STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

August 2, 2007

N. C. Dept. of Environment and Natural Resources
Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557

Attention: Mr. Stephen Lane
NCDOT Coordinator

Dear Sir:

Subject: **CAMA General Permit Application** for the proposed replacement of Bridge No. 90 over Tranter's Creek on SR 1414 / SR 1556, in Beaufort & Pitt Counties. Federal Aid Project No. BRZ-1414(2), TIP No. B-4022. Debit $400.00 from WBS 33389.1.1.

Reference: CAMA General Permit No. 44779

The North Carolina Division of Coastal Management issued CAMA General Permit No. 44779 for the above referenced project on March 23, 2006. This permit subsequently expired March 22, 2007. The North Carolina Department of Transportation (NCDOT) hereby reapplies for a CAMA General Permit.

Please find enclosed the permit drawings, landowner receipts, Categorical Exclusion (CE), Natural Resource Technical Report (NRTR), completed CAMA MP5 form for CAMA General Application, and half-size plan sheets for the above referenced project. The NCDOT proposes to replace existing Bridge No. 90 on SR 1414 / SR 1556 over Tranter's Creek in Beaufort & Pitt Counties. The project involves replacement of the existing bridge structure with a 220-foot box beam bridge at approximately the same location and roadway elevation of the existing structure using top-down construction. There will be 0.04 acre of permanent impacts to wetlands adjacent to Tranter's Creek. Traffic will be detoured off-site along surrounding roads, during construction.

Impacts to Waters of the United States

General Description: The project is located in the Tar-Pamlico River Basin (Hydrologic Unit 03020103). A best usage classification of "C SW NSW" has been assigned to Tranter's Creek [DWQ Index # 28-103]. Neither High Quality Waters (HQW), Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds), nor Outstanding Resource Waters (ORW) occur within 1.0 mile of project study area. Tranter's Creek is not designated as a North Carolina Natural or Scenic River, or as a national Wild and Scenic River. Tranter's Creek is designated as a Public Trust Area and a Public Trust Shoreline under the Coastal Area Management Act (CAMA).

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

Permanent Impacts: Tranter's Creek and adjacent wetlands will be impacted by the proposed project. Construction of the proposed project will result in permanent impacts, including 0.006 acre of fill and 0.034 acre of mechanized clearing (see permit drawings). In addition, a total less than 0.001 acre of surface water will be impacted from placement of bents in Tranter's Creek.

Temporary Impacts: No temporary impacts to jurisdictional resources will be necessary for the construction of this project.

Utility Impacts: No impacts to jurisdictional resources will occur due to relocation of utilities in the project area. Existing utility lines are in conflict with the proposed project; however, all utility work will be conducted in upland areas and existing road fill.

Bridge Demolition

The existing bridge consists of a steel plank deck on steel I-beams with an asphalt-wearing surface. The substructure is composed of timber end bents and interior bents consisting of timber caps on timber piles. The bridge can be removed without dropping components into Waters of the United States during construction. Best Management Practices for Bridge Demolition and Removal will be followed to avoid any temporary fill from entering Waters of the United States.

During project development, the National Marine Fisheries Service (NMFS) recommended restricting in-water work to the dates of October 1st to February 15. However, in an email correspondence (attached), dated March 30, 2006, NMFS agreed to reduce the in-water work moratorium to February 15 to June 15 of any year.

Federally Protected Species

As of May 10, 2007 the US Fish and Wildlife Service (USFWS) lists eight federally protected species for Beaufort and Pitt Counties (see Table 1). All biological conclusions remain valid for each protected species. The Bald eagle was removed from the Endangered Species List on June 28, 2007. It is however, protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Surveys determined no nests are within 660 feet of the project limits.

Table 1. Federally protected species of Beaufort and Pitt Counties.

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion
*Lepidochelys kempii**	Kemp's ridley sea turtle	E	No	No Effect
*Trichechus manatus**†	West Indian Manatee	E	No	No Effect
*Picoides borealis**†	Red-cockaded woodpecker	E	No	No Effect
*Canis rufus**	Red wolf	EXP	Yes	N/A
*Lysimachia asperulaefolia**	Rough-leaved loosestrife	E	Yes	No Effect
*Aeschynomene virginica**	Sensitive jointvetch	T	No	No Effect
Elliptio steinstansana†‡	Tar spinymussel	E	No	No Effect

E – Endangered
T – Threatened
EXP – Experimental, Protected only on Federal Lands

* – species listed for Beaufort County
† – species listed for Pitt County
‡ – historic record

Avoidance and Minimization

Avoidance examines all appropriate and practicable possibilities of averting impacts to "Waters of the United States". Due to the presence of surface waters and wetlands within the project study area, avoidance of all impacts is not possible. The NCDOT is committed to incorporating

all reasonable and practicable design features to avoid and minimize jurisdictional impacts. Minimization measures were incorporated as part of the project design these included:

- Use of an off-site detour during construction.
- Construction of a 45-foot longer bridge
- Best Management Practices will also be utilized during demolition of the existing bridge and construction of the new bridge.

Mitigation

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 the unavoidable impacts to 0.04 acre of wetlands. A copy of the EEP Acceptance Letter, dated January 31, 2006, is attached.

Project Schedule

This project currently has a review date of November 27, 2007, and a project let date of January 15, 2008

Regulatory Approvals

CAMA General: By copy of this letter, NCDOT requests that the proposed work be authorized under a Coastal Area Management Act General Development Permit. The updated landowner receipts are attached.

Section 404 Permit: NCDOT has received a United States Army Corps of Engineers (USACE) Section 404 permit under a separate cover.

Section 401 Permit & Buffer Authorization: NCDOT has received a North Carolina Division of Water Quality (NCDWQ) Section 401 Water Quality Certification and Tar-Pamlico Buffer Authorization under separate cover.

Copies of the Section 404 and 401 permits and this permit application are posted on the NCDOT website at: http://www.doh.dot.state.nc.us/preconstruct/pe/neu/permit.html

Thank you for your time and assistance with this project. Please contact Tyler Stanton at tstanton@dot.state.nc.us or (919) 715-1439 if you have any questions or need additional information.

Sincerely,

E. L. Lueh

for Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA

Enclosures (7)

CC:
W/attachment
Mr. John Hennessy, NCDWQ
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Ron Sechler, NMFS
Mr. Michael Street, NCDMF
Dr. David Chang, PE, Hydraulics
Mr. Greg Perfetti, PE, Structure Design
Mr. Victor Barbour, PE, Project Services Unit
Mr. Mark Staley, Roadside Environmental
Mr. C. E. Lassiter, PE, Division Engineer
Mr. Jay Johnson, Div. Environmental Officer

W/o attachment
Mr. Scott McLendon, USACE, Wilmington
Mr. Jay Bennett, PE, Roadway Design
Mr. Majed Alghandour, PE, Programming & TIP
Mr. Art McMillan, PE, Highway Design
Ms. Beth Harmon, EEP
Mr. Todd Jones, NCDOT External Audit Branch
Mr. John Williams, PE, PDEA

Form DCM MP-5

BRIDGES and CULVERTS

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

1. BRIDGES

☐ *This section not applicable*

a. Is the proposed bridge:
☐Commercial ☒Public/Government ☐Private/Community

b. Water body to be crossed by bridge:
Tranter's Creek

c. Type of bridge (construction material):
Concrete Box Beam

d. Water depth at the proposed crossing at NLW or NWL:
14'

e. (i) Will proposed bridge replace an existing bridge? ☒Yes ☐No
If yes,
(ii) Length of existing bridge: 175'
(iii) Width of existing bridge: 24'
(iv) Navigation clearance underneath existing bridge: 7.5'
(v) Will all, or a part of, the existing bridge be removed?
(Explain) All will be removed

f. (i) Will proposed bridge replace an existing culvert? ☐Yes ☒No
If yes,
(ii) Length of existing culvert:
(iii) Width of existing culvert:
(iv) Height of the top of the existing culvert above the NHW or NWL:
(v) Will all, or a part of, the existing culvert be removed?
(Explain)

g. Length of proposed bridge: 220'

h. Width of proposed bridge: 30'

i. Will the proposed bridge affect existing water flow? ☐Yes ☒No
If yes, explain:

j. Will the proposed bridge affect navigation by reducing or increasing the existing navigable opening? ☒Yes ☐No
If yes, explain: Height increases 0.5'. Three piers in the water will replace four existing piers in water.

k. Navigation clearance underneath proposed bridge: 8'

l. Have you contacted the U.S. Coast Guard concerning their approval? ☐Yes ☒No
If yes, explain:

m. Will the proposed bridge cross wetlands containing no navigable waters? ☐Yes ☒No
If yes, explain:

n. Height of proposed bridge above wetlands: 11'

2. CULVERTS

☒ *This section not applicable*

a. Number of culverts proposed:

b. Water body in which the culvert is to be placed:

< Form continues on back>

c. Type of culvert (construction material):

d. (i) Will proposed culvert replace an existing bridge? ☐Yes ☐No

If yes,

(ii) Length of existing bridge:

(iii) Width of existing bridge:

(iv) Navigation clearance underneath existing bridge:

(v) Will all, or a part of, the existing bridge be removed? (Explain)

e. (i) Will proposed culvert replace an existing culvert? ☐Yes ☐No

If yes,

(ii) Length of existing culvert(s):

(iii) Width of existing culvert(s):

(iv) Height of the top of the existing culvert above the NHW or NWL:

(v) Will all, or a part of, the existing culvert be removed? (Explain)

f. Length of proposed culvert:

g. Width of proposed culvert:

h. Height of the top of the proposed culvert above the NHW or NWL.

i. Depth of culvert to be buried below existing bottom contour.

j. Will the proposed culvert affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☐No

If yes, explain:

k. Will the proposed culvert affect existing water flow? ☐Yes ☐No

If yes, explain:

3. EXCAVATION and FILL

☐*This section not applicable*

a. (i) Will the placement of the proposed bridge or culvert require any excavation below the NHW or NWL? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be excavated:

(iii) Avg. width of area to be excavated:

(iv) Avg. depth of area to be excavated:

(v) Amount of material to be excavated in cubic yards:

b. (i) Will the placement of the proposed bridge or culvert require any excavation within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB

☐WL _____ ☒None

(ii) Describe the purpose of the excavation in these areas:

c. (i) Will the placement of the proposed bridge or culvert require any high-ground excavation? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be excavated: 50'

(iii) Avg. width of area to be excavated: 50'

(iv) Avg. depth of area to be excavated: 5'

(v) Amount of material to be excavated in cubic yards: 465 cubic yards

d. If the placement of the bridge or culvert involves any excavation, please complete the following:

(i) Location of the spoil disposal area: to be determined by contractor

(ii) Dimensions of the spoil disposal area: to be determined by contractor

(iii) Do you claim title to the disposal area? ☐Yes ☒No *(If no, attach a letter granting permission from the owner.)*

(iv) Will the disposal area be available for future maintenance? ☐Yes ☒No

(v) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAVs), other wetlands (WL), or shell bottom (SB)?

☐CW ☐SAV ☐WL ☐SB ☒None

If any boxes are checked, give dimensions if different from (ii) above.

(vi) Does the disposal area include any area below the NHW or NWL? ? ☐Yes ☒No

If yes, give dimensions if different from (ii) above.

e. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed below NHW or NWL? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be filled:

(iii) Avg. width of area to be filled:

(iv) Purpose of fill:

f. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW ____ ☐SAV ____ ☐SB

☒WL 245' ☐None

(ii) Describe the purpose of the excavation in these areas:

roadway approaches for additional safety

g. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed on high-ground? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be filled: 575'

(iii) Avg. width of area to be filled: 45'

(iv) Purpose of fill: Roadway

4. GENERAL

a. Will the proposed project require the relocation of any existing utility lines? ☐Yes ☒No

If yes, explain:

If this portion of the proposed project has already received approval from local authorities, please attach a copy of the approval or certification.

b. Will the proposed project require the construction of any temporary detour structures? ☐Yes ☒No

If yes, explain:

< Form continues on back>

c. Will the proposed project require any work channels? ☐Yes ☒No

If yes, complete Form DCM-MP-2.

d. How will excavated or fill material be kept on site and erosion controlled?

NCDOT's Sediment and Erosion Control practices will apply.

e. What type of construction equipment will be used (for example, dragline, backhoe, or hydraulic dredge)?

Heavy highway construction equipment

f. Will wetlands be crossed in transporting equipment to project site?

☐Yes ☒No

If yes, explain steps that will be taken to avoid or minimize environmental impacts.

g. Will the placement of the proposed bridge or culvert require any shoreline stabilization? ☐Yes ☒No

If yes, complete form MP-2, Section 3 for Shoreline Stabilization only.

8.3.07
Date

B-4022
Project Name

Elizabeth L. Lusk
Applicant Name

E. L. Lusk
Applicant Signature

Subject: Re: B-4022 Beaufort County
From: Ron Sechler <ron.sechler@noaa.gov>
Date: Thu, 30 Mar 2006 14:18:34 -0500
To: Chris Rivenbark <crivenbark@dot.state.nc.us>
CC: "Wescott, William G SAW" <William.G.Wescott@saw02.usace.army.mil>, Brian Wrenn <Brian.Wrenn@ncmail.net>, Bill Arrington <Bill.Arrington@ncmail.net>, "Tyler P. Stanton" <tstanton@dot.state.nc.us>

Chris,
Based on our conversation regarding the in water work moratorium for B-4402, I agree that a no work in water moratorium between February 15 and June 15 of any year should be adequate to protect anadromous fishery resource at this site. Spring spawning activity should be over and out migration of juveniles should not be disrupted by the limited level of work associated with this bridge replacement so long a the "Stream Guidelines for Anadromous Fish Passage" are followed.
Sincerely,

Ron Sechler
National Marine Fisheries Service
Habitat Conservation Division
101 Pivers Island Road
Beaufort, North Carolina 28516

Phone: 252-728-5090
Fax: 252-728-8728
Email: ron.sechler@noaa.gov

Chris Rivenbark wrote:

> B-4022 Beaufort County
> Bridge No. 90 over Tranter's Creek on SR 1414
>
> USACE Action I.D. #200610578
> CAMA General Permit #44779C
>
> Ron,
> I just wanted to follow up to our phone conversation this morning. The Categorical Exclusion document for this project included a commitment that an in-water moratorium would be enforced from February 16 to September 30 of any given year. During our conversation you felt that a in-water moratorium of February 15 to June 15 of any given year would be adequate for this stream. Additionally, NCDOT will follow "Stream Guidelines for Anadromous Fish Passage".
>
> If this is acceptable, please "reply all" to this email.
>
> Thank you for your assistance with this project. Please let me know if you have any questions.
>
> --
> Chris Rivenbark
> Eastern Regional Manager
> Project Management Group
> PDEA Natural Environment Unit
> N.C. Department of Transportation
> (919)715-1460

Ecosystem Enhancement PROGRAM

January 31, 2006

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, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

B-4022, Bridge Number 90 over Tranter's Creek on SR 1414/SR 1556, Beaufort and Pitt Counties

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory riverine wetland mitigation for the subject project. Based on the information supplied by you in a letter dated January 10, 2006, the impacts are located in CU 03020103 of the Tar-Pamlico River Basin in both the Northern Outer and Northern Inner Coastal Plain (NOCP/NICP) Eco-Regions, and are as follows:

Riverine Wetlands: 0.04 acre

The subject project is not 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. Mitigation for this project will be provided in accordance with the above referenced agreement. EEP will commit to implementing sufficient compensatory riverine wetland mitigation to offset the impacts associated with this project by the end of the MOA year in which this project is permitted, in accordance with Section X of the Tri-Party MOA.

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

Sincerely,

James B. Stanfill for

William D. Gilmore, P.E.
EEP Director

cc: Mr. William Wescott, USACE-Washington
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-4022

Ecosystem Enhancement PROGRAM

January 31, 2006

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

Dear Mr. Wescott:

Subject: EEP Mitigation Acceptance Letter:

B-4022, Bridge Number 90 over Tranter's Creek on SR 1414/SR 1556, Beaufort and Pitt Counties; Tar-Pamlico River Basin (Cataloging Unit 03010203); Northern Outer and Inner Coastal Plain (NOCP/NICP) Eco-Regions

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory riverine wetland mitigation for the unavoidable impact associated with the above referenced project. As indicated in the NCDOT's mitigation request letter dated January 10, 2006, the project will impact 0.04 acre of riverine wetlands.

EEP will commit to implementing sufficient compensatory riverine wetland mitigation up to a 2:1 ratio to offset the impacts associated with this project by the end of the MOA year in which the permit for this project is issued, in accordance with Section X of the Memorandum of Agreement between the U. S. Army Corps of Engineers, N. C. Department of Environment and Natural Resources, and N. C. Department of Transportation (Tri-Party MOA), signed on July 22, 2003. Compensatory riverine wetland mitigation assets available include, but are not limited to, the Grimesland, Huskanaw, and Mildred Woods mitigation sites.

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

Sincerely,

James B Stanfill for

William D. Gilmore, P.E.
EEP Director

cc: Mr. Gregory J. Thorpe, Ph.D., NCDOT-PDEA
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-4319

09/08/99

TIP PROJECT: B-4022

C201496

CONTRACT:

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4022	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33389.1.1	BRZ-1414(2)	PE
33389.2.1	BRZ-1414(2)	R /W, UTILITIES

PITT & BEAUFORT COUNTY

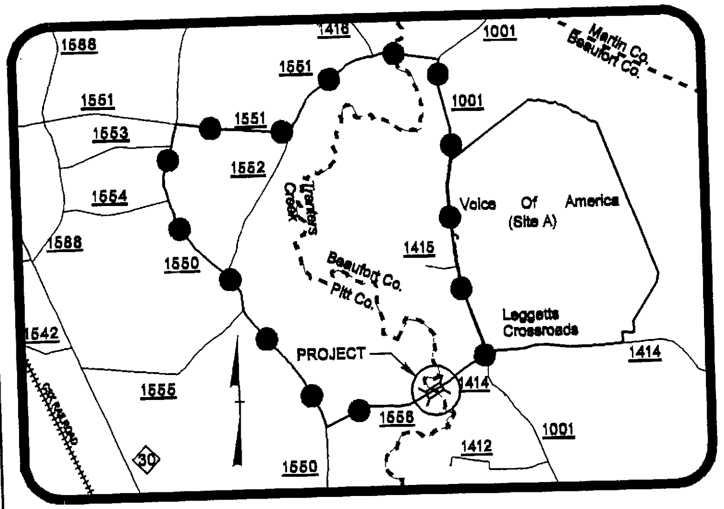
LOCATION: BRIDGE NO. 90 OVER TRANTERS CREEK ON SR 1414 & SR 1556

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

Permit Drawing
Sheet 1 of 6

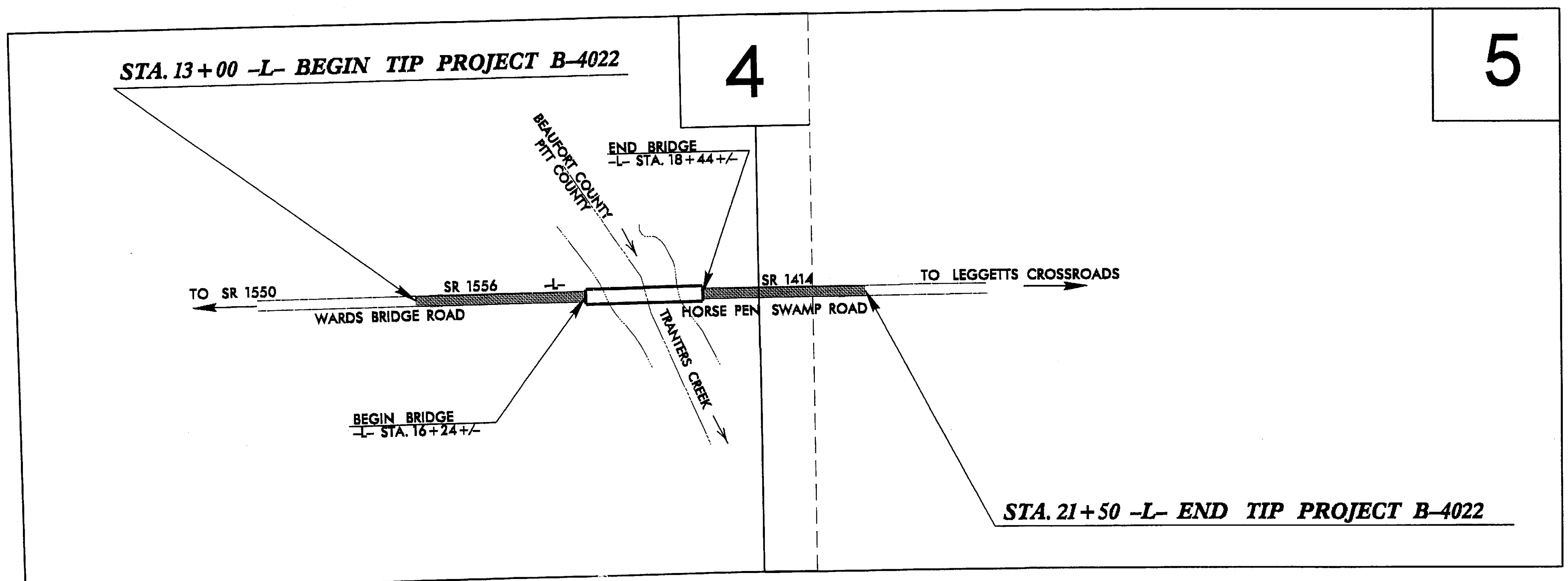
NAD 83 /95

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



VICINITY MAP

DETOUR ROUTE



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20

DESIGN DATA

ADT 2006 = 452
ADT 2026 = 713
DHV = 10 %
D = 60 %
T = 3 % *
V = 60 MPH
* TTST = 1% DUAL = 2%
FUNC CLASS = RURAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4022	=	0.119 MILES
LENGTH STRUCTURE TIP PROJECT B-4022	=	0.042 MILES
TOTAL LENGTH TIP PROJECT B-4022	=	0.161 MILES

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

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 3, 2005

LETTING DATE: JUNE 20, 2006

GARY LOVERING, PE
PROJECT ENGINEER

RON McCOLLUM, PE
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

-2005 13:04
adway\Proj\B-4022_rdy_tsh.dgn
on AT HY221528

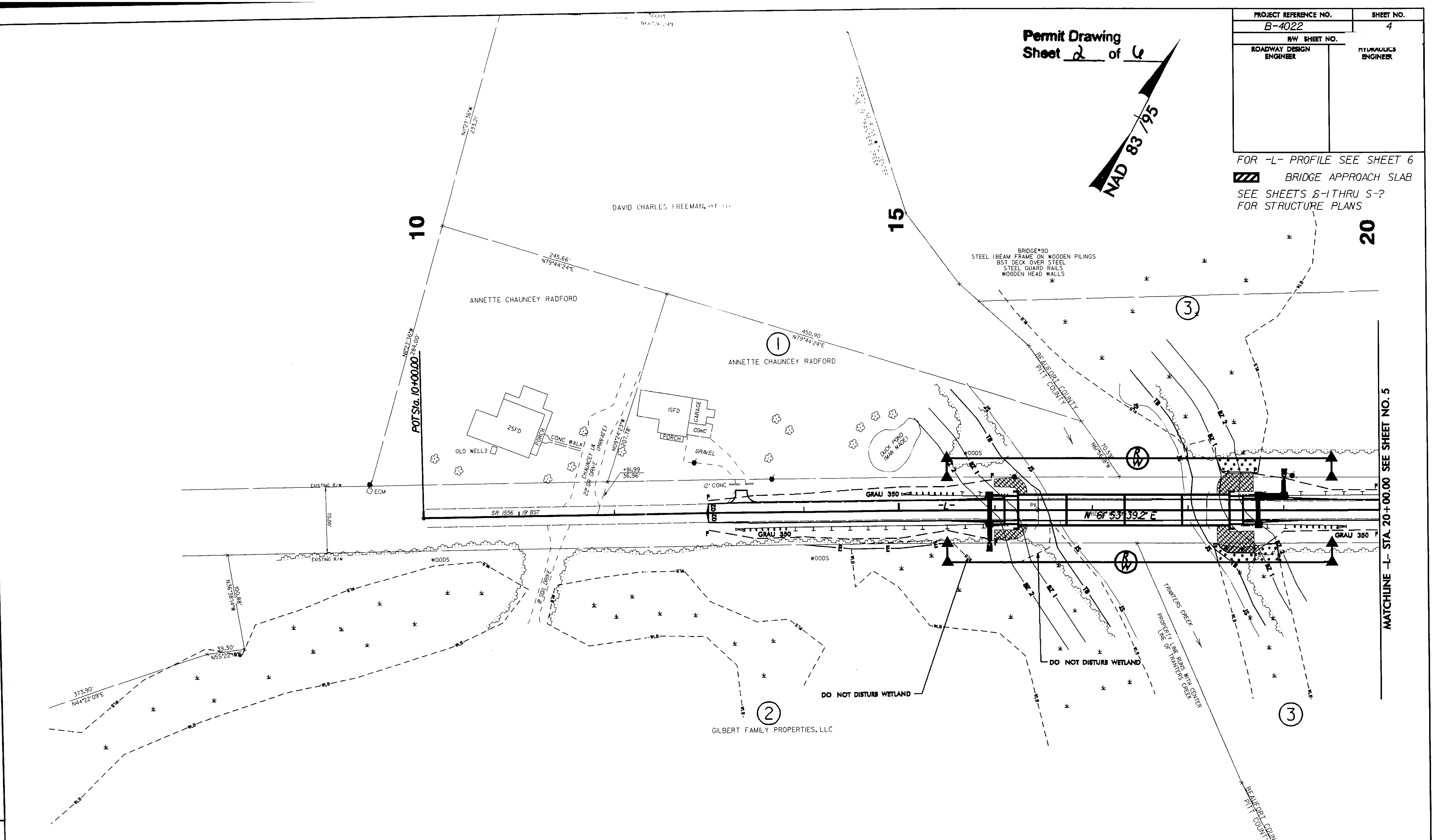
PROJECT REFERENCE NO.	SHEET NO.
B-4022	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Permit Drawing
Sheet 2 of 6

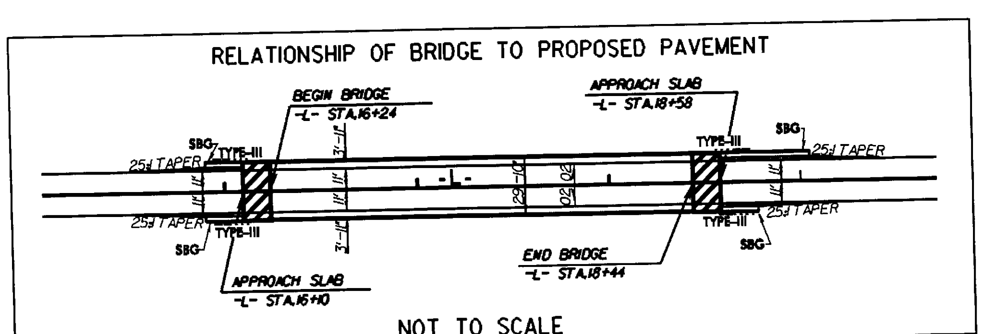
FOR -L- PROFILE SEE SHEET 6

BRIDGE APPROACH SLAB

SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS



NAD 83/95
10
15
20
DAVID CHARLES FREEMAN
ANNETTE CHAUNCEY RADFORD
ANNETTE CHAUNCEY RADFORD
GILBERT FAMILY PROPERTIES, LLC
BRIDGE #90
STEEL IBEAM FRAME ON WOODEN PILINGS
BST DECK OVER STEEL
STEEL GUARD RAILS
WOODEN HEAD WALLS
POT Sta. 10+00.00
BEAUFORT COUNTY
PITT COUNTY
DUCK POND (MAN MADE)
TRANTERS CREEK
PROPERTY LINE RUNS WITH CENTER LINE OF TRANTERS CREEK
DO NOT DISTURB WETLAND
DO NOT DISTURB WETLAND
MATCHLINE -L- STA. 20+00.00 SEE SHEET NO. 5
SR 1556 19' BST
GRAU 350
WOODS
EXISTING R/W
OLD WELL?
2SFD
1SFD
GARAGE
PORCH
CONC WALK
GRAVEL
12' CONC
ECM



WETLAND IMPACTS

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

07-OCT-2005 13:27
r:\hydraulics\b-4022_hyd_wet_psh04.dgn

REVISIONS

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4022	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Permit Drawing
Sheet 3 of 6

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

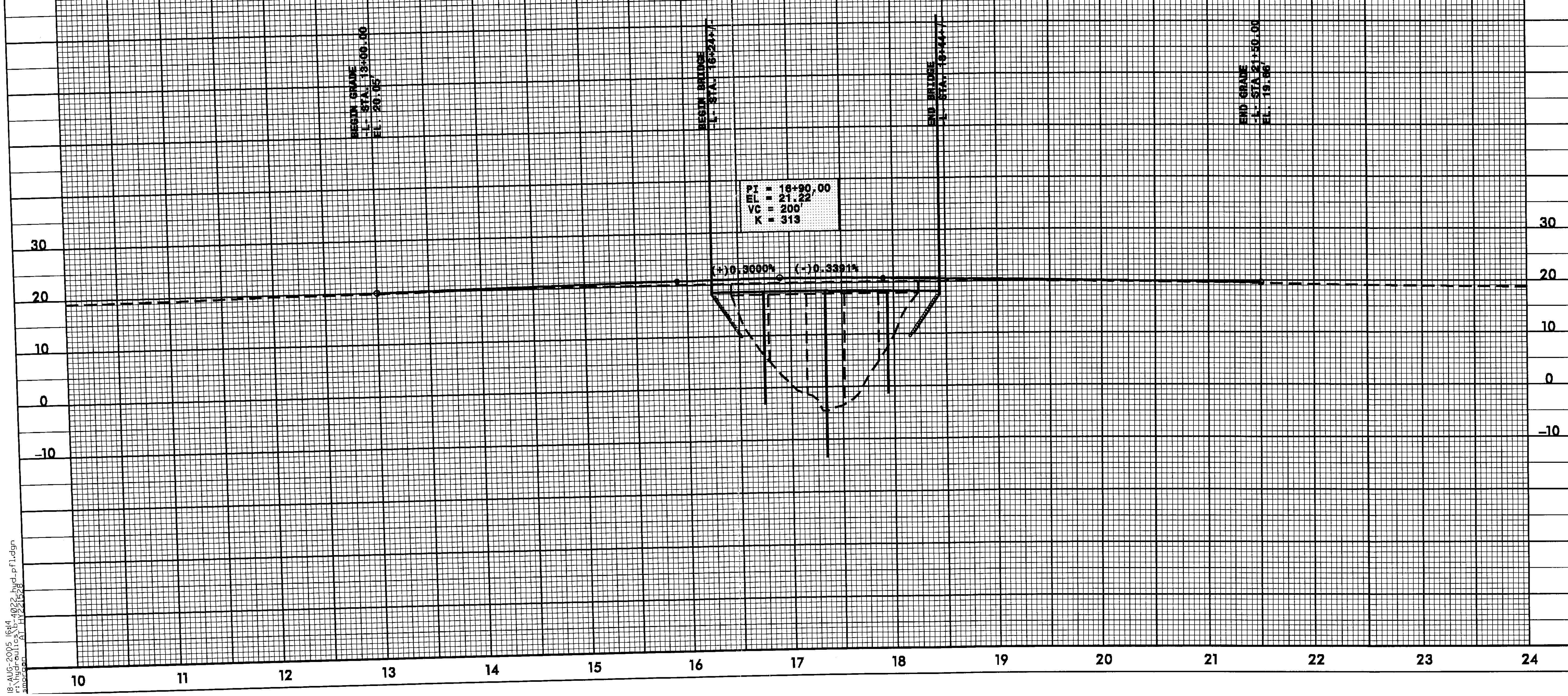
-L-

BM #1 RR SPIKE SET IN 36" OAK
92' RIGHT OF -L- STA 16+73
ELEV. = 14.87'

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	6400 CFS
DESIGN FREQUENCY	=	25 YRS
DESIGN HW ELEVATION	=	18.1 FT
BASE DISCHARGE	=	9300 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	20.8 FT
OVERTOPPING DISCHARGE	=	7800 CFS
OVERTOPPING FREQUENCY	=	50 YRS
OVERTOPPING ELEVATION	=	19.5 FT
EST. NORM. W.S. ELEV.	=	10.5 FT
DATE OF SURVEY	=	02-20-03
W.S. ELEVATION AT DATE OF SURVEY	=	12.6 FT

PROFILE VIEW



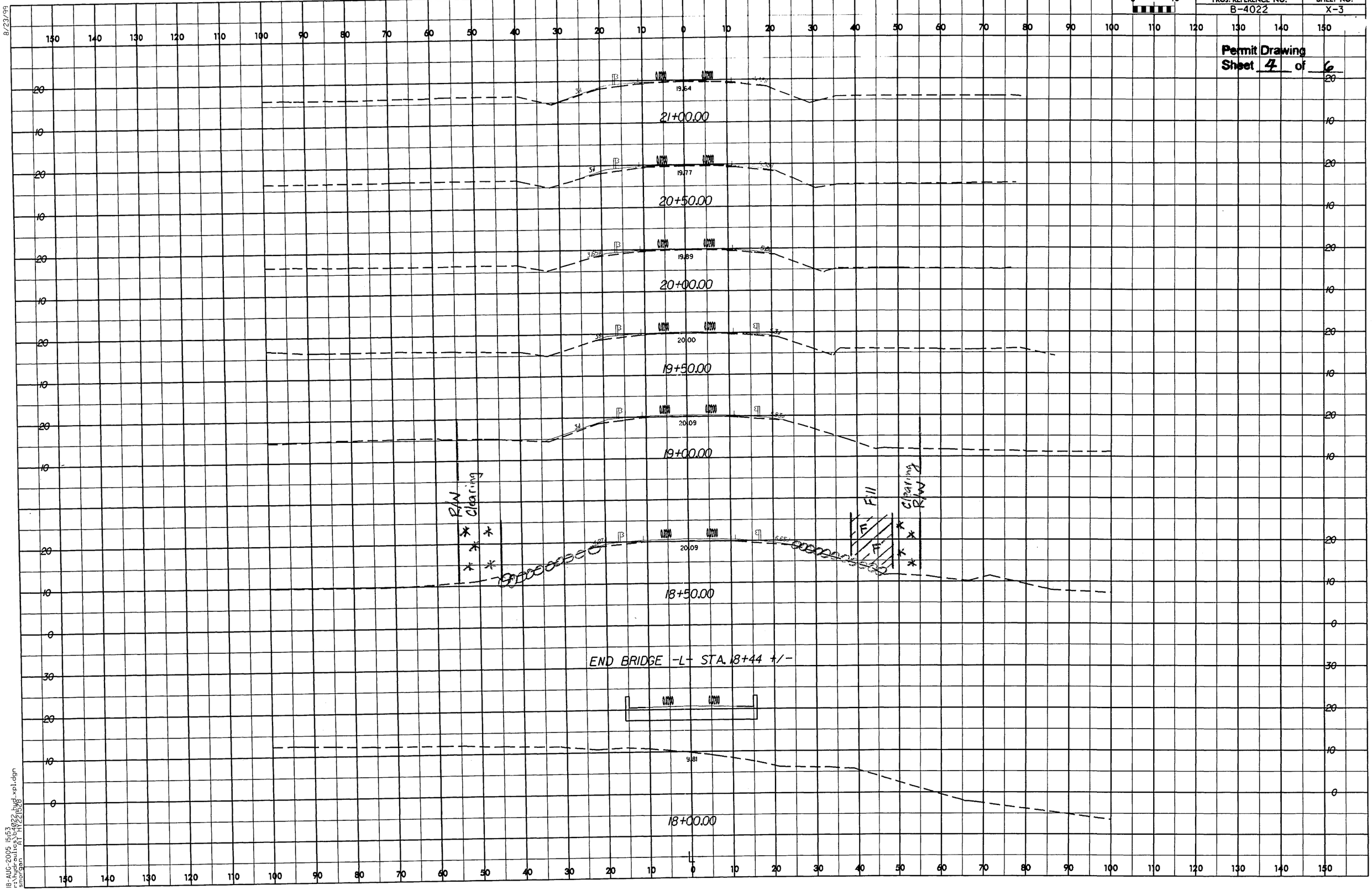
5/14/99

18-AUG-2005 16:14
r:\hydraulics\b-4022_hyd_pfl.dgn

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
B-4022	X-3

Permit Drawing
Sheet 4 of 6



WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	16+24/18+43	220' BRIDGE	0.006			0.034						
TOTALS:			0.006			0.034						

Note: There is an overlap with buffer impacts as follows:
232 sq. ft. fill in BZ1; 479 sq. ft. clearjng in BZ1; 305 sq. ft. clearing in BZ2.

RECEIVED
OCT 14 2005
OFFICE OF NATURAL ENVIRONMENT

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BEAUFORT/PITT
PROJECT:33389.1.1 (B4022)

SHEET 10/7/2005

ATN Revised 3/31/05

Permit Drawing
Sheet 5 of 6

PROPERTY OWNERS

Annette Chauncey Radford
4287 Wards Bridge Rd. Greenville NC 27834

Gilbert Family Properties., LLC
108 Longmeadow Rd. Greenville NC 27834

Susan Edwards Bailey Thomas
4209 Glen Laurel Drive Raleigh NC 27612

Permit Drawing
Sheet 6 of 6

NCDOT
DIVISION OF HIGHWAYS
BEAUFORT / PITT COUNTY
PROJECT: 33389.1.1 (B-4022)
PERMIT DRAWINGS FOR
BRIDGE #90 ON SR1414
OVER TRANTER'S CREEK

SHEET OF 8 / 12 / 05

TIP PROJECT: B-4022

C201496

CONTRACT:

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

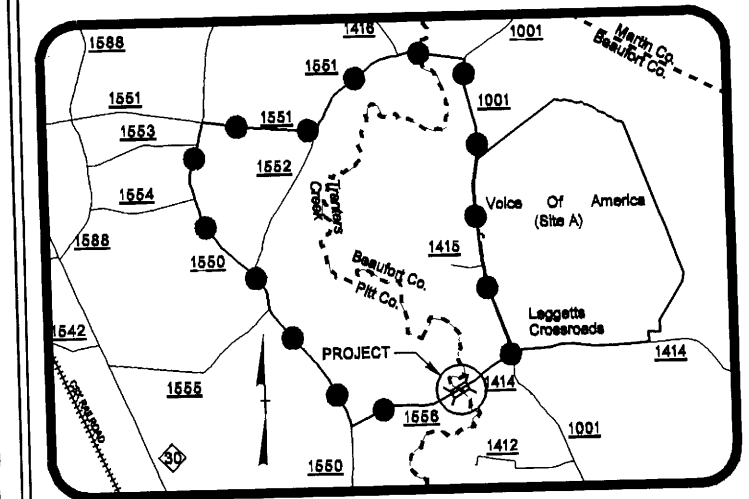
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4022	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33389.1.1	BRZ-1414(2)	PE
33389.2.1	BRZ-1414(2)	R /W, UTILITIES

PITT & BEAUFORT COUNTY

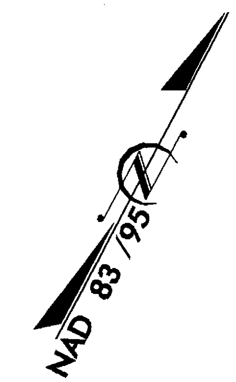
LOCATION: BRIDGE NO. 90 OVER TRANTERS CREEK ON SR 1414 & SR 1556

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

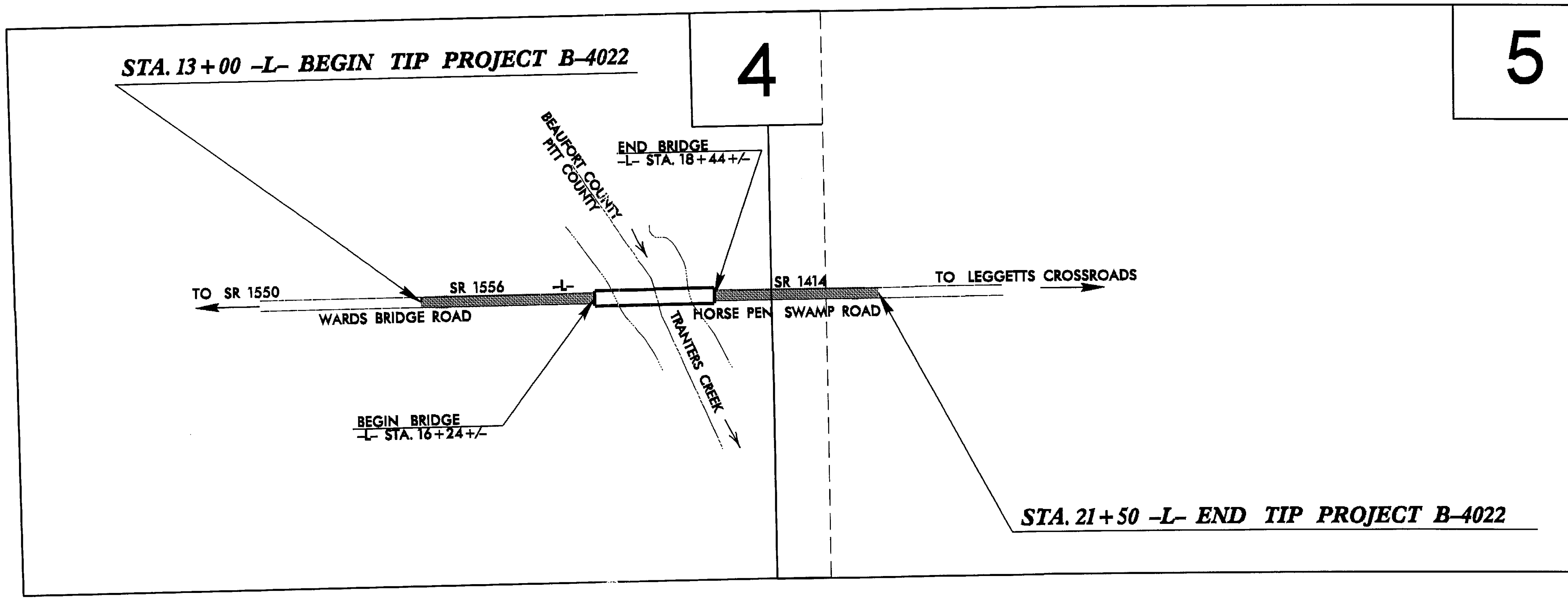


VICINITY MAP

DETOUR ROUTE



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20

DESIGN DATA

ADT 2006 = 452
ADT 2026 = 713
DHV = 10 %
D = 60 %
T = 3 % *
V = 60 MPH
* TTST = 1% DUAL = 2%
FUNC. CLASS = RURAL LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4022	=	0.119 MILES
LENGTH STRUCTURE TIP PROJECT B-4022	=	0.042 MILES
TOTAL LENGTH TIP PROJECT B-4022	=	0.161 MILES

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

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 3, 2005

LETTING DATE: JUNE 20, 2006

GARY LOVERING, PE
PROJECT ENGINEER

RON McCOLLUM, PE
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

PROJECT REFERENCE NO.	SHEET NO.
B-4022	1-B

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing High Quality Wetland Boundary — HQ WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- River Basin Buffer — RBB
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Guage — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite Marker
- Existing Control of Access
- Proposed Control of Access
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — ROADWAY DESIGN ENGINEER — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — T
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

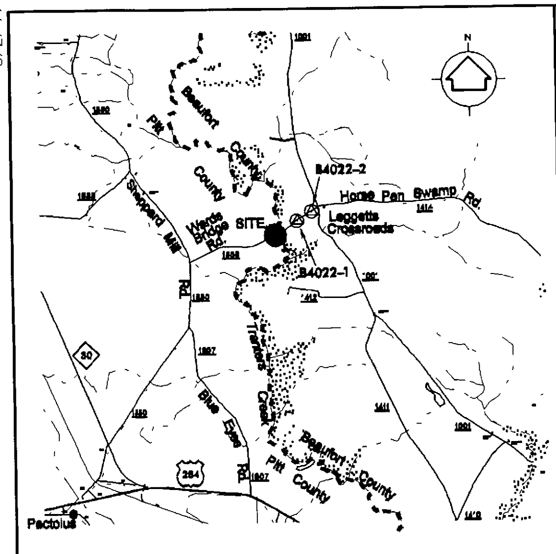
- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.



VICINITY MAP
(NOT TO SCALE)

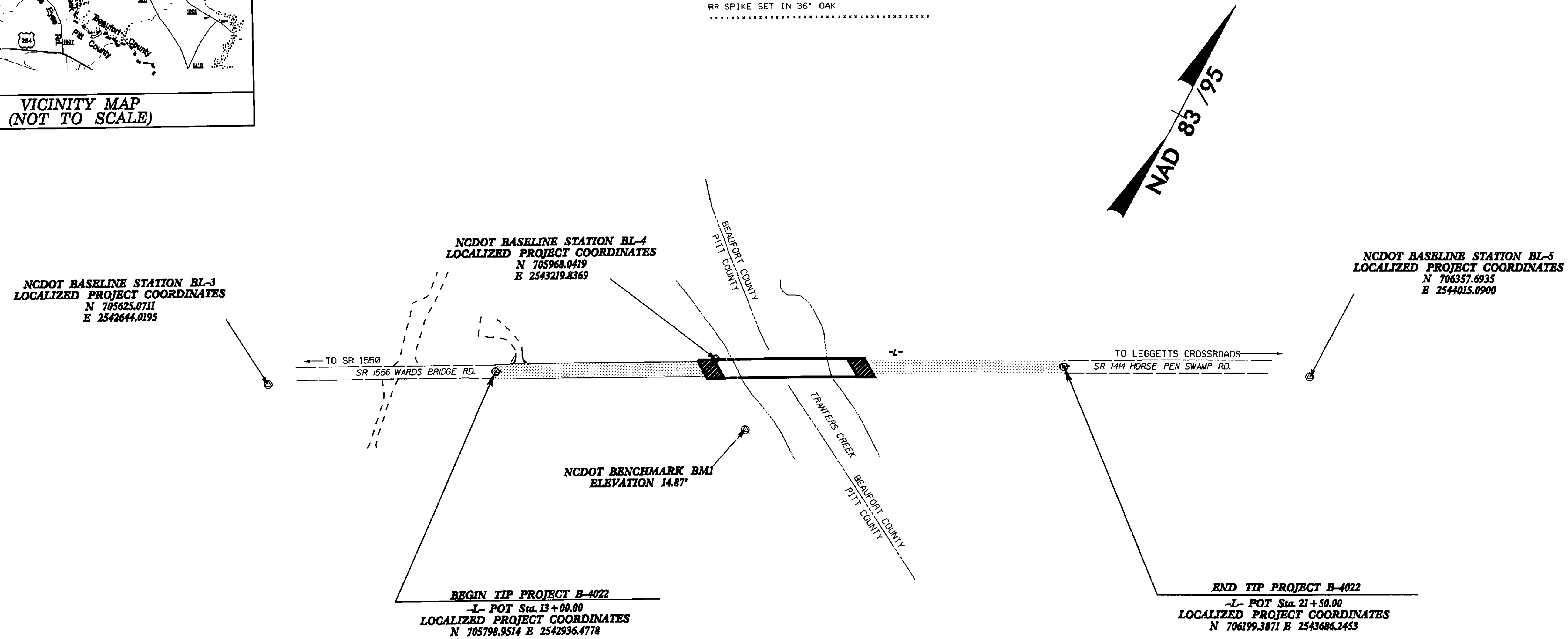
SURVEY CONTROL SHEET B-4022

CONTROL DATA

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3	BL-3	705625.0711	2542644.0195	18.48	OUTSIDE PROJECT LIMITS	
4	BL-4	705968.0419	2543219.8369	19.69	16+29.60	15.66 LT
5	BL-5	706357.6935	2544015.0900	18.17	OUTSIDE PROJECT LIMITS	

BENCHMARK DATA

BM1 ELEVATION - 14.87
N 705893 E 2543309
L STATION 16+73 92 RIGHT
RR SPIKE SET IN 36" OAK



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4022-1" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 707010.6170(ft) EASTING: 2544860.4030(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99990472
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4022-1" TO -L- STATION 13+00.00 IS S 57°47'51.9" W 2273.6802(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

HTTP:\WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT

FILE: b4022_ls_control_040812.txt

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT.
IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

⊚ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)

NOTE: DRAWING NOT TO SCALE

6/2/99
-SEP-2005 13:04
\roadway\proj\b4022_ls_1c.dgn
organ AT HY221528

6/2/99

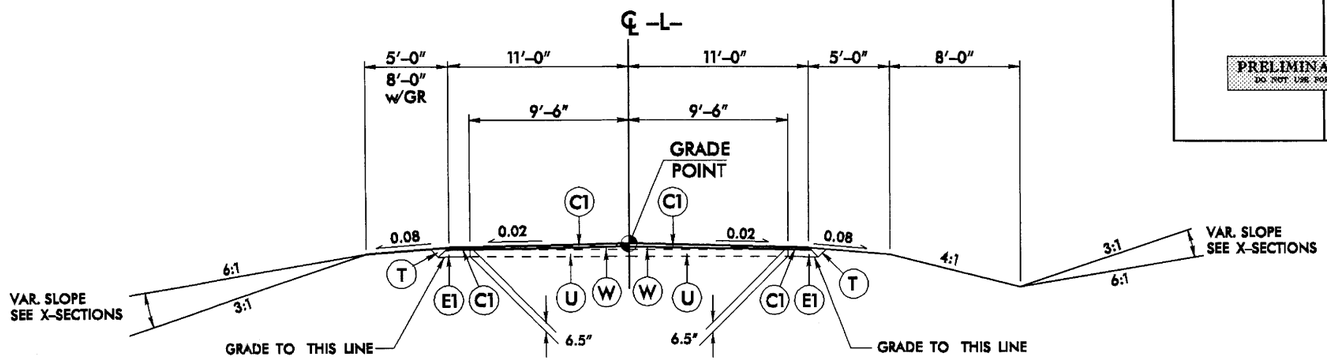
PAVEMENT SCHEDULE
FINAL DESIGN

C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PROJECT REFERENCE NO.	SHEET NO.
B-4022	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

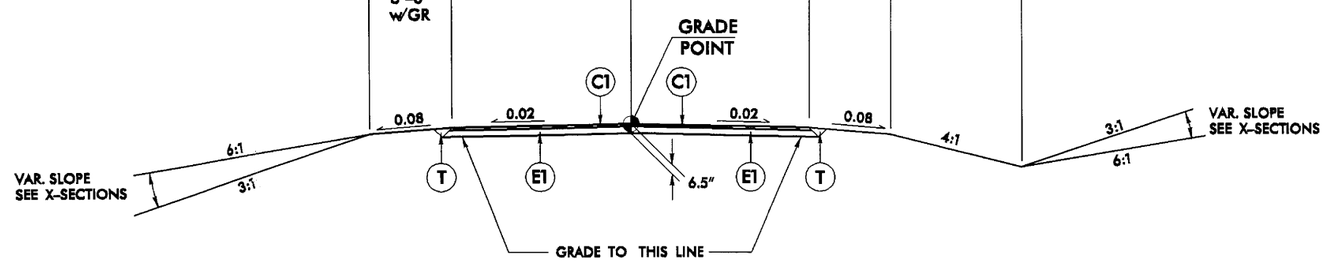
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

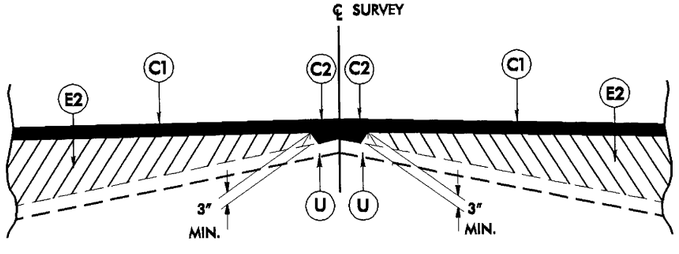
–L– STA. 13+00 TO –L– STA. 15+74
–L– STA. 18+94 TO –L– STA. 21+50



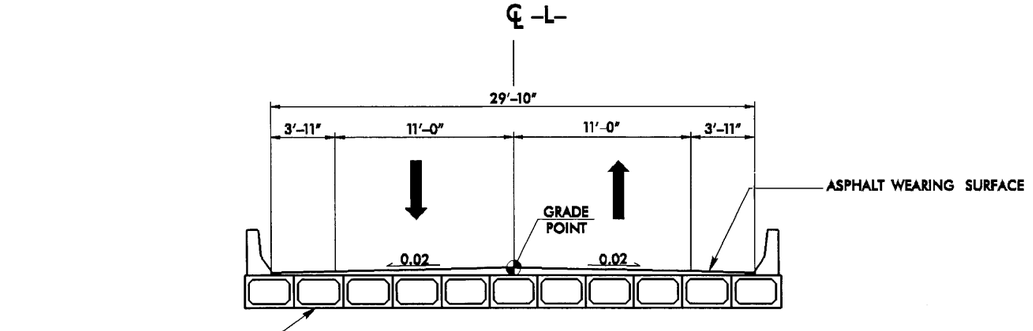
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

–L– STA. 15+74 TO –L– STA. 16+24 +/– (BEG. BRIDGE)
–L– STA. 18+44+/– (END BRIDGE) TO –L– STA. 18+94



Wedging Detail



TYPICAL SECTION ON STRUCTURE

USE TYPICAL SECTION ON STRUCTURE

–L– STA. 16+24+/– TO –L– STA. 18+44+/–

9-SEP-2005 13:04
:\Roadway\Proj\B4022_rdy_typ.dgn
morgan
AT H121528

COMPUTED BY: YOLANDE ANORD	DATE: 11-10-04	PROJECT REFERENCE NO.	SHEET NO.
CHECKED BY: RON McCOLLUM	DATE: 12-14-04	B-4022	3-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

SUMMARY OF SHOULDER BERM GUTTER

LINE	STATION TO STATION	LOCATION	LENGTH FT.
-L-	15+90 TO 16+10	LT	20'
-L-	15+90 TO 16+10	RT	20'
-L-	18+58 TO 19+05	LT	47'
-L-	18+58 TO 18+78	RT	20'
	PROJECT TOTAL		107'
	SAY		110'

SUMMARY OF PAVEMENT REMOVAL

IN SQUARE YARDS

LINE	STATION TO STATION	LOCATION	ASPHALT REMOVAL
-L-	15+74 TO 16+45	RT & LT	159
-L-	18+20 TO 18+94	RT & LT	166
	PROJECT TOTAL		325
	SAY		330

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	TOTAL UNCLASS. EXCAV.		UNDERCUT	EMBANKMENT +%	BORROW	TOTAL WASTE
-L- 13+00 TO 16+24 (BEGIN BRIDGE)	5			108	103	
SUBTOTAL	5			108	103	
-L- 18+44 (END BRIDGE) TO 21+50	9			113	104	
SUBTOTAL	9			113	104	
PROJECT SUBTOTALS	14			221	207	
EST 5% TO REPLACE TOPSOIL ON					10	
BORROW PIT						
PROJECT TOTALS	14				217	
SAY	20				220	

UNDERCUT = 200 CUBIC YARDS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL
-L- 15+94.10	LT	1		20.2	17.4		
		1	2		17.4	16.4	
-L- 15+94.10	RT	2		20.2	16.4		
		2	3		16.4	15.6	
-L- 18+73.90	RT	4		20.2	17.4		
		4	5		17.4	17.1	
-L- 18+73.90	LT	5		20.2	17.1		
		5	6		17.1	16.8	
-L- 19+00.00	LT	6		20.1	15.5		
		6	7		15.5	14.5	
PROJECT TOTAL							

STATION	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109
-L- 15+94.10																
		32'														
-L- 15+94.10																
										20'						
-L- 18+73.90																
		32'														
-L- 18+73.90																
		28'														
-L- 19+00.00																
										20'						
PROJECT TOTAL		92'								40'						

STATION	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	TRAFFIC BEARING DROP INLET STD. 840.35	FLOWABLE FILL MATERIAL C.Y.	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
-L- 15+94.10						1				1	1						SEE STD. 820.04
-L- 15+94.10						1				1	1						SEE STD. 820.04
													2-15"				
-L- 18+73.90						1				1	1						SEE STD. 820.04
-L- 18+73.90						1				1	1						SEE STD. 820.04
-L- 19+00.00						1				1	1						SEE STD. 820.04
													2-15"				
PROJECT TOTAL						5				5	5		4-15"				

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
M.D.I.	MEDIAN DROP INLET
M.D.I. (N.S.)	MEDIAN DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUCTION BOX

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	SHOP CURVED	DOUBLE FACED	WARRANT POINT APPROACH END	TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH APPROACH END	TRAILING END	W APPROACH END	TRAILING END
-L-	15+05.75	16-12.00	LEFT	106.25'			16+12 (BR)		3.92'	8.00'		87.50'		1.75'
-L-	18+56.00	21+37.25	LEFT	281.25'			18+56 (BR)		5.00'	8.00'	50.00'		1.00'	
-L-	13+30.75	16-12.00	RIGHT	281.25'			16+12 (BR)		5.00'	8.00'	50.00'		1.00'	
-L-	18+56.00	19+62.25	RIGHT	106.25'			18+56 (BR)		3.92'	8.00'		87.50'		1.75'
			SUBTOTAL	775.00'										
		LESS ANCHOR DEDUCTIONS												
		GRAU 350	4 @ 50.00' =	-200.00'										
		TYPE III	4 @ 18.75' =	-75.00'										
			TOTAL	500'										
			SAY	500'										
		ADDITIONAL GUARDRAIL POSTS = 5												

SURVEY LINE	ANCHORS XI MOD	III	GRAU 350	M-350	TEMP GRAU 350	TERMINAL SECTIONS	VI MOD	BIC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-		1	1													
-L-		1	1													
-L-		1	1													
-L-		1	1													
TOTAL		4	4													

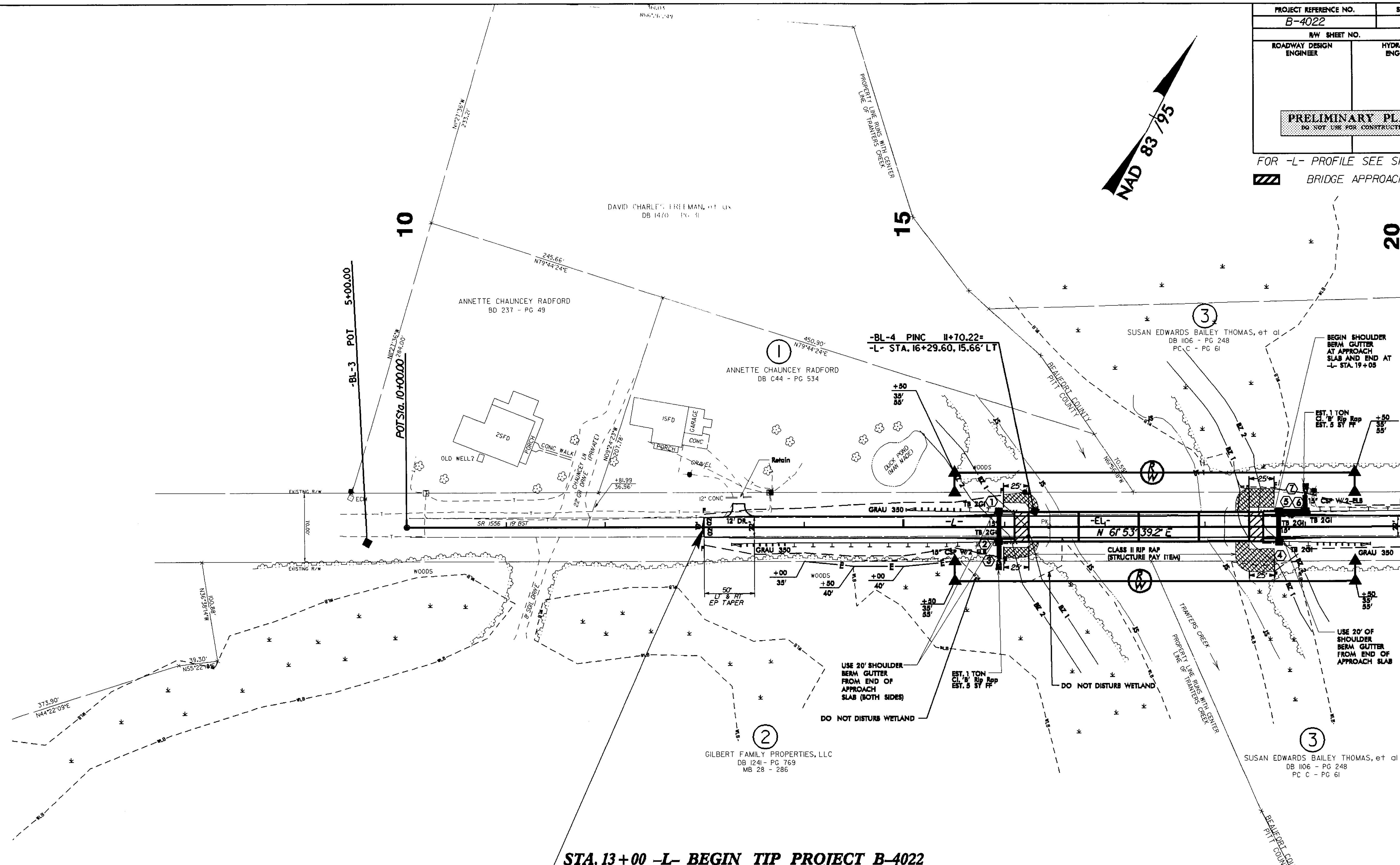
29-SEP-2005 13:04
R:\Roadway\Proj\B-4022_rdy_sum.dgn
AT HY22I528

PROJECT REFERENCE NO.	SHEET NO.
B-4022	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

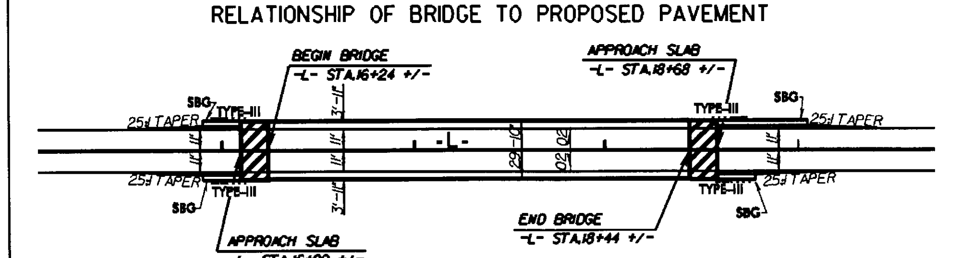
FOR -L- PROFILE SEE SHEET 6

BRIDGE APPROACH SLAB



NAD 83/95
10
15
20
DAVID CHARLES FREEMAN, et ux
ANNETTE CHAUNCEY RADFORD
BD 237 - PG 49
ANNETTE CHAUNCEY RADFORD
DB C44 - PG 534
SUSAN EDWARDS BAILEY THOMAS, et al
DB 1106 - PG 248
PC C - PG 61
GILBERT FAMILY PROPERTIES, LLC
DB 1241 - PG 769
MB 28 - 286
-BL-3 POT 5+00.00
POT Sta. 10+00.00
-BL-4 PINC 11+70.22=
-L- STA. 16+29.60, 15.66' LT
PROPERTY LINE RUNS WITH CENTER LINE OF TRANTERS CREEK
BEAUFORT COUNTY
PITT COUNTY
TRANTERS CREEK
DUCK POND (MAN MADE)
OLD WELL?
2SFD
1SFD
GARAGE
PORCH
CONC WALK
GRAVEL
Retain
SR 1556
-L-
-EL-
N 61°53'39.2" E
GRAU 350
TB 2GI
WOODS
EXISTING R/W
50' LT & RT EP TAPER
CLASS II RIP RAP (STRUCTURE PAY ITEM)
BEGIN SHOULDER BERM GUTTER AT APPROACH SLAB AND END AT -L- STA. 19+05
EST. 1 TON Cl. 'B' Rip Rap
EST. 5 SY FF
USE 20' SHOULDER BERM GUTTER FROM END OF APPROACH SLAB (BOTH SIDES)
USE 20' OF SHOULDER BERM GUTTER FROM END OF APPROACH SLAB
DO NOT DISTURB WETLAND
15" CSP W/2-ELB
MATCHLINE -L- STA. 20+00.00 SEE SHEET NO. 5
STA. 13+00 -L- BEGIN TIP PROJECT B-4022

RELATIONSHIP OF BRIDGE TO PROPOSED PAVEMENT



NOT TO SCALE

29-SEP-2005 13:45
r:\roadway\proj\b-4022_rdy_psh04.dgn
smorgan AT RY21528

8/17/99

REVISIONS

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-4022	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 6

NAD 83 /95

20

2930.26'
N60°23'07"E

3
SUSAN EDWARDS BAILEY THOMAS, et al
DB 1106 - PG 248
PC C - PG 61

POT Sta. 24+54.29

-BL-5 POT 20+55.80

+35 35'
+00 40'
+50 35' 40'
WOODS

EXISTING R/W

GRAU 380

-L-

N 61° 53' 39.2" E

SR 1414 19 BST

N 63° 53' 47.2" E

100'

EXISTING R/W

50'
LT & RT
EP TAPER

WOODS

MATCHLINE -L- STA. 20+00.00 SEE SHEET NO. 4

3
SUSAN EDWARDS BAILEY THOMAS, et al
DB 1106 - PG 248
PC C - PG 61

STA. 21+50 -L- END TIP PROJECT B-4022

29-SEP-2005 13:38
r:\roadway\proj\b-4022_rdy_psh05.dgn
smorgan

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4022	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 6400 CFS
DESIGN FREQUENCY	25 YRS
DESIGN HW ELEVATION	= 18.1 FT
BASE DISCHARGE	= 9300 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 20.8 FT
OVERTOPPING DISCHARGE	= 7800 CFS
OVERTOPPING FREQUENCY	= 50 YRS
OVERTOPPING ELEVATION	= 19.5 FT
EST. NORM. W.S. ELEV.	= 10.5 FT
DATE OF SURVEY	= 02-20-03
W.S. ELEVATION AT DATE OF SURVEY	= 12.6 FT

-L-

BM #1 RR SPIKE SET IN 36" OAK
92' RIGHT OF -L- STA 16+73
ELEV. = 14.87'

BEGIN GRADE -L- STA. 13+00.00 EL. 20.65'

BEGIN BRIDGE -L- STA. 16+24+/-

END BRIDGE -L- STA. 16+44+/-

END GRADE -L- STA. 21+50.00 EL. 19.66'

PI = 16+90.00
EL = 21.22'
VC = 200'
K = 313

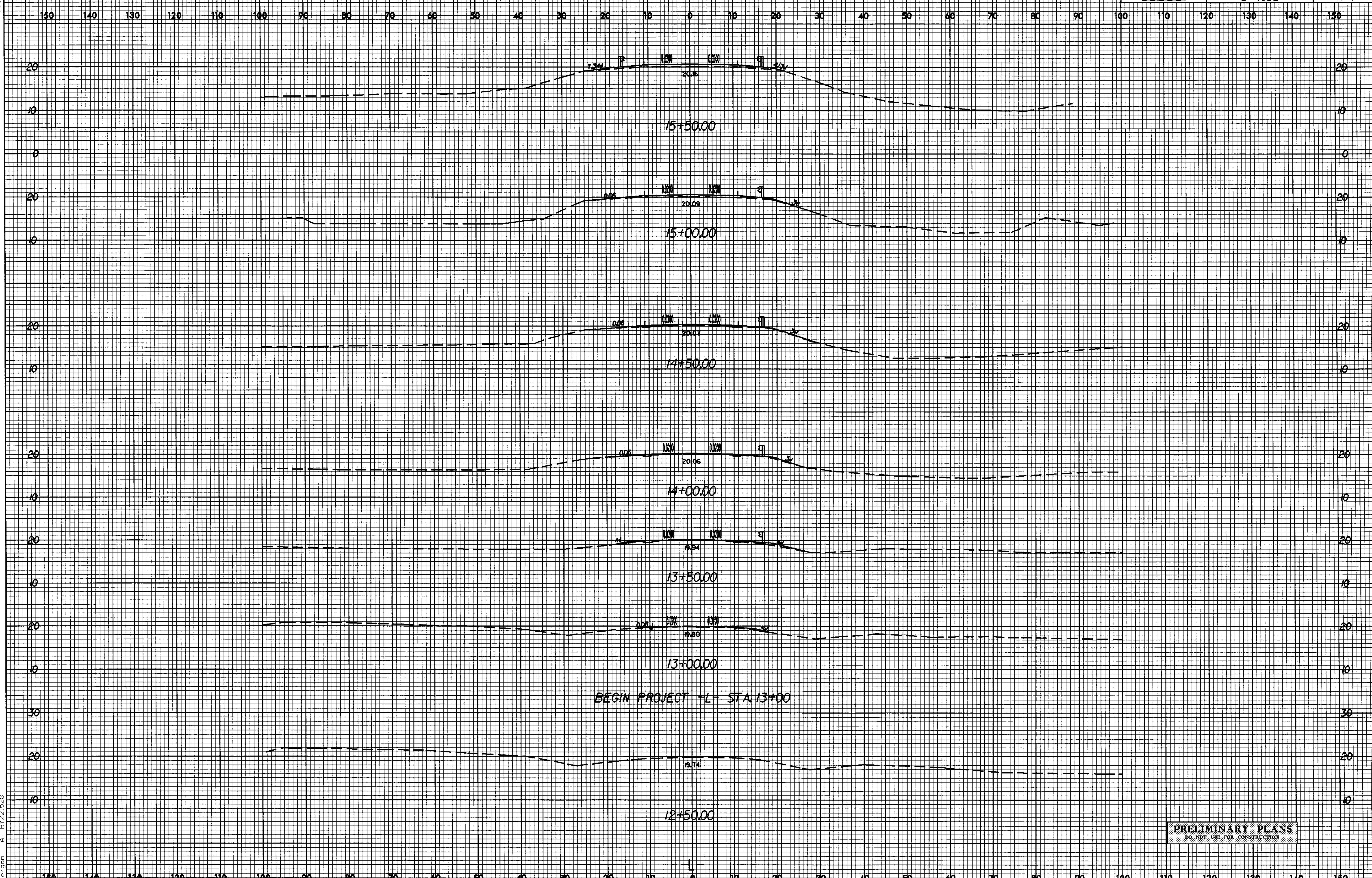
(+)0.3000% (-)0.3391%

30 20 10 0 -10

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

23-SEP-2005 13:05
R:\Roadway\Proj\B-4022_rdy_pfl.dgn
smorgan

PROJ. REFERENCE NO.	SHEET NO.
B-4022	X-1



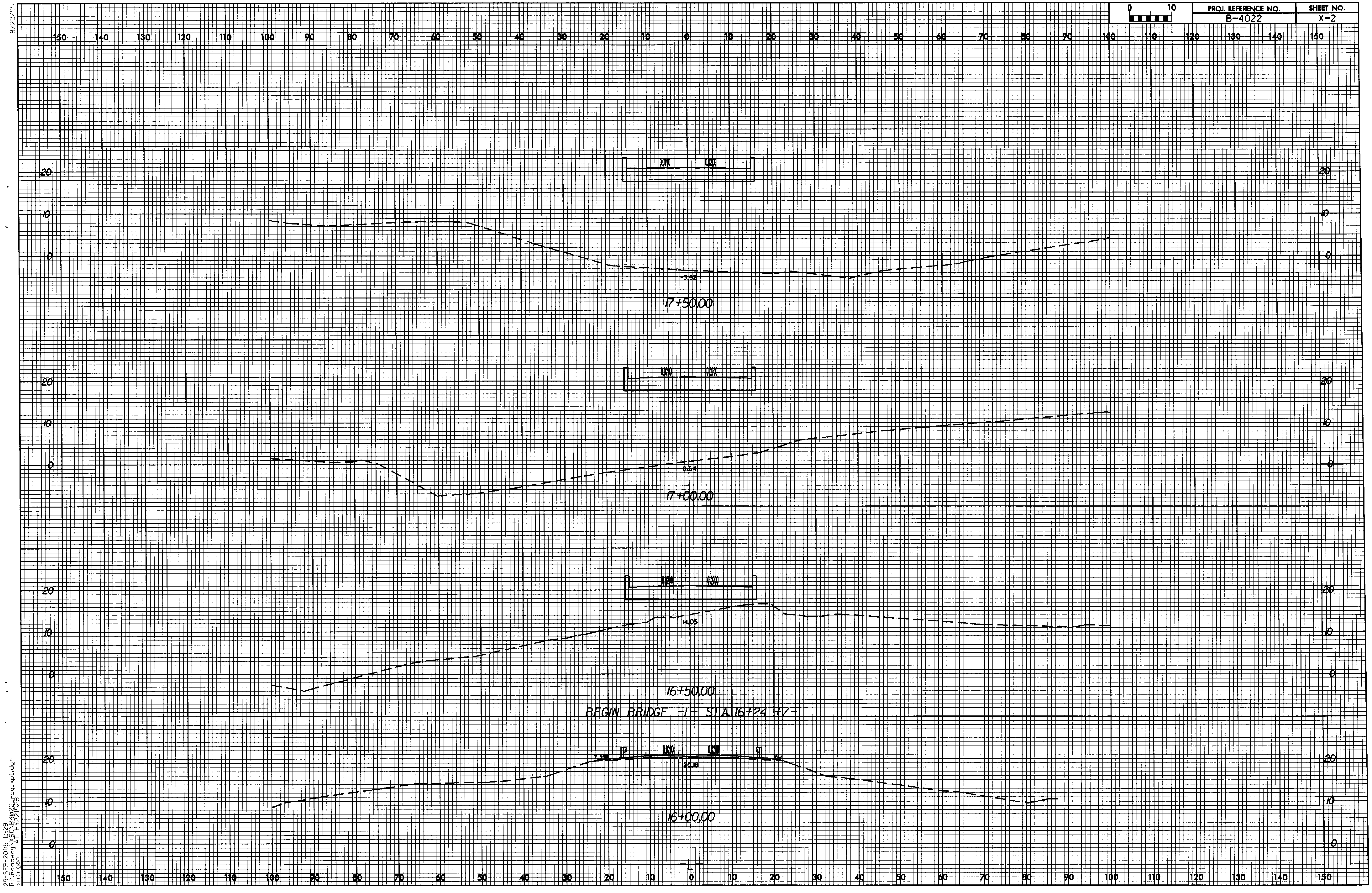
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/23/99

29-SEP-2005 13:29

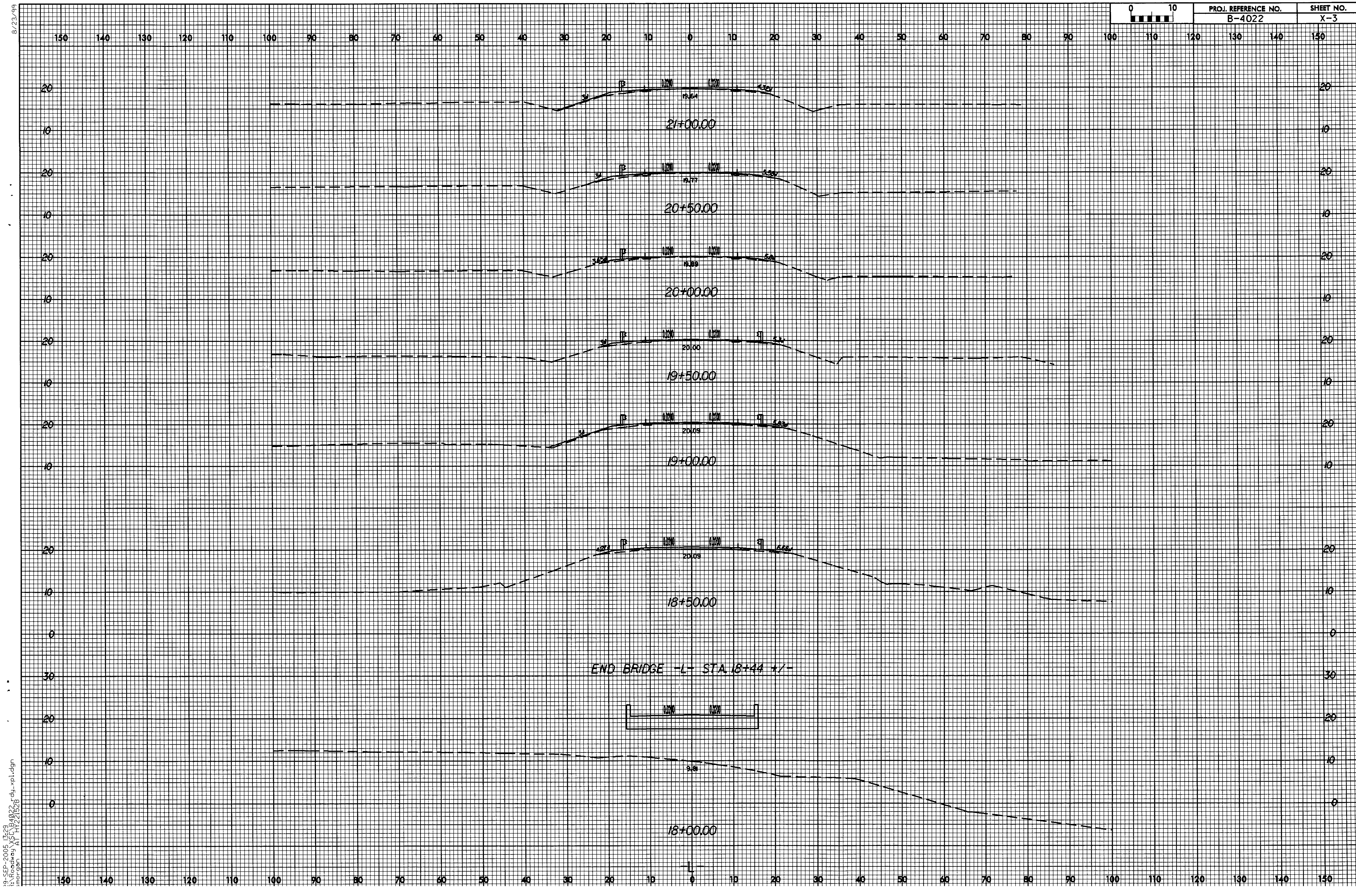
PROJ. REFERENCE NO.	SHEET NO.
B-4022	X-2

8/23/99



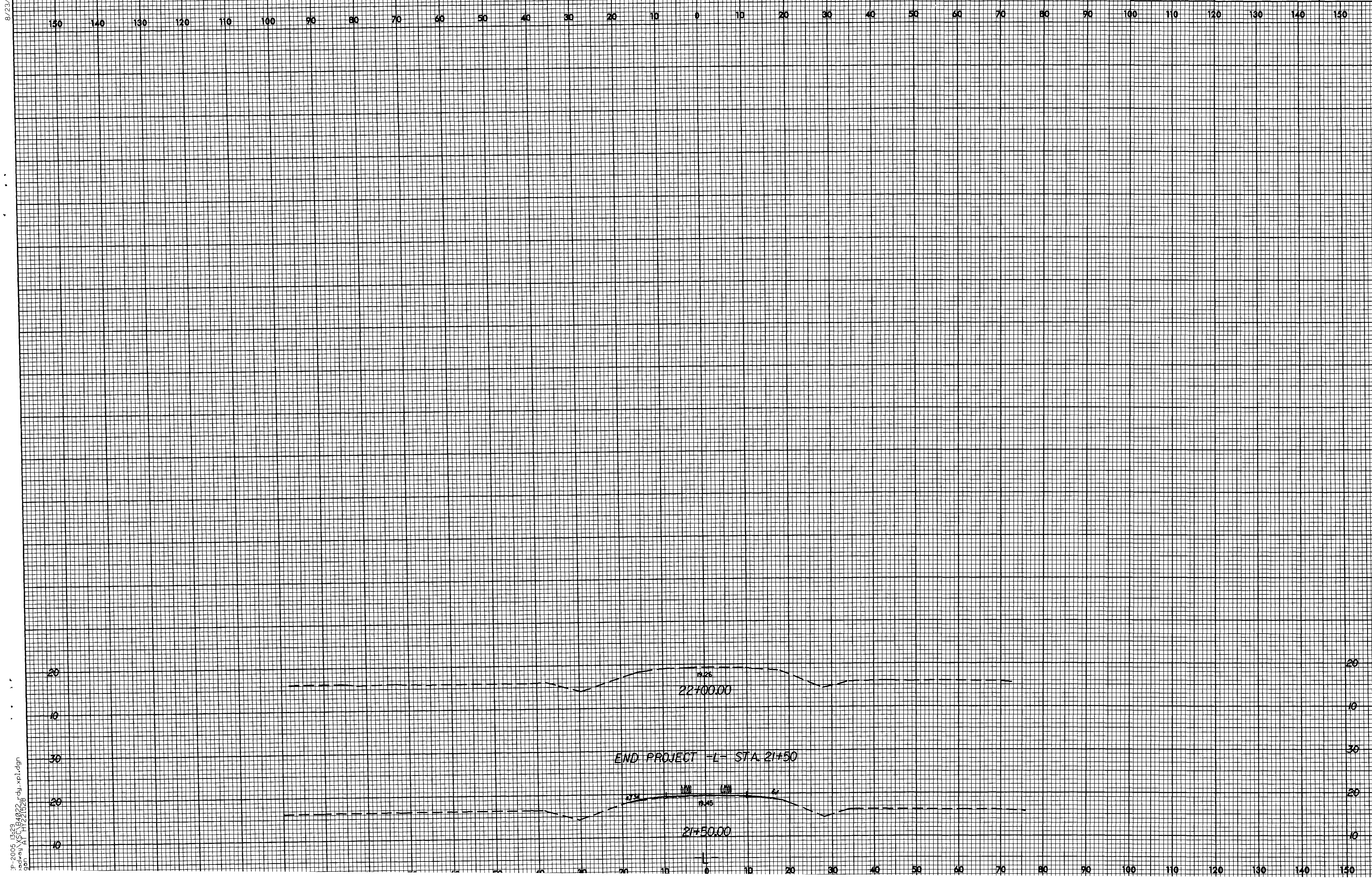
29-SEP-2005 13:29
R:\Roadway\XSC\B4022_rdy_xpl.dgn
smorgan AT HY221528

PROJ. REFERENCE NO.	SHEET NO.
B-4022	X-3



29-SEP-2005 13:29
R:\Roadway\XSC\B4022_rdy_xpl.dgn
smorgan AT HY22I528

PROJ. REFERENCE NO.	SHEET NO.
B-4022	X-4



8/23/99

:P-2005 13:29
oadway\XSC\B4022_rdy_xpl.dgn
gon AT HY221528

CATEGORICAL EXCLUSION ACTION CLASSIFICATION FOR

TIP Project No.	**B-4022**
State Project No.	**8.2151001**
WBS No.	**33389.1.1**
Federal Project No.	**BRZ-1414(2)**

A. Project Description:

The purpose of this project is to replace Beaufort County Bridge No. 90 on SR 1414 over Tranters Creek. The replacement structure will be a bridge 200 feet long and 28 feet wide. The cross section will include two 11-foot lanes and 3-foot offsets. The west approach will be approximately 342 feet long and the east approach will be approximately 406 feet long. The approach cross section will include 11-foot lanes and 6-foot shoulders. Traffic will be detoured offsite during construction (see Figure 1). The roadway will be designed with the criteria for a 60-mile per hour design speed.

B. Purpose and Need:

Federal Highway Administration (FHWA) requires that a bridge have a sufficiency rating of less than 50 paired with being either structurally deficient and/or functionally obsolete in order to qualify for the Federal Highway Bridge Replacement and Rehabilitation Program. Bridge Maintenance Unit records indicate the bridge has a sufficiency rating of 45 out of a possible 100 for a new structure. The bridge is considered structurally deficient with a structure appraisal of 2 out of 9 according to FHWA standards.

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 (merge, 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	$	825,000
Right of Way	$	29,000
Total	$	854,000

Estimated Traffic:

Current	-	400
Year 2025	-	700
TTST	-	1%
Dual	-	2%

Accidents: In a check of a recent three-year period, no accidents were recorded.

Design Speed: 60 miles per hour

Functional Classification: Rural Local Route

School Busses: There are four school bus crossings per day at this location. Re routing will be manageable.

Division Office Comments: The Division concurs with the recommended alternate.

Bridge Demolition: No fill should result from demolition of the bridge.

Offsite Detour: NCDOT Guidelines for Evaluation of Offsite Detours for Bridge Replacement Projects considers multiple project variables beginning with the additional time traveled by the average road user resulting from the offsite detour. The offsite detour would utilize Pitt County SR 1550, SR 1551, and Beaufort County SR 1416, and SR 1001. The duration of the project will be approximately six months. The detour for the average road user would result in 9 minutes additional travel time (8 miles additional travel). According to the Guidelines, these criteria fall within a range where NCDOT will consider an onsite detour. At this location wetland impacts would result from an onsite detour. The School Transportation Director, Emergency Services Director, and Division have all stated that an offsite detour is acceptable. For these reasons NCDOT has chosen to detour traffic offsite.

Design Exception: A design exception is not anticipated for this project.

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 materials 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
(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

Response to Question 2: Habitat is present for the rough leaved loostrife but the species itself is not present. A biological conclusion of May Affect, Not Likely to Adversely Affect has been reached and US Fish & Wildlife Service concurs (see attached letter). An additional survey will be conducted if the project is not let to construction by June 2009.

Response to Question 3: The National Marine Fisheries Service has indicated that Tranters Creek supports spawning and nursery habitat for anadramous fish. They have indicated that impacts to wetlands must be minimized to protect habitat and that a moratorium on in water construction will be required from February 16 to September 30 of any given year (see attached letter). By replacing on the existing location NCDOT has insured the alignment with least impact. Stream Crossing Guidelines for Anadramous Fish Passage will be implemented on this project.

G. CE Approval

TIP Project No.	**B-4022**
State Project No.	**8.2151001**
WBS No.	**33389.1.1**
Federal-Aid Project No.	**BRZ-1414(2)**

Project Description:

The purpose of this project is to replace Beaufort County Bridge No. 90 on SR 1414 over Tranters Creek. The replacement structure will be a bridge 200 feet long and 28 feet wide. The cross section will include two 11-foot lanes and 3-foot offsets. The west approach will be approximately 342 feet long and the east approach will be approximately 406 feet long. The approach cross section will include 11-foot lanes and 6-foot shoulders. Traffic will be detoured offsite during construction (see Figure 1). The roadway will be designed with the criteria for a 60 mile per hour design speed.

Categorical Exclusion Action Classification:

_____ TYPE II(A)
_X_ TYPE II(B)

Approved:

7-26-04 — Date
Assistant Manager
Project Development & Environmental Analysis Branch

7-26-04 — Date
Project Planning Unit Head
Project Development & Environmental Analysis Branch

7-26-04 — Date
Project Development Engineer
Project Development & Environmental Analysis Branch

For Type II(B) projects only:

7/28/04 — Date
~~N/A~~ for Division Administrator
Federal Highway Administration

PROJECT COMMITMENTS:

Beaufort County
Bridge No. 90 on SR 1414
Over Tranters Creek
Federal Aid Project No. BRZ-1414(2)
State Project No. 8.2151001
W.B.S. No. 33389.1.1
T.I.P. No. B-4022

Roadway Design Unit, Construction Unit – Anadramous Fish

A moratorium on "in-water" work will be enforced from February 16 to September 30 of any given year. The Let Schedule of this project should be coordinated with the moratorium.

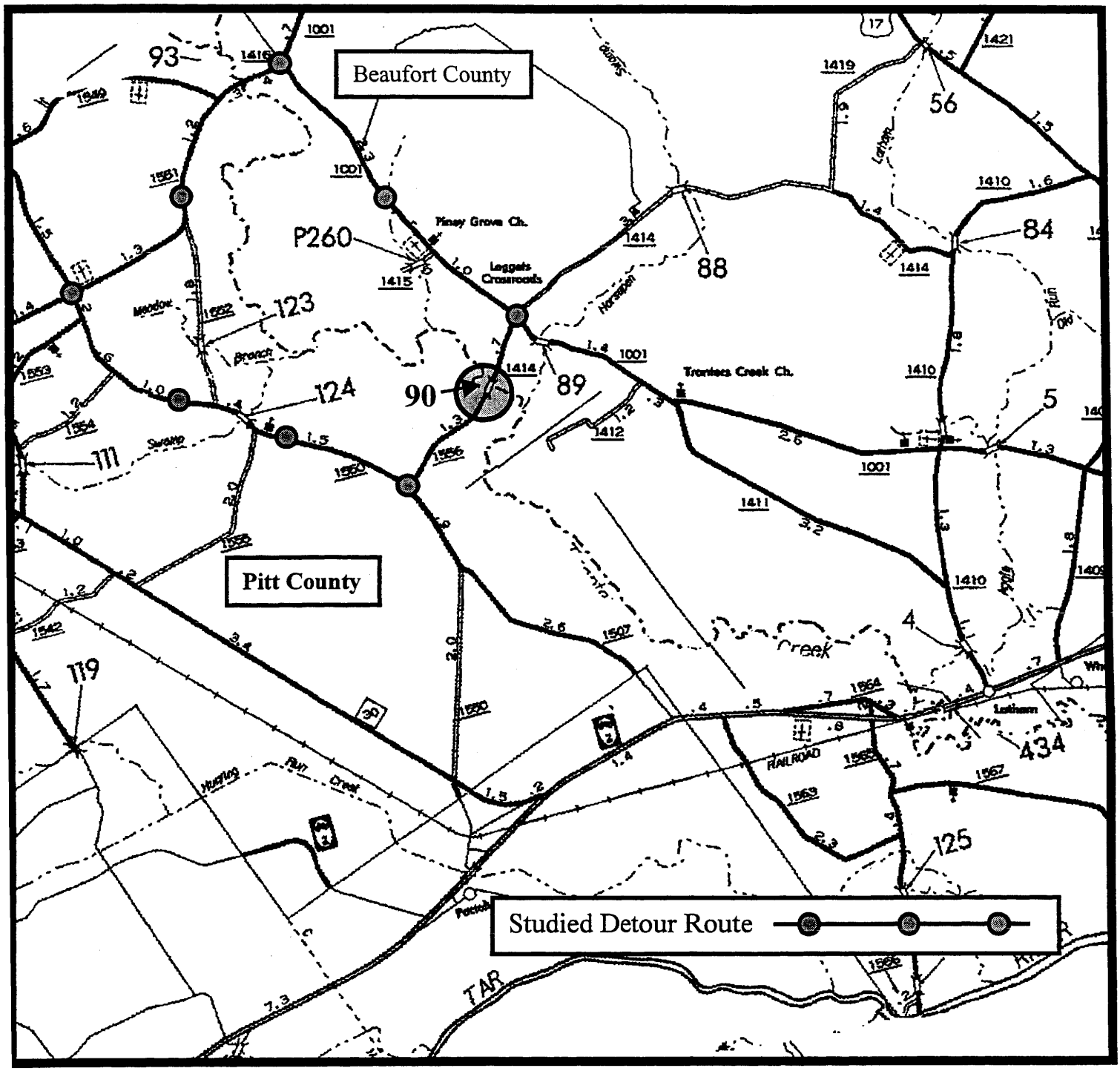
Stream Crossing Guidelines for Anadramous Fish Passage will be implemented in the design and construction of this project.

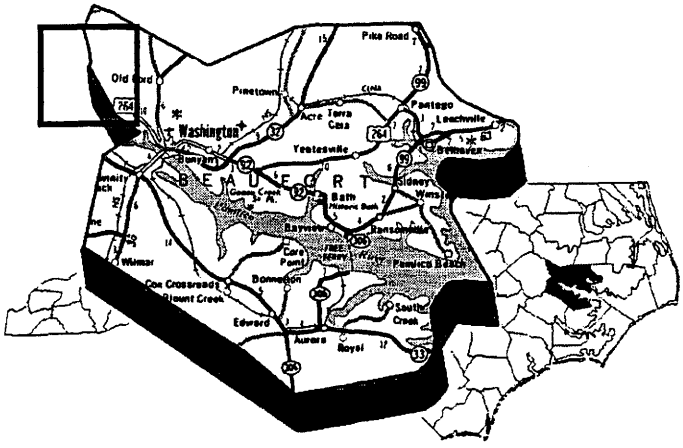
PDEA Office of Natural Environment – Bridge Demolition

There should be no fill resulting from the demolition of Bridge No. 90.

PDEA Office Of Natural Environment – Rough-leaved loostrife

Habitat is present for the Rough-leaved loosstrife. If the project does not let to construction by June 2009 a re-survey will be required.

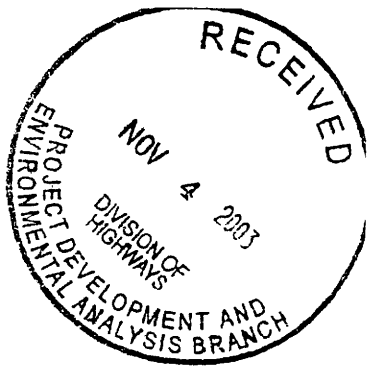




NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS BRANCH

BEAUFORT COUNTY
REPLACE BRIDGE NO. 90 ON SR 1414
OVER TRANTERS CREEK
B-4022

Figure 1



North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary
Office of Archives and History

Division of Historical Resources

October 28, 2003

MEMORANDUM

TO: Greg Thorpe, Ph.D., Director
Project Development and Environmental Analysis Branch
NCDOT Division of Highways

FROM: David Brook DB for David Brook

SUBJECT: Replacement of Bridge No. 90 on SR 1414 over Tranters Creek, B-4022, Beaufort County, ER03-0919

On September 4, 2003, Sarah McBride, our preservation specialist for transportation projects, met with the North Carolina Department of Transportation (NCDOT) staff for a meeting of the minds concerning the above project. We reported on our available information on historic architectural and archaeological surveys and resources along with our recommendations. DOT provided project area photographs and aerial photographs at the meeting.

Based on our review of the photographs and the information discussed at the meeting, we offer our preliminary comments regarding this project.

In terms of historic architectural resources, we are aware of historic structures located within the areas of potential effect. We recommend that no historic architectural survey be conducted for this project.

There are no recorded 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 listing 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.

Having provided this information, we look forward to receipt of either a Categorical Exclusion or Environmental Assessment which indicates how NCDOT addressed our comments.

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. In all future communication concerning this project, please cite the above referenced tracking number.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, Florida 33702

October 8, 2003

Mr. William T. Goodwin, Jr. PE
Unit Head, Bridge Replacement Planning Unit
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1565 Mail Service Center
Raleigh, North Carolina 27699-1565

Dear Mr. Goodwin:

The National Marine Fisheries Service (NOAA Fisheries) has reviewed the Natural Systems Technical Reports (NSTR) for five bridge replacement projects identified in your July 11, 2003, letter. These projects are scheduled for construction in fiscal year 2006. We offer the following project specific comments and recommendations:

B-4311 would replace Bridge No. 63 for the SR 1337 crossing of Headquarters Creek in Warren County. No resources for which NOAA Fisheries is responsible will be impacted by this project.

B-4310 would replace Bridge No. 62 for the SR 1337 crossing of Headquateres Creek in Warren County. No resources for which NOAA Fisheries is responsible will be impacted by this project.

B-4115 would replace Bridge No. 57 for the SR 1419 crossing of Sycamore Creek in Franklin County. No resources for which NOAA Fisheries is responsible will be impacted by this project.

B-4114 would replace Bridge No. 151 for the SR 1146 crossing of Camping Creek in Franklin County. No resources for which NOAA Fisheries is responsible would be impacted by this project.

B-4022 would replace Bridge No. 90 for the SR 1414 crossing of Tranters Creek in Beaufort County. Tranters Creek is a tributary of the Tar and Pamlico Rivers. Because spawning and nursery habitat for estuarine and anadromous fishes may be adversely impacted by replacement of Bridge No. 90, measures to avoid and minimize impacts to waters and wetlands should be included in the project plans. In the absence of adequate fishery resource protection and conservation measures, NOAA Fisheries would recommend against Department of the Army authorization of these projects. Therefore, the following provisions should be incorporated into the project plans:

1. Following impact avoidance and minimization, unavoidable wetland losses shall be offset through implementation of a compensatory mitigation plan that has been approved by the Corps of Engineers and in consultation with NOAA Fisheries.

2. All construction related activities in waters and associated wetlands shall utilize techniques that avoid and minimize adverse impacts to those systems and their associated flora and fauna.

3. In order to protect anadromous and estuarine fishery resources that may utilize the project areas as spawning or nursery habitat, work in the waters of the creek shall be restricted to the period October1 to February 15 of any year unless prior approval is granted by the Corps of Engineers following consultation with the NOAA Fisheries. We recommend contacting the North Carolina Division of Marine Fisheries, Washington Field Office, for site information on other species that may be present and for further refinement of construction periods.

Thank you for the opportunity to provide these comments. Related questions or comments should be directed to the attention of Mr. Ronald S. Sechler at our Beaufort Office, 101 Pivers Island Road, Beaufort, North Carolina, or at (252) 728-5090.

Sincerely,

David H. Rackley

Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

Murphy

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

July 8, 2004

Phil Harris, III
North Carolina Department of Transportation
Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

This letter is in response to your letter of June 28, 2004 which provided the U.S. Fish and Wildlife Service (Service) with the biological determination of the North Carolina Department of Transportation (NCDOT) that the replacement of Bridge No. 91 on SR 1414 over Tranters Creek in Pitt and Beaufort Counties (TIP No. B-4022) may affect, but is not likely to adversely affect the federally protected bald eagle (*Haliaeetus leucocephalus*) and rough-leaved loosestrife (*Lysimachia asperulaefolia*). In addition, NCDOT has determined that the project will have no effect on the federally protected Kemp's ridley sea turtle (*Lepidochelys kempii*), West Indian manatee (*Trichechus manatus*), red-cockaded woodpecker (*Picoides borealis*), sensitive jointvetch (*Aeschynomene virginica*) and Tar spinymussel (*Elliptio steinstansana*). These comments are provided in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

According to the information you submitted, a survey for rough-leaved loosestrife and bald eagles was conducted at the project site on June 3, 2004. The eagle survey extended to a one-half mile radius around the project area. No specimens of rough-leaved loosestrife and no bald eagles or nests were observed. Based on the information provided and other information available, the Service concurs with your determination that the project may affect, but is not likely to adversely affect rough-leaved loosestrife and the bald eagle. Also, due to the lack of habitat, the Service concurs with your determination that the project will have no effect on Kemp's ridley sea turtle, West Indian manatee, red-cockaded woodpecker, sensitive jointvetch and Tar spinymussel. We believe that the requirements of section 7(a)(2) of the ESA have been satisfied. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,

Tom Augspurger
Ecological Services Acting Supervisor

cc: Mike Bell, USACE, Washington, NC
Nicole Thomson, NCDWQ, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC

MEMORANDUM

TO: William T. Goodwin, Jr., PE, Unit Head
Bridge Replacement Planning Unit
Project Development and Environmental Analysis Branch, NCDOT

FROM: Travis Wilson, Highway Project Coordinator
Habitat Conservation Program

DATE: July 30, 2003

SUBJECT: NCDOT Bridge Replacements in Warren, Franklin, Beaufort, and Pitt counties. TIP Nos. B-4310, B-4311, B-4115, B-4114, and B-4022.

Biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the information provided and have the following preliminary comments on the subject project. Our comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

Our standard recommendations for bridge replacement projects of this scope are as follows:

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.

2. Bridge deck drains should not discharge directly into the stream.

3. Live concrete should not be allowed to contact the water in or entering into the stream.

4. If possible, bridge supports (bents) should not be placed in the stream.

5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.

6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the steam underneath the bridge.

7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.

8. In streams that contain threatened or endangered species, NCDOT biologist Mr. Hal Bain should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.

9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.

10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.

11. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.

12. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.

13. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.

14. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.

15. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.

16. During subsurface investigations, equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

If corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used:

1. The culvert must be designed to allow for aquatic life and fish passage. Generally, the culvert or pipe invert should be buried at least 1 foot below the natural streambed (measured from the natural thalweg depth). If multiple barrels are required, barrels other than the base flow barrel(s) should be placed on or near stream bankfull or floodplain bench elevation (similar to Lyonsfield design). These should be reconnected to floodplain benches as appropriate. This may be accomplished by utilizing sills on the upstream and downstream ends to restrict or divert flow to the base flow barrel(s). Silled barrels should be filled with sediment so as not to cause noxious or mosquito breeding conditions. Sufficient water depth should be provided in the base flow barrel(s) during low flows to accommodate fish movement. If culverts are longer than 40-50 linear feet, alternating or notched baffles should be installed in a manner that mimics existing stream pattern. This should enhance aquatic life passage: 1) by depositing sediments in the barrel, 2) by maintaining channel depth and flow regimes, and 3) by providing resting places for fish and other aquatic organisms. In essence, base flow barrel(s) should provide a continuum of water depth and channel width without substantial modifications of velocity.

2. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage.

3. Culverts or pipes should be situated along the existing channel alignment whenever possible to avoid channel realignment. Widening the stream channel must be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

4. Riprap should not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be professionally designed, sized, and installed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. If the area reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be utilized as mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. B-4310, Warren County, Bridge No. 62 over Hubquarter Creek on SR 1337. We recommend replacing this bridge with a bridge. Standard recommendations apply.

2. B-4311, Warren County, Bridge No. 63 over Little Hubquarter Creek on SR 1337. We recommend replacing this bridge with a bridge. Standard recommendations apply.

3. B-4115, Franklin County, Bridge No. 57 over Sycamore Creek on SR 1419. We recommend replacing this bridge with a bridge. Standard recommendations apply.

4. B-4114, Franklin County, Bridge No. 151 over Camping Creek on SR 1146. We recommend replacing this bridge with a bridge. Our records indicate a known population of Dwarf wedge mussel (*Alasmidonta heterodon*) in close proximity to the project located downstream in Cedar Creek. NCDOT should conduct a mussel survey to determine the presence or absence of Dwarf wedge mussel. Standard recommendations apply.

5. B-4022, Beaufort and Pitt Counties, Bridge No. 90 over Tranters Creek on SR 1414. We recommend replacing this bridge with a bridge. Standard recommendations apply.

NCDOT should routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. Restoring previously disturbed floodplain benches should narrow and deepen streams previously widened and shallowed during initial bridge installation. NCDOT should install and maintain sedimentation control measures throughout the life of the project and prevent wet concrete from contacting water in or entering into these streams. Replacement of bridges with spanning structures of some type, as opposed to pipe or box culverts, is recommended in most cases. Spanning structures allow wildlife passage along streambanks and reduce habitat fragmentation.

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (919) 528-9886. Thank you for the opportunity to review and comment on these projects.

Cc: Gary Jordan, U.S. Fish and Wildlife Service, Raleigh

NATURAL RESOURCE TECHNICAL REPORT

REPLACEMENT OF BRIDGE NO. 90 ON SR 1414 OVER TRANTERS CREEK BEAUFORT AND PITT COUNTIES NORTH CAROLINA

T.I.P. No B-4022
State Project No. 8.2151001
Federal Aid Project No. BRZ-1414(2)

NCDOT Consulting Project No. 02-ES-03

Prepared for:

The North Carolina Department of Transportation
Raleigh, North Carolina

May 2003

NATURAL RESOURCE TECHNICAL REPORT

Replacement of Bridge No. 90
on SR 1414 over Tranters Creek
Beaufort/Pitt Counties, North Carolina
(B-4022)
(State Project No. 8.2151001)
[Federal Aid Project No. BRZ-1414(2)]

NCDOT Consulting Project No. 02-ES-03

Prepared for:

The North Carolina Department of Transportation
Raleigh, North Carolina
Prepared by:

ENVIRONMENTAL SERVICES, INC.
524 South New Hope Road
Raleigh, NC 27610
Tel (919) 212-1760 Fax (919) 212-1707

May 2003

TABLE OF CONTENTS

Page

1.0 INTRODUCTION 1
1.1 Project Description 1
1.2 Purpose 1
1.3 Methodology 1
1.4 Qualifications 4
1.5 Definitions 4
2.0 PHYSICAL RESOURCES 4
2.1 Soils 5
2.2 Water Resources 5
3.0 BIOTIC RESOURCES 8
3.1 Terrestrial Communities 8
3.2 Aquatic Communities 11
3.3 Summary of Potential Impacts 13
4.0 JURISDICTIONAL TOPICS 14
4.1 Waters of the United States 14
5.0 Permits and Consultations 18
5.1 Mitigation 20
5.3 Protected Species 22
5.4 State Protected Species 28
6.0 REFERENCES 29

LIST OF TABLES

Table 1. Plant Communities Within the Project Study Area 10
Table 2. Jurisdictional Areas Within the Project Study Area 17
Table 3. Activites That May Be Subject to the Buffer Rules 20
Table 4. Federally Listed Species for Beaufort and Pitt Counties, NC 22
Table 5. Federal Species of Concern (FSC) 28

LIST OF FIGURES

Figure 1. Location Map 2
Figure 2. Wetland and Stream Location Map ..... Appendix A

LIST OF APPENDICES

Appendix A. Wetland and Stream Location Map and Data Forms

Replacement of Bridge No. 90 on SR 1414 over Tranters Creek
Beaufort and Pitt Counties, North Carolina
(B-4022)

1.0 INTRODUCTION

1.1 Project Description

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 90 on SR 1414 over the Tranters Creek in Beaufort and Pitt Counties, North Carolina (Figure 1). Environmental Services, Inc., (ESI) was provided with a project study area depicted on an aerial photograph and was asked to complete a Natural Resource Technical Report in order to assess the existing environmental conditions of the identified project study area. B-4022 is located approximately 0.7 mile [1.1 kilometers (km)] west of Leggetts Crossroads, Beaufort County, NC. The project study area for B-4022 is approximately 25.6 acres [10.4 hectares (ha)] in aerial extent based on the map provided by the NCDOT.

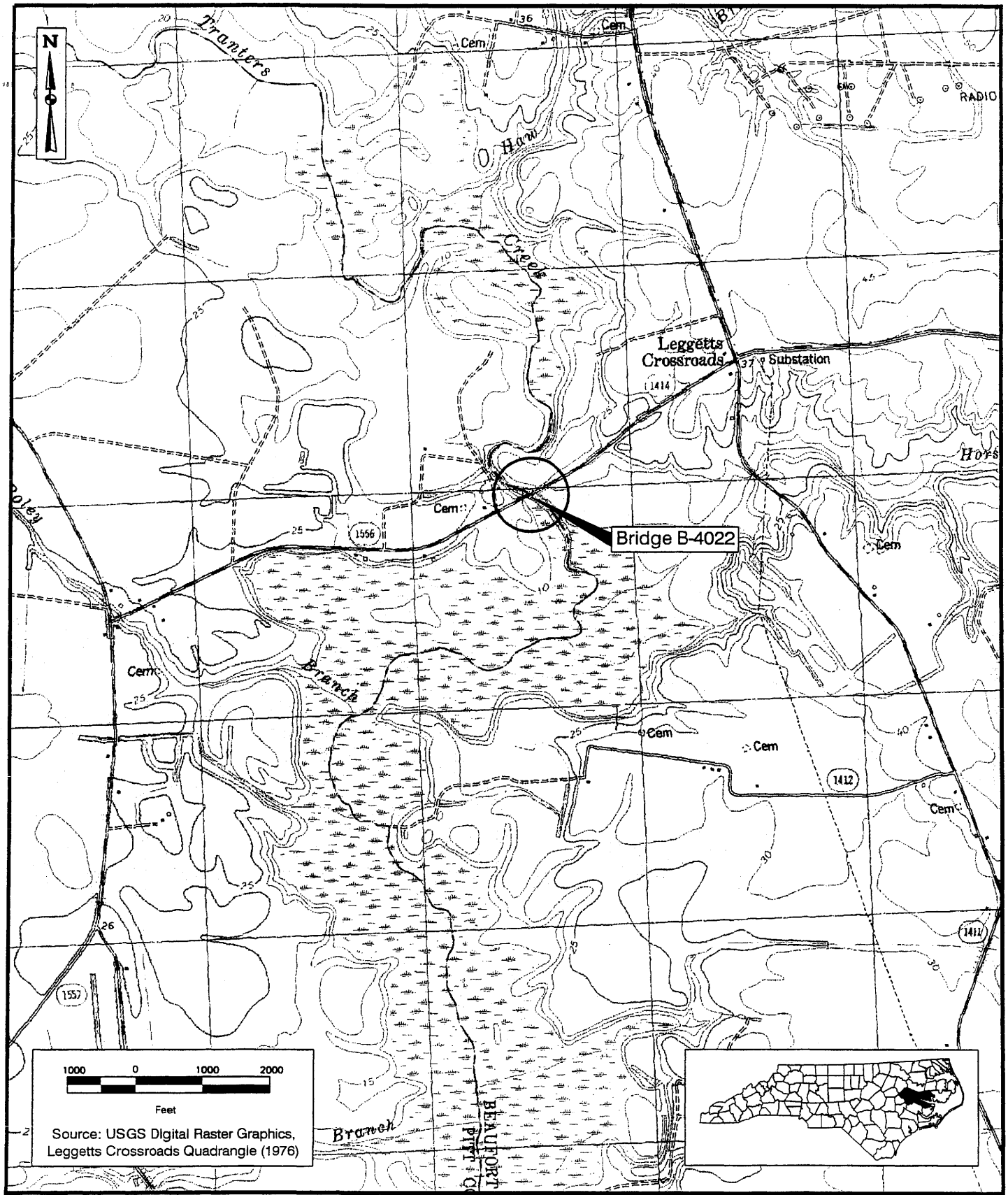
1.2 Purpose

The purpose of this study is to provide an evaluation of existing natural resources in the project study area. Specifically, the tasks performed for this study include: 1) an assessment of natural resource features within the project study area including descriptions of vegetation, wildlife, protected species, streams, wetlands, and water quality; 2) an evaluation of potential environmental impacts resulting from construction; 3) a preliminary determination of permit needs. The environmental impact analysis is based on the mapped project study area and does not take into account final design or construction limits.

1.3 Methodology

Materials and research data in support of this investigation have been derived from a number of sources. U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps were consulted to determine physiographic relief and to assess landscape characteristics. These USGS quadrangles include Leggetts Crossroads (USGS 1979). The National Wetland Inventory (NWI) map of the same quadrangle was reviewed prior to the initiation of field studies. Additional information on soils, topography, and physiography was obtained from the *Soil Survey of Beaufort County, North Carolina* (USDA 1995) and *Soil Survey of Pitt County, North Carolina* (USDA 1974). Recent aerial photography

ER02026.03/location.dwg



Environmental Services, Inc.

Location Map
Bridge No. 90 Over Tranters Creek
Beaufort and Pitt Counties, North Carolina
(TIP B-4022)

Figure: 1

Project: ER02026.03

Date: May 2003

(1:2400) furnished by the NCDOT was also used in the evaluation of the project study area.

The aerial photograph served as the basis for mapping plant communities and wetlands. Plant community patterns were identified from available mapping sources and then field verified.

Plant community descriptions are based on a classification system utilized by the North Carolina Natural Heritage Program (NHP) (Schafale and Weakley 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names follow nomenclature found in Radford *et al.* (1968).

Surface waters crossed by the project study area were visited and evaluated to ascertain physical characteristics. All stream channel segments within the project study area were classified using the Natural Stream Channel Classification System (Rosgen 1996) and classification scheme established by Cowardin *et al.* 1979. Water quality information for Tranters Creek within the project study area were derived from available sources provided through the N.C. Department of Environment and Natural Resources (DENR), formerly the N.C. Department of Environment, Health, and Natural Resources (DEHNR) [DENR 1999, DWQ 2003a, DWQ 2003b]. Quantitative sampling was not undertaken to evaluate the DENR data.

Jurisdictional areas were identified using the three parameter approach (hydrophytic vegetation, hydric soils, wetland hydrology) following U.S. Army Corps of Engineers (USACE) delineation guidelines (DOA 1987). Jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979). Jurisdictional wetlands and surface waters within the project study area were field-delineated and GPS mapped (Figure 2 in Appendix A). The USACE and DWQ field review was held for 1 May 2003.

The most current U.S. Fish and Wildlife Service (USFWS) list (29 January 2003) of federal protected species with ranges extending into Beaufort and Pitt Counties was reviewed prior to initiation of the field investigation. In addition, NHP records documenting occurrences of federal or state-listed species were consulted prior to commencing the field investigation. Direct observations of terrestrial and aquatic wildlife were documented, and expected population distributions were determined through observations of available habitat and review of supportive documentation found in Martof *et al.* (1980), Webster *et al.* (1985), Menhinick (1991), Hamel (1992), Palmer and Braswell (1995), and National Geographic (1999).

1.4 Qualifications

The field investigation for B-4022 was conducted on 24 March 2003 by ESI biologists Gail Tyner, Lauren Cobb, and Steve Kichefski. Ms. Tyner has a B.S. in Wildlife and Fisheries Science and more than five years of professional experience and has been certified by the Division of Water Quality (DWQ) in Aquatic Insect Collection Protocols. Ms. Cobb has a B.S. in Natural Resources and more than three years of professional experience and has been certified by the DWQ in Aquatic Insect Collection Protocols. Mr. Kichefski has a B.S. in Environmental Science and one year of professional experience.

1.5 Definitions

The project study area is located 0.7 mile (1.1 km) west of the intersection of SR 1414 and SR 1411, near the Leggetts Crossroads community in Beaufort County, North Carolina. The project study area is approximately 2,800 feet (853 m) in length and approximately 400 feet (122 m) in width (Figure 2 in Appendix A).

The project vicinity describes an area extending 0.5 mile (0.8 km) on all sides of the project study area.

2.0 PHYSICAL RESOURCES

The project study area is located in the outer Coastal Plain physiographic province of North Carolina and is part of the Yorktown and Duplin Formation, undivided (NCGS 1985). The Yorktown Formation is characterized by an underlying layer of fossiliferous clay with varying amounts of fine-grained sand and shell material commonly concentrated in lenses. The Duplin Formation is characterized as shelly, medium to course grained sand, sandy marl, and limestone. The project study area is more characteristic of the Yorktown Formation; the Duplin Formation is more prominent south of the project study area.

Topography in the project study area is characterized as flat, but with low, gently sloping areas along drainageways. Somewhat steeper slopes are found along the edges of stream and river floodplains. Elevations within the project study area range from 25 feet (8 m) above mean sea level (MSL) to 10 feet (3 m) above MSL along Tranters Creek (USGS 1979). Topographic mapping for the project study area can be found in Figure 1.

The project vicinity and the project study area are rural in nature and dominated by anthropogenic activities including residential and agricultural land uses.

2.1 Soils

Soil development is dependent upon biotic and abiotic factors that include past geologic activities, nature of parent material, environmental and human influences, plant and animal activity, age of sediments, climate, and topographic position. General soil associations incorporate areas with distinctive patterns of soils, relief, and drainage (USDA 1995). Two types of general landscape positions can be identified across the project study area: floodplains and uplands.

The project study area is located within the Leaf–Lenior–Craven association in Beaufort County and in the Bibb–Portsmout h association in Pitt County (USDA 1974, USDA 1995). Each general soil association contains one or more mapping units occupying a unique natural landscape position. Mapping units are named for the major soil or soils within the unit, but may contain minor inclusions of other soils. There are six soil mapping units located within the project study area.

Hydric soil mapping units within the project study area include Leaf silt loam (*Typic Albaquults*), Muckalee soils (*Typic Fluvaquents*), Portsmouth loam (*Typic Umbraquults*), and the Swamp mapping unit which indicates soils that are under water for most of the year (USDA 1974, USDA 1991, USDA 1995). Non-hydric soil mapping units include Craven (0 to 1 percent slopes) (*Aquic Hapludults*) and Lakeland sand (0 to 6 percent slopes) (*Typic Quartzipsamments*) (USDA 1974, USDA 1995).

2.2 Water Resources

Water Quality Classification

The project study area is located within sub-basin 030306 of the Tar-Pamilco River Basin (DENR 1999) and is part of USGS hydrologic unit 03020103 (USGS 1974). Best usage classifications and stream index numbers (SIN) follow *Classifications and Water Quality Standards* published for the Tar-Pamilco River Basin (DEM 1993, DWQ 2003a).

One stream is located within the project study area, Tranters Creek (SIN 28-103). Physical characteristics of this stream are provided in Section 4.1. Tranters Creek carries a best use classification of **C Sw NSW** from its source to the Tar River (DWQ 2003a). Class **C** waters are freshwaters protected for secondary recreation, fishing, aquatic life (including propagation and survival), and wildlife. Secondary recreation is any activity involving human body contact with water on an infrequent or incidental basis. Class **Sw** swamp waters are waters with low velocities, low pH, low dissolved oxygen, and high organic content. Class **NSW** waters are waters that are nutrient sensitive and require limitations on nutrient inputs.

Tranters Creek is not registered as a National Wild and Scenic River nor a N.C. State Natural and Scenic River. There are no Outstanding Resource Waters (**ORW**) or High Quality Waters (**HQW**) within the 030306 sub-basin (DWQ 2003a). There are no **WS I** or **WS II** waters within the project study area or 3.0 miles (4.8 km) upstream or downstream (DWQ 2003a).

There are no surface waters within the 30306 sub-basin listed as impaired on the N.C. 303 (d) List of Impaired Waters. Tranters Creek was listed as an impaired waterbody in the 1994 basin plan (DENR 1999). Tranters Creek was resampled in 1997 and received a Good-Fair biological rating and is no longer considered impaired (DENR 1999, DWQ 2000).

Water Quality Information

One method used by DWQ to monitor water quality is through long-term monitoring of macroinvertebrates (DEM 1989). The nearest benthic macroinvertebrate monitoring station for Tranters Creek is located more than 10.0 miles (16.1 km) downstream of the project study area at SR 1403. This monitoring site (B-1) was sampled four times between 1983 and 1997 (DENR 1999). In 1983 and 1986 monitoring site B-1 received a Fair bioclassification rating. In 1989 and 1997 the same monitoring site received a Good-Fair bioclassification rating.

Another measure of water quality used by the DWQ is the North Carolina Index of Biotic Integrity (NCIBI), which assesses biological integrity using the structure and health of the fish communities. No NCIBI fish community sampling has occurred on Tranters Creek (DENR 1999).

Tar-Pamlico Riparian Buffers

Since the project study area is within the Tar-Pamlico River Drainage Basin, jurisdictional surface waters are subject to the Tar-Pamlico River Riparian Buffer Rules. The Buffer Rules apply to a 50-feet (15 m) wide riparian buffer directly adjacent to surface waters in the Tar-Pamlico River Drainage Basin. This includes intermittent streams, perennial streams, lakes, ponds, and estuaries that are depicted on either USGS topographic maps or county soil survey maps, but does not include jurisdictional wetlands (non-surface waters) regulated under Section 404 of the Clean Water Act. Tranters Creek is mapped on the USGS and soils mapping, therefore is subject to the Buffer Rules. The Buffer Rules are discussed in Section 5.0.

Essential Fish Habitat Assessment

Essential Fish Habitat (EFH) is defined by the National Marine Fisheries Service (NMFS) as "those waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity" (NMFS 1999). An EFH Assessment is an analysis of the effects of a proposed action on EFH. Pursuant to 50 CFR 600.920 (g) mandatory contents include: a description

of the proposed action, an analysis of the effects of that action on EFH, the Federal action agency's views on those effects; and proposed mitigation, if applicable. An adverse effect includes any impact that reduces the quality and/or quantity of EFH. Pursuant to 50 CFR 600.810 adverse effects may include direct (*e.g.,* contamination or physical disruption), indirect (*e.g.,* loss of prey, or reduction in a species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

During the agency review period for the proposed project, the USACE makes the determination of whether or not a proposed project "may adversely affect" EFH. This determination by the USACE is submitted to the NMFS for their review and comment. NMFS will then determine if additional consultation is necessary regarding the proposed project or if they concur with the USACE's decision. EFH designations to date have been limited to marine and estuarine species and as such, EFH is not expected to occur within the project study area.

Permitted Dischargers

Discharges that enter surface waters through a pipe, ditch or other well-defined point of discharge are broadly referred to as "point sources." Wastewater point source discharges include municipal (city and county) Waste Water Treatment Plants (WWTP), industrial WWTP, small domestic wastewater treatment systems serving schools, commercial offices, residential subdivisions, and individual homes (DWQ 2003b). Stormwater point source discharges include stormwater collection systems for municipalities and stormwater discharges associated with certain industrial activities. Point source dischargers in North Carolina must apply for and obtain a National Pollutant Discharge Elimination System (NPDES) permit. Discharge permits are issued under the NPDES program, delegated to DWQ by the Environmental Protection Agency (EPA).

There are no permitted dischargers within 5.0 miles (8.0 km) of the project study area (DWQ 2003b).

Evidence of non-point source discharges observed within the project study area includes stormwater runoff from roads, residential areas and agricultural practices.

Potential Impacts to Water Resources

Section 402-2 of NCDOT's *Standard Specifications for Roads and Structures* is labeled **Removal of Existing Structure.** This section outlines restrictions and Best Management Practices for Bridge Demolition and Removal (BMP-BDRs), as well as guidelines for calculating maximum potential fill in the stream resulting from demolition. The superstructure of Bridge No. 90 consists of a steel plank floor on I-beams. The substructure is composed of bents and end bents with timber caps on timber piles at varying centers. No fill expected from the demolition of Bridge No. 90.

This project will most likely be classified as a Case 3 by the BMP's for Bridge Demolition and Removal (NCDOT 1999). In which there are no special restrictions beyond those outlined by BMPs for Protection of Surface Waters. However, all work potentially affecting the resource will be carefully coordinated with the agency having jurisdiction. Tranters Creek within the project study area is not designated as an Anadromous Fish Spawning Area (NCGIA 2001).

Short-term impacts to water quality, such as sedimentation and turbidity, may result from construction-related activities. Best Management Practices (BMPs) can minimize impacts during construction, including implementation of stringent erosion and sedimentation control measures, and avoidance of using wetlands as staging areas.

Other impacts to water quality such as changes in water temperature as a result of increased exposure to sunlight due to the removal of stream-side vegetation or increased shade due to the construction of the bridge, and changes in stormwater flows due to changes in the amount of impervious surface adjacent to the stream channels, should be minimal. Due to the limited amount of overall change anticipated in the surrounding areas, water quality impacts are expected to be temporary in nature.

In-stream construction activities will be scheduled to avoid and minimize impacts to aquatic resources/organisms.

3.0 BIOTIC RESOURCES

3.1 Terrestrial Communities

Existing Vegetation Patterns

Distribution and composition of plant communities throughout the project study area reflect landscape-level variations in topography, soils, hydrology, and past and present land use practices. Logging, farming, selective cutting, and natural succession after fires, farming, hurricanes, and other disturbances have resulted in the present vegetative patterns. When appropriate, the plant community names have been adopted and modified from Schafale and Weakley (1990) and the descriptions written to reflect local variations within the project study area. Four natural communities (small stream swamp, bottomland hardwoods, mixed pine/hardwoods, and pine woodlands) occur within the project study area and two additional communities (maintained/disturbed and agricultural) are the result of human activities.

Small Stream Swamp – The small stream swamp designation corresponds to the Coastal Plain Small Stream Swamp (Blackwater Subtype) natural community of Schafale and Weakley (1990). Small stream swamp is found on the floodplain of Tranters Creek within the project study area. The canopy contains bald cypress (*Taxodium distichum*) and a mix of broad-leaved deciduous species including swamp tupelo (*Nyssa biflora*), red maple (*Acer rubrum*), water oak (*Quercus nigra*), green ash (*Fraxinus pennsylvanica*), and sweetgum (*Liquidambar styraciflua*). Understory species include ironwood (*Carpinus caroliniana*), Amercian holly (*Ilex opaca*), sweet bay (*Magnolia virginiana*), red bay (*Persea palustris*), and red maple. Shrubs are variable and include Chinese privet (*Ligustrum sinense*) and titi (*Cyrilla racemiflora*). Vines such as greenbrier (*Smilax* spp.) are common, but herbs are typically sparse and may include giant cane (*Arundinaria gigantea*).

Bottomland Hardwood – The bottomland hardwood community type is found within two depressional features located in the southwest quadrant of the project study area. The canopy consists of sweetgum, red maple, swamp tupelo, tulip popular (*Liriodendron tulipifera*), swamp chestnut oak (*Quercus michauxii*), and river birch (*Betula nigra*). Understory species consists of ironwood and saplings of canopy species. Vines such as greenbrier are common and the herbaceous layer is dominated by giant cane.

Mixed Pine/Hardwood – The mixed pine/hardwood community type is found in the northeast quadrant of the project study area. The canopy consists of water oak, loblolly pine (*Pinus taeda*), and southern red oak (*Quercus falcata*). The understory species consist of American holly, American beech (*Fagus grandifolia*), and horse sugar (*Symplocos tinctoria*). The shrub layer consists of highbush blueberry (*Vaccinium corymbosum*) and bitter gallberry (*Ilex glabra*). The herbaceous layer is sparse and contains partridge berry (*Mitchella repens*) and in lower areas wool-grass (*Scirpus cyperinus*) and soft rush (*Juncus effusus*) are common.

Pine Woodland – The pine woodland community type occurs in the southeast quadrant of the project study area. This community type is a pine plantation that has moderate hardwood encroachment. The canopy consists of loblolly pine. The understory layer consists of sweetgum, red maple, and tulip poplar. Shrub layers consist of water oak, musclewood (*Carpinus caroliniana*), highbush blueberry, American holly, wax myrtle (*Myrica cerifera*) and scattered American beech. Vines consists of greenbrier and wild grape (*Vitis rotundifolia*). The herbaceous layer is sparse and contains partridge berry and ebony spleenwort (*Asplenium platyneuron*).

Agricultural Land – Agricultural land is used for the cultivation of row crops such as peanuts (*Arachis* sp.). Agricultural land covers a small portion of the land within the project study area and occupies small areas located near the eastern and western ends of the project study area.

Maintained/Disturbed Land - Maintained/disturbed land includes areas with disturbed vegetation and/or soils with man-made structures including buildings, roadways, powerlines, maintained yards, and areas where other human activities dominate. Ornamental trees, shrubs, and grasses intermix with native hardwoods and invasive species in an anthropogenic landscape setting. Species found in the residential areas include black willow (*Salix nigra*) and Bradford pear (*Pyrus calleryana*). Species found along the roadsides include Japanese honeysuckle (*Lonicera japonica*), Carolina geranium (*Geranium carolinianum*), dandelion (*Taraxacum officinale*), white clover (*Trifolium repens*), Indian strawberry (*Duchesnea indica*), fescue (*Festuca* sp.), mouse ear chickweed (*Stellaria media*), and common blue violet (*Viola papilioacea*). Species found in the powerline right-of-way include broomsedge (*Andropogon virginicus*), dog fennel (*Eupatorium capillifolium*), witch hazel (*Hamamelis virginiana*), water oak, wax myrtle, honeysuckle, American holly and bitter gallberry.

Potential Plant Community Impacts

The plant communities within the project study area were mapped on the aerial photograph base and field verified. A summary of the coverage of each community within the project study area is presented in Table 1. The open water area attributed to the Tranters Creek channel [1.32 acres (0.53 ha)] and impervious road surface [0.06 acres (0.02 ha)] are not included in this plant community assessment.

Table 1. Plant Communities Within the Project Study Area.

Plant Community	Area Acres (hectares)	% of Project Study Area[a]
Small Stream Swamp	2.50 (1.01)	9.8
Bottomland Harwood	3.91 (1.58)	15.3
Mixed Pine/Hardwood	4.04 (1.64)	15.8
Pine Woodland	5.00 (2.03)	19.5
Agricultural Land	3.18 (1.29)	12.4
Maintained/Disturbed Land	5.62 (2.28)	21.9
Totals[a]:	24.25 (9.82)	94.7

[a] Project Study Area includes open water area attributed to the Tranters Creek channel [1.32 acres (0.54 ha)] (5.2 percent) and impervious road surface [0.06 acre (0.02 ha)] (0.2 percent) not included in this plant community assessment.

The four natural plant communities account for 60.4 percent [15.45 acres (6.26 ha)] of the project study area. The majority of the forested plant communities occur in the northeast and southeast quadrants. In order to avoid/minimize impacts to forest communities construction activities should be limited to maintained/disturbed and agricultural land to the greatest extent possible.

Terrestrial Wildlife

The project study area was visually surveyed for signs of terrestrial wildlife. Most of the terrestrial wildlife species occurring in the project study area are typically adapted to life in fragmented landscapes, and overall impacts should be minor. The natural community coverage within the project study area provides some cover and food and allows animals to travel between different habitats.

The only mammal evidence directly observed within the project study area was for white-tailed deer (*Odocoileus virginianus*). Other mammals expected to occur within the project study area include Virginia opossum (*Didelphis virginiana*), gray squirrel (*Sciurus carolinensis*), muskrat (*Ondatra zibethicus*), gray fox (*Urocyon cinereoargenteus*), raccoon (*Procyon lotor*), and beaver (*Castor canadensis*).

The only terrestrial reptile observed within the project study area was a skink (*Eumeces* sp.). Other terrestrial amphibians and reptiles expected to occur within the project study area include Fowler's toad (*Bufo woodhousei*), southern cricketfrog (*Acris gryllus*), green treefrog (*Hyla cinerea*), eastern box turtle (*Terrapene carolina*), and black racer (*Coluber constrictor*).

Terrestrial bird species observed within the project study area include pileated woodpecker (*Dryocopus pileatus*), American crow (*Corvus brachyrhynchos*), Carolina chickadee (*Poecile carolinensis*), Carolina wren (*Thryothorus ludovicianus*), mourning dove (*Zenaida macroura*), and northern cardinal (*Cardinalis cardinalis*). Other species expected to occur within the project study area include downy woodpecker (*Picoides pubescens*), chimney swift (*Chaetura pelagica*), eastern phoebe (*Sayornis phoebe*), blue jay (*Cyanocitta cristata)*, American robin (*Turdus migratorius*), prothonotary warbler (*Protonotaria citrea*), and northern parula (*Parula americana*).

No wading birds were observed within the project study area. Wading birds that may be expected within the project study area include green heron (*Butorides virescens*) and great blue heron (*Ardea herodias*).

No waterfowl were observed within the project study area. Waterfowl species that are expected to occur within the project study area include wooduck (*Aix sponsa*).

3.2 Aquatic Communities

The aquatic habitats located within the project study area are limited to Tranters Creek and portions of the adjacent small stream swamp where intermittent flooding is evident. No distinct areas containing significant amounts of aquatic vegetation were observed in the channel during the field investigation.

Visual observation and limited sampling of stream banks and channel within the project study area were conducted along Tranters Creek to document the aquatic community.

Aquatic Wildlife

Due to the depth of Tranters Creek, no fish sampling was conducted. Fish species that are expected to found in Tranters Creek are those that prefer slow moving streams and swamps and a bottom dominated by mud and sand. These species include American eel (*Anguilla rostrata*), eastern mud minnow (*Umbra pygmaea*), golden shiner (*Notemigonus crysoleucas*), channel catfish (*Ictalurus punctatus*), yellow bullhead (*I. natalis*), pirate perch (*Aphredoderus sayanus*), eastern mosquitofish (*Gambusia holbrooki*), flier (*Centrarchus macropterus*), bluespotted sunfish (*Enneacanthus gloriosus*), bluegill (*Lepomis macrochirus*), and swamp darter (*Etheostoma fusiforme*). Game fish typically found in habitats present in the project study area include such species as chain pickerel (*Esox niger*), redfin pickerel (*E. americanus*), warmouth (*Lepomis gulosus*), largemouth bass (*Micropterus salmoides*), and black crappie (*Pomoxis nigromaculatus*).

Due to the depth of Tranters Creek, limited benthic macroinvertebrate sampling was conducted. These surveys included log washes, limited bottom sampling, and walking all streambanks in the project study area to locate freshwater mussel middens. No mussel middens were observed on the banks of Tranters Creek within the project study area. Freshwater mussels documented within the project study area included the paper pondshell (*Utterbackia imbecillis*). Log washes and limited bottom sampling conducted within the channel of the Tranters Creek produced various aquatic macroinvertebrates. Taxa collected were identified to order or family using McCafferty (1998). Several species of conspicuous aquatic macroinvertebrate species were observed during stream surveys or other field work. Mollusks documented from project study area include pointed campeloma (*Campeloma decisum*), a freshwater snail (Gastropoda: Physidae), and fingernail clams (Bivalvia: Sphaeriidae). Crustaceans observed in the project study area include sow bugs (Isopoda), scuds (Amphipoda), and grass shrimp (Decopoda). Other macroinvertebrates documented within the project study area include segmented worms (Oligochaeta) and leaches (Hirudinea), as well as aquatic insects or larvae including skimmer larvae (Odonata: Macromiidae), water boatmen (Hemiptera: Corixidae), predaceous diving beetles (Coleoptera: Dytiscidae), perlodid stoneflies (Plecoptera: Perlodidae), shore bugs (Plecoptera: Saldidae), and noctuid moth larvae (Lepidoptera: Noctuidae).

Streams within the project study area provide riparian and benthic habitat for a variety of amphibians and aquatic reptiles. Swamps within the project study area provide additional aquatic habitat, especially for breeding amphibians. No aquatic amphibians were observed within the project study area. Aquatic amphibians and reptiles expected within the project study area include bullfrog (*Rana catesbeiana*), green frog (*Rana clamitans*), southern leopard frog (*Rana sphenocephala*), snapping turtle (*Chelydra serpentina*), eastern mud

turtle (*Kinosternon subrubrum*), Florida cooter (*Pseudemys floridana*), spotted turtle (*Clemmys guttata*), redbelly water snake (*Nerodia erythrogaster*), and cottonmouth (*Agkistrodon piscivorus*).

3.3 Summary of Potential Impacts

Terrestrial Communities

The replacement of Bridge No. 90 is expected to involve minor impacts to the terrestrial communities located within the project study area. Alternatives for the replacement of Bridge No. 90 have not been developed at the time of this report. The replacement of the existing structure in place will reduce permanent impacts to plant communities and limit community fragmentation. Impacts resulting from bridge replacement are generally limited to narrow strips adjacent to the existing bridge structure and roadway approach segments. Due to the anticipated lack of, or limited, infringement on natural communities, the proposed bridge replacement should not result in significant loss or displacement of known terrestrial animal populations. Wildlife movement corridors should not be significantly impacted by the proposed project. Wildlife known to utilize the project study area are generally acclimated to fragmented landscapes, and the bridge replacement should not create any additional detrimental conditions within the project study area.

Aquatic Communities

The replacement of Bridge No. 90 will likely cause temporary impacts to the aquatic communities in and around the project study area. Potential impacts to down-stream aquatic habitat will be avoided by bridging Tranters Creek to maintain regular flow and stream integrity. Support structures should be designed to avoid wetland or open water habitats whenever possible. In addition, temporary impacts to downstream habitats from increased sediment during construction should be reduced by limiting in-stream work to an absolute minimum, except for the removal of the portion of the sub-structure below the water. Waterborne sediment flowing downstream can be minimized by use of a floating silt curtain. Stockpiled material should be kept a minimum of 50 ft (15 m) from the stream channel. Silt fences should also be erected around any stockpiled material in order to minimize the chance of erosion or run-off from affecting the stream channel. Bridge Demolition and Removal (BDR) will follow current NCDOT Guidelines. Best Management Practices (BMPs) for the protection of surface waters should be strictly enforced to reduce impacts during all construction phases.

Aquatic wildlife may be temporarily displaced during the bridge replacement project. No long-term impacts are expected to result from this project. Resident aquatic species may be displaced during construction activities; however, anticipated impacts are expected to be minor and temporary.

4.0 JURISDICTIONAL TOPICS

4.1 Waters of the United States

Wetlands

Water bodies such as rivers, lakes, and streams are subject to jurisdictional consideration under the Section 404 program of the Clean Water Act (CWA). Additionally, wetlands are also considered "Waters of the United States" and are subject to jurisdictional consideration. EPA and USACE have defined wetlands as:

> Those areas that are inundated or saturated by groundwater at a frequency and duration sufficient to support, and under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas [33 CFR 328.3(b)(1986)].

Wetlands subject to review under Section 404 of the CWA (33 U.S.C. 1344) are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology at or near the surface for a portion (12.5 percent) of the growing season (DOA 1987).

Eight wetland areas occur within the project study area. ESI delineated the jurisdictional extent of these wetland areas based on current USACE methodology, and the areas were subsequently mapped with Trimble™ Global Positioning System (GPS) units (Figure 2). The jurisdictional areas within the project study area have been verified by the USACE.

Wetlands Nos. 1, 5, and 6 are located adjacent to Tranters Creek. These wetlands are located within the Tranters Creek floodplain and are subject to overbank flooding from Tranters Creek, and therefore are considered to be riparian wetlands. Although the small stream swamp receives the majority of its hydrology from overbank flooding, it is still palustrine in nature as classified by Cowardin *et al.* (1979). These wetlands exhibit characteristics of palustrine forested, broad-leaved and needle-leaved deciduous (PFO6) wetlands. The vegetation is hydrophytic in nature, and includes bald cypress, swamp tupelo, red maple, American holly, and titi. Soils exhibit hydric characteristics and are mapped as Muckalee soils and Swamp. Hydrologic indicators observed include inundation, presence of saturation at the soil surface, and drainage patterns within the wetland.

Wetland No. 2 is located within the northeast quadrant of the project study area and exhibits characteristics of palustrine forested, broad-leaved deciduous (PFO1) wetlands (Cowardin *et al.* 1979). The vegetation is hydrophytic in nature and includes red maple, soft rush, wool-grass and giant cane. Soils exhibit hydric characteristics and are mapped

as Leaf silt loam. Hydrologic indicators include presence of saturation Wetland No. 2 is not adjacent to a surface water and does not receive overbank flooding, therefore it would be classified as a non-riparian wetland.

Wetland Nos. 3 and 4 are located within the southeast quadrant of the project study area and exhibit characteristics of palustrine forested, needle-leaved evergreen/ broad-leaved deciduous (PFO4/1) wetlands (Cowardin *et al.* 1979). The vegetation is hydrophytic in nature and includes loblolly pines, red maple, sweetgum, sweetbay, and greenbrier. Soils exhibit hydric characteristics and are mapped as Leaf silt loam. Hydrologic indicators observed include inundation and presence of saturation at the soils surface. Wetland Nos. 3 and 4 are not adjacent to a surface water and do not receive overbank flooding and would be classified as non-riparian wetlands.

Wetland Nos. 7 and 8 are located in the southwest quadrant of the project study area and exhibit characteristics of palustrine forested, broad-leaved deciduous (PFO1) wetlands (Cowardin *et al.* 1979). The vegetation is hydrophytic in nature and include loblolly pine, red maple, river birch, giant cane, and netted-chain fern. Soils exhibit hydric characteristics and are mapped as Portsmouth loam. Wetland Nos. 7 and 8 are not adjacent to a surface water and do not receive overbank flooding and would be classified as non-riparian wetlands.

Jurisdictional Streams

Surface waters within the embankments of the Tranters Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "Waters of the United States" (33 CFR 328.3). Streams present within the project study area were classified using the Cowardin classification system (Cowardin *et al.* 1979) and Natural Stream Channel Classification System (Rosgen 1996).

Cowardin Classification

Tranters Creek is classified as a riverine system (Cowardin *et al.* 1979). Riverine systems may be perennial (R2) or intermittent (R4) and are identified as those areas contained within a channel that are not dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and contain less than 0.5 parts per thousand (ppt) ocean derived salts (Cowardin *et al.* 1979).

Tranters Creek is a perennial stream (R2) with moderate flow over substrate consisting of sand and muck. The channel ranges from approximately 100 to 180 feet (30 to 55 m) wide within the project study area. R2 systems generally have slow flowing water all year and are generally associated with well-developed floodplains. The waters of the Tranters Creek are classified as riverine, lower perennial, unconsolidated bottom, sand and muck (R2UB2/4) waters (Cowardin *et al.* 1979).

Natural Stream Channel Classification

The Natural Stream Channel Classification System uses several definitive criteria for classification: 1) number of channels associated with a stream; 2) slope; 3) width-to-depth ratio; 4) entrenchment ratio; 5) sinuosity; and 6) bed material (Rosgen 1996). This classification system uses the first five criteria to assign one of eight channel types to a reach of a stream. The eight types are designated A, B, C, D, DA, E, F, and G. Use of the Natural Stream Channel Classification System for a Level 1 classification requires the identification of several features in the field including bankfull width and depth (the stage at which the controlling channel forming flow occurs), slope, sinuosity, and valley morphology.

In the field, the stream channel was traversed to identify any significant changes in channel type. Estimations of channel width, bankfull depth, and flood-prone width were made at selected locations to verify channel type; these locations were selected because they were either representative of the stream as a whole or of a specific reach. Sinuosity was estimated in the field and compared to estimated sinuosity from the GPS mapping. Slope was also estimated in the field.

Preliminary observations within the project study area indicate that the Tranters Creek represents an "E" type stream (Rosgen 1996). "E" type streams have a gently sloped, relatively deep and narrow, slightly entrenched channel with high sinuosity. "E" type channels are characterized by riffle-pool sequences, well defined meanders, and a well-developed floodplain.

Table 2 contains the approximate area of wetlands and the approximate area and linear feet of the jurisdictional stream within the project study area, although permanent impacts are not expected due to the use of channel-spanning structures. During bridge removal procedures NCDOT's BMPs will be utilized, including erosion control measures; therefore, it is anticipated that removing the existing structures will result in no impact to surrounding surface waters. Potential fill resulting from bridge demolition has been previously discussed in Section 2.2.

Table 2. Jurisdictional Areas Within the Project Study Area.

Wetland Community Types			
Wetland Type (Wetland Number)	**Area Acres (hectares)**		**Percent of Project Study Area**
PFO6 (1,5, 6)	1.46 (0.59)		5.7
PFO1 (2,7, 8)	2.67 (1.08)		10.4
PFO4/1 (3, 4)	1.39 (0.56)		5.4
Total:	5.52 (2.23)		21.5
Riparian/Non-riparian			
Wetland Type (Wetland Number)	**Area Acres (hectares)**		**Percent of Project Study Area**
Riparian (1,5, 6)	1.46 (0.59)		5.7
Non Riparian (2,3,4,7, 8)	4.06 (1.64)		15.8
Total:	5.52 (2.23)		21.5
Wetland Assessment			
Wetland Quality (Wetland Number)	**Area Acres (hectares)**		**Percent of Project Study Area**
High (1,5, 6)	1.46 (0.59)		5.7
Other (2,3,4,7, 8)	4.06 (1.64)		15.8
Total:	5.52 (2.23)		21.5
Flow Characteristics			
	Linear Feet (meters)	**Area Acres (hectares)**	**Percent of Project Study Area**
Perennial (R2)	493 (150)	1.32 (0.54)	5.2
Total:	493 (150)	1.32 (0.54)	5.2

There are 5.52 acres (2.23 ha) of wetlands within the project study area. Wetlands account for 21.5 percent of the project study area. In the project study area 22.3 percent of the wetlands are high quality, riparian wetlands associated with the floodplain of Tranters Creek. There is approximately 493 linear feet (150m) of perennial stream within the project study area. Impacts to wetlands and streams can be minimized and/or avoided by bridging Tranters Creek. Designing alternatives that avoid expanding the existing bridge footprint and right-of-way downstream of the existing bridge will minimize impacts to wetlands.

5.0 Permits and Consultations

A final permitting strategy cannot be developed until an alignment is selected and construction impacts firmly established. However, construction activities resulting in impacts will require permits and certifications from various regulatory agencies in charge of protecting the water quality of public water resources. Surface water systems and wetlands receive similar treatment and consideration with respect to most regulatory permits. These permits are authorized under the Clean Water Act and under separate state laws regarding significant water resources.

Section 404 Permits

In accordance with provisions of Section 404 of the Clean Water Act (33 U.S.C. 1344), a permit will be required from the USACE for the discharge of dredged or fill material into "Waters of the United States." Potential impacts to "Waters of the United States" may be avoided if the wetlands and streams are bridged, no disturbance to the wetlands or streams occur during construction activities, and bridge demolition does not result in material falling into wetlands or streams.

The proposed project will be processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. Nationwide Permit (NWP) #23 [33 CFR 330.5(a)(23)] has been issued by the USACE for CEs due to expected minimal impact. In the event that NWP #23 will not suffice, minor impacts attributed to bridging and associated approach improvements are expected to qualify under General Bridge Permit 031 issued by the Wilmington USACE District. Notification to the Wilmington USACE office is required if this general permit is utilized. NWP #33 may be necessary if temporary structures, work, and discharges including cofferdams, are required for this project.

Water Quality Certification

This project will also require a 401 Water Quality General Certification from the DWQ prior to the issuance of a Section 404 Nationwide Permit. Section 401 of the Clean Water Act requires that the state issue or deny water quality certification for any federally permitted or licensed activity that may result in a discharge into "Waters of the United States." Issuance of a 401 Certification from the DWQ is a prerequisite to the issuance of a Section 404 Permit.

Potential impacts to open water areas will be limited to the actual right-of-way width and will be determined by NCDOT during the design phase of this project. Impacts to open water areas of Tranters Creek are not expected due to the use of channel-spanning structures. During bridge removal procedures, NCDOT's BMP's will be utilized, including erosion control measures. Floating turbidity curtains are also recommended to minimize the amount of turbid water flowing off-site.

CAMA

Coastal Area Management Act (CAMA) provides for jurisdictional review of impacts affecting Areas of Environmental Concern (AEC) in 20 designated coastal counties, including Beaufort County. Tranters Creek is likely to be considered an AEC because it is designated as inland fishing waters and as Public trust waters. Encroachment on an AEC resource will require a Major Development Permit. The Federal Coastal Zone Management Act requires that federal actions (*i.e.*, 404 permit issuance) comply with requirements of state-administered coastal zone management programs [16 U.S.C. 1456(c)]; therefore, for non-AEC impacts in Beaufort County, a CAMA consistency determination will be required as part of the permit process.

Tar-Pamlico Riparian Buffer Rules

Tranters Creek is mapped on the USGS map and is subject to the Tar-Pamlico Riparian Buffer Rules. The riparian buffer consists of two distinct zones. Zone 1 comprises a 30-foot (9 m) wide area adjacent to the surface water that cannot be disturbed except for those specific activities that are allowed by the Buffer Rules. Zone 2 comprises a 20-foot (6 m) wide area adjacent to Zone 1 that is to be left undisturbed except for those activities specifically allowed by the Buffer Rules.

Activities in the buffer area beyond the footprint of the existing use as classified as either "exempt", "allowable"," allowable with mitigation", or " prohibited." Table 3 provides a list of activities that may be subject to Buffer Rules within the project study area along with their classifications. Depending upon project alternatives, not all of the uses listed may apply, and other uses not listed here, such as utility crossings and roadside drainage ditches, among others, may be regulated under the Buffer Rules. Guidelines will be consulted in their entirety to review all project related uses subject to the Buffer Rules.

Table 3. Activities That May Be Subject To the Buffer Rules.

Use	Exempt	Allowable	Allowable With Mitigation	Prohibited
Bridges		X		
Road crossings that impact less than or equal to 40 linear ft (12 m)	X			
Road crossings that impact greater than 40 linear ft (12 m) but less than or equal to 150 linear ft (46 m) or 0.33 ac (0.13 ha) of riparian area.		X		
Road crossings that impact greater than 150 linear ft (46 m) or greater than 0.33 ac (0.13 ha) of riparian buffer			X	
Temporary roads used for bridge construction or replacement provided that restoration activities such as soil stabilization and revegetation occur immediately after construction.		X		

Activities deemed "exempt" will be designed, constructed, and maintained to minimize soil disturbance and to provide the maximum water quality protection practicable. "Allowable" activities may proceed within the riparian buffer provided that there are no practicable alternatives to the requested use. Prior to initiating impacts written authorization from the DWQ or delegated local authority is required. Activities deemed "allowable with mitigation" may proceed within the riparian buffer if there are no practicable alternatives to the requested to the requested use and an appropriate mitigation strategy has been approved. Written authorization from the DWQ or delegated local authority is required. "Prohibited" activities, none of which are listed above, may not proceed within the riparian buffer unless a variance is granted from the DWQ or delegated local authority.

5.1 Mitigation

Mitigation has been defined in National Environmental Protection Agency (NEPA) regulations to include efforts which: a) avoid; b) minimize; c) rectify; d) reduce or eliminate; or e) compensate for adverse impacts to the environment [40 CFR 1508.20 (a-e)]. Mitigation of wetland and stream impacts is recommended in accordance with Section 404(b)(1) Guidelines of the CWA (40 CFR 230), FHWA step-down procedures (23 CFR 777.1 et seq.), mitigation policy mandates articulated in the USACE/EPA Memorandum of Agreement (MOA), Executive Order 11990 (42 FR 26961) (1977), and USFWS mitigation policy directives (46 FR 7644-7663) (1981).

Section 404(b)(1) Guidelines, the USACE/EPA MOA, and Executive Order 11990, stress avoidance and minimization as primary considerations for protection of wetlands and streams. Practicable alternatives analysis must be fully evaluated before compensatory mitigation can be discussed.

USFWS policy also emphasizes avoidance and minimization. However, for unavoidable losses, the USFWS recommends that mitigation efforts be based on the value and scarcity of the habitat at risk. Habitat is classified into four Resource Categories based on decreasing importance and value, with subsequent decreases in mitigation planning objectives (46 FR 7657-7658). The non-riparian wetlands in the project vicinity are believed to be Category 3 or 4 resources (medium to low value), primarily because of the degraded and segmented nature of the systems. Minimization of further habitat loss is recommended. Mature forested areas within floodplains with extensive, intact adjacent wetlands could be considered Category 1 or 2 resources (very high or high value) with a mitigation goal of no net loss of habitat values (compensation through functional replacement).

The Federal Highway Administration (FHWA) policy stresses that all practicable measures should be taken to avoid or minimize harm to wetlands and streams, which will be affected by federally, funded highway construction. A sequencing (step-down) procedure is recommended in the event that avoidance is impossible. Mitigation employed outside of the highway right-of-way must be reviewed and approved on a case-by-case basis.

Avoidance – Surface waters and jurisdictional wetland areas are present within the project study area. Although actual impacts to surfaces water and jurisdictional wetland areas are not known at this time, potential wetland and stream impacts are previously discussed in Section 4.1. It may not be possible to avoid all impacts to jurisdictional areas, but impacts can be avoided to specific wetlands and the stream, subject to design constraints. Impacts to the jurisdictional surface waters present can be avoided by bridging the stream channel, by avoiding construction activities in the stream channel, and by avoiding deposition into the stream channel during bridge demolition.

Minimization – Alternatives will be developed in part to show minimization of wetland and stream impacts. Impacts to the stream can be minimized by designing support structures to avoid wetland or open water habitats whenever possible. The jurisdictional delineation within the project study area will be utilized to further minimize wetland and stream impacts when designing the proposed alignment within the project study area. Minimization of jurisdictional impacts can be achieved by the replacement of a bridge in-place and utilizing as much of the existing bridge corridor as possible. Utilization of BMPs is recommended in an effort to minimize impacts, including avoiding placing staging areas within wetlands.

Compensatory mitigation – Impacts to surface waters and jurisdictional wetland areas are not known at this time. Due to the anticipated lack of jurisdictional impacts, no mitigation is expected to be required for this project. Temporary impacts associated with the construction activities could be mitigated by replanting disturbed areas with native species and removal of any temporary fill material within the floodplain upon project completion. Mitigation may be required for wetland impacts greater than 0.1 acre (0.4 ha) and stream impacts greater than 150 linear feet (46 m).

5.3 Protected Species

Federally Protected Species

Species with the federal classification of Endangered (E), Threatened (T) or officially Proposed (P) for such listing, are protected under the Endangered Species Act (ESA) of 1973 (16 USC 1531 *et seq.*). Table 4 presents the federal protected species listed for Beaufort and Pitt Counties (29 January 2003 USFWS list). Descriptions of these federally protected species along with habitat requirements and biological conclusions for this project are presented following the table.

Table 4. Federally Listed Species for Beaufort and Pitt Counties, NC (29 January 2003 USFWS list).

Common Name	Scientific Name	Federal Status[a]	Potential Habitat Present	County P/B[b]	Biological Conclusion
Red wolf	*Canis rufus*	EXP	Yes	B	No Effect
Manatee	*Trichechus manatus*	E	No	B/P	No Effect
Bald eagle	*Haliaeetus leucocephalus*	T	Yes	B/P	Unresolved
Red-cockaded woodpecker	*Picoides borealis*	E	No	B/P	No Effect
Kemp's ridley sea turtle	*Lepidochelys kempii*	E	No	B	No Effect
Tar spinymussel	*Elliptio steinstansana*	E	No	P	No Effect
Sensitive jointvetch	*Aeschynomene virginica*	T	No	B	No Effect
Rough-leaved loosestrife	*Lysimachia asperulaefolia*	E	No	B	No Effect

[a] EXP – Experimental, E – Endangered, and T – Threatened.

[b] P – Pitt, B - Beaufort

Red wolf - The red wolf is a medium sized, canid that resembles the coyote but is larger and more robust. Adults measure 4.5 to 5.5 feet (1.4 to 1.7 m) in length, and weigh from 35 to 90 pounds (16 to 41 kilograms). The red wolf prefers habitat that provides large amounts of cover, including both upland and swamp forests, coastal marshes, and prairies (Webster *et al.* 1985). Small to medium sized mammals are normal prey items, but the red wolf is also heavily dependent on white-tailed deer (USFWS 1993). The red wolf was once found throughout the southestern United States, but was extirpated from most of its range by 1920. Captive-bred animals were released at Alligator River National Wildlife Refuge in the fall of 1987, and successful reproduction resulted in 26-30 adults by August 1993 (USFWS 1993).

BIOLOGICAL CONCLUSION: NO EFFECT

NHP records indicate that there are no documented occurrences of the red wolf within 3.0 miles (4.8 km) of the project study area. However, with the **EXP** status for this species, it is only considered to have federal protection on public lands. No public lands are contained within the project study area.

Manatee - The Manatee is a large, gray or brown aquatic mammal that averages 10 to 13 feet (3 to 4 m) in length and weighs up to 1,000 pounds (454 kilograms). During summer months manatees migrate from their normal Florida wintering areas to as far north as coastal Virginia. These mammals inhabit warm waters, both fresh and salt, where their diet consists mostly of aquatic vegetation (Webster *et al.* 1985).

BIOLOGICAL CONCLUSION: NO EFFECT

There are no documented occurrences of the manatee within 3.0 miles (4.8 km) of the project study area. The project study area is more than 10.0 miles (16.1 km) upstream of the Tar River and does not provide potential habitat for the manatee. This species will not be effected by the proposed bridge replacement.

Bald Eagle - The bald eagle is a large raptor with a wingspan greater than 6 feet (2 m). Adult bald eagles are dark brown with white head and tail. Immature eagles are brown with whitish mottling on their tail, belly, and wing linings. Bald eagles typically feed on fish but may also take birds and small mammals. In the Carolinas, nesting season extends from December through May (Potter *et al.* 1980).

Bald eagles typically nest in tall, living trees in a conspicuous location near water and forage over large bodies of water with adjacent trees available for perching (Hamel 1992). Preventing disturbance activities within a primary zone extending 750 to 1500 feet (229 to 457 m) outward from a nest tree is considered critical for maintaining acceptable conditions for eagles (USFWS 1987). USFWS recommends avoiding any disturbance activities, including construction and tree-cutting, within this primary zone. Within a secondary zone extending from the primary zone boundary out to a distance of miles 1.0 mile (1.6 km) from a nest tree, construction and land-clearing activities should be restricted to the non-nesting period. FWS also recommends avoiding alteration of natural shorelines where bald eagles forage, and avoiding significant land-clearing activities within 1500 ft (457 m) of roosting sites.

NHP records indicate that there is one documented occurrence of bald eagle within 3.0 miles (4.8 km) of the project study area. The bald eagle nest is located approximately 0.3 mile (0.5 km) northeast of the intersection of Sheppard Milpond Rd (SR 1550) and Loy Forbes Rd (SR 1555). The nest was last observed in 2000.

BIOLOGICAL CONCLUSION: UNRESOLVED

NHP records indicate that one active bald eagle nest has been documented within 3.0 miles (4.8 km) of the project study area. The project study area may contain potential foraging and nesting habitat for the bald eagle, but no large nests were observed within the project study area. Due to the limited nature of disturbance associated with the proposed bridge replacement, construction activities outside of the nesting season would be expected to have no effects. However, the effect of construction activities during the nesting season can not be determined at this time. A nest survey may be required.

Kemp's ridley sea turtle - The Kemp's ridley sea turtle is the smallest of the sea turtles (58.4- to 23- to 30-inch [76.2-centimeter (cm)] carapace, 79 to 110 pounds (36 to 50 kilograms) and is generally considered the most endangered species of sea turtle in the world (Palmer and Braswell 1995). This species ranges from the Gulf of Mexico and the east coast, to Nova Scotia and Europe. In addition to its small size, this species is discernible by the heart shaped carapace and gray coloration. Kemp's ridley prefers shallow coastal waters, including sounds and the lower portions of large rivers, where it feeds on crabs, shrimp, snails, clams, and some saltwater plants. Nearly all members of this species are believed to nest on a short strand of ocean beach in the state of Tamaulipas, Mexico. Only a single nesting record exists for North Carolina, on Long Beach in Brunswick County (1992). The nearest suitable nesting habitat for this species is the Outer Banks ocean beaches.

BIOLOGICAL CONCLUSION: NO EFFECT

There are no documented occurrences of Kemp's ridley sea turtle within 3.0 miles (4.8 km) of the project study area. The project study area does not provide potential habitat for Kemp's ridley sea turtle. This species will not be effected by the proposed bridge replacement.

Red-cockaded Woodpecker (RCW) - The RCW is identified by a black head, prominent white cheek patch, and black-and-white barred back. Males often have red markings (cockades) behind the eye, but this feature may be difficult to see. RCWs typically are found in association with a clan, which is a cooperative breeding group consisting of a breeding pair and one or more male offspring fledged in the previous one to three years (Hooper *et al.* 1980).

The RCW is endemic to pine forests of the southeastern United States. In North Carolina, the RCW is most prevalent in the Sandhills and Coastal Plain (Hamel 1992). Primary RCW habitat consists of mature to over-mature southern pine forests. Traditionally, pine flatwoods or pine-dominated savannas, which have been maintained by frequent fires, serve as ideal nesting and foraging sites for the RCWs. Nesting and roosting cavities are

constructed in the heartwood of living pines, which are generally older than 60 years and often infected with red-heart fungus (*Fomes pini*). The fungus weakens the inner heartwood, making excavation easier. Cavities are usually located 20-50 feet (6–15 m) above ground and below live branches. Development of a thick understory may result in abandonment of the cavity trees. The resinous buildup around cavity openings allows for easy detection during surveys for RCWs. Most cavity trees tend to be clustered such that a colony can typically be encompassed by a circle 1500 feet (457 m) in diameter, although some cavity trees occupied by a clan may be as much as 0.5 mile (0.8 km) apart (Hooper *et al.* 1980).

RCW foraging areas typically are centered on colony sites and range in size from 100 (40.5 ha) acres to as many as 1000 acres (405 ha) depending on the quality of habitat (Hooper *et al.* 1980). RCWs typically forage on pines in pine stands 30 years of age or older within 0.5 mile (0.8 km) of the colony site (Henry 1989). Stands dominated by pines larger than 9 inches (23 cm) diameter at breast height (dbh) are considered to provide good foraging habitat, but RCWs will forage in stands dominated by pines 4 to 9 inches (10 to 23 cm) dbh (Hooper *et al.* 1980). Extreme impacts to foraging habitat can lead to reduced productivity and/or abandonment of the colony site. Minor habitat changes within the foraging range may have little or no impact to RCW behavior patterns.

NHP records indicate that there is one documented occurrence of RCW activity within 3.0 miles (4.8 km) of the project study area. The site is located 2.9 miles (4.7 km) northwest of the project study area, near Sheppard Millpond. The site was last observed in 1977.

BIOLOGICAL CONCLUSION: NO EFFECT

NHP records indicate that one inactive RCW colony has been documented within 2.9 miles (4.7 km) of the project study area. The few scattered mature pine within the project study area were surveyed and no RCW activity was observed. The pine woodland community within the project study area is too small in areal extent to offer potential foraging habitat for the RCW. The pine stand within the project study area is not contiguous with other larger stands of pines due to surrounding agriculture and silvilcultural practices. Therefore, potentially suitable habitat for the RCW is not present within the project study area and construction of the proposed project will not effect this species.

Tar Spinymussel - The Tar spinymussel is a small, subrhomboidal mussel that grows to approximately 2.5 inches (6.4 cm) in length. The external shell of the adult is smooth, orange-brown to dark brown, and ornamented by one or two rows of short spines [to 0.2 inches (0.5 cm) long]. The shell is thicker on the anterior end and thinner on the posterior end. Preferred habitat of the Tar spinymussel includes relatively fast-flowing, well-

oxygenated, circumneutral water over a silt-free, noncompacted, gravel/coarse sand substrate (TSCFTM 1990).

BIOLOGICAL CONCLUSION: NO EFFECT

There are no documented occurrences of Tar spinymussel within 3.0 miles (4.8 km) of the project study area. Tranters Creek within the project study area is a slow moving blackwater swamp system with muck over sand substrate and does not provide potential habitat for the Tar spinymussel. This project will have no effect on the Tar spinymussel.

Sensitive Jointvetch – Sensitive jointvetch is a robust, bushy-branched, annual legume often exceeding 3 feet (0.9 m) in height. Young stems have bristly hairs with large swollen bases (Leonard 1985). The alternate, compound leaves are even-pinnate, approximately 1.25 - 2 inches (3.2 to 5.1 cm) wide, with 30 to 56 toothless leaflets (Radford *et al.* 1968). Flowers are bright greenish-yellow with red veins, about 0.5 inches (1.3 cm) long, and are subtended by bractlets with toothed margins (Leonard 1985). The flowers are produced on few-flowered racemes from July to October. The jointed legume (loment) is about 2 inches (5.1 cm) long, has 6 to 10 segments, and a 0.5 to 1.0 inch (1.3 to 2.54 cm) stalk. Habitat for this species in North Carolina consists of moist to wet coastal roadside ditches and moist fields that are nearly tidal (USFWS 1994), especially in full sun (Leonard 1985). This species seems to favor microhabitats where there is a reduction in competition from other plant species, and usually some form of soil disturbance (USFWS 1994).

Sensitive joint-vetch is known from Hyde and Beaufort Counties, North Carolina, and in scattered coastal areas from New Jersey to the Savannah River (Leonard 1985).

BIOLOGICAL CONCLUSION: NO EFFECT

There are no documented occurrences of sensitive jointvetch within 3.0 miles (4.8 km) of the project study area. Tranters Creek within the project study area is a non-tidal freshwater system and does not provide potential habitat for the sensitive jointvetch. The project will have no effect on sensitive jointvetch.

Rough-leaved Loosestrife - The rough-leaved loosestrife is a rhizomatous perennial herb that often reaches the height of 2 ft (0.6 m). Plants are dormant in the winter, with the first leaves appearing in late March or early April. The triangular leaves typically occur in whorls of 3 or 4. Leaves are typically sessile, entire, 0.3 - 0.4 inch (0.8 - 1 cm) wide, broadest at the base, and have three prominent principal veins (Godfrey and Wooten 1981). Individuals of rough-leaved loosestrife, especially young plants, have been observed by ESI biologists to have paired, opposite leaves rather than whorls of 3 or 4; this pattern has also been observed on new growth resprouting from the upper leaf axils in

individuals that have been browsed or mowed. Five-lobed yellow flowers, approximately 0.6 inch (1.5 cm) across, are produced on a loose terminal raceme 1-4 inches (3 to 10 cm) long (Godfrey and Wooten 1981). Rough-leaved loosestrife is reported to flower from late May to June (USFWS 1995); however, ESI biologists have observed scattered individuals flowering through mid-July in New Hanover County. Seeds are formed by August, but the small, rounded capsules do not dehisce until October. Populations also reproduce asexually from rhizomes, with rhizomes producing several shoots.

The rough-leaved loosestrife is endemic to Coastal Plain and Sandhills regions of the Carolinas. Typical habitat of the rough-leaved loosestrife consists of the wet ecotone between longleaf pine savannas and wet, shrubby areas, where lack of canopy vegetation allows abundant sunlight into the herb layer. This species is fire maintained; suppression of naturally occurring fires has contributed to the loss of habitat in our state. In the absence of fire, rough-leaved loosestrife may persist for several years in an area with dense shrub encroachment; however, reproduction is reported to be suppressed under these conditions, leading to eventual local extirpation (USFWS 1995). Kral (1983) indicates that rough-leaved loosestrife is typically found growing in black sandy peats or sands with a high organic content. Because rough-leaved loosestrife is an obligate wetland species (Reed 1988), drainage of habitat also has an adverse effect on the plant.

BIOLOGICAL CONCLUSION: ~~NO EFFECT~~ MA, NLTAA

There are no documented occurrences of rough-leaved loosestrife within 3.0 miles (4.8 km) of the project study area. The powerline right-of-way is the only area that may superficially resemble potential habitat. The soils in the powerline right-of-way are mapped as Leaf. The soils were characterized as a sandy loam and lack an organic component which is present at sites where rough-leaved loosestrife is typically found. The project study area lacks the common plant species, such as longleaf pine (*Pinus palustris*), pond pine (*Pinus serotina*), fetterbush (*Lyonia lucida*), wiregrass (*Aristida stricta*), dangleberry (*Gaylussacia frondosa*), and meadow beauty (*Rhexia spp.*) normally associated with rough-leaved loosestrife. The adjacent naturally forested areas do not provide potential habitat for rough-leaved loosestrife. The project will have no effect on rough-leaved loosestrife.

Federal Species of Concern

The 29 January 2003 USFWS list also includes a category of species designated as "Federal Species of Concern" (FSC). The FSC designation provides no federal protection under the ESA for the species listed. However, these are listed since they may attain federally protected status in the future. The presence of potential habitat (based on LeGrand *et al.* 2001 and Amoroso and Finnegan 2002) within the project study area has been evaluated in Table 5 for the FSC species listed for Beaufort and Pitt Counties.

Table 5. Federal Species of Concern (FSC).

Common Name	Scientific Name	State Designation[a]	County[b] P/B	Potential Habitat[c]
Eastern Henslow's sparrow	*Ammodramus henslowii susurrans*	SR	P/B	No
Rafinesque's big-eared bat	*Corynorhinus rafinesquii*	SC (PT)	B	Yes
Southern hognose snake	*Heterodon simus*	SC	P	No
Carolina gopher frog	*Rana capito capito*	T	B	No
Pinewoods shiner	*Lythrurus matutinus*	SR	P	Yes
"Neuse" madtom	*Noturus furiosus* (pop. 1)	SC	P	No
Atlantic pigtoe	*Fusconaia masoni*	E	P	No
Yellow lampmussel	*Lampsilis cariosa*	E	P	Yes
Green floater	*Lasmigona subviridis*	E	P	Yes
Tar River Crayfish	*Procambarus medialis*	No Status	P	Yes
Venus flytrap	*Dionaea muscipula*	SR-L	B	No
Carolina asphodel	*Tofieldia glabra*	W1	P/B	No

[a] E – Endangered, T - Threatened, SC - Special Concern, SR -Significantly Rare, PT - Proposed Threatened, and SR-L – Significantly Rare range of species is limited to North Carolina and adjacent states, and W1 – Wa tch List population are rare, but relatively secure.

[b] P- Pitt, B – Beaufort

[c] Potential habitat based extensively on Amoroso and Finnegan (2002), LeGrand *et al.* (2001), and other literature previously cited.

According to NHP records (March 2003), no occurrences of FSC are known from the project study area are project vicinity. This project will not affect any known occurrences of species listed as FSC.

5.4 State Protected Species

Species of mammals, birds, reptiles, amphibians, and plants with the North Carolina status of Endangered (E), Threatened (T), and Special Concern (SC) receive limited protection under the North Carolina Endangered Species Act (G.S. 113-331 *et seq.*) and the North Carolina Plant Protection Act of 1979 (G.S. 106-202.12 *et seq.*). A review of the NHP records indicates that no state listed species have been documented within the project study area or within 3.0 mi (4.8 km) of the project study area. This project will not affect any known occurrences of state listed species.

6.0 REFERENCES

Amoroso, J.L. and J. T. Finnegan. 2002. Natural Heritage Program List of the Rare Plant Species of North Carolina. North Carolina Natural Heritage Program, Division of Parks and Recreation; N. C. Department of Environment, Health, and Natural Resources; Raleigh. 111 pp.

Cowardin, L.M., V. Carter, F.C. Goblet, and E.T. Laroe. 1979. Classification of Wetland and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, USFWS/OBS 79/31. U. S. Department of Interior. 131 pp.

Division of Environmental Management, Water Quality Section (DEM). 1989. Benthic Macroinvertebrate Ambient Network (BMAN): Water Quality Review 1983-1988. Rpt. 89-08, N. C. Department of Environment, Health and Natural Resources (DEHNR); Raleigh. 193 pp.

Division of Environmental Management, Water Quality Section (DEM). 1993. Classification and Water Quality Standards Assigned to The Waters of the Tar-Pamlico River Basin. N. C. Department of Environment, Health and Natural Resources (DEHNR), Raleigh.

Department of Environment and Natural Resources (DENR). 1999. Tar-Pamlico River Basinwide Water Quality Management Plan. N. C. Department of Environment, Health, and Natural Resources, Raleigh.

Department of the Army (DOA). 1987. Corps of Engineers Wetlands Delineation Manual. Tech. Rpt. Y-87-1. Waterways Experiment Station, Corps of Engineers, Vicksburg, Mississippi. 100 pp.

Division of Water Quality (DWQ). 2000. 303(d) List. http://h2o.enr.state.nc.us/tmdl/General _303d.htm.

Division of Water Quality (DWQ). 2003a. Basinwide Information Management System (BIMS): Stream Classification. March 2003. http://h20.enr.state.nc.us/bims/reports/ basins and waterbodies/hydroTar-Pamlico.pdf.

Division of Water Quality (DWQ). 2003b. Active NPDES Permits. http://h2o.enr.state.nc.us /NPDES /documents/download.xls March 2003.

Godfrey, R.K. and J.W. Wooten. 1981. Aquatic and Wetland Plants of the Southeastern United States: Dicotyledons. The University of Georgia Press, Athens, GA. 933 pp.

Hamel, P.B. 1992. Land Manager's Guide to the Birds of the South. The Nature Conservancy, Southeastern Region, Chapel Hill. 437 pp.

Henry, G.V. 1989. Guidelines for the Preparation of Biological Assessments and Evaluations for the Red-cockaded Woodpecker. U.S. Fish and Wildlife Service, Atlanta, GA.

Hooper, R.G., A.F. Robinson, Jr., and J.A. Jackson. 1980. The Red-cockaded Woodpecker: Notes on Life History and Management. Gen. Rpt. SA-GR 9. United States Department of Agriculture, Forest Service, Atlanta, GA.

Kral, R.A. 1983. A Report on Some Rare, Threatened, or Endangered Forest-related Vascular Plants of the South. Technical Publication R8-TP 2. U.S. Department of Agriculture, Forest Service, Southern Region, Atlanta, GA. 1305 pp.

LeGrand, H.E. Jr., S.P. Hall and J. T. Finnegan. 2001. Natural Heritage Program List of the Rare Animal Species of North Carolina. N. C. Natural Heritage Program, Division of Parks and Recreation; Department of Environment, Health, and Natural Resources; Raleigh. 91 pp.

Leonard, S. W. 1985. Status report on Aeschynomene virginica in North Carolina. Unpublished report to the Nature Conservancy, Boston, MA. 6+ pp.

McCafferty, W. P. 1998. Aquatic Entomology. Jones and Bartlett Publishers, Sudbury, MA 448pp.

Martof, B.S., W.M. Palmer, J.R. Bailey, and J.R. Harrison III. 1980. Amphibians and Reptiles of the Carolinas and Virginia. The University of North Carolina Press, Chapel Hill. 264 pp.

Menhinick, E.F. 1991. The Freshwater Fishes of North Carolina. North Carolina Wildlife Resources Commission, Raleigh. 227 pp.

National Geographic (NG) 1999. Filed Guide to the Birds of North America. Third Edition. National Geographic Society. Washington D.C. 480 pp.

National Marine Fisheries Service (NMFS). 1999. Essential Fish Habitat Consultation Guidance. 62 pp.

North Carolina Center for Geographic Information and Analysis (NCGIA). 2001. Basin Pro: Anadromous Fish Spawning Areas. Version 2.1.

North Carolina Department of Transportation (NCDOT). 1999. Best Management Practices For Bridge Demolition and Removal. NCDOT 412 pp.

North Carolina Geological Survey (NCGS). 1985. Geologic Map of North Carolina. Division of Land Resources, Department of Natural Resources and Community Development.

Palmer, W.M. and A.L. Braswell. 1995. Reptiles of North Carolina. The University of North Carolina Press, Chapel Hill. 412 pp.

Potter, E.F., J.F. Parnell, and R.P. Teulings. 1980. Birds of the Carolinas. The University of North Carolina Press, Chapel Hill, NC. 408 pp.

Radford, A.E., H.E. Ahles, and C.R. Bell. 1968. Manual of the Vascular Flora of the

Reed, P.B., Jr. 1988. National List of Plant Species that Occur in Wetlands: Southeast (Region 2). U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 125 pp.

Rosgen, D. 1996. Applied River Morphology. Printed Media Companies. Minneapolis, Mn. 8-43 pp.

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; N.C. Dept. of Environment, Health and Natural Resources; Raleigh, NC. 325 pp.

The Scientific Council on Freshwater and Terrestrial Mollusks (TSCFTM). 1990. A Report on the Conservation Status of North Carolina's Freshwater and Terrestrial Molluscan Fauna. Pp. 37-41.

U. S. Department of Agriculture (USDA). 1974. Soil Survey of Pitt County, North Carolina. U.S. Department of Agriculture (USDA). 74 pp + maps.

U. S. Department of Agriculture (USDA). 1991. Hydric Soils of the United States. In cooperation with the National Technical Committee for Hydric Soils, U.S. Department of Agriculture.

U. S. Department of Agriculture (USDA). 1995. Soil Survey of Beaufort County, North Carolina. U.S. Department of Agriculture (USDA). 132 pp + maps.

U.S. Fish and Wildlife Service (FWS). 1987. Habitat Management Guidelines for the Bald Eagle in the Southeast Region. U.S. Department of the Interior, Fish and Wildlife Service. 8 pp.

U. S. Fish and Wildlife Service (FWS). 1993. Endangered and Threatened Species of the Southeastern United States (The Red Book). U.S. Department of the Interior, Fish and Wildlife Service, Southeast Region, Atlanta, GA.

U.S. Fish and Wildlife Service (FWS). 1994. Agency Draft Sensitive Jointvetch Recovery Plan. U.S. Fish and Wildlife Service, Atlanta, GA.

U.S. Fish and Wildlife Service (FWS). 1995. Rough-leaved Loosestrife Recovery Plan. U.S. Fish and Wildlife Service, Atlanta, GA. 37 pp

U.S. Fish and Wildlife Service (USFWS). 2003. Endangered, Threatened, and Candidate Species and Federal Species of Concern, by County, in North Carolina: Beaufort and Pitt Counties. 29 January 2003. Asheville, NC.

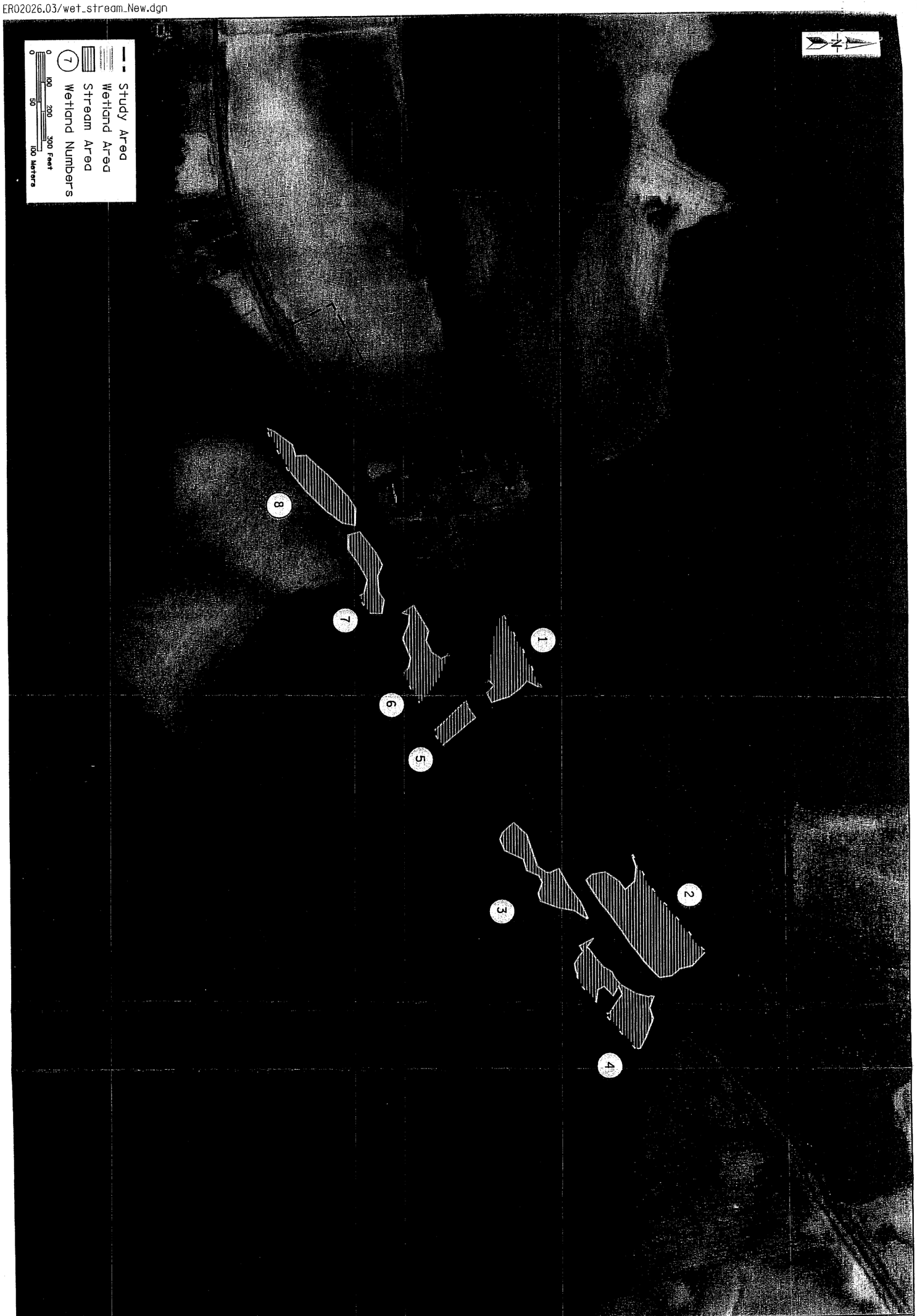
U.S. Geologic Survey (USGS). 1974. Hydrologic Unit Map.

U.S. Geological Survey (USGS). 1979. Leggetts Crossroads, N.C. 7.5-Minute Topographic Quadrangle.

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, NC. 255 pp.

APPENDIX A

ER02026.03/wet_stream_New.dgn



Environmental Services, Inc.

Wetland and Stream Location Map
Bridge No. 90 Over Tranters Creek
Beaufort and Pitt Counties, NC
(TIP B-4022)

Drawn By: PS	Figure: 2
Checked By: GT	Project: ER02026.03
Scale: 1" = 300'	Date: May 2003

6, 7, 8

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

YA, YB, YC
Wet

Project/Site: Tranters Creek	Date: 3/24/2003
Applicant/Owner: NCDOT	County: Pitt
Investigator: Environmental Services, Inc.	State: NC
Do normal circumstances exist on the site? ☑ Yes ☐ No	Community ID: Forested
Is the site significantly disturbed (atypical situation)? ☐ Yes ☑ No	Transect ID: YC
Is the area a potential problem area (If needed, explain)? ☐ Yes ☑ No	Plot ID: Wetland

VEGETATION

DOMINANT PLANT SPECIES	STRATUM	INDICATOR	DOMINANT PLANT SPECIES	STRATUM	INDICATOR
1. river birch *Betula nigra*	tree	FACW	7. greenbrier *Smilax spp.*	vine	FAC
2. red maple *Acer rubrum*	tree	FAC	8. *#N/A*	#N/A	#N/A
3. loblolly pine *Pinus taeda*	tree	FAC	9. *#N/A*	#N/A	#N/A
4. american holly *Ilex opaca var. opaca*	shrub	FAC-	10. *#N/A*	#N/A	#N/A
5. giant cane *Arundinaria gigantea*	herb	FACW	11. *#N/A*	#N/A	#N/A
6. netted chain-fern *Woodwardia aereolata*	herb	OBL	12. *#N/A*	#N/A	#N/A

Percent of dominant species that are OBL, FACW, or FAC (Excluding FAC-): 86%

Remarks: The hydrophytic vegetation requirement has been met.

HYDROLOGY

☐ RECORDED DATA (DESCRIBE IN REMARKS):
- ☐ Stream, Lake, or Tide Gage
- ☐ Aerial Photographs
- ☐ Other

☑ NO RECORDED DATA AVAILABLE

FIELD OBSERVATIONS

Depth of Surface Water: 3"

Depth to Free Water in Pit: 6"

Depth to Saturated Soil: 0"

WETLAND HYDROLOGY INDICATORS

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

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

Remarks: The hydrologic criterion has been met.
Standing water in places

SOILS

MAP UNIT NAME (Series and Phase):	DRAINAGE CLASS:
Mapped as Portsmouth Series	very poorly drained
TAXONOMY (SUBGROUP):	FIELD OSERVATIONS: Confirm Mapped Type?
Typic Umbraquults	☐ Yes ☑ No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18"		10YR 3/1			sandy loam

HYDRIC SOIL INDICATORS:

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

Remarks: The hydric soil criterion has been met.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☑ Yes	☐ No	Is this Sampling Point Within a Wetland?	☑ Yes ☐ No
Wetland Hydrology Present?	☑ Yes	☐ No		
Hydric Soil Present?	☑ Yes	☐ No		

Remarks: Data point is jurisdictional.

Wetland No 1 S

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

Project/Site: B-4022 Tranters Creek	Date: 3/24/2003
Applicant/Owner: NC Department of Transportation	County: Beaufort
Investigator: Environmental Services, Inc. slk	State: NC
Do normal circumstances exist on the site? ☑ Yes ☐ No	Community ID: Pine woodland
Is the site significantly disturbed (atypical situation)? ☐ Yes ☑ No	Transect ID: NA
Is the area a potential problem area (If needed, explain)? ☐ Yes ☑ No	Data Point #: 6
	uphill from flag #NA-6
	Latitude:
	Longitude:

VEGETATION

DOMINANT PLANT SPECIES	STRATUM	INDICATOR	DOMINANT PLANT SPECIES	STRATUM	INDICATOR
1. Loblolly pine *Pinus taeda*	tree	FAC	7. Grape *Vitus rotundifolia*	vine	FAC
2. American holly *Ilex opaca var. opaca*	shrub	FAC-	8. Partridge berry *Mitchella repens*	[redacted]	FACU+
3. Water oak *Quercus nigra*	tree	FAC	9. American beech *Fagus grandifolia*	shrub	FACU
4. Musclewood *Carpinus caroliniana*	tree	FAC	10. *#N/A*	#N/A	#N/A
5. Highbush blueberry *Vaccinium corymbosum*	shrub	FACW	11. *#N/A*	#N/A	#N/A
6. Greenbrier *Smilax spp.*	vine	FAC	12. *#N/A*	#N/A	#N/A

Percent of dominant species that are OBL, FACW, or FAC (Excluding FAC-): 67%

Remarks

HYDROLOGY

☐ RECORDED DATA (DESCRIBE IN REMARKS):

- ☐ Stream, Lake, or Tide Gage
- ☐ Aerial Photographs
- ☐ Other

☑ NO RECORDED DATA AVAILABLE

FIELD OBSERVATIONS

Depth of Surface Water: 0

Depth to Free Water in Pit: >18"

Depth to Saturated Soil: >18"

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☐ Inundated
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: The hydrologic criterion has not been met.

SOILS

MAP UNIT NAME (Series and Phase): Mapped as Leaf Series	DRAINAGE CLASS: poorly drained
TAXONOMY (SUBGROUP): Typic Albaquults	FIELD OSERVATIONS: Confirm Mapped Type? ☐ Yes ☑ No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3"		10YR 3/1			loamy fine sand
3-10"		10YR 3/2			fine sand
10-15"		10YR 3/2	10YR 7/2	common	fine sand
15-18"+		10YR 7/2	10YR 3/2	common	fine sand

HYDRIC SOIL INDICATORS:

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

Remarks: The hydric soil criterion has not been met.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☑ Yes	☐ No	Is this Sampling Point Within a Wetland?	☐ Yes ☑ No
Wetland Hydrology Present?	☐ Yes	☑ No		
Hydric Soil Present?	☐ Yes	☑ No		

Remarks: Data point is not jurisdictional.

Wetland No 195

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

Project/Site: B-4022 Tranters Creek	Date: 3/24/2003
Applicant/Owner: NC Department of Transportation	County: Beaufort
Investigator: Environmental Services, Inc. slk	State: NC
Do normal circumstances exist on the site? ☑ Yes ☐ No	Community ID: Pine woodland
Is the site significantly disturbed (atypical situation)? ☐ Yes ☑ No	Transect ID: NA
Is the area a potential problem area (If needed, explain)? ☐ Yes ☑ No	Data Point #: 6 continued downhill from flag #NA-6
	Latitude:
	Longitude:

VEGETATION

DOMINANT PLANT SPECIES	STRATUM	INDICATOR	DOMINANT PLANT SPECIES	STRATUM	INDICATOR
1. Cypress *Taxodium distichum*	tree	OBL	7. *#N/A*	#N/A	#N/A
2. Titi Cyrilla racemiflora	shrub	FACW	8. *#N/A*	#N/A	#N/A
3. Red Maple *Acer rubrum*	tree	FAC	9. *#N/A*	#N/A	#N/A
4. *#N/A*	#N/A	#N/A	10. *#N/A*	#N/A	#N/A
5. *#N/A*	#N/A	#N/A	11. *#N/A*	#N/A	#N/A
6. *#N/A*	#N/A	#N/A	12. *#N/A*	#N/A	#N/A

Percent of dominant species that are OBL, FACW, or FAC (Excluding FAC-): 100%

Remarks The hydrophytic vegetation criterion has been met.

HYDROLOGY

☐ RECORDED DATA (DESCRIBE IN REMARKS):

- ☐ Stream, Lake, or Tide Gage
- ☐ Aerial Photographs
- ☐ Other

☑ NO RECORDED DATA AVAILABLE

FIELD OBSERVATIONS

Depth of Surface Water: 1"

Depth to Free Water in Pit: surface

Depth to Saturated Soil: surface

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☑ Inundated
- ☑ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: The hydrologic criterion has been met.

SOILS

MAP UNIT NAME (Series and Phase): Mapped as Leaf Series	DRAINAGE CLASS: poorly drained
TAXONOMY (SUBGROUP): Typic Albaquults	FIELD OSERVATIONS: Confirm Mapped Type? ☐ Yes ☑ No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"		10YR 2/1			loamy sand
6-9"		2.5Y 4/2			loamy sand
9-18"+		2.5Y 5/2			loamy sand

HYDRIC SOIL INDICATORS:

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

Remarks: The hydric soil criterion has been met.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☑ Yes	☐ No	Is this Sampling Point Within a Wetland?	☑ Yes ☐ No
Wetland Hydrology Present?	☑ Yes	☐ No		
Hydric Soil Present?	☑ Yes	☐ No		

Remarks: Data point is jurisdictional.

Wetland No. 2

DATA FORM YE
ROUTINE WETLAND DETERMINATION UP
(1987 CE Wetlands Delineation Manual)

Project/Site: Tranters Creek	Date: 3/24/2003
Applicant/Owner: NCDOT	County: Beaufort
Investigator: Environmental Services, Inc.	State: NC
Do normal circumstances exist on the site? ☑ Yes ☐ No	Community ID: Forested
Is the site significantly disturbed (atypical situation)? ☐ Yes ☑ No	Transect ID: YE
Is the area a potential problem area (If needed, explain)? ☐ Yes ☑ No	Plot ID: Upland

VEGETATION

DOMINANT PLANT SPECIES	STRATUM	INDICATOR	DOMINANT PLANT SPECIES	STRATUM	INDICATOR
1. loblolly pine *Pinus taeda*	tree	FAC	7. *#N/A*	#N/A	#N/A
2. american beech *Fagus grandifolia*	tree	FACU	8. *#N/A*	#N/A	#N/A
3. southern red oak *Quercus falcata*	shrub	FACU-	9. *#N/A*	#N/A	#N/A
4. dog fennel *Eupatorium capillifolium*	herb	FAC-	10. *#N/A*	#N/A	#N/A
5. *#N/A*	vine	FAC	11. *#N/A*	#N/A	#N/A
6. *#N/A*	#N/A	#N/A	12. *#N/A*	#N/A	#N/A

Percent of dominant species that are OBL, FACW, or FAC (Excluding FAC-): 40%

Remarks The hydrophytic vegetation requirement has not been met.

HYDROLOGY

☐ RECORDED DATA (DESCRIBE IN REMARKS):

- ☐ Stream, Lake, or Tide Gage
- ☐ Aerial Photographs
- ☐ Other

☑ NO RECORDED DATA AVAILABLE

FIELD OBSERVATIONS

Depth of Surface Water: 0"

Depth to Free Water in Pit: >18"

Depth to Saturated Soil: >18"

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☐ Inundated
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: The hydrologic criterion has not been met.

SOILS

MAP UNIT NAME (Series and Phase): Mapped as Leaf Series	DRAINAGE CLASS: poorly drained
TAXONOMY (SUBGROUP): Typic Albaquults	FIELD OSERVATIONS: Confirm Mapped Type? ☐ Yes ☑ No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-11"		10YR 3/1			sandy loam
11-18"		10YR 5/4			sandy loam

HYDRIC SOIL INDICATORS:

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

Remarks: The hydric soil criterion has not been met.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☐ Yes	☑ No	Is this Sampling Point Within a Wetland?	☐ Yes ☑ No
Wetland Hydrology Present?	☐ Yes	☑ No		
Hydric Soil Present?	☐ Yes	☑ No		

Remarks: Data point is not jurisdictional.

Wetland No.
2

DATA FORM YE
ROUTINE WETLAND DETERMINATION Wet
(1987 CE Wetlands Delineation Manual)

Project/Site: Tranters Creek	Date: 3/24/2003
Applicant/Owner: NCDOT	County: Beaufort
Investigator: Environmental Services, Inc.	State: NC
Do normal circumstances exist on the site? ☑ Yes ☐ No	Community ID: Forested
Is the site significantly disturbed (atypical situation)? ☐ Yes ☑ No	Transect ID: YE
Is the area a potential problem area (If needed, explain)? ☐ Yes ☑ No	Plot ID: Wetland

VEGETATION

DOMINANT PLANT SPECIES	STRATUM	INDICATOR	DOMINANT PLANT SPECIES	STRATUM	INDICATOR
1. red maple *Acer rubrum*	tree	FACW	7. *#N/A*	#N/A	#N/A
2. american holly *Ilex opaca var. opaca*	tree	FAC-	8. *#N/A*	#N/A	#N/A
3. horsesugar *Symplocos tinctoria*	tree	FAC	9. *#N/A*	#N/A	#N/A
4. seedbox *Ludwigia sp.*	herb	FAC	10. *#N/A*	#N/A	#N/A
5. *#N/A*	#N/A	#N/A	11. *#N/A*	#N/A	#N/A
6.	#N/A	#N/A	12. *#N/A*	#N/A	#N/A

Percent of dominant species that are OBL, FACW, or FAC (Excluding FAC-): 75%

Remarks The hydrophytic vegetation requirement has been met.

HYDROLOGY

☐ RECORDED DATA (DESCRIBE IN REMARKS):

- ☐ Stream, Lake, or Tide Gage
- ☐ Aerial Photographs
- ☐ Other

☑ NO RECORDED DATA AVAILABLE

FIELD OBSERVATIONS

Depth of Surface Water: 1/2"

Depth to Free Water in Pit: 0"

Depth to Saturated Soil: 0"

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☑ Inundated
- ☑ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☑ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

- ☐ Oxidized Root Channels in Upper 12 Inches
- ☑ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: The hydrologic criterion has been met.
Standing water in places

SOILS

MAP UNIT NAME (Series and Phase): Mapped as Leaf Series	DRAINAGE CLASS: poorly drained
TAXONOMY (SUBGROUP): Typic Albaquults	FIELD OSERVATIONS: Confirm Mapped Type? ☐ Yes ☑ No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18"		10YR 3/1			sandy loam

HYDRIC SOIL INDICATORS:

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

Remarks: The hydric soil criterion has been met.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☑ Yes	☐ No	Is this Sampling Point Within a Wetland?	☑ Yes ☐ No
Wetland Hydrology Present?	☑ Yes	☐ No		
Hydric Soil Present?	☑ Yes	☐ No		

Remarks: Data point is jurisdictional.

WL Plant Nos
3 ? 4

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

Project/Site: B-4022 Tranters Creek	Date: 3/24/2003
Applicant/Owner: NC Department of Transportation	County: Beaufort
Investigator: Environmental Services, Inc. slk	State: NC
Do normal circumstances exist on the site? ☑ Yes ☐ No	Community ID: Pine woodland
Is the site significantly disturbed (atypical situation)? ☐ Yes ☑ No	Transect ID: NC
Is the area a potential problem area (If needed, explain)?	Data Point #: 6
☐ Yes ☑ No	uphill from flag #NC-6
	Latitude:
	Longitude:

VEGETATION

DOMINANT PLANT SPECIES	STRATUM	INDICATOR	DOMINANT PLANT SPECIES	STRATUM	INDICATOR
1. Loblolly pine *Pinus taeda*	tree	FAC	7. Greenbrier *Smilax spp.*	vine	FAC
2. American beech *Fagus grandifolia*	tree	FACU	8. Grape *Vitus rotundifolia*	vine	FAC
3. Red Maple *Acer rubrum*	tree	FAC	9. *#N/A*	#N/A	#N/A
4. American holly *Ilex opaca var. opaca*	tree	FAC-	10. *#N/A*	#N/A	#N/A
5. Horsesugar *Symplocos tinctoria*	shrub	FAC	11. *#N/A*	#N/A	#N/A
6. Wax myrtle *Myrica cerifera*	shrub	FAC+	12. *#N/A*	#N/A	#N/A

Percent of dominant species that are OBL, FACW, or FAC (Excluding FAC-): 75%

Remarks

HYDROLOGY

☐ RECORDED DATA (DESCRIBE IN REMARKS):

- ☐ Stream, Lake, or Tide Gage
- ☐ Aerial Photographs
- ☐ Other

☑ NO RECORDED DATA AVAILABLE

FIELD OBSERVATIONS

Depth of Surface Water: 0

Depth to Free Water in Pit: >18"

Depth to Saturated Soil: >18"

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☐ Inundated
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: The hydrologic criterion has not been met.

SOILS

MAP UNIT NAME (Series and Phase): Mapped as Leaf Series	DRAINAGE CLASS: poorly drained
TAXONOMY (SUBGROUP): Typic Albaquults	FIELD OSERVATIONS: Confirm Mapped Type? ☐ Yes ☑ No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4"		2.5Y 4/2			fine sand
4-10"		2.5Y 5/3			fine sand
10-18"+		2.5Y 6/3			fine sand

HYDRIC SOIL INDICATORS:

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

Remarks: The hydric soil criterion has not been met.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☑ Yes	☐ No	Is this Sampling Point Within a Wetland? ☐ Yes ☑ No
Wetland Hydrology Present?	☐ Yes	☑ No	
Hydric Soil Present?	☐ Yes	☑ No	

Remarks: Data point is not jurisdictional.

Wetland No. 3&4

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

Project/Site: B-4022 Tranters Creek	Date: 3/24/2003
Applicant/Owner: NC Department of Transportation	County: Beaufort
Investigator: Environmental Services, Inc. slk	State: NC
Do normal circumstances exist on the site? ☑ Yes ☐ No	Community ID: Pine woodland
Is the site significantly disturbed (atypical situation)? ☐ Yes ☑ No	Transect ID: NC
Is the area a potential problem area (If needed, explain)? ☐ Yes ☑ No	Data Point #: 1 continued downhill from flag #NC-6
	Latitude:
	Longitude:

VEGETATION

DOMINANT PLANT SPECIES	STRATUM	INDICATOR	DOMINANT PLANT SPECIES	STRATUM	INDICATOR
1. Sweetgum *Liquidambar styraciflua*	tree	FAC+	7. *#N/A*	#N/A	#N/A
2. Loblolly pine *Pinus taeda*	tree	FAC	8. *#N/A*	#N/A	#N/A
3. Red Maple *Acer rubrum*	tree	FAC	9. *#N/A*	#N/A	#N/A
4. Sweetbay *Magnolia virginiana*	tree	FACW+	10. *#N/A*	#N/A	#N/A
5. Greenbrier *Smilax spp.*	vine	FAC	11. *#N/A*	#N/A	#N/A
6. Sweetbay *Magnolia virginiana*	shrub	FACW+	12. *#N/A*	#N/A	#N/A

Percent of dominant species that are OBL, FACW, or FAC (Excluding FAC-): 100%

Remarks: The hydrophytic vegetation criterion has been met.

HYDROLOGY

☐ RECORDED DATA (DESCRIBE IN REMARKS):

- ☐ Stream, Lake, or Tide Gage
- ☐ Aerial Photographs
- ☐ Other

☑ NO RECORDED DATA AVAILABLE

FIELD OBSERVATIONS

Depth of Surface Water: 2"

Depth to Free Water in Pit: 0

Depth to Saturated Soil: 0

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☑ Inundated
- ☑ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: The hydrologic criterion has been met.

SOILS

MAP UNIT NAME (Series and Phase): Mapped as Leaf Series	DRAINAGE CLASS: poorly drained
TAXONOMY (SUBGROUP): Typic Albaquults	FIELD OSERVATIONS: Confirm Mapped Type? ☐ Yes ☑ No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4"		10YR 3/2			sandy loam
4-10"		10YR 6/2			fine sand
10-18"+		2.5Y 7/2	10YR 6/8	Common/prominent	fine sand

HYDRIC SOIL INDICATORS:

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

Remarks: The hydric soil criterion has been met.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☑ Yes	☐ No	Is this Sampling Point Within a Wetland?	☑ Yes ☐ No
Wetland Hydrology Present?	☑ Yes	☐ No		
Hydric Soil Present?	☑ Yes	☐ No		

Remarks: Data point is jurisdictional.

6, 7 & 8

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

YA, YB, YC
Up

Project/Site: Tranters Creek	Date: 3/24/2003
Applicant/Owner: NCDOT	County: Pitt
Investigator: Environmental Services, Inc.	State: NC
Do normal circumstances exist on the site? ☑ Yes ☐ No	Community ID: Forested
Is the site significantly disturbed (atypical situation)? ☐ Yes ☑ No	Transect ID: YC
Is the area a potential problem area (If needed, explain)? ☐ Yes ☑ No	Plot ID: Upland

VEGETATION

DOMINANT PLANT SPECIES	STRATUM	INDICATOR	DOMINANT PLANT SPECIES	STRATUM	INDICATOR
1. loblolly pine *Pinus taeda*	tree	FAC	7. *#N/A*	#N/A	#N/A
2. eastern red cedar *Juniperus virginiana*	shrub	FACU-	8. *#N/A*	#N/A	#N/A
3. american beech *Fagus grandifolia*	shrub	FACU	9. *#N/A*	#N/A	#N/A
4. honeysuckle *Lonicera japonica*	vine	FAC-	10. *#N/A*	#N/A	#N/A
5. *#N/A*	vine	#N/A	11. *#N/A*	#N/A	#N/A
6. *#N/A*	#N/A	#N/A	12. *#N/A*	#N/A	#N/A

Percent of dominant species that are OBL, FACW, or FAC (Excluding FAC-): 20%

Remarks: The hydrophytic vegetation requirement has not been met.

HYDROLOGY

☐ RECORDED DATA (DESCRIBE IN REMARKS):

- ☐ Stream, Lake, or Tide Gage
- ☐ Aerial Photographs
- ☐ Other

☑ NO RECORDED DATA AVAILABLE

FIELD OBSERVATIONS

Depth of Surface Water: 0"

Depth to Free Water in Pit: >18"

Depth to Saturated Soil: >18"

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☐ Inundated
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: The hydrologic criterion has not been met.

SOILS

MAP UNIT NAME (Series and Phase): Mapped as Lakeland Series	DRAINAGE CLASS: excessively well
TAXONOMY (SUBGROUP): Typic Quartzipsamments	FIELD OSERVATIONS: Confirm Mapped Type? ☐ Yes ☑ No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-11"		10YR3/1			sandy loam
11-18"		10YR5/4			sandy loam

HYDRIC SOIL INDICATORS:

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

Remarks: The hydric soil criterion has not been met.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☐ Yes	☑ No	Is this Sampling Point Within a Wetland? ☐ Yes ☑ No
Wetland Hydrology Present?	☐ Yes	☑ No	
Hydric Soil Present?	☐ Yes	☑ No	

Remarks: Data point is not jurisdictional.

NCDENR
North Carolina Department of Environment and Natural Resources

Division of Water Quality DWQ

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WATER QUALITY

NOTICE FOR REQUIREMENT OF COMPLIANCE OF EMC RULES FOR PROTECTION AND MAINTENANCE OF EXISTING RIPARIAN AREAS

PROJECT # MST03-012 **COUNTY** Beaufort / Pitt **DWQ OFFICE** WARO

VERSION: NEUSE ______ (15A NCAC 2B .0233) TAR-PAMLICO X (15A NCAC 2B .0259)
CATAWBA ______ (15A NCAC 2B .0243) RANDLEMAN ______ (15A NCAC 2B .0250)
OTHER ______

EXEMPT MSJ (DWQ INITIALS) **NOT EXEMPT** ______ (DWQ INITIALS)

Property Owner's Name NCDOT
Phone Number (Home) ______ **(Business)** ______
Address ______
City Raleigh **State** NC **Zip** ______

Project Location (Nearest State Road, Nearest Water Body, etc.)
Tranters Creek Area of SR1414 near Leggett's Cross Roads

As indicated on attached map initialed by staff on MSJ
Description of Proposed Project
Bridge Replacement

Description of Site
Wetland Area Adjacent to Tranter's Creek. There was some evidence of a channel but it appeared to be a cut feature.

Violation noted on site YES NO. If yes, a Notice of Violation will be forwarded from the appropriate regional office. (NO circled)

The proposed project which is to be located and constructed as described above is hereby determined as EXEMPT NOT EXEMPT from compliance of the requirements of the aforementioned rules as it applies to section ______. This determination does not alleviate the necessity of your obtaining any other *State, Federal, or Local authorization. (EXEMPT circled)

Property Owner's/Agent's Signature [signature]
DWQ Official's Signature [signature]
Date of Determination 5-1-03

*This project may require a Section 404/401 Permit or a CAMA Permit for the proposed activity. Inquiries should be directed to the DWQ Central Office at (919) 733-1786, Washington Office at (252) 946-6481, Raleigh Office at (919) 571-4700, Wilmington Office at (910) 395-3900, Winston Salem Office at ((336) 771-4630, Asheville Office at (828) 251-6208, Fayetteville Office at (910) 486-1541, or Mooresville Office at (704) 663-1699.