

**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**

<b>County</b> YORK	<b>Route</b> S 46-347	<b>PIN</b> 39094_RD09	<b>File Number</b> 46.039094.9
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**Programmatic Type: CE B**

**Project Name:**

Stony Fork Bridge Replacement on S-46-347; The proposed two-lane replacement bridge is estimated to be approximately 100 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): <span style="border: 1px solid black; padding: 2px 20px;">0.0</span>   |                          |                                     |
| 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-46-347 (Gordon Road) over Stony Fork (see **Figure 1** for project location), constructed in 1955, is proposed to be replaced in the existing alignment with close and detour. Current Average Daily Traffic (ADT) volumes on Gordon Road is 950 vehicles per day (vpd) and is expected to increase to 1,800 vpd in 2035. The existing roadway (S-46-347) is classified as a rural major 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 24.1 feet wide between curbs, and has a length of 56 feet and a height of 10 feet. Approximately 0.15 acres of wetlands were inventoried in the vicinity of the existing bridge and Stony Fork and Stream 1 were the only jurisdictional features identified (see **Figure 2** for jurisdictional features).

A design speed of 50 miles per hour is proposed for the approach roadway and new bridge. The approach roadway will be widened for a distance of approximately 500 feet from the south end of the bridge and approximately 370 feet from the north end of the 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 100 feet to 150 feet at the bridge ends.

During construction, traffic will be detoured along S-324 and S-322 and a distance of approximately 4.0 miles (see **Figure 3** for detour route).

The proposed two-lane replacement bridge is estimated to be 100 feet in length, have a clear width of 32.83 feet between curbs, and estimated to have a height of 12.61 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 0.76 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 project involves construction of a new bridge across Stony Fork. In order to avoid any impact to the 100 year floodplain and nearby residences, it is proposed that the new bridge will be longer than the existing structure and constructed with the end bents parallel to the stream. 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 jurisdictional wetland area (Wetland 1) was identified within the project corridor. Wetland 1 is located in a portion of the Stony Fork floodplain that occurs in the active pasture southeast of the bridge. One perennial stream (Stony Fork) and an intermittent tributary to Stony Fork (Stream 1) are located within the project corridor. Stream 1 is located in a gradually sloping drainage within the project corridor. No impacts to Wetland 1 or Stream 1 are anticipated as a result of the project. A US Army Corps of Engineers General Permit is not 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. Stony Fork is listed as impaired on the 2010 303(d) list at its crossing of SC 72 and SC 121. This is approximately 2 miles downstream. Although the listing location is a point, the designation of impairment extends upstream and downstream of this location. Fishing Creek is also listed as impaired at its crossing of SR 655 which is immediately upstream of the confluence of Fishing Creek and Stony Fork. Both streams are impaired for aquatic life use support due to the lack of a balanced indigenous aquatic community (SCDHEC, 2010).

**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.

<b>Table 1. Federally Protected Species in York County</b>			
<b>Scientific Name</b>	<b>Common Name</b>	<b>Status</b>	<b>Habitat Present</b>
<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 the proposed project will have no effect on the Little amphianthus, Georgia aster, Schweinitz's sunflower, Dwarf-flowered heartleaf, or Bald eagle. The Carolina heelsplitter has been reported from Fishing Creek in Chester County.

Due to the drainage of Stony Fork leading directly to Fishing Creek north of the Chester County line, there was some concern that Stony Fork may contain suitable habitat for the species and may harbor populations. Based on coordination with the US Fish and Wildlife Service, mussel surveys were conducted in Stony Fork on March 16, 2011. Although this stream is fairly small, appropriate mussel habitat is present, particularly above the project crossing. Given the degraded habitat conditions and the survey results, the Carolina Heelsplitter is unlikely to occur within the surveyed reach. However, while the Carolina Heelsplitter and other listed mussel species were not found during the survey effort, based on habitat characteristics, presence of mussels, and proximity to water bodies containing known populations of these species, their presence within Stony Fork cannot be ruled out entirely. In a letter dated January 9, 2012, the USFWS concurred with the determination that the S-46-347 bridge replacement over Stony Fork Creek may affect, but is not likely to adversely affect, the Carolina heelsplitter. The USFWS will be notified prior to commencement of construction activities so that they may relocate any Carolina heelsplitters found within the immediate project area. The Natural Resources Technical Report, Mussel Survey, and correspondence letter with the USFWS are 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 43 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.

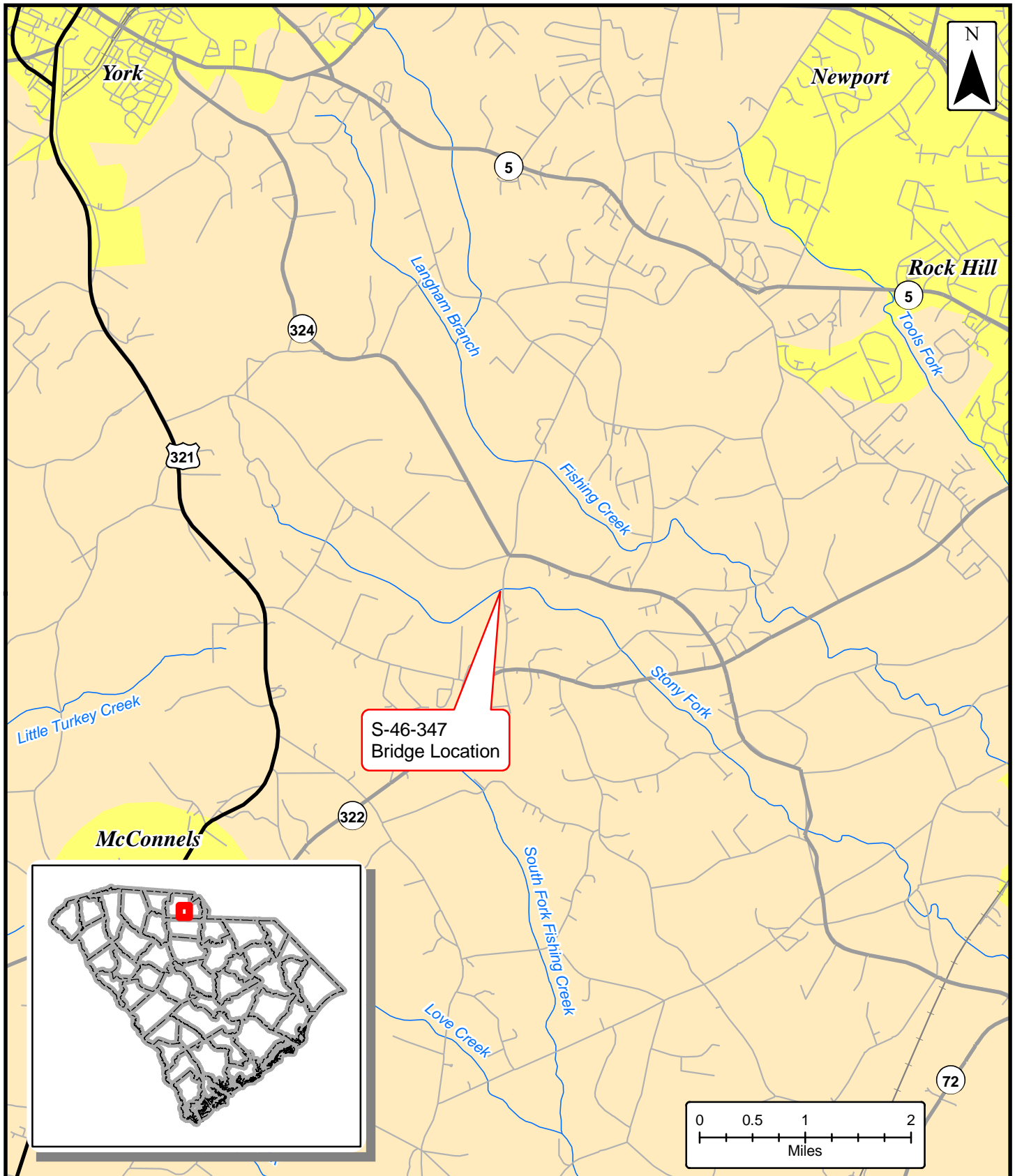
**Environmental Commitments:** The design-build contractor will complete a future hydraulic study and the proposed project will be coordinated with FEMA. Construction within floodplains will be consistent with FEMA regulations and a letter of concurrence will be obtained from the York County Floodplain 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.

The USFWS will be notified prior to commencement of construction activities so that they may relocate any Carolina heelsplitters found within the immediate project area.

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

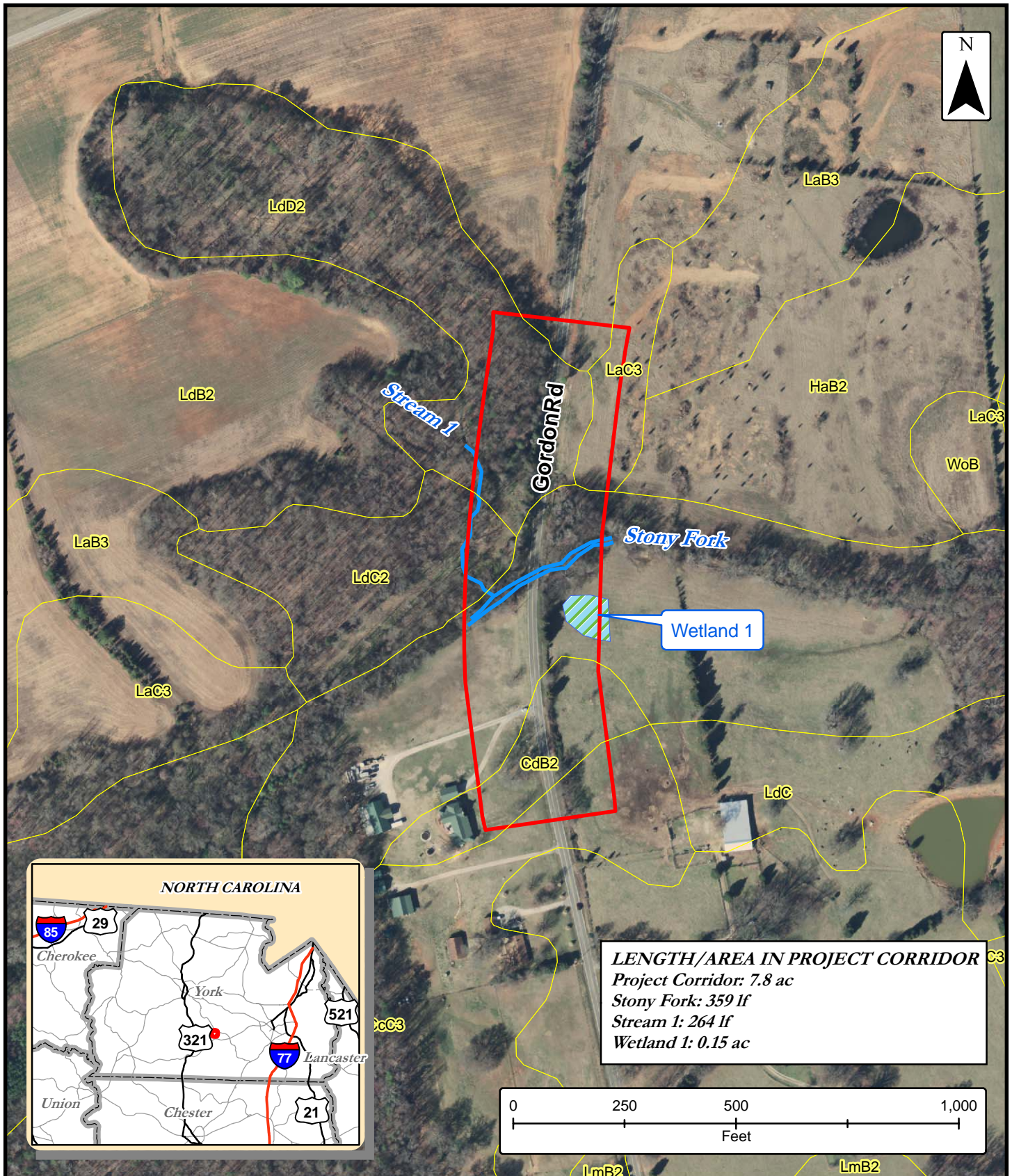
### Vicinity Map

S-46-347 Bridge Replacement  
over Stony Fork  
York County, South Carolina

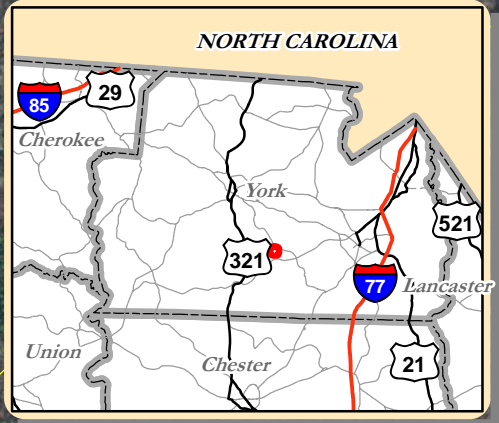
**AECOM**

**Figure  
1**





LENGTH/AREA IN PROJECT CORRIDOR	
Project Corridor:	7.8 ac
Stony Fork:	359 lf
Stream 1:	264 lf
Wetland 1:	0.15 ac

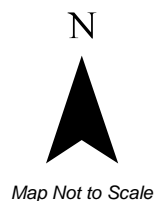
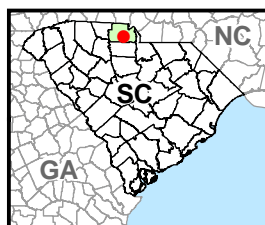
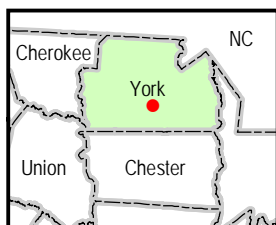
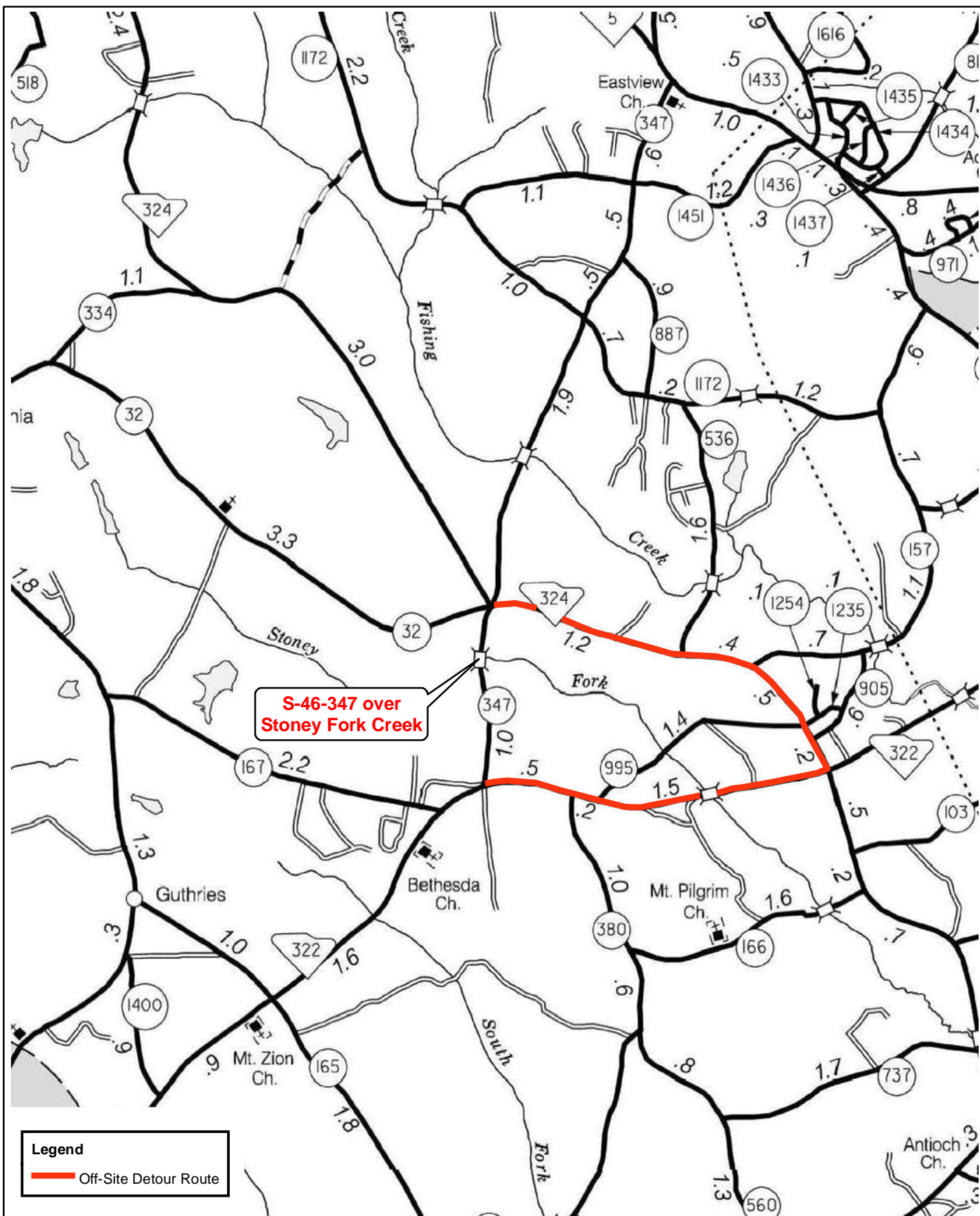


Legend	
	Streams
	Soils
	Project Corridor
	Wetlands

**Jurisdictional Features**  
 S-46-347 Bridge Replacement  
 over Stony Fork  
 York County, South Carolina

	Figure
	2



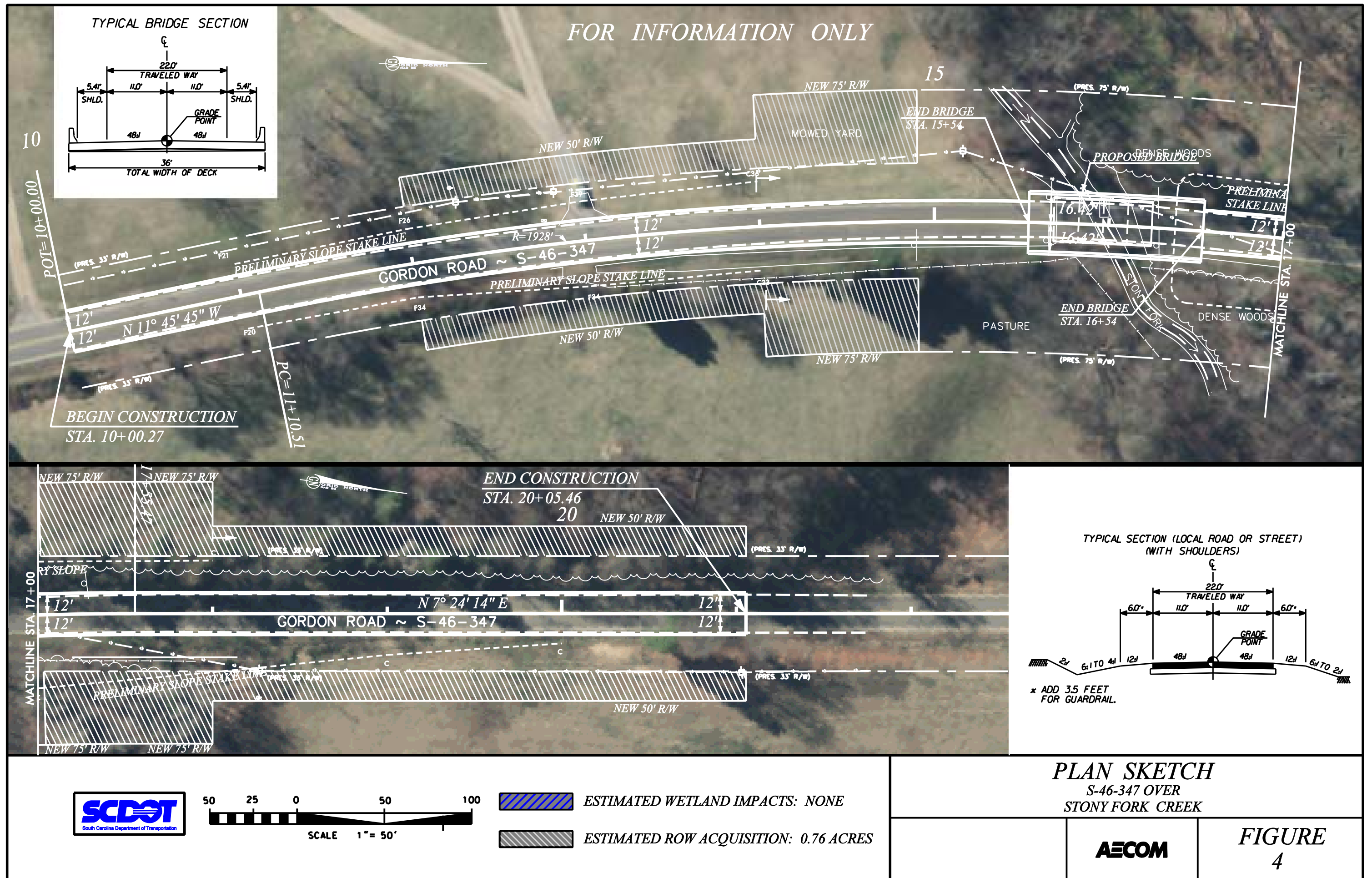


### Off-Site Detour Route

S-46-347 over Stoney Fork Creek  
 York County, SC



**Figure**  
**3**



## **APPENDIX A**

### Bridge Scoping Trip Risk Assessment Form

## BRIDGE SCOPE AND RISK ASSESSMENT FORM

COUNTY: \_\_\_\_\_

DATE: \_\_\_\_\_

ROAD #: \_\_\_\_\_  
Gordon Road

STREAM CROSSING: \_\_\_\_\_

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]

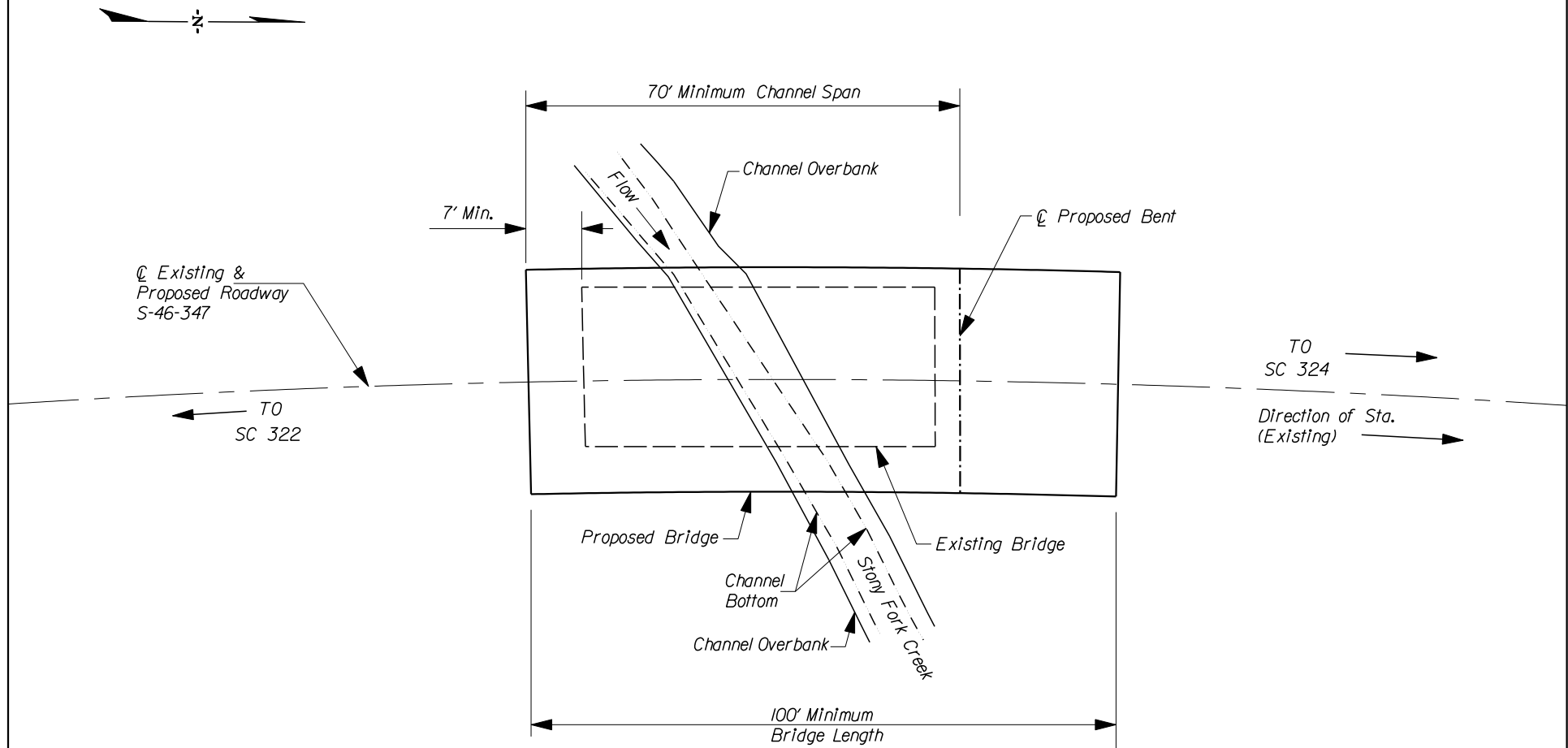
Performed By:

Fred Flie

ROUTE S-46-347 OVER STONY FORK CREEK  
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](mailto: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-46-347 Stoney Fork Creek Bridge Replacement Project, York County, South Carolina

**BRIDGE NO.:** 0004670034700100

**CONSULTANT:** Brockington and Associates, Inc.

**DATE OF RESEARCH:** January 2011

**ARCHAEOLOGISTS:** David Baluha

**COUNTY:** York

**PROJECT:** S-46-347 Stoney Fork Creek Bridge Replacement Project

**DESCRIPTION:** The project calls for the replacement of the S-46-347 bridge that crosses Stoney Fork Creek in central York County, South Carolina. The S-46-347 Stoney Fork Creek bridge is located approximately 1,700 feet south of the intersection of S-46-347 and SC-324, southwest of Rock Hill. The existing right-of-way (ROW) ranges from 66 to 150 feet. 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 archaeological survey universe includes areas of proposed new ROW along S-46-347 extending 500 feet to either end of the bridge and 100 feet to either side of the 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 1982 *Tirzah*, SC quadrangle.

**LOCATION:** The project is located on S-46-347, approximately 1,700 feet south of the SC-324 intersection in central York County, South Carolina.

**USGS QUADRANGLE:** *Tirzah*, SC

**DATES:** 1982 **SCALE:** 7.5' **UTM:** **ZONE:** 17 **DATUM:** NAD27

**SOUTHERN TERMINUS:** **EASTING:** 484469 **NORTHING:** 3863221

**NORTHERN TERMINUS:** **EASTING:** 484480 **NORTHING:** 3863593

**ENVIRONMENTAL SETTING:** The project is located along S-46-347; this road passes through undulating topography, dissected by slow-moving streams. S-46-347 crosses Stoney Fork Creek, a tributary of Fishing Creek. The project is mostly wooded, but has fallow, pasture, and residential areas.

**NEAREST RIVER/STREAM AND DISTANCE:** Stoney Fork Creek

**SOIL TYPES:** Cecil sandy loam  
Lloyd loam  
Mixed alluvial land

**REFERENCE FOR SOILS INFORMATION:** <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey>, accessed January 17, 2011.

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

**CURRENT VEGETATION:** The project area includes hardwood swamp in the Swift Creek floodplain, mixed pines/hardwoods northwest of the bridge, residential yard southwest of the bridge, fallow field northeast of the bridge, and pasture southeast 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. No archaeological sites are 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. Two cultural resource surveys have been conducted in the area. These include the South Carolina Historic Bridge Survey (Lichtenstein Consulting Engineers 2004) and the York County Historic and Architectural Inventory (The Jaeger Company 1993). Lichtenstein Consulting Engineers (2004) identified the bridge over Stoney Fork Creek as an historic architectural resource and recommended the bridge not eligible for the NRHP. The Jaeger Company (1993) identified Resource 515-1215, which is located approximately 1,000 feet south-southwest of the S-46-347 Stoney Fork Creek bridge. Resource 515-1215 is not eligible for the NRHP and is outside the architectural survey universe.

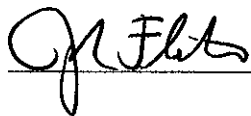
**ARCHITECTURAL SURVEY:** With the exception of the NRHP-ineligible Stoney Fork Creek bridge, we observed no historic resources within the architectural survey universe during the field investigations.

**ARCHAEOLOGICAL SURVEY:** We conducted an intensive archaeological survey on January 26, 2011. The archaeological survey consisted of shovel testing in upland areas that were not wetlands and in undeveloped/relatively intact areas of the project area. None of the project area displayed good ground surface visibility; thus, visual inspection was not conducted. The vast majority of the project corridor is located in undeveloped uplands. These uplands include wooded areas northwest of the bridge, fallow and wooded areas northeast of the bridge, pastureland and wooded areas southeast of the bridge, and residential and wooded areas southwest of the bridge. Figure 3 presents 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-46-347. Shovel tests were excavated at 100-foot intervals along each transect. Investigators excavated a total of 20 shovel tests. In the floodplain, shovel tests were excavated to an average depth of 2.5 feet below surface (bs); in the uplands shovel tests averaged 0.5 to 1.0 foot bs. 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-46-347 Stoney Fork Creek Bridge Replacement Project. Proposed improvements to the Stoney Fork Creek bridge will have no effect on historic properties. However, if current proposed road plans change, additional survey may be necessary.

SIGNATURE: \_\_\_\_\_

 FOR DAVID BALUHA

DATE: \_\_\_\_\_

5/11/11

## REFERENCE CITED

Jaeger Company

1993     *York County Historic and Architectural Inventory Survey Report* . Prepared for York County, South Carolina.

Lichtenstein Consulting Engineers

2004     South Carolina Historic Bridge Survey Statewide. Prepared for the South Carolina Department of Transportation, Columbia.

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-46-347 Stoney Fork Creek Bridge Replacement Project.
- Figure 2.     The location of the S-46-347 Stoney Fork Creek Bridge Replacement Project and all identified cultural resources (USGS 1982 *Tirzah*, SC quadrangle).
- Figure 3.     S-46-347 Stoney Fork Creek Bridge Replacement Project setting photos: view of wooded area north of the bridge, looking north (top); view of residential area south of the bridge, looking south (bottom).
- Figure 4.     The location of the S-46-347 Stoney Fork Creek Bridge Replacement Project, shovel-tested areas, and all identified cultural resources on an aerial photograph.

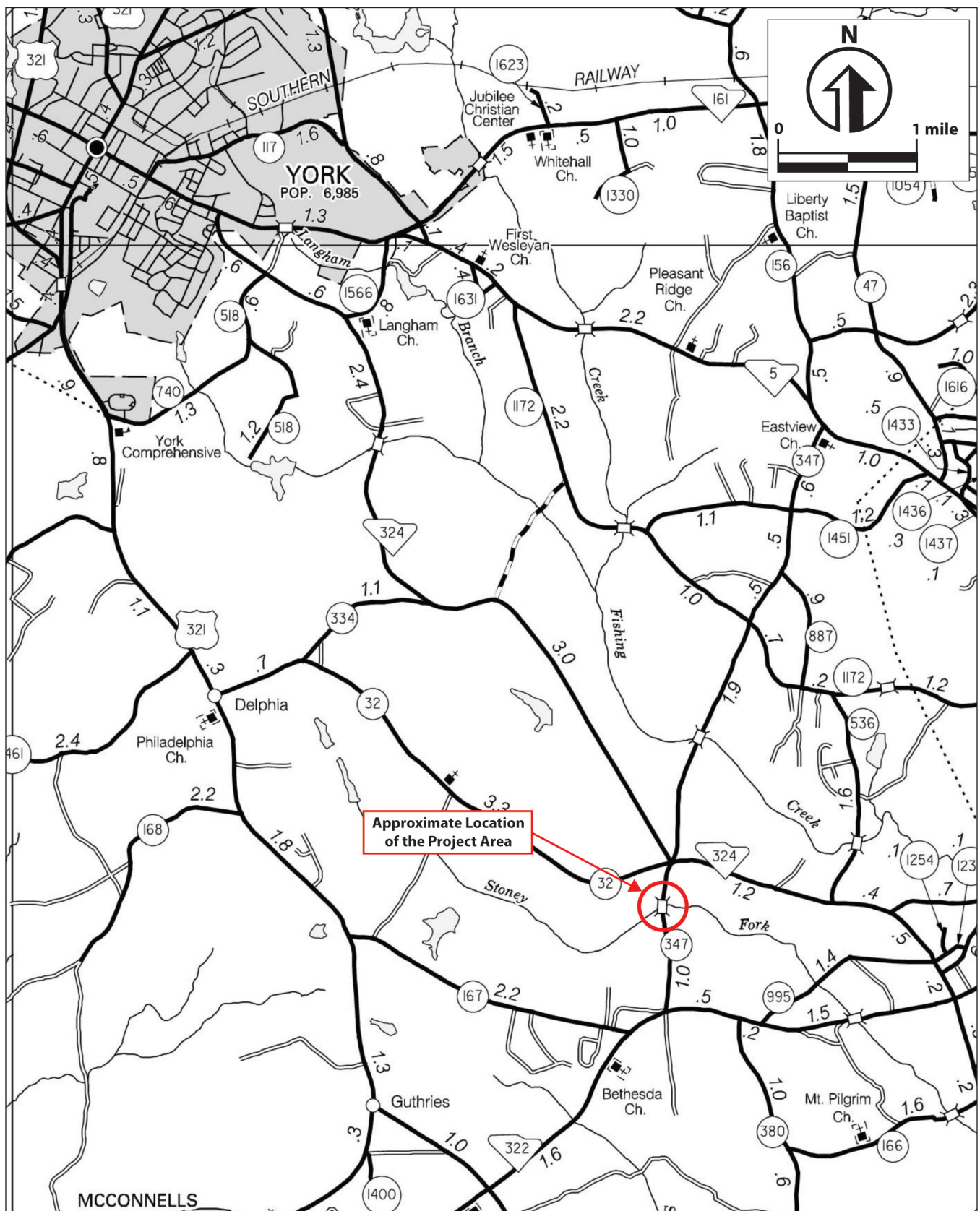
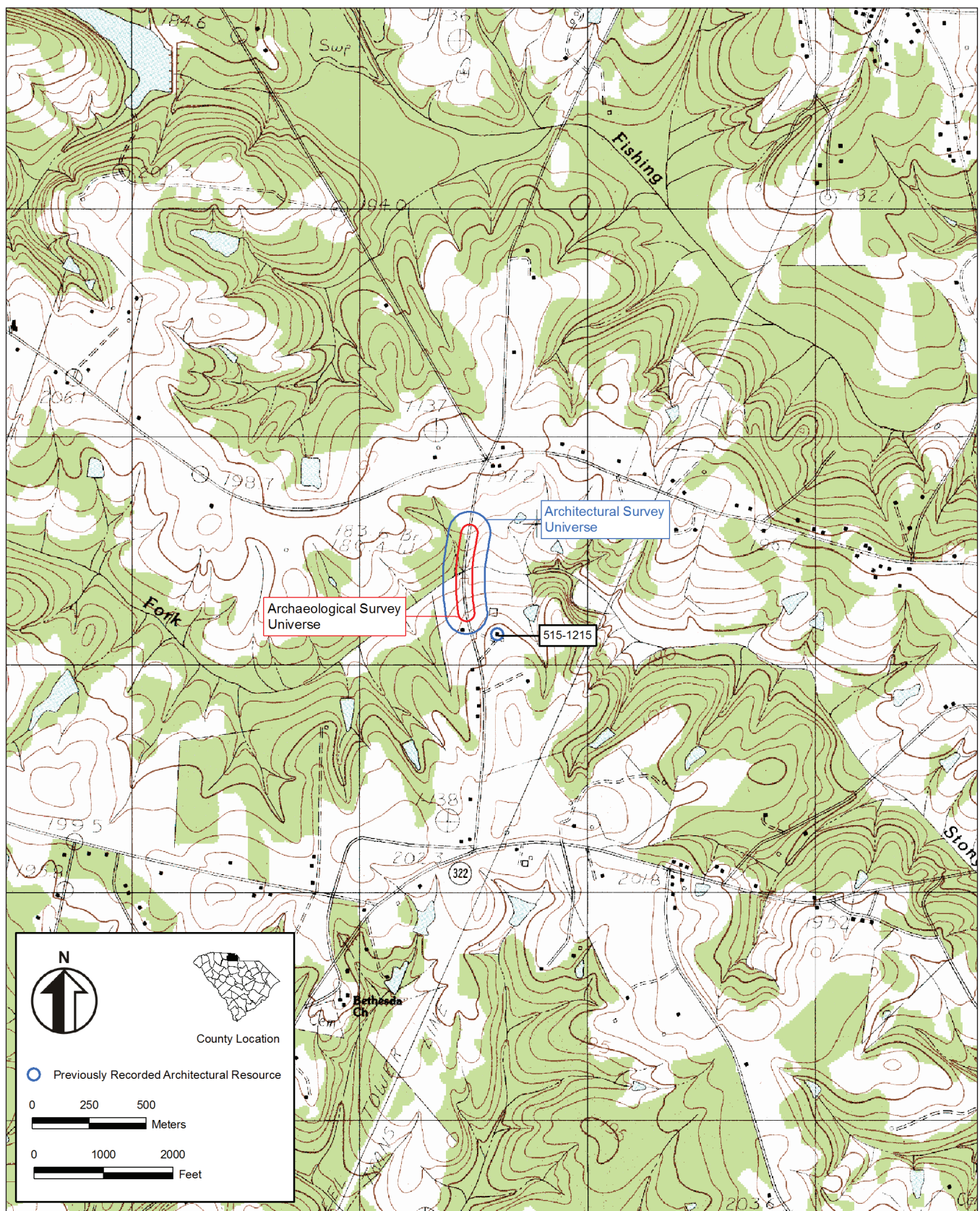


Figure 1. A portion of the 2005 York County General Highway System Map showing the location of the S-46-347 Stoney Fork Creek Bridge Replacement Project.









*Figure 3. S-46-347 Stoney Fork Creek Bridge Replacement Project setting photos: view of wooded area north of the bridge, looking north (top); view of residential area south of the bridge, looking south (bottom).*



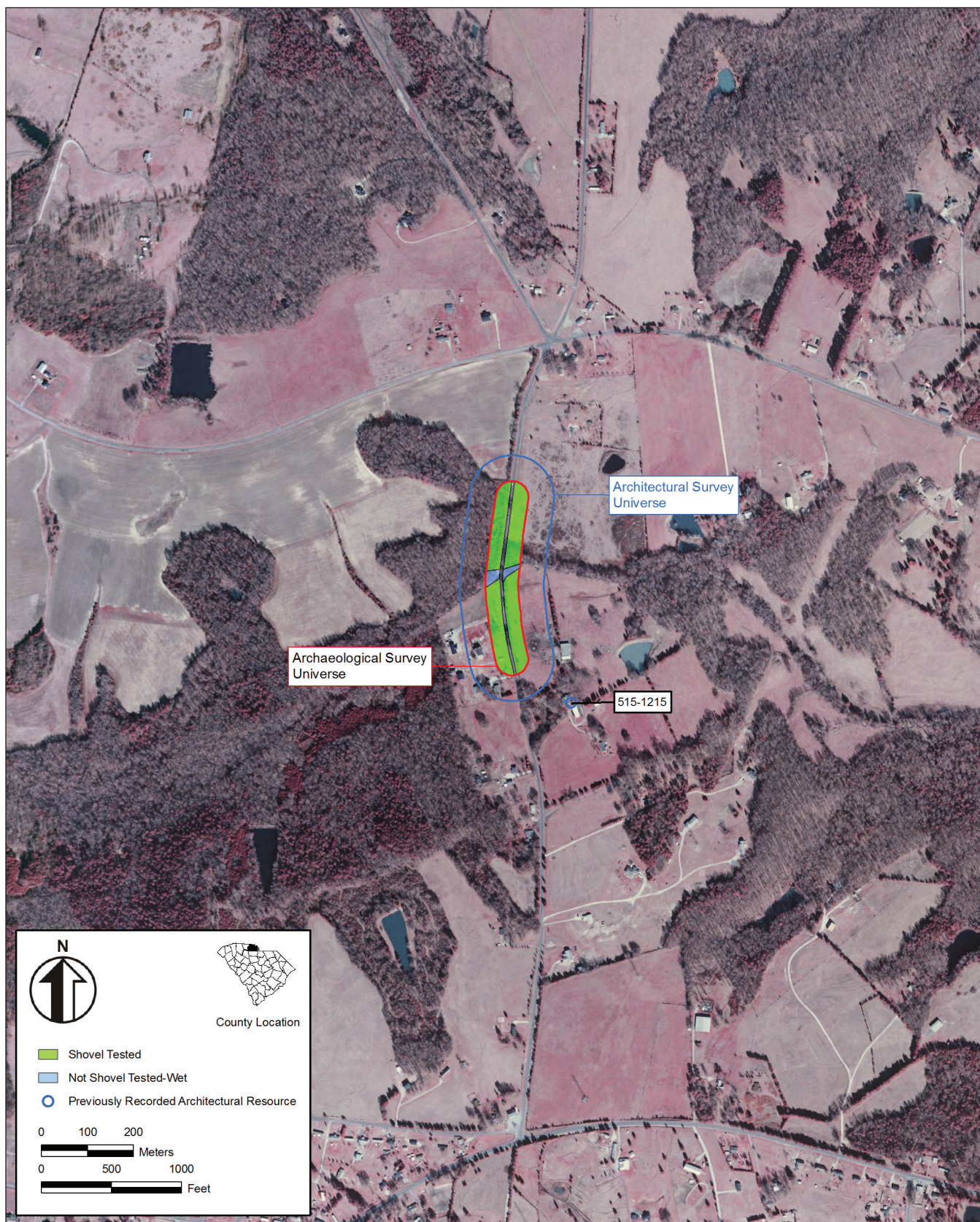


Figure 4. The location of the S-46-347 Stoney Fork Creek Bridge Replacement Project, shovel-tested areas, and all identified cultural resources on an aerial photograph.





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 county* 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.



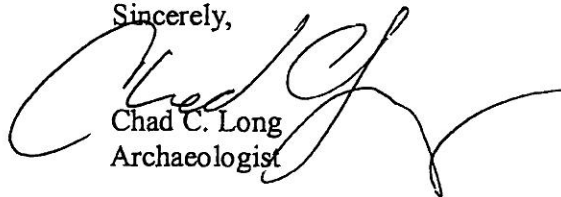
Letter to Ms. Elizabeth Johnson  
May 9, 2011

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  
NHPA

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

RECEIVED

MAY 17 2011

RE: Five Bridge Replacement Projects in York and Lancaster Counties  
SC Department of  
Archives & History

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:

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- 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.
- 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.



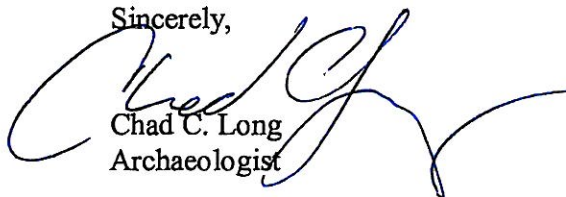
Letter to Ms. Elizabeth Johnson  
May 9, 2011

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:  SARAH 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:**

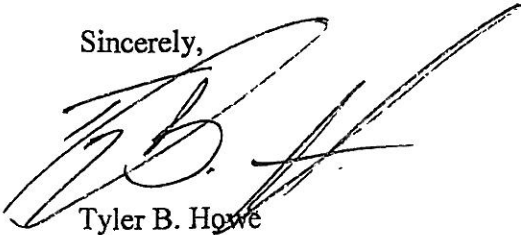
1. Cultural Resource Survey of the S-83 Buffalo Creek Bridge Replacement Project, Cherokee County, SC (11.040188)
2. Phase I Cultural Resources Survey of S-20-12 over Rocky Creek, Fairfield County, SC (20.038091).
3. Cultural Resource Survey of the S-46-22 Steele Creek Bridge Replacement project, York 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-46-347 over Stony Fork**  
**York County, South Carolina**

Prepared for:

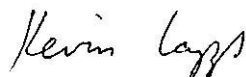
South Carolina Department of Transportation

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 Gordon Road (S-46-347) over Stony Fork, 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 (Tirzah, SC, 1982),
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Map (Tirzah, 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 at the proposed project site by AECOM biologists on January 20, 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 627 to 636 feet (U.S. Geological Survey, 1982). 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 Lower Catawba River basin (hydrologic unit 03050103). The Catawba River flows through the Piedmont, Sandhills, and Upper Coastal Plain regions of South Carolina and encompasses 2,322 square miles. The Catawba River joins with the Congaree River to form the Santee River. The project lies in the Fishing Creek watershed (Watershed Management Unit 60) which encompasses 136,173 acres. Two streams, Stony Fork and an intermittent tributary (Stream 1), are located in the project corridor.

Stony Fork is not classified in the 2006 Classified Waters document by South Carolina Department of Health and Environmental Control (SCDHEC), although its receiving stream, Fishing Creek, is classified as FW (Freshwater) its entire length. 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. Stony Fork is listed as impaired on the 2010 303(d) list at its crossing of SC 72 and SC 121. This is approximately 2 miles downstream. Although the listing location is a point, the designation of impairment extends upstream and downstream of this location. Fishing Creek is also listed as impaired at its crossing of SR 655 which is immediately upstream of the confluence of Fishing Creek and Stony Fork. Both streams are impaired for aquatic life use support due to the lack of a balanced indigenous aquatic community (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 and immediately adjacent to the study corridor: a disturbed community, an oak-hickory community, and a successional 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, residential/businesses areas, and small pastures. These habitats are kept in a low-growing, early successional state. Regularly maintained roadside shoulders are present along Gordon 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. Additionally a residence is located at the southern end of the project corridor and has a regularly mowed lawn and a few landscape plantings.

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.

A pasture complex is located in the northeast and southeast quadrants of the bridge project. The active pasture located in the southeast quadrant is composed of primarily fescue grass (*Festuca* sp.), while the northeastern pasture seems to be used less often and has scattered eastern red cedar (*Juniperus virginiana*) shrubs, broomsedge, and other grasses and early successional species. This quadrant could develop into a successional community in the near future if more human induced disturbance is not introduced.

### **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 surrounds the intermittent tributary to Stony Fork and as a riparian buffer along either side of Stony Fork. The stands are typically mature trees in moderately dense to open conditions. The dominant species within the project corridor include white oak (*Quercus alba*), tulip poplar (*Liriodendron tulipifera*), red maple, southern red oak (*Quercus falcata*), water oak (*Quercus nigra*), and eastern red cedar.

### **Successional Community**

A small area of an early successional community is located immediately north of the bridge and west of the road. This area is only a few acres in size and appears to be recovering from a timber harvest in the not too distant past. Early successional communities are dominated either by grasses and other herbaceous species or dense, scrubby saplings and weedy vegetation. Dominant species in this area include broomsedge, blackberry, red maple, sweetgum, greenbrier (*Smilax rotundifolia*), goldenrod, Japanese honeysuckle, pokeweed (*Phytolacca americana*), and various grasses and low growing shrubs.

### **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.

Only one jurisdictional wetland area (Wetland 1) was identified within the project corridor. A small wetland was located in a portion of the Stony Fork floodplain that occurs in the active pasture southeast of the bridge. The Cowardin classification system describes this wetland as a palustrine emergent wetland with persistent vegetation (PEM1). Soft rush (*Juncus effusus*) and fescue grass were the majority of vegetation occurring in this actively grazed wetland. Wetland 1 would be classified as Category 4 using the USFWS Resource Category criteria.

## **Streams**

One perennial stream (Stony Fork) and an intermittent tributary to Stony Fork (Stream 1) are located within the project corridor and are shown on **Figures 2 and 3**. Stony Fork is a

third order stream that flows into Fishing Creek south of Rock Hill. The creek is located in a gradually sloping drainage within the project corridor. During the site visit, Stony Fork had continuous normal flow and exhibited clear water. Substrate consists of a mixture of silt, sand, and gravel. Stony Fork had banks that ranged from 10 to 15 feet in width in the project corridor and banks that were approximately 3 to 4 feet in height. Riparian buffers ranged from as little as 10 to 15 feet adjacent to the mowed lawn and active pasture to well over 200 feet in the northwest quadrant. Stream 1 joins Stony Fork upstream and west of the bridge and is an intermittent stream. It had banks 3 to 6 feet in width and only had water in scattered pools. Substrate was primarily silt and sand and leaf litter was common in the streambed, indicating irregular flow as evidenced by the discontinuous water. It becomes heavily incised toward the location it enters the project corridor northwest of the bridge.

## 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), 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 site.

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).

No granite outcrops were 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.

Suitable open habitat for Georgia aster was present along the road shoulders of Gordon Road north of the bridge, particularly in the upslope portions of the road shoulders adjacent to forested areas and in the early successional community north of the bridge. 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 Gordon Road north of the bridge, particularly in the upslope portions of the road shoulders adjacent to forested areas and in the early successional community north of the bridge. 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.

Hardwood forest slopes along Stream 1 were surveyed for heartleaf on January 20, 2011 and no individuals of any *Hexastylis* species 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 been reported from Fishing Creek in Chester County. Due to the drainage of Stony Fork leading directly to Fishing Creek north of the Chester County line,

it is possible that Stony Fork contains suitable habitat for the species and may harbor populations. A survey was performed at the Stony Fork bridge location on March 22, 2011 and no Carolina Heelsplitter mussels were found. However, a biological conclusion of **May Affect-Not likely to Adversely Affect** is proposed due to favorable habitat characteristics above the project crossing, the presence of other mussel species, and proximity to water bodies containing known populations of Carolina Heelsplitter mussels.

### **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 no state listed species are located within two miles of the project. AECOM biologists did not observe any 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 in pasture or maintained lawn. A small forest stand is located northwest of the bridge surrounding the drainage of Stream 1. One residence is southwest of the bridge on Gordon Road and, while it is not located within the project corridor, its driveway is within the project corridor approximately 250 feet south of the bridge.

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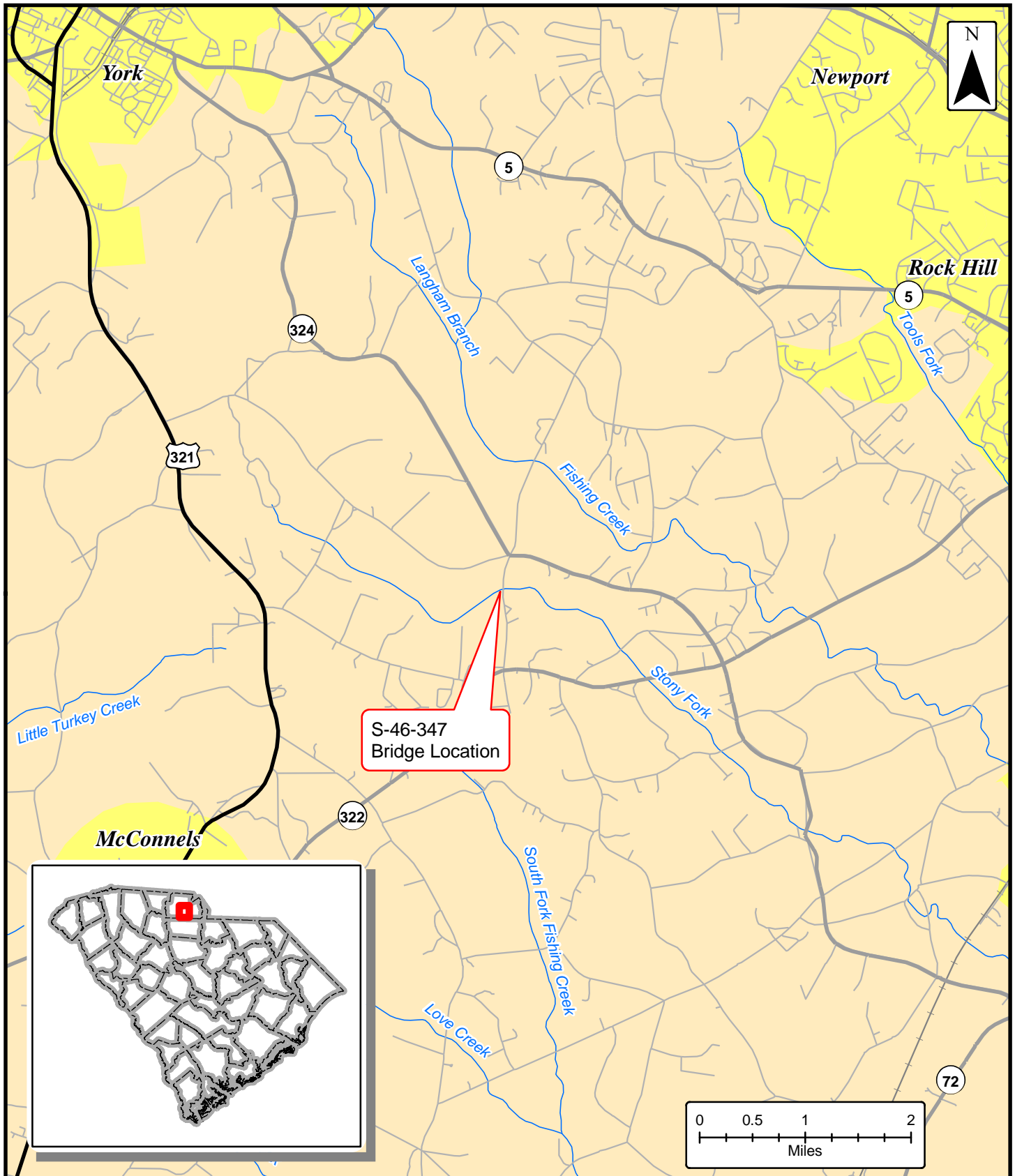
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### Legend



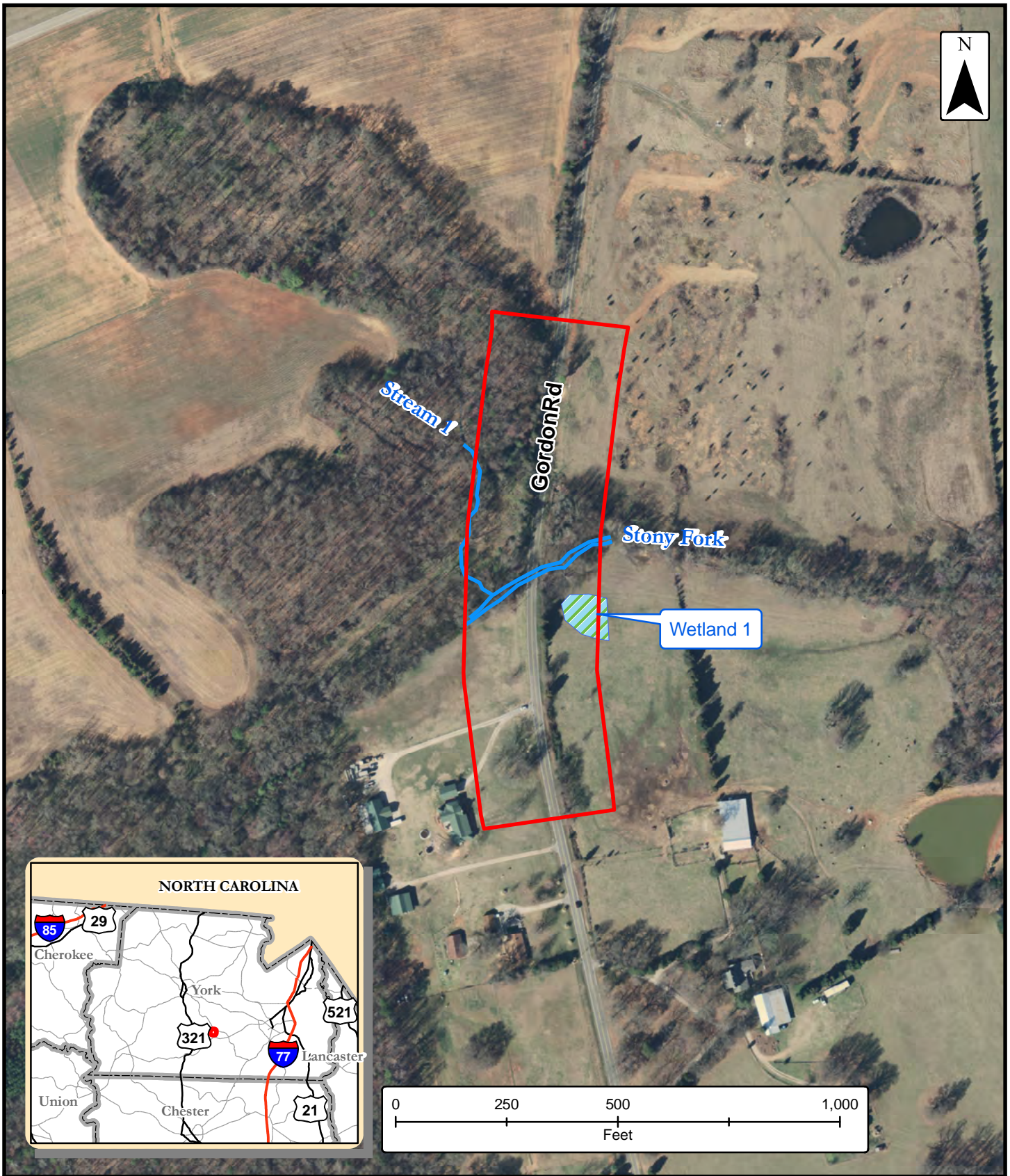
- Interstate
- U.S. Highway
- SC Highways
- + Railroad
- Streams
- County
- Municipalities

### Vicinity Map

S-46-347 Bridge Replacement  
over Stony Fork  
York County, South Carolina

**AECOM**

**Figure  
1**



### Legend

- Streams
- Project Corridor
- Wetlands

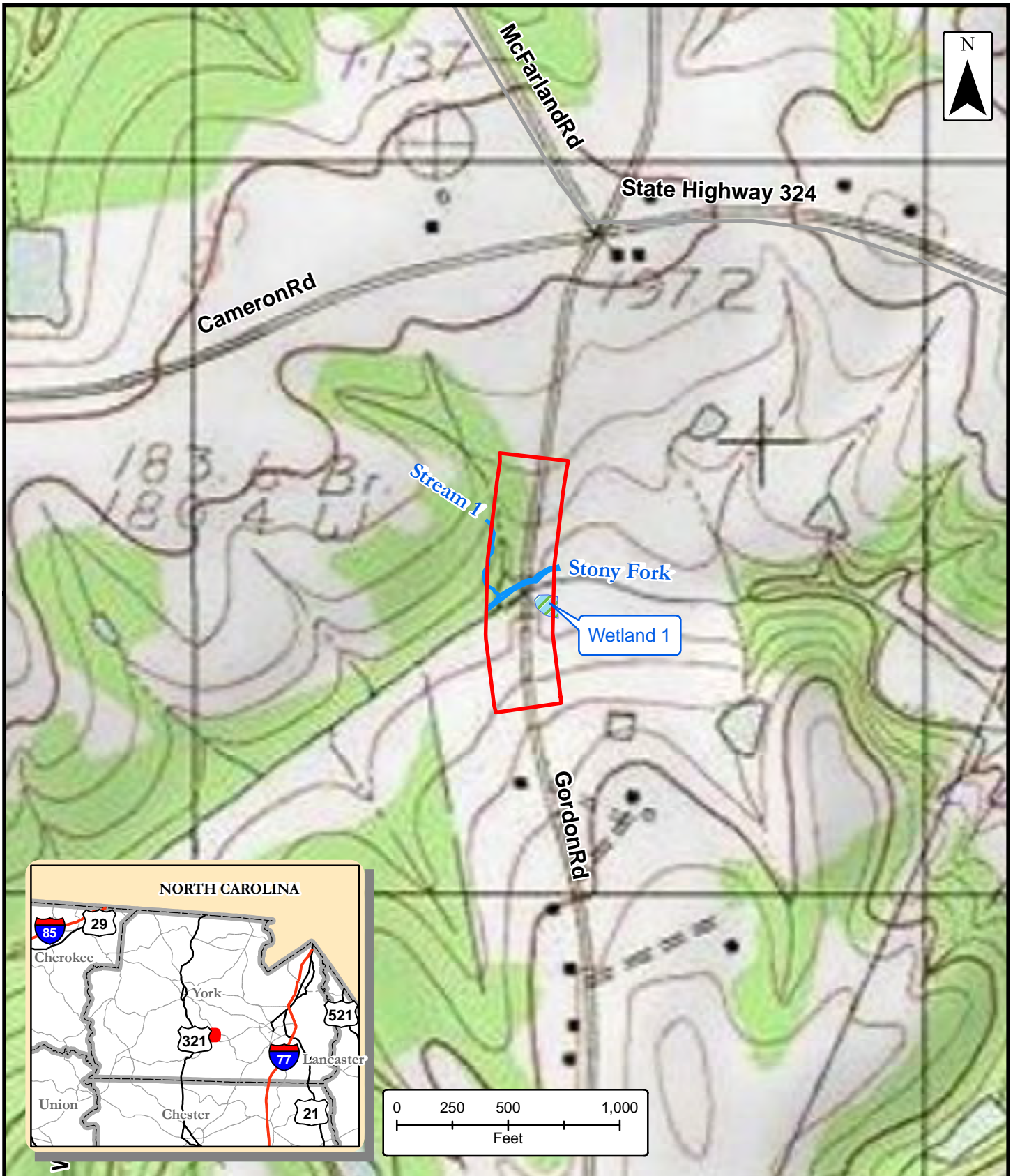
### Jurisdictional Features

S-46-347 Bridge Replacement  
over Stony Fork  
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-46-347 Bridge Replacement  
over Stony Fork  
York County, South Carolina

**AECOM**

**Figure  
3**

# **Freshwater Mussel Survey Report**

## **Proposed Improvements to SC-46-347 Over Stony Fork**

York County, South Carolina

Prepared For:



SC Department of Transportation  
Columbia, South Carolina

Prepared By:



The Catena Group  
Hillsborough, North Carolina

March 22, 2011

## **1.0 INTRODUCTION**

The South Carolina Department of Transportation (SCDOT) proposes improvements to SC-46-347 (Gordon Road) over Stony Fork in York County, South Carolina, (Figure 1). Stony Fork occurs within the Fishing Creek Subbasin of the Catawba River Basin. The Federally Endangered Carolina Heelsplitter (*Lasmigona decorata*) is documented to occur in York County within the Fishing Creek Subbasin.

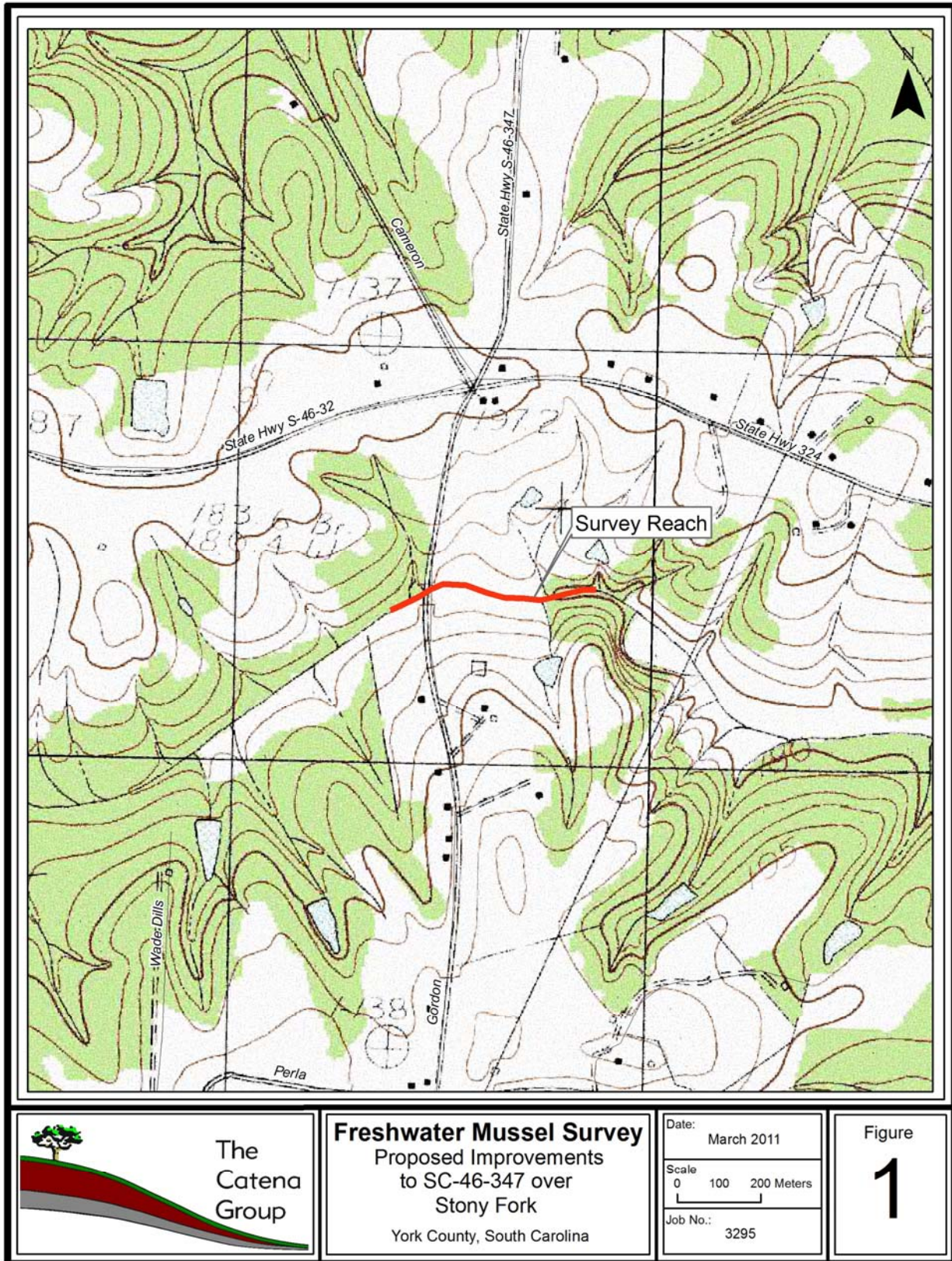
As part of the federal permitting process that requires an evaluation of potential project-related impacts to this species, a freshwater mussel survey was requested. The Catena Group, Inc., (TCG) was retained by AECOM, the primary consultant for the project, to conduct a mussel survey of Stony Fork targeting the Carolina Heelsplitter.

## **2.0 WATERS IMPACTED: Stony Fork**

Stony Fork originates approximately 3.5 miles northwest of the project crossing near the town of Delphia, SC. Approximately 9 stream miles downstream and southeast of the project crossing, Stony Fork flows into Fishing Creek which flows into the mainstem Catawba River east of Beckhamville, SC.

Within the surveyed reach, Stony Fork was between 2 - 3 meters wide with 0.5 - 1 meter high stream banks. The stream ranged from stable run and shallow pool habitats upstream of the project crossing to a more degraded sequence of riffle, run, and pool habitats downstream. The upstream reach was dominated by coarse sand and was surrounded by a moderate to wide forested buffer. The downstream reach flowed through an active cow pasture and consisted mostly of mud, detritus, silt, and sand substrates with less common areas of gravel, cobble, and granitic boulder. This more degraded section was marked by a narrow natural buffer, unstable banks, areas of unrestricted cattle access, and heavy growth of green filamentous algae







### 3.0 TARGET FEDERALLY PROTECTED SPECIES DESCRIPTION (Carolina Heelsplitter)



#### 3.1 Species Characteristics

The Carolina Heelsplitter, originally described as *Unio decoratus* by (Lea 1852), synonymized with *Lasmigona subviridis* (Conrad 1835, Johnson 1970), and later separated as a distinct species (Clarke 1985), is a federally Endangered freshwater mussel, historically known from several locations within the Catawba and Pee Dee River systems in North Carolina and the Pee Dee, Savannah, and possibly the Saluda River systems in South Carolina.

The Carolina Heelsplitter can reach a length of 118 mm, with a height of 68 mm and a width of 39 mm. Based on some specimens collected by Keferl and Shelley (1988) from three different streams and rivers, the mean length is 78 mm, the mean height is 43 mm and the mean width is 27 mm. The shell is an ovate trapezoid. The dorsal margin is straight and may end with a slight wing. The umbo is flattened. The beaks are depressed and project a little above the hinge line. The beak sculpture is double looped. The unsculptured shell can have a yellowish, greenish or brownish periostracum. The Carolina Heelsplitter can have greenish or blackish rays. The lateral teeth may or may not be well developed; in most cases they are thin. The pseudo-cardinal teeth are lamellar and parallel to the dorsal margin, and there is a slight interdentum. The nacre varies from an iridescent white to a mottled pale orange. The shell's nacre is often pearly white to bluish white, grading to orange in the area of the umbo (Keferl 1991). The hinge teeth are well developed and heavy and the beak sculpture is double looped (Keferl and Shelly 1988). Morphologically, the shell of the Carolina Heelsplitter is very similar to the shell of the Green Floater (Clarke 1985), with the exception of a much larger size and thickness in the Carolina Heelsplitter (Keferl and Shelly 1988).

Prior to collections in 1987 and 1990 by Keferl (1991), the Carolina Heelsplitter had not been collected in the 20<sup>th</sup> century and was known only from shell characteristics. Because of its rarity, very little information of this species' biology, life history, and habitat requirements was known until very recently. Feeding strategy and reproductive cycle of the Carolina Heelsplitter have not been fully documented, but are likely similar to other native freshwater mussels (USFWS 1996).

The feeding processes of freshwater mussels are specialized for the removal (filtering) of suspended microscopic food particles from the water column (Pennak 1989). Documented food sources for freshwater mussels include detritus, diatoms, phytoplankton, and zooplankton (USFWS 1996).

Freshwater mussels have complex reproductive cycles, which include a larval stage (glochidium) that is an obligatory parasite on a fish. The glochidia develop into juvenile

mussels and detach from the “fish host” and sink to the stream bottom where they continue to develop, provided suitable substrate and water conditions are available (USFWS 1996). McMahon and Bogan (2001) and Pennak (1989) should be consulted for a general overview of freshwater mussel reproductive biology.

Until recently, nothing was known about the host species(s) for the Carolina Heelsplitter (USFWS 1996, Bogan 2002). Starnes and Hogue (2005) identified the most likely fish host candidates (15 species) based on fish community surveys in occupied streams throughout the range of the Carolina Heelsplitter. Captive propagation efforts for this species had not been attempted in the past; however, due to the critical level of imperilment of the North Carolina populations, acting on recommendations from the NC Scientific Council on Mollusks, the NC Wildlife Resources Commission (NCWRC) funded a life history/captive propagation study, which allowed for salvage of individuals from the Goose/Duck and Sixmile Creek populations to be used in the study. A total of nine minnow species (Cyprinidae) were identified as suitable, and two sunfish species (*Lepomis* spp.) were identified as marginally suitable host species (Eads and Levine 2008, Eads et al. 2010). All of these species may occur in habitat types known to be occupied by the Carolina Heelsplitter; however, “it is always possible that it may use a combination of fish host species and some may not be native to all streams inhabited by this mussel” (Starnes and Hogue 2005). Another member of the genus *Lasmigona*, the Green Floater (*Lasmigona subviridis*), perhaps a close relative to the Carolina Heelsplitter, has been documented to be capable of in situ early development with glochidia developing within the marsupium of the female (Barfield and Watters 1998), thus it is possible that the Carolina Heelsplitter may also be able to propagate by direct transformation.

### **3.2 Distribution and Habitat Requirements**

Currently, the Carolina Heelsplitter has a very fragmented, relict distribution. Until recently, it was known to be surviving in only six streams and one small river (USFWS 1996); however, recent discoveries have increased the number of known populations to eleven:

#### **Pee Dee River Basin:**

1. Duck Creek/Goose Creek - Mecklenburg/Union counties, NC
2. Flat Creek/Lynches River - Lancaster/Chesterfield/Kershaw counties, SC

#### **Catawba River Basin:**

3. Sixmile Creek (Twelvemile Creek Subbasin) - Lancaster County, SC
4. Waxhaw Creek - Union County, NC and Lancaster County, SC
5. Cane Creek/Gills Creek - Lancaster County, SC
6. Fishing Creek Subbasin - Chester County, SC

7. Rocky Creek Subbasin (Bull Run Creek/UT Bull Run Creek/Beaverdam Creek - Chester County, SC

**Saluda River Basin:**

8. Redbank Creek - Saluda County, SC
9. Halfway Swamp Creek- Greenwood/Saluda County, SC

**Savannah River Basin:**

10. Little Stevens Creek/Mountain Creek/Sleepy Creek /Turkey Creek (Stevens Creek Subbasin) - Edgefield/McCormick counties, SC.
11. Cuffytown Creek (Stevens Creek Subbasin) - Greenwood/McCormick counties, SC

All of these populations occur in stream reaches within the Piedmont Physiographic Province, particularly within two northeast trending lithostratigraphic belts of the Carolina Terrane, the Carolina Slate Belt and the Charlotte Belt. The Carolina Slate Belt is a band of greenschist facies metavolcanic rock formations positioned in the central and lower Piedmont province extending from south-central Virginia to extreme eastern Georgia (Howell 2005, Butler and Secor 1991). The Charlotte Belt extends from north central North Carolina to eastern Georgia and is comprised of amphibolite facies metavolcanic and metaplutonic rock (Howell 2005, Butler and Secor 1991). These hard formations strongly dictate the channel morphology and character of stream substrates where they intersect. Starnes and Hogue (2005) describe such reaches as “generally characterized by dark, often tilted, bedrock stream bottom with associated large and small rock rubble interspersed with pockets of sand, silt, and gravel.” Habitat for this species has been reported from small to large streams and rivers as well as ponds. The ponds are believed to be millponds on some of the smaller streams within the species’ historic range (Keferl 1991). Keferl and Shelly (1988) and Keferl (1991) reported that most individuals have been found along well-shaded streambanks with mud, muddy sand, or muddy gravel substrates; however, numerous individuals in several of the populations have been found in cobble and gravel dominated substrate in stream reaches intersecting the hard rock formations described above (T. W. Savidge personal observations). The stability of stream banks appears to be very important to this species (Keferl 1991).

**3.3 Threats to Species**

The low numbers of individuals and the restricted range of each of the surviving populations make them extremely vulnerable to extirpation from a single catastrophic event or activity (USFWS 1996). The cumulative effects of several factors, including sedimentation, point and non-point discharge, and stream modification (impoundments, channelization, etc.) have contributed to the decline of this species throughout its range (USFWS 1996).

Siltation resulting from improper sedimentation control of various land usage practices, including agriculture, forestry, and development activities, has been recognized as a

major contributing factor to the degradation of mussel populations (USFWS 1996). Siltation has been documented to be extremely detrimental to mussel populations by degrading substrate and water quality, increasing potential exposure to other pollutants, and by direct smothering of mussels (Ellis 1936, Markings and Bills 1979). Sediment accumulations of less than one inch have been shown to cause high mortality in most mussel species (Ellis 1936).

Sewage treatment effluent has been documented to significantly affect the diversity and abundance of mussel fauna (Goudreau et al. 1988). Goudreau et al. (1988) found that recovery of mussel populations might not occur for up to two miles below points of chlorinated sewage effluent.

The impact of impoundments on freshwater mussels has been well-documented (USFWS 1992a, Neves 1993). Dam construction transforms lotic habitats into lentic habitats, which results in changes within aquatic community composition. Muscle Shoals on the Tennessee River in northern Alabama, once the richest site for naiads (mussels) in the world, is now at the bottom of Wilson Reservoir and covered with 19 feet of muck (USFWS 1992b). Large portions of all of the river basins within the Carolina Heelsplitter's range have been impounded; this is believed to be a major factor contributing to the species decline (USFWS 1996).

The introduction of exotic species such as the Asian Clam (*Corbicula fluminea*) and Zebra Mussel (*Dreissena polymorpha*) has also been shown to pose significant threats to native freshwater mussels. The Asian Clam is now established in most of the major river systems in the United States (Fuller and Powell 1973); including those streams still supporting surviving populations of the Carolina Heelsplitter (USFWS 1996). Concern has been raised over competitive interactions for space, food, and oxygen with this species and native mussels, possibly at the juvenile stages (Neves and Widlack 1987, Alderman 1995). The Zebra Mussel is not known from any waterbodies supporting the Carolina Heelsplitter (USFWS 1996).

## 4.0 SURVEY EFFORTS

A mussel survey was conducted in Stony Fork on March 16, 2011 by Tim Savidge and Tom Dickinson of TCG.

### 4.1 Methodology

Surveys began approximately 400 meters downstream of the project crossing and proceeded to a point approximately 100 meters upstream, as shown in Figure 1. All habitat types in the survey reach (riffle, run, pool, slack-water, etc.) were sampled. Visual, bathyscope (glass-bottom view buckets), and tactile methodologies were employed where appropriate. Upstream and downstream survey limits were recorded using a hand-held Garmin e-trex Vista GPS unit. Searches were timed in each reach to generate a catch per unit effort (CPUE). Searches were also conducted for relict shells.

### 4.2 Results

Water level was low, however slightly turbid during the survey efforts. A total of 4.6 person hours were spent surveying Stony Fork during which relatively low numbers of one mussel species, the Eastern Elliptio (*Elliptio complanata*), were located. Other mollusk species located included the invasive exotic Asian Clam (*Corbicula fluminea*) and the snails Mimic Lymnaea (*Pseudosuccinea columella*) and a Tadpole physid (*Physella* sp.) which were uncommon, rare, and patchy uncommon, respectively<sup>1</sup>. Habitat conditions in the stream varied greatly above and below the SC-46-347 bridge, thus the survey was divided into downstream and upstream reaches.

**Downstream Reach:** Eight live Eastern Elliptio were found in 3.8 person hours of survey time. This section was degraded from the surrounding cattle pasture that allowed several points of unrestricted access to Stony Fork.

**Table 1. CPUE for Freshwater Mussels Stony Fork Downstream Reach**

Scientific Name	Common Name	Number	CPUE (#/person hr)
<i>Elliptio complanata</i>	Eastern Elliptio	8	2.1

**Upstream Reach:** Five live Eastern Elliptio were found in 0.8 person hours of survey time. This section was protected by forested buffer and was thus generally more stable

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<sup>1</sup> Freshwater Snails and Clams (per approximate square meter):

- Very abundant: > 50 collected at survey station
  - Abundant: 31-50 collected at survey station
  - Common: 11-30 collected at survey station
  - Uncommon: 3-10 collected at survey station
  - Rare: 1-2 collected at survey station
- Modifier "patchy" indicates an uneven distribution of the species within the sampled site.

that the downstream reach. These habitat conditions appeared to extend well above the surveyed area.

**Table 2. CPUE for Freshwater Mussels Stony Fork Upstream Reach**

Scientific Name	Common Name	Number	CPUE (#/person hr)
<i>Elliptio complanata</i>	Eastern Elliptio	5	6.3

## **5.0 DISCUSSION**

Although this stream is fairly small, appropriate mussel habitat is present, particularly above the project crossing. Given the degraded habitat conditions and the survey results, the Carolina Heelsplitter is unlikely to occur within the surveyed reach. However, while the Carolina Heelsplitter and other listed mussel species were not found during the survey effort, based on habitat characteristics, presence of mussels, and proximity to water bodies containing known populations of these species, their presence within Stony Fork cannot be ruled out entirely. Therefore, the project biological conclusion for Carolina Heelsplitter is **“May Affect-Not Likely to Adversely Affect.”** Further discussions with the USFWS are recommended as part of the Section 7 Consultation process.

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# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

176 Croghan Spur Road, Suite 200  
Charleston, South Carolina 29407



January 9, 2012



Ms. Heather M. Robbins  
NEPA Manager  
South Carolina Department of Transportation  
P.O. Box 191  
Columbia, SC 29202-0191

Re: Natural Resources Technical Report for S-46-347 Bridge Replacement over Stony Fork Creek, York County, South Carolina  
FWS Log No. 2012-I-0095

Dear Ms. Robbins:

The U.S. Fish and Wildlife Service (Service) has reviewed the natural resources technical report for the proposed project. The proposed project involves the replacement of the existing bridge on Gordon Road (S-46-347) over Stony Fork Creek, in York County, South Carolina. This bridge is proposed to be replaced in place to reduce any proposed impacts.


According to the information received, the federally endangered Carolina heelsplitter (*Lasmigona decorata*) freshwater mussel species has been reported from Fishing Creek in Chester County. Due to the drainage of Stony Fork Creek leading directly to Fishing Creek north of the Chester County line, it is possible that Stony Fork Creek contains suitable habitat for the species and may harbor populations. A survey was performed at the Stony Fork Creek bridge location on March 22, 2011, by the Catena Group and no Carolina heelsplitter mussels were found.

Based on our review and the information received, the Service concurs with the determination that the S-46-347 bridge replacement over Stony Fork Creek may affect, but is not likely to adversely affect, the Carolina heelsplitter. However, the Service requests that this office be notified prior to commencement of construction activities, so that we may relocate any mussels found within the immediate project area.

Please note that obligations under the Endangered Species Act must be reconsidered if: (1) new information reveals impacts of this identified action may affect any listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner, which was not considered in this assessment; or (3) a new species is listed or critical habitat is designated that may be affected by the identified action.

Please contact the South Carolina Department of Natural Resources regarding potential impacts to state protected species. If the proposed project will impact wetlands, please contact the U.S. Army Corps of Engineers, Charleston District. If you have any questions, please contact Ms. Morgan Wolf at (843) 727-4707, ext. 219 and reference FWS Log No. 2012-I-0095.

Sincerely,

  
for Jay B. Herrington  
Field Supervisor

JBH/MKW