

**South Carolina Department of Transportation
On Behalf of the Federal Highway Administration – South Carolina Division Office**

**PROCESSING FORM FOR PROGRAMMATIC CATEGORICAL EXCLUSIONS
NON MAJOR FEDERAL ACTIONS**

County	Route	PIN	File Number
YORK	S 46-732	39094RD10	46.039094.10

Programmatic Type: CE B

Project Name:

Calabash Branch Bridge Replacement on S-46-732; the proposed two-lane replacement bridge is estimated to be approximately 120 feet in length and have a clear width of 32.83 feet between curbs. The project will have no effect upon historic properties or threatened and endangered species.

Categorical Exclusion Type B (Conditional Programmatic)

Projects of the type listed below would not automatically fall under the same programmatic clearance as the CE Type A. The regulations in 23 CFR 771.117(d) list additional types of projects which can meet the CE criteria only after FHWA approval. Several of these projects have been approved to be processed programmatically by FHWA-SC if certain conditions are met. These types are listed below.

Check appropriate project type:

- ☐ 1. Safety projects including but not limited to: placement of traffic barrier; energy attenuators; grading of slopes or gore areas to eliminate the need for guardrail, improve the clear zone, improve curves, or improve sight distance/ removal of fixed objects such as boulders or trees; lighting; glare screens; delineators; and safety modification of drainage structures.
- ☐ 2. Pavement resurfacing, restoration, rehabilitation, and reconstruction projects including related shoulder and ditch work.
- ☐ 3. Traffic operation type projects including but not limited to: freeway surveillance and control systems; intersection channelization; turn lanes, acceleration or deceleration lanes; construction, modification or elimination of curbs, raised median dividers or sidewalks; and widening less than a single lane width.
- ☒ 4. Bridge and culvert rehabilitation work and bridge replacement at the same location.

To be processed as a Categorical Exclusion Type B (CE-B) the following conditions must be met in addition to the General Criteria (as outlined in the PA between FHWA-SC and SCDOT). Place a check in the appropriate box.

- | | Yes | No |
|--|--------------------------|-------------------------------------|
| 1. The acquisition of more than minor amounts of temporary or permanent strips of right-of-way and the acquisition will not require any residential or business displacements. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Use of Section 4(f) properties. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. An adverse effect determination under Section 106 of the Nation Historic Preservation Act. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Individual Coast Guard Permits. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Individual Corps of Engineer Permits, or and impact greater than three (3) acres of wetlands. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| a. Wetland Impacts (acres): 0.0 | | |
| 6. Impacts to planned growth or land use, or significant impacts on travel patterns. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7. Work encroaching in a regulatory floodway, adversely affecting the base floodplain, or potentially adversely affecting a National Wild and Scenic River. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8. Changes in access control. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 9. Any known or potential major hazardous waste sites within the right-of-way. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

If the answer is yes to any of the above criteria, a documented Categorical Exclusion (CE-C) must be prepared and forwarded to FHWA for approval.

The above described project has been reviewed based on the information contained in the engineer's Project Planning Report (PPR) and it has been determined that the project meets the criteria set forth in the Programmatic Categorical Exclusion Agreement signed by FHWA and SCDOT. It is understood that any additions/deletions to the project may void environmentally processing the project as presently classified; consequently, any engineering changes must be brought to the attention of the SCDOT Environmental Section immediately. The project's CE Classification should be shown in the remarks section on the Letter of Request for Authorization Form (PS Form 39) for right-of-way and/or construction for concurrence by FHWA. A copy of this form is included in the project file and one (1) copy has been provided to FHWA.

Prepared by: 

2/8/2012
Date

PPMS: Yes ☐ No ☐

SUPPORTING DOCUMENTATION

Project Description: The existing bridge on S-46-732 (Boyd Road) over Calabash Branch (see **Figure 1** for project location), constructed in 1962, is proposed to be replaced in the existing alignment with close and detour. Current Average Daily Traffic (ADT) on S-46-732 is 650 vehicles per day (vpd), while the projected 2035 ADT is 1,000 vpd. The existing roadway (S-46-732) is classified as a rural local collector. Funding for this project has been approved in the Statewide Transportation Improvement Program (STIP) as indicated in the list of projects located in York County (reference District 4-46-Page 1).

The existing bridge is 26.1 feet wide between curbs, and has a length of 75 feet and a height of 20 feet. Approximately 0.08 acres of wetlands were inventoried in the vicinity of the existing bridge and Calabash Branch was the only jurisdictional feature identified (see **Figure 2** for jurisdictional features).

A design speed of 45 miles per hour is proposed for the approach roadway and new bridge. The approach roadway will be widened for a distance of approximately 370 feet from the west end of the proposed bridge and approximately 200 feet from the east end of the proposed bridge. The widened roadway for the bridge approaches will have two 11-foot travel lanes with 6-foot shoulders along each side. The proposed right of way along the roadway approaches varies from 66 feet (existing) to 150 feet at the bridge ends. The proposed right of way for the bridge section is 150 feet.

During construction, traffic will be detoured along S-46-238 and S-46-64 and a distance of approximately 3.0 miles (see **Figure 3** for off-site detour route).

The proposed two-lane replacement bridge is estimated to be 140 feet in length, have a clear width of 32.83 feet between curbs, and estimated to have a height of 24.82 feet above the stream bed (see **Figure 4** for typical section). No wetland or stream impacts are anticipated based on the estimated construction limits of the proposed bridge. An estimated 0.57 acres of new right of way would be acquired.

Noise: The proposed project does not represent improvements entirely on new location, the addition of through traffic lanes, or significant change in alignment. Therefore, the requirements for conducting noise studies under 23 CFR 772 do not apply.

Air Quality: The proposed project is within York County which is a non-attainment area for 8-hour ozone. All regionally significant federally funded projects in areas designated by the United States Environmental Protection Agency (USEPA) as air quality non-attainment or maintenance areas must come from a conforming LRTP and Transportation Improvement Plan (TIP). As such, the United States Department of Transportation (USDOT), specifically, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA), must make a conformity determination on the LRTPs and TIPs in all non-attainment and maintenance areas. On June 10, 2009, the FHWA and FTA found that the RFATS 2035 LRTP and FY 2009-2015 TIP conform to the purpose of the State Implementation Plan (SIP) in accordance with 40 CFR Part 93.

A project of this nature would not have an effect on ambient air quality. This project has been determined to generate minimal air quality impacts for CAAA criteria pollutants and has not been linked with any special MSAT concerns. As such, this project will not result in changes in

traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the no-build alternative.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOBILE6.2 model forecasts a combined reduction of 72 percent in the total annual emission rate for the priority MSAT from 1999 to 2050 while vehicle-miles of travel are projected to increase by 145 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

Water/Wetlands: This proposed project involves construction of a new bridge across Calabash Branch and its 100-year floodplain. It is proposed that the new bridge will span the existing 100 year floodplain. The proposed bridge replacement will provide equivalent or greater conveyance than that of the existing bridge. The design-build contractor will conduct a preliminary and/or final hydraulic design, including computer modeling, which will serve as the basis for final construction plans.

One small jurisdictional wetland area (Wetland 1) was identified within the project corridor. Wetland 1 is located in a toe of slope depression in the Allison Creek and Calabash Branch confluence floodplain. One small perennial stream (Calabash Branch) is located within the project corridor. No impacts to Wetland 1 or Calabash Branch are anticipated as a result of this project. A US Army Corps of Engineers General Permit will not be required for the project.

No waters classified as Outstanding National Resource Water (ONRW), Outstanding Resource Water (ORW), or Water Supply occur within 1 mile (1.6 km) of the project corridor. Neither Calabash Branch nor Allison Creek are listed on the 2010 303(d) list, although Lake Wylie (Catawba River) is listed as impaired on the 2010 303(d) list at its crossing of SC 274. This point is approximately 6 miles downstream of the project, although the designation of impairment extends upstream and downstream of this location.

Floodplains: York County is a participant in the National Federal Flood Insurance Program administered by the Federal Emergency Management Agency (FEMA). Based on the most current information available from FEMA, this stream crossing is within a designated flood hazard zone.

The profile grade of the roadway will be raised (1) to accommodate the minimum span length over the channel that will be required of the design-build contractor and (2) to improve vertical alignment to meet current design standards. The project will not require longitudinal encroachments into the floodplain.

The proposed bridge replacement will provide equivalent or greater conveyance than that of the existing bridge. This will minimize impacts to natural and beneficial floodplain values and reduce risks associated with the project. The project does not require significant encroachments into the floodplain nor does it support incompatible floodplain development. A copy of the Risk Assessment Form is attached as Appendix A. A No Impact Intent Statement was mailed to the York County floodplain administrator on December 22, 2011. A copy of the correspondence letter is attached as Appendix B.

Archaeological/Historical: No archaeological or historical sites were identified within the

boundaries of the proposed project. The Cultural Resource Report, SHPO concurrence letter, Tribal Historic Preservation Office (THPO) concurrence letter, and Eastern Band of Cherokee Indians (EBCI) concurrence letter are attached in Appendix C.

Endangered Species: The USFWS lists six federally protected species for York County as of January 20, 2011 (USFWS, 2011). These species are listed in Table 1. The South Carolina Heritage Trust does not list any occurrences of federally listed plants or animals within two miles of the project corridor.

Table 1. Federally Protected Species in York County			
Scientific Name	Common Name	Status	Habitat Present
<i>Amphianthus pusillus</i>	Little amphianthus	T	No
<i>Aster georgianus</i>	Georgia aster	C	Yes
<i>Helianthus schweinitzii</i>	Schweinitz's sunflower	E	Yes
<i>Hexastylis naniflora</i>	Dwarf-flowered heartleaf	T	Yes
<i>Haliaeetus leucocephalus</i>	Bald eagle	BGEPA	No
<i>Lasmigona decorata</i>	Carolina heelsplitter	E	Yes
Sources: USFWS, 2011. Key: T=Threatened, E=Endangered, C=Candidate, BGEPA=Bald and Golden Eagle Protection Act			

Field surveys have been conducted and no federally protected species were located within the project limits. The proposed project will have no effect on these federally protected species. The Natural Resources Technical Report is included in Appendix D.

Farmlands: The proposed project was assessed under the Farmland Protection Policy Act of 1981. This site was assessed using the Farmland Conversion Impact Rating Form for a total score of 42 points. Sites receiving a total score of less than 160 need not be given further consideration for protection and no additional sites need to be evaluated.

USTs/Hazardous Waste: No USTs or other hazardous material sites will be encroached upon by the proposed project.

Relocations: No relocations will occur as a result of the proposed project.

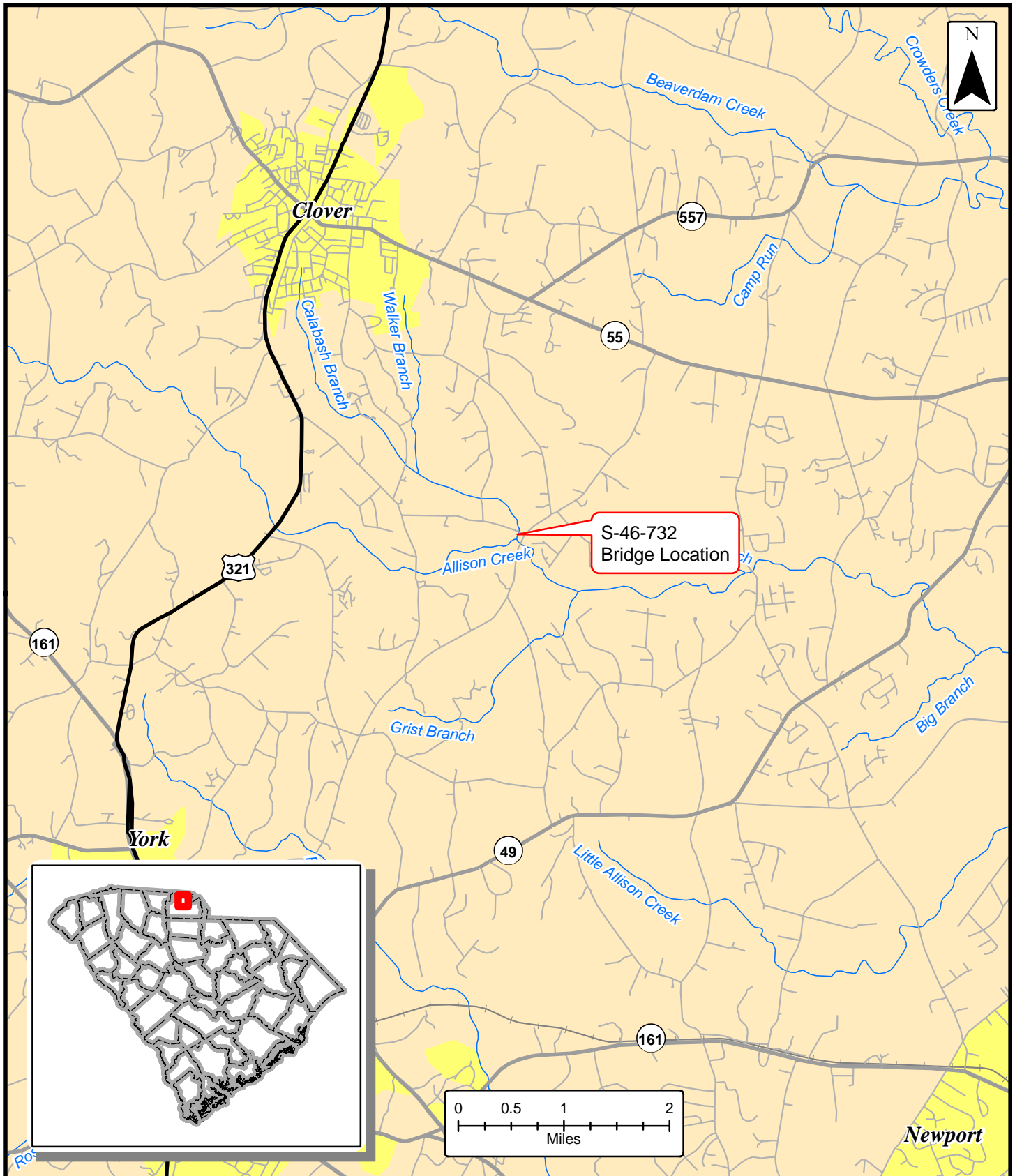
Additional Comments: No Section 4(f) or 6(f) properties will be impacted by this proposed project.

Environmental Commitments: The design-build contractor will complete a future hydraulic study and the proposed project will be coordinated with FEMA. Construction within floodplains will be consistent with FEMA regulations and a letter of concurrence will be obtained from the York County Floodplain Administrator prior to construction. A No Rise Certificate for floodways will also be obtained. A copy of the correspondence with the floodplain administrator is included in Appendix B.

Storm water control measures, both during construction and post-construction, are required for SCDOT projects constructed in the vicinity of 303(d), TMDL, ORW, tidal, and shellfish beds in accordance with the SCDOT's MS4 Permit.

A USACE permit is not anticipated for this project.

If avoidance of hazardous materials is not a viable alternative and soils that appear to be contaminated with petroleum products are encountered during construction, the South Carolina Department of Health and Environmental Control (SCDHEC) will be informed. Hazardous materials will be tested and removed and/or treated in accordance with the United States Environmental Protection Agency and the SCDHEC requirements, if necessary.



Legend



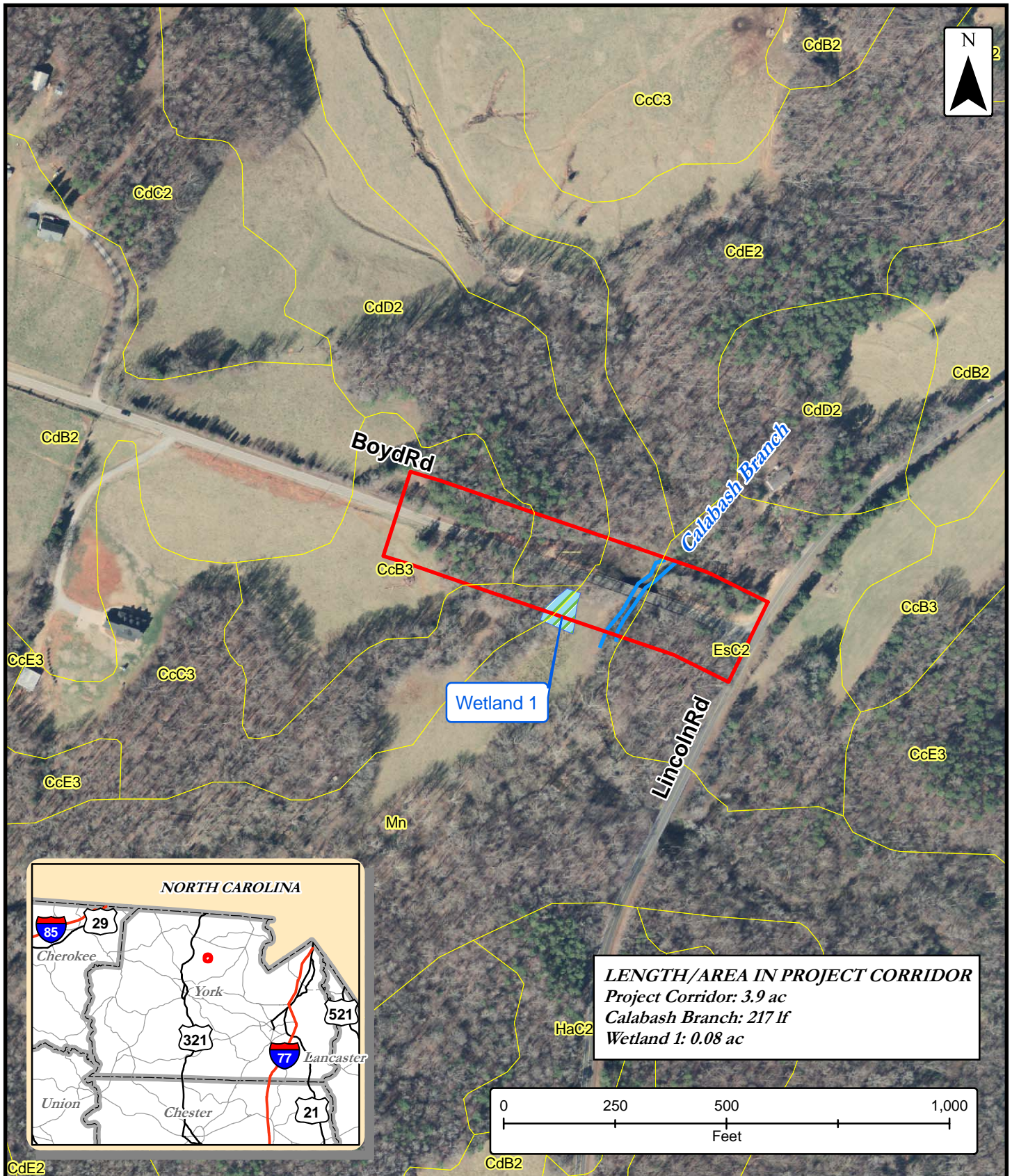
- Interstate
- U.S. Highway
- SC Highways
- + Railroad
- Streams
- County
- Municipalities

Vicinity Map

S-46-732 Bridge Replacement
over Calabash Branch
York County, South Carolina

AECOM

**Figure
1**



Legend

- Streams
- Soils
- Project Corridor
- Wetlands

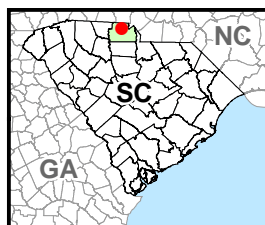
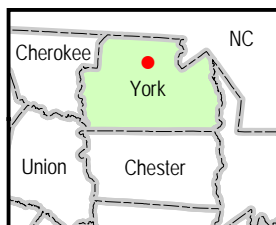
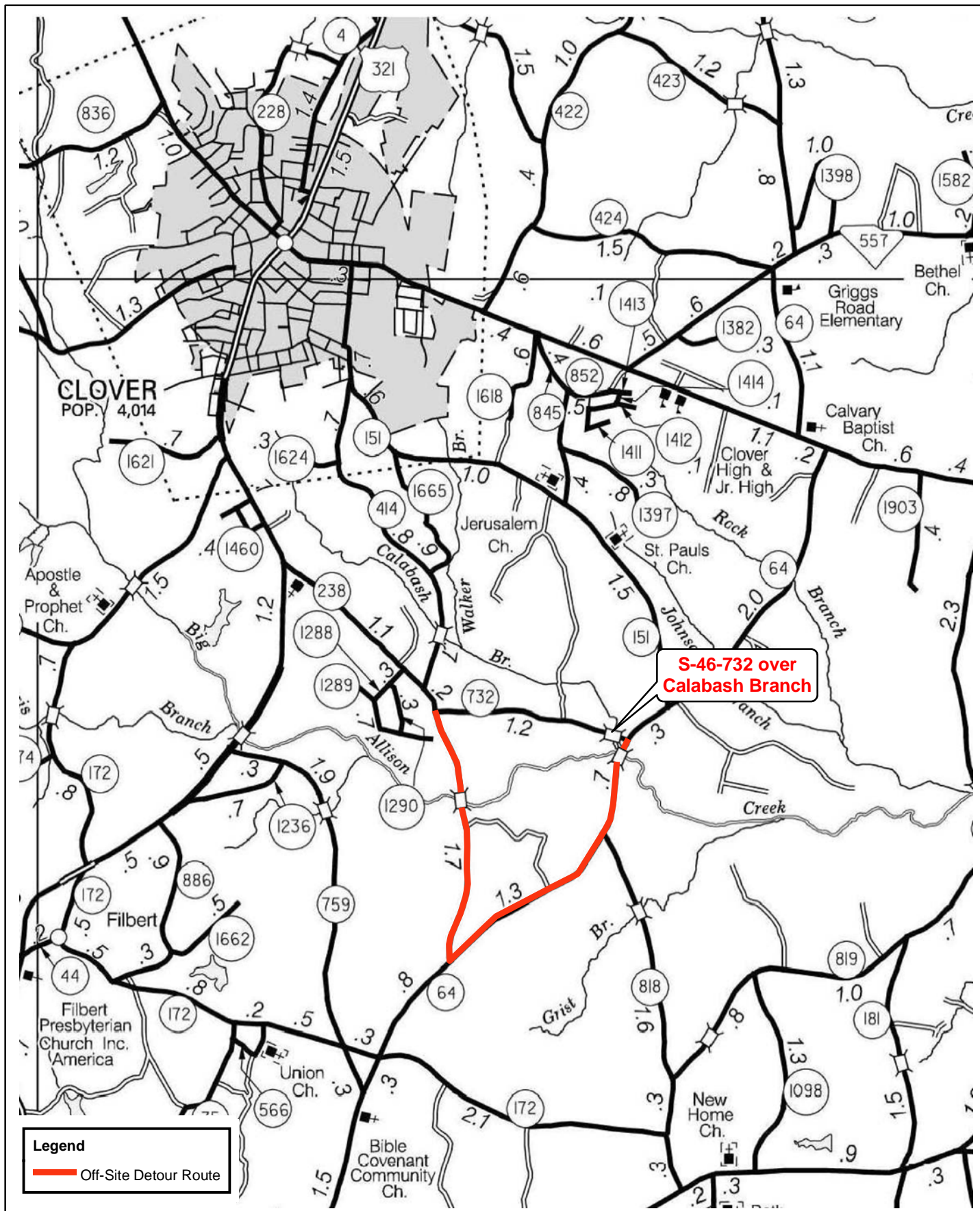
Jurisdictional Features

S-46-732 Bridge Replacement
 over Calabash Branch
 York County, South Carolina

AECOM

Figure

2

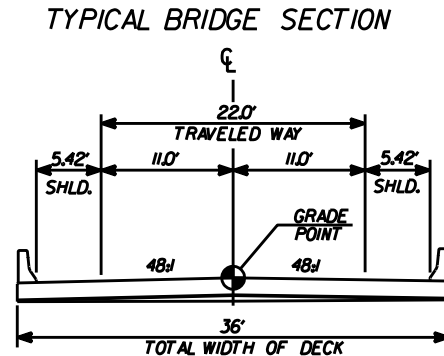
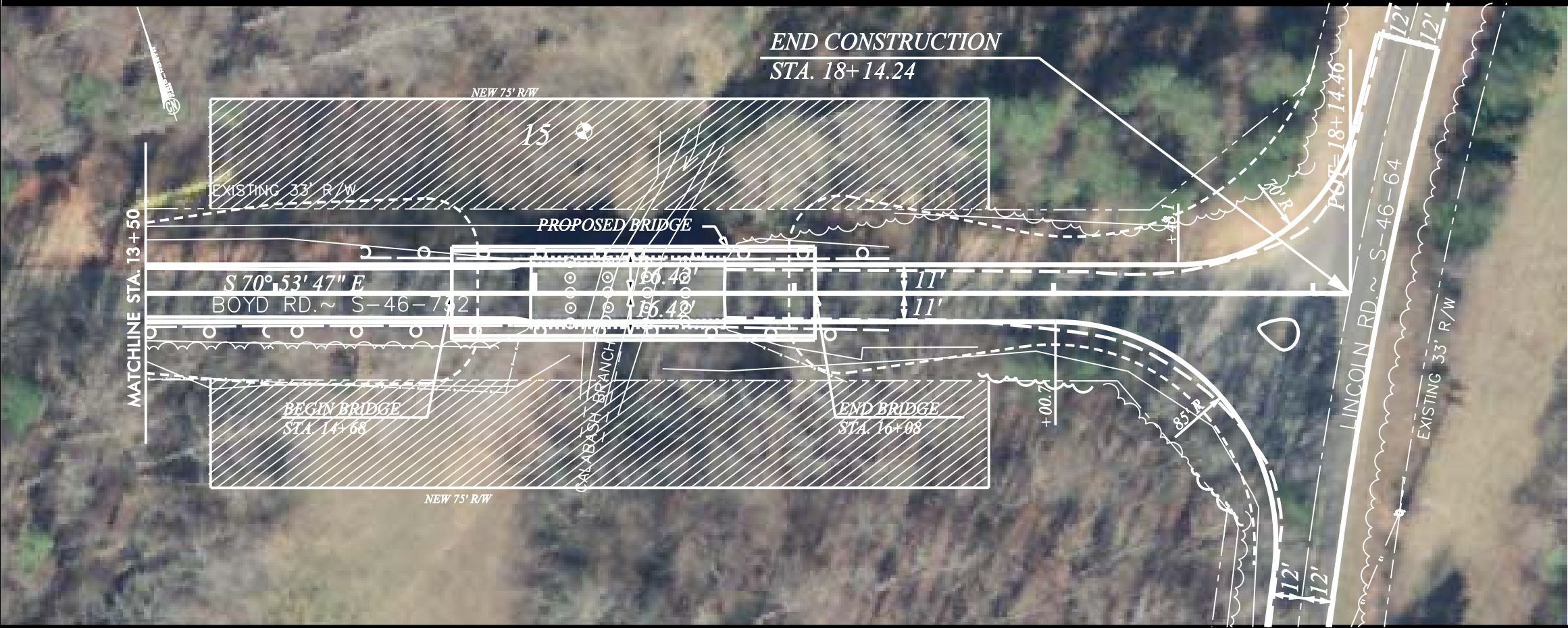
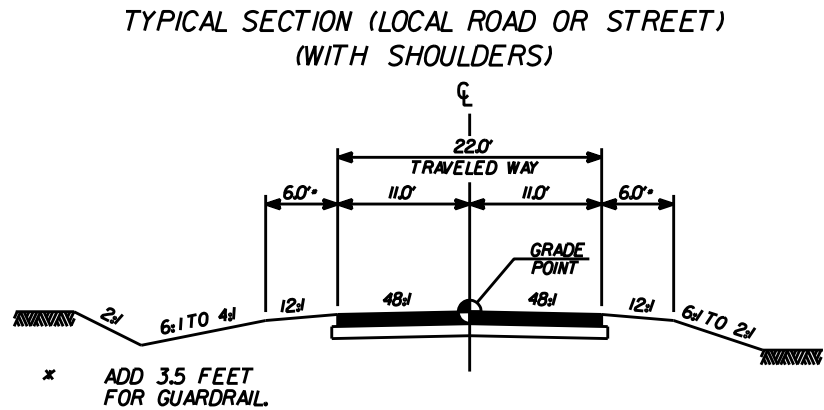



Off-Site Detour Route


S-46-732 over Calabash Branch
York County, SC



Figure
3



 ESTIMATED WETLAND IMPACTS: NONE

 ESTIMATED ROW ACQUISITION: 0.57 ACRES

PLAN SKETCH
S-46-732 OVER
CALABASH BRANCH

AECOM

FIGURE
4

APPENDIX A

Bridge Scoping Trip Risk Assessment Form

BRIDGE SCOPE AND RISK ASSESSMENT FORM

COUNTY: _____

DATE: _____

ROAD #: _____

STREAM CROSSING: _____

Boyd Road

Purpose & Need for the Project:

I. FEMA Acknowledgement

Is this project located in a regulated FEMA Floodway?

☐

Yes

☐

No

Flood Hazard Zone AE

Panel Number: _____

Effective Date: _____ (See Attached)

II. FEMA Floodmap Investigation

FEMA Flood Profile Sheet Number _____ illustrates the existing 100 year flood:

☐

Passes under the existing low chord elevation.

☐

Is in contact with the existing low chord elevation.

☐

Overtops the existing bridge finished grade elevation.

III. No Rise/CLOMR Preliminary Determination

☐

Preliminary assessment indicates this project may be constructed to meet the "No-Rise" requirements. A detailed hydraulic analysis will be performed to verify this assessment.

Justification:

☐

Preliminary assessment indicates this project may require a CLOMR/LOMR. Impacts will be determined by a detailed hydraulic analysis.

Justification:

BRIDGE SCOPE AND RISK ASSESSMENT FORM

IV. Preliminary Bridge Assessment

A. Locate Existing Plans

a. Bridge Plans ☐ Yes File No. _____ Sheet No. _____ (See Attached)
☐ No

b. Road Plans ☐ Yes File No. _____ Sheet No. _____ (See Attached)
☐ No

B. Historical Highwater Data

a. USGS Gage ☐ Yes Gage No. _____ Results: _____
☐ No

b. SCDOT/USGS Documented Highwater Elevations
☐ Yes Results: _____
☐ No

c. Existing Plans ☐ Yes See Above
☐ No

V. Field Review

A. Existing Bridge

Length: _____ ft. Width: _____ ft. Max. span Length: _____ ft.

Alignment: ☐ Tangent ☐ Curved

Bridge Skewed: ☐ Yes ☐ No Angle: _____

End Abutment Type: _____

Riprap on End Fills: ☐ Yes ☐ No Condition: _____

Superstructure Type: _____

Substructure Type: _____

Utilities Present: ☐ Yes ☐ No

Describe:

Debris Accumulation on Bridge: Percent Blocked Horizontally: _____ %

Percent Blocked Vertically: _____ %

Hydraulic Problems: ☐ Yes ☐ No

Describe:

BRIDGE SCOPE AND RISK ASSESSMENT FORM

V. Field Review (cont.)

B. Hydraulic Features

a. Scour Present: ☐ Yes ☐ No Location: _____

b. Distance from F.G. to Normal Water Elevation: _____ ft.

c. Distance from Low Steel to Normal Water Elev.: _____ ft.

d. Distance from F.G. to High Water Elevation: _____ ft.

e. Distance from Low Steel to High Water Elev.: _____ ft.

f. Channel Banks Stable: ☐ Yes ☐ No

Describe:

g. Soil Type: _____

h. Exposed Rock: ☐ Yes ☐ No Location: _____

i. Give Description and Location of any structures or other property that could be damaged due to additional backwater.

C. Existing Roadway Geometry

a. Can the existing roadway be closed for an On-Alignment Bridge Replacement

☐ Yes ☐ No

Describe:

If "yes", does the existing vertical and horizontal curves meet the proposed design speed criteria?

If "No", will the proposed bridge be:

☐ Staged Constructed

☐ Replaced on New Alignment

BRIDGE SCOPE AND RISK ASSESSMENT FORM

VI. Field Review (cont.)

A. Proposed Bridge Recommendation:

Length: _____ ft. Width: _____ ft. Elevation: _____ ft.

Span Arrangement: _____

Notes: _____

BRIDGE SITE DIAGRAM: (Show North Arrow and Direction of Flow)

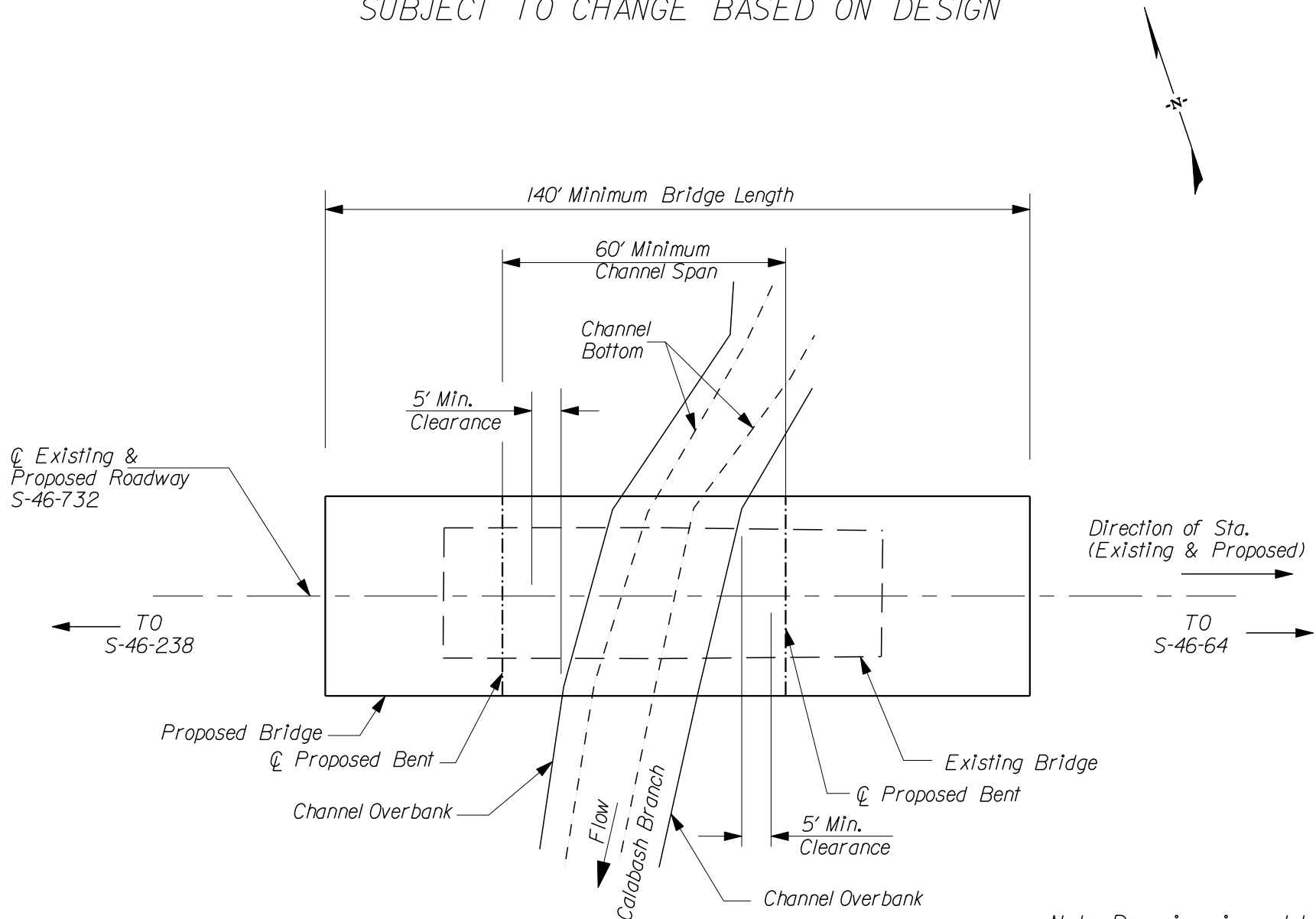
[illegible]

Performed By:

Fred Flie

ROUTE S-46-732 OVER CALABASH BRANCH
YORK COUNTY
PRELIMINARY BRIDGE LAYOUT

SUBJECT TO CHANGE BASED ON DESIGN



Note: Drawing is not to scale

APPENDIX B

Correspondence with Floodplain Administrator

December 22, 2011

Mr. Eddie Bassett
Floodplain Manager, York County
6 South Congress Street
York, South Carolina 29745

Dear Mr. Bassett:

RE: No Impact Intent Statements for S-46-64 over Allison Creek, S-46-732 over Calabash Branch, S-46-64 over Steele Creek and S-46-347 over Stony Fork Creek

The South Carolina Department of Transportation (SCDOT) is preparing to replace the bridges referenced above. The bridge structures will be replaced through a design/build contract where the contractor must construct a minimum structure length, minimum low chord, and minimum channel opening equal to or greater than the existing structure.

This letter attests that the referenced bridges lie within a Zone AE and that the intent of the proposed bridge is not to cause any increase in the base flood elevations or flooding potential for the surrounding areas during the 100 year storm event. Once the design/build contract has been established, the proper hydrologic and hydraulic design and analysis will be performed according to FEMA regulations. You will be notified of the study's findings once it is complete.

If you have any questions regarding this study, please feel free to contact me at (919) 854-6216 or email me at frank.fleming@aecom.com.

Sincerely yours,
AECOM Technical Services Inc.



Frank F. Fleming, PE
Project Manager

cc: Ms. Maria Cox Lamm, South Carolina State Floodplain Coordinator (w/o enclosures)
Ms. Joy Shealy, SCDOT Assistant Program Manager
Project 60181787
File 202.2

APPENDIX C

Cultural Resources Report

ARCHAEOLOGICAL FIELD REPORT
SCDOT ENVIRONMENTAL SECTION



TITLE: Cultural Resources Survey of the S-46-732 Calabash Branch Bridge Replacement Project, York County, South Carolina

BRIDGE NO.: 0004670073200100

CONSULTANT: Brockington and Associates, Inc.

DATE OF RESEARCH: January 2011

ARCHAEOLOGIST: David Baluha

COUNTY: York

PROJECT: S-46-732 Calabash Branch Bridge Replacement Project

DESCRIPTION: The project calls for the replacement of the S-46-732 bridge that crosses Calabash Branch, northeast of York, South Carolina. The S-46-732 Calabash Branch bridge is located approximately 250 feet west of the intersection of S-46-732 and S-46-64, northeast of York. The existing right-of-way (ROW) is 66 feet wide. The bridge will be rebuilt on existing alignment. At present, a narrow strip of new ROW will be needed along each side of the existing roadway; however, all construction will occur well within the archaeological survey universe. The project is adjacent to the S-46-64 Allison Creek Bridge Replacement Project.

The archaeological survey universe includes areas of proposed new ROW along S-46-732, extending 500 feet west of the bridge and east of the bridge to S-46-64 and 100 feet to either side of the present ROW. The architectural survey universe extends 300 feet on either side of the road centerline and is 600 feet wide.

Figure 1 presents the location of the project on the 2005 York County General Highway System map. Figure 2 shows the extent of the archaeological and architectural survey universes and all identified cultural resources within 0.5 mile of the project on the USGS 1985 *Clover, SC* quadrangle.

LOCATION: The project is located on S-46-732, centered approximately 250 feet west of the intersection of S-46-64, northeast of York, South Carolina.

USGS QUADRANGLE: *Clover, SC*

DATES: 1985 **SCALE:** 7.5' **UTM:** **ZONE:** 17 **DATUM:** NAD27

WESTERN TERMINUS: **EASTING:** 482443 **NORTHING:** 3880425

EASTERN TERMINUS: **EASTING:** 482694 **NORTHING:** 3880330

ENVIRONMENTAL SETTING: The project is located along S-46-732; this road passes through hilly topography, dissected by high-gradient streams. S-46-732 crosses Calabash Branch, approximately 500 feet north of its confluence with Allison Creek. Wooded areas and pasture characterize the western portion of the project area. We encountered wetlands vegetation in the Calabash Branch floodplain. Mixed pines/hardwoods predominate east of the bridge.

NEAREST RIVER/STREAM AND DISTANCE: Buffalo Creek

SOIL TYPES: Lakeland sand
Norfolk loamy sand
Vaucluse sandy loam

REFERENCE FOR SOILS INFORMATION: Colburn, Lee/1960/*Soil Survey of Darlington County, South Carolina*. USDA, Soil Conservation Service, Washington, DC.

GROUND SURFACE VISIBILITY: 0% ☐ 1-25% ☒ 26-50% ☐ 51-75% ☐ 76-100% ☐

CURRENT VEGETATION: The project area includes wetlands vegetation in the Calabash Branch floodplain, mixed pines/hardwoods east and west of the bridge, and pasture southwest of the bridge.

INVESTIGATION: On January 17, 2011, archaeologists consulted the ArchSite program to determine if previously identified archaeological sites are located in the project vicinity. One archaeological site (38YK189) is located within 0.5 mile of the project area. Also on January 17, 2011, the National Register of Historic Places (NRHP) files of the South Carolina Department of Archives and History (SCDAH) were searched for previous investigations and previously identified resources using the ArchSite program. Only one cultural resource survey has been conducted in the area, the York County Historic and Architectural Inventory (The Jaeger Company 1993). The Jaeger Company (1993) identified four architectural resources (Resources 102-1506, 102-1523, 102-1524, and 102-1570) within 0.5 mile of the project. Site 38YK189 and Resources 102-1506, 102-1523, 102-1524, 102-1570 are not eligible for the NRHP and outside the archaeological and architectural survey universes. Tables 1 and 2 summarize these cultural resources.

Table 1. Previously Identified Archaeological Sites Located Within 0.5 Mile of the Project Area.

SITE	SOURCE	PRE-CONTACT	POST-CONTACT	TIME PERIOD	ELIGIBILITY
38YK189	Styer et al. (1995)	Lithic scatter		Middle Archaic	Not eligible

Table 2. Previously Identified Historic Resources Located Within 0.5 Mile of the Project Area.

RESOURCE	SOURCE	RESOURCE NAME	DATE OF RESOURCE	ELIGIBILITY
102-1506	The Jaeger Company (1993)	Unnamed residence	1870	Not eligible
102-1523	The Jaeger Company (1993)	Unnamed residence	1895	Not eligible
102-1524	The Jaeger Company (1993)	Rufus Robinson home	1915	Not eligible
102-1570	The Jaeger Company (1993)	Unnamed residence	1910	Not eligible

ARCHITECTURAL SURVEY: The bridge over Calabash Branch was constructed in 1962 and is not survey eligible. We observed no historic architectural resources within the architectural survey universe during the field investigations.

ARCHAEOLOGICAL SURVEY: We conducted an intensive archaeological survey on January 21, 2011. The archaeological survey consisted of shovel testing in undisturbed, upland areas of the project area. None of the project area displayed good ground surface visibility; thus, visual inspection was not conducted. A small portion of the project is located within floodplain. However, most of the project area is located on upland ridges, covered in planted pine forest or within pasture. Figure 3 presents typical views of the project area.

Figure 4 presents the location of the project and the locations of shovel-tested areas on a 2006 aerial photograph. Investigators traversed a total of two shovel test transects (one on each side of the road); each transect was placed 50 feet from the edge of the existing ROW of S-46-732. Shovel tests were excavated at 100-foot intervals along each transect. Investigators excavated a total of 13 shovel tests. The shovel tests were excavated to an average depth of 1.5 feet below surface (ft bs) and ranged from 0.5 to 2.5 feet bs in depth. The fill from these tests was sifted through ¼-inch mesh hardware cloth. We recovered no cultural materials.

REMARKS AND RECOMMENDATIONS: Brockington and Associates, Inc., identified no cultural resources during archaeological and architectural survey of the S-46-732 Calabash Branch Bridge Replacement Project. Proposed improvements to the S-46-732 Calabash Branch bridge will have no effect on historic properties. However, if current proposed road plans change, additional survey may be necessary.

SIGNATURE:

 For DAVID BALVA

DATE:

5/11/11

REFERENCES CITED

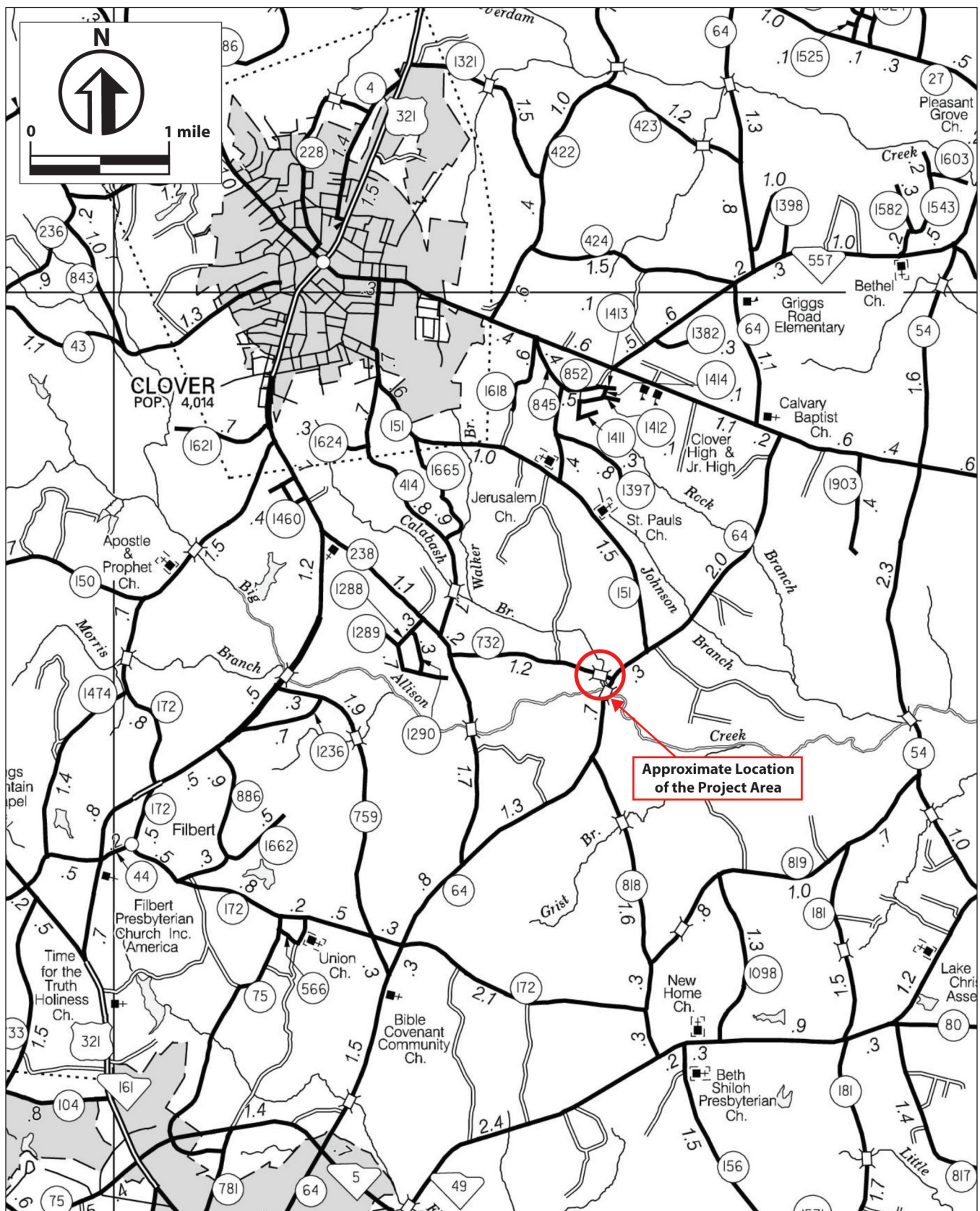
- Jaeger Company
1993 *York County Historic and Architectural Inventory Survey Report* . Prepared for York County, South Carolina.
- United States Geological Survey (USGS)
2011 <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey>, accessed January 17, 2011.

LIST OF FIGURES

- Figure 1. A portion of the 2005 York County General Highway System Map showing the location of the S-46-732 Calabash Branch Bridge Replacement Project.
- Figure 2. The location of the S-46-732 Calabash Branch Bridge Replacement Project and all identified cultural resources (USGS 1985 *Clover, SC* quadrangle).
- Figure 3. S-46-732 Calabash Branch Bridge Replacement Project setting photos: view of the bridge looking east towards the S-46-64 intersection (top); view of the bridge looking west (bottom).
- Figure 4. The location of the S-46-732 Calabash Branch Bridge Replacement Project, shovel-tested areas, and all identified cultural resources on an aerial photograph.

LIST OF TABLES

- Table 1. Previously Identified Archaeological Sites Located Within 0.5 Mile of the Project Area.
- Table 2. Previously Identified Architectural Resources Located Within 0.5 Mile of the Project Area.



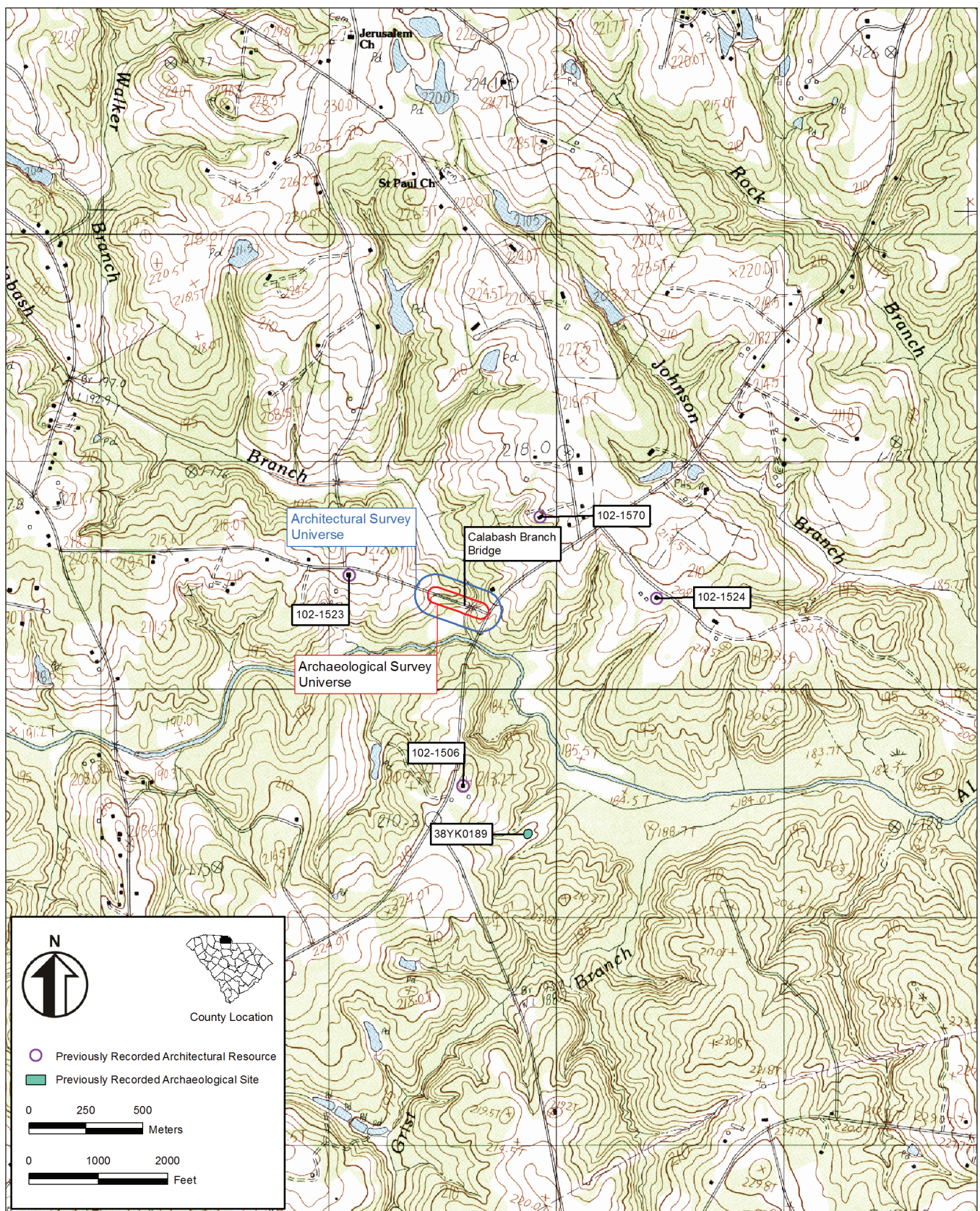


Figure 2. The location of the S-46-732 Calabash Branch Bridge Replacement Project and all identified cultural resources (USGS 1985 Clover, SC quadrangle).



Figure 3. S-46-732 Calabash Branch Bridge Replacement Project setting photos: view of the bridge looking east towards the S-46-64 intersection (top); view of the bridge looking west (bottom).

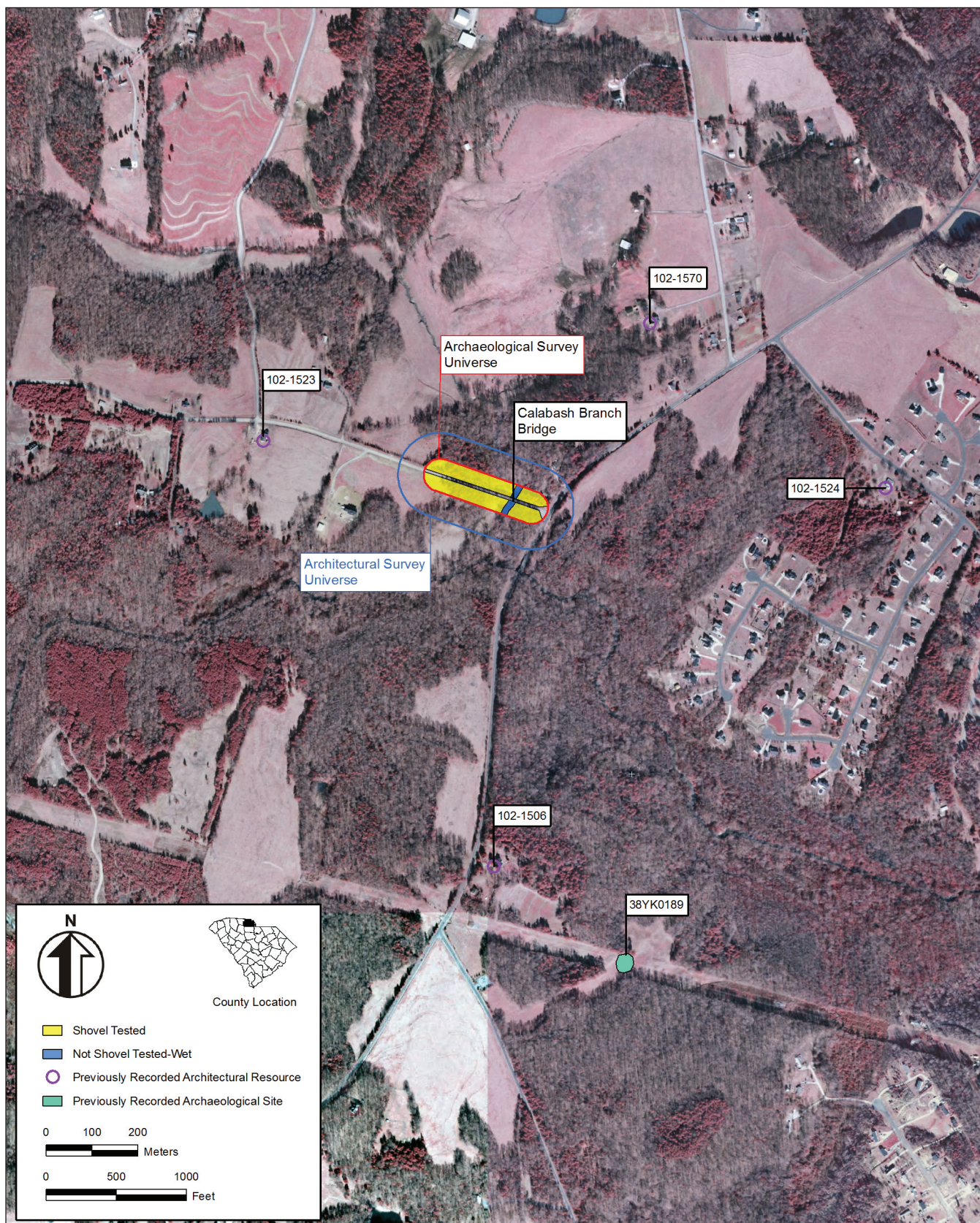


Figure 4. The location of the S-46-732 Calabash Branch Bridge Replacement Project, shovel-tested areas, and all identified cultural resources on an aerial photograph.



South Carolina
Department of Transportation

May 9, 2011



Ms. Elizabeth Johnson
Deputy State Historic Preservation Officer
South Carolina Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905

RE: Five Bridge Replacement Projects in York and Lancaster Counties

Dear Ms. Johnson:

The Department's consultant completed cultural resource investigations for five bridge replacement projects in York and Lancaster Counties. Two copies of each report are enclosed for your review and comment. The report title and associated findings are listed below:

- 36 1) *Cultural Resources Survey of the S-46-22 Steele Creek Bridge Replacement Project, York County South Carolina.* File No. 46.039094
Findings: Two historic architectural resources (3771.00 and 3771.01) were recorded and recommended not eligible. No archaeological sites were found.
Determination: No historic properties will be affected.
- 36 2) *Cultural Resources Survey of the S-46-64 Allison Creek Bridge Replacement Project, York County, South Carolina.* File No. 46.039094
mark this in our country Findings: One archaeological site (38YK571) was identified and recommended not eligible.
Determination: No historic properties will be affected.
- 37 3) *Cultural Resources Survey of the S-29-64 McAlpine Creek Bridge Replacement Project, Lancaster, South Carolina.* File No. 29.039094
Findings: No cultural resources identified.
Determination: No historic properties will be affected.
- 36 4) *Cultural Resources Survey of the S-46-347 Stoney Fork Creek Bridge Replacement Project, York County, South Carolina.* File No. 46.039094
Findings: No cultural resources identified.
Determination: No historic properties will be affected.
- 36 5) *Cultural Resources Survey of the S-46-732 Calabash Branch Bridge Replacement Project, York County, South Carolina.* File No. 46.039094
Findings: No cultural resources identified. Determination: No historic properties will be affected.



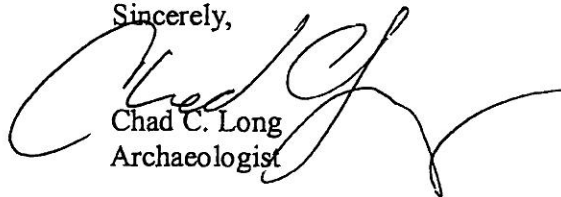
Letter to Ms. Elizabeth Johnson
May 9, 2011

Based on the results of background research and field investigations, the Department has determined that the proposed undertaking will have no effect on historic properties.

In accordance with the memorandum of agreement approved by the Federal Highway Administration, March 16, 1993, the Department is providing this information as agency official designee, as defined under 36 CFR 800.2, to ensure compliance with Section 106 of the National Historic Preservation.

It is requested that you review the enclosed material and, if appropriate, indicate your concurrence in the Department's findings, thus completing the Section 106 consultation process. Please respond within 30 days if you have any objections or if you have need of additional information.

Sincerely,



Chad C. Long
Archaeologist

CCL:ccl
Enclosure

I (~~do not~~) concur in the above determination.

Signed: Wenonah Haire, DR Date: 6/6/11

cc: Shane Belcher, FHWA
Wenonah Haire, CIN THPO
Russell Townsend, EBCI THPO
Lisa C. LaRue Stopp, United Keetowah Band THPO

File: Env/CCL



South Carolina
Department of Transportation

May 9, 2011

MULT (YORK + LAN)
#s 15188, 15189, 15190, 15191,
15192
11-DK0047, 11-DK0048, 11-DK0049,
11-DK0050, 11-DK0051
NHFA

Ms. Elizabeth Johnson
Deputy State Historic Preservation Officer
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RECEIVED

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SC Department of
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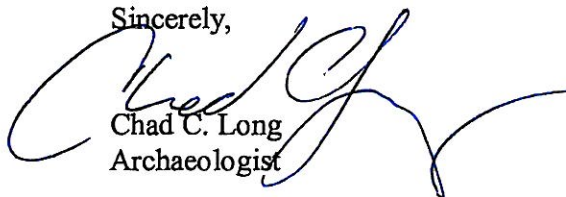
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Sincerely,


Chad C. Long
Archaeologist

CCL:ccl
Enclosure

I ~~(do not)~~ concur in the above determination.

Signed:  SDAH Date: 5/17/11
DOT Project Coordinator

cc: Shane Belcher, FHWA
Wenonah Haire, CIN THPO
Russell Townsend, EBCI THPO
Lisa C. LaRue Stopp, United Keetowah Band THPO

File: Env/CCL



Eastern Band of Cherokee Indians
Tribal Historic Preservation Office
P.O. Box 455
Cherokee, NC 28719
Ph: 828-554-6852 Fax 828-488-2462

DATE: July 19, 2011

TO: FHWA, SC Division
Attn: Robert L. Lee
Division Administrator
1835 Assembly St.
Suite 1270
Columbia, SC 29201

PROJECT(s): Comments regarding:

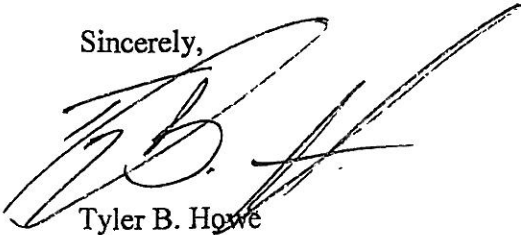
1. Cultural Resource Survey of the S-83 Buffalo Creek Bridge Replacement Project, Cherokee County, SC (11.040188)
2. Phase I Cultural Resources Survey of S-20-12 over Rocky Creek, Fairfield County, SC (20.038091).
3. Cultural Resource Survey of the S-46-22 Steele Creek Bridge Replacement project, York County, SC (46.039094).
4. Cultural Resource Survey of the S-46-64 Allison Creek Bridge Replacement Project, York County, SC (46.039094).
5. Cultural Resource Survey of the S-29-64 McAlpine Creek Bridge Replacement Project, Lancaster County, SC (29.039094).
6. Cultural Resource Survey of the S-46-347 Stoney Fork Creek Bridge Replacement Project, York County, SC (46.039094).
7. Cultural Resource Survey of the S-46-732 Calabash Branch Bridge Replacement Project, York County, SC (46.039094).

The Tribal Historic Preservation Office of the Eastern Band of Cherokee Indians (EBCI THPO) would like to thank you for the opportunity to comment on this proposed section 106 activities under §36 C.F.R. 800.

The EBCI THPO concurs with the archeologist's recommendations that no sites eligible for inclusion on the National Register of Historic Places were encountered during the recent phase I archaeological field surveys. As such, the EBCI THPO believes that the proposed projects may proceed as planned. In the event that project plans change, or cultural resources or human remains are discovered, all work should cease, and this office should be contacted to continue government to government consultation as defined under Section 106 of the National Historic Preservation Act of 1966, as amended.

If we can be of further service, or if you have any comments or questions, please feel free to contact me at (828) 554-6852.

Sincerely,

A handwritten signature in black ink, appearing to read 'T. B. Howe', with a long, sweeping horizontal stroke extending to the right.

Tyler B. Howe
Tribal Historical Preservation Specialist
Eastern Band of Cherokee Indians

C: Wayne D. Roberts



APPENDIX D

Natural Resources Technical Report

Natural Resources Technical Report
Bridge Replacement on S-46-732 over Calabash Branch
York County, South Carolina

Prepared for:

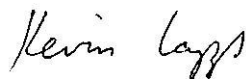
South Carolina Department of Transportation

Issued by:

AECOM
701 Corporate Center Drive, Suite 475
Raleigh, North Carolina 27607

AECOM Project No. 60181787

December 2011

A handwritten signature in black ink that reads "Kevin Lapp". The signature is written in a cursive, slightly slanted style.

Kevin Lapp, Biologist

INTRODUCTION

This Natural Resources Technical Report is submitted to assist the South Carolina Department of Transportation (SCDOT) in the preparation of a Categorical Exclusion (CE) evaluation for the proposed project. The purpose of this technical report is to inventory, catalog, and describe the various natural resources and environmental features likely to be impacted by the proposed action. The report also attempts to identify and estimate the likely consequences of the anticipated impacts to these resources. These descriptions and estimates are relevant only in the context of the preliminary design concepts. It may become necessary to conduct additional field investigations should design parameters and criteria change.

Project Description

The proposed project involves the replacement of the existing bridge on Boyd Road (S-46-732) over Calabash Branch, in York County, South Carolina (**Figure 1**). This bridge is proposed to be replaced in place to reduce any proposed impacts.

Methodology

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

- U.S. Geological Survey (USGS) quadrangle map (Clover, SC, 1985),
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Map (Clover, SC, 2010)
- Soil Survey York County, South Carolina (Soil Conservation Service, 1965).
- USFWS list of protected and candidate species
- SC Heritage Trust Program (SCHT) files of rare species and unique habitats

A general field survey was conducted within the proposed project corridor by AECOM biologists on January 18, 2011. Water resources were identified and their physical characteristics were recorded. 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 Nelson (1990) where appropriate and plant taxonomy follows Radford *et al.* (1968). A survey of suitable habitat for threatened and endangered species listed in York County was performed within the study area.

Jurisdictional wetlands were evaluated and delineated based on criteria established in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (USACE, 2010) and revised Guidance on Clean Water Act Jurisdiction following the Supreme Court decision in *Rapanos v. U.S.* and *Carabell v. U.S* (USEPA & USACE, 2008). Wetlands were further classified into general

types based characteristics outlined in Cowardin *et al.* (1979).

Terminology and Definitions

For the purposes of this report, the following terms are used for describing the limits of natural resources investigations. “Project corridor” denotes an area with a length of 500 feet from each end of the existing bridge and a width of 100 feet either side of the existing centerline. The “study area” is an area extending 1 mile on all sides of the project corridor.

Qualifications of the Principal Investigators

Investigator	Kevin Lapp
Education	M.S. Biology, Appalachian State University
Experience	Staff Biologist AECOM > 11 years
Expertise	Natural resource surveys, wetland delineation, endangered species surveys

Investigator:	Jennifer Cassada
Education	B.S. Fish and Wildlife Science, North Carolina State University
Experience	Staff Biologist AECOM > 9 years
Expertise	Natural resources surveys, wetland delineation, endangered species surveys

Investigator:	Ron Johnson
Education	M.S. Biological Sciences, Illinois State University
Experience	Senior Biologist AECOM > 23 years
Expertise	Natural resources surveys, wetland delineation and mitigation

Regional Characteristics

The study area lies in the Southern Outer Piedmont ecoregion in the piedmont physiographic province. Elevations in the project corridor are approximately 614 to 653 feet (U.S. Geological Survey, 1985). The topography in the project corridor is generally rolling with only moderate slopes adjacent to the drainages.

The climate in York County is temperate with mild winters and warm summers. Summer is the wettest season with approximately 30 percent of annual precipitation falling during this time period. Winter is also a fairly wet season, receiving approximately 27 percent of the annual precipitation. The heaviest annual rainfall recorded in York County was 63.3 inches in 1936 and the lightest annual rainfall was 32.6 inches in 1933. Summers are warm and long and there are generally few breaks in the heat during midsummer. There is an average of 67 days having a temperature of 90 degrees Fahrenheit or higher and only 1 in 3 summers do not have temperatures reaching 100 degrees. Winter is mild with

temperatures as low as 32 on half of the days in the season. Temperatures drop to 20 degrees or less on 14 days and 15 degrees or less on 6 days or less (USDA, 1965).

The project lies in the Upper Catawba River basin (hydrologic unit 03050101). The Catawba River flows through the Piedmont, Sandhills, and Upper Coastal Plain regions of South Carolina and the basin encompasses 2,322 square miles. The Catawba River joins with the Congaree River to form the Santee River. The project lies in the Allison Creek watershed (Watershed Management Unit 190) which encompasses 42,485 acres. One perennial stream, Calabash Branch, is located in the project corridor.

Calabash Branch is not classified in the 2006 Classified Waters list by South Carolina Department of Health and Environmental Control (SCDHEC). Allison Creek (Big Allison Creek), its receiving water, is classified in the 2006 Classified Waters document as FW (Freshwater) its entire length and flows directly into Lake Wylie (Catawba River). Class FW waters are freshwaters which are suitable for primary and secondary contact recreation and as a source for drinking water supply, after conventional treatment in accordance with the requirements of the Department of Health and Environmental Control. These waters are suitable for fishing, and the survival and propagation of a balanced indigenous aquatic community of fauna and flora. This class is also suitable for industrial and agricultural uses (SCDHEC, 2008).

No waters classified as Outstanding National Resource Water (ONRW), Outstanding Resource Water (ORW), or Water Supply occur within 1 mile (1.6 km) of the project corridor. Neither Calabash Branch nor Allison Creek are listed on the 2010 303(d) list, although Lake Wylie (Catawba River) is listed as impaired on the 2010 303(d) list at its crossing of SC 274. This point is approximately 6 miles downstream of the project, although the designation of impairment extends upstream and downstream of this location. Lake Wylie is listed as impaired for exceeding pollutant parameters for chlorophyll a and total phosphorus (SCDHEC, 2010).

BIOTIC RESOURCES

The proposed project lies in a primarily undeveloped area of York County, west of the city of Rock Hill. Three distinct terrestrial communities were identified within the project corridor: a disturbed community, successional community, and an oak-hickory community.

Disturbed Community

This community includes habitats that have recently been or are currently impacted by human disturbance including regularly maintained roadside shoulders, maintained ditch edges, and pastures. These habitats are kept in a low-growing, early successional state. Regularly maintained roadside shoulders are present along Lincoln Road and are mowed frequently. These areas are dominated by herbaceous vegetation. The dominant species

include panic grasses (*Panicum* sp.), broomsedge (*Andropogon virginicus*), and low growing weedy species.

Ditch edges are also located along the roadside and are periodically cleared and may be dominated either by grasses or dense, scrubby saplings and weedy vegetation. The dominant species include broomsedge, blackberry (*Rubus* sp.), red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), poison ivy (*Toxicodendron radicans*), goldenrod (*Solidago* sp.), Japanese honeysuckle (*Lonicera japonica*), various grasses and low growing shrubs.

Two small portions of a pasture complex are located in the southwest quadrant of the project corridor, south of Boyd Road. The active pasture is composed of primarily fescue grass (*Festuca* sp.) and appears regularly used by livestock.

Successional Community

This community occurs in the powerline right-of-way north of Boyd Road. It appears to receive periodic cutting and/or herbiciding to maintain the vegetation at a relatively low height. The vegetation is not as actively maintained as pasture or road shoulders and is therefore allowed to develop a greater diversity in vegetative strata. This successional area had a large number of exotic species present; Chinese privet (*Ligustrum sinense*), Japanese honeysuckle, and kudzu (*Pueraria lobata*). Other aggressive colonizing species are often present in these areas and include: broomsedge, red maple, sweetgum, silverling (*Baccharis halmifolia*), and greenbrier (*Smilax rotundifolia*).

Oak-Hickory Forest

This community occurs in remnant forest stands that haven't been converted to pine plantation and unconverted upland areas along streams. A large mature stand of this community occurs on both sides of Allison Creek and acts as a riparian buffer. The forest stands are typically mature trees in moderately open conditions. The dominant species include willow oak (*Quercus phellos*), tulip poplar (*Liriodendron tulipifera*), southern red oak (*Quercus falcata*), water oak (*Quercus nigra*), and eastern red cedar (*Juniperus virginiana*) with scattered groupings of shortleaf pine (*Pinus echinata*) and Virginia pine (*Pinus virginiana*).

Waters of the United States

Wetlands and surface waters fall under the broad category of "Waters of the United States" as defined in 33 CFR 328.3 and in accordance with provisions of Section 404 of the Clean Water Act (33 U.S.C. 1344). These waters are regulated by the U.S. Army Corps of Engineers (USACE). Any action that proposes to dredge or place fill material into surface waters or wetlands falls under these provisions.

Wetlands

Jurisdictional wetland determinations were performed utilizing criteria prescribed in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (U.S. Army Corps of Engineers, 2010). Criteria to identify wetland sites include evidence of hydric soils, hydrophytic vegetation, and hydrology.

It is useful to rank wetlands based on their perceived quality to assist in the design and planning of the project. One method of assessing the value and function of wetlands is in terms of wildlife habitat. The United States Fish and Wildlife Service (USFWS) Resource Category criteria are outlined in the USFWS Mitigation Policy, 46 CFR 7644-7663. Resource categories and mitigation planning techniques are assigned based on the following criteria:

- **Category 1** – Communities of one-of-a-kind high value to wildlife, unique and irreplaceable on a national or eco-regional basis, habitat is not replaceable in-kind based on present day scientific and engineering skills within a reasonable time frame.
- **Category 2** – Communities of high value to wildlife that are relatively abundant on a national or eco-regional basis, habitat can be replaced in kind within a reasonable time frame based on present-day scientific and engineering skills.
- **Category 3** – Community types of high to medium wildlife value which are relatively abundant on a national basis, out-of-kind replacement is allowable if a tradeoff analysis demonstrates equivalency of substituted habitat type and/or habitat values. These sites are often in conjunction with a replenishing resource.
- **Category 4** – Community types of low to medium wildlife value, generally losses will not have a substantial adverse effect on important fish and wildlife resources. These sites have often been affected by the present roadway or human disturbances and are usually isolated.

One small jurisdictional wetland area (Wetland 1) was identified within the project corridor. Wetland 1 is located in a toe of slope depression in the Allison Creek and Calabash Branch confluence floodplain. This wetland is located in a floodplain that encompasses a portion of an active pasture. Vegetation consists of primarily herbaceous species and shrubs such as soft rush (*Juncus effusus*), giant cane (*Arundinaria gigantea*), sweetgum, and river birch (*Betula nigra*). The Cowardin classification system describes this wetland as a palustrine scrub-shrub wetland with broad-leaved deciduous vegetation (PSS1). This wetland would be classified as a Category 4 wetland using the USFWS Resource Category criteria.

Streams

One perennial stream, Calabash Branch, is located within the project corridor and is shown on **Figures 2 and 3**. Calabash Branch is a third order stream that flows into Allison Creek and ultimately Lake Wylie (Catawba River), north of the city of Rock Hill.

During the site visit, Calabash Branch had continuous normal flow and exhibited clear water, though there was a cattle trail beside the stream that likely introduces sediment to the streambed. Substrate consists of a mixture of silt, sand, and gravel. Calabash Branch had banks that ranged from 20 to 30 feet in width in the project corridor and banks that were approximately 4 to 5 feet in height. Riparian buffers were in poor condition in the project corridor with evidence of cattle activity adjacent to the western streambank. Vegetation was more prevalent on the eastern streambank and a riparian buffer of approximately 250 feet in width was present.

Rare and Protected Species

Some populations of plants and animals are declining either as a result of natural forces or their difficulty competing with humans for resources. Rare and protected species listed for York County, and any likely impacts to these species as a result of the proposed project construction, are discussed in the following sections.

Federally Protected Species

Plants and animals with a federal classification of Endangered (E), Threatened (T), or Candidate (C) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended.

The USFWS lists six federally protected species for York County as of January 20, 2011 (USFWS, 2010). These species are listed in Table 1. The South Carolina Heritage Trust does not list any occurrences of federally listed plants or animals within two miles of the project corridor.

Table 1. Federally Protected Species in York County			
Scientific Name	Common Name	Status	Habitat Present
<i>Amphianthus pusillus</i>	Little amphianthus	T	No
<i>Aster georgianus</i>	Georgia aster	C	Yes
<i>Helianthus schweinitzii</i>	Schweinitz's sunflower	E	Yes
<i>Hexastylis naniflora</i>	Dwarf-flowered heartleaf	T	Yes
<i>Haliaeetus leucocephalus</i>	Bald eagle	BGEPA	No
<i>Lasmigona decorata</i>	Carolina heelsplitter	E	Yes
Sources: USFWS, 2010. Key: T=Threatened, E=Endangered, C=Candidate, BGEPA=Bald and Golden Eagle Protection Act			

***Amphianthus pusillus* (Little amphianthus)**

Threatened

Little amphianthus is a 2 to 4 inch tall delicate annual herb that has submerged and floating greenish-purple leaves and fibrous roots. This plant typically occurs in shallow flat-bottomed pools found on the crest and flattened slopes of unquarried granite outcrops that occur on large isolated domes or gently rolling flatrocks in full sunlight. These pools range in size from 0.3 to 10.0 square yards, the vast majority ranging from 0.5 to 1.0

square yard. These pools retain water for several weeks following a heavy rain and completely dry out with summer droughts. The seeds can lie dormant over several seasons until moisture becomes available (USACE, 2011).

SC Heritage Trust lists a population of little amphianthus located approximately 2 miles northwest of the bridge in an outcropping. There were no outcrops present in the project corridor, thus there was no habitat suitable for little amphianthus in the project corridor. This project will have **no effect** on this federally protected species.

***Aster georgianus* (Georgia aster)**

Candidate

Georgia aster is a purple composite-flowered perennial herb that is found in sunlit habitat such as open woods and roadsides. Flowering occurs from early October to mid November. The preferred habitat for the species has been identified as post oak (*Quercus stellata*) savannah/prairie communities, although most remaining populations survive adjacent to roads, utility rights of way, and other openings that are artificially maintained in an open state (GSRC, 2011).

Suitable open habitat for Georgia aster was present along the road shoulders of Boyd Road adjacent to upslope areas of forest. Suitable habitat was surveyed for the presence of this species on October 13, 2010 and no individuals were discovered in the project corridor. The proposed project will have **no effect** on this federally protected species.

***Helianthus schweinitzii* (Schweinitz's sunflower)**

Endangered

Schweinitz's sunflower is a rhizomatous perennial herb that grows from 3 to 6 ft tall from a cluster of carrot-like tuberous roots. Flowers are yellow composites and occur from mid-September to frost. The species occurs in clearings and edges of upland woods on moist to dryish clays, clay-loams, or sandy clay-loams that often have high gravel content. Schweinitz's sunflower usually grows in open habitats not typical of the current general landscape in the piedmont of the Carolinas. Some of the associated species, many of which are also rare, have affinities to glade and prairie habitats of the Midwest. Other species are associated with fire-maintained sandhills and savannas of the Atlantic Coastal Plain and piedmont (Russo, 2000).

Suitable open habitat for Schweinitz's sunflower was present along the road shoulders of Boyd Road adjacent to upslope areas of forest. Suitable habitat was surveyed for the presence of this species on October 13, 2010 and no individuals were discovered in the project corridor. The proposed project will have **no effect** on this federally protected species.

***Hexastylis naniflora* (Dwarf-flowered heartleaf)**

Threatened

Dwarf flowered heartleaf, also known as dwarf-flowered wild ginger, is a small herb with evergreen leaves that are heart-shaped and have a leathery texture. This species has the smallest flower in the genus, measuring less than 0.4 inches across. The jug-shaped flowers are beige to dark brown, sometimes green or purplish and flowering occurs in late spring. The dwarf-flowered heartleaf requires acidic, sandy loam soils along bluffs and

slopes, in boggy areas adjacent to creekheads and streams, and along slopes of hillsides and ravines (Russo, 2011).

Suitable habitat for *Hexastylis naniflora* was present within the project corridor, though slopes present along Calabash Branch were not of the preferred northern aspect. These mature hardwood forest slopes were surveyed for heartleaf on January 18, 2011 and no individuals of *Hexastylis* species resembling *H. naniflora* were encountered within the project corridor. The proposed project will have **no effect** on this federally protected species.

***Haliaeetus leucocephalus* (Bald eagle) Bald and Golden Eagle Protection Act**

The bald eagle is a large raptor with a wingspan reaching 7 feet. The bald eagle is primarily associated with coasts, rivers, and lakes, usually nesting less than two miles from open water. Nests are cone-shaped, 6 to 8 feet tall and at least 6 feet in diameter. Nests are built in dominant live pines or cypress trees that provide a good view and clear flight path. Winter roosts are usually in dominant trees similar to nesting trees but can be further from the water (Russo, 2000). Bald eagles favor coasts and lakes where fish are plentiful, though will also eat small mammals, scavenge carrion, or steal kills from other animals (National Geographic, 2011).

Suitably sized rivers or lakes do not occur in the project corridor, thus this project will have **no effect** on this federally protected species.

***Lasmigona decorata* (Carolina heelsplitter) Endangered**

The Carolina heelsplitter is a greenish brown to dark brown mussel, often with faint greenish brown to black rays on the younger specimens. The historic range of the Carolina heelsplitter included more widespread distributions in the Catawba and Pee Dee River systems in North Carolina and the Pee Dee and Savannah River systems and possibly the Saluda River in South Carolina. Currently, only eleven populations are known to exist (West, pers. com.). Historic records report the Carolina heelsplitter occurring in small to large streams and rivers as well as ponds, probably mill ponds on small streams. The Carolina heelsplitter is now restricted to cool, clean, shallow and heavily shaded streams with moderate gradients. Preferred streams typically have stable streambanks and channels with defined riffle, pool, and run sequences. Furthermore, these streams have little or no fine sediment present. Periodic natural flooding also appears to be a requirement for the species (SCDNR, 2011).

This species has never been reported from Calabash Branch and surveys performed at the Calabash Branch bridge for the mussel (one in 2006 and one in 2011) found no evidence of the species and concluded **no effect**. Copies of these surveys are attached.

Federal Species of Concern and State Listed Species

Federal Species of Concern (FSC) are not legally protected under the Endangered Species Act and are not subject to any of its provisions, including Section 7, until they are

formally proposed or listed as Threatened or Endangered. The Charleston, South Carolina U.S. Fish and Wildlife Service ecological services office does not track Federal Species of Concern and does not have a list of FSC species by county (Caldwell, pers. com).

South Carolina Heritage Trust mapping indicates that several state listed species are located approximately two miles northwest of the project: Piedmont quillwort (*Isoetes piedmontana*), one-flower stitchwort (*Minuartia uniflora*), heartleaf foamflower (*Tiarella cordiflora* var. *cordiflora*), Georgia rush (*Juncus georgianus*), granite flatsedge (*Cyperus granitophilus*), and several outcroppings that these species are associated with. These species are on the 2009 list of rare, threatened, and endangered species and communities in York County but carry no designated state protection. AECOM biologists did not observe any outcroppings or state listed species within the project corridor.

Non-Natural Environment Features

No notable non-natural environmental features were noted in the project corridor. The regional area is primarily rural and characterized by large numbers of pastures interspersed with remnant forest stands and stream drainages. Residences and farm outbuildings are widely scattered. The majority of the surrounding study area is forested. A small pasture extension is located northeast of the bridge at the extreme edge of the project corridor. One residence is northwest of the bridge on Lincoln Road and while it is not located within the project corridor, its proximity to this project and the bridge replacement on adjacent Allison Creek could cause mobility problems for the residents if both bridges were closed at the same time.

REFERENCES

Alderman Environmental Services. 2006. Freshwater Mussel Survey for SCDOT Project PIN # N/A at S-64; Allison and Calabash Creeks, York County, SC. April 21, 2006.

Cowardin, L.M., V. Carter, F.C. Golet and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, Office of Biological Services, FWS/OBS-79/31. U.S. Department of the Interior, Washington, DC.

Gulf South Research Corporation. Georgia Aster. 2011. http://www.goldendelighthoney.com/tes/SYGE/asge_text.html.

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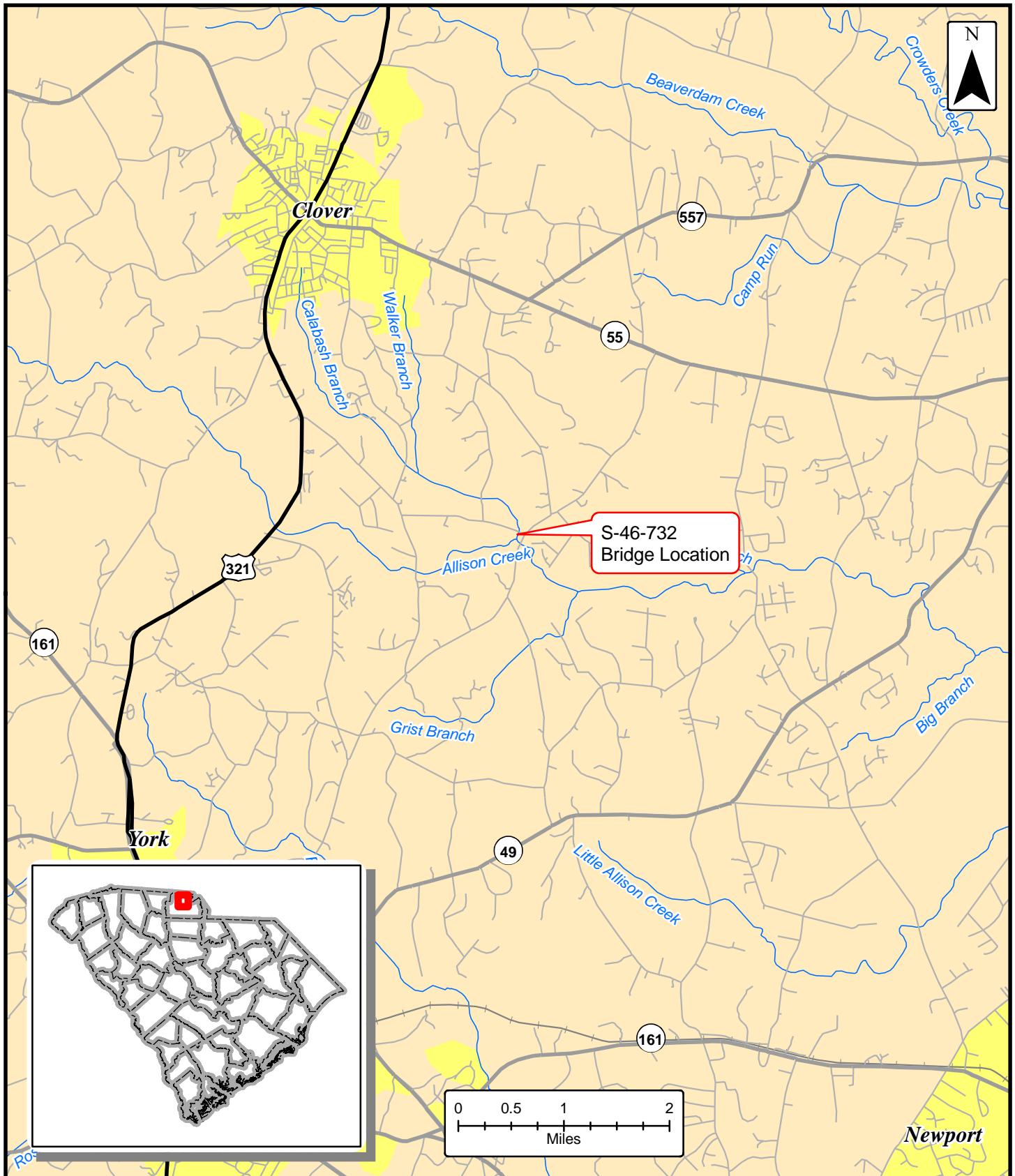
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Legend



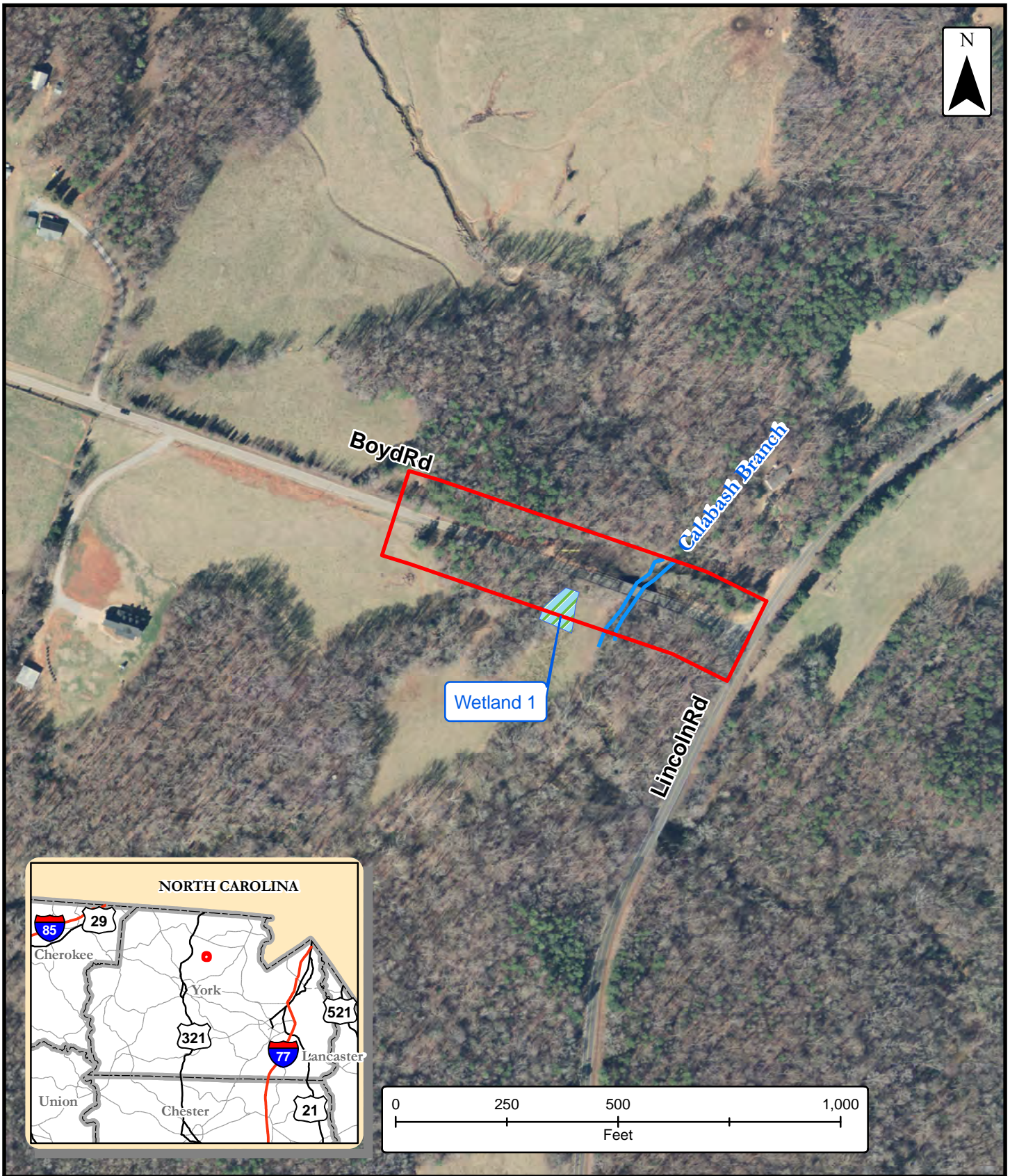
- Interstate
- U.S. Highway
- SC Highways
- Railroad
- Streams
- County
- Municipalities

Vicinity Map

S-46-732 Bridge Replacement
over Calabash Branch
York County, South Carolina

AECOM

**Figure
1**



Legend

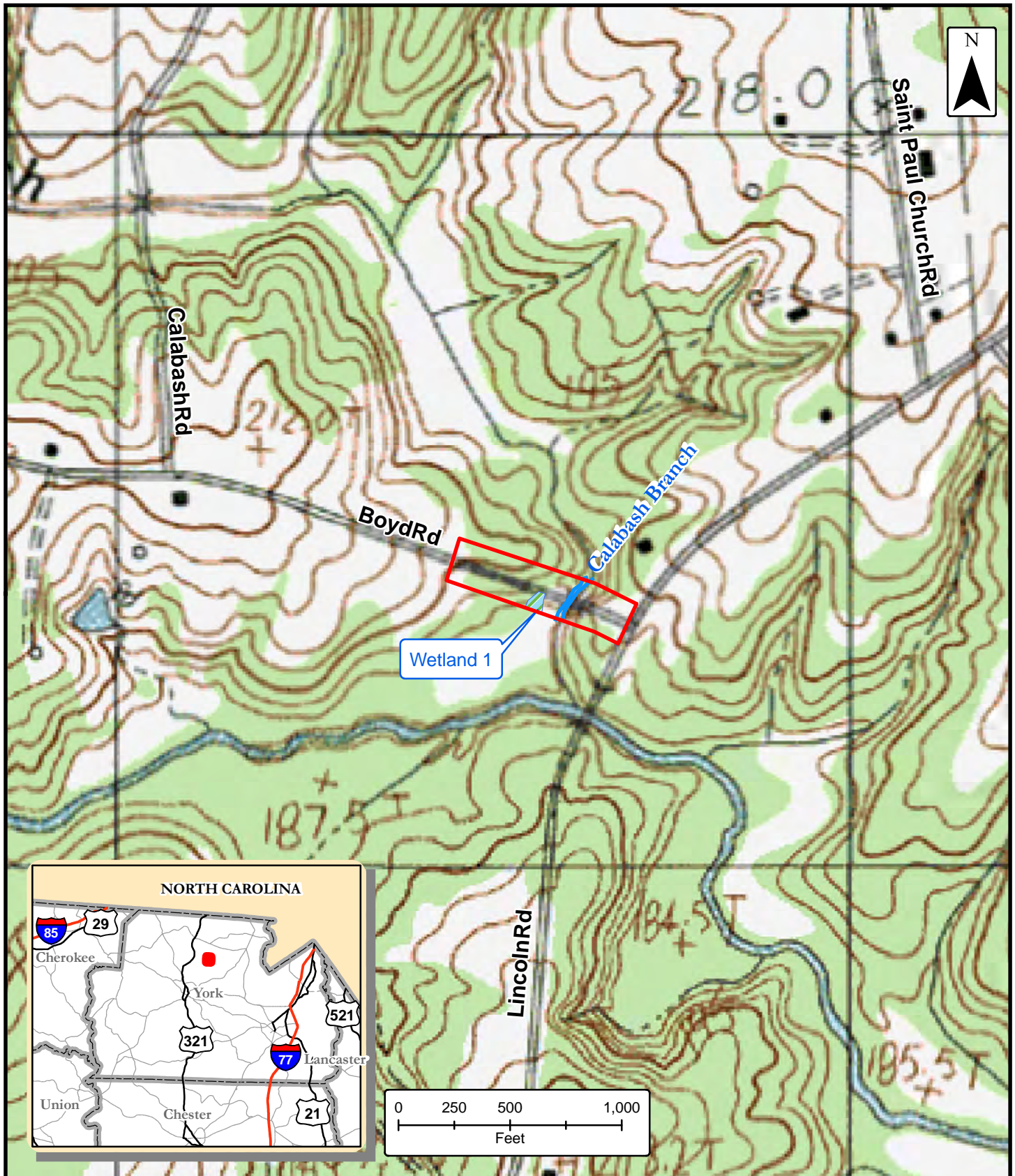
- Project Corridor
- Streams
- Wetlands

Jurisdictional Features

S-46-732 Bridge Replacement
over Calabash Branch
York County, South Carolina

AECOM

**Figure
2**



USGS 1:24,000 Topographic Mapping
Source:ESRI US Topo Maps



Legend

- Streams
- Project Corridor
- Wetlands

Jurisdictional Features

S-46-732 Bridge Replacement
over Calabash Branch
York County, South Carolina

AECOM

Figure
3



Alderman Environmental Services, Inc.

April 21, 2006

PROJECT: Freshwater mussel survey for SCDOT Project PIN # N/A at S - 64;
Allison and Calabash Creeks, York County, SC

TARGET SPECIES: Federally listed endangered Carolina heelsplitter (*Lasmigona
decorata*)

BIOLOGISTS: John Alderman

SCDNR Endangered Mussel Survey Permit Authorization: November 25, 2002

U.S. FISH AND WILDLIFE SERVICE ES PERMIT: TE065756-0

STATION 20060416.3jma

LOCATION: Allison and Calabash Creeks, Santee Cooper River Basin, York County,
South Carolina; within 400 m downcreek to 100 m up Allison Creek and up 100 m within
Calabash Creek from the bridge; Location: 35.06652 N, 81.19024 W; **see associated
map at end of report.**

SURVEY DATE: April 16, 2006

SITE COMMENTS: Very heavy sediment load; cows in creeks upcreek from bridge

HABITAT:

WATERBODY TYPE:	Creek
FLOW:	Run, slack

HABITAT (CONTINUED):

RELATIVE DEPTH:	Very shallow
DEPTH (%<2 FEET):	95
SUBSTRATE:	Clay, silt, sand , gravel, cobble, boulder
COMPACTNESS:	Normal and unconsolidated
SAND/GRAVEL BARS:	Abundant
WOODY DEBRIS:	Average
BEAVER ACTIVITY:	None
WINDTHROW:	Moderate
TEMPORARY POOLS:	None
CHANNEL WIDTH:	8-10+ meters
BANK HEIGHT:	2+ meter
BANK STABILITY:	Some erosion/undercutting
BUFFER WIDTH:	Narrow to wide
RIPARIAN VEGETATION:	Wooded, shrub-brush, grass
LAND USE:	Natural, timber, active pasture, rural
PERCENT COVER:	80
WOODLAND EXTENT:	Not extensive
NATURAL LEVEES:	At least one
VISIBILITY:	Clear
WATER LEVEL:	Low
WEATHER:	Sunny, warm

TECHNIQUES AND SURVEY TIME:

TECHNIQUES:	Visual; tactile
SURVEY TIME:	1.0 person hours

FRESHWATER MUSSELS:

None

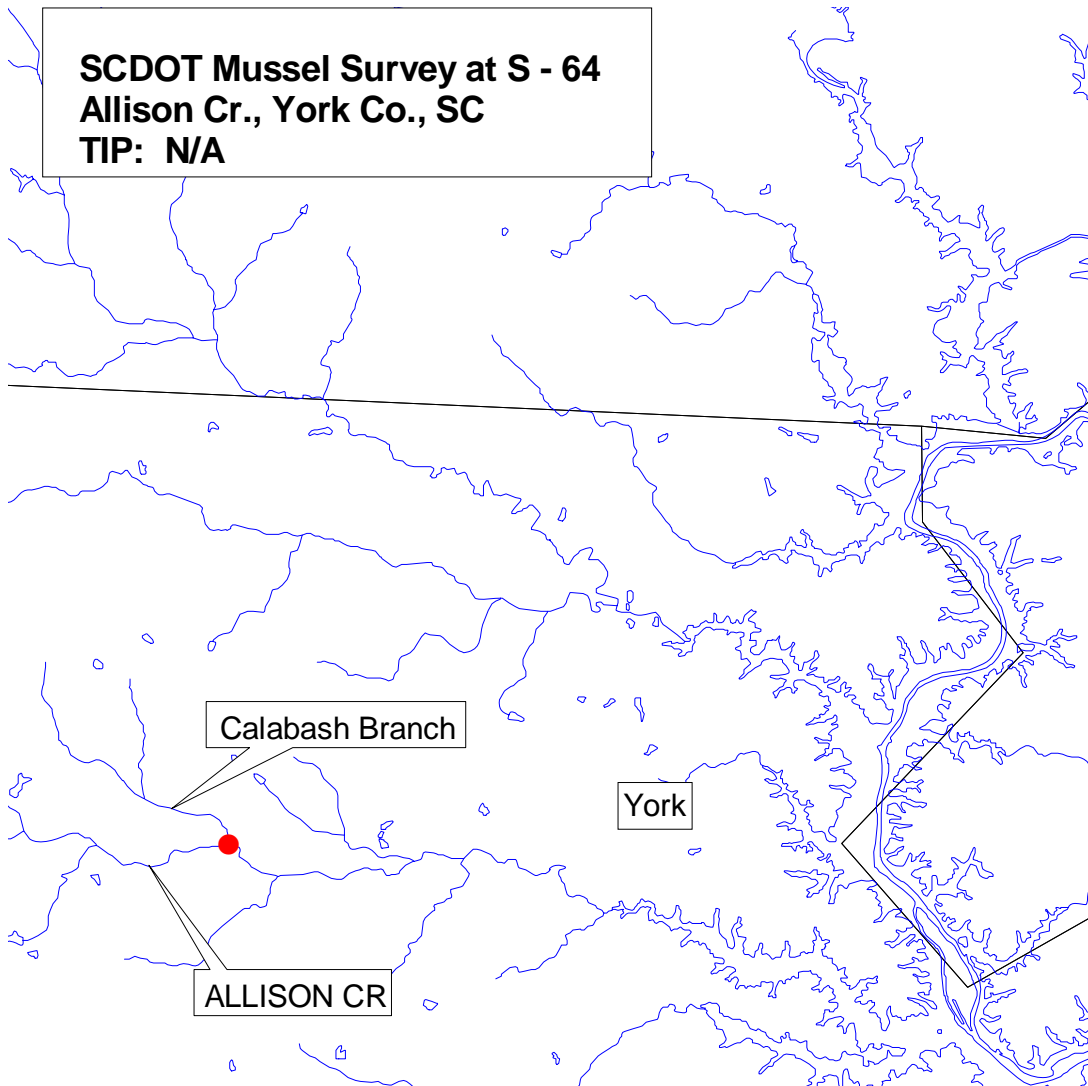
OTHER TAXA:

Corbicula fluminea

BIOLOGICAL DETERMINATION:

No effect

SCDOT Mussel Survey at S - 64
Allison Cr., York Co., SC
TIP: N/A



0 6 Miles



A horizontal scale bar with a black line and white ends, representing a distance of 6 miles.



Streams
Survey Station
Counties



**Biological Survey for Carolina Heelsplitter (*Lasmigona decorata*) for
S-732 Bridge Replacement over Calabash Branch
in York County**

April 25, 2011

BIOLOGISTS: Jeffrey West, Siobhan Gordon

U.S. FISH AND WILDLIFE SERVICE ES PERMIT: TE178643-1

STATION 20110408.1jcw

LOCATION: Calabash Branch, Santee-Cooper River Basin, York County, South Carolina; Location: 34° 4' 4" N, 81° 11' 26" W

SURVEY DATE: April 8, 2011

SITE COMMENTS: Surveyed 150 m upstream and 400 m downstream. Nothing found.

HABITAT DESCRIPTION (dominant types in bold):

Waterbody Type:	Stream
Flow:	Run, riffle, pool
Relative Depth:	Shallow
Depth (%<2 ft.):	95%
Substrate:	Sand , cobble, boulder
Compactness:	Normal
Sand/Gravel bars:	Present
Woody Debris:	Average
Beaver Activity:	None
Windthrow:	Moderate
Temporary Pools:	None
Channel Width:	6 meters
Bank Height:	1.5 meters
Bank Stability:	Some erosion/undercutting
Buffer Width:	Moderate
Riparian Vegetation:	Wooded, grass
Land Use:	Natural, active pasture, rural
Percent Cover:	60%
Woodland Extent:	Intermediate
Natural Levees:	None

Visibility:	Clear
Water Level:	Normal
Weather:	Sunny, warm

TECHNIQUES AND SURVEY TIME:

Techniques:	Visual
Survey time:	0.7 person-hours

FRESHWATER MUSSELS:

None

OTHER TAXA:

None

BIOLOGICAL DETERMINATION:

No effect for the federally listed endangered Carolina heelsplitter (*Lasmigona decorata*).