

NATURAL RESOURCES TECHNICAL REPORT

**Replace Bridge 70 on US Highway 301
Over the Neuse River
Johnston County, North Carolina**

**STIP BR-0086
WBS Element No. 67086.1.1**



**THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Environmental Coordination and Permitting**

December 2019

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1.0 INTRODUCTION

The North Carolina Department of Transportation (NCDOT) proposes to replace bridge 70 on US Highway 301 over the Neuse River in Johnston County (Figures 1 and 2). The following Natural Resources Technical Report (NRTR) has been prepared to assist in the preparation of a document for the purposes of the State Environmental Policy Act (SEPA).

2.0 METHODOLOGY

All work was conducted in accordance with the NCDOT Environmental Coordination and Permitting's Preparing Natural Resources Technical Reports Procedure and November 2017 NRTR Template. Field work was conducted on July 26 and August 22, 2019. A request for preliminary jurisdictional determination (PJD) was prepared and submitted to the U.S. Army Corps of Engineers (USACE) and the North Carolina Department of Environmental Quality, Division of Water Resources (NCDWR). The USACE indicated that a desktop PJD will be issued. The NCDWR indicated concurrence with the findings of the delineation as verified by the USACE. The principal personnel contributing to the field work and document are provided in Appendix B.

3.0 TERRESTRIAL COMMUNITIES

Five terrestrial communities were identified in the study area. Figure 4 shows the locations and extents of these terrestrial communities. Terrestrial community data are presented in the context of total coverage of each type within the study area (Table 1).

Table 1. Coverage of terrestrial communities in the study area

Community	Dominant Species (scientific name)	Coverage (ac.)
Maintained-Disturbed	kudzu (<i>Pueraria montana</i>) Chinese privet (<i>Ligustrum sinense</i>) dog fennel (<i>Eupatorium capillifolium</i>)	9.5
Coastal Plain Levee Forest (Brownwater Subtype)	American sycamore (<i>Platanus occidentalis</i>) river birch (<i>Betula nigra</i>) southern hackberry (<i>Celtis laevigata</i>)	1.2
Planted Loblolly Pine	loblolly pine (<i>Pinus taeda</i>) winged sumac (<i>Rhus copallinum</i>) sweetgum (<i>Liquidambar styraciflua</i>)	0.7
Coastal Plain Bottomland Hardwoods (Brownwater Subtype)	water oak (<i>Quercus nigra</i>) sweetgum (<i>Liquidambar styraciflua</i>) red maple (<i>Acer rubrum</i>)	1.6
Mesic Mixed Hardwood Forest (Coastal Plain Subtype)	tulip poplar (<i>Liriodendron tulipifera</i>) sweetgum (<i>Liquidambar styraciflua</i>) loblolly pine (<i>Pinus taeda</i>)	1.8
Total		14.8

4.0 PROTECTED SPECIES

4.1 Endangered Species Act Protected Species

As of the most recently updated county list, dated June 27, 2018, the U.S. Fish and Wildlife Service (USFWS) lists five, and the National Marine Fisheries Service (NMFS) lists one federally protected species under the Endangered Species Act (ESA) for Johnston County (Table 2). For each species, a discussion of the presence or absence of habitat is included below along with the Biological Conclusion rendered based on survey results in the study area.

Table 2. ESA Federally protected species listed for Johnston County

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion
<i>Picoides borealis</i>	red-cockaded woodpecker	E	Yes	No Effect
<i>Alasmidonta heterodon</i>	dwarf wedgemussel	E	Yes	Unresolved
<i>Elliptio lanceolata</i>	yellow lance	T	Yes	No Effect
<i>Parvaspina steinstansana</i>	Tar River spinymussel	E	Yes	No Effect
<i>Rhus michauxii</i> *	Michaux’s sumac	E	Yes	No Effect
<i>Acipenser oxyrinchus oxyrinchus</i>	Atlantic sturgeon	E	Yes	MA-NLAA

E – Endangered, T – Threatened, MA-NLAA – May Affect, Not Likely to Adversely Affect,

* – Historic record (the species was last observed in the county more than 50 years ago)

Red-cockaded woodpecker

USFWS optimal survey window: year-round; November-early March (optimal)

Biological Conclusion: No Effect

A North Carolina Natural Heritage Program (NCNHP) data explorer report for the project study area dated July 2, 2019 indicates there are no known populations of red-cockaded woodpecker within 1.0 mile of the study area. A desktop-GIS assessment of the project study area was performed in June 2017 using historic aerial imagery. Portions of the study area which appeared to be pine stands older than 30 years were identified as potentially suitable foraging habitat for red-cockaded woodpeckers and targeted for field evaluation. Potentially suitable foraging habitat was buffered by a half-mile radius and evaluated for the presence of potentially suitable nesting habitat (pine stands over 60 years). GIS assessment was again performed using historic aerial images, and pine stands which appeared to be over 60 years within this radius were targeted for nest surveys.

A field survey of the study area was conducted between July 26, 2019. Visual inspection of the project area confirmed that a small amount of suitable RCW foraging and nesting habitat exists within the study area. Additional field investigations of potential nesting habitat within a half-mile radius of suitable foraging habitat within the study area were conducted between July 26 and August 22, 2019, with the result that no cavity trees were located.

Although pines in the study area and surrounding half-mile radius are old enough to be considered foraging habitat, the understory consists of tall shrubs and lacks grasses and other herbs characteristic of good quality foraging habitat. No longleaf pine stands occur within or near the study area; all of these pine stands are loblolly.

Due to the lack of known occurrences within 1 mile of the study area, the marginal quality of foraging and nesting habitat, and the lack of cavity trees observed within a half-mile radius of the study area, we have determined that the biological conclusion for this species is No Effect.

Dwarf wedgemussel

USFWS optimal survey window: year-round

Biological Conclusion: Unresolved

Dwarf wedgemussel is designated as a “range by basin” species and this project is within this species’ range. Habitat evaluations and a Biological Conclusion will be provided in a forthcoming aquatic species survey report by the NCDOT-Biological Survey Group.

Yellow lance

USFWS optimal survey window: year-round

Biological Conclusion: No Effect

Habitat for the yellow lance within the study area includes the Neuse River. The Neuse River within the study area is approximately 150 feet wide, with substrate that includes both firm and shifting sand, gravel, and cobble. A NCNHP data explorer report for the project study area dated July 9, 2019 indicates there are no known records of the yellow lance within 1.0 mile of the study area. The USFWS IPaC official species list for this project dated July 9, 2019 does not include the yellow lance. The study area is not within an Identified Stream Reach (ISR) or within 0.25 mile of an ISR for this species per the June 2019 ISR layer. The species determination for the yellow lance for the replacement of Johnston County bridge 70 is No Effect.

Tar River spinymussel

USFWS optimal survey window: year-round

Biological Conclusion: No Effect

Habitat for the Tar River spinymussel within the study area includes the Neuse River. The Neuse River within the study area is approximately 150 feet wide, with substrate that includes both firm and shifting sand, gravel, and cobble. A NCNHP data explorer report for the project study area dated July 9, 2019 indicates there are no known records of the Tar River spinymussel within 1.0 mile of the study area. The USFWS IPaC official species list for this project dated July

9, 2019 does not include the Tar River spiny mussel. The study area is not within an Identified Stream Reach (ISR) or within 0.25 mile of an ISR for this species per the June 2019 ISR layer. The species determination for the Tar River spiny mussel for the replacement of Johnston County bridge 70 is No Effect.

Michaux's sumac

USFWS optimal survey window: late May-October

Biological Conclusion: No Effect

Habitat for Michaux's sumac within the study area consists of forest edges and periodically maintained roadsides. A NCNHP data explorer report for the project study area dated July 9, 2019 indicates there are no known records of Michaux's sumac within 1.0 mile of the study area. Plant-by-plant surveys for this species were conducted by two observers on July 26, 2019, with the result that no specimens of Michaux's sumac were observed. Based on these findings, the biological conclusion for this species is No Effect.

Atlantic sturgeon

USFWS/NMFS Recommended Survey Window: surveys not required; assume presence in appropriate waters

Biological Conclusion: May Affect, Not Likely to Adversely Affect

The Neuse River within the project area is designated as critical habitat for the Atlantic sturgeon and is designated as an Inland Primary Nursery Area. The Neuse River within the study area is approximately 150 feet wide, with substrate that includes both firm and shifting sand, gravel, and cobble. A NCNHP data explorer report for the project study area dated July 9, 2019 indicates there are no known records of the Atlantic sturgeon within 1.0 mile of the study area. NCDOT will coordinate with NMFS regarding the project's potential effect on this species or its critical habitat.

Northern long-eared bat

USFWS Recommended Survey Window: June 1 – August 15

Biological Conclusion: May Affect, Likely to Adversely Affect

The USFWS has developed a Programmatic Biological Opinion (PBO) in conjunction with the Federal Highway Administration (FHWA), the USACE, and NCDOT for the northern long-eared bat (NLEB) (*Myotis septentrionalis*) in eastern North Carolina. The PBO covers the entire NCDOT program in Divisions 1-8, including all NCDOT projects and activities. The programmatic determination for NLEB for the NCDOT program is May Affect, Likely to Adversely Affect. The PBO provides incidental take coverage for NLEB and will ensure compliance with Section 7 of the Endangered Species Act for five years for all NCDOT projects with a federal nexus in Divisions 1-8, which includes Johnston County, where this project is located. This level of incidental take is

authorized from the effective date of a final listing determination through April 30, 2020.

4.2 Bald and Golden Eagle Protection Act

The bald eagle is protected under the Bald and Golden Eagle Protection Act, which is enforced by the USFWS. Habitat for the bald eagle primarily consists of mature forests in proximity to large bodies of open water for foraging. Large dominant trees are utilized for nesting sites, typically within 1.0 mile of open water.

A desktop-GIS assessment of the project study area, as well as the area within a 1.13-mile radius (1.0 mile plus 660 feet) of the project limits, was performed in June 2019 using 2017 color aerials. The Neuse River was identified as a water body of suitable size for bald eagle foraging within this radius. Due to the presence of foraging habitat, a bald eagle nest survey was conducted in forested portions of the study area and within 660 feet of the study area on July 26 and August 22, 2019 outside of the typical bald eagle nesting, breeding, and fledging season. On August 22, 2019, a large, unoccupied raptor nest was observed near the top of a large bald cypress tree in the floodplain of the Neuse River within 660 feet of the study area. The nest is approximately 3-4 feet wide and may be used by bald eagles. No bald eagles were observed at the nest during 1 hour of observation on August 22, 2019. A NCNHP data explorer report for the project study area dated July 9, 2019 indicates there are no known records of bald eagle nests within 1.0 mile of the study area. The closest documented bald eagle record shown in NCNHP data dated July 2018 is approximately 17 miles away. The nest located within 660 feet of the study area will be periodically monitored to determine if it is actively used by bald eagles, and coordination with the USFWS will occur if needed.

5.0 WATER RESOURCES

Water resources in the study area are in the Neuse River basin (United States Geological Survey [USGS] Hydrologic Unit 03020201). Four streams were identified in the study area (Table 3). The locations of these water resources are shown in Figure 3.

Table 3. Streams in the study area

Stream Name	Map ID	NCDWR Index Number	Best Usage Classification	Bank Height (ft)	Bankfull width (ft)	Depth (in)
Neuse River	Neuse River	27-(41.7)	WS-V;NSW	15	150	36
UT to Neuse River	SA	27-(41.7)	WS-V;NSW	0.5	5	3
UT to Neuse River	SB	27-(41.7)	WS-V;NSW	10	15	24
UT to Neuse River	SC	27-(41.7)	WS-V;NSW	1	5	1

No High Quality Waters (HQW), Outstanding Resource Waters (ORW) or water supply watershed WS-I or WS-II waters occur in the study area or within 1.0 mile of the study area. No streams within the study area or within 1.0 mile of the study area are identified in the North Carolina 2018 Final 303(d) list of impaired waters.

6.0 REGULATORY CONSIDERATIONS

6.1 Clean Water Act Waters of the U.S.

Four jurisdictional streams were identified in the study area (Table 4). The locations of these streams are shown on Figure 3. North Carolina Stream Assessment Method (NCSAM) and NCDWR stream identification forms are included in a separate Preliminary Jurisdictional Determination (PJD) Package. All jurisdictional streams in the study area have been designated as warm water streams for the purposes of stream mitigation.

Table 4. Characteristics of jurisdictional streams in the study area

Map ID	Length (ft.)*	Classification	Compensatory Mitigation Required	River Basin Buffer
Neuse River	328	Perennial	Yes	Subject
SA	957	Intermittent	Undetermined	Subject
SB	162	Perennial	Yes	Not Subject
SC	63	Intermittent	Undetermined	Not Subject
Total	1,510	*Linear footage is approximate, not based on survey.		

Three jurisdictional wetlands (Wetlands A-C) were identified within the study area (Table 5). The locations of these wetlands are shown on Figure 3. All wetlands in the study area are located within the Neuse River basin (USGS Hydrologic Unit 03020201). USACE wetland determination forms and NCWAM forms for each site are included in a separate Preliminary Jurisdictional Determination Package.

Table 5. Characteristics of jurisdictional wetlands in the study area

Map ID	NCWAM Classification	NCWAM Rating	Hydrologic Classification	Area* (ac.)
WA	Headwater Forest	Medium	Riparian	0.08
WB	Non-tidal Freshwater Marsh	High	Riparian	1.69
WC	Headwater Forest	Medium	Riparian	0.02
			Total	1.79

*Acreage is approximate, not based on survey.

6.2 Construction Moratoria

The Neuse River within the study area is designated as an inland Anadromous Fish Spawning Area by the NC Wildlife Resources Commission (NCWRC). A letter from NCWRC received June 12, 2019 requests an in-water in-water work moratorium from February 15 to September 30.

6.3 N.C. River Basin Buffer Rules

Streamside riparian zones within the study area are protected under provisions of the Neuse Buffer Rules administered by NCDWR. Table 4 indicates which streams are subject to buffer rule protection. Potential impacts to protected stream buffers will be determined once a final alignment and design have been determined.

6.4 Rivers and Harbors Act Section 10 Navigable Waters

The reach of the Neuse River located within the project study area has been designated as a Navigable Water under Section 10 of the Rivers and Harbors Act.

7.0 REFERENCES

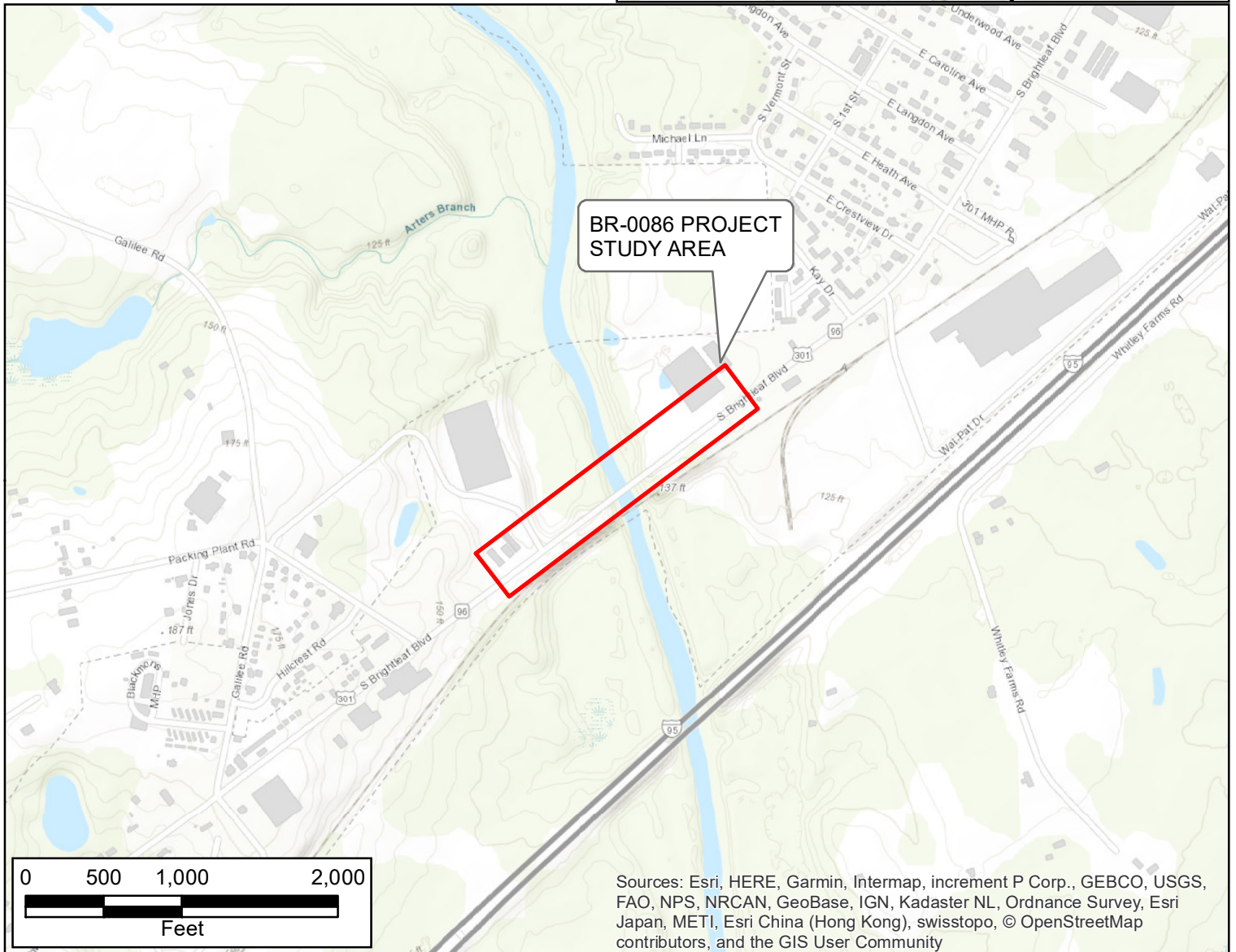
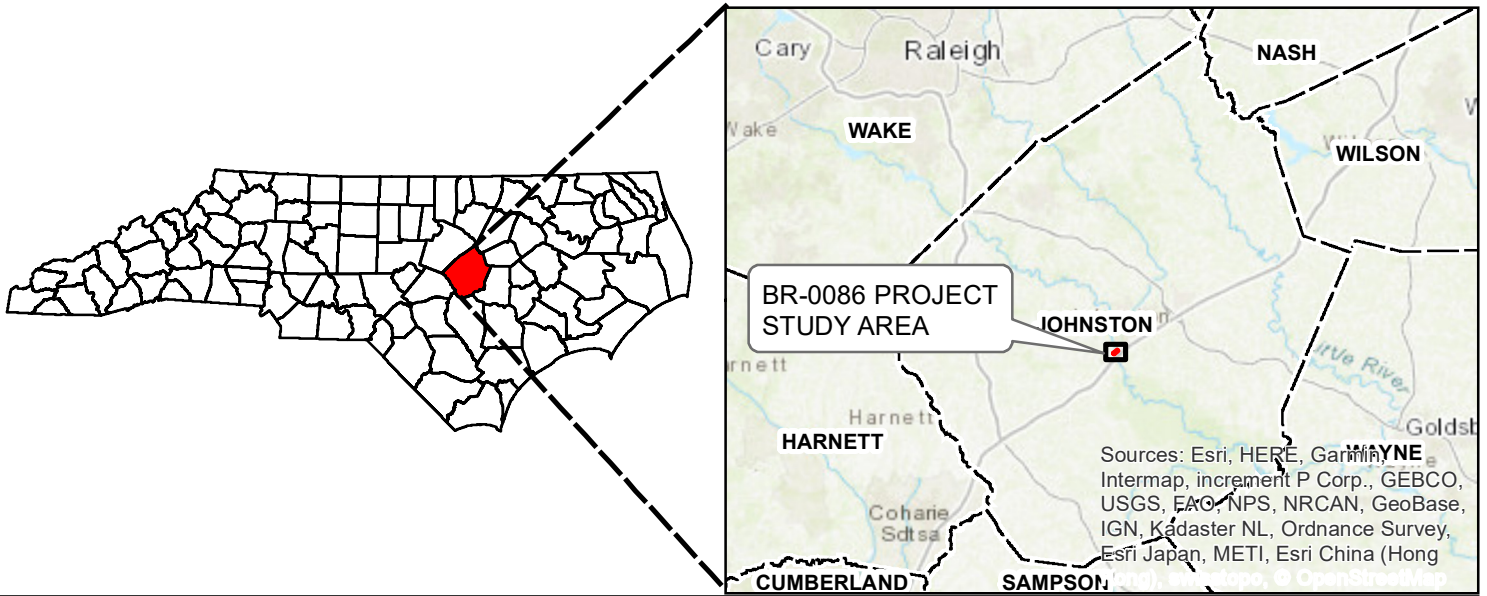
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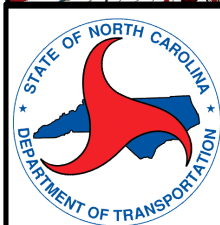
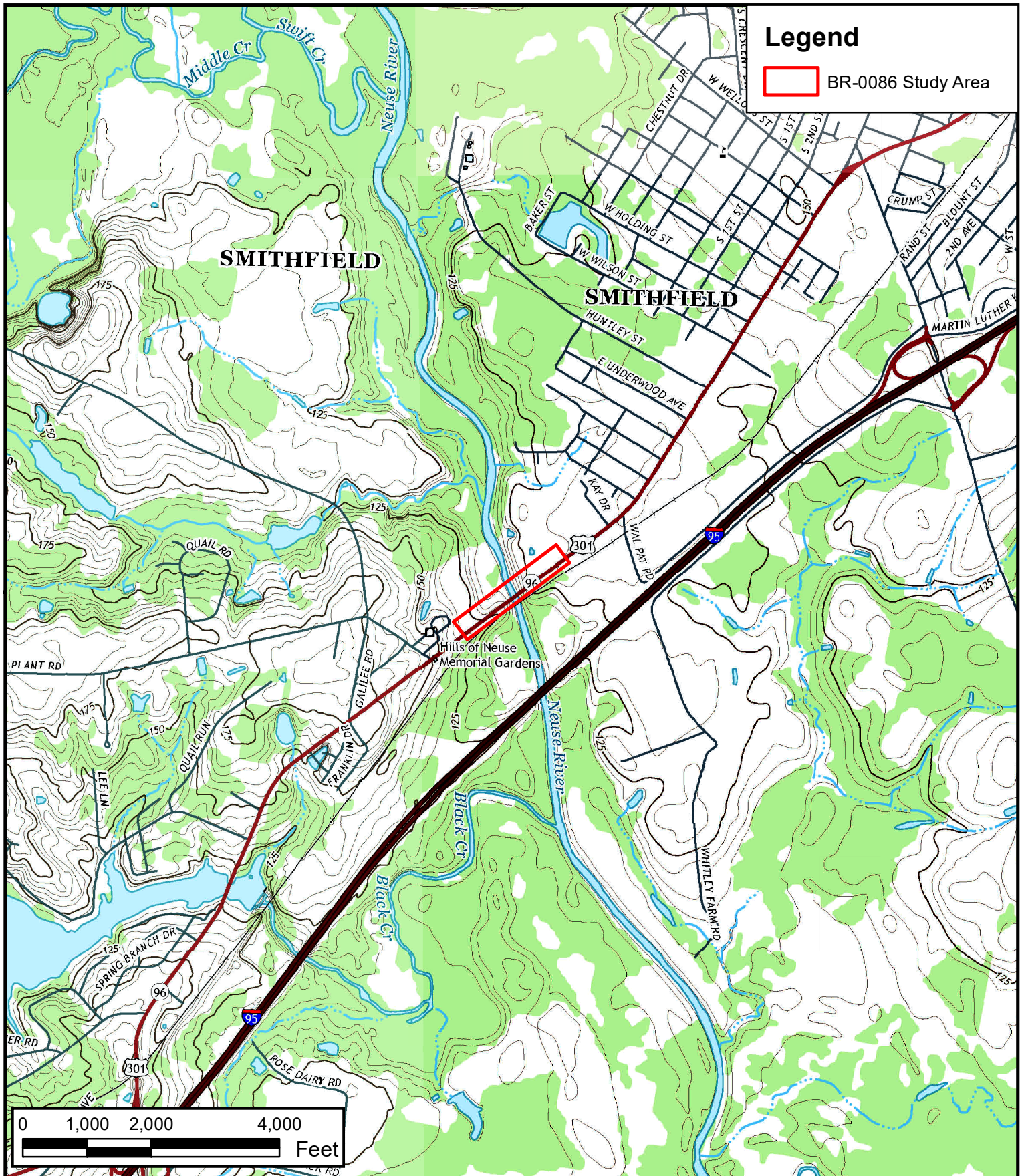
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Appendix A

Figures



<p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS UNIT</p>	<p>VICINITY MAP REPLACE BRIDGE NO 70 ON U.S. 301 OVER THE NEUSE RIVER</p> <p style="text-align: center;">TIP PROJECT BR-0086</p>			<p>County: Johnston</p>	<p>Figure 1</p>
	<p>Division: 4</p>				
	<p>WBS: 67086.1.1</p>				
	<p>Date: July 2019</p>				



NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS UNIT

STUDY AREA
REPLACE BRIDGE NO 70
ON U.S. 301
OVER THE NEUSE RIVER

TIP PROJECT BR-0086
2013 Four Oaks, Four Oaks NE,
Powhatan, & Selma Quadrangles



County:	Johnston
Division:	4
WBS:	67086.1.1
Date:	July 2019

Figure
2

Legend

- BR-0086 Study Area
- ~ Non-wetland, Intermittent Stream
- ~ Non-wetland, Perennial Stream
- ~ Wetland
- ~ Minor Contour, 2-foot Interval
- ~ Major Contour, 20-foot Interval



NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS UNIT

JURISDICTIONAL RESOURCES
REPLACE BRIDGE NO 70
ON U.S. 301
OVER THE NEUSE RIVER







TIP PROJECT BR-0086
2017 Aerial from NCOneMap.com

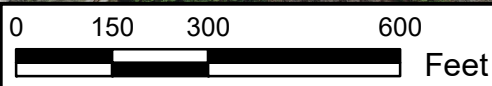


County:	Johnston
Division:	4
WBS:	67086.1.1
Date:	August 2019

**Figure
3**

Legend

-  Study Area
-  Mesic Mixed Hardwood Forest (Coastal Plain Subtype)
-  Planted Loblolly Pine
-  Coastal Plain Bottomland Hardwoods (Brownwater Subtype)
-  Coastal Plain Levee Forest (Brownwater Subtype)
-  Neuse River
-  Maintained-Disturbed



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS UNIT

TERRESTRIAL COMMUNITIES
 REPLACE BRIDGE NO 70
 ON U.S. 301
 OVER THE NEUSE RIVER

TIP PROJECT BR-0086
 2017 Aerial from NCOneMap.com



County:	Johnston
Division:	4
WBS:	67086.1.1
Date:	August 2019

Figure 4

Appendix B

Qualifications of Contributors

Principal

Investigator: David Cooper
Education: B.S. Zoology, North Carolina State University, 1999
Experience: Senior Environmental Scientist, VHB, 2018-Present
Environmental Scientist, Ecological Engineering, LLP, 2014-2018
Environmental Scientist, S&EC, PA, 2007-2014
Curator, NC Museum of Natural Sciences, 1999-2007
Responsibilities: Wetland and stream delineation, terrestrial community evaluation, protected species habitat evaluation, bald eagle survey, document preparation

Investigator: Heather Smith, LSS
Education: M.S. Soil Science, North Carolina State University, 2004
Experience: Senior Environmental Scientist, VHB, 2018-Present
Environmental Scientist, Ecological Engineering, LLP, 2015-2018
Project Manager, NCDENR Ecosystem Enhancement Program, 2008-2015
Environmental Scientist, LG2 Environmental Solutions, LLC, 2005-2008
Responsibilities: Wetland and stream delineation, GPS, bald eagle survey, document review

Investigator: Lane Sauls
Education: B.S. Natural Resources, Ecosystems Assessment, North Carolina State University, 1994
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Principal/Senior Scientist, Ecological Engineering, LLP, 2008-2018
Senior Scientist, Sungate Design Group, PA, 2006-2008
Senior Scientist, Mulkey, Inc., 2003-2006
Senior Program Manager, ARCADIS, 1996-2003
Project Scientist, NCDOT, 1994-1996
Responsibilities: Document review