STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

June 1, 2012

MEMORANDUM TO: Mr. Richard Hancock, PE
Division 8 Engineer

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

SUBJECT: Moore County, Replace Bridge No. 2 over CSX Railroad on US 15/501; Federal Aid Project BRSTP-15(11); WBS 33222.1.1; **TIP B-3680**

Attached are the U.S. Army Corps of Engineers Section 404 Individual Permit and the N.C. Division of Water Quality Section 401 Water Quality Certification 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, State Contract Officer
Mr. Art King, 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. Bill Goodwin, P.E., PDEA Bridge
Mr. Phillip Ayscue, Office of Inspector General
Ms. Beth Harmon, EEP
Mr. Clarence Coleman, FHWA

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. Project No. B-3680
Replacement of Bridge No. 2 on US 15/501 over CSX Transportation
Moore County
Federal Aid Project No. BRSTP – 15(11)
WBS Element 33222.1.1

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

Project Services/ Roadside Environmental/ Division 8 Construction/ PDEA – Natural Environment Section

The Department will further investigate the potential for onsite mitigation/restoration of wetlands.

This commitment will be investigated prior to construction. Coordination with the regulatory agencies may occur prior to and during construction. Implementation may occur during the construction of the project.

Action Taken: ~~The permit application including onsite mitigation has been submitted to the USACE for review and approval.~~

NCDOT will perform on-site mitigation for stream and wetland impacts associated with B-3680 through the restoration of 118 linear feet of stream and 1.67 acres of riverine wetland via the removal of existing pavement, causeway, and box culvert associated with the current bridge and US 15/501 alignment. Please see the attached Wetland and Stream Restoration Plan (dated April 25, 2012, revised May 2, 2012) for further details.

The Project Development and Environmental Analysis Unit (PDEA) – Natural Environment Section (NES) shall provide assistance with construction for any on-site wetland mitigation, stream mitigation, or stream relocation. Prior to construction, the NES – Engineering Group shall be contacted.

COMMITMENTS FROM PERMITTING

Division 8 Construction

The culverts at Permit Sites 2 and 2a shall be backfilled to the adjacent natural streambed and/or floodplain elevations. The culverts must be backfilled with the same natural material that is excavated from the streambed and/or floodplain during the construction of these structures.

PDEA – Natural Environment Section

Section 401 Water Quality Certification (WQC), Condition No. 8

Compensatory mitigation for impacts to 196 linear feet of streams at a replacement ratio of 1:1 is required. Partial compensatory mitigation for impacts to jurisdictional streams shall be provided by onsite stream restoration of 118 linear feet of Devil Gut Branch. The onsite stream restoration shall be constructed in accordance with the design submitted in your January 4, 2012 application. All on-site mitigation sites shall be protected in perpetuity by a conservation easement or through NCDOT fee simple acquisition and recorded in the NCDOT Natural Environment Unit mitigation geodatabase. Please be reminded that as-builts for the completed streams shall be submitted to the North Carolina Division of Water Quality 401 Wetlands Unit with the as-builts for the rest of the project. If the parameters of this condition are not met, then the permittee shall supply additional stream mitigation for the 118 linear feet of impacts. All channel relocations will be constructed in a dry work area, will be completed and stabilized, and must be approved on-site by NCDWQ staff, prior to diverting water into the new channel. Whenever possible, channel relocations shall be allowed to stabilize for an entire growing season. All stream relocations shall have a 50-foot wide native wooded buffer planted on both sides of the stream unless otherwise authorized by this Certification. A transitional phase incorporating rolled erosion control product (RFCP) and appropriate temporary ground cover is allowable.

Action Taken: NCDOT will perform on-site stream restoration to compensate for 118 linear feet of permanent jurisdictional warm water stream impacts (out of 235 linear feet of permanent jurisdictional warm water stream impacts) associated with the project. The on-site stream restoration will offset these stream impacts at a 1:1 replacement ratio. Please see the attached Wetland and Stream Restoration Plan for further details.

Section 401 WQC, Condition No. 11

Compensatory mitigation for impacts to 1.99 acres of riverine wetlands shall be required. Partial compensatory mitigation for wetland impacts shall be provided by 1.67 acres of onsite wetland restoration. The permittee shall comply with the on-site wetland mitigation plan submitted on January 4, 2012. All onsite mitigation sites shall be protected in perpetuity by a conservation easement or through NCDOT fee simple acquisition and recorded in the NCDOT Natural Environment Unit mitigation geodatabase.

Section 404 Individual Permit, Special Condition No. 7

In order to provide compensatory mitigation for the unavoidable impacts to 1.67 acres of riparian wetlands and 118 linear feet of stream channel, the permittee shall re-establish 1.67 acres of riparian wetlands and 118 linear feet of stream channel on-site in accordance with the mitigation plan, "Wetland and Stream Restoration Plan Bridge No. 2 over Aberdeen Creek and CSX Railroad on US 15/501 Moore County, North Carolina", dated April 25, 2012 and with the following conditions:

a.) The permittee, NCDOT, is the party responsible for the implementation, performance and long term management of the compensatory mitigation project.

b.) Any changes or modifications to your mitigation plan shall be approved by the Corps.

c.) All stream and wetland restoration areas shall be monitored for a minimum of 5 years or until deemed successful by the Corps.

d.) The success of wetland vegetation planting in the re-established wetland and stream buffer areas will be gauged by stem counts of planted species within the mitigation areas. Survival of planted species must meet or exceed 320 three year old trees after three years and 260 five year old trees after five years.

e.) If, within the first three years, any species exhibits greater than 50% mortality, the species will either be replanted or replaced by an acceptable species.

f.) The minimum requirement to meet the hydrology success criteria for the re-established wetland areas shall be saturation or inundation within the upper 12 inches of the soil surface for at least a consecutive 12.5 % of the growing season. Hydrology monitoring shall be undertaken from February 1 to November 30 of each monitoring year. On February 1, the soil temperature will be measured at 12" below the soil surface and documented in the monitoring report.

g.) An as-built report will be submitted to the Corps within 60 days of completion of the mitigation work.

h.) The elevation of the restoration areas shall be field confirmed by the Corps, Wilmington Field Office prior to the release of construction equipment so that any elevation changes can be completed.

i.) The permittee and/or current and subsequent property owners shall maintain the entire mitigation site in its natural condition, as altered by the work in the mitigation plan, in perpetuity. Prohibited activities within the mitigation site specifically include, but are not limited to: Filling; grading; excavating; earth movement of any kind; construction of roads, walkways, buildings, signs, or any other structure; any activity that may alter the drainage patterns on the property; the destruction, cutting, removal, mowing, or other alteration of vegetation on the property; disposal or storage of any garbage, trash, debris or other waste material; graze or water animals, or use for any agricultural or horticultural purpose; or any other activity which would result in the property being adversely impacted or destroyed, except as specifically authorized by this permit.

j.) The permittee shall not sell or otherwise convey any interest in the mitigation property used to satisfy the mitigation requirements for this permit to any third party, without written approval from the Wilmington District Corps of Engineers.

k.) The permittee shall contact the Corps of Engineers, Wilmington Regulatory Field

Office NCDOT Regulatory Project Manager for the project, to provide that individual with the opportunity to attend the annual mitigation monitoring efforts.

For the wetland mitigation sites located from Station 10+80 to Station 17+15, hydrologic success of the sites will be attained by restoration of a hydrologic regime that results in inundation or saturation of the soils within 12 inches of the ground surface for at least 12.5 percent of the growing season. The hydrologic monitoring shall persist for a total of five (5) years. At the end of the monitoring period, NCDWQ will review the monitoring results for the mitigation site. Based on the results of the monitoring, NCDWQ will determine if the mitigation site is successful or if additional maintenance and monitoring is necessary to demonstrate site success.

PDEA – Natural Environment Section/ Roadside Environmental

The permittee shall visually monitor the vegetative plantings to assess and ensure complete stabilization of the mitigation stream segments. The monitoring shall be conducted annually for a minimum of 3 years after final planting. Photo documentation shall be utilized to document the success of the riparian vegetation and submitted to NCDWQ in a final report within sixty (60) days after completing monitoring. After 3 years the NCDOT shall contact the NCDWQ to schedule a site visit to "close out" the mitigation site.

Action Taken: NCDOT has agreed to conduct vegetation monitoring activities within the riparian buffer areas and wetland areas for five years, documenting these monitoring activities in an annual report that will be distributed to the regulatory agencies. Please see the attached Wetland and Stream Restoration Plan for further details.

For the forested wetland mitigation sites located from Station 10+80 to Station 17+15, the permittee shall plant 680 stems/acre. Vegetation success shall be measured by survivability over a 5-ycar monitoring period. Survivability will be based on 320 stems/acre after three (3) years and 260 stems after five (5) years. A survey of vegetation during the growing season shall be conducted annually over the five-year monitoring period and submitted to the NC Division of Water Quality. If the surviving vegetation densities are below the required thresholds after the five-year monitoring period, the site may still be declared successful at the discretion of and with written approval from the NC Division of Water Quality.

DEPARTMENT OF THE ARMY PERMIT

Permittee **North Carolina Department of Transportation, Dr. Gregory J. Thorpe**

Permit No. **SAW-2001-01373**

Issuing Office **CESAW-RG-L**

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: **Discharge dredged and or fill material into 422 linear feet of stream channel and 2.013 acres of wetlands to facilitate the replacement of Bridge Number 2 over the CSX Railroad and the realignment of the US 15/501 and US 1 intersection, Moore County, North Carolina.**

Project Location: **Project is located along US 15/501 from the US 1 intersection to north of the intersection of NC 211(Raeford Road), in Aberdeen, Moore County, North Carolina.**

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **31 December, 2017** If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit,

Special Conditions:

SEE ATTACHED SPECIAL CONDITIONS

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit, Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

E. L. Lusk for — May 14, 2012

(PERMITTEE) **NC Department of Transportation, Dr. Gregory J. Thorpe** — *(DATE)*

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

for — May 17, 2012

(DISTRICT ENGINEER) **STEVEN A. BAKER, COLONEL** — *(DATE)*

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

(TRANSFEREE) — *(DATE)*

*U.S. GOVERNMENT PRINTING OFFICE: 1986 - 717-425

SPECIAL CONDITIONS (Action ID. SAW-2001-01373, Replacement of bridge number 2 located along US 15/501NC 11 over the CSX Railroad and the realignment of the US 1 and US 15/501 intersection, Moore County, Transportation Improvement Project Number B-3680, State number 9.1560701)

1. Failure to institute and carry out the details of the following special conditions below will result in a directive to cease all ongoing and permitted work within waters of the United States, including wetlands, associated with the permitted project, or such other remedies and/or fines as the U.S. Army Corps of Engineers District Commander or his authorized representatives may seek.

2. All work authorized by this permit must be performed in strict compliance with the attached plans, which are a part of this permit. Any modification to these plans must be approved by the US Army Corps of Engineers (USACE) prior to implementation.

3. The permittee shall schedule a preconstruction meeting between its representatives, the contractor's representatives, and the Corps of Engineers, Mr. Ronnie Smith, Wilmington Regulatory Field Office, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall notify the Corps of Engineers Project Manager a minimum of thirty (30) days in advance of the scheduled meetings in order to provide that individual with ample opportunity to schedule and participate in the required meetings. One copy of the final half-size construction drawings shall be furnished to the Corps of Engineers, Mr. Ronnie Smith, Wilmington Regulatory Field Office prior to the pre-construction meeting.

4. The permittee shall ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Written verification shall be provided that the final construction drawings comply with the attached permit drawings prior to any active construction in waters of the United States, including wetlands. Any deviation in the construction design plans will be brought to the attention of the Corps of Engineers, Mr. Ronnie Smith, Wilmington Regulatory Field Office prior to any active construction in waters or wetlands.

5. The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit and any authorized modifications. Copies of this permit and any modifications authorized by the USACE shall be available for review at the construction site at all times. All violations, including non-compliance of these conditions, of the authorized permit shall be reported to the District Engineer within 24 hours of the violation.

6. Compensatory mitigation for the unavoidable impacts to 0.32 acre of riparian wetlands and 117 linear feet of warm water stream associated with the proposed project shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letter dated December 20, 2011 from Michael Ellison, EEP Deputy Director. Pursuant to the In-Lieu-Fee Instrument signed July

28, 2010 between the State of North Carolina, Ecosystem Enhancement Program and the US Army Corps of Engineers the EEP will provide 0.64 acre of restoration equivalent riparian wetlands and 234 linear feet of restoration equivalent warm water stream channel in the Lumber River Basin (Hydrologic Cataloging Unit 03040203) in accordance with Section F of the instrument.

7. In order to provide compensatory mitigation for the unavoidable impacts to 1.67 acres of riparian wetlands and 118 linear feet of stream channel, the permittee shall re-establish 1.67 acres of riparian wetlands and 118 linear feet of stream channel on-site in accordance with the mitigation plan, "Wetland and Stream Restoration Plan Bridge No. 2 over Aberdeen Creek and CSX Railroad on US 15/501 Moore County, North Carolina", dated April 25, 2012 and with the following conditions:

a.) The permittee, NCDOT, is the party responsible for the implementation, performance and long term management of the compensatory mitigation project.

b.) Any changes or modifications to your mitigation plan shall be approved by the Corps.

c.) All stream and wetland restoration areas shall be monitored for a minimum of 5 years or until deemed successful by the Corps.

d.) The success of wetland vegetation planting in the re-established wetland and stream buffer areas will be gauged by stem counts of planted species within the mitigation areas. Survival of planted species must meet or exceed 320 three year old trees after three years and 260 five year old trees after five years.

e.) If, within the first three years, any species exhibits greater than 50% mortality, the species will either be replanted or replaced by an acceptable species.

f.) The minimum requirement to meet the hydrology success criteria for the re-established wetland areas shall be saturation or inundation within the upper 12 inches of the soil surface for at least a consecutive 12.5 % of the growing season. Hydrology monitoring shall be undertaken from February 1 to November 30 of each monitoring year. On February 1, the soil temperature will be measured at 12" below the soil surface and documented in the monitoring report.

g.) An as-built report will be submitted to the Corps within 60 days of completion of the mitigation work.

h.) The elevation of the restoration areas shall be field confirmed by the Corps, Wilmington Field Office prior to the release of construction equipment so that any elevation changes can be completed.

i.) The permittee shall maintain the entire mitigation site in its natural condition, as altered by the work in the mitigation plan, in perpetuity. Prohibited activities within the mitigation site specifically include, but are not limited to: Filling; grading; excavating; earth movement of any kind; construction of roads, walkways, buildings, signs, or any other structure; any activity that may alter the drainage patterns on the property; the destruction, cutting, removal, mowing, or other alteration of vegetation on the property; disposal or storage of any garbage, trash, debris or other waste material; graze or water animals, or use for any agricultural or horticultural purpose; or any other activity which would result in the property being adversely impacted or destroyed, except as specifically authorized by this permit.

j.) The permittee shall not sell or otherwise convey any interest in the mitigation property used to satisfy the mitigation requirements for this permit to any third party, without written approval from the Wilmington District Corps of Engineers.

k.) The permittee shall contact the Corps of Engineers, Wilmington Regulatory Field Office NCDOT Regulatory Project Manager for the project, to provide that individual with the opportunity to attend the annual mitigation monitoring efforts.

8. Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill, or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands, or shall any activities take place that cause the degradation of waters or wetlands. There shall be no excavation from, waste disposal into, or degradation of, jurisdictional wetlands or waters associated with this permit without appropriate modification of this permit, including appropriate compensatory mitigation. This prohibition applies to all borrow and fill activities connected with this project. In addition, except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within, into, or out of waters or wetlands or to reduce the reach of waters or wetlands.

9. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area.

10. To ensure that all borrow and waste activities occur on high ground and do not result in loss or the degradation of adjacent wetlands and streams, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall provide the USACE with appropriate maps indicating the locations of proposed borrow or waste sites as soon as the permittee has that information. The permittee will coordinate with the USACE before approving any borrow or waste sites that are within 400 feet of any streams or wetlands to ensure that all such areas comply with special condition (8) of this permit. NCDOT shall require its contractors to complete and execute reclamation plans for each waste and borrow site and provide written documentation that the reclamation plans have been implemented and all work is

completed. This documentation will be provided to the Corps of Engineers within 30 days of the completion of the reclamation work.

3882 RLB per USACE

11. The permittee shall comply with the conditions specified in the water quality certification, No. ~~3876~~, issued by the North Carolina Division of Water Quality on March 12, 2012. The water quality certification is attached for your convenience.

12. The permittee shall use appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" to assure compliance with the appropriate turbidity water quality standard. 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 in order to assure compliance with the appropriate turbidity water quality standards. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4). Adequate sedimentation and erosion control measures must be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. These measures must be inspected and maintained regularly, especially following rainfall events. All fill material must be adequately stabilized at the earliest practicable date to prevent sediment from entering into adjacent waters or wetlands.

13. The permittee shall remove all sediment and erosion control measures placed in wetlands or waters, and shall restore natural grades in those areas, prior to project completion.

14. The permittee shall take measures to prevent live or fresh concrete from coming into contact with any surface waters until the concrete has hardened.

15. The permittee shall install barrier fencing or other acceptable forms of barrier around all wetlands that are not to be disturbed to make them readily visible and prevent construction equipment from inadvertently entering and disturbing the wetland areas that are to remain undisturbed.

16. All mechanized equipment will be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. No equipment staging or storage of construction material will occur in wetlands. Hydro-seeding equipment will not be discharged or washed out into any surface waters or wetlands. In the event of a spill of petroleum products or any other hazardous waste, the permittee shall immediately report it to the N.C. Division of Water Quality at (800) 858-0368 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

17. All necessary precautions and measures will be implemented so that any activity will not kill, injure, capture, harass, or otherwise harm any protected federally listed species. While accomplishing the authorized work, if the permittee discovers or observes a damaged or hurt listed endangered or threatened species, the District Engineer will be immediately notified so that required coordination can be initiated with the U.S. Fish and Wildlife Service.

18. The permittee shall adhere to the most recent "Best Management Practices for Protection of Surface Waters".

19. The permittee shall maintain the authorized work in good condition and in conformance with the terms and conditions of this permit.

20. Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used.

21. A representative of the Corps of Engineers will periodically and randomly inspect the work for compliance with these conditions. Deviations from these procedures may result in cessation of work until the problem is resolved to the satisfaction of the Corps.

22. This Department of the Army permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.

23. In issuing this permit, the Federal Government does not assume any liability for:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future Federal activities initiated on behalf of the general public.

c. Damages to other permitted or un-permitted activities or structures caused by the authorized activity.

d. Design and construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

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

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

March 12, 2012

Dr. Greg Thorpe, PhD., Manager
Project Development and Environmental Analysis
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina, 27699-1598

Subject: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for Proposed replacement of Bridge No. 2 on US 15/501 over CSX Transportation in Aberdeen in Moore County, Federal Aid Project No. BRSTP – 15(11), State Project No. 8.1560701, TIP B-3680.
NCDWQ Project No. 12-0040

Dear Dr. Thorpe:

Attached hereto is a copy of Certification No. 3882 issued to The North Carolina Department of Transportation (NCDOT) dated March 12, 2012.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

for Charles Wakild
Director

Attachments

cc: Ronnie Smith, US Army Corps of Engineers, Wilmington Field Office (electronic copy only)
Richard Hancock, PE, Division 8 Engineer
Art King, Division 8 Environmental Officer (electronic copy only)
Chris Militscher, Environmental Protection Agency (electronic copy only)
Gary Jordan, US Fish and Wildlife Service (electronic copy only)
Travis Wilson, NC Wildlife Resources Commission (electronic copy only)
Jason Elliott, NCDOT, Roadside Environmental Unit (electronic copy only)
James Mason, NCDOT, Natural Environmental Unit (electronic copy only)
Michael Ellison, Ecosystem Enhancement Program
Sonia Carrillo, NCDWQ Central Office (electronic copy only)
File Copy

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

401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS

THIS CERTIFICATION 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 (NCDWQ) Regulations in 15 NCAC 2H .0500. This certification authorizes the NCDOT to impact **2.08 acres** of jurisdictional wetlands and **422 linear** feet of jurisdictional streams in Moore County. The project shall be constructed pursuant to the application dated received January 13, 2012. The authorized impacts are as described below:

Stream Impacts in the Lumber River Basin

Site	Location	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)
2	10+77 to 18+32 -L-	0	0	196	187	383	196
2a	UT1 13+92 -L- LT	0	0	39	0	39	0
Total		**0**	**0**	**235**	**187**	**422**	196

Total Stream Impact for Project: 422 linear feet

Wetland Impacts in the Lumber River Basin (riverine)

Site	Location	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Impact Requiring Mitigation (ac)
1	17+95 -Y2-	<0.01	0	0	0.01	0	0.01	0.01
2	10+77 to 18+32 -L-	1.10	0	0.09	0.15	0.04	1.38	1.34
3	19+32 to 21+84 -L-	0.55	0	0	0.09	0.03	0.67	0.64
			UTILITIES					
2	18+02 to 18+22	0	0.005	0	0	0	0.005	0
2	18+23 to 18+76	0	0.016	0	0	0	0.016	0
Total		**1.65**	**0.02**	**0.09**	**0.25**	**0.07**	**2.08**	**1.99**

Total Wetland Impact for Project: 2.08 acres.

The application provides adequate assurance that the discharge of fill material into the waters of the **Lumber River Basin** in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application dated received January 13, 2012. Should your project change, you are required to 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 any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Condition(s) of Certification:

Project Specific Conditions

1. The NCDOT Division Environmental Officer or Environmental Assistant will conduct a pre-construction meeting with all appropriate staff to ensure that the project supervisor and essential staff understand the

potential issues with stream and pipe alignment at the permitted site. NCDWQ staff shall be invited to the pre-construction meeting.

2. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

3. The culverts at Permit Sites 2 and 2a shall be backfilled to the adjacent natural streambed and/or floodplain elevations. The culverts must be backfilled with the same natural material that is excavated from the streambed and/or floodplain during the construction of these structures.

4. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed.

5. For streams being impacted due to site dewatering activities, the site shall be graded to its preconstruction contours and revegetated with appropriate native species.

6. The stream channel shall be excavated no deeper than the natural bed material of the stream, to the maximum extent practicable. Efforts must be made to minimize impacts to the stream banks, as well as to vegetation responsible for maintaining the stream bank stability. Any applicable riparian buffer impact for access to stream channel shall be temporary and be revegetated with native riparian species.

7. Channel relocations shall be constructed in a dry work area and stabilized, and approved on site by DWQ staff, prior to diverting water into the new channel. Stream banks shall be matted with coir-fiber matting. Vegetation used for bank stabilization shall be limited to native riparian vegetation, and should include establishment of a vegetated buffer on both sides of the relocated channel to the maximum extent practical. Also, rip-rap may be allowed if it is necessary to maintain the physical integrity of the stream, but the applicant must provide written justification and any calculations used to determine the extent of rip-rap coverage requested. Once the stream has been turned into the new channel, it may be necessary to relocate stranded fish to the new channel to prevent fish kills.

8. Compensatory mitigation for impacts to 196 linear feet of streams at a replacement ratio of 1:1 is required. Partial compensatory mitigation for impacts to jurisdictional streams shall be provided by onsite stream restoration of 118 linear feet of Devil Gut Branch. The onsite stream restoration shall be constructed in accordance with the design submitted in your January 4, 2012 application. All on-site mitigation sites shall be protected in perpetuity by a conservation easement or through NCDOT fee simple acquisition and recorded in the NCDOT Natural Environment Unit mitigation geodatabase. Please be reminded that as-builts for the completed streams shall be submitted to the North Carolina Division of Water Quality 401 Wetlands Unit with the as-builts for the rest of the project. If the parameters of this condition are not met, then the permittee shall supply additional stream mitigation for the 118 linear feet of impacts. All channel relocations will be constructed in a dry work area, will be completed and stabilized, and must be approved on site by NCDWQ staff, prior to diverting water into the new channel. Whenever possible, channel relocations shall be allowed to stabilize for an entire growing season. All stream relocations shall have a 50-foot wide native wooded buffer planted on both sides of the stream unless otherwise authorized by this Certification. A transitional phase incorporating rolled erosion control product (RECP) and appropriate temporary ground cover is allowable.

9. Compensatory mitigation for remaining 78 linear feet of impact to streams is required. We understand that you have chosen to perform the remaining compensatory mitigation for impacts to streams through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated December 20, 2011 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the EEP Mitigation Banking Instrument signed July 28, 2010.

10. The permittee s hall visually monitor the vegetative plantings to assess and ensure complete stabilization of the mitigation stream segments. The monitoring shall be conducted annually for a minimum of 3 years after final planting. Photo documentation shall be utilized to document the success of the riparian vegetation and submitted to NCDWQ in a final report within sixty (60) days after completing monitoring.

After 3 years the NCDOT shall contact the NCDWQ to schedule a site visit to "close out" the mitigation site.

11. Co mpensatory mitigation for impacts to 1.99 acres of riverine wetlands shall be required. Partial compensatory mitigation for wetland impacts shall be provided by 1.67 acres of onsite wetland restoration. The permittee shall comply with the on-site wetland mitigation plan submitted on January 4, 2012. All on-site mitigation sites shall be protected in perpetuity by a conservation easement or through NCDOT fee simple acquisition and recorded in the NCDOT Natural Environment Unit mitigation geodatabase.

12. Co mpensatory mitigation for the remaining impacts to 0.32 acres of riverine wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated December 20, 2011 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the EEP Mitigation Banking Instrument signed July 28, 2010.

13. For the forested wetland mitigation sites located from Station 10+80 to Station 17+15, the permittee shall plant 680 stems/acre. Vegetation success shall be measured by survivability over a 5-year monitoring period. Survivability will be based on 320 stems/acre after three (3) years and 260 stems after five (5) years. A survey of vegetation during the growing season shall be conducted annually over the five-year monitoring period and submitted to the NC Division of Water Quality. If the surviving vegetation densities are below the required thresholds after the five-year monitoring period, the site may still be declared successful at the discretion of and with written approval from the NC Division of Water Quality.

14. For the wetland mitigation sites located from Station 10+80 to Station 17+15, hydrologic success of the sites will be attained by restoration of a hydrologic regime that results in inundation or saturation of the soils within 12 inches of the ground surface for at least 12.5 percent of the growing season. The hydrologic monitoring shall persist for a total of five (5) years. At the end of the monitoring period, NCDWQ will review the monitoring results for the mitigation site. Based on the results of the monitoring, NCDWQ will determine if the mitigation site is successful or if additional maintenance and monitoring is necessary to demonstrate site success.

General Conditions

15. Unles s otherwise approved in this certification, placement of culverts and other structures in open waters and streams shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.

16. If concrete is u sed 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.

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

18. The dime nsion, 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.

19. 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.

20. The Pe rmittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.

21. 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.

22. Heav y 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.

23. Heav y equipment may be operated within the stream channels however, its usage shall be minimized.

24. 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.

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

26. Dischar ging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.

27. The permittee a nd 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.

28. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification..

29. A cop y 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.

30. The outside buf fer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification.

31. The issua nce of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.

32. The Pe rmittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.

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

34. Native riparian vegetation 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.

35. There shall be no excava tion from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.

36. 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 in order to protect surface waters standards:

a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual.*
b. The 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.
c. 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.*
d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.

37. Sedi ment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

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)-733-2698, Facsimile: (919)-733-3478

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

Ms. Mary Penny Thompson, General Counsel
Department of Environment and Natural Resources
1601 Mail Service Center
Raleigh, NC 27699-1601

This the 12th day of March 2012

DIVISION OF WATER QUALITY

for Charles Wakild
Director

WQC No. 3882

NCDWQ Project No.: _____ **County:** _____

Applicant: _____

Project Name: _____

Date of Issuance of 401 Water Quality Certification: _____

Certificate of Completion

Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401 Transportation Permitting Unit, North Carolina Division of Water Quality, 1650 Mail Service Center, Raleigh, NC, 27699-1650. This form may be returned to NCDWQ by the applicant, the applicant's authorized agent, **or** the project engineer. It is not necessary to send certificates from all of these.

Applicant's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Agent's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date:_____

Engineer's Certification

_____ Partial _____ Final

I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project,for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature _____ Registration No. _____

Date _____

Wetland and Stream Restoration Plan
Bridge No. 2 over Aberdeen Creek and CSX Railroad on US 15/501
Moore County, North Carolina

STIP B- 3680
Federal Aid Project No.BRSTP-15 (11)
WBS No. 33222.1.1
April 25, 2012
Revised May 2, 2012

1.0 BASELINE INFORMATION

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 2 that carries US 15/501 over CSX Railroad. The project is located within sub-basin 03-07-50 of the Lumber River Basin (DWQ 2001) and is part of the USGS Hydrologic Unit 03040203, of the South Atlantic Gulf region and is located in southern Moore County just west of Aberdeen. It is within the Sandhills Region of the Coastal Plain physiographic province. The project is located in the Town of Aberdeen on US 15/ 501 north of the intersection of NC 211 in Moore County. The majority of the land use in the vicinity of the project is urban in nature with the landscape surrounding the project being composed of a mixture of forested communities and maintained/ disturbed land.

Two jurisdictional streams are located within the project area: Aberdeen Creek and an unnamed tributary (UT) to Aberdeen Creek. This portion of the stream has been assigned Stream Index Number (SIN) 14-02-11- (6) by the NCDWQ (DENR2005a) and is designated a warm water stream (USACE et al. 2003) with a best classification of C.

The two natural plant communities found within the project area are Alluvial Forest and Mesic Mixed Hardwood Forest. There is also a component of disturbed/maintained land. Approximately 29 % of the project study area (5.21 acres) is made up of the Alluvial Forest, 37 % (6.65 acres) is made up of Mesic Mixed Hardwood Forest, and 34 % (6.00 acres) is composed of disturbed/maintained land containing roadsides, industrial areas, dirt roads/ driveways, a railroad bed and other maintained lands.

The North Carolina Department of Transportation (NCDOT) will perform on-site mitigation for stream and wetland impacts associated with Transportation Improvement Program (STIP) B-3680 through the restoration of 118 linear feet of stream and 1.67 acres of riverine wetland via the removal of existing pavement, causeway, and box culvert associated with the current bridge and US 15/501 alignment.

2.0 SITE SELECTION

STIP B-3680 will involve replacing bridge No. 2 over the CSX Railroad as well as performing improvements to the approach roadway of the replacement structure, all on new alignment.

Permanent wetland impacts associated with the project are 1.65 acres of riverine wetlands. Permanent stream impacts associated with the project are 235 feet of stream.

The Categorical Exclusion (CE) for STIP B-3680, dated September 2006, provides further details concerning existing natural resources and roadway conditions.

Existing Bridge No. 2 is located approximately 1000 ft. south of the intersection of US 15/501 and US 1. Between the bridge and US 15/501 the roadway runs on a section of high causeway fill within the floodplain of Aberdeen Creek. Jurisdictional wetlands occur on both the east and west sides through this section of roadway. Approximately 300 ft. north of the existing bridge, a 118 ft. long, 5'x5' box culvert carries an unnamed tributary (UT) to Aberdeen Creek under the roadway from east to west, where it comes to a confluence with Aberdeen Creek. NCDOT proposes to removal of the existing causeway and culvert restoring the stream and floodplain, as well as wetland connectivity.

3.0 SITE PROTECTION INSTRUMENT

The mitigation area is located within NCDOT Right-of-Way. The area is outside of the bridge maintenance area and free of utilities. It will be managed to prohibit all use inconsistent with its use as mitigation property, including any activity that would materially alter the biological integrity or functional and educational value of the site, consistent with the mitigation plan.

The site will be placed on the NEU mitigation geo-database. After closeout, the site will be placed in the NCDOT Stewardship Program for long term management and protection.

4.0 OBJECTIVES

The goal of the project is to restore 1.67 acres of riverine forest and 118 feet of an unnamed tributary associated with Aberdeen Creek. The functional restoration of the site will be accomplished through existing pavement, causeway, and box culvert removal and site grading to match the target elevation of the existing adjacent reference wetland system.

5.0 MITIGATION WORK PLAN

The mitigation area will be constructed in conjunction with STIP B-3680. Construction activities involve pavement and causeway removal, removal of the 5'x 5' box culvert and utilizing natural stream design on the 118 feet of stream, as well as grading and planting the site. Once the pavement and causeway have been excavated, the areas will be graded to match existing adjacent reference wetland elevation as well as being ripped, disked, and soil amendments added if necessary. NCDOT has identified Japanese privet (*Ligustrum japonicum*) within the project limits of B-3680. To minimize the potential spread of this species from construction-related activities, the NCDOT proposes to attempt to suppress the privet within their right-of-way within in the project limits.

The Natural Environment Section shall be contacted to provide construction assistance to ensure that the mitigation areas are constructed appropriately.

Following the successful completion of site grading, the wetland restoration area will be planted on 8 foot centers with native species typical of the adjacent wetland community (reference site) including American sycamore (*Platanus occidentalis*), water oak (Quercus *nigra*), river birch (*Betula nigra*) and green ash (*Fraxinus pennsylvanica*) depending on seedling availability. After construction of the stream channel, all banks will be matted and live stakes, Black willow (*Salix nigra*) and Silky dogwood (*Cornus amomum*), will be planted on 3 foot centers. Also, native grass seed and mulch will be placed in wetland restoration area on all disturbed areas within the wetland and stream restoration area for stabilization purposes according to guidance and standard procedures of NCDOT's Roadside Environmental Unit. An as-built report will be submitted within 60 days of completion of the project.

6.0 PERFORMANCE STANDARDS

Success for vegetation monitoring within the riparian buffer and wetland areas are based on the survival of at least 260 stems per acre of five year old trees at year five. Assessment of channel stability will be based on the survival of riparian vegetation and lack of significant bank erosion, channel widening or down-cutting.

7.0 MONITORING REQUIREMENTS

Hydrologic monitoring shall be conducted using ground water monitoring gauges located across the site. Hydrologic success criteria shall be based on the Corps of Engineers Wetlands Delineation Manual (1987) and the area must be inundated or saturated (within 12" of the surface) by surface or ground water for at least a consecutive 12.5% of the growing season. The target elevation is based on the reference wetland areas and will be verified during construction. Constructing the site at the adjacent wetland elevation will ensure the hydrology in the restored area is similar to the hydrology in the reference area. Photo points will be located within the stream mitigation areas at equal intervals along the channel with upstream and downstream views. Vegetation monitoring will consist of counts of planted stems within 50 x 50 foot plots established within the riparian buffer areas and wetland areas. The entire reach will be visually inspected for channel stability and vegetation survival.

These monitoring activities will be conducted for five years and documented in an annual report distributed to the regulatory agencies.

8.0 OTHER INFORMATION

The wetland plant community associated with B-3680, adjacent to Aberdeen Creek and the unnamed tributary to Aberdeen Creek, is a Riverine Swamp Forest based on NCWAM field assessment methodology. The overall wetland rating was HIGH. This is the reference wetland that will be used for the project.

9.0 DETERMINATION OF CREDITS

Per the NCDOT plans and 401/404 permit application for B-3680, NCDOT proposes to restore 1.67 acres of riverine wetlands and 118 feet of stream to mitigate for permanent impacts associated with the STIP, both at a 1:1 ratio. An as-built report will be submitted within 60 days of completion of the project to verify actual constructed acreage. The success of the mitigation area and determination of total credits will be based upon successful completion and closeout of the monitoring period.

9.1 CREDIT RELEASE SCHEDULE

NCDOT proposes immediate, full release of the proposed 1.67 acres of restored riverine wetlands as on-site mitigation for the associated riverine wetland impacts of 1.65 acres for B-3680 at a 1:1 ratio. NCDOT also proposes immediate, full release of the proposed 118 feet of restored stream as on-site mitigation for the associated stream impacts of 235 feet for B-3680 at a 1:1 ratio.

10.0 GEOGRAPHIC SERVICE AREA

The proposed Geographic Service Area (GSA) for the mitigation area is composed of the Hydrologic Cataloging Unit (HUC) 03040203. All stream and wetland credit will be used for B-3680.

11.0 MAINTENANCE PLAN

The site will be held by NCDOT and placed on the NEU mitigation geodatabase. Once monitoring is completed and the site is closed out, it will be placed in the NCDOT Stewardship Program for long term maintenance and protection.

If an appropriate third party recipient is identified in the future, then the transfer of the property will include a conservation easement or other measure to protect the natural features and mitigation value of the site in perpetuity.

12.0 LONG TERM ADAPTIVE MANAGEMENT PLAN

The site will be managed by the NCDOT according to the mitigation plan. Encroachments into the area will be investigated and appropriate measures taken to minimize any negative effects. In the event that unforeseen issues arise that affect the management of the site, any remediation will be addressed by NCDOT in coordination with the Interagency Review Team.

13.0 FINANCIAL ASSURANCES

The site will be managed by NCDOT with its own distinct cost center number within the NCDOT budgeting and financial tracking system. Therefore, all accounting for revenues, contract encumbrances, fund transfers, and expenses will be performed and reported independent from other capital budget or operating budget accounting. NCDOT has established funds for the project and to monitor the mitigation site and to protect it in perpetuity.

PROJECT REFERENCE NO.	SHEET NO.
B-3680	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

401 Fayetteville Street Suite 1500 Raleigh, N.C. 27601

SUNGATE DESIGN GROUP, P.A.

-L- PROFILE SEE SHEET 6
-Y2- PROFILE SEE SHEET 7
-L- X-SECTIONS SEE SHEET X-2 & X-3
-Y2- X-SECTIONS SEE SHEET X-13 THRU X-16
SEE SHEET S-1 THRU S- FOR STRUCTURE PLAN

TYPICAL SECTION A-A
INLET CHANNEL (CULV #1)
LOOKING DOWNSTREAM

TYPICAL SECTION B-B
INLET CHANNEL (CULV #2)
LOOKING DOWNSTREAM

TYPICAL SECTION C-C
OUTLET CHANNEL
LOOKING DOWNSTREAM

DETAIL 3
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 2H, D, 2H, h, Fill Slope, F/F't
Min. D=1Ft.
D=5 Ft.

FROM STA. 11+25 TO STA. 13+87 -L- RT

BRIDGE SKETCH

POT Sta. 11+47.03 -Y3-
= POT STA.18+69.92 -L-
BEGIN APPROACH SLAB
POT STA.17+38.25 -L-
BEGIN BRIDGE
POT STA.17+62.25 -L-
END APPROACH SLAB
POT STA.20+16.25 -L-
END BRIDGE
POT STA.19+92.25 -L-
TYPE B-77
S 31° 14' 10.7" E
S 29° 54' 44" E

DETAIL 1
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 2H, D, 2H, h, Fill Slope, F/F't, B
Min. D= 1.5Ft.
B= 2.0Ft.
b= 5.0Ft.

FROM STA. 18+90 TO STA. 21+50 -L- LT.

-BL-5 POT 28+42.84
-BY2-5 PINC 17+33.27
-Y2- 12+42.42 (42.93' RT)

-BL-4 PINC 22+13.51
-L- STA 12+65.94 (151.27' LT)

-BL POT 16+38.01
-BY1- POT 8+89.39
(NOT SET)

-BL-3 PINC 17+65.60
-L- 17+15.84 (19.70' LT)

-BY2-11 PINC 14+26.49
-Y2- 15+52.46 (38.70' RT)

-BY2- STA 19+07.68
101.13' RIGHT
ELEV=384.80 (USGS)

POT Sta. 10+00.00 -Y2-
BEGIN CONSTRUCTION
NB LANES
POT Sta. 10+78.00 -L- -Y2-
PC Sta. 11+29.08 -Y2-

BEGIN CONSTRUCTION
SB LANES
POT Sta. 14+20.40 RT -Y2-

BEGIN CONSTRUCTION
BEGIN STATE PROJECT B-3680
POT 9+97.26 -L- = WOODS
POC 18+10.64 -Y2-

END CONSTRUCTION
POC 19+35.71 -Y2-

POT Sta. 10+00.00 -Y3-

POT Sta. 12+75.09 -Y3-

PI Sta 16+76.37 -L-
Δ = 15° 46' 35.9" (RT)
D = 1° 27' 01.9"
L = 1,087.65'
T = 547.29'
R = 3,950.00'
SE= .03
RO= 120
DS= 50mph

-BY1-7 POT 5+00.00

TRAFFIC DIAGRAM

28870	14140		
38790	19340	16180	
		22580	
		US	
2040		15-501	
3240			
16770		ADT 2009	
22690		ADT 2029	
US 1			

PENTECOSTAL HOLINESS CHURCH, INC.
DB 1326 PG 103

J.P. SHAMBURGER

IRIS M. TILLEY
DB 1003 PG 442

JANET O. ROBERTSON
DB 767 PG 472
MB 2A PG 129

LOUISE STYERS WICKER
DB 1244 PG 536
MB 2A PG 129

KENNETH A. MONROE
DB 1586, PG 735

JOSEPH C. USSERY
DB 1525 PG 165
PC 7 SL 526
TRACT NO. 1

J.P. SHAMBURGER
DB 245 PG 124
LATERAL 'V' DITCH
STA 11+25 TO
STA 13+87 -L- RT
SEE DETAIL #3

TOWN OF ABERDEEN
DB 1395 PG 93
PB 9 PG 19

2' LATERAL BASE DITCH
STA 18+90 TO 21+50 -L- LT.
SEE DETAIL 1

SHOULDER BERM GUTTER
FROM END APP. SLAB
TO STA 23+45 -L- LT.

SHOULDER BERM GUTTER
FROM END APP. SLAB
TO STA 24+50 -L- RT.

REMOVE EXISTING C&G ISLAND

REMOVE EXISTING ROAD FILL TO NATURAL GROUND LEFT AND RIGHT ABOVE GROUND

GRADE TO DRAIN ABOVE GROUND

REMOVE EXISTING BRIDGE

REMOVE EXISTING CONC BRIDGE

RETAIN

2 TN CL 'B' RIP RAP 6 SY FF

CL I RIP RAP

22' BASE CHANNEL DDE=970 CY

PAVEMENT REMOVAL

MATCHLINE SEE SHEET 5
-L- Sta. 20+50.00

REVISIONS

FILE: 6FILES
DATE: 6DATES

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MOORE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3680	1	

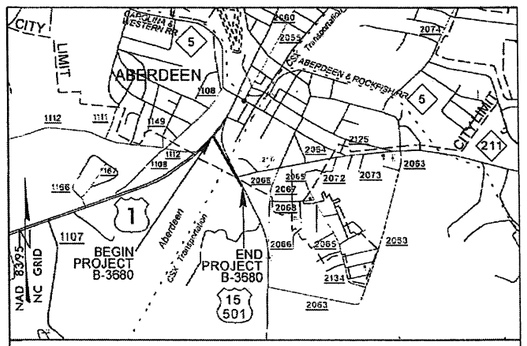
STATE PROJ.NO.	F.A. PROJ.NO.	DESCRIPTION
33222.1.1	BRSTP-15(11)	P.E.
33222.2.1	BRSTP-15(11)	ROW & UTIL.
33222.3.1	BRSTP-15(25)	CONSTRUCTION

NAD 83/95 NC GRID

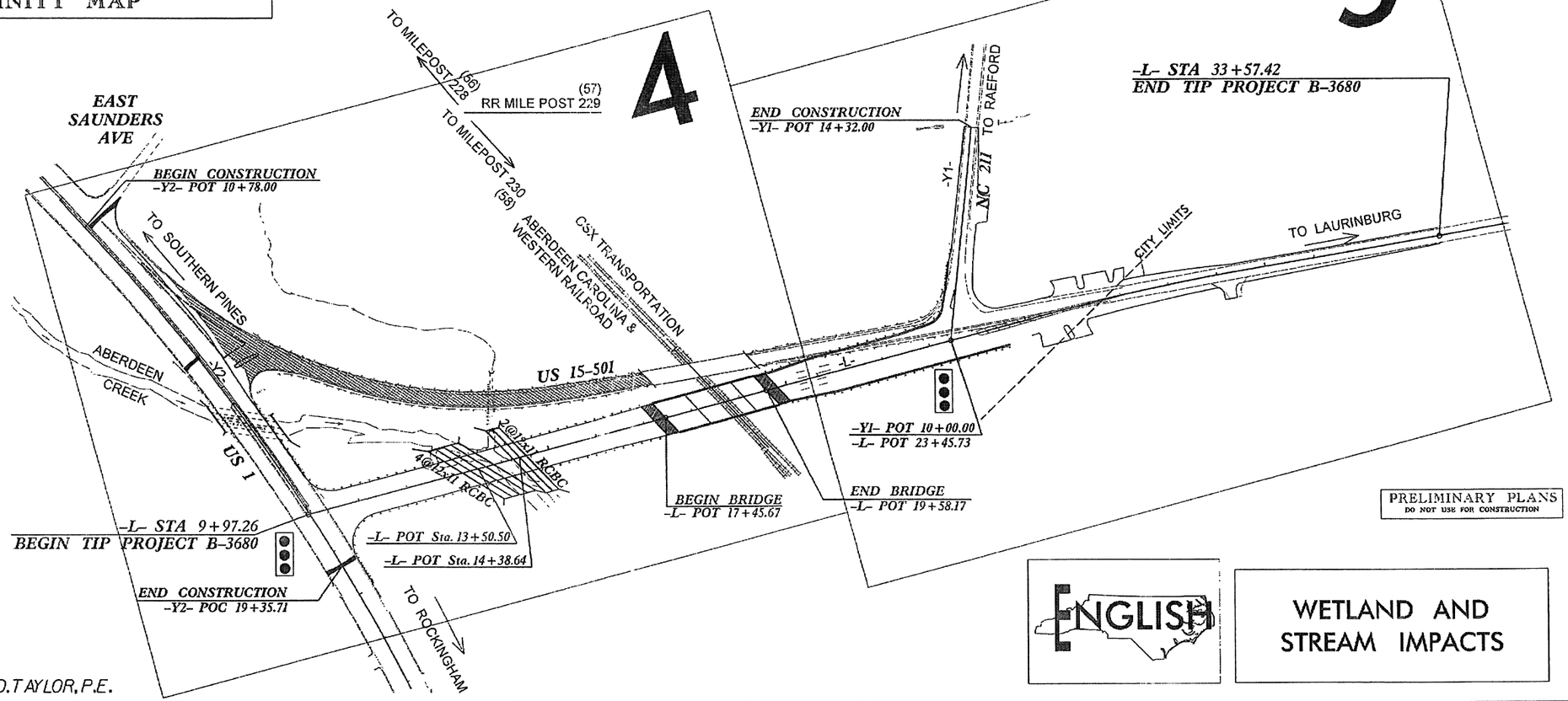
Permit Drawing Sheet 1 of 12

LOCATION: BRIDGE NO. 2 OVER CSX TRANSPORTATION ON US 15/501

TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNAL, STRUCTURE, & CULVERT



VICINITY MAP



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

WETLAND AND STREAM IMPACTS

NCDOT CONTACT: B.D.TAYLOR, P.E.

TIP PROJECT: B-3680

CONTRACT:

PAVE: STEEL
PAINT: STRIPES

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

URBAN ARTERIAL

ADT 2012 = 17,160
ADT 2032 = 23,560
DHV = 10 %
D = 55 %
T = 11 % *
V = 50 MPH

REGIONAL TIER

* (TTST 7 % + DUAL 4 %)

PROJECT LENGTH

LENGTH OF ROADWAY = 0.403 MILES

LENGTH OF STRUCTURE = 0.044 MILES

TOTAL LENGTH OF PROJECT = 0.447 MILES

Prepared in the Office of:
WILBUR SMITH ASSOCIATES
421 FAYETTEVILLE STREET
RALEIGH, NC 27601

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: NOVEMBER 21, 2007

LETTING DATE: JUNE 19, 2012

DAVID L. WILVER, PE
PROJECT ENGINEER

DAVID L. WILVER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19026 ENGINEER DAVID L. WILVER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

PROJECT REFERENCE NO.	SHEET NO.
B-3680	4
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL — DAVID L. WILLIAMS

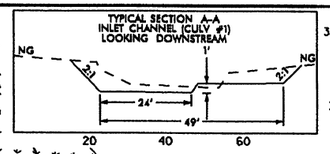
HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL — HENRY WELLS JR.

PRELIMINARY PLANS — NOT FOR CONSTRUCTION

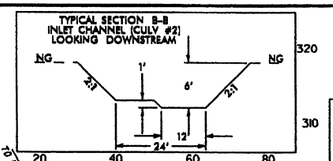
Wilbur Smith Associates — 421 Fayetteville Street Mall, Suite 1000, Raleigh, N.C. 27601 — SUNGATE DESIGN GROUP, P.A.

Permit Drawing
Sheet 2 of 12

TYPICAL SECTION A-A
INLET CHANNEL (CULV #1)
LOOKING DOWNSTREAM

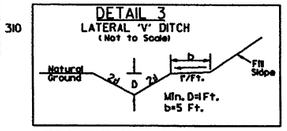


TYPICAL SECTION B-B
INLET CHANNEL (CULV #2)
LOOKING DOWNSTREAM



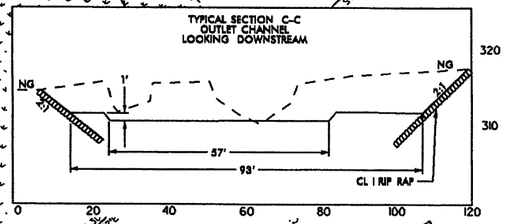
-L- PROFILE SEE SHEET 6
-Y2- PROFILE SEE SHEET 7
-L- X-SECTIONS SEE SHEET X-2 & X-3
-Y2- X-SECTIONS SEE SHEET X-13 THRU X-16
SEE SHEET S-1 THRU S- FOR STRUCTURE PLAN

DETAIL 3
LATERAL 'V' DITCH
(Not To Scale)



FROM STA. 11+28 TO STA. 13+87 -L- RT

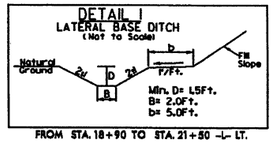
TYPICAL SECTION C-C
OUTLET CHANNEL
LOOKING DOWNSTREAM



S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

HC HC	DENOTES HAND CLEARING
E E	DENOTES EXCAVATION IN WETLAND
F F	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING

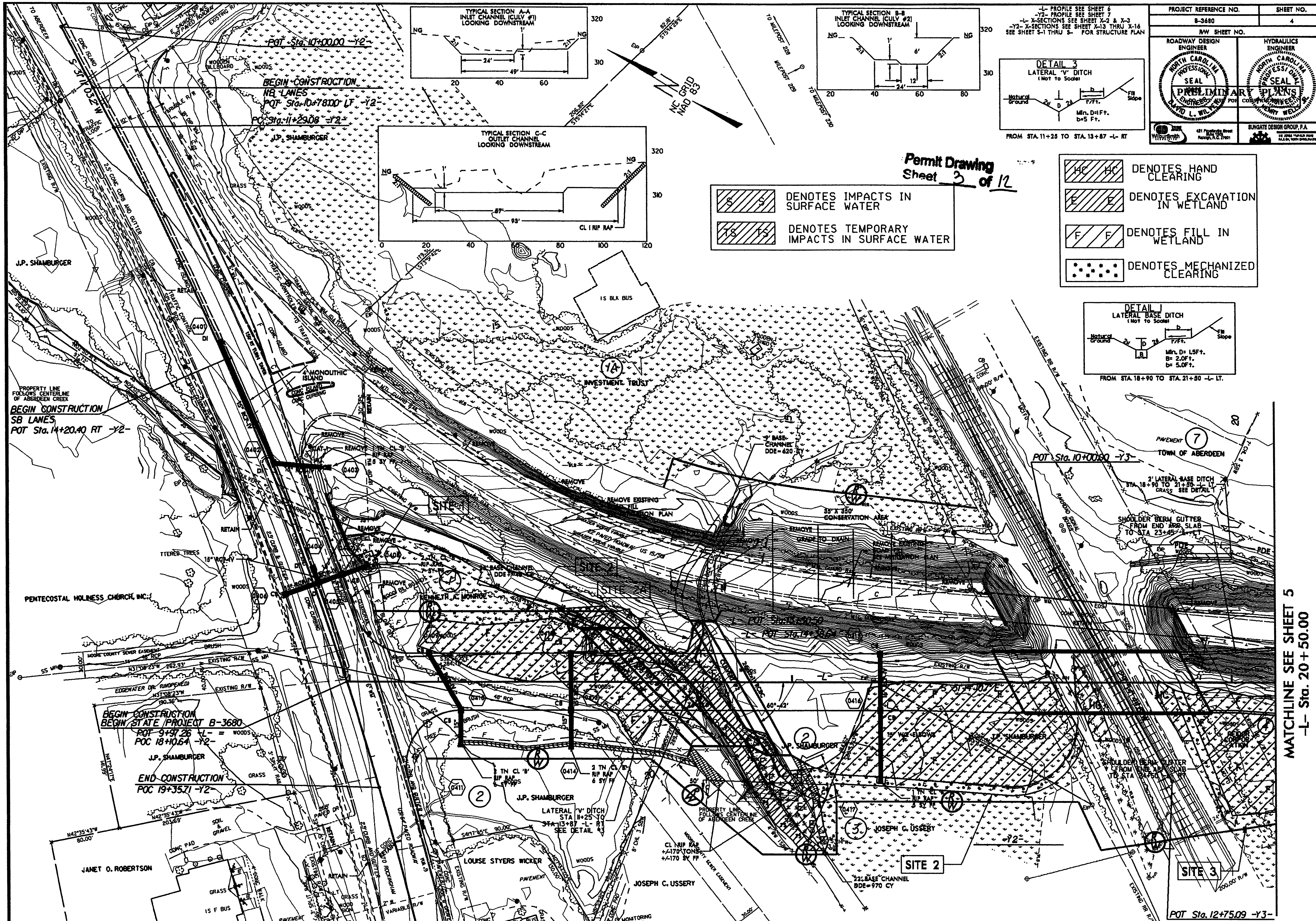
DETAIL 1
LATERAL BASE DITCH
(Not To Scale)



FROM STA. 18+90 TO STA. 21+50 -L- LT.

MATCHLINE SEE SHEET 5
-L- Sta. 20+50.00

Rev. 12/20/


PROJECT REFERENCE NO. B-3680
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
SUNGATE DESIGN GROUP, P.A.
-L- PROFILE SEE SHEET 6
-Y2- PROFILE SEE SHEET 7
-L- X-SECTIONS SEE SHEET X-2 & X-3
-Y2- X-SECTIONS SEE SHEET X-13 THRU X-16
SEE SHEET S-1 THRU S- FOR STRUCTURE PLAN
Permit Drawing
Sheet 3 of 12
TYPICAL SECTION A-A
INLET CHANNEL (CULV #1)
LOOKING DOWNSTREAM
TYPICAL SECTION B-B
INLET CHANNEL (CULV #2)
LOOKING DOWNSTREAM
TYPICAL SECTION C-C
OUTLET CHANNEL
LOOKING DOWNSTREAM
CL I RIP RAP
DETAIL 3
LATERAL 'V' DITCH
(Not to Scale)
Min. D=1 Ft.
b=5 Ft.
FROM STA. 11+25 TO STA. 13+87 -L- RT
DETAIL 1
LATERAL BASE DITCH
(Not to Scale)
Min. D= 1.5Ft.
B= 2.0Ft.
b= 5.0Ft.
FROM STA. 18+90 TO STA. 21+50 -L- LT.
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES HAND CLEARING
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
NC GRID NAD 83
POT Sta. 10+00.00 -Y2-
BEGIN CONSTRUCTION
NB LANES
POT Sta. 10+78.00 LT -Y2-
PC Sta. 11+29.08 -Y2-
BEGIN CONSTRUCTION
SB LANES
POT Sta. 14+20.40 RT -Y2-
BEGIN CONSTRUCTION
BEGIN STATE PROJECT B-3680
POT 9+97.26 -L- =
POC 18+10.64 -Y2-
END CONSTRUCTION
POC 19+35.71 -Y2-
J.P. SHAMBURGER
PENTECOSTAL HOLINESS CHURCH, INC.
INVESTMENT TRUST
KENNETH A. MONROE
JOSEPH C. USSERY
LOUISE STYERS WICKER
JANET O. ROBERTSON
TOWN OF ABERDEEN
SITE 1
SITE 2
SITE 2A
SITE 3
9' BASE CHANNEL DDE=620 CY
22' BASE CHANNEL DDE=970 CY
35' X 350' CONSERVATION AREA
CL I RIP RAP +/-170 TONS +/-170 SY FF
LATERAL 'V' DITCH STA 11+25 TO STA 13+87 -L- RT SEE DETAIL 3
PROPERTY LINE FOLLOWS CENTERLINE OF ABERDEEN CREEK
POT Sta. 10+00.00 -Y3-
2' LATERAL BASE DITCH STA. 18+90 TO 21+50 -L- LT SEE DETAIL 1
SHOULDER BERM GUTTER FROM END APP. SLAB TO STA 23+45 -L- LT
SHOULDER BERM GUTTER FROM END APP. SLAB TO STA 24+50 -L- RT
POT Sta. 12+75.09 -Y3-
MATCHLINE SEE SHEET 5
-L- Sta. 20+50.00

PROJECT REFERENCE NO.	SHEET NO.
B-3680	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
WilsonSmith 401 Fayetteville Street Suite 1900 Raleigh, N.C. 27601	SUNGATE DESIGN GROUP, P.A.

-L- PROFILE SEE SHEET 3 & 7
-Y1- PROFILE SEE SHEET 7
-L- X-SECTIONS SEE SHEET X-3 THRU X-9
-Y1- X-SECTIONS SEE SHEET X-10 THRU X-12

NC GRID NAD 83

Permit Drawing
Sheet 4 of 12

** NOTE: UNDERGROUND UTILITIES FOR EXTENSION WERE PLACED BY MAPPING ONLY **

F/F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

END CONSTRUCTION -Y1-
POT Sta. 14+32.00
TIE TO EXIST

DETAIL 1
LATERAL BASE DITCH
(Not to Scale)

FROM STA. 18-90 TO STA. 21-50 -L- LT.

DETAIL 2
SPECIAL CUT DITCH
(Not to Scale)

FROM STA. 29+50 TO STA. 33+00 -L- RT.

2' LATERAL BASE DITCH
STA 18+90 TO 21+50 -L- LT
SEE DETAIL 1

SITE 3

POT Sta. 10+00.00 -Y1-
= POT STA.23+45.73 -L-

TS Sta. 25+21.14

SC Sta. 26+11.14

CS Sta. 28+79.49

ST Sta. 29+69.49

SPECIAL CUT DITCH
STA. 29+50 TO 33+00 -L- RT.
SEE DETAIL 2

END CONSTRUCTION
END PROJECT B-3680
-L- POT STA.33+57.42
TIE TO EXIST

MATCHLINE SEE SHEET 4
-L- Sta. 20+50.00

RSR, LLC.

PRIME REALTY, INC.

J.D. AUTRY

REIDOR CORPORATION

SHODJA TEXTILES, INC.

W. FENTRESS PHILLIPS

TOWN OF ABERDEEN

REVISIONS

DATE: SPACE STAKES

PROJECT REFERENCE NO.	SHEET NO.
B-3680	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Wilbur Smith 421 Fayetteville St. Mall Raleigh, NC 27601	SUNGATE DESIGN GROUP, P.A.

-L- PROFILE SEE SHEET 6 & 7
-Y1- PROFILE SEE SHEET 7
-L- X-SECTIONS SEE SHEET X-3 THRU X-9
-Y1- X-SECTIONS SEE SHEET X-10 THRU X-12

NC GRID NAD 83

Permit Drawing
Sheet 5 of 12

** NOTE: UNDERGROUND UTILITIES FOR EXTENSION WERE PLACED BY MAPPING ONLY **

F/F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

REVISIONS

MATCHLINE SEE SHEET 4
-L- Sta. 20+50.00

END CONSTRUCTION -Y1-
POT Sta. 14+32.00
TIE TO EXIST

DETAIL 1
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 2:1, b, 2:1, Fill Slope, B
Min. D= 1.5Ft.
B= 2.0Ft.
b= 5.0Ft.
FROM STA. 18+90 TO STA. 21+50 -L- LT.

DETAIL 2
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 2:1, D, 4:1 or Flatter, Front Ditch Slope
Min. D= 1.0Ft.
FROM STA. 29+50 TO STA. 33+00 -L- RT.

TOWN OF ABERDEEN
RSR, LLC.
PRIME REALTY, INC
REIDOR CORPORATION
SHODJA TEXTILES, INC.
W. FENTRESS PHILLIPS

2' LATERAL BASE DITCH
STA 18+90 TO 21+50 -L- LT
SEE DETAIL 1

SPECIAL CUT DITCH
STA. 29+50 TO 33+00 -L- RT.
SEE DETAIL 2

SITE 3

POT Sta. 10+00.00 -Y1-
POT STA 23+45.73 -L-
TS Sta. 25+21.41
SC Sta. 26+11.14
ST Sta. 29+69.49
CS Sta. 28+79.49

END CONSTRUCTION
END PROJECT B-3680
-L- POT STA. 33+57.42
TIE TO EXIST

N 23° 29' 21" E
S 26° 06' 11.5" E
S 64° 20' 11" W 280.32'
S 64° 25' 25" W
S 25° 25' 52" E 470.8'
S 64° 40' 44" W 508.07'
S 64° 40' 44" W 400.67'

FILE: SPLICE
DATE: SCALES

PROJECT REFERENCE NO.	SHEET NO.
B-3680	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Wilbur Smith Associates — 121 Fayetteville Street, Suite 1200, Raleigh, N.C. 27601

SUNDATE DESIGN GROUP, P.A.

Permit Drawing
Sheet 6 of 12

INFORMATION TO BE SHOWN ON PLANS

Design:	Discharge	2500	c.f.s.	Frequency	50 YR.	*Elev.	321.5
Base Flood:	Discharge	3300	c.f.s.	Frequency	100 yr.	Elev.	322.5
Overtopping:	Discharge	>3300	c.f.s.	Frequency	> 100 YR	Elev.	323.0

*FROM SECTION 35013. ELEVATIONS ADJUSTED TO 88 (-0.2)

BM#2 ELEV 324.21
-BL- STA 17+70.05 (226.21' RT)
-L- STA 17+30.33 (330.62' LT)

PI = 17+70.00
EL = 358.97'
VC = 600'
K = 88
DS = 50 MPH

BEGIN BRIDGE
-L- Sta. 17+45.67

END BRIDGE
-L- Sta. 19+58.17

(-)0.8800%

356.06

PROPOSED GRADE

EXISTING ROADWAY

-L- Sta. 9+97.26 =
-Y2- Sta 18+10.64
EL. 322.82

PI = 12+50.00
EL = 328.18
VC = 400'
K = 102
DS = 55 MPH

BEGIN GRADE
-L- Sta. 10+28.04
= -Y2- Sta 18+19.93 (29.34' LT)
EL. 323.74

(+)5.9200%

(+)2.0000%

(+)2.9999%

FOUR CELL CULVERT (12' WIDE) -L- Sta. 13+50.50

TWO CELL CULVERT (12' WIDE) -L- Sta. 14+33.64

SITE 2

SITE 3

FILL IN WETLANDS

FILL IN WETLANDS

FILL IN WETLANDS

IMPACTS IN SURFACE WATERS

FUTURE TRACK

PROPOSED LOW CLEARANCE POINT -L- 18+59.06 (33.5' LT) 23.86' CLEARANCE

℄ TRACK

℄ TRACK

23' MIN. VERT. CLEARANCE

PIER 40' CLEAR

PIER 25' CLEAR

40' MIN. HORIZ. CLR.

25' MIN. HORIZ. CLR.

EXISTING GROUND

MATCH -L- STA 21+00 SEE SHEET 7

SEE SHEET 4&5 FOR PLAN VIEW

-L- Sta. 10+00 to 21+00

360
350
340
330
320
310
300

10 11 12 13 14 15 16 17 18 19 20 21

FILE: STILES PLOT: 03/07/05

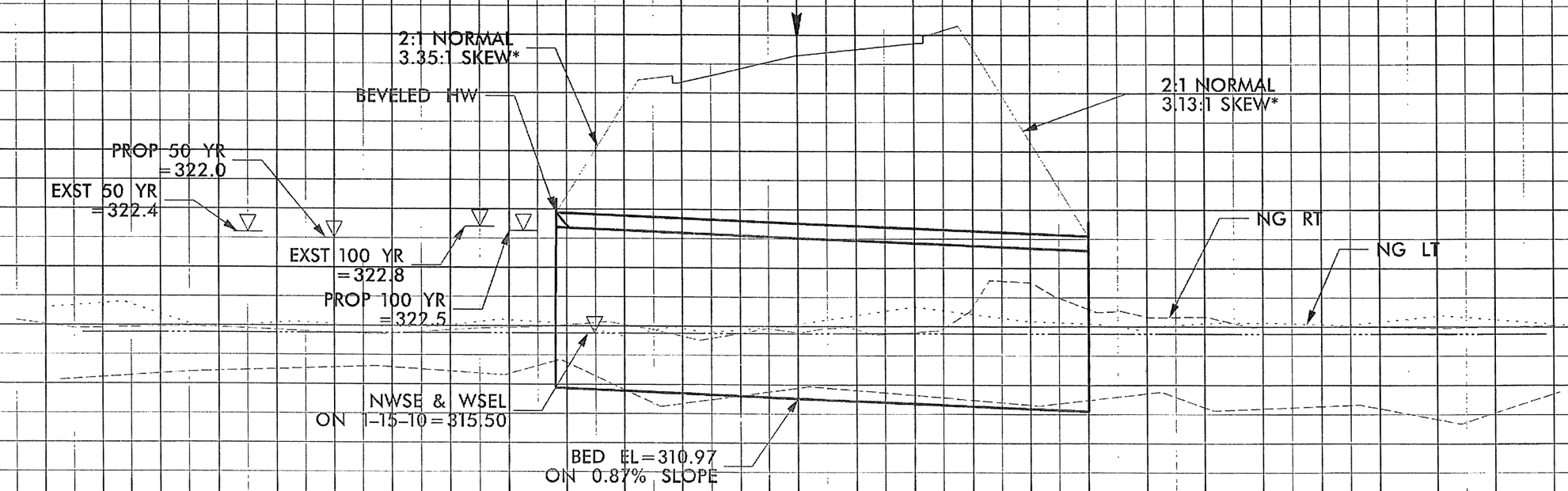
8/23/99

0	PROJ. REFERENCE NO.	SHEET NO.

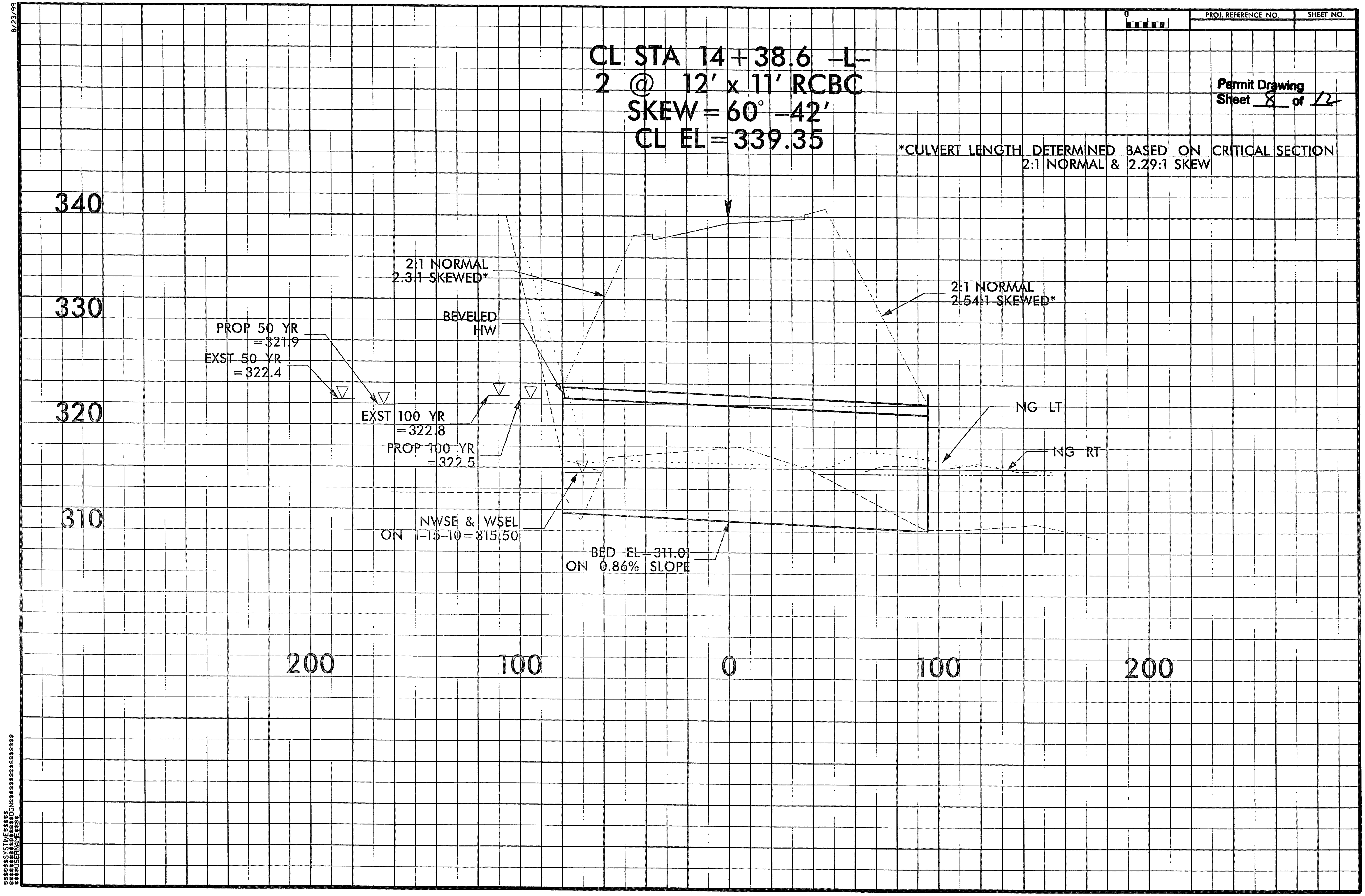
Permit Drawing
Sheet 7 of 12

CL STA 13+50.5 –L–
4@12'x11' RCBC
SKEW = 46° –34'
CL ELEVATION 334.61

*CULVERT LENGTH DETERMINED BASED ON CRITICAL SECTION
2:1 NORMAL & 2.29:1 SKEW



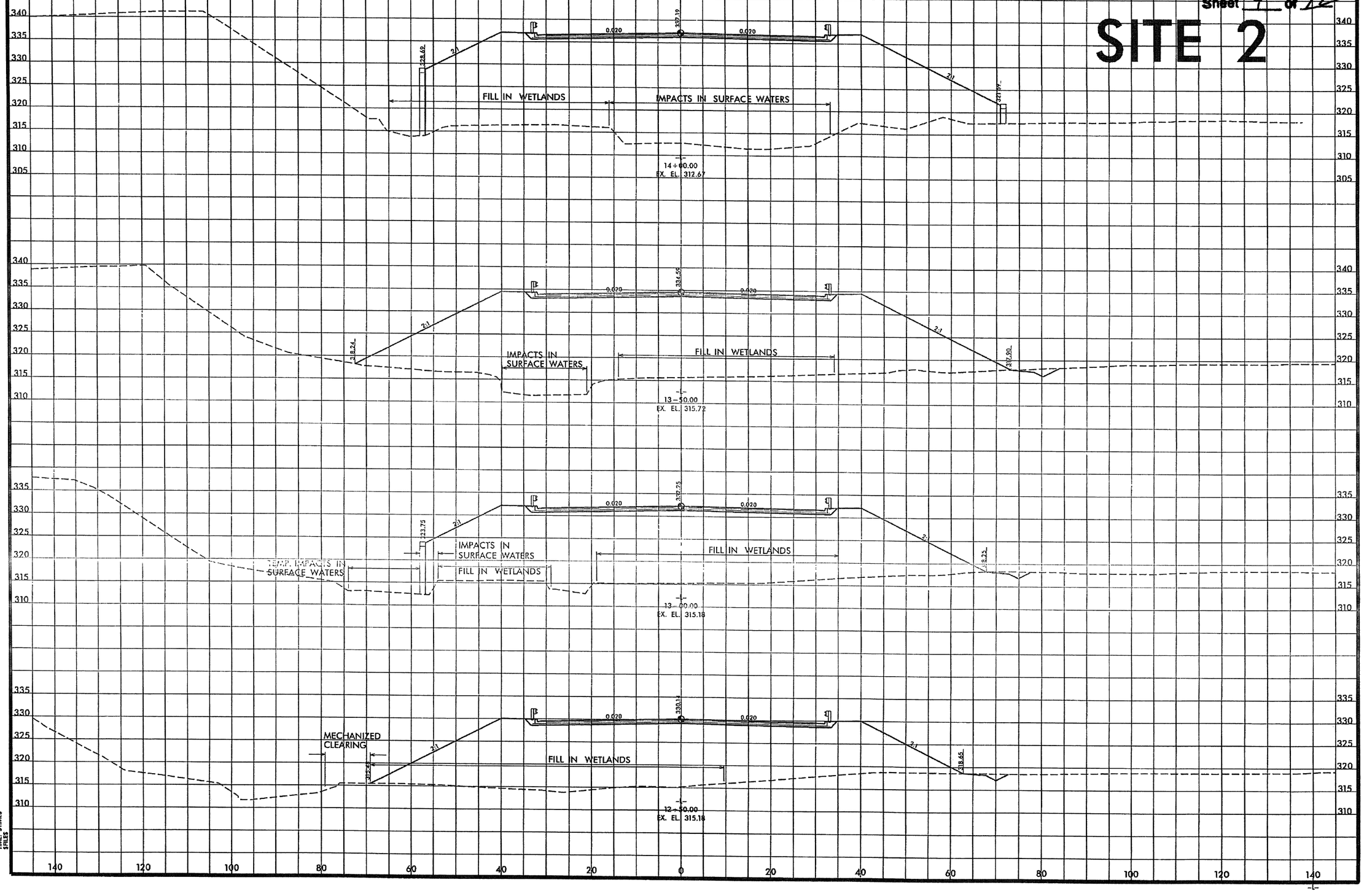
$$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$


8/23/99
0
PROJ. REFERENCE NO.
SHEET NO.
CL STA 14+38.6 -L-
2 @ 12' x 11' RCBC
SKEW=60° -42'
CL EL=339.35
Permit Drawing
Sheet 8 of 12
*CULVERT LENGTH DETERMINED BASED ON CRITICAL SECTION
2:1 NORMAL & 2.29:1 SKEW
340
330
320
310
2:1 NORMAL
2.3:1 SKEWED*
2:1 NORMAL
2.54:1 SKEWED*
BEVELED
HW
PROP 50 YR
=321.9
EXST 50 YR
=322.4
EXST 100 YR
=322.8
PROP 100 YR
=322.5
NG LT
NG RT
NWSE & WSEL
ON 1-15-10=315.50
BED EL=311.01
ON 0.86% SLOPE
200
100
0
100
200
$$$$$$SYSTIME$$$$
$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
	B-3680	SMODELNAMES	20

Permit Drawing
Sheet 9 of 12

SITE 2

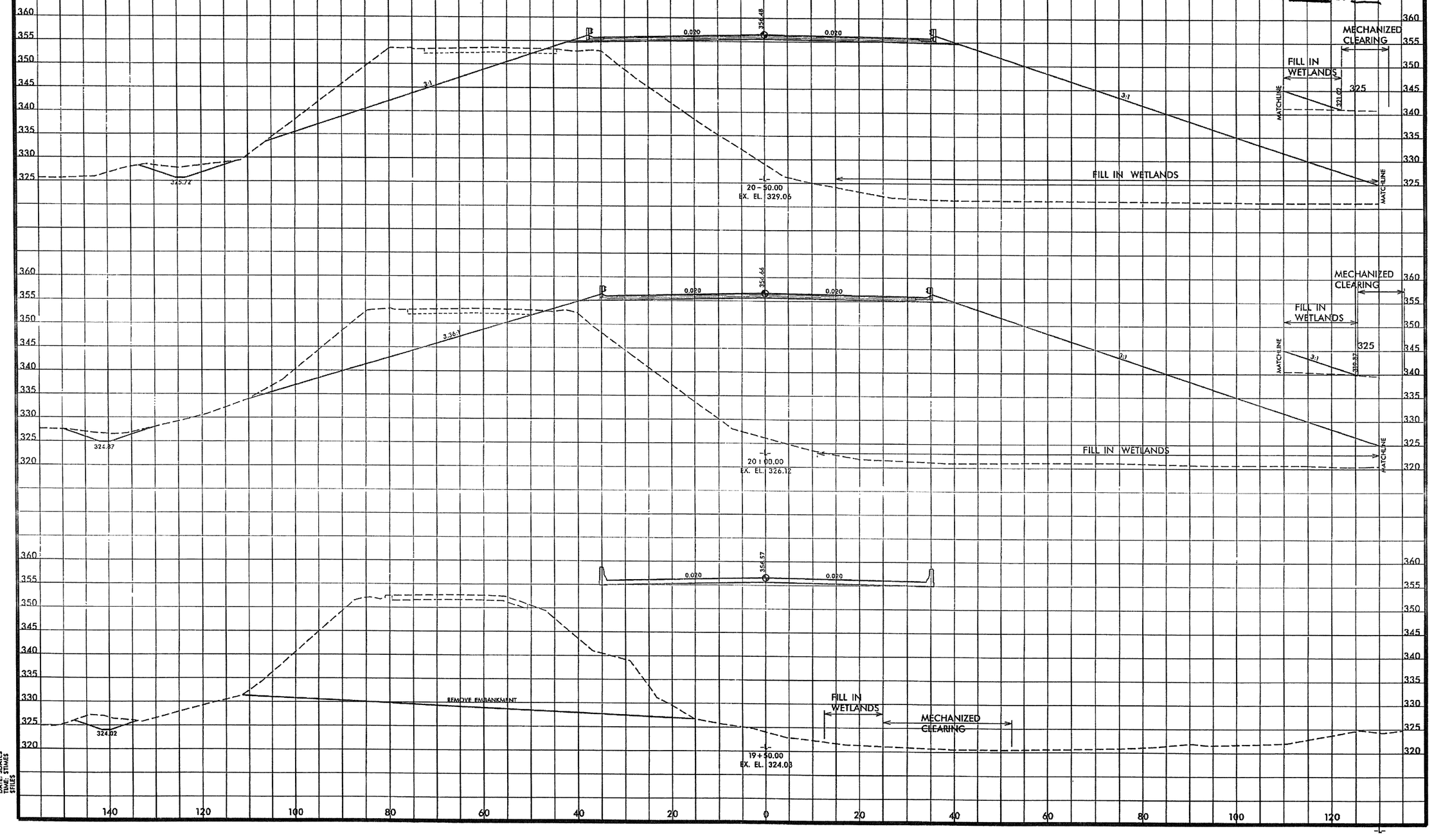


DATE: $DATES
TIME: $TIMES
$FILES

0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
	B-3680	SMODELNAMES	20

SITE 3

Permit Drawing
Sheet 10 of 12



DATE: $DATES
TIME: $TIMES
$FILES

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	KENNETH A. MONROE	309 BERTIE ROAD WEST END, NC 27376
2	J.P. SHAMBURGER	520 FAIRWAY DRIVE SOUTHERN PINES, NC 28387
3	JOSEPH C. USSERY	P.O. BOX 1983 PINEHURST, NC 28374
4	REIDOR CORPORATION	P.O. BOX 443 COATESVILLE, PA 19320

NCDOT

DIVISION OF HIGHWAYS

MOORE COUNTY

PROJECT: 33222.1.1 (B-3680)

BRIDGE NO. 2 ON US 15/501

OVER CSX TRANSPORTATION

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	17+95 -Y2-	Riprap Dissipator	<0.01			0.01						
2	10+77 to 18+32 -L-	4@ 12' x 11' RCBC	1.10		0.09	0.15	0.04	0.12	0.09	196	187	
		2@ 12' x 11' RCBC										
2a	UT1 13+92-L-LT	2@ 12' x 11' RCBC						0.01		39		
3	19+32 to 21+84 -L-	Roadway Fill	0.55			0.09	0.03					
TOTALS:			1.65		0.09	0.25	0.07	0.13	0.09	235	187	

* Removal of existing culvert adds 118 linear feet of stream length.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

MOORE COUNTY
WBS - 33222.1.1 (B-3680)

SHEET 12 of 12 #########

ATN Revised 3/31/05

Rev 12/2011

CONTRACT:

TIP PROJECT: B-3680

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MOORE COUNTY

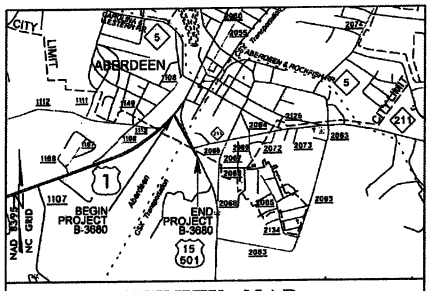
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3680	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33229.1.1	BRSTP-15(11)	P.E.
33229.2.1	BRSTP-15(11)	ROW & UTIL.
33229.3.1	BRSTP-15(36)	CONSTRUCTION

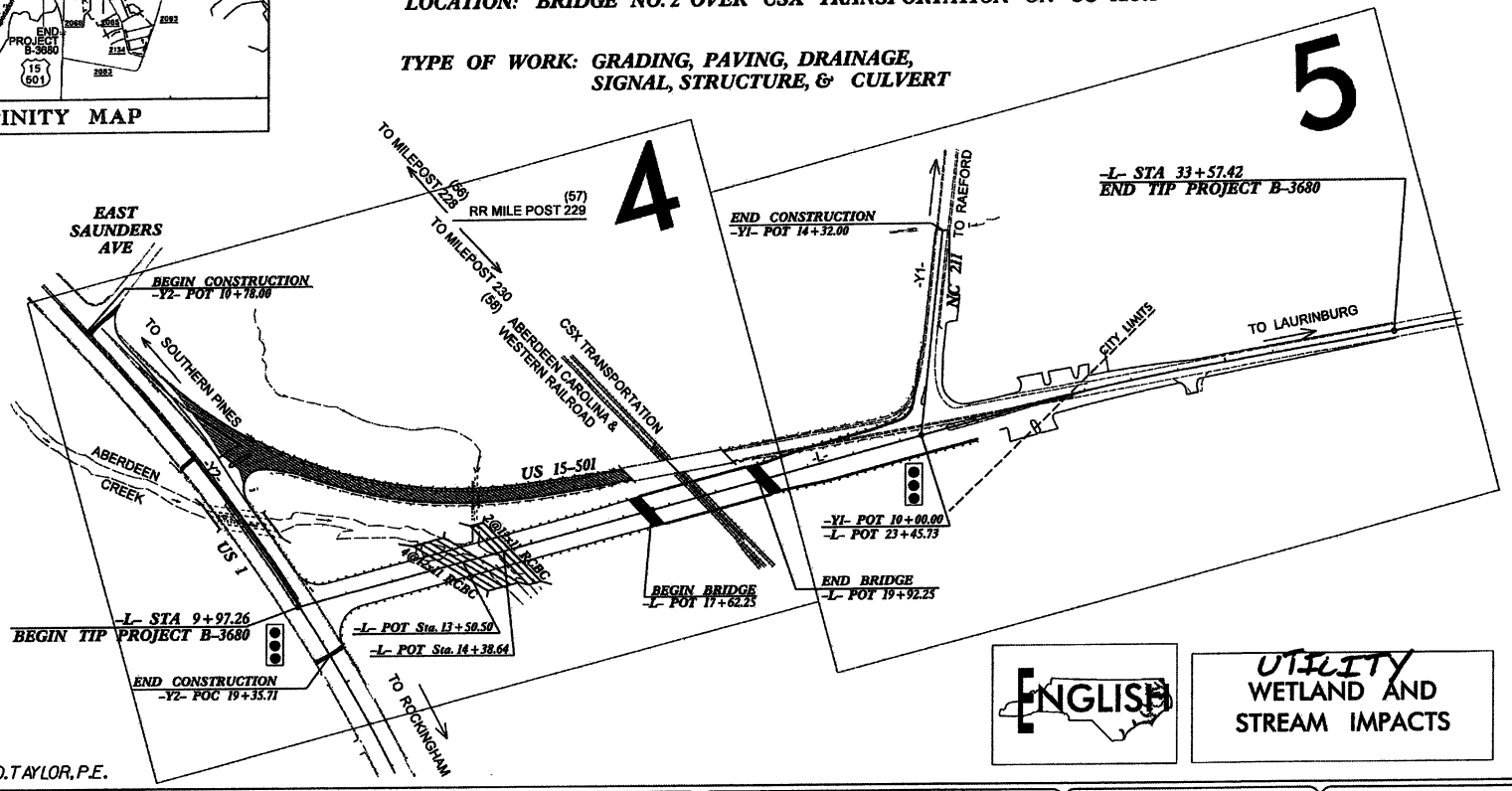
NAD 83/95 NC GRID

LOCATION: BRIDGE NO. 2 OVER CSX TRANSPORTATION ON US 15/501

TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNAL, STRUCTURE, & CULVERT



VICINITY MAP



ENGLISH

UTILITY
WETLAND AND STREAM IMPACTS

NCDOT CONTACT: B.D. TAYLOR, P.E.

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 5 0 5 10

DESIGN DATA

URBAN ARTERIAL

ADT 2012	=	17,160
ADT 2032	=	23,560
DHV	=	10 %
D	=	55 %
T	=	11 % *
V	=	50 MPH

REGIONAL TIER

* (TTST 7 % +DUAL 4 %)

PROJECT LENGTH

LENGTH OF ROADWAY	=	0.403 MILES
LENGTH OF STRUCTURE	=	0.044 MILES
TOTAL LENGTH OF PROJECT	=	0.447 MILES

Prepared in the Office of:
WILBUR SMITH ASSOCIATES
421 FAYETTEVILLE STREET
RALEIGH, NC 27601

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: NOVEMBER 21, 2007

LETTING DATE: JUNE 19, 2012

DAVID L. WILVER, PE
PROJECT ENGINEER

DAVID L. WILVER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER H. HENRY ELLIS, JR.
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19026 ENGINEER DAVID L. WILVER
SIGNATURE: P.E.

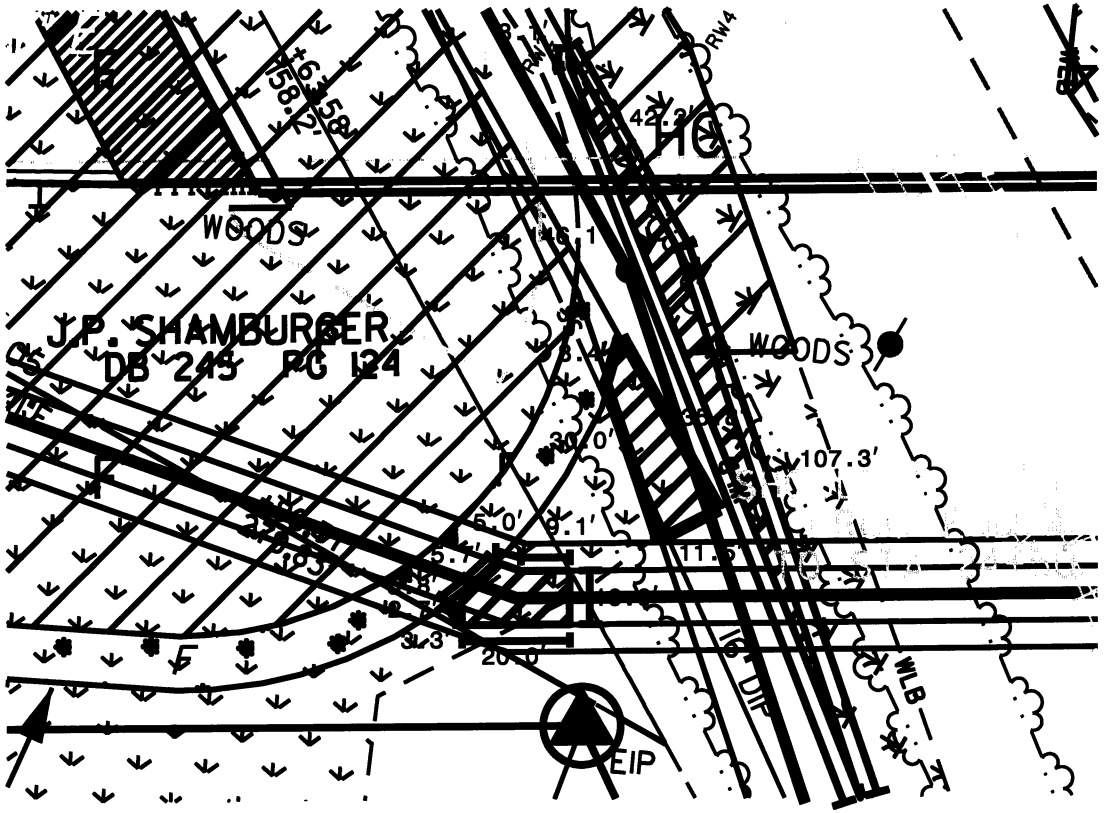
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

UTILITY Permit Drawing
Sheet 1 of 3

TIP: B-3680
COUNTY: MOORE

SITE 2



TEMPORARY FILL IN WETLANDS FOR 10" WATER LINE

0.005 AC

TEMPORARY FILL IN WETLANDS FOR 16" GRAVITY SEWER

0.018 AC

TOTAL TEMPORARY FILL IN WETLANDS

0.023 AC

NOTE: 0.0057 AC OF TEMPORARY FILL FOR 16" GRAVITY SEWER OVERLAP WITH HAND CLEARING

UTILITY Permit Drawing
Sheet 2 of 3

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation in Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ac)	WETLAND IMPACTS: Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	SURFACE WATER IMPACTS: Temp. SW impacts (ac)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (ft)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
2	18+02 to 18+22	10" WATER LINE		0.005								
2	18+23 to 18+76	16" GRAVITY SEWER		0.018								
TOTALS:				0.023								

NOTE: 0.0057 AC OF TEMPORARY FILL FOR 16" GRAVITY SEWER OVERLAP WITH HAND CLEARING AT SITE 2.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

COUNTY

WBS - 33222.1.1 (B-3680)

SHEET 3 of 3 11/28/2011

UTILITY

ATN Revised 3/31/05