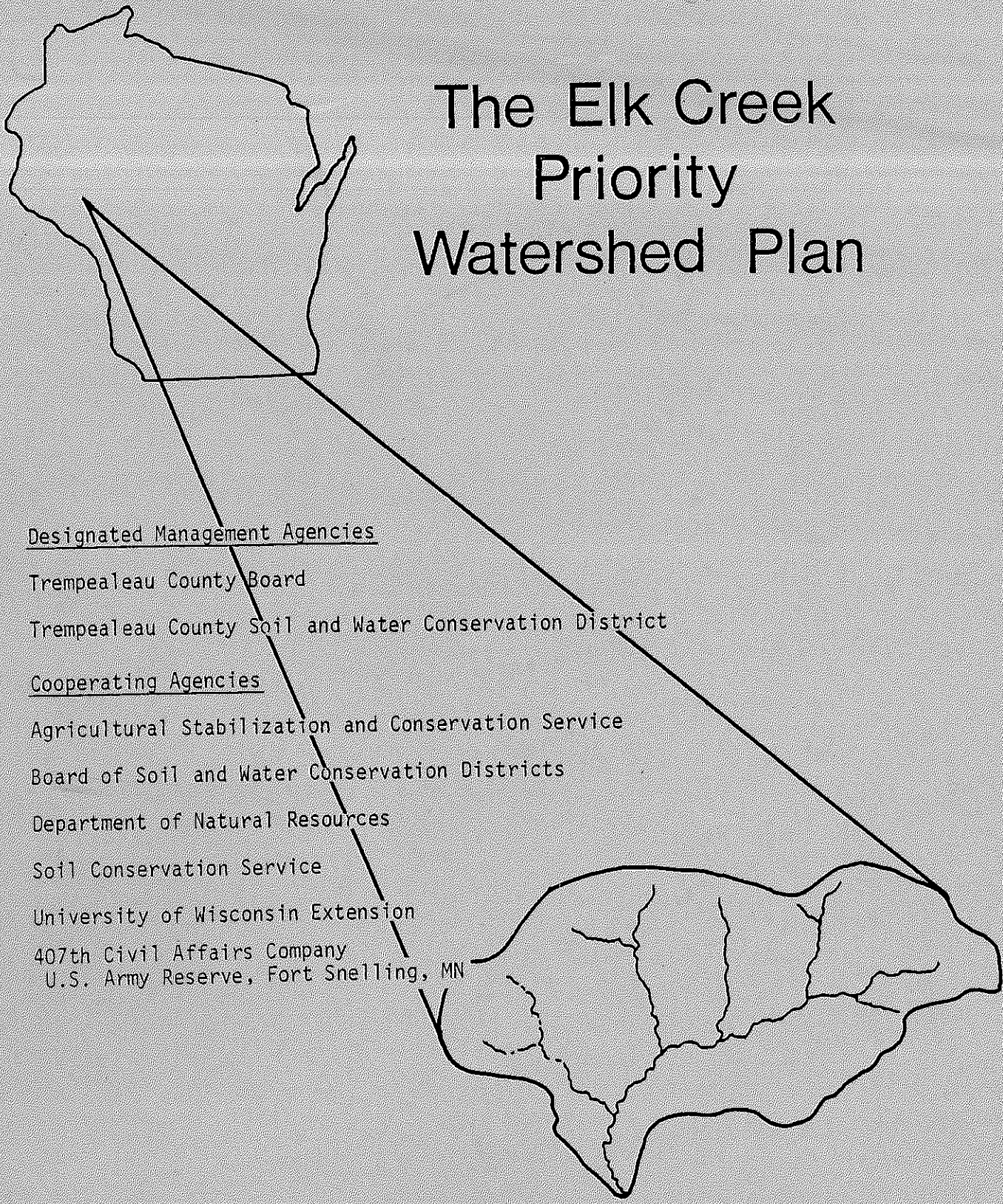


Buffalo - Trempealeau

The Elk Creek Priority Watershed Plan



Designated Management Agencies

Trempealeau County Board

Trempealeau County Soil and Water Conservation District

Cooperating Agencies

Agricultural Stabilization and Conservation Service

Board of Soil and Water Conservation Districts

Department of Natural Resources

Soil Conservation Service

University of Wisconsin Extension

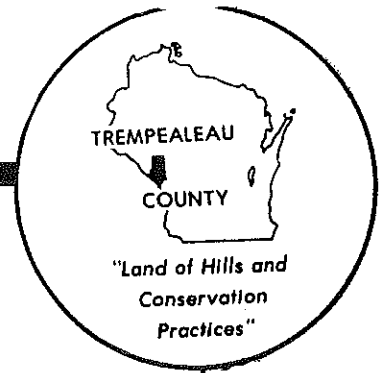
407th Civil Affairs Company
U.S. Army Reserve, Fort Snelling, MN

This plan was prepared with the assistance of the Wisconsin Department of Natural Resources and the Wisconsin Board of Soil and Water Conservation Districts under the provisions of the Wisconsin Nonpoint Source Water Pollution Abatement Program.



**Trempealeau County
Soil and Water Conservation District**

AGRICULTURAL SERVICE CENTER COURTHOUSE WHITEHALL, WISCONSIN 54773
PHONE (715) 538-4366



November 1, 1979

Mr. Anthony A. Earl
Department of Natural Resources
P. O. Box 7921
Madison, WI 53707

Dear Mr. Earl:

The Trempealeau County Soil and Water Conservation District, functioning as the Designated Management Agency for the Elk Creek Watershed, has reviewed and authorize approval of the Elk Creek Watershed Water Quality Management Plan.

This agency will proceed with the implementation of the plan upon final Department of Natural Resources approval.

Sincerely,

John Walek, Chairman
Trempealeau County SWCD

JW/nb

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Introduction

Elk Creek Watershed is one of five priority watersheds selected under the Wisconsin Nonpoint Source Water Pollution Abatement Program. Wisconsin's Legislature established the program in 1978. Overall purpose of the program is to achieve and maintain fishable and swimmable water quality. It is an outgrowth of the area wide water quality management planning activities. Cost-share money is available to municipalities, landowners and land operators for installing best management practices.

Elk Creek Watershed was selected through a three-step process. Watersheds in the top 25 percent of those eligible were identified. Southwestern Wisconsin Regional Policy Advisory Committee reviewed Southwest Region watersheds that were included in the top 25 percent. Three watersheds were selected and recommended to the next level of selection. Finally, the Wisconsin Department of Natural Resources upon recommendation of the State Nonpoint Source Coordinating Committee, comprising of representatives of local interests, state and federal agencies, selected the Elk Creek Watershed.

Wisconsin Fund Nonpoint Source Pollution Abatement Program is primarily a water pollution control program as well as a land management program. Therefore, it is essential that water quality goals and objectives are determined and clearly outlined in the watershed plan. Furthermore, the type of water quality monitoring necessary to illustrate both current water quality conditions and to document future changes in water quality must be included in the priority watershed plan. Although many of the techniques used to mitigate pollution from nonpoint sources are similar to or synonymous with land management techniques, the program will be evaluated based on the protection or rehabilitation of water resources achieved.

Participating Agencies

Trempealeau County Board of Supervisors and Trempealeau County Soil and Water Conservation District were jointly designated by the area wide water quality plan. By resolution the Trempealeau County Soil and Water Conservation District accepted a lead Designated Management Agency (DMA) role. The lead DMA will be responsible for the following:

1. Local coordination in the watershed planning review and implementation phases of the program.
2. Accounting for local concerns in the approval of the watershed plan.
3. Provide formal local approval of the watershed plan.
4. Responsible for administering cost-sharing funds.
5. Determine priority of assistance for cost-sharing.
6. Coordinate the use of other cost-sharing programs.
7. Solicit and process applications for cost-sharing agreements and screen applications.
8. Maintain all applicable records.
9. Certify practice installation and authorize cost-share payment.

Other agencies will enter into agreement with the lead DMA to consult and become involved in the execution of many of the above tasks.

1. A.S.C.S. - Coordination of the Agricultural Conservation Program (A.C.P.) to compliment the Nonpoint Source Water Pollution Program.
2. B.S.W.C.D. - Assist Designated Management Agencies during the implementation phase of the watershed program. The Board also assists in the area of information and education.
3. D.N.R. - Overall responsibility for administration of the Wisconsin Nonpoint Source Pollution Abatement cost-sharing funds.
4. S.C.S. - Provide technical assistance with the planning and implementation phases of the "Best Management Practices."
5. U.W. Extension - Assist with a program of information and education.

Community Participation

Elk Creek Watershed has demonstrated a consolidated community effort to control sediment and nutrients entering tributaries of Elk Creek. Elk Rod and Gun Club has joined the Soil and Water Conservation District and local agencies in promoting streambank fencing by cost-sharing and installation for interested landowners.

Landowners in the watershed have historically taken an active role in participating in the Soil and Water Conservation Districts awards program. Many landowners have won county and state conservation awards.

Watershed Description

The Elk Creek Watershed is a 71,859 acre watershed located in the Buffalo-Trempealeau River Basin. It is about 18 miles long and 7 miles wide. The majority of the watershed is in Trempealeau County with a small amount extending into Buffalo County.

Elk Creek is the major stream in the watershed and it flows about 10 miles in a southwesterly direction and empties into Bugle Lake in Independence, about one-half mile above the point where it joins the Trempealeau River. Tributaries to Elk Creek include: Borst Valley Creek, Chimney Rock Creek, Bruce Valley Creek, and North Branch Creek. There is a total of approximately 70 miles of streams in the watershed.

The topography in the Elk Creek Watershed consists of rolling to steep farmland and woodland. There are 455 landowners in the watershed, with the farm size averaging 158 acres. Dairy farming is the main enterprise in the watershed. In the 71,859 acre Elk Creek Watershed about 48% is cropland, 23% pasture, 24% woodland, and 5% urban and roads.

The soils in the valleys of the watershed are mainly Meridian, Billett, Sparta, Ettrick, and Pillot. The upland soils are primarily Gale, Fayette, LaFarge, and Eleva. The soils range from a sandy loam to silt loam texture.

Bugle Lake is located at the lower end of Elk Creek within the City of Independence. It has a surface area of 35 acres. The lake is used for fishing and recreation. A community park exists along the lake.

Identified Problems

Water samples from 37 sites were collected in May 1979 for bacteriological analysis. All of the fecal coliform results are in excess of 400/100 ml. For primary contact recreational use fecal coliform may not exceed 200/100 ml. as a geometric mean nor greater than 400/100 ml. in more than 10 percent of all samples. No significant human source discharges were identified at the time of sampling.

Suspect locations were inspected to confirm or negate the data evaluation by observing land use adjacent to the stream above the sampling location. Results of the analysis were substantiated. Where values were high, potential animal waste entry was also high. Where values were low, the stream was well protected. Observation provided a general ranking of subwatersheds by significance of animal waste problems. Several small tributaries and the upper Elk Creek subwatershed are relatively clean and should be further protected. Borst Valley watershed is the next cleanest, followed by the North Branch Elk, Chimney Rock and Lower Elk subwatersheds. Bruce Valley Creek has the worst problems associated with it.

Benthic samples were collected in May 1979 at 36 sites for analysis. Evaluation of results indicate general good to excellent water quality throughout the watershed. Upper reaches of both the Upper Elk Creek and Bruce Valley have fair or poor water quality. Each of these subwatersheds have excellent water quality at the mouth of the streams.

Fish population estimates were made for the Elk Creek watershed by a stream survey. Sixty-six, 1000 foot long stations were sampled by electro-shocking in 1979.

Identified Problems (Continued)

Streams in this watershed, are affected by many problems. Intensive livestock grazing is causing a reduction of vegetation along streambanks which result in streambank erosion. Flooding is a problem resulting in a lack of instream vegetation. The loss of cover allows stream bottoms to become unstable, reducing the depth of water at various points along the stream. This slows the water down and allows the temperature of the water to increase to intollerable levels for trout. Rough fish are common throughout larger tributaries in the watershed. Large livestock populations contribute vast amounts of manure nutrients to streams.

Aqua-Tech, Inc., Port Washington, Wisconsin, conducted an inland lake feasibility study for Bugle Lake in 1975. Estimated soil loss for the watershed was nearly 266,000 tons annually. Streambank erosion caused by livestock pasturing is the major source of sediment the study concluded. Livestock waste also is a major source of nutrients and organic material entering the streams.

Trempealeau County Soil and Water Conservation District determined the amount of actual livestock pasturing along streambanks in 1978 by field inspection. Streambank erosion was determined to be a serious problem and a major source of sediment. Estimated amounts of best management practices including rock riprap and streambank fencing were determined.

A study in 1971 by the Department of Natural Resources indicates that Elk Creek had high phosphorus and nitrogen content caused by sediment and nutrients entering the stream from upland erosion and livestock waste. Samplings also indicate high fecal coliform caused by animal access and improper waste management.

There are several point source discharges to Elk Creek. The City of Independence sewage treatment plant discharges 0.1 miles above the Elk Creek confluence with the Trempealeau River. Elk Creek Cheese Company discharges to a ridge and furrow system that has an unauthorized discharge to Elk Creek which is currently being remedied. Septic tank systems located in areas with soils, which have low percolation rates, high groundwater or near surface bedrock may malfunction and become a pollution source to the surface water.

Water Quality Goals and Objectives

Goals

There are two water quality goals for the watershed:

- a. Rehabilitation of water bodies degraded by nonpoint source pollution.
- b. Nondegradation of water bodies currently in high or moderate water quality classifications.

For Elk Creek watershed, the water quality goal is a combination of both a and b. An improved or protected stream will be defined in terms of the following parameters:

- a. Fecal bacteria
- b. Biotic index values
- c. Fish and macroinvertebrate diversity and population
- d. Dissolved oxygen
- e. The way the stream looks and smells
- f. Sediment delivered to Bugle Lake

Objectives

To achieve the goal of rehabilitation and protection within the Elk Creek watershed, the project will focus on:

- a. Decreasing sediment load to Bugle Lake
- b. Improving biotic index values to the excellent category
- c. Reduce fecal bacteria to less than 200 counts per millileter
- d. Having clean looking and smelling streams

Water Quality Goals and Objectives (Continued)

Evaluating Achievement of the Objectives

To determine whether or not the project is achieving its objective, the project will:

- a. Monitor water quality overtime using the following techniques:
 1. Biotic index monitoring
 2. Bacteria count monitoring
 3. Fish surveys
 4. Chemical event monitoring
 5. Chemical water quality characterization
- b. Evaluating the deposition of sediment delivered to Bugle Lake
- c. Conduct public opinion surveys

Following is a description of each water quality monitoring technique including an explanation of how the technique can effectively evaluate whether the objectives of the project are being met.

- a. Biotic Index is a measure of overall water quality, based on the type and number of aquatic insects in a water sample. The index assumes that certain species of insects and/or larvae can only survive in waters of certain quality. This biological technique monitors the general integrity of water and is capable of responding rapidly to changes in water quality. However, the Biotic Index is not an indication of any specific parameter of water quality.

To calculate the biotic index, each species is assigned a numeric value ranging from 0 to 5. Species intolerant of pollution receive a low number while pollution-tolerant species are assigned a high value. One hundred organisms are collected at each sampling site; the organisms are identified and values assigned; and the total is divided by 100 to determine the biotic index number. The range of values has been classified according to various levels of water quality.

Table 1 Classes of Water Quality According to the Biotic Index

Biotic Index*	Class of Water Quality	State of Stream
0.00-1.75	Excellent	Clean undisturbed
1.75-2.25	Good	Some enrichment or disturbance
2.25-3.00	Fair	Moderate enrichment or disturbance
3.00-3.75	Poor	Significant enrichment or disturbance
3.75	Very Poor	Gross enrichment or disturbance

*Biotic Index values are based on combined samples collected in spring, and autumn. For spring and autumn samples, 0.13 is added to calculated values.

- b. Bacteria Counts measure the abundance and ratio of fecal coliform and fecal streptococcus in water samples. Bacteria counts are useful for distinguishing sources of animal waste pollution from human sources although the numbers are highly dependent on water flow and other variables.
- c. Fish Surveys are the measure of abundance or diversity of fish species. This method assumes that certain fish can only survive in waters of certain quality. For instance, smallmouth bass cannot survive in waters with limited amounts of dissolved oxygen. These fish surveys can be used to establish base line conditions of fish population, type, and diversity. Fish surveys can also indicate areas of degraded habitat and, over time, changes in fish population provide evidence of habitat and water quality improvements. These surveys may also be useful for determining maximum fishery potential.

Water Quality Goals and Objectives (Continued)

- d. Chemical Monitoring is the measure of chemical compounds such as sediment, phosphorus, and nitrogen contained in a water sample. Monitoring can be on a rainfall-event basis or by low-flow sampling. Advantages are that loadings of specific water quality parameters (chemical compounds) can be measured and that these parameters are responsive, for the most part, to changes in land use and weather.

Of these techniques, biotic index and bacteriological sampling will be the basic monitoring techniques for the Elk Creek Watershed project. Other types of assessments will be made where desirable. Biotic index and bacteriological sampling will be undertaken before, during, and after implementation. Bacteriological sampling will be conducted to reflect various hydrologic conditions; i.e., spring runoff, summer low flow, etc. Fish surveys should be conducted before and after implementation. Storm event-chemical monitoring should be incorporated to the full extent possible in future years. After the initial assessment, some sampling sites will probably be deleted in each watershed; conversely, sites may be added in areas where problems are very severe and implementation intense.

Determining Priority Management Areas

Determination of priority management areas involves identifying where the potential for pollutants reaching streams is great. Studies indicate damage from nonpoint sources occur to Bugle Lake and streams within the Elk Creek Watershed. Damage is a result of both biological and sedimentary degradation. Because of this, the Bugle Lake Independence Public Inland Lake Protection and Rehabilitation District has been established, and a high priority has been given to projects in close proximity to the lake.

Determining priority management areas involves identifying:

- a. Where the potential for pollutants reaching streams is greatest.
- b. Where water quality should be protected or rehabilitated based on studies.
- c. Where good land management practices are not widespread and where land management practices can impact water quality.

These criteria are consistent with the legislative and intent provisions of the Wisconsin Nonpoint Source Abatement Program (ss 144.25, NR 12(d)). Limited funding and technical assistance can be concentrated where it can do the most good.

In applying criteria (a) above, experience has shown potential for pollutants reaching streams is greatest within $\frac{1}{4}$ mile of any intermittent or permanent stream. For criteria (b) above, Biotic Index samples were collected at 36 sites. Bacteria samples at 36 sites and 66, one-thousand foot sites were surveyed for fish. These studies indicate water quality conditions throughout the watershed. In considering criteria (c), the animal unit survey, streambank survey and upland erosion inventory were used. When criteria (a), (b) and (c) are combined, a priority management area is delineated as shown in figure 1.

Subwatershed priority scheme based on the above criteria with highest priority listed first:

Bruce Valley Subwatershed -

- 1) Small tributaries - potential conservancy areas with isolated nonpoint sources of pollution.

Bruce Valley Subwatershed - contributes highly to degradation of water quality in the watershed.

- 2) North Branch Elk Creek and Chimney Rock Subwatersheds - contributes highly to degradation of water quality in the watershed.
- 3) Lower Elk Creek - contributes moderately.
- 4) Borst Valley - Contributes to a lesser extent.

Best Management Practice priorities within each of the subwatersheds is as follows:

- a. Streambank Fencing - Riprap and other forms of stream stabilization.
- b. Upland practices within $\frac{1}{4}$ mile of intermittent or permanent stream i.e., within $\frac{1}{4}$ mile of any natural conveyance within a defined bank and bed as determined by the field technician. Upland practices include: Tree planting and fencing, contour strips, diversions, waterways, toewalls, dams, structure maintenance, critical area seeding, terraces and minimum tillage.
- c. Animal Waste Management Practices which occur within $\frac{1}{8}$ mile of any natural water conveyance with a defined bank and bed as determined by the field technician. Animal Waste Management Practices include manure pits to be funded at no more than \$4,500 diversions and waterways. Waste storage facilities will not be funded unless barnyard runoff is controlled.
- d. Other eligible best management practices may be funded in special situations and must directly influence water quality.

In order to encourage applications in priority areas it is recommended that priorities (a) (b) and (c) be funded at 70 percent and priority (d) at 50 percent.

Best Management Practices and Cost Estimates

Best management practices needed for control of nonpoint source pollution in the Elk Creek Watershed are summarized by hour and total cost of installation in Table 2. Trempealeau County Soil and Water Conservation District with the aid of cooperating agencies conducted erosion inventories to determine best management practices and costs.

Table 2 BMP Cost and Technical Assistance for the
Elk Creek Watershed Assuming 50% Participation

Practice	Units Needed	Total Cost Share	Hours of Technical Assistance
Contour Strips	8,802 Acres	52,812	1,758
Grassed Waterways	85 Acres	72,936	1,692
Diversions	44,350 Feet	31,045	2,218
Erosion Control Dams	67	164,150	3,015
Toewall Structures	42	79,380	1,470
Critical Area Planting	5,217 Acres	370,440	5,267
Livestock Waste Management	256	896,000	5,120
Streambank Riprap & Seeding	20,413 Feet	214,336	756
Streambank Fencing	58,000 Feet	14,765	58
Woodlot Fencing	717,000 Feet	186,158	717
Conservation Planning	301	-	10,585
		TOTAL \$2,082,021	32,656 Hours

Summary of Findings, Conclusions and Recommendations

Trempealeau County Soil and Water Conservation District, in cooperation with assisting agencies, recently completed a comprehensive survey of the Elk Creek Watershed. Significant findings of the survey were as follows:

1. Streambank erosion is a significant source of sediment in the watershed.
2. Significant animal waste enters the Elk Creek stream system.
3. Significant agricultural upland sediment loss occurs annually in the watershed.

Major sources of pollutants in the watershed can be attributed to agricultural practices. Streambank erosion, animal waste, cropland erosion and eroded pastures constitute significant sources. It was concluded that streambank erosion contributes a major share of the sediment in the watershed. Top priority best management practices will include stream fencing and riprapping.

Implementation efforts will be first directed to Bruce Valley Subwatershed because of its low water quality and to several small tributaries in the upper reaches of the watershed. Efforts will be directed into the remaining subwatersheds based on lowest water quality and highest impact on Bugle Lake.

PROGRAM ADMINISTRATION

Technical Assistance

Major staff commitment for the program is technical assistance. Tasks to be carried out by technicians are defined as best management practices which are designed to reduce stream degradation within the Elk Creek Watershed. Technicians, in carrying out the development of these best management practices will be involved in the development of water quality agreements, design of structures, layout and certification of the practice and finally the continued maintenance of the program.

Administrative Assistance

Financial record services will be conducted by ASCS and shall be reimbursed at a rate of 1% of project funds available for cost-sharing assistance with program participants.

Reimbursement will be made as follows:

1. At the beginning of each fiscal year $\frac{1}{2}$ of 1% of the funds estimated to be expended to participants during the fiscal year. Estimates to be based on cost-sharing assistance and mutual agreement.
2. At the end of the fiscal year the balance due to equal 1% of cost-sharing assistance paid during that fiscal year.
3. At the beginning and end of each fiscal year the DMA will issue (or cause to be issued) a negotiable instrument to the Trempealeau County ASCS Committee to cover administration service for that fiscal year based on the previous schedule.

Trempealeau County ASCS will have a major role in administering the Wisconsin Nonpoint Source Pollution Abatement Program in the Elk Creek Watershed. Specific activities are as follows:

Publicity - Assist the University of Wisconsin Extension in developing the day-to-day publicity operations. These operations will be under the preview of the DMA. ASCS will assist in handling the written portion of the publicity necessary for the Wisconsin Nonpoint Source Abatement Program. Articles will be prepared by the DMA representatives as deemed necessary. ASCS will maintain addressograph plates, addressograph machine, folder, stuffer and sealer for purposes of publicity. ASCS funding will be used on correspondence.

Accept Cost-Sharing Applications - ASCS in cooperation with SWCD and SCS will be fully responsible for accepting cost-sharing applications. ASCS, SWCD and SCS staff will work with farmers, using necessary ASCS space and equipment when required.

Screen Cost-Sharing Applications - ASCS will forward cost-sharing applications to the designated management agency for approval. ASCS will issue approvals made by the designated management agency. Technical assistance from SCS and SWCD will be employed in the survey, design and assist on the supervision of construction of approved projects.

Follow-Up On Approvals - ASCS, along with SWCD and SCS, will be responsible for following up on approvals to determine if projects are being completed on a timely basis, what deadlines must be extended, etc.

Accept Performance Reports - After completion of projects, ASCS will be accepting performance reports over the counter. Work sheets will be developed so all necessary eligible costs are accounted for.

Compute Cost-Shares Earned - ASCS will be computing cost-shares earned prior to submitting them to the designated management agency for approval.

Approve Cost-Shares - SWCD will approve cost-shares earned, ASCS will submit necessary documentation to the designated management agency so approvals can be made.

Issue Payments to Participants - ASCS will be fully responsible for maintenance of program records. This will include all funding, ledgers, annual and total for complete length of program, individual farmer files including any long-term agreements which are established. ASCW will handle all day-to-day operations necessary for keeping records involved with the Elk Creek Watershed, Wisconsin Fund.

Report Project Accomplishments - ASCS and SWCD will with assistance from representatives of the designated management agency report project accomplishment.

Maintenance of Best Management Practices

The guidelines for the Nonpoint Source Water Pollution Abatement Program spell out maintenance of practices and penalties involved for failure to carry out obligations by the landowner. The requirements can be found in Chapter NR 120 of the Wisconsin Administrative Code.

A precise method for repayment of state funds by cost-share recipients is not clearly indicated and must be defined in the watershed plan. The following steps will be taken:

1. Identification of violations will be obtained through annual status reviews of implemented best management practices (BMP).
2. The Designated Management Agency will contact the landowner/operator in control of the BMP in violation. The contact will be followed up with a formal letter explaining details of the violation and possible alternatives that may be followed to bring the violation into compliance.
3. The final action will be to submit the violation to the District Attorney for further action and proceedings.

The Designated Management Agency is responsible for maintenance of all best management practices within the watershed project because the Department of Natural Resources has entered into agreement with the Designated Management Agency and not the individual landowner.

Cost-Sharing for Best Management Practices

Overall goal of the Wisconsin Nonpoint Source Water Pollution Abatement Program is to make the state's lakes and streams swimmable and fishable. In order to help meet this goal the program offers financial assistance to landowners, operators and municipalities for installing or applying best management practices. Best management practices are defined as:

practices, techniques or measures which are determined to be most effective, practicable means of preventing or reducing pollutants generated from nonpoint sources to a level compatible with water quality goals. They are identified in the areawide water quality management plans and priority watershed plans.

The purposes of this plan are to identify: 1. rural and urban best management practices and the components of those practices eligible for cost-sharing; 2. state maximum cost-share rates for each eligible practice; 3. cost-sharing conditions designated management agencies must certify are being met by land users; and 4. minimum cost-sharing conditions the land user must meet to comply with the cost-sharing agreement. Some best management practices do not require cost-sharing because they are low-cost or no-cost or provide a high degree of benefit to the land user. Practices which will not be cost-shared are listed in Section VI of the booklet. Efforts have been made to make the cost-sharing under this program as compatible as possible with the Agricultural Conservation Program (ACP), administered by the Agricultural Stabilization and Conservation Service.

Wisconsin Department of Natural Resources in consultation with the Board of Soil and Water Conservation Districts is required to identify a maximum cost-sharing rate for each best management practice. The maximum cost-sharing rate identified in this booklet represents a ceiling. Local designated management agencies may use any rate at or below the ceiling.

Section 144.25 of the Wisconsin Statutes states cost-share payments shall not exceed 50% of the cost of implementing the best management practice except as follows:

1. The maximum rate may be increased to as much as 70% where: a) the practice produces benefits for the applicant but the main benefits to be derived are related to improving offsite water quality and b) limiting the cost-sharing to 50% would place an unreasonable cost burden on applicants.
2. The maximum rate may be increased above 70% for certain practice where: a) the practice produces negligible benefit to the applicant with the benefits to be derived related to improving offsite water quality and b) limiting the cost-sharing payment to 70% would place an unreasonable cost burden on applicants.

In order for a specific practice to receive cost-sharing above 70%, county cost-sharing must be provided. The county cost-sharing may be matched by supplemental state cost-sharing up to 10%. For example, a streambank protection practice could have 80% state cost-sharing if the county provides 10% cost-sharing.

State funds may be the sole source of cost-sharing or may be used together with federal cost-sharing, such as ACP, up to 70%. The remaining costs must be met by county cost-sharing or borne by the landowner. For example, a manure storage facility could receive 70% cost-sharing in state funds or 35% federal funds and 35% state funds. In either case, the cost to the land user is the remaining 30%.

Additional guidance for determining cost-share rates is provided in NR 120 of the Wisconsin Administrative Code. They are:

1. Practices which are very effective for pollution control and which have high capital costs should have higher rates.
2. Practices normally used for crop or livestock production should have lower rates.

The following table summarizes an evaluation of the cost-share eligible practices in relation to four major criteria and identifies the state's maximum cost-share rate.

General Policies:

1. Only best management practices installed at specific locations necessary to improve or protect water quality are eligible.
2. Rural and urban areas are eligible.
3. Cost-sharing is limited to areas of the state with approved areawide water quality management plans.
4. Cost-sharing is limited to priority management areas in priority watersheds or areas likely to be within a priority management area in other watersheds.
5. Cost-sharing is not available for the following:
 - a. mining activities
 - b. construction activities* on privately-owned lands (e.g. erosion control practices for construction of subdivisions)
 - c. silviculture activities (excluding farm woodlots)
 - d. septic systems (small scale onsite human domestic waste disposal systems)
 - e. dredging activities
 - f. practices installed primarily for flood control purposes
6. When two or more practices are of equal pollution control effectiveness and compatible with the use and management of the land, the maximum cost-share will be based on the least-cost practice. For example, a manure storage tank (\$50,000) and a solid stacking pad (\$8,000) may provide equal pollution control of manure. While the farmer may desire to install the more expensive manure storage facility in order to enhance his operation, cost-sharing will be based on the least cost alternative.
7. Cost-sharing is not available for practices which:
 - a. are normally and routinely used in growing crops
 - b. are normally and customarily used in cleaning of streets and roads
 - c. have drainage of land as the primary objective
 - d. installation costs can reasonably be passed on to potential consumers

*This does not include construction of best management practices.

Best Management Practices Eligible for Cost-Sharing

The following table identifies the best management practices.

Designated management agencies are encouraged to coordinate local adjustments to cost-share rates and conditions with the County Agricultural Stabilization and Conservation Committees.

	Effectiveness	Capital Cost	Private On-site Benefit	Relationship to Customary Operating Practices	Maximum State Cost-Sharing
C1 Strip Cropping	High	Low	Moderate	Moderate	50%***
C2 Diversions	High	Moderate	Moderate	Low	70%
C3 Terraces	High	Moderate	Moderate	Low	70%
C4 Waterways	High	Moderate	Moderate	Moderate	70%
C5 Minimum Tillage	High	Low	Moderate	High	50%***
C6 No-till	High	Low	Moderate	High	50%***
M1 Critical Area Stabilization	High	High	Low	Low	70%*
M2 Grade Stabilization Structure (Dams & Toewalls)	High	High	Low	Low	70%*
M3 Shoreline Protection (Riprap)	High	High	Low	Low	70%*
M4 Settling Basins	High	High	Low	Low	70%*
M4 Tree Planting	High	High	Low	Low	70%*
L1 Barnyard Runoff Management	High	Moderate	Moderate	Low	70%
L2 Manure Storage Facilities	High	High	Moderate	Moderate	70%**
L3 Livestock Exclusion From Woodlots	High	Low	Low	Moderate	50%

C: Generally used in cropland but may be applicable in urban areas as well

M: Applicable in both rural and urban areas

L: Livestock

* May be increased to 80% according to the conditions on Page 10

** A dollar ceiling of \$6,000 is set for priority watershed projects

*** A flat rate per acre equal to the cost-share rate applied to an average installation may be used

PROGRAM IMPLEMENTATION

Technical Assistance Requirements

Resolving Elk Creek Watershed water quality problems will require additional funding for increased technical assistance needs. Cost-sharing assistance to landowners for installation of best management practices will be provided through the Wisconsin Nonpoint Source Pollution Abatement Program for a period of three years with implementation expected to be carried on for seven years. Estimated technical assistance needs for program implementation is over 32,600 hours (See Table XXIV). Technical assistance presently available is approximately 1,250 hours annually. Additional hours will be available locally as approximately 1,000 hours of present staff time will be shifted to the watershed project. This reallocation will be reflected in the district annual plan of operations. Present staffing, in a seven year implementation program will be able to account for half of the expected technical assistance needs.

Potential sources of increased technical assistance are by contracting with Soil Conservation Service or by hiring additional district personnel. Funds will be available to the district through technical assistance money from the "Wisconsin Fund". Technical assistance money, administered by the Board of Soil and Water Conservation Districts, will probably not cover the entire cost of technical assistance needs.

Implementation Plan

Implementation of the program requires a detailed breakdown of anticipated needs. Tables I-XXIII estimate cost-share and technical assistance needs. Estimates are broken down on a subwatershed and annual basis. Summaries of program estimates are found on Table XXIV-XXVI.

TASK 1 Farm planning to identify and locate best management practices.

Responsible Agencies - Soil Conservation Service and Soil and Water Conservation District

A significant amount of time will be spent in program implementation to design, survey and prepare individual farm plans for best management practices. The task is designed to cover a seven year period. The 1979 year beginning July 1 will require an estimated 1000 hours to this activity. In view of the fact that the 1980 funding year has already begun, 1979 and 1980 will be expected to run concurrently. For the scheduled years 1980 and 1981 the number of required hours are expected to peak at 2500 for both years. During 1982 through 1985, the anticipated amount of time required will gradually decline to approximately 500 hours.

Table I attempts to identify all farms within each subwatershed that require a farm plan of one type or another.

TABLE I
Design, Survey and Plan Preparation of Farm Plans

Cost is at 100 Percent to Elk Creek Program											
Sub-Watershed	No. of Farms	No. of Hours	Average Hrs/Farm	Hours/Program Years							TOTAL HOURS
				79	80	81	82	83	84	85	
Chimney Rock	64	2212	34.56	210	525	525	322	315	210	105	2212
Lower Elk Creek	74	2528	34.16	240	600	600	368	360	240	120	2528
Borst Valley	55	1896	34.47	180	450	450	276	270	180	90	1896
Bruce Valley	30	1104	35.13	100	250	250	154	150	100	50	1104
North Branch	31	1159	37.38	110	275	275	169	165	110	55	1159
Upper Elk Creek	47	1686	35.87	160	400	400	246	240	160	80	1686
TOTALS	301	10585	35	1000	2500	2500	1535	1500	1000	500	10585
MAN YEARS		5.35		.55	1.39	1.39	.85	.83	.55	.28	5.35

The total number of hours required to design, survey and prepare farm plans will amount to 10,535 hours. Based on 1800 effective man hours per man year, this amounts to 5.35 man years. A man year is the number of hours a person, man or woman, is expected to work in one year. (See Table I for estimated man years needed for each of the seven years of the program.)

Since Funding Year 1979 (FY 79) and FY 80 will run concurrently 1.94 man years will be required to keep the program on schedule between July 1, 1979 and June 30, 1980. It is estimated that the program for FY 79 and 80 will cost 34,920.

TASK 2 Reduce and/or eliminate excessive erosion to viable farmland by developing contour farming practices

Responsible Agencies - Soil and Water Conservation District and Soil Conservation Service

The level of activity associated with the survey, design and supervision of construction for contour strips will remain constant throughout the remaining six years of the program.

No contour stripping is planned for 1979.

Table II attempts to identify 50 percent of the needs of each subwatershed. Fifty percent is the best estimate of an achievable goal within the seven year period of the program.

TABLE II

Cost of Survey, Design and Supervision of Construction of Contour Strips
Cost is at 100 percent to Elk Creek Program

Subwatershed	No. of Acres	No. of Hours	Av. Acres / Hour	Hours for each Program Year							Est. Annual Accomplishment
				79	80	81	82	83	84	85	
Chimney Rock	1,068	212	5.		35	35	35	35	36	36	178 Acres
Lower Elk Creek	3,020	604	5.		100	100	101	101	101	101	503 Acres
Borst Valley	1,581	316	5.		53	53	53	53	53	53	263.5 Acres
Bruce Valley	865	173	5.		29	29	29	29	29	29	145 Acres
North Branch	853	170	5.		28	28	28	28	28	28	145 Acres
Upper Elk Creek	1,415	283	5.		47	47	47	47	47	47	235 Acres
Totals	8,802	1,758	5		293	293	293	293	293	293	1,465 Acres
Man Years		.98			.16	.16	.16	.16	.17	.17	.98

The total number of hours required to survey, design and supervise construction will amount to 1,758 hours. Based on 1800 effective man hours per man year this amounts to .98 man years. (See Table II for estimated years needed for each of the seven years of the program task.)

For the first year, however, this task will only require .16 man years, and a cost of 2,880.

Table III attempts to identify the cost associated with the construction or development of contour strips. Based at 6.00 per acre it is estimated that this amount will cover 50 percent of the expenses for the landowner.

TABLE III

Cost of Construction of Contour Strips

Cost is at \$6.00 per acre to Elk Creek Program										
Subwatershed	No. of Acres	Cost at 6.00/Acre	Dollars/Program Years							Est. Annl. Accompl.
			79	80	81	82	83	84	85	
Chimney Rock	1,068	\$ 6,408	\$1,068	\$1,068	\$1,068	\$1,068	\$1,068	\$1,068	\$1,068	178 Ac.
Lower Elk Creek	3,020	\$18,120	\$3,020	\$3,020	\$3,020	\$3,020	\$3,020	\$3,020	\$3,020	503 Ac.
Borst Valley	1,581	\$ 9,486	\$1,581	\$1,581	\$1,581	\$1,581	\$1,581	\$1,581	\$1,581	263 Ac.
Bruce Valley	865	\$ 5,190	\$ 865	\$ 865	\$ 865	\$ 865	\$ 865	\$ 865	\$ 865	144 Ac.
North Branch	853	\$ 5,118	\$ 853	\$ 853	\$ 853	\$ 853	\$ 853	\$ 853	\$ 853	144 Ac.
Upper Elk Creek	1,415	\$ 8,490	\$1,415	\$1,415	\$1,415	\$1,415	\$1,415	\$1,415	\$1,415	235 Ac.
Totals	8,802	\$52,812	\$8,802	\$8,802	\$8,802	\$8,802	\$8,802	\$8,802	\$8,802	1,467 Ac.

At this rate 1,467 acres could be placed into contour strips for each of the six remaining years of the program task. (See Table III for each subwatershed estimate on the number of acres which would be capable of being placed into contour strips.)

In summary, the first year costs associated with the survey, design and supervision of construction amounts to 293 man hours (.16 of a man year) and 8,802 of Elk Creek Program money to develop these contour strips.

TASK 3 Reduce and/or eliminate excessive erosion of valuable farmland by developing grassed waterways.

Responsible Agencies - Soil Conservation Service and Soil and Water Conservation District

The level of activity associated with the survey, design and supervision of construction of grassed waterways and/or terraces will remain constant throughout the funding years 1980 - 1985. No grassed waterways or terraces are planned for FY 79.

Table IV identifies 50 percent of the needs of each subwatershed. Fifty percent is the best estimate of an achievable goal within the seven year period of the program.

The total number of hours required to survey, design and supervise construction will amount to 1,692 hours. Based on 1800 effective man hours per man year, this amounts to .94 man years. (See Table IV for estimated man years needed for each of the seven years of the program task.)

For the first year, however, all that will be required by this program task will be .156 of a man year for FY 80.

TABLE IV

Survey, Design and Supervision of Construction of Grassed Waterways and Terraces

[illegible]

TABLE V
Cost of Construction of Grassed Waterways and Terraces

Cost is at 70 percent to Elk Creek Watershed Program										
Sub-Watershed	No. of Feet	Cost at 100%	70%	Dollars/Program Years						
				79	80	81	82	83	84	85
Chimney Rock	21,750'	\$21,750	\$15,225	\$ 2,538	\$ 2,538	\$ 2,538	\$ 2,538	\$ 2,538	\$ 2,538	\$ 2,538
Lower Elk Creek	21,994'	\$21,994	\$15,396	\$ 2,566	\$ 2,566	\$ 2,566	\$ 2,566	\$ 2,566	\$ 2,566	\$ 2,566
Borst Valley	26,400'	\$26,400	\$18,480	\$ 3,080	\$ 3,080	\$ 3,080	\$ 3,080	\$ 3,080	\$ 3,080	\$ 3,080
Bruce Valley	9,600'	\$ 9,600	\$ 6,720	\$ 1,120	\$ 1,120	\$ 1,120	\$ 1,120	\$ 1,120	\$ 1,120	\$ 1,120
North Branch	9,750'	\$ 9,750	\$ 6,825	\$ 1,137	\$ 1,137	\$ 1,137	\$ 1,137	\$ 1,137	\$ 1,137	\$ 1,137
Upper Elk Creek	14,700'	\$14,700	\$10,290	\$ 1,715	\$ 1,715	\$ 1,715	\$ 1,715	\$ 1,715	\$ 1,715	\$ 1,715
Totals	104,194'	\$104,194	\$72,936	\$12,156	\$12,156	\$12,156	\$12,156	\$12,156	\$12,156	\$12,156

The estimated annual accomplishments for these watersheds - Chimney Rock, Lower Elk Creek, Borst Valley, Bruce Valley, North Branch and Upper Elk Creek are 3,625', 3,666', 4,400', 1,600', 1,625' and 2,450' respectively. Total - 17,366'.

Table V indicates the cost to construct or develop grassed waterways and/or terraces are based at \$1.00 per foot. The estimated annual accomplishment is 17,366' for each of the six remaining years of the program task. (See Table V for each sub-watershed estimate on the number of feet which could be placed in grassed waterways or terraces on an annual basis.)

In summary, the first year costs to survey, design and supervise construction amounts to 282 man hours (.156 man years) and \$12,156 of Wisconsin Fund money to develop grassed waterways.

TASK 4 Reduce and/or eliminate excessive erosion to hillsides by developing diversions.

Responsible Agencies - Soil and Water Conservation District and Soil Conservation Service

The task of developing diversions is spread over the entire length of the seven year program. During FY 79, 100 hours will be allocated to the task. The allocation will increase to 400 hours in FY 83 and 84 and then taper off to 368 hours for FY 85.

Table VI attempts to reflect the best estimate of needs for diversions for approximately 50 percent of landowners needing this form of water quality control. Fifty percent is the best estimate of an achievable goal within the seven year period of the program.

The total number of hours required to survey, design and supervise construction will amount to 2,218 hours. Based on 1,800 effective man hours per man year, this amounts to 1.23 man years. (See Table VI for estimated man years needed for each of the seven years of the program task.)

For the first year, however, this task only requires .06 man years. FY 80 will require .17 man years. Due to the late start-up date, both of these funding year budgets will run concurrently for a total man year requirement of .23 man years.

Based on \$18,000 per year, technical assistance will amount to \$4,140 to operate this portion of the task.

Table VII displays the cost of construction of the diversion. These cost estimates are based at \$1.00 per foot.

The estimated annual accomplishment for the FY 79 and 80 amounts to 8,000 feet of diversions. For funding years 1981 through 1985 the number of estimated feet amount to 36,326. (See Table V for each subwatershed estimate on the number of feet which would be capable of being constructed on an annual basis.)

In summary the first year cost associated with the survey, design and supervision of construction amounts to 400 hours (.23 man years) and \$4,140 costs of construction during the same period amounts to 5,619.00.

TABLE VI
Survey, Design and Supervision of Construction of Diversions

Subwatershed	Cost is at 70 percent to Elk Creek Program										
	No. of Ft. of Diver. Needed	No. of Hours	Av. Hrs. per Diver.	Hours/Program Years							Est. Annual Accomp.
				79	80	81	82	83	84	85	
Chimney Rock	7,200'	360	20.0	16	48	48	56	64	64	59	1-3
Lower Elk Creek	10,500'	525	20.12	24	72	72	84	96	96	88	1-5
Borst Valley	9,750'	487	20.02	23	69	69	81	92	92	85	1-5
Bruce Valley	5,600	280	20.0	12	36	36	42	48	48	44	1-3
North Branch	4,550'	228	19.95	10	30	30	35	40	40	37	1-2
Upper Elk Creek	6,750'	338	19.97	15	45	45	52	60	60	55	1-3
Totals	44,350'	2,218	19.99	100	300	300	350	400	400	368	5-20
Man Years		1.23		.06	.17	.17	.19	.22	.22	.18	

TABLE VII
Cost of Construction of Diversions

Cost is at 70 percent to Elk Creek Program										
Subwatershed	No. of Ft. of Diver. Needed	Cost at 100%	Cost at 70%	Dollars/Program Years						
				79	80	81	82	83	84	85
Chimney Rock	7,200'	\$ 7,200	\$ 5,040	\$ 232	\$ 680	\$ 680	\$ 796	\$ 907	\$ 907	\$ 837
Lower Elk Creek	10,500'	\$10,500	\$ 7,350	\$ 338	\$ 992	\$ 992	\$1161	\$1323	\$1323	\$1221
Borst Valley	9,750'	\$ 9,750	\$ 6,825	\$ 315	\$ 921	\$ 921	\$1078	\$1228	\$1229	\$1133
Bruce Valley	5,600'	\$ 5,600	\$ 3,920	\$ 180	\$ 529	\$ 529	\$ 619	\$ 706	\$ 706	\$ 651
North Branch	4,550'	\$ 4,550	\$ 3,185	\$ 147	\$ 430	\$ 430	\$ 503	\$ 573	\$ 573	\$ 529
Upper Elk Creek	6,750'	\$ 6,750	\$ 4,725	\$ 217	\$ 639	\$ 638	\$ 747	\$ 850	\$ 851	\$ 784
Totals	44,350'	\$44,350	\$31,045	\$1429	\$4190	\$4190	\$4904	\$5587	\$5589	\$5155
Estimated Annual Accomplishment in Feet				44,351'	2000'	6000'	6000'	7000'	8000'	8000' 7360'

TASK 5 Reduce and/or eliminate excessive erosion to valuable farmland by constructing dams.

Responsible Agencies - Soil Conservation Service and Soil and Water Conservation District

Dam construction is spread over the entire length of the seven year program. During FY 79, 150 hours will be allocated to the task. The allocation will increase to 550 hours during FY 83 and gradually decrease to 500 hours in FY 85.

Table VIII illustrates the best estimates of needs for dams for approximately 50 percent of the landowners needing this form of water quality control. Fifty percent is the best estimate of an achievable goal within the seven year period of the program.

The total number of hours required to survey, design and supervise construction will amount to 3,015 man hours. Based on 1,800 effective man hours per man year this amounts to 1.67 man years. (See Table VIII for estimated man years needed for each of the seven years of the program task.)

TABLE VIII

Survey, Design and Supervision of Construction of Dams

Subwatershed	Cost is at 70 percent to Elk Creek Program									
	No. of Dams	No. of Hours	Av. Hrs. /Dam	Hours/Program Years						
				79	80	81	82	83	84	85
Chimney Rock	15	675	45	33.6	67.2	112	112	123.2	115.4	112
Lower Elk Creek	12	540	45	26.8	53.6	89.5	89.5	98.5	92.2	89.5
Borst Valley	15	675	45	33.6	67.2	112	112	123.2	115.4	112
Bruce Valley	8	360	45	17.9	35.8	59.5	59.5	65.5	61.1	59.5
North Branch	6	270	45	13.5	27	45	45	49.5	46.4	45
Upper Elk Creek	11	495	45	24.6	49.2	82	82	90.1	84.5	82
Totals	67	3,015	45	150	300	500	500	550	515	500
Man Years		1.67		.09	.17	.27	.27	.31	.29	.27

Dams
TABLE IX

Cost of Construction of Dams

Cost is at 70 percent to Elk Creek Program										
Sub-Water-shed	No. of Dams	Cost at 100%	Cost at 70%	Program Years						
				79	80	81	82	83	84	85
Chimney Rock	15	\$52,500	\$ 36,750	\$1,838	\$ 3,677	\$ 6,104	\$ 6,104	\$ 6,692	\$ 6,251	\$ 6,104
Lower Elk Creek	12	\$42,000	\$ 29,400	\$1,469	\$ 2,938	\$ 4,878	\$ 4,878	\$ 5,348	\$ 4,995	\$ 4,878
Borst Valley	15	\$52,500	\$ 36,750	\$1,838	\$ 3,677	\$ 6,104	\$ 6,104	\$ 6,692	\$ 6,251	\$ 6,104
Bruce Valley	8	\$28,000	\$ 19,600	\$ 977	\$ 1,953	\$ 3,243	\$ 3,243	\$ 3,555	\$ 3,321	\$ 3,243
North Branch	6	\$21,000	\$ 14,700	\$ 739	\$ 1,477	\$ 2,452	\$ 2,452	\$ 2,689	\$ 2,512	\$ 2,452
Upper Elk Creek	11	\$38,500	\$ 26,950	\$1,346	\$ 2,693	\$ 4,468	\$ 4,468	\$ 4,899	\$ 4,576	\$ 4,468
Totals	67	\$234,500	\$164,150	\$8,207	\$16,415	\$27,249	\$27,249	\$29,875	\$27,906	\$27,249
Estimated Annual Accomplishments				4	7	11	11	12	11	11

For the first year, however, this task will require .09 man years. FY 80 will require .17 man years. Due to the late start update both of these funding year budgets will run concurrently for a total man year requirement of .26 man years.

Based on \$18,000 per year payment for the needed level of technical assistance, \$4,680 is needed to operate this portion of the task.

Table IX displays the cost associated with the construction of the dams. Costs are based on \$3,500 per dam.

The estimated annual accomplishment for the FY 79 and 80 amounts to 11 units. The number of units for each of the remaining funding years will remain at approximately this same level. (See Table IX for each subwatershed estimate on the number of dams which could be constructed on an annual basis.)

In summary the first year costs associated with the survey, design and supervision of construction amounts to 450 hours (.26 man years) or \$4,680 and \$24,622 for the construction of the dams.

TASK 6 Reduce and/or eliminate excessive erosion to valuable farmland by constructing toewalls.

Responsible Agencies - Soil and Water Conservation District and Soil Conservation Service

Toewall construction is spread over the entire length of the seven year program. During FY 79, 50 hours will be allocated to the task. The allocation will increase to 300 hours during funding years 83 and 84, and then slightly drop to 270 hours in funding year 85.

Table X illustrates the best estimates of needs for diversions for 50 percent of the landowners needing this form of water quality control. Fifty percent is the best estimate of an achievable goal within the seven year period of the program.

The total number of hours required to survey, design and supervise construction will amount to 1,470 man hours. Based on 1,800 effective man hours per man year, this amounts to .82 man years. (See Table X for estimated man years needed for each of the seven years of the program task.)

TABLE X

Survey, Design and Supervision of Construction of Toewalls

Cost is at 70 percent to Elk Creek Program

Sub-Watershed	No. of Toewalls	No. of Hours	Average Hrs/Toewall	Hours/Program Years						
				79	80	81	82	83	84	85
Chimney Rock	6	210	35	7	21	28	35	42	42	30.8
Lower Elk Creek	8	280	35	9.5	28.5	38	47.5	57	57	41.8
Borst Valley	12	420	35	14.5	43.5	58	72.5	87	87	63.8
Bruce Valley	7	245	35	8.5	25.5	34	42.5	51	51	37.4
North Branch	4	140	35	5	15	20	25	30	30	22.0
Upper Elk Creek	5	175	35	5.5	16.5	22	27.5	33	33	24.2
Total	42	1470	35	50	150	200	250	300	300	220
Man Years		.81		.03	.08	.11	.14	.16	.16	.14

TABLE XI
Cost of Construction of Toewalls

Cost is at 70 percent to Elk Creek Program										
Sub-Watershed	No. of Toewalls	Cost at 100%	Cost at 70%	Dollars/Program Years						
				79	80	81	82	83	84	85
Chimney Rock	6	\$ 16,200	\$11,340	\$ 386	\$1157	\$ 1542	\$ 1928	\$ 2313	\$ 2313	\$ 1701
Lower Elk Creek	8	\$ 21,600	\$15,120	\$ 514	\$1542	\$ 2056	\$ 2570	\$ 3085	\$ 3085	\$ 2268
Borst Valley	12	\$ 32,400	\$22,680	\$ 771	\$2313	\$ 3084	\$ 3856	\$ 4627	\$ 4627	\$ 3402
Bruce Valley	7	\$ 18,900	\$13,230	\$ 450	\$1350	\$ 1799	\$ 2249	\$ 2699	\$ 2699	\$ 1984
North Branch	4	\$ 10,800	\$ 7,560	\$ 257	\$ 771	\$ 1029	\$ 1285	\$ 1542	\$ 1542	\$ 1134
Upper Elk Creek	5	\$ 13,500	\$ 9,450	\$ 321	\$ 964	\$ 1285	\$ 1606	\$ 1928	\$ 1928	\$ 1418
Total	42	\$113,400	\$79,380	\$2699	\$8097	\$10795	\$13494	\$16194	\$16194	\$11907
Estimated Annual Accomplishments in Units				1.4	4.3	5.7	7.1	8.6	8.6	6.3

For the first year, however, this task requires .03 man years (50 man hours) for FY 79. FY 80 will require .08 man years. Due to the late startup date both of these funding year budgets will run concurently for a total man year requirement of .11 man years.

Based on \$18,000 per year payment for the needed level of technical assistance, it would require \$1,980 to operate this portion of the task.

TABLE XI displays the cost associated with the construction of toewalls. Costs are based on \$2,700 per structure.

The estimated annual accomplishment for the FY 79 and 80 amounts to 5.4 units. The number of units for each of the remaining funding years will peak to 8.6 during the 1983 and 1984 funding years and decline to 6.3 units for the 1985 funding year.

In summary, the first year costs associated with the survey, design and supervision of construction amounts to 200 hours (.11 man years) 1,980. An additional amount of \$10,795 will be required for the construction of the toewalls.

TASK 7 Reduce and/or eliminate excessive erosion to valuable farmland by addressing special problems in Critical Areas of the Watershed.

Responsible Agencies - Soil Conservation Service and Soil and Water Conservation District

Addressing critical need areas will begin during the 1980 funding year. The assistance provided in this task will be minimal. Therefore, only 16 man hours will be allocated for the first year of a six year program task.

Table XII illustrates the best estimate of needs for 50 percent of the landowners needing this form of water quality control. Fifty percent is the best estimate of an achievable goal for the length of the six year program.

The total number of hours required for the survey, design and supervision of construction will amount to 100 man hours. Based on 1800 effective man hours per man year, this amounts to 0.1 man years for each of the six years of the program for a total of .06 man years.

TABLE XII

Survey, Design and Supervision of Construction in Critical Areas

Cost of Construction is 70 percent to Elk Creek Program										
Sub-Watershed	Number of Acres	Number of Hours	Average Hrs/Acre	79	80	81	82	83	84	85
Chimney Rock	5	10	2		10					
Lower Elk Creek	15	30	2			8	8	6	8	
Borst Valley	10	20	2				9	11		
Bruce Valley	7	14	2		6	8				
North Branch	6	12	2						9	3
Upper Elk Creek	7	14	2							14
Total	50	100	2		16	16	17	17	17	17
Man Years		.06			.01	.01	.01	.01	.01	.01

TABLE XIII
Cost of Construction in Critical Areas

Cost of Construction is at 70 percent to Elk Creek Program										
Sub-Watershed	No. of Acres	Cost at 100%	Cost at 70%	79	80	81	82	83	84	85
Chimney Rock	5	\$ 1250	\$ 875		\$ 875					
Lower Elk Creek	15	\$ 3750	\$2625			\$ 700	\$ 700	\$ 525	\$ 700	
Borst Valley	10	\$ 2500	\$1750				\$ 787	\$ 963		
Bruce Valley	7	\$ 1750	\$1225		\$ 525	\$ 700				
North Branch	6	\$ 1500	\$1050						\$ 788	\$ 262
Upper Elk Creek	7	\$ 1750	\$1225							\$1225
Total	50	\$12500	\$8750		\$1400	\$1400	\$1487	\$1488	\$1488	\$1487
Estimated Annual Accomplishments in Units					8.3	8.3	8.3	8.3	8.3	8.3

Based on \$18,000 per year payment for the needed level of technical assistance, it would require \$1080.00 to operate this portion of the task.

Table XIII displays the cost associated with the construction in Critical Areas. Costs are at \$250 per acre.

The estimated level accomplishment for FY 1980 amounts to 8.3 acres. No work is anticipated for FY 1979. The number of acres for each of the remaining funding years will remain approximately the same.

In summary the first year costs associated with the survey, design and supervision of construction amounts to 16 hours (.01 man years) or \$180 and \$1,400 of Elk Creek Program fund for the improvement of Critical Areas.

TASK 8 Reduce and/or eliminate excessive degradation to the water quality of Elk Creek Watershed with appropriate livestock waste management within 660 feet of a defined bank and bed as determined by county staff.

Responsible Agencies - Soil Conservation Service and Soil and Water Conservation District

The livestock waste management activity is spread over the entire length of the seven year program. During FY 79, 200 hours will be allocated to the task, increasing to 1000 hours during funding years 83 and 84. A slight drop to 920 hours is planned for FY 85.

Table XIV illustrates the best estimates of needs for 50 percent of the land-owners requiring this form of water quality control. Fifty percent is the best estimate of an achievable goal within the seven year period of the program.

The total number of hours required for the survey, design and supervision of construction will amount to 5,120 man hours. Based on 1,800 effective man hours per man year, this amounts to 2.8 man years. See Table XIV for estimated man years needed for each of the seven years of the program task.

TABLE XIV

Survey, Design and Supervision of Construction for Livestock Waste Management

Cost is at 50 percent up to \$3500 to the Elk Creek Program										
Sub-Watershed	No. of Systems	No. of Total Hours	Hours Per System	Hours/Program Years						
				79	80	81	82	83	84	85
Chimney Rock	54	1,075	50	42	105	126	189	210	210	85
Lower Elk Creek	64	1,280	50	50	125	150	225	250	250	230
Borst Valley	46	922	50	36	90	108	162	180	180	166
Bruce Valley	26	512	50	20	50	60	90	100	100	92
North Branch	28	563	50	22	55	66	99	110	110	101
Upper Elk Creek	38	768	50	30	75	90	135	150	150	138
Total	256	5,120	50	200	500	600	900	1,000	1,000	920
Man Years		2.8		.11	.28	.33	.50	.55	.55	.51

TABLE XV
Cost of Construction of Livestock Waste Management

Cost is at 50 percent up to \$3,500 to the Elk Creek Program									
Sub-Watershed	No. of Systems	Cost at 100%	Program Years						
			79	80	81	82	83	84	85
Chimney Rock	54	189,000	7,338	18,440	22,015	33,116	36,691	36,691	33,869
Lower Elk Creek	64	224,000	8,736	21,952	26,208	39,424	43,680	43,680	40,320
Borst Valley	46	161,000	6,290	15,808	18,870	28,385	31,450	31,450	29,030
Bruce Valley	26	91,000	3,494	8,780	10,483	15,770	17,472	17,472	16,128
North Branch	28	98,000	3,844	9,659	11,532	17,347	19,219	19,219	17,741
Upper Elk Creek	38	133,000	5,242	13,171	15,724	23,654	26,208	26,208	24,192
Total	256	896,000	34,944	87,808	104,832	157,696	174,720	174,720	161,280
Estimated Annual Accomplishment			10	25	30	45	50	50	46

For the first year, however, this task will only require .11 man years (200 man hours) for FY 1979. FY 80 will require .28 man years. Due to the late start-up date both of these funding year budgets will run concurrently for a total man year requirement of .39 man years. Based on \$18,000 per year payment for the needed level of technical assistance it would require \$7,020 to operate this portion of the task for the first two years.

Table XV displays the cost of construction of livestock waste management structures based on 3,500 per structure.

The estimated annual accomplishment for the FY 79 and 80 amounts to 35 units. The number of units for each of the remaining funding years will peak during 1983 and 84 at 50 units with a slight decrease in 1985 to 46 units.

In summary the first year costs associated with the survey, design and supervision of construction amounts to 700 hours (.39 man years) and \$122,752 of Elk Creek Program funds for livestock waste management.

TASK 9 Riprap and seeding of streambanks to reduce and/or eliminate excessive erosion.
Responsible Agencies--Soil Conservation Service and Soil and Water Conservation District

Riprap development will be conducted over the entire seven years of the program. During FY 79, 40 hours will be allocated to the task. The allocation will increase to 150 hours during funding years 1981, 82 and 83 and then drop off to 100 for 1984 and 41 for 1985.

Table XVI illustrates the best estimates for all landowners needing this form of water quality control. This goal may not be achievable but because it is so vital to water quality every effort should be made to get as close to 100 percent participation as possible.

The total number of hours required for the survey, design and supervision of construction will amount to 756 man hours. Based on 1800 effective man hours per man year, this amounts to .42 man years. See Table XVI for the estimated man years needed for each of the seven years of the program.

TABLE XVI

Survey, Design and Supervision of Construction for Streambank Protection

Cost is at 70 percent to the Elk Creek Program										
Subwatershed	No. of Feet	No. of Hours	Feet /Hr.	Hours/Program Years						
				79	80	81	82	83	84	85
Chimney Rock	4,287	157	27	8.4	26	31	31	31	21	8.6
Lower Elk Creek	5,103	190	27	10.	31	38	38	38	25	10.3
Borst Valley	3,674	137	27	7.2	23	27	27	27	18	7.4
Bruce Valley	2,042	75	27	4	12	15	15	15	10	4.1
North Branch	2,245	82	27	4.4	14	16	16	16	11	4.5
Upper Elk Creek	3,062	115	27	6	19	23	23	23	15	6.1
Total	20,413	756	27	40	125	150	150	150	100	41
Man Years		.42		.03	.07	.08	.08	.08	.06	.02

TABLE XVII
Cost of Construction of Streambank Protection

Cost is at 70 percent to Elk Creek Program										
Sub-Watershed	No. of Feet	Cost at 100%	Cost at 70%	Dollars/Program Years						
				79	80	81	82	83	84	85
Chimney Rock	4,287	\$ 64,305	\$ 45,013	\$ 2,431	\$ 7,427	\$ 8,912	\$ 8,912	\$ 8,912	\$ 5,941	\$ 2,475
Lower Elk Creek	5,103	\$ 76,545	\$ 53,582	\$ 2,894	\$ 8,841	\$10,610	\$10,610	\$10,610	\$ 7,073	\$ 2,947
Borst Valley	3,674	\$ 55,110	\$ 38,577	\$ 2,083	\$ 6,366	\$ 7,639	\$ 7,639	\$ 7,639	\$ 5,093	\$ 2,122
Bruce Valley	2,042	\$ 30,630	\$ 21,441	\$ 1,157	\$ 3,536	\$ 4,244	\$ 4,244	\$ 4,244	\$ 2,829	\$ 1,179
North Branch	2,245	\$ 33,675	\$ 23,573	\$ 1,273	\$ 3,890	\$ 4,668	\$ 4,668	\$ 4,668	\$ 3,112	\$ 1,292
Upper Elk Creek	3,062	\$ 45,930	\$ 32,150	\$ 1,736	\$ 5,305	\$ 6,366	\$ 6,366	\$ 6,366	\$ 4,244	\$ 1,768
Total	20,413	\$306,195	\$214,336	\$11,574	\$35,365	\$42,439	\$42,439	\$42,439	\$28,292	\$11,788
Estimated Annual Accomplishments				1102'	3368'	4042'	4042'	4042'	2695'	1122'

For the first year, however, this task will only require .03 man years (40 man hours). FY 80 will require .07 man years. Due to the late startup date both of these funding year budgets will run concurrently for a total of .10 man years.

Based on \$18,000 per man year payment needed for technical assistance it would require \$1,800 to operate this portion of the task.

Table XVII displays the cost associated with the placement of riprap, based at \$15.00 per linear foot.

The estimated annual accomplishment for FY 79 and 80 amounts to 4,770 feet. The number of feet for each of the remaining funding years will peak during 1981 through 1983 at 4,042 feet and decline to 2,695 feet for 1984 and 1,122 feet for 1985.

In summary the first year costs associated with the survey, design and supervision of construction amounts to 165 man hours (.10 man years) and \$46,939 of Elk Creek Program funds for the placement of riprap.

TASK 10 Reduce and/or eliminate excessive degradation to the water quality of Elk Creek Watershed with appropriate streambank fencing.

Responsible Agencies - Soil and Water Conservation District and Soil Conservation Service

The streambank fencing activity is spread over funding years 1980 through 1983. The first three of these four years will require 15 man hours per year, the fourth will require only 13.

Table XVIII illustrates the best estimate of time required to design, survey and supervise construction of streambank fences. The total number of hours required for the length of the program task amounts to 58 man hours. Based on 1800 effective man hours per man year this amounts to .03 man years. See Table XVIII for estimated man years needed for each of the remaining years.

TABLE XVIII

Survey, Design and Supervision of Construction of Streambank Fencing

Cost is at 70 percent to Elk Creek Program									
Subwatershed	No. of Feet	No. of Hours	Hours/Program Years						
			79	80	81	82	83	84	85
Chimney Rock	12,200	12.2	--	3.2	3.2	3.2	2.7	--	--
Lower Elk Creek	14,500	14.5	--	3.7	3.7	3.7	3.3	--	--
Borst Valley	10,400	10.4	--	2.7	2.7	2.7	2.3	--	--
Bruce Valley	5,800	5.8	--	1.5	1.5	1.5	1.3	--	--
North Branch	6,400	6.4	--	1.6	1.6	1.6	1.4	--	--
Upper Elk Creek	8,700	8.7	--	2.3	2.3	2.3	2.0	--	--
Total	58,000	58	--	15	15	15	13	--	--
Man Years		.03	--	.008	.008	.008	.008	--	--

TABLE XIX

Cost of Construction of Streambank Fencing

Cost is at 70 percent to Elk Creek Program										
Subwatershed	No. of Feet	Cost at 100%	Cost at 70%	Dollars/Program Years						
				79	80	81	82	83	84	85
Chimney Rock	12,200'	\$ 4,436	\$ 3,106		\$ 822	\$ 822	\$ 822	\$ 640		
Lower Elk Creek	14,500'	\$ 5,274	\$ 3,692		\$ 978	\$ 978	\$ 978	\$ 758		
Borst Valley	10,400'	\$ 3,782	\$ 2,647		\$ 705	\$ 705	\$ 705	\$ 532		
Bruce Valley	5,800'	\$ 2,109	\$ 1,476		\$ 392	\$ 392	\$ 392	\$ 300		
North Branch	6,400'	\$ 2,327	\$ 1,629		\$ 431	\$ 431	\$ 431	\$ 336		
Upper Elk Creek	8,700'	\$ 3,164	\$ 2,215		\$ 588	\$ 588	\$ 588	\$ 451		
Total	58,000'	\$21,091	\$14,765		\$3,916	\$3,916	\$3,916	\$3,017		
Estimated Annual Accomplishments in Feet				15,383	15,370	15,370	11,851			

This program is not scheduled to be implemented during the 1979 funding year. However, during FY 80 only .008 man years will be required.

Based on \$18,000 per year payment needed for technical assistance it would require \$144 to operate this portion of the task.

Table XIX displays the cost associated with streambank fencing. Costs are estimated to be at \$6.00 per rod. Seventy percent is to be paid by the Elk Creek Program.

The estimated annual accomplishment for FY 1980 through FY 1983 amounts to 15,383 feet. FY 1984 is slightly less at 11,851 feet.

In summary there are no costs to the program for FY 1979. For FY 1980, the cost is \$3,916.

TASK 11 Fence woodlands to prevent excessive erosion of uplands due to cattle grazing.

Responsible Agency - Department of Natural Resources - Forestry

The woodland fencing activity is spread over the entire length of the seven year program. During FY 79, 50 hours will be allocated to the task. The hour per year allocation will increase to 167 hours during FY 83 and then drop off to 75 hours by 1985.

Table XX illustrates the best estimates of needs for diversions for 33 percent of the landowners. Thirty three percent is the best estimate of an achievable goal within the seven year period of the program.

The total number of hours required to survey, design and supervise construction will amount to 716 man hour. Based on 1800 effective man hours per man year, this amounts to .40 man years. See Table XX for estimated man years needed for each of the seven years of the program task.

TABLE XX

Survey, Design and Supervision of Construction of Woodland Fencing

Cost is at 70 percent to Elk Creek Program										
Sub-Watershed	Number of Feet	Number of Hours	Feet/Hr.	Hours/Program Years						
				79	80	81	82	83	84	85
Chimney Rock	200,860	201	1000'	14	21	28	42	47	28	21
Lower Elk Creek	179,250	179	1000'	12.5	19	25	37.5	42	25	19
Borst Valley	179,250	179	1000'	12.5	19	25	37.5	42	25	19
Bruce Valley	28,680	29	1000'	2	3	4	6	7	4	3
North Branch	78,770	79	1000'	5.5	8	11	16.5	17	11	8
Upper Elk Creek	50,190	50	1000'	3.5	5	7	10.5	12	7	5
Total	717,000	717	1000'	50	75	100	150	167	100	75
Man Years		.40		.03	.04	.06	.08	.09	.06	.04

TABLE XXI

Cost of Construction of Woodland Fencing

Cost is at 70 percent to Elk Creek Program										
Sub-Water shed	No. of Feet	Cost at 100%	Cost at 70%	Dollars/Program Years						
				79	80	81	82	83	84	85
Chimney Rock	200,860	\$ 73,038	\$ 51,127	3,578	5,366	7,154	10,732	11,754	7,154	5,366
Lower Elk Creek	179,250	\$ 65,184	\$ 45,629	3,194	4,790	6,388	9,582	10,494	6,388	4,790
Borst Valley	179,250	\$ 65,184	\$ 45,629	3,194	4,790	6,388	9,582	10,494	6,388	4,790
Bruce Valley	28,680	\$ 10,428	\$ 7,300	511	766	1,022	1,533	1,679	1,022	766
North Branch	78,770	\$ 28,644	\$ 20,050	1,406	2,108	2,810	4,216	4,618	2,810	2,108
Upper Elk Creek	50,190	\$ 18,252	\$ 12,776	894	1,342	1,789	2,942	2,942	1,789	1,342
Total	717,000	\$260,730	\$182,511	12,776	19,163	25,551	41,977	41,977	25,551	19,163
Estimated Annual Accomplishment in Feet				50,190	75,285	100,380	164,910	164,910	100,380	75,284

For the first year, however, this task will require only .03 man years (50 man hours) for FY 79. FY 80 will require .04 man years. Due to the late startup date both of these funding year budgets will run concurrently for a total man year requirement of .07 man years.

Based on \$18,000 per year, payment for the needed level of technical assistance, it would require \$1,260 for the first two funding years.

Table XXI displays the cost associated with the woodland fencing. Costs are based at \$6.00 per rod. Seventy percent is to be paid by the Elk Creek Program.

The estimated annual accomplishment for the FY 79 and 80 amounts to 125,475 feet or 23.8 miles of fencing. The number of feet for each of the remaining funding years will peak during the 1983 funding year with 164,910 feet and then drop off to 75,284 feet by 1985.

In summary the first year costs associated with the survey, design and supervision of construction amounts to 125 hours (.07 man years) and \$31,939 of Elk Creek Program funds for the development of woodland fencing.

TASK 12 Tree planting to eliminate excessive erosion of uplands.

Responsible Agency - Department of Natural Resources - Forestry

The tree planting activity is spread over the entire length of the seven year program. During FY 79, 362 hours will be allocated to the task. The hour per year allocation will increase to 1,188 during the 1983 funding year and then decrease to 543 hours by 1985.

Table XXII illustrates the best estimates of needs for tree planting for 33 percent of the landowners. Thirty three percent is the best estimate of an achievable goal within the seven year period of the program.

The total number of hours required to survey, design and supervise tree planting will amount to 5,167 man hours. Based on 1,800 effective man hours per man year, this amounts to 2.87 man years. See Table XXII for estimated man years needed for each of the seven years of the program task.

TABLE XXII
Survey, Design and Supervision of Tree Planting

Cost is at 70 percent to Elk Creek Program										
Subwatershed	Number of		Acres/Hr	Hours/Program Years						
	Acres	Hours		79	80	81	82	83	84	85
Chimney Rock	1,423	1,423	1	101	152	202	304	333	202	152
Lower Elk Creek	1,300	1,300	1	91	136	181	271	297	181	136
Borst Valley	983	983	1	90	135	181	271	297	181	135
Bruce Valley	300	300	1	15	22	29	43	48	29	22
North Branch	561	561	1	40	60	80	119	131	80	60
Upper Elk Creek	600	600	1	25	38	50	76	82	50	38
Total	5,167	5,167	1	362	543	723	1,085	1,188	723	543
Man Years		2.87		.20	.30	.40	.60	.66	.40	.30

TABLE XXIII
Cost of Tree Planting

Cost is at 70 percent to Elk Creek Program										
Subwatershed	No. of Acres	Cost at 100%	Cost at 70%	Dollars/Program Years						
				79	80	81	82	83	84	85
Chimney Rock	1,423	\$142,300	\$ 99,610	6,973	10,459	13,945	20,918	22,612	14,045	10,658
Lower Elk Creek	1,300	\$130,000	\$ 91,000	6,370	9,555	12,740	19,110	20,657	12,831	9,737
Borst Valley	983	\$ 98,300	\$ 68,810	4,817	7,225	9,633	14,450	15,620	9,702	7,363
Bruce Valley	300	\$ 30,000	\$ 21,000	1,470	2,205	2,940	4,410	4,767	2,961	2,247
North Branch	561	\$ 56,100	\$ 39,270	2,749	4,123	5,498	8,247	8,914	5,537	4,202
Upper Elk Creek	600	\$ 60,000	\$ 42,000	2,940	4,410	5,880	8,820	9,534	5,922	4,494
Total	5,167	\$516,700	\$361,690	25,319	37,977	50,636	75,955	82,104	50,998	38,701
Estimated Annual Accomplishment in Acres				362	543	723	1,085	1,188	723	543

For the first year, however, this program task will require only .20 man years (362 man hours) for FY 79. FY 80 will require .30 man years. Due to the late startup date of both of these funding year budgets will run concurrently for a total man year requirement of .50 man years.

Based on \$18,000 per year payment for the needed level of technical assistance, it would require \$9,000 for the first two funding years.

Table XXIII indicates the cost of tree planting is based at \$100 per acre.

The estimated annual accomplishment for the FY 79 and 80 amounts to 905 acres. The number of acres of trees to be planted in the following funding years will peak in FY 83 with 1,188 acres of trees being planted and then drop off to 543 acres in FY 85.

In summary the first year costs associated with the survey, design and supervision of tree planting amounts to 905 hours (.50 man years) \$9,000 and \$63,296 of Elk Creek Program funds for the actual planting of the trees.

TASK 13 Public information and education relating to the benefits of the Elk Creek Program are to be provided to area residents during the startup and implementation phase of the program.

An intensive educational program will be necessary if the goals for establishment of best management practices on the land are to be met. Application of practices is voluntary on the part of the landowner, and past experience suggests that a cost-sharing program alone will not always assure rapid adoption of priority practices. It is first necessary to make landowners aware of the program, then they must be convinced that best management practices are in their own best interests, and in some cases, an appeal must be made to their concern for the public interest.

Some practices, especially the high-priority streambank protection practices, return little or no financial benefit to the landowner, at least not in the near future. Others, such as the animal waste management practices, may be in considerable demand. A strong educational program is needed to keep the total program in balance as well as to achieve water quality goals.

University Extension will take primary responsibility in information and education efforts that will include mass media, direct mail, public meetings, tours and demonstrations, and individual contacts. The expertise of other agency personnel will be solicited in developing many of the projects, and SCS and SWCD and the DNR Forester will be heavily involved in the individual contact phase of the program. The responsibilities of ASCS in the educational plan are outlined in section D of this report.

Mass Media Publicity - Daily and weekly newspaper, specialized farm newspaper, radio and television releases and personal columns will be used to publicize meetings and other special events. They will also be used to keep landowners aware of program progress and program changes. Educational releases on various aspects of water quality and feature stories of accomplishments will also be written as needed.

Direct Mail - An Elk Creek Watershed Newsletter will be mailed to all landowners in the watershed area, as well as to agency personnel and others involved in the program. Its purpose will be to keep landowners aware of the program and inform them of current activities, events and deadlines. Direct mail will also be used to invite landowners to meetings and to correspond with individuals and smaller groups on specific projects or problems.

Public Meetings, Tours and Demonstrations - A public information meeting will be held in the watershed before the watershed plan implementation begins. Public educational meetings on conservation and water quality topics will be open to the general public but special efforts will be made to encourage attendance by watershed landowners and farm operators. Tours and demonstrations showing best management practices in use on farms in or near the watershed will be scheduled. At least two such public educational events are planned for the winter of 1979-80. One is a meeting on soils and forages to be held when Extension specialists in these fields are available, hopefully in January or February. The other is a tour of manure handling facilities on area farms to be held in March.

Individual Contacts - A great deal of individual contact work will be carried on during the implementation phase of the program, largely by SCS, SWCD and DNR personnel. Landowners who have not signed a request for technical assistance will also be contacted to encourage their participation. This step will likely be necessary because of goals which call for a very high level of participation compared to previous conservation cost-sharing programs.

Information - Education Plan Budget -

1. Public Meetings
by subwatershed (6) first year
information meetings annually at one location

Time - 12 man-hours each
Cost - Refreshments - \$30.00
Materials and equipment - \$36.00
Mailings - \$28.00
Travel - \$64.00
Time - \$2,016.00
Total - \$2,174.00

2. Mass Media Publicity
News releases monthly (first year)

Time - 1 hour each
Cost - paper \$0.50
postage - \$6.00
time - \$14.00
Cost each release - \$20.50
Total cost - \$246.00

3. Newsletters
Every two weeks first year, quarterly thereafter

Time - 2 hours each
Cost - paper - \$2.00
postage - \$10.00
time - \$28.00
Cost per issue - \$40.00
Total cost - \$2,000.00

4. Individual Contacts
200 farm calls

Time - 300 hours
Cost - travel - \$360.00
phone - \$36.00
time - \$420.00
Total cost - \$816.00

Total information - education program -

Time - 556 man hours
Total Cost - \$5,236.00

Costs for 1979 Program Year
FY 1979 & FY 1980 Funds

TABLE XXIV

Task	Survey, Design & Supervision of Construction Cost			Implementation of Construction Costs	
	Hours	Man Years	Financial Requirement	Financial Requirement	Units of Accomplishment
Farm Planning	3,500	1.94	\$34,920	—	28.6 Farms
Contour Strips	293	.16	\$ 2,880	\$ 8,802	1,467 Acres
Grassed Waterways	282	.16	\$ 2,880	\$ 12,156	17,366 Feet
Diversions	400	.23	\$ 4,140	\$ 5,619	8,000 Feet
Dams	450	.26	\$ 4,860	\$ 24,622	11 Dams
Toewalls	200	.11	\$ 1,980	\$ 10,795	5.7 Toewalls
Critical Areas	16	.01	\$ 180	\$ 1,400	8.3 Acres
Livestock Waste Management	700	.39	\$ 7,020	\$122,752	35 Units
Riprap and Seeding	165	.10	\$ 1,800	\$ 46,939	4,470 Feet
Streambank Fencing	15	.01	\$ 180	\$ 3,916	15,383 Feet
Woodland Fencing	125	.07	\$ 1,260	\$ 31,939	125,475 Feet
Tree Planting	905	.50	\$ 9,000	\$ 63,296	905 Acres
Total	7,061	3.9	\$71,100	\$332,236	—
Combined Total				\$403,336	—
Public Education, Design and Implementation				\$ 5,236	—
Grand Total				\$408,572	—

ELK CREEK WATERSHED

Hours Required for Survey, Design and Supervision of Construction
Technical Assistance Hours Needed Per Calendar Year
Starting July 1, 1979

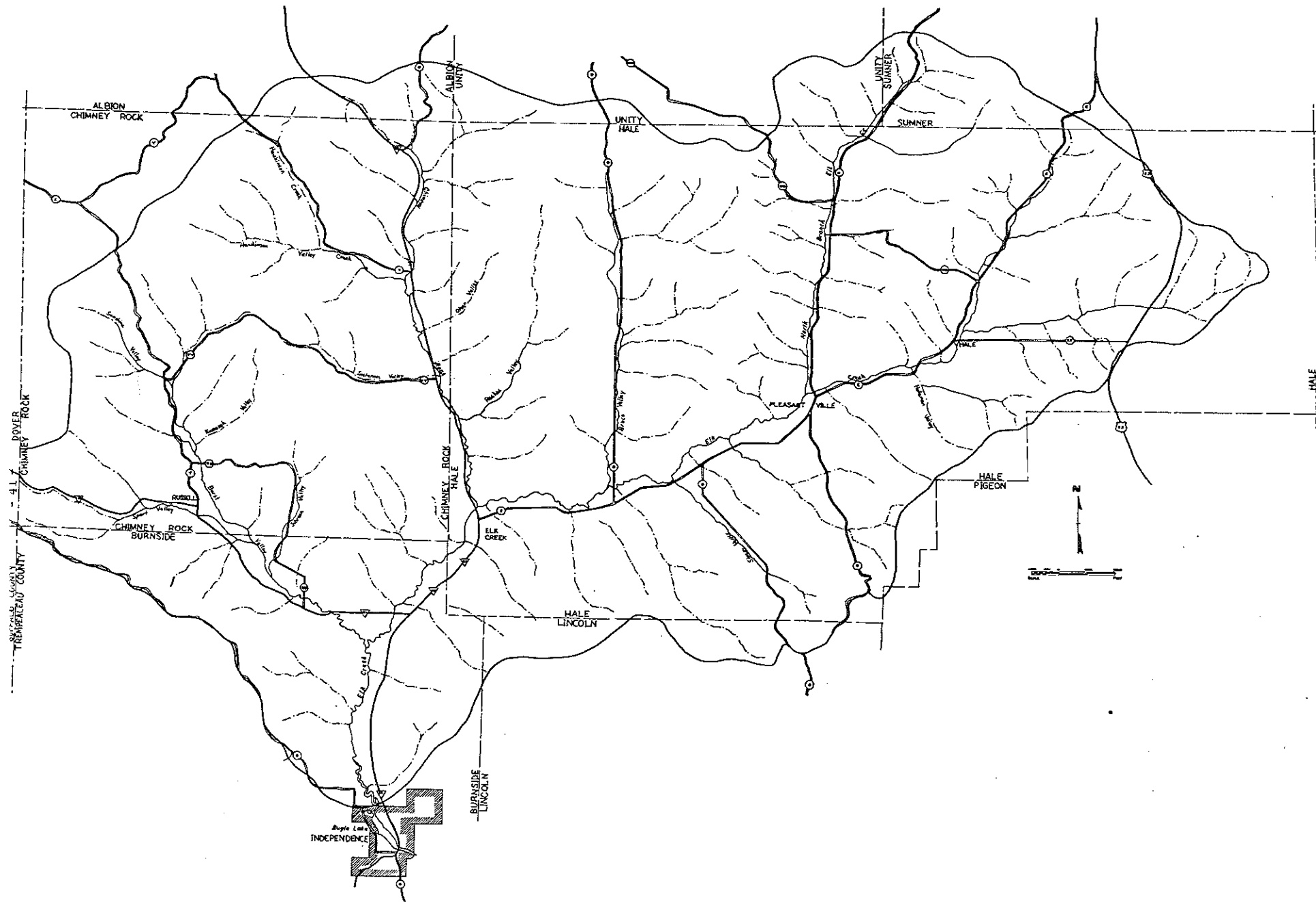
TABLE XXV

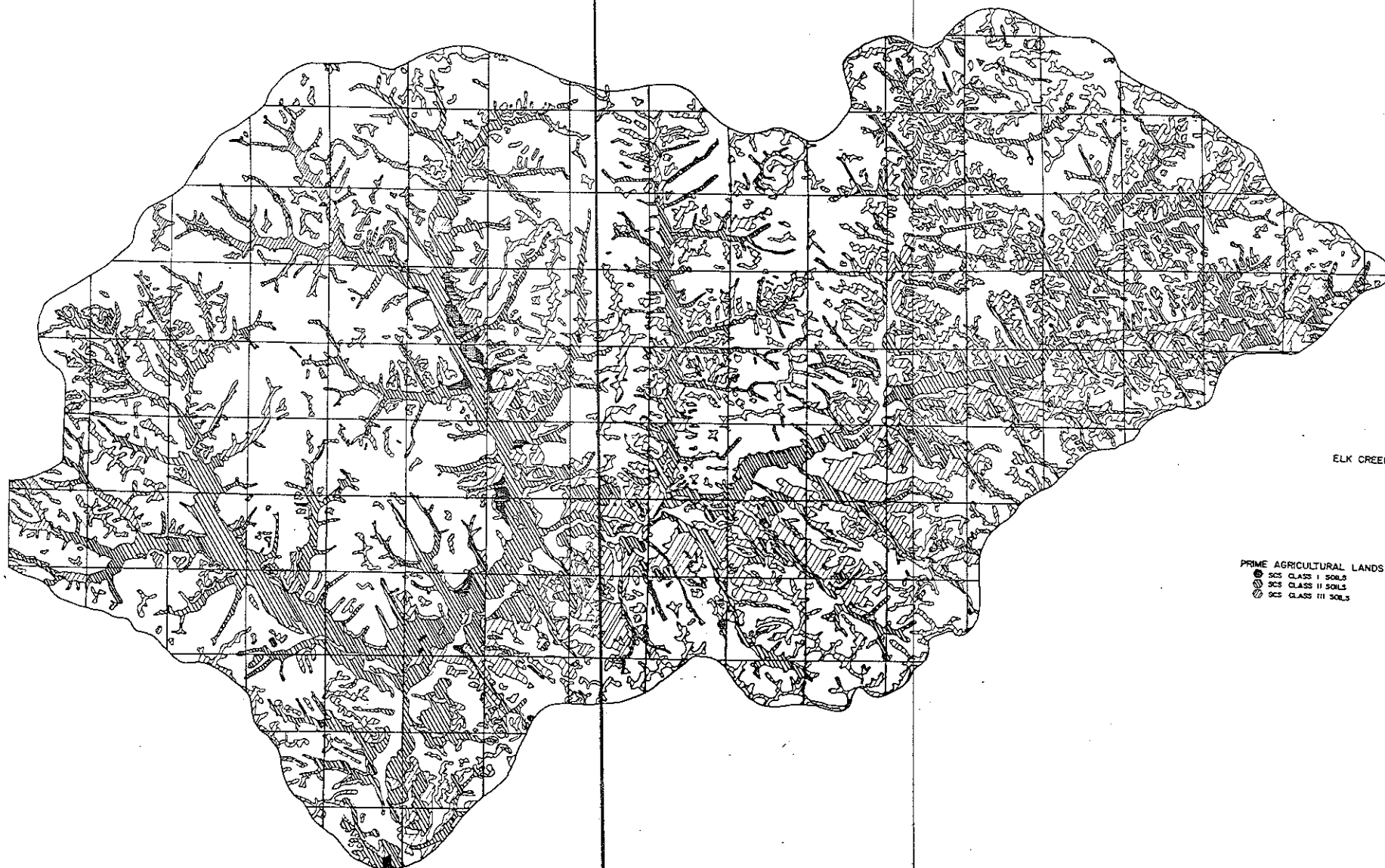
Activity	1979	1980	1981	1982	1983	1984	1985	Total Hours
Conservation Planning	1,000	2,500	2,500	1,585	1,500	1,000	500	10,585
Contour Strips	--	293	293	293	293	293	293	1,758
Grassed Waterways	--	282	282	282	282	282	282	1,692
Diversions	100	300	300	350	400	400	368	2,218
Erosion Control Dams	150	300	500	500	550	515	500	3,015
Toewall Structures	50	150	200	250	300	300	220	1,470
Critical Area Planting	362	559	739	1,102	1,205	740	560	5,267
Livestock Waste Management	200	500	600	900	1,000	1,000	920	5,120
Streambank Riprap and Seeding	40	125	150	150	150	100	41	756
Streambank Fencing	--	15	15	15	13	--	--	58
Woodland Fencing	50	75	100	150	167	100	75	717
TOTAL	1,952	5,099	5,679	5,577	5,860	4,730	3,759	32,656

Cost of Construction Projected
For the Seven Year Length of the Program

Table XXVI

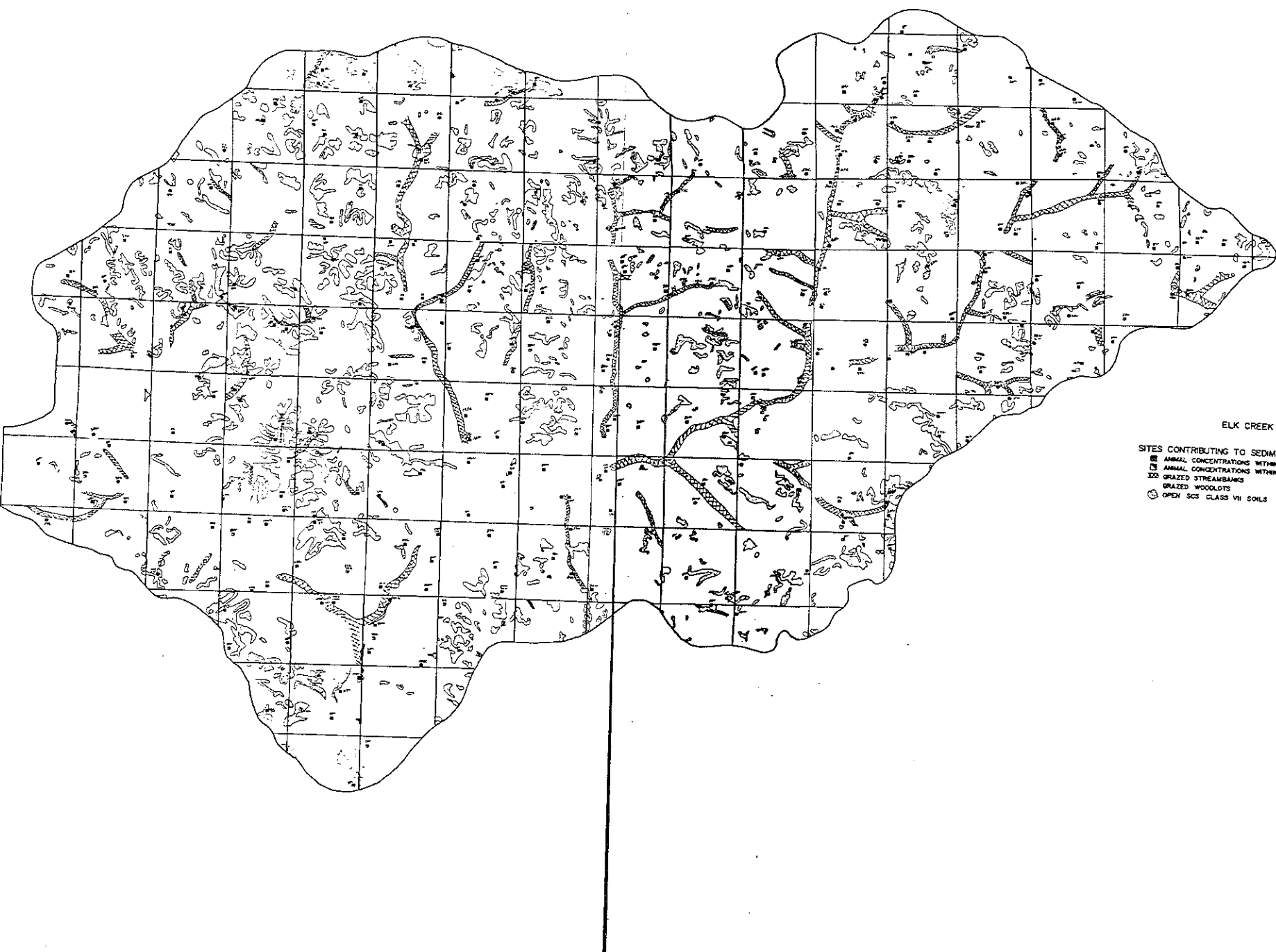
TASK	1979	1980	1981	1982	1983	1984	1985	TOTAL COST SHARE
Conservation Planning								
Contour Strips		8,802	8,802	8,802	8,802	8,802	8,802	52,812
Grassed Waterways		12,156	12,156	12,156	12,156	12,156	12,156	72,936
Diversions		4,190	4,190	4,904	5,587	5,589	5,155	31,044
Erosion Control Dams	8,207	16,415	27,249	27,249	29,875	27,906	27,249	164,150
Toewall Structures	2,699	8,097	10,795	13,495	16,194	16,193	11,907	79,380
Critical Area Planting	25,319	39,377	52,036	77,442	83,592	52,486	40,188	370,440
Livestock Waste Management	34,944	87,808	104,832	157,696	174,720	174,720	161,280	896,000
Streambank Riprap and Seeding	11,574	35,365	42,439	42,439	42,439	28,292	11,788	214,336
Streambank Fencing		3,916	3,916	3,916	3,017			14,765
Woodland Fencing	12,776	19,163	25,551	41,977	41,977	25,551	19,163	186,158
TOTAL	96,180	234,504	294,273	389,394	422,662	352,657	297,959	2,082,021





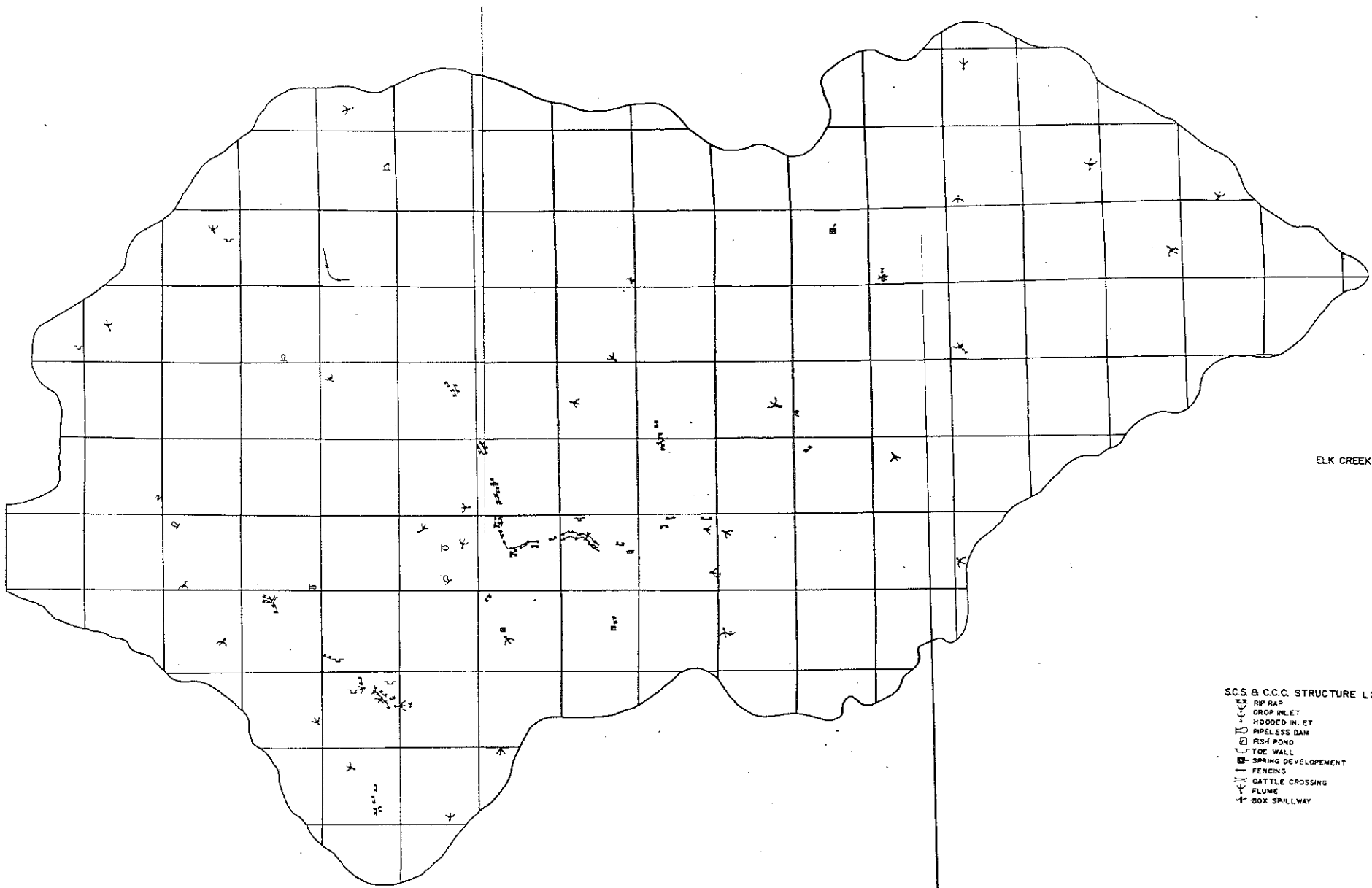
ELK CREEK WATERSHED

PRIME AGRICULTURAL LANDS MAP
● SCS CLASS I SOILS
⊙ SCS CLASS II SOILS
⊗ SCS CLASS III SOILS



ELK CREEK WATERSHED

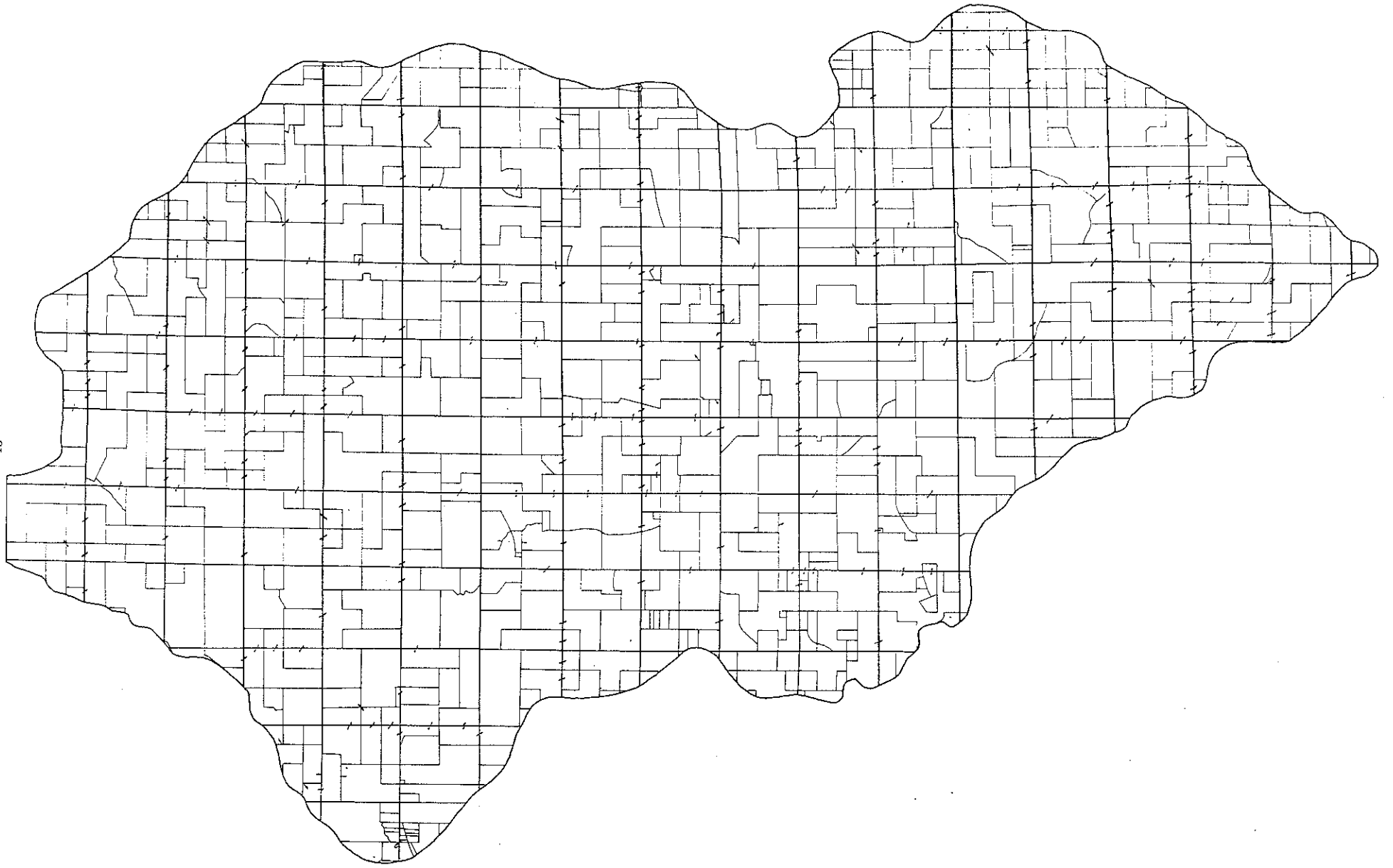
- SITES CONTRIBUTING TO SEDIMENT & NUTRIENT LOADING
- ANNUAL CONCENTRATIONS WITHIN 1/8 MI. OF STREAM
 - ANNUAL CONCENTRATIONS WITHIN 1/4 MI. OF STREAM
 - ▨ GRAZED STREAMBANKS WITHIN 1/4 MI. OF STREAM
 - ▤ GRAZED WOODLOTS
 - OPEN SOIL CLASS VII SOILS

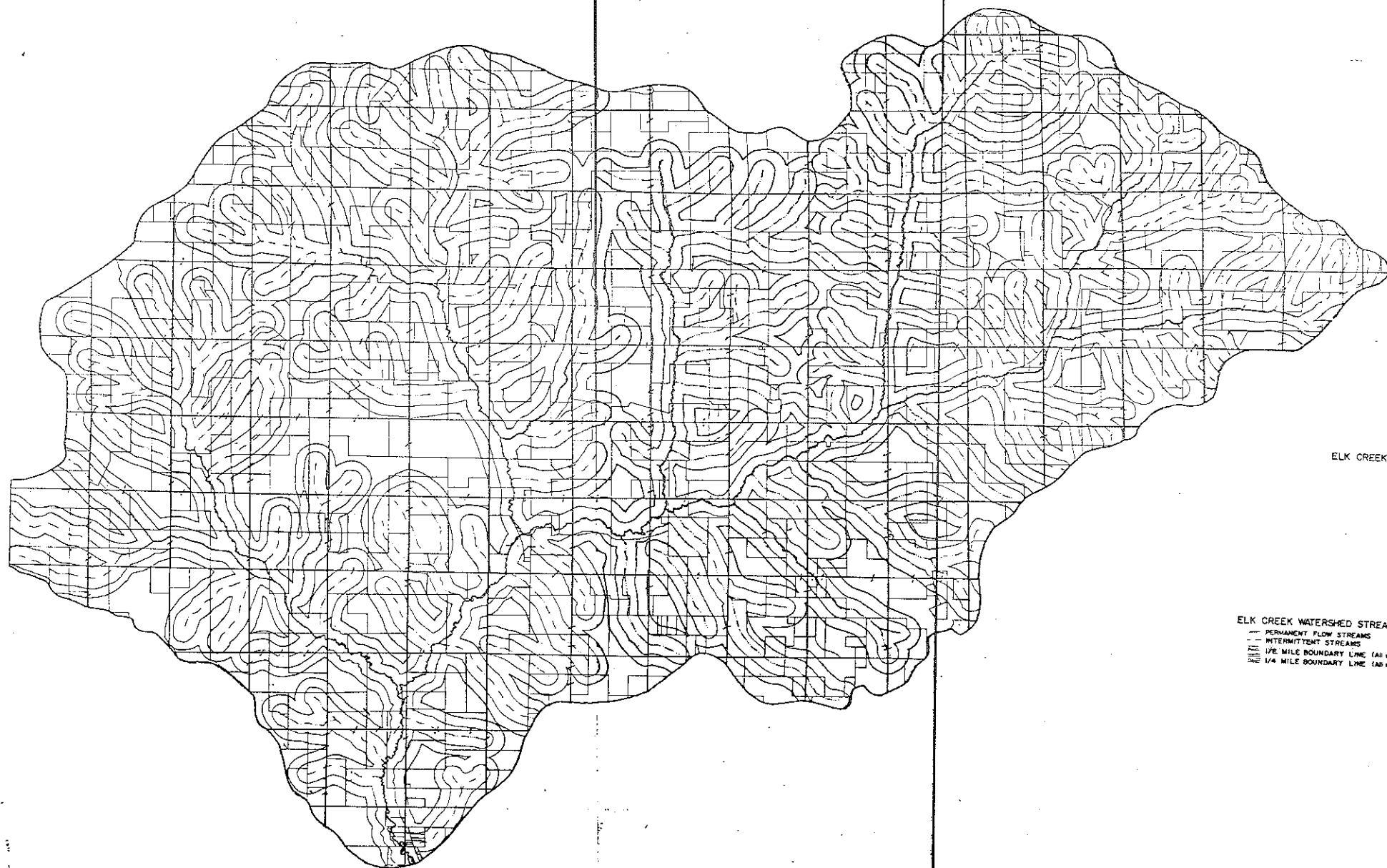


ELK CREEK WATERSHED

SCS & C.C.C. STRUCTURE LOCATIONS

- RP RAP
- DI DROP INLET
- HI HOODED INLET
- PD PIPELESS DAM
- FP FISH POND
- YW YOC WALL
- SD SPRING DEVELOPMENT
- F FENCING
- CC CATTLE CROSSING
- PL PLUME
- BS BOX SPILLWAY





ELK CREEK WATERSHED

ELK CREEK WATERSHED STREAM BOUNDARIES
— PERMANENT FLOW STREAMS
--- INTERMITTENT STREAMS
1/8 MILE BOUNDARY LINE (All scale within first part)
1/4 MILE BOUNDARY LINE (All scale within second part)