

## ***Watershed Based Plan***

### **Name of Project: Nolichucky Sediment Reduction Watershed Based Plan**

#### **Lead Organization:** Hamblen Soil Conservation District (SCD)

The Hamblen SCD will provide overall leadership in this project. Each cooperating district will coordinate conservation practices with the lead partner; provide all accounting functions including processing receipts, calculating payments, and keeping up with in-kind etc. Each cooperating district will meet with the landowners and develop Toolkit conservation plans in their prospective counties. Hamblen County SCD will provide administrative support for this project, as well as all payments to landowners.

The Project Manager for this initiative will be Sonya Ricker, Administrator of the Hamblen Soil Conservation District, and will be compensated at a rate of \$16 p/h, 1 day per week, outside of her normal business hours. The office phone number is 423-525-4652. Sonya's cell phone number is 423-312-5017 or via email at [sonya.ricker@tn.nacdnet.net](mailto:sonya.ricker@tn.nacdnet.net).

#### **Watershed Identification** (name, location, 12-digit HUC, etc.):

**86 miles of the Nolichucky River located in Hamblen, Cocke, Greene, and Washington Counties in East Tennessee.**

**Waterbody ID is TN06010108001-1000, 2000, 3000**

### **Causes and Sources of Nonpoint Source Pollution in the Watershed**

These segments of the Nolichucky River are listed in the 2012 303(d) List published by Tennessee Department of Environment and Conservation (TDEC). The listed causes are loss of biological integrity due to siltation and the pollutant source is irrigated crop production and pasture grazing. TDEC has also prepared a TMDL for siltation and habitat alteration in the Nolichucky River Watershed which is included as part of the watershed based plan.

There are several endangered species in the Nolichucky River including the Chucky Madtom which is a small catfish which has never been found in any other place in the world. Endangered mussels in the Nolichucky include the Fluted Kidney shell, Oyster Mussel, Birdwing Pearly mussel, and Spectaclecase. There are

many other threatened species and species of special concern in the Nolichucky River. All of these suffer from problems associated with sediment. For several years the Tennessee Wildlife Resources Agency, Tennessee Valley Authority and volunteers have been relocating some of these mussels from more stable populations in other rivers to the Nolichucky in an effort to establish more viable populations in the Nolichucky. However, sediment and other pollutants from farmland are known by these wildlife specialists to have a major negative impact on these beneficial creatures.

There are several thousand acres of irrigated crop production within this watershed. Most of the irrigated land is for production of tomatoes and other produce for the fresh market. These fields are located on the highly productive soils of the river bottomlands. Plastic mulch is used with drip irrigation. This method of crop production is very efficient for production of the tomatoes but covers approximately 50% of the field with plastic which decreases infiltration of rainfall and increases runoff dramatically. In addition to the increased volume of runoff, the water must leave the field quickly so that production practices with labor and machinery can resume as soon as needed and also so that the crop will not be damaged by excess water. These factors can cause severe erosion and much of the resulting sediment is carried directly to the river by way of drainage ditches. Operators of these farms have been contacted by TDA's Watershed Coordinator and they have expressed interest in conservation planning assistance and installing needed BMPs. Livestock operations in the watershed are another source of pollution on the 303(d) list which contributes to the sediment load. These problems are mainly from livestock having access to tributary streams and from feeding areas near tributaries.

## **Estimate of Load Reductions**

Estimates of load reductions reached through the planned BMPs.

<b>Practice Code</b>	<b>Practice name</b>	<b>Practice details</b>	<b>Unit</b>	<b>Amount</b>	<b>Sediment reduction Per Unit</b>	<b>Tons of sediment reduction / yr</b>
340	Cover Crop	Soil Protection N Scavenging Cover	Ac	1000.00	0.18	175.00
340	Cover Crop	Soil Health Cover	Ac	300	0.18	52.50
350	Sediment Basin	Embankment earthen basin with pipe	No.	10.00	6.11	61.09

393	Filter Strip	Filter Strip, Native Species w/ Land Shaping	Ac	50.00	0.18	8.75
393	Filter Strip	Filter Strip, Introduced Species w/ Land Shaping	Ac	50.00	0.18	8.75
410	Grade Stabilization Structure	Embankment, Pipe >12"	No.	10.00	4.22	42.24
410	Grade Stabilization Structure	Rock Drop Structures	No.	10.00	4.22	42.20
412	Grassed Waterway	GWW > 1,000ft long	Ac	25.00	0.06	1.38
412	Grassed Waterway	GWW with geotextile or stone checks	Ac	25.00	0.06	1.38
472	Access Control	Animal exclusion from riparian zone	Ft	10000.00	0.01	60.00
561	Heavy Use Area Protection	Rock/Gravel on Geotextile	SqFt	5002.00	0.01	50.02
560	Access Road	New 6" gravel road in level terrain	Ft	9960.00	0.01	99.60
						602.90

**BMP List, Educational Activities and Budget**

This watershed based plan intends to reduce sediment in the identified segments of the Nolichucky River by installing the following BMPs. This is an estimate of potential BMPs and may change as conservation plans are developed and more exact amounts are decided upon. Conservation planning is a major component of this plan and accurate amounts cannot be calculated until it is completed.

Conservation plans will be developed for all landowners/operators willing to cooperate and priorities given to BMPs that will have the greatest impact in reducing sediment load in the Nolichucky. A public tour of BMPs will be conducted as an educational event to highlight success of the project and increase awareness of water quality problems in the Nolichucky watershed and solutions to these problems.



Educational Event	Quantity	Cost/Unit	Budget Estimate
Public tour	1	1,000	1,000

Technical Assistance	Quantity	Cost/Unit	Budget Estimate
SCD employee	as needed		30,000

<b>Total Budget for Project:</b>	<b>\$531,000</b>
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## **Timeline, Tasks, and Assessment of Progress**

Within the first three months after the start date landowners and operators will be contacted to explain the project goals and available assistance and to enlist the cooperation of the owner/operators. This will be done by Natural Resources Conservation Service (NRCS), Tennessee Department of Agriculture (TDA), and SCD personnel. Within the first six months, conservation planning will be underway. Planning will be done by certified conservation planners using the NRCS conservation planning method. All BMPs will be designed and installed according to NRCS Field Office Technical Guide or other accepted engineering standards and specifications. Installation of BMPs will begin as soon as possible after conservation plans have been developed. Educational events will be held near the end of the project.

Progress toward these milestones will be measured on a monthly basis and adjustments will be made when necessary to keep the overall progress moving toward completion of all planned activities before the conclusion of the contract. It is anticipated this project will be **completed in 3 years** after the contract date. The primary tasks to be completed as a result of this effort, along with the respective quarters when the tasks are to be completed, are listed below:

Task or Event	Contract Year		
	1	2	3
Contact landowners/operators	Q1		
Conservation Planning	Q2-Q4	Q1-Q4	Q1-Q4
BMP Installation	Q2-Q4	Q1-Q4	Q1-Q4
BMP Workshop		Q3	
Public Tour			Q4

### **Criteria to Assess Achievement of Load Reduction Goals**

Water samples for suspended solids and turbidity can be taken at points where runoff from the BMP sites enters the river. These samples can be taken before and after BMP installation to determine the extent of sediment entering the river. Reduction of sediment can then be calculated. Sediment that has been trapped in some BMPs such as sediment basins could be measured and calculated as well.

### **Monitoring and Documenting Success**

Success will be documented by the records of BMPs installed which are known to reduce soil erosion and sedimentation. These records will include copies of conservation plans, pictures of the sites before and after BMP installation and records of installation costs and materials and services used. Additionally, criteria will be defined in cooperation with the TDEC field office which will be used to determine whether substantial progress is being made towards attaining water quality standards and whether modifications will be necessary for this proposed watershed-based plan. The criteria to be defined in conjunction with the TDEC field office is expected to include measurements for sediment including total suspended solids (TSS), nutrients (total nitrogen, ammonia and total phosphorus) and pathogenic bacteria (fecal coli form).