PROJECT SUMMARY SHEET

PROJECT TITLE NAME: Custer State Park Lakes Watershed Assessment Project
NAME AND ADDRESS OF LEAD PROJECT SPONSOR:

Black Hills Resource Conservation & Development
1530 Samco Road, Suite 4
Rapid City, SD 57702-8007

STATE CONTACT PERSON: Alan Wittmuss TITLE: Environmental Program Scientist

PHONE: (605)394-2229 FAX: (605)394-5317

STATE: South Dakota WATERSHED: Cheyenne River Basin

PROJECT TYPES : [] BASE [x] WATERSHED [] GROUNDWATER [] I&E

WATERBODY TYPES	NPS CATEGORY
[ ] Groundwater	[x] Agriculture
[x] Lakes/Reservoirs	[ ] Urban Runoff
[ ] Rivers	[x] Silviculture
[x] Streams	[ ] Construction
[ ] Wetlands	[ ] Resource Extraction
[ ] Other	[ ] Stowage and Land Disposal
	[ ] Hydrologic Modification
	[ ] Other

PROJECT LATITUDE LONGITUDE

SUMMARIZATION OF MAJOR GOALS:

The long term goal of the Custer State Park Lakes Watershed Assessment Project is to locate and document sources of nonpoint source pollution in the watersheds and produce feasible restoration alternatives in order to provide adequate background information needed to drive watershed implementation projects to improve sedimentation and nutrient problems with the three lakes located within Custer State Park. This project will result in TMDL reports for three 303(d) listed waters.

PROJECT DESCRIPTION:

The Black Hills Resource Conservation and Development District (BHRC&D) is a special purpose political board consisting of representatives from Butte, Custer, Fall River, Lawrence, Meade, and Pennington Counties. Included in Custer County located within the boundaries of the BHRC&D is Custer State Park where three small reservoirs are included in the South Dakota 303(d) list of impaired waters. The purpose of this project is to assess these three small reservoirs and their watersheds in the BHRC&D area. The waters to be assessed include Sylvan Lake, Legion Lake, and Center Lake. The watershed sizes for these lakes 562 acres, 1725 acres, and 6,067 acres for Sylvan, Legion, and Center, respectively. This total project will be a one year effort. All of the watersheds for the lakes are within Custer State Park and are heavily forested with scattered campgrounds and small resorts within the watersheds.

This project is intended to be the initial phase of a series of watershed wide restoration projects. Through water quality monitoring, stream gauging, stream channel analysis and land use analysis, the sources of impairment to the streams, lakes, and watersheds will be documented and feasible alternatives for restoration will be presented in the final project reports. Each lake will have an individual final project and TMDL report.

FY00 319 funds requested $62,040 Match $33,940
Other Federal Funds $ 0 Total project cost $95,980

2.0 STATEMENT OF NEED

2.1 The purpose of this Pre-Implementation Assessment is to determine the sources of impairments to Sylvan Lake, Legion Lake, and Center Lake in Custer State Park in the Black Hills of South Dakota, and the tributaries in their watersheds. The watersheds ultimately drain to the Cheyenne River. The creeks and small tributaries are streams with loadings of sediment, and nutrients related to snowmelt or rainfall events. These three small reservoirs also exhibit thermal stratification during the year resulting in hypolimnetic anoxia which may be causing the release of phosphorus from the sediments

2.2 All of the watershed streams drain heavily forested areas within the State Park. The streams carry sediment loads and nutrient loads, which degrade water quality in the small reservoirs, and cause increased eutrophication. These three small reservoirs also stratify during the summer resulting in hypolimnetic anoxia which may be recycling phosphorus that has been attached to the surficial sediments.

The surface watershed area for Sylvan Lake is approximately 562 acres, Legion Lake watershed is approximately 1,725 acres, and Center Lake watershed is approximately 6,067 acres.

Local communities in the project area include Custer State Park which is approximately 73,000 acres and had an annual visitation of XXXX in 1999. This State Park is a very well-known park and is heavily visited throughout the year. There are small resorts on Sylvan Lake and Legion Lake and there is a large campground on Center Lake.

2.3 See map in Figure 1.

2.4 Land use in the watersheds is primarily recreational with a large population of buffalo which can and do graze near the small reservoirs. There is no resource extraction located within the park. The heavily forested areas may be subject to fire during dry periods of the year. However, large forest fires have not occurred since 1989. The campgrounds and resorts located on the immediate shores of the small reservoirs may be a source of nonpoint source pollution.

Major soil associations found in the watersheds include Canyon-Rockoa-Rock Outcrop, Nevee-Gypnevee-Rekop, Vanocker-Sawdust-Paunsaugunt, Stovho-Trebor, Pactola-Rock Outcrop-Virkula, Buska-Mocmont-Rock Outcrop, Heely-Cordeston, Grummit-Arvada.

The average annual precipitation in the project area is 18 inches of which 75% usually falls in April through September. Tornadoes and severe thunderstorms strike occasionally. These storms are local and of short duration and occasionally produce heavy rain fall events. The average seasonal snowfall is 45 inches per year.

Center lake Watershed

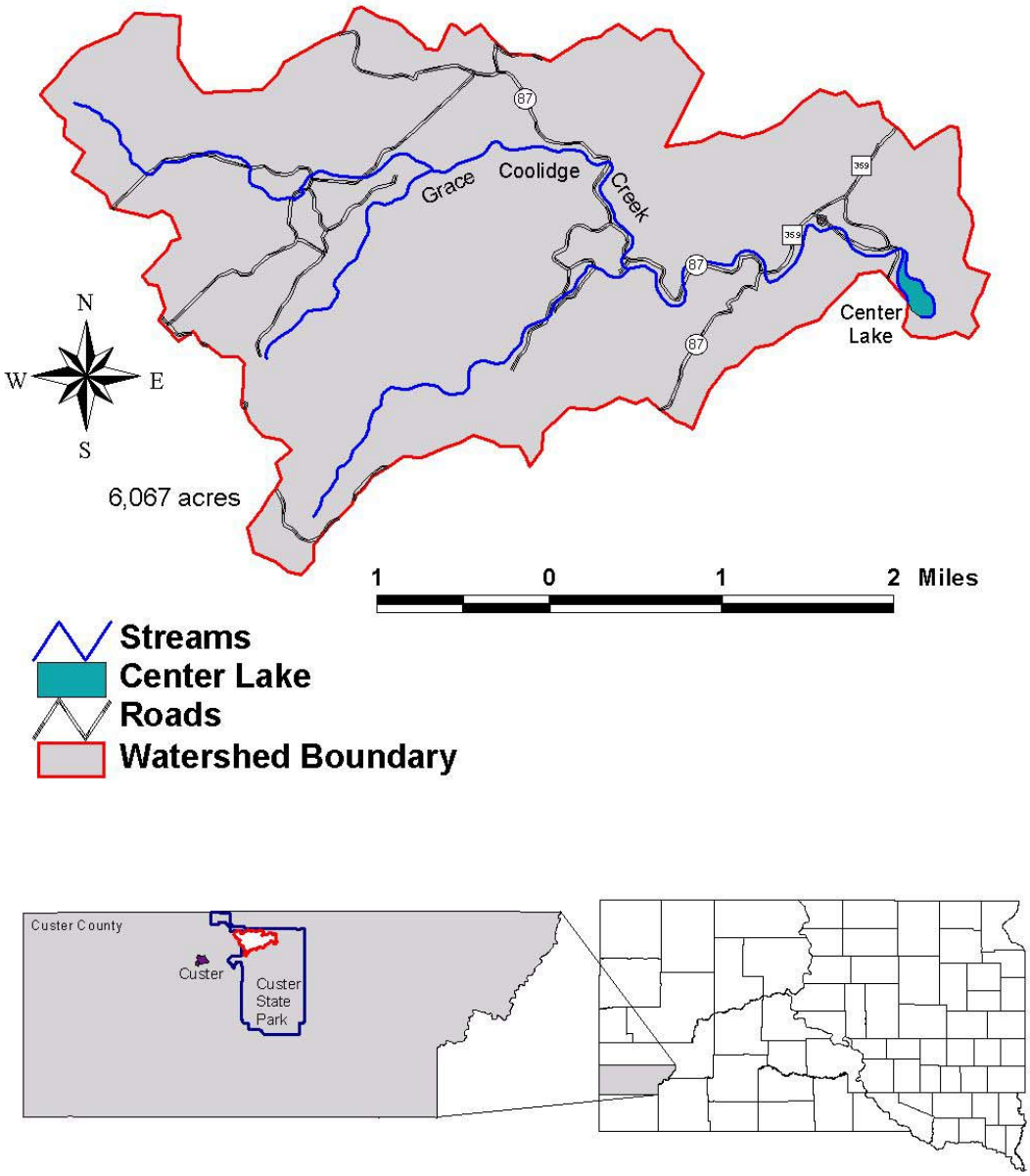


Figure 1a.

Legion Lake Watershed

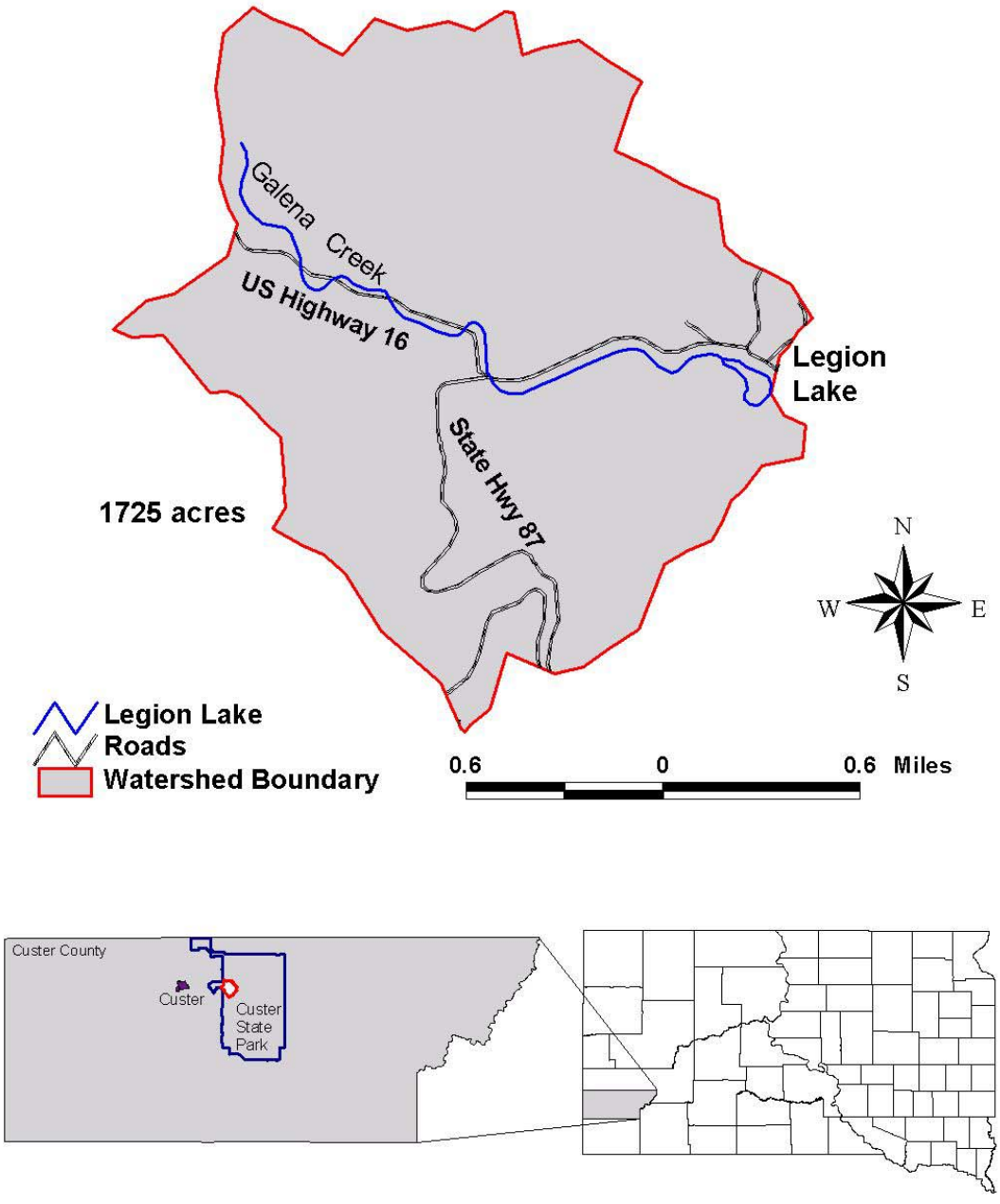
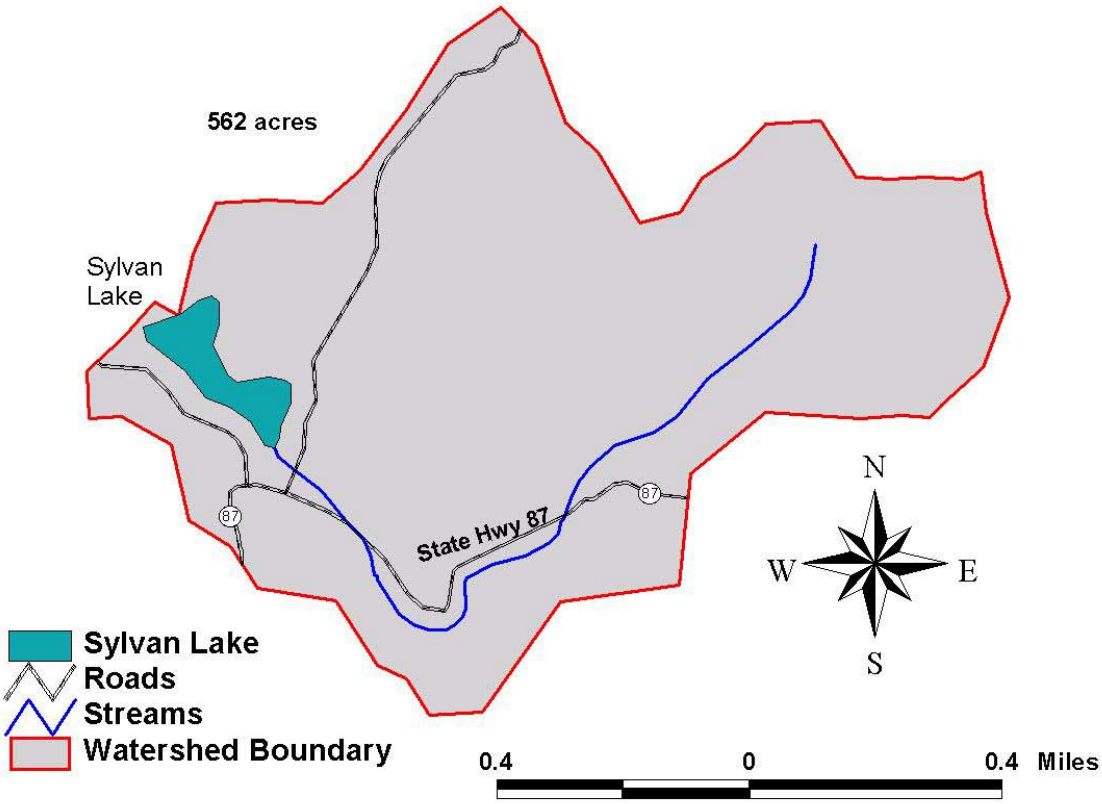


Figure 1b.

Sylvan Lake Watershed



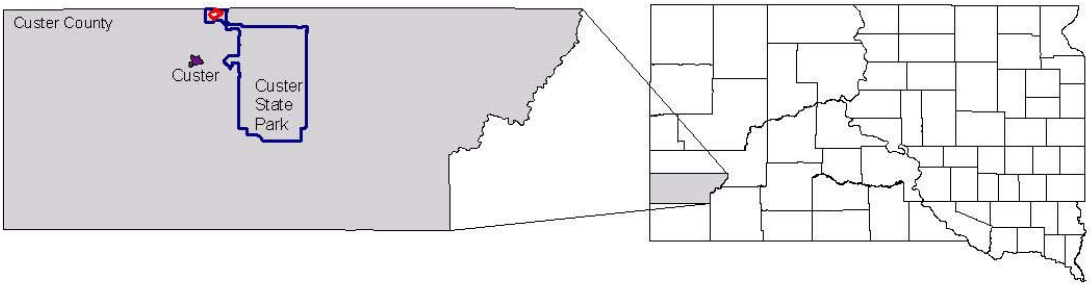


Figure 1c.

French Creek and Spring Creek are the major drainageways in the project area. Land elevation ranges from about 4600 feet msl near Center Lake to about 6200 msl within the Sylvan Lake Watershed.

2.5 The purpose of this assessment is to develop restoration alternatives for the three small reservoirs and their watersheds and serve as the foundation of a Section 319 implementation project.

3.0 PROJECT DESCRIPTION

3.1 GOALS

The goal of this assessment project is to determine and document sources of impairments to the watersheds of Sylvan Lake, Legion Lake, and Center Lake and to develop feasible alternatives for restoration.

3.2 OBJECTIVES AND TASKS

OBJECTIVE 1: The objective of this task is to determine current conditions in the lakes and calculate the trophic state of each lake. This information will be used to determine the total amount nutrient trapping that is occurring in each of the lakes, the amount of phosphorus released from the hypolimnion, and the amount of reduction of nutrients required to improve the trophic condition of the lakes.

Task 1. Nutrient and solids parameters will be sampled at a total of eight in-lake sampling sites which include all lakes in the project area. All samples will be analyzed by the South Dakota State Health Laboratory in Pierre. Samples will be collected from both the bottom and surface on the lakes in the project area once each month, except during periods of unsafe ice cover, for a period of 1 year, per lake. The total number of samples to be collected will be 192 for all lakes in the project area.

Task 2. The purpose of the in-lake samples is to assess ambient nutrient concentrations in the lake (bottom and surface) and identify trophic states. Water column dissolved oxygen and temperature profiles will be collected on a monthly basis (minimum). Water samples will be collected with a Van Dorn sampler and the sample bottles will be iced and shipped to the lab by the most rapid means available. Fecal coliform samples will be analyzed by the SD State Health Lab in Pierre. All other biological samples will be analyzed by staff from Watershed Protection in the Matthew Training Center Laboratory, Pierre, SD.

Task 3. All samples will be collected using the methods described in the Standard Operating Procedures for Field Samplers by the State of South

Dakota Clean Lakes Program. Figure 2 is a map of the lake sampling sites.

Figure 2a.

Legion Lake
Inlake Monitoring Sites

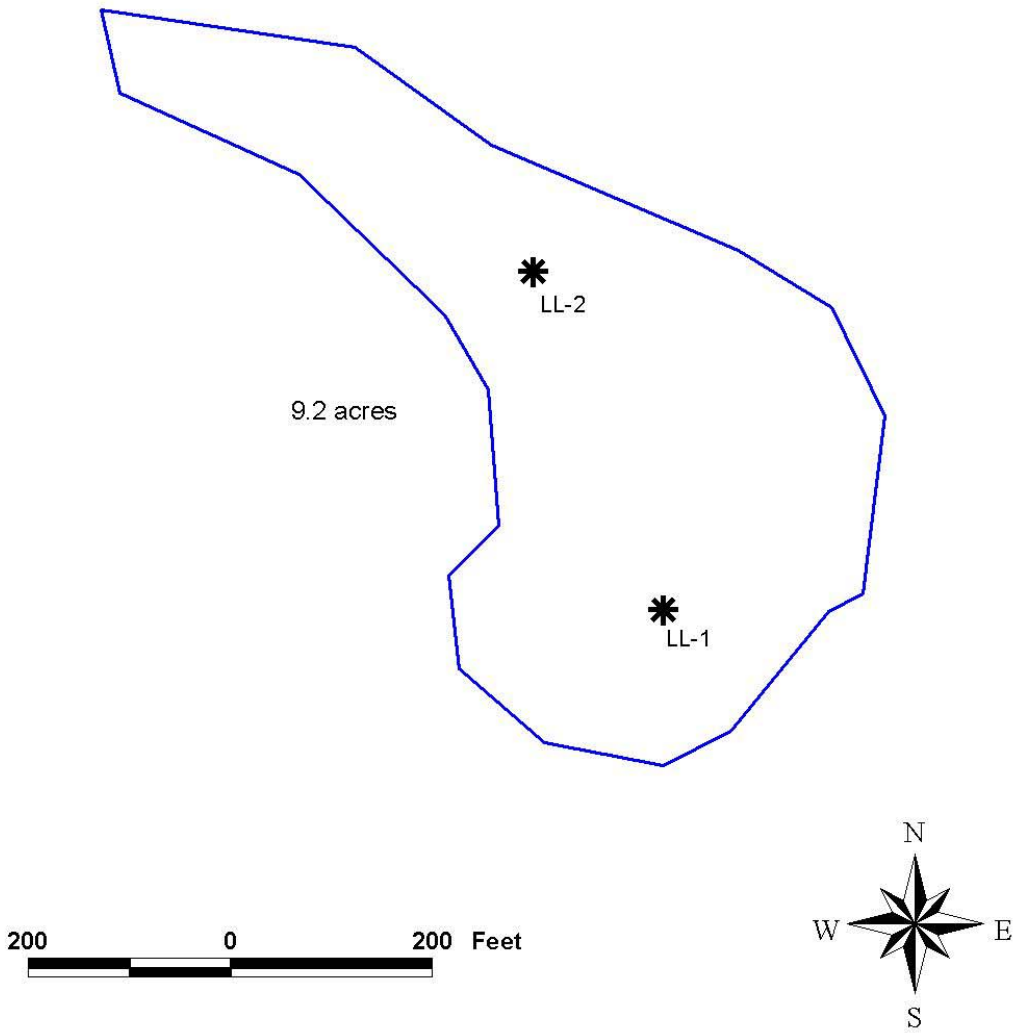


Figure 2b.

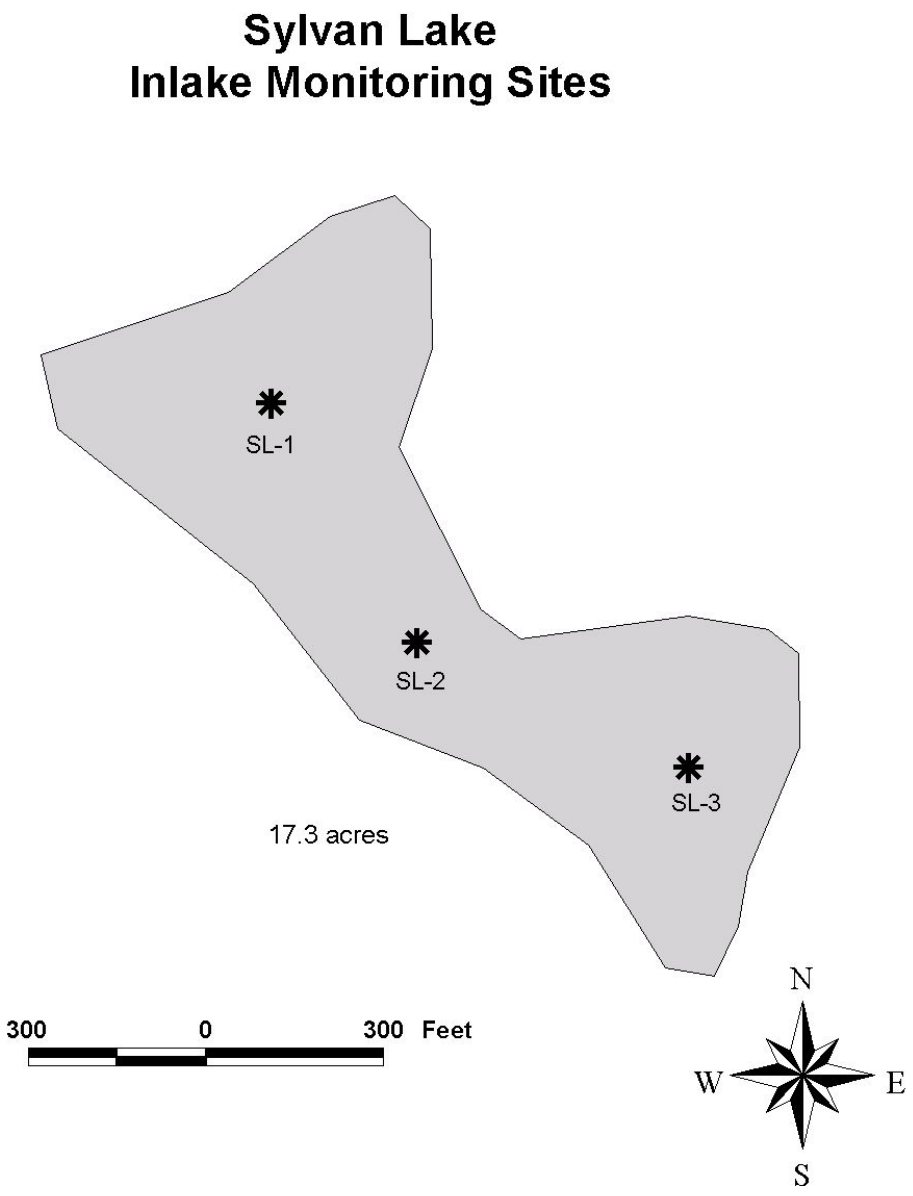

Sylvan Lake
Inlake Monitoring Sites
SL-1
SL-2
SL-3
17.3 acres
300
0
300 Feet
N
W
E
S

Figure 2c.

Lake Sampling Locations – Center Lake

SITE	LOCATION	
CL-1	Lat.	43.799467
	Long.	–103.415427
CL-2	Lat.	43.800855
	Long.	–103.416849
CL-3	Lat.	43.801971
	Long.	-103.418305

Lake Sampling Locations – Legion Lake

LL-1	Lat.	43.759704
	Long.	-103.462503
LL-2	Lat.	43.760633
	Long.	-103.462968

Lake Sampling Locations – Sylvan Lake

SL-1	Lat.	43.846851
	Long.	-103.564541
SL-2	Lat.	43.845737
	Long.	-103.563650
SL-3	Lat.	43.845131
	Long.	-103.561930

PARAMETERS MEASURED

Physical	Chemical	Biological
Air Temperature	Total Alkalinity	Fecal Coliform
Water Temperature	Field pH	Chlorophyll *a*
Secchi Transparency	Dissolved Oxygen	Algae Enumeration and I.D.
Depth	Total Solids	
Visual Observations	Total Dissolved Solids	
	Total Suspended Solids	
	Ammonia	
	Un-ionized Ammonia	
	Nitrate-Nitrite	
	Total Kjeldahl Nitrogen	
	Total Phosphorus	
	Total Dissolved Phosphorus	

Conductivity

C. OUTPUTS:

Three In-lake water quality reports.
Calculations of trophic state index using Carson's Trophic State Index.
Metric Analysis using Algal Counts & I.D.'s
Dissolved oxygen and temperature profiles.
Estimate the size of the hypolimnion for each lake
Estimates of internal loading from bottom sediments

D. BUDGET:

LINE ITEMS	NON-FEDERAL		FEDERAL
	CASH	IN-KIND	
Personnel (@ $13/hr)	**$8,112**		
Travel		**$300**	
Water Quality Analysis			**$18,720**
Supplies and Shipping			**$1,440**
Boat and Motor		**$1,275**	
Equipment			**$1,440**
Total	**$8,112**	**$1,575**	**$21,600**

RESPONSIBLE AGENCIES:

Task Prioritization:

Project Coordinator
Project Sponsor
South Dakota Game, Fish, and Parks

Design and Technical Assistance:

South Dakota Department of Environment and Natural Resources

OBJECTIVE 2: Estimate the sediment and nutrient loadings from the individual tributaries in the three watersheds through hydrologic and chemical monitoring. The information will be used to locate critical areas in the watershed to be targeted for implementation.

TASK 4 Install water level recorders on 10 tributary monitoring sites and maintain a continuous stage record for one year per watershed during the project period, with the exception of winter months after freeze up

Conduct grab sampling and instantaneous discharge measurements from an additional 8 smaller tributaries within the 3 watersheds (Figure 3).

Monitoring sites for the Center Lake Watershed:

Site	Location	
CLT-4	Lat.	43.809633
	Long.	-103.474767
CLT-5	Lat.	43.807542
	Long.	-103.474767
CLT-6	Lat.	43.800815
	Long.	-103.451016
CLT-7	Lat.	43.806920
	Long.	-103.454905
CLG-8	Lat.	43.805559
	Long.	-103.428753
CLG-9	Lat.	43.803800
	Long.	-103.417230
CLO-10	Lat.	43.798383
	Long.	-103.416595

Monitoring sites for the Legion Lake Watershed:

Site	Location	
LLT-3	Lat.	43.759063
	Long.	-103.482457
LLT-4	Lat.	43.761060
	Long.	-103.464999
LLG-5	Lat.	43.757641
	Long.	-103.481441
LLG-6	Lat.	43.760482
	Long.	-103.478859
LLG-7	Lat.	43.761975
	Long.	-103.472020

LLG-8	Lat.	43.761997
	Long.	-103.464894
LLG-9	Lat.	43.761205
	Long.	-103.462728
LLO-10	Lat.	43.759253
	Long.	-103.461564

Monitoring sites for the Sylvan Lake Watershed:

Site	Location	
SLT-4	Lat.	43.843430
	Long.	-103.561087
SLG-5	Lat.	43.843476
	Long.	-103.562319
SLO-6	Lat.	43.847234
	Long.	-103.564951

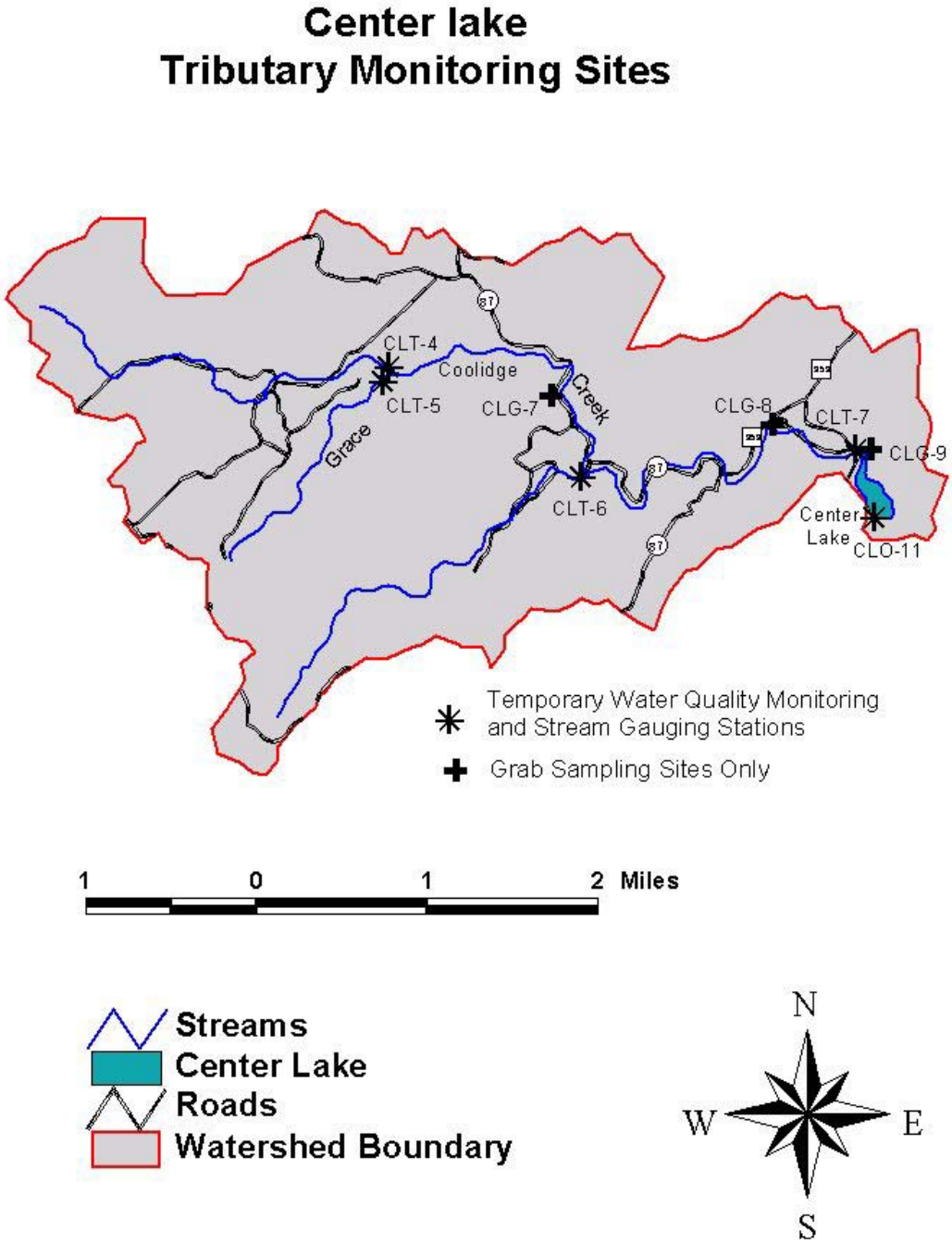

Center lake
Tributary Monitoring Sites
CLT-4
Coolidge
Creek
CLT-5
CLG-7
Grace
CLG-8
CLT-7
CLG-9
CLT-6
Center
Lake
CLO-11
Temporary Water Quality Monitoring
and Stream Gauging Stations
Grab Sampling Sites Only
1
0
1
2 Miles
Streams
Center Lake
Roads
Watershed Boundary
N
W
E
S

Figure 3a.

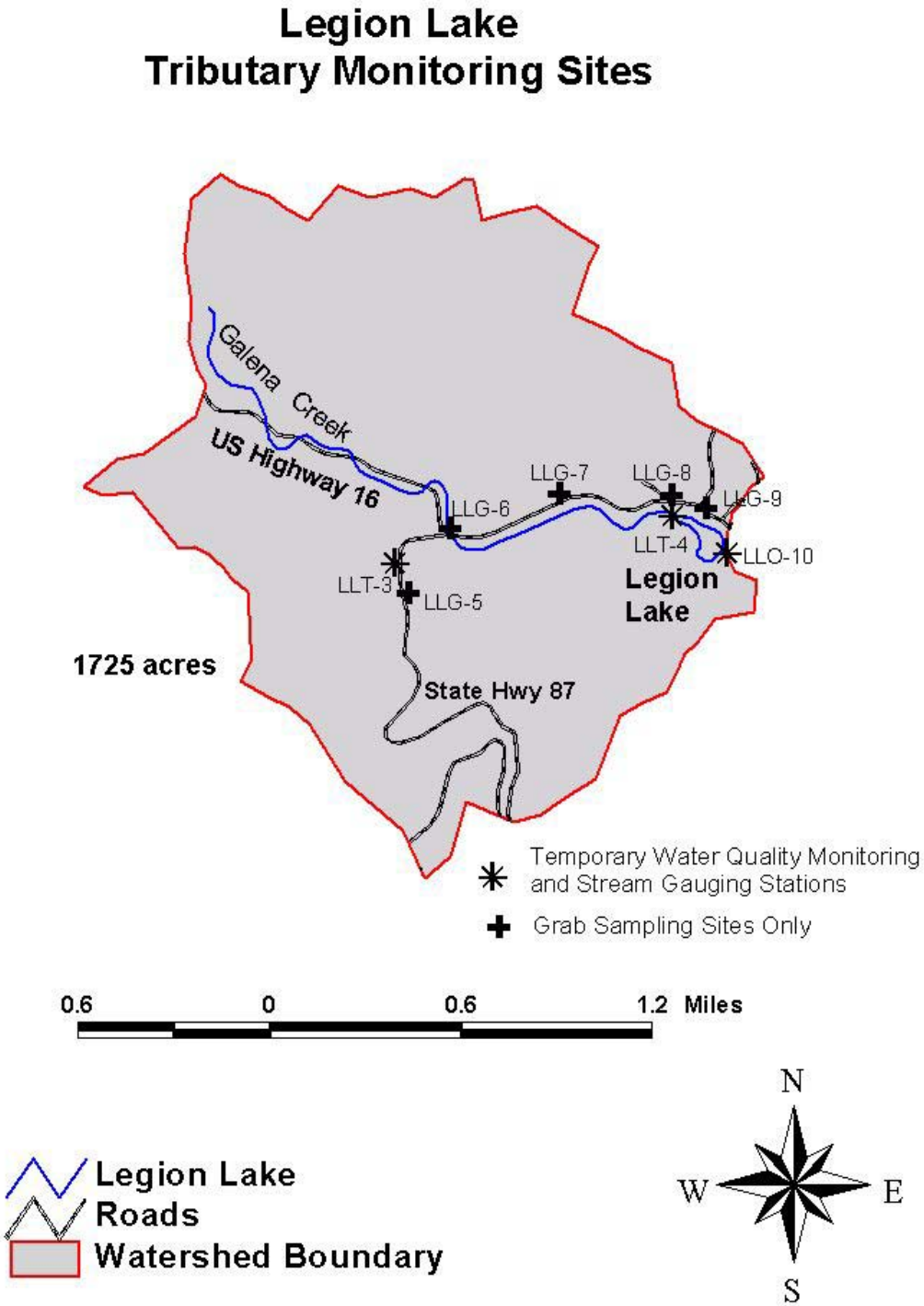

Legion Lake
Tributary Monitoring Sites
Galena Creek
US Highway 16
LLG-7
LLG-8
LLG-9
LLG-6
LLT-4
LLO-10
LLT-3
LLG-5
Legion Lake
1725 acres
State Hwy 87
Temporary Water Quality Monitoring and Stream Gauging Stations
Grab Sampling Sites Only
0.6
0
0.6
1.2 Miles
Legion Lake
Roads
Watershed Boundary
N
W
E
S

Figure 2b.

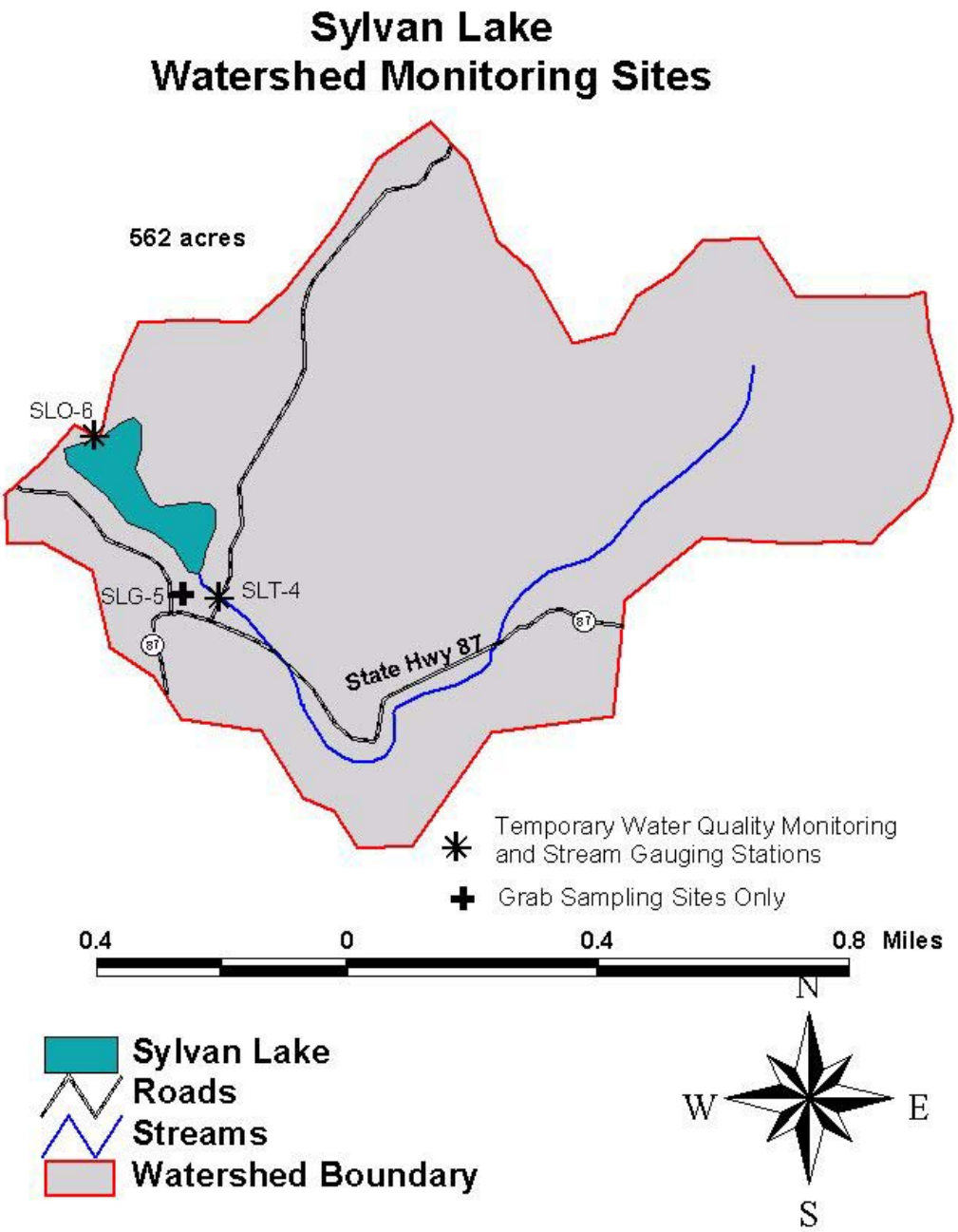

Sylvan Lake
Watershed Monitoring Sites
562 acres
SLO-6
SLG-5
SLT-4
87
State Hwy 87
Temporary Water Quality Monitoring and Stream Gauging Stations
Grab Sampling Sites Only
0.4
0
0.4
0.8 Miles
N
W
E
S
Sylvan Lake
Roads
Streams
Watershed Boundary

Figure 3c.

TASK 5 Discrete discharge measurements will be taken on a regular schedule and during storm surges. Discharge measurements will be taken with a hand held current velocity meter.

TASK 6 Discharge measurements and water level data will be used to calculate a hydrologic budget for the creek system. This information will be used with concentrations of sediment and nutrients to calculate loadings from the watershed.

TASK 7 Collect water quality samples from 18 tributary monitoring sites. Samples will be collected during spring runoff, storm events, and monthly base flows. Proposed water quality monitoring sites may be found in Figure 3.

PARAMETERS MEASURED FOR TRIBUTARY SAMPLES:

PHYSICAL	CHEMICAL	BIOLOGICAL
air temperature	total solids	fecal coliform bact.
water temperature	total susp. Solids	benthic macroinvertebrates
discharge	dissolved oxygen	
depth	ammonia	
visual observations	un-ionized ammonia	
water level	nitrate-nitrite	
	TKN	
	total phosphate	
	total dis. phosphate	
	field pH	

TASK 8 Samples will be collected twice weekly during the first week of spring snowmelt runoff and once a week thereafter until runoff ceases. Storm events and base flows will be sampled throughout the project period for an estimated total number of 155 samples.

TASK 9 Benthic macroinvertebrate samples will be collected from 1 to 4 tributary sites within each watershed. Five rock baskets will be used at each site and collections will occur during the summer. A total of 15 samples will be collected during the summer sampling period. All benthic samples will be collected in accordance the Standard Operating Procedures for the South Dakota Water Resources Assistance Program.

LINE ITEMS	NON-FEDERAL		FEDERAL
	CASH	IN-KIND	
Personnel (@ $13/hr)	$9,464		
Travel		$450	
Water Quality Analysis			$19,240

Supplies and Shipping			$1,480
Boat and Motor			
Equipment			$1,480
Biological Analysis			$6,700
Total	$9,464	$450	$28,900

QUALITY ASSURANCE/QUALITY CONTROL:

Approved QA/QC procedures will be utilized on all sampling and field data collection on the Custer State Park Lake and Watershed Assessment Project. Please refer to the South Dakota Watershed Protection Program Quality Assurance Project Plan for the details of the procedures to be followed.

PRODUCTS:

A tributary water quality report which will include a description of the relationship between and influence of chemical, physical, and biological (metrics) data. Hydrologic and nutrient loads will be calculated for the entire watershed.

RESPONSIBLE AGENCIES:

Task Prioritization:

Project Coordinator
Project Sponsor

Design and Technical Assistance:

South Dakota Department of Environment and Natural Resources

WORK ACTIVITIES:

Water samples will be collected with a suspended sediment sampler when possible. All sample bottles will be iced and shipped to the lab and collected using the methods described in the Standard Operating Procedures for Field Samplers by the State of South Dakota Watershed Protection Program. Nutrient and solids parameters will be sampled at 18 tributary sites in a total of three watersheds. All samples will be analyzed by the South Dakota State Health Laboratory in Pierre, SD. The watershed water quality data will be integrated together with the hydrologic loadings to provide a complete analysis of the three watershed hydrologic systems.

OBJECTIVE 3: Ensure that all water quality samples are accurate and defendable through the use of approved Quality Assurance/Quality Control procedures.

TASK 9 The collection of all field water quality data will be accomplished in accordance with the Standard Operating Procedures for Field Samplers, South Dakota Watershed Protection Program.

TASK 10 A minimum of 10 percent of all the water quality samples collected will be QA/QC samples. QA/QC samples will consist of field blanks and field duplicate samples. An estimated 69 samples will be collected during the project.

TASK 11 All QA/QC activities will be conducted in accordance with the Nonpoint Source Program Quality Assurance Project Plan.

TASK 12 The activities involved with QA/QC procedures and the results of QA/QC monitoring will be compiled and reported on in a section of the final project report and in all project reports.

LINE ITEMS	NON-FEDERAL		FEDERAL
	CASH	IN-KIND	
Personnel (@ $13/hr)	$2,704		
Travel		$500	
Water Quality Analysis			$7592
Supplies and Shipping			$584
Boat and Motor			
Equipment			$584
Biological Analysis			
Total	$2,704	$500	$8,760

PRODUCTS:

A Quality Assurance/Quality Control monitoring report.

RESPONSIBLE AGENCIES:

Task Prioritization:

Project Coordinator
Project Sponsor

Design and Technical Assistance:

South Dakota Department of Environment and Natural Resources

WORK ACTIVITIES:

Approved QA/QC will be utilized on all sampling and field data collected during the South Central Lakes project. Please refer to the South Dakota Watershed Protection

Program Quality Assurance Plan and the South Dakota Watershed Protection Program Standard Operating Procedures for Field Samplers for details of the procedures to be followed.

OBJECTIVE 4: Evaluation of landuse within each watershed and its impact on the stream and lake water quality of the watersheds through the use of the Bathtub, Profile, Flux model. The Revised Universal Soil Loss Equation (RUSLE) will be used to evaluate the landuse impacts by identifying areas which are susceptible to erosional processes within each watershed.

TASK 13 The Revised Universal Soil Loss Equation (RUSLE) will be used to evaluate the landuse impacts by identifying areas which are susceptible to erosional processes within each watershed. In addition a landuse inventory will include the parking lots and other impervious areas within the watershed so that and estimate of the contribution from these impervious areas can be documented.

TASK14 The Custer State Park Lakes and streams will be modeled using the Bathtub, Profile, Flux model. The basis of this model is to relate eutrophication symptoms to external nutrient loadings, hydrology, and reservoir morphometry using statistical processes. When applied to existing reservoirs, the models provide a framework for interpreting water quality monitoring data. This model will be used to predict the effects of future changes in external nutrient loadings how they will impact inlake phosphorus and chlorophyll *a* concentrations. A water quality database will be built based on the requirements for this model.

LINE ITEMS	NON-FEDERAL		FEDERAL
	CASH	IN-KIND	
Personnel (@ $13/hr)	$1,352		
Travel			$300
Water Quality Analysis			
Supplies and Shipping			
Boat and Motor			
Equipment			
BATHTUB Model			
Total	$1,352		$300

PRODUCTS:

Report on land use in the watershed.
Recommendations for remediation of pollution sources in the watershed.

RESPONSIBLE AGENCIES:

Task Prioritization:

Project Coordinator
Project Sponsor

Design and Technical Assistance:

South Dakota Department of Environment and Natural Resources

OBJECTIVE 5: Public participation and involvement will be provided for and encouraged.

TASK 15 Informational meetings will be held for the general public and to inform the involved parties of progress on the study. These meetings will provide an avenue for input from the residents in the area.

TASK 16 News releases will be prepared and released to local news media on a quarterly basis. These releases will be provided to local newspapers, radio stations and TV stations.

LINE ITEMS	NON-FEDERAL		FEDERAL
	CASH	IN-KIND	
Personnel (@ $24/hr)	$1,352		
Travel			
Water Quality Analysis			
Supplies and Shipping			
Boat and Motor			
Equipment			
Biological Analysis			
Public Meetings/News Releases			
Total	$1,352		

PRODUCTS:

Public input to the project.
Information and education about the project.
Involvement and/or input from the public will be documented.

RESPONSIBLE AGENCIES:

Task Prioritization:

Project Coordinator

Project Sponsor

Design and Technical Assistance:

South Dakota Department of Environment and Natural Resources

WORK ACTIVITIES:

Informational meetings will be held on a frequent basis for the general public to inform the involved parties of progress on the study and provide a means of public input.

OBJECTIVE 6: Development of watershed restoration alternatives.

TASK 17 Once the field data is collected, an extensive review of the historical and project data will be conducted.

TASK 18 Loading calculations based on project data will be done and a hydrologic, sediment and nutrient budget for each watershed will be developed.

TASK 19 The results of the Bathtub modeling of the watershed will be used in conjunction with the water quality and hydrologic budget to determine critical areas in the watersheds.

TASK 20 The feasible management practices will be compiled into a list of alternatives for the development of an implementation project and included in the final project report.

LINE ITEMS	NON-FEDERAL		FEDERAL
	CASH	IN-KIND	
Personnel (@ $24/hr)	$1,352		
Travel			
Water Quality Analysis			
Supplies and Shipping			
Boat and Motor			
Equipment			
Biological Analysis			
Computer Analysis			
Total	$1,352		

PRODUCTS:

A list of viable watershed restoration alternatives and recommendations for the Custer State Park Lake watersheds.

RESPONSIBLE AGENCIES:

Task Prioritization:

Project Coordinator
Project Sponsor

Design and Technical Assistance:

South Dakota Department of Environment and Natural Resources

WORK ACTIVITIES:

An extensive review and study of the historical and current data will be done to determine the best management practices and hydrologic restoration techniques needed to improve water quality and sediment transport in the lakes and watersheds.

OBJECTIVE 7: Produce and publish a final report containing water quality results and restoration alternatives.

TASK 21 Produce loading calculations based on water quality sampling and hydrologic measurements.

TASK 22 Summarize the results of the Bathtub model for the watershed and report on the necessary nutrient and sediment reductions within the external and internal nutrient loadings.

TASK 23 Write a summary of historical water quality and land use information and compare with project data to determine any possible trends.

TASK 24 Based on data, evaluate the hydrology of the watersheds, the chemical, biological, and physical condition of the streams, and the chemical and size of the hypolimnion of each of the reservoirs.

TASK 25 Produce a summary report of all QA/QC activities conducted during the project and include in the final project report.

TASK 26 Write a description of feasible restoration alternatives for use in planning watershed nonpoint source implementation projects.

LINE ITEMS	NON-FEDERAL		FEDERAL
	CASH	IN-KIND	
Personnel (@ $13/hr)	$2,704		
Travel			
Water Quality Analysis			

Supplies and Shipping			
Boat and Motor			
Equipment			
Biological Analysis			
Publication			
Total	$2,704		

PRODUCTS:

A final Report incorporating all previously described objectives

RESPONSIBLE AGENCIES:

South Dakota Department of Environment and Natural Resources

WORK ACTIVITIES:

Statistical evaluation of all water quality and field data produced during the course of the study. Review and compilation of historical data will be completed. Restoration alternatives will be developed. Graphic presentations of the information will be produced.

3.3 MILESTONE TABLE - see attached milestone.

3.4 No special permits are required to do this assessment project.

3.5 The Black Hills Resource, Conservation, and Development District is the appropriate lead project sponsor for this project. The RC&D district boundaries encompass all of the involved Conservation Districts and Custer State Park. Custer State Park is important to this project because of the large number of tourists that visit the park each year. The main problems with the project lakes and watersheds appear to be sediment and nutrient loadings.

4.0 COORDINATION PLAN

4.1 The following groups/agencies have agreed through an informal agreement to cooperate in the South Central Lakes Watershed Assessment project. (tentitive only)

Black Hills Resource Conservation and Development – Local Project Sponsor

South Dakota Dept. of Game, Fish and Parks - Local support and technical and financial assistance

US Natural Resource Conservation Service – Local support and technical assistance.

US Environmental Protection Agency –Support and technical assistance

South Dakota Department of Environment and Natural Resources - technical assistance

4.2 In February, 2000 a letter requesting assistance was received from the South Dakota Dept. of Game, Fish, and Parks requesting assistance for the preparation of an assessment study grant for three small lakes and watersheds in the Custer State Park.

4.3 Letters of support have been supplied by local organizations to DENR supporting the Custer State Park Lake Watershed Assessment Project.

4.4 This project will coordinate activities with state, federal, and local government agencies. Input and involvement in this assessment has been requested from SD Game, Fish, and Parks, NRCS, local organizations, and local government agencies.

4.5 There currently are no other agencies conducting assessment project activities on the Custer State Park Lakes or Watersheds as described in this proposal.

5.0 EVALUATION AND MONITORING PLAN

5.1 The monitoring strategy is explained in section 3. The project will produce bi-annual progress reports.

5.2 This assessment project consists of a combination of chemical, hydrologic, land use and biological analyses. Monitoring sites will be maintained and sampled on the Custer State Park Lake watersheds. Ambient samples will be collected along with spring runoff and storm events. Stream discharge will be routinely measured. Loads will be calculated.

5.3 All water quality monitoring will be done in accordance with the approved South Dakota Nonpoint Source Quality Assurance/Quality Control Project Plan and the Standard Operating Procedures for Field Samplers for the South Dakota Watershed Protection Program.

5.4 Results from all water quality monitoring efforts under the Custer State Park Lake Watershed Assessment Project will be reported in the final project report. Data will be managed by the South Dakota Department of Environment and Natural Resources and maintained in a computer database. All sample data will be entered in the US EPA STORET Program. This data will be used as the foundation of a Section 319 Watershed Implementation Project proposal.

6.0 BUDGET

See attached budget sheets.

7.0 PUBLIC INVOLVEMENT

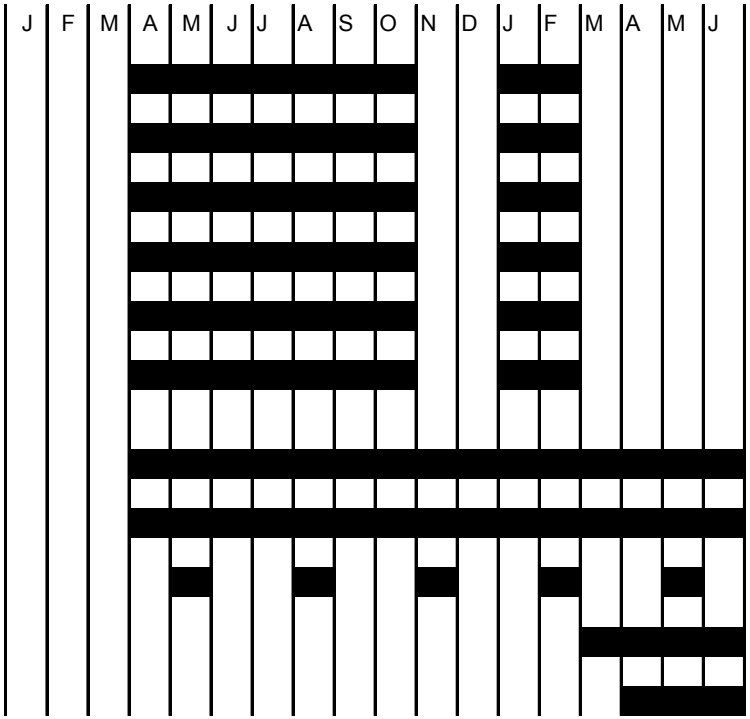
See Objective five.

Custer State Parks Lakes Watershed Assessment Project		
PART 1: FUNDING SOURCES	2001	TOTAL
EPA SECTION 319 FUNDS	$62,040	$62,040
OTHER FEDERAL FUNDS Does Not Apply		
LOCAL MATCH	$33,940	$33,940
TOTAL BUDGET	$95,980	$95,980

*INCLUDES MULTIPLE COMMUNITY ORGANIZATIONS AND AGENCIES

Custer State Park Lakes Watershed Assessment Project
Black Hills Resource, Conservation, and Development
Proposed Budget - 2001-2002

Budget Categories	Total Budget	Federal	Non-Federal	Federal EPA-319	Non-Federal Cash	Non-Federal In-kind
Project Coordinator @ $13/hr	$ 27,040.00	$ -	$27,040.00	$ -	$ 27,040.00	$ -
Housing Allowance @ $250/month	$ 3,000.00	$ -	$ 3,000.00	$ -	$ -	$ 3,000.00
Office Rent @ $150/month	$ 1,800.00	$ -	$ 1,800.00	$ -	$ -	$ 1,800.00
Equipment	$ 3,894.00	$ 3,894.00	$ -	$ 3,894.00	$ -	$ -
Shipping/Supplies	$ 3,894.00	$ 3,894.00	$ -	$ 3,894.00	$ -	$ -
Travel	$ 825.00	$ -	$ 825.00	$ -	$ -	$ 825.00
Boat/Motor	$ 1,275.00	$ -	$ 1,275.00	$ -	$ -	$ 1,275.00
Administrative-BHRC&D	$ 1,000.00	$ 1,000.00	$ -	$ 1,000.00	$ -	$ -
Subtotals	**$ 42,728.00**	**$ 8,788.00**	**$33,940.00**	**$ 8,788.00**	**$ 27,040.00**	**$ 6,900.00**
Objective1 Inlake Monitoring	$ 18,720.00	$ 18,720.00	$ -	$ 18,720.00	$ -	-
Objective2 Tributary Monitoring	$ 25,940.00	$ 25,940.00	$ -	$ 25,940.00	$ -	-
Objective3 QAQC Monitoring	$ 7,592.00	$ 7,592.00	$ -	$ 7,592.00	$ -	-
Objective4 Modeling	$ -	$ -	$ -	$ -	$ -	-
Objective5 Public Participation	$ -	$ -	$ -	$ -	$ -	-
Objective6 Watershed Alternatives	$ -	$ -	$ -	$ -	$ -	-
Objective7 Final Report	$ 1,000.00	$ 1,000.00	$ -	$ 1,000.00	$ -	-
Subtotals	**$ 53,252.00**	**$ 53,252.00**	**$ -**	**$ 53,252.00**	**$ -**	**$ -**
**TOTALS----------> **	**$ 95,980.00**	**$ 62,040.00**	**$33,940.00**	**$ 62,040.00**	**$ 27,040.00**	**$ 6,900.00**
Double Check Total	$ 95,980.00					
Percentage at this time	100%	65%	35%			

Custer State Park Lake and Watershed Assessment
Black Hills Resource, Conservation, and Development
Milestone Chart

2001-2002