

City of Durham Regenerative Stormwater Conveyance

Durham, North Carolina



Upstream (top) and downstream (above) immediately after construction with initial conditions inset

Many streams and lakes in central North Carolina are impacted by pollutants in stormwater runoff. To help address the problem, Biohabitats teamed with North Carolina State

This research project will provide information on water quality benefits and ecological functions of an innovative stormwater technique for slowing and purifying stormwater runoff in an urban setting.

University (NCSU) and the City of Durham to design and provide construction oversight for a project on a highly eroded tributary to Third Fork Creek. Third Fork Creek’s flow eventually drains to Jordan Lake, where stormwater nutrient reduction rules apply. Monitoring in Third Fork Creek, a Clean Water Act 303d-listed impaired stream, has shown that copper, turbidity, fecal bacteria and a lack of dissolved oxygen contribute to the stream’s impairment.

Sponsored by a 319 Non-point Source grant, this project used a technique called “Regenerative Stormwater Conveyance” (RSC) to improve channel stability and ecology, and also provide controlled conveyance and cleansing of polluted stormwater. RSC design facilitates

water quality improvement by filtering stormwater runoff through a layer of sand and wood chips. The existing, highly eroded channel was graded to accommodate the sand/wood chip mixture, and this media is held in place by a series of boulder cascades with pools at their base.

RSC is a relatively new stormwater control technique, and its effectiveness is being studied by NCSU. To date, documented water quality benefits of RSCs include runoff rate and nutrient concentration reduction and enhanced channel and riparian area habitat.

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