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## NPS BMP Team – Phase III

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**PERIOD:** 7-1-2016 to 6-30-2019

**PROJECT TITLE:** NPS BMP Team

**PROJECT SPONSOR:** Barnes County Soil Conservation District

**CONTACT PERSON:** Lori Frank                      **TITLE:** Coordinator  
Barnes County Soil Conservation District  
110 Winter Show Road SW  
Valley City, ND 58072

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**STATE:** North Dakota                      **WATERSHED:** Statewide

**HYDROLOGIC UNIT NUMBER:** Statewide

**HIGH PRIORITY WATERSHED:** Yes

**TMDL STATUS:**

PROJECT TYPES	WATERBODY TYPES	NPS CATEGORY
<input checked="" type="checkbox"/> STAFFING & SUPPORT	<input type="checkbox"/> GROUNDWATER	<input checked="" type="checkbox"/> AGRICULTURE
<input type="checkbox"/> WATERSHED	<input checked="" type="checkbox"/> LAKES/RESERVOIRS	<input type="checkbox"/> URBAN UNOFF
<input type="checkbox"/> I & E	<input checked="" type="checkbox"/> RIVERS	
	<input checked="" type="checkbox"/> STREAMS	
	<input type="checkbox"/> WETLANDS	

**PROJECT LOCATION:** North Dakota

**SUMMARIZATION OF MAJOR GOALS:** The primary goal of this proposal is to provide timely engineering assistance to all the local Section 319 watershed projects in North Dakota as well as to the statewide manure management programs sponsored by ND Stockmen's Association and the ND Department of Agriculture. This will be accomplished through the continued employment of the "NPS BMP Team". The team consists of a contracted private engineering firm which is selected through a competitive proposal process.

**PROJECT DESCRIPTION:** North Dakota presently has eighteen locally sponsored watershed projects functioning in the state. Approximately 90% of these projects have identified livestock manure management and/or streambank erosion as high priorities. The NPS BMP Team has been assembled to provide timely and cost-efficient engineering services to these projects. Assistance is also provided to the statewide manure management programs sponsored by the ND Stockmen's Association and to the ND Department of Agriculture.

FY2016 319 Funds Requested:	\$280,000
Cash Match:	\$200,000
In-Kind Match:	<u>\$ 60,000</u>

Total Project Cost: \$540,000

## **1.0 PREVIOUS ACCOMPLISHMENTS**

The NPS BMP Team has been providing local watershed projects and landowners timely engineering assistance since July 1, 1998. The Team has worked with watershed coordinators, the ND Stockmen's Association and ND Department of Agriculture programs to design and implement BMPs. (See Appendix A - Active Watershed Projects & Manure Systems Designed by the NPS BMP Team maps.)

BMP Team services are: site investigations, soil borings, topographical surveys, designs and construction oversight for practices to improve and/or to protect water quality. Example practices the team has provided engineering services are: manure management systems, livestock water developments, streambank stabilization, grassed waterways, and wetland creations.

To date, the NPS BMP Team has assisted over 300 producers with designs and oversight of their BMPs to improve/protect water quality within their watershed. They have also provided assistance in designing other practices such as; spring developments, livestock watering facilities, and streambank bio-engineering.

## **2.0 STATEMENT OF NEED**

According to the 2014 Section 305(b) reporting: twenty-eight percent (1,274 miles) of the rivers and streams assessed for this report, are fully supporting the beneficial use designated as aquatic life. Another forty-seven percent (2,147 miles) of rivers and streams assessed as fully supporting, but threatened for aquatic life use. In other words, if water quality trends continue, these rivers and streams may not fully support its use for aquatic life in the future. The remaining twenty-five percent (1,118 miles) of rivers and streams assessed for this report were assessed as not supporting aquatic life use.

The report continues by stating that NPS pollution (e.g., siltation/sedimentation and stream habitat loss or degradation) was the primary cause of aquatic life use impairment. Other forms of pollution causing impairment are trace element contamination, flow alteration and oxygen depletion. Organic enrichment creates conditions in the stream that cause dissolved oxygen (DO) to be depleted. Rivers and streams Impaired by siltation/sedimentation, organic enrichment, eutrophication due to excess nutrients and habitat alteration also will result in a degradation of the biological community.

Recreation use was assessed on 7,503 miles of rivers and streams in the state. Recreation use was fully supporting, fully supporting but threatened and not supporting on 1,260 miles, 3,721 miles and 2,521 miles, respectively. Pathogens (as reflected by E. coli and fecal coliform bacteria) are the primary cause of recreation use impairment in North Dakota. Other factors affecting the use of the state's rivers and streams for recreation would be eutrophication from

excessive nutrient loading, resulting in nuisance algae and plant growth. The primary sources of *E. coli* and fecal coliform bacteria contamination are animal feeding operations and riparian area grazing.

A total of 200 lakes and reservoirs, representing 622,264 surface acres, are specifically listed in the state water quality standards as classified lakes and reservoirs. Each of these 200 lakes and reservoirs were assessed for this report. One-hundred-twenty-nine (129) lakes and reservoirs, representing 590,497 acres, were assessed as fully supporting aquatic life use. An additional twenty-nine (29) lakes and reservoirs representing 8,168 acres are assessed as fully supporting, but threatened. A threatened assessment means that if water quality and/or watershed trends continue, it is unlikely these lakes will continue to support aquatic life use. Only four (4) lake, totaling 706 acres, were assessed as not supporting aquatic life use. One of the primary causes of aquatic life impairment to lakes and reservoirs is low dissolved oxygen (DO) in the water column. Pollutants which stimulate the production of organic matter, such as plants and algae, can also cause aquatic life impairment. Two secondary pollutant causes are excessive nutrient loading and siltation.

According to the ND Department of Agriculture, ND ranks 15 in the number of cattle in the state with 1.75 million cattle. This breaks down to 3 head per each person in the state. North Dakota also has 100 licensed dairy herds, 150,000 pigs, 80,000 sheep and 11 turkey farms. Runoff from these feeding areas and improper manure management has the potential to impair all lakes, rivers, streams, and wetlands. Approximately 90% of the active watershed projects, which include the ND Stockmen's Association and ND Department of Agriculture were initiated to assist producers with the installation of practices that help improve livestock manure management and reduce potential off-site water quality impairments. Many of these practices require engineering construction designs. The NPS BMP Team was established to ensure these projects had access to engineering services that could be provided in a timely manner and within the time periods of the projects. (See Appendix A - Active Watershed Projects & Manure Systems Designed by the NPS BMP Team maps.)

On an annual basis, the NPS BMP Team provides engineering services to approximately 20 to 25 producers and/or landowners to design and construct manure management systems and riparian restoration projects. These services typically include: 1) completion of 12 manure management system designs; 2) construction oversight for 7 manure management systems and 3) engineering services for the design and/or construction of 6 riparian restoration projects. Given the extent of water quality impacts associated with improper manure management and/or degraded riparian areas, the demand for timely engineering services will continue into the foreseeable future.

### 3.0 PROJECT DESCRIPTION

#### **GOAL 1:**

To provide efficient and timely delivery of engineering services to all Non-Point Source Pollution control projects in North Dakota.

**Objective 1)** To implement a delivery process to provide the engineering services needed across the state to allow projects to develop, design, and install the BMPs needed to achieve their NPS pollution management objectives.

**Task 1:** Secure engineering services of a private firm for the continuation of the NPS BMP Team. (Contracted engineer is selected through a competitive proposal process. Contracts are for a 5-year time period.)

Product: A NPS BMP Team equipped to handle state-wide 319 requests in a timely manner.

Cost – \$0

**Task 2:** Process engineering requests submitted by local Section 319 projects to develop designs for priority manure management systems or riparian restoration projects identified by the local projects. (See Appendix B – Engineering request forms)

Product: An estimated 20 to 25 engineering services requests per year.

Cost - \$0

**Task 3:** On an annual basis, deliver engineering services to: 1) design 9 manure management systems; 2) provide construction oversight for 6 manure management systems; and 3) design and/or construct 4 riparian restoration projects.

Product: 36 manure management system designs, 24 manure management systems completed, and 16 riparian restoration projects (riverbank or shoreline stabilization, wetland creations, water developments, grassed waterways, etc.) over the 4 years.

Cost – \$534,000

**Task 4:** Manage the project’s financial records and develop the annual and final project reports for submittal to the NDDoH.

Product: Grants management; grant and matching fund solicitation; monthly/quarterly reimbursement requests; 4 annual progress reports and 1 final project report.

Cost - \$6,000

3.3 Milestone Table (See Appendix C – Milestone Table)

## **COORDINATION PLAN**

- 1) The Barnes County SCD will be the lead sponsor responsible for project administration. The SCD will remain in close contact with the engineering firm to confirm availability of services. They will also work closely with all local projects in their engineering requests.
- 2) Locally sponsored watershed projects will be responsible for working directly with their producers and landowners in addressing their water quality issues. They will be in charge of submitting only their high priority projects for engineering assistance.
- 3) ND Stockmen's Association will be responsible for working directly with their producers and landowners in addressing their water quality issues. They will be in charge of submitting only their high priority projects for engineering assistance.
- 4) ND Department of Agriculture will be responsible for working directly with their producers and landowners in addressing their water quality issues. They will be in charge of submitting only their high priority projects for engineering assistance.
- 5) Natural Resources Conservation Service will provide technical assistance, help with coordinating project activities, target resources, and be able to incorporate existing USDA programs at the local level.
- 6) NDSU Extension Services will assist the project in information and education activities.
- 7) North Dakota State Water Commission will contribute financial assistance, which is beneficial in keeping the project effective.

## **EVALUATION AND MONITORING PLAN**

The NPS BMP Team is a service-based project that focuses on delivering timely and efficient engineering support to all 319 watershed projects state-wide. The water quality benefits of the practices designed by the NPS BMP Team are tracked by the projects receiving engineering assistance.

The criteria used to determine the success of the project includes the number of manure management systems, river/stream/lake stabilizations, and all other practices designed by the NPS BMP Team.

Annually the SCD board will request written evaluations from the 319 watershed sponsors and producers which have received engineering assistance. This feedback will be used to continue the best, most cost effective engineering services across the state.

## **BUDGET**

See Attachments (Appendix D – Budget Tables)

# APPENDIX LIST

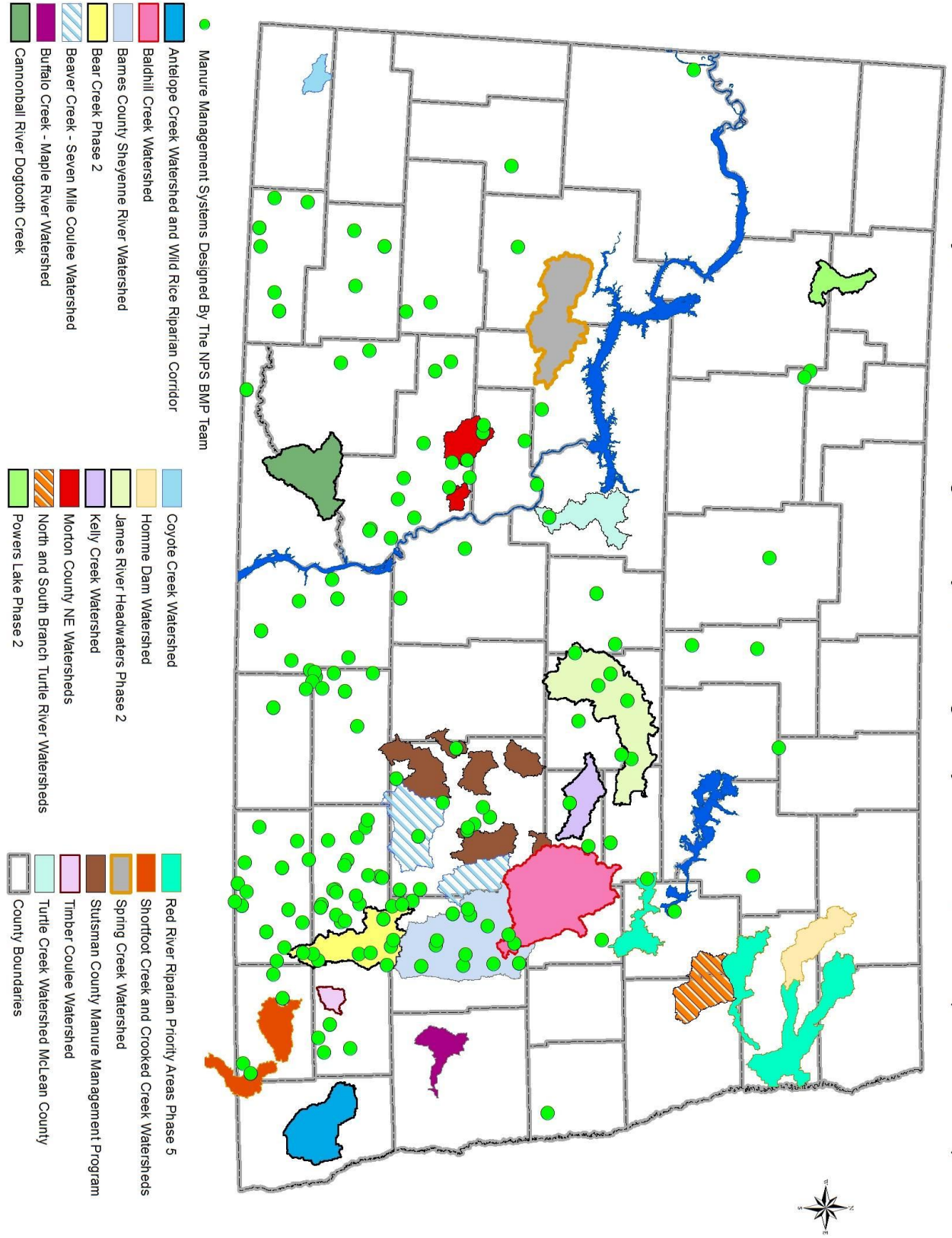
- A) Active Watershed Projects  
Manure Management System Designed
- B) Request Forms
- C) Milestone Table
- D) Budget Tables

# Appendix A

## Active Watershed Projects And Manure Management Systems Designed by NPS BMP Team As of August 1 2015

\*As new watershed projects are developed, they will be added to the map and be eligible for engineering support. The statewide manure management programs sponsored by the ND Stockmen's Association and ND Department of Agriculture are also eligible for NPS BMP Team assistance.

Active Watershed Projects and Manure Management Systems Designed by the NPS BMP Team (as of 8/1/2015)



# Appendix B

## Request Forms

## APPLICATION FOR ENGINEERING ASSISTANCE FOR MANURE MANAGEMENT SYSTEMS

Date: \_\_\_\_\_ Watershed Project: \_\_\_\_\_ Coordinator: \_\_\_\_\_  
Landowner: \_\_\_\_\_ Coordinator Phone: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone Number: \_\_\_\_\_ Section \_\_\_\_\_ Township \_\_\_\_\_ Range \_\_\_\_\_

### GENERAL INFORMATION

1) Engineering assistance is being requested to develop designs for a:

Existing Facility ☐ Relocation ☐ Expansion ☐ New System ☐

2) Number of years livestock have been fed at this site: \_\_\_\_\_

(a) If less than 5 years explain why: \_\_\_\_\_  
\_\_\_\_\_

3) Type of livestock to be fed in constructed feeding area (dairy, beef, swine, etc.): \_\_\_\_\_

(a) Number currently being fed: \_\_\_\_\_ (b) Number to be fed after construction: \_\_\_\_\_

4) Total acres of current feeding area: \_\_\_\_\_

5) Do you have any plans to change size of operation in the future? \_\_\_\_\_yes \_\_\_\_\_no

(a) Please explain when and amount of size change: \_\_\_\_\_  
\_\_\_\_\_

6) How many months per year will the constructed feeding area be used? \_\_\_\_\_months

7) Approximate date for the completion of the system: \_\_\_\_\_

8) What is the proximity of the feeding area to the nearest waterbody (river, creek, etc): \_\_\_\_\_miles

9) Will a permit be obtained from ND Dept. of Health: \_\_\_\_\_yes \_\_\_\_\_no

10) An aerial and topographic map of the planned feeding area must be attached to the request.

Landowner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Please remit form to Barnes County SCD when requesting engineering assistance  
or E-mail to: lori.frank@nd.nacdn.net

## APPLICATION FOR ENGINEERING ASSISTANCE FOR STREAMBANK RESTORATION

Date: \_\_\_\_\_ Watershed Project: \_\_\_\_\_ Coordinator: \_\_\_\_\_

Landowner: \_\_\_\_\_ Coordinator Phone: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Phone Number: \_\_\_\_\_ Section \_\_\_\_\_ Township \_\_\_\_\_ Range \_\_\_\_\_

### GENERAL INFORMATION

1) Engineering assistance is being requested to develop design to protect:

Home ☐

Other Bldg. ☐

Road ☐

Private

Township

County

State Hwy

Federal Hwy

(Please circle appropriate choice)

2) Army Corp of Engineer's permit:

Obtained ☐

Applied For ☐

Will be Applied For ☐

3) Cultural Resources approval from SHPO:

Obtained ☐

Applied For ☐

Will be Applied For ☐

4) Will cost-share be provided by other entities: Yes ☐ No ☐

If Yes please list below

\_\_\_\_\_

5) An aerial and topographic map of the area must be attached to the request.

Landowner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Please remit form to:

Barnes County SCD, 110 Winter Show Rd SW, Valley City, ND 58072

or E-mail to: lori.frank@nd.nacdnet.net

# Appendix C

## Milestone Tables

## MILESTONE TABLE FOR NPS BMP TEAM - PHASE III

JULY 2016

Tasks/Responsible Organizations	Output	2016	2017	2018	2019
<b>Objective 1:</b>					
Task 1: Barnes Co. SCD	Secure engineering services	**	**	**	**
Task 2: Barnes Co. SCD	Process engineering requests	**	**	**	**
Task 3: Barnes Co. SCD	36 manure mgt systems designs	8 designs	8 designs	8 designs	8 designs
	24 completed manure mgt systems	8 systems	8 systems	8 systems	8 systems
	16 riparian designs &/or completed projects	4 projects	4 projects	4 projects	4 projects
Task 4: Barnes Co SCD	Grant management, financial records, project reports	**	**	**	**

Barnes County SCD as local project manager and sponsor will be responsible for project coordination of reimbursement payments, tracking and progress.

Landowners will make management decisions and provide cash and in-kind match for BMP's.

# Appendix D

## Budget Tables

BUDGET TABLE FOR NPS BMP TEAM - PHASE III					JULY 2016	
PART 1:						
FUNDING SOURCES	2016	2017	2018	2019	TOTALS	
<b>EPA SECTION 319 FUNDS</b>						
1) FY2016 - 2019	\$70,000	\$70,000	\$70,000	\$70,000	\$280,000	
SUBTOTAL	\$70,000	\$70,000	\$70,000	\$70,000	\$280,000	
<b>STATE/LOCAL MATCH</b>						
1) WATER COMMISSION	\$50,000	\$50,000	\$50,000	\$50,000	\$200,000	
2) IN-KIND MATCH *	\$15,000	\$15,000	\$15,000	\$15,000	\$60,000	
SUBTOTAL	\$65,000	\$65,000	\$65,000	\$65,000	\$260,000	
TOTAL BUDGET	\$135,000	\$135,000	\$135,000	\$135,000	\$540,000	

\* In-Kind donations will come from 319 projects

BUDGET TABLE FOR NPS BMP TEAM - PHASE III PART 2:					JULY 2016				
	2016	2017	2018	2019	TOTAL	CASH	INKIND	319	
PERSONNEL/SUPPORT									
1) Bookkeeper Salary	\$1,500	\$1,500	\$1,500	\$1,500	\$6,000	\$0	\$4,000	\$2,000	
Subtotals	\$1,500	\$1,500	\$1,500	\$1,500	\$6,000	\$0	\$4,000	\$2,000	
APPLYING BMP'S									
1) 36 Manure Mgt Designs	\$72,400	\$72,400	\$72,400	\$72,400	\$289,600	\$100,000	\$29,000	\$139,000	
2) 16 Structural Designs	\$61,100	\$61,100	\$61,100	\$61,100	\$244,400	\$100,000	\$27,000	\$139,000	
Subtotals	\$133,500	\$133,500	\$133,500	\$133,500	\$534,000	\$200,000	\$56,000	\$278,000	
TOTAL 319/NON-FEDERAL BUDGET	\$135,000	\$135,000	\$135,000	\$135,000	\$540,000	\$200,000	\$60,000	\$280,000	