

CASE STUDY

FRENCH BROAD RIVER

Riverbank Restoration - Del Rio, TN



Location: Del Rio, TN

Year Constructed: 2015

Application Type: Riverbank

Project Size: 4750 Units / 700 lf

Client: TN DOT

Reinforcement: Geogrid

Vegetation: Live Stakes

Engineer: Freese & Nichols

Contractor: RiverWorks

+Project Snapshot

A section of bank had been severely damaged due to flooding conditions as construction of a new bridge over the river was in progress. The bank erosion threatened both the recently installed bridge infrastructure and a railroad line running parallel to the eroded bank slope. Under emergency conditions just after the flood, TDOT placed thousands of tons of Class II riprap on the slope for temporary stabilization. The emergency repair plan included the regulatory directive that an engineered, permanently vegetative stabilization method(s) must be submitted, approved, and implemented.



Shoreline Protection | Slope Stabilization | Stormwater Management
Erosion Control | River / Streambank Restoration | Retaining Walls



+French Broad River

RiverWorks was contracted to construct the approved repair plan. An existing temporary construction entrance from the previous emergency repair work was reworked to serve as site access for this project. The existing riprap on the slope was removed and stockpiled for reuse on the project. The 700 lf bank slope was regraded in preparation for the installation of 4,570 square feet of a vegetated MSE wall. A footing was excavated at the base of the slope and backfilled with the salvaged riprap.



+A Sustainable Approach:

Along with the Envirolok system, geogrid was installed between the rows of bags on every third lift to provide stability into the existing slope. Duckbill anchors were utilized to further anchor the geogrid. The bag units were filled on-site with a sand/organic mix to provide an ideal growing medium. As rows of "Envirolok" were installed, proper backfill was installed and compacted with a plate compactor. Dormant brush material was placed between the bags on every third row for future deep rooted stabilization.

+Site Restoration

Boulders were imported and used to construct four boulder vanes into the river to direct normal stream flow away from the toe of the bank. After completion of the construction phase, the top of the slope and all other areas were seeded and mulched with a riparian seed mix with a temporary cover crop. During the dormant season native trees and shrubs were planted for long term stability. Continued monitoring of the site indicates that the slope vegetation and upland plantings have successfully stabilized the site.

