

**Dunn County
Upper Spring
Creek Watershed – Phase II
Project Implementation Plan**

Dunn County Soil Conservation District

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State: North Dakota

Watershed: Upper Spring Creek Watershed (Dunn Co.)

Hydrological Unit Code: 1013020108

High Priority Watershed: Yes

Assessment Unit ID's: ND-10130201-028-S_00 and ND-10130201-023-S_00

TMDL Development and/or Implementation (check any that apply)

<u>Project Types</u>	<u>Waterbody Types</u>	<u>NPS Category</u>
<input type="checkbox"/> Staffing and support	<input type="checkbox"/> Groundwater	<input checked="" type="checkbox"/> Agriculture
<input checked="" type="checkbox"/> Watershed	<input type="checkbox"/> Lakes/Reservoirs	<input type="checkbox"/> Urban Runoff
<input type="checkbox"/> Groundwater	<input type="checkbox"/> Rivers	<input type="checkbox"/> Silviculture
<input type="checkbox"/> I&E	<input checked="" type="checkbox"/> Streams	<input type="checkbox"/> Construction
	<input type="checkbox"/> Wetlands	
	<input type="checkbox"/> Other	

Major Goal: The Upper Spring Creek Watershed Project is designed to provide technical, financial and educational assistance to landowners within the watershed. The primary goal of this project is to restore and maintain the recreational uses of the Upper Spring Creek within the project area. Implement a sampling and analysis plan for Lake Ilo Watershed.

Project Description: The project sponsors intend to 1) Reduce monthly geometric concentration for E. Coli, 2) continuing informational meetings for producers and landowners, and 3) Improving water quality and riparian areas. Develop and implement a sampling and analysis plan for Lake Ilo Watershed.

FY22 - 319 funds requested:	\$256,020	Match:	\$170,680
Total project cost:	\$426,020	319 Funded Full Time Personnel:	\$56,300

2.0 State of Need

2.1

Due to the drought this year we were able to get more producers through our door looking to improve their grazing rotations. We spent majority of this year planning pipelines, wells, tank, solar units, and fences. 2021 practices applied to date include 860.3 acres of cover crops, 29,250 ft of fencing, 377.50 acres of pasture/hay land plantings, 5,234 feet of pipelines, 4 tanks, 3 wells for livestock and 1 decommissioning well.

<u>Cropland Management</u>		<u>Amount</u>	<u>Units</u>	<u>Cost Share</u>	<u>Producer Match</u>	<u>Total Cost</u>
340	Cover Crop	860.30	Acres			
				\$7,609.09	\$5,072.72	\$12,681.81
				Category Totals: \$7,609.09	\$5,072.72	\$12,681.81
<u>Grazing Management</u>		<u>Amount</u>	<u>Units</u>	<u>Cost Share</u>	<u>Producer Match</u>	<u>Total Cost</u>
382	Fencing	20,560.00	Linear Feet			
				\$22,770.54	\$15,180.36	\$37,950.90
382	Fencing (Barbed)	8,690.00	Linear Feet			
				\$9,385.20	\$6,256.80	\$15,642.00
512	Pasture/Hayland Planting	377.50	Acres			
				\$12,581.74	\$8,387.83	\$20,969.58
516	Pipelines	5,234.00	Linear Feet			
				\$16,204.46	\$10,802.98	\$27,007.44
614	Trough and Tank	4.00	Number			
				\$7,584.05	\$5,056.03	\$12,640.08
642	Well (Livestock Only)	3.00	Number			
				\$24,599.73	\$16,399.81	\$40,999.54
				Category Totals: \$93,125.72	\$62,083.81	\$155,209.54
<u>Miscellaneous Practices</u>		<u>Amount</u>	<u>Units</u>	<u>Cost Share</u>	<u>Producer Match</u>	<u>Total Cost</u>
351	Well Decommissioning	1.00	Number			
				\$210.60	\$140.40	\$351.00
				Category Totals: \$210.60	\$140.40	\$351.00
				Grand Total	\$100,945.41	\$67,296.93
						\$168,242.35

The portions of Spring Creek that will be addressed by the Upper Spring Creek Watershed project include the Waterbody Assessment Units ND-10130201-028-S_00 and ND-10130201-023-S_00. These Assessment Units extend from Lake Ilo downstream to the Spring Creek/Goodman Creek confluence. Both Assessment Units were included in the “E. coli Bacteria TMDL for Spring Creek in Dunn and Mercer Counties, North Dakota.” The Spring Creek TMDL was approved in September 2011.

As indicated in the Spring Creek TMDL, the recreational uses for the portions of Spring Creek in the Upper Spring Creek Watershed are fully supporting, but threatened, due to elevated concentrations of E. coli bacteria. Based on data collected for the TMDL in 2008-2009, the state standard geometric mean criteria of 126 colony forming units/100 milliliters (126 CFU/100ml) was satisfied. However, the recreational uses were assessed as fully supporting, but threatened because over 10% of samples exceeded the state standard criteria of 409 CFU/100ml. The TMDL target for achieving fully supporting status of the Spring Creek recreational uses is a geometric mean of 126 CFU/100 ml during the May 1 – September 30 recreational season.

During TMDL development, potential pollutant sources evaluated in the watershed included both point and nonpoint (NPS) sources. The point sources included the municipal facilities for the cities of Dunn Center and Dodge. The municipal facilities for Dunn Center and Dodge are permitted through the ND Pollutant Discharge Elimination System (NDPDES). Discharge records for Dunn Center indicate the E. coli bacteria concentrations have not exceeded the state standard geometric mean concentration, which is within the waste load allocation described in the TMDL. Dodge has not reported any discharges from their municipal facilities. There are no large, concentrated animal feeding operations (Large CAFOs) in the watershed.

Potential sources of NPS pollution in the watershed are generally associated with agricultural production. The dominant land use type identified in the TMDL for the watershed is agricultural production on grasslands and croplands. Of these uses, livestock production is the primary agricultural practice. Priority NPS pollution sources identified in the TMDL are: 1) riparian area grazing; 2) unpermitted small and medium animal feeding operations; and 3) over grazed range or pastureland.

A full copy of the Spring Creek TMDL is available at:
deq.nd.gov/WQ/3_Watershed_Mgmt/2_TMDLS/TMDLs_Complete.aspx.

Subsequent water quality data collected in 2012-2020 supports the recreational use impairments described in the TMDL. Refer to Section 2.5 for a summary of the water quality data collected in 2012-2021.

2.2

The Upper Spring Creek Watershed is within the Knife River Basin. More specifically, Upper Spring Creek Watershed is located in the western half of HU 1013020109 and the eastern half of HU 1013020108. The Upper Spring Creek Watershed will address the portion of Spring Creek that flows out of Lake Ilo and across the Dunn County in an easterly direction to the county line. According to the analysis of the Rapid Geomorphic Assessment (where 50 sites were sampled), Spring Creek bed material is mainly sand and silt clay, 90% of the sites were moderately or deeply incised, and 76% of the banks were observed to be moderately to severely unstable.

The Upper Spring Creek Watershed is located in the eastern half of Dunn County and extends from Lake Ilo downstream to the Spring Creek/Goodman Creek confluence. Primary emphasis will be placed on addressing nonpoint E. coli bacteria sources in Dunn County. Total acres in the project area are 179,110. Based on the *Standards of Water Quality for the State of North Dakota* (NDDoH, November 2015), the Spring Creek has a stream classification of IA. As a class IA stream, designated beneficial uses for the Spring Creek are aquatic life, recreation, industrial, and agricultural.

In addition, the quality of Class IA streams shall be such that they can be used for a municipal water supply after treatment. It should be noted that Spring Creek flows into the Knife River south of Beulah, ND.

The AnnAGNPS model has been updated and new maps have been created. This model shows priority cropland and non-cropland areas in the Upper Spring Creek Watershed. These areas will be given priority when planning future producer contracts for BMP implementation. Maps are attached in Appendix C.

2.3 Maps

See Appendix C

* Non tilled Acres- High Priority Areas

* Tilled Acres- High Priority Areas

2.4

The Upper Spring Creek Watershed's topography is characterized by rolling hills. Elevation ranges are from 2,454 feet in the northwest portion of the watershed, 2,167 feet where Spring Creek flows out of Lake Ilo to 1,998 feet in Dodge. Soils vary greatly in different areas of the county and range from soft shale plains to extreme sand. Unique to Dunn County is the Knife River Flint used by the early Native Americans and early settlers. Dunn County contains the flint quarries that provided the flint that was traded all over the United States. Annual precipitation for the counties is 17" on average. Important artesian aquifers are in the Fox Hills and Hell Creek Formations of Late Cretaceous age and the Tongue River Formations of Tertiary age. Most of the water used as domestic and livestock water for farms is derived from those areas. Dunn County is also actively being drilled for oil, with many established wells.

The primary natural resource management concern in the project area is the degradation of the riparian areas. Other concerns include range practices for summer grazing, cropland erosion and water erosion on rangelands and confined areas for feeding livestock. Of the 179,110 acres in the Upper Spring Creek Watershed an estimated 28% are cropland and hay land, 67% are pasture, rangeland and CRP and 5% are oil drilling, wildlife, water, farms, etc. When you look at land use next to the creek, 72% is pasture/ rangeland, 13% hay land, 9% cropland, 5% farmstead/feedlot, and 1% other.

Table I

Actual 2017 NASS Land use Data		
CLASS_NAME	Sum of Acres	Percentage of Watershed
Grassland/Pasture	99766.66041	55.70%
Spring Wheat	22476.95979	12.55%
Other Hay/Non-Alfalfa	19326.17904	10.79%
Corn	6505.157391	3.63%
Developed/Open Space	6457.971921	3.61%
Sunflower	4749.055053	2.65%
Alfalfa	4630.445284	2.59%
Winter Wheat	2706.818974	1.51%
Canola	2209.687659	1.23%
Oats	1994.840195	1.11%
Barley	1690.736523	0.94%
Deciduous Forest	1448.999346	0.81%
Peas	1044.638726	0.58%
Soybeans	586.6544579	0.33%
Buckwheat	555.1765089	0.31%
Woody Wetlands	515.0999376	0.29%
Flaxseed	461.9304041	0.26%

Durum Wheat	357.8347759	0.20%
Open Water	317.195706	0.18%
Developed/Low Intensity	296.1020718	0.17%
Millet	228.0294156	0.13%
Fallow/Idle Cropland	219.4710426	0.12%
Herbaceous Wetlands	205.4797031	0.11%
Lentils	183.4640206	0.10%
Shrubland	72.15939221	0.04%
Barren	28.46505353	0.02%
Developed/Med Intensity	25.35139194	0.01%
Sorghum	17.18951227	0.01%
Evergreen Forest	11.78617344	0.01%
Dry Beans	10.64013636	0.01%
Mixed Forest	7.116180193	0.00%
Clover/Wildflowers	1.779045048	0.00%
Developed/High Intensity	0.667141893	0.00%
Other Crops	0.444761262	0.00%
Potatoes	0.222380631	0.00%
Safflower	0.222380631	0.00%
Rye	0.222380631	0.00%
	179,110.85	

Table 2

Land use By Category		
CLASS_NAME	Sum of Acres	% of watershed
Native Grassland	99,766.66	55.70%
Cropland or Tilled Acres	45,999.40	25.68%
Tame grasses/Reseeded Grass	19,327.96	10.79%
Bare/Roads/Developed	6,808.56	3.80%
Alfalfa	4,630.45	2.59%
Riparian Woodlands/Tree Rows/Shrubs	1,540.06	0.86%
Water/Wetlands	1,037.78	0.58%
Total Watershed Acres:	179,110.85	

2.5

Table 2: 2012-2020 E. Coli Bacteria Data Collect at Site 385416

385416 Spring Creek 0.5 Mi South of Dunn Center Colonies/100ml	May		June		July		August		September	
	Date	Count	Date	Count	Date	Count	Date	Count	Date	Count
	5/8/2012	60	6/4/2012	30	7/10/2012	140	8/8/2012	40	9/12/2012	20
	5/23/2012	150	6/6/2012	5	7/16/2012	90	8/14/2012	40	9/17/2012	10
	5/30/2012	130	6/26/2012	20	7/23/2012	50	8/15/2012	80	9/18/2012	30
	5/13/2013	40	6/27/2012	800	7/24/2012	320	8/21/2012	5	9/24/2012	10
	5/14/2013	120	6/4/2013	140	7/25/2012	290	8/27/2012	5	9/26/2012	10
	5/21/2013	40	6/10/2013	70	7/31/2012	130	8/29/2012	5	9/3/2013	50
	5/12/2014	5	6/12/2013	50	7/15/2013	160	8/5/2013	120	9/18/2013	100
	5/20/2014	40	6/18/2013	90	7/16/2013	220	8/14/2013	140	9/23/2013	70
	5/21/2014	10	6/25/2013	360	7/17/2013	350	8/19/2013	40	9/25/2013	90
	5/28/2014	220	6/3/2014	120	7/30/2013	100	8/21/2013	30	9/30/2013	90
	5/5/2015	40	6/9/2014	20	7/31/2013	50	8/26/2013	130	9/3/2014	110
	5/12/2015	10	6/16/2014	150	7/1/2014	220	8/27/2013	80	9/9/2014	280
	5/19/2015	40	6/18/2014	260	7/8/2014	140	8/6/2014	120	9/15/2014	30
	5/26/2015	60	6/23/2014	180	7/9/2014	90	8/12/2014	80	9/30/2014	430
	5/3/2016	5	6/3/2015	230	7/15/2014	120	8/19/2014	100	9/16/2015	40
	5/11/2016	140	6/10/2015	60	7/22/2014	300	8/25/2014	120	9/21/2015	70
	5/17/2016	10	6/17/2015	800	7/29/2014	100	8/26/2014	100	9/28/2015	140
	5/25/2016	80	6/24/2015	900	7/8/2015	480	8/4/2015	40	9/30/2015	20
	5/31/2016	240	6/30/2015	800	7/15/2015	80	8/5/2015	30	9/6/2016	130
	5/1/2017	800	6/2/2016	220	7/21/2015	60	8/18/2015	20	9/14/2016	30
	5/8/2017	10	6/7/2016	60	7/28/2015	60	8/26/2015	50	9/20/2016	80
	5/15/2017	50	6/14/2016	20	7/5/2016	310	8/17/2016	30	9/21/2016	30
	5/22/2017	20	6/23/2016	320	7/11/2016	2600	8/22/2016	20	9/28/2016	70
	5/30/2017	60	6/27/2016	350	7/20/2016	140	8/24/2016	200	9/5/2017	40
	5/1/2018	5	6/5/2017	690	7/26/2016	60	8/29/2016	110	9/11/2017	50
	5/8/2018	10	6/12/2017	60	7/6/2017	30	8/31/2016	60	9/18/2017	60
	5/15/2018	5	6/13/2017	800	7/10/2017	80	8/1/2017	210	9/20/2017	50
	5/22/2018	260	6/19/2017	70	7/17/2017	130	8/7/2017	50	9/25/2017	20
	5/30/2018	200	6/26/2017	100	7/24/2017	30	8/14/2017	5	9/5/2018	20
	5/1/2019	5	6/4/2018	140	7/31/2017	80	8/21/2017	20	9/10/2018	5

Table 3: E. Coli Bacteria Data

Geometric Means and % Exceedences

Station 385416

2012-2021

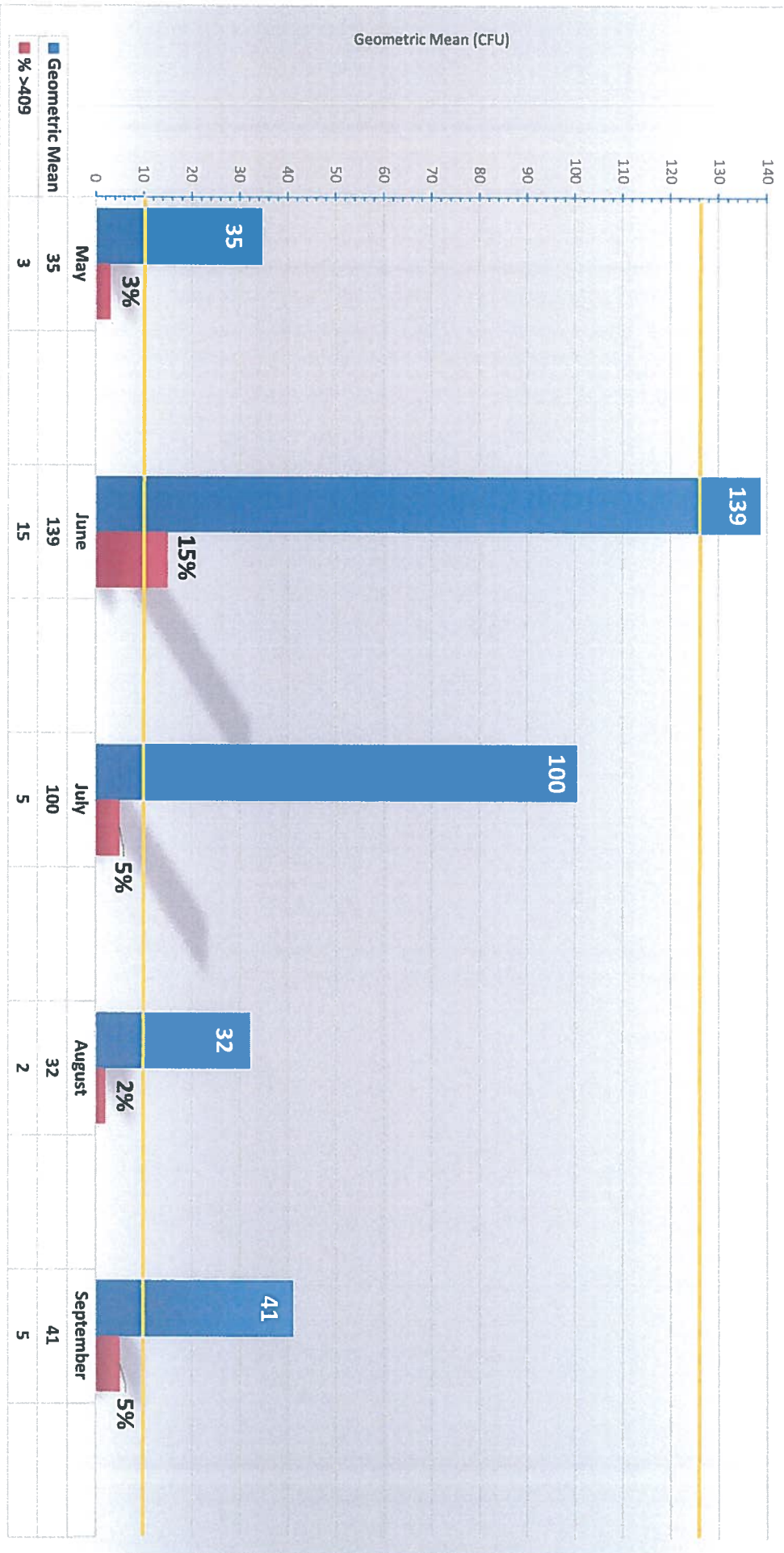
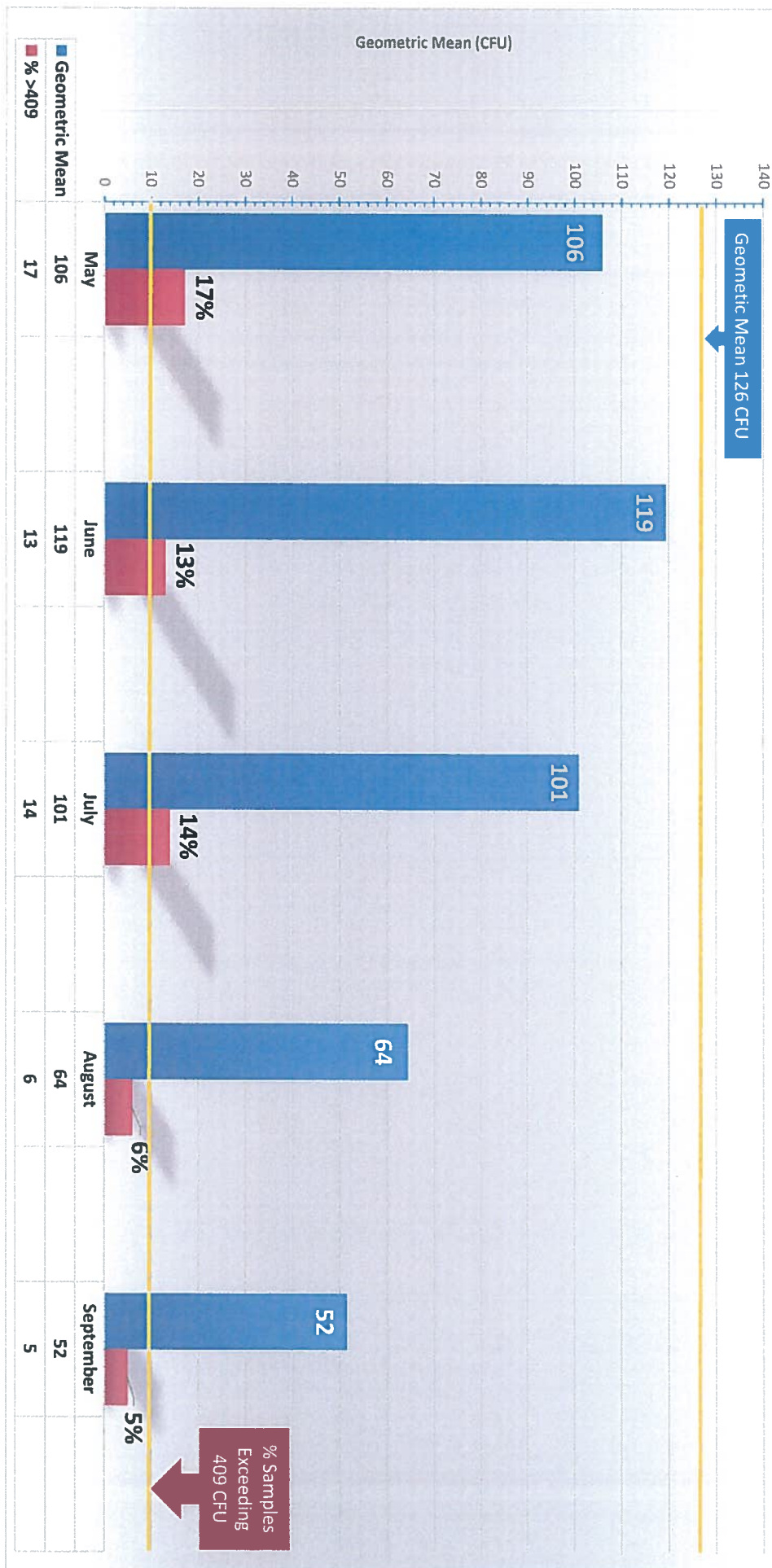


Table 4: 2012-2020 R. Coli Bacteria Data Collect at Site 385417

385417 Spring Creek 3 Mi West of Dodge 1.5 Mi North of Hwy 200 Colonies/100 ml	May		June		July		August		September	
	Date	Count	Date	Count	Date	Count	Date	Count	Date	Count
	5/8/2012	310	6/4/2012	120	7/10/2012	30	8/8/2012	10	9/12/2012	40
	5/16/2012	100	6/6/2012	30	7/16/2012	30	8/14/2012	120	9/17/2012	30
	5/23/2012	600	6/26/2012	10	7/23/2012	50	8/15/2012	40	9/18/2012	80
	5/30/2012	160	6/27/2012	20	7/24/2012	50	8/21/2012	40	9/24/2012	10
	5/13/2013	20	6/4/2013	370	7/25/2012	40	8/27/2012	40	9/25/2012	30
	5/14/2013	90	6/10/2013	340	7/31/2012	20	8/29/2012	10	9/26/2012	30
	5/21/2013	1200	6/12/2013	180	7/10/2013	270	8/5/2013	130	9/3/2013	20
	5/12/2014	60	6/18/2013	120	7/15/2013	270	8/14/2013	270	9/18/2013	80
	5/20/2014	20	6/24/2013	5	7/16/2013	170	8/19/2013	90	9/23/2013	760
	5/21/2014	5	6/25/2013	100	7/17/2013	320	8/21/2013	90	9/24/2013	30
	5/27/2014	910	6/3/2014	210	7/30/2013	330	8/26/2013	170	9/25/2013	40
	5/28/2014	4200	6/9/2014	170	7/31/2013	370	8/27/2013	130	9/30/2013	40
	5/5/2015	90	6/16/2014	160	7/1/2014	200	8/6/2014	450	9/3/2014	570
	5/12/2015	60	6/18/2014	60	7/8/2014	110	8/12/2014	70	9/9/2014	150
	5/19/2015	190	6/23/2014	160	7/9/2014	150	8/19/2014	210	9/15/2014	30
	5/26/2015	60	6/3/2015	1400	7/15/2014	40	8/25/2014	800	9/16/2014	90
	5/3/2016	50	6/10/2015	800	7/22/2014	50	8/26/2014	210	9/30/2014	90
	5/11/2016	80	6/17/2015	320	7/29/2014	30	8/4/2015	60	9/16/2015	90
	5/17/2016	380	6/24/2015	170	7/8/2015	800	8/5/2015	210	9/21/2015	100
	5/25/2016	150	6/30/2015	100	7/15/2015	40	8/18/2015	40	9/30/2015	50
	5/31/2016	800	6/1/2016	800	7/21/2015	80	8/26/2015	70	9/6/2016	40
	5/1/2017	10	6/7/2016	130	7/28/2015	800	8/31/2015	160	9/14/2016	310
	5/8/2017	30	6/14/2016	170	7/5/2016	100	8/17/2016	20	9/20/2016	20
	5/15/2017	60	6/23/2016	150	7/13/2016	230	8/22/2016	310	9/21/2016	30
	5/22/2017	160	6/27/2016	50	7/27/2016	250	8/24/2016	30	9/28/2016	100
	5/30/2017	60	6/5/2017	1100	7/6/2017	70	8/29/2016	20	9/5/2017	50
	5/1/2018	10	6/12/2017	80	7/10/2017	50	8/31/2016	20	9/11/2017	40
	5/8/2018	31	6/13/2017	510	7/17/2017	80	8/2/2017	290	9/18/2017	240
	5/15/2018	41	6/19/2017	50	7/24/2017	80	8/7/2017	60	9/20/2017	180
	5/22/2018	52	6/26/2017	100	7/31/2017	140	8/14/2017	150	9/25/2017	90
	5/30/2018	360	6/4/2018	140	7/10/2018	160	8/21/2017	40	9/5/2018	5

Table 5: E. Coli Bacteria Data

Geometric Means and % Exceedences
 Station 385417
 2012-2021



Water quality grab samples were collected for E. coli bacteria during the recreational season (May 1 through September 30) on Spring Creek from 2012 through 2021.

Station 385416 is located one-half mile south of Dunn Center, ND and monitors the immediate upstream 12-digit HUC 101302010806.

Station 385147 is located three miles west and one mile north of Dodge, ND and monitors the upstream half of the 12-digit HUC 1013020010904. (See Appendix A Maps)

For statistically accurate analysis of yearly bacteria data, E. coli bacteria data was pooled for each month over the entire period of 2012-2021. To achieve fully supporting status for the recreational uses E. coli bacteria concentration targets must fall below a 30-day geometric mean of 126 CFU/100 mL and less than ten percent of the samples may exceed 409 CFU/100 ml.

Station 385416

Samples collected in May, July, August and September indicated that recreational uses were Fully Supporting for those months with both the geometric mean (criteria 1) and percent of samples exceeding 409 CFU (criteria 2) not surpassing limits.

June has been classified as Not Supporting the beneficial use of recreation due to high geometric means and samples exceeding 409 CFU of E. coli bacteria.

Station 385417

Samples collected in August and September indicated that recreational uses were Fully Supporting for those months with both the geometric mean (criteria 1) and percent of samples exceeding 409 CFU (criteria 2) not surpassing limits.

The months of May June and July met the geometric mean criteria but had several samples exceeding 409 CFU and they were classified as Fully Supporting but Threatened for the beneficial use of recreation.

Both monitoring stations experienced elevated E. coli bacteria concentrations during the month of June. This consistent annual rise in concentrations suggests an activity or land management practice is occurring that results in the increased delivery of E. coli bacteria to the Spring Creek. Targeted implementation should be undertaken to verify the E. coli bacteria sources present in June and determine the best management practices (BMPs) that will reduce inputs to the creek. The current land management practice within the riparian corridor is primarily livestock grazing. Therefore, improved grazing management practices should result in reduced E. coli bacteria concentrations. Additional E. coli bacteria sources should be prioritized and accordingly.

Overall, sample results indicate a slight downward trend at station 385416 and a stronger trend at station 385417.

Implementation of additional target BMPs will be critical in achieving the project goal of Fully Supporting the beneficial use of recreation, for Spring Creek.

3.0 Project Description

Goal 1:

The primary goal of this watershed project is to restore and maintain the recreational uses of Upper Spring Creek within the project area

Objective 1:

Reduce monthly geometric mean concentrations for E. coli to levels below 126 CFU/100ml with less than 10% of the samples exceeding 409cfu/100 ml. at all established monitoring sites.

Task 1:

Employ two part time watershed conservationist in Dunn County to provide one on one conservation planning assistance to producers in the project area.

Product: The equivalent of a part time watershed conservationists to administer contracts in the Upper Spring Creek Watershed and provide technical assistance.

Cost: \$ 33,780 (319 Funds)

Task 2:

Minimize livestock impacts to the riparian corridor by improving grazing management on 5,000 acres in the watershed. Priority will be given to the AnnAGNPS priority areas and grazing lands immediately adjacent to the creek.

Product:

5,000 acres of prescribed grazing systems. See Supplemental BMP Table in Appendix B for details on specific BMPs related to grazing management.

AnnAGNPS acres will be targeted to apply BMPs, both cropland and non-cropland acres

Cost: \$183,690 (319 Funds)

Task 3:

Improve manure management in livestock winter feeding areas through the implementation and the development of partial manure management systems for two small winter-feeding areas within ½ mile of the creek and/or its tributaries.

Product: Two small Feeding Areas with Manure Management plans. See Supplemental BMP Table in Appendix B.

Cost: \$34,800 (319 Funds)

Task 4:

Conduct follow-up contacts to assist with conservation plan updates and monitor O&M of 319 cost shared practices.

Product: Database of applied BMP's.

Cost: Included in Task 1

The Upper Spring Creek Watershed consists of mostly stock cow operations with most of the feeding being done on open range. These operations have a more direct need of being moved away from water and drainage sources. This can be accomplished by establishing alternative water sources other than streams and establishing a winter grazing/feeding management plan.

Objective 2:

Use newsletter, successful meeting and tours that inform producers and landowners about the Upper Spring Creek Watershed Projects. And continuing education throughout the years to come.

Task 5: Continue to inform the producers and land managers of the Upper Spring Creek Watershed Project and the benefits of implementing BMPs through meetings and tours. Also present at other agency meetings in the area.

Product: A yearly informational meeting and at least 1 tour per year that inform producers and landowners about the Upper Spring Creek Watershed Project. Show producers examples of implemented practices. Discuss which BMPS are available and the benefits of implementing them. Inform producers and landowners of the Upper Spring Creek Watershed through every other month newsletters.

Task 6: Educate youth on improving the benefits of water quality

Product: Youth educational programs such as the Water Festival and our yearly coloring contest through the school.

Cost: \$3,750 (319 Funds) for meetings, tours, and newsletters/publications

Objective 3:

Secure additional cost share opportunities for Upper Spring Creek producers to improve water quality and riparian areas.

Task 7: Work with other agencies (North Dakota Natural Resource Trust to seek out additional cost share dollars for producers. Look for other grant opportunities to provide additional cost share.

Product: Additional funding will be asked from the Dunn County Water Board to help leverage 319 funding

Cost: Included in Task 1

Objective 4:

Evaluate the beneficial use condition in Lake Ilo Watershed and identify potential solutions to water quality impairments impacting threatening the beneficial uses.

Task 8: Coordinate with NDDEQ to develop and implement a sampling and analysis plan for Lake Ilo Watershed.

Product: SAP, Water quality data and land use data collected in 2022-2023 and landowner/ producer feedback.

Cost: \$0.00 – Will be funded with 604(b) Funds

Task 9: Provide input as needed, to assist the NDDEQ in completing a watershed assessment report for Lake Ilo Watershed.

Product: Lake Ilo Watershed assessment and Data summary Reports

Cost: \$0.00 to be completed by NDDEQ

3.1

See attached Milestone Table

Appendix A

3.2 Permits

All necessary permits will be acquired. These may include USCOE Section 404 permits and 401 certifications from the NDDEQ for proposed work that may impact the stream or wetlands. The project will also work with the NDDEQ to determine if National Pollution Elimination System permits are needed for proposed livestock manure management systems. Cultural Resource concerns and issues will be addressed by following the procedures of the NDDEQ in consulting with the North Dakota State Historical Preservation Officer.

3.3 Appropriateness of the lead sponsors

The Dunn County Soil Conservation District will act as the lead sponsors on the project. The sponsors will work with the North Dakota Department of Environmental Quality (NDDEQ) and Natural Resource Conservation Service (NRCS) to determine the need for any environmental permits, such as livestock waste management systems. Project staff will consult with the NDDEQ to determine applicability of current ND livestock waste regulations.

The Dunn County Soil Conservation Districts will be responsible for auditing Operation & Maintenance agreements on BMP's. After completion of projects, yearly status reviews will be conducted on all 319 contracts. The life span of each BMP will be listed with each individual contract to ensure longevity of the practice. The producer will be required to sign the "EPA 319 Funding Agreements Provision" form, which explains in detail the consequences of destroying a BMP before its life span is up. The SCDs are locally elected volunteer conservation organizations that serve all people of their county.

4.0 Coordination Plan

4.1

1. The Dunn County SCD will be the lead agency liable for project administration. Conservation planning, technical assistance, educational campaign, clerical assistance, access to equipment and supplies, and annual financial support will be provided by the Dunn County SCD. The Dunn County SCD will prioritize scheduling, coordinate activities and ideas and request letters of support. District personnel will serve as a liaison between watershed residents and USDA program participation.

2. USDA Natural Resources Conservation Service (NRCS). The NRCS will provide technical assistance by coordinating project activities, facilitating local involvement, providing technical support, and participating in educational outreach programs during the project. Staff will incorporate existing USDA programs (financial and technical ex. EQIP) and target resources to enhance efforts within the watershed. Existing office space and office equipment use will be made available to the project. An annual review will be conducted with the Field Office, DC and the SCD to reconfirm and acknowledge NRCS's commitment to the project.
3. North Dakota Department of Environmental Quality. The NDDEQ will oversee Section 319 funding management. The NDDEQ developed the attached Sampling and Analysis Plan (SAP) and will oversee implementation of the SAP. Training will be provided by the NDDEQ for proper water quality sample collection, preservation and transportation to ensure that reliable data is obtained. NDDEQ will also complete and cover the expense of analysis of water samples.
4. USDA Farm Service Agency (FSA). The FSA will provide cost-share assistance through the Conservation Reserve Program.
5. North Dakota Cooperative Extension Service (NDSU). The NDSU Extension Service will assist in project information and education activities.
6. The Dunn County Water Resource Board is pending of approval to provide technical assistance and have requested \$25,000 for the life span of the contract.
7. ND State Forest Service (NDFS). The NDFS will be solicited for technical assistance with riparian areas.
8. North Dakota Natural Resource Trust (NDNRT). The NDNRT will provide technical and financial assistance to landowners interested in enhancing riparian areas. Their staff is available to provide opportunities on associated grasslands and grazing systems to compliment the Upper Spring Creek 319 Watershed Project.

4.2

Local support for the project is displayed through the response during the assessment phase and informational meetings. Producers are pushing hard for water lines and technical assistance for better ways to provide fresh water to their cattle. Producers are becoming aware of the importance of water quality and riparian areas and looking for ways to improve them. Currently 70% of NRCS and 319 contracts are for water and grazing BMPs. The other 30% have contracts for tree plantings, cover crops and grass seedings. They have shown great interest in using 319 dollars. A huge amount of support from local producers and sponsors is behind this project.

See attached letters of support.
Appendix D

4.3

For the 319 projects, we will work with the NPS BMP Team and NRCS if engineering assistance is needed for BMPs and coordinate with the Stockmen's Association and ND Dept of Agriculture, if assistance is needed for planning and implementing manure management systems. Other organizations that we would work with is NDSU Extension and NRCS.

4.4

No similar watershed-based projects or activities are being implemented in the watershed project area.

5.0 Evaluation and Monitoring Plan

The sampling and analysis plan approved during phase I will continue to be followed during phase II.

See attached approval SAP
Appendix E

6.0 Budget

See attached Part I, Part II, & Part III
Appendix B

7.0 Public Involvement

Public will be kept informed of tours and meetings through newsletters and personnel contacts. Dunn County SCD will continue to send out flyers and brochures about the watershed to get producers involved. Phone calls can be made to personally invite producers to meetings and tours.

Appendix A

**Budget Table for Upper Spring Creek Watershed Project -Phase II
Part I**

Funding Sources	SFY22	SFY23	SFY24	SFY25	SFY26	Totals
Total FY 22 EPA Section 319	\$50,083.80	\$50,083.80	\$50,083.80	\$50,083.80	\$50,083.80	\$256,020.00
Subtotals	\$51,204.00	\$51,204.00	\$51,204.00	\$51,204.00	\$51,204.00	\$256,020.00

Other Federal Funds	SFY22	SFY23	SFY24	SFY25	SFY26	Totals
1) Natural Resources Conservation Service (TA)1 and EQIP2	\$60,000.00	\$60,000.00	\$60,000.00	\$60,000.00	\$60,000.00	\$300,000.00
2) Farm Services Agency (FA)3	\$5,600.00	\$5,600.00	\$5,600.00	\$5,600.00	\$5,600.00	\$28,000.00
3) ND Department of Environmental Quality (TA)	\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00	\$7,500.00
Subtotals	\$68,100.00	\$68,100.00	\$68,100.00	\$68,100.00	\$68,100.00	\$340,500.00

State & Local Match	SFY22	SFY23	SFY24	SFY25	SFY26	Totals
1) Dunn County Soil Conservation District (TA and FA)	\$4,000.00	\$4,000.00	\$4,000.00	\$4,000.00	\$4,000.00	\$20,000.00
2)Dunn County Water Resource Board (TA and FA) (PENDING)	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$25,000.00
3) Landowners (FA)	\$40,883.80	\$40,883.80	\$40,883.80	\$40,883.80	\$40,883.80	\$204,419.00
4) NDSU Extension Service (TA)	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$1,000.00
Subtotals	\$50,083.80	\$50,083.80	\$50,083.80	\$50,083.80	\$50,083.80	\$250,419.00

Total Project Total **\$846,939.00**

- 1 TA - Technical Assistance
- 2 EQIP - Environmental Quality Incentive Program
- 3 FA - Financial Assistance
- 4 CRP - Conservation Reserve Program

*SFY - State Fiscal Year

MILESTONE TABLE FOR UPPER SPRING CREEK WATERSHED PROJECT

Task/Responsible Organization	Output	Qty	SFY 22	SFY 23	SFY 24	SFY 25	SFY 26
			Quarter*	Quarter*	Quarter*	Quarter*	Quarter*
			1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

OBJECTIVE 1: Improve Water Quality

Task 1 - Employ two watershed conservationists Group 1,2,3	Conservation Planning	2 Employees	x x x x	x x x x	x x x x	x x x x	x x x x
		15 contracts	x x x x	x x x x	x x x x	x x x x	x x x x
Task 2 - Implement BMP's Group 1,2,3,4,5,6,7,8,9	Landowner Assistance & Implement BMP's						
		2 systems		x		x	
Task 3 - Manure Management Systems Group 1,2,3,4,5,6,9	Install 2 winter feeding areas						

OBJECTIVE 2: Education

Task 4 - Follow-up & monitoring Group 1,2,3,5,9	Contacts & assistance	20 contracts	x x x x	x x x x	x x x x	x x x x	x x x x
		5 meetings	x	x	x	x	x
Task 5 & 6- Informational Meetings & Tours Group 1,2,3,5,9	Informational meetings, tours, and newsletters	20 newsletter	x x x x	x x x x	x x x x	x x x x	x x x x

OBJECTIVE 3: Additional Funding

Task 7 - Secure additional cost share dollars Group 1,3,6,8	Additional cost share & Technical Assistance	6 Sources	x x x x	x x x x	x x x x	x x x x	x x x x
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OBJECTIVE 4: Analysis Lake Ilo Watershed

Task 8 - Upcoming Watershed Group: 1,3	Implement a sampling & analysis plan	3 Years	x x x x	x x x x	x x x x		
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Group 1: Dunn County Soil Conservation District - Provides administration, supplies, and financial support for the project

Group 2: Natural Resource Conservation Service- Provides technical assistance in the planning, design and installation of BMP's

Group 3: North Dakota Department of Environmental Quality - Oversees Section 319 funding, monitoring, and overall evaluation of the project

Group 4: Farm Service Agency. Provide assistance

Group 5: NDSU Extension Service: Assist in project information and educational activities

Group 6: Dunn County Water Resource Board: Provides technical assistance and financial assistance is pending

Group 7: ND State Forest Service: Solicited for technical assistance in riparian areas

Group 8: North Dakota Natural Resource Trust will provide technical and financial assistance to landowners interested in enhancing riparian areas.

Group 9: Spring Creek Watershed Landowners will make land management decisions and provide both cash and in-kind match for installed BMP's

*Quarter 1 - July/September

*Quarter 2 - October/December

*Quarter 3 - January/March

*Quarter 4 - April/June

Appendix B

**Section 319 Non-Federal Budget
Part II**

Personnel/Support	SFY22	SFY23	SFY24	SFY25	SFY26	Totals	Cash	319 Match
1.Salary 2PTE	\$7,960.00	\$8,360.00	\$8,760.00	\$9,160.00	\$9,560.00	\$43,800.00	\$17,520.00	\$26,280.00
2.Administration	\$1,400.00	\$1,500.00	\$1,600.00	\$1,700.00	\$1,800.00	\$8,000.00	\$3,200.00	\$4,800.00
3.Travel-Training	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00	\$2,000.00	\$800.00	\$1,200.00
4.Equipment/Supplies	\$500.00	\$500.00	\$500.00	\$500.00	\$500.00	\$2,500.00	\$1,000.00	\$1,500.00
Subtotals	\$10,260.00	\$10,760.00	\$11,260.00	\$11,760.00	\$12,260.00	\$56,300.00	\$22,520.00	\$33,780.00

Objective 1:

Improve Land Management (BMPs)								
Rangeland Mgt. Systems	\$48,950.00	\$48,950.00	\$48,950.00	\$48,950.00	\$48,950.00	\$244,750.00	\$97,900.00	\$146,850.00
Pasture & Hayland Mgt	\$7,280.00	\$7,280.00	\$7,280.00	\$7,280.00	\$7,280.00	\$36,400.00	\$14,560.00	\$21,840.00
Manure Management	\$11,600.00	\$11,600.00	\$11,600.00	\$11,600.00	\$11,600.00	\$58,000.00	\$23,200.00	\$34,800.00
Prescribed Grazing	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$25,000.00	\$10,000.00	\$15,000.00
Subtotals	\$72,830.00	\$72,830.00	\$72,830.00	\$72,830.00	\$72,830.00	\$364,150.00	\$145,660.00	\$218,490.00

Objective 2:

Educational Events								
Tours	\$750.00	\$750.00	\$750.00	\$750.00	\$750.00	\$3,750.00	\$1,500.00	\$2,250.00
Newsletters	\$500.00	\$500.00	\$500.00	\$500.00	\$500.00	\$2,500.00	\$1,000.00	\$1,500.00
Subtotals	\$1,250.00	\$1,250.00	\$1,250.00	\$1,250.00	\$1,250.00	\$6,250.00	\$2,500.00	\$3,750.00

Total 319 Non-Federal Budget	\$84,340.00	\$84,840.00	\$85,340.00	\$85,840.00	\$86,340.00	\$426,700.00	\$170,680.00	\$256,020.00
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IBMPs: Cropland Management Systems: Conservation Cropping Sequence, Conservation Tillage, Critical Area Plantings, Diversions, Field Windbreaks, Grassed Waterways, Waste Management Systems. Rangeland Management Systems: Planned Grazing Systems, Cultural Resource, Proper Grazing Use, Fences, Pipelines, Range Seeding, Tanks, Wells. Pasture and Hayland Management Systems: Pasture and Hayland Management, Pasture and Hayland Plantings. Manure Management: Fencing, Water Facility, Well, Pipeline, Windbreak Establishment, Portable Windbreak, Cover Crop, Refer to Supplemental BMP Table for more detailed information on costs and amounts of BMP's.

Supplemental BMP Budget Table

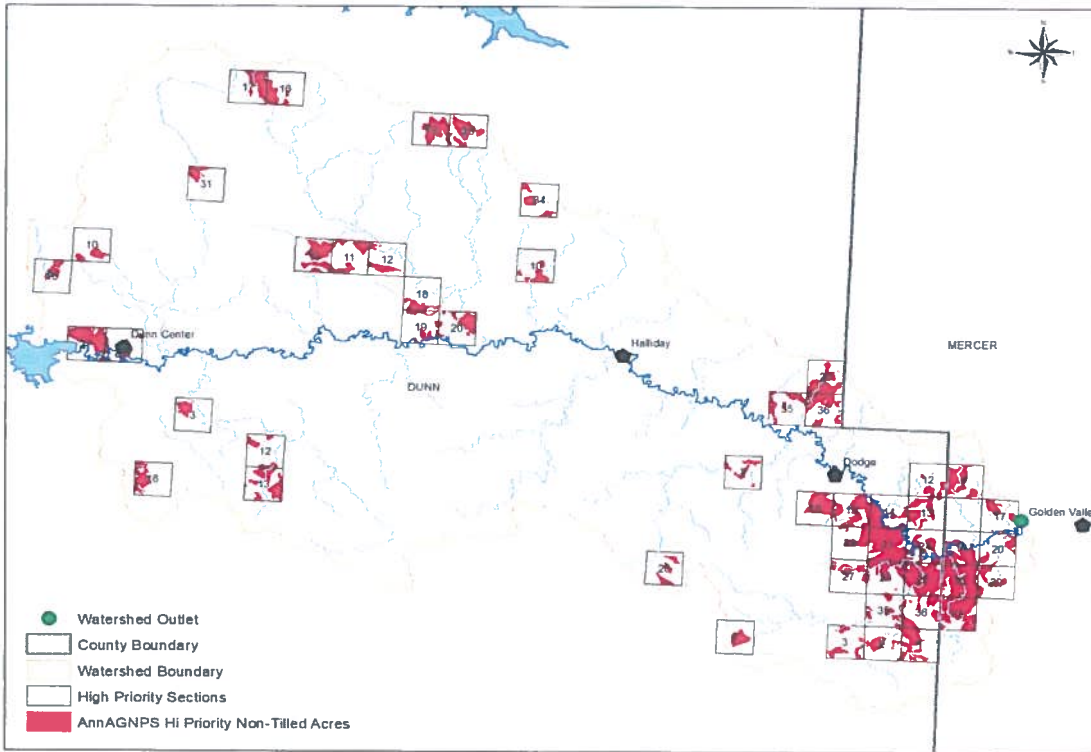
Part III

BMP Practice	Cost Per Unit	Estimated Of Units	319 Cost	Producer Cash		Total Cost
				In Kind Match		
340- Cover Crop	\$20/Acre	1,500	\$18,000.00	\$12,000.00		\$30,000.00
533-Solar Unit	\$5,000/Unit	4	\$12,000.00	\$8,000.00		\$20,000.00
516- Pipelines	\$3.15/Foot	25,000	\$47,250.00	\$31,500.00		\$78,750.00
614- Trough/Tank	\$1,500/Unit	15	\$13,500.00	\$9,000.00		\$22,500.00
642- Well	\$9,000/Unit	6	\$32,400.00	\$21,600.00		\$54,000.00
382- Fencing	\$1.80/Foot	25,000	\$27,000.00	\$18,000.00		\$45,000.00
001 - Cultural Resources	\$1,500/Unit	15	\$13,500.00	\$9,000.00		\$22,500.00
550- Range Planting	\$40/Acre	50	\$1,200.00	\$800.00		\$2,000.00
512- Pasture & Hayland Planting	\$52/Acre	700	\$21,840.00	\$14,560.00		\$36,400.00
Winter Feeding Areas	\$28,000/Area	1	\$16,800.00	\$11,200.00		\$28,000.00
528A Prescribed Grazing	\$5/Acre	5,000	\$15,000.00	\$10,000.00		\$25,000.00
Total BMP Costs:			\$218,490.00	\$145,660.00		\$364,150.00

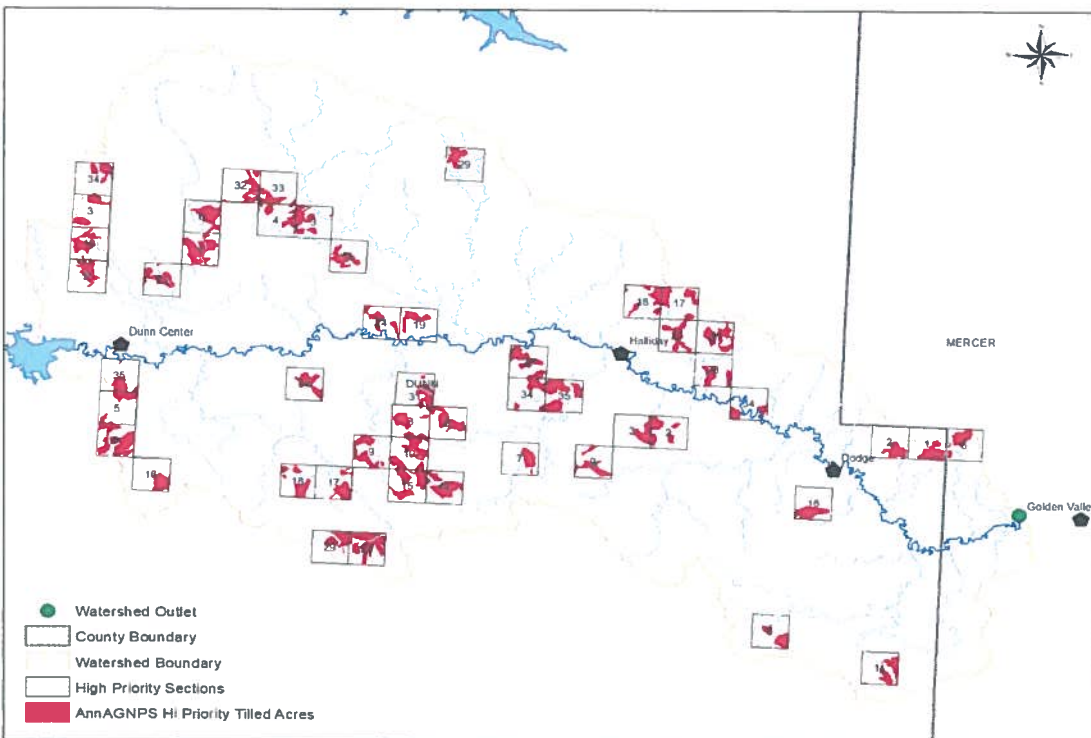
*The BMP in the table are practices that are likely to be implemented, However, other practices listed in the NPS Program BMP Coste Share Guidelines maybe implemented as well.

Appendix C

Non-Tilled Acres- High Priority Areas



Tilled Acres- High Priority Areas



Appendix D



United States Department of Agriculture

September 27, 2021

Natural Resources
Conservation Service

Bismarck State Office
PO Box 1458
Bismarck, ND
58502-1458

Voice 701.530.2000
Fax 855-813-7556

Dunn County Soil Conservation District
Shasta Blackford
105 Rodeo Dr.
Killdeer, ND 58640

RE: Letter of Collaboration Phase II Upper Spring Creek Watershed

Dear Ms. Blackford:

Thank you for reaching out to me regarding the Dunn County Soil Conservation District to receive funding for Upper Spring Creek Watershed. Conservation implementation and support to private agriculture lands is a shared goal.

As much as possible, limited by funding and staffing, we will provide technical assistance and support to DSCD efforts. I have read your proposal statement about the assistance of USDA-NRCS. This statement is in-line with our abilities to assist you in your efforts.

I look forward to our collaborative effort in Upper Spring Creek Watershed for the improvement of the natural resources and technical assistance/education to your producers.

Sincerely,

MARY PODOLL

Digitally signed by MARY
PODOLL
Date: 2021.09.28 09:00:37
-05'00'

MARY E. PODOLL
State Conservationist

Helping People Help the Land

An Equal Opportunity Provider, Employer, and Lender



September 29, 2021

Dunn County Soil Conservation District
Shasta Blackford
105 Rodeo Dr.
Killdeer, ND 58640

RE: Letter of Support for the Phase II Upper Spring Creek Watershed

The Dunn County Farm Service Agency is interested in supporting natural resource projects such as the Spring Creek Watershed project that addresses water quality needs and concerns for Dunn County. I believe the work the Dunn County SCD does has a positive impact for not only the producers who are participating with the district, but for those who are also downstream. Producers downstream may not realize the impacts that their neighbors are doing immediately, but their livestock and wildlife may be noticing the changes as the water quality improves. While the Dunn County SCD contributions may only be making an impact for one producer at a time there is a larger indirect potential for their work. As producers see the changes neighboring operations are making to improve their grazing distributions, develop grazing rotations, and lessen e-coli loads and other contaminants in the water they too may be inspired to make changes to their own operation for the better.

The impact the drought has had this year on our producers is not only evident in our region, but across the state. As the drought conditions worsen the importance of water and its quality is amplified. Although there are relief programs for bad water and a shortage of water there may be better options taken in a proactive approach rather than reactive. Watershed and riparian management could be a tool to increase the resilience of a producer's operation during times of drought. Although I do not have peer-reviewed references of this, there have been many examples in western states where similar projects have addressed hydrological disconnection as a result of stream incision and entrenchment (a lowering of the water table). Overtime in these projects what the producers were able to see is as the stream incision was stopped and even reversed to some extents is their upland vegetation productivity went up as the water table was raised restoring some of the hydrologic connectivity that was lost during the stream incision. A short search on the internet would generate many examples of this.

Personally, knowing the Dunn County SCD staff and their passion for what they do, I believe if given adequate funds they will strive to lead producers towards proven, sound methods to make changes to their operations for the benefit of the producers, community, and environment through educational outreach and cost sharing projects.

Sincerely

GARRET HECKER

Digitally signed by GARRET
HECKER
Date: 2021.09.29 09:17:13 -06'00'

Garret Hecker
Dunn County Executive Director

Farm Service Agency
105 Rodeo Drive
PO Box 689
Killdeer, ND 58640-0689
Telephone: 701-764-5991 FAX: 855-813-6657

Dunn County SCD,

I'm writing in support of the Dunn County SCD and the Dunn County Spring Creek Water Shed. With the drought that has plagued the region in the last 12-14 months having resources available with local control always us to be flexible and responsive to the needs of our local community. The Dunn County Spring Creek Water shed is a resource that provides for that and keeps us going in these hard times. If needed I would advocate for it in person.

Thanks

Gregory P. Benz
NDSU Extension – Dunn County
Ag and Natural Resources Agent

205 Owens St.
Manning, ND 58642
701.573.5593

Gregory.benz@ndsu.edu



NORTH DAKOTA FOREST SERVICE

"To care for, protect and improve forests and natural resources to enhance the quality of life for present and future generations."

September 28, 2021

Shasta Blackford, District Clerk
Dunn County Soil Conservation District
105 Rodeo Drive, Box 359
Killdeer, ND 58640-0359

Re: Upper Spring Creek Watershed Phase II

Dear Shasta

The North Dakota Forest Service is pleased to provide a letter of support for the Upper Spring Creek Watershed Project Phase II. This continuation of a successful 319 project will be instrumental in addressing water quality needs and concerns in Dunn County.

North Dakota's 2020 Forest Action Plan identified rural landscapes with riparian forests and planted windbreaks as priority areas. The restoration of riparian areas to ensure the health and sustainability of plant communities have important implications for water quality, flood control, wildlife habitat and recreational opportunities. In addition, the establishment and renovation of windbreaks provide significant benefits for soil conservation and wildlife habitat.

Staff from the North Dakota Forest Service are available to provide technical assistance through the Forest Stewardship Program to landowners interested in renovating windbreaks and applying conservation practices. Our staff may work collaboratively with you to assess watershed needs and implement forestry best management practices. Please feel free to contact Liz Smith, at 701-537-3584 or Liz.Smith@ndsu.edu

Sincerely,

Tom Claeys, State Forester

Pc: Liz Smith, Forest Stewardship Manager
Lezlee Johnson, Forestry and Fire Management Team Leader



Keith Trego
Executive Director

1605 East Capitol Avenue, Ste. 101

Bismarck, ND 58501-2102

(701) 223-8501

FAX: (701) 223-6937

September 27, 2021

Shasta Blackford, District Clerk
Dunn County Soil Conservation District
105 Rodeo Drive, Box 359
Killdeer, ND 58640-0359

Ms. Blackford:

The North Dakota Natural Resources Trust mission is to preserve, enhance, restore, and manage wetlands and associated wildlife habitat, grasslands, and riparian areas in the state of North Dakota. Please accept this letter of support for the Dunn County Soil Conservation District' Spring Creek Watershed Project.

From its inception, the Trust has played a role as facilitator between agricultural and conservation interests. In addition to facilitating and funding sound, on-the-ground conservation of natural resources, our goal is to identify common issues and create dialogue. Along with its agricultural and conservation partners, the Trusts advocates for recognition, appropriate development, and protection of North Dakota's unique natural resource values.

Consistent with the Trust's mission, this grant proposal will be a significant component for providing technical and financial assistance to landowners interested in enhancing riparian areas. Our staff is available to provide opportunities on associated grasslands and grazing systems to compliment the Upper Spring Creek 319 Watershed Project.

Sincerely,

Keith Trego
Executive Director

"Dedicated to the preservation, enhancement, restoration and management of wetlands and associated wildlife habitat, grasslands, and riparian areas in the state of North Dakota."

Appendix E



Environmental
Quality

918 E. Divide Avenue
Bismarck, North Dakota 58501
Phone: (701) 328 -5150
Fax: (701) 328-5200

Project Team

Title	Name	Signature
Watershed Coordinator	Kaylee Stein	
SAP Author	Jim Collins Jr.	
NPS Manager	Greg Sandness	
Program Manager	Aaron Larsen	

QUALITY CONTROL/QUALITY ASSURANCE DOCUMENTATION

Title: Upper Spring Creek Watershed Implementation Project SAP
 Type: Sampling and Analysis Plan (SAP) – Effective March 11, 2021 thru October 31, 2022
 Version: 0
 Date: 04/05/2020
 Author: Jim Collins Jr.
 Project Code: RNIUPSPR

REVISION HISTORY

Revision	Change Description	Date	Authorization
0	Document Creation: Revision Tracking Initiated	03/11/2021	

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1. Monitoring Goals and Objectives

The goal of this sampling and analysis plan (SAP) is to assess the water quality trends in Upper Spring Creek and its tributaries and determine if the riparian habitat and beneficial uses of being restored through implementation of best management practices (BMPs). The effective period for the SAP is March 2021 – October 2022.

Monitoring objectives for this project will provide data to be used for assessment and trends and evaluation of the Total Maximum Daily Load (TMDL) report for Upper Spring Creek.

Specific Objectives:

- Collect water quality samples from two (2) STORET sites for current water quality conditions
 - A minimum of five (5) samples per month from Upper Spring Creek stream sites will be collected and analyzed *E. coli* bacteria.

2. Project Area Description

The Upper and Lower Spring Creek is a sub-watershed of the 8-digit Hydraulic Unit Code (HUC) Knife River Watershed (10130201 HUC) (Appendix A).

The Upper Spring Creek Watershed Project is designed to provide technical, financial and educational assistance to landowners within the watershed. The major goal of the project is to achieve and maintain “fully supporting” status for recreational uses of the Upper Spring Creek watershed by decreasing the annual *Escherichia coli* bacteria (*E. coli*.) entering the creek and restoring riparian habitat.

3. Project Contacts

Table 1. Sampling Project Contacts

Name	Role	Email	Phone
Kaylee Stein	Watershed Coordinator	Kaylee.Stein@nd.nacdnet.net	701-764-5646
Jim Collins Jr.	Sampling Plan Author	jcollins@nd.gov	701-328-5161
Greg Sandness	NPS Program Manager	gsandnes@nd.gov	701-328-5232

4. Dunn County Soil Conservation District (SCD) Roles and Responsibilities

The SCD watershed coordinator will conduct the water quality sampling following established NDDEQ standard operating procedures (SOPs). The specific SOP to follow:

- 7.08 Stream or River Grab Sample

The NDDEQ SOPs are managed by Watershed Management Program (WMP) staff. For latest versions visit <https://tinyurl.com/WMPMonit> or contact WMP staff.

Specifically, the sampling coordinator or SCD, collect and preserve samples for,

- E. coli bacteria

If the sampling coordinator needs more supplies, they will contact the NDDEQ in time to ensure delivery of supplies before the next scheduled sampling event.

Samples will be mailed to:

NDDEQ - Division of Chemistry
2635 East Main
Bismarck, ND 58501
Phone 701-328-6140

- E. Coli Bacteria samples need to be delivered to the NDDEQ Division of Laboratory Service within **48 hours of collection.**
- E Coli. Samples will not be accepted on **Fridays or Holidays.**

5. Sampling Locations

Currently, two stream water quality monitoring stations have been established by NDDEQ. (Appendix A).

Table 2. Sampling Locations

STORET Site	Description
385416	Upper Stream - 0.5 Mi S of Dunn Center
385417	Down Stream - 3 Mi W, 1.5 N of Dodge

6. Sampling Parameters and Frequency

Table 3. Sampling Frequency for Spiritwood Lake Monitoring Sites.

Parameter	Period	Approximate Dates	Frequency
E. Coli bacteria	Open, flowing water	May 1 - September 30 each year	Weekly during recreation season
<p>Duplicate Samples Duplicate samples will be collected and submitted for the first sample and every 10th consecutive sample. The bottle will be identified by the Site Number - 389999 in addition to the site it is a duplicate for.</p>			
<p>Note: The sampling schedule is primarily a guide and the dates may differ under actual conditions. Under NO conditions will the safety of the sampler be compromised!</p>			

7. Sampling Preservation and Holding Times

Table 4. Sample Parameters, Bottle Size and Preservation Methods.

Sites	Sample Type	Analyte Group	Bottle Size	Preservative	Agency
385416 385417	E. Coli Bacteria	33130	120 mL	Chill	SCD
<p>Holding time shall not exceed 48 hours for bacteria samples.</p>					

8. Field Equipment

- | | |
|---------------------------------|--|
| 1) Clear Tape for Bottle Labels | 7) Freezer Packs |
| 2) Mailing Labels | 8) Pencils |
| 3) Long-handled dipper | 11) Bottles and Preservatives ² |
| 4) 2-Gallon non-metallic bucket | 12) Field Logs ² |
| 5) Latex Gloves | 13) Custody Forms ² |
| 6) Coolers | 14) Bottle Labels ² |
- ²supplied by the NDDEQ

9. Health & Safety

Safety is always a primary concern and in all sampling situations for field personnel. In any marginal or questionable situation, monitoring personnel (samplers) are required to assume

worst case conditions and use safety precautions and equipment appropriate to that situation. Samplers who encounter conditions which in their best professional judgment may exceed the protection of their safety equipment (PFD, waders, boat, etc.) or may in any way represent a potential hazard to human health and safety (high water levels, ice, etc.) should immediately leave the area and sample at another safer time.

In marginal conditions, it is recommended that there be a minimum of two sampling personnel present in the field. Samplers will wash hands and arms thoroughly with bacterial soap after sampling, before eating and drinking and at the end of the sampling run.

Before heading out to sample, samplers should inform a family member, friend or supervisor when they are leaving for the field and their estimated time of return. Samplers are strongly encouraged to carry a cell phone. In case of emergency call 911.

General safety steps should be followed when on site. Wearing proper equipment (proper shoes or waders, PFD, etc.) and bringing a first aid kit is essential. Identify potential hazards (steep cliffs, barbed wire, broken glass, etc.) both on land and in the water. Follow the general standard that water flows above 1 cfs or that are deeper than knee depth can be hazardous.

10. Decontamination

Upper Spring Creek is not currently in an area of concern for Aquatic Nuisance Species, therefore decontamination of equipment is not currently required. If required, the NDDEQ follows the U.S. Geological Survey (USGS) recommendations for the cleaning, draining, and drying all equipment. For further instructions please contact WMP staff.

11. Methodologies

All samplers shall attend a training where they were instructed on proper techniques for sampling. Please refer to the NDDEQ Standard Operating Procedures (SOPs) if additional review is needed.

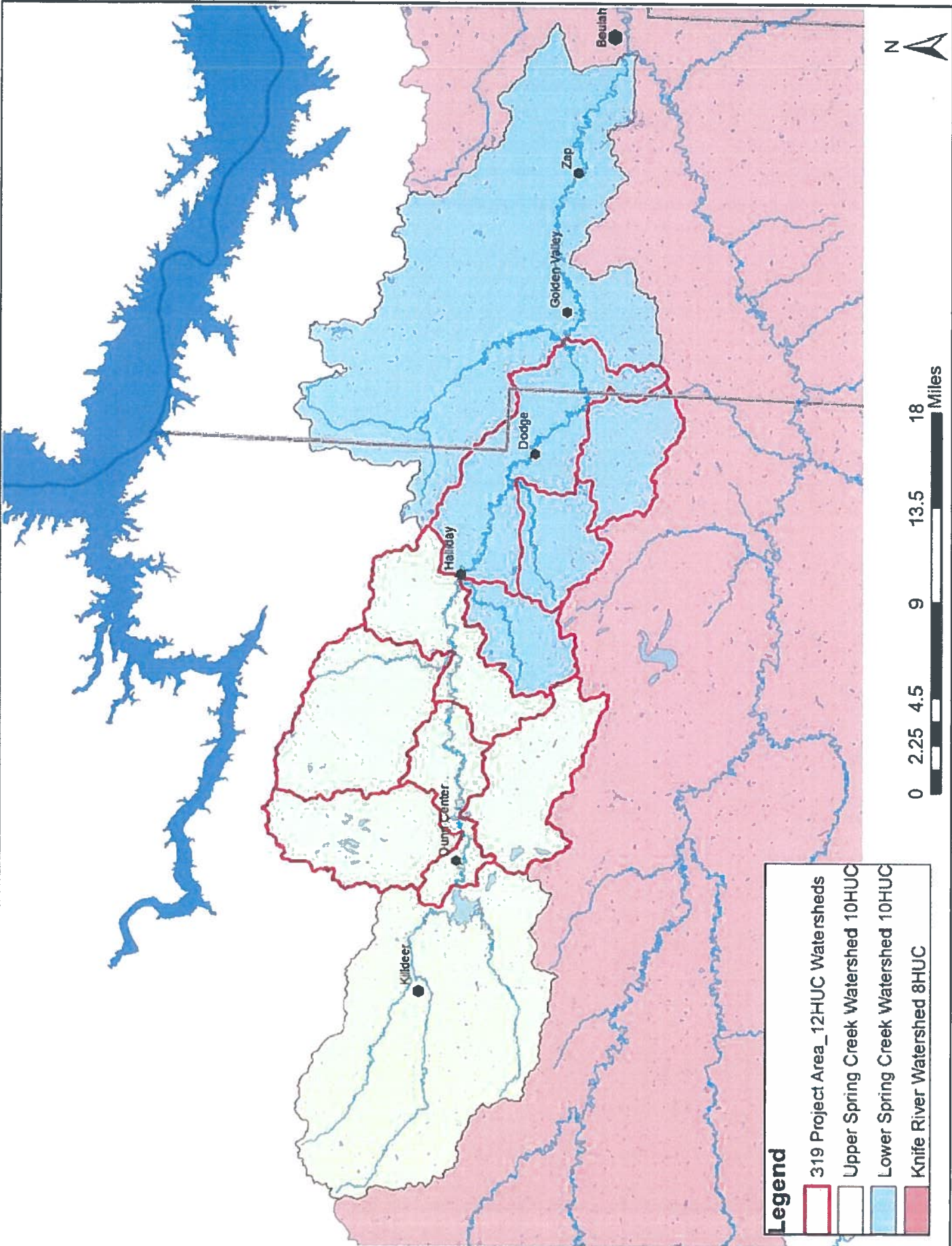
The NDDEQ SOPs are managed by Watershed Management Program (WMP) staff. For latest versions visit <https://tinyurl.com/WMPMonit> or contact WMP staff. Specific SOPs related to this project are listed in Section 4.

12. QAQC

Samplers are required to collect a duplicate sample on the first and every tenth sample to ensure QAQC.

APPENDIX A

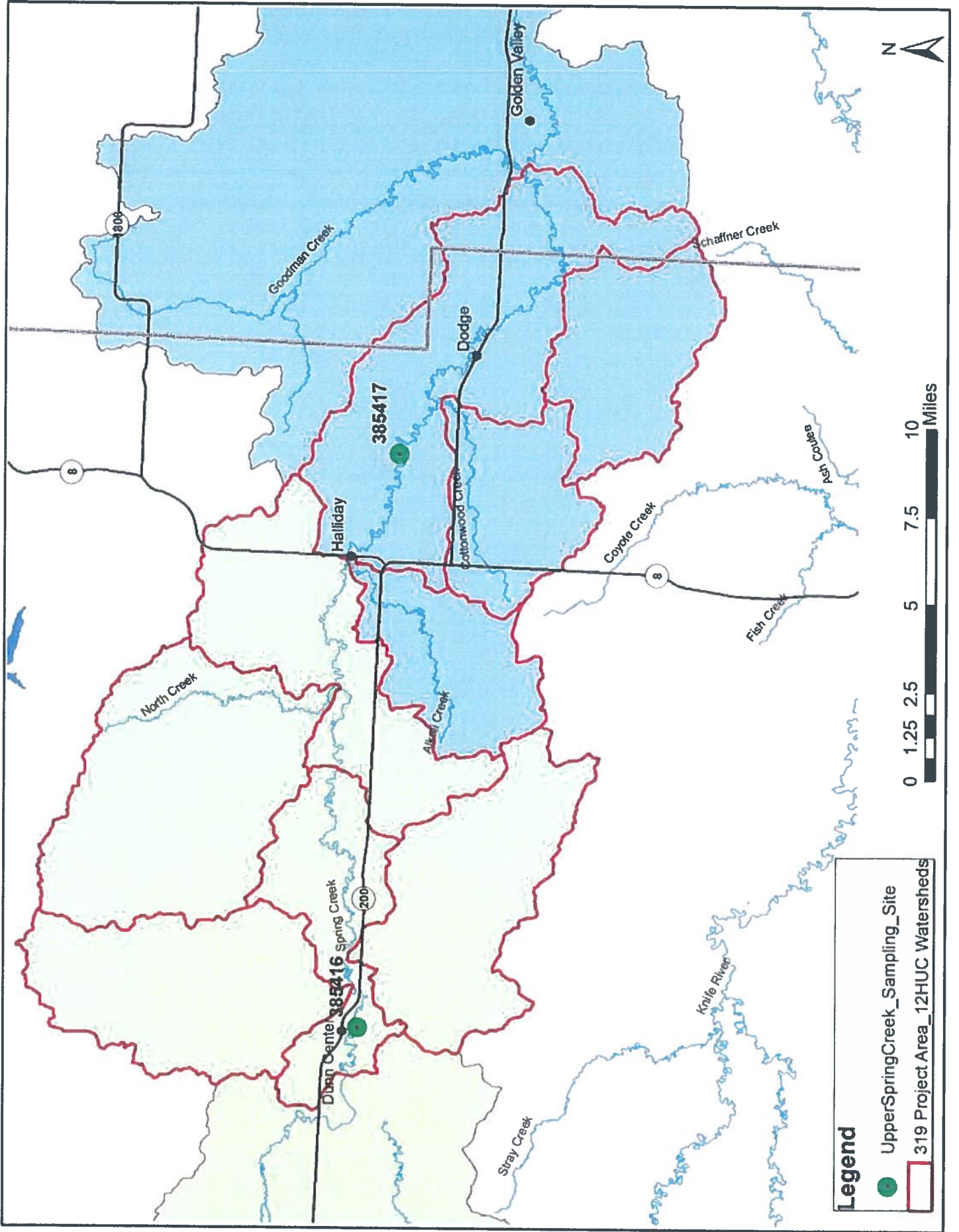
Maps



Legend

- 319 Project Area_12HUC Watersheds
- Upper Spring Creek Watershed 10HUC
- Lower Spring Creek Watershed 10HUC
- Knife River Watershed 8HUC





APPENDIX B
Forms

Sample Arrival Time-Stamp: _____

CUSTODY RECORD AND ANALYSIS REQUEST – Watershed Management Program

Account #	Project Codes	Project Name		FOR LABORATORY USE ONLY Nutrient/Nitrate bottle(s) checked for presentation by:	
DEQ Programs	DEQ Project #:	DEQ Cost Center #:	Point of Contact/DPM:		
Sampled By:	Sampler Phone #:		Temp of Cooler:		
Analysis Requested:	*Collection Method(s) (See Note)		Matrix: Soil Water Other (explain)	Enforcement? Yes No	

Lab ID <small>(Enter # from lids of samples here)</small>	Site ID/STORET #	Sample Location <small>(Lat Long or TRS)</small>	Sample Date	Sample Time	# of Bottles	Cooler #	Co-located Site ID and/or Comments	Depth in meters	Field Measurements
									Temp °C DO mg/L
									SC pH μ
									Temp °C DO mg/L
									SC pH μ
									Temp °C DO mg/L
									SC pH μ
									Temp °C DO mg/L
									SC pH μ
									Temp °C DO mg/L
									SC pH μ

* Collection Methods (Record Above): Depth Integrated (DI) ~ Depth/Width Integrated (DWI) ~ Grab ~ 0-2 meter column
When collecting lake samples, you **MUST** include the sampling depth(s).

Reinquished by	Date and Time	Received by	Date and Time