Little Wood River TMDL Implementation Plan for Agriculture

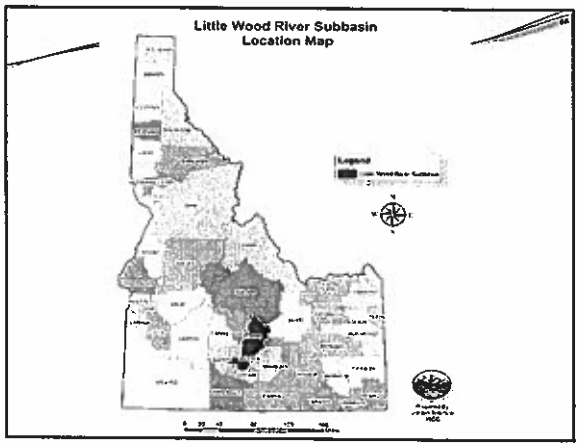
Prepared by:
Idaho Soil Conservation Commission
and Idaho Association of Soil Conservation Districts

Purpose

- The Little Wood River subbasin Total Maximum Daily Load (TMDL) Implementation Plan for Agriculture outlines an adaptive management approach for implementation of best management practices (BMPs) and Resource Management Systems (RMS) on agricultural lands to meet the requirements of the Little Wood River subbasin TMDL.

Goals and Objectives

- The goal of this plan is to provide a strategy for agriculture that assists and/or compliments other watershed efforts in restoring an protecting beneficial uses for water quality impaired streams in the Little Wood River subbasin.
- The water quality impaired stream segments and pollutants are identified by the Idaho Department of Environmental Quality (IDEQ) [1998] 303(d)* list for the Little Wood River subbasin
  - *Note: The Little Wood River TMDL was developed using the IDEQ [1998] 303(d) list of impaired stream segements. The results from the IDEQ [2008] 303(d), 305(b) integrated report will also be mentioned in the document for implementation purposes.

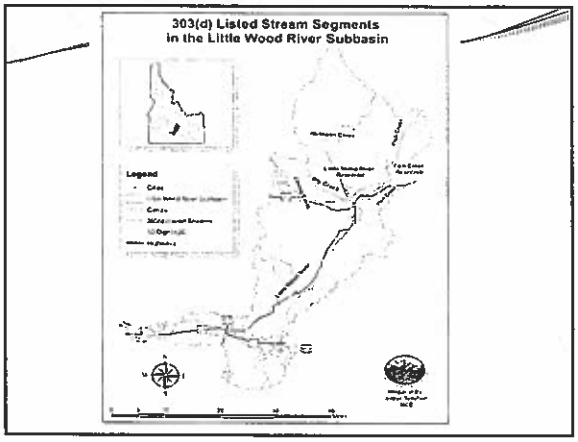


Water Body Name	Assessment Units	1998 303(d) Boundaries	Pollutants
Little Wood River #1 (lower)	ID17040215K001_05 ID17040215K001_05a ID17040215K001_05b	Richfield (town) to Big Wood River	BAC, DO, NUT, SED, QALT, TEMP
Little Wood River #1 (upper)	ID17040215K002_05	Silver Creek to Richfield (town)	NUT, SED, TEMP
Little Wood River #3	ID17040215K010_05a ID17040215K003_05	East Canal Diversion to Silver Creek	NUT, SED, TEMP
Little Wood River Reservoir	ID17040215K012L_0L		BAC, DO, NUT, SED, QALT
Dry Creek	ID17040215K022_02 ID17040215K022_03	Headwaters to Little Wood River	BAC, DO, NUT, SED, QALT
Fish Creek (below)	ID17040215K006_03 ID17040215K006_04	Fish Creek Reservoir to Carey Lake	BAC, DO, NUT, SED, QALT
Fish Creek Reservoir	ID17040215K005L_0L		BAC, DO, NUT, SED, QALT
Muldoon Creek	ID17040215K014_04	South Fork Muldoon Creek to Little Wood River	UNK
Muldoon Creek	ID17040215K014_04 ID17040215K014_03 ID17040215K014_02	Headwaters to Little Wood River	TEMP
Loving Creek	ID17040215K023_02	Headwaters to Silver Creek	TEMP
Fish Creek (above)	ID17040215K008_02 ID17040215K008_03 ID17040215K008_04	Headwaters to Fish Creek Reservoir	BAC, DO, NUT, SED, QALT

Pollutants Key: BAC = Bacteria, DO = Dissolved Oxygen, NUT = Nutrients, SED = Sediment, QALT = Flow Alteration, UNK = Unknown, TEMP = Temperature

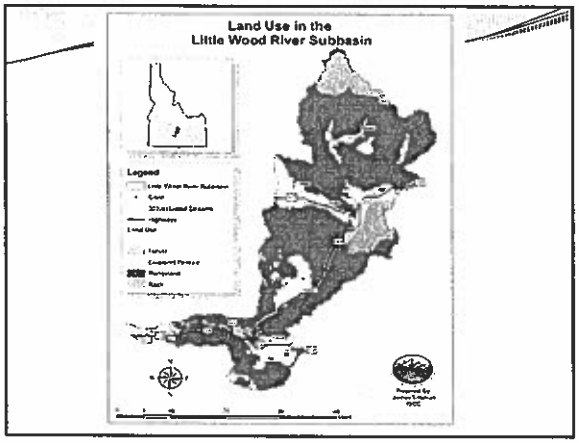
Water Body Name	Assessment Units	2008 303(d) Boundaries	Pollutants
Little Wood River #1 (lower)	ID17040215K001_05 ID17040215K001_05a ID17040215K001_05b	Richfield (town) to Big Wood River	BAC, DO, NUT, SED, QALT, TEMP
Little Wood River #1 (upper)	ID17040215K002_05	Carey Lake Outlet to Richfield (town)	NUT, SED, TEMP
Little Wood River #2	ID17040215K010_05	Little Wood River Reservoir Dam to Carey	State determines water quality standard is being met. QALT
Little Wood River #3	ID17040215K003_05	West Canal (North) to West Canal (South)	State determines water quality standard is being met
Little Wood River Reservoir	ID17040215K012L_0L		DO, NUT, SED, QALT
Dry Creek	ID17040215K022_02 ID17040215K022_03	Headwaters to Little Wood River	SED, QALT
Fish Creek (below)	ID17040215K006_03 ID17040215K006_04	Fish Creek Reservoir Dam to Mouth	DO, NUT, SED, TEMP, QALT
Fish Creek Reservoir	ID17040215K005L_0L		State determines water quality standard is being met. QALT
Fish Creek (above)	ID17040215K008_02 ID17040215K008_03 ID17040215K008_04	Source to Fish Creek Reservoir	BAC, DO, NUT, SED, QALT, TEMP
Muldoon Creek	ID17040215K014_03 ID17040215K014_02	Headwaters to Little Wood River	TEMP
Silver Creek	ID17040215K023_02	Source to Mouth	TEMP
West Fork Fish Creek	ID17040215K009_03	Source to Fish Creek Reservoir	QALT
Cold Spring Creek	ID17040215K020_02A		UNK

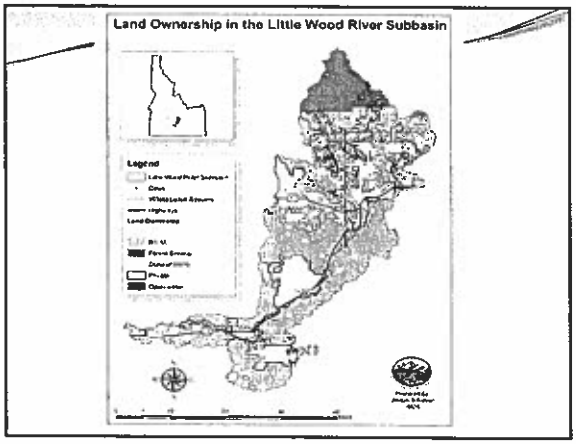
Pollutants Key: BAC = Bacteria, DO = Dissolved Oxygen, NUT = Nutrients, SED = Sediment, QALT = Flow Alteration, UNK = Unknown, TEMP = Temperature

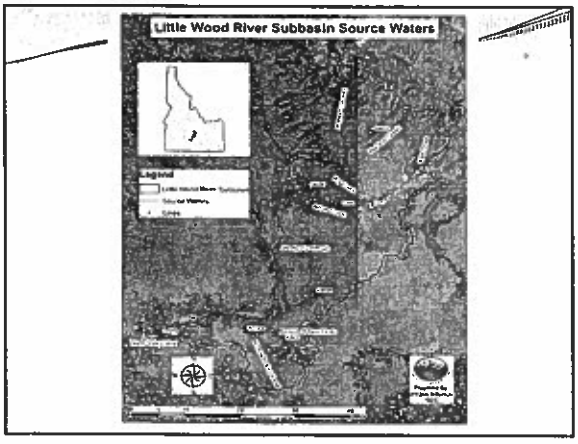


Project Setting

- The Little Wood River subbasin is located in South-Central Idaho and is approximately 781,178 acres in size.
- Land use is 71.6% Rangeland, 19.2% Cropland/Pasture, 4.7% Forest, and 4.5% Rock
- Land ownership in the subbasin is as follows: 49.7% Bureau of Land Management, 35.1% Private, 9.2% U.S. Forest Service, 5.8% State of Idaho, and 0.2% open water







Conservation Accomplishments

- Over the past 5 years (2004-2008), approximately $4,092,519.64 has been spent on the implementation of these Best Management Practices in the Little Wood River subbasin. Approximately 35% of this cost has been provided in the form of cost-share incentives through various state and federal programs. These programs include the Environmental Quality Incentives Program (EQIP), Conservation Technical Assistance (CTA), the Conservation Reserve Program (CRP), the Wildlife Habitat Incentives Program (WHIP), Conservation Improvement Grants (CIG), and the Water Quality Program for Agriculture (WQPA). EQIP, CTA, CRP, and WHIP are all programs offered through the Natural Resources Conservation Service, while CIG and WQPA are programs offered through the Idaho Soil Conservation Commission. The remaining 65% of money spent on the implementation of these BMPs has been provided by the landowners involved in these projects.

BMP's implemented in the Little Wood River Subbasin in the last 5 years (2004-2008)

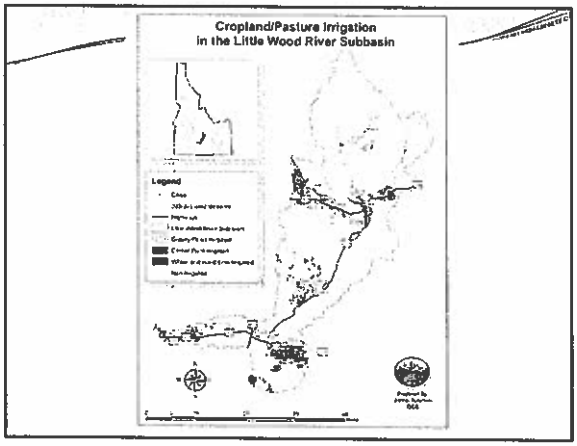
BMP	Amount	Units	Cost-Share	Producers Cost	Total BMP Cost
Conservation Cover	972	ac	$518,862.00	$972,306.00	$1,491,168.00
Prescribed Grazing	9,944	ac	$198,940.00	$173,736.00	$372,676.00
Lime Fertilizer	880	ac	$39,552.00	$28,224.00	$67,776.00
Conservation Crop Rotation	3,279	ac	N/A	$0.00	$0.00
Pest Management	2,954	ac	$1,595.00	$26,430.00	$28,025.00
Upland Wildlife Habitat Management	2,782	ac	$9,730.00	$149,190.00	$158,920.00
Irrigation Reservoir	10,028	Acre-ft	$26,707.81	$17,265.00	$43,972.81
Irrigation System, Sprinkler	3,917	ac	$1,838,772.00	$1,539,795.00	$3,378,567.00
Irrigation Water Conveyance, Pipeline, High Pressure, Underground, Plastic	19,376	ft	$101,361.00	$259,935.00	$361,296.00
Irrigation Water Conveyance, Pipeline, Low Pressure, Underground, Plastic	11,955	ft	$24,891.25	$44,786.25	$69,677.50
Pasture and Hay Planting	669	ac	$61,731.00	$106,980.00	$168,711.00
Pond	7	no	$13,050.00	$13,050.00	$26,100.00
Pumping Plant	23	hp	$68,160.00	$109,472.00	$177,632.00
Water Well	1	no	$5,500.00	$3,500.00	$9,000.00
Riparian Herbaceous Cover	28	ac	$2,240.00	$6,750.00	$8,990.00
Wetland Wildlife Habitat Management	35	ac	$100.00	$680.00	$780.00
Irrigation Water Management	2,950	ac	$1,375.00	$37,765.00	$39,140.00
Residue Management, Mulch Till	1,357	ac	$0.00	$40,710.00	$40,710.00
Residue Management, Seasonal	1,391	ac	$0.00	$0.00	$0.00
Fence	2,491	ft	$1,245.25	$2,242.23	$3,488.48
Structure for Water Control	1	no	$4,995.00	$10,455.00	$15,450.00
Comprehensive Nutrient Management Plan	2	no	$0.00	$12,000.00	$12,000.00
Nutrient Management	1,136	ac	$568.00	$10,340.00	$11,340.00
Surface Roughening	450	ac	$0.00	$0.00	$0.00
Waste Storage Facility	1	no	$0.00	$145,000.00	$145,000.00
Cover Crop	307	ac	$0.00	$15,350.00	$15,350.00
Filter Strip	20	ac	$0.00	$1,300.00	$1,300.00
Irrigation System, Surface and Subsurface	38	ac	$0.00	$4,940.00	$4,940.00
Riparian Forest Buffer	35	ac	$0.00	$70,750.00	$70,750.00
Stream Habitat Improvement and Management	25	ac	$0.00	$52,000.00	$52,000.00
Total			$3,434,348.72	$3,658,175.92	$6,992,819.64

Pollutants

- Predominate sources of non-point source pollutants to the Little Wood River subbasin include road bridges, livestock access to riparian areas, cropland and pasture adjacent to canals and streams, Animal Feeding Operations (AFOs), and Confined Animal Feeding Operations (CAFOs).
- Major concerns to water quality are off-site nutrient transport from agricultural fields, industrial waste applications, municipal wastewater treatment plants, urban runoff and storm water, and flow alteration due to irrigation diversion structures and hydroelectric plants.

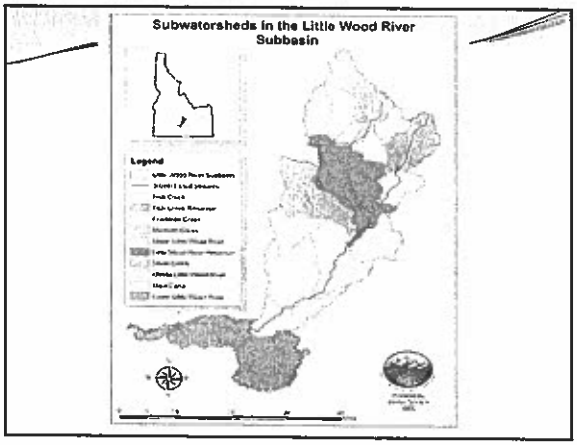
*The Little Wood River #1 segment is not on the [1998] 303(d) listed stream segments list, but recently has had a TMDL completed for temperature.

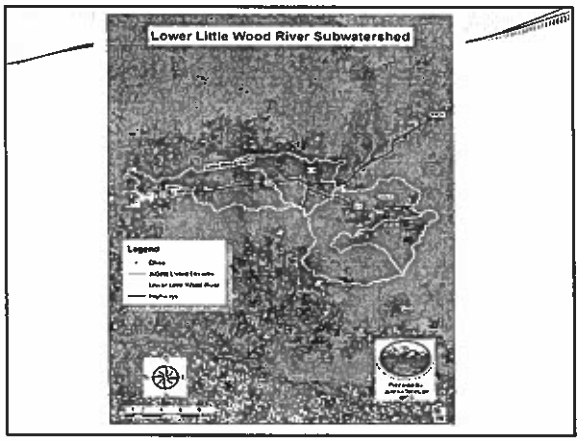
Water Body	303(d) Listed Pollutants	Load Allocations		Required % Reduction to meet TMDL
Little Wood River #4 (lower)	BAC, DO, NUT, SED, QALT, TEMP	SED TEMP NUT	420.7 tons/yr 3,295,488.5 kWh/day 3.94 lbs/day	45.1 5.9 82.5
Little Wood River #4 (upper)	NUT, SED, TEMP	SED TEMP NUT	420.7 tons/yr 3,295,488.5 kWh/day 14.71 lbs/day	45.1 5.9 8.3
Little Wood River #3	NUT, SED, TEMP			
Little Wood River Reservoir	BAC, DO, NUT, SED, QALT			
*Little Wood River #1	TEMP	TEMP	1,196,752.1 kWh/day	1.9
Fish Creek Reservoir	BAC, DO, NUT, SED, QALT			
Fish Creek (below)	BAC, DO, NUT, SED, QALT	NUT SED TEMP	16.48 lbs/day 36.2 tons/yr 420,792.5 kWh/day	66.1 67.1 21.5
Fish Creek (above)	BAC, DO, NUT, SED, QALT	BAC NUT SED TEMP	485.5 cfu/100ml 4.32 lbs/day 82.9 tons/yr 239,420.6 kWh/day	85.3 32.0 86.3 20.5
Dry Creek	BAC, DO, NUT, SED, QALT	SED	30.7 tons/yr	81.9
Muldoon Creek	TEMP	535,774.9 kWh/day		13.7
Loving Creek	TEMP	477,328.1 kWh/day		17.3

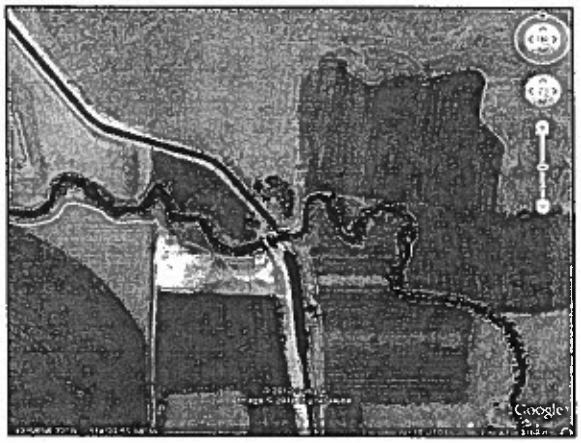


Subwatersheds

- The Little Wood River subbasin consists of ten subwatersheds. Each of these watersheds drains into the tributaries of the Little Wood River or into the Little Wood River itself, with the exception of Dry Creek and its tributaries. Dry Creek currently does not connect with the Little Wood River directly. However, it does flow into the West Canal of the Little Wood River Irrigation District, which does flow into the Little Wood River.




Lower Little Wood River Subwatershed
Legend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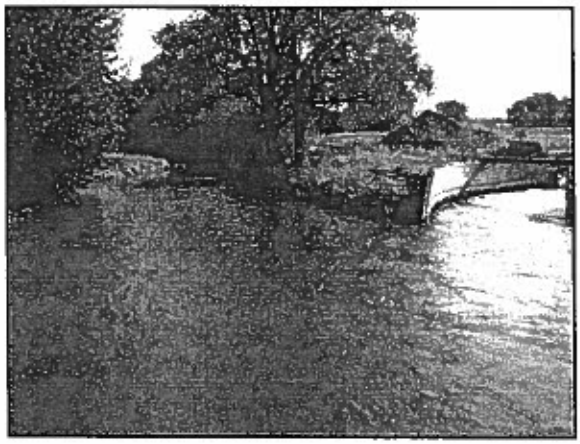
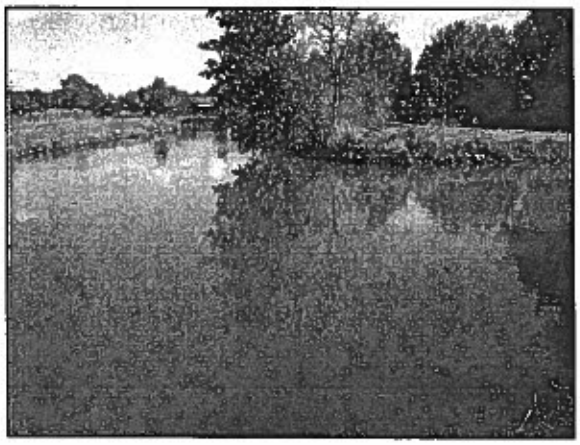
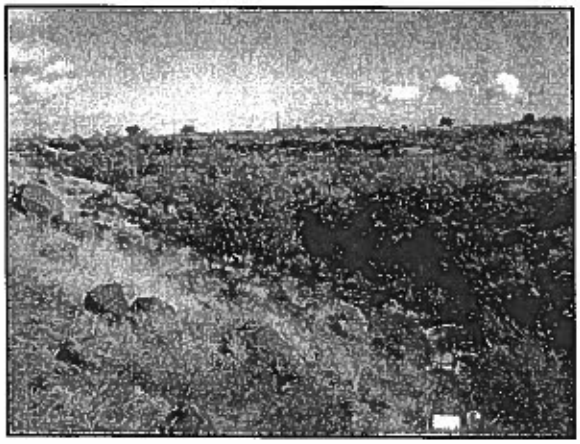
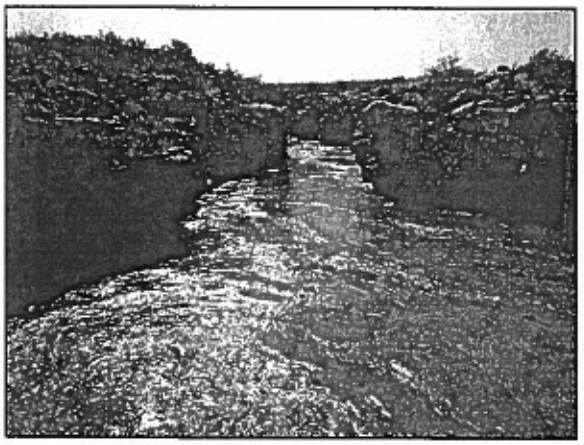








Treatment Unit #1a : Irrigated Cropland/Pasture - Lower Little Wood River Subwatershed

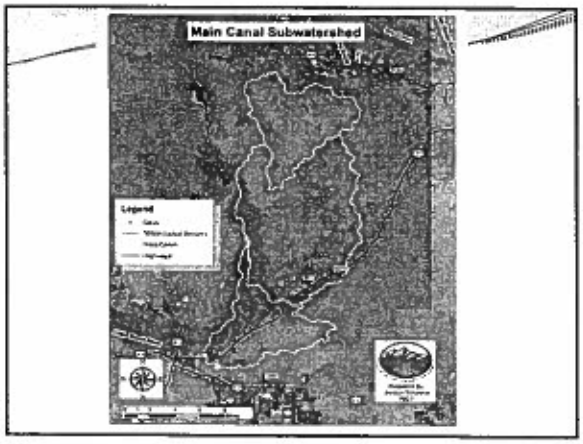
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Conservation Crop Rotation	328	$0.00	acre	16,344.9	$0.00
Irrigation Water Management	449	$5.00	acre	16,344.9	$81,724.50
Nutrient Management	590	$5.00	acre	16,344.9	$81,724.50
Pest Management	595	$15.00	acre	16,344.9	$245,173.50
Surface Roughening	609	$0.00	acre	16,344.9	$0.00
Upland Wildlife Habitat Management	645	$10.00	acre	4,903.5	$49,034.70
Irrigation System, Sprinkler	442	$630.00	acre	16,344.9	$10,297,287.00
Residue Management, Seasonal	344	$0.00	acre	16,344.9	$0.00
Pasture and Hay Planting	512	$244.00	acre	4,903.5	$1,196,466.68
Prescribed Grazing	528	$5.00	acre	4,903.5	$24,517.35
Watering Facility	614	$1,910.00	each	123	$234,930.00
Fence	382	$2.46	foot	Site Specific	
PAM - Anionic Polyacrylamide Erosion Control	450	$40.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Structure for Water Control	587	Site Specific	each	Site Specific	
Rigid Gated Pipeline	430	Site Specific	foot	Site Specific	
Irrigation Water Conveyance, Pipeline	430	Site Specific	foot	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$13,210,838.23

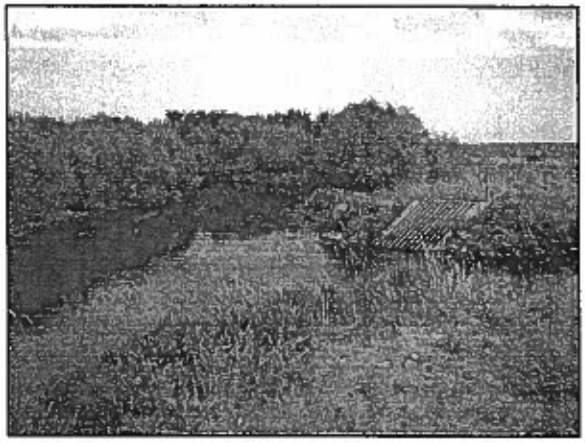
Treatment Unit #1b : Rangeland - Lower Little Wood River Subwatershed

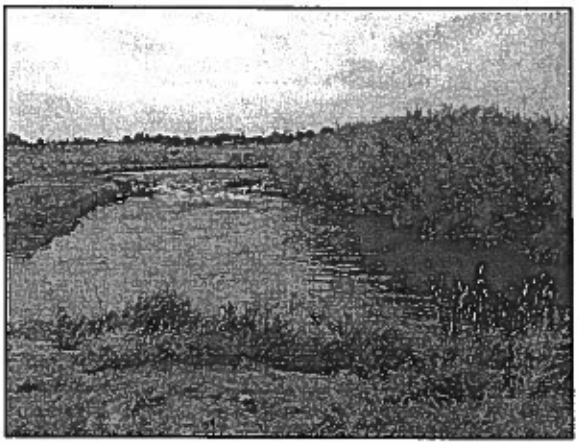
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	foot	39,384.0	$96,884.64
Prescribed Grazing	528	$2.00	acre	3,938.4	$7,876.80
Upland Wildlife Habitat Management	645	$10.00	acre	3,938.4	$39,384.00
Watering Facility	614	$1,910.00	each	20	$38,200.00
Pest Management	595	$30.00	acre	393.8	$11,815.20
Range Planting	550	$100.00	acre	393.8	$39,380.00
Spring Development	574	$1,800.00	each	2	$3,600.00
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Water Well	642	$13,500.00	each	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Firebreak	394	Site Specific	acre	Site Specific	
Total					$237,344.64

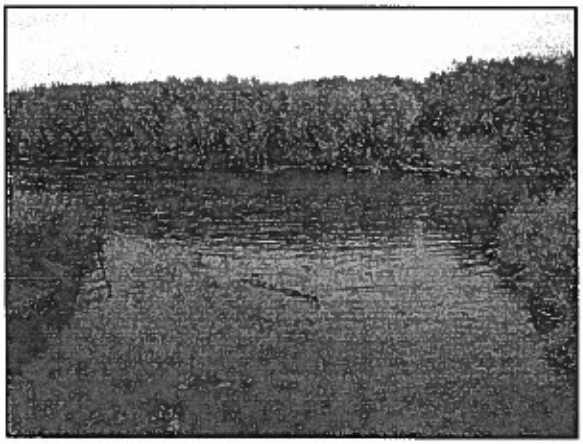
Treatment Unit #1c : Riparian - Lower Little Wood River Subwatershed

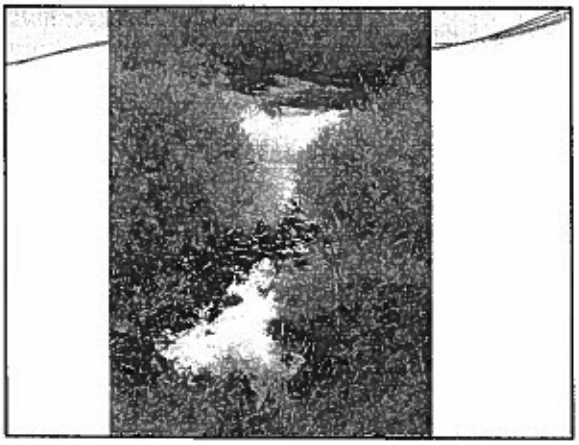
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	foot	136,346.6	$335,104.63
Wetland Wildlife Habitat Management	645	$10.00	acre	713.2	$7,132.00
Watering Facility	614	$1,910.00	each	18	$34,380.00
Access Control	472	$34.00	acre	356.6	$12,124.40
Channel Vegetation	322	$4.10	foot	78,273.3	$320,920.53
Pest Management	595	$30.00	acre	Site Specific	
Channel Stabilization	584	$37.50	foot	Site Specific	
Streambank and Shoreline Protection	580	$32.50	foot	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Riparian Forest Buffer	391	$2,250.00	acre	Site Specific	
Riparian Herbaceous Cover	390	$450.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$759,661.57











Treatment Unit #1b1: Irrigated Cropland/Pasture - Main Canal Subwatershed

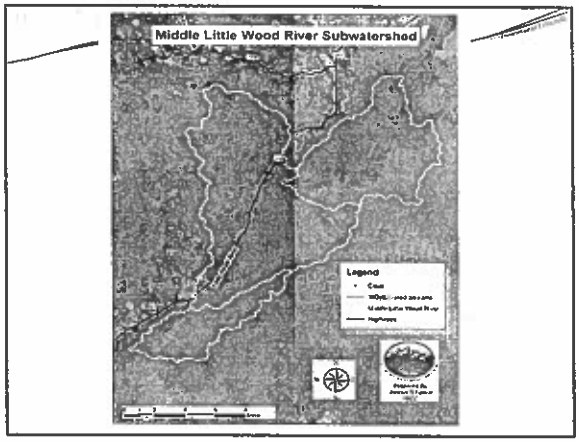
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Conservation Crop Rotation	328	$0.00	acre	21,307.0	$0.00
Irrigation Water Management	449	$5.00	acre	21,307.0	$107,535.00
Nutrient Management	590	$5.00	acre	21,307.0	$107,535.00
Pest Management	595	$15.00	acre	21,307.0	$322,605.00
Surface Roughening	609	$0.00	acre	21,307.0	$0.00
Upland Wildlife Habitat Management	645	$10.00	acre	6,452.1	$64,521.00
Irrigation System, Sprinkler	442	$630.00	acre	21,307.0	$13,549,410.00
Residue Management, Seasonal	344	$0.00	acre	21,307.0	$0.00
Pasture and Hay Planting	512	$244.00	acre	6,452.1	$1,574,312.40
Prescribed Grazing	528	$5.00	acre	6,452.1	$32,260.50
Watering Facility	614	$1,910.00	each	169	$307,510.00
Fence	382	$2.46	foot	Site Specific	
PAM - Anionic Polyacrylamide Erosion Control	450	$40.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Structure for Water Control	587	Site Specific	each	Site Specific	
Rigid Coated Pipeline	430	Site Specific	foot	Site Specific	
Irrigation Water Conveyance, Pipeline	430	Site Specific	foot	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$16,865,488.90

Treatment Unit #2b: Rangeland - Main Canal Subwatershed

Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	foot	48,868.0	$119,477.28
Prescribed Grazing	528	$2.00	acre	4,856.8	$9,713.60
Upland Wildlife Habitat Management	645	$10.00	acre	4,856.8	$48,568.00
Watering Facility	614	$1,910.00	each	23	$45,810.00
Pest Management	595	$30.00	acre	485.7	$14,570.40
Range Planting	550	$100.00	acre	485.7	$48,568.00
Spring Development	574	$1,800.00	each	3	$5,400.00
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Water Well	642	$13,500.00	each	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Firebreak	394	Site Specific	acre	Site Specific	
Total					$291,137.28

Treatment Unit #2b: Riparian - Dixie Canal Subwatershed

Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	foot	96,064.2	$236,317.93
Wetland Wildlife Habitat Management	645	$10.00	acre	443.3	$4,433.00
Watering Facility	614	$1,910.00	each	10	$19,010.00
Access Control	472	$34.00	acre	221.7	$7,537.80
Channel Vegetation	322	$4.10	foot	48,032.1	$196,931.61
Pest Management	595	$30.00	acre	Site Specific	
Channel Stabilization	584	$37.50	foot	Site Specific	
Streambank and Shoreline Protection	580	$52.50	foot	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Riparian Forest Buffer	391	$2,250.00	acre	Site Specific	
Riparian Herbaceous Cover	390	$450.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$466,228.61



Treatment Unit #1c: Irrigated Cropland/Pasture - Middle Little Wood River Subwatershed

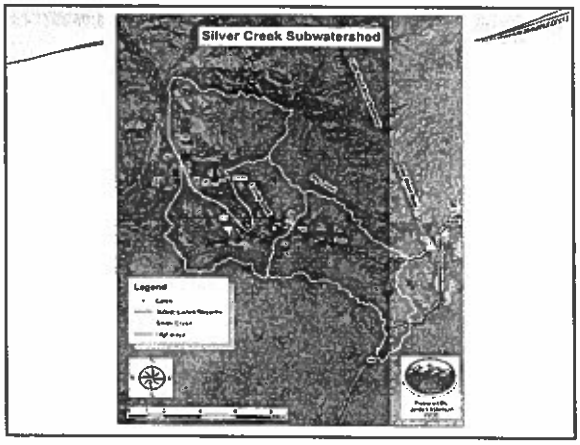
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Conservation Crop Rotation	328	$0.00	acre	7.8	$0.00
Irrigation Water Management	449	$5.00	acre	7.8	$39.00
Nutrient Management	590	$5.00	acre	7.8	$39.00
Pest Management	595	$15.00	acre	7.8	$117.00
Upland Wildlife Habitat Management	645	$10.00	acre	7.8	$78.00
Irrigation System, Sprinkler	442	$670.00	acre	7.8	$5,214.00
Residue Management, Seasonal	344	$0.00	acre	7.8	$0.00
Pasture and Hay Planting	512	$244.00	acre	7.8	$1,903.20
Prescribed Grazing	528	$5.00	acre	7.8	$39.00
Watering Facility	614	$1,910.00	each	1	$1,910.00
Fence	382	$2.46	foot	Site Specific	
PAM - Anionic Polyacrylamide Erosion Control	450	$40.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Structure for Water Control	587	Site Specific	each	Site Specific	
Rigid Gated Pipeline	430	Site Specific	foot	Site Specific	
Irrigation Water Conveyance, Pipeline	430	Site Specific	foot	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$9,839.20

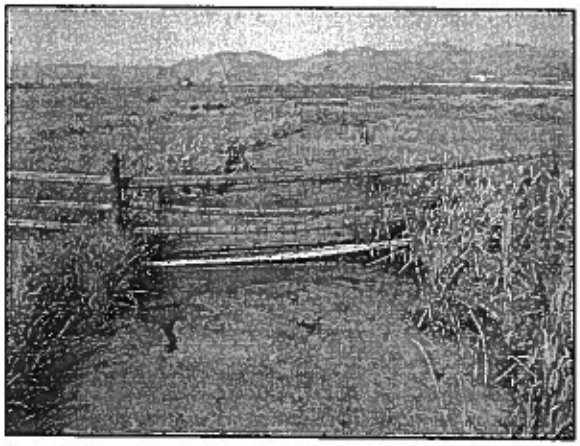
Treatment Unit #1a: Rangeland - Middle Little Wood River Subwatershed

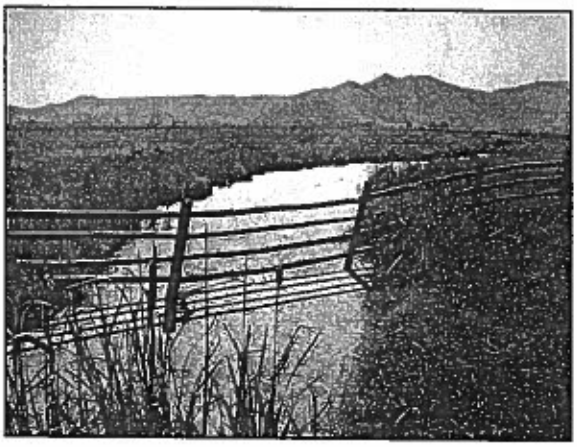
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	foot	14,227.0	$34,971.42
Prescribed Grazing	528	$2.00	acre	1,482.7	$2,965.40
Upland Wildlife Habitat Management	645	$10.00	acre	1,482.7	$14,827.00
Watering Facility	614	$1,910.00	each	7	$13,370.00
Pest Management	595	$30.00	acre	148.3	$4,449.10
Range Planting	550	$100.00	acre	148.3	$14,827.00
Spring Development	574	$1,800.00	each	1	$1,800.00
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Water Well	642	$13,500.00	each	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Firebreak	394	Site Specific	acre	Site Specific	
Total					$88,711.92

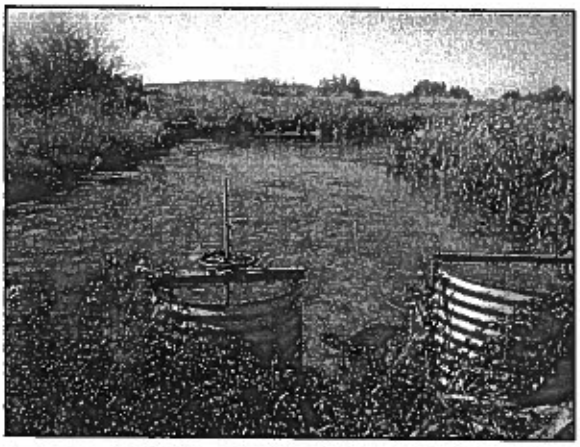
Treatment Unit #3c: Riparian - Middle Little Wood River Subwatershed

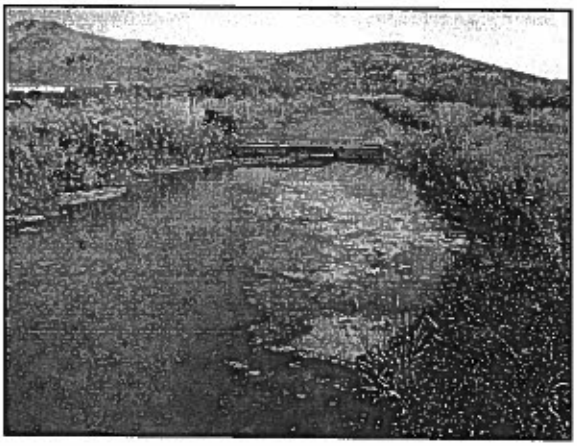
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	foot	34,122.9	$83,942.33
Wetland Wildlife Habitat Management	645	$10.00	acre	162.9	$1,629.10
Watering Facility	614	$1,910.00	each	4	$7,640.00
Access Control	472	$34.00	acre	81.5	$2,769.30
Channel Vegetation	322	$4.10	foot	17,041.5	$69,951.95
Pest Management	595	$30.00	acre	Site Specific	
Channel Stabilization	584	$37.50	foot	Site Specific	
Streambank and Shoreline Protection	580	$52.50	foot	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Riparian Forest Buffer	391	$2,250.00	acre	Site Specific	
Riparian Herbaceous Cover	390	$450.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$165,933.58

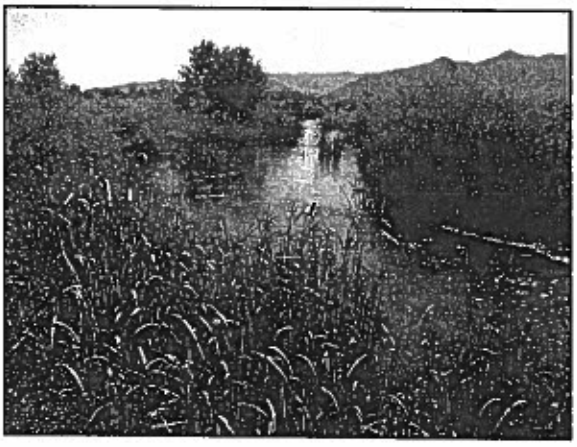












Treatment Unit #1d : Irrigated Cropland/Pasture - Silver Creek Subwatershed

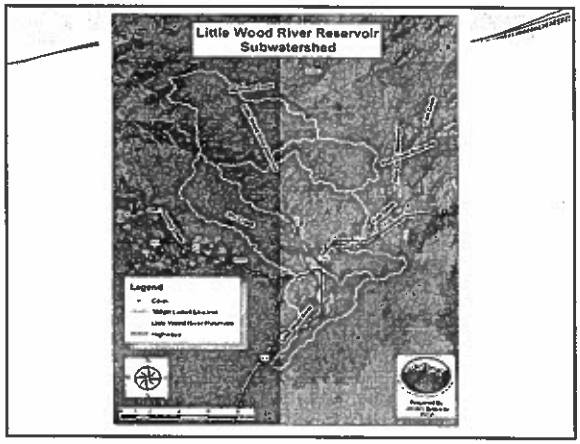
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Conservation Crop Rotation	328	$0.00	acre	20,308.2	$0.00
Irrigation Water Management	449	$5.00	acre	20,308.2	$101,541.00
Nutrient Management	590	$5.00	acre	20,308.2	$101,541.00
Pest Management	595	$15.00	acre	20,308.2	$304,623.00
Surface Roughening	609	$0.00	acre	20,308.2	$0.00
Upland Wildlife Habitat Management	645	$10.00	acre	6,092.5	$60,924.60
Irrigation System, Sprinkler	442	$630.00	acre	20,308.2	$12,793,166.00
Residue Management, Seasonal	345	$0.00	acre	20,308.2	$0.00
Pasture and Hay Planting	512	$244.00	acre	6,092.5	$1,486,560.24
Prescribed Grazing	528	$5.00	acre	6,092.5	$30,462.30
Watering Facility	614	$1,910.00	each	152	$290,320.00
Fence	382	$2.46	foot	Site Specific	
PAM - Anionic Polyacrylamide Erosion Control	450	$40.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Structure for Water Control	587	Site Specific	each	Site Specific	
Rigid Coated Pipeline	430	Site Specific	foot	Site Specific	
Irrigation Water Conveyance, Pipeline	430	Site Specific	foot	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$15,179,138.14

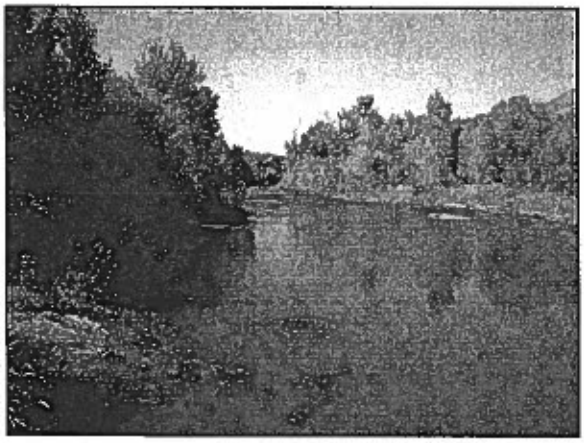
Treatment Unit #2d : Rangeland - Silver Creek Subwatershed

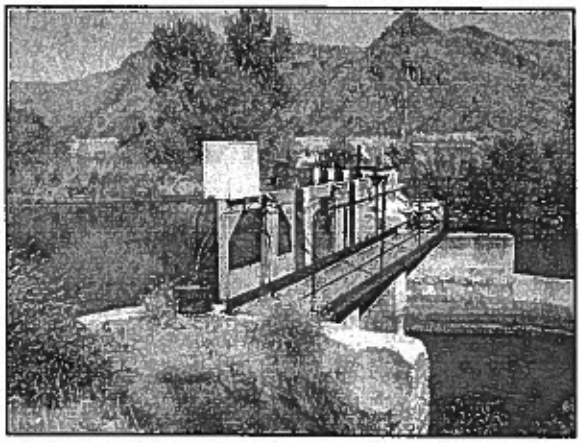
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	foot	26,614.0	$65,478.44
Prescribed Grazing	528	$2.00	acre	2,661.4	$5,322.80
Upland Wildlife Habitat Management	645	$10.00	acre	2,661.4	$26,614.00
Watering Facility	614	$1,910.00	each	13	$24,830.00
Pest Management	595	$30.00	acre	266.1	$7,983.70
Range Planting	550	$100.00	acre	266.1	$26,631.00
Spring Development	574	$1,800.00	each	2	$3,600.00
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Water Well	642	$13,500.00	each	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Firebreak	394	Site Specific	acre	Site Specific	
Total					$166,435.44

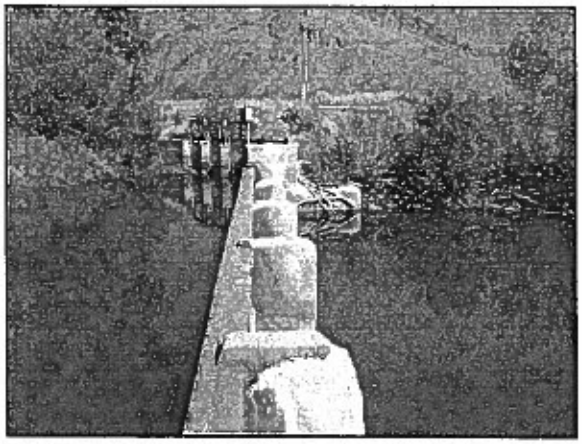
Treatment Unit #3d : Riparian - Silver Creek Subwatershed

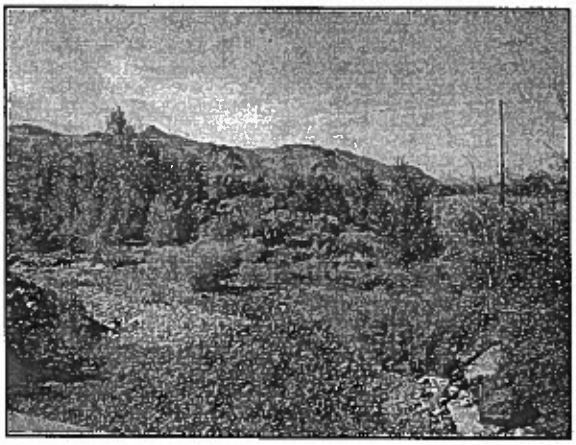
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	foot	20,902.5	$51,420.15
Wetland Wildlife Habitat Management	645	$10.00	acre	97.6	$976.00
Watering Facility	614	$1,910.00	each	2	$3,820.00
Access Control	472	$34.00	acre	48.8	$1,659.20
Channel Vegetation	322	$4.10	foot	10,454.3	$42,850.13
Pest Management	595	$30.00	acre	Site Specific	
Channel Stabilization	584	$37.50	foot	Site Specific	
Streambank and Shoreline Protection	580	$52.50	foot	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Riparian Forest Buffer	391	$2,250.00	acre	Site Specific	
Riparian Herbaceous Cover	390	$450.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$100,725.48

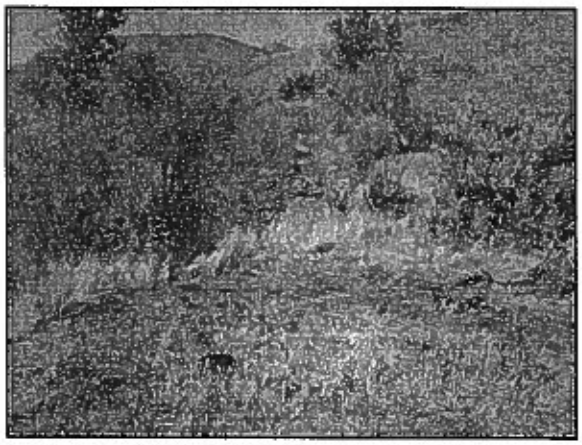












Treatment Unit Fig1: Irrigated Cropland/Pasture - Little Wood River Reservoir Subwatershed

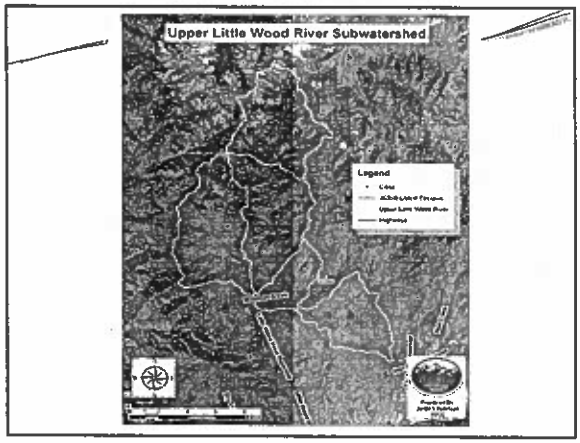
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Conservation Crop Rotation	328	$0.00	acre	17,033.7	$0.00
Irrigation Water Management	449	$5.00	acre	17,033.7	$85,168.50
Nutrient Management	590	$5.00	acre	17,033.7	$85,168.50
Pest Management	595	$15.00	acre	17,033.7	$255,505.50
Surface Roughening	609	$0.00	acre	17,033.7	$0.00
Upland Wildlife Habitat Management	645	$10.00	acre	5,110.1	$51,101.10
Irrigation System, Sprinkler	442	$430.00	acre	17,033.7	$10,731,231.00
Residue Management, Seasonal	344	$0.00	acre	17,033.7	$0.00
Pasture and Hay Planting	512	$244.80	acre	5,110.1	$1,266,866.84
Prescribed Grazing	528	$5.00	acre	5,110.1	$25,550.55
Watering Facility	614	$1,910.00	each	128	$244,480.00
Fence	382	$2.46	feet	Site Specific	
PAM - Anionic Polyacrylamide Erosion Control	450	$40.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	feet	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft	Site Specific	
Structure for Water Control	587	Site Specific	each	Site Specific	
Rigid Coated Pipeline	430	Site Specific	feet	Site Specific	
Irrigation Water Conveyance, Pipeline	430	Site Specific	feet	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$12,725,971.99

Treatment Unit Fig2: Rangeland - Little Wood River Reservoir Subwatershed

Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	feet	77,588.6	$190,864.48
Prescribed Grazing	528	$2.00	acre	7,758.8	$15,517.60
Upland Wildlife Habitat Management	645	$10.00	acre	7,758.8	$77,588.00
Watering Facility	614	$1,910.00	each	39	$74,490.00
Pest Management	595	$30.00	acre	775.9	$23,276.10
Range Planting	550	$100.00	acre	775.9	$77,588.00
Spring Development	574	$1,800.00	each	4	$7,200.00
Heavy Use Area Protection	561	$1.36	sqft	Site Specific	
Pipeline	516	$3.76	feet	Site Specific	
Water Well	642	$13,500.00	each	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Firebreak	394	Site Specific	acre	Site Specific	
Total					$466,526.60

Treatment Unit #2c : Riparian - Little Wood River Reservoir Subwatershed

Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	foot	153,976.5	$378,782.19
Wetland Wildlife Habitat Management	645	$10.00	acre	708.6	$7,086.00
Watering Facility	614	$1,910.00	each	18	$34,380.00
Access Control	472	$34.00	acre	351.3	$12,046.20
Channel Vegetation	322	$4.10	foot	76,988.3	$315,651.23
Pest Management	595	$30.00	acre	Site Specific	
Channel Stabilization	584	$37.50	foot	Site Specific	
Streambank and Shoreline Protection	580	$52.50	foot	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Riparian Forest Buffer	391	$2,250.00	acre	Site Specific	
Riparian Herbaceous Cover	390	$450.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$747,946.32



Treatment Unit #1f : Irrigated Cropland/Pasture , Upper Little Wood River Subwatershed

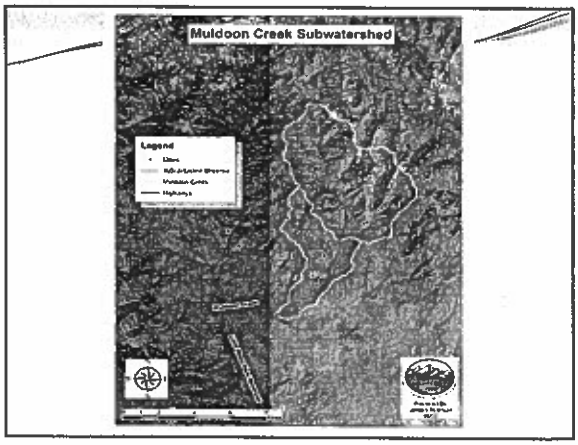
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Conservation Crop Rotation	328	$0.00	acre	7,749.3	$0.00
Irrigation Water Management	449	$5.00	acre	7,749.3	$38,746.50
Nutrient Management	590	$5.00	acre	7,749.3	$38,746.50
Pest Management	595	$15.00	acre	7,749.3	$116,239.50
Upland Wildlife Habitat Management	645	$10.00	acre	7,749.3	$77,493.00
Irrigation System, Sprinkler	442	$430.00	acre	7,749.3	$4,882,059.00
Residue Management, Seasonal	344	$0.00	acre	7,749.3	$0.00
Pasture and Hay Planting	512	$244.00	acre	7,749.3	$1,890,829.20
Prescribed Grazing	528	$5.00	acre	7,749.3	$38,746.50
Watering Facility	614	$1,910.00	each	194	$370,540.00
Fence	382	$2.46	foot	Site Specific	
PAM - Anionic Polyacrylamide Erosion Control	450	$40.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Structure for Water Control	587	Site Specific	each	Site Specific	
Rigid Gated Pipeline	430	Site Specific	foot	Site Specific	
Irrigation Water Conveyance, Pipeline	430	Site Specific	foot	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$7,453,488.20

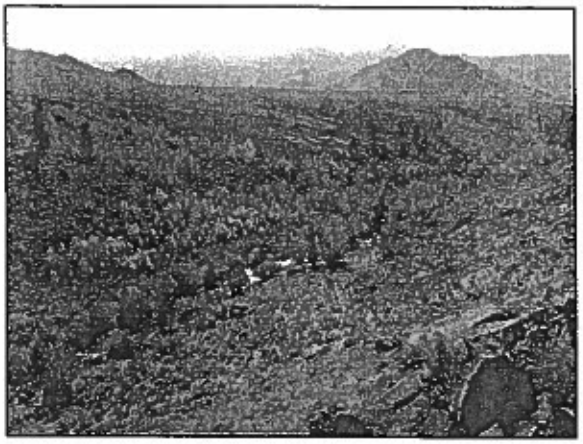
Treatment Unit #2f : Riparian - Upper Little Wood River Subwatershed

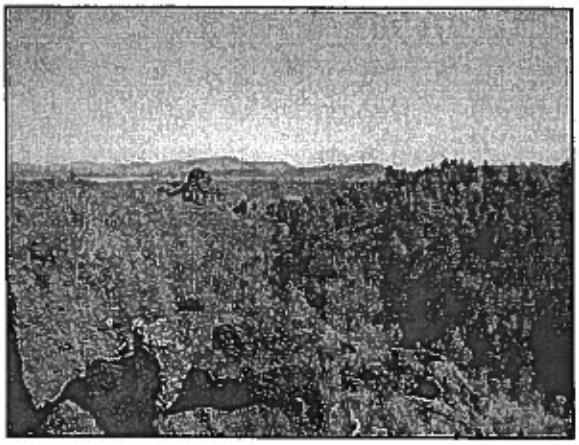
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	foot	39,101.0	$96,188.46
Prescribed Grazing	528	$2.00	acre	3,910.1	$7,820.20
Upland Wildlife Habitat Management	645	$10.00	acre	3,910.1	$39,101.00
Watering Facility	614	$1,910.00	each	20	$38,200.00
Pest Management	595	$30.00	acre	391.0	$11,730.30
Range Planting	550	$100.00	acre	391.0	$39,101.00
Spring Development	574	$1,800.00	each	2	$3,600.00
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Water Well	642	$13,500.00	each	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Firebreak	394	Site Specific	acre	Site Specific	
Total					$335,749.96

Treatment Unit #3f : Riparian - Upper Little Wood River Subwatershed

Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	foot	14,185.4	$34,896.68
Wetland Wildlife Habitat Management	645	$10.00	acre	66.3	$663.00
Watering Facility	614	$1,910.00	each	2	$3,820.00
Access Control	472	$34.00	acre	33.2	$1,127.10
Channel Vegetation	322	$4.10	foot	7,092.7	$29,080.07
Pest Management	595	$30.00	acre	Site Specific	
Channel Stabilization	584	$37.50	foot	Site Specific	
Streambank and Shoreline Protection	580	$52.50	foot	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Riparian Forest Buffer	391	$2,250.00	acre	Site Specific	
Riparian Herbaceous Cover	390	$450.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$69,586.25







Treatment Unit #1g: Irrigated Cropland/Pasture - Muldoon Creek Subwatershed

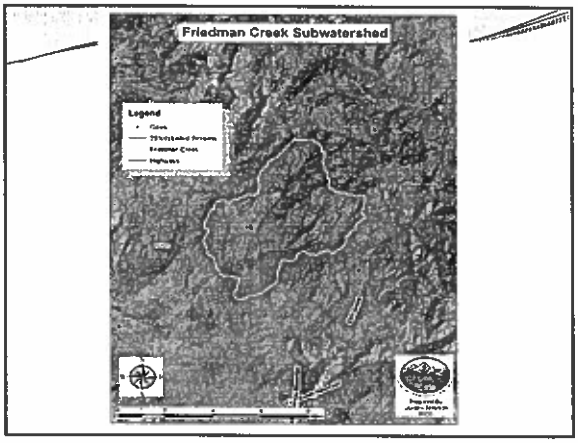
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Conservation Crop Rotation	328	$8.00	acre	2,323 ft	$0.00
Irrigation Water Management	449	$5.00	acre	2,323 ft	$11,619.00
Nutrient Management	590	$5.00	acre	2,323 ft	$11,619.00
Pest Management	595	$15.00	acre	2,323 ft	$34,857.00
Upland Wildlife Habitat Management	645	$10.00	acre	2,323 ft	$23,230.00
Irrigation System, Sprinkler	442	$630.00	acre	2,323 ft	$1,463,994.00
Residue Management, Seasonal	344	$0.00	acre	2,323 ft	$0.00
Pasture and Hay Planting	512	$244.00	acre	2,323 ft	$567,007.20
Prescribed Grazing	528	$5.00	acre	2,323 ft	$11,619.00
Watering Facility	614	$1,910.00	each	58	$110,780.00
Fence	382	$2.46	foot	Site Specific	
PAM - Anionic Polyacrylamide Erosion Control	450	$40.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft	Site Specific	
Structure for Water Control	587	Site Specific	each	Site Specific	
Rigid Gated Pipeline	430	Site Specific	feet	Site Specific	
Irrigation Water Conveyance, Pipeline	430	Site Specific	feet	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$2,334,733.20

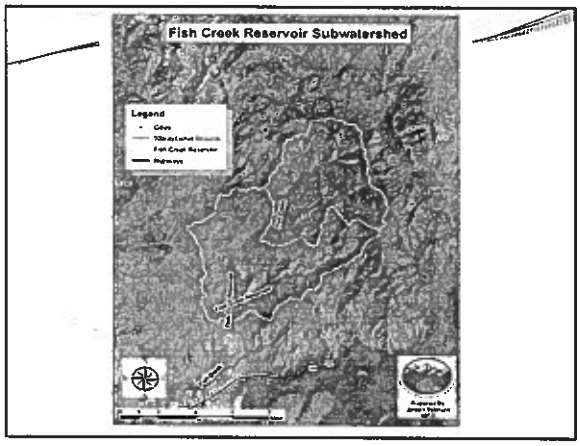
Treatment Unit #1g: Rangeland - Muldoon Creek Subwatershed

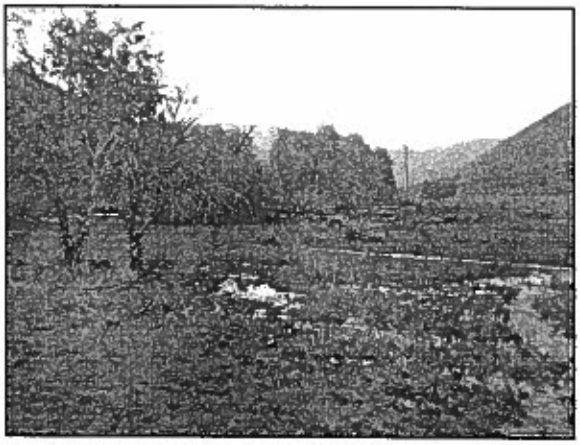
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	foot	15,324.0	$37,697.04
Prescribed Grazing	528	$2.00	acre	1,532.4	$3,064.80
Upland Wildlife Habitat Management	645	$10.00	acre	1,532.4	$15,324.00
Watering Facility	614	$1,910.00	each	8	$15,280.00
Pest Management	595	$30.00	acre	153.2	$4,597.20
Range Planting	550	$100.00	acre	153.2	$15,324.00
Spring Development	574	$1,800.00	each	1	$1,800.00
Heavy Use Area Protection	561	$1.36	sqft	Site Specific	
Pipeline	516	$3.76	feet	Site Specific	
Water Well	642	$13,500.00	each	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Firebreak	394	Site Specific	acre	Site Specific	
Total					$93,087.04

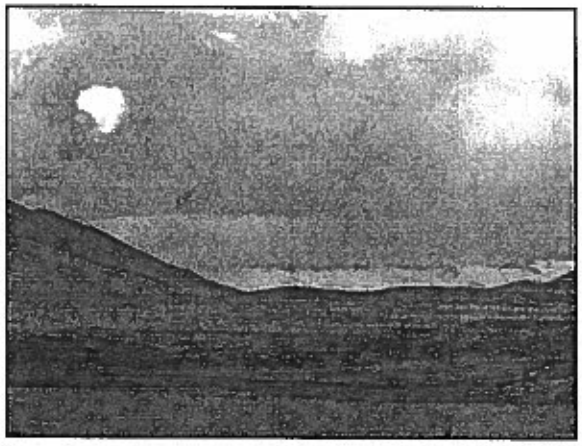
Treatment Unit #1g: Riparian - Muldoon Creek Subwatershed

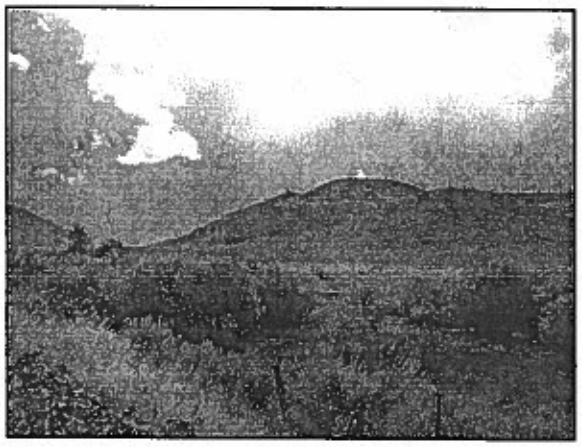
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	feet	51,838.6	$127,532.96
Wetland Wildlife Habitat Management	645	$10.00	acre	239.1	$2,391.00
Watering Facility	614	$1,910.00	each	6	$11,460.00
Access Control	472	$34.00	acre	119.6	$4,064.70
Channel Vegetation	322	$1.10	feet	25,917.3	$104,269.13
Pest Management	595	$30.00	acre	Site Specific	
Channel Stabilization	584	$37.50	feet	Site Specific	
Streambank and Shoreline Protection	580	$52.50	feet	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft	Site Specific	
Riparian Forest Buffer	391	$2,250.00	acre	Site Specific	
Riparian Herbaceous Cover	390	$450.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	feet	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$251,717.79

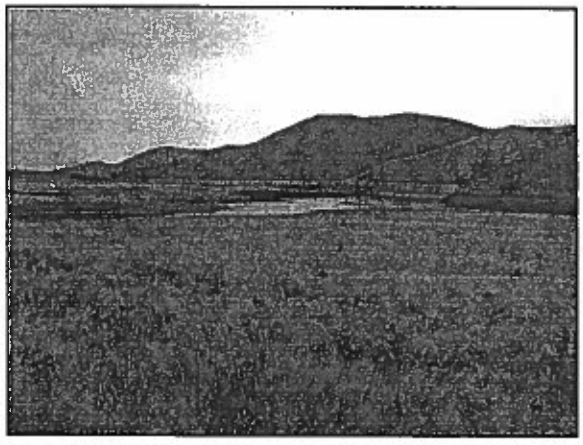












Treatment Unit #1b : Irrigated Cropland/Pasture - Fish Creek Reservoir Subwatershed

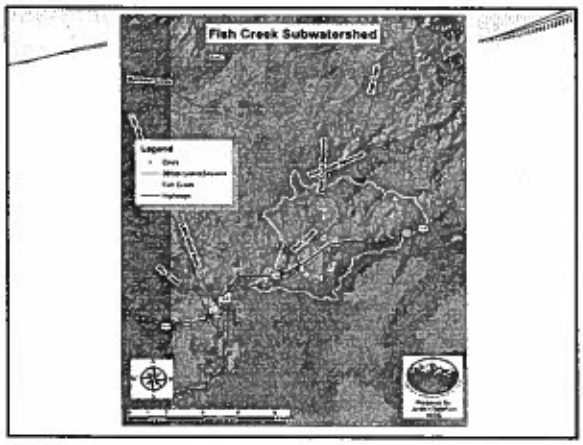
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Conservation Crop Rotation	328	$0.00	acre	3,130.6	$0.00
Irrigation Water Management	449	$5.00	acre	3,130.6	$15,653.00
Nutrient Management	590	$5.00	acre	3,130.6	$15,653.00
Pest Management	595	$15.00	acre	3,130.6	$46,959.00
Upland Wildlife Habitat Management	645	$10.00	acre	3,130.6	$31,306.00
Irrigation System, Sprinkler	442	$630.00	acre	3,130.6	$1,972,278.00
Residue Management, Seasonal	344	$0.00	acre	3,130.6	$0.00
Pasture and Hay Planting	512	$244.00	acre	3,130.6	$763,866.40
Prescribed Grazing	528	$5.00	acre	3,130.6	$15,653.00
Watering Facility	614	$1,910.00	each	72	$148,980.00
Fence	382	$2.66	foot	Site Specific	
PAM - Anionic Polyacrylamide Erosion Control	450	$40.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft	Site Specific	
Structure for Water Control	587	Site Specific	each	Site Specific	
Rapid Gated Pipeline	430	Site Specific	foot	Site Specific	
Irrigation Water Conveyance, Pipeline	430	Site Specific	foot	Site Specific	
Pumping Plant	533	See Specific	HP	Site Specific	
Total					$3,010,348.40

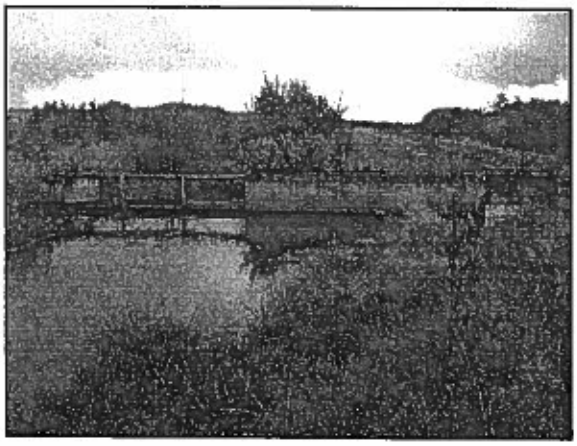
Treatment Unit #2h : Rangeland - Fish Creek Reservoir Subwatershed

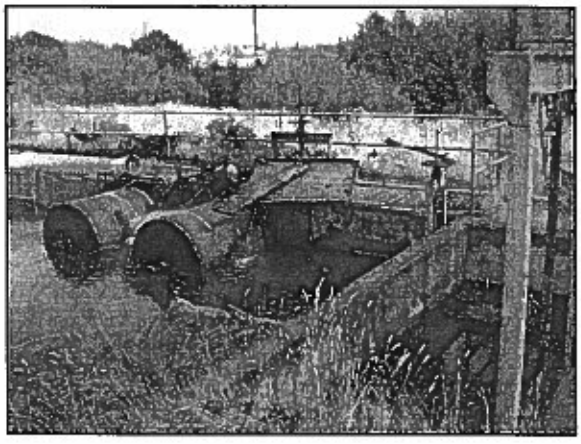
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	foot	57,256.0	$140,849.76
Prescribed Grazing	528	$2.00	acre	3,725.6	$18,451.20
Upland Wildlife Habitat Management	645	$10.00	acre	3,725.6	$37,256.00
Watering Facility	614	$1,910.00	each	29	$55,390.00
Pest Management	595	$30.00	acre	572.6	$17,176.80
Range Planting	550	$100.00	acre	572.6	$57,256.00
Spring Development	574	$1,100.00	each	3	$3,300.00
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Water Well	642	$13,500.00	each	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Firebreak	394	Site Specific	acre	Site Specific	
Total					$344,779.76

Treatment Unit #3h : Riparian - Fish Creek Reservoir Subwatershed

Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	foot	69,054.7	$169,874.56
Wetland Wildlife Habitat Management	645	$10.00	acre	319.7	$3,197.00
Watering Facility	614	$1,910.00	each	8	$15,280.00
Access Control	472	$34.00	acre	159.9	$5,436.60
Channel Vegetation	322	$4.10	foot	34,527.4	$141,562.34
Pest Management	595	$30.00	acre	Site Specific	
Channel Stabilization	584	$37.50	foot	Site Specific	
Streambank and Shoreline Protection	580	$52.50	foot	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Riparian Forest Buffer	391	$2,250.00	acre	Site Specific	
Riparian Herbaceous Cover	390	$450.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$335,346.60

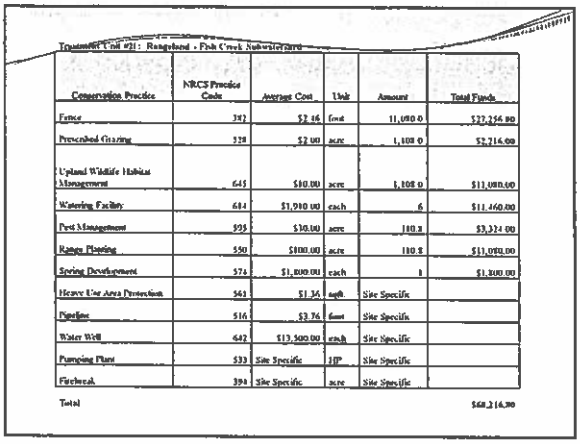




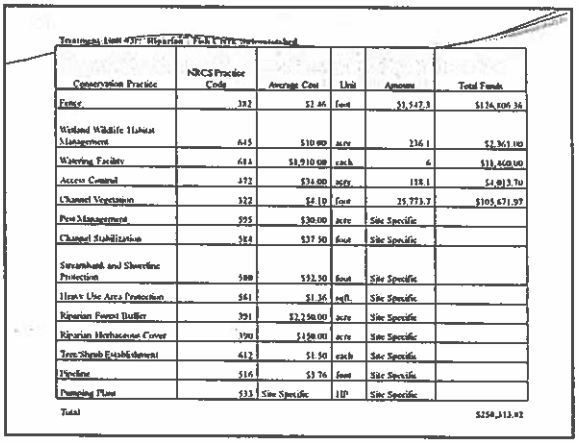


Treatment Unit #1h : Irrigated Cropland/Pasture - Fish Creek Subwatershed

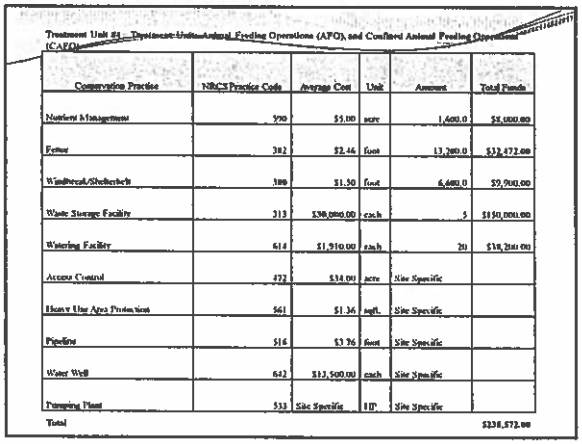
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Conservation Crop Rotation	328	$0.00	acre	2,472.4	$0.00
Irrigation Water Management	449	$5.00	acre	2,472.4	$12,362.00
Nutrient Management	590	$5.00	acre	2,472.4	$12,362.00
Pest Management	595	$15.00	acre	2,472.4	$37,086.00
Surface Roughening	609	$0.00	acre	2,472.4	$0.00
Upland Wildlife Habitat Management	645	$10.00	acre	741.7	$7,417.70
Irrigation System, Sprinkler	442	$630.00	acre	2,472.4	$1,557,612.00
Residue Management, Seasonal	344	$0.00	acre	2,472.4	$0.00
Pasture and Hay Planting	512	$244.00	acre	741.7	$180,979.48
Prescribed Grazing	528	$5.00	acre	741.7	$3,708.60
Watering Facility	614	$1,910.00	each	19	$36,290.00
Fence	382	$2.46	foot	Site Specific	
PAM - Anionic Polyacrylamide Erosion Control	450	$40.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Structure for Water Control	587	Site Specific	each	Site Specific	
Rigid Gated Pipeline	430	Site Specific	foot	Site Specific	
Irrigation Water Conveyance, Pipeline	430	Site Specific	foot	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$1,847,817.48



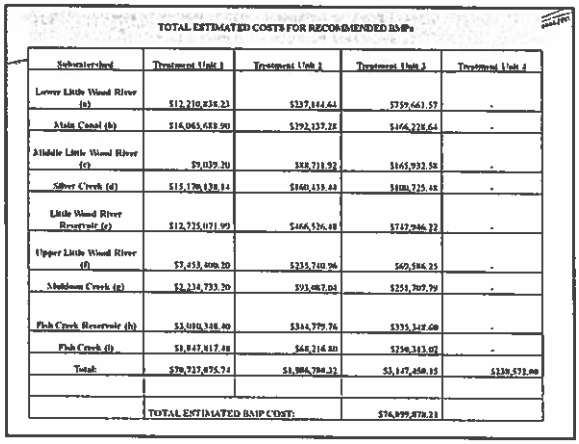
Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	foot	11,080.0	$27,256.80
Prescribed Grazing	528	$2.00	acre	1,108.0	$2,216.00
Upland Wildlife Habitat Management	645	$10.00	acre	1,108.0	$11,080.00
Watering Facility	614	$1,910.00	each	6	$11,460.00
Pest Management	595	$30.00	acre	110.8	$3,324.00
Range Planting	550	$100.00	acre	110.8	$11,080.00
Spring Development	574	$1,800.00	each	1	$1,800.00
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Water Well	642	$13,500.00	each	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Firebreak	394	Site Specific	acre	Site Specific	
Total					$68,216.80



Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Fence	382	$2.46	foot	53,547.3	$131,806.36
Wetland Wildlife Habitat Management	645	$10.00	acre	236.1	$2,361.00
Watering Facility	614	$1,910.00	each	6	$11,460.00
Access Control	472	$34.00	acre	118.1	$4,015.70
Channel Vegetation	322	$4.10	foot	25,773.7	$105,671.97
Pest Management	595	$30.00	acre	Site Specific	
Channel Stabilization	584	$37.50	foot	Site Specific	
Streambank and Shoreline Protection	580	$52.50	foot	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Riparian Forest Buffer	391	$2,250.00	acre	Site Specific	
Riparian Herbaceous Cover	390	$150.00	acre	Site Specific	
Tree/Shrub Establishment	612	$1.50	each	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$250,312.02



Conservation Practice	NRCS Practice Code	Average Cost	Unit	Amount	Total Funds
Nutrient Management	590	$5.00	acre	1,600.0	$8,000.00
Fence	382	$2.46	foot	13,280.0	$32,472.00
Windbreak/Shelterbelt	380	$1.50	foot	6,600.0	$9,900.00
Waste Storage Facility	313	$30,000.00	each	5	$150,000.00
Watering Facility	614	$1,910.00	each	20	$38,200.00
Access Control	472	$34.00	acre	Site Specific	
Heavy Use Area Protection	561	$1.36	sqft.	Site Specific	
Pipeline	516	$3.76	foot	Site Specific	
Water Well	642	$13,500.00	each	Site Specific	
Pumping Plant	533	Site Specific	HP	Site Specific	
Total					$238,572.00

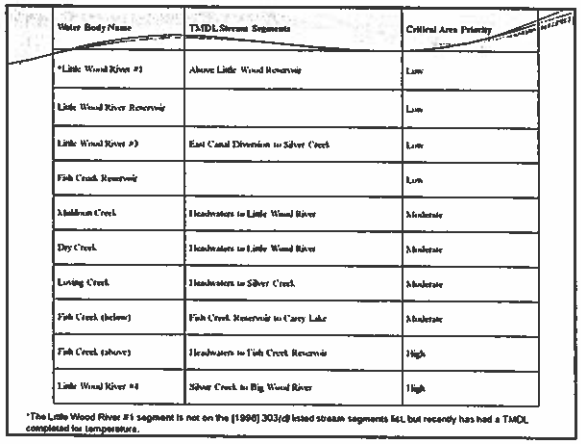


TOTAL ESTIMATED COSTS FOR RECOMMENDED BMPs

Subwatershed	Treatment Unit 1	Treatment Unit 2	Treatment Unit 3	Treatment Unit 4
Lower Little Wood River (a)	$12,210,838.23	$237,844.64	$759,661.57	-
Main Canal (b)	$14,065,688.90	$292,237.28	$466,228.64	-
Middle Little Wood River (c)	$9,039.20	$88,711.92	$165,932.58	-
Silver Creek (d)	$15,170,128.14	$460,135.48	$480,725.48	-
Little Wood River Reservoir (e)	$12,725,071.93	$466,526.48	$747,946.22	-
Upper Little Wood River (f)	$7,453,409.20	$235,710.96	$69,586.25	-
Muldoon Creek (g)	$2,234,733.20	$93,467.04	$251,707.79	-
Fish Creek Reservoir (h)	$3,010,348.40	$344,779.76	$335,349.60	-
Fish Creek (i)	$1,847,817.48	$68,214.80	$250,383.07	-
Total:	$70,727,075.74	$2,386,784.32	$3,147,650.15	$239,572.00
	TOTAL ESTIMATED BMP COST:		$76,499,878.21	

Recommended Priorities for BMP Implementation

- Critical area priorities are designated based on documented water quality impairment and adjacent land use practices. Stream segments that are typically dry or intermittent during the irrigation season due to flow alteration such as Little Wood River #3, Dry Creek, and Fish Creek (below the reservoir) have been designated as a lower priority than those severely impaired segments that have water year-round.



Water Body Name	TMDL Stream Segments	Critical Area Priority
*Little Wood River #1	Above Little Wood Reservoir	Low
Little Wood River Reservoir		Low
Little Wood River #3	East Canal Diversion to Silver Creek	Low
Fish Creek Reservoir		Low
Muldoon Creek	Headwaters to Little Wood River	Moderate
Dry Creek	Headwaters to Little Wood River	Moderate
Loving Creek	Headwaters to Silver Creek	Moderate
Fish Creek (below)	Fish Creek Reservoir to Carey Lake	Moderate
Fish Creek (above)	Headwaters to Fish Creek Reservoir	High
Little Wood River #4	Silver Creek to Big Wood River	High

*The Little Wood River #1 segment is not on the [1996] 303(d) listed stream segments list, but recently has had a TMDL completed for temperature.

Treatment Alternatives

- The local Soil Conservation Districts will continue to evaluate treatment alternatives and recommend implementation activities, with support and cooperation of private landowners and government agencies.
- Ongoing efforts from the local Soil Conservation Districts will be critical in providing direction and guidance to local landowners in the implementation of BMPs to meets the water quality standards set forth in the Little Wood River TMDL.

Treatment Alternative 1 – No Action

- This alternative would continue utilizing existing conservation programs without additional project activities focusing on more problem areas. Identified problems could continue to negatively impact beneficial uses in the watershed.

Treatment Alternative 2 – Land Treatment With BMPs on Cropland, Pasture, and Rangeland

- This alternative would reduce irrigation-induced erosion and excessive nutrient runoff from cropland areas. Nutrient and bacteria runoff would also be reduced from excessive animal waste and fertilizer applications. Improved grazing management practices and installation of BMPs such as offsite water facilities, will reduce pollutant runoff to the Little Wood River and its tributaries. Voluntary incentive programs can be made available to assist in landowner participation.

Treatment Alternative 3 – Riparian and Stream Channel Restoration

- This alternative would reduce accelerated stream bank erosion. Implemented BMPs would reduce nutrient and bacteria runoff from entering the river and creeks. This alternative improves water quality, riparian vegetation, and aquatic habitat in the Little Wood River and its tributaries.

Treatment Alternative 4 – Animal Facility Waste Management

- This alternative would reduce sediment, nutrient, and bacteria runoff from animal waste storage and application areas. This will improve water quality in the watershed and reduce pollutant loading to the main drainages in the Little Wood River. Existing larger beef operations may be already regulated. All dairy facilities are regulated. Smaller operations will need evaluations and on farm planning to provide cost-effective, beneficial options to improve the resource area. Nutrient Management planning, in addition to irrigation water management, will be vital to securing optimal results for the goals of the TMDL.