

CATEGORICAL EXCLUSION ACTION CLASSIFICATION FORM

TIP Project No.	<u>B-5341</u>
W.B.S. No.	<u>46055.1.1</u>
Federal Project No.	<u>BRSTP-1767(5)</u>

A. Project Description:

The purpose of this project is to replace Rockingham County Bridge No. 110 on SR 1767 (Mayfield Road) over Wolf Island Creek. Bridge No. 110 is 175 feet long. The replacement structure will be a bridge approximately 190 feet long providing a minimum 30 feet 6 inches clear deck width. The bridge will include two 11-foot lanes and 4-foot 3-inch offsets. The bridge length is based on preliminary design information and is set by hydraulic requirements. The roadway grade of the new structure will be approximately the same as the existing structure.

The approach roadway will extend approximately 200 feet from the southern end of the new bridge and 260 feet from the northern end of the new bridge. The approaches will be widened to include a 22-foot pavement width providing two 11-foot lanes. Six-foot shoulders will be provided on each side (9-foot shoulders where guardrail is included). Four feet of the shoulders will be paved. The roadway will be designed as a Minor Collector Route using Sub Regional Tier guidelines with a 55 mile per hour design speed.

Traffic will be detoured off-site during construction (see Figure 1).

B. Purpose and Need:

NCDOT Bridge Management Unit records indicate Bridge No. 110 has a sufficiency rating of 22.28 out of a possible 100 for a new structure.

The bridge is considered structurally deficient due to superstructure condition appraisal of 4 out of 9 and a substructure condition appraisal of 3 out of 9 according to Federal Highway Administration (FHWA) standards. The bridge also meets the criteria for functionally obsolete due to structural appraisal of 3 out of 9.

The substructure of Bridge No. 110 has timber elements that are sixty-three years old. Timber components have a typical life expectancy between 40 to 50 years due to the natural deterioration rate of wood. Rehabilitation of a timber structure is generally practical only when a few elements are damaged or prematurely deteriorated. However, past a certain degree of deterioration, most timber elements become impractical to maintain and upon eligibility are programmed for replacement.

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 posted weight limit on the bridge is down to 16 tons for single vehicles and 21 tons for truck-tractor semi-trailers. The bridge is approaching the end of its useful life. Replacement of the bridge will result in safer traffic operations.

C. Proposed Improvements:

Circle one or more of the following Type II improvements which apply to the project:

1. Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing).
 - a. Restoring, Resurfacing, Rehabilitating, and Reconstructing pavement (3R and 4R improvements)
 - b. Widening roadway and shoulders without adding through lanes
 - c. Modernizing gore treatments
 - d. Constructing lane improvements (merge, auxiliary, and turn lanes)
 - e. Adding shoulder drains
 - f. Replacing and rehabilitating culverts, inlets, and drainage pipes, including safety treatments
 - g. Providing driveway pipes
 - h. Performing minor bridge widening (less than one through lane)
 - i. Slide Stabilization
 - j. Structural BMP's for water quality improvement

2. Highway safety or traffic operations improvement projects including the installation of ramp metering control devices and lighting.
 - a. Installing ramp metering devices
 - b. Installing lights
 - c. Adding or upgrading guardrail
 - d. Installing safety barriers including Jersey type barriers and pier protection
 - e. Installing or replacing impact attenuators
 - f. Upgrading medians including adding or upgrading median barriers
 - g. Improving intersections including relocation and/or realignment
 - h. Making minor roadway realignment
 - i. Channelizing traffic
 - j. Performing clear zone safety improvements including removing hazards and flattening slopes
 - k. Implementing traffic aid systems, signals, and motorist aid
 - l. Installing bridge safety hardware including bridge rail retrofit

3. Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings.
 - a. Rehabilitating, reconstructing, or replacing bridge approach slabs
 - b. Rehabilitating or replacing bridge decks

- c. Rehabilitating bridges including painting (no red lead paint), scour repair, fender systems, and minor structural improvements
 - d. Replacing a bridge (structure and/or fill)
4. Transportation corridor fringe parking facilities.
 5. Construction of new truck weigh stations or rest areas.
 6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.
 7. Approvals for changes in access control.
 8. Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.
 9. Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.
 10. Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks and related street improvements) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.
 11. Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.
 12. Acquisition of land for hardship or protective purposes, advance land acquisition loans under section 3(b) of the UMT Act. Hardship and protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CE only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed.
 13. Acquisition and construction of wetland, stream and endangered species mitigation sites.
 14. Remedial activities involving the removal, treatment or monitoring of soil or groundwater contamination pursuant to state or federal remediation guidelines.

D. Special Project Information:

The estimated costs, based on 2014 prices, are as follows:

Structure & Approach Slabs	\$ 714,000
Roadway Approaches	\$ 303,000
Structure Removal	\$ 58,000
Misc. & Mob.	\$ 183,000
Eng. & Contingencies	\$ 192,000
Total Construction Cost	\$ 1,450,000
Right-of-way Costs	\$ 25,000
Utility Costs	\$ 35,000
Total Project Cost	\$ 1,510,000

Estimated Traffic:

Current (2014)-	710 vpd
Year 2040 -	800 vpd
TTST -	3%
Dual -	3%

Accidents: Traffic Engineering has evaluated a recent ten year period and found four accidents occurring in the vicinity of the project. None were associated with the geometry of the bridge or its approach roadways.

Design Exceptions: There are no anticipated design exceptions for this project.

Pedestrian and Bicycle Accommodations: This portion of SR 1767 is designated as a local bicycle route and is a part of the Rockingham County Century Challenge Bike Route. In order to accommodate the bicycle traffic, a 4-foot 3-inch offset will be on both sides of the new bridge, along with bicycle safe railing. In addition, there will be 4- foot paved shoulders on the approaches throughout the project limits.

Bridge Demolition: Bridge No. 110 is constructed entirely of timber, concrete, and steel and should be possible to remove with no resulting debris in the water based on standard demolition practices.

Alternatives Discussion:

No Build – The no build alternative would result in eventually closing the road which is unacceptable given the volume of traffic served by SR 1767.

Rehabilitation – The bridge was constructed in 1951 and the timber materials within the bridge are reaching the end of their useful life. Rehabilitation would require replacing the timber components which would constitute effectively replacing the bridge.

Offsite Detour – Bridge No. 110 will be replaced on the existing alignment. Traffic will be detoured offsite (see Figure 1) during the construction period. NCDOT Guidelines for Evaluation of Offsite Detours for Bridge Replacement Projects considers multiple project variables beginning with the additional time traveled by the average road user resulting from the offsite detour. The offsite detour for this project would include SR 2708 (Service Road), SR 1902 (Dibrell Road), and NC 700. The majority of traffic on the road is through traffic. The detour for the average road user would result in 12 minutes additional travel time (5.4 miles additional travel). Up to a 10-month duration of construction is expected on this project.

Based on the Guidelines, the criteria above indicate that the preference of an offsite detour but with now stronger evaluation of other project variables. In this case, Rockingham County Emergency Services along with Rockingham County Schools Transportation have indicated that an offsite detour is acceptable. There is a farm operation in the vicinity but coordination with that operation indicates that it will not be substantially affected by the detour. NCDOT Division 7 has indicated that the condition of all roads, bridges and intersections along the detour are acceptable without improvement and concur with the use of the detour.

Onsite Detour – An onsite detour was further evaluated from a traffic operation standpoint. However, due to higher project costs and greater environmental impacts associated with an onsite detour, along with the presence of an acceptable offsite detour, the onsite detour was eliminated from consideration for this project.

Staged Construction – Staged construction was not considered because of the availability of an acceptable offsite detour.

New Alignment – Given that the alignment for SR 1767 is acceptable, a new alignment was not considered as an alternative.

Other Agency Comments:

In a letter dated March 28, 2011, the N.C. Wildlife Resource Commission recommends Design Standards for Sensitive Watersheds during the design and construction of this project due to potential presence of the Roanoke logperch. NCWRC also states that NCDOT should coordinate with NCWRC and U.S. Fish & Wildlife Service (USFWS) in conducting a survey to determine the presence or absence of this species. NCWRC recommends replacing this bridge with a bridge.

Response: NCDOT biologists conducted surveys 400 meter downstream and 100 meters upstream on May 12, 2011. No Roanoke logperch were observed during the survey, therefore the Biological Conclusion of “No Effect” is issued for the species and Design Standards for Sensitive Watersheds will not be required. NCDOT will be replacing the existing bridge with a new bridge.

Public Involvement:

A letter was sent by the Project Development and Environmental Analysis Unit to all property owners affected directly by this project. Property owners were invited to comment. No comments have been received to date.

E. Threshold Criteria

The following evaluation of threshold criteria must be completed for Type II actions:

<u>ECOLOGICAL</u>	<u>YES</u>	<u>NO</u>
(1) Will the project have a substantial impact on any unique or important natural resource?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(2) Does the project involve habitat where federally listed endangered or threatened species may occur?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(3) Will the project affect anadromous fish?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(4) If the project involves wetlands, is the amount of permanent and/or temporary wetland taking less than one-tenth (1/10) of an acre and have all practicable measures to avoid and minimize wetland takings been evaluated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(5) Will the project require the use of U. S. Forest Service lands?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(6) Will the quality of adjacent water resources be adversely impacted by proposed construction activities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(7) Does the project involve waters classified as Outstanding Resources Waters (ORW) and/or High Quality Waters (HQW)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(8) Will the project require fill in waters of the United States in any of the designated mountain trout counties?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(9) Does the project involve any known underground storage tanks (UST's) or hazardous materials sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>PERMITS AND COORDINATION</u>	<u>YES</u>	<u>NO</u>
(10) If the project is located within a CAMA county, will the project significantly affect the coastal zone and/or any "Area of Environmental Concern" (AEC)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- | | | | |
|------|---|-------------------------------------|---------------|
| (11) | Does the project involve Coastal Barrier Resources Act resources? | <input type="checkbox"/> | <u> X </u> |
| (12) | Will a U. S. Coast Guard permit be required? | <input type="checkbox"/> | <u> X </u> |
| (13) | Could the project result in the modification of any existing regulatory floodway? | <input checked="" type="checkbox"/> | <u> </u> |
| (14) | Will the project require any stream relocations or channel changes? | <input type="checkbox"/> | <u> X </u> |

SOCIAL, ECONOMIC, AND CULTURAL RESOURCES

- | | | <u>YES</u> | <u>NO</u> |
|------|---|--------------------------|--------------------------|
| (15) | Will the project induce substantial impacts to planned growth or land use for the area? | <input type="checkbox"/> | <u> X </u> |
| (16) | Will the project require the relocation of any family or business? | <input type="checkbox"/> | <u> X </u> |
| (17) | Will the project have a disproportionately high and adverse human health and environmental effect on any minority or low-income population? | <input type="checkbox"/> | <u> X </u> |
| (18) | If the project involves the acquisition of right of way, is the amount of right of way acquisition considered minor? | <u> X </u> | <input type="checkbox"/> |
| (19) | Will the project involve any changes in access control? | <input type="checkbox"/> | <u> X </u> |
| (20) | Will the project substantially alter the usefulness and/or land use of adjacent property? | <input type="checkbox"/> | <u> X </u> |
| (21) | Will the project have an adverse effect on permanent local traffic patterns or community cohesiveness? | <input type="checkbox"/> | <u> X </u> |
| (22) | Is the project included in an approved thoroughfare plan and/or Transportation Improvement Program (and is, therefore, in conformance with the Clean Air Act of 1990)? | <u> X </u> | <input type="checkbox"/> |
| (23) | Is the project anticipated to cause an increase in traffic volumes? | <input type="checkbox"/> | <u> X </u> |
| (24) | Will traffic be maintained during construction using existing roads, staged construction, or on-site detours? | <u> X </u> | <input type="checkbox"/> |
| (25) | If the project is a bridge replacement project, will the bridge be replaced at its existing location (along the existing facility) and will all construction proposed in association with the bridge replacement project be contained on the existing facility? | <u> X </u> | <input type="checkbox"/> |

- | | | | |
|------|---|--------------------------|--------------------------|
| (26) | Is there substantial controversy on social, economic, or environmental grounds concerning the project? | <input type="checkbox"/> | <u>X</u> |
| (27) | Is the project consistent with all Federal, State, and local laws relating to the environmental aspects of the project? | <u>X</u> | <input type="checkbox"/> |
| (28) | Will the project have an "effect" on structures/properties eligible for or listed on the National Register of Historic Places? | <input type="checkbox"/> | <u>X</u> |
| (29) | Will the project affect any archaeological remains which are important to history or pre-history? | <input type="checkbox"/> | <u>X</u> |
| (30) | Will the project require the use of Section 4(f) resources (public parks, recreation lands, wildlife and waterfowl refuges, historic sites, or historic bridges, as defined in Section 4(f) of the U. S. Department of Transportation Act of 1966)? | <input type="checkbox"/> | <u>X</u> |
| (31) | Will the project result in any conversion of assisted public recreation sites or facilities to non-recreation uses, as defined by Section 6(f) of the Land and Water Conservation Act of 1965, as amended? | <input type="checkbox"/> | <u>X</u> |
| (32) | Will the project involve construction in, across, or adjacent to a river designated as a component of or proposed for inclusion in the National System of Wild and Scenic Rivers? | <input type="checkbox"/> | <u>X</u> |

F. Additional Documentation Required for Unfavorable Responses in Part E

Response to Question 2: Habitat for the Smooth coneflower is present within the project study area. A survey of all potential areas of habitat within the project study area was conducted on June 22, 2011. No individuals of this species were observed. A check of the NCNHP database, updated April 2014, indicates no known occurrences of this species within 1.0 mile of the study area. Therefore a biological conclusion of "No Effect" for the Smooth coneflower remains valid.

Response to Question 13: Rockingham County is a participant in the National Flood Insurance Program, administered by the Federal Emergency Management Agency (FEMA). Based on the most current information available from the NC Floodplain Mapping Program (FMP), this stream crossing is in a designated flood hazard zone which is within a limited detailed flood study reach, having regulated 100-year non-encroachment width regulated as a floodway. The Hydraulics Unit will coordinate with the FMP, to determine the status of the project with regard to applicability of NCDOT'S Memorandum of Agreement with FMP, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR). This project involves construction activities on or adjacent to a FEMA-regulated stream. Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structures and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

G. CE Approval

TIP Project No.	<u>B-5341</u>
W.B.S. No.	<u>46055.1.1</u>
Federal Project No.	<u>BRSTP-1767(5)</u>

Project Description:

The purpose of this project is to replace Rockingham County Bridge No. 110 on SR 1767 (Mayfield Road) over Wolf Island Creek. Bridge No. 110 is 175 feet long. The replacement structure will be a bridge approximately 190 feet long providing a minimum 30 feet 6 inches clear deck width. The bridge will include two 11-foot lanes and 4-foot 3-inch offsets. The bridge length is based on preliminary design information and is set by hydraulic requirements. The roadway grade of the new structure will be approximately the same as the existing structure.

The approach roadway will extend approximately 200 feet from the southern end of the new bridge and 260 feet from the northern end of the new bridge. The approaches will be widened to include a 22-foot pavement width providing two 11-foot lanes. Six-foot shoulders will be provided on each side (9-foot shoulders where guardrail is included). Four feet of the shoulders will be paved. The roadway will be designed as a Minor Collector Route using Sub Regional Tier guidelines with a 55 mile per hour design speed.

Traffic will be detoured off-site during construction (see Figure 1).

Categorical Exclusion Action Classification:

 TYPE II(A)
 X TYPE II(B)

Approved:

9/29/14 Gregory M. Blabney
Date Project Development Engineer
Project Development & Environmental Analysis Unit

9-29-14 Bryan A. Kluck
Date Project Development Group Supervisor
Project Development & Environmental Analysis Unit

9/29/14 William T. Gordon
Date Project Development Section Head
Project Development & Environmental Analysis Unit

For Type II(B) projects only:

9/29/14 John F. Sullivan, III
Date Federal Highway Administration

PROJECT COMMITMENTS:

**Rockingham County
Bridge No. 110 on SR 1767 over Wolf Island Creek
Federal Aid Project No. BRSTP-1767(5)
W.B.S. No. 46055.1.1
T.I.P. No. B-5341**

All standard procedures and measures, including NCDOT's Best Management Practices for Protection of Surface Waters, Guidelines for Best Management Practices for Bridge Demolition and Removal, will be implemented, as applicable, to avoid or minimize environmental impacts. The following special commitments have been agreed to by NCDOT:

Division 7 Construction:

In order to allow Emergency Management Services (EMS) time to prepare for road closure, the NCDOT Resident Engineer will notify the Director of the Rockingham County EMS at (336) 634-3000 of the bridge removal 30 days prior to road closure.

In order to allow Rockingham County Schools to prepare for road closure, the NCDOT Resident Engineer will notify the Transportation Director at (336) 634-3275 of the bridge removal 30 days prior to road closure.

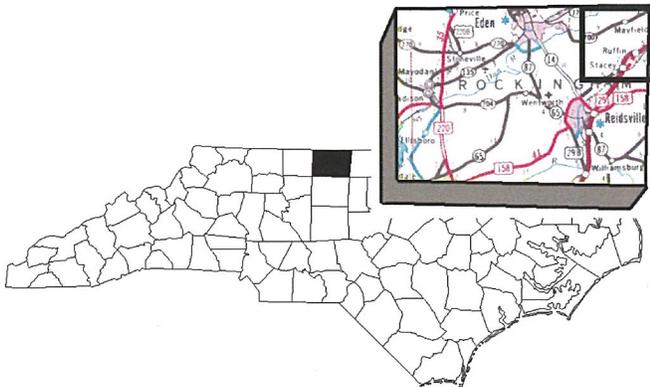
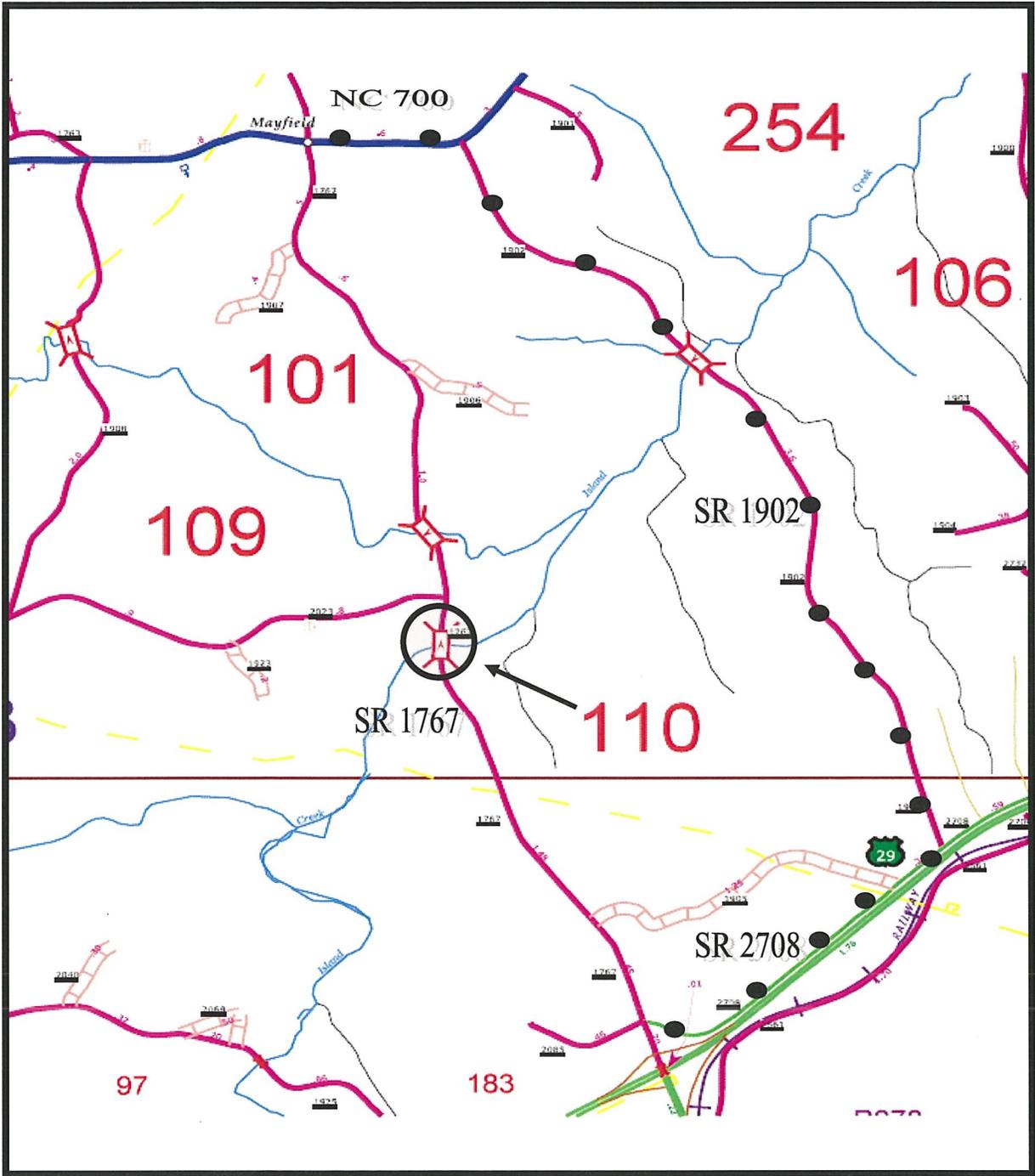
This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structure(s) and roadway embankment that are located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

Hydraulic Unit – FEMA Coordination:

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

Appendix A

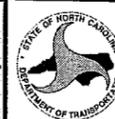
Figures



STUDIED DETOUR ROUTE 	
	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS UNIT
ROCKINGHAM COUNTY REPLACE BRIDGES NO. 110 ON SR 1767 OVER WOLF ISLAND CREEK B-5341	
Figure 1	

8/17/99

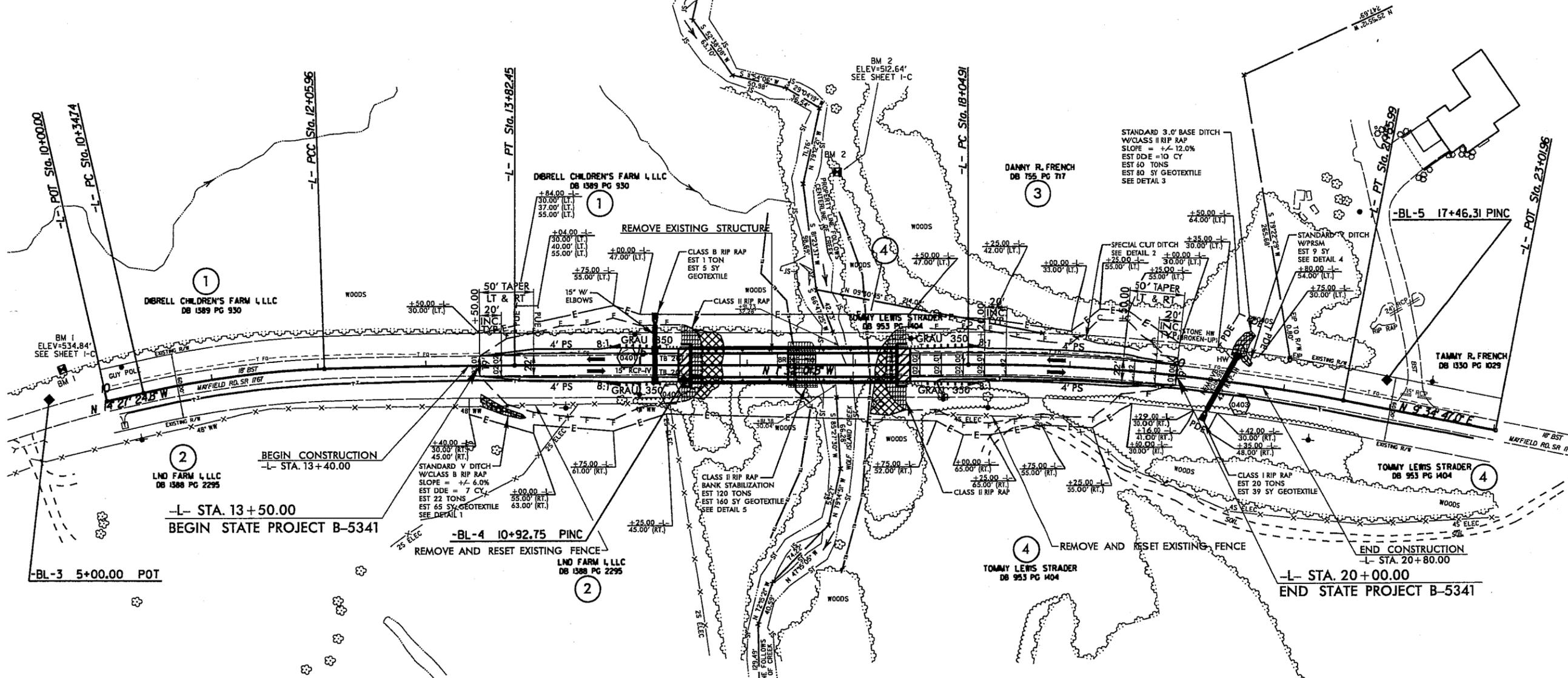
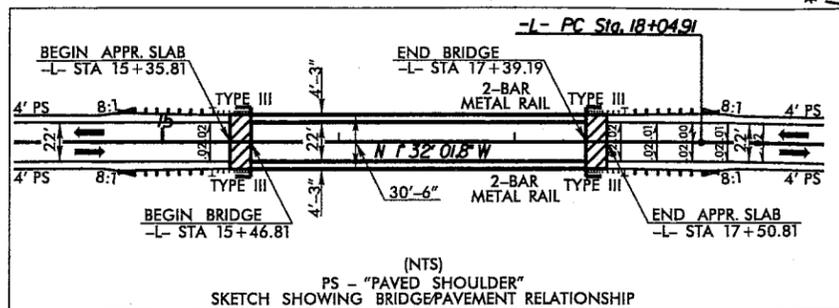
NAD 83/NSRS 2007



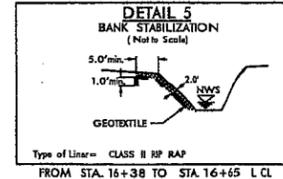
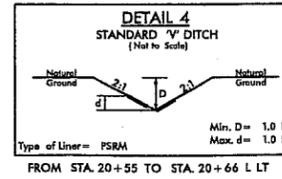
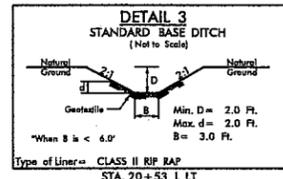
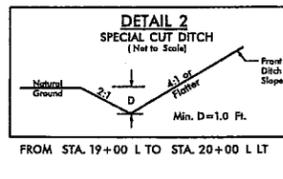
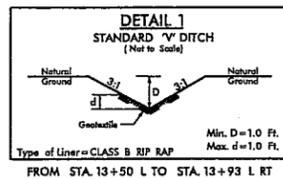
North Carolina Department of Transportation
Division of Highways
Project Development & Environmental Analysis Unit

Rockingham County
Replace Bridge No. 110 on SR 1767
Over Wolf Island Creek
B-5341

Figure 2



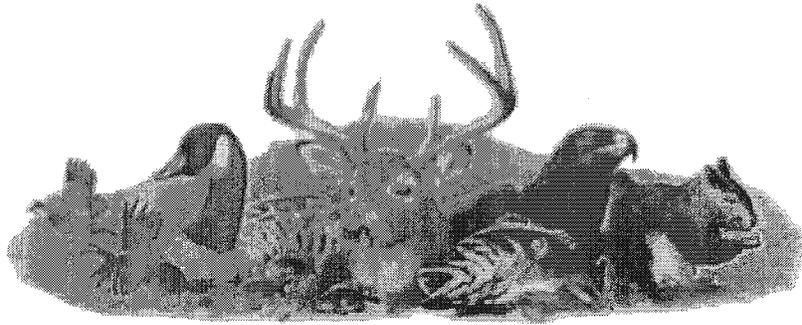
EXCAVATE EXISTING ROAD FILL TO NATURAL GROUND = 180 CY (STRUCTURE PAY ITEM)



27-AUG-2014 15:28
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B-5341

Appendix B

Reference Letters



☒ North Carolina Wildlife Resources Commission ☒

Gordon Myers, Executive Director

MEMORANDUM

TO: Rachelle Beauregard
NCDOT, PDEA-NEU

FROM: Travis Wilson, Highway Project Coordinator
Habitat Conservation Program

DATE: March 28, 2011

SUBJECT: 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

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 stream 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.

Project specific comments:

B-4959: Guilford County Bridge No. 193 on SR 2719 over Buffalo Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5239: Alamance County Bridge No. 126 on NC 87 over Mill Race. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5342: Alamance County Bridge No. 169 on SR 1148 Over Gum Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5340: Orange County Bridge No. 234 on SR 1581 over Prong Little River. Our records indicate multiple state and federal listed species in the vicinity of this project: *Villosa constricta* (Notched Rainbow: state SC), *Strophitus undulates* (Creeper: state T), *Lampsilis radiata* (Eastern

Lampmussel: state T.), *Lampsilis cariosa* (Yellow Lampmussel: state E, FSC), and *Fusconaia masoni* (Atlantic pigtoe: state E ,FSC). Due to the high diversity of listed species we recommend NCDOT follow the Design Standards for Sensitive Watersheds during the design and construction of this project. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5341: Rockingham County Bridge No. 110 on SR 1767 over Wolf Island Creek. The potential exist for *Percina rex* (Roanoke logperch: State E, Federal E) to be found at this site. NCDOT should follow the Design Standards for Sensitive Watersheds during the design and construction of this project, as well as coordinate with NCWRC and USFWS in conducting a survey to determine the presence or absence of this species. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5237: Wake County Bridge No. 248 on SR 2703 over Mahler's Creek. Due to the close proximity of this project to Swift Creek which supports multiple state and federal listed species we recommend NCDOT follow the Design Standards for Sensitive Watersheds during the design and construction of this project. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5318: Wake County Bridge No. 126 on SR 2044 over Smiths Creek. The property located in the northeast quadrant of this project has a Clean Water Management Trust Fund conservation easement; impacts to this property should be avoided. 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.

10-12-0014

NO PREHISTORIC OR HISTORIC PROPERTIES PRESENT FORM**PROJECT INFORMATION**

Project No: B-5341

County: Rockingham

WBS No: 46055.1.1

Document:

F.A. No: BRSTP-1767(5)

Funding: State FederalFederal (USACE) Permit Required? Yes No Permit Type: N/A

Project Description: Replace Bridge No. 110 over Wolf Island Creek on SR 1767.

SUMMARY OF FINDINGS*The North Carolina Department of Transportation (NCDOT) reviewed the subject project and determined:*

Historic Architecture/Landscapes

- There are no National Register-listed or Study Listed properties within the project's area of potential effects.
- There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.
- There are no properties within the project's area of potential effects.
- There are properties over fifty years old within the area of potential effects, but they do not meet the criteria for listing on the National Register.
- All properties greater than 50 years of age located in the APE have been considered and all compliance for historic architecture with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.

Archaeology

- There are no National Register-listed or Study Listed properties within the project's area of potential effects.
- No subsurface archaeological investigations are required for this project.
- Subsurface investigations did not reveal the presence of any archaeological resources.
- Subsurface investigations did not reveal the presence of any archaeological resources considered eligible for the National Register.
- All identified Archaeological sites located within the APE have been considered and all compliance for archaeological resources with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.

SUMMARY OF CULTURAL RESOURCES REVIEW

Brief description of review activities, results of review, and conclusions:

Review of HPO quad maps, archaeological site files, relevant background reports, historic designations roster, and indexes was undertaken on 2/24/11. Based on this review, there were no existing NR, SL, LD, DE, or SS properties in the Area of Potential Effects.

During the site visit on August 2, 2011 a pedestrian survey of the Northeast quadrant was conducted. Lacking Design Plans the research design was predicated on the assumption that any construction, whether it is new location construction or replacement on existing location with an on-site temporary bridge, would be located east of the current bridge in order to straighten the curve leading to the bridge. This eliminates the necessity of examining the western quadrants.

First noted in a pedestrian survey of the northeast quadrant of the proposed project was a deeply entrenched roadbed. The narrow trenched roadbed, tree lined and running parallel to the current road, is greater than 3 meters deep when it opens onto a wide terrace above the floodplain of Wolf Island Creek. This terrace drops more than one meter onto the floodplain. Three shovel tests, spaced approximately 20 meters apart, revealed nothing more than modern clear bottle glass in the first shovel test.

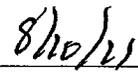
The southeast quadrant holds a narrow levee containing Wolf Island Creek from a low, narrow floodplain. Standing water was noted, evidence that the area lacked the probability of cultural resources. No shovel tests were carried out in this quadrant.

SUPPORT DOCUMENTATION

See attached: Map(s), Photos, Photocopy of notes from survey.

Signed:


Cultural Resources Specialist, NCDOT


Date

Representative, HPO

Date

HPO/OSA Comments:

10-12-0014

NO SURVEY REQUIRED FORM**PROJECT INFORMATION**

Project No: B-5341 *County:* Rockingham
WBS No: 46055.1.1 *Document:* CE/PCE
F.A. No: BRSTP-1767(5) *Funding:* State Federal

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

Project Description:

Replace Bridge No. 110 over Wolf Island Creek on SR 1767

SUMMARY OF CULTURAL RESOURCES REVIEW*Brief description of review activities, results of review, and conclusions:*

Review of HPO quad maps, relevant background reports, historic designations roster, and indexes was undertaken on February 4, 2011. Based on this review, there were no existing NR, SL, LD, DE, or SS properties in the Area of Potential Effects (APE).

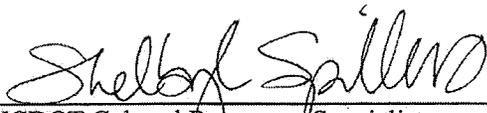
Brief Explanation of why the available information provides a reliable basis for reasonably predicting that there are no unidentified historic properties in the APE:

The Rockingham County Historic Architecture Survey was conducted in 2003. No historic structures were identified near the APE of this project. The Rockingham County Tax Parcel Data is considered valid for the purposes of determining the likelihood of historic resources being present.

SUPPORT DOCUMENTATION

See attached: Maps

FINDING BY NCDOT CULTURAL RESOURCES PROFESSIONAL**NO SURVEY REQUIRED**


 NCDOT Cultural Resources Specialist

2/4/2011
 Date