

## PROJECT SUMMARY SHEET

**Project Title:** English Coulee Watershed Implementation Phase II

**Lead Project Sponsor:**

Grand Forks County Soil Conservation District  
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**State:** North Dakota      **Watershed:** English Coulee

**Hydrologic Unit Code:** 09020301

**High Priority Watershed:** Yes

**Project Type**

Watershed

**Waterbody Types**

Lakes/Reservoirs

Rivers

Streams

Wetlands

**NPS Category**

Agriculture

**Project Location:** **Latitude:** 47.91111      **Longitude:** -97.07306

**Continuation Project:** Yes

A summary of accomplishments is provided in *Appendix E*.

**Summarization of Major Goals:**

The primary goal of this project is to achieve an improving trend towards fully supporting but threatened status for recreational use and aquatic life at all sampling sites within the English Coulee Watershed through implementation of BMPs.

**Project Description:**

This project will implement systematic BMP's, including but not limited to the following: rotational grazing systems, water tanks, cover crops, and septic system renovations. These practices will help reduce E.coli bacteria concentrations to move toward full restoration of recreational uses in English Coulee. Longer term efforts will also be needed outside the scope of

this project to fully realize recreational use attainment. This project will aid in identifying the most feasible actions for those long-term efforts.

**Funding:**

FY2019 319 funds requested: \$173,770

Match: \$120,846

Other Federal Funding: \$7,500

Red River Retention Authority Funding: \$5,000-\$8,000

319 Funded Part-time Personnel: 1

Total Project Cost: \$302,117

**2.0 STATEMENT OF NEED**

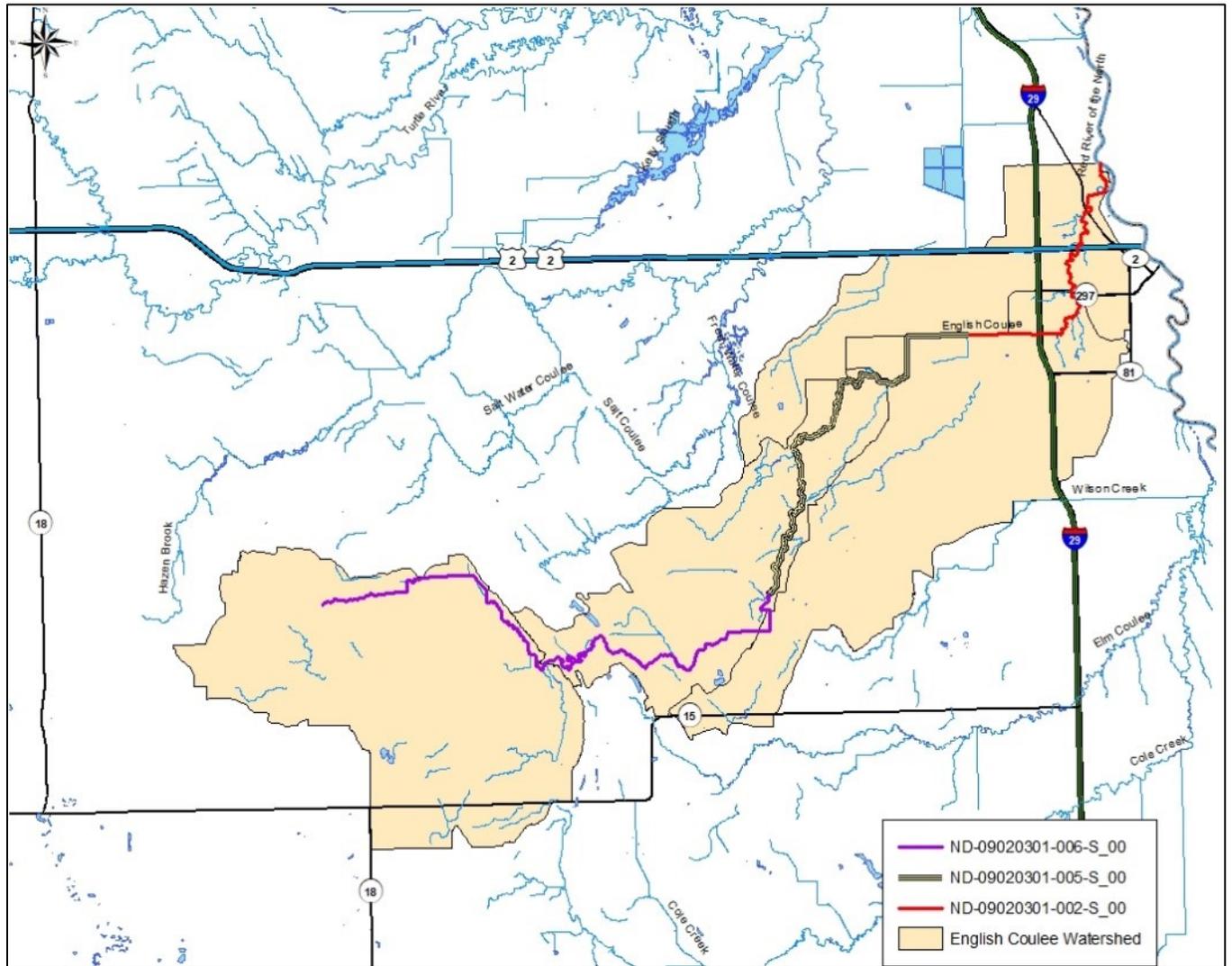
**2.1 Water Quality Priority**

Based on the 2016 Section 303(d) List of Impaired Waters Needing TMDLs (NDDoH, 2016), the North Dakota Department of Health (NDDoH) has identified a 8.48 mile segment (ND-09020301-002-S\_00) of the English Coulee from its confluence with a tributary upstream from Grand Forks, ND downstream to its confluence with the Red River of The North (Lower Reach) as not supporting fish and other aquatic biota due to dissolved oxygen, total dissolved solids, sedimentation/siltation, and selenium and not supporting recreation due to sedimentation/siltation and Escherichia coli (E.coli) bacteria.

A 12.1 mile segment (ND-09020301-005-S\_00) of the English Coulee from its confluence with a major control structure, downstream to its confluence with a tributary that is upstream from Grand Forks, ND (Middle Reach) as not supporting fish and other aquatic biota due to selenium, dissolved oxygen, and total dissolved solids and not supporting recreation due to E. coli bacteria.

A 18.29 mile segment (ND-09020301-006-00) from its headwaters, downstream to a major control structure as not supporting fish and other aquatic biota due to total dissolved solids, dissolved oxygen, and selenium and not supporting recreation due to E. coli bacteria.

This project will focus on implementing best management practices (BMPs) to begin addressing the recreational use impairment in English Coulee. Landowner and producer education will also be a major focus to increase the awareness and understanding of BMP's and management systems that can be used to improve water quality in the watershed. The information collected, and lessons learned during the project will be used to identify resource management needs for the future and the most feasible options to continue the restoration work.



**Figure 1. Location of 303(d) Listed Impaired Segments in the English Coulee Watershed.**

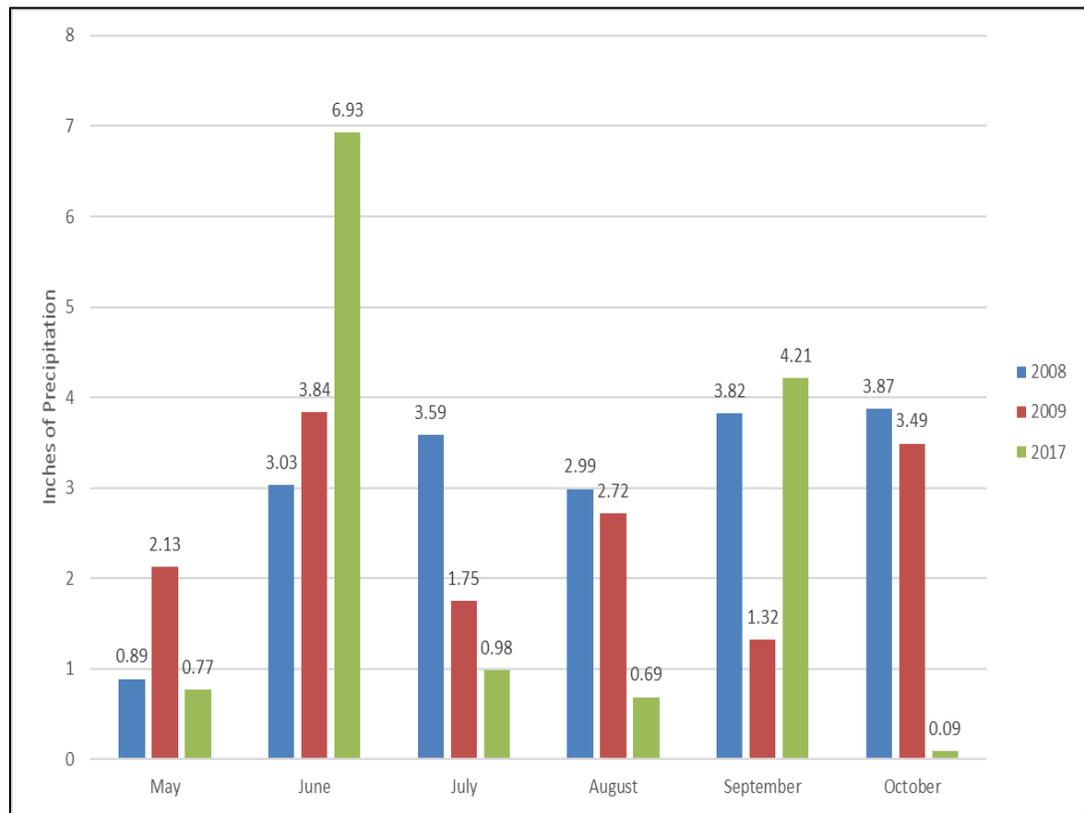
## 2.2 Waterbody Type

Based on the *Standards of Water Quality for the State of North Dakota* (NDDoH, 2016), English Coulee is classified as a Class III stream (09020301). The water quality of a Class III stream shall be suitable for agricultural and industrial uses. Streams in this class generally have low average flows with prolonged periods of no flow. During periods of no flow, they are limited value for recreation and fish and aquatic biota. The quality of these waters must be maintained to protect secondary contact recreation uses (e.g., wading), fish and aquatic biota and wildlife uses (NDDoH, 2014).

The English Coulee has the characteristics and hydrological function of an intermittent stream. An intermittent stream is defined as a stream with a well-defined channel that contains water for only part of the year, typically during spring and early summer.

Intermittent streams are normally dry during hot summer months and most of the flow occurring during this time is caused by runoff from heavy precipitation.

During years of prolonged precipitation English Coulee may take on the characteristics of a perennial stream with continuous flow all year long. For example, during the English Coulee Watershed Assessment sampling period in 2008 and 2009, there were record precipitation levels throughout the summer and fall (Figure 2). During this wet period, English Coulee exhibited some characteristics of a perennial stream. Conversely, during the 2017 sampling season, rainfall was normal and English Coulee had the characteristic of an intermittent stream again.



**Figure 2. Monthly Precipitation Amounts for 2008, 2009, and 2017.**

### 2.3 Maps

An Annualized Agricultural Nonpoint Source Pollution (AnnAGNPS) model was developed for the English Coulee watershed. The AnnAGNPS model uses soils, fertilization rates, cropping systems, elevation, land use, and precipitation data, etc. to 1) characterize the size and shape of the watershed and 2) identify “high priority areas” that are potentially the most significant sources of nutrients (N and P) and sediment in the target watershed. The results of the AnnAGNPS model will be used to target technical

and financial assistance for the implementation of Best Management Practices (BMPs) in the English Coulee watershed. Figure 3 features the AnnAGNPS priority areas in English Coulee watershed. Emphasis will be placed on the AnnAGNPS priority areas that are crosscut by or adjacent to the English Coulee or its tributaries.

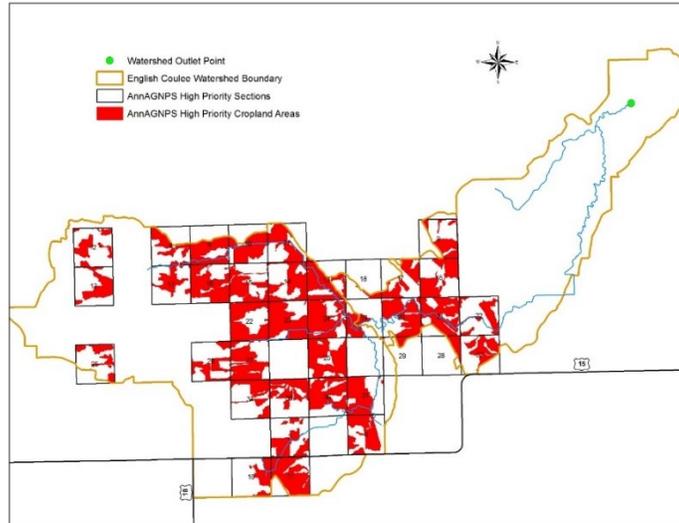


Figure 3. High Priority Cropland in the English Coulee Watershed

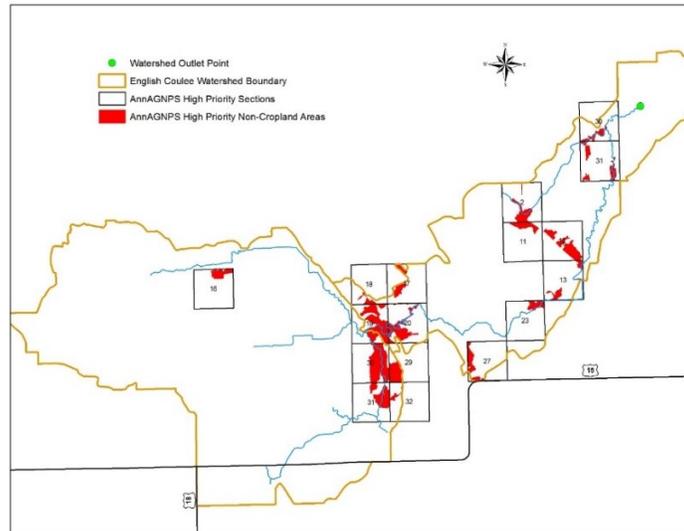


Figure 4. High Priority Non-Cropland in the English Coulee Watershed

## 2.4 Watershed Description

The English Coulee watershed (09020301) encompasses approximately 134 square miles or nearly 85,813 acres and is located within Grand Forks County (Figure 1). The English Coulee watershed begins in western Grand Forks County and runs east towards the city of Grand Forks, ND. The English Coulee has a modified hydrology due to a diversion that runs north of the city. The natural stream reach travels through the city of Grand Forks and only receives base flow throughout the year. After the English Coulee flows through town it dumps into the Red River of the North.

The English Coulee watershed lies within three Level IV ecoregions Glacial Lake Agassiz Basin (48a), Sand Deltas and Beach Ridges (48b) and Saline Areas (48c). Glacial Lake Agassiz Basin ecoregion (48a) is comprised of thick beds of glacial drift overlain by silt and clay lacustrine deposits from glacial Lake Agassiz. The topography of this ecoregion is extremely flat, with sparse lakes and pothole wetlands. Tallgrass prairie was the dominant habitat prior to European settlement and has now been replaced with intensive agriculture. Agricultural production in the southern region consists of corn, soybeans, wheat, and sugar beets.

The Sand Deltas and Beach Ridges ecoregion (48b) disrupts the flat topography of the Red River Valley. The beach ridges are parallel lines of sand and gravel that were formed by wave action of the contracting shoreline levels of Lake Agassiz. The deltas consist of lenses of fine to coarse sand and are blown into dunes.

Saline Area (48c) is characterized by salty artesian groundwater flowing to the surface through glacial till and lacustrine sediments from underlying beds of Cretaceous sandstone. Areas of heavily saline soils are primarily grazed, while moderate salinity soils are planted into sunflowers, sugarbeets, and potatoes (USGS, 2006).

Grand Forks County has a sub humid climate characterized by warm summers with frequent hot days and occasional cool days. Average temperatures range from 14 ° F in winter to 65° F in summer. Precipitation occurs primarily during the warm period and is normally heavy in later spring and early summer. Total annual precipitation is about 18 inches.

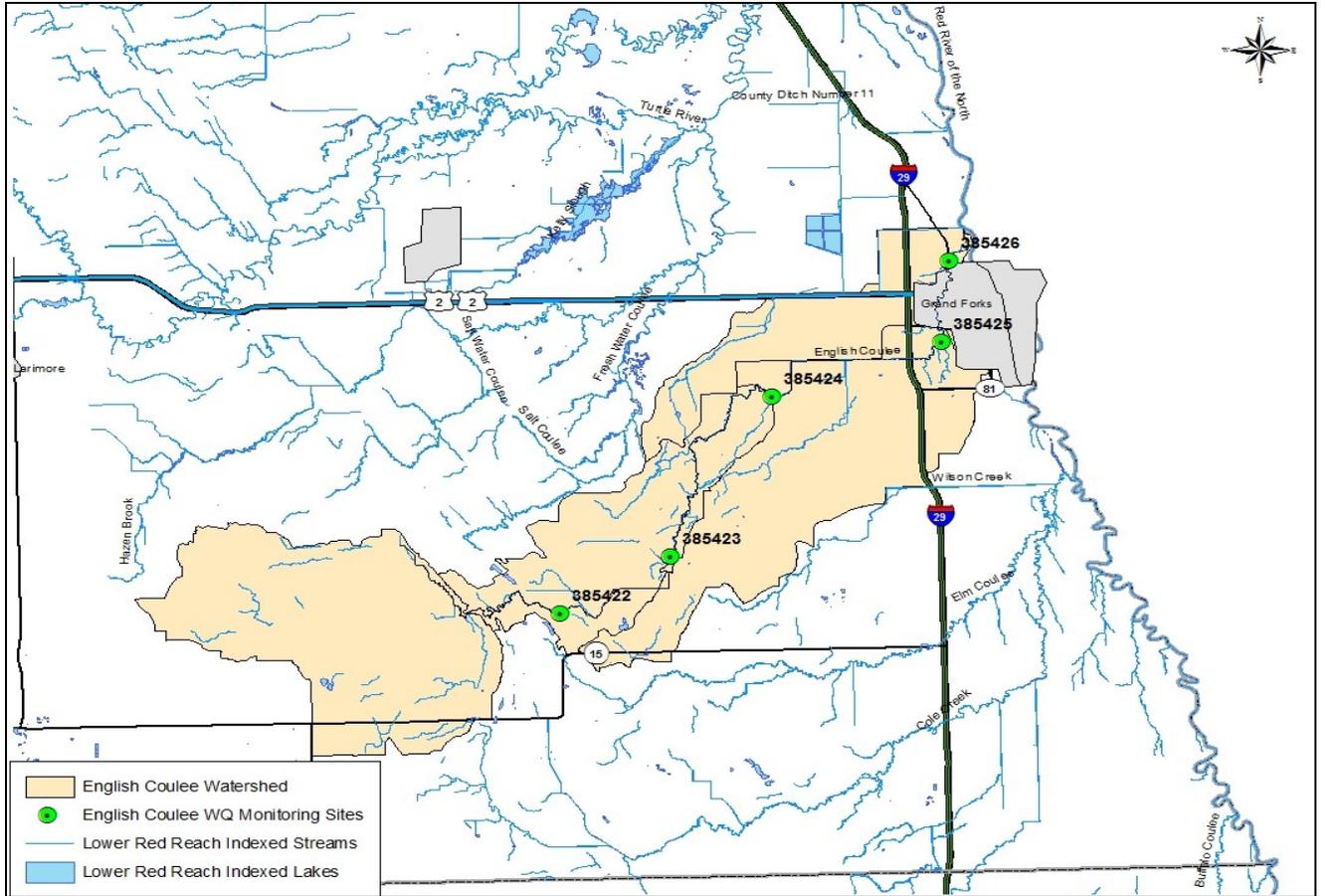
The dominant land use in English Coulee watershed is row crop agriculture. According to the 2014 National Agricultural Statistical Service (NASS, 2014) land survey data, approximately 65 percent of the land is cropland, 15 percent is tame/reseeded grasses, 13 percent is bare/roads/developed, 3 percent water/wetlands and the other 4 percent comprised of trees/shrubs, native grassland, and alfalfa. The majority of the crops grown consist of soybeans, spring wheat, other hay/non alfalfa, dry beans and corn.

## **2.5 Watershed Water Quality**

Within the English Coulee watershed, E. coli bacteria were collected at five sites (Table 1 and Figure 5). Data was collected during the recreation season of May 1 through September 30. Recreational beneficial use attainment was determined for each site and is summarized in Tables 2 & 3 and Figure 6.

**Table 1. Water Quality Monitoring Stations for the English Coulee Watershed.**

<b>Station</b>	<b>Location</b>	<b>Waterbody ID</b>	<b>Year</b>	<b>Parameters</b>
385422	1 mile North, 8.5 miles West of Thompson, ND	ND-09020301-006-S_00	2017-2018	<i>E. coli</i> , Nutrients and TSS
385423	3 miles North, 5.5 miles West of Thompson, ND	ND-09020301-005-S_00	2017-2018	<i>E. coli</i> , Nutrients and TSS
385424	2 miles Southwest of Grand Forks, ND	ND-09020301-005-S_00	2017-2018	<i>E. coli</i> , Nutrients and TSS
385425	11 <sup>th</sup> Ave South Bridge Grand Forks, ND	ND-09020301-002-S_00	2017-2018	<i>E. coli</i> , Nutrients and TSS
385426	27 <sup>th</sup> Ave North Bridge Grand Forks, ND	ND-09020301-002-S_00	2017-2018	<i>E. coli</i> , Nutrients and TSS



**Figure 5. Location of Water Quality and E. coli Bacteria Sampling Sites on English Coulee.**

The E. coli bacteria data was only collected during the recreational season of May 1 through September 30 of 2017 and 2018. E. coli bacteria impacts on recreational beneficial use attainment was determined for each site and is summarized in Table 2 and Figure 6. *For more information regarding the recreational use attainment methodology see Appendix A.*

Table 2. Summary of E. coli Bacteria Data for Sites 385422, 385423, 385424, 385425 and 385426 Collected in 2017 and 2018.

Water Quality Monitoring Site	Upstream=====>Downstream				
	385422	385423	385424	385425	385426
<b>May</b>					
Geometric Mean	*10	*19	*39	*56	53
% Exceeded 409 CFU/100 mL	*0%	*0%	*25%	*0%	*0%
Recreational Use Assessment	*FS <sup>1</sup>	*FS <sup>1</sup>	*FSbT <sup>1</sup>	*FS <sup>1</sup>	*FS <sup>1</sup>
# Samples	4	4	4	4	4
<b>June</b>					
Geometric Mean	76	116	46	184	144
% Exceeded 409 CFU/100 mL	17%	33%	0%	33%	17%
Recreational Use Assessment	FSbT	FSbT	FS	NS	NS
# Samples	6	6	6	6	6
<b>July</b>					
Geometric Mean	194	78	177	213	75
% Exceeded 409 CFU/100 mL	0%	25%	22%	30%	0%
Recreational Use Assessment	NS	FSbT	NS	NS	FS
# Samples	6	8	9	10	9
<b>August</b>					
Geometric Mean					*177
% Exceeded 409 CFU/100 mL	N/A	N/A	N/A	N/A	*0%
Recreational Use Assessment					*NS <sup>1</sup>
# Samples	0	0	0	2	4
<b>September</b>					
Geometric Mean					*332
% Exceeded 409 CFU/100 mL	N/A	N/A	N/A	N/A	*50%
Recreational Use Assessment					*NS <sup>1</sup>
# Samples	1	0	2	2	4

\*1 Denotes months were a recreational beneficial use attainment could not be fully calculated due to insufficient sampling data.

N/A <4 Samples were collected.

FS (Fully Supporting), FSbT (Fully Supporting but Threatened), NS (Not Supporting)

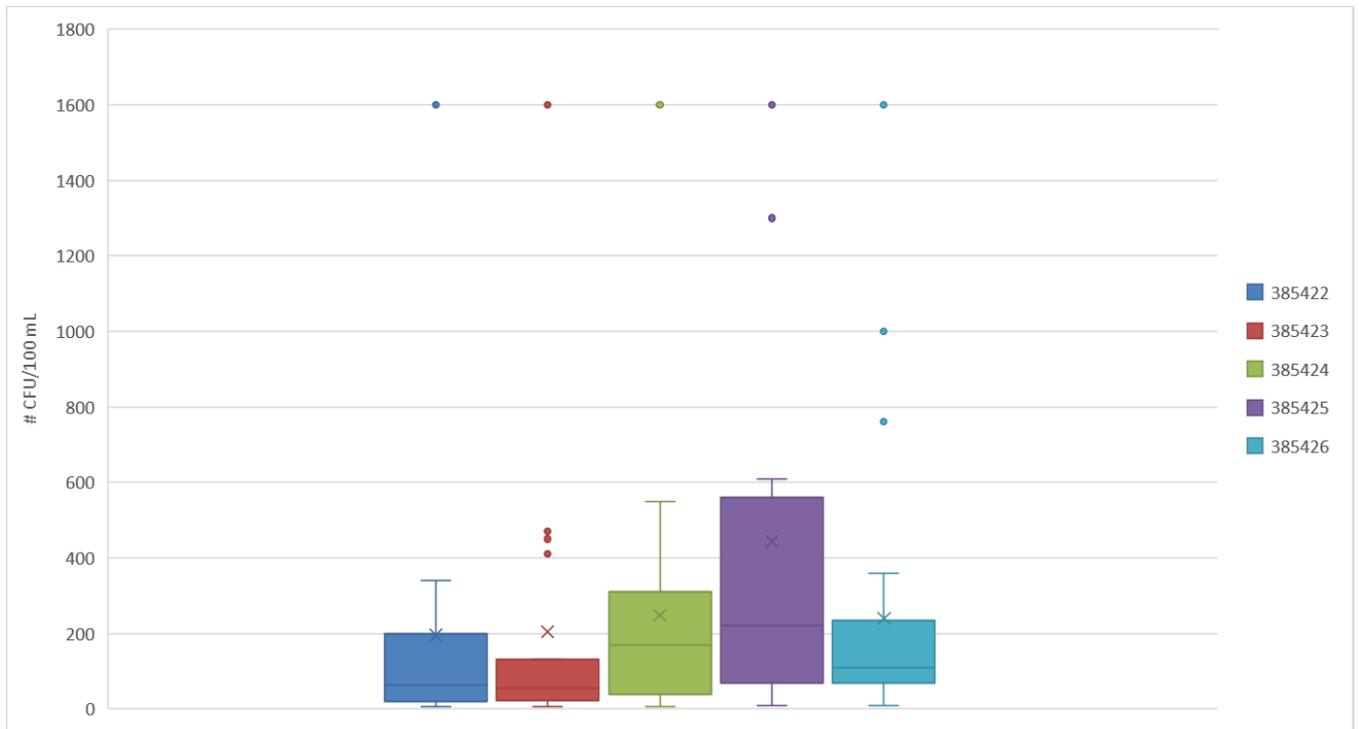
Since the 2017-2018 data was very limited due to dry conditions, the E. coli bacteria data collecting during the 2008-2009 assessment period is provided in Table 3 for comparison purposes. This comparison suggests E. coli bacteria impacts to the recreational uses of English Coulee have persisted over the past 10 years. As such, when using both data sets, it is apparent the need for BMPs to reduce the delivery of E.coli bacteria to the creek have not changed since the initial watershed assessment.

**Table 3. Summary of E. coli Bacteria Data for Sites 385421, 385422, 385424, 385425, and 385426 Collected in 2008 and 2009.**

Water Quality Monitoring Site	Upstream----->Downstream					
	385421	385422	385423	385424	385425	385426
<b>May</b>						
Geometric Mean	16	17	32	29	44	24
% Exceeded 409 CFU/100 mL	0%	0%	7%	6%	0%	0%
Recreational Use Assessment	FS	FS	FS	FS	FS	FS
<b>June</b>						
Geometric Mean	57	33	48	119	46	30
% Exceeded 409 CFU/100 mL	0%	0%	10%	20%	0%	0%
Recreational Use Assessment	FS	FS	FS	FSbT	FS	FS
<b>July</b>						
Geometric Mean	632	45	68	350	146	112
% Exceeded 409 CFU/100 mL	57%	13%	13%	57%	25%	13%
Recreational Use Assessment	NS	FSbT	FSbT	NS	NS	FSbT
<b>August</b>						
Geometric Mean	192	28	204	999	155	99
% Exceeded 409 CFU/100 mL	25%	0%	50%	75%	25%	13%
Recreational Use Assessment	NS	FS	NS	NS	NS	FSbT
<b>September</b>						
Geometric Mean	289	122	212	865	97	171
% Exceeded 409 CFU/100 mL	40%	20%	20%	70%	20%	20%
Recreational Use Assessment	NS	FSbT	NS	NS	FSbT	NS

FS – Fully Supporting; FSbT- Fully Supporting but Threatened; NS – Not Supporting; INSD – Insufficient Data

A box and whisker plot were developed using the E. coli bacteria collected in 2017 and 2018 to assist with further identification of potential areas of focus for implementation of best management practices (Figure 6). *For more information about box and whisker plots see Appendix B.*



**Figure 6. E. coli Bacteria Box and Whisker Plot for English Coulee. Data collected in 2017 and 2018.**

The box and whisker plot identified sampling sites 385422, 385424, 385425 and 385426 as having extensive variability throughout the sampling period of 2017 and 2018, in particular water quality site 385425 with concentrations ranging from 5 to 1600 CFU/100 mL. Station 385425 had a median value of 220 CFU/100 mL, twenty five percent of values less than 70 CFU/100 mL and twenty five percent of the values above 560 CFU/100 mL. This indicates that there are high E. coli bacteria concentrations at site 385425 indicating a focus area for best management practices addressing E. coli bacteria sources. There appears to be a good correlation between the recreational use attainment and box and whisker plots for each monitoring site. Best management practice efforts should be focused on watersheds of monitoring sites 385422, 385424 and 385425.

The recreational use assessment data indicates that the months of June and July are exhibiting an increase in E. coli bacteria concentrations at some of the sampling sites. Due to the characteristics of the English Coulee during normal to dry precipitation years the flow of the stream can drop to no flow conditions. Water quality sampling standard operating procedure dictates that water quality sampling only be conducted when there is flow in the stream. These no flow conditions hold true for sampling sites 385422, 385423, 385424 and 385425 where limited data was collected in the later months of the recreational season. Sampling site 385426 does appear to have flow during these later months of the recreational season and the data suggests that during this time English

Coulee is not supporting recreational uses due to high concentrations of E. coli bacteria. E. coli bacteria sources in the upstream portion of the English Coulee watershed could be from riparian grazing runoff or wallowing in the stream. Other potential upstream sources could be failing septic systems or hobby farms located along the stream.

### **3.0 Project Goals and Objectives**

Fully supporting recreational uses is the long-term goal for the English Coulee watershed. With that said, the shorter-term goal for this project is to achieve an improving trend for recreational uses through the implementation of BMP's. To ensure progress, the project will also educate the public and farming community on the relationship between healthy soils and water quality through outreach activities and demonstrations of BMP's. And finally, looking beyond this phase, the project will also implement a landowner survey to gauge interest in the English Coulee watershed and the adjacent Turtle River Watershed for future watershed work.

#### **3.1 Objectives and Tasks**

##### Objective 1:

Manage the implementation of BMPs in the project area and coordinate outreach events in the county.

##### Task 1:

Employ a full-time Watershed Coordinator and provide administrative oversight and support to ensure the completion of project as planned.

Product: One full-time Watershed Coordinator to oversee the project within the watershed.

Cost: \$149,142 (Salary/Fringe, travel, training, equipment, telephone, and supplies for 3 years)

- Funding: 60% 319, 40% SCD

##### Task 2:

Strengthen SCD supervisors understanding of watershed management by participating in the Level I and Level 2 courses of the ND Soil and Water Conservation Leadership Academy.

Product: All SCD supervisors attendance at the Level 1 & Level 2 courses. Coordinator and SCD meetings.

Cost: \$500 (Salary/Fringe, travel, training, equipment, telephone, and supplies for 3 years)

- Funding: 60% 319, 40% SCD

Objective 2:

Establish an improving trend for E. coli bacteria concentrations at all sampling sites throughout the recreational season.

Task 3:

Implement 500 acres of cover crop seeded on farmland to maintain diversity, cycle nutrients, provide soil protection, and provide extended forage on the landscape for livestock operations. Incorporate livestock into at least one cover crop operation and use this as outreach demonstration site. Emphasis will be placed on implementing cover crops in AnnAGNPS priority areas nearest the creek.

Product: 500 acres of cover crops and demonstration site.

Cost: \$10,000 (2.5 year span at \$20/acre)

- Funding: 60% 319, 40% landowner

Task 4:

Implement grazing plans with use exclusions to move cattle away from waterway.

Products:

Use exclusion/Access Control: 100 acres (\$20/acre) = 2,000

Pipelines: 1,000 linear feet (\$3.15) = \$3150

Fencing: 10,000 linear feet (\$1.80) = 18,000

Portable Windbreaks: 500 linear feet (\$30) = 15,000

Watering Facilities: 6 (\$1,000) = \$6,000.

Utilize Fencing, access control, pipelines, portable windbreaks, and fencing to have a complete systems approach. This will help with nutrient management and erosion along waterway.

Cost: \$44,150.00 (2.5 years)

- Funding: 60% 319, 40% landowner

Task 5:

Replacement of 4 failed septic system over the next 2.5 years.

Product: 4 renovated septic systems

Cost: \$60,000.00 (2.5 years)

- Funding: 60% 319, 40% landowner

Task 6:

Establish 100 acres of forage or biomass plantings to increase options to move livestock off the riparian corridor.

Product: 100 acres of established pastureland or hayland.

Cost: \$5,200 (2 year span at \$52/acre)

- Funding: 60% 319, 40% landowner

### Objective 3:

Provide outreach events to educate producers, landowners, and the general public of Grand Forks County on water quality concerns and sustainable land management alternatives for addressing water quality issues and soil resource concerns.

### Task 7:

Host an annual field workshop that showcases BMPs that improve livestock grazing management, the vegetative community in pastures; and improvements of soil health on crop and grazing land.

Establishing a long-term salinity demonstration plot within the watershed. This site will be used as an education and outreach demonstration plot on salinity management within the county. A mix of cover crops and crop rotation will be utilized to manage saline areas.

Establishing a cover crop demonstration plot within the watershed. This site will be used to educate producers in the county and used to demonstrate the use of cover crops in crop production/grazing operations.

Product: 3 field workshops promoting sustainable agricultural practices

Cost: \$6500.00 (Speaker fees, travel expenses, educational materials, seed cost, advertising over a 2.5 year span)

- Funding: 60% 319, 40% SCD

### Task 8:

Publish four quarterly newsletters with updated information related to BMPs, maintain the SCD's Facebook page with educational events and news, and maintain the SCD's webpage.

Product: Four quarterly newsletters/year (roughly 2500 recipients), updated Facebook page and website.

Cost: \$0.00 (This is already part of the operations set forth in the project plan for the SCD)

### Task 9:

Coordinate in an ongoing demonstration plot in partnership with a local landowner and the University of North Dakota and tours already in place that showcases no-till practices along with cover crop use. This demonstration plot is ongoing and monitoring is underway by the University of North Dakota.

Product: 2.5 years of participation in the demonstration site and 2 field tours that showcase the use and benefit of cover crops, reduced tillage, and crop rotations.

Cost: \$0

Task 10:

Participate in outreach activities such as annual township meetings and local workgroup meetings to give progress reports and available technical and financial assistance within the English Coulee watershed.

Product: Coordinator will attend three annual township meetings and three local workgroup meetings from 2019-2021.

Cost: \$0.00 (The travel cost is covered by the SCD to attend these meetings.)

Task 11:

Host annual winter soil health workshops. The workshops will provide a holistic approach to agricultural practices that tie in soil health, water quality and quantity, biology, vegetation, and more. Speakers will include producers and experts in their fields of study.

Product: One soil health workshop promoting sustainable agricultural practices.

Cost: \$12,500.00 (Speakers' fees, speakers' travel expenses, room rental, educational materials, and advertising).

- Funding: 319 alongside Red River Retention Authority and Soil Conservation District.

Task 12:

Conduct surveys to determine absentee landowner awareness and understanding of soil health and water quality issues in the watershed. Conduct surveys to gain landowner perspective on possible actions they are willing to take to improve soil health and protect water quality. Surveys will take place within the English Coulee watershed and the adjacent Turtle River Watershed. The water quality data that is collected along with this survey will be used to determine future watershed management approaches for English Coulee and Turtle River Watersheds.

Product: Completed landowner and producer surveys that identify the level of interest, resource needs, and feasible/accepted BMP's that can be used to address water quality impairments in both watersheds.

Cost: \$0

### **3.2 Milestone Table of Outputs and Responsible Agencies**

See Milestone Table in Appendix D

### **3.3 Environmental Permits**

All necessary permits will be acquired for this project. These may include CWA Section 404 permits and NDPDES permits. The project sponsor will work with NDDH to determine if National Pollution Elimination System permits are needed for the proposed projects. The State Historic Preservation Officer will be consulted regarding potential cultural resource affects.

### **3.4 Lead Project Sponsor**

The Grand Forks County Soil Conservation District (GFCSCD) will be the lead sponsor of this project. The GFCSCD is overseen by a five-member board of supervisors, who are local landowners. The GFCSCD has annual and long-range goals already in place for the resources in Grand Forks County and works with the local NRCS field office, in which water quality and quantity is a priority. The GFCSCD also has the personnel, space, and equipment in place as well as the authority to manage funds.

### **3.5 Roles and Responsibilities for Proper Operation and Maintenance**

All projects will follow standards and specifications under the NRCS guidelines for proper operation and maintenance according to each specific BMP or other standard that is approved by the North Dakota Department of Health. Project staff will conduct compliance reviews to verify proper BMP installation prior to the issuance of cost-share assistance as well as conduct periodic follow-up reviews during the project period to document proper operation and maintenance.

## **4.0 Coordination Plan**

4.1 The Grand Forks County Soil Conservation District (SCD) is the lead project sponsor for the project. The SCD is responsible for the day-to-day oversight of the project objectives and tasks and will provide assistance and information to landowners for the enhancement of natural resources. Cooperating agencies include: Natural Resources Conservation Service (NRCS), North Dakota Department of Health (NDDoH), North Dakota Game and Fish (NDGF), Farm Service Agency (FSA), North Dakota State University Extension Service (NDSU-Extension), the University of North Dakota (UND), the Grand Forks County Water Board, and the City of Grand Forks.

1. Grand Forks County Soil Conservation District (SCD)-The SCD is the lead project sponsor and will maintain responsibility of project administration, landowner contacts, producer contracts, and water quality education.
2. Natural Resources Conservation Service (NRCS)-The NRCS will provide day-to-day assistance in conservation planning, plan writing, contract writing, technical assistance, and O&M guidance. NRCS will conduct quality review and compliance checks on BMPs designed by NRCS. Environmental Quality Incentive Program (EQIP) and Conservation Stewardship Program (CSP) funds will also be used as

available and appropriate. Technical assistance will be provided for outreach and educational events.

3. North Dakota Department of Health (NDDH)-The NDDH will oversee 319 funding and ensure proper management and expenditures of funding. NDDH staff will also provide technical training and guidance through the project activities. NDDH will assist NRCS and SCD personnel in review of O & M requirements for Section 319 funded BMPs.
4. North Dakota Game and Fish (NDGF)-NDGF will be asked to provide technical assistance as needed. Information regarding aquatic life and the Outreach Biologist will be used for educational events if needed.
5. Farm Service Agency (FSA)-Programs available through FSA will be pursued. The Conservation Reserve Program (CRP) will be utilized to maximize financial resources as well as BMP acres. Technical assistance will be provided in the form of farm records.
6. North Dakota State University-Extension (NDSU-Extension)-Research, outreach, and technical assistance will be provided for all stakeholders. Research findings will be requested as they pertain to priority BMPs, and extension agents will be asked to participate in public outreach events to discuss research and demonstration activities in the area.
7. University of North Dakota (UND)-Research, outreach, and technical assistance will be provided for all stakeholders. Research findings will be requested as they pertain to priority BMPs, especially when it comes to grazing through RCPP opportunities. UND is also allowing the use of a 4 acre demonstration plot showcasing no-till practices and cover crop use at no cost to the District.
8. Grand Forks County Water Board-Documentation and technical assistance will be provided as needed. The Water Board is in charge of the English Coulee Diversion project and will provide information on water movement and historical documentation if needed by the Coordinator. The Water Board may be asked to speak at public outreach events.
9. City of Grand Forks-Outreach, technical assistance, and financial assistance may be provided. The City of Grand Forks has been involved in the urban area of the English Coulee and will continue to do projects and outreach activities directly related to the English Coulee. Financial assistance may be available for rural BMPs on an annual basis contingent upon their financial budget.

4.2 The Grand Forks County Soil Conservation District is locally led by landowners who realize a need to continue to support water quality projects. Past and current projects the SCD has been involved in include the Turtle River Watershed Assessment, Larimore Dam Reservoir Assessment, the English Coulee Watershed Assessment, the Upper Reaches of the Turtle River-North and South Branch Watersheds Project, and most recently the English Coulee Implementation Phase I. This proposal for implementation of Phase II, reflects the desire of the board to address resource concerns within their county.

The English Coulee has a history of being in the public's eye. There has been much discussion on ways to address the water quality of this stream, but coordination and funding has made tackling the problem a challenge. The City of Grand Forks as well as the land owners within the rural portion of the watershed share the board's desire to address the water quality concerns. Septic system replacements, cover crops, and grazing systems all have sparked interest in stake holders.

4.3 This project will utilize other sources of funding or technical assistance when possible. Technical assistances will come from the local NRCS field office. The Red River Retention Authority has authorized between \$5,000 and \$8,000 to help with the 2019 Soil Health Workshop (See Appendix F)

4.4 The English Coulee is unique in the fact that it begins in the rural portion of Grand Forks County and flows directly through the city of Grand Forks before discharging into the Red River of the North. The English Coulee had its original channel altered and a diversion installed after the major flood of 1997 to protect the city of Grand Forks. At times, the city faces stagnant water and areas of overgrown cattails. The stench from the water is often overpowering, and it is a common complaint among the citizens of Grand Forks. As such, the city of Grand Forks is continually using resources to try to combat some of the concerns within city limits. In 2014, a stretch of the Coulee had a major sedimentation removal project take place. Other efforts have included collaboration with the Park District and the University of North Dakota. There have been small restoration areas along the riparian area of the Coulee to try to remove some of the cattails and replant native vegetation. The Parks District has also maintained a restored area near a city park to keep the cattails out. Most recently, a student group on the UND campus has formed that solely focuses on the cleanup of the English Coulee within UND's boundary. An upper level course within the geology department at UND was also added to the curriculum for students to try to address some of the issues along the Coulee. Discussions for educational events regarding storm water and other urban runoff along with fertilizer use has been in the works, but no event has occurred. The city of Grand Forks is restricted to the urban portion of the English Coulee, so the proposed project would strongly support their efforts in the rural areas.

A partnership between city leaders and the 319 project coordinator would be beneficial for both the rural and urban portions of the watershed. Coordination will be based on outreach activities and correspondence with city leaders as both parties share the same overall goal within the watershed.

## **5.0 Evaluation and Monitoring Plan**

The North Dakota Department of Health staff will develop a quality assurance project plan for the project after the final project implementation plan is approved. Monitoring will follow the guidelines set forth by the QAPP.

## **6.0 Budget**

See attached budget in Appendix D

## **7.0 Public Involvement**

7.1 The success of any project relies on the participation of those involved. This proposed implementation project is no different. The SCD works very hard to keep the public informed and involved throughout the year using a variety of communication forums. The SCD publishes a quarterly newsletter that includes available assistance, educational material, and upcoming events. It also manages a website where up to date documents can be found about the activities going on in the county where it relates to local resources. A Facebook page has also been created and is used on a weekly basis to get notices and information out to its followers.

Staff from both the SCD and NRCS host and participate in locally led meetings involving agriculture and conservation groups. One of the biggest successes for the District has been the annual soil health workshops. These workshops draw large crowds and are well received.

Grand Forks County is also well known for our Eco-Ed camps. Over 600 7<sup>th</sup> graders participate each year for these one-day camps that are held for eight days in September. Students learn about the natural resources around them, and the scores between their pre and post-tests always show a great increase.

The field office staff along with the board attends the annual International Crop Expo, which draws in thousands of people. Purchasing a booth space allows the staff and board to visit with producers and landowners about programs and educational topics that are going on throughout the county. The Farmers Appreciation Banquet also allows this same opportunity.

The watershed coordinator has been a guest lecturer on the campus of UND, which provides a whole new target audience to get discussion and feedback about resource concerns. Youth education events are attended as well including water festivals, and library education days.

## Appendix A. Recreational Use Methodology

### Recreational Use Methodology

Recreation use includes primary contact activities such as swimming and wading and secondary contact activities such as boating, fishing, and wading. Recreation use in rivers and streams is considered fully supporting where there is little or no risk of illness through either primary or secondary contact with the water. The State's recreation use support assessment methodology for rivers and streams is based on the State's numeric water quality standards for E. coli bacteria (Section 1.1).

For each assessment based solely on E. coli data, the following criteria are used:

- Assessment Criteria 1: For each assessment unit, the geometric mean of samples collected during any month for May 1 through September 30 does not exceed a density of 126 CFUs/mL. A minimum of five monthly samples is required to compute the geometric mean. If necessary, samples may be pooled by month across years.
- Assessment Criteria 2: For each assessment unit, less than 10 percent of samples collected during any month from May 1 through September 30 may exceed a density of 409 CFUs per 100 mL. A minimum of five monthly samples is required to compute the percent of samples exceeding the criteria. If necessary, samples may be pooled by month across years.

The two criteria are then applied using the following use support decision criteria:

- Fully Supporting: Both criteria 1 and 2 are met.
- Fully Supporting but Threatened: Criterion 1 is met, but 2 is not.
- Not Supporting: Criterion 1 is not met. Criteria 2 may or may not be met.

The recreational use assessment methodology information provided above can be found in the *North Dakota 2016 Integrated Section 305(b) Water Quality Assessment Report and Section 303(d) List of Waters Needing Total Maximum Daily Loads*.

## Appendix B. Box and Whisker Plot Facts

### Box and Whisker Plots

In descriptive statistics, a box plot or boxplot (also known as a box-and-whisker diagram or plot) is a convenient way of graphically depicting groups of numerical data through their five-number summaries: the smallest observation (sample minimum), lower quartile (Q1), median (Q2), upper quartile (Q3), and largest observation (sample maximum). A boxplot may also indicate which observations, if any, might be considered outliers.

Box plots display differences between populations without making any assumptions of the underlying statistical distribution: they are non-parametric. The spacings between the different parts of the box help indicate the degree of dispersion (spread) and skewness in the data, and identify outliers. Boxplots can be drawn either horizontally or vertically.

Box and whisker plots are uniform in their use of the box: the bottom and top of the box are always the 25th and 75th percentile (the lower and upper quartiles, respectively), and the band near the middle of the box is always the 50th percentile (the median).

Any data not included between the whiskers should be plotted as an outlier with a dot, small circle, or star, but occasionally this is not done. Some box plots include an additional character to represent the mean of the data. On some box plots a crosshatch is placed on each whisker, before the end of the whisker.

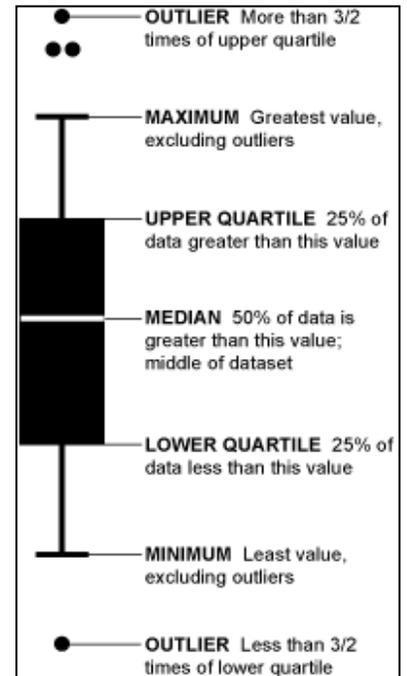
### Reading a Box-and-Whisker Plot

Let's say we ask 2,852 people (and they miraculously all respond) how many hamburgers they've consumed in the past week. We'll sort those responses from least to greatest and then graph them with our box-and-whisker.

Take the top 50% of the group (1,426) who ate more hamburgers; they are represented by everything above the median (the white line). Those in the top 25% of hamburger eating (713) are shown by the top "whisker" and dots. Dots represent those who ate a lot more than normal or a lot less than normal (outliers). If more than one outlier ate the same number of hamburgers, dots are placed side by side.

### Find Skews in the Data

The box-and-whisker of course shows you more than just four split groups. You can also see which way the data sways. For example, if there are more people who eat a lot of burgers than eat a few, the median is going to be higher or the top whisker could be longer than the bottom one. Basically, it gives you a good overview of the data's distribution.



## Appendix C. General Nutrient Information

### 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 sufficient amounts of phosphorus are present. 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 and 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 (excessive algae growth and subsequent decrease of dissolved oxygen) of downstream lakes and impoundments.

There are three forms of inorganic nitrogen that are commonly measured in water bodies: ammonia, nitrates and nitrites. Ammonia and nitrates are the reactive forms for plant uptake. Total nitrogen (TN) is the sum of organic nitrogen, ammonia, and nitrate-nitrite. It can be derived by analyzing for total Kjeldahl nitrogen (TKN) (organic nitrogen), ammonia, and nitrate-nitrite.

### 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.

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 the 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, leaking septic systems, 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.

## Appendix D. Budget, Best Management Practices, and Milestone Tables

<b>Part 1: Funding Sources</b>				
	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>Total</b>
EPA SECTION319 FUNDS				
1) FY2019 Funds (FA)	\$34,958.40	\$64,216.80	\$74,595.00	\$173,770.20
<b>Subtotals</b>	<b>\$34,958.40</b>	<b>\$64,216.80</b>	<b>\$74,595.00</b>	<b>\$173,770.20</b>
OTHER FEDERAL FUNDS (NRCS TA)*	\$2,500.00	\$2,500.00	\$2,500.00	\$7,500.00
Red River Retention Authority**	\$5,000.00			\$5,000.00
<b>Subtotals</b>	<b>\$2,500.00</b>	<b>\$2,500.00</b>	<b>\$2,500.00</b>	<b>\$7,500.00</b>
STATE/LOCAL MATCH				
1) Landowner match (FA)	\$10,260	\$15,840	\$21,640	\$47,740
2) Local SCD (TA&FA)	\$13,045.60	\$26,971.20	\$28,090	\$68,106.80
<b>Subtotals</b>	<b>\$28,305.60</b>	<b>\$42,811.20</b>	<b>\$49,730</b>	<b>\$120,846.80</b>
<b>Total Budget</b>	<b>\$65,764</b>	<b>\$109,528</b>	<b>\$126,825</b>	<b>\$302,117</b>

\*Technical Assistance provided through NRCS.

\*\*Funds approved through the Red River Retention Authority budget and authorization for soil health workshop. (see Appendix F)

<b>OBJECTIVE 1: Watershed Coordinator to administer project.</b>						
				<b>TOTAL</b>	<b>Cash/In-Kind</b>	<b>319</b>
<b>Section 319/Non-federal Budget</b>	<b>2019 (6 months)</b>	<b>2020</b>	<b>2021 (Jan-Oct)</b>	<b>COSTS</b>	<b>Match</b>	<b>Funds</b>
PERSONNEL/SUPPORT*						
1) Salary/Fringe (full-time: 2080 hrs/yr)	\$30,629.00	\$61,258.00	\$51,055.00	\$142,942.00	\$57,176.80	\$85,765.20
2) Office Rent/Utilities						
3) Travel	\$500.00	\$1,500.00	\$1,500.00	\$3,500.00	\$1,400.00	\$2,100.00
4) Equipment/Supplies	\$250.00	\$250.00	\$250.00	\$750.00	\$300.00	\$450.00
5) Training	\$150.00	\$250.00	\$250.00	\$650.00	\$260.00	\$390.00
6) Telephone	\$260.00	\$520.00	\$520.00	\$1,300.00	\$520.00	\$780.00
<b>Subtotals</b>	<b>\$31,789.00</b>	<b>\$63,778.00</b>	<b>\$53,575.00</b>	<b>\$149,142.00</b>	<b>\$59,656.80</b>	<b>\$89,485.20</b>
<b>OBJECTIVE 2: Implementation of BMP's (NRCS code)</b>						
<i>Task 3: Cover Crop (NRCS 340)</i>	\$2,000.00	\$4,000.00	\$4,000.00	\$10,000.00	\$6,000.00	\$4,000.00
<i>Task 4: Livestock operations (NRCS 472,614, 516, 382, 576)</i>	\$8,650.00	\$18,000.00	\$17,500.00	\$44,150.00	\$26,490.00	\$17,660.00
<i>Task 5: Septic Systems</i>	\$15,000.00	\$15,000.00	\$30,000.00	\$60,000.00	\$36,000.00	\$24,000.00
<i>Task 6: Pasture/Hayland Planting (NRCS 512)</i>	\$0.00	\$2,600.00	\$2,600.00	\$5,200.00	\$3,120.00	\$2,080.00
<b>Subtotals</b>	<b>\$25,650.00</b>	<b>\$39,600.00</b>	<b>\$54,100.00</b>	<b>\$119,350.00</b>	<b>\$47,740.00</b>	<b>\$71,610.00</b>
<b>OBJECTIVE 3: Education and outreach</b>						
Task 7: Summer field tours-Demonstration Plots	\$500.00	\$3,000.00	\$3,000.00	\$6,500.00	\$2,600.00	\$3,900.00
Task 8: Newsletter/facebook/website/Publications						
Task 9: Demonstration plot (University of North Dakota)						
Task 10: Outreach activities (Annual meetings)						
Task 11: Workshops, informational meetings			\$12,500.00	\$12,500.00	\$5,000.00	\$7,500.00
Task 12: Scoping period/Landowner interest						
<b>Subtotals</b>	<b>\$500.00</b>	<b>\$3,000.00</b>	<b>\$15,500.00</b>	<b>\$19,000.00</b>	<b>\$7,600.00</b>	<b>\$11,400.00</b>
<b>ADMINISTRATIVE</b>						
Secretarial	\$75.00	\$150.00	\$150.00	\$375.00	\$150.00	\$225.00
SCD/Coordinator Meetings/Supervisor Training (Task 2)	\$250.00	\$500.00	\$1,000.00	\$1,750.00	\$700.00	\$1,050.00

<b>Subtotals</b>	<b>\$325.00</b>	<b>\$650.00</b>	<b>\$1,150.00</b>	<b>\$2,125.00</b>		<b>\$850.00</b>	<b>\$1,275.00</b>
319 Funds	\$34,958.40	\$64,216.80	\$74,595.00	\$173,770.20			
SCD Match	\$13,045.60	\$26,971.20	\$28,090.00	\$68,106.80			
Landowner Match	\$10,260.00	\$15,840.00	\$21,640.00	\$47,740.00			
<b>TOTAL 319/NON-FEDERAL BUDGET</b>	<b>\$58,264.00</b>	<b>\$107,028.00</b>	<b>\$124,325.00</b>	<b>\$289,617.00</b>		<b>\$115,846.80</b>	<b>\$173,770.20</b>

\*Tasks showing no cost indicate fields that are already covered by the Grand Forks SCD.

## Priority BMP Table

<b>Task 2 Cover Crop*</b>
340-Cover Crop seed
<b>Task 3 Livestock Grazing Improvement*</b>
614- Trough/Tank
642- Well
516- Pipelines
528A- Prescribed Grazing
382- Fencing
472-Access Control/Use Exclusion (Livestock Only)
512- Pasture/Hayland Planting
<b>Task 4 Septic Systems Renovations</b>
019- Septic System Renovation
*All systems will be installed according to NDDOH guidelines for BMP cost share

**Budget table for Annual Field Workshops (Task 7)**

	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>Totals</b>
<b>Speaker Fees</b>	\$150.00	\$300.00	\$300.00	<b>\$750</b>
<b>Seed Cost</b>	\$200	\$2250	\$2250	<b>\$4700</b>
<b>Speaker Travel Expenses</b>	\$150.00	\$300.00	\$300.00	<b>\$750</b>
<b>Meals*</b>	\$250.00	\$250.00	\$250.00	<b>\$750.00</b>
<b>Advertising</b>		\$150.00	\$150.00	<b>\$300</b>
<b>Total</b>	\$500	\$3,000	\$3,000	<b>\$7250</b>

\*319 funds will NOT be used for meal expenses.

## English Coulee Implementation Project

### Milestone Table

				Year 1	Year 2	Year 3			
	<b>Task/Responsible Organization</b>	<b>Output</b>	<b>Quantity</b>						
<b>Objective 1</b>	Grand Forks County SCD-Lead Sponsor								
<b>Task 1</b>	Employ Full-Time Watershed Coordinator		1	X	X	X			
<b>Task 2</b>	SCD, NDDoH	Conservation Leadership Academy for SCD Supervisors	5 Supervisors	1 class/supervisor	1 class/supervisor	-			
<b>Objective 2</b>	Watershed Coordinator, NRCS/SCD, Local Landowners								
<b>Task 3</b>	Cover Crop BMP	Reduced nutrients and move grazing operations away from E. Coulee	500 acres of cover crops	100 acres	200 acres	200 acres			
<b>Task 4</b>	Livestock BMP	Prescribed Grazing	500 ac	100 ac	200 ac	200 ac			
		Fencing	10,000 ft			10,000 ft			
		Pipeline	1,000 ft	500 ft	250 ft	250 ft			
		Watering Tanks	6	2	2	2			
		Use Exclusion/Access	100 ac	—	50 ac	50 ac			
		Portable Windbreaks	500 ft	250	250	—			
<b>Task 5</b>	Septic System Replacement	Reduction in E. coli	4	1	1	2			
<b>Task 6</b>	Pasture/Hayland Planting	Reduce soil erosion/nutrient/ E.coli	100 acres	25	25	50			
<b>Objective 3</b>	SCD, NRCS, NDSU Extension, and UND								
<b>Task 7</b>	SCD, NRCS, NDSU extension	Annual Field Workshops	3	1	1	1			
<b>Task 8</b>	SCD, NRCS	Quarterly newsletters (continuous	12 (2500 recipients)	4	4	4			

		updated Facebook/webpage)							
<b>Task 9</b>	SCD, NRCS, UND	Demonstration Site	2 Site Visits	This will be ongoing throughout the project. Planning, sampling, and implementing will be done in partnership with UND, NRCS, and SCD. Annual field tours will take place at this site through the duration of this project.					
<b>Task 10</b>	SCD	Public Outreach through annual meetings	150 participants	This will be ongoing throughout the project. The Watershed Coordinator will participate in annual township meetings as well as local work group meetings to share information about the English Coulee watershed.					
<b>Task 11</b>	SCD, NRCS, Red River Retention Authority, NDSU extension	Soil Health Workshop	2	Host two Soil Health Workshops in 2019 and 2021. Dollars for 2019 have already been allocated for 2019.					
<b>Task 12</b>	SCD, NRCS	Landowner Survey	2 surveys	Conduct survey to gain absentee landowner and producer awareness and understanding of soil health and water quality issues in the watershed. Conduct survey to gain absentee landowner and producer willingness to implement practices to improve soil health and water quality within the watersheds.					

NRCS will provide technical assistance for BMPs and educational activities.  
Landowners will provide a 40% match to implemented BMPs on their land.  
NDSU Extension will provide up-to-date research and information at workshops and tours.  
UND will provide local research findings and information at workshops and tours.  
The ND Dept. of Health will provide oversight of the project.

## Appendix E: Summary of Accomplishments

**Project Name:** English Coulee Watershed Project-Implementation Phase I

**Reporting Period:** June 1<sup>st</sup>, 2017 – August 31<sup>st</sup>, 2018.

**Project Period:** June 1<sup>st</sup>, 2016 – November 30<sup>th</sup>, 2020.

**Project Status:** Ongoing with some tasks ahead of schedule while others behind schedule. A new watershed coordinator was hired in May of 2017. Most of the dollars spent have been on Best Management Practices.

### Part I: Objectives and Goals

**Objective 1:** Manage the implementation of Best Management Practices (BMP's) in the project area and coordinate outreach events in the county.

**Status:** Objective is ongoing and are completed as BMP's are installed. Outreach opportunities happen through day to day interactions, through newsletters, public events such as soil health workshops, field tours, and Eco-Ed camps.

Since the English Coulee implementation has begun, we have managed 3 septic system installations, 1 portable windbreak and a stock pond with fencing for his cattle operation.

Field tours took place in 2017 and 2018 on producer's farms. This event reached producers in the area and State and Federal agency personnel. These one day tours provide the opportunity to talk about cover crops, no-till operations, and the importance of maintaining good soil health as it relates to water quality.

Newsletters are sent quarterly from our SCD office. They provide the opportunity to educate others on the topic of healthy watersheds and provide insight on those practices that may negatively impact water quality as well as those that improve water quality.

Eco-Education camps were held in September of 2016, 2017 and 2018. This camp reached nearly 2,000 7<sup>th</sup> grade students. Students are taught about the importance of ecological services that prairies, soils, forests, and wetlands provide. Two stations are dedicated to soils and water quality where student learn about a watershed and the actions that both degrade or improve water quality.

Every other year the district will be hosting a soil health workshop. This workshop brings in professional speakers and provides outreach to landowners in the county and beyond. This workshop is designed for education purposes and a chance to share ideas about soil health. The workshop is planned again in the winter of 2019.

**Objective 2:** Improve the trend for E.coli bacteria concentrations that would result in all sampling sites being fully supporting but threatened throughout the sampling season. Achieve an improving trend in the macroinvertebrate community within the English Coulee.

**Status:** Best Management Practices are in place to reduce E. coli bacteria concentration levels. Three septic systems were replaced to reduce E.coli within the English Coulee. One producer installed fencing and a stock pond which moved his cattle away and out of the English Coulee. Producers are managing nutrients through the use of portable windbreak panels and this practice has caught some attention. Measurements through water sampling are being taken

to assess water quality improvement. Macroinvertebrate sampling will begin in 2019.

Objective 3: Increase producer and landowner, as well as the general public of Grand Forks County, understanding and awareness of water quality issues in the area and sustainable land management alternatives for addressing those water quality issues and other resource concerns.

Status: Objective are ongoing during BMP's installations, field tours, newsletters, website and facebook pages, soil health workshops, and working directly with landowners. More outreach is planned to work cooperatively with NRCS and other agencies alongside private landowners.

The SCD and NRCS cooperatively hosted field tours during each year of this project. This event in 2018 reached several producers as well as state and federal agency personnel. This one day field tour provided the opportunity to talk about cover crops, no-till operations, and the importance of maintaining good soil health.

Newsletters are sent out from our SCD office which provide educational opportunities on water quality. The newsletters have articles focused on water quality health and improving water quality and 319 funding opportunities for landowners.

Every other year the SCD hosts a soil health workshop. This workshop brings in professional speakers who educate landowners in the county and beyond. This workshop is designed for education purposes and a chance to share ideas about soil health. The next workshop will take place early winter of 2019.

Coordination has begun with the University of North Dakota to start another cover crop demonstration plot. The soil conservation district, UND, local farmers, and NRCS staff will work together to provide education on the benefits of soil health. Data will be collected from this site by local staff and the University of North Dakota.

## Part II: Tasks

Task 1: Employ a full-time Watershed Coordinator and provide administrative oversight and support to guide the project through completion.

Status: Task was completed. A new watershed took over this project starting in May of 2017.

Task 2: Implement 1000 acres of cover crop seeded on farmland to maintain diversity, cycle nutrients, provide soil protection, and provide extended forage on the landscape for livestock operations.

Status: On schedule. The district awarded 50% cost share to plant cover crop across 375 acres in 2017. In 2018, the district helped plant cover crop on 55 acres of land enrolled in NRCS programs. The district paid \$1871.50 to help plant this cover crop at a 50% cost share. No funds were not taken out of 319 in 2017. Outreach on the use of cover crops in the Red River Valley is ongoing and will be a priority in 2019.

Task 3: Implement three prescribed grazing plans for a total of 500 acres along with 20,000 feet of fencing, 1,000 feet of pipeline, and three watering tanks to have a complete systems approach. Implement 50 acres of access control/use exclusion (livestock only).

Status: On Schedule. In 2016, funds were used to fence a pasture which totaled 16,195 linear feet. A pond was dug for a watering facility which was coupled with a prescribed grazing system. In the future we are going to a pipeline/watering tank approach and not fund stock pond digging.

Task 4: Implement 5 septic system replacements.

Status: Ahead of Schedule. 60% complete. Three septic systems have been replaced since 2016. 319 has funded \$24,777 in septic replacements.

Task 5: Host an annual field workshop that showcases targeted BMP's to gain a better understanding of land management and the effects on water quality within the English Coulee.

Status: On schedule. Two field days were held with cooperation from producers, NDSU staff, and NRCS. These field tours spoke about the importance of cover crops, no-till farming practices, soil health and soil biology, water infiltration rates, and reduction in soil erosion. These field tours will be expanded in the future and utilize 319 funding to help cover some costs associated with the tours. In 2018, 319 funds were not used to cover costs. Future tours could look at cattle exclusions, no-till farming, cover crops, septic replacements, and rotational grazing to name a few.

Task 6: Publish four quarterly newsletters with updated information related to BMPs, maintain the SCD's Facebook page with educational events and news, and maintain the SCD's webpage.

Status: On schedule. The district is current with our newsletters which include information relating to BMP's. We update our facebook page with current and future events. The district recently updated our website to refine information on the English Coulee watershed.

Task 7: Coordinate an ongoing demonstration plot in partnership with a local landowner and the University of North Dakota. Set up tours that showcases no-till practices along with cover crop use.

Status: On Schedule. This cover crop plot was abandoned by the landowner in the past. However, the SCD and NRCS are working together again with UND and the landowner to revisit this task in 2019. In 2018, a mix of rye cover crop was used prior to seeding soybeans in the spring. This will include a tour of no-till sites and cover crop as part of our annual field days. The University of North Dakota is collecting field data on site.

Task 8: Participate in outreach activities such as annual township meetings and local workgroup meetings to give progress reports and available technical and financial assistance within the English Coulee watershed.

Status: On schedule. This task will involve a presentation about the watershed to the wildlife society and students from UND biology course. Additional presentations at local township meetings and other working groups such as the RCPP is planned. The coordinator will continue to be involved with local schools, library, and organizations such as the FFA and 4-H programs to promote issues in water quality.

- Eco-Ed camp at Turtle River State Park reached nearly 2000 students in 2016, 2017, and 2018.
- "District Update" is planned for November at the University of North Dakota
- No-till community garden in Grand Forks, ND-This event resulted in a garden which produced over 600lbs of produce that was donated to the local food bank.
- Coordinator speaks at local township hall annually.
- SCD will have materials available at the Crop Expo this year.
- Newsletters, Facebook page, and websites updated frequently.
- Attended RCPP working group meetings.

## Appendix F: Letter of Support



1120 28<sup>th</sup> Avenue North, Suite C - Fargo, ND 58102 - Phone: 701-356-6644

October 2, 2018

Aaron Smestad, Chairman  
Grand Forks County Soil Conservation District  
4775 Technology Circle, Ste 1C  
Grand Forks, ND 58203

Dear Mr. Smestad,

The Red River Retention Authority (RRRA) is writing in support of your English Coulee watershed Phase II project. Your efforts in natural resource management, and specifically soil health play an important part in the RRRA's efforts to retain water on the ground and not just send it downstream. The RRRA looks forward to working with you on developing and conducting a soil health workshop in 2019 for Red River basin producers in Grand Forks County and neighboring counties.

The RRRA has budgeted between \$5,000 and \$8,000 to promote and sponsor your soil health efforts. These funds may be used to help secure guest speakers and provide funding to pay for their travel and per diem expenses along with the workshop facilities and related items. Other items may be educational materials such as books, pamphlets, DVDs and other related soil health outreach items.

As mentioned in our prior meetings with your staff we are also interested in assisting with meeting outreach by sending a "save the date" postcard to agricultural producers in and near Grand Forks County. Another item for consideration would be the development of a post-workshop proceedings.

It is the RRRA's intent to build a partnership with your soil conservation district that goes beyond just the English Coulee watershed, but also to the other sub-watersheds in your district. We appreciate your efforts in promoting this important resource management work.

Sincerely,

A handwritten signature in black ink that reads "Keith A. Weston". The signature is written in a cursive style with a long horizontal line extending to the right.

Keith A. Weston  
Executive Director  
Red River Retention Authority

John Finney, RRRA Co-chairman, P.O. Box 13, Humboldt, MN 56731  
Gary Thompson, RRRA Co-chairman, 1045 150th Ave. NE, Mayville, ND, 58257-9218



United States Department of Agriculture

Natural Resources  
Conservation Service

January 23, 2019

Grand Forks Field Office  
4775 Technology Circle  
Suite 1B  
Grand Forks, ND  
58203

Grand Forks County Soil Conservation District Board  
4775 Technology Circle Suite 1B  
Grand Forks, ND 58203

Tel: 701.772-2321  
Ext 3

Dear Grand Forks County Board of SCD Supervisors,

I am writing this letter of support for Phase II of the English Coulee Watershed Project as a representative of the Natural Resources Conservation Service (NRCS) in Grand Forks.

NRCS has been in support of the SCD and 319 efforts in the county and will continue to provide day-to-day assistance in conservation planning, contract writing, technical assistance, and O&M guidance where applicable.

The goals of the NRCS and the practices used to reach those goals mirror that of this watershed effort. This will be a great option outside of our programs already being utilized such as the Environmental Quality Incentive Program (EQIP) and the Conservation Stewardship Program (CStWP). Technical assistance by our staff will also be provided for outreach and educational events throughout the year.

Sincerely,

A handwritten signature in blue ink that reads "Kevin Gietzen".

Kevin Gietzen  
District Conservationist  
Grand Forks NRCS

## NORTH DAKOTA STATE SOIL CONSERVATION COMMITTEE

2718 Gateway Ave. Suite 304, Bismarck, ND 58503  
701- 328-9715 — bruce.schmidt@ndsu.edu

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January 24, 2019

Grand Forks County  
Soil Conservation District  
Board of Supervisors  
4775 Technology Circle Suite 1B  
Grand Forks, ND 58203

Dear Grand Forks County SCD Board of Supervisors,

Please accept this letter as my support for the "Phase 2" of the English Coulee Watershed Project sponsored by the Grand Forks Soil Conservation District. The "Phase 2" English Coulee request is an extension of the initial EPA 319 Watershed Project. The English Coulee project has been targeting E.coli and nutrient reduction practices along the English Coulee.

During the Phase 1 part of the English Coulee Watershed Project, NDSU-Extension assisted the project with research findings as requested pertainate to priority BMPs. Moving forward with Phase 2 the Grand Forks Extension Agents / State Specialist will be participating in the public outreach events to discuss research and demonstration activities in the area.

Sincerely,



Bruce Schmidt  
Extension Program Leader  
Soil Conservation and Watershed  
Leadership Development  
2718 Gateway Ave. Suite 304  
Bismarck, ND 58503  
Bruce.schmidt@ndsu.edu

GRAND, FORKS

Water Resource District

February 6, 2019

Grand Forks County Soil Conservation

4775 Technology Cir#1c

Grand Forks, ND 58203

Dear Grand Forks County Board of SCD Supervisors,

I am writing this letter of support for Phase II of the English Coulee Watershed Project as Chairperson of the Grand Forks County Water Resources District. (GFCWRD)

The GFCWRD was the local sponsor involved with the NRCS to design and construct the English Coulee Watershed Dam and Diversion. Built as a flood control project to protect the City of Grand Forks and surrounding cropland, it has proven itself at least four times in preventing major flooding of the city and surrounding farmland.

The GFCWRD has been in support of the GFCSCD and 319 efforts in our county and will continue to provide O&M maintenance guidance to the GFCSCD upon request. The goals of the GFCWRD are to support the GFCSCD by promoting best management practices in the watershed, which will improve the water quality and wildlife habitat in the entire watershed.

The Goals of the GFCWRD are to reduce the sediment load to the dam and diversion ditch and provide habitat for our North Dakota resident wildlife. This project mirrors the English Coulee Watershed work plan which was signed in the early 1980's.

Good luck with your project.

Sincerely,



Richard Axvig, Chairperson

February 11, 2019

Grand Forks County  
Soil Conservation District  
Board of Supervisors  
4775 Technology Circle Suite 1B  
Grand Forks, ND 58203

DEPARTMENT OF BIOLOGY  
STARCHER HALL ROOM 101  
10 CORNELL STREET STOP 9019  
GRAND FORKS ND 58202-9019  
(701) 777-2621  
FAX (701) 777-2623

Dear Grand Forks County SCD Board of Supervisors,

On behalf of the UND Field Station Committee, please accept this letter as support for Phase II of the English Coulee Watershed Project sponsored by the Grand Forks Soil Conservation District.

We are very pleased to support implementation of Best Management Practices for the English Coulee Watersheds through outreach and demonstration associated with our Field Stations and through associated research and teaching activities of our faculty. This includes our ongoing efforts leading the Grand Forks Prairie Project Regional Conservation Partnership Project associated with the Grand Forks County Grasslands and surrounding landowners.

These partnerships are critical for ensuring environmental sustainability and economic prosperity associated with our regional natural resources. We look forward to continuing partnerships with regional stakeholders to support the recreational use and aquatic integrity of the English Coulee.

Sincerely,



Dr. Kathryn A. Yurkonis  
Field Station Director  
Associate Professor of Biology  
701.777.4676  
[Kathryn.Yurkonis@und.edu](mailto:Kathryn.Yurkonis@und.edu)



Dr. John Mihelich  
UND Field Station Committee Chair  
Interim Vice President for Research and Economic Development  
University of North Dakota  
701.777.7589  
[John.Mihelich@und.edu](mailto:John.Mihelich@und.edu)

