ARM ENVIRONMENTAL SERVICES, INC.

ASSESSMENT & REMEDIAL SERVICES DIVISION

TRANSMITTAL COVER PAGE

TO: **Michael Patrick**

COMPANY / AGENCY: **US Army Corps of Engineers; Charleston District**

FROM: **Richard Ciccolella**

RE: **US 701 Bridge Replacement Project Over the Great Pee Dee River, Pee Dee River Overflow, and Lake Yauhannah**
Horry and Georgetown Counties, SC
Request for Wetland Determination
SCDOT Const. Pin No. 30688
SCDOT File No. 22.124B

DATE: **September 21, 2009**

TRANSMITTAL VIA: **___ Standard US Mail _X_ Priority US Mail**

___ Overnight Courier ___ E-Mail

COMMENTS:

Mr. Patrick,

Enclosed is a Request for Wetland Determination package for the SCDOT Bridge Replacement Project Over the Great Pee Dee River, Pee Dee River Overflow, and Lake Yauhannah at the Horry / Georgetown County border.

The delineation was done a while back; however, the project was placed on hold prior to a Corps submittal. No significant changes have been noted. A brief narrative description of the project and associated wetlands is included. The wetlands are part of the Great Pee Dee River floodplain; the Great Pee Dee River being a TNW.

Thank you,

- Richard Ciccolella

1210 1st STREET SOUTH EXTENSION / COLUMBIA, SC 29209 / phone 803-783-3314 fax 803-783-2587

Regulatory Division - Charleston District-Corps of Engineers 69-A Hagood Avenue Charleston, South Carolina 29403

REQUEST FOR WETLANDS DETERMINATION

Date: 8-3-09 (9-21-09)

County: Horry and Georgetown **Total Acreage of Tract:** Approx. 2 Mile x 300 ft

Project Name (if applicable): US 701 Bridge Replacement Over the Great Pee Dee River, Great Pee Dee Over Flow and Lake Yauhannah

Property Owner
(name, address, phone):

For SCDOT
P.O Box 191
Columbia, SC 29202
(William "Tyke" Redfearn, III) 803-737-1430

Agent/Developer/Engineer
(name, address, phone):

ARM Environmental Services, Inc.
1210 First Street South Ext.
Columbia, SC 29209
(Richard Ciccolella) 803-783-3314

Status of Project (check one):

- ☐ On-going site work for development purposes
- ☒ Development in planning stages
- ☐ No specific development plans at this time

Project Type - Indicate the **proposed** use of the land in question or, if no specific work is planned at present, indicate the current zoning or land use at the site. (check one):

- ☐ Residential
- ☐ Commercial
- ☐ Mixed Use (Residential + Commercial)
- ☐ Industrial
- ☐ Agriculture
- ☐ Public Works
- ☐ Silviculture
- ☐ Aquaculture
- ☒ Other: SCDOT Bridge Replacement Project

Information Required to Accompany Request - Check the items submitted - forward as much information as is available. At a minimum, the first two items must be forwarded:

- ☒ Accurate Location Map (from County Map, USGS Quad Sheet, etc.)
- ☒ Survey Plat or Tax Map of the Property in Question
- ☒ Soil Survey Sheet (from USDA-NRCS) or Aerial Photo (from County Assessor's Office or other source). Property boundaries should be show on the soil survey / photo.
- ☐ Topographic Survey
- ☐ Conceptual Site Plan for the Overall Development

Endangered Species Evaluation:
Has the site been evaluated for the presence of federally protected (endangered, threatened or proposed) species and/or any proposed or designated critical habitat for such species? (YES) NO

If Yes, has this evaluation been coordinated with the US Fish and Wildlife Service (FWS)? YES (NO)

If coordination has occurred, please provide the FWS Log number and enclose a copy of the report:
FWS Log Number: _____ Copy of Report enclosed? YES NO

If the evaluation has not been coordinated with the US FWS, enclose a copy of your report of findings.

IMPORTANT NOTE: Legible printed name and signature required. The person signing this form must be the present property owner or have the specific authority of the property owner to authorize Corps of Engineers employees or their agents to enter onto the property for on-site investigations if such is deemed necessary.

Do not sign this form unless you are the owner, or have the specific authority of the property owner.

The signature of the owner or authorized agent on this form constitutes prior consent to disclose these records to other federal, state or local governmental agencies and the public at large.

PRINTED NAME of person signing this form, below: RICHARD CICCOLELLA (ARM ENV. SVCS.)

Signature of Property Owner or Authorized Agent: Richard Ciccolella (AS AGENT FOR SCDOT)

Copies of this form may be obtained from the Charleston District web site at: http://www.sac.usace.army.mil/permits/form_JDRequest.pdf

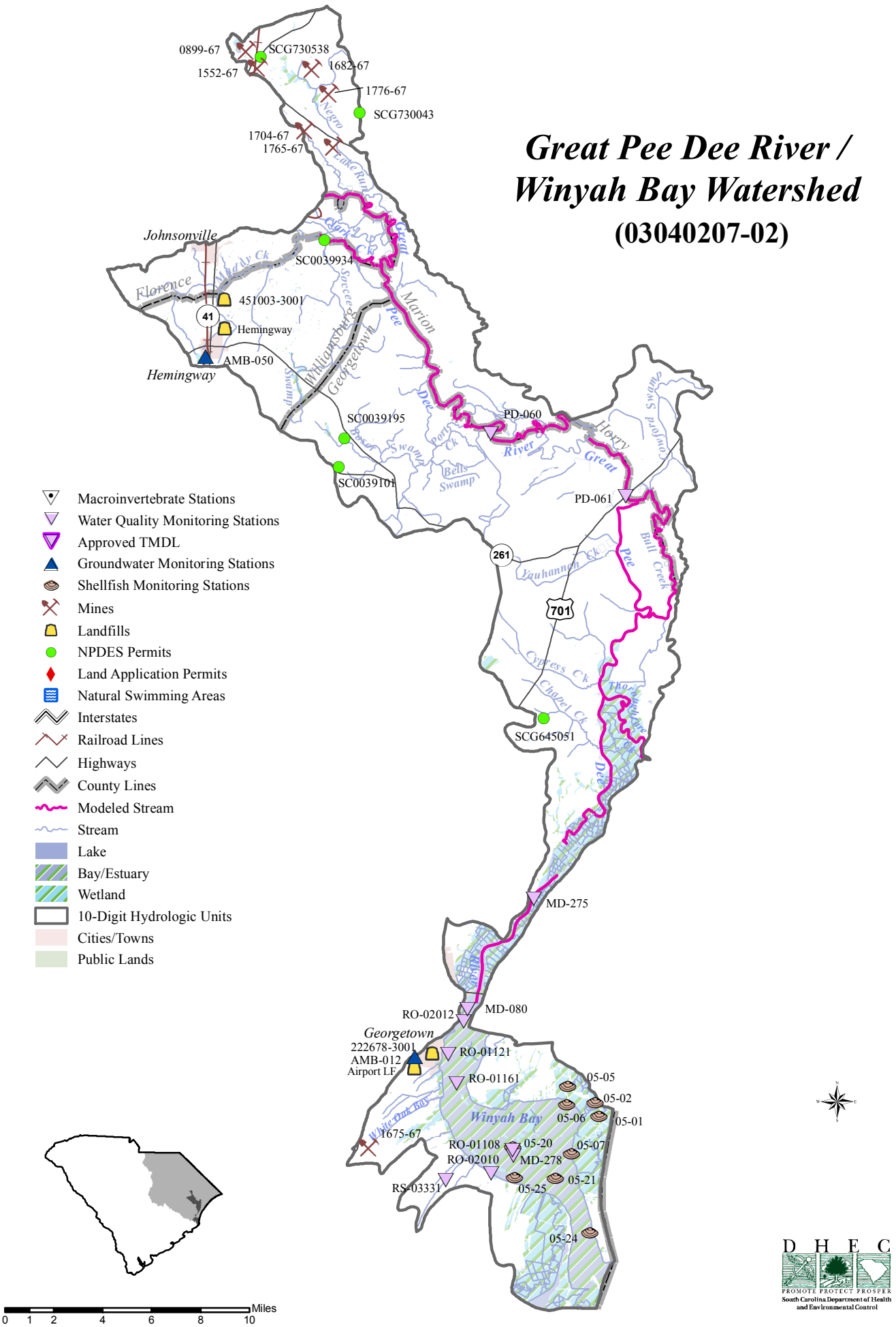
US 701 BRIDGE REPLACEMENT PROJECT

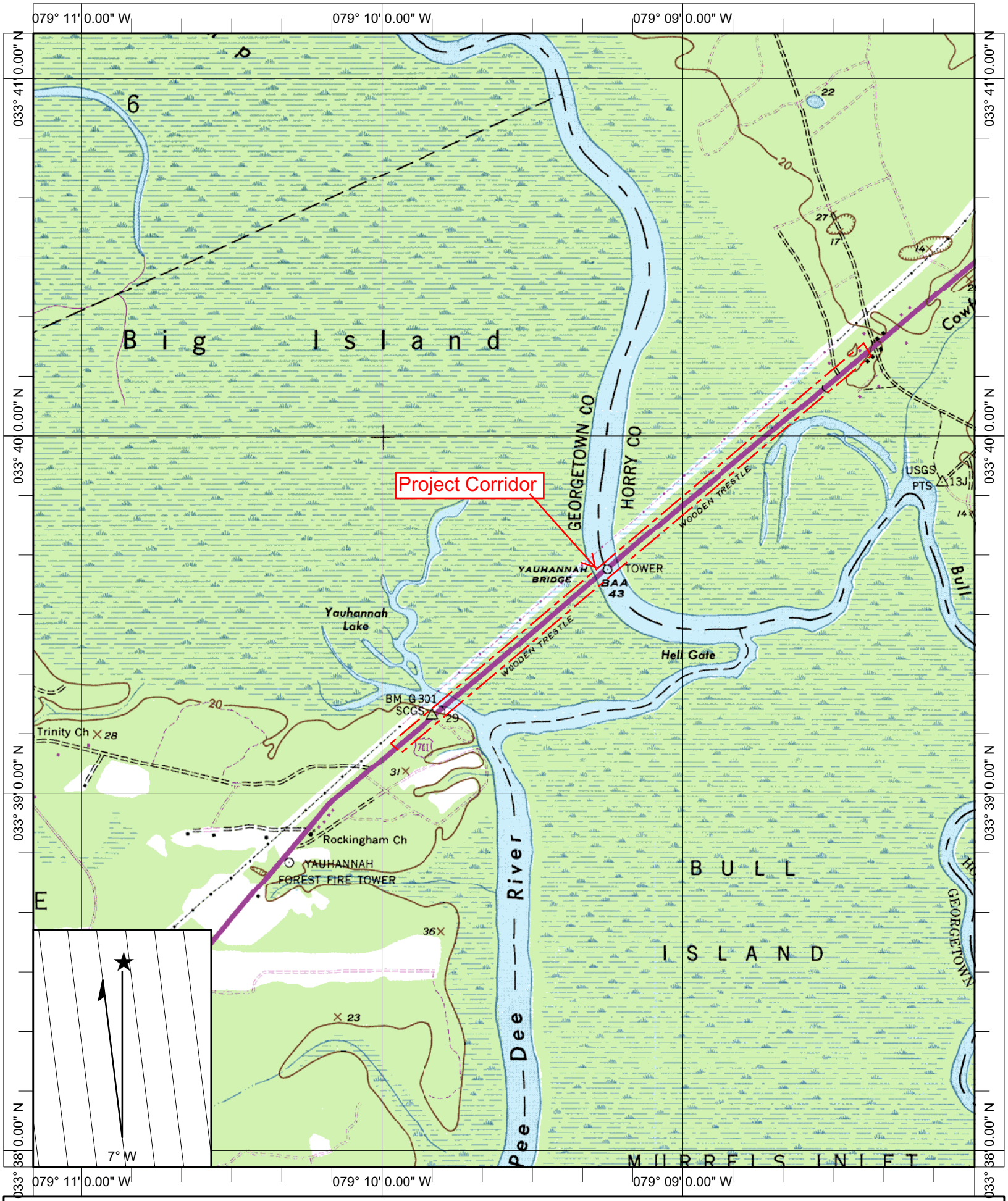
Project Background and Wetland Description

The US 701 Bridge Replacement project consists of the replacement and realignment of an approximately two mile long section of US 701 located in Georgetown and Horry Counties. The project involves the replacement of three bridges on US 701 through rural, undeveloped, light residential and light commercial portions of Horry and Georgetown Counties. The project would involve replacing the three existing US 701 bridges over Yauhannah Lake, the Great Pee Dee River, and the Great Pee Dee River Overflow. The study area consists of a corridor that is approximately two miles long, 300 feet wide, and is centered on the existing US 701 alignment from a point near the US 701 / Lucas Bay Road intersection in Horry County, to a point near the US 701 / Trinity Road intersection in Georgetown County. The project involves the bridge replacements as well as the construction of new roadway approach alignment. The project corridor crosses the referenced water bodies, as well as extensive floodplain forested wetlands. The Waccamaw National Wildlife Refuge occupies much of the project corridor study area. The study area wetlands were delineated and surveyed in 2005; however, a Jurisdictional Determination has not been issued. A combination of vegetation analysis, hydrological observations, and soil sampling was utilized to determine the locations of wetlands within the proposed US 701 Bridge Replacement project area. The wetlands are considered to be palustrine forested floodplain wetland. Based on the homogeneity of the forested floodplain wetlands, the wetland depiction should remain as delineated.

- Approximate Latitude / Longitude: N33.66067, W79.15407
- The project site is within the Great Pee Dee River / Winyah Bay Watershed; Hydrologic Unit Code: 03040207-02.
- The Great Pee Dee River at this location is Fresh Water Tidal.
- The wetlands delineated are part of the Great Pee Dee River floodplain.

Alternatives to the northwest side of the existing route, to the southeast side of the existing route, and a combination of sides were initially considered in the development of the recommended project alignment. Four alternative alignments were included for an in-depth evaluation as part of this study. Alternatives 1 and 2 are located 72 feet and 55 feet, respectively, northwest of the existing alignment. Alternatives 3 and 4 are located 55 and 72 feet, respectively, southeast of the existing alignment. Based on a review of potential environmental impacts and other considerations, Alternative 3 has been identified as the preferred alternative.

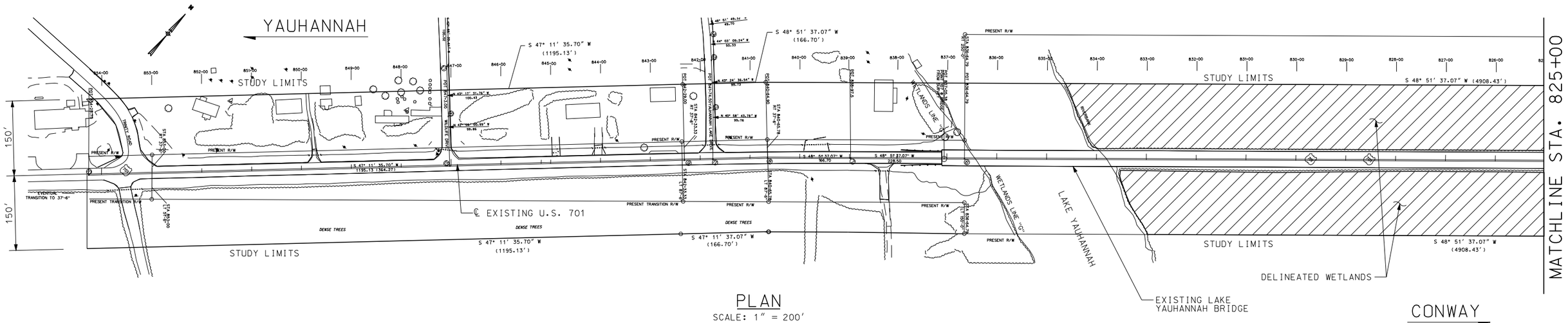

Great Pee Dee River / Winyah Bay Watershed
(03040207-02)
0899-67
SCG730538
1552-67
1682-67
1776-67
SCG730043
1704-67
1765-67
Johnsonville
SC0039934
Florence
451003-3001
41
Hemingway
AMB-050
Hemingway
Marion
Williamsburg
Georgetown
SC0039195
SC0039101
PD-060
PD-061
Horry
261
701
SCG645051
MD-275
MD-080
RO-02012
Georgetown
222678-3001
AMB-012
Airport LF
RO-01121
RO-01161
1675-67
RO-01108
RO-02010
RS-03331
MD-278
05-05
05-02
05-06
05-01
05-20
05-07
05-21
05-25
05-24
Winyah Bay
Macroinvertebrate Stations
Water Quality Monitoring Stations
Approved TMDL
Groundwater Monitoring Stations
Shellfish Monitoring Stations
Mines
Landfills
NPDES Permits
Land Application Permits
Natural Swimming Areas
Interstates
Railroad Lines
Highways
County Lines
Modeled Stream
Stream
Lake
Bay/Estuary
Wetland
10-Digit Hydrologic Units
Cities/Towns
Public Lands
0 1 2 4 6 8 10
Miles
D H E C
PROMOTE PROTECT PROSPER
South Carolina Department of Health and Environmental Control



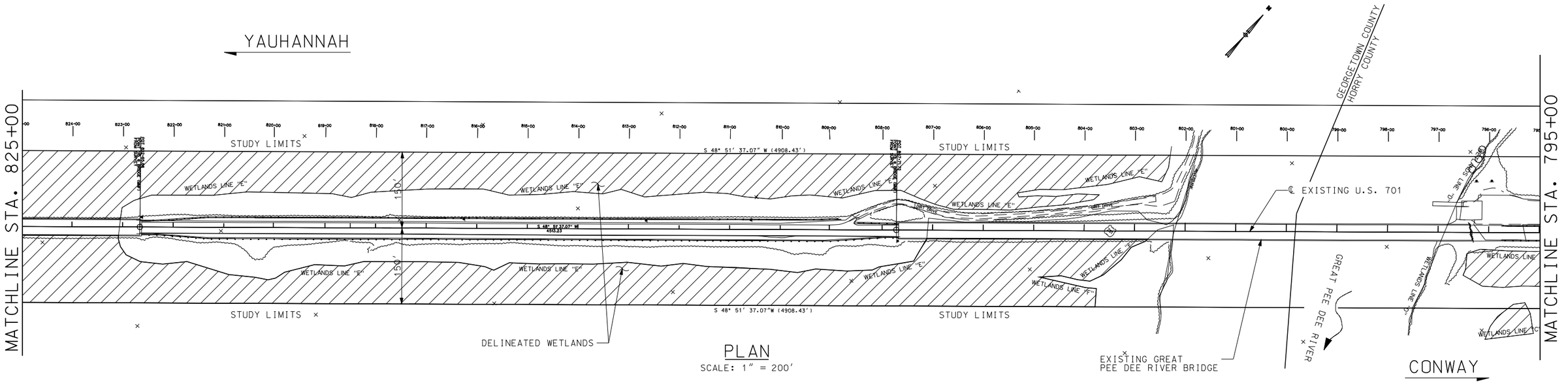
Yauhannah Quad

USGS Topographic Map Showing Approximate Project Limits
ARM Environmental Services, Inc

1" = 2000'



PLAN
SCALE: 1" = 200'



PLAN
SCALE: 1" = 200'

WETLANDS DETERMINATION PLAN

WETLANDS SURVEYED
BY B.P. BARBER & ASSOCIATES, INC.
APRIL 22, 2005

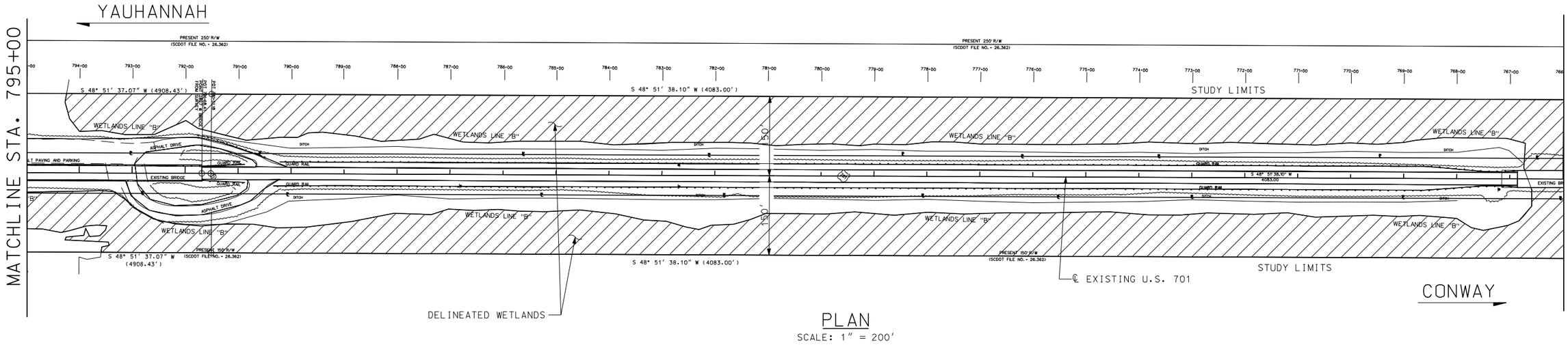
TUHIN BASU & ASSOCIATES, INC.

SCDOT

REPLACEMENT OF US 701 BRIDGES OVER
GREAT PEE DEE RIVER, PEE DEE OVERFLOW
& YAUHANNAH LAKE

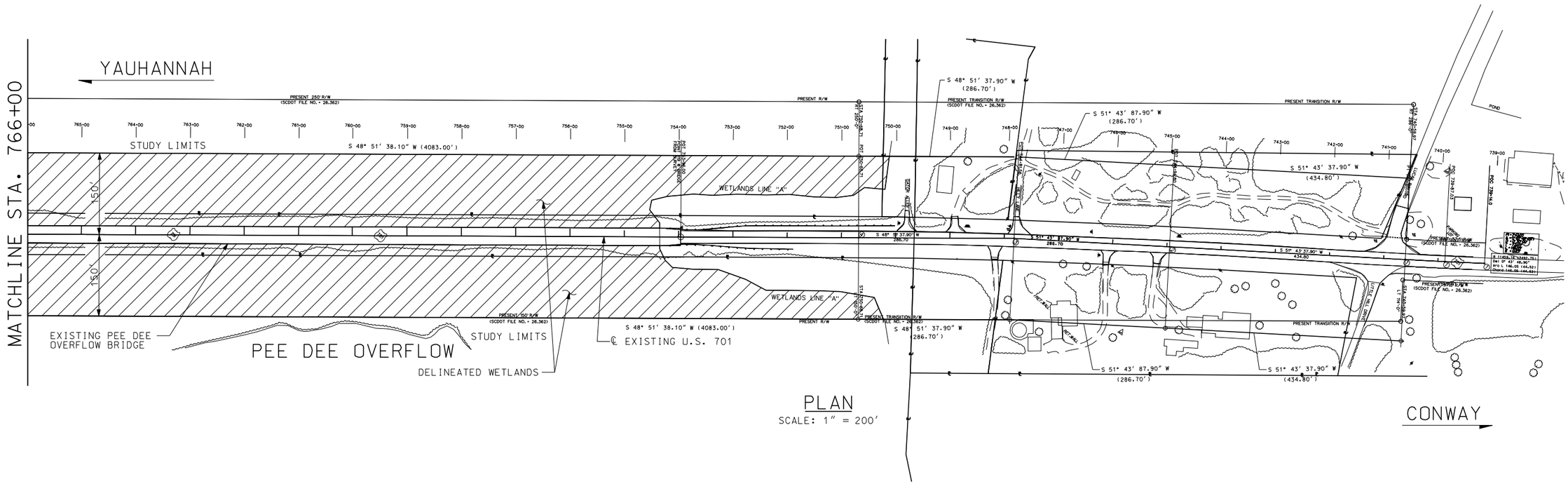
HORRY/GEORGETOWN COUNTIES, SC

Sheet No. 1



PLAN

SCALE: 1" = 200'



PLAN

SCALE: 1" = 200'

WETLANDS DETERMINATION PLAN

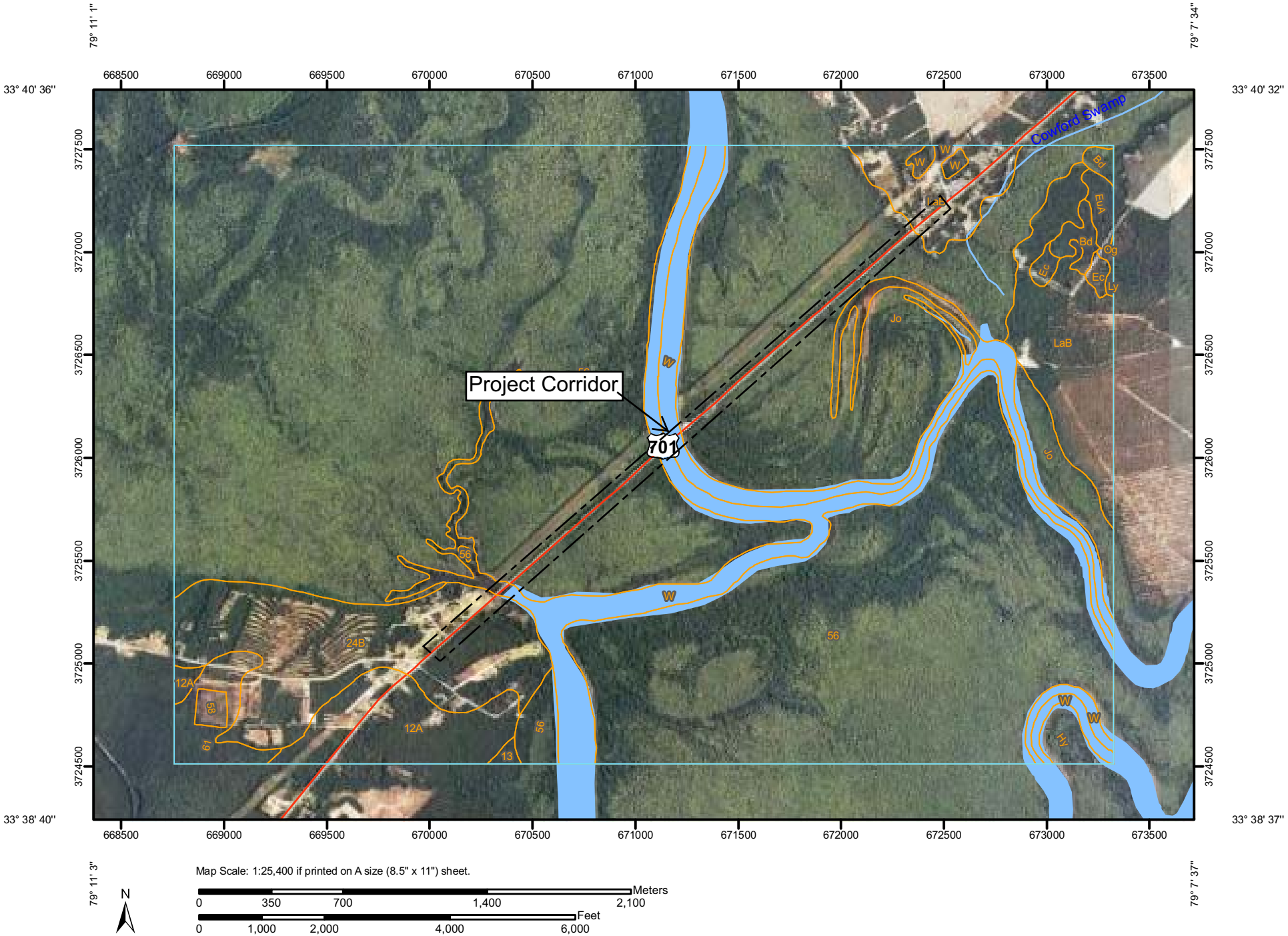
WETLANDS SURVEYED
BY B.P. BARBER & ASSOCIATES, INC.
APRIL 22, 2005

TUHIN BASU & ASSOCIATES, INC.

REPLACEMENT OF US 701 BRIDGES OVER
GREAT PEE DEE RIVER, PEE DEE OVERFLOW
& LAKE YAUHANNAH

HORRY/GEORGETOWN COUNTIES, SC

Sheet No. 2



Map Scale: 1:25,400 if printed on A size (8.5" x 11") sheet.

N

Meters: 0 350 700 1,400 2,100

Feet: 0 1,000 2,000 4,000 6,000

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads

MAP INFORMATION

Map Scale: 1:25,400 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 17N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Georgetown County, South Carolina
Survey Area Data: Version 8, Jan 8, 2009

Soil Survey Area: Horry County, South Carolina
Survey Area Data: Version 15, Jan 8, 2009

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Date(s) aerial images were photographed: 6/10/2006

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Georgetown County, South Carolina (SC043)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
12A	Yauhannah loamy fine sand, 0 to 2 percent slopes	92.4	2.7%
13	Bladen loam	2.6	0.1%
24B	Chisolm sand, 0 to 4 percent slopes	224.1	6.6%
56	Chastain silty clay loam	1,985.9	58.5%
58	Udorthents, loamy	6.4	0.2%
61	Yemassee loamy fine sand	32.8	1.0%
W	Water	161.2	4.8%
Subtotals for Soil Survey Area		**2,505.4**	**73.8%**
Totals for Area of Interest		**3,393.3**	**100.0%**

Horry County, South Carolina (SC051)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Bd	Bladen fine sandy loam	14.5	0.4%
Ec	Echaw sand	8.1	0.2%
EuA	Eulonia loamy fine sand, 0 to 2 percent slopes	9.4	0.3%
Hy	Hobonny muck	14.4	0.4%
Jo	Johnston loam	553.8	16.3%
LaB	Lakeland sand, 0 to 6 percent slopes	174.4	5.1%
Ly	Lynn Haven sand	2.1	0.1%
Og	Ogeechee loamy fine sand	0.4	0.0%
W	Water	110.9	3.3%
Subtotals for Soil Survey Area		**888.0**	**26.2%**
Totals for Area of Interest		**3,393.3**	**100.0%**

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: US 701 BRIDGE REPLACEMENT PROJECT (HORRY / G'TOWN) Applicant/Owner: FOR SCDOT Investigator: RICHARD CICCOLELLA (AS SCDOT CONSULTANT)	Date: 1-15-05 County: HORRY State: SC
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator
1 BETULA NIGRA	T	FACW
2 ACER RUBRUM	T	FACW
3 SABAL MINOR	S/S	FACW
4 ILEX OPACA	T	FAC-
5 CHASMANTHIUM LATIF.	H	FAC-
6 VITIS ROT.	WV	FAC
7 LIQUIDAMBAR STYRACIFLUA	T	FAC+
8 CARPINUS CAROLINIANA	T	FAC
9 QUERCUS PHELLOS	T	FACW-
10 QUERCUS LAURIFOLIA	T	FACW
11		
12		
13		
14		
15		
16		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). _____

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: NONE (in.)

Depth to Free Water in Pit: > 24 (in.)

Depth to Saturated Soil: > 24 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: NO WATER IN PIT OR OTHER EVIDENCE OF HYDROLOGY

SOILS

Map Unit Name
(Series and Phase): JOHNSTON LOAM

Drainage Class: _____

Taxonomy (Subgroup): _____

Field Observations
Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-10"	A	7.5YR 4/6	—	—	SANDY CLAY LOAM
10"-20"	B	10YR 5/3	7.5YR 4/6	M/D	SANDY CLAY LOAM
20"-24"	B	10YR 5/3	10YR 4/6	M/D	SNDY CL LM

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

SOIL DOES NOT APPEAR HYDRIC

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No (Circle)	(Circle)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

Approved by HQUSACE 3/92

A

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: US 701 BRIDGE REPLACEMENT PROJECT (HORRY / G'TOWN) Applicant/Owner: FOR SCDOT Investigator: RICHARD CICCOLELLA (AS SCDOT CONSULTANT)	Date: 1-15-05 County: HORRY State: SC
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator
1 TAXODIUM DISTICHUM	T	OBL
2 ACER RUBRUM	T	FACW
3 BETULA NIGRA	T	FACW
4 CYRILLA RACEMIFLORA	S/S	FACW
5 NYSSA BIFLORA	T	OBL
6		
7		
8		

Dominant Plant Species	Stratum	Indicator
9		
10		
11		
12		
13		
14		
15		
16		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). >50

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: 3 (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ✓ Saturated in Upper 12 inches
- ✓ Water Marks
- ___ Drift Lines
- ✓ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 inches
- ✓ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: STANDING WATER JUST BEYOND THIS POINT. WATER MARKS ON TREES AT APPROX. 5'

A

SOILS

Map Unit Name (Series and Phase): JOHNSTON LOAM

Drainage Class: VPD

Taxonomy (Subgroup): _____

Field Observations
Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-8	A	10YR/2/1	—	—	COARSE, SANDY LOAM

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
✓ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
✓ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:
PIT FILLS W/WATER. MUCKY, ORGANIC.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

E

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: US 701 BRIDGE REPLACEMENT PROJECT (HEARY / G'TOWN)
Applicant/Owner: FOR SCDOT
Investigator: RICHARD CICCOLELLA (AS SCDOT CONSULTANT)

Date: 1-16-05
County: GEORGETOWN
State: SC

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: _____
Transect ID: _____
Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. TAXODIUM DIST.	T	OBL
2. ACER RUBRUM	T	FACW
3. BETULA NIGRA	T	FACW
4. TOXICODENDRON RADICANS	WV	FAC
5. NYSSA BIFLORA	T	OBL
6. QUERCUS PHELLOS	T	FACW-
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 750

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)
Depth to Free Water in Pit: 28 (in.)
Depth to Saturated Soil: 3 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
✓ Saturated in Upper 12 Inches
✓ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
✓ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: STANDING WATER JUST BEYOND THIS POINT. WATER MARKS ON TREES @ ABOUT 5'.

E

SOILS

Map Unit Name (Series and Phase): CHASTAIN SILTY CLAY LOAM

Drainage Class: PD

Taxonomy (Subgroup): _____

Field Observations
Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-4"	A	10YR 5/4	10YR 5/8	M/IND/ST	CO. SND
4-8"	A	10YR 6/1	10YR 5/8	M/IND/ST	CO. SNDY LOAM
8-20"	B	10YR 5/1	10YR 5/6	M/IND/ST	" " "
20"-24"	B	10YR 4/1	—	—	SANDY CL

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ✓ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ✓ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: OX. RHIZOSPHERE @ 20+ INCHES.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

Biological Assessment of Potential Impacts to Threatened or Endangered Species

US 701 Bridge Replacement Project Over the Great Pee Dee River, Pee Dee River Overflow, and Yauhannah Lake
Horry and Georgetown Counties, South Carolina

Prepared for:

Prepared by:
The South Carolina Department of Transportation
(On behalf of the Federal Highway Administration)
P.O. Box 191
Columbia, SC 29202-091

Biological Assessment for the U.S. 701 Bridge Replacement Project Over the Great Pee Dee River, Pee Dee Overflow, and Yauhannah Lake in Horry/ Georgetown Counties, South Carolina

INTRODUCTION / PROJECT DESCRIPTION

The US 701 Bridge Replacement project consists of the replacement and realignment of an approximately two mile long section of US 701 located in Georgetown and Horry Counties. The project involves the replacement of three bridges on US 701 through rural, undeveloped, light residential and light commercial portions of Horry and Georgetown Counties. The project would involve replacing the three existing US 701 bridges over Yauhannah Lake, the Great Pee Dee River, and the Great Pee Dee River Overflow, as indicated on the location maps included as Figure 1, Figure 2 and Figure 3. The study area consists of a corridor that is approximately two miles long, 300 feet wide, and is centered on the existing US 701 alignment from a point near the US 701 / Lucas Bay Road intersection in Horry County, to a point near the US 701 / Trinity Road intersection in Georgetown County. The project involves the bridge replacements as well as the construction of new roadway approach alignment. The project corridor crosses the referenced water bodies, as well as extensive floodplain forested wetlands. The Waccamaw National Wildlife Refuge occupies much of the project corridor study area.

The existing bridges were built in the early 1950s replacing the older bridges constructed circa 1920. The existing bridges have been inspected by the Department and have been rated structurally deficient and are in need of replacement for public safety reasons. The periodic addition of asphalt or other highway surfacing materials to the bridge structures causes additional strain and settling of the structures. The purpose of the project is to replace the structurally deteriorated and functionally obsolete existing US 701 bridges and maintain the principal direct rural connection between the larger towns of Conway and Georgetown, as well as the smaller communities such as Bucksport and Yauhannah in between.

The Department has considered location and design alternatives in the planning process. The “no-build” alternative, which consists of the Department making no improvements, was considered as a baseline for comparison; however, the “no-build” alternative would not improve the safety and structural characteristics of the bridge / highway system. Therefore, this alternative is not considered acceptable.

Alternatives to the northwest side of the existing route, to the southeast side of the existing route, and a combination of sides were initially considered in the development of the recommended project alignment. Four alternative alignments were included for an in-depth evaluation as part of this study. Alternatives 1 and 2 are located 72 feet and 55 feet, respectively, northwest of the existing alignment. Alternatives 3 and 4 are located 55 and 72 feet, respectively, southeast of the existing alignment. Based on a review of potential environmental impacts and other considerations, Alternative 3 has been identified as the preferred alternative.

BIOLOGICAL ASSESSMENT

Pursuant to Section 7 of the Endangered Species Act (ESA) a field survey was conducted on the proposed new right of way. The following list of endangered (E) and threatened (T) species was obtained from the U. S. Fish and Wildlife Service (USFWS) and NOAA Fisheries:

Horry and Georgetown Counties

Animals
Blue whale – *Balaenoptera musculus*
Finback whale - *Balaenoptera physalus*
Humpback whale – *Megaptera novaeangliae*
North Atlantic right whale – *Eubalaena glacialis*
Sei whale – *Balaenoptera borealis*
Sperm whale – *Physeter macrocephalus*
Green sea turtle – *Chelonia mydas*
Hawksbill sea turtle – *Eretmochelys imbricata*
Kemp's ridley sea turtle – *Lepidochelys kempii*
Leatherback sea turtle – *Dermochelys coriacea*
Loggerhead sea turtle – *Caretta caretta*
West Indian manatee – *Trichechus manatus – (E)*
Shortnose sturgeon – *Acipenser brevirostrum (E)*
Bald eagle – *Haliaeetus leucocephalus* – (*BGEPA*))
Red-cockaded woodpecker – *Picoides borealis* – (*E*)
Wood stork – *Mycteria americana (E)*
Piping plover – *Charadrius melodus (T)*
Kirtland's warbler – *Dendroica kirtlandii (E)*

Plants
Sea-beach amaranth – *Amaranthus pumilus – (T)*
Pondberry – *Lindera melissifolia (E)*
Canby's dropwort – *Oxypolis canbyi (E)*
American chaffseed – *Schwalbea americana (E)*

METHODS

The project area was examined by reconnaissance methods in January, March and June of 2005. Habitats surveyed were determined by each species ecological requirements. The species listing information was updated and verified from the USFWS Ecological Services website and the NOAA Fisheries Service website in April of 2009.

RESULTS

The two mile section of the US 701 corridor is very rural and is dominated by the water bodies and wooded floodplain landscape that the three bridges traverse. The Waccamaw National Wildlife Refuge occupies much of the project corridor study area. The project corridor consists primarily of two types of habitat. The predominant habitat is palustrine forested floodplain wetland, consisting of bald cypress (*Taxodium distichum*), swamp tupelo (*Nyssa* biflora), red maple (*Acer rubrum*), river birch (*Betula nigra*), titi (*Cyrilla racemiflora*), willow oak (*Quercus phellos*), and laurel oak (*Quercus laurifolia*). At either end of the corridor, the habitat becomes a drier, sandy upland with loblolly pine (*Pinus taeda*), water oak (*Quercus nigra*), and other similar species.

Wetlands

Wetland impacts will be minimized with longer bridge spanning, best management practices (BMPs) and utilizing to the degree practicable the existing US 701 causeway fill. The alignment will also cross, via bridging, Yauhannah Lake in the Georgetown County portion and the Great Pee Dee River, located between Georgetown County and Horry County. Due to the linear nature of the project, and the homogeneity of the habitats, wetland impacts would be similar for all build alternatives considered; however, Alternative 3 (55 feet downstream of existing alignment) would result in the least amount of wetland impacts and is the preferred alternative.

Northwestern Alternatives

The northwestern alternatives studied included an alignment located 55 feet upstream (northwest) of the existing centerline and an alignment located 72 feet upstream of the existing centerline.

The 72’ Upstream Alternative would result in a cumulative wetland impact of approximately 7.47 acres, including impacts for the construction of boat landing access roads. The 55’ Upstream Alternative would result in cumulative wetland impacts of approximately 5.82 acres, including the boat landing access roads. The alignments would also cross, via bridging, Yauhannah Lake in the

Georgetown County portion and the Great Pee Dee River, located between Georgetown County and Horry County.

Southeastern Alternatives

The southeastern alternatives studied included an alignment located 55 feet downstream (southeast) of the existing centerline and an alignment located 72 feet downstream of the existing centerline.

The 72' downstream Alternative would result in a cumulative wetland impact of approximately 5.71 acres, including impacts for the construction of boat landing access roads. The 55' downstream Alternative would result in a cumulative wetland impact of approximately 4.45 acres, including the boat landing access roads. The alignments would also cross, via bridging, Yauhannah Lake in the Georgetown County portion and the Great Pee Dee River, located between Georgetown County and Horry County. During consideration of alternative alignments it has become apparent that Alternative 3 (55 feet downstream) would result in the fewest wetland impacts and would also result in the fewest relocations and property impacts.

Threatened / Endangered Species

The blue whale (*Balaenoptera musculus*), the finback whale (*Balaenoptera physalus*), the humpback whale (*Megaptera novaeangliae*), the North Atlantic right whale (*Eubalaena glacialis*), the sei whale (*Balaenoptera borealis*), and the sperm whale (*Physeter macrocephalus*) are marine mammals and are listed for South Carolina as endangered species. These species are oceanic species and would not be expected to occur in the action area and the project would not affect these species.

The green sea turtle (*Chelonia mydas*) and the loggerhead sea turtle (*Caretta caretta*) are marine turtles listed as threatened for South Carolina. The hawksbill sea turtle (*Eretmochelys imbricata*), the Kemp's ridley sea turtle (*Lepidochelys kempii*), and the leatherback sea turtle (*Dermochelys coriacea*) are marine turtles listed as endangered for South Carolina. These species are marine species, primarily occurring in the near shore and off-shore environment. Nesting for each of these species has occurred along South Carolina beaches; however, none of these species would be expected to occur this far inland in the action area and the project would not affect these species.

The West Indian manatee (*Trichechus manatus)* is listed as an endangered species for Horry and Georgetown Counties. According to manatee sighting information on the SCDNR website, there have been no known sightnings of manatees this far inland in the Great Pee Dee River. Manatees would not be expected to occur this far from the marine/estuarine environment.

The shortnose sturgeon (*Acipenser brevirostrum*) is known to exist in the Great Pee Dee River. Dr. Mark Collins, with the South Carolina Department of Natural Resources (SCDNR), has indicated that the shortnose sturgeon makes a spawing migration past the US 701 bridge over the Great Pee Dee River from January to mid-April. It has been recommended that no blasting, pile driving or other activities that may disrupt the sturgeon migration be conducted during this time frame. In the past, the SCDOT and NOAA Fisheries have entered into agreements regarding seasonal construction moratoriums for similar projects.

The refuge manager has indicated that there have been reports of a pair of bald eagles (*Haliaeetus leucocephalus*) in the Yauhannah Lake area; however, he has not been able to confirm the location. The bald eagle is no longer considered threatened under the ESA; however, protection is afforded this species under the Bald and Golden Eagle Protection Act. The project corridor area is considered to be potential foraging habitat for the bald eagle, with major water bodies and large trees suitable for perching. However, no bald eagles were observed during reconnaissance of the project corridor area. Additonally, no occurrences of the bald eagle were indicated on the SCDNR Heritage Trust inventory of threatened and endangered species.

No red cockaded woodpecker (*Picoides borealis*) cavity trees were found within a half-mile of the project. Additionally, the refuge manager provided a map of known occurrences of several bird species in the area. Based on this information, the closest known red cockaded woodpecker colony is located approximately 4.5 miles southeast of the project.

No wood storks (*Mycteria americana*) have been observed during reconnaissance of the project corridor area. The refuge manager has previously indicated that wood storks are known to use the Waccamaw National Wildlife Refuge, but not in the project corridor area. No occurrences of the wood stork in the project corridor area were documented in the SCDNR Heritage Trust inventory of threatened and endangered species.

The Piping Plover (*Charadrius melodus*) is not considered likely in the project area due to the absence of coastal beach and dune habitat.

The Kirtland's warbler (*Dendroica kirtlandii*) is a neo-tropical migratory bird species, and is considered a possible part time resident of Horry and Georgetown Counties. The species is a transient migrant and is not likely to be in the project area for a significant period of time as it migrates between the breeding grounds in Michigan, Wisconsin and Ontario and the wintering grounds in the Bahamas.

Sea-beach Amaranth (*Amaranthus pumilus*) is not considered likely in the project area due to the absence of coastal beach and dune habitat.

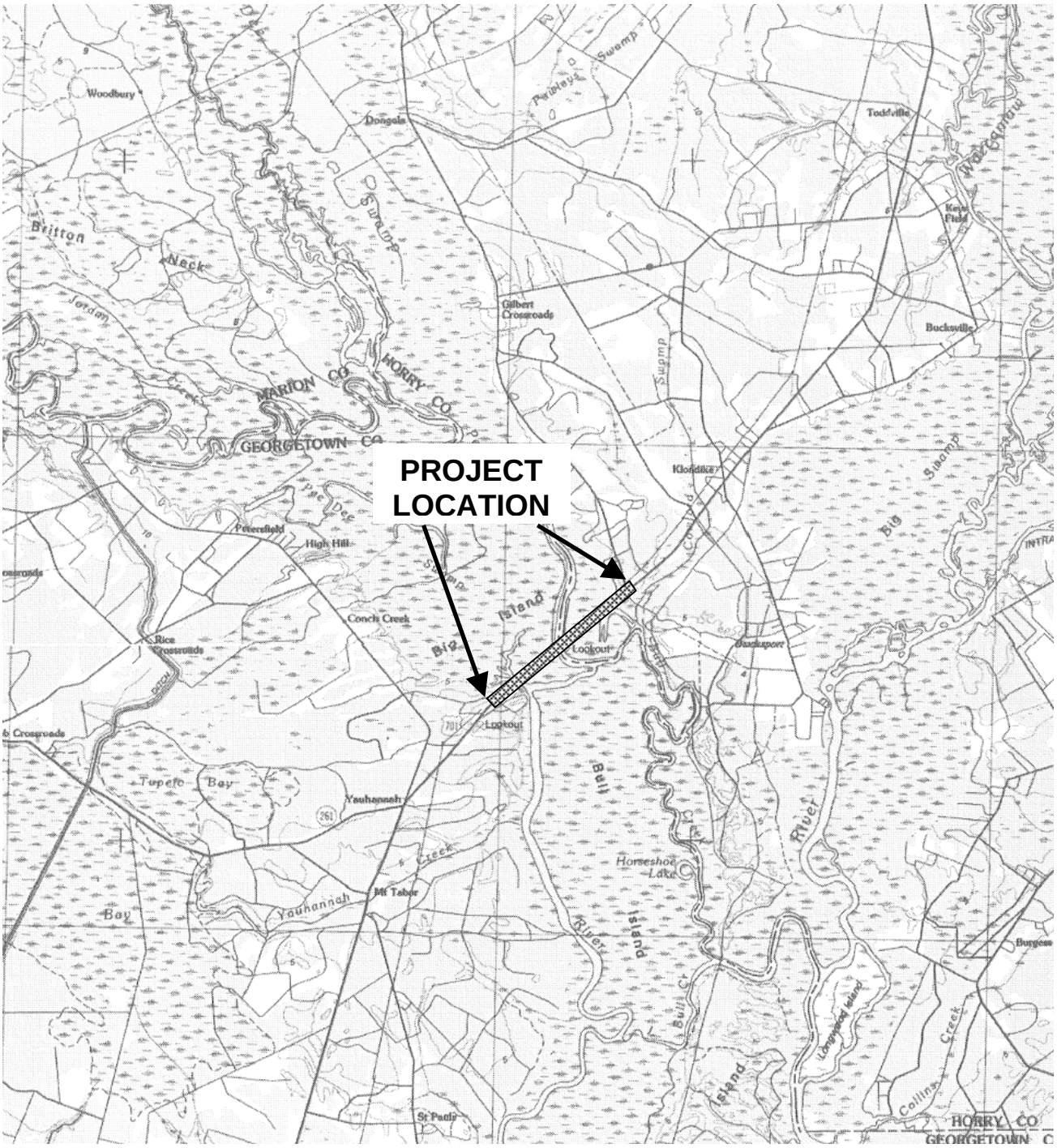
Pondberry (*Lindera melissifolia*) was not observed in the project corridor area during reconnaissance efforts. The habitat observed is not considered suitable for this species, as the species prefers sandy sinks and pond margins, and is more commonly found associated with karst topography in South Carolina. No occurrences of this species in this area was documented in the SCDNR Heritage Trust inventory of threatened and endangered species.

Canby's dropwort (*Oxypolis canbyi*) was also not observed during reconnaissance of the project corridor. The project corridor area is not considered to contain likely habitat for this species, as the wet margins of the forested wetland areas are predominantly overshadowed by dense forest canopy and are not similar to the more typical pond cypress savannahs the plant prefers. No occurrences of this species in this area was documented in the SCDNR Heritage Trust inventory of threatened and endangered species.

American chaffseed (*Schalbea americana*) was not observed during reconnaissance of the project corridor. The plant is not considered likely to be present due to the lack of suitable habitat, such as significant fire maintained areas.

SUMMARY

The 55' downstream alternative is preferred due to various design criteria, as well as minimized impacts to the wetlands and the fewest relocations and property impacts. Although the sturgeon is known to exist in the Great Pee Dee River, based on the planned implementation of an in water construction moratorium during migration (January – April) and the use of best management practices throughout the construction project, it has been determined that the project may affect, but is not likely to adversely affect the shortnose sturgeon. As considerations of potential impacts to the shortnose sturgeon fall under the jurisdiction of NOAA Fisheries Service, and it has been determined that the project may affect, but is not likely to affect this species, a separate Biological Assessment has been prepared for the shortnose sturgeon. Based on the site reconnaissance and the available background information, the proposed action is not expected to affect any other threatened or endangered species or critical habitats currently listed by the USFWS.



Shaded Area Indicates County Location in SC

FIGURE 1
U.S. 701 BRIDGE REPLACEMENT PROJECT
HORRY AND GEORGETOWN COUNTIES, S.C.

SCALE 0 2 MILE

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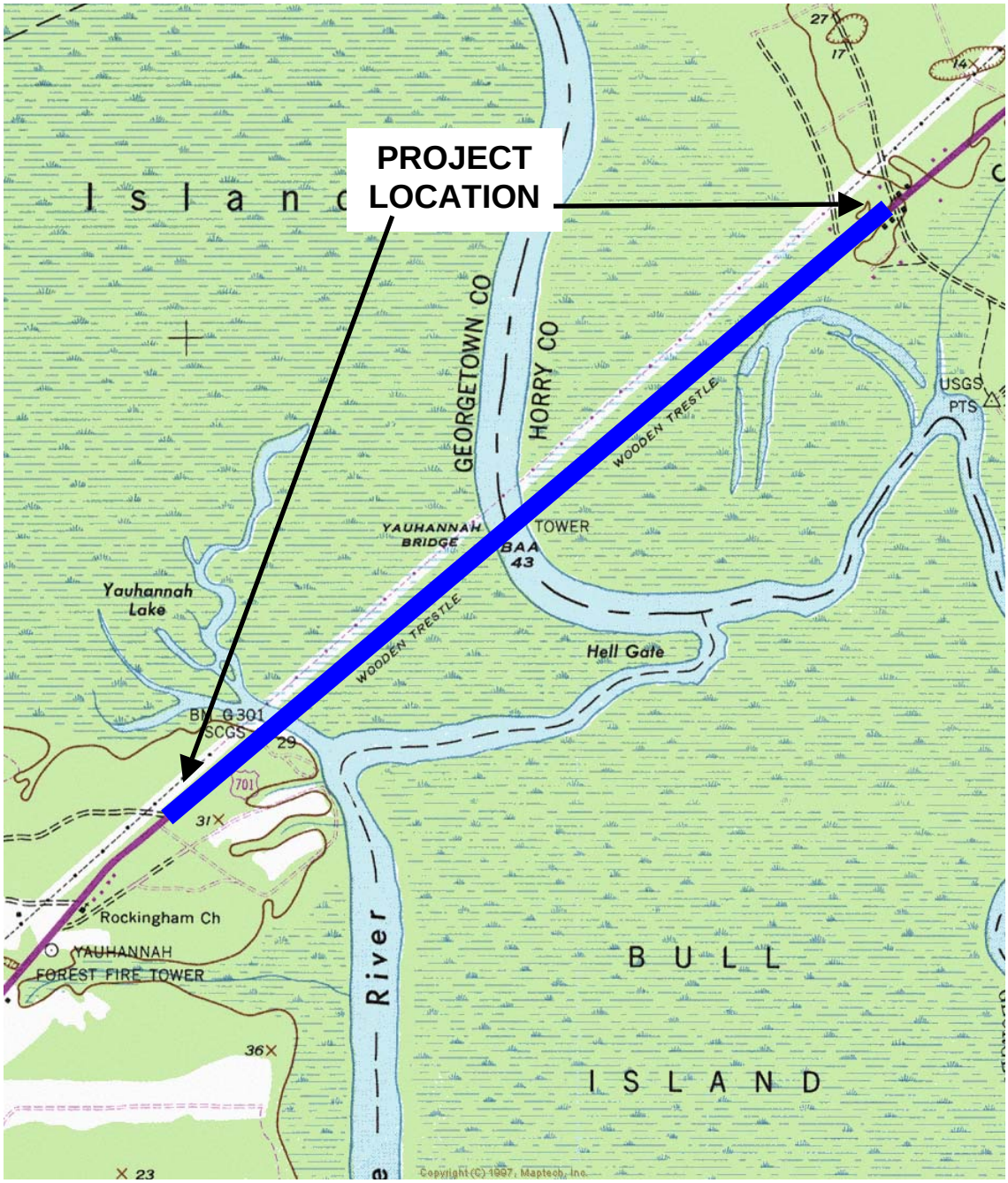


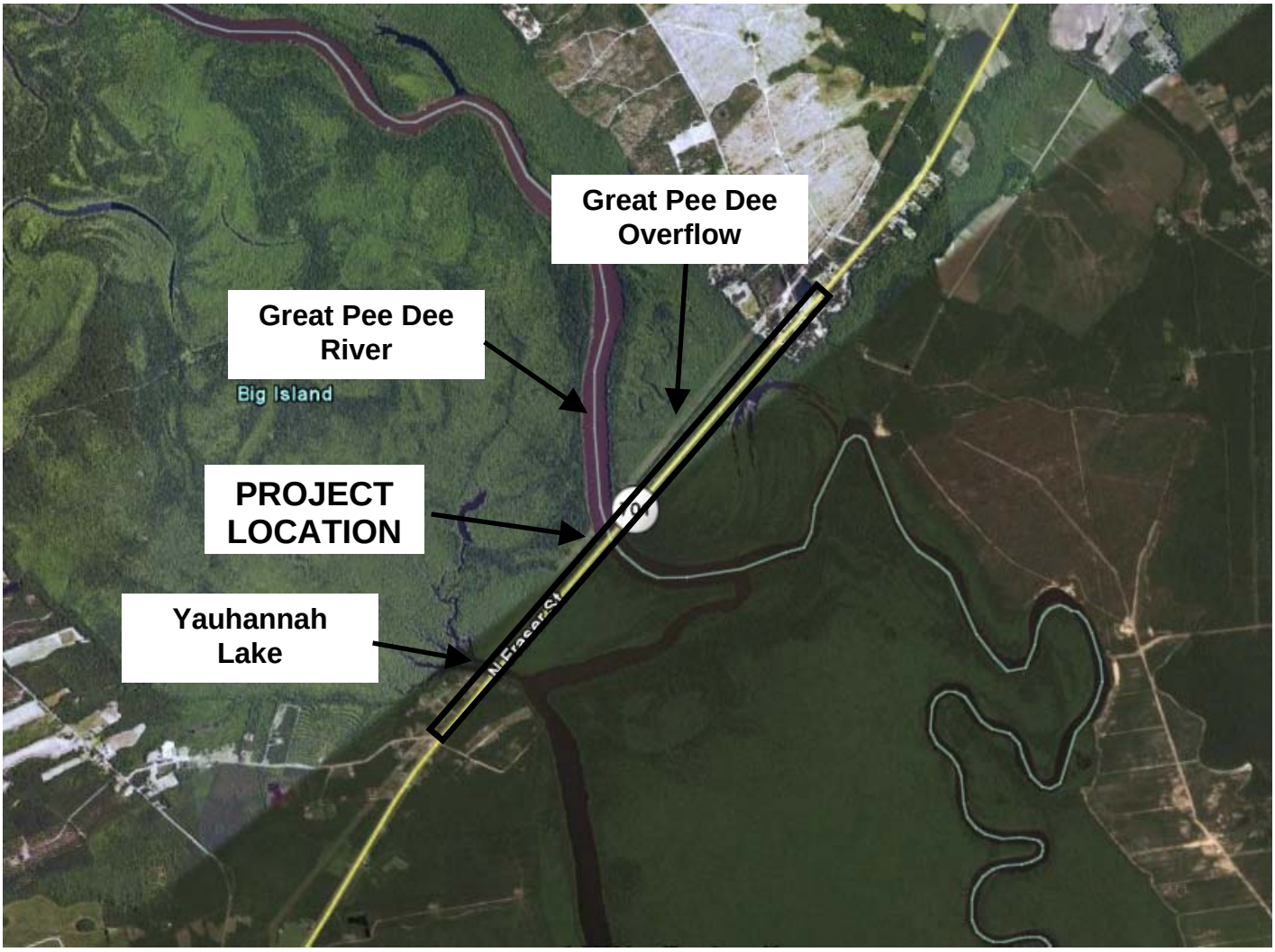
USGS 7.5 Minute Yauhannah Quad

Shaded Area Indicates County Location in SC

FIGURE 2
U.S. 701 BRIDGE REPLACEMENT PROJECT
HORRY AND GEORGETOWN COUNTIES, S.C.

NO SCALE

N



Google Earth Aerial Photograph

Shaded Area Indicates County Location in SC

FIGURE 3 – AERIAL PHOTOGRAPH SITE LOCATION MAP
U.S. 701 BRIDGE REPLACEMENT PROJECT
HORRY AND GEORGETOWN COUNTIES, S.C.

No Scale

N

Biological Assessment of Potential Impacts to the Shortnose Sturgeon (*Acipenser brevirostrum*)

US 701 Bridge Replacement Project Over the Great Pee Dee River, Pee Dee River Overflow, and Yauhannah Lake Horry and Georgetown Counties, South Carolina

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Biological Assessment of Potential Impacts to the Shortnose Sturgeon (*Acipenser brevirostrum*) for the U.S. 701 Bridge Replacement Project Over the Great Pee Dee River, Pee Dee Overflow, and Yauhannah Lake in Horry/ Georgetown Counties, South Carolina

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The existing bridges were built in the early 1950s replacing the older bridges constructed circa 1920. The existing bridges have been inspected by the Department and have been rated structurally deficient and are in need of replacement for public safety reasons. The periodic addition of asphalt or other highway surfacing materials to the bridge structures causes additional strain and settling of the structures. The purpose of the project is to replace the structurally deteriorated and functionally obsolete existing US 701 bridges and maintain the principal direct rural connection between the larger towns of Conway and Georgetown, as well as the smaller communities such as Bucksport and Yauhannah in between.

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Review of endangered species listings available from the United State Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) has indicated the potential occurrence of the shortnose sturgeon (*Acipenser brevirostrum*) within the waters of the Great Pee Dee River. The shortnose sturgeon is federally listed as endangered. This Biological Assessment has been prepared to determine the potential effects of the project on the endangered shortnose sturgeon.

Action Area

The Department proposes to replace the three US 701 bridges over the Great Pee Dee Overflow, the Great Pee Dee River, and Yauhannah Lake. New roadway approach will also be necessary. The existing bridges will be demolished upon construction of the new alignment. The area that has been studied for alternative alignments consists of a corridor that is approximately two miles long, 300 feet wide, and is centered on the existing US 701 alignment from a point near the US 701 / Lucas Bay Road intersection in Horry County, to a point near the US 701 / Trinity Road intersection, in Georgetown County. Construction of the new bridge system would take place adjacent to the existing alignment.

Shortnose Sturgeon Information

The shortnose sturgeon is an anadramous fish that inhabits coastal rivers and estuaries along the eastern coast of the United States, spending most of their time closer to the estuarine areas and portions of the river where fresh river water meets the saltier etuarine water. Northern populations tend to use freshwater river environments more extensively than southern populations. The sturgeon make periodic spawning migrations into faster moving freshwater areas (NOAA Fisheries, 2009). In South Carolina, spawning areas can include flooded hardwood swamps along rivers (Natureserve, 2009). Spawning in South Carolina typically occurs from February to April (SCDNR, 2009). Shortnose sturgeon are benthic feeders, feeding on mollusks, crustaceans, insect larvae and polychaete worms.

The shortnose sturgeon is listed as federally endangered throughout its range. The federal listing dates to March 11, 1967 and was originally issued under the Endangered Species Preservation Act of 1966 (Federal Register, March 11, 1967). According to the National Marine Fisheries Service Final Recovery Plan (1998) there are 19 population segments defined by river/estuarine system and being somewhat less common in the southern portions of its range. According to the plan, the shortnose sturgeon occurs in the river systems emptying into Winyah Bay, specifically the Waccamaw, Pee Dee and Black Rivers. Shortnose sturgeon were found to be present in the Winyah Bay system during the late 1970s and early 1980s; however, the recovery plan does not contain data on population dynamics (NMFS, 1998). Threats to the shortnose sturgeon include habitat degradation and loss resulting from things such as dams, bridge construction, channel dredging and pollution; and mortality due to such things as impingement on cooling water intake screens, dredging and incidental capture in other fisheries (NMFS, 1998). Historically, overfishing, industrial development and damming of rivers has contributed to population decline (Hill, 2006). The goal of the federal recovery plan is for populations to recover to levels at which protection under the Endangered Species Act is no longer necessary.

Direct and Indirect Effects

Direct effects on the shortnose sturgeon could occur as a result of a taking during construction or through disruption of the spawning migration. A “take” is defined by the Endangered Species Act to mean harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in such conduct. The most likely occurrence of sturgeon in this area would be during the spawning migration. Measures that can be taken to protect shortnose sturgeon include avoiding in-water construction work during the migration period.

Indirect effects to the shortnose sturgeon could occur if bridge construction activities result in extended impacts to water quality. Best management practices should be utilized year round during bridge construction activities in order to minimize impacts to water quality.

Cumulative Effects

Bridge replacement projects are planned for US 378 over the Little Pee Dee River and the Great Pee Dee River, located approximately 13 miles and 24 miles, respectively, northwest of the US 701 project. These projects are similar in nature to the proposed replacement of the US 701 Bridges and would also undergo an environmental

assessment process. Based on the environmental assessment process, the projects will be required to take appropriate measures to protect the affected environment, mitigate potential effects, and utilize best management practices during construction. Based on this and the distances to these projects it is not expected that significant cumulative impacts to the shortnose sturgeon will occur.

Conclusions and Determination of Effect

The shortnose sturgeon (*Acipenser brevirostrum*) is known to exist in the Great Pee Dee River as a seasonal migrant. The shortnose sturgeon makes a spawning migration past the US 701 bridge over the Great Pee Dee River from January to mid-April (Mark Collins, SCDNR, personal communication, 2005). It has been recommended that no blasting, pile driving in water or other activities that may disrupt the sturgeon migration be conducted during this time frame. Based on this information, it is recommended that a seasonal moratorium for all in water work related to the bridge replacement project be implemented for the period of January through April. The contractor should also use applicable best management practices year round in order to preserve water quality at the project site. Additionally, due to the protective measures of the seasonal in water construction moratorium and best management practices, the project may affect, but is not likely to adversely affect the endangered shortnose sturgeon.

References

Collins, Mark, PhD. SCDNR. 2005, 2009. Personal Communication.

Endangered Species Preservation Act of 1966 (Federal Register, March 11, 1967)

Hill, K. 2006. Acipenser brevirostrum Species Inventory; Smithsonian Marine Station at Fort Pierce Website. http://www.sms.si.edu/irlSpec/Acipes_brevir.htm

National Marine Fisheries Service. 1998. *Final Recovery Plan for the Shortnose Sturgeon (Acipenser brevirostrum)*. U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

NatureServe Explorer Website, 2009. http://www.natureserve.org/explorer/servlet/NatureServe?searchName=Acipenser+brevirostrum

NOAA Fisheries, Office of Protected Resources Website, April 2009. http://www.nmfs.noaa.gov/pr/species/fish/shortnosesturgeon.htm

South Carolina Department of Natural Resources, 2009. http://www.dnr.sc.gov/marine/mrri/acechar/specgal/sturgeon.htm

Shaded Area Indicates County Location in SC

FIGURE 1 – SITE LOCATION MAP
U.S. 701 BRIDGE REPLACEMENT PROJECT
HORRY AND GEORGETOWN COUNTIES, S.C.

No Scale

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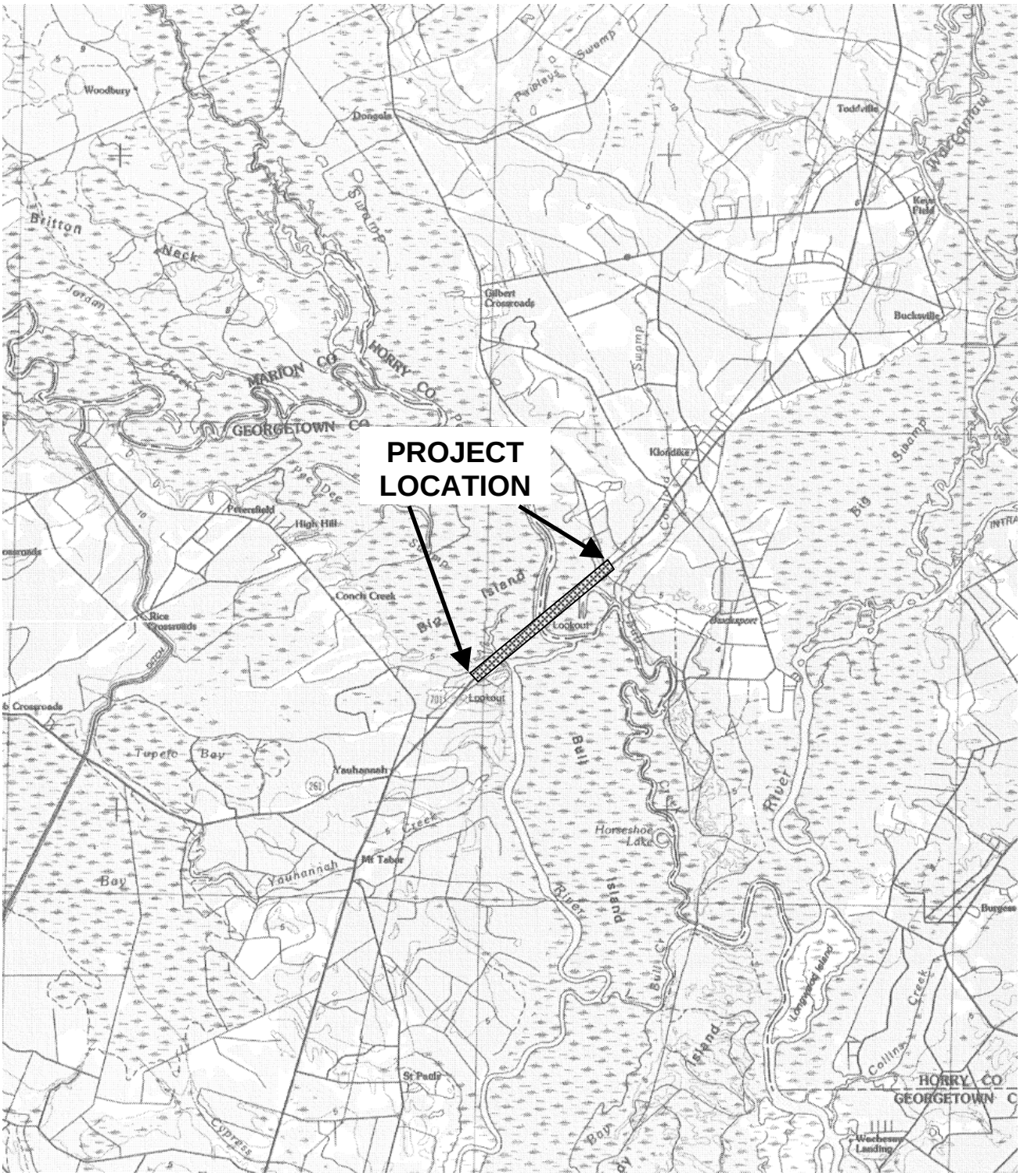

Shaded Area Indicates County Location in SC

FIGURE 2 – TOPOGRAPHIC SITE LOCATION MAP
U.S. 701 BRIDGE REPLACEMENT PROJECT
HORRY AND GEORGETOWN COUNTIES, S.C.

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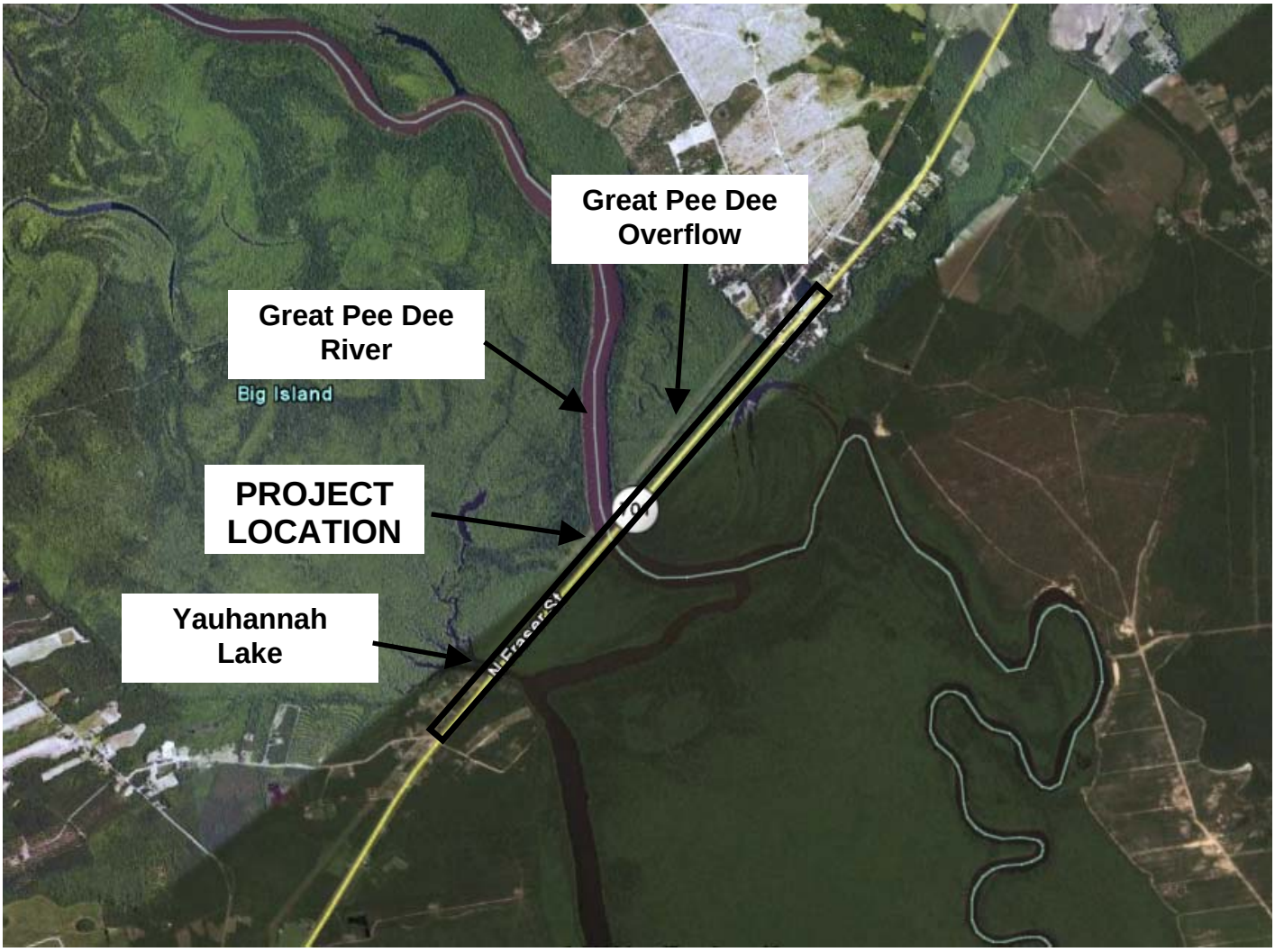
SCALE 0 2 MILE



Google Earth Aerial Photograph

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No Scale

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