

**Bladen County  
Bridge No. 47 on NC 210  
over Lake Creek  
Federal Aid Project No. BRSTP-0210 (19)  
W.B.S. No. 42258.1.1  
T.I.P. No. B-5117**

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

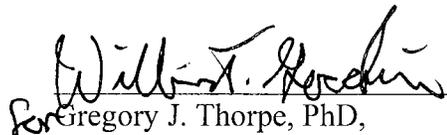
FEDERAL HIGHWAY ADMINISTRATION

AND

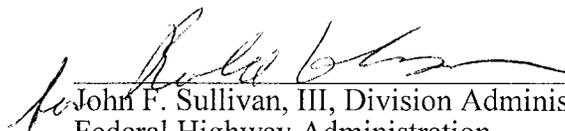
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

2/15/12  
DATE

  
for Gregory J. Thorpe, PhD,  
Manager, Project Development & Environmental Analysis Unit

2/21/12  
DATE

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

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Documentation Prepared in  
Project Development and Environmental Analysis Unit By:

2/15/2012

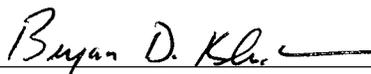
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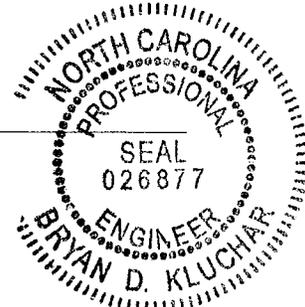
Tracy A. Walter  
Project Planning Engineer  
Bridge Project Development Section

2/15/2012

DATE



Bryan D. Kluchar, PE  
Project Engineer  
Bridge Project Development Section



**PROJECT COMMITMENTS:**

**Bladen County  
Bridge No. 47 on NC 210  
Over Lake Creek  
Federal Aid Project No. BRSTP-0210 (19)  
W.B.S. No. 42258.1.1  
S.T.I.P. Project B-5117**

**There are no commitments required.**

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**INTRODUCTION:** Bridge No. 47 is included in the latest approved North Carolina Department of Transportation (NCDOT) Transportation Improvement Program and is eligible for the Federal-Aid Highway Bridge 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 records indicate Bridge No. 47 has a sufficiency rating of 37.1 out of a possible 100 for a new structure. The bridge is considered structurally deficient due to a structural evaluation of 2 out of 9 and a substructure condition appraisal of 3 out of 9 according to Federal Highway Administration (FHWA) standards and therefore eligible for FHWA’s Highway Bridge Program. The bridge also meets the criteria for functionally obsolete for a structural evaluation of 2 out of 9.

Bridge No. 47 has a forty-eight year old timber substructure with 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 members are damaged or prematurely deteriorated. However, past a certain degree of deterioration, timber structures become impractical to maintain and upon eligibility are programmed for replacement. Bridge No. 47 has reached the end of its useful life.

**II. EXISTING CONDITIONS**

The project is located in a rural area of Bladen County, north of Rowan (see Figure 1). Development in the area is rural residential in nature.

NC 210 is classified as a rural major collector in the Statewide Functional Classification System and is not a National Highway System Route.

In the vicinity of the bridge, NC 210 has a 24-foot pavement width with 2-foot grass shoulders (see Figure 3). The roadway grade is in a sag vertical curve through the project area. The existing bridge is in a gentle curve. The roadway is situated approximately 9.0 feet above the creek bed.

Bridge No. 47 is a four-span structure that consists of a reinforced concrete floor on timber joists. The end bents and interior bents consist of timber caps on timber piles. The existing bridge (see Figure 3) was constructed in 1964. The overall length of the structure is 69 feet.

The clear roadway width is 28.0 feet. The posted weight limit on this bridge is 18 tons for single vehicles and 27 tons for TTST's.

There are no utilities attached to the existing structure, but overhead power lines cross the branch just north of the bridge. Utility impacts are anticipated to be low.

The current traffic volume of 435 vehicles per day (VPD) is expected to increase to 700 VPD by the year 2035. The projected volume includes twenty-two percent truck-tractor semi-trailer (TTST) and ten percent dual-tired vehicles (DT). The posted speed limit is 55 miles per hour in the project area. School buses cross the bridge daily on their morning and afternoon routes.

There were no accidents reported in the vicinity of Bridge No. 47 during a recent three-year period.

This section of NC 210 is not part of a designated bicycle route nor is it listed in the T.I.P. as needing incidental bicycle accommodations. Sidewalks do not exist on the existing bridge and there is no indication of pedestrian usage on or near the bridge. Therefore, neither permanent nor temporary bicycle nor pedestrian accommodations are required for this project.

### **III. ALTERNATIVES**

#### **A. Project Description**

The replacement structure will consist of a bridge approximately 120-foot long. The bridge length is based on preliminary design information and is set by hydraulic requirements. The bridge will be of sufficient width to provide for two 12-foot lanes with 3-foot offsets on each side. The roadway grade of the new structure will be approximately the same as the existing grade.

The proposed roadway will consist of a 24-foot pavement width, providing two 12-foot lanes. Six-foot shoulders will be provided on each side; no paved shoulder in accordance with the current NCDOT Design Policy (The shoulder will include three additional feet where guardrail is required) .

#### **B. Reasonable and Feasible Alternatives**

The following alternative for replacing Bridge No. 47 was studied in detail:

##### Alternate 1

Alternate 1 involves replacement of the structure along a new roadway alignment. Improvements to the approach roadways will be required for a distance of approximately 960 feet to the east and 970 feet to the west of the new structure. This alternate will be designed using regional tier guidelines with a design speed of 60 miles per hour. Traffic will be maintained onsite 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 nearest offsite detour for this project would result in 30 minutes of additional travel time (20+ miles additional travel). Up to nine-month duration of construction is expected on this project.

Based on the Guidelines, the criteria above indicate that a delay of 30 minutes over 9 months is unacceptable. Bladen County Emergency Services and Bladen County Schools has also indicated that an offsite detour is unacceptable. While project costs and environmental impacts will be higher, maintenance of traffic onsite during construction is mandatory.

**C. Alternatives Eliminated From Further Consideration**

The “do-nothing” alternative will eventually necessitate closure of the bridge. This is not acceptable due to the traffic service provided by NC 210.

“Rehabilitation” of the old bridge is not practical due to its age and deterioration of timber elements. Replacement of the timber elements would result in a complete replacement of the existing structure.

The timber structure was considered for staged construction and was determined not to have an overall advantage to the project. Only a small amount of the structure would be able to be removed and traffic still being able to utilize the existing during construction.

**D. Preferred Alternative**

Bridge No. 47 will be replaced along a new alignment as shown in Figure 2. NCDOT Division 6 concurs with the selection of Alternative 1 as the preferred alternative.

**IV. ESTIMATED COSTS**

The estimated costs, based on 2010 prices, are as follows:

	Alternative 1 Preferred
Structure	\$ 346,000
Roadway Approaches	\$ 506,000
Detour Structure and Approaches	- 0 -
Structure Removal	\$ 41,000
Misc. & Mob.	\$ 285,000
Eng. & Contingencies	\$ 172,000
Total Construction Cost	\$ 1,350,000
Right-of-way Costs	\$ 18,000
Utility Costs	\$ 8,000
Total Project Cost	\$ 1,376,000

## **V. NATURAL ENVIRONMENT**

### **Physical Characteristics**

#### **Water Resources**

Water resources in the study area are part of the Cape Fear River basin (U.S. Geological Survey [USGS] Hydrologic Unit 03030006). One stream, Lake Creek, was identified in the study area.

Lake Creek, DWQ Index Number 18-68-12-18, has been assigned a Best Usage Classification (BUC) of C; Sw.

One High Quality Water (HQW), an Outstanding Resource Water (ORW), the South River, occurs within 1.0 mile of study area. No waters classified as Waters Supplies, WS-I or WS-II, occur within 1.0 mile of study area.

There are no streams listed on the North Carolina 2010 Final 303 (d) list of impaired waters as impaired for sedimentation or turbidity occur within 1.0 mile of the study area.

No waters in the study area are designated as North Carolina Natural or Scenic River, or as a National Wild and Scenic River.

#### **Biotic Resources**

Four terrestrial communities were identified in the study area: maintained/disturbed, mixed pine/hardwood forest, pine forest, and riverine swamp forest.

Aquatic communities in the study area consist of Lake Creek, as well as the adjacent wetlands when inundated.

Two species from the NCDOT Invasive Exotic Plant List for North Carolina were found to occur in the study area. The species identified were Chinese privet and Japanese honeysuckle.

#### **Moratorium**

There are no moratoriums requested for this project.

#### **Jurisdictional Topics**

##### **Surface Waters and Wetlands**

Six jurisdictional wetlands were identified within the study area, classified as Riverine Swamp forest.

### **Permits**

In accordance with provisions of Section 404 of the Clean Water Act (33 USC 1344), a section 404 Nationwide Permit (NWP) 23 from the USACE is likely to be applicable for all impacts to Waters of the United States resulting from this project. A NWP 33 may be required for this project. A North Carolina Division of Water Quality (DWQ) Section 401 Water Quality General Certification is required prior to the issuance of the Section 404 NWP 23 and/or NWP 33.

### **Federally Protected Species**

Plants and animals with a federal classification of Endangered or Threatened are protected under the provisions of Section 7 and Section 9 of the Endangered Species Act of 1973. The United States Fish and Wildlife Service (USFWS) list six species under federal protection for Bladen County as of January 17, 2012.

#### **American Alligator**

#### **Biological Conclusion: Not required**

Species listed as threatened due to similarity of appearance do not require Section 7 consultation with the USFWS.

#### **Red-Cockaded woodpecker**

#### **Biological Conclusion: No Effect**

A search of the NHP files found no occurrences of the red-cockaded woodpecker in the project vicinity. A field survey of the project area did not reveal any mature pine habitat necessary for this species.

#### **Shortnose Sturgeon**

#### **Biological Conclusion: No Effect**

Suitable habitat for this species does not exist within the study area. Upstream migration from the Atlantic Ocean to the Cape Fear River in the study area is obstructed by a series of locks and dams.

#### **American Chaffseed**

#### **Biological Conclusion: No Effect**

Suitable habitat for this species does not exist within the study area.

#### **Pondberry (Southern Spicebush)**

#### **Biological Conclusion: No Effect**

Suitable habitat for this species does not exist within the study area.

#### **Rough-leaved loosestrife**

#### **Biological Conclusion: No Effect**

Suitable habitat for this species does not exist within the study area.

### **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 dominate trees are utilized for nesting sites, typically within 1.0 mile of open water. No nest trees were observed within 660 ft. of the project area during a field review. A review of NCNHP records indicates no known bald eagle occurrence 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**

In a letter dated January 13, 2009 the N.C. Historic Preservation Office (HPO) indicated no surveys for historic properties are required. The form is attached in the Appendix.

#### **Archaeology**

In a letter dated January 13, 2009 the N.C. Historic Preservation Office (HPO) indicated no surveys for archaeology required. The form is attached in the 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 alternative.

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 acquisition and construction projects. All construction will take place along existing corridor, with a minimal amount of right-of-way to be required. There are no soils classified as prime, unique, or having state or local importance in the vicinity of the project. Therefore, the project will not involve the direct conversion of farmland acreage within these classifications.

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**

The project is located in Bladen County, which has been determined to comply with the National Air Quality Standards. The proposed project is located in an attainment area; therefore, 40 CFR Parts 51 and 93 are not applicable. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

This project will not result in any meaningful changes in traffic volume, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts relative to the no-build alternative. As such 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 MSAT's.

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 an inadequate bridge will result in safer traffic operations.

The bridge replacement will not have an adverse effect on the quality of the human 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 records at the North Carolina Department of Environment and Natural Resources, Division of Environmental Management, Groundwater Section and the North Carolina Department of Human Resources, Solid Waste Management Section revealed no underground storage tanks or hazardous waste sites in the project area.

Bladen County is a participant in the National Flood Insurance Program. There are no practical alternatives 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.

## VIII. COORDINATION & AGENCY COMMENTS

NCDOT has sought input from the following agencies as a part of the project development: U.S. Army Corps of Engineers, NC Department of Natural Resources, U.S. Fish & Wildlife Service, N.C Wildlife Resource Commission, N.C. Division of Parks & Recreation, North Carolina State Historic Preservation Office, and Bladen County Planning Department.

The **N.C. Wildlife Resource Commission** and **U.S. Fish & Wildlife Service** in standardized letters provided a request that they prefer any replacement structure to be a spanning structure.

**Response:** NCDOT will be replacing the existing structure with a new bridge.

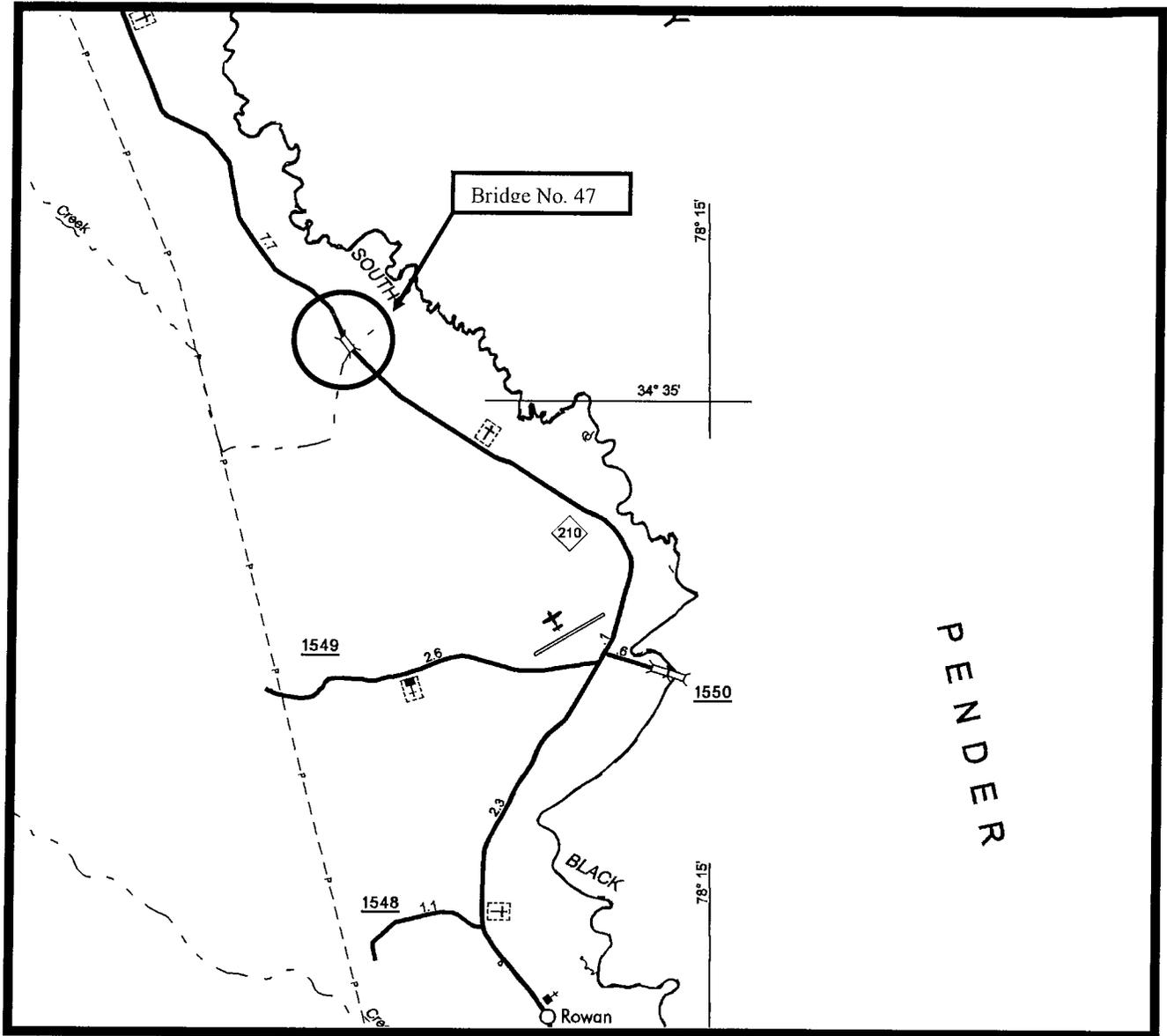
## IX. PUBLIC INVOLVEMENT

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.

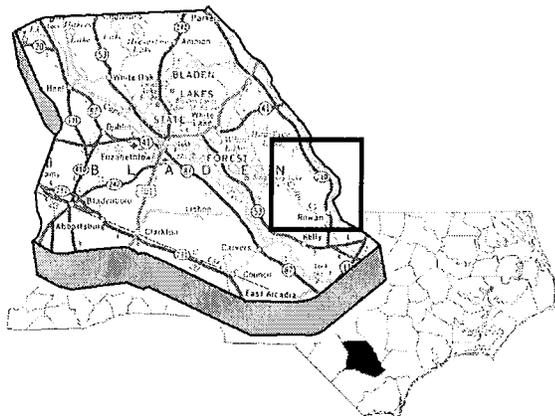
There is not substantial controversy on social, economic, or environmental grounds concerning the project. Therefore, a Citizen's Informational Workshop was determined unnecessary.

## X. CONCLUSION

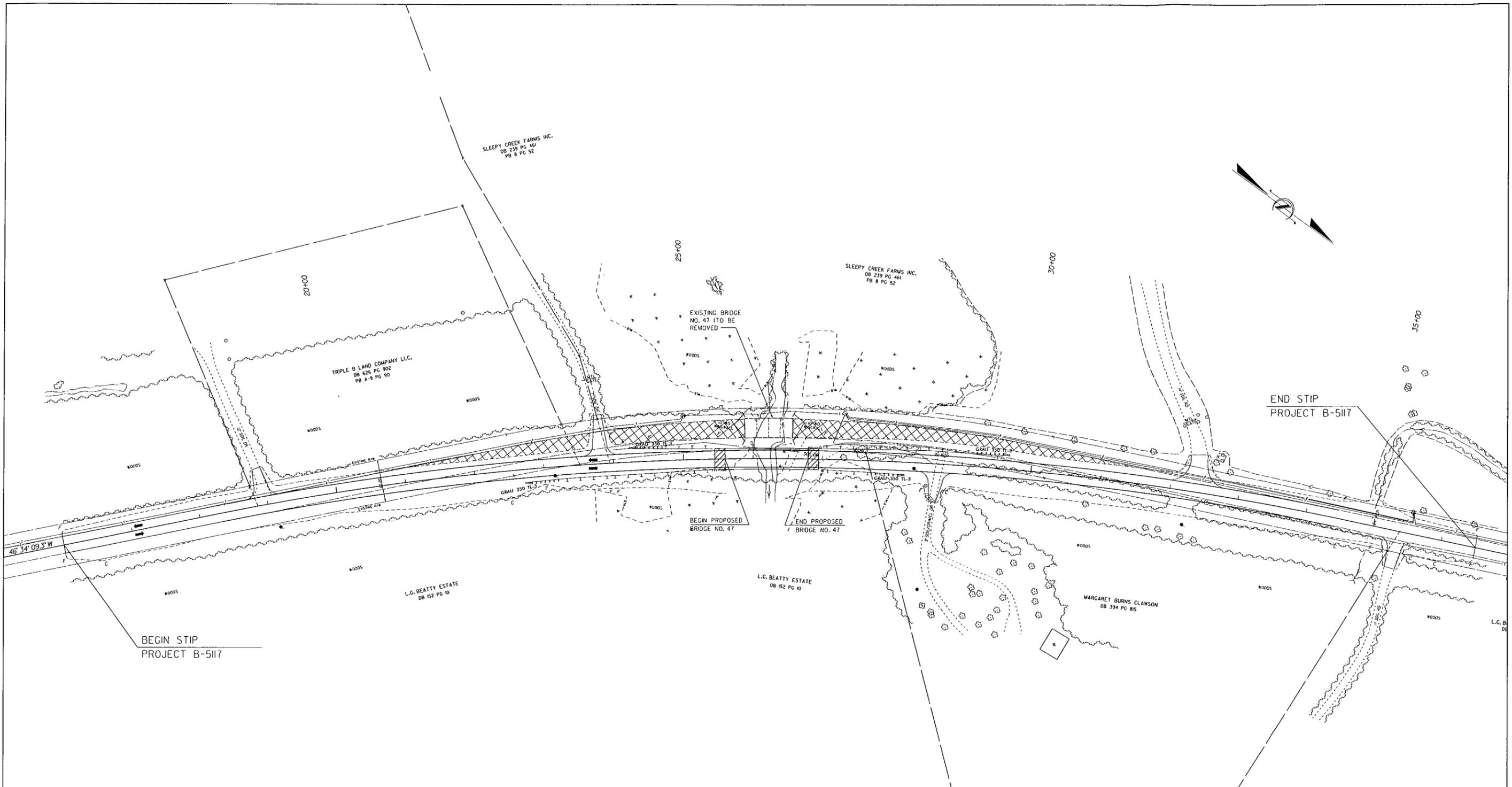
On the basis of the above discussion, it is concluded that no substantial adverse environmental impacts will result from implementation of the project. The project is therefore considered to be a federal "Categorical Exclusion" due to its limited scope and lack of substantial environmental consequences.



PENDER



	<p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROJECT DEVELOPMENT &amp; ENVIRONMENTAL ANALYSIS BRANCH</p>
<p><b>BLADEN COUNTY</b> <b>REPLACE BRIDGE NO. 47 ON NC 210</b> <b>OVER LAKE CREEK</b> <b>B-5117</b></p>	
<p>Figure 1</p>	




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

BLADEN COUNTY  
 REPLACE BRIDGE NO. 47 ON NC 210  
 OVER LAKE CREEK  
 B-5117

FIGURE 2

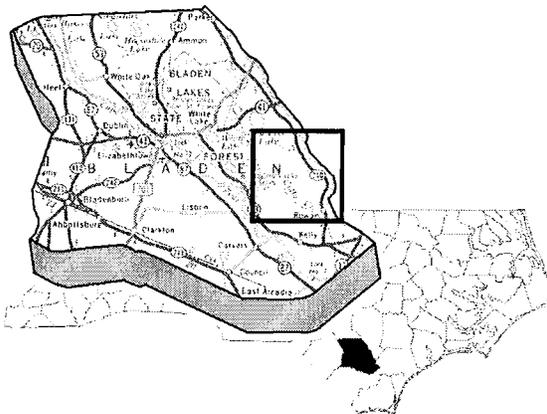
**Bridge No. 47 over  
Lake Creek**

**Looking northwest**



**Bridge No. 47 over  
Lake Creek**

**Looking southwest**



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

**BLADEN COUNTY  
REPLACE BRIDGE NO. 47 ON NC 210  
OVER LAKE CREEK  
B-5117**

Figure 3



North Carolina Department of Cultural Resources  
 State Historic Preservation Office  
 Peter B. Sandbeck, Administrator

Beverly Leves Perdue, Governor  
 Linda A. Cardinale, Secretary  
 Jeffrey J. Crow, Deputy Secretary

Office of Archives and History  
 Division of Historical Resources  
 David Brook, Director

January 13, 2009

MEMORANDUM

TO: Tracy Walter  
 Project Development and Environmental Analysis Branch  
 NCDOT Bridge Unit

FROM: Peter Sandbeck *PSE for Peter Sandbeck*  
*late 8117 PSE 1/13/09*

SUBJECT: Bridge 130 on SR-1502 over ~~La~~ *La* Creek, B-5116, Bladen County, ER 08-2888  
*NC 2100*

Thank you for your letter of December 3, 2008, concerning the above project.

We have conducted a review of the proposed undertaking and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the undertaking as proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579. In all future communication concerning this project, please cite the above referenced tracking number.

cc: Mary Pope Furr, NCDOT  
 Matt Wilkerson, NCDOT

Post-It® Fax Note	7871	Date	1/26	# of pages	1
To	Tracy Walter	From	Renee G-E		
Co./Dept.		Co.			
Phone #	431-2001	Phone #			
Fax #		Fax #			