STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

August 27, 2013

MEMORANDUM TO: Mr. Louis Mitchell, PE
Division 10 Engineer

FROM: Philip S. Harris, III, P.E., Section Head
Natural Environment Unit
Project Development and Environmental Analysis Branch

SUBJECT: Union County; Bridge No. 29 on NC 218 over Goose Creek; Federal Project No. BRSTP-218(7); WBS Element 42246.1.1; **TIP B-5109.**

Attached are the U.S. Army Corps of Engineers Section 404 Nationwide permits, the NC Division of Water Quality (DWQ) Section 401 Water Quality Certifications, and NC DWQ Buffer Authorization for the above referenced project. All environmental permits have been received for the construction of this project.

A copy of this permit package will be posted on the NCDOT website at:
http://www.ncdot.gov/doh/preconstruct/pe/neu/permit.html

Cc: w/o attachment (see website for attachments):
Mr. Randy Garris, P.E. State Contract Officer
Mr. Larry Thompson, Division Environmental Officer
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Jay Bennett, P.E., Roadway Design Unit
Mr. Dewayne Sykes, P.E. Utilities Unit
Mr. Art McMillan, P.E., Hydraulics Unit
Mr. Tom Koch, P.E., Structure Design Unit
Mr. Mark Staley, Roadside Environmental Unit
Mr. Ron Hancock, P.E., State Roadway Construction Engineer
Mr. Mike Robinson, P.E., State Bridge Construction Engineer
Mr. Bill Goodwin, P.E., PDEA Bridge Unit Head

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-707-6100
FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

LOCATION:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610-4328

PROJECT COMMITMENTS

T.I.P. No. B-5109
Replacement of Bridge No. 29 over Goose Creek
on NC 218
Union County
Federal Aid Project No. BRSTP-218(7)
W.B.S. No. 42246.1.1

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

Division Ten Construction, Resident Engineer's Office – Offsite Detour
In order to have time to adequately reroute school busses, Union County Schools will be contacted at (704) 296-3015 at least one month prior to road closure.

Union County Emergency Services will be contacted at (704) 283-3536 at least one month prior to road closure to make the necessary temporary reassignments to primary response units.

Hydraulic Unit, Natural Environment Unit –Buffer Rules
This project is subject to NC Division of Water Quality Riparian Buffer Rules for the Goose Creek Watershed.

NCDOT has acquired the necessary certification to adhere to the Goose Creek Riparian Buffer Rules.

Roadside Environmental Unit, Division Resident Engineer – Sensitive Watersheds
Goose Creek is designated as a critical habitat for Carolina Heelsplitter and will be subject to all Design Standards for Sensitive Watersheds.

Natural Environment Section – Carolina Heelsplitter
When the Biological Assessment and Biological Opinion is complete, NCDOT will update the Right of Way or Construction Consultation(s) with the exact commitments created from the BA/BO process. Section 7 consultation must be completed prior to construction authorization.

This commitment has been fulfilled.

Roadway Design/Structure Design/ Division – Bicycle Accommodations
Bicycle accommodations will be designed on the bridge along with standard bicycle safe railing.

This commitment has been fulfilled.

Hydraulic Unit – FEMA Coordination
The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), to determine status of project with regard to applicability of NCDOT'S Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

Division Construction – FEMA

This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structure(s) and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

COMMITMENTS FROM PERMITTING

Division Construction, Roadside Environmental

In accordance with the Biological Opinion issued by U.S. Fish & Wildlife Service dated June 6, 2013, the projects commitments found in the BO are incorporated as part of this permit package.

COMMITMENTS FROM USFWS BIOLOGICAL OPINION

Division Construction and PDEA

All Reasonable and Prudent Measures, Conservation Measures, and Terms & Conditions shall be adhered to (attached).

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action ID. **2009-1152** County: **Union**

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Property Owner / Authorized Agent: **NCDOT / Attn: Michael Turchy**
Address: **1 South Wilmington Street**
Raleigh, NC 27601
Telephone No.: **919-707-6157**

Size and location of property (water body, road name/number, town, etc.): **The site is replacement of Bridge #29 over Goose Creek on NC Hwy 218, near Fairview, in Union County, North Carolina.**

Description of projects area and activity: **This permit authorizes impacts associated with bridge replacement work for TIP B-5109. See the table below for a more detailed description of impacts and special conditions.**

Summary of Authorized Impacts and Required Mitigation

Impact ID #	NWP / GP #	Open Water (ac)		Wetland (ac)		Stream (lf)	
		Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
W1	**23**				**<0.01**		
S1	**13**						**6**
S2	**33**					**<0.01**	
S1	**13**					**<0.01**	
Impact Totals					**0.01**	**0.02**	**6**
Total Loss of Waters of the U.S. (ac)			**0.01**	Total Loss of Waters of the U.S. (lf)			**0**
Required Wetland Mitigation (ac)		**0**		Required Stream Mitigation (lf)		**0**	

Special Conditions:

1) In accordance with the Biological Opinion issued by U.S. Fish & Wildlife Service (Service) dated June 6, 2013, the following reasonable and prudent measures are incorporated into this permit authorization in order to minimize effects to the federally endangered Carolina heelsplitter (*Lasmingona decorata*) and its critical habitat.

a) All appropriate NCDOT BMPs for bridge demolition and construction will be followed or exceeded for this project.

b) The erosion-control plan will be in place prior to any ground disturbance. When needed, combinations of erosion-control measures should be used to ensure that the most protective measures are being implemented.

c) Access roads and construction staging areas within environmentally sensitive areas will be minimized to the maximum extent practicable. Construction equipment will be refueled outside of the environmentally sensitive areas.

d) Erosion-control measures will remain in place until riparian vegetation is reestablished at the bridge site.

e) Where riparian areas are disturbed, they will be revegetated with a native seed mix as soon as possible.

f) If any of these measures is not or cannot be met, the Service and the Corps Project Manager should be contacted immediately to discuss options and to help determine whether reinitiation of consultation is necessary.

Applicable Law: ☒ Section 404 (Clean Water Act, 33 USC 1344)
☐ Section 10 (Rivers and Harbors Act, 33 USC 403)
Authorization: Regional General Permit Number:
Nationwide Permit Number: **13, 23, and 33**

Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached conditions and your submitted plans. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order and/or appropriate legal action.

This verification will remain valid until the expiration date identified below unless the nationwide authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all requirements of the modified nationwide permit. If the nationwide permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Quality (telephone (919) 807-6300) to determine Section 401 requirements. You may also visit their website at: http://portal.ncdenr.org/web/wq/swp/ws/webscape

For activities occurring within the twenty coastal counties subject to regulation under the Coastal Area Management Act (CAMA), prior to beginning work you must contact the N.C. Division of Coastal Management.

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.

If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact Amanda Fuemmeler at 828-271-7980 extension 231.

Corps Regulatory Official Amanda Fuemmeler

Date Issued: **June 18, 2013** Expiration Date of Verification: **March 18, 2017**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at our website at http://per2.nwp.usace.army.mil/survey.html to complete the survey online.

Determination of Jurisdiction:

A. ☐ Based on preliminary information, there appear to be waters of the US including wetlands within the above described project area. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

B. ☐ There are Navigable Waters of the United States within the above described project area subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

C. ☐ There are waters of the US and/or wetlands within the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the

law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

D. ☒ The jurisdictional areas within the above described project area have been identified under a previous action. Please reference jurisdictional determination issued **December 8, 2009**. Action ID **2009-1152**

Copy Furnished: USFWS, Attn: Jason Mays (via email)

Permit Number: 2009-1152

Permit Type: NW13, 23, and 33

Name of County: Union / B-5109

Name of Permittee: NCDOT / Attn: Michael Turchy

Date of Issuance: June 18, 2013

Project Manager: Amanda Fuemmeler

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers
Attention: CESAW-RG-A
151 Patton Avenue, Room 208
Asheville, North Carolina 28801-5006

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____ _____

Signature of Permittee Date

NATIONWIDE PERMIT 13
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
FINAL NOTICE OF ISSUANCE AND MODIFICATION OF NATIONWIDE PERMITS
FEDERAL REGISTER
AUTHORIZED MARCH 19, 2012

Bank Stabilization. Bank stabilization activities necessary for erosion prevention, provided the activity meets all of the following criteria:

(a) No material is placed in excess of the minimum needed for erosion protection;

(b) The activity is no more than 500 feet in length along the bank, unless the district engineer waives this criterion by making a written determination concluding that the discharge will result in minimal adverse effects;

(c) The activity will not exceed an average of one cubic yard per running foot placed along the bank below the plane of the ordinary high water mark or the high tide line, unless the district engineer waives this criterion by making a written determination concluding that the discharge will result in minimal adverse effects;

(d) The activity does not involve discharges of dredged or fill material into special aquatic sites, unless the district engineer waives this criterion by making a written determination concluding that the discharge will result in minimal adverse effects;

(e) No material is of a type, or is placed in any location, or in any manner, that will impair surface water flow into or out of any waters of the United States;

(f) No material is placed in a manner that will be eroded by normal or expected high flows (properly anchored trees and treetops may be used in low energy areas); and,

(g) The activity is not a stream channelization activity.

This NWP also authorizes temporary structures, fills, and work necessary to construct the bank stabilization activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Invasive plant species shall not be used for bioengineering or vegetative bank stabilization.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if the bank stabilization activity: (1) involves discharges into special aquatic sites; or (2) is in excess of 500 feet in length; or (3) will involve the discharge of greater than an average of one cubic yard per running foot along the bank below the plane of the ordinary high water mark or the high tide line. (See general condition 31.) (Sections 10 and 404)

NATIONWIDE PERMIT 23
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
FINAL NOTICE OF ISSUANCE AND MODIFICATION OF NATIONWIDE PERMITS
FEDERAL REGISTER
AUTHORIZED MARCH 19, 2012

Approved Categorical Exclusions. Activities undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another Federal agency or department where:

(a) That agency or department has determined, pursuant to the Council on Environmental Quality's implementing regulations for the National Environmental Policy Act (40 CFR part 1500 et seq.), that the activity is categorically excluded from environmental documentation, because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment; and

(b) The Office of the Chief of Engineers (Attn: CECW-CO) has concurred with that agency's or department's determination that the activity is categorically excluded and approved the activity for authorization under NWP 23.

The Office of the Chief of Engineers may require additional conditions, including pre-construction notification, for authorization of an agency's categorical exclusions under this NWP.

Notification: Certain categorical exclusions approved for authorization under this NWP require the permittee to submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 31). The activities that require pre-construction notification are listed in the appropriate Regulatory Guidance Letters. (Sections 10 and 404)

Note: The agency or department may submit an application for an activity believed to be categorically excluded to the Office of the Chief of Engineers (Attn: CECW-CO). Prior to approval for authorization under this NWP of any agency's activity, the Office of the Chief of Engineers will solicit public comment. As of the date of issuance of this NWP, agencies with approved categorical exclusions are the: Bureau of Reclamation, Federal Highway Administration, and U.S. Coast Guard. Activities approved for authorization under this NWP as of the date of this notice are found in Corps Regulatory Guidance Letter 05-07, which is available at:
http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/GuidanceLetters.aspx . Any future approved categorical exclusions will be announced in Regulatory Guidance Letters and posted on this same web site.

NATIONWIDE PERMIT 33
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
FINAL NOTICE OF ISSUANCE AND MODIFICATION OF NATIONWIDE PERMITS
FEDERAL REGISTER
AUTHORIZED MARCH 19, 2012

Temporary Construction, Access, and Dewatering. Temporary structures, work, and discharges, including cofferdams, necessary for construction activities or access fills or dewatering of construction sites, provided that the associated primary activity is authorized by the Corps of Engineers or the U.S. Coast Guard. This NWP also authorizes temporary structures, work, and discharges, including cofferdams, necessary for construction activities not otherwise subject to the Corps or U.S. Coast Guard permit requirements. Appropriate measures must be taken to maintain near normal downstream flows and to minimize flooding. Fill must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. The use of dredged material may be allowed if the district engineer determines that it will not cause more than minimal adverse effects on aquatic resources. Following completion of construction, temporary fill must be entirely removed to an area that has no waters of the United States, dredged material must be returned to its original location, and the affected areas must be restored to pre-construction elevations. The affected areas must also be revegetated, as appropriate. This permit does not authorize the use of cofferdams to dewater wetlands or other aquatic areas to change their use. Structures left in place after construction is completed require a separate section 10 permit if located in navigable waters of the United States. (See 33 CFR part 322.)

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 31). The pre-construction notification must include a restoration plan showing how all temporary fills and structures will be removed and the area restored to pre-project conditions. (Sections 10 and 404)

NATIONWIDE PERMIT CONDITIONS

The following General Conditions must be followed in order for any authorization by a NWP to be valid:

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.noaa.gov/fisheries.html respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for obtaining any "take" permits required under the U.S. Fish and Wildlife Service's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such "take" permits are required for a particular activity.

20. Historic Properties. (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA

section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.

(2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of

the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____

(Transferee)

_____

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the work and mitigation.

31. Pre-Construction Notification. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

D. District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. For a linear project, this determination will include an evaluation of the individual crossings to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to intermittent or ephemeral streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51 or 52, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in minimal adverse effects. When making minimal effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. The district engineer will also consider site specific factors, such as the environmental setting in the

vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

2. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

3. If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (a) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (c) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period, with activity-specific

conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

FURTHER INFORMATION

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project.

DEFINITIONS

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence

of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or

flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through

which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent

mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line, which is defined at 33 CFR 328.3(d).

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a jurisdictional water of the United States. If a jurisdictional wetland is adjacent – meaning bordering, contiguous, or neighboring – to a waterbody determined to be a water of the United States under 33 CFR 328.3(a)(1)-(6), that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.

NOTICE ABOUT WEB LINKS IN THIS DOCUMENT:
The web links (both internal to our District and any external links to collaborating agencies) in this document are valid at the time of publication. However, the Wilmington District Regulatory Program web page addresses, as with other agency web sites, may change over the timeframe of the five-year Nationwide Permit renewal cycle, in response to policy mandates or technology advances. While we will make every effort to check on the integrity of our web links and provide re-direct pages whenever possible, we ask that you report any broken links to us so we can keep the page information current and usable. We apologize in advanced for any broken links that you may encounter, and we ask that you navigate from the regulatory home page (wetlands and stream permits) of the Wilmington District Corps of Engineers, to the "Permits" section of our web site to find links for pages that cannot be found by clicking directly on the listed web link in this document.

Final 2012 Regional Conditions for Nationwide Permits (NWP) in the Wilmington District

1.0 Excluded Waters

The Corps has identified waters that will be excluded from the use of all NWP's during certain timeframes. These waters are:

1.1 Anadromous Fish Spawning Areas

Waters of the United States identified by either the North Carolina Division of Marine Fisheries (NCDMF) or the North Carolina Wildlife Resources Commission (NCWRC) as anadromous fish spawning areas are excluded during the period between February 15 and June 30, without prior written approval from NCDMF or NCWRC and the Corps.

1.2 Trout Waters Moratorium

Waters of the United States in the twenty-five designated trout counties of North Carolina are excluded during the period between October 15 and April 15 without prior written approval from the NCWRC. (See Section 2.7 for a list of the twenty-five trout counties).

1.3 Sturgeon Spawning Areas as Designated by the National Marine Fisheries Service (NMFS)

Waters of the United States designated as sturgeon spawning areas are excluded during the period between February 1 and June 30, without prior written approval from the NMFS.

2.0 Waters Requiring Additional Notification

The Corps has identified waters that will be subject to additional notification requirements for activities authorized by all NWP's. These waters are:

2.1 Western NC Counties that Drain to Designated Critical Habitat

For proposed activities within Waters of the U.S. that require a Pre-Construction Notification pursuant to General Condition 31 (PCN) and are located in the sixteen counties listed below, applicants must provide a copy of the PCN to the US Fish and Wildlife Service, 160 Zillicoa Street, Asheville, North Carolina 28801. This PCN must be sent concurrently to the US Fish and Wildlife Service and the Corps Asheville Regulatory Field Office. Please see General Condition 18 for specific notification requirements related to Federally Endangered Species and the following website for information on the location of designated critical habitat.

Counties with tributaries that drain to designated critical habitat that require notification to the Asheville US Fish and Wildlife Service: Avery, Cherokee, Forsyth, Graham, Haywood, Henderson, Jackson, Macon Mecklenburg, Mitchell, Stokes, Surry, Swain, Transylvania, Union and Yancey.

Website and office addresses for Endangered Species Act Information:

The Wilmington District has developed the following website for applicants which provides guidelines on how to review linked websites and maps in order to fulfill NWP general condition 18 requirements: http://www.saw.usace.army.mil/wetlands/ESA

Applicants who do not have internet access may contact the appropriate US Fish and Wildlife Service offices listed below or the US Army Corps of Engineers at (910) 251- 4633:

US Fish and Wildlife Service
Asheville Field Office
160 Zillicoa Street
Asheville, NC 28801
Telephone: (828) 258-3939

Asheville US Fish and Wildlife Service Office counties: All counties west of and including Anson, Stanly, Davidson, Forsyth and Stokes Counties

US Fish and Wildlife Service
Raleigh Field Office
Post Office Box 33726
Raleigh, NC 27636-3726
Telephone: (919) 856-4520

Raleigh US Fish and Wildlife Service Office counties: all counties east of and including Richmond, Montgomery, Randolph, Guilford, and Rockingham Counties.

2.2 Special Designation Waters

Prior to the use of any NWP in any of the following identified waters and contiguous wetlands in North Carolina, applicants must comply with Nationwide Permit General Condition 31 (PCN). The North Carolina waters and contiguous wetlands that require additional notification requirements are:

"Outstanding Resource Waters" (ORW) or "High Quality Waters" (HQW) as designated by the North Carolina Environmental Management Commission; "Inland Primary Nursery Areas" (IPNA) as designated by the NCWRC; "Contiguous Wetlands" as defined by the North Carolina Environmental Management Commission; or "Primary Nursery Areas" (PNA) as designated by the North Carolina Marine Fisheries Commission.

2.3 Coastal Area Management Act (CAMA) Areas of Environmental Concern

Non-federal applicants for any NWP in a designated "Area of Environmental Concern" (AEC) in the twenty (20) counties of Eastern North Carolina covered by the North Carolina Coastal Area Management Act (CAMA) must also obtain the required CAMA permit. Development activities for non-federal projects may not commence until a copy of the approved CAMA permit is furnished to the appropriate Wilmington District Regulatory Field Office (Wilmington Field Office – 69 Darlington Avenue, Wilmington, NC 28403 or Washington Field Office – 2407 West 5th Street, Washington, NC 27889).

2.4 Barrier Islands

Prior to the use of any NWP on a barrier island of North Carolina, applicants must comply with Nationwide Permit General Condition 31 (PCN).

2.5 Mountain or Piedmont Bogs

Prior to the use of any NWP in a Bog classified by the North Carolina Wetland Assessment Methodology (NCWAM), applicants shall comply with Nationwide Permit General Condition 31 (PCN). The latest version of NCWAM is located on the NC DWQ web site at: http://portal.ncdenr.org/web/wq/swp/ws/pdu/ncwam .

2.6 Animal Waste Facilities

Prior to use of any NWP for construction of animal waste facilities in waters of the US, including wetlands, applicants shall comply with Nationwide Permit General Condition 31 (PCN).

2.7 Trout Waters

Prior to any discharge of dredge or fill material into streams or waterbodies within the twenty-five (25) designated trout counties of North Carolina, the applicant shall comply with Nationwide Permit General Condition 31 (PCN). The applicant shall also provide a copy of the notification to the appropriate NCWRC office to facilitate the determination of any potential

impacts to designated Trout Waters. Notification to the Corps of Engineers will include a statement with the name of the NCWRC biologist contacted, the date of the notification, the location of work, a delineation of wetlands, a discussion of alternatives to working in the mountain trout waters, why alternatives were not selected, and a plan to provide compensatory mitigation for all unavoidable adverse impacts to mountain trout waters.

NCWRC and NC Trout Counties

Western Piedmont Region Coordinator	Alleghany	Caldwell	Watauga
20830 Great Smoky Mtn. Expressway	Ashe	Mitchell	Wilkes
Waynesville, NC 28786	Avery	Stokes	
Telephone: (828) 452-2546	Burke	Surry	

Mountain Region Coordinator	Buncombe	Henderson	Polk
20830 Great Smoky Mtn. Expressway	Cherokee	Jackson	Rutherford
Waynesville, NC 28786	Clay	Macon	Swain
Telephone: (828) 452-2546	Graham	Madison	Transylvania
Fax: (828) 452-7772	Haywood	McDowell	Yancey

3.0 List of Corps Regional Conditions for All Nationwide Permits

The following conditions apply to all Nationwide Permits in the Wilmington District:

3.1 Limitation of Loss of Perennial Stream Bed

NWPs may not be used for activities that may result in the loss or degradation of greater than 300 total linear feet of perennial, intermittent or ephemeral stream, unless the District Commander has waived the 300 linear foot limit for ephemeral and intermittent streams on a case-by-case basis and he determines that the proposed activity will result in minimal individual and cumulative adverse impacts to the aquatic environment. Loss of stream includes the linear feet of stream bed that is filled, excavated, or flooded by the proposed activity. Waivers for the loss of ephemeral and intermittent streams must be in writing and documented by appropriate/accepted stream quality assessments*. This waiver only applies to the 300 linear feet threshold for NWPs.

*NOTE: Applicants should utilize the most current methodology prescribed by Wilmington District to assess stream function and quality. Information can be found at:

http://www.saw.usace.army.mil/wetlands/permits/nwp/nwp2012 (see “Quick Links”)

3.2 Mitigation for Loss of Stream Bed

For any NWP that results in a loss of more than 150 linear feet of perennial and/or ephemeral/intermittent stream, the applicant shall provide a mitigation proposal to compensate for more than minimal individual and cumulative adverse impacts to the aquatic environment. For stream losses less than 150 linear feet, that require a PCN, the District Commander may determine, on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effect on the aquatic environment.

3.3 Pre-construction Notification for Loss of Streambed Exceeding 150 Feet.

Prior to use of any NWP for any activity which impacts more than 150 total linear feet of perennial stream or ephemeral/ intermittent stream, the applicant must comply with Nationwide Permit General Condition 31 (PCN). This applies to NWPs that do not have specific notification requirements. If a NWP has specific notification requirements, the requirements of the NWP should be followed.

3.4 Restriction on Use of Live Concrete

For all NWPs which allow the use of concrete as a building material, live or fresh concrete, including bags of uncured concrete, may not come into contact with the water in or entering into waters of the US. Water inside coffer dams or casings that has been in contact with wet concrete shall only be returned to waters of the US when it is no longer poses a threat to aquatic organisms.

3.5 Requirements for Using Riprap for Bank Stabilization

For all NWPs that allow for the use of riprap material for bank stabilization, the following measures shall be applied:

3.5.1. Filter cloth must be placed underneath the riprap as an additional requirement of its use in North Carolina waters.

3.5.2. The placement of riprap shall be limited to the areas depicted on submitted work plan drawings.

3.5.3. The riprap material shall be clean and free from loose dirt or any pollutant except in trace quantities that would not have an adverse environmental effect.

3.5.4. It shall be of a size sufficient to prevent its movement from the authorized alignment by natural forces under normal conditions.

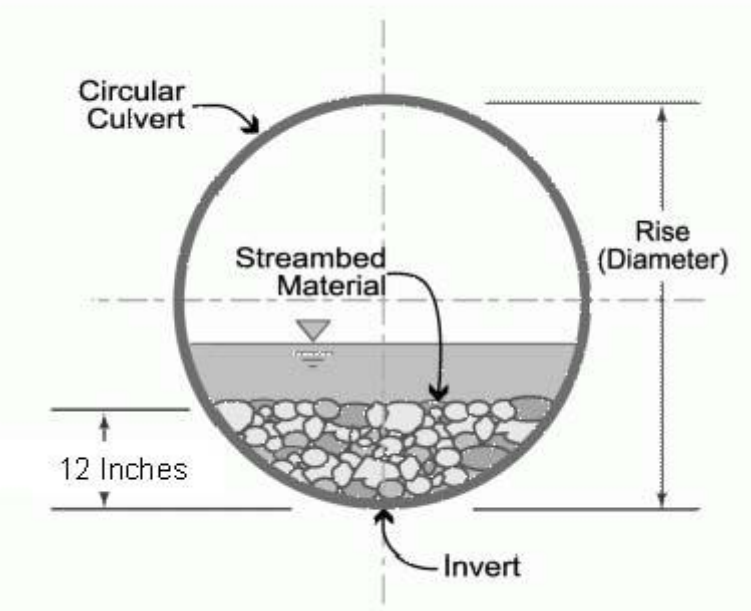
3.5.5. The riprap material shall consist of clean rock or masonry material such as, but not limited to, granite, marl, or broken concrete.

3.5.6. A waiver from the specifications in this Regional Condition may be requested in writing. The waiver will only be issued if it can be demonstrated that the impacts of complying with this Regional condition would result in greater adverse impacts to the aquatic environment.

3.6 Safe Passage Requirements for Culvert Placement

For all NWPs that involve the construction/installation of culverts, measures will be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed culvert should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gage data, if available. In the absence of such data, bankfull flow can be used as a comparable level.

In the twenty (20) counties of North Carolina designated as coastal counties by the Coastal Area Management Act (CAMA): All pipes/culverts must be sufficiently sized to allow for the burial of the bottom of the pipe/culvert at least one foot below normal bed elevation when they are placed within the Public Trust Area of Environmental Concern (AEC) and/or the Estuarine Waters AEC as designated by CAMA, and/or all streams appearing as blue lines on United States Geological Survey (USGS) 7.5-minute quadrangle maps.



In all other counties: Culverts greater than 48 inches in diameter will be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter or less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain the existing channel slope. The bottom of the culvert must be placed at a

depth below the natural stream bottom to provide for passage during drought or low flow conditions.

Culverts are to be designed and constructed in a manner that minimizes destabilization and head cutting. Destabilizing the channel and head cutting upstream should be considered and appropriate actions incorporated in the design and placement of the culvert.

A waiver from the depth specifications in this condition may be requested in writing. The waiver will be issued if it can be demonstrated that the proposal would result in the least impacts to the aquatic environment.

All counties: Culverts placed within riparian and/or riverine wetlands must be installed in a manner that does not restrict the flow and circulation patterns of waters of the United States. Culverts placed across wetland fills purely for the purposes of equalizing surface water do not have to be buried.

3.7 Notification to NCDENR Shellfish Sanitation Section

Applicants shall notify the NCDENR Shellfish Sanitation Section prior to dredging in or removing sediment from an area closed to shell fishing where the effluent may be released to an area open for shell fishing or swimming in order to avoid contamination from the disposal area and cause a temporary shellfish closure to be made. Such notification shall also be provided to the appropriate Corps of Engineers Regulatory Field Office. Any disposal of sand to the ocean beach should occur between November 1 and April 30 when recreational usage is low. Only clean sand should be used and no dredged sand from closed shell fishing areas may be used. If beach disposal were to occur at times other than stated above or if sand from a closed shell fishing area is to be used, a swimming advisory shall be posted, and a press release shall be issued by the permittee.

3.8 Preservation of Submerged Aquatic Vegetation

Adverse impacts to Submerged Aquatic Vegetation (SAV) are not authorized by any NWP within any of the twenty coastal counties defined by North Carolina's Coastal Area Management Act of 1974 (CAMA).

3.9 Sedimentation and Erosion Control Structures and Measures

3.9.1. All PCNs will identify and describe sedimentation and erosion control structures and measures proposed for placement in waters of the US. The structures and measures should be depicted on maps, surveys or drawings showing location and impacts to jurisdictional wetlands and streams.

4.0 Additional Regional Conditions for Specific Nationwide Permits

4.1 NWP # 13 – Bank Stabilization

4.1.1. Unanchored trees, treetops, or debris may not be used as stream bank stabilization material.

4.1.2. Properly anchored and cabled structural stabilization techniques, such as timber crib structures, revetments, and root wads, are acceptable materials to stabilize stream banks.

4.1.3. If riprap stabilization is needed, it should be placed only on the stream banks, or, if it is necessary to be placed in the stream bed, the finished top elevation of the riprap should not exceed that of the original stream bed.

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Water Quality
Charles Wakild, P. E.
Director

Pat McCrory
Governor

John E. Skvarla, III
Secretary

May 15, 2013
Union County
DWQ Project No. 13-0418
TIP/State Project No. B-5109

Mr. Gregory Thorpe
NCDOT, Env. Analysis Unit
1598 Mail Service Center
Raleigh, NC 27699
Subject: Bridge Replacement (#29), NC 218

Approval of 401 Water Quality Certification and Goose Creek Buffer Authorization with Additional Conditions

Dear Mr. Thorpe:

You have our approval, in accordance with the conditions listed below, for the following impacts for the proposed project in Union County:

Stream Impacts in the Yadkin River Basin

Site	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
S1			6		6	6
S1		47			47	0
					0	0
TOTAL	**0**	**47**	**6**	**0**	**53**	**6**

Total Stream Impact for Project: 53 linear feet.

Wetland Impacts in the Yadkin River Basin (Riverine)

Site	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation (ac)
W1				<0.01		0.00	0.01
						0.00	0.00
						0.00	0.00
						0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**

Total Wetland Impact for Project: 0.01 acres.

Transportation and Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1617
Location: 512 N. Salisbury St. Raleigh, North Carolina 27604
Phone: 919-807-6300 \ FAX: 919-807-6492
Internet: www.ncwaterquality.org

Goose Creek Riparian Buffer Impacts

Site	Zone 1 Impact (sq ft)	*minus* Wetlands in Zone 1 (sq ft)	= Zone 1 Buffers (not wetlands) (sq ft)	Zone 1 Buffer Mitigation Required (3:1 ratio)	Zone 2 Impact (sq ft)	*minus* Wetlands in Zone 2 (sq ft)	= Zone 2 Buffers (not wetlands) (sq ft)	Zone 2 Buffer Mitigation Required (1.5:1 ratio)
B1	7854.00			0.00			0.00	0.00
B2	7272.00			0.00			0.00	0.00
B3	16124.00			0.00			0.00	0.00
			0.00	0.00			0.00	0.00
TOTAL	**31250.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

* n/a = Total for Site is less than 1/3 acre and 150 linear feet of impact, no mitigation required

Total Buffer Impact for Project: 31,250 square feet.

The project shall be constructed in accordance with your application dated April 19, 2013 and received on April 20, 2013. After reviewing your application, we have decided that these impacts are covered by General Water Quality Certification Numbers 3885, 3891, and 3893 . This certification corresponds to the Nationwide Permits 3, 13, and 33 issued by the Corps of Engineers. This approval is also valid for the Goose Creek Riparian Buffer Rules (15A NCAC 2B .0600-.0609). In addition, you should acquire any other federal, state or local permits before you proceed with your project including (but not limited to) Sediment and Erosion Control, Non-Discharge and Water Supply Watershed regulations. This approval will expire with the accompanying 404 permit.

This approval is valid solely for the purpose and design described in your application (unless modified below). Should your project change, you must notify the NCDWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If total wetland fills for this project (now or in the future) exceed one acre, or of total impacts to streams (now or in the future) exceed 150 linear feet, compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you must adhere to the conditions listed in the attached certification(s) and any additional conditions listed below:

1. 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.

2. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers.

3. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions.

4. The use of rip-rap above the Normal High Water Mark shall be minimized. Any rip-rap placed for stream stabilization shall be placed in stream channels in such a manner that it does not impede aquatic life passage.

5. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.

6. All work in or adjacent to stream waters shall be conducted in a dry work area. 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.

7. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream.

8. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.

9. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.

10. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.

11. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If NCDWQ determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, NCDWQ may reevaluate and modify this certification.

12. A copy of this Water Quality Certification shall be maintained on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager.

13. The Permittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.

14. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer or authorized personnel shall complete and return the enclosed "Certification of Completion Form" to notify NCDWQ when all work included in the 401 Certification has been completed.

15. Native riparian vegetation (**ex. list herbaceous, trees, and shrubs native to your geographic region**) must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction.

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission.
The mailing address for the Office of Administrative Hearings is:

Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Telephone: (919)-431-3000, Facsimile: (919)-431-3100

A copy of the petition must also be served on DENR as follows:

Mr. Lacy Presnell, General Counsel
Department of Environment and Natural Resources
1601 Mail Service Center

This letter completes the review of the Division of Water Quality under Section 401 of the Clean Water Act. If you have any questions, please contact Alan Johnson at (704) 663-1699 or Alan.Johnson@ncdenr.gov.

Sincerely,

for Charles Wakild, P.E.
Director

cc: Larry Thompson, Division 10, Environmental Officer
Sarah Hair, US Army Corps of Engineers, Asheville Field Office (electronic copy only)
Marella Buncick, US Fish and Wildlife Service (electronic copy only)
Marla Chambers, NC Wildlife Resources Commission
Sonia Carrillo, Wetlands Transportation Unit
DWQ#: 13-0418

GENERAL CERTIFICATION FOR STREAM RESTORATION, ENHANCEMENT AND STABILIZATION PROJECTS AND WETLAND AND RIPARIAN RESTORATION AND CREATION ACTIVITIES INCLUDING THOSE ELIGIBLE FOR U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT NUMBERS 13 (BANK STABILIZATION) AND 27 (WETLAND AND RIPARIAN RESTORATION AND CREATION), AND REGIONAL PERMIT 197800080 (BULKHEADS AND RIPRAP) AND RIPARIAN AREA PROTECTION RULES (BUFFER RULES)

Water Quality Certification Number 3885 is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality Regulations in 15A NCAC 02H .0500 and 15A NCAC 02B .0200 for the discharge of fill material to waters as described in 33 CFR 330 Appendix A (B) (13 and 27) and Regional Permit 197800080 and for the Riparian Area Protection Rules (Buffer Rules) in 15A NCAC 02B .0200.

The State of North Carolina certifies that the specified category of activity will not violate applicable portions of Sections 301, 302, 303, 306 and 307 of the Public Laws 92-500 and 95-217 if conducted in accordance with the conditions hereinafter set forth.

Activities meeting any one (1) of the following thresholds or circumstances require *written approval* for a 401 Water Quality Certification from the Division of Water Quality (the "Division"):

a) All proposed fill or modification of wetlands and/or waters, including streams and streambanks, regardless of the purpose of the restoration, enhancement, stabilization, or creation activity, except for single and independent projects involving in-stream structures for the sole purpose of streambank stabilization, which are designed based on current natural channel techniques, and do not exceed a total of three structures within 100 feet or less of streambank; or
b) Any stream relocation; or
c) Bank Stabilization projects qualifying for Nationwide Permit 13 for erosion protection which utilize non-natural armoring such as riprap, gabion baskets, deflection walls etc of greater than 150 feet in streambank length; or
d) Bank Stabilization projects qualifying for Nationwide Permit 13 for erosion protection which utilize natural streambank sloping, vegetation, and other natural channel protection techniques of greater than 500 feet of streambank length; or
e) Any impact associated with a Notice of Violation or an enforcement action for violation(s) of DWQ Wetland Rules (15A NCAC 02H .0500), Isolated Wetland Rules (15A NCAC 02H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 02B .0200); or
f) Any impacts to streams and/or buffers in the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan or Goose Creek Watersheds (or any other basin or watershed with Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) *unless* the activities are listed as "EXEMPT" from these rules or a Buffer Authorization Certificate is issued through N.C. Division of Coastal Management (DCM) delegation for "ALLOWABLE" activities.

In accordance with North Carolina General Statute 143-215.3D(e), written approval for a 401 Water Quality General Certification must include the appropriate fee. If a project also requires a CAMA Permit, then one payment to both agencies shall be submitted and will be the higher of the two fees.

Activities included in this General Certification that do not meet one of the thresholds listed above do not require written approval from the Division as long as they comply with the Conditions of Certification listed below. If any of these Conditions cannot be met, then written approval from the Division is required.

Conditions of Certification:

1. Activities shall meet the definitions, design, and monitoring protocols specified within the US Army Corps of Engineers Wilmington District *Regulatory Guidance Letter* (RGL02-02) and the *Stream Mitigation Guidelines* (April 2003) or any subsequent updates to these documents.

2. No Impacts Beyond those Authorized in the Written Approval or Beyond the Threshold of Use of this Certification

   No waste, spoil, solids, or fill of any kind shall occur in wetlands, waters, or riparian areas beyond the footprint of the impacts depicted in the Pre-Construction Notification, as authorized in the written approval from the Division or beyond the thresholds established for use of this Certification without written authorization, including incidental impacts. All construction activities, including the design, installation, operation, and maintenance of sediment and erosion control Best Management Practices shall be performed so that no violations of state water quality standards, statutes, or rules occur. Approved plans and specifications for this project are incorporated by reference and are enforceable parts of this permit.

3. Standard Erosion and Sediment Control Practices

   Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices and if applicable, comply with the specific conditions and requirements of the NPDES Construction Stormwater Permit issued to the site:

   a. Design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal or exceed the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.

   b. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.

   c. Reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.

   d. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.

   e. If the project occurs in waters or watersheds classified as Primary Nursery Areas (PNAs), SA, WS-I, WS-II, High Quality (HQW), or Outstanding Resource (ORW) waters, then the sedimentation and erosion control designs must comply with the requirements set forth in 15A NCAC 04B .0124, *Design Standards in Sensitive Watersheds*.

4. No Sediment and Erosion Control Measures in Wetlands or Waters

Sediment and erosion control measures shall not be placed in wetlands or waters. Exceptions to this condition require application submittal to and written approval by the Division. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, then design and placement of temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands, stream beds, or banks, adjacent to or upstream and downstream of the above structures. All sediment and erosion control devices shall be removed and the natural grade restored within two (2) months of the date that the Division of Land Resources (DLR) or locally delegated program has released the specific area within the project.

5. Construction Stormwater Permit NCG010000

An NPDES Construction Stormwater Permit is required for construction projects that disturb one (1) or more acres of land. This Permit allows stormwater to be discharged during land disturbing construction activities as stipulated in the conditions of the permit. If your project is covered by this permit, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required. A copy of the general permit (NCG010000), inspection log sheets, and other information may be found at http://portal.ncdenr.org/web/wq/ws/su/npdessw#tab-w .

The North Carolina Department of Transportation (NCDOT) shall be required to be in full compliance with the conditions related to construction activities within the most recent version of their individual NPDES (NCS000250) stormwater permit.

6. Construction Moratoriums and Coordination

If activities must occur during periods of high biological activity (i.e. sea turtle nesting, fish spawning, or bird nesting), then biological monitoring may be required at the request of other state or federal agencies and coordinated with these activities.

All moratoriums on construction activities established by the NC Wildlife Resources Commission (WRC), US Fish and Wildlife Service (USFWS), NC Division of Marine Fisheries (DMF), or National Marine Fisheries Service (NMFS) to lessen impacts on trout, anadromous fish, larval/post-larval fishes and crustaceans, or other aquatic species of concern shall be implemented. Exceptions to this condition require written approval by the resource agency responsible for the given moratorium.

Work within the twenty-five (25) designated trout counties or identified state or federal endangered or threatened species habitat shall be coordinated with the appropriate WRC, USFWS, NMFS, and/or DMF personnel.

7. Work in the Dry

All work in or adjacent to stream waters shall be conducted so that the flowing stream does not come in contact with the disturbed area. Approved best management practices from the most current version of the NC Sediment and Erosion Control Manual, or the NC DOT Construction and Maintenance Activities Manual, such as sandbags, rock berms, cofferdams, and other diversion structures shall be used to minimize excavation in flowing water. Exceptions to this condition require application submittal to and written approval by the Division.

8. Riparian Area Protection (Buffer) Rules

   Activities located in the protected riparian areas (whether jurisdictional wetlands or not), within the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan, or Goose Creek Watersheds (or any other basin or watershed with buffer rules) shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 02B .0233, .0259, .0243, .0250, .0267 and .0605, and shall be located, designed, constructed, and maintained to have minimal disturbance to protect water quality to the maximum extent practicable through the use of best management practices. All buffer rule requirements, including diffuse flow requirements, must be met.

9. If concrete is used during the construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state due to the potential for elevated pH and possible aquatic life/ fish kills.

10. All temporary fill and culverts shall be removed and the impacted area returned to natural conditions within 60 days of the determination that the temporary impact is no longer necessary. The impacted areas shall be restored to original grade, including each stream's original cross sectional dimensions, plan form pattern, and longitudinal bed and bed profile, and the various sites shall be stabilized with natural woody vegetation (except for the approved maintenance areas) and restored to prevent erosion.

11. All temporary pipes/ culverts/ riprap pads etc, shall be installed in all streams as outlined in the most recent edition of the *North Carolina Sediment and Erosion Control Planning and Design Manual* or the *North Carolina Surface Mining Manual* so as not to restrict stream flow or cause dis-equilibrium during use of this General Certification.

12. Any riprap required for proper culvert placement, stream stabilization, or restoration of temporarily disturbed areas shall be restricted to the area directly impacted by the approved construction activity. All rip-rap shall buried and/or "keyed in" such that the original stream elevation and streambank contours are restored and maintained. Placement of rip-rap or other approved materials shall not result in de-stabilization of the stream bed or banks upstream or downstream of the area.

13. Any rip-rap used for stream stabilization shall be of a size and density so as not to be able to be carried off by wave, current action, or stream flows and consist of clean rock or masonry material free of debris or toxic pollutants. Rip-rap shall not be installed in the streambed except in specific areas required for velocity control and to ensure structural integrity of bank stabilization measures.

14. A one-time application of fertilizer to re-establish vegetation is allowed in disturbed areas including riparian buffers, but is restricted to no closer than 10 feet from top of bank of streams. Any fertilizer application must comply with all other Federal, State and Local regulations.

15. Applications for riprap groins proposed in accordance with 15A NCAC 07H .1401 (NC Division of Coastal Management General Permit for construction of Wooden and Riprap Groins in Estuarine and Public Trust Waters) must meet all the specific conditions for design and construction specified in 15A NCAC 07H .1405.

16. Compensatory Mitigation

    In accordance with 15A NCAC 02H .0506 (h), compensatory mitigation may be required for losses of equal to or greater than 150 linear feet of streams (intermittent and perennial) and/or equal to or greater than one (1) acre of wetlands. For linear public transportation projects, impacts equal to or exceeding 150 linear feet per stream shall require mitigation.

    Buffer mitigation may be required for any project with Buffer Rules in effect at the time of application for activities classified as "Allowable with Mitigation" or "Prohibited" within the Table of Uses.

    A determination of buffer, wetland, and stream mitigation requirements shall be made for any General Water Quality Certification for this Nationwide and/or Regional General Permit. Design and monitoring protocols shall follow the US Army Corps of Engineers Wilmington District *Stream Mitigation Guidelines* (April 2003) or its subsequent updates. Compensatory mitigation plans shall be submitted to the Division for written approval as required in those protocols. The mitigation plan must be implemented and/or constructed before any impacts occur on site. Alternatively, the Division will accept payment into an in-lieu fee program or a mitigation bank. In these cases, proof of payment shall be provided to the Division before any impacts occur on site.

17. If an environmental document is required under the National or State Environmental Policy Act (NEPA or SEPA), then this General Certification is not valid until a Finding of No Significant Impact (FONSI) or Record of Decision (ROD) is issued by the State Clearinghouse.

18. In the twenty (20) coastal counties, the appropriate DWQ Regional Office must be contacted to determine if Coastal Stormwater Regulations will be required.

19. This General Certification does not relieve the applicant of the responsibility to obtain all other required Federal, State, or Local approvals.

20. The applicant/permittee and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law. If the Division determines that such standards or laws are not being met, including failure to sustain a designated or achieved use, or that State or Federal law is being violated, or that further conditions are necessary to assure compliance, then the Division may reevaluate and modify this General Water Quality Certification.

21. When written authorization is required for use of this certification, upon completion of all permitted impacts included within the approval and any subsequent modifications, the applicant shall be required to return the certificate of completion attached to the approval. One copy of the certificate shall be sent to the DWQ Central Office in Raleigh at 1650 Mail Service Center, Raleigh, NC, 27699-1650.

22. Additional site-specific conditions, including monitoring and/or modeling requirements, may be added to the written approval letter for projects proposed under this Water Quality Certification in order to ensure compliance with all applicable water quality and effluent standards.

23. This certification grants permission to the director, an authorized representative of the Director, or DENR staff, upon the presentation of proper credentials, to enter the property during normal business hours.

This General Certification shall expire on the same day as the expiration date of the corresponding Nationwide and/or Regional General Permit. The conditions in effect on the date of issuance of Certification for a specific project shall remain in effect for the life of the project, regardless of the expiration date of this Certification.

Non-compliance with or violation of the conditions herein set forth by a specific project may result in revocation of this General Certification for the project and may also result in criminal and/or civil penalties.

The Director of the North Carolina Division of Water Quality may require submission of a formal application for Individual Certification for any project in this category of activity if it is determined that the project is likely to have a significant adverse effect upon water quality, including state or federally listed endangered or threatened aquatic species, or degrade the waters so that existing uses of the wetland or downstream waters are precluded.

Public hearings may be held for specific applications or group of applications prior to a Certification decision if deemed in the public's best interest by the Director of the North Carolina Division of Water Quality.

Effective date: March 19, 2012

DIVISION OF WATER QUALITY

By

Matt Matta for

Charles Wakild, P.E.

Director

History Note: *Water Quality Certification (WQC) Number 3885 issued March 19, 2012 replaces WQC Number 3689 issued November 1, 2007; WQC Number 3626 issued March, 2007; WQC Number 3495 issued December 31, 2004; and WQC Number 3399 issued March 2003.* This General Certification is rescinded when the Corps of Engineers reauthorizes any of the corresponding Nationwide and/or Regional General Permits and/or when deemed appropriate by the Director of the Division of Water Quality.

Water Quality Certification No. 3891

GENERAL CERTIFICATION FOR PROJECTS ELIGIBLE FOR U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT NUMBER 23 (APPROVED CATEGORICAL EXCLUSIONS) AND RIPARIAN AREA PROTECTION RULES (BUFFER RULES)

Water Quality Certification Number 3891 is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality Regulations in 15A NCAC 02H .0500 and 15A NCAC 02B .0200 for the discharge of fill material to waters and wetland areas as described in 33 CFR 330 Appendix A (B) (23) and for the Riparian Area Protection Rules (Buffer Rules) in 15A NCAC 02B .0200.

The category of activities shall include only Federally-approved Categorical Exclusion projects.

The State of North Carolina certifies that the specified category of activity will not violate applicable portions of Sections 301, 302, 303, 306 and 307 of the Public Laws 92-500 and 95-217 if conducted in accordance with the conditions hereinafter set forth.

Activities meeting any one (1) of the following thresholds or circumstances require *written approval* for a 401 Water Quality Certification from the Division of Water Quality (the "Division"):

a) Stream impacts (temporary or permanent) equal or greater than 40 linear feet; or
b) Any stream relocation; or
c) Impacts equal to or greater than one-tenth (1/10) acre of wetlands or open waters; or
d) Any impacts to wetlands adjacent to waters designated as: ORW, SA, WS-I, WS-II, or Trout, or wetlands contiguous to waters designated as a North Carolina or National Wild and Scenic River.
e) Any impacts to coastal wetlands [15A NCAC 7H .0205)], or Unique Wetlands (UWL) [15A NCAC 2H .0506].
f) Any impact associated with a Notice of Violation or an enforcement action for violation(s) of DWQ Wetland Rules (15A NCAC 02H .0500), Isolated Wetland Rules (15A NCAC 02H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 02B .0200); or
g) Any impacts to streams and/or buffers in the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan or Goose Creek Watersheds (or any other basin or watershed with Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) *unless* the activities are listed as "EXEMPT" from these rules or a Buffer Authorization Certificate is issued through N.C. Division of Coastal Management (DCM) delegation for "ALLOWABLE" activities.

In accordance with North Carolina General Statute 143-215.3D(e), written approval for a 401 Water Quality General Certification must include the appropriate fee. If a project also requires a CAMA Permit, then one payment to both agencies shall be submitted and will be the higher of the two fees.

Activities included in this General Certification that do not meet one of the thresholds listed above do not require written approval from the Division as long as they comply with the Conditions of Certification listed below. If any of these Conditions cannot be met, then written approval from the Division is required.

Conditions of Certification:

1. No Impacts Beyond those Authorized in the Written Approval or Beyond the Threshold of Use of this Certification

   No waste, spoil, solids, or fill of any kind shall occur in wetlands, waters, or riparian areas beyond the footprint of the impacts depicted in the Pre-Construction Notification, as

authorized in the written approval from the Division or beyond the thresholds established for use of this Certification without written authorization, including incidental impacts. All construction activities, including the design, installation, operation, and maintenance of sediment and erosion control Best Management Practices shall be performed so that no violations of state water quality standards, statutes, or rules occur. Approved plans and specifications for this project are incorporated by reference and are enforceable parts of this permit.

2. Standard Erosion and Sediment Control Practices

Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices and if applicable, comply with the specific conditions and requirements of the NPDES Construction Stormwater Permit issued to the site:

a. Design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal or exceed the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.

b. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.

c. Reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.

d. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.

e. If the project occurs in waters or watersheds classified as Primary Nursery Areas (PNAs), SA, WS-I, WS-II, High Quality (HQW), or Outstanding Resource (ORW) waters, then the sedimentation and erosion control designs must comply with the requirements set forth in 15A NCAC 04B .0124, *Design Standards in Sensitive Watersheds*.

3. No Sediment and Erosion Control Measures in Wetlands or Waters

Sediment and erosion control measures shall not be placed in wetlands or waters. Exceptions to this condition require application submittal to and written approval by the Division. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, then design and placement of temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands, stream beds, or banks, adjacent to or upstream and downstream of the above structures. All sediment and erosion control devices shall be removed and the natural grade restored within two (2) months of the date that the Division of Land Resources (DLR) or locally delegated program has released the specific area within the project.

4. Construction Stormwater Permit NCG010000

An NPDES Construction Stormwater Permit is required for construction projects that disturb one (1) or more acres of land. This Permit allows stormwater to be discharged during land disturbing construction activities as stipulated in the conditions of the permit. If your project is covered by this permit, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required. A copy of the general permit (NCG010000), inspection log sheets, and other information may be found at http://portal.ncdenr.org/web/wq/ws/su/npdessw#tab-w .

The North Carolina Department of Transportation (NCDOT) shall be required to be in full compliance with the conditions related to construction activities within the most recent version of their individual NPDES (NCS000250) stormwater permit.

5. Construction Moratoriums and Coordination

   If activities must occur during periods of high biological activity (i.e. sea turtle nesting, fish spawning, or bird nesting), then biological monitoring may be required at the request of other state or federal agencies and coordinated with these activities.

   All moratoriums on construction activities established by the NC Wildlife Resources Commission (WRC), US Fish and Wildlife Service (USFWS), NC Division of Marine Fisheries (DMF), or National Marine Fisheries Service (NMFS) to lessen impacts on trout, anadromous fish, larval/post-larval fishes and crustaceans, or other aquatic species of concern shall be implemented. Exceptions to this condition require written approval by the resource agency responsible for the given moratorium.

   Work within the twenty-five (25) designated trout counties or identified state or federal endangered or threatened species habitat shall be coordinated with the appropriate WRC, USFWS, NMFS, and/or DMF personnel.

6. Work in the Dry

   All work in or adjacent to stream waters shall be conducted so that the flowing stream does not come in contact with the disturbed area. Approved best management practices from the most current version of the NC Sediment and Erosion Control Manual, or the NC DOT Construction and Maintenance Activities Manual, such as sandbags, rock berms, cofferdams, and other diversion structures shall be used to minimize excavation in flowing water. Exceptions to this condition require application submittal to and written approval by the Division.

7. Riparian Area Protection (Buffer) Rules

   Activities located in the protected riparian areas (whether jurisdictional wetlands or not), within the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan, or Goose Creek Watersheds (or any other basin or watershed with buffer rules) shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 02B .0233, .0259, .0243, .0250, .0267 and .0605, and shall be located, designed, constructed, and maintained to have minimal disturbance to protect water quality to the maximum extent practicable through the use of best management practices. All buffer rule requirements, including diffuse flow requirements, must be met.

8. If concrete is used during the construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state due to the potential for elevated pH and possible aquatic life/ fish kills.

9. Bridge deck drains shall not discharge directly 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, etc.) before entering the stream. Please refer to the most current version of *Stormwater Best Management Practices*. Exceptions to this condition require written approval by the Division.

10. Relocated stream designs should include the same dimensions, patterns, and profiles as the existing channel (or a stable reference reach if the existing channel is unstable), to the maximum extent practical. The new channel should be constructed in the dry and water shall not be turned into the new channel until the banks are stabilized. Vegetation used for bank stabilization shall be limited to native woody species, and should include establishment of a 30-foot wide wooded and an adjacent 20-foot wide vegetated buffer on both sides of the relocated channel to the maximum extent practical. A transitional phase incorporating appropriate erosion control matting materials and seedling establishment is allowable, however matting that incorporates plastic mesh and/or plastic twine shall not be used in wetlands, riparian buffers or floodplains as recommended by the North Carolina Sediment and Erosion Control Manual. Rip-rap, A-Jacks, concrete, gabions or other hard structures may be allowed if it is necessary to maintain the physical integrity of the stream; however, the applicant must provide written justification and any calculations used to determine the extent of rip-rap coverage. Please note that if the stream relocation is conducted as a stream restoration as defined in the US Army Corps of Engineers Wilmington District, April 2003 *Stream Mitigation Guidelines* (or its subsequent updates), the restored length may be used as compensatory mitigation for the impacts resulting from the relocation.

11. Placement of Culverts and Other Structures in Waters and Wetlands

    Culverts required for this project shall be designed and installed in such a manner that the original stream profiles are not altered and allow for aquatic life movement during low flows. Existing stream dimensions (including the cross section dimensions, pattern, and longitudinal profile) must be maintained above and below locations of each culvert.

    Placement of culverts and other structures in waters and streams must 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 or equal to 48 inches, to allow low flow passage of water and aquatic life.

    When topographic constraints indicate culvert slopes of greater than 5%, culvert burial is not required, provided that all alternative options for flattening the slope have been investigated and aquatic life movement/ connectivity has been provided when possible (rock ladders, crossvanes, etc). Notification to the Division including supporting documentation to include a location map of the culvert, culvert profile drawings, and slope calculations shall be provided to the Division 60 days prior to the installation of the culvert.

    When bedrock is present in culvert locations, culvert burial is not required provided that there is sufficient documentation of the presence of bedrock. Notification to the Division including supporting documentation such as, but not limited to, a location map of the culvert, geotechnical reports, photographs, etc shall be provided to the Division a minimum of 60 days prior to the installation of the culvert. If bedrock is discovered during construction, then the Division shall be notified by phone or email within 24 hours of discovery.

    If other site-specific topographic constraints preclude the ability to bury the culverts as described above and/or it can be demonstrated that burying the culvert would result in destabilization of the channel, then exceptions to this condition require application submittal to, and written approval by, the Division of Water Quality, regardless of the total impacts to streams or wetlands from the project.

Installation of culverts in wetlands must ensure continuity of water movement and be designed to adequately accommodate high water or flood conditions. Additionally, when roadways, causeways, or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges must be provided to maintain the natural hydrology of the system as well as prevent constriction of the floodway that may result in destabilization of streams or wetlands.

The establishment of native, woody vegetation and other soft stream bank stabilization techniques must be used where practicable instead of riprap or other bank hardening methods.

12. Compensatory Mitigation

    In accordance with 15A NCAC 02H .0506 (h), compensatory mitigation may be required for losses of equal to or greater than 150 linear feet of streams (intermittent and perennial) and/or equal to or greater than one (1) acre of wetlands. For linear public transportation projects, impacts equal to or exceeding 150 linear feet per stream shall require mitigation.

    Buffer mitigation may be required for any project with Buffer Rules in effect at the time of application for activities classified as "Allowable with Mitigation" or "Prohibited" within the Table of Uses.

    A determination of buffer, wetland, and stream mitigation requirements shall be made for any General Water Quality Certification for this Nationwide and/or Regional General Permit. Design and monitoring protocols shall follow the US Army Corps of Engineers Wilmington District *Stream Mitigation Guidelines* (April 2003) or its subsequent updates. Compensatory mitigation plans shall be submitted to the Division for written approval as required in those protocols. The mitigation plan must be implemented and/or constructed before any impacts occur on site. Alternatively, the Division will accept payment into an in-lieu fee program or a mitigation bank. In these cases, proof of payment shall be provided to the Division before any impacts occur on site.

13. If an environmental document is required under the National or State Environmental Policy Act (NEPA or SEPA), then this General Certification is not valid until a Finding of No Significant Impact (FONSI) or Record of Decision (ROD) is issued by the State Clearinghouse.

14. In the twenty (20) coastal counties, the appropriate DWQ Regional Office must be contacted to determine if Coastal Stormwater Regulations will be required.

15. This General Certification does not relieve the applicant of the responsibility to obtain all other required Federal, State, or Local approvals.

16. The applicant/permittee and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law. If the Division determines that such standards or laws are not being met, including failure to sustain a designated or achieved use, or that State or Federal law is being violated, or that further conditions are necessary to assure compliance, then the Division may reevaluate and modify this General Water Quality Certification.

17. When written authorization is required for use of this certification, upon completion of all permitted impacts included within the approval and any subsequent modifications, the applicant shall be required to return the certificate of completion attached to the approval. One copy of the certificate shall be sent to the DWQ Central Office in Raleigh at 1650 Mail Service Center, Raleigh, NC, 27699-1650.

18. Additional site-specific conditions, including monitoring and/or modeling requirements, may be added to the written approval letter for projects proposed under this Water Quality Certification in order to ensure compliance with all applicable water quality and effluent standards.

19. This certification grants permission to the director, an authorized representative of the Director, or DENR staff, upon the presentation of proper credentials, to enter the property during normal business hours.

This General Certification shall expire on the same day as the expiration date of the corresponding Nationwide and/or Regional General Permit. The conditions in effect on the date of issuance of Certification for a specific project shall remain in effect for the life of the project, regardless of the expiration date of this Certification.

Non-compliance with or violation of the conditions herein set forth by a specific project may result in revocation of this General Certification for the project and may also result in criminal and/or civil penalties.

The Director of the North Carolina Division of Water Quality may require submission of a formal application for Individual Certification for any project in this category of activity if it is determined that the project is likely to have a significant adverse effect upon water quality, including state or federally listed endangered or threatened aquatic species, or degrade the waters so that existing uses of the wetland or downstream waters are precluded.

Public hearings may be held for specific applications or group of applications prior to a Certification decision if deemed in the public's best interest by the Director of the North Carolina Division of Water Quality.

Effective date: March 19, 2012

DIVISION OF WATER QUALITY

By

Matt Matthews for

Charles Wakild, P.E.

Director

History Note: Water Quality Certification (WQC) Number 3891 issued March 19, 2012 replaces WQC 3701 issued November 1, 2007; WQC Number 3632 issued March 2007; WQC Number 3403 issued March 2003; WQC Number 3361 issued March 18, 2002; WQC Number 3107 issued February 11, 1997; WQC Number 2734 issued May 1 1993; and WQC Number 2670 issued on January 21, 1992. This General Certification is rescinded when the Corps of Engineers reauthorizes any of the corresponding Nationwide and/or Regional General Permits or when deemed appropriate by the Director of the Division of Water Quality.

Water Quality Certification No. 3893

GENERAL CERTIFICATION FOR PROJECTS ELIGIBLE FOR U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT NUMBER 33 (TEMPORARY CONSTRUCTION, ACCESS AND DEWATERING) AND RIPARIAN AREA PROTECTION RULES (BUFFER RULES)

Water Quality Certification Number 3893 is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality Regulations in 15A NCAC 02H .0500 and 15A NCAC 02B .0200 for the discharge of fill material to waters and wetland areas as described in 33 CFR 330 Appendix A (B) (33) and for the Riparian Area Protection Rules (Buffer Rules) in 15A NCAC 02B .0200.

The State of North Carolina certifies that the specified category of activity will not violate applicable portions of Sections 301, 302, 303, 306 and 307 of the Public Laws 92-500 and 95-217 if conducted in accordance with the conditions hereinafter set forth.

Activities meeting any one (1) of the following thresholds or circumstances require *written approval* for a 401 Water Quality Certification from the Division of Water Quality (the "Division"):

a. Any stream relocation; or
b. Any impact associated with a Notice of Violation or an enforcement action for violation(s) of DWQ Wetland Rules (15A NCAC 02H .0500), Isolated Wetland Rules (15A NCAC 02H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 02B .0200); or
c. Any impacts to streams and/or buffers in the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan or Goose Creek Watersheds (or any other basin or watershed with Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) *unless* the activities are listed as "EXEMPT" from these rules or a Buffer Authorization Certificate is issued through N.C. Division of Coastal Management (DCM) delegation for "ALLOWABLE" activities.

In accordance with North Carolina General Statute 143-215.3D(e), written approval for a 401 Water Quality General Certification must include the appropriate fee. If a project also requires a CAMA Permit, then one payment to both agencies shall be submitted and will be the higher of the two fees.

Activities included in this General Certification that do not meet one of the thresholds listed above do not require written approval from the Division as long as they comply with the Conditions of Certification listed below. If any of these Conditions cannot be met, then written approval from the Division is required.

Conditions of Certification:

1. No Impacts Beyond those Authorized in the Written Approval or Beyond the Threshold of Use of this Certification

   No waste, spoil, solids, or fill of any kind shall occur in wetlands, waters, or riparian areas beyond the footprint of the impacts depicted in the Pre-Construction Notification, as authorized in the written approval from the Division or beyond the thresholds established for use of this Certification without written authorization, including incidental impacts. All construction activities, including the design, installation, operation, and maintenance of sediment and erosion control Best Management Practices shall be performed so that no violations of state water quality standards, statutes, or rules occur. Approved plans and specifications for this project are incorporated by reference and are enforceable parts of this permit.

2. Standard Erosion and Sediment Control Practices

Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices and if applicable, comply with the specific conditions and requirements of the NPDES Construction Stormwater Permit issued to the site:

a. Design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal or exceed the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.

b. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.

c. Reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.

d. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.

e. If the project occurs in waters or watersheds classified as Primary Nursery Areas (PNAs), SA, WS-I, WS-II, High Quality (HQW), or Outstanding Resource (ORW) waters, then the sedimentation and erosion control designs must comply with the requirements set forth in 15A NCAC 04B .0124, *Design Standards in Sensitive Watersheds*.

3. No Sediment and Erosion Control Measures in Wetlands or Waters

Sediment and erosion control measures shall not be placed in wetlands or waters. Exceptions to this condition require application submittal to and written approval by the Division. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, then design and placement of temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands, stream beds, or banks, adjacent to or upstream and downstream of the above structures. All sediment and erosion control devices shall be removed and the natural grade restored within two (2) months of the date that the Division of Land Resources (DLR) or locally delegated program has released the specific area within the project.

4. Construction Stormwater Permit NCG010000

An NPDES Construction Stormwater Permit is required for construction projects that disturb one (1) or more acres of land. This Permit allows stormwater to be discharged during land disturbing construction activities as stipulated in the conditions of the permit. If your project is covered by this permit, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required. A copy of the general permit (NCG010000), inspection log sheets, and other information may be found at http://portal.ncdenr.org/web/wq/ws/su/npdessw#tab-w .

The North Carolina Department of Transportation (NCDOT) shall be required to be in full compliance with the conditions related to construction activities within the most recent version of their individual NPDES (NCS000250) stormwater permit.

5. Construction Moratoriums and Coordination

   If activities must occur during periods of high biological activity (i.e. sea turtle nesting, fish spawning, or bird nesting), then biological monitoring may be required at the request of other state or federal agencies and coordinated with these activities.

   All moratoriums on construction activities established by the NC Wildlife Resources Commission (WRC), US Fish and Wildlife Service (USFWS), NC Division of Marine Fisheries (DMF), or National Marine Fisheries Service (NMFS) to lessen impacts on trout, anadromous fish, larval/post-larval fishes and crustaceans, or other aquatic species of concern shall be implemented. Exceptions to this condition require written approval by the resource agency responsible for the given moratorium.

   Work within the twenty-five (25) designated trout counties or identified state or federal endangered or threatened species habitat shall be coordinated with the appropriate WRC, USFWS, NMFS, and/or DMF personnel.

6. Work in the Dry

   All work in or adjacent to stream waters shall be conducted so that the flowing stream does not come in contact with the disturbed area. Approved best management practices from the most current version of the NC Sediment and Erosion Control Manual, or the NC DOT Construction and Maintenance Activities Manual, such as sandbags, rock berms, cofferdams, and other diversion structures shall be used to minimize excavation in flowing water. Exceptions to this condition require application submittal to and written approval by the Division.

7. Riparian Area Protection (Buffer) Rules

   Activities located in the protected riparian areas (whether jurisdictional wetlands or not), within the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan, or Goose Creek Watersheds (or any other basin or watershed with buffer rules) shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 02B .0233, .0259, .0243, .0250, .0267 and .0605, and shall be located, designed, constructed, and maintained to have minimal disturbance to protect water quality to the maximum extent practicable through the use of best management practices. All buffer rule requirements, including diffuse flow requirements, must be met.

8. If concrete is used during the construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state due to the potential for elevated pH and possible aquatic life/ fish kills.

9. Bridge deck drains shall not discharge directly 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, etc.) before entering the stream. Please refer to the most current version of *Stormwater Best Management Practices.* Exceptions to this condition require written approval by the Division.

10. Placement of culverts and other structures in Waters and Wetlands

    Culverts required for this project shall be designed and installed in such a manner that the original stream profiles are not altered and allow for aquatic life movement during low flows. Existing stream dimensions (including the cross section dimensions, pattern, and longitudinal profile) must be maintained above and below locations of each culvert.

Placement of culverts and other structures in waters and streams must 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 or equal to 48 inches, to allow low flow passage of water and aquatic life.

When topographic constraints indicate culvert slopes of greater than 5%, culvert burial is not required, provided that all alternative options for flattening the slope have been investigated and aquatic life movement/ connectivity has been provided when possible (rock ladders, crossvanes, etc). Notification to the Division including supporting documentation to include a location map of the culvert, culvert profile drawings, and slope calculations shall be provided to the Division 60 days prior to the installation of the culvert.

When bedrock is present in culvert locations, culvert burial is not required provided that there is sufficient documentation of the presence of bedrock. Notification to the Division including supporting documentation such as, but not limited to, a location map of the culvert, geotechnical reports, photographs, etc shall be provided to the Division a minimum of 60 days prior to the installation of the culvert. If bedrock is discovered during construction, then the Division shall be notified by phone or email within 24 hours of discovery.

If other site-specific topographic constraints preclude the ability to bury the culverts as described above and/or it can be demonstrated that burying the culvert would result in destabilization of the channel, then exceptions to this condition require application submittal to, and written approval by, the Division of Water Quality, regardless of the total impacts to streams or wetlands from the project.

Installation of culverts in wetlands must ensure continuity of water movement and be designed to adequately accommodate high water or flood conditions. Additionally, when roadways, causeways, or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges must be provided to maintain the natural hydrology of the system as well as prevent constriction of the floodway that may result in destabilization of streams or wetlands.

The establishment of native, woody vegetation and other soft stream bank stabilization techniques must be used where practicable instead of riprap or other bank hardening methods.

11. Compensatory Mitigation

In accordance with 15A NCAC 02H .0506 (h), compensatory mitigation may be required for losses of equal to or greater than 150 linear feet of streams (intermittent and perennial) and/or equal to or greater than one (1) acre of wetlands. For linear public transportation projects, impacts equal to or exceeding 150 linear feet per stream shall require mitigation.

Buffer mitigation may be required for any project with Buffer Rules in effect at the time of application for activities classified as "Allowable with Mitigation" or "Prohibited" within the Table of Uses.

A determination of buffer, wetland, and stream mitigation requirements shall be made for any General Water Quality Certification for this Nationwide and/or Regional General Permit. Design and monitoring protocols shall follow the US Army Corps of Engineers Wilmington District *Stream Mitigation Guidelines* (April 2003) or its subsequent updates. Compensatory mitigation plans shall be submitted to the Division for written approval as required in those protocols. The mitigation plan must be implemented and/or constructed before any impacts occur on site. Alternatively, the Division will accept payment into an in-lieu fee program or a mitigation bank. In these cases, proof of payment shall be provided to the Division before any impacts occur on site.

12. Relocated stream designs should include the same dimensions, patterns, and profiles as the existing channel (or a stable reference reach if the existing channel is unstable), to the maximum extent practical. The new channel should be constructed in the dry and water shall not be turned into the new channel until the banks are stabilized. Vegetation used for bank stabilization shall be limited to native woody species, and should include establishment of a 30-foot wide wooded and an adjacent 20-foot wide vegetated buffer on both sides of the relocated channel to the maximum extent practical. A transitional phase incorporating appropriate erosion control matting materials and seedling establishment is allowable, however matting that incorporates plastic mesh and/or plastic twine shall not be used in wetlands, riparian buffers or floodplains as recommended by the North Carolina Sediment and Erosion Control Manual. Rip-rap, A-Jacks, concrete, gabions or other hard structures may be allowed if it is necessary to maintain the physical integrity of the stream; however, the applicant must provide written justification and any calculations used to determine the extent of rip-rap coverage. Please note that if the stream relocation is conducted as a stream restoration as defined in the US Army Corps of Engineers Wilmington District, April 2003 *Stream Mitigation Guidelines* (or its subsequent updates), the restored length may be used as compensatory mitigation for the impacts resulting from the relocation.

13. All temporary fill and culverts shall be removed and the impacted area returned to natural conditions within 60 days of the determination that the temporary impact is no longer necessary. The impacted areas shall be restored to original grade, including each stream's original cross sectional dimensions, plan form pattern, and longitudinal bed and bed profile, and the various sites shall be stabilized with natural woody vegetation (except for the approved maintenance areas) and restored to prevent erosion.

14. Pipes shall be installed under the road or causeway in all streams to carry at least the 25-year storm event as outlined in the most recent edition of the *North Carolina Sediment and Erosion Control Planning and Design Manual* or the *North Carolina Surface Mining Manual* so as not to restrict stream flow during use of this General Certification.

15. If an environmental document is required under the National or State Environmental Policy Act (NEPA or SEPA), then this General Certification is not valid until a Finding of No Significant Impact (FONSI) or Record of Decision (ROD) is issued by the State Clearinghouse.

16. In the twenty (20) coastal counties, the appropriate DWQ Regional Office must be contacted to determine if Coastal Stormwater Regulations will be required.

17. This General Certification does not relieve the applicant of the responsibility to obtain all other required Federal, State, or Local approvals.

18. The applicant/permittee and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law. If the Division determines that such standards or laws are not being met, including failure to sustain a designated or achieved use, or that State or Federal law is being violated, or that further conditions are necessary to assure compliance, then the Division may reevaluate and modify this General Water Quality Certification.

19. When written authorization is required for use of this certification, upon completion of all permitted impacts included within the approval and any subsequent modifications, the applicant shall be required to return the certificate of completion attached to the approval. One copy of the certificate shall be sent to the DWQ Central Office in Raleigh at 1650 Mail Service Center, Raleigh, NC, 27699-1650.

20. Additional site-specific conditions, including monitoring and/or modeling requirements, may be added to the written approval letter for projects proposed under this Water Quality Certification in order to ensure compliance with all applicable water quality and effluent standards.

21. This certification grants permission to the director, an authorized representative of the Director, or DENR staff, upon the presentation of proper credentials, to enter the property during normal business hours.

This General Certification shall expire on the same day as the expiration date of the corresponding Nationwide and/or Regional General Permit. The conditions in effect on the date of issuance of Certification for a specific project shall remain in effect for the life of the project, regardless of the expiration date of this Certification.

Non-compliance with or violation of the conditions herein set forth by a specific project may result in revocation of this General Certification for the project and may also result in criminal and/or civil penalties.

The Director of the North Carolina Division of Water Quality may require submission of a formal application for Individual Certification for any project in this category of activity if it is determined that the project is likely to have a significant adverse effect upon water quality, including state or federally listed endangered or threatened aquatic species, or degrade the waters so that existing uses of the wetland or downstream waters are precluded.

Public hearings may be held for specific applications or group of applications prior to a Certification decision if deemed in the public's best interest by the Director of the North Carolina Division of Water Quality.

Effective date: March 19, 2012

DIVISION OF WATER QUALITY

By

Matt Matson for

Charles Wakild, P.E.

Director

History Note: Water Quality Certification (WQC) Number 3893 issued March 19, 2012 replaces WQC Number 3688 issued November 1, 2007; WQC Number 3634 issued March 19, 2007; WQC Number 3366 issued March 18, 2002; WQC Number 3114 issued February 11, 1997; and WQC Number 2727 issued May 1, 1992. This General Certification is rescinded when the Corps of Engineers reauthorizes any of the corresponding Nationwide and/or Regional General Permits or when deemed appropriate by the Director of the Division of Water Quality.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801

June 6, 2013

Mr. John F. Sullivan, III, P.E.
Division Administrator
Federal Highway Administration
310 New Bern Avenue, Suite 410
Raleigh, North Carolina 27601

Attention: Mr. Mitch Batuzich, Western Preconstruction and Environment Specialist

Dear Mr. Sullivan:

Subject: Biological Opinion for the Proposed Replacement of Bridge No. 29 [TIP No. B-5109, Federal Aid Project # BRSTP-0218(7)] over Goose Creek on NC Highway 218 in Union County, North Carolina, and Its Effects on the Federally Endangered Carolina Heelsplitter and Its Designated Critical Habitat

This document transmits the U.S. Fish and Wildlife Service's (Service) Biological Opinion (Opinion) based on our review of the Biological Assessment (BA) on the effects of the subject bridge replacement on the federally endangered Carolina heelsplitter (*Lasmigona decorata*) and its designated critical habitat in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act).

This Opinion is based on information provided in the April 24, 2013, BA; other available literature; personal communications with experts on the federally endangered Carolina heelsplitter; site visits; and other sources of information. A complete administrative record of this consultation is on file at this office.

In the BA you determined that the endangered Schweinitz's sunflower (*Helianthus schweinitzii*) and Michaux's sumac (*Rhus michauxii*) would not be affected by the proposed bridge replacement. We concur with your determination and believe the requirements under section 7 of the Act are fulfilled for these two species. However, obligations under section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner that was not considered in this review, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

CONSULTATION HISTORY

July 25, 2011 - North Carolina Department of Transportation (NCDOT) personnel and Service biologists met at the bridge site to discuss the project and potential minimization measures for aquatic resources.

August 30 - September 1, 2011 – The Catena Group (consulting firm) staff and Service biologists met on the site to survey for the Carolina heelsplitter.

October 6, 2011 - NCDOT personnel and Service biologists met at the bridge site to discuss the potential removal of a beaver dam that was backing up water to the bridge foundation.

December 5, 2012 - Phone conversation with NCDOT consultant Mr. Tim Savidge (The Catena Group) to discuss potential minimization measures.

January 11, 2013 - Phone conversation with NCDOT staff member Ms. Heather Wallace to discuss proposed methods of foundation removal and the design of hazardous spill basins.

March – April 2013 - Email exchanges with NCDOT personnel, The Catena Group personnel, and Service staff to discuss the use of chemical flocculants as part of the erosion-control plan.

April 24, 2013 - The Service received the Federal Highway Administration's (FHWA) BA and request to initiate formal consultation.

BIOLOGICAL OPINION

I. DESCRIPTION OF THE PROPOSED ACTION

As defined in the Service's section 7 regulations (50 CFR 402.02), "action" means "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies in the United States or upon the high seas." The action area is defined as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." In their BA, the NCDOT outlined those activities involved in the construction of Bridge No. 29 over Goose Creek (B-5109) on NC Highway 218 (NC 218) that may affect the Carolina heelsplitter and its designated critical habitat in the action area.

The NCDOT proposes to replace the existing 113-foot three-span structure on the existing alignment with a 135-foot three-span structure. The replacement structure will span the normal wetted width of the channel with interior bents located about 6 and 14 feet from the top of the northern and southern streambanks, respectively. The new design eliminates structures in the stream channel and facilitates animal crossing under the bridge. Approach work will require grade elevation within 300 feet of either side of the new structure. Erosion-control methods are still being designed, but the BA states that they will adhere to the NCDOT's Design Standards in Sensitive Watersheds, with the use of flocculants to meet turbidity requirements. The BA states

that an anionic flocculant from the North Carolina Division of Water Quality's Approved PAMS/Flocculants List will be used and that records of rainfall and flocculant application will be kept for review. To further reduce the transport of flocculated sediment from the construction site, flocculant will not be used on the erosion-control devices located at the drainage outlets.

Demolition of the existing structure will require removal of the existing abutments within the stream channel. The removal method will depend on the construction, depth, and difficulty of removal of the existing bents. The BA states that the most likely method is to cut the bent foundation at or below the existing streambed. This method will require a work pad and dewatering of the work area. An alternative method is to pull the bent from the substrate or break it off. A turbidity curtain will be used to reduce downstream turbidity. The NCDOT has committed to using the most conservative method in order to minimize in-water activity.

Traffic will be maintained along a detour route during construction. No modifications to the detour route to accommodate the additional traffic are anticipated.

A. Action Area

The action area should be determined based on the consideration of all direct and indirect effects of the proposed action (50 CFR 402.2 and 402.14(h)(2)). The action area for the replacement of Bridge No. 29 includes all areas within the construction limits, including 300 feet of approach road modification on either side, plus the stream channel extending 328 feet upstream of the construction limits to 1,312 feet downstream of the construction limits. This action area does not include the whole length of the critical habitat, as included in the BA, because the Service believes that conservation measures are adequate to limit in-stream effects to the 1,312-foot downstream reach and the 328-foot upstream reach.

B. Conservation Measures

Conservation measures represent actions, pledged in the project description, that the action agency will implement in order to minimize the effects of the proposed action and further the recovery of the species under review. In the design and implementation plans for the bridge replacement, the NCDOT incorporated measures (e.g., increased erosion and sediment controls and stormwater management) to avoid and/or minimize potential impacts to the Carolina heelsplitter.

The conservation measures from the BA for Project B-5109 are listed below (indented and in bold print), copied verbatim from Section 5.0 (AVOIDANCE AND MINIMIZATION EFFORTS). They will be incorporated into the design and planned construction of this structure in order to avoid and minimize impacts to Goose Creek and the Carolina heelsplitter.

> **Standard Measures**
>
> **NCDOT's "Design Standards in Sensitive Watersheds" are incorporated into projects that occur within or upstream of water bodies that contain federally protected aquatic species.**

- **Erosion and sedimentation control measures, structures, and devices within a sensitive watershed shall be so planned, designed and constructed to provide protection from the runoff of the 25-year storm which produces the maximum peak rate of runoff as calculated according to procedures in the "Erosion and Sediment Control Planning and Design Manual" or according to procedures adopted by the North Carolina Department of Transportation.**

- **Sediment basins within sensitive watershed shall be designed and constructed such that the basin will have a settling efficiency of at least 70 percent for the 40 micron (0.04mm) size soil particle transported into the basin by the runoff of the two-year storm which produces the maximum peak rate of runoff as calculated according to procedures in the "Erosion and Sediment Control Planning and Design Manual" or according to procedures adopted by the North Carolina Department of Transportation.**

- **Erosion and sedimentation control measures will include the use of flocculants in appropriate areas to improve the settling of sediment particles and reduce turbidity levels in construction runoff. The use of flocculants will conform to Division of Water Quality approved product list. No flocculants will be used at the perimeter of the site and erosion control measures will be designed to prevent the release of treated soil into the stream.**

- **Newly constructed open channels in sensitive watersheds shall be designed and constructed with side slopes no steeper than two horizontal to one vertical if a vegetative cover is used for stabilization unless soil conditions permit a steeper slope or where the slopes are stabilized by using mechanical devices, structural devices or other acceptable ditch liners. In any event, the angle for side slopes shall be sufficient to restrain accelerated erosion.**

- **Provide ground cover sufficient to restrain erosion must be provided for any portion of a land-disturbing activity in a sensitive watershed within 14 calendar days following completion of construction or development.**

As the project is located in an Environmentally Sensitive Area, special procedures will also be used for clearing and grubbing, temporary stream crossings, and grading operations. This also requires special procedures to be used for seeding and mulching and staged seeding within the project.

The Environmental Sensitive Area shall be defined as a 50-foot buffer zone on both sides of the stream or depression measured from top of streambank or center of depression.

- **Clearing and Grubbing**
  In areas identified as Environmentally Sensitive Areas, the Contractor may perform clearing operations, but not grubbing operations until immediately prior to beginning grading operations as described in Article 200-1 of the Standard Specifications. Only clearing operations (not grubbing) shall be allowed in this buffer zone until immediately prior to beginning grading operations. Erosion control devices shall be installed immediately following the clearing operation.

- **Grading**
  Once grading operations begin in identified Environmentally Sensitive Areas, work shall progress in a continuous manner until complete. All construction within these areas shall progress in a continuous manner such that each phase is complete and areas are permanently stabilized prior to beginning of next phase. Failure on the part of the contractor to complete any phase of construction in a continuous manner in Environmentally Sensitive Areas will be just cause for the Engineer to direct the suspension of work in accordance with Article 108-7 of the Standard Specifications.

- **Temporary Stream Crossings**
  Any crossing of streams within the limits of this project shall be accomplished in accordance with the requirements of Subarticle 107-13(B) of the Standard Specifications.

- **Seeding and Mulching**
  Seeding and mulching shall be performed in accordance with Section 1060 of the Standard Specifications and vegetative cover sufficient to restrain erosion shall be installed immediately following grade establishment. Seeding and mulching shall be performed on the areas disturbed by construction immediately following final grade establishment. No appreciable time shall lapse into the contract time without stabilization of slopes, ditches and other areas within the Environmentally Sensitive Areas.

- **Stage Seeding**
  The work covered by this section shall consist of the establishment of a vegetative cover in cut and fill slopes as grading progresses. Seeding and mulching shall be done in stages on cut and fill slopes that are greater than 20 feet in height measured along the slope, or greater than 2 acres in area. Each stage shall not exceed the limits stated above.

Additional Measures

The following are additional measures intended to further reduce deleterious construction related effects to the waterway:

- **An offsite detour will be utilized for this project. No detour modifications are anticipated to be necessary.**

- **Best Management Practices for Bridge Demolition and Removal will be implemented during the removal of the existing bridge.**

- **Bridge length will increase from 113 feet to 135 feet and will eliminate one existing bent in the stream. The replacement structure will have no bents in the water. New bents will be constructed at or beyond the top of bank resulting in a complete span of the stream channel. This will increase in the hydraulic opening.**

- **No new bents will be constructed in the stream.**

- **There will be ten-foot, rip-rap free areas under the bridge on both sides of the stream to allow for wildlife passage.**

- **No deck drains will be utilized on the replacement bridge.**

- **Removal of the existing bents will take place when water level is at a minimum point allowable within the project schedule and will be done in such a manner to minimize disturbance to the stream bed.**

- **Removal of existing road fill under bridge will improve bridge conveyance and reduce bridge opening velocities.**

- **Two (2) Hazardous Spill/Detention Basins (HSB/DB) will be provided in the southeast and southwest quadrants. The locations of the HSB/DBs are based on the topography/natural drainage of the project area and the avoidance of impacts to the wetland in the northwest quadrant. The HSB/DBs will have sluice gates that remain open unless manually closed in case of a contamination event.**

- **Drainage system in the southeast quadrant will outlet to rip rap pad.**

- **Drainage systems in the northeast and northwest quadrants will outlet to preformed scour holes (PSH).**

- **All sediment and erosion control measures, throughout the project limits, will be maintained regularly to ensure proper function of the measures.**

- **NCDOT will ensure that Roadside Environmental Unit staff maintains a level of oversight to ensure that all appropriate erosion control measures are fully implemented to avoid/minimize sedimentation of the stream.**

- **A preconstruction survey for Carolina heelsplitter will be performed for an approximate distance of 100 feet (20 feet upstream and 80 feet downstream) of the project crossing. There is a relocation plan for any Carolina heelsplitter individuals found within this area. The relocation effort will consist of at least two passes through the salvage area and employ an 80% depletion effort.**

- **The Service's Asheville Field Office will be invited to the preconstruction meeting.**

II. STATUS OF THE SPECIES

A. Species Description and Life History

The Carolina heelsplitter is characterized as having an ovate, trapezoid-shaped, unsculptured shell. The outer surface of the shell ranges from greenish brown to dark brown in color, with younger specimens often having faint greenish brown or black rays. The shell's nacre is often pearly white to bluish white, grading to orange in the area of the umbo (Keferl 1991). The hinge teeth are well developed and heavy, and the beak sculpture is double-looped (Keferl and Shelly 1988). Morphologically, the shell of the Carolina heelsplitter is very similar to the shell of the green floater (Clarke 1985), with the exception of a much larger size and thickness in the Carolina heelsplitter (Keferl and Shelly 1988).

Habitat for this species has been reported from small to large streams and rivers as well as ponds. These ponds are believed to be millponds on some of the smaller streams within the species' historic range (Keferl 1991). Keferl and Shelly (1988) and Keferl (1991) reported that most individuals have been found along well-shaded streambanks with mud, muddy sand, or muddy gravel substrates. However, numerous individuals in several of the populations have been found in cobble- and gravel-dominated substrate, usually in close proximity to bedrock outcroppings (Tim Savidge, The Catenae Group, personal observations). The stability of streambanks appears to be very important to this species (Keferl 1991).

Prior to collections in 1987 and 1990 by Keferl (1991), the Carolina heelsplitter had not been collected in the twentieth century and was known only from shell characteristics. Because of its rarity, very little information about this species' biology, life history, and habitat requirements was known until very recently. Feeding strategy and reproductive cycle of the Carolina heelsplitter have not been documented but are likely similar to other native freshwater mussels (Service 1996).

The feeding process of freshwater mussels is specialized for the removal (filtering) of suspended microscopic food particles from the water column (Pennak 1989). Documented food sources for freshwater mussels include detritus, diatoms, phytoplankton, and zooplankton (Service 1996). McMahon and Bogan (2001) and Pennak (1989) should be consulted for a general overview of freshwater mussel reproductive biology. Freshwater mussels have complex reproductive cycles that usually include a larval stage (glochidium), which is an obligatory parasite on a fish. The glochidia develop into juvenile mussels, detach from the "fish host," and sink to the stream bottom where they continue to develop (provided suitable substrate and water conditions are available (Service 1996). Often, this relationship is quite species-specific, with a mussel being able to infect only one species of fish or a small group of closely related species. Many of the fish host associations have been documented by direct evidence on wild-caught fishes or implicated in laboratory infestation experiments (Watters 1994).

Until recently, nothing was known about the host species(s) for the Carolina heelsplitter (Service 1996). Starnes and Hogue (2005) identified the most likely fish host candidates (15 species) based on fish community surveys in occupied streams throughout the range of the Carolina heelsplitter. A total of nine minnow species (Cyprinidae) were identified as suitable, and two sunfish species (*Lepomis* spp.) were identified as marginally suitable host species (Eads et al. 2010). All of these species may occur in habitat types known to be occupied by the Carolina heelsplitter.

B. Status and Distribution

The Carolina heelsplitter (*Lasmigona decorata*), originally described as *Unio decoratus* by Lea (1852), synonymized by Conrad (1835) with *Lasmigona subviridis* (Johnson 1970), and later separated as a distinct species (Clarke 1985), is a federally endangered freshwater mussel, historically known from several locations within the Catawba and Pee Dee River systems in North Carolina and the Pee Dee, Savannah, and possibly the Saluda River systems in South Carolina. The Carolina heelsplitter has a very fragmented, relict distribution. There are currently 11 known surviving populations of the Carolina heelsplitter; all of them are small to extremely small in size; and their genetic health and viability is, at best, highly questionable. The 11 populations occur as follows:

Pee Dee River Basin:

1. Duck Creek/Goose Creek - Mecklenburg/Union counties, North Carolina.
2. Flat Creek/Lynches River - Lancaster/Chesterfield/Kershaw counties, South Carolina.

Catawba River Basin:

3. Sixmile Creek (Twelvemile Creek Subbasin) - Lancaster County, South Carolina.
4. Waxhaw Creek - Union County, North Carolina, and Lancaster County, South Carolina.
5. Cane Creek/Gills Creek - Lancaster County, South Carolina.
6. Fishing Creek Subbasin - Chester County, South Carolina.

7. Rocky Creek Subbasin (Bull Run Creek/UT Bull Run Creek/Beaverdam Creek) - Chester County, South Carolina.

Saluda River Basin:

8. Redbank Creek - Saluda County, South Carolina.
9. Halfway Swamp Creek - Greenwood/Saluda counties, South Carolina.

Savannah River Basin:

10. Little Stevens Creek/Mountain Creek/Sleep Creek/Turkey Creek (Stevens Creek Subbasin) - Edgefield/McCormick counties, South Carolina.
11. Cuffytown Creek (Stevens Creek Subbasin) - Greenwood/McCormick counties, South Carolina.

Habitat degradation, water quality degradation, and changes in stream flow (water quantity) are the primary identified threats to the Carolina heelsplitter. Specific types of activities that lead to these threats have been documented by the Service in the Carolina Heelsplitter Recovery Plan, the *Federal Register*, and other publications (Service 1996, 2002, 2007, 2012). These specific threats include the following:

- Siltation resulting from poorly implemented agricultural, forestry, and developmental activities.
- Water/habitat quality degradation and changes in stream hydrology due to the loss of woodlands and an increase in impervious surface area as a result of residential and industrial development.
- Golf course construction.
- Road construction and maintenance.
- Runoff and discharge of municipal, industrial, and agricultural pollutants.
- Habitat alterations associated with impoundments, channelization, dredging, and sand-mining operations.
- Other natural and human-related factors that adversely modify the aquatic environment.

These threats, alone and collectively, have contributed to the loss of the Carolina heelsplitter in streams previously known to support the species (Service 2002). In addition, many of the remaining populations occur in areas that are experiencing high rates of urbanization, such as the Charlotte, North Carolina, and Augusta, Georgia, greater metropolitan areas. The low numbers of individuals and the restricted range of each of the surviving populations make them extremely vulnerable to extirpation from a single catastrophic event or activity (Service 1996). The cumulative effects of several factors, including sedimentation, water quality degradation, habitat

modification (impoundments, channelization, etc.), urbanization and associated alteration of natural stream discharge, invasive species, and other causes of habitat degradation have contributed to the decline of this species throughout its range (Service 1996).

The Service's 5-year review for the Carolina heelsplitter in 2012 (Service 2012) provides population trends for the 11 known populations. Of these, only the Flat Creek/Lynches River population is listed as stable, even though only 64 individuals have been recently observed. The Goose Creek/Duck Creek population is listed as declining, with only 12 individuals observed in Goose Creek in 2011 and no individuals observed in Duck Creek during survey efforts in 2011. All other populations are listed as declining, except for the two in the Saluda River Basin, Red Bank Creek and Halfway Swamp Creek that are listed as unknown due to single observations of only one live individual or a relic shell, respectively. Based on the most recent survey data, the species is very rare and has a high level of threat throughout its range.

C. Critical Habitat Description

Critical habitat for the Carolina heelsplitter was designated in 2002 (Service 2002). Six areas have been designated as critical habitat. The designated area totals about 92 miles of nine creeks and one river in North and South Carolina. These areas are considered essential to the conservation of the Carolina heelsplitter.

When designating critical habitat, the Service identifies physical and biological features (primary constituent elements) that are essential to the conservation of the species and that may require special management considerations or protection. The primary constituent elements essential for the conservation of the Carolina heelsplitter (Service 2002) include:

1. Permanent flowing, cool, clean water.
2. Geomorphically stable stream and river channels and banks.
3. Pool, riffle, and run sequences within the channel.
4. Stable substrates with no more than low amounts of fine sediment.
5. Moderate stream gradient.
6. Periodic natural flooding.
7. Fish hosts, with adequate living, foraging, and spawning areas for them.

Critical habitat in Goose Creek and Duck Creek (Pee Dee River System), Union County, North Carolina, encompasses about 4.5 miles of the main stem of Goose Creek, Union County, North Carolina, from the NC 218 Bridge, downstream to its confluence with the Rocky River, and about 6.4 miles of the main stem of Duck Creek, Union County, North Carolina, from the Mecklenburg/Union County line downstream to its confluence with Goose Creek.

D. Species and Critical Habitat Affected

The action area for Project B-5109 at the NC 218 crossing of Goose Creek is situated at the uppermost extent of Carolina heelsplitter critical habitat in the Goose Creek/Duck Creek unit, which extends from the mouth of the creek up to the NC 218 crossing. Under normal conditions, we expect the construction to affect 1,312 feet of critical habitat extending downstream from the NC 218 crossing. Survey efforts in the action area did not result in the collection of any Carolina heelsplitter individuals within the action area, but the cryptic nature of the species and an inability to survey for early life stages make it possible for Carolina heelsplitter individuals to experience take. No other federally listed species or designated critical habitat will be affected.

III. ENVIRONMENTAL BASELINE

Under section 7(a)(2) of the Act, when considering the "effects of the action" on federally listed species, we are required to take into consideration the environmental baseline. The environmental baseline includes past and ongoing natural factors and the past and present impacts of all federal, state, or private actions and other activities in the action area (50 CFR 402.02), including federal actions in the area that have already undergone section 7 consultation, and the impacts of state or private actions that are contemporaneous with the consultation in process. The environmental baseline for this Opinion considers all projects approved prior to the initiation of formal consultation.

A. Status of the Species/Critical Habitat Within the Action Area

Survey data maintained by the North Carolina Wildlife Resources Commission does not indicate that the Carolina heelsplitter has been found within the defined action area in recent years. The nearest recent observation of the species is about 1.43 miles downstream, near the US 601 road crossing of Goose Creek. Because of the rarity of this species, it is sometimes necessary to rely on habitat quality and the presence of species associates to make inference about the health of a population. For the Carolina heelsplitter in Goose Creek, the Carolina creekshell (*Villosa vaughaniana*) offers a suitable surrogate. This species co-occurs with the Carolina heelsplitter throughout its range in Goose Creek and occupies similar habitat. The Carolina creekshell has been observed in the action area and in the creek upstream of the action area.

Surveys conducted by The Catena Group staff and Service personnel between August 30, 2011, and September 1, 2011, did not result in the observation of any Carolina heelsplitters within the action area, but 12 live individuals were found downstream (but outside) of the action area. These findings were very significant considering that surveys conducted from 1983 to the present include the observation of only 38 live individuals from Duck Creek and 23 live individuals from Goose Creek, excluding the 12 from the 2011 surveys. Twenty-eight live individuals of the Carolina creekshell, which is a positive sign for the Carolina heelsplitter population, were observed when the surveys were conducted in 2011. Surveys conducted by The Catena Group within the 1,312 foot downstream reach of the action area in 2009 resulted in the observation of only one live individual of the eastern elliptio (*Elliptio complanata*), a relatively tolerant mussel, within the action area. The action area appears to be intermittently inundated by

the activity of beavers (Jason Mays, Service, personal observations), which may alter the habitat's suitability for mussel species. At last observation in 2012, the action area appeared to be free-flowing and capable of supporting mussels. The available information suggests that the probability of observing adult Carolina heelsplitters during the preconstruction survey of the action area is low but that their presence, either below detectable levels or during life stages that are not readily observable, is possible.

B. Factors Affecting the Species' Environment/Critical Habitat Within the Action Area

Residential development and agricultural practices have had serious impacts on the riparian and aquatic habitat in the action area. Urbanization of the watershed upstream of the action area has caused increased runoff, which has destabilized the habitat in the stream by increasing storm flows and has decreased base flow by reducing water storage capacity within the drainage. Increased anthropogenic activity has resulted in the degradation of water quality. The riparian area within the action area is relatively narrow, with residential and agricultural land uses along much of the stream area. Unstable banks cause trees to fall in the stream and create obstructions that the stream subsequently cuts around, causing further instability. Beavers are active in the stream channel within the action area and are actively maintaining two small dams downstream of the project. Beaver activity alters the habitat features within the stream and tends to degrade habitat for the Carolina heelsplitter when their habitat is dammed.

The action area has been adversely affected by numerous recent and prolonged periods of drought. The summers of 2002 and 2007 were particularly dry in North Carolina and Goose and Duck Creeks were observed to be without water flow for several months. There were significant declines in the mussel fauna during these dry periods; subsequently, the system has not recovered from the drought effects. The clearing of woodland and riparian forest habitat within the watershed, increased impervious surface area, unregulated surface-water withdrawal for irrigation, and groundwater withdrawal for drinking-water supplies have further exacerbated the effects of drought conditions within the Goose and Duck Creek watersheds. Both Goose and Duck Creek are at high risk of seasonal drying, which is a severe stressor to the mussel populations.

The effect of these combined stressors appears to be a general lack of suitable habitat for adults to maintain a robust breeding population. The result is low recruitment and high mortality for adults. The primary constituent elements of critical habitat are all impaired to some degree and will likely continue to degrade for the foreseeable future. Under these conditions we expect that the population in Goose Creek is unstable and at high risk for extirpation.

IV. EFFECTS OF THE ACTION

Under section 7(a)(2) of the Act, "effects of the action" refers to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action. The federal action agency is responsible for analyzing these effects. The effects of the proposed action are added to the environmental baseline to determine the future baseline, which serves as the basis for the determination in this

Opinion. Should the effects of the federal action result in a situation that would jeopardize the continued existence of the species, we may propose reasonable and prudent alternatives that the federal action agency can take to avoid a violation of section 7(a)(2). The discussion that follows is our evaluation of the anticipated direct and indirect effects of replacing Bridge No. 29.

A. Factors to be Considered

Proximity of the Action - Based on mussel surveys conducted in 2011 by the NCDOT and the Service, the number of individuals within the action area is likely below the detection threshold. Although measures to avoid and minimize impacts to the critical habitat and the Carolina heelsplitter are included in the project plans, implementation of this project may result in unavoidable impacts to the stream habitat and to individual mussels.

Nature of the Effect - A small portion of the riparian area will be cleared for equipment access and construction and could result in temporary increases in water temperature until reforestation can occur. Work to construct new approaches to the bridge and the removal of existing abutments could result in sedimentation during construction.

Disturbance Duration, Frequency, and Intensity - Disturbance from the construction of the bridge will occur over a relatively short period of time. Riparian vegetation removal will be conducted and stabilized through erosion-control measures and a combination of hardened work pads, immediate seeding and mulching, or matting. The removal of in-stream abutments should take a short time, perhaps only 2 weeks.

Critical Habitat - Abutment removal will require limited in-stream work that has the potential to alter constituent elements by direct disruption of the streambed. Work in the floodplain has the potential for the erosion and sedimentation of in-stream habitat; standard practices and enhanced erosion-control practices are intended to limit this effect to a discountable level.

B. Analyses of Effects of the Action

Potential Beneficial Effects - Bridge construction will have some negative impacts but also should have some long-term beneficial effects. The new structure will be constructed so that there are no in-stream elements that can catch debris and cause scour. Deck drainage will be routed to spill basins that will potentially catch some road-derived pollutants. Spill basins will be installed that could prevent some spilled toxicant from reaching the stream habitat.

Direct Effects – Invariably, construction activities do have some adverse effect on the aquatic habitat by increasing the amount of erosion, siltation, and chemical pollution to the impacted waters. The previously mentioned conservation measures will be incorporated by the NCDOT to avoid/minimize effects to Goose Creek and critical habitat for the Carolina heelsplitter. Strict implementation of these measures will reduce the chance that the effects will be detrimental to the Carolina heelsplitter or its critical habitat. Streambank stabilization (using riprap) associated with project construction will result in 6 linear feet of permanent impacts and 20 linear feet of temporary impacts. A very small amount (<0.01 acre) of stream substrate will be permanently impacted from the riprap placement. Temporary impacts to the stream and substrate will result

from temporary bank stabilization (20 feet, <0.01 acre) and the placement of the temporary work pad (279 feet). The unavoidable effects of bridge construction are expected to negatively affect existing critical habitat in Goose Creek immediately downstream of the project area, but these effects are anticipated to be temporary. Effects caused by the bridge replacement are not likely to prevent future recolonization of the Carolina heelsplitter into the action area.

Indirect Effects - Indirect effects are defined as those that are caused by the proposed action and are later in time but are still reasonably certain to occur (50 CFR 402.02). The indirect effects of bridge replacement are not well known. The initial construction of a bridge is known to cause changes in the flow of the stream and corresponding erosive processes that can alter the adjacent habitat. Adding, removing, or altering bents and abutments during replacement is likely to change the flow patterns which would cause the stream to erode and deposit until reaching a state of semi-equilibrium. These changes are not expected to be as drastic as those caused by the initial construction of a new structure. In this case, the existing bents will be removed from the streambed, reducing constriction and the velocity of the flowing water. Reduced velocity usually corresponds with less erosion and could benefit a stream by allowing banks to naturally stabilize. Alternatively, reducing velocity can cause areas of deposition that would tend to degrade mussel habitat by covering it with silt, loose sand, or detritus.

Because this project involves the replacement of an existing structure with a similar structure on similar alignment, there are no anticipated land-use changes associated with this project.

Species Response to Proposed Action - It is not possible to determine the exact response of the species due to the proposed action due because there is very limited information about population dynamics within the population. The level of disturbance from construction is anticipated to be low and may not be distinguishable from the background level of disturbance that is observed in Goose Creek. We believe that any negative effect to the habitat will be temporary and will not, by itself, constitute a loss of viability for the species. Due to the small numbers of individuals remaining within this population, any loss of individuals has the potential to have a large effect on the population viability, but our inability to observe any response apart from unknown background fluctuation makes the prediction of species response difficult. The location of the action area (away from the most recently observed areas of species recruitment) indicates that the proposed action should not interfere with observable population dynamics.

V. CUMULATIVE EFFECTS

Action Area - Cumulative effects include the combined effects of any future state, local, or private actions that are reasonably certain to occur within the action area covered in this Opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

No other planned projects, state or private, are known to exist within the action area of this project.

VI. CONCLUSION

After reviewing the current status of the Carolina heelsplitter, the environmental baseline for the action area, the effects of implementation of the proposed action (including measures identified in the NCDOT's BA to help minimize the potential impacts of the proposed project), it is the Service's biological opinion that implementing this project is not likely to jeopardize the continued existence of the Carolina heelsplitter or adversely modify its critical habitat.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and federal regulations pursuant to section 4(d) of the Act prohibit the taking of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, such as breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not for the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited under the Act, provided that such taking is in compliance with the terms and conditions of this incidental take statement. The measures described below are nondiscretionary and must be undertaken by the FHWA so that they become binding conditions for the exemption in section 7(o)(2) to apply. The FHWA has a continuing duty to regulate the activity covered by this incidental take statement. If the FHWA (1) fails to assume and implement the terms and conditions or (2) fails to require the NCDOT to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to any permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the FHWA or NCDOT must report to the Service the progress of the action and its impact on the species.

Amount of Take Anticipated

The Service anticipates that incidental take of the Carolina heelsplitter may occur as a result of the construction of this new bridge. During construction, individual mussels may be harmed by siltation or other water-quality degradation or dislocated because of physical changes in their habitat. Available survey information leads us to believe that the chance of mortality for individuals is low and is limited to only a small portion of the action area where direct mechanical disturbance will occur. Take is primarily expected to be a nuisance from minor additional siltation of the habitat that only temporarily affects the normal life history of the species. The amount of habitat that could be affected would be the 1,640 feet of stream habitat from 328 feet upstream of the bridge to 1,312 feet downstream of the bridge. The critical habitat within the project area represents about 5.5 percent of the critical habitat designated in Goose Creek and about 2.3 percent of the total critical habitat in the Goose and Duck Creek critical habitat unit. The activities described will result in only temporary changes to the primary

constituent elements and should not result in the destruction or adverse modification of designated critical habitat.

EFFECT OF THE TAKE

In this Opinion the Service has determined that this level of take is not likely to result in jeopardy to the Carolina heelsplitter or destruction or adverse modification of its critical habitat.

Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of the Carolina heelsplitter. These nondiscretionary measures include, but are not limited to, the terms and conditions outlined in this Opinion.

1. The NCDOT will ensure that the contractor understands and follows the measures listed in the "Conservation Measures," "Reasonable and Prudent Measures," and "Terms and Conditions" sections of this Opinion.

2. Construction activities shall be implemented in a way that is consistent with measures developed to protect the Carolina heelsplitter and its habitat.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the NCDOT must comply with the following terms and conditions, which implement the reasonable and prudent measures described previously and outline required reporting and/or monitoring requirements. These terms and conditions are nondiscretionary.

1. All appropriate NCDOT BMPs for bridge demolition and construction will be followed or exceeded for this project.

2. The erosion-control plan will be in place prior to any ground disturbance. When needed, combinations of erosion-control measures should be used to ensure that the most protective measures are being implemented.

3. Access roads and construction staging areas within environmentally sensitive areas will be minimized to the maximum extent practicable. Construction equipment will be refueled outside of the environmentally sensitive areas.

4. Erosion-control measures will remain in place until riparian vegetation is reestablished at the bridge site.

5. Where riparian areas are disturbed, they will be revegetated with a native seed mix as soon as possible.

6. If a conservation measure is not or cannot be met, the Service should be contacted immediately to discuss options and to help determine whether reinitiation of consultation is necessary.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The following conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information:

1. Pursue funding and partnership opportunities to complete any additional research, propagation, inventory, and monitoring work in order to better understand the distribution and autecology of the Carolina heelsplitter.

2. Where opportunities exist, work with landowners, the general public, and other agencies to promote education and the dissemination of information about endangered mussels and their conservation.

3. Pursue buffers and conservation opportunities within Goose Creek and its tributaries, either individually or in concert with other conservation organizations.

4. Explore opportunities to work with local and state water-quality officials in order to minimize or eliminate sources of pollution, including wastewater and stormwater discharges into the Goose Creek watershed.

5. Consult with the Service on projects that affect aquatic habitat in the Goose Creek drainage, regardless of the funding source, to ensure compliance with all provisions of the Act.

In order for the Service to be kept informed about actions that minimize or avoid adverse effects or that benefit listed species or their habitats, we request notification of the implementation of any conservation recommendations.

REINITIATION/CLOSING STATEMENT

This concludes formal consultation on the actions outlined in your BA. As provided in 50 CFR 402.16, the reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion, (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion, or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operation causing such

take must cease, pending reinitiation. Consultation should also be reinitiated if new biological information comes to light that invalidates the assumptions made regarding the biology or distribution of the Carolina heelsplitter in Goose Creek in North Carolina.

If there are any questions, please contact Mr. Jason Mays of our staff at 828/258-3939, Ext. 226. We have assigned our log number 4-2-11-259 to this consultation; please refer to this number in any future correspondence concerning this matter.

Sincerely,

Gary E. Peeples
Acting Field Supervisor

Electronic copy to:
Ms. Heather Wallace, Project Development and Environmental Analysis Branch, North Carolina Department of Transportation, 1548 Mail Service Center, Raleigh, NC 27699-1548

Literature Cited

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North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

General Project Information

Project No.:	B-5109 (42246.1.1)		**Project Type:**	Bridge Replacement		**Date:**	11/19/2012
NCDOT Contact:	Galen Cail		**Contractor / Designer:**	Galen Cail			
Address:	1020 Birch Ridge Dr. Raleigh, N.C. 27610		**Address:**	1020 Birch Ridge Dr. Raleigh, N.C. 27610			
Phone:	919.707.6711		**Phone:**	919.707.6711			
Email:	gcail@ncdot.gov		**Email:**	gcail@ncdot.gov			
City/Town:	Nearest Town - Indian Trail		**County(ies):**	Union			
River Basin(s):	Yadkin-Pee Dee		**CAMA County?**	No			
Primary Receiving Water:	Goose Creek		**NCDWQ Stream Index No.:**				
NCDWQ Surface Water Classification for Primary Receiving Water		**Primary:**	Class C				
		Supplemental:					
Other Stream Classification:							
303(d) Impairments:							
Buffer Rules in Effect	Goose Creek						

Project Description

Project Length (lin. Miles or feet):	0.12	**Surrounding Land Use:**	Wooded/Fields

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	0.58 ac.	0.39 ac.
Typical Cross Section Description:	12' Travel Lanes, 4' Paved Shoulder, 4' Grass Shoulders.Varying Side Slopes	10' Travel Lanes, 4' Grassed Shoulders RT, 5' Grassed Shoulder LT, 2:1 Side Slopes
Average Daily Traffic (veh/hr/day):	Design/Future: 15,500 (2035)	Existing: 8,480 (2013)

General Project Narrative:

The project consists of relacing Bridge# 29 on NC 218 over Goose Creek. The approach work will consist of raising the existing roadway grade and providing grass shoulders and guardrail. Bridge #29 existing 3 span structure (113' total length) will be replaced with a 3 span (1@35', 1@65',1@35') total 135' - 36" PSG bridge. Proposed Bridge #29 eliminates 1 bent in water.

Best Mgmt. Practices:
-Promotion of sheet flow and infiltration with grassed shoulders except where shoulder berm gutter to 2GI in the NW & SW quadrants.
-Drainage system in SE quadrant outlets to rip rap pad. Systems in NE & NW quadrants outlet to PSH.
-No Deck Drains on bridge.
-Removal of existing road fill under bridges will improve bridge conveyance and reduce bridge opening velocities.
-Two (2) Hazardous Spill Basins (HSB) and Detention Basin combo provided in SE and SW quad.
-Grassed swale provided in SE quad.

References

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: B-5109 (42246.1.1) **County(ies):** Union

Project Environmental Summary

Surface Water Impacts

Sheet No.	Station (From / To)	Feature Impacted	Water / Wetland / Buffer Type	Receiving Surface Water Name	NRTR Map ID	NCDWQ Stream Index	NCDWQ Surface Water Classification	303(d) Impairments	Type of Impact	Existing SCM	Proposed SCM
4	16+75/ 16+95 -L- LT	Stream	Perennial	Goose Crk	Goose Crk	13-17-18(b)	C	None	Stabilization	N/A	Hazardous Spill Basin
4	14+30 / 19+51 -L-	Buffer	Goose Creek	Goose Crk							
4	19+35/ 19+58 -L- LT	Wetland			WC				Clearing		

* List all stream and surface water impact locations regardless of jurisdiction or size.
Equalizer Pipes to be noted as a minimization of impacts.
All proposed SCMs listed must also be listed under Swales, Preformed Sour Holes and other Energy Dissipators, or Other Stormwater Control Measures.

Description of Minimization of Impacts or Mitigation

References

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: B-5109 (42246.1.1) **County(ies):** Union

Swales

Sheet No.	Station (From / To)	Stream Crossing Station	Base Width (ft)	Front Slope (H:V)	Back Slope (H:V)	Drainage Area (ac)	Recommended Treatment Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used
4	16+90 LT To 19+85 LT	16+80	3 to 10	3:1	3:1	5.70	570	260	0.30%	17.0	1.6	21.0	1.7	No
4	18+00 RT To 19+50 RT	16+80	6 to 15	3:1	3:1	12.70	1270	145	0.30%	17.0	1.5	23.0	1.6	No
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Have minimum design criteria, as presented in the NCDOT Best Management Practices Toolbox, Version 1 (March 2008), been met and verified? If No, provide further explanantion of why design criteria was not met.

Additional Comments

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

(Version 1.2; Released September 2011) FOR LINEAR ROADWAY PROJECTS

Project/TIP No.: B-5109 (42246.1.1) **County(ies):** Union

Preformed Scour Holes and Energy Dissipators

Sheet No.	Station	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe/Structure Dimensions (in)	Q10 (cfs)	V10 (fps)
4	15+20 -L- RT	PFSH	Class 'B'	2.20	Pipe	15	1.0	0.6
4	15+80 -L- LT	PFSH	Class 'B'	0.20	Pipe	15	5.8	1.1

☐ YES ☐ NO

Have minimum design criteria, as presented in the NCDOT Best Management Practices Toolbox (2008), NCDOT Standard Details, or FHWA HEC-14 (July 2006), been met and verified, as applicable? If No, provide further explanantion of why design criteria was not met.

Additional Comments

* Refer to the NCDOT Best Management Practices Toolbox, Version 1 (March 2008), NCDOT Standard Details, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.

NCDOT Highway Stormwater PROGRAM

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: B-5109 (42246.1.1) **County(ies):** Union **Page** 5 **of** 5

Other Stormwater Control Measures

Sheet No.	Station	SCM Type	Drainage Area (ac)	Required / Minimum Treatment			Design Treatment		All Design Criteria Met?
4	17+15 LT 19+85 LT	Hazardous Spill Basin	5.7 ac	2yr, tc=10 min, td= 5 min storm runoff + 10,000 gal (cf)	5550.00	cf	6300.00	cf	Yes
4	18+15 RT 19+50 RT	Hazardous Spill Basin	12.7 ac	2yr, tc=10 min, td= 5 min storm runoff + 10,000 gal (cf)	6200.00	cf	6200.00	cf	Yes
4	17+15 LT 19+85 LT	Dry Detention Basin	5.70	WQv (cf)		cf	1950.00	cf	
4	18+15 RT 19+50 RT	Dry Detention Basin	12.70	WQv (cf)		cf	1850.00	cf	

Additional Comments

* Equalizer Pipes to be noted as a minimization of impacts.

See Sheet 1-A For Index of Sheets.
See Sheet 1-B For Conventional Symbols.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

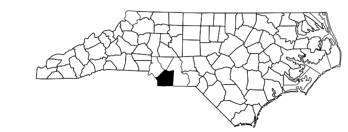
UNION COUNTY

LOCATION: BRIDGE NO. 29 ON NC 218 OVER GOOSE CREEK

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

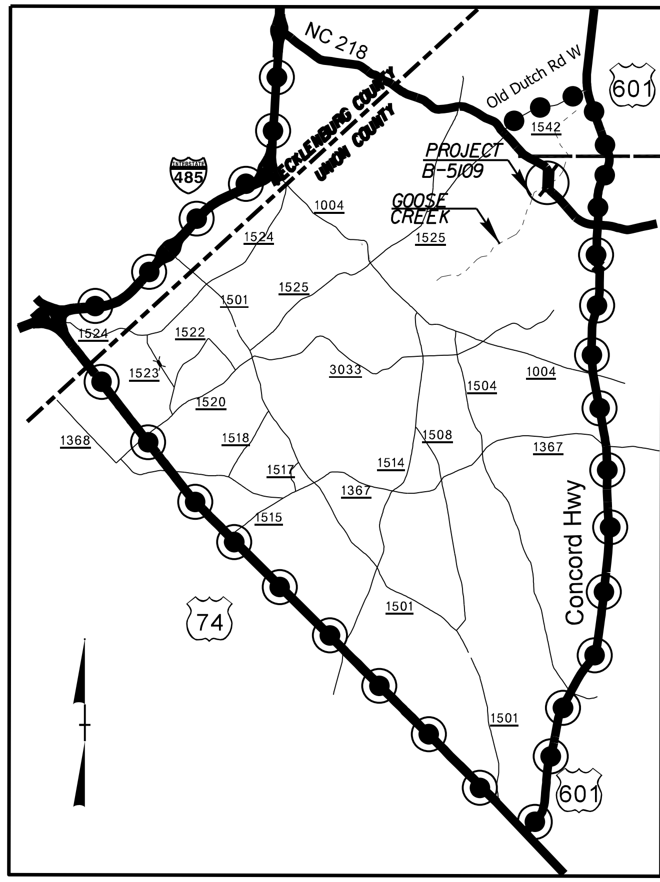
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5109	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
42246.1.1	BRSTP-0218(7)	PE
42246.2.1	BRSTP-0218(7)	ROW, UTIL



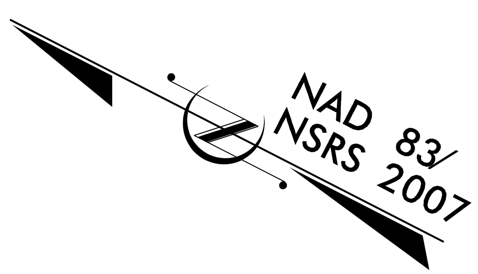
WETLAND AND SURFACE WATER IMPACTS PERMIT

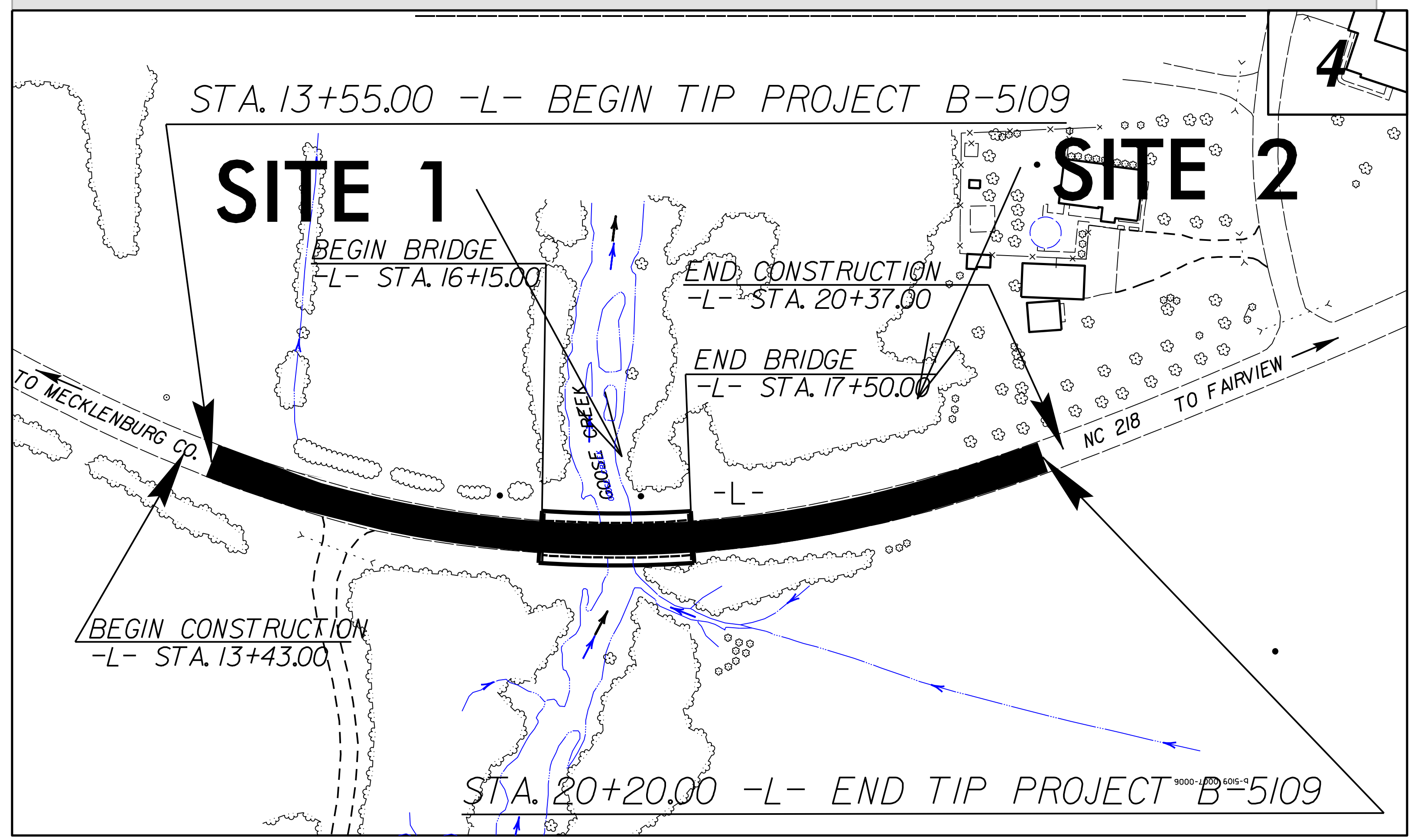
PERMIT DRAWING SHEET 1 OF 8



DETOUR ROUTE

TRUCK DETOUR ROUTE





DESIGN EXCEPTION REQUIRED FOR: MIN. HORIZONTAL CURVE RADIUS AND HORIZONTAL SSD.
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF FAIRVIEW.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TIP PROJECT: B-5109

CONTRACT: C203263

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2013 = 8,480
ADT 2035 = 15,500
DHV = 12 %
D ≐ 65 %
T = 17 % *
V = 55 MPH
*(TTST 8% + DUAL 9%)
MAJOR COLLECTOR
REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5109 = 0.098 MILES
LENGTH OF STRUCTURE TIP PROJECT B-5109 = 0.026 MILES
TOTAL LENGTH OF TIP PROJECT B-5109 = 0.124 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JULY 20, 2012

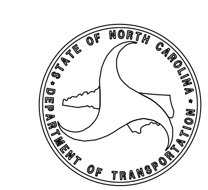
LETTING DATE:
OCTOBER 15, 2013

G. E. BREW, PE
PROJECT ENGINEER

THAD F. DUNCAN, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER
P.E.
SIGNATURE:



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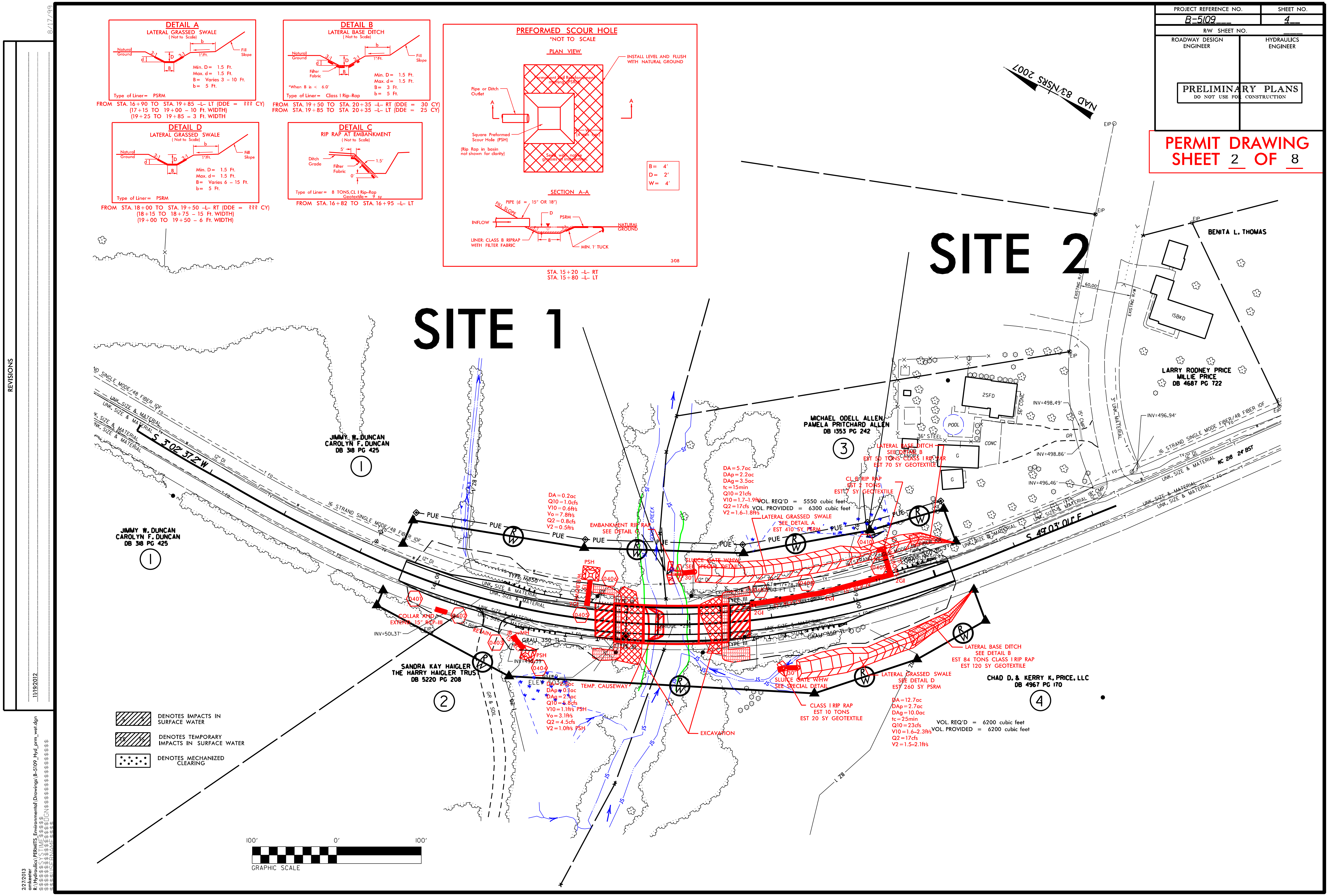
09/08/99



PROJECT REFERENCE NO.
SHEET NO.
B-5109
4
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PERMIT DRAWING
SHEET 2 OF 8
NAD 83/NSRS 2007
DETAIL A
LATERAL GRASSED SWALE
(Not to Scale)
Type of Liner = PSRM
FROM STA. 16+90 TO STA. 19+85 -L- LT (DDE = ??? CY)
(17+15 TO 19+00 - 10 Ft. WIDTH)
(19+25 TO 19+85 - 3 Ft. WIDTH)
DETAIL B
LATERAL BASE DITCH
(Not to Scale)
Type of Liner = Class I Rip-Rap
FROM STA. 19+50 TO STA. 20+35 -L- RT (DDE = 30 CY)
FROM STA. 19+85 TO STA. 20+35 -L- LT (DDE = 25 CY)
DETAIL D
LATERAL GRASSED SWALE
(Not to Scale)
Type of Liner = PSRM
FROM STA. 18+00 TO STA. 19+50 -L- RT (DDE = ??? CY)
(18+15 TO 18+75 - 15 Ft. WIDTH)
(19+00 TO 19+50 - 6 Ft. WIDTH)
DETAIL C
RIP RAP AT EMBANKMENT
(Not to Scale)
FROM STA. 16+82 TO STA. 16+95 -L- LT
PREFORMED SCOUR HOLE
*NOT TO SCALE
PLAN VIEW
SECTION A-A
STA. 15+20 -L- RT
STA. 15+80 -L- LT
SITE 1
SITE 2
JIMMY W. DUNCAN
CAROLYN F. DUNCAN
DB 318 PG 425
MICHAEL ODELL ALLEN
PAMELA PRITCHARD ALLEN
DB 1353 PG 242
BENITA L. THOMAS
LARRY RODNEY PRICE
MILLIE PRICE
DB 4687 PG 722
SANDRA KAY HAIGLER
THE HARRY HAIGLER TRUST
DB 5220 PG 208
CHAD D. & KERRY K. PRICE, LLC
DB 4967 PG 170
S 3°02'37.2" W
S 49°03'01" E
LATERAL BASE DITCH
SEE DETAIL B
EST 84 TONS CLASS I RIP RAP
EST 120 SY GEOTEXTILE
LATERAL GRASSED SWALE
SEE DETAIL D
EST 260 SY PSRM
LATERAL GRASSED SWALE
SEE DETAIL A
EST 410 SY PSRM
CLASS I RIP RAP
EST 10 TONS
EST 20 SY GEOTEXTILE
VOL. REQ'D = 6200 cubic feet
VOL. PROVIDED = 6200 cubic feet
VOL. REQ'D = 5550 cubic feet
VOL. PROVIDED = 6300 cubic feet
TEMP. CAUSEWAY
EXCAVATION
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
100' 0' 100'
GRAPHIC SCALE
REVISIONS
11/19/2012
2/27/2013

PROJECT REFERENCE NO.	SHEET NO.
B-5109	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING SHEET 3 OF 8

▨ DENOTES IMPACTS IN SURFACE WATER

▨ DENOTES TEMPORARY IMPACTS IN SURFACE WATER

⁙ DENOTES MECHANIZED CLEARING

REVISIONS

8/17/99

11/19/2012

2/27/2013
R:\Hydraulics\PERMITS_Environmental\Drawings\B-5109_Hyd_prm_wet.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-5109	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 4 OF 8

SITE 1

SITE 2

NAD 83/NSRS 2007

REVISIONS

2/27/2013
amkeeter
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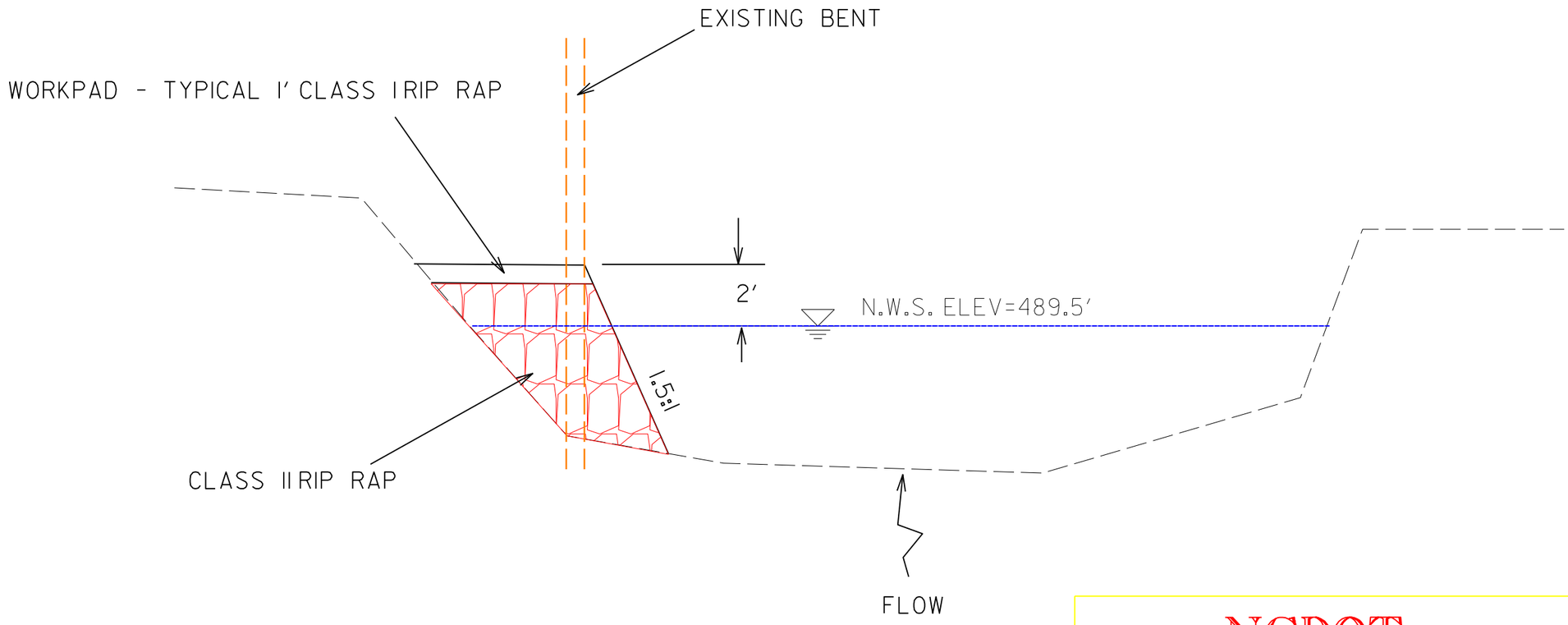
WORKPAD DETAIL
(NOT TO SCALE)

PERMIT DRAWING
SHEET 5 OF 8



QUANTITIES OF ESTIMATES

VOLUME OF CLASS II RIP RAP= 2200 cy
AREA OF CLASS II RIP RAP= 0.01 ac
ESTIMATE 120 TONS CLASS II RIP RAP
ESTIMATE 15 TONS CLASS I RIP RAP

NCDOT
DIVISION OF HIGHWAYS
UNION COUNTY
PROJECT: 42246.1.1 (B-5109)

BRG. #29 ON NC 218
OVER GOOSE CREEK

DEC 2012

PROJECT REFERENCE NO. B-5109
SHEET NO. 5
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

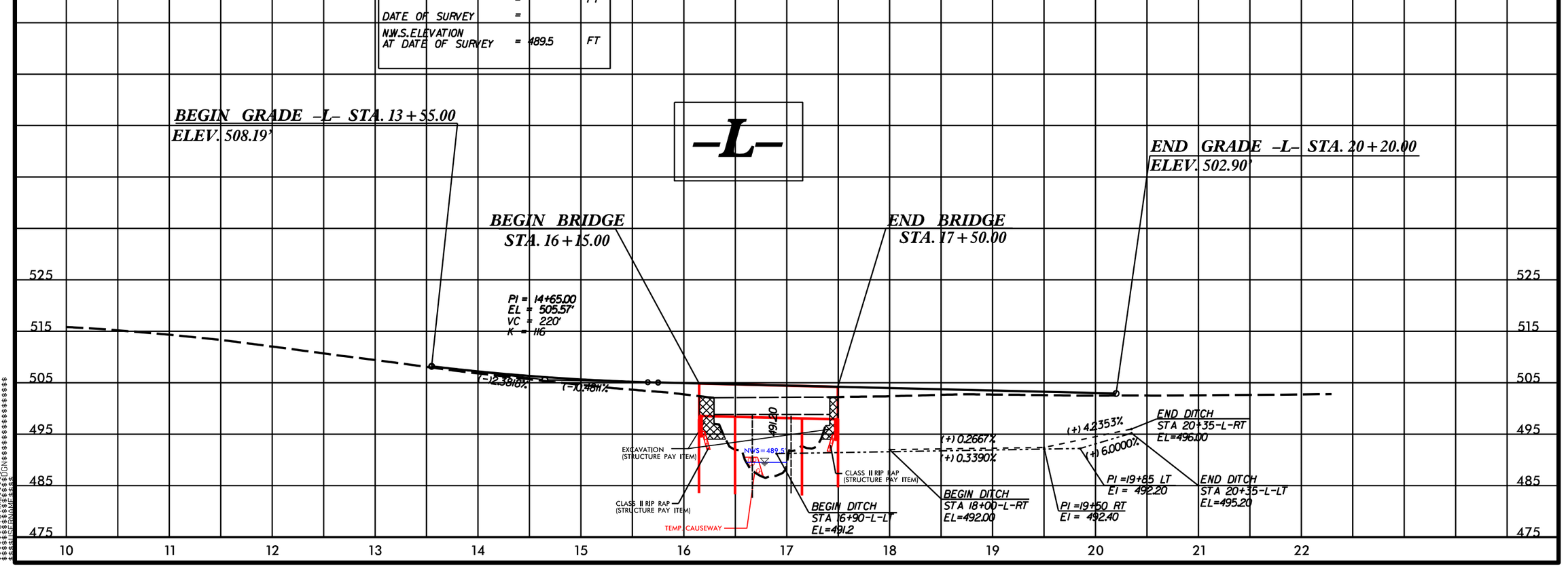
PERMIT DRAWING
SHEET 6 OF 8

5/14/99

BM # 2 ELEV.503.05'
DESCRIPTION: CHISLED SQUARE ON NW SIDE
OF BRIDGE WING WALL

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE = 4030 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = 497.8 FT
BASE DISCHARGE = 5746 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 498.9 FT
OVERTOPPING DISCHARGE = +7480 CFS
OVERTOPPING FREQUENCY= +500 YRS
OVERTOPPING ELEVATION = 502.3 FT
= FT
DATE OF SURVEY =
N.W.S.ELEVATION
AT DATE OF SURVEY = 489.5 FT



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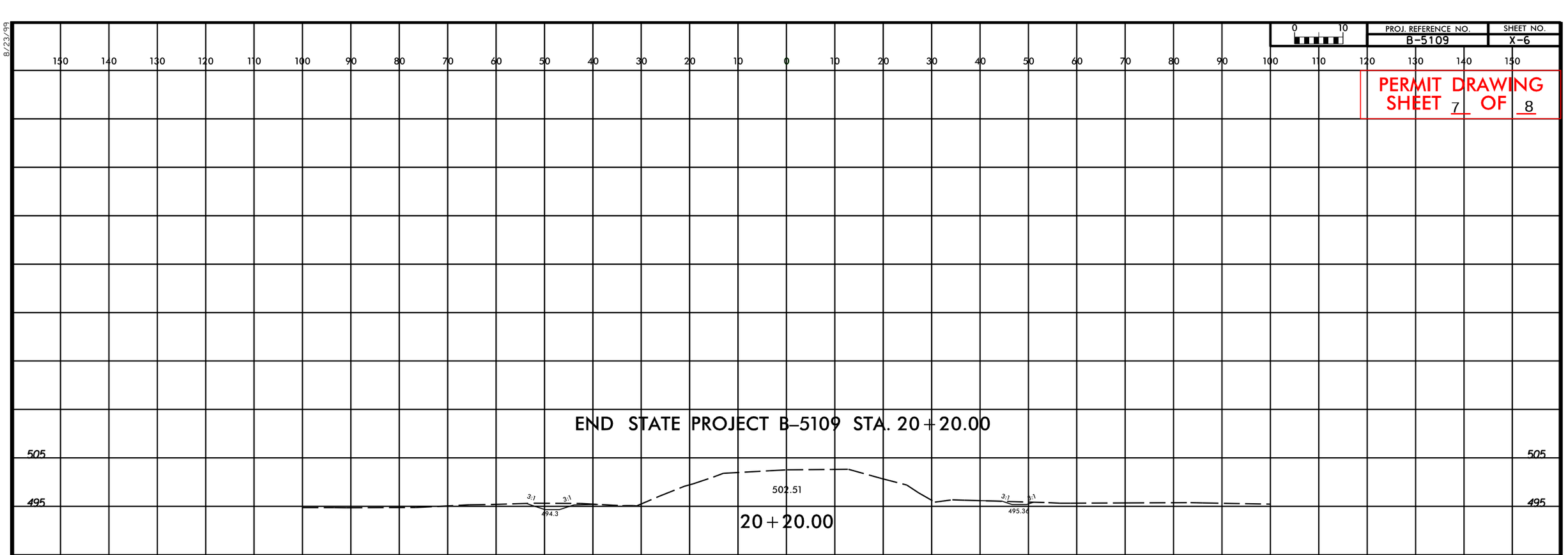
$$$$USERNAME$$$$



PROJ. REFERENCE NO.	SHEET NO.
B-5109	X-6

PERMIT DRAWING
SHEET 7 OF 8

8/23/99

2/27/2013
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$$$$$$$$$$DGN$$$$$$$$$$$$$$
$$$$USERNAME$$$$

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	16+75 to 16+90-L-LT	Bank Stabilization						<0.01	<0.01	6	20	
	16+55 to 16+70-L-	Temp. Causeway							<0.01		27	
2	19+35 to 19+58-L-LT	Ditch				<0.01						
TOTALS:									0.01	6	47	

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

UNION COUNTY
WBS - 42246.1.1 (B-5109)

SHEET 8 of 8 11/19/2012

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

General Project Information

Project No.:	B-5109 (42246.1.1)		**Project Type:**	Bridge Replacement		**Date:**	11/19/2012
NCDOT Contact:	Galen Cail		**Contractor / Designer:**	Galen Cail			
Address:	1020 Birch Ridge Dr. Raleigh, N.C. 27610		**Address:**	1020 Birch Ridge Dr. Raleigh, N.C. 27610			
Phone:	919.707.6711		**Phone:**	919.707.6711			
Email:	gcail@ncdot.gov		**Email:**	gcail@ncdot.gov			
City/Town:	Nearest Town - Indian Trail		**County(ies):**	Union			
River Basin(s):	Yadkin-Pee Dee		**CAMA County?**	No			
Primary Receiving Water:	Goose Creek		**NCDWQ Stream Index No.:**				
NCDWQ Surface Water Classification for Primary Receiving Water		**Primary:**	Class C				
		Supplemental:					
Other Stream Classification:							
303(d) Impairments:							
Buffer Rules in Effect	Goose Creek						

Project Description

Project Length (lin. Miles or feet):	0.12	**Surrounding Land Use:**	Wooded/Fields

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	0.58 ac.	0.39 ac.
Typical Cross Section Description:	12' Travel Lanes, 4' Paved Shoulder, 4' Grass Shoulders.Varying Side Slopes	10' Travel Lanes, 4' Grassed Shoulders RT, 5' Grassed Shoulder LT, 2:1 Side Slopes
Average Daily Traffic (veh/hr/day):	Design/Future: 15,500 (2035)	Existing: 8,480 (2013)

General Project Narrative:

The project consists of relacing Bridge# 29 on NC 218 over Goose Creek. The approach work will consist of raising the existing roadway grade and providing grass shoulders and guardrail. Bridge #29 existing 3 span structure (113' total length) will be replaced with a 3 span (1@35', 1@65',1@35') total 135' - 36" PSG bridge. Proposed Bridge #29 eliminates 1 bent in water.

Best Mgmt. Practices:
-Promotion of sheet flow and infiltration with grassed shoulders except where shoulder berm gutter to 2GI in the NW & SW quadrants.
-Drainage system in SE quadrant outlets to rip rap pad. Systems in NE & NW quadrants outlet to PSH.
-No Deck Drains on bridge.
-Removal of existing road fill under bridges will improve bridge conveyance and reduce bridge opening velocities.
-Two (2) Hazardous Spill Basins (HSB) and Detention Basin combo provided in SE and SW quad.
-Grassed swale provided in SE quad.

References

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: B-5109 (42246.1.1) **County(ies):** Union

Project Environmental Summary

Surface Water Impacts

Sheet No.	Station (From / To)	Feature Impacted	Water / Wetland / Buffer Type	Receiving Surface Water Name	NRTR Map ID	NCDWQ Stream Index	NCDWQ Surface Water Classification	303(d) Impairments	Type of Impact	Existing SCM	Proposed SCM
4	16+75/ 16+95 -L- LT	Stream	Perennial	Goose Crk	Goose Crk	13-17-18(b)	C	None	Stabilization	N/A	Hazardous Spill Basin
4	14+30 / 19+51 -L-	Buffer	Goose Creek	Goose Crk							
4	19+35/ 19+58 -L- LT	Wetland			WC				Clearing		

* List all stream and surface water impact locations regardless of jurisdiction or size.
Equalizer Pipes to be noted as a minimization of impacts.
All proposed SCMs listed must also be listed under Swales, Preformed Sour Holes and other Energy Dissipators, or Other Stormwater Control Measures.

Description of Minimization of Impacts or Mitigation

References

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: B-5109 (42246.1.1) **County(ies):** Union

Swales

Sheet No.	Station (From / To)	Stream Crossing Station	Base Width (ft)	Front Slope (H:V)	Back Slope (H:V)	Drainage Area (ac)	Recommended Treatment Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used
4	16+90 LT To 19+85 LT	16+80	3 to 10	3:1	3:1	5.70	570	260	0.30%	17.0	1.6	21.0	1.7	No
4	18+00 RT To 19+50 RT	16+80	6 to 15	3:1	3:1	12.70	1270	145	0.30%	17.0	1.5	23.0	1.6	No
							0							
							0							
							0							
							0							
							0							
							0							
							0							
							0							
							0							
							0							
☑ YES ☐ NO							0							
							0							
							0							
							0							
							0							
							0							
							0							
							0							

Have minimum design criteria, as presented in the NCDOT Best Management Practices Toolbox, Version 1 (March 2008), been met and verified? If No, provide further explanantion of why design criteria was not met.

Additional Comments

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

(Version 1.2; Released September 2011) FOR LINEAR ROADWAY PROJECTS

Project/TIP No.: B-5109 (42246.1.1) **County(ies):** Union

Preformed Scour Holes and Energy Dissipators

Sheet No.	Station	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe/Structure Dimensions (in)	Q10 (cfs)	V10 (fps)
4	15+20 -L- RT	PFSH	Class 'B'	2.20	Pipe	15	1.0	0.6
4	15+80 -L- LT	PFSH	Class 'B'	0.20	Pipe	15	5.8	1.1

☐ YES ☐ NO

Have minimum design criteria, as presented in the NCDOT Best Management Practices Toolbox (2008), NCDOT Standard Details, or FHWA HEC-14 (July 2006), been met and verified, as applicable? If No, provide further explanantion of why design criteria was not met.

Additional Comments

* Refer to the NCDOT Best Management Practices Toolbox, Version 1 (March 2008), NCDOT Standard Details, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.

NCDOT Highway Stormwater Program

North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: B-5109 (42246.1.1) **County(ies):** Union **Page** 5 **of** 5

Other Stormwater Control Measures

Sheet No.	Station	SCM Type	Drainage Area (ac)	Required / Minimum Treatment			Design Treatment		All Design Criteria Met?
4	17+15 LT 19+85 LT	Hazardous Spill Basin	5.7 ac	2yr, tc=10 min, td= 5 min storm runoff + 10,000 gal (cf)	5550.00	cf	6300.00	cf	Yes
4	18+15 RT 19+50 RT	Hazardous Spill Basin	12.7 ac	2yr, tc=10 min, td= 5 min storm runoff + 10,000 gal (cf)	6200.00	cf	6200.00	cf	Yes
4	17+15 LT 19+85 LT	Dry Detention Basin	5.70	WQv (cf)		cf	1950.00	cf	
4	18+15 RT 19+50 RT	Dry Detention Basin	12.70	WQv (cf)		cf	1850.00	cf	

Additional Comments

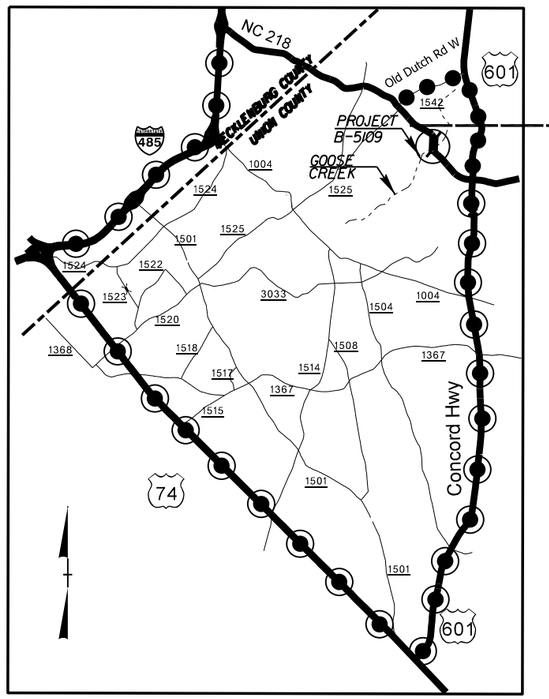
* Equalizer Pipes to be noted as a minimization of impacts.

09/08/09

TIP PROJECT: B-5109

CONTRACT: C203263

See Sheet 1-A For Index of Sheets.
See Sheet 1-B For Conventional Symbols.



DETOUR ROUTE

TRUCK DETOUR ROUTE

NAD 83/ NSRS 2007

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5109	1	

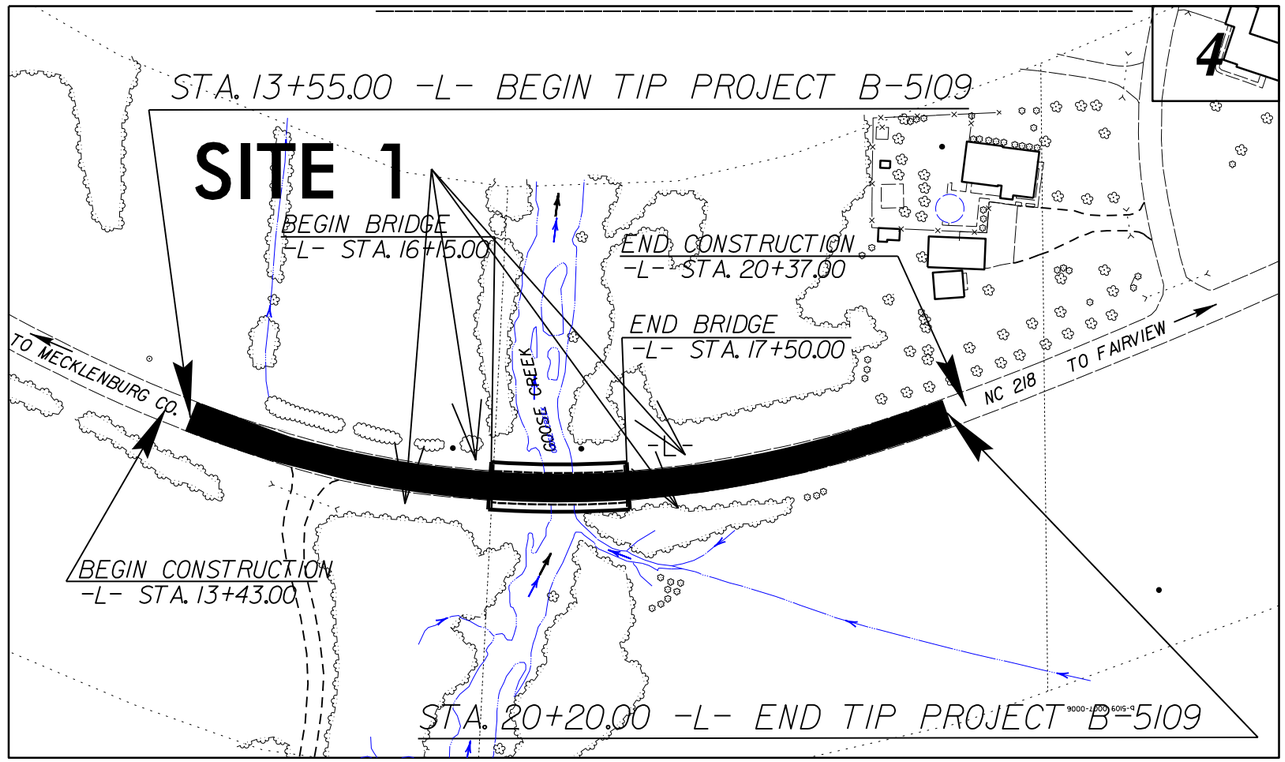
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
42246.1.1	BRSTP-0218(7)	PE
42246.2.1	BRSTP-0218(7)	ROW, UTIL

LOCATION: BRIDGE NO. 29 ON NC 218 OVER GOOSE CREEK

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

BUFFER IMPACTS PERMIT

BUFFER DRAWING SHEET 1 OF 7



DESIGN EXCEPTION REQUIRED FOR: MIN. HORIZONTAL CURVE RADIUS AND HORIZONTAL SSD.
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF FAIRVIEW.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2013 = 8,480
ADT 2035 = 15,500
DHV = 12 %
D = 65 %
T = 17 % *
V = 55 MPH
*(TTST 8% + DUAL 9%)
MAJOR COLLECTOR
REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5109 = 0.098 MILES
LENGTH OF STRUCTURE TIP PROJECT B-5109 = 0.026 MILES
TOTAL LENGTH OF TIP PROJECT B-5109 = 0.124 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JULY 20, 2012

LETTING DATE:
OCTOBER 15, 2013

G. E. BREW, PE
PROJECT ENGINEER

THAD F. DUNCAN, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

2/27/2013
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$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
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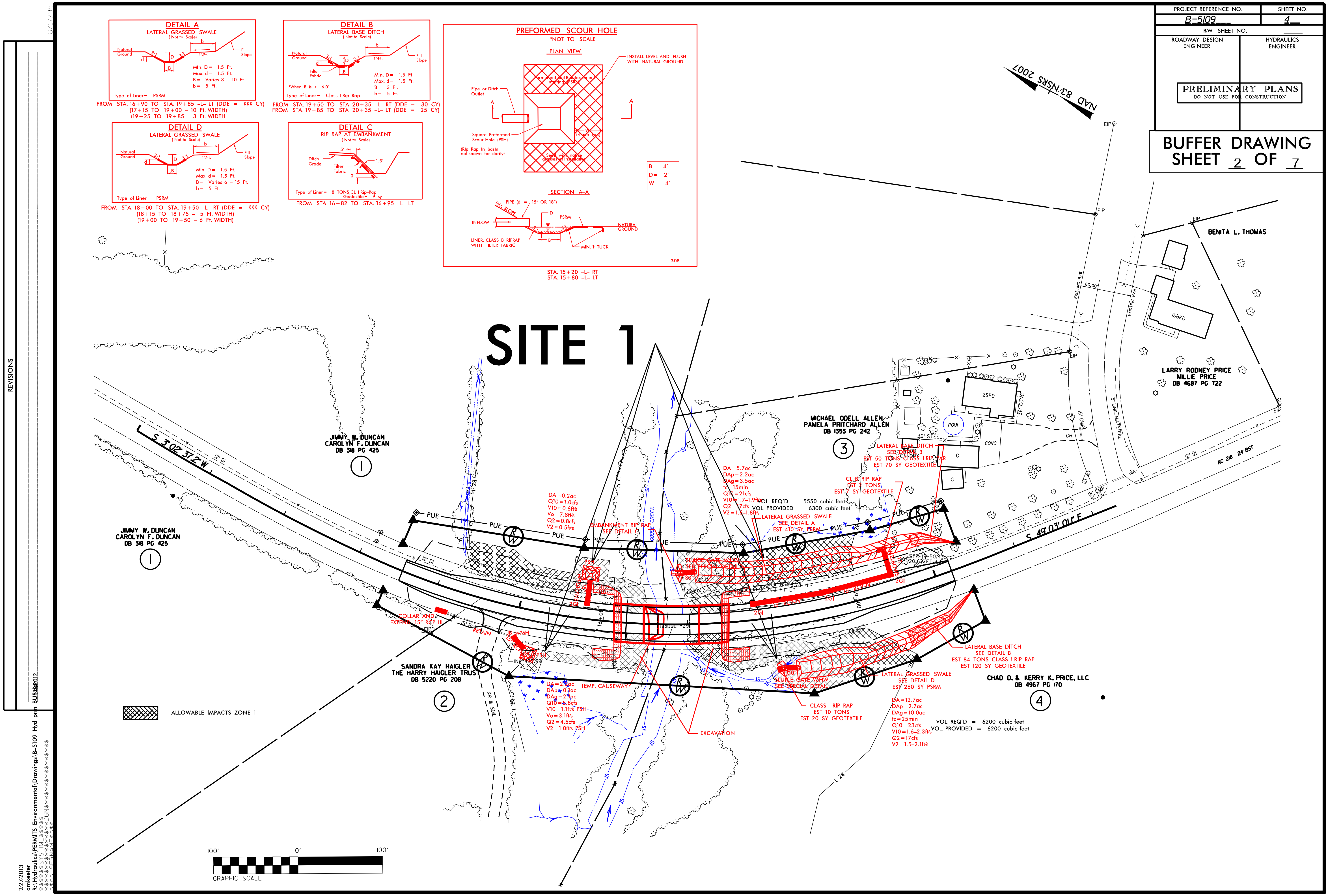
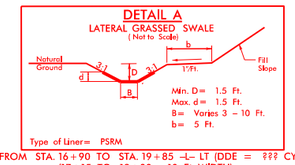
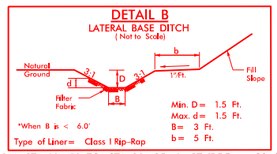
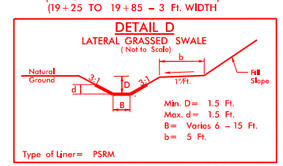
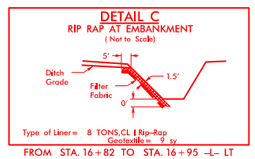
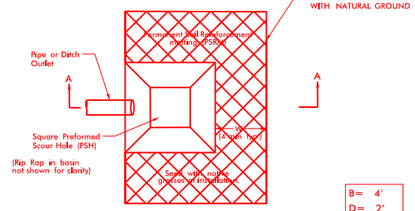

PROJECT REFERENCE NO. B-5109
SHEET NO. 4
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
BUFFER DRAWING SHEET 2 OF 7
NAD 83/NSRS 2007
REVISIONS
DETAIL A
LATERAL GRASSED SWALE
(Not to Scale)
Natural Ground
Fill Slope
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= Varies 3 - 10 Ft.
b= 5 Ft.
Type of Liner= PSRM
FROM STA. 16+90 TO STA. 19+85 -L- LT (DDE = ??? CY)
(17+15 TO 19+00 - 10 Ft. WIDTH)
(19+25 TO 19+85 - 3 Ft. WIDTH)
DETAIL B
LATERAL BASE DITCH
(Not to Scale)
Filter Fabric
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 3 Ft.
b= 5 Ft.
Type of Liner= Class I Rip-Rap
FROM STA. 19+50 TO STA. 20+35 -L- RT (DDE = 30 CY)
FROM STA. 19+85 TO STA. 20+35 -L- LT (DDE = 25 CY)
DETAIL D
LATERAL GRASSED SWALE
(Not to Scale)
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= Varies 6 - 15 Ft.
b= 5 Ft.
Type of Liner= PSRM
FROM STA. 18+00 TO STA. 19+50 -L- RT (DDE = ??? CY)
(18+15 TO 18+75 - 15 Ft. WIDTH)
(19+00 TO 19+50 - 6 Ft. WIDTH)
DETAIL C
RIP RAP AT EMBANKMENT
(Not to Scale)
Ditch Grade
Filter Fabric
Type of Liner= 8 TONS,CL I Rip-Rap
Geotextile= 9 sy
FROM STA. 16+82 TO STA. 16+95 -L- LT
PREFORMED SCOUR HOLE
*NOT TO SCALE
PLAN VIEW
INSTALL LEVEL AND FLUSH WITH NATURAL GROUND
Pipe or Ditch Outlet
Square Preformed Scour Hole (PSH)
(Rip Rap in basin not shown for clarity)
B= 4'
D= 2'
W= 4'
SECTION A-A
PIPE (d = 15" OR 18")
FILL SLOPE
INFLOW
PSRM
NATURAL GROUND
LINER: CLASS B RIPRAP WITH FILTER FABRIC
MIN. 1' TUCK
STA. 15+20 -L- RT
STA. 15+80 -L- LT
SITE 1
JIMMY W. DUNCAN
CAROLYN F. DUNCAN
DB 318 PG 425
1
MICHAEL ODELL ALLEN
PAMELA PRITCHARD ALLEN
DB 1353 PG 242
3
BENITA L. THOMAS
LARRY RODNEY PRICE
MILLIE PRICE
DB 4687 PG 722
SANDRA KAY HAIGLER
THE HARRY HAIGLER TRUST
DB 5220 PG 208
2
CHAD D. & KERRY K. PRICE, LLC
DB 4967 PG 170
4
S 3°02' 37.2" W
S 49°03' 01" E
NC 218 24' BST
DA=0.2ac
Q10=1.0cfs
V10=0.6ft/s
Vo=7.8ft/s
Q2=0.8cfs
V2=0.5ft/s
DA=5.7ac
DAp=2.2ac
DAg=3.5ac
tc=15min
Q10=21cfs
V10=1.7-1.9ft/s
Q2=17cfs
V2=1.4-1.8ft/s
VOL. REQ'D = 5550 cubic feet
VOL. PROVIDED = 6300 cubic feet
LATERAL BASE DITCH
SEE DETAIL B
EST 50 TONS CLASS I RIP RAP
EST 70 SY GEOTEXTILE
CL B RIP RAP
EST 2 TONS
EST SY GEOTEXTILE
LATERAL GRASSED SWALE
SEE DETAIL A
EST 410 SY PSRM
EMBANKMENT RIP RAP
SEE DETAIL C
COLLAR AND EXTEND 15" RCP-III
TEMP. CAUSEWAY
DA=2.9ac
DAp=0.7ac
DAg=2.2ac
Q10=6.8cfs
V10=1.1ft/s PSH
Vo=3.1ft/s
Q2=4.5cfs
V2=1.0ft/s PSH
EXCAVATION
CLASS I RIP RAP
EST 10 TONS
EST 20 SY GEOTEXTILE
LATERAL BASE DITCH
SEE DETAIL B
EST 84 TONS CLASS I RIP RAP
EST 120 SY GEOTEXTILE
LATERAL GRASSED SWALE
SEE DETAIL D
EST 260 SY PSRM
DA=12.7ac
DAp=2.7ac
DAg=10.0ac
tc=25min
Q10=23cfs
V10=1.6-2.3ft/s
Q2=17cfs
V2=1.5-2.1ft/s
VOL. REQ'D = 6200 cubic feet
VOL. PROVIDED = 6200 cubic feet
PUE
POOL
2SFD
1SBKD
ALLOWABLE IMPACTS ZONE 1
100' 0' 100'
GRAPHIC SCALE
2/27/2013
R:\Hydraulics\PERMITS_Environmental\Drawings\B-5109_Hyd_prm_BUF.dgn

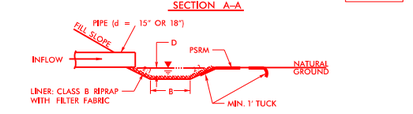


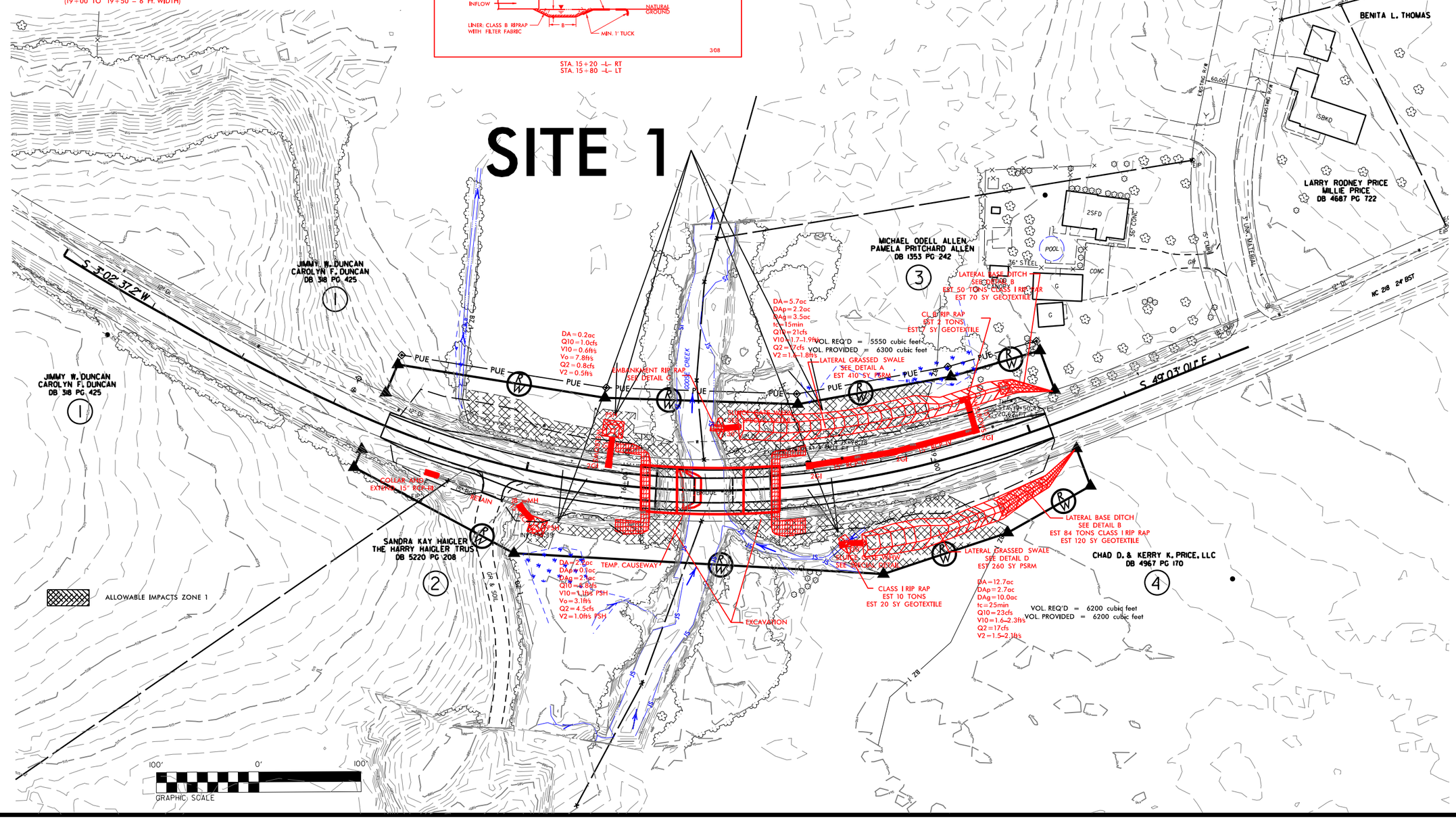












PROJECT REFERENCE NO.	SHEET NO.
B-5109	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BUFFER DRAWING
SHEET 3 OF 7

DETAIL A
LATERAL GRASSED SWALE
(Not to Scale)

Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
B = Varies 3 – 10 Ft.
b = 5 Ft.

Type of Liner = PSRM

FROM STA. 16+90 TO STA. 19+85 –L– LT (DDE = ??? CY)
(17+15 TO 19+00 – 10 Ft. WIDTH)
(19+25 TO 19+85 – 3 Ft. WIDTH

DETAIL B
LATERAL BASE DITCH
(Not to Scale)

*When B is < 6.0'

Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
B = 3 Ft.
b = 5 Ft.

Type of Liner = Class I Rip–Rap

FROM STA. 19+50 TO STA. 20+35 –L– RT (DDE = 30 CY)
FROM STA. 19+85 TO STA 20+35 –L– LT (DDE = 25 CY)

DETAIL D
LATERAL GRASSED SWALE
(Not to Scale)

Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
B = Varies 6 – 15 Ft.
b = 5 Ft.

Type of Liner = PSRM

FROM STA. 18+00 TO STA. 19+50 –L– RT (DDE = ??? CY)
(18+15 TO 18+75 – 15 Ft. WIDTH)
(19+00 TO 19+50 – 6 Ft. WIDTH)

DETAIL C
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner = 8 TONS,CL I Rip–Rap
Geotextile = 9 sy

FROM STA. 16+82 TO STA. 16+95 –L– LT

PREFORMED SCOUR HOLE
*NOT TO SCALE

B = 4'
D = 2'
W = 4'

STA. 15+20 –L– RT
STA. 15+80 –L– LT

SITE 1

DA = 0.2ac
Q10 = 1.0cfs
V10 = 0.6ft/s
Vo = 7.8ft/s
Q2 = 0.8cfs
V2 = 0.5ft/s

EMBANKMENT RIP RAP
SEE DETAIL C

DA = 5.7ac
DAp = 2.2ac
DAg = 3.5ac
tc = 15min
Q10 = 21cfs
V10 = 1.7–1.9ft/s
Q2 = 17cfs
V2 = 1.6–1.8ft/s

VOL. REQ'D = 5550 cubic feet
VOL. PROVIDED = 6300 cubic feet

LATERAL BASE DITCH
SEE DETAIL B
EST 50 TONS CLASS I RIP RAP
EST 70 SY GEOTEXTILE

CL B RIP RAP
EST 2 TONS
EST 7 SY GEOTEXTILE

LATERAL GRASSED SWALE
SEE DETAIL A
EST 410 SY PSRM

SLUICE GATE W/HW
SEE SPECIAL DETAIL

DA = 2.2ac
DAp = 0.1ac
DAg = 2.1ac
Q10 = 5.8cfs
V10 = 1.1ft/s PSH
Vo = 3.1ft/s
Q2 = 4.5cfs
V2 = 1.0ft/s PSH

TEMP. CAUSEWAY

EXCAVATION

SLUICE GATE W/HW
SEE SPECIAL DETAIL

CLASS I RIP RAP
EST 10 TONS
EST 20 SY GEOTEXTILE

LATERAL BASE DITCH
SEE DETAIL B
EST 84 TONS CLASS I RIP RAP
EST 120 SY GEOTEXTILE

LATERAL GRASSED SWALE
SEE DETAIL D
EST 260 SY PSRM

DA = 12.7ac
DAp = 2.7ac
DAg = 10.0ac
tc = 25min
Q10 = 23cfs
V10 = 1.6–2.3ft/s
Q2 = 17cfs
V2 = 1.5–2.1ft/s

VOL. REQ'D = 6200 cubic feet
VOL. PROVIDED = 6200 cubic feet

▨ ALLOWABLE IMPACTS ZONE 1

100' 0' 100'
GRAPHIC SCALE

REVISIONS

8/17/99

2/27/2013
amkeeter
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PROJECT REFERENCE NO.
B-5109
SHEET NO.
4
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
BUFFER DRAWING SHEET 4 OF 7
SITE 1
NAD 83/NSRS 2007
MICHAEL ODELL ALLEN
PAMELA PRITCHARD ALLEN
36" STEEL
POOL
CONC
LATERAL BASE DITCH
SEE DETAIL B
EST 50 TONS CLASS I RIP RAP
EST 70 SY GEOTEXTILE
CL B RIP RAP
EST 2 TONS
EST 7 SY GEOTEXTILE
DA = 5.7ac
DAp = 2.2ac
DAg = 3.5ac
tc = 15min
Q10 = 21cfs
V10 = 1.7-1.9ft/s
Q2 = 17cfs
V2 = 1.6-1.8ft/s
VOL. REQ'D = 5550 cubic feet
VOL. PROVIDED = 6300 cubic feet
LATERAL GRASSED SWALE
SEE DETAIL A
EST 410 SY PSRM
DA = 0.2ac
Q10 = 1.0cfs
V10 = 0.6ft/s
Vo = 7.8ft/s
Q2 = 0.8cfs
V2 = 0.5ft/s
EMBANKMENT RIP RAP
SEE DETAIL C
GOOSE CREEK
PUE
SLUICE GATE W/HW
SEE SPECIAL DETAIL
30"
TYPE M350
UNK. SIZE & MATERIAL
15" WELBOWS
PSH
SBG
2GI
TYPE III
15" RCP-IV
GRAU 350 TL-3
S 38° 29' 40" E
BRIDGE #29
COLLAR AND
EXTEND 15" RCP-III
RETAIN
JB w/MH
15" RCP-III
SANDRA KAY HAIGLER
THE HARRY HAIGLER TRUST
CLASS II RIP RAP
STRUCTURE PAY ITEM
TEMP. CAUSEWAY
DA = 2.2ac
DAp = 0.1ac
DAg = 2.1ac
Q10 = 5.8cfs
V10 = 1.1ft/s PSH
Vo = 3.1ft/s
Q2 = 4.5cfs
V2 = 1.0ft/s PSH
EXCAVATION
STRUCTURE PAY ITEM
CLASS I RIP RAP
EST 10 TONS
EST 20 SY GEOTEXTILE
LATERAL GRASSED SWALE
SEE DETAIL D
EST 260 SY PSRM
LATERAL BASE DITCH
SEE DETAIL B
EST 84 TONS CLASS I RIP
EST 120 SY GEOTEXTILE
CHAD D. &
DA = 12.7ac
DAp = 2.7ac
DAg = 10.0ac
tc = 25min
Q10 = 23cfs
V10 = 1.6-2.3ft/s
Q2 = 17cfs
V2 = 1.5-2.1ft/s
VOL. REQ'D = 6200 cubic feet
VOL. PROVIDED = 6200 cubic feet
BZ 1
BZ 2
2
3
ALLOWABLE IMPACTS ZONE 1
100' 0' 100'
GRAPHIC SCALE
REVISIONS
2/27/2013
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-5109	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 5 OF 7

BM # 2 ELEV.503.05'
DESCRIPTION: CHISLED SQUARE ON NW SIDE
OF BRIDGE WING WALL

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	4030	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	497.8	FT
BASE DISCHARGE	=	5746	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	498.9	FT
OVERTOPPING DISCHARGE	=	+7480	CFS
OVERTOPPING FREQUENCY	=	+500	YRS
OVERTOPPING ELEVATION	=	502.3	FT
	=		FT
DATE OF SURVEY	=		
N.W.S.ELEVATION AT DATE OF SURVEY	=	489.5	FT

2/27/2013
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$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
B-5109	X-5

BUFFER DRAWING
SHEET 6 OF 7

-4-

8/23/99

2/27/2013
amkeefer
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$$$$DGN$$$$
$$$$USERNAME$$$$

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	3 Span Bridge	16+15 to 17+50 -L-		X		7854		7854					
1	Road/PSH	14+30 LT to 16+15-L- LT/RT	X			7272		7272					
1	Ditch/Road	17+50 LT/RT to 19+51-L- RT	X			16124		16124					
TOTAL:						31250.0	0.0	31250.0	0.0	0.0	0.0		

* Linear impacts along Goose Creek = 150 Feet

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

UNION COUNTY
PROJECT: 42246.1.1 (B-5109)

2/25/2013
SHEET 7 OF 7