NOTTAWASEWPPI HURON BAND OF THE POTAWATOMI NON-POINT SOURCE POLLUTION MANAGEMENT PLAN

ENVIRONMENTAL DEPARTMENT
NIBI – MNO KI NENYAK

NOTTAWASEPPI HURON BAND OF THE POTAWATOMI
A FEDERALLY RECOGNIZED TRIBAL GOVERNMENT

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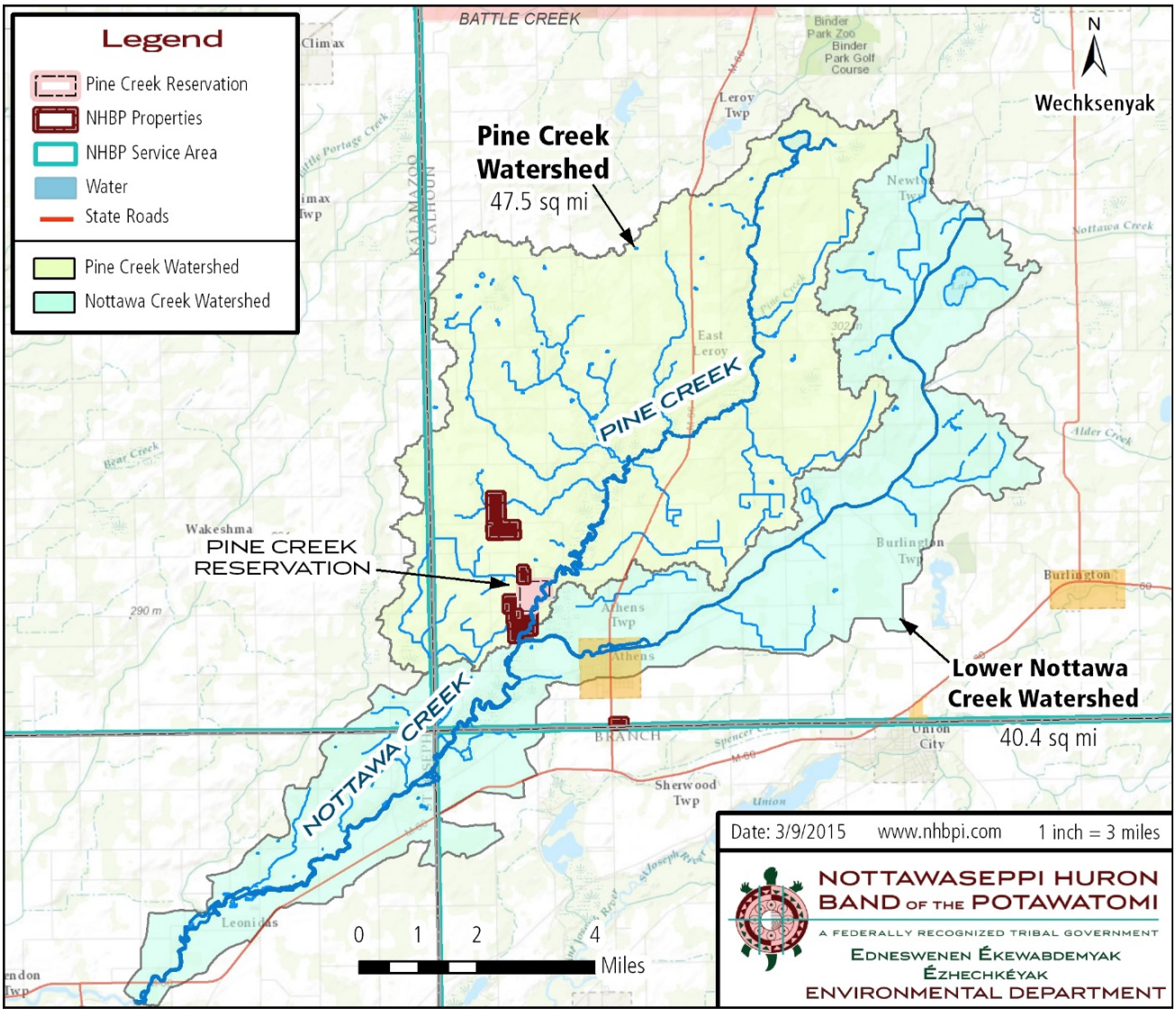
Acronyms

BIA	Bureau of Indian Affairs
BMPs	Best management practices
BCD	Branch Conservation District
CAFO	Confined animal feeding operations
CCD	Calhoun Conservation District
CCPHD	Calhoun County Public Health Department
CCRD	Calhoun County Road Department
CCWRC	Calhoun County Water Resources Commissioner
CSP	Conservation Stewardship Program
CWA	Clean Water Act
DO	Dissolved oxygen
EQIP	Environmental Quality Incentives Program
FotSJR	Friends of the St. Joe River Association, Inc.
FSA	Farm Service Agency
HHW	Household hazardous waste
IPM	Integrated pest management plan
ITCM	Inter-Tribal Council of Michigan, Inc.
GRP	Grassland Reserve Program
MAEAP	Michigan Agricultural Education and Assistance Program
MDARD	Michigan Department of Agricultural and Rural Development
MOU	Memorandum of understanding
NHBP	Nottawaseppi Huron Band of the Potawatomi
NPS	Nonpoint source
NRCS	Natural Resource Conservation Service
NWI	National wetland inventory
OSDS	Onsite sewage disposal system
PLUC	NHBP Planning and Land Use Committee
RCPP	Resource Conservation Protection Program
SESC	Soil erosion and sediment control
SJRBC	St. Joseph River Basin Commission
TEAC	NHBP Tribal Environmental Advisory Committee
TEK	Traditional ecological knowledge
WSFP	Whole system farm plans

Section 1.0 Overview

The Nottawaseppi Huron Band of the Potawatomi (NHBP) have created this Nonpoint Source Management Plan to address water quality impairments in the Tribal waters of the Pine Creek and the Lower Nottawa Creek. The Pine Creek and Lower Nottawa Creek watersheds are primarily located in southwest Calhoun County, Michigan with downstream areas in St. Joseph County. Pine Creek joins Nottawa Creek in Athens Township, Michigan. These watersheds cover 87.9 square miles of land and are tributaries to the St. Joseph River which outlets at the south end of Lake Michigan (**Figure 1**). Both creeks contain about 7 miles of culturally significant wild rice beds. Land cover in these watersheds is as follows: 67.9% agricultural, 21.7% forest, 10% wetlands and water, and 0.4% developed (NHBP 2017).

Figure 1. Target Watershed Locations



Snyder Creek is a small tributary within the Pine Creek watershed with a drainage area of 3,060 acres (4.8 sq. miles). It joins Pine Creek on Tribal property, and much of the Reservation and NHBP properties are in this subbasin. Indian Creek drains into the Snyder just upstream of its confluence with Pine Creek. Snyder Creek extends approximately 4 miles while Indian Creek extends almost 3 miles. They are designated county drains managed by the Kalamazoo and Calhoun County Water Resources Commissioner offices. Both creeks have been impacted by channelization to provide drainage to nearby agricultural fields (NHBP, 2014).

The Tribe has performed water quality monitoring in the target waterbodies for the past several years as summarized in the Nonpoint Source Assessment Report dated March 2017. Based on this report, the most consistent problems in these waterbodies include (NHBP, 2018):

- High water temperatures and low dissolved oxygen levels during summer months,
- Spikes in turbidity in smaller tributaries after rain events,
- Elevated levels of pathogens and nutrients, and
- Hydrologic alterations.

The lack of vegetation and destabilized streambanks are major contributors of these pollutants. With the majority of the watershed in agricultural use, livestock operations and field manure application are likely contributing to the increased pathogen, nutrient and sediment content of surface waters. Poorly vegetated streams on Tribal lands may also be adding to the amount of sediment entering these waterways during storm events. Another key area of focus is the restoration of the historic hydrologic function of wetlands.

After inhabiting the 10,000-acre Nottawaseppi Reservation near Mendon in the early 1800s, Tribal ancestors escaped forced removal and returned to the area of the Pine Creek Reservation in 1840. The Reservation received its name from Pine Creek where the Tribe has resided since 1840, and Bodéwadmi peoples occupied the southern portion of the state for many years prior. Tribal people are closely connected to the Creek and its wetlands, harvesting culturally significant wild rice, hunting for waterfowl and other mammals, fishing for pike and bass, and using medicines found along its banks. An inactive historic artesian well near the Creek is remembered fondly by Tribal Elders. There are several access points on the Reservation where the Creek is still used for swimming, canoeing, hunting & fishing, research, outdoor immersion and collecting wild rice (NHBP 2017).

This plan includes the following:

- Summary of water quality impairments;
- Summary of the NHBP Tribal Management Program;
- A description and schedule of best management practices (BMPs) to be implemented that will address water quality impairments;
- A list of associated programs and agencies that can help implement the BMPs; and
- Certification of Tribal authority.

This report fulfills the statutory requirement for a NPS management plan under Section 319 of the Clean Water Act (CWA) for these Tribal waters. NHBP's legal authority to implement this plan is outlined in our Section 319 Treatment-as-a-State application as provided in Appendix C.

Section 2.0 Introduction

The goals of this plan are to minimize nonpoint source (NPS) pollution from impacting the Tribal watersheds of focus, the Pine and Lower Nottawa creeks, restore impaired segments, and protect and improve water quality on the Reservation. These will be accomplished by devoting resources to the following objectives:

- Implementation of BMPs to control NPS pollution in high priority areas defined by water quality data and local knowledge; and
  Development of Tribal ordinances and policies that establish standards and procedures for preventing NPS issues associated with future development - during and after construction;
- Development and implementation of a public education strategy targeting key NPS pollution behaviors and associated audiences;
- Expand water quality monitoring to further the understanding of NPS pollution impacts and causes and to support the selection of BMPs.

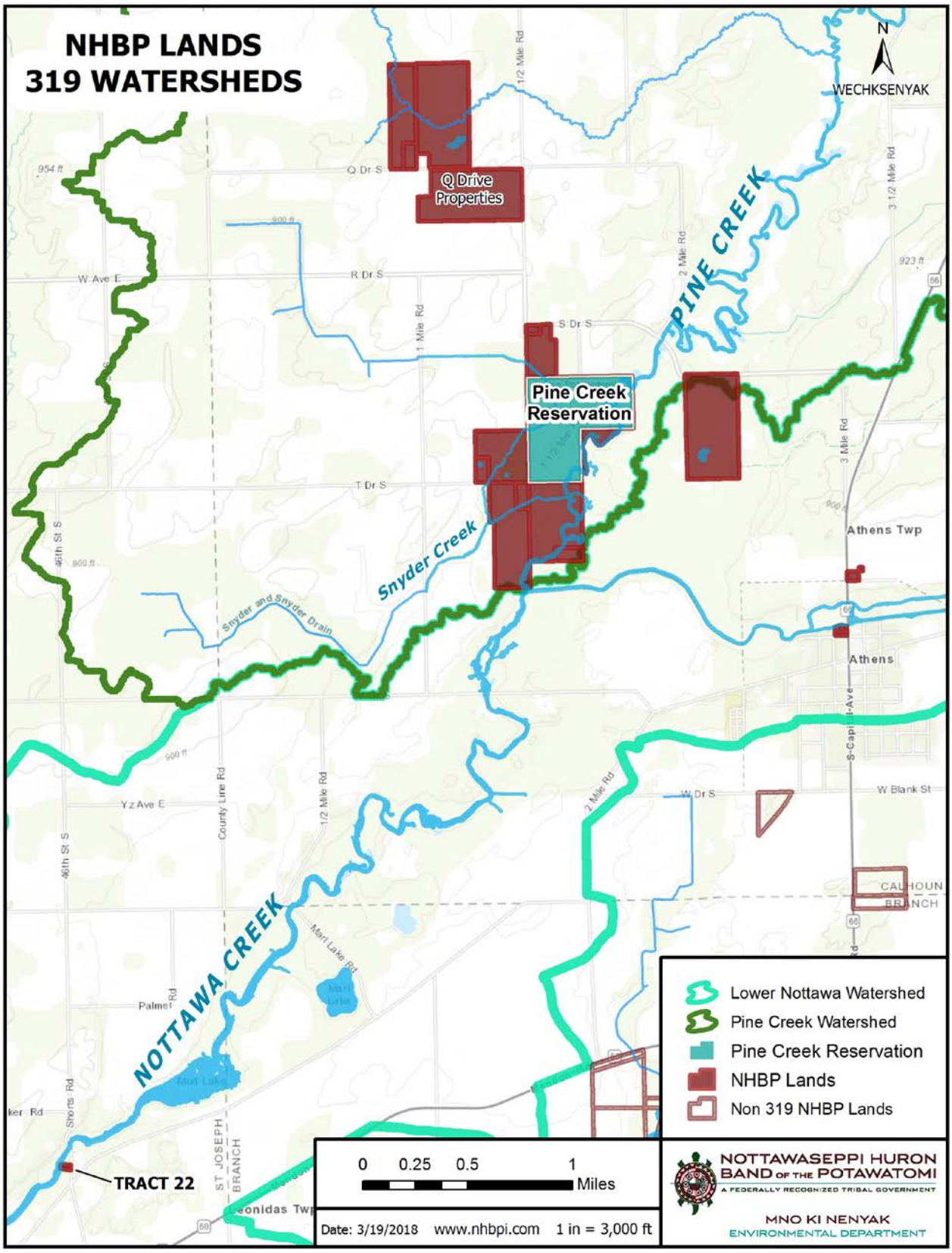
Section 4.0 details specific goals and objectives based on the NPS Assessment Report findings and stakeholder input.

Approximately 70% of NHBP Tribal lands are located in the Pine Creek and the Lower Nottawa Creek watersheds. This includes the 120-acre Pine Creek Reservation and an additional 385 acres of Fee lands as shown in **Figure 2**. This plan focuses on BMPs that can be implemented in these watersheds. Priority will be given to BMPs that can be implemented on and near NHBP properties (both reservation and Fee lands). Additional BMPs will be addressed on non-Tribal lands that impact Tribal waters. It is expected that these BMPs will be led by willing partners as identified in this plan.

To ensure that the NPS Program goals are realized this NPS Plan identifies:

- Feasible and appropriate BMPs selected by NHBP with key non-Tribal partner input where appropriate
- A detailed schedule of management activities; and
- Appropriate programs and partners to assist with BMP implementation.

Figure 2. Tribal Lands within the Pine and Lower Nottawa Creek watersheds



Section 3.0 Tribal NPS Management Program Summary

The NHBP Environmental Department will be the primary driver of this Tribal Non-Point Source Management Plan. As documented in the NHBP 319 Assessment Report, polluted runoff is impacting the Tribal Pine and Nottawa Creek Watersheds, resulting in impairments to these waterways. While there are potentially other sub-watersheds of interest near NHBP Trust and other Lands, and in the un-recognized ceded territories, the Pine and Nottawa are the primary nexus to the Pine Creek Indian Reservation.

This purpose of this section is to describe related plans, ordinances and codes that will be associated with implementing the Tribe's NPS program. It also describes the Tribe's staffing structure for implementing this plan, partners who will aid in BMP implementation, planned monitoring efforts to determine the effectiveness of the BMPs, and how the Tribe will coordinate on reporting requirements.

3.1 Related Codes and Plans

The Tribal Council provides ultimate oversight on decisions regarding NPS pollution management. The course of action is set forth in this Management Plan, and these are existing Tribal Ordinances that are related to NPS on Tribal Lands:

- The Utility Code (Chapter 1.3) – requires proper disposal of sewage including tying into the Tribe's sanitary sewer system when within 200 feet of a property.
- The Soil Erosion and Sediment Control Ordinance (Chapter 6.2) – controls sediment from construction sites when land disturbance is greater than 25,000 sq. ft.
- The Solid Waste Ordinance (Chapter 6.3) – requires recycling and prohibits illegal dumping.
- The Forest Protection & Timber Harvesting Ordinance (Chapter 6.4) – regulates timber cutting, firewood handling and timber removal to preserve timber resources.

The USEPA approved St. Joseph River Watershed Management Plan completed by the Friends of the St. Joe River in 2005 (Degraves, 2005) and the Upper Nottawa Creek Watershed Management Plan developed by the Calhoun Conservation District in 1998 (CCD, 1998), have laid the foundation for the development of both the NHBP NPS Assessment Report and now the Management Plan.

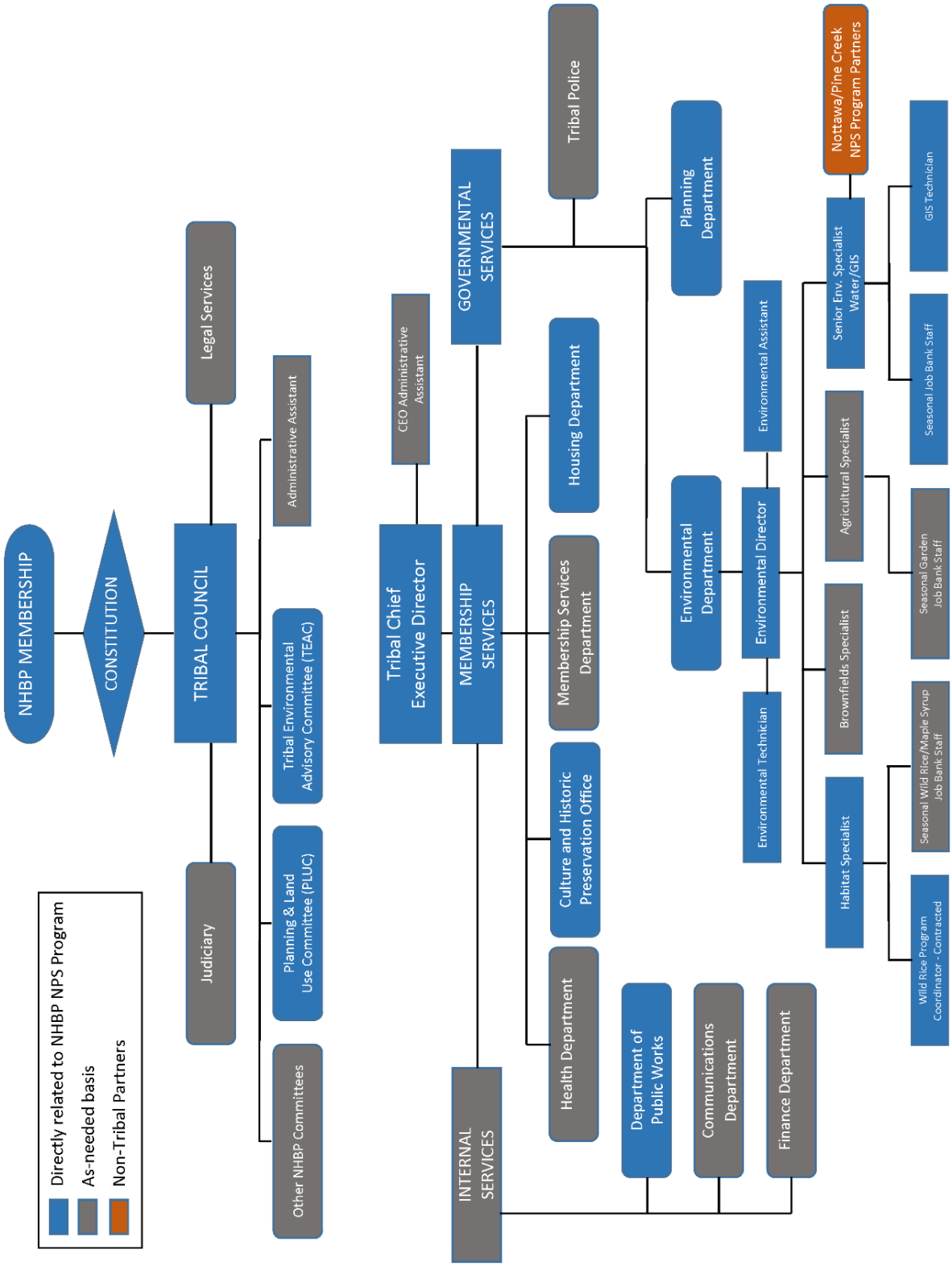
3.2 Tribal NPS Program Partners

The Tribe's Environmental Department, within the Governmental Services Division (**Figure 3**), manages the NPS management program and is responsible for implementing the recommendations contained within this plan. This department has five staff members who will implement the NPS program along with their other responsibilities. Additional staff may be added as deemed necessary and as funds become available. Environmental Department staff will work with other Tribal agencies including the Planning Department, Department of Public Works, Legal Department, Cultural and Historic Preservation Office, and the Housing Department, as shown in **Appendix A**. They will also rely on Tribal members for traditional ecological knowledge (TEK) to better understand historic conditions and effective restoration and preservation approaches. Thus, the Environmental Department will be

provided with a wide range of resources to help implement this plan including access to funding and input on Tribal development projects and infrastructure management.

Funding plays a critical role in BMP implementation and NPS priorities do not always align with available funding. The Tribe's Environmental Department is as of present partially grant funded with CWA Section 106 funding through a Tribal PPG from the USEPA. These funds are currently used to develop the NPS program and monitor water quality. The Tribe anticipates requesting additional federal funding through the CWA 319 Program and competitive 319 funds once eligible.

Figure 3. NHBP Governance Structure as it Relates to the NPS Program



However, some Tribal resources will also be needed, which is why partnering with other programs will be vital to securing the necessary resources. An overview of these programs can be found in **Appendix B,** which is organized by NPS pollutant category.

The recommendations in this plan will target actions on NHBP properties (both reservation and Fee lands) within the Pine and Lower Nottawa creek watersheds. NHBP staff will provide technical expertise and support the implementation of additional BMPs on non-Tribal lands that impact nexus waters. It is anticipated that non-Tribal initiatives will be led by willing partners as identified in this plan.

3.3 Non-Tribal NPS Program Partners

The Tribe has established long-standing partnerships with local and regional agencies and organizations that are relevant to water quality. Staff will continue to consult these partners in planning and implementing BMPs in the Pine and Nottawa creek watersheds, as appropriate. The primary partners for implementing this plan are the CCD, FotSJR, and the Calhoun County Water Resources Commissioner (CCWRC). CCD assists in connecting landowners with the proper programs in the Natural Resource Conservation Service (NRCS), Farm Service Agency (FSA), or Michigan Department of Agriculture and Rural Development (MDARD). Additional participants that will be involved regularly include the Michigan Department of Environmental Quality (MDEQ), for coordination with existing 319 and TMDL projects, and the Potawatomi Resource Conservation and Development Council. Water staff have announced the intention to develop this NPS plan at meetings of the FotSJR and to additional local organizations and staff. A complete list of potential non-Tribal partners can be found in **Appendix A**.

3.4 Monitoring and Assessment

The monitoring summarized in the Tribe's NPS Assessment Report has indicated where NPS impairments are known or suspected to be impacting water quality in the Pine and Lower Nottawa creeks. This monitoring needs to continue, and perhaps expand, to identify additional impairments and determine progress in meeting the NPS objectives established by the Tribe.

While continual monitoring of water quality effectiveness of BMPs is not included in this Management Plan, NHBP will use future data to assess the effectiveness of the Section 319 program and to reprioritize areas for management. This monitoring will primarily be conducted through our 106 Water Monitoring Program, of which the Tribe provides additional funding and equipment to support. In addition, the effectiveness of individual BMP projects may be determined. **Table 1** provides an overview of the all monitoring conducted by the Tribe including the CWA 106 program and its relation to future assessment of NPS activities.

3.5 Coordinated Reporting

The success of this plan relies primarily on NHBP, but also on broad participation from a variety of non-Tribal partners. As a result, it is important to have a system in place to share and document progress on implementing the BMPs contained in this plan. Such a tracking system does not currently exist.

Historically NHBP Environmental Department staff have relied on informal communications with other department managers and local organizations responsible for land management. The goal for coordinated tracking and reporting will be to build upon these existing relationships to create a formal process. This coordinated reporting will seek to track the effectiveness measures identified for each BMP and report out on a regular, perhaps annual, basis to interested stakeholders. As part of the NPS program authority, NHBP will track all activities completed under the 319 program, including other partner water quality activities in Tribal Watersheds.

Table 1. NPS Related Monitoring and Assessment

Activity	**Frequency**	**Funding/Staffing**
Reevaluate and establish additional monitoring stations	Annually	CWA 106 Program NHBP Tribal Support
Monitor BMP effectiveness	Project dependent	• Desktop assessment or windshield survey: • Scientific assessment (Ex: Pre- and Post-implementation monitoring): $1K -10K project 106 Program, Future NPS Assessment Report
Review program priorities	Annually	106/319 Program
Review program process	Annually	319 Program
Reassess water quality data against NPS Program goals and targets	Every 5 years	– 106 Program
Review and update NPS Program	Every 5 years	106/319 Program

Section 4.0 NPS Management Program Description

This section of the NHBP NPS Management Plan provides details on the program scope, structure, and function by identifying possible BMPs, programs, funding sources, and an implementation schedule for the target waterbodies. This will include the identification of short- and long- term objectives for each NPS pollution category that is relevant to the watersheds. BMPs were suggested and prioritized in the NHBP NPS Assessment Plan based on known impairments and potential impact of the Tribe. To provide context for the proposed BMPs, this section also includes a summary of the NPS impairments.

Based on the findings of the NPS Assessment Report, the priority and secondary pollutants of concern for the waterbodies include water temperature, dissolved oxygen, bacteria as measured by *E. coli*, total phosphorus, total nitrogen and turbidity as shown in **Table 2**. It should be noted that there is limited data available for bacteria, phosphorus and nitrogen; as such, these pollutants may become more prominent in future assessments.

The impairments associated with the pollutants are shown in **Table 3** by NPS category. It should be noted that the NPS Assessment Report identified contaminated sediments as a potential issue in Lower Nottawa Creek because they were found in Upper Nottawa Creek. However, since no contamination has been found in Lower Nottawa Creek, it is not listed in **Table 3**.

NHBP will use an adaptive management approach as they implement this plan. As new water quality data becomes available or as project collaboration opportunities are presented, priorities may shift from the provided schedule. The NHBP Environmental Department will be sure to take advantage of these opportunities to meet the goals of this plan regardless of the schedule, which will strengthen the effectiveness of the Tribe's NPS program by opening partnerships and funding programs not previously available.

Table 2. Pollutants of Concern

Pollutant of Concern	**Waterbodies**		
	Pine Creek	**Snyder Creek**	**Lower Nottawa Creek**
Water temperature	Priority	Secondary	Priority
Dissolved oxygen (DO)	Priority	Secondary	Priority
E. coli	Priority	Priority	Secondary
Total Phosphorus	Secondary	Priority	Secondary
Total Nitrogen	Secondary	Priority	Secondary
Turbidity	Secondary	Priority	

Table 3. Impairments and Pollutants from the NPS Assessment Report

NPS Category	Impairments	Associated Pollutants	Affected Waterbody		
			Pine	Snyder	Lower Nottawa
Agriculture	Uncontrolled runoff	All	X	X	X
Livestock Operations	Uncontrolled cattle access	All	X	X	X
Hydrologic Modifications	Channelized for flow conveyance	Temp, DO, Turbidity	X	X	X
Wetland Degradation	Non-native species, drained wetlands	Temp, DO, Turbidity	X	X	X
Landscape Practices	Lack of woody cover along streambanks	Temp, DO, Turbidity	X	X	
Stormwater from Developed Areas	Uncontrolled runoff	All	X	X	X
Onsite Wastewater systems	Improperly maintained systems resulting in discharge of undertreated wastewater	All	X		X
Road and Trail crossings	Undersized culverts resulting in eroding streambanks	Temp, DO, Turbidity	X	X	X
Construction site runoff (<1 acre)	Uncontrolled runoff	Turbidity, Nutrients	X		
Forested and Vegetative Cover	Lack of woody cover along streambanks; Encroachment from turf maintenance activities	Temp, DO, Turbidity	X	X	X

4.1 Selected BMPs

NHBP Environmental Department developed an initial list of BMPs in the Assessment Report working with local partners and experts **(Appendix A)**. This list was refined, and specific project sites were selected for BMP implementation in this management plan. The selected BMPs are listed below by NPS category. NHBP will be the lead agency to implement these BMPs as part of its 319 program authority. Due to much of the land in these watersheds not being in Tribal ownership, the BMPs include project partners and additional funding sources that may be needed to complete that activity. Table 4 below is a summary of all Best Management Practices for each Non-Point Source category.

Table 4. BMPs for all NPS Categories

Applicable BMPs	Project Lead	Partnering Agencies	Watersheds/Sites for BMP application	Effectiveness Measure
NPS Category – Agricultural				
Long-term Goal: Reduce bacteria, nutrient and sediment contributions to Tribal waters from agricultural activities including crop production and pasture land practices				
Incorporate MAEAP Program requirements into NHBP agricultural land leases.	NHBP ENV	MDARD, CCD/BCD NHBP Legal	NHBP agricultural leases Snyder Creek Watershed	Lease language drafted
Incorporate periodic inspections and compliance with MI Dept of Agriculture (MDARD) requirements into NHBP agricultural land leases.	NHBP ENV	MDARD CCD/BCD NHBP Legal	NHBP agricultural leases Snyder Creek Watershed	Inspection and compliance language drafted
Completed agreements on NHBP Farmland Leases incorporating new conservation language. Use as model lease agreement example. Explore Whole Farm System Plan as additional model (WSFP)	NHBP ENV	MDARD, CCD/BCD NHBP Legal	NHBP agricultural leases Snyder Creek Watershed	Completed lease agreements
Workshops with NHBP Land Leases and local farmers/producers regarding implementing NPS BMPs to protect water quality.	NHBP ENV	CCD/BCD, MDARD, NRCS, FSA, TEAC	Leased NHBP agricultural lands, other Ag Lands in Pine/Nottawa Watershed	Number of workshops and discussions with producers
Facilitate development of nutrient management plans with assistance from conservation partners as needed.	NHBP ENV	CCD/BCD, MDARD, NRCS, FSA,	Leased NHBP agricultural lands, other Ag Lands in Pine/Nottawa Watershed	% of Ag lands with nutrient mgmt. plans
Facilitate the development of an Integrated Pest Management (IPM) plan with assistance from conservation partners as needed.	NHBP ENV	CCD/BCD, MDARD, NRCS, FSA,	Leased NHBP agricultural lands, other Ag Lands in Pine/Nottawa Watershed	% of Ag lands with IPM plans
Highlight MAEAP demonstration projects or educational workshops incorporating MAEAP principles.	NHBP ENV	CCD/BCD, MDARD, FotSJR	Leased NHBP agricultural lands, other Ag Lands in Pine/Nottawa Watershed	Number of workshops and demonstration projects
Assist farms in obtaining MAEAP certification with assistance from conservation partners as needed.	NHBP ENV	CCD/BCD, MDARD,	Farms in Pine/Nottawa Watersheds	% of Leases in MAEAP % of Watershed in MAEAP
Implement streambank stabilization, grading, or rock barriers on highly erodible Tribal or Non-Tribal Lands to control runoff.	NHBP ENV	CCD/BCD, MDARD, NRCS, FSA,	Leased NHBP agricultural lands, other Ag Lands in Pine/Nottawa Watershed	Estimates of NPS pollutant load reduction
Work with federal and local partners to identify most critical riparian areas on Non-Tribal Lands in the watershed.	NHBP ENV	CCD/BCD, CCWRC, FotSJR, NRCS, FSA	Snyder Creek Watershed Pine/Nottawa Creek Watersheds	Critical sites identification completed
Install livestock fencing or other management measures on high priority sites in the watershed.	NHBP ENV	CCD/BCD, MDARD, NRCS, FSA, CCWRC	Leased NHBP agricultural lands, other Ag Lands in Pine/Nottawa Watershed	Length of BMP installed, % of fields protected

Applicable BMPs	Project Lead	Partnering Agencies	Watersheds/Sites for BMP application	Effectiveness Measure
Install grassland, forest, or other filter strip planting types in riparian corridors.	NHBP ENV	CCD/BCD, MDARD, NRCS, FSA, CCWRC	Snyder Creek, Pine/Nottawa Watershed	Length of BMP installed
Work with local conservation districts and other local partners to develop model ordinances for riparian buffers and setbacks for agricultural operations.	NHBP ENV	CCD/BCD, MDARD, Local Municip., CCWRC	Pine and Nottawa Creek Watersheds	Model ordinance drafted
Survey of ground and surface water irrigation withdrawals in the Pine & Nottawa Creek Watersheds.	NHBP ENV	CCD/BCD, MDARD, NRCS, FSA, CCWRC	Snyder Creek Watershed Pine/Nottawa Creek Watersheds	Water withdrawal quantified
NPS Category – Hydrologic Modification				
Long-term Goal: Reduce channelization and restore hydrologic connectivity, limiting erosion and sedimentation, and helping Tribal Waters to meet criteria for Temperature and Dissolved Oxygen				
Restoration of historic hydrology to streams and wetlands impacted by channelization and modification. This may include project design, cost estimates, and construction phases.	NHBP ENV	CCWRC, Local Municip., FotSJR, MDNR, ACE,	Pine & Nottawa Creek Wetland Complex at Reservation. Other drains in watershed.	Completion of project phases, final restoration & 106 Program water monitoring
Develop natural stream guidelines to present to County Drain Commissioners. This would include typical cross sections, clean out procedures, and buffer requirements.	NHBP ENV	CCWRC, CCD/BCD, MDNR/DEQ, FotSJR	Pine and Nottawa Creek Watersheds	Guidelines drafted and presented to Local Officials
Collaborate with County Drain/Water Resource Comm. to restore impacted designated drains	NHBP ENV	CCWRC, CCD/BCD	Pine and Nottawa Creek Watersheds	Length of stream restoration projects
Further categorize problem sites in small tributaries by identifying improper slope, poor culverts, and other alterations.	NHBP ENV	CCWRC, CCD/BCD, FotSJR	Indian/Snyder Creek, Pine/Nottawa Tributaries	Number of sites categorized
Implement stream barrier removal/improvements as identified in the Potawatomi RC&D Inventory. This may include project design, cost estimate, construction, and working with partners.	NHBP ENV	CCWRC, Local Municip., FotSJR, MDNR, ACE	Nottawa Creek, Pine Creek, Indian/Snyder Creeks	Stream connectivity projects completed
NPS Category – Wetlands				
Long-term Goal: Minimize further loss of wetlands, protect key wetland buffers, and restore low quality wetlands				
Implement wetland restoration and protection projects on NHBP Lands directly linked to NPS protection.	NHBP ENV	TEAC, PLUC, DPW, ACE, MDEQ	Indian Snyder Creeks, Pine Creek Wetlands	Acres restored/ protected
Identify top 10 ranked Non-NHBP wetland sites for preservation, and establish contact with landowners.	NHBP ENV	CCWRC, CCD/BCD, FotSJR, TEAC, PLUC, NHBP Planning	Snyder Creek Watershed, Pine and Nottawa Creek Watersheds	Wetland sites identified

Applicable BMPs	Project Lead	Partnering Agencies	Watersheds/Sites for BMP application	Effectiveness Measure
Implement protection and restoration projects on top 10 ranked wetland sites, which may include land acquisition, conservation easement, or riparian restoration.	NHBP ENV	CCWRC, CCD/BCD, FotSJR, TEAC, PLUC, SWMLC	Snyder Creek Watershed, Pine and Nottawa Creek Watersheds	Number of wetlands projects completed
Conduct site specific natural/cultural features inventory to identify high quality preservation areas that are preventing NPS from reaching Tribal Waterways	NHBP ENV	TEAC, PLUC, CHPO, SWMLC	NHBP Lands, Snyder Creek Watershed, Unnamed Tributary	Number of sites inventoried
NPS Category – Transportation				
Long-term Goal: Improve road-stream crossings to minimize impacts from runoff, reduce erosion, and improve connectivity				
Reduction of erosion through improvements to Indian Creek Drain Bridge near Pow-Wow Grounds.	NHBP ENV	TEAC, PLUC, CCWRC, CHPO	Indian Creek Drain at NHBP Pow-Wow Grounds	Completion of project phases. Pollutant reduction estimates.
Improve additional NHBP tributary stream crossings through improved BMP practices to reduce NPS runoff.	NHBP ENV	TEAC, PLUC, CCWRC, CHPO	Indian & Snyder Creeks, Unnamed Tributary, Pine Creek Tributaries	Number of BMPs % of sites completed
Partner with Calhoun County Road Dept. during bridge improvement projects to incorporate water protection and NPS crossing BMPs.	NHBP ENV	CCRD, NHBP Planning, MDNR/DEQ,	Pine and Nottawa Creek Watersheds	Number of collaboration projects completed
Develop/adopt a road-stream crossing BMP manual for future NHBP and County Road Department projects.	NHBP ENV	CCRD, NHBP Planning, DPW, CCD/BCD, MDEQ	Pine and Nottawa Creek Watersheds	Road/Stream BMP Crossing Manual completed
Develop a memorandum of understanding (MOU) with the CCRD and Tribe to further consult on road construction projects. Identify culturally significant resources affected by projects.	NHBP ENV	CCRD, NHBP Planning, DPW, CHPO	Pine and Nottawa Creek Watersheds	MOU drafted and established between organizations
Develop and install signage at NHBP or County Road/Stream Crossings to identify innovative NPS BMPs that are being implemented.	NHBP ENV	TEAC, NHBP Planning, CCRD, DPW, CHPO	Pine and Nottawa Creek Watersheds	Number of signs installed, estimated # of visitors to site
NPS Category – Construction & Developed Areas				
Long-term Goal: Minimize water quality impacts from stormwater runoff, maximize infiltration, and encourage landscaping practices that are protective of water quality				
Design and implement retrofits for existing detention ponds and Stormwater areas	NHBP ENV	TEAC, PLUC, DPW	Pine Creek Reservation & Adjacent Lands	Number of sites, acres retrofitted
Measures that reduce runoff and encourage infiltration in developed areas: check dams, permeable pavements, rain barrels, vegetative buffer zones, rain gardens, bank stabilization	NHBP ENV	NHBP Housing, TEAC, PLUC, DPW	NHBP Government Campus, Indian/Snyder Creeks, Pine Creek	Number of projects implemented, estimated pollutant reductions

Applicable BMPs	Project Lead	Partnering Agencies	Watersheds/Sites for BMP application	Effectiveness Measure
Develop an NHBP Stormwater management ordinance and construction standards manual	NHBP ENV	TEAC, NHBP Legal, DPW	Pine Creek Reservation and NHBP Land	Manual drafted
Present ordinances to NHBP Committees, Members, and Leadership to work towards Adoption of the new ordinance and standards	NHBP ENV	TEAC, PLUC, NHBP Legal	Pine and Nottawa Creek Kalamazoo & Spencer Creek Watersheds	Ordinance adoption
Develop a soil erosion and sediment control program manual	NHBP ENV	TEAC, PLUC, DPW, FotSJR	Pine/Nottawa/Kalamazoo/Spencer Creek Watersheds	Manual developed
Develop and provide Onsite Sewage Disposal Systems information to Tribal members and community not using NHBP Community System.	NHBP ENV	TEAC, PLUC, NHBP Housing, DPW	Member households dispersed throughout Kalamazoo, St. Joe, and Grand River Watersheds	Number of households reached # of mailings
Compile and Post information on Household Hazardous Waste locations to prevent illicit chemical dumping.	NHBP ENV	TEAC, Local Municipal., NHBP Housing	Member households dispersed throughout Kalamazoo, St. Joe, and Grand River Watersheds	Number of households reached # of mailings
Develop and adopt Landscape Management Manual to improve water quality practices on NHBP Lands.	NHBP ENV	TEAC, DPW, NHBP Housing/Planning	Pine and Nottawa Creek Watersheds, Spencer Creek	Manual drafted
Education workshops for Department of Public Works on Landscape Management Manual and NPS BMPs	NHBP ENV	TEAC, DPW, NHBP Housing/Planning, CCD/BCD	Pine and Nottawa Creek Watersheds, Spencer Creek	# of workshops and employees reached
Install signage at NHBP BMP projects to educate how NPS BMPs are protecting water quality.	NHBP ENV	TEAC, NHBP Planning/Housing, DPW, CHPO	Pine Creek Reservation, Snyder and Pine Creek Watersheds	Number of sign projects completed
Provide educational materials or workshops for Reservation Residents to encourage good water housekeeping (pet waste, no chemicals down the drain, native landscaping, water conservation)	NHBP ENV	TEAC, NHBP Housing	NHBP Government Campus, Indian/Snyder Creeks, Pine Creek	# of mailings or workshops held # of residents participating

CCD/BCD = Calhoun/Branch Conservation Districts, CCWRC = Calhoun County Water Resources Commissioner, FotSJR = Friends of the St. Joe River, MDARD = Michigan Department of Agricultural and Rural Development, NRCS = Natural Resources Conservation Service, FSA = Farm Service Agency/USDA, ACE = CCRD = Calhoun County Road Department, US Army Corps of Engineers, MDNR = Michigan Dept of Natural Resources, MDEQ = Michigan Dept of Environmental Quality, SWMLC = SW Michigan Land Conservancy, TEAC = Tribal Environmental Advisory Committee, PLUC = NHBP Planning and Land Use Committee, CHPO = NHBP Cultural and Historic Preservation Office, DPW = NHBP Department of Public Works,

4.1.1 Agricultural

Agricultural BMPs are listed above in Table 4, BMPs for All NPS Categories. As indicated previously, 67.9% of target watersheds are in agricultural use. These farms are dominated by large to medium-sized fields of mono-cultural row crops, primarily corn and soybeans. The fields are both tiled and non-tiled. Proper management of surface water runoff from these fields is necessary to avoid NPS pollution. Having a long-term land management plan in place, tailored to the farmer and land owner's goals, can help to increase productivity, strengthen operations and protect land value while reducing erosion and

pollutants. Added benefits include improved water quality and wildlife habitat. Although there are no permitted confined animal feeding operations (CAFOs) in the watershed, at least one is located immediately west of the watershed boundary, in the Bear Creek Drainage area, which exports manure to farms within the watershed. The manure application method can cause NPS pollution in the tributary streams.

Except for the Community Garden, the Tribe does not operate any farms in the target area, but does currently lease 22 acres of land to farmers. The Tribe leases an additional 60 acres of farmland in the Spencer Creek watershed, which also drains to the St. Joseph River. The typical lease agreement period is one year, providing the Tribe an opportunity to control NPS pollution on through lease revisions on agricultural fields.

The following issues were noted as known or potential agricultural related pollution issues in the Assessment Report:

- Bare soils in the winter due to a lack of cover crops
- Lack of vegetative filter strips along streambanks
- Cutting of riparian vegetation along streams to increase the portion of land in production
- Improper application of fertilizers and pesticides
- Application of liquid manure near streams
- Runoff from manure stockpiles
- Overflow of ponds to streams
- Uncontrolled cattle grazing on streambanks
- Direct livestock access to streams

The long-term goal is to reduce bacteria, nutrient and sediment contributions to Tribal waters from agricultural activities including crop production and pasture land practices. This goal can be accomplished by meeting the following objectives:

1) Control agricultural runoff on Tribal lands.
2) Support the use of conservation practices on agricultural fields on non-Tribal lands.
3) Limit cattle access to streambanks and streams.

These goals can be implemented through the BMPs listed in table 4, under the Agricultural Category. The following section contains a description of some of the BMPs, programs, and resources that will be utilized in their application.

Michigan Agriculture Environmental Assurance Program

The Michigan Agriculture Environmental Assurance Program (MAEAP) is an innovative, proactive program that helps farms of all sizes and all commodities voluntarily prevent or minimize agricultural pollution risks. MAEAP teaches farmers how to identify and prevent environmental risks and comply

with state and federal environmental regulations. Farmers who successfully complete the three phases of a MAEAP system (Livestock, Farmstead, Cropping) are rewarded by becoming verified in that system.

Conservation Stewardship Program

The Conservation Stewardship Program (CSP) through the Natural Resources Conservation Service (NRCS) helps agricultural producers maintain and improve their existing conservation systems and adopt additional conservation activities to address priority resource concerns. Participants earn CSP payments for conservation performance - the higher the performance, the higher the payment. Some of the conservation activities and practices help to support increasing riparian forest buffer width for nutrient reduction and sediment loading; increasing stream shading for stream temperature reduction; and, extending existing filter strip to reduce excess nutrients, pathogens, chemicals, and sediment in surface water Examples of enhancement options available to producers include cover crops to improve soil health and productivity, buffers to enhance water quality and wildlife-friendly fencing. Such practices provide multiple benefits to both the farmer and downstream landowners as they reduce nutrients, sediment and pathogens in surface water. CSP can help plan and implement these enhanced activities that address natural resource concerns on crop and grazing operations.

These conservation practices support streambank and shoreline protection and restoration by utilizing vegetative species that are native and/or compatible with local ecosystems. The plant material selected can also provide valuable habitats for desirable wildlife and pollinators which benefit crop production. NRCS provides free technical assistance to agricultural producers. To participate in CSP and receive financial assistance, producers must control or own the land, comply with highly erodible land and wetland conservation requirements, and have current farm records with the USDA FSA.

Pasture Management BMPs

Rotation of Livestock, Forage Management, and Residual Height: Rotation of livestock is based on pasture recovery as indicated by forage height, not calendar days, especially in cases where paddocks are different sizes and vary in pasture productivity. Residual height is critical to rapid regrowth of the pasture. If little leaf area remains, the plants draw on root reserves for regrowth after grazing, which weakens the plants and slows recovery, resulting in bare soils and evidential surface runoff into streams.

<u>Pasturing Fencing BMPs</u>

Permanent Fences: For a large property, a fence maintenance schedule should be developed, with a budget set aside for this purpose. Permanent perimeter fencing that is currently in place should be inspected regularly and repaired or replaced immediately. This will result in less livestock entrance into riparian corridors, reducing erosion into agricultural drains.

<u>Watering System BMPs</u>

Most research suggests that animals will utilize pasture more efficiently and will tend to drink individually rather than in a group when the water is in sight at a distance of less than 900 feet. Having water on pasture will ensure more uniform utilization of the pasture and reduce the amount of time the

animals spend loafing near ponds, tanks or streams. NRCS engineers can assist in exploring these options and designing systems.

Addressing agricultural impairments is a high priority for NHBP due to the amount of area in production, observations of streambank erosion and the loss of riparian vegetation. Agricultural BMPs from Table 4 are listed here in Table 5 with a timeline of when each can be implemented as part of the NHBP NPS Management Program.

Table 5. Agricultural BMP Schedule

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6+
Agriculture						
Incorporate MAEAP Program requirements into NHBP agricultural land leases.	X	X	X			
Incorporate periodic inspections and compliance with MI Dept of Agriculture (MDARD) requirements into NHBP agricultural land leases.	X	X	X	X	X	X
Completed agreements on NHBP Farmland Leases incorporating new conservation language. Use as model lease agreement example.	X	X	X	X		
Workshops with NHBP Land Leases and local farmers/producers regarding implementing NPS BMPs to protect water quality.	X	X	X	X	X	X
Facilitate development of nutrient management plans with assistance from conservation partners as needed.	X	X	X	X	X	X
Facilitate the development of an Integrated Pest Management (IPM) plan with assistance from conservation partners as needed.	X	X	X	X	X	X
Highlight MAEAP demonstration projects or educational workshops incorporating MAEAP principles.		X		X		
Assist farms in obtaining MAEAP certification with assistance from conservation partners as needed.	X	X	X	X	X	X
Implement streambank stabilization, grading, or rock barriers on highly erodible Tribal or Non-Tribal Lands to control runoff.	X	X	X	X	X	X
Work with federal and local partners to identify most critical riparian areas on Non-Tribal Lands in the watershed.	X	X	X			
Install livestock fencing or other management measures on high priority sites in the watershed.		X	X	X	X	X
Install grassland, forest, or other filter strip planting types in riparian corridors.		X	X	X	X	X
Work with local conservation districts and other local partners to develop model ordinances for riparian buffers and setbacks for agricultural operations.		X	X	X		
Survey of ground and surface water irrigation withdrawals in the Pine & Nottawa Creek Watersheds.	X	X	X			

4.1.2 Hydrologic Modifications

Hydrologic Modification BMPs are listed in Table 4, BMPS for All NPS Categories. Indian and Snyder creeks, which are tributaries of Pine Creek, as well as portions of Nottawa Creek are designated county drains and maintained by the CCWRC. Historically, county drains were designed to convey flow with less regard for water quality or habitat conditions. To meet this function, these streams have been straightened, built with a trapezoidal cross-section and left with bare streambanks However, this design has impaired sediment transport and exacerbates streambank erosion resulting in increased baseflow water temperatures, decreased DO levels and increased turbidity levels in wet weather conditions.

NHBP Environmental Department staff noted specific hydrologic impairments in the watersheds:

- Nottawa Creek upstream of the confluence with the Pine River and Indian and Snyder creeks are highly channelized to promote drainage, degrading fish habitat and stream dynamics;
- Altered water levels and sedimentation due to flood control projects; and
- Indian and Snyder creeks are dredged too deeply, which may be lowering groundwater levels, and is a concern because groundwater is the Tribe's drinking water source.

The long-term goal for hydrologic impairments is to restore and protect hydrologic and habitat conditions in Tribal waters to reduce turbidity levels and increase DO levels and water temperatures. The Tribe can accomplish this goal by working toward the following objectives:

1) Reduce channelization in Tribal waters.
2) Reduce streambank erosion.
3) Restore hydrologic connectivity.
4) Expand water quality monitoring to help identify and locate BMPs.

Drain Maintenance Standards BMPs

NHBP should work with the CCWRC to define BMPs for drain operation and maintenance, including:

A) Modifying the cross-section of drains to stabilize sediment transport, increase sediment storage, better process nutrients and organic matter, and promote formation and maintenance of aquatic habitat;
B) Modifying clean-out procedures to minimize bank disturbance and vegetation removal; and
C) Establishing drain buffers.

The outcome of this BMP will be a revised drain maintenance manual that can be used to train CCWRC staff and provide direction to commercial contractors working in county drains. In addition, a plan should be developed to identify potential drain improvement and buffer establishment projects that NHBP and the CCWRC can collaborate on in the future.

Streambank Site Surveys

Streambank erosion contributes to excessive sediment and nutrient loading. Stabilizing streambanks along with other BMPs can significantly reduce loading of these NPS pollutants. NHBP will conduct additional streambank erosion inventories along drains, streams, and rivers on Tribal lands. Morphological measurements should be taken to characterize the erosion sites, rank the erosion by severity to establish priorities, and estimate sediment and nutrient loading. Each site should be digitally photographed to document site conditions. Data collected during the inventory can be used to prioritize sites based on severity, accessibility and feasibility. The highest priority sites will be targeted for funding and implementation with the additional data collected from these surveys.

Pine/Nottawa Creek Confluence Wetland

The Tribe is focusing on restoring wetlands located on Tribal property, including the Pine Creek/Nottawa Creek confluence. This wetland provides water storage and water quality benefits, supports wildlife production and diversity and includes culturally important wild rice beds. However the entire wetland has been altered through historic hydromodification and NPS pollutants Channelization and relocation of Nottawa Creek to improve drainage and reduce flooding in the town of Athens has degraded the habitat and led to the establishment of invasive plant species. Waters from Nottawa Creek are no longer able to flow through and flood portions of the wetland complex due to channelization of Nottawa Creek and diking within the wetland. As a result, the wetland's values and functions have been degraded. In particular, the processing of NPS pollutants such as sediment and nutrients has been impaired. Restoring the wetland hydrology by modifying Nottawa Creek and removing wetland dikes will restore the wetland's ability to reduce NPS pollutants to downstream water bodies, increase wildlife productivity and diversity, preserve remaining wild rice beds, and expand the range of wild rice in the wetland. Restoration may require management of invasive species to promote re-establishment and expansion of the native plant communities in portions of the wetland. However, the restoration would have to be accomplished without increasing flooding in the town of Athens or adjacent agricultural land.

Fish Passage Barriers

Existing fish passage barrier inventories are available via the Potawatomi RC&D Dam Inventory. Several fish passage barriers exist within the Pine and Nottawa Creek watersheds. . NHBP will need to collaborate with other conservation groups working on barrier removals in the St. Joseph River Watershed to seek owner cooperation and additional funding opportunities. Dams located on the Nottawa River would receive priority given their proximity to the NHBP Reservation and potential relationship to the wetland hydrological restoration BMP. A list of Hydrologic Modification BMPs with implantation schedule is shown below in Table 6.

Table 6. Hydrologic BMP Schedule

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6+
Hydrologic Modification						
Conduct a wading survey of tributary streams to identify improper slope, poor culverts, and other alterations.	X	X				X

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6+
Develop natural stream guidelines to present to County Drain Commissioners. This would include typical cross sections, clean out procedures, and buffer requirements.		X	X	X		
Collaborate with County Drain Commissioner to restore impacted designated drains.		X	X	X	X	X
Restoration of historic hydrology to streams and wetlands impacted by channelization and modification. This may include project design, cost estimates, and construction phases.	X	X	X	X	X	X
Implement stream barrier removal where impacting water quality as identified in the Potawatomi RC&D Inventory. This may include project design, cost estimate, construction, and working with partners.			X	X	X	X

4.1.3 Wetlands

Wetlands BMPs are listed in Table 4, BMPs for All NPS Categories. Wetlands are one of the most significant water resources of the Tribe, and provide numerous water quality benefits, environmental services, and ecological functions. They also provide water storage and treatment via natural processes. In particular, wetlands naturally capture and process sediments and nutrients that may otherwise be transported directly to rivers and streams where they degrade water quality and aquatic habitat. These values and functions have been lost or impaired where wetlands have been cleared, drained, or otherwise disturbed for agriculture or other land uses within the watershed planning area. Restoring such wetlands will restore the lost or impaired values and contribute to NPS management and reductions in the watershed planning area.

Wetlands comprise 9.4% of the watersheds and 25% of the lands owned by the Huron Potawatomi Tribe (NHBP, 2018). Wetland buffers have allowed Pine Creek and several of its tributaries to be somewhat protected by agriculture and other development activities. While these wetlands do perform several important functions, most are comprised of non-native species and have experienced some form of hydrologic modification. Some of these non-native plants have displaced food and medicinal plants, such as wild rice, that have been used for many generations by the Potawatomi People.

With a 17% loss of pre-settlement wetlands in the larger Nottawa Creek watershed, NHBP is concerned about the continued loss of wetlands to agricultural development. Development in and around Tribal properties may also have some impact on wetlands, though NHBP has practiced good stormwater management in its government construction projects.

The long-term goal of the Tribe is to minimize further loss of wetlands and restore low quality wetlands. The Tribe can work toward this goal by addressing the following objectives:

1. Identify threatened wetlands on Tribal properties.
2. Restore degraded wetlands.
3. Protect high quality wetlands.

Wetland Ranking Inventory

NHBP will identify and prioritize, and wetland restoration projects on non-Tribal lands in cooperation with other conservation groups and local agencies. The inventory will build on existing desktop analysis of spatial data including soils, hydric soils, state and federal wetland mapping, land use mapping, aerial photographs, and parcel maps, and the wetland functional inventory conducted by the Friends of the St. Joseph River. NHBP and its project partners will approach the land owners for the top 10 ranked sites to inquire about interest and attempt to develop a landowner partnership that could lead to eventual restoration. NHBP's goal will be to identify three to five sites that could be pursued for implementation. Subsequent implementation will be based on available funding through various grants.

Natural Feature Protection BMP

Existing wetlands, intact riparian corridors, intact forests and wildlife corridors all provide functions and values that reduce runoff volumes, remove sediments and nutrients from runoff, and support wildlife production and diversity in the watershed planning area. Loss of these natural features will lead to greater NPS pollution in the future. Therefore, NHBP will preserve those features by working with regional land conservation groups to protect them.

A scoring system will be used to rank natural features based on criteria such as water protection value, size, and proximity to other natural resources, connectivity, and ownership. NHBP and its project partners will approach the land owners for the top 10 ranked sites to inquire about interest and attempt to develop a land owner partnership that could lead to eventual natural feature protection. Protection measures may include land sale, land swap, or conservation easement. Once protected, the natural features will lead to long term reductions in runoff volume, sediments, organic matter, and nutrients delivered to Tribal streams and rivers. A schedule for Wetland BMP implementation is listed in Table 7 below

Table 7. Wetlands BMP Schedule

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6+
Wetlands						
Implement wetland restoration and protection projects on NHBP Lands.		X	X		X	
Conduct site specific natural features inventory to identify high quality preservation areas that are preventing NPS from reaching Tribal Waterways		X		X		
Identify top 10 ranked Non-NHBP wetland sites for preservation, and establish contact with landowners.		X	X			
Implement protection and restoration projects on top 10 ranked wetland sites, which may include land acquisition, conservation easement, or riparian restoration.			X	X	X	X

4.1.4 Transportation (Road and Trail Crossings)

Transportation BMPs are listed in Table 4, BMPs for All NPS Categories, earlier in this chapter. Over the last 15 years, road-stream crossings are one of the leading contributors of NPS pollution in our rural watersheds where infrastructure is outdated, gravel roads are abundant, and county road commissions are struggling to fund and staff road maintenance. There are a number of road-stream crossings throughout the watersheds which are not properly designed to prevent runoff and sediment from entering the waterway and allow for fish and wildlife passage through the crossing. There are several misaligned or undersized culverts on the Reservation that are causing changes to the hydrology of small streams, resulting in streambank erosion. Most of these small tributary streams are designated as county drains and have been historically channelized and excavated below the floodplain level, causing a disconnect from the stream and adjacent habitat. One such location is the Pow Wow Grounds access road crossing of Indian Creek where an undersized culvert is causing streambank erosion.

Undersized Culvert causing Streambank Erosion on Indian Creek

In addition, emergent vegetation such as wild rice beds located at major stream crossings can be lost during utility work and bridge/culvert replacements conducted by the county road commission and utility companies. These transition zones between wetlands and emergent hydro vegetation serve as key nutrient and sediment uptake buffers. Recently, the Tribe coordinated with the Calhoun County Road Department (CCRD) to successfully transplant the wild rice beds from the crossing of Nottawa Creek at V Drive South. This effort could be repeated throughout Tribal lands.

The transportation-related impairments that have been identified by NHBP are as follows:

Open Bottom Culvert along Snyder Creek off T Drive S.

- Misaligned and undersized culverts – causing erosion and fish passage issues
- Road crossings not to modern standards contributing to excessive flows and sediment

The long-term goal of the Tribe is to improve road-stream crossings to minimize impacts from runoff, and improve ecosystem functions where possible. NHBP and some of its project partners have inventories high priority road-stream crossings in the watershed planning area. This process should be formalized, and an inventory completed of all road-stream crossings in the watershed planning

area in cooperation with project partners. NPS pollution loading potential. Road-stream crossings that contribute NPS pollution and present fish passage barriers will be assigned a higher priority. NHBP will collaborate with the CCRD to complete the inventory, prioritize sites for improvements, and seek funding opportunities for implementation. NHBP will also collaborate with project partners and the CCRD to develop a BMP manual for rural road-stream crossings that will guide future improvements and maintenance.

In addition, road-stream crossing signs are recommended to promote the value of the streams, a connection to Tribal heritage, and the impact of NPS BMPs that are being in and around the crossing. A Schedule for application of Transportation BMPs is found below in Table 8.

Example Road-Stream Crossing Sign

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Table 8. Transportation BMP Schedule

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6+
Transportation						
Reduction of erosion through improvements to Indian Creek Drain Bridge near Pow-Wow Grounds.	X	X	X			
Improve other NHBP stream crossings through improved BMP practices to reduce NPS runoff.		X	X	X		X
Partner with Calhoun County Road Department during bridge improvement projects to incorporate water protection and NPS crossing BMPs.		X	X	X	X	X
Develop/adopt a road-stream crossing BMP manual for future projects		X	X			
Develop a memorandum of understanding (MOU) with the CCRD and Tribe's Road Dept. that will allow the Environmental Dept. to be made aware of road construction projects. Identify potential wild rice transplants from project areas.		X	X	X		
Develop and install signage at NHBP or County Road/Stream Crossings to identify NPS BMPs that are being implemented.	X	X	X	X		

4.1.5 Construction & Developed Areas

All Construction & Development BMPs are listed in Table 4, BMPs for all NPS categories. Development of natural areas has increased the variety and amount of pollutants carried into Tribal waters. Native land surfaces have been transformed from ecologically sound landscapes to urbanized areas covered by buildings, pavement and compacted landscapes. These developed areas comprise only 4% of the watersheds included in this Plan and include primarily Tribally owned lands as well as the Village of Athens (pop. 1,024). The Tribal lands include the Pine Creek Reservation, which is an actively developing and expanding government campus and housing complex. This plan gives the Tribe an opportunity to

protect the creeks from development pressures as the Reservation expands. Currently, 33% of all Tribal lands are designated for Government, Housing, and Commerce.

The NPS subcategories included in this section are as follows:

- Stormwater management
- Construction site runoff
- Landscape practices
- Wastewater systems

The long-term goal of the Tribe is to minimize water quality impacts of stormwater runoff from developed lands. The Tribe can work toward this goal by addressing the following objectives:

1. Prevent impacts from runoff in future Tribal developments.
2. Mitigate the impacts of existing stormwater management features.
3. Educate the public on proper stewardship for water resources and the connection to Tribal heritage.

Stormwater Management BMPs

The Tribe currently has a draft stormwater management ordinance and provides detention of stormwater for development on the Reservation. However, a formal stormwater management program would include post-construction stormwater control standards is not in place. The post-construction standards will include water quality, channel and flood protection standards, typical stormwater management BMPs and requirements for periodic inspections. Urbanized areas like the City of Battle Creek are required by the State to treat the first inch of rainfall so that suspended sediment levels are reduced by 80% when comparing pre- and post-construction conditions, or to a maximum of 80 mg/L. This standard typically applies when land disturbances exceed 1 acre, and could provide a good starting place for the Tribe in developing similar standards.

Adoption of a stormwater management ordinance and associated post-construction standards with water quality treatment criteria will allow for pollutants to be filtered out and groundwater to be recharged, resulting in fewer impacts from stormwater runoff. Ordinance and construction standards such as those utilized in Battle Creek, will help the Tribe ensure that stormwater management becomes an anticipated task by developers and built into expectations for a successful project. This standard will provide for sustainable development by the Tribe.

Detention Basin Retrofits BMPs

Although there is minimal development on the Reservation, there are existing detention basins that will be retrofitted to provide improved water quality benefits and habitat. For instance, the stormwater from the Tribal office complex drains to a 15,000 sq. ft. (approximate, based on aerial) detention basin that is planted with turf grass and drains to Pine Creek via a typical stormwater overflow structure and discharge pipe. This basin could be improved by modifying the design to possibly reduce the basin footprint while planting with native plants and trees, helping to take up excess nutrients and sediments, while providing additional ecosystem benefits

Detention Basin that collects Stormwater from the Tribal Offices – Has Potential for Retrofitting

Construction Site Runoff BMPs

Another BMP to protect water quality is the development of a program to manage runoff from construction sites. Currently, the Tribe has a soil erosion and sediment control (SESC) ordinance that requires preparation of a soil erosion control plan when land disturbance exceed 25,000 sq. feet or when within 500 feet of a watercourse. A SESC manual will be developed that outlines the procedures for implementing the ordinance.

Landscaping Practices BMPs

NHBP Environmental can partner with the Department of Public Works and the Environmental Committee to require better land management techniques on the Reservation, including protection and increased use of native landscaping. The amount of land regularly maintained by NHBP Grounds staff has increased significantly in the last 5 years. As pressure for development increases, landscape staff are mowing and cutting areas that had been previously left unmanaged, including riparian corridors. These areas can contribute sediment through erosion of smaller streams, and could also provide increased nutrients and pesticide contamination from turf applications. The Tribe will also develop a landscaping ordinance and native planting construction standards for use in future development, which would include guidance on no-mow zones that leave a buffer for protection of streambanks and to minimize erosion. A community education and outreach effort to help watershed residents better understand this literature and its importance will also be completed. The BMP will include use of the existing website and creation of a community resources, as well as supplemental workshops sponsored by the Tribe.

Wastewater Management BMPs

Recently, the Pine Creek Reservation constructed a community wastewater treatment system (collection pipes and treatment facility) to serve properties on the Reservation. As such, onsite sewage disposal systems (OSDSs) – some of which were failing – were abandoned on the Reservation. This facility is located on adjacent Fee land with treated effluent discharged to a drain field as permitted under a groundwater discharge permit issued by the MDEQ (Permit No.: GW1110636).

The remaining population in the watersheds is served by individual OSDSs with only one system located on Tribal lands. Given that these systems have the propensity to fail, resulting in the discharge of untreated wastewater to waterbodies, and given the history of OSDSs on the Reservation, the Tribe will support education of homeowners on proper OSDS maintenance. . The Calhoun County Public Health Department (CCPHD) Environmental Division would be a useful partner on this effort, as they offer OSDS inspection services for a fee and they have community outreach pamphlets that explain proper maintenance of these systems.

Public Education BMPs

NHBP understands that the key to managing NPS pollution in developing areas is educational outreach. If effective, outreach efforts will result in pollution prevention which is more efficient than control measures. Outreach will focus on education of the community to prevent or reduce NPS pollution through increased awareness. This process will ensure that the public is empowered through an increased understanding of the benefits of proper stormwater management practices, methodologies for implementation, and education on active and planned BMP projects on Tribal Lands.

Existing efforts will be enhanced through education of NHBP staff during meetings on NPS issues and BMPs, as well as distribution of flyers, posters and informational packets to Tribal members. Proposed workshops with program activity topics include BMP implementation; prevention through education and outreach; protection through the development of ordinances; formation of new and ongoing partnerships; and collaboration with other NHBP departments, outside agencies, and local Village of Athens. On the ground awareness of continued installation areas including rain gardens and native plant landscaping will be highlighted where it is acceptable to the NHBP community and funding permits.

Table 9 below shows all of the Construction and Developed Areas BMPs, and a schedule for implementation.

Table 9. Construction & Developed Areas BMP Schedule

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6+
Construction & Developed Areas						
Develop an NHBP Stormwater management ordinance and construction standards	X	X	X			
Present ordinances to NHBP Committees, Members, and Leadership to work towards Adoption of the new ordinance and standards		X	X			
Develop a soil erosion and sediment control program manual	X	X	X			
Design and implement retrofits for existing detention ponds and Stormwater areas		X	X	X		
Provide OSDS educational information to Tribal members and community not using the Community wastewater facility		X				

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6+
Compile and Post information on Household Hazardous Waste locations to prevent illicit chemical dumping.	X		X		X	
Develop and adopt landscape management manual to reduce runoff entering Tribal Waterways		X	X	X		
Education workshops for Department of Public Works on Landscape Management Manual and NPS BMPs		X		X		X
Install signage at NHBP BMP projects to educate on how NPS BMPs protect water quality.	X	X	X	X	X	X

NHBP will use an adaptive management approach as they implement this plan. As new water quality data becomes available or as project collaboration opportunities are presented, priorities may shift from the provided schedule. The NHBP Environmental Department will be sure to take advantage of these opportunities to meet the goals of this plan regardless of the schedule, which will strengthen the effectiveness of the Tribe's NPS program by opening partnerships and funding programs not previously available.

4.3 Tribal Authority for Implementing the NPS Program

The NHBP's legal authority for implementing this program is outlined in their Section 319 Treatment-as-a-State application (**Appendix C)**, which includes the Tribe's corporate charter, constitution and by-laws, and establishes the NHBP as a federal corporation and describes the powers of the Tribal Council to manage economic affairs, promulgate and enforce ordinances, charter subordinate organizations and adopt resolutions regulating internal matters.

Section 5.0 Public Notice and Comment

As the Nottawaseppi Huron Band of the Potawatomi Water Program works towards improving water quality in Tribal Watersheds, coordination with outside community members, governments, and organizations will be crucial to the success of the program. NHBP has established excellent relationships with many of the villages, cities, and townships that surround the Reservation and the FireKeepers Casino/Hotel. Leadership continues to reach out to new municipalities as we acquire additional Tribal Lands throughout our historic land base. Environmental Department Staff are working in coordination with Conservations Districts, watershed organizations, and government agencies to improve the effectiveness of our activities (**Appendices A & B**).

NHBP Staff have attended meetings of Conservation Districts, Friends of the St. Joseph River, the Kalamazoo River Watershed Council, Calhoun County Parks Commission, Local Kalamazoo River Oil Spill Stakeholder Group, and the Tribal Environmental Advisory Group to discuss details of the 319 program in 2016-18. Information of the 319 has been communicated to several other agencies and organizations through meetings of the FotSJR. Water Staff highlighted the 319 application at the NHBP Elders Lunch and Learn in both 2017 and 2018.

A draft version of the NPS Assessment Report and Management Plan have been uploaded as a link on the NHBP NIBI Tribal Water Story Map starting in March 2018. Updated drafts of the documents have also been linked under the Environmental Departments webpage at: https://www.nhbpi.org/environmental/

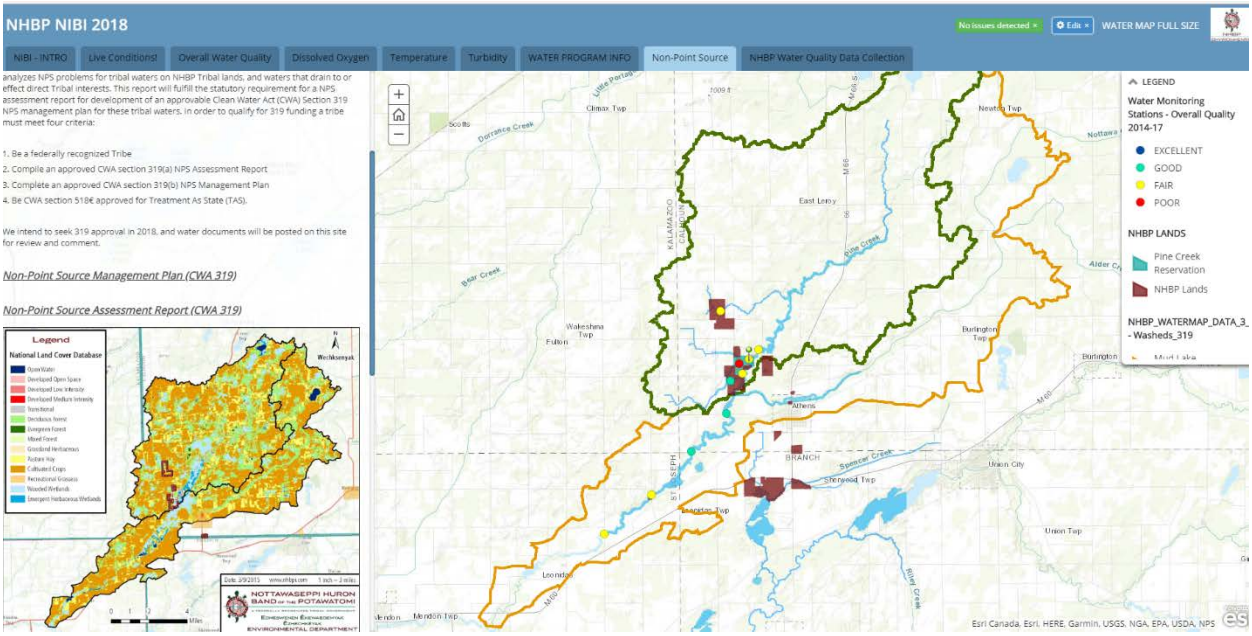
The Public Notice period for comments on the NHBP 319 Program Documents began on Friday August 17th, 2018, and will commence on September 15th. Print copies have been made available at two locations:

Pine Creek Reservation, 1485 Mno-Bmadzewen Way, Fulton, MI 49052
NHBP Environmental Office, 1301 T Drive South, Fulton, MI 49052

Notification letters of the Public Notice are being sent via email to all partners and municipalities identified in the Assessment Plan. Notice flyers will be posted at several locations within the Watershed as well. Any comment received will be addressed and added as an appendix to this management plan.

Currently, all 319 Program Documents are available for public access through the NHBP NIBI Tribal Water Map. There is a 319 Non-Point Source tab in the story map. Click on the Link for the Water Map through: https://www.nhbpi.org/environmental/ or https://bit.ly/2FkVA4a

We will send out letters of intent to all partners and municipalities identified in the Assessment Plan, and provide links to the online documents. Comments will be addressed and any changes will be noted in the Appendix D of this Management Plan.



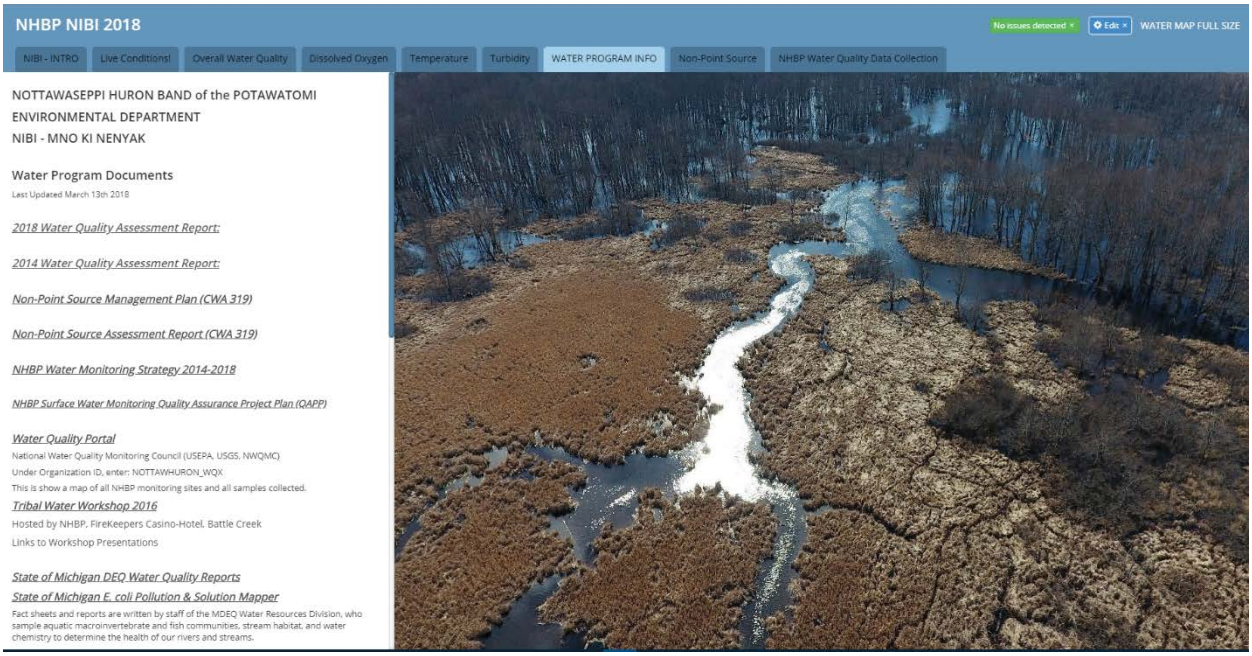


Figure 4. NHBP Water Map screenshots showing NPS Information Section

Section 6.0 References

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Appendix A. NPS Management Plan Partners: Tribal and Non-Tribal

Partner Departments and Agencies	Agency Function	Role in 319 Program
Nottawaseppi Huron Band of the Potawatomi		
Tribal Council	Authorizes ordinances, grant programs, construction projects, policies, and Tribal Budgets.	Gives final approval of BMP site plans.
Tribal Environmental Advisory Committee (TEAC)	Supports protection of NHBP's natural resources, recognizes balance between resource protection and land use, sponsors Wild Rice Camp, Earth Day, and Tribal Environmental Conferences.	Review projects to reduce NPS, community and staff input; promote program at community events.
Environmental Department	Committed to protection, enhancement and restoration of the Tribe's environmental, natural and cultural resources.	Performs lead role in NHBP 319 NPS Program, determines BMP siting, water monitoring for NPS sites.
Planning and Land Use Committee (PLUC)	Facilitates coordination amongst the Tribal Community and Leadership regarding Land Use decisions and projects.	Provides input and authorization for BMP projects; determines if land uses are appropriate.
Planning Department	Facilitates efforts of all NHBP Departments to accomplish goals, secure financial resources, and guide strategic planning.	Assists in obtaining additional funding sources and the design and implementation of enhancement projects.
Culture and Historic Preservation Office	Strives to honor the memory and sacrifices of ancestors through the education and revitalization of traditional Bodéwadmi culture, ethnobotanical knowledge, history, and language.	Provides input and cultural guidance on water programs, and methods to enhance water protection projects.
Department of Public Works	Provides a clean, safe, healthy and comfortable environment for staff, residents and visiting guests, maintains all NHBP buildings and properties.	Responsible for drinking and wastewater utilities, and can assist with labor and heavy equipment on BMP projects.
Housing Department	Provides NHBP Tribal Members the opportunity to realize affordable, safe, and decent housing.	Assists in obtaining additional funding support, and secures contractors for construction projects.
Legal Department	Protects and promotes the development of Tribal sovereignty and self-determination by providing legal services and counsel to Tribal Council and Governmental Departments.	Assists in ordinance development, defining Tribal sovereignty, securing Treaty rights, and with land ownership issues.
Communications Department	Serves as primary source of information about NHBP, maintains NHBPI.com and Facebook page.	Develops promotional and educational materials, event promotion, and member outreach.
Membership Services Department	Committed to providing exceptional programs and services to enrich the lives of NHBP Members, families, and communities.	Oversees outreach and involvement with membership, youth and elders.

Partner Departments and Agencies	Agency Function	Role in 319 Program
Non-Tribal Partner Organizations		
Branch Conservation District (BCD)	Leading local conservation for more than 70 years, works with environmental and agricultural communities coordinating conservation projects and programs throughout the county.	Serves as primary partner in water and agricultural conservation and MAEAP program.
Calhoun Conservation District (CCD)	Leading local conservation for more than 70 years, works with environmental and agricultural communities coordinating conservation projects and programs throughout the county.	Serves as primary partner in water and agricultural conservation and MAEAP program, coordinates watershed plans, wrote 1998 Nottawa Creek Study.
Calhoun County Water Resources Commissioner (CCWRC)	Duties include the construction and maintenance of drains, determining drainage districts, apportioning costs of drains among property owners, administering MS4 permit for the county.	Involved with any work related to drains, partners and assists on BMP selection/implementation.
Friends of the St. Joe River Association, Inc. (FotSJR)	Unites a diverse group of stakeholders throughout the watershed in a collaborative effort to protect, restore and foster stewardship of the St. Joseph River Watershed.	Coordinates bi-state network of stakeholders throughout basin, can assist with support and promotion of water protection activities.
Potawatomi Resource Conservation and Development Council	Approach toward farmland preservation includes methods to protect the water, achieved through county conservation plans, and permanent filter strip along waterways.	Can provide small amounts of resources to support BMP projects, has previously partnered with NHBP.
St. Joseph Conservation District	Works with partners to promote ground and surface water practices, irrigation services, sustainable ag practices, education, environmental stewardship and community projects.	Adjacent County Conservation District, assists with BMPs, and is partner at the FotSJR.
Calhoun County Road Department (CCRD)	Directly maintains and repairs 87 bridges and more than 1,300 miles of county roads, maintains more than 200 miles of state highways throughout Calhoun County on a contract basis.	Provides technical assistance and BMP implementation, and is partner for water crossing projects
Village of Athens	Responsible for Land Use within the Village, and maintains drinking water supply.	Is a nearby historic connection to the Reservation, and partners on Nottawa Creek Projects.
Townships: Athens, Leroy, Burlington, Newton, Leonidas	Assumes responsibility for Land Management in target watersheds.	Partners on projects - much of the land in the two watersheds is in private ownership.
SouthWest Michigan Land Conservancy (SWMLC)	Since its inception, SWMLC has protected almost 14,000 acres of dunes, wetlands, forests, savannas, prairies, farms and vineyards that give the region its distinctive character.	Provides BMP site identification, a resource for land/water protection, and Technical Assistance.

Partner Departments and Agencies	Agency Function	Role in 319 Program
Inter-Tribal Council of Michigan (ITCM)	Represents 11 of the 12 federally recognized tribes in Michigan. Environmental Services Division provides environmental and environmental health related technical assistance and services.	Provides technical assistance and groundwater protection planning.
Michigan DEQ NPS Program Kalamazoo District Office	This State environmental agency is responsible for the region surrounding Tribal Lands, providing education, technical guidance, and coordination.	Provides technical assistance, education, BMP consultation, and permitting on Non-Res. Lands.
Michigan DNR Plainwell Field Office	Committed to the conservation, protection, management, use and enjoyment of the state's natural and cultural resources for current and future generations.	Provides technical assistance, biological data, and BMP selection.
Michigan Department of Agriculture & Rural Development (MDARD)	Assures food safety, protects animal and plant health, and sustains environmental stewardship, providing consumer protection, and enabling rural development.	Provides technical assistance and partners on BMP projects; administers MAEAP & NRCS RCPP.
U.S. Environmental Protection Agency Region 5 Tribal Program	Oversees water resources programs under the Clean Water Act in Michigan; administers the Section 319 NPS Management program.	Provides technical and financial assistance, oversight of water program, and identification of BMP resources.
Bureau of Indian Affairs (BIA) Great Lakes Restoration Initiative	The BIA Tribal GLRI Program provides financial assistance to Great Lakes tribes to protect, enhance, and restore the Great Lakes.	Provides technical assistance and funding, and partner on wild rice related BMP projects.
USDA Natural Resources Conservation Service (NRCS)	Provides Conservation planning and assistance to benefit soil, water, air, plants, and animals that results in productive lands and healthy ecosystems. Supports (RC&D) Councils.	Provides technical and financial assistance; works with Resource Conservation Protection Program (RCPP), as well as EQIP, CSP & Soil Survey programs.
USDA Farm Service Agency (FSA)	Works with landowners through the Conservation Reserve Program, to install conservation practices that protect sensitive lands, decrease erosion, restore habitat, safeguard ground/surface water.	Provides technical and financial assistance, BMP consultation and design. Works with CRP and FWP programs.
U.S. Army Corps of Engineers	Promotes water resource protection and ecosystem restoration in the Great Lakes region.	Provides technical assistance, and possible financial assistance through ongoing assessment of the Pine Creek Watershed.
U.S. Fish & Wildlife Service	Tribal Wildlife Grants are used to provide technical and financial assistance to Tribes for the development and implementation of programs that benefit fish and wildlife resources.	Provides technical and financial assistance for land protection; partners on BMP projects.
St. Joseph River Basin Commission	Conserve, enhance, and promote the natural resources and benefits of the Watershed. Interstate fish passage project.	Partner in water quality improvements, promote 319 Program.

Appendix B. Related NPS Programs

NPS Related Programs	NPS Category								
	Agriculture	Hydrologic	Wetlands	Landscaping	Storm/Waste Water	Transportation	Construction	Forest Removal	Urban & Developed
NHBP Water Resources Program, along with other Environmental support staff, are primarily responsible for implementing, managing, and tracking all 319 management activities.	X	X	X	X	X	X	X	X	X
NHBP Planning Staff assist in locating funding resources, preparing grant applications, and serving as a point of contact for Tribal construction projects that involve NPS management.					X	X	X		X
The NHBP Housing Staff can also assist in locating resources for water protection programs related to housing developments, and may be a potential partner on projects within Tribal jurisdiction.					X	X	X		X
NHBP Environmental (TEAC) & Planning (PLUC) Committees serve as potential partners and sources of minor project support. Assist in community outreach on NPS projects.		X		X	X	X	X		X
Bureau of Indian Affairs, Midwest Region Water Resources Program can assist Tribes with water management issues.		X	X						
Great Lakes Restoration Initiative, Bureau of Indian Affairs Circle of Flight Program restores stream side habitat and incorporates wild rice into water quality monitoring programs.		X	X						
US Fish and Wildlife Service, Tribal Wildlife Grant provides technical and financial assistance to Tribes to benefit fish and wildlife habitat, such as conservation easements. USFWS has several other programs that may be incorporated into non-Tribal lands.	X		X						
US Army Core of Engineers Tribal Nations Programs, Section 203, Tribal Partnership Program studies flood reduction and watershed planning, Section 516 of WRDA, sediment reduction funding.		X	X						X

NPS Related Programs	NPS Category								
	Agriculture	Hydrologic	Wetlands	Landscaping	Storm/Waste Water	Transportation	Construction	Forest Removal	Urban & Developed
Michigan Department of Environmental Quality NPS Program provides technical assistance, education, grants, enforcement, and monitoring to reduce NPS pollution.	X		X		X	X	X		X
Michigan Department of Natural Resources monitors fisheries on Pine and Nottawa Creeks, assists in assessment of BMP effectiveness.		X							
Calhoun Conservation District provides local coordination for many federal, state, and local water management programs. CCD will be a primary partner to connect landowners to conservation programs, and have a Michigan Agriculture Environmental Assurance Program (MAEAP) Technician on staff to direct producers towards verification.	X	X	X	X	X	X	X	X	X
Michigan Department of Agricultural and Rural Development is responsible for the MAEAP Program, a voluntary program that helps farms of all sizes to minimize agricultural pollution risks through the Farmstead System, Cropping System, Livestock System, and Forest/Wetlands/Habitat System.	X		X	X				X	
Natural Resource Conservation Service (NRCS) has a number of programs to improve water quality and reduce soil erosion from cultivated lands. NRCS has a Tribal specific program, the Conservation Stewardship Program, Environmental Quality Incentives Program, and the Wetland Reserve Enhancement Program. NRCS also funds the RCPP program, which brings additional resources in the St. Joseph River Basin.	X	X	X					X	
Farm Service Agency, Conservation Reserve Program and Farmable Wetlands Program encourage landowners to convert erodible cropland into buffer strips and plantings to reduce erosion and runoff.	X	X	X						

NPS Related Programs	NPS Category								
	Agriculture	Hydrologic	Wetlands	Landscaping	Storm/Waste Water	Transportation	Construction	Forest Removal	Urban & Developed
Michigan Department of Transportation administers a Soil Erosion & Sediment Control Program that includes environmental stewardship and training for staff. NHBP has coordinated with MDOT on culturally relevant riparian plantings which reduce NPS pollution.						X			X
Calhoun County Road Department collaborates on bridge construction to incorporate water quality into design.						X			X
USEPA Tribal Programs, Section 106 and 319 of the CWA provides funding for water protection on and around Tribal Lands, and the PPG Program which provides support and capacity for Tribal Environmental Protections.	X	X	X	X	X	X	X	X	X
Potawatomi Resource Conservation & Development Council, the primary project partner on BMP projects, can provide technical assistance on filter strip design, and minor financial assistance.	X		X					X	
Inter-Tribal Council, a consortium of Michigan Tribes, currently assists NHBP with a Source Water Protection Plan, and also offers assistance in wetlands and water quality areas.		X	X						
USEPA Wetland Program Plan provides support for the development of Tribal Plans. Wetland protection is crucial in the prevention of NPS pollution.			X						
Michigan/Indiana St. Joseph River Watershed RCPP Partnership promotes coordination with NRCS partners to deliver conservation, and targeted $6.8 M federal funding to decrease sediment and increase infiltration.	X		X						
Bureau of Indian Affairs, Division of Forestry and Wildland Fire Management provides assistance and guidance on forestry plan preparation, and fuels management.								X	

NPS Related Programs	NPS Category								
	Agriculture	Hydrologic	Wetlands	Landscaping	Storm/Waste Water	Transportation	Construction	Forest Removal	Urban & Developed
Village of Athens Wellhead Protection provides education on groundwater protection, educational materials, and is a potential project partner.		X							X

Source: NHBP 319 NPS Assessment Report

Appendix C. NHBP Treatment-as-a-State Application

Appendix D. Public Comment Responsiveness Summary