

Lake Walcott Total Maximum Daily Load (TMDL) Agricultural Implementation Plan

Prepared for the
Idaho Department of Environmental Quality

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1. Goals and Objectives

The agricultural component of the Lake Walcott Subbasin Total Maximum Daily Load (TMDL) Implementation Plan outlines an adaptive management approach for the implementation of Resource Management Systems (RMS) and Best Management Practices (BMPs) to meet the requirements for the Lake Walcott Subbasin TMDL (Lay). Implementation activities will be phased in on a subwatershed basis due to the large size and complexity of the Lake Walcott watershed, which encompasses 2,348,800 acres. Figure 1, located in Appendix B, shows the general location and area of the subbasin.

The goal of this plan is to assist and/or compliment other watershed efforts in restoring beneficial uses for 303(d) listed stream segments. These segments include the Snake River-American Falls Dam to Eagle Rock (WQLS# 6363), Snake River-Eagle Rock to Massacre Rocks (WQLS# 2363), Snake River-Massacre Rocks to Lake Walcott (WQLS# 2362), Rock Creek-Headwaters to Snake River (WQLS# 2365), South Fork Rock Creek-Headwaters to Rock Creek (WQLS# 5273), East Fork Rock Creek-Bench Ditch to Rock Creek (WQLS# 2366), Marsh Creek-Land Creek to mouth (WQLS# 5272), and Milner Lake (WQLS# 2359) (Figure 2).

The major objective of this plan will be to reduce the amount of sediment and nutrients entering these waterbodies from agricultural sources (surface and groundwater). Agricultural pollutant reductions will be achieved through the application of RMS and BMPs developed and implemented on site with individual agricultural operators.

Another objective of this plan will be to provide BMP effectiveness, evaluation, and monitoring in terms of reducing pollutant loading and impacts on designated beneficial uses of the above listed stream segments. Emphasis will also be placed on implementation of a water quality outreach program to encourage landowner participation in water quality implementation efforts within the subbasin.

2. Beneficial Use Status

Beneficial uses of the Snake River and Rock Creek and their tributaries are influenced by a number of non-point sources of pollution. The Snake River is affected by return flows from surface irrigation in the Burley and Rupert areas adjacent to Milner Lake. Rock Creek and its tributaries have problems with a lack of deep-rooted riparian vegetation, encroachment of agricultural fields to the stream channel, exposed stream banks, and storm runoff from upland agricultural fields.

Table 1: Water quality limited segments in the Lake Walcott Subbasin and their support status.

Waterbody	WQLS#	Pollutant	Support Status	Concerns
Rock Creek	2365	SED	Needs Verification	Bank erosion, upland runoff, sediment
East Fork Rock Creek	2366	SED	“	“
South Fork Rock Creek	5273	UNKN	“	“
Snake River-Massacre Rocks to Lake Walcott	2362	DO, PST, SED	“	Operation of American Falls Dam
Snake River-Eagle Rock to Massacre Rock	2363	SED	“	“
Snake River-American Falls Dam to Eagle Rock	6363	SED	“	“
Milner Lake	2359	DO, QALT, NUT,O/G, SED	“	Operation of American Falls Dam, irrigation return flows, groundwater seepage flows
Marsh Creek	5272	UNKN	“	Irrigation return flows

POLLUTANTS:

- SED = Sediment
- UNKN = Unknown
- DO = Dissolved Oxygen
- PST = Pesticides
- QALT = Flow Alteration
- NUT = Nutrient
- O/G = Oil/Gas

3. Background

Many conservation measures have been implemented within the Lake Walcott and Rock Creek subbasins. Much of the success of the conservation practices already installed are due to the efforts of individual farmers and ranchers, canal companies and districts, and the four conservation districts in the watersheds: Power Soil Conservation District (SCD) in American Falls, Minidoka Soil and Water Conservation District (SWCD) in Rupert, East Cassia Soil Conservation District (SCD) in Burley, and the West Cassia Soil and Water Conservation District (SWCD) also in Burley. The Natural Resources Conservation Service (NRCS) and the Idaho Soil Conservation Commission (ISCC) have aided farmers, ranchers, canal companies and districts, and the conservation districts in their conservation efforts by providing technical and financial assistance.

3a) Milner Lake

In the early 1990s, the United States Department of Agriculture (USDA) funded the Mini-Cassia Water Quality Demonstration Project. Cassia and Minidoka counties made up the majority of the project area. It was one of only sixteen nationally funded projects. The intent of this eight-year project was to accelerate the transfer of technology necessary to protect ground and surface water quality while maintaining farm profitability. Over \$4.0 million was invested to refine and implement BMPs and to prove their effectiveness in attaining surface and ground water quality. This area was selected because the nature of its water quality problems are well documented (USDA).

The Minidoka Irrigation District (MID) and the A&B Irrigation District (A&B) are actively closing the drain wells within their boundaries. MID recently closed six of their eight drain wells.

In fiscal year 2000, the A&B with the help of the Bureau of Reclamation was able to obtain funding from the Idaho Congressional Delegation to begin the task of closing some of their remaining drain wells. The Minidoka SWCD recently completed a Preliminary Investigation (PI) relating to closing of the drain wells within its district. This PI was instrumental in helping the district also obtain funding through the Idaho Congressional Delegation to complete on-farm practices that will complement the efforts of A&B.

3b) Rock Creek Subwatersheds

To understand the Rock Creek water quality issues it is necessary to examine this stream corridor in a historical perspective. Changes over the years in tillage practices, crop selection, and actual acres farmed have all contributed to a dynamic and complex watershed. Land treatment programs offered by United States Department of Agriculture (USDA) and others have also played a major role in improvement of the surface water quality in the subbasin. Grower participation in Public Law-566 Watershed Treatment (PL-566) and in the Conservation Reserve Program (CRP) have greatly reduced soil erosion in the subbasin while generating a heightened awareness of water quality concerns among valley residents. The PL-566 program initiated in 1981 in the Rockland Valley involved 218,450 acres and 122 farmers in applying over 40 miles of level terraces and installing 96,362 acres of conservation tillage on private cropland. More recently (circa 1986), the CRP has idled and subsequently protected 65,000 acres (Fowler) of former cropland from excessive soil erosion, while also enhancing wildlife habitat and surface water quality throughout the valley.

Widely variant flow rates caused by rain-on-snow events and then dry precipitation periods, principally on the South Fork of Rock Creek coupled with associated variation in total suspended solids (TSS), render identifiable soil erosion reduction targets difficult. At present the target reduction percentage for TSS delivered at the mouth of Rock Creek near Register Rock is 88%. It is evident that even after years of BMP installation, as well

as idled and protected acres through programs such as CRP, significant soil erosion still exists and that deposition in various reaches of the creek is occurring.

4. Accomplishments

Table 2: NRCS Field Office Accomplishments

FIELD OFFICE & DATES	STREAM	PROJECT/ PROGRAM	BENEFITS
Burley 1993-2001	Milner Lake	Snake River Plain Water Quality Project, EQIP, ACP, & Private Funding	Converted 50,800 acres from gravity to sprinkler which along with other BMPs reduced sediment erosion by 1,625,000 tons per year (Steube)
Burley 1997-2001	Milner Lake	CRP	Provided technical assistance for establishment of 6,175 acres
Burley 1997-2001	Milner Lake	EQIP	4,000 acres of range improvement
Rupert 1993-2001	Milner Lake	Snake River Plain Water Quality Project, EQIP, ACP, & Private Funding	Converted approximately 60,000 acres from gravity to sprinkler
Rupert 1997-2001	Milner Lake	EQIP	Converted 62 acres from gravity to sprinkler
Rupert 1997-2001	Milner Lake	RCRDP Loans	Converted 331 acres from gravity to sprinkler
American Falls 1981-2001	Rock Creek	PL-566 5 Subwatersheds	Over 40 miles of level terraces and 96,363 acres of conservation tillage resulting in a reduction of 1,000,000 tons of sediment erosion per year; 65,000 Acres of CRP (Fowler)

5. Problem Statement

The Lake Walcott Subbasin can be separated into three distinct areas with respect to agricultural non-point source pollution. The first area is the Burley/Rupert area on both sides of Milner Lake on the Snake River in Cassia and Minidoka counties. The second area includes the Snake River from above Lake Walcott to American Falls Dam, and the third area is the Rockland Valley surrounding the Rock Creek drainage. The majority of the second and third areas are in Power County.

Agricultural landuse in the Burley/Rupert area, also referred to as the Mini-Cassia area, is predominantly irrigated cropland. Irrigation return flows discharge into the Snake River through numerous drains between the Minidoka and Milner Dams and contribute to some of the phosphorus loading in that reach of the river. The Lake Walcott TMDL identifies phosphorus as the pollutant of concern in Milner Lake and establishes a concentration

limit of 0.08 mg/L for total phosphorus (TP). A total phosphorus reduction goal of 37% for Milner Lake has been applied to all point and non-point sources. The total phosphorus returning to the river through drains also needs to be reduced by 37%.

The HUC5 subwatersheds identified in this plan for the areas described in Appendix B are nearly all identified in Figure 3. The Kimama, Norland, and Minidoka subwatersheds each contain acres serviced by A&B but are not shown in Figure 3.

Land use along the Snake River above Lake Walcott is mostly rangeland with some impacts from dryland and irrigated agriculture. Sediment is the major pollutant of concern. The IDEQ authorizes a No-Net Increase (NNI) Policy be utilized for these three stream segments which states that the sediment levels can not increase above 25 mg/L monthly average and a 40 mg/L daily maximum. These targets are greater than the current concentration levels of approximately 20 mg/L in these Snake River reaches. In 1994, the release of sediment from American Falls Dam produced a yearly concentration level of 73.2 mg/L signifying that the dam has a greater influence on these reaches than non-point sources (Lay 59). This plan will not address an implementation program for these three stream segments unless IDEQ determines the agricultural community practices cause this stretch of river to exceed the NNI Policy standards.

Land use in the Rockland Valley is a mix of dryland agriculture, irrigated agriculture, and grazing. The TMDL identifies sediment as a pollutant of concern for Rock Creek, East Fork of Rock Creek, and the South Fork of Rock Creek. The suspended sediment target for all three segments has been set at a 50-mg/L monthly average and an 80-mg/L daily maximum. The TMDL also indicates this limit “will not exceed the estimated load capacity supportive of a moderate fishery.” In addition to farming practices, stream bank erosion, upland storm runoff, and erosion of ephemeral washes contribute to sediment loading into the streams. Due to the intermittent nature of the South Fork of Rock Creek Watershed, this plan does not address this stream segment. BMPs applied to downstream reaches of Rock Creek will accomplish the necessary sediment reductions defined in the TMDL.

An analysis of the Rock Creek Watersheds reveals the following areas that need further examinations and attention:

- Sheer stream banks lacking vegetation intermittently through the system
- Livestock grazing adjacent to and accessing stream corridor
- Recreation activities, e.g., camping, RVs on or near streams
- Gully erosion from dry cropland delivering sediments to Rock Creek
- Negative public perception of government and government programs
- Lack of high quality inventory of eroding channels
- Downcutting (incising) of Rock Creek preventing flood plain access
- Relatively fewer agricultural producers with day-to-day farming obligations (CRP or absentee producers)
- Approximately 1/3 of farm ground is in CRP and as this land comes out of CRP, the surface water quality could decline

- Lack of historic evidence of cataclysmic events on streams, e.g. floods, fires, etc. including anecdotal evidence and photography
- Lack of viable program offering incentives to significantly encourage grower participation especially on stream corridor.

6. Critical Areas

Areas of agricultural lands that contribute excessive pollutants to waterbodies are defined as “Critical Areas” for BMP implementation. Critical areas are prioritized for treatment based on their location to a waterbody of concern and the potential for pollutant transport and delivery to the receiving waterbody. Accordingly, the following is a general rule that applies to the prioritization of critical acres within each tributary subwatershed.

Agricultural critical areas in all of the listed stream segments within the subbasin are:

- Unstable and erosive streambanks
- Areas of severe gully erosion
- Sheet and rill erosion areas on dry cropland
- Areas where livestock are grazed
- Areas where livestock have access to streams
- Animal Feed Operations (AFOs)
- Livestock impacted riparian areas
- Areas generating irrigation induced erosion
- Irrigation return flow streams
- Groundwater nitrate (NO₃) priority areas near Rupert and Burley/Marsh Creek

A baseline establishing the exact number of drains, the phosphorus concentration, and the flow of water entering Milner Lake from these drains has not been established. Further data collection is necessary to establish a quantifiable baseline from which a phosphorus reduction can then be projected. The Idaho State Department of Agriculture (ISDA), the Burley Irrigation District (BID), and the Minidoka Irrigation District (MID) have each sampled a number of drains in Milner Lake, and water quality data for these drains is available. Through these sampling efforts, twelve drains have been identified that deliver flow to the Snake River all year long instead of just during the irrigating season (Table 3). The Bureau of Reclamation (Stout) determined there are also nine additional drains that have perennial flow. Some of these perennial drains have wintertime water only in the last hundred yards of stream channel length while some drains have spring/seep water those only surfaces at their mouth to the Snake River.

Table 3: Perennial Flow Drains in Milner Lake

DRAIN NAME	SIDE OF RIVER	SOURCE OF INFO
D-3	N	MID
D-5	N	MID
D-5C1	N	MID
D-16	N	MID
D-6	N	MID
D-12A	N	MID
D-17	N	MID
Main Drain N.	N	MID
Marsh Creek	S	BID
Spring Creek	S	BID
Duck Creek	S	BID
Snipe Drain	S	BID
A1-Canal	N	BOR
XL	N	BOR
F Canal	S	BOR
UKN15	N	BOR
UKS18	S	BOR
UKN22	N	BOR
UKS23B	S	BOR
Morgan	S	BOR
G18 at Hwy 30	S	BOR

This plan includes the irrigated lands serviced by the A&B Irrigation District and private landowner wells in the Kimama, Norland and Minidoka HUC5 subwatersheds. The surface water runoff from this land either is captured in closed basins, flows through MID service areas and may be commingled with their canal company water, or may flow into the Snake River.

7. Threatened and Endangered Species

The Lake Walcott Subbasin Assessment lists five endangered species (Lay 41):

- Snake River physa
- Utah Valvanta snail
- American bittern
- Trumpeter swan
- White sturgeon

Appropriate management practices through BMP installation will be applied to protect these species.

8. Treatment Units

Each agricultural land use is divided into one or more Treatment Units (TUs). The TUs describe areas with similar use, soils, productivity, resource concerns and treatment needs. These not only provide a method for delineating and describing land use but are also used to evaluate land use impacts to water quality and in the formulation of alternatives for solving identified problems. Sprinkler irrigated land is not identified as a treatment unit because with this type of treatment the irrigation-induced erosion is almost negligible and no further treatment is warranted.

8.1 Treatment Unit #1 Riparian Areas

Acres by NRCS Field Office	Soils	Resource Problems
Burley 35 Rupert 20 American Falls 650	Riparian areas occur along stream and river corridors. Soils are typically an alluvial mixture ranging from gravelly and cobbly loams to silty clay loams.	Overgrazing resulting in decreased vegetative condition, suitability and composition. Unstable and eroding streambanks. Increased water temperature. Increased bacterial contribution to the stream.

8.2 Treatment Unit #2 Permanent Irrigated Pasture and Hayland

Acres	Soils	Resource Problems
Burley 1,500 Rupert 600 American Falls- 10,500	Gravelly, and cobbly loams, silt loams and silty clay loams. May contain wet (hydric) soils. Slopes range from 0 to 2%.	Pastures grazed below recommended stubble heights. Grazing not uniform. Lack of pasture renovation (20-30 yrs.) Bluegrass species dominate. Soil compaction and hummocking from livestock use during irrigation. Poor production.

8.3 Treatment Unit #3 Rangeland

Acres	Soils	Resource Problems
Burley 28,984 Rupert 1,000 American Falls 11,162	Range from very cobbly loam, very cobbly silt loam to very cobbly clay loam. Slope ranges from 2 to 10% and/or 6 to 20% (foothills).	Vegetative condition and production. Soil erosion. Water quality-temperature.

8.4 Treatment Unit #4 Animal Feed Operations (AFO) No Size Restriction

Units	Soils	Resource Problems
Burley 30 Rupert 30 American Falls 6	AFOs occur throughout the subbasin. Soils are typically an alluvial layer of silt-loam over gravelly soils. Water table is > 10.0 feet. Slope ranges 0 to 8%.	Irrigation returns or waters flowing through corrals. Increased bacteria loading from runoff. Streambank impacts. Inadequate waste storage. Nitrate leaching. Wind erosion. Odor

8.5 Treatment Unit #5 Confined Animal Feed Operations (CAFO) No Size Restriction

Units	Soils	Resource Problems
Burley 26 Rupert 30 American Falls 1	AFOs occur throughout the subbasin. Soils are typically an alluvial layer of silt loam over gravelly soils. Water table is > 10.0 feet. Slope ranges 0 to 2 %.	Manure being spread on lands and surface runoff, nitrate leaching, odor, and wind erosion

8.6 Treatment Unit #6 Dryland Crop 0-8% Slopes

Acres	Soils	Resource Problems
Burley 7,630 Rupert 0 American Falls 60,760	Silt Loam to Gravelly	Wind and water erosion

8.7 Treatment Unit #7 Dryland Crop >8% Slopes

Acres	Soils	Resource Problems
Burley 3290 Rupert 0 American Falls 1,939	Silt Loam to Gravelly	Soil Erosion, Ephemeral, and classic gullies

8.8 Treatment Unit #8 Gravity Irrigated Crop Land

Units	Soils	Resource Problems
Burley 17,700 Rupert 27,413 American Falls 82	Silt Loam < 4% Slopes	Surface irrigation induced erosion, soil erosion, wind erosion

Table 4: Watershed Land Usages

Watershed Land Use	North Rock	Rockland	North Milner	South Milner	Subtotal
CRP	19,555	21,975	0	6,176	47,706
Non-Irrigated >8% Slopes	1,203	736	0	3,291	5,230
Non-Irrigated <8% Slopes	39,670	21,089	0	7,634	68,393
Forest	682	1,275	0	4,627	6,584
Irrigated-Gravity Flow	82	0	27,413	17,727	45,222
Irrigated-Sprinkler	14,233	5,865	155,338	100,433	275,869
Rangeland	9,658	1,504	1,000	28,984	41,146
Riparian	0	0	20	35	55
TOTAL	85,083	52,444	183,771	168,907	490,205

Data Sources: Krajewski, Fowler, Combs, Schuyler, Steube, and Young

This plan is only addressing 20% (490,205/2,348,800) of the total acres in the Lake Walcott Subbasin. The surface water runoff from the remainder of the land is captured in closed basins, flows through canal districts or company service areas and may be commingled with their canal water, or flows into a non-303(d) or intermittent stream segment.

9. Proposed Treatment and Costs

Appendix A is a breakdown of the projected costs to complete this implementation plan. The entire projected cost for the 8 treatment units on the 490,205 acres is \$33,383,397. This translates to a cost of \$68.00 per treated acre to obtain the goals of the TMDL. When implemented, this plan will exceed the goals of the TMDL by reducing or cleaning the surface water runoff from agricultural lands.

Randy Bingham, manager of BID, considers the best conservation program is letting the Soil Conservation Districts promote BMPs through cost-share or educational programs to the landowners. These BMPs will be aimed at keeping the soil on the fields instead of installing sediment basins at the ends of the canal drains. The BID rates the Snipe and Morgan Drains as the primary areas to begin conservation practices.

10. Funding

The Idaho Soil Conservation Commission (ISCC), with the University of Idaho and Idaho Department of Environmental Quality, published *Funding Sources* (University of Idaho 2000). This booklet identifies financial resources for projects relating to the TMDL Process and Idaho's water quality. A number of the cost-share programs are available including Environmental Quality Incentives Program (EQIP), Water Quality Program for Agriculture (WQPA) which replaces the Idaho State Agricultural Water Quality Program (SAWQP), Resource Conservation and Rangeland Development

Program (RCRDP) Grants and Loans, and §319 Grants. Funding for these programs is limited, and funds are often allocated early in each fiscal year.

The West Cassia SWCD has received a §319 grant for BMP implementation involving the City of Burley and the Burley Irrigation District (BID). Another potential funding source being evaluated includes CPR and Continuous Sign-Up Conservation Reserve Program (C-CRP) through USDA-FSA. The Minidoka SWCD has an EQIP Priority Area defined for the Minidoka Irrigation District (MID) service area. The spring 2002 signup marks the fourth year of this five-year EQIP program.

The Bureau of Reclamation through the Burley field office has provided funding for water quality projects to both the BID and the MID.

The Minidoka SWCD and A&B Irrigation District recently obtained funding through the Idaho Congressional Delegation to complete BMPs relating to closing drain wells in Minidoka County.

11. Outreach

The conservation partnership (the four conservation districts, ISCC, USDA-NRCS, FSA, U of I Extension Service, County Officials) will use their combined resources to provide information to agricultural landowners and operators within the subbasin. A local outreach plan can be developed by the conservation partnership. Newspaper articles, district newsletters, watershed and project tours, landowner meetings, and one-on-one personal contact would be used as outreach tools. Outreach efforts will:

- Provide information about the TMDL process
- Provide water quality monitoring results
- Accelerate the development of conservation plans and program participation
- Provide progress reports
- Enhance technology transfer related to BMP implementation
- Increase awareness of agriculture's contribution to conserve and enhance natural resources
- Increase the public's awareness of agriculture's commitment to meeting the TMDL challenge
- Informational tour bringing together irrigation districts' board of directors and soil conservation districts' board of supervisors
- Identify and encourage the use of BMPs for recreation activities on the subbasin.

12. Evaluation and Monitoring

Evaluation, monitoring, and data collection will all be integral components of this implementation plan. At the field level the ISCC and USDA-NRCS will complete annual status reviews in cost-share programs such as EQIP, CRP, WQPA, RCRDP and §319. In

addition, the ISCC will complete BMP effectiveness evaluations throughout the implementation phase. The ISCC is establishing a BMP evaluation format and process that will be implemented in conjunction with the annual status reviews. Evaluation protocols have been developed for many water quality BMPs and component practices. Should the situation arise where an appropriate protocol is lacking, the ISCC will work with agencies including USDA-NRCS, UI-CES, IDEQ and the four conservation districts to develop the needed protocol.

At the subbasin level, ISDA and IASCD water quality analysts will provide water quality monitoring. All water quality monitoring activities will be coordinated with IDEQ, ISCC, and the four conservation districts. The ISCC and USDA-NRCS will also complete periodic and annual project and program reviews. Reviews will be comprehensive from both a technical and administrative standpoint. These reviews will be very important for ensuring sound decision making involved with adaptation of implementation priorities and direction. The ISCC will be responsible for tracking and reporting implementation progress for all cost-share programs.

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APPENDIX A: TREATMENT COSTS

South Milner Lake HUC5 Treatment Units

Treatment Unit	Best Management Practice	NRCS Practice Code	Unit Type	Unit Cost Equip 2001	C/S Rate	Practice Amount	C/S Funds	Operator Funds	Total Funds
TU1 Riparian 35 Acres	Riparian Forest Buffer	591A	each	\$23.00	75%		\$0	\$0	\$0
	Channel Vegetation	322	foot	\$6.00	75%	8,000	\$36,000	\$12,000	\$48,000
	Conservation Cover	327	acre	\$100.00	75%	16	\$1,200	\$400	\$1,600
	Fence	382	foot	\$1.00	75%	16,000	\$12,000	\$4,000	\$16,000
	Use Exclusion	472	acre	\$14.00	75%	18	\$189	\$63	\$252
	Prescribed Grazing	528A	acre	\$1.50	75%	17	\$19	\$6	\$26
	Heavy Use Area Protection	561	each	\$2,000.00	75%	6	\$9,000	\$3,000	\$12,000
	Streambank Protection	580	foot	\$45.00	75%	800	\$27,000	\$9,000	\$36,000
	Wetland Creation/Development	658	each	\$66,666.00	75%	1	\$50,000	\$16,667	\$66,666
	Wetland Enhancement	659	acre	\$4,100.00	75%	4	\$12,300	\$4,100	\$16,400
	Wetland Restoration	657	acre	\$4,100.00	75%		\$0	\$0	\$0
Critical Area Planting	342	acre	\$160.00	75%	15	\$1,800	\$600	\$2,400	
						Subtotal	\$147,708	\$49,236	\$196,944
TU2 Permanent Pasture & Hayland 1500 Acres	Critical Area Planting	342	acre	\$160.00	75%	300	\$36,000	\$12,000	\$48,000
	Fence	382	foot	\$1.00	75%	30,000	\$22,500	\$7,500	\$30,000
	Irrigation System, All Sprinkler Systems	442	acre	\$400.00	50%	750	\$150,000	\$150,000	\$300,000
	Irrigation Water Management	449	acre	\$0.00	100%	1,500	\$0	\$0	\$0
	Pasture & Hayland Planting	512	acre	\$65.00	75%	300	\$14,625	\$4,875	\$19,500
	Pipeline, Livestock	516	foot	\$1.00	75%	10,000	\$7,500	\$2,500	\$10,000
	Pipeline, 100 psi, 10" Pipe	430	foot	\$6.00	75%	25,000	\$112,500	\$37,500	\$150,000
	Prescribed Grazing	528A	acre	\$1.50	75%	1,500	\$1,688	\$563	\$2,250
	Pumping Plant for Water Control	533	hp	\$240.00	50%	630	\$75,600	\$75,600	\$151,200
	Spring Development	574	each	\$2,500.00	75%	5	\$9,375	\$3,125	\$12,500
	Nutrient Management, Commercial Fertilizer	590	acre	\$5.00	75%		\$0	\$0	\$0
Nutrient Management, Soil Testing	590	each	\$55.00	75%	120	\$4,950	\$1,650	\$6,600	

	Trough or Tank	614	each	\$775.00	75%	20	\$11,625	\$3,875	\$15,500
	Forage Harvest Management	511	acre	\$6.00	75%	0	\$0	\$0	\$0
	Livestock Water Well	642	each	\$3,500.00	75%	2	\$5,250	\$1,750	\$7,000
	Tailwater Recovery System	447	each	\$15,000.00	75%	5	\$56,250	\$18,750	\$75,000
						Subtotal	\$507,863	\$319,688	\$827,550
TU3 (Rangeland) 28984 Acres	Fence	382	mile	\$5,280.00	75%	35	\$138,600	\$46,200	\$184,800
	Pipeline, Livestock	516	mile	\$6,600.00	75%	30	\$148,500	\$49,500	\$198,000
	Prescribed Grazing	528A	acre	\$1.50	75%	28,984	\$32,607	\$10,869	\$43,476
	Range Planting	550	acre	\$55.00	75%	500	\$20,625	\$6,875	\$27,500
	Spring Development	574	each	\$2,500.00	75%	5	\$9,375	\$3,125	\$12,500
	Brush Management	314	acre	\$25.00	75%	700	\$13,125	\$4,375	\$17,500
	Livestock Water Well	642	each	\$3,500.00	75%	3	\$7,875	\$2,625	\$10,500
	Trough or Tank	614	each	\$775.00	75%	45	\$26,156	\$8,719	\$34,875
	Pond Livestock Water	378	each	\$3,200.00	75%	5	\$12,000	\$4,000	\$16,000
						Subtotal	\$408,863	\$136,288	\$545,151
TU4 (AFO) 30 Facilities	Waste Management System	590	each	\$66,666	75%	10	\$499,995	\$166,665	\$666,660
	Nutrient Management, Animal Waste	312	head	\$1.00	75%	60,000	\$45,000	\$15,000	\$60,000
	Waste Storage Facility	313	head	\$1.00	75%		\$0	\$0	\$0
	Waste Treatment Lagoon	359	head	\$1.00	75%		\$0	\$0	\$0
	Waste Utilization	633	head	\$1.00	75%		\$0	\$0	\$0
	Structure for Water Control	587	each	\$511.00	75%	30	\$11,498	\$3,833	\$15,330
						Subtotal	\$556,493	\$185,498	\$741,990
TU5 (CAFO) 26 Facilities	Waste Management System	590	each	\$66,666	75%	10	\$499,995	\$166,665	\$666,660
	Nutrient Management, Animal Waste	312	head	\$1.00	75%		\$0	\$0	\$0
	Waste Storage Facility	313	head	\$1.00	75%		\$0	\$0	\$0
	Waste Treatment Lagoon	359	head	\$1.00	75%		\$0	\$0	\$0
	Waste Utilization	633	head	\$1.00	75%	50,000	\$37,500	\$12,500	\$50,000

	Structure for Water Control	587	each	\$1.00	75%		\$0	\$0	\$0
	Waste Utilization	633	head	\$1.00	75%		\$0	\$0	\$0
						Subtotal	\$537,495	\$179,165	\$716,660
TU6 Dryland Crop 0-8% Slopes 7630 Acres	Conservation Crop Rotation	328	acre	\$0.00	75%	7,634	\$0	\$0	\$0
	Residue Management	329	acre	\$0.00	100%	7,634	\$0	\$0	\$0
	Contour Farming	330	acre	\$6.00	75%	2,500	\$11,250	\$3,750	\$15,000
	Chiseling	324	acre	\$15.00	100%	2,000	\$30,000	\$0	\$30,000
	Subsoiling	324	acre	\$21.00	100%	2,000	\$42,000	\$0	\$42,000
	Conservation Cover	327	acre	\$100.00	75%	2,000	\$150,000	\$50,000	\$200,000
	Nutrient Management	590	acre	\$25.00	75%	2,000	\$37,500	\$12,500	\$50,000
						Subtotal	\$270,750	\$66,250	\$337,000
TU7 Dryland Crop >8% Slopes 3290 Acres	Conservation Crop Rotation	328	acre	\$0.00	75%	3,291	\$0	\$0	\$0
	Residue Management	329	acre	\$0.00	100%	3,291	\$0	\$0	\$0
	Contour Farming	330	acre	\$6.00	75%	1,200	\$5,400	\$1,800	\$7,200
	Chiseling	324	acre	\$15.00	100%	800	\$12,000	\$0	\$12,000
	Subsoiling	324	acre	\$21.00	100%	800	\$16,800	\$0	\$16,800
	Conservation Cover	327	acre	\$100.00	75%	2,000	\$150,000	\$50,000	\$200,000
	Terrace System	600	ft	\$2.00	75%		\$0	\$0	\$0
	Water and Sediment Control Structure	638	each	\$800.00	75%	50	\$30,000	\$10,000	\$40,000
Nutrient Management	590	acre	\$25.00	75%	2,000	\$37,500	\$12,500	\$50,000	
						Subtotal	\$251,700	\$74,300	\$326,000
TU8 Surface Irrigated Crop 17727 Acres	Conservation Crop Rotation	328	acre	\$0.00	75%	17,727	\$0	\$0	\$0
	Residue Management	329	acre	\$0.00	100%	17,727	\$0	\$0	\$0
	Irrigation Water Management	449	acre	\$0.00	75%	17,727	\$0	\$0	\$0
	Irrigation System, All Sprinkler Systems	442	acre	\$400.00	75%	10,000	\$3,000,000	\$1,000,000	\$4,000,000
	Irrigation Pipeline, 100 psi 10"Pipeline	430	ft	\$6.00	75%	187,500	\$843,750	\$281,250	\$1,125,000
	Pumping Plant	533	hp	\$240.00	75%	5,000	\$900,000	\$300,000	\$1,200,000

	Gated Pipe, 10" Single Gated	430HH	ft	\$4.00	75%	10,000	\$30,000	\$10,000	\$40,000
	Sediment Basins	350	cuyd	\$3.00	75%	33,333	\$74,999	\$25,000	\$99,999
	Tailwater Recovery System	447	each	\$15,000.00	75%	15	\$168,750	\$56,250	\$225,000
						Subtotal	\$5,017,499	\$1,672,500	\$6,689,999
	TOTAL FOR SOUTH MILNER LAKE HUC5s						\$7,698,370	\$2,682,923	\$10,381,294
	North Milner Lake HUC5 Treatment Units								
Treatment Unit	Best Management Practice	NRCS Practice Code	Unit Type	Unit Cost Equip 2001	C/S Rate	Practice Amount	C/S Funds	Operator Funds	Total Funds
TU1 Riparian- 20 Acres	Riparian Forest Buffer	591A	each	\$23.00	75%		\$0	\$0	\$0
	Channel Vegetation	322	foot	\$6.00	75%	10,000	\$45,000	\$15,000	\$60,000
	Conservation Cover	327	acre	\$100.00	75%	10	\$750	\$250	\$1,000
	Fence	382	foot	\$1.00	75%	5,000	\$3,750	\$1,250	\$5,000
	Use Exclusion	472	acre	\$14.00	75%	5	\$53	\$18	\$70
	Prescribed Grazing	528A	acre	\$1.50	75%	15	\$17	\$6	\$23
	Heavy Use Area Protection	561	each	\$2,000.00	75%	10	\$15,000	\$5,000	\$20,000
	Streambank Protection	580	foot	\$45.00	75%	5,000	\$168,750	\$56,250	\$225,000
	Wetland Creation/Development	658	each	\$66,666.00	75%	1	\$50,000	\$16,667	\$66,666
	Wetland Enhancement	659	acre	\$4,100.00	75%	10	\$30,750	\$10,250	\$41,000
	Wetland Restoration	657	acre	\$4,100.00	75%		\$0	\$0	\$0
	Critical Area Planting	342	acre	\$160.00	75%	10	\$1,200	\$400	\$1,600
						Subtotal	\$315,269	\$105,090	\$420,359

TU2 Permanent Pasture & Hayland 600 Acres	Critical Area Planting	342	acre	\$160.00	75%	100	\$12,000	\$4,000	\$16,000
	Fence	382	foot	\$1.00	75%	2,500	\$1,875	\$625	\$2,500
	Irrigation System, All Sprinkler Systems	442	acre	\$400.00	50%	300	\$60,000	\$60,000	\$120,000
	Irrigation Water Management	449	acre	\$0.00	100%	600	\$0	\$0	\$0
	Pasture & Hayland Planting	512	acre	\$65.00	75%	100	\$4,875	\$1,625	\$6,500
	Pipeline, Livestock	516	foot	\$1.00	75%	1,000	\$750	\$250	\$1,000
	Pipeline, 100 psi, 10" Pipe	430	foot	\$6.00	75%	4,000	\$18,000	\$6,000	\$24,000
	Prescribed Grazing	528A	acre	\$1.50	75%	600	\$675	\$225	\$900
	Pumping Plant for Water Control	533	hp	\$240.00	50%	200	\$24,000	\$24,000	\$48,000
	Spring Development	574	each	\$2,500.00	75%	0	\$0	\$0	\$0
	Nutrient Management, Commercial Fertilizer	590	acre	\$5.00	75%	600	\$2,250	\$750	\$3,000
	Nutrient Management, Soil Testing	590	each	\$55.00	75%	20	\$825	\$275	\$1,100
	Trough or Tank	614	each	\$775.00	75%	12	\$6,975	\$2,325	\$9,300
	Forage Harvest Management	511	acre	\$6.00	75%	0	\$0	\$0	\$0
	Livestock Water Well	642	each	\$3,500.00	75%	0	\$0	\$0	\$0
Tailwater Recovery System	447	each	\$15,000.00	75%	1	\$11,250	\$3,750	\$15,000	
						Subtotal	\$143,475	\$103,825	\$247,300
TU3 (Rangeland) 1000 Acres	Fence	382	mile	\$5,280.00	75%	5	\$19,800	\$6,600	\$26,400
	Pipeline, Livestock	516	mile	\$6,600.00	75%	3	\$14,850	\$4,950	\$19,800
	Prescribed Grazing	528A	acre	\$1.50	75%	1,000	\$1,125	\$375	\$1,500
	Range Planting	550	acre	\$55.00	75%	500	\$20,625	\$6,875	\$27,500
	Spring Development	574	each	\$2,500.00	75%	0	\$0	\$0	\$0
	Brush Management	314	acre	\$25.00	75%	500	\$9,375	\$3,125	\$12,500
	Livestock Water Well	642	each	\$3,500.00	75%	4	\$10,500	\$3,500	\$14,000
	Trough or Tank	614	each	\$775.00	75%	20	\$11,625	\$3,875	\$15,500
	Pond Livestock Water	378	each	\$3,200.00	75%	0	\$0	\$0	\$0
						Subtotal	\$87,900	\$29,300	\$117,200

TU4 (AFO) 30 Facilities	Waste Management System	590	each	\$66,666	75%	12	\$599,994	\$199,998	\$799,992
	Nutrient Management, Animal Waste	312	head	\$1.00	75%	25,000	\$18,750	\$6,250	\$25,000
	Waste Storage Facility	313	head	\$1.00	75%		\$0	\$0	\$0
	Waste Treatment Lagoon	359	head	\$1.00	75%		\$0	\$0	\$0
	Waste Utilization	633	head	\$1.00	75%		\$0	\$0	\$0
	Structure for Water Control	587	each	\$511.00	75%	30	\$11,498	\$3,833	\$15,330
						Subtotal	\$630,242	\$210,081	\$840,322
TU5 (CAFO) 30 Facilities	Waste Management System	590	each	\$66,666	75%	15	\$749,993	\$249,998	\$999,990
	Nutrient Management, Animal Waste	312	head	\$1.00	75%	3,750	\$2,813	\$938	\$3,750
	Waste Storage Facility	313	head	\$1.00	75%		\$0	\$0	\$0
	Waste Treatment Lagoon	359	head	\$1.00	75%		\$0	\$0	\$0
	Waste Utilization	633	head	\$1.00	75%		\$0	\$0	\$0
	Structure for Water Control	587	each	\$1.00	75%	30	\$23	\$8	\$30
						Subtotal	\$752,828	\$250,943	\$1,003,770
TU6 Dryland Crop 0-8% Slopes	Conservation Crop Rotation	328	acre	\$0.00	75%		\$0	\$0	\$0
	Residue Management	329	acre	\$0.00	100%		\$0	\$0	\$0
	Contour Farming	330	acre	\$6.00	75%		\$0	\$0	\$0
	Chiseling	324	acre	\$15.00	100%		\$0	\$0	\$0
	Subsoiling	324	acre	\$21.00	100%		\$0	\$0	\$0
	Conservation Cover	327	acre	\$100.00	75%		\$0	\$0	\$0
	Nutrient Management	590	acre	\$25.00	75%		\$0	\$0	\$0
						Subtotal	\$0	\$0	\$0

TU7 Dryland Crop >8% Slopes	Conservation Crop Rotation	328	acre	\$0.00	75%		\$0	\$0	\$0
	Residue Management	329	acre	\$0.00	100%		\$0	\$0	\$0
	Contour Farming	330	acre	\$6.00	75%		\$0	\$0	\$0
	Chiseling	324	acre	\$15.00	100%		\$0	\$0	\$0
	Subsoiling	324	acre	\$21.00	100%		\$0	\$0	\$0
	Conservation Cover	327	acre	\$100.00	75%		\$0	\$0	\$0
	Terrace System	600	ft	\$2.00	75%		\$0	\$0	\$0
	Water and Sediment Control Structure	638	each	\$800.00	75%		\$0	\$0	\$0
	Nutrient Management	590	acre	\$25.00	75%		\$0	\$0	\$0
							Subtotal	\$0	\$0
TU8 Surface Irrigated Crop 27,413 Acres	Conservation Crop Rotation	328	acre	\$0.00	75%	27,413	\$0	\$0	\$0
	Residue Management	329	acre	\$0.00	100%	27,413	\$0	\$0	\$0
	Irrigation Water Management	449	acre	\$0.00	75%	27,413	\$0	\$0	\$0
	Irrigation System, All Sprinkler Systems	442	acre	\$400.00	75%	24,000	\$7,200,000	\$2,400,000	\$9,600,000
	Irrigation Pipeline, 100 psi 10"Pipeline	430	ft	\$6.00	75%	450,000	\$2,025,000	\$675,000	\$2,700,000
	Pumping Plant	533	hp	\$240.00	75%	13,500	\$2,430,000	\$810,000	\$3,240,000
	Gated Pipe, 10" Single Gated	430HH	ft	\$4.00	75%	10,000	\$30,000	\$10,000	\$40,000
	Sediment Basins	350	cuyd	\$3.00	75%	1,000	\$2,250	\$750	\$3,000
	Tailwater Recovery System	447	each	\$15,000.00	75%	5	\$56,250	\$18,750	\$75,000
							Subtotal	\$11,743,500	\$3,914,500
TOTAL FOR NORTH MILNER LAKE HUC5s							\$13,673,213	\$4,613,738	\$18,286,951

North Rock Creek Treatment Units as HUC5s

Treatment Unit	Best Management Practice	NRCS Practice Code	Unit Type	Unit Cost Equip 2001	C/S Rate	Practice Amount	C/S Funds	Operator Funds	Total Funds
TU1 Riparian- 10 Miles & 250 Acres	Riparian Forest Buffer	591A	each	\$23.00	75%	0	\$0	\$0	\$0
	Channel Vegetation	322	foot	\$6.00	75%	5,000	\$22,500	\$7,500	\$30,000
	Conservation Cover	327	acre	\$100.00	75%	125	\$9,375	\$3,125	\$12,500
	Fence	382	foot	\$1.00	75%	25,000	\$18,750	\$6,250	\$25,000
	Use Exclusion	472	acre	\$14.00	75%	125	\$1,313	\$438	\$1,750
	Prescribed Grazing	528A	acre	\$1.50	75%	125	\$141	\$47	\$188
	Heavy Use Area Protection	561	each	\$2,000.00	75%	10	\$15,000	\$5,000	\$20,000
	Streambank Protection	580	foot	\$45.00	75%	2,500	\$84,375	\$28,125	\$112,500
	Stream Channel Stabilization	584	foot	\$30.00	75%	1,500	\$33,750	\$11,250	\$45,000
	Wetland Creation/Development	658	each	\$66,666.00	75%	1	\$50,000	\$16,667	\$66,666
	Wetland Enhancement	659	acre	\$4,100.00	75%	5	\$15,375	\$5,125	\$20,500
	Wetland Restoration	657	acre	\$4,100.00	75%	5	\$15,375	\$5,125	\$20,500
	Critical Area Planting	342	acre	\$160.00	75%	125	\$15,000	\$5,000	\$20,000
						Subtotal	\$265,953	\$88,651	\$354,604
TU2 Permanent Irrigated Pasture & Hayland 7500 Acres	Critical Area Planting	342	acre	\$160.00	75%	5	\$600	\$200	\$800
	Fence	382	foot	\$1.00	75%	10,000	\$7,500	\$2,500	\$10,000
	Irrigation System, All Sprinkler Systems	442	acre	\$400.00	50%	1,000	\$200,000	\$200,000	\$400,000
	Irrigation Water Management	449	acre	\$5.00	75%	7,500	\$28,125	\$9,375	\$37,500
	Pasture & Hayland Planting	512	acre	\$65.00	75%	100	\$4,875	\$1,625	\$6,500
	Pipeline, Livestock	516	foot	\$1.00	75%	1,000	\$750	\$250	\$1,000
	Pipeline, 100 psi, 10" Pipe	430	foot	\$6.00	75%	13,000	\$58,500	\$19,500	\$78,000
	Prescribed Grazing	528A	acre	\$1.50	75%	7,500	\$8,438	\$2,813	\$11,250
	Pumping Plant for Water Control	533	hp	\$240.00	50%	300	\$36,000	\$36,000	\$72,000
	Spring Development	574	each	\$2,500.00	75%	1	\$1,875	\$625	\$2,500
Nutrient Management, Commercial Fertilizer	590	acre	\$5.00	75%	7,500	\$28,125	\$9,375	\$37,500	

	Nutrient Management, Soil Testing	590	each	\$55.00	75%	50	\$2,063	\$688	\$2,750
	Trough or-Tank	614	each	\$775.00	75%	10	\$5,813	\$1,938	\$7,750
	Forage Harvest Management	511	acre	\$6.00	75%	3,750	\$16,875	\$5,625	\$22,500
	Livestock Water Well	642	each	\$3,500.00	75%	1	\$2,625	\$875	\$3,500
	Tailwater Recovery System	447	each	\$15,000.00	75%	1	\$11,250	\$3,750	\$15,000
						Subtotal	\$413,413	\$295,138	\$708,550
TU3 (Rangeland) 658 Acres	Fence	382	mile	\$5,280.00	75%	2	\$7,920	\$2,640	\$10,560
	Pipeline, Livestock	516	mile	\$6,600.00	75%	1	\$4,950	\$1,650	\$6,600
	Prescribed Grazing	528A	acre	\$1.50	75%	1,000	\$1,125	\$375	\$1,500
	Range Planting	550	acre	\$55.00	75%	500	\$20,625	\$6,875	\$27,500
	Spring Development	574	each	\$2,500.00	75%	1	\$1,875	\$625	\$2,500
	Brush Management	314	acre	\$25.00	75%	50	\$938	\$313	\$1,250
	Livestock Water Well	642	each	\$3,500.00	75%	1	\$2,625	\$875	\$3,500
	Trough or Tank	614	each	\$775.00	75%	5	\$2,906	\$969	\$3,875
	Pond Livestock Water	378	each	\$3,200.00	75%	0	\$0	\$0	\$0
						Subtotal	\$42,964	\$14,321	\$57,285
TU4 (AFO) 5 Facilities	Waste Management System	590	each	\$66,666	75%	5	\$249,998	\$83,333	\$333,330
	Nutrient Management, Animal Waste	312	head	\$1.00	75%	500	\$375	\$125	\$500
	Waste Storage Facility	313	head	\$1.00	75%		\$0	\$0	\$0
	Waste Treatment Lagoon	359	head	\$1.00	75%		\$0	\$0	\$0
	Waste Utilization	633	head	\$1.00	75%		\$0	\$0	\$0
	Structure for Water Control	587	each	\$511.00	75%	10	\$3,833	\$1,278	\$5,110
							Subtotal	\$254,205	\$84,735
TU5 (CAFO) 1 Facility	Waste Management System	590	each	\$66,666	75%	1	\$50,000	\$16,667	\$66,666
	Nutrient Management, Animal Waste	312	head	\$1.00	75%	100	\$75	\$25	\$100
	Waste Storage Facility	313	head	\$1.00	75%		\$0	\$0	\$0
	Waste Treatment Lagoon	359	head	\$1.00	75%		\$0	\$0	\$0

	Waste Utilization	633	head	\$1.00	75%		\$0	\$0	\$0
	Structure for Water Control	587	each	\$1.00	75%	2	\$2	\$1	\$2
						Subtotal	\$50,076	\$16,692	\$66,768
TU6 Dryland Crop 0-8% Slopes 39,670 Acres	Conservation Crop Rotation	328	acre	\$50.00	75%	10,000	\$375,000	\$125,000	\$500,000
	Residue Management	329	acre	\$20.00	75%	10,000	\$150,000	\$50,000	\$200,000
	Contour Farming	330	acre	\$6.00	75%	5,000	\$22,500	\$7,500	\$30,000
	Chiseling	324	acre	\$15.00	100%	5,000	\$75,000	\$0	\$75,000
	Subsoiling	324	acre	\$21.00	100%	3,000	\$63,000	\$0	\$63,000
	Water and Sediment Control Structure	638	each	\$800.00	75%	50	\$30,000	\$10,000	\$40,000
	Conservation Cover	327	acre	\$100.00	75%	5,000	\$375,000	\$125,000	\$500,000
	Nutrient Management	590	acre	\$25.00	75%	10,000	\$187,500	\$62,500	\$250,000
						Subtotal	\$1,278,000	\$380,000	\$1,658,000
TU7 Dryland Crop >8% Slopes 1203 Acres	Conservation Crop Rotation	328	acre	\$50.00	75%	200	\$7,500	\$2,500	\$10,000
	Residue Management	329	acre	\$20.00	75%	200	\$3,000	\$1,000	\$4,000
	Contour Farming	330	acre	\$6.00	75%	200	\$900	\$300	\$1,200
	Chiseling	324	acre	\$15.00	75%	100	\$1,125	\$375	\$1,500
	Subsoiling	324	acre	\$21.00	75%	50	\$788	\$263	\$1,050
	Conservation Cover	327	acre	\$100.00	75%	1,000	\$75,000	\$25,000	\$100,000
	Terrace System	600	ft	\$2.00	75%	0	\$0	\$0	\$0
	Water and Sediment Control Structure	638	each	\$800.00	75%	10	\$6,000	\$2,000	\$8,000
	Nutrient Management	590	acre	\$25.00	75%	200	\$3,750	\$1,250	\$5,000
						Subtotal	\$98,063	\$32,688	\$130,750
TU8 Surface Irrigated Crop 83 Acres	Conservation Crop Rotation	328	acre	\$50.00	75%	80	\$3,000	\$1,000	\$4,000
	Residue Management	329	acre	\$20.00	75%	80	\$1,200	\$400	\$1,600
	Irrigation Water Management	449	acre	\$0.00	75%	80	\$0	\$0	\$0
	Irrigation System, All Sprinkler Systems	442	acre	\$400.00	75%	0	\$0	\$0	\$0
	Irrigation Pipeline, 100 psi 10"Pipeline	430	ft	\$6.00	75%	0	\$0	\$0	\$0

	Pumping Plant	533	hp	\$240.00	75%	0	\$0	\$0	\$0	
	Gated Pipe, 10" Single Gated	430HH	ft	\$4.00	75%	0	\$0	\$0	\$0	
	Sediment Basins	350	cuyd	\$3.00	75%	200	\$450	\$150	\$600	
	Tailwater Recovery System	447	each	\$15,000.00	75%	1	\$11,250	\$3,750	\$15,000	
						Subtotal	\$15,900	\$5,300	\$21,200	
	TOTAL FOR NORTH ROCK CREEK HUC5s							\$2,418,572	\$917,524	\$3,336,097
Rockland HUC5 Treatment Units										
Treatment Unit	Best Management Practice	NRCS Practice Code	Unit Type	Unit Cost Equip 2001	C/S Rate	Practice Amount	C/S Funds	Operator Funds	Total Funds	
TU1 Riparian- 17 Miles & 350 Acres	Riparian Forest Buffer	591A	each	\$23.00	75%	0	\$0	\$0	\$0	
	Channel Vegetation	322	foot	\$6.00	75%	8,000	\$36,000	\$12,000	\$48,000	
	Conservation Cover	327	acre	\$100.00	75%	175	\$13,125	\$4,375	\$17,500	
	Fence	382	foot	\$1.00	75%	25,000	\$18,750	\$6,250	\$25,000	
	Use Exclusion	472	acre	\$14.00	75%	175	\$1,838	\$613	\$2,450	
	Prescribed Grazing	528A	acre	\$1.50	75%	175	\$197	\$66	\$263	
	Heavy Use Area Protection	561	each	\$2,000.00	75%	10	\$15,000	\$5,000	\$20,000	
	Streambank Protection	580	foot	\$45.00	75%	3,000	\$101,250	\$33,750	\$135,000	
	Stream Channel Stabilization	584	foot	\$30.00	75%	1,500	\$33,750	\$11,250	\$45,000	
	Wetland Creation/Development	658	each	\$66,666.00	75%	1	\$50,000	\$16,667	\$66,666	
	Wetland Enhancement	659	acre	\$4,100.00	75%	5	\$15,375	\$5,125	\$20,500	
	Wetland Restoration	657	acre	\$4,100.00	75%	5	\$15,375	\$5,125	\$20,500	
	Critical Area Planting	342	acre	\$160.00	75%	175	\$21,000	\$7,000	\$28,000	
						Subtotal	\$300,659	\$100,220	\$400,879	

TU2 Permanent Irrigated Pasture & Hayland 3000 Acres	Critical Area Planting	342	acre	\$160.00	75%	5	\$600	\$200	\$800
	Fence	382	foot	\$1.00	75%	10,000	\$7,500	\$2,500	\$10,000
	Irrigation System, All Sprinkler Systems	442	acre	\$400.00	50%	500	\$100,000	\$100,000	\$200,000
	Irrigation Water Management	449	acre	\$5.00	75%	3,000	\$11,250	\$3,750	\$15,000
	Pasture & Hayland Planting	512	acre	\$65.00	75%	100	\$4,875	\$1,625	\$6,500
	Pipeline, Livestock	516	foot	\$1.00	75%	1,000	\$750	\$250	\$1,000
	Pipeline, 100 psi, 10" Pipe	430	foot	\$6.00	75%	5,000	\$22,500	\$7,500	\$30,000
	Prescribed Grazing	528A	acre	\$1.50	75%	3,000	\$3,375	\$1,125	\$4,500
	Pumping Plant for Water Control	533	hp	\$240.00	50%	120	\$14,400	\$14,400	\$28,800
	Spring Development	574	each	\$2,500.00	75%	1	\$1,875	\$625	\$2,500
	Nutrient Management, Commercial Fertilizer	590	acre	\$5.00	75%	3,000	\$11,250	\$3,750	\$15,000
	Nutrient Management, Soil Testing	590	each	\$55.00	75%	25	\$1,031	\$344	\$1,375
	Trough or Tank	614	each	\$775.00	75%	5	\$2,906	\$969	\$3,875
	Forage Harvest Management	511	acre	\$6.00	75%	1,500	\$6,750	\$2,250	\$9,000
	Livestock Water Well	642	each	\$3,500.00	75%	1	\$2,625	\$875	\$3,500
	Tailwater Recovery System	447	each	\$15,000.00	75%	1	\$11,250	\$3,750	\$15,000
						Subtotal	\$202,938	\$143,913	\$346,850
TU3 (Rangeland) 1504 Acres	Fence	382	mile	\$5,280.00	75%	1	\$3,960	\$1,320	\$5,280
	Pipeline, Livestock	516	mile	\$6,600.00	75%	1	\$2,475	\$825	\$3,300
	Prescribed Grazing	528A	acre	\$1.50	75%	250	\$281	\$94	\$375
	Range Planting	550	acre	\$55.00	75%	100	\$4,125	\$1,375	\$5,500
	Spring Development	574	each	\$2,500.00	75%	1	\$1,875	\$625	\$2,500
	Brush Management	314	acre	\$25.00	75%	50	\$938	\$313	\$1,250
	Livestock Water Well	642	each	\$3,500.00	75%	1	\$2,625	\$875	\$3,500
	Trough or Tank	614	each	\$775.00	75%	3	\$1,744	\$581	\$2,325
	Pond Livestock Water	378	each	\$3,200.00	75%	0	\$0	\$0	\$0
						Subtotal	\$18,023	\$6,008	\$24,030

TU4 (AFO) 1 Facility	Waste Management System	590	each	\$66,666	75%	1	\$50,000	\$16,667	\$66,666
	Nutrient Management, Animal Waste	312	head	\$1.00	75%	200	\$150	\$50	\$200
	Waste Storage Facility	313	head	\$1.00	75%		\$0	\$0	\$0
	Waste Treatment Lagoon	359	head	\$1.00	75%		\$0	\$0	\$0
	Waste Utilization	633	head	\$1.00	75%		\$0	\$0	\$0
	Structure for Water Control	587	each	\$511.00	75%	2	\$767	\$256	\$1,022
							Subtotal	\$50,916	\$16,972
TU5 (CAFO) 0 Facilities	Waste Management System	590	each	\$66,666	75%	0	\$0	\$0	\$0
	Nutrient Management, Animal Waste	312	head	\$1.00	75%	0	\$0	\$0	\$0
	Waste Storage Facility	313	head	\$1.00	75%		\$0	\$0	\$0
	Waste Treatment Lagoon	359	head	\$1.00	75%		\$0	\$0	\$0
	Waste Utilization	633	head	\$1.00	75%		\$0	\$0	\$0
	Structure for Water Control	587	each	\$1.00	75%	0	\$0	\$0	\$0
							Subtotal	\$0	\$0
TU6 Dryland Crop 0-8% Slopes 21,089 Acres	Conservation Crop Rotation	328	acre	\$50.00	75%	3,000	\$112,500	\$37,500	\$150,000
	Residue Management	329	acre	\$20.00	75%	3,000	\$45,000	\$15,000	\$60,000
	Contour Farming	330	acre	\$6.00	75%	1,500	\$6,750	\$2,250	\$9,000
	Chiseling	324	acre	\$15.00	100%	1,500	\$22,500	\$0	\$22,500
	Subsoiling	324	acre	\$21.00	100%	500	\$10,500	\$0	\$10,500
	Water and Sediment Control Structure	638	each	\$800.00	75%	25	\$15,000	\$5,000	\$20,000
	Conservation Cover	327	acre	\$100.00	75%	1,500	\$112,500	\$37,500	\$150,000
	Nutrient Management	590	acre	\$25.00	75%	3,000	\$56,250	\$18,750	\$75,000
						Subtotal	\$381,000	\$116,000	\$497,000
TU7 Dryland Crop >8% Slopes 736 Acres	Conservation Crop Rotation	328	acre	\$50.00	75%	160	\$6,000	\$2,000	\$8,000
	Residue Management	329	acre	\$20.00	75%	160	\$2,400	\$800	\$3,200
	Contour Farming	330	acre	\$6.00	75%	160	\$720	\$240	\$960
	Chiseling	324	acre	\$15.00	75%	80	\$900	\$300	\$1,200

	Subsoiling	324	acre	\$21.00	75%	50	\$788	\$263	\$1,050
	Conservation Cover	327	acre	\$100.00	75%	160	\$12,000	\$4,000	\$16,000
	Terrace System	600	ft	\$2.00	75%	0	\$0	\$0	\$0
	Water and Sediment Control Structure	638	each	\$800.00	75%	10	\$6,000	\$2,000	\$8,000
	Nutrient Management	590	acre	\$25.00	75%	160	\$3,000	\$1,000	\$4,000
						Subtotal	\$31,808	\$10,603	\$42,410
TUS Surface Irrigated Crop 0 Acres	Conservation Crop Rotation	328	acre	\$50.00	75%	0	\$0	\$0	\$0
	Residue Management	329	acre	\$20.00	75%	0	\$0	\$0	\$0
	Irrigation Water Management	449	acre	\$0.00	75%	0	\$0	\$0	\$0
	Irrigation System, All Sprinkler Systems	442	acre	\$400.00	75%	0	\$0	\$0	\$0
	Irrigation Pipeline, 100 psi 10" Pipeline	430	ft	\$6.00	75%	0	\$0	\$0	\$0
	Pumping Plant	533	hp	\$240.00	75%	0	\$0	\$0	\$0
	Gated Pipe, 10" Single Gated	430HH	ft	\$4.00	75%	0	\$0	\$0	\$0
	Sediment Basins	350	cuyd	\$3.00	75%	0	\$0	\$0	\$0
	Tailwater Recovery System	447	each	\$15,000.00	75%	0	\$0	\$0	\$0
						Subtotal	\$0	\$0	\$0
	TOTAL FOR ROCKLAND HUC5						\$985,342	\$393,714	\$1,379,057
	TOTAL FOR LAKE WALCOTT TMDL						\$24,775,498	\$8,607,899	\$33,383,397

APPENDIX B: GIS MAPS

Lake Walcott TMDL Subbasin

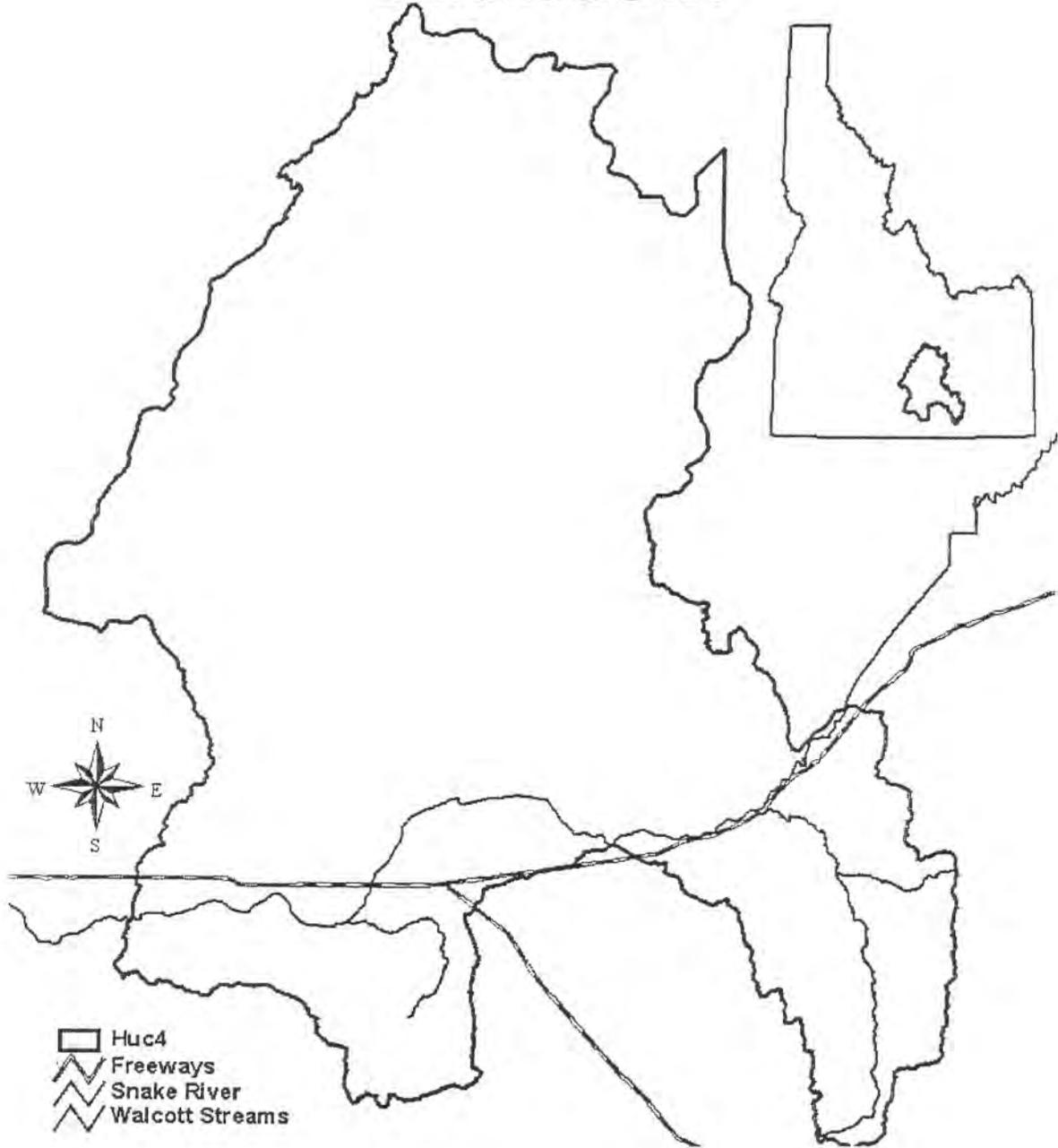


Figure 1 Lake Walcott TMDL Subbasin

Lake Walcott 303(d) WQLS Numbers

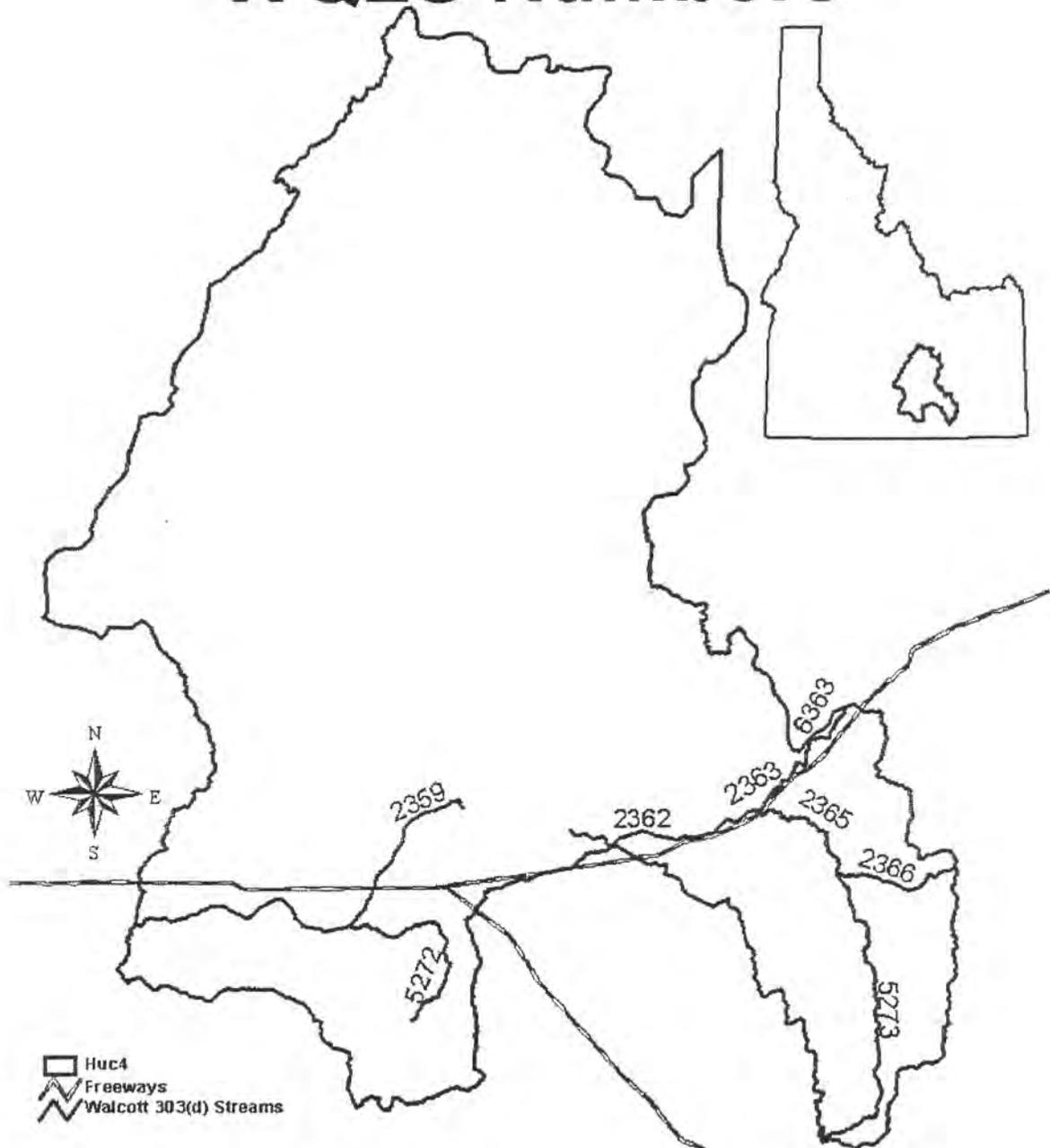


Figure 2 Lake Walcott 303(d) WQLS Numbers

Implementation Plan Watersheds

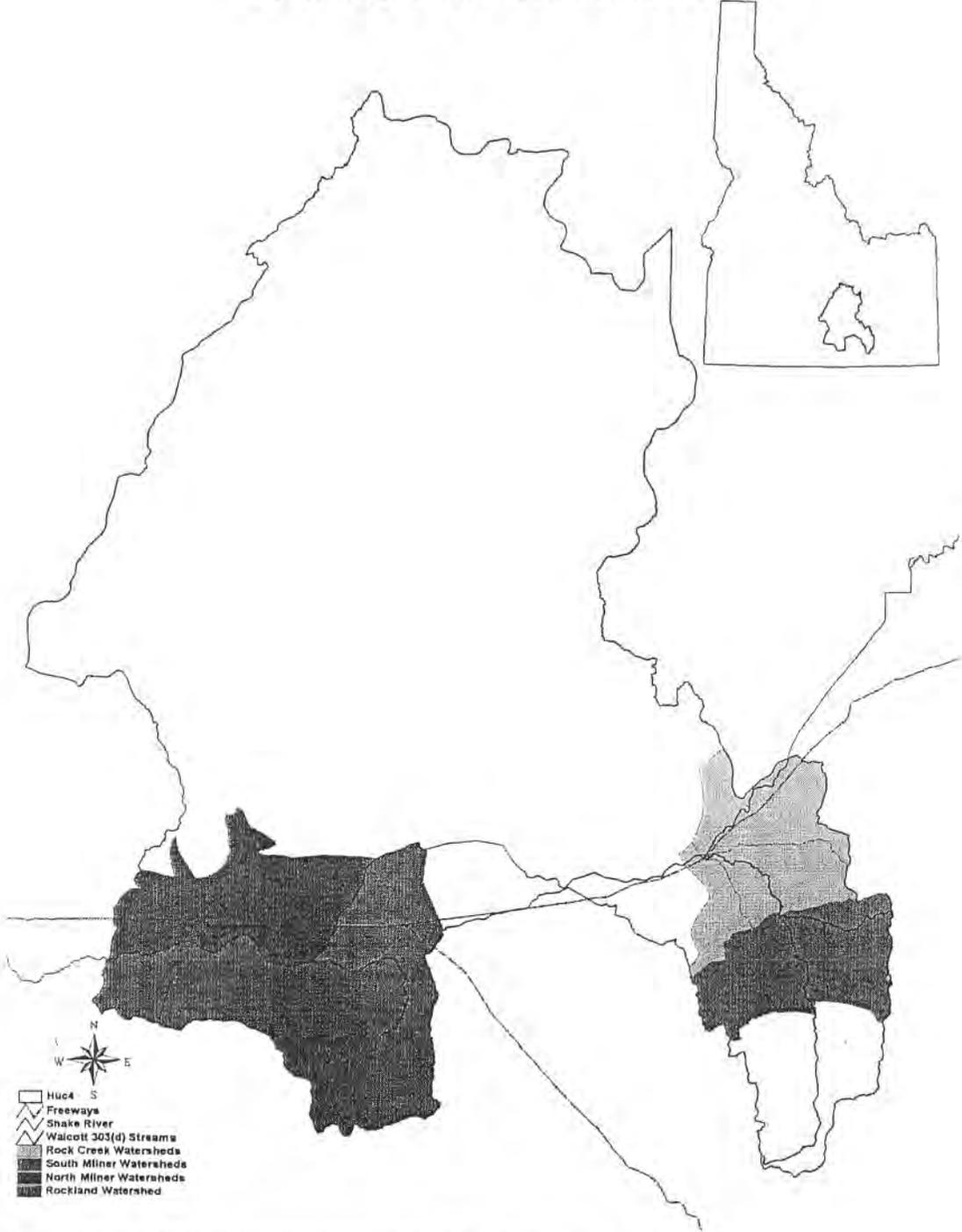


Figure 3 Lake Walcott Implementation Plan Watersheds