



2013

NCDOT

Erosion and Sedimentation Control Program

Annual Report



NCDOT EROSION AND SEDIMENTATION CONTROL PROGRAM 2013 ANNUAL REPORT

NCDOT EROSION AND SEDIMENTATION CONTROL PROGRAM

In 1991 the NC Sedimentation Control Commission reviewed the NC Department of Transportation's efforts to comply with the Sedimentation Pollution Control Act of 1973 and the subsequent 1974 NCDOT Delegated Erosion and Sedimentation Agreement.

Based on the review, the 1974 agreement was updated. The revised agreement was submitted to, and approved by the Sedimentation Control Commission on February 25, 1991 and functions as the core of the current NCDOT program.

Within NCDOT, the Roadside Environmental Unit (REU) monitors the delegated authorities. This includes design, review, monitoring and training for all aspects of the Erosion and Sedimentation Control Program. Improvements in technology and research have in turn improved design standards and techniques for erosion and sedimentation control.

The attached annual report outlines and highlights the work implemented and accomplished in 2013. It is important to note that this is an overview of the NCDOT Erosion and Sedimentation Control Program and provides a summarization of the programs overall content.



Review: NCDOT Staff addressing Land Quality questions during Annual reviews

PROGRAM OVERVIEW

During fiscal year 2012/2013 NCDOT remained committed to minimizing impacts to the environment while providing safe and efficient transportation venues. The Department's efforts are evident in many areas; design, research, certification and overall environmental stewardship.

The Executive Summary (page two) provides an overview of the program.



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EXECUTIVE SUMMARY

The executive summary reflects the work accomplished over the past year from July 1, 2012 to June 30, 2013. Project information is based on the total number of projects that were awarded for construction plus the number of projects that were actively under construction during this time period.

EROSION CONTROL PLAN DESIGN/REVIEW JULY 2012 - JUNE 2013

NCDOT is delegated the authority to review and approve erosion and sedimentation control plans for its land disturbing activities. The following is a summary of the projects that required an approved erosion and sedimentation control plan.



Project Type	Erosion Control Plans Design / Review
Contract Construction Projects	315
NC Turnpike Authority Projects	0
Maintenance Projects	180
Vertical Construction Projects	2
Rail Division Projects	29
Bridge Maintenance Projects	110
Reclamation Plans	73
Total Plans Designed /Reviewed	709

- The Roadside Environmental Unit utilizes staff to review erosion and sediment control plans for compliance with the NC Sedimentation Pollution Control Act. Erosion and sedimentation control plans can either be designed by NCDOT Staff or consultant engineering firms. A project may require multiple reviews during the life of the project depending on its size and scope.
- Designers are required to obtain a Level III *Design of Erosion and Sediment Control Plans* Certification when designing erosion and sedimentation control plans for the Department.
- Reclamation Plans are submitted by contractors for borrow and waste sites that are used during the construction of a project. Reclamation plans are developed and reviewed to ensure that these areas that are utilize for the construction of the project are also compliant with all regulations.

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EXECUTIVE SUMMARY

COMPLIANCE REVIEW

JULY 2012-JUNE 2013

The following is a summary of the compliance reviews that were performed for active land disturbing projects during the period of July 1, 2012 to June 30, 2013. The compliance reviews were conducted by the REU Field Operations Section across 14 Highway Divisions.

Project Type	Compliance Reviews	ICA Issued	Projects Receiving ICA	Projects Receiving CICA	NOV Issued By Land Quality
Contract Construction Projects	3266	11	8	2	0
NC Turnpike Authority Projects	16	0	0	0	0
Maintenance Projects	1899	1	1	0	0
Vertical Construction Projects	30	3	1	1	0
Resurfacing Projects	261	0	0	0	0
Rail Division Projects	10	0	0	0	0
Bridge Maintenance Projects	531	0	0	0	0
Total	6013	15	10	3	0

- **Contract Construction Projects:** Defined as a project that has been let to a private contractor for any land disturbing activity that exceeds one acre. Contract construction projects are advertised and awarded either from Raleigh or from the local Division.
- **NC Turnpike Projects:** The North Carolina Turnpike Authority is now part of NCDOT Division of Highways. Since it was originally added to the Department's delegation, its projects have been tracked separately from Contract Construction projects.
- **Maintenance Projects:** Projects include all land disturbing activities associated with the construction or maintenance of the secondary road system of North Carolina. Work is conducted by state forces or small business contracts.
- **Vertical Construction Projects:** Projects include the construction of facilities associated with the NC Department of Transportation. The contracts are developed by the General Services Section of NCDOT
- **Resurfacing Projects:** Projects include the resurfacing of existing roadways which require shoulder reconstruction.
- **Rail Division Projects:** Projects include the construction of railway corridors and bridges associated with NC DOT Rail Division.
- **Bridge Maintenance Projects:** Projects include small bridge replacement and pipe culvert replacement. Work is conducted by state forces or small business contracts.

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DESIGN

NCDOT implements the requirements for sediment basin design as outlined in the “Erosion and Sedimentation Control Design Manual.” Further efforts have been placed on reducing the amount of time an erodible surface is exposed by utilizing more rolled erosion control products to minimize subsequent repair seeding operations.

The Department is utilizing more geotextiles in areas where environmental protection is difficult to obtain with conventional methods during construction.

Revisions to erosion and sediment control plans are documented by field forces and reviewed by the department’s REU staff to ensure that proper design techniques are being utilized. Certification efforts are addressing the changes in plan design to both NCDOT personnel as well as private engineering firms.

Overall, the Design effort continues to minimize impacts and find the balance between erosion control and sediment capture.



Design: Geotextile is sometimes used to prevent erosion in transitional phases of construction.

INSPECTION



Teamwork : NCDOT relies on a series of inspectors and engineers to ensure compliance with the Delegated Agreement.

NCDOT relies on a combined effort to review and inspect projects to ensure compliance with the Sedimentation Pollution Control Act of 1973.

The REU reviews projects on a routine basis to evaluate project performance and overall compliance with the mandates set forth by the Delegation Agreement with Land Quality.

The Field Operations Section of the REU utilizes a team of certified engineers and technicians to review and monitor the progress of the Department’s Erosion and Sedimentation Control program. The success of the program is dependent on the hundreds of DOT engineers, technicians, contract personnel and consultants that routinely review and make the necessary corrective actions across the state on the Department’s projects.

When problems are identified, the Field Operations staff will issue an Immediate Corrective Action (ICA) which initiates a series of protocols created to ensure the corrections are made in a timely manner.

CERTIFICATION

The Biological & Agricultural Engineering and Soil Science Departments at N.C. State University are partnering with NCDOT to offer an Erosion and Sediment Control/Stormwater Certification Program. The certification program provides the required personnel training to ensure compliance with erosion and sediment control/stormwater provisions on NCDOT projects.

NCDOT requires all contractors and consultants to have a certified supervisor and foreman to oversee operations on NCDOT projects to ensure compliance with the Sedimentation Pollution Control Act as well as other environmental regulations.

Certification must be renewed every three years.

CERTIFICATION LEVELS

- **Level I:** Erosion & Sediment Control/
Storm water Inspector /Installer
Currently Certified - 2524
- **Level II:** Erosion & Sediment Control/
Storm water Site Management.
Currently Certified - 5528
- **Level III:** Design of Erosion and Sediment
Control Plans
Currently Certified - 443

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EFFICIENCY

RESEARCH: The Department in 2013 completed research projects with Rich McLaughlin, PhD., that analyzed soil loss modeling and basin size requirements as well as the effectiveness of hydraulically applied erosion control products.

The Department will begin new research projects that will investigate the effects of flocculants on fresh water mussels, water quality monitoring, temporary stabilization of ditch lines, and Stormwater infiltration.

NEW TECHNOLOGIES: NCDOT has added several new types of skimmer devices to its BMP toolbox. Skimmers are evaluated based on their performance during a trial period on selected construction projects. REU works with manufacturers to correct any issues that may arise during the trial period.



2013 ANNUAL REVIEW



Based on a random selection by DENR Land Quality Section, 16 projects were chosen for review. Projects are reviewed jointly by NCDOT and Land Quality staff to determine the overall program performance.

The following is a list of the projects that were selected for the 2013 Annual Review.



EASTERN REVIEW:

- R-2507 A – US 158 in Tarheel, NC
- B-4413 – Bridge over Broad Creek on US 264 near Washington, NC
- U-3810 – SR 1406 Piney Green Road in Jacksonville, NC
- SR 1313 Mills Field Road in Richlands, NC
- R-2554A – US 70 from West of NC 581 to Salem Church Rd in Goldsboro, NC
- U-2519DA – Fayetteville Outer Loop From East of Yadkin Road
- SR 1512 Lindo Johnson Road near Pittsboro, NC
- U-4716 – Clegg Passing Siding & Hopson Road in Morrisville, NC

WESTERN REVIEW:

- B-4257 — Bridge over Church Creek on SR-1004 (Stokes Ferry Road) in Rowan County Salisbury, NC
- R-2123CE — I-85/I-485 Interchange in Cabarrus County, Charlotte, NC
- I-3819A — I-40/I-77 Interchange Project in Iredell County, Statesville, NC
- R-2237C — US-321 project in Watauga County, Blowing Rock, NC
- SR-1156 Big Branch Road, Watauga County, Sugar Grove, NC
- U-2551 — SR-1922/SR-1924 Project in Burke County, Morganton, NC
- SR-1870 Shady Brook Road in Haywood County, Canton, NC
- SR-1006 (Howard Gap Road) in Henderson County

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NPDES INSPECTION



NPDES: The Department continues to work on ways to reduce turbidity and monitor/report any sediment release into jurisdictional areas.

The Department has increased training and monitoring of NPDES reporting to verify project documentation is compliant with NPDES reporting regulations. Failure to comply with NPDES regulations results in the issuance of a Permit Consultation Needed (PCN), which results in corrective actions.



Stormwater Inspections: Inspectors continue to monitor correct NPDES reporting.

STABILIZATION



Stabilized: NCDOT addresses phases of construction to be sure areas do not exceed NCGO1 stabilization requirements.

The Department continues to evaluate products and techniques that will help stabilize erodible slopes that will be disturbed at a later date. Reduction in soil loss from these areas will aid in reducing turbidity levels at Stormwater Discharge outlets located throughout construction projects.



NCG01: Projects have adjusted to meet NCG01 Permit requirements for stabilization.

CALIBRATION



US 321: Rock fill section

Calibration meetings with regulatory agencies are critical to find compromises to conflicting regulations.

NCDOT staff is holding monthly meetings on environmentally sensitive DOT projects with regulatory agencies to review the projects and discuss the next stages of construction. The process helps in communication and understanding.

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DESIGN BUILD UPDATE



Design Review: Land Quality returned to the I-85/I-485 Design Build project to evaluate progress in revised Design Build procedures



FUTURE CHALLENGES

NCDOT will continue to deploy new technologies and use research to better accomplish erosion and sediment control on highway construction projects.

Protection of environmental resources will be a priority as NCDOT further expands its mission to build highways, bridges, and rail corridors with more consultants and contractors.

Training and monitoring will be critical for the Department to ensure that it maintains its commitment to the environment while fulfilling its mission to construct and maintain the transportation system of North Carolina.

The Department implemented changes that were developed by a committee of NCDOT, Contractors, and Land Quality personnel. Recommendations were developed into specification changes and implementation has begun. The changes include:

- Monthly project reviews with the consultant erosion control designer and project personnel
- The development of a formal process to initiate an erosion control plan audit. This request can be initiated anytime the grading of the project does not coincide with the erosion control plan. A meeting is held on site with the EC Designer and contractor and the situation is corrected in a timely manner.
- Revised contract language for stabilizing erodible areas to address the various phases of grading throughout the life of a Design Build project.

