1995 Project Abstract
For the Period Ending June 30, 1997
This project was supported by Environment and Natural Resources Trust Fund (M3-42)

TITLE: Redwood Falls School District #2758 Environmental Education Project
PROJECT MANAGER: Mr. Jerry Meschke
ORGANIZATION: Redwood Falls School District
ADDRESS: 100 George Ramseth Drive
Redwood Falls, MN 56283
WEB SITE ADDRESS: redwood.mntm.org/lcmr/
LEGAL CITATION: ML 95, Chp. 220, Sec. 19 & 20, Subd. 6(k)
APPROPRIATION AMOUNT: $250,000

Statement of Objectives
The primary objectives of this project were to create a K-12 environmental curriculum in the Redwood Falls School District and develop two nature areas, one adjacent to the Reede Gray Elementary School and the other adjacent to the High School/Middle School building.

Overall Project Results
K-12 Curriculum: All the teachers in the district attended 2 short inservices facilitated by staff from the School Nature Area Project (SNAP). 28 teachers participated in 12 additional hours of inservice which were also facilitated by SNAP. During this inservice a K-12 scope and sequence was developed for environmental education in the district. The teachers who participated in the extended inservice wrote a total of 34 environmental units for their classes.

Reede Gray Nature Area: A 4000 square foot nature area was developed at Reede Gray. A 240 foot wood mulch walking trail winds through 16 new trees and shrubs. Three large planting boxes were built and filled with black dirt. These will be planted with bulbs and wild flowers. A 250 foot area has been established for a prairie planting.

High School/Middle School Nature Area: A 22 acre nature area was established. It contains 5000 feet of granite fines walking trails and 7,000 feet of mown grass trails. The trail system also includes 4 wooden bridges, a peninsula for pond access, and a cut-away bank for creek access. 22 benches and 4 tables have been placed in the nature area. A 2400 square foot pond was constructed by excavating dirt from a low area behind the school. The dirt from pond construction was used to make a hill overlooking the pond. Topsoil from trail construction was used to cover a pile of sand and gravel from building construction. This made another hill overlooking the native prairie area. The area around the pond and the two new hills were seeded with native prairie grasses and wildflowers. Additional seeding and planting was done in the native prairie to increase plant diversity and many native trees and shrubs were added to the woodland area. A large wooden sign with three large introductory signs was placed at the nature area entrance. 34 interpretive signs have been placed along the trails. Four bird feeders and two pheasant feeders have been installed. Twenty five birdhouses were built and placed in the woodland area. Three arboretum areas were established on the school grounds adjacent to the nature area. The tree arboretum has 54 different trees, the shrub arboretum has 98 plants and the herb arboretum has 16 varieties of prairie plants, 14 varieties of butterfly and hummingbird plants, 10 types of prairie grasses, and 13 examples of plants that are listed as endangered or threatened in Minnesota.

Project Results Use and Dissemination
The school district had a booth at the Minnesota Environmental Educators Association Convention in Duluth in May, 1997. The booth exhibit had examples of curriculum, photographs of the nature area, and pamphlets which invited people to an open house for the nature area. Approximately 900 brochures were handed out at the conference or mailed to people connected with environmental education. On June 24, the open house was held at the middle/school high school. A total of 150 people attended the open house. A web site has also been developed. The web site has information and photos of both nature areas as well as information on each of the curriculum units that were written. The nature areas are being well used by teachers and students as well as members of the Redwood Falls community. Pamphlets have been placed in the Redwood Falls Public Library and the Redwood Area Chamber and Tourism Office. An open house for the community will be held in September, 1997.

Signage

This is the main entrance sign to the middle school/high school nature area. The top sign is sandblasted cedar. The bottom three signs are 3-M Scotchguard vinyl laminate on aluminum. The frame is constructed out of 8x8 cedar posts.

This is an example of one of the interpretive signs that have been placed along the trails. The post is made out of 4x4 treated lumber. The frame is made out of aluminum with a Plexiglas front. The signs themselves are designed and printed at the high school. There are 34 signs of varying sizes located along the trails.

There are also more than 150 small signs at each plant, tree, and shrub in the three arboretums. These signs are also designed, printed, and maintained by high school staff.

Seating Structures

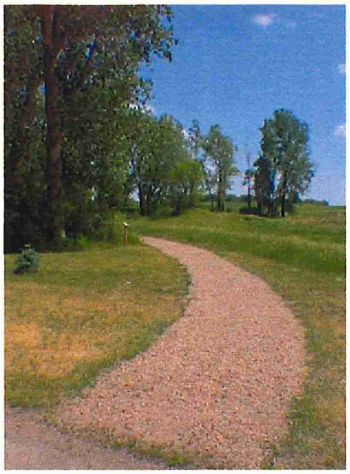
This is one of the four outdoor classroom areas. This classroom has five six-foot benches. The benches have metal frames that have a baked on enamel finish. The seats are made out of 2x6 treated lumber attached with carriage bolts. The bench designs were chosen by teachers. A local company did the metal work. Students at the school assembled the benches and community volunteers installed them.

This classroom has four 4'x4' tables. Each table has four benches. The benches and tables were constructed and installe in the same manner as the ones above.

Two of the outdoor classrooms have very casual seating. The one on above has log sections for seats. The one pictured below has a boulder field for seating.

There is currently only one bench along the trails. It is a goal of the committee to add benches in the future when money becomes available.

Trails



More than two miles of trails were established in the nature area. Approximately 5,000 feet of granite fines trails, shown on the left, wind through the central part of the nature area. An additional 7,000 feet of mown grass trails, shown on the right, have been installed in the outer portions of the nature area.

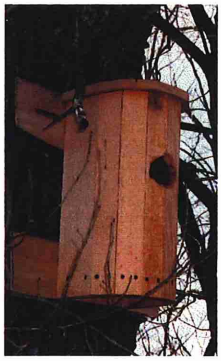
The trail system also includes four bridges similar to the one shown here. These bridges allow people to cross the drainage ditch and also to observe the plant and animal life that lives in the wetlands below the bridges.

A portion of the granite fines trail extends into the pond. This allows easy access for water testing and observing the animals that live in the pond.

Crow Creek runs along the south side of the nature area. It had very steep banks and was virtually inaccessible. A portion of the bank was cut away and a granite fine ramp was installed to allow students better access to the waters.

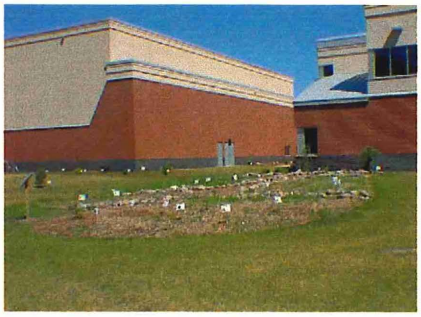
Animal feeders and shelters

Six bird feeding stations have been installed in the nature area. There are two platform feeders and two bin-type feeders for small seed and two pheasant feeders. The seed is purchased with donated money and the corn for the pheasant feeders is provided by the local DNR.



At least 28 different animal shelters have been placed in the nature area. Some examples are shown here. Clockwise from upper right are bluebird house, woodpecker house, chickadee roundhouse, butterfly house, robin nesting box, and bat house.

Arboretums



An arboretum of herbaceous plants was created on the school grounds adjacent to the nature area. This arboretum has four sections: prairie grasses, prairie flowers, butterfly and hummingbird plants, and plants that are listed as endangered or threatened in the state of Minnesota.

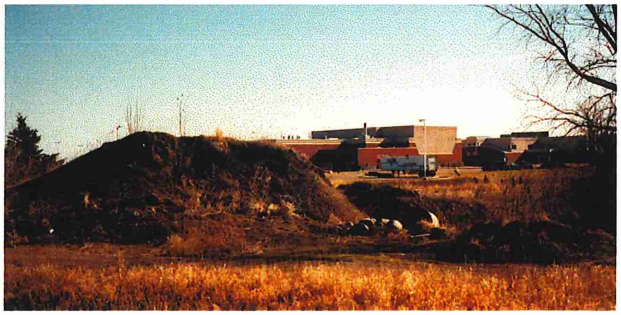
A shrub arboretum was established on the south perimeter of the school building. This area has 98 ornamental plants, grasses, and shrubs.

A tree arboretum is located on the west, south, and east sides of the school. This arboretum currently has 54 different varieties of trees. Most of these trees are unusual varieties not often seen in the area.

New Topographical Structures

One of the largest changes to the nature area was the construction of a pond. The school had a low area, shown upper left, that was part of the school drainage system. About four feet of material was removed from this basin. Runoff from snow and rain has filled the new hole and created a nice size pond in the nature area.

The material that was removed from the bottom of the pond area was piled on the northeast edge of the pond. The pile was smoothed and covered with topsoil. It was seeded with native prairie grasses and forbes.



The nature area originally had an unsightly hill that had been left from building construction. During May, 1997, this hill was reshaped and covered with topsoil that had been stockpiled from trail construction. The hill was then seeded with native prairie grasses and wildflowers.

Note: This entire scrapbook of the project was created using the Gateway computer, Epson color printer, Epson digital camera, and HP scanner that was purchased with project funds.

Date of Report: July 1, 1997

LCMR Final Work Program Update

I. Project Title and Project Number: Redwood Falls School District #637 Environmental Education Project, M3-42

Program Manager:	Mr. Jerry Meschke
Agency Affiliation:	Redwood Falls School District
Mail Address:	100 George Ramseth Drive
	Redwood Falls, MN 56283
Phone:	(507) 644-3521
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A. **Legal Citation: ML 95, Chp. 220, Sec. 19 & 20, Subd. 6(k)**
Total biennial LCMR appropriation: $ 250,000.00
Balance: $3,339.00

Appropriation Language: This appropriation is from the future resources fund to the Office of Environmental Assistance for an agreement with the Redwood Falls school district to accelerate development of an outdoor environmental learning center and to integrate environmental education into the K-12 curriculum. Project development will include prairie access improvements including a trail system, establishment of a wetland, and an arboretum.

B. **Status of Match Requirement: N/A**
Match Required: $0.00
Amount Committed to Date: $0.00
Match Spent to Date: $0.00

II. Project Summary:

The Redwood Falls School District has designated sites adjacent to an elementary school and high school/middle school building for use as an environmental learning center. Prairie grasses and forbs have been established in some areas, with beginning restoration of a type 2 wetland incorporated into the high school/middle school site. Because of the major impact of agriculture on the southwestern Minnesota prairie, a desire to protect the existing areas that remain and educate students of their importance in the total ecological system became the district's primary objective. It is the intent of this project to fulfill four goals: a) complete the development of an environmental learning center in the Redwood Falls School District, b) adapt and integrate environmental education topics into the K-12 curriculum c) conduct training for K-12 teachers to integrate environmental education topics into the curriculum, d) provide the opportunity for other school districts and nonprofit organizations in the region to access the environmental learning center and use the curriculum in their classes. This program will involve the establishment of an elementary site and a high school/middle school site that will have a variety of trail systems designed to provide immediate access to prairie, wetland and numerous bushes and trees native to the Minnesota prairie. The teaching staff will be collaborating with instructors and advisors from the School Nature Area Project at St. Olaf College to help develop teaching units that will expand and integrate environmental curriculum into all disciplines.

III. Six Month Work Program Update Summary

(7/1/97) Progress toward curriculum development throughout the district has progressed very well in some areas with some others not as well as we had hoped. Elementary and middle school staff seem to be very enthusiastic about what they have done, with high school science and social studies classes being the prominent developer of curriculum. Thirty four units have been developed to date by 28 staff that show interesting views of how students can engage in the environment. We are finding that much of the relevant information we want can be accessed through the Internet. Because of this, some of the LCMR funds were used to update existing computers with software and connections to our present technology infrastructure. Also, the task of publicizing our nature area has focused on a district home page instead of distributing paper materials. We think the advantages of allowing anyone in the world to access our curriculum and nature area design has great potential for our outreach program.

The major share of the actual nature areas near each building site are completed, except for parts of the elementary school area. We have found heightened interest in the area throughout the community, as the trail system is providing many opportunities to view various facets of the nature area. Students in both buildings are taking more and more ownership in the spaces and delight in seeing the many varieties of plant and animal life.

IV. Statement of Objectives

A. Objective A : Elementary Environmental Learning Center
B. Objective B : High School/Middle School Environmental Learning Center
C. Objective C : K-12 Environmental Curriculum Development

Time line for Completion of Objectives:

	7/95	1/96	6/96	1/97	6/97
Objective A.....			XXXX		
Objective B.....	XXXXX		XXXXXXXX		XXXXX
Objective C.....	XXXXXXXXXXXXXXXXXXXXXX				

V. Objectives/Outcome:

A. Title of Objective/Outcome: Elementary Environmental Learning Center

A.1 Activity: Establish plantings and landscaping in proximity to the elementary school

A.1.a Context with the project: The close proximity of an outdoor laboratory will give students immediate access to plantings that are similar in nature to the high school/ middle school nature area. This will provide teachers the opportunity to help connect their curriculum to the nature area in an efficient and unobtrusive manner which will accelerate the use of both sites. Areas have been set aside for student plantings that will be seasonal in nature so students can benefit in studying a complete planting cycle.

A.1.b Methods: Areas will be established that have prairie grasses and forbs, shrubs and trees in immediate access to the elementary school building. Students will be involved with many of these activities, helping design the space and plant different varieties of plants. A pond will be excavated and lined to provide wetland activities. Watering troughs will be filled with soil so students may experiment with different plantings.

A.1.c Materials:

Prairie seedlings	$ 2,100.00
Access corridors (boardwalks, trail areas)	$ 1,800.00
Structures:	$ 3,200.00
Woodland: tree plantings	$ 500.00
	$ 0.00
Shrub enclosure: native shrubs	$ 500.00
Agricultural area: troughs/garden soil/tools	$ 300.00
Weather station: weather vane/anemometer/climate station	$ 400.00
Animal boxes: birds/bats/bush piles	$ 200.00
Total	$ 9,000.00

A.1.d Budget

Total Biennial LCMR Budget: $9,000.00
LCMR Balance: $2.00
Match: $0.00
Match Balance: $0.00

A.1.e Time line

	7/95	1/96	6/96	1/97	6/97
Product #1 (learning center)		XXXX			

A.1.f Work program Update:

(7/1/97) The site has emerged as an environmental focal point of the school, with plantings and trees providing interesting possibilities. This summer construction has begun on an addition to the elementary school (intergenerational center). It is hoped that once the project has been completed, the area can be appropriately maintained, in addition to offering senior citizens to access the space.

B. Title of Objective/Outcome: High School/Middle School Environmental Learning Center

B.1 Activity: Establish trail system throughout the nature area

B.1.a Context with the project: The trails will allow students and staff to access all parts of the 22 acre site and provide for instructional and viewing areas for inclusion of curricular activities into the area.

B.1.b Methods: Discussion with school staff, DNR, community and a SNAP environmental architect has provided a design that will provide access to the area. Trail systems will be two types, granite fines and grass, allowing easier access by wheelchair bound students. Bridges will be located in two areas to provide immediate access across a large ravine. Boardwalks will allow students easier access to each gathering node, which provides a general space where students can sit and be instructed by the teacher. Seating structures (rocks, logs, etc.) will be placed in random areas. Signs, brochures and guidebooks will be used to help students, staff and community to better understand how the site can be used.

B.1.c Materials:

Trail system(surfacing, gathering nodes)	$ 19,879.00
Access corridors(boardwalks,bridges)	$ 6,157.00
Signage	$ 10,000.00
Brochures/Guidebooks	$ 2,000.00
Benches and seating structures	$ 3,658.00
Total	$ 41,694.00

B.1.d Budget

Total Biennial LCMR Budget: $41,694.00
LCMR Balance: $2,106.00
Match: $0.00
Match Balance: $0.00

B.1.e Time line

	7/95	1/96	6/96	1/97	6/97
Product #1 (trail surfacing/gathering nodes)	XXXXXX				
Product #2 (bridge installation/boardwalks)		XXX			
Product #3 (signage)					XXX
Product #4 (benches/seating structures)			XXXXXX		
Product #5 (brochures/guidebooks)					XXX

B.1.f Work program Update:

(7/1/97) All products have been completed with greater than first anticipated expectations. 5,000 feet of granite fine trails, 7,000 feet of grass trails, 4 bridges, numerous signs and 4 class lecture pods bring every opportunity for classes to use the area. Signs are intended to be the type that can be designed and changed easily so the area will always offer a new look to visitors.

B.2 Activity: Develop wetland area and access to existing water

B.2.a **Context with the project:** The study of the ecological impact on aquatic life broadens the experiences students receive as it relates to ponds, rivers and streams.

B.2.b **Methods:** Discussion with school staff, DNR representatives, community members and a SNAP environmental architect has provided a preliminary design that will provide access to the wetland area by students and community. A large area will be excavated below the existing water table which will give students an opportunity to observe aquatic life and changes in water quality. 'Live soil' will be brought in to provide proper conditions suitable for plantings. In addition, a nearby drainage ditch will be gradually sloped in a small area so that students can approach the water level and take samples.

B.2.c **Materials**

Excavation and disposal of material	$ 6,959.00
Addition of live soil	$ 1,000.00
Seedling planting	$ 300.00
Grading/riprap/granite dry edge	$ 1,800.00
Total	$ 10,059.00

B.2.d **Budget**

Total Biennial LCMR Budget: $10,059.00
LCMR Balance: $ 0.00
Match: $0.00
Match Balance: $0.00

B.2.e **Time line**

	7/95	1/96	6/96	1/97	6/97
Product #1		XXX			
(excavation/addition of live soil/granite dry edge/plantings)					
Product #2		XXX			
(regrading of drainage ditch and addition of rip/rap)					

B.2.f **Work program Update:**

(7/1/97) The wetland areas have been completed and are providing excellent areas for the study of water quality and plant life. Students have used the area this year to begin a regimented program of collecting data from the ditch adjacent to the nature area with intentions of sharing the chemical properties (via/Internet) with other schools that are also doing monitoring of water quality.

B.3 Activity: Prairie restoration

B.3.a **Context with the project:** The restoration of existing prairie areas will augment the established forbs and grasses and extend the variety of species available for study.

B.3.b **Methods:** Discussion with school staff, DNR representatives, community members and a SNAP environmental architect has provided a preliminary design that will provide further study of the prairie by students and community. A center access buffer will be planted with new grasses and forbs to help establish a centrally located space where the most traffic will occur.

B.3.c **Materials:**

Buffer restoration	$ 272.00
Addition of forbs to existing prairie	$ 3,500.00
Total	$ 3,772.00

B.3.d **Budget**

Total Biennial LCMR Budget: $3,772.00
LCMR Balance: $0.00
Match: $0.00
Match Balance: $0.00

B.3.e **Time line**

	7/95	1/96	6/96	1/97	6/97
Product #1		XXXX			
(restoration and planting)					

B.3.f **Work program Update:**

(7/1/97) The planting of native forbs and plants were completed by students under the guidance of staff. Approximately 10 acres of native prairie were planted. As students studied the prairie, then read literature describing the prairie once in this area, a new understanding and awareness of southern Minnesota emerged.

B.4 Activity: Maintenance equipment

B.4.a **Context with the project:** The ongoing maintenance of the area will necessitate equipment where controlled burns, abatement of noxious weeds, mowing of trails, dragging, and arboretum pruning/trimming can be accomplished safely and efficiently.

B.4.b **Methods:** Discussion with school staff, DNR representatives, community members and a SNAP environmental architect has recommended the purchase of this equipment. Equipment will be used exclusively for the maintenance of the environmental nature area at both sites and will be housed in the high school/middle school complex. Lease arrangements have not been explored as the equipment will need to be used beyond the time lines of this funding period.

B.4.c **Materials:**

Burn equipment/miscellaneous tools	$ 1,500.00
Maintenance vehicle w/drag and mower	$ 6,000.00
Total	$ 7,500.00

Equipment purchased with this appropriation will continue to be used for the same program through its useful life, and if use changes, the Redwood Falls School District will pay back the appropriate fund at an amount equal to either the cash sale price the school district receives from the sale or a residual value to be negotiated with the Director if the school district chooses not to sell it.

B.4.d **Budget**
Total Biennial LCMR Budget: $7,500.00
LCMR Balance: $45.00
Match: $4,000
Match Balance: $4,000

B.4.e **Time line**

	7/95	1/96	6/96	1/97	6/97
Product #1 (purchase of maintenance equipment)			XXXX		

B.4.f **Work program Update:**
(7/1/97) The maintenance of the space has been turned over to instructors and students, with the ownership of the project being felt by all who had input into the design. Other groups are joining the school in the nature areas use, which poses exciting potential.

B.5 Activity: Establishment of arboretum

B.5.a **Context with the project:** Establishing an arboretum will allow students to expand their knowledge of existing plants, shrubs and trees as they relate to the prairie ecosystem.

B.5.b **Methods:** Discussion with school staff, DNR representatives, community members and a SNAP environmental architect provides for inclusion of these plants near the prairie area to allow for easy access by community and school. Areas will be maintained by students and monitored by classroom teachers.

B.5.c **Materials:**
Trees/shrubs/DNR seedlings $ 13,400.00

B.5.d **Budget**
Total Biennial LCMR Budget: $13,400.00
LCMR Balance: $119.00
Match: $0.00
Match Balance: $0.00

B.5.e **Time line**

	7/95	1/96	6/96	1/97	6/97
Product #1 (planting of trees,shrubs and seedlings)			XXXXXX		

B.5.f **Work program Update:**
(7/1/97) An extensive selection of trees, shrubs and forbs have been planted all over the site and adjacent to the school. Signs describe each of the varieties so visitors can see plant life that is typical of the area.

C. Title of Objective/Outcome: K-12 Environmental Curriculum Development

C.1 Activity: Environmental Education Course

C.1.a Context with the project: The Principles of Environmental Education course will demonstrate how environmental education can be integrated into different grade levels and disciplines. It is important that teachers are familiar with the fundamentals of environmental education before they proceed with curriculum development so that the school's curriculum will reflect a well-rounded approach to environmental education.

C.1.b Methods: Teachers will participate in a eight-hour course on the Principles of Environmental Education. The course will be taught by trained environmental educators with assistance from teachers who have already taken the environmental education course from the School Nature Area Project. Courses will be offered for the elementary school, middle school and high school during a two day workshop held before school starts in the fall of 1995.

C.1.c Materials:

EE resource staff	$ 2,100.00
Stipends for teacher assistants	$ 1,800.00
Workshop expenses (notebooks, copying,meals)	$ 2,139.00
Total	$ 6,039.00

C.1.d Budget

Total Biennial LCMR Budget: $6,039.00
LCMR Balance: $0.00
Match: $0.00
Match Balance: $0.00

C.1.e Time line

	7/95	1/96	6/96	1/97	6/97
Product #1 (environmental education course)		XX			

C.1.f Work program Update:

(7/1/97) The idea behind this component was to have everyone start the process of environmental awareness on the same page, so that any discussion or unit development would follow a general scope and sequence. As typical in any group, the energy driving the unit development was held by a few. However, the quality and depth of units developed were beyond expectations.

C.2 Activity: Nature Area Curriculum Development - Stage 1

C.2.a Context with the project: Teachers will develop a scope and sequence for use of the nature area throughout the K-12 system. Redwood Falls cannot achieve an adequate program in environmental education that best utilizes the nature area without a comprehensive and coordinated curricular plan for the district as a whole. Environmental education objectives will be correlated with subject and grade level objectives. The result will be a multidisciplinary curriculum that builds logically without excessive overlap throughout the K-12 program.

C.2.b Methods: Up to ~~26~~ 24 teachers will submit plans for units, with condition that the plan fits within the district scope and sequence for EE curriculum. Teachers will be allowed time for research and/or visitations. Curriculum resources and classroom materials will be provided up to $200.00 per teacher. Equipment requests will be made following the unit plans, with approval made by the EE caretaking committee. EE resource staff will provide help to teachers during the year in as needed basis.

C.2.c Materials:

EE staff inservice and resource help	$ 25,200.00
Stipends for 24 teachers	$ 14,400.00
Curriculum resources and materials	$ 29,822.00
Equipment needs	$ 7,040.00
• Telescope for Physical Science ($3,200)	
• Oxygen bomb calorimeter for Envir. Chemistry ($3,840)	
Substitutes for off site visitations	$ 750.00
Total	$ 77,212.00

Equipment purchased with this appropriation will continue to be used for the same program through its useful life, and if use changes, the Redwood Falls School District will pay back the appropriate fund at an amount equal to either the cash sale price the school district receives from the sale or a residual value to be negotiated with the Director if the school district chooses not to sell it.

C.2.d Budget

Total Biennial LCMR Budget: $77,212.00
LCMR Balance: $0.00
Match: $0.00
Match Balance: $0.00

C.2.e Time line

	7/95	1/96	6/96	1/97	6/97
Product #1 (Nature Area Curriculum Development - Stage 1)		XXXXXXXXX			

C.2.f Work program Update:

(7/1/97) Fifteen environmental units were written by twenty four staff members during this time. Each unit was screened, then approved with recommendations from the district caretaking committee. Most units have already been implemented into current curriculum with broad acceptance by both students and staff.

C.3 Activity: Nature Area Curriculum Development - Stage 2

C.3.a **Context with the project:** Curriculum units will be developed based on the scope and sequence plan. The intent of this component is for teams of teachers to plan interdisciplinary units that cross over subject lines.

C.3.b **Methods:** Curriculum proposals will be reviewed in May of 1996 by the EE caretaking committee, with major emphasis place on those teams who plan interdisciplinary units. This summer curriculum development will be infused into the existing areas the following school year. Equipment needs will be established in amended work programs as curriculum is developed.

C.3.c **Materials:**

Stipends for 21 teachers/teams	$ 12,158.00
Curriculum resources and materials	$ 16,240.00
Off site research and visitations	$ 103.00
Equipment needs	$ .00
Photocopying, notebooks, supplies	$ .00
Total	$ 28,501.00

Equipment purchased with this appropriation will continue to be used for the same program through its useful life, and if use changes, the Redwood Falls School District will pay back the appropriate fund at an amount equal to either the cash sale price the school district receives from the sale or a residual value to be negotiated with the Director if the school district chooses not to sell it.

C.3.d **Budget**

Total Biennial LCMR Budget: $28,501.00
LCMR Balance: $0.00
Match: $0.00
Match Balance: $0.00

C.3.e **Time line**

	7/95	1/96	6/96	1/97	6/97
Product #1			XXX		
(Nature Area Curriculum - Stage 2)					

C.3.f **Work program Update:**

(7/1/97) Twenty one teachers (some repeating) have created eleven environmental units as part of this phase of curriculum development. As teachers began their investigations into environmental topics, a fundamental technique of teaching that presented itself was based primarily upon inquiry learning. Students are given information that is general in nature, with questioning strategies used that encourages the student to formulate more than one solution to a problem. This processing of environmental issues in the classroom and nature area helps students to become inquisitive and problem solvers. Teachers who have used this strategy are finding students more engaged in the curriculum and enthused about their contributions toward solving problems. Most of the units draw from the power of 'hands-on' learning, involving students in activity based learning.

C.4 Activity: Nature Area Curriculum Development - Stage 3

C.4.a **Context with the project:** As more and more staff incorporate EE units into their curriculum, a need arises to address those areas of the scope and sequence that are not being taught. It is the intent of the caretaking committee that every staff member expose their students to an awareness of the environment and site.

C.4.b **Methods:** Those teachers who have not developed units for their respective disciplines will be required to submit proposals to the EE caretaking committee for approval. The teacher will be encouraged to teach in an interdisciplinary sense, working with other teachers to strengthen the existing program.

C.4.c **Materials:**

EE staff inservice and resource help	$ 9,000.00
Stipends for ~~20~~ 10 teachers/teams	$ 6,000.00
Curriculum resources and materials	$ 21,549.00
Equipment needs	$ 4,774.00
• Computer for Envir. Chemistry ($2,640)	
• Enlarger for site development / instruction ($2,134)	
Substitutes for off site visitations	$ 1,500.00
Total	$ 42,823.00

Equipment purchased with this appropriation will continue to be used for the same program through its useful life, and if use changes, the Redwood Falls School District will pay back the appropriate fund at an amount equal to either the cash sale price the school district receives from the sale or a residual value to be negotiated with the Director if the school district chooses not to sell it.

C.4.d **Budget**

Total Biennial LCMR Budget: $42,823.00
LCMR Balance: $241.00
Match: $4,774.00
Match Balance: $0.00

C.4.e **Time line**

	7/95	1/96	6/96	1/97	6/97
Product #1				XXXXXXXXXX	
(Nature Area Curriculum Development - Stage 3)					

C.4.f **Work program Update:**

(7/1/97) Eight units have been developed by 11 staff members. Music and art students in the elementary school are two units that have shown great promise in the interdisciplinary approach.

C.5 Activity: Dissemination and training with other schools

C.5.a Context with the project: Other schools, especially in southwest Minnesota will benefit from this comprehensive environmental education and site development effort. Schools from around the region will be invited to bring classes to the nature area. They can use units that Redwood Falls teachers have developed. The nature area and its use will also serve as a model for other schools to develop and use nature areas within walking distance of their own school. They can use Redwood Falls' scope and sequence and curriculum units as a guide for their own nature areas. Teachers will learn from other teachers how they have integrated nature areas and environmental education into their curriculum.

C.5.b Methods: Redwood Falls teachers will present at the state environmental education conference about the nature area and curriculum development. Teachers will also present at other state of regional conferences such as science teachers, social studies teachers, MEA, and Midwest environmental education conferences. Redwood Falls will offer inservice workshops at Redwood Falls for teachers around the region to learn about their nature area and receive copies of curriculum units.

C.5.c Materials:

Conference registrations	$ 2,400.00
Substitutes (for conference attendees	$ 900.00
Stipends for presenters	$ 300.00
Inservice workshops (3 x 50 people)	$ 1,500.00
Materials (notebooks, copying, etc.)	$ 4,900.00
Total	$ 10,000.00

C.5.d Budget

Total Biennial LCMR Budget: $10,000.00
LCMR Balance: $827.00
Match: $0.00
Match Balance: $0.00

C.5.e Time line

	7/95	1/96	6/96	1/97	6/97
Product #1 (Dissemination and training)			XXXXXXXXXX		

C.5.f Work program Update:

(7/1/97) A booth occupied by one the school's caretaking committee at the Duluth MEEA convention allowed the dissemination of materials to interested participants. Later, over 900 brochures were mailed to educators and other officials in the state, inviting them to an educator's open house of the nature areas and curriculum. Over 150 people attended the open house, culminating in a tour of the nature area later in the evening. Some parts of the web page and nature area have been purposely left alone to students returning in the fall will have the chance to begin their own investigation of the area.

VI. Evaluation: A scope and sequence plan has been developed in the school district with present curriculum listed, which will provide baseline data for the comparison of the addition or revision of future environmental education topics by staff. Exposure of the area will be measured by the number of requests the school district receives for visitations, materials or other information about the site. Logs will be developed that will track the use of the area by district staff and the number of staff participating in the environmental education course. Other measurements will be student and community evaluation of the curricular topics developed by staff. Curriculum integration will be recorded to measure the breadth and depth environmental education is being incorporated into each discipline.

VII. Context within field: Present curriculum that teaches environmental topics has been specific to the sciences. It is within the goal of this program to infuse relational topics of environmental education into other disciplines and provide for an avenue that allows all staff to access the site and make it more meaningful for students.

VIII. Budget context: From 1990-93 the school district invested $3,800 to reestablish native prairie grasses, forbs, and a wildlife planting. The US Fish and Wildlife Service donated $500 for restoration of the type 2 wetland. The school district was awarded a $15,000 grant with the St. Olaf School Nature Area Project to fund environmental education curriculum development and adaptation ending on June 1, 1995. After July 1, 1995 there are no matching funds impacting this project other than donated in-kind services provided through community and staff efforts.

IX. Dissemination: Information about the project will be developed and distributed to other school districts, with selected presentations made by district staff to interested groups as outlined in C.5. LCMR presentations will include video, slide or photographic review of the project in addition to completed outlines of newly developed environmental units by teachers. Information will also be presented that shows how the two sites are being used by district staff in the field testing of designed units.

X. Time: The intent of the project is to provide an on-going, dynamic inclusion of environmental education into the Redwood Falls School District, but also for other schools in the immediate area. Funding requirements will not be required beyond July 1, 1997.

XI. Cooperation: The project director presently holds the position of middle school principal, and will assume the role under terms and conditions of the present district contract. No LCMR funds will be allocated toward reimbursement of these duties. The major direction for the project will come from selected teaching staff and community members who will volunteer their time as members of the environmental program's caretaking committee.

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: The project director presently holds the position as middle school principal in the Redwood Falls School District with an educational administrative degree from Mankato State University.
2. Project Staffing Report: No staff are employed as part of the components of this project.