



North Carolina Department of Environment and Natural Resources

Division of Water Quality
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Director

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Governor

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Secretary

November 10, 2011

MEMORANDUM

TO: Pamela Williams, NCDOT Priority Project Office

FROM: Rob Ridings, NC Division of Water Quality, Transportation Permitting Unit *RR*

SUBJECT: Scoping Review of NCDOT's Proposed Design Build Bridge Replacement Projects in Wake County.

In reference to the Division 5 Design Build Bridge Replacement Projects' Onsite Reviews conducted November 9, 2011, the NCDWQ offers the following comments:

Bridge Number	Stream Name	River Basin & Subbasin	Stream Classifications	Stream Index Number
237	Neuse River	NEU 02	WS-V; NSW; *303(d) Listed*	27-(36)
485	UT Swift Creek	NEU 02	WS-III; NSW	27-43-5-(1.5)
410	Dutchman's Creek	NEU 02	WS-III; NSW	27-43-4.5
285	Terrible Creek	NEU 03	B; NSW	27-43-15-8
467	Walnut Creek	NEU 02	C; NSW; *303(d) Listed*	27-34-(1.7)
67	Bachelor Branch	CPF 05 (Jordan)	WS-IV; NSW	16-41-6-2-(2)
363	Reedy Branch	CPF 05 (Jordan)	WS-IV; NSW	16-41-10-1
338	Kenneth Creek	CPF 07	C	18-16-1-(1)

Project-Specific Comments

1. Bridges 485, 410, 285, 67, and 363: These projects impact class NSW waters of the State. NCDWQ is very concerned with sediment and erosion impacts that could result from these projects. NCDWQ recommends that highly protective sediment and erosion control BMPs be implemented to reduce the risk of nutrient runoff to surface waters and tributaries. NCDWQ requests that road design plans provide treatment of the storm water runoff through best management practices as detailed in the most recent version of NCDWQ's *Stormwater Best Management Practices*.
2. Bridges 237 and 467: These projects impact class 303(d) Listed impaired waters of the State. NCDWQ is very concerned with sediment and erosion impacts that could result from these projects. NCDWQ recommends that the most protective sediment and erosion control BMPs be implemented in accordance with *Design Standards in Sensitive Watersheds* to reduce the risk of nutrient runoff to these streams and their tributaries. NCDWQ requests that road design plans provide treatment of the storm water runoff through best management practices as detailed in the most recent version of NCDWQ *Stormwater Best Management Practices*.

6. Bridges 237, 485, 410, 285, and 467: These projects are in the Neuse River Basin. Riparian buffer impacts shall be avoided and minimized to the greatest extent possible pursuant to 15A NCAC 2B.0233.
7. Bridges 67 and 363: These projects are in the Jordan Lake subbasin. Riparian buffer impacts shall be avoided and minimized to the greatest extent possible pursuant to 15A NCAC 2B.0267.

General Comments Regarding Bridge Replacement Projects

1. Bridge deck drains shall not discharge into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, detention basins, etc.) before entering the stream. Please refer to the most current version of NCDWQ's *Stormwater Best Management Practices*.
2. If foundation test borings are necessary; it shall be noted in the document. Geotechnical work is approved under General 401 Certification Number 3687/Nationwide Permit No. 6 for Survey Activities.
3. If a bridge is being replaced with a hydraulic conveyance other than another bridge, NCDWQ believes the use of a Nationwide Permit may be required. Please contact the US Army Corp of Engineers to determine the required permit(s).
4. If the old bridge is removed, no discharge of bridge material into surface waters is allowed unless otherwise authorized by the US ACOE. Strict adherence to the Corps of Engineers guidelines for bridge demolition will be a condition of the 401 Water Quality Certification.
5. Whenever possible, NCDWQ prefers spanning structures. Spanning structures usually do not require work within the stream or grubbing of the streambanks and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges shall allow for human and wildlife passage beneath the structure. Fish passage and navigation by canoeists and boaters shall not be blocked. Bridge supports (bents) should not be placed in the stream when possible.
6. NCDWQ is very concerned with sediment and erosion impacts that could result from these projects. NCDOT shall address these concerns by describing the potential impacts that may occur to the aquatic environments and any mitigating factors that would reduce the impacts.
7. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.
8. If temporary access roads or detours are constructed, the site shall be graded to its preconstruction contours and elevations. Disturbed areas shall be seeded or mulched to stabilize the soil and appropriate native woody species shall be planted. When using temporary structures the area shall be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact allows the area to re-vegetate naturally and minimizes soil disturbance.
9. Sediment and erosion control measures sufficient to protect water resources must be implemented and maintained in accordance with the most recent version of North Carolina Sediment and Erosion Control Planning and Design Manual and the most recent version of NCS000250.
10. All work in or adjacent to stream waters shall be conducted in a dry work area unless otherwise approved by NCDWQ. Approved BMP measures from the most current version of NCDOT

Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.

11. Heavy equipment shall be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams. This equipment shall be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.
12. In most cases, the NCDWQ prefers the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour shall be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure shall be removed and the approach fills removed from the 100-year floodplain. Approach fills shall be removed and restored to the natural ground elevation. The area shall be stabilized with grass and planted with native tree species. Tall fescue shall not be used in riparian areas.
13. Any anticipated dewatering or access structures necessary for construction of bridges should be addressed in the CE. It is understood that final designs are not determined at the time the CE is developed. However, the CE should discuss the potential for dewatering and access measures necessary due to bridge construction.

General Comments if Replacing the Bridge with a Culvert

1. Placement of culverts and other structures in waters, streams, and wetlands shall be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in disequilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.
2. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation, floodplain benches and/or sills may be required where appropriate. Widening the stream channel shall be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.
3. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures shall be properly designed, sized and installed.

Thank you for requesting our input at this time. NCDOT is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost. If you have any questions or require additional information, please contact Rob Ridings at 919-807-6403.

cc: Eric Alsmeyer, US Army Corps of Engineers, Raleigh Field Office
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