

There is a fish sampling station approximately one-mile southwest of the project study area, located on NC 144 over Little Shoe Heel Creek. This sampling station has not been rated (DWQ 2007).

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered and Proposed Threatened (PT) are protected under the provisions of the Endangered Species Act of 1973, as amended.

As of May 10, 2007 the US Fish and Wildlife Service (USFWS) lists six federally protected species for Scotland County (Table 1). No other species have been added or deleted from these lists since the completion of the referenced document.

Table 1. Federally Protected Species for Scotland County

Scientific Name	Common Name	Status	Habitat Determination	Biological Conclusion
<i>Picoides borealis</i>	Red-cockaded woodpecker	E	No Habitat	No Effect
<i>Alligator mississippiensis</i>	American alligator	T(S/A)	No Habitat	Not Applicable
<i>Lysimachia asperulaefolia</i>	Rough-leaved loosestrife	E	No Habitat	No Effect
<i>Rhus michauxii</i>	Michaux's sumac	E	Habitat Present	No Effect
<i>Schwalbea americana</i>	American chaffseed	E	No Habitat	No Effect
<i>Oxypolis canbyi</i>	Canby's dropwort	E	No Habitat	No Effect

E = denotes a species in danger of extinction throughout all or a significant portion of its range.

T = threatened. A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."

T(S/A) = threatened due to similarity of appearance. A species that is threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically endangered or threatened and are not subject to Section 7 consultation.

A Biological Conclusion of "No Effect" was given in the CE for Red-cockaded woodpecker (RCW). A field survey for RCW was conducted in May 2004 and no nesting habitat, foraging habitat or cavity trees were observed within 0.5 mile radius of the study area. As of June 2007 the Natural Heritage Program (NHP) element occurrence database shows no known occurrences of the RCW within 3 miles of the project study area (PSA). The proposed project would have No Effect on this federally endangered species.

Biological Conclusions are not required for the American alligator since T (S/A) species are not afforded full protection under the ESA. No potential habitat occurs within the project area. No populations of this species have been reported in the project area. Therefore, the proposed project is not anticipated to result in an adverse impact to this species.

A Biological Conclusion of "No Effect" was given in the CE for Rough-leaved loosestrife. There are no Carolina Bays or pocosins within the PSA. As of June 2007, the NHP element occurrence database shows no known occurrences of Rough-leaved loosestrife within 1 mile of the PSA. The proposed project would have No Effect on this federally endangered species.

A Biological Conclusion of "No Effect" was given in the CE for Michaux's sumac. Suitable habitat for Michaux's sumac may be present in the PSA (power line right of way, roadsides, and maintained field edges). Surveys were conducted for Michaux's sumac providing 100% visual coverage in areas with potential habitat by LPA Biologists on May 25, 2004 and by NCDOT Biologists on July 7, 2007. No specimens were observed during either survey. As of June 2007, the NHP element occurrence database shows no known occurrences of Michaux's sumac within 1 mile of the PSA. The proposed project would have No Effect on this federally endangered species.

A biological conclusion of "No Effect" was given in the CE for American chaffseed. There are no open, moist pine flatwoods, fire-maintained savannas, ecotonal areas between peaty wetlands and xeric sandy soils in the PSA. As of June 2007, the NHP element occurrence database shows no known occurrences of American chaffseed within 1 mile of the PSA. The proposed project would have No Effect on this federally endangered species.

A biological conclusion of "No Effect" was given in the CE for Canby's dropwort. There are no cypress ponds, grass-sedge dominated Carolina bays, wet pine savannas, shallow pineland ponds, cypress-pine swamps, or cypress sloughs in the PSA. As of June 2007, the NHP element occurrence database shows no known occurrences of Canby's dropwort within 1 mile of the PSA. The proposed project would have No Effect on this federally endangered species.

IV. LIST OF ENVIRONMENTAL COMMITMENTS


A list of the special project commitments for this project is attached.

IV. COORDINATION

Project Development and Environmental Analysis Branch personnel have discussed current project proposals with others as follows:

Design Engineer:	Malcom Watson	<u>9/19/07</u>
Permits Section:	James Pflaum	9/19/07
FHWA:	Felix Davila	<u>9/19/07</u>

VI. NCDOT CONCURRENCE



Project Development Engineer

9/20/07
Date

PROJECT COMMITMENTS

Scotland County
Bridge No. 14- on NC 144
Over Big Shoe Heel Creek
Federal Aid Project No. BRSTP-1405 (5)
State Project No. 8.2590701
WBS No. 33615.1.1
T.I.P Project No. B-4274

~~In addition to the standard Nationwide Permit #23 and #33 Conditions, the General Nationwide Permit Conditions, Section 404 Only Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for the Protection of Surface Waters, Design Standards for Sensitive Watersheds, NCDOT's Guidelines for Best Management Practices for Bridge Demolition and Removal, General Certification Conditions, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:~~

Commitments Developed Through Project Development

There are no special commitments associated with the proposed replacement of Bridge No. 14

Structure Design Unit

As requested by the State Historic Preservation Office (SHPO), the replacement structure will be designed with a two-bar metal bridge rail. The use of the two-bar metal rail will result in a no adverse effect on the two historic districts adjacent to the existing bridge.

Action

Confirmed with Structure Design that two bar metal rail was used.

**North Carolina Department of Transportation
PROJECT ENVIRONMENTAL CONSULTATION FORM
I.D. No. B-4274**

I. GENERAL INFORMATION

- a. Consultation Phase: Right of Way
- b. Project Description: Scotland County, Bridge Number 14 on NC 144 over Big Shoe Heel Creek
- c. State Project: 8. 2590701
Federal Project: BRZ-1405 (5)
- d. Document Type: CE June 13, 2006
Date

II. CONCLUSIONS

The above environmental document has been reevaluated as required by 23 CFR 771. It was determined that the current proposed action is essentially the same as the original proposed action. Proposed changes, if any, are noted below in Section III. It has been determined that anticipated social, economic, and environmental impacts were accurately described in the above referenced document(s) unless noted otherwise herein. Therefore, the original Administration Action remains valid.

III. CHANGES IN PROPOSED ACTION AND ENVIRONMENTAL CONSEQUENCES

WATER RESOURCES

Water resource classifications have not changed since the referenced Categorical Exclusion (CE). The Division of Water Quality best usage classification for Big Shoe Hill Creek [DWQ Index No. 14-34] and its tributaries remains **C Sw**. The designation “**C**” denotes waters that support aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Secondary recreation would include wading, boating, and other uses involving human body contact with the water where such activities take place in an infrequent, unorganized, or incidental manner. The additional classification of “**Sw**” (swamp waters) recognizes these waters generally have naturally occurring very low velocities, low pH, and low dissolved oxygen. Neither High Quality Waters (HQW), Water Supplies (WS-I or WS-II), nor Outstanding Resource Waters (ORW) occur within 1.0 miles up or down stream of the project area.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), Proposed Threatened (PT), are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2007 the United States Fish and Wildlife Service lists six federally protected species for Scotland county, the American alligator (*Alligator mississippiensis*), red-cockaded woodpecker (*Picoides borealis*), American chaffseed (*Schwalbea americana*), Canby's dropwort (*Oxypolis canbyi*), rough-leaved loosestrife (*Lysimachia asperulaefolia*), and Michaux's sumac (*Rhus michauxii*). No new species have been added since the completion of the referenced documents. Descriptions and biological conclusions of "No Effect" were given for all of the above mentioned species in the CE.

Suitable habitat for American alligator, red-cockaded woodpecker, American chaffseed, Canby's dropwort, and rough-leaved loosestrife is not present in the project area. A survey in May 2004 did not yield any individuals or suitable habitat.

Suitable habitat for Michaux's sumac (power line right of way, maintained natural areas) is present in the project area. Survey for this species was conducted in May 2004 and July 2007 and did not yield any individuals. A review of the Natural Heritage Program database (last updated in June 2007) revealed no occurrences of this species within 1.0 miles of the project study area. Therefore, the biological conclusion of 'No Effect' remains valid for Michaux's sumac.

IV. LIST OF ENVIRONMENTAL COMMITMENTS

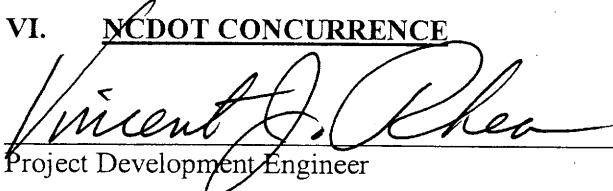
A list of the special project commitments for this project is attached.

V. COORDINATION

Project Development and Environmental Analysis Branch personnel have discussed current project proposals with others as follows:

Design Engineer:	Malcom Watson	<u>7/27/07</u>
Permits Section:	James Pflaum	7/12/07
FHWA:	Felix Davila	<u>7/2707</u>

VI. NCDOT CONCURRENCE


Project Development Engineer

7/27/07
Date

PROJECT COMMITMENTS

Cumberland County
Bridge No. 80- on SR 1108 (Scott Road)
Over Little Rockfish Creek
Federal Aid Project No. BRZ-1108 (9)
State Project No. 8.2444001
WBS No. 33450.1.1
T.I.P Project No. B-4092

In addition to the standard Nationwide Permit #23 and #33 Conditions, the General Nationwide Permit Conditions, Section 404 Only Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for the Protection of Surface Waters, Design Standards for Sensitive Watersheds, NCDOT's Guidelines for Best Management Practices for Bridge Demolition and Removal, General Certification Conditions, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:

Structure Design Unit


As requested by the State Historic Preservation Office (SHPO), the replacement structure will be designed with a two-bar metal bridge rail. The use of the two-bar metal rail will result in a no adverse effect on the two on the two historic districts adjacent to the existing bridge.

NC 144
Bridge No. 14 Over Big Shoe Heel Creek
Scotland County
Federal-Aid Project No. BRSTP-1405(5)
State Project No. 8.2590701
WBS No. 33615.1.1
TIP No. B-4274

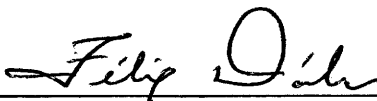
Categorical Exclusion
United States Department of Transportation
Federal Highway Administration
And
North Carolina Department of Transportation

Approved:

6/5/06
Date


for Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation

6/13/06
Date


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

NC 144
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Categorical Exclusion

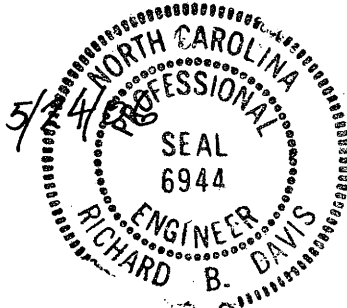
May 2006

Document Prepared by:

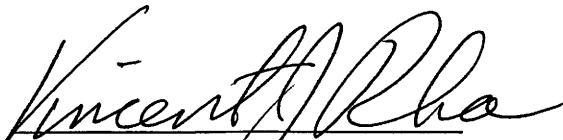
THE LPA GROUP OF NORTH CAROLINA, P.A.



Richard B. Davis, P.E.
Project Manager



For the North Carolina Department of Transportation



Vincent J. Rhea, P.E.
Project Development Engineer

PROJECT COMMITMENTS

NC 144
Bridge No. 14 Over Big Shoe Heel Creek
Scotland County
Federal-Aid Project No. BRSTP-1405(5)
State Project No. 8.2590701
WBS No. 33615.1.1
TIP No. B-4274

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NC 144
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Scotland County
Federal-Aid Project No. BRSTP-1405(5)
State Project No. 8.2590701
WBS No. 33615.1.1
TIP No. B-4274

INTRODUCTION: The replacement of Bridge No. 14 is included in the North Carolina Department of Transportation (NCDOT) 2006-2012 Transportation Improvement Program and in the Federal-Aid Bridge Replacement Program. The location is shown on Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal “Categorical Exclusion.”

I. PURPOSE AND NEED

The NCDOT Bridge Maintenance Unit records indicate the bridge has a sufficiency rating of 46.9 out of a possible 100 for a new structure. The bridge is considered to be functionally obsolete. The replacement of this inadequate structure would result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

The project is located in Scotland County on NC 144 (formerly SR 1405), approximately 200 feet east of its junction with SR 1411 (Figure 1). Land use in the project vicinity consists of agriculture (strawberry patch and Cowley’s Nursery), residential properties, a cemetery (Spring Hill Cemetery), forested lands, and wetlands.

Bridge No. 14 was constructed in 1960 and currently has a posted weight limit of 17 tons for single vehicles and a 25-ton limit on truck tractors with semi trailers (TTST). The overall length of the two-span bridge is 36 feet, with a bed to crown height of 10 feet. It has a clear roadway width of 24 feet carrying two travel lanes. Bridge No. 14 has a reinforced concrete deck on timber joists supported by a substructure consisting of end and interior bents, utilizing timber caps and timber piles.

In the vicinity of the bridge, NC 144 is a 22-foot, two-lane roadway with 6 to 8-foot unpaved shoulders. The existing bridge is in a horizontal tangent and is skewed 90 degrees to the roadway. The east approach is in tangent with a curve beginning approximately 500 feet away from the bridge. The west vertical grade falls toward the bridge and continues to fall across the bridge forming a sag approximately 75 feet from the east bridge end. Both approaches have good sight distances. The speed limit is

posted at 55 miles per hour (mph) and NC 144 is classified as a Rural Major Collector in the Statewide Functional Classification System.

The current (2006) traffic volume of 3300 vehicles per day (vpd) is expected to increase to 5600 vpd by the year 2030. These volumes include 3 percent dual tired vehicles and 2 percent TTSTs.

Two crashes were reported in the vicinity of the bridge during a recent three-year period. One accident resulted in a non-fatal injury, and the other resulted in property damage only.

There are no utilities attached directly to the structure; however there are several utilities that cross Big Shoe Heel Creek. Scotland County Water has a 12-inch D.I. main along the south side of NC 144 between SR 1411(Arch Mclean Road) and SR 1407. The Main crosses underneath Big Shoe Heel Creek in a concrete encasement. The 12-inch main crosses under NC 144 at the Arch Mclean Road intersection heading north along the east side. The 12-inch main then turns south, running along the west side of SR 1407. Alltel Carolina, Inc. has both aerial and underground telephone cables along the south side of NC 144. The underground cables become aerial over Big Shoe Heel Creek. The underground telephone cables branch north along the east side of SR 1411. Progress energy has aerial power lines along the north side of NC 144 crossing over the creek and SR 1411 heading west. East of the bridge the power lines cross over NC 144 to the south side crossing SR 1407 and following along the east side of SR 1407.

There are seven school buses that cross the bridge eight times per day. In a letter dated June 24, 2003, Carolyn S. Jolly, TIMS Coordinator stated that there are alternative routes that their buses could use. The alternate route is Rocky Ford to Old Lumberton Road to Airbase Road and then out to Andrew Jackson Highway. They could then turn around at Benton Drive on Andrew Jackson and backtrack. A copy of this letter is included in the Appendix.

The studied route does not contain any bicycle accommodations, nor is it a designated bicycle route; therefore, no bicycle accommodations have been included as part of this project.

Scotland County Emergency Services commented in a letter dated September 13, 2004 (see letter in Appendix) that, due to heavy traffic, a better off-site detour for emergency services would be to use US 401 to NC 144 instead of SR 1407. The studied detour route is the shortest detour route from one side of the bridge to the other. Vehicles traveling from NC 144 west of the bridge to the Wagram area would utilize only the SR 1416 and US 401 portion of the studied detour as indicated in the letter from Scotland County Emergency Services.

III. ALTERNATIVES

A. Project Description

The proposed project would involve the replacement of Bridge No. 14 on NC 144 over Big Shoe Heel Creek with a wider and safer structure.

Based on a preliminary hydraulic analysis that was conducted in conjunction with a field reconnaissance of the site, the proposed replacement structure for Bridge No. 14 would be an 80-foot long bridge. The replacement bridge would provide a clear roadway width of 40 feet, carrying two 12-foot wide travel lanes with 8-foot offsets (Figure 3B).

The roadway approaches would provide two 12-foot travel lanes, 2-foot paved shoulders, and a total shoulder width of 8 feet. The roadway grade would be approximately the same as the existing roadway. The design speed of the roadway approaches is 60 mph, with a posted speed limit of 55 mph.

B. Build Alternatives

There are two alternatives for replacing Bridge No. 14 which are outlined below:

Alternative 1

Alternative 1 would replace the existing bridge with a new structure constructed in the same location as the existing bridge (Figure 2A). Approach work would extend approximately 300 feet west of the bridge and approximately 250 feet east of the bridge for a total length of 550 feet. During construction, traffic would be maintained on an off-site detour (Figure 1). Traffic would be detoured on US 401, SR 1416 (Seals Road), and SR 1407 (Airbase Road). There are no posted structures on the proposed detour route. The detour is approximately 5.0 miles long. Additionally, according to the *NCDOT 2006-2012 State Transportation Improvement Program* there are no proposed projects that would interfere with the detour route as proposed. With an additional travel time of approximately 7 minutes over the expected detour period of six to eight months, the delay for this off-site detour is considered to be acceptable from a traffic operations standpoint under *NCDOT Guidelines for Evaluation of Offsite Detours for Bridge Replacement Projects*.

Alternative 2

Alternative 2 would replace the existing bridge with a new structure constructed in the same location as the existing bridge (Figure 2A). With Alternative 2, a temporary on-site detour on the south side of the existing bridge would be provided to maintain traffic during construction. Permanent approach work would extend approximately 300 feet west of the bridge and approximately 250 feet east of the bridge, for a total length of 550 feet. The detour structure would consist of two 72-inch diameter corrugated steel pipes. The detour structure would be located approximately 45 feet, centerline to centerline, south of the existing bridge and the detour would provide two 12-foot travel lanes with 8-foot unpaved shoulders (Figure 3A). The design speed of the detour is 50 mph, with a

posted speed limit of 45 mph. The total length of the temporary detour would be approximately 950 feet.

C. Alternatives Eliminated from Further Study

The “Do-Nothing” alternative was eliminated from further study because the existing bridge is considered functionally obsolete and structurally deficient. Over time the bridge would continue to deteriorate and would eventually lead to the closing of the bridge. Due to daily traffic flow considerations, this is not an acceptable option.

D. Preferred Alternative

Alternative 1, replacing the bridge in its existing location and utilizing an off-site detour, was selected as the Preferred Alternative. Alternative 1 was selected because the off-site detour eliminates the need for temporary on-site construction, which avoids temporary impacts and reduces costs. The plan sheets for the Preferred Alternative are included in Figure 2B.

IV. ESTIMATED COSTS

The estimated costs for each alternative, based on current dollars, are shown below:

Table 1. Estimated Project Costs

	Alternative 1 (Preferred Alternative)	Alternative 2
Roadway Approaches	\$87,625	\$239,470
Proposed New Bridge	\$272,000	\$272,000
Temporary Structure	\$0	\$24,600
Structure Removal	\$9,750	\$9,750
Misc. & Mobilization	\$81,625	\$153,180
Engineering & Contingencies	\$74,000	\$101,000
Total Construction Costs	\$525,000	\$800,000
Right of Way and Utilities	\$71,000	\$91,000*
Total Project Cost	\$596,000	\$891,000

*Does not include damage to grave sites at Spring Hill Cemetery

The estimated cost of the project, as shown in the 2006-2012 NCDOT Transportation Improvement Program is \$846,000 including \$100,000 spent in prior years, \$71,000 for right-of-way and \$675,000 for construction.

V. NATURAL RESOURCES

A. Methodology

Published information and resources were collected prior to the field investigation. Information sources used to prepare this report included the following:

- United States Geological Survey (USGS) 7.5 minute quadrangle maps (Silver Hill, NC 1981)
- NCDOT aerial photograph of the project area (2001)
- Soil maps and descriptions of the soils found in the project area (Scotland County Soil Survey, Natural Resources Conservation Service [NRCS] 1965)
- North Carolina Division of Water Quality (DWQ) basin-wide assessment information (DWQ 2002)
- United States Fish and Wildlife Service (USFWS) list of protected and candidate species (USFWS 2003e)
- North Carolina Natural Heritage Program (NHP 2004) files of rare species and unique habitats

Water resources information was obtained from publications posted on the Internet by the North Carolina Department of Environment and Natural Resources (NCDENR), Division of Water Quality.

The USFWS provided a list of threatened and endangered species known to occur in Scotland County on December 30, 2003 (updated March 14, 2006), prior to the field investigation. Information concerning species under state protection was obtained from the NHP database of rare species and unique habitats. NHP files were reviewed for known locations of species on state or federal lists and locations of significant natural areas on March 29, 2004.

A field investigation was conducted within the project study area by THE LPA GROUP of North Carolina, p.a. (LPA) biologists on May 24 and May 25, 2004. The project vicinity is an area extending 0.5-mile from the study area. The study area for B-4274 extends approximately 500 feet west of the existing bridge and approximately 400 feet east of the existing bridge (approximately 0.2 miles), and encompasses a 200-foot wide corridor centered along the existing centerline of NC 144.

Water resources were identified, and their physical characteristics were recorded. For the purposes of this study, a habitat assessment was performed within the project study area. Plant communities and their associated wildlife were identified using a variety of observation techniques, including active searching, visual observations, and identifying characteristic signs of wildlife (sounds, tracks, scats, and burrows). Terrestrial community classifications generally follow Schafale and Weakley (1990), where appropriate, and plant nomenclature follows Radford *et al.* (1968). Biotic communities

were mapped using sub-meter accuracy Global Positioning System (GPS) equipment and aerial photography of the project site. Vertebrate nomenclature follows Potter *et al.* (1980), Martof *et al.* (1980), Rhode *et al.* (1994), the American Ornithologists' Union (2001), and Webster *et al.* (1991).

Jurisdictional areas were identified using the three-parameter approach (hydrophytic vegetation, hydric soils, wetland hydrology) established in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). The boundaries of the jurisdictional areas were flagged and mapped in the field using sub-meter accuracy GPS equipment. Jurisdictional wetland areas were characterized according to a classification scheme established by Cowardin *et al.* (1979).

B. Physiography and Soils

The project study area is located within the Coastal Plain physiographic province of North Carolina. Topography can be characterized as nearly level to gently sloping. The elevation ranges from approximately 220 to 230 feet above mean sea level (USGS 1981). Surrounding land uses include agricultural, residential, and forested lands. There is a cemetery on both sides of NC 144 at the west end of the project area and a commercial nursery and a strawberry patch at the east end of the project area.

No published Soil Survey was available for Scotland County; however, the NRCS provided individual soil maps for the project study area.

There are six soil series mapped within the project study area which include:

- Chipley loamy sand (pactolus) (*Aquic Quartzipsamments*);
- Eustis sand, 0 to 6% slopes (*Psammentic Paleudults*);
- Johnston mucky loam (*Cumulic Humaquepts*);
- Kenansville loamy sand, 0 to 2 percent slopes (*Arenic Hapludults*);
- Wagram sand thick surface, 0 to 6 percent slopes (*Arenic Hapludults*); and,
- Wagram sand thick surface, 6 to 10 percent slopes (*Arenic Hapludults*).

Johnston mucky loam is listed as hydric by the NRCS (USDA 2002).

C. Water Resources

1.0 Waters Impacted

The project study area is located in the 03-07-55 sub-basin of the Lumber River Basin (DWQ 2004a), and is part of the USGS hydrologic unit 03040203 (EPA 2004). The project study area includes one body of water, Big Shoe Heel Creek. Big Shoe Heel Creek originates north of the study area, and flows south to the study area. Big Shoe Heel Creek has been assigned Stream Index Number (SIN) 14-34 (DWQ 2004b).

2.0 Water Resource Characteristics

Big Shoe Heel Creek is a slow flowing perennial stream with a sand and silt substrate. The stream channel is well defined with low banks. Big Shoe Heel creek would provide a warm water habitat. Forested wetlands are located adjacent to the channel. Water clarity at the time of the site inspection was moderate, with the water being highly tannic. Water depth at the bridge is estimated to be approximately two to three feet, and no scouring was evident at the bridge. The channel width of Big Shoe Heel Creek is approximately 25 feet, with a bankfull width of 40 feet. Banks are approximately two to three feet in height from the bed to the top of the bank and have a gradual slope. The study area encompasses pools and slow flowing runs, with the pools being approximately two to three feet deep and the runs being approximately one foot deep. A Rosgen analysis was not performed for Big Shoe Heel Creek. However, based on visual observations of stream morphology the stream was given the stream type B6 (SRI 2005).

2.1 Best Usage and Water Quality Classification

Big Shoe Heel Creek has been assigned a Best Usage Classification of C Sw (DWQ 2004b). The C indicates fresh waters that support aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Secondary recreation would include, wading, boating, and other uses involving human body contact with the water where such activities take place in an infrequent, unorganized, or incidental matter. There are no restrictions on watershed development or types of discharges (DWQ 2004c). Point source discharges of treated wastewater are permitted in these waters, pursuant to Rules .0104 and .0211 of 15A North Carolina Administrative Code 2B; local programs to control non-point source and stormwater discharge of pollution are required. The supplemental classification Sw refers to Swamp Waters, which have low velocities, low pH, and low dissolved oxygen (DWQ 2004c).

There are no Outstanding Resource Waters (ORW), High Quality Waters (HQW), or Sensitive Water Supply Watersheds (WS-I or WS-II) within three miles up or downstream of the study area (DWQ 2004b). Big Shoe Heel Creek is not designated as a North Carolina Natural and Scenic River, nor as a National Wild and Scenic River (NPS 2004).

2.2 Macroinvertebrate Monitoring

The closest basinwide sampling station to the study area is at US 401 on Jordan Creek, which is approximately one mile east of the study area. Jordan Creek was sampled at US 401 in 2001 and received a rating of Good-Fair (DWQ 2003a).

2.3 North Carolina Index of Biotic Integrity

There is a DWQ fish sampling station approximately one mile southwest of the project study area, located on NC 144 over Little Shoe Heel Creek. This sampling station is not rated (DWQ 2003b).

2.4 Section 303(d) Waters

None of the water resources within the project study area are designated as biologically impaired water bodies regulated under the provisions of the Clean Water Act (CWA) §303(d) (DWQ 2004d).

2.5 Permitted Dischargers

There is one permitted discharge within a five-mile radius of the project area. The discharge is located less than one mile south (downstream) of the study area and discharges into Big Shoe Heel Creek (DWQ 2003a).

2.6 Non-Point Source Discharges

LPA biologists reviewed aerial photography and conducted a limited visual observation of potential NPS discharges located within and near the project study area. Atmospheric deposition from passing vehicles, highway run-off, and fertilizers, herbicides, and insecticides from nearby residential lawns and agriculture were identified as potential sources of NPS pollution near the project study area.

3.0 Anticipated Impacts to Water Resources

Short term impacts to water quality, such as sedimentation and turbidity, may occur during construction related activities. Impacts from sedimentation and erosion would be minimized during construction by the use of a stringent erosion control schedule and the use of Best Management Practices (BMPs). The contractor would follow contract specifications pertaining to erosion control measures as outlined in 23 CFR 650 Subpart B and Article 107-13 entitled "Control of Erosion, Siltation, and Pollution pursuant to NCDOT's *Standard Specifications for Roads and Structures*." These measures include the use of dikes, berms, silt basins, and other containment measures to control runoff and the elimination of construction staging areas in floodplains and adjacent waterways. Additional measures that could be taken to avoid water quality impacts would include keeping heavy equipment out of the stream channel, keeping staging areas out of wetlands, and also keeping live concrete out of the stream channel. After construction activities were completed, abandoned approaches associated with the existing structure and/or temporary detours would be removed and revegetated in accordance with NCDOT guidelines.

Other impacts to water quality that would be anticipated as a result of this project include: changes in water temperature due to more exposure to sunlight (from the removal of streamside vegetation), increased shade due to construction of new structures, and changes in stormwater flows due to changes in the amount of impervious surface adjacent to the stream channel. However, due to the limited amount of overall change in the surrounding areas, impacts would be expected to be temporary in nature.

Big Shoe Heel Creek has been assigned a Best Usage Classification of C Sw, which in this case falls into Case III stream. The North Carolina Wildlife Resources Commission (NCWRC) requested an in-water work moratorium for sunfish from April 1 to June 30; however, any sunfish that would be found within the study area would not be considered a federally protected species and would not receive protection under the ESA. If this moratorium was observed, it is unlikely that the bridge could be replaced during one construction season. This would result in additional costs and disruption to travel on this heavily used route. Therefore, the moratorium is not proposed; however, the standard BMPs will still apply.

3.1 Impacts Related to Bridge Demolition and Removal

Section 404-2 of NCDOT's *Standard Specifications for Roads and Structures* is labeled **Removal of Existing Structure**. This section outlines restrictions and Best Management Practices for Bridge Demolition and Removal (BMP-BDRs), as well as guidelines for calculating maximum potential fill in the creek resulting from demolition. These standards would be followed during the replacement of Bridge No. 14.

There is the potential that the superstructure could be dropped into Waters of the United States during the demolition and removal of Bridge No. 14. The superstructure consists of a reinforced concrete deck on timber joists, with a weather surface and concrete curbs. The maximum (worst case) resulting temporary fill associated with demolition activities would be approximately 24 cubic yards.

D. Biotic Resources

Terrestrial and aquatic communities are included in the description of biotic resources. Systems described in the following sections refer to the dominant flora and fauna observed in each community during the field investigation. Descriptions of the terrestrial systems are presented in the context of plant community classifications. These classifications follow Schafale and Weakly (1990) where possible. Representative faunal species that are likely to occur in these habitats (based on published range distributions) are also cited. Scientific nomenclature and common names are used for the floral and faunal species described. Subsequent references to the same species are by the common name only. Fauna observed and/or heard (in the case of bird species) during field investigations are denoted with an asterisk (*).

1.0 Terrestrial Communities

Distribution and composition of plant communities throughout the project study area reflect landscape-level variations in topography, soils, hydrology, and past and present land use practices. The presence of NC 144, agriculture, development, and forestry practices have resulted in the present vegetation patterns. Three terrestrial plant communities occur within the study area: disturbed-maintained communities, mesic mixed hardwood forest (piedmont subtype), and coastal plain small stream swamp (blackwater subtype). A description of each community type follows.

1.1 Disturbed-Maintained Communities

Disturbed areas within the project study area have been combined into one general community type, described as a “disturbed-maintained community”. This community includes types of habitat that have recently been or are currently impacted by human disturbance including regularly maintained road shoulders, a mowed cemetery, an agricultural field (strawberry patch), a commercial nursery with various planted vegetation, and a maintained power-line right of way. The majority of these habitats are kept in a low-growing or early successional state.

The power-line right of way consists of a sapling/shrub and herbaceous layer dominated by cat greenbrier (*Smilax glauca*), blackberry (*Rubus* sp.), Chinese privet (*Ligustrum sinense*), red maple (*Acer rubrum*), and Japanese honeysuckle (*Lonicera japonica*).

1.2 Mesic Mixed Hardwood Forest (Coastal Plain Subtype)

This forest type is found throughout the coastal plain in mesic upland areas protected from fire. It primarily occurs on north-facing river bluffs and ravine slopes, and occurs less commonly in upland flats or islands surrounded by peatland or swamp communities. This forest type occurs on various moist upland soils. Within the study area, NC 144 separates this upland plant community. This community consists predominately of upland hardwood forest adjacent to the wetland communities and disturbed-maintained communities. The hardwood forest is located on the slopes leading down to the floodplains/wetlands of Big Shoe Heel Creek. The dominant tree species in the canopy of the hardwood forest include sweet gum (*Liquidambar styraciflua*), loblolly pine (*Pinus taeda*), mockernut hickory (*Carya tomentosa*), and water oak (*Quercus nigra*). Dominant species observed in the understory include eastern red cedar (*Juniperus virginiana*), flowering dogwood (*Cornus florida*), and American holly (*Ilex opaca*). Additional vine and herbaceous species observed include, muscadine grape (*Vitis rotundifolia*), sassafras (*Sassafras albidum*), and cat greenbrier.

1.3 Coastal Plain Small Stream Swamp (Blackwater Subtype)

There are four wetland areas present in the study area, Wetlands A, B, C and D. Section 4.1 provides further information on these wetlands. These wetlands have a very dense herbaceous layer and a very dense forest canopy. The dominant tree species in the canopies of the wetland communities include, tulip poplar (*Liriodendron tulipifera*), black gum (*Nyssa sylvatica*), red maple, and sweet gum. Dominant understory/shrub species observed include bald cypress (*Taxodium distichum*), black willow (*Salix nigra*), American holly, Chinese privet, and sweet bay (*Magnolia virginiana*). Dominant species observed in the herbaceous layer include cinnamon fern (*Osmunda cinnamomea*), Virginia chain fern (*Woodwardia virginica*), netted chain fern (*Woodwardia aerolata*), royal fern (*Osmunda regalis*), lizard’s tail (*Saururus cernuus*), and *Juncus* sp. The dominant species of woody vine observed in the study area was laurel leaf greenbrier (*Smilax laurifolia*). These wetlands consist predominately of saturated hardwood forest, on the floodplain of Big Shoe Heel Creek, adjacent to upland and disturbed maintained

communities. This wetland community can be classified as a Coastal Plain Small Stream Swamp (Blackwater Subtype), as described in Schafale and Weakly (1990).

2.0 Wildlife

The study area was visually surveyed for signs of terrestrial and aquatic wildlife. Little wildlife was observed during the field investigation. Fauna likely to occur in the study area based on published ranges are also included.

2.1 Terrestrial Wildlife

Fauna observed and/or heard (in the case of bird species) during field investigations are denoted with an asterisk (*). Bird species observed or likely to occur in the study area include such species as the American robin (*Turdus migratorius*), cardinal* (*Cardinalis cardinalis*), American crow (*Corvus brachyrhynchos*), Carolina chickadee (*Parus carolinensis*), brown thrasher (*Toxostoma rufum*), catbird (*Dumetella carolinensis*), rufous-sided towhee (*Pipilo erythrophthalmus*), pileated woodpecker (*Dryocopus pileatus*), yellow-bellied sapsucker (*Sphyrapicus varius*), blue jay (*Cyanocitta cristata*), tufted titmouse (*Parus bicolor*), and golden crowned kinglet (*Regulus satrapa*).

Mammals observed or likely to occur in the study area include such species as the eastern cottontail (*Sylvilagus floridanus*), white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), gray squirrel (*Sciurus carolinensis*), and the striped skunk (*Mephitis mephitis*).

Terrestrial reptiles observed or likely to occur in the study area include such species as garter snake (*Thamnophis sirtalis*), green anole (*Anolis carolinensis*), black rat snake (*Elaphe obsoleta*), milk snake (*Lampropeltis triangulum*), common king snake (*Lampropeltis getulus*), and the eastern box turtle (*Terrapene carolina*).

Terrestrial amphibians observed or likely to occur in the study area include such species as the Fowler's toad* (*Bufo fowleri*) and American toad (*Bufo americanus*).

3.0 Aquatic Community

The aquatic communities consist of organisms in the stream channel and associated inundated wetlands. A visual survey of the stream and wetlands was conducted to document the aquatic communities. No aquatic vegetation was observed in the stream channel during the field assessment. Vegetation found in the wetland community is described in Section 1.3.

3.1 Aquatic Wildlife

Fish species expected to occur in drainages within the project vicinity include the mosquito fish* (*Gambusia affinis*), creek chub (*Semotilus atromaculatus*), spotted sunfish* (*Lepomis punctatus*), and the redbreast sunfish (*Lepomis auritus*).

Aquatic reptiles observed or expected to occur in the study area include such species as the snapping turtle (*Chelydra serpentina*), yellowbelly slider (*Trachemys scripta*), and the banded water snake* (*Nerodia fasciata*).

Aquatic amphibians expected to occur in the study area include such species as the bull frog (*Rana catesbeiana*), mud salamander (*Pseudotriton montanus*), northern cricket frog (*Acris crepitans*), the four-toed salamander (*Hemidactylum scutatum*), and the pickerel frog (*Rana palustris*).

Potential habitat exists in the study area to support the wood duck (*Aix sponsa*) and the great blue heron* (*Ardea herodias*).

4.0 Anticipated Impacts to Biotic Communities

Impacts to terrestrial and aquatic communities associated with the replacement of the existing bridge and related detours are discussed in the following sections.

4.1 Terrestrial Communities

Plant communities located within the study area total 4.42 acres (Table 2). These areas are based on an approximately 900-foot long study area with a width of approximately 200 feet, situated on the centerline of existing NC 144. Impacts to terrestrial communities were calculated using the cut/fill limits from the preliminary design. After construction activities are completed, abandoned approaches associated with the existing structure and/or temporary detours would be removed and revegetated in accordance with NCDOT guidelines.

Table 2. Terrestrial Communities Occurring within the B-4274 Study Area

Plant Community	Area (acres)	Potential Impacts (acres)			
		ALT 1 (Preferred Alternative)		ALT 2	
		Impacts*	Temp. Impacts**	Impacts	Temp. Impacts
Coastal Plain Small Stream Swamp	1.01	0.01	None	0.01	0.28
Mesic Mixed Hardwood Forest	0.41	None	None	None	0.10
Disturbed-Maintained	3.00	0.23	None	0.23	0.58
Total (acres)	4.42	0.24	None	0.24	0.96
Total for ALT		0.24		1.20	

*Permanent impacts

**Temporary impacts

Impacts to wildlife resulting from the proposed project would be minimal due to the limited amount of habitat that would be impacted. Although some loss of habitat immediately adjacent to existing road shoulders would result, these areas are of limited value to wildlife that may utilize them.

4.2 Wetland Communities

Temporary impacts include those impacts that would result from demolition of the existing bridge and construction of the replacement bridge (Table 3). The use of an offsite detour (Preferred Alternative) during construction would avoid temporary wetland or stream impacts that would result from an onsite detour. The use of a temporary on-site detour would result in 0.31-acre temporary impacts (from the 0.28-acre of wetland impacts and the 0.03-acre of stream impacts from the temporary pipes) to Waters of the United States. This would be due to the installation of two 72-inch diameter corrugated steel pipes into the stream channel to maintain flow during construction of the new bridge. The temporary fill and metal pipes would have been removed upon completion of the bridge replacement and the ground would have been restored to its original elevation. BMPs would be employed by the construction contractor to first avoid and then minimize impacts to Waters of the United States. Erosion and sedimentation would be controlled by implementation of a Sediment and Erosion Control Plan during construction. Any areas of Waters of the United States that are temporarily impacted would be restored to their original condition following completion of the disturbance activity.

Permanent impacts to Waters of the United States are those impacts that occur in areas within the construction limits where clearing would occur or areas would be permanently filled or excavated (Table 3). There are approximately 0.01-acre of permanent impacts to Waters of the United States associated with the project. Improvement to the bridge approaches would result in the placement of fill material in wetlands adjacent to the existing road shoulders. The existing 35.8-foot bridge is currently supported with timber piles and would be replaced with an 80-foot long bridge.

Table 3. Anticipated Impacts to Waters of the United States

Jurisdictional Areas	ALT. 1 (Preferred Alternative)		ALT. 2	
	Impacts	Temp. Impacts	Impacts	Temp. Impacts
Wetland A	None	None	None	0.16
Wetland B	None	None	None	0.12
Wetland C	None	None	None	None
Wetland D	0.01	None	0.01	None
Total (acres)	0.01	None	0.01	0.28
Total Wetland Impacts (acres)	0.01		0.29	
Stream Impacts (acres)	None	None	None	0.03
Stream Impacts (linear feet)	None	None	None	67.4
Total Stream Impacts (linear feet)	No Impact		67.4	

4.3 Aquatic Communities

There would be approximately 0.01-acre of permanent impacts to water resources associated with the proposed project. Therefore, impacts to aquatic communities would be minimal.

Temporary impacts to aquatic organisms could result from increased sedimentation during construction. Aquatic invertebrates would likely drift downstream during construction and recolonize the disturbed area once it has been stabilized. Sediments have the potential to affect fish and other aquatic life in several ways, including the clogging and abrading of gills and other respiratory surfaces, reducing the amount of available habitat due to the filling of wetlands, and altering water chemistry. Increased sedimentation may also cause decreased light penetration through an increase in turbidity. NCDOT's Best Management Practices (BMPs) for the protection of surface waters would be enforced to reduce impacts during demolition and construction phases.

E. Special Topics

1.0 Waters of the United States

1.1 Wetlands

Jurisdictional wetlands in the project study area are palustrine in nature, as defined in Cowardin et al. (1979). Palustrine systems include all non-tidal wetlands dominated by trees, shrubs, persistent emergents, and emergent mosses and all wetlands where salinity due to ocean-derived salts is below 0.5% (Cowardin et al. 1979). The dominant wetland type in the study area is dominated by broad-leaved deciduous vegetation. Wetlands present are seasonally flooded and/or saturated to the surface for extended periods during

the growing season, as evidenced by hydrologic indicators in the soil. All four wetlands within the study area are given a Cowardin classification of PFO1E. Impacts to wetlands are summarized in Table 3.

1.2 Jurisdictional Streams

Big Shoe Heel Creek is located within the study area. This stream flows in a defined stream channel, with associated alluvial wetlands. Big Shoe Heel Creek is a perennial stream, which by definition is classified as a Water of the United States. Based on a review of the USGS topographic map, the soil survey, and GPS mapping; there are approximately 249 linear feet of stream within the project study corridor. Alternative 2 would temporarily impact 67.4 linear feet of stream. Alternative 1 (Preferred Alternative) would not have stream impacts.

2.0 Permits and Certifications

The following federal and state permits and certifications would be required prior to beginning construction.

2.1 Section 404

In accordance with provisions of Section 404 of the CWA (33 US Code 1344), a permit would be required from the USACE for the discharge of dredged or fill material into Waters of the United States. Because of the project is being documented as a Categorical Exclusion, it is expected that the project would qualify for a Nationwide Permit 23, which applies to approved Categorical Exclusions. In addition, a Nationwide Permit 33 which applies to temporary construction, access, and dewatering would be required if temporary construction is required that is not described in the Categorical Exclusion.

2.2 Water Quality Certification

Section 401 of the CWA requires that the state issue or deny a Water Quality Certification (WQC) for any federally permitted or licensed activity that may result in a discharge into Waters of the United States. Section 401 Certification allows surface waters to be temporarily impacted for the duration of the construction or other land manipulation. Issuance of a 401 Certification from the DWQ is a prerequisite to the issuance of a Section 404 permit. If the general conditions of the corresponding WQC will be met, written concurrence from DWQ will not be required.

3.0 Mitigation

Mitigation has been defined in NEPA regulations to include efforts which: a) avoid; b) minimize; c) rectify; d) reduce or eliminate; or e) compensate for adverse impacts to the environment (40 Code of Federal Regulations (CFR) 1508.20 [a-e]).

Federal Highway Administration policy stresses that all practicable measures should be taken to avoid or minimize impacts to wetlands that would be affected by federally funded highway construction. A sequencing (step-down) procedure is recommended in the event that avoidance is impossible. Mitigation employed outside of the highway right-of-way must be reviewed and approved on a case-by-case basis.

Avoidance – Wetlands and other Waters of the United States are present along both sides of the proposed project. Because the project involves replacement of an existing structure, it may not be possible to avoid all impacts to adjacent wetlands caused by improvements to the existing bridge approaches and replacement of bridge piers. Impacts can be avoided to streams and wetlands with the incorporation of an environmentally sensitive design. Impacts to jurisdictional surface waters can be avoided by bridging the stream channel, avoiding construction in the stream channel, and avoiding deposition of fill material in the stream channel during construction. Wetland impacts are being avoided by the use of an off-site detour.

Minimization – Impacts to the adjacent wetlands would be minimized by using 3:1 fill slopes through wetlands, and no lateral ditches would be constructed in wetlands. Selecting an alignment, temporary detour, or off-site detour that avoids wetlands to the greatest extent possible, can also be used to reduce wetland impacts. The selection of Alternative 1 (off-site detour) as the Preferred Alternative minimizes impacts caused by temporary construction. Stream impacts can be minimized by designing support structures that avoid open water habitats whenever possible. Utilization of BMPs would be required of the contractor to further minimize wetland impacts.

Compensatory mitigation – According to the conditions of the Nationwide Permit, the USACE would determine if the impacts are minimal and would at the same time determine if compensatory mitigation is required. Temporary impacts to Waters of the United States would be considered permanent by the USACE until areas are restored to their original condition. The restoration is subject to approval by the USACE. Alternative 1 (Preferred Alternative) would impact less than 0.10-acre of wetlands and would not require wetland mitigation. Alternative 2 would impact wetlands; therefore, wetland mitigation would have been required if this alternative had been selected. Alternative 1 (Preferred Alternative) would not impact streams and would not require stream mitigation. Alternative 2 would impact 67.4 linear feet of Big Shoe Heel Creek; therefore, mitigation could have been required for this alternative. Final mitigation decision rests with USACE.

F. Protected Species

Rare and protected species listed for Scotland County, and likely impacts to these species as a result of the proposed project are discussed in the following sections.

1.0 Species Under Federal Protection

Species with the federal classification of Endangered (E), Threatened (T), or officially proposed (P) for such listing, are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Six federally protected species are listed for Scotland County (USFWS database dated March 7, 2002, Scotland County List updated March 14, 2006) (Table 4).

Table 4: Federally Protected Species Listed for Scotland County, NC

Common Name	Scientific Name	Status*	Biological Conclusion
Vertebrates			
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	No Effect
American alligator	<i>Alligator mississippiensis</i>	T(S/A)	Not Applicable
Vascular Plants			
Rough-leaved loosestrife	<i>Lysimachia asperulaefolia</i>	E	No Effect
Michaux's sumac	<i>Rhus michauxii</i>	E	No Effect
American chaffseed	<i>Schwalbea americana</i>	E	No Effect
Canby's dropwort	<i>Oxypolis canbyi</i>	E	No Effect
*E - Endangered, T(S/A) - Threatened due to similarity of appearance			
Source: USFWS database dated March 7, 2002, updated March 14, 2006. Web Address: http://nc-es.fws.gov/es/countyfr.html			

Red-cockaded woodpecker (RCW) (*Picoides borealis*)

The RCW is a cardinal sized seven to eight inch long, black and white woodpecker with a black cap on its head. It has a ladder pattern on the back and large white cheeks, which are unique among woodpeckers in its range (Audubon 2004). It is distinguished by two red streaks on each side of the black cap, which are referred to as cockades. There are normally only visible on adult males (NWF 2004).

Nesting habitat for the RCW is made up of large open pine stands (pine flatwoods and pine dominated savannas) that are typically at least 80 years of age with little or no mid-story. This habitat is often maintained naturally by fires that occur as a result of lightning strikes. Foraging habitat is comprised of open pine or mixed pine/hardwood stands 30 years of age or older (Henry 1989). Nests are typically constructed 33 to 43 feet off of the ground in live pines that have been infected with red-heart disease. These nests can sometimes take several years to construct and are often reused. The RCW constructs resin wells below the opening to the nest to create a sticky coating on the bark of the tree; this coating protects the nest from predators such as rat snakes. The sticky coating has a shiny appearance, which allows the nest cavities to be easily seen from the ground. Red-cockaded woodpeckers forage in a wide variety of pine species and especially favor areas that contain large trees due to the large surface area of loose bark. They feed on adults,

larvae, and eggs of arthropods, especially ants and termites, that they find by flaking bark from the tree (Audubon 2004).

Based on a review of NHP records, there are no documented occurrences of the red-cockaded woodpecker within a three-mile radius of the project area.

BIOLOGICAL CONCLUSION: No Effect

According to the NHP element occurrence database records, there are no known occurrences of the red-cockaded woodpecker in the project vicinity. A survey for suitable habitat was performed on May 25, 2004 for both alternatives. No mature pine-dominated stands that could be used for nesting or foraging habitat by the red-cockaded woodpecker were observed during the survey. No suitable mature pine habitat would be impacted by either of the Alternatives. Additionally, no cavity trees were observed within a 0.5-mile radius of the study area. The proposed project would have No Effect on this federally endangered species.

Analysis Detail –

Methodology: analysis of the possible presence of and impacts to the red-cockaded woodpecker was conducted as an evaluation of existing information, and assessment of the habitat requirements. Additionally, the NHP element occurrence database was consulted on March 29, 2004.

American Alligator (*Alligator mississippiensis*)

The American alligator is listed as Threatened due to its similarity in appearance to other protected crocodylians. However, no other crocodylians occur within the state of North Carolina. Adult males typically reach 13 to 15 feet in length, and females reach lengths of just under 10 feet (FLMNH 2002).

American alligators can be found in a variety of estuarine aquatic habitats including swamp forests, marshes, large streams, canals, ponds, and lakes (Martof *et al.* 1980). Juveniles prey upon a wide variety of small invertebrates, particularly insects, and small fish and frogs. As they grow larger, their dietary range increases to include consequently larger prey. Eventually, large adults can overcome nearly all aquatic and terrestrial prey that comes within range, but their diet primarily consists of fish, turtles, relatively small mammals, birds, and reptiles including small alligators (FLMNH 2002).

Based on a review of NHP records, there are no documented occurrences of American alligator within a three-mile radius of the project area.

BIOLOGICAL CONCLUSION: Not Applicable

Rough-leaved Loosestrife (*Lysimachia asperulaefolia*)

Rough-leaved loosestrife is an erect, rhizomatous, perennial herb that grows to one to two feet in height, with whorls of three to four leaves that encircle the stem at intervals, below a yellow inflorescence. Blooming occurs from mid-May through June. Fruiting occurs from July to October (FWS 2003d).

Rough-leaved loosestrife generally occurs on acidic, moist to seasonally saturated sands and on acidic, shallow, organic soils overlaying sand. It also grows on shallow, poorly drained, deep peat soils of low pocosins and Carolina bays (US Army 2003c). Rough-leaved loosestrife occurs most often along the ecotone between longleaf pine uplands and pond pine pocosins (areas of areas of dense shrub and vine growth usually on a wet, peaty, poorly drained soil) (FWS 2003d). Rough-leaved loosestrife has also been found in ecotones between pocosins and longleaf pine savanna, longleaf pine flatwoods, sandhills seeps, and pond and lake margins (US Army 2003c).

Based on a review of NHP records, there are no documented occurrences of rough-leaved loosestrife within a three-mile radius of the project area.

BIOLOGICAL CONCLUSION: No Effect

According to NHP element occurrence database records, there are no known occurrences of rough-leaved loosestrife in the project vicinity. There are no Carolina bays or pocosins that could support rough-leaved loosestrife within the project study area. The proposed project would have No Effect on this federally endangered species.

Analysis Details –

Methodology: analysis of the possible presence of and impacts to rough-leaved loosestrife was conducted as an evaluation of existing information, and assessment of the habitat requirements. Additionally, the NHP element occurrence database was consulted on March 29, 2004.

Michaux's Sumac (*Rhus michauxii*)

Michaux's sumac is a low-growing, densely soft-hairy, dioecious shrub with erect stems one to three feet tall. The shrub has compound leaves that are narrowly winged at their base, dull above, and veiny and slightly hairy beneath, with fine teeth on the edges of the leaflets (FWS 2003c). Michaux's sumac produces erect clusters of greenish-yellow to white flowers in June, followed (in the female plants) by conspicuous red fruits that persist from August through September or October (NatureServe 2003b).

Michaux's sumac typically grows in sandy or rocky open woods on basic soils (FWS 2003c). The plants growing in natural habitats are found in pine/scrub oak sandhill (loamy soil variant and blackjack-mixed oak variant) communities. Other sites include small wildlife food plots, forest clear cuts, abandoned building sites, and under sparse to moderately dense pine or pine/hardwood canopies. The species is shade-intolerant and is therefore dependent on some type of disturbance to maintain the open condition of its habitat. Historically, this disturbance was in the form of naturally occurring fires, or possibly localized grazing by native wildlife (US Army 2003b). Michaux's sumac will also grow in areas such as highway rights-of-way, roadsides, or on the edges of artificially maintained clearings (FWS 2003c).

Based on a review of NHP records, there are no documented occurrences of Michaux's sumac within a three-mile radius of the project area.

BIOLOGICAL CONCLUSION: No Effect

According to the NHP element occurrence database records, there are no known occurrences of Michaux's sumac in the project vicinity. Suitable habitat may be present within the project study area (power-line right-of-way, other maintained areas). A meandering pedestrian transect survey (with transects providing 100% visual coverage of suitable habitat) was completed for areas that appeared to have potential habitat during the blooming period on May 25, 2004. However, no specimens were observed during the survey. A known location was examined off of 15-501 by LPA biologists in Scotland County, NC. The proposed project would have No Effect on this federally endangered species.

Analysis Detail –

Methodology: analysis of the possible presence of and impacts to Michaux's sumac was conducted as an evaluation of existing information, and assessment of the habitat requirements. Additionally, the NHP element occurrence database was consulted on March 29, 2004.

American Chaffseed (*Schwalbea Americana*)

American chaffseed is a perennial herb with mostly unbranched stems, usually one to two feet tall. Leaves are largest at the base of the plant and gradually diminish in size towards the top of the stem. The two-lipped tubular flowers are yellow, suffused with purple. American chaffseed blooms from April through June in the South and from June to late July in the North (NatureServe 2003c). The leaves are alternate, lance shaped to elliptic, stalkless, and are one to two inches in length. The fruits are long and narrow and enclosed in a sac like structure, fruits mature from early summer in the south, to October in the north (FWS 2003a). This species is parasitic on the roots of a wide variety of woody and herbaceous plants (NatureServe 2003c).

American chaffseed typically grows in sandy (sandy peat, sandy loam), acidic, and seasonally moist to dry soils. It is generally found in habitats described as open, moist pine flatwoods, pine/wiregrass savannas, and ecotonal areas between peaty wetlands and xeric sandy soils (US Army 2003a). All of these habitats were historically maintained by human or lightning-caused wildfires. American chaffseed is dependent on factors such as fire, mowing, or fluctuating water tables to maintain the crucial open to partly-open conditions that it requires (FWS 2003a). These habitats are species-rich with grasses, sedges, and savanna dicots being especially numerous (US Army 2003a). Natural communities that could include American chaffseed are; open pine flatwoods, pitch pine lowland forests, seepage bogs, palustrine pine savannahs, and other grass and sedge-dominated plant communities (NatureServe 2003c).

Based on a review of NHP records, there are no documented occurrences of American chaffseed within a three-mile radius of the project study area.

BIOLOGICAL CONCLUSION: No Effect

According to NHP element occurrence database records, there are no known occurrences of American chaffseed in the project vicinity. There are no open, moist pine flatwoods, pine/wiregrass savannas, or ecotonal areas between peaty wetlands and xeric sandy soils that could support American chaffseed that are present within the project study area. The proposed project would have No Effect on this federally endangered species.

Analysis Detail –

Methodology: analysis of the possible presence of and impacts to American chaffseed was conducted as an evaluation of existing information, and assessment of the habitat requirements. Additionally, the NHP element occurrence database was consulted on March 29, 2004.

Canby's Dropwort (*Oxypolis canbyi*)

Canby's dropwort is a perennial herb (herbage smells of dill) with slender stems that reach heights of greater than three feet and have thin quill-like leaves. Canby's dropwort has compound clusters of small white flowers (sometimes tinged with red), from mid-August to October (NatureServe 2003a). Its fruit is a strongly winged schizocarp (FWS 2003b).

Canby's dropwort can thrive in a variety of habitats including, pond cypress ponds, grass-sedge dominated Carolina bays, wet pine savannas, shallow pineland ponds, and cypress-pine swamps or sloughs (NatureServe 2003a). The most ideal habitat occurs in open pine bays or ponds, which are wet for most of the year and provide little or no canopy cover. The ideal soils for Canby's dropwort have a medium to high organic content with a high water table, and are acidic, deep, and poorly drained (FWS 2003b).

NHP records do not document any occurrences of Canby's dropwort within a three-mile radius of the project area.

BIOLOGICAL CONCLUSION: No Effect

According to the NHP element occurrence database records, there are no known occurrences of Canby's dropwort in the project vicinity. There are no pond cypress ponds, grass-sedge dominated Carolina bays, wet pine savannas, shallow pineland ponds, cypress-pine swamps, or cypress sloughs that could support Canby's dropwort within the project study area. The proposed project would have No Effect on this federally endangered species.

Analysis Detail –

Methodology: analysis of the possible presence of and impacts to Canby's dropwort was conducted as an evaluation of existing information, and assessment of the habitat requirements. Additionally, the NHP element occurrence database was consulted on March 29, 2004.

2.0 Federal Species of Concern

The March 14, 2006 FWS list for Scotland County also includes a category of species designated as “Federal Species of Concern” (FSC). The FSC designation provides no federal protection under the ESA for the species listed. The presence of potential suitable habitat within the project study area has been evaluated for the FSC species listed for Scotland County is shown in Table 5.

Table 5. Federal Species of Concern (FSC) Listed for Scotland County, NC

Common Name	Scientific Name	State Status	Potential Habitat
Vertebrates			
Bachman’s sparrow	<i>Aimophlia aestivalis</i>	SC	Yes
American eel	<i>Anguilla rostrata</i>	#	Yes
Southern hognose snake	<i>Heterodon simus</i>	SC	No
Southeastern myotis	<i>Myotis austroriparius</i>	SC	Yes
Northern pinesnake	<i>Pituophis melanoleucus</i>	SC^	No
Carolina gopher frog	<i>Rana capito</i>	T	No
Pinewoods darter	<i>Etheostoma mariae</i>	SC	No
Sandhills chub	<i>Semotilus lumbee</i>	SC	No
Invertebrates			
Hessel's hairstreak	<i>Callophrys hesseli</i>	SR	Yes
Non-Vascular Plants			
Savanna campylopus	<i>Campylopus carolinae</i>	SR-T	No
Vascular Plants			
Georgia indigo bush	<i>Amorpha georgiana var georgiana</i>	E	No
Sandhills milk-vetch	<i>Astragalus michauxii</i>	T	No
Bog oatgrass	<i>Danthonia epilis</i>	SR-T	No
White wicky	<i>Kalmia cuneata</i>	#	No
Sandhills bog lily	<i>Lilium iridollae</i>	#~	No
Bog spicebush	<i>Lindera subcoriacea</i>	T	No
Boykin’s lobelia	<i>Lobelia boykinii</i>	T	No
Awned meadow-beauty	<i>Rhexia aristosa</i>	T	No
Spring-flowering goldenrod	<i>Solidago verna</i>	SR-L	No
Pickering’s dawnflower	<i>Stylisma pickeringii var pickeringii</i>	E	No
Roughleaf yellow-eyed-grass	<i>Xyris scabrifolia</i>	SR-T	No

E - Endangered, T - Threatened, SR - Significantly Rare, SC - Special Concern, SR-T - Rare throughout its range, SR-L – Range is limited to NC and adjacent states, SR-P – Periphery of its range in NC, * - No longer tracked by NHP, # - Not listed as a FSC on NHP list, ^ - Obscure record, ~ - Historic record (last observed over 50 years ago)

NHP records were reviewed to determine the known locations of FSC within the project vicinity. NHP records document seven occurrences of FSC within a three-mile radius of the project study area. The northern pinesnake occurred twice, approximately 2.5 miles northwest and 1 mile northwest of the project study area, and is listed as current by the NHP (meaning that it has occurred within the last 20 years). The southern hognose snake occurred twice, approximately 1 mile northwest and 2.5 miles northwest of the project study area, and is listed as current by the NHP. The Carolina gopher frog occurred approximately three miles north of the project area, and is listed as current by the NHP. Sandhills milk-vetch occurred approximately three miles north of the project area, and is listed as current by the NHP. The pinewoods darter occurred approximately one mile south of the project study area, and is listed as current by the NHP.

VI. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800. Section 106 requires that for federally funded, licensed, or permitted projects having effects on properties listed in or eligible for the National Register of Historic Places, the Advisory Council on Historic Preservation be given the opportunity to comment.

B. Historic Architecture

The State Historic Preservation Office (SHPO) has recommended that a Department of Transportation architectural historian identify and evaluate any structures over fifty years of age within the project area. The NCDOT completed a Phase II-Intensive, *Historic Architectural Resources Survey Report* on September 15, 2005. This report identified two historic districts adjacent to the bridge replacement project. The Shaw Family Farms Historic District is located on the south side on NC 144 on the west approach to the bridge and is listed on the National Register (Figure 2B). The Spring Hill Historic District, located on the north side of NC 144, is not currently listed on the National Register, however; it has been determined to be eligible for listing on the National Register (Figure 2B).

A meeting was held with SHPO on January 10, 2006 regarding the bridge replacement project and its potential effect on the adjacent historic districts. SHPO determined that since the Preferred Alternative consisted of replacing the bridge in its existing location using an off-site detour, the project would have no adverse effect on either of the historic districts, with the use of a one or two bar metal rail on the replacement bridge. A copy of the concurrence form is included in the Appendix. Alternative 2 was determined to have an adverse effect on the districts due to impacts caused by temporary on-site detour.

C. Archaeology

The State Historic Preservation Officer, in a memorandum dated February 18, 2004 recommended that, “no archaeological investigation be conducted in connection with this project.” A copy of the SHPO memorandum is included in the Appendix.

VII. SECTION 4(f) RESOURCES

Section 4(f) of the Department of Transportation Act of 1966, as amended, states in part “The Secretary may approve a transportation project or program requiring the use of publicly owned land of a park, recreation area, or wildlife and waterfowl refuge, or land of a historic site of national, state, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, recreation area, refuge, or site) only if-

(1) there is no prudent or feasible alternative to using that land; and

(2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from such use.”

No publicly owned parks or recreational facilities, or wildlife and waterfowl refuges would be impacted as a result of proposed project; however, the National Register listed Shaw Family Farms Historic District is located on the south side on NC 144 and the eligible Spring Hill Historic District is located on the north side of NC 144 (Figure 2B). In order to bring the bridge approaches up to current standards, NC 144 will be widened from 22 to 24 feet and the existing 6 to 8-foot shoulders will be improved to 8 feet including a 2-foot paved shoulder. This will result in a slightly wider footprint for the highway. The toe of the new fill will extend approximately 2 to 6 feet beyond the existing toe. Since there is no recorded right-of-way on NC 144, NCDOT can only claim right-of-way that is currently maintained. Therefore, the proposed construction will require the use of land from these historic districts.

It has been found that the construction of the preferred alternative will have a *de minimis* impact on the adjacent historic districts based on the SHPO’s determination that it will have no adverse effect on either of the districts.

VIII. ENVIRONMENTAL EFFECTS

The project is expected to have a positive effect on transportation and the surrounding community. The replacement of the inadequate bridge would result in safer and more efficient traffic operations.

This project is considered a Federal “Categorical Exclusion” due to its limited scope and lack of substantial consequences.

Replacement of Bridge No. 14 would not have a negative effect on the quality of the human or the natural environment.

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

No adverse impact on families or the community is expected. Right-of-way acquisition would be limited; no relocatees are expected with the implementation of the proposed alternative.

In compliance with Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations) a review was conducted to determine the whether minority or low income populations would receive disproportionately high and adverse human health and environmental impacts as a result of this project. The investigation determined the project would not disproportionately impact any minority or low-income populations.

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. There would be some inconvenience to local travel due to construction activities on NC 144.

The studied route does not contain any bicycle accommodations, nor is it a designated bicycle route; therefore, no bicycle accommodations have been included as part of this project.

This project has been coordinated with the United States Department of Agriculture, Natural Resources Conservation Service (NRCS). The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impact to prime farmland for all land acquisition and construction projects. Soils were identified within a 0.5-mile radius of the project area, and checked to see if they were classified as prime, unique, or have state or local importance. Twelve of the soils identified were on the NRCS list, *Important Farmlands of North Carolina, May 1998*. Soils in which all areas are considered prime farmland included, Norfolk Loamy Sand, 0 to 2 percent slopes (NoA), Goldsboro Loamy Sand, 0 to 2 percent slopes (GoA), Norfolk Loamy Sand, 2 to 6 percent slopes (NoB), Duplin Sandy Loam (Dp), Marlboro Loamy Sand, 0 to 2 percent slopes (MbA), and Marlboro Loamy Sand, 2 to 6 percent slopes, eroded (Mbb2). Soils in which only drained areas are considered prime farmland included, Johns loamy sand (Jo) and Lynchburg Loamy Sand (Ly). Soils in which all areas are considered farmland of statewide importance included, Wagram Loamy Sand, 2 to 6 percent slopes (WaB), Kenansville Loamy Sand, 0 to 2 percent slopes (KnA), and Wagram Loamy Sand, 0 to 2 percent slopes (WaA). Soils in which only drained areas are farmland of statewide importance included, McColl Loam (Mc). If impacts to these soils occur as a result of the proposed project, they are expected to be limited in nature.

No adverse effects to air quality are anticipated from this project. This project is an air quality “neutral” project, so it is not required to be included in the regional emissions analysis, and a project level CO analysis is not required.

The proposed project area is located within Scotland County, which has been determined to be in compliance with National Ambient 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.

If vegetation or wood debris are disposed of by open burning, it shall be done in accordance with applicable local laws and regulations of the North Carolina Implementation Plan (SIP) for air quality in compliance with 15 NCAC 2D.0520 and the 1990 Clean Air Act Amendments and the National Environmental Policy Act. This evaluation completes the assessments for air quality, and no additional reports are required.

Ambient noise levels may increase during the construction of this project; however this increase would be only temporary and usually confined to daylight hours. There should be no notable change in traffic volumes after the project is complete. Therefore, this project would have no adverse effect on existing noise levels. Noise receptors in the project area would not be impacted by this project. This evaluation completes the assessment requirements for highway noise set forth in 23 CFR Part 722. No additional reports are required.

A “Geo-Environmental Impact Evaluation” was conducted by the NCDOT at the project sites to identify any properties that may contain hazardous waste materials and result in future environmental liability if acquired. These hazards include, underground storage tanks (USTs), hazardous waste sites, regulated landfills, unregulated dumpsites, and any other site or materials that are considered hazardous. A field reconnaissance survey, a file search of appropriate environmental agencies, and a Geographical Information System (GIS) were used to identify any known problem sites along the proposed project alignment. The field reconnaissance survey yielded no anticipated UST sites within the project area. A GIS analysis of the project corridor showed no regulated landfills, or unregulated dumpsites were within the project limits. GIS analysis and field reconnaissance found no potential RCRA or CERCLA sites within the project limits. Based on field reconnaissance and a records search, there should be no contamination issues for the B-4274 project.

Scotland County is a participant in the Federal Flood Insurance Program. The bridge is located within a Limited Detailed Study Area. The new structure should be designed to match or lower the existing 100-year storm elevation upstream of the roadway. Since the proposed replacement for Bridge No. 14 would be a structure similar in waterway opening size, it is not anticipated that it would have any significant adverse impact on the existing floodplain, and it would not raise floodplain levels. The Federal Emergency

Management Agency, Flood Insurance Rate Map (FIRM) for the project study area is attached.

Based on the above discussion, it is concluded that no substantial environmental impacts would result from the replacement of Bridge No. 14.

IX. PUBLIC INVOLVEMENT

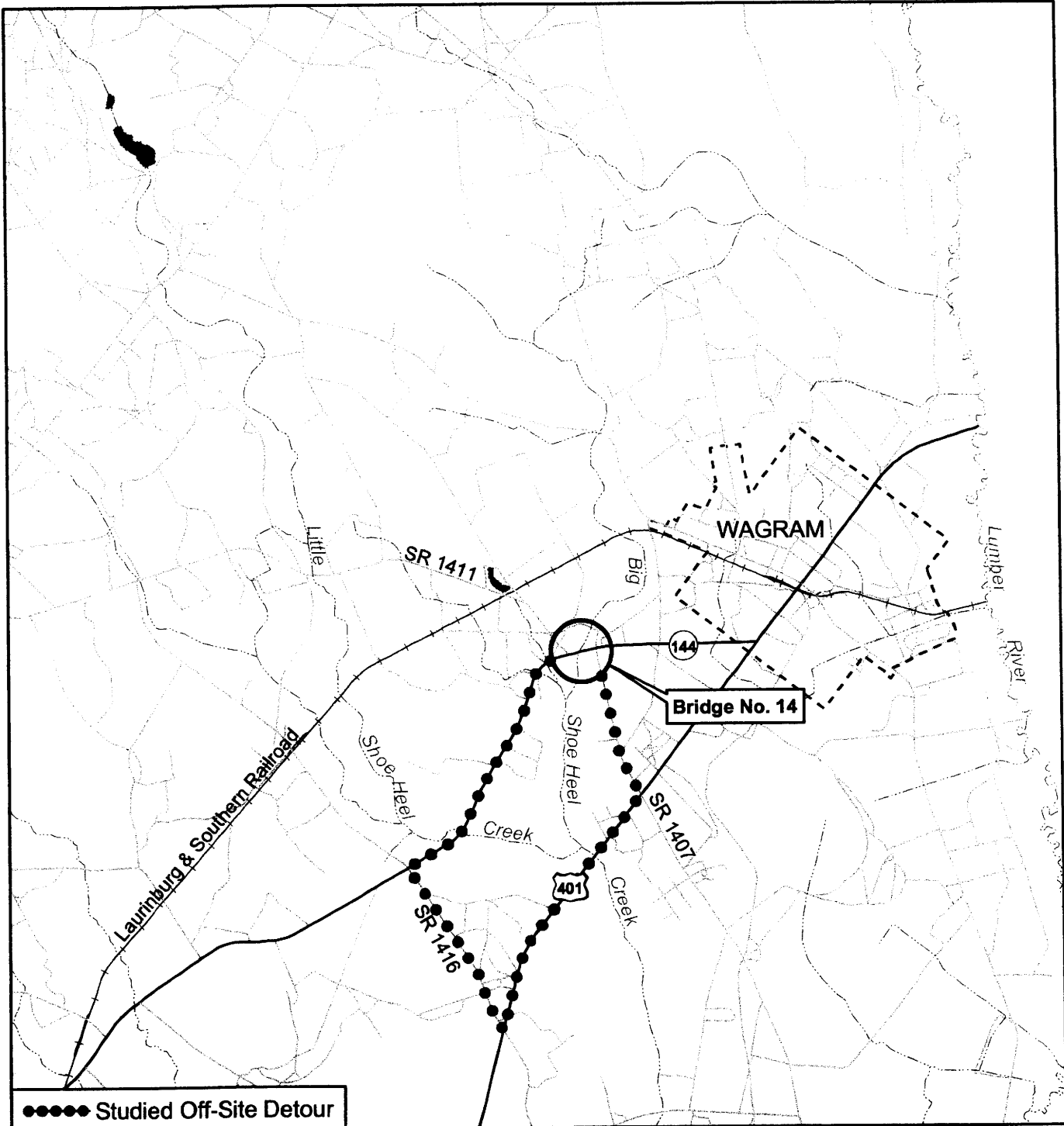
Newsletters describing the proposed bridge replacement project were sent to local residents. The newsletters give the public an opportunity to comment on the possible alternatives for the proposed bridge replacement. A copy of the newsletter is included in the Appendix. One comment was received from a local resident. Mr. John Cooley of Wagram, NC commented that he supports the use of an off-site detour (the Preferred Alternative) as it would not be a great inconvenience to local residents.

X. AGENCY COMMENTS

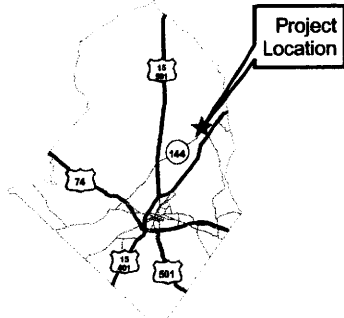
Comments on the proposed project were requested from federal, state, and local agencies. Several agencies have commented upon the proposed bridge alignment. These comments have been considered during the environmental and design process and are included in the appendix.

The North Carolina Wildlife Resources Commission (NCWRC) had requested an in-water work moratorium for sunfish from April 1 to June 30. However, any sunfish that would be found within the study area would not be considered a federally protected species and would not receive protection under the ESA. If this moratorium was observed, it is unlikely that the bridge could be replaced during one construction season. This would result in additional costs and disruption to travel on this heavily used route. Therefore, the moratorium is not proposed; however, the standard BMPs will still apply.

FIGURES



●●●● Studied Off-Site Detour



Project Location



Scotland County, NC



North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

NC 144
Replace Bridge No. 14
Over Big Shoe Heel Creek
Scotland County
B-4274

PROJECT VICINITY MAP

Figure 1



ALTERNATIVE 1
(Preferred Alternative)
Replace with Bridge
Off-Site Detour
ALTERNATIVE 2
Replace with Bridge

ALTERNATIVE 2
Temporary On-Site Detour

BRIDGE NO. 14



North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

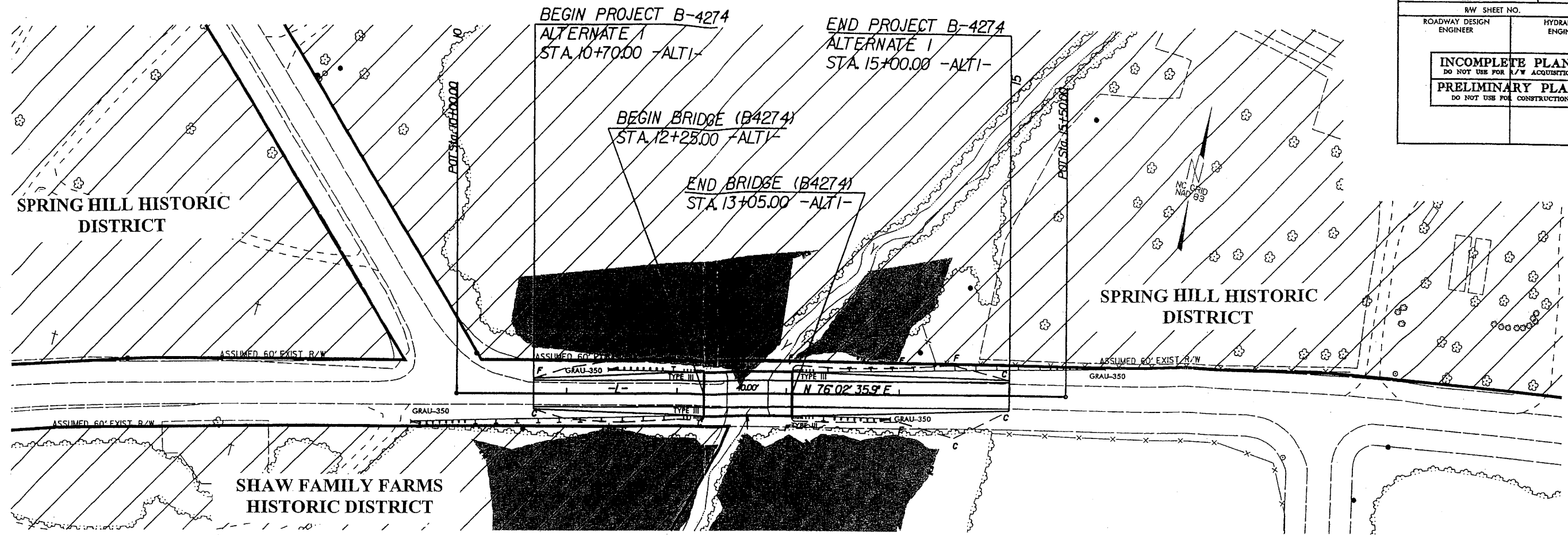
N.C. 144
Replace Bridge No. 14
Over Big Shoe Heel Creek
Scotland County
B-4274

150 75 0 150
GRAPHIC SCALE 1" = 150'

SCALE: 1" = 150'

Figure 2A

B-4274	
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



B4274 - ALTERNATE 1 (PERMANENT BRIDGE FOR ALT.1 OFFSITE DETOUR)

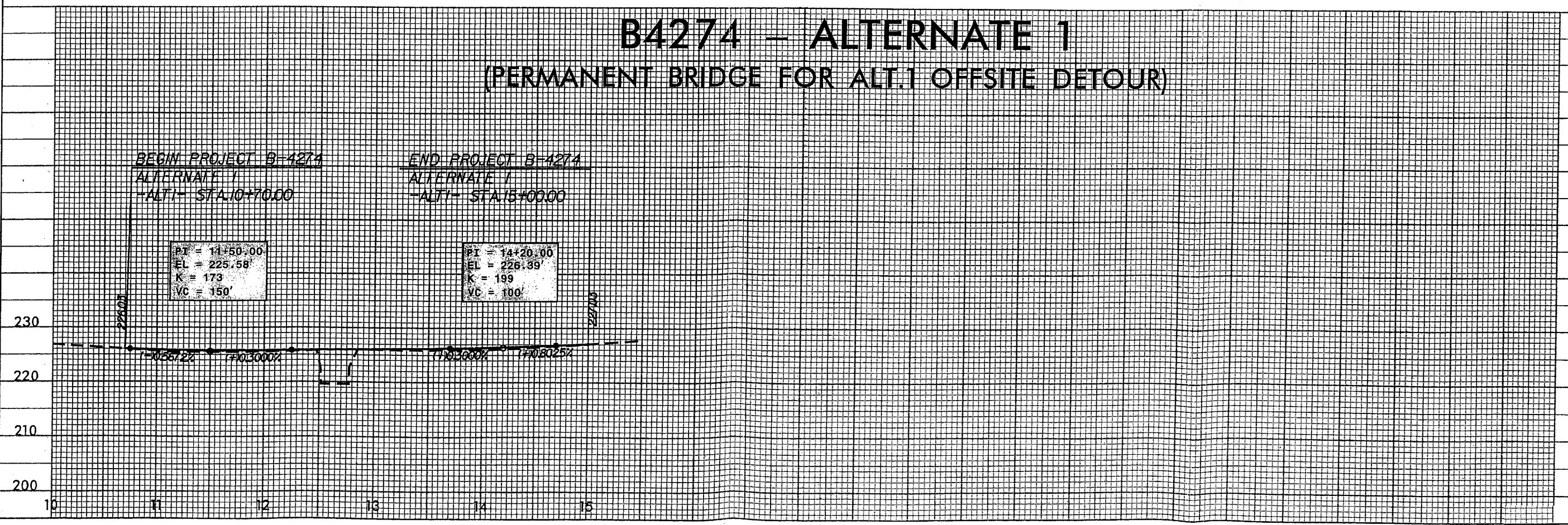
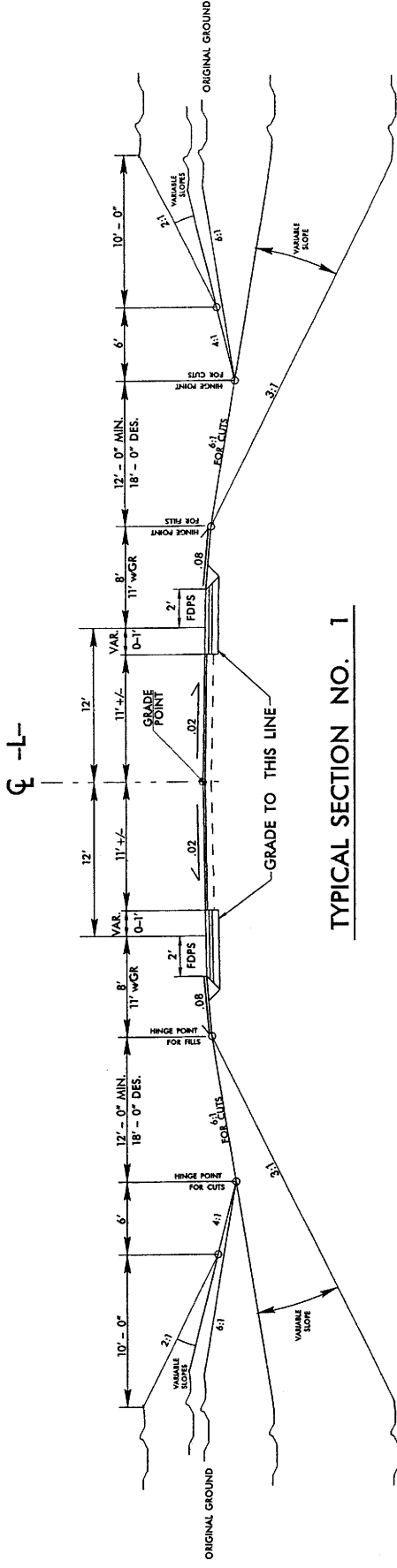
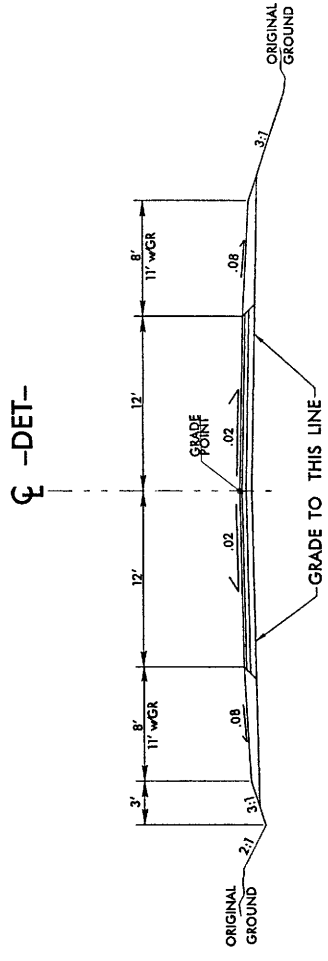


FIGURE 2B

8/1
 REVISIONS
 05 JAN-2006 17:07
 C:\p\joe\B4274\proj\B4274_historical_pah.dgn



TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 2

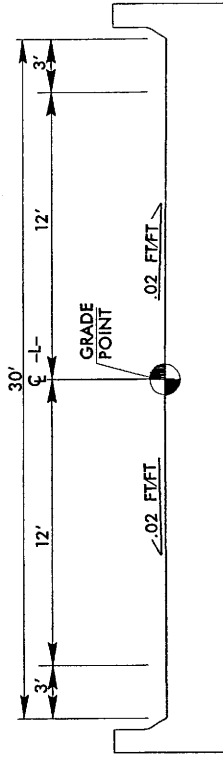


North Carolina Department of Transportation
 Project Development and
 Environmental Analysis Branch

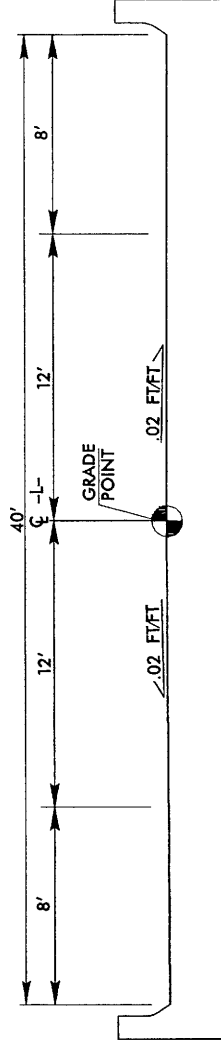
N.C. 144
 Replace Bridge No. 14
 Over Big Shoe Heel Creek
 Scotland County
 B-4274

NOT TO SCALE

Figure 3A



TYPICAL TEMPORARY BRIDGE SECTION



TYPICAL BRIDGE SECTION



North Carolina Department of Transportation
 Project Development and
 Environmental Analysis Branch

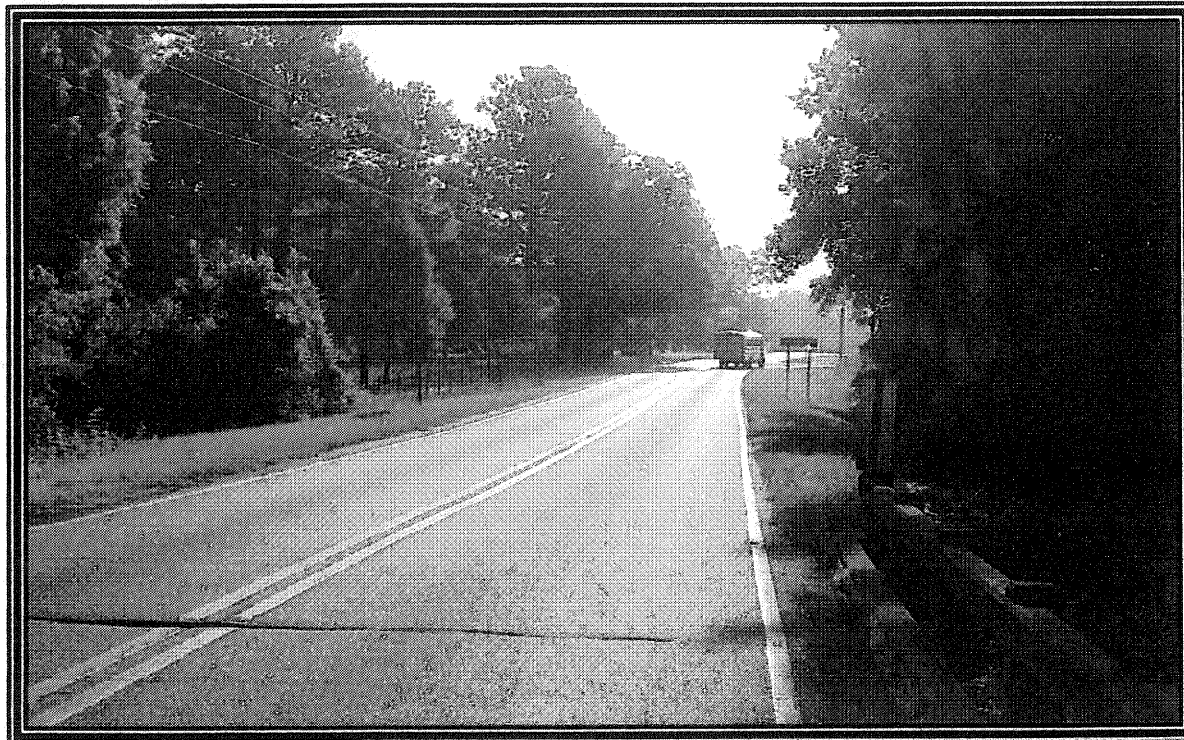
N.C. 144
 Replace Bridge No. 14
 Over Big Shoe Heel Creek
 Scotland County
 B-4274

NOT TO SCALE

Figure 3B

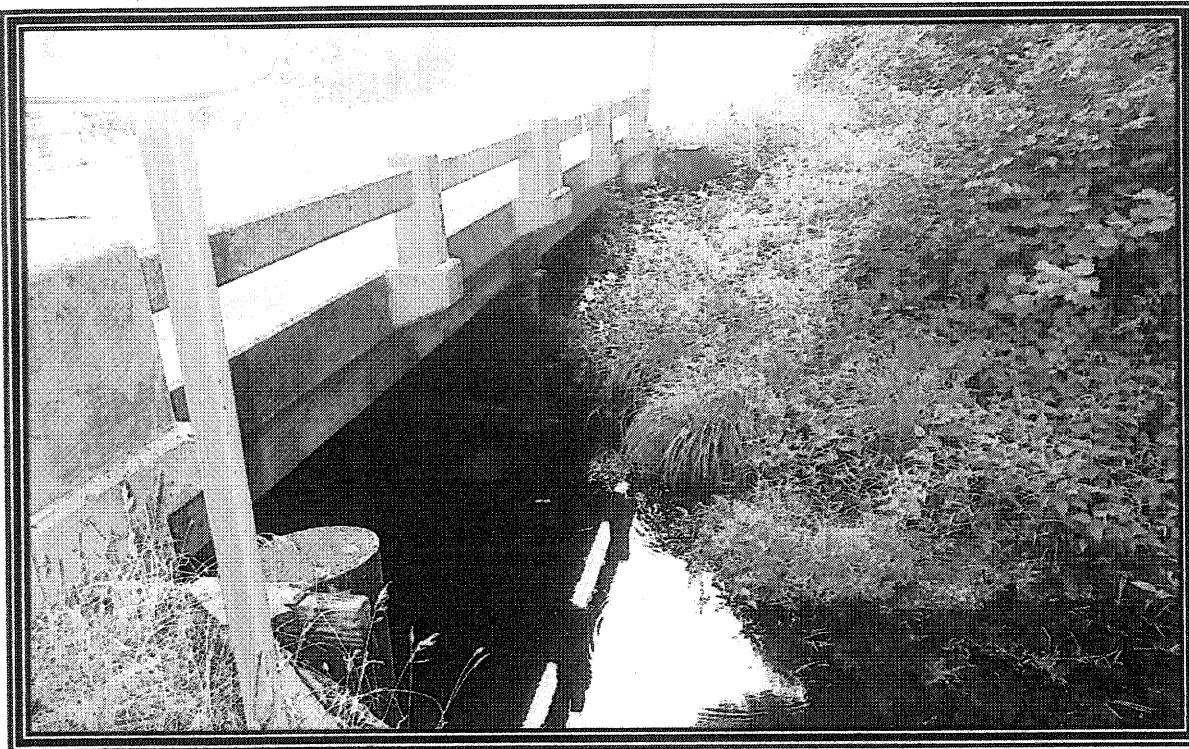
**SCOTLAND
COUNTY
BRIDGE No. 14
B-4274**

**Looking West
on NC 144**



**Looking East
on NC 144**

FIGURE 4A



**SCOTLAND
COUNTY
BRIDGE No. 14
B-4274**

**Looking at the
South Side of
Bridge No.14**



**Looking at the
North Side of
Bridge No. 14**

FIGURE 4B

APPENDIX



Newsletter

NCDOT
T.I.P. B-4274

Volume I, Issue I

Proposed Replacement of Bridge No. 14 over Big Shoe Heel Creek on NC 144 (Old Wire Road)

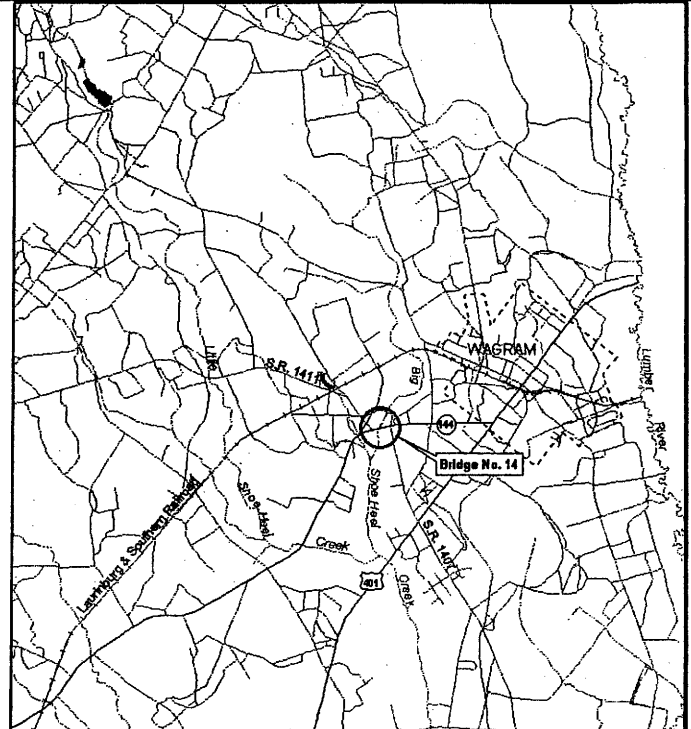
This newsletter is published by the North Carolina Department of Transportation to provide information on the status of the proposed replacement of the bridge over Big Shoe Heel Creek on NC 144 (Old Wire Road) illustrated in the vicinity map to the right. The proposed project is needed to improve safety due to the deteriorated condition of the existing bridge.

PROJECT SCHEDULE

The acquisition of right-of-way is scheduled for federal fiscal year (FFY) 2005, with construction in FFY 2006

PROJECT DESCRIPTION

Two (2) alternatives have been studied for the proposed bridge replacement project. Both alternatives propose to replace the bridge in its existing location. Alternative 1 would maintain traffic during construction by utilizing an off-site detour. The off-site detour route is NC 144 (Old Wire Road) to SR 1407 (Airbase Road) to US 401 to SR 1416 (Seals Road) and back to NC 144 (Old Wire Road). Alternative 2 also proposes to replace the bridge in its existing location. Alternative 2 would maintain traffic with a temporary on-site detour on the downstream (south) side of the existing bridge during construction. Please see the figures shown on the back of this newsletter. Alternative 1 has been recommended as the preferred alternative because it minimized impacts to the environment and is less costly than Alternative 2.



NCDOT WELCOMES CITIZEN INPUT

Public involvement is an important part of the planning process. The North Carolina Department of Transportation is committed to ensuring all issues of concern to the public are addressed and considered before any final decisions are made. If you have any questions or comments concerning the project, please feel free to contact the study team members below:

Mr. Vincent J. Rhea, PE
Project Manager
NCDOT-PDEA
1548 Mail Service Center
Raleigh, NC 27699-1548
(919) 733-7844 ext. 261
vrhea@dot.state.nc.us

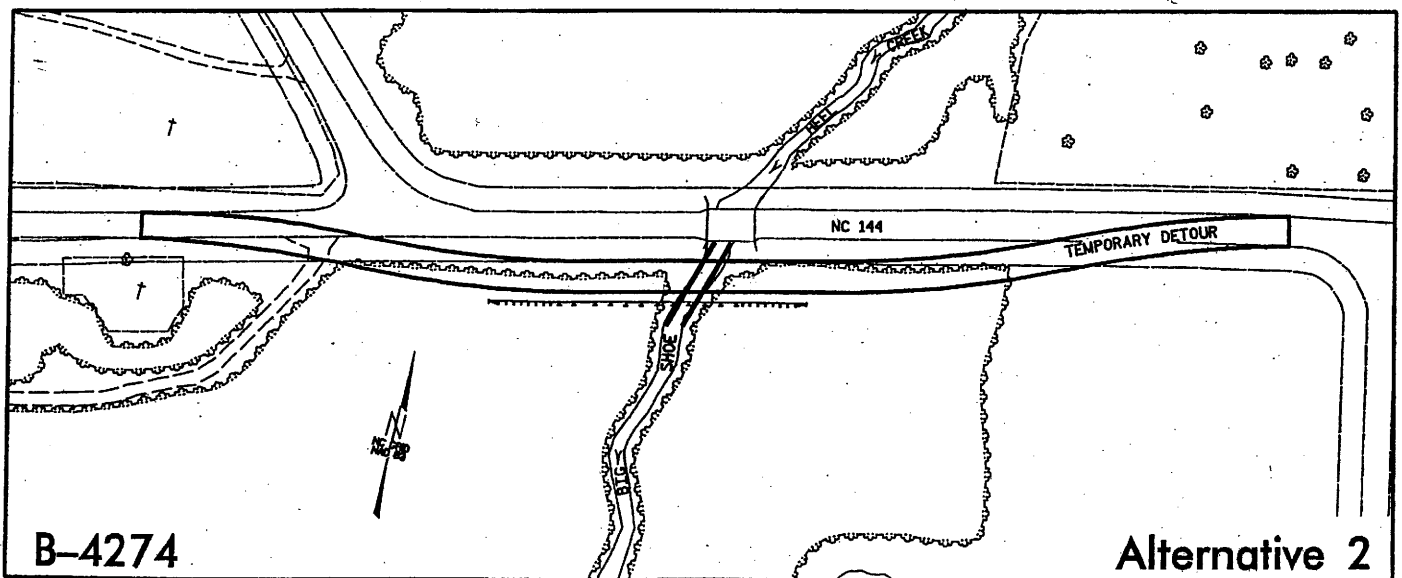
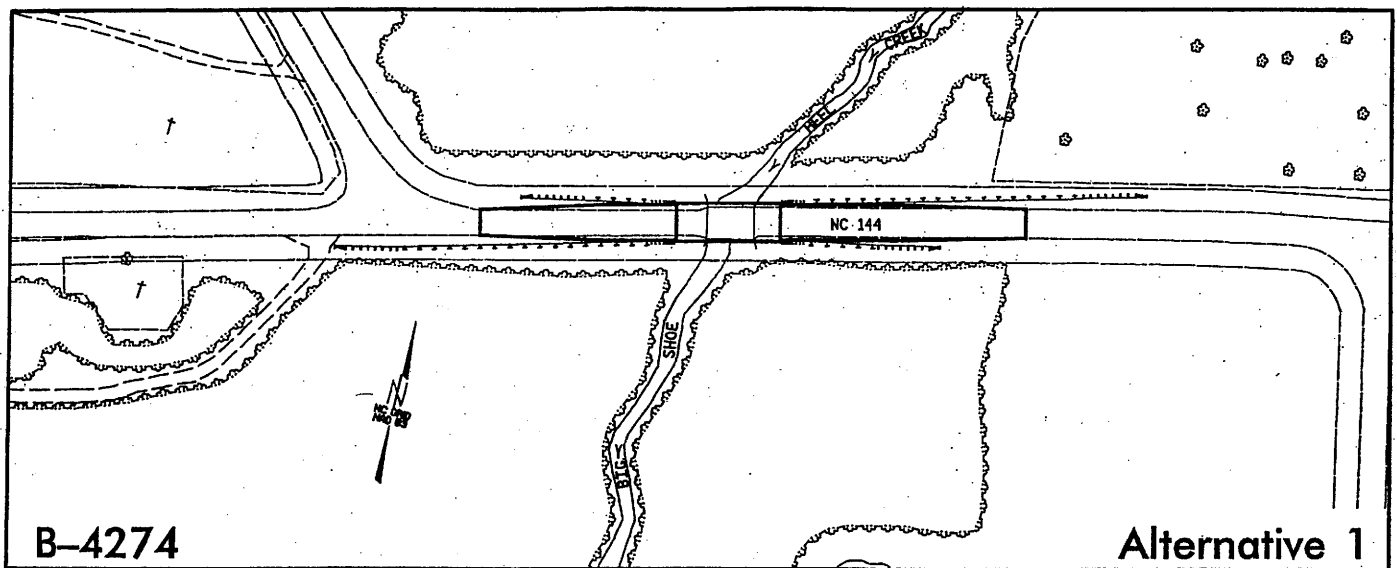
Mr. Richard Davis
Project Manager
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rdavis@lpagroup.com



NCDOT
T.I.P. B-4274

North Carolina Department of Transportation
Project Development & Environmental Branch
1548 Mail Service Center
Raleigh, NC 27699-1548

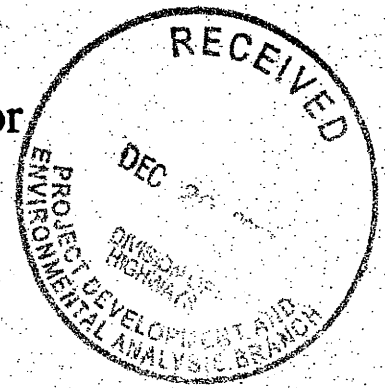
Postal Customer





United States Department of the Interior

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



December 23, 2003

Gregory J. Thorpe, Ph.D.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Dr. Thorpe:

This letter is in response to your request for comments from the U.S. Fish and Wildlife Service (Service) on the potential environmental impacts of the proposed replacement of Bridge No. 14 on NC 144 over Big Shoe Heel Creek, Scotland County, North Carolina (TIP No. B-4274). These comments provide scoping information in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661-667d) and section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

For bridge replacement projects, the Service recommends the following general conservation measures to avoid or minimize environmental impacts to fish and wildlife resources:

1. Wetland, forest and designated riparian buffer impacts should be avoided and minimized to the maximum extent practical;
2. If unavoidable wetland impacts are proposed, every effort should be made to identify compensatory mitigation sites in advance. Project planning should include a detailed compensatory mitigation plan for offsetting unavoidable wetland impacts. Opportunities to protect mitigation areas in perpetuity via conservation easements, land trusts or by other means should be explored at the outset;
3. Off-site detours should be used rather than construction of temporary, on-site bridges. For projects requiring an on-site detour in wetlands or open water, such detours should be aligned along the side of the existing structure which has the least and/or least quality of fish and wildlife habitat. At the completion of construction, the detour area should be entirely removed and the impacted areas be planted with appropriate vegetation, including trees if necessary;
4. Wherever appropriate, construction in sensitive areas should occur outside fish spawning and migratory bird nesting seasons. In waterways that may serve as travel corridors for

fish, in-water work should be avoided during moratorium periods associated with migration, spawning and sensitive pre-adult life stages. The general moratorium period for anadromous fish is February 15 - June 30;

5. New bridges should be long enough to allow for sufficient wildlife passage along stream corridors;
6. Best Management Practices (BMP) for Protection of Surface Waters should be implemented;
7. Bridge designs should include provisions for roadbed and deck drainage to flow through a vegetated buffer prior to reaching the affected stream. This buffer should be large enough to alleviate any potential effects from run-off of storm water and pollutants;
8. The bridge designs should not alter the natural stream and stream-bank morphology or impede fish passage. To the extent possible, piers and bents should be placed outside the bank-full width of the stream;
9. Bridges and approaches should be designed to avoid any fill that will result in damming or constriction of the channel or flood plain. If spanning the flood plain is not feasible, culverts should be installed in the flood plain portion of the approach to restore some of the hydrological functions of the flood plain and reduce high velocities of flood waters within the affected area.

There are six federally protected species listed for Scotland County: the American alligator (*Alligator mississippiensis*), red-cockaded woodpecker (*Picoides borealis*), American chaffseed (*Schwalbea americana*), Canby's Dropwort (*Oxypolis canbyi*), Michaux's sumac (*Rhus michauxii*) and rough-leaved loosestrife (*Lysimachia asperulaefolia*). The American alligator is only listed threatened due to similarity of appearance and does not require section 7 consultation. Although the North Carolina Natural Heritage Program (NCNHP) database does not indicate any known occurrences of these species near the project vicinity, use of the NCNHP data should not be substituted for actual field surveys if suitable habitat occurs near the project site. The NCNHP database only indicates the presence of known occurrences of federally protected species and does not necessarily mean that such species are not present. It may simply mean that the area has not been surveyed. Information about the habitats in which these species are often found is provided on our web site, <http://endangered.fws.gov/>. If suitable habitat occurs within the project vicinity for any of the listed species (excluding American alligator), surveys should be conducted to determine presence or absence of the species. All survey documentation must include survey methodologies and results.

We reserve the right to review any federal permits that may be required for this project, at the public notice stage. Therefore, it is important that resource agency coordination occur early in the planning process in order to resolve any conflicts that may arise and minimize delays in project implementation. In addition to the above guidance, we recommend that the environmental documentation for this project include the following in sufficient detail to

facilitate a thorough review of the action:

1. A clearly defined and detailed purpose and need for the proposed project;
2. A description of the proposed action with an analysis of all alternatives being considered, including the "no action" alternative;
3. A description of the fish and wildlife resources, and their habitats, within the project impact area that may be directly or indirectly affected;
4. The extent and acreage of waters of the U.S., including wetlands, that are to be impacted by filling, dredging, clearing, ditching, or draining. Acres of wetland impact should be differentiated by habitat type based on the wetland classification scheme of the National Wetlands Inventory (NWI). Wetland boundaries should be determined by using the 1987 Corps of Engineers Wetlands Delineation Manual and verified by the U.S. Army Corps of Engineers;
5. The anticipated environmental impacts, both temporary and permanent, that would be likely to occur as a direct result of the proposed project. The assessment should also include the extent to which the proposed project would result in secondary impacts to natural resources, and how this and similar projects contribute to cumulative adverse effects;
6. Design features and construction techniques which would be employed to avoid or minimize the fragmentation or direct loss of wildlife habitat and waters of the US;
7. If unavoidable wetland impacts are proposed, project planning should include a detailed compensatory mitigation plan for offsetting the unavoidable impacts.

The Service appreciates the opportunity to comment on this project. Please continue to advise us during the progression of the planning process, including your official determination of the impacts of this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520, ext. 32.

Sincerely,



Garland B. Pardue, Ph.D.
Ecological Services Supervisor

cc: Richard Spencer, USACE, Wilmington, NC
Dave Franklin, USACE, Wilmington, NC
Beth Barnes, NCDWQ, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC

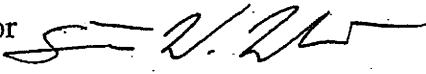


⊠ North Carolina Wildlife Resources Commission ⊠

Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Vincent J. Rhea
Project Development and Environmental Analysis Branch, NCDOT

FROM: Travis Wilson, Highway Project Coordinator 
Habitat Conservation Program

DATE: February 5, 2004

SUBJECT: NCDOT Bridge Replacements in Johnston, Moore, Montgomery, Brunswick, Bladen, Cumberland, Scotland, and Columbus counties. TIP Nos. B-4165, B-4207, B-4204, B-4030, B-4029, B-4092, B-4274, B-4080, and B-4078.

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. Hal Bain 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. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. 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:

1. B-4165, Johnston County, Bridge No. 89 over Sassarixa Swamp on SR 1162. We recommend replacing this bridge with a bridge. Standard recommendations apply.
2. B-4207, Moore County, Bridge No. 43 over McLendons Creek on NC 22-24-27. We recommend replacing this bridge with a bridge. McLendons Creek contains habitat suitable for the federally endangered Cape Fear shiner, a survey should be conducted to determine the presence or absence of this species. Standard recommendations apply.

3. B-4204, Montgomery County, Bridge No. 28 over Rock Creek on NC 109. We recommend replacing this bridge with a bridge. Standard recommendations apply.
4. B-4030, Brunswick County, Bridge No. 9 over Bear Branch on NC 103. We recommend replacing this bridge with a bridge. Standard recommendations apply.
5. B-4029, Bladen County, Bridge No. 8 over canal on NC 210. We recommend replacing this bridge with a bridge. Standard recommendations apply.
6. B-4092, Cumberland County, Bridge No. 80 over Little Rockfish Creek on SR 1108. We recommend replacing this bridge with a bridge. A significant fishery for sunfish exists at this site; therefore we request in in-water work moratorium for sunfish from April 1 to June 30. Standard recommendations apply.
7. B-4274, Scotland County, Bridge No. 14 over Big Shoe Heel Creek on NC 144. We recommend replacing this bridge with a bridge. A significant fishery for sunfish exists at this site, therefore we request in in-water work moratorium for sunfish from April 1 to June 30. Standard recommendations apply.
8. B-4080, Columbus County, Bridge No. 148 over Pine Log Swamp on SR 1437. We recommend replacing this bridge with a bridge. Standard recommendations apply.
9. B-4078, Columbus County, Bridge No. 10 over Waccamaw River Overflow on NC 130. We recommend replacing this bridge with a bridge. Standard recommendations apply.

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.

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 these projects.

Cc: Gary Jordan, U.S. Fish and Wildlife Service, Raleigh

CONCURRENCE FORM FOR ASSESSMENT OF EFFECTS

Project Description: Replace Bridge No. 14 on NC 144 over Big Shoe Heel Creek

On January 10, 2006, representatives of the

- North Carolina Department of Transportation (NCDOT)
- Federal Highway Administration (FHWA)
- North Carolina State Historic Preservation Office (HPO)
- Other

Reviewed the subject project and agreed

- There are no effects on the National Register-listed property/properties located within the project's area of potential effect and listed on the reverse.
- There are no effects on the National Register-eligible property/properties located within the project's area of potential effect and listed on the reverse.
- There is an effect on the National Register-listed property/properties located within the project's area of potential effect. The property/properties and the effect(s) are listed on the reverse. *Shaw Family Farms NR HD*
- There is an effect on the National Register-eligible property/properties located within the project's area of potential effect. The property/properties and effect(s) are listed on the reverse. *Spring Hill HD (DE)*

Signed:

Jennifer Cather
 Representative, NCDOT *1/10/06*
Date

[Signature]
 FHWA, for the Division Administrator, or other Federal Agency *1-10-06*
Date

[Signature]
 Representative, HPO *1/10/06*
Date

Renee Medhill-Carley
 State Historic Preservation Officer *1-10-06*
Date

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Signed:

Jennifer Cather _____ *1/10/06*
 Representative, NCDOT Date

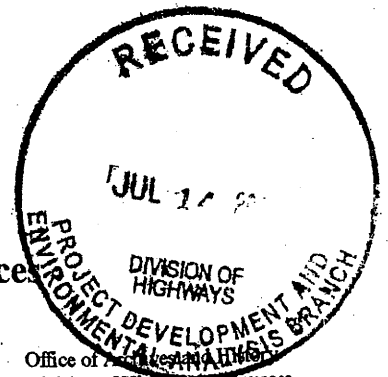
[Signature] _____ *1-10-06*
 FHWA, for the Division Administrator, or other Federal Agency Date

[Signature] _____ *1/10/06*
 Representative, HPO Date

Renee Medhill-Carley _____ *1-10-06*
 State Historic Preservation Officer Date

1/1/04 p. 10
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North Carolina Department of Cultural Resources
State Historic Preservation Office

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Historic Preservation
Division of Historical Resources
David Brook, Director

July 8, 2004

MEMORANDUM

TO: Gregory J. Thorpe, Manager
Project Development and Environmental Analysis Branch
Division of Highways
Department of Transportation

FROM: David Brook *for David Brook*

SUBJECT: Bridge No. 14 on NC 144 (formally SR 1405), over Big Shoe Creek, B-4274, Scotland County, ER03 3643

Thank you for your memorandum of May 6, 2004, concerning the above project.

We have conducted a search of our maps and files and located the following structure of historical or architectural importance within the general area of this project:

Shaw Family Farms Historic District, along both sides of SR 1405, 0.3 mi SW of jct. W/SR 1411. The district is listed in the National Register, 1983

We recommend that a Department of Transportation architectural historian identify and evaluate any structures over fifty years of age within the project area, and report the findings to us.

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, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763. In all future communication concerning this project, please cite the above-referenced tracking number.

cc: Mary Pope Furr

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount Street, Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919)733-4763/733-8653
RESTORATION	515 N. Blount Street, Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4613	(919)733-6547/715-4801
SURVEY & PLANNING	515 N. Blount Street, Raleigh, NC	4617 Mail Service Center, Raleigh NC 27699-4618	(919)733-6545/715-4801



North Carolina Department of Cultural Resources
State Historic Preservation Office

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary
Office of Archives and History

Division of Historical Resources
David L. S. Brook, Director

February 18, 2004

MEMORANDUM

TO: Vincent J. Rhea, P.E.
Project Development and Environmental Analysis
NCDOT Division of Highways

FROM: David Brook *David Brook*

SUBJECT: Bridge No. 14 on NC 144 (formerly SR 1405), over Big Shoe Heel Creek, B-4274,
Scotland County, ER03-3643
Bridge No. 80 on SR 1108 over Little Rockfish Creek, B-4092,
Cumberland County, ER03-3636
Bridge No. 28 on NC 109 over Rock Creek, B-4204,
Montgomery County, ER03-3641
Bridge No. 43 on NC 22-24-27 over McLendons Creek, B-4207,
Moore County, ER03-3642

Thank you for your letters of December 8, 2004, concerning the above projects.

We are unable to comment on the potential effect of these projects on cultural historic resources until we receive further information.

Please forward a labeled 7.5 minute USGS quadrangle map for each of the above projects clearly indicating the project vicinity, location, and termini. In addition, please include the name of the quadrangle map.

For all projects except B-4207 in Moore County, there are no known archaeological sites within the proposed project area. Based on our knowledge of the area, it is unlikely that any archaeological resources that may be eligible for conclusion in the National Register of Historic Places will be affected by the project. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

Due to the on site detours to the north or south of B-4207, Moore County, we recommend that a comprehensive survey be conducted by an experienced archaeologist. The survey will identify and evaluate the significance of archaeological remains that may be damaged or destroyed by the proposed project. Potential effects on unknown resources must be assessed prior to the initiation of construction activities. Off site detours generally preclude the need for an archaeological survey of a bridge to be rebuilt on the same alignment.

www.hpo.dcr.state.nc.us

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount St, Raleigh, NC	4617 Mail Service Center, Raleigh, NC 27699-4617	(919) 733-4763 • 733-8653
RESTORATION	515 N. Blount St, Raleigh, NC	4617 Mail Service Center, Raleigh, NC 27699-4617	(919) 733-6547 • 715-4801
SURVEY & PLANNING	515 N. Blount St. Raleigh, NC	4617 Mail Service Center, Raleigh, NC 27699-4617	(919) 733-4763 • 715-4801

February 18, 2004

Page 2

Two copies of the resulting archaeological survey report, as well as one copy of the appropriate site forms, should be forwarded to us for review and comment as soon as they are available and well in advance of any construction activities.

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 919/733-4763. In all future communication concerning this project, please cite the above referenced tracking number.

cc: Mary Pope Furr, NCDOT
Matt Wilkerson, NCDOT
John F. Sullivan, FWHA
Rodney J. Snedeker, Archaeologist, National Forests in NC

June 24, 2003

To: Davis L. Moore

From: Carolyn S. Jolly, *cf* TIMS Corrdinator

Subject: Replacement of Bridge over Shocheel Creek

As per our conversation, I have looked over our routes and have determined that it will involve 7 buses and these 7 buses cross Shocheel 8 times per day. There are alternative routes. Rocky Ford to Old Lumberton Rd to Airbase Road and out to Andrew Jackson Hwy. We would turn around at Benton Drive on Andrew Jackson and back track.
If you any other questions concerning routing , please call me at (910) 277-4355.



County of Scotland

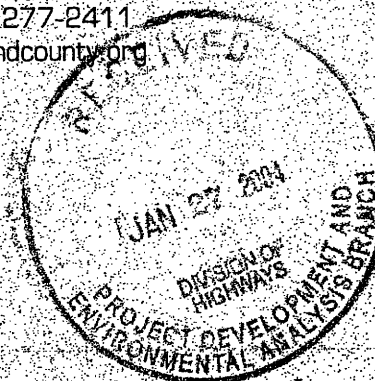
231 East Cronly Street
Laurinburg, North Carolina 28352
Telephone: (910) 277-2406
Fax: (910) 277-2411
www.scotlandcounty.org



Scott T. Sauer
County Manager

Ann W. Kurtzman
Clerk

Board of Commissioners
David L. Burns, Chair
Nancy J. Shelley, Vice Chair
Betty Blue Gholston
Charles "Scooper" Jordan
Sam T. Snowdon, Jr.
Clinton V. Willis, Jr.
J. D. Willis



January 12, 2004

Dr. Gregory J. Thorpe, Ph.D., Director
Project Development and Environmental Analysis Branch
NC Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, NC 27699-1548

Subject: NC 144 (formally SR 1405), Bridge No. 14 over Big Shoe Heel Creek, Scotland County, Federal Aid Project No. BRSTP-1405(5), State Project No. 8.2590701, TIP No. B-4274

Dear Dr. Thorpe

Thank you for the opportunity to comment on the NC 144 Bridge replacement project (TIP B-4274). I appreciate that you provided the anticipated project schedule. Please review the Lumber River Bridge New Bridge Replacement Project (TIP B-4273) for Highway 401 and try to coordinate these two projects. There may be benefits that are explained in more detail later in this letter.

Also in your December 8, 2003 letter, you provided two alternatives for Scotland County to consider. It is recommended that Alternative 2 be utilized providing a temporary on-site detour. It is highly desirable that this on-site detour be located on the north side of the existing bridge as opposed to the south side of the bridge to avoid a 12-inch water line that the county has installed on the south side. Also an on-site detour location on the north side would better facilitate the future development of an interpretive stop on the "Blue Line Tour" which the State of North Carolina is currently working on. This work is being coordinated with Scotland County and again is part of the comments detailed later in this letter. Please advise whether you are able to accommodate this suggestion.

Your third request was to provide you with information that might be helpful in evaluating potential impacts to the project. Scotland County wishes to forward the following comments and information to assist you in completing this much-needed project.

Please be aware that cross section stream station value errors were discovered in the June 17, 2003 flood maps. NCDOT must use the newest FEMA flood elevations during the planning of this project. These are dated December 16, 2003 and replaced the FIS report and Flood Insurance Rate Maps published June 17, 2003.

This route and bridge crossing have a very lengthy history dating to pre-colonial times. Many of the old roadbeds are still visible within and immediately adjacent to the current right-of-way. Any grading or excavation of borrow material required to replace Bridge No. 14 should consider the location of these old road beds prior to land disturbance. Additionally NC 144 passes very close to the Spring Hill Cemetery which is adjacent to the Bridge. The right-of-way edges are steep "cut" slopes which should be left "as is" in order to avoid impact to the cemetery.

The NC 144 route and Bridge No. 14 is located along the route probably used by Colonel Thomas Wade immediately before and after the Battle of Betty's Bridge. This American Revolutionary War battle was fought at the present day Lumber River Highway 401 Bridge just outside the Town of Wagram and is recognized as the battle that effectively returned control of the North Carolina colony to the British in 1781. The notorious British General Daniel Fanning pursued patriot Colonel Thomas Wade probably along this route. There were 23 American patriots killed during the battle and this pursuit.

Scotland County is currently participating in a monumental effort to document, promote, and benefit from tourism. In March 1865 General Sherman marched the majority of his 60,000 troops along the route of NC 144 and across this bridge location. In cooperation with federal, state, and local interests, the State of North Carolina is actively involved in the multi-state "Blue Line Trail" which will allow visitors to travel the route of Sherman's March. This area was used by federal troops for extended camping as the rains had swelled local creeks and rivers delaying crossing. The significance of Sherman's March through Scotland County is at the forefront of interest in the Civil War here. An interpretive marker will be placed in the immediate vicinity of Bridge 14 describing events that took place as Sherman passed through. It might be possible to use the on-site detour area or construction staging area as the location for the marker.

With regard to the attraction of the site for history-based tourism, every effort should be made to maintain the "context" of the immediate location as much as possible.

The John Charles McNeil House, Temperance Hall, Historic Spring Hill Cemetery and Cooley's Nursery are all concentrated immediately around Bridge #14. Also the Town of Wagram is nearby and the NC 144 route is a bicycle route used by local bicycle clubs. Additionally there is a nearby elementary school and middle school all within one mile of this bridge. With the "planned lifetime" of a bridge facility approximating 20 to 30 years, it is strongly suggested that the replacement bridge include pedestrian and bicycle lane accommodations. Omitting these would force pedestrians and bikers into vehicle travel lanes, as is the case in a number of places in Scotland County that are current safety concerns. With the promotion of the Lumber River State Park by the State of

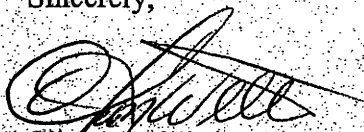
North Carolina it seems likely that the numbers of pedestrian and bikes in the area will increase. At the same time improvements to the bridge will trigger additional heavy truck traffic as the improvements cause the route to be preferred over longer routes connecting to the future Interstate 74. This request for pedestrian and bikes facilities is very important and must not be discounted as prohibited by constrained budgets.

There are other bridge projects also scheduled in the near future in Scotland County. The Lumber River Bridge is scheduled for construction (TIP B- 4273) and there is an additional two feet of pavement scheduled for addition to Highway 144 (TIP R-4700). It seems logical to coordinate the contract for these projects so that all this work can be completed as expeditiously as possible. If a contract were awarded for multiple projects, Scotland County would benefit from a more efficient completion of these long-awaited transportation needs. Additionally road closure and detours could be better coordinated as well as the application of construction resources. If construction office space is needed (assuming a larger scope of work) it is suggested to consider leasing some of the available office space in the Town of Wagram (910-369-2776) which is centrally located and would appreciate even the temporary boost to its economy.

We sincerely appreciate the opportunity to comment on this project. Governor Easley endorses the concept of coordinating and cooperating with the local governments to complete highway projects, and we are pleased to use this opportunity to assist. Please let me know if I can help you further. For technical help or for any additional planning needs contact me, or Scotland County Planning Director Marcus Norton at mnorton@scotlandcounty.org. In addition, our GIS website can provide your office with an immense amount of information. It can be accessed through www.scotlandcounty.org.

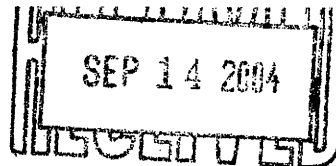
Thank you for your interest in completing this bridge replacement project as quickly and efficiently as possible and especially thank you for consideration of these very important potential project parameters.

Sincerely,



Clinton Willis
Lumber River RTPO, Chairman
Board of County Commissioners

Cc: Scott Sauer, Scotland County Manager
Marcus Norton, Scotland County Planning Director
Janet Robertson, Rural Transportation Planner



Scotland County Emergency Services



P.O. Box 1407 • Laurinburg, NC 28353 • 910-276-1313 • Fax: 910-277-2413

September 13, 2004

Edward J. Smail
Environmental Scientist
The LPA Group of North Carolina, P.A.
4904 Professional Court, Suite 201
Raleigh, NC 27609

Ref: Replacement of Bridge No.14 over Big Shoe Heel Creek in Scotland County on SR 1405

Dear Sir:

There is a significant amount of traffic on Hwy 144 or SR 1405. It would be my opinion that the detour would better serve that traffic if it began at the intersection of Hwy 144 and Hwy 401 just south of Wagram, followed Hwy 401 south to SR 1416 and then back to Hwy 144. Local traffic will be able to negotiate routes as needed.

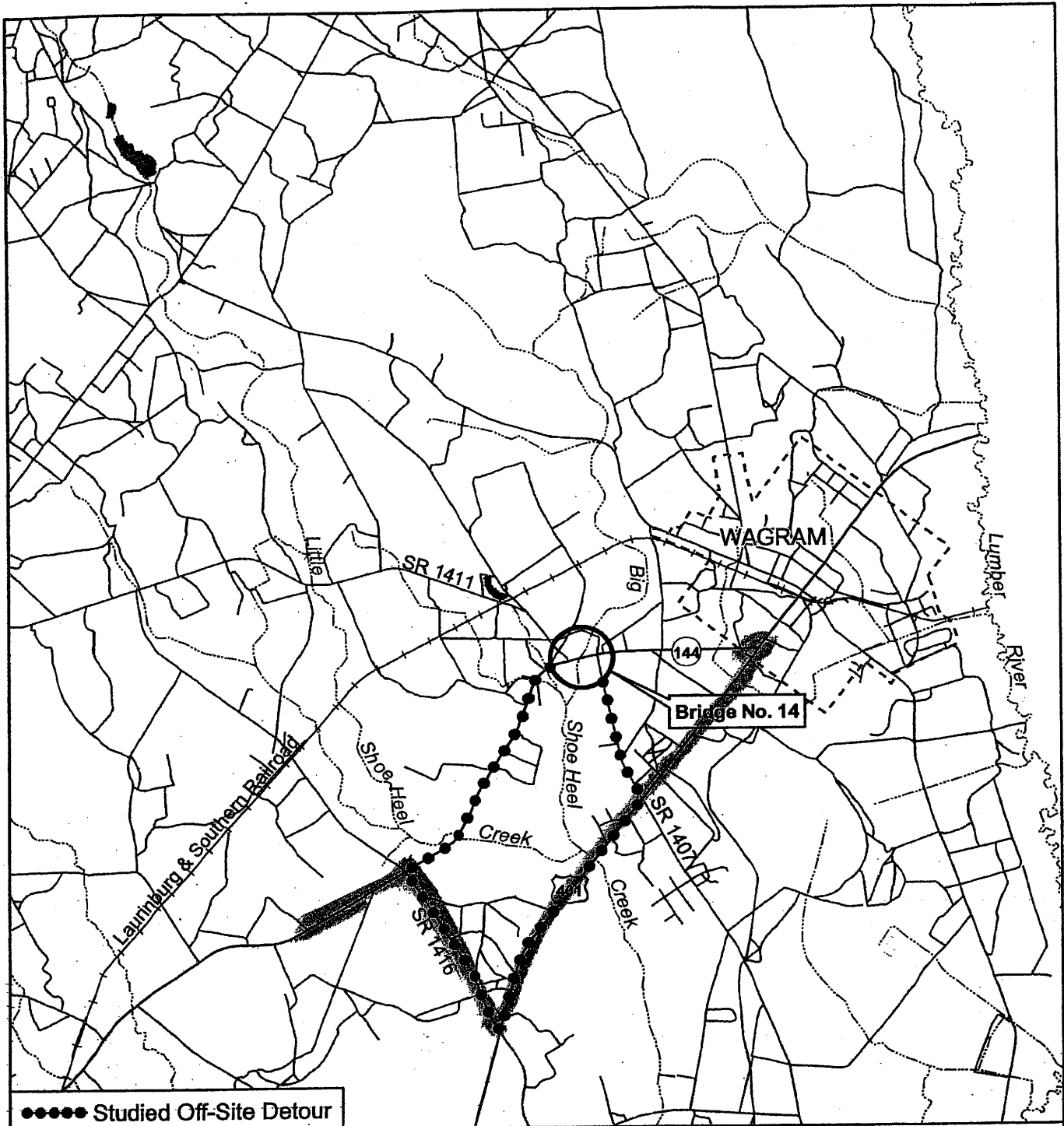
This will better facilitate traffic using Hwy 144 to travel from Hwy 401 in Wagram to Hwy 74 in Laurel Hill. This should not present any problems for any local Emergency Response agencies.

Please feel free to contact me with any concerns.

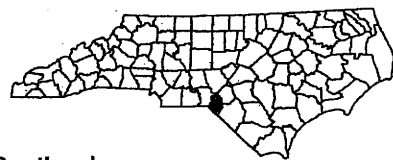
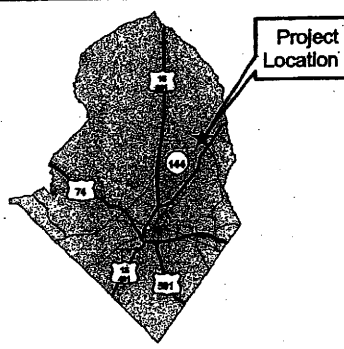
Sincerely,

Roylin Hammond
Scotland County Emergency Services

Map Enclosed



●●●● Studied Off-Site Detour



Scotland
County, NC



North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

NC 144
Replace Bridge No. 14
Over Big Shoe Heel Creek
Scotland County
B-4274

PROJECT VICINITY MAP

Figure 1