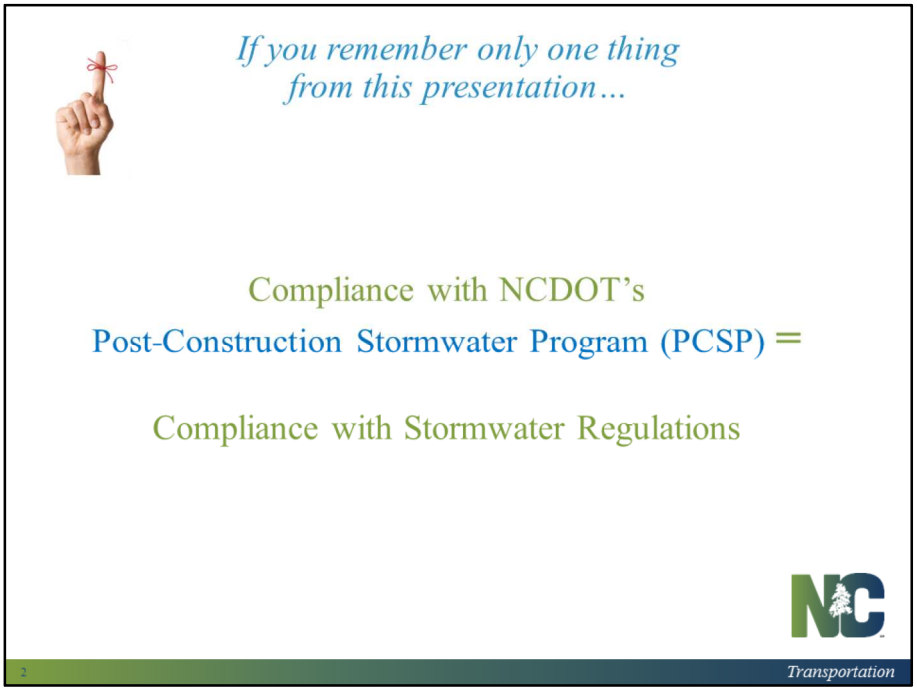
Nothing Compares
NORTH CAROLINA

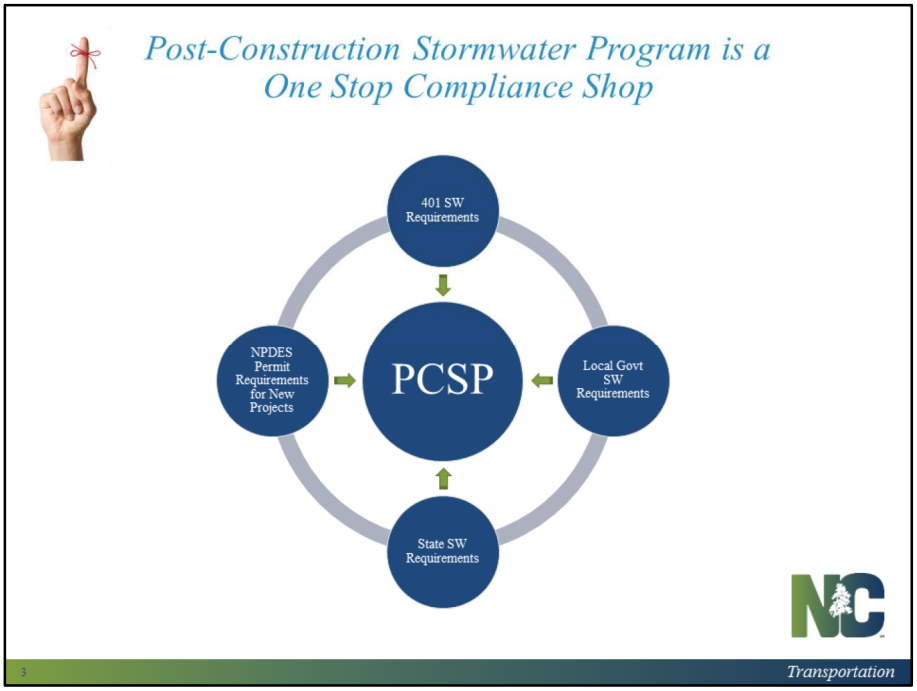
Managing Stormwater Runoff

NPDES Stormwater Program Compliance

Andy McDaniel, P.E.



NCDOT's Post-Construction Stormwater Program has been designed as an alternative compliance strategy for the numerous state, federal, and local stormwater regulations applicable in NC.


Post-Construction Stormwater Program is a One Stop Compliance Shop
401 SW Requirements
NPDES Permit Requirements for New Projects
PCSP
Local Govt SW Requirements
State SW Requirements
3
Transportation

Clean Water Act, Section 402:
National Pollutant Discharge Elimination System
Permitting Program

Delegation

NCDOT's NPDES Stormwater Permit

- First issued in 1998
- Permit renewed every 5 years
- Current permit 2015 - 2020

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF ENERGY, MINERAL AND LAND RESOURCES
PERMIT NO. NCS000250

TO DISCHARGE STORMWATER AND BORROW PIT WASTEWATER UNDER THE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of North Carolina General Statute 143-215.1, other lawful standards and regulations promulgated and adopted by the North Carolina Environmental Management Commission, and the Federal Water Pollution Control Act, as amended,

North Carolina Department of Transportation

is hereby authorized to discharge borrow pit wastewater and stormwater from construction activities and the North Carolina Department of Transportation (NCDOT) Transportation Separate Storm Sewer System (TSS) located statewide in accordance with the discharge limitations, monitoring requirements, and other conditions set forth in Parts I, II, III, IV, V, VI, VII and VIII hereof.

This permit shall become effective October 1, 2015.

This permit and the authorization to discharge shall expire at midnight on September 30, 2020.

Signed this day September 11, 2015.

for Tracy Davis, Director
Division of Energy, Mineral and Land Resources
By the Authority of the Environmental Management Commission

NPDES Permit Authorizes Stormwater Discharges From…








NCDOT's NPDES Statewide Programs

- Post-Construction Stormwater Program (PCSP)
- BMP Toolbox Program
- BMP Inspection & Maintenance Program
- BMP Retrofit Program
- Construction/Borrow Pit and Waste Pile Program
- Public Education and Involvement Program
- Internal Education Program
- Illicit Discharge Detection and Elimination Program
- Industrial Activities Program
- Research Program
- Stormwater Outfall Inventory Program
- Total Maximum Daily Load Program
- Vegetation Management Program

Focus of Today's Presentation

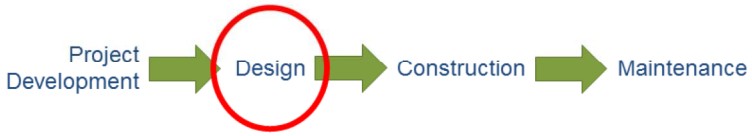
- PCSP
- BMP Toolbox
- Stormwater Management Plans

Simplified Project Workflow

Q: What does Post-Construction mean ?

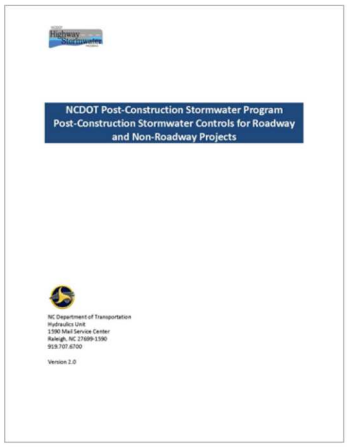
PCSP Applies to Design Phase

A: It means permanent stormwater controls which remain in place after construction



Post-Construction Stormwater Program (PCSP)

- Updated PCSP and BMP Toolbox approved in September 29, 2014


NCDOT Post-Construction Stormwater Program
Post-Construction Stormwater Controls for Roadway and Non-Roadway Projects

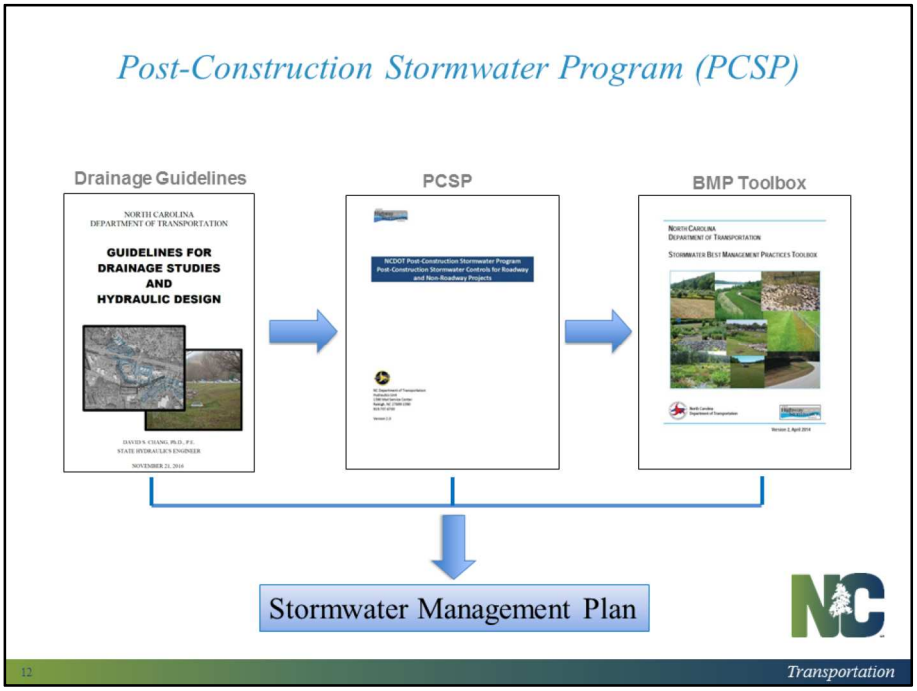
NC Department of Transportation
Hydraulics Unit
1590 Mail Service Center
Raleigh, NC 27699-1590
919.707.6700

Version 2.0


North Carolina Department of Environment and Natural Resources

September 29, 2014

RECEIVED
SEP 30 2014



- The PCSP Document is available for reference to provide guidance on all types of projects with new BUA.
- Since almost all transportation projects have new BUA, designers should regularly refer to the document for post-construction stormwater requirements.
- The PCSP document provides detailed workflows for two broad categories of projects: roadway and non-roadway.
- A roadway project is any new roadway construction, new weigh stations, roadway widening, or other roadway-related activity occurring within the NCDOT right-of-way (ROW) or easement which results in a net increase in built upon area.
- Roadway projects include:
  - ✓ New location roadways
  - ✓ Roadway widening
  - ✓ New acceleration/deceleration lanes
  - ✓ Interchange modifications
  - ✓ New bridges or culverts
  - ✓ Bridge or culvert replacements
  - ✓ Median crossovers
  - ✓ Sidewalks within NCDOT ROW
  - ✓ Bus shelters within NCDOT ROW
  - ✓ Weigh Stations

- ✓ Borrow and waste sites associated with NCDOT road construction

- A non-roadway project is any new NCDOT facility or any modification to an existing facility that results in a net increase in BUA and that does not otherwise qualify as new road development. New non-roadway development projects are generally not located within the linear NCDOT ROW. These projects can include new construction or upgrades to existing maintenance yards, rest areas, welcome centers, office buildings, training facilities, parking lots, or other non-roadway facilities. Any ingress or egress drives or streets within the NCDOT owned project boundaries are also considered part of the non-roadway project and should not be separated out as a roadway project.
- Non-Roadway projects include:
  - ✓ Rest Areas
  - ✓ Maintenance Yards
  - ✓ Office Buildings
  - ✓ Training Facilities
  - ✓ Parking Lots
  - ✓ Railroad Facilities
  - ✓ Material Testing Laboratories
  - ✓ Material Storage Facilities

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PCSP Document Table of Contents

1. NCDOT's Post-Construction Program
2. Stormwater Quality Management for Roadway Projects
3. Stormwater Quality Management for Non-Roadway Projects
4. Documenting Compliance with the PCSP
5. Sustaining the PCSP Outcome


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Figure 2.1 – Roadway Project Workflow

Figure 2.1 – Planning Minimum Measures

Consider planning minimum measures (refer to Section 2.2):

- Maximizing shoulder section
- Minimizing roadway side slopes
- Assessing and minimizing the impacts of stormwater runoff to environmentally sensitive areas
- Promoting sensitive intersection of streams

Roadway – Planning Minimum Measures

Assessing and Minimizing the Impacts of Stormwater Runoff to Environmentally Sensitive Areas

Definition:
Selecting alignments or design options that minimize impacts to sensitive streams.

Merger concurrence point 2/3

When evaluating various alternative corridors (new locations) or design options (widening and other improvements), consider the alternative or option that avoids high quality or otherwise environmentally-sensitive areas. These areas include habitat for protected, threatened, and endangered species, sensitive streams, and jurisdictional wetlands. If total avoidance of an environmentally-sensitive area is not feasible, the alternative or design options considered should be ones that minimize impacts.

Key Considerations

- Many factors are considered when selecting the preferred alternative for either the roadway corridor or improvement design option. The final selection must fulfill the purpose and need of the roadway project and balance potential impacts on the human and natural environment.
- Environmentally-sensitive streams include nutrient sensitive waters, outstanding resource waters, high quality waters, jurisdictional wetlands, waters with an existing impairment, and all waters in Coastal Area Management Act (CAMA) counties.

Figure 2.1 – Design Minimum Measures

Consider design minimum measures (refer to Section 2.3):

- Providing adequate ground cover
- Stabilizing slopes
- Providing adequate energy dissipation
- Preserving natural features
- Maximizing vegetative conveyance
- Encouraging diffuse flow
- Minimizing direct discharge from bridges

Roadway – Design Minimum Measures

Maximizing Vegetative Conveyance

Definition:
Selecting swales and filter strips for stormwater conveyance wherever possible.

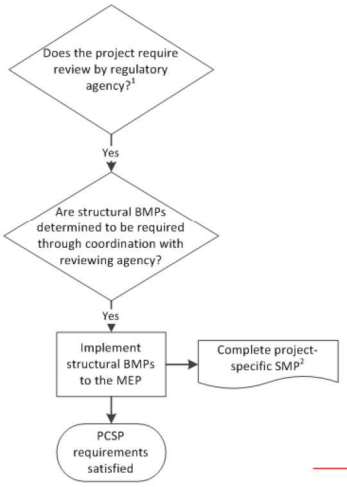
Merger concurrence points 4B/4C

Incorporating vegetation into the drainage system reduces flow velocity while also promoting sedimentation, filtration, and infiltration. Maximizing vegetative conveyance is a minimum measure where vegetated features are preferentially selected for runoff conveyance to take advantage of these passive stormwater treatment benefits. Examples of maximizing vegetative conveyance include selecting a swale over pipe conveyance and selecting vegetated options for channel linings where appropriate.

Key Considerations:

- When pipe structures are necessary to collect runoff from the roadway (such as in curb and gutter sections), every effort should be made to direct runoff from the pipe outlet to vegetated areas. Proper energy dissipation and transitions should be implemented.
- To the extent possible, the designer should maintain the predevelopment drainage areas and flow patterns to support greater use of vegetative conveyance. Consolidating drainage areas may preclude vegetative conveyance due to the increased discharges and velocities.
- Evaluate vegetated options for channel linings before considering "hardened" lining types.

Figure 2.1 – Beyond Minimum Measures (1)



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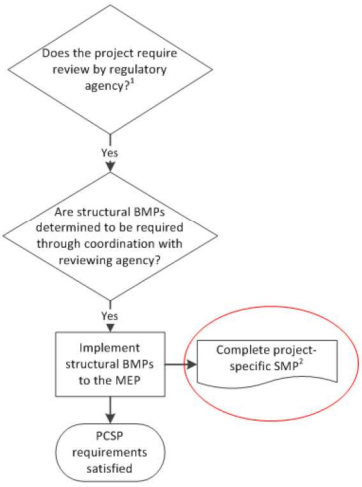


Stormwater Management Plan (SMP)

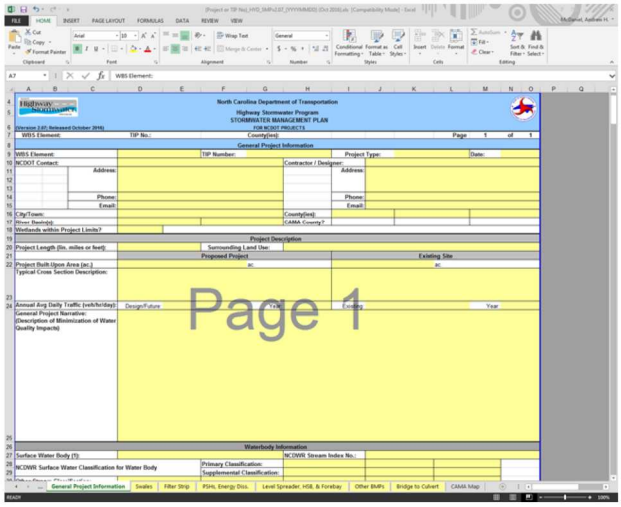


Figure 2.1 – Beyond Minimum Measures (2)

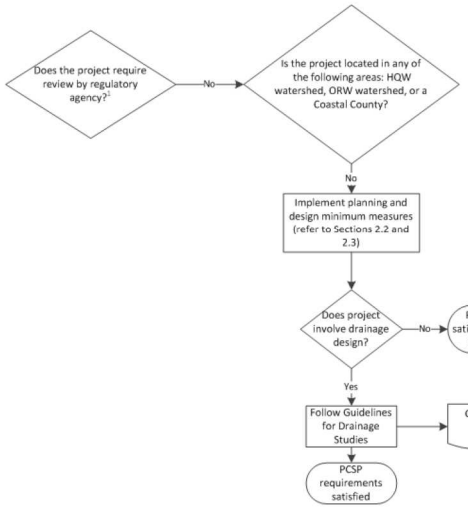
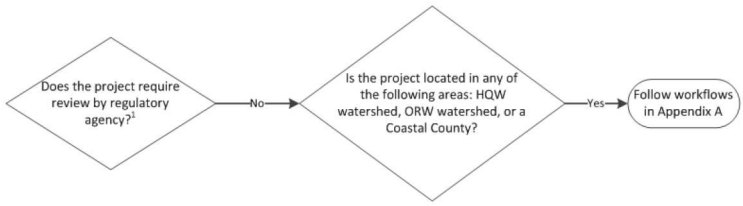
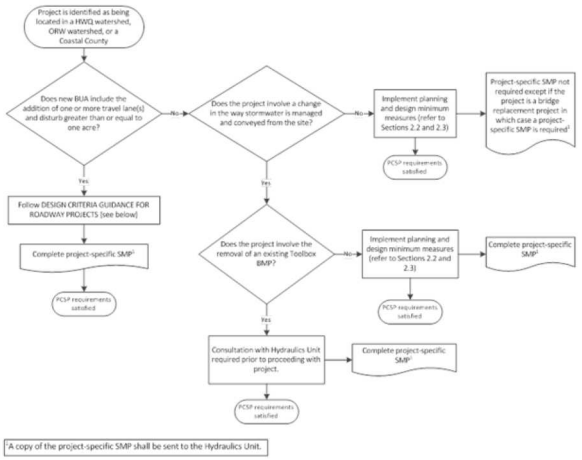


Figure 2.1 – Beyond Minimum Measures (3)

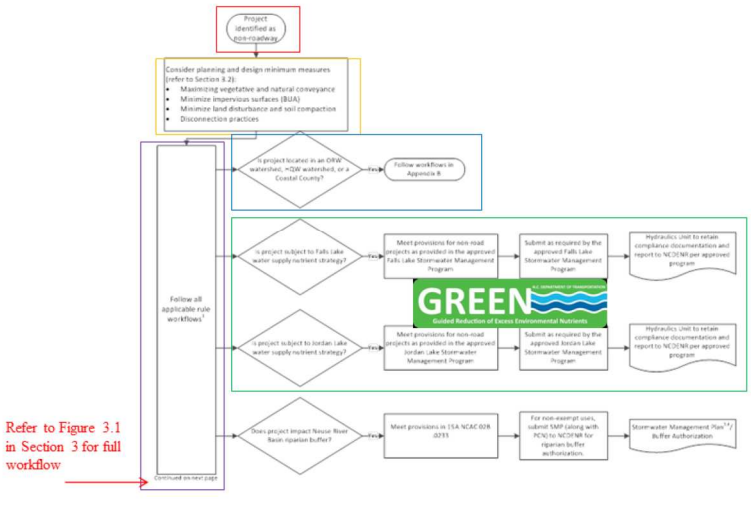


Appendix A – Guidelines for Roadway Projects in ORW Watersheds, HQW Watersheds, and Coastal Counties

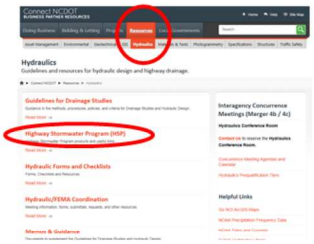


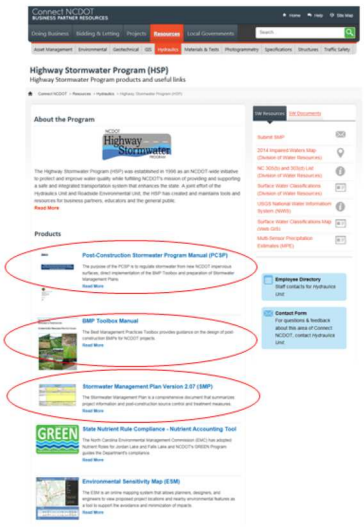
Non-Roadway Projects

Figure 3.1 – Non-Roadway Workflow



Highway Stormwater Program Connect Site





In Review…

The PCSP contains all the information you need to know to comply with stormwater management regulations

The BMP Toolbox is the design guidance manual that should be used for stormwater control measures on NCDOT projects

A project specific Stormwater Management Plan (SMP) is required and is your proof of compliance with the PCSP

The Hydraulics Unit Connect site is the repository for the latest versions of these documents

30 *Transportation*

Questions?

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