Begin here by typing in the year. Then tab or place your cursor in each gray shaded field as desired.

Federal Fiscal FY: 2012 **Today's Date**: February 1, 2012

Select project type from the drop-down box below:

Project Type: WATERSHEDS

PROJECT TITLE: Expansion-Continuation of the Upper Big Sioux River Watershed Project – Segment 6

PROJECT SPONSOR

NAME: City of Watertown

ADDRESS: City Hall

ADDRESS: 23 2nd St NE, PO Box 910

CITY: Watertown **STATE**: SD **ZIP**: 57201-0910

PHONE: 605-882-6200 **EXT:** 33

FAX: 605-882-5251 **E-MAIL**: rfoote@iw.net

PRIMARY CONTACT

NAME: Roger Foote **PHONE**: 605-882-5250 **EXT**:

SIGNATORY NAME: Mayor Gary Williams, City of Watertown **PHONE: 605-882-6200**

STATE CONTACT PERSON:

NAME: Ken Madison

PHONE: 605-882-5113 **EXT**:

FAX: 605-882-5066

E-MAIL: Ken.Madison@state.sd.us

CATEGORY & FUNCTIONAL CATEGORY

Drop-down lists. Please select up to 4 categories below.

NPS Category and Percent

The primary category of pollution is intended to identify the principal or main pollutant(s) the project is attempting to correct. The selections are obtained from a drop-down list associated with the data element.

NPS CATEGORY	Percent
AGRICULTURE	50
ANIMALFEEDING OPERATIONS	40
OTHER NPS POLLUTION	10

NPS Functional Category

These activities are intended to identify the principal or main approach, remedy, or solution to achieve the objective of the project. Selections are obtained from the drop-down list associated with the data element

NPS FUNCTIONAL CATEGORY OF ACTIVITY
BMP IMPLEMENTATION/DESIGN
RESTORATION/PROTECTION/PREVENTION
TECHNICAL ASSISTANCE
EDUCATION/INFORMATION PROGRAMS

WATERSHED NAME: Upper Big Sioux River Watershed

USGS HYDROLOGICAL UNIT CODE: 10170201

LATITUDE/LONGITUDE

Use degrees and decimals only. Do not put in degrees, minutes, seconds. For example: put in **45.55** rather than 45 deg 30 min 30 sec.

PROJECT LOCATION **LATITUDE**: **44.9317 N** **LONGITUDE**: **-97.2033 W**

WATERBODY TYPE INFORMATION

A name indicating the type of waterbody/watershed associated with the NPS project.

LAKES
RIVERS/STREAMS
WETLANDS
PONDS

TMDL AND CLEAN LAKES

A field that identifies the relationship of the given nonpoint source project's funding to total maximum daily load (TMDL) activities.

TMDL PRIORITY: **HIGH**

TMDL DEVELOPMENT?: **YES**

TMDL IMPLEMENTATION?: **YES**

CLEAN LAKES PROJECT?: **NO**

POLLUTANT TYPE

The name of the pollutant that the particular nonpoint source project is attempting to address. Selection of the pollutant is made from drop-down list.

Pollutants not listed in POLLUTANTS box if needed. Selection of the pollutant is made from the drop-down list.

POLLUTANTS:

PATHOGENS (COLIFORM)

PHOSPHORUS

TURBIDITY

ADDITIONAL POLLUTANTS:

SUSPENDED SOLIDS

FUNDING

PLEASE TAB OUT OF THE FIELD AFTER ENTRY

FY§319(h) BUDGET FUNDS: **$325,000**

NON-FEDERAL MATCHING FUNDS:

OTHER FEDERAL FUNDS: **$202,095**

STATE FUNDS: **$50,000**

LOCAL FUNDS: **$1,174,767**

TOTAL BUDGET: **$1,751,862**

OTHER FUNDS: City of Watertown: in kind match, Consolidated Grant

STATE 319(h) FTE's FUNDED UNDER THIS GRANT: **1.75**

GOALS AND PROJECT DESCRIPTION

Narrative fields used to provide the anticipated benefits and goals of the project and the project description.

GOALS: This project segment is a continuation program. The goal of this project segment is to improve the quality of the water entering the Big Sioux River and Lakes Kampeska and Pelican, and to continue restoration of the full beneficial uses of the lakes and river by reducing phosphorus and sediment loads.

PROJECT DESCRIPTION: The project is designed to continue to improve water quality of the Big Sioux River, Lakes Kampeska and Pelican by reducing nutrient and sediment loads originating from grazing and animal feeding operations, from crop ground and pasture lands caused by inappropriate application of manure or holding pond water, and from stream/river banks and lake shoreline.

NPS PROJECT SUMMARY SHEET

AWARD FISCAL YEAR _____FY2012_____

PROJECT TITLE: CONTINUATION, UPPER BIG SIOUX RIVER WATERSHED PROJECT SEGMENT 6

NAME: CITY OF WATERTOWN

ADDRESS: 23 2ND ST NE, P O BOX 910

CITY WATERTOWN, SD

ZIP 57201-0910

PHONE 605-882-5250 **FAX** 605-882-5251 **EMAIL** rfoote@iw.net

PROJECT TYPE: WATERSHED

LATITUDE: 44.9317 N **LONGITUDE**: -97.2033 W

WATERSHED NAME: UPPER BIG SIOUX RIVER WATERSHED, LAKES KAMPESKA AND PELICAN SUBWATERSHEDS

HYDROLOGIC UNIT CODE: 10170201

HIGH PRIORITY WATERSHED:YES **POLLUTANT TYPE** NUTRIENTS, SEDIMENT,AND BACTERIA

WA CATEGORY CATEGORY 1, WATERSHEDS IN NEED OF RESTORATION

TMDL DEVELOPMENT _____YES____ **TMDL IMPLEMENTATION** __YES____

TMDL PRIORITY ___HIGH_____

WATERBODY TYPES: LAKES, RIVERS, STREAMS, WETLANDS

ECOREGION: NORTHERN GLACIATED PLAINS

PROJECT CATEGORY: AGRICULTURE

PROJECT FUNCTIONAL CATEGORY: BMP IMPLEMENTATION/DESIGN

GROUNDWATER PROTECTION: NO

FY319(H) FUNDS REQUESTED (BASE) $325,000

MATCHING FUNDS: $1,224,767

§319 FUNDED FULL TIME PERSONNEL 1.75

GOALS: This project segment is a continuation program. The goal of this project segment is to improve the quality of the water entering the Big Sioux River and Lakes Kampeska and Pelican, and to continue restoration of the full beneficial uses of the lakes and river by reducing phosphorus and sediment loads.

PROJECT DESCRIPTION: The project is designed to continue to improve water quality of the Big Sioux River, Lakes Kampeska and Pelican by reducing nutrient and sediment loads originating from grazing and animal feeding operations, from crop ground and pasture lands caused by inappropriate application of manure or holding pond water, and from stream/river banks and lake shoreline.

2.0 STATEMENT OF NEED

2.1 This proposal continues the restoration effort initiated in 1994 for the Upper Big Sioux River Watershed and the immediate Lakes Kampeska and Pelican sub-basins. The Lake Kampeska Watershed Implementation Project begun in 1994 was expanded to include Pelican Lake and became the Upper Big Sioux River Watershed Project in 1996. The three waterbodies are located in the USGS hydrologic unit 10170201.

Water quality monitoring done in 2011 by the SD DENR shows low oxygen levels in the Big Sioux River from Ortley near the river headwaters to Lake Kampeska. The 2010 SD Integrated Report for Surface Water Quality Assessment ,(SDIRSWQA, Table 1) indicates that *Warm Water Semi-Permanent Fish Life Propagation* is impaired in Lake Pelican. The Upper Big Sioux River has an impaired *Warm Water Semi-permanent Fish Life Propagation* use and *Limited Contact Recreation* nonsupported designation. The Big Sioux River and Lake Pelican are included on the South Dakota Nonpoint Source Priority Waterbody List. Designated beneficial uses and impairment status of Lake Kampeska, Pelican Lake and the Big Sioux River have changed during the Upper Big Sioux River Watershed project implementation. Current status of designated uses listed in the 2010 SDIRSWQA shows project effectiveness by having uses removed from impaired status. (Table 1. Source: http://denr.sd.gov/documents/10irfinal.pdf)

Table 1. Designated Beneficial Uses of Lake Kampeska, Pelican Lake and the Big Sioux River

	Lake Kampeska		Lake Pelican		Big Sioux River	
Designated Use	Use	Impaired	Use	Impaired	Use	Impaired
Wildlife Propagation, Stock Water, Irrigation	YES	NO	YES	NO	YES	NO
Immersion Recreation	YES	NO	YES	NO	N/A	N/A
Limited Contact Recreation	YES	NO	YES	NO	YES	YES
Domestic Water Source	YES	NO	NO	N/A	NO	NO
Warm Water Permanent Fish Life Propagation	YES	NO	NO	N/A	N/A	N/A
Warm Water Semi-Permanent Fish Life Propagation	N/A	N/A	YES	YES	YES	YES

The Diagnostic/Feasibility Study (DENR, 1994) and the PL-566 River Basin Study (NRCS, 2000) identified two nonpoint source (NPS) pollutants, sediment and phosphorus, which became the project's focus. Sediment and phosphorus are in surface water runoff and also come from in-channel bank erosion in the watershed upstream from the receiving waters. Some coliform bacteria loading has been found near animal feeding operations. While the bacteria are found most often in close proximity to livestock operations, they are periodically found in Lakes Kampeska and Pelican.

2.2 Identification (See Appendix 1 – Watershed Maps)

The Big Sioux River (Hydrologic Unit Code: 10170201) from its headwaters near Summit, SD, south to and including Pelican Lake, drains a 245,399-acre watershed (USDA/NRCS 10/1996) in the Prairie Coteau Region of northeast South Dakota. Waters in the Upper Big Sioux River watershed exist in linear, riverine, temporary, seasonal, semi-permanent and permanent wetlands. Most of these wetlands have a direct connection with the Big Sioux shallow aquifer and water moves back and forth. Storm events of 10, 25, 50 and 100-year intensity occur within the watershed boundaries. The runoff carries with it quantities of sediment, phosphorus and

coliform bacteria. The origin of the pollutants has been identified as farming practices and livestock production in the watershed. (NRCS PL 566 Study, 2000)

Runoff drains to four tributaries: Mud Creek, Mahoney Creek, Soo Creek and Indian River on the eastern side of the watershed; and Still Lake on the west, through temporary or seasonal linear wetlands before entering the Big Sioux River.

Lake Pelican is located three miles south of Lake Kampeska. The major tributary to both lakes is the Big Sioux River.

2.3 **Maps. Appendix 1**: Watershed and Subwatersheds; **Appendix 2**: Tier 1 Feeding Operations and Water Sampling Sites; **Appendix** 3: First Occurrence of Aquifer; **Appendix 4**: Wellhead Protection areas in Codington & Grant Counties

2.4 Watershed General Information (Appendix 1—Watershed Maps)

The entire Prairie Coteau, including Lakes Kampeska and Pelican, are of glacial origin. Groundwater moves to and from the lakes by gravel channels that were formed by the retreating glacier melt. These gravel channels form the shallow Big Sioux aquifer, which is exposed to the surface in some areas. The Big Sioux River, as it winds through the watershed, directly connects the surface water and the aquifer and gathers the drainage from the subwatersheds. (Appendix 3—Aquifer)

During flood periods the lakes receive water from the Big Sioux River via their inlet/outlets, when the level of the river is higher than that of the lakes. When the water level of the river drops below that of the lakes, the reverse occurs and the lakes discharge water back into the river. The river high flow periods carry volumes of sediment and nutrients. These pollutants settle out and remain in the lakes while the cleaner water is discharged back into the river. Thus the pollutants accumulate in the lake. Both lakes have weir structures that divert low flow events downstream past the lakes.

The watershed contains mostly small- to medium-sized family farms. Many operators farm all available property, even in environmentally sensitive areas. At the beginning of the project, most cultivated lands were planted to wheat; currently these same fields are planted mostly to row crops of corn and beans. Producers who have enrolled in CRP programs in the past now farm the land as those contracts expire.

Average annual precipitation is 21-23 inches per year with an average evaporation of 41 inches per year. (http://efotg.sc.egov.usda.gov/references/public/SD/averageannlprecip.pdf) Actual rainfall amounts vary widely. Irrigation systems within the watershed area are center pivot systems that pump out of the shallow Big Sioux aquifer. As an example of how intimately connected the river and aquifer are, it is possible to watch the river levels drop over a couple of days when the irrigation pumps are running.

Animal agriculture is a large part of the businesses in the watershed area. Cattle producers are mostly cow/calf enterprises with background feeding of calves and some finishing operations. The producers who feed cattle exclusively tend to be in the 300-500 animal range; however, the trend is to increase numbers up to and exceeding the 999 Concentrated Animal Feeding Operation (CAFO) animal unit limit. With the current market value of lamb, the expectation is a

rise in numbers of the few sheep operations in the watershed. Equine trends are mainly recreational with a few specific training and breeding facilities.

Range condition is a concern in the watershed area. Currently conditions can be rated fair to poor with a few excellent exceptions. The rental price of pasture acres is driving the decline of range conditions. Producers are unsure whether they will be outbid for the rental of pastures in the following year; as a result, they over-utilize pastures to recoup perceived value. Conversion of pasture to row crops is increasing, driven by commodity prices.

Table 2. Project Area Land Ownership (NRCS PL566 Study, 2000)

Subwatershed	Total Acres	Private	Federal	State	Tribal
Upper Sioux	43,911	41,767	979	280	885
Indian River	24,972	24,872	100	0	0
Soo Creek	19,811	19,771	0	40	0
Mahoney Creek	15,206	15,072	0	134	0
Mud/Gravel	44,763	44,658	0	105	0
Middle Sioux	34,774	33,858	399	277	240
Still Lake	6,940	6,741	80	119	0
Lower Sioux	15,351	14,822	0	506	23
Lake Kampeska	17,278	17,223	0	55	0
Pelican Lake	17,326	16,426	0	900	0
Watertown	5,067	5,007	0	60	0
Totals	245,399	240,217	1558	2476	1148

Table 3. Land Use (NRCS PL566 Study, 2000)

Subwatershed	Acres	Crop Land		Range Land		Pasture Hay		CRP*		Wood Land		Other	
		%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres
Upper Sioux	43,911	55.5	24,371	25.7	11,286	4.8	2,107	7.6	3,337	0.9	395	5.5	2,415
Indian River	24,972	56.4	14,084	27.3	6,817	4.9	1,224	6.1	1,523	0.7	175	4.6	1,149
Soo Creek	19,811	63.4	12,560	24.7	4,893	5.5	1,090	0.3	59	1.3	258	4.8	951
Mahoney Creek	15,206	74.6	11,344	12.2	1,855	6.5	988	0.3	46	1.2	183	5.2	790
Mud/Gravel	44,763	62.7	28,066	23.8	10,654	5.5	2,462	1.0	448	2.0	895	5.0	2,238
Middle Sioux	34,774	65.9	22,916	17.4	6,051	5.7	1,982	5.1	1,773	1.0	348	4.9	1,704
Still Lake	6,940	59.7	4,143	18.3	1,270	5.2	361	4.9	340	0.8	56	11.1	770
Lower Sioux	15,351	69.1	10,608	14.4	2,211	6.0	921	0.4	61	1.0	153	9.1	1,397
Lake Kampeska	17,278	52.8	9,123	24.8	4,284	4.6	795	1.1	190	1.3	225	15.4	2,661
Pelican Lake	17,326	64.4	11,158	15.0	2,599	5.6	970	2.0	347	1.0	173	12.0	2,079
Watertown	5,067	26.6	1,348	31.7	1,608	2.3	117	1.0	52	1.4	70	37.0	1,872
Totals	245,399	61.0	149,721	21.8	53,528	5.3	13,017	3.3	8,176	1.2	2931	7.4	18,026

Land use in the study area was inventoried for each subwatershed and the entire study area.

2.5 Type of Watershed Quality Problem

Sediment and phosphorus are identified as the major pollutants of the Big Sioux River and Lakes Kampeska and Pelican ((D/F Study, DENR, 1994 and PL-566, NRCS, 2000). The reports state that lake loads are largely the result of agricultural activities in the watershed.

Subwatersheds Contribution (Appendix 1 Maps—Watersheds): According to watershed analyses completed during the 1989-2006 time period, the Upper Sioux River subwatershed contributes the greatest suspended solids load. However, because of its distance from the lake, it was not identified as a high priority subwatershed for restoration efforts. The analyses also indicated large loadings of suspended sediment from the Mud Creek subwatershed. A majority of these loadings do not enter Lake Kampeska, because Mud Creek joins the Big Sioux slightly below the Kampeska inlet/outlet. However, Mud Creek flows have an impact on Lake Pelican. The Middle Sioux subwatershed contributes the greatest sediment and nutrient load to Lake Kampeska. Mahoney Creek, Soo Creek, Indian River and the Upper Sioux are all confluent in the Middle Sioux subwatershed.

Water quality monitoring during 2011 has shown that dissolved oxygen levels in the Big Sioux River are often at low to impaired levels. Work is continuing to identify the sources of this low oxygen, so that best management practices can be developed to best correct impairments.

Phosphorus currently trapped in Lake Kampeska has no natural escape from the lake. As the flood waters advance and recede in the spring, the lake acts as a large settling basin for the river system. This process causes nutrients and sediment to build up within the lake. The phosphorus that is not dissolved is trapped in the sediment layer or is utilized by the naturally-occurring algae. As wind churns the lake, as low oxygen levels occur and as the algae die, much of the phosphorus becomes available again and the cycle repeats.

3.0 PROJECT DESCRIPTION

3.1 Project Goals

ENVIRONMENTAL

Restore and/or maintain beneficial uses of Lakes Kampeska, Pelican and the Upper Big Sioux River by reducing nutrient and sediment loads that contribute to their over-enrichment.

PROGRAMMATIC (BMPs)

This project is a continuation of a project to reduce phosphorus and sediment loads entering the Big Sioux River, Lakes Kampeska and Pelican. The goal is consistent with meeting targets set by the 1994 SD DENR Diagnostic/Feasibility Study, the 1995 Pelican Lake Assessment and the 2000 NRCS PL 566 River Basin Study.

Based on the studies, best management practices (BMPs) were recommended to help reduce sediment, nutrients and bacteria loads entering the Big Sioux River, Lakes Kampeska and Pelican from priority areas before attempting in-lake restoration activities such as sediment removal. The BMPs included:

- Lake shoreline stabilization/management
- Construction of small ponds
- Construction/repair of grassed waterways
- Filterstrips/grass seeding in riparian areas

- Construction of animal nutrient management systems
- Streambank stabilization
- Information/education programs
- Wetland restoration
- Promotion of Conservation Reserve Programs
- Identification of failing septic systems at Pelican Lake
- Investigation of feasibility of river flow control structures
- Investigation of feasibility of new lake outlet
- Consideration of selective in-lake sediment removal

3.2 Objectives And Tasks

Quantities and costs: Section 3.3,Table 4 Milestones; Section 6.0, Tables 5 & 6 Budget

Objective 1. Reduce phosphorus loads entering the Big Sioux River, Lakes Kampeska and Pelican by 2,105 lbs. per year.

.

Task 1. Reduce nutrient loads to the Big Sioux River, Lakes Kampeska and Pelican by reducing loads originating from grazing and animal feeding operations. Loads will be calculated using the STEPL model.

Products:
Install animal nutrient management systems on priority construction sites that have been rated by SD DENR staff as having a Tier 1 ranking (Appendix 2 Maps—Tier 1 Feeding Operations). Enroll 3,000 acres of riparian area management/buffers along the Big Sioux River corridor and major tributaries. Encourage enrollment of marginal pastureland into the NRCS Conservation Reserve Programs. Landowners will be responsible for 25% of the total cost of the systems**.**

Cost: $868,822 **EPA**: $45,150

Task 2. Reduce nutrient loads to the Big Sioux River, Lakes Kampeska and Pelican by reducing loads originating from crop ground and pasture lands caused by inappropriate application of manure or holding pond water.

Products:
Provide technical assistance to operators during calibration of spreaders for land application of animal waste-based nutrients and technical assistance in developing nutrient management plans. Landowners will be responsible for 100% of the total cost of the systems**.**

Cost: Landowner Expense

Task 3. Reduce nutrient loads to Lake Kampeska by retrofitting and operating the existing decommissioned Lake Kampeska water filtration plant to grow and harvest algae. This system has the potential to remove 1,000 lbs. of total phosphorus per year.

Products
The existing water filtration plant will be modified to remove excess phosphorus from the lake by feeding it to the algae. By providing and controlling the basic ingredients for algae growth, light, nutrients and carbon dioxide, production can be maximized. The

process involves circulating raw lake water into the algae production tanks where growth can be monitored and adjustments made. Next the water passes though the separation screens where excess algae can be harvested, then on to filters where suspended solids can be removed. The water is then returned to the lake. The EPA-requested money will fund operation of the plant during its initial three-year feasibility phase.

Cost: $290,000 **EPA**: $90,000

Objective 2. Reduce sediment loads entering the Big Sioux River, Lakes Kampeska and Pelican by 1,390 lbs. per year.

Task 4. Reduce sediment loads to the Big Sioux River, Lake Kampeska and Pelican Lake by reducing loads originating from crop and grazing lands, stream/river banks and lake shoreline. Enroll acres in riparian area management/buffers along the Big Sioux River corridor and major tributaries. Loads will be calculated using the STEPL model.

Products Install grassed waterways in crop land where drainage swales are susceptible to erosion, trapping sediments and filtering runoff. Install new dugouts and clean existing dugouts in range and pasture land. This will entrap sediment and provide livestock and wildlife water sources. Stabilize lake shoreline, primarily by rock rip-rap with additional landowner cost options for abutments. Stabilize streambanks by enrolling in RAM (Objective 1, Task 1, Product 2). Landowners will be responsible for a minimum of 25% of the total cost of the systems**.**

Cost: $243,395 **EPA:** $11,328

Objective 3. Information and Education

Task 5. Education activities will promote water quality improvement efforts. Information activities will keep watershed stakeholders, taxpayers, residents and others informed of the water quality improvement and the availability of water quality programs. Water quality improvement will be monitored through water quality sampling and analysis.

Products

Water Quality Monitoring

Scheduled sampling sources are located at two sites in each lake, collected mid-winter and mid-summer. Additional samples are collected at four locations on the Big Sioux River and at the lake inlet/outlets. River sampling begins with the spring thaw of snow and ice, and continues with rainfall events that cause runoff into the river. The sampling sites are at predetermined monitoring points. (See Appendix 2 Maps – Water Sampling Sites)

Analytical measurements include: alkalinity, pH, dissolved oxygen, ammonia, nitrates, total suspended solids, total Kjeldahl nitrogen, total phosphorus, total dissolved phosphorus and E. coli bacteria. Sample collection and handling will be accomplished in accordance with the South Dakota Department of Environment and Natural Resources Standard Operating Procedures for Field Samplers (June 2003). Sample analysis will be completed by the South Dakota State Health Lab, Pierre, South Dakota.

Newsletter: The project newsletters will continue to document project progress and provide information about water quality programs for cooperating producers and landowners in the watershed.

Education: Every effort will be made to reach out to students in the watershed. Emphasis will be on the importance of improving water quality and demonstrating monitoring procedures. Five public elementary school sixth grade classes and four or five private schools participate annually in a riparian outdoor education program in partnership with the Bramble Park Zoo Sixth Grade Environmental Days. There are partnership activities with the Lake Area Technical Institute Environmental Technology program, and with programs such as Roots 'N Shoots, Conservation Connection Day, RiverQuest, as well as activities tailored to individual teacher interests. Watertown city-wide opportunities include the Chamber of Commerce Adopt-A-First-Grade program, the annual Winter Farm Show, and Watertown Police Department National Night Out.

Conservation tours: Tours of watershed practices that have been completed are targeted to stakeholders, urban taxpayers who provide nonpoint source grant local match, and watershed producers and landowners. Cooperation with other watershed projects and environmental groups is ongoing.

Public Presentations and Outreach: Activities take place with service clubs and through partnership activities with entities such as the Lake Poinsett Watershed Project, the Northern Prairies Land Trust, the SD Grassland Coalition, the Codington Conservation District, and the SD Association of Conservation Districts. Seminars will be included in this product with in cooperation with and for local area groups. Purchased ads in news service agencies that include newspapers, radio, and television stations.

Cost $28,200 EPA $17,800

Objective 4. Reports: There will be three annual GRTS reports, a final report, and continuous GIS and Project Tracker updates.

3.3 Table 4. Milestones

GOAL/OBJECTIVE/TASK	Output	Responsible Groups		Year 1			Year 2			Year 3	
Objective 1 Reduce nutrient loads by 2,105 lbs/yr											
Task 1 Reduce nutrient loads from livestock											
Product 1 Animal Nutrient Mgt	3 units	1, 2, 3, 4, 5		1			1			1	
Product 2 Riparian Area Mgt	3,000 acres	1, 2, 4		1,000			1,000			1,000	
Task 2 Reduce nutrient loads from crop ground and pasture											
Product 3 Manure Application Mgt	6 units	1,2, 4, 6		2			2			2	
Task 3 Reduce nutrient loads from in-lake	1	1, 5					1				
Objective 2 Reduce sediment loads by 1,390 lbs/yr											
Task 4 Reduce sediment loads from crop and grazing											
Product 4 Grassed Waterway	6,800 feet	1, 2, 4		2,266			2,267			2,267	
Product 5 Small Ponds/Dams	10 units	1, 2		3			3			4	
Product 6 Riparian Area Mgt.		2									
Product 7 Shoreline Stabilization	1,000 feet	1, 2, 5		500			300			200	
Objective 3. Information and Education											
Task 5 Information and Education											
Product 8 Water Quality Monitoring	68 samples	1, 3		22			23			23	
Product 9 Newsletter	3	1		1			1			1	
Product 10 Education	60 units	1, 3, 5		20			20			20	
Product 11 Tours	3	1		1			1			1	
Product 12 Public Presentations & Outreach	10	1, 7		3			4			3	
Objective 4. Reports											
Task 6 Reports											
STEPL (monthly and annually)	Continuous	1									
GRTS annual Reports	3 Reports	1			1			1		1	
GIS location mapping	Continuous	1									
Final Report	1 Report	1									1
Group 1 - UBSRW Project Coordinator - project coordination, match tracking, and progress reporting to SD DENR											
Group 2 - Landowners in Upper Big Sioux River Watershed drainage											
Group 3 - SD Department of Environment and Natural Resources											
Group 4 - Natural Resources Conservation Service - Provide technical assistant to plan, design and implement BMPs											
Group 5 - City of Watertown - Local sponsor, with responsibilities for payments, audits, oversight											
Group 6 - CLEANmp Program / Environmental Resources Coalition											
Group 7 - Other (watershed projects, Cons. Districts, Cons. Groups)											

3.4 **Permits:** Section 401, 404, Floodplain Development and US Fish and Wildlife Service permits will be secured to construct animal nutrient management systems, grassed waterways, small ponds/dams and streambank/shoreline stabilization. When more than one acre of land will be disturbed during construction, a Storm Water Pollution Prevention Plan will be filed with the SD DENR. The project will comply with historic preservation requirements.

3.5 **Local Sponsor** The City of Watertown is the project sponsor. Lake Kampeska is completely within the city limits and Lake Pelican is partially within the city limits. The city has served as the sponsor for all previous project segments. An annual financial audit, which includes the watershed project expenses, is provided by the City of Watertown.

3.6 **Review and Oversight**. The project coordinator will be responsible for oversight on operation and maintenance of activities using project technical assistance or funding. The NRCS provides

oversight for construction practices that utilize their technicians. BMPs such as animal nutrient management systems require signed Operation & Maintenance contracts. BMPs and their components will be maintained by landowners based on the NRCS Field Office Technical Guide for length-of-life practice guidelines (http://efotg.sc.egov.usda.gov/treemenuFS.aspx). NOTE: The City of Watertown has a legal department if violations occur; currently these are handled in civil court. Water quality rule violations will be referred to the SD DENR.

4.0 COORDINATION PLAN

4.1 Project Management and Administration.

The City of Watertown (sponsor) provides coordination and administrative support for the project staff.

The project coordinator provides technical coordination and administrative functions. The coordinator is responsible for promoting the project products by educating and informing landowners about water quality programs. The coordinator will administer conservation programs, keep accounting and progress records, establish public relations programs, continue fundraising, provide regular news releases, represent the City of Watertown to organizations interested in project progress and supervise technical assistants. The coordinator will work with government agencies and non-governmental groups to maximize full utilization of available grant and cost share dollars.

A part-time administrative assistant provides support for project administration through accounting, record keeping and reporting, and assisting with daily correspondence with the public and the city finance office. The assistant keeps the database information current, assists in field surveys and helps with education and information activities.

4.2 Local Support For The Project

Local support for the project has been positive. Letters of support have been submitted to the SD DENR.

The Upper Big Sioux River Watershed Advisory Board consists of project area stakeholders. These include federal, state and private conservation agencies, local taxing authorities and landowners in the project area. Members include:

- City of Watertown and Watertown Municipal Utilities
- Codington & Grant County Commissions
- Codington and Grant Conservation Districts
- East Dakota Water Development District
- Kampeska Chapter Izaak Walton League
- Lake Kampeska Water Project District
- Lake Pelican Preservation Society
- Townships

The residents of the Upper Big Sioux River Watershed are committed to continuous efforts to maintain and restore the lakes and watershed to their designated uses and to protect drinking water quality.

4.3 Cooperating Organizations:

The SD Department of Environment and Natural Resources (SD DENR) will administer the project grant and provide technical assistance on matters pertaining to water quality.

The Natural Resources Conservation Service may provide technical assistance for project implementation. Additional technical assistance may be provided by the US Fish and Wildlife Service, SD Game, Fish and Parks and other identified sources to complete proposed BMP implementation.

The SD Animal Nutrient Management Team, Grassland Planning and Management Team, US Fish & Wildlife Service, and the SD Game, Fish and Parks Department will be utilized for design assistance.

Program coordination will occur through monthly meetings of the Upper Big Sioux River Watershed Advisory Board which serves at the pleasure of the Watertown City Council.

Cost share funding will be in partnership with the City of Watertown, Watertown Municipal Utilities, Lake Kampeska Water Project District, USDA Farm Service Agency programs, and watershed producers/landowners.

4.4 Coordination with Pertinent Projects

The Upper Big Sioux River Watershed Project will coordinate activities with other programs and projects in the area. Every effort will be made to avoid replication of Section 319 activities in the watershed that may be undertaken by other organizations. Information and Education programs will be coordinated with the SD DENR Nonpoint Source (NPS) Information and Education Program, and other associations in the region.

5.0 EVALUATION AND MONITORING PLAN

5.1 Monitoring and Evaluation will be continued from the approved Upper Big Sioux River Watershed Project Implementation Plan. Sampling will be completed in accordance with the EPA-approved "South Dakota Nonpoint Source Program Quality Assurance Project Plan" (QAPP) and the "Standard Operating Procedures For Field Samplers," SD DENR, June, 2003.

5.2 Monitoring

Water quality sampling and analysis will be conducted in conjunction with the SD DENR, the City of Watertown, the Lake Kampeska Water Project District, the SD State University Water Resources Institute, and the East Dakota Water Development District. Determination of whether TMDLs have been met will be made in cooperation with the SD DENR using the STEPL model.

5.3 Data Storage (how/when) All data collected will be identified with latitude and longitude for GPS location information. Reporting will be done through DENR Project Tracker program. Water quality data will be submitted to DENR.

5.4 Models to be used

The Spreadsheet Tool for Estimating Pollutant Load (STEPL) program calculates nutrient and sediment loads from different land uses and the load reductions that result from the implementation of best management practices (BMPs). It computes watershed surface runoff and nutrient loads, including nitrogen, phosphorus, and 5-day biological oxygen demand (BOD5). STEPL calculates sediment delivery based on land uses and management practices. For each subwatershed, the annual nutrient loading is determined based on the runoff volume and pollutant concentrations in the runoff water as influenced by land use distribution and management practices. The annual sediment load (sheet and rill erosion only) is calculated

based on the Universal Soil Loss Equation (USLE) and the sediment delivery ratio. The sediment and pollutant load reductions that result from the implementation of BMPs are computed using the known BMP efficiencies.

5.5 Options for long-term funding of the operation and maintenance (O&M) of restoration activities will be evaluated by the project sponsor. Each cooperator receives information on maintenance requirements for the intended life-span of each practice.

6.0 BUDGET

6.1 Table 5 Funding Sources

PART 1. FUNDING SOURCES	2012-2013	2013-2014	2014-2015	TOTAL
EPA SECTION 319 FUNDS	$108,500	$108,500	$108,000	$325,000
1) FY Funds (FA)				
2) Other Federal	$100,000	$100,000	$2,095	$202,095
SUBTOTAL	**$208,500**	**$208,500**	**$110,095**	**$527,095**
STATE AND LOCAL MATCH				
1) Clean Water State Revolving Funds	$16,500	$16,500	$17,000	$50,000
2) City of Watertown	$50,000	$50,000	$50,000	$150,000
3. Municipal Utilities	$90,000	$90,000	$90,000	$270,000
4. Lake Kampeska Water Project Dist	$34,000	$33,000	$33,000	$100,000
5) Landowner	$218,560	$218,560	$217,647	$654,767
SUBTOTAL	**$409,060**	**$408,060**	**$407,647**	**$1,224,767**
TOTAL	**$617,560**	**$616,560**	**$517,742**	**$1,751,862**

6.2 Table 6 Budget

UBSRWP BUDGET	2012/13	2013/14	2014/15	TOTAL COST	LOCAL MATCH	§319 FUNDS	OTHER FED	CLEAN WATER SRF	OWNER
PERSONNEL / ADMIN									
Salary/Benefits	$97,059	$99,971	$102,970	$300,000	$150,000	$150,000			
Misc. Exp	$7,148	$7,148	$7,149	$21,445	$10,723	$10,722			
SUBTOTAL	**$104,207**	**$107,119**	**$110,119**	**$321,445**	**$160,723**	**$160,722**			
OBJECTIVE 1 REDUCE NUTRIENT LOAD									
Animal Nutrient Management Systems	$236,000	$236,000	$236,672	$708,672	$200,617		$200,055		$308,000
Riparian Area Mgt	$54,000	$54,000	$52,150	$160,150	$30,000	$45,150		$50,000	$35,000
Manure App Mgt.									
In Lake Treatment	$230,000	$30,000	$30,000	$290,000		$90,000			$200,000
SUBTOTAL	**$520,000**	**$320,000**	**$318,822**	**$1,158,822**	**$230,617**	**$135,150**	**$200,055**	**$50,000**	**$543,000**
OBJECTIVE 2 REDUCE SEDIMENT LOAD									
Grassed Waterways	$6,800	$6,800	$6,800	$20,400	$13,260		$2,040		$5,100
Small Ponds	$7,665	$7,665	$7,665	$22,995	$5,000	$11,328			$6,667
Riparian Area Mgt.									
Shoreline Stabilization	$67,000	$67,000	$66,000	$200,000	$100,000				$100,000
SUBTOTAL	**$81,465**	**$81,465**	**$80,465**	**$243,395**	**$118,260**	**$11,328**	**$2,040**		**$111,767**
OBJECTIVE 3 INFORMATION AND EDUCATION									
Water Monitoring	$3,400	$3,400	$3,400	$10,200	$3,200	$7,000			
Newsletter	$1,000	$1,000	$1,000	$3,000	$1,000	$2,000			
Student Education	$250	$250	$250	$750	$500	$250			
Tours	$1,000	$1,000	$1,000	$3,000	$1,000	$2,000			
Seminars	$500	$500	$500	$1,500	$500	$1,000			
Outreach (Media)	$3,250	$3,250	$3,250	$9,750	$4,200	$5,550			
SUBTOTAL	**$9,400**	**$9,400**	**$9,400**	**$28,200**	**$10,400**	**$17,800**			
TOTAL	**$715,072**	**$517,984**	**$518,806**	**$1,751,862**	**$520,000**	**$325,000**	**$202,095**	**$50,000**	**$654,767**

7.0 PUBLIC INVOLVEMENT

The Upper Big Sioux River Watershed Project Advisory Board meets monthly and serves the City of Watertown in an advisory capacity. This volunteer board represents townships, counties, non-governmental organizations, agencies and the Watertown City Council. Other volunteers are used for water sample collection, survey assistance, information and education programs and as workshop and tour assistants.

8.0 THREATENED AND ENDANGERED SPECIES

The procedures that will be followed to ensure the project will not adversely affect threatened and endangered species are based on the following premises:

1. The best management practices to be implemented will promote the improvement of water quality, which will benefit threatened and endangered species that depend on water.
2. The occurrence of migratory endangered species is expected to be transitory, and if they are present, project activities will cease until they have left the area. The precautions that will be taken with respect to threatened and endangered species that could potentially be found in the area are as follows:

1. Whooping Crane

Whooping cranes are known to migrate through South Dakota. If a whooping crane(s) is observed at any project work site, all mechanical activities at the site will be suspended until the bird(s) leaves the site under its own volition. Spring and fall migrations of the species through the state occur during mid to late April and mid to late October.

2. Bald Eagle

The bald eagle can be found near water, primarily on river systems, large lakes, reservoirs, and coastal areas. Bald eagles typically prefer large trees for perching and roosting. As there is no confirmed documentation of bald eagles within the Upper Big Sioux River watershed, little or no impact to the species should occur. Best management practices should avoid the destruction of large trees that may be used as bald eagle perches, particularly if an eagle is observed using a tree as a perch or roost. No project activities are planned that will disturb possible nesting sites or reduce food sources. If any actions become necessary during the project that might impact bald eagles that are in or visit the area, the sponsor or its agent will contact the SD DENR for approval to complete the action before proceeding. If a bald eagle(s) is observed at any project work site, all mechanical activities at the site will be suspended until the bird(s) leaves the site under its own volition.

3. Western Prairie Fringed Orchid

At this time there are no documented populations of the western prairie fringed orchid in South Dakota. *Platanthera praeclara* grows up to four feet tall and has two dozen or more white to creamy colored, one inch long flowers on a stalk. This species is distinguished from eastern prairie fringed orchids by larger flowers, differing petal shape, and longer nectar spur. The flowers emerge in May, bloom from June to July, and are pollinated by sphinx moths. Fringed orchids are found in tall grass prairies, most often in moist habitats or sedge meadows, and require direct sunlight for growth. They persist in areas disturbed by light grazing, burning, or mowing. Western prairie fringed orchids are known to have occurred from northeastern Oklahoma, within the Ark/Red, as well as locations in Kansas, Missouri, Nebraska, Iowa, Minnesota, and South Dakota. The greatest threat to the species is conversion of tall grass prairie to other land uses. If an orchid is observed at any project work site, all mechanical activities at the site will be suspended. Work will be altered or the plant(s) protected so no harm will come to it.