Conceptual Restoration Plan

Fosson Site
Paint Fork Creek

by
Micky Clemmons, NCWRC
and
Russell Blevins, NRCS

July 12, 1998

Introduction

The purpose of this plan is to document for you, the landowner, those practices that we propose employing to restore or enhance the habitat value of the stream and its riparian zone on your property. This plan gives you the opportunity to evaluate the scope of work that is being proposed and to provide a basis for discussion regarding the acceptability of the practices. Since we have been discussing these ideas with you from the beginning, we hope this plan will serve to put in black and white the general concepts to which you already agreed. If, however, something in this plan is new or unacceptable, we want to discuss it and work out any problems you may have.

Once you are satisfied with the basic ideas in this plan, the conservation easement will need to be written. The Department of Transportation (DOT), right-of-way personnel, will be working with the North Carolina Wildlife Resources Commission (WRC) to develop these agreements; however, the agreement will be between the landowner and the WRC. The WRC will hold the easement. A DOT crew will survey the easement boundary for a legal easement description. Once the conservation easement document is written we will sit down with you to review the document. This is the point at which the landowner must decide to continue with the mitigation program or not. Once the easement is signed we will develop more in depth work plans and schedule a time when the work can be done. In general, nothing will be contained in the work plans that has not been described in this plan. If something new comes up, it will be discussed with you and included in the workplan only if you agree in writing to the new practice.

Objective

The purpose of this plan is to document for you, the landowner, those practices that we propose employing to restore or enhance the habitat value of the stream and its riparian zone on your property. This plan gives you the opportunity to evaluate the scope of work that is being proposed and to provide a basis for discussion regarding the acceptability of the practices. Since we have been discussing these ideas with you from the beginning, we hope this plan will serve to put in black and white the general concepts to which you have already agreed. If, however, something in this plan is new or unacceptable, we want to discuss it and work out any problems you may have.

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Specific objectives for the Don Fosson site are described in detail in the recommendations section below and are the following:

1. Where possible widen the floodplain of the creek and small tributary at the east end of the property.

2. Slope and vegetate the south creek bank so that it is more resistant to flooding.

3. Install rootwads at eroding bends in the river to reduce erosion and provide fish habitat. In locations that are eroding, but are not on a bend, we may construct rock vein structures.

4. Plant native trees, bushes and ground cover that will stabilize the creek banks, shade the stream, and provide wildlife cover and food.

5. Place fish habitat improvement structures where appropriate at the site.

6. Construct a fence along the easement boundary on the south creek bank and up the small tributary at the east end of the property.

Recommendations

These recommendations are specifically for the Don Fosson site, but are also applicable to the TNT Partners site which is directly across Paint Fork Creek and above the eastern tributary, from the Fosson site. The success of the recommendations made in the plans for both sites are somewhat dependent on the proposed work being done on both banks. The recommendations for both sites will be almost identical, with the exception that we are recommending that TNT Partners allow the removal of the berm on their site.

Conservation Easement:

A condition of participating in this mitigation program is that the landowner agrees to place his stream riparian zone in a conservation easement. When you get this plan, we will have already talked about the easement line, and a proposed easement boundary should be marked on your property. Please walk this line and determine if the marked line will be satisfactory. If there are problems we can review the proposal and determine if the line can be altered. We have marked the line based on the size of the stream, the predicted frequency of flooding, and the amount of land needed to provide a significant vegetative cover of the stream. Before we move to the next stage, which is developing the easement document, we need to be fairly firm on where the line will be because this line will be surveyed and the survey description used in the document. Fence installation will follow

this boundary line and right-of-access to the easement by WRC personnel will be stated in the agreement. The easement will be held by the WRC and the agreement will be between the landowner and the WRC. If you have specific concerns that you would like addressed in the easement agreement, please make note of them so that we can insure they are included in the agreement.

Channel Improvements:

Determining stream type at this site is complicated by past stream relocation and channelization. Due to past activities in the riparian zone the channel varies from entrenched to moderate entrenchment to slight entrenchment at various sites. The site has a moderate width/depth ratio that would indicate a B, C or F type channel. The valley slope over 2 -3 miles in this area is .007 which indicates a C type channel. However, the slope along the reach of this site is steeper at .014, this would further indicate a B stream type. Bedrock at this site has resisted the erosive force of the stream resulting in a steeper stream slope over the reach. Restoration activities will seek to enhance the sinuosity of the stream; however, given that the adjoining narrow valley is used for row crops, the potential for improving sinuosity is limited.

At spots along the channel the stream has developed a narrow floodplain. This will benefit the stream by slowing water velocity during a high water event. This in turn will reduce the amount of erosion occurring on the stream banks. At most locations along this reach the south bank is vertical and is eroding despite the presence of extensive non-woody vegetation. We propose to construct a floodplain bench at the bankful elevation, along the creek to enhance what the stream is attempting to do naturally. This will not involve filling the existing creek, but rather moving the slope of the stream bank back away from the water for approximately 5 feet. Above this floodplain the stream bank will be sloped to the top of the bank and vegetated (see the cross-section drawings in the appendix).

Trout habitat in the form of pools is rare at this site. What pool habitat that does exist is associated with bends and undercutting of the bank. We plan to add some plunge pools at intervals along this site. Structures will be added at the normal pool to pool spacing for B type streams of 3-4 bankfull widths. Structures will be made out of logs or boulders and placed below bankfull so that high flows will not be diverted into the bank, causing erosion. Rootwads will be placed in the bank where the creek is meandering and presently causing erosion. These structures will stabilize the bank and provide cover for trout. Bedrock is evident at a number of locations in this reach. Utilization of in-stream habitat improvement structures will be dependent on how much the bedrock limits our ability to anchor these structures.

The small tributary at the eastern end of the property is a deeply entrenched G type channel. This stream is eroding its banks severely and will eventually cause the banks to collapse and the existing vegetation to fall into the channel. We propose improving this situation by widening the channel, developing a floodplain and replanting the riparian

vegetation. This work will cause the initial loss of most of the riparian vegetation, but this vegetation will be replanted and should soon recover. With an improved channel morphology this stream should be stable and should no longer be a source of sediment. This stream is the boundary between the two adjoining property owners and both would need to agree to these improvements. We will develop more extensive plans for this site when we develop work plans. This work will only be done if both landowners agree in writing to the work.

Riparian Improvements:

The riparian zone at this site is in fair to good shape. It has extensive non-woody vegetation with a few small trees scattered along the stream. This reach does have a thick stand of reed canary grass. This nonnative grass was most likely planted by the NRCS in the 1980's. It prefers wet ground and does well as a stream stabilizing material on stream banks with low to moderate slopes. It does not provide the shade that the stream needs to maintain the cold water trout require. It also does not root deeply enough to protect the bank under extreme water velocities To the south, the riparian zone is bordered by a row-crop field over its entire length. The existing vegetated buffer varies between 10 and 40 feet in width. The primary threat to the existing riparian zone is the erosion along the stream bank and the lack of woody vegetation that creates the root mass that can hold the banks

We propose to improve the riparian zone at this site with a number of practices. Stream banks will be sloped to approximately a 2:1 slope. This will allow the water to move up the sloped surface rather than eroding a vertical bank. After the creek bank has been sloped it will be vegetated with native grass. The reed canary grass will most probably return. We will also plant low growing woody species such as alder, willow, red twig dogwood and button bush. On the upper banks we will plant taller growing trees that provide shade, stable creek banks and wildlife cover and food. The species of trees used on the upper bank is open to the desires of the landowner. Any suggestions will be taken into consideration and utilized if possible.

Livestock Exclusion:

An important part of our stream mitigation plan is the exclusion of livestock from the riparian buffer of the stream. In large part, livestock management will determine the success of the other practices. The Natural Resource Conservation Service (NRCS) has developed these livestock exclusion proposals. The estimated total cost of the practices proposed for installation on your property should be approximately $1500.00. The attached Conservation Plan details the planned treatments and the costs by treatment (see appendix). Note that this plan is commonly used by the NRCS to develop cost-shared, conservation plans and shows 75% of the actual costs, which they commonly pay. In this program we are paying 100% and this total has been written on the plan. Also note that as we develop more extensive plans for the eastern tributary we may determine that we need to increase the length of fence in this area. The installation of these livestock treatments can be done by the landowner or a designated contractor. The NRCS will administer all phases of this part of the mitigation plan.

Fencing: We propose to fence the entire south bank of the stream along the marked easement boundary at this site. We also propose to fence the tributary along the eastern property boundary and as we have pointed out above, the amount of fence needed in this area may increase as plans are developed. No cattle crossings of the buffer area are proposed. A map of the site, showing the proposed location of the fence, is attached in the appendix. The fence will be built to the standards of NRCS. Normally, the fence will be a 4 strand barbed wire fence mounted on metal posts and pressure treated, wooden turn posts. Gates can be added to the fence at request of the landowner. If the landowner would prefer a different type of fence, he should contact the NRCS office to discuss other acceptable types of fencing.

Watering facilities: One watering tank is proposed for this site. It will be a preassure fed tank using the existing pond as the water source. The tank will be located in the lower pasture. It will have a pressure switch which fills the tank and when full cuts the waterflow off. There will be no need for an overflow.

Appendix

Contents:

1. Map of site showing fence placement.

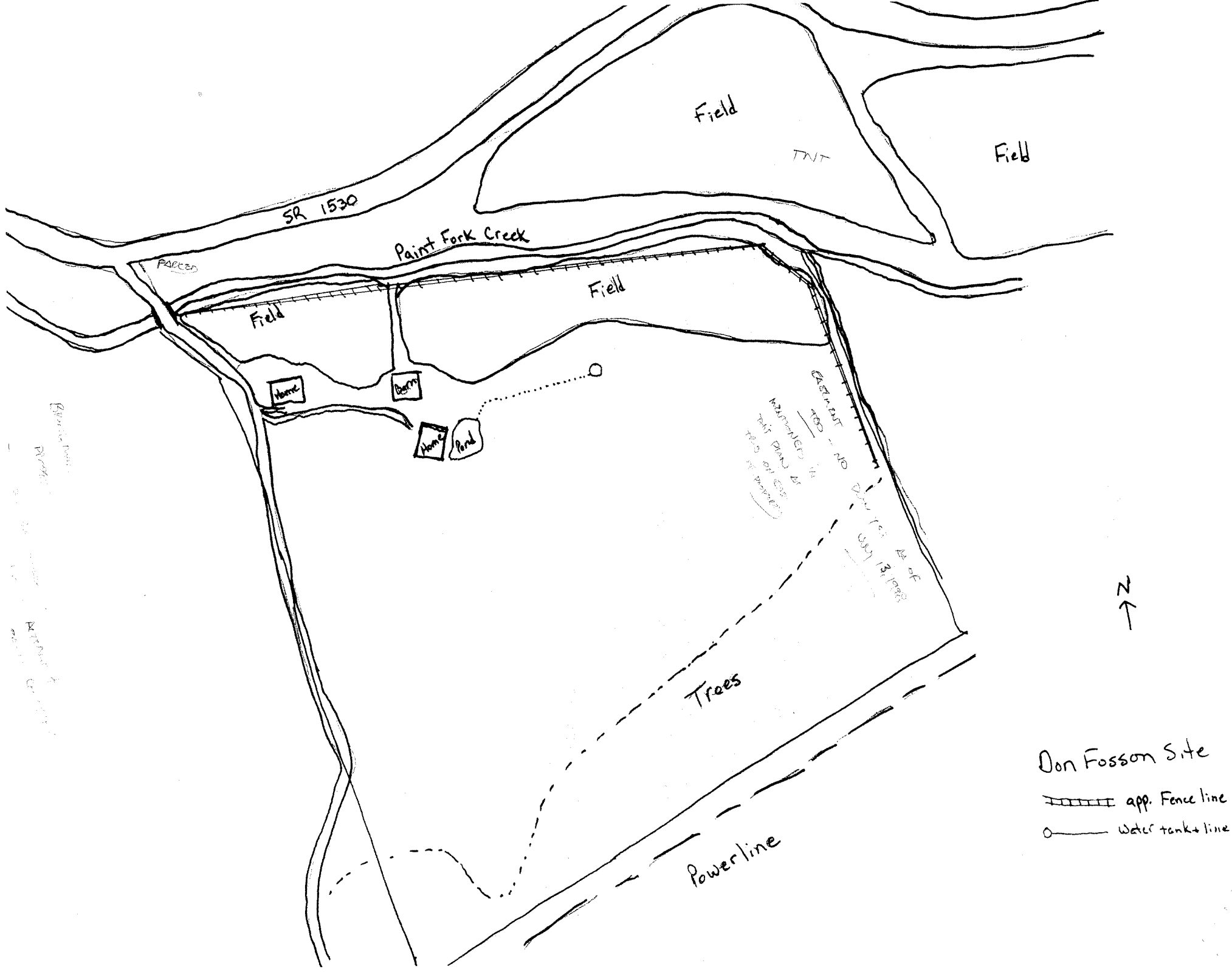
2. Map of stream showing field edge in green, berm, top of bank in red, water's edge in blue, and thalwag in black.

3. Natural Resource Conservation Service conservation plan for the site. Note most costs are shown at 75% as is common for their plans. This program pays 100% of project costs and the total estimated cost has been written in on page 2.

4. Cross sections of Paint Fork Creek taken at the project site, showing in red the proposed sloping and floodplain construction.

5. Rootwads used for bank stabilization. A method that may be used at this site.

6. Rock veins used to divert water off of an eroding bank. A method that may be used at this site.


Field
Field
SR 1530
Paint Fork Creek
Field
Field
Home
Barn
Home
Pond
Trees
Powerline
N
Don Fosson Site
app. Fence line
Water tanks line

U. S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
Marshall (Madison) Field Office (704) 649-3313

(INTERIM) NRCS-LTP-12-E | PAGE
1-97 | 1 OF 2

CONTRACT REVISION SUPPORT DOCUMENT

NO.: TOTAL ACRES: 3.5

Donald E. Poseon | Madison County | NC | Revision Number: 1

ITEM NO	FIELD	PLANNED CONSERVATION TREATMENT	EST. AMOUNT (UNITS)	COST / UNIT	COST SHARE %	ESTIMATED COST-SHARE BY YEAR 1998				
1	1	Tract 15651								
		FENCE (382)								
		FENCE-perm, non-elect/elect	1000.0	$ 1.50	75.0AA	$ 1,125				
		offset	LinFt							
2	1	Tract 15651	200.0	NC	NC	200.0				
		PIPELINE (516)	ft.			ft.				
3	1	Tract 15651								
		TROUGH OR TANK (614)								
3a		Geotextile fabric filter cloth	33.0	$ 2.00	75.0	$ 50				
			SqYd							
3b		Gravel	16.0	$ 12.00	75.0	$ 144				
			Ton							
3c		Water supply pipe 2" or less	100.0	$ 1.50	75.0	$ 113				
		plus fittings	Lft							
3d		Watering Tank	1.0	$ 533.00	75.0AM	$ 400				
			No.							
Total Cost-Share by Calendar Year:						$ 1,832				

100% Total Cost = $2600

SUMMARY	PROGRAM	CONTRACT NO.	TOTAL	1998	1999				
Total Cost-Share by Fiscal Year:	WQ				$ 1,832				
Total Contract Cost-Share:	WQ		$ 1,832						

NOTES: A. All items numbered under "ITEM NO." must be carried out as part of this contract to prevent violation.

B. When established, the conservation practices listed as "PLANNED CONSERVATION TREATMENT" must be maintained by the participant at no cost to the government.

C. Enter total cost per unit under "COST/UNIT" unless the method of cost-share is flat rate. When flat rate, enter the amount per unit to be paid to the participant.

D. All cost share rates shown under "COST SHARE %" are based on average cost (AC) with the following exceptions:

AA = Actual costs not to exceed average cost

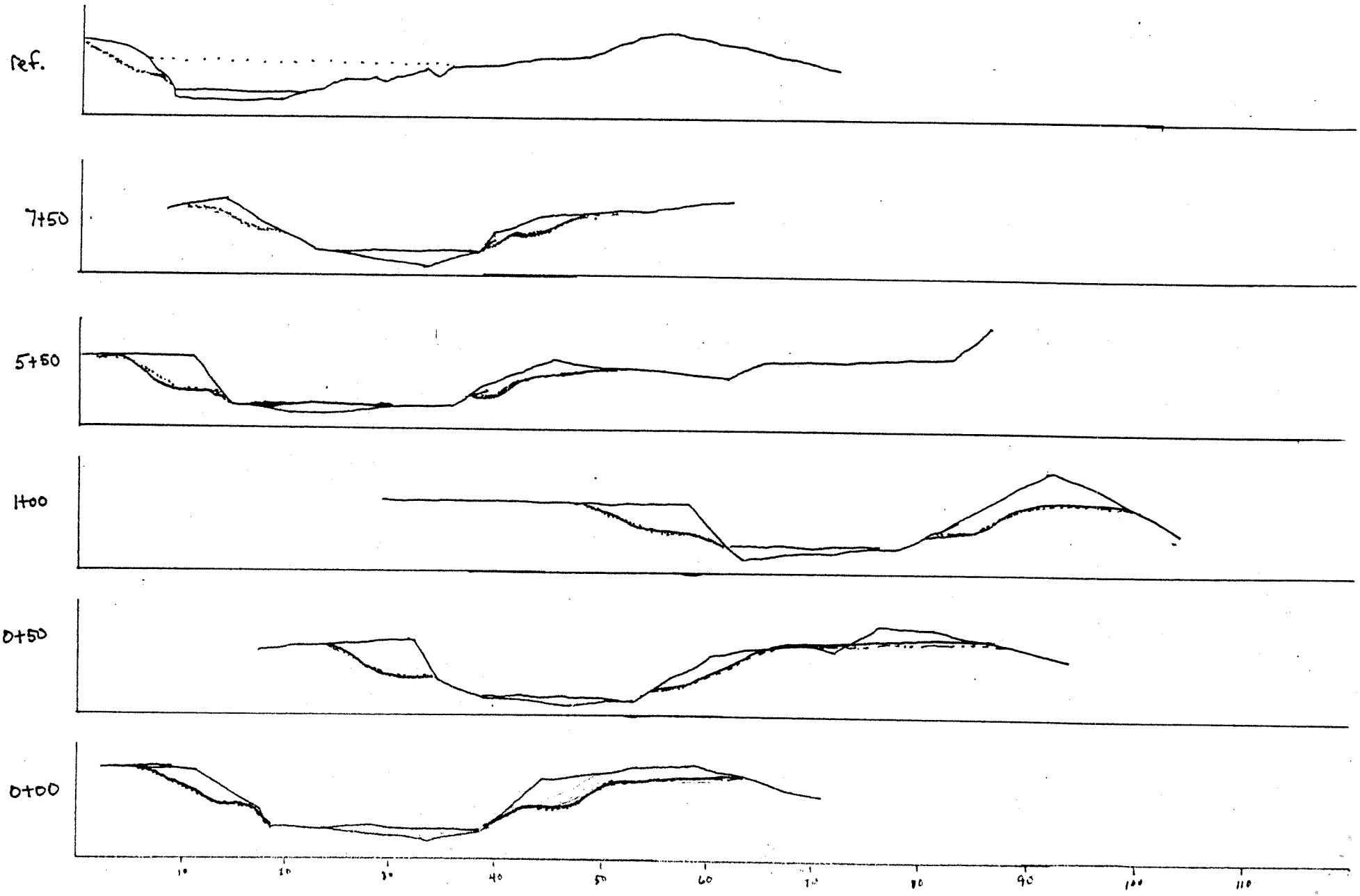
FR = Flat rate

NC = Non cost-shared

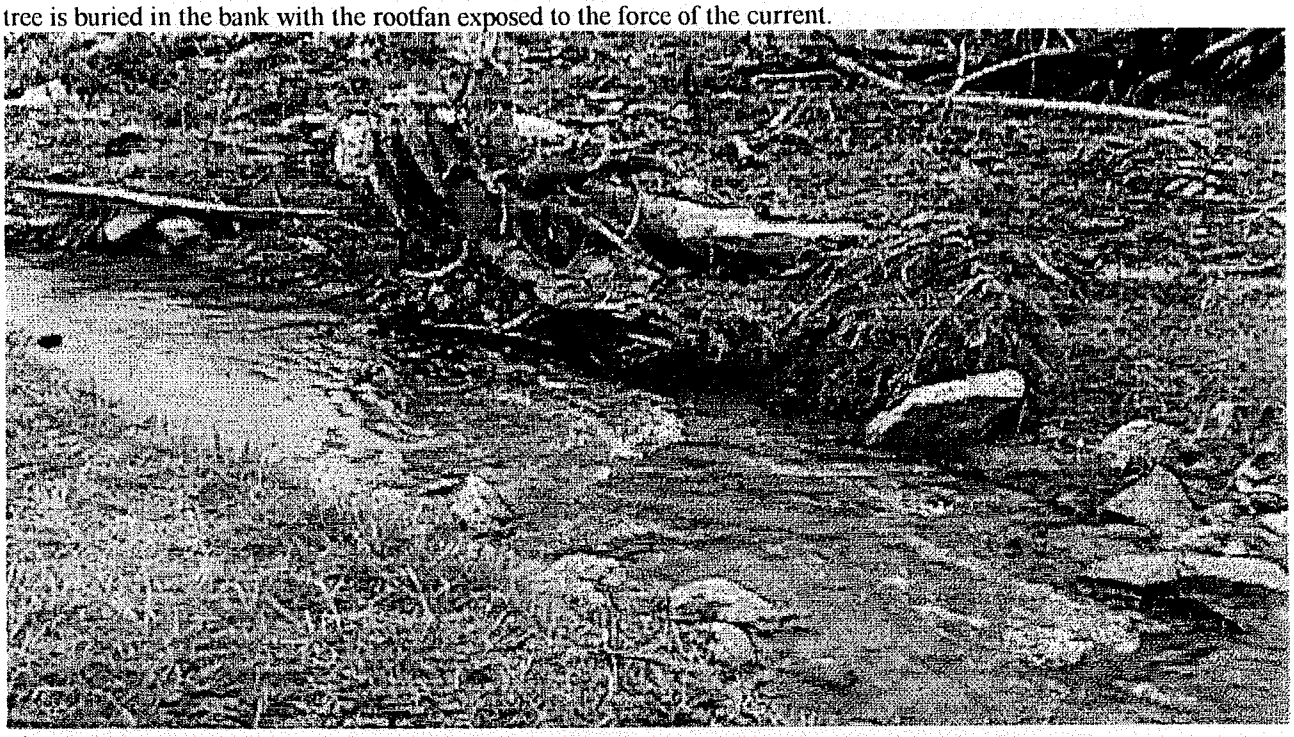
AM = Actual cost not to exceed a specified maximum

E. Total cost share by calendar year amounts may differ from those displayed in the SUMMARY section by fiscal year depending on what month the item is scheduled and on the fiscal year basis of the program.

Cross-Sections along creek between Fosson & TNT Partners sites.



Pictures 1 and 2 show rootwads used to stabilize a creek bank and provide fish habitat. The trunk of the tree is buried in the bank with the rootfan exposed to the force of the current.



Picture 1

Picture 2

Photo 1 & 2 show a rock vein used to protect an eroding section of stream bank. Rocks are stacked and pointed up stream at a 30° angle. This raises the stage of the water above the vein and since the mid-stream end of the vein is lower the water falls toward the middle of the stream. Photo 2 shows how the water level is higher upstream (to the right) of the rock vein.

Photo 1.

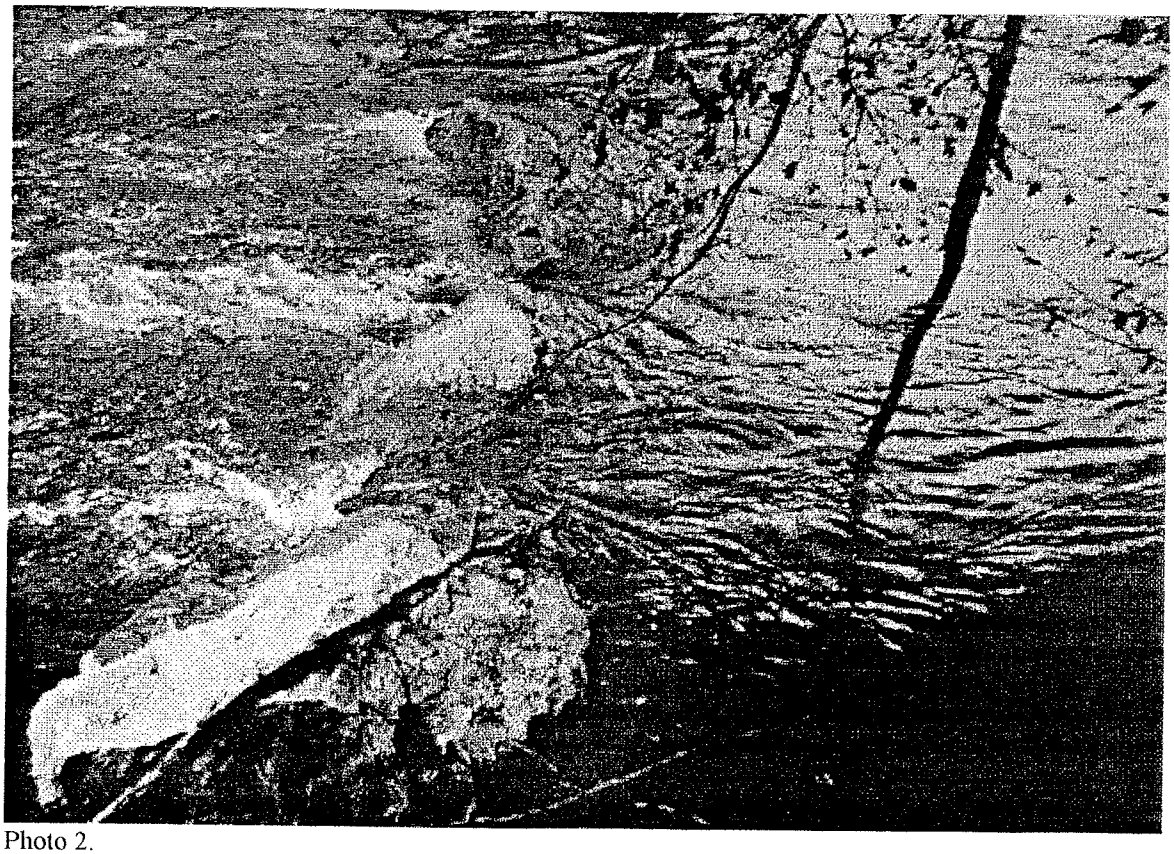


Photo 2.