Final Report

Rathbun Lake Special Project: Strategic Use of Sediment Basins and Terraces 1004-002 *

2010 – 2014

**** Revised Plan of Work based on Budget Modification No. 1, August 2012***

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FINANCIAL ACCOUNTABILITY

Expenditure of watershed improvement funds and total project funds

Iowa Watershed Improvement Review Board (WIRB) financial support enabled the Rathbun Land and Water Alliance to greatly exceed the accomplishment of planned water quality protection objectives, as amended, for the *Rathbun Lake Special Project: Strategic Use of Sediment Basins and Terraces.* Specifically, WIRB funding helped the Alliance and its partners, including cooperating landowners, install best management practices (BMPs) in five targeted sub-watersheds of the Rathbun Lake watershed. These targeted sub-watersheds are South Fork Chariton River #1, Upper West Jackson Creek, Upper Jackson Creek, Lost Branch, and Chariton River #6 in Lucas and Wayne Counties. These BMP installation efforts will achieve 228% of the project's amended land treatment objective. In addition, installed BMPs will result in a substantial reduction in the estimated annual sediment and phosphorus delivery from this land to the lake and its tributaries (296% and 424% of amended project objectives respectively). The Environmental Accountability section of this report presents more information regarding BMP installation and water quality benefits.

The Alliance expended Watershed Improvement Funds for project activities in accordance with the grant agreement as amended. Please refer to the Summary of Watershed Improvement Funds Approved, Amended, Expended, and Balance in Table 1. A financial ledger for the term of the grant agreement accompanies this report.

Table 1

Summary of Watershed Improvement Funds Approved, Amended [a], Expended, and Balance

Grant Agreement Budget Line Item	Total Funds Approved ($)	Total Funds Approved - Amended ($)	Total Funds Expended ($)	Available Funds ($) [b]
Contracted Assistance	20,000.00	0.00	0.00	0.00
Sediment (Debris) Basins	180,000.00	0.00	0.00	0.00
Terraces	0.00	100,000.00	98,241.20	1,758.80
Totals	200,000.00	100,000.00	98,241.20	1,758.80
Difference				1,758.80

[a] The Alliance requested and the WIRB approved Amendment 1004-002-01 to the original grant agreement which removed contracted assistance and sediment (debris) basins while adding terraces as budget line items. The amendment also reduced the amount of approved WIRB funds from $200,000 to $100,000. A copy of the Alliance's budget modification request which presents supporting information for this amendment to the original grant agreement accompanies this report.

[b] The balance of available WIRB funds is the result of less funds being expended for the installation of BMPs than initially obligated, that is, the actual costs of installing BMPs with WIRB funds were less than the estimated costs.

FINANCIAL ACCOUNTABILITY contd.

Funds provided by Alliance partners in addition to the Iowa WIRB financial support were essential to the accomplishment of planned objectives, as amended, for the *Rathbun Lake Special Project: Strategic Use of Sediment Basins and Terraces.*

Alliance partners' financial resources, including the Watershed Improvement Funds, were utilized for project activities in accordance with the WIRB approved Amendment 1004-002-01 to the original grant agreement. Please refer to the Summary of Total Approved and Amended Application Project Funding in Table 2. A complete financial ledger for the term of the grant agreement accompanies this report.

Table 2

Summary of Total Approved and Amended Application Project Funding

Funding Source	Cash		Cash	
	Approved Application Budget ($)	Actual ($)	Amended Application Budget ($)	Actual ($) [a]
WIRB	200,000.00	0.00	100,000.00	98,241.20
Landowners	80,550.00	0.00	47,025.00	163,727.34
DNR/DSC	70,000.00	0.00	20,575.00	91,970.60
NRCS	0.00	0.00	20,500.00	272,317.48
RRWA	30,000.00	0.00	0.00	0.00
Totals	380,550.00	0.00	188,100.00	626,256.62

Watershed Improvement Fund contribution:
Approved application budget: 53%
Amended application budget: 53%
Actual: 16%

[a] Alliance partners, including cooperating landowners, installed a significantly greater number of units of BMPs, primarily feet of terraces, during the project period than planned in the budget modification request and amended application.. As a result, substantially more financial resources were expended for BMP installation than anticipated. In addition, the average cost of installing terraces during the project was $7.75 per foot compared with $6.60 per foot considered in the project budget. This higher cost of terrace installation also contributed to the expenditure of more financial resources than expected. Additional information regarding BMP installation is presented in the Environmental Accountability section of this report.

ENVIRONMENTAL ACCOUNTABILITY

Water quality improvement practices applied and results achieved

The Alliance and its partners, with financial support from the Iowa WIRB, assisted landowners to apply BMPs for land in the South Fork Chariton River #1, Upper West Jackson Creek, Upper Jackson Creek, Lost Branch, and Chariton River #6 targeted sub-watersheds of the Rathbun Lake watershed. The amended project land treatment objective was to assist landowners to install BMPs for 285 acres. The BMPs installed would achieve the associated amended project objectives of reducing the annual amounts of sediment and phosphorus that are carried in runoff from this land and impair water quality in Rathbun Lake and its tributaries by 430 tons and 1,425 pounds respectively. Table 3 presents a summary of BMP installation during the project period.

Table 3
Summary of Practices and Activities

Practice or Activity and Units	Approved Application Goal	Amended Application Goal	Planned Practices and Activities	Percent Planned [a]	Completed Practices and Activities	Percent Completion [a]
Sediment (Debris) Basins (no.)	5	0	1	[b]	1	[b]
Terraces (ft.)	0	28,500	94,320	331	75,850	266
Contractual Assistance	[c]	[c]	[c]	[c]	[c]	[c]

[a] Percent planned and completion are relative to the amended application goal.

[b] One sediment (debris) basin was planned and completed in spite of the budget modification request and associated application amendment that did not anticipate the installation of any structures during the project period.

[c] The original application anticipated that $30,000 would be expended for contractual assistance to plan, design, and construct BMPs. The use of funds for this assistance was not necessary as presented in the budget modification request and reflected in the amended application.

ENVIRONMENTAL ACCOUNTABILITY contd.

The BMPs installed resulted in the treatment of more than 650 acres in five targeted sub-watersheds of the Rathbun Lake watershed. The practices will reduce the delivery of sediment and phosphorus to Rathbun Lake and tributaries in the lake's watershed by an estimated 1,272 tons and 6,044 pounds per year respectively. Table 4 presents a summary of planned and achieved land treatment and water quality benefits.

Table 4

Summary of Land Treatment and Water Quality Benefits

Land Treatment, Water Quality Benefit, and Units	Approved Application Goal	Amended Application Goal	Based on Planned Practices	Percent Based on Planned [a]	Based on Completed Practices	Percent Based on Completed [a]
Total Land Treated with BMPs (ac.)	1,000	285	1,004	352	651	228
Reduced Annual Sediment Delivery (tn.)	1,500	430	1,506	350	1,272	296
Reduced Annual Phosphorus Delivery (lb.)	5,000	1,425	5,020	352	6,044	424

[a] Percent based on planned practices and percent based on completed practices are relative to the amended application goal.

As indicated, Alliance partners, including cooperating landowners, were able to install a significantly greater number of units of BMPs, primarily feet of terraces, during the project period than planned in the budget modification request and amended application. As a result, land treatment and water quality benefits achieved surpassed the amended project objectives for land on which BMPs were installed and reduced sediment and phosphorus delivery to Rathbun Lake and its tributaries.

The Alliance utilized geographic information system (GIS) analysis to identify priority land in need of BMPs, track planned and installed BMPs, and estimate the impact of these BMPs in terms of reduced sediment and phosphorus delivery to Rathbun Lake and its tributaries. Maps of the five targeted sub-watersheds that illustrate the results of this GIS analysis are being developed and will be submitted as soon as completed.

The Alliance and partners conducted water quality monitoring in Rathbun Lake and its tributaries during the project period. Monitoring consisted of monthly and event sample collection from 20 sites and analyses for sediment, nutrients, bacteria, and pesticides. Results were used to evaluate water bodies in the watershed for Iowa's Section 303(d) List of Impaired Waters and Iowa's 305(b) Water Quality Report. The Alliance and partners will continue to conduct monitoring and use the results to assess conditions in the lake and its tributaries as well as to plan BMPs and evaluate, to the extent possible, the effectiveness of practices to protect and improve water quality. A copy of the Rathbun Lake and Watershed 2013 Monitoring Summary, which includes an analysis of long-term monitoring data, is available on request.

PROGRAM ACCOUNTABILITY

Activities to support the application of water quality improvement practices

Alliance members and partners consider the following activities completed during the project period to be essential in terms of supporting the application of BMPs for priority land in the five targeted sub-watersheds and achieving associated reductions in annual sediment and phosphorus delivery to Rathbun Lake and the lake's tributaries:

- Assembled a team of expert advisors and field staff with Alliance members and partner organizations who contributed to and were responsible for planning, implementing, and assessing the completion and impact of project activities;

- Developed and utilized a GIS-based methodology to identify the location of priority land in the targeted sub-watersheds, plan and track the application of BMPs, and estimate the water quality benefits associated with these practices;

- Provided one-on-one, on-farm, technical assistance to landowners who own and/or farm priority land in the targeted sub-watersheds which helped them evaluate, plan, and apply BMPs for this land;

- Conducted water quality monitoring in Rathbun Lake and its tributaries, the results of which were used to assess the condition of these water bodies as well as to plan BMPs and evaluate, to the extent possible, the effectiveness of practices to protect and improve water quality;

- Completed activities of the *Rathbun Lake Protectors* watershed outreach program which included: (a) recognition of landowners for their BMP application efforts as *Rathbun Lake Protectors* at the Alliance's annual *Protect Rathbun Lake* meetings; (b) coordinated interviews with landowners recognized as *Rathbun Lake Protectors* on WHO radio's daily farm show; (c) wrote feature articles that were published in Wallaces Farmer about landowners selected as *Rathbun Lake Protectors*; (d) installed and maintained *Rathbun Lake Protectors* on-farm signs and *Protect Rathbun Lake* roadside signs; (e) developed, exhibited, and presented project related displays and information at local and state events; (f) prepared and distributed a quarterly newsletter to Alliance members and partners; and (g) maintained the Alliance's Internet site at http://www.rlwa.org/ ; and

- Alliance's board of directors, partner representatives, and project team members reviewed the progress made to implement project activities and accomplish project objectives as well as identified the need to modify these activities to achieve revised objectives. The Alliance prepared and submitted the project plan of work, budget modification request, narrative reports, and financial ledgers.