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Geomorphic and Vegetation Monitoring of Stream Restoration Sites in North Carolina

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Abstract:

North Carolina has experienced significant growth in the past decade. New transportation infrastructure is needed to accommodate this growth. The North Carolina Ecosystem Enhancement Program (EEP) was developed to administer wetland and watershed mitigation projects to address environmental impacts resulting from growth (e.g., streams impacted by road construction). Stream restoration has been identified as a major component to mitigate these environmental impacts and improve water quality and aquatic habitat in impaired North Carolina streams. The principles of stream restoration are still developing. Questions related to the planning, design, construction, and evaluation of restoration projects must be answered to optimize the water quality benefits of future restoration efforts and to insure that future funding is used effectively.

NC State faculty in the department of Biological and Agricultural Engineering have been contracted by EEP to monitor several stream restoration projects. Typically, monitoring occurs on an annual basis for at least five years after the stream restoration construction. Geomorphic monitoring includes permanent photograph points, pattern and profile measurements (to evaluate bedform changes over time), permanent cross section measurements (to evaluate channel dimension changes over time), and channel substrate analysis. Vegetation monitoring involves establishing permanent vegetation plots to measure vegetation survival during the monitoring period.

Impact Statement:

The benefits of the monitoring program are to: evaluate the short and long-term success of restoration projects, recommend maintenance actions to improve success, learn from past mistakes so they are not repeated, and educate restoration professionals to improve the success of future projects.

Category: Watershed Assessment and Restoration

Type of Presentation: Poster Presentation