Nash County
Bridge Nos. 85, 141, 151 and Culvert No. C70 on US 301 over Swift Creek and Culvert No. C161 on US 301 over Lane Swamp
Federal Aid Project No. BRSTP-0301(25)
W.B.S. No. 42270.1.1
T.I.P. No. B-5124

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

And

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

12/20/13
DATE

for Richard W. Hancock, PE
Manager, Project Development & Environmental Analysis Unit

12/20/13
DATE

for John F. Sullivan, III, Division Administrator
Federal Highway Administration

Nash County
Bridge Nos. 85, 141, 151 and Culvert No. C70
on US 301 over Swift Creek
and Culvert No. C161 on US 301 over Lane Swamp
Federal Aid Project No. BRSTP-0301(25)
W.B.S. No. 42270.1.1
T.I.P. No. B-5124

CATEGORICAL EXCLUSION

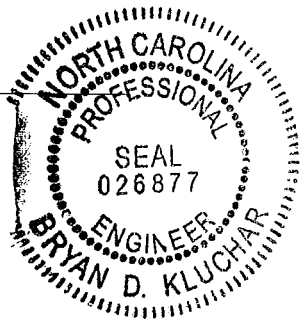
Documentation Prepared in
Project Development and Environmental Analysis Unit By:

12/20/13
DATE

April Annis
Project Planning Engineer
Bridge Project Development Section

12/20/13
DATE

Bryan Kluchar, PE
Project Engineer
Bridge Project Development Section



PROJECT COMMITMENTS:

Nash County
Bridge Nos. 85, 141, 151 and Culvert No. C70 on US 301 over Swift Creek and Culvert No. C161 on US 301 over Lane Swamp
Federal Aid Project No. BRSTP-0301(25)
W.B.S. No. 42270.1.1
T.I.P. No. B-5124

Division 4 Construction – Offsite Detour
In order to have time to adequately reroute school busses, Nash County Schools will be contacted at (252) 459-5220 at least one month prior to road closure.

Nash County Emergency Services will be contacted at (252) 459-1352 at least one month prior to road closure to make the necessary temporary reassignments to primary response units.

Division 4 Construction – Construction Moratoria
Swift Creek supports anadromous fish in the study area. A moratorium prohibiting in-water work will be in place from February 15 – June 15. This moratorium does not apply to Lane Swamp.

Hydraulics Unit – FEMA
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 4 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.

Hydraulics Unit, Natural Environment Section – Buffer Rules
The Tar-Pamlico Riparian Buffer Rules apply to this project.

Roadside Environmental Unit, Division Resident Engineer – Sensitive Watersheds
Design standards for sensitive watersheds apply to this project.

Nash County
Bridge Nos. 85, 141, 151 and Culvert No. C70
on US 301 over Swift Creek
and Culvert No. C161 on US 301 over Lane Swamp
Federal Aid Project No. BRSTP-0301(25)
W.B.S. No. 42270.1.1
T.I.P. No. B-5124

INTRODUCTION: Bridge Nos. 85, 141, and 151 and Culvert Nos. C70 and C161 are included in the 2012-2018 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion".

I. PURPOSE AND NEED STATEMENT

NCDOT Bridge Management Unit inspection records completed in 2012 indicated that Bridge No. 85 has a sufficiency rating of 49.11 out of a possible 100 for a new structure. The bridge is considered functionally obsolete due to a deck geometry evaluation of 2 out of 9 according to Federal Highway Administration (FHWA) standards.

NCDOT Bridge Management Unit inspection records completed in 2012 indicated that Bridge No. 141 has a sufficiency rating of 27.5 out of a possible 100 for a new structure. The bridge is considered structurally deficient due to a deck and superstructure condition of 4 out of 9 according to Federal Highway Administration (FHWA) standards.

NCDOT Bridge Management Unit inspection records completed in 2012 indicated that Bridge No. 151 has a sufficiency rating of 35 out of a possible 100 for a new structure. The bridge is considered structurally deficient due to a deck, superstructure and substructure condition of 4 out of 9 according to Federal Highway Administration (FHWA) standards.

Components of both the concrete superstructure and substructure have experienced an increasing degree of deterioration that can no longer be addressed by maintenance activities. The deterioration of the superstructure and substructure due to age and weathering is becoming increasingly unacceptable and replacement of the bridge will result in a safer structure. This section of US 301 has substandard shoulder widths and will be brought up to current design standards as part of this project. Culvert Nos. C70 and C161 will be extended as a result of the US 301 widening improvements.

II. EXISTING CONDITIONS

The project is located in a low-growth rural setting just north of Battleboro, a small community with deteriorating downtown infrastructure located approximately 8 miles north of Rocky Mount (see Figure 1). No residential or commercial development exists within the bridge impact areas.

US 301 is classified as a Minor Arterial in the Statewide Functional Classification System and is part of the Strategic Highway corridor.

This section of US 301 has an 11-foot pavement width with 1-foot paved shoulders and very little grass shoulders. US 301 is flat on all approaches with no vertical site distance concerns.

Culvert No.C70 is a reinforced box culvert (see Figure 3a). Built in 1920 and reconstructed in 1937, it consists of four barrels at 10'x 7'each. The culvert length is 42 feet. The culvert has 0.5 foot thick concrete walls and wing walls on all corners. The crown of the roadway is situated 10 feet above the creek bed, and the normal depth of water is approximately 3 feet. The creek channel base width is approximately 50 feet.

Bridge No. 85 is a 96 foot four span structure (see Figure 3b). Built in 1920, reconstructed in 1937, it consists of a concrete deck, caps and steel piles. The bridge has concrete abutments, rails and steel I-beams. The bridge width curb to curb is approximately 26 feet. The bridge deck is situated approximately 8 feet above the creek bed, and the normal depth of water is approximately 3 feet. The creek channel base width is approximately 96 feet.

Bridge No. 141 is a 106 foot six span structure (see Figure 3c). Built in 1920, reconstructed in 1937, it consists of a concrete deck, caps and piles. The bridge has concrete abutments, rails and girders. The bridge width curb to curb is 26 feet. The bridge deck is situated approximately 9 feet above the creek bed, and the normal depth of water is approximately 4 feet. The creek channel base width is approximately 95 feet.

Bridge No. 151 is a 124 foot seven span structure (see Figure 3d). Built in 1920, reconstructed in 1937, it consists of a concrete deck, caps and piles. The bridge has concrete abutments, rails and girders. The bridge width curb to curb is 26 feet. The bridge deck is situated approximately 11 feet above the creek bed, and the normal depth of water is approximately 7 feet. The creek channel base width is approximately 115 feet.

Culvert No.C161 is a reinforced box culvert (see Figure 3e). Built in 1950, it consists of three barrels at 8'x 6'each. The culvert length is 27 feet. The culvert has 0.5 foot thick concrete walls and wing walls on all corners. The crown of the roadway is situated 9 feet above the creek bed, and the normal depth of water is approximately 5 feet. The creek channel base width is approximately 25 feet.

Utilities noted in the vicinity of the bridge include overhead and buried telephone lines along the east shoulder of US 301. A fiber optic telephone cable is along the west shoulder of US 301. A water line is along the east shoulder of US 301. Utility impacts are anticipated to be low.

The current traffic volume of 8,440 vehicles per day (VPD) is expected to increase to 11,200 VPD by the year 2035. The projected volume includes three percent truck-tractor semi-trailer (TTST) and four percent dual-tired vehicles (DT). The posted speed limit is 55 miles per hour in the project area. Six school buses cross the bridge daily on their morning and afternoon routes.

There were nine crashes reported in this section of US 301 during a recent five year period. Lane departure type crashes accounted for six of the crashes.

This section of US 301 is not a designated bicycle route. Neither permanent nor temporary bicycle or pedestrian accommodations are required for this project.

III. ALTERNATES

A. Preferred Alternate

Bridge Nos. 85, 141 and 151 will each be replaced with a new bridge on the existing alignment. Each bridge will be of sufficient width to provide two 12-foot lanes with 8-foot 11-inch offsets on each side. Culvert Nos.C70 and C161 will be extended. Information about each structure is presented in Table 1.

Table 1.

Existing Structure	Station	Stream	Recommendation*
Culvert No. C70 4 @ 10 ft. x 7 ft. RCBC	-L- Sta. 16+96.53 +/- to -L- Sta. 17+39.19 +/-	Swift Creek	Extend 18 feet
Bridge No. 85	-L- Sta. 21+89.55 to -L- Sta. 23+04.55	Swift Creek	127 foot bridge
Bridge No. 141	-L- Sta. 36+21.58 to -L- Sta. 37+46.58	Swift Creek	137 foot bridge
Bridge No. 151	-L- Sta. 54+15.72 to -L- Sta. 55+55.72	Swift Creek	147 foot bridge
Culvert No. C161 3 @ 8 ft. x 6 ft. RCBC	-L- Sta. 74+11.69 +/- to -L- Sta. 74+37.97 +/-	Lane Swamp	Extend 19 feet

*Proposed bridge lengths are based on preliminary design information and are set by hydraulic requirements.

This alternate also includes asymmetrical widening to the west along existing US 301. The total project length will be 1.3 miles. The proposed roadway will consist of 24-foot pavement to provide two 12-foot lanes. Eight-foot shoulders will be provided on each side; four feet on the west side and eight feet on the east side will be paved in accordance with the current NCDOT Design Policy (the shoulder will include five additional feet where guardrail is required). This roadway will be designed as a Minor Arterial using Statewide Tier Guidelines with a design speed of 60 miles per hour. Traffic will be detoured offsite (see Figure 1) during the construction period.

NCDOT Guidelines for Evaluation of Off-site Detours for Bridge Replacement Projects considers multiple project variables beginning with the additional time traveled by the average road user resulting from an offsite detour. The offsite detour for this project would include NC-4 N, NC-4 N/NC-48 N, SR 1510 (Watson Seed Farm Rd.) and SR 1516 (Johnston Rd.). The majority of traffic

on this road is through traffic. The detour for the average road user would result in 10 minutes additional travel time (10 miles additional travel). Up to a nine-month duration for construction is expected for this project.

Based on the Guidelines, the criteria above indicate that on the basis of delay alone the detour is acceptable. NCDOT Division 4 has indicated the condition of all roads, bridges and intersections on the offsite detour are acceptable without improvement and concurs with the use of the detour.

This alternate addresses all needed repairs in the area during the closure of US 301. NCDOT Division 4 concurs that this is the preferred alternative.

B. Alternates Eliminated From Further Consideration

The "do-nothing" alternate will eventually necessitate closure of each bridge for safety reasons. This is not acceptable due to the need for traffic service provided by US 301.

"Rehabilitation" of the old bridges is not practical due to their age and deteriorated condition. The extent of deterioration and the numerous locations of areas of disrepair on each bridge make rehabilitation inefficient, ineffective, and costly beyond reasonable limits.

IV. ESTIMATED COSTS

The estimated costs for the preferred alternate based on 2013 prices are as follows:

Table 2.

	Alternate 1 Preferred
Proposed Structure No. 85	$ 457,000
Proposed Structure No. 141	$ 497,000
Proposed Structure No. 151	$ 556,000
Extend Culvert No. C70	$ 75,000
Extent Culvert No. C161	$ 57,000
Roadway Approaches	$ 1,335,000
Detour Structure and Approaches	-0-
Structure No. 85 Removal	$ 37,000
Structure No. 141 Removal	$ 41,000
Structure No. 151 Removal	$ 48,000
Misc. & Mob.	$ 601,000
Eng. & Contingencies	$ 346,000
Total Construction Cost	$ 4,050,000
Right-of-Way Costs	$ 200,000
Utility Costs	$ 21,400
Total Project Cost	$ 4,271,000

V. NATURAL ENVIRONMENT

Physical Characteristics

The study area lies in the Southeastern Floodplains and Low Terraces physiographic region of North Carolina. Topography in the project vicinity is comprised of broad flat level floodplains along streams. Elevations in the study area range from 90 to 100 feet above sea level. Land use in the project vicinity consists primarily of agriculture, with sparse residential development along roadways and forestland along stream corridors and floodplains.

Water Resources

Water resources in the study area are part of the Tar-Pamlico River basin [U.S. Geological Survey (USGS) Hydrologic Unit 03020101]. Two streams were identified in the study area (Table 3). The physical characteristics of these streams are provided in Table 4.

Table 3. Water resources in the study area.

Stream Name	Map ID	NCDWQ Index Number	Best Usage Classification
Swift Creek	Swift Creek	28-78-(2.5)	C;NSW
Lane Swamp	Lane Swamp	28-78-5	C;NSW

Table 4. Physical characteristics of water resources in the study area.

Map ID	Bank Height (ft)	Bankful Width (ft)	Water Depth (in)	Channel Substrate	Velocity	Clarity
Swift Creek	>5	20	>60	Sand, silt	Slow	Clear, Tannic
Lane Swamp	N/A	N/A	4-5	Silt, sand	None to slow	Clear

No waters classified as High Quality Waters (HQW), Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds), or Outstanding Resource Waters (ORW) occur within 1.0 mile downstream of the study area. The North Carolina 2012 Final 303 (d) list of impaired waters does not include Swift Creek or Lane Swamp due to sedimentation within 1.0 mile of the study area.

No benthic monitoring information is available for this watershed.

Biotic Resources

Four terrestrial communities were identified in the study area: riverine swamp forest, mixed pine-hardwood forest, maintained/disturbed, and coastal plain small stream swamp (brownwater subtype).

The study area contains a perennial coastal plain stream and beaver impounded wetlands. Fish species likely to occur in Lane Swamp include American eel, Roanoke darter, margined madtom, white shiner, redbreast sunfish, and black jumprock. Other aquatic species likely to be found in the

study area include the southern leopard frog, northern cricket frog, yellow-bellied slider, painted turtle and mud snake. Swift Creek could support bluehead chub, redbreast sunfish, bluegill, bass, catfish, frogs, and banded water snake.

According to the North Carolina Natural Heritage Program (NCNHP), Swift Creek "has one of the highest diversities of freshwater mussels in North America. This large stream supports an exceptional aquatic fauna, including populations of the globally rare Tar River spinymussel; yellow lance, yellow lampmussel, Atlantic pigtoe, triangle floater, Roanoke slabshell, creeper, eastern lampmussel, and notched rainbow; as well as the endemic Neuse River waterdog and Carolina madtom".

Four plant species listed on the NCDOT Invasive Exotic Plant List for North Carolina were observed within the study area: Chinese privet, multiflora rose (threat level 1), gill-over-the-ground, and Japanese honeysuckle (threat level 2). NCDOT will manage invasive plant species as appropriate.

Jurisdictional Topics

Surface Waters and Wetlands

Two jurisdictional streams were identified in the study area. All jurisdictional streams in the study area have been designated as warm water streams for the purpose of stream mitigation.

Two wetlands were identified within the study area. Wetland classification and quality rating data are presented in Table 5. All wetlands in the study area are within the Tar-Pamlico River basin (USGS Hydrologic Unit 03020101).

Table 5. Jurisdictional characteristics of wetlands.

Map ID	NCWAM Classification	Hydrologic Classification	NCDWQ Wetland Rating
WA	Riverine Swamp	Riparian	79
WB	Riverine Swamp	Riparian	68

Permits

The proposed project has been designated as a Categorical Exclusion (CE) for the purposes of National Environmental Policy Act (NEPA) documentation. As a result, a Nationwide Permit (NWP) 23 will likely be applicable. A NWP No. 33 may also apply for temporary construction activities such as stream dewatering, work bridges, or temporary causeways that are often used during bridge construction or rehabilitation. The USACE holds the final discretion as to what permit will be required to authorize project construction. If a Section 404 permit is required then a Section 401 Water Quality Certification (WQC) from the NCDWQ will be needed.

Construction Moratoria

The North Carolina Wildlife Resources Commision (NCWRC) has recommended an in-water work moratorium for anadromous fish (February 15 – June 15) for Swift Creek per a letter dated May 11, 2009. In an email dated January 17, 2012, the NCWRC did not extend its anadromous fish moratorium for Swift Creek to Lane Swamp.

Federally Protected Species

Plants and animals with a federal classification of Endangered or Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973. As of December 22, 2010, the United States Fish and Wildlife Service (USFWS) lists three federally protected species for Nash County (see Table 6). A brief description of each species' habitat requirements follows, along with the Biological Conclusion rendered based on survey results in the study area. Habitat requirements for each species are based on the current best available information from referenced literature and/or USFWS.

Table 6. Federally Protected Species for Franklin County.

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion
Picoides borealis	Red-cockaded woodpecker	E	No	No Effect
Alasmidonta heterodon	Dwarf wedgemussel	E	No	MA-NLAA
Elliptio steinstansana	Tar River spinymussel	E	No	MA-NLAA

E – Endangered; MA-NLAA – may affect, not likely to adversely affect.

Red-cockaded woodpecker

USFWS optimal survey window: year round; November-early March (optimal)
Habitat Description: The red-cockaded woodpecker (RCW) typically occupies open, mature stands of southern pines, particularly longleaf pine, for foraging and nesting/roosting habitat. The RCW excavates cavities for nesting and roosting in living pine trees, aged 60 years or older, which are contiguous with pine stands at least 30 years of age to provide foraging habitat. The foraging range of the RCW is normally no more than 0.5 miles
Biological Conclusion: No Effect
Suitable RCW habitat does not exist in the study area. Forests in the study are comprised of a closed hardwood canopy and subcanopy. Where pine trees occur in maintained or disturbed areas, they are not of sufficient age or spacing to provide suitable nesting of foraging habitat. A review of North Carolina Natural Heritage Program (NCNHP) records on February 23, 2009 indicated no known RCW occurrence within 1.0 miles of the study area.

Dwarf wedgemussel
USFWS Recommended Survey Window: year round
Habitat Description: In North Carolina, the dwarf wedgemussel is known from the Neuse and Tar River drainages. The mussel inhabits creek and river areas with a slow to moderate current and sand, gravel, or firm silt bottoms. Water in these areas must be well oxygenated. Stream banks in these areas are generally stable with extensive root systems holding soils in place.
Biological Conclusion: May Affect, Not Likely to Adversely Affect
A mussel survey was conducted on May 6, 2009 and August 24, 2011 by NCDOT biologists. During the survey, no mussels or mollusks of any kind were encountered. The dwarf wedgemussel appears to be limited to creeks and rivers having moving, well-oxygenated water with gravel or sandy, silt-free substrate. Due to little water movement and the presence of large amounts of decaying organic material, this reach of Swift Creek is likely to have low dissolved oxygen and low pH, making it unstable for dwarf wedgemussel. Because dwarf wedgemussel has been found in the Swift Creek watershed, their presence in the project area cannot be entirely ruled out. Therefore, the biological conclusion for the dwarf wedgemussel is "May Affect- Not Likely to Adversely Affect".

Tar River spinymussel
USFWS Recommended Survey Window: year round
Habitat Description: The Tar River spinymussel is endemic to the Tar and Neuse River drainage basins in North Carolina. This mussel requires a stream with fast flowing, well-oxygenated, circumneutral pH water. The bottom should be composed of unconsolidated gravel and coarse sand. The water needs to be relatively silt-free, and stream banks should be stable, typically with many roots from adjacent riparian trees and shrubs.
Biological Conclusion: May Affect, Not Likely to Adversely Affect
A mussel survey was conducted on May 6, 2009 and August 24, 2011 by NCDOT biologists. During the survey, no mussels or mollusks of any kind were encountered. The Tar River spinymussel appears to be limited to creeks and rivers having moving, well-oxygenated water with gravel or sandy, silt-free substrate. Due to little water movement and the presence of large amounts of decaying organic material, this reach of Swift Creek is likely to have low dissolved oxygen and low pH, making it unstable for Tar River spinymussel. Because Tar River spinymussel has been found in the Swift Creek watershed, their presence in the project area cannot be entirely ruled out. Therefore, the biological conclusion for the Tar River spinymussel is "May Affect- Not Likely to Adversely Affect".

Bald and Golden Eagle Protection Act
Habitat for the bald eagle primarily consists of mature forest in proximity to large bodies of open water for foraging. Large dominant trees are utilized for nesting sites, typically within 1.0 mile of open water. While a few large trees are present in the study area, the canopy is too closed to provide foraging habitat for the bald eagle. In addition, the NCNHP database on November 2011 does not indicate any occurrences of bald eagle within 1.0 mile of the study area.

VI. HUMAN ENVIRONMENT

Section 106 Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at Title 36 CFR Part 800. Section 106 requires Federal agencies to take into account the effect of their undertakings (federally funded, licensed, or permitted) on properties included in or eligible for inclusion in the National Register of Historic Places and afford the Advisory Council a reasonable opportunity to comment on such undertakings.

Historic Architecture

NCDOT – Human Environment Unit, under the provisions of a Programmatic Agreement with FHWA, NCDOT, HPO, OSA and the Advisory Council on Historic Preservation (effective July 1, 2009), reviewed the proposed project and determined that no surveys are required (see form dated March 19, 2010 in Appendix).

Historic Archaeology

NCDOT – Human Environment Unit, under the provisions of a Programmatic Agreement with FHWA, NCDOT, HPO, OSA and the Advisory Council on Historic Preservation (effective July 1, 2009), reviewed the proposed project and determined that no surveys are required (see form dated June 12, 2010 in Appendix).

Community Impacts

No adverse impact on families or communities is anticipated. Right-of-way acquisition will be limited. No relocatees are expected with implementation of the proposed alternate.

No adverse effect on public facilities or services is expected. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

The project is not in conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from the construction of the project.

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impact to prime farmland of all land acquisitions and construction projects. The USDA Farmland Conversion Impact Rating has been completed in accordance with FHWA guidelines, and total score of 39 out of 160 points was calculated for the project site. Since the total site assessment score does not exceed the 160-point threshold established by the Natural Resources Conservation Service (NRCS), notable project impacts to eligible soils are not anticipated.

The project will not have a disproportionately high and adverse human health and environmental effect on any minority or low-income population.

Noise & Air Quality

This project is an air quality neutral project in accordance with 40 CFR 93.126. It is not required to be included in the regional emissions analysis (if applicable) and project level CO or PM2.5 analyses are not required. This project will not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts relative to the no-build alternate. Therefore, FHWA has determined that this project will generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special MSAT concerns. Consequently, this effort is exempt from analysis for MSATs. Any burning of vegetation shall be performed in accordance with applicable local laws and regulations of the North Carolina State Implementation Plan (SIP) for air quality compliance with 15 NCAC 2D.0520.

Noise levels may increase during project construction; however, these impacts are not expected to be substantial considering the relatively short-term nature of construction noise and the limitation of construction to daytime hours. The transmission loss characteristics of nearby natural elements and man-made structures are believed to be sufficient to moderate the effects of intrusive construction noise.

VII. GENERAL ENVIRONMENTAL EFFECTS

The project is expected to have an overall positive impact. Replacement of inadequate bridges will result in safer traffic operations.

The bridge replacements will not have an adverse effect on the quality of the human environment or natural environment with the use of the current North Carolina Department of Transportation standards and specifications.

The proposed project will not require right-of-way acquisition or easement from any land protected under Section 4(f) of the Department of Transportation Act of 1966.

An examination of local, state, and federal regulatory records by the GeoEnvironmental Section revealed no underground storage tanks, hazardous waste sites or landfills in the project area.

Nash County is a participant in the National Flood Insurance Program. There are no practical alternates to crossing the floodplain area. Any shift in alignment will result in an impact area of about the same magnitude. The proposed project is not anticipated to increase the level or extent of upstream flood potential.

The Federal Highways Administration has determined that a U.S. Coast Guard Permit is not required for this project.

VIII. COORDINATION & AGENCY COMMENTS

NCDOT has sought input from the following agencies as a part of project development: U.S. Army Corps of Engineers, U.S. Fish & Wildlife Service, N.C Wildlife Resources Commission, NC Division of Water Quality (NCDWQ), U.S. Environmental Protection Agency, Nash County Emergency Management Coordinator and Nash County Schools.

EPA provided the following project-specific comments in a letter dated September 14, 2009:

1. This project area appears to include significant wetlands which are likely to be of high quality. Efforts should be made to avoid and minimize impacts to the adjacent wetlands.
2. In general, for all bridge replacements, EPA prefers structures that span the waterbody. Efforts should be made if possible to also span or avoid all wetlands or other aquatic resources in the project area.
3. EPA also generally prefers the replacement of a bridge in the same location, either with road closure and off-site detour, or staged construction.
4. Approach fills from the old structure should be removed and restored to the natural ground elevation. We recognize that formal or significant informal human use should be considered in the decision to remove approach fills or causeways.
5. Bridge supports should not be placed in the stream, if possible.
6. Bridge deck drains should not discharge directly into the stream, and stormwater should be pre-treated prior to discharge to a stream or wetland.

Response: All bridges will be replaced in the same location, using an offsite detour.

NC DWQ provided the following project-specific comments in a letter dated September 14, 2009:

1. Swift Creek is class C, NSW waters of the State. NCDWQ is very concerned with sediment and erosion impacts that could result from this project. NCDWQ recommends that highly protective sediment and erosion control BMPs be implemented to reduce the risk of nutrient runoff to Swift Creek. NCDWQ requests that road design plans provide treatment of the storm water runoff through best management practices as detailed in the most recent version of NC DWQ *Stormwater Best Management Practices*.
2. This project is within the Tar River Basin. Riparian buffer impacts shall be avoided and minimized to the greatest extent possible pursuant to 15A NCAC 2B.0259.
3. Any anticipated bank stabilization associated with culvert installations or extensions should be addressed in the Categorical Exclusion (CE) document. It is understood that final designs are not determined at the time the CE is developed. However, the CE should discuss the potential for bank stabilization necessary due to culvert installation. An adequate bank stabilization amount should also be applied for in the permit applications, to prevent the need of later permit modification.
4. Any anticipated dewatering or access structures necessary for construction of bridges should be addressed in the CE. It is understood that final designs are not determined at

the time the CE is developed. However, the CE and permit applications should discuss the potential for dewatering and access measures necessary due to bridge construction.

Response: *Stormwater Best Management Practices* and BMP's for construction and maintenance activities will be implemented and buffer impacts will be minimized.

NC Wildlife Resources Commission provided the following project-specific comments in a letter dated May 11, 2009:

The Atlantic Pigtoe, *Fusconia masoni* (State Special Concern), the Notched Rainbow, *Villosa constricta* (State Special Concern), the Yellow lampmussel, *L. cariosa* (State Special Concern), the triangle floater, *A. undulate* (State Threatened), the Creeper, *S. undulatus* (State Threatened), the Yellow lance, *E. lanceolata* (State Endagered), and the Tar River Spinymussel, *E. steinstansana* (State and Federally Endangered), have all been detected in Swift Creek. A mussel survey is recommended at this location and and NCDOT should follow design standards for sensitive watersheds. Anadromous species are also found in this portion of Swift Creek. NCDOT should follow all stream crossings guidelines for anadromous fish passage, including an in-water work moratorium from February 15 to June 15. We recommend replacing a bridge with a bridge.

Response: All bridges will be replaced with bridges. Design standards for sensitive watersheds will be implemented. Mussel surveys were conducted on May 6, 2009 and August 24, 2011 by NCDOT biologists.

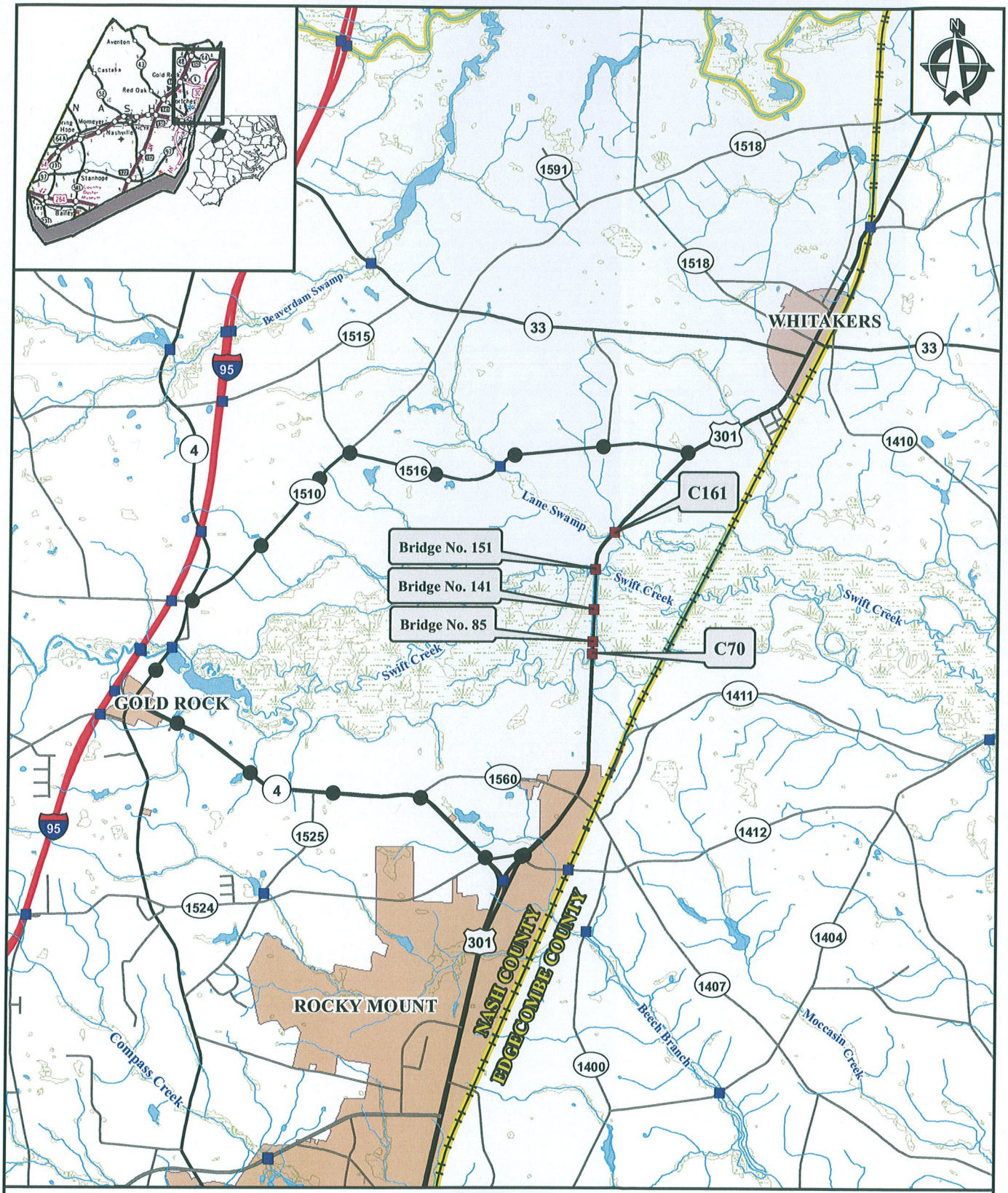
IX. PUBLIC INVOLVEMENT

A letter was sent by the Location & Surveys Unit to all property owners affected directly by this project. Property owners were invited to comment. No comments have been received to date.

A newsletter will be mailed to property owners in the project area informing them of the upcoming detour associated with the proposed construction.

X. CONCLUSION

On the basis of the above discussion, it is concluded that no substantial adverse environmental impacts will result from implementation of the project. The project is therefore considered to be a federal "Categorical Exclusion" due to its limited scope and lack of substantial environmental consequences.



VICINITY MAP
REPLACE BRIDGE Nos. 85, 141, & 151
AND CULVERT No. C70 on US 301
OVER SWIFT CREEK AND CULVERT
No. C161 on US 301 OVER LANE SWAMP

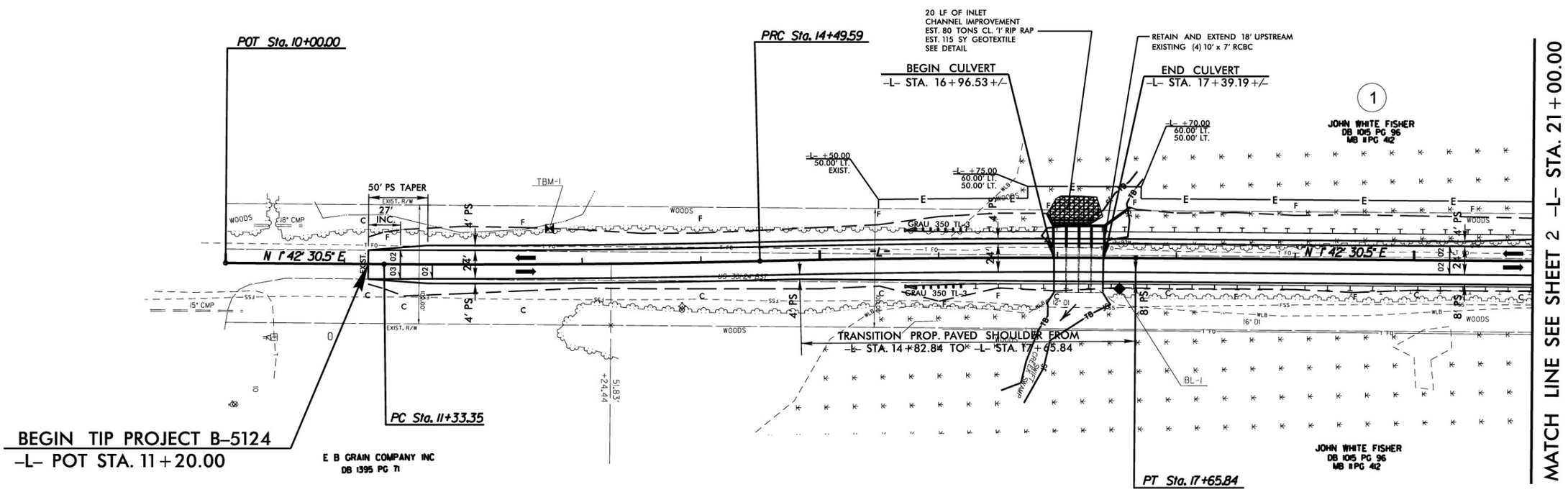
NASH COUNTY
TIP PROJECT B - 5124

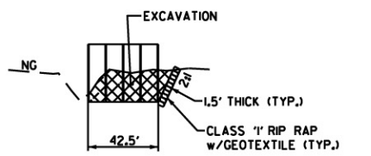
NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS UNIT

County:	NASH
Div: 4	TIP#B - 5124
WBS:	42270.1.1
Date:	December 2013

Figure 1

NAD 83





EST. DDE 240 CY

CULVERT 70 INLET CHANNEL
(LOOKING DOWNSTREAM)
(NOT TO SCALE)

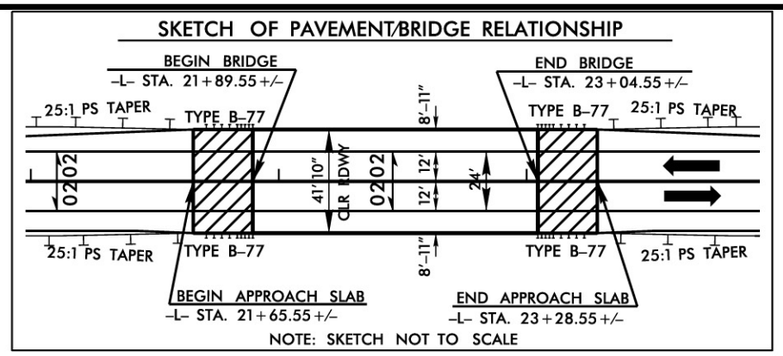
NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS UNIT

NASH COUNTY
BRIDGE Nos. 85, 141, 151 and CULVERT No. C70
ON US 301 OVER SWIFT CREEK and CULVERT No. C161
ON US 301 OVER LANE SWAMP

B-5124

FIGURE 2 SHEET 1 OF 6

SKETCH OF PAVEMENT/BRIDGE RELATIONSHIP

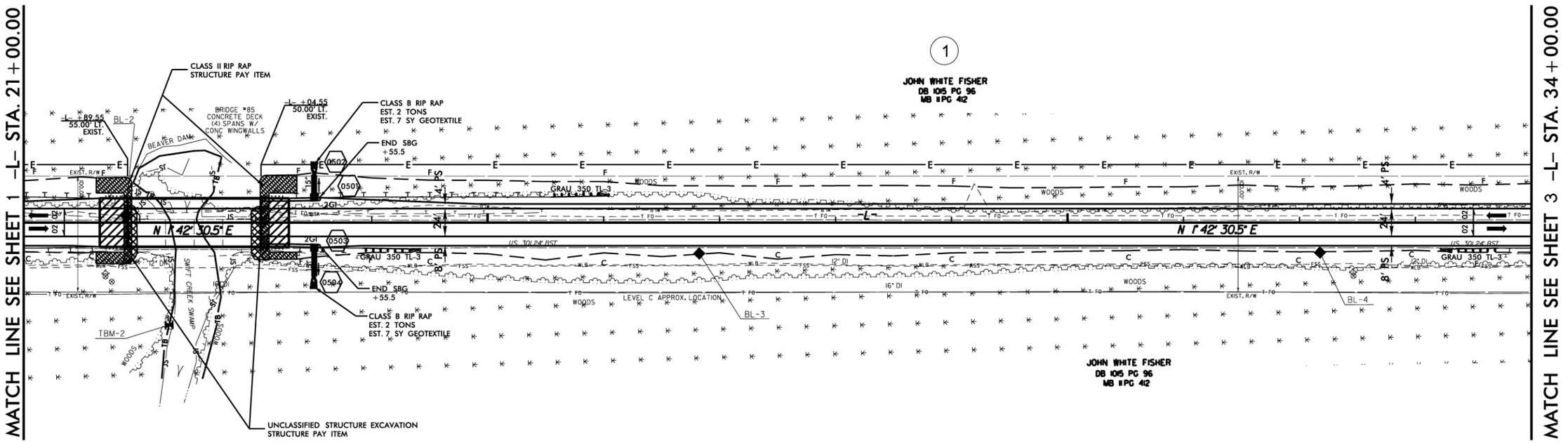


NOTE: SKETCH NOT TO SCALE

NAD 83

25

30



1

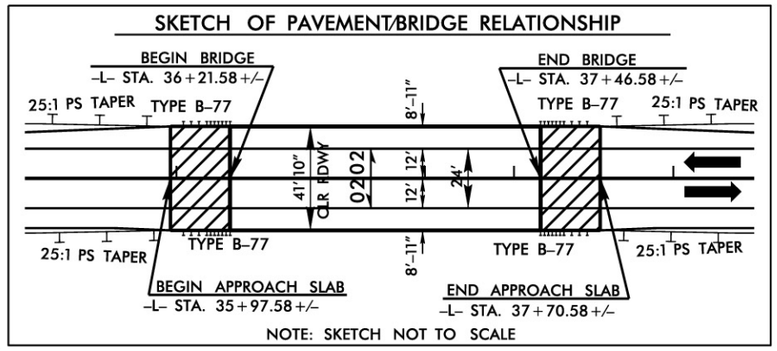
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS UNIT

NASH COUNTY
BRIDGE Nos. 85, 141, 151 and CULVERT No. C70
ON US 301 OVER SWIFT CREEK and CULVERT No. C161
ON US 301 OVER LANE SWAMP

B-5124

FIGURE 2 SHEET 2 OF 6

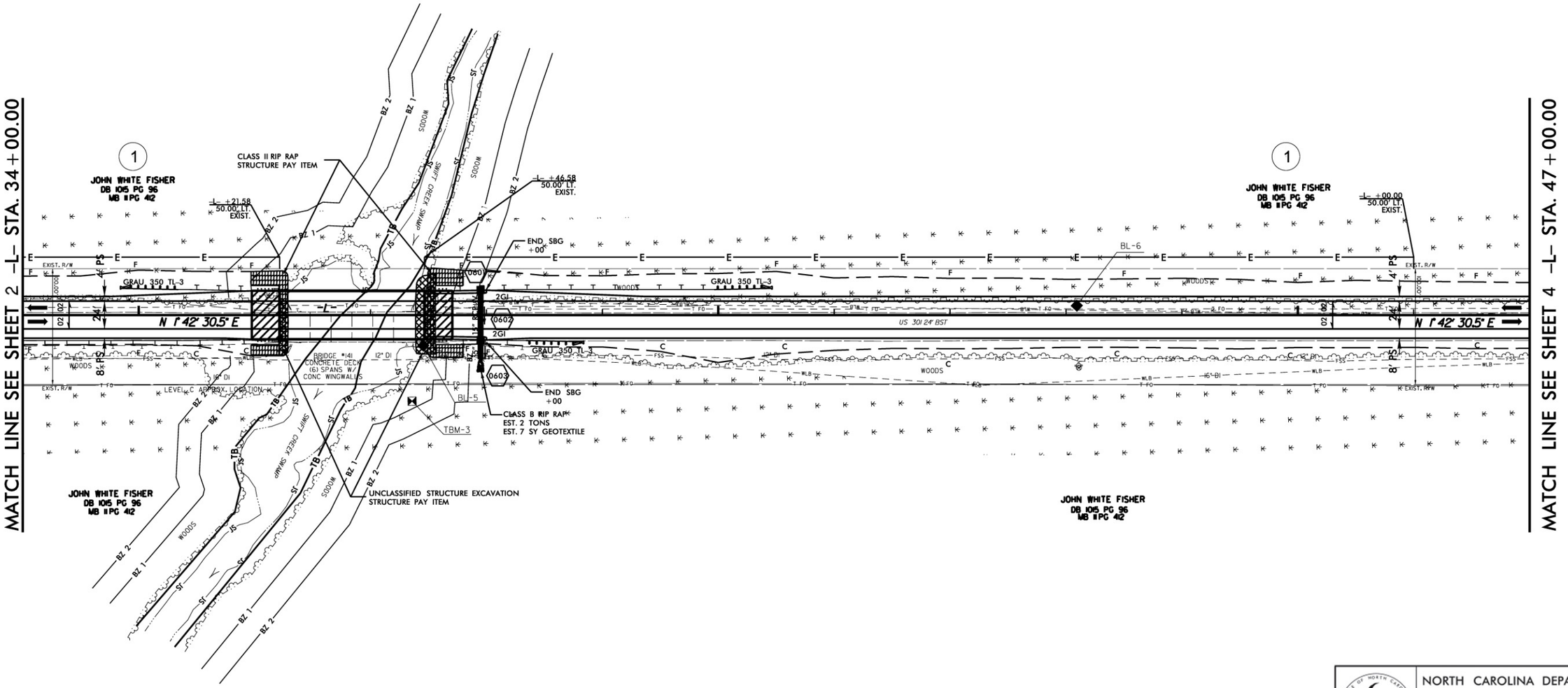
SKETCH OF PAVEMENT/BRIDGE RELATIONSHIP



NOTE: SKETCH NOT TO SCALE

NAD 83

35 40 45

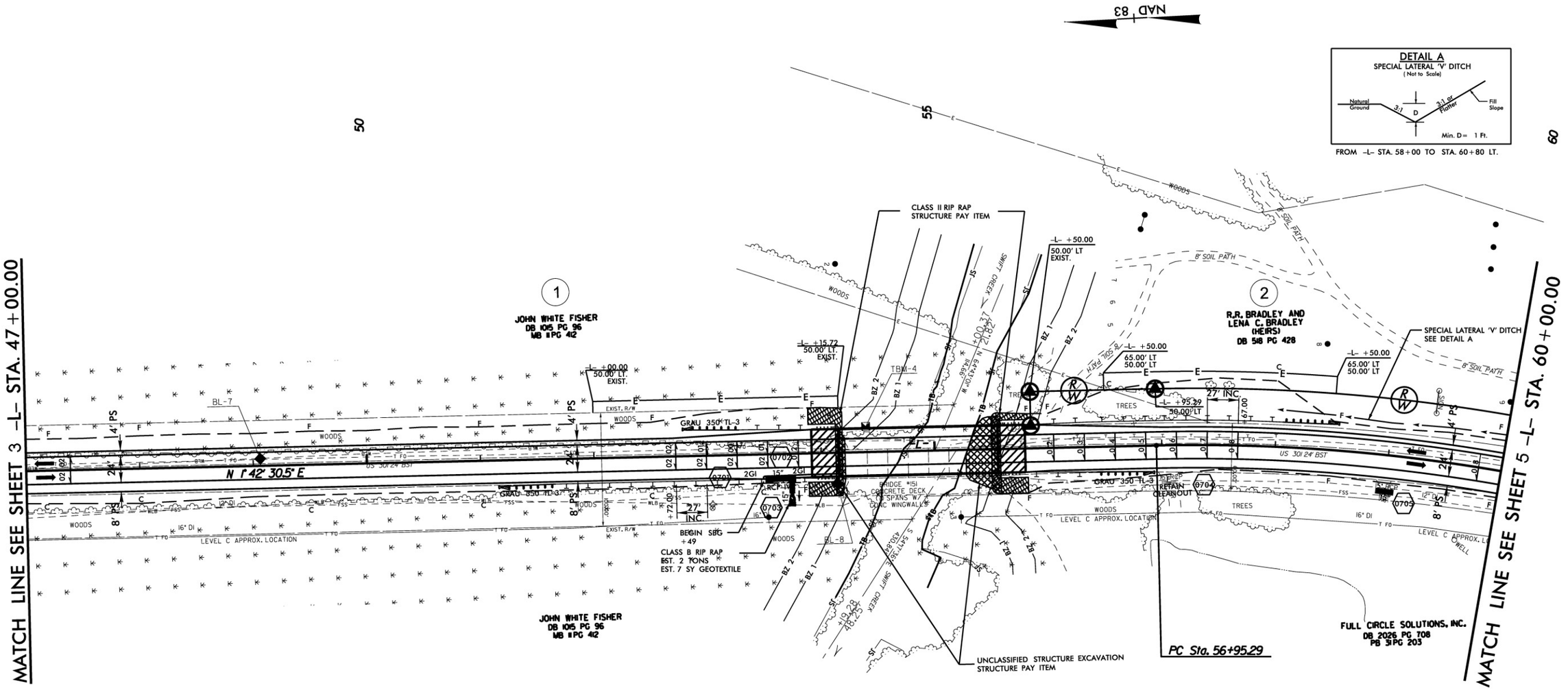


NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS UNIT

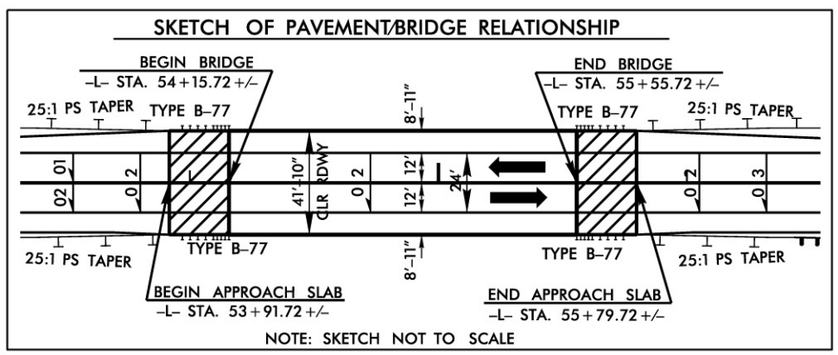
NASH COUNTY
BRIDGE Nos. 85, 141, 151 and CULVERT No. C70
ON US 301 OVER SWIFT CREEK and CULVERT No. C161
ON US 301 OVER LANE SWAMP

B-5124

FIGURE 2 SHEET 3 OF 6



SKETCH OF PAVEMENT/BRIDGE RELATIONSHIP



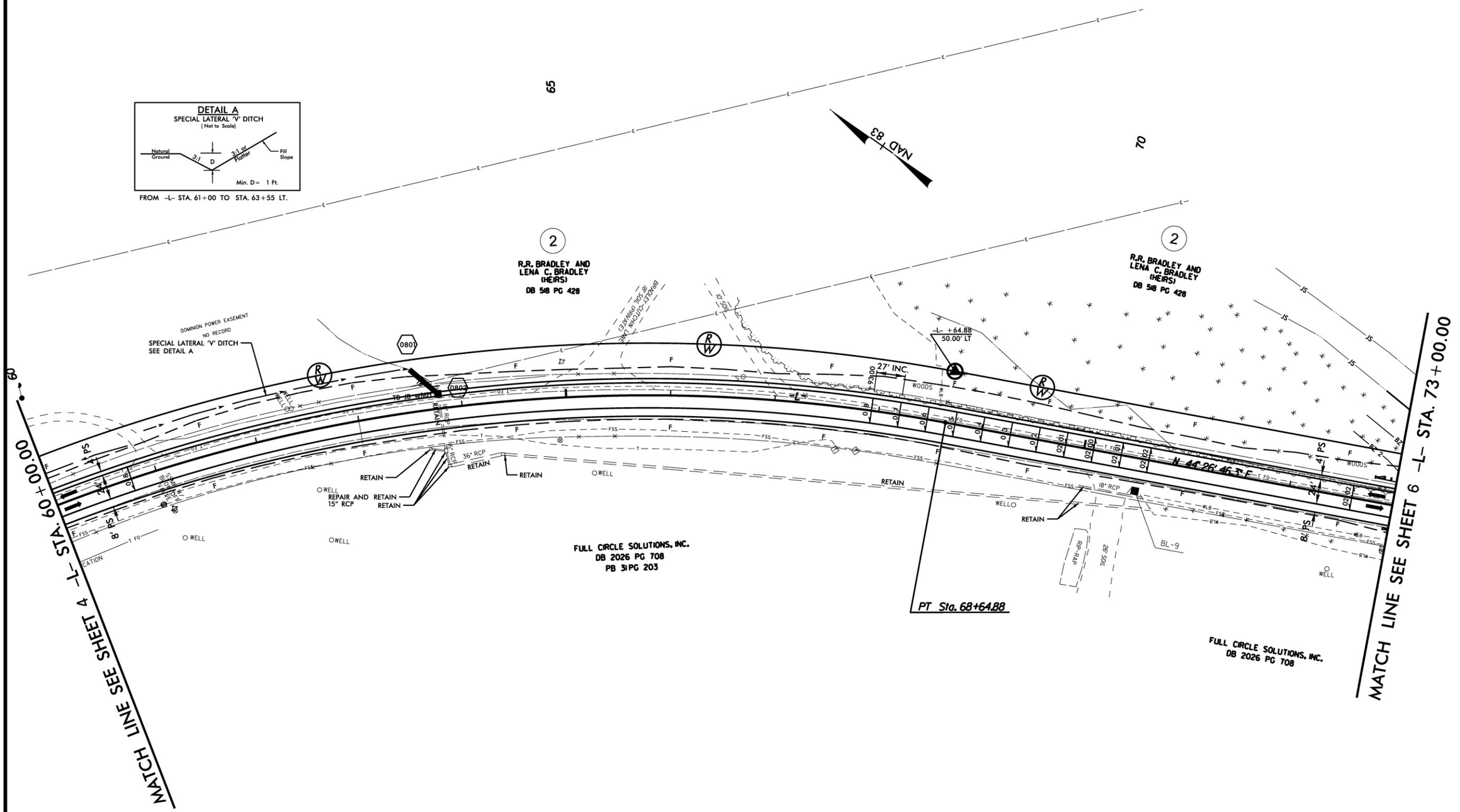
NOTE: SKETCH NOT TO SCALE

NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS UNIT

NASH COUNTY
BRIDGE Nos. 85, 141, 151 and CULVERT No. C70
ON US 301 OVER SWIFT CREEK and CULVERT No. C161
ON US 301 OVER LANE SWAMP

B-5124

FIGURE 2 SHEET 4 OF 6

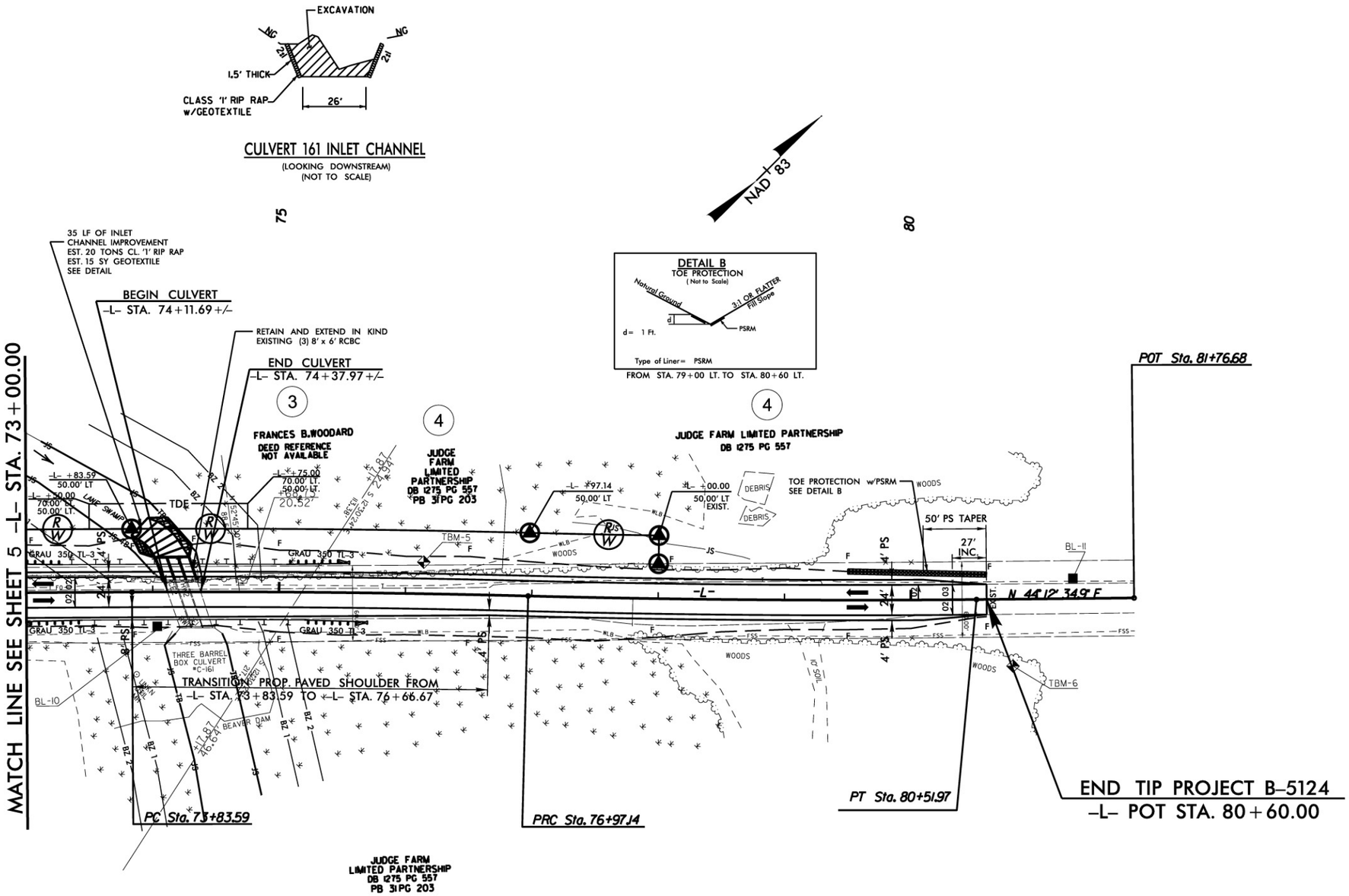


NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS UNIT

NASH COUNTY
BRIDGE Nos. 85, 141, 151 and CULVERT No. C70
ON US 301 OVER SWIFT CREEK and CULVERT No. C161
ON US 301 OVER LANE SWAMP

B-5124

FIGURE 2 SHEET 5 OF 6



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS UNIT

NASH COUNTY
BRIDGE Nos. 85, 141, 151 and CULVERT No. C70
ON US 301 OVER SWIFT CREEK and CULVERT No. C161
ON US 301 OVER LANE SWAMP

B-5124

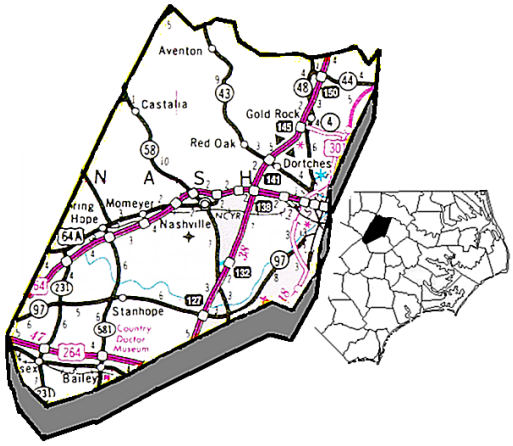
FIGURE 2 SHEET 6 OF 6

Culvert No. C70 over Swift Creek

East side looking upstream

Culvert No. C70 over Swift Creek

West side looking downstream



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS UNIT

NASH COUNTY
REPLACE BRIDGE NOS. 85, 141, 151 AND CULVERT NO. C70 ON US 301 OVER SWIFT CREEK AND CULVERT NO. C161 ON US 301 OVER LANE SWAMP
B-5124

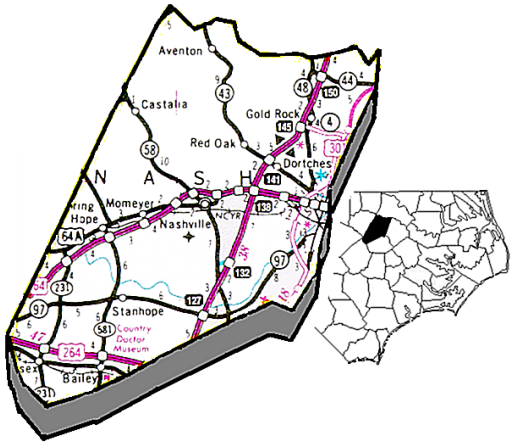
Figure 3a

Bridge No. 85 over Swift Creek

Looking South

Bridge No. 85 over Swift Creek

East side looking upstream



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS UNIT

NASH COUNTY
REPLACE BRIDGE NOS. 85, 141, 151 AND CULVERT NO. C70 ON US 301 OVER SWIFT CREEK AND CULVERT NO. C161 ON US 301 OVER LANE SWAMP
B-5124

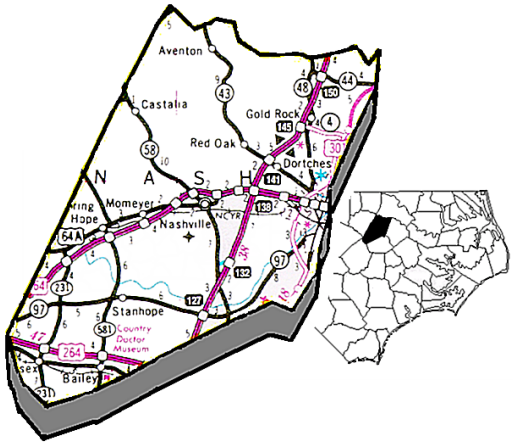
Figure 3b

Bridge No. 141
over Swift Creek

Looking North

Bridge No. 141
over Swift Creek

East profile



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS UNIT

NASH COUNTY
REPLACE BRIDGE NOS. 85, 141, 151 AND CULVERT NO. C70 ON US 301 OVER SWIFT CREEK AND CULVERT NO. C161 ON US 301 OVER LANE SWAMP
B-5124

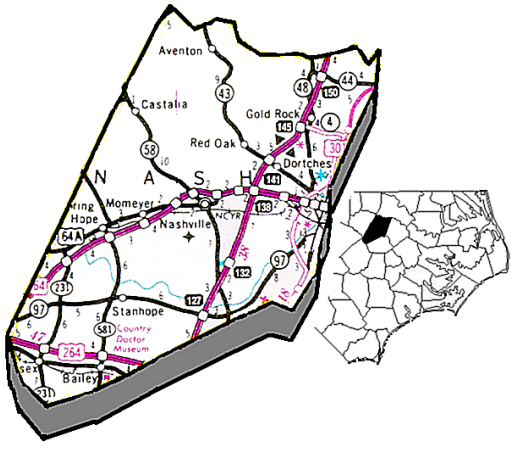
Figure 3c

Bridge No. 151
over Swift Creek

Looking North

Bridge No. 151
over Swift Creek

East profile



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS UNIT

NASH COUNTY
REPLACE BRIDGE NOS. 85, 141, 151 AND CULVERT NO. C70 ON US 301 OVER SWIFT CREEK AND CULVERT NO. C161 ON US 301 OVER LANE SWAMP
B-5124

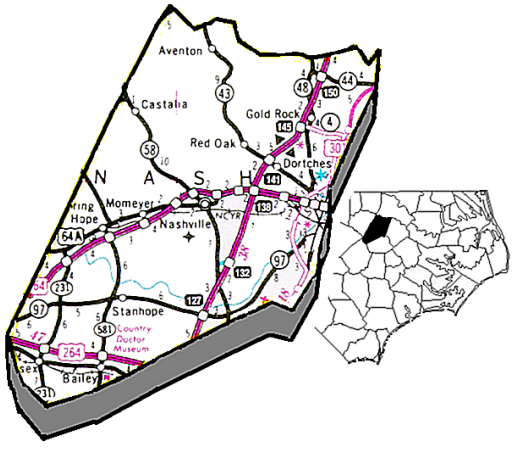
Figure 3d

Culvert No. C161 over Lane Swamp

East profile

Culvert No. C161 over Lane Swamp

West profile



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS UNIT

NASH COUNTY
REPLACE BRIDGE NOS. 85, 141, 151 AND CULVERT NO. C70 ON US 301 OVER SWIFT CREEK AND CULVERT NO. C161 ON US 301 OVER LANE SWAMP
B-5124

Figure 3e

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

September 3, 2010

Gregory J. Thorpe, Ph.D.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Dr. Thorpe:

This letter is in response to your letter of September 1, 2010 which provided the U.S. Fish and Wildlife Service (Service) with the biological conclusion of the North Carolina Department of Transportation (NCDOT) that the replacement of Bridge Nos. 141 and 151 on US 301 over Swift Creek in Nash County (TIP No. B-5124) may affect, but is not likely to adversely affect the federally endangered dwarf wedgemussel (*Alasmidonta heterodon*) and Tar River spinymussel (*Elliptio steinstansana*). These comments are provided in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

According to information provided, mussel surveys were conducted at the crossing sites on May 6, 2009. The surveys extended 100 meters upstream and 400 meters downstream of the two crossings. No mussels of any species were observed, and suitable habitat was absent at and near the project site. However, the dwarf wedgemussel is known from the Swift Creek watershed several miles upstream in Red Bud Creek, and the Tar River spinymussel is known to occur in Swift Creek several miles upstream and downstream of the project site.

Based on the mussel survey results and other available information, the Service concurs with your determination that the proposed project may affect, but is not likely to adversely affect the dwarf wedgemussel and Tar River spinymussel. We believe that the requirements of Section 7(a)(2) of the ESA have been satisfied for these species. We remind you that obligations under Section 7 consultation 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 in this review; (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 determined that may be affected by this identified action.

The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,

for Gary Jordan
Pete Benjamin
Field Supervisor

cc: Tom Steffens, USACE, Washington, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC
John Sullivan, FHWA, Raleigh, NC
David Harris, NCDOT, Raleigh, NC

Project Tracking No. (Internal Use)

10-02-0002

NO SURVEY REQUIRED FORM

PROJECT INFORMATION

Project No:	B-5124	*County:*	Nash
WBS No:	42270	*Document:*	CS/PCE
F.A. No:		*Funding:*	☐ State ☒ Federal

Federal (USACE) Permit Required? ☒ Yes ☐ No *Permit Type:*

Project Description: Replace Bridges No 141 and 151 over Rocky River and Access on US 301.

SUMMARY OF CULTURAL RESOURCES REVIEW

Brief description of review activities, results of review, and conclusions:
A research visit was made to the Office of State Archaeology in Raleigh. There are no previously documented archaeological sites in the APE, based upon reviewing OSA quad mapping. A survey had been completed for the US 301 corridor (Baroody, Padgett, Church 1981). One site is in the near vicinity, 31Ns41, which was described as disturbed by agriculture, powerlines, erosion, etc., and considered not eligible for listing on the NRHP. Google-type streetview mapping was examined – this area is swampy. No further work is recommended.
Brief Explanation of why the available information provides a reliable basis for reasonably predicting that there are no unidentified historic properties in the APE:
A survey has been previously conducted for this route, and includes the APE for the current undertaking. For this project it is unlikely that undocumented, significant archaeological sites are located in the limited and previously disturbed APE.

SUPPORT DOCUMENTATION

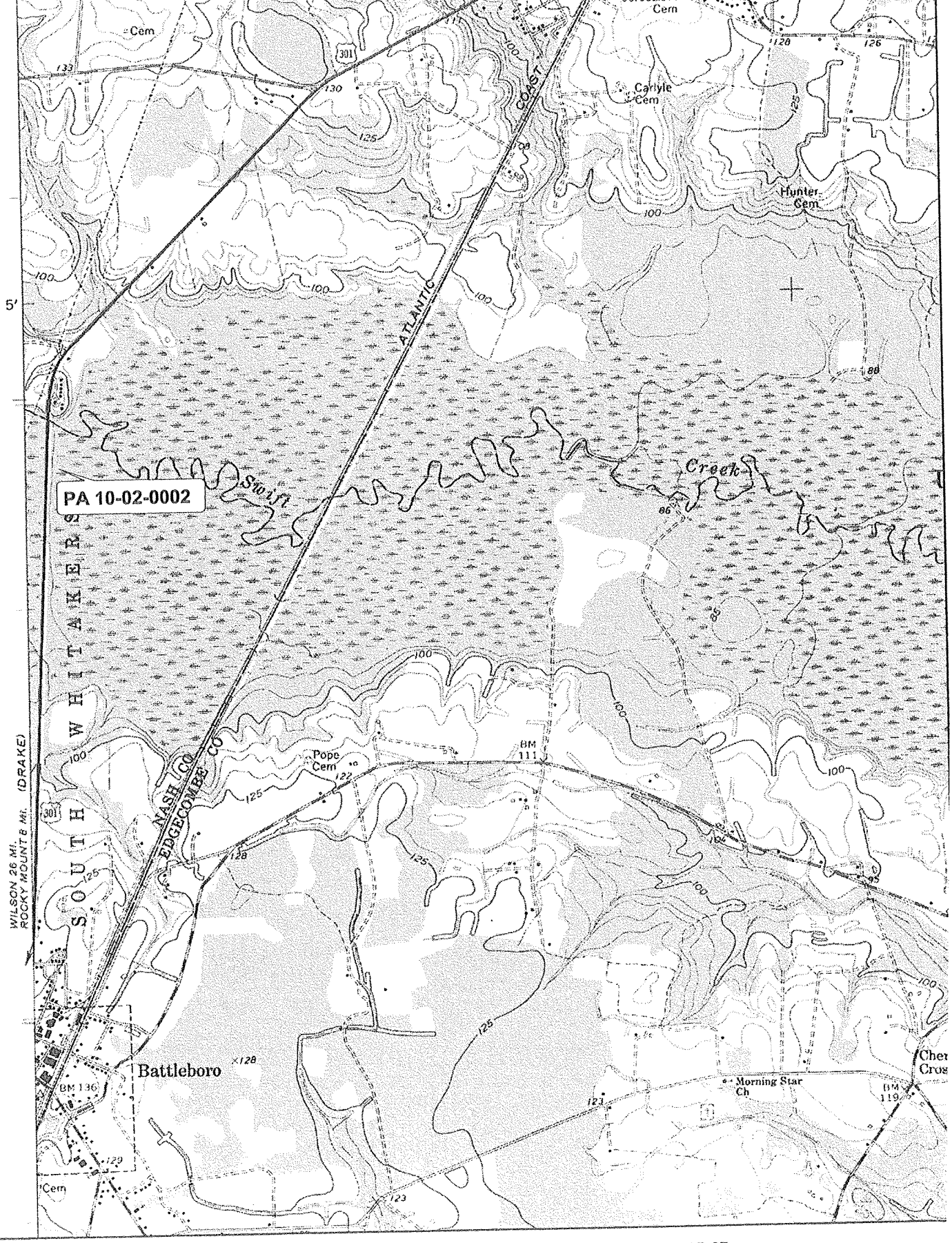
See attached: USGS quad excerpt Whitakers

FINDING BY NCDOT CULTURAL RESOURCES PROFESSIONAL

NO SURVEY REQUIRED – Archaeology

[signature] 6/12/2010

NCDOT Cultural Resources Specialist Date



Name: WHITAKERS (NC)
Date: 11/12/2010
Scale: 1 inch equals 2000 feet

Location: 18 0254236 E 3994945 N NAD 27

Project Tracking No. (Internal Use)

10-02-0002

NO SURVEY REQUIRED FORM

PROJECT INFORMATION

Project No:	B-5124	*County:*	Nash
WBS No:	42270	*Document:*	CE/PCE
F.A. No:	BRSTP-0301(25)	*Funding:*	☐ State x Federal

Federal (USACE) Permit Required? ☐ Yes ☐ No *Permit Type:*

Project Description: Replace Bridges No. 141 and 151 over Swift Creek and Access on US 301, Battleboro vic.

SUMMARY OF CULTURAL RESOURCES REVIEW

Brief description of review activities, results of review, and conclusions:
Review of HPO quad maps, historic designations roster, and indexes were undertaken on March 8, 2010. Based on this review, there are no existing NR, SL, LD, DE, or SS properties in the Area of Potential Effects. The CRS also reviewed *The Historic Architecture of Nash County, NC*, and no properties recorded in that document appear to be present in the project APE.

Brief Explanation of why the available information provides a reliable basis for reasonably predicting that there are no unidentified historic properties in the APE:
The Nash County Survey was executed in 1983-1984 and remains valid for the purposes of determining the likelihood of historic resources being present. An aerial map provided by the project engineer shows the APE to be mostly riverine and consisting of wetlands, which are not likely to yield considered historic architectural resources.

SUPPORT DOCUMENTATION

See attached: Map(s)

FINDING BY NCDOT CULTURAL RESOURCES PROFESSIONAL

NO SURVEY REQUIRED

Renee Sandbeck 3-19-2010

NCDOT Cultural Resources Specialist Date

B-5124

Poole, Brenna E

From: Matthews.Kathy@epamail.epa.gov
Sent: Monday, September 14, 2009 1:49 PM
To: Poole, Brenna E
Cc: andrew.e.williams2@usace.army.mil; thomas.a.steffens@usace.army.mil; Wrenn, Brian; Euliss, Amy; Wainwright, David; Wilson, Travis W.
Subject: bridge projects in Caswell, Guilford, Rockingham, and Nash Counties
Follow Up Flag: Follow up
Flag Status: Red

Dear Brenna,

I have reviewed scoping letter, aerial photographs, and vicinity maps for the following bridge projects:

B-4756 (Guilford County)
B-4961 (Guilford County)
B-5154 (Rockingham County)
B-5163 (Rockingham County)
B-4623 (Rockingham County)
B-5162 (Caswell County)
B-5124 (Nash County)

I have the following comments for your consideration:

B-4756:
1. Reedy Fork Creek is listed on the North Carolina Division of Water Quality's (NCDWQ) draft 2008 list of impaired waters, due to due to aquatic life impairments demonstrated by failure to meet the State biological criteria. NCDOT should commit to enhanced construction stormwater controls to avoid contributing sediment and other sources of turbidity to Third Creek. Such enhanced controls may include sedimentation basins, Polyacrylamide (PAM), coconut fiber, absorbent wattles, or other NCDOT-researched and recommended soil erosion and sediment control measures which have been shown to dramatically improve the quality of runoff from road construction sites.
2. In general, for all bridge replacements, EPA prefers structures that span the waterbody. Efforts should be made if possible to also span or avoid any wetlands or other aquatic resources in the project area.
3. EPA also generally prefers the replacement of a bridge in the same location, either with road closure and off-site detour, or staged construction. If a temporary on-site detour is required, it should be designed to avoid impacts to wetlands or other aquatic resources.
4. Bridge supports should not be placed in the stream, if possible.
5. Bridge deck drains should not discharge directly into the stream, and stormwater should be pre-treated prior to discharge to a stream or wetland.

B-4961:
1. Little Alamance Creek is listed on the North Carolina Division of Water Quality's (NCDWQ) draft 2008 list of impaired waters, due to due to aquatic life impairments demonstrated by failure to meet the State biological criteria. NCDOT should commit to enhanced construction stormwater controls to avoid contributing sediment and other sources of turbidity to Third Creek. Such enhanced controls may include sedimentation basins, Polyacrylamide (PAM), coconut fiber, absorbent wattles, or other NCDOT-researched and recommended soil erosion and sediment control measures which have been shown to dramatically improve the quality of runoff from

road construction sites.
2. In general, for all bridge replacements, EPA prefers structures that span the waterbody. Efforts should be made if possible to also span or avoid any wetlands or other aquatic resources in the project area.
3. EPA also generally prefers the replacement of a bridge in the same location, either with road closure and off-site detour, or staged construction. If a temporary on-site detour is required, it should be designed to avoid impacts to wetlands or other aquatic resources.
4. Bridge supports should not be placed in the stream, if possible.
5. Bridge deck drains should not discharge directly into the stream, and stormwater should be pre-treated prior to discharge to a stream or wetland.

B-5163, B-4623, and B-5162:
1. In general, for all bridge replacements, EPA prefers structures that span the waterbody. Efforts should be made if possible to also span or avoid all wetlands or other aquatic resources in the project area.
2. EPA also generally prefers the replacement of a bridge in the same location, either with road closure and off-site detour, or staged construction.
3. Approach fills from the old structure should be removed and restored to the natural ground elevation. We recognize that formal or significant informal human use should be considered in the decision to remove approach fills or causeways.
4. Bridge supports should not be placed in the stream, if possible.
5. Bridge deck drains should not discharge directly into the stream, and stormwater should be pre-treated prior to discharge to a stream or wetland.

B-5124:
1. This project area appears to include significant wetlands which are likely to be of high quality. Efforts should be made to avoid and minimize impacts to the adjacent wetlands.
2. In general, for all bridge replacements, EPA prefers structures that span the waterbody. Efforts should be made if possible to also span or avoid all wetlands or other aquatic resources in the project area.
3. EPA also generally prefers the replacement of a bridge in the same location, either with road closure and off-site detour, or staged construction.
4. Approach fills from the old structure should be removed and restored to the natural ground elevation. We recognize that formal or significant informal human use should be considered in the decision to remove approach fills or causeways.
5. Bridge supports should not be placed in the stream, if possible.
6. Bridge deck drains should not discharge directly into the stream, and stormwater should be pre-treated prior to discharge to a stream or wetland.

B-5154:
There do not appear to be an resources in the project area, therefore, I have no comments.

Thank you for the opportunity to comment on these projects. If you have any questions, please contact me.

Kathy Matthews
USEPA - Region 4 Wetlands & Marine Reg. Section
109 T.W. Alexander Dr.
Durham, NC 27711
MAIL CODE: E143-04

phone 919-541-3062
cell 919-619-7319

North Carolina Department of Environment and Natural Resources
Division of Water Quality
Coleen H. Sullins
Director

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

September 11, 2009

MEMORANDUM

TO: Brenna Poole, NCDOT Bridge Project Development Unit

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

SUBJECT: Scoping Review of NCDOT's Proposed Bridge Replacement Projects: B- 5124 (over Swift Creek in Nash County) and B-4933 (over Tar River in Edgecombe County).

In reply to your correspondence received September 9, 2009 in which you requested comments for the above referenced projects, the NC Division of Water Quality offers the following comments:

Project-Specific Comments

1. Swift Creek is class C; NSW waters of the State. Tar River is class WS-IV; NSW waters of the State. DWQ is very concerned with sediment and erosion impacts that could result from this project. DWQ recommends that highly protective sediment and erosion control BMPs be implemented to reduce the risk of nutrient runoff to these waters. DWQ requests that road design plans provide treatment of the storm water runoff through best management practices as detailed in the most recent version of NC DWQ *Stormwater Best Management Practices*.

2. These projects are within the Tar River Basin. Riparian buffer impacts shall be avoided and minimized to the greatest extent possible pursuant to 15A NCAC 2B.0259.

3. Any anticipated bank stabilization associated with culvert installations or extensions should be addressed in the Categorical Exclusion (CE) document. It is understood that final designs are not determined at the time the CE is developed. However, the CE should discuss the potential for bank stabilization necessary due to culvert installation. An adequate bank stabilization amount should also be applied for in the permit applications, to prevent the need of a later permit modification.

4. Any anticipated dewatering or access structures necessary for construction of bridges should be addressed in the CE. It is understood that final designs are not determined at the time the CE is developed. However, the CE and permit applications should discuss the potential for dewatering and access measures necessary due to bridge construction.

Transportation and Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
Location: 2321 Crabtree Blvd., Raleigh, North Carolina 27604
Phone: 919-733-1786 \ FAX: 919-733-6893
Internet: http://h2o.enr.state.nc.us/ncwetlands/

General Comments Regarding Bridge Replacement Projects

1. DWQ is very concerned with sediment and erosion impacts that could result from this project. NC DOT shall address these concerns by describing the potential impacts that may occur to the aquatic environments and any mitigating factors that would reduce the impacts.

2. If foundation test borings are necessary; it shall be noted in the document. Geotechnical work is approved under General 401 Certification Number 3687/Nationwide Permit No. 6 for Survey Activities.

3. If a bridge is being replaced with a hydraulic conveyance other than another bridge, DWQ believes the use of a Nationwide Permit may be required. Please contact the US Army Corp of Engineers to determine the required permit(s).

4. If the old bridge is removed, no discharge of bridge material into surface waters is allowed unless otherwise authorized by the US ACOE. Strict adherence to the Corps of Engineers guidelines for bridge demolition will be a condition of the 401 Water Quality Certification.

5. Whenever possible, the DWQ prefers spanning structures. Spanning structures usually do not require work within the stream or grubbing of the stream banks and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allow for human and wildlife passage beneath the structure, do not block fish passage and do not block navigation by canoeists and boaters.

6. 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 NC DWQ *Stormwater Best Management Practices.*

7. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.

8. Bridge supports (bents) shall not be placed in the stream when possible.

9. If temporary access roads or detours are constructed, the site shall be graded to its preconstruction contours and elevations. Disturbed areas shall be seeded or mulched to stabilize the soil and appropriate native woody species shall be planted. When using temporary structures the area shall be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact allows the area to re-vegetate naturally and minimizes soil disturbance.

10. Sediment and erosion control measures sufficient to protect water resources must be implemented and maintained in accordance with the most recent version of North Carolina Sediment and Erosion Control Planning and Design Manual and the most recent version of NCS000250.

11. All work in or adjacent to stream waters shall be conducted in a dry work area unless otherwise approved by NC DWQ. 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.

12. Heavy equipment shall be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams. This equipment shall be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

13. In most cases, the DWQ prefers the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour shall be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure shall be removed and the approach fills removed from the 100-year floodplain. Approach fills shall be

removed and restored to the natural ground elevation. The area shall be stabilized with grass and planted with native tree species. Tall fescue shall not be used in riparian areas.

General Comments if Replacing the Bridge with a Culvert

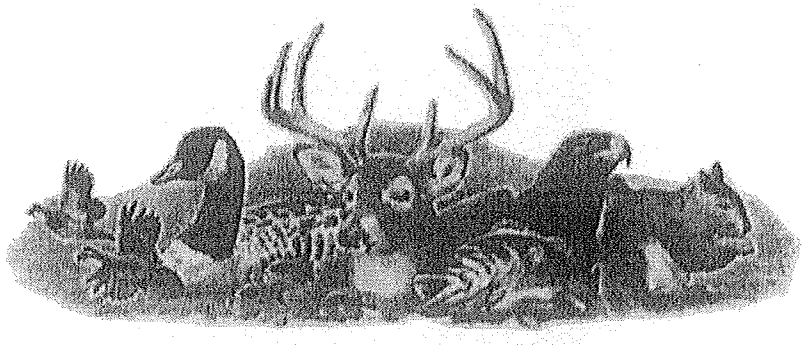
1. Placement of culverts and other structures in waters, streams, and wetlands shall be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow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

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

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

Thank you for requesting our input at this time. The DOT is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost. If you have any questions or require additional information, please contact Rob Ridings at 919-733-9817.

cc: Tom Steffens, US Army Corps of Engineers, Washington Field Office
Chad Coggins, Division 4 Environmental Officer
File Copy



North Carolina Wildlife Resources Commission

Gordon Myers, Executive Director

MEMORANDUM

TO: Chris Rivenbark
NCDOT, PDEA Natural Environment Unit

FROM: Travis Wilson, Highway Project Coordinator
Habitat Conservation Program

DATE: May 11, 2009

SUBJECT: NCDOT Bridge Replacements

Biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the information provided and have the following preliminary comments on the subject project. Our comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

Our standard recommendations for bridge replacement projects of this scope are as follows:

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.

2. Bridge deck drains should not discharge directly into the stream.

3. Live concrete should not be allowed to contact the water in or entering into the stream.

4. If possible, bridge supports (bents) should not be placed in the stream.

5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should be planted with a spacing of not more than 10'x10'. If possible, when using temporary

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 707-0220 • **Fax:** (919) 707-0028

structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.

6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the steam underneath the bridge.

7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.

8. In streams that contain threatened or endangered species, NCDOT biologist Mr. Logan Williams should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.

9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.

10. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.

11. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.

12. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.

13. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.

14. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.

15. During subsurface investigations, equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

If corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used:

1. The culvert must be designed to allow for aquatic life and fish passage. Generally, the culvert or pipe invert should be buried at least 1 foot below the natural streambed (measured from the natural thalweg depth). If multiple barrels are required, barrels other than the base flow barrel(s) should be placed on or near stream bankfull or floodplain bench elevation (similar to Lyonsfield design). These should be

reconnected to floodplain benches as appropriate. This may be accomplished by utilizing sills on the upstream and downstream ends to restrict or divert flow to the base flow barrel(s). Silled barrels should be filled with sediment so as not to cause noxious or mosquito breeding conditions. Sufficient water depth should be provided in the base flow barrel(s) during low flows to accommodate fish movement. If culverts are longer than 40-50 linear feet, alternating or notched baffles should be installed in a manner that mimics existing stream pattern. This should enhance aquatic life passage: 1) by depositing sediments in the barrel, 2) by maintaining channel depth and flow regimes, and 3) by providing resting places for fish and other aquatic organisms. In essence, base flow barrel(s) should provide a continuum of water depth and channel width without substantial modifications of velocity.

2. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage.

3. Culverts or pipes should be situated along the existing channel alignment whenever possible to avoid channel realignment. Widening the stream channel must 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.

4. Riprap should 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 professionally designed, sized, and installed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. If the area reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be utilized as mitigation for the subject project or other projects in the watershed.

NCDOT should routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. Restoring previously disturbed floodplain benches should narrow and deepen streams previously widened and shallowed during initial bridge installation. NCDOT should install and maintain sedimentation control measures throughout the life of the project and prevent wet concrete from contacting water in or entering into these streams. Replacement of bridges with spanning structures of some type, as opposed to pipe or box culverts, is recommended in most cases. Spanning structures allow wildlife passage along streambanks and reduce habitat fragmentation.

Project specific comments:

B-5106 Bertie County Bridge No. 148 on SR 1200 over Wahtom Swamp. Anadromous species are found in this portion of Wahtom Swamp. NCDOT should follow all stream crossing guidelines for anadromous fish passage, including an in-water work moratorium from February 15 to June 15. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4761 Halifax County Bridge No. 29 on NC 561 over Little Fishing Creek. Little Fishing Creek is one of the most diverse and unique waterways in the Tar River basin. The best known population of the Federally Endangered Tar River Spinymussel, *E. steinstansana*, occurs in this stream. As well as Atlantic Pigtoe, *Fusconia masoni* (State Special Concern), the Notched Rainbow, *Villosa constricta* (State Special Concern), the Yellow lampmussel, *L. cariosa* (State Special Concern), the Triangle floater, *A. undulata*, and Creeper, *S. undulates.* A mussel survey is recommended at this location and NCDOT should follow design standards for sensitive watersheds. NCDOT should coordinate closely with the NCWRC Eastern Aquatic Wildlife Diversity Biologists to aid with surveys at this site.

B-4557 Johnston County Bridge No. 113 on SR 1309 over Big Branch. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4773 Johnston County Bridge No. 222 on SR 2320 over Little Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4936 Johnston County Bridge No. 41 on SR 1136 over Mill Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4561 Johnston County Bridge No. 147 on SR 1525 over Swift Creek. Historical records exist for several listed mussel species both up and downstream of this bridge: the Atlantic Pigtoe, *F. masoni* (State Special Concern),the Yellow lampmussel, *L. cariosa* (State Special Concern), the Triangle floater, *A. undulate* (State Threatened), the Creeper, *S. undulatus* (State Threatened), the Yellow lance, *E. lanceolata* (State Endangered), and the Dwarf wedgemussel, *A. heterodon* (State and Federally Endangered). A mussel survey is recommended at this location and NCDOT should follow design standards for sensitive watersheds. Anadromous species are also found in this portion of Swift Creek. NCDOT should follow all stream crossing guidelines for anadromous fish passage, including an in-water work moratorium from February 15 to June 15. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4938 Nash County bridge No. 25 on SR 1145 over Little Sapony Creek. . We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5124 Nash County Bridge No. 141 & 151 on US 301 over Swift Creek. The Atlantic Pigtoe, *Fusconia masoni* (State Special Concern), the Notched Rainbow, *Villosa constricta* (State Special Concern), the Yellow lampmussel, *L. cariosa* (State Special Concern), the Triangle floater, *A. undulata* (State Threatened), the Creeper, *S. undulatus* (State Threatened), the Yellow lance, *E. lanceolata* (State Endangered), and the Tar River Spinymussel, *E. steinstansana* (State and Federally Endangered), have all been detected in Swift Creek. A mussel survey is recommended at this location and NCDOT should follow design standards for sensitive watersheds. Anadromous species are also found in this portion of Swift Creek. NCDOT should follow all stream crossing guidelines for anadromous fish passage, including an in-water work

moratorium from February 15 to June 15. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5108 Nash County Bridge No. 26 on SR 1145 over Sapony Creek. . We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4939 Nash County Bridge No. 156 on SR 1433 over Basket Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4843 Wayne County Bridge No. 15 on SR 1719 over Bear Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4679 Wilson County Bridge No. 66 on SR 1163 over Swamp. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5126 Wilson County Bridge No. 65 on SR 1163 over a swamp. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4436 Bladen County Bridge No. 31 on SR 1700 over Brown's Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5116 Bladen-Sampson counties Bridge No. 150 on SR 1502 over South River. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5117 Bladen County Bridge No. 47 on US 210 over Lake Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4478 Columbus County Bridge No. 216 on SR 1700 over Welches Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5115 Columbus County Bridge No. 94 and 95 on SR 1005 over Grissett Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4475 Columbus County Bridge No. 85 on SR 1119 over Tom's Fork Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4738 Cumberland County Bridge No. 189 on SR 1137 over Buckhead Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4951 Harnett County Bridge No. 57 on SR 1002 over I-95. We recommend replacing this bridge with a bridge. Standard recommendations apply.

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (919) 528-9886. Thank you for the opportunity to review and comment on this project.