

Rocky Branch Stream Restoration and Greenway Project

From the mid-1990s through 2010, North Carolina Sea Grant and North Carolina State University implemented a three-phase stream restoration and greenway plan to renovate Rocky Branch, an urban creek that runs more than a mile through the heart of the university campus. The restoration stabilized the creek, improved water quality, enhanced aquatic and wildlife habitat and integrated the creek into the campus environment. The project also constructed 6,000 feet of greenway connecting to the Capital Area Greenway System.

Phase I, from Gorman Street to Dan Allen Drive, was completed in Spring 2002. Phase II, from Morrill Drive to Pullen Road, finished in February 2006. Phase III, the connecting segment between Dan Allen Drive and Morrill Drive, wrapped up in Spring 2010.



Mature vegetation grows along this restored section of Rocky Branch.

Rocky Branch drains into Walnut Creek, a tributary of the Neuse River. In 1978, the N.C. Division of Water Quality classified Rocky Branch as one of the state's most polluted urban streams. It was channelized and its floodplains filled. Heavy development occurred within its drainage area. The stream became narrow and deep, suffered severe erosion, and became an unsafe eyesore on campus.

Phases I & II

Using natural channel design techniques, engineers and other scientists meandered the stream through a newly created floodplain. Native vegetation now grows in the restored area, providing habitat, cover and food for wildlife. Plantings increased the width

of the forested buffer zone, creating a wildlife corridor and shading the creek. A greenway path along the restored sections serves as an alternate transportation route that brings people close to the creek.



A greenway trail runs along the side of restored sections of Rocky Branch.

Interpretative signs installed along the greenway explain the restoration concepts.

A pedestrian underpass for Pullen Road now connects to Pullen Park and the Raleigh Greenway System, expanding the network of public green space. The underpass allows safe passage for pedestrians and wildlife beneath a major thoroughfare. The underpass increases floodplain area, improving stream stability.

In addition to restoring the creek, enhancing the riparian buffer and installing the greenway path, stormwater controls filter and treat runoff before it enters the creek. A stormwater pond, three bioretention areas and three floodplain wetlands have been installed in the stream's watershed and the floodplain.

Phase III

Phase III "daylighted" 235 feet of buried stream behind NC State's Carmichael Gymnasium. The stream was removed from culvert pipes and recreated with a streambed and a small floodplain. Unearthing helps reduce nutrients and other pollutants from entering the waterway, as well as further increases visibility and public enjoyment of the creek.

This final phase also included improvement of a nearby greenway, and the installation of a new pedestrian bridge. Both the greenway and the new



Prior to Phase III, Rocky Branch flowed through this concrete culvert. It took construction crews

bridge meet standards for the Americans with Disabilities Act.

Educational Opportunities

Education is an important component of the Rocky Branch project. Because the creek was once severely down-cut and confined to a narrow corridor through campus, many students, faculty and staff were unaware of its existence. A campaign for raising awareness of the creek was launched in 1993 when volunteers stenciled “Don’t Dump” and “Keep Clean” messages on more than 80 storm drains throughout the campus.

The restoration of the stream and the establishment of its greenway path have created a sustainable, outdoor teaching and research facility for the



Numerous educational tours and hands-on science lessons are given at Rocky Branch each year.

university community and the public.

Through initial leadership of the Zoology Department and university clubs, students have monitored the aquatic inhabitants and collected water chemistry information from the stream since

1998. The Biological and Agricultural Engineering Department uses the creek for geomorphology class exercises to teach about stability and sediment transport. Students in the landscape architecture department have focused on the creek’s restoration and the development of a greenway path in several design studio classes.

In addition, Rocky Branch provides educational opportunities for many citizen groups, reaching hundreds of people each year. School groups, professionals, and representatives from other universities often attend tours of the restored sections.

Project Funding

North Carolina Sea Grant and the NC State Facilities Division have worked together to obtain more than \$8.3 million dollars for the project from federal and state agencies, including the N.C. Department of Transportation (TEA 21 and stream mitigation funds), N.C. Clean Water Management Trust Fund, Environmental Protection Agency, the N.C. Department of Environment and Natural Resources (Division of Water Resources and 319 program), City of Raleigh, Federal Emergency Management Agency, and NC State University stormwater and capital improvement funds.



A total of 1,384 feet of stream were restored during Phase III. As of the spring of 2010, those sections were already showing signs of recovery.

Questions about Rocky Branch?

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