Griggs County Sheyenne River Riparian Corridor Project

Griggs County Soil Conservation District
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Cooperstown, ND 58425

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STATE: North Dakota **WATERSHED:** Sheyenne River
HIGH PRIORITY WATERSHED: Yes

TMDL STATUS: An E. coli bacteria TMDL has been developed for Sheyenne River

PROJECT TYPES	WATERBODY TYPES	NPS CATEGORY
__ STAFFING & SUPPORT	__ GROUNDWATER	X_ AGRICULTURE
X_WATERSHED	__ LAKES/RESERVOIRS	__ URBAN UNOFF
__ I & E	__ RIVERS	
	X_ STREAMS	
	__ WETLANDS	

PROJECT LOCATION: Griggs County, North Dakota

SUMMARIZATION OF MAJOR GOALS: The Griggs County Sheyenne River Riparian Corridor Project is designed to provide technical, financial and educational assistance to agriculture producers and landowners with riparian acreage in the Sheyenne River watershed. Our goal is to restore and maintain the recreational and aquatic life uses of the Sheyenne River and its tributaries.

PROJECT DESCRIPTION: Project sponsors intend to 1) provide technical and financial assistance to producers and landowners within 1 mile of the Sheyenne River and its tributaries and to prioritize locations outside this corridor 2) assist with best management practices that protect/enhance our riparian areas 3) develop educational programs to heighten public awareness of non-point source pollution impacts and solutions 4) develop working partnerships in the local community to benefit natural resources

319 Funds Requested:	$255,400	State/Local Match:	$170,266
Other Federal Funds:	$25,000	Total Project Cost:	$425,666

2.0 STATEMENT OF NEED

2.1 The Griggs County Soil Conservation District (SCD) and Water Resource Boards (WRB) and local county leadership have long recognized the natural, economic and recreational value of the Sheyenne River. The Griggs County SCD, Upper Sheyenne Joint Water Resource Board, Garrison Diversion Conservancy District and State Water Commission conducted a water quality and watershed assessment in 2009-2010. The goal of the project was to assess the current water quality condition and beneficial use support status of the Sheyenne River above Lake Ashtabula/Baldhill Dam and its tributaries.

Based on the 2012 Section 303 (d) List of Impaired Waters Needing TMDLs (NDDoH, 2012), the North Dakota Department of Health has identified a 93.81-mile segment of the Sheyenne River (ND-09020202-001-S_00) from the Tolna Dam outlet (ND-09020203-020-S) downstream to Lake Ashtabula as not supporting recreational uses due to Escherichia coli bacteria (E. coli) Figure 1.
An E. coli Bacteria TMDL was developed and approved for Sheyenne River segment ND-09020202-001-S_00 in September 2012.
https://deq.nd.gov/publications/WQ/3_WM/TMDL/East/Final_SheyenneRiver_Nelson_Griggs_Ecoli_TMDL_20120826.pdf.

2.2 The Sheyenne River is a Class IA stream. The NDDoH definition of a Class IA stream as the quality of the waters in this class shall be the same as the quality of class I streams, except that where natural conditions exceed Class I criteria for municipal and domestic use, the availability of softening or other treatment methods may be considered in determining whether ambient water quality meets the drinking water requirements of the department.
E. coli bacteria criteria applies to all IA streams. The E. coli bacteria standard applies only during the recreation season from May 1 to September 30.

Table 1. North Dakota Bacteria Water Quality Standards for all Streams.

Parameter	Standard	
	Geometric Mean[1]	Maximum[2]
E. coli Bacteria	126 CFU/100 mL	409 CFU/100 mL

[1] **Expressed as a geometric mean of representative samples collected during any consecutive 30-day period.**

[2] **No more than 10 percent of samples collected during any consecutive 30-day period shall individually exceed the standard.**

2.3 Sheyenne River Project Area Map Refer to Figure 1.

2.4 The Middle Sheyenne River sub-basin (09020203) covers approximately 2,005 square miles (1,283,384 acres) and is located within seven counties (Barnes, Benson, Eddy, Foster, Griggs, Nelson, Steele and Stutsman Counties). The Project area encompasses 243,239 acres in Griggs, Nelson, and Steele Counties. The focus of project implementation will occur in Griggs County along a one-mile corridor of the mainstem Middle Sheyenne River. The project area is shown in Figures 1 and 2 and an AnnAGNPS map of the priority areas within the one-mile corridor is provided in Appendix #2.

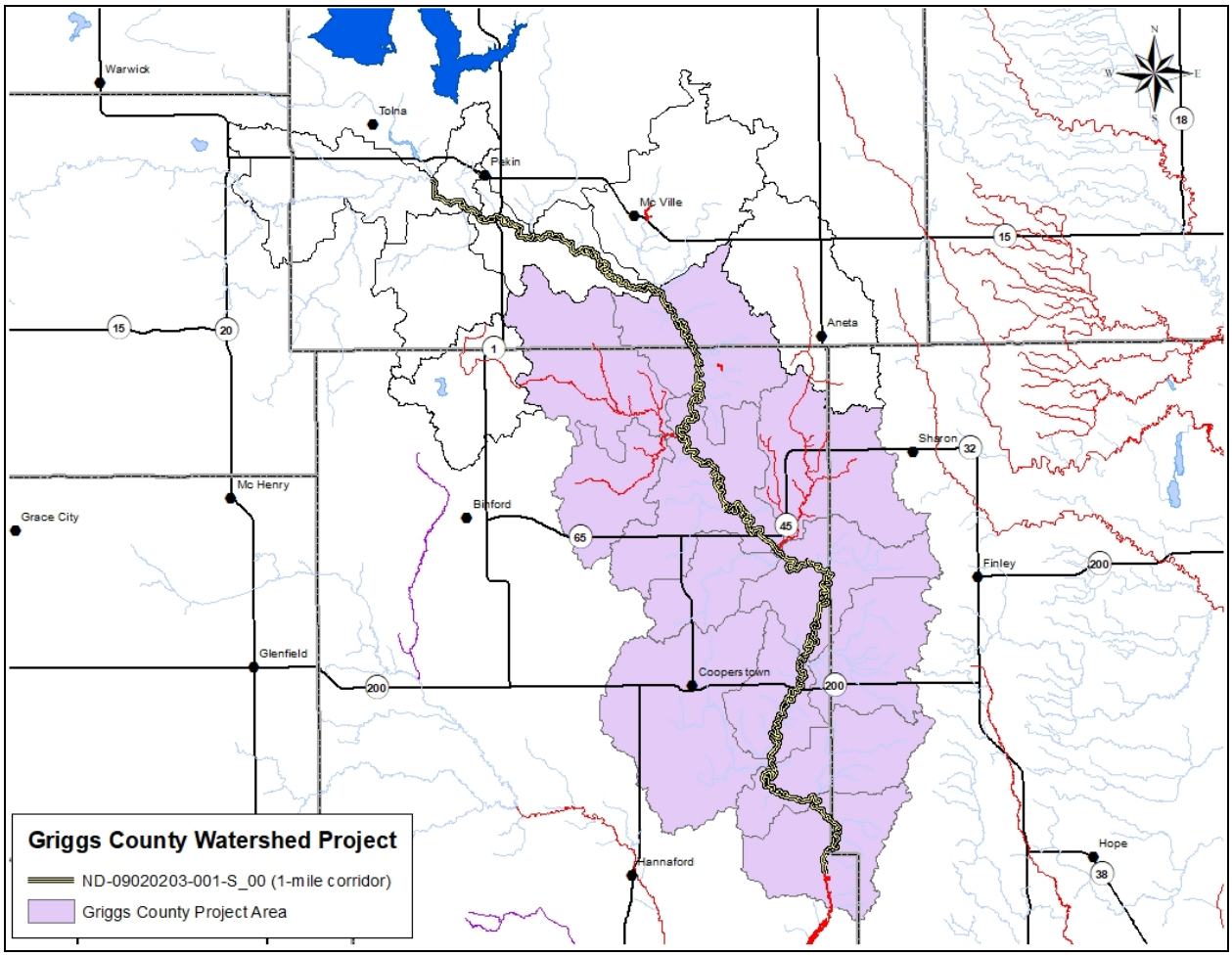


Figure 1. Griggs County Watershed Implementation Project Focus Area.

The focus area of the Middle Sheyenne River lies within the Drift Plains ecoregion (46i). The Drift Plains ecoregion (46i) was created from the retreating Wisconsinan glaciers which left a subtle rolling topography and thick glacial till. A large number of temporary and seasonal wetlands are found in the Drift Plains. The Drift Plains contain productive soils and level topography which largely favors cultivation practices. Historic grasslands of transitional and mixed grass prairie have been replaced with fields of spring wheat, barley, sunflowers, and alfalfa.

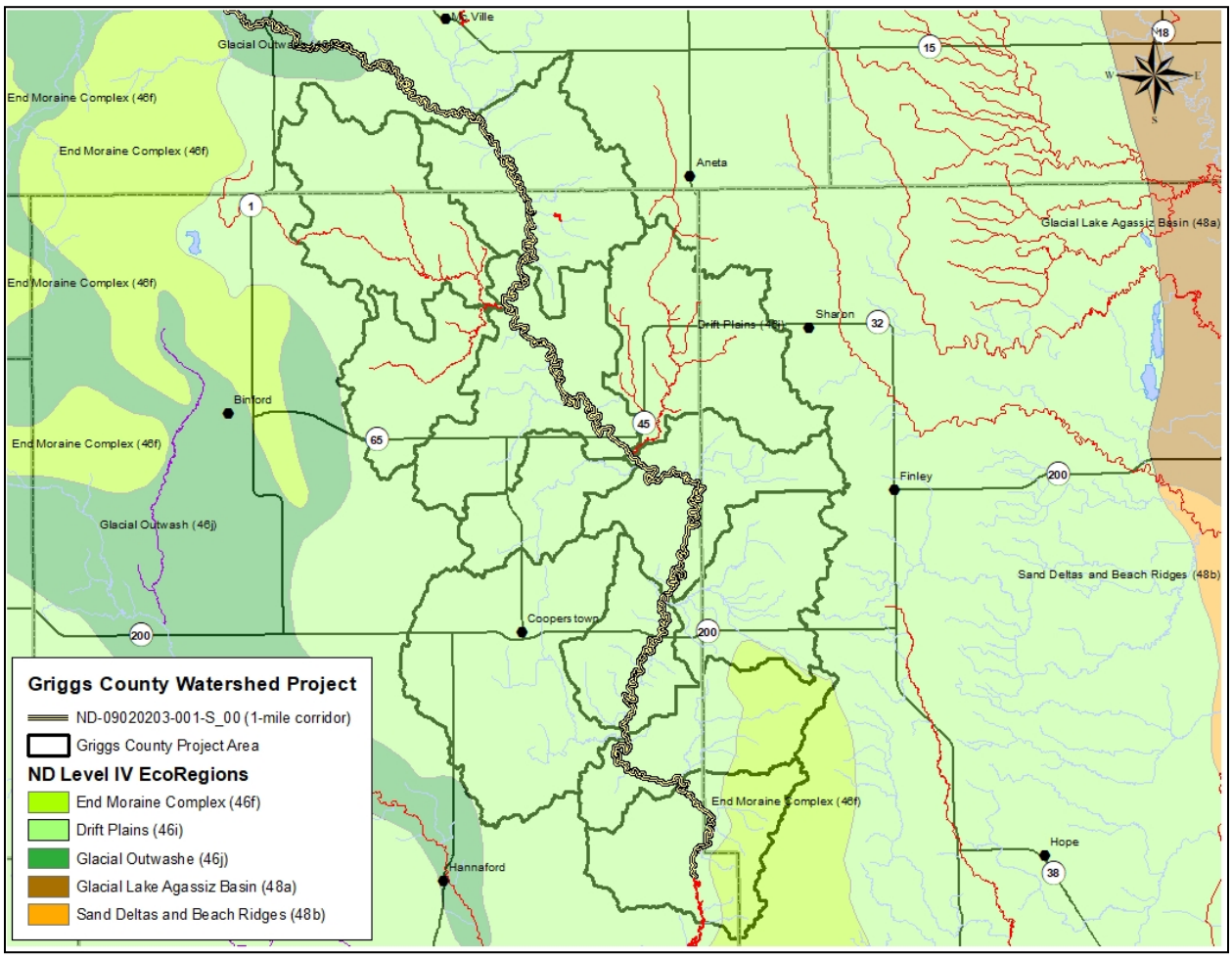


Figure 2. Griggs County Watershed Project Focus Area Level IV Ecoregions.

2.5 Watershed Water Quality

Pathogens

In 2012 an E. coli Bacteria TMDL was approved by the EPA addressing the Middle Sheyenne River segment ND-09020203-001-S_00. In this TMDL a load reduction goal was set to improve E. coli bacteria concentrations to level that comply with State water quality standards (126 CFU/100 mL and 10 percent exceedance of 409 CFU/100 mL).

The Middle Sheyenne River segment was listed as not supporting recreational uses due to E. coli bacteria. The TMDL identified that E. coli bacteria exceedances of the State water quality standards occurred during high and moist condition flows (Figure 3). Possible nonpoint sources cited in the TMDL include livestock grazing and watering along the riparian area, unpermitted animal feeding operations and septic systems. "Local input has indicated there are approximately 20 unpermitted AFO's that may need some type of manure management practices installed." Given the information provided in the TMDL, the primary focus of this project will be to improve livestock grazing and manure management along the river corridor. For further information about the Middle Sheyenne River E coli TMDL please refer to https://deq.nd.gov/publications/WQ/3_WM/TMDL/East/Final_SheyenneRiver_Nelson_Griggs_Ecoli_TMDL_20120826.pdf.

Table 2. Middle Sheyenne River E. coli Bacteria TMDL Estimated Load and Reduction.

		Load (10^7 CFUs/Day)			Load (10^7 CFUs/Period)		
	Median Percentile	Existing	TMDL	Days	Existing	TMDL	Percent Reduction
High	10.00%	369185.34	161708.20	73.00	26950530.16	11804698.67	56.20%
Moist	35.00%	100372.21	44396.53	109.50	10990756.93	4861420.24	55.77%
			Total	183	37941287	16666119	56.07%

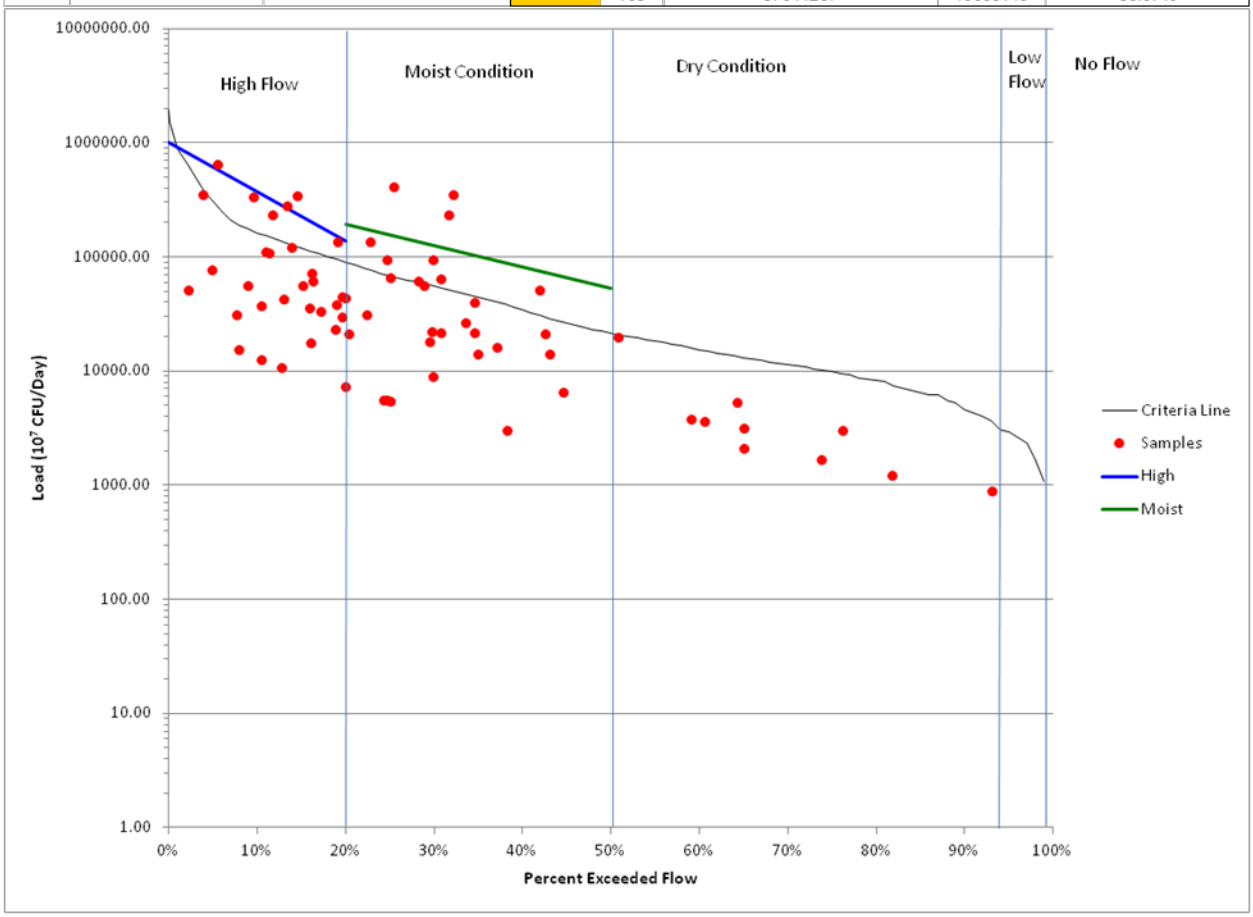


Figure 3. E. coli Bacteria Load Duration Curve for the Sheyenne River near Cooperstown, ND (The curve reflects flows from 1990-2010).

Total Nitrogen

Nitrogen is an essential nutrient for plants and animals. However, an excess amount of nitrogen in a waterway promotes the excessive growth of algae. When the algae die and decompose, dissolved oxygen in the water which is essential to the health of aquatic life is consumed and can reach critically low levels resulting in mortality to fishes and other aquatic organisms. Increased levels of both nitrogen and phosphorus in the water can also lead to blue-green algae blooms which can be toxic to domestic animals, wildlife, and humans if ingested. The die-off of rooted vegetation due to lack of dissolved oxygen can lead to an increase in water temperature to a decrease in suitable habitat for aquatic organisms. Both of these factors can lead to stress-caused mortality of aquatic life. In addition to the local effects on the river or stream itself, excessive transport of nutrients can cause eutrophication of downstream lakes and impoundments.

Total Nitrogen Load Duration Curve Analysis

According to the draft report *An Ecological Assessment of Perennial, Wadeable Streams in the Red River Basin* (Larsen, 2012), Ecoregion 46, the Northern Glaciated Plains, had a total nitrogen reference value of 0.581 mg/L. This value was derived from nutrient data collected at a set of "least disturbed" reference sites located in the Northern Glaciated Plain ecoregion of North Dakota. This value is not a

water quality standard, as nutrient criteria or standards have not yet been developed but is provided as a point of reference or goal when evaluating the data collected within the watershed.

Values that are close to the criteria line in the load duration curve indicate a nitrogen load for the stream that is close to the least impacted condition for this ecoregion, and therefore is healthier. The further away from the criteria line, the larger the negative impact to the stream becomes. As mentioned in the section above, the criteria line is provided for assessment purposes only, as statewide nutrient criteria have not been developed for North Dakota at this time.

In Figure 4, the load duration curve for Middle Sheyenne River mainstem site indicates that the total nitrogen load is related to high to moist condition flows as the symmetry of the samples follow the flow curve quite closely. This indicates that sources of nitrogen are most likely from overland flow related to nonpoint source pollution runoff. If there were significant point sources of in-stream nutrients, like wastewater treatment plant discharge, one would expect to see large increases in loads during low flow events (i.e. 80% - 100% duration intervals on the graph).

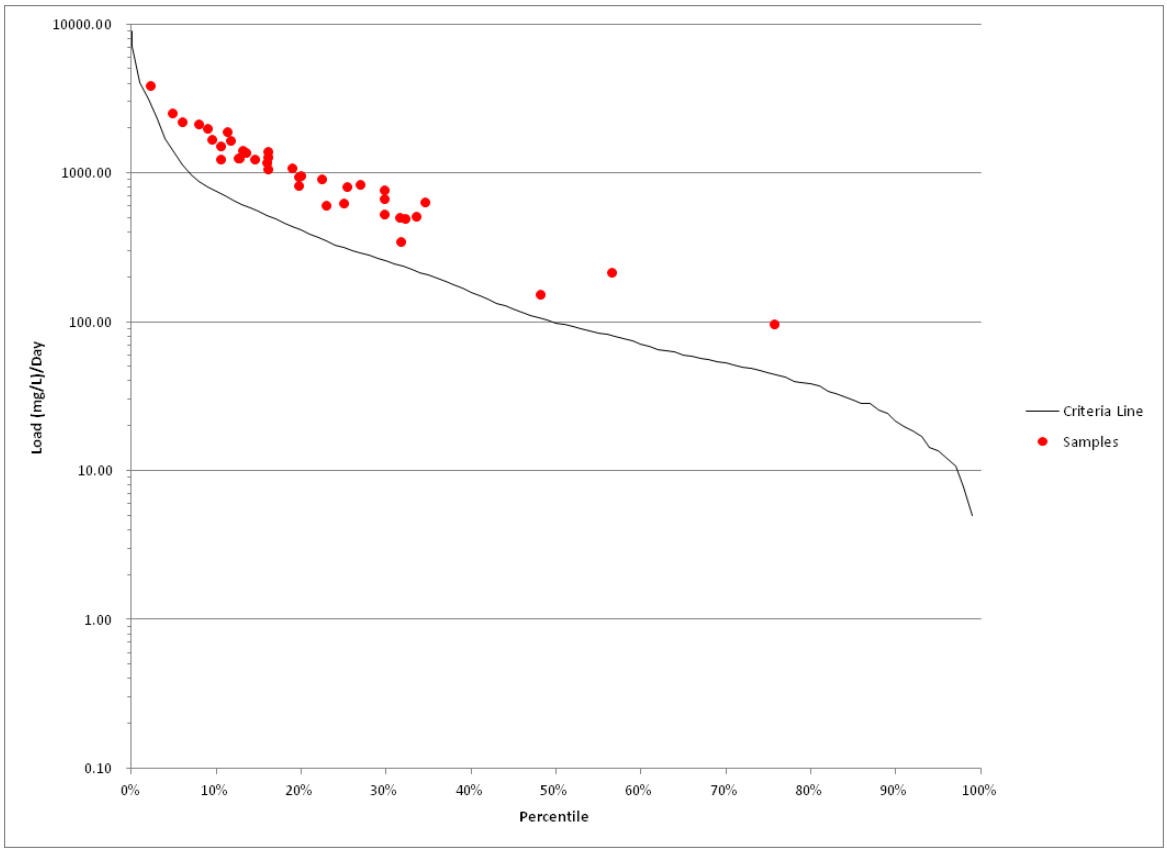


Figure 4. Total Nitrogen Load Duration Curve for the Middle Sheyenne River Mainstem (the curve reflects flow data from 1990-2010).

Total Phosphorus

Total phosphorus (TP) is also an essential nutrient for plants and animals. In waterbodies, phosphorus occurs in two forms, dissolved and particulate. Dissolved phosphorus comes in both soluble reactive and soluble organic (non-reactive) forms. Particulate phosphorus is formed when phosphorus becomes incorporated into particles of soil, algae and small animals that are suspended in the water. Both dissolved and particulate phosphorus can change from one form to another very quickly (called cycling) in a waterbody. This is important because algal cells and plants can only use phosphorus in certain

forms. Use is also influenced by factors such as pH, hardness of the water, the amount of dissolved oxygen in the water and thermal stratification (layers of water having different temperatures.
While phosphorus is naturally limiting in most fresh water systems because it is not as abundant as carbon and nitrogen, North Dakota sees elevated concentrations in its waters due to its abundance in most soils and intensive agriculture land use across the state. Particulate phosphorus naturally bonds to soil particles and as a result can be transported over long distances with eroded soil. Because of this binding property, phosphorus often settles with soil particles on the bottom of streams, rivers, and lakes where it becomes unavailable for use by plants until it is both resuspended and mixed with the appropriate concentrations of nitrogen. Soluble phosphorus remains in the water column, available for plant use. Sources of phosphorus include soil and rock, wastewater treatment plants, runoff from cropland, fertilized lawns, animal manure storage areas, disturbed land areas, drained wetlands, water treatment, decomposition of organic matter, storm water runoff, and commercial cleaning preparations (EPA, 2009).
The negative consequences of large amounts of phosphorus in a water body are similar to those of large amounts of nitrogen which has been discussed in the previous section. Excessive amounts of phosphorus is associated with algae blooms, accelerated plant growth, low dissolved oxygen from the decomposition of additional vegetation, and increased costs associated with drinking water infrastructure.

Total Phosphorus Load Duration Curve Analysis

Based on the draft report *An Ecological Assessment of Perennial, Wadeable Streams in the Red River Basin*, (Larsen, 2012), a total phosphorus reference value of 0.115 mg/L was estimated for the Northern Glaciated Plains Ecoregion (46). This reference value was developed based on data collected at "least disturbed" reference sites located in the Northern Glaciated Plains Ecoregion. Again, reference value of 0.115 mg/L is not a water quality standard but is provided as a point of reference when evaluating the data.
As in the case with the nitrogen load curve, values that are close to the criteria line indicate a phosphorus load in the stream that is similar to the least impacted streams in this ecoregion. The further away from the criteria line, the larger the negative impact to the stream becomes. The criteria line is for comparison purposes, as the State currently does not have a numeric water quality standard for phosphorus in streams.
In Figure 5, the load duration curve for Middle Sheyenne River mainstem indicates that the total phosphorus load is also related to high and moist condition flows. This would also suggest that sources of phosphorus could be overland flow related to nonpoint source pollution runoff. However, the slight variation in the symmetry of the samples also indicates that in-stream processes such as plant decay or riparian grazing are significant sources as well.

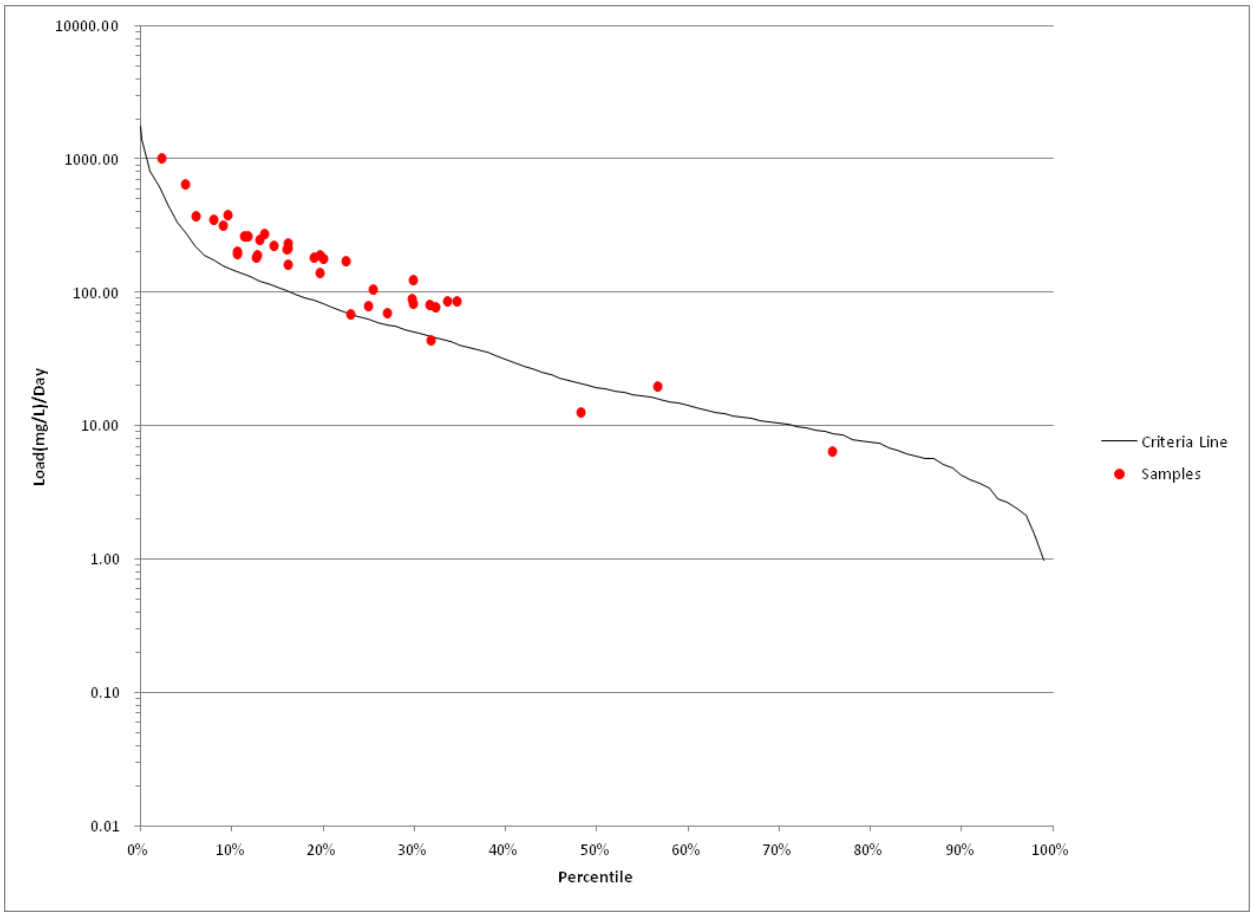


Figure 5. Total Phosphorus Load Duration Curve for the Middle Sheyenne River Mainstem (the curve reflects flow data from 1990-2010).

PROJECT DESCRIPTION

GOAL 1:

Restore and maintain the recreational uses at a "fully supporting" status in Sheyenne River in Griggs County. As a secondary goal, most of the practices implemented to the improve recreational uses will also improve the aquatic life uses in the creek and its tributaries

Objective 1) Provide the technical and administrative support needed to fully implement the project.

Task 1: The District Manager from the Griggs County Soil Conservation District will assume the watershed coordinator duties of managing the project; provide technical assistance to producers; and coordinate with project partners (NRCS, etc.).

Product: 1 half-time watershed coordinator. He will split his time equally between the Soil Conservation District and the Watershed project subject to the busy seasons with both organizations

Total Cost – $132,500

Task 2: Provide administrative support through the Griggs Co. Soil Conservation District.

Product – Update/discussion at monthly SCD meeting (50-60 hours/year), Supervisor participation in project activities (10-20 hours/year); and SCD staff assistance (60-100 hours/year)

Total Cost - $5000

Objective 2) Reduce E. coli concentrations in Sheyenne River to achieve fully supporting status for recreational uses. Target concentration per sampling site will be a geometric mean of 126 colonies/100 ml with less than 10% of the samples exceeding 409 colonies/100 ml.

Task 3: Design and install manure management system on up to 5 livestock feeding areas within the priority corridor along the Sheyenne River in Griggs County.

Product: 1 full containment system and 4 partial manure management systems. The BMP's may include site prep, earthwork, access roads, heavy use areas, fencing, water supply, etc.

Total Cost - $165,000(other sources of funding may be pursued through NRCS, ND Dept. of Ag)

Task 4: Work with livestock producers to improve grazing management in 50% of the AnnAGNPS priority areas (See Appendix #2) within the priority corridor along the river.

Product: Improved livestock grazing management on approximately 24,000 acres of the non-cropland priority areas along the river. BMP's may include fencing, pipelines; water tanks, etc.

Total Cost – $59,765

Task 5: Expand livestock forage options and improve soil health by providing technical and financial assistance to implement cover crops on 5000 cropland acres in the AnnAGNPS priority areas and/or

on cropland acres immediately adjacent to priority grazing acres within the priority corridor along the river.

Product – 5000 acre of cover crops on cropland

Total Cost – $47,400

Task 6: Assist the NRCS field office with the development of USDA supported conservation plans (e.g., EQIP, CSP, etc.) that will help improve livestock and cropland management along the river and its tributaries.

Product: 15 producer agreements supported by USDA that address approximately 5000 acres

Total Cost – 319/match costs are included in the costs under Task 1. [Estimated USDA cost share is $2500/year)

Objective 3) Coordinate with local Extension Service personnel and others to increase producer awareness and understanding of management practices that can be effectively used in Griggs County to improve resource management and soil health and minimize livestock impacts to riparian areas.

Task 7: Conduct 1 tour each summer highlighting BMP that are being used in the watershed and county to improve cropland and livestock management along the river.

Product: 4 summer tours

Total Cost - $1,000

Task 8: Host one workshop annually, that promotes the adoption of BMP that will be effective at addressing the beneficial use impairments in the river.

Product – 4 winter workshops

Total Cost - $2,750

Task 9: Develop and distribute a semiannual newsletter to keep the general public informed of project's activities and accomplishments.

Product: 9 newsletters

Total Cost - $2500

Objective 4) Document project accomplishments and progress.

Task 10: Conduct all monitoring activities as scheduled in the approved Quality Assurance Project Plan (QAPP).

Product - Water quality data as scheduled under the QAPP (See Section 5.0)

Total Costs - $5,500 ($3,000 for equipment & $2,500 for sample analysis and shipping)

Task 11: Maintain the NPS Program databases for tracking project expenditures as well as the types, amount and costs of BMP supported with 319 funds.

Product – BMP and Expenditure records

Cost – Costs are part of the Task 1 costs.

3.3 Milestone Table (Appendix #4)

3.4 Not applicable

3.5 The Griggs County Soil Conservation District is the appropriate entity to coordinate and implement this project. The SCD is a locally elected volunteer conservation organization that serves all the people in the county. The sponsors will work with the North Dakota Department of Health and NRCS to determine the need for any environmental permits for livestock waste management systems. Project staff will consult with NDDH and project engineers to determine applicability of current livestock waste regulations.

3.6 The Griggs County Soil Conservation District will be responsible for auditing Operation & Maintenance Agreements (O&M) on BMP's during the project period through yearly status reviews of EPA-319 contracts. The lifespan of each BMP will be listed in the individual contracts to ensure longevity of the practices. Each producer will sign the "EPA 319 Funding Agreement Provisions" form which explains in detail the consequences of destroying a BMP before the completion of its lifespan.

4.0 COORDINATION PLAN

4.1 1) Griggs County SCD will be the lead agency liable for project administration. Conservation planning, technical assistance, educational campaigns, clerical assistance, access to equipment and supplies, and annual financial support will be provided by the SCD. The SCD will also prioritize activities, coordinate scheduling, and serve as a liaison between watershed residents and USDA program participation.

2) USDA Natural Resources Conservation Service (NRCS) will provide technical assistance by coordinating project activities, facilitating local involvement, providing technical support and participating in educational outreach programs during the project. Staff will incorporate existing USDA programs (financial and technical) and target resources to enhance efforts within the watershed. Existing office space and office equipment use will be made available to the project. An annual review will be conducted with the Field Office, DC and the SCD to reconfirm and acknowledge NRCS's commitment to the project.

3) North Dakota Department of Health (NDDoH) will oversee Section 319 funding and assist in implementing the water sampling and analysis plan. Training will be provided by the NDDH staff for proper water quality sample collection, preservation and transportation to ensure reliable data collection. NDDH will also complete and cover the expenses of water sample analysis.

4) USDA Farm Service Agency (FSA) will be solicited for cost-share assistance through the Conservation Reserve Program (CRP) and will serve as a local resource.

5) North Dakota State University Extension Service (NDSU Extension) both local and state personnel will assist the project in information and education activities. BMP publications will also be available as well as assistance with workshops, tours and training.

6) North Dakota Game & Fish (ND G&F), North Dakota Pheasants Forever and US Fish & Wildlife will be solicited to provide technical and financial assistance.

7) 319-Eco-Ed camps will provide youth education of water quality pollution impacts and potential solutions for local 6th grade students.

8) Upper Sheyenne River Joint WRB will be solicited to provide support through information and education from the studies they have conducted previously on the Sheyenne River.

4.2 Local support for the Sheyenne River Riparian Corridor project has been confirmed by the number of landowners and producers that come into the office inquiring about assistance for conservation practices. With NRCS' Cooperstown Field Office having about 200 active contracts, the producer traffic through the office is quite regular. And also with the NRCS budget getting smaller and less producers being assisted by them, producers are looking for other opportunities to support the implementation of conservation practices.

4.3 The Griggs County SCD/319 employee will have a solid understanding of the USDA programs, such as EQIP, CRP, WRP and WHIP and works closely with FSA, NRCS, NPS BMP Team, NDSU Carrington Research Center and other 319 funded watershed projects providing and receiving technical support.

4.4 There are no other projects in the watershed that are focused specifically on NPS pollution sources. However, by working closely with the sponsors and associated agencies involved in other resource management activities, the lines of communication are always open, and we can easily coordinate the exchange of ideas and planning assistance as well as encourage brain-storming on common issues to meet the needs of our rural and urban residents. By remaining in close contact with all organizations in the area, we can coordinate to enhance and complement the effectiveness of all the resource-focused projects in the watershed, thereby preventing any duplication of efforts.

5 EVALUATION AND MONITORING PLAN

"The Quality Assurance Project Plan (QAPP) for the project will be developed by the NDDH after the project is fully approved"

6 BUDGET

6.2 See Attachments (Appendix #4)

7.0 PUBLIC INVOLVEMENT

7.1 Educational and informational meetings will be conducted to keep the entire community informed. Community leaders, County Commissioners, Water Resource Board members, City Council members, and District supervisors will be informed of the decision-making processes involving the implementation of BMP's within the Griggs County Sheyenne River Riparian Corridor Project.

THE GRIGGS COUNTY
SHEYENNE RIVER RIPARIAN CORRIDOR
PROJECT APPENDIX LIST

1 https://deq.nd.gov/publications/WQ/3_WM/TMDL/East/Final_SheyenneRiver_Nelson_Griggs_Ecoli_TMDL_20120826.pdf.

2 Griggs County Maps

3 Milestone Table

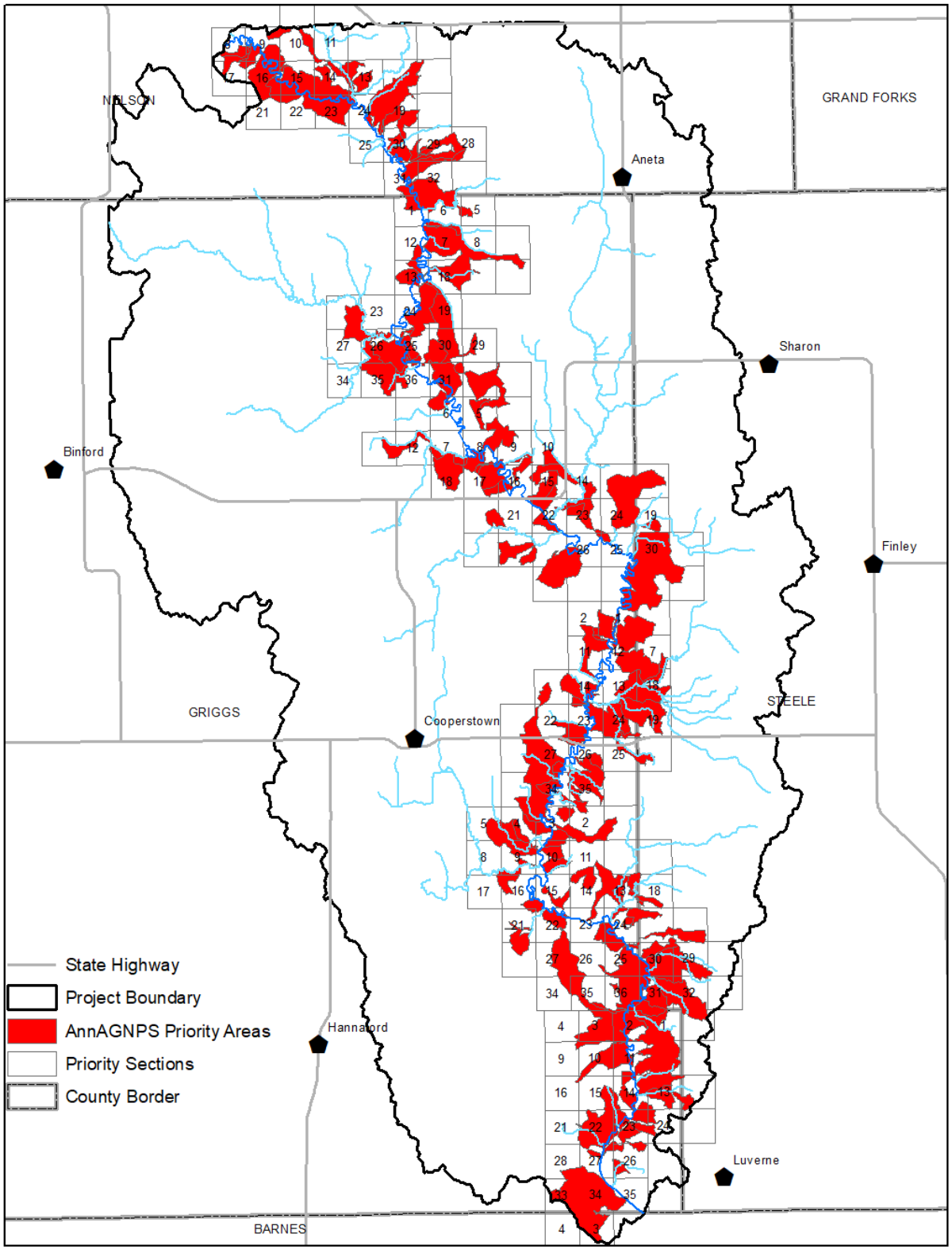
4 Budget

Appendix #1

https://deq.nd.gov/publications/WQ/3_WM/TMDL/East/Final_SheyenneRiver_Nelson_Griggs_Ecoli_TMDL_20120826.pdf.

Appendix # 2

Maps


NELSON
GRAND FORKS
Aneta
Sharon
Binford
Finley
GRIGGS
Cooperstown
STEELE
Hannaford
Luverne
BARNES
State Highway
Project Boundary
AnnAGNPS Priority Areas
Priority Sections
County Border

APPENDIX #3

MILESTONE TABLE

MILESTONE TABLE FOR GRIGGS COUNTY SHEYENNE RIVER RIPARIAN PROJECT

Tasks	Output	1	2	3	4	5
Objective 1:						
Task 1: Hire SCD Manager 1/2 time	An emplyee who administers all aspects of project	1	**	**	**	**
Task 2: Admin support through SCD	Update at monthly SCD meeting/SCD assistance	1 2	1 2	1 2	12	12
Objective 2:						
Task 3: Install manure mgnt system	Up to 5 Manure Management Systems	1	1	1	1	1
Task 4: Improve grazing mgnt	Improve grazing management on 50% of priority areas	5	5	5	5	5
Task 5: Expand forage options	Expand livestock forage options by implementing cover crops	5	5	5	5	5
Objective 3:						
Task 6: Assisting NRCS	Assist NRCS with developing conservation plans	2	2	2	2	2
Task 7: Summer tour	4 summer tours	1	1	1	1	
Task 8: Winter workshop	4 winter workshops	1	1	1	1	
Task 9: Develop newsletter	Distribute semiannual newsletter	2	2	2	2	2
Objective 4:						
Task 10: Monitoring activities	Conduct monitoring activities in approved QAPP	2 6	2 6	2 6	26	26
Task 11: NPS databases	Maintain NPS Program databases.	1 2	1 2	1 2	12	12

Responsible Organizations

Griggs County SCD as local project manager and sponsor will be responsible for project coordination of reimbursement payments, tracking and progress.
The SCD will also provide technical assistance for planning, design and implementation.

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

NDDH will provide oversight of planning and expenditures.

APPENDIX #4

BUDGET

Part 1: Funding Sources						
	2019	2020	2021	2022	2023	Total
EPA SECTION 319 FUNDS						
1)FY 2019 Funds (FA)	$51,080	$51,080	$51,080	$51,080	$51,080	$255,400
STATE/LOCAL MATCH						
1) Griggs County SCD (TA & FA)	$12,280	$12,280	$12,280	$12,280	$12,280	$61,400
2) Landowners (FA)	$21,773	$21,733	$21,733	$21,773	$21,773	$108,866
						$0
Subtotals	$34,053	$34,053	$34,053	$34,053	$34,053	$170,266
TOTAL BUDGET						
	$85,133	$85,133	$85,133	$85,133	$85,133	$425,666
OTHER FEDERAL FUNDS						
1) NRCS (TA, EQIP, and other programs)	$2,500	$2,500	$2,500	$2,500	$2,500	$12,500
2)FSA (CRP)	$0	$0	$0	$0	$0	$0

Part 2: Detailed Budget (Section 319/Non-Federal)								
	2019	2020	2021	2022	2023	Total Costs	Cash and In-kind Match	319 Funds
Objective 1: PERSONNEL/SUPPORT/ADMIN								
Salary/Fringe	$26,500	$26,500	$26,500	$26,500	$26,500	$132,500	$53,000	$79,500
Travel	$1,000	$1,000	$1,000	$1,000	$1,000	$5,000	$2,000	$3,000
SCD Assistance	$200	$200	$200	$200	$200	$1,000	$400	$600
Equipment/Supplies	$100	$100	$100	$100	$100	$500	$200	$300
Training	$250	$250	$250	$250	$250	$1,250	$500	$750
Telephone/postage	$300	$300	$300	$300	$300	$1,500	$600	$900
Subtotals	$28,350	$28,350	$28,350	$28,350	$28,350	$141,750	$56,700	$85,050
Objective 2: Financial & Technical Assistance								
Grazing Management	$11,953	$11,953	$11,953	$11,953	$11,953	$59,765	$23,906	$35,859
Implement Cover Crops	$9,480	$9,480	$9,480	$9,480	$9,480	$47,400	$18,960	$28,440
Manure management Systems	$33,000	$33,000	$33,000	$33,000	$33,000	$165,000	$66,000	$99,000
						$0	$0	$0
Subtotals	$54,433	$54,433	$54,433	$54,433	$54,433	$272,165	$108,866	$163,299
Objective 3: Information/Education								
Public meetings/Workshops/Tours	$750	$750	$750	$750	$750	$3,750	$1,500	$2,250
Survey/Newsletters/News releases	$500	$500	$500	$500	$500	$2,500	$1,000	$1,500
Subtotals	$1,250	$1,250	$1,250	$1,250	$1,250	$6,250	$2,500	$3,750
Objective 4: Water Quality Monitoring								
Sampling/Transport/Supplies	$1,100	$1,100	$1,100	$1,100	$1,100	$5,500	$2,200	$3,300
Subtotals	$1,100	$1,100	$1,100	$1,100	$1,100	$5,500	$2,200	$3,300
Total for all Objectives/Tasks								
Total 319/Non-federal Budget	$85,133	$85,133	$85,133	$85,133	$85,133	$425,665	$170,266	$255,399

Section 319 Funds per year	$51,080	$51,080	$51,080	$51,080	$51,080	$255,399
Total local match per year	$34,053	$34,053	$34,053	$34,053	$34,053	$170,266
SCD match per year	$12,280	$12,280	$12,280	$12,280	$12,280	$61,400
Producer BMP match per year	$21,773	$21,773	$21,773	$21,773	$21,773	$108,866

Part 3: Projected BMP List		
Practice Code	Practice Description	Cost per unit
340	Cover Crop	$20.00/ac
351	Well Decommissioning	$1100.00 each
382	Fencing	$0.90 - $1.90/ft
380	Windbreak/Shelterbelt Establishment	$30.00/hlnft
390	Riparian Herbaceous Cover	$300.00/ac
393	Filter Strip	$125.00/ac
412	Grassed Waterway	$25.00/ft
512	Pasture & Hayland Planting	$52.00/ac
516	Pipelines	$3.15/ft
528A	Prescribed Grazing	$5.00/ac
550	Range Planting	$40.00/ac
590	Advanced Precision Nutrient Management	$27.00/ac
610	Salinity & Sodic Soil Management	$20.00/ac
614	Trough and Tank	Local Rate
642	Well (livestock only)	Local Rate
633	Waste Utilization	$2.00/ton

* Additional BMPs will be implemented as needed in accordance with Section 319 guidelines.

NDSU | EXTENSION SERVICE
GRIGGS COUNTY

February 5, 2019

Griggs County Soil Conservation District
PO Box 526
Cooperstown, North Dakota 58425

Dear Griggs County Soil Conservation District,

Griggs County Extension supports the Griggs County Sheyenne River Riparian Corridor 319 Project by assisting Griggs County Soil Conservation District with activities. NDSU Extension provides research based knowledge and education though workshops and hosting tours in collaboration with Griggs County Soil Conservation District to better serve the needs of Griggs County residents.

Sincerely,

Megan Vig

Megan Vig
Agriculture and Natural Resources Extension Agent

North Dakota State University
NDSU EXTENSION SERVICE | GRIGGS COUNTY
Courthouse | 805 Odegard Ave SW | PO Box 70 | Cooperstown ND 58425-0070 | 701.797.3312 | Fax 701.797.3587
NDSU.Griggs.Extension@ndsu.edu | www.ag.ndsu.edu/griggscountyextension | www.ndsu.edu/extension

USDA

United States Department of Agriculture

USDA-NRCS

Griggs County
Field Office

PO Box 526
Cooperstown ND
58425

701.797.2240 ext 3

February 8, 2019

To: Griggs County SCD

From: NRCS – Cooperstown FO

Subject: Support of Griggs County Sheyenne Riparian Corridor Project

Griggs County SCD,

I am in support of the Griggs County Sheyenne Riparian Corridor Project. Water quality studies have been performed by the ND Dept. of Health in past years that show several resource concerns directly in the Sheyenne River corridor as well as tributaries that flow into the river. This project would be an avenue to address these resource concerns with cost share to landowners to reduce the burden of installing better management practices that would help increase the quality of the river's water. The Cooperstown NRCS field office will gladly provide technical assistance in any possible way needed to help this project succeed.

Sincerely

Andrew Jewett
District Conservationist

Upper Sheyenne River Joint Water Resource Board
P.O. Box 446
Lakota, North Dakota 58344-0446

Phone: 701 247-2682
Fax: 701 247-2692
E-mail: candy.dawn@live.com

Providing a coordinated and cooperative approach to planning and implementing a comprehensive water management program in the Upper Sheyenne Watershed

February 20, 2019

VIA E-Mail: nathan.j.johnson@nd.nacdnet.net

Griggs County Soil Conservation District
Attn: Nathan Johnson
PO Box 526
Cooperstown, ND 58425

RE: 319 Grant – Griggs County

Mr. Johnson:

The Upper Sheyenne River Joint Water Resource Board fully supports the Griggs County Sheyenne River Riparian Corridor Project. We have conducted two different studies on the Upper Sheyenne River that prove that practices need to be done to improve water quality on the Sheyenne River. The Upper Sheyenne River Joint Water Resource Board will lend support by providing information and education and also with partnering if need be.

Sincerely,

Ben Varnson

Ben Varnson, Manager
Upper Sheyenne River Joint Water Resource Board

BV/ch