

1.0 Project Proposal Summary Sheet

Kelly Creek Watershed Project

Foster County SCD  
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STATE: North Dakota WATERSHED: Kelly Creek  
HYDROLOGICAL UNIT CODE: 1016000105 HIGH PRIORITY WATERSHED: No

<u>Project Type</u>	<u>Waterbody Type</u>	<u>NPS Category</u>
Watershed	Stream/River	Agriculture

Project Location: Latitude 47 degrees 25 minutes, Longitude -98 degrees 51 minutes

Major Goals:

The goal of this project is to restore the recreational and aquatic life uses of Kelly Creek to fully supporting status. Efforts to accomplish this goal will involve application of Best Management Practices (BMPs) on cropland and rangeland, improved handling of animal waste, and educational outreach.

Project Description:

Project sponsors intend to reduce non-point source pollution within Kelly Creek by

- 1) providing technical and financial assistance to producers and landowners within the watershed, particularly in applying best management practices that protect and enhance riparian areas
- 2) developing education and information programs that increase public awareness of NPS causes, effects, and solutions.

Funding:

FY2012 319 Funds Requested: \$490,900  
Match: \$327,270  
Other Federal Funds: \$224,000  
Total Project Cost: \$818,170  
319 Funded Full Time Personnel: One

## 2.0 STATEMENT OF NEED

### 2.1 Project Need and Priority

Initial water quality sampling completed in 2007 indicated high fecal coliform bacteria counts and elevated levels of phosphorus. The fecal coliform data collected was not directly comparable to state standards, but using an estimate of 2000 organisms/100mL for samples deemed too numerous to count, the monthly geometric mean concentration for each site was calculated for comparison to the state standard (Table 1). Three of the five sites sampled exceeded both mean (200 CFU/100mL) and maximum (400 CFU/100mL) monthly standards for fecal coliform bacteria during one or more months, and a fourth site exceeded the monthly mean standard during one month in 2007 (Table 2). The dates of high bacterial counts varied for different portions of the watershed. All five sampling sites exceeded the 0.10 mg/L guideline for phosphorus, with median values for the watershed as a whole averaging 0.57 mg/L and maximums for the watershed averaging 1.94 mg/L (Table 1). Additional monitoring will be conducted during the project to more accurately quantify the water quality.

Table 1. Median and maximum concentrations of fecal coliform bacteria and phosphorus recorded at sampling sites in the Kelly Creek Watershed in 2007, and the average of monthly geometric means calculated from fecal coliform sample data for comparison to the state standard. Site numbers refer to locations on Figure 1 (Appendix A).

Sampling Site	Fecal Coliform Concentrations (CFU/100mL)			Phosphorus Concentrations (mg/L)	
	Median	Geometric Mean	Maximum	Median	Maximum
Scott's Slough near Carrington (Site 385411)	540	733	TNTC*	0.24	0.54
Kelly Creek near Carrington (Site 385410)	40	207	250	0.49	1.06
Carrington Creek near Carrington (Site 385407)	180	103	TNTC*	0.98	3.07
Carrington Creek near Bordulac (Site 385408)	85	47	230	0.80	2.00
Kelly Creek near Niccum Reservoir (Site 385409)	145	182	TNTC*	0.35	3.03

\*TNTC - Too Numerous To Count, estimated at 2000 CFU/100mL for calculation of monthly geometric means

In addition to water quality, a Rapid Geomorphic Assessment (RGA) was conducted that provided the following information:

- The average score for Kelly Creek was 11 (eleven) which is considered moderately unstable.
- 60% of the stream channel is cattail choked, which indicates excessive nutrients entering Kelly Creek from the watershed.
- 50% of the stream channel may be affected by livestock.
- 40% of the stream channel is cropped to the edge of or through the creek.

Currently, the Kelly Creek watershed is not on the 303(d) TMDL list. Beginning at the south end of Arrowwood Lake, approximately 9.5 miles south of its confluence with Kelly Creek, the James River is a 303(d) listed stream for 26.5 miles plus the area of the Jamestown Reservoir.

## 2.2 Waterbody Description

Kelly Creek is a Class III stream. Although its lower reaches are a perennial stream, for the majority of its length it is an intermittent stream.

The Kelly Creek watershed (Appendix A Figure 2) has an area of 120,013 acres or 187.5 square miles. The majority of the Kelly Creek watershed lies in Foster County, with small portions in Wells and Eddy Counties. Named tributaries of Kelly Creek include Scott's Slough and Carrington Creek. A small (236 acre-feet) man-made reservoir, Niccum Reservoir, exists on the lower reaches of Kelly Creek.

Kelly Creek is a tributary of the James River. It joins the James approximately four miles north of Arrowwood Lake and Arrowwood National Wildlife Refuge, and approximately 11 miles north of Jamestown Reservoir.

USGS monitoring in the late 1980's found that Kelly Creek had a peak mean daily flow of 320 ft<sup>3</sup>/s and peak instantaneous flow of 350 ft<sup>3</sup>/s (Harkness et al 1990). Although brief, its highest flows in 2007 occurred following snowmelt in the spring. Somewhat lower but more sustained peak flows occurred periodically during the rest of the year, most notably in June, following precipitation events. Although Scott's Slough and Carrington Creek showed no measurable flow during part of the summer, it was found that overnight flow would occur in Carrington Creek even during periods when there was no apparent flow during the day, likely due to the effects of phreatophyte water uptake.

## 2.3 See attached maps (Appendix A)

## 2.4 General Information

The Kelly Creek Watershed is located in the Northern Glaciated Plains, a gently rolling landscape with numerous "prairie pothole" wetlands. Elevations within the watershed vary from about 1440 to 1600 feet. The soils are glacial till. The majority of the Carrington aquifer lies beneath the Kelly Creek watershed.

Based on data from the past 43 years, the average maximum temperature in July is 81.8 °F and the average minimum temperature in January is -3.3°F. Average total precipitation is 19.76 inches, with 85% of the total falling between April and October. Average annual snowfall is 33.9 inches.

Approximately 70% of the Kelly Creek watershed is cropland. Less than 16% is grassland, including approximately 10.5% non-native grassland and 5% native rangeland, and about 10% is wetlands. The watershed also contains about 2% shrubland, 1% woodland, and less than 1% urban land (Carrington and Barlow). Based upon National Agricultural Statistics Service estimates, the major crops within the watershed area in 2009 were soybeans and spring wheat. Other major crops, although much less prevalent, were corn, sunflowers, barley, and hay. Minor crops included winter wheat, dry beans, canola, and flaxseed. Livestock raised in the area include beef cattle, dairy cattle, sheep, pigs, horses, and honey bees. Land ownership is almost all private.

According to the NRCS Rapid Watershed Assessment for the James River Headwaters, resource concerns include wellhead protection areas, of which NDDoH lists the supply for the city of Carrington (Carrington Aquifer) as susceptible (Appendix A Figure 3); ag runoff of excessive nutrients and organics; excessive runoff due to tillage; and nutrient level concerns for Jamestown Reservoir, which is downstream of the Kelly Creek watershed. The Rapid Watershed Assessment suggests application of practices including grazing management, erosion control, nutrient and pest management, ag waste management, and riparian buffers.

## 2.5 Water Quality

An assessment of water quality within the Kelly Creek watershed was conducted in 2007 by sampling at five sites along Kelly Creek and its major tributaries (Appendix A Figure 1).

Fecal coliform concentrations were found to exceed both mean (200 CFU/100mL) and maximum (400 CFU/100mL) monthly concentration standards for waters of North Dakota at the upstream sites on Scott's Slough and Carrington Creek and at the downstream site on Kelly Creek, and exceeded the monthly mean concentration standard at the downstream site on Carrington Creek. Using an estimate of 2000 CFU/100mL for samples deemed too numerous to count, the monthly geometric mean concentration for those four sites averages 288 CFU/100mL (range 14-980). The monthly maximum concentration for the three sites that exceeded that standard averages 953 CFU/100mL (range 40-2000)(Table 2). These results are likely due to local effects of animal waste runoff and in-stream activities of cattle. In addition to riparian area grazing throughout the watershed, seven livestock producers have their headquarters and main feeding areas within 1/4-mile of Kelly Creek, Carrington Creek, or Scott's Slough. A typical feeding operation for the area would be a 175 head cow/calf operation feeding for about 5 months of the year.

Table 2. Monthly breakdown and standards comparison of fecal coliform data from the Kelly Creek watershed (mean and maximum concentrations - CFU/100mL). From NDDoH report of Kelly Creek Watershed Assessment. Site numbers refer to locations on Figure 1 (Appendix A).

Site	Month	Samples	Geometric Mean	Maximum	>Monthly Std.	>Max. Std.
Scott's Slough near Carrington (Site 385411)	May	5	597	2000*	Yes	Yes
	June	3	621	1200	Yes	Yes
	August	2	980	2000*	Yes	Yes
Carrington Creek near Carrington (Site 385407)	May	2	14	40	No	No
	June	3	104	310	No	No
	August	4	503	2000*	Yes	Yes
Carrington Creek near Bordulac (Site 385408)	May	2	174	190	Yes	No
	June	4	23	50	No	No
	August	4	111	230	No	No
Kelly Creek near Carrington (Site 385410)	May	5	21	70	No	No
	June	4	72	250	No	No
	July	0	--	--	--	--
	August	4	60	160	No	No
Kelly Creek near Niccum Reservoir and Bordulac (Site 385409)	May	5	34	270	No	No
	June	4	154	290	Yes	No
	July	3	600	2000*	Yes	Yes
	August	4	61	210	No	No

\*Concentrations of 2000 CFU/100mL were assigned to samples deemed too numerous to count.

Monitoring in 2007 found that total phosphorus concentrations at all five sampling sites exceeded the North Dakota state guideline of 0.10 mg/L, with median values for the watershed as a whole averaging 0.57 mg/L (range 0.24-0.98) and maximum values for the watershed averaging 1.94 mg/L (range 0.54-3.07)(Table 3). This also is likely a result of animal waste reaching the waters of streams within the watershed, as well as cropland runoff and erosion.

Most samples at all five sampling sites exceeded North Dakota state guidelines for total nitrogen of 1.0 mg/L, with an average median concentration for the watershed as a whole of 1.46 mg/L (range 1.32-1.78) and average maximum concentration of 3.82 mg/L (range 1.96-6.86) (Table 2). Maximum concentrations at the site on Carrington Creek near Carrington exceeded the state limit for nitrate of 1.0 mg/L as N (Table 4). This site also had periodic high concentrations of ammonium (Table 4). Concentrations of all of these pollutants are likely a result of a combination of animal waste and runoff from cropland reaching the waters of streams within the watershed.

NDDoH also used an Annualized Agricultural Nonpoint Source Model (AnnAgNPS) to identify areas with the greatest potential to contribute to nonpoint source pollution, including nitrogen, phosphorus, and sediment, based on land use (Appendix A Figure 4). The AnnAgNPS model identified the highest priority sections within the watershed, which will be targeted for improved management.

Table 3. Summary of selected water quality data from the Kelly Creek basin. From NDDoH report of Kelly Creek Watershed Assessment.

Site	Parameter	Samples	Minimum	1st Quartile	Median	3rd Quartile	Maximum
Scott's Slough near Carrington	Fecal coliforms (org/100 mL)	10	130	480	540	1200	TNTC
	Total N (mg/L)	16	1.08	1.28	1.46	1.58	2.10
	Total P (mg/L)	16	0.07	0.20	0.24	0.33	0.54
Kelly Creek near Carrington	Fecal coliforms (org/100 mL)	13	5	20	40	153	250
	Total N (mg/L)	21	1.42	1.58	1.78	2.03	3.02
	Total P (mg/L)	21	0.10	0.34	0.49	0.66	1.06
Carrington Creek near Carrington	Fecal coliforms (org/100 mL)	9	5	35	180	530	TNTC
	Total N (mg/L)	15	0.82	1.24	1.32	2.34	6.86
	Total P (mg/L)	15	0.31	0.54	0.98	1.38	3.07
Carrington Creek near Bordulac	Fecal coliforms (org/100 mL)	10	10	30	85	160	230
	Total N (mg/L)	16	0.85	1.23	1.34	1.54	1.96
	Total P (mg/L)	16	0.27	0.43	0.80	1.02	2.00
Kelly Creek near Niccum Reservoir and Bordulac	Fecal coliforms (org/100 mL)	16	5	50	145	255	TNTC
	Total N (mg/L)	24	1.11	1.30	1.38	1.67	5.16
	Total P (mg/L)	24	0.14	0.26	0.35	0.81	3.03

TNTC - too numerous to count

Table 4. Summary of nitrogen species data collected in the Kelly Creek basin during the spring and summer of 2007. From NDDoH report of Kelly Creek Watershed Assessment.

Site (# of samples)	Parameter	Minimum	1st Quartile	Median	3rd Quartile	Maximum
Scott's Slough near Carrington (n=16)	NH <sub>4</sub> -N (mg/L)	<0.010	<0.010	0.022	0.030	0.269
	NO <sub>2</sub> +NO <sub>3</sub> -N (mg/L)	<0.03	<0.03	<0.03	<0.03	0.34
	Organic N (mg/L)	1.045	1.229	1.414	1.513	1.915
	NH <sub>4</sub> -N (%)	0.3%	0.4%	1.6%	2.0%	12.8%
	NO <sub>2</sub> +NO <sub>3</sub> -N (%)	0.8%	1.0%	1.2%	1.8%	16.2%
	Organic N (%)	71.0%	96.0%	96.4%	97.3%	98.2%
Kelly Creek near Carrington (n=21)	NH <sub>4</sub> -N (mg/L)	<0.010	0.013	0.024	0.045	0.229
	NO <sub>2</sub> +NO <sub>3</sub> -N (mg/L)	<0.03	<0.03	<0.03	<0.03	0.71
	Organic N (mg/L)	1.369	1.490	1.701	1.828	2.87
	NH <sub>4</sub> -N (%)	0.3%	0.8%	1.5%	2.6%	8.5%
	NO <sub>2</sub> +NO <sub>3</sub> -N (%)	0.5%	0.8%	0.9%	1.0%	26.2%
	Organic N (%)	65.4%	95.0%	96.5%	97.4%	98.0%
Carrington Creek near Carrington (n=15)	NH <sub>4</sub> -N (mg/L)	<0.010	0.016	0.041	0.118	5.65
	NO <sub>2</sub> +NO <sub>3</sub> -N (mg/L)	<0.03	0.03	0.10	0.25	1.54
	Organic N (mg/L)	0.766	1.046	1.159	1.447	1.65
	NH <sub>4</sub> -N (%)	0.2%	1.4%	2.8%	8.1%	82.4%
	NO <sub>2</sub> +NO <sub>3</sub> -N (%)	1.1%	1.8%	4.5%	13.6%	59.2%
	Organic N (%)	16.2%	53.6%	88.3%	93.8%	96.3%
Carrington Creek near Bordulac (n=16)	NH <sub>4</sub> -N (mg/L)	<0.010	<0.010	0.010	0.028	0.051
	NO <sub>2</sub> +NO <sub>3</sub> -N (mg/L)	<0.03	<0.03	<0.03	0.138	0.59
	Organic N (mg/L)	0.378	1.047	1.257	1.353	1.779
	NH <sub>4</sub> -N (%)	0.3%	0.4%	0.9%	2.2%	3.0%
	NO <sub>2</sub> +NO <sub>3</sub> -N (%)	0.8%	1.1%	1.2%	11.1%	55.1%
	Organic N (%)	44.3%	86.8%	95.6%	96.9%	98.0%
Kelly Creek near Niccum Reservoir and Bordulac (n=24)	NH <sub>4</sub> -N (mg/L)	<0.010	0.040	0.064	0.072	3
	NO <sub>2</sub> +NO <sub>3</sub> -N (mg/L)	<0.03	<0.03	0.030	0.060	0.53
	Organic N (mg/L)	1.052	1.189	1.273	1.467	2.13
	NH <sub>4</sub> -N (%)	0.4%	2.7%	4.6%	5.1%	58.1%
	NO <sub>2</sub> +NO <sub>3</sub> -N (%)	0.3%	1.1%	2.4%	3.9%	21.5%
	Organic N (%)	41.3%	90.0%	93.0%	94.9%	97.3%

### 3.0 PROJECT DESCRIPTION

#### 3.1 Goal

The goal of this project is to restore the recreational and aquatic life uses of Kelly Creek to fully supporting status. Efforts to accomplish this goal will involve application of Best Management Practices (BMPs) on cropland and rangeland, improved handling of animal waste, and educational outreach.

#### 3.2 Objectives

Objective 1 – Improve water quality in Kelly Creek by achieving annual median concentrations for total nitrogen and phosphorus of 1.0 mg/L and 0.10 mg/L, respectively. *E. coli* bacteria concentrations will also be reduced to state standard levels (i.e., 126 CFU/100 ml, with less than 10% of samples exceeding 409 CFU/100 ml).

Task 1 – Hire a watershed employee to assist with coordination with other organizations and agencies, providing technical assistance to producers, monitoring water quality, and providing educational materials to the public.

Product – One watershed employee, including salary, benefits, travel, training, office, and equipment.

Cost – \$185,410

Task 2 – Provide assistance to agricultural producers and landowners to implement Best Management Practices on cropland and rangeland, including nutrient management and riparian area grazing management, to decrease nutrient loading in streams within the watershed.

Product – Conservation planning and assistance on 21,000 acres of cropland and 5,000 acres of rangeland over five years. See Best Management Practices Table (Appendix E Part 3) for details.

Cost – \$309,250

Task 3 – Provide technical and financial assistance to livestock producers to implement practices that will contain and/or reduce runoff from 4 or more livestock feeding areas. Priority will be given to feeding areas within ¼ mile of the creek.

Product – Assistance on waste management provided to 4 livestock producers.

Cost – \$320,000

Task 4 – Conduct follow-up contacts to assist with conservation plan updates and monitor operation and maintenance of Section 319 cost-shared practices.

Product – Database of applied BMPs.

Cost – Included in Task 1.

Objective 2 – Document water quality improvements as BMPs are installed by monitoring water quality trends.

Task 5 – Establish a Quality Assurance Project Plan, to be determined in cooperation with North Dakota Department of Health (NDDoH), including procedures for water sampling to document changes in water quality with the installation of BMPs.

Product – Quality Assurance Project Plan (QAPP).

Cost – Included in Task 1.

Task 6 – Monitor water quality by collecting samples for analysis and documenting changes in water quality.

Product – Information on sample collection frequency, parameters, etc. is provided in the QAPP.

Cost – \$6500 per year for sampling supplies and equipment and analysis of macroinvertebrate samples, provided by NDDoH.

Objective 3 – Increase the public’s understanding and awareness of the impacts of and solutions to NPS pollution.

Task 7 – Organize and conduct informational/educational events focusing on NPS pollution control, coordinating with other organizations and state/federal agencies.

Product – 3 tours/demonstrations/workshops and 4 informational meetings.

Cost – \$2235

Task 8 – Promote the project and disseminate information on water quality and NPS pollution control through public outreach including newsletters, direct mailings, radio interviews and other communication with local land users, the general public, and media.

Product – 10 newsletters, 6 direct mailings, 10 news releases

Cost – \$1275

Task 9 – Continue existing water quality-related educational programs.

Product – Continued sponsorship of Project TREES, Eco Ed Day, Soil Stewardship Week, and Envirothon events.

Cost – No additional cost.

Task 10 – Complete annual and final project reports on progress and completion, to be provided to NDDoH, EPA, sponsors, and other interested parties.

Product – Annual and final project reports.

Cost – Included in Task 1.

### 3.3 Milestones

See Appendix B

### 3.4 Permits

All necessary permits will be acquired. Project personnel will work with NDDoH to determine if permits are needed.

### 3.5 Lead sponsor

Foster County Soil Conservation District is sponsoring this water quality project. The district's annual and long range plans help to prioritize and provide guidance to the field service staff. The SCD board has legal authority to employ personnel and receive and expend funds. Foster County SCD has credible experience in personnel management and conservation leadership.

### 3.6 Operation and Maintenance

All BMPs cost-shared with 319 funds will be contracted and tracked through the NPS program BMP tracking database. BMPs must be applied according to standards and specifications recognized by the NPS program and will be inspected prior to payment of cost-share. All BMPs supported with Section 319 funds must be maintained in a functional condition for the entire practice lifetime identified in the ND NPS Program BMP Cost Share Guidelines. Project staff will be responsible for verifying compliance with the O& M requirements for the duration of the project period.

## 4.0 COORDINATION PLAN

### 4.1 Cooperating Organizations –

1) Foster County Soil Conservation District (FCSCD) will be the signer of the 319 contract and will be the lead agency responsible for project administration. They will provide vehicles, clerical assistance, equipment and supplies, as well as financial support. The SCD Board will oversee implementation of the scheduled project activities and provide for staff time if feasible. The board will be the primary supervisor of the watershed conservationists and all Section 319 funded activities.

2) Foster County Water Board will provide technical assistance to the project staff when necessary.

3) Natural Resources Conservation Service (NRCS) provides office space to FCSCD. The standards and specifications for approved BMPs are provided from the NRCS Field Office Technical Guide. Funds may be available to landowners through programs such as the Environmental Quality Incentives Program (EQIP). NRCS will also participate in educational outreach activities.

4) North Dakota Department of Health (NDDoH) will oversee 319 funding as well as develop the Quality Assurance Project Plan for this project. The NDDoH will provide oversight on sample collection, preservation, and transportation to ensure reliable data is obtained. NDDoH will provide laboratory analysis of water samples as well as data storage. NDDoH will assist project staff in development and implementation of the project's I/E activities. NDDoH

will provide sponsor oversight to ensure proper management and expenditures of Section 319 funds. They will assist NRCS and Foster County SCD personnel in the review of Operation and Maintenance requirements for Section 319 funded BMPs.

6) NDSU Extension Service and Carrington Research Extension Center (CREC) will provide personnel and education materials to complement the project's I/E activities. CREC personnel may also provide technical assistance through the NDSU Extension Nutrient Management Educational Support Program.

7) Wells County Water Board will provide technical assistance to the project staff when necessary. The Water Board will also provide initial financial assistance for the Kelly Creek Watershed Project.

8) Wells County Soil Conservation district will provide technical assistance to the project staff as needed.

9) Eddy County Water Board will provide technical assistance to the project staff when necessary.

10) Farm Service Agency (FSA) will serve as a local resource and may provide cost-share assistance to landowners when Conservation Reserve Program (CRP) practices can be applied.

11) Sheyenne James Resource Conservation and Development Council will provide technical assistance as needed.

12) The Carrington chapter of Pheasants Forever will assist with education and outreach whenever possible.

13) US Fish and Wildlife Service (FWS) will offer technical and financial assistance for grazing systems and wetland restoration through their Partners for Fish and Wildlife Program (private lands). Assistance will be available from FWS personnel of both Arrowwood Wetland Management District (Foster and Eddy Counties) and Chase Lake Wetland Management District (Wells County), as well as a Ducks Unlimited biologist stationed at Chase Lake. FWS personnel will also continue to assist with youth education activities.

#### 4.2 Local Project Support

Letters of support from Foster County Board of Commissioners, Foster County Water Board, Garrison Diversion Conservancy District, Wells County SCD, Eddy County SCD, and the City of Carrington are attached in Appendix C.

The district held two public meetings on February 10, 2011. The morning meeting was attended by 27 people plus the presenters, and the evening meeting by six people plus the presenters. A survey was also mailed out to approximately 140 landowners within the watershed in January, of which 21 (15%) were returned. These outreach efforts also produced six requests for further information by individuals interested in the project. A summary of survey results may be found in Appendix D.

#### 4.3 Funding Coordination

The funding of best management practices in the Kelly Creek Watershed project area will be coordinated with funding from programs such as EQIP through NRCS and CRP through FSA when those programs offer related practices that enhance or complement practices available through 319 funding.

#### 4.4 Other Watershed Activities

Previously, a Section 319 watershed project was completed within the Kelly Creek watershed with the creation of wetlands within the Crossroads Golf Course design.

#### 5.0 EVALUATION AND MONITORING PLAN

The Quality Assurance Project Plan will be completed by the NDDoH after the final project implementation plan is fully approved for Section 319 funding.

#### 6.0 BUDGET

##### 6.1 Project Budget

See Appendix D.

#### 7.0 PUBLIC INVOLVEMENT

As listed in Objective 3, an important component of this project will be educational efforts and public involvement, including public meetings and tours/workshops. Watershed newsletters similar to the district's current quarterly newsletter will also be used to provide project information to the public, as well as direct mailings and the use of public media.

## Appendix A. Maps and Figures.

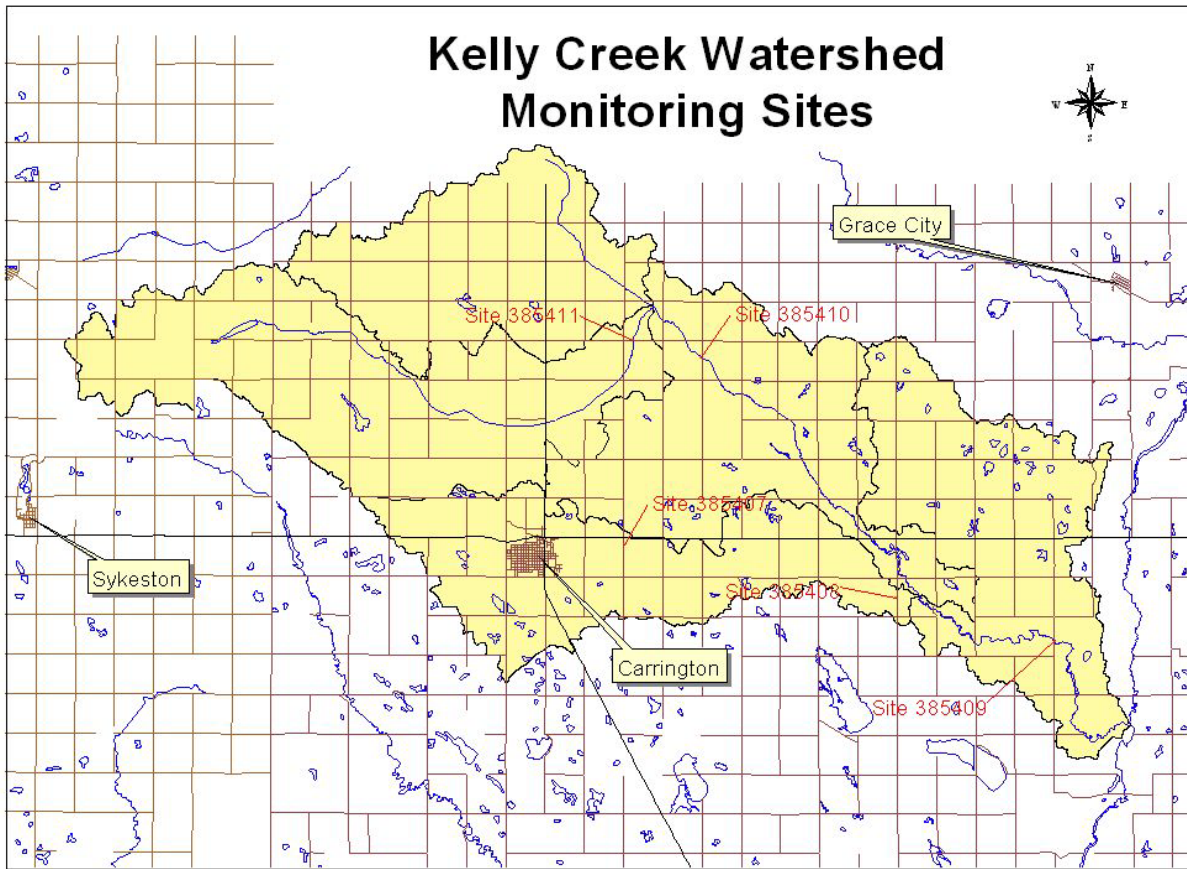
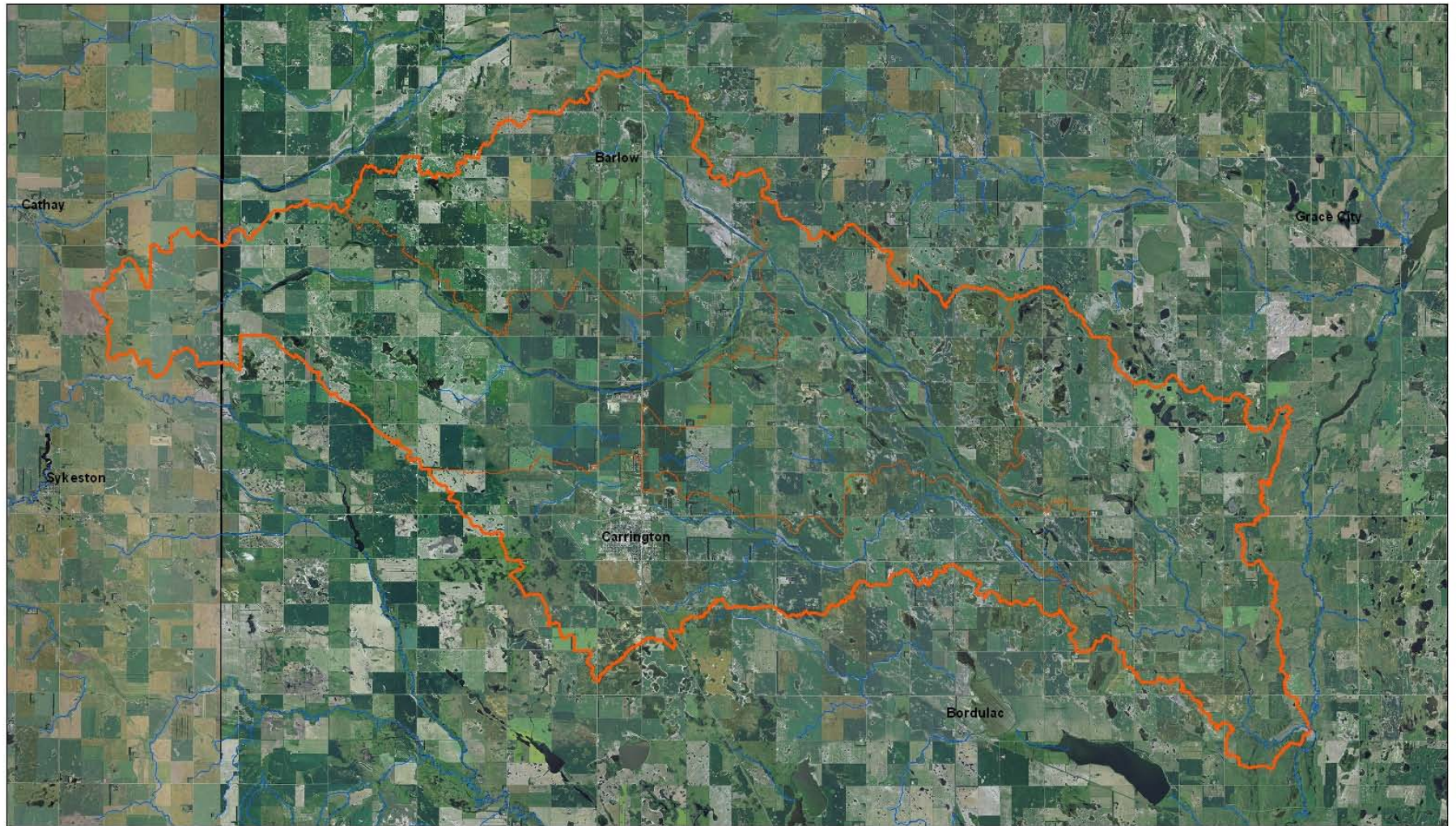





Figure 1. Location of water quality sampling sites in the Kelly Creek basin during the spring and summer of 2007

Figure 2. Kelly Creek Watershed



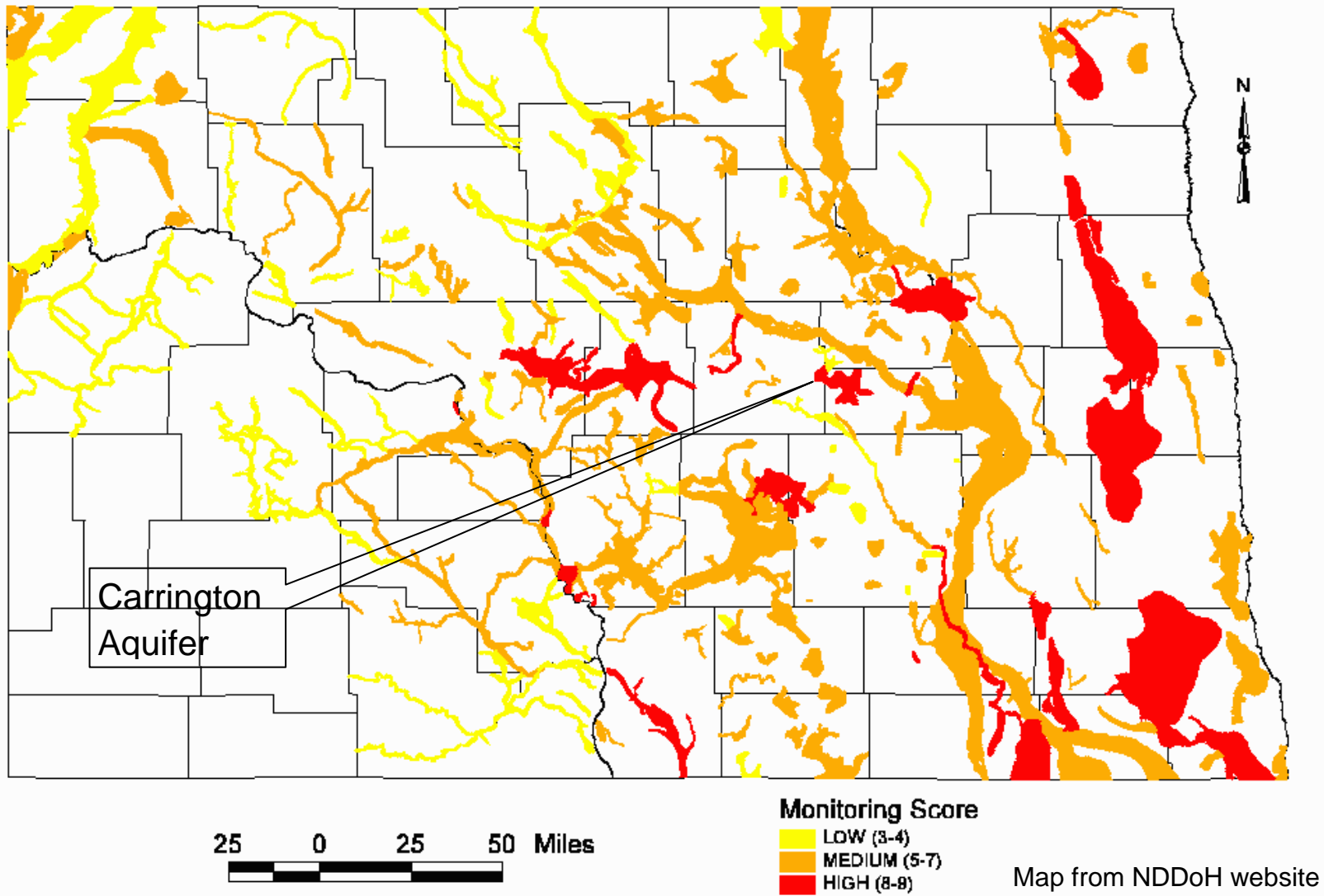
**Legend**

-  Kelly Creek Watershed
-  Streams
-  Kelly Creek Subwatersheds

Kelly Creek Watershed



**Figure 3. Total Monitoring Score for Major Glacial Drift Aquifers in North Dakota**



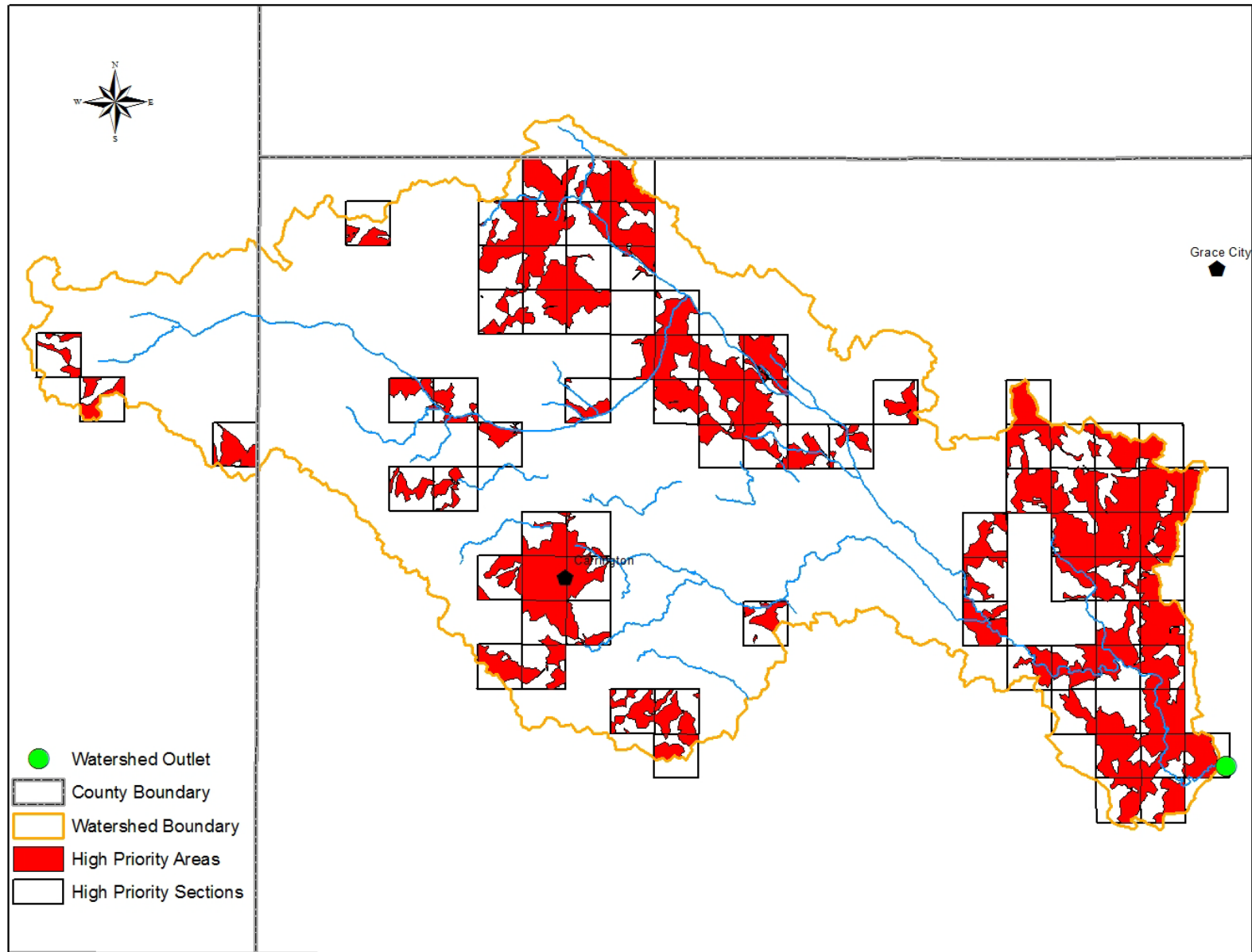


Figure 4. AnnAgNPS model predictions for high priority areas within the Kelly Creek basin.

Appendix B. Milestones.

Milestone Table for Kelly Creek Watershed Project

Task/Responsible Organizations		Output	Total Qty.	Year 1 2012	Year 2 2013	Year 3 2014	Year 4 2015	Year 5 2016
<b>Objective 1:</b>								
Task 1: Group 1	Employ watershed coordinator	Watershed employee	1	1				
Task 2: Group 1, 2, 3	Conservation planning/assistance to apply BMPs	Completed conservation plans	17	3	4	4	3	3
Task 3: Group 1, 2, 3	Waste management improvements	Waste Management plans	4	1	1	1	1	0
Task 4: Group 1,2	Operation/Maintenance checkups	Database of BMPs	1	On-going				
<b>Objective 2:</b>								
Task 5: Group 1, 4	Develop water sampling and analysis plan	Completed QAPP	1	1				
Task 6: Group 1, 4	Document water quality trends	Water quality samples	On-going, as specified by QAPP					
<b>Objective 3:</b>								
Task 7: Group 1, 2, 3	Organize and conduct I/E events	Workshops/tours/meetings	7	2	1	2	1	1
Task 8: Group 1, 3	Use newsletters/mailings/news releases/radio interviews to promote project and disseminate information	10 newsletters, 6 direct mailings, 10 news releases	26	7	5	5	5	4
Task 9: Group 1, 3	Continue youth/public education	Educational events	20	4	4	4	4	4
Task 10: Group 1, 4	Complete annual and final project reports	Project reports	6	1	1	1	1	2

Group 1 - Foster County Soil Conservation District - Local project manager and sponsor, including responsibilities for project coordination, reimbursement payments, match tracking, and progress reporting to the NDDoH. Also provides technical assistance to plan, design, and implement BMPs.

Group 2 - Landowners in the Kelly Creek watershed - Make land management decisions and provide cash and in-kind match for BMPs

Group 3 - Natural Resources Conservation Service - Provides technical and financial assistance for BMPs to landowners through EQIP and other programs.

Group 4 - ND Department of Health - Statewide section 319 program management including oversight of local 319 planning and expenditures. Also provides technical assistance for water quality analysis and documentation.

Appendix C. Letters of Support.

# CARRINGTON

*the central city*

April 23, 2010

Curt Klein, Chairman  
Foster County Soil Conservation District  
6720 Hwy 200  
Carrington, ND 58421

RE: Kelly Creek Watershed Project

Dear Mr. Klein:

At the April 12, 2010 regular City Council meeting, the council approved this letter in support of the Kelly Creek Watershed Project and your efforts.

Thank you for taking the time to come to the meeting and explain further your plans to protect water quality.

If you need anything further, please do not hesitate to contact me at 701-652-2911 or 701-320-0373. Thank!

Sincerely,  
City of Carrington



Don Fryc  
Mayor



7 First Street South  
New Rockford, ND 58856  
PH: 701-947-2436  
Fax: 701-947-2016

April 15, 2010

To Whom It May Concern:

The Eddy County Soil Conservation District unanimously voted to support the proposed 319 Kelly Creek Watershed project spearheaded by Foster County SCD. Any non-point pollution is alarming and needs to be studied to determine a cause and to establish best management practices. Any help educating and assisting our cooperators about non point pollution in the Kelly Creek watershed is appreciated.

Sincerely,

  
Catherine Albert  
District Clerk/Technician

*Conserving resources for the future!*

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Foster County Board of Commissioners:  
Resolution # 1  
Dated June 15, 2010

Commissioner Carr moved for adoption of Resolution #1:

WHEREAS, an assessment of water quality with the Kelly Creek watershed was conducted in 2007 by sampling at five sites along Kelly Creek and its major tributaries; and

WHEREAS, fecal coliform concentrations were found to exceed both mean and maximum concentration standards for waters of North Dakota at the upstream sites on Scott's Slough and Carrington Creek and at the downstream site on Kelly Creek; and

WHEREAS, monitoring in 2007 found that total phosphorus concentrations at all sites were higher than both EPA and USGS estimates of background concentrations for the area. Also, some sites had periodic high concentrations of ammonium.


THEREFORE, concentrations of all of these pollutants are likely a result of animal waste reaching the waters of streams within the watershed combined with runoff from cropland; and

BE IT RESOLVED, in order to prevent high levels of these pollutants from contaminating the Carrington aquifer which lies beneath the Kelly Creek Watershed; the Foster County Board of Commissioners support in theory with no dedicated funding for the Foster County Soil Conservation's efforts to promote a funding program to aid producers in their effort to clean up polluted run off.

Resolution seconded by Commissioner Hart. Upon roll call, all voted aye. Resolution adopted.

  
Dwayne Erickson, Chairman  
Board of County Commissioners

ATTEST:

  
Roger R. Schlotman  
Foster County Auditor

## Foster County Water Resource Board

Fabian E. Noack, Attorney      Paul Straley, Chairman

PH: (701)652-3164      \*      FAX (701)652-3165      \*      PH: (701) 982-2408  
105 TENTH AVENUE NORTH      \*      P. O. BOX 15  
CARRINGTON, ND 58421-0015

April 21, 2010

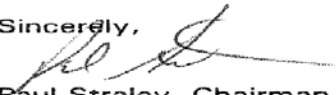
Soil Conservation Center  
6720 Highway 200  
Carrington, ND 58421

Dear Sir:

After receiving your letter and much discussion, the Foster County Water Resource Board voted in favor of supporting your efforts with the EPA319 grant for the Kelly Creek Watershed.

Thank You for your time.

Sincerely,



Paul Straley, Chairman

PS/bkm



GARRISON DIVERSION  
CONSERVANCY DISTRICT  
P.O. BOX 140  
CARRINGTON, N.D. 58421  
(701) 652-3194  
FAX (701) 652-3195  
gddcd@daktel.com  
www.garrisondiversion.org

April 15, 2010

Curt Klein, Chairman  
Foster County Soil Conservation District  
6720 Hwy 200  
Carrington, ND 58421

Re: Kelly Creek Watershed Project

Dear Mr. Klein:

Water quality in the James River is important to the Garrison Diversion Conservancy District for fish & wildlife, irrigation and recreation purposes. Garrison Diversion Unit facilities that utilize James River water are the Jamestown Dam and the Oakes Test Area, an irrigation project.

The Kelly Creek, a tributary of the James River, has a watershed area of 187 square miles. It joins the James River upstream of both the Jamestown Dam and the Oakes Test Area. An assessment of the Kelly Creek, conducted in 2007, showed water quality impairments and, in certain locations, exceeded standards.

Water quality in Kelly Creek affects water quality in the James River. Therefore, the Garrison Diversion Conservancy District supports the Kelly Creek Watershed Project in its efforts to improve water quality and to obtain Section 319 funding.

Sincerely,

  
John Leininger  
Chairman of the Board

**Wells County Soil Conservation District  
PO Box 7  
Fessenden ND 58438  
(701) 547-3622, ext. 5  
(701) 547-3204 (fax)**

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**Wells County Soil  
Conservation  
District  
Board of  
Supervisors**

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David Lutt  
Chairman  
Harvey

Loren Patrie  
Bowdon

Chris Sellie  
Cathay

Robert Woll  
Hurdsfield

Phil Schafer  
New Rockford

April 19, 2010

TO: Foster County Soil Conservation District

FROM: Toni Yow, Technician  
Wells County Soil Conservation District

RE: Kelly Creek Watershed Project

Dear Foster County SCD Supervisors,

At the March 23, 2010 meeting of the Wells County Soil Conservation District, the Board of Supervisors voted to send this letter in support of the Kelly Creek Watershed Project implementation phase. The Wells County SCD has worked closely with EPA 319 Watershed projects since 1995 and is glad to see a project implemented in this segment of the county.

Enclosed are meeting minutes and In-Kind documentation for your records.

Please keep us advised of the developments on the project. Thank you.

## Appendix D. Survey Results.

## Kelly Creek Watershed Survey – 2011

### 21 Responses received as of Feb. 18, 2011

1. To what extent does the public have an obligation to protect water quality for future generations?
  - a. Quite a bit - 17 (81%)
  - b. Somewhat - 0
  - c. A little – 3 (14%)
  - d. Not at all – 1 (5%)
  - e. Don't know - 0
2. To what extent is the quality of your water affected by people who live upstream from you?
  - a. Quite a bit – 13 (62%)
  - b. Somewhat – 5 (24%)
  - c. A little – 1 (5%)
  - d. Not at all - 0
  - e. Don't know – 2 (10%)
3. In your opinion, how polluted is the Kelly Creek Watershed and its tributaries?
  - a. Very polluted - 0
  - b. Somewhat polluted – 11 (52%)
  - c. Not very polluted – 6 (29%)
  - d. Not at all polluted – 1 (5%)
  - e. Don't know – 3 (14%)
4. Would you say that the Kelly Creek Watershed is more polluted, less polluted, or about the same as it was 25 years ago?
  - a. More – 10 (48%)
  - b. Less – 3 (14%)
  - c. About the same – 4 (19%)
  - d. Don't know – 4 (19%)
5. How concerned are you about whether the Kelly Creek Watershed is polluted?
  - a. Very concerned – 6 (29%)
  - b. Somewhat concerned – 10 (48%)
  - c. Not very concerned – 2 (10%)
  - d. Not at all concerned – 2 (10%)
  - e. Don't know – 1 (5%)

6. Water quality in the Kelly Creek Watershed is most influenced by which of the following (choose only one)?
- a. Farming practices adjacent to the creek – 7 (33%)
  - b. Water levels in wet or dry years – 5 (24%)
  - c. Runoff from animal waste – 4 (19%)
  - d. Runoff from city streets and storm sewers – 3 (14%)
  - e. Other (please specify) - 4 (19%)  
(All of the above plus city releases from lagoons; Don't know [2]; Farm chemicals)
7. What is the greatest threat to water quality in the Kelly Creek Watershed (choose only one)?
- a. Agricultural activities – 12 (57%)
  - b. Urban/Residential activities – 3 (14%)
  - c. Industrial/Commercial activities - 0
  - d. Don't know – 5 (24%)
  - e. Other (please specify) - 0
- 7A. If your answer is **a. Agricultural activities**, which of the following represents the greatest threat within this category (choose only one)?
- a. Erosion – 6 (29%)
  - b. Fertilizers – 2 (10%)
  - c. Pesticides/Herbicides – 3 (14%)
  - d. Animal feeding operations – 4 (19%)
  - e. Don't know - 0
  - f. Other (please specify) - 0
- 7B. If your answer is **b. Urban activities**, which of the following represents the greatest threat within this category (choose only one)?
- a. Lawn chemicals - 0
  - b. Runoff from streets and parking areas – 1 (5%)
  - c. Don't know - 0
  - d. Other (please specify) - 0
- 7C. If your answer is **c. Industrial/Commercial activities**, which of the following represents the greatest threat within this category (choose only one)?
- a. Chemical/fuel storage tanks – 1 (5%)
  - b. Industrial wastes - 0
  - c. Municipal wastes - 0
  - d. Don't know - 0
  - e. Other (please specify) - 0

8. Who do you think should be most responsible for MAKING DECISIONS about cleaning up the Kelly Creek Watershed?
  - a. Local residents – 11 (52%)
  - b. Local government – 6 (29%)
  - c. State government – 1 (5%)
  - d. Federal government – 1 (5%)
  - e. Someone else (please specify) – 1 (5%) (All of the above)
  - f. Don't know – 1 (5%)
9. To what extent would you be willing to adopt conservation practices if you knew that it would help improve water quality in the Kelly Creek Watershed?
  - a. Very willing – 7 (33%)
  - b. Somewhat willing – 9 (43%)
  - c. Neutral – 3 (14%)
  - d. Not at all - 0
  - e. Don't know – 1 (5%)
10. Who do you contact first for technical advice regarding implementing conservation practices on your land (choose only one)?
  - a. Private firms (such as co-ops or seed dealers) - 0
  - b. Local soil conservation district – 13 (62%)
  - c. Government sources – 3 (14%)
  - d. Friends and neighbors – 2 (10%)
  - e. Someone else (please specify) – 1 (5%) (Extension Service)
  - f. Don't know – 1 (5%)
11. How helpful is the technical advice that you received (from Question 10) about conservation practices?
  - a. Very helpful – 5 (24%) (Q10: 3 answered B, 1 answered C, 1 answered E)
  - b. Somewhat helpful – 13 (62%) (Q10: 9 answered B, 2 answered C, 2 answered D)
  - c. Not very helpful - 0
  - d. Not at all helpful - 0
  - e. Don't know – 1 (5%) (Q10: 1 answered B)
12. Do you currently own or operate a farm/ranch in which you make or share in farming decisions?
  - a. Yes – 17 (81%)
  - b. No, or not currently an active farmer – 4 (19%)
    - 12A. If your answer is **Yes**, what kind of operation is it?
      - a. Crops – 3 (14%)
      - b. Livestock – 2 (10%)
      - c. Crops and livestock - 0
13. Please describe where you live:
  - a. Farm – 14 (67%)
  - b. Rural non-farm – 2 (10%)
  - c. Small town – 5 (24%)

14. How many years have you lived in the area? Range 9-72, Average 44, Median 49
15. How many years have your parents or grandparents lived in the area? Range 0-130, Average 69, Median 80

Comments:

I think the bottom of Scott's Slough has filled with sediment from soil erosion over the years. Please don't let the environmentalists run wild along with the Get Green crazies.

Our land is all in CRP

Fed & state gov involved in any land management means a loss of our private property rights

I think this is a good idea. Before the problem is out of hand, be proactive.

Four received with request for further information. Two verbal requests also received after public meetings.

Appendix E. Budget.

Part 1: Funding Sources

	2012	2013	2014	2015	2016	Total
EPA SECTION 319 FUNDS						
1)FY 2012 Funds (FA)	106738	106903	107767	108463	61032	490901
OTHER FEDERAL FUNDS						
1) NRCS (TA, EQIP, and other programs)	35000	35000	35000	35000	35000	175000
2)FSA (CRP)	2500	3500	3500	3500	3500	16500
3) NDDoH	6500	6500	6500	6500	6500	32500
Subtotals	44000	45000	45000	45000	45000	224000
STATE/LOCAL MATCH						
1) Foster Co. SCD (TA & FA)	14418	14528	15104	15568	15948	75568
2) Landowners (FA)	56740	56740	56740	56740	24740	251700
Subtotals	71158	71268	71844	72308	40688	327268
 TOTAL BUDGET	 221896	 223171	 224611	 225771	 146720	 1042169

FA: Financial Assistance

TA: Technical Assistance

SCD: Soil Conservation District

NRCS: Natural Resources Conservation Service

FSA: Farm Service Agency

NDDoH: North Dakota Department of Health

Part 2: Budget

Section 319/Non-federal Budget	2012	2013	2014	2015	2016	Total Costs	Cash and In-kind Match	319 Funds
PERSONNEL/SUPPORT/ADMIN								
Salary/Fringe	33181	34406	35681	37006	38385	178659	71464	107195
Travel	700	700	700	700	700	3500	1400	2100
Equipment/Supplies	1270	120	120	120	120	1750	700	1050
Training	300	300	300	300	300	1500	600	900
Subtotals	35451	35526	36801	38126	39505	185409	74164	111245
Objective 1: Improve water quality*								
BMPs for Rangeland, Cropland, etc.	61850	61850	61850	61850	61850	309250	123700	185550
Animal Waste Management BMPs	80000	80000	80000	80000	0	320000	128000	192000
Subtotals	141850	141850	141850	141850	61850	629250	251700	377550
Objective 2: Monitoring								
Sampling and analysis								
Objective 3: Information/Education								
Tours/workshops/meetings	330	525	690	525	165	2235	894	1341
Newsletters and media	265	270	270	270	200	1275	510	765
Subtotals	595	795	960	795	365	3510	1404	2106
Total 319/Non-federal Budget	177896	178171	179611	180771	101720	818169	327268	490901

\* Refer to Part 3: Best Management Practices Table for details.

Part 3: Best Management Practices Table\*

Practice Code	Practice Description	Cost per unit	Quantity	Total	319 Funds
340	Cover Crop	\$20.00/ac	1,500	\$30,000	\$18,000
351	Well Decommissioning	\$900.00 each	3	\$2,700	\$1,620
382	Fencing	\$1.15/ft	30,000	\$34,500	\$20,700
380	Windbreak/Shelterbelt Establishment	\$20.00/lnft	150	\$3,000	\$1,800
390	Riparian Herbaceous Cover	\$300.00/ac	5	\$1,500	\$900
393	Filter Strip	\$125.00/ac	30	\$3,750	\$2,250
412	Grassed Waterway	\$25.00/ft	4,000	\$100,000	\$60,000
512	Pasture & Hayland Planting	\$35.00/ac	160	\$5,600	\$3,360
516	Pipelines	\$3.00/ft	2,500	\$7,500	\$4,500
528A	Prescribed Grazing	\$5.00/ac	1,500	\$7,500	\$4,500
550	Range Planting	\$40.00/ac	80	\$3,200	\$1,920
590	Nutrient Management	\$5.00/ac	8,000	\$40,000	\$24,000
610	Salinity & Sodic Soil Management	\$20.00/ac	200	\$4,000	\$2,400
614	Trough and Tank	\$1,500	4	\$6,000	\$3,600
642	Well (livestock only)	\$4,000	2	\$8,000	\$4,800
	Alternative Power Sources	\$8000 each	2	\$16,000	\$9,600
633	Waste Utilization	\$2.00/ton	6,000	\$12,000	\$7,200
	Septic Systems	\$8,000 each	3	\$24,000	\$14,400
312	Livestock manure management system (full or partial)	\$80,000 each	4	\$320,000	\$192,000
	<i>Total Cost</i>			\$629,250	\$377,550

\*The BMPs listed in the table are the types of practices that are expected to be used most frequently. When appropriate, other BMPs identified in the ND NPS Program BMP Cost Share Guidelines (Guidelines) may also be used and cost shared with Section 319 funds. All BMPs supported with Section 319 funds must adhere to the requirements described in the Guidelines.