

Attachment A TDA-NPS FY-2015 Watershed Based Plan

Name of Project: Richland Creek – Blue Creek Watershed Project

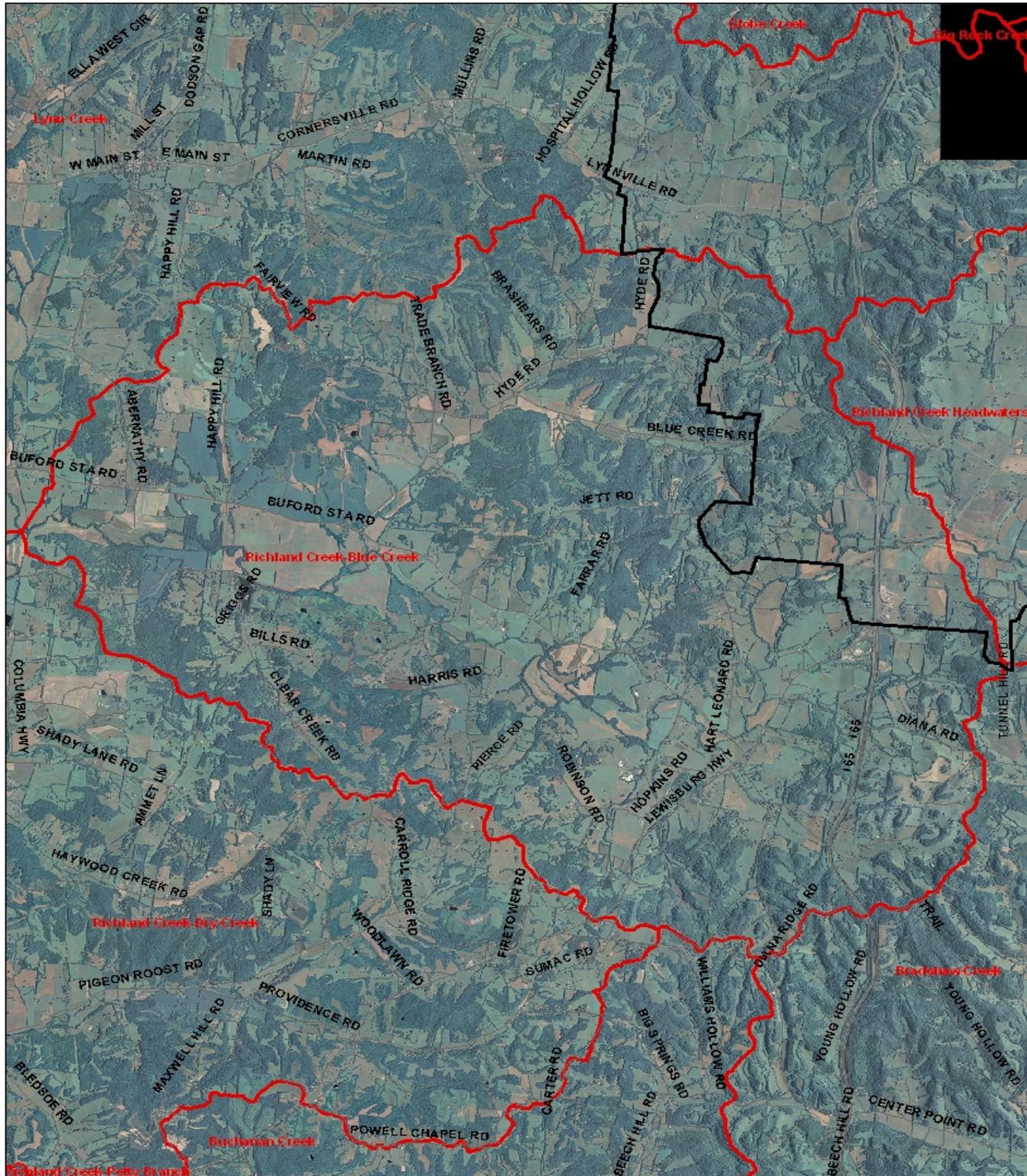
Lead Organization: Giles County Soil Conservation District

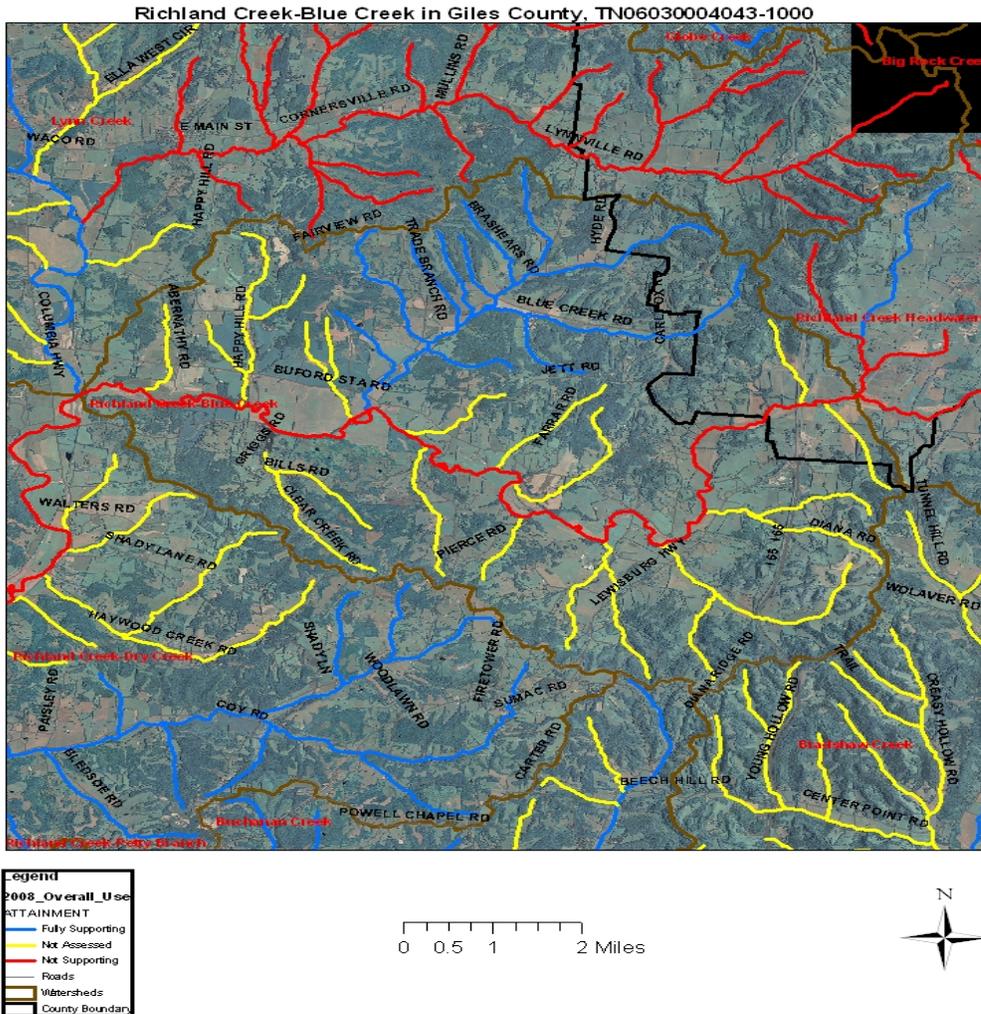
Watershed Identification (name, location, HUC, etc.):

Richland Creek – Blue Creek Watershed, North Eastern Giles County,
HUC12: 06030004043

Waterbody ID	Impacted Waterbody	County	Miles/Acres Impaired	Cause / TMDL Priority	Pollutant Source	Comments
TN06030004 043 – 1000	RICHLAND CREEK	Giles Marshall	42	Escherichia coli/NA	Pasture Grazing	Category 4A. EPA approved a pathogen TMDL that addresses the known pollutant.

The Richland Creek-Blue Creek Watershed is almost exclusively rural farmland. The watershed includes the Unincorporated Community of Brick Church and part of Diana. These two communities make up a very small proportion of the watershed acres. The watershed has approximately 29,847 acres and the communities make up less than 100 acres of the watershed. The watershed area has over 300 farming operations. There are approximately 5000 acres of row crops (<17% total ac) in the watershed that consist of mainly no-till production of corn, wheat, and soybeans. With this being the case the cropland acres do not pose a significant loading effect of nutrients and sediment to be addressed with this grant. However, with pasture and hay land farms being the predominant agricultural operation type in the watershed, and the stream being listed based on pasture grazing. The greatest impact to nutrient and sediment loading would be addressed by applying best management practices (BMP's) to these land uses. The average cow-calf operation in the watershed consists of approximately 20 breeding stock with 2-3 replacements each year, but there are instances of 200 head or better operations on smaller acreages with extreme overgrazing occurring. Further into the headwaters of the Blue creek watershed the majority of landowners are Equine operations with a wildlife interest. With that being said the initial efforts will be concentrated immediately adjacent to Richland Creek. The remainder of the watershed not mentioned consists of twenty to thirty percent of woodlands. More than 80% of the streams are surrounded by open land that is being used for agriculture. The map below shows the area of the watershed. Since a portion of the watershed exists in Marshall County a mutual agreement to perform work in that county will need to be reached.





Estimated effects and load reductions:

Based on the information gathered during a watershed assessment it was determined that the BMP’s in following section will best address the resource concern identified by the Tennessee Department of Environment and Conservation (TDEC) of pasture grazing. With the implementation of the listed BMP’s below a reduction of at least 50% of nutrient loading is hoped to be achieved. Also, plans to implement multiple grant phases in the watershed have been mentioned to adjust our goals as needed to address remaining concerns.

Causes and Sources of Nonpoint Source Pollution in the Watershed:

Tennessee Department of Environment and Conservation (TDEC) performed a water quality sampling of the Richland Creek-Blue Creek Watershed. The water sample indicated higher than allowed levels of Escherichia coli being present. TDEC determined the source of the pollution as a result of pasture grazing operations in proximity of the stream.

Giles County Soil Conservation District performed an operational assessment of the Richland Creek-Blue Creek Watershed. This assessment found that some pasture grazing operations allow unlimited access to the stream. A few of the pasture grazing operations are feeding livestock on stream banks and the majority of the operations are using minimal rotational grazing practices. One of the larger operations directly adjacent to the stream are stocking dry Holstein cattle at large numbers (200 head or better) on a limited amount of acres causing gulley erosion to occur increasing the sediment loading. Also, concentrated feeding areas are located within the floodplain of the main channel of Richland Creek. Another dairy operation with a loafing lot immediately adjacent to Richland Creek has recently sold out and converted to row crops. The crop residue is then being grazed with unlimited access to the stream. This assessment shows evidence supporting TDEC’s report of pasture grazing operations as the nonpoint source of pollution.

BMP Name	Quantity	Cost/Unit	Budget Estimate
Filter Strip (NWSG)	4 AC	\$100.72/AC	\$402.88
Field Border (NWSG)	6 AC	\$197.15/AC	\$1,182.90
Forested Riparian Buffer	2 AC	\$692.33/AC	\$1,384.66
Fence (Cross-, Exclusion)	59,665.6FT	\$1.46/FT	\$87,111.79
Pipeline	15,000 LnFt	\$2.08LnFt	\$31,200.00
Watering Facilities	20 NO.	\$952.00	\$19,040.00
Spring Development	8 NO.	\$1,968.54	\$15,748.32
Pumping Plant	8 NO.	\$1,823.37	\$14,586.96
Heavy Use Area	11,520 SqFt	\$1.13SqFt	\$13,017.60
Stream Crossing	6,000SqFt	\$5.62SqFt	\$33,720.00
Clearing and Snagging	1753LnFt	\$9.13LnFt	\$16,004.89
Educational Event	Quantity	Cost/Unit	Budget Estimate
Field Days	1	\$1,500/EA	\$1,500.00
Fair Exhibit	2	\$50/EA	\$100.00
Total Budget for Project		\$235,000.00	

Filter Strips, Field Borders, Forested Riparian Buffers:

When installed according to NRCS standards and specifications these BMP’s are planned to help slow down runoff carrying nutrients and bacteria into the streams. With proper establishment of vegetation, should increase nutrient uptake and therefore diminish material running off into the stream. Therefore, the buffers will indirectly decrease the amount of nutrients entering the waters from agriculture operations.

Fence, Pipeline, Watering Facilities, Spring Development, Pumping Plant, Heavy Use Areas, and Stream crossing:

These BMP’s are planned to help develop a more efficient, environmentally and economically, prescribed grazing system that utilizes the livestock as the nutrient delivery systems for the pastures, and helps to reduce concentrated areas of manure in sensitive areas. With manure being spread more evenly across the field it will allow for increased breakdown of the manure and allow the nutrients to be absorbed more rapidly into the soil profile. Consequently, prescribed grazing practices will help to reduce the amount of nutrients entering the stream. The Stream

Crossing has been incorporated with the prescribed grazing aspect. In the event that the landowner owns both sides of a stream and to better rotate his cattle would need an armored crossing to allow his cattle access to the other side at one particular point along the stream.

Clearing and Snagging:

This BMP is planned to clear debris and blockages from the streams therefore reducing flooding, increasing bank stability, and decreasing sediment loading and deposition. With the flooding factor being reduced it will help to allow more time for nutrients to breakdown and filter through the soil profile as opposed to being swept into the stream during flood stages. The removal of debris from the stream channel will also eliminate an area for hazardous materials to collect and concentrate.

Field Day and Fair Exhibits:

These educational projects will be designed to inform the public of our project and the hazards of NPS Pollution to our streams and drinking water. With the scheduled field day to showcase our efforts in the watershed during the second year of the grant we plan to acquire additional customers interested in the BMP's we are implementing in the area.

Timeline, Tasks, and Assessment of Progress:

October 2015 Sign 319 contract with Tennessee Department of Agriculture (TDA) to implement BMP's not funded through EQIP and WHIP.

January 2016 Generate a mailing list to inform landowners immediately adjacent to the impaired channel of the grant funds available, the status of the stream, and the effort the Soil Conservation District is willing to put forth to help restore the stream.

June 2016 Projecting 50% of 319 BMP Funding obligated to be installed.

August 2016 Set up exhibit at the Annual Giles County Fair. The exhibit will educate the public of the need for involvement in the Richland Creek-Blue Creek Watershed project and the county's water quality improvement in general.

September 2016 Host a Field Day event on a farm where projects have been completed to show clients and potential clients BMP's being implemented through our project.

September 2016 Turn in annual report to TDA on progress of project.

March 2017 Projecting 75% of 319 BMP Funding obligated to be installed and have 50% of BMP goals completed.

August 2017 Set up exhibit at the Annual Giles County Fair. Our exhibit will inform the public of progress made in the Richland Creek-Blue Creek Watershed area and the success of the overall project using 319 Funding.

September 2017 Turn in annual report to TDA on progress of project.

June 2018 Projecting 100% of 319 BMP goals completed.

October 2018 Turn in a close out report to TDA on the progress and completion of the Richland Creek-Blue Creek Watershed Project.

Criteria for Load Reduction analysis:

To monitor the load reductions directly in the channel TDEC's assessment for the 303(d) listed streams will be used. The ultimate goal for this proposal is to be able to have enough effect on pasture grazing to have the stream delisted. However, to monitor success more directly a visual assessment of grazing heights in the watershed will be the means for determining effects of the BMP's installed. With a working rotational grazing system, grazing heights will increase, manure dispersion will increase, and reduction to stream access will directly and indirectly be achieved. Currently in the watershed the majority of grazing systems are operating below the Natural Resources Conservation Service (NRCS) minimum grazing heights. Therefore, with the use of NRCS's technical assistance grazing heights can be used as the keystone for reducing nutrient loading in the stream. Also, the amount of feet of fencing installed to exclude livestock from the streams in the watershed will have a direct effect on manure being directly deposited into the channel. Therefore, that footage can be used to determine the length of the channel no longer having livestock access.

Monitoring and Documenting Success:

Contact will be made to the local TDEC office to make them aware of the grant acquired in the Blue Creek watershed area, will ask for increased monitoring at their already established monitoring stations in the area. Staff will continue monitoring water quality based on the current 303d list of streams for the state of TN.

Due to the reduction in field staff for the GCSCD initial monitoring efforts will have to be done based on what is available from TDEC and what can be seen during a drive thru of the watershed. However, efforts will be made to acquire TWRA assistance to perform a biological sample (i.e. seining to check for gill spots in key species) in the third year (2018) to evaluate project success. This will help us to determine if the work being completed is improving water quality.

The Watershed Coordinator will be responsible for informing the public and stakeholders of progress each year. The Financial Watershed Coordinator will be responsible for generating reports to all partners involved with the project.

In addition to the monitoring taking place in the 12 digit watershed directly affected by the grant. There is also currently an Elk River Monitoring team that includes United States Fish and Wildlife Service, Tennessee Department of Environment and Conservation, Tennessee Wildlife Resource Agency, Tennessee Department of Agriculture, Nature Conservancy, and Natural Resources Conservation Service. This team is currently administering the Elk River Watershed Buffer Initiative. This information is relative because the mouth of Richland Creek (Impaired Stream in Grant Proposal) empties directly into the Elk River. Therefore, the monitoring performed by this team will indirectly be information we could use as data to verify a difference has been made on a greater scale.