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

Project ID	P029450	Route	I-20 over Wateree River	County	Kershaw

Part 1 - Project Description

Include the Project Name/Description

I-20 Bridge Replacements over the Wateree River

The South Carolina Department of Transportation (SCDOT) proposes to replace the existing Interstate 20 (I-20) bridges (eastbound and westbound) over the Wateree River in Kershaw County, South Carolina. Specifically, the project is situated along the portion of I-20 between the I-20 Rest Areas in Lugoff to the west and the US 521 (Sumter Highway) interchange (Exit 98) to the east (refer to Appendix A - Project Location Map). The project includes replacing the existing bridge structures and improving the roadway approaches to meet current design standards. The new bridges would be built in phases to maintain traffic in both directions on I-20 for the duration of construction. The proposed project would accommodate two 12-foot lanes and 10-foot shoulders. The existing bridges are 1,500 feet long, and the new bridges will be 1,515 feet long with a navigational clearance of 34 feet above ordinary high water.

The purpose of the proposed project is to eliminate structural defects associated with the bridges over the Wateree River, which have decks in poor condition and foundations that are susceptible to scour and erosion. Replacement of the structures is necessary to bring all bridge components to good condition.

Part 2 - PCE Type

Select the appropriate Categorical Exclusion from 23 CFR Part 771.117 that best fits the entire project from the drop-down menu. **Reference Appendix A of the PCE Agreement for a more detailed description of each CE contained in 23 CFR 771.117.**

23 CFR 771.117(c)	Bridge rehabilitation, reconstruction, or replacement or railroad crossing improvements
23 CFR 771.117(d)	

Part 3 - Thresholds

To be processed as a Programmatic Categorical Exclusion (PCE) the following conditions must be met in addition to the General Criteria (as outlined in the PCE Agreement between FHWA-SC and SCDOT). Place a "X" in the appropriate box below. If the answer is "Yes" to any of the below criteria, SCDOT will consult with FHWA-SC to determine the appropriate level of NEPA documentation required and forward to FHWA-SC for approval. ***Reference Part 4 of the Processing form or Section IV of the PCE Agreement for more details and definitions regarding each threshold.**

1.	Involves any unusual circumstances as described in *23 CFR Part 771.117(b)	☐ Yes	☒ No
2.	The acquisition of more than *minor amounts of temporary or permanent strips of right-of-way	☐ Yes	☒ No

Part 3 - Thresholds Continued			
3.	Involves acquisitions that result in residential or non-residential displacements	☐ Yes	☒ No
4.	Results in capacity expansion of a roadway by adding through lanes	☐ Yes	☒ No
5.	Involves construction that would result in *major traffic disruptions	☐ Yes	☒ No
6.	Involves *changes in access control requiring FHWA approval	☐ Yes	☒ No
7.	An adverse effect determination under Section 106 of the National Historic Preservation Act.	☐ Yes	☒ No
8.	Use of Section 4(f) property that cannot be documented with a FHWA *de minimis* determination or a programmatic Section 4(f) other than the programmatic evaluation for the use of historic bridges	☐ Yes	☒ No
9.	Any use of a Section 6(f) property	☐ Yes	☒ No
10.	Requires an Individual USACE 404 Permit	☐ Yes	☒ No
11.	Requires an Individual U.S. Coast Guard Permit.	☐ Yes	☒ No
12.	Work encroaching in a regulatory floodway, adversely affecting the base floodplain (100 yr.) pursuant to E.O. 11988 and 23 CFR Part 650 Subpart A	☐ Yes	☒ No
13.	Construction in, across, or adjacent to a river designated as a National Wild and Scenic River	☐ Yes	☒ No
14.	Involves an increase of 15 dBA or greater on any noise receptor or abatement measures are found to be feasible and reasonable due to noise impacts	☐ Yes	☒ No
15.	May affect and is likely to adversely affect a Federally listed species or designated critical habitat or projects with impacts subject to the BGEPA	☐ Yes	☒ No
16.	Involves acquisition of land for hardship, protective purposes, or early acquisition	☐ Yes	☒ No
17.	Does not meet the latest Conformity Determination for air quality non-attainment areas (if applicable).	☐ Yes	☒ No
18.	Any known or potential major hazardous waste sites within the right-of-way.	☐ Yes	☒ No
19.	Is not included in or is inconsistent with the STIP and/or TIP	☐ Yes	☒ No

Part 3 Continued - Additional criteria to be completed for disposal of excess right-of-way PCE

1. Is the parcel part of a SCDOT environmental mitigation effort or could it be used for environmental mitigation?	☐ Yes	☐ No
2. Is there a formal plan to use this parcel for a future transportation project (is it part of an approved LRTP)?	☐ Yes	☐ No

Part 4 - Threshold Definitions

Unusual Circumstances (23 CFR Part 771.117) - Unusual circumstances are defined as:

a. Significant environmental impacts;
b. Substantial controversy on environmental grounds;
c. Significant impact on properties protected by Section 4(f) of the DOT ACT or Section 106 of the National Historic Preservation Act; or
d. Inconsistencies with any Federal, State, or local law, requirement, or administrative determination relating to the environmental aspects of the action.

Minor Amount of Right-of-Way (ROW):

A minor amount of ROW is defined as less than 3 acres per linear mile for linear projects or less than 10 acres of impacts for non-linear projects (eg: intersections, bridges), and no removal of major property improvements. Examples of major improvements include residential and business structures, or the removal of other features which would change the functional utility of the property. Removal of minor improvements, such as fencing, landscaping, sprinkler systems, and mailboxes would be allowed.

Major Traffic Disruptions:

A major traffic disruption is defined as an action that would result in: a) adverse effects to through-traffic businesses or schools, b) substantial change in environmental impacts, or c) public controversy associated with the use of the temporary road, detour, or ramp closure.

Changes in Access Control:

Requires approval from FHWA for changes in access control on the Interstate system (eg: Interchange Modification Reports or Interchange Justification Reports).

Additional Comments if Needed:

Relevant field studies and environmental reviews have been completed to determine that the project meets the criteria set forth in the Programmatic Categorical Exclusion Agreement signed by FHWA-SC 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 bought to the attention of SCDOT Environmental Services Office immediately. A copy of this form is included in the project file and one (1) copy has been provided to FHWA.

Approved By: Will McGoldrick Digitally signed by Will McGoldrick Date: 2022.05.04 15:07:46 -04'00' Date 5/4/22

Primavera: ☒ Yes ☐ No NEPA Start Date: 2/21/22

Does the project contain commitments?: (if Yes attach to form) ☒ Yes ☐ No

Date: 04/21/2022

NEPA ENVIRONMENTAL COMMITMENTS FORM

Project ID : P029450 | County : Kershaw | District : District 1 | Doc Type: Non-PCE | Total # of Commitments: 9

Project Name: I-20 over Wateree River Bridge Replacements

The Environmental Commitment **Contractor Responsible** measures listed below **are to be included in the contract and must be implemented**. It is the responsibility of the Program Manager to make sure the Environmental Commitment **SCDOT Responsible** measures are adhered to. If there are questions regarding the commitments listed please contact:

CONTACT NAME: Jae Mattox **PHONE #:** 803-737-1805

ENVIRONMENTAL COMMITMENTS FOR THE PROJECT

Cultural Resources | NEPA Doc Ref: Appendix C | Responsibility: CONTRACTOR

The contractor and subcontractors must notify their workers to watch for the presence of any prehistoric or historic remains, including but not limited to arrowheads, pottery, ceramics,flakes, bones, graves, gravestones, or brick concentrations during the construction phase of the project, if any such remains are encountered, the Resident Construction Engineer (RCE) will be immediately notified and all work in the vicinity of the discovered materials and site work shall cease until the SCDOT Archaeologist directs otherwise.

☐ Special Provision

General Permit | NEPA Doc Ref: Appendix D | Responsibility: SCDOT

Impacts to jurisdictional waters will be permitted under a Department of the Army Section 404 permit from the U.S. Army Corps of Engineers. Based on preliminary design, it is anticipated that the proposed project would be permitted under SCDOT's General Permit (GP). The required mitigation for this project will be determined through consultation with the USACE and other resource agencies.

☐ Special Provision

Water Quality | NEPA Doc Ref: Appendix D | Responsibility: SCDOT

The contractor will be required to minimize possible water quality impacts through implementation of BMPs, reflecting policies contained in 23 CFR 650B and the Department's Supplemental Specification on Erosion Control Measures (latest edition) and Supplemental Technical Specifications on Seeding (latest edition). Other measures including seeding, silt fences, sediment basins, etc. as appropriate will be implemented during construction to minimize impacts to water quality.

☐ Special Provision

Project ID : P029450	SCDOT NEPA ENVIRONMENTAL COMMITMENTS FORM	SCDOT ENVIRONMENTAL SERVICES

ENVIRONMENTAL COMMITMENTS FOR THE PROJECT

Stormwater	NEPA Doc Ref:		Responsibility:	SCDOT

Stormwater control measures, both during construction and post-construction, are required for SCDOT projects with land disturbance and/or constructed in the vicinity of 303(d), TMDL, ORW, tidal, and other sensitive waters in accordance with the SCDOT's MS4 Permit. The selected contractor would be required to minimize potential stormwater impacts through implementation of construction best management practices, reflecting policies contained in 23 CFR 650 B and SCDOT's Supplemental Specifications on Seed and Erosion Control Measures (latest edition).

☐ Special Provision

Floodplains	NEPA Doc Ref:	Appendix F	Responsibility:	SCDOT

The Engineer of Record will send a set of final plans and request for floodplain management compliance to the local County Floodplain Administrator prior to the project letting date.

☐ Special Provision

Migratory Bird Treaty Act	NEPA Doc Ref:	Appendix G	Responsibility:	CONTRACTOR

The federal Migratory Bird Treaty Act, 16 USC § 703-711, states that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. The South Carolina Department of Transportation (SCDOT) will comply with the Migratory Bird Treaty Act of 1918 in regard to the avoidance of taking of individual migratory birds and the destruction of their active nests.

The contractor shall notify the Resident Construction Engineer (RCE) at least four (4) weeks prior to construction/demolition/maintenance of bridges and box culverts. The RCE will coordinate with SCDOT Environmental Services Office (ESO), Compliance Division, to determine if there are any active birds using the structure. After this coordination, it will be determined when construction/demolition/maintenance can begin. If a nest is observed that was not discovered after construction/demolition/maintenance has begun, the contractor will cease work and immediately notify the RCE, who will notify the ESO Compliance Division. The ESO Compliance Division will determine the next course of action.

The use of any deterrents by the contractor designed to prevent birds from nesting, shall be approved by the RCE with coordination from the ESO Compliance Division. The cost for any contractor provided deterrents will be provided at no additional cost to SCDOT.

☐ Special Provision

Project ID : P029450	SCDOT NEPA ENVIRONMENTAL COMMITMENTS FORM	SCDOT ENVIRONMENTAL SERVICES

ENVIRONMENTAL COMMITMENTS FOR THE PROJECT

USTs/Hazardous Materials | NEPA Doc Ref: | Responsibility: CONTRACTOR

If avoidance of hazardous materials is not a viable alternative and soils that appear to be contaminated 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.

☐ Special Provision

Lead-Based Paint | NEPA Doc Ref: Appendix I | Responsibility: CONTRACTOR

The existing structures shall be removed and disposed of by the Contractor in accordance with Subsection 202.4.2 of the Standard Specifications. The Contractor's attention is called to the fact that this project may require removal and disposal of structural components containing lead-based paints. Removal and disposal of structural components containing lead-based paints shall comply with all applicable Federal, State, and Local requirements for lead as waste, lead in air, lead in water, lead in soil, and worker health and safety.

☐ Special Provision

Non-Standard Commitment | NEPA Doc Ref: Appendix G | Responsibility: CONTRACTOR

Shortnose Sturgeon Effect Minimization Commitments

- The final bridge design will incorporate Project Design Criteria (PDCs) contained in the Programmatic Biological Evaluation (NLAA) on the Effects of Transportation Activities and Projects Regularly Undertaken in North Carolina, South Carolina, and Georgia to the extent practicable.
- SCDOT and the contractor will follow the NOAA Fisheries Southeast Regional Office (SERO) Protected Species Construction Conditions and Vessel Strike Avoidance Measures guidance.
- SCDOT and/or the contractor will develop a SWPPP and obtain a National Pollutant Discharge Elimination System (NPDES) permit from the SCDHEC before construction can commence.
- The contractor will adhere to all SCDOT construction and erosion and sediment control BMPs.
- The limits of any clearing, grading, or fill in wetlands will be delineated and shown on approved permitted plans by the USACE and SCDHEC. SCDOT and the contractor will comply with all applicable permits and permit conditions for the placement of fill in wetlands.
- The contractor will be required to comply with State Navigable Waters regulations.
- In-water work will occur only during daylight hours.
- To minimize the potential effects on shortnose sturgeon, the contractor will use “slow start” methods such as ramp up, dry firing, or soft starts at the beginning of bridge support structure installation activities.
- Wood cushion blocks will be used during the 24-inch pipe pile installation as noise abatement.
- The contractor, SCDOT, and FHWA will be required to stay in compliance with all approved environmental conditions established in the CE as well as any special conditions established in the required permit authorizations.
- If it is determined that explosives are required for demolition, the contractor, SCDOT, and FHWA will initiate additional coordination and consultation with the USFWS and NMFS.

☐ Special Provision

APPENDIX SUMMARY

APPENDIX A – PROJECT FIGURES
Project Location Map
Project Aerial Overview Map
Plans Set

APPENDIX B – BRIDGE ANALYSIS
National Bridge Inventory and Appraisal Report
Bridge Scope and Risk Assessment Form

APPENDIX C – CULTURAL RESOURCES
Phase I Cultural Resources Survey
SHPO Concurrence

APPENDIX D – JURISDICTIONAL AND PERMIT DETERMINATION
JD Application
Permit Determination
Water Quality Information Report

APPENDIX E – US COAST GUARD PERMIT EXCLUSION
U.S. Coast Guard Exclusion Request Form
Coorespondence

APPENDIX F – FLOODPLAINS
FIRM Panel
Floodplain Checklist

APPENDIX G – BIOLOCIAL EVALUATION
USFWS Biological Evaluation
NMFS Biological Evaluation
NMFS Concurrence

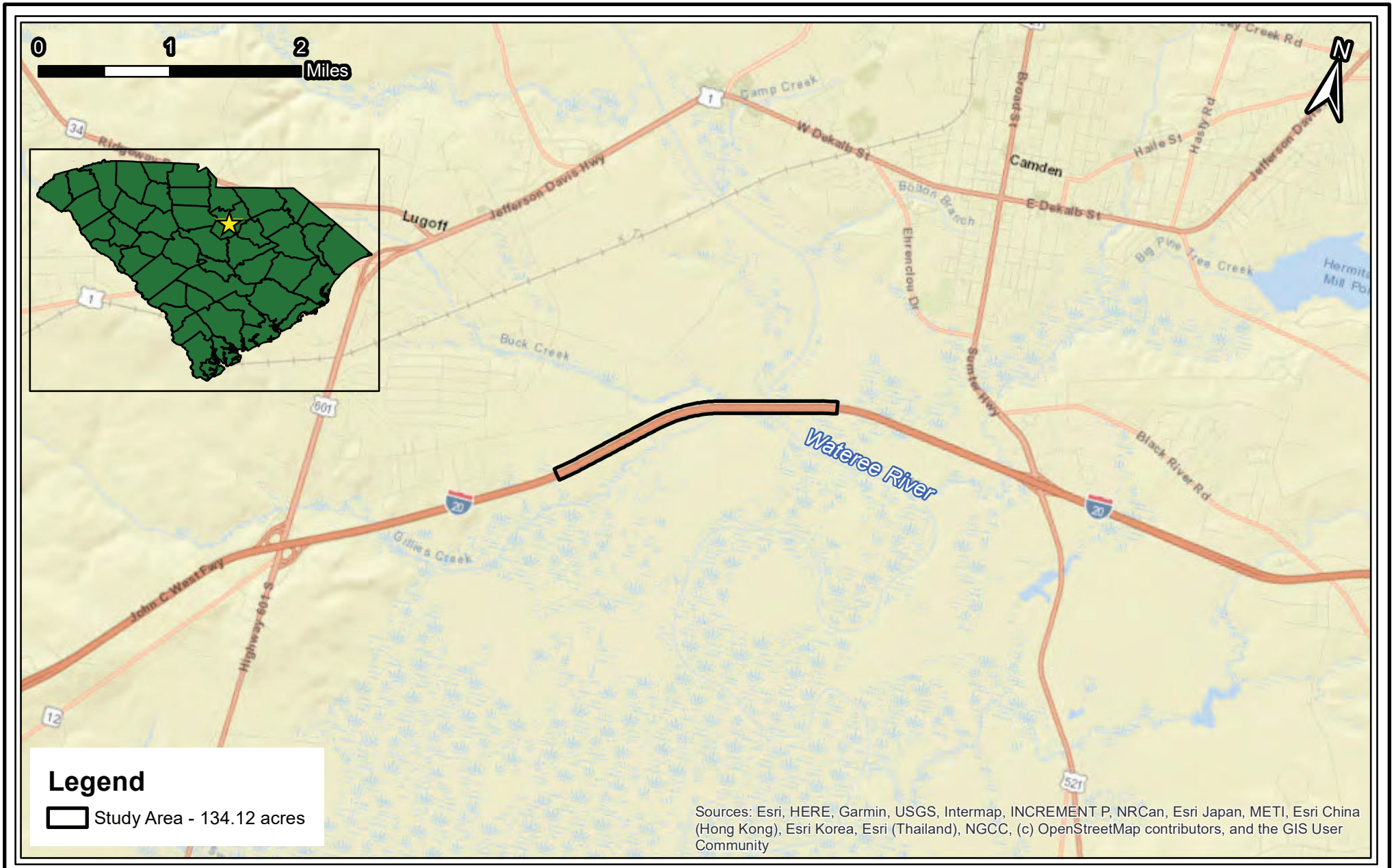
APPENDIX H – Farmlands
Soils Map
Farmland Conversion Form

APPENDIX I – Hazardous Waste
Asbestos and Lead Paint Survey

APPENDIX J – Public Involvement
Public Involvement Plan
Postcard

APPENDIX A

PROJECT FIGURES



THREE OAKS ENGINEERING

Prepared For: SCDOT

I-20 over Wateree River Bridge Replacements

Kershaw County, South Carolina

Date:	December, 2021
Scale:	1 in = 1 miles
Job No.:	21-003
Drawn By:	ZCB
Checked By:	AGM

Location Map

THREE OAKS ENGINEERING

Prepared For:

SCDOT

SAFETY 1ST - LIVE BY IT!
LET 'EM WORK, LET 'EM LIVE!

I-20 over Wateree River Bridge Replacements

Kershaw County, South Carolina

Date:	December, 2021
Scale:	1 in = 1,500 ft
Job No.:	21-003
Drawn By:	ZCB
Checked By:	AGM

Aerial Imagery

APPENDIX B

BRIDGE ANALYSIS

SCDOT THE OFFICE OF BRIDGE MAINTENANCE

NATIONAL BRIDGE INVENTORY
STRUCTURE INVENTORY AND APPRAISAL REPORT

IDENTIFICATION

(1) State Name- SOUTH CAROLINA Code 454
(8) Structure Number # 0002810002020800 Asset ID 5779
(5) Inventory Route (On/Under) On - 111000202
(2) State Highway Department District 1
(3) County Code 55 (4) Place Code
(6) Features Intersected WATEREE RIVER
(7) Facility Carried I-20 EB
(9) Location 2MI SW OF CAMDEN
(11) Milepoint 95.530
(12) Base Highway Network - PART OF NET Code 1
(13) LRS Inventory Route & Subroute 00I-00020000
(16) Latitude 34 Degrees 13 Minutes 2.55 Seconds
(17) Longitude 80 Degrees 37 Minutes 46.70 Seconds
(98) Border Bridge State Code % SHARE %
(99) Border Bridge Structure No. #

STRUCTURE TYPE AND MATERIAL

(43) Structure Type Main: MATERIAL - STEEL CONT
Type - STRINGER/MULTI-BEAM OR GIRD Code 402
(44) Structure Type Main: MATERIAL - STEEL
Type - STRINGER/MULTI-BEAM OR GIRD Code 302
(45) Number of Spans in Main Unit 5
(46) Number of Approach Spans 17
(107) Deck Structure Type - CONCRETE CAST-IN-PLC Code 1
(108) Wearing Surface / Protective System:
A) Type of Wearing Surface - MONO CONCRETE Code 1
B) Type of Membrane - NONE Code 0
C) Type of Deck Protection - NONE Code 0

AGE AND SERVICE

(27) Year Built 1970
(106) Year Reconstructed 0
(42) Type of Service On - HIGHWAY
Under - WATERWAY Code 5
(28) Lanes: On Structure = 2 Under Structure = 0
(29) Average Daily Traffic 19550
(30) Year of ADT 2019 (109) Truck ADT 22 %
(19) Bypass, Detour Length 1 MI

GEOMETRIC DATA

(48) Length of Maximum Span 140 FT
(49) Structure Length 1503 FT
(50) Curb or Sidewalk: Left .0 FT Right .0 FT
(51) Bridge Roadway Width Curb to Curb 40 FT
(52) Deck Width Out to Out 42.6 FT
(32) Approach Roadway Width (W/Shoulders) 40 FT
(33) Bridge Median - NONE Code 0
(34) Skew 0 Deg (35) Struture Flared NO
(10) Inventory Route Min Vert Clear 99 FT 99 IN
(47) Inventory Route Total Horz Clear 40.0 FT
(53) Min Vert Clear Over Bridge Roadway 99 FT 99 IN
(54) Min Vert Underclear Ref - NOT HWY OR RXR 0 FT 0 IN
(55) Min Lat Underclear Right Ref - NOT HWY OR RXR .0 FT
(56) Min Lat Underclear Left .0 FT

NAVIGATION DATA

(38) Navigation Control - NONE Code 0
(111) Pier Protection - Code
(39) Navigation Vertical Clearance FT
(116) Vert-Lift Bridge Min Vert Clear FT
(40) Navigation Horizontal Clearance FT

Sufficiency Rating = 30.6
Functionally Obsolete = NO
Structurally Deficient = YES

CLASSIFICATION — Code

(112) NBIS Bridge Length - YES
(104) Highway System - NHS 1
(26) Functional System - RURAL-PRIN ART-INT 1
(100) Strahnet Highway - STRAH HWY 1
(101) Parallel Structure - RIGHT STRUCT R
(102) Direction of Traffic - 1-WAY TRAFFIC 1
(103) Temporary Structure -
(105) Federal Lands Highways - N/A 0
(110) Designated National Network - YES 1
(20) Toll - ON FREE ROAD 3
(21) Maintain - SCDOT 1
(22) Owner - SCDOT 1
(37) Historical Significance - NOT ELIGIBLE 5

CONDITION — Code

(58) Deck - POOR 4
(59) Superstructure - GOOD 7
(60) Substructure - GOOD 7
(61) Channel and Channel Protection - BANKS PROT 8
(62) Culverts - NOT APPLICABLE N

LOAD RATING AND POSTING — Code

(31) Design Load -HS 20+MOD 6
(64) Operating Rating - LRFR 0.96
(66) Inventory Rating - LRFR 0.74
(70) Bridge Posting - > 39.9% BELOW 0
(41) Structure Open, Posted or Closed - A
Description - OPEN, NO RESTRICT

APPRAISAL — Code

(67) Structure Evaluation - INTOLERABLE; HIGH PRI REPL 2
(68) Deck Geometry 7
(69) Underclearances, Vertical and Horizontal N
(71) Waterway Adequacy 9
(72) Approach Roadway Alignment 8
(36) Traffic Safety Features 1111
(113) Scour Critical Bridges - FOUND ABOVE WATER ELEV 9

PROPOSED IMPROVEMENTS

(75) Type of Work - REPLACE/LOAD CAPACITY Code 311
(76) Length of Structure Improvement 1503.0 FT
(94) Bridge Improvement Cost $5,796,000.00
(95) Roadway Improvement Costs $1,449,000.00
(96) Total Project Cost $8,694,000.00
(97) Year of Improvement Cost Estimate 2020
(114) Future AADT 31280
(115) Year of Future AADT 2039

INSPECTIONS

(90) Inspection Date 04/2020 (91) Frequency 12 Mo
(92) Critical Feature Inspection: (93) CFI Date
A) Fracture Crit Detail NO Mo A)
B) Underwater Insp YES Mo 60 B) 9/1/2016
C) Other Special Insp NO Mo C)

THE OFFICE OF BRIDGE MAINTENANCE

NATIONAL BRIDGE INVENTORY
STRUCTURE INVENTORY AND APPRAISAL REPORT

IDENTIFICATION

(1) State Name- SOUTH CAROLINA Code 454
(8) Structure Number # 0002810002040800 Asset ID 5784
(5) Inventory Route (On/Under) On - 111000204
(2) State Highway Department District 1
(3) County Code 55 (4) Place Code
(6) Features Intersected WATEREE RIVER
(7) Facility Carried I-20 WB
(9) Location 2 MI SW OF CAMDEN
(11) Milepoint 95.536
(12) Base Highway Network - PART OF NET Code 1
(13) LRS Inventory Route & Subroute 00I-00020000
(16) Latitude 34 Degrees 13 Minutes 3.42 Seconds
(17) Longitude 80 Degrees 37 Minutes 46.94 Seconds
(98) Border Bridge State Code % SHARE %
(99) Border Bridge Structure No. #

STRUCTURE TYPE AND MATERIAL

(43) Structure Type Main: MATERIAL - STEEL CONT
Type - STRINGER/MULTI-BEAM OR GIRD Code 402
(44) Structure Type Main: MATERIAL - STEEL
Type - STRINGER/MULTI-BEAM OR GIRD Code 302
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(108) Wearing Surface / Protective System:
A) Type of Wearing Surface - MONO CONCRETE Code 1
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(106) Year Reconstructed 0
(42) Type of Service On - HIGHWAY
Under - WATERWAY Code 5
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(55) Min Lat Underclear Right Ref - NOT HWY OR RXR .0 FT
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(111) Pier Protection - Code
(39) Navigation Vertical Clearance FT
(116) Vert-Lift Bridge Min Vert Clear FT
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Sufficiency Rating = 30.6
Functionally Obsolete = NO
Structurally Deficient = YES

CLASSIFICATION — Code

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(102) Direction of Traffic - 1-WAY TRAFFIC 1
(103) Temporary Structure -
(105) Federal Lands Highways - N/A 0
(110) Designated National Network - YES 1
(20) Toll - ON FREE ROAD 3
(21) Maintain - SCDOT 1
(22) Owner - SCDOT 1
(37) Historical Significance - NOT ELIGIBLE 5

CONDITION — Code

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(59) Superstructure - FAIR 5
(60) Substructure - FAIR 5
(61) Channel and Channel Protection - BANKS PROT 8
(62) Culverts - NOT APPLICABLE N

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(31) Design Load -HS 20+MOD 6
(64) Operating Rating - LRFR 0.85
(66) Inventory Rating - LRFR 0.66
(70) Bridge Posting - > 39.9% BELOW 0
(41) Structure Open, Posted or Closed - A
Description - OPEN, NO RESTRICT

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(96) Total Project Cost $8,694,000.00
(97) Year of Improvement Cost Estimate 2020
(114) Future AADT 31280
(115) Year of Future AADT 2039

INSPECTIONS

(90) Inspection Date 04/2020 (91) Frequency 12 Mo
(92) Critical Feature Inspection: (93) CFI Date
A) Fracture Crit Detail NO Mo A)
B) Underwater Insp YES Mo 60 B) 9/1/2016
C) Other Special Insp NO Mo C)

BRIDGE SCOPE AND RISK ASSESSMENT FORM

COUNTY: Kershaw DATE: 01/18/2022

ROAD #: I-20 STREAM CROSSING: Wateree River

Purpose & Need for the Project:

Replacement of existing I-20 bridges over Wateree River

I. FEMA Acknowledgement

Is this project located in a regulated FEMA Floodway? [X] Yes [ ] No

Panel Number: 0435F,0451F Effective Date: 09/28/2018 (See Attached)

II. FEMA Floodmap Investigation

FEMA Flood Profile Sheet Number 75P 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: Hydraulic analysis shows that the proposed bridge replacement will meet no-rise requirements and will not cause any adverse impacts to insurable structures up or down stream

- [ ] Preliminary assessmnet 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 ☐ No File No. 28.460 Sheet No. 8 (See Attached)

b. Road Plans ☑ Yes ☐ No File No. 28.460 Sheet No. 6-7 (See Attached)

B. Historical Highwater Data

a. USGS Gage ☑ Yes ☐ No Gage No. 02148000 Results: 1916- 400,000 cfs; 40.4' Gage Ht.

b. SCDOT/USGS Documented Highwater Elevations

☑ Yes ☐ No Results: 1916 USGS Highwater 156.85' (NGVD29)

c. Existing Plans ☑ Yes ☐ No See Above

V. Field Review

A. Existing Bridge

Length: 1500 ft. Width: 43.1 ft. Max. span Length: 140 ft.

Alignment: ☑ Tangent ☐ Curved

Bridge Skewed: ☐ Yes ☑ No Angle: _____

End Abutment Type: Sloping

Riprap on End Fills: ☑ Yes ☐ No Condition: Good with vegetation

Superstructure Type: Steel girder and Concrete T Beams

Substructure Type: Concrete Hammerhead Piers

Utilities Present: ☐ Yes ☑ No

Describe:

Debris Accumulation on Bridge: Percent Blocked Horizontally: N/A %

Percent Blocked Vertically: N/A %

Hydraulic Problems: ☐ Yes ☑ No

Describe:

BRIDGE SCOPE AND RISK ASSESSMENT FORM

V. Field Review (cont.)

B. Hydraulic Features

a. Scour Present: ☑ Yes ☐ No Location: Near bents in Wateree Channel

b. Distance from F.G. to Normal Water Elevation: 35.1 ft.
c. Distance from Low Steel to Normal Water Elev.: 25.7 ft.
d. Distance from F.G. to High Water Elevation: 6.5 ft.
e. Distance from Low Steel to High Water Elev.: -2.8 ft.

f. Channel Banks Stable: ☑ Yes ☐ No
Describe:

g. Soil Type: Alluvial sands and silts blanketed with finer clay soils

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.

Multiple insurable structures upstream of the Wateree River bridge are located within the 100 year floodplain and would be impacted due to additional backwater

C. Existing Roadway Geometry

a. Can the existing roadway be closed for an On-Alignment Bridge Replacement
☐ Yes ☑ No
Describe:

Daily traffic is too high to close existing roadway for an on-alignment bridge replacement. Proposed construction will consist of a temporary bridge and staged construction phasing

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.)

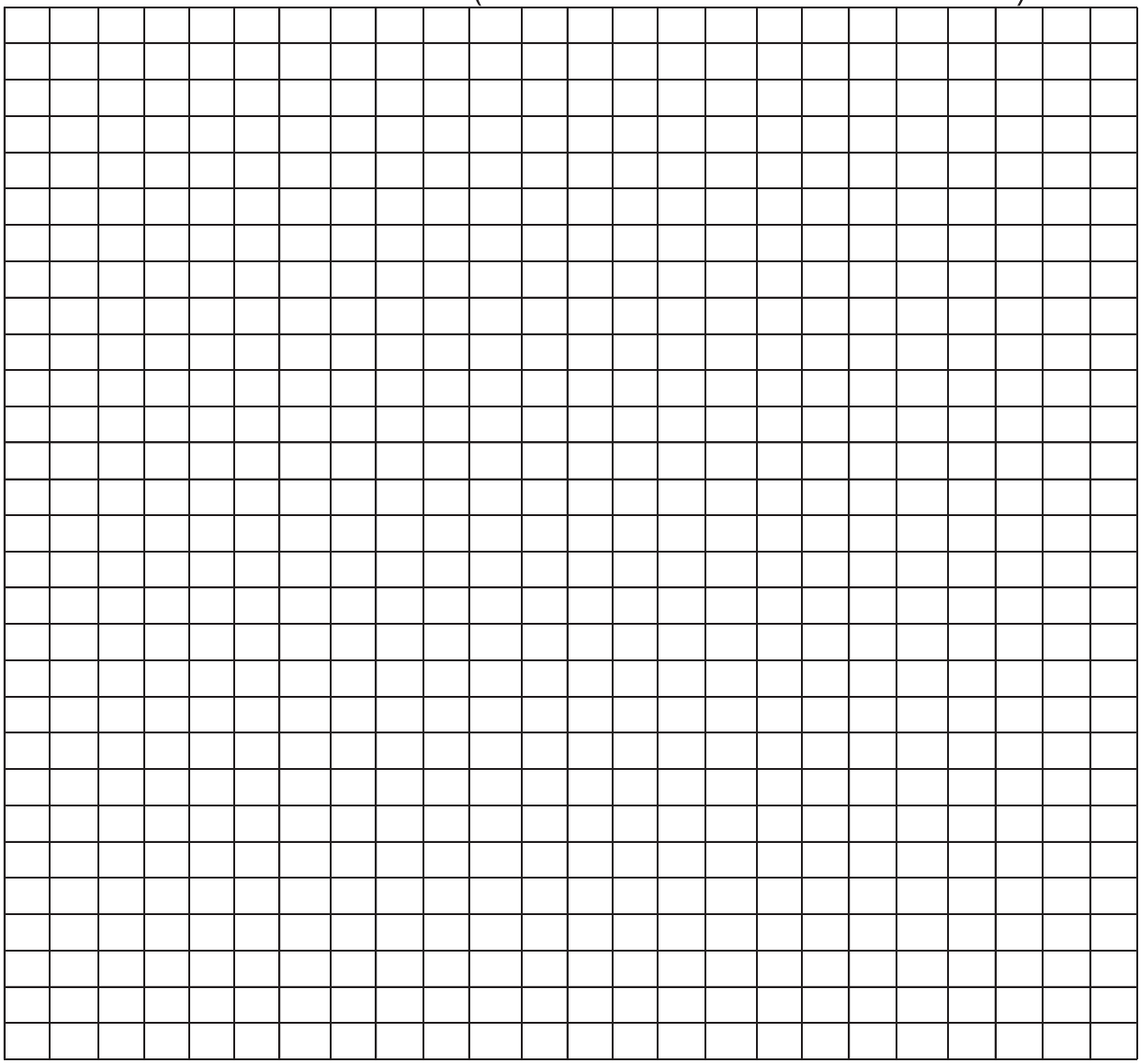
A. Proposed Bridge Recommendation:

Length: 1515.3 ft. Width: 48.25 ft. Elevation: 164.0 ft.

Span Arangement: See below

Notes: 1 @ 146'-5", 7 @ 146'-3", 2 @ 115'-0", and 1 @ 115'-2"

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



Performed By: SRG

APPENDIX C

CULTURAL RESOURCES

South Carolina
Department of Transportation

April 4, 2022

Ms. Elizabeth Johnson
Director, Historical Services, D-SHPO
State Historic Preservation Office
SC Department of Archives & History
8301 Parklane Road
Columbia, SC 29223

RE: Phase I Cultural Resources Survey of the I-20 over Wateree River Bridge Replacements Study Area, Kershaw County, South Carolina.

Dear Ms. Johnson:

Please find attached a copy of the above referenced report that describes cultural resources investigations conducted for proposed bridge replacements along I-20 over the Wateree River in **Kershaw County**, South Carolina.

The South Carolina Department of Transportation (SCDOT) has proposed rehabilitating and replacing several bridges along the I-20 over Wateree River corridor. The project corridor measures 2.8 miles in length and is limited to the existing right-of-way (ROW). The Area of Potential Effects (APE) includes the project corridor and a viewshed extending 300 feet from the existing ROW. The archaeological survey examined the project corridor, while the architectural history survey included the entire APE.

Two archaeological sites were identified in the project corridor. The first, site 38KE1191/1192, consists of both non-diagnostic precontact and late eighteenth to early nineteenth historic artifact scatters, as well as potential unmarked graves from a cemetery mapped within the project area. The artifact scatters have little integrity and little potential inside the project area to produce important archaeological data. Additional work is necessary to complete an assessment of the site's cemetery component and the unexamined areas outside of the project area. Second-hand testimony indicates that four graves located within the project corridor were removed from the cemetery in 1968 or 1969. However, no official documentation of their removal was found at the time of survey. The size of the cemetery shown on the 1968 Engineer's drawing is considerably larger than the area four burials require. It is possible that unidentified interments remain within and next to the project corridor. **Avoidance of site 38KE1191/1192 is recommended. If avoidance is not feasible additional work is recommended to determine if unidentified graves are present within the project area.** The second site, 38KE1193, is a heavily disturbed, mixed precontact and historic period artifact scatter. This resource is recommended as **not eligible** for the NRHP. Two isolated finds with precontact artifacts were also identified. Since isolated finds fail to meet the minimum requirements for classification as an archaeological site they are **not eligible** for listing on the NRHP. No new aboveground resources were documented.

An underwater archaeological survey was conducted that collected magnetic and acoustic remote sensing data. A visual investigation was also conducted along both shorelines within the APE. No potentially significant remote sensing targets or visible signs of potential submerged resources were documented. No additional underwater investigations are recommended.

Based on the results of the background research and field investigations, the Department has determined that **no historic properties will be affected** by the proposed undertaking. **Additional investigations to determine the presence of unidentified graves at archaeological site 38KE1191/1192 are recommended if avoidance of this site is not feasible.**

Per the terms of the Section 106 Programmatic Agreement executed on October 6, 2017, the Department is providing this information on behalf of the Federal Highway Administration. It is requested that you review the enclosed material, and, if appropriate, indicate your concurrence in the Department's findings. Please respond within 30 days if you have any objections or if you have need of additional information.

Sincerely,

Tracy Martin
Chief Archaeologist

TAM:tam
Enclosures: Cultural resources survey report

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

Signed: _____ Date: 4/4/2022

cc: Shane Belcher, FHWA
Bryan Printup, Tuscarora Nation
Russell Townsend, Eastern Band of Cherokee Indians
Stephen J. Yerka, Eastern Band of Cherokee Indians
Elizabeth Toombs, Cherokee Nation
LeeAnne Wendt, Muscogee (Creek) Nation
Karen Pritchett, United Keetoowah
Charlotte Wolfe, United Keetoowah

cc: Wenonah G. Haire, Catawba Nation
Keith Derting, SCIAA

ARCHAEOLOGICAL FIELD REPORT
SCDOT ENVIRONMENTAL SECTION

TITLE: Phase I Cultural Resources Survey of the I-20 over Wateree River Bridge Replacements Study Area

DATE OFRESEARCH: 1/16/2022

ARCHAEOLOGIST: June Weber

ARCHITECTURAL HISTORIAN: Sean Stucker

COUNTY: Kershaw

PROJECT:I-20 over Wateree River

F. A. No.:

File No.

PIN: P29450

DESCRIPTION:

The South Carolina Department of Transportation (SCDOT) proposes to rehabilitate or rebuild six existing Interstate 20 bridges (05784, 05779, 05785, 05780, 05786, and 05781) spanning the Wateree River floodplain, in Kershaw County (Table 1). I-20 is an elevated divided highway within this 108.6-acre corridor. The I-20 over Wateree Bridge Replacement project corridor measures 2.8 miles-long and has 10 bridges located within it (Figure 1). No work is planned for Bridges 05562, 05563, 05778, or 05783.The project corridor is limited to the existing right-of-way (ROW). The Area of Potential Effects (APE) includes the project corridor and a viewshed extending 300 feet from the existing ROW. The archaeological survey examined the project corridor, while the architectural history survey included the entire APE.

Table 1. Bridges Proposed for Rehabilitation or Rebuilding.,

Bridge ID #	Crosses	Design	Proposed Work
"05562"	Lugoff Farms Road	Concrete Tee Beam	No Work
"05563"	Lugoff Farms Road	Concrete Tee Beam	No Work
"05778"	Lugoff Farms Pond	Concrete Slab	No Work
"05783"	Lugoff Farms Pond	Concrete Slab	No Work
"05784"	Wateree River	Steel Stringer/Multi-Beam or girder	Rebuild
"05779"	Wateree River	Steel Stringer/Multi-Beam or girder	Rebuild
"05785"	Wateree Swamp Overflow (1)	Concrete Slab	Rehabilitate
"05780"	Wateree Swamp Overflow (1)	Concrete Slab	Rehabilitate
"05786"	Wateree Swamp Overflow (2)	Concrete Slab	Rehabilitate
"05781"	Wateree Swamp Overflow (2)	Concrete Slab	Rehabilitate

LOCATION:

The APE is in Kershaw County. The eastern end of the project corridor is 600 meters west of the I-20/ US-521 interchange. The western end of the APE is 1.4 kilometers east of the I-20 rest area (Figure 2).

USGS QUADRANGLE: Lugoff, SC and Camden South, SC **DATE:** 1957 and 1986

SCALE: 7.5'

UTM: NAD 83 **ZONE:** 17N **EASTING:** 534547 **NORTHING:** 3786270

ENVIRONMENTAL SETTING:

The APE is in the Upper Coastal Plain physiographic region. This section of I-20 follows the centerline of a ridge overlooking the Wateree River floodplain. The project corridor continues across the entire width of this alluvial plain

(Figure 3). Project corridor elevations ranged from 130-150 feet above mean sea level (amsl). Both upland and floodplain portions of the APE are predominantly covered by grasses and scrub vegetation. Mixed hardwoods screen the interstate from adjacent properties.

NEAREST RIVER/STREAM AND DISTANCE:

The project corridor encompasses the confluence of Buck Creek and the Wateree River and the confluence of Gillies and Buck creeks.

SOIL TYPE:

Twelve soil types were identified in the project corridor (see Figure 3). In aggregate, 81 percent of the project corridor has moderately well drained or better drainage. The remaining 19 percent is poorly drained or water. The most extensive soil type is Congaree loam (Co). These well-drained loams extend across 51.9 percent (56.4 acres) of the project corridor. They developed in floodplains from loamy alluvium parent material. Wagram sand (WaB) are identified across 12.5 percent (13.5 acres) of the project corridor. They are well drained and formed on dunes from loamy marine deposits. Almost ten acres or 9.1 percent of the project corridor have Chewacla loam (Ch) soils. These soils are formed in floodplain settings from alluvium. Chewacla loam is somewhat poorly drained and frequently flooded. Quartzipsamments (Qz) are found in 5.3 percent of the project corridor. These moderately well-drained sands formed on marine terraces from sandy marine deposits. Faceville loamy sand (FaB) also formed on ancient underwater terraces. Clayey marine deposits are the parent material for this well drained soil. Faceville loamy sand are identified across 4.9 percent of the corridor. Ailey sands (Aeb and AeC) are identified in 3.8 percent of the corridor. These well drained soils formed on marine terraces from loamy deposits. An almost equal proportion, 3.5 percent, of the corridor are identified as Rains sandy loam (Ra). Although formed of the same parent material and similar setting as the previous soil type, Rains sandy loam are poorly drained. Norfolk loamy sand (NoB) and Lugoff gravelly loamy sand (LuB) were also well-drained soils formed on marine terraces. They represent 1.6 (NoB) and 0.5 (LuB) percent of the project corridor. Less than one percent, 0.6 percent of the project corridor is Lakeland sand (LaB). This excessively drained soil type formed on dunes from eolian (wind-driven) sands. A negligible percentage of poorly drained Wehadkee silt loam (We) soil is also present. The remaining 6.3 percent of the project corridor is water (W).

REFERENCE FOR SOILS INFORMATION: USDA-NRCS Soil Survey Division, Custom Soil Resource Report (USDA 2020)

GROUND SURFACE VISIBILITY: **0% __ 1-25% _✓_ 26-50% __ 51-75% ___ 76-100% ___**

CURRENT VEGETATION:

The APE is in a rural setting. The areas adjoining the roadway are recently clear cut or overgrown agricultural fields. The project corridor is covered in grass. Some isolated pecan trees and a stand of older trees are located along a portion of the APE.

INVESTIGATION:

The pre-fieldwork background review included an examination of ArchSite, the state's online cultural resources database, for resources located within 0.5 miles of the project corridor (Figure 4). Two NRHP-listed districts are located within the search area. The Historic Camden Revolutionary War District is north of the project area (Byrnes 1969). The Mulberry Plantation Historic District lies south and east of the eastern terminus of the study area (Olausen 1997). Neither of these districts are within the APE. NSA examined a farm complex, Resource 1355 (296 Friends Neck Road), in 2002. It was evaluated relative to commercial and agricultural significance and was recommended not eligible for the NRHP (Swanson et al. 2002).

Seven previously recorded archaeological sites are located within the half-mile search area, and none of these are in the APE (see Figure 4). Site 38KE2 is an unevaluated site with no cultural affiliation listed on the 1970 site form. Site Files Manager notes identify the plotted location of this site as questionable and suggest that 38KE2 and 38KE12 refer to the same resource. The Mulberry Mound site, 38KE12 is a Mississippian mound center located at the mouth of Big

Pine Tree Creek. The site is within the archaeological site boundaries drawn for the Mulberry Plantation Historic District, 38KE1029. Site 38KE7, the Indian Ditch, was a historically identified feature extending north-south across Friends Neck. The feature was first documented in the early nineteenth century. The ditch was recorded as an archaeological site in 1970. Although the *Indian Ditch* name suggests that the feature was created during the precontact era, the feature has not been archaeologically examined and the cultural affiliation is considered speculative. The Dabney Site, 38KE13, was identified by George Stuart between Black River Road and Big Pine Tree Creek. His site visit yielded materials dating from the Archaic period. Site 38KE13 was not evaluated for NRHP eligibility. In 2017, NSA recorded a late eighteenth-century canal, site 38KE1173, during the survey for the US-521 over Big Pine Tree Creek bridge replacement project. The canal and elements of a wooden mill dam were identified 180 meters west of site 38KE13. Further work was recommended to complete the eligibility assessment for site 38KE1173 (Stewart and Quinn 2017).

An examination of historic maps identified one unrecorded resource within the project corridor. The 1957 Lugoff, SC 1:24,000 Topographic Map plotted a cemetery within the project study area. This map was created 11 years before the construction of I-20. The cemetery is mapped on the northern edge of the project corridor (see Figure 1).

ARCHAEOLOGY

The archaeological survey of the project corridor was conducted between January 18 and 21, 2022. June Weber, MA, RPA, Chris Dial, Catharine Nienaber, and Margaret Milteer examined 301 pre-plotted shovel test positions in the study area (Figure 5). NSA excavated 242 tests. The 60 remaining test positions were not excavated because of surface water (n=52), steep slopes (n=5), rip rap (n=2) or road gravel (n=1). Most (n=233) of the excavated survey and delineation tests (n=241) did not yield cultural material. The eight remaining tests yielded precontact or historic artifacts. The positive shovel tests indicated two sites, 38KE1191/1192 and 38KE1193, and two isolated finds (Isolates 1 and 2).

Lee Cox, of Dolan Research, Inc, conducted a magnetic and acoustic remote sensing survey of the submerged portion of the APE on February 1, 2022. This survey did not identify any anomalies suggestive of submerged cultural resources. The underwater survey report is included as Appendix B.

38KE1191/1192

The site is located on a ridge nose overlooking the confluence of Buck Creek, Gillies Creek, and the Wateree River (see Figure 5). The combined boundaries of site 38KE1191/1192 extend across the project corridor and include two mixed precontact and historic artifact scatters and the outline of a cemetery noted on an engineer's 1967 drawing of the route planned for I-20. The artifact scatters are 90 meters apart with the interstate between them. The scatter located north of I-20 was encountered in Survey Test 111. Survey Tests 172 (N500 E500) and 174 encountered the scatter south of the interstate. None of the seven 15-meter interval tests excavated south of the interstate produced additional artifacts. A single delineation test excavated north of Survey Test 111 yielded cultural material. The other seven delineation tests excavated around Survey Test 111 were negative. The dimensions of the northern and southern artifact scatters were 15x30 and 60x15 meters. These scatters were recorded as individual archaeological sites before the existence of the cemetery was known. The cemetery links the two scatters into a single contiguous resource. Considering this, a revisit site form was filed that encompassed the delineated scatters and the area that the engineer's drawing demarcated as a cemetery. These combined boundaries of site 38KE1191/1192 measure 140x175 meters (Figures 6 and 7). In addition, the two site grids were reconciled relative to the southern delineation datum. The Specimen Catalog (Appendix A) preserves the original delineation coordinate in the Excavation Unit column and the revised coordinate in the Horizontal Location column

Similar soils were exposed at both scatter locations. These included five centimeters of black (2.5YR 2.5/1) sandy loam overlying 10 centimeters of reddish brown (2.5YR 5/4) sandy clay. Yellowish red (5YR 5/8) clay subsoil was typically encountered 15-30 centimeters below the ground surface. Nine artifacts were collected from site 38KE1191/1192 (Appendix A). These included six pieces of quartz debitage and three fragments of refined earthenware. All were collected at depths of 0-30 centimeters below ground surface. Since no temporally diagnostic precontact artifacts were recovered, the debitage may only be dated to the general precontact period. The refined

earthenwares included tin-enameled earthenware, creamware, and pearlware. The tin-enameled ware is probably delft manufactured between 1600 and 1800. Creamware has a manufacturing date range of 1762-1820. Pearlware was produced between 1795 and 1820 (Aultman et al. 2015). These production ranges indicate that site 38KE1191/1192 has a mid-eighteenth to early nineteenth-century component, which would date the site to the early period of Euro American settlement in the region.

Early records of land grants in the Fredricksburgh Township suggest that cultivation of the area began in the mid-eighteenth century. In the 1750s Irish Quakers, members of a protestant denomination formally known as the Religious Society of Friends, acquired grants to land on both sides of the Wateree River. Settlements on the western bank were in a sweeping floodplain now identified as Friends Neck. Arthur Brown Ross owned several tracts in this area during the late eighteenth century. In 1911, the Kershaw County Surveyor drew a map of these grants as they would have appeared in the year 1800. The location labeled "Green Springs" is near site 38KE1191/1192. This 190-acre property was granted to Arthur Ross in 1774. Two of Arthur's cousins, both named Isaac, lived nearby (Figure 8). This map and a copy of Ross' journal was reprinted in *A Record of the Descendants of Isaac Ross and Jean Brown: And the Allied Families of Alexander, Conger, Harris, Hill, King, Killingworth, Mackey, Moores, Sims, Wade, Etc.* (Wright 1911). This text includes the names of several enslaved Black laborers working on his plantations. According to Wright, Ross sold his properties to Major Willis Whitaker in 1800. Twenty years later, the Mills' Atlas shows a Whitaker-occupied house located on the curve of Right's Branch. This course of the stream approximates the confluence of modern-day Buck Creek and Gillies Creek, which surround site 38KE1191/1192. Whitaker integrated Ross' former properties into a multigenerational commercial enterprise. This enterprise cultivated a variety of commercial crops, including rice and cotton. After the Whitakers, two Prussian-born brothers acquired the property. Details of this transaction are unclear. The Baums were merchants that used the crop-lien system to assemble the largest landholding in post- Civil War Kershaw County. In the mid-nineteenth century, the property was owned by Herman and Mannes Baum. Their post-Civil War operation used 50 laborers. Twentieth-century owners included Louis Guion, Edwin Boyle, Frank H. Brown, and Robert Lee (Inabinet and Inabinet 2011).

The 1938 Kershaw County Highway Map places a business establishment, gin, and seven tenant houses near the site. Twelve additional tenant houses were identified on the opposite side of Buck Creek, then labeled as Rice Branch. A 1937 photograph shows the orchard and farm complex (Figure 8a). At that time, the site was located within a 100x100-meter rectangular area of scrub vegetation and an adjacent open area. The rectangular shape and scrub vegetation in this area, along with the late seventeenth to early nineteenth century artifacts, suggest an abandoned homesite was located next to the already identified burial ground. Further comparison of the 1937 and 1965 aerial photographs (Figure 9) indicate that the farm complex was extensively renovated during the intervening period.

Mr. Dallas Phelps, editor of the Kershaw County Cemetery Survey (1991), was interviewed during the investigation. He identified the cemetery as the Baum Cemetery and said that he viewed photographs belonging to Mr. Ted Boozer, a Design Engineer with the South Carolina Highway Department, that showed the removal of four graves in the existing ROW. However, reviews of additional historic maps, South Carolina Department of Health, and Environmental Control disinterment records, SCDOT Commissioner reports, Kershaw County Clerk of Court records, and Newspapers.com did not locate documentation for the removal of a cemetery during the construction of I-20 (Figure 10).

Given the location of the artifacts relative to the interstate, the site is unlikely to have any integrity or research potential. However, the site's boundaries are undetermined, and there could be intact deposits outside of the project area. The date range, original size of the cemetery, and the scope of the disinterments conducted before the interstate was built are not known. Existing conditions also indicate that construction work left unmodified areas within the project corridor. Additional work is needed to ascertain whether burials are present within these areas and determine if the cemetery is associated with significant individuals or significant events. Because the site's boundaries are not fully delineated and there are questions concerning the cemetery, the site is unevaluated for the NRHP, and any disturbance to the site, including the transit of heavy equipment, should be avoided during the planned undertaking.

38KE1193

This mixed precontact and historic artifact scatter was identified on the south side of the project corridor, 145 meters east of the bridge spanning an unnamed farm road (see Figure 5). The ROW is covered with grass and bordered by woods in this location. A 65-meter-wide borrow pit is located immediately south of Survey Test 155, which was

established as the site datum (N500 E500). This test and N515 E500 yielded artifacts. These results and the location of the adjacent borrow pit indicated that the site measures 15x30 meters. The seven other tests excavated as part of the 15-meter-interval site delineation were negative (Figure 11). Soil stratigraphy encountered in this area included 20 centimeters of brown (10YR 4/3) sandy clay loam overlying five centimeters of brownish yellow (10YR 6/6) sandy clay and brown (10YR 5/3) clay subsoil (Figure 12).

Four artifacts were collected from site 38KE1193 (Appendix A). These artifacts include two pieces of quartz debitage, a white-bodied earthenware (possibly creamware) fragment and a fragment of clay drainpipe. While the debitage indicates precontact occupation, the site cannot be dated to a specific cultural period. The historic artifacts have little diagnostic utility. The ceramic fragment dates from the late eighteenth century while ceramic pipes have been used for field and wastewater drainage since the mid-nineteenth century (Miller et al. 2000).

The mixed precontact and historic artifact scatter located at site 38KE1193 has little integrity. The site is in a heavily disturbed area between a borrow pit and the interstate (see Figure 12). The small artifact collection suggests that site 38KE1193 was not intensively utilized by precontact or historic occupants. Therefore, the site is unlikely to contain significant below-ground artifact deposits or undisturbed features. Since the site has little research value, it is recommended not eligible for the NRHP under Criterion D. The artifact scatter also lacks any elements capable of conveying associations to significant events or individuals, nor does it represent a distinctive site type. Thus, site 38KE1193 is recommended not eligible for the NRHP under any criteria. NSA recommends no further work for this site.

ISOLATE 1

Isolate 1 was identified 60 meters west of the I-20 bridge over the confluence of Buck Creek with the Wateree River (see Figure 5). Survey Test 103 was excavated along the northern edge of the project corridor and yielded a single fragment of quartz debitage. Soils in this area were composed of five centimeters of very dark grayish brown (10YR 3/2) sandy loam overlying 30 centimeters of brown (10YR 5/3) sandy loam and yellowish red (5YR 4/6) sandy clay subsoil. The debitage fragment was collected from the second stratum, 5-35 centimeters below surface. Five additional tests were excavated at 15-meter intervals around the positive survey test. No further artifacts were recovered.

ISOLATE 2

The second isolated find was identified at Survey Test 161 and consisted of a single chert flake (see Figure 5). This test was located 160 meters east of site 38KE1193, on the southern side of the interstate. Five 15-meter-interval shovel tests were excavated between the road shoulder and the perimeter of the project corridor and did not produce any additional finds. These tests exposed two strata overlying a sterile subsoil. The uppermost stratum was a five-centimeter-thick very dark grayish brown (10YR 3/2) sandy clay loam. Below this, there was a 35-centimeter-thick stratum of dark yellowish brown (10YR 4/6) sandy clay. Subsoil at this location was yellowish red (10YR 5/6) sandy clay. This artifact was found at the interface between the second stratum and subsoil, 40-50 centimeters below ground surface.

ARCHITECTURE

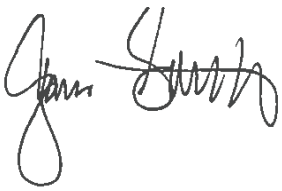
The10 bridges located within the project corridor were built in 1970 as part of the Interstate Highway System and are exempt from Section 106 assessment per the Advisory Council on Historic Preservation's *Exemption Regarding Historic Preservation Review Process for Effects to the Interstate Highway System* 2005). These bridges are also included in the types of structures that the 2012 *Program Comment Issued for Streamlining Section 106 Review for Actions Affecting Post-1945 Concrete and Steel Bridges* have identified as lacking individual distinction (see Table 1). No new or previously surveyed architectural resources were located within 300 feet of the existing right-of-way or the viewshed of the study area.

REMARKS AND RECOMMENDATIONS:

Background research and archaeological survey identified two sites and two isolated finds inside the project corridor (Figure 13). Both isolated finds and site 38KE1193 are recommended not eligible for the NRHP under any of the four criteria (A, B, C, and D).

The assessment of 38KE1191/1192 for NRHP eligibility is incomplete because the site could not be fully delineated. NSA determined that the portion of 38KE1191/1192 artifact scatters have little integrity or potential inside the project corridor to contribute important archaeological data. Additional work is needed to complete an assessment of the site's cemetery component and unexamined areas outside of the project corridor. Second-hand testimony indicates that four graves located within the project corridor were removed from the cemetery in 1968 or 1969. However, NSA could not locate any official documentation of their removal. The size of the cemetery shown on the 1968 Engineer's drawing is considerably larger than the area four burials require. It is quite possible that unidentified interments remain within and next to the project corridor. Given this and exclusion of the nearest bridges to the site (05562, 05563, 05578, and 05783) from the project's planned rehabilitation or repair work, avoidance of site 38KE1191/1192 is recommended. If avoidance is not possible, NSA recommends a geophysical prospecting survey to determine whether unidentified graves are located within the project corridor. If graves are located, their removal and reinterment are advised.

SIGNATURE:



James Stewart, Principal Investigator

DATE: 3/22/2022

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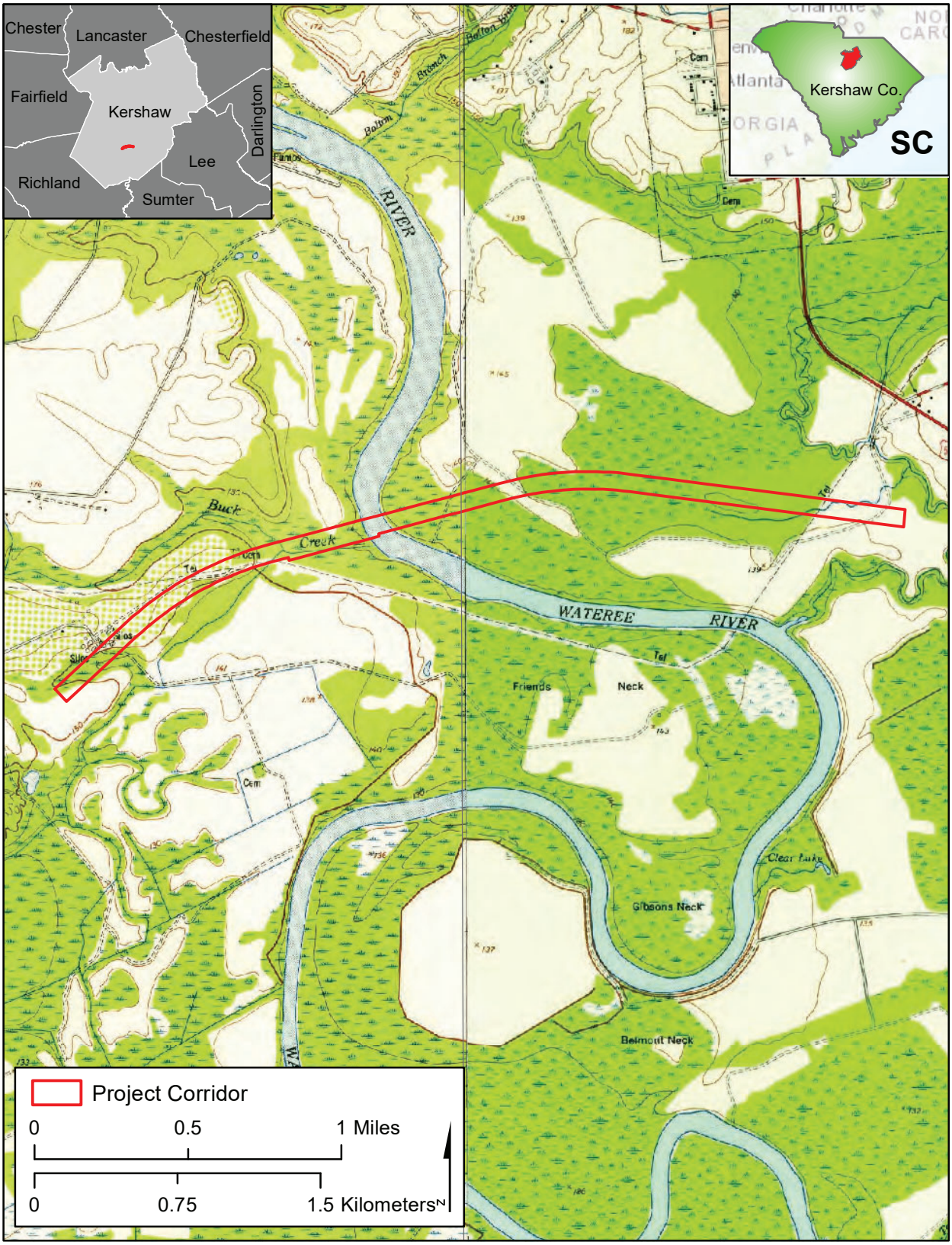
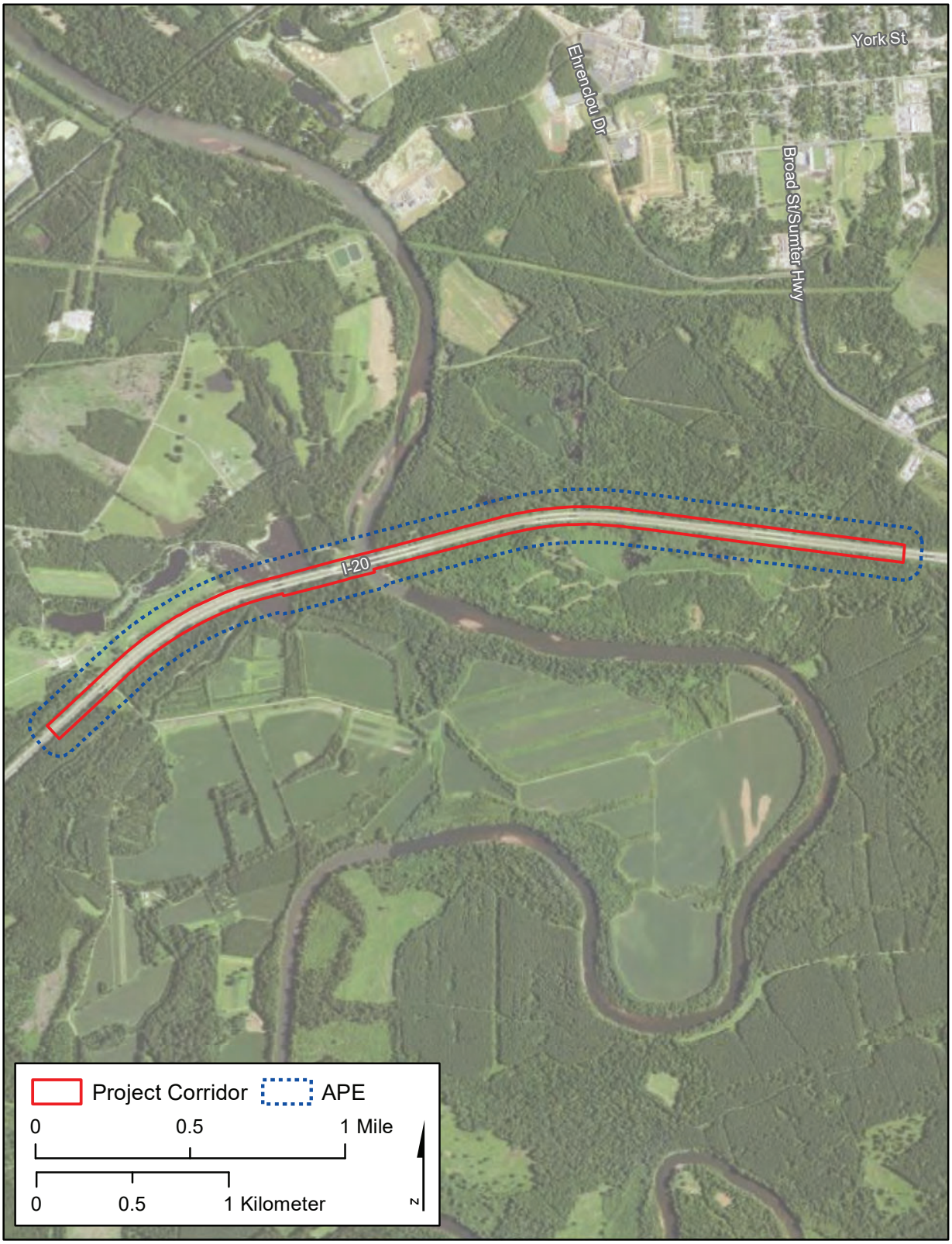
Figure 1. Project Location Map



Source: USGS 7.5' Topographic Quadrangle, Camden South, SC (1953); USGS 7.5' Topographic Quadrangle, Lugoff, SC (1953)

Figure 2. Aerial Photograph of the Project Corridor and APE



Esri Resource Data (2022)

Figure 3. LiDAR and Soils Map for the Project Corridor

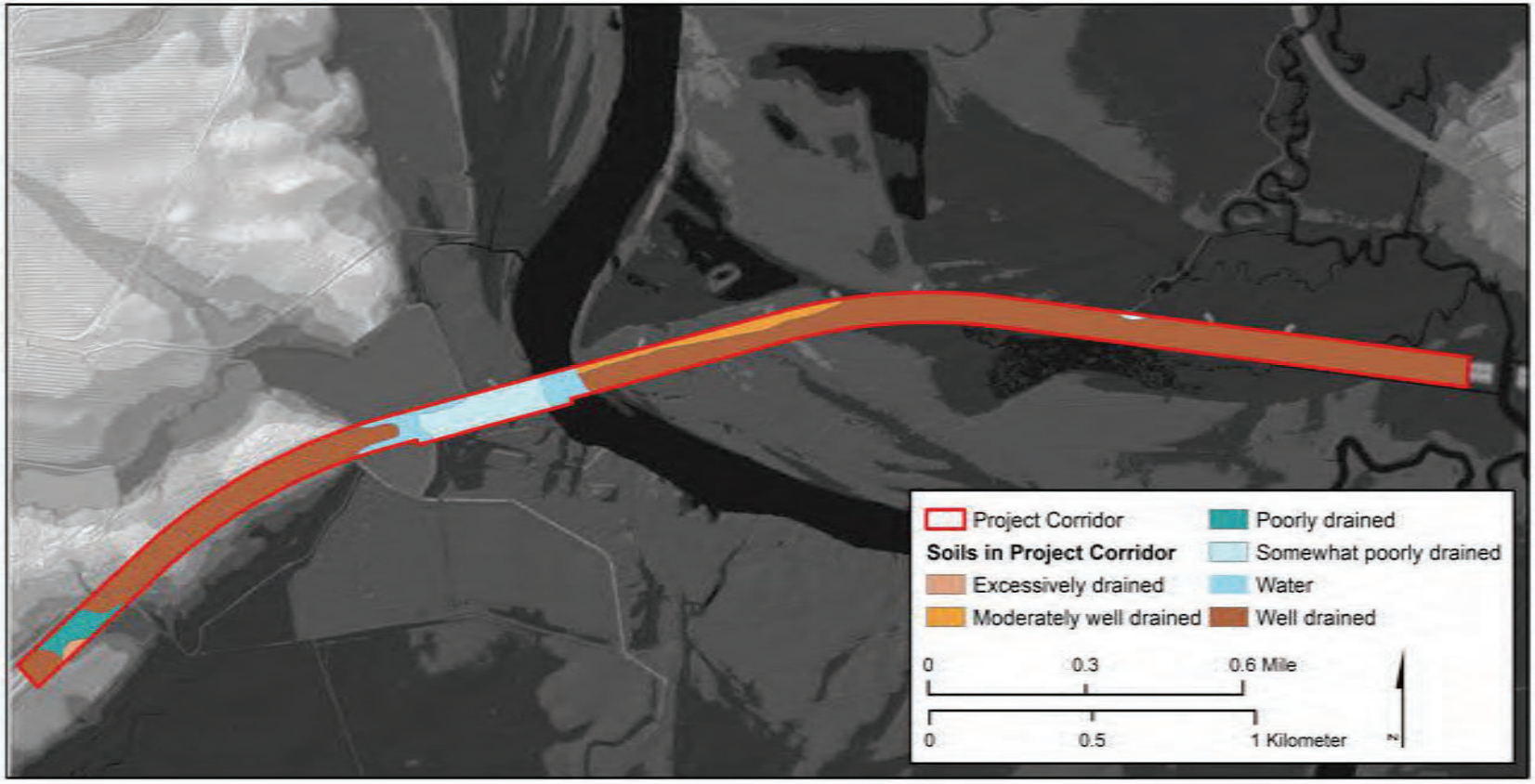
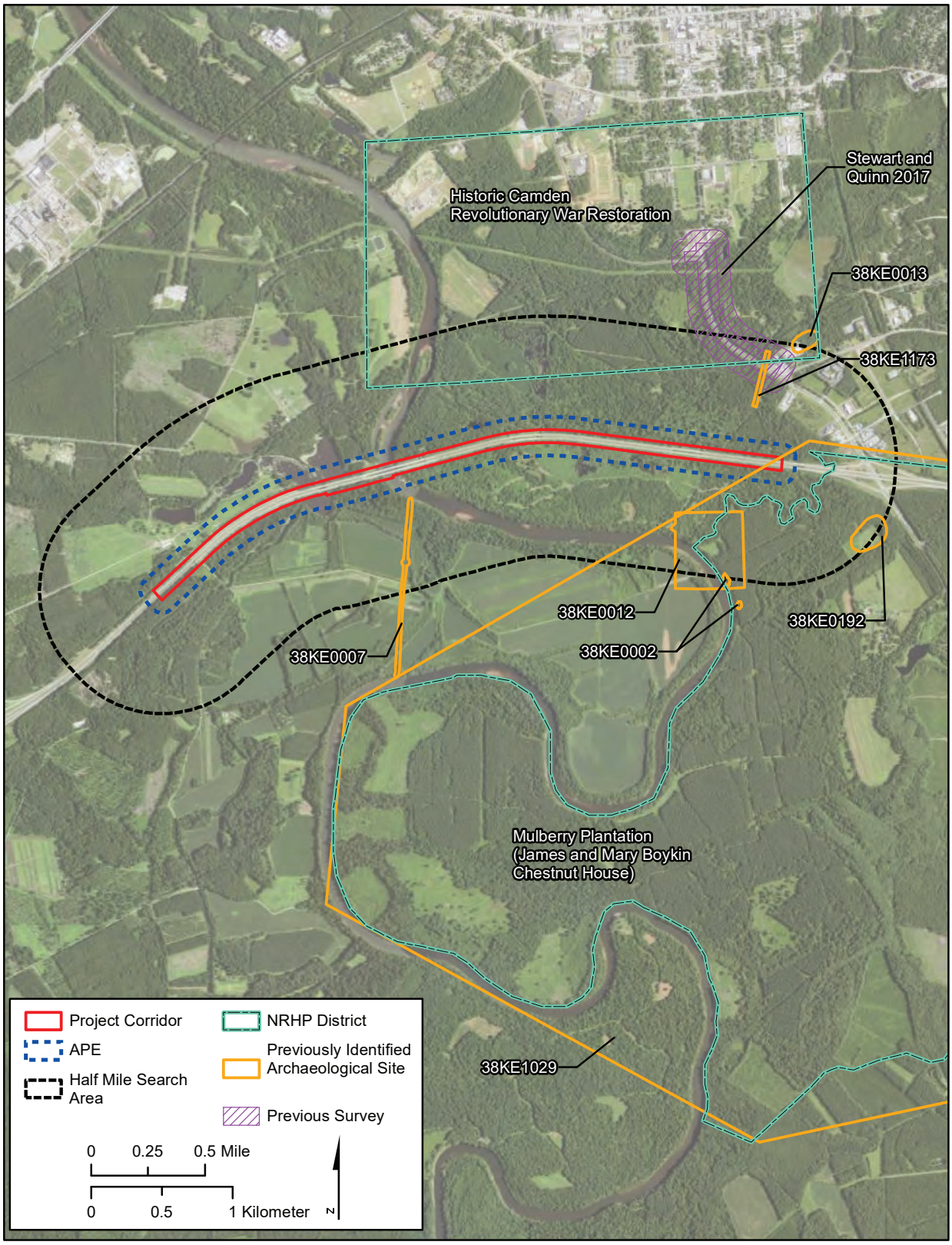
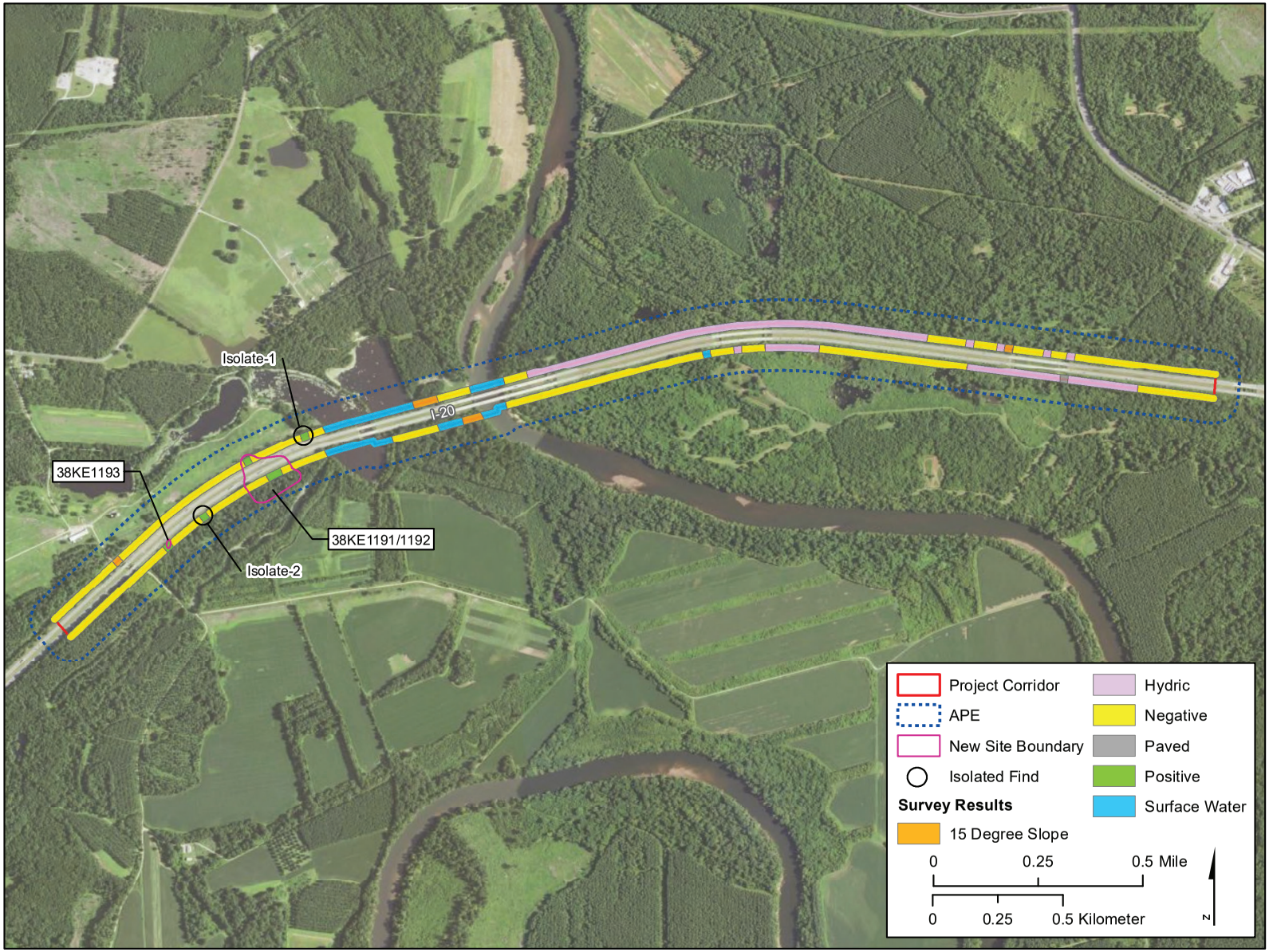


Figure 4. Previously Identified Resources within 0.5 Miles of the Project Corridor



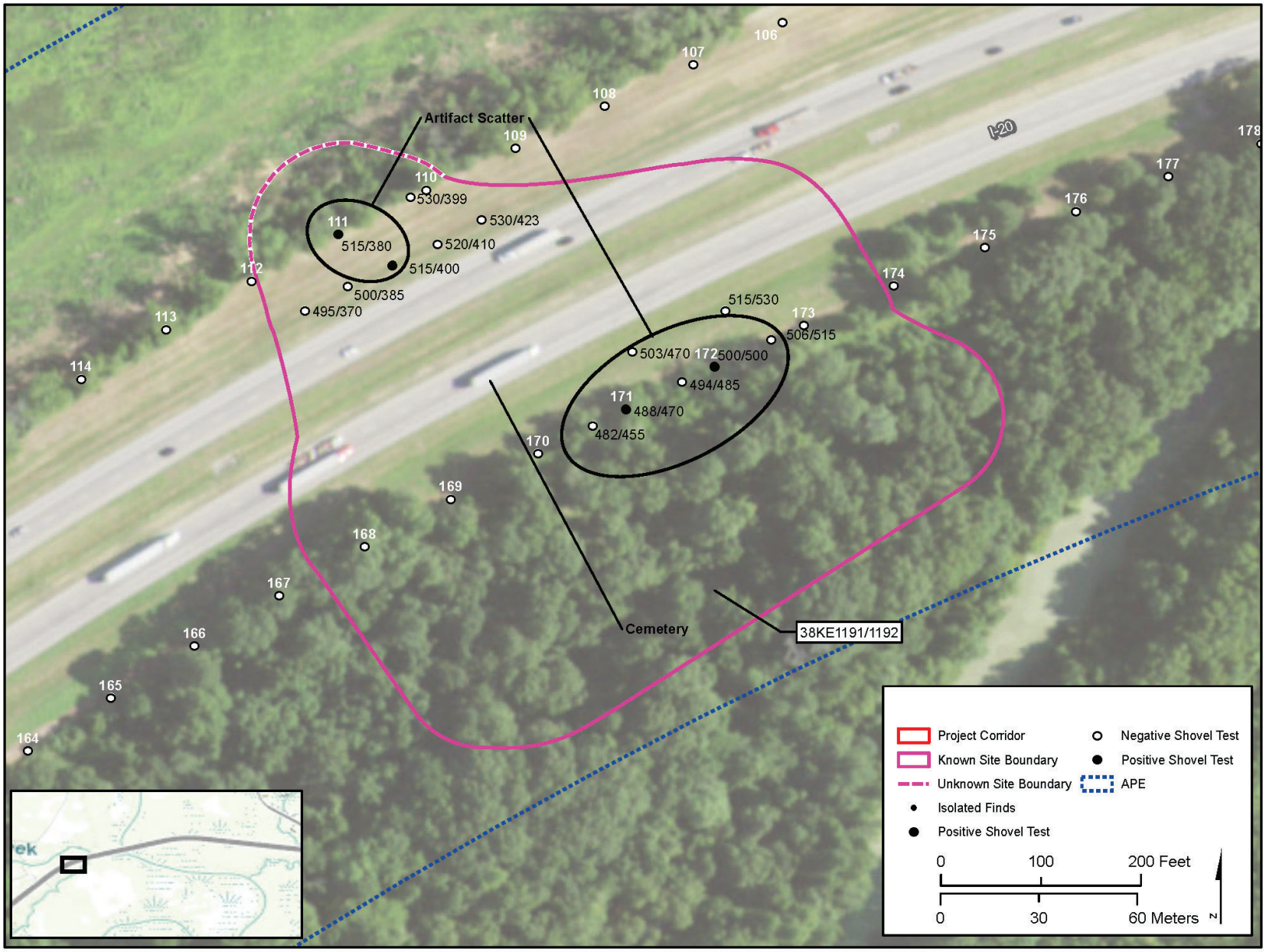
Source: Esri Resource Data (2022)

Figure 5. Survey Results



Esri Resource Data (2022)

Figure 6. Map of Site 38KE1191/1192



Esri Resource Data (2022)

Figure 7. Photographs of Site 38KE1191/1192

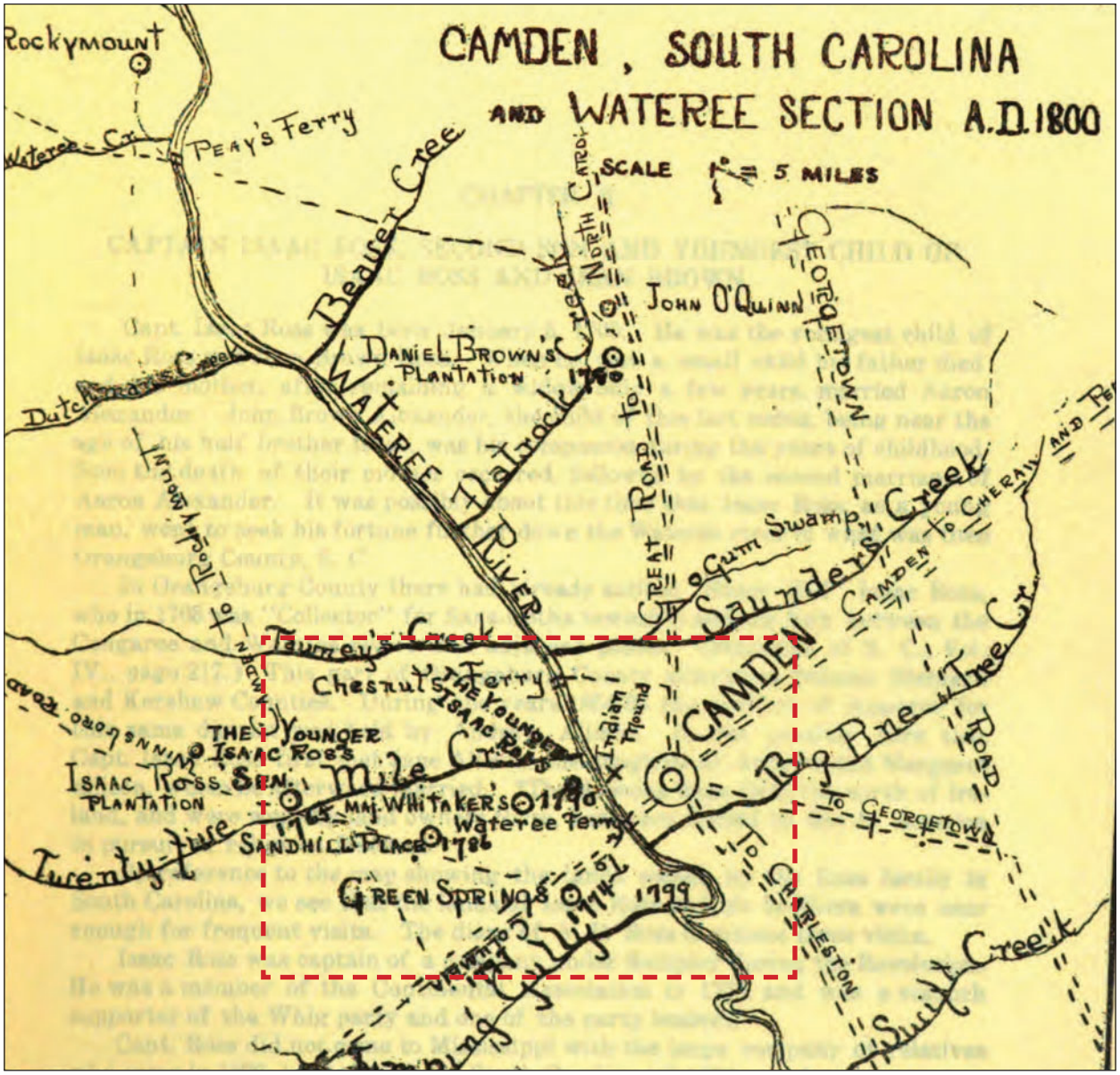
a. Setting North of the Interstate, Facing West

b. Drain Outlet Shown on Engineer's Drawing, Facing North

c. Setting South of the Interstate, Facing East

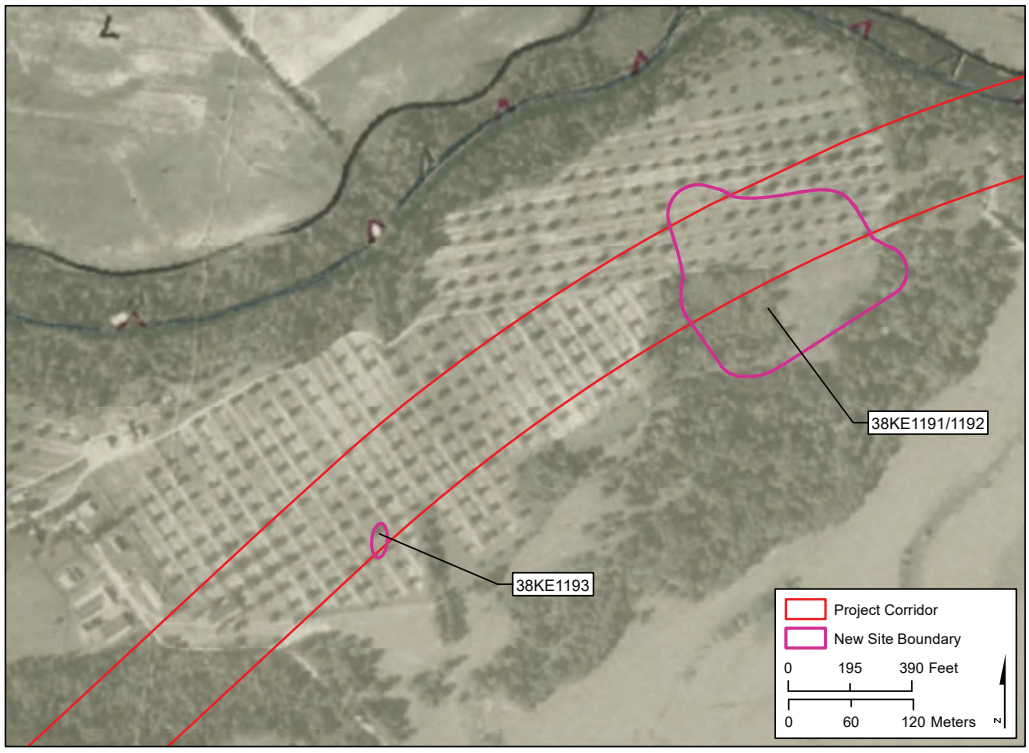
d. Representative Shovel Test Profile

Figure 8. 1911 Map of Ross Plantations around 1800

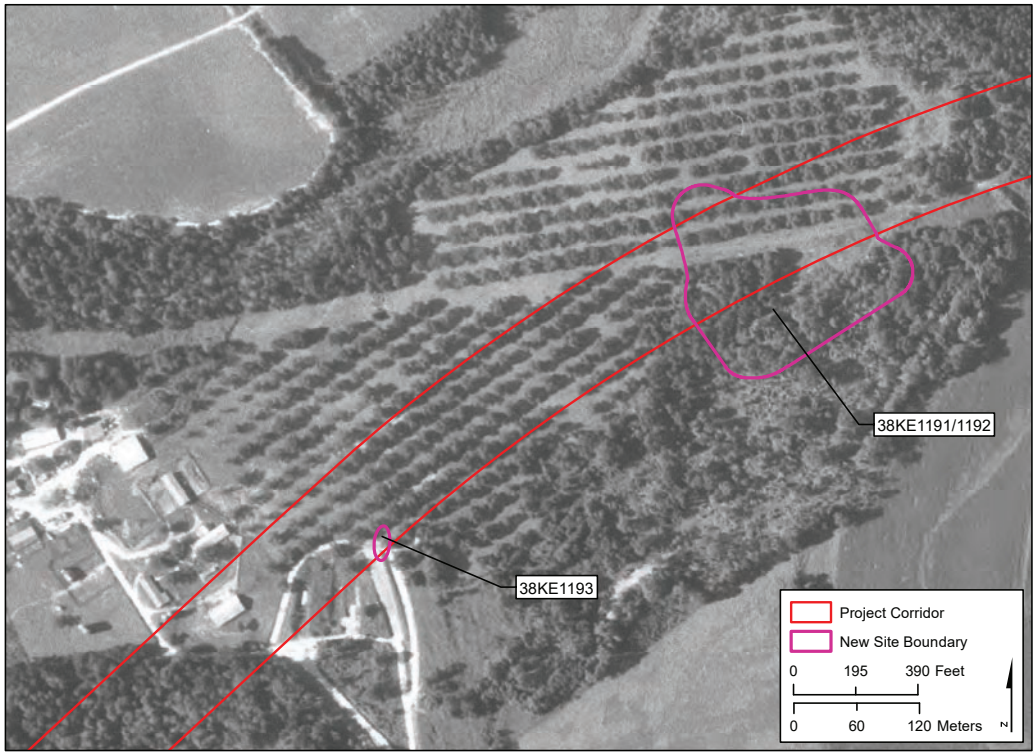


Wright 1911

Figure 9. Historic Aerial Photographs Showing 38KE1191/1192



a. 1937



b. 1965

Figure 10. Site 38KE1191/1192 on the 1968 Engineer's Drawing

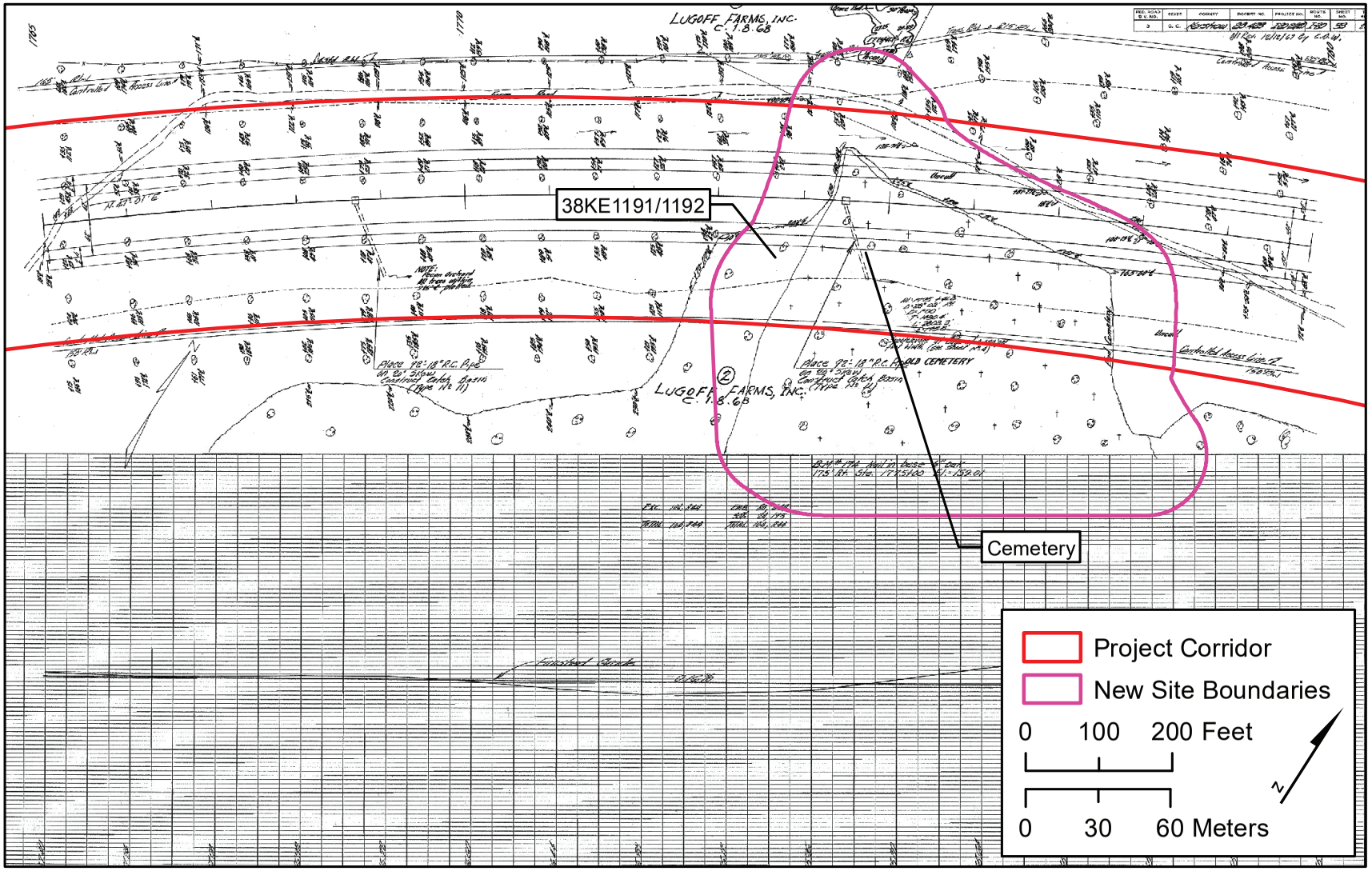
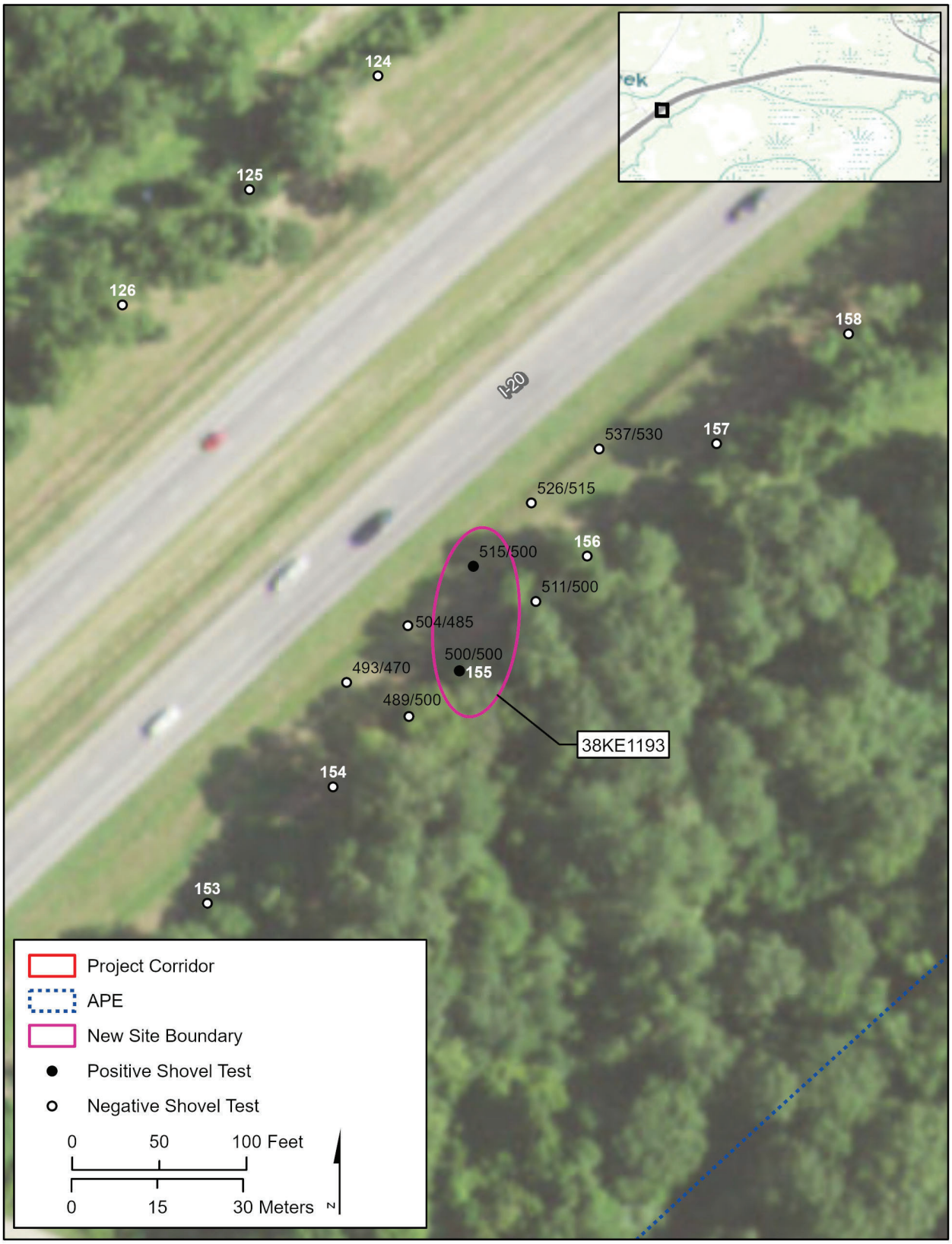


Figure 11. Map of Site 38KE1193



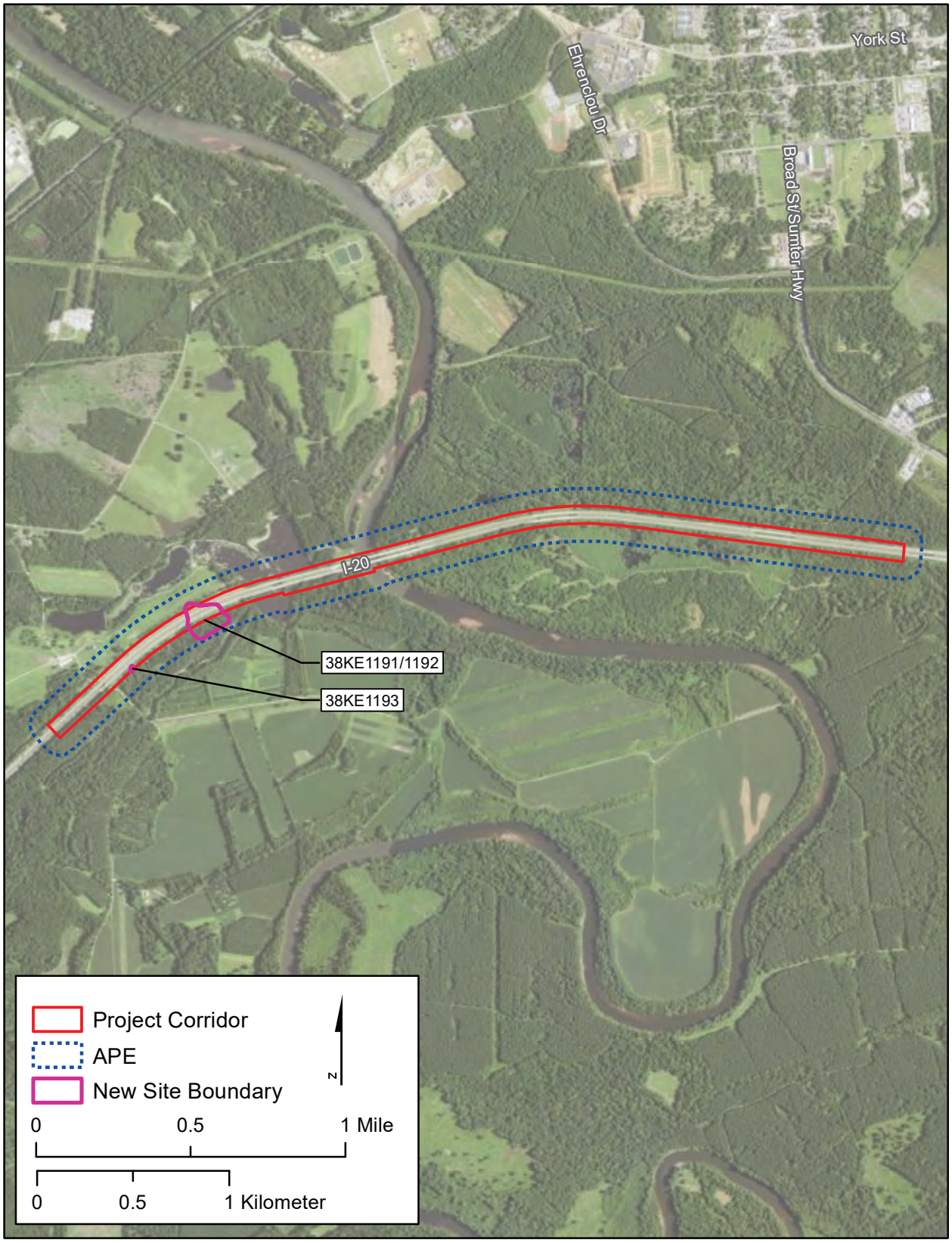
Esri Resource Data (2022)

Figure 12. Photographs of Site 38KE1193

a. Facing West from Survey Test 155 (N500 E500)

b. Representative Shovel Test

Figure 13. Site Locations within the Project Corridor



Esri Resource Data (2022)

Appendix A. Specimen Catalog

Specimen Catalog

County: Kershaw
State: South Carolina
Project: 1-20 Bridges over Wateree (2022)

State Site #	Field Bag #	Excavation Unit	Horizontal Location	Vertical Location	Count/ Weight	Artifact Description	Field Date
38KE00-IF1	1	STP 103		5-35 cmbs, Stratum II	1 (7.5g)	Quartz, Flake-Fragment	1/18/22
38KE00-IF2	6	STP 161	N500 E500	10-50 cmbs, Stratum III	1 (2.9g)	Coastal Plain Chert, Flake-General, Complete	1/19/22
38KE1191/1192	2	STP 111	N515 E380	6-22 cmbs, Stratum II	1 (0.9g)	Creamware, Plain	1/18/22
38KE1191/1192	2	STP 111	N515 E380	6-22 cmbs, Stratum II	1 (0.3g)	Pearlware, Plain	1/18/22
38KE1191/1192	2	STP 111	N515 E380	6-22 cmbs, Stratum II	2 (4.3g)	Quartz, Flake-General, Complete	1/18/22
38KE1191/1192	3	STP F2N485E500	N515 E400	2-10 cmbs, Stratum II	2 (1.1g)	Quartz, Flake-General, Complete	1/21/22
38KE1191/1192	3	STP F2N485E500	N515 E400	2-10 cmbs, Stratum II	1 (6.8g)	Quartz, Flake-General	1/21/22
38KE1191/1192	4	STP 171	N488 E470	0-30 cmbs, Stratum I	1 (0.6g)	Tin Enamelled Earthenware, Unidentified, plain, probably delftware 1600-1800 (DAACS), but a small undecorated fragment	1/19/22
38KE1191/1192	5	STP 172	N500 E500	10-30 cmbs, Stratum II	1 (18.3g)	Quartz, Biface, Fragment	1/19/22
38KE1191/1192	5	STP 172	N500 E500	10-30 cmbs, Stratum II	1 (1g)	Quartz, Flake-General, Complete	1/19/22
38KE1193	7	STP 155	N500 E500	5-25 cmbs, Stratum II	1 (64.9g)	Sewer Tile/ Pipe Fragment, Ceramic	1/19/22
38KE1193	7	STP 155	N500 E500	5-25 cmbs, Stratum II	1 (16.4g)	Quartz, Angular Debris	1/19/22
38KE1193	8	STP F5N515E500	N515 E500	15 cmbs, Stratum II	1 (1.3g)	White Bodied Earthenware, Unidentified, possibly creamware?	1/21/22
38KE1193	8	STP F5N515E500	N515 E500	15 cmbs, Stratum II	1 (1.8g)	Quartz, Flake-General, Complete	1/21/22

New South Associates, Inc
6150 E. Ponce de Leon Avenue
Stone Mountain, GA 30083

Appendix B. Underwater Investigation Report

PHASE I
UNDERWATER ARCHAEOLOGICAL INVESTIGATION
I-20 BRIDGE REPLACEMENT
WATEREE RIVER
KERSHAW COUNTY, SOUTH CAROLINA

DOLAN RESEARCH, Inc.

March 2022

PHASE I
UNDERWATER ARCHAEOLOGICAL INVESTIGATION
I-20 BRIDGE REPLACEMENT
WATEREE RIVER
KERSHAW COUNTY, SOUTH CAROLINA

Submitted to:
New South Associates, Inc.
1819 Hampton Street
Columbia, SC 29201

Submitted by:

J. Lee Cox, Jr., R.P.A.
Principal Investigator

Dolan Research, Inc.
30 Paper Mill Road
Newtown Square, PA 19073

March 2022

ABSTRACT

In conjunction with South Carolina Department of Transportation's proposed I-20 Bridge Replacement Project across the Wateree River, Kershaw County, South Carolina, Phase I Underwater Archaeological Investigations were conducted to assess the presence or absence of potential submerged cultural resources within the Project's Area of Potential Effect (APE). The APE was a 300-foot-wide corridor on either side of the existing I-20 Bridges that span the Wateree River south of the town of Camden, South Carolina..

Magnetic and acoustic remote sensing data were collected to identify and assess remote sensing targets that may have an association with submerged cultural resources. In addition, a visual investigation was conducted along the shorelines within the APE.

Analysis of fieldwork data confirms the presence of no potentially significant remote sensing targets in the APE. In addition to the remote sensing survey, no visible signs of potential submerged cultural resources were encountered during the visual investigation of the two shorelines in the APE.

No additional underwater archaeological investigations are recommended for this location in in the Wateree River, Kershaw, South Carolina.

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1.0 INTRODUCTION

In conjunction with South Carolina Department of Transportation's proposed I-20 Bridge Replacement over the Wateree River, Kershaw County, South Carolina, Phase I Underwater Archaeological Investigations were conducted to assess the presence or absence of potential submerged cultural resources within the submerged portion of the project's Area of Potential Effect (APE).

The APE encompasses a 300-foot-wide corridor on either side of the existing twin I-20 bridges, from shoreline to shoreline. The APE includes all navigable locations within the approximately 700-foot-wide corridor (including the width of the bridges) in the Wateree River where bottom impacts such as anchoring, dredging, and bridge pier construction are expected to occur. The project location is depicted in Figures 1 and 2.

Comprehensive acoustic and magnetic remote sensing survey investigations were conducted to assess the presence or absence of potential submerged cultural resources within the APE. Additionally, a visual inspection of the shoreline was conducted to identify potential submerged cultural resources that maybe only partially submerged . The underwater archaeological project was completed under a subcontract agreement between New South Associates, Columbia, South Carolina, and Dolan Research, Inc., Newtown Square, Pennsylvania.

The Phase I underwater archaeological investigations were designed to assess the number, locations, cultural affiliations, components, spatial distribution, data potential, and other salient characteristics of potential submerged cultural resources within the APE across the Wateree River. The underwater archaeological investigation involved the development of a brief historical framework for assessing potential site significance, and a comprehensive magnetic and acoustic remote sensing survey to determine the presence or absence of potentially significant remote sensing targets that might be affected by the proposed bridge construction activity. These investigations were conducted in accordance with the instructions and intents of various applicable Federal and State legislation and guidelines governing the evaluation of project impacts on archaeological resources, notably: Section 5 of the Abandoned Shipwreck Act of 1987; Section 101(b)(4) of the National Environmental Policy Act of 1969; Section 1(3) and 2(b) of Executive Order 11593; Section 106 of the National Historic Preservation Act; 23 CFR 771, as amended October 30, 1980; the guidelines developed by the Advisory Council on Historic Preservation published November 26, 1980; the amended Procedures for the Protection of Historic and Cultural Properties as set forth in 36 CFR Part 800 (October 1, 1986); and Executive Order 215.

Fieldwork investigations were completed in the Wateree River on 01 February 2022. The survey goal was to identify remote sensing targets of potential historical significance from the gathered remote sensing data sets. Analysis of fieldwork data confirms that the APE contained no potentially significant remote sensing targets, either magnetic or acoustic (sonar). In addition, the visual inspection of the shorelines failed to identify potential cultural resources along the edges of the riverbanks**.** No additional underwater archaeological investigations are recommended in the Wateree River Project Area.

2.0 PROJECT LOCATION AND DESCRIPTION

The APE encompasses a 300-foot-wide corridor on the either side of the twin I-20 Bridges that cross the Wateree River, approximately three miles downstream of Camden, Kershaw County, South Carolina. Including the width of the bridge the overall survey corridor was approximately 700-feet-wide from shoreline to shoreline. The width of Wateree River at the APE is approximately 340 feet and water depths within the APE during the time of the survey ranged from less than one foot along the shorelines to more than six feet near the center of the river under the bridges. At the APE, the descending flow of the river makes a sweeping turn from the northeast to the southeast.

Technically, the Wateree River is a continuation of the Catawba River which has its headwaters in the Blue Ridge Mountains in North Carolina. Overall, the Wateree River Basin is in the central portion of South Carolina and is part of the Santee-Cooper River System that is comprised of several lakes and dams. The basin is located near the fall line between the Piedmont Plateau and the Coastal Plain and flows from a mountainous terrain to a gently sloped, sandy terrain (Stanley Consultants 1977).

The Wateree River is the major river in the basin and is formed by the confluence of the Catawba River and Big Wateree Creek at Wateree River Mile (R.M.) 92.0. However, in 1915 Wateree Hydro Station Dam was constructed approximately 16 miles downstream of the confluence with the Catawba River. Construction of the dam inundated the confluence of the Catawba River and Big Wateree Creek creating Wateree Lake. As a result, the upstream end of the Wateree River for all practical purposes is at Wateree Dam (R.M. 76.1).

From the dam the Wateree River is approximately 76 miles long and generally flows southward through the upper coastal plain in Kershaw County. Approximately eight miles below the Wateree Dam the river passes to the west side of the Piedmont town of Camden (R.M. 68.8) before flowing past the APE (R.M. 65.90). Below the APE, the Wateree winds to the south along the common boundary of Richland and Sumter Counties before entering Lake Marion. Along this route the river transitions from a waterway with well-defined channel banks and high narrow flood plains in the upstream reaches to a meandering waterway with sandbars and wide, low flood plains in the lower reaches (Stanley Consultants 1977). At the APE, much of the flow in the river is regulated at Wateree Lake Dam resulting in varying channel depth, embankment heights and vegetation levels on a regular basis.

Below Camden (R.M. 67.0) and the APE (R.M. 65.9), the river flows into several swamps including Betty Neck Swamp, White Marsh Swamp and Gum Swamp. Along the way it receives the tributary waters of nine small creeks before terminating at its junction with the Congaree River. After merging with the Congaree River, the waterway flows into Lake Marion and the Santee River approximately 35 miles southeast of Columba. The Santee River then flows into the Atlantic Ocean south of Georgetown, South Carolina.

Overall, the Wateree River Basin drains an area that is 910 square miles. Upstream contributing drainage areas measure 4,770 square miles in North Carolina and South Carolina. The length of the river from the Wateree Lake Dam to the confluence with the Congaree River is 76.1 miles (Stanley Consultants 1977). The APE within the Wateree River is located within the Coastal Zone region of South Carolina that encompasses the lowest elevations of the South Carolina along the Atlantic coast (Kovacik and Winberry 1989). This region is geologically characterized by flat plains with interspersed lakes and marshes representing the fluctuating sea level and erosion rate that has formed the South Carolina sea islands. Griffith et al. (2002) further describe the area as the Sea Islands/Coastal Marsh ecoregion that has formed from Quaternary unconsolidated sand, silt, and clay deposited as beach, dune, barrier beach, saline marsh, terrace, and near shore marine deposits. Sandy soils are found on the barrier islands and organic and clayey

soils often occur in wetland areas. Many areas have been artificially drained with past marshes recognized by the organic deposits observed subsurface and vegetation differences.

2.1 Navigational Improvement Projects

The River and Harbor Act of 1881 (46th Congress, 2nd Session) authorized the only Federal navigation improvement project in the Wateree Basin. It provided for a four-foot-deep navigable channel from the mouth (R.M. 0.0) of the Wateree River upstream to Camden (R.M. 67.0). The last report on the project (issued in 1940) confirmed that snags, stumps, and logs had been removed to clear a 50- to 75-foot-wide channel in the lower 9.5 miles of the river. However, the project was recommended for abandonment in 1939 due to rising costs, extensive obstruction (snags and logs) over the remaining project area, and a lack of commerce on the river. There is no evidence of any project funding after 1939 (U.S. Army 1940 & Stanley Consultants 1977).

3.0 MARITIME HISTORICAL BACKGROUND

3.1 Methodology

A generalized maritime historical overview of activity in and around this section of the Wateree River, Kershaw County, was designed to determine the potential presence of submerged cultural resources in the APE. Prehistoric and historic contexts of the APE were developed and contained in the terrestrial archaeological report that was prepared for this project by New South Associates (New South Associates, 2022). The background maritime historical research included a records check for known underwater archaeological sites and National Register properties within the APE vicinity, and review of state archaeological site files in South Carolina, as well as an examination of prior technical reports and preservation planning tools.

Background maritime historical research on the historic period established a generalized context for an ultimate evaluation of potential submerged targets that were potentially identified in the Wateree River during fieldwork activities.

3.2 Brief Maritime Historical Context

The Wateree River basin was a prime transportation artery for the-central portion of coastal South Carolina dating back to early portions of the 18th century when some of the first European settlers in the region established trading networks with both the Catawba and Wateree Indian tribes (Corkran 1970). Scotch-Irish and English settlers from Pennsylvania and Virginia arrived in the Wateree basin by the middle of the 18th century. These settlers "looked to the rivers for transportation but found them obstructed with logs and snags" (Gregorie 1954, p. 9). To overcome these limitations, the General Assembly of South Carolina passed in 1753, "An act for appointing and impowering Commissioners to make the Wateree River navigable." However, this task proved difficult to solve and additional legislative efforts were directed toward improving the Wateree in 1778, 1984, 1785, 1987, and 1791 (McCord 1840).

The cultivation of cotton became a major industry for South Carolina. Transportation of cotton from cotton plantations and their landings to coastal ports (primarily Charleston) was typically accomplished via a variety of watercraft that plied the numerous waterways including the Wateree River that cut through the central portion of South Carolina. The Wateree River was a major transportation artery for this portion of central South Carolina.

All efforts to initially improve navigational conditions in the river were unsuccessful. Navigational improvements were needed to meet the demands of the cotton boom that was spreading across South Carolina by the first quarter of the 19th century. Above Camden, numerous canals were built in the early

19th century to extend the limits of inland navigation in the Wateree basin, including the Wateree Canal (five miles long, six locks), the canal at Rocky Mount, the Catawba Canal, and the Langsford Canal (two miles long, five locks). Downstream of the Wateree River, the Santee Canal system allowed canal boats from Kershaw County often carrying up to 20 tons of cotton to reach Charleston (Stanley Consultants, 1977).

Prior to the coming of the railroads, the Wateree River was the principal means of hauling freight, primarily cotton, between Camden and Charleston and/or Georgetown, South Carolina during the mid-19th century. The most common vessels used were shallow-draft flat-bottomed boats, either towed or poled, and of varying sizes and shapes, that were brought down the Wateree and Santee Rivers, through the Santee Canal System to the coastal ports where their cargoes were typically transferred to schooners. These shallow draft boats of provided the primary type of maritime activity on the Wateree River during the 18th and 19th centuries. Log rafts were also brought down the Wateree River.

As an alternative, some merchants attempted to bring steamboats up the inland rivers of South Carolina to haul cargos down to the coastal ports. The first steamboat in the Wateree Basin attempted to operate between Charleston and Camden in 1835. However, poor navigational conditions and low water levels hindered these efforts from being commercially successful. Despite the setbacks, sporadic efforts to bring steamers up to Camden continued until about 1900 (Wittkowsky and Moselby 1923).

The U.S. Army Corps of Engineers initially became involved with the Wateree River in 1880 when Captain C.B. Phillips studied the river and concluded that trade on the river was confined to flats and rafts and "a light draft steamer…, engaged in purely local traffic." (U.S. Army 1880, p. 915). As stated previously, the Rivers and Harbors of 1881 provided for a four-foot-deep channel in the Wateree River from mouth up to Camden, a length of 67 miles. In 1883, the South Carolina Board of Agriculture reported that steamboats carrying 800 to 1,000 bales of cotton were transiting to and from Camden. By 1903 however, it was reported that there was no commerce annually carried in boats on the Wateree River, although a considerable number of sawmill logs were typically rafted and drifted downriver with the current (U.S Congress 1903)

Historically, the bulk of the commerce on the Wateree River was shipped downriver on flats, which typically made the trip downstream only, or poleboats , which could make the return trip upstream. Ubiquitous flats of every size were used on South Carolina rivers as cargo and passenger ferries. A description of the flat is discussed by Fleetwood:

> "The simplest were nothing more than shallow, rectangular boxes, while others on the lower river and coastal areas were ship-built of the best lumber, partially decked and rigged for sail. Their attraction was simplicity and economy of construction (they could be built by any house carpenter) coupled with the ability to carry prodigious amounts of cargo on a shallow draft. Much used in the rice industry, even a small flat had more capacity than more complex 'boat'-like craft" (Fleetwood, 1995: 91).

Pole boats, which primarily operated below the fall line on rivers, were slightly more streamlined than flats. Until the advent of steamboats, and the later widespread availability of railroad connections in the 1840s, poleboats carried almost all cargo bound upriver and were the only reliable method of inland long-range transport (Fleetwood 1995).

A wider variety of small, shallow-draft work boats were developed, built, and used throughout the coastal South Carolina region. These utilitarian workboats range from: dugouts, periagua, bateaux, flat-bottomed sloops, to small schooners. These shallow-draft vessels were all designed to navigate relatively shallow

water, while retaining the capacity to efficiently haul large amounts of cargo. They were used to haul various cargoes to market, ferry passengers and wagons, and conduct various types of fishing and crabbing operations. There are many common design features present in the various craft used in the South Carolina low country.

3.3 Archaeological Sites in the South Carolina State Database

Inspection of the South Carolina state archaeological site files at the Institute of Archaeology and Anthropology, University of South Carolina, confirmed that there are no documented underwater archaeological sites within this portion of the Wateree River/

3.4 Prior Underwater Archaeological Investigations in the Wateree River

There have not been any previous underwater archaeological investigations conducted in this portion of Wateree River.

4.0 SUBMERGED CULTURAL RESOURCES POTENTIAL

This chapter addresses in broad terms the potential for submerged cultural resources within the Wateree River APE.

4.1 Criteria of Evaluation

The information generated by these investigations was considered in terms of the criteria for evaluation outlined by the U.S. Department of the Interior, National Register Program. Nautical vessels and shipwreck sites, generally excepting reconstructions and reproductions, are considered historic if they are eligible for listing in the National Register of Historic Places (NRHP) at a local, regional, national, or international level of significance. To be eligible for the NRHP, a vessel or site "must be significant in American history, architecture, archaeology, engineering, or culture, and possess integrity of location, design, setting, materials, workmanship, feeling, and association." To be considered significant the vessel or site must meet one or more of four National Register criteria:

A. Association with events that have made a significant contribution to the broad patterns of our history; or

B. Association with the lives of persons significant in our past; or

C. Embodiment of the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Sites that have yielded, or may be likely to yield, information important in prehistory or history.

National Register of Historic Places Bulletin 20 clarifies the National Register review process regarding shipwrecks and other submerged cultural resources. Shipwrecks must meet at least one of the above criteria and retain integrity of location, design, settings, materials, workmanship, feelings and association. Determining the significance of a historic vessel depends on establishing whether the vessel is:

1. the sole, best, or a good representative of a specific vessel type; or

2. is associated with a significant designer or builder; or
3. was involved in important maritime trade, naval recreational, government, or commercial activities.

Properties which qualify for the NRHP, must have significance in one or more "Areas of Significance" that are listed in National Register Bulletin 16A. Although 29 specific categories are listed, only some are relevant to potential submerged cultural resources in the Wateree River environment. Architecture, commerce, engineering, industry, invention, maritime history and transportation are potentially applicable data categories for the type of submerged cultural resources that may be expected in the APE.

4.2 Potential Submerged Cultural Resources in the Wateree River

Potential underwater archaeological sites in the Wateree River would be submerged cultural resources associated with flat-bottomed boats, log rafts, canal boats, cotton-related commerce, and recreational/pleasure craft. One of the primary vessel types expected in these waters would be some form of a dug-out canoe, a flat, or a poleboat.

5.0 FIELDWORK INVESTIGATIONS

A comprehensive remote sensing survey was conducted in the Wateree River on 01 February 2022. The remote sensing survey collected magnetic and acoustic data across the entire APE. The purpose the survey was to locate, identify, and preliminarily assess the significance of potential submerged cultural resources that might be impacted by bridge construction activities. The underwater survey was designed to generate enough magnetic and acoustic remote sensing data to identify anomalies associated with submerged cultural resources. Analysis of the remote sensing data aimed to isolate targets of potential historical significance that might require further investigation or avoidance. In addition to the remote sensing survey, a visual examination of the two shorelines within the APE was conducted from the survey vessel.

5.1 Fieldwork Methods

Sonar, and magnetic survey operations were conducted simultaneously from a 20-foot long aluminum survey vessel (Plates 1-2). Sonar data were gathered with a *Klein* Model 3900 two-channel acoustic recorder with a dual 500/900 kHz side scan sensor. The sonar sensor was towed from the bow of the survey vessel and operated at a range of 150 feet in either channel which created a swath of acoustic coverage 300 feet wide on each survey lane. During follow up survey lanes across specific target locations, the range was decreased to 100 feet to provide more detail of that object. *Klein* data acquisition software was used to merge the acoustic data with real-time positioning data.

Magnetic data were collected with a *Geometrics 882* cesium marine magnetometer, capable of +/- 1/10 gamma resolution. A 10 Hz sampling rate by the magnetometer's towed sensor, coupled with a four-knot vessel speed generated a magnetic sample every 0.60 feet. Water depths in center portions of the river averaged around five feet and much of the survey area along the riverbanks was very shallow. Therefore, the magnetometer sensor was rigged off the bow of the survey vessel to allow for collecting magnetic data in shallow water environments.

Hypack, a laptop PC-based software package in conjunction with a Differential Global Positioning System (DGPS) onboard the survey vessel provided positioning accuracy for the survey area of +/- one foot. The computer converted positioning data from the DGPS to South Carolina State Plane Coordinates (int. feet) in real time. These X,Y coordinates were used to guide the survey vessel precisely along predetermined survey lines that had been established at 50-foot offsets, parallel with the shoreline and approximately perpendicular to the I-20 bridges. All magnetometer and side scan sonar offsets were established in *Hypack*. While surveying, vessel positions were continually updated on the computer monitor to assist the vessel

operator, and the processed X,Y data were continually logged on computer disk for post-processing and plotting (Figure 3).

5.2 Data Products - Side Scan Sonar

The side scan sonar derives its information from reflected acoustic energy. Side looking sonar, which transmits and receives swept high frequency bandwidth signals from transducers mounted on a sensor that is towed from a survey vessel. Two sets of transducers mounted in an array along both sides of the towfish generate the short duration acoustic pulses required for high resolution images. The pulses are emitted in a thin, fan-shaped pattern that spreads downward to either side of the towfish in a plane perpendicular to its path. As the fish is towed along the survey track line this acoustic beam sequentially scans the bottom from a point beneath the fish outward to each side of the track line.

Acoustic energy reflected from any bottom discontinuities (exposed pipelines, rocks, or other obstructions) is received by the set of transducers, amplified and transmitted to the survey vessel via a tow cable. The digital output from state of the art units is essentially analogous to a high angle oblique photograph provided detailed representations of bottom features and characteristics. Sonar allows display of positive relief (features extending above the bottom) and negative relief (such as depressions) in either light or dark opposing contrast modes on a video monitor. Examination of the images thus allows a determination of significant features and objects present on the bottom within a survey area.

Raw sonar records were inspected for potential man-made features and obstructions present on the bottom surface. Sonar data were saved in separate files for each survey lane. Individual acoustic data files were initially examined using Chesapeake Technology acoustic data review software to identify any unnatural or man-made features in the records. Once identified, acoustic features were described using visible length, width, and height from the bottom surface. Acoustic targets are normally defined according to their spatial extent, configuration, location and environmental context. Edited acoustic data were merged into a geo-referenced sonar mosaic of the survey area using a resolution of 0.5'/pixel. As a last step the mosaic was overlaid onto an aerial photograph of the survey area (Figures 4-5).

5.3 Data Products - Magnetometer

The magnetometer collected data on the ambient magnetic field strength by measuring the variation in cesium electron energy states. As the sensor passed over objects containing ferrous metal, a fluctuation in the earth's magnetic field was recorded. The fluctuation was measured in nanoteslas (nT) (gammas) and is proportional to the amount of ferrous metal contained in the sensed object and the distance from the sensor. The usefulness of magnetic data to identify signatures associated with potential submerged cultural resource in the APE was extremely limited due to the extreme background disturbances generated by the proximity to the existing twin I-20 Bridges.

Regardless of the major background disturbance, magnetic data were edited for analysis of any anomalies. During the editing process a magnetic contour map was created with 100-nT (or gamma) intervals for the survey area. Magnetic data editing consisted of using *Hypack's* single beam editing program to review raw data (of individual survey lines) and to delete any artificially induced noise or data spikes. Once all survey lines for the project area were edited, the processed data were converted to an XYZ file also using *Hypack* (easting, and northing coordinates, and magnetometer data – measured in nT). Next, the XYZ files were imported into a Triangular Irregular Network (TIN) modeling program in *Hypack*, that was used to contour the data in 100-nT intervals (Figure 6).

Evaluation of magnetic anomalies are typically analyzed according to several criteria: magnetic intensity (total distortion of the magnetic background measured in gammas); pulse duration (detectable signature

duration); signature characteristics (negative monopolar, positive monopolar, dipolar, or multi-component); and spatial extent (total area of disturbance).

5.4 Evaluation of Remote Sensing Targets

Target signatures were evaluated using the National Register of Historic Places (NRHP) criteria as a basis for the assessment. For example, although an historic object might produce a remote sensing target signature, it is unlikely that a single object (such as a historic anchor or cannon ball) has the potential to meet the criteria for nomination to the NRHP.

Target assessment was based primarily on the nature and characteristics of the acoustic and magnetic signatures. Shipwrecks – large or small – often have distinctive acoustic signatures, which are characterized by geometrical features typically found only in a floating craft. Most geometrical features identified on the bottom (in open water) are manmade objects. Often an acoustic signature will have an associated magnetic signature. Generally, if the acoustic signature demonstrates geometric forms or intersecting lines with some relief above the bottom surface and have a magnetic signature of any sort; it can be categorized as a potentially significant target. Often, modern debris near docks, bridges, or an anchorage is easily identified solely based on the characteristics of its acoustic signature. However, it is more common to find material partially exposed. Frequently, these objects produce a record that obviously indicates a man-made object, but the object is impossible to identify or date. Also in making an archaeological assessment of any sonar target, the history and modern use of the waterway must be taken into consideration. Naturally, historically active areas tend to have greater potential for submerged cultural resources. The assessment process prioritizes targets for further underwater archaeological investigations.

Magnetic target signatures alone are more difficult to assess. Without any supporting acoustic records, the type of the bottom sediments and the water currents become more important to the assessment process. A small, single-source magnetic signature has the least potential to be a significant cultural resource. Although it might represent a single historic object, this type of signature has limited potential to meet NRHP criteria.

A more complex magnetic anomaly, represented by a broad monopolar or dipolar type signature, has a greater potential to be a significant cultural resource, depending on bottom type. Shipwrecks that occur in areas where the river/creek bottom conditions are relatively firm with little migrating sand tend to remain at least partially exposed and are often visible on sonar records. A magnetic anomaly that is identified in such an area and has no associated acoustic signature frequently can be discounted as being a historic shipwreck. Most likely, such an anomaly is modern debris, such as wire rope, chain, discarded materials, or other ferrous material.

Soft migrating sand or mud can bury large wrecks, leaving little or no indication of their presence on the bottom surface (via sonar data). The types of magnetic signatures that a boat or ship might produce are infinite, because of the large number of variables including location, position, chemical environment, other metals, vessel type, cargo, sea state, etc. These variables are what determine the characteristics of every magnetic target signature. Since shipwrecks occur in a dynamic environment, many of the variables are subject to constant change. Thus, in making an assessment of a magnetic anomalies potential to represent a significant cultural resource, investigators must be circumspect in their predictions.

Broad, multi-component signatures (again, depending on bottom characteristics and other factors) often have the greatest potential to represent a shipwreck. On the other hand, high-intensity, multi-component, magnetic signatures (without an accompanying acoustic signature) in areas of relatively high velocity currents can be discounted as a historic resource. Eddies created by the high-velocity currents almost always keep some portion of a wreck exposed. Generally, wire rope or some other low-profile ferrous debris produces this type of signature in these circumstances. Many types of magnetic anomalies display

characteristics that are not easily interpreted. The only definitive method of determining the nature of the object creating these anomalies is by physical examination.

Typically, target locations with suspect cultural resource images on the sonar records coupled with associated and appropriate magnetic signatures are high probability targets.

5.5 Remote Sensing Findings

After the completion of the remote sensing survey, magnetometer and side scan sonar data sets were evaluated to determine the presence or absence of targets with characteristics suggestive of submerged cultural resources. Magnetometer data are normally contour plotted at five-gamma and/or 10-gamma intervals. However, the presence of the existing twin I-20 Bridges generated high levels of background magnetic disturbance directly under the bridges and adjacent to either side of the spans. Thus, survey data was contoured using 100-gamma intervals. Efforts were made to identify individual magnetic anomalies despite the background noise. Evaluation of magnetic anomalies are typically analyzed according to several criteria: magnetic intensity (total distortion of the magnetic background measured in gammas); pulse duration (detectable signature duration); signature characteristics (negative monopolar, positive monopolar, dipolar, or multi-component); and spatial extent (total area of disturbance). Sonar records were inspected for potential man-made features present on the bottom surface. All sonar targets were analyzed according to their spatial extent, configuration, location, and environmental context. After all fieldwork data were collected, magnetic data were correlated with sonar records to identify targets of potential significance (Figure 7). .

The project area featured intense variations in the magnetic background across the APE corridor due to the presence of bridge. However, no individual magnetic targets suggestive of submerged cultural resources were identified in the APE. Examination of the sonar data within the APE confirms the presence of numerous linear and oblong features on the river bottom under and near the twin bridges, but these features all appear to be debris- and tree-related. None of the individual bottom features that were identified on the sonar records appear to be associated with potentially significant submerged cultural resources. No potentially significant targets of any type were identified in the Wateree River APE.

No additional underwater archaeological investigations are recommended at the Wateree River APE, South Carolina.

5.6 Shoreline Investigation Findings

The visual inspection of the shoreline indicates the presence of rip rap stone on the descending right (west) shoreline between the twin I-20 Bridges. Since this shoreline is on the outside of a wide, sweeping turn in the river from the northeast to the southeast as it flows downstream, the rip rap was likely placed there to stabilize the shoreline and prevent erosion Otherwise, the shorelines were wooded with dirt/sand banks. Limited erosion in selected portions of the western shoreline has exposed rock and small boulders in the soil along those sections of the shorelines. No cultural features were identified on the shorelines during this visual investigation.

No additional underwater archaeological investigations are recommended at the APE in the Wateree River, South Carolina.

6.0 SUMMARY AND RECOMMENDATIONS

In conjunction with South Carolina Department of Transportation's proposed I-20 Bridge Replacement over the Wateree River, Kershaw County, South Carolina, Phase I Underwater Archaeological Investigations were conducted to assess the presence or absence of potential submerged cultural resources within the APE. The APE was a 300-foot-wide corridor, from shoreline to shoreline on either side of the existing I-20 Bridges that span the Wateree River, south of the town of Camden, South Carolina.

The underwater archaeological project tasks included limited background maritime historical research, magnetic and acoustic remote sensing, a low tide visual examination of the shoreline and report preparation. The goal of the underwater work was to determine the presence or absence of potential submerged cultural resource sites that might be affected by proposed bridge construction activities.

Analysis of fieldwork data confirms the presence of no potentially significant remote sensing targets in the APE were detected on the magnetic or acoustic (sonar) data sets. Due to the proximity of the two I-20 Bridge spans, magnetic data were not reliable here in deciphering remote sensing targets potentially associated with submerged cultural resources. Extensive magnetic disturbances from the existing bridges were recorded across the entire APE. There were no indications of potential submerged cultural resources identified on the side scan sonar records.

In addition to the remote sensing survey results, no visible signs of potential submerged cultural resources were recorded during the visual investigation of the two shorelines in the APE.

No additional underwater archaeological investigations are recommended for this location in the Wateree River, Kershaw County, South Carolina.

7.0 REFERENCES CONSULTED

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FIGURES

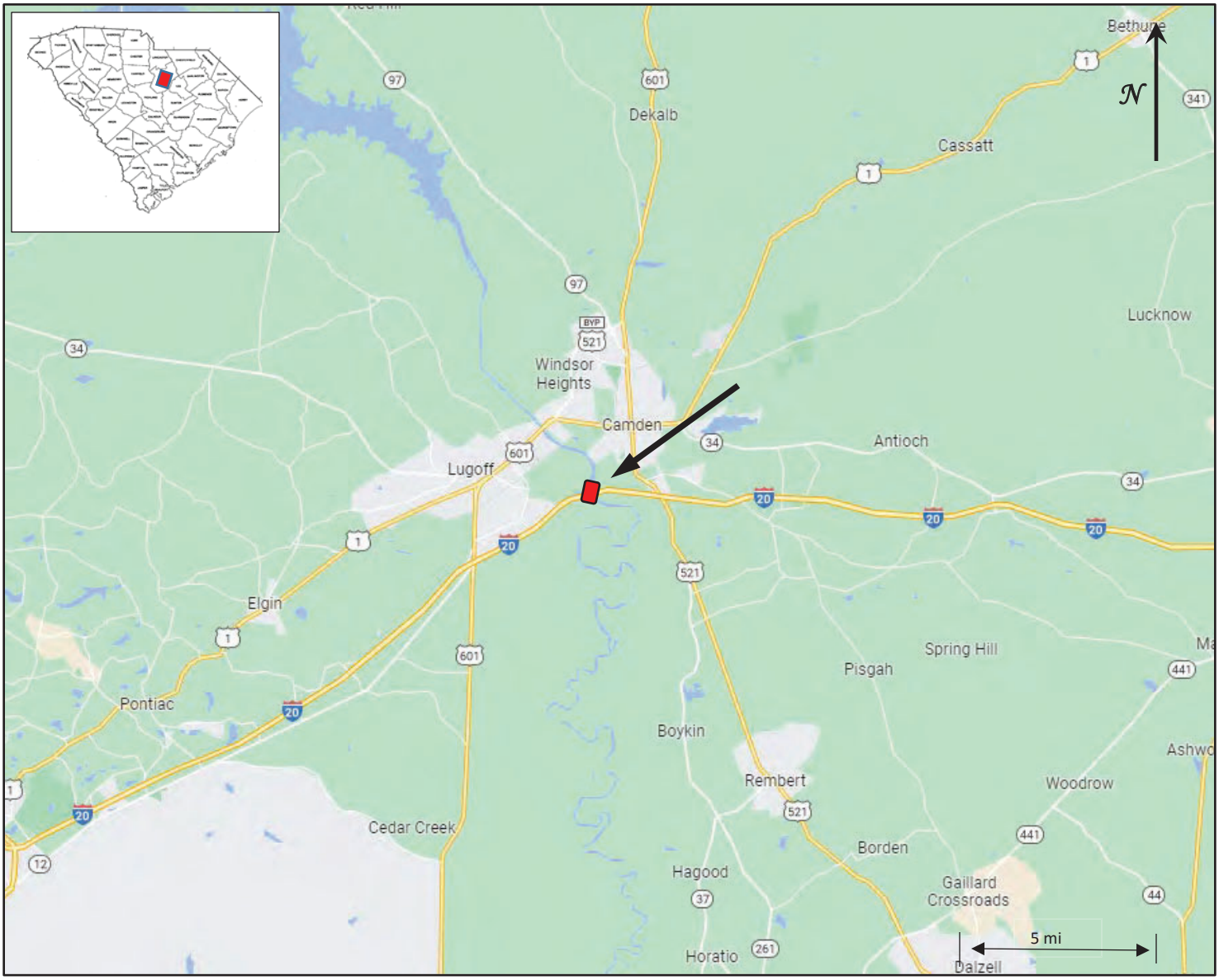


Figure 1. Wateree River Project Location on Google Map

Figure 2. Project Location overlaid on Google Earth, Kershaw County, South Carolina

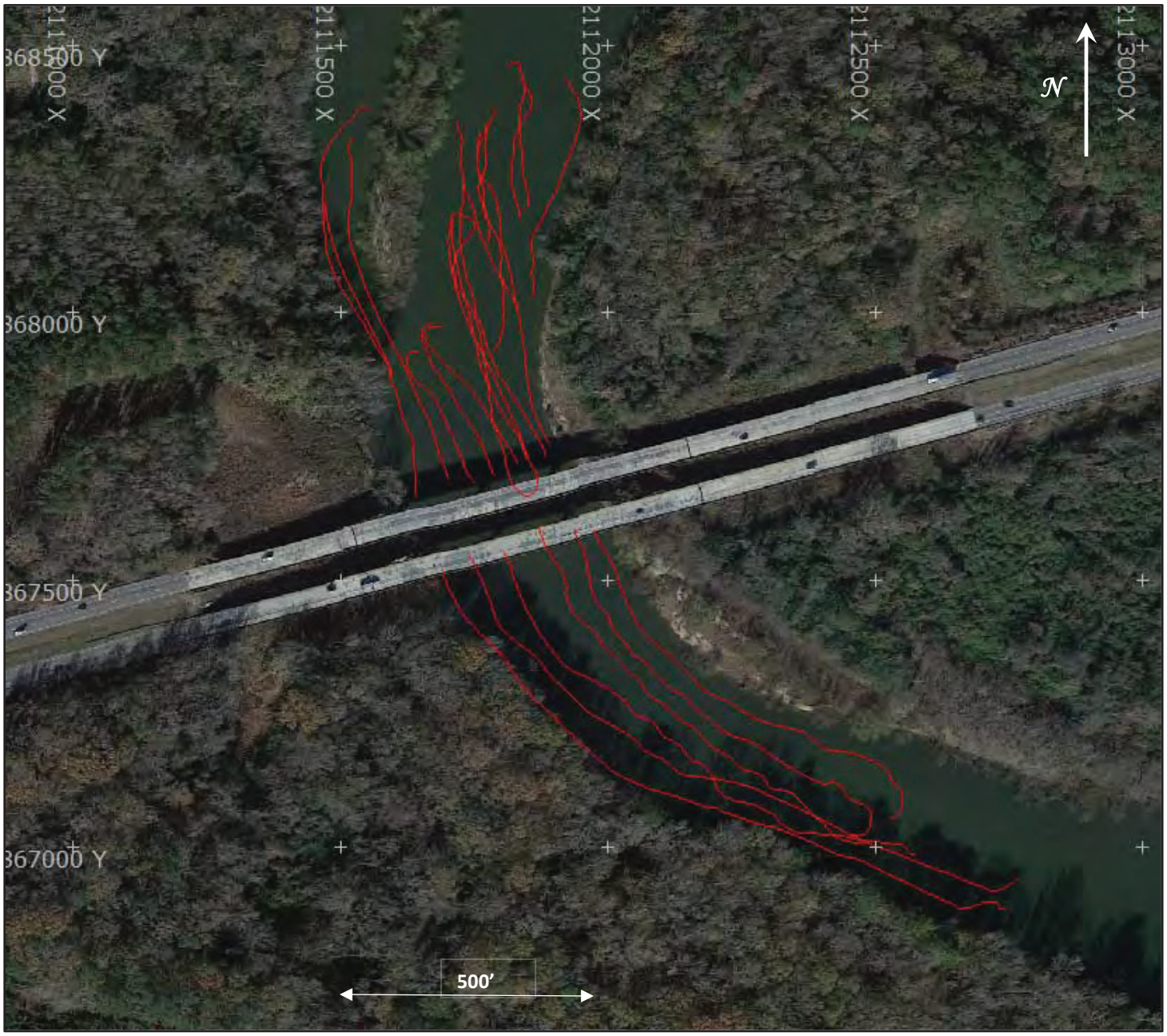


Figure 3. Survey Tracks, Wateree River Project Area

Notes: 1) Lane Spacing = 50 feet
2) Six full length survey lanes were completed perpendicular to bridge; additional lanes were completed on the upstream (north) side of the bridges
3) Background Grid = South Carolina State Plane Coordinates, NAD83, int. feet

Figure 4. Sonar Mosaic of Wateree River Creek Project Area overlaid on an Aerial Photograph

Notes: 1) Sonar Data were collected with a *Klein 3900* 500/900 kHz transducer using ranges of 100' and 150'
2) Background Grid = South Carolina State Plane Coordinates, NAD83, int. feet

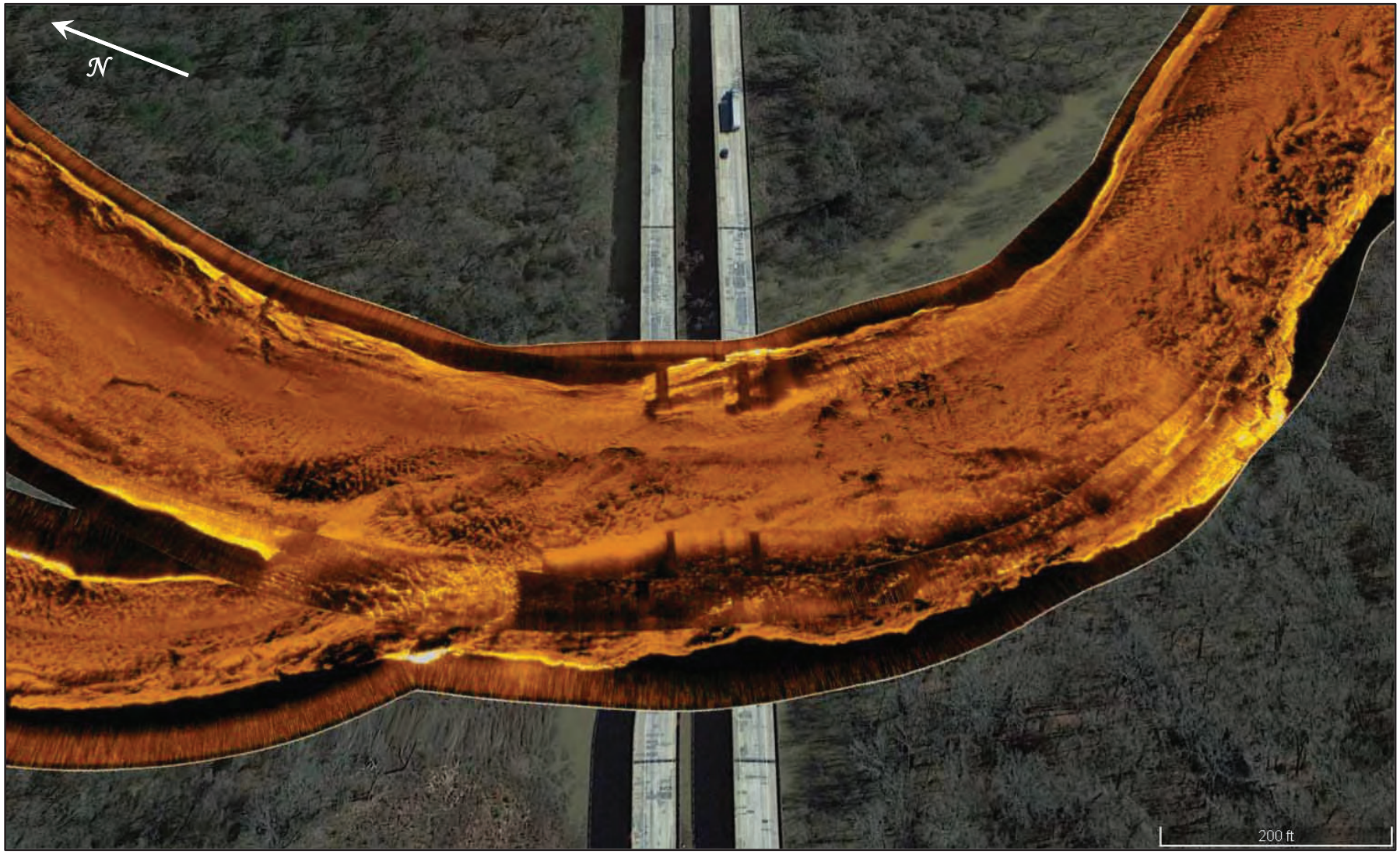


Figure 5. Detail of Sonar Mosaic of Wateree River Project Area overlaid on an Aerial Photograph

Note: No potentially significant sonar targets were identified in the APE.
)

Figure 6. Magnetic Contours at 100 nT (gamma) Intervals at Wateree River Project Area overlaid on an Aerial Photograph

Notes: 1) Contour Interval = 100 nT (gamma)
2) For contrasting purposes, contour lines are white
3) Intense magnetic background was generated by proximity to bridges
4) Background Grid = South Carolina State Plane Coordinates, NAD83, int. feet

Figure 7. Sonar Mosaic overlaid with Magnetic Contours at 100 nT (gamma) Intervals

Notes: 1) Magnetic Contour Interval = 100 nT (gamma)
2) Intense magnetic background was generated by proximity to bridges
3) Sonar Data were collected with a *Klein 3900* 500/900 kHz transducer using ranges of 100' and 150'
4) Background Grid = South Carolina State Plane Coordinates, NAD83, int. feet

PLATES

Plate 1. 20' Aluminum Survey Boat Outfitted with Remote Sensing Gear.
Photographer: Ralph Wilbanks; Date: February 01, 2022)

Plate 2. View Upstream from South Side of I-20 Bridges.
(Photographer: Ralph Wilbanks; Date: February 01, 2022)

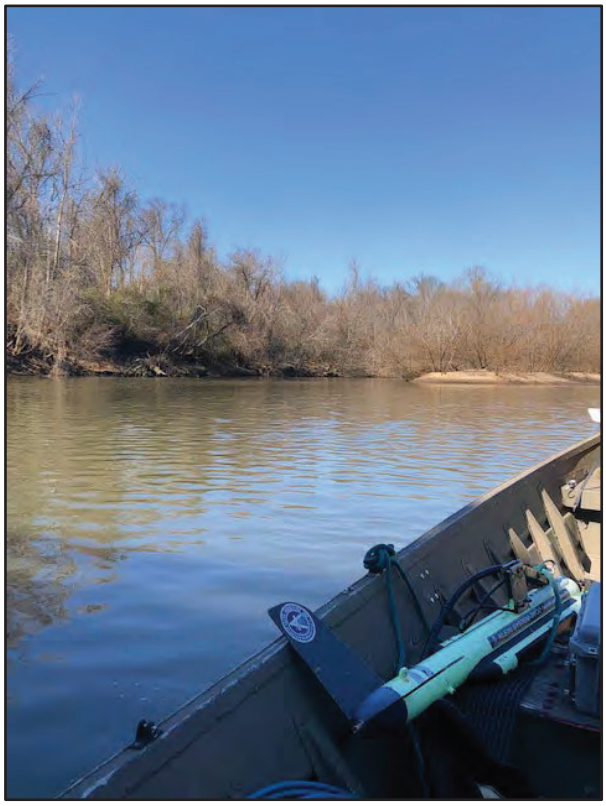


Plate 3. Wateree River Upstream of I-20 Bridges.
Photographer: Ralph Wilbanks; Date: February 01, 2022)

Plate 4. View of the Western Shoreline, Upstream of I-20 Bridges.
Photographer: Ralph Wilbanks; Date: February 01, 2022)

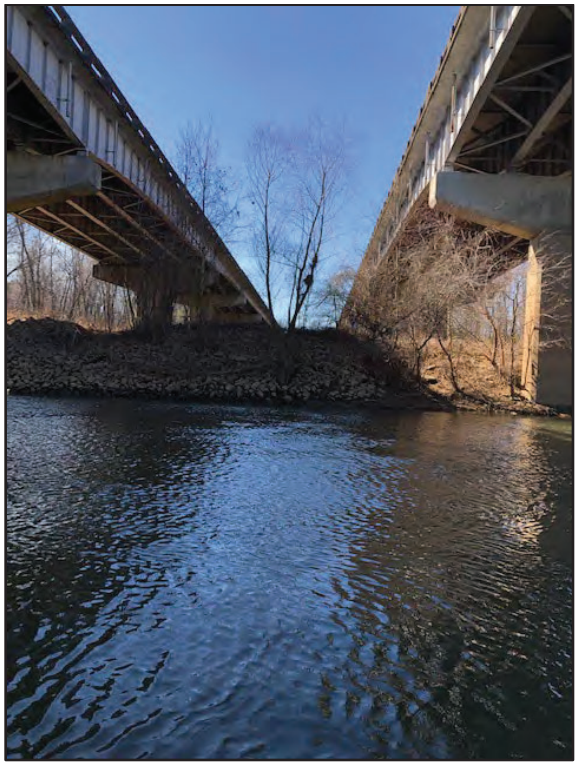


Plate 5. View of the Western Shoreline with rip-rap rocks between the I-20 Bridges.
Photographer: Ralph Wilbanks; Date: February 01, 2022)

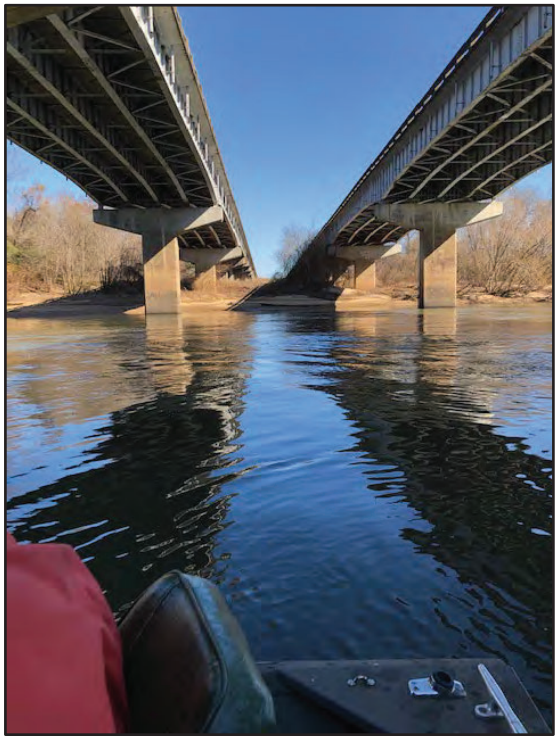


Plate 6. View of Eastern Shoreline Between the I-20 Bridges.
Photographer: Ralph Wilbanks; Date: February 01, 2022)

APPENDIX:

QUALIFICATIONS OF THE PRINCIPAL INVESTIGATOR

J. Lee Cox, Jr., owner of Dolan Research, Inc. served as the Principal Investigator. He directed the underwater archaeological investigation. Mr. Cox received a MA from East Carolina University in Maritime Research/Underwater Archaeology and a BA from Duke University in Archaeology. He meets or exceeds the standards for a principal investigator in archaeology as set forth in the Secretary of the Interior's Professional Qualifications Standards (36 CRF Part 61). He has been involved with over 150 different underwater archaeological projects over the last 32 years in 22 different states, Bermuda, Puerto Rico, Trinidad and Tobago, and Canada. He has authored over 100 reports and published seven articles and one book in conjunction with professional experience. He is a member of the Register of Professional Archaeologists (RPA).

APPENDIX D

JURISTICTIONAL AND PERMIT DETERMINATION

Date: 02/2/2022

PERMIT DETERMINATION

FROM Gordon Murphy COMPANY Three Oaks Engineering

CONTACT INFO (phone and/or email) (803) 447-0547 gordon.murphy@threeoaksengineering.com

SCDOT PROJECT ENGINEER Brooks Bickley

TO Will McGoldrick - RPG 1 Permits Coordinator

Project Description I-20 Bridge over Wateree River Replacement

Route or Road No. I-20 County Kershaw

CONST. PIN P029450 OTHER PINS or STRUCTURE # _____

RESPONSE:

◯ It has been determined that no permits are required because:

_____

◉ The following permit(s) is/are necessary:
(Please check which type(s) of permit the project will need)

USACE Permit ☑ GP ☐ IP ☑ 401 ☑ JD

OCRM Permit ☐ CAP ☐ CZC

Navigable ☑ SCDHEC NAVGP – if checked a USCG and/or USACE navigable permit may also be required, but will be determined during the NEPA and Permitting stages.

Other _____

Water Classification: FW *Print and attach the SCDHEC water quality report*

303(d) listed ◉ no ◯ yes, for * _____

TMDL developed ◉ no ◯ yes, for * _____

*List all that apply using the SCDHEC abbreviations

Comments: _____

_____

_____

The determination above was based on the most recently available information at the time. This is a preliminary determination and is subject to change if the design of the project is modified.

Gordon Murphy Digitally signed by Gordon Murphy Date: 2022.02.02 12:34:26 -05'00' 2/2/2022

Biologist, SCDOT/Consultant Date

Revised 03/2018

Healthy People Healthly Communities

Watershed and Water Quality Information

General Information

Applicant Name: SCDOT
Address: Location by map click
MS4 Designation: Not in designated area
Within Coastal Critical Area: No
Waterbody Name:

Permit Type: Construction
Latitude/Longitude: 34.217451 / -80.629199
Monitoring Station:
Water Classification (Provisional):
Entered Waterbody Name:

Parameter Description

NH3N	Ammonia	CD	Cadmium	CR	Chromium
CU	Copper	HG	Mercury	NI	Nickel
PB	Lead	ZN	Zinc	DO	Dissolved Oxygen
PH	pH	TURBIDITY	Turbidity	ECOLI	Escherichia coli (Freshwaters)
FC	Fecal Coliform (Shellfish)	BIO	Macroinvertebrates (Bio)	TP	(Lakes) Phosphorus
TN	(Lakes) Nitrogen	CHLA	(Lakes) Chlorophyll a	ENTERO	Enterococcus (Coastal Waters)
HGF	Mercury (Fish Tissue)	PCB	PCB (Fish)		

Impaired Status (downstream sites)

Station	

F = Standards full supported
N = Standards not supported
A = Assessed at upstream station
X = Parameter not assessed at station
WnTN = Within TMDL, parameter not supported
InTN = In TMDL, parameter not supported
WnTF = Within TMDL, parameter full supported
InTF = In TMDL, parameter full supported

Parameters to be addressed (those not supporting standards)

Fish Consumption Advisory

Waters of Concern (WOC)

TMDL Information - TMDL Parameters to be addressed

In TMDL Watershed: No
TMDL Report No:
TMDL Document Link:

TMDL Site:
TMDL Parameter:

Report Date: February 2, 2022

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, CHARLESTON DISTRICT
69A HAGOOD AVENUE
CHARLESTON, SC 29403-5107

April 12, 2022

Regulatory Division

Mr. Sean Connolly
South Carolina Dept. of Transportation
955 Park St., P.O. Box 191
Columbia, South Carolina 29201
ConnollyMS@scdot.org

Dear Mr. Connolly:

This is in response to your request for a preliminary jurisdictional determination (PJD) that is part of an overall project known as the SCDOT I-20 over the Wateree River Bridge Replacement project. Based on information submitted to the U.S. Army Corps of Engineers (Corps) we have determined there may be waters of the United States, including wetlands on your parcel located at the following:

Project Number:	SAC-2021-02101
County:	Kershaw County
Project/Site Size:	134.12 acres
Latitude:	34.213280°
Longitude:	-80.638262°
Project/Site Location:	Interstate 20 (I-20) across Wateree River
Waters (Acreage/Linear Feet):	Totals: 1,011 lf tributaries & 3.2 ac wetlands

A copy of the PJD form and the depictions, Delineated Features Index and Delineated Features Figure 1-4 of 4 entitled, "I-20 over Wateree River: Bridge Replacement Preliminary Jurisdictional Determination Kershaw County South Carolina", dated December 10, 2021, are enclosed. Please carefully read this form, then sign and return a copy to the project manager at the following Stephen.A.Brumagin@usace.army.mil within 30 days from the date of this notification.

Please be advised a Department of the Army permit will be required for regulated work in all areas which may be waters of the United States, as indicated in this PJD. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a PJD will treat all waters and wetlands, which would be affected in any way by the permitted activity on the site, as if they are jurisdictional waters of the United States. Should you desire an approved Corps determination, one will be issued upon request.

You are cautioned that work performed in areas which may be waters of the United States, as indicated in the PJD, without a Department of the Army permit could subject you to enforcement action.

The delineation included herein has been conducted to identify the location and extent of the aquatic resource boundaries and/or the jurisdictional status of aquatic resources for purposes of the Clean Water Act for the particular site identified in this request. This delineation and/or jurisdictional determination may not be valid for the Wetland Conservation Provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should discuss the applicability of a certified wetland determination with the local USDA service center, prior to starting work.

If you submit a permit application as a result of this PJD, include a copy of this letter and the depiction as part of the application. Not submitting the letter and depiction will cause a delay while we confirm a PJD was performed for the proposed permit project area. Note that some or all of these areas may be regulated by other state or local government entities, and you should contact the South Carolina Department of Health and Environmental Control, Bureau of Water, to determine the limits of their jurisdiction.

In all future correspondence, please refer to file number SAC-2021-02101. A copy of this letter is forwarded to State and/or Federal agencies for their information. If you have any questions, please contact me at (803) 253-3445, or by email at Stephen.A.Brumagin@usace.army.mil.

Sincerely,

Stephen A. Brumagin
Project Manager

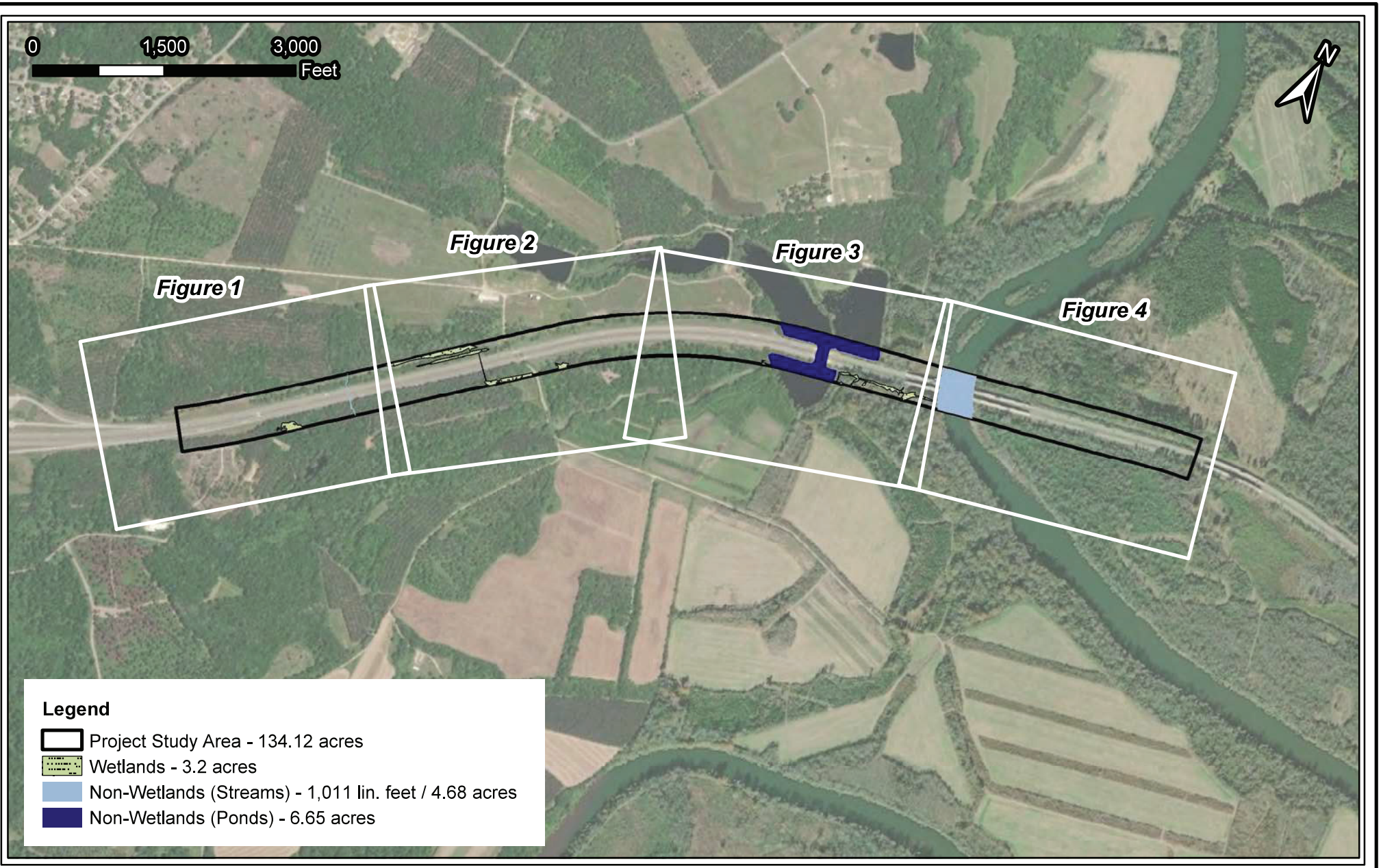
Enclosures:
Preliminary Jurisdictional Determination Form
Notification of Appeal Options
Delineated Features Index and Delineated Features Figure 1-4 of 4 entitled, “I-20 over Wateree River: Bridge Replacement Preliminary Jurisdictional Determination Kershaw County South Carolina”, dated December 10, 2021

Copies Furnished:

Mr. Will McGoldrick
South Carolina Department of Transportation
955 Park Street, P.O. Box 191
Columbia, South Carolina 29202
McgoldriWR@scdot.org

Mr. Wade Biltoft
Three Oaks Engineering
1022 State Street, Building 2
Cayce, South Carolina 29033
wade.biltoft@threeoaksengineering.com

SC DHEC - Bureau of Water
2600 Bull Street
Columbia, South Carolina 29201
WQCWetlands@dhec.sc.gov



THREE OAKS ENGINEERING

Prepared For:

SCDOT
South Carolina Department of Transportation

I-20 over Wateree River:
Bridge Replacement

Preliminary Jurisdictional Determination

Kershaw County, South Carolina

Date:	December 10, 2021
Scale:	1 in = 1,500 ft
Job No.:	21-003
Drawn By:	ZCB
Checked By:	WCB

Delineated Features

Index

Wetland	Area (acres)	Length (Linear Feet)	Latitude	Longitude
WI	1.26	N/A	34.210436	-80.647556
WL	0.37	N/A	34.206117	-80.651224
Non-Wetland (Stream)	**Area (acres)**	**Length (Linear Feet)**	**Latitude**	**Longitude**
SA	0.11	515	34.207825	-80.649813

THREE OAKS ENGINEERING

Prepared For:

SCDOT
South Carolina Department of Transportation

I-20 over Wateree River:

Bridge Replacement

Preliminary Jurisdictional Determination

Kershaw County, South Carolina

Date: December 10, 2021

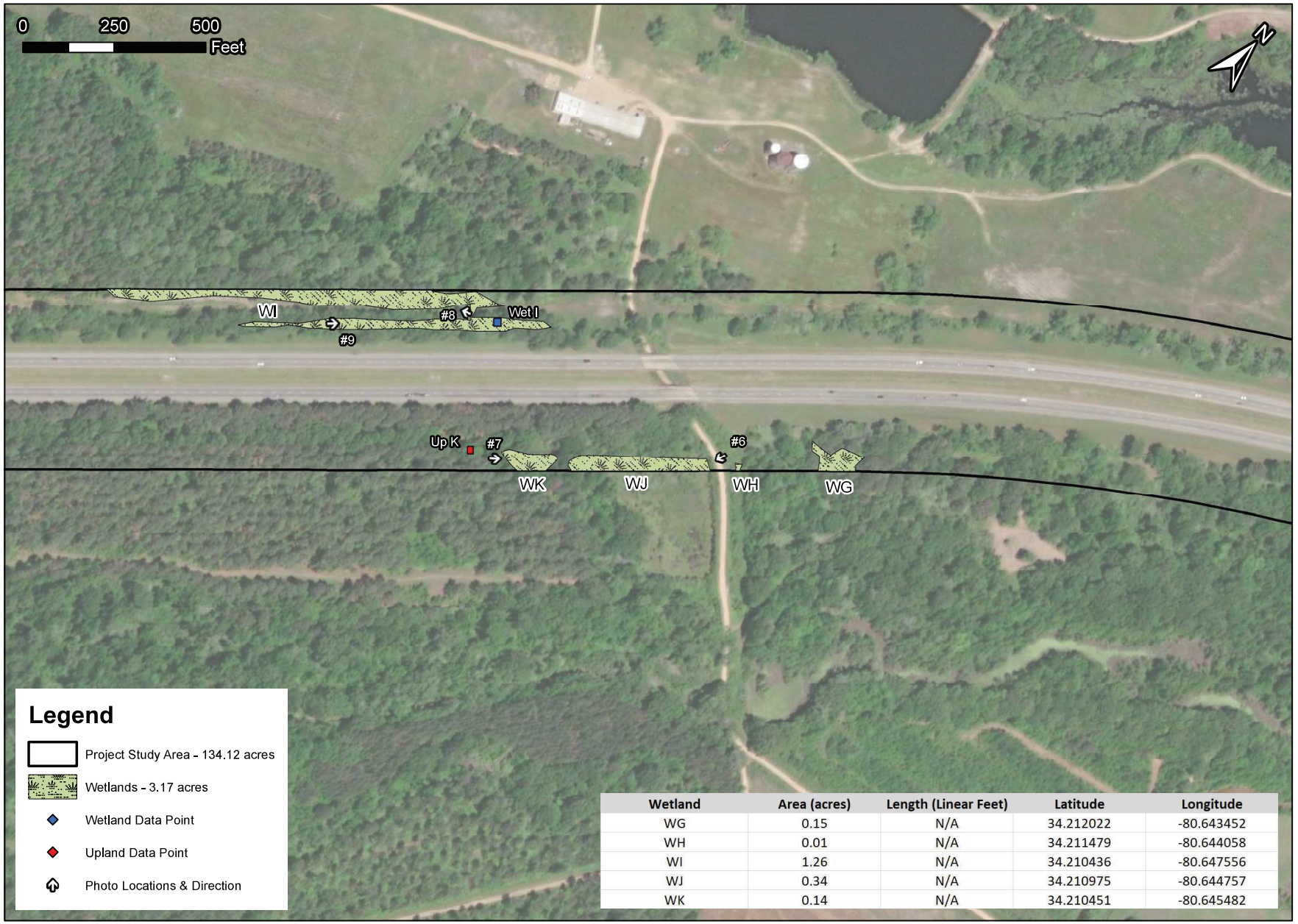
Scale: 1 inch = 250 feet

Job No.: 21-003

Drawn By: ZCB | Checked By: WCB

Delineated Features

Figure 1 of 4



Legend

- Project Study Area - 134.12 acres
- Wetlands - 3.17 acres
- Wetland Data Point
- Upland Data Point
- Photo Locations & Direction

Wetland	Area (acres)	Length (Linear Feet)	Latitude	Longitude
WG	0.15	N/A	34.212022	-80.643452
WH	0.01	N/A	34.211479	-80.644058
WI	1.26	N/A	34.210436	-80.647556
WJ	0.34	N/A	34.210975	-80.644757
WK	0.14	N/A	34.210451	-80.645482

THREE OAKS ENGINEERING

Prepared For:

SCDOT
South Carolina Department of Transportation

I-20 over Wateree River:

Bridge Replacement

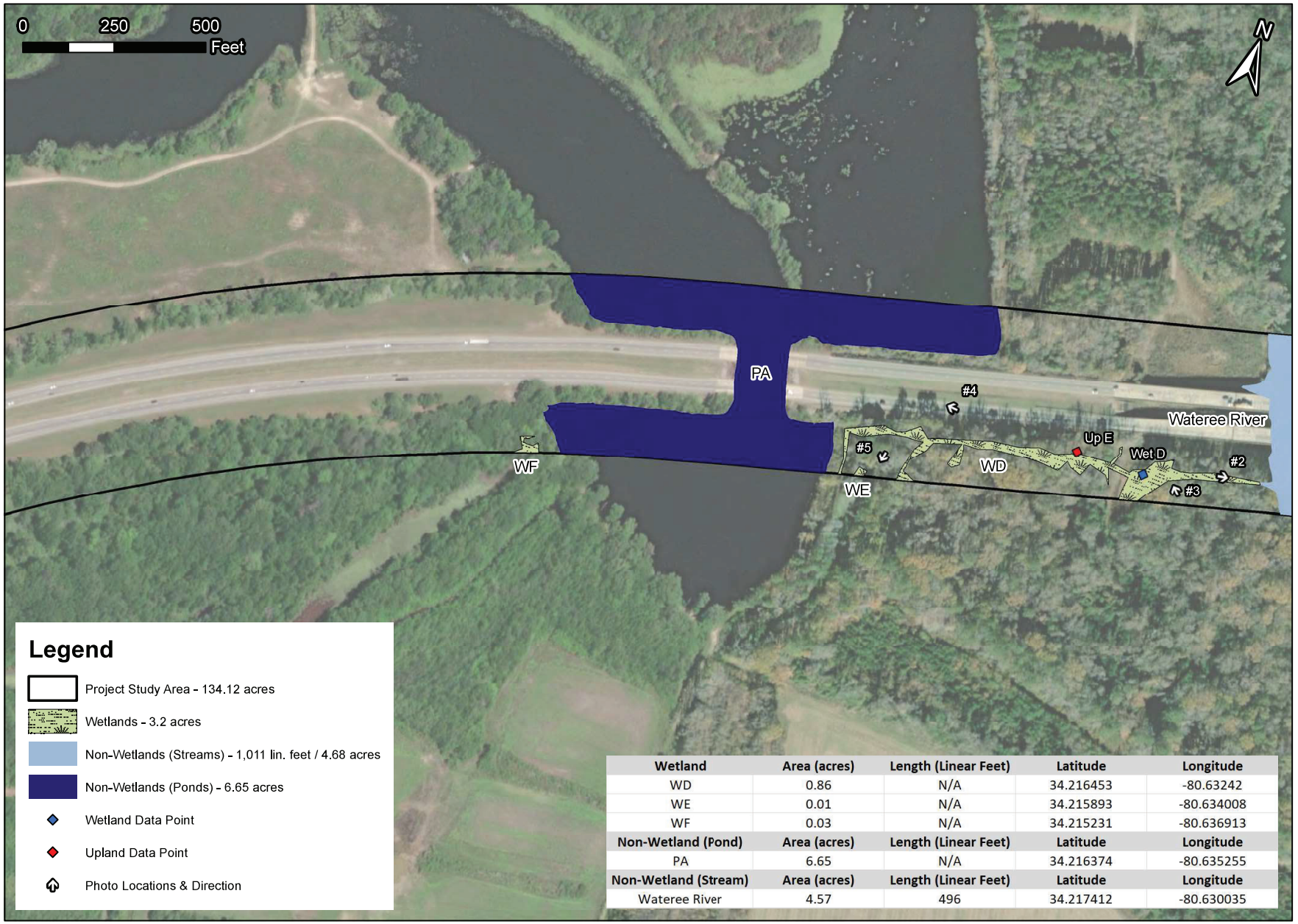
Preliminary Jurisdictional Determination

Kershaw County, South Carolina

Date:	December 10, 2021
Scale:	1 inch = 250 feet
Job No.:	21-003
Drawn By:	ZCB
Checked By:	WCB

Delineated Features

Figure 2 of 4



Legend

- Project Study Area - 134.12 acres
- Wetlands - 3.2 acres
- Non-Wetlands (Streams) - 1,011 lin. feet / 4.68 acres
- Non-Wetlands (Ponds) - 6.65 acres
- Wetland Data Point
- Upland Data Point
- Photo Locations & Direction

Wetland	Area (acres)	Length (Linear Feet)	Latitude	Longitude
WD	0.86	N/A	34.216453	-80.63242
WE	0.01	N/A	34.215893	-80.634008
WF	0.03	N/A	34.215231	-80.636913
Non-Wetland (Pond)	**Area (acres)**	**Length (Linear Feet)**	**Latitude**	**Longitude**
PA	6.65	N/A	34.216374	-80.635255
Non-Wetland (Stream)	**Area (acres)**	**Length (Linear Feet)**	**Latitude**	**Longitude**
Wateree River	4.57	496	34.217412	-80.630035

THREE OAKS ENGINEERING

Prepared For:

SCDOT
South Carolina Department of Transportation

I-20 over Wateree River:

Bridge Replacement

Preliminary Jurisdictional Determination

Kershaw County, South Carolina

Date: December 10, 2021

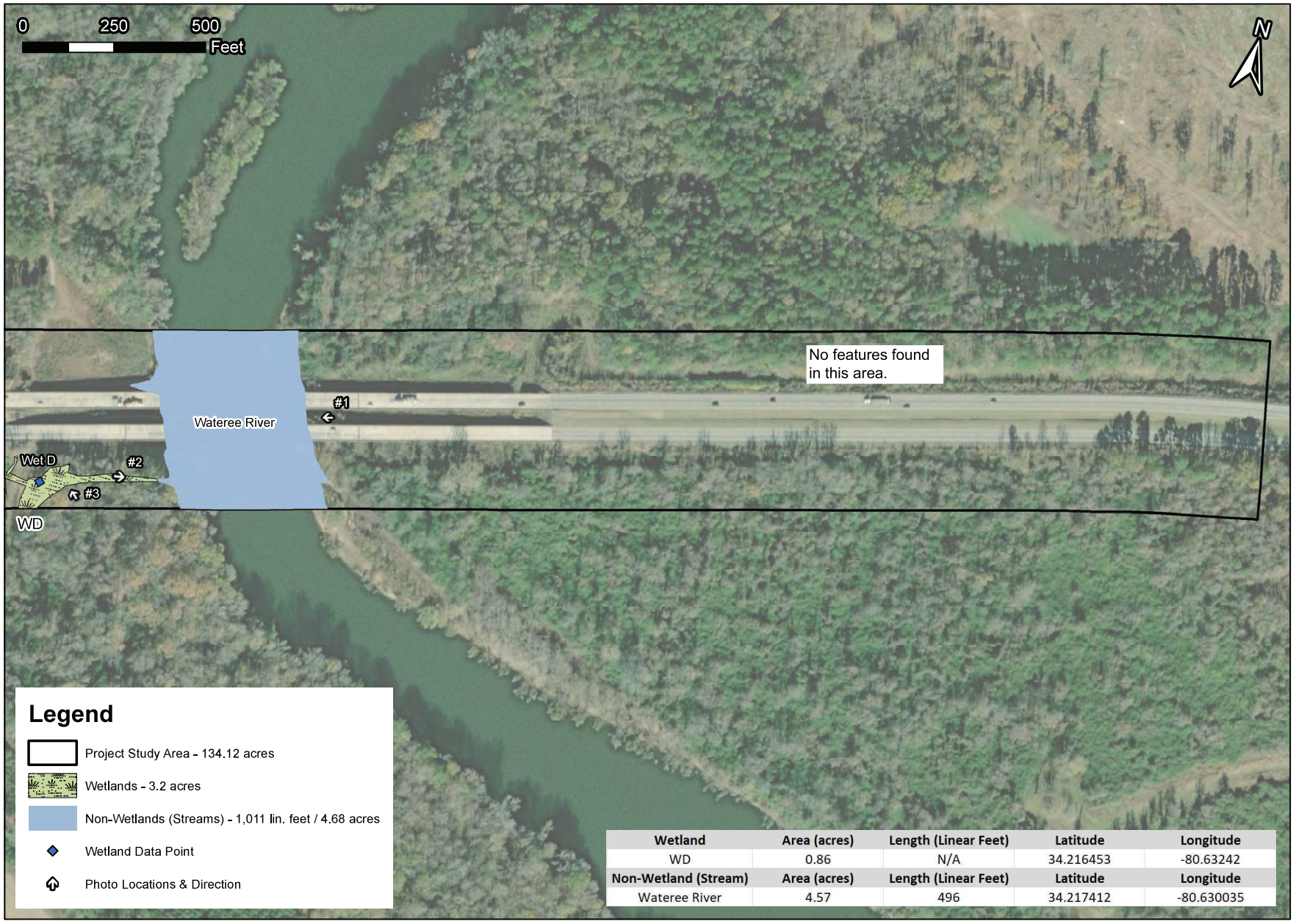
Scale: 1 inch = 250 feet

Job No.: 21-003

Drawn By: ZCB | Checked By: WCB

Delineated Features

Figure 3 of 4



Legend

- Project Study Area - 134.12 acres
- Wetlands - 3.2 acres
- Non-Wetlands (Streams) - 1,011 lin. feet / 4.68 acres
- Wetland Data Point
- Photo Locations & Direction

Wetland	Area (acres)	Length (Linear Feet)	Latitude	Longitude
WD	0.86	N/A	34.216453	-80.63242
Non-Wetland (Stream)	**Area (acres)**	**Length (Linear Feet)**	**Latitude**	**Longitude**
Wateree River	4.57	496	34.217412	-80.630035

THREE OAKS ENGINEERING · THREE OAKS ENGINEERING

Prepared For:

SCDOT
South Carolina Department of Transportation

I-20 over Wateree River:

Bridge Replacement

Preliminary Jurisdictional Determination

Kershaw County, South Carolina

Date:	December 10, 2021
Scale:	1 inch = 250 feet
Job No.:	21-003
Drawn By: ZCB	Checked By: WCB

Delineated Features

Figure 4 of 4

APPENDIX E

U.S. COAST GUARD PERMIT EXCLUSION

U.S. Department of Homeland Security
United States Coast Guard

Commander
United States Coast Guard
Seventh District

909 SE 1st Ave. (Rm432)
Miami, Fl 33131
Staff Symbol: (dpb)
Phone: 305-415-6766
Fax: 305-415-6763
Email: Martin.A.Bridges@uscg.mil

16591/FL
January 10, 2022

Mr. J. Shane Belcher
Lead Environmental Specialist
Federal Highway Administration
1835 Assembly Street, Suite 1270
Columbia, SC 29201

Delivered via e-mail: Jeffrey.Belcher@dot.gov

Dear Mr. Belcher,

This letter is in response to your email dated January 5, 2022, concerning the replacement bridge project across Wateree River in Kershaw County, SC. This letter reaffirms the project location on Wateree River is non-jurisdictional for Coast Guard Bridge permitting purposes. A Coast Guard bridge permit will not be required for the proposed bridge project.

This determination finds the waterway at the proposed bridge crossing is cut off from navigation due to a water control structure and therefore is not subject to natural tidal influence; is not used, either by itself, or in connection with other waterways, for substantial interstate or foreign commerce; and is not susceptible to such use, either in its natural condition or by reasonable improvement.

If you have any further questions, please contact Mr. Marty Bridges at the above listed address or telephone number.

Sincerely,

RANDALL D. OVERTON, MPA
Director, District Bridge Program
U.S. Coast Guard
By Direction

U.S.Department of Transportation
Federal Highway Administration

Assessment and Response Checklist and Flowchart for Applying 23 U.S.C. § 144(c)(2) exceptions to Coast Guard Bridge Permits

INSTRUCTIONS FOR USE

This form provides the process for FHWA's preliminary determination to make an exception under 23 U.S.C. § 144(c)(2) to Coast Guard bridge permitting authorities. It is recommended that State DOT and/or FHWA division offices complete this form.

Section V of the 2014 USCG-FHWA Memorandum of Agreement (MOA) provides that FHWA makes the preliminary exception determination, followed by Coast Guard review to identify issues or concerns with FHWA's preliminary determination. The preliminary determination shall be made at an early stage of project development (as soon as the information is available to the applicant) so that coordination with the local Coast Guard District Bridge Office (DBO) can be accomplished before or during environmental processing (23 CFR Part 650.805(a)).

If the DBO identifies issues or concerns with the determination of the FHWA Division Office, he/she will identify the area of concern by marking the appropriate answer in the **"DBO Concerns"** areas included in this checklist. The DBO will also include written comments **"DBO Comments"** and supporting documentation with this form and return it to the FHWA Division Office. Any disputes resulting from this exception determination process will be resolved in accordance with the Dispute Resolution Section of the 2014 USCG-FHWA MOA.

When both the DBO and FHWA Division Office agree that a 23 U.S.C. 144(c)(2) exception applies to a project, the DBO will provide written concurrence to the FHWA division office. In addition, the DBO will identify if the proposed bridge will require the establishment, maintenance, and operation of lights and signals as required by 14 U.S.C. § 85 and 33 CFR Part 118 at that time.

The use of 23 U.S.C. § 144(c)(2) exceptions cannot be delegated to state transportation agencies as part of a NEPA assignment agreement.

1. Name of waterway:

   Wateree River

2. Has the waterway at the project location determined to be navigable waters of the United States per 33 CFR Part 2.36?

   ☐ Yes ☒ No ☐ Do Not Know

   (If "**No**", then no USCG jurisdiction. If you do not know, contact DBO for confirmation of waterway status.)

3. At proposed site, mileage along waterway measured from mouth or confluence:

   70 miles to Congaree River and 180 miles to Atlantic Ocean

4. Waterway is a tributary of Congaree River at mile 70 (if applicable).

Assessment and Response Checklist and Flowchart for Applying 23 U.S.C. § 144(c)(2) exceptions to Coast Guard Bridge Permits

Geographical location (city, state, county): Kershaw County, SC

5. Lat-Long coordinates (if known, as precise as possible):
   a. Latitude: 34 13 02.78 (N) (Example: 40° 48' 3.49" N)
   b. Longitude: 80 37 46.83 (W) (Example: -73° 47' 16.19" W)
6. Is there an existing bridge at, or near the above location?

☒ Yes ☐ No (if **"Yes"** please answer questions 7a-7b)

   a. Does this bridge have a USCG or Army Corps of Engineers permit?

☐ Yes ☒ No ☐ Do Not Know

   b. Please provide vertical and horizontal clearances at:

☐ Normal Pool ☐ Mean High Water ☒ Ordinary High Water

Vertical: 34 (feet)

Horizontal: 146.25 (feet) Datum: NAD 83

7. Is the waterway tidal (As defined by the process outlined on pages 7-8)?

☐ Yes ☒ No **DBO Concerns** ☐ **Yes** ☒ **No**

DBO Comments: No Comments

8. Is the waterway used by recreational, fishing or other vessels greater than 21 feet in length?

☐ Yes ☒ No **DBO Concerns** ☐ **Yes** ☒ **No**

DBO Comments: No Comments

9. Is the waterway used to transport interstate or foreign commerce? (If **Yes**, permit might be required)

☐ Yes ☒ No ☐ Do Not Know **DBO Concerns** ☐ **Yes** ☒ **No**

DBO Comments: No Comments

10. Is the waterway susceptible for use in its natural condition or by reasonable improvement as a means to transport interstate or foreign commerce? (If **Yes,** permit might be required)

☐ Yes ☒ No **DBO Concerns** ☐ **Yes** ☒ **No**

DBO Comments: No Comments

11. Are there any Army Corps of Engineers permitted structures (piers, docks, dams,

powerlines) on the waterway? [1] (contact USCG and/or Army Corps of Engineers to verify] (if **yes**, please attach document with names + locations (mile #))

☐ Yes ☒ No ☐ Do Not Know **DBO Concerns** ☐ **Yes** ☒ **No**

DBO Comments: No Comments

Waterway information at proposed bridge site (if available/applicable)

12. Water depth at high tide (ft):

    NA

13. Water depth at normal pool (ft):

    20

14. Water depth at MLW or MLLW (ft):

    NA

15. Tidal range MHW to MLW or MHHW to MLLW (ft):

    NA

16. Datum used for depths:

    NAD 83

[1] This question seeks to determine whether the Army Corps of Engineers has asserted jurisdiction over the waterway or reach thereof by the issuance of a Jurisdictional Determination, or the issuance of permits of any type including those for structures under Section 10 of the Rivers and Harbors Act (33 U.S.C. § 403), or through any other USACE permitting authority including the Clean Water Act § 404.

Assessment and Response Checklist and Flowchart for Applying 23 U.S.C. § 144(c)(2) exceptions to Coast Guard Bridge Permits

Additional Documentation

Please include the following information when submitting to the DBO:

☒ Location Map (8 ½" x 11")

☒ Photo of existing bridge (if any) or proposed bridge location taken from the prospective of the waterway

NEXT STEP:

When both the DBO and FHWA Division Office agree that the 144(c)(2) exception applies to a project, the DBO will write a letter to that effect to the FHWA Division Office, attaching the completed checklist. In addition, in that letter the DBO will identify if the proposed bridge will require the establishment, maintenance, and operation of lights and signals as required by 14 U.S.C. § 85 and 33 CFR Part 118.

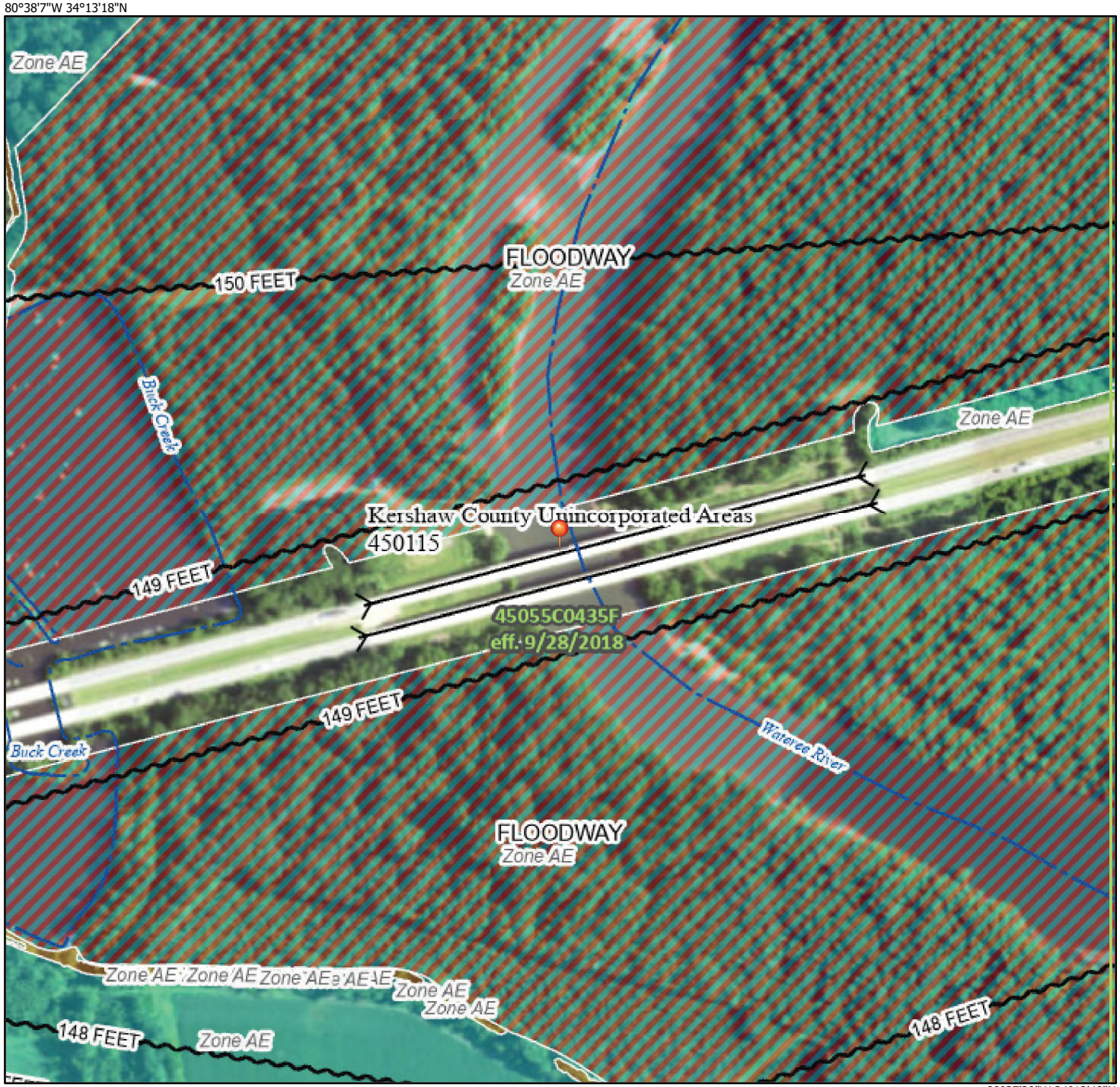
APPENDIX F

FLOODPLAINS

National Flood Hazard Layer FIRMette

FEMA

80°38'7"W 34°13'18"N



80°37'30"W 34°12'48"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/12/2022 at 9:14 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

South Carolina Department of Transportation
Location and Hydraulic Design of Encroachments on Floodplains Checklist

23 CFR 650, this regulation shall apply to all encroachments and to all actions which affect base floodplains, except for repairs made with emergency funds. Note: These studies shall be summarized in the environmental review documents prepared pursuant to 23 CFR 771.

I. PROJECT DESCRIPTION

I-20 over Wateree River Bridge Replacement

The South Carolina Department of Transportation (SCDOT) proposes to replace the existing I-20 bridges (eastbound and westbound) over the Wateree River in Kershaw County, South Carolina.

The project study area includes regulatory floodway Zones AE and X (FIRM 45055C0453F, eff. 9/28/2018).

A. Narrative Describing Purpose and Need for Project
   a. Relevant Project History:
   b. General Project Description and Nature of Work (attach Location and Project Map):
   c. Major Issues and Concerns:

Purpose and Need: The purpose of the proposed project is to replace the structurally deficient bridges on I-20 over the Wateree River. The bridges, which were constructed in 1970, are classified as structurally deficient and have a sufficiency rating of 30.6.

Nature of Work:
The project includes relacing the existing bridge structures and improving the roadway approaches to meet current design standards. The project will include construction of a temporary bridge to maintain traffic on I-20, construction of new bridge bents and superstructures, and demolition and removal of the existing bridges. The existing bridges are 1,500 feet long, and the new bridges will be 1,515 feet long with a navigational clearance of 34 feet above ordinary high water.

B. Are there any floodplain(s) regulated by FEMA located in the project area?
   Yes☒ No☐

C. Will the placing of fill occur within a 100-year floodplain?
   Yes☒ No☐

D. Will the existing profile grade be raised within the floodplain?

The I-20 grade will be raised at the Wateree River Bridge crossing to meet the proposed bridge minimum low chord elevation for the proposed structure type. Efforts were taken to minimize raise of grade as practicable.

E. If applicable, please discuss the practicability of alternatives to any longitudinal encroachments.

None. Bridge needed to be replaced due to structural deficiency. Option of replacing the bridges in place is the least impactful alternative.

F. Please include a discussion of the following: commensurate with the significance of the risk or environmental impact for all alternatives containing encroachments and those actions which would support base floodplain development:

a. What are the risks associated with implementation of the action?

Minimal floodplain impact. The bridge replacement was modeled in HecRas using the FEMA effective model and the results of the analysis show a no-impact condition.

b. What are the impacts on the natural and beneficial floodplain values?

Minimal impacts to the surrounding floodplains offset from the toe of the existing roadway embankment due to sliver fills from the proposed roadway grade raise.

c. What measures were used to minimize floodplain impacts associated with the action?

Minimize proposed grade raise, use of 2:1 fill slopes, avoidance of impacting existing sloping abutments and guidebanks, and reduction in number of bridge piers.

d. Were any measures used to restore and preserve the natural and beneficial floodplain values impacted by the action?

Minimized impacts as practicable. Reduction of bridge piers will allow more floodplain area under bridges.

G. Please discuss the practicability of alternatives to any significant encroachments or any support of incompatible floodplain development.

Bridge needed to be replaced due to structural deficiency. Option of replacing the bridges in place is the least impactful alternative.

H. Were local, state, and federal water resources and floodplain management agencies consulted to determine if the proposed highway action is consistent with existing watershed and floodplain management programs and to obtain current information on development and proposed actions in the affected? Please include agency documentation.

This is an SCDOT project, so there is state involvement. The bridge replacement was modeled in HecRas using the FEMA effective model and the results of the analysis show a no-impact condition. Final design build team will need to coordinate with FEMA for review and approval.

DocuSigned by:
Jason Lawing
B53ABA2D65E1407...

Hydraulic Engineer

2/4/2022

Date

APPENDIX G

BIOLOGICAL EVALUATIONS

BIOLOGICAL EVALUATION FOR THE US FISH AND WILDLIFE SERVICE

I-20 BRIDGE OVER THE WATEREE RIVER BRIDGE REPLACEMENT

KERSHAW COUNTY, SC

SCDOT PIN - P029450

Prepared For:

Prepared By:

Prepared on behalf of:

March 29, 2022

TABLE OF CONTENTS

SECTION 1.0 INTRODUCTION

The South Carolina Department of Transportation (SCDOT) proposes to replace the eastbound and westbound bridges on I-20 over the Wateree River in Kershaw County (see Appendix A Figure 1). The project includes replacing the existing bridge structures and improving the roadway approaches to meet current design standards. The new bridges will be built in phases to maintain traffic in both directions on I-20 for the duration of construction. The project study area (PSA) extends approximately from mile marker (MM) 94.05 (3,137 feet south of the twin bridges over Swamp Road) to approximately 2,600 feet east of the banks of the Wateree River. The PSA is approximately 2.3 miles long and 500 feet wide centered on the I-20 centerline. The PSA encompasses approximately 139 acres, much of which is on the Federal Emergency Management Agency (FEMA) designated floodplain of the Wateree River.

The proposed project will result in modifications to the human and natural environment. As the lead federal agency, the Federal Highway Administration (FHWA) is responsible for the Categorical Exclusion (CE) according to the provisions of the National Environmental Policy Act (NEPA) and corresponding regulations and guidelines (23 Code of Federal Regulations [CFR] 771 and 40 CFR 1500–1508A). As required by the NEPA process, as well as Section 7 of the Endangered Species Act of 1973 as amended, potential effects to federally protected species must be evaluated. The purpose of this Biological Evaluation (BE) is to identify the presence, or potential presence, and document potential project related effects to federally protected species known to occur in Kershaw County, within or adjacent to the construction footprint of the project.

An early coordination meeting was conducted with National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) and SCDOT on June 7, 2021, to discuss the status of Shortnose sturgeon in the Wateree River. A separate BE was submitted to NMFS on January 24, 2022 to address potential effects to Shortnose sturgeon.

SECTION 2.0 FEDERALLY LISTED SPECIES AND CRITICAL HABITAT

Listed animals are protected from "take" and being traded or sold. A "take" is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct." Listed plants are protected if they are located on federal lands or if federal actions are involved, including federal permits. Section 7 of the Endangered Species Act (ESA) does not provide protections for the Candidate/At-Risk species; however, they are listed in Table 1 in the event their status changes prior to completion of the project. Additionally, species that are proposed for listing are not subject to Section 7 compliance until they are formally listed. However, it is usually prudent to assess potential effects to these species with an Interagency Conference under Section 7 of the ESA (50 CFR § 402.10). Bald eagles are protected by the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA) and are also addressed in this evaluation. Anadromous fish protected by the ESA fall under the jurisdiction of NMFS. In addition to species protected under the ESA and BGEPA, project biologists routinely inspect bridges and box culverts for evidence of the presence of other migratory birds, such as swallows.

The protected species county list was obtained from the US Fish and Wildlife Service (USFWS) Charleston Field Office website and dated March 15, 2022 (USFWS 2022, Appendix B.) Threatened and endangered species known to occur in Kershaw County are presented in Table 1. There is no designated critical habitat in the PSA.

Table 1
Kershaw County Federally Protected Species

Common Name	Federal Protection Status	Scientific Name
Birds		
Bald eagle	BGEPA	*Haliaeetus leucocephalus*
Red-cockaded woodpecker	Threatened	*Picoides borealis*
Fish		
Robust redhorse	At-Risk-Species	*Moxostoma robustum*
Shortnose sturgeon*	Endangered	*Acipenser brevirostrum*
Insects		
Monarch butterfly	Candidate	*Danaus plexippus*
Mammals		
Tri-colored bat	At-Risk-Species	*Perimyotis subflavus*
Mollusks		
Carolina heelsplitter	Endangered	*Lasmigona decorata*
Plants		
Carolina-birds-in-a-nest	At-Risk-Species	*Macbridea caroliniana*
Georgia aster	At-Risk-Species	*Symphyotricum georgianum*
Michaux's sumac	Endangered	*Rhus michauxii*
Wire-leaved dropseed	At-Risk-Species	*Sporobolus teretifolius*

**Species under the jurisdiction of NMFS*

The following sections describe protected species known to occur in Kershaw County.

2.1 Birds

Bald eagle (Haliaeetus leucocephalus) – BGEPA

Photo by Steven Mlodinow (Macaulay Library)

Bald eagles are large raptors (6-foot wingspan) which are mottled brown and white until they reach maturity at four to five years old when they develop a brown body with a white head and tail. They primarily feed on fish, but also feed on waterfowl, and carrion. When prime food options are absent, they will also eat small terrestrial animals. They hunt by sight and are often seen soaring or perched high in a tree near water. Fresh, brackish and marine habitats provide suitable foraging sites and include open water, marsh and riverine types. Prime habitats are characterized by having shallow, slow moving water with abundant fish and waterfowl (SCDNR 2015a). It nests in canopies of large trees usually within ½ mile from coastlines, rivers, and lakes. Nests are usually around four to six feet across and three feet deep. Nests are constructed out of large limbs and lined with soft plant fibers. They typically return to the same areas each year and reuse the same nest. They can be found nesting and rearing young in South Carolina from October until May (USFWS 2020a). Eagle nest locations are required to have a buffer zone ranging from 330 to 660 feet around nests, depending on site-specific conditions (USFWS 2007).

Bald eagle populations declined due to a series of human-caused events such as habitat degradation and loss, shooting, and the use of chemical compounds as pesticides (USFWS 1989). Bald eagles were listed on the ESA in 1973 and were delisted in 2007 due to their strong recovery (USFWS 2007). Bald eagles remain under federal protection by the Bald and Golden Eagle Protection Act which protects eagles from "take." Take is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest or disturb" (USFWS 2017).

Red-cockaded woodpecker (Picoides borealis) – Threatened

Photo by Gordon Murphy (Berkeley County, SC)

Red-cockaded woodpeckers (RCW) are small (7 inches long) colonially nesting woodpeckers. They are black with white horizontal stripes on the body, a large white cheek patch on the face, and a black cap and nape. The males have a small patch of red feathers (the cockade) which can be found in the upper corner of the cheek patch but are only exposed when agitated. They only nest in cavities of living, mature (at least 70-year-old) pine trees. They prefer long-leaf pines (*Pinus palustris*) that have been maintained by a frequent (less than five year) fire regimen. They nest colonially in clusters of 1 to 20 nests over 3 to 60 acres. Maintained, in-use cavity trees are obvious due to sap drips around the cavity hole that turn white when hardened. They forage for insects in the bark of pine trees which at least 30 years old and over 10 inches in

diameter at breast height (Hooper et. al 1981). Threats to RCW are predominantly the suppression of fire which has resulted in the loss of adequate habitat (USFWS 2003).

Migratory Birds

There are a total of six bridges located within the PSA (two over Swamp Road, two over Buck Creek, and two over the Wateree River). The bridges were inspected for the presence of migratory birds and/or nests during the protected species field surveys.

2.2 Fish

Shortnose sturgeon (Acipenser brevirostrum) – Endangered

Illustration by NOAA

Shortnose sturgeon are 4 feet long at maturity with rows of bony plates called scutes along the length of their body and have a dark back with a pale belly. They have short, wide, rounded snouts with four whisker-like barbels for detecting prey. Their tail fin is longer at the top than at the bottom. They are benthic feeders using their large mouths to feed on insects, crustaceans, mollusks, and benthic fish by crushing them with their mouth plates. Shortnose sturgeon spawn in freshwater and forage in mesohaline habitat (salinities of 5 to 18 parts per thousand [ppt]). They do venture into the ocean to undergo coastal migrations but are typically estuarine. Males mature at two to three years and may spawn annually, while females mature by six years and spawn every three to five years. Spawning occurs in late winter, typically before Atlantic sturgeon, in water temperatures from 46.4 to 59 degrees Fahrenheit and water velocities 9.4 to 51.2 inches/second in gravel substrate. They require similar foraging habitat and resources to the Atlantic sturgeon but can be found farther upriver (NOAA 2022).

2.3 Insects

Monarch butterfly (Danaus plexippus) – Candidate

Photo by Kenneth Dwain Harrelson.

Monarchs are large butterflies with orange wings that are bordered by a black band (USFWS 2020b). The black band contains many white spots; however, the spots do not occur on the black veins of the wing. Their wingspan ranges from 3.5 to 4.0 inches (Daniels 2003). The typical habitat consists of open areas with sun exposure where they feed on nectar of flowering plants and lay eggs on their host plant (Daniels 2003). The monarch host plant consists of members of the milkweed family (*Asclepias* ssp., USFWS 2020b). Small white eggs are deposited on the underside of milkweed leaves and the growing caterpillars forage on the leaves. The caterpillars ingest and retain a toxic substance contained in the milkweed leaves which deters predators when they reach adulthood (USFWS 2020b). Some areas of the United States have

resident populations while many Monarchs migrate as much as 1,864 miles to their overwintering locations (USFWS 2020c).

2.4 Mollusks

Carolina Heelsplitter (Lasmigona decorata) – Endangered; Critical Habitat

The Carolina heelsplitter is 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.

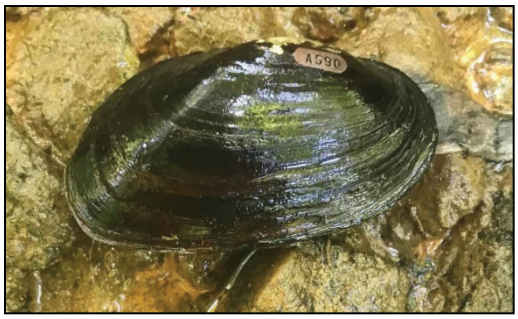


Photo by Three Oaks Engineering. Lancaster County, SC.

The Carolina heelsplitter can reach a length of 4.64 inches, with a height of 2.7 inches and a width of 1.5 inches. Based on specimens collected by Keferl and Shelley (1988) from three different streams and rivers, the mean length is 3.1 inches, the mean height is 1.7 inches, and the mean width is 1.1 inches. The shell is an ovate trapezoid. The dorsal margin is straight and may end with a slight wing. The umbo is flattened. The beak is depressed and projects 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 (*Lasmigona subviridis*, Clarke 1985), except for a much larger size and thickness in the Carolina heelsplitter (Keferl and Shelly 1988).

2.5 Plants

Michaux's sumac (Rhus michauxii) - Endangered

Michaux's sumac is a small shrub (one to three feet tall) with hairy stems and hairy compound leaves made up of evenly serrated, oblong leaflets. The flowers are small, white, and form in a dense cluster and occur from June to July. The red fruit cluster forms from August to October. It grows in basic soils in sandy or rocky open woods, usually associated with some disturbance that creates openings in the canopy. They have been found along roadways and ditches (USFWS 2011).

Photo by Susan Miller (USFWS)

SECTION 3.0 ENVIRONMENTAL BASELINE

3.1 Project Study Area

The project is situated in the Southeastern Floodplains and Terraces Level IV ecoregion as defined by the US Environmental Protection Agency (USEPA) (Griffith et al. 2002). The project is located within the Catawba River basin and the Wateree River watershed (Hydrologic Unit Code 8: 03050104; SCDHEC 2022a). The overall terrain is relatively flat within the PSA with elevations ranging from approximately 140 to 150 feet above mean sea level (US Geological Survey, Camden South and Lugoff 7.5 Minute Quadrangles, Figure 3, Appendix A).

Biotic communities were initially identified within the PSA using remote sensing data, then confirmed during the field surveys, and include six basic habitat types. Representative habitat photographs can be found in Appendix C. Uplands within the PSA are dominated by mowed/maintained right-of-way (ROW), managed pine, and forested uplands on the floodplain. Wetland habitat types were classified using the Cowardin naming convention (USFWS 1979). Non-wetland habitat types are described based on the dominant vegetation observed during the field studies.

3.2 Biotic Communities

Potential habitat communities within the PSA were initially identified by reviewing recent aerial imagery, digital elevation models for Kershaw County (SCDNR 2015b), and USFWS National Wetland Inventory (NWI) mapping (USFWS 2021), and a composite map of potential habitats within the PSA was created.

Habitat types identified utilizing remote sensing data were field verified and additional data was collected during site visits and field delineation of waters of the United States (WOTUS), conducted March 8-12, 2021, using the methods outlined by the 1987 Corps of Engineers Wetland Delineation Manual and the 2012 Eastern Mountains and Piedmont Regional Supplemental Manual version 2.0) (USACE 2012). Jurisdictional WOTUS boundaries were mapped using a Global Positioning System (GPS) unit. US Army Corps of Engineers (USACE) approval of the delineation has been requested. Additional field work was conducted on June 4, 2021, to assess habitat potential for protected species.

3.2.1 Upland Habitats

Disturbed Uplands

Disturbed uplands identified within the PSA consist of mowed/maintained road shoulders, side slopes, I-20 median, areas on the floodplain around the bridges where vegetation is periodically mowed to protect the structures, and agricultural fields. Shoulders/side slopes and medians are grassed areas. Vegetation in the maintained ROW around the bridges consists of grasses, sedges, forbs, and tree seedlings/saplings of native and invasive species including loblolly pine (*Pinus taeda*), elms (*Alnus* sp.), sweetgum (*Liquidambar stryraciflua*), passionflower (*Passiflora*

incarnata), trumpet creeper (*Campsis radicans*), Virginia creeper (*Parthenocissus quinquefolia*), red maple (*Acer rubrum*), box elder (*Acer negundo*), sycamore (*Platanus occidentalis*), tall goldenrod (*Solidago altissima*), Johnson grass (*Sorghum halepense*), Chinese privet (*Ligustrum sinense*), and tree-of-heaven (*Ailanthus altissima*).

Forested Uplands

Forested uplands located on the floodplain of the Wateree River in the PSA tend to have moderately dry, loam/clay soils. Trees observed include red maple, mockernut hickory (*Carya tomentosa*), willow oak (*Quercus phellos*), loblolly pine, sweetgum, water oak (*Q. nigra*), red mulberry (*Morus rubra*), sycamore, and southern hackberry (*Celtis laevigata*). The shrub layer is dominated by Chinese privet. Woody vines observed include Japanese climbing fern (*Lygodium japonicum*), blackberry (*Rubus flagellaris*), Japanese honeysuckle (*Lonicera japonica*), peppervine (*Nekemias arborea*), and crossvine (*Bignonia capreolata*). Herbaceous species include Pennsylvania blackberry (*Rubus pensilvanicus*), Carolina horsenettle (*Solanum carolinense*), trumpet creeper, muscadine (*Vitis rotundifolia*), and bushy bluestem (*Andropogon glomeratus*).

Forested uplands at the western end of the PSA are on the terrace above the Wateree River floodplain. These areas consist of pine/hardwood mix including loblolly pine, water oak, red maple, hickories (*Carya* spp.), sweetgum, black gum (*Nyssa sylvatica*), water oak, American holly (*Ilex opaca*), southern red oak (*Quercus falcata*), and black cherry (*Prunus serotina*). Shrubs and vines observed include American beautyberry (*Callicarpa americana*), wild plum (*Prunus* spp.), muscadine (*Vitis rotundifolia*), yellow jessamine (*Gelsemium sempervirens*), peppervine, Virginia creeper, poison ivy (*Toxicodendron radicans*), and trumpet creeper.

3.2.2 Wetland and Open Water Habitats

Refer to Figure 4, Appendix A, for delineated WOTUS in the PSA.

Palustrine Riverine Systems

Palustrine riverine systems in the PSA include Wateree River, Buck Creek, an unnamed tributary (UT) to Buck Creek, and two UTs to Gillies Creek.

Survey data and as-built plans of the existing bridge collected during the preliminary engineering indicates Wateree River depths are approximately 15 to 20 feet deep.

Impoundments

Manmade dams on the south side of I-20, within Buck Creek and Gillies Creek, have created palustrine impoundments within the PSA. Most of the Buck Creek impoundment is located north of I-20, with a smaller portion on the south side.

Palustrine Forested Wetlands

Palustrine forested wetlands are seasonally flooded freshwater forests (USFWS 1979). These are located on the floodplain of the Wateree River. Tree species observed in this habitat include red maple, river birch (*Betula nigra*), and American hornbeam (*Carpinus caroliniana*). The shrub layer consists of willow oak saplings, and Chinese privet. Herbaceous species include sedges (*Carex* sp.),

rushes (*Juncus* sp.), giant cane (*Arundinaria gigantea*), and longleaf oats (*Chasmanthium sessiliflorum*). Woody vines include crossvine (*Bignonia capreolata*), poison ivy, Japanese honeysuckle, and lanceleaf greenbrier (*Smilax smallii*).

Palustrine Emergent Wetlands

Palustrine emergent wetlands were identified associated with one of the UTs to Gillies Creek. This wetland is dominated by lizard's tail (*Saururus cernuus*). Based on a review of historic USGS topographic maps, this area was indicated as a drainage area feeding Gillies Creek; however, no stream was shown. There appears to be a buried utility through the portion of the wetland/stream on the north side of I-20, and it is highly disturbed.

3.3 Water Quality

The South Carolina Department of Health and Environmental Control (SCDHEC) develops a priority list of waterbodies that do not currently meet state water quality standards pursuant to Section 303(d) of the Clean Water Act (CWA) and 40 CFR § 130.7. It is commonly referred to as the 303(d) List of Impaired Waters.

SCDHEC monitors the water quality of the Wateree River with ambient water quality monitoring stations. These stations are used for "assessment of current conditions, assessment of long-term trends, determination of priority waterbodies, determination of waterbody designated use attainment or nonsupport, and identification of continuing or emerging problem areas" (SCDHEC, 2020). A water quality monitoring station (CW-214) is located at the Wateree River/I-20 bridges. The Wateree River is on the 303(d) list of impaired waters due to dissolved oxygen (DO), mercury, and polychlorinated biphenyl (PCB). The SC Watershed Atlas indicates that the proposed project is not in Total Maximum Daily Load (TMDL) or Municipal Separate Storm Sewer System (MS4) watersheds.

SECTION 4.0 PROPOSED ACTION CONSTRUCTION ACTIVITIES

4.1 Site Preparation

To prepare the general project area for construction and establish staging areas, the contractor may need to clear vegetation and remove stumps, roots, or debris. Clearing may occur in uplands, and palustrine forested wetlands in the project area. The contractor may also grade portions of the project area to establish a suitable work environment. Staging areas will be selected by the contractor to establish a construction site office and will also include materials, equipment, and fuel storage. Staging areas are expected to be in uplands to the extent practicable.

Potential Habitat Impacts

The contractor will be required to utilize SCDOT Best Management Practices (BMPs) for soil and erosion control during construction. Impacts associated with construction site preparation will be temporary in nature. Clearing of vegetation and maintenance of erosion and sediment control devices may temporarily impact suitable foraging habitat for multiple species. Construction site preparation and maintenance will continue during the different phases of construction and may result in permanent impacts to suitable habitat for protected species. Construction site preparation is not expected to result in the mortality of any protected species.

The clearing, grading, or placement of fill in wetlands will require authorization from the USACE and SCDHEC. The limits of any clearing, grading, or fill in wetlands will be delineated and shown on approved permitted plans by the USACE and SCDHEC. SCDOT and the contractor will comply with all applicable permits and permit conditions for the placement of fill in wetlands.

4.2 Borrow Pits and Disposal Areas

The contractor may use areas outside the PSA for borrow pits or spoil areas. Waste and borrow areas will likely be required to dispose of and obtain materials for earthwork and are also subject to clearing and grubbing. According to SCDHEC's online SC Active Mines Viewer, there are seven permitted borrow sites within a 7-mile radius of the proposed construction site (SCDHEC 2022b). Additionally, SCDHEC's September 2021 list of Solid Waste Facilities indicates that there are eight active Construction and Demolition Debris Recyclers located in Kershaw, Richland, and Lexington Counties (SCDHEC 2021).

Potential Habitat Impacts

If the contractor decides not to utilize the permitted borrow sites or landfills, the contractor will be responsible for addressing the potential effects to federally listed threatened and endangered species for any new borrow or disposal sites.

4.3 Roadway Construction

Roadway construction will include adding temporary pavement in the median to transition traffic from the existing bridges to a temporary bridge constructed between the existing bridges. It is

anticipated that the transitions will occur before reaching the impoundment in Buck Creek, and, therefore, no impacts to wetlands will occur as the result of the bridge replacement project (Figures 4 and 5, Appendix A).

4.4 Bridge Construction/Demolition Access

Temporary access for the construction of the bridge supports and superstructure will be required for the Wateree River bridges. Bridge construction access will be required throughout the life of the project (up to four years). Six short temporary work trestles will be installed in the river (Figure 5, Appendix A). There are many ways the contractor could establish temporary access; however, it is anticipated that temporary work trestles will be utilized. It is possible the contractor may elect to use a different method for bridge construction access, but any method selected will be required to comply with all applicable permits and/or environmental commitments for the project.

Potential Habitat Impacts

Impacts associated with bridge construction access are expected to be temporary, lasting throughout construction. Once the contractor has completed construction of permanent bridge structures, all temporary access materials will be removed. SCDOT and the contractor will comply with all applicable permits and permit conditions for the placement of fill in wetlands. Bridge construction access areas will be allowed to return to their natural state when construction is completed.

The Wateree River is designated as a state navigable water; therefore, SCDOT and the contractor will be required to obtain authorization prior to construction and comply with all applicable regulations associated with state navigable waters. SCDHEC requires that a 50-foot opening be maintained to avoid interference with navigation, however, the contractor will maintain a 100-foot-wide gap between the ends of the temporary work trestles in the river.

4.5 Temporary Bridge

A temporary bridge will be constructed to maintain traffic flow on I-20 during demolition of the existing bridges and construction of the permanent replacements. The temporary bridge will be installed between the two existing bridges. Traffic from one existing bridge will be routed onto the temporary bridge while demolition and replacement activities are completed. Upon completion of one new I-20 bridge, traffic from the other existing bridge will be shifted onto the temporary bridge while the second bridge is demolished and replaced.

Potential Habitat Impacts

Impacts associated with construction of the temporary bridge would be confined to the Wateree River. After the new permanent bridges are constructed, the temporary bridge would be removed.

4.6 Bridge Demolition

The existing bridges are 1,500 feet long and 43 feet wide. The portions of the bridges that are over the river are approximately 390 feet long. Each bridge has two concrete piers supported by footings in the river and one on the western edge of the river. Each footing measures 12-feet wide by 24-feet long by 5-feet high. The concrete bridge decks over the river are supported by steel girders while the others are concrete.

Prestressed concrete piles (PCP) support the bridge in uplands and wetlands located on the adjacent floodplain.

Final demolition plans are the responsibility of the contractor and therefore are not available for this analysis. The contractor is required to submit a bridge demolition plan prepared by a licensed engineer to SCDOT for review and approval prior to beginning any demolition work. It is expected the contractor will implement standard bridge demolition techniques such as the use of concrete saws and jack hammers to dismantle the bridge decks. The girders supporting the decks will likely be lifted off using a crane. The demolition of substructure and bridge supports may be removed cutting piles with saws, torches, or other cutting tools. The potential use of coffer dams for removal of footings is discussed below.

Non-hazardous demolition debris will be hauled off site and disposed of in accordance SCDOT policy and SCDHEC regulations.

Potential Habitat Impacts

Removal of the footings can be a source of underwater noise. SCDOT is assuming the contractor will install coffer dams around each of the existing footings and dewater them so that the footings can be broken up with a hoe ram and the pieces removed by crane. The coffer dams will help to attenuate the underwater noise that will be created by the hoe ram. Although not anticipated at this time, if it is determined that explosives are required for demolition, the contractor, SCDOT, and FHWA will initiate additional coordination and consultation with the USFWS and NMFS.

4.7 Bridge Construction

The Wateree River bridge will consist of two structures that will carry four lanes of traffic (two on each bridge). The new bridges will be 49 feet wide and approximately 1,515 feet long and constructed on the current alignment of the existing bridges.

The conceptual design for the Wateree River proposes the installation of 18 drilled shafts, measuring 72 inches in diameter, for the permanent bridge support structures in the river. Locations of the proposed drilled shafts are indicated on the conceptual bridge plan and profile and typical section are provided in Appendix D. The construction of drilled shaft bridge columns will require the contractor to install a permanent steel casing to ensure the drilled shaft remains open and does not collapse prior to the pouring of concrete. The permanent casing will also act as a form for the concrete shafts.

Potential Habitat Impacts

In-water construction can be a source of underwater noise that can affect Shortnose sturgeon. A detailed analysis of the potential effects to Shortnose sturgeon has been submitted in a separate BE to NMFS.

SECTION 5.0 EFFECTS ANALYSIS

The following section contains discussion about potential effects to specific species. The USFWS (1998) defines "take" as: to harass, harm, pursue, hunt, shoot, wound, kill, trap capture, or collect or attempt to engage in any such conduct. [ESA §3(19)] Harm is further defined by USFWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined by USFWS as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behaviour patterns which include, but are not limited to, breeding, feeding, or sheltering. [50 CFR §17.3]

The initial evaluation for the presence of listed species in the PSA was based on the presence or absence of species-specific suitable habitat. Additionally, online databases such as SC Department of Natural Resources' (SCDNR) SC Natural Heritage Species Reviewer (SCDNR 2022) was utilized to determine previous observations of the listed species within the PSA, which encompassed all the reasonable alternatives evaluated. For species with suitable habitat within the PSA, a radius of a minimum of 3 miles was reviewed for known occurrences of listed species.

5.1 Birds

5.1.1 Bald eagle (Haliaeetus leucocephalus) – BGEPA

The Wateree River is suitable foraging habitat for bald eagles; however, no nests or eagles were observed within or adjacent to the PSA. According to SCDNR's SC Natural Heritage Species Reviewer, there is a nest located approximately 6 miles northwest of the PSA centroid, near the bank of the Wateree River.

Effect Determination

Effect conclusions for the bald eagle are not required under the ESA. However, the project is not anticipated to result in the mortality of any bald eagles or limit the ability of the species to adequately breed, feed, or shelter.

5.1.2 Red-cockaded woodpecker (*Picoides borealis*) – Threatened

Suitable habitat for RCWs was not identified within or adjacent to the PSA. According to SCDNR's online SC Natural Heritage Species Reviewer, the closest known occurrence of RCWs is approximately 4 miles north of the eastern terminus of the PSA at on private property near the Camden Reservoir (SCDNR 2022).

Effect Determination

While loblolly pines are present within the PSA, no mature pines suitable for nesting or foraging was observed during the field surveys. Therefore, the proposed project will have no effect on the red-cockaded woodpecker.

5.1.3 Migratory Birds

Cliff swallows (*Petrochelidon pyrrhonota*) were observed nesting on the Buck Creek impoundment, Wateree River, and dirt road bridges during the June 4 and 17, 2021 field surveys. Additionally, barn swallows (*Hirundo rustica*) were observed nesting on the dirt road bridge.

Effect Determination

By implementing SCDOT's standard migratory bird mitigation measures presented in in Section 6, Conservation Measures, it is anticipated that the proposed project will not result in the mortality of any migratory birds.

5.2 Fish

Shortnose sturgeon (*Acipenser brevirostrum*) – Endangered

Coordination with NMFS is ongoing. Although SCDNR's records indicate that the sturgeon rarely ventures in the Wateree River, it is anticipated that the project **may affect, not likely to adversely affect** the Shortnose sturgeon. A separate BE was submitted to NMFS detailing the proposed in-water construction activities and the potential effects on the Shortnose sturgeon.

5.3 Insects

Monarch butterfly (*Danaus plexippus*) – Candidate

Adult foraging habitat occurs in the road ROW, open fields, and utility easements where wildflowers occur. However, no milkweed species were observed within the PSA. The SC Natural Heritage Species Reviewer does not indicate any known occurrences within a 3-mile radius of the PSA.

Effect Determination

Effect conclusions for the monarch butterfly is not required under the ESA. However, if the butterfly is upgraded to threatened or endangered prior to construction of the project, additional coordination with USFWS may be required. The project is not anticipated to result in the mortality of any monarchs.

5.4 Mollusks

Carolina heelsplitter (*Lasmigona decorata*) – Endangered

Suitable habitat for the Carolina heelsplitter was not observed within the PSA. According to SCDNR's online SC Natural Heritage Species Reviewer, there are no known occurrences within a three-mile radius of the PSA.

Effect Determination

It is anticipated that project will have **no effect** on the Carolina heelsplitter.

5.5 Plants

Michaux's sumac (*Rhus michauxii*) – Endangered

Suitable habitat for the Michaux's sumac was not observed within the PSA. According to SCDNR's online SC Natural Heritage Species Reviewer, there is one occurrence located approximately 2 miles southwest of the western PSA terminus.

Effect Determination

It is anticipated that project will have no effect on the Michaux's sumac.

SECTION 6.0 CONSERVATION MEASURES

As coordination with resource and regulatory agencies progresses, Environmental Commitments will be developed and become part of the NEPA record. SCDOT and the contractor will be required to honor/implement SCDOT standard Environmental Commitments, and those project specific commitments developed through agency coordination and the permitting process.

Table 2 summarizes the effect minimization commitments referred to in the previous sections of this document. These commitments are recommended to either avoid or minimize potential effects to federally protected species. For species that may be affected by the project, these measures are intended to reduce or prevent the potential to adversely affect the species. The contractor, SCDOT, and FHWA will be required to stay in compliance with all approved environmental conditions established in the CE as well as any special conditions established in the required permit authorizations.

Table 2 Effect Minimization Commitments
SCDOT and/or the contractor will develop a stormwater pollution prevention plan (SWPPP) and obtain a National Pollutant Discharge Elimination System (NPDES) permit from the SCDHEC before construction can commence.
The contractor will adhere to all SCDOT construction and erosion and sediment control BMPs.
The limits of any clearing, grading, or fill in wetlands will be delineated and shown on approved permitted plans by the USACE and SCDHEC. SCDOT and the contractor will comply with all applicable permits and permit conditions for the placement of fill in wetlands.
If existing permitted borrow sites are not available, the contractor will be responsible for addressing the potential effects to federally listed threatened and endangered species for any new borrow or disposal sites.
The contractor will be required to maintain navigability during construction and will not be allowed to block the Wateree River.
To minimize the potential effects on shortnose sturgeon, the contractor will use “slow start” methods such as ramp up, dry firing, or soft starts at the beginning of bridge support structure installation activities.
SCDOT and the contractor will follow the *Protected Species Construction Conditions* and *Vessel Strike Avoidance Measures* guidance from NMFS Southeast Regional Office
SCDOT will comply with the Migratory Bird Treaty Act of 1918 regarding the avoidance of taking of individual migratory birds and the destruction of their active nests. At least four (4) weeks prior to construction/ demolition of the bridges, the Resident Construction Engineer (RCE) will coordinate with SCDOT Environmental Services Compliance Office to determine if there are any active nests on the bridge. After this coordination, it will be determined whether construction/demolition can begin. After construction/demolition has begun, measures can be taken to prevent birds from nesting, such as screens, noise producers, and deterrents etc. If during construction or demolition a nest is observed on the bridge that was not discovered during the biological surveys, the contractor will cease work and immediately notify the RCE, who will contact SCDOT Environmental Services Compliance Office. SCDOT biologists will determine whether the nest is active and the species utilizing the nest. After this coordination, it will be determined whether construction/demolition can resume or whether a temporary moratorium will be put into effect.
The contractor, SCDOT, and FHWA will be required to stay in compliance with all approved environmental conditions established in the CE as well as any special conditions established in the required permit authorizations.

SECTION 7.0 CONCLUSIONS

After completing a literature search, a field survey, and a habitat assessment, it was determined the proposed project will have **no effect** on the red-cockaded woodpecker, Carolina heelsplitter, or Michaux's sumac. The mortality of any bald eagles, migratory birds, or monarch butterfly is not anticipated. If the status of the monarch butterfly changes to threatened or endangered prior to project completion, additional surveys for host plants (*Asclepias* sp.) may be required.

Consultation with NMFS is ongoing; however, it is anticipated the project **may affect, but is not likely to adversely affect** the Shortnose sturgeon.

It has been determined that neither suitable habitat for listed protected species nor the species themselves, under USFWS jurisdiction, will be affected by the proposed project. Therefore, this document meets the consultation requirements for USFWS under Section 7 of the Endangered Species Act. See USFWS guidance letter from the respective agencies in Appendix E.

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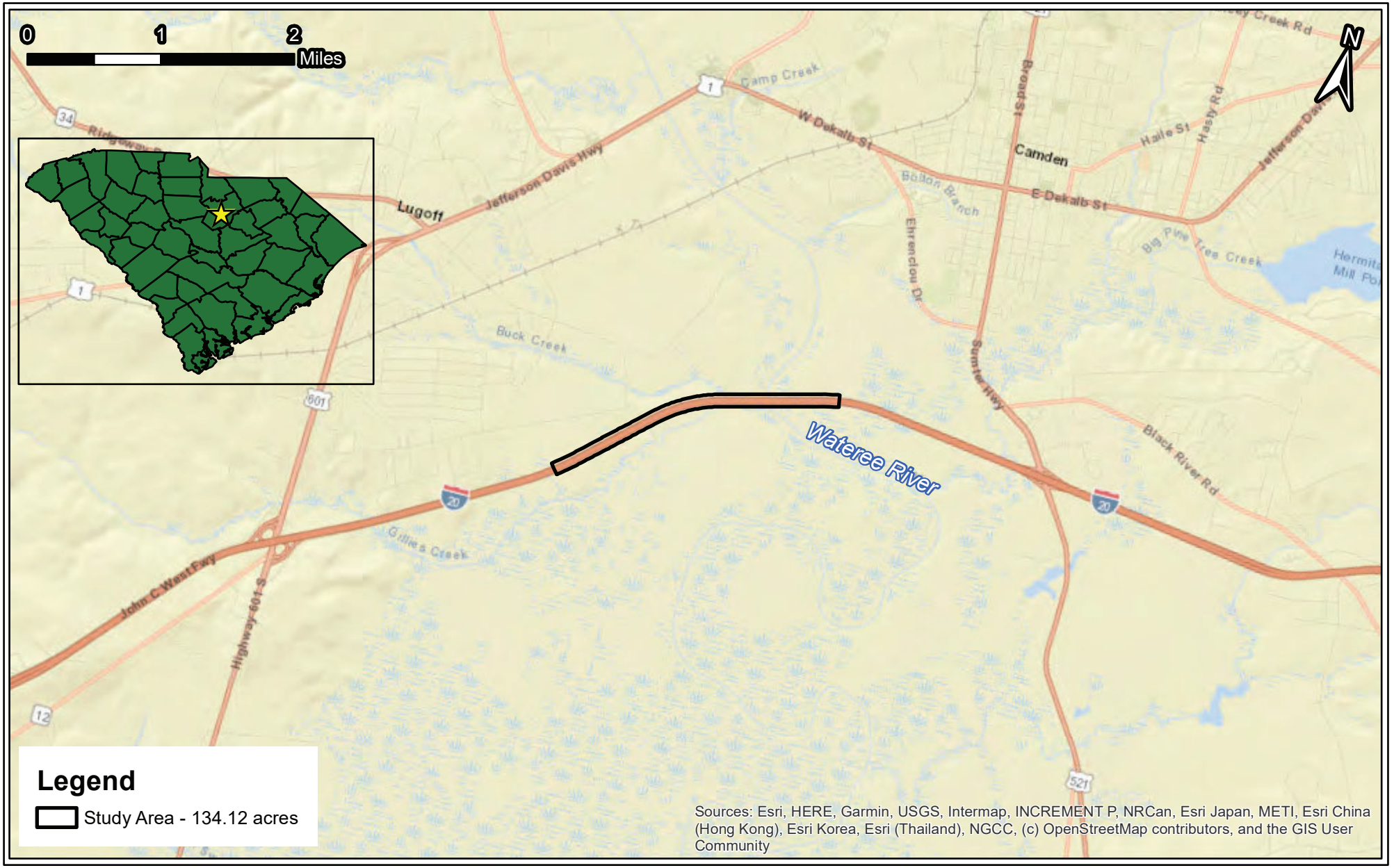
APPENDIX A

FIGURES



THREE OAKS ENGINEERING

Prepared For:

SCDOT
South Carolina Department of Transportation

I-20 over Wateree River
Bridge Replacements

Location Map

Kershaw County, South Carolina

Date:	December, 2021
Scale:	1 in = 1 miles
Job No.:	21-003
Drawn By:	ZCB
Checked By:	AGM

Figure
1

THREE OAKS ENGINEERING

Prepared For:

SCDOT®
South Carolina Department of Transportation

I-20 over Wateree River Bridge Replacements

Aerial Photography

Kershaw County, South Carolina

Date:	December, 2021
Scale:	1 in = 1,500 ft
Job No.:	21-003
Drawn By:	ZCB
Checked By:	AGM

Figure 2

THREE OAKS ENGINEERING

Prepared For:

SCDOT
South Carolina Department of Transportation

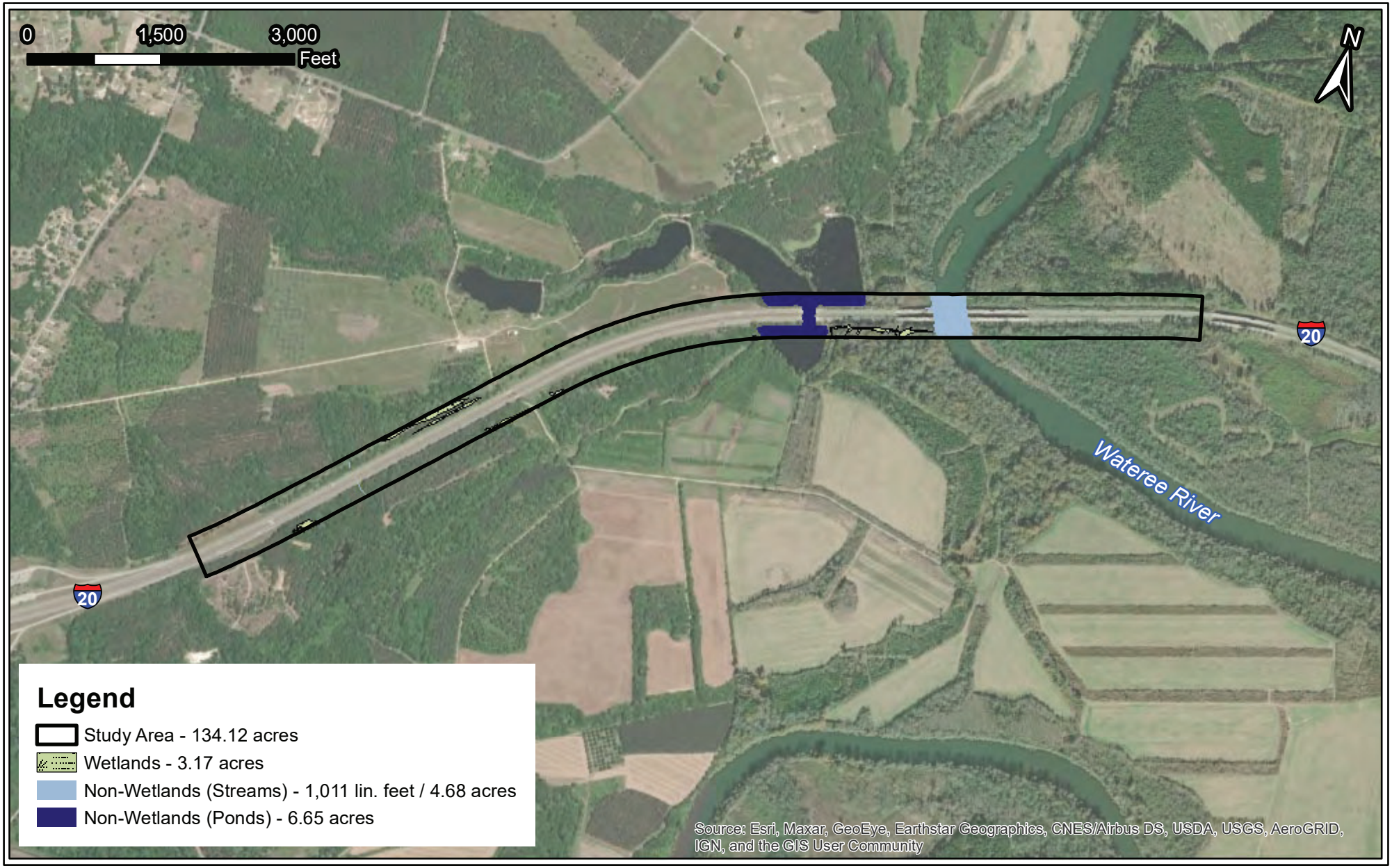
I-20 over Wateree River
Bridge Replacements

Topographic Map

Kershaw County, South Carolina

Date:	December, 2021
Scale:	1 in = 1,500 ft
Job No.:	21-003
Drawn By:	ZCB
Checked By:	AGM

Figure
3



THREE OAKS ENGINEERING

Prepared For:

SCDOT®
South Carolina Department of Transportation

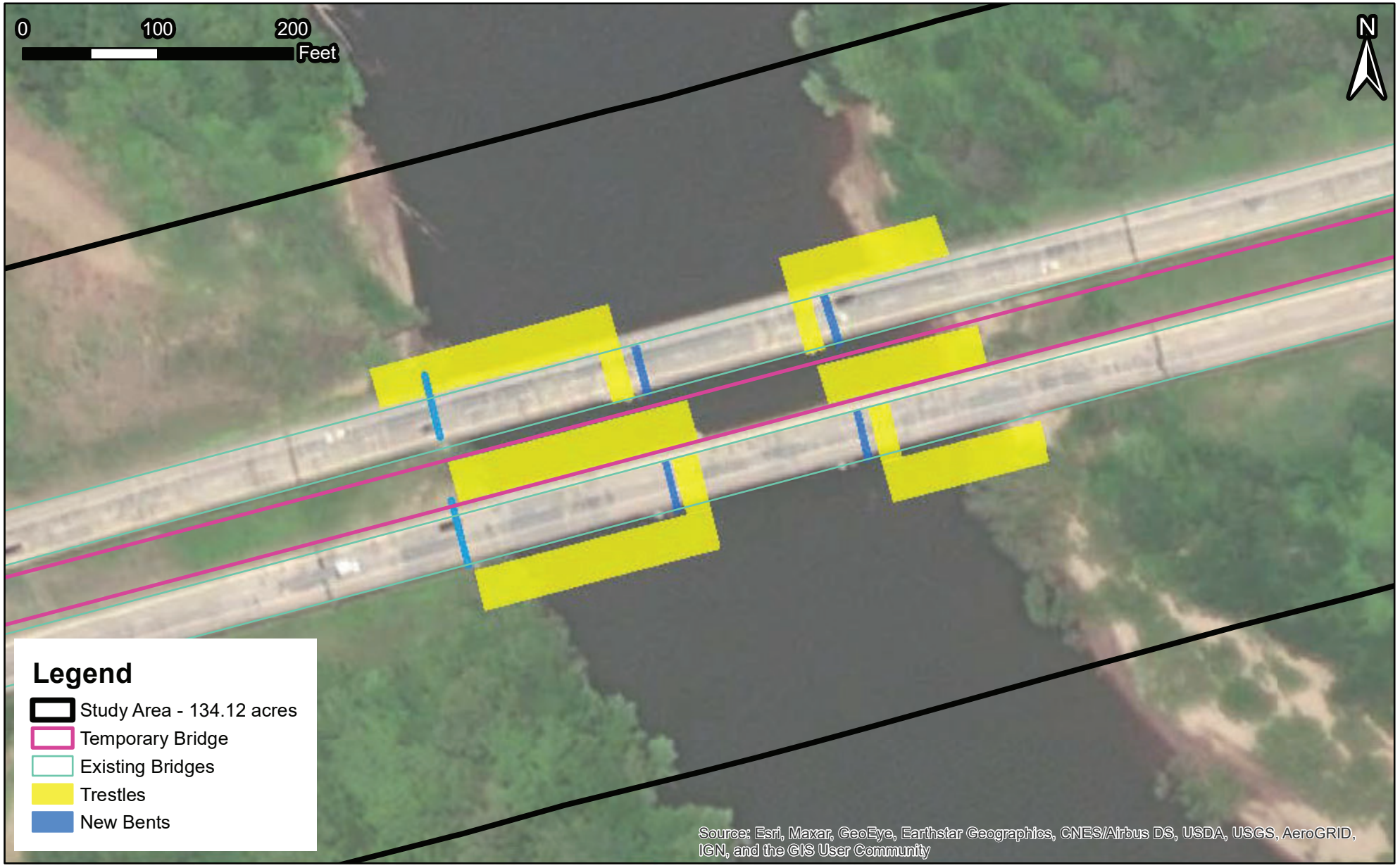
I-20 over Wateree River
Bridge Replacements

Waters of the US

Kershaw County, South Carolina

Date:	December, 2021
Scale:	1 in = 1,500 ft
Job No.:	21-003
Drawn By:	ZCB
Checked By:	AGM

Figure
4



THREE OAKS ENGINEERING · THREE OAKS ENGINEERING

Prepared For:

SCDOT®
South Carolina Department of Transportation

I-20 over Wateree River
Bridge Replacements

Proposed Temporary Bridge
&
Work Trestles

Kershaw County, South Carolina

Date:	December, 2021
Scale:	1 in = 100 ft
Job No.:	21-003
Drawn By:	ZCB
Checked By:	AGM

Figure
5

APPENDIX B

KERSHAW COUNTY PROTECTED SPECIES LIST

KERSHAW COUNTY

CATEGORY	COMMON NAME/STATUS	SCIENTIFIC NAME	SURVEY WINDOW/ TIME PERIOD	COMMENTS
Amphibians	None Found			
Birds	Bald eagle (BGEPA)	*Haliaeetus leucocephalus*	October 1-May 15	Nesting season
	Red-cockaded woodpecker (E)	*Picoides borealis*	March 1-July 31	Nesting season
Crustaceans	None Found			
Fishes	Robust redhorse (ARS)	*Moxostoma robustum*	Late April-early May	Temperature dependent: 16-24°C
	Shortnose sturgeon* (E)	*Acipenser brevirostrum**	February 1-April 30	Spawning migration
Insects	Monarch butterfly (C)	*Danaus plexippus*	August-December	Overwinter population departs: March-April
Mammals	Tri-colored bat (ARS)	*Perimyotis subflavus*	Year round	Found in mines and caves in the winter
Mollusks	Carolina heelsplitter (E, CH)	*Lasmigona decorata*	March 1-September 30	Optimal survey window
Plants	Carolina-birds-in-a-nest (ARS)	*Macbridea caroliniana*	July-November	
	Georgia aster (ARS*)	*Symphyotrichum georgianum*	Early October-mid November	
	Michaux's sumac (E)	*Rhus michauxii*	May-October	
	Wire-leaved dropseed (ARS)	*Sporobolus teretifolius*	August-September	Following fire
Reptiles	None Found			

*	Contact National Marine Fisheries Service (NMFS) for more information on this species.
**	The U.S. Fish and Wildlife Service (FWS) and NMFS share jurisdiction of this species.
ARS	Species that the FWS has been petitioned to list and for which a positive 90-day finding has been issued (listing may be warranted); information is provided only for conservation actions as no Federal protections currently exist.
ARS*	Species that are either former Candidate Species or are emerging conservation priority species.
BGEPA	Federally protected under the Bald and Golden Eagle Protection Act
C	FWS or NMFS has on file sufficient information on biological vulnerability and threat(s) to support proposals to list these species.
CH	Critical Habitat
E	Federally Endangered
P or P – CH	Proposed for listing or critical habitat in the Federal Register
S/A	Federally protected due to similarity of appearance to a listed species
T	Federally Threatened

These lists should be used only as a guideline, not as the final authority. The lists include known occurrences and areas where the species has a high possibility of occurring. Records are updated as deemed necessary and may differ from earlier lists.

For a list of State endangered, threatened, and species of concern, please visit https://www.dnr.sc.gov/species/index.html.

APPENDIX C

SITE PHOTOGRAPHS

View of the east bank of the Wateree River.

View of the west bank of the Wateree River.

Wateree River facing north.

Wateree River facing south.

Existing bridge structures in the Wateree River.

Typical maintained road shoulders.

Typical maintained medians.

Typical ROW vegetation maintenance on the floodplain.

Forested upland on Wateree River floodplain.

Forested upland on Wateree River floodplain.

Forested uplands near the western end of the PSA.

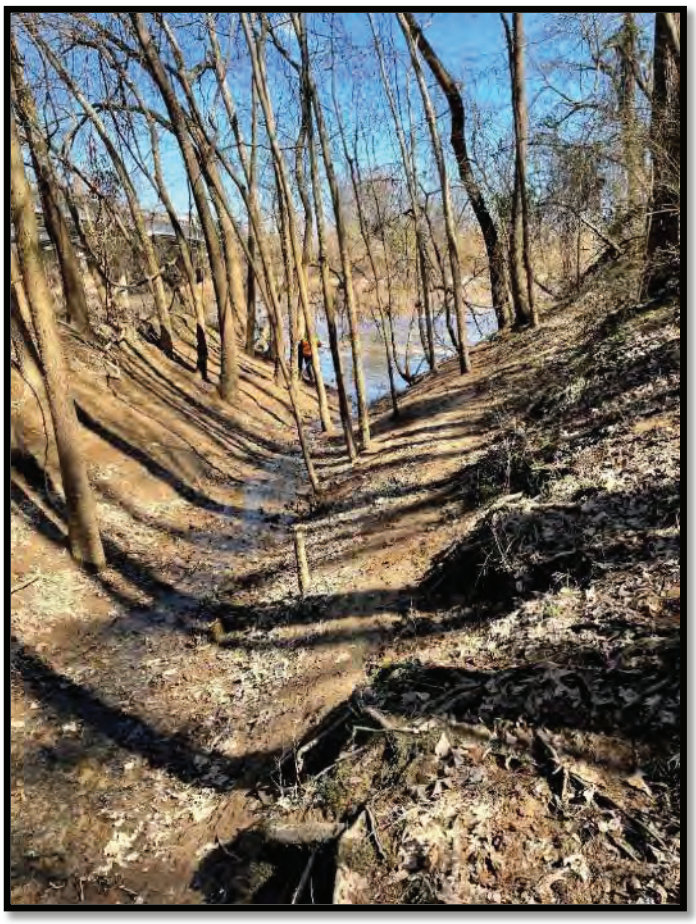
Wateree River bridges.

Ponds constructed in Buck and Gillies Creeks, west of the Wateree River.

Westbound bridge over Buck and Gillies Creeks impoundment.

Bridges over dirt access road.

Shallow pond/wetland adjacent to the dirt access road, south of I-20.



Confluence of Buck Creek and the Wateree River.

Unnamed tributary to Gillies Creek outfall located near the western end of the PSA, south of I-20

.

Emergent wetland/stream north of I-20.

APPENDIX D

USFWS NO EFFECT GUIDANCE LETTER

Please note this Clearance Letter applies only to assessments in South Carolina but may not be used to satisfy section 7 requirements for projects that have already been completed or currently under construction.

If suitable habitat for T&E species or designated critical habitat occurs on, or nearby, the project site, a determination of no effect/impact may not be appropriate. In these cases, direct consultation requests with the Service should be initiated. Additional coordination with the Service may also be required if the potential project requires an evaluation under another resource law such as, but not limited to, NEPA, CWA, FPA, and the Coastal Zone Management Act.

Northern Long-eared Bat Consideration

The Service issued a nationwide programmatic biological opinion (PBO) for the northern long-eared bat (*Myotis septentrionalis*, NLEB) on January 5, 2016. The PBO was issued pursuant to section 7(a)(2) of the ESA to address impacts that Federal actions may have on this species. In addition, the Service published a final 4(d) rule on January 14, 2016, which details special consultation provisions for Federal actions that may affect the NLEB. Briefly, the PBO and the 4(d) rule allow for "incidental" take of the NLEB throughout its range under certain conditions. Take is defined in section 3 of the ESA as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Further, incidental take is defined as take that results from, but is not the purpose of, carrying out an otherwise lawful activity. Under the PBO and 4(d) rule, all incidental take of the NLEB is exempted from the ESA's take prohibitions under certain conditions. However, incidental take is prohibited within one quarter mile from known hibernacula and winter roost, or within 150 feet from a known maternity roost tree during the months of June and July.

In consideration of known hibernacula, winter roosts, and maternity roost tree locations in South Carolina, this letter hereby offers blanket concurrence for a may affect, but is not likely to adversely affect determination for the NLEB if the proposed work occurs more than one quarter mile from known hibernacula, winter roosts, or is further than 150 feet from a known maternity roost trees. If an activity falls within one-quarter mile of hibernacula or winter roost or within 150 feet of a maternity roost tree additional consultation with the Service will be required. As a conservation measure for all projects it is recommended that all tree clearing activities be conducted during the NLEB inactive season of November 15th to March 31st of any given year.

The Service appreciates your cooperation in the protection of federally listed species and their habitats in South Carolina.

Sincerely,

Thomas D. McCoy

Thomas D. McCoy
Field Supervisor

United States Department of the Interior
FISH AND WILDLIFE SERVICE
176 Croghan Spur Road, Suite 200
Charleston, South Carolina 29407
May 30, 2019

U.S. Fish and Wildlife Service Clearance Letter for Species and Habitat Assessments

The U.S. Fish and Wildlife Service (Service) is one of two lead Federal Agencies mandated with the protection and conservation of Federal trust resources, including threatened and endangered (T&E) species and designated critical habitat as listed under the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*) (ESA). Development of lands in South Carolina have the potential to impact federally protected species. Accordingly, obligations under the ESA, National Environmental Policy Act (NEPA), Clean Water Act (CWA), Federal Power Act (FPA), and other laws, require project proponents to perform an environmental impact review prior to performing work on the site. These projects may include a wide variety of activities including, but not limited to, residential or commercial developments, energy production, power transmission, transportation, infrastructure repair, maintenance, or reconstruction of existing facilities on previously developed land.

Project applicants, or their designated representatives, may perform initial species assessments in advance of specific development proposals to determine the presence of T&E species and designated critical habitat that are protected under the ESA. These reviews are purposely speculative and do not include specific project or site development plans. Many of these speculative proposals are for previously developed or disturbed lands such as pasture lands, agricultural fields, or abandoned industrial facilities. Due to historical uses and existing conditions, these sites often do not contain suitable habitat to support T&E species. Therefore, an assessment may conclude that any future development of the site would have no effect to T&E species or adversely modify designated critical habitat. If the applicant, or their designee, determines there is no effect or impact to federally protected species or designated critical habitat, no further action is required under the ESA.

Clearance to Proceed

For all sites with potential projects that have no effect or impact upon federally protected species or designated critical habitat, no further coordination with the Service is necessary at this time. This letter may be downloaded and serve as the Service's concurrence or agreement to the conclusions of the species assessment. Any protected species survey or assessment conducted for the property should be included with this letter when submitting the project to Federal permitting agencies. Due to obligations under the ESA potential impacts 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.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
https://www.fisheries.noaa.gov/region/southeast

04/27/2022

F/SER31:FI
SERO-2022-00158

Will McGoldrick
Design-Build Environmental Coordinator
Environmental Services Office
South Carolina Department of Transportation
955 Park Street
Columbia, SC 29201-3959

Ref.: P029450, South Carolina Department of Transportation, I-20 Bridges over the Wateree River Replacement, Camden, Kershaw County, South Carolina– EXPEDITED TRACK

Dear Will,

This letter responds to your April 25, 2022, request pursuant to Section 7 of the Endangered Species Act (ESA) for consultation with the National Marine Fisheries Service (NMFS) on the subject action.

We reviewed the action agency's consultation request document and related materials. Based on our knowledge, expertise, and the action agency's materials, we concur with the action agency's conclusions that the proposed action is not likely to adversely affect the NMFS ESA-listed species and/or designated critical habitat. This concludes your consultation responsibilities under the ESA for species and/or designated critical habitat under NMFS's purview. Reinitiation of consultation is required and shall be requested by the action agency or by NMFS where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) take occurs; (b) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in this consultation; (c) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not previously considered in this consultation; or (d) if a new species is listed or critical habitat designated that may be affected by the action.

We look forward to further cooperation with you on other projects to ensure the conservation of our threatened and endangered marine species and designated critical habitat. If you have any questions on this consultation, please contact Biologist's Francesca Innocenti, Consultation Biologist, by email at Francesca.Innocenti@noaa.gov.

Sincerely,

WUNDERLICH.MARY.JANE.1400345488

Digitally signed by WUNDERLICH.MARY.JANE.1400345488
Date: 2022.04.27 11:19:31 -04'00'

for David Bernhart
Assistant Regional Administrator
for Protected Resources

File: 1514-22.l.2

South Carolina
Department of Transportation

April 25, 2022

Mr. David Bernhart
Assistant Regional Administrator for Protected Resources
National Marine Fisheries Service
Southeast Regional Office
263 13th Avenue South
St. Petersburg, FL 33701

Re: Request for Initiation of Expedited Informal Consultation under section 7(a)(2) of the Endangered Species Act for I-20 Bridges over the Wateree River Replacement, Kershaw County, SC, P029450; SERO-2022-00158

Dear Mr. Bernhart:

The South Carolina Department of Transportation (SCDOT) and Federal Highway Administration (FHWA) proposes to authorize and fund the proposed project as described below. Please accept this initiation of informal consultation under section 7(a)(2) of the Endangered Species Act (ESA) for the I-20 Bridges over the Wateree River Replacement. A determination has been made that the proposed activity **may affect, but is not likely to adversely affect,** the Shortnose sturgeon (*Acipenser brevirostrum*). Supporting analysis is provided below. Your written concurrence with our determinations is requested.

Pursuant to our request for expedited informal consultation, we are providing, enclosing, or otherwise identifying the following information:

- A description of the proposed action.
- A description of the action area.
- A description of listed species/critical habitat that may be affected by the action.
- An analysis of the potential routes of effect on any listed species or critical habitat.
- Conclusion

Proposed Action

This proposed project is intended to replace the eastbound and westbound I-20 bridges over the Wateree River and demolish the existing bridges (see Attachment 1). We expect work to commence late 2022 and extend through late 2026. The existing bridge plans and the conceptual bridge replacement plans are in Attachment 2. The proposed I-20 Wateree River bridge replacement project does not meet the *Programmatic Biological Evaluation (NLAA) on the Effects of Transportation Activities and Projects Regularly Undertaken in North Carolina, South Carolina, and Georgia* (NMFS/FHWA 2018).

The overall proposed bridge replacement project will involve the following activities:

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- Installation of sediment and erosion control measures.
- Establishment of construction staging areas.
- Construction of a temporary bridge to maintain I-20 traffic flow.
- Installation of temporary work trestles or barges for bridge construction.
- Demolition and removal of the existing bridge structures.
- Installation of new bridge piers within the Wateree River.
- Construction of the new bridge bents and super structures.
- Removal of the temporary bridge.
- Removal of temporary work trestles.

In-water work will be completed in four distinct stages. The stages will consist of:

1. Installation of the temporary bridge pipe piles between the existing bridges.
2. Installation of pipe piles for the first work trestle adjacent to one of the existing bridges.
3. Removal of the footings for that bridge.
4. Installation of the drilled shafts for the replacement bridge.

Stages 2 through 4 will be repeated for the remaining existing bridge. It is anticipated that these activities will require 12 months of work spread over the 36-month construction period.

-Erosion and Sediment Control

This project will be completed using a Design-Build method. Therefore, the contractor will be responsible for defining the final footprint of erosion and sediment control measures.

- The contractor will develop a Stormwater Pollution Prevention Plan (SWPPP) and obtain both a land disturbance permit and a National Pollutant Discharge Elimination System (NPDES) permit from the SC Department of Health and Environmental Control (SCDHEC) before construction can commence.
- SCDOT will require the contractor to properly install the required erosion, turbidity curtains, and sediment control devices prior to all other construction activities.
- The contractor will be required to install these measures around the perimeter of the active construction site, including any off-site staging areas.
- After the installation of erosion, turbidity and sediment control measures, the contractor will begin the project staging area preparation and general site preparation.

-Construction Area Staging

To prepare the general project area for construction and establish staging areas, the contractor may need to clear vegetation and remove stumps, roots, or debris.

- Clearing may occur in uplands and palustrine forested wetlands in the project area.
- The contractor may also grade portions of the project area to establish a suitable work environment.
- Staging areas will be selected by the contractor to establish a construction site office and will also include materials, equipment, and fuel storage.
- Staging areas are expected to be in uplands to the extent practicable.

-Construction of a Temporary Bridge

A temporary bridge will be constructed over the Wateree River to maintain traffic flow on I-20 during demolition of the existing bridges and construction of the permanent replacements (refer to Attachment 1).

- The temporary bridge will be constructed of steel and will be installed over the river between the two existing bridges.
- The temporary bridge will be supported by 24-inch pipe piles installed in the river substrate.
- Traffic from one existing bridge will be routed onto the temporary bridge while demolition and replacement activities are completed.
- Upon demolition and construction of one new I-20 bridge, traffic from the other existing bridge will be shifted onto the temporary bridge while that bridge is demolished and replaced.

-Bridge Construction Access

It is anticipated that either temporary work trestles or barges placed in the river will be utilized for construction access. Any method selected will be required to comply with all applicable permits and environmental commitments developed for the project. The contractor will be responsible for the design of the temporary work trestle, so all numbers provided in this assessment are estimates based on a conceptual design. A summary of pipe piles for the temporary trestles can be found in Table 1 below.

- In-water work will occur only during daylight hours.
- This assessment assumes the contractor would install 30-foot-wide temporary work trestles and include shorter 15-foot-wide sections (fingers) between the bents to allow full construction access along this portion of the project (refer to Attachment 1).
- Each trestle span will be 30 feet long with 4 piles per bent.
- Trestle work decks are supported by 24-inch steel pipe piles installed in the river substrate.
- Six short work trestles will be required as described below:
    - Two trestles will be installed parallel to and south of the existing eastbound bridge measuring 180-foot in length from the west bank and 120-foot in length from the east bank.
    - Two trestles will be installed parallel to and north of the existing westbound bridge measuring 180-foot in length from the west bank and 120-foot in length from the east bank.
    - Two trestles will be installed between the existing bridges measuring 180-foot in length from the west bank and 120-foot in length from the east bank to construct the temporary bridge in the median.
    - No fingers will be required for the temporary bridge construction trestles.
    - 100 feet of open water will be left between the ends of each set of work trestles to maintain river navigation.
- It is assumed the temporary work trestles will be constructed using a top-down method with minimal need for additional construction access for the installation of the trestle.

- Temporary piles will be vibrated out of the substrate following construction of the replacement bridges.

Should the contractor choose to utilize work barges in the river, they will be anchored in place by 24-inch diameter spuds set in the river substrate. The total number of required barges would be at the discretion of the contractor and is unknown at this time.

-Vessels
The size of watercraft and vessels will be determined by the contractor.

- All watercraft associated with the construction of temporary and permanent bridges will be required to travel at idle speeds during the Shortnose sturgeon migration period to reduce the risk of collision with sturgeon.
- The Wateree River is designated as a State Navigable Water which requires keeping the river open to boat traffic, therefore no more than 50 percent of the river will be blocked during construction activities.

-Demolition and Removal of Existing Bridges
The existing bridges are 1,500 feet long and 43 feet wide (refer to the Attachment 3, bridge as-built plans, and Attachment 4, site photographs). The portions of the bridges that are over the river are approximately 400 feet long.

- In-water work will occur only during daylight hours.
- Each bridge has two concrete piers supported by footings in the river and one on the western edge of the river.
- Each footing measures 12-feet wide by 24-feet long by 5-feet high.
- The concrete bridge decks over the river are supported by steel girders.

Final demolition plans are the responsibility of the contractor and therefore are not available for this analysis.

- The contractor is required to submit a bridge demolition plan prepared by a licensed engineer to SCDOT for review and approval prior to beginning any demolition work.
- It is expected the contractor will implement SCDOT standard bridge demolition techniques such as the use of concrete saws and jack hammers to dismantle the bridge decks.
- The steel girders supporting the decks will likely be lifted off using cranes.
- The demolition of bents and bridge supports may be accomplished by cutting piles with saws, lifted away using cranes, and the footing will be cut of two feet below the mudline. The potential use of coffer dams for footing removal is discussed below.
- If it is determined that explosives are required for demolition, the contractor, SCDOT, and FHWA will initiate additional coordination and consultation with the US Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS).
- Non-hazardous demolition debris will be hauled off site and disposed of in accordance with SCDOT policy and SCDHEC regulations. SCDHEC's September 2021 list of Solid Waste Facilities indicates that there are eight active Construction and Demolition Debris

Recyclers located in Kershaw (1), Richland (3), and Lexington (4) Counties (SCDHEC 2021).

Removal of the footings can be a source of underwater noise. SCDOT is assuming the contractor will install coffer dams around the existing bridge footings and pump them dry for access. A general sequence for the demolition work may resemble the following:

1. Remove the concrete deck.
2. Remove bridge spans and bent caps to expose support columns.
3. Cut off the columns and remove with cranes.
4. Cofferdams will be installed around the footings and dewatered to break them up with a hoe ram.
5. The coffer dams will each measure 20 feet wide by 30 feet long.
6. Repeat process to remove each section of bridge.
7. A total of six coffer dams will be required to remove the footings from the river.
8. The two coffer dams associated with the westernmost footings will be half in the river and half in uplands.

-Installation of Permanent Bridge Piers

The new bridges will be constructed on the existing alignment. The construction of drilled shaft bridge columns will require the contractor to install permanent steel casings to ensure the drilled shaft remains open and does not collapse prior to the pouring of concrete. The permanent casing will act as a concrete form for the shaft. Drilled shafts are expected to be installed by the following process:

1. In-water work will occur only during daylight hours.
2. Install the permanent steel casing using a vibratory hammer until refusal or a depth specified by Geotechnical Engineer of Record.
3. Repeat process to install all required casings for the respective bridge bent.
4. Drill/auger inside casing to set final depth (if necessary) and to prepare for rebar cage installation.
5. Install rebar cage.
6. Pour concrete inside the casing.
7. Repeat steps above until the respective bents are complete.

A total of 194 permanent piers and temporary pipe piles will be installed in the Wateree River to support the new permanent bridges, the temporary bridge, and temporary work trestles. Table 1 provides additional drilled shaft casing and temporary pipe pile information.

Table 1. Pile Installation

Pile Type and Material	*Steel Pipe, Round - Work Trestles*	*Steel, Round - Permanent Bridges*	*Steel, Round – Temporary Bridge*	*Steel Sheet Piles - Cofferdams*
Pile Diameter (inches)	*24-in*	*72-in*	*24-in*	*24-in wide*
Number of Piles Total	*150*	*18*	*32*	*200*
Installation Method	*Impact*	*Vibratory*	*Impact*	*Vibratory*
Number of Strikes per Pile (if using impact hammer) or Number of Seconds of Vibration per Pile (if using vibratory hammer)	*600 strikes*	*10,800 sec*	*600 strikes*	*960 sec*
Number of Piles Installed per Day (if using impact or vibratory hammer)	*2*	*1*	*2*	*10*
Duration of pile driving activity (days)	*75*	*18*	*16*	*20*
Substrate and water depth in pile installation area	*Sand/Silt/Clayey Sand/Gravel, 20ft*	*Sand/Silt/Clayey Sand/Gravel, 20 ft*	*Sand/Silt/Clayey Sand/Gravel, 20 ft*	*Sand/Silt/Clayey Sand/Gravel, 20 ft*
Confined Space or Open Water?	*Confined*	*Confined*	*Confined*	*Confined*
Noise abatement used	*Wood Cushion Block and Slow Starts*	*None*	*Wood Cushion Block and Slow Starts*	*None*

-Bridge Superstructure Construction

- The new bridges will each be 1,515 feet long and 49 feet wide.
- The portion of the bridges over the river will be 400 feet long.
- Navigational clearance will be 34 feet above the ordinary high-water elevation.
- The deck and parapets will be constructed of concrete as will the bent caps.
- The deck over the river will be supported by girders lifted into place with cranes.

-Temporary Bridge Removal and Temporary Work Trestle Removal

Once the contractor has completed construction of the new bridges, all work trestle and temporary bridge piles will be removed from the river by vibratory methods. Work trestle materials are generally reused by contractors on other projects; therefore, no waste will be generated.

Conservation Measures and BMPs

As coordination with resource and regulatory agencies progresses, Environmental Commitments will continue to be developed and become part of the National Environmental Policy Act (NEPA) record for the proposed project. SCDOT and the contractor will be required to honor/implement SCDOT standard Environmental Commitments, and project specific commitments developed through agency coordination and the permitting process. These commitments are recommended to either avoid or minimize potential effects to federally protected species. For species that may be affected by the project, these measures are intended to prevent the potential to adversely affect the species. **The contractor, SCDOT, and FHWA will be required to stay in compliance with all approved environmental conditions established in the CE as well as any special conditions established in the required permit**

authorizations. SCDOT and the contractor will adhere to the applicable Southeast Regional Office (SERO) *Protected Species Construction Conditions* and *Vessel Strike Avoidance Measures* guidance documents (Attachment 5).

Table 2 summarizes Shortnose sturgeon effect minimization commitments identified to date.

Table 2. Effect Minimization Commitments

• The final bridge design will incorporate Project Design Criteria (PDCs) contained in the *Programmatic Biological Evaluation (NLAA) on the Effects of Transportation Activities and Projects Regularly Undertaken in North Carolina, South Carolina, and Georgia* to the extent practicable.
• SCDOT and the contractor will follow the *Protected Species Construction Conditions* and *Vessel Strike Avoidance Measures, NOAA Fisheries Southeast Regional Office* guidance.
• SCDOT and/or the contractor will develop a SWPPP and obtain a National Pollutant Discharge Elimination System (NPDES) permit from the SCDHEC before construction can commence.
• The contractor will adhere to all SCDOT construction and erosion and sediment control BMPs.
• The limits of any clearing, grading, or fill in wetlands will be delineated and shown on approved permitted plans by the USACE and SCDHEC. SCDOT and the contractor will comply with all applicable permits and permit conditions for the placement of fill in wetlands.
• The contractor will be required to comply with State Navigable Waters regulations.
• In-water work will occur only during daylight hours.
• To minimize the potential effects on shortnose sturgeon, the contractor will use "slow start" methods such as ramp up, dry firing, or soft starts at the beginning of bridge support structure installation activities.
• Wood cushion blocks will be used during the 24-inch pipe pile installation as noise abatement.
• The contractor, SCDOT, and FHWA will be required to stay in compliance with all approved environmental conditions established in the CE as well as any special conditions established in the required permit authorizations.

Description of the Action Area

The entire project study area (PSA) is approximately 2.25 miles long and 500 feet wide centered on the I-20 centerline and encompasses approximately 134 acres. The eastern one mile of the PSA is on the Federal Emergency Management Agency (FEMA) designated floodplain of the Wateree River (refer to Attachment 1). The overall terrain is relatively flat within the PSA with elevations ranging from approximately 140 to 150 feet above mean sea level (US Geological Survey, Camden South, and Lugoff 7.5 Minute Quadrangles).

The action area likely to affect the Shortnose sturgeon is limited to the Wateree River where construction and demolition activities will occur. The coordinates of the existing bridges, which will ultimately be the location of the replacement bridges are presented in Table 3.

Table 3. Bridge Coordinates

Existing Bridge	Western End		Eastern End	
	Latitude	Longitude	Latitude	Longitude
Westbound Bridge	34.218153°	-80.627324°	34.217126°	-80.632087°
Eastbound Bridge	34.216881°	-80.632001°	34.217914°	-80.627224°

The extent of the action area within the Wateree River was estimated using the NFMS-SERO "Pile Driving Calculator" tool (henceforth referenced as "SERO Tool") specifically looking at the distances at which behavioral affects may occur due to construction noise since that represents the larger potential effects area that could occur. To evaluate the worst-case scenario, the use of a vibratory hammer to install permanent 72-inch steel casings and an impact hammer to install the 24-inch pipe piles were evaluated. According to the SERO Tool, the action area will extend approximately 3,281 feet (0.6 mile) upstream and downstream from the installation site due to 72-inch casing installation. Installation of the 24-inch pipe piles would cause behavioral effects at only 1,306 feet (0.26 mile) due to their smaller size and with utilizing a wood cushion block for noise abatement. Physical characteristics of the river that could minimize the extent of the action area but were not considered when estimating the reach of the action area, includes two islands in the river upstream of the construction site, with the closest being approximately 380 feet away, and the fact that the action area is in a prominent bend in the river (refer to Attachment 1).

- The action area is situated in the Southeastern Floodplains and Terraces Level IV ecoregion as defined by the US Environmental Protection Agency (EPA, Griffin et.al 2002).
- The action area is located within the Wateree River Basin (Hydrologic Unit Code 8: 03050104;), which is a subset of the much larger Santee Basin (SCDHEC 2022).
- The Wateree River constitutes an approximately 75-mile-long section of a large river system that originates as the Catawba River in Pisgah National Forest located in the Blue Ridge Mountains, east of the town of Black Mountain, North Carolina, and enters the Atlantic Ocean through the Santee River north of McClellanville, and the Cooper River at Charleston, South Carolina.
- Lake Wateree Dam is located approximately 10 river miles (RMI) upstream of the construction site which prevents fish movement beyond that point.
- The Congaree River confluence is 70 RMI downstream.
- The project construction site is approximately 180 RMI from the Atlantic Ocean, which includes passage through Lake Marion and Lake Moultrie (refer to Attachment 1).
- The channel depth of the river at the current bridge locations ranges from approximately 15 to 20 feet.
- Geotechnical investigations describe the top two feet of the river substrate in the westernmost river boring as alluvium, consisting of clayey sand. The top four feet at the eastern river boring site is alluvium consisting predominantly of a sand (61.5 percent), silt (3.3 percent) and gravel (33.4 percent) mixture.
- The river width is approximately 400 feet wide at the current bridges.
- Each existing bridge has two concrete piers supported by concrete footings within the river and one on the western riverbank (refer to Attachments 3 and 4).
- The top bank of the river is approximately 140 feet above mean sea level (USGS Lugoff, SC, 1:24,000 quadrangle).
- An SCDHEC water quality monitoring station (CW-214) is located at the I-20 bridges and the Wateree River is on the 2018 303(d) list of impaired waters due to dissolved

oxygen (DO), mercury, and polychlorinated biphenyls (PCBs) at this location (SCDHEC 2022).
- Boat traffic on the Wateree River consists predominantly of recreational watercraft.
- Two public boat ramps are located approximately 3 RMI upstream at the US 1 crossing and another is approximately 43 RMI downstream at the US 76/378 river crossing.

The adjacent Wateree River floodplain within the PSA consists predominantly of forested and disturbed uplands and forested and disturbed wetlands, as determined during the delineation of waters of the United States (WOTUS) and field surveys for terrestrial protected species (refer to attached figures).

- The current disturbance of upland and wetland habitats within the PSA is due to SCDOT right-of-way (ROW) and bridge maintenance access.
- The floodplain immediately adjacent to the eastern bank of the Wateree River (action area) consists of forested uplands and mowed/maintained ROW around the bridge.
- Floodplain habitat immediately west of the river is like the eastern side except that Buck Creek, an impounded tributary to the Wateree River, converges with the river within the PSA approximately 90 feet south of the eastbound bridge (refer to attached figures).

Potentially Affected NMFS ESA-Listed Species and Critical Habitat

The federally protected species county list was obtained from the USFWS Charleston Field Office website and was dated August 31, 2021 (USFWS 2021). Shortnose sturgeon is the only protected species listed for Kershaw County that falls under the direct jurisdiction of NMFS (see Attachment 5). Suitable habitat for the remainder of the listed species was not identified within the PSA during the field surveys. A Biological Evaluation (BE) to address these species is being prepared for submission to the USFWS.

Shortnose sturgeon are four feet long at maturity with rows of bony plates called scutes along the length of their body and have a dark back with a pale belly. They have short, wide, rounded snouts with four whisker-like barbels for detecting prey. Their tail fin is longer at the top than at the bottom. They are benthic feeders using their large mouths to feed on insects, crustaceans, mollusks, and benthic fish by crushing them with their mouth plates. Shortnose sturgeon spawn in freshwater and forage in mesohaline habitat (salinities of 5-18 ppt). They do venture into the ocean to undergo coastal migrations but are typically estuarine. Males mature at two to three years and may spawn annually, while females mature by six years and spawn every three to five years. Spawning occurs in late winter, typically before Atlantic sturgeon, in water temperatures from 46.4-59 degrees Fahrenheit and water velocities 9.4-51.2 inches/second in gravel substrate (NOAA 2022).

Shortnose sturgeon in the Santee Basin are a dam-locked population and their use of the Wateree River is rare (NMFS et al., 2017). Twenty-one adult sturgeon were verified in the Wateree River during a 5-year study and only 1 of these stayed in the river for an extended period of time, approximately 11 miles from the river's confluence with the Congaree River and the time frame corresponded with their spawning migration period (NMFS et al., 2017). No spawning has been confirmed in the Wateree River and no juveniles have been caught during SC Department of Natural Resources' (SCDNR) fish sampling events (NMFS et al., 2017). SCDNR electronically

monitors the movement of Shortnose sturgeon in South Carolina with tagged individuals and electronic monitoring stations placed at various locations in the state's rivers. Shortnose sturgeon migrate from the upper area of Lake Marion via the Congaree River to spawn near Columbia. According to SCDNR, since 2009, only two tagged Shortnose sturgeon have been detected in the Wateree River in 2011 and they were later detected at a known spawning location in the Congaree River (see Attachment 7). While tagged sturgeon have not been detected in the Wateree River within the project action area, it is reasonable to assume that non-tagged fish could venture into the river. Additionally, according to NMFS's endangered species mapping application (ESA Section 7 Mapper), which aids Federal action agencies in their Section 7 consultation responsibilities under the Endangered Species Act and utilizes the best scientific and commercial data available, the data supports that shortnose sturgeon are potentially present in the action area, particularly adults maturing, holding, migrating and foraging during the months of March 1 through August 1.

We have assessed the listed species that may be present in the action area and our determination of the project's potential effects to them as shown in Table 4 below.

Table 4. ESA-listed Species in the Action Area and Effect Determination(s)

Species	ESA Listing Status	Listing Rule/Date	Most Recent Recovery Plan/Outline Date	Effect Determination (Species)
Fish				
Shortnose sturgeon	E	32 FR 4001/ March 11, 1967	December 1998	NLAA

Critical habitat has not been established for Shortnose sturgeon at this time. The project is not located within designated critical habitat for any other protected species listed in Kershaw County by the USFWS, and there are no potential routes of effect to any critical habitat.

Effects of the Action - Route(s) of Effect to ESA-Listed Species

Sturgeon may be physically injured if struck by construction equipment, vessels, or materials used for demolition of the existing bridge and construction of the replacement bridge. We believe this is extremely unlikely to occur due to the ability of shortnose sturgeon to move away from the project site if disturbed. The agreement by the applicant to implement NMFS's *Protected Species Construction Conditions* will further reduce the risk by requiring all construction workers to watch for ESA-listed species. Operation of any equipment will cease immediately if a protected species is seen within a 50-ft radius of the equipment. Activities will not resume until the protected species has departed the project area of its own volition. Further, construction will occur during daylight hours only and construction workers are more likely to see listed species, if present, and avoid interactions with them.

-Turbidity

Temporary impacts may include increased turbidity in the vicinity of construction and demolition activities. Turbidity is expected to be localized and will only be increased during the installation of the temporary bridge, work trestles, demolition of the existing bridges,

construction of the new bridges support structures, and removal of all temporary structures. According to NMFS (GARFO 2022), fish eggs and larvae are more susceptible to impacts due to high turbidity (total suspended sediment [TSS]) than adults; in addition, high TSS rates can cause low levels of dissolved oxygen (DO) that can affect sub-adult fish to a greater extent than adult fish. They suggest that 14 or more days of TSS levels of 1,000 milligrams per liter (mg/L) can cause physiological and behavioral affects, specifically to sturgeon, and recommend that TSS levels not exceed 50 mg/L when early life stages are in the area. High TSS may affect movements of adult or subadult sturgeon, however the effects are expected to be insignificant, and the fish are likely to swim through the turbid water with no detectible effects (GARFO 2022).

In-water installation of piles and drilled shafts will be intermittent construction activities and due to the water velocity, it is anticipated that turbidity would dissipate rapidly. The contractor will be required to utilize all appropriate SCDOT BMPs for soil and erosion control during construction to minimize the potential impacts and effects of turbidity and the applicable portions of the SERO *Protected Species Construction Conditions* guidance. Therefore, the temporary impacts to sturgeon resulting from increases in turbidity during construction and demolition are expected to be insignificant.

-Vessel Strikes
The likelihood of vessel strikes with any aquatic species is greater with fast moving watercraft, such as recreational boaters. All watercraft utilized in the proposed project will be required to operate at idle speeds during the Shortnose sturgeon migration period. SCDOT and the contractor will comply with the applicable portions of the SERO Vessel Strike Avoidance Measures guidance. Therefore, vessel strikes of Shortnose sturgeon are extremely unlikely to occur.

-Underwater Construction Noise
Construction of the temporary bridge, work trestles, demolition of the existing bridges, and construction of the permanent bridges will generate underwater noise.

Increased underwater noise from the project would be intermittent and relatively short with an estimated maximum of eight hours per day during the use of an auger to construct the drilled shaft supports and the temporary pipe piles. Demolition of the existing footings within coffer dams will help attenuate the underwater noise created by hoe-rams and jack hammers. **To minimize the potential effects on Shortnose sturgeon during the migration period, "slow start" methods such as ramp up, dry firing, or soft starts, in combination with cushion blocks, will be used during the installation of piles when using an impact hammer.**

If an individual sturgeon chooses to remain within the action area, it could be exposed to behavioral and physical noise effects during pile installation and alter its behavioral pattern. However, due to the mobility of sturgeon, they are expected to move away from noise disturbances to similar habitat nearby and resume normal behaviors (Krebs et. al 2012). In addition, sturgeon will be able to resume normal activities during quiet periods between pile installations. Noise created by pile-driving activities can physically injure animals or change animal behavior in the affected areas. Injurious effects can occur in 2 ways. First, immediate

adverse effects can occur if a single noise event exceeds the threshold for direct physical injury. Second, effects can result from prolonged exposure to noise levels that exceed the daily cumulative sound exposure level (SEL_{cum}) for the animals, and these can constitute adverse effects if animals are exposed to the noise levels for sufficient periods. Behavioral effects can be adverse if such effects interfere with an animal's behavior such as migrating, feeding, resting, or reproducing. To minimize potential noise impacts to species, the applicant has agreed to use noise abatement measures (e.g., temporary noise attenuation piles or bubble curtains) to reduce noise levels.

The noise analysis in this consultation evaluates effects to ESA-listed fish identified by NMFS that may be affected by the proposed action, which occurs in an open-water environment. SERO Protected Resources Division defines an open-water environment as any area where an animal would be able to move away from the noise source without being forced to pass through the radius of noise effects. When multiple pile types and/or installation methods are proposed, the noise analysis in this consultation will evaluate the worst-case scenario. That is, we will present the pile type and/or installation method with the largest effect radius and assume all other pile-driving noise effects will fall within that radius. NMFS uses the U.S. Navy Phase III criteria (U.S. Department of the Navy 2017) for the thresholds listed below. Peak Sound Pressure Level (PK) and Root Mean Square sound pressure are referenced to decibel at 1 micropascal (dB 1 µPA). Sound Exposure Level (SEL) and SEL_{cum} are referenced to dB at 1 micropascal squared second (μPA^2-second).

According to the NMFS Multi-species Pile Driving Tool (NMFS 2021), the installation of two 24-in steel pile by impact hammer using noise abatement measures will not cause PK injurious noise effects to ESA-listed fishes. However, the SEL_{cum} exposure of multiple pile strikes over the course of a day may cause injury to ESA-listed fishes at a radius of up to 433 ft (132 m) away from the pile-driving operations. We believe SEL_{cum} injurious noise effects are extremely unlikely to occur due to the mobility of these species. Movement away from the injurious sound radius is a behavioral response which is discussed below.

According to the NMFS Multi-species Pile Driving Tool, the installation of two 24-in steel pile by impact hammer using noise abatement measures could result in behavioral noise effects to ESA-listed fishes at a radius of up to 13,058 ft (3,981 m) away from the pile-driving operations. We believe behavioral noise effects will be insignificant due to the mobility of these species, the project occurring in an open-water environment, and the similarity of nearby habitat. If an individual chooses to remain within the behavioral response zone, it could be exposed to behavioral noise effects during pile installations. Since pile installations will occur intermittently during daylight hours only and up to 8 hours per day, these species will be able to resume normal activities during quiet periods between pile installations and at night.

According to the NMFS Multi-species Pile Driving Tool, the installation of one 72-in steel pile by vibratory hammer over the course of the day may cause SELcum injurious noise effects to ESA-listed species at a radius of up to 36 ft (11 m) away from the pile-driving operations. We believe SELcum injurious noise effects are extremely unlikely to occur because this distance is within the 150 ft (46 m) “stop-work” radius defined in SERO’s *Protected Species Construction Conditions*. Movement away from the injurious sound radius is a behavioral response, which is discussed below.

According to the NMFS Multi-species Pile Driving Tool, the installation of one 72-in steel pile by vibratory hammer could result in behavioral noise effects to ESA-listed species at a radius of up to 72 ft (22 m) away from the pile driving operations. We believe behavioral noise effects will be insignificant due to the mobility of these species and the similarity of nearby habitat in this open-water environment. If an individual chooses to remain within the behavioral response zone, it could be exposed to behavioral noise effects during pile installations. Since pile installations will occur intermittently during daylight hours only, these species will be able to resume normal activities during quiet periods between pile installations and at night.

-Habitat Loss

Spawning habitat has not been identified in the Wateree River; however, potential foraging habitat is present within the Action Area. The installation of 12, 72-inch drilled shaft piers in the river will result in the loss of 340 square feet of potential foraging habitat. However, removal of the 4,288 square-foot existing footings will result in the net restoration of approximately 3,948 square feet of foraging habitat. Pile installed in the river for the temporary work trestles, temporary bridge, coffer dams for footing removal, and the bulkheads will all be removed upon completion of the new bridges; therefore, these will not result in a permanent loss of habitat. The effect to sturgeon from the potential loss of foraging or refuge habitat due to the placement of pile-supported structures is insignificant. Sturgeon are a mobile species that forage over large areas and the area of impact is relatively small compared to the surrounding river habitat available. Additionally, we believe these effects will be insignificant due to the availability of similar river substrate nearby.

The proposed action includes the use of barges and the use of turbidity curtains that may preclude or deter listed species from entering a project area. We believe the temporary exclusion from the project area due to the project activities, including the presence of turbidity curtains, will have an insignificant effect on listed species. Turbidity curtains will enclose only portions of the project site at any given time and will be removed after project completion. However, listed species excluded from the project area will be able to use surrounding areas with similar available habitat during the project and return to the project site when the activity is complete.

Conclusion

The SCDOT and FHWA has reviewed the proposed project for its effects to ESA-listed species and their critical habitat. Based on the analysis above, as well as NMFS's recent finding on SCDOT PID P030462 (SERO-2020-01919, see Attachment 8) located on the Wateree River downstream of this project, we have determined that replacement of the I-20 bridges over the Wateree River is **not likely to adversely affect** any listed species or critical habitat under NMFS's jurisdiction. We have used the best scientific and commercial data available to complete this analysis. We request your concurrence with this determination.

Sincerely,

Will McGoldrick

Will McGoldrick, Assoc. DBIA
Alternative Delivery Environmental Coordinator
South Carolina Department of Transportation

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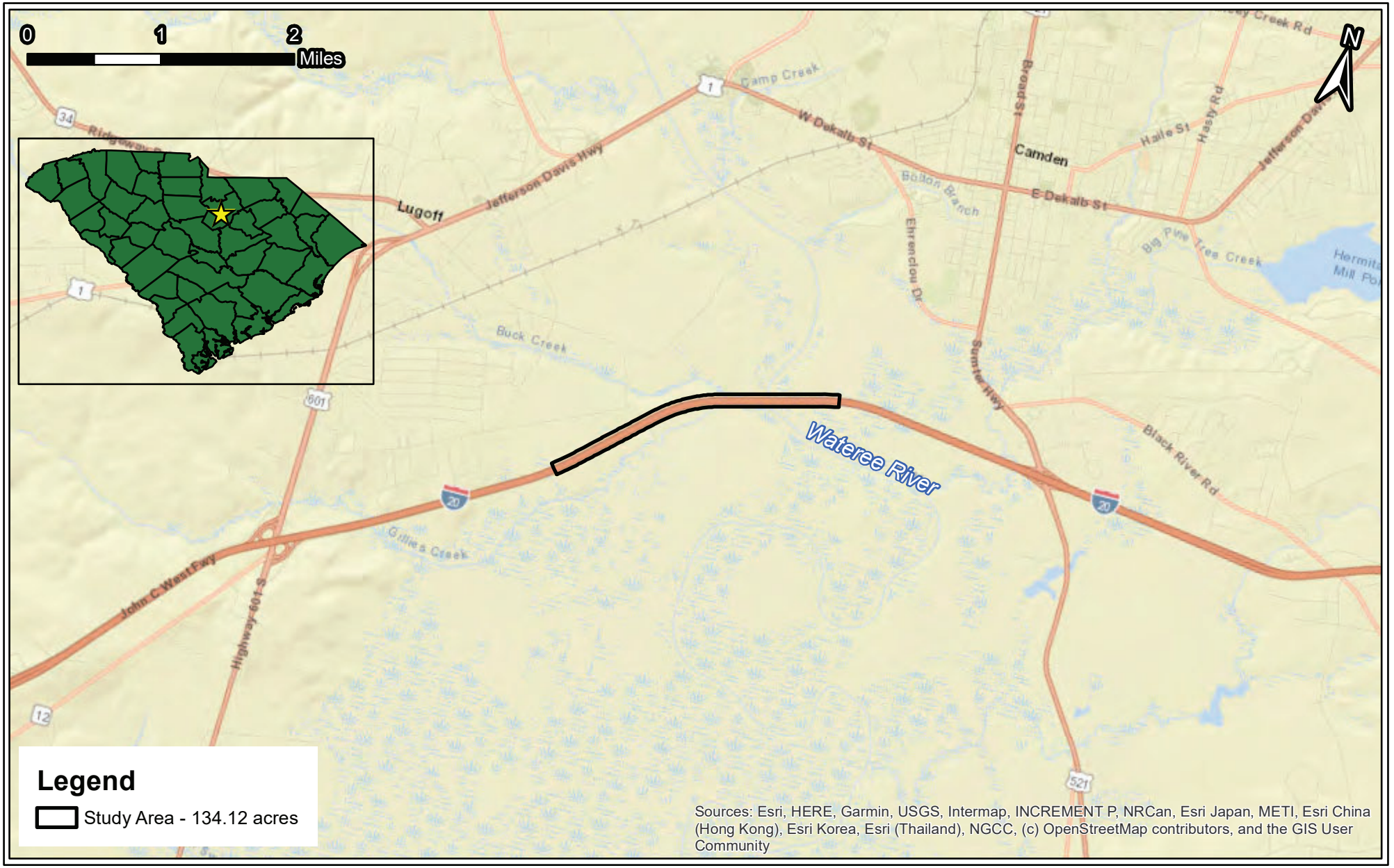
ATTACHMENT 1
FIGURES



THREE OAKS ENGINEERING

Prepared For:

SCDOT
South Carolina Department of Transportation

I-20 over Wateree River
Bridge Replacements

Location Map

Kershaw County, South Carolina

Date:	December, 2021
Scale:	1 in = 1 miles
Job No.:	21-003
Drawn By:	ZCB
Checked By:	AGM

Figure
1

THREE OAKS ENGINEERING

Prepared For:

SCDOT
South Carolina Department of Transportation

I-20 over Wateree River Bridge Replacements

Aerial Photography

Kershaw County, South Carolina

Date:	December, 2021
Scale:	1 in = 1,500 ft
Job No.:	21-003
Drawn By:	ZCB
Checked By:	AGM

Figure 2

THREE OAKS ENGINEERING

Prepared For:

SCDOT
South Carolina Department of Transportation

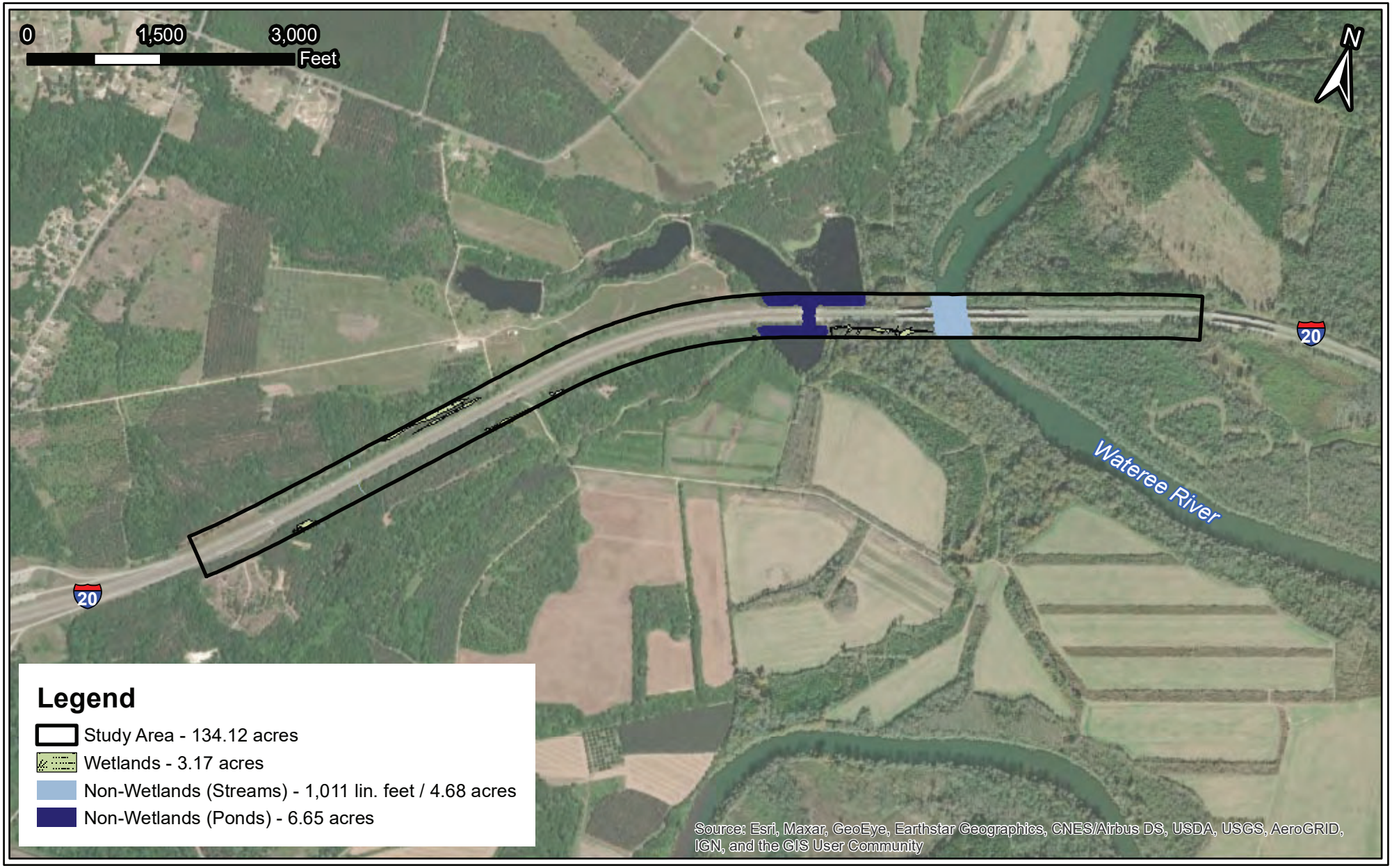
I-20 over Wateree River
Bridge Replacements

Topographic Map

Kershaw County, South Carolina

Date:	December, 2021
Scale:	1 in = 1,500 ft
Job No.:	21-003
Drawn By:	ZCB
Checked By:	AGM

Figure
3



THREE OAKS ENGINEERING

Prepared For:

SCDOT®
South Carolina Department of Transportation

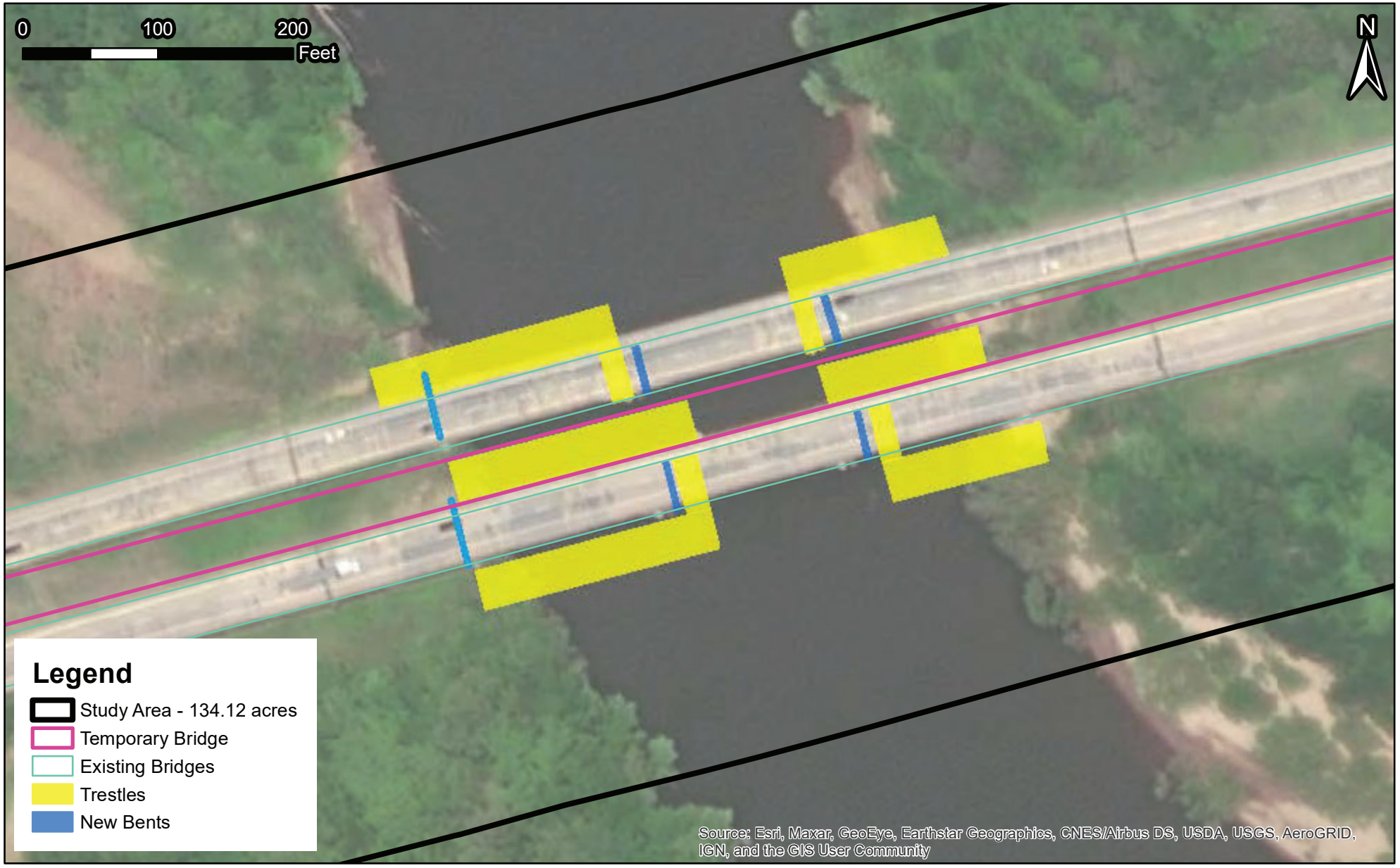
I-20 over Wateree River
Bridge Replacements

Waters of the US

Kershaw County, South Carolina

Date:	December, 2021
Scale:	1 in = 1,500 ft
Job No.:	21-003
Drawn By:	ZCB
Checked By:	AGM

Figure
4



THREE OAKS ENGINEERING · THREE OAKS ENGINEERING

Prepared For:

SCDOT®
South Carolina Department of Transportation

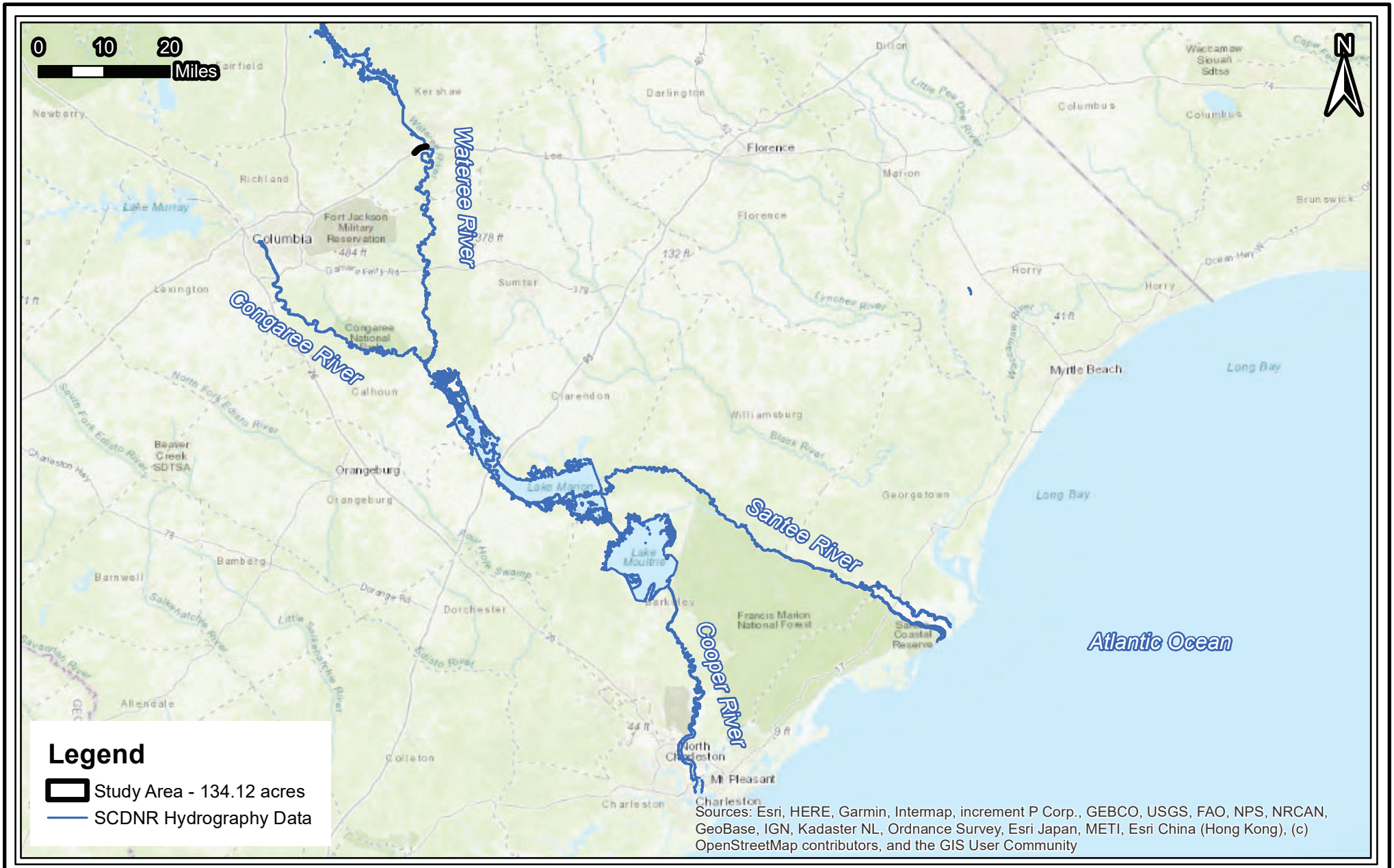
I-20 over Wateree River
Bridge Replacements

Proposed Temporary Bridge
&
Work Trestles

Kershaw County, South Carolina

Date:	December, 2021
Scale:	1 in = 100 ft
Job No.:	21-003
Drawn By:	ZCB
Checked By:	AGM

Figure
5



Prepared For:

SCDOT
South Carolina Department of Transportation

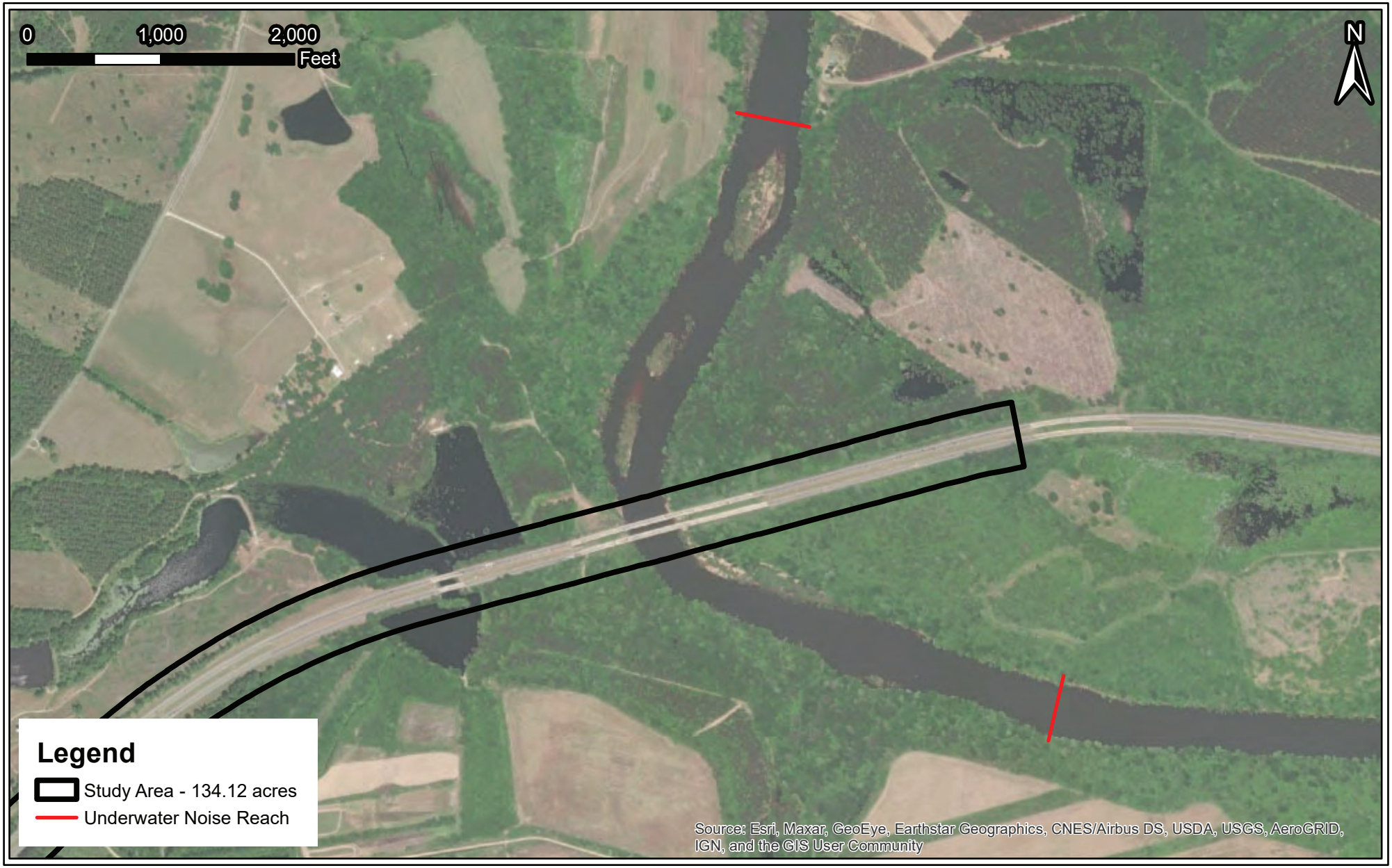
I-20 over Wateree River Bridge Replacements

Biological Evaluation

Kershaw County, South Carolina

Date:	December, 2021
Scale:	1 in = 20 miles
Job No.:	21-003
Drawn By:	ZCB
Checked By:	AGM

Figure 6



THREE OAKS ENGINEERING

Prepared For:

SCDOT
South Carolina Department of Transportation

I-20 over Wateree River Bridge Replacements

Potential Behavioral Reach

Kershaw County, South Carolina

Date:	January, 2022
Scale:	1 in = 1,000 ft
Job No.:	21-003
Drawn By:	ZCB
Checked By:	AGM

Figure 7

ATTACHMENT 4
BRIDGE PHOTOGRAPHS

A view of the existing I-20 bridges facing south southeast.

A view of the existing I-20 bridges facing north northeast.

A view of the eastern bank of the Wateree River.

A view of the western bank of the Wateree River.

Existing I-20 bridge piers (facing south).

Westbound I-20 bridge (facing southwest).

Eastbound I-20 bridge (facing southwest).

Portion of the Wateree River bridge through the floodplain, east of the river.

Confluence of Buck Creek and the Wateree River.

ATTACHMENT 5

VESSEL STRIKE AVOIDENCE MEASURES

VESSEL STRIKE AVOIDANCE MEASURES, NOAA FISHERIES SOUTHEAST REGIONAL OFFICE

Background

Vessel strikes can injure or kill species protected under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). NOAA Fisheries Southeast Regional Office (SERO) Protected Resources Division (PRD) recommends implementing the following identification and avoidance measures to reduce the risk of vessel strikes and disturbance from vessels to protected species under our jurisdiction.[1]

Protected Species Sightings

All vessel operators and crews should be informed about the potential presence of species protected under the ESA and the MMPA and any critical habitat in a vessel transit area. All vessels should have personnel onboard responsible for observing for the presence of protected species. All personnel should be advised that there are civil and criminal penalties for harming, harassing, or killing listed species and all marine mammals. To determine which protected species and critical habitat may be found in the transit area, please review the relevant marine mammal and ESA-listed species at Find A Species (https://www.fisheries.noaa.gov/find-species) and any ESA Section 7 consultation documents if applicable.

Vessel Strike Avoidance

The following measures should be taken when they are consistent with safe navigation to avoid causing injury or death of a protected species:

1. Operate at the minimum safe speed when transiting and maintain a vigilant watch for protected species to avoid striking them. Even with a vigilant watch, most marine protected species are extremely difficult to see from a boat or ship, and you cannot rely on detecting them visually and then taking evasive action. The most effective way to avoid vessel strikes is to travel at a slow, safe speed. Whenever possible, assign a designated individual to observe for protected species and limit vessel operation to only daylight hours.

2. Follow deep-water routes (e.g., marked channels) whenever possible.

3. Operate at "Idle/No Wake" speeds in the following circumstances:
    a. while in any project construction areas
    b. while in water depths where the draft of the vessel provides less than four feet of clearance from the bottom, or
    c. in all depths after a protected species has been observed in and has recently departed the area.

[1] Manatees are managed under the jurisdiction of the U.S. Fish and Wildlife Service.

4. When a protected species is sighted, attempt to maintain a distance of 150 feet or greater between the animal and the vessel. Reduce speed and avoid abrupt changes in direction until the animal(s) has left the area.

5. When dolphins are bow- or wake-riding, maintain course and speed as long as it is safe to do so or until the animal(s) leave the vicinity of the vessel.

6. If a whale is sighted in the vessel's path or within 300 feet from the vessel, reduce speed and shift the engine to neutral. Do not engage the engines until the animals are clear of the area. *Please see below for additional requirements for North Atlantic right whales.*

7. If a whale is sighted farther than 300 feet from the vessel, maintain a distance of 300 feet or greater between the whale and the vessel and reduce speed to 10 knots or less. *Please see below for additional requirements for North Atlantic right whales.*

Injured or Dead Protected Species Reporting
Vessel crews should report sightings of any injured or dead protected species immediately regardless of whether the injury or death is caused by your vessel. Please see How to Report a Stranded or Injured Marine Animal (https://www.fisheries.noaa.gov/report) for the most up to date information for reporting injured or dead protected species.

If the injury or death is caused by your vessel, also report the interaction to NOAA Fisheries SERO PRD at takereport.nmfsser@noaa.gov. Please include the species involved, the circumstances of the interaction, the fate and disposition of the animal involved, photos (if available), and contact information for the person who can provide additional details if requested. Please include the project's Environmental Consultation Organizer (ECO) number and project title in the subject line of email reports if a consultation has been completed.

Reporting Violations
To report any suspected ESA or MMPA violation, call the NOAA Fisheries Enforcement Hotline. This hotline is available 24 hours a day, 7 days week for anyone in the United States.

NOAA Fisheries Enforcement Hotline: (800) 853-1964

Additional Transit and Reporting Requirements for North Atlantic Right Whales

1. Federal regulation prohibits approaching or remaining within 500 yards of a North Atlantic right whale (50 CFR 224.103 (c)). All whales sighted within North Atlantic right whale critical habitat should be assumed to be right whales. Please be aware and follow restrictions for all Seasonal Management Areas along the U.S. east coast. These areas have vessel speed restrictions to reduce vessel strikes risks to migrating or feeding whales. More information can be found at Reducing Vessel Strikes to North Atlantic Right Whales (https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales).

2. Ships greater than 300 gross tons entering the WHALESOUTH reporting area are required to report to a shore-based station. For more information on reporting procedures consult 33 CFR Part 169, the Coast Pilot, or at Reducing Vessel Strikes to North Atlantic

Right Whales (https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales).

3. From November through April, vessels approaching/departing Florida ports of Jacksonville and Fernandina Beach as well as Brunswick Harbor, Georgia are STRONGLY RECOMMENDED to use Two-Way Routes displayed on nautical charts. More information on Compliance with the Right Whale Ship Strike Reduction Rule can be found at (https://media.fisheries.noaa.gov/2021-06/compliance_guide_for_right_whale_ship_strike_reduction.pdf)

4. Mariners shall check with various communication media for general information regarding avoiding vessel strikes and specific information regarding North Atlantic right whale sighting locations. These include NOAA weather radio, U.S. Coast Guard Broadcast to Mariners, Local Notice to Mariners, and NAVTEX. Commercial mariners calling on United States ports should view the most recent version of the NOAA/USCG produced training CD entitled "A Prudent Mariner's Guide to Right Whale Protection" (contact the NOAA Fisheries SERO, Protected Resources Division for more information regarding the CD).

5. Injured, dead, or entangled right whales should be immediately reported to the U.S. Coast Guard via VHF Channel 16 and the NOAA Fisheries Southeast Marine Mammal Stranding Hotline at (877) WHALE HELP (877-942-5343).

For additional information, please contact NOAA Fisheries SERO PRD at:
NOAA Fisheries Service
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701
Visit us on the web at Protected Marine Life in the Southeast
(https://www.fisheries.noaa.gov/region/southeast#protected-marine-life)

Revised: May 2021

ATTACHMENT 6

FEDERALLY PROTECTED SPECIES IN KERSHAW COUNTY

KERSHAW COUNTY

CATEGORY	COMMON NAME/STATUS	SCIENTIFIC NAME	SURVEY WINDOW/ TIME PERIOD	COMMENTS
Amphibians	None Found			
Birds	Bald eagle (BGEPA)	*Haliaeetus leucocephalus*	October 1-May 15	Nesting season
	Red-cockaded woodpecker (T)	*Picoides borealis*	March 1-July 31	Nesting season
Crustaceans	None Found			
Fishes	Robust redhorse (ARS)	*Moxostoma robustum*	Late April-early May	Temperature dependent: 16-24°C
	Shortnose sturgeon* (E)	*Acipenser brevirostrum**	February 1-April 30	Spawning migration
Insects	Monarch butterfly (C)	*Danaus plexippus*	August-December	Overwinter population departs: March-April
Mammals	Tri-colored bat (ARS)	*Perimyotis subflavus*	Year round	Found in mines and caves in the winter
Mollusks	Carolina heelsplitter (E, CH)	*Lasmigona decorata*	March 1-September 30	Optimal survey window
Plants	Carolina-birds-in-a-nest (ARS)	*Macbridea caroliniana*	July-November	
	Georgia aster (ARS*)	*Symphyotrichum georgianum*	Early October-mid November	
	Michaux's sumac (E)	*Rhus michauxii*	May-October	
	Wire-leaved dropseed (ARS)	*Sporobolus teretifolius*	August-September	Following fire
Reptiles	None Found			

*	Contact National Marine Fisheries Service (NMFS) for more information on this species.
**	The U.S. Fish and Wildlife Service (FWS) and NMFS share jurisdiction of this species.
ARS	Species that the FWS has been petitioned to list and for which a positive 90-day finding has been issued (listing may be warranted); information is provided only for conservation actions as no Federal protections currently exist.
ARS*	Species that are either former Candidate Species or are emerging conservation priority species.
BGEPA	Federally protected under the Bald and Golden Eagle Protection Act
C	FWS or NMFS has on file sufficient information on biological vulnerability and threat(s) to support proposals to list these species.
CH	Critical Habitat
E	Federally Endangered
P or P – CH	Proposed for listing or critical habitat in the Federal Register
S/A	Federally protected due to similarity of appearance to a listed species
T	Federally Threatened

These lists should be used only as a guideline, not as the final authority. The lists include known occurrences and areas where the species has a high possibility of occurring. Records are updated as deemed necessary and may differ from earlier lists.

For a list of State endangered, threatened, and species of concern, please visit https://www.dnr.sc.gov/species/index.html.

ATTACHMENT 7
SCDNR COMMUNICATION

Wade Biltoft

From: Bill Post <PostB@dnr.sc.gov>
Sent: Tuesday, November 12, 2019 4:08 PM
To: Wade Biltoft; Russell Chandler
Cc: Brian L. Taylor; coopercb@scdot.org; Ellen Waldrop
Subject: RE: US 76 over Wateree River: Shortnose sturgeon
Attachments: Wateree River_SNS.csv

Hi Wade,

Attached are requested data from the receiver located near Hwy 378 in the Wateree River. Data span from 2009 through our most recent download in 2018. As mentioned, a total of 2 tagged shortnose sturgeon have been detected since October 2009. This occurred only in 2011 and has not occurred since. These fish were detected well upriver, but immediately left the river and were later located at the known spawning location in the Congaree River. The attached detection data file lists the fish by a unique number. For example, "ATS 1" is the same fish throughout the spreadsheet. Please note the disclaimer and let me know if you have any questions regarding these data.

Disclaimer to accompany the release of technical information to consultants or others on projects under public review presently or potentially under public review in the future

These technical comments are submitted to speak to the general impacts of the activities as described through inquiry by parties outside the South Carolina Department of Natural Resources. These technical comments are submitted as guidance to be considered and are not submitted as final agency comments that might be related to any unspecified local, state or federal permit, certification or license applications that may be needed by any applicant or their contractors, consultants or agents presently under review or not yet made available for public review. In accordance with its policy 502.01, Comments on Projects Under Department Review, the South Carolina Department of Natural Resources, reserves the right to comment on any permit, certification or license application that may be published by any regulatory agency which may incorporate, directly or by reference, these technical comments.

Bill

Bill Post
S.C. Department of Natural Resources
Diadromous Fishes Coordinator
217 Fort Johnson Rd.
Charleston, SC 29412
Office: (843)953-9821
Cell: (843)209-1644

From: Wade Biltoft <wade.biltoft@threeoaksengineering.com>
Sent: Tuesday, November 12, 2019 12:19 PM
To: Bill Post <PostB@dnr.sc.gov>
Cc: Brian L. Taylor <btaylor@davisfloyd.com>; coopercb@scdot.org; Russell Chandler <russell.chandler@threeoaksengineering.com>
Subject: US 76 over Wateree River: Shortnose sturgeon

Bill,

Thank you again for taking the time to speak with me this morning. As we discussed, SCDOT is proposing to replace the westbound bridge of US 76/378 over the Wateree River in Richland and Sumter Counties. We are tasked with generating a biological report for the project and documenting potential impacts to any federally protected species for Richland and Sumter Counties. We learned of the possible presence of Shortnose sturgeon (*Acipenser brevirostrum*) within the Wateree River through Duke Energy's Catawba-Wateree Project FERC Order and informal communication via email from Greg Mixon with SCDNR.
Any information you are able to provide us regarding occurrences of Shortnose sturgeon will be much appreciated. I've attached a map of the bridge location per your request. If you need any additional information, feel free to email me or call me at 864-978-8484.

Respectfully,
Wade

Wade Biltoft, MEERM
Environmental Scientist
Three Oaks Engineering
1022 State Street, Building 2
Cayce, SC 29033

ATTACHMENT 8

NMFS Letter SCDOT PID P030462/ SERO-2020-01919

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
https://www.fisheries.noaa.gov/region/southeast

F/SER31:JC
SERO-2020-01919

Edward Frierson
SCDOT Midlands NEPA Coordinator/Biologist
South Carolina Department of Transportation
PO Box 191
Columbia, SC 29202-0191

Dear Mr. Frierson:

This letter responds to your request for consultation with us, the National Marine Fisheries Service (NMFS), pursuant to Section 7 of the Endangered Species Act (ESA) for the following action.

Agency	Project Number	SERO Number	Project Type(s)
South Carolina Department of Transportation (SCDOT)	SCDOT PID P030462	SERO-2020-01919	Bridge Demolition and Replacement Construction

Consultation History
We received your letter requesting consultation on July 7, 2020. We requested additional information on July 16, 2020, but it was unclear at that time who the project manager was for the South Carolina Department of Transportation (SCDOT). After a couple of follow up emails and phone calls in July/August 2020, the SCDOT contacted NMFS on October 2, 2020, to respond to our initial request for additional information and provide us with the contact information for the SCDOT project manager for this consultation. Following review of that information NMFS sent an additional request for information on February 15, 2021. SCDOT provided the requested information on March 18, 2021, and consultation was initiated on that date. Follow up emails were sent on March 30 and March 31, 2021, to clarify final project details. The project has been assigned the following tracking number in the NMFS Environmental Consultation Organizer (ECO), SERO-2020-01919. Please refer to this number in any future inquiries regarding this project.

Project Location

Address	Latitude/Longitude (North American Datum 1983)	Water body
US 76/378 crossing the Wateree River 137 river miles (RMI) north of the river outlet to the Atlantic Ocean, Richland and Sumter Counties, South Carolina (SC)	• NW: 33.947278, -80.630906 • SW: 33.947194, -80.630885 • NE: 33.948287, -80.623437 • SE: 33.948201, -80.62342	Wateree River

Existing Conditions
The Wateree River is a continuation of the Catawba River that begins in the Blue Ridge Mountains in North Carolina. The Wateree River is about 75 miles (mi) long and is a tributary of the Santee River in central South Carolina, which flows to the Atlantic Ocean via the Santee River Basin (Figure 1). The Wateree River flows generally southward between Richland and Sumter Counties in the project area. The project location is approximately 137 RMI from the Atlantic Ocean, which includes

passage through Lake Marion and Lake Moultrie. The dams associated with these impoundments present an obstacle for migrating sturgeon, but do not entirely prevent their upstream movement. At the project site, the width of the main deeper-water navigational channel of the Wateree River is approximately 60 feet (ft) wide and the full river width is approximately 300 ft wide at the point where the 2 bridges (eastbound and westbound bridges) are located. Water depths in the river are approximately 14 ft at normal water levels and the project site elevation is approximately 184 ft above mean sea level (E. Frierson, SCDOT, pers. comm. to J. Cavanaugh, NMFS, March 18, 2021). Salinity at the project site ranges from 12 to 17 parts per thousand (Biological Evaluation [BE], June 23, 2020).

The Wateree Bridge is approximately 50 RMI (approximate distance estimate based on biologist using NOAA Consultation Webmap [ArcView]) downstream of the Wateree hydroelectric dam forming a manmade lake (Wateree Lake). The project area does not contain any sensitive habitats or spawning areas for shortnose sturgeon or any distinct population segment of Atlantic sturgeon (Confirmed by NMFS ESA-listings and independently through Atlantic and Shortnose Sturgeon Coordinator (March 1, 2021). The proposed work is adjacent to the South Carolina Division of Natural Resources (SCDNR) Wateree Heritage Preserve/Wildlife Management Area (WHP). The applicant describes the project area as the site of the bridge (Figure 2) and includes up to 0.64 mi upriver and downriver due to the maximum noise effects (in this case behavioral noise effects to sturgeon from vibratory hammer installation of 72-inch drilled shafts) from the proposed action that are discussed further in the effects analysis. Much of the terrestrial habitat within the project area is dominated by bottomland hardwood forest associated with the floodplain of the Wateree River. The areas of higher elevation are the constructed causeways for US 76/378. The vegetative community is dominated by common water-tolerant species such as sweetgum, red maple and loblolly pine.

Atlantic sturgeon are not likely to be regularly present in the Wateree River. Dams on the Cooper River (Pinopolis Dam) and Santee River (St. Stephens and Santee/Wilson Dam) prevent them from making regular trips to the Wateree River. On occasion, an Atlantic sturgeon slips into Lake Marion or Lake Moultrie above these dams but these individuals do not fare well generally and are not thought to make it past the confluence of the Wateree and Congaree Rivers. For the purpose of a short-term construction project such as the proposed bridge replacement, NMFS assumes Atlantic sturgeon are not present in the project area.

For shortnose sturgeon, the project area is further upriver than this species is anticipated because they have not been tracked that far upriver in several years, since 2012-2015 (Post et al., 2018-2019). However, it should be noted that those last detections of shortnose sturgeon were at the base of the Wateree River and none have been detected from 4 other acoustic receivers within the Wateree River outside of the river basin. Shortnose sturgeon have been detected making spawning runs much further downriver where the Wateree River meets the confluence of the Congaree River.

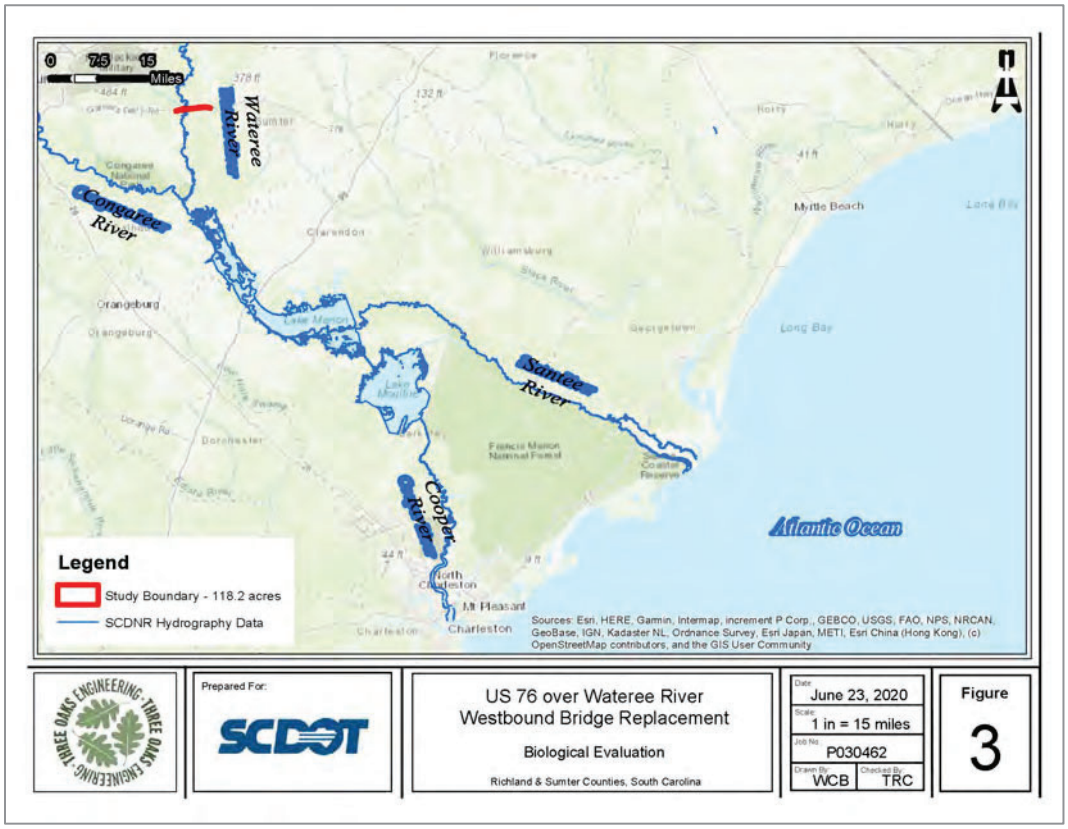


Figure 1. Project site outlined in red in top left corner of image in relation to the South Carolina river system and Atlantic Ocean; image from the June 2020 BE submitted by the SCDOT.

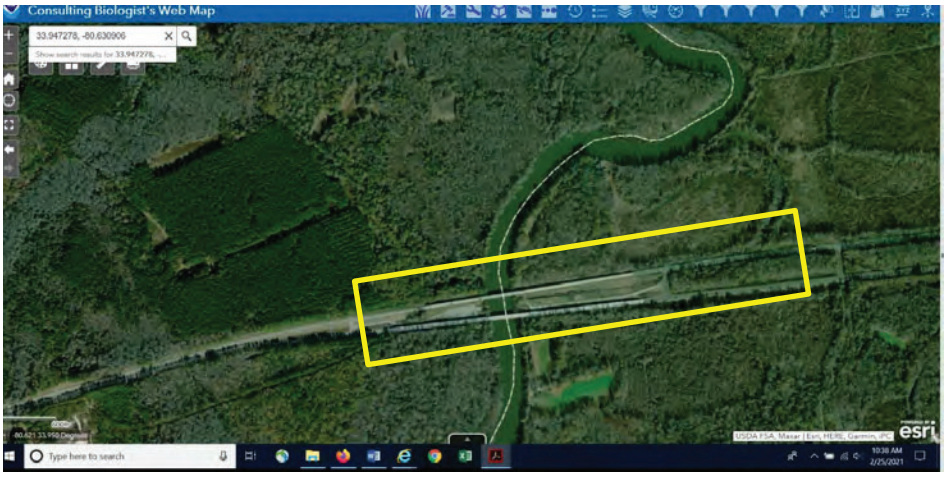


Figure 2. Image of the project location (outlined in yellow rectangle) where construction may affect ESA-listed species (US 76/378 crossing the Wateree River) (© 2021 NOAA ArcGIS)

Project Description

The Wateree River Bridge is part of US 76/378 that has separate eastbound and westbound bridges, the westbound bridge will be replaced for this proposed action. The new bridge will be 2,311.17 ft in length and have two 12 ft wide travel lanes, two 10 ft wide shoulders, and 1,125 ft long concrete

barriers on each edge. This 46.25 ft-wide by 2,311.17 ft-long bridge will replace the existing 35.58 ft-wide by 2293.5 ft-long bridge. The surface area of structures directly over the Wateree River will increase by approximately 4,150 square feet (ft^2). The new bridge will have 2 bents installed within the river channel. Each bent will be supported by 2 drilled shafts, for a total of 4 drilled shafts within the main channel of the Wateree River. These will replace the 2 piers that are currently within the channel. All demolition and construction work will be accomplished from work barges.

The existing westbound bridge will first be demolished and all traffic routed through the eastbound bridge until construction is completed. Demolition and new bridge construction will occur using bridge trestles or a line of barge mats. Deeper water and the main channel of the Wateree River would be accessed via barges for construction. Barges may be delivered and moved via water and transport vessels or via land on flatbed trucks with cranes and other heavy equipment. At no point would barges in the Wateree River block more than 50% of the river channel and sturgeon would have access upriver throughout construction. The existing superstructures in the river channel will be cut to 2 ft below the mudline; however, the entire superstructures do not need removal because they do not interfere with the new bridge construction. The bridge piers will be demolished using 1 or a combination of the following methods: hydraulic breakers (e.g., jack hammer), or dismantling (cutting bridge, piers) into manageable sections.

The existing 2 support piers for the westbound lane bridge currently occupy approximately 115 ft^2 of river substrate. The 4 drilled shafts of the new bridge combined will permanently impact approximately 115 ft^2 of river bottom essentially replacing the area currently covered by the support piers. Each shaft will be 72 inches (in) wide and will be installed via vibratory hammer.

Permanent steel casings will be installed in the shafts and each drilled shaft will be installed using a vibratory hammer taking approximately 180 min of driving per shaft. Once the steel casings are in place, the core is drilled out so a rebar cage can be installed. Concrete fill is then poured into the drilled shaft. It is anticipated that 1 casing will be installed in a 24-hour (hr) period.

Construction is expected to begin in 2022. Construction of the bridge phase over the Wateree River would last approximately 36 mo (3 years [yr]). Within that 3-yr period, in-river work will take an estimated 8 weeks (E. Frierson, SCDOT, pers. comm. to J. Cavanaugh, NMFS, March 31, 2021) mostly for construction related to the 2 drilled shaft bents. This project is expected to be delivered via the design build process and final construction sequencing will be determined by the contractor.

Construction Conditions

All work will be accomplished during daytime periods only and will be completed from work barges with no temporary work trestles needed. SCDOT is following Best Management Practices (BMPs) and Avoidance and Minimization Measures proscribed by the SCDNR (described in the incoming BE from the SCDOT). Upon the recommendation of SCDNR, the SCDOT will attempt to do all construction outside of potential shortnose spawning season (January-April). Once initiated, in-water construction will be carried to completion in an expeditious manner to minimize the period of disturbance. Other applicable BMPs related to in-water/shoreline work for the bridge replacement include:

- SCDOT and the selected contractors will comply with the Navigable Waters Permit and the parameters of channel width/navigability required by said permit;
- All necessary measures must be taken to prevent oil, tar, trash and other pollutants from entering nearby waterbodies;
- Any backfill and riprap used must consist of clean earthen material and stone free of all potential sources of pollution;
- Prior to beginning any land disturbing activity, appropriate erosion and siltation control measures (i.e. silt fences or barriers) must be in place and maintained in a functioning capacity until the area is permanently stabilized;
- Once the project is initiated, construction must be carried to completion in an expeditious manner to minimize the period of disturbance to the environment;
  Causeway construction activities must avoid and minimize, to the greatest extent practicable, disturbance of woody shoreline vegetation within the project area. Removal of vegetation should be limited to only what is necessary for construction of the proposed causeways. Trees and shrubs should be cut flush with the ground surface with root structure left intact, except in areas where it is necessary to create a safe and level work surface;
- Disturbed stream banks should be restored with an appropriate slope for stability and stabilized using bio-engineering techniques with vegetative cover and other control erosion methods as appropriate. Supplemental plantings of grasses and woody vegetation should be installed in areas where vegetation was removed. These plantings should consist of appropriate native species for the ecoregion;
- Any backfill and riprap used must consist of clean earthen material and stone free of all potential sources of pollution;
- All necessary measures must be taken to prevent oil, tar, trash and other pollutants from entering nearby waterbodies;
- The project must be in compliance with any applicable floodplain, stormwater, land disturbance or buffer requirements. The project should be designed and managed in accordance with current state and local land disturbance and stormwater management regulations to prevent impairment of water quality.
- Equipment does not obstruct or impede passage through more than 50% of the Wateree River;
- “Slow starts” for pile driving, barge movement, and other vessel movement are used.

Effects Determinations for Species the Action Agency or NMFS Believes May Be Affected by the Proposed Action

Species	ESA Listing Status[1]	Action Agency Effect Determination[2]	NMFS Effect Determination
Atlantic Sturgeon, South Atlantic DPS[3]	E	NP	NP
Shortnose Sturgeon	E	NLAA	NLAA

[1] E = Endangered
[2] NLAA = May affect, not likely to adversely effect, NP = Not present
[3] DPS = Distinct Population Segment

Critical Habitat
The project is not located in designated critical habitat, and there are no potential routes of effect to any designated critical habitat.

Analysis of Potential Routes of Effect to Species
Sturgeon may be physically injured if struck by construction equipment, vessels, or materials used for demolition of the existing bridge and construction of the replacement bridge. We believe this is extremely unlikely to occur due to the ability of shortnose sturgeon to move away from the project site if disturbed. The agreement by the applicant to implement NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* will further reduce the risk by requiring all construction workers to watch for ESA-listed species. Operation of any equipment will cease immediately if a protected species is seen within a 50-ft radius of the equipment. Activities will not resume until the protected species has departed the project area of its own volition. Additionally, physical injury from construction equipment is extremely unlikely due to the infrequency with which sturgeon are likely to be near the action area and the applicants preferred adherence to a seasonal work moratorium from January through April, to avoid the period when shortnose sturgeon would be most likely to be using the project area.

Construction activities, and related construction noise may prevent or deter sturgeon from entering the project area. We believe the effects to this species from temporary exclusion from the project area due to construction activities, including related noise will be insignificant. The animals likely spend very little time in or around the action area – in addition the SCDOT will work outside of the most likely time period when shortnose sturgeon would be in the project area (January-April) making it very unlikely the species will be present during construction. However, if shortnose sturgeon are present, they would only be excluded from a limited project area temporarily (i.e., a small portion of the total 36-month construction period for demolition and construction [8 weeks]). Sturgeon would permanently be excluded from 115 ft^2 of river habitat lost to the bents (e.g., substrate) which is the equivalent amount of area that is currently covered by the existing bridge support piers so there is no permanent net loss in river substrate from the new bridge. Lastly, 115 ft^2 is a very small area of river habitat in relation to the available habitat within the project area and outside of the project area within the Wateree River.

Noise created by pile driving activities can physically injure animals or change animal behavior in the affected areas. Injurious effects can occur in two ways. First, immediate adverse effects can occur to listed species if a single noise event exceeds the threshold for direct physical injury. Second, effects can result from prolonged exposure to noise levels that exceed the daily cumulative exposure threshold for the animals, and these can constitute adverse effects if animals are exposed to the noise levels for sufficient periods. Behavioral effects can be adverse if such effects interfere with animals migrating, feeding, resting, or reproducing, for example. Our evaluation of effects to listed species as a result of noise created by construction activities is based on the analysis prepared in support of the biological opinion for SAJ-82 (NMFS 2014). The noise analysis in this consultation evaluates effects to ESA-listed fish identified by NMFS as potentially affected in the table above.

Four 72-inch drilled shafts (2 shafts/bent) will be used in the mainstem of the Wateree River where sturgeon could occur. Each drilled shaft would be approximately 6 ft in diameter and installed with a vibratory hammer. Based on our noise calculations, installation of these piles by vibratory hammer, could cause a single-strike or peak-pressure injurious noise effect at a distance of 6 ft (6.062 ft rounded down to 6 ft). Sturgeon could also be injured by cumulative sound exposure caused by vibratory hammer use, but we believe this route of effect is extremely unlikely to occur. The

cumulative sound exposure level (cumulative SEL) produced by the vibratory hammer over the course of a day may cause injury to a sturgeon weighing 102 grams or more at a distance of 8 ft away (7.743 ft rounded to 8 ft); sturgeon weighing less than 102 grams are not anticipated in the project area. As stated previously, we anticipate sturgeon are unlikely to be in the project area based on the best available information. Additionally, due to the mobility of sturgeon, we expect them to move away from noise disturbances, even if they were in the project area. Therefore, we believe this potential route of effect is extremely unlikely to occur.

Sturgeon behavior (i.e., foraging, migrating [no spawning in project area]) could be affected by vibratory hammer use, but we believe behavioral effects will be insignificant. Installation of the drilled shafts could result in behavioral effects within a radius of up to 3,381 ft (3,380.84 ft rounded to 3,381 ft) or 0.64 mi. Based on the best available information, sturgeon do not appear to be using the Wateree River in the project area for foraging, migrating, spawning; thus, we anticipate sturgeon are unlikely to be in the project area and are an unlikely to have any essential life activities interrupted by the proposed action. That said, if sturgeon are present in the action area, behavioral disturbance from noise during installation of drilled shafts may block passage up- and down-river through the project site. NMFS believes this potential effect is insignificant because the actual in-water duration of this source of noise exclusion to sturgeon would only occur for about 8 weeks during daylight hours only (2 weeks of in-water work per installed shaft x 4 total shafts = 8 weeks). Sturgeon would be able to transverse the project area up- or down-river during evening hours or after the conclusion of the peak behavioral disturbance duration (i.e., 8 weeks).

Conclusion

Because all potential project effects to listed species were found to be extremely unlikely to occur, insignificant, or beneficial, we conclude that the proposed action is not likely to adversely affect listed species under NMFS's purview. This concludes your consultation responsibilities under the ESA for species under NMFS's purview. Consultation must be reinitiated if a take occurs or new information reveals effects of the action not previously considered, or if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identified action. NMFS's findings on the project's potential effects are based on the project description in this response. Any changes to the proposed action may negate the findings of this consultation and may require reinitiation of consultation with NMFS.

We look forward to further cooperation with you on other projects to ensure the conservation of our threatened and endangered marine species and designated critical habitat. If you have any questions on this consultation, please contact Joseph Cavanaugh, Consultation Biologist, at (727) 551-5097, or by email at Joseph.Cavanaugh@noaa.gov.

Sincerely,

David Bernhart
Assistant Regional Administrator
for Protected Resources

File: 1514-22.l.2

Literature Cited

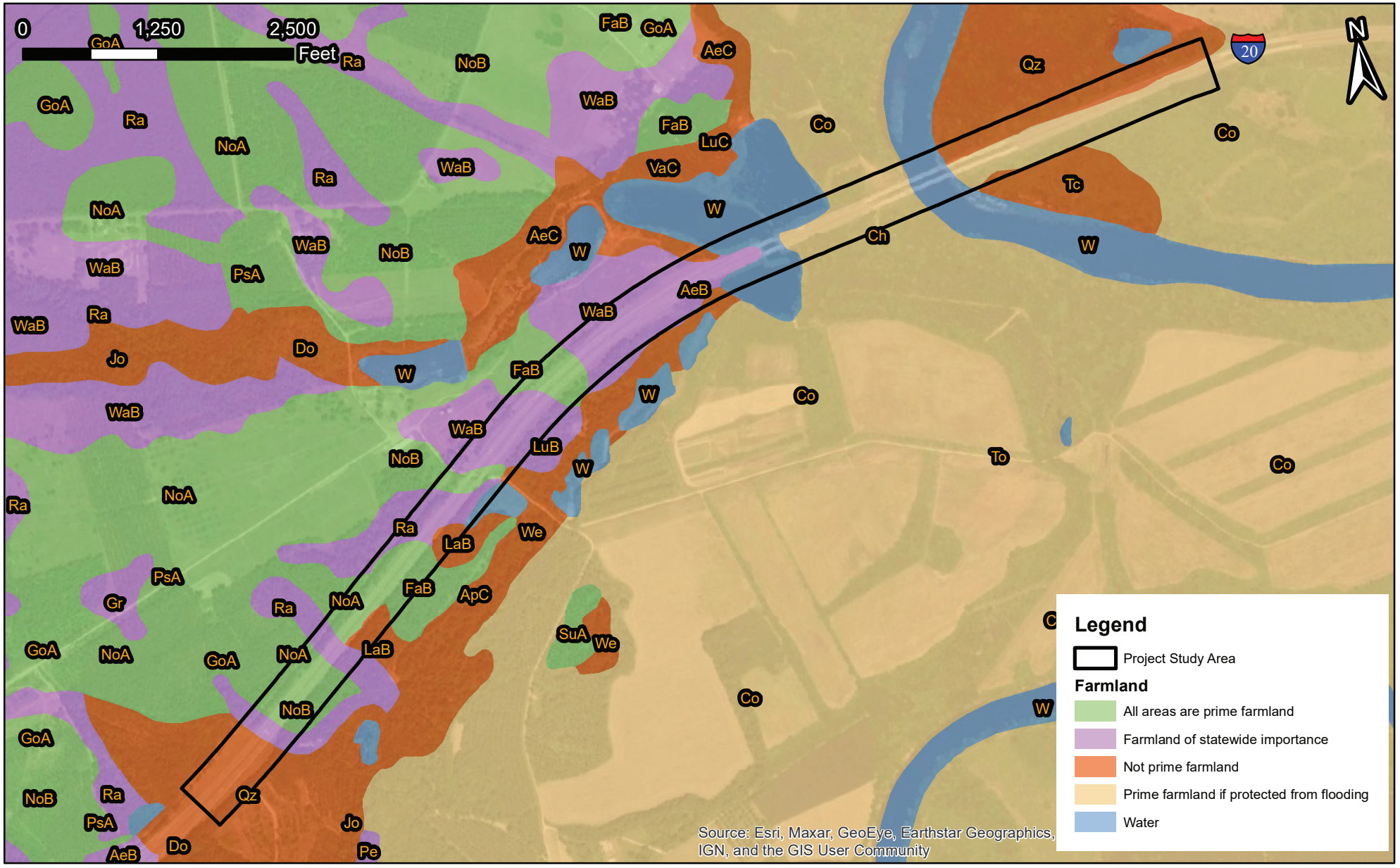
Civil Engineering Consulting Service, 2020, Biological Evaluation of US 76/378 Wateree River Westbound Bridge Replacement- prepared for National Oceanic and Atmospheric Administration, National Marine Fisheries Service by. 20 pp with Appendices. June 23, 2020

NMFS.2014 Biological Opinion on Regional General Permit. SAJ-82 (SAJ-2007-01590), Florida Keys, Monroe County, Florida. June 10, 2014.

Post et al., 2018-2019 Santee Accord—Distribution and Movement of Shortnose Sturgeon, and Continued Monitoring and Maintenance of an Existing Acoustic Receiver Array (2 separate annual reports)

APPENDIX H

FARMLAND



Prepared For:

I-20 over Wateree River Overflow Bridges Rehabilitation

Kershaw County, South Carolina

Date:	April 2022
Scale:	1 in = 1,250 ft
Job No.:	21-003
Drawn By:	SME
Checked By:	CS

Figure

NRCS Farmlands Classification

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 3/31/22	4. Sheet 1 of 1
1. Name of Project I-20 over Wateree River	5. Federal Agency Involved FHWA	
2. Type of Project NPCE	6. County and State Kershaw County, South Carolina	
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS	2. Person Completing Form
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☐ NO ☐	4. Acres Irrigated	Average Farm Size
5. Major Crop(s)	6. Farmable Land in Government Jurisdiction Acres: %	7. Amount of Farmland As Defined in FPPA Acres: %
8. Name Of Land Evaluation System Used	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment			
	Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	0			
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0			
C. Total Acres In Corridor	0			
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*				

PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points				
1. Area in Nonurban Use	15	15			
2. Perimeter in Nonurban Use	10	10			
3. Percent Of Corridor Being Farmed	20	0			
4. Protection Provided By State And Local Government	20	0			
5. Size of Present Farm Unit Compared To Average	10	0			
6. Creation Of Nonfarmable Farmland	25	0			
7. Availablility Of Farm Support Services	5	0			
8. On-Farm Investments	20	0			
9. Effects Of Conversion On Farm Support Services	25	0			
10. Compatibility With Existing Agricultural Use	10	0			
TOTAL CORRIDOR ASSESSMENT POINTS	160	25	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	0	0	0	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	25	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	25	0	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
A	0		YES ☐ NO ☑

5. Reason For Selection:

Signature of Person Completing this Part: Brittany Hollowell

DATE 3/31/22

NOTE: Complete a form for each segment with more than one Alternate Corridor

CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor - type site or design alternative for protection as farmland along with the land evaluation information.

(1) How much land is in nonurban use within a radius of 1.0 mile from where the project is intended?
More than 90 percent - 15 points
90 to 20 percent - 14 to 1 point(s)
Less than 20 percent - 0 points

(2) How much of the perimeter of the site borders on land in nonurban use?
More than 90 percent - 10 points
90 to 20 percent - 9 to 1 point(s)
Less than 20 percent - 0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?
More than 90 percent - 20 points
90 to 20 percent - 19 to 1 point(s)
Less than 20 percent - 0 points

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?
Site is protected - 20 points
Site is not protected - 0 points

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County ? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage or Farm Units in Operation with $1,000 or more in sales.)
As large or larger - 10 points
Below average - deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average - 9 to 0 points

(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?
Acreage equal to more than 25 percent of acres directly converted by the project - 25 points
Acreage equal to between 25 and 5 percent of the acres directly converted by the project - 1 to 24 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project - 0 points

(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?
All required services are available - 5 points
Some required services are available - 4 to 1 point(s)
No required services are available - 0 points

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?
High amount of on-farm investment - 20 points
Moderate amount of on-farm investment - 19 to 1 point(s)
No on-farm investment - 0 points

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?
Substantial reduction in demand for support services if the site is converted - 25 points
Some reduction in demand for support services if the site is converted - 1 to 24 point(s)
No significant reduction in demand for support services if the site is converted - 0 points

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?
Proposed project is incompatible to existing agricultural use of surrounding farmland - 10 points
Proposed project is tolerable to existing agricultural use of surrounding farmland - 9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland - 0 points

APPENDIX I

ASBESTOS AND LEAD PAINT SURVEY

Asbestos & Lead Paint Survey Report

Interstate 20 Bridges Over Wateree River
Kershaw County, South Carolina
Bridge Nos. 05779 & 05784

March 11, 2022
Terracon Project No. 7321P043A
SCDOT Project ID P029450

ASBESTOS DETECTED (ASSET 05779): NO

LEAD PAINT DETECTED (ASSET 05779): YES

ASBESTOS DETECTED (ASSET 05784): NO

LEAD PAINT DETECTED (ASSET 05784): YES

Prepared for:
RS&H, Inc.
North Charleston, South Carolina

Prepared by:
Terracon Consultants, Inc.
Columbia, South Carolina

March 11, 2022

RS&H, Inc.
4000 Faber Place Drive, Suite 130
North Charleston, South Carolina 29405

Attn: Mr. Andrew Smith, P.E., S.E.
P: (843) 203-7810
E: Andrew.Smith@rsandh.com

Re: ***Asbestos & Lead Paint Survey Report***
Interstate 20 Bridges over the Wateree River
Asset Nos. 05779 & 05784
Kershaw County, South Carolina
SCDOT Project No. P029450
Terracon Project No. 7321P043A
RS&H Project No. 1444024002

Dear Mr. Smith:

Terracon Consultants, Inc. (Terracon) is pleased to present the results of the asbestos and lead paint survey performed on March 3, 2022, at the Interstate 20 bridges over the Wateree River located in Kershaw County, South Carolina. We understand that this survey was requested due to the planned replacement of the structures.

Terracon appreciates the opportunity to provide environmental consulting services for RS&H, Inc. and the South Carolina Department of Transportation. If you should have any questions regarding this report, please contact the undersigned at (803) 741-9000.

Sincerely,
Terracon Consultants, Inc.

Owen Astwood, P.G.
Project Geologist
SC Asbestos Building Inspector No. BI-00475

Norman E. Partin, Jr., CHMM
Department Manager

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1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) conducted an asbestos and lead paint survey of building materials at the eastbound and westbound Interstate 20 Bridges (Asset Nos. 05779 & 05784) over the Wateree River located in Kershaw County, South Carolina. The asbestos survey was conducted on March 3, 2022 by a South Carolina Department of Health and Environmental Control (SCDHEC) licensed asbestos building inspector in general accordance with our Work Order No. 1, dated March 25, 2021. Structure components were surveyed and homogeneous areas of suspect asbestos-containing materials (ACM) were visually identified and documented. Although reasonable effort was made to survey accessible suspect materials, additional suspect but un-sampled materials could be located in walls, in voids or in other concealed areas. Suspect ACM was sampled in general accordance with the sampling protocols outlined in EPA Regulation 40 CFR 763 (Asbestos Hazard Emergency Response Act, AHERA). Samples were delivered to an accredited laboratory for analysis.

1.1. Project Objective

We understand the asbestos survey was requested due to the planned replacement of the bridges. EPA regulation 40 CFR 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP), prohibits the release of asbestos fibers to the atmosphere during renovation/demolition activities. NESHAP requires that potentially regulated ACM be identified, classified and quantified prior to planned disturbances or renovation activities.

The objective of the lead paint evaluation was to identify lead containing paint on the structures that may require special handling and disposal considerations. SCDHEC regulates solid waste disposal under Regulation 61-107.19. Testing was performed to meet specific State disposal requirements and does not comply with all parts of the Occupational Health and Safety Administrations (OSHA) lead regulations. Testing to comply with OSHA regulations are not covered in our scope of work since it is the responsibility of the contractor to protect its employees.

Paint samples were collected from visible and accessible structural components and submitted to an Environmental Laboratory Accreditation Program (ELAP) approved laboratory for analysis of lead.

2.0 STRUCTURE DESCRIPTION

The subject bridges service two-lane interstate highways approximately two miles west of Camden in Kershaw County. The bridges consist of concrete deck sections supported by steel beams. The bridge deck is concrete and has concrete curbs and rails. The bridge deck is supported by concrete bent caps which are located on concrete piles. The bridge structures are approximately 1,950 feet long. The northern bridge (westbound) is approximately 40 feet wide. The southern eastbound bridge is approximately 30 feet wide. The bridges were in-use at the time of the assessment.

3.0 ASBESTOS SURVEY

The asbestos survey was conducted by South Carolina Department of Health and Environmental Control (SCDHEC) licensed Asbestos Building Inspector Mr. Adam Chapiesky (License No. BI-01971, exp. 1/18/23). The survey was conducted on March 3, 2022, in general accordance with the sampling protocols established by EPA Regulation 40 CFR 763, AHERA and the SCDHEC Regulation 61-86.1. A summary of survey activities is provided below.

3.1 Regulatory Overview

The asbestos NESHAP (40 CFR Part 61, Subpart M) regulates asbestos fiber emissions and asbestos waste disposal practices. It also requires the identification and classification of existing building materials prior to demolition or renovation activity. Under NESHAP, asbestos-containing materials are classified as either friable, Category I non-friable or Category II non-friable ACM. Friable materials are those that, when dry, may be crumbled, pulverized or reduced to powder by hand pressure. Category I non-friable ACM includes packing materials, gaskets, resilient floor coverings and asphalt roofing products containing more than 1 percent (%) asbestos. Category II non-friable ACM are non-friable materials that contain more than 1% asbestos and cannot be classified as Category I materials.

Friable ACM, Category I and Category II non-friable ACM which is in poor condition and has become friable or which will be subjected to drilling, sanding, grinding, cutting or abrading and which could be crushed or pulverized during anticipated demolition activities are considered regulated ACM (RACM). RACM must be removed prior to renovation or demolition activities.

In the state of South Carolina, asbestos activities are regulated by SCDHEC under SCDHEC Regulation 61-86.1 *Standards of Performance for Asbestos Projects*. SCDHEC requires that any asbestos-related activity conducted in a public building be performed by personnel licensed by SCDHEC. The owner or operator must provide SCDHEC with written notification of planned removal activities at least 10 working days prior to the commencement of asbestos abatement activities involving RACM. Asbestos abatement must be performed by SCDHEC-licensed asbestos

abatement contractors in accordance with a Project Design prepared by a SCDHEC-licensed Asbestos Consultant. Third-party air monitoring must be conducted during the abatement activities.

The Occupational Safety and Health Administration (OSHA) Asbestos Standard for Construction Industry (29 CFR 1926.1101) regulates workplace exposure to asbestos. The OSHA standard requires that employee exposure to airborne asbestos fibers be maintained below 0.1 asbestos fibers per cubic centimeter of air (0.1 f/cc). The OSHA standard classifies construction and maintenance activities, which could disturb ACM, and specifies work practices and precautions which employers must follow when engaging in each class of regulated work.

3.2 Visual Assessment

Our survey activities began with visual observation of the structure to identify apparent homogeneous areas of suspect ACM. A homogeneous area consists of building materials, which appear similar throughout in terms of color, texture and apparent date of application. Building materials which were not identified as concrete, glass, wood, masonry, metal or rubber were considered suspect ACM.

3.3 Physical Assessment

A physical assessment of each homogeneous area of suspect ACM was conducted to assess the friability and condition of the materials. A friable material is defined by the EPA as a material, which can be crumbled, pulverized or reduced to powder by hand pressure when dry. Friability was assessed by physically touching suspect materials.

3.4 Sample Collection

Based on the results of the visual sampling, bulk samples of suspect ACM were collected in general accordance with AHERA sample collection protocols. Random samples of suspect materials were collected in each homogeneous area. Bulk samples were collected using wet methods as applicable to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker.

Eighteen (18) bulk samples were collected from areas of suspect ACM on the bridges. The bulk samples were collected from the following materials:

- Black, bituminous expansion joint material;
- Putty expansion joint material; and
- Asphalt shingle friction pads.

A summary of the suspect ACM samples collected during the survey is presented in Table 1 in Appendix A.

3.5 Sample Analysis

Bulk samples were submitted under chain of custody to EMSL Analytical, Inc. (EMSL), of Pineville, North Carolina for analysis by polarized light microscopy (PLM) with dispersion staining techniques per EPA methodology (600/R-93/116). The percentage of asbestos, where applicable, was determined by microscopical visual estimation. EMSL is accredited under the National Voluntary Laboratory Accreditation Program NVLAP (200841-0).

SCDHEC Regulation 61-86.1 *Standards of Performance for Asbestos Projects*, requires negative results for non-friable organically bound (NOB) materials (such as flooring and roofing materials) be verified using Transmission Electron Microscopy (TEM) analysis.

The three suspect materials are considered NOB materials. The materials tested negative for asbestos by PLM analysis and thus one sample of each was submitted and analyzed by TEM.

3.6 Finding and Recommendations

Based on the results of laboratory analyses, **no asbestos was detected** in the expansion joint and friction barrier samples collected from the bridges. These results were confirmed by TEM analysis. Asbestos laboratory analytical reports are included in Appendix B.

4.0 LEAD-CONTAINING PAINT SURVEY

4.1 Regulatory Overview

Lead is regulated by the EPA, SCDHEC and OSHA. The EPA and SCDHEC regulate lead use, removal, and disposal, and OSHA regulates lead exposure to workers. The EPA defines LBP as paint, varnish, stain, or other applied coating that contains lead equal to or greater than 1.0 mg/cm^2, 5,000 mg/kg, or 0.5% by dry weight as determined by laboratory analysis. The SCDHEC regulations 61-107.19 require that painted demolition debris with a lead concentration greater than 0.06% by weight be disposed in a permitted Class II landfill. For the purpose of the OSHA lead standard, lead includes metallic lead, all inorganic lead compounds, and organic lead soaps. The complete OSHA standard for compliance can be found on OSHA's website (www.osha.gov). A synopsis of the OSHA regulations (29 CFR 1926.62) and the applicability are as follows:

The OSHA *Lead Standard for Construction* (29 CFR 1926.62) applies to all construction work where an employee may be occupationally exposed to lead. All work related to construction, alteration, or repair (including painting and decorating) is included. The lead-in-construction standard applies to any detectable concentration of lead in paint, as even small concentrations of lead can result in unacceptable employee exposures depending upon on the method of removal and other workplace conditions. Under this standard, construction includes, but is not limited to, the following:

- Demolition or salvage of structures where lead or materials containing lead are present
- Removal or encapsulation of materials containing lead
- New construction, alteration, repair, or renovation of structures, substrates, or portions containing lead, or materials containing lead
- Installation of products containing lead
- Lead contamination/emergency clean-up
- Transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed
- Maintenance operations associated with construction activities described above

4.2 Sampling and Analytical Protocol

Mr. Adam Chapiesky of Terracon conducted the lead paint sampling on March 3, 2022. The paint sampling was conducted by collecting paint chip samples from painted bridge surfaces likely to contain lead. The paint samples were collected down to the surface substrate so as to include any underlying paint systems in the analysis. The random paint chip samples were selected based on current paint schemes and may not be inclusive of old paint systems covered with existing painted systems. The paint chip samples were submitted to an ELAP approved laboratory for analysis of lead by NIOSH Method 7082M (atomic absorption).

4.3 Sample Collection

Two (2) paint samples were collected from exterior painted surfaces on the structures. The paint and substrate sampled is included below:

- Gray paint on metal beams.

4.4 Findings and Recommendations

Laboratory analysis detected lead concentrations in both samples at 0.014% by weight. This concentration is below the SCDHEC threshold of 0.06% by weight and the EPA threshold of 0.5% by weight for definition as lead-based paint.

SCDHEC regulations require that lead painted demolition debris be disposed in a permitted Class II landfill. Landfills should be contacted to determine their specific disposal requirements. Metal components painted with lead-based paint may be recycled however the recycler should be contacted to determine their specific requirements. Additionally, the provisions in the OSHA Standard for Lead (29 CFR 1926.62) should be followed by contractor personnel conducting work activity during the demolition. A summary of the lead paint laboratory results is presented in Table 2 in Appendix A. The analytical report is included in Appendix B.

5.0 GENERAL COMMENTS

This survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions and recommendations expressed in this report are based on conditions observed during our survey of the structure. The information contained in this report is relevant to the date on which this survey was performed and should not be relied upon to represent conditions at a later date.

This report has been prepared on behalf of and exclusively for use by RS&H, Inc. and the SCDOT for specific application to their project as discussed.

This report is not a bidding document. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary. Terracon does not warrant the work of regulatory agencies, laboratories or other third parties supplying information, which may have been used in the preparation of this report. No warranty, express or implied is made.