

ATTACHMENT B

Watershed Based Plan Format

Name of Project: Hiwassee River Tributaries Project Phase One

Lead Organization: Southeast Tennessee Resource Conservation and Development Council (SETNRCD) will provide overall leadership in this project. Partners including the Natural Resources Conservation Services (NRCS) and county groundwater specialists will provide technical assistance when necessary.

The Project Manager for this initiative will be Robert Altonen, Watershed Project Coordinator with the SETNRCD who has worked on several 319 grants throughout the region his contacting information is 423-762-0152 or email at raltonen.setnrcd@gmail.com.

Assisting Robert will be Simone Madsen, the current Executive Director of the nonprofit as well as the previous Watershed Project Coordinator. Her contact information is 423-322-4405 or smads.setnrcd@gmail.com.

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

Watershed Name: Hiwassee River
HUC: 06020002
Impaired Segments (TDEC 2014)

Watershed name: Chatata Creek (19.62 Miles)
Bradley County
Waterbody ID: TN06020002012 – 1000

Little Chatata Creek (14.3 Miles)
Bradley County
Waterbody ID: TN06020002012 – 0200

Causes and Sources of Nonpoint Source Pollution in the Watershed

Chatata Creek and Little Chatata Creek in the greater Hiwassee Watershed are listed in the 2014 303(d) list published by the Tennessee Department of Environmental Conservation (TDEC) for the following: Loss of biological diversity due to siltation, alteration in stream-side or littoral vegetative cover, and *Escherichia coli* (*E. coli*) with the listed pollutant sources as discharges from MS4 area, pasture grazing, and animal feeding operations. According to the Chatata Creek Watershed Stream Corridor Assessment published in December 2009 by TVA, a bacterial study

conducted by University of Tennessee Knoxville indicated that 80% of fecal contamination within this specific watershed is from bovine sources.

Chatata Creek enters the Hiwassee River at mile 23.9. The state has listed 19.62 miles of Chatata Creek and 14.63 miles of Little Chatata Creek as not meeting designated usages. TVA has tested these waters in addition to the TDEC testing and has confirmed a consistently scored “high poor”.

Fifty percent of the 43 square miles that the Chatata Creek watershed covers is deemed unsuitable for agriculture. 35% of the watershed is used for agricultural purposes with 7.3% as row crops and 5.5% designated as urban land use. TVA published a report on the Chatata Creek in 2009 which listed a number of sites that could use improvements. Although this report focusses primarily on siltation, barriers, channel alteration, and trash dumping sites, it does provide insight into what the Stream Corridor Assessment views as potential problems. We will be visiting this document to determine if the sites suggested by the SCA survey can go hand in hand with our projects in creating stream buffers or other BMPs.

The TMDL issued in 2006 for the Hiwassee River listed two sites on Chatata creek whose coliform microbial density was averaged. One site showed an average of 946 counts per 100 mL, another testing site showed 2,841 counts per 100 mL on average with a maximum amount of 23,590 counts per 100 mL. Fecal coliform testing was not done at the first site, but for the latter and there was an average of 3,053 counts per 100 mL.

As mentioned previously, the majority of *E. coli* being deposited into Chatata Creek is due to local livestock. In this watershed, the TMDL issued on 2006 listed 1,500 beef cows and 425 milk cows in Chatata Creek. In Little Chatata Creek, there are 1,350 beef cows and 475 milk cows. In addition to this, there are also a number of poultry CAFOs in each watershed, a few hog operations, and a small number of sheep and horses. However, due to the TMDL issued and our previous knowledge in working with other distributors, we will be putting our primary focus on the cattle operations in order to reduce the greatest amount of *E. coli* being deposited into the stream.

Another portion of our grant will be dedicated to fixing failed septic systems. The TMDL issued shows that 4,477 families on the Chatata Creek have septic systems and 1,374 families on Little Chatata Creek are on septic systems. It is safe to assume that a number of these septic systems have failed and are in need of repair based on the assessment of TVA’s 2009 findings.

Estimate of Load Reductions

The primary cause of the 303(d) listing for these creeks are *E. coli* contamination, and as such our BMPs will focus on reducing *E. coli*. With the severe droughts, we have been experiencing in the area, much of the pasture may be damaged with soil exposed. We are planning to do a number of forage and biomass planting in fields as both an incentive for farmers to work with us as well as a way to reduce the amount of sediment and runoff being flushed into streams.

Practice Code	Practice Name	Unit	Amount	Lbs./N Per Year	Lbs./P Per	Tons of Sediment
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					Year	Per Year
614	Watering System	Lbs. /N/Unit/Year	15	1,053.45	88.2	.006
561	Heavy Use Area	Lbs. /N/sqft/Year	12,940 sq/ft	1,164.6	129.4	25.88
516	Pipeline	Lbs. /N/foot/Year	7,000	910	140	42
382	Fence	Lbs. /N/foot/Year	20,500 ft	5,125	410	123
512	Forage and Biomass Planting	Lbs. /N/acre/Year	300 acres	2,034	198	52.5
006	Septic Improvements	Lbs N/unit/year	25	2,982	314.5	89.1
		Total		13,269.05	1,280.1	332.486

BMP List, Educational Activities and Budget

BMP Name	Quantity	Cost/Unit	Budget Estimate
Watering System	15	\$1,142.40	\$17,136
Heavy Use Area	12,940 sq/ft	\$3.58	\$46,325.2
Pipeline	7,000	\$2.50	\$17,500
Fence	20,500 ft	\$2.73	\$55,965
Forage and Biomass Planting	300 acres	\$358.61	\$107,583
Septic Improvements	25	\$5000	\$125,000

Educational Event	Quantity	Cost/Unit	Budget Estimate
Agricultural Workshop	2	\$0	\$0
Septic Installer Workshop	1	\$0	\$0
Residential Septic System Workshop	1	\$0	\$0
Nonpoint Source Pollution Events	3	\$0	\$0

Total Budget for Project:	\$369,509.20
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*Cost estimated from 2015 EQIP Payment Schedule and previous area estimates for septic repairs

Timeline, Tasks, and Assessment of Progress

Within the first two months we will reach out to farmers who were previously interested in the grant that were not within watersheds we previously served. In the first three months, we plan to have one of the farmer workshops, this is especially important to advertise the forage and biomass BMPs in a timely fashion to meet planting time tables as the recent severe drought has caused quite a bit of damage to grazing fields. Another farmer BMP workshop will be done in the next year. The workshop with septic installers and residents will be done within the first six months. We are planning to do at minimum 25 septic system repairs, however this may change if we get an increased amount of interest – we may reduce the cost share to accommodate for increased interest.

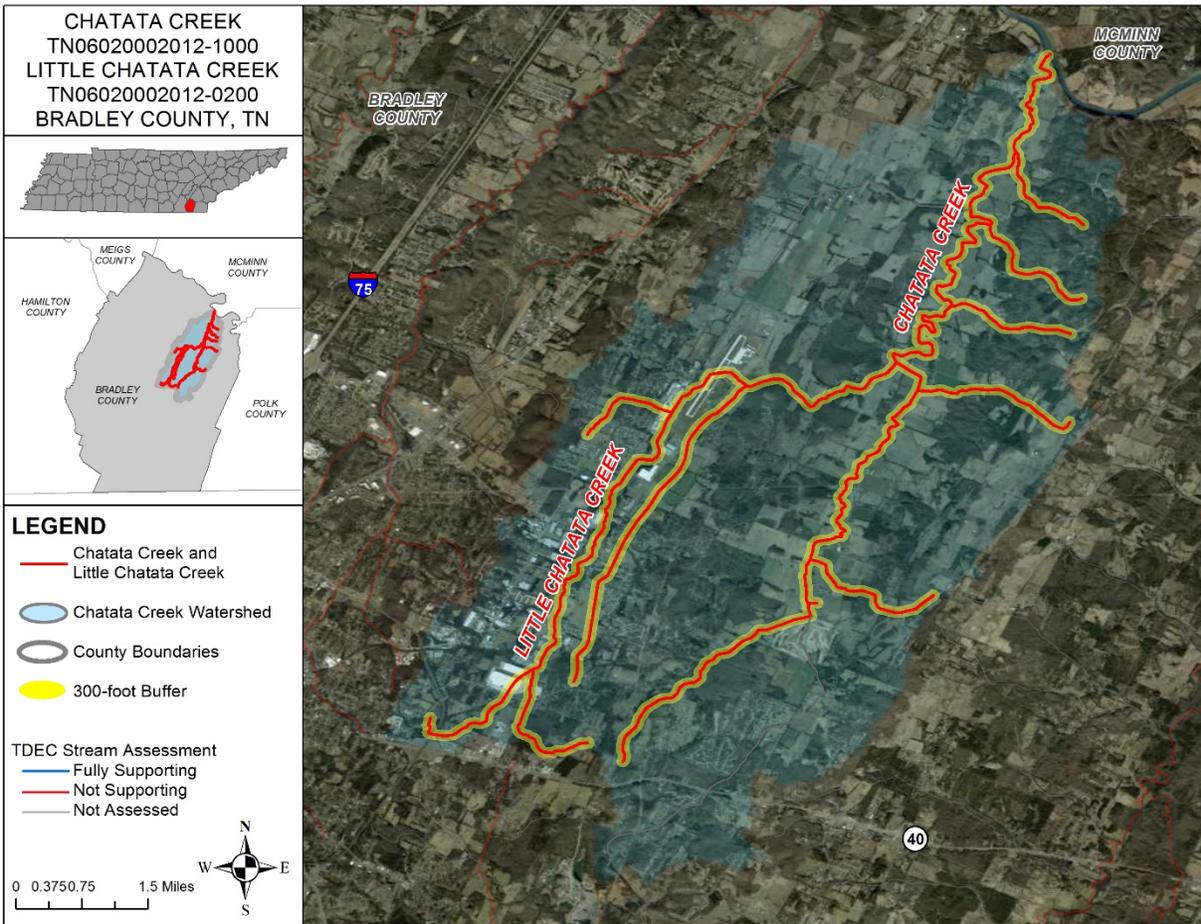
Progress will be measured month to month with the nonprofit's board overseeing and approving vouchers and project coordinator's work. Every fiscal quarter we will send in quarterly reports as required by the state, alongside financial reimbursement requests unless we require them on a more immediate basis. On September 15th of every year we will submit to the state a document summarizing our work containing four separate photos called "4x4s". At the end of the grant cycle we will publish our close out report which will contain a summary of what we have done, problems that we have encountered, and how, in the future, those problems could be avoided. Towards the end of the grant cycle we will begin planning Phase II for work on another stream in the Hiwassee Watershed in order to continue our work to reduce the overall total amount of *E. coli* going into the Hiwassee. We will work from the headwaters of tributaries down to the river itself. The plan is to visit the majority of the watershed over time in order to improve water quality of the Hiwassee River as well as its tributaries.

Criteria to Assess Achievement of Load Reduction Goals

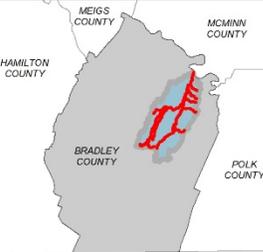
We will work with TDEC and ground water specialists in order to measure the improvements that our practices have made. We will provide a list of the locations and practices installed, and see after implementation if water quality has been improved. These results will be seen in any future TMDL or 303(d) listings or delistings. Additionally, these BMPs will have an estimated load reduction as seen in the Estimated Load Reduction section of this Watershed Based Plan which uses information provided in the FY2017 319 RFP for constructing these plans.

Monitoring and Documenting Success

Success of this project is based off of the BMPs installed which are known to reduce the amount of *E. coli* contamination in the creek. Additionally, we will also see reduction in erosion and sedimentation in the creek as a consequence of installing these BMPs – both of which are important in the improvement of overall water quality, where sedimentation likely impacts the ability of *E. coli* to subsist in the water column. We will submit all records to the state office defining the BMPs installed as well as their location.



CHATATA CREEK
 TN06020002012-1000
 LITTLE CHATATA CREEK
 TN06020002012-0200
 BRADLEY COUNTY, TN



LEGEND

- Chatata Creek and Little Chatata Creek
- Chatata Creek Watershed
- County Boundaries
- 300-foot Buffer

- TDEC Stream Assessment
- Fully Supporting
 - Not Supporting
 - Not Assessed

