Stream and Wetland Mitigation in North Carolina: An Overview and Erosion and Sediment Control Practices

by: Jeff Keaton and Lin Xu
Presentation Overview

An Overview of Mitigation
  • Why is mitigation needed
  • Types of mitigation
  • NC DMS and Full Delivery Mitigation

Erosion and Sediment Control for Mitigation
  • Planning
  • Practices used

Project Examples
Experience and Expertise

In the past 14 years, Wildlands Engineering has completed the following:

- 1,405,900 LF of stream assessed
- 609,800 LF of stream constructed
- 796,700 LF of stream designed
- 698 acres of wetland assessed
- 665 acres of wetland designed
- Owners or managers of 79 major, active mitigation projects
- Construction oversight on 577 acres of wetland
History of Stream Degradation
Why Restore Streams?

• Improve water quality/reduce sediment
• Flood storage
• Improve aquatic and riparian habitat
• Recreational open space
• Education
• Long term economics
• Aesthetics
History of Wetland Degradation
Why Restore Wetlands?

- Flood control
- Nutrient retention or removal
- Erosion control
- Water quality maintenance
- Carbon storage
- Wildlife habitat
Mitigation in North Carolina

- **Stream Mitigation** – Section 404 of CWA, Compensatory Mitigation for Losses of Aquatic Resources; Final Rule.
- **Wetland Mitigation** – Section 404 of CWA, Compensatory Mitigation for Losses of Aquatic Resources; Final Rule.
- **Riparian Buffer Mitigation** – State Consolidated Buffer Rules (Certain river basins only)
- **Nutrient Offset** – State Nutrient Management Strategy (Certain river basins only)
Mitigation in North Carolina

When is mitigation required?
• Impacts equal to or exceeding 300 linear feet of streams
• Impacts equal to or exceeding 0.10 acre of wetlands
• Individual thresholds depending on impact type for buffers

Types of Mitigation Available

• **Permittee Responsible Mitigation (PRM)** – Permittee performs mitigation activities themselves, at project site or off-site

• **Private Bank** – Applicant buys credits from an approved mitigation bank

• **Fee In-Lieu** – Applicant buys credits from **N.C. Division of Mitigation Services (DMS)**
DMS History

• Established in 1997
• Funds and programs:
  NCDOT Stream & Wetland ILF
  Statewide Stream & Wetland ILF
  Riparian Buffer ILF
  Nutrient Offset ILF
• 649 projects; 200 active at any time
• 2.7 million stream credits (>757 miles)
• >12,000 wetland credits (>29,000 acres)
• 2,430 acres of buffer and nutrient offset
Compensatory Mitigation

Multiple Permittees

Fee Schedule

Transfer of Responsibility

Credit Development/Purchase

Department of Environmental Quality
Procurement Strategy

• Full Delivery Model
• Watershed Planning
• Project evaluation
• Performance-based outcomes
Typical Mitigation Project

- Stream restoration/enhancement
- Wetland mitigation
- Riparian buffer restoration/enhancement
- Pond/dam removal
- Agricultural/stormwater BMPs
- Conservation Easement
Erosion and Sedimentation Controls
Erosion and Sedimentation Controls
Erosion and Sedimentation Controls
Completed Projects
Completed Projects – Big Harris Creek

BEFORE

AFTER
Completed Projects – Little Troublesome Creek

BEFORE

AFTER
Completed Projects – Marylea Farms

BEFORE

AFTER
Completed Projects – Reedy Creek

BEFORE

AFTER
Completed Projects – Vile Creek

BEFORE

AFTER
Questions?

Please Remember to Complete the End of Workshop Evaluation