STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 29, 2004

U. S. Army Corps of Engineers
Regulatory Field Office
Post Office Box 1000
Washington, NC 27889-1000

ATTENTION: Mr. Michael Bell
NCDOT Coordinator

Dear Sir:

SUBJECT: **Nationwide Permit 23 and Buffer Certification** for the proposed replacement of Bridge No. 59 on NC 58 over Wheat Swamp Creek in Greene and Lenoir Counties. Federal Aid Project No. BRSTP-56(6), State Project No.8.1200701, TIP No. B-3866.

Please find enclosed three copies of the project planning report for the above referenced project. NCDOT proposes to replace Bridge No. 96, a 36-foot structure, with a 75 foot single span structure on the existing alignment. Traffic will be detoured offsite using surrounding roads during construction.

Impacts to Waters of the United States

There will be 0.24 acre of permanent wetland impacts for the proposed project. These impacts consist of 0.08 acre of fill and 0.15 acre of mechanized clearing. The fill is necessary to raise the grade of the bridge, which will increase the hydraulic capacity with the new structure. The fill is also necessary to accommodate wider shoulders to approach the wider structure. As the bridge completely spans Wheat Swamp Creek, there will be no surface water impacts.

Bridge Demolition

Bridge No. 59 was built in 1940. The structure consists of two 21-foot spans, (totaling 42 feet) over Wheat Swamp Creek. The structure of the existing bridge is composed of a reinforced concrete floor on continuos steel I-beams. The substructure is composed of timber piles with timber caps and reinforced end bents. Best Management Practices for Bridge Demolition and Removal will be implemented.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Water Resources

Wheat Swamp Creek is located in the Neuse River Basin (03020203) and has a DWQ classification of C Sw NSW (Index No. 27-86-24).

There are no Outstanding Resource Waters (ORW), High Quality Waters (HQW), WS-I, or WS-II within one mile of the project area.

Neuse Basin Buffer Rules

This project is located in the Neuse River Basin, therefore the regulations pertaining to the Neuse River Buffer Rules apply. All practicable measures to minimize impacts within buffer zones were followed. There will be total of 5,309 ft^2 of impact to the Neuse River Buffers with 3,998 ft^2 in Zone 1 and 1,311 ft^2 in Zone 2

According to the buffer rules, and bridges are allowable. Uses designated as allowable may proceed within the riparian buffer provided that there are no practical alternatives to the requested use pursuant to item (8) of this Rule. These uses require written authorization from the division or the delegated local authority. Therefore, NCDOT requests written authorization for a Buffer Certification from the Division of Water Quality.

Avoidance & Minimization

The construction of this project has minimized the extent of the built-upon area by using the existing alignment for the widening. Traffic will be maintained using an off site detour. Best management practices (BMP's) will be utilized to minimize water quality impacts. No portion of the project is located in the critical area of the watershed. In compliance with 15A NCAC 02B.0104(m) we have incorporated the use of BMP's in the design of the project.

The structure chosen to replace Bridge No. 59 will completely span Wheat Swamp Creek, and will be placed at a higher elevation than the current structure. This will result in an increased hydraulic capacity for this crossing.

Mitigation

The U.S. Army Corps of Engineers' interpretation of Nationwide Permits is that all impacts to perennial streams, intermittent streams that exhibit important aquatic function, and all jurisdictional wetlands, require mitigation. Therefore, the remaining unavoidable impacts to 0.24 acre of wetland will be offset by compensatory mitigation.

Based upon the agreements stipulated in the "Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District" (MOA), it is understood that the North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP), will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation

requirements for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the EEP transition period which ends on June 30, 2005.

Since the subject project is listed in Exhibit 1, the necessary compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act will be provided by the EEP. The offsetting mitigation will derive from an inventory of assets already in existence within the same 8-digit cataloguing unit. The Department has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above.

Federally Protected Species

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003, the Fish and Wildlife Service (FWS) lists three federally protected species for Greene and Lenoir Counties (Table 1).

Biological conclusions of "No Effect" were reached for all listed species as reflected in the Natural Resources Technical Report (NRTR) dated October 2001. These conclusions remain valid.

Table 1. Federally-Protected Species for Greene and Lenoir Counties

Common Name	Scientific Name	Status	Biological Conclusion
Bald eagle	*Haliaeetus leucocephalus*	Threatened (Proposed for delisting)	No Effect
Red-cockaded woodpecker	*Picoides borealis*	Endangered	No Effect
Sensitive jointvetch	*Aeschynomene virginica*	Threatened*	No Effect

KEY:

Status	Definition
Endangered -	A taxon "in danger of extinction throughout all or a significant portion of its range."
Threatened -	A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."

*Historic record - the species was last observed in the county more than 50 years ago.

Regulatory Approvals

Section 404 Permit: This project is being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). Therefore, we do not anticipate requesting an individual permit but propose to proceed under a Nationwide 23 as authorized by a Nationwide Permit (67 FR 2020; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certification numbers 3403 will apply to this project. In accordance with 15A NCAC 2H, Section .0500(a) we are providing two copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their review.

Neuse River Buffer Certification: This project is located in the Neuse River Basin, therefore the regulations pertaining to the Neuse River Buffer Rules apply. All practicable measures to minimize impacts within buffer zones were followed. NCDOT requests written authorization for a Buffer Certification from the Division of Water Quality.

We anticipate that comments from the North Carolina Wildlife Resources Commission (NCWRC) will be requested prior to authorization by the Corps of Engineers. By copy of this letter and attachment, NCDOT hereby requests NCWRC review. NCDOT requests that NCWRC forward their comments to the Corps of Engineers.

Please see enclosed, permit drawings, plan sheets, Categorical Exclusion, Natural Resources Technical Report, and Ecosystem Enhancement Program Acceptance Letter.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Michael Turchy at maturchy@dot.state.nc.us or (919) 715-1468.

Sincerely,

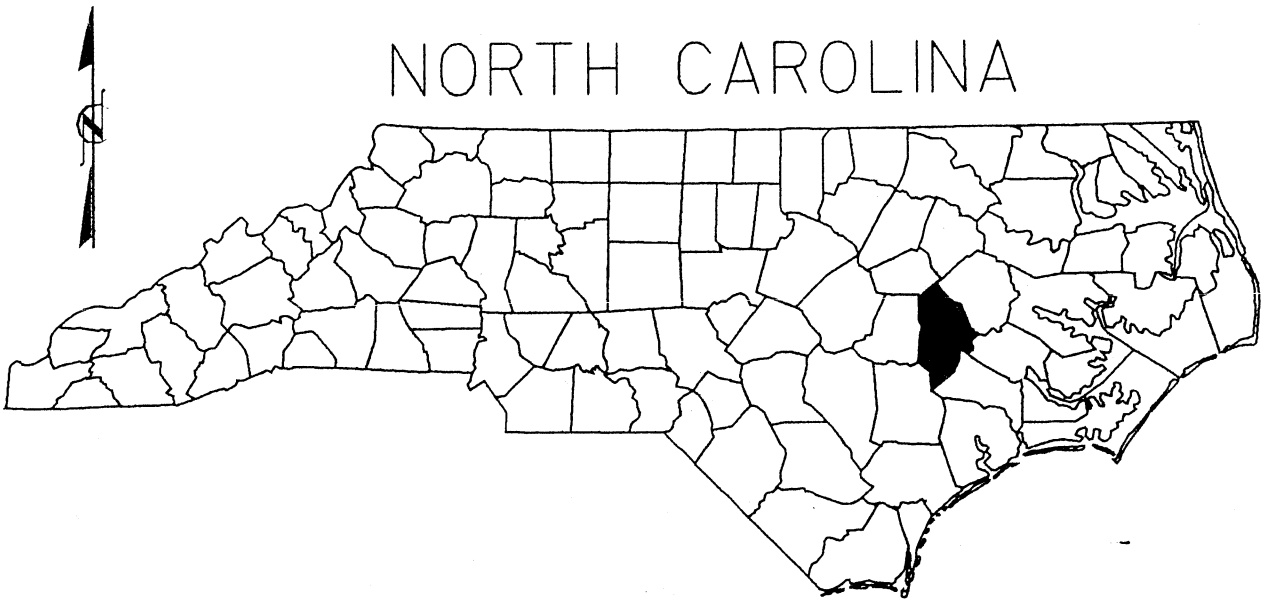
Gregory J. Thorpe, Ph.D., Environmental Management Director
Project Development and Environmental Analysis Branch

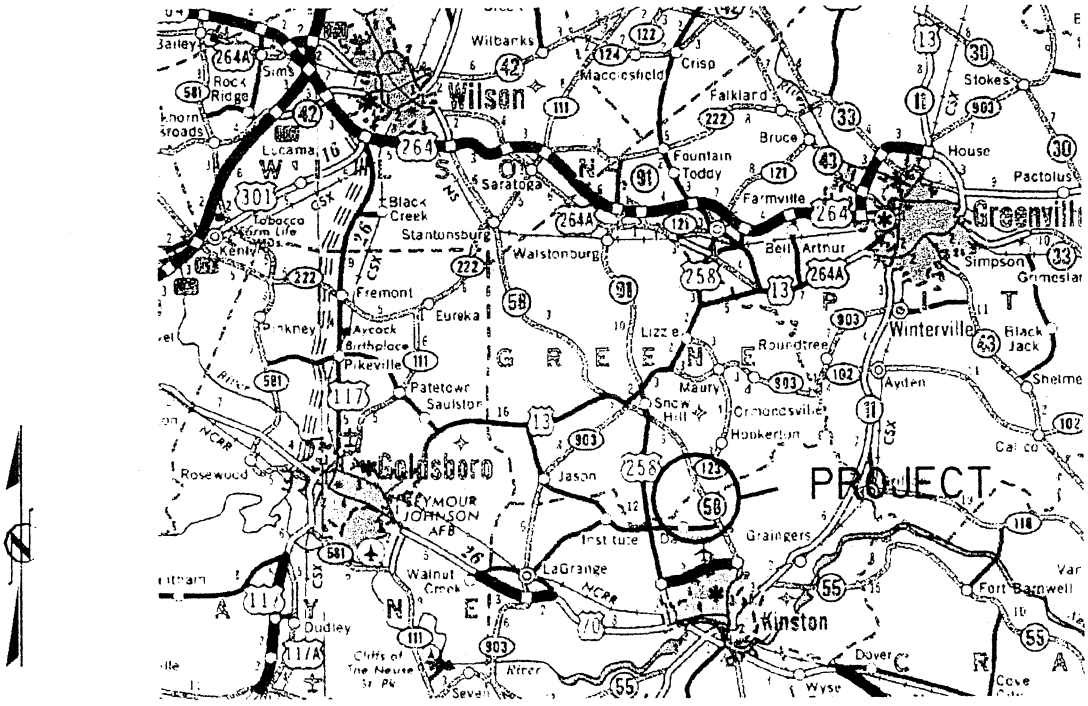
W/attachment

Mr. John Hennessy, Division of Water Quality (7 copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. C. E. Lassiter, P.E., Div. 2 Division Engineer
Mr. Jay Johnson, Div. 2 DEO

W/o attachment

Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Mark Staley, Roadside Environmental
Mr. David Franklin, USACE, Wilmington
Ms. Beth Harmon, EEP
Ms. Robin Hancock, P.E., PDEA



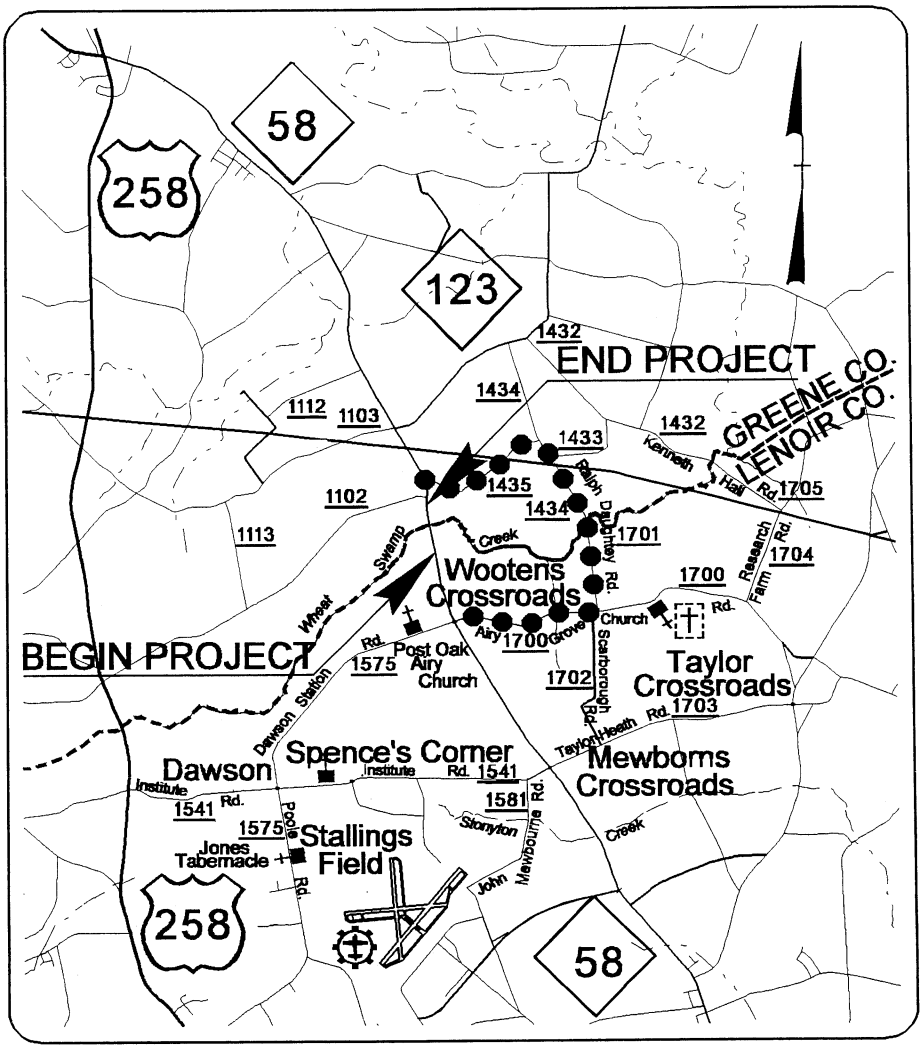


VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
GREENE / LENOIR COUNTY
PROJECT: 8.1200701 (B-3866)
BRIDGE NUMBER 59 OVER
WHEAT SWAMP CREEK
ALONG NC 58

SHEET **OF** 6 **9/7/04**



VICINITY MAP DETOUR ROUTE

VICINITY MAP

NCDOT

DIVISION OF HIGHWAYS

GREENE / LENOIR COUNTY

PROJECT: 8.1200701 (B-3866)

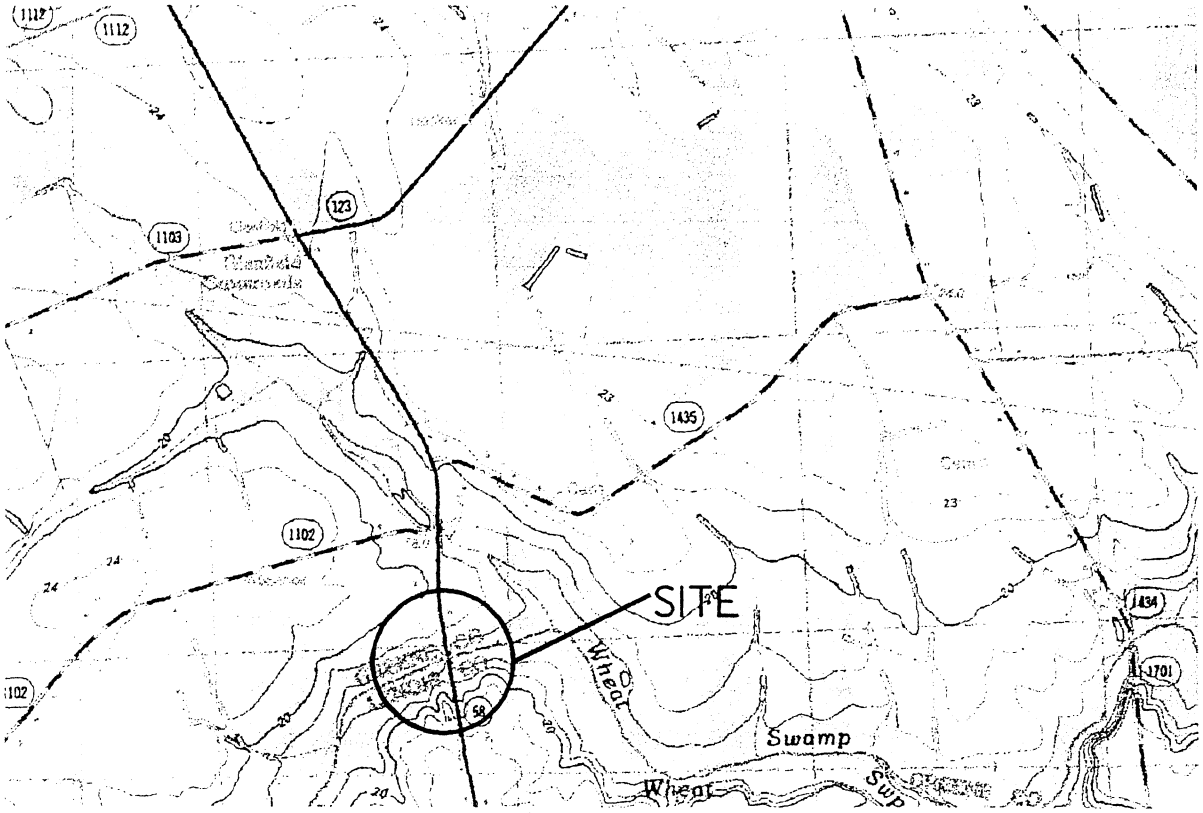
BRIDGE NUMBER 59 OVER

WHEAT SWAMP CREEK

ALONG NC 58

SHEET OF

9/7/04



NOT TO SCALE

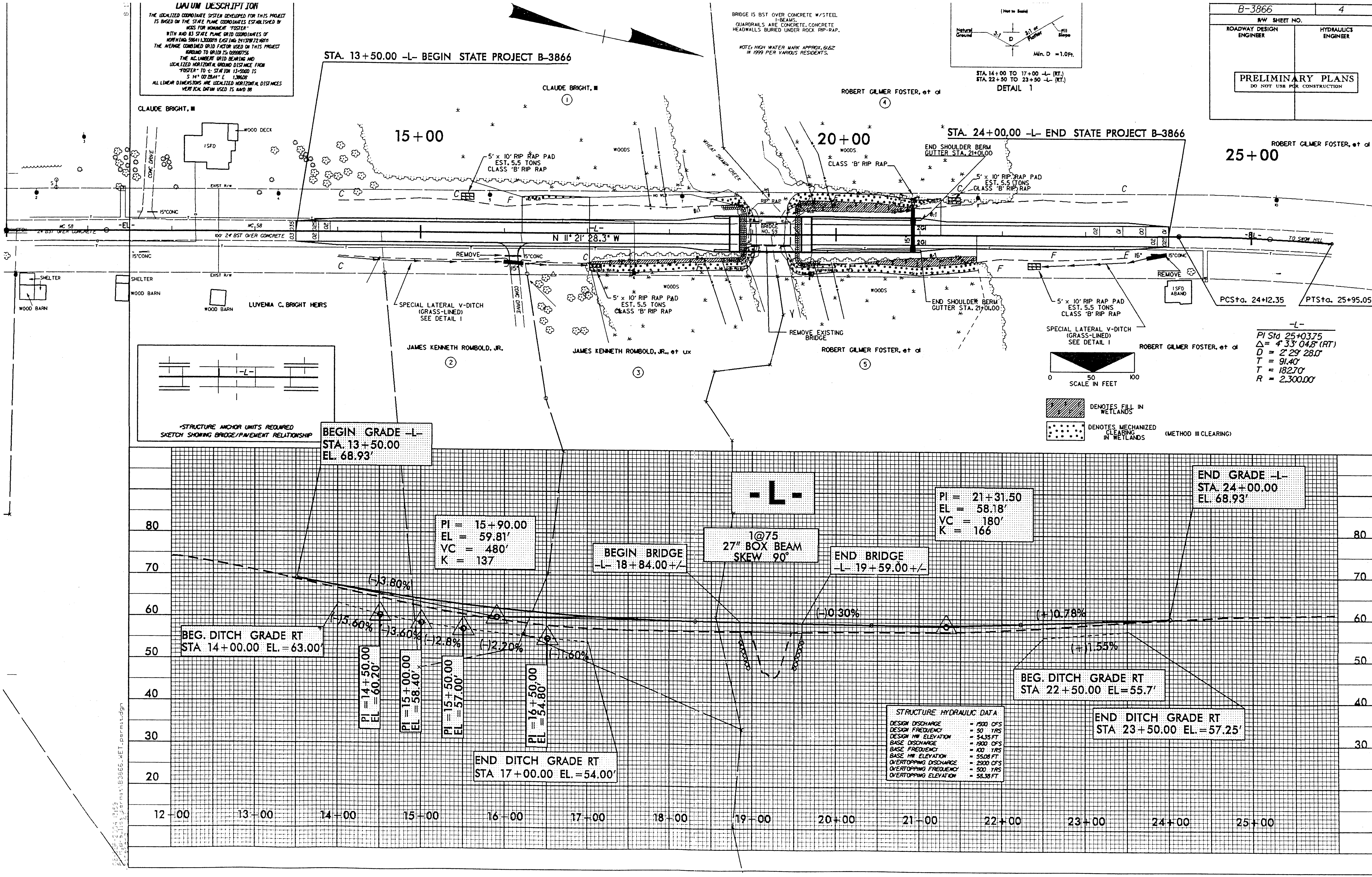
CONTOUR INTERVALS 6 FEET

TOPOGRAPHIC MAPS

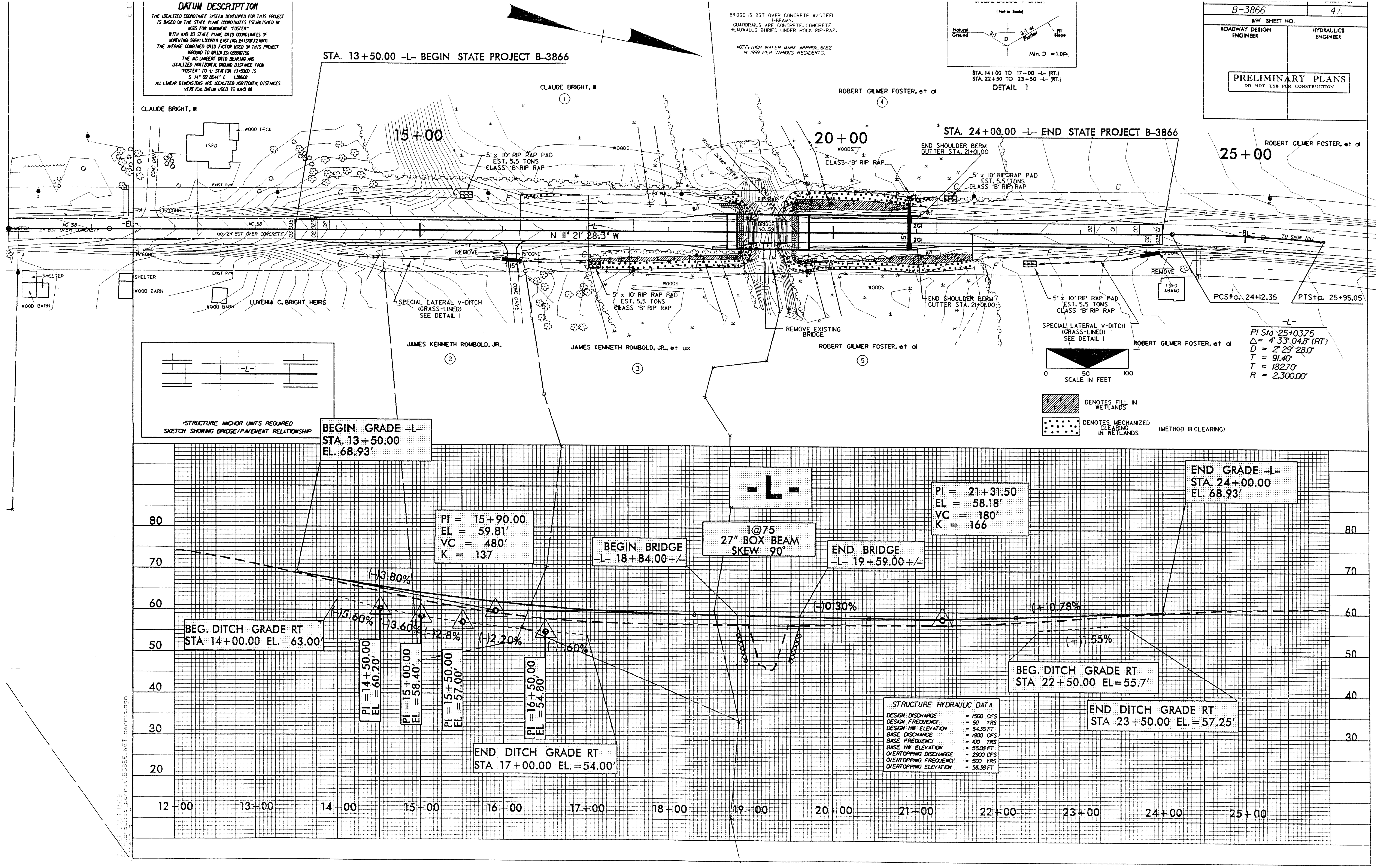
NCDOT

DIVISION OF HIGHWAYS
GREENE / LENOIR COUNTY
PROJECT: 8.1200701 (B-3866)
BRIDGE NUMBER 59 OVER
WHEAT SWAMP CREEK
ALONG NC 58

SHEET **OF** **9/7/04**



B-3866
4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "FOSTER"
WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 596411.3008(m) EASTING: 2415787.2160(m)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99980756
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "FOSTER" TO -L- STATION 13+50.00 IS
S 14° 00' 28.44" E 1,386.08'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88
BRIDGE IS BST OVER CONCRETE W/STEEL I-BEAMS. GUARDRAILS ARE CONCRETE. CONCRETE HEADWALLS BURIED UNDER ROCK RIP-RAP.
NOTE: HIGH WATER MARK APPROX. 61.62 IN 1999 PER VARIOUS RESIDENTS.
STA. 14+00 TO 17+00 -L- (RT.)
STA. 22+50 TO 23+50 -L- (RT.)
DETAIL 1
Min. D = 1.0 Ft.
STA. 13+50.00 -L- BEGIN STATE PROJECT B-3866
STA. 24+00.00 -L- END STATE PROJECT B-3866
CLAUDE BRIGHT, III
ROBERT GILMER FOSTER, et al
JAMES KENNETH ROMBOLD, JR.
JAMES KENNETH ROMBOLD, JR., et ux
LUVENIA C. BRIGHT HEIRS
15+00
20+00
25+00
WHEAT SWAMP CREEK
BRIDGE NO. 59
N 11° 21' 28.3" W
5' x 10' RIP RAP PAD EST. 5.5 TONS CLASS 'B' RIP RAP
END SHOULDER BERM GUTTER STA. 21+01.00
CLASS 'B' RIP RAP
SPECIAL LATERAL V-DITCH (GRASS-LINED) SEE DETAIL 1
REMOVE EXISTING BRIDGE
PCSta. 24+12.35
PTSta. 25+95.05
-L-
PI Sta 25+03.75
Δ = 4° 33' 04.8" (RT)
D = 2° 29' 28.0"
T = 91.40'
L = 182.70'
R = 2,300.00'
SCALE IN FEET
DENOTES FILL IN WETLANDS
DENOTES MECHANIZED CLEARING IN WETLANDS (METHOD III CLEARING)
*STRUCTURE ANCHOR UNITS REQUIRED
SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP
BEGIN GRADE -L- STA. 13+50.00 EL. 68.93'
PI = 15+90.00 EL = 59.81' VC = 480' K = 137
BEGIN BRIDGE -L- 18+84.00+/-
1@75 27" BOX BEAM SKEW 90°
END BRIDGE -L- 19+59.00+/-
PI = 21+31.50 EL = 58.18' VC = 180' K = 166
END GRADE -L- STA. 24+00.00 EL. 68.93'
(-)3.80%
(-)0.30%
(+)0.78%
BEG. DITCH GRADE RT STA 14+00.00 EL.=63.00'
(-)5.60%
(-)3.60%
(-)2.8%
(-)2.20%
(-)1.60%
PI = 14+50.00 EL = 60.20'
PI = 15+00.00 EL = 58.40'
PI = 15+50.00 EL = 57.00'
PI = 16+50.00 EL = 54.80'
END DITCH GRADE RT STA 17+00.00 EL.=54.00'
(+)1.55%
BEG. DITCH GRADE RT STA 22+50.00 EL=55.7'
END DITCH GRADE RT STA 23+50.00 EL.=57.25'
STRUCTURE HYDRAULIC DATA
DESIGN DISCHARGE = 1500 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = 54.35 FT
BASE DISCHARGE = 1900 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 55.08 FT
OVERTOPPING DISCHARGE = 2900 CFS
OVERTOPPING FREQUENCY = 500 YRS
OVERTOPPING ELEVATION = 58.38 FT
12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00


B-3866
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCGS FOR MONUMENT "FOSTER"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 596411.3008(m) EASTING: 2415787.2160(m)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.99980756
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"FOSTER" TO -L- STATION 13+50.00 IS
S 14° 00' 28.44" E 1,386.08
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88
BRIDGE IS BST OVER CONCRETE W/STEEL I-BEAMS.
GUARDRAILS ARE CONCRETE. CONCRETE HEADWALLS BURIED UNDER ROCK RIP-RAP.
NOTE: HIGH WATER MARK APPROX. 61.52 IN 1999 PER VARIOUS RESIDENTS.
(Not to Scale)
Natural Ground
Fill Slope
Min. D = 1.0 Ft.
STA. 14+00 TO 17+00 -L- (RT.)
STA. 22+50 TO 23+50 -L- (RT.)
DETAIL 1
STA. 13+50.00 -L- BEGIN STATE PROJECT B-3866
STA. 24+00.00 -L- END STATE PROJECT B-3866
CLAUDE BRIGHT, III
ROBERT GILMER FOSTER, et al
JAMES KENNETH ROMBOLD, JR.
JAMES KENNETH ROMBOLD, JR., et ux
LUVENIA C. BRIGHT HEIRS
15+00
20+00
25+00
N 11° 21' 28.3" W
5' x 10' RIP RAP PAD
EST. 5.5 TONS
CLASS 'B' RIP RAP
CLASS 'B' RIP RAP
END SHOULDER BERM GUTTER STA. 21+01.00
SPECIAL LATERAL V-DITCH (GRASS-LINED) SEE DETAIL 1
REMOVE EXISTING BRIDGE
REMOVE
WOODS
WOOD DECK
WOOD BARN
SHELTER
EXIST R/W
TO SNOW HILL
PCSta. 24+12.35
PTSta. 25+95.05
-L-
PI Sta 25+03.75
Δ = 4° 33' 04.8" (RT)
D = 2° 29' 28.0"
T = 91.40'
L = 182.70'
R = 2,300.00'
SCALE IN FEET
0 50 100
DENOTES FILL IN WETLANDS
DENOTES MECHANIZED CLEARING IN WETLANDS (METHOD III CLEARING)
-STRUCTURE ANCHOR UNITS REQUIRED
SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP
BEGIN GRADE -L-
STA. 13+50.00
EL. 68.93'
-L-
PI = 15+90.00
EL = 59.81'
VC = 480'
K = 137
BEGIN BRIDGE
-L- 18+84.00+/-
1@75
27" BOX BEAM
SKEW 90°
END BRIDGE
-L- 19+59.00+/-
PI = 21+31.50
EL = 58.18'
VC = 180'
K = 166
END GRADE -L-
STA. 24+00.00
EL. 68.93'
(-)3.80%
(-)15.60%
(-)3.60%
(-)2.8%
(-)2.20%
(-)1.60%
(-)0.30%
(+)10.78%
(+)1.55%
BEG. DITCH GRADE RT
STA 14+00.00 EL.=63.00'
PI = 14+50.00 EL = 60.20'
PI = 15+00.00 EL = 58.40'
PI = 15+50.00 EL = 57.00'
PI = 16+50.00 EL = 54.80'
END DITCH GRADE RT
STA 17+00.00 EL.=54.00'
BEG. DITCH GRADE RT
STA 22+50.00 EL=55.7'
END DITCH GRADE RT
STA 23+50.00 EL.=57.25'
STRUCTURE HYDRAULIC DATA
DESIGN DISCHARGE = 1500 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = 54.35 FT
BASE DISCHARGE = 1900 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 55.08 FT
OVERTOPPING DISCHARGE = 2900 CFS
OVERTOPPING FREQUENCY = 500 YRS
OVERTOPPING ELEVATION = 58.38 FT
80 70 60 50 40 30 20
12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS				SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	16+21 TO	N/A	0			0.004					
	17+03 -L- LT										
	17+03 TO	BRIDGE	0.02			0.05					
	18+92 -L- RT										
	18+42 TO	BRIDGE	0.0003			0.01					
	19+04 -L- LT										
	19+41 TO	BRIDGE	0.03			0.04					
	21+25 -L- LT										
	19+41 TO	BRIDGE	0.03			0.05					
	21+68 -L- RT										
TOTALS:			0.08	0	0	0.15	0	0	0	0	0

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GREENE/LENIOR COUNTY
PROJECT: 8.12007101 (B-3866)

9/7/2004

Form Revised 3/22/01

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
(1)	CLAUDE BRIGHT, III	5178 HWY 58 N HOOKERTON, N.C. 28538
(2)	JAMES K. ROMBOLD, JR.	5213 HWY 58 N HOOKERTON, N.C. 28538
(3)	JAMES K. ROMBOLD, JR., ET UX	5213 HWY 58 N HOOKERTON, N.C. 28538
(4)	ROBERT GILMER FOSTER	P.O. BOX 1256 KINSTON, N.C. 28501

NCDOT

DIVISION OF HIGHWAYS

GREENE / LENOIR COUNTY

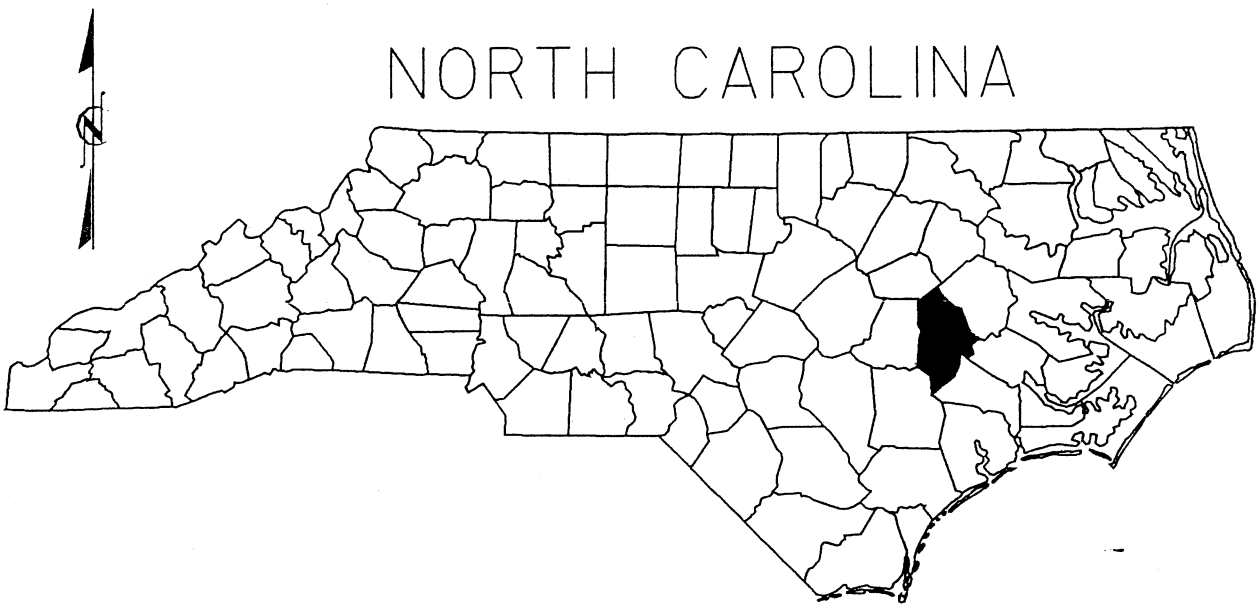
PROJECT: 8.1200701 (B-3866)

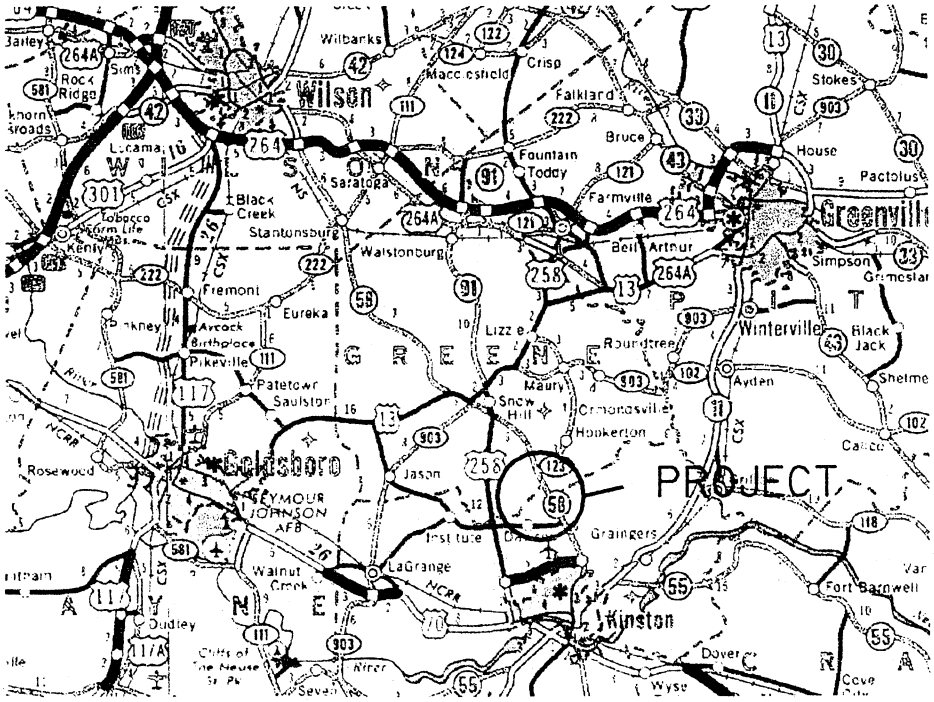
BRIDGE NUMBER 59 OVER

WHEAT SWAMP CREEK

ALONG NC 58

SHEET **OF** **9/7/04**





VICINITY MAPS

NEUSE RIVER BUFFER ZONE

NCDOT

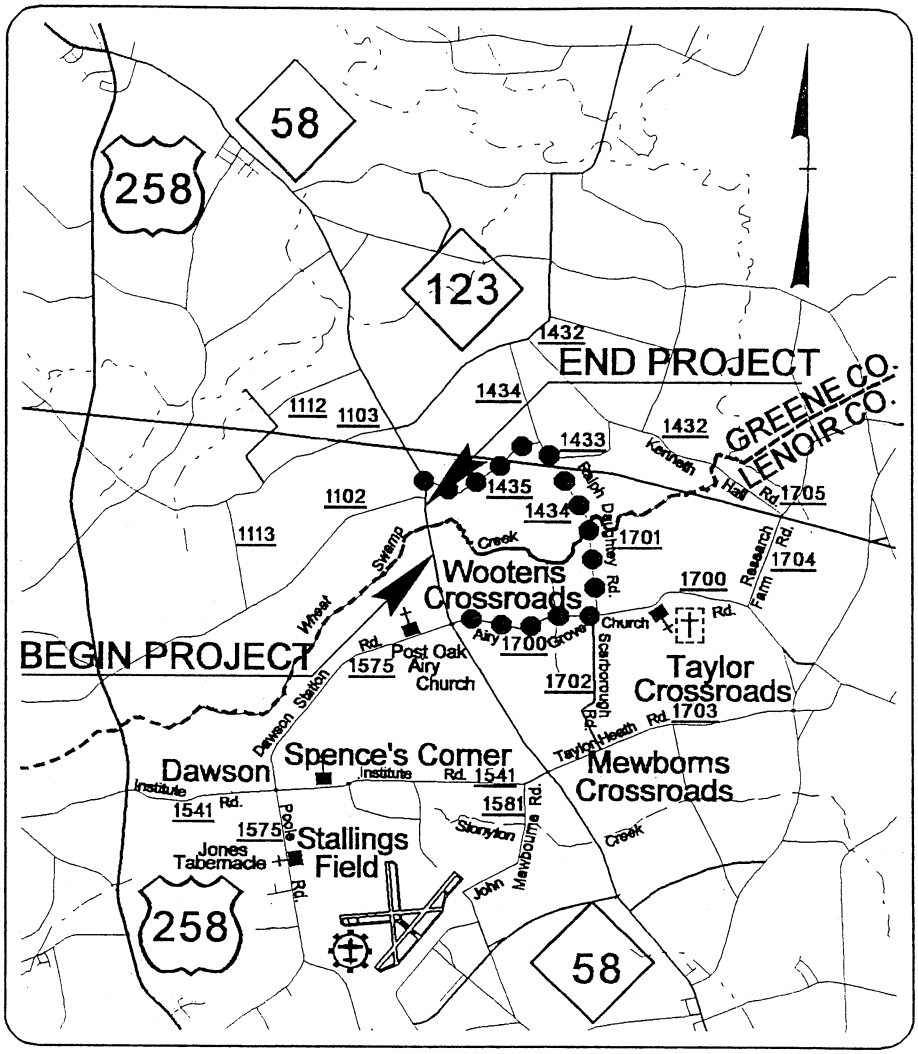
DIVISION OF HIGHWAYS

GREENE / LENOIR COUNTY

PROJECT: 8.1200701 (B-3866)

BRIDGE NUMBER 59 OVER WHEAT SWAMP CREEK ALONG NC 58

SHEET **OF** **9/7/04**



VICINITY MAP DETOUR ROUTE

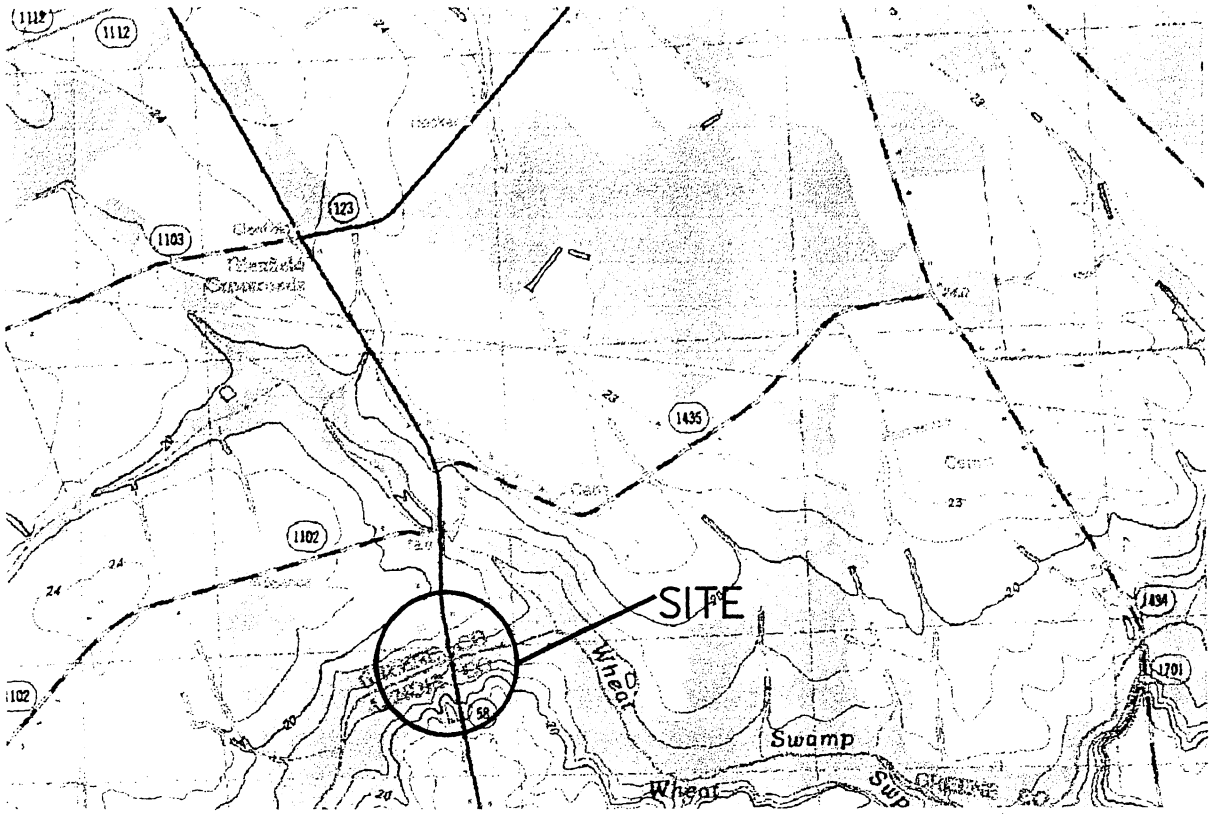
NEUSE RIVER
BUFFER ZONE

VICINITY MAP

NCDOT
DIVISION OF HIGHWAYS
GREENE / LENOIR COUNTY
PROJECT: 8.1200701 (B-3866)
BRIDGE NUMBER 59 OVER
WHEAT SWAMP CREEK
ALONG NC 58

SHEET OF

9/7/04



NOT TO SCALE

CONTOUR INTERVALS 6 FEET

TOPOGRAPHIC MAPS

NEUSE RIVER BUFFER ZONE

NCDOT

DIVISION OF HIGHWAYS

GREENE / LENOIR COUNTY

PROJECT: 8.1200701 (B-3866)

BRIDGE NUMBER 59 OVER WHEAT SWAMP CREEK ALONG NC 58

SHEET 3 **OF** 6 **9/7/04**

8/23/96

0 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3866	4X-3

0.020 0.020

54.94
19+00.00

IMPACTS ZONE 1

LIMITS OF MECHANIZED CLEARING BUFFER ZONE

IMPACTS ZONE 2

LIMITS OF MECHANIZED CLEARING BUFFER ZONE

0.020 0.020

54.73
18+50.00

IMPACTS ZONE 1

LIMITS OF MECHANIZED CLEARING BUFFER ZONE

0.020 0.020

54.82
18+00.00

0.020 0.020

54.89
17+50.00

0.020 0.020

57.28
17+00.00

0.020 0.020

57.96
16+50.00

02-SEP-2004 14:52
R:\Hydraulics\Permit\B3866BUFFER_PERMIT_XPL.dgn
asheppard

8/23/99

0 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3866	4X-4

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

60
50

0.020 0.020
57.39
22+00.00

0.020 0.020
56.97
21+50.00

0.020 0.020
56.78
21+00.00

0.020 0.020
56.80
20+50.00

0.020 0.020
56.75
20+00.00

LIMITS OF MECHANIZED CLEARING
BUFFER ZONE

0.020 0.020
56.64
19+50.00

LIMITS OF MECHANIZED CLEARING
BUFFER ZONE

L

02-SEP-2004 14:49
R:\Hydraulics\permit\B3866BUFFER_PERMIT_XPL.dgn
pshepard

8/17/99

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NGS FOR MONUMENT "FOSTER"
WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING 596411.300819 EASTING 2413787.72819
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT AROUND TO SPLIT IS 0.99987756
THE NC LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "FOSTER" TO -L- STATION 13+50.00 IS
S 14° 07' 28.4" E 1.3862ft
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

PROJECT REFERENCE NO.	SHEET NO.
B-3866	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STA. 13+50.00 -L- BEGIN STATE PROJECT B-3866

STA. 24+00.00 -L- END STATE PROJECT B-3866

BRIDGE IS BST OVER CONCRETE W/STEEL I-BEAMS.
GUARDRAILS ARE CONCRETE. CONCRETE HEADWALLS BURIED UNDER ROCK RIP-RAP.

NOTE: HIGH WATER MARK APPROX. 6.62' IN 1999 PER VARIOUS RESIDENTS.

SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1 or Flatter, Fill Slope
Min. D = 1.0Ft.
STA 14+00 TO 17+00 -L- (RT.)
STA 22+50 TO 23+50 -L- (RT.)
DETAIL 1

CLAUDE BRIGHT, III ①
CLAUDE BRIGHT, III
ROBERT GILMER FOSTER, et al ④
ROBERT GILMER FOSTER, et al
JAMES KENNETH ROMBOLD, JR. ②
JAMES KENNETH ROMBOLD, JR., et ux ③
ROBERT GILMER FOSTER, et al ⑤
LUVENIA C. BRIGHT HEIRS

15+00
20+00
25+00

1SFD
WOOD DECK
CONC DRIVE
EXIST R/W
15"CONC
NC 58
100' 24" BST OVER CONCRETE
-EL-
-L-
N 11° 21' 28.3" W
BRIDGE NO. 59
WOODS
WHEAT SWAMP CREEK
5' x 10' RIP RAP PAD
EST. 5.5 TONS
CLASS 'B' RIP RAP
RIP RAP
END SHOULDER BERM GUTTER STA. 21+01.00
2GI
REMOVE
1SFD ABAND
TO SNOW HILL
SHELTER
WOOD BARN
SPECIAL LATERAL V-DITCH (GRASS-LINED) SEE DETAIL 1
PCSta. 24+12.35
PTSta. 25+95.05

-L-
PI Sta. 25+03.75
Δ = 4° 33' 04.8" (RT)
D = 2° 29' 28.0"
T = 91.40'
T = 182.70'
R = 2,300.00'

0 50 100
SCALE IN FEET

BUFFER IMPACTS ZONE 1
BUFFER IMPACTS ZONE 2
(METHOD III CLEARING)

NEUSE RIVER BUFFER ZONE

*STRUCTURE ANCHOR UNITS REQUIRED
SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP

BEGIN GRADE -L-
STA. 13+50.00
EL. 68.93'

END GRADE -L-
STA. 24+00.00
EL. 68.93'

-L-

PI = 15+90.00
EL = 59.81'
VC = 480'
K = 137

BEGIN BRIDGE
-L- 18+84.00+/-

1@75
27" BOX BEAM
SKEW 90°

END BRIDGE
-L- 19+59.00+/-

PI = 21+31.50
EL = 58.18'
VC = 180'
K = 166

(-)3.80%
(-)5.60%
(-)3.60%
(-)2.8%
(-)2.20%
(-)1.60%
(-)0.30%
(+)0.78%
(+)1.55%

BEG. DITCH GRADE RT
STA 14+00.00 EL. = 63.00'

PI = 14+50.00
EL = 60.20'
PI = 15+00.00
EL = 58.40'
PI = 15+50.00
EL = 57.00'
PI = 16+50.00
EL = 54.80'

END DITCH GRADE RT
STA 17+00.00 EL. = 54.00'

BEG. DITCH GRADE RT
STA 22+50.00 EL = 55.7'

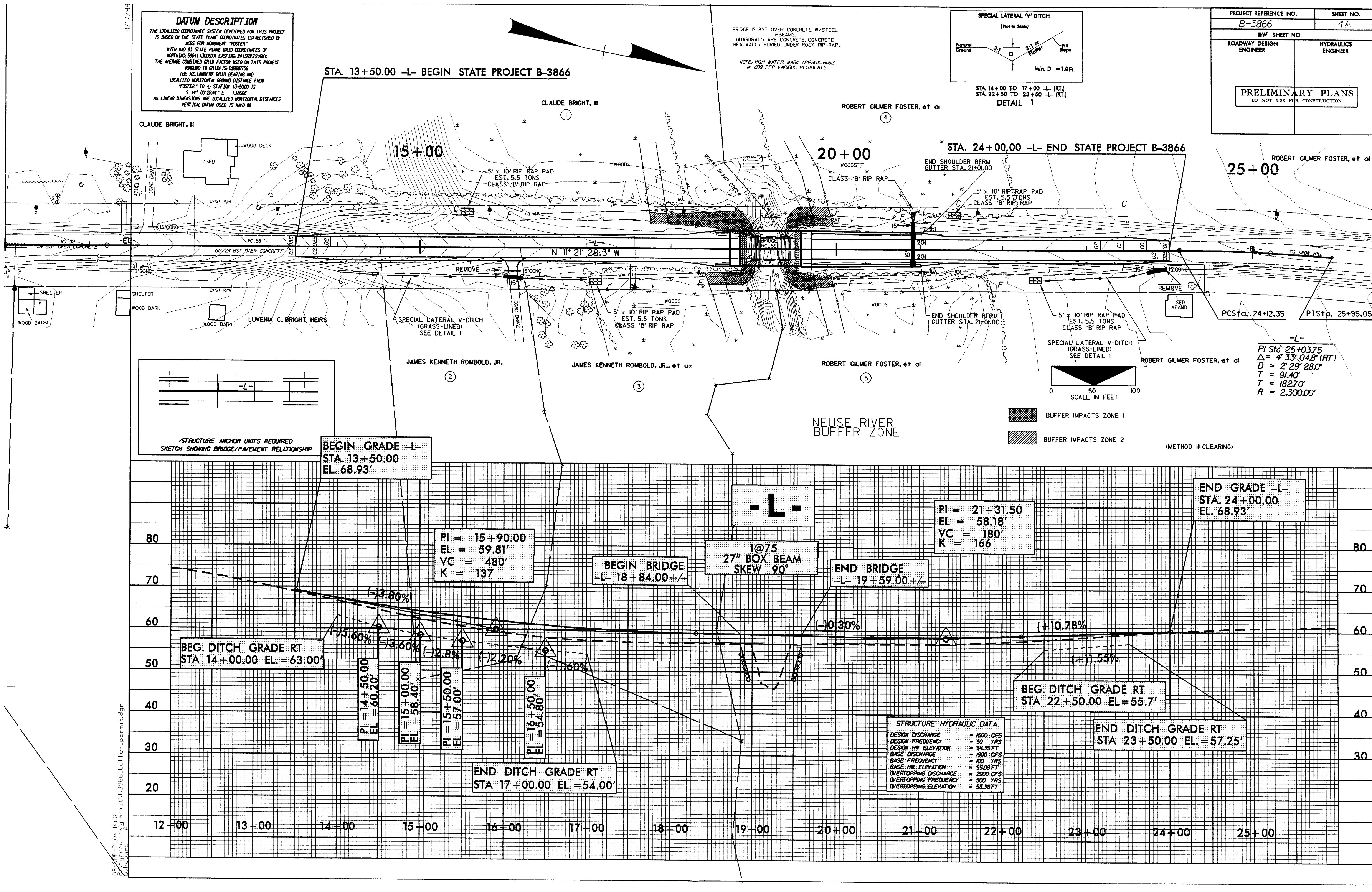
END DITCH GRADE RT
STA 23+50.00 EL. = 57.25'

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 7500 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 54.35 FT
BASE DISCHARGE	= 7900 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 56.08 FT
OVERTOPPING DISCHARGE	= 29.00 CFS
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING ELEVATION	= 58.38 FT

80 70 60 50 40 30 20
12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00

08-JUL-2004 14:05
R:\Hydraulics\Permits\B3866_buffer_permit.dgn
default



PROJECT REFERENCE NO. B-3866
SHEET NO. 4A
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "FOSTER"
VERTICAL DATUM USED IS NAVD 88
STA. 13+50.00 -L- BEGIN STATE PROJECT B-3866
STA. 24+00.00 -L- END STATE PROJECT B-3866
BRIDGE IS BST OVER CONCRETE W/STEEL I-BEAMS. GUARDRAILS ARE CONCRETE. CONCRETE HEADWALLS BURIED UNDER ROCK RIP-RAP.
NOTE: HIGH WATER MARK APPROX. 61.62 IN 1999 PER VARIOUS RESIDENTS.
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D = 1.0Ft.
STA. 14+00 TO 17+00 -L- (RT.)
STA. 22+50 TO 23+50 -L- (RT.)
DETAIL 1
CLAUDE BRIGHT, III
ROBERT GILMER FOSTER, et al
LUVENIA C. BRIGHT HEIRS
JAMES KENNETH ROMBOLD, JR.
JAMES KENNETH ROMBOLD, JR., et ux
15+00
20+00
25+00
5' x 10' RIP RAP PAD
EST. 5.5 TONS
CLASS 'B' RIP RAP
CLASS 'B' RIP RAP
END SHOULDER BERM GUTTER STA. 21+01.00
SPECIAL LATERAL V-DITCH (GRASS-LINED) SEE DETAIL 1
N 11° 21' 28.3" W
BRIDGE NO. 59
REMOVE
WOODS
SHELTER
WOOD BARN
WOOD DECK
1 SFD
TO SNOW HILL
PCSta. 24+12.35
PTSta. 25+95.05
-L-
PI Sta 25+03.75
Δ = 4° 33' 04.8" (RT)
D = 2° 29' 28.0"
T = 91.40'
T = 182.70'
R = 2,300.00'
SCALE IN FEET
0 50 100
BUFFER IMPACTS ZONE 1
BUFFER IMPACTS ZONE 2
(METHOD III CLEARING)
NEUSE RIVER BUFFER ZONE
*STRUCTURE ANCHOR UNITS REQUIRED
SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP
-L-
BEGIN GRADE -L-
STA. 13+50.00
EL. 68.93'
PI = 15+90.00
EL = 59.81'
VC = 480'
K = 137
BEGIN BRIDGE
-L- 18+84.00+/-
1@75
27" BOX BEAM
SKEW 90°
END BRIDGE
-L- 19+59.00+/-
PI = 21+31.50
EL = 58.18'
VC = 180'
K = 166
END GRADE -L-
STA. 24+00.00
EL. 68.93'
(-)3.80%
(-)5.60%
(-)3.60%
(-)2.8%
(-)2.20%
(-)1.60%
(-)0.30%
(+)0.78%
(+)1.55%
BEG. DITCH GRADE RT
STA 14+00.00 EL.=63.00'
PI = 14+50.00
EL = 60.20'
PI = 15+00.00
EL = 58.40'
PI = 15+50.00
EL = 57.00'
PI = 16+50.00
EL = 54.80'
END DITCH GRADE RT
STA 17+00.00 EL.=54.00'
BEG. DITCH GRADE RT
STA 22+50.00 EL=55.7'
END DITCH GRADE RT
STA 23+50.00 EL.=57.25'
STRUCTURE HYDRAULIC DATA
DESIGN DISCHARGE = 1500 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = 54.35 FT
BASE DISCHARGE = 1900 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 55.08 FT
OVERTOPPING DISCHARGE = 2900 CFS
OVERTOPPING FREQUENCY = 500 YRS
OVERTOPPING ELEVATION = 58.38 FT
80
70
60
50
40
30
20
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00
25+00
8/17/99

BUFFER IMPACTS SUMMARY

			IMPACT								BUFFER REPLACEMENT	
			TYPE		ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	Bridge	17+74 TO		X	1970.0	267.0	2237.0					
		19+04 -L- LT										
		18+40 TO		X	676.0	309.0	985.0					
		19+04 -L- RT										
		19+37 TO		X	690.0	458.0	1148.0					
		19+96 -L- LT										
		19+37 TO		X	662.0	277.0	939.0					
		19+97 -L- RT										
TOTAL:					3998.0	1311.0	5309.0	0.0	0.0	0.0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

GREENE/LENIOR COUNTY
PROJECT: 8.1200701 (B-3866)

9/7/2004
SHEET 5 OF 6

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	CLAUDE BRIGHT, III	5178 HWY 58 N HOOKERTON, N.C. 28538
2	JAMES K. ROMBOLD, JR.	5213 HWY 58 N HOOKERTON, N.C. 28538
3	JAMES K. ROMBOLD, JR., ET UX	5213 HWY 58 N HOOKERTON, N.C. 28538
4	ROBERT GILMER FOSTER	P.O. BOX 1256 KINSTON, N.C. 28501

NEUSE RIVER
BUFFER ZONE

NCDOT

DIVISION OF HIGHWAYS

GREENE / LENOIR COUNTY

PROJECT: 8.1200701 (B-3866)

BRIDGE NUMBER 59 OVER
WHEAT SWAMP CREEK
ALONG NC 58

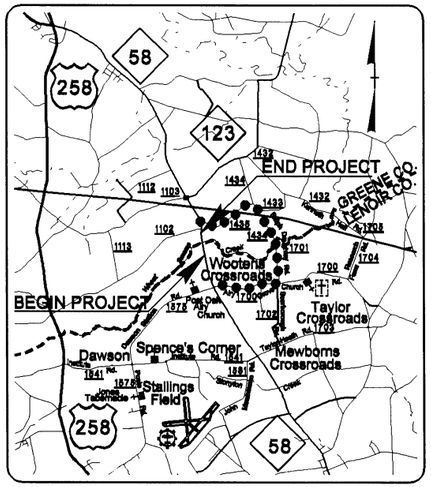
SHEET OF 9/7/04

09/08/99

TIP PROJECT: B-3866

CONTRACT: 33312.1.1 TIP PROJECT: B-3866

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

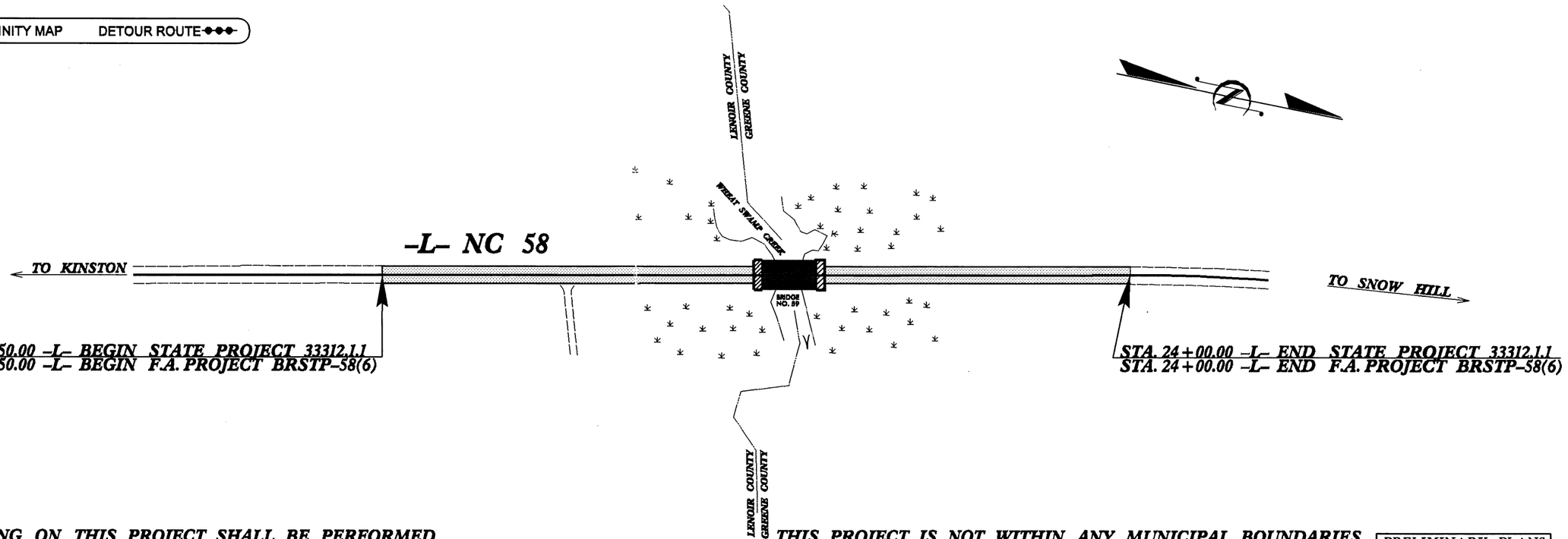
LENOIR / GREENE COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3866	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33312.1.1	BRSTP-58(6)	PE
33312.2.1	BRSTP-58(6)	R/W

LOCATION: BRIDGE NO. 59 ON NC 58
OVER WHEAT SWAMP CREEK

TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL AND STRUCTURE



STA. 13+50.00 -L- BEGIN STATE PROJECT 33312.1.1
STA. 13+50.00 -L- BEGIN F.A. PROJECT BRSTP-58(6)

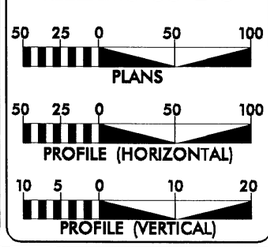
STA. 24+00.00 -L- END STATE PROJECT 33312.1.1
STA. 24+00.00 -L- END F.A. PROJECT BRSTP-58(6)

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2001 = 4,600
ADT 2025 = 10,600
DHV = 12 %
D = 60 %
T = 5 % *
V = 60 MPH
FUNC. CLASS = COLLECTOR
* TTST 2% + DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY F. A. PROJECT BRSTP-58(6) = 0.185 miles

LENGTH STRUCTURE F. A. PROJECT BRSTP-58(6) = 0.014miles

TOTAL LENGTH STATE PROJECT 33312.1.1 = 0.199 miles

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., NC, 27610

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 20, 2004

LETTING DATE: APRIL 19, 2005

JIMMY GOODNIGHT, PE
PROJECT ENGINEER

STEVE KENDALL
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR *DATE*

21-SEP-2004 11:43
R:\Roadway\Proj\B3866_RDY_TSH.dgn
lcharova
AT RD195136

8/17/99

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NGS FOR MONUMENT "FOSTER"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING 596411.300819 EASTING 2413787.2697
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS 0.99987756
THE NC LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"FOSTER" TO -L- STATION 13+50.00 IS
S 14° 00' 28.44" E 1.3605
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NAD 83

STA. 13+50.00 -L- BEGIN STATE PROJECT B-3866

BL-2 PINC 8+87.00
STA. 14+32.57 -L-
16.47' LEFT

BL-3 PINC 13+34.90 POT=
STA. 18+80.47 -L- 18.73' LEFT

STA. 24+00.00 -L- END STATE PROJECT B-3866

BL-4 PINC 18+05.59
23+51.15 -L-
16.97 LEFT

BRIDGE IS BST OVER CONCRETE W/STEEL I-BEAMS.
GUARDRAILS ARE CONCRETE. CONCRETE HEADWALLS BURIED UNDER ROCK RIP-RAP.

NOTE: HIGH WATER MARK APPROX. 6.62' IN 1999 PER VARIOUS RESIDENTS.

SPECIAL LATERAL "V" DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1 or Flatter, Fill Slope, Min. D = 1.0Ft.
STA. 14+00 TO 17+00 -L- (RT.)
STA. 22+80 TO 23+50 -L- (RT.)
DETAIL 1

PROJECT REFERENCE NO.	SHEET NO.
B-3866	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CLAUDE BRIGHT, III
DB 235 - PG 28
WB 94E - PG 308

ROBERT GILMER FOSTER, et al
DB 502 - PG 499
MB 1 - PG 17

ROBERT GILMER FOSTER, et al

NCGS "FOSTER"
BL-5
POT 21+91.90

15+00 | 20+00 | 25+00

WOOD DECK | 1SFD | CONC DRIVE | EXIST R/W | 15"CONC | N 11° 28' 42.3" W | MC 58 | 100' 24" BST OVER CONCRETE

5' x 10' RIP RAP PAD
EST. 5.5 TONS
CLASS 'B' RIP RAP

WOODS | GRAU 350 | N 11° 38' 47.6" W | N 11° 21' 28.3" W | -L- | BRIDGE NO. 59 | TYPE III | SBG | RIP RAP | 24' | 2GI

CLASS 'B' RIP RAP | END SHOULDER BERM GUTTER STA. 21+01.00 | N 11° 08' 39.7" W | N 18° 21' 44.9" W | 50' TRANSITION TO EXIST. | 16' | 15"CONC | REMOVE | 1SFD ABAND

TRANSITION TO EXIST. 50' | REMOVE | R = 15' | EIP | EXIST R/W MON EL= 15+36.92' 49.53 | -L- +58.30' 49.592 | 50.56' +19.62 (CL TO R/W) | 50.59' 20.49 | 16.99' 16.99 | 14.66' 14.66 | 172.33' 172.33

WOOD BARN | LUVENIA C. BRIGHT HEIRS DB 514 - PG 465

SPECIAL LATERAL V-DITCH (GRASS-LINED) SEE DETAIL 1

JAMES KENNETH ROMBOLD, JR. DB 685 - PG 620

JAMES KENNETH ROMBOLD, JR., et ux DB 786 - PG 250

ROBERT GILMER FOSTER, et al DB 502 - PG 499 MB 1 - PG 17

END SHOULDER BERM GUTTER STA. 21+01.00

5' x 10' RIP RAP PAD EST. 5.5 TONS CLASS 'B' RIP RAP

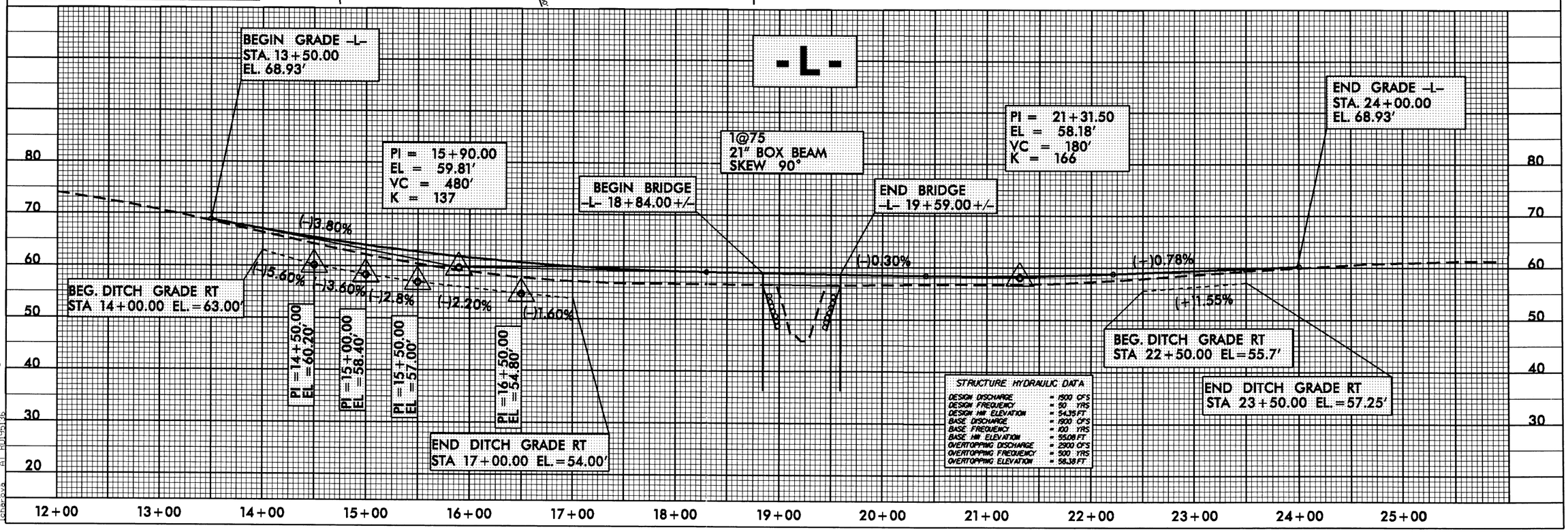
SPECIAL LATERAL V-DITCH (GRASS-LINED) SEE DETAIL 1

ROBERT GILMER FOSTER, et al

PCSta. 24+12.35 | PTSta. 25+95.05

-L-
PI Sta 25+03.75
Δ = 4° 33' 04.8" (RT)
D = 2° 29' 28.0"
T = 91.40'
T = 182.70'
R = 2300.00'

*STRUCTURE ANCHOR UNITS REQUIRED
SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP



21-SEP-2004 11:43
R:\Roadway\Proj\B3866_RDY_PSH.dgn
Chargois
AT EU/95136

Ecosystem Enhancement PROGRAM

October 19, 2004

Mr. Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

B-3866, Bridge 59 over Wheat Swamp Creek on NC 58, Lenoir and Greene Counties

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide wetland mitigation for the subject project. Based on the information supplied by you in a letter dated October 8, 2004, the impacts are located in CU 03020203 of the Neuse River Basin in the Southern Inner Coastal Plain Eco-Region, and are as follows:

Riverine Wetland: 0.24 acre

As stated in your letter, the subject project is listed in Exhibit 2 of the Memorandum of Agreement among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, Wilmington District dated July 22, 2003. The wetland mitigation for the subject project will be provided in accordance with this agreement.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

William D. Gilmore, P.E.
Transition Manager

cc: Michael Bell, USACE-Washington
John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-3866

Ecosystem Enhancement PROGRAM

October 19, 2004

Mr. Michael Bell
U. S. Army Corps of Engineers
Washington Regulatory Field Office
Post Office Box 1000
Washington, North Carolina 27889-1000

Dear Mr. Bell:

Subject: EEP Mitigation Acceptance Letter:

B-3866, Bridge 59 over Wheat Swamp Creek, Lenoir and Greene Counties

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) proposes to provide preservation to compensate for the unavoidable 0.24 acre of riverine wetland impacts of the subject project in the following manner:

Wetland Preservation (10:1) in same eco-region (2.40 acre)
Great Cohaire Site, Sampson County

The subject TIP project is listed in Exhibit 2 of the Memorandum of Agreement among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, Wilmington District dated July 22, 2003. The compensatory mitigation for the project will be provided in accordance with Section IX, EEP Transition Period, of the Agreement.

If you have any questions or need additional information, please contact Ms. Beth Harmon at (919) 715-1929.

Sincerely,

William D. Gilmore, P.E.
Transition Manager

cc: Phil Harris, Office of Natural Environment, NCDOT
John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-3866

CATEGORICAL EXCLUSION ACTION CLASSIFICATION FORM

TIP Project No.	**B-3866**
State Project No.	**8.1200701**
Federal Project No.	**BRSTP-58 (6)**

A. Project Description:

NCDOT will replace Bridge No. 59 on NC 58 over Wheat Swamp Creek in Lenoir County at approximately the same location as the existing bridge. The elevation of the new bridge should be raised approximately 2 feet (0.6 meters) in order to improve the level of service of the road. The bridge will be replaced with a new bridge approximately 90 feet (27.4 meters) in length. The bridge will be 30 feet (9.2 meters) wide. This width will provide for a 24-foot (7.2-meter) travelway and 3 foot (1 meter) offsets on each side of the proposed bridge. The new approach roadway will also have a 24-foot (7.2-meter) travelway with 4-foot (1.2-meter) paved shoulders and 4-foot (1.2-meter) grass shoulders on each side of the roadway. Shoulder width will be increased at least 3 feet (1 meter) where guardrail is warranted. Traffic will be detoured along surrounding roads during construction. Total project length is approximately 950 feet (298 meters).

B. Purpose and Need:

Bridge No. 59 has a sufficiency rating of 46.9 out of 100. The deck is only 28 feet (8.5 meters) wide and the substructure is composed mainly of timber piles with timber caps. For these reasons, Bridge No. 59 needs to be replaced.

C. Proposed Improvements:

The following Type II improvements which apply to the project are circled:

1. Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing).

    a. Restoring, Resurfacing, Rehabilitating, and Reconstructing pavement (3R and 4R improvements)
    b. Widening roadway and shoulders without adding through lanes
    c. Modernizing gore treatments
    d. Constructing lane improvements (merges, auxiliary, and turn lanes)
    e. Adding shoulder drains
    f. Replacing and rehabilitating culverts, inlets, and drainage pipes, including safety treatments
    g. Providing driveway pipes
    h. Performing minor bridge widening (less than one through lane)

2. Highway safety or traffic operations improvement projects including the installation of ramp metering control devices and lighting.

    a. Installing ramp metering devices
    b. Installing lights

c. Adding or upgrading guardrail
d. Installing safety barriers including Jersey type barriers and pier protection
e. Installing or replacing impact attenuators
f. Upgrading medians including adding or upgrading median barriers
g. Improving intersections including relocation and/or realignment
h. Making minor roadway realignment
i. Channelizing traffic
j. Performing clear zone safety improvements including removing hazards and flattening slopes
k. Implementing traffic aid systems, signals, and motorist aid
l. Installing bridge safety hardware including bridge rail retrofit

3. Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings.

a. Rehabilitating, reconstructing, or replacing bridge approach slabs
b. Rehabilitating or replacing bridge decks
c. Rehabilitating bridges including painting (no red lead paint) scour repair, fender systems, and minor structural improvements
d. Replacing a bridge (structure and/or fill)

4. Transportation corridor fringe parking facilities.

5. Construction of new truck weigh stations or rest areas.

6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.

7. Approvals for changes in access control.

8. Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.

9. Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.

10. Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks, and related street improvements) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.

11. Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.

12. Acquisition of land for hardship or protective purposes, advance land acquisition loans under section 3(b) of the UMT Act. Hardship and

protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CE only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed.

D. Special Project Information:

Estimated Costs:

Total Construction	$ 650,000
Right of Way	$ 48,000
Total	**$ 698,000**

Estimated Traffic:

Current	-	4600 vpd
Year 2025	-	10,600 vpd
TTST	-	2%
Dual	-	3%

Proposed Typical Cross Section:

The new approach roadway will have a 24-foot (7.2-meter) travelway with 4-foot (1.2-meter) paved shoulders and 4-foot (1.2-meter) grass shoulders on each side of the roadway. Shoulder width will be increased at least 3 feet (1 meter) where guardrail is warranted.

Design Speed:

60 mph (100 kmh)

Functional Classification:

NC 58 is classified as a Rural Major Collector Route in the Statewide Functional Classification system.

Division Office Comments:

The Division 2 Construction Engineer supports the chosen alternate and proposed method for detouring traffic during construction.

Bridge Demolition:

Bridge No. 59 is located on NC 58 over Wheat Swamp Creek in Lenoir County. The superstructure is composed of a reinforced concrete floor on continuous steel I-beams. The substructure is composed mainly of timber piles with timber caps and reinforced end bents. There is potential for components of the bridge to be dropped into Waters of the United States. The resulting temporary fill associated with this bridge is 56 cubic yards (42.8 cubic meters). The bridge removal is classified as a Case 2 action (no work at all in the water

during moratorium periods associated with fish migration, spawning, and larval recruitment into nursery areas).

E. Threshold Criteria

The following evaluation of threshold criteria must be completed for Type II actions

ECOLOGICAL		YES	NO
(1)	Will the project have a substantial impact on any unique or important natural resource?		X
(2)	Does the project involve habitat where federally listed endangered or threatened species may occur?		X
(3)	Will the project affect anadromous fish?	X	
(4)	If the project involves wetlands, is the amount of permanent and/or temporary wetland taking less than one-third (1/3) of an acre and have all practicable measures to avoid and minimize wetland takings been evaluated?	X	
(5)	Will the project require the use of U. S. Forest Service lands?		X
(6)	Will the quality of adjacent water resources be adversely impacted by proposed construction activities?		X
(7)	Does the project involve waters classified as Outstanding Water Resources (OWR) and/or High Quality Waters (HQW)?		X
(8)	Will the project require fill in waters of the United States in any of the designated mountain trout counties?		X
(9)	Does the project involve any known underground storage tanks (UST's) or hazardous material sites?		X

PERMITS AND COORDINATION		YES	NO
(10)	If the project is located within a CAMA county, will the project significantly affect the coastal zone and/or any "Area of Environmental Concern" (AEC)?		X
(11)	Does the project involve Coastal Barrier Resources Act resources?		X

		YES	NO
(12)	Will a U. S. Coast Guard permit be required?		X
(13)	Will the project result in the modification of any existing regulatory floodway?		X
(14)	Will the project require any stream relocations or channel changes?		X

SOCIAL, ECONOMIC, AND CULTURAL RESOURCES		YES	NO
(15)	Will the project induce substantial impacts to planned growth or land use for the area?		X
(16)	Will the project require the relocation of any family or business?		X
(17)	Will the project have a disproportionately high and adverse human health and environmental effect on any minority or low-income population?		X
(18)	If the project involves the acquisition of right of way, is the amount of right of way acquisition considered minor?	X	
(19)	Will the project involve any changes in access control?		X
(20)	Will the project substantially alter the usefulness and/or land use of adjacent property?		X
(21)	Will the project have an adverse effect on permanent local traffic patterns or community cohesiveness?		X
(22)	Is the project included in an approved thoroughfare plan and/or Transportation Improvement Program (and is, therefore, in conformance with the Clean Air Act of 1990)?	X	
(23)	Is the project anticipated to cause an increase in traffic volumes?		X
(24)	Will traffic be maintained during construction using existing roads, staged construction, or on-site detours?	X	
(25)	If the project is a bridge replacement project, will the bridge be replaced at its existing location (along the existing facility) and will all construction proposed in association with the bridge replacement project be contained on the existing facility?	X	

(26)	Is there substantial controversy on social, economic, or environmental grounds concerning the project?		X
(27)	Is the project consistent with all Federal, State, and local laws relating to the environmental aspects of the project?	X	
(28)	Will the project have an "effect" on structures/properties eligible for or listed on the National Register of Historic Places?		X
(29)	Will the project affect any archaeological remains, which are important to history or pre-history?		X
(30)	Will the project require the use of Section 4(f) resources (public parks, recreation lands, wildlife and waterfowl refuges, historic sites, or historic bridges, as defined in Section 4(f) of the U. S. Department of Transportation Act of 1966)?		X
(31)	Will the project result in any conversion of assisted public recreation sites or facilities to non-recreation uses, as defined by Section 6(f) of the Land and Water Conservation Act of 1965, as amended?		X
(32)	Will the project involve construction in, across, or adjacent to a river designated as a component of or proposed for inclusion in the Natural System of Wild and Scenic Rivers?		X

F. **Additional Documentation Required for Unfavorable Responses in Part E**
(Discussion regarding all unfavorable responses in Part E should be provided below. Additional supporting documentation may be attached, as necessary.)

Item (3)
Wheat Swamp Creek supports anadromous fish. To minimize impacts to spawning, an in-water construction moratorium is required from February 15 to June 15.

G. CE Approval

TIP Project No.	**B-3866**
State Project No.	**8.1200701**
Federal Project No.	**BRSTP-58 (6)**

Project Description:

NCDOT will replace Bridge No. 59 on NC 58 over Wheat Swamp Creek in Lenoir County at approximately the same location as the existing bridge. The elevation of the new bridge should be raised approximately 2 feet (0.6 meters) in order to improve the level of service of the road. The bridge will be replaced with a new bridge approximately 90 feet (27.4 meters) in length. The bridge will be 30 feet (9.2 meters) wide. This width will provide for a 24-foot (7.2-meter) travelway and 3 foot (1 meter) offsets on each side of the proposed bridge. The new approach roadway will also have a 24-foot (7.2-meter) travelway with 4-foot (1.2-meter) paved shoulders and 4-foot (1.2-meter) grass shoulders on each side of the roadway. Shoulder width will be increased at least 3 feet (1 meter) where guardrail is warranted. Traffic will be detoured along surrounding roads during construction. Total project length is approximately 950 feet (298 meters).

Categorical Exclusion Action Classification:

____ TYPE II(A)
_X_ TYPE II(B)

Approved:

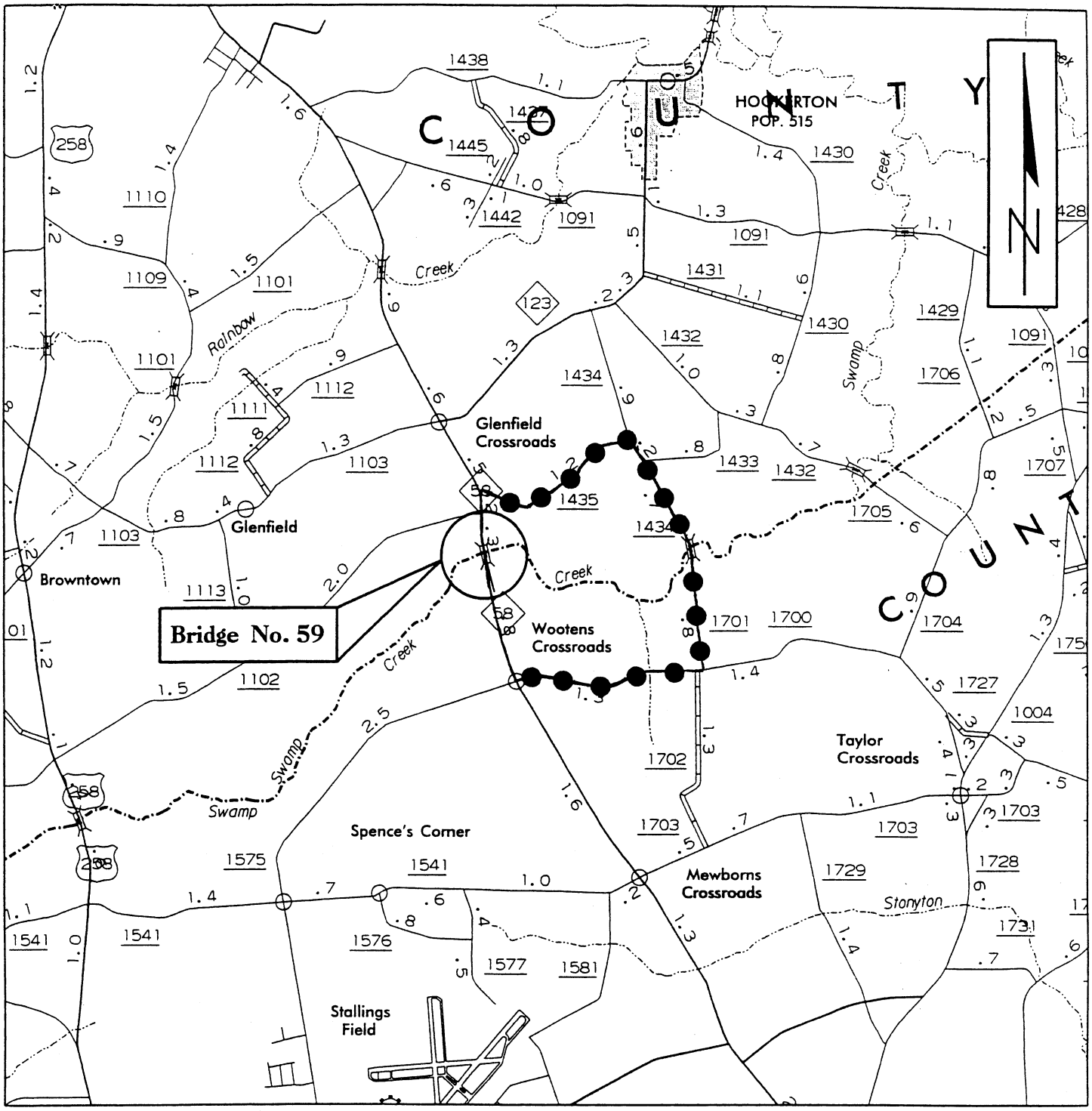
10-23-02 — for Assistant Manager
Date — Project Development & Environmental Analysis Branch

10-23-02 — Project Planning Unit Head, William T. Goodwin, Jr., PE
Date — Project Development & Environmental Analysis Branch

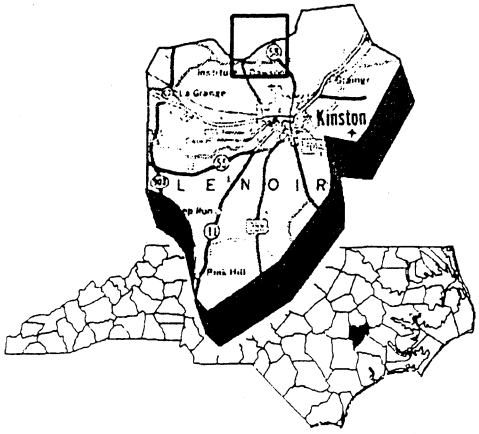
10-23-02 — Project Development Engineer, Robin C. Young
Date — Project Development & Environmental Analysis Branch

For Type II(B) projects only:

10-29-02 — for Division Administrator
Date — Federal Highway Administration



Detour Route



North Carolina Department of Transportation
Division of Highways
Project Development & Environmental Analysis

Lenoir/Greene Counties
Replace Bridge No. 59 on NC 58
Over Wheat Swamp Creek
B-3866

SCALE: 1 in = 1 mi

Figure 1

Katrin Young

North Carolina Department of Cultural Resources
State Historic Preservation Office
David L. S. Brook, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

August 6, 2001

MEMORANDUM

To: William D. Gilmore, P.E., Manager
NCDOT, Project Development & Environmental Analysis Branch

From: David Brook RSHP for David Brook
Deputy State Historic Preservation Officer

Re: Replace Bridge No. 59 on NC 58 over Wheat Swamp Creek, B-3866, Greene County, ER 01-7909

Thank you for your memorandum of June 21, 2001, concerning the above project.

We are aware of no historic properties in the area of potential effect, except the bridge itself. Built in 1940, the bridge's eligibility for listing in the National Register of Historic Places should be evaluated.

There are no known archaeological sites within the proposed project area. Based on our present knowledge of the area, it is unlikely that any archaeological resources, which may be eligible for inclusion in the National Register of Historic Places, will be affected by the project construction. We, therefore recommend that no archaeological investigation be conducted in connection with this project.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919/733-4763.

DB:kgc

cc: Mary Pope Furr, NCDOT

	Location	Mailing Address	Telephone/Fax
Administration	507 N. Blount St, Raleigh, NC	4617 Mail Service Center, Raleigh 27699-4617	(919) 733-4763 •733-8653
Restoration	515 N. Blount St, Raleigh , NC	4613 Mail Service Center, Raleigh 27699-4613	(919) 733-6547 •715-4801
Survey & Planning	515 N. Blount St, Raleigh, NC	4618 Mail Service Center, Raleigh 27699-4618	(919) 733-4763 •715-4801

Federal Aid # : BRSTP-58(6) *TIP # B-3866* *County: Lenoir/Greene Counties*

CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Project Description: Replacing Bridge #59 on NC 58 over Wheat Swamp Creek in Lenoir / Greene Counties: two alternatives.

On August 2, 2001, representatives of the

XX North Carolina Department of Transportation (NCDOT)
☐ Federal Highway Administration (FHWA)
XX North Carolina State Historic Preservation Office (SHPO)

Reviewed the subject project at

☐ Scoping meeting
XX Photograph review session/consultation
☐ Other

All parties present agreed

☐ There are no properties over fifty years old within the project's area of potential effect.

XX There are no properties less than fifty years old which are considered to meet Criterion Consideration G within the project's area of potential effect.

☑ There are properties over fifty years old (list attached) within the project's area of potential effect, but based on the historical information available and the photographs of each property, properties identified as # 1,2, 3 and Bridge #59 are considered not eligible for the National Register and no further evaluation of them is necessary.

XX There are no National Register-listed properties located within the project's area of potential effect

Signed:

Representative, NCDOT — Date 8/2/01

FHWA, for the Division Administrator, or other Federal Agency — Date 8/8/01

Representative, SHPO — Date 8/2/01

State Historic Preservation Officer BJS — Date 8/2/01

If a survey report is prepared, a final copy of this form and the attached list will be included.

PROJECT COMMITMENTS

Lenoir County
Bridge No. 59 on NC 58
Over Wheat Swamp Creek
Federal Project BRSTP-58 (6)
State Project 8.1200701
TIP No. B-3866

Commitments Developed Through Project Development and Design

Roadside Environmental Unit, Division 2 Construction, Structure Design Unit
Bridge Demolition: Best Management Practices for Bridge Demolition & Removal will be implemented. The superstructure is composed of a reinforced concrete floor on continuous steel I-beams. The substructure is composed mainly of timber piles with timber caps and reinforced end bents. There is potential for components of the bridge to be dropped into Waters of the United States. The resulting temporary fill associated with this bridge is 56 cubic yards (42.8 cubic meters). The bridge removal is classified as a Case 2 action.

Programming and TIP Unit
This project has been coordinated with B-4126 so that B-4126 is completed before the construction of B-3866 begins.

Division 2 Construction, Roadside Environmental Unit, Hydraulics Unit
Wheat Swamp Creek supports anadromous fish. To minimize impacts to spawning, an in-water construction moratorium is required from February 15 to June 15.

Natural Resources Technical Report

Proposed Bridge Replacement
NC 58, Bridge No. 59 over Wheat Swamp Creek
Greene/Lenoir County

TIP No. B-3866
State Project No. 8.1200701
FAP No. BRSTP-56(6)

Prepared for:

North Carolina Department of Transportation
Division of Highways
Project Development and Environmental Analysis Branch

Issued by:

Earth Tech, Inc.
701 Corporate Center Drive, Suite 475
Raleigh, North Carolina 27607

Earth Tech Project No. 47343

October 2001

TABLE OF CONTENTS

TABLES

FIGURES

1.0 INTRODUCTION

This Natural Resources Technical Report is submitted to the North Carolina Department of Transportation (NCDOT) preliminary to the preparation of a Categorical Exclusion (CE) for the proposed project. The purpose of this technical report is to inventory, catalog, and describe the various natural resources likely to be impacted by the proposed action. The report also attempts to identify and estimate the likely consequences of the anticipated impacts to these resources. These descriptions and estimates are relevant only in the context of the preliminary design concepts. It may become necessary to conduct additional field investigations should design parameters and criteria change.

1.1 Project Description

The proposed project involves the replacement of Bridge No. 59 on NC 58, which spans Wheat Swamp Creek. The project is located at the county boundary of Greene and Lenoir Counties, and is about 6 miles (9.72 km) north of Kinston, NC (**Figure 1**). Two alternatives are proposed for this project (**Figure 2**).

Alternate 1

Alternate 1 calls for replacing Bridge No. 59 in its existing location with a new 90-foot (27.4 meter) long bridge. Traffic will be maintained on an off-site detour. The project length for Alternate 1 is 700 feet (213 m) long and the width is 80 feet (24 m) wide.

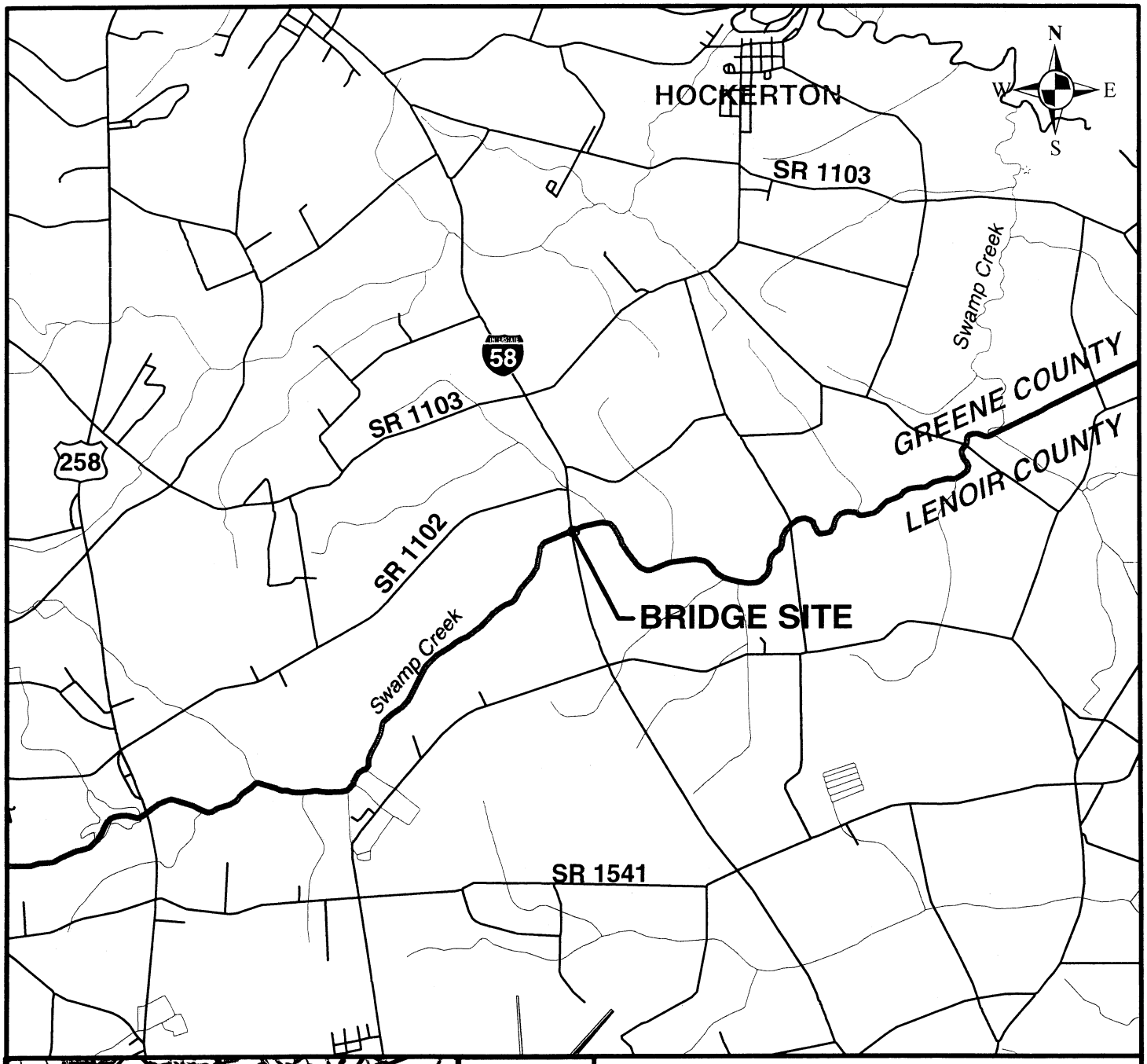
Alternate 2

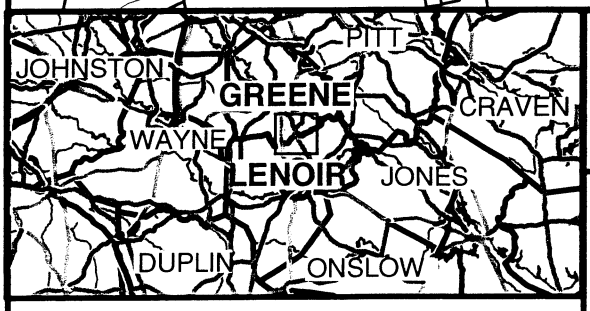
Alternate 2 calls for replacing Bridge No. 59 in its existing location with a new 90-foot (27.4 meter) long bridge. Traffic will be maintained on a temporary on-site detour located approximately 50 feet (15.2 meters) to the east of the existing bridge during construction. The temporary detour bridge will be approximately 70 feet (21 m) in length. The project length for the bridge replacement portion of Alternate 2 is 700 feet (213 m) long and the width is 80 feet (24 m) wide. The project length for the on-site detour of Alternate 2 is 1400 feet (427 m) long and the width is 60 feet (18 m) wide.

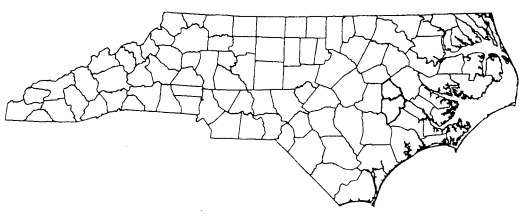
1.2 Methodology

Published information and resources were collected prior to the field investigation. Information sources used to prepare this report include the following:

- United States Geological Survey (USGS) quadrangle map (Hookerton, 1982)
- United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Map (Hookerton, 1982)
- NCDOT aerial photograph of project area (1:1200)
- *Soil Survey of Greene County* (Soil Conservation Service, 1980)
- *Soil Survey of Lenoir County* (Soil Conservation Service, 1977)



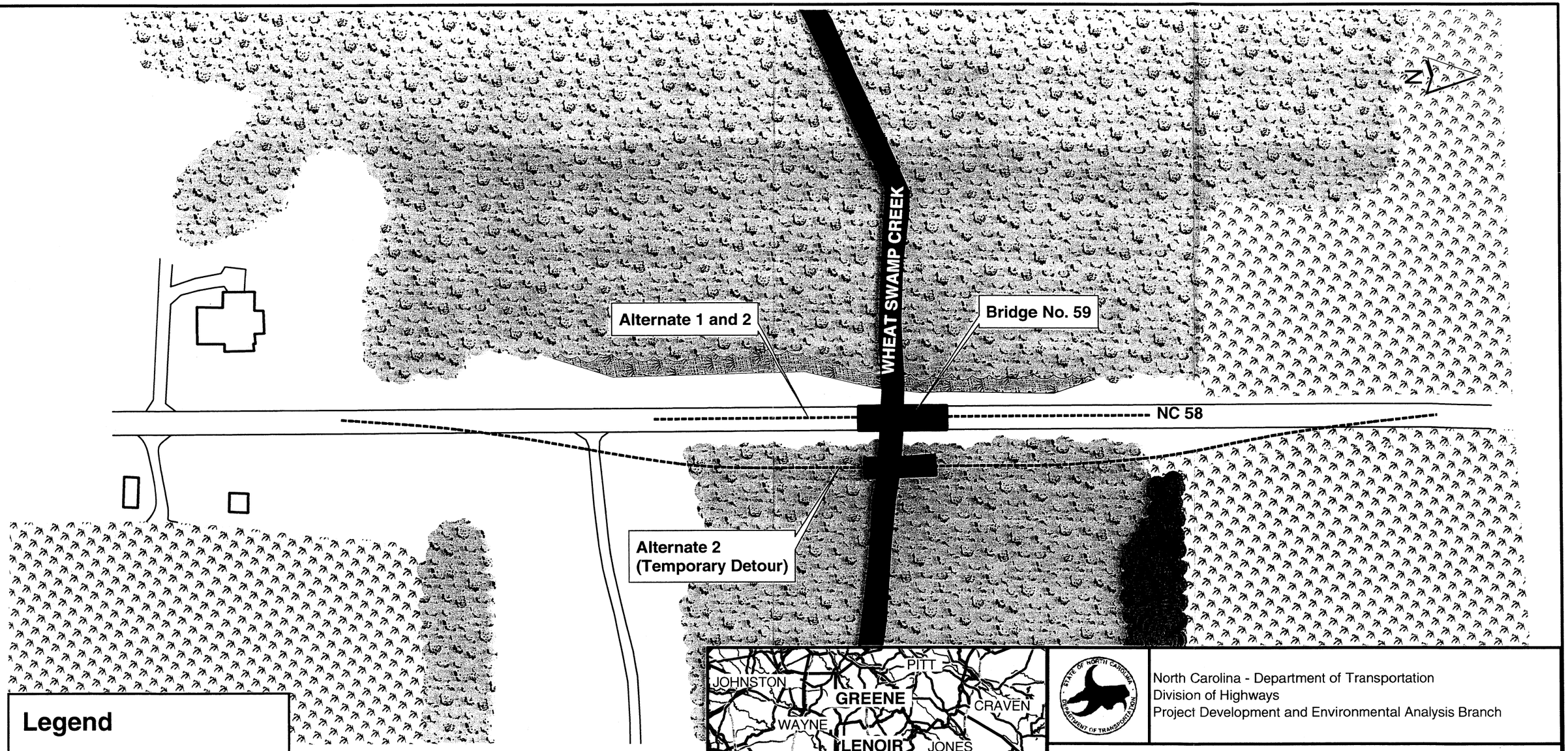




North Carolina - Department of Transportation
Division of Highways
Project Development and Environmental Analysis Branch

FIGURE 1
VICINITY MAP
REPLACEMENT OF BRIDGE NUMBER 59
ON NC 58 OVER SWAMP CREEK
LENOIR/GREEN COUNTY
TIP NO. B-3866

1 0.5 0 1 2 Miles



North Carolina - Department of Transportation
Division of Highways
Project Development and Environmental Analysis Branch

FIGURE 2
SITE MAP
REPLACEMENT OF BRIDGE NUMBER 59
ON NC 58 OVER SWAMP CREEK
LENOIR/GREEN COUNTY
TIP NO. B-3866

0 100 200 400
Feet

- North Carolina Department of Environment and Natural Resources (NCDENR) basin-wide assessment information (NCDENR, 1996)
- USFWS list of protected and candidate species
- North Carolina Natural Heritage Program (NHP) files of rare species and unique habitats

Water resource information was obtained from publications posted on the World Wide Web by NCDENR Division of Water Quality (DWQ). Information concerning the occurrence of federally protected species in the study area was obtained from the USFWS list of protected and candidate species (Website last updated March 22, 2001 and last viewed October 16, 2001), posted on the World Wide Web by the Ecological Services branch of the USFWS office in North Carolina. Information concerning species under state protection was obtained from the NHP database of rare species and unique habitats. NHP files were reviewed for documented sightings (September 25, 2001) of species on state or federal lists and locations of significant natural areas.

A general field survey was conducted along the proposed project route by Earth Tech biologists on September 26, 2001. Water resources were identified and their physical characteristics were recorded. For the purposes of this study, a brief habitat assessment was performed within the project area of Wheat Swamp Creek. Plant communities and their associated wildlife were identified using a variety of observation techniques, including active searching, visual observations, and identifying characteristic signs of wildlife (sounds, tracks, scats, and burrows). Terrestrial community classifications generally follow Schafale and Weakley (1990) where appropriate and plant taxonomy follows Radford *et al.* (1968). Vertebrate taxonomy follows Rohde *et al.* (1994), Conant *et al.* (1998), the American Ornithologists' Union (2001), Thorpe and Covich (1991), and Webster *et al.* (1985). Vegetative communities were mapped using aerial photography of the project site. Predictions regarding wildlife community composition involved general qualitative habitat assessment based on existing vegetative communities.

Jurisdictional wetlands, if present, were delineated and evaluated based on criteria established in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (USACE, 1987). Wetlands were classified based on Cowardin *et al.* (1979).

1.3 Terminology and Definitions

For the purposes of this report, the following terms are used for describing the limits of natural resources investigations. "Study corridor" and "project area" denote an area with a width of 80 to 90 feet (24.5 to 27.5 m) along the full length of the project alignment. The "project vicinity" is an area extending 1 mile (1.6 km) on all sides of the project area, and "project region" is an area equivalent in size to the area represented by a 7.5-minute USGS quadrangle map (about 61.8 sq miles or 163.3 sq km) with the project study area occupying the central position. When referring to stream banks, "left bank" and "right bank" are relative to an observer facing downstream.

1.4 Qualifications of the Principal Investigators

Investigator:	Ron Johnson
Education:	M.S. Biological Sciences, Illinois State University
Experience:	Senior Biologist, Earth Tech 14 years
Expertise:	Natural resources surveys, wetland delineation and mitigation

Investigator:	Heather Wallace
Education:	B.S. Appalachian State University
Experience:	Staff Biologist, Earth Tech 1 year
Expertise:	Natural resource surveys, zoology

2.0 PHYSICAL RESOURCES

Soil and water resources that occur in the project area are discussed with respect to possible environmental concerns.

2.1 Regional Characteristics

The project area lies in the eastern portion of North Carolina within the Coastal Plain physiographic province. Elevations in the project area are approximately 16 feet (4.8 m) (National Geodetic Vertical Datum, 1929). The topography of the project vicinity is generally flat.

The proposed project is in a rural area at the boundary of Greene and Lenoir Counties approximately 6 miles (9.72 km) north of Kinston, NC. Each County's major economic resource is agriculture. The population of Greene County in 2000 was 79,041, and the population of Lenoir County in 2000 was 50,669 (North Carolina Office of State Budget, Planning and Management 1999).

2.2 Soils

Information about soils in the project area was taken from the *Soil Survey of Greene County, North Carolina* (USDA 1980) and the *Soil Survey of Lenoir County* (USDA 1977). The map units in the project area are frequently flooded Bibb soils and Norfolk loamy sand with 2 to 6 and 6 to 10 percent slopes.

- **Bibb soils with frequent flooding (Bb)** are found along the banks of Wheat Swamp Creek. These soils are common along flood plains and are nearly level and poorly drained. The permeability of this soil is moderate and runoff is slow. The seasonal high water table is at the surface during winter and spring. This soil is listed on the national list of hydric soils.
- **Norfolk loamy sand with 2 to 6% slopes (Nc)** is found in the upland areas on the east side of NC 58. **Norfolk loamy sand with 6 to 10% slopes (NoB)** is found in the upland areas on the west side of NC 58. Norfolk loamy sands are nearly level to

sloping and are generally located in well-drained upland areas. These soils have a moderate permeability and runoff is moderate to rapid. The seasonal high water table remains about 5 feet (1.5 m) below the ground surface.

Site index is a measure of soil quality and productivity. The index is the average height, in feet, that dominant and co-dominant trees of a given species attain in a specified number of years (typically 50). The site index applies to fully-stocked, even-aged, unmanaged stands. The soils in the project area have the following site indices:

- The Bibb soils have a site index of 90 for loblolly pine (*Pinus taeda*), slash pine (*Pinus virginiana*), sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), willow oak (*Quercus phellos*), green ash (*Fraxinus pennsylvanicum*), and 100 for cottonwood (*Populus deltoides*).
- The Norfolk soils have a site index of 70 for longleaf pine (*Pinus palustris*), and 90 for loblolly pine and slash pine.

2.3 Water Resources

This section contains information concerning water resources likely to be impacted by the proposed project. Water resources assessments include the physical characteristics likely to be impacted by the proposed project (determined by field survey), best usage classifications, and water quality aspects of the water resources. Probable impacts to surface waters are also discussed, as well as means to minimize impacts.

2.3.1 Physical Characteristics of Surface Waters

The project is located in the Neuse River basin (NEU07 sub-basin, HUC 03020203). Wheat Swamp Creek originates about 7 miles (11.34 km) west of the project area. From the project area, the creek meanders in a northeasterly direction for approximately 5 miles (8 km) to its confluence with Contentnea Creek. The stream progresses to the southeast for approximately 10 miles (16 km) and flows into the Neuse River. Wheat Swamp Creek marks the border between Greene and Lenoir Counties within the project site.

Within the project area, Wheat Swamp Creek is a typical Coastal Plain blackwater stream. Tannins have stained the water a dark brown color. On the day of the site visit there was virtually no flow, possibly due to beaver activity downstream.

The channel is approximately 40 feet (12.1 m) wide near the bridge, but spreads out across the wide floodplain further downstream. The banks are well vegetated and are approximately 1-2 feet (0.3-0.6 m) high. The stream is 3-5 feet (0.9-1.5m) deep, and the substrate is mostly silt with small amounts of sand.

2.3.2 Best Usage Classification

Surface waters in North Carolina are assigned a classification by the DWQ that is designed to maintain, protect, and enhance water quality within the state. Wheat Swamp Creek [Index # 27-86-24] is classified as a *Class C Sw NSW* water body (NCDENR, 2001). *Class C* water resources are waters protected for aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Secondary recreation includes wading, boating, and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental manner. The supplemental *Sw* classification indicates that the stream is considered a swamp at this point. Swamp Waters have low velocities and other natural characteristics that are different from adjacent streams. Furthermore, the *NSW* supplemental indicates that the stream is classified as Nutrient Sensitive Water. This means the water is subject to growths of microscopic or macroscopic vegetation requiring limitations on nutrient inputs.

No waters classified as High Quality Water (HQW), Water Supplies (WS-I or WS-II) or Outstanding Resource Waters (ORW) occur within 1.0 mile (1.6 km) of the project study area.

2.3.3 Water Quality

This section describes the quality of the water resources within the project area. Potential impacts to water quality from point and non-point sources are evaluated. Water quality assessments are based upon published resource information and field study observations.

2.3.3.1 General Watershed Characteristics

The project area is in an undeveloped, largely agricultural watershed. Near the project site the upland areas are being utilized for agriculture and one residence lies just outside the project boundary. Potential threats to stream quality in this area include poor agricultural practices that would result in increased soil erosion and runoff with fertilizers and pesticides/herbicides.

2.3.3.2 Basin-wide Assessment Report

Basin-wide water quality assessments are conducted by the Environmental Sciences Branch, Water Quality Section of the DWQ. The program has established monitoring stations for sampling selected benthic macroinvertebrates, which are known to have varying levels of tolerance to water pollution. An index of water quality can be derived from the number of taxa present and the ratio of tolerant to intolerant taxa. Streams can then be given a bioclassification ranging from Poor to Excellent.

There is one monitoring station on Wheat Swamp Creek, located at SR 1091, about 5 miles (8.1 km) downstream from the project site. This station was monitored in July of 1991 and February of 1992 but was not rated at either time (NCDENR 2001).

2.3.3.3 Point Source Discharge Permits

Point source discharges in North Carolina are permitted through the National Pollutant Discharge Elimination System (NPDES) program administered by the DWQ. All dischargers are required to obtain a permit to discharge. There is one permit issued to discharge in an unnamed tributary to Wheat Swamp Creek. The Lenoir County School System (North Lenoir High School) holds Permit NC0032565 to discharge about 5 miles (8.1 km) upstream of the project area. This is a Minor Non- Municipal permit.

2.3.4 Summary of Anticipated Impacts

Any action that affects water quality can adversely affect aquatic organisms. Temporary impacts during the construction phases may result in long-term impacts to the aquatic community. In general, replacing an existing structure in the same location with an off-site detour is the preferred environmental approach. Bridge replacement at a new location results in more severe impacts, and physical impacts are incurred at the point of bridge replacement.

Project construction may result in the following impacts to surface water resources:

- Increased sediment loading and siltation as a consequence of watershed vegetation removal, erosion, and/or construction.
- Decreased light penetration/water clarity from increased sedimentation.
- Changes in water temperature with vegetation removal.
- Changes in the amount of available organic matter with vegetation removal.
- Increased concentration of toxic compounds from highway runoff, construction activities and construction equipment, and spills from construction equipment.
- Alteration of water levels and flows as a result of interruptions and/or additions to surface and groundwater flow from construction.

Construction impacts may not be restricted to the communities in which the construction activity occurs, but may also affect downstream communities. Efforts will be made to ensure that no sediment leaves the construction site. NCDOT's Best Management Practices for the Protection of Surface Waters will be implemented, as applicable, during the construction phase of the project to ensure that no sediment leaves the construction site.

3.0 BIOTIC RESOURCES

Terrestrial and aquatic communities are included in the description of biotic resources. Living systems described in the following sections include communities of associated

plants and animals. These descriptions refer to the dominant flora and fauna in each community and the relationships of these biotic components. Descriptions of the terrestrial systems are presented in the context of plant community classifications. These classifications follow Schafale and Weakley (1990) where possible. They are also cross-referenced to *The Nature Conservancy International Classification of Ecological Communities: Terrestrial Vegetation of the Southeastern United States* (Weakley *et al.*, 1998), which has recently been adopted as the standard land cover classification by the Federal Geographic Data Committee. Representative animal species that are likely to occur in these habitats (based on published range distributions) are also cited. Scientific nomenclature and common names (when applicable) are used for the plant and animal species described. Subsequent references to the same species are by the common name only.

3.1 Terrestrial Communities

Five terrestrial communities were identified within the project area: a disturbed roadside community, an agricultural field, a bottomland forest, an upland forest, and a scrub-shrub wetland (**Figure 2**). Dominant faunal components associated with these terrestrial areas will be discussed in each community description. Many species are adapted to the entire range of habitats found along the project alignment, but may not be mentioned separately in each community description.

3.1.1 Disturbed Roadside Community

This community covers the area along the road shoulders in the project area. A thin strip of infrequently mowed vegetation on the southwest side of NC 58 is also included with this community as is a residential lawn on the southwest end of the project. Plant species near the road include Bermuda grass (*Cynodon dactylon*), plantain (*Plantago lanceolata*), ground ivy (*Glechoma hederacea*), and bahia grass (*Paspalum notatum*). In the more infrequently mowed area, the plants species include common ragweed (*Ambrosia artemisiifolia*), goldenrod (*Solidago* sp.), yellow foxtail grass (*Setaria glauca*), Virginia creeper (*Parthenocissus quinquefolia*), dog-fennel (*Eupatorium capillifolium*), poison ivy (*Toxicodendron radicans*), and Japanese honeysuckle (*Lonicera japonica*).

The animal species present in these disturbed habitats are opportunistic and capable of surviving on a variety of resources, ranging from vegetation to both living and dead faunal components. American crow (*Corvus brachyrhynchos*), European starling (*Sturnus vulgaris*), and American robin (*Turdus migratorius*) are common birds that use these habitats. The area may also be used by the Virginia opossum (*Didelphis virginiana*), various species of mice (*Peromyscus* sp.), Eastern garter snake (*Thamnophis sirtalis*), and southern toad (*Bufo terrestris*).

3.1.2 Agricultural Field

Agricultural fields are located on both sides of the road on the north end of the project. Cotton was grown in these two fields in 2001. The only other vegetation in the fields consisted of annual weeds such as common ragweed, morning-glory (*Ipomoea* sp.), and horsenettle (*Solanum* sp.). Animal species using the agricultural fields would be similar to those using the disturbed roadside community.

3.1.3 Bottomland Forest

This community occurs along the banks of Wheat Swamp Creek and extends throughout the project area. This area is a jurisdictional wetland with Bibb soils and has standing water in some areas 3 inches to 1 foot (0.08-0.3 m) in depth. The woods are relatively open and many trees have fallen in recent years, most likely from hurricane winds. The primary tree species is red maple (*Acer rubrum*), with red bay (*Persea palustris*) in the subcanopy and a shrub layer of tag alder (*Alnus serrulata*). The herbaceous layer is very dense and includes lizard's tail (*Saururus cernuus*), virgin's bower (*Clematis virginiana*), knotweeds (*Polygonum* sps.), tearthumb (*Polygonum sagittatum*), cinnamon fern (*Osmunda cinnamomea*), netted chain-fern (*Woodwardia areolata*), murdannia (*Murdannia keisak*), and duckweed (*Lemna perpusilla*). Because of the amount of disturbance that has occurred in this community it does not resemble any of the Schafale and Weakley (1990) community classifications. However, based on its landscape position it is likely that it will eventually develop into a Coastal Plain Small Stream Swamp (Blackwater Subtype). The current Nature Conservancy classification would be *I.B.2.N.e.010. Acer rubrum* Seasonally Flooded Forest Alliance.

Bird species expected in this community include barred owl (*Strix varia*), red-shouldered hawk (*Buteo lineatus*), great blue heron (*Ardea herodias*), prothonotary warbler (*Protonotaria citrea*), Louisiana waterthrush (*Seiurus motacilla*), Swainson's warbler (*Limnothlypis swainsonii*), and white-eyed vireo (*Vireo griseus*). Herpetofauna that may be encountered here include eastern cottonmouth (*Agkistrodon piscivorus piscivorus*), redbelly water snake (*Nerodia erythrogaster erythrogaster*), snapping turtle (*Chelydra serpentina*), yellowbelly slider (*Trachemys scripta scripta*), Florida cooter (*Pseudemys floridana floridana*) and southern dusky salamander (*Desmognathus auriculatus*). Mammal species such as raccoon (*Procyon lotor*), bobcat (*Felis rufus*), southern short-tailed shrew (*Blarina carolinensis*), and hispid cotton rat (*Sigmodon hispidus*) may be found in the swamp forest. Because of the extremely saturated soils and the slow stream velocity, beaver (*Castor canadensis*) activity may be occurring just downstream from the project site.

3.1.4 Upland Forest Community

This community is located in the northern portion of the project area on the east side of NC 58 adjacent to an agricultural field. Only a small portion of this community is actually contained within the project area. The dominant tree species include red maple,

water oak (*Quercus nigra*), willow oak (*Q. phellos*), river birch (*Betula nigra*), and sweetgum (*Liquidambar styraciflua*). The subcanopy is dominated by black cherry (*Prunus serotina*) and American holly (*Ilex opaca*). Other dominant species include greenbriar (*Smilax* sp.), poison ivy, muscadine grape (*Vitis rotundifolia*), and beautyberry (*Callicarpa americana*). Because of the amount of past disturbance that has likely occurred in this community it does not resemble any communities as described by Schafale and Weakley or the Nature Conservancy.

Expect to find the following bird species in this community: northern cardinal (*Cardinalis cardinalis*), red-eyed vireo (*Vireo olivaceous*), Carolina chickadee (*Parus atricapillus*), downy woodpecker (*Picoides pubescens),* and summer tanager (*Piranga rubra*). The mammal species expected in this area include white-tailed deer (*Odocoileus virginianus*), white-footed mouse (*Peromyscus leucopus*), and gray squirrel (*Sciurus carolinensis*). Amphibians and reptiles may include northern dusky salamanders (*Desmognathus fuscus fuscus*), eastern box turtle (*Terrapene carolina*), and copperhead (*Agkistrodon contortrix*).

3.1.5 Herbaceous Wetland Community

A herbaceous wetland community is present on east side of NC 58 between the maintained roadside and bottomland forest communities. This community is periodically cut back to maintain a powerline right-of-way. This wetland community contains a few saplings of sweetgum and red maple with some elderberry (*Sambucus canadensis*). However it is dominated by herbaceous vegetation that includes seedbox (*Ludwigia leptocarp*), water hemlock (*Cicuta maculata*) Virginia bower, blackberry (*Rubus* sp.), jewelweed (*Impatiens capensis*), giant cane (*Arundinaria gigantica*), tearthumb (*Polygonum* sp.), rushes (*Juncus coriaceus*), murdannia, Asiatic dayflower (*Commelina communis*), and umbrella sedge (*Cyperus odoratus*).

Due to the small size of this community, the animal species found here would be similar to those found in the adjacent communities. Some other bird species expected in this community include eastern towhee (*Pipilo erythrophthalmus*), common yellowthroat (*Geothlypis trichas*), and Carolina wren (*Thryothorus ludovicianus*). Herpetofauna including eastern ribbon snake (*Thamnophis sauritus*), southern ringneck snake (*Diadophis punctatus punctatus*), black rat snake, oak toad (*Bufo quercicus*), and marbled salamander (*Ambystoma opacum*) are also likely to occur. Mammal species that may be found include hispid cotton rat, eastern cottontail, gray fox (*Urocyron cinereoargenteus*), and southeastern shrew (*Sorex longirostris*).

3.2 Aquatic Communities

Within the project area, Wheat Swamp Creek is a low-gradient, second-order stream. The bed material consists of mostly of sand with a small percentage of silt. On the day of the site visit, the water was clear, although stained with tannins, with no suspended sediment. The riparian community is mostly deciduous trees and mixed evergreen-deciduous

shrubs, and is described in Section 3.1.2. No aquatic vegetation was observed on the bottom of the channel, however duckweed was observed along the edges and in backwater areas.

Several turtles were observed basking on logs but entered the water before being identified. According to a communication from Christian Waters, District 2 Biologist for the NCWRC, Wheat Swamp Creek has not been sampled since the 1960's. Based on those findings the stream is dominated by redbreast sunfish (*Lepomis* auratus) and bluegill (*Lepomis macrochirus*), but also contained white catfish (*Ameiurus catus*), channel catfish (*Ictalurus punctatus*), chain pickerel (*Esox niger*), flier (*Centrarchus macropterus*), warmouth (*Lepomis gulosus*), pumpkinseed (*Lepomis gibbosus*), and several species of shiners and darters. Mr. Waters also emphasized that Wheat Swamp Creek drains into Contentnea Creek, which has a productive resident fish population, including some anadromous species. However, their use of Wheat Swamp Creek is probably very limited.

3.3 Summary of Anticipated Impacts

Project construction will have various impacts to the previously described terrestrial and aquatic communities. Any construction activities in or near these resources have the potential to impact biological functions. This section quantifies and qualifies potential impacts to the natural communities within the project area in terms of the area impacted and the plants and animals affected. Temporary and permanent impacts are considered here along with recommendations to minimize or eliminate impacts.

3.3.1 Terrestrial Communities

Terrestrial communities in the project area will be impacted permanently by project construction from clearing and paving. Estimated impacts are based on the length of the alternate and the entire study corridor width. The project length for Alternate 1 is 700 feet (213 m) long and the width is 80 feet (24 m) wide. The project length for the bridge replacement portion of Alternate 2 is the same as Alternate 1, however there will be temporary impacts from the on-site detour. The project length for the on-site detour of Alternate 2 is 1400 feet (427 m) long and the width is 60 feet (18 m) wide. **Table 1** describes the potential impacts to terrestrial communities by habitat type. Because impacts are based on the entire study corridor width, the actual loss of habitat will likely be less than the estimate.

Table 1. Estimated Area of Impact to Terrestrial Communities

	Area of Impact in Acres (Hectares)		
	Alternate 1	Alternate 2	
Community	**Permanent**	**Permanent**	**Temporary**
Disturbed Roadside	0.39 (0.16)	0.39 (0.16)	0.36 (0.15)
Agricultural Field	0.0 (0.0)	0.0 (0.0)	0.21 (0.08)

	Area of Impact in Acres (Hectares)		
	Alternate 1	Alternate 2	
Community	**Permanent**	**Permanent**	**Temporary**
Bottomland Forest	0.10 (0.04)	0.10 (0.04)	0.46 (0.19)
Upland Forest	0.0 (0.0)	0.0 (0.0)	0.01 (0.004)
Emergent Wetland	0.04 (0.02)	0.04 (0.02)	0.0 (0.0)
Total Impact	**0.54 (0.22)**	**0.54 (0.22)**	**1.04 (0.42)**

Destruction of natural communities along the project alignment will result in the loss of foraging and breeding habitats for the various animal species that utilize the area. Animal species will be displaced into surrounding communities. Adult birds, mammals, and some reptiles are mobile enough to avoid mortality during construction. Young animals and less mobile species, such as many amphibians, may suffer direct loss during construction. The plants and animals that are found in the upland communities are generally common throughout eastern North Carolina.

Impacts to terrestrial communities, particularly in locations having steep to moderate slopes, can result in the aquatic community receiving heavy sediment loads as a consequence of erosion. Construction impacts may not be restricted to the communities in which the construction activity occurs, but may also affect downstream communities. Efforts should be made to ensure that no sediment leaves the construction site.

3.3.2 Aquatic Communities

Impacts to aquatic communities include fluctuations in water temperatures as a result of the loss of riparian vegetation. Shelter and food resources, both in the aquatic and terrestrial portions of these organisms' life cycles, will be affected by losses in the terrestrial communities. The loss of aquatic plants and animals will affect terrestrial fauna that rely on them as a food source.

Temporary and permanent impacts to aquatic organisms may result from increased sedimentation. Aquatic invertebrates may drift downstream during construction and recolonize the disturbed area once it has been stabilized. Sediments have the potential to affect fish and other aquatic life in several ways, including the clogging and abrading of gills and other respiratory surfaces, affecting the habitat by scouring and filling of pools and riffles, altering water chemistry, and smothering different life stages. Increased sedimentation may cause decreased light penetration through an increase in turbidity.

Wet concrete should not come into contact with surface water during bridge construction, as it is toxic to aquatic life. Potential adverse effects can be minimized through the implementation of NCDOT *Best Management Practices for Protection of Surface Waters.*

4.0 JURISDICTIONAL TOPICS

This section provides inventories and impact analyses for two federal and state regulatory issues: "Waters of the United States" and rare and protected species.

4.1 Waters of the United States

Wetlands and surface waters fall under the broad category of "Waters of the United States" as defined in 33 CFR § 328.3 and in accordance with provisions of Section 404 of the Clean Water Act (33 U.S.C. 1344). These waters are regulated by the U.S. Army Corps of Engineers (USACE). Any action that proposes to dredge or place fill material into surface waters or wetlands falls under these provisions.

4.1.1 Characteristics of Wetlands and Surface Waters

Jurisdictional wetlands occur within the project area and will be impacted by project construction. The wetlands are present on both sides of the creek along the entire study corridor (**Figure 2**). These wetlands are described in Sections 3.1.2 and 3.1.4. Wheat Swamp Creek meets the definition of surface waters, and is therefore classified as Waters of the United States. The channel is 40 feet (2.1 m) wide within the project area.

4.1.2 Bridge Demolition

Demolition and removal of a highway bridge over Waters of the United States must be addressed when applying to the U.S. Corps of Engineers (COE) for a permit. A worst-case scenario of dropping components of the bridge in the water is assumed. Effective 9/20/99, this issue is included in the permit application for bridge reconstruction. The permit application henceforth will require disclosure of demolition methods and potential impacts to the body of water in the planning document for the bridge reconstruction.

Section 402-2 "Removal of Existing Structures" of NCDOT's Standard Specifications for Roads and Structures stipulates that "excavated materials shall not be deposited....in rivers, streams, or impoundments," and "the dropping of parts or components of structures into any body of water will not be permitted unless there is no other practical method of removal. The removal from the water of any part or component of a structure shall be done so as to keep any resulting siltation to a minimum." To meet these specifications, NCDOT shall adhere to Best Management Practices for the Protection of Surface Waters, as supplemented with Best Management Practices for Bridge Demolition and Removal.

In addition, all in-stream work shall be classified into one of three categories as follows:

Case 1) In-water work is limited to an absolute minimum, due to the presence of Outstanding Resource Waters or threatened and/or endangered species, except for the

removal of the portion of the sub-structure below the water. The work is carefully coordinated with the responsible agency to protect the Outstanding Resource Water or T&E species.

Case 2) No work at all in the water during moratorium periods associated with fish migration, spawning, and larval recruitment into nursery areas.

Case 3) No special restrictions other than those outlined in Best Management Practices for Protection of Surface Waters and supplements added by the Bridge Demolition document, dated 9/20/99.

Wheat Swamp Creek in the vicinity of the proposed project is Class C Sw NSW water, which affords no specified construction restrictions. It is not known to provide habitat for aquatic species on the federal list of threatened and endangered species. At this time, Cases 3 applies to the proposed replacement of Bridge No. 59 over Wheat Swamp Creek.

The superstructure consists of a reinforced concrete floor on continuous steel I-beams. The substructure is composed mainly of timber piles with timber caps and reinforced end bents. There is potential for components of the bridge to be dropped into Waters of the United States. The maximum potential fill is 56 cubic yards (42.8 cubic meters).

The stream bed in the project area is nearly all silt. Therefore, conditions in the stream raise sediment concerns and a turbidity curtain is recommended.

4.1.3 Neuse River Basin: Nutrient Sensitive Waters Management Strategy

Pursuant to 15 NCAC 2B .0233, Riparian Area Rules for Nutrient Sensitive Waters in the Neuse River Basin apply to this project. The rules state that roads, bridges, stormwater management facilities, ponds, and utilities may be allowed within the 50-foot riparian buffer area of subject streams where no practical alternative exists. They also state that these structures shall be located, designed, constructed, and maintained to have minimal disturbance, to provide maximum erosion protection, to have the least adverse effects on aquatic life and habitat, and to protect water quality to the maximum extent practical through the use of best management practices. Every reasonable effort will be made to avoid and minimize wetland and stream impacts.

Estimated impacts to the riparian buffers are quantified in the table below. Impacts to Zone 1 are based on a buffer width of 30 feet measured landward from the top of bank or rooted vegetation. Impacts to Zone 2 are based on a buffer width of 20 feet measured from the outer edge of Zone 1. It is possible that one or more of the water resources listed below may be exempted when an on-site determination by the Division of Water Quality is conducted. Therefore impacts may be considerably less. The Neuse Buffer Certification would be obtained from DWQ in conjunction with a 401 Water Quality Permit.

Table 2. Estimated Impacts to Riparian Buffers (sq feet [sq meters])

Biotic Community	Alternate 1	Alternate 2	
	Permanent	Permanent	Temporary
Bottomland Forest			
Zone 1	720 (67)	720 (67)	1200 (112)
Zone 2	480 (45)	480 (45)	800 (74)
Total	**1200 (112)**	**1200 (112)**	**2000 (186)**

4.1.4 Summary of Anticipated Impacts

Two wetland areas were identified within the project area. One of the wetlands lies underneath a powerline right-of-way and the other lies within the bottomland forest community. Alternate 1 would impact 0.14 acres (0.06 hectares [ha]) of these wetland communities. Alternate 2 would have the same permanent impacts, but will also include 0.46 acres of temporary impacts to bottomland hardwoods from construction of the temporary detour. Project construction cannot be accomplished without infringing on the surface waters. Anticipated surface water impacts fall under the jurisdiction of the USACE and the DWQ. Within the project area, Wheat Swamp Creek is 40 feet (12 m) wide. Assuming a study corridor of 80 feet (24 m) for each alternate, the construction of the new bridge will impact 80 linear feet (24 m) of stream, and a total area of 3200 sq feet (297 sq m) of surface waters. The temporary bridge and corridor is 60 feet wide, however it overlaps with the 80-foot permanent corridor. Therefore, there will be an additional 40-foot (12 m) wide area cleared creating temporary impacts to 40 linear feet (14 m) of surface water and a total of 1600 sq feet (149 sq m).

4.1.5 Permits

Impacts to jurisdictional surface waters are anticipated from the proposed project. Permits and certifications from various state and federal agencies may be required prior to construction activities.

Construction is likely to be authorized by Nationwide Permit (NWP) No. 23, as promulgated under 61 FR 65874, 65916; December 13, 1996. This permit authorizes activities undertaken, assisted, authorized, regulated, funded, or financed in whole or in part, by another Federal agency or department where that agency or department has determined that, pursuant to the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act:

- the activity, work, or discharge is categorically excluded from environmental documentation because it is included within a category of actions that neither individually nor cumulatively have a significant effect on the human environment; and

- the Office of the Chief Engineer has been furnished notice of the agency's or department's application for the categorical exclusion and concurs with that determination.

This project will also require a 401 Water Quality Certification or waiver thereof, from the Department of Environment and Natural Resources (DENR) prior to issuance of the NWP 23. Section 401 of the Clean Water Act requires that the state issue or deny water certification for any federally permitted or licensed activity that results in a discharge into Waters of the U.S. Final permit decision rests with the USACE. The Authorization Certificate for Neuse Riparian Buffer Impacts will be requested along with the 401 Water Quality Certification.

4.1.6 Avoidance, Minimization, Mitigation

Because this project will likely be authorized under a Nationwide Permit, mitigation for impacts to surface waters may or may not be required by the USACE. In accordance with the Division of Water Quality Wetland Rules [15A NCAC 211 .0506 (h)] "Fill or alteration of more than one acre of wetlands will require compensatory mitigation; and fill or alteration of more than 150 linear feet of streams may require compensatory mitigation." Because wetland impacts will be less than an acre, wetland mitigation likely will not be required. A total of 80 linear feet (24 m) of Wheat Swamp Creek are located within the study corridor for the proposed project. If the final length of stream impact is greater than 150 linear feet (45.6 m), compensatory mitigation may be required.

4.2 Rare and Protected Species

Some populations of plants and animals are declining either as a result of natural forces or their difficulty competing with humans for resources. Rare and protected species listed for Graham County, and any likely impacts to these species as a result of the proposed project construction, are discussed in the following sections.

4.2.1 Species Under Federal Protection

Plants and animals with a federal classification of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended.

The USFWS lists 2 species under federal protection for Greene and Lenoir Counties as of March 22, 2001 (USFWS 2001). However, the bald eagle (*Haliaeetus* leucocephalus) is listed by the NC NHP in Lenoir County. John Finnegan, Data Systems Manager with the NC NHP, said that there is a record for this species from 2000 for Lenoir County. These species are listed in **Table 3**. A brief description of the characteristics and habitat requirements of each species follows, along with a conclusion regarding potential project impact.

Table 3. Species Under Federal Protection in Greene and Lenoir Counties

Common Name	Scientific Name	County	Federal Status
Vertebrates			
Bald Eagle	*Haliaeetus leucocephalus*	Lenoir	E
Red-cockaded woodpecker	*Picoides borealis*	Greene, Lenoir	E
Vascular Plants			
Sensitive joint-vetch	*Aeschynomene virginica*	Lenoir	T*

Sources: Amoroso, ed., 1999; LeGrand and Hall, eds., 1999
Key: T = Threatened, E = Endangered, SC = Special Concern, C = Candidate, SR = Significantly Rare
*=Historic record. The species was last observed in the county more than 50 years ago.

***Haliaeetus leucocephalus* (bald eagle)** **Threatened**

Vertebrate Family: Accipitridae
Date First Listed: March 11, 1967
Date Downlisted: July 12, 1995

The bald eagle is a large raptor with a wingspan reaching 7 feet (2.1 m). Adults have a dark brown body with a pure white head and tail, whereas the juvenile plumage is chocolate brown to blackish with white mottling on the tail, belly and underwings. Adult plumage is fully acquired by the fifth or sixth year.

The bald eagle is primarily associated with coasts, rivers, and lakes, usually nesting near large bodies of water where it feeds. It preys primarily on fish, but will feed on birds, mammals, turtles, and carrion when fish are unavailable.

In the southeast, the nesting and breeding season runs from September to December. Large nests up to 6 feet (2 m) across and weighing hundreds of pounds are constructed from large sticks, weeds, cornstalks, grasses, and sod. Preferred nesting sites are usually within one-half mile of water, have an open view of the surrounding area, and are in the largest living tree, usually a pine or cypress. Excessive human activity may exclude an otherwise suitable site from use. Wintering areas generally have the same characteristics as nesting sites, but may be farther from shores.

The bald eagle ranges throughout all of North America. Breeding sites in the southeast are concentrated in Florida, coastal South Carolina, and coastal Louisiana, and sporadically located elsewhere.

Biological Conclusion **No Effect**

Within the project vicinity Wheat Swamp Creek offers no potential nesting or foraging habitat for the bald eagle. The stream is not large enough to provide adequate foraging habitat, and no mature trees were observed which might support nests. The NHP has no records of bald eagles nesting of foraging in the project vicinity. This project will have no effect on the bald eagle.

***Picoides borealis* (Red-cockaded woodpecker)** **Endangered**

Vertebrate Family: Picidae
Federally Listed: 1970

The red-cockaded woodpecker is a small to medium sized bird 7.4 to 8.5 inches (18 to 20 cm) long with a wingspan of 14 to 15 inches (35 to 38 cm). The back and top of the head are black. The cheek is white. Numerous small white spots arranged in horizontal rows give a ladder-back appearance. The chest is dull white with small black spots on the side. Males and females look alike except males have a small red streak above the cheek.

Among woodpeckers, the red-cockaded has an advanced social system. They live in a group termed a clan. The clan may have from two to nine birds, but never more than one breeding pair. The other adults are usually males and are called helpers. The helpers are usually the sons of the breeding male and can be from 1 to 3 years old. The helpers assist in incubating eggs, feeding young, making new cavities, and defending the clan's area from other red-cockaded woodpeckers.

Roosting cavities are excavated in living pines, and usually in those that are infected with a fungus producing red-heart disease. A clan nests and roosts in a group of cavity trees called a colony. The colony may have one or two cavity trees to more than 12, but it is used only by one clan. In most colonies, all the cavity trees are within a circle about 450 m (1,500 ft) wide. Open stands of pines with a minimum age of 80 to 120 years provide suitable nesting habitat. Longleaf pines (*Pinus palustris*) are the most commonly used, but other species of southern pine are also acceptable. Dense stands of pines, or stands that have a dense hardwood understory are avoided. Foraging habitat is provided in pine and pine hardwood stands 30 years or older with foraging preference for pine trees 10 inches (25 cm) or larger in diameter. The woodpeckers diet consists mainly of insects which includes ants, beetles, wood-boring insects, and caterpillars.

Biological Conclusion **No Effect**

No individuals of this species were observed during the site visit, and no mature pine or pine/hardwood stands are present within the project area. Furthermore, no open woodlands of any kind were found. It can be concluded that this project will have no impact on the red-cockaded woodpecker.

***Aeschynomene virginica* (Sensitive joint-vetch)** **Threatened**

Plant Family: Fabaceae
Federally Listed: 1992

The sensitive joint-vetch is an annual plant in the bean family. It typically grows to a height of 3 to 6 feet (1 to 2 m) in a single growing season. The stems are single, sometimes branching near the top and have stiff or bristly hairs. The leaves are even-pinnate, with entire, gland-dotted leaflets. Each leaf consists of 30 to 56 leaflets. The leaves fold slightly when touched. Flowers, which are yellow with streaks of red, bloom from July to September.

Sensitive joint-vetch grows in the intertidal zone where plants are flooded twice daily. The species seems to prefer marsh edges at an elevation near the upper limit of tidal fluctuation. It is usually found in areas where plant diversity is high and annual species predominate. Substrates that are bare to sparsely vegetated are critical. These areas include accreting point bars that have not been colonized by perennial species, low swales within extensive marsh systems, or areas where muskrat have eaten most of the vegetation. In North Carolina, sensitive joint-vetch appears to be a species that remains at a particular site for a relatively short period of time, and maintains itself by colonizing new, recently disturbed habitats where it may compete with other early successional species. It is frequently found in the estuarine meander zone of tidal rivers where sediments transported from upriver settle out and extensive marshes are formed.

Biological Conclusion **No Effect**

No individuals of this species were observed during the site visit, and tidal habitats suitable for this species were not observed. Wheat Swamp Creek is not tidally influenced. There are no records with the NHP of this species occurring in the project site or vicinity. It can be concluded that this project will have no impact on the sensitive joint-vetch.

4.2.2 Federal Species of Concern and State Status

Federal Species of Concern (FSC) are not legally protected under the Endangered Species Act and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. **Table 4** includes FSC species listed for Greene and Lenoir Counties and their state classifications. Organisms that are listed as Endangered (E), Threatened (T), or Special Concern (SC) on the North Carolina Natural Heritage Program list of Rare Plant and Animal Species are afforded state protection under the State Endangered Species Act and the North Carolina Plant Protection and Conservation Act of 1979. However, the level of protection given to state-listed species does not apply to NCDOT activities.

Table 4. Federal Species of Concern in Greene and Lenoir Counties

Common Name	Scientific Name	County	State Status	Habitat present
Vertebrates				
Bald Eagle	*Haliaeetus leucocephalus*	Lenoir	E	NO
Pinewoods shiner	*Lythrurus matutinus*	Greene	SR	YES
Invertebrates				
Tar River Crayfish	*Procambarus medialis*	Lenoir	none	YES
Vascular Plants				
Georgia Indigo-bush	*Amorpha georgiana var. georgiana*	Lenoir	E*	NO
Venus flytrap	*Dionaecea muscipula*	Lenoir	C-SC	NO

Sources: Amoroso, ed., 1999; LeGrand and Hall, eds., 1999
Key: T = Threatened, E = Endangered, SC = Special Concern, C = Candidate, SR = Significantly Rare
*=Historic record. The species was last observed in the county more than 50 years ago..

The Tar River crayfish is not listed by the NC NHP as a protected species in Lenoir County. According to John Finnegan, data systems manager, this species is no longer tracked because it has been found to be more common than previously thought. However, the species remains on the state watch list and will be tracked again if it is found to be in decline.

Habitat is present for the Tar River crayfish and the pinewoods darter, however surveys for these species were not conducted. No FSC are recorded at NHP as occurring within 2 miles (3.2 km) of the project area.

5.0 REFERENCES

American Ornithologists' Union. "The A.O.U. Checklist of North American Birds, Seventh Edition." http://www.aou.org/aou/birdlist.html#tina 16 October 2001).

Amoroso, J.L., ed. 1999. *Natural Heritage Program List of the Rare Plant Species of North Carolina.* North Carolina Natural Heritage Program, Division of Parks and Recreation, North Carolina Department of Environment and Natural Resources. Raleigh, North Carolina.

Conant, Roger and Joseph T. Collins. 1998. *A Guide to the Reptiles and Amphibians of Eastern and Central North America.* Houghton Mifflin Company. Boston, New York

Cowardin, L.M., V. Carter, F.C. Golet and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States.* U.S. Fish and Wildlife Service, Office of Biological Services, FWS/OBS-79/31. U.S. Department of the Interior, Washington, DC.

Environmental Laboratory. 1987. U.S. Army Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

LeGrand, H.E., Jr. and S.P. Hall, eds. 1999. *Natural Heritage Program List of the Rare Animal Species of North Carolina.* North Carolina Natural Heritage Program, Division of Parks and Recreation, North Carolina Department of Environment and Natural Resources. Raleigh, North Carolina.

Martof, B.S., W.M. Palmer, J.R. Bailey, and J.R. Harrison, III. 1980. *Amphibians and Reptiles of the Carolinas and Virginia.* University of North Carolina Press, Chapel Hill, North Carolina.

North Carolina Department of Environment and Natural Resources (NCDENR). "Benthic Macroinvertebrate Data by River Basin." Water Quality Section, Division of Water Quality. http://www.esb.enr.state.nc.us/BAUwww/benthicbasins.htm (16 October 2001).

NCDENR. "Permits Database on Mainframe Computer." Water Quality Section, Division of Water Quality (16 October 2001).

NCDENR. "Water Quality Stream Classifications for Streams in North Carolina." *Water Quality Section.* http://h2o.enr.state.nc.us/wqhome.html (27 September 2001).

North Carolina Office of State Budget, Planning, and Management. "State Demographics." http://www.ospl.state.nc.us/demog/ (27 September 2001)

Radford, A.E., H.E. Ahles and G.R. Bell. 1968. *Manual of the Vascular Flora of the Carolinas.* The University of North Carolina Press, Chapel Hill, North Carolina.

Rohde, F.C., R.B. Arndt, D.G. Lindquist, and J.F. Parnell. 1994. *Freshwater Fishes of the Carolinas, Virginia, Maryland, and Delaware.* University of North Carolina Press, Chapel Hill, North Carolina.

Schafale, M.P. and A.S. Weakley. 1990. *Classification of the Natural Communities of North Carolina, Third Approximation.* North Carolina Natural Heritage Program, Division of Parks and Recreation, NCDENR, Raleigh, NC.

Thorpe, James H. and Alan P. Covich. 1991. *Ecology and Classification of North American Freshwater Invertebrates.* Academic Press, Inc. San Diego, California.

United States Department of Agriculture, Soil Conservation Service. 1980. *Soil Survey of Greene County.* Raleigh, North Carolina.

United States Department of Agriculture, Soil Conservation Service. 1977. *Soil Survey of Lenoir County.* Raleigh, North Carolina.

United States Fish and Wildlife Service. "Endangered Species/ Section 7 Program in North Carolina." *North Carolina Ecological Services.* http://nc-es.fws.gov/es/countyfr.html http://nc-es.fws.gov/es/countyfr.html (22 March 2001 and 16 October 2001).

Weakley A.S., K.D. Patterson, S. Landaal, M. Pyne and others, compilers. 1998. *International Classification of Ecological Communities: Terrestrial Vegetation of the Southeastern United States.* The Nature Conservancy, Southeast Regional Office, Southern Conservation Science Department: Chapel Hill, NC.

Webster, W.D., J.F. Parnell, and W.C. Biggs, Jr. 1985. *Mammals of the Carolinas, Virginia, and Maryland.* The University of North Carolina Press, Chapel Hill, North Carolina.