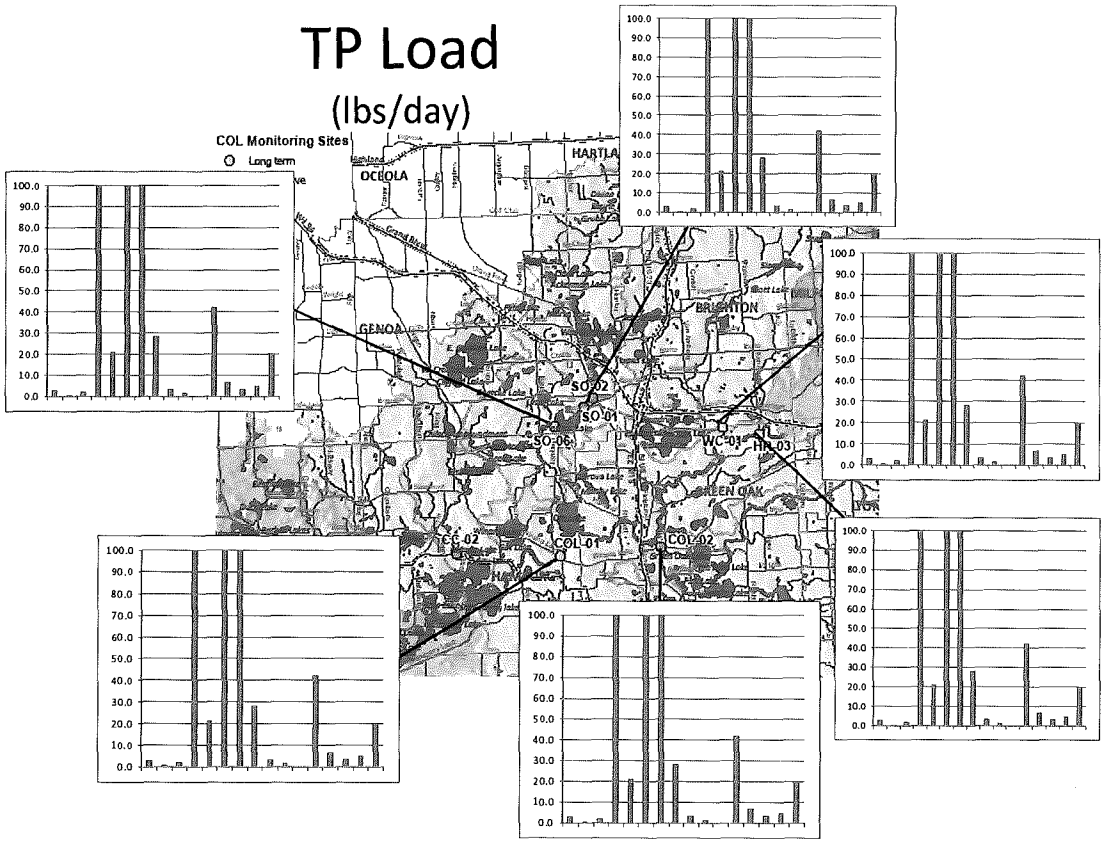


Figure 6. Total Phosphorus loading for monitoring site in the Chain of Lakes Watershed.

Based on these discharge-concentration relationships, and accounting for the time of year that samples were collected, loading estimates were derived for each of the tributaries using LOADEST software developed by the United States Geological Survey[1]. Table 3 shows the loading estimates for all long-term monitoring sites along with the estimate range and correlation of the discharge-concentration relationship model selected by the program. These models suggest that little phosphorus is moving through the South Ore Creek and Davis tributaries, but much is being contributed by Woodruff Creek. The estimates also suggest that an amount of phosphorus (11.4 lbs/day) is being added to the Chain of Lakes system before it gets to Strawberry Lake. It should be noted that these estimates are based on the small amount of data collected by the monitoring program to date. More data is needed to improve the reliability of estimates.

Table 3. Estimates of daily Total Phosphorus loads for long-term monitoring sites.

Stream	Site ID	TP Load Estimate (lbs/day)	TP Load Range (lbs/day)	R-square of relationship
South Ore	SO01	3.46	3.0 – 4.0	0.48
South Ore	SO06	5.41	4.9 – 6.0	0.63
Davis	COL02	6.70	5.4 – 8.2	0.67
Woodruff	WC01	17.93	14.1 – 22.5	0.40
Huron @Kent Lake	HR03	21.17	17.8 – 25.0	0.18
Huron @ Hamburg	COL01	32.60	26.9 – 39.1	0.27

Other Important Measures – pH, conductivity, dissolved oxygen, and nitrogen

Three basic water quality parameters are routinely measured in stream and lake waters and have also been monitored over the course of the Huron Chain of Lakes Monitoring program: pH, conductivity, and temperature. HRWC uses these parameters to identify potential short-term impairments that may suggest problems upstream. With one exception, there does not appear to be a long-term issue with any of the water quality constituents. All samples have been within state water quality standards, or other published water quality recommendations, and thus, those parameters do not warrant concern. The exception is conductivity (see Figure 8). Two sites have high conductivity ranges that exceed the recommended conductivity level. This warrants further investigation, as conductivity is a broad indicator of water quality and could suggest the presence of high amounts of salts, metals, or even naturally occurring minerals.

[1] Runkel, R.L., Crawford, C.G., and Cohn, T.A., 2004, **Load Estimator (LOADEST): A FORTRAN Program for Estimating Constituent Loads in Streams and Rivers**: U.S. Geological Survey Techniques and Methods Book 4, Chapter A5, 69 p.

pH

Measuring pH provides information about the hydrogen ion concentration in the water. pH is measured on a logarithmic scale that ranges from 0-14, so river water with a pH value of 6 is 10 times more acidic than water with a pH value of 7. Organisms that live in rivers and streams can survive only in a limited range of pH values. Michigan Water Quality Standards require pH values to be within the range of 6.5 to 9.0 for all waters of the state. In Michigan surface waters, most pH values range between 7.6 and 8.0. The pH of rivers and streams may fluctuate due to natural events, but inputs due to human activities can also cause 'unnatural' fluctuations in pH.

The graph below depicts pH values measured during the monitoring seasons from 2010-2011 for each of our long-term sites, including Chilson Creek, and also includes data from the 2008-2009 field seasons for the Huron River at Hamburg bridge and Davis Creek. All results were within the acceptable range to meet state water quality standards.

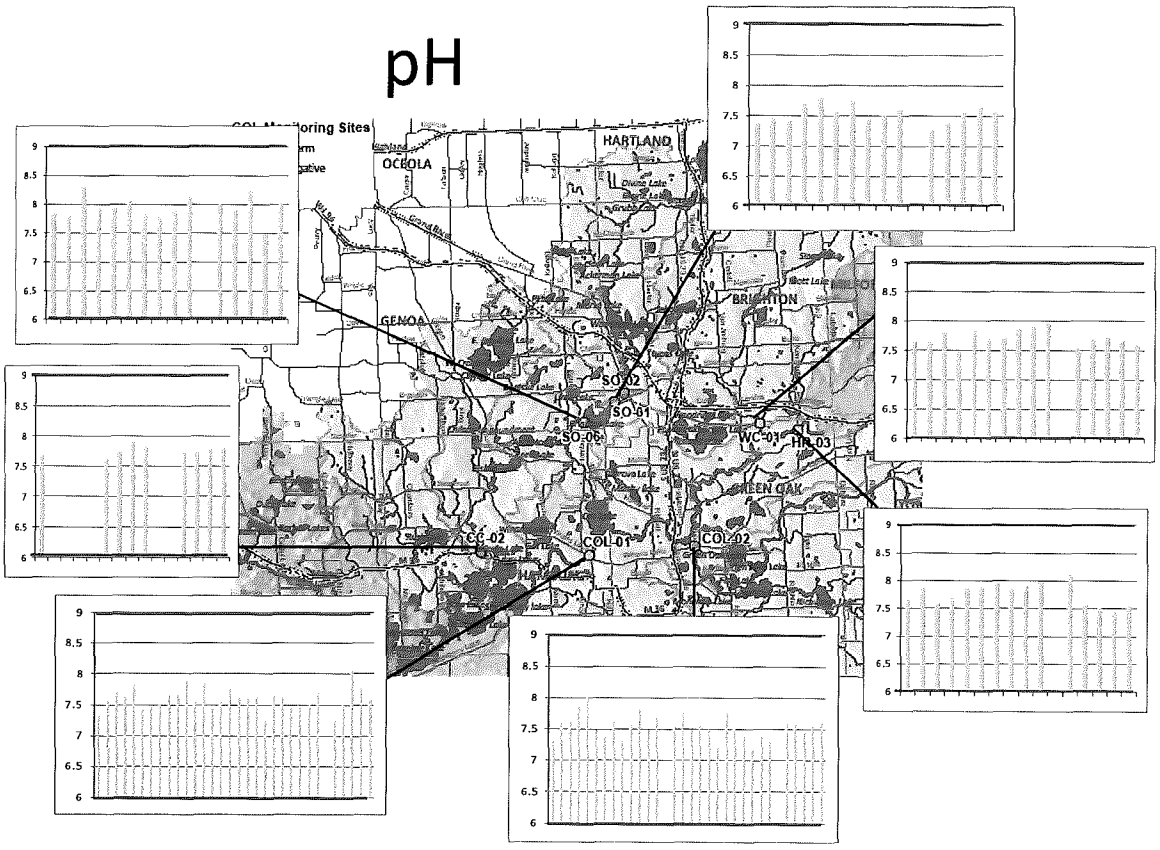


Figure 7. pH levels recorded at long-term monitoring sites, with state water quality standards indicated by red lines.

Conductivity

Conductivity is a measure of the ability of water to pass an electrical current, and is a general measure of water quality. Conductivity is affected by temperature: the warmer the water, the higher the conductivity. As such, conductivity is reported as conductivity at 25ºC. Conductivity in surface waters is affected primarily by the geology of the area through which the water flows. In Michigan, values for a healthy river or stream habitat range between 100 and 800 µS/cm. Low values are characteristic of oligotrophic (low nutrient) lake waters, while values above 800 µS/cm are characteristic of eutrophic (high nutrient) lake waters where plants are in abundance. High values are also indicative of high mineral concentrations. There are a number of potential sources of minerals and some natural variation, but consistent results above 800 µS would be unexpected from natural sources. Anthropogenic sources can include winter road salts, fertilizers, and drinking water softeners.

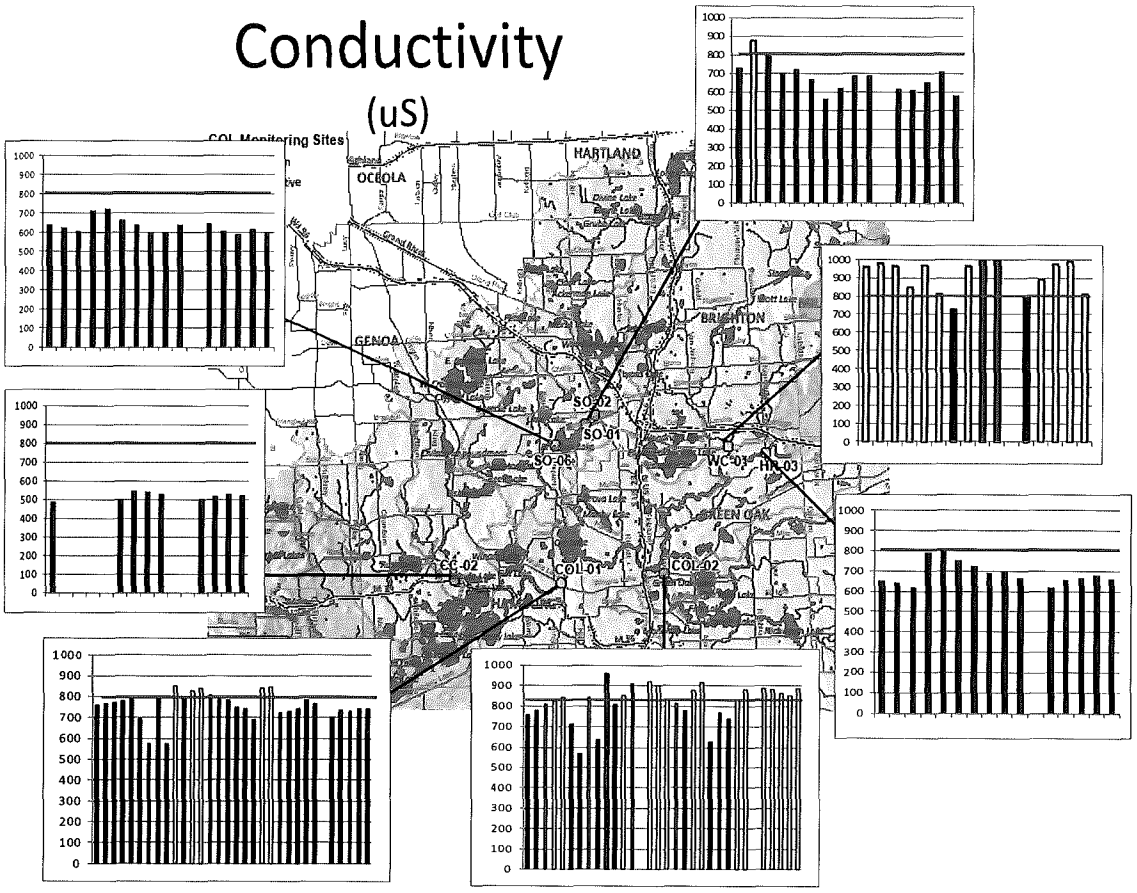


Figure 8. Conductivity levels recorded at long-term monitoring sites, with a biological impact threshold indicated by red lines.

The conductivity results are presented for all sites over the monitoring seasons in a similar fashion as was done for pH (see Figure 7). The mean values for conductivity exceeded the upper limit for healthy waters (800 µS)[2] for two of the seven monitoring sites. In fact, on the Huron River below Kent Lake and S. Ore Creek below Brighton Lake were statistically below that ecological impact value. Coincidentally, both these sites are located in protected areas: one is within a state park and the other is within a conservation area. The sites with the highest mean values are all proximate to heavily traveled roads, connecting suburban and urban areas or are commercial routes between major highways. Conductivity values were higher in the spring, particularly at Davis and Woodruff Creeks, when there were heavy rains which could have washed off road salt residues from the winter roadway snow/ice treatments. Davis Creek has a potential additional input from the rusting bridge ballisters that are situated just above the monitoring site. These potential sources should be further investigated, and it should also be determined which specific elements are contributing to high conductivity levels.

Temperature

Figure 9 presents the temperature data gathered for each monitoring site on every field day. The data is not analyzed for impact on biota, but is measured and presented for context.

[2] From Wiley, Michael J., et al. "Regional Ecological Normalization Using Linear Models: A Meta-Method for Scaling Stream Assessment Indicators, " Chapter 12 in *Biological Response Signatures: Indicator Patterns Using Aquatic Communities.* CRC Press LLC. 2003. (see page 213)

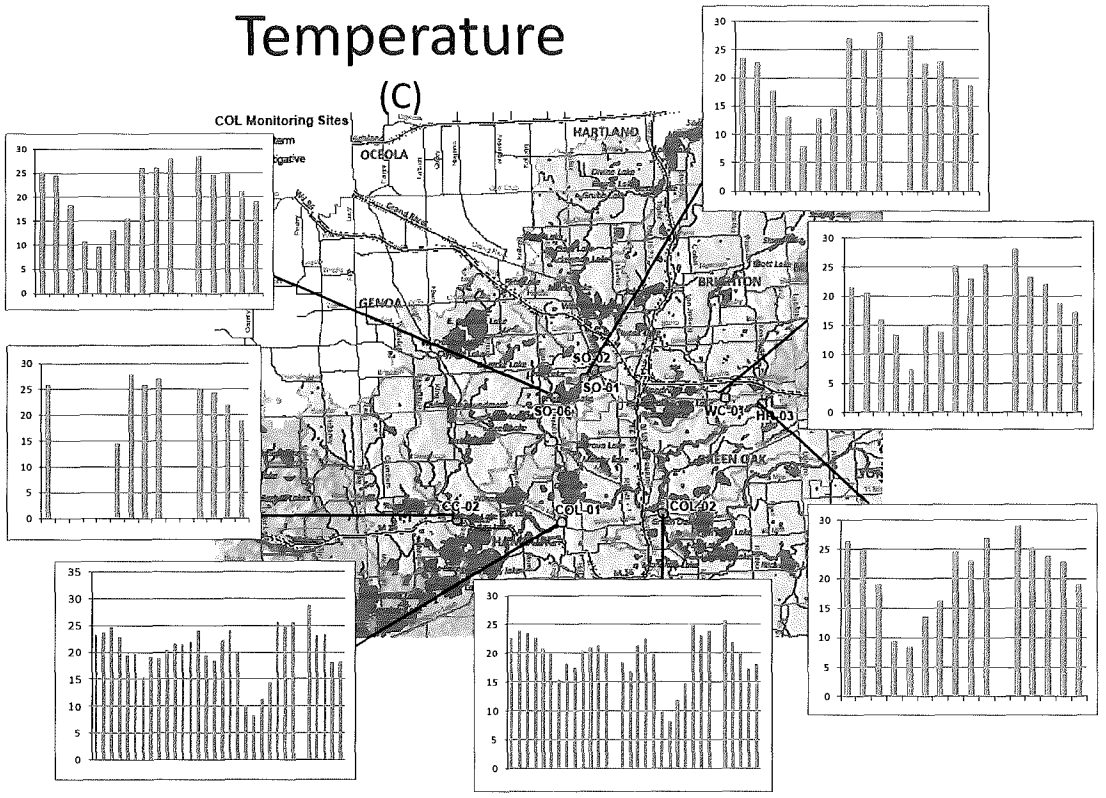


Figure 9. Temperature Data for Huron Chain of Lake monitoring sites from 2010-2011 monitoring seasons.

Successes and Challenges

This year marked the successful completion of the first full monitoring season in the Huron Chain of Lakes watershed. As previously mentioned, the Huron Chain of Lakes Monitoring Program was modeled after the Middle Huron Monitoring Program, which has been on-going since its inception in 2002. Much was learned in that program about sampling, logistics, working with volunteers and laboratories, etc., which allowed HRWC to launch a new program quickly. Because the program was launched in August, 2010, only three sampling events were completed before the end of the first field season. The 2011 season began in April, and six long-term baseline sites were fully established, with three of those sites having continuous water level sensors installed. Each long-term site was sampled and water quality data was collected a total of 12 times over the 6-month field season. Program staff and volunteers were also able to collect flow or water discharge data at all of the sites under over a range of seasonal flow conditions. Water flow measurements were conducted at 4 of the long-term sites, with the other two being USGS-monitored sites. These important data will provide the basis for understanding site hydrology and also be used for TP and TSS load calculations. While the dataset collected thus far represents a small snapshot in time, it provides the most comprehensive picture of water quality in the

Huron Chain of Lakes to date. HRWC and watershed stakeholders now have an initial assessment of phosphorus and sediment conditions and loading to use in assessing progress to date and planning future management activities. This analysis has already been incorporated into management plans for Brighton Lake and Strawberry Lake Watersheds.

In addition to collecting high quality baseline water quality data, storm events were successfully monitored at three sites: South Ore Creek at Third St., South Ore Creek below the Brighton Lake dam (off Hartford Way) and Davis Creek. Continuous water level sensors were installed at each of these locations so that we would be able to sample the stream using the autosampler at regular intervals over a 24 hours period and determine the water levels and discharge values at the time of sampling. Pairing the use of the autosampler with the water level sensors also provided greater precision in targeting samples at key points across the storm hydrograph.

Another important aspect of this program was establishing a volunteer participation program and developing relationships that foster water quality stewardship within the surrounding communities. Since this was a new program, explaining the scope of work and the importance of the help the volunteers would provide was essential to accomplishing our goals for the program. The time commitment necessary to carry out the fieldwork did not suit everyone who had an interest in the program. However, through recruitment and field training efforts, program staff were able to assemble a core group of volunteers that were dedicated and well-trained by mid-summer and who conducted the monitoring tasks in a professional manner. In the end, 10 volunteers regularly participated in the monitoring program and learned about its connection to watershed management and sources of water quality impairment . Some of these volunteers have asked about other ways to get involved in watershed stewardship. This level of participation is considered a qualified success for the first program season.

Key challenges for the program centered mainly around logistics: matching volunteer availability for fieldwork with the lab's availability and capacity to accept/analyze samples, and having access to equipment and supplies at the storage location in Livingston County.

The Brighton Wastewater Treatment Facility and laboratory was open from 7:00-3:30 daily, but had limited work days for analyzing our water samples. To complicate matters further, program equipment and supplies were also stored at the lab (a generous offer from the facility manager). However, this meant that volunteers had to pick up the equipment and also submit samples for analysis when the facility was open, which limited the times that volunteers could go out to sample. It also made the timing difficult to get the analysis done within the required sample holding times. This presented quite a challenge for scheduling fieldwork and accommodating volunteers' work schedules. Most everyone participating in the program worked during the day and did fieldwork after hours, which required someone being available to pick up field equipment before the lab closed for the day, and returning it early the next day before the next field team needed it. After following this routine for a couple of months, the need to find a central storage location with unrestricted access time became obvious for

the next field season, in order to make the program fieldwork requirements more convenient for our volunteers.

4. SUMMARY AND CONCLUSIONS

The following general conclusions can be drawn from the analysis of the data collected under the Huron Chain of Lakes Monitoring Program from 2010 through 2011:

Measured values for **Total Phosphorus concentration** varied widely from site to site and from month to month. Taken together, the concentrations are generally low and at or below the TMDL targets, on average. The investigative site on Tobin Drain is an exception. Ultimately, TP concentrations can vary widely due to many environmental variables.

Total Phosphorus loading estimates have been made for the first time in the watershed. Loading from South Ore and Davis Creeks appear low, while loading from Woodruff Creek appears high. However, these are early estimates that would be improved by continued data collection.

All long-term sites had measured **pH values** that are within the expected range for Michigan surface waters.

Two of the seven sites had average **conductivity** values that exceed the accepted limits.

Mean concentrations of **Total Suspended Solids** from the monitoring sites are relatively low at most sites across the majority of sampling. TSS and TP only seem to be correlated at the site downstream of the Brighton Lake Dam, indicating possible erosion there.

Huron River Watershed Council

Stream Nutrient Monitoring Program

FIELD DATA SHEET: Livingston County

Stream Name _____

SITE #: _____

STAFF GAUGE: _____ (in decimals)

Investigators: _____

TOTAL PHOSPHORUS and TOTAL SUSPENDED SOLIDS

Collection		Lab Submission	
Date:	Time:	Date:	Time:

{STAFF GAUGE READING}

In boxes and picture below, write numbers and draw water level you see on the staff gauge.

QUESTIONS:

What TYPE of GRAB sample measurement was used? Circle one: INSTREAM / BUCKET

Was the bottle rinsed with stream water 3x, and water tossed downstream? Y / N

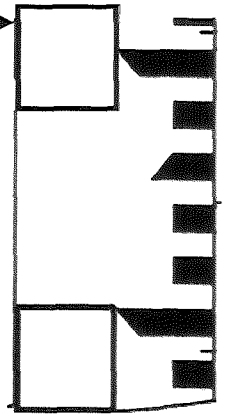
What is the DESCRIPTION for this sample? Circle one: INVESTIGATIVE / BASELINE

Were the TP samples refrigerated/frozen overnight? Y / N

If so, location? _____

___.0 ← First whole number above the water (1.0, 2.0, etc)

First digit above the water. →



SITE PARAMETERS (Horiba measurements)

Water temperature (°C)	
Conductivity (mS)	
pH	
Dissolved oxygen	

Weather - past 24 hours		Current Weather
____	Storm (heavy rain)	____
____	Rain (steady rain)	____
____	Showers (intermittent rain)	____
____	Overcast	____
____	Clear/Sunny	____

Comments:

For Office Use only

db Visit ID _____

Initials _____

Huron River Watershed Council

2011 Stream Nutrient Monitoring Program

For Office Use only	
Db Visit ID	_____
_____	
Initials	_____

STORM SAMPLE DATA SHEET

Stream name/Site #: _____

Investigators: _____

	Auto-sampler Deployment		Auto-sampler Retrieval
Date		**Date**	
Start Time		**Time auto-sampler halted**	
Water Level @ Start (ft)		**Water Level @ Start (ft)**	
Grab Samples Collected (#)		**Grab Samples Collected (#)**	
End Water Level		**End Water Level**	
End Time		**End Time**	

Was a "forced" sample collected @ autosampler? **Y / N** **Time:** _____
Was a forced sample collected @ after halt? **Y / N** **Time:** _____
Was a data logger downloaded and redeployed? **Y / N**
Final sample number _____

Comments:

To be completed @ office:

Number of incomplete samples _____

SAMPLES DELIVERED TO LAB:

Bottle #	Date/Time Collected	Sample Label	Parameter(s)

Time samples delivered to lab: _____

Waterproof paper – if this sheet is white.

Flow Datasheet

Site Name: ________________ **on Creek:** _______________ **Team Members:** ____

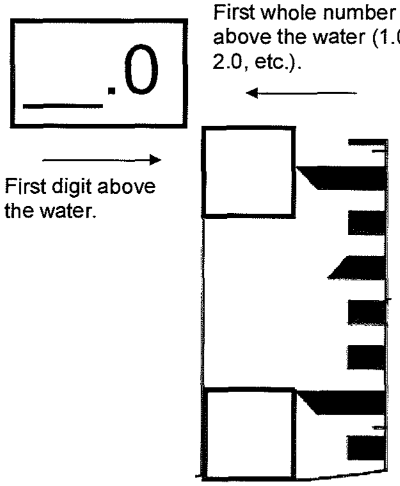
Date: ________________ **Recorder's Name:**____________________________

Distance on tape measure (feet & tenths)	Water's **Depth**	**Velocity** (ft/sec) *(negative is ok)*
Edge of Water:	**0**	**0**
Edge of Water:	**0**	**0**

***Gauge Reading at Start:**

Time:_______ Height:_______

In boxes and picture below, write numbers and draw water level you see on the staff gauge. Draw two lines if gauge changed while you were measuring flow, indicating start and finish levels:



First whole number above the water (1.0, 2.0, etc.).

First digit above the water.

***Gauge Reading at Finish:**

CIRCLE: *same* or *higher* or *lower*

Time:________ Height:_________

REMINDERS

1. Start each flow reading by pressing the ON key.
2. Shorten the distance between readings when the depth changes!
3. Please read the tape from low numbers to high numbers.
4. Don't forget to record edge of water at both sides.

QUESTIONS (circle your answer):

1. Bank at which you began measurements, looking DOWNSTREAM: **Left** **Right**

2. Has it rained in the past 3 days? **Yes** **No**

3. Over how many seconds is the meter averaging readings? **10** **15** (Use 10 ONLY during rapid level change; press arrow keys to change).

4. What watch was used to tell the time? __________

5. Are the readings in ft/sec? **Yes** **No** (if no, press On&Off keys simultaneously to change)

6. Is the meter set on FPA? **Yes** **No** (If no, press both ARROW keys simultaneously to change)

7. Was the rod set for each depth? **Yes** **No**

8. How close was the rod from the person in the stream?________

9. Was the rod vertical, with the sensor pointing into the flow? **Yes** **No**

Waterproof Paper - If this sheet is white!

Phone number: HRWC (734) 769-5123, ext.13

Huron River Watershed Council

Protecting the river since 1965

1100 N. Main Street Suite 210
Ann Arbor, MI 48104
(734) 769-5123
www.hrwc.org

CHAIN OF CUSTODY DOCUMENT

Please send results to:	HRWC 1100 N Main Street Suite 210 Ann Arbor, MI 48104 Attn: Debi Weiker; dweiker@hrwc.org and rlawson@hrwc.org
Purchase Order #	Notes: SOURCE OF SAMPLE
LABORATORY IN CHARGE OF ANALYSIS: Brighton WWTP	
TEL: 810.227.9479	CONTACT: Denise Maier

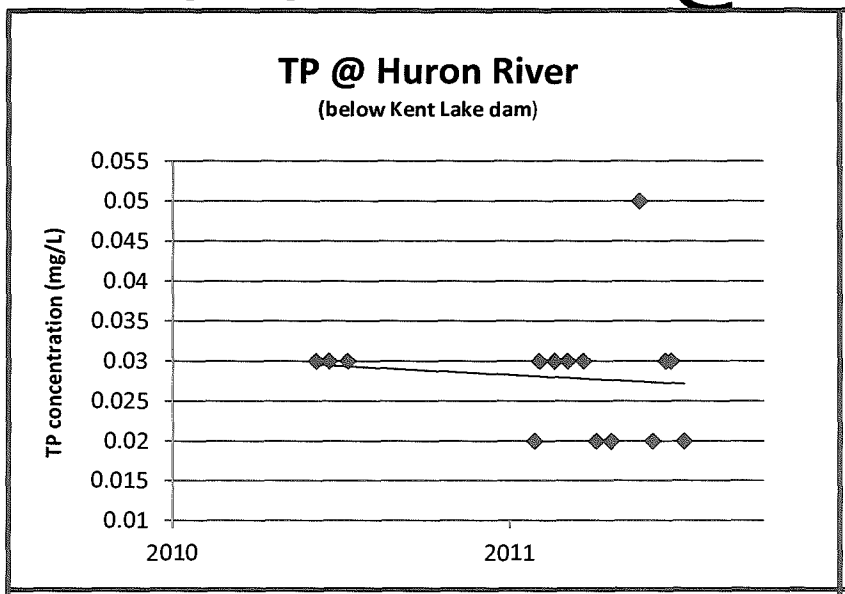
Sample #	Collection		Type		Description	No. of containers	PARAMETERS		
	Date	Time	Comp	Grab			TSS	Total Phosphorus	TP Preservative Added?

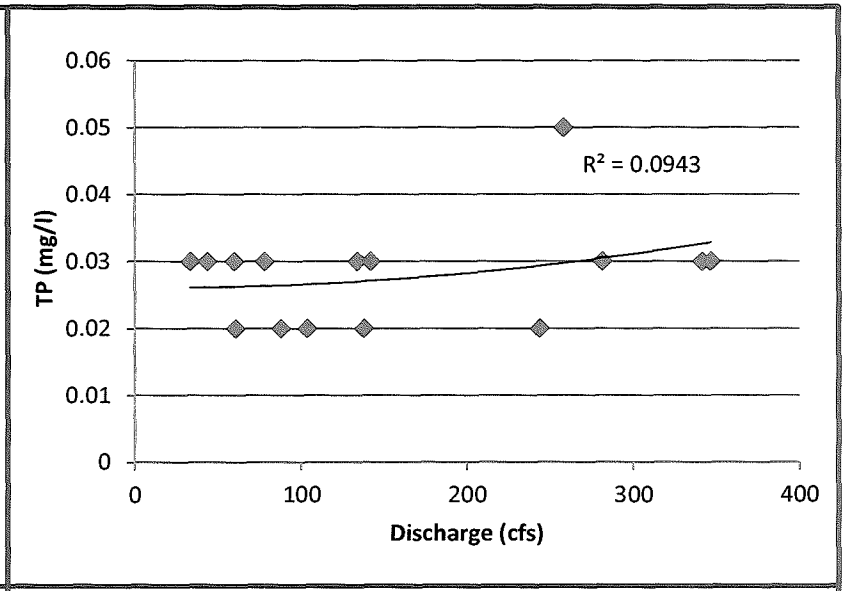
Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

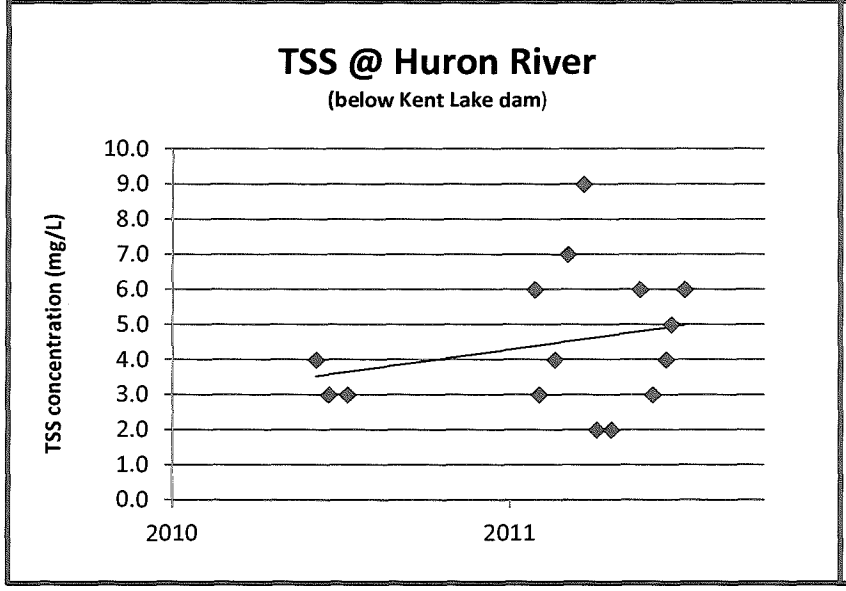
Appendix B.

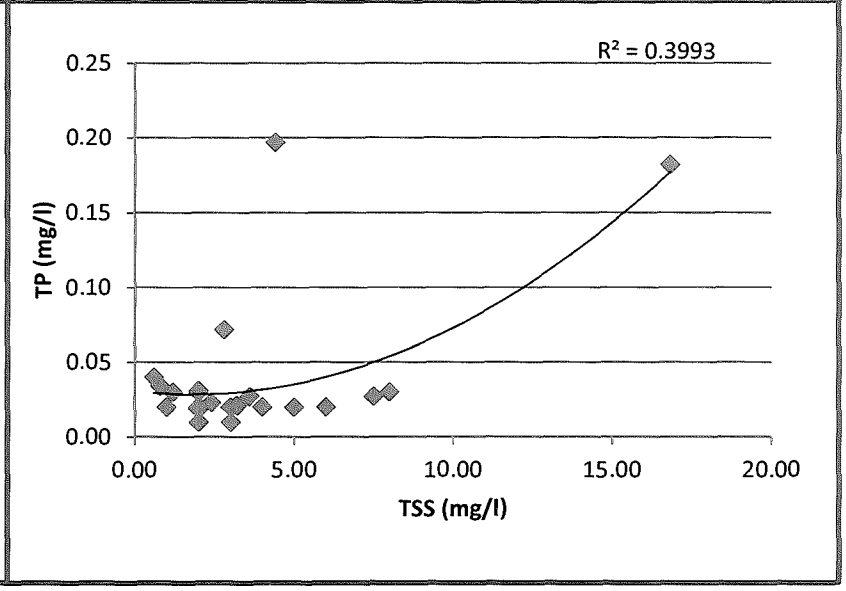
Huron Chain of Lakes Watershed Monitoring Results by Site

Huron River @ Kent Lake – HR03

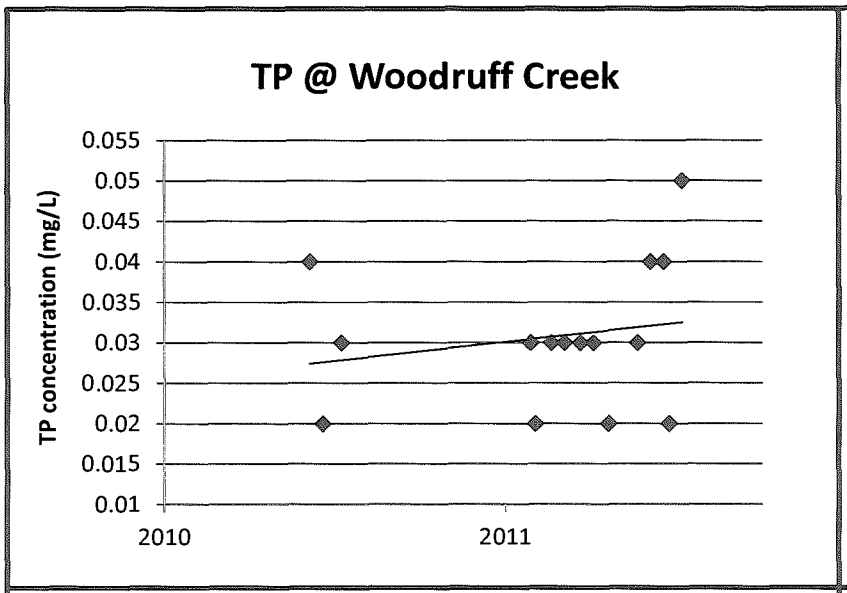


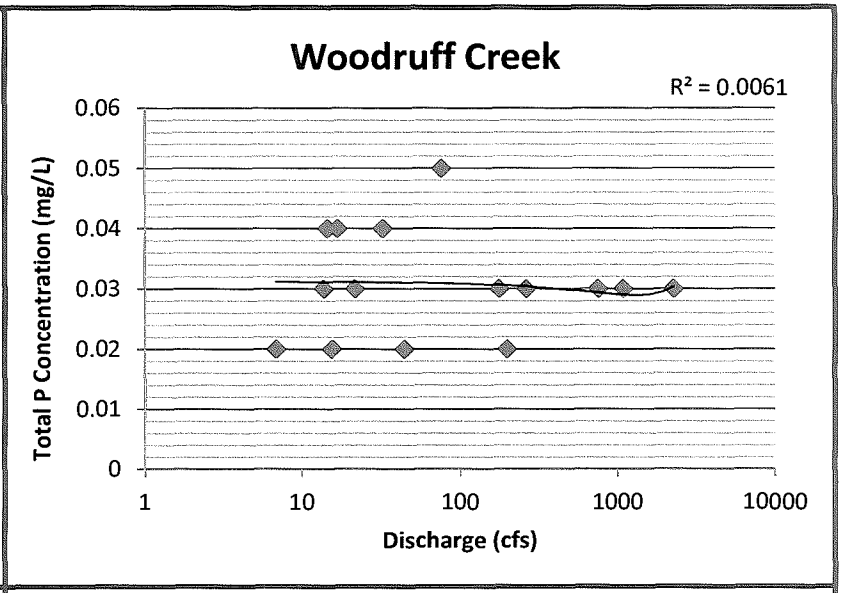


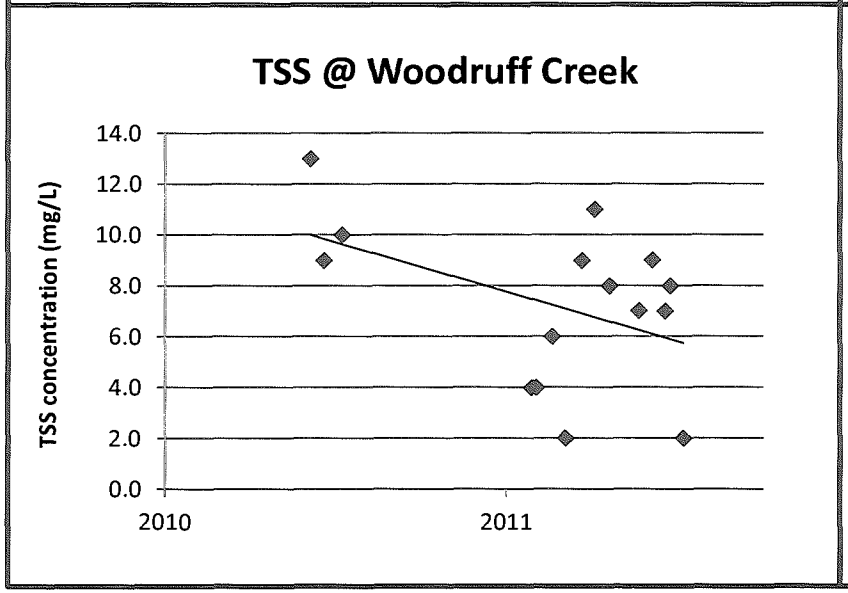


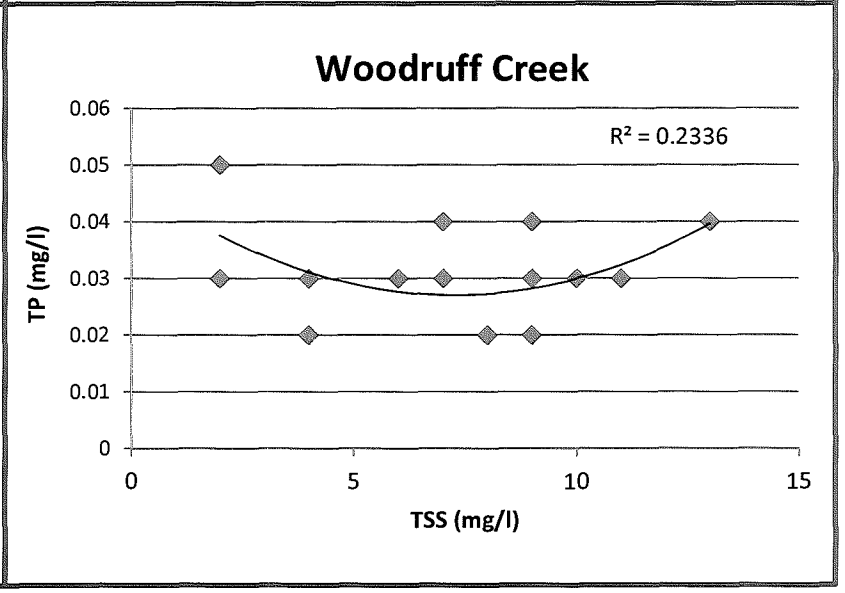


Woodruff Creek – WC01

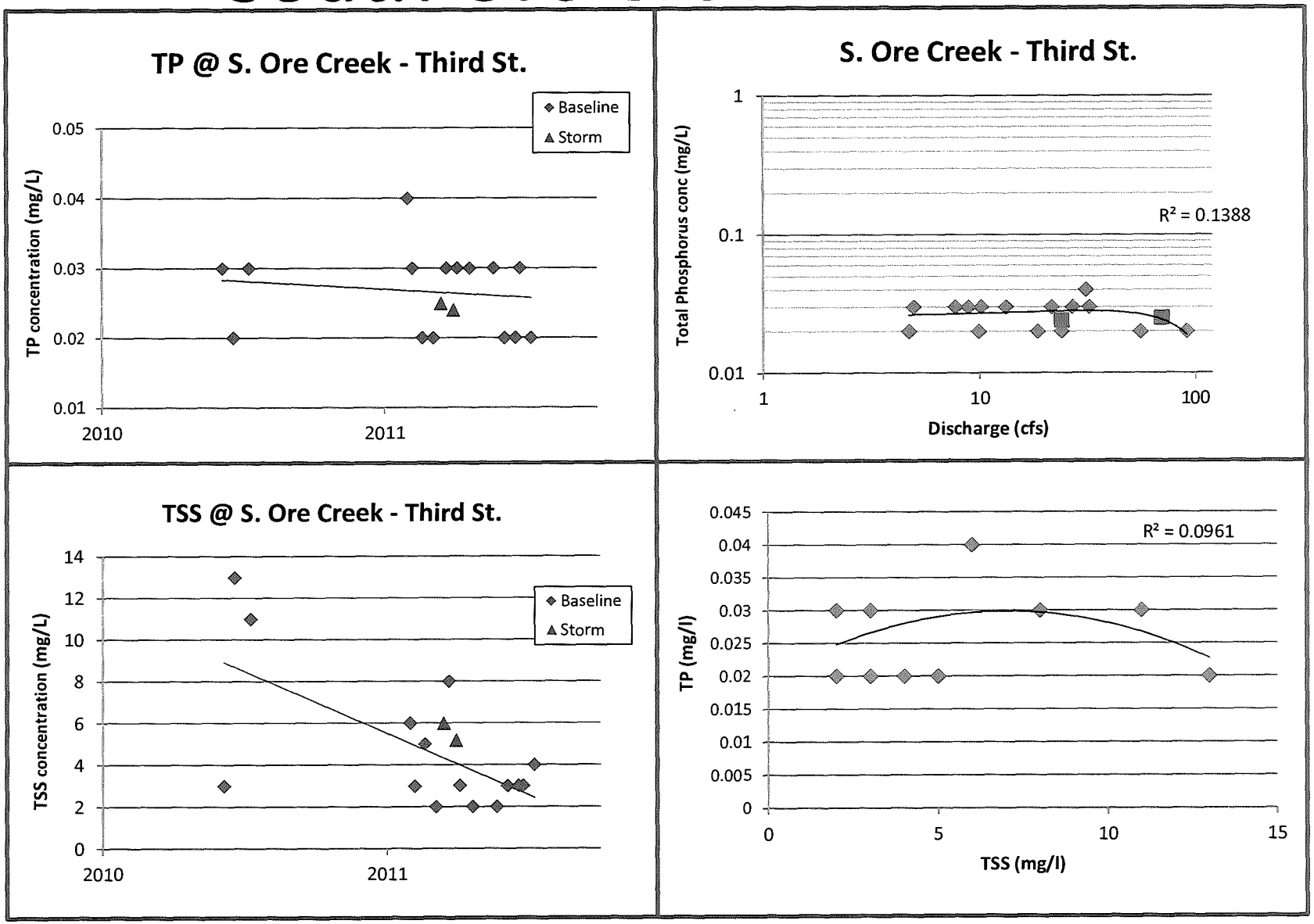




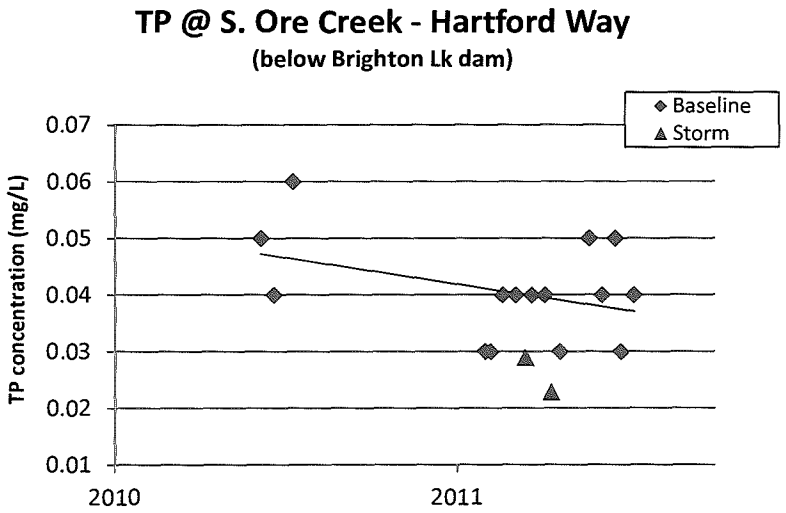


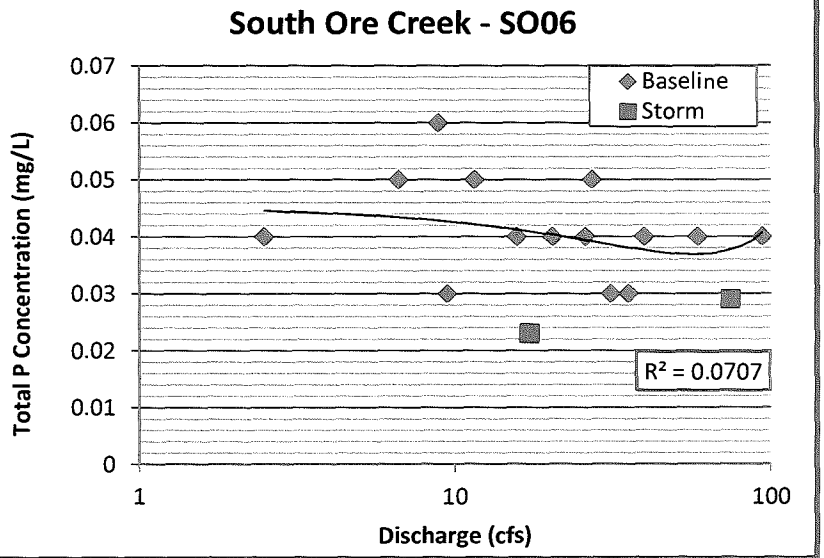


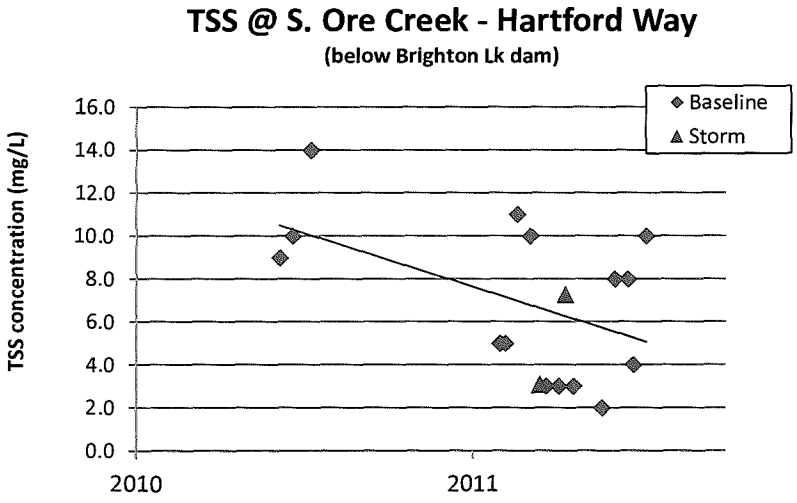
South Ore Creek – SO01

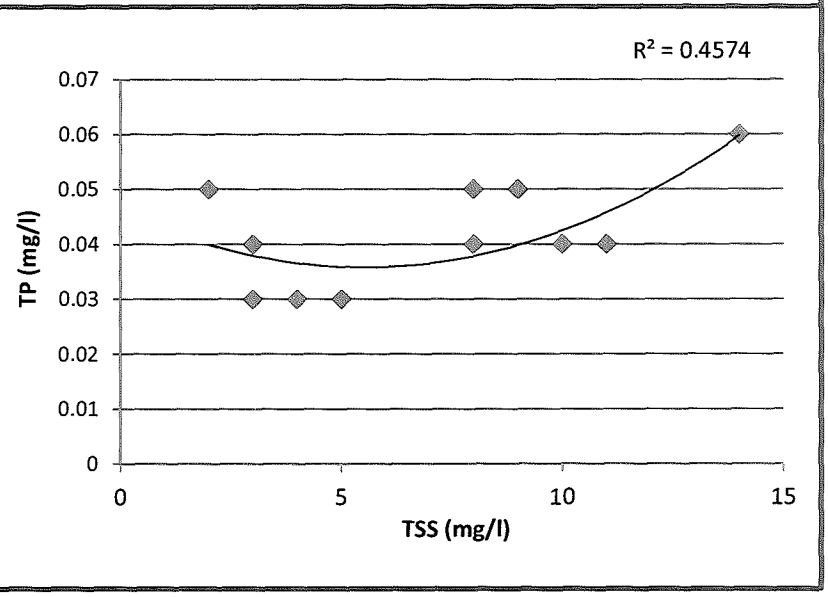


South Ore Creek – SO06

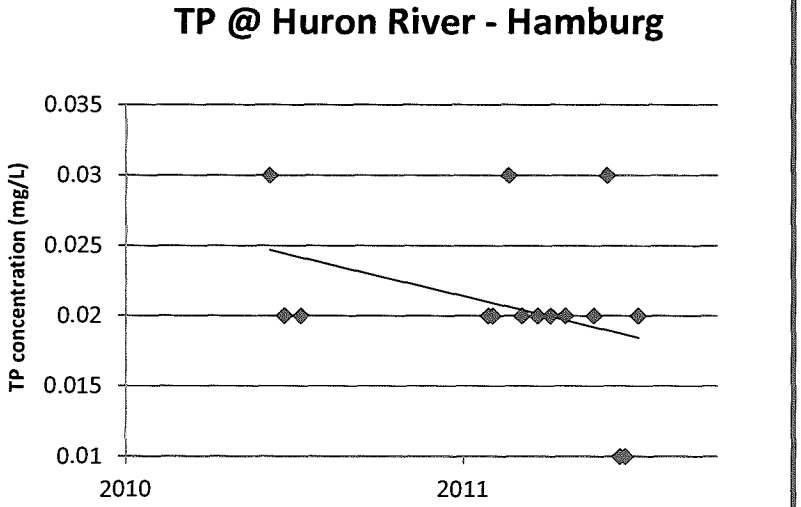


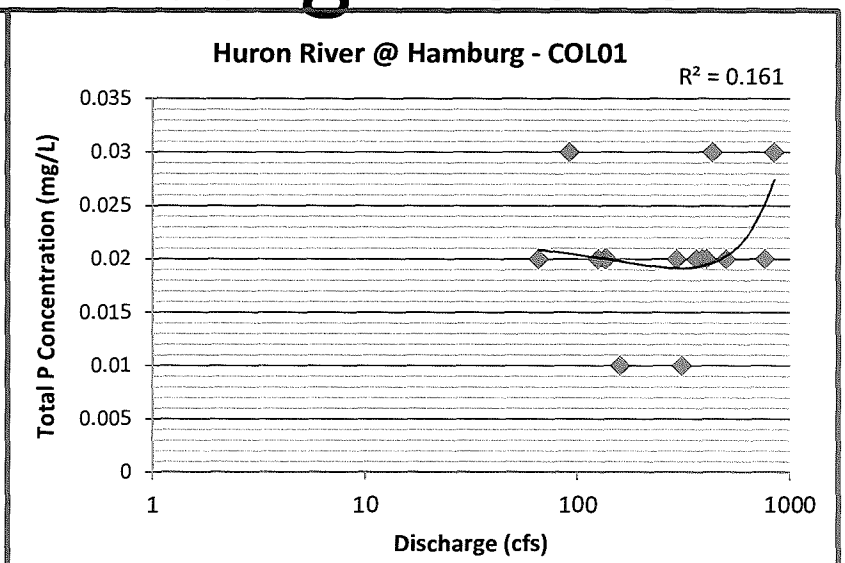


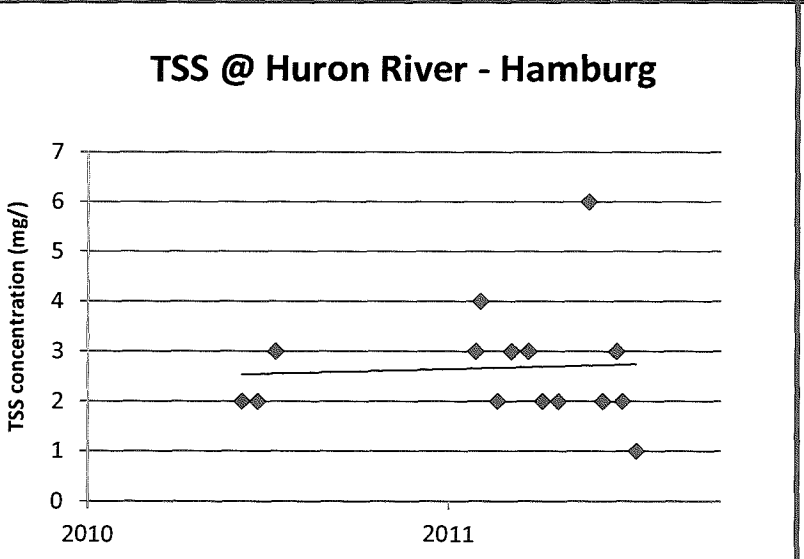


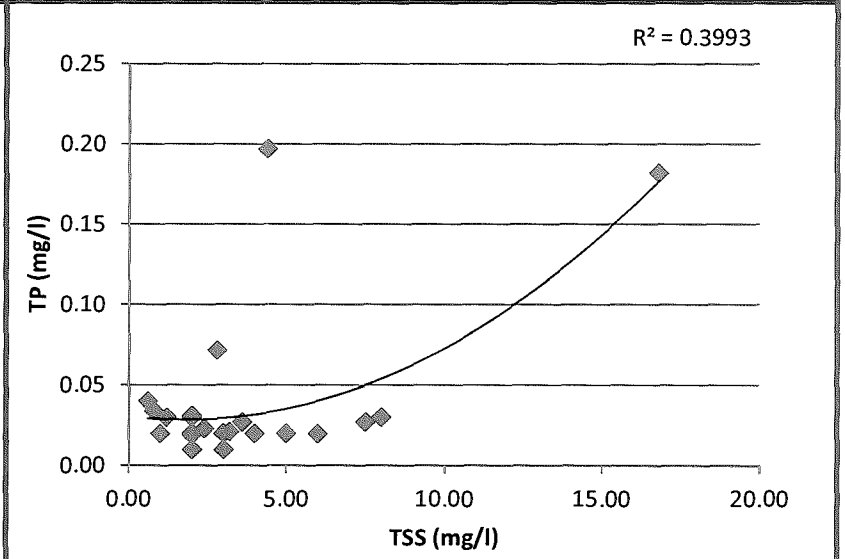


Huron River@ Hamburg – COL01









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