

1995 Project Abstract for the Period Ending June 30, 1997

This project was supported by the Environment and Natural Resources Trust Fund.

TITLE: Cannon Valley Trail Repair

PROJECT MANAGER: Bruce Blair, Cannon Valley Trail Manager

ORGANIZATION: Cannon Valley Trail Joint Powers Board

ADDRESS: City Hall

306 West Mill Street

Cannon Falls, MN 55009

WEB SITE ADDRESS: None

LEGAL CITATION: Minnesota Legislature 95, 1st Special Session, Chp. 2, Art. 1, Sec. 5, Subd. 2.

APPROPRIATION AMOUNT: \$175,000

Statement of Objectives:

*Objective A:* Construction of a gabion basket retaining wall at the base of a slope failure zone sufficient to keep the trail attached to the side of the hill.

*Objective B:* Solve the safety problems that the gabion basket wall creates with a safety rail at the top to protect trail users and a guardrail at the bottom to protect gabions from possible vehicle damage.

*Objective C:* Restore disturbed areas with site appropriate native vegetation and try to establish vegetation on the gabion wall face.

Overall Project Results:

Clearly this project has been a success. The gabion basket wall method of construction has the capability of resisting soil pressures offering protection to the trail and the township road. In a physically restricted site this type of wall construction still allowed some use of the site during construction which was important to the public. As the wall weathers and the planted vegetation matures the whole project should blend nicely into this visually sensitive location.

Observations of the wall over the last year has shown that even though it is north facing, it can be dry as drainage through it is almost immediate. This has made the establishment of vegetation on the wall face more difficult than anticipated. While it is happening slowly, about 100 vines were planted mostly on the wall top to try and accelerate the "greening" of the wall.

The safety railing is an particularly appreciated feature. This substantial fence (1350 feet long and 54" high) effectively separates the public from the potentially dangerous drop-off the wall created.

The vehicle guardrail offers some important protection to those driving the township road as they are less likely now to be able to hit the wall face or end up on the trail if they were to lose control.

Project Results Use and Dissemination

Information, plans, specifications about this project are on file at the Cannon Valley Trail office and available for public inspection. To date there has been considerable public interest and inquiry about the project but not to the point of anyone requesting construction documents.



V. Objectives/Outcomes:

A. Title of Objective/Outcome: Construction of gabion basket wall.

A1. Activity: This project involves the preparation of a base suitable to place wire gabion baskets which are then built upon by more gabions to eventually reach the required height. The wall would have the mass and stability to resist the horizontal pressures of the failing slope.

A.1.a Context within the project: The gabion wall is the fundamental element of the project and to which the other project objectives are related.

A.1.b. Methods: Most of the work will be completed through contracts.

A.1.c. Materials:

Type	Cost
gabion basket wall	\$138,500
no equipment will be purchased	

A.1.d. Budget:

Total Biennial LCMR Budget: \$138,500  
Amount Spent: (6/30/97) \$138,247.74  
LCMR Balance: \$252.26  
MATCH: \$0.00  
MATCH BALANCE: \$0.00  
TOTAL OBJECTIVE BUDGET: \$138,500

A.1.e. Timeline:

	July 1995	Aug 1995	Dec 1995	May 1996	June 1997
design	xxxx				
bid process		xxxxxxx			
construction			xxxxxxxxxxxxx		
final site repair					xxxxx

A.1.f. Final Work Program Update Report: Objective A was substantially completed May of 1996. Cannon Valley Trail employed other contractors and its staff to complete the minor repairs to the trail asphalt surface and shoulders in late June, 1997. These costs of \$957.24 will be deducted from the retainage of \$3,000 withheld from primary contractor Swenke Company. The gabion wall appears to be a very effective solution to this sites unstable soil problems. In all, the gabion wall is 805' long with 9,550 square feet of face. Height varies from 4 feet to 18 feet.

B. Title of Objective/Outcome: Solve safety problems.

B.1 Activity: Construction of the gabion wall creates a drop off from the trail above and a potential hazard to vehicle traffic below. Vehicles leaving the road could also damage the baskets. A barrier fence above and protection devices below will be necessary. Barrier fence to be extended beyond the edges of the wall to provide adequate protection.

B.1.a. Context within the project: The gabion wall creates hazards that need to be minimized by implementation of this activity.

B.1.b. Methods: Most of the work will be completed through contracts.

B.1.c. Materials:

Type	Cost
barrier fence and protection devices	\$33,500
no equipment will be purchased	

B.1.d. Budget

Total Biennial LCMR Budget: \$33,500  
Amount Spent: (6/30/97) \$33,325.50  
LCMR Balance: \$174.50  
MATCH: \$0.00  
MATCH BALANCE: \$0.00  
TOTAL OBJECTIVE BUDGET: \$33,500

**B.1.e. Timeline:**

	July	Aug	Dec	May
	1995	1995	1995	1996
design	xxxx			
bid process		xxxxxxx		
construction			xxxxxxxxxxxxx	

**B.1.f. Final Work Program Update Report:** The steel beam guard rail and barrier fence were satisfactorily completed in 1996. They are effective solutions to the safety problems. The wooden barrier fence along the trail edge is 1,350 feet long and 54" high. The steel guardrail along the road is 530 feet long.

**C. Title of Objective/Outcome:** Site and vegetation restoration.

**C.1 Activity:** This project involves the restoration of disturbed areas and introduction of seed, plants to the gabion wall.

**C.1.a. Context within the project:** Site and native vegetation restoration is necessary to blend the project into the surrounding visually sensitive environment.

**C.1.b. Methods:** Most of the work will be completed through contracts.

**C.1.c. Materials:**

Type	Cost
fine fill, seed, plant material	\$6,500
no equipment will be purchased	

**C.1.d. Budget**

**Total Biennial LCMR Budget:** \$3,000  
**Amount Spent:** (6/30/97) \$6,045.41  
**LCMR Balance:** \$0.00  
**MATCH:** \$3,500  
**MATCH BALANCE:** \$454.59  
**TOTAL OBJECTIVE BUDGET:** \$6,500

**C.1.e. Timeline:**

	July	Aug	Sept	June	Nov	June
	1995	1995	1995	1996	1996	1997
design	xxxx					
bid process		xxxxxxx				
construction			xxxxxxxxxxxxxxxxxxxxx			
final monitoring						xxxxx

**C.1.f. Final Work Program Update Report:** On May 29, 1996, all disturbed areas and the gabion wall were hydro-seeded with 'soil guard' by Premier Services, South Saint Paul, MN. The seed incorporated in the soil guard was site appropriate native grass and wildflower, with an oats cover crop. The dry summer of 1996 reduced expected germination results. While the spring of 1997 was also dry considerably more vegetation was observed on top of the gabion wall and other disturbed sites. The wall face itself is sparsely vegetated. In October, 1996 about 100 native vines were planted above and in the wall. Most of these overwintered well and are showing vigorous growth. When mature they should cover most of the exposed wall face.

**V.1 Evaluation:** This project solved many problems. Cannon Valley Trail can expect a reasonably stable situation which will keep the trail open, safe and enjoyable. The constricted site can now more readily accommodate the township road below. There were few problems during construction. The only issue of substance was the lengthy delays in getting the primary contractor back to the site to finish minor repairs to the asphalt surface and sunken shoulders. Eventually Cannon Valley Trail agreed to complete the work using staff and other contractors and deducting the costs from the final retainage.

**VII. Context within field:** Retaining wall construction with gabion baskets is an increasingly common problem solving technique.

**VIII. Budget context:** Cannon Valley Trails major sources of funding for the 2 year period ending June 30, 1995, have been user fees, local tax dollars and donations. During this period, the Trail spent \$2,842.40 on the activities which does not include overhead or a \$2,218.00 engineering services donation. For the 2 year period beginning July 1, 1995, the Trail is prepared to spend the local match required on the activities. Funds of the amounts described are in place and are from the same sources as above.

**IX. Dissemination:** Cannon Valley Trail routinely receives requests for information about its plans, projects, programs and responds free of charge. The same policy will apply for this project.

**X. Time:** It is not anticipated that the project will exceed two years.

**XI. Cooperation:** Bruce Blair, Cannon Valley Trail and Program Manager, will provide any and all support from the Trail that is necessary to efficiently and satisfactorily complete the project. Engineer Tom McMahon of CCST, Inc., Cannon Falls, has been hired by Cannon Valley Trail to prepare specifications and drawings, solicit bids and supervise and inspect construction so that project goals and objectives are met.

**XII. Reporting Requirements:** Semiannual six-month work program update reports will be submitted not later than January 1, 1996, July 1, 1996, January 1, 1997, and a final six-month work program update and final report by June 30, 1997.

### **XIII. REQUIRED ATTACHMENT:**

**1. Qualifications:** Resumes have been submitted for Bruce Blair, Cannon Valley Trail Manager and Program Manager; and Tom McMahon, Principal Engineer, CCST, Inc., and Project Engineer.