

**Little Weiser River Stream Bank Protection and  
Rehabilitation  
Project  
Phase I Sub-Grant S247  
Final Report**



Prepared by:  
Adams Soil and Water Conservation District  
In Cooperation with:  
Idaho Soil and Water Conservation Commission  
Idaho Department of Environmental Quality

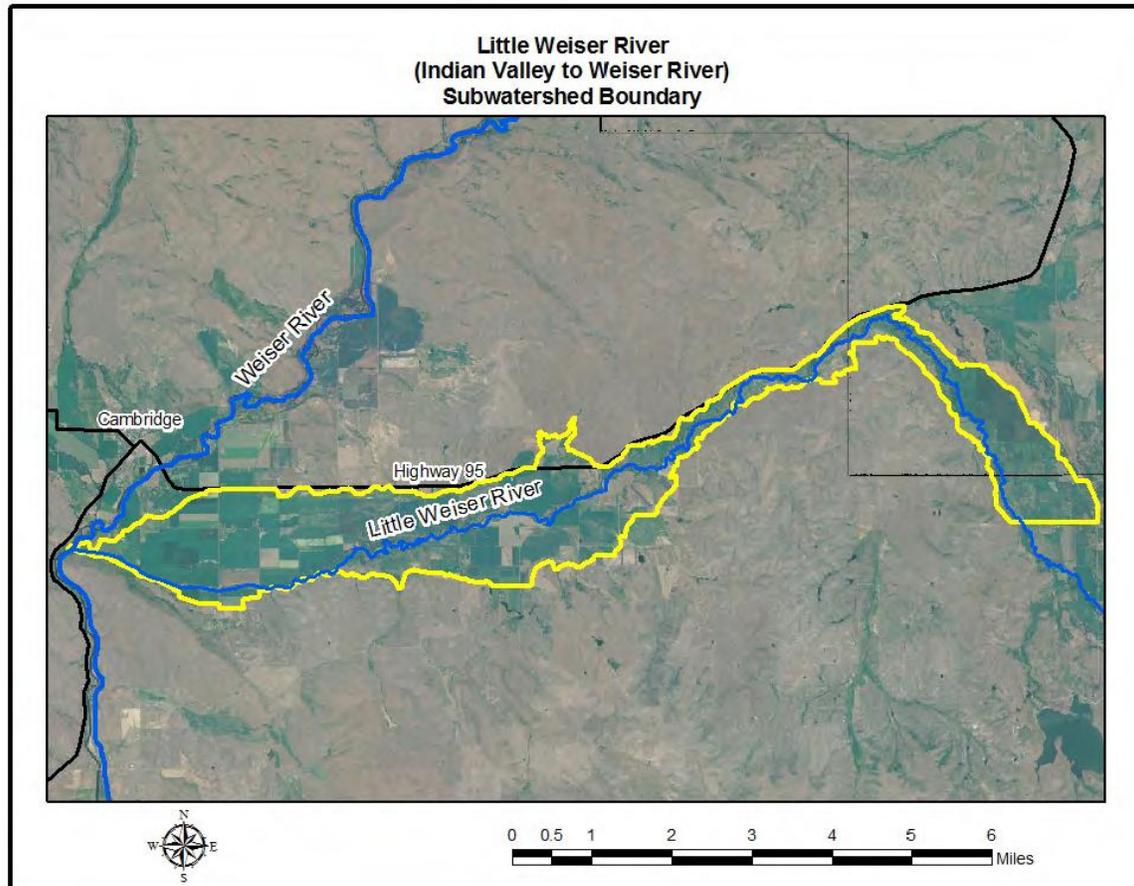
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## I. Project Location and Map

The project location contains approximately 8 miles of the Little Weiser River between Indian Valley and the city of Cambridge.

HUC – 17050154

44° 34' 57.31 N 116° 30' 52.51 W



## II. Project Overview:

The primary goal in the first phase of the Little Weiser River (LWR) Stream Bank Protection and Rehabilitation Project was to restore areas of the LWR to a stable condition through stream bank protection and establishment of riparian vegetation. This would help achieve a long-term reduction in sediment and phosphorus loading. More specific goals were to work on ten project sites protecting 7,000 linear feet of stream bank while reducing the sediment load by 1,700 tons of sediment per year.

### Background:

The Little Weiser River has experienced historic channel alteration to accommodate the building of Highway 95, to protect against flooding on the main Weiser River further

down the watershed and to provide irrigation water to agricultural lands within the watershed.

In the 1960s and 70s the Army Corps of Engineers performed channeling, snagging and clearing and removal of riparian vegetation over a significant portion of the middle and lower Little Weiser River. This has contributed to an unstable channel with fewer meanders and higher gradients through these straightened reaches (Little Weiser River Project Modification Report Section 1135(b), Water Resources Development Act of 1986, As Amended; ACOE: 1997). Due to the increased velocities during runoff season and the attempt of the river to work its way back to a meander conducive to the valley gradient, landowners along the Little Weiser River are losing valuable farmland, wildlife habitat and riparian areas from bank erosion.

In addition, the LWR has a naturally unpredictable or “flashy” character and is subject to short duration, intense spring snow-melt flows, winter ice-jams and occasional large flood events such as occurred most recently in 1997, 2005 and 2010. Ice jams are the cause of significant problems when water backed up behind large dams begins to find another place to flow or the ice gouges into unprotected banks.

These more recent flooding-related losses caused landowners to seek solutions once again. A group of ten (10) landowners approached the Adams Soil & Water Conservation District (SWCD) with letters of support for obtaining a grant from DEQ to address these issues. The first grant totaling **\$210,050.00** was awarded in 2007 and is being administered by the Adams SWCD. Individual projects were started in the fall of 2008. This report details the projects on which these funds were spent.

### Accomplishments:

As Phase 1 (S247) is completed, stream bank protection BMPs were installed on 8 project sites protecting 8,454 feet of stream bank reducing the sediment load by 1119 tons/year.

In addition to working with landowners, the Adams SWCD coordinated with Idaho Fish and Game’s River Menders and local high school students on two separate willow weaving projects on the Little Weiser River.

These initial projects gained attention from other landowners on the river who also expressed interest in working to stabilize several more miles of banks upstream from the first project area. A second 319 grant was received to assist these additional landowners.

### III. Financial Summary:

#### PLANNED Budget:

Original Grant Budget Summary	§319 Costs	Match
Administrative Costs:		
ASWCD Grant Administration	\$ 15,000.00	
ISWCC Technical Assistance		\$ 23,900.00
Contractual Costs:		
BMP Implementation	\$ 186,050.00	
Landowner Match		\$ 124,033.00
Totals:	\$ 201,050.00	\$ 147,933.00

#### ACTUAL Expenditures:

Expenditures:	§319 Costs	Match	Match Source
Administrative Costs:			
Personnel	\$ 6,926.39		
Supplies	\$ 1,155.39		
Outreach/Education	\$ 1,536.40		
Travel	\$ 678.25		
		\$ 9,255.00	Adams SWCD (in-kind)
		\$ 2,710.00	Volunteer Coordination Time (in-kind)
		\$ 13,284.00	ISWCC - Technical Assistance (in-kind)
		\$ 20,304.80	ISWCC - Engineering Assistance (in-kind)
Subtotal	\$ 10,296.43	\$ 45,523.80	
Contractual Costs:			
BMP Implementation	\$ 180,279.18		
Landowner Match		\$ 122,035.85	Landowners (hard and in-kind)
Subtotal	\$ 180,279.18	\$ 122,035.85	
Total	\$ 190,575.61	\$ 167,559.65	

Total Project - \$358,135.26

Match Ratio – 47%

## IV. BMP Report

### Phase 1 BMPs by Contract

Contract Number	BMP Installed	Extent/Unit	Total Project Cost	\$319 Funding Used	Project Match
2008-001	Streambank Protection - Barbs	1005 feet	\$35,175.00	\$21,105.00	\$14,070.00
	Donated Trees		\$9,150.00		\$9,150.00
	Channel Bank Vegetation	1005 feet	\$2,743.65	\$1,646.19	\$1,097.46
	Riparian Herbaceous Cover	.3 acres	\$104.13	\$45.00	\$59.13
	Streambank Protection - Barbs	795 feet	\$20,304.30	\$12,182.58	\$8,121.72
	Channel Bank Vegetation	795 feet	\$2,170.35	\$1,302.21	\$868.14
	Riparian Herbaceous Cover	.3 acres	\$75.00	\$45.00	\$30.00
	Streambank Protection	already reported	\$795.00	\$397.50	\$397.50
	Streambank Repair	already reported	\$7,250.00	\$1,050.00	\$ 6,200.00
			<b>\$77,767.43</b>	<b>\$37,773.48</b>	<b>\$39,993.95</b>
2008-002	Streambank Protection - Barbs	1200 feet	\$25,464.00	\$15,278.40	\$10,185.60
	Channel Bank Vegetation	1200 feet	\$876.00	\$525.60	\$350.40
			<b>\$26,340.00</b>	<b>\$15,804.00</b>	<b>\$10,536.00</b>
2008-003	Streambank Protection - Barbs	1420 feet	\$33,668.20	\$20,473.56	\$13,194.64
	Channel Bank Vegetation	1200 feet	\$2,712.00	\$1,627.20	\$1,084.80
	Streambank Protection	already reported	\$7,195.00	\$397.50	\$6,797.50
	Streambank Protection - Barbs	500 feet	\$6,240.00	\$3,504.00	\$2,736.00
	Channel Bank Vegetation	500 feet	\$1,365.00	\$819.00	\$546.00
			<b>\$51,180.20</b>	<b>\$26,821.26</b>	<b>\$24,358.94</b>
2009-004	Streambank Protection - Barbs	500 feet	\$19,500.00	\$10,500.00	\$9,000.00
	Channel Bank Vegetation	500 feet	\$1,365.00	\$819.00	\$546.00
	Riparian Herbaceous Cover	1 acre	\$302.50	\$180.00	\$122.50
	Streambank Protection - Barbs	already reported	\$6,670.00	\$4,002.00	\$2,668.00
	Channel Bank Vegetation	already reported	\$709.80	\$425.88	\$283.92
			<b>\$28,547.30</b>	<b>\$15,926.88</b>	<b>\$12,620.42</b>
2009-005	Streambank Protection - Barbs	500 feet	\$8,760.00	\$5,256.00	\$3,504.00
	Streambank Protection - Barbs	already reported	\$6,300.00	\$3,766.00	\$2,534.00
			<b>\$15,060.00</b>	<b>\$9,022.00</b>	<b>\$6,038.00</b>
2010-006	Streambank Protection - Barbs	720 feet	\$13,987.80	\$10,486.80	\$3,501.00
	Channel Bank Vegetation	720 feet	\$1,965.60	\$1,474.20	\$491.40
	Streambank Protection - Barbs	294 feet	\$3,855.00	\$2,890.76	\$964.24

	Channel Bank Vegetation	294 feet	\$500.00	\$374.85	\$125.15
	Riparian Herbaceous Cover	1 acre	\$100.00	\$75.00	\$25.00
	Streambank Protection - Gravel	already reported	\$24,280.00	\$18,210.00	\$6,070.00
	Streambank Protection - Barbs	620	\$18,915.00	\$14,186.25	\$4,728.75
	Channel Bank Vegetation	620	\$1,590.00	\$1,192.50	\$397.50
	Streambank Protection - Barbs	already reported	\$2,961.00	\$1,776.00	\$1,185.00
			\$68,154.40	<b>\$50,666.36</b>	\$17,488.04
2011-013	Streambank Protection - Barbs	900 feet	\$26,514.00	\$19,885.50	\$6,628.50
	Riparian Herbaceous Cover	0.5 acres	\$70.00	\$52.50	\$17.50
	Field Restoration	1 each	\$8,654.70	\$4,327.20	\$4,327.50
			\$35,238.70	<b>\$24,265.20</b>	\$11,000.50
<b>Totals</b>			<b>\$302,288.03</b>	<b>\$180,279.18</b>	<b>\$122,035.85</b>

## V. Load Reductions

Sediment load reductions are estimated from the Streambank Erosion Condition Inventory (SECI). SECI provides an erosion severity index rating and an estimated pre-project erosion rate or tons of sediment to the Little Weiser River.

Annual sediment savings per sub-project:

2008-001	322	tons/year
2008-002	298	tons/year
2008-003	89	tons/year
2009-004	58	tons/year
2009-005	58	tons/year
2010-006	190	tons/year
<u>2011-013</u>	<u>104</u>	<u>tons/year</u>
	1,119	tons/year

## VI. Monitoring:

ISWCC staff performed pre-project monitoring of project sites. Sites were photo-documented and evaluated with the Stream bank Erosion Condition Inventory (SECI). SECI includes measuring bank height and length and a scientific evaluation of bank erosion, bank stability, cover/vegetation, lateral channel stability, channel bottom stability, and in-channel deposition. SECI provided an erosion severity index rating and an estimated pre-project erosion rate or measure of tons of sediment to the Little Weiser River.



Mid-project monitoring included additional photo documentation of the installed BMPs along with evaluation of maintenance needs.

Post-project monitoring again includes photo documentation of the completed project BMPs along with photos taken at annual or biennial intervals. The Adams SWCD plans to continue photo monitoring these sites for a minimum of 5 years.

#### VII. Summary of Sub-Projects and Photos of Select Sub-Projects:

Numerous rock and log barbs were installed to control erosion at each project site. The barbs are intended to control erosion for 2-6 years while willow and cottonwood plantings establish. Proper installation of the barbs will cause sedimentation above the barbs and small scours downstream from them. Banks were contoured to a 2:1 or shallower slope during construction to minimize the loss from the vertical banks and to allow the willow and cottonwood plantings to establish. All project areas were planted with willow cuttings, bundles or fascines; trench packs and/or clumps where appropriate.

Due to the unpredictable nature of the Little Weiser River, log barbs proved to be unsuccessful. In the first season after installation, spring flows were unusually mild and some installations seemed to be successful. However, more normal flows subsequently caused failure of several of the log barbs. It was quickly recognized that large angular rock barbs provided the best protection for plantings and sediment deposition although ice flows tended to move even large rocks off the tops of barbs. Annual barb maintenance is necessary until woody vegetation on banks is sufficiently established and possibly beyond that time frame.

2008-001 (116.525433 x 44.580070)

This project treated 1800 feet of stream bank by installing rock and log barbs and planting riparian vegetation. 165 trees and 1000 willows were planted in the riparian area.

BEFORE:



Spring flooding 2006- Note debris in field

AFTER:



Willow growth in same area- Fall 2012

BEFORE:



AFTER:



Banks sloped back

AFTER:



Early summer 2010- some sediment deposition, willow growth (same site as above 3 photos)

2008-002 (116.580979 x 44.559275)

This project treated 1200 feet of stream bank by installing rock and log barbs and establishing riparian vegetation. 875 willows were planted in the riparian area.

2008-003 (116.510342 x 44.583515)

This project treated 2,225 feet of stream bank by installing rock and log barbs and establishing riparian vegetation. About 30 willow clumps and hundreds of stems were planted in the riparian area. This project utilized willow trench packs, which proved very successful, if labor intensive.



Willows placed in trenches, buried several feet deep and cut off



Same willow trench pack the following summer

2009-004 (116.593384 x 44.555811)

This project treated two sites and 500 feet of stream bank by installing 9 rock barbs and establishing riparian vegetation. 19 large willow clumps were planted as well as numerous willow poles. The banks were seeded with a native pasture mix grass seed and the bank was protected with fencing.

2009-005 (116.542703 x 44.568996)

This project treated 500 feet of stream bank by installing rock barbs and establishing riparian vegetation. 10 willow clumps were planted in the riparian area. The river channel is quite wide in this reach. The main focus is allowing the river to meander but to maintain good woody vegetation to protect existing hay fields. Adding toe rock, planting willow clumps and stems along with bank sloping and some over-hanging tree removal was necessary maintenance after high spring run-off in 2010 and 2012.

2010-006 (116.586998 x 44.574516)

This project treated 2,225 feet of stream bank by installing rock barbs and establishing riparian vegetation. Several hundred willows were planted in the riparian area. This site has large areas what have been historically straightened. While there is good willow growth and some meanders are beginning to establish, this entire area is likely to require more treatment in the future as the stream continues to seek new meanders.



Upper project area-Summer 2011



Upper project site Fall 2012- Several barbs and plantings with good deposition

### 2011-013 (116.677850 x 44.549631)

This project treated 3 areas just upstream from the mouth of the Little Weiser. This reach of the river, included in the nearly one-mile stretch from about Burton Lane down to the mouth, was straightened and the entire channel was moved south over against the steep hill in decades past. In addition, there is virtually no riparian vegetation in this corridor. A large ice dam in the winter of 2009/2010 backed water up in the river that flowed out into a cultivated field. The water then flowed back to the river, cutting a deep semi-circular trench about 6 feet deep and 150 feet long into the field. This resulted in the loss of tons of topsoil.

Rock barbs with willows in the trenches were installed at the three sites and willows and other woody vegetation were planted in the banks between those barbs.

### Willow Clump Donation

In the fall of 2010, the Little Weiser Irrigation District planned to clean about a three-quarter mile section of the inlet canal to the C Ben Ross Reservoir. There were hundreds of live willow clumps that otherwise would have been discarded. Adams SWCD asked to partner with the Irrigation District by paying for half the cost of the track hoe if landowners could have the willows for their river projects. The District agreed and two landowners hauled about 10 truckloads of willows clumps to several project sites. The estimated value of these willows was at least \$4,000.00.



Loading willow clumps for transplanting

#### VIII. Tours and Outreach:

The Adams SWCD published several articles about the Little Weiser 319 project in the local papers and in semi-annual newsletters. These articles encouraged participation in the projects by interested landowners. Articles pointed out what we hoped to accomplish with the restoration work, discussed the function of healthy riparian areas and explained the connection to the Clean Water Act.

Two short tours were conducted of project sites; one for the Adams SWCD and Weiser River SCD and another for DEQ. One of the sites visited on the tour was a willow weaving installed in April of 2009 by volunteers with River Menders.

The Adams SWCD partnered with River Menders on these two willow weaving projects and both projects are available to view on the River Menders website at [http://rivermenders.org/ivt/lwr/lwr\\_4\\_09.html](http://rivermenders.org/ivt/lwr/lwr_4_09.html) and [http://rivermenders.org/ivt/lwr/lwr\\_10\\_10.html](http://rivermenders.org/ivt/lwr/lwr_10_10.html). There are panoramas of the sites and of the volunteers engaging in the work.



Willow Weaving Volunteer Project- April 18, 2009



Supervisor's Tour- June 2010



Second Willow Weaving - October 10, 2010

A future tour is planned for June 2013 to review some of these Phase 1 (S247) projects. There should be some exciting progress to see on the earliest projects.

The Adams SWCD is proud to have sponsored this Little Weiser River Stream Bank Restoration project. We look forward to working with all our conservation partners to expand the success of this project.