



STV/Ralph Whitehead Associates

454 South Anderson Road, Suite 3, BTC 517
Rock Hill, South Carolina 29730
(803)980-4970 fax:(803)980-4099

Letter of Transmittal

Sheet No.: 1 of 1

To: South Carolina Department of Transportation
955 Park Street
Room 509
Columbia, SC 29201

Date: Feb 24, 2011 Our Job No.: 2514104
File Code: Your Job No.:
Attention: Joy Shealy, PE –Asst Program Mgr
Reference: Design Build Bridges – SC 200/Cane Creek

We Are Sending: ☒ Attached ☐ Under Separate Cover via ☐ Overnight ☐ 2nd Day ☐ Regular mail the following items:

☐ Shop Drawings ☐ Prints ☐ Sepias ☐ Mylars ☐ Samples ☐ Change Order
☐ Copy of Letter ☒ Reports ☐ Specifications ☐ Cost Estimates ☐ Electronic Media
☐ Other:

Item	Rev. No.	Quantity	Description	Action Code
1		2	CE-C for SC-200 over Cane Creek	D, G

Action Codes: A. Action Indicated on Item Transmitted C. For Your Use E. For Information Only G. For Approval
 B. See Remarks Below D. As Requested F. For Review & Comment

Remarks Joy – Please find enclosed the revised final CE-C for SC-200 over Cane Creek. If you have questions or require anything additional, please do not hesitate to ask. Thank you!

Copies Dan Moses, STV
File

Signed:

Stephanie Gallagher

CATEGORICAL EXCLUSION TYPE C

PIN: 39094_BR05

County: Lancaster

State File No.: 29.039094

February 23, 2012

To: Federal Highway Administration

From: SCDOT, Heather M. Robbins, AICP/NEPA Manager

Project: Bridge Replacement on SC-200 (Monroe Highway) over Cane Creek

Project Description: The South Carolina Department of Transportation (SCDOT) proposes to replace the existing SC-200 (Monroe Highway) bridge over Cane Creek in Lancaster County, South Carolina (**Figure 1**). The existing bridge is 154 feet in length, 33.5 feet in width (with a 28-foot deck width) and consists of seven, 22-foot spans. The existing bridge accommodates two, 11-foot travel lanes (one in each direction) with 3-foot shoulders on either side. Cane Creek ranges between 35 feet and 55 feet in width and three jurisdictional streams are located within the project study area (PSA). In addition, Cane Creek at SC-200 is included on the 2010 S.C. Department of Health and Environmental Control (SCDHEC) 303(d) list of impaired waters. Jurisdictional wetlands are not located within the PSA. The project is located within a Zone A of a Federal Emergency Management Agency (FEMA) floodplain and is designated as having a "high" risk for flooding. The existing bridge has a clearance height (distance from Low Steel to Normal Water Elevation) of 13.3 feet. The scope of the proposed project includes replacement of the existing bridge with a new alignment to the west (downstream of the existing bridge) and realignment of the existing roadway and associated approaches. The existing bridge centerline would be offset approximately 50 feet to the west. The proposed project is part of a design-build contract and funds for the project are reasonably expected to be available. The proposed project is funded as part of the Federal-aid program for bridge replacements and is included in the State Transportation Improvement Plan (STIP) with funding for the years 2010-2015 (STIP District 4 – Page 1). Preliminary engineering indicates that the replacement bridge would measure approximately 180 feet in length and 44 feet in width with two, 90-foot spans (**Figure 2**). The proposed bridge would accommodate two, 12-foot lanes with 10-foot shoulders on either side of the travel lanes (**Figure 3**). The replacement bridge would include span arrangements greater than the existing bridge to span the stream and improve channel flow with the removal of the foundation for the existing bridge from Cane Creek. The proposed bridge would also maintain the existing low chord elevation (clearance height) and the preliminary hydraulic assessment indicates that they project would be constructed to meet the "No-Rise" requirements. It is anticipated that the proposed project would result in fill impacts to approximately 340 linear feet of stream (**Figure 4**). As a result, an Individual Permit (IP) would be required from the U.S. Army Corps of Engineers (USACE). Additional options were considered including the elimination of fill impacts to the stream through the use of retaining/abutment walls. However, the construction of the walls would also require clearing and fill impacts. As a result, the proposed alternative has been determined to be the most reasonable design option. National Pollutant Discharge Elimination System (NPDES) limits will be established during final design and permitting. Acquisition of an additional 2.76 acres of right-of-way would be required; however, displacements are not anticipated as a result of the proposed project (**Figure 4**). The existing bridge would remain open to maintain traffic during construction of the replacement bridge and a detour would not be required. Additional options were considered, including replacement of the bridge on existing alignment and replacement to the east (upstream). Replacement of the bridge on existing

alignment would require additional stream impacts and a lengthy off-site detour (approximately 35 miles). Replacement of the bridge to the east would also result in increased stream impacts and require the relocation of overhead utilities. In addition, a box culvert is located approximately 1,200 feet north of the bridge. Changes to the project limits would impact the existing culvert. As a result, replacement of the bridge on a new location to the west has been deemed the least environmentally damaging and most reasonable alternative.

Purpose and Need: The purpose of the project is to replace a structurally deficient bridge. The bridge was built in 1938 and reconstructed in 1958. The bridge has a sufficiency rating of 45.8 and a poor superstructure. The bridge is considered structurally deficient and is eligible for replacement through the federal Highway Bridge Replacement and Rehabilitation Program. SC-200 is classified as a Rural Major Collector roadway. Traffic studies indicate that the existing (2008) average daily traffic volume (ADT) for SC-200 is 2,800 vehicles per day and the ADT is expected to increase to 4,088 vpd by 2028. The bridge is an aging structure and approaching the end of its useful life. Replacement of the existing structure would increase the safety of the bridge crossing and provide for long-term functionality.

Findings: The project has been assessed for possible effects on the human and natural environment with a determination that no significant environmental impact will occur. The class of action and impact determination documented by this statement qualify this project as a categorical exclusion under 23 CFR 771, Section 115(b).

A PSA of approximately 1,000 linear feet in length was specifically examined for potential impacts to jurisdictional waters. As part of the preliminary design process, the project length was increased to approximately 1,750 linear feet to allow for roadway transitions. Extension of the project limits does not change the analysis and determinations made in this environmental document. The additional limits were examined for potential impacts and none were discovered that would change the conclusions drawn in this document.

Acquisition of an additional 2.76 acres of right-of-way will be required; however, displacements are not anticipated as a result of the proposed project. Acquisition will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition policies Act of 1970.

Wetlands are not present within the project study area; however, fill impacts to Stream B will be required as a result of the bridge replacement. Based on preliminary engineering it is anticipated that approximately 340 linear feet of Stream B would require fill (**Figure 4**). As a result, an Individual Permit from the US Army Corps of Engineers (USACE) will be required. A Preliminary Jurisdictional Determination from the USACE was approved on May 17, 2011 to verify jurisdictional waters (**Appendix A**).

This project will involve encroachment on floodplains. Therefore, under Executive Order 11988, it has been determined that no practicable alternative to this involvement is considered and all practicable measures to minimize harm have been incorporated. A preliminary hydraulic assessment indicates that the project will be constructed to meet the "No-Rise" requirements (See the Bridge Replacement Scoping Trip Risk Assessment in **Appendix B**). A coordination letter was also sent to the Lancaster County Floodplain Manager to notify them of the bridge replacement project within a FEMA regulated floodplain (**Appendix A**).

Stormwater control measures during construction and post-construction are required for SCDOT projects within the vicinity of SCDHEC designated "sensitive" waters. These include, but are not limited to: 303(d) impaired waters, waters with Total Maximum Daily Loads (TMDLs), Outstanding Resource Waters (ORW), Shellfish Harvesting Waters (SFH) and trout waters. Cane Creek at SC-200 is listed on the SCDHEC 303(d) list for impaired waters. As a result, stormwater control measures for sensitive waters will be in accordance with SCDOT's MS4 Permit.

A Phase 1 Environmental Site Assessment (ESA) was not performed for the proposed project due to the rural, undeveloped location. A review of public records was conducted to identify recognized environmental conditions (RECs), or known hazardous materials, within the vicinity of the project. No known RECs or potential hazardous materials (i.e. petroleum products and underground storage tanks) are located within a half-mile of the project. In addition, the area adjacent to the bridge is undeveloped and there is a low potential for hazardous materials within this area. As a result, impacts to hazardous materials are not anticipated from the project.

A Biological Assessment and Freshwater Mussel Survey were conducted within the PSA with biological conclusions of "no effect" to threatened or endangered species from the proposed project (**Appendix C**). As a result, a determination has been made that the project will not jeopardize the continued existence of any listed endangered or threatened species or destroys or adversely modify critical habitat. Therefore, no further investigation under Section 7 of the Endangered Species Act is necessary.

In consultation with the State Historic Preservation Office, as appropriate, the project will not affect any properties identified as being on or eligible for inclusion in the National Register of Historic Places under 36 CFR 800. The State Historic Preservation Office (SHPO), Tribal Historic Preservation Offices of the Catawba Indian Nation (CIN THPO) and Eastern Band of Cherokee Indians (EBCI THPO) have concurred with this finding (**Appendix A**).

Additionally, the project will have no affect on land use, farmlands, air quality or noise.

Environmental Commitments:

- The acquisition and disturbance of hazardous materials will be avoided, if possible. If avoidance is not a viable alternative, hazardous materials will be tested and removed and/or treated in accordance with the United States Environmental Protection Agency and the South Carolina Department of Health and Environmental Control requirements.
- Construction within the floodplain will be consistent with FEMA regulations. The bridge will be replaced as part of a design/build contract. If necessary, a detailed hydraulic analysis will be performed during the final design phase. The contractor will be required to construct a minimum structure length, minimum low chord and minimum channel opening. A letter of concurrence will be obtained from the Lancaster County Floodplain Manager prior to construction and a No-Rise Certification will also be obtained. A letter of coordination with the Lancaster County Floodplain Manager was sent November 29, 2011 (**Appendix A**). Coordination with the Floodplain Manager will continue throughout the process and they will be notified once the final hydraulic analysis is complete.
- Impacts to jurisdictional waters will be permitted and appropriately mitigated under a Section 404 permit from the US Army Corps of Engineers (USACE). Based on preliminary engineering, it is anticipated that the proposed project would require an Individual Permit (IP) from the USACE for potential impacts/fill to 340 linear feet of stream. Any required compensatory mitigation requirements for permanent project impacts will be attained through purchase of mitigation credits from an approved mitigation bank.
- The bridge is located in the vicinity of a SCDHEC 303(d) listed water (Cane Creek) and stormwater control measures, both during construction and post-construction, will be in accordance with SCDOT's MS4 Permit.

Date

Environmental Project Manager

Date

Federal Highway Administration

Supplemental Information

Acquisitions /Displacements

It is anticipated that approximately 2.76 acres of additional right-of-way would need to be obtained for the proposed bridge replacement (**Figure 4**). However, the proposed project would primarily take place within existing right-of-way and no displacements would result.

Section 4(f)

The proposed project would not impact publically owned parks, recreational areas, or wildlife refuges. Therefore, a Section 4(f) evaluation/approval is not required for this project.

Section 106 - Cultural Resources (Archaeological/Historic)

In accordance with 36 CFR 800.4, a cultural resource survey was conducted in August 2010. One archaeological site (38LA586) was identified during the survey, which was recommended not eligible for the National Register of Historic Places (NRHP). There are no previously identified archaeological sites or historic architectural resources located within 0.5 mile of the project area. There is one previously recorded historic architectural resource (Resource 0435) within 0.5 mile of the project; this resource is not eligible for the NRHP.

The replacement of the SC 200 Cane Creek bridge as currently planned would not affect any historic properties. As resources were recommended as not eligible for the NRHP further investigations are not warranted. The replacement of the SC 200 Cane Creek bridge as currently proposed would not affect any historic properties. In addition, the bridge over Cane Creek was previously determined to be not eligible for the NRHP. The State Historic Preservation Office (SHPO) concurred with these findings on February 23, 2011 (see **Appendix A**). In addition, the Tribal Historic Preservation Offices of the Catawba Indian Nation (CIN THPO) and Eastern Band of Cherokee Indians (EBCI THPO) also concurred with the findings. This concurrence is also included in **Appendix A**.

Water Quality

The project study area (PSA) is located in the base of the Cane Creek watershed within the Catawba River Basin. Waters within the watershed included on the 2010 S.C. Department of Health and Environmental Control (SCDHEC) 303(d) list of impaired waters include Cane Creek at SC-200 (Station CW-185), which is located within the Project Study Area (PSA). No National Pollutant Discharge Elimination System (NPDES) permitted facilities are operating within the PSA. Quantitative water quality sampling within the PSA was not conducted. The proposed project is not expected to have long term impacts to water quality within the PSA or the Cane Creek watershed. Short-term water quality impacts would be controlled through best management practices (BMPs).

Stormwater control measures during construction and post-construction are required for SCDOT projects within the vicinity of SCDHEC designated “sensitive” waters. These

include, but are not limited to: 303(d) impaired waters, waters with Total Maximum Daily Loads (TMDLs), Outstanding Resource Waters (ORW), Shellfish Harvesting Waters (SFH) and trout waters. SCDOT has been designated as a large municipal separate storm sewer system (MS4) and has been issued a NPDES MS4 permit (# SCS 040001) by SCDHEC. This permit grants permission to discharge storm water to all receiving waters in the state of South Carolina in accordance with the permit requirements. These control measures for sensitive waters would be in accordance with SCDOT's MS4 Permit. NPDES limits would be determined during final design.

Wetlands and Streams

The PSA was field reviewed on October 27, 2010 for the presence of jurisdictional waters of the U.S and potential waters were delineated. Prior to the fieldwork, a review of the National Wetlands Inventory (NWI) was also conducted. The PSA reviewed was approximately 1,000 feet long, 200 feet wide and generally centered on the SC 200 bridge over Cane Creek and roadway approaches. Due to an extension of project limits as part of the preliminary design process, the entire project area along 1,750 linear feet of SC 200 was examined. The National Wetland Inventory was searched and no additional jurisdictional waters were discovered within the extended project limits.

Potential jurisdictional waters of the U.S. identified in the PSA include Perennial relatively permanent water (RPW) Stream A (Cane Creek), Seasonal RPW Stream B (Unnamed Tributary to Cane Creek), and Perennial RPW Stream C (Unnamed Tributary to Cane Creek). No potential wetlands were identified within the PSA during the field review. One riparian wetland associated with Cane Creek is depicted on the NWI Wetlands Mapper along the eastern boundary of the PSA, encompassing approximately 0.01 acre. This wetland is described as palustrine, forested, broad-leaved deciduous and temporarily flooded; however, this wetland was not identified within the PSA during field reviews.

Cane Creek (Stream A) is located in the approximate center of the PSA, and is crossed by the SC 200 bridge and is a perennial, RPW that ranges from approximately 35 to 55 feet wide with bank heights ranging from 4 to 10 feet. Within the PSA, Cane Creek accepts drainage from large surrounding upland forest and the maintained and disturbed roadside and SC 200. Approximately 212 linear feet of Stream A are located within the PSA.

Stream B is located in the approximate center of the PSA, west of the SC 200 bridge over Cane Creek and is a seasonal, RPW that is approximately 6 to 10 feet wide with bank heights ranging from 2 to 6 feet. Stream B accepts drainage primarily from the maintained and disturbed roadside and SC 200 and partially from the surrounding upland forest. Stream C is located in the approximate center of the PSA, east of the SC 200 bridge over Cane Creek and is perennial, RPW that is approximately 10 to 15 feet wide with bank heights ranging from 4 to 8 feet. Approximately 129 linear feet of Stream B are located within the PSA.

Stream C accepts drainage primarily from a large upland forest northeast of the PSA, and partially from the maintained and disturbed roadside and SC 200. Stream C originates northeast of the PSA, crosses SC 200 approximately 1500 feet northeast of

the SC 200 bridge over Cane Creek and drains to Cane Creek (Stream A). Approximately 77 linear feet of Stream C are located within the PSA.

Based on preliminary engineering, a total of approximately 418 linear feet of streams are located within the PSA. Detailed descriptions of these waters can be found in the supporting *Natural Resources Technical Memorandum*. A summary of the total amount of streams located within the PSA is included in **Table 1**.

Table 1
Waters in the PSA

System	Total Area within PSA
Stream	
Stream A (Cane Creek – Perennial RPW)	212 linear feet
Stream B (Seasonal RPW)	129 linear feet
Stream C (Perennial RPW)	77 linear feet
<i>Total Streams</i>	<i>418 linear feet</i>

Source: *Natural Resources Technical Memorandum – SC 200 Bridge Replacement over Cane Creek*, January 2011.

The delineated jurisdictional boundaries were verified by the U.S. Army Corps of Engineers (USACE), and a Preliminary Jurisdictional Determination was approved on May 17, 2011 (**Appendix A**). Based on preliminary design, approximately 340 linear feet of Stream B would require fill and impacts to the stream would result (**Figure 4**). Additional options for the bridge replacement were examined to minimize or eliminate these stream impacts. A design option that included the use of retaining/abutment walls was considered. However, the construction of the walls would also require clearing and fill impacts. As a result, the proposed preliminary design option was selected as the most reasonable option.

Permitting

A Clean Water Act Section 404 permit is required for impacts to jurisdictional waters of the U.S., including wetlands. Section 404 is administered by the USACE. Depending on the type and extent of jurisdictional waters of the U.S., including wetlands, to be impacted, Section 404 permitting requirements can range from activities that are considered exempt or preauthorized to those requiring pre-construction notification (PCN) for a Nationwide Permit (NWP) or Individual Permit (IP) from the USACE.

For SCDOT projects, USACE General Permit (GP) 2010-01346 may be applicable if impacts do not exceed 3.0 acres of freshwater wetlands, 0.5 acre of tidal wetlands, and/or 300 linear feet of stream. When impacts exceed the GP threshold limits, an IP from the USACE is required. Pursuant to Section 404, regulated discharges would include, but are not necessarily limited to, the placement of fill material, riprap, pipes, culverts, etc., into waters of the U.S. The permit application must include a delineation of affected waters of the U.S., including wetlands, as well as a description of impact avoidance and minimization strategies, and an alternatives analysis. It is anticipated that an IP would be required for this project as approximately 340 linear feet of stream would require fill as part of the bridge replacement.

In addition, Cane Creek is “impaired” and a 303(d) listed water. Depending on the type of impairment, extent of the project, and other factors, SCDHEC may require additional water quality protection and stormwater treatment measures during and after construction. See the *Water Quality* section for additional information.

Floodplains

The proposed project is located within Zone A of Federal Emergency Management Agency (FEMA) floodplain map (Map Number 45057C0165D). Zone A is a “high risk” area for flooding and Zone A areas have a 1% annual chance of flooding. The replacement bridge would maintain the existing low chord elevation (clearance height) and preliminary hydraulic assessment (Bridge Replacement Scoping Trip Risk Assessment Form) indicates that the project would be constructed to meet the “No-Rise” requirements (**Appendix B**). The proposed project is not expected to increase the Base Flood Elevation on Cane Creek. A No-Rise Certificate would be obtained in accordance with FEMA regulations. As part of the design/build contract, the contractor selected would be required to construct a minimum structure length, minimum low chord and minimum channel opening. Once the design/build contract has been established, the proper hydraulic design and analysis would be performed according to FEMA regulations. If the detailed hydraulic analysis is deemed necessary and fails to verify that the proposed project would not significantly impact the floodplain, the project would require re-evaluation prior to proceeding with construction. A letter of coordinating with the Lancaster County Floodplain Manager was sent November 29, 2011 (**Appendix A**). Coordination with the Floodplain Manager would continue throughout the process and they would be notified once the final hydraulic analysis is complete.

The level of risk analogous with the probable area of flooding and its consequences attributed to this encroachment is not expected to be any greater than that associated with the present roadway. Also, the project is not expected to have any increased potential for impact on those critical elements that would constitute a significant risk under 23 CFR 650A. The project’s construction within these floodplains would be consistent with FEMA regulations. A letter of concurrence would be obtained from the Lancaster County Floodplain Administrator, if necessary.

Hazardous Materials

An additional 2.76 acres of right-of-way would be required for this project. However, the area directly adjacent to the bridge consists of undisturbed land with low potential for uncovering hazardous materials, specifically underground storage tanks, during construction activities. A Phase 1 Environmental Site Assessment (ESA) was not performed for the proposed project due to the rural, undeveloped location of the bridge. However, a records search was conducted for known hazardous materials. A review of the Environmental Protection Agency (EPA) Enviromapper database did not reveal any documented hazardous material sites on or within a half-mile proximity of the project. As a result, impacts to hazardous materials are not anticipated from the proposed project.

It is SCDOT’s practice to avoid the acquisition of underground storage tanks and other hazardous waste materials, if at all possible. If soils that appear to be contaminated with petroleum products were encountered during construction, SCDHEC would be informed. If avoidance were not a viable alternative, tanks and other hazardous materials would be tested and removed and/or treated in accordance with the EPA and SCDHEC

requirements. Costs necessary for clean up would be taken into consideration during the right-of-way appraisal and acquisition process.

Threatened and Endangered Species

Pursuant to Section 7 of the Endangered Species Act, the list of protected species known to occur in Lancaster County was reviewed, and evaluations were performed regarding the likelihood of the presence of each species within the project area. A search of the United States Fish and Wildlife Service (USFWS) database provided existing information concerning the potential occurrence of threatened or endangered species within Lancaster County. This database identifies federally threatened or endangered species known to occur or to have formerly occurred in Lancaster County and are listed in **Table 1**.

Table 1
Lancaster County Endangered/Threatened Species

Federally Protected Species		Protection Status	
Common Name	Scientific Name	Federal	State
Little amphianthus	<i>Amphianthus pusillus</i>	T	-
Smooth coneflower	<i>Echinacea laevigata</i>	E	-
Bald eagle	<i>Haliaeetus leucocephalus</i>	BGPA	E
Schweinitz's sunflower	<i>Helianthus schweinitzii</i>	E	-
Black-spotted quillwort	<i>Isoetes melanospora</i>	E	-
Carolina heelsplitter	<i>Lasmigona decorata</i>	E, CH	E

T = Threatened, E = Endangered, CH = Critical Habitat, BGEPA = Bald and Golden Eagle Protection Act

The South Carolina Department of Natural Resources (SCDNR) Rare, Threatened and Endangered Species Inventory database was also reviewed for information regarding species with state endangered or threatened status. Information obtained from the SCDNR database in July 2010 indicates that there were no listed state threatened or endangered species known to be present within the PSA as of January 17, 2006. Furthermore, according to the SCDNR database, no state threatened or endangered species were located within a one-mile radius of the PSA as of January 17, 2006. None of the protected species were observed within the PSA during the field reviews conducted in October 2010. No potential habitat for little amphianthus, smooth coneflower, bald eagle, or black-spored quillwort was identified within the PSA; therefore, it is determined that the project would have a biological conclusion of 'no effect' on these species. The field review did, however, reveal potential habitat for Schweinitz's sunflower and Carolina heelsplitter within the PSA.

Field surveys conducted in October 2010 included a search for the presence of the species within areas of potential habitat. No individuals were observed during these surveys. Based on the literature and field reviews conducted during the flowing period and the absence of individual plants, it is determined that the project would have 'no effect' on the Schweinitz's sunflower (see **Appendix C** for Biological Assessment).

A survey for freshwater mussels was also conducted in October, 2010 and the report indicates that no Carolina heelsplitter specimens were observed within the PSA or within 100 meters upstream or 400 meters downstream of the bridge (**Appendix C**). From this field survey, it was concluded that Carolina heelsplitter is not present in Cane Creek

within the project vicinity. Based on the findings of the field survey, it is determined that the project would have “no effect” on the Carolina heelsplitter.

Farmlands

The United States Department of Agriculture (USDA) Soil Survey of Lancaster County indicates that the three mapped soils within the project area include the following.

- Mecklenburg fine sandy loam, 10 to 15 percent slopes (McD2)
- Chewacla soils (Ch)
- Cecil fine sandy loam, 10 to 15 percent slopes (CcD2)

According to the List of Prime and Other Important Farmlands for Lancaster County, Ch is a prime farmland soil when protected from flooding (USDA NRCS, 2010). However, the Ch soil within the PSA is located within the floodplain of Cane Creek. As a result, the Ch soil in this location is not suitable for farming.

Land Use

The proposed bridge replacement is located in a rural area northeast of the town of Lancaster, South Carolina. Land use in the surrounding areas is made up undeveloped woodland, with some agricultural and scattered residential uses. There are no community facilities located near the bridge. Lancaster has designated the area surrounding the bridge with residential and agricultural zoning. The bridge replacement is not expected to modify existing land use or change the timing or density of development in the area. The project is not in conflict with any plan, existing land use or zoning regulation.

Air Quality

Lancaster County is an attainment area for National Ambient Air Quality Standards (NAAQS). As a result, Lancaster County meets or exceeds the standards established by the Environmental Protection Agency (EPA) for criteria pollutants and air quality.

The purpose of this project is to replace a structurally deficient bridge. This project has been determined to generate minimal air quality impacts for Clean Air Act Amendments (CAAA) criteria pollutants and has not been linked with any special Mobile Source Air Toxins (MSAT) concerns. As such, this project would 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 (FHWA 2011).

Noise

The project is considered to be of a non-traffic generating nature because no additional through traffic lanes would be constructed and no significant alignment change would occur. Therefore, the requirements for conducting noise studies under 23 CFR 772 do not apply.

References

Brockington and Associates, Inc. November 2010. *Cultural Resources Survey of the SC 200 Cane Creek Bridge Replacement Project, Lancaster County, South Carolina*. Prepared for the South Carolina Department of Transportation.

Federal Emergency Management Agency. January 6, 1983. FIRM Flood Insurance Rate Map, Lancaster County, South Carolina, Map Number 45057C0165D. Available at: <http://map1.msc.fema.gov> Accessed January 2011.

Federal Highway Administration. 2009. *Interim Guidance on Air Toxic Analysis in NEPA Documents*. Available at: <http://www.fhwa.dot.gov/environment/airtoxic/100109guidmem.htm> Accessed April 2011.

Lancaster County Planning and Zoning Department. Lancaster Zoning Map. Available at: <http://www.lancastercountysc.net/BuildingZoning/ZoneMap.asp> Accessed April 2011.

STV/RWA. January 2011. *Natural Resources Technical Memorandum – SC 200 Bridge Replacement over Cane Creek*. Prepared for the South Carolina Department of Transportation.

U.S. Department of Agriculture, Natural Resource Conservation Service (USDA NRCS). Soil Data Mart – Prime and Other Important Farmlands, Lancaster County, South Carolina. Available at: <http://soildatamart.nrcs.usda.gov/> Accessed November 2011.

U.S. Environmental Protection Agency EPA. 2011. *Enviro Mapper Database*. Available at www.epa.gov/emefdata Accessed November 2011.

U.S. Fish and Wildlife Service. 2011. *National Wetlands Inventory*. Available at: <http://www.fws.gov/wetlands/Data/Mapper.html> .

Figure 1: Site Location

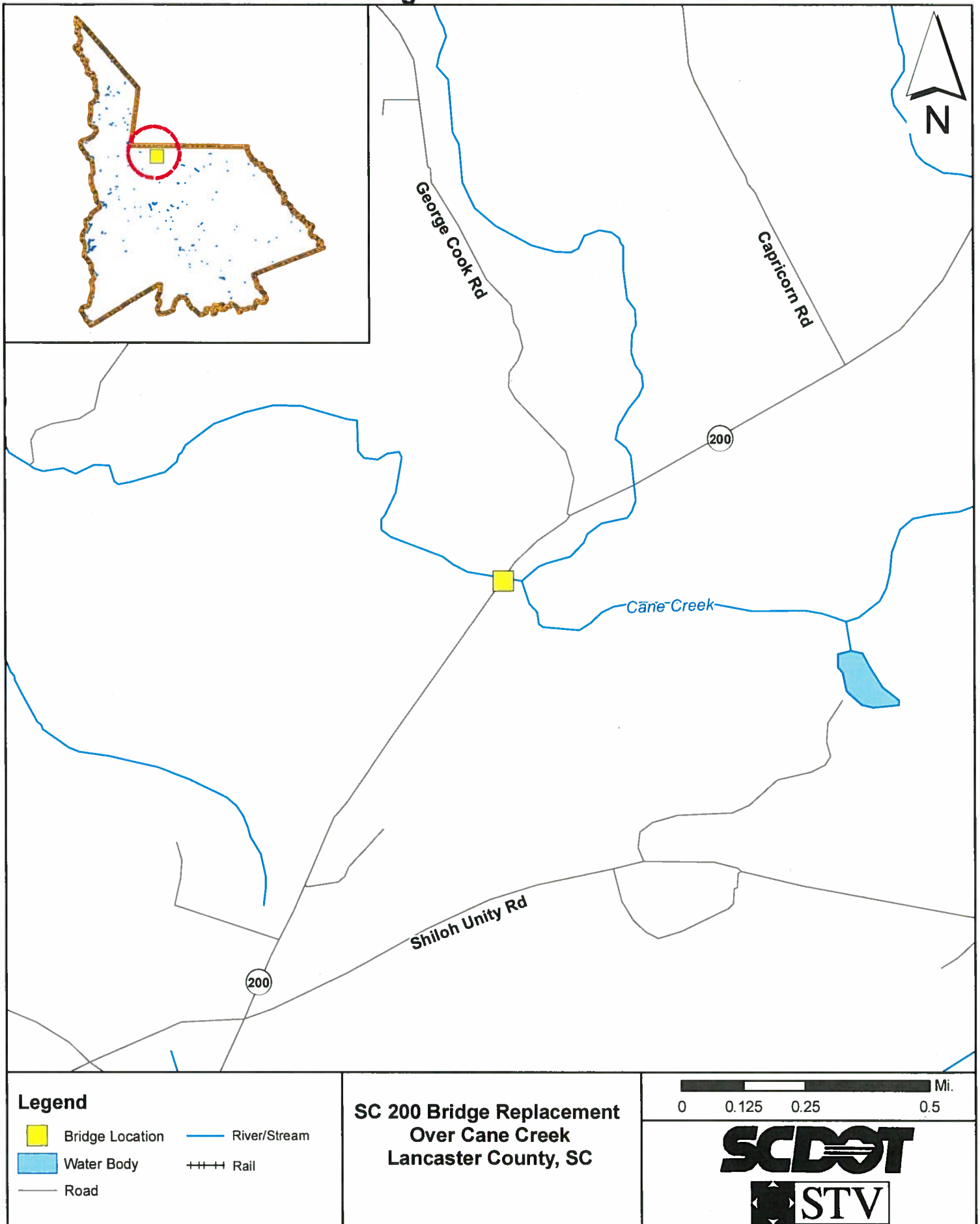
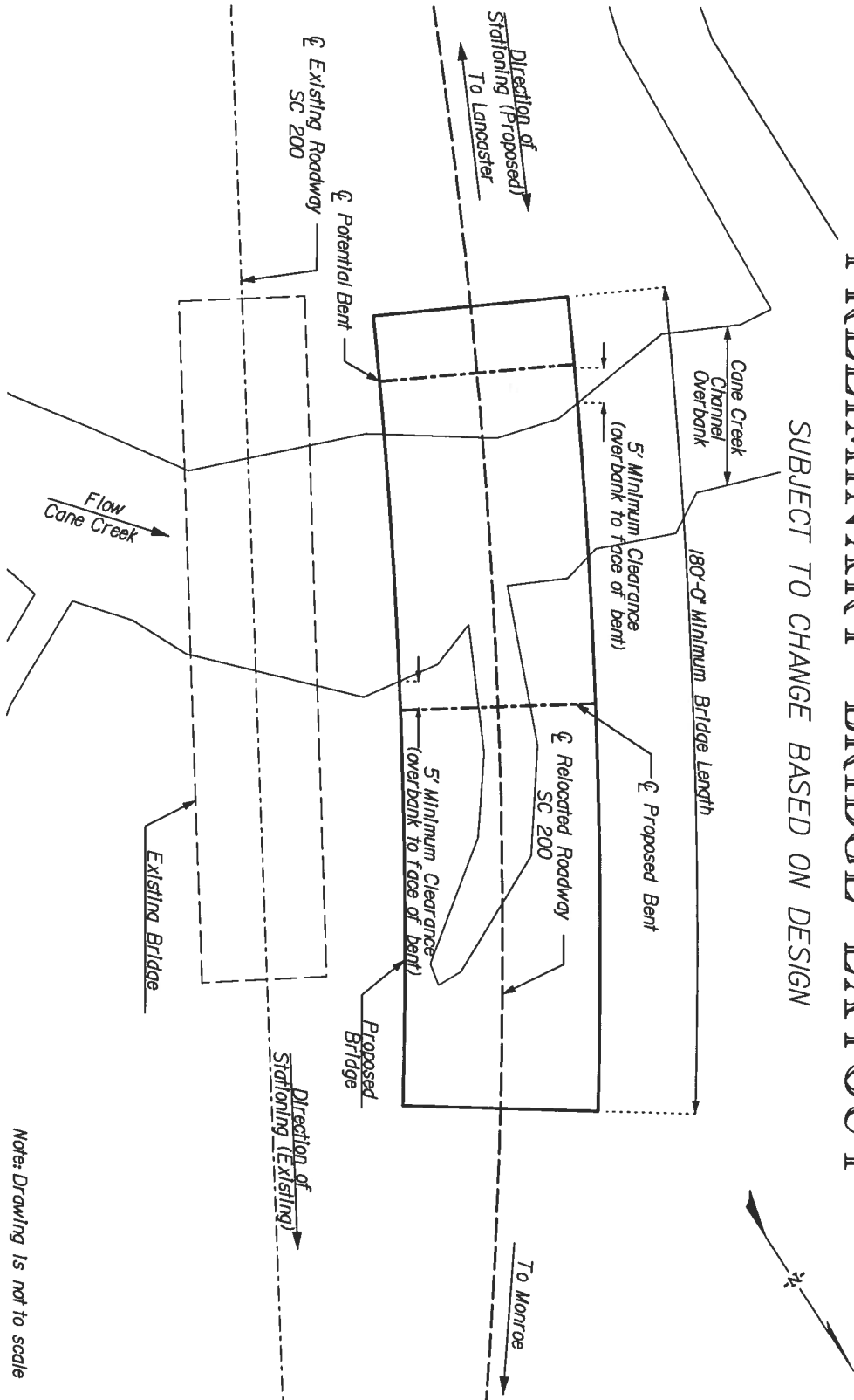


Figure 2: Plan View

ROUTE SC 200 OVER CANE CREEK LANCASTER COUNTY

PRELIMINARY BRIDGE LAYOUT

SUBJECT TO CHANGE BASED ON DESIGN



Notes: Drawing is not to scale

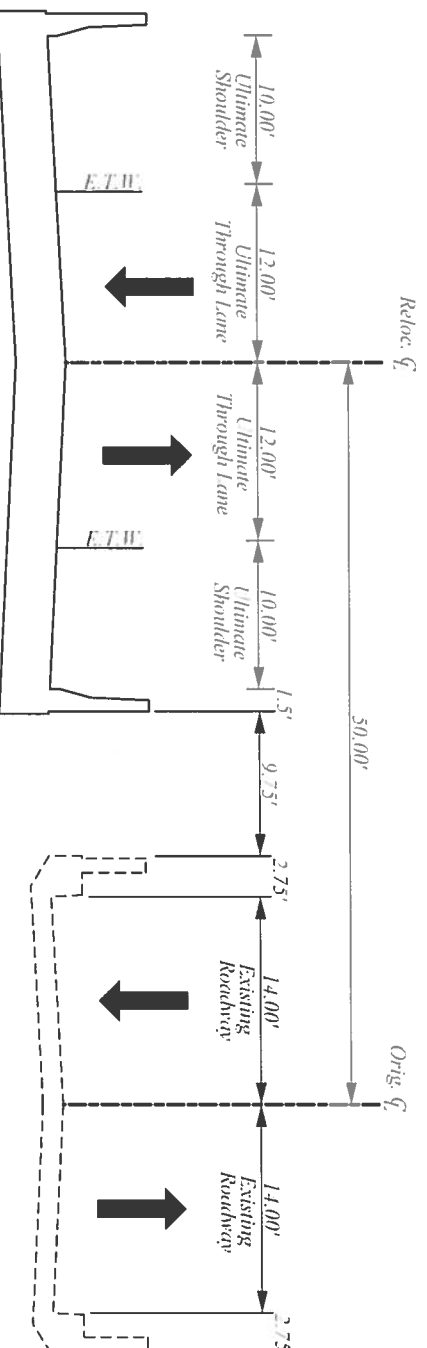
*Preliminary Design

SC 200 over
Cane Creek
Lancaster County, SC



Figure 3: Typical Section

ROUTE SC 200 OVER CANE CREEK LANCASTER COUNTY PRELIMINARY BRIDGE TYPICAL SECTION



TYPICAL SECTION NO. 1

USE THIS SECTION ON
SC 200

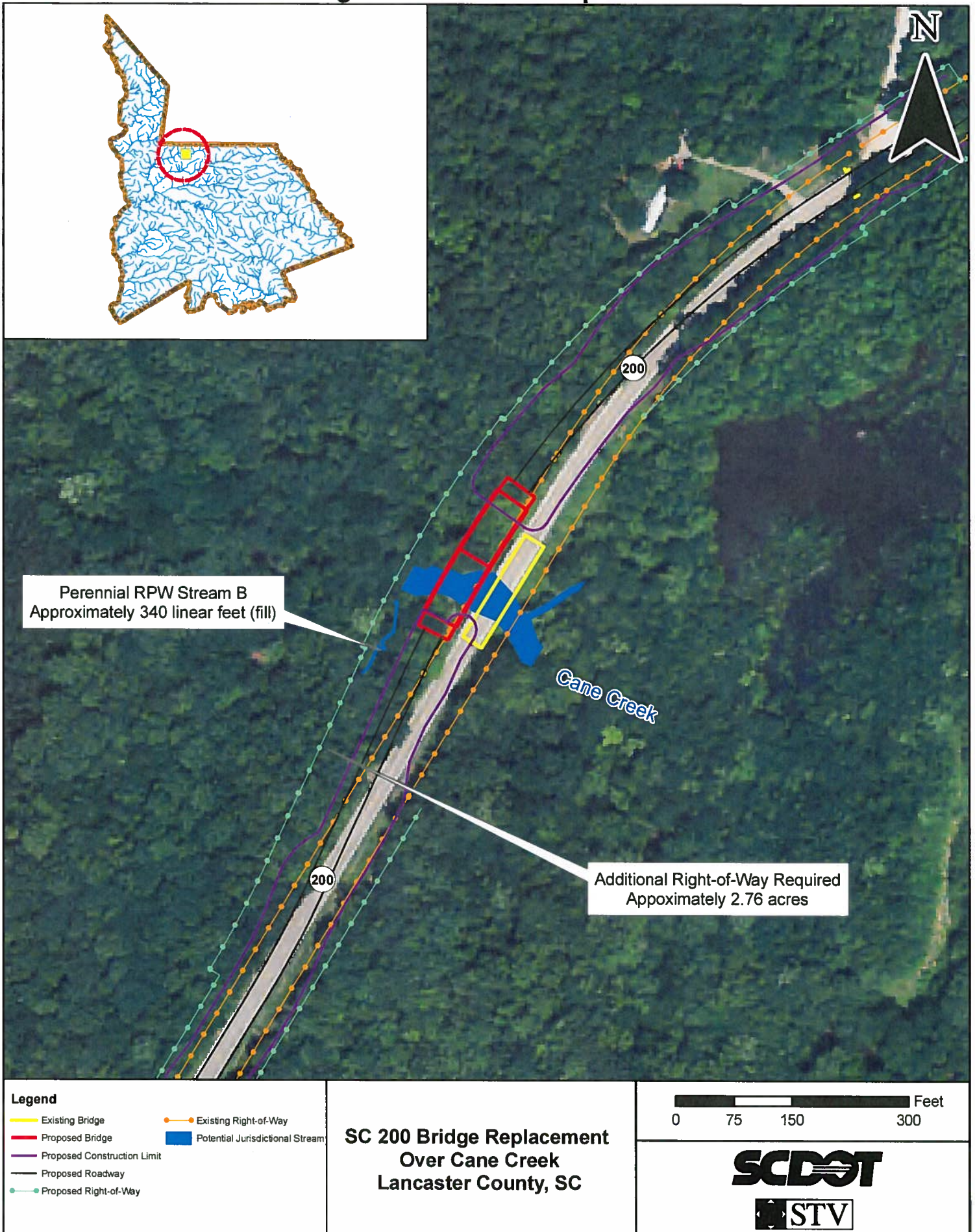
SCALE 1"=10' H 1"=4' V

*Preliminary Design

SC 200 over
Cane Creek
Lancaster County, SC



Figure 4: Potential Impacts



Appendix A

Agency Correspondence



STV/Ralph Whitehead Associates

1000 West Morehead Street, Suite 200
Charlotte, North Carolina 28208
(704) 372-1885 fax: (704) 372-3393

November 29, 2011

Mr. Bill Anderson
Lancaster County Building Official/Floodplain Manager
P.O. Box 1809
Lancaster, SC 29721

RE: No Impact Intent Statements for the Bridge Replacement Projects on SC 9 over the Catawba River and SC 200 over Cane Creek in Lancaster County.

Dear Mr. Anderson

The South Carolina Department of Transportation is preparing to replace the above referenced bridges in Lancaster County. The bridges 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 structures. This letter attests that the referenced bridges lay within Zone A of FEMA regulated floodplains. A preliminary hydraulic assessment has been performed on each bridge and their replacement is not expected to cause any increases within the base flood elevations nor increase the flooding potential for the surrounding areas during 100-year storm events. As a result, it is anticipated that each of the bridges will be designed to meet the "No-Rise" requirements. Once the design/build contract has been established, the final hydraulic design and analysis will be performed according to FEMA regulations. You will be notified of the study findings for the bridges once they are completed.

Please feel free to contact me at (704) 372-3393 if you have any questions or require additional information about the proposed projects.

Sincerely,

Stephanie J. Gallagher, AICP
Environmental Planner
STV, Inc.

Ec: Heather Robbins, SCDOT NEPA Manager



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
69A HAGOOD AVENUE
CHARLESTON, SOUTH CAROLINA 29403-5107

May 17, 2011

Regulatory Division

Mr. Sean Connolly
Environmental Permit Manager
South Carolina Department of Transportation
P.O. Box 191, 955 Park Street
Columbia, South Carolina 29202

Dear Mr. Connolly:

This is in response to a letter from STV/Ralph Whitehead received December 23, 2010, requesting a Jurisdictional Determination, on behalf of South Carolina Department of Transportation, for a 4.5 acre tract, located along SC-200 across Cane Creek (SCDOT PIN 39094) located in Lancaster County, South Carolina. The project area is depicted on the enclosed sketches Figure 2 and Figure 4 entitled "SC-200 Bridge Replacement over Cane Creek, Lancaster County, SC" dated October 29, 2010, that depict the project location, project boundaries, and delineated Waters of the U.S. A preliminary jurisdictional determination is used to indicate that this office has identified wetlands or other waters on the property and believes these waters may be jurisdictional waters of the United States. Since the Preliminary does not verify the actual jurisdictional status of wetlands and/or waters of the United States on the property, it relies on the presumption of jurisdiction for the purpose of expediting the request for a Preliminary.

Based on an on-site inspection, a review of aerial photography, topographic maps, National Wetland Inventory maps and soil survey information and information which you provided, it has been concluded that the boundaries shown on the referenced sketch or plat are a reasonable approximation of the location and boundaries of the waters found on this site. The property in question contains a total of approximately **418 linear feet** of federally defined freshwater wetlands or other waters. **Specifically, your project contains 212 linear feet of Cane Creek, 129 linear feet of a tributary to Cane Creek (Seasonal RPW Stream B), and 77 linear feet of a tributary to Cane Creek (Perennial RPW Stream C).** You are cautioned that this delineation is approximate, subject to change, and should be used for planning purposes only. This office should be contacted prior to performing any work in or around these wetlands or other waters. In order for a definitive determination to be provided, these areas should be located and marked on-site, sketched or surveyed, platted on a map, and should be accompanied by a request for an Approved Jurisdictional Determination. Upon receipt of such a request, this office can then issue an approved determination as to jurisdiction (rather than the presumption of jurisdiction). You should also be aware that the areas identified as wetlands or other waters may be subject to restrictions or requirements of other state or local government entities.

Please note that since this jurisdictional determination is a Preliminary, it is subject to change and therefore is not an appealable action under the Corps of Engineers administrative appeal procedures defined at 33 CFR 331. If a permit application is forthcoming as a result of this Preliminary, a copy of this letter, as well as the attached sketch or plat should be submitted as part

of the application. Otherwise, a delay could occur in confirming that a preliminary jurisdictional determination was performed for the permit project area.

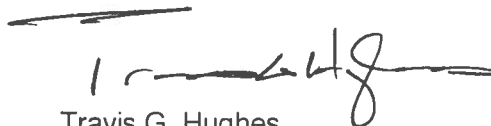
This preliminary jurisdictional determination is a non-binding action and as such has no expiration until it is superseded by an Approved Jurisdictional Determination. If you intend to request an Approved Jurisdictional Determination in the future, you are advised not to commence work in these wetlands and/or waters prior to receiving the Approved Jurisdictional Determination.

In future correspondence concerning this matter, please refer to SAC 2011-00034-DJS. You may still need state or local assent.

Enclosed are two copies of the Preliminary Jurisdictional Determination Form which have been prepared for your signature. Please sign each copy and return to this office in the enclosed self-addressed envelope.

If you have any questions concerning this matter, please contact Stephen A. Brumagin at 803-253-3445.

Sincerely,

A handwritten signature in black ink, appearing to read 'Travis G. Hughes', is written over a horizontal line.

Travis G. Hughes
Chief, Special Projects Branch

Enclosures:

Location map/Site plans

Preliminary Jurisdictional Determination Form

Copy Furnished:

Mr. Michael Iagnocco, PWS
STV/Ralph Whitehead Associates
1000 West Morehead Street, Suite 200
Charlotte, North Carolina 28208



Perennial RPW Stream A (Cane Creek) (212 lf)

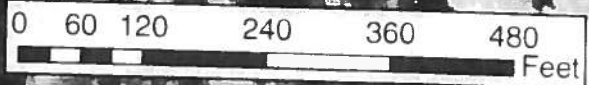
Perennial RPW Stream C (77 lf)

Seasonal RPW Stream B (129 lf)

Upland Data Point 1

Project Study Area (4.55 Ac.)

SC 200 (Lancaster Hwy)



Legend

- Project Study Area
- Potential Jurisdictional Stream
- Wetland Determination Data Point

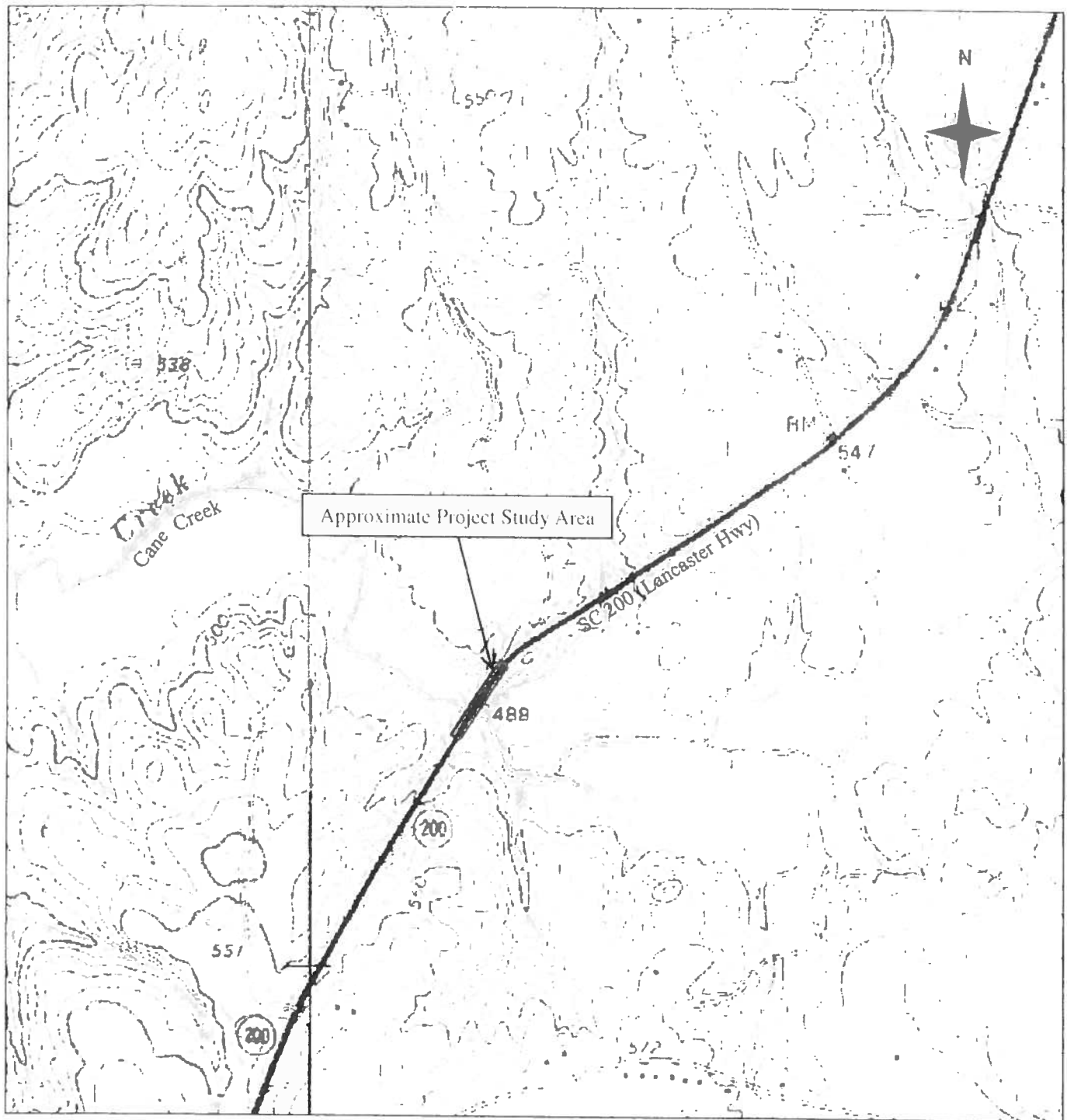
Note

1. Potential jurisdictional waters of the U.S. were delineated by STV Ralph Whitehead Associates on October 27, 2010. Potential jurisdictional boundaries were marked in the field with blue and white striped tape and mapped using a Trimble GEOXH hand-held GPS unit capable of sub-foot accuracy. This map is intended for planning purposes only.

2. Jurisdictional boundaries of waters of the U.S. have not been verified by the U.S. Army Corps of Engineers and are subject to change following verification.

Ref: SCDNR GIS Data Clearinghouse 2006 Aerial Photography

SC 200 Bridge Replacement Over Cane Creek				
Lancaster County, SC				
STV Ralph Whitehead Associates				
Approximate Waters of the U.S. and Wetlands Boundary Map				FIGURE 4
WSB	AWN	WSB	MAI	10/29/2010
DELINEATED BY	PREPARED BY	DELINEATED BY	APPROVED BY	
2514104 (1100)	1"=175'	PROJ. 2-1414-10	100% Design Phase Map	1 1
JOB PHASE NO.	SCALE	SCDOT Cane Creek Water		
		GPS FILE PATH		



Ref. MSR Maps Van Wyck, SC Quadrangle, 1969

Approximate Scale: 1:24,000

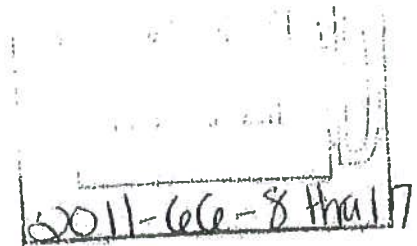
<p>SC 200 Bridge Replacement Over Cane Creek</p> <p>Lancaster County, SC</p>	<p>STV/Ralph Whitehead Associates</p> <p>SCDOT</p>	<p>USGS Site Location Map</p> <p>FIGURE 2</p>
--	---	---



South Carolina
Department of Transportation

February 7, 2011

Ms. Elizabeth Johnson
Deputy State Historic Preservation Officer
South Carolina Department of Archives and History
8801 Parklane Road
Columbia, SC 29223-4905



RE: Ten Design Build Bridge Replacement Projects

Dear Ms. Johnson:

The Department plans to hire a design build contractor to replace ten structurally deficient bridges in various counties throughout the state. Brockington and Associates conducted background research and/or field surveys for each of the proposed bridge replacement projects. Copies of the survey reports and letters recommending no need for survey are provided for your review and comment.

Based on the results of background research and field surveys, it is the Department's determination that **no historic properties will be affected** by the following undertakings:

- 2011-66-8 1) Proposed S-26-24 Pawleys Swamp Bridge Replacement Project, Horry County
File No. 26.040460.1 PCN: 40460_BR01
- 2011-66-9 2) Cultural Resources Survey of the S-13-22 Thompson Creek Bridge Replacement Project, Chesterfield County, File No. 13.040460.3 PCN: 40460_BR03
- 2011-66-10 3) Cultural Resources Survey of the SC 41 Marsh Creek Bridge Replacement Project, Marion County, File No. 34.040460.2 PCN: 40460_BR02
- 2011-66-11 4) Cultural Resources Survey of the SC 9 Catawba River Bridge Replacement Project, Chester and Lancaster Counties, File No. 1229.039094 PCN: 39094_BR04
- 2011-66-12 5) Proposed SC 72 Cane Creek Bridge Replacement Project, Union County, File No. 44.039441.2 PCN: 39441_BR02
- 2011-66-13 6) Cultural Resources Survey of the S-12-77 Fishing Creek Bridge Replacement Project, Chester County, File No. 12.039094.1 PCN: 39094_BR01
- 2011-66-14 7) Cultural Resources Survey of the S-12-141 Rocky Creek Bridge Replacement Project, Chester County, File No. 12.039094.2 PCN: 39094_BR02
- 2011-66-15 8) No Need for Archaeological or Historic Architectural Survey for the Proposed SC 200 Wateree Creek Bridge Replacement Project, Fairfield County
File No. 20.39094.3 PCN: 39094_BR03
- 2011-66-16 9) Cultural Resources Survey of the SC 200 Cane Creek Bridge Replacement Project, Lancaster County, File No. 29.039094.5 PCN: 39094_BR05

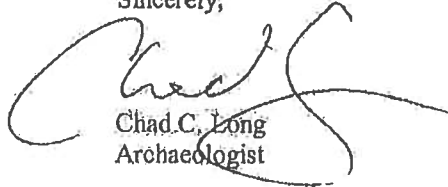


2011-66-17

- 10) No Need for Archaeological or Historic Architectural Survey for the Proposed I-85 SBL
Southern Railroad Bridge Replacement Project, Cherokee County
File No. 11.039094.11 PCN: 39094_BR11

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 Act. 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

Enclosures

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

Signed: Caitlin Pottier for Wenonah Haire Date: 2/17/11

cc: Shane Belcher, FHWA
Russell Townsend, EBCI
Lisa LaRue-Stopp, United Keetowah
Dr. Wenonah Haire, CIN-THPO
Keith Derting, SCIAA

File: Env/CCL



South Carolina
Department of Transportation

February 7, 2011

11-DKO
NHPA

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

RECEIVED

FEB 14 2011

SC Department of
Archives & History

RE: Ten Design Build Bridge Replacement Projects

Dear Ms. Johnson:

The Department plans to hire a design build contractor to replace ten structurally deficient bridges in various counties throughout the state. Brockington and Associates conducted background research and/or field surveys for each of the proposed bridge replacement projects. Copies of the survey reports and letters recommending no need for survey are provided for your review and comment.

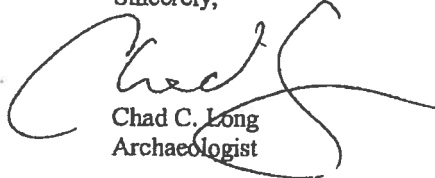
Based on the results of background research and field surveys, it is the Department's determination that **no historic properties will be affected** by the following undertakings:

- 1) Proposed S-26-24 Pawleys Swamp Bridge Replacement Project, Horry County
File No. 26.040460.1 PCN: 40460_BR01
- 2) Cultural Resources Survey of the S-13-22 Thompson Creek Bridge Replacement Project, Chesterfield County, File No. 13.040460.3 PCN: 40460_BR03
- 3) Cultural Resources Survey of the SC 41 Marsh Creek Bridge Replacement Project, Marion County, File No. 34.040460.2 PCN: 40460_BR02
- 4) Cultural Resources Survey of the SC 9 Catawba River Bridge Replacement Project, Chester and Lancaster Counties, File No. 1229.039094 PCN: 39094_BR04
- 5) Proposed SC 72 Cane Creek Bridge Replacement Project, Union County,
File No. 44.039441.2 PCN: 39441_BR02
- 6) Cultural Resources Survey of the S-12-77 Fishing Creek Bridge Replacement Project, Chester County, File No. 12.039094.1 PCN: 39094_BR01
- 7) Cultural Resources Survey of the S-12-141 Rocky Creek Bridge Replacement Project, Chester County, File No. 12.039094.2 PCN: 39094_BR02
- 8) No Need for Archaeological or Historic Architectural Survey for the Proposed SC 200 Wateree Creek Bridge Replacement Project, Fairfield County
File No. 20.39094.3 PCN: 39094_BR03
- 9) Cultural Resources Survey of the SC 200 Cane Creek Bridge Replacement Project, Lancaster County, File No. 29.039094.5 PCN: 39094_BR05

10) No Need for Archaeological or Historic Architectural Survey for the Proposed I-85 SBL
Southern Railroad Bridge Replacement Project, Cherokee County
File No. 11.039094.11 PCN: 39094_BR11

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 Act. 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

Enclosures

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

Signed: 

Date: 2/23/11

cc: Shane Belcher, FHWA
Russell Townsend, EBCI
Lisa LaRue-Stopp, United Keetowah
Dr. Wenonah Haire, CIN-THPO
Keith Derting, SCIAA

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: April 6, 2011

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



PROJECTS: Comments concerning:

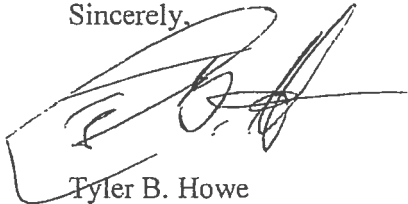
- 1.) (File # 40.039333A; Pin: 39333). Phase I Cultural Resources Survey of the Hardscrabble Road Widening Project, Richland County, SC.
- 2.) (File # 29.039094.5; PCN: .39094_BR05). Cultural Resources Survey of the SC 200 Cane Creek Bridge Replacement Project, Lancaster County, SC.
- 3.) (File # 20.39094.3 PCN: 39094_BR03). No Need for Archaeological or Historic Architectural Survey for Proposed SC 200 Wateree Creek Bridge Replacement Project, Fairfield County, SC.
- 4.) (File # 12.039094.2 PCN: 39094_BR02). Cultural Resources Survey of the S-12-141 Rocky Creek Bridge Replacement Project, Chester County, SC.
- 5.) (File # 12.039094.1 PCN: 39094_BR01). Cultural Resources Survey of the S-12-77 Fishing Creek Bridge Replacement Project, Chester County, SC.
- 6.) (File # 44.039441.2 PCN: 39441_BR02). No Need for Archaeological or Historic Architectural Survey for the Proposed SC 72 Cane Creek Bridge Replacement Project, Union County, SC.
- 7.) (File # 1229.039094 PCN: 39094_BR04). Cultural Resources Survey of the SC 9 Catawba River Bridge Replacement Project, Chester and Lancaster Counties, SC.
- 8.) Cultural Resources Survey of the Celriver/Red River Road Improvements Project, York County, SC. City of Rock Hill Project.

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 'Tyler B. Howe', with a large, stylized initial 'T' and 'H'.

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

C: Wayne D. Roberts

Appendix B

Preliminary Hydraulic Assessment

BRIDGE REPLACEMENT SCOPING TRIP RISK ASSESSMENT FORM

COUNTY: Lancaster

DATE: 26 September 2011

ROAD #: SC 200

STREAM CROSSING: Cane Creek

Purpose & Need for the Project:

Project replaces a structurally deficient 1938/1958 bridge. Replacement increases safety of the crossing and provides for long term functionality.

- I. FEMA Acknowledgement Cane Creek's floodplain is an unnumbered Zone A; a floodplain boundary is mapped, no BFEs are determined, no floodway has been mapped.

Is this project located in a regulated FEMA Floodway? ☐ Yes ☒ No

Panel Number: 45057C0165D Effective Date: June 16, 2011 (See Attached)

- II. FEMA Floodmap Investigation Cane Creek is an unnumbered Zone A; no BFEs are determined and no profile is published.

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: Recommendations for new bridge include a larger hydraulic opening and maintaining existing low chord elevation.

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

Justification:

BRIDGE REPLACEMENT SCOPING TRIP RISK ASSESSMENT FORM

IV. Preliminary Bridge Assessment

A. Locate Existing Plans

a. Bridge Plans ☒ Yes File No. 29.341 Sheet No. 12 (See Attached)
☐ No

b. Road Plans ☒ Yes File No. 29.341 Sheet No. 10 (See Attached)
☐ No

B. Historical Highwater Data

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

b. SCDOT/USGS Documented Highwater Elevations

☒ Yes Results: 496.8
☐ No

c. Existing Plans ☐ Yes See Above
☒ No

V. Field Review

A. Existing Bridge

Length: 154 ft. Width: 33.5 ft. Max. span Length: 22 ft.

Alignment: ☒ Tangent ☐ Curved

Bridge Skewed: ☐ Yes ☒ No Angle: _____

End Abutment Type: Spill-through

Riprap on End Fills: ☒ Yes ☐ No Condition: eroded

Superstructure Type: Concrete tee beams

Substructure Type: Concrete multi-column bents w/ spread footings and CIP cap w/ steel piles on widening

Utilities Present: ☐ Yes ☒ No

Describe:

none attached, power overhead

Debris Accumulation on Bridge: Percent Blocked Horizontally: 2 %
Percent Blocked Vertically: 2 %

BRIDGE REPLACEMENT SCOPING TRIP RISK ASSESSMENT FORM

Hydraulic Problems: ☐ Yes ☒ No

Describe:

V. Field Review (cont.)

B. Hydraulic Features

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

b. Distance from F.G. to Normal Water Elevation: 17.0 ft.

c. Distance from Low Steel to Normal Water Elev.: 13.3 ft.

d. Distance from F.G. to High Water Elevation: 5.2 ft.

e. Distance from Low Steel to High Water Elev.: 1.5 ft.

f. Channel Banks Stable: ☐ Yes ☒ No

Describe: Channel width 50 feet, somewhat incised

g. Soil Type: brown silty fine to medium sand

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: Locate new bridge downstream and maintain traffic.

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

BRIDGE REPLACEMENT SCOPING TRIP RISK ASSESSMENT FORM

If "No", will the proposed bridge be"

☐ Staged Constructed

☒ Replaced on New Alignment

VI. Field Review (cont.)

A. Proposed Bridge Recommendation:

Length: 180 ft.

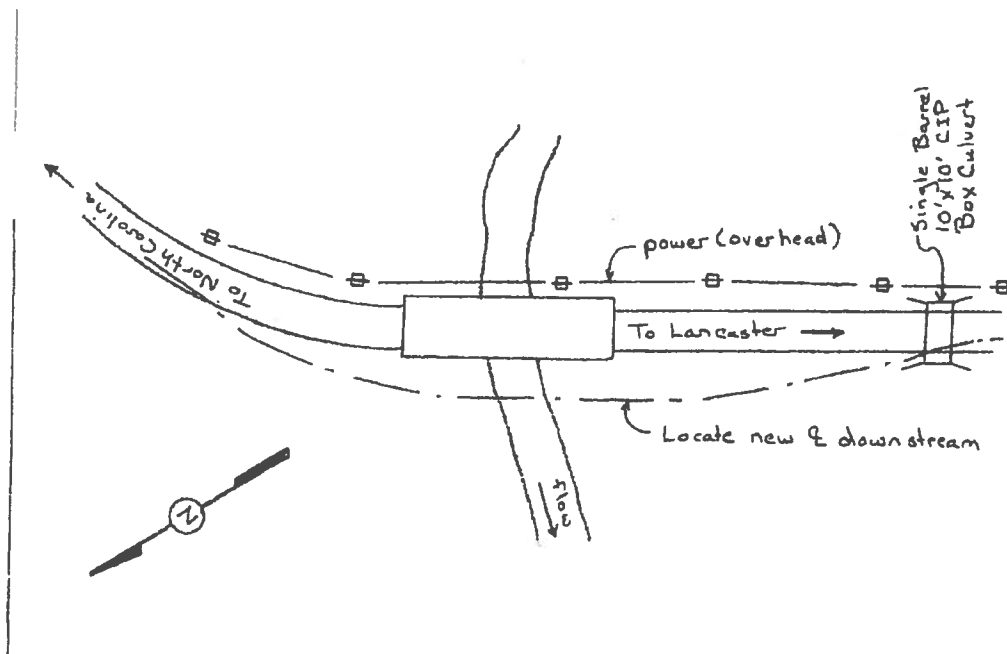
Width: 44 ft.

Maintain
existing
Elevation: low chord ft.

Span Arrangement: 90'-90'

Notes: Type III prestressed concrete girders.

DIAGRAM: (Show North Arrow and Direction of Flow)



[illegible]

Harry P. Patton

Page 5 of 5

Appendix C
Biological Assessment and
Mussel Survey

**Biological Assessment
Federal and State Threatened and Endangered Species
SC 200 Bridge Replacement over Cane Creek
Lancaster County, South Carolina
PIN 39094
File No. 29.039094.5**

The South Carolina Department of Transportation (SCDOT) is proposing to replace the SC 200 (Monroe Highway) Bridge over Cane Creek located approximately 5.5 miles north of the City of Lancaster in the north-central portion of Lancaster County, South Carolina. The proposed project would involve the replacement of the existing SC 200 Bridge over Cane Creek with a new bridge and associated roadway approach improvements. Based on information provided by the SCDOT Bridge Replacement Site Information, the new bridge is anticipated to be built downstream of the existing bridge and traffic will be maintained. The existing SC 200 Bridge over Cane Creek was built in 1938, reconstructed in 1958, and has a sufficiency rating of 45.8 out of 100, classifying the structure as structurally deficient. The existing bridge is 33.5 feet in width and 154 feet in length, consisting of seven 22-foot spans of cast-in-place concrete panels supported on steel pile bents. It is anticipated that the replacement bridge will be designed and constructed as part of a pending SCDOT Design-Build contract. Consequently, bridge dimensions and other design details are unknown at the time of this writing.

Because of the federal nexus of the project, consultation with the U.S. Fish and Wildlife Service (USFWS) is required under Section 7 of the Endangered Species Act (ESA), as amended (16 USC 1531-1534) for proposed projects that "may affect" federally endangered and threatened species. This Biological Assessment (BA) analyzes potential impacts to federally and/or state endangered and threatened species for the proposed project, and is intended to initiate informal consultation as needed.

The following list (Table 1) of federal and/or state endangered (E) and threatened (T) species for Lancaster County was obtained from the South Carolina Department of Natural Resources (SCDNR) Rare, Threatened, and Endangered Species Inventory (updated March 2, 2010) and the U.S. Fish and Wildlife Service (USFWS) protected species database (updated March 2010). The table includes bald eagle (*Haliaeetus leucocephalus*) which is no longer federally protected by the Federal Endangered Species Act but is afforded protection through the Bald and Golden Eagle Protection Act (BGEPA).

**TABLE 1. LANCASTER COUNTY FEDERAL AND/OR STATE
ENDANGERED AND THREATENED SPECIES**

Protected Species		Protection Status	
Common Name	Scientific Name	Federal	State
Animal			
Bald eagle	<i>Haliaeetus leucocephalus</i>	BGPA	E
Carolina heelsplitter	<i>Lasmigona decorate</i>	E, CH	E
Plant			
Little amphianthus	<i>Amphianthus pusillus</i>	T	-
Smooth coneflower	<i>Echinacea laevigata</i>	E	-
Schweinitz's sunflower	<i>Helianthus schweinitzii</i>	E	-
Black-spored quillwort	<i>Isoetes melanospora</i>	E	-

T = Threatened, E = Endangered, CH = Critical Habitat, BGEPA = Bald and Golden Eagle Protection Act

Methods

On behalf of SCDOT, the list of federal and/or state protected species for Lancaster County was reviewed, and evaluations were performed regarding the likelihood of the presence of each species within the project study area and potential project-related impacts. A field survey for federal and/or state-listed protected species was conducted by STV/Ralph Whitehead Associates (STV/RWA) on October 27, 2010. STV/RWA environmental scientists Steven Busbee, PWS and Tony Nardo reviewed a project study area (PSA) generally centered on the SC 200 Bridge over Cane Creek and roadway approaches, and conducted a pedestrian survey of the project study area for the presence of potential habitat for the above-listed species.

STV/RWA reviewed a PSA approximately 1,000 feet long and 200 feet wide generally centered on the SC 200 Bridge over Cane Creek and roadway approaches.

SC 200 Bridge Replacement over Cane Creek
Biological Assessment for Federal and/or State Threatened and Endangered Species
January 28, 2011

In addition, the South Carolina Heritage Trust (SCHT) Geographic Database of Rare and Endangered Species, updated January 17, 2006, was also reviewed to determine the presence of protected species within or in close proximity to the project study area.

Results

According to the SCHAT database, no occurrences of protected species have been documented within a one-mile radius of the project study area.

Based on the STV/RWA field review, the project study area largely consists of undeveloped woodland and maintained R/Ws. Natural communities located in the PSA include disturbed roadside and mixed hardwood forest.

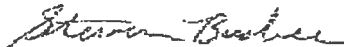
None of the protected species were observed within the PSA during the field reviews conducted by STV/RWA. No potential habitat for bald eagle, little amphianthus, smooth coneflower, or black-spored quillwort was identified within the PSA; therefore, it is determined that the project will have a biological conclusion of 'no effect' on these species. The field review did, however, reveal potential habitat for Schweinitz's sunflower and Carolina heelsplitter within the PSA. Biological conclusions for the protected species that have potential habitat within the PSA follows.

The typical habitat for Schweinitz's sunflower includes roadsides, old pastures, transmission line rights-of-way (R/Ws), open areas, and edges of upland woods. Within the project study area, potential habitat exists within the maintained and disturbed lands along the SC 200 corridor, and along the edges of upland woods. Field surveys were conducted on October 27, 2010 for the presence of the species within areas of potential habitat. No individuals were observed during these surveys. Based on the literature and field reviews conducted during the flowering period and the absence of individual plants, it is determined that the project would have 'no effect' on the Schweinitz's sunflower.

BIOLOGICAL CONCLUSION: NO EFFECT

A survey for freshwater mussels was conducted on October 26 and 27, 2010 by Alderman Environmental Services, Inc. No Carolina heelsplitter specimens were observed within the PSA or within 100 meters upstream or 400 meters downstream of the bridge. From this field survey, it was concluded that Carolina heelsplitter is not present in Cane Creek within the project vicinity. Based on the findings of the field survey, it is determined that the project will have "no effect" on the Carolina heelsplitter. The findings report of this mussel survey is attached to this BA.

BIOLOGICAL CONCLUSION: NO EFFECT



SCDOT Authorized Agent's Signature

02 / 10 / 2011

Date



Alderman Environmental Services, Inc.

November 17, 2010

PROJECT: Freshwater mussel survey for STV Incorporated; SC 200 Bridge Replacement over Cane Creek, Lancaster Co., SC

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

BIOLOGISTS: John Alderman
Joseph Alderman
John E. Alderman

SCDNR Endangered Mussel Survey Permit Authorization: November 25, 2002

U.S. FISH AND WILDLIFE SERVICE ES PERMIT: TE065756-1

LOCATION: Cane Creek, Santee-Cooper River Basin; within 400+ m downstream and 100+ m upstream from SC 200; see Figure 1

SURVEY DATE: October 26 & 27, 2010

COMMENTS: All tactile search; almost no flow; leaves covering stream bed

HABITAT WITHIN STREAM NETWORK:

WATERBODY TYPE:	Stream
FLOW:	Run, riffle, slack, pool
RELATIVE DEPTH:	Very shallow
DEPTH (%<2 FEET):	99
SUBSTRATE:	Clay, silt, sand, gravel, pebble, cobble, boulder, detritus

HABITAT (CONTINUED):

COMPACTNESS:	Normal and unconsolidated
SAND/GRAVEL BARS:	Common
WOODY DEBRIS:	High
BEAVER ACTIVITY:	Evidence (gnawed sticks) throughout
WINDTHROW:	Moderate
TEMPORARY POOLS:	None documented
CHANNEL WIDTH:	8+ meters
BANK HEIGHT:	2+ meters
BANK STABILITY:	Some erosion/undercutting to unstable
BUFFER WIDTH:	Wide
RIPARIAN VEGETATION:	Wooded, shrub-brush
LAND USE:	Natural, timber, rural
PERCENT COVER:	~40
WOODLAND EXTENT:	Extensive
NATURAL LEVEES:	At least one
VISIBILITY:	Slightly turbid
WATER LEVEL:	Low
WEATHER:	Mostly sunny, warm

TECHNIQUES: Tactile survey

SURVEY TIME: 15 person-hours

FRESHWATER MUSSELS:

Elliptio complanata – 178 live

Elliptio angustata – 4 live

Villosa delumbis – 1 live, gravid female

Unio merus carolinianus – 5 live

OTHER DOCUMENTED TAXA:

Corbicula fluminea

Campeloma decisum – abundant

Physa sp. – present

Helisoma anceps – common

Pseudosuccinea columella - common

CAROLINA HEELSPLITTER BIOLOGICAL DETERMINATION:

For direct effects on the Carolina heelsplitter: No Effect

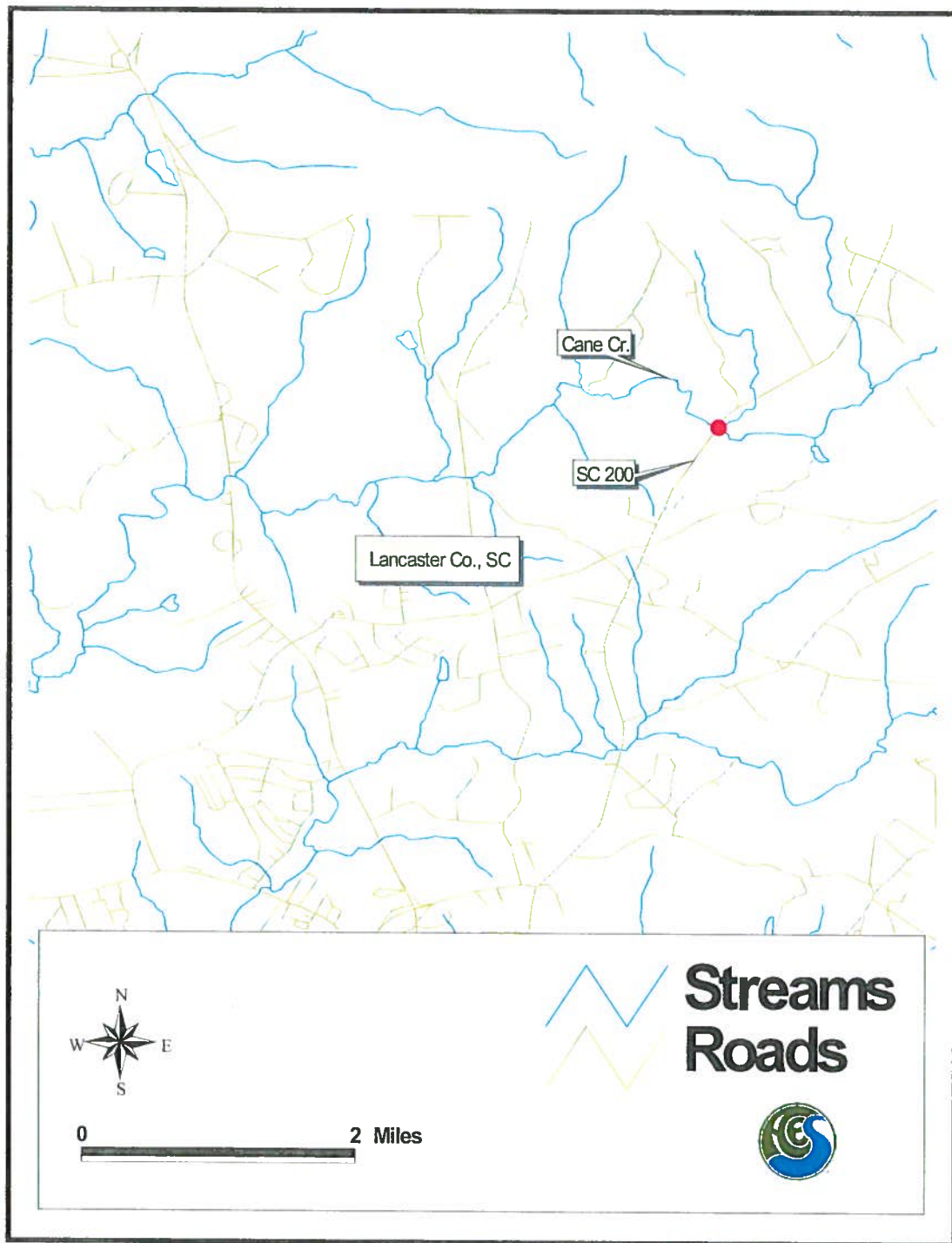


Figure 1. Cane Creek freshwater mussel survey reach: 400+ m downstream to 100+ m upstream of SC 200 bridge crossing, Lancaster Co., SC