STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

March 12, 2004

N.C. Department of Environment and Natural Resources
Division of Coastal Management
151-B Hwy 24
Hestron Plaza II
Morehead City, NC 28557

Attention: Mr. Bill Arrington
District Manager

Dear Sir:

Subject: **Application for CAMA Major Development Permit** for the proposed replacement of Bridge No. 61 on NC 133 over Town Creek in Brunswick County, NCDOT Division 3. Federal Project No. BRSTP-133(1), State Project No. 8.1231401, WBS Element: 32874.1.1, TIP No. B-3115

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 61 over Town Creek on NC133. Bridge No. 61 will be replaced on the existing alignment with a new bridge approximately 300 feet in length and a with cleared roadway width of 32 feet. The approaches will include two 12 foot lanes with 8 foot shoulders. Permanent impacts to non coastal wetlands associated with the replacement of Bridge No. 61 will include 0.10 acre of permanent fill and 0.07 acre of mechanized clearing. The traffic will be detoured to NC 87 during bridge construction.

Please find enclosed copies of the Coastal Area Management Act (CAMA) permit application (MP1 and MP5), Categorical Exclusion (CE), permit drawings, half size plans, a North Carolina Division of Water Quality Stormwater Exemption letter, Guidelines for Avoiding Impacts to the West Indian Manatee, an EEP Request Letter, green cards from the Adjacent Riparian Land Owners and a method of debiting $400 to be submitted to the DCM for processing the CAMA permit.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-715-1500
FAX: 919-715-1501

WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD
PLB SUITE 168
RALEIGH NC 27604

According to Bridge Maintenance records, the sufficiency rating of the bridge is 27.9 out of a possible 100. The new bridge will provide wider road shoulders on either side of the structure which will increase the safety rating for the bridge.

Town Creek is located in the Cape Fear River Basin (Hydrological Cataloguing Unit 03030005) and classified by the Division of Water Quality as C-Sw. Class C refers to waters suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation and agriculture. The Sw (swamp waters) sub-classification is a supplemental classification intended to recognize those waters having naturally occurring low velocities, low pH and low dissolved oxygen. Town Creek is also classified as an Anadromous Fish Stream.

Area of Environmental Concern (AEC): Town Creek is considered Public Trust Water at the location where bridge No. 61 crosses the creek. The bridge height is considered for this AEC.

PROPOSED IMPACTS TO WATERS OF THE UNITED STATES

Bridge Demolition: Bridge No. 61 is 300 feet long and 26.4 feet wide. It has a reinforced concrete deck on steel I-beams with concrete caps on timber piles. Best Management Practices for Bridge Demolition and Removal, which dictates that all existing structures over water be removed by non-shattering methods, will be followed during demolition and construction. Bridge No. 61 will be removed with less than 5 cubic yards of temporary fill in the wetland or surface water. The bridge will be removed in pieces that remain in place on the caps until they are removed by the crane. If any portion of concrete drops in the water, every effort is made to remove these from the water. Turbidity curtains shall be installed along the banks of Town Creek to help prevent components of the existing bridge from entering the watercourse. NCDOT will adhere to a moratorium allowing no work in water during the period of February 1 through June 15 to protect the shortnose sturgeon and other anadromous fish.

Permanent Impacts: The permit drawings report wetland impacts of 0.10 acre of permanent fill and 0.07 acre of mechanized clearing. The permanent fill is due to the piers for the proposed structure. The mechanized clearing is due to roadway embankment. There will be no marsh or coastal wetlands impacted. There will be less than 0.01 acres of fill in surface water from the piers for the proposed bridge structure.

Temporary Impacts: There will be less than 0.01 acres of fill in non-coastal wetlands due to the piles for the temporary work bridges. There will be less than 0.01 acres of fill in the surface water due to the piles from the temporary work bridges.

- **Schedule for Construction**: It is assumed that the Contractor will begin construction of the proposed temporary work bridge shortly after the date of availability for the project. The Let date is July 20, 2004 with a date of availability of August 25, 2004.

- **Restoration Plan**: Following the construction of the temporary work bridge, the construction of the permanent bridge will be completed. Once the temporary work bridge is no longer needed, all material used in the construction of the temporary work bridge will be removed. The temporary impact area associated with the work bridge is expected to recover naturally. Restoration of the project area will take place immediately following project completion and prior to traffic flow to the new bridge.

- **Removal and Disposal Plan**: After the temporary work bridge is no longer needed, all temporary work bridge material will become the property of the contractor. The contractor will be required to submit a reclamation plan for the removal and disposal of all work bridge material and demolished bridge material to an off-site upland location.

Utility Relocation: There are four utility lines located at the project site. NCDOT's Utility-Right-of-Way (Unit 3) has provided relocation plans for two utilities (Bell South and AT&T). Preliminary relocation plans were also provided for Brunswick EMC and Time Warner. At this time our data indicate that there will be no CAMA or Section 404 jurisdictional resources impacted. If final plans result in 404 and/or CAMA impacts, NCDOT will apply for a Nationwide 12 Permit.

PROTECTED SPECIES

Threatened and Endangered Species: Plants and animals with federal classification of Endangered, Threatened, Proposed Endangered and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003, the U.S. Fish and Wildlife Service (USFWS) lists 14 federally protected species for Brunswick County. In August 1999 a survey for the federally protected species found that habitat does exist for the endangered woodstork (*Mycteria americana*), roughed-leaved loosestrife (*Lysimachia asperulaefolia),* Cooley's Meadowrue (*Thalictrun cooleyi*) and the threatened bald eagle (*Halieetus leucocephalus*) species. Currently these species receive biological conclusions of "Unresolved". However, another survey will be conducted for each of these species in May of 2004, prior to construction. Biological conclusions of "No Effect" for each of the remaining species are valid and are presented in the attached CE.

- **West Indian Manatee**: The U.S. Fish and Wildlife Service has developed a list of "Precautions for the general construction in areas which may be used by the

West Indian manatee in North Carolina". These precautions will be considered in all aspects of project construction (see attached precaution instructions).

- **Shortnose Sturgeon**: To ensure the project will not adversely affect the endangered shortnose sturgeon, explosives will not be used in the bridge demolition. To protect the shortnose sturgeon and other anadromous fish, there will be no in-water or in-marsh activity during the months of February 1 through June 15.

Essential Fish Habitat: The 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act (MSFCMA) set forth a new mandate for the National Marine Fisheries Service (NMFS), regional fishery management councils (FMC) and other Federal agencies to identify and protect important marine and anadromous fish habitat. The FMCs, with the assistance from NMFS, have delineated "essential fish habitat" (EFH) for managed species. In the South Atlantic region, waterbodies in Brunswick County are listed in which EFHs are found. Town Creek is not a listed waterbody for EFHs. Therefore the rules of the MSFCMA will not apply for this project

MITIGATION OPTIONS

AVOIDANCE AND MINIMIZATION: Specific avoidance and minimization measures for this project include using a maximum slope of 3:1 and replacing the existing bridge in its current location with an off-site detour. The new bridge will span the entire width of Town Creek with none of the supporting structures installed in the water. The tidal freshwater marsh will not be impacted because the new bridge will span this community as well.

Turbidity curtains shall be used to contain all bottom disturbing activities, including pile or casement installation, placement of rip/rap, excavation or filling within the watercourse of Town Creek. The NCDOT shall install turbidity curtains along the banks of Town creek to prevent sediment from the causeway restoration area from entering the watercourse. The turbidity curtains will be properly maintained and retained in the water until construction is complete and turbidity within the curtains reaches ambient levels.

COMPENSATION: This project will permanently impact a total of 0.17 acre of non-coastal wetlands. Despite the minimization strategies employed for the proposed project, the resulting wetland impacts will be greater than 0.1 acre and will require mitigation.

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

Section 404 compensatory mitigation requirements for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the Ecological Enhancement Program (EEP) transition period which ends on July 1, 2005.

Since the subject project is listed in *Exhibit 1* the necessary compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act will be provided by the EEP (see attached letter to EEP). The offsetting mitigation will derive from an inventory of assets already in existence within the same Ecoregion and the same 8-digit cataloguing unit. We have avoided and minimized the impacts to jurisdictional resources to the greatest extent possible as described above. The remaining, unavoidable impacts to 0.17 acre of jurisdictional wetlands will be offset by compensatory mitigation provided by the EEP program.

REGULATORY APPROVALS

NCDOT requests that the proposed work be authorized under a Coastal Area Management Act Major Development Permit. NCDOT will also be applying for issuance of a United States Army Corps of Engineers NWP 23 and NWP 33 and a section 401 Water Quality Certification from the North Carolina Division of Water Quality under a separate cover.

Thank you for your assistance with this project. If you have any questions or need additional information please call Carla Dagnino at (919) 715-1456.

Sincerely

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

cc:

Ms. Cathy Brittingham, NCDCM
Mr. Bill Biddlecomb, USACE, Washington
Mr. Travis Wilson, NCWRC
Mr. Ron Sechler, NMFS
Mr. Mike Street, NCDMF
Mr. Omar Sultan, Programming and TIP
Mr. Greg Perfetti, P.E., Structure Design
Mr. H. Allen Pope, PE; Division 3 Engineer
Mr. Dave Timpy, USACE, Wilmington
Mr. John Hennessy, DWQ, Raleigh
Mr. Gary Jordan, USFWS
Mr. Art McMillan, P.E., Highway Design
Mr. Jay Bennett, P.E., Roadway Design
Mr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Mason Herndon, DIV 3 DEO

Form DCM-MP-1

APPLICATION

(To be completed by all applicants)

1. APPLICANT

a. Landowner:

Name **N. C. Department of Transportation**
Address **1548 Mail Service Center**

City **Raleigh** State **NC**

Zip **27699** Day Phone **(919) 733-3141**

Fax **(919) 733-9794**

b. Authorized Agent:

Name _____

Address _____

City _____ State _____
Zip _____ Day Phone _____
Fax _____

c. Project name (if any) **B-3115 (8.1231401)**
Bridge No. 61 over Town Creek on NC 133

NOTE: Permit will be issued in name of landowner(s), and/or project name.

2. LOCATION OF PROPOSED PROJECT

a. County **Brunswick**

b. City, town, community or landmark
South of the town of Claredon and North Of the Town of Pinelevel

c. Street address or secondary road number
NC 133

d. Is proposed work within city limits or planning jurisdiction? _____ Yes **X** No

e. Name of body of water nearest project (e.g. river, creek, sound, bay) **Town Creek**

3. DESCRIPTION AND PLANNED USE OF PROPOSED PROJECT

a. List all development activities you propose (e.g. building a home, motel, marina, bulkhead, pier, and excavation and/or filling activities.
Replacing existing bridge with a new bridge.. This will include wider shoulders on the bridge and provides more safety when crossing the bridge.

b. Is the proposed activity maintenance of an existing project, new work, or both? **new work**

c. Will the project be for public, private or commercial use? **Public transportation**

d. Give a brief description of purpose, use, methods of construction and daily operations of proposed project. If more space is needed, please attach additional pages. **Purpose of project is to provide public transportation. Work Bridges and Barges will be used to reduce impacts in the creek and adjacent wetlands.**

4. LAND AND WATER CHARACTERISTICS

a. Size of entire tract **2.5 acres**

b. Size of individual lot(s) **N/A**

c. Approximate elevation of tract above MHW or NWL **0 - 10 feet**

d. Soil type(s) and texture(s) of tract **Chowan silt loam (ch); Baymeade Fine Sand (BaB)**

e. Vegetation on tract: **Tidal Freshwater/Brackish Marsh; Bottomland Hardwood Forest; Upland Pine Forest**

f. Man-made features now on tract **existing bridge, roadway, and utilities**

g. What is the CAMA Land Use Plan land classification of the site? *(Consult the local land use plan.)*

____ Conservation ____ Transitional
____ Developed ____ Community
__X__ Rural ____ Other

h. How is the tract zoned by local government? **Zoned for some commercial, some residential, see Tax map #86.**

i. Is the proposed project consistent with the applicable zoning? __X__ Yes ____ No
(Attach zoning compliance certificate, if applicable)

j. Has a professional archaeological assessment been done for the tract? ____ Yes __X__ No
If yes, by whom? _____

k. Is the project located in a National Registered Historic District or does it involve a National Register listed or eligible property?
____ Yes __X__ No

l. Are there wetlands on the site? __X__ Yes ___ No
Coastal (marsh) __X__ Other __X__
If yes, has a delineation been conducted? **YES**
(Attach documentation, if available)

m. Describe existing wastewater treatment facilities.
N/A

n. Describe location and type of discharges to waters of the state. (For example, surface runoff, sanitary wastewater, industrial/commercial effluent, "wash down" and residential discharges.)
surface runoff

o. Describe existing drinking water supply source.
N/A

5. ADDITIONAL INFORMATION

In addition to the completed application form, the following items must be submitted:

- **A copy of the deed** (with state application only) or other instrument under which the applicant claims title to the affected properties. If the applicant is not claiming to be the owner of said property, then forward a copy of the deed or other instrument under which the owner claims title, plus written permission from the owner to carry out the project.

- **An accurate, dated work plat** (including plan view and cross-sectional drawings) drawn to scale in black ink on an 8 1/2" by 11" white paper. (Refer to Coastal Resources Commission Rule 7J.0203 for a detailed description.)

  Please note that original drawings are preferred and only high quality copies will be accepted. Blue-line prints or other larger plats are acceptable only if an adequate number of quality copies are provided by applicant. (Contact the U.S. Army Corps of Engineers regarding that agency's use of larger drawings.) A site or location map is a part of plat requirements and it must be sufficiently detailed to guide agency personnel unfamiliar with the area to the site. Include highway or secondary road (SR) numbers, landmarks, and the like.

- **A Stormwater Certification**, if one is necessary.

- A list of the **names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail.** Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management. Upon signing this form, the applicant further certifies that such notice has been provided.

  Name **T.F. Holdings**
  Address **1202 Eastwood Rd.**
  Wilmington, NC 28403

  Name **David R. Harless**
  Address **2765 River Rd., SE**
  Winnabow, NC 28479
  Phone _____

  Name _____
  Address _____
  Phone _____

- **A list of previous state or federal permits** issued for work on the project tract. Include permit numbers, permittee, and issuing dates.

  _____

- **A check for $250** made payable to the Department of Environment, Health, and Natural Resources (DEHNR) to cover the costs of processing the application.

- **A signed AEC hazard notice** for projects in oceanfront and inlet areas.

- **A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A - 1 to 10)** If the project involves the expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act.

6. CERTIFICATION AND PERMISSION TO ENTER ON LAND

I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to conditions and restrictions contained in the permit.

I certify that to the best of my knowledge, the proposed activity complies with the State of North Carolina's approved Coastal Management Program and will be conducted in a manner consistent with such program.

I certify that I am authorized to grant, and do in fact, grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project.

I further certify that the information provided in this application is truthful to the best of my knowledge.

This is the 5 day of March, 2004.

Print Name Philip S. Harris III

Signature _____
Landowner or Authorized Agent

Please indicate attachments pertaining to your proposed project.

___ DCM MP-2 Excavation and Fill Information
___ DCM MP-3 Upland Development
___ DCM MP-4 Structures Information
___ DCM MP-5 Bridges and Culverts
___ DCM MP-6 Marina Development

NOTE: *Please sign and date each attachment in the space provided at the bottom of each form.*

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.

1. BRIDGES

a. Public __X__ Private _____

b. Type of bridge (construction material)
concrete - cored slab

c. Water body to be crossed by bridge
Town Creek

d. Water depth at the proposed crossing at MLW or NWL **30 Feet**

e. Will proposed bridge replace an existing bridge?
__X__ Yes _____ No
If yes,
(1) Length of existing bridge **300 ft**
(2) Width of existing bridge **24.0 ft**
(3) Navigation clearance underneath existing bridge **6.0 ft**
(4) Will all, or a part of, the existing bridge be removed? (Explain) **all of the existing bridge will be removed.**

f. Will proposed bridge replace an existing culvert(s)?
_____ Yes __X__ No
If yes,
(1) Length of existing culvert **N/A**
(2) Width of existing culvert **N/A**
(3) Height of the top of the existing culvert above the MHW or NWL **N/A**
(4) Will all, or a part of, the existing culvert be removed? (Explain) **N/A**

g. Length of proposed bridge **300 ft**

h. Width of proposed bridge **36 ft**

i. Height of proposed bridge above wetlands
10 ft

j. Will the proposed bridge affect existing water flow?
__X__ Yes _____ No
If yes, explain **The low chord on the proposed bridge is 2 ft +/- higher than that of the existing structure. Therefore there is more flow area under the bridge**

k. Navigation clearance underneath proposed bridge
8.0 ft

l. Will the proposed bridge affect navigation by reducing or increasing the existing navigable opening? X Yes ___No
If yes, explain **The low chord on the proposed bridge is 2 ft +/- higher than that of the existing structure. Therefore there is more area to navigate under the bridge**

m. Will the proposed bridge cross wetlands containing no navigable waters? _____ Yes __X__ No
If yes, explain _____

n. Have you contacted the U.S. Coast Guard concerning their approval?
_____ Yes __X__ No
If yes, please provide record of their action.

2. CULVERTS N/A

a. Water body in which culvert is to be placed
_____

b. Number of culverts proposed _____

c. Type of culvert (construction material, style)
_____

d. Will proposed culvert replace an existing bridge?
____ Yes ____ No
If yes,
(1) Length of existing bridge _____
(2) Width of existing bridge _____
(3) Navigation clearance underneath existing bridge _____
(4) Will all, or a part of, the existing bridge be removed? (Explain) _____

e. Will proposed culvert replace an existing culvert?
____ Yes ____ No
If yes,
(1) Length of existing culvert _____
(2) Width of existing culvert _____
(3) Height of the top of the existing culvert above the MHW or NWL _____
(4) 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 MHW or NWL _____

i. Will the proposed culvert affect existing water flow?
____ Yes ____ No
If yes, explain _____
_____

j. Will the proposed culvert affect existing navigation potential? ____ Yes ____ No
If yes, explain _____
_____

3. EXCAVATION AND FILL

a. Will the placement of the proposed bridge or culvert require any excavation below the MHW or NWL?
___ Yes _X_ No
If yes,
(1) Length of area to be excavated _____
(2) Width of area to be excavated _____
(3) Depth of area to be excavated _____
(4) Amount of material to be excavated in cubic yards _____

b. Will the placement of the proposed bridge or culvert require any excavation within: **NO**
__ Coastal Wetlands __ SAVs __ Other Wetlands
If yes,
(1) Length of area to be excavated _____
(2) Width of area to be excavated _____
(3) Amount of material to be excavated in cubic yards _____

c. Will the placement of the proposed bridge or culvert require any highground excavation?
___ Yes _X_ No
If yes,
(1) Length of area to be excavated _____
(2) Width of area to be excavated _____
(3) Amount of material to be excavated in cubic yards _____

d. If the placement of the bridge or culvert involves any excavation, please complete the following:
(1) Location of the spoil disposal area
To be determined by contractor.
_____
(2) Dimensions of spoil disposal area
N/A
(3) Do you claim title to the disposal area?
____ Yes **X** No
If no, attach a letter granting permission from the owner.
(4) Will the disposal area be available for future maintenance? ____ Yes **X** No
(5) Does the disposal area include any coastal wetlands (marsh), SAVs, or other wetlands?
____ Yes **X** No
If yes, give dimensions if different from (2) above. _____

(6) Does the disposal area include any area below the MHW or NWL? ____ Yes __X__ No
If yes, give dimension if different from No. 2 above. _____

e. 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 MHW or NWL? ___ Yes _X___ No
If yes,
(1) Length of area to be filled _____
(2) Width of area to be filled _____
(3) Purpose of fill _____

f. 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 ___ SAVs _X_ Other Wetlands
If yes,
(1) Length of area to be filled **320 ft**
(2) Width of area to be filled **15 ft (avg.)**
(3) Purpose of fill **roadway embankment**

g. 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 highground? __X_ Yes ____ No
If yes,
(1) Length of area to be filled **930 ft +/-**
(2) Width of area to be filled **70 ft +/-**
(3) Purpose of fill **roadway embankment**

4. GENERAL

a. Will the proposed project involve any mitigation?
_X___ Yes ____ No
If yes, explain in detail For 0.17 acres impact in wetland

b. Will the proposed project require the relocation of any existing utility lines? ____ Yes ____ No
If yes, explain in detail

c. Will the proposed project require the construction of any temporary detour structures?
____ Yes __X__ No
If yes, explain in detail _____

d. Will the proposed project require any work channels?
____ Yes __X__ No
If yes, complete Form DCM-MP-2

e. How will excavated or fill material be kept on site and erosion controlled? **Design Standards for Sensitive Watersheds will be used.**

f. What type of construction equipment will be used (for example, dragline, backhoe or hydraulic dredge)?
Standard bridge and roadway construction equipment.

g. Will wetlands be crossed in transporting equipment to project site? _X___ Yes ____No
If yes, explain steps that will be taken to lessen environmental impacts. **Work bridges will be used to minimize impacts**

h. Will the placement of the proposed bridge or culvert require any shoreline stabilization?
____ Yes __X__ No
If yes, explain in detail _____

Philip S. Harris III
Applicant or Project Name

Signature

3/5/04
Date

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

March 5, 2004

Mr. William D. Gilmore, P.E.
EEP Transition Manager
Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652

Dear Sir:

Subject: **Request for EEP Confirmation of Mitigation:** Brunswick County. Bridge No. 61 on NC 133 over Town Creek. Federal Project No. BRSTP-133(1), State Project No. 8.1231401, WBS Element: 32874.1.1, TIP No. B-3115.

The purpose of this letter is to request that the North Carolina Ecosystem Enhancement Program (EEP) provide confirmation that the EEP is willing to provide compensatory mitigation for the project in accordance with the Memorandum of Agreement (MOA) signed July 22, 2003 by the USACE, the NCDENR and the NCDOT.

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 61 over Tom Creek on NC133. Bridge No. 61 will be replaced on the existing alignment with a new bridge approximately 300 feet in length and a cleared roadway width of 32 feet. The approaches will include two 12 foot lanes with 8 foot shoulders. During construction traffic will be detoured to NC 87. Impacts to wetlands associated with the replacement of Bridge No. 61 will include 0.10 acre of permanent fill and 0.07 acre of mechanized clearing.

RESOURCES UNDER THE JURISDICTION OF SECTION 404 AND 401 OF THE CLEAN WATER ACT.

We have avoided and minimized the impacts to jurisdictional resources to the greatest extent possible as described in the permit application. A copy of the permit application can be found at http://www.ncdot.org/planning/pe/naturalunit/Applications.html. The remaining impacts to jurisdictional resources will be compensated for by mitigation provided by the EEP program. We estimate that 0.17 acre of wetlands will be impacted.

The project is located in the Southern Outer Coastal Plain in Brunswick County in the Cape Fear River basin in Hydrological Cataloguing Unit 03030005.

- The wetland impacts, summarized in Table 1, totals 0.17 acre of non-riverine bottomland wetlands. We propose to provide compensatory mitigation for the wetland impacts by using the EEP for the 0.17 acres of impacts.

Table 1: Summary of Jurisdictional Impacts

Section	Permanent Wetlands (ac)		Streams (ft)
	Riverine	Non riverine	
R/W 13+70-L- To 16 + 70-L-		0.17	

Please send the letter of confirmation to Dave Timpy (USACE Coordinator) at U. S. Army Corps of Engineers Division 3 Regulatory Field Office, (P.O. Box 1890, Wilmington, NC 28402-1890). Mr. Timpy's FAX number is (910) 251-4025. The current let date for the project is July 20, 2004 for which the let review date is (June 1, 2004).

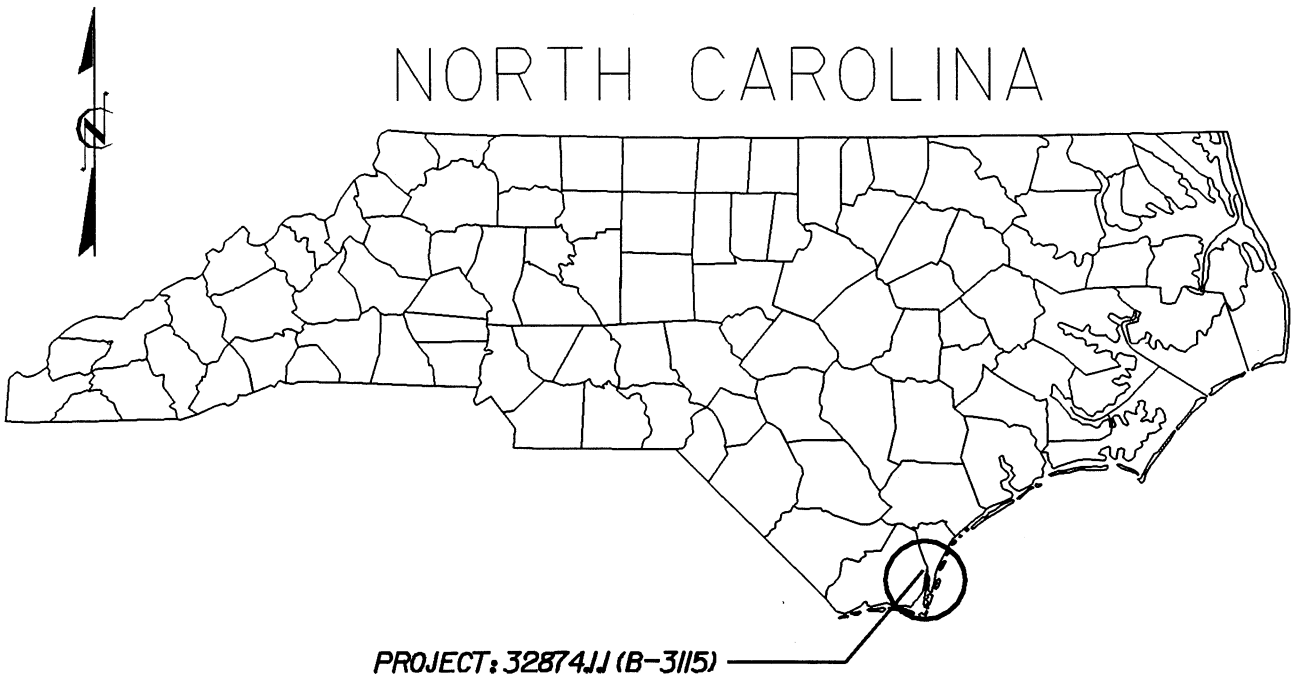
In order to satisfy regulatory assurances that mitigation will be performed; the NCDWQ (North Carolina Division of Water Quality) requires a formal letter from EEP indicating their willingness and ability to provide the mitigation work requested by NCDOT. The NCDOT requests such a letter of confirmation be addressed to Mr. John Hennessy of NCDWQ, with copies submitted to NCDOT.

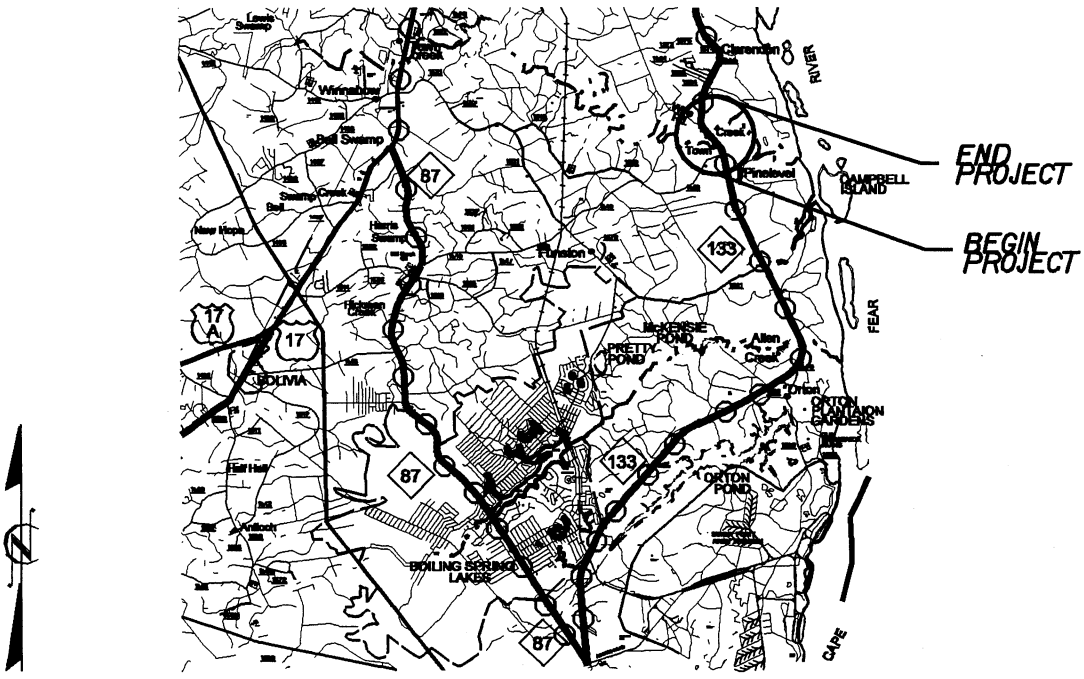
If you have any questions or need additional information please call Carla Dagnino at (919) 715-1456

Sincerely,

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

cc:
Ms. Cathy Brittingham, NCDCM
Mr. John Hennessy, DWQ, Raleigh
Mr. Gary Jordan, USFWS
Mr. Mike Street, NCDMF
Mr. Omar Sultan, Programming and TIP
Mr. David Chang, P.E. , Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Mason Herndon, DIV 3 DEO
Mr. Dave Timpy, USACE, Wilmington
Mr. Travis Wilson, NCWRC
Mr. Ron Sechler, NMFS
Mr. Jay Bennett, P.E., Roadway Design
Mr. Art McMillan, P.E., Highway Design
Mr. Greg Perfetti, P.E., Structure Design
Mr. H. Allen Pope, PE; Division 3 Engineer





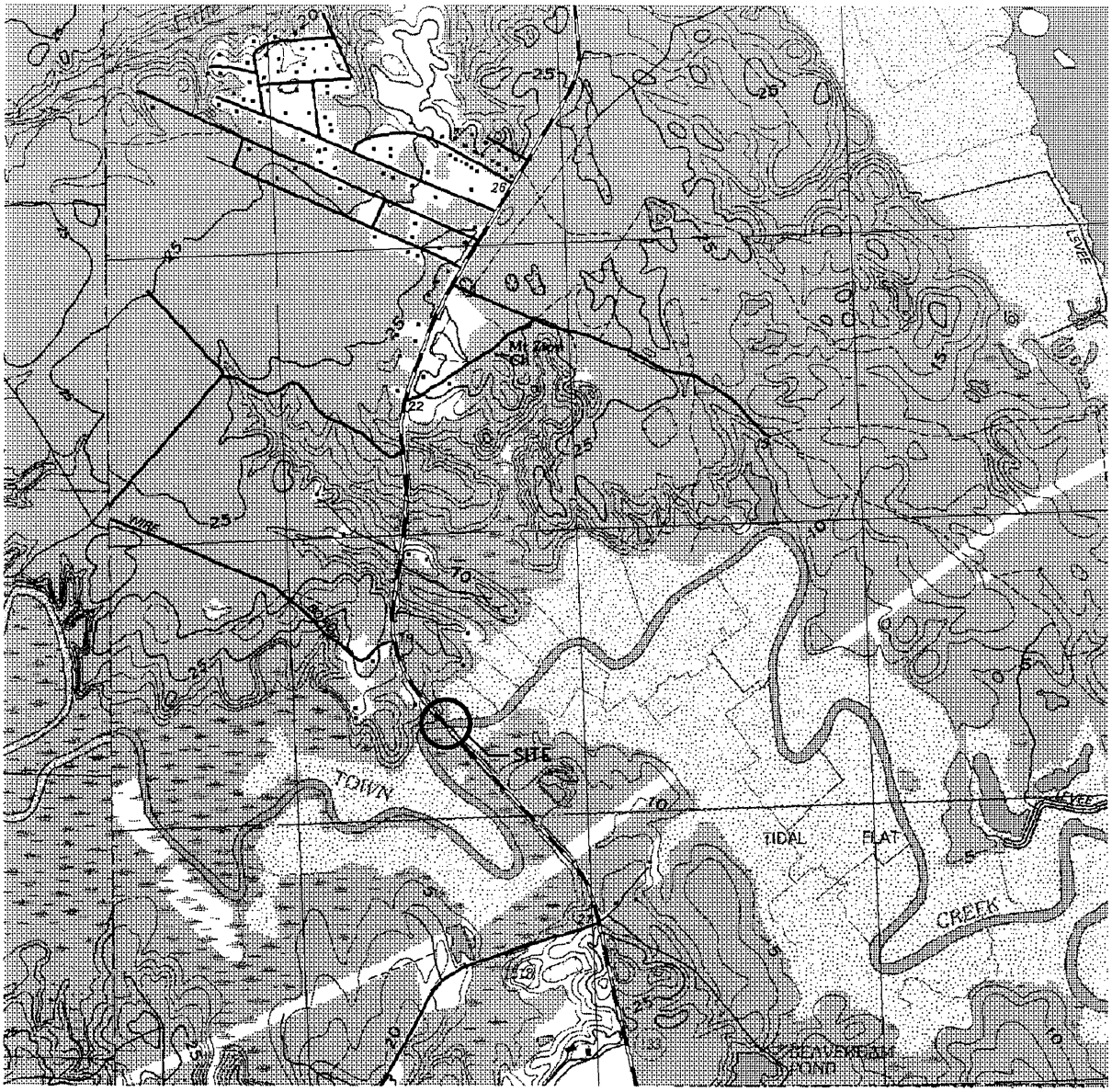
DETOUR ROUTE

VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 32874.1.1 (B-3115)
REPLACE BRIDGE #61 ON NC 133 OVER TOWN CREEK

SHEET 1 **OF** 10 **11/18/03**



SITE MAP

NCDOT

DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

PROJECT: 32874.1.1 (B-3116)

REPLACE BRIDGE #61 ON NC 133 OVER TOWN CREEK

SHEET 2 **OF** 10 **11/18/03**

WETLAND LEGEND

WLB — WETLAND BOUNDARY

WETLAND

F F — DENOTES FILL IN WETLAND

S S — DENOTES FILL IN SURFACE WATER

P P — DENOTES FILL IN SURFACE WATER (POND)

T T — DENOTES TEMPORARY FILL IN WETLAND

E E — DENOTES EXCAVATION IN WETLAND

TS TS — DENOTES TEMPORARY FILL IN SURFACE WATER

DENOTES MECHANIZED CLEARING

FLOW DIRECTION

TB — TOP OF BANK

WE — EDGE OF WATER

C — PROP. LIMIT OF CUT

F — PROP. LIMIT OF FILL

PROP. RIGHT OF WAY

NG — NATURAL GROUND

PL — PROPERTY LINE

TDE — TEMP. DRAINAGE EASEMENT

PDE — PERMANENT DRAINAGE EASEMENT

EAB — EXIST. ENDANGERED ANIMAL BOUNDARY

EPB — EXIST. ENDANGERED PLANT BOUNDARY

WATER SURFACE

LIVE STAKES

BOULDER

COIR FIBER ROLLS

PROPOSED BRIDGE

PROPOSED BOX CULVERT

PROPOSED PIPE CULVERT
12"-48" PIPES
54" PIPES & ABOVE

(DASHED LINES DENOTE EXISTNG STRUCTURES)

SINGLE TREE

WOODS LINE

DRAINAGE INLET

ROOTWAD

RIP RAP

5 — ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE

PREFORMED SCOUR HOLE

LEVEL SPREADER (LS)

DITCH / GRASS SWALE

NCDOT

DIVISION OF HIGHWAYS

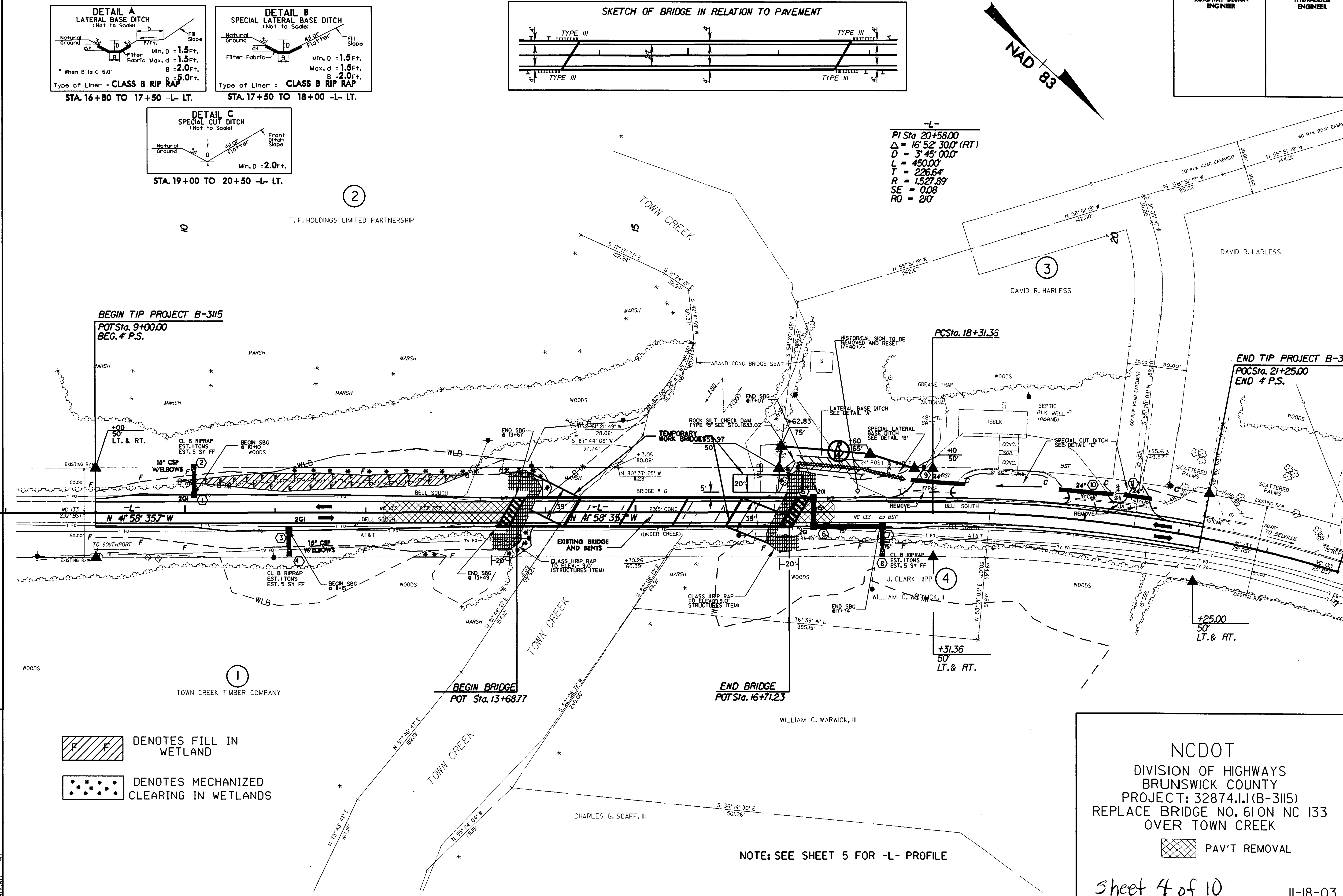
BRUNSWICK COUNTY

PROJECT: 32874.1.1 (B-3115)

REPLACE BRIDGE #61 ON NC 133 OVER TOWN CREEK

PROJECT REFERENCE NO.	SHEET NO.
B-3115	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

THIS PROJECT IS IN ENGLISH UNITS



DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Min. D = 1.5Ft.
Max. d = 1.5Ft.
B = 2.0Ft.
b = 5.0Ft.
* When B is < 6.0'
Type of Liner = CLASS B RIP RAP
STA. 16+80 TO 17+50 -L- LT.
DETAIL B
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Min. D = 1.5Ft.
Max. d = 1.5Ft.
B = 2.0Ft.
Type of Liner = CLASS B RIP RAP
STA. 17+50 TO 18+00 -L- LT.
DETAIL C
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 2.0Ft.
STA. 19+00 TO 20+50 -L- LT.
SKETCH OF BRIDGE IN RELATION TO PAVEMENT
TYPE III
NAD 83
T. F. HOLDINGS LIMITED PARTNERSHIP
DAVID R. HARLESS
TOWN CREEK TIMBER COMPANY
WILLIAM C. WARWICK, III
CHARLES G. SCAFF, III
J. CLARK HIPP
TOWN CREEK
BEGIN TIP PROJECT B-3115
POT Sta. 9+00.00
BEG. 4' P.S.
END TIP PROJECT B-3115
POC Sta. 21+25.00
END 4' P.S.
PC Sta. 18+31.35
BEGIN BRIDGE
POT Sta. 13+68.77
END BRIDGE
POT Sta. 16+71.23
N 41° 58' 35.7" W
EXISTING BRIDGE AND BENTS
TEMPORARY WORK BRIDGE
BRIDGE # 61
NC 133
BELL SOUTH
AT&T
TO SOUTHPORT
TO BELVILLE
WOODS
MARSH
POT Sta. 7+00.00
REVISIONS

-L-
PI Sta 20+58.00
Δ = 16° 52' 30.0" (RT)
D = 3° 45' 00.0"
L = 450.00'
T = 226.64'
R = 1,527.89'
SE = 0.08
RO = 210'

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING IN WETLANDS

NOTE: SEE SHEET 5 FOR -L- PROFILE

NCDOT

DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 32874.1.1 (B-3115)
REPLACE BRIDGE NO. 61 ON NC 133
OVER TOWN CREEK

PAV'T REMOVAL

Sheet 4 of 10

11-18-03

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
B-3115	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

THIS PROJECT IS IN ENGLISH UNITS

SKETCH OF BRIDGE IN RELATION TO PAVEMENT

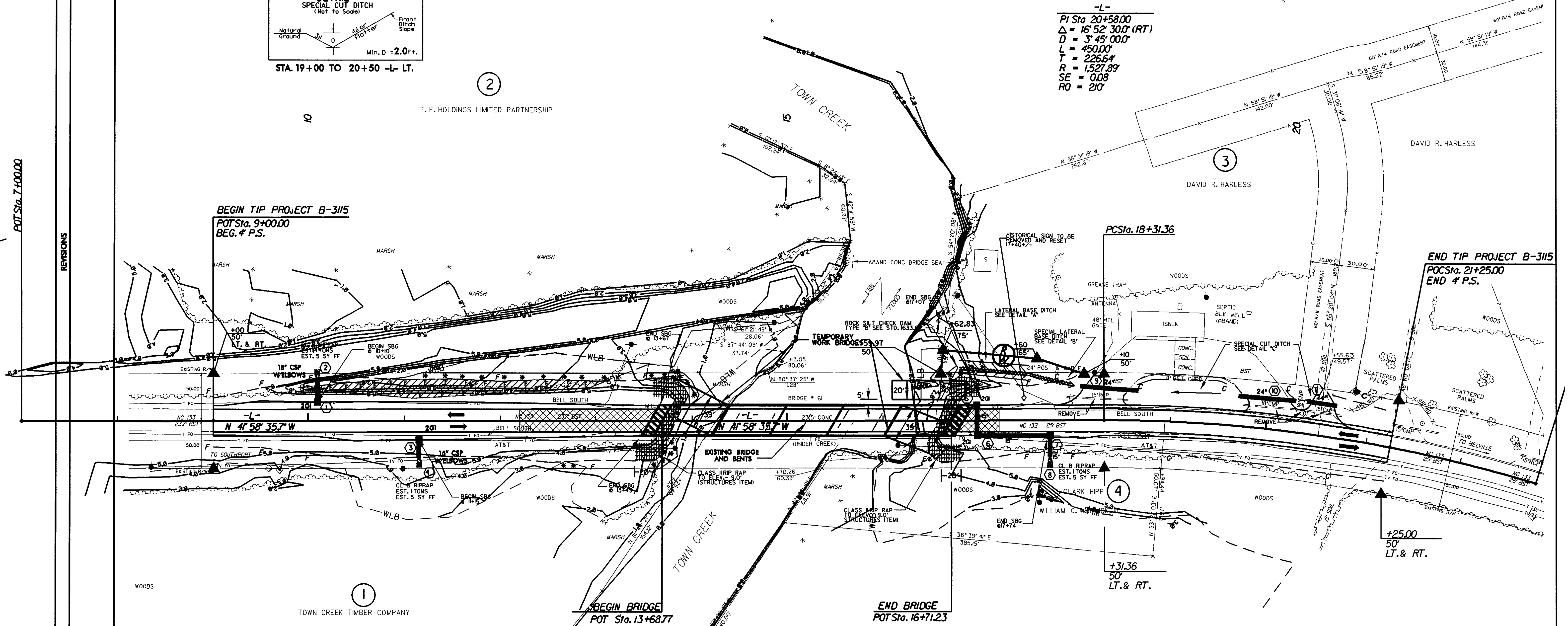
TYPE III

DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Min. D = 1.5Ft.
Max. d = 1.5Ft.
B = 2.0Ft.
b = 5.0Ft.
* When B is < 6.0'
Type of Liner = CLASS B RIP RAP
STA. 16+80 TO 17+50 -L- LT.

DETAIL B
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Min. D = 1.5Ft.
Max. d = 1.5Ft.
B = 2.0Ft.
Type of Liner = CLASS B RIP RAP
STA. 17+50 TO 18+00 -L- LT.

DETAIL C
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 2.0Ft.
STA. 19+00 TO 20+50 -L- LT.

-L-
PI Sta 20+58.00
Δ = 16° 52' 30.0" (RT)
D = 3° 45' 00.0"
L = 450.00'
T = 226.64'
R = 1,527.89'
SE = 0.08
RO = 210'



DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING IN WETLANDS

NOTE: SEE SHEET 5 FOR -L- PROFILE

NCDOT
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 32874.1.1 (B-3115)
REPLACE BRIDGE NO. 61 ON NC 133
OVER TOWN CREEK

PAV'T REMOVAL

Sheet 5 of 10

11-18-03

8/17/99

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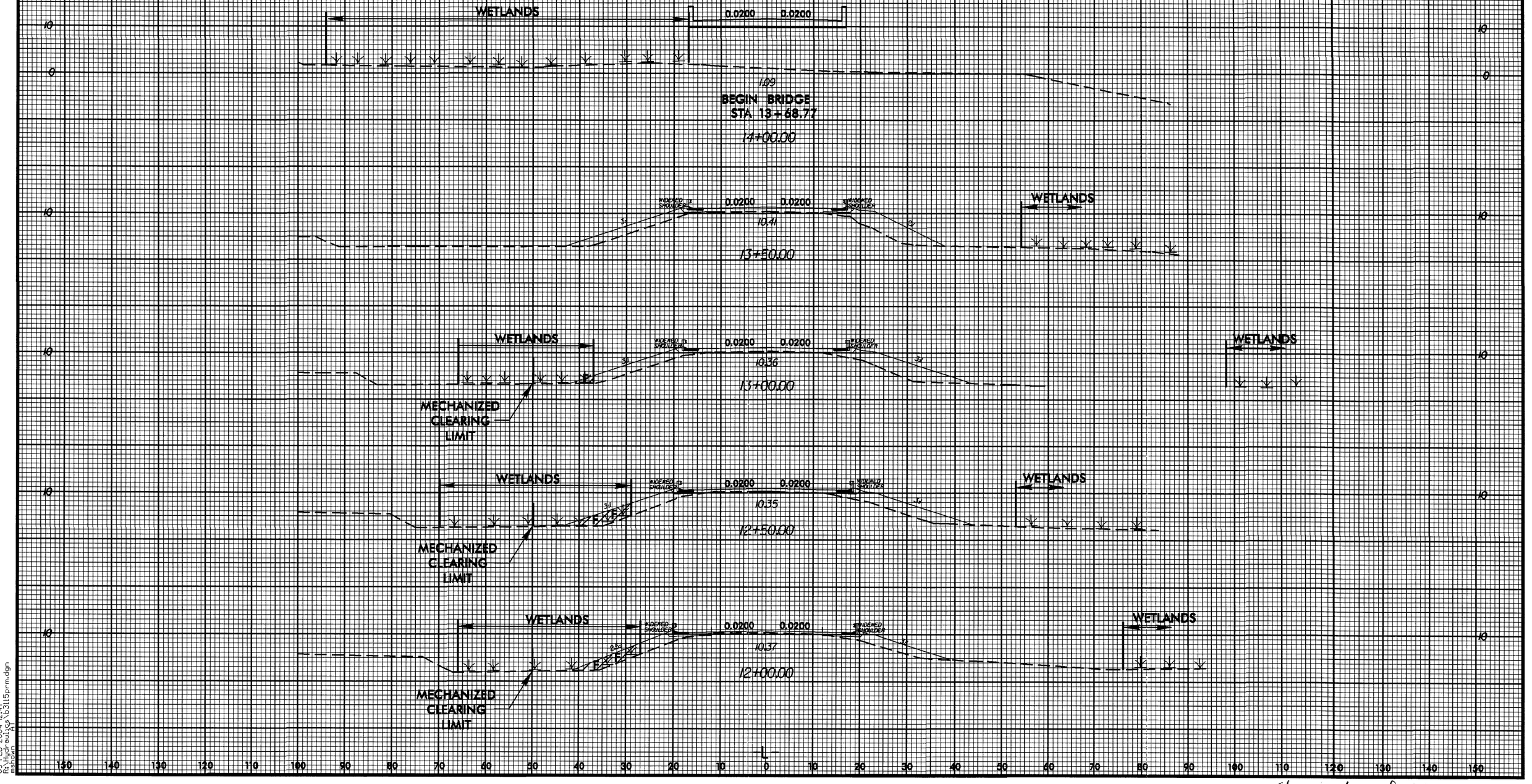

WETLANDS
0.0200
0.0200
10.09
BEGIN BRIDGE
STA 13+68.77
14+00.00
WIDENED SHOULDER
10.41
13+50.00
MECHANIZED CLEARING LIMIT
10.36
13+00.00
10.35
12+50.00
10.37
12+00.00

PROJECT REFERENCE NO.	SHEET NO.
B-3115	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5/28/99

STRUCTURE HYDRAULIC DATA

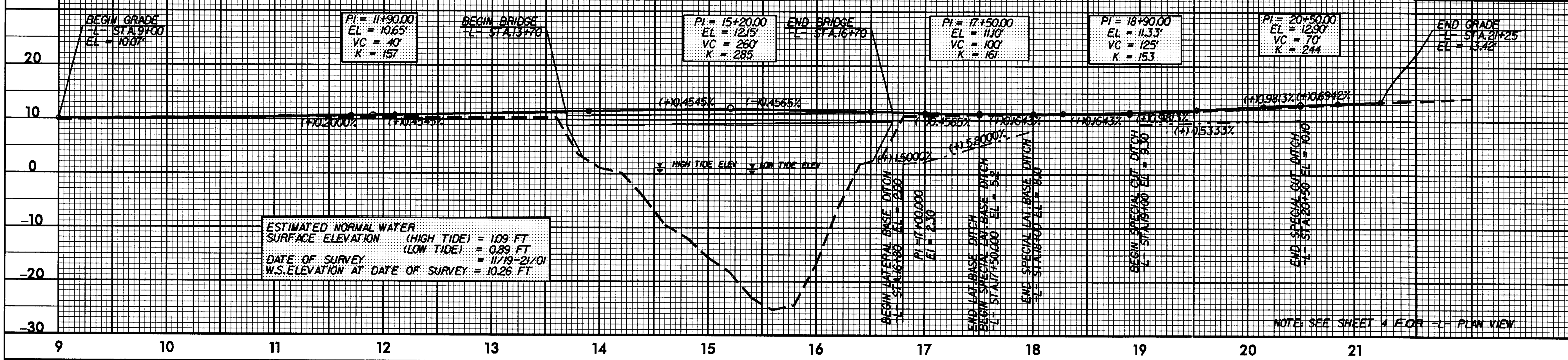
DESIGN DISCHARGE	=	5900 CFS
DESIGN FREQUENCY	=	50 YRS
DESIGN HW ELEVATION	=	8.01 FT
BASE DISCHARGE	=	7100 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	8.66 FT
OVERTOPPING DISCHARGE	=	9305 CFS
OVERTOPPING FREQUENCY	=	100+ YRS
OVERTOPPING ELEVATION	=	9.0 FT

-L-

BM #11 N 142617 E 2306211
-BL- STA.22+00 68.3' RT
R/R SPIKE SET IN TWIN 18" PINE TREE
EL = 10.263'
-L- STA.19+32.64 OFF 57.2155' RT

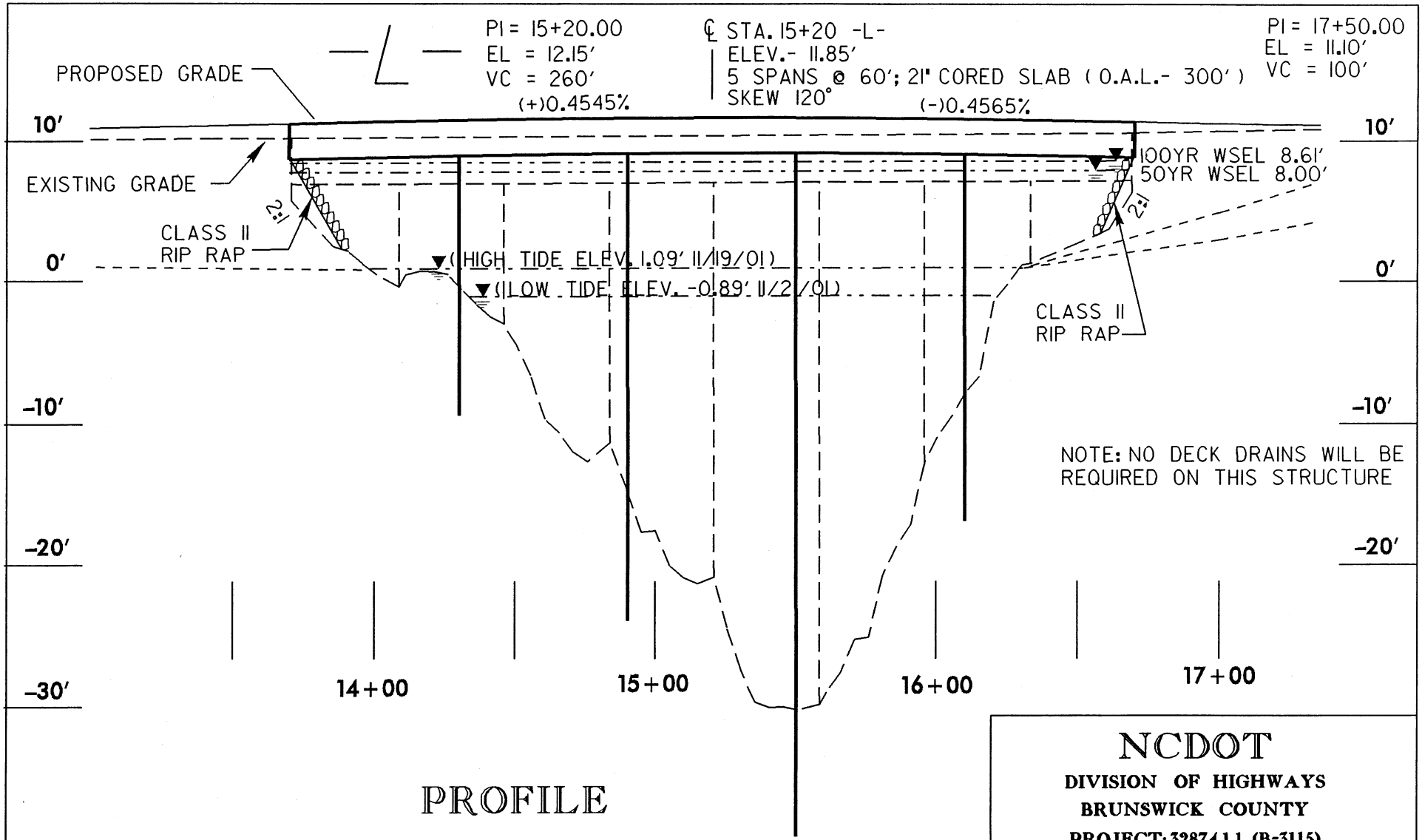
LEFT DITCH — · · —
RIGHT DITCH - - - - - -

ESTIMATED NORMAL WATER
SURFACE ELEVATION (HIGH TIDE) = 1.09 FT
(LOW TIDE) = 0.89 FT
DATE OF SURVEY = 11/19-21/01
W.S.ELEVATION AT DATE OF SURVEY = 10.26 FT



BEGIN GRADE
-L- STA.9+00
EL = 10.07'
PI = 11+90.00
EL = 10.65'
VC = 40'
K = 157
BEGIN BRIDGE
-L- STA.13+70
PI = 15+20.00
EL = 12.15'
VC = 260'
K = 285
END BRIDGE
-L- STA.16+70
PI = 17+50.00
EL = 11.10'
VC = 100'
K = 161
PI = 18+90.00
EL = 11.33'
VC = 125'
K = 153
PI = 20+50.00
EL = 12.90'
VC = 70'
K = 244
END GRADE
-L- STA.21+25
EL = 13.42'
(+)0.2000%
(+)0.4545%
(-)0.4565%
(+)1.5000%
(+)5.2000%
(+)0.1643%
(+)0.5333%
(+)0.9813%
(+)0.6942%
HIGH TIDE ELEV
LOW TIDE ELEV
BEGIN LATERAL BASE DITCH -L- STA.16+80 EL = 2.20
PI = 17+00.00 EL = 2.30
END LAT. BASE DITCH
BEGIN SPECIAL LAT. BASE DITCH -L- STA.17+50.00 EL = 5.2
END SPECIAL LAT. BASE DITCH -L- STA.18+00 EL = 8.0
BEGIN SPECIAL CUT DITCH -L- STA.19+00 EL = 9.30
END SPECIAL CUT DITCH -L- STA.20+50 EL = 10.10
NOTE: SEE SHEET 4 FOR -L- PLAN VIEW
20
10
0
-10
-20
-30
9
10
11
12
13
14
15
16
17
18
19
20
21

Sheet 7 of 10



PROFILE

NCDOT

DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

PROJECT: 32874.1.1 (B-3115)

REPLACE BRIDGE #61 ON NC 133
OVER TOWN CREEK

SHEET 8 OF 10 11/18/03

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.		NAMES	ADDRESSES
2	✓	T. F. HOLDINGS	1202 EASTWOOD RD. WILMINGTON, NC 28403
1	X	TOWN CREEK TIMBER COMPANY	P.O. BOX 4886 WILMINGTON, NC 28406
3	✓	DAVID R. HARLESS	2765 RIVER RD. SE WINNABOW, NC 28479
4	X	J. CLARK HIPP	504 DOCK ST. WILMINGTON, NC 38401
4	X	W.C. WARWICK, III	9165 RIVER OAKS LANE SE WINNABOW, NC 28479

✓ - only property owners currently

NCDOT

DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

PROJECT: 32874.1.1 (B-3115)

REPLACE BRIDGE #61 ON NC 133
OVER TOWN CREEK

SHEET 9 OF 10 11/18/03

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS				SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	13+70 -L- TO	BRIDGE	0.10	<0.01		0.07	<0.01		<0.01		
	16+70 -L-										
TOTALS:			0.10	0	0	0.07	0	0	0	0	0

NOTE: FILL IN SURFACE WATER IS DUE TO THE PIERS FOR THE PROPOSED STRUCTURE AND THE TEMPORARY FILL IN WETLANDS AND TEMPORARY FILL IN SURFACE WATER IS DUE TO THE PILES FOR THE TEMPORARY WORK BRIDGES.

Form Revised 3/22/01

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BRUNSWICK COUNTY
PROJECT 32874.1.1 (B-3115)

2/9/2004

Brunswick County
Bridge No. 61 on NC 133
Over Town Creek
Federal Project BRSTP-133 (1)
State Project 8.1231401
TIP No. B-3115

CATEGORICAL EXCLUSION

U. S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

N. C. DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

APPROVED:

7/2/02 _____

Date Robert P. Hanson, P. E., Assistant Manager
Project Development and Environmental Analysis Branch

7/2/02 _____

Date for Nicholas Graf, P. E.
Division Administrator, FHWA

Brunswick County
Bridge No. 61 on NC 133
Over Town Creek
Federal Project BRSTP-133 (1)
State Project 8.1231401
TIP No. B-3115

CATEGORICAL EXCLUSION

Documentation Prepared in
Project Development and Environmental Analysis Branch By:

7/1/02 — Beverly G. Robinson
Date — Beverly G. Robinson
Project Development Engineer

7/1/02 — James A. McInnis Jr.
Date — James A. McInnis Jr., P.E.
Project Development, Unit Head

NORTH CAROLINA PROFESSIONAL SEAL 20701 ENGINEER JAMES A. McINNIS JR.
7-1-02

7/2/02 — Robert P. Hanson
Date — Robert P. Hanson, P. E., Assistant Manager
Project Development and Environmental Analysis Branch

TABLE OF CONTENTS

PROJECT COMMITMENTS

TIP PROJECT B-3115, Brunswick County

Bridge No. 61, on NC 133
Over Town Creek
Federal Aid Project BRSTP-133(1)
State Project 8.1231401

1. Structure Design Unit, Division 3:

Bridge Demolition: Bridge No. 61 is 300 feet (91.4 meters) long and 26.4 feet (8.04 meters) wide. It has a reinforced concrete deck on steel I-beams with concrete caps on timber piles. Thus, there is a potential for components of the bridge to be dropped into Waters of the United States during construction. The resulting temporary fill associated with the bridge will be as much as approximately 158.9 cubic yards. This calculation was based on the entire length of the bridge extending over surface waters as well as jurisdictional wetlands. All deposited components will be removed from the Waters of the U.S. as quickly as possible. During construction, Best Management Practices for Bridge Demolition and Removal will be followed. To ensure the project will not adversely affect the endangered shortnose sturgeon, explosives will not be used in the bridge demolition.

2. Hydraulics Unit, Structure Design Unit, Division 3:

Stream Crossing Guidelines: NCDOT's "Stream Crossing Guidelines for Anadromous Fish Passage" will be followed in the design & construction phases.

3. Division 3:

Construction Moratorium: There will be no in-water or in-marsh activity from February 1 through June 15. This is considered the in-migration, spawning, and out-migration period for the endangered shortnose sturgeon and another anadromous fish. All measures should be taken to prevent sedimentation in Town Creek during construction.

The U.S. Fish and Wildlife Service has developed a list of "Precautions for the general construction in areas which may be used by the West Indian manatee in North Carolina." These precautions will be considered in all aspects of project construction; therefore, this project will not affect the West Indian manatee.

NCDOT has agreed to delay closing NC 133 until after Labor Day.

4. Roadside Environmental Unit:

Design Standards in Sensitive Watersheds: To ensure the project will not adversely affect the endangered shortnose sturgeon, Design Standards for Sensitive Watersheds (formerly High Quality Water Guidelines) will be used.

5. Roadway Design Unit:

Fill slope in wetland areas: To minimize wetland impacts and provide for slope stability, the maximum fill slope of 3:1 will be used in wetland areas.

6. Project Development and Environmental Analysis Branch, Division 3:

1) NCDOT will investigate whether any necessary improvements are needed for NC 87 to be used as a detour route, including the need for additional traffic signals and resurfacing.
2) NCDOT will provide Carolina Power and Light Company and Brunswick County Emergency Management Officials with an estimate of the amount of time the closure of NC 133 will add to evacuation times for the Brunswick Nuclear Plant.
3) In response to local government requests, NCDOT will provide further public notification regarding this bridge replacement, road closure and detour route. This will be coordinated with Brunswick County Emergency Management.

Brunswick County
Bridge No. 61 on NC 133
Over Town Creek
Federal Project BRSTP-133 (1)
State Project 8.1231401
TIP No. B-3115

Bridge No. 61 carries NC 133 over Town Creek in Brunswick County. TIP Project B-3115 proposes to replace this bridge, and is programmed in the Draft 2004-2010 Transportation Improvement Program (TIP) as a bridge replacement project. NC 87 will be used as a detour route during the replacement of Bridge No. 61 and will be patched and resurfaced as a part of this project. This project is part of the Federal Highway Bridge Replacement and Rehabilitation Program (HBRRP) and has been classified as a "Categorical Exclusion". No substantial environmental impacts are expected.

I. SUMMARY OF RECOMMENDATIONS

Bridge No. 61 will be replaced in its existing location on NC 133 over Town Creek (see Figure 2). The new bridge will be approximately 300 feet (91 meters) in length and placed at approximately the same elevation as the existing bridge. Traffic will be detoured onto NC 87 (See Figure 4).

The proposed bridge will have a clear roadway width of 32 feet (9.6 meters), which will provide two 12-foot (3.6-meter) lanes with 4-foot (1.2-meter) offsets. The approaches will include two 12-foot (3.6-meter) lanes and 8-foot (2.4 meter) shoulders with 4-foot (1.2 meter) full depth paved shoulders. Based on preliminary design, the design speed should be approximately 60 mph (100 km/h).

NC 87 will be used as the detour route during the replacement of Bridge No. 61. NC 87 will be patched and resurfaced from the southern city limits of Boiling Spring Lakes to the northern city limits of Boiling Spring Lakes.

The proposed project is included in the Draft 2004-2010 Transportation Improvement Program (TIP). The current schedule includes right of way acquisition in July 2003 and construction in July 2004.

The estimated cost of the project is $1,905,000 including $1,400,000 in construction costs, $5,000 in right of way costs and $500,000 for patching and resurfacing NC 87. The estimated cost shown in the Draft 2004-2010 TIP is $1,935,000 which includes $235,000 for right of way acquisition and $1,700,000 for construction.

II. HISTORY OF PROPOSED PROJECT

A Categorical Exclusion was approved for this project on May 23, 2000 by NCDOT and the Federal Highway Administration. In the approved Categorical Exclusion, the recommended alternative would replace Bridge No. 61 on new location west of the existing bridge. The existing bridge would be utilized as a detour structure. After further investigation, it was determined the proposed horizontal alignment would be worse than the existing horizontal alignment. It was determined replacing the bridge on existing alignment with an offsite detour would be the best alternative for this project and reduce the project cost. Because this alternative was not discussed in the May 2000 categorical exclusion, this new document has been prepared.

A second bridge project is located along NC 133 in the area. TIP Project B-3116 will replace Bridge Number 56 carrying NC 133 over Allen Creek. This bridge is located approximately 4.5 miles (7.24 kilometers) south of Bridge Number 61. NC 133 will be closed and NC 87 used as a detour for this project also. Right of way acquisition for Project B-3116 is scheduled for federal fiscal year 2002 and construction is scheduled for federal fiscal year 2003.

III. ANTICIPATED DESIGN EXCEPTIONS

NCDOT does not anticipate any design exceptions will be required.

IV. EXISTING CONDITIONS

NC 133 is classified as a Rural Major Collector in the Statewide Functional Classification System. Currently (2001) the traffic volume is 12,000 vehicles per day (VPD). By the year 2025, the traffic volume is projected to increase to 25,000 vpd. Single unit trucks and tractor-trailers make up three percent and two percent of these volumes, respectively. NC 133 has a speed limit of 55 miles per hour.

The existing bridge was built in 1955. It has a reinforced concrete deck on steel I-beams and the substructure is concrete caps on timber piles. The deck is 300 feet (91 meters) long and 26 feet (7.8 meters) wide. There is approximately 26 feet (7.8 meters) of vertical clearance between the floorbeams of the bridge deck and the streambed. There are two lanes of traffic on the bridge.

Presently the bridge is posted with weight restrictions of 35 tons (31751.5 kilograms) for single vehicles and the legal load limit for truck-tractor semi-trailers. The sufficiency rating is 27.9. This structure is functionally obsolete and the substructure is becoming structurally deficient.

Vertical alignment is good with a slight upgrade on the north side of the bridge. There is a slight curve in the horizontal alignment, which begins approximately 150 feet (45.7 meters) from the north end of the bridge. The approach pavement width is 19 feet (5.8 meters) with acceptable width grass shoulders.

The Traffic Engineering Branch indicates 14 accidents were reported between April 1998 through March 2001 from SR 1518 (Daws Creek Road) to SR 1555 (Mellaney Lane).

Four school buses cross over the studied bridge with 2 trips per day.

Utility conflicts will be low for this project. There are underground phone cables on both sides of NC 133 going aerial across the creek. There is also a fiber optic cable underground along the east side of NC 133. Also along the east side of NC 133, there are overhead power lines that cross over to the west side just south of the bridge.

V. STUDIED ALTERNATIVES

The four "build" options considered for this project are as follows:

Alternate 1) Replace Bridge No. 61 in place with a temporary detour bridge located to the west during construction. The estimated cost for Alternate 1 is $2,110,000 to include $1,875,000 for construction and $235,000 for right of way acquisition.

Alternate 2) Replace bridge No. 61 on new alignment to the west of the existing bridge. Traffic will be maintained on the existing bridge during construction. The estimated cost for Alternate 2 is $1,935,000 to include $1,700,000 for construction and $235,000 for right of way acquisition.

Alternate 3) (**Recommended**) Replace Bridge No. 61 in place with a new bridge. Traffic will be detoured onto NC 87 during construction. The estimated cost for Alternate 3 is $1,405,000 to include $1,400,000 for construction and $5,000 for right of way acquisition.

Alternate 4) Replace Bridge No. 61 on new alignment to the east of the existing bridge. Traffic will be maintained on the existing bridge during construction. The estimated cost for Alternate 4 is $3,425,000 to include $2,475,000 for construction and $950,000 for right of way acquisition.

"Do-nothing" is not practical; requiring the eventual closing of the road as the existing bridge completely deteriorates. Rehabilitation of the existing deteriorating bridge is neither practical nor economical.

Alternates 1 and 3 both replace the existing structure in the same location with a bridge approximately 300 feet (91 meters) in length and maintain a design speed of 60 mph (100 km/h). Alternate 3 is recommended because there is no onsite detour. Although Alternate 2 offers the same benefits; but, this alignment would require an on-site detour. Alternate 4 would increase the impacts to the project area. The Division concurs in the recommendation.

VI. RECOMMENDED IMPROVEMENTS

Bridge No. 61 will be replaced as recommended in Alternate 3 with a new bridge in the same location. The new bridge will be approximately 300 feet (91 meters) in length and placed at approximately the same elevation as the existing bridge. Traffic will be detoured onto NC 87 during construction (See Figure 4).

NC 87 will be patched and resurfaced from the southern city limits of Boiling Spring Lakes to the northern city limits of Boiling Spring Lakes as a part of this project (see Figure 5).

The proposed bridge will have a clear roadway width of 32 feet (9.6 meters), which will provide two 12-foot (3.6 meter) lanes with 4-foot (1.2 meter) offsets. The approaches will include two 12-foot (3.6-meter) lanes and 8-foot (2.4-meter) shoulders with 4-foot (1.2-meter) full depth paved shoulders. Approach work will extend approximately 600 feet (180 meters) to either side of the new bridge. Based on preliminary design, the design speed should be approximately 60 mph (100 km/h).

NC 133 will be closed during replacement of Bridge No. 61.

VII. ENVIRONMENTAL EFFECTS

A. GENERAL PROJECT INFORMATION

This project is expected to have an overall positive impact. Replacement of an inadequate bridge will result in safer traffic operations.

This project is considered to be a "Categorical Exclusion" due to its limited scope and insignificant environmental consequences.

This bridge replacement will not have a substantial adverse effect on the quality of the human or natural environment with implementation of the environmental commitments listed in the project commitments section of this document and use of current NCDOT standards and specifications.

The project is not in conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from construction of this project.

There are no known hazardous waste impacts.

No significant adverse effects on families or communities are anticipated. Right-of-way acquisition will be very minimal.

No significant adverse effect on public facilities or services is expected. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

Closing NC 133 to construct Bridge No. 61 will require 18.6 miles (29.9 kilometers) of additional travel for residents traveling from south of Bridge No. 61 to US 17. Road user cost for this additional travel will be approximately $300,000. Additional time will be required for school bus services and other public services. The public officials in charge of administering these services have been consulted and do not object to the recommended alternative.

There are no publicly owned parks, recreational facilities, or wildlife and waterfowl refuges of national, state, or local significance in the vicinity of the project. This project will not impact any resource protected by Section 4(f) of the DOT act.

The proposed bridge replacement project will not raise the existing flood levels or have any significant adverse effect on the existing floodplain.

Utility impacts are considered to be low for the proposed project.

B. AIR AND NOISE

This project is an air quality "neutral" project, so it is not required to be included in the regional emissions analysis and a project level CO analysis is not required.

The project is located in Brunswick County, which has been determined to be in compliance with the National Ambient Air Quality Standards. 40 CFR part 51 is not applicable, because the proposed project is located in an attainment area. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

The project will not substantially increase traffic volumes. Therefore, it will not have substantial impact on noise levels. Temporary noise increases may occur during construction.

C. LAND USE & FARMLAND EFFECTS

This project will impact no soils considered to be prime or important farmland.

D. HISTORICAL EFFECTS & ARCHAEOLOGICAL EFFECTS

Upon review of area photographs, aerial photographs, and cultural resources databases, the State Historic Preservation Office (SHPO) indicates they "are aware of no historic structures within the area of potential effect." Therefore, the SHPO recommended no historic architectural surveys be conducted (see appendix).

The SHPO knows of no archaeological sites within the proposed project area. It is unlikely that any archaeological resources, which may be eligible for inclusion in the National Register of Historic Places, will be affected by the project construction. Therefore, the SHPO recommended that no archaeological investigations be conducted in connection with this project (see appendix).

E. NATURAL RESOURCES

1. Soils

There are two soil types located in the project area. A brief description of each soil type is provided.

- Chowan silt loam (CH) is nearly level, poorly drained soil found on floodplains of the Cape Fear River and its tributaries. It has a surface layer of dark grayish-brown silt loam, underlain by grayish-brown silty clay loam. It has slow surface runoff, moderately slow permeability, and is flooded for six months of most years. The main limitations of this soil are wetness and flooding. The Capability Unit is VIIw. This soil is listed as hydric for Brunswick County.

- Baymeade fine sand (BaB) is a well-drained soil found on low ridges and convex divides. The surface layer is dark gray fine sand, underlain with a light gray fine sand. Surface runoff is slow, permeability is moderately rapid, and the available water capacity is low. The seasonal high water table is four to five feet below the surface. The Capability Unit is IIIs.

2. Water Resources

There is one water resource in the project study area. NC 133 crosses one perennial stream, Town Creek (also known as Rattlesnake Branch).

a. Best Usage Classification

Water resources located within the project study area lie in the Lower Cape Fear River, Coastal Watershed (Subbasin 03-06-17), and Hydrologic Unit 03030005 of the Cape Fear River Drainage Basin.

Streams have been assigned a best usage classification by the Division of Water Quality (DWQ) which reflects water quality conditions and potential resource usage. Unnamed tributaries receive the same classification as the streams to which they flow. The classification for Town Creek [DEM Index No. 18-18, 9/1/74] is CSw. Class C refers to waters suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation and agriculture. The Sw (Swamp Waters) subclassification is a supplemental classification intended to recognize those waters having naturally occurring low velocities, low pH, and low dissolved oxygen. Town Creek is also classified as an Anadromous Fish Stream.

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

b. Stream Characteristics

The headwaters of Town Creek are approximately 23.3 kilometers (14.5 miles) west-northwest of Bridge No. 61. The creek flows east southeastward under the project bridge and outfalls into the Cape Fear River approximately 3.1 kilometers (1.9 miles) east of the project study area.

Town Creek, at NC 133, is approximately 80.0 feet (24.4 meter) wide and ranges in depth from 6.0 to 8.0 feet (1.8 to 2.4 meter). The substrate in the study area is most likely composed of organic muck. The creek is tidal, occasionally bringing brackish water into what would otherwise be a freshwater marsh.

c. Water Quality

Point sources refer to discharges that enter surface water through a pipe, ditch, or other defined points of discharge. Point source dischargers located throughout North Carolina are permitted through the National Pollutant Discharge Elimination System (NPDES) program. Any discharger is required to register for a permit. There are no NPDES sites located within 1.0 mile (1.6 kilometers) of the project study area.

Non-point source refers to runoff that enters surface waters through stormwater flow or no defined point of discharge. Excluding road runoff, there were no identifiable non-point sources that could be observed during the site visit. Due to the potential of impacts from deck drains, every effort will be made not to discharge the bridge deck drains directly into the stream, if possible.

d. Benthic Macroinvertebrate Ambient Network

The DWQ has initiated a whole basin approach to water quality management for the 17 river basins within the state. To accomplish this goal the DWQ collects biological, chemical and physical data that can be used in basinwide assessment and planning. All basins are reassessed every 5 years. An assessment of water quality data indicates that the Lower Cape Fear River and Coastal Watershed generally has good to excellent water quality due largely to good tidal flushing (NCDEHNR 1995a).

Prior to the implementation of the basinwide approach to water quality management, DWQ's Benthic Macroinvertebrate Ambient Network assessed water quality by sampling for benthic macroinvertebrate organisms at fixed monitoring sites throughout the state. There are no BMAN sampling stations in the project vicinity (NCDEHNR 1995a).

e. Summary of Anticipated Impacts

Impacts to water resources in the project area are likely to result from activities associated with project construction, such as clearing and grubbing on streambanks, riparian canopy removal, instream construction, fertilizers and pesticides used in revegetation, and pavement installation. The following impacts to surface water resources are likely to result from the above mentioned construction activities.

- Increased sedimentation and siltation downstream of the crossing and increased erosion in the project area.
- Changes in light incidence and water clarity due to increased sedimentation and vegetation removal.
- Alteration of water levels and flows due to interruptions and/or additions to surface and ground water flow from construction.
- Changes in and destabilization of water temperature due to vegetation removal.
- Increased nutrient loading during construction via runoff from exposed areas.
- Increased concentrations of toxic compounds in roadway runoff.

- Increased potential for release of toxic compounds such as fuel and oil from construction equipment and other vehicles.
- Alteration of stream discharge due to silt loading and changes in surface and groundwater drainage patterns.

In order to minimize potential impacts to water resources in the project area, NCDOT's Best Management Practices for the Protection of Surface Waters will be strictly enforced during the construction phase of the project. The short-nosed sturgeon may inhabit the project study area. Accordingly, Design Standards in Sensitive Watersheds (formerly High Quality Water Guidelines) will be enforced during the construction phase of the project. The project study area is located within the coastal plain and crosses a perennial stream. NCDOT Stream Crossing Guidelines for Anadromous Fish Passage (see Appendix) will be adhered to during the life of the project. To further insure water quality suitable for the shortnose sturgeon and other anadromous fish, a moratorium on in-stream work will be enforced from February 1 through June 15 All measures should be taken to prevent sedimentation in Town Creek during construction.

3. Biotic Resources

Biotic resources include terrestrial and aquatic communities. Descriptions of the terrestrial systems are presented in the context of plant community classifications. Fauna observed during the site visit are denoted in the text with an asterisk (*).

a. Terrestrial Communities

Much of the flora and fauna described from biotic communities utilize resources from different communities, making boundaries between contiguous communities difficult to define. There are four communities located in the project area to the west of NC 133 (impact area). While not lying within the project area boundaries, the adjacent cypress-gum swamps are nevertheless noteworthy. The communities contained within the project area are discussed below.

Tidal Freshwater/ Brackish Marsh

Tidal freshwater (brackish influenced) marsh, oligohaline variant, is found to the north and south of Town Creek. This variant occurs in areas with slight salt influence. Salt levels may be higher during rare high tide events. Although these marshes form upstream of the mouth of the creek, they are still tidally influenced. Tidal flooding brings in nutrients derived from seawater and varying amounts of sediment to the community.

Much of the tidal freshwater marsh community is unusual in appearing to have recently replaced tidal cypress-gum swamp. Numerous dead trees and some live trees remain in the marsh. It is uncertain what caused the shift. Possibilities include storm-driven salt-water intrusion or rising sea level. It is presumed to be a natural process. In contrast to brackish and saltwater marshes, tidal freshwater marshes are very diverse. The Town Creek site is dominated by common cattail, wax myrtle, black willow, Arrow arrum, and beakrush.

Bottomland Hardwood Forest

This community exists in what appears to be an old borrow pit, which originates from the southern edge of the marsh community and roughly parallels NC 133 to the southwest of the bridge. It was most likely formed when the road was constructed. It is approximately 30 feet (9.1 meters) wide and 5 feet (1.5 meters) deep. The soils here are composed of highly organic mucks and there is evidence of frequent flooding, presumably overflow from Town Creek. The overstory is dominated by bald cypress, swamp tupelo, red maple, and sweet gum. Dominant herbs and vine include: netted chain fern, arrow arum, catbrier, rush, royal fern, Virginia chain fern, and poison ivy.

Upland Pine Forest

This strip of woods borders the west side of the "borrow pit". Mature loblolly pine and sweet gum dominate this community. The understory consists primarily of red bay, water oak, southern magnolia, sassafras, and mockernut hickory. Other species present include muscadine, honeysuckle, wax myrtle, and poison ivy.

Disturbed Roadside

This upland community is located to the north and south of the marsh community on both sides of NC 133. It encompasses two types of habitats that have recently been or are currently impacted by human disturbance: maintained roadside shoulder and disturbed fringe. Because of mowing and the use of herbicides, this community is kept in a constant state of early succession. Roadside shoulder is a regularly maintained habitat that is kept in a low-growing, early successional state. Herbs, grasses, and vines located here include: goldenrod, morning glory, pepper vine, ragweed, Japanese honeysuckle, common plantain, winged sumac, muscadine grape, and catbrier.

Disturbed fringe is comprised of shrubs and sapling sized trees that exist in the roadside shoulder/ freshwater marsh ecotone. Species

observed here include: wax myrtle, red maple, sweet gum, and black willow.

b. Aquatic Community

The Natural Heritage Program lists the area east of Town Creek as a priority Aquatic Habitat and the area west of Town Creek as priority Tidal Wetlands.

4. Wildlife

Maintained/disturbed communities adjacent to forested tracts provide rich ecotones for foraging, while the forests provide forage and cover. Common mammals and birds associated with ecotones and upland forests are woodchuck, least shrew, southern short-tailed shrew, hispid cottonrat, eastern cottontail rabbits, ruby crowned kinglet, Carolina chickadee, bluebird, downy woodpecker and white-breasted nuthatch. The ground beetle and bessbug were also found in this community, feeding under logs.

The adjacent cypress-gum swamp provides habitat for an assortment of birds and mammals. Birds often associated with swamp communities include red-winged blackbird, white-throated sparrow, song sparrow, and northern cardinal. Yellow-rumped warblers and common yellow throat may also be found in this community. Yellow warbler, red-eyed vireo, Carolina wren and mourning dove may also frequent this area.

Mammals that may frequent the swamp community include white-footed mouse and raccoon. In addition, white-tailed deer* and gray squirrel may also forage in or near this community. Amphibians and reptiles are likely to be locally abundant in the riparian edge. Spring peeper* and northern cricket frog* breed in semi-permanent pools during the spring. Rat snake, worm snake, ring-necked snake and queen snake may be found here as well. The box turtle may also be found in the swamp community.

a. Terrestrial Impacts

Impacts to terrestrial communities will result from project construction. Table 1 summarizes potential losses to these communities resulting from project construction. Estimated impacts are derived based on a project length of 1,000 feet (304.8 meters), and the entire proposed right of way width of 60 feet (18.3 meters). However, project construction often does not require the entire right-of-way; therefore, actual impacts may be less.

Table 1. Estimated Impacts to Terrestrial Communities.

Community	Impacted Area ac (ha)			
	Alternate 1	Alternate 2	Alternate 3	Alternate 4
	Existing Location Temporary detour	Permanent Realignment West	Existing Location Road Closure	Permanent Realignment East
Tidal Freshwater Marsh (wetland)	0.16ac/*0.12 ac* (0.07 ha)*(0.05 ha)*	0.16 ac (0.07 ha)	0.16 ac (0.07 ha)	0.90 ac (0.36 ha)
Bottomland Hardwood Forest (wetland)	0.12ac/*0.10 ac* (0.05 ha)*(0.04 ha)*	0.12 ac (0.05 ha)	0.12 ac (0.05 ha)	0.25 ac (0.10 ha)
Pine Forest (upland)	0.29 ac/*0.21 ac* (0.12 ha)*(0.09 ha)*	0.29 ac (0.12 ha)	0.29 ac (0.12 ha)	0.29 ac (0.12 ha)
Disturbed Roadside (upland)	1.12 ac/*0.83 ac* (0.44 ha)/*(0.33 ha)*	1.12 ac (0.44 ha)	1.12 ac (0.44 ha)	1.12 ac (0.44 ha)
Total Impacts	1.69 ac/*1.26 ac* (0.68 ha)*(0.51 ha)*	1.69 ac (0.68 ha)	1.69 ac (0.68 ha)	2.56 ac (1.02 ha)

Note: Detour impacts are based on a right of way width of 80 feet (24.4 meters). Temporary detour impacts are shown in italics.

b. Aquatic Impacts

Impacts to the aquatic community of Town Creek will result from the replacement of Bridge No. 61. Impacts are likely to result from the physical disturbance of aquatic habitats (i.e. substrate and water quality). Disturbance of aquatic habitats has a detrimental effect on aquatic community composition by reducing species diversity and the overall quality of aquatic habitats. Physical alterations to aquatic habitats can result in the following impacts to aquatic communities.

- Inhibition of plant growth.
- Algal blooms resulting from increased nutrient concentrations.
- Loss of benthic macroinvertebrates through scouring resulting from an increased sediment load.

5. Jurisdictional Topics

a. Waters of the United States

Surface waters and wetlands fall under the broad category of "Waters of the United States," as defined in Section 33 of the Code of Federal Regulations (CFR) Part 328.3. Any action that proposes to dredge or place fill material into surface waters or wetlands falls under the jurisdiction of the U.S. Army Corps of Engineers (COE) under Section 404 of the Clean Water Act (33 U.S.C. 1344).

b. Characteristics of Wetlands and Surface Waters

There are wetlands in the project area in the form of tidal freshwater marshes. Vegetation includes common cattail, wax myrtle, Arrow arrum, and beakrush. Permanent and temporary impacts are as follows:

- Alternate 1 - Permanent wetland impacts for the replacement of the bridge on the same alignment are approximately 0.28 acres (0.12 hectares). Temporary impacts for the construction of a temporary detour to the west of the existing bridge are 0.22 acres (0.09 hectares).

- Alternate 2 – Permanent wetland impacts for the replacement of the bridge to the west of the existing bridge with a new bridge are approximately 0.28 acres (0.12 hectares).

- Alternate 3 - Permanent wetland impacts for the replacement of the bridge on the same alignment are approximately 0.28 acres (0.12 hectares).

- Alternate 4 – Permanent wetland impacts for the replacement of the bridge to the east of the existing bridge with a new bridge are approximately 1.15 acres (0.46 hectares).

There will be no impacts to jurisdictional surface waters because the new bridge will span the entire width of Town Creek.

c. Permits

The subject project is located within a county that is under the jurisdiction of Coastal Area Management Act (CAMA). CAMA is administered by the N. C. Division of Coastal Management (NCDCM).

CAMA directs the Coastal Resources Commission (CRC) to identify and designate Areas of Environmental Concern (AEC) in which uncontrolled development might cause irreversible damage to property, public health and natural environment. A CAMA permit from the NCDCM is required if the project meets all of the following conditions:

a) Located in one of the twenty counties covered by CAMA;
b) Located in or affects an AEC designated by the CRC;
c) Considered to be "development" under CAMA; and,
d) Not qualify for an exemption as identified by CAMA or the CRC.

The project fulfills all of the above statements. More specifically, the project will require a CAMA major development permit.

This project will also require a 401 Water Quality Certification from the DWQ prior to the issuance of the Section 404 Nationwide Permit. The issuance of a 401 permit from the DWQ is a prerequisite to issuance of a Section 404 permit or CAMA permit.

The FHWA has determined a US Coast Guard permit will not be required for construction of this project.

d. Avoidance, Minimization, Mitigation

Specific avoidance and minimization measures for this project include: using a maximum slope of 3:1, and replacing the existing bridge in its current location with an off-site detour. Final design will reveal final impacts. However, final permit/mitigation decisions rest on the Corps of Engineers.

6. Bridge Demolition

Bridge No. 61 is 300 feet (91 meters) long and 26.4 feet (8.04 meters) wide. It has a reinforced concrete deck on steel I-beams with concrete caps on timber piles. There is potential for some components of the bridge to be dropped into Waters of the U.S. during construction. The resulting temporary fill associated with the reinforced concrete floor would be a maximum of 158.9 cubic yards (121.5 cubic meters). This calculation was based on the entire length of the bridge extending over surface waters as well as jurisdictional wetlands. All deposited components will be removed from the Waters of the U.S. as quickly as possible.

Bridge removal for this project is classified as Case 2 for bridge removal which allows no work at all in water through a moratorium period of February 1 through June 15.

7. Rare and Protected Species

a. Federally-Protected Species

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under the provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of March 7, 2002, the US Fish and Wildlife Service (FWS) lists fifteen federally protected species for Brunswick County. Biological Conclusions of "No Effect"

were found for all federally protected species, except the shortnose sturgeon. Although no populations of this species have been reported from the project vicinity, favorable habitat does exist for this species. Based on concurrence of the National Marine Fisheries Service, a biological conclusion of "Not Likely to Adversely Affect" has been determined for the shortnose sturgeon.

A review of the NHP database of rare species and unique habitats shows two occurrences of federally protected species in the project study area. The American alligator and the red-cockaded woodpecker (last observed in 1973) have been observed within 1 mile (1.6 kilometer) of the project area.

Table 2. Federally Protected Species for Brunswick County.

Common Name	Scientific Name	Status
Shortnose Sturgeon	*Acipenser brevirostrum*	Endangered
American Alligator	*Alligator mississippiensis*	Threatened, due to similarity of appearance
Loggerhead Sea Turtle	*Caretta caretta*	Threatened
Piping Plover	*Charadrius melodus*	Threatened
Green Sea Turtle	*Chelonia mydas*	Threatened
Leatherback Sea Turtle	*Dermochelys coriacea*	Endangered
Eastern Cougar	*Felis concolor couguar*	Endangered
Bald Eagle	*Halieetus leucocephalus*	Threatened
Kemp's Ridley Sea Turtle	*Lepidochelys kempii*	Endangered
Wood Stork	*Mycteria americana*	Endangered
Red-Cockaded Woodpecker	*Picoides borealis*	Endangered
West Indian Manatee	*Trichechus manatus*	Endangered
Seabeach Amaranth	*Amaranthus pumilus*	Threatened
Rough-Leaved Loosestrife	*Lysimachia asperulaefolia*	Endangered
Cooley's Meadowrue	*Thalictrum cooleyi*	Endangered

Note: "Endangered" denotes a species in danger of extinction throughout all or a significant portion of its range.
"Threatened" denotes a species likely to become endangered in the foreseeable future throughout all or a significant portion of its range.

Descriptions of Federally Protected Species found in Brunswick County, NC

Name: *Shortnose sturgeon* **Endangered**

BIOLOGICAL CONCLUSION: NOT LIKELY TO ADVERSELY AFFECT

The short-nosed sturgeon is a small (1 meter in length) species of fish that occurs in the lower sections of large rivers and in coastal marine habitats from the St. John River, Canada to the Indian River, Florida. It can be differentiated from the Atlantic

sturgeon because of its shorter snout, wider mouth, and the pattern of its preanal shields (the short-nose having one row and the Atlantic that has two).

The short-nosed sturgeon prefers deep channels with salinity less than seawater. It feeds benthicly on invertebrates and plant material and is most active at night. It is an anadromous species that spawns upstream in the spring and spends most of its life within close proximity of the rivers mouth. At least two entirely freshwater populations have been recorded, in South Carolina and Massachusetts.

The short-nosed sturgeon requires large fresh water rivers that are unobstructed by dams or pollutants to reproduce successfully.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. No populations of this species have been reported from the project vicinity. However, favorable habitat does exist for this species. Based on a conversation with the North Carolina Marine Fisheries Service on December 3, 1999, a moratorium is recommended to avoid in-water activity from February 1 through June 15. The National Marine Fisheries Services concurs with the recommendation of North Carolina Marine Fisheries, and has issued a finding of "Not likely to Adversely Affect" for the impacts of the shortnose sturgeon (see letter in Appendix). This is dependent on the commitments found on the Project Commitment Green Sheet.

Name: *American alligator* **Threatened Due to Similarity of Appearance**

BIOLOGICAL CONCLUSION: **NO EFFECT**

This species is listed as Threatened Due to Similarity of Appearance, and is therefore not protected under Section 7 of the Endangered Species Act. However, in order to control the illegal trade of other protected crocodilians such as the American crocodile, federal regulations (such as hide tagging) are maintained on the commercial trade of alligators. No survey is required for this species. The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. There has been a sighting of this species within 1.0 km (0.6 mile) of the project area.

Name: *Loggerhead sea turtle* **Threatened**

BIOLOGICAL CONCLUSION: **NO EFFECT**

The loggerhead sea turtle is found in a wide variety of habitats, including the open ocean, bays, lagoons, salt marshes, creeks, ship channels, and large river mouths. Hatchlings are often seen in association with floating sargassum seaweed. The diet includes sponges, jellyfish, mollusks, crustaceans, and fish. Loggerheads often forage in coral reefs, rocky areas, and shipwrecks.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. No populations of this species have been reported from the project vicinity. There are no suitable beach or marine habitats located in the project study area. Additionally, the project study area does not exhibit the salinity necessary to support this species. Therefore, no effects to this species will occur from the construction of this project.

Name: *Piping plover* **Threatened**

BIOLOGICAL CONCLUSION: **NO EFFECT**

The piping plover has a breeding range including the Great Lakes region and the Atlantic Coast between Newfoundland and Cape Lookout, NC. Populations in the Great Lakes region are listed as Endangered; populations elsewhere in the range are listed as Threatened. This species winters on the Atlantic and Gulf of Mexico coasts from North Carolina to Mexico, and the Bahamas and West Indies. Preferred habitat consists of large sandflats or mudflats for foraging in close proximity to a sandy beach for roosting and nesting.

Piping plovers nest on sandy or gravelly beaches in sparsely vegetated areas that are slightly higher in elevation than the surrounding beach

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. No populations of this species have been reported from the project vicinity. Suitable habitat does not exist within the project vicinity for this species.

Name: *Green sea turtle* **Threatened**

BIOLOGICAL CONCLUSION: **NO EFFECT**

The green sea turtle can be found in tropical and temperate waters from Massachusetts to Mexico on the east coast of North America, and British Columbia to Baja California on the west coast, as well as Puerto Rico and the U.S. Virgin Islands. Most nesting in the United States takes place on the eastern coast of Florida between Volusia and Dade Counties, though some nests have been observed in Puerto Rico and the U.S. Virgin Islands as well

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. Suitable habitat does not exist within the project vicinity for this species and no populations of this species have been reported from the project vicinity.

Name: *Leatherback sea turtle* **Endangered**

BIOLOGICAL CONCLUSION: **NO EFFECT**

The leatherback sea turtle is the largest of the turtles, weighing 295-680 kg with a length of 1.2-1.8 m. This turtle is unique in that its carapace is not composed of hard scutes, but is rubbery with small bones embedded in it. Preferred nesting beaches are usually isolated, with close proximity to deep water, bordered by vegetation, and steep enough so that dry sand is not too far from the water.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. Suitable habitat does not exist within the project vicinity for this species and no populations of this species have been reported from the project vicinity.

Name: *Eastern cougar* **Endangered**

BIOLOGICAL CONCLUSION: **NO EFFECT**

The eastern cougar is a large, unspotted, long-tailed cat weighing between 68 and 91 kg. The cougar's body and legs are a uniform tawny color, although the belly is a pale reddish color, and the backs of the ears, tip of the tail, and sides of the muzzle are black.

Habitat requirements consist primarily of large tracts of wilderness and adequate prey, and this species can live in coastal swamps as well as mountainous regions. Cougars feed mainly on white-tailed deer, although they may also eat small mammals, wild turkeys, and occasionally domestic livestock. It is estimated that a female cougar can have a range of 5-20 square miles, and a male can have a range upwards of 25 square miles.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. Suitable habitat does not exist within the project vicinity for this species and no populations of this species have been reported from the project vicinity.

Name: *Bald eagle* **Endangered**

BIOLOGICAL CONCLUSION: **NO EFFECT**

Adult bald eagles can be identified by their large white head and short white tail. The body plumage is dark-brown to chocolate-brown in color. In flight bald eagles can be identified by their flat wing soar.

Eagle nests are found in close proximity to water (within a half mile) with a clear flight path to the water, in the largest living tree in an area, and having an open view of

the surrounding land. Human disturbance can cause an eagle to abandon otherwise suitable habitat. The breeding season for the bald eagle begins in December or January. Fish are the major food source for bald eagles. Other sources include coots, herons, and wounded ducks. Food may be live or carrion.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. No populations of this species have been reported from the project vicinity and no birds or nests were observed during the site visit.

Name: *Kemp's ridley sea turtle* **Endangered**

BIOLOGICAL CONCLUSION: **NO EFFECT**

The Kemp's ridley sea turtle is the smallest of the sea turtles in our area, weighing 36-50 kg. This turtle is unique in that its broad, heart-shaped carapace is gray, and there is a secretory pore near the posterior edge of each scute forming the bridge between the carapace and plastron.

The Kemp's ridley sea turtle is found in shallow water, usually near coastal forests of red mangrove (Rhizophora mangle). Nearly the entire population nests on approximately 24 km of beach in the state of Tamaulipas, Mexico. Preferred nesting beaches are backed by large swamps or open water with narrow ocean connections.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. Suitable habitat does not exist within the project vicinity for this species and no populations of this species have been reported from the project vicinity.

Name: *Wood stork* **Endangered**

BIOLOGICAL CONCLUSION: **NO EFFECT**

Wood storks are large wading birds with long legs. They are approximately 1.27 m tall, with a wingspan of 1.52-1.65 m. Their plumage is mainly white, except for black primaries and secondaries and a short black tail. The head and neck are unfeathered, with dark gray skin; legs are dark, and the bill is black and slightly decurved. Juveniles are grayish and have a yellow bill.

Nesting occurs in large colonies, primarily in cypress and mangrove swamps.

Favored feeding habitat includes freshwater marshes, tidal creeks, and tide pools, especially pools in marshes or swamps where fish are concentrated by falling water

levels. The feeding grounds may be as far as 128 km from the nest location, as the storks use thermals to soar great distances.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. Suitable habitat does exist within the project vicinity for this species. However, only a few representatives of this species have reached southeastern North Carolina, residing primarily in coastal South Carolina, from near Georgetown southward (Potter 1980). There have been no populations of this species reported from the project vicinity.

Name: *Red-cockaded woodpecker* **Endangered**

BIOLOGICAL CONCLUSION: **NO EFFECT**

The adult red-cockaded woodpecker (RCW) has a plumage that is entirely black and white except for small red streaks on the sides of the nape in the male. The back of the RCW is black and white with horizontal stripes. The breast and underside of this woodpecker are white with streaked flanks. The RCW has a large white cheek patch surrounded by the black cap, nape, and throat.

The RCW uses open old growth stands of southern pines, particularly longleaf pine (Pinus palustris), for foraging and nesting habitat. A forested stand must contain at least 50% pine, lack a thick understory, and be contiguous with other stands to be appropriate habitat for the RCW. These birds nest exclusively in trees that are ≥60 years old and are contiguous with pine stands at least 30 years of age. The foraging range of the RCW is up to 500 acres (200 hectares). This acreage must be contiguous with suitable nesting sites.

These woodpeckers nest exclusively in living pine trees and usually in trees that are infected with the fungus that causes red-heart disease. Cavities are located in colonies from 12-100 feet (3.6-30.3 meters) above the ground and average 30-50 feet (9.1- 15.7 meters) high. They can be identified by a large incrustation of running sap that surrounds the tree. The RCW lays its eggs in April, May, and June; the eggs hatch approximately 38 days later.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. The red-cockaded woodpecker was last observed from the project vicinity in 1973. However, habitat suitable for this species is no longer present in the project vicinity.

Name: *West Indian Manatee* **Endangered**

BIOLOGICAL CONCLUSION: **NO EFFECT**

The manatee is a large gray or brown aquatic mammal. Adults average about 10 feet (3 m) long and weighing around 1000 pounds. The body of the manatee is nearly hairless except for a muzzle covered with stiff "whiskers." The U.S. manatee population was probably twice as abundant in the 1700's and early 1800's as at present. Initial population decreases resulted from overharvesting for meat, oil, and leather. Today, heavy mortality is attributed to accidental collisions with boats and barges, along with loss of suitable habitat.

Manatees inhabit both salt and freshwater habitats of sufficient depth (greater than 1.5 m). They may be encountered in canals, sluggish rivers, estuarine beaches, and salt water bays. Observations of salt water populations indicate that they may require freshwater for drinking purposes. Manatees also require warm water. When water temperatures drop below 20 C, they begin to move into warmer water, often forming large aggregations in natural springs and industrial outfalls during the winter.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. No populations of the West Indian Manatee have been reported from the project vicinity. This species typically inhabits more southern areas but has been observed on occasion in North Carolina's coastal waters near South Port. Nevertheless, manatees are not likely to swim as far north as the NC 133 crossing of Town Creek.

The U.S. Fish and Wildlife Service has developed a list of "Precautions for the general construction in areas which may be used by the West Indian manatee in North Carolina." These precautions will be considered in all aspects of project construction; therefore, this project will not affect the West Indian manatee.

Name: *Seabeach Amaranth* **Threatened**

BIOLOGICAL CONCLUSION: **NO EFFECT**

Seabeach amaranth is an annual legume that grows in clumps containing 5 to 20 branches and are often over a foot across. The trailing stems are fleshy and reddish-pink or reddish in color. Seabeach amaranth has thick, fleshy leaves that are small, ovate-spatulate, emarginate and rounded. The leaves are usually spinach green in color, cluster towards the end of a stem, and have winged petioles.

Seabeach amaranth is endemic to the Atlantic Coastal Plain beaches. Habitat for seabeach amaranth is found on barrier island beaches functioning in a relatively dynamic and natural manner. Seabeach amaranth grows well in overwash flats at the accreting ends

of islands and the lower foredunes and upper strands of noneroding beaches. Temporary populations often form in blowouts, sound-side beaches, dredge spoil, and beach replenishment.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. Suitable habitat does not exist within the project vicinity for this species and no populations of this species have been reported from the project vicinity.

Name: *Roughed-leaved Loosestrife* **Endangered**

BIOLOGICAL CONCLUSION: **NO EFFECT**

Rough-leaved loosestrife is endemic to the Coastal Plain and Sandhills of North Carolina and South Carolina.

Typical habitat for rough-leaved loosestrife is the ecotone between high pocosin and longleaf pine (or oak) savannas that contain sandy or peaty soils and full sunlight. Rough-leaved loosestrife sometimes occurs in low pocosin openings where light is abundant at ground level. Other habitats where this species is found include ecotones of stream-head pocosins in the Sandhills and Sandhill Seeps where wet sands are underlain by clay, allowing water to seep to the surface along slopes.

Two populations of rough-leaved loosestrife occur along NCDOT rights-of-way in Brunswick County.

Rough-leaved loosestrife is a perennial herb growing from 30 - 60 cm (12 - 24 in) tall. Its sessile leaves, in whorls of three to four, are broadest at the base and have three prominent veins. The leaves are entire, slightly revolute (rolled under along the margins), yellow-green or blue-green in color and lustrous. Rough-leaved loosestrife flowers from May to June.

Suitable habitat for this species does not occur in the project area. During a general survey of the area, the project area was also surveyed for this species by NCDOT biologists on June 23, 1999. No individuals of this species were located in the project area nor does the NCNHP database show in previous records of this species occurring in the project area. Thus, construction of this project will have no effect on this species.

Name: *Cooley's meadowrue* **Endangered**
Best Search Time: mid June to early July

BIOLOGICAL CONCLUSION: **NO EFFECT**

Cooley's meadowrue occurs in wet pine savannas, grass-sedge bogs and savanna like areas, often at the border of intermittent drainages or swamp forests. This species is usually found in areas that contain some type of disturbance such as clearings, burned savanna edges, maintained roadsides and power line rights-of-ways. It is found on fine sandy loam, circumneutral soils that are seasonally (winter) moist or saturated and only slightly acidic (pH 5.8-6.6).

Cooley's meadowrue is a tall herb growing to 1 m or more when in flower. Its slender stems are erect in sunny locations and lax or sprawling when shaded.

Suitable habitat for this species does not occur in the project area. During a general survey of the area, the project area was also surveyed for this species by NCDOT biologists on June 23, 1999. No individuals of this species were located in the project area nor does the NCNHP database show in previous records of this species occurring in the project area. Thus, construction of this project will have no effect on this species.

b. Federal Species of Concern and State Listed Species

There are thirty-seven federal species of concern listed by the FWS for Brunswick County (Table 3). Federal species of concern are not afforded federal protection under the Endangered Species Act and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. In addition, organisms which are listed as Endangered (E), Threatened (T), or Special Concern (SC) by the North Carolina Natural Heritage Program list of Rare Plant and Animal Species are afforded state protection under the NC State Endangered Species Act and the NC Plant Protection and Conservation Act of 1979.

Table 3 lists federal species of concern, the state status of these species (if afforded state protection), and the potential for suitable habitat in the project area for each species. This species list is provided for information purposes as the protection status of these species may be upgraded in the future.

A review of the NHP database of rare species and unique habitats shows one occurrence of FSC species in the project study area. The Northern pine snake has been observed within 1 mile (1.6 kilometers) of the project area.

Table 3. Federal species of concern for Brunswick County

Common Name	Scientific Name	NC Status	Habitat Present
Bachman's Sparrow	*Aimophila aestivalis*	SC	No
Henslow's Sparrow	*Ammodramus henslowii*	SR	No
Carolina Pygmy Sunfish	*Elassoma boehlkei*	T	Yes
Southern Hognose Snake	*Heterodon simus*	SR*	No
Mimic Glass Lizard	*Ophisaurus mimicus*	SC/PT	No
Eastern Painted Bunting	*Passerina ciris ciris*	SR	Yes
Northern Pine Snake	*Pituophis melanoleucus melanoleucus*	SC*	Yes
Carolina Gopher Frog	*Rana capito capito*	SC/PT	No
Buchholz's Dart Moth	*Agrotis buchholzi*	SR	No
Arogos Skipper	*Atrytone arogos arogos*	SR	No
Waccamaw Spike	*Elliptio waccamawensis*	T	No
Venus Flytrap Cutworm Moth	*Hemipachnobia subporphyrea subporphyrea*	SR	No
Greenfield rams-horn	*Helisoma eucosmium*	SR	No
Magnificent Rams-horn	*Planorbella magnifica*	E	No
Rare Skipper	*Problema bulenta*	SR	Yes
Cape Fear Threetooth	*Triodopsis soelneri*	T	Yes
Savanna Indigo-Bush	*Amorpha georgiana* var *confusa*	T	Yes
Honeycomb Head	*Balduina atropurpurea*	C*	No
Chapman's Sedge	*Carex chapmanii*	W1*	Yes
Venus Flytrap	*Dionaea muscipula*	C-SC	No
Dwarf Burhead	*Echinodorus parvulus*	C	Yes
Harper's Fimbry	*Fimbristylis perpusilla*	T	Yes
Pondspice	*Litsea aestivalis*	C	No
Carolina Bogmint	*Macbridea caroliniana*	T	Yes
Loose Watermilfoil	*Myriophyllum laxum*	T	No
Savanna Cowbane	*Oxypolis ternata*	W1	No
Carolina Grass-Of-Parnassus	*Parnassia caroliniana*	E	No
Pineland Plantain	*Plantago sparsiflora*	E	No
Awned Meadow-Beauty	*Rhexia aristosa*	T*	No
Swamp Forest Beaksedge	*Rhynchospora decurrens*	C	Yes
Thorne's Beaksedge	*Rhynchospora thornei*	E	No
Carolina Goldenrod	*Solidago pulchra*	E	No
Spring-Flowering Goldenrod	*Solidago verna*	T	No
Wireleaf Dropseed	*Sporobolus teretifolius sensus stricto*	T	No
Carolina Asphodel	*Tofieldia glabra*	C	No
Dune Bluecurls	*Trichostema sp 1*	C	No
Savanna campylopus	*Campylopus carolinae*	C	No

Note:

C A Candidate is any species which is very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction.

E An Endangered species is one whose continued existence as a viable component of the State's flora is determined to be in jeopardy.

SC A Special Concern species is one which requires monitoring but may be taken or collected and sold under regulations adopted under the provisions of Article 25 of Chapter 113 of the General Statutes (animals) and the Plant Protection and Conservation Act (plants). Only propagated material may be sold of Special Concern plants that are also listed as Threatened or Endangered.

SR A Significantly Rare species is not listed as "E", "T", or "SC", but which exists in the state in small numbers and has been determined to need monitoring.

T A Threatened species is any native or once native species which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range, or one that is designated as a threatened species pursuant to the Endangered Species Act.

W1 A Watch Category 1 species is a rare species whose status in North Carolina is relatively well known and which appears to be relatively secure at this time.

/P_ denotes a species which has been formally proposed for listing as Endangered (PE), Threatened (PT), or Special Concern (PSC), but has not yet completed the listing process.

* Historic record, the species was last observed prior to 1979.

VIII. COMMENTS, COORDINATION AND PUBLIC INVOLVEMENT

On May 22, 2001 a citizens informational workshop was held in Brunswick County for both this project and TIP Project B-3116. This workshop was held to obtain comments and suggestions from the citizens in the project area. Approximately 25 persons attended this meeting. Most of the citizens in attendance opposed the road closure to replace the two bridges. Some of the concerns with closing the road included inconveniences to school buses, evacuation during hurricane season, emergency response time and increased travel cost due to high gas prices. Most citizens, however, agreed the bridge requires replacement.

With the option of closing NC 133 being the proposed recommendation, NCDOT coordinated with Orton Plantation, a set of formal and informal gardens open to the public to determine how this would affect their business. A spokesperson from Orton Plantation was in favor of replacing the bridges and did not object to closing the road. The let date was adjusted to allow construction to begin after mid-September to accommodate Orton Plantation's schedule. This tourist attraction is open March through November.

A meeting was held with natural resource agencies on June 14, 2001. The purpose of this meeting was to discuss alternatives for TIP Projects B-3115 and B-3116 and to obtain concurrence on the recommended alternative for both projects. The result of this meeting was a recommendation to replace Bridge No. 61 in its existing location with a 300-foot (91 meter) bridge.

A meeting was held on July 9, 2001 with public officials in Brunswick County. Representatives from Carolina Power and Light Company's (CP&L) Brunswick Nuclear Plant and local emergency management officials had concerns with the road being closed during hurricane season. They agreed however, the replacement of Bridge No. 61 along with the adjacent bridge project were needed. CP&L and other officials did not object to closing the road; however, they asked that NC 133 not be closed until after Labor Day, in order to avoid the peak tourist season and reduce the amount of time the road will be closed during hurricane season. NCDOT agreed to delay closing NC 133 until after Labor Day. NCDOT will provide CP&L and the emergency management officials with an estimate of the amount of time the road closure will add to evacuation times for the plant.

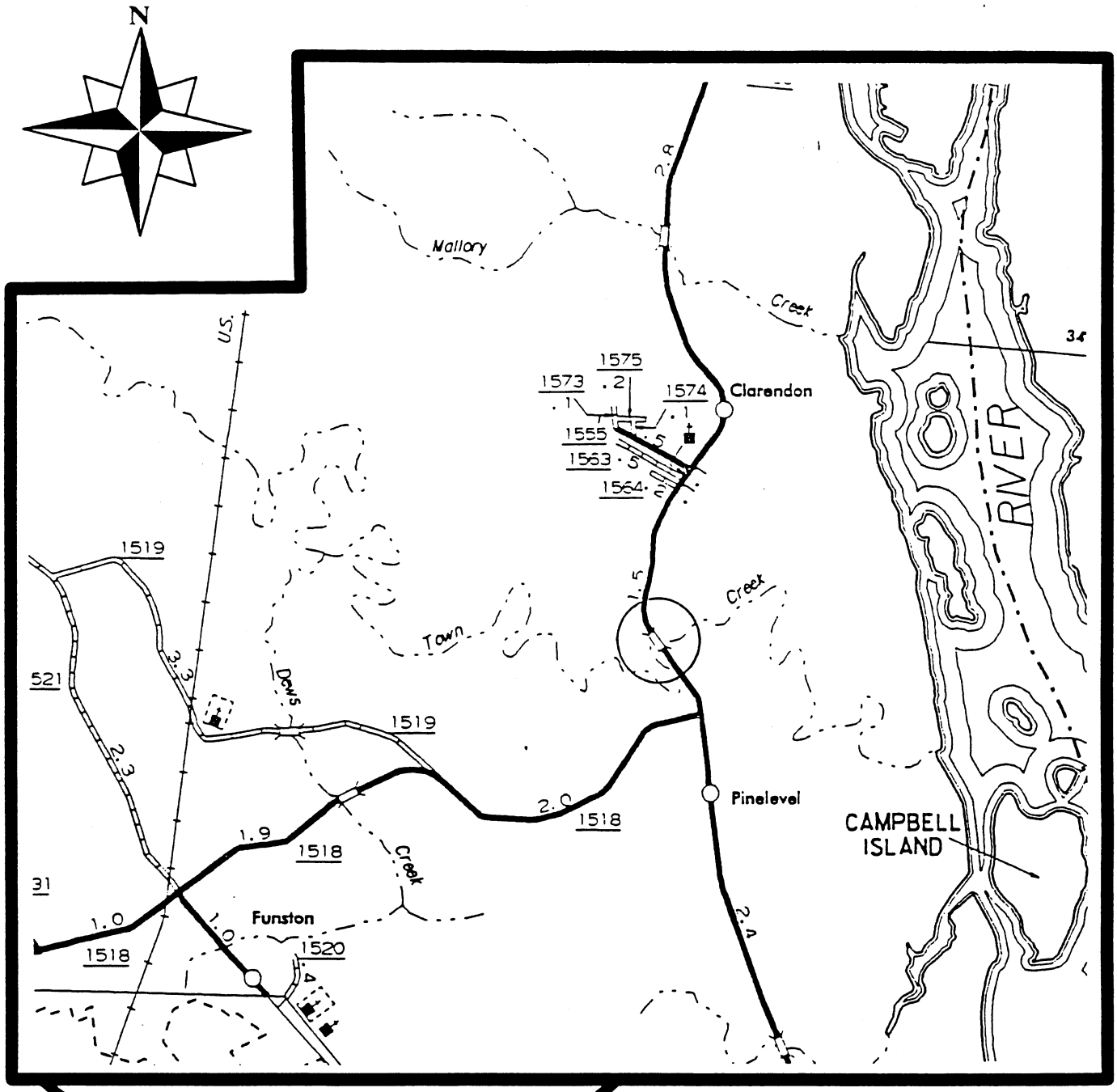
A meeting was held on January 31, 2002 with representatives from emergency management and other local officials from Brunswick County, CP&L, citizens, State and Federal Resource Agencies, and NCDOT representatives. The purpose of this meeting was to discuss closing NC 133 to replace the two bridges. The meeting concluded with NCDOT agreeing to gather information on cost and impacts for replacing the bridge on new location to the east and making a decision after comparing all of the proposed alternatives. NCDOT also agreed to leave Bridge No. 56 open while Bridge No. 61 is being replaced.

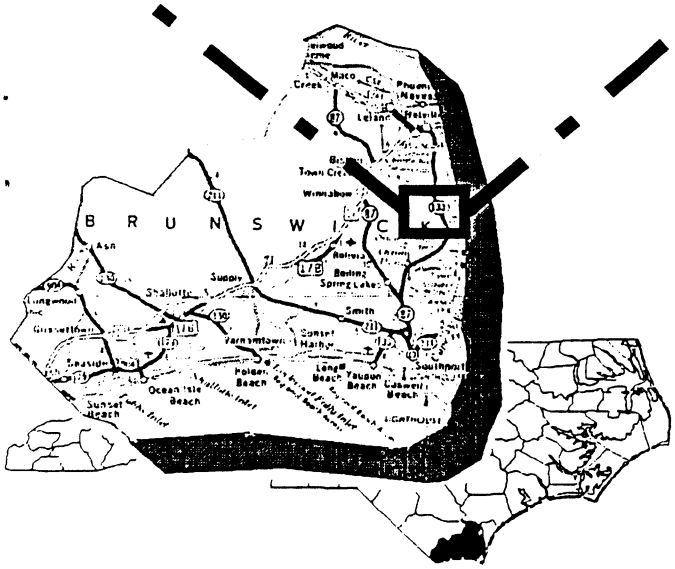
A meeting was held on March 8, 2002 with NCDOT officials at the existing bridge location. After consideration with the Board of Transportation Member for Division 3 and the Division Construction Engineer it was decided to replace the bridge on existing location with road closure and an offsite detour.

IX. CONCLUSION

Based on the above discussion, NCDOT and FHWA conclude the project will cause no significant environmental impacts. Therefore, the project may be processed as a Categorical Exclusion.

FIGURES

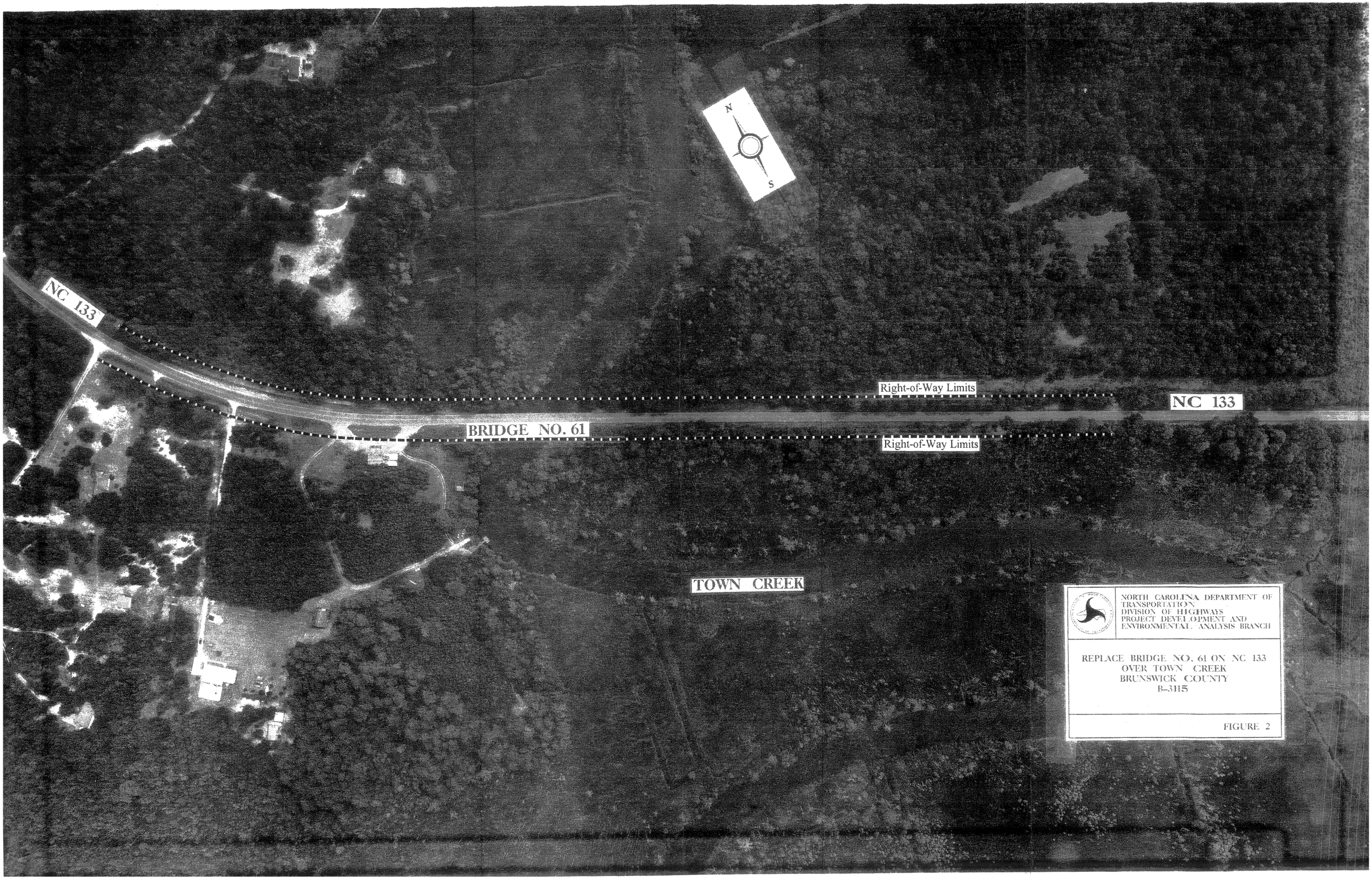




North Carolina Department of Transportation
Division of Highways
Planning & Environmental Branch

Brunswick County
Replace Bridge No. 61 on NC 133
Over Town Creek
B-3115

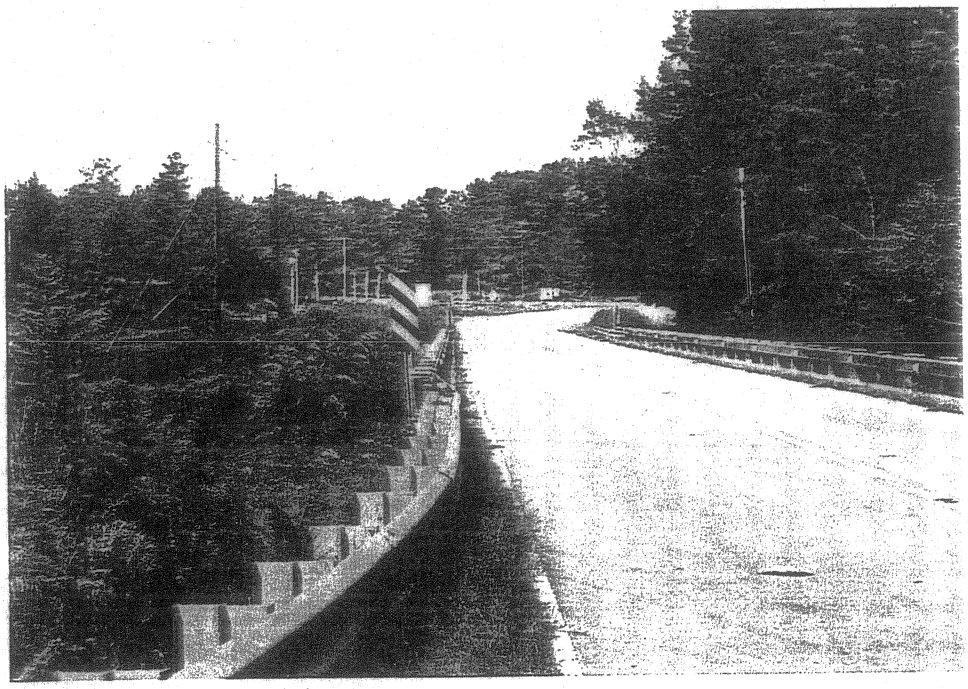
Figure One



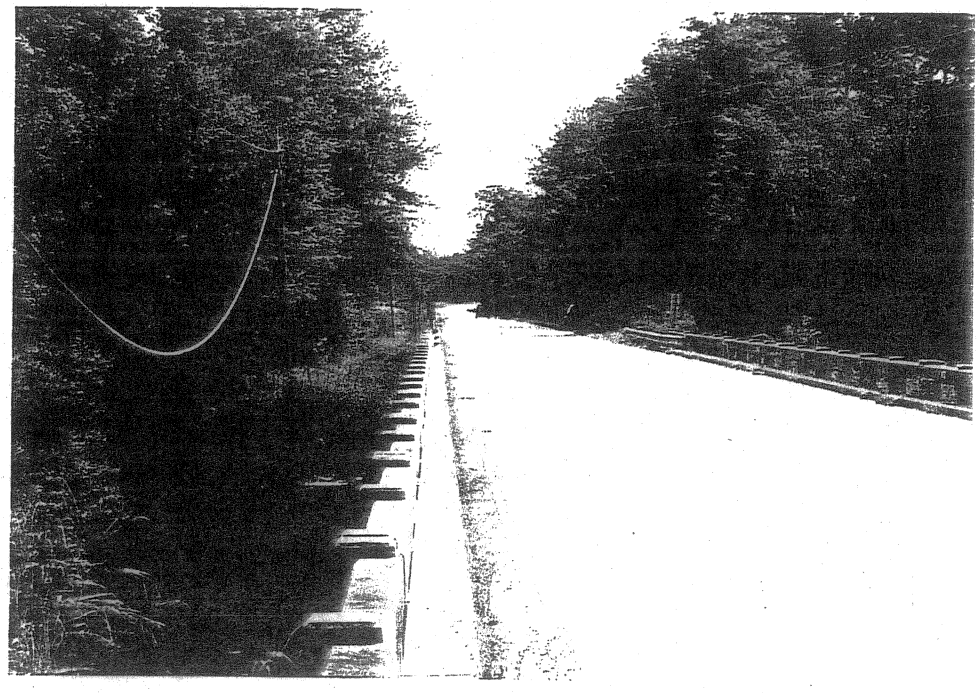
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

REPLACE BRIDGE NO. 61 ON NC 133
OVER TOWN CREEK
BRUNSWICK COUNTY
B-3115

FIGURE 2



LOOKING NORTH FROM THE SOUTH END OF BRIDGE



LOOKING SOUTH FROM THE NORTH END OF BRIDGE

FIGURE 3

Proposed Detour Route

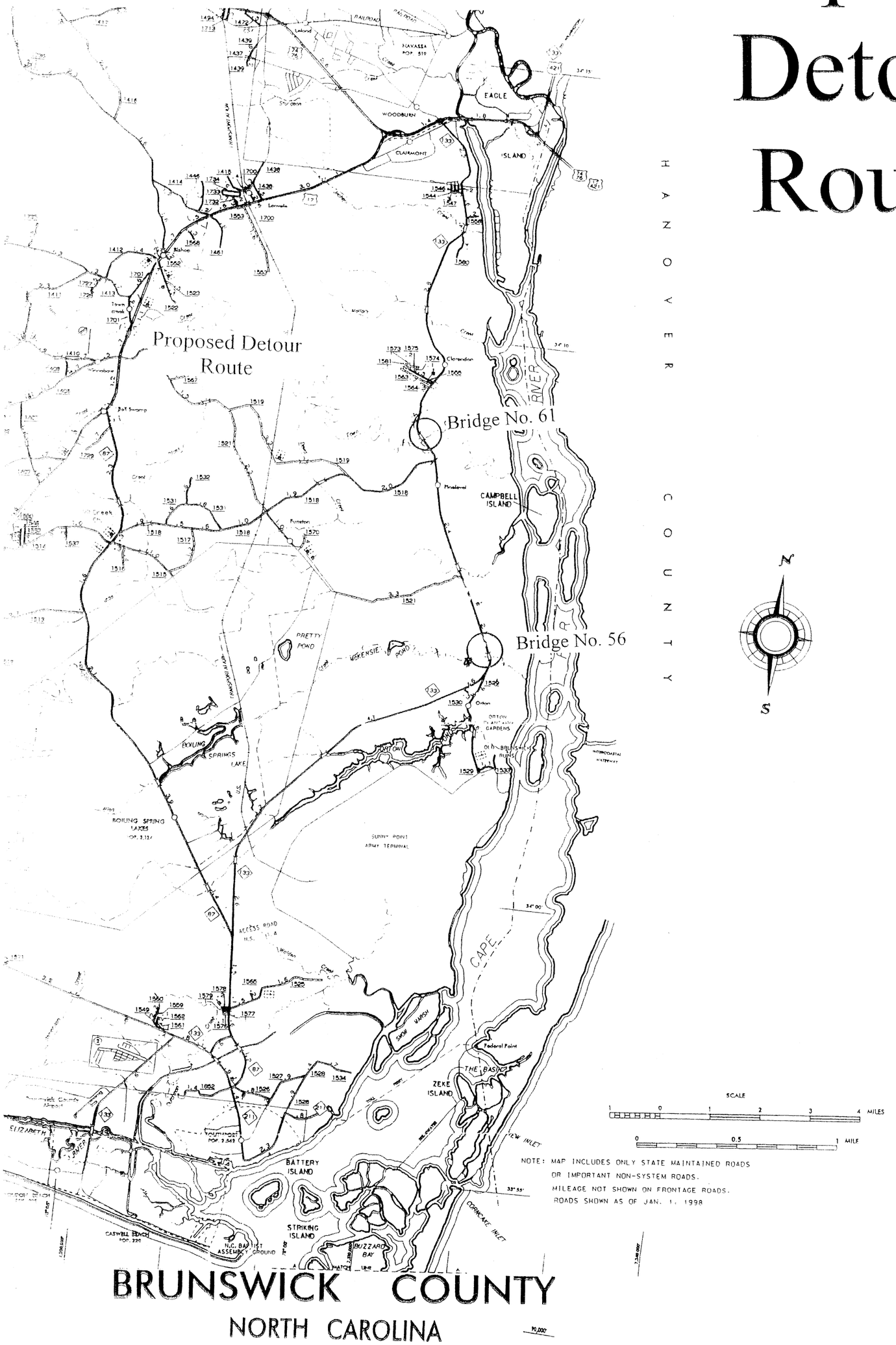


FIGURE 4

North Carolina Wildlife Resources Commission

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Bill Goodwin, Project Planning Engineer
Planning & Environmental Branch , NCDOT

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program

DATE: December 5, 1997

SUBJECT: NCDOT Bridge Replacements, Brunswick, Onslow, Wayne, Cumberland, Richmond, Wilson, Lenoir, and Northampton counties, North Carolina, TIP Nos. B-3115, B-3116, B-3358, B-3379, B-3322, B-3365, B-2110, B-3267, B-3200, B-1303.

Biologists with the N. C. Wildlife Resources Commission (NCWRC) have conducted site visits as need and have the following preliminary comments on the subject projects. 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).

On bridge replacement projects of this scope our standard recommendations 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. Tim Savidge 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.

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

1. The culvert must be designed to allow for fish passage. Generally, this means that the culvert or pipe invert is buried at least 1 foot below the natural stream bed. If multiple cells are required the second and/or third cells should be placed so that their bottoms are at stream bankful stage (similar to Lyonsfield design). This will allow sufficient water depth in the culvert or pipe during normal flows to accommodate fish movements. If culverts are long, baffle systems are required to trap gravel and provide resting areas for fish and other aquatic organisms.

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 so that no channel realignment or widening is required. Widening of the stream channel at the inlet or outlet of structures usually causes a decrease in water velocity causing sediment deposition that will require future maintenance.

4. Riprap should not be placed on the stream bed.

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 that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. B-3115 - The potential is high for anadromous fish usage at this site. Therefore, the guidelines apply (See Item 9 above).

2. B-3116 - The potential is high for anadromous fish usage at this site. Therefore, the guidelines apply (See Item 9 above).

3. B-3358 - This bridge is surrounded by swamp. We request that NCDOT minimize wetland impacts.

4. B-3379 - This site has a high potential for wetlands adjacent to the bridge. This are is classified as nutrient sensitive waters so we request that sedimentation and erosion controls for high quality waters be followed.

5. B-3322 - No specific concerns.

6. B-3365 - No specific concerns.

7. B-2110 - High potential for wetland impacts. NCDOT should minimize wetland impacts.

8. B-3267 - No specific concerns.

9. B-3200 - Anadromous fish are known to us this area so the guidelines apply (See Item 9 above). There is a high potential for wetland involvement.

10. B-1303 - Anadromous fish are known to use this area so the guidelines apply (See Item 9 above).

We request that NCDOT routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. The 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, reducing habitat fragmentation and vehicle related mortality at highway crossings.

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.

STREAM CROSSING GUIDELINES

FOR ANADROMOUS FISH PASSAGE

Anadromous Fish are a valuable resource and their migration must not be adversely impacted. The purpose of this document is to provide guidance to the North Carolina Department of Transportation to ensure that replacement of existing and new highway stream crossing structures will not impede the movement of Anadromous Fish.

Applicable When:

- Project is in the coastal plain defined by the "Fall Line" as the approximate western limit (see attached figure).

- For perennial and intermittent streams delineated on most recent USGS 7.5 minute quadrangle maps.

General Guidelines:

- Design and scheduling of projects should avoid the necessity of instream activities during the spring migration period. For the purposes of these guidelines "Spring" is considered to fall between February 15 and June 15. (In areas where the shortnose sturgeon may be present, the Cape Fear, Brunswick and Waccamaw Rivers, spring shall be defined as February 1 to June 15).

- Bridges and other channel spanning structures are preferred where practical.

Technical Guidelines:

- In all cases, the width, height and gradient of the proposed opening shall be such as to pass the average historical spring flow without adversely altering flow velocity. Spring flow should be determined from gage data if available. In the absence of this data, bankfull flow can be used as a comparative level. (Reference, "Fisheries Handbook of Engineering Requirements and Biological Criteria", Bell 1973, for fish swimming limitations.)

- The invert of culverts shall be set at least one foot below the natural stream bed.

- Crossings of perennial streams serving watersheds greater than one square mile shall provide a minimum of four (4) feet of additional opening width (measured at spring flow elevation) to allow for terrestrial wildlife passage.

- In stream footings for bridges will be set one foot below the natural stream bed when practical.

For crossing sites which require permit review the following information will be provided as a minimum to facilitate resource agency review.

- Plan and profile views showing the existing and proposed crossing structures in relation to the stream bank and bed.

- Average historical spring flow (or bankfull flow) for the site.

- How the proposed structure will affect the velocity and stage of the spring flow (bankfull).

- Justification for any variance from the guideline recommendations.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, FL 33712
(727) 570-5312; Fax 570-5517

APR 10 2000

F/SER3:JLL

Mr. Gregory Blakeney
Project Development and Environmental
Analysis Branch
North Carolina Department of Transportation
P.O. Box 25201
Raleigh, NC 27611-5201

Dear Mr. Blakeney:

This letter responds to your March 31, 2000 letter regarding two proposed bridge replacement projects in Brunswick County. Both bridges to be demolished are made out of concrete and will be replaced with reinforced concrete and steel or concrete girders. Bridge No. 61 on NC 133 over Town Creek (State Project No.8.1231401, TIP No. B-3115) is approximately 300 feet long and 26 feet wide and will be replaced with a bridge 300 feet long and 32 feet wide. Bridge No. 56 on NC 133 over Allen Creek (Sate Project No. 8.1231501, TIP NO. B-3116) is approximately 61 feet long and 25 feet wide and will be replaced with an 80 feet long and 32 feet wide bridge. Explosives will not be used in the demolitions.

Allen Creek and Town Creek are tributaries to the lower Cape Fear River. Shortnose sturgeon, protected under the Endangered Species Act (ESA), are rare but do occur in the Cape Fear River. There are no known occurrences of the shortnose sturgeon within these creeks, but potential habitat is present. No in-stream construction in Town Creek or Allen Creek will occur during the months of January, February, March, or April, when shortnose sturgeon could potentially be present. The NCDOT will abide by the Best Management Practices For Bridge Demolition and Removal policy. High Quality Waters (HQW) Erosion Control Guidelines will also be adhered to throughout construction. Based on this information, the National Marine Fisheries Service (NMFS) concurs with your conclusion that the proposed projects are not likely to adversely affect the shortnose sturgeon.

This concludes the consultation responsibilities under section 7 of the ESA for the proposed action for Federally-listed species, and their critical habitat, under NMFS purview. Consultation should be reinitiated if new information reveals impacts of the proposed action that may affect listed species or their critical habitat, a new species is listed, the identified action is subsequently modified, or critical habitat determined that may be affected by the proposed activity.

If you have any questions, please call Jennifer Lee, Fishery Biologist, of my Protected Resources staff.

Sincerely,

James E. Weaver

for William T. Hogarth, Ph. D.
Regional Administrator

cc: F/PR3
1514-22 L.2

North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

December 16, 1997

Nicholas L. Graf
Division Administrator
Federal Highway Administration
Department of Transportation
310 New Bern Avenue
Raleigh, N.C. 27601-1442

Re: Bridge #61 on NC 133 over Town Creek, Brunswick County, B-3115, Federal Aid Project BRSTP-133(1), State Project 8.1231401, ER 98-7931

Dear Mr. Graf:

On December 10, 1997, Debbie Bevin of our staff met with North Carolina Department of Transportation (NCDOT) staff for a meeting of the minds concerning the above project. We reported our available information on historic architectural and archaeological surveys and resources along with our recommendations. NCDOT provided project area photographs and aerial photographs at the meeting.

Based upon 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 no historic structures located within the area of potential effect. We recommend that no historic architectural survey be conducted for this project.

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

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 of 1966 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, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,

David Brook/w

David Brook
Deputy State Historic Preservation Officer

DB:slw

cc: H. F. Vick
B. Church
T. Padgett

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
310 New Bern Avenue, Suite 410
Raleigh, North Carolina 27601
May 5, 2000

IN REPLY REFER TO
HO-NC

Mr. William Gilmore, P.E.
Manager of Planning and
Environmental Branch
Division of Highways
Raleigh, North Carolina

Subject: Federal-aid Project BRSTP-133(1), State No. 8.1231401, B-3115, Brunswick County Determination of Need for a Coast Guard Permit

Dear Mr. Gilmore:

As requested by Mr. Gregory Blakeney, the Federal Highway Administration (FHWA) has reviewed the information submitted on the subject project relative to the type and size of vessels that utilize Town Creek in the vicinity of the proposed project.

In accordance with 23 CFR 650.805(b), the FHWA has determined that the proposed project is over water that is not used or is not susceptible to use in its natural condition or by reasonable improvement as a means to transport interstate or foreign commerce. Although this waterway is tidal, the only vessels that use the stream are recreational, fishing or other small boats less than 6.4 meters (21 feet) in length. Accordingly, a US Coast Guard permit is not required for construction of this project.

Sincerely yours,

Roy C Sheffron

For Nicholas L. Graf, P.E.
Division Administrator

Michael F. Easley, Governor
William G. Ross, Jr., Secretary
North Carolina Department of Environment and Natural Resources
Alan W. Klimek, P.E., Director
Division of Water Quality
Wilmington Regional Office

August 6, 2002

RECEIVE
AUG 0 8 2002
DIVISION OF HIGHWAYS
HYDRAULICS UNIT

Mr. Andrew Nottingham, P.E.
North Carolina Department of Transportation
Hydraulics Unit, 1590 Mail Service Center
Raleigh NC 27699-1590

Subject: **EXEMPTION** from Stormwater Management Permit Regulations
NCDOT Project Number 8.1231401 (B-3115)
Stormwater Project No. SW8 020803
Bridge No. 61 over Town Creek on NC 133
Brunswick County

Dear Mr. Nottingham:

The Wilmington Regional Office received a copy of a Stormwater Management Permit Application Form for the NCDOT Public Road or Bridge project known as Bridge No. 61 over Town Creek on NC 133. Staff of the Wilmington Regional Office have reviewed the application for the applicability of the Stormwater Management rules to the proposed activity at this project. Based on our review, the proposed development activity at this site is not subject to the stormwater requirements as provided for in 15A NCAC 2H.1000. Please be advised that other regulations may potentially apply to the proposed activities.

If your project disturbs five acres or more and has a point source discharge of stormwater runoff, then it is subject to the National Pollutant Discharge Elimination System (NPDES) stormwater discharge requirements. You are required to have an NPDES permit for stormwater discharge from projects meeting these criteria.

This exemption applies only to the Coastal Stormwater Management Permit for the currently proposed activity. If at any time in the future, development of any part of this site is planned, as defined in NCAC 2H.1000, or if the proposed activities differ in any manner from what is shown on the plans on file with the Division, you must submit the project for review of the applicability of the stormwater management rules. If you have any questions concerning this matter, please do not hesitate to call me at (910) 395-3900.

Sincerely,

Rick Shiver

Rick Shiver
Water Quality Regional Supervisor

RSS/arl: S:\WQS\STORMWAT\EXEMPT\020803.Aug
cc: Delaney Aycock, Brunswick County Building Inspections
Linda Lewis
Wilmington Regional Office
Central Files

United States Department of the Interior

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

GUIDELINES FOR AVOIDING IMPACTS TO THE WEST INDIAN MANATEE
Precautionary Measures for Construction Activities in North Carolina Waters

The West Indian manatee (*Trichechus manatus*), also known as the Florida manatee, is a Federally-listed endangered aquatic mammal protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) and the Marine Mammal Protection Act of 1972, as amended (16 U.S.C 1461 *et seq.*). The manatee is also listed as endangered under the North Carolina Endangered Species Act of 1987 (Article 25 of Chapter 113 of the General Statutes). The U.S. Fish and Wildlife Service (Service) is the lead Federal agency responsible for the protection and recovery of the West Indian manatee under the provisions of the Endangered Species Act.

Adult manatees average 10 feet long and weigh about 2,200 pounds, although some individuals have been recorded at lengths greater than 13 feet and weighing as much as 3,500 pounds. Manatees are commonly found in fresh, brackish, or marine water habitats, including shallow coastal bays, lagoons, estuaries, and inland rivers of varying salinity extremes. Manatees spend much of their time underwater or partly submerged, making them difficult to detect even in shallow water. While the manatee's principal stronghold in the United States is Florida, the species is considered a seasonal inhabitant of North Carolina with most occurrences reported from June through October.

To protect manatees in North Carolina, the Service's Raleigh Field Office has prepared precautionary measures for general construction activities in waters used by the species. Implementation of these measure will allow in-water projects which do not require blasting to proceed without adverse impacts to manatees. In addition, inclusion of these guidelines as conservation measures in a Biological Assessment or Biological Evaluation, or as part of the determination of impacts on the manatee in an environmental document prepared pursuant to the National Environmental Policy Act, will expedite the Service's review of the document for the fulfillment of requirements under Section 7 of the Endangered Species Act. These measures include:

1. The project manager and/or contractor will inform all personnel associated with the project that manatees may be present in the project area, and the need to avoid any harm to these endangered mammals. The project manager will ensure that all construction personnel know the general appearance of the species and their habit of moving about completely or partially submerged in shallow water. All construction personnel will be informed that they are responsible for observing water-related activities for the presence of manatees.

2. The project manager and/or the contractor will advise all construction personnel that

there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act and the Endangered Species Act.

3. If a manatee is seen within 100 yards of the active construction and/or dredging operation or vessel movement, all appropriate precautions will be implemented to ensure protection of the manatee. These precautions will include the immediate shutdown of moving equipment if a manatee comes within 50 feet of the operational area of the equipment. Activities will not resume until the manatee has departed the project area on its own volition (i.e., it may not be herded or harassed from the area).

4. Any collision with and/or injury to a manatee will be reported immediately. The report must be made to the U.S. Fish and Wildlife Service (ph. 919.856.4520 ext. 16), the National Marine Fisheries Service (ph. 252.728.8762), and the North Carolina Wildlife Resources Commission (ph. 252.448.1546).

5. A sign will be posted in all vessels associated with the project where it is clearly visible to the vessel operator. The sign should state:

> CAUTION: The endangered manatee may occur in these waters during the warmer months, primarily from June through October. Idle speed is required if operating this vessel in shallow water during these months. All equipment must be shut down if a manatee comes within 50 feet of the vessel or operating equipment. A collision with and/or injury to the manatee must be reported immediately to the U.S. Fish and Wildlife Service (919-856-4520 ext. 16), the National Marine Fisheries Service (252.728.8762), and the North Carolina Wildlife Resources Commission (252.448.1546).

6. The contractor will maintain a log detailing sightings, collisions, and/or injuries to manatees during project activities. Upon completion of the action, the project manager will prepare a report which summarizes all information on manatees encountered and submit the report to the Service's Raleigh Field Office.

7. All vessels associated with the construction project will operate at "no wake/idle" speeds at all times while in water where the draft of the vessel provides less than a four foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

8. If siltation barriers must be placed in shallow water, these barriers will be: (a) made of material in which manatees cannot become entangled; (b) secured in a manner that they cannot break free and entangle manatees; and, (c) regularly monitored to ensure that manatees have not become entangled. Barriers will be placed in a manner to allow manatees entry to or exit from essential habitat.

Prepared by (rev. 06/2003):
U.S. Fish and Wildlife Service
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726
919/856-4520

Figure 1. The whole body of the West Indian manatee may be visible in clear water; but in the dark and muddy waters of coastal North Carolina, one normally sees only a small part of the head when the manatee raises its nose to breathe.

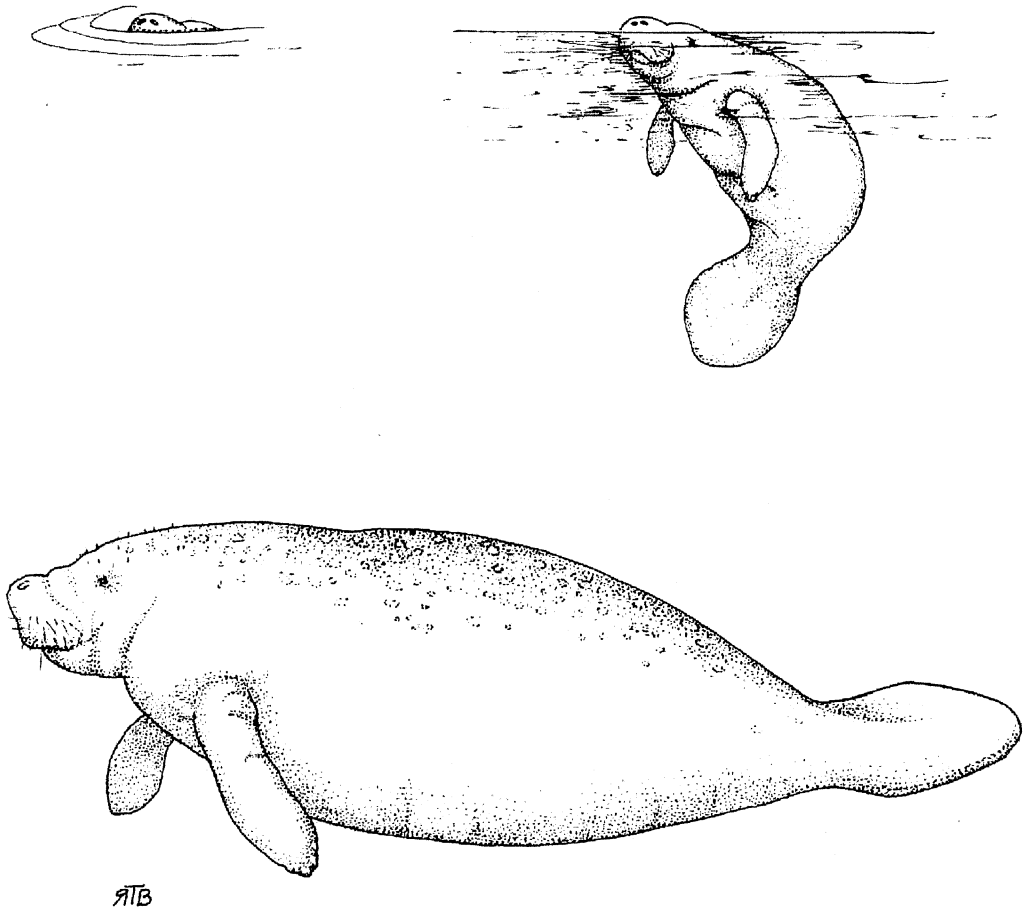


Illustration used with the permission of the North Carolina State Museum of Natural Sciences. Source: Clark, M. K. 1987. Endangered, Threatened, and Rare Fauna of North Carolina: Part I. A re-evaluation of the mammals. Occasional Papers of the North Carolina Biological Survey 1987-3. North Carolina State Museum of Natural Sciences. Raleigh, NC. pp. 52.

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

T. F. Holdings
1202 Eastwood Road
Wilmington, NC 28403

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Erica Julien ☐ Agent ☐ Addressee

B. Received by (Printed Name) Erica Julien
C. Date of Delivery 2/9/04

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 7000 1670 0003 2580 8564

PS Form 3811, August 2001 Domestic Return Receipt 102595-02-M-1540

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. David R. Harless
2765 River Road, SE
Winnabow, NC 28479

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Jonathan Harless ☐ Agent ☐ Addressee

B. Received by (Printed Name) Jonathan Harless
C. Date of Delivery 2-7-04

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

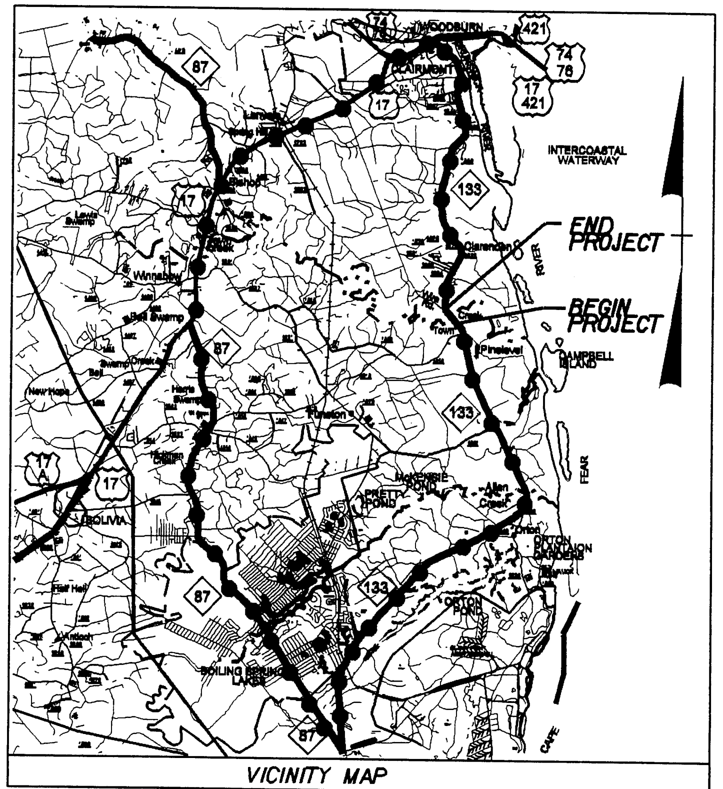
4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 7000 1670 0003 2580 8540

PS Form 3811, August 2001 Domestic Return Receipt 102595-02-M-1540

CONTRACT: C200887 TIP PROJECT: B-3115

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

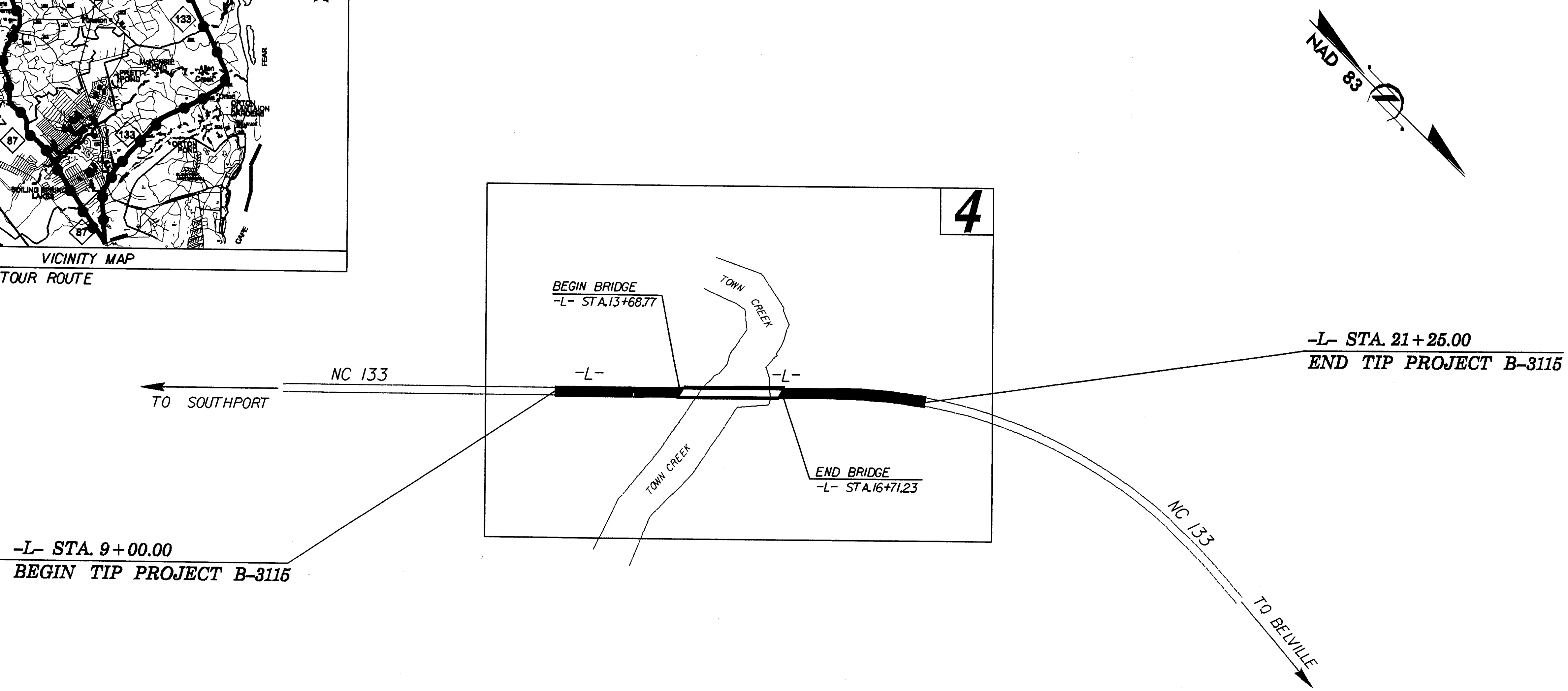
BRUNSWICK COUNTY

LOCATION: BRIDGE NO. 61 OVER TOWN CREEK ON NC 133

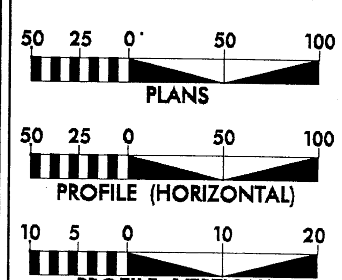
TYPE OF WORK: GRADING, STRUCTURE, DRAINAGE, PAVING AND PAVEMENT MARKINGS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3115	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
32874.1.1	BRSTP-133(1)	P.E.
32874.2.1	BRSTP-133(1)	ROW
32874.3.1	BRSTP-133(5)	CONST.



GRAPHIC SCALES



DESIGN DATA

ADT 2004 = 13,600
ADT 2024 = 24,500
DHV = 14 %
D = 60 %
T = 5 % *
V = 60 MPH
* TTST 2 % + DUAL 3 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3115 = 0.175 MI
LENGTH STRUCTURE TIP PROJECT B-3115 = 0.057 MI
TOTAL LENGTH OF TIP PROJECT B-3115 = 0.232 MI

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

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JULY 31, 2003

LETTING DATE: JULY 20, 2004

GARY LOVERING, P.E.
PROJECT ENGINEER

ANTHONY C. WEST
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

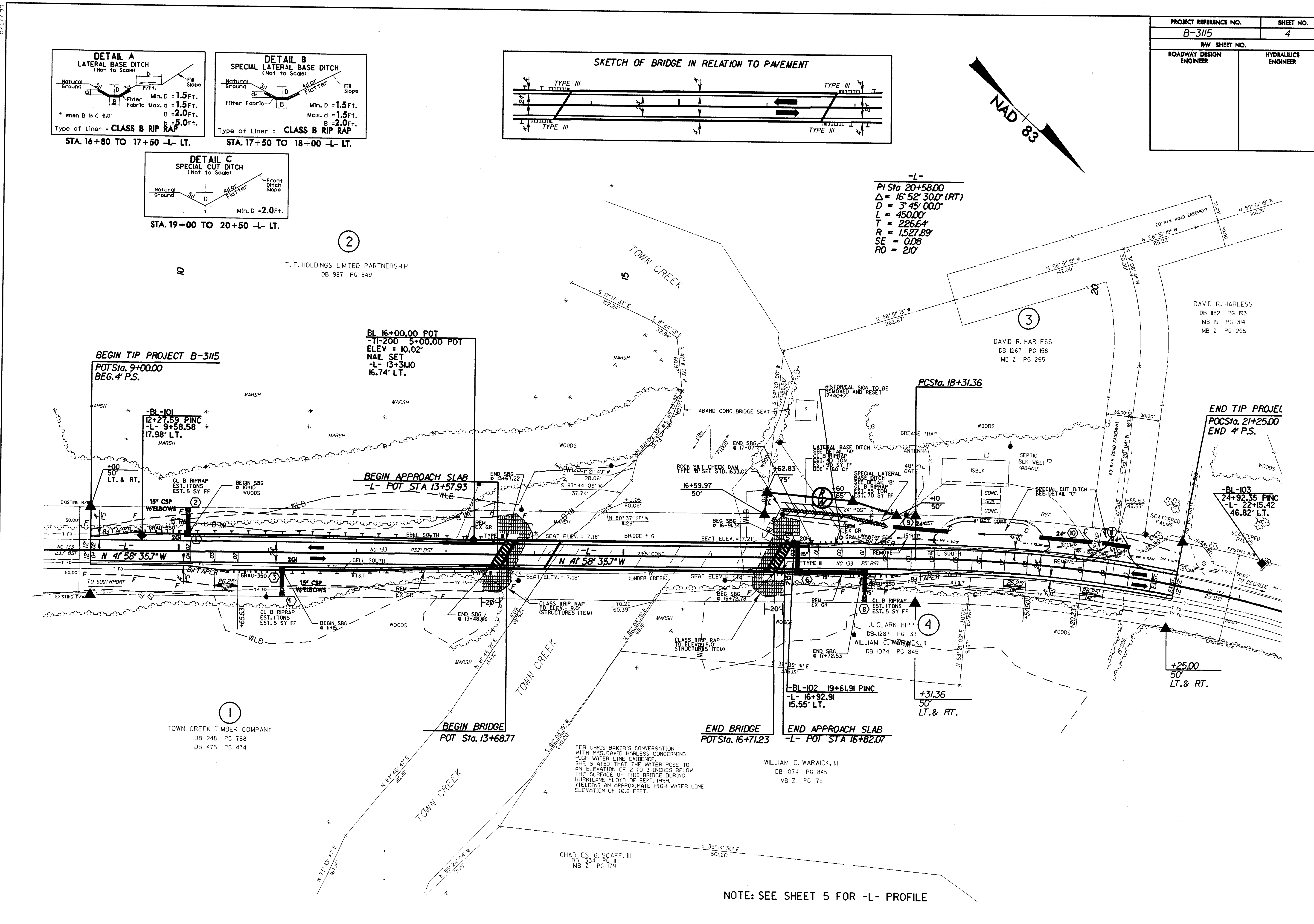
STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

09/08/99

20-FEB-2004 07:33



PROJECT REFERENCE NO. B-3115
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
Filter Fabric
Min. D = 1.5Ft.
Max. d = 1.5Ft.
B = 2.0Ft.
b = 5.0Ft.
* when B is < 6.0'
Type of Liner = CLASS B RIP RAP
STA. 16+80 TO 17+50 -L- LT.
DETAIL B
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Natural Ground
4:1 or Flatter
Fill Slope
Filter Fabric
Min. D = 1.5Ft.
Max. d = 1.5Ft.
B = 2.0Ft.
Type of Liner = CLASS B RIP RAP
STA. 17+50 TO 18+00 -L- LT.
DETAIL C
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
4:1 or Flatter
Front Ditch Slope
Min. D = 2.0Ft.
STA. 19+00 TO 20+50 -L- LT.
SKETCH OF BRIDGE IN RELATION TO PAVEMENT
TYPE III
NAD 83
-L-
PI Sta 20+58.00
Δ = 16° 52' 30.0" (RT)
D = 3° 45' 00.0"
L = 450.00'
T = 226.64'
R = 1,527.89'
SE = 0.08
RO = 210'
T. F. HOLDINGS LIMITED PARTNERSHIP
DB 987 PG 849
TOWN CREEK
DAVID R. HARLESS
DB 1267 PG 158
MB Z PG 265
DAVID R. HARLESS
DB 1152 PG 193
MB 19 PG 314
MB Z PG 265
BEGIN TIP PROJECT B-3115
POT Sta. 9+00.00
BEG. 4' P.S.
BL 16+00.00 POT
-T1-200 5+00.00 POT
ELEV = 10.02'
NAIL SET
-L- 13+31.10
16.74' LT.
-BL-101
12+27.59 PINC
-L- 9+58.58
17.98' LT.
BEGIN APPROACH SLAB
-L- POT STA 13+57.93
BEGIN BRIDGE
POT Sta. 13+68.77
END BRIDGE
POT Sta. 16+71.23
END APPROACH SLAB
-L- POT STA 16+82.07
-BL-102 19+61.91 PINC
-L- 16+92.91
15.55' LT.
PCSta. 18+31.36
END TIP PROJEC
POCSta. 21+25.00
END 4' P.S.
-BL-103
24+92.35 PINC
-L- 22+15.42
46.82' LT.
N 41° 58' 35.7" W
HISTORICAL SIGN TO BE REMOVED AND RESET
ABAND CONC BRIDGE SEAT
SEAT ELEV. = 7.18'
BRIDGE # 61
TOWN CREEK TIMBER COMPANY
DB 248 PG 788
DB 475 PG 474
J. CLARK HIPP
DB 1287 PG 137
WILLIAM C. WARWICK, III
DB 1074 PG 845
WILLIAM C. WARWICK, III
DB 1074 PG 845
MB Z PG 179
PER CHRIS BAKER'S CONVERSATION WITH MRS. DAVID HARLESS CONCERNING HIGH WATER LINE EVIDENCE, SHE STATED THAT THE WATER ROSE TO AN ELEVATION OF 2 TO 3 INCHES BELOW THE SURFACE OF THIS BRIDGE DURING HURRICANE FLOYD OF SEPT. 1999, YIELDING AN APPROXIMATE HIGH WATER LINE ELEVATION OF 10.6 FEET.
CHARLES G. SCAFF, III
DB 1334 PG 111
MB Z PG 179
NOTE: SEE SHEET 5 FOR -L- PROFILE
8/17/99

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-3115	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

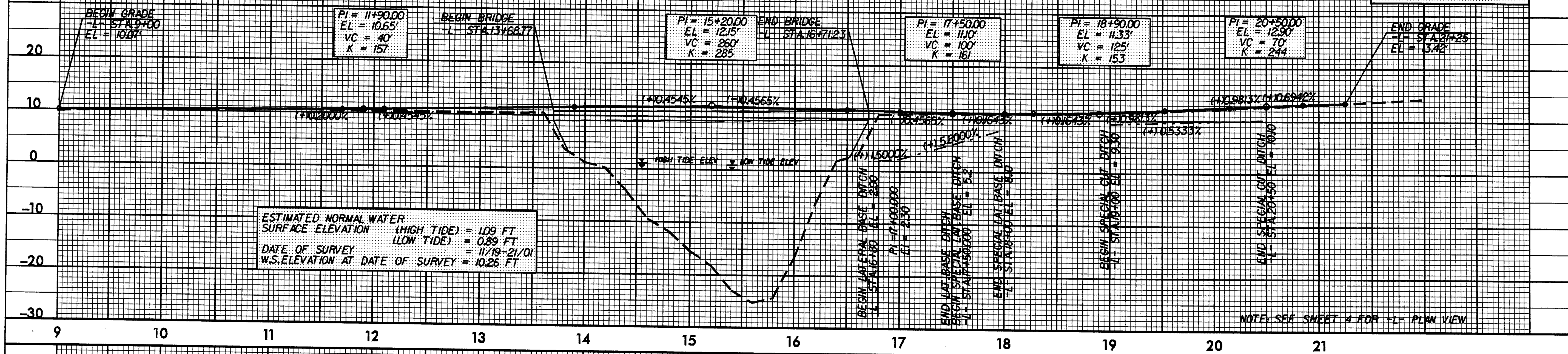
STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 5900 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 8.01 FT
BASE DISCHARGE	= 7100 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 8.66 FT
OVERTOPPING DISCHARGE	= 9305 CFS
OVERTOPPING FREQUENCY	= 100+ YRS
OVERTOPPING ELEVATION	= 9.0 FT

-L-

BM #11 N 142617 E 2306211
-BL- STA 22+00 68.3' RT
R/R SPIKE SET IN TWIN 18" PINE TREE
EL = 10.263'
-L- STA 19+32.64 OFF 57.2155' RT

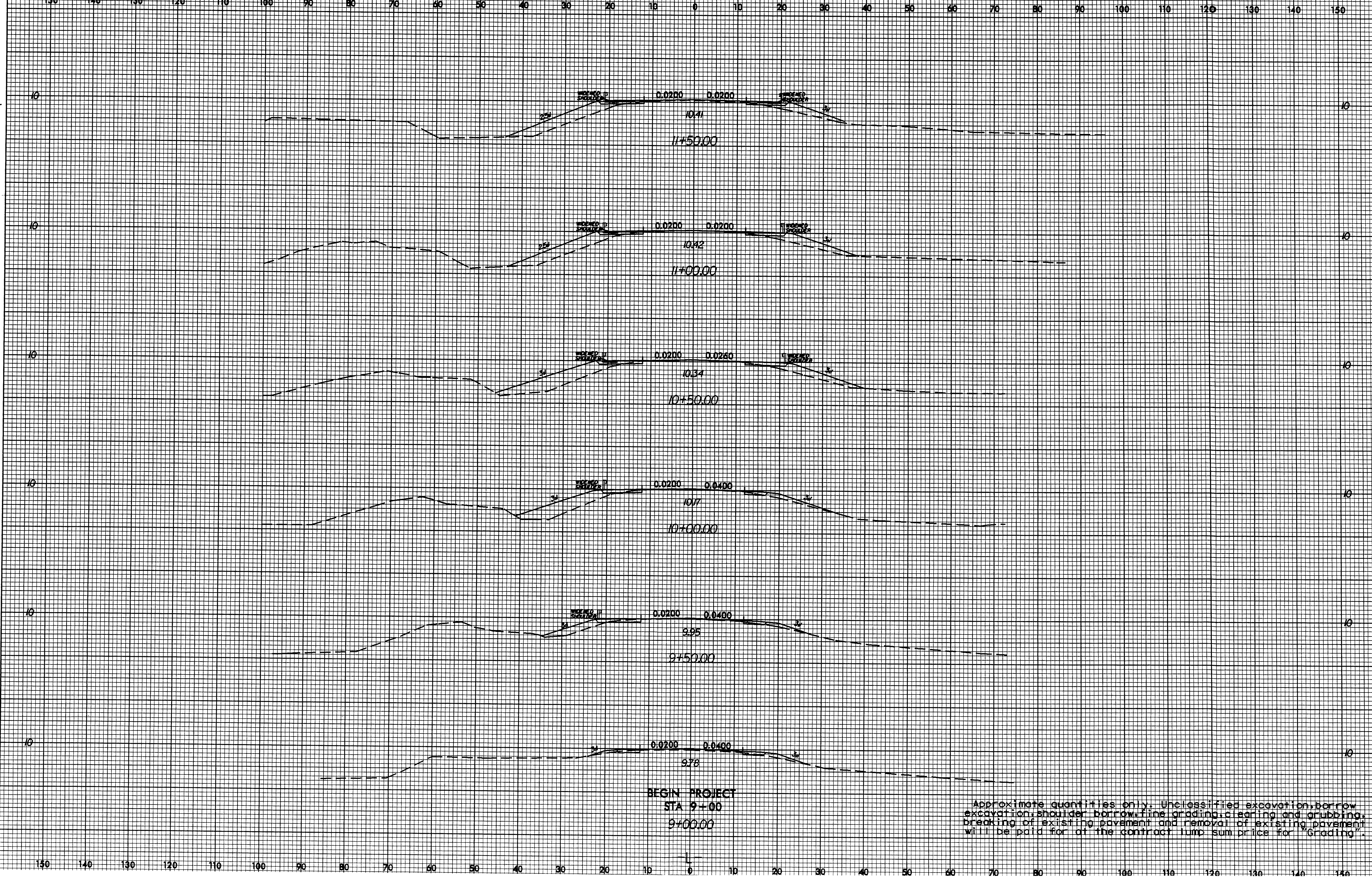
LEFT DITCH — · · —
RIGHT DITCH - - - - -



BEGIN GRADE -L- STA 9+00 EL = 10.07'
PI = 11+90.00 EL = 10.65' VC = 40' K = 157
BEGIN BRIDGE -L- STA 13+68.77
PI = 15+20.00 EL = 12.15' VC = 260' K = 285
END BRIDGE -L- STA 16+71.23
PI = 17+50.00 EL = 11.10' VC = 100' K = 161
PI = 18+90.00 EL = 11.33' VC = 125' K = 153
PI = 20+50.00 EL = 12.90' VC = 70' K = 244
END GRADE -L- STA 21+25 EL = 13.42'
(+)0.2000%
(+)0.2545%
(+)0.4545%
(-)0.4565%
(-)0.4565%
(+)0.1643%
(+)0.1643%
(+)0.9813%
(+)0.5333%
(+)0.9813%
(+)0.6942%
(+)1.5000%
(+)5.8000%
HIGH TIDE ELEV
LOW TIDE ELEV
BEGIN LATERAL BASE DITCH -L- STA 16+80 EL = 2.00
PI = 17+00.000 EL = 2.30
END LAT. BASE DITCH
BEGIN SPECIAL LAT. BASE DITCH -L- STA 17+50.000 EL = 5.2
END SPECIAL LAT. BASE DITCH -L- STA 18+00 EL = 8.0
BEGIN SPECIAL CUT DITCH -L- STA 19+00 EL = 9.30
END SPECIAL CUT DITCH -L- STA 20+50 EL = 10.10
ESTIMATED NORMAL WATER SURFACE ELEVATION (HIGH TIDE) = 1.09 FT (LOW TIDE) = 0.89 FT
DATE OF SURVEY = 11/19-21/01
W.S. ELEVATION AT DATE OF SURVEY = 10.26 FT
NOTE: SEE SHEET 4 FOR -L- PLAN VIEW
20
10
0
-10
-20
-30
9
10
11
12
13
14
15
16
17
18
19
20
21

20-FEB-2004 07:34
r:\proj\b3115_pfl
at West AT RD193405

PROJ. REFERENCE NO.	SHEET NO.
B-3115	X-1

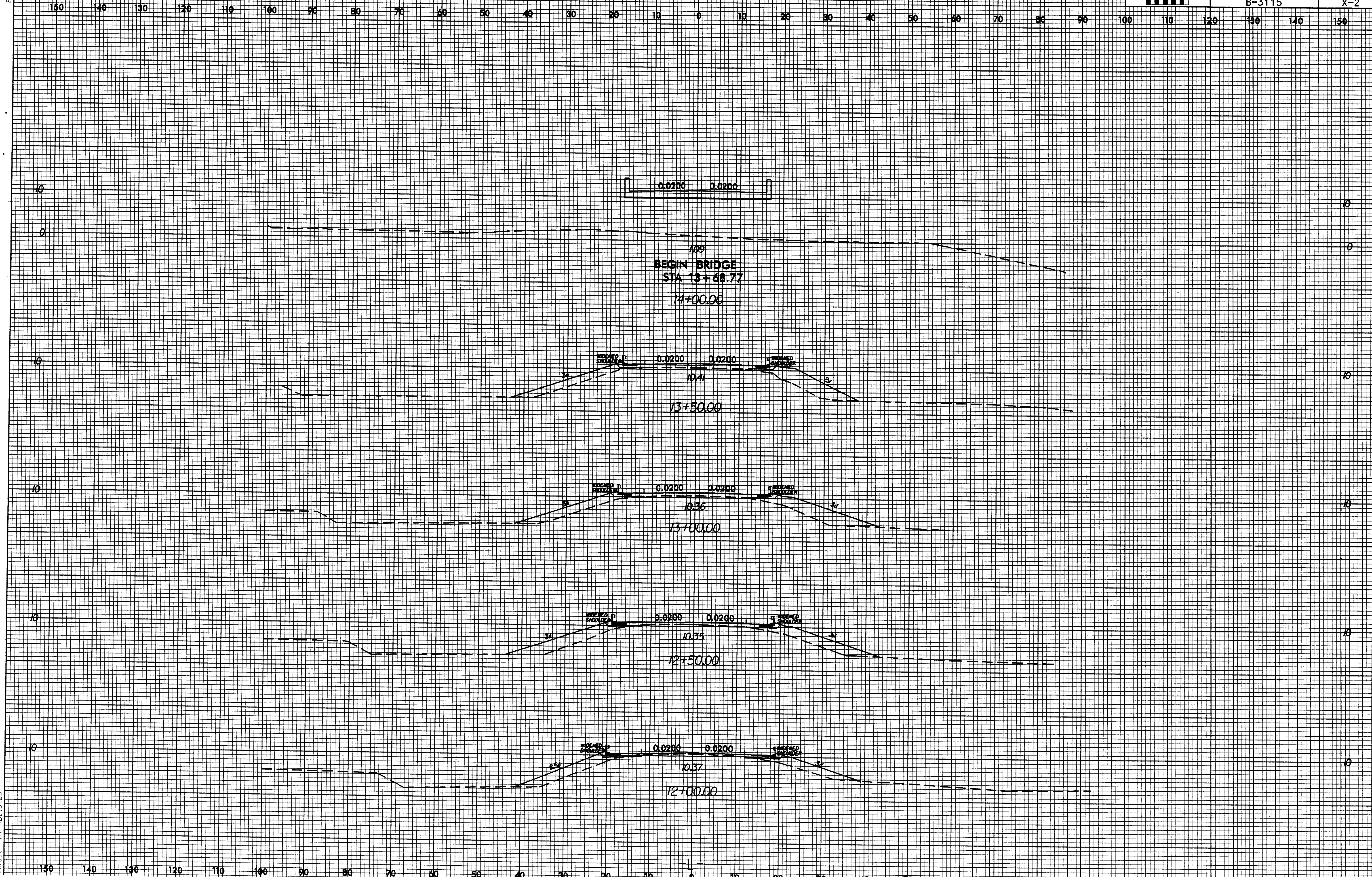


Approximate quantities only. Unclassified excavation, borrow excavation, shoulder borrow, fine grading, clearing and grubbing, breaking of existing pavement and removal of existing pavement will be paid for at the contract lump sum price for "Grading".

8/23/99

20-FEB-2004 07:34

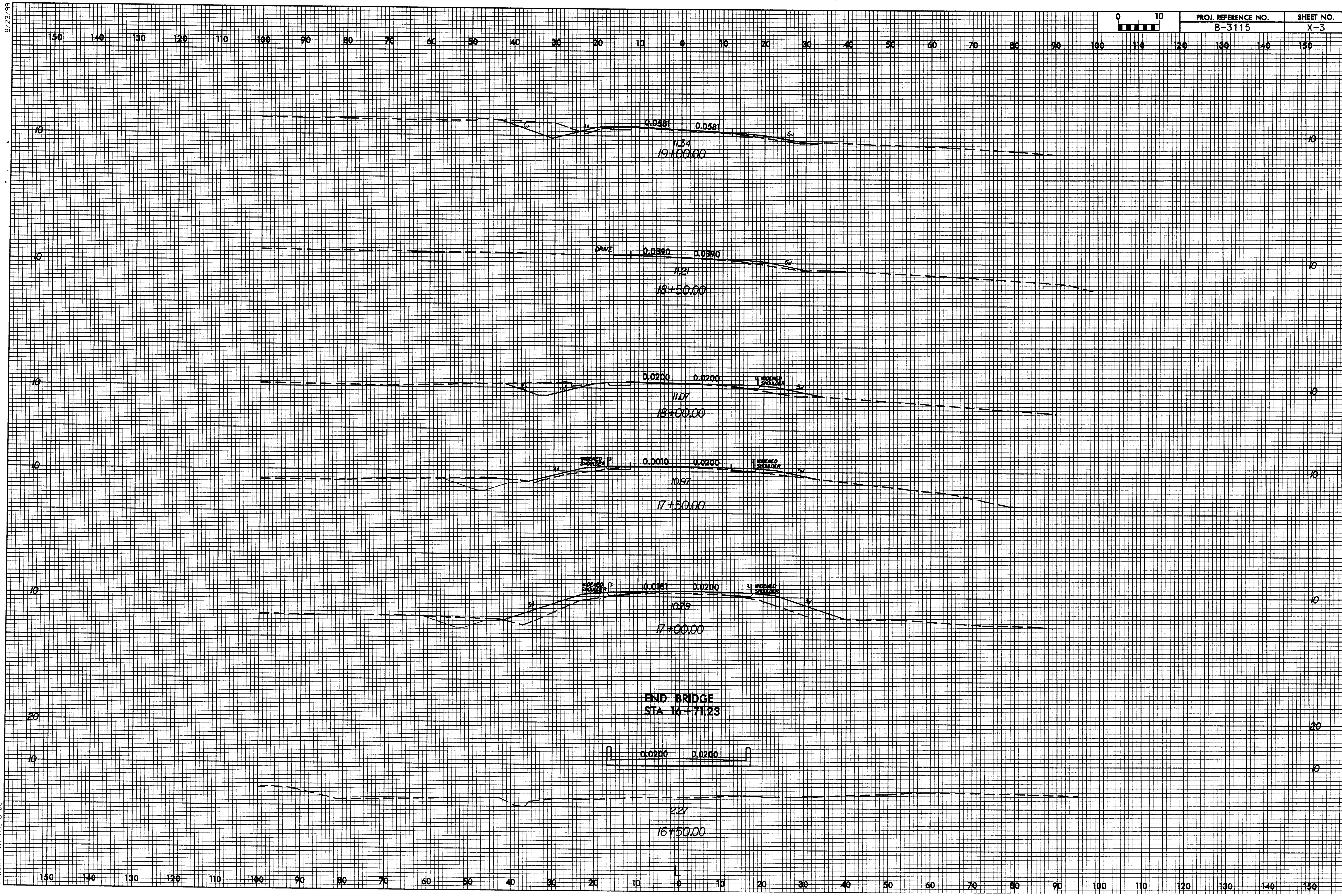
PROJ. REFERENCE NO.	SHEET NO.
B-3115	X-2



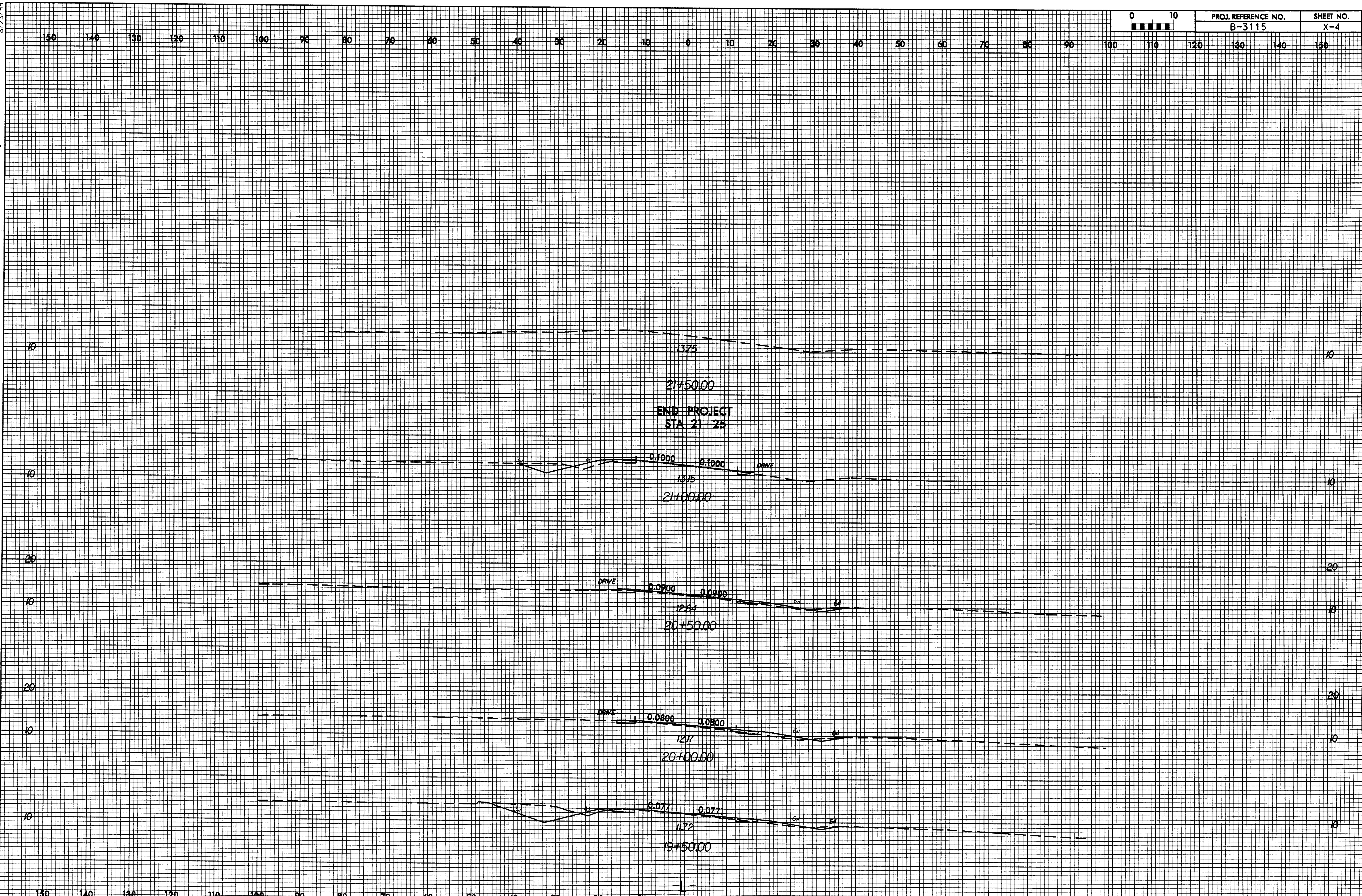
8/23/99

20-FEB-2004 07:35

0 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3115	X-3



0 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3115	X-4



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

March 12, 2004

U.S. Army Corps of Engineers
P.O. Box 1890
Wilmington, North Carolina 28401-1890

Attention: Mr. Dave Timpy
NCDOT Coordinator

Dear Sir:

Subject: **Application for Nationwide Permit 23 and 33** for the proposed replacement of Bridge No. 61 on NC 133 over Town Creek in Brunswick County, NCDOT Division 3. Federal Project No. BRSTP-133(1), State Project No. 8.1231401, WBS Element: 32874.1.1, TIP No. B-3115

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 61 over Tom Creek on NC133. Bridge No. 61 will be replaced on the existing alignment with a new bridge approximately 300 feet in length and a with cleared roadway width of 32 feet. The approaches will include two 12 foot lanes with 8 foot shoulders. Permanent impacts to wetlands associated with the replacement of Bridge No. 61 will include 0.10 acre of permanent fill and 0.07 acre of mechanized clearing. The traffic will be detoured to NC 87 during bridge construction.

Please find enclosed copies of the Categorical Exclusion (CE), PCN form, permit drawings, half size plans, a North Carolina Division of Water Quality Stormwater Exemption letter, Guidelines for Avoiding Impacts to the West Indian Manatee and an EEP Request Letter.

According to Bridge Maintenance records, the sufficiency rating of the bridge is 27.9 out of a possible 100. The new bridge will provide wider road shoulders on either side of the structure which will increase the safety rating for the bridge.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-715-1500
FAX: 919-715-1501

WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD
PLB SUITE 168
RALEIGH NC 27604

Town Creek is located in the Cape Fear River Basin (Hydrological Cataloguing Unit 03030005) and classified by the Division of Water Quality as C-Sw. Class C refers to waters suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation and agriculture. The Sw (swamp waters) sub-classification is a supplemental classification intended to recognize those waters having naturally occurring low velocities, low pH and low dissolved oxygen. Town Creek is also classified as an Anadromous Fish Stream.

PROPOSED IMPACTS TO WATERS OF THE UNITED STATES

Bridge Demolition: Bridge No. 61 is 300 feet long and 26.4 feet wide. It has a reinforced concrete deck on steel I-beams with concrete caps on timber piles. Best Management Practices for Bridge Demolition and Removal, which dictates that all existing structures over water be removed by non-shattering methods, will be followed during demolition and construction. Bridge No. 61 will be removed with less than 5 cubic yards of temporary fill in the wetland or surface water. The bridge will be removed in pieces that remain in place on the caps until they are removed by the crane. If any portion of concrete drops in the water, every effort is made to remove these from the water. Turbidity curtains shall be installed along the banks of Town Creek to help prevent components of the existing bridge from entering the watercourse. NCDOT will adhere to a moratorium allowing no work in water during the period of February 1 through June 15 to protect the shortnose sturgeon and other anadromous fish.

Permanent Impacts: The permit drawings report wetland impacts of 0.10 acre of permanent fill and 0.07 acre of mechanized clearing. The permanent fill is due to the piers for the proposed structure. The mechanized clearing is due to roadway embankment. There will be no marsh or coastal wetlands impacted. There will be less than 0.01 acre of fill in surface water from the piers for the proposed bridge structure.

Temporary Impacts: There will be less than 0.01 acre of fill in non-coastal wetlands due to the piles for the temporary work bridges. There will be less than 0.01 acre of fill in the surface water due to the piles from the temporary work bridges.

- **Schedule for Construction**: It is assumed that the Contractor will begin construction of the proposed temporary work bridge shortly after the date of availability for the project. The Let date is July 20, 2004 with a date of availability of August 25, 2004.

- **Restoration Plan**: Following the construction of the temporary work bridge, the construction of the permanent bridge will be completed. Once the temporary work bridge is no longer needed, all material used in the construction of the temporary work bridge will be removed. The temporary impact area associated with the work bridge is expected to recover naturally. Restoration of the project area will take place immediately following project completion and prior to traffic flow to the new bridge.

- **Removal and Disposal Plan**: After the temporary work bridge is no longer needed, all temporary work bridge material will become the property of the contractor. The contractor will be required to submit a reclamation plan for the removal and disposal of all work bridge material and demolished bridge material to an off-site upland location.

Utility Relocation: There are four utility lines located at the project site. NCDOT's Utility-Right-of-Way (Unit 3) has provided relocation plans for two utilities (Bell South and AT&T). Preliminary relocation plans were also provided for Brunswick EMC and Time Warner. At this time our data indicate that there will be no CAMA or Section 404 jurisdictional resources impacted. If final plans result in 404 and/or CAMA impacts, NCDOT will apply for a Nationwide 12 Permit.

PROTECTED SPECIES

Threatened and Endangered Species: Plants and animals with federal classification of Endangered, Threatened, Proposed Endangered and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003, the U.S. Fish and Wildlife Service (USFWS) lists 14 federally protected species for Brunswick County. In August 1999 a survey for the federally protected species found that habitat does exist for the endangered woodstork (*Mycteria americana*), roughed-leaved loosestrife (*Lysimachia asperulaefolia),* Cooley's Meadowrue (*Thalictrun cooleyi*) and the threatened bald eagle (*Halieetus leucocephalus*) species. Currently, these species receive biological conclusions of "Unresolved". However, another survey will be conducted for each of these species in May of 2004, prior to project construction. Biological conclusions of "No Effect" for each of the remaining species are valid and are presented in the attached CE.

- **West Indian Manatee**: The U.S. Fish and Wildlife Service has developed a list of "Precautions for the general construction in areas which may be used by the West Indian manatee in North Carolina". These precautions will be considered in all aspects of project construction (see attached precaution instructions).

- **Shortnose Sturgeon**: To ensure the project will not adversely affect the endangered shortnose sturgeon, explosives will not be used in the bridge demolition. To protect the shortnose sturgeon and other anadromous fish, there will be no in-water or in-marsh activity during the months of February 1 through June 15.

Essential Fish Habitat: The 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act (MSFCMA) set forth a new mandate for the National Marine Fisheries Service (NMFS), regional fishery management councils (FMC) and other Federal agencies to identify and protect important marine and anadromous fish habitat. The

FMCs, with the assistance from NMFS, have delineated "essential fish habitat" (EFH) for managed species. In the South Atlantic region, waterbodies in Brunswick County are listed in which EFHs are found. Town Creek is not a listed waterbody for EFHs. Therefore the rules of the MSFCMA will not apply for this project

MITIGATION OPTIONS

AVOIDANCE AND MINIMIZATION: Specific avoidance and minimization measures for this project include using a maximum slope of 3:1 and replacing the existing bridge in its current location with an off-site detour. The new bridge will span the entire width of Town Creek with none of the supporting structures installed in the water. The tidal freshwater marsh will not be impacted because the new bridge will span this community as well.

Turbidity curtains shall be used to contain all bottom disturbing activities, including pile or casement installation, placement of rip/rap, excavation or filling within the watercourse of Town Creek. The NCDOT shall install turbidity curtains along the banks of Town creek to prevent sediment from the causeway restoration area from entering the watercourse. The turbidity curtains will be properly maintained and retained in the water until construction is complete and turbidity within the curtains reaches ambient levels.

COMPENSATION: This project will permanently impact a total of 0.17 acre of non-coastal wetlands. Despite the minimization strategies employed for the proposed project, the resulting wetland impacts will be greater than 0.1 acre and will require mitigation.

Based upon the agreements stipulated in the "Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District (MOA)", it is understood that the North Carolina Department of Environment and Natural Resources Ecological Enhancement Program (EEP), will assume responsibility for satisfying the Section 404 compensatory mitigation requirements for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the Ecological Enhancement Program (EEP) transition period which ends on July 1, 2005.

Since the subject project is listed in *Exhibit 1* the necessary compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act will be provided by the EEP (see attached letter to EEP). The offsetting mitigation will derive from an inventory of assets already in existence within the same Ecoregion and the same 8-digit cataloguing unit. We have avoided and minimized the impacts to jurisdictional resources to the greatest extent possible as described above. The remaining unavoidable impacts to 0.17 acre of jurisdictional wetlands will be offset by compensatory mitigation provided by the EEP program.

REGULATORY APPROVALS

It is anticipated that the temporary work bridge will be authorized under Section 404 Nationwide Permit 33. We are, therefore requesting the issuance of a Nationwide Permit 33 for these activities. All other aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR§ 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002). We anticipate that 401 General Certification, numbers 3403 and 3366 will apply to this project. In accordance with 15A NCAC 2H .0501(a) we are providing two copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their records

Thank you for your assistance with this project. If you have any questions or need additional information please call Carla Dagnino at (919) 715-1456.

Sincerely

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

w/attachment
- Mr. John Hennessy, Division of Water Quality (2 copies)
- Mr. Gary Jordan, USFWS
- Mr. Travis Wilson, NCWRC
- Ms. Cathy Brittingham, NCDCM
- Mr. Bill Arrington, NCDCM
- Mr. Greg Perfetti, P.E., Structure Design

w/o attachment
- Mr. Jay Bennett, P.E., Roadway Design
- Mr. Omar Sultan, Programming and TIP
- Mr. Art McMillan, P.E., Highway Design
- Mr. David Chang, P.E., Hydraulics
- Mr. Mark Staley, Roadside Environmental
- Mr. John F. Sullivan, III, FHWA
- Mr. Allen Pope, Division 3 Engineer
- Mr. Mason Herndon, Division Environmental Officer
- Ms. Beverly Robinson, PDEA Project Planning Engineer)
- Mr. David Franklin, USACE, Wilmington (Cover Letter Only)

Office Use Only: Form Version May 2002

USACE Action ID No. _____ **DWQ No.** _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

1. Check all of the approval(s) requested for this project:
   - ☒ Section 404 Permit
   - ☐ Section 10 Permit
   - ☐ 401 Water Quality Certification
   - ☐ Riparian or Watershed Buffer Rules
   - ☐ Isolated Wetland Permit from DWQ

2. Nationwide, Regional or General Permit Number(s) Requested: NW23, NW 33

3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here: ☒

4. If payment into the North Carolina Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), complete section VIII and check here: ☐

5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here: ☐

II. Applicant Information

1. Owner/Applicant Information
   Name: NC Department of Transportation
   Mailing Address: 1548 Mail Service Center
   Raleigh, NC 27699-1548
   Telephone Number: (199)-733-3141 Fax Number: (919)-715-1501
   E-mail Address: _____

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)
   Name: NA
   Company Affiliation: _____
   Mailing Address: _____
   Telephone Number: _____ Fax Number: _____
   E-mail Address: _____

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Replacement of bridge No. 61 on NC133 over Town Creek

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3115

3. Property Identification Number (Tax PIN): N/A

4. Location
   County: Brunswick Nearest Town: Wake Forest
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers, landmarks, etc.): Brunswick County - take 133 off NC17 and travel south until you reach

5. Site coordinates, if available (UTM or Lat/Long): N 34 8 12 & W 77 59 14.4
   (Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)

6. Property size (acres): 2.25 acres

7. Nearest body of water (stream/river/sound/ocean/lake): Town Creek

8. River Basin: Cape Fear River Basin
   (Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at http://h2o.enr.state.nc.us/admin/maps/.)

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The site is located in a rural area of Brunswick County and zoned for some commercial and some residential.

10. Describe the overall project in detail, including the type of equipment to be used: The project will consist of replacing bridge No. 61 with a new bridge approximately 300 feet in length and with cleared roadway width of 32 feet. The approaches will include two foot lanes with 8 foot shoulders. The traffic will be detoured to NC 87 during bridge construction.

Explain the purpose of the proposed work: The sufficiency rating of the existing bridge is 27.9 out of a possible 100. The new bridge will provide wider road shoulders on either side of the structure which will increase the safety for the bridge.

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules.

NA

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.

NA

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

Provide a written description of the proposed impacts: The proposed impacts include 0.10 acre of permanent fill and 0.07 acre of mechanized clearing; less that 0.01 acre temporary fill in wetland due to the piles for the temporary work bridges; less than 0.01 acre fill in surface water from the piers for the proposed bridge structure and less than 0.01 acre fill in surface water from the piles of the temporary work bridges.

1. Individually list wetland impacts below:

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***
(Site 1) Fill from bridge piers	Permanent	0.10	Yes	10	Non Riparian
(Site 1) Mechanized Clearing	Permanent	0.07	Yes	10	Non Riparian
(Site 1) Fill from work bridge	Temporary	<0.01	Yes	10	Non Riparian

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

** 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at http://www.fema.gov.

*** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property: 0.5acre (non coastal wetlands)

Total area of wetland impact proposed: 0.2 acre

2. Individually list all intermittent and perennial stream impacts below:

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
(site 1) Fill in SW	Permanent	<0.01	Town Creek	80 feet	Perennial
Fill in SW	Temporary	<0.01	Town Creek	80 feet	Perennial

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included.

** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

Cumulative impacts (linear distance in feet) to all streams on site: <0.01 acre

3. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.) below:

Open Water Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Name of Waterbody (if applicable)	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)
NA				

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: fill, excavation, dredging, flooding, drainage, bulkheads, etc.

4. Pond Creation

If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.

Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands

Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): NA

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): NA

Size of watershed draining to pond: NA Expected pond surface area: NA

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts.

Specific avoidance and minimization measures for this project include using a maximum slope of 3:1 and replacing the existing bridge in its current location with an off-site detour. The new bridge will span the entire width of Town Creek with none of the supporting structures in the water. The tidal freshwater marsh will not be impacted because the new bridge will span this community as well.

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on March 9, 2000, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCWRP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at http://h2o.enr.state.nc.us/ncwetlands/strmgide.html.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.
   The NC DENR Ecological Enhancement Program (EEP), will assume responsibility for satisfying the Section 404 compensatory mitigation requirement for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the EEP transition period with ends on July 1, 2005.

2. Mitigation may also be made by payment into the North Carolina Wetlands Restoration Program (NCWRP). Please note it is the applicant's responsibility to contact the NCWRP at (919) 733-5208 to determine availability and to request written approval of mitigation prior to submittal of a PCN. For additional information regarding the application process for the NCWRP, check the NCWRP website at http://h2o.enr.state.nc.us/wrp/index.htm. If use of

the NCWRP is proposed, please check the appropriate box on page three and provide the following information:

Amount of stream mitigation requested (linear feet): NA
Amount of buffer mitigation requested (square feet): NA
Amount of Riparian wetland mitigation requested (acres): NA
Amount of Non-riparian wetland mitigation requested (acres): 0.17 acre if onsite; 0.34 acre if offsite
Amount of Coastal wetland mitigation requested (acres): NA

IX. Environmental Documentation (required by DWQ)

Does the project involve an expenditure of public (federal/state) funds or the use of public (federal/state) land?

Yes ☒ No ☐

If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)? Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.

Yes ☒ No ☐

If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter.

Yes ☒ No ☐

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify_____)?

Yes ☐ No ☒ If you answered "yes", provide the following information:

Identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
NA			
Total			

* Zone 1 extends out 30 feet perpendicular from near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Conservation Easement, Riparian Buffer Restoration / Enhancement, Preservation or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0260.

NA

XI. Stormwater (required by DWQ)

Describe impervious acreage (both existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property.

NA

XII. Sewage Disposal (required by DWQ)

Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.

NA

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?

Yes ☐ No ☒

Is this an after-the-fact permit application?

Yes ☐ No ☒

XIV. Other Circumstances (Optional):

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).

NA

3/5/04

Applicant/Agent's Signature **Date**

(Agent's signature is valid only if an authorization letter from the applicant is provided.)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

March 5, 2004

Mr. William D. Gilmore, P.E.
EEP Transition Manager
Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652

Dear Sir:

Subject: **Request for EEP Confirmation of Mitigation:** Brunswick County. Bridge No. 61 on NC 133 over Town Creek. Federal Project No. BRSTP-133(1), State Project No. 8.1231401, WBS Element: 32874.1.1, TIP No. B-3115.

The purpose of this letter is to request that the North Carolina Ecosystem Enhancement Program (EEP) provide confirmation that the EEP is willing to provide compensatory mitigation for the project in accordance with the Memorandum of Agreement (MOA) signed July 22, 2003 by the USACE, the NCDENR and the NCDOT.

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 61 over Tom Creek on NC133. Bridge No. 61 will be replaced on the existing alignment with a new bridge approximately 300 feet in length and a cleared roadway width of 32 feet. The approaches will include two 12 foot lanes with 8 foot shoulders. During construction traffic will be detoured to NC 87. Impacts to wetlands associated with the replacement of Bridge No. 61 will include 0.10 acre of permanent fill and 0.07 acre of mechanized clearing.

RESOURCES UNDER THE JURISDICTION OF SECTION 404 AND 401 OF THE CLEAN WATER ACT.

We have avoided and minimized the impacts to jurisdictional resources to the greatest extent possible as described in the permit application. A copy of the permit application can be found at http://www.ncdot.org/planning/pe/naturalunit/Applications.html. The remaining impacts to jurisdictional resources will be compensated for by mitigation provided by the EEP program. We estimate that 0.17 acre of wetlands will be impacted.

The project is located in the Southern Outer Coastal Plain in Brunswick County in the Cape Fear River basin in Hydrological Cataloguing Unit 03030005.

- The wetland impacts, summarized in Table 1, totals 0.17 acre of non-riverine bottomland wetlands. We propose to provide compensatory mitigation for the wetland impacts by using the EEP for the 0.17 acres of impacts.

Table 1: Summary of Jurisdictional Impacts

Section	Permanent Wetlands (ac)		Streams (ft)
	Riverine	Non riverine	
R/W 13+70-L- To 16 + 70-L-		0.17	

Please send the letter of confirmation to Dave Timpy (USACE Coordinator) at U. S. Army Corps of Engineers Division 3 Regulatory Field Office, (P.O. Box 1890, Wilmington, NC 28402-1890). Mr. Timpy's FAX number is (910) 251-4025. The current let date for the project is July 20, 2004 for which the let review date is (June 1, 2004).

In order to satisfy regulatory assurances that mitigation will be performed; the NCDWQ (North Carolina Division of Water Quality) requires a formal letter from EEP indicating their willingness and ability to provide the mitigation work requested by NCDOT. The NCDOT requests such a letter of confirmation be addressed to Mr. John Hennessy of NCDWQ, with copies submitted to NCDOT.

If you have any questions or need additional information please call Carla Dagnino at (919) 715-1456

Sincerely,

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

cc:
Ms. Cathy Brittingham, NCDCM
Mr. John Hennessy, DWQ, Raleigh
Mr. Gary Jordan, USFWS
Mr. Mike Street, NCDMF
Mr. Omar Sultan, Programming and TIP
Mr. David Chang, P.E. , Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Mason Herndon, DIV 3 DEO
Mr. Dave Timpy, USACE, Wilmington
Mr. Travis Wilson, NCWRC
Mr. Ron Sechler, NMFS
Mr. Jay Bennett, P.E., Roadway Design
Mr. Art McMillan, P.E., Highway Design
Mr. Greg Perfetti, P.E., Structure Design
Mr. H. Allen Pope, PE; Division 3 Engineer

Brunswick County
Bridge No. 61 on NC 133
Over Town Creek
Federal Project BRSTP-133 (1)
State Project 8.1231401
TIP No. B-3115

CATEGORICAL EXCLUSION

U. S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

N. C. DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

APPROVED:

7/2/02 _____

Date — Robert P. Hanson, P. E., Assistant Manager
Project Development and Environmental Analysis Branch

7/16/02 _____

Date — for Nicholas Graf, P. E.
Division Administrator, FHWA

Brunswick County
Bridge No. 61 on NC 133
Over Town Creek
Federal Project BRSTP-133 (1)
State Project 8.1231401
TIP No. B-3115

CATEGORICAL EXCLUSION

Documentation Prepared in
Project Development and Environmental Analysis Branch By:

7/1/02 — Beverly G. Robinson
Date — Beverly G. Robinson
Project Development Engineer

7/1/02 — James A. McInnis Jr.
Date — James A. McInnis Jr., P.E.
Project Development, Unit Head

NORTH CAROLINA PROFESSIONAL SEAL 20701 ENGINEER JAMES A. McINNIS, JR.
7-1-02

7/2/02 — Robert P. Hanson
Date — Robert P. Hanson, P. E., Assistant Manager
Project Development and Environmental Analysis Branch

TABLE OF CONTENTS

PROJECT COMMITMENTS

TIP PROJECT B-3115, Brunswick County

Bridge No. 61, on NC 133
Over Town Creek
Federal Aid Project BRSTP-133(1)
State Project 8.1231401

1. Structure Design Unit, Division 3:

Bridge Demolition: Bridge No. 61 is 300 feet (91.4 meters) long and 26.4 feet (8.04 meters) wide. It has a reinforced concrete deck on steel I-beams with concrete caps on timber piles. Thus, there is a potential for components of the bridge to be dropped into Waters of the United States during construction. The resulting temporary fill associated with the bridge will be as much as approximately 158.9 cubic yards. This calculation was based on the entire length of the bridge extending over surface waters as well as jurisdictional wetlands. All deposited components will be removed from the Waters of the U.S. as quickly as possible. During construction, Best Management Practices for Bridge Demolition and Removal will be followed. To ensure the project will not adversely affect the endangered shortnose sturgeon, explosives will not be used in the bridge demolition.

2. Hydraulics Unit, Structure Design Unit, Division 3:

Stream Crossing Guidelines: NCDOT's "Stream Crossing Guidelines for Anadromous Fish Passage" will be followed in the design & construction phases.

3. Division 3:

Construction Moratorium: There will be no in-water or in-marsh activity from February 1 through June 15. This is considered the in-migration, spawning, and out-migration period for the endangered shortnose sturgeon and another anadromous fish. All measures should be taken to prevent sedimentation in Town Creek during construction.

The U.S. Fish and Wildlife Service has developed a list of "Precautions for the general construction in areas which may be used by the West Indian manatee in North Carolina." These precautions will be considered in all aspects of project construction; therefore, this project will not affect the West Indian manatee.

NCDOT has agreed to delay closing NC 133 until after Labor Day.

4. Roadside Environmental Unit:

Design Standards in Sensitive Watersheds: To ensure the project will not adversely affect the endangered shortnose sturgeon, Design Standards for Sensitive Watersheds (formerly High Quality Water Guidelines) will be used.

5. Roadway Design Unit:

Fill slope in wetland areas: To minimize wetland impacts and provide for slope stability, the maximum fill slope of 3:1 will be used in wetland areas.

6. Project Development and Environmental Analysis Branch, Division 3:

1) NCDOT will investigate whether any necessary improvements are needed for NC 87 to be used as a detour route, including the need for additional traffic signals and resurfacing.
2) NCDOT will provide Carolina Power and Light Company and Brunswick County Emergency Management Officials with an estimate of the amount of time the closure of NC 133 will add to evacuation times for the Brunswick Nuclear Plant.
3) In response to local government requests, NCDOT will provide further public notification regarding this bridge replacement, road closure and detour route. This will be coordinated with Brunswick County Emergency Management.

Brunswick County
Bridge No. 61 on NC 133
Over Town Creek
Federal Project BRSTP-133 (1)
State Project 8.1231401
TIP No. B-3115

Bridge No. 61 carries NC 133 over Town Creek in Brunswick County. TIP Project B-3115 proposes to replace this bridge, and is programmed in the Draft 2004-2010 Transportation Improvement Program (TIP) as a bridge replacement project. NC 87 will be used as a detour route during the replacement of Bridge No. 61 and will be patched and resurfaced as a part of this project. This project is part of the Federal Highway Bridge Replacement and Rehabilitation Program (HBRRP) and has been classified as a "Categorical Exclusion". No substantial environmental impacts are expected.

I. SUMMARY OF RECOMMENDATIONS

Bridge No. 61 will be replaced in its existing location on NC 133 over Town Creek (see Figure 2). The new bridge will be approximately 300 feet (91 meters) in length and placed at approximately the same elevation as the existing bridge. Traffic will be detoured onto NC 87 (See Figure 4).

The proposed bridge will have a clear roadway width of 32 feet (9.6 meters), which will provide two 12-foot (3.6-meter) lanes with 4-foot (1.2-meter) offsets. The approaches will include two 12-foot (3.6-meter) lanes and 8-foot (2.4 meter) shoulders with 4-foot (1.2 meter) full depth paved shoulders. Based on preliminary design, the design speed should be approximately 60 mph (100 km/h).

NC 87 will be used as the detour route during the replacement of Bridge No. 61. NC 87 will be patched and resurfaced from the southern city limits of Boiling Spring Lakes to the northern city limits of Boiling Spring Lakes.

The proposed project is included in the Draft 2004-2010 Transportation Improvement Program (TIP). The current schedule includes right of way acquisition in July 2003 and construction in July 2004.

The estimated cost of the project is $1,905,000 including $1,400,000 in construction costs, $5,000 in right of way costs and $500,000 for patching and resurfacing NC 87. The estimated cost shown in the Draft 2004-2010 TIP is $1,935,000 which includes $235,000 for right of way acquisition and $1,700,000 for construction.

II. HISTORY OF PROPOSED PROJECT

A Categorical Exclusion was approved for this project on May 23, 2000 by NCDOT and the Federal Highway Administration. In the approved Categorical Exclusion, the recommended alternative would replace Bridge No. 61 on new location west of the existing bridge. The existing bridge would be utilized as a detour structure. After further investigation, it was determined the proposed horizontal alignment would be worse than the existing horizontal alignment. It was determined replacing the bridge on existing alignment with an offsite detour would be the best alternative for this project and reduce the project cost. Because this alternative was not discussed in the May 2000 categorical exclusion, this new document has been prepared.

A second bridge project is located along NC 133 in the area. TIP Project B-3116 will replace Bridge Number 56 carrying NC 133 over Allen Creek. This bridge is located approximately 4.5 miles (7.24 kilometers) south of Bridge Number 61. NC 133 will be closed and NC 87 used as a detour for this project also. Right of way acquisition for Project B-3116 is scheduled for federal fiscal year 2002 and construction is scheduled for federal fiscal year 2003.

III. ANTICIPATED DESIGN EXCEPTIONS

NCDOT does not anticipate any design exceptions will be required.

IV. EXISTING CONDITIONS

NC 133 is classified as a Rural Major Collector in the Statewide Functional Classification System. Currently (2001) the traffic volume is 12,000 vehicles per day (VPD). By the year 2025, the traffic volume is projected to increase to 25,000 vpd. Single unit trucks and tractor-trailers make up three percent and two percent of these volumes, respectively. NC 133 has a speed limit of 55 miles per hour.

The existing bridge was built in 1955. It has a reinforced concrete deck on steel I-beams and the substructure is concrete caps on timber piles. The deck is 300 feet (91 meters) long and 26 feet (7.8 meters) wide. There is approximately 26 feet (7.8 meters) of vertical clearance between the floorbeams of the bridge deck and the streambed. There are two lanes of traffic on the bridge.

Presently the bridge is posted with weight restrictions of 35 tons (31751.5 kilograms) for single vehicles and the legal load limit for truck-tractor semi-trailers. The sufficiency rating is 27.9. This structure is functionally obsolete and the substructure is becoming structurally deficient.

Vertical alignment is good with a slight upgrade on the north side of the bridge. There is a slight curve in the horizontal alignment, which begins approximately 150 feet (45.7 meters) from the north end of the bridge. The approach pavement width is 19 feet (5.8 meters) with acceptable width grass shoulders.

The Traffic Engineering Branch indicates 14 accidents were reported between April 1998 through March 2001 from SR 1518 (Daws Creek Road) to SR 1555 (Mellaney Lane).

Four school buses cross over the studied bridge with 2 trips per day.

Utility conflicts will be low for this project. There are underground phone cables on both sides of NC 133 going aerial across the creek. There is also a fiber optic cable underground along the east side of NC 133. Also along the east side of NC 133, there are overhead power lines that cross over to the west side just south of the bridge.

V. STUDIED ALTERNATIVES

The four "build" options considered for this project are as follows:

Alternate 1) Replace Bridge No. 61 in place with a temporary detour bridge located to the west during construction. The estimated cost for Alternate 1 is $2,110,000 to include $1,875,000 for construction and $235,000 for right of way acquisition.

Alternate 2) Replace bridge No. 61 on new alignment to the west of the existing bridge. Traffic will be maintained on the existing bridge during construction. The estimated cost for Alternate 2 is $1,935,000 to include $1,700,000 for construction and $235,000 for right of way acquisition.

Alternate 3) (**Recommended**) Replace Bridge No. 61 in place with a new bridge. Traffic will be detoured onto NC 87 during construction. The estimated cost for Alternate 3 is $1,405,000 to include $1,400,000 for construction and $5,000 for right of way acquisition.

Alternate 4) Replace Bridge No. 61 on new alignment to the east of the existing bridge. Traffic will be maintained on the existing bridge during construction. The estimated cost for Alternate 4 is $3,425,000 to include $2,475,000 for construction and $950,000 for right of way acquisition.

"Do-nothing" is not practical; requiring the eventual closing of the road as the existing bridge completely deteriorates. Rehabilitation of the existing deteriorating bridge is neither practical nor economical.

Alternates 1 and 3 both replace the existing structure in the same location with a bridge approximately 300 feet (91 meters) in length and maintain a design speed of 60 mph (100 km/h). Alternate 3 is recommended because there is no onsite detour. Although Alternate 2 offers the same benefits; but, this alignment would require an on-site detour. Alternate 4 would increase the impacts to the project area. The Division concurs in the recommendation.

VI. RECOMMENDED IMPROVEMENTS

Bridge No. 61 will be replaced as recommended in Alternate 3 with a new bridge in the same location. The new bridge will be approximately 300 feet (91 meters) in length and placed at approximately the same elevation as the existing bridge. Traffic will be detoured onto NC 87 during construction (See Figure 4).

NC 87 will be patched and resurfaced from the southern city limits of Boiling Spring Lakes to the northern city limits of Boiling Spring Lakes as a part of this project (see Figure 5).

The proposed bridge will have a clear roadway width of 32 feet (9.6 meters), which will provide two 12-foot (3.6 meter) lanes with 4-foot (1.2 meter) offsets. The approaches will include two 12-foot (3.6-meter) lanes and 8-foot (2.4-meter) shoulders with 4-foot (1.2-meter) full depth paved shoulders. Approach work will extend approximately 600 feet (180 meters) to either side of the new bridge. Based on preliminary design, the design speed should be approximately 60 mph (100 km/h).

NC 133 will be closed during replacement of Bridge No. 61.

VII. ENVIRONMENTAL EFFECTS

A. GENERAL PROJECT INFORMATION

This project is expected to have an overall positive impact. Replacement of an inadequate bridge will result in safer traffic operations.

This project is considered to be a "Categorical Exclusion" due to its limited scope and insignificant environmental consequences.

This bridge replacement will not have a substantial adverse effect on the quality of the human or natural environment with implementation of the environmental commitments listed in the project commitments section of this document and use of current NCDOT standards and specifications.

The project is not in conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from construction of this project.

There are no known hazardous waste impacts.

No significant adverse effects on families or communities are anticipated. Right-of-way acquisition will be very minimal.

No significant adverse effect on public facilities or services is expected. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

Closing NC 133 to construct Bridge No. 61 will require 18.6 miles (29.9 kilometers) of additional travel for residents traveling from south of Bridge No. 61 to US 17. Road user cost for this additional travel will be approximately $300,000. Additional time will be required for school bus services and other public services. The public officials in charge of administering these services have been consulted and do not object to the recommended alternative.

There are no publicly owned parks, recreational facilities, or wildlife and waterfowl refuges of national, state, or local significance in the vicinity of the project. This project will not impact any resource protected by Section 4(f) of the DOT act.

The proposed bridge replacement project will not raise the existing flood levels or have any significant adverse effect on the existing floodplain.

Utility impacts are considered to be low for the proposed project.

B. AIR AND NOISE

This project is an air quality "neutral" project, so it is not required to be included in the regional emissions analysis and a project level CO analysis is not required.

The project is located in Brunswick County, which has been determined to be in compliance with the National Ambient Air Quality Standards. 40 CFR part 51 is not applicable, because the proposed project is located in an attainment area. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

The project will not substantially increase traffic volumes. Therefore, it will not have substantial impact on noise levels. Temporary noise increases may occur during construction.

C. LAND USE & FARMLAND EFFECTS

This project will impact no soils considered to be prime or important farmland.

D. HISTORICAL EFFECTS & ARCHAEOLOGICAL EFFECTS

Upon review of area photographs, aerial photographs, and cultural resources databases, the State Historic Preservation Office (SHPO) indicates they "are aware of no historic structures within the area of potential effect." Therefore, the SHPO recommended no historic architectural surveys be conducted (see appendix).

The SHPO knows of no archaeological sites within the proposed project area. It is unlikely that any archaeological resources, which may be eligible for inclusion in the National Register of Historic Places, will be affected by the project construction. Therefore, the SHPO recommended that no archaeological investigations be conducted in connection with this project (see appendix).

E. NATURAL RESOURCES

1. Soils

There are two soil types located in the project area. A brief description of each soil type is provided.

- Chowan silt loam (CH) is nearly level, poorly drained soil found on floodplains of the Cape Fear River and its tributaries. It has a surface layer of dark grayish-brown silt loam, underlain by grayish-brown silty clay loam. It has slow surface runoff, moderately slow permeability, and is flooded for six months of most years. The main limitations of this soil are wetness and flooding. The Capability Unit is VIIw. This soil is listed as hydric for Brunswick County.

- Baymeade fine sand (BaB) is a well-drained soil found on low ridges and convex divides. The surface layer is dark gray fine sand, underlain with a light gray fine sand. Surface runoff is slow, permeability is moderately rapid, and the available water capacity is low. The seasonal high water table is four to five feet below the surface. The Capability Unit is IIIs.

2. Water Resources

There is one water resource in the project study area. NC 133 crosses one perennial stream, Town Creek (also known as Rattlesnake Branch).

a. Best Usage Classification

Water resources located within the project study area lie in the Lower Cape Fear River, Coastal Watershed (Subbasin 03-06-17), and Hydrologic Unit 03030005 of the Cape Fear River Drainage Basin.

Streams have been assigned a best usage classification by the Division of Water Quality (DWQ) which reflects water quality conditions and potential resource usage. Unnamed tributaries receive the same classification as the streams to which they flow. The classification for Town Creek [DEM Index No. 18-18, 9/1/74] is CSw. Class C refers to waters suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation and agriculture. The Sw (Swamp Waters) subclassification is a supplemental classification intended to recognize those waters having naturally occurring low velocities, low pH, and low dissolved oxygen. Town Creek is also classified as an Anadromous Fish Stream.

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

b. Stream Characteristics

The headwaters of Town Creek are approximately 23.3 kilometers (14.5 miles) west-northwest of Bridge No. 61. The creek flows east southeastward under the project bridge and outfalls into the Cape Fear River approximately 3.1 kilometers (1.9 miles) east of the project study area.

Town Creek, at NC 133, is approximately 80.0 feet (24.4 meter) wide and ranges in depth from 6.0 to 8.0 feet (1.8 to 2.4 meter). The substrate in the study area is most likely composed of organic muck. The creek is tidal, occasionally bringing brackish water into what would otherwise be a freshwater marsh.

c. Water Quality

Point sources refer to discharges that enter surface water through a pipe, ditch, or other defined points of discharge. Point source dischargers located throughout North Carolina are permitted through the National Pollutant Discharge Elimination System (NPDES) program. Any discharger is required to register for a permit. There are no NPDES sites located within 1.0 mile (1.6 kilometers) of the project study area.

Non-point source refers to runoff that enters surface waters through stormwater flow or no defined point of discharge. Excluding road runoff, there were no identifiable non-point sources that could be observed during the site visit. Due to the potential of impacts from deck drains, every effort will be made not to discharge the bridge deck drains directly into the stream, if possible.

d. Benthic Macroinvertebrate Ambient Network

The DWQ has initiated a whole basin approach to water quality management for the 17 river basins within the state. To accomplish this goal the DWQ collects biological, chemical and physical data that can be used in basinwide assessment and planning. All basins are reassessed every 5 years. An assessment of water quality data indicates that the Lower Cape Fear River and Coastal Watershed generally has good to excellent water quality due largely to good tidal flushing (NCDEHNR 1995a).

Prior to the implementation of the basinwide approach to water quality management, DWQ's Benthic Macroinvertebrate Ambient Network assessed water quality by sampling for benthic macroinvertebrate organisms at fixed monitoring sites throughout the state. There are no BMAN sampling stations in the project vicinity (NCDEHNR 1995a).

e. Summary of Anticipated Impacts

Impacts to water resources in the project area are likely to result from activities associated with project construction, such as clearing and grubbing on streambanks, riparian canopy removal, instream construction, fertilizers and pesticides used in revegetation, and pavement installation. The following impacts to surface water resources are likely to result from the above mentioned construction activities.

- Increased sedimentation and siltation downstream of the crossing and increased erosion in the project area.
- Changes in light incidence and water clarity due to increased sedimentation and vegetation removal.
- Alteration of water levels and flows due to interruptions and/or additions to surface and ground water flow from construction.
- Changes in and destabilization of water temperature due to vegetation removal.
- Increased nutrient loading during construction via runoff from exposed areas.
- Increased concentrations of toxic compounds in roadway runoff.

- Increased potential for release of toxic compounds such as fuel and oil from construction equipment and other vehicles.
- Alteration of stream discharge due to silt loading and changes in surface and groundwater drainage patterns.

In order to minimize potential impacts to water resources in the project area, NCDOT's Best Management Practices for the Protection of Surface Waters will be strictly enforced during the construction phase of the project. The short-nosed sturgeon may inhabit the project study area. Accordingly, Design Standards in Sensitive Watersheds (formerly High Quality Water Guidelines) will be enforced during the construction phase of the project. The project study area is located within the coastal plain and crosses a perennial stream. NCDOT Stream Crossing Guidelines for Anadromous Fish Passage (see Appendix) will be adhered to during the life of the project. To further insure water quality suitable for the shortnose sturgeon and other anadromous fish, a moratorium on in-stream work will be enforced from February 1 through June 15 All measures should be taken to prevent sedimentation in Town Creek during construction.

3. Biotic Resources

Biotic resources include terrestrial and aquatic communities. Descriptions of the terrestrial systems are presented in the context of plant community classifications. Fauna observed during the site visit are denoted in the text with an asterisk (*).

a. Terrestrial Communities

Much of the flora and fauna described from biotic communities utilize resources from different communities, making boundaries between contiguous communities difficult to define. There are four communities located in the project area to the west of NC 133 (impact area). While not lying within the project area boundaries, the adjacent cypress-gum swamps are nevertheless noteworthy. The communities contained within the project area are discussed below.

Tidal Freshwater/ Brackish Marsh

Tidal freshwater (brackish influenced) marsh, oligohaline variant, is found to the north and south of Town Creek. This variant occurs in areas with slight salt influence. Salt levels may be higher during rare high tide events. Although these marshes form upstream of the mouth of the creek, they are still tidally influenced. Tidal flooding brings in nutrients derived from seawater and varying amounts of sediment to the community.

Much of the tidal freshwater marsh community is unusual in appearing to have recently replaced tidal cypress-gum swamp. Numerous dead trees and some live trees remain in the marsh. It is uncertain what caused the shift. Possibilities include storm-driven salt-water intrusion or rising sea level. It is presumed to be a natural process. In contrast to brackish and saltwater marshes, tidal freshwater marshes are very diverse. The Town Creek site is dominated by common cattail, wax myrtle, black willow, Arrow arrum, and beakrush.

Bottomland Hardwood Forest

This community exists in what appears to be an old borrow pit, which originates from the southern edge of the marsh community and roughly parallels NC 133 to the southwest of the bridge. It was most likely formed when the road was constructed. It is approximately 30 feet (9.1 meters) wide and 5 feet (1.5 meters) deep. The soils here are composed of highly organic mucks and there is evidence of frequent flooding, presumably overflow from Town Creek. The overstory is dominated by bald cypress, swamp tupelo, red maple, and sweet gum. Dominant herbs and vine include: netted chain fern, arrow arum, catbrier, rush, royal fern, Virginia chain fern, and poison ivy.

Upland Pine Forest

This strip of woods borders the west side of the "borrow pit". Mature loblolly pine and sweet gum dominate this community. The understory consists primarily of red bay, water oak, southern magnolia, sassafras, and mockernut hickory. Other species present include muscadine, honeysuckle, wax myrtle, and poison ivy.

Disturbed Roadside

This upland community is located to the north and south of the marsh community on both sides of NC 133. It encompasses two types of habitats that have recently been or are currently impacted by human disturbance: maintained roadside shoulder and disturbed fringe. Because of mowing and the use of herbicides, this community is kept in a constant state of early succession. Roadside shoulder is a regularly maintained habitat that is kept in a low-growing, early successional state. Herbs, grasses, and vines located here include: goldenrod, morning glory, pepper vine, ragweed, Japanese honeysuckle, common plantain, winged sumac, muscadine grape, and catbrier.

Disturbed fringe is comprised of shrubs and sapling sized trees that exist in the roadside shoulder/ freshwater marsh ecotone. Species

observed here include: wax myrtle, red maple, sweet gum, and black willow.

b. Aquatic Community

The Natural Heritage Program lists the area east of Town Creek as a priority Aquatic Habitat and the area west of Town Creek as priority Tidal Wetlands.

4. Wildlife

Maintained/disturbed communities adjacent to forested tracts provide rich ecotones for foraging, while the forests provide forage and cover. Common mammals and birds associated with ecotones and upland forests are woodchuck, least shrew, southern short-tailed shrew, hispid cottonrat, eastern cottontail rabbits, ruby crowned kinglet, Carolina chickadee, bluebird, downy woodpecker and white-breasted nuthatch. The ground beetle and bessbug were also found in this community, feeding under logs.

The adjacent cypress-gum swamp provides habitat for an assortment of birds and mammals. Birds often associated with swamp communities include red-winged blackbird, white-throated sparrow, song sparrow, and northern cardinal. Yellow-rumped warblers and common yellow throat may also be found in this community. Yellow warbler, red-eyed vireo, Carolina wren and mourning dove may also frequent this area.

Mammals that may frequent the swamp community include white-footed mouse and raccoon. In addition, white-tailed deer* and gray squirrel may also forage in or near this community. Amphibians and reptiles are likely to be locally abundant in the riparian edge. Spring peeper* and northern cricket frog* breed in semi-permanent pools during the spring. Rat snake, worm snake, ring-necked snake and queen snake may be found here as well. The box turtle may also be found in the swamp community.

a. Terrestrial Impacts

Impacts to terrestrial communities will result from project construction. Table 1 summarizes potential losses to these communities resulting from project construction. Estimated impacts are derived based on a project length of 1,000 feet (304.8 meters), and the entire proposed right of way width of 60 feet (18.3 meters). However, project construction often does not require the entire right-of-way; therefore, actual impacts may be less.

Table 1. Estimated Impacts to Terrestrial Communities.

Community	Impacted Area ac (ha)			
	Alternate 1	Alternate 2	Alternate 3	Alternate 4
	Existing Location Temporary detour	Permanent Realignment West	Existing Location Road Closure	Permanent Realignment East
Tidal Freshwater Marsh (wetland)	0.16ac/*0.12 ac* (0.07 ha)*(0.05 ha)*	0.16 ac (0.07 ha)	0.16 ac (0.07 ha)	0.90 ac (0.36 ha)
Bottomland Hardwood Forest (wetland)	0.12ac/*0.10 ac* (0.05 ha)*(0.04 ha)*	0.12 ac (0.05 ha)	0.12 ac (0.05 ha)	0.25 ac (0.10 ha)
Pine Forest (upland)	0.29 ac/*0.21 ac* (0.12 ha)*(0.09 ha)*	0.29 ac (0.12 ha)	0.29 ac (0.12 ha)	0.29 ac (0.12 ha)
Disturbed Roadside (upland)	1.12 ac/*0.83 ac* (0.44 ha)/*(0.33 ha)*	1.12 ac (0.44 ha)	1.12 ac (0.44 ha)	1.12 ac (0.44 ha)
Total Impacts	1.69 ac/*1.26 ac* (0.68 ha)*(0.51 ha)*	1.69 ac (0.68 ha)	1.69 ac (0.68 ha)	2.56 ac (1.02 ha)

Note: Detour impacts are based on a right of way width of 80 feet (24.4 meters). Temporary detour impacts are shown in italics.

b. Aquatic Impacts

Impacts to the aquatic community of Town Creek will result from the replacement of Bridge No. 61. Impacts are likely to result from the physical disturbance of aquatic habitats (i.e. substrate and water quality). Disturbance of aquatic habitats has a detrimental effect on aquatic community composition by reducing species diversity and the overall quality of aquatic habitats. Physical alterations to aquatic habitats can result in the following impacts to aquatic communities.

- Inhibition of plant growth.
- Algal blooms resulting from increased nutrient concentrations.
- Loss of benthic macroinvertebrates through scouring resulting from an increased sediment load.

5. Jurisdictional Topics

a. Waters of the United States

Surface waters and wetlands fall under the broad category of "Waters of the United States," as defined in Section 33 of the Code of Federal Regulations (CFR) Part 328.3. Any action that proposes to dredge or place fill material into surface waters or wetlands falls under the jurisdiction of the U.S. Army Corps of Engineers (COE) under Section 404 of the Clean Water Act (33 U.S.C. 1344).

b. Characteristics of Wetlands and Surface Waters

There are wetlands in the project area in the form of tidal freshwater marshes. Vegetation includes common cattail, wax myrtle, Arrow arrum, and beakrush. Permanent and temporary impacts are as follows:

- Alternate 1 - Permanent wetland impacts for the replacement of the bridge on the same alignment are approximately 0.28 acres (0.12 hectares). Temporary impacts for the construction of a temporary detour to the west of the existing bridge are 0.22 acres (0.09 hectares).

- Alternate 2 – Permanent wetland impacts for the replacement of the bridge to the west of the existing bridge with a new bridge are approximately 0.28 acres (0.12 hectares).

- Alternate 3 - Permanent wetland impacts for the replacement of the bridge on the same alignment are approximately 0.28 acres (0.12 hectares).

- Alternate 4 – Permanent wetland impacts for the replacement of the bridge to the east of the existing bridge with a new bridge are approximately 1.15 acres (0.46 hectares).

There will be no impacts to jurisdictional surface waters because the new bridge will span the entire width of Town Creek.

c. Permits

The subject project is located within a county that is under the jurisdiction of Coastal Area Management Act (CAMA). CAMA is administered by the N. C. Division of Coastal Management (NCDCM).

CAMA directs the Coastal Resources Commission (CRC) to identify and designate Areas of Environmental Concern (AEC) in which uncontrolled development might cause irreversible damage to property, public health and natural environment. A CAMA permit from the NCDCM is required if the project meets all of the following conditions:

a) Located in one of the twenty counties covered by CAMA;
b) Located in or affects an AEC designated by the CRC;
c) Considered to be "development" under CAMA; and,
d) Not qualify for an exemption as identified by CAMA or the CRC.

The project fulfills all of the above statements. More specifically, the project will require a CAMA major development permit.

This project will also require a 401 Water Quality Certification from the DWQ prior to the issuance of the Section 404 Nationwide Permit. The issuance of a 401 permit from the DWQ is a prerequisite to issuance of a Section 404 permit or CAMA permit.

The FHWA has determined a US Coast Guard permit will not be required for construction of this project.

d. Avoidance, Minimization, Mitigation

Specific avoidance and minimization measures for this project include: using a maximum slope of 3:1, and replacing the existing bridge in its current location with an off-site detour. Final design will reveal final impacts. However, final permit/mitigation decisions rest on the Corps of Engineers.

6. Bridge Demolition

Bridge No. 61 is 300 feet (91 meters) long and 26.4 feet (8.04 meters) wide. It has a reinforced concrete deck on steel I-beams with concrete caps on timber piles. There is potential for some components of the bridge to be dropped into Waters of the U.S. during construction. The resulting temporary fill associated with the reinforced concrete floor would be a maximum of 158.9 cubic yards (121.5 cubic meters). This calculation was based on the entire length of the bridge extending over surface waters as well as jurisdictional wetlands. All deposited components will be removed from the Waters of the U.S. as quickly as possible.

Bridge removal for this project is classified as Case 2 for bridge removal which allows no work at all in water through a moratorium period of February 1 through June 15.

7. Rare and Protected Species

a. Federally-Protected Species

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under the provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of March 7, 2002, the US Fish and Wildlife Service (FWS) lists fifteen federally protected species for Brunswick County. Biological Conclusions of "No Effect"

were found for all federally protected species, except the shortnose sturgeon. Although no populations of this species have been reported from the project vicinity, favorable habitat does exist for this species. Based on concurrence of the National Marine Fisheries Service, a biological conclusion of "Not Likely to Adversely Affect" has been determined for the shortnose sturgeon.

A review of the NHP database of rare species and unique habitats shows two occurrences of federally protected species in the project study area. The American alligator and the red-cockaded woodpecker (last observed in 1973) have been observed within 1 mile (1.6 kilometer) of the project area.

Table 2. Federally Protected Species for Brunswick County.

Common Name	Scientific Name	Status
Shortnose Sturgeon	*Acipenser brevirostrum*	Endangered
American Alligator	*Alligator mississippiensis*	Threatened, due to similarity of appearance
Loggerhead Sea Turtle	*Caretta caretta*	Threatened
Piping Plover	*Charadrius melodus*	Threatened
Green Sea Turtle	*Chelonia mydas*	Threatened
Leatherback Sea Turtle	*Dermochelys coriacea*	Endangered
Eastern Cougar	*Felis concolor couguar*	Endangered
Bald Eagle	*Halieetus leucocephalus*	Threatened
Kemp's Ridley Sea Turtle	*Lepidochelys kempii*	Endangered
Wood Stork	*Mycteria americana*	Endangered
Red-Cockaded Woodpecker	*Picoides borealis*	Endangered
West Indian Manatee	*Trichechus manatus*	Endangered
Seabeach Amaranth	*Amaranthus pumilus*	Threatened
Rough-Leaved Loosestrife	*Lysimachia asperulaefolia*	Endangered
Cooley's Meadowrue	*Thalictrum cooleyi*	Endangered

Note: "Endangered" denotes a species in danger of extinction throughout all or a significant portion of its range.
"Threatened" denotes a species likely to become endangered in the foreseeable future throughout all or a significant portion of its range.

Descriptions of Federally Protected Species found in Brunswick County, NC

Name: *Shortnose sturgeon* **Endangered**

BIOLOGICAL CONCLUSION: NOT LIKELY TO ADVERSELY AFFECT

The short-nosed sturgeon is a small (1 meter in length) species of fish that occurs in the lower sections of large rivers and in coastal marine habitats from the St. John River, Canada to the Indian River, Florida. It can be differentiated from the Atlantic

sturgeon because of its shorter snout, wider mouth, and the pattern of its preanal shields (the short-nose having one row and the Atlantic that has two).

The short-nosed sturgeon prefers deep channels with salinity less than seawater. It feeds benthicly on invertebrates and plant material and is most active at night. It is an anadromous species that spawns upstream in the spring and spends most of its life within close proximity of the rivers mouth. At least two entirely freshwater populations have been recorded, in South Carolina and Massachusetts.

The short-nosed sturgeon requires large fresh water rivers that are unobstructed by dams or pollutants to reproduce successfully.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. No populations of this species have been reported from the project vicinity. However, favorable habitat does exist for this species. Based on a conversation with the North Carolina Marine Fisheries Service on December 3, 1999, a moratorium is recommended to avoid in-water activity from February 1 through June 15. The National Marine Fisheries Services concurs with the recommendation of North Carolina Marine Fisheries, and has issued a finding of "Not likely to Adversely Affect" for the impacts of the shortnose sturgeon (see letter in Appendix). This is dependent on the commitments found on the Project Commitment Green Sheet.

Name: *American alligator* **Threatened Due to Similarity of Appearance**

BIOLOGICAL CONCLUSION: **NO EFFECT**

This species is listed as Threatened Due to Similarity of Appearance, and is therefore not protected under Section 7 of the Endangered Species Act. However, in order to control the illegal trade of other protected crocodilians such as the American crocodile, federal regulations (such as hide tagging) are maintained on the commercial trade of alligators. No survey is required for this species. The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. There has been a sighting of this species within 1.0 km (0.6 mile) of the project area.

Name: *Loggerhead sea turtle* **Threatened**

BIOLOGICAL CONCLUSION: **NO EFFECT**

The loggerhead sea turtle is found in a wide variety of habitats, including the open ocean, bays, lagoons, salt marshes, creeks, ship channels, and large river mouths. Hatchlings are often seen in association with floating sargassum seaweed. The diet includes sponges, jellyfish, mollusks, crustaceans, and fish. Loggerheads often forage in coral reefs, rocky areas, and shipwrecks.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. No populations of this species have been reported from the project vicinity. There are no suitable beach or marine habitats located in the project study area. Additionally, the project study area does not exhibit the salinity necessary to support this species. Therefore, no effects to this species will occur from the construction of this project.

Name: *Piping plover* **Threatened**

BIOLOGICAL CONCLUSION: **NO EFFECT**

The piping plover has a breeding range including the Great Lakes region and the Atlantic Coast between Newfoundland and Cape Lookout, NC. Populations in the Great Lakes region are listed as Endangered; populations elsewhere in the range are listed as Threatened. This species winters on the Atlantic and Gulf of Mexico coasts from North Carolina to Mexico, and the Bahamas and West Indies. Preferred habitat consists of large sandflats or mudflats for foraging in close proximity to a sandy beach for roosting and nesting.

Piping plovers nest on sandy or gravelly beaches in sparsely vegetated areas that are slightly higher in elevation than the surrounding beach

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. No populations of this species have been reported from the project vicinity. Suitable habitat does not exist within the project vicinity for this species.

Name: *Green sea turtle* **Threatened**

BIOLOGICAL CONCLUSION: **NO EFFECT**

The green sea turtle can be found in tropical and temperate waters from Massachusetts to Mexico on the east coast of North America, and British Columbia to Baja California on the west coast, as well as Puerto Rico and the U.S. Virgin Islands. Most nesting in the United States takes place on the eastern coast of Florida between Volusia and Dade Counties, though some nests have been observed in Puerto Rico and the U.S. Virgin Islands as well

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. Suitable habitat does not exist within the project vicinity for this species and no populations of this species have been reported from the project vicinity.

Name: *Leatherback sea turtle* **Endangered**

BIOLOGICAL CONCLUSION: **NO EFFECT**

The leatherback sea turtle is the largest of the turtles, weighing 295-680 kg with a length of 1.2-1.8 m. This turtle is unique in that its carapace is not composed of hard scutes, but is rubbery with small bones embedded in it. Preferred nesting beaches are usually isolated, with close proximity to deep water, bordered by vegetation, and steep enough so that dry sand is not too far from the water.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. Suitable habitat does not exist within the project vicinity for this species and no populations of this species have been reported from the project vicinity.

Name: *Eastern cougar* **Endangered**

BIOLOGICAL CONCLUSION: **NO EFFECT**

The eastern cougar is a large, unspotted, long-tailed cat weighing between 68 and 91 kg. The cougar's body and legs are a uniform tawny color, although the belly is a pale reddish color, and the backs of the ears, tip of the tail, and sides of the muzzle are black.

Habitat requirements consist primarily of large tracts of wilderness and adequate prey, and this species can live in coastal swamps as well as mountainous regions. Cougars feed mainly on white-tailed deer, although they may also eat small mammals, wild turkeys, and occasionally domestic livestock. It is estimated that a female cougar can have a range of 5-20 square miles, and a male can have a range upwards of 25 square miles.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. Suitable habitat does not exist within the project vicinity for this species and no populations of this species have been reported from the project vicinity.

Name: *Bald eagle* **Endangered**

BIOLOGICAL CONCLUSION: **NO EFFECT**

Adult bald eagles can be identified by their large white head and short white tail. The body plumage is dark-brown to chocolate-brown in color. In flight bald eagles can be identified by their flat wing soar.

Eagle nests are found in close proximity to water (within a half mile) with a clear flight path to the water, in the largest living tree in an area, and having an open view of

the surrounding land. Human disturbance can cause an eagle to abandon otherwise suitable habitat. The breeding season for the bald eagle begins in December or January. Fish are the major food source for bald eagles. Other sources include coots, herons, and wounded ducks. Food may be live or carrion.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. No populations of this species have been reported from the project vicinity and no birds or nests were observed during the site visit.

Name: *Kemp's ridley sea turtle* **Endangered**

BIOLOGICAL CONCLUSION: **NO EFFECT**

The Kemp's ridley sea turtle is the smallest of the sea turtles in our area, weighing 36-50 kg. This turtle is unique in that its broad, heart-shaped carapace is gray, and there is a secretory pore near the posterior edge of each scute forming the bridge between the carapace and plastron.

The Kemp's ridley sea turtle is found in shallow water, usually near coastal forests of red mangrove (Rhizophora mangle). Nearly the entire population nests on approximately 24 km of beach in the state of Tamaulipas, Mexico. Preferred nesting beaches are backed by large swamps or open water with narrow ocean connections.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. Suitable habitat does not exist within the project vicinity for this species and no populations of this species have been reported from the project vicinity.

Name: *Wood stork* **Endangered**

BIOLOGICAL CONCLUSION: **NO EFFECT**

Wood storks are large wading birds with long legs. They are approximately 1.27 m tall, with a wingspan of 1.52-1.65 m. Their plumage is mainly white, except for black primaries and secondaries and a short black tail. The head and neck are unfeathered, with dark gray skin; legs are dark, and the bill is black and slightly decurved. Juveniles are grayish and have a yellow bill.

Nesting occurs in large colonies, primarily in cypress and mangrove swamps.

Favored feeding habitat includes freshwater marshes, tidal creeks, and tide pools, especially pools in marshes or swamps where fish are concentrated by falling water

levels. The feeding grounds may be as far as 128 km from the nest location, as the storks use thermals to soar great distances.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. Suitable habitat does exist within the project vicinity for this species. However, only a few representatives of this species have reached southeastern North Carolina, residing primarily in coastal South Carolina, from near Georgetown southward (Potter 1980). There have been no populations of this species reported from the project vicinity.

Name: *Red-cockaded woodpecker* **Endangered**

BIOLOGICAL CONCLUSION: **NO EFFECT**

The adult red-cockaded woodpecker (RCW) has a plumage that is entirely black and white except for small red streaks on the sides of the nape in the male. The back of the RCW is black and white with horizontal stripes. The breast and underside of this woodpecker are white with streaked flanks. The RCW has a large white cheek patch surrounded by the black cap, nape, and throat.

The RCW uses open old growth stands of southern pines, particularly longleaf pine (Pinus palustris), for foraging and nesting habitat. A forested stand must contain at least 50% pine, lack a thick understory, and be contiguous with other stands to be appropriate habitat for the RCW. These birds nest exclusively in trees that are $\geq$60 years old and are contiguous with pine stands at least 30 years of age. The foraging range of the RCW is up to 500 acres (200 hectares). This acreage must be contiguous with suitable nesting sites.

These woodpeckers nest exclusively in living pine trees and usually in trees that are infected with the fungus that causes red-heart disease. Cavities are located in colonies from 12-100 feet (3.6-30.3 meters) above the ground and average 30-50 feet (9.1- 15.7 meters) high. They can be identified by a large incrustation of running sap that surrounds the tree. The RCW lays its eggs in April, May, and June; the eggs hatch approximately 38 days later.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. The red-cockaded woodpecker was last observed from the project vicinity in 1973. However, habitat suitable for this species is no longer present in the project vicinity.

Name: *West Indian Manatee* **Endangered**

BIOLOGICAL CONCLUSION: **NO EFFECT**

The manatee is a large gray or brown aquatic mammal. Adults average about 10 feet (3 m) long and weighing around 1000 pounds. The body of the manatee is nearly hairless except for a muzzle covered with stiff "whiskers." The U.S. manatee population was probably twice as abundant in the 1700's and early 1800's as at present. Initial population decreases resulted from overharvesting for meat, oil, and leather. Today, heavy mortality is attributed to accidental collisions with boats and barges, along with loss of suitable habitat.

Manatees inhabit both salt and freshwater habitats of sufficient depth (greater than 1.5 m). They may be encountered in canals, sluggish rivers, estuarine beaches, and salt water bays. Observations of salt water populations indicate that they may require freshwater for drinking purposes. Manatees also require warm water. When water temperatures drop below 20 C, they begin to move into warmer water, often forming large aggregations in natural springs and industrial outfalls during the winter.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. No populations of the West Indian Manatee have been reported from the project vicinity. This species typically inhabits more southern areas but has been observed on occasion in North Carolina's coastal waters near South Port. Nevertheless, manatees are not likely to swim as far north as the NC 133 crossing of Town Creek.

The U.S. Fish and Wildlife Service has developed a list of "Precautions for the general construction in areas which may be used by the West Indian manatee in North Carolina." These precautions will be considered in all aspects of project construction; therefore, this project will not affect the West Indian manatee.

Name: *Seabeach Amaranth* **Threatened**

BIOLOGICAL CONCLUSION: **NO EFFECT**

Seabeach amaranth is an annual legume that grows in clumps containing 5 to 20 branches and are often over a foot across. The trailing stems are fleshy and reddish-pink or reddish in color. Seabeach amaranth has thick, fleshy leaves that are small, ovate-spatulate, emarginate and rounded. The leaves are usually spinach green in color, cluster towards the end of a stem, and have winged petioles.

Seabeach amaranth is endemic to the Atlantic Coastal Plain beaches. Habitat for seabeach amaranth is found on barrier island beaches functioning in a relatively dynamic and natural manner. Seabeach amaranth grows well in overwash flats at the accreting ends

of islands and the lower foredunes and upper strands of noneroding beaches. Temporary populations often form in blowouts, sound-side beaches, dredge spoil, and beach replenishment.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was checked on September 12, 2001. Suitable habitat does not exist within the project vicinity for this species and no populations of this species have been reported from the project vicinity.

Name: *Roughed-leaved Loosestrife* **Endangered**

BIOLOGICAL CONCLUSION: **NO EFFECT**

Rough-leaved loosestrife is endemic to the Coastal Plain and Sandhills of North Carolina and South Carolina.

Typical habitat for rough-leaved loosestrife is the ecotone between high pocosin and longleaf pine (or oak) savannas that contain sandy or peaty soils and full sunlight. Rough-leaved loosestrife sometimes occurs in low pocosin openings where light is abundant at ground level. Other habitats where this species is found include ecotones of stream-head pocosins in the Sandhills and Sandhill Seeps where wet sands are underlain by clay, allowing water to seep to the surface along slopes.

Two populations of rough-leaved loosestrife occur along NCDOT rights-of-way in Brunswick County.

Rough-leaved loosestrife is a perennial herb growing from 30 - 60 cm (12 - 24 in) tall. Its sessile leaves, in whorls of three to four, are broadest at the base and have three prominent veins. The leaves are entire, slightly revolute (rolled under along the margins), yellow-green or blue-green in color and lustrous. Rough-leaved loosestrife flowers from May to June.

Suitable habitat for this species does not occur in the project area. During a general survey of the area, the project area was also surveyed for this species by NCDOT biologists on June 23, 1999. No individuals of this species were located in the project area nor does the NCNHP database show in previous records of this species occurring in the project area. Thus, construction of this project will have no effect on this species.

Name: *Cooley's meadowrue* **Endangered**
Best Search Time: mid June to early July

BIOLOGICAL CONCLUSION: **NO EFFECT**

Cooley's meadowrue occurs in wet pine savannas, grass-sedge bogs and savanna like areas, often at the border of intermittent drainages or swamp forests. This species is usually found in areas that contain some type of disturbance such as clearings, burned savanna edges, maintained roadsides and power line rights-of-ways. It is found on fine sandy loam, circumneutral soils that are seasonally (winter) moist or saturated and only slightly acidic (pH 5.8-6.6).

Cooley's meadowrue is a tall herb growing to 1 m or more when in flower. Its slender stems are erect in sunny locations and lax or sprawling when shaded.

Suitable habitat for this species does not occur in the project area. During a general survey of the area, the project area was also surveyed for this species by NCDOT biologists on June 23, 1999. No individuals of this species were located in the project area nor does the NCNHP database show in previous records of this species occurring in the project area. Thus, construction of this project will have no effect on this species.

b. Federal Species of Concern and State Listed Species

There are thirty-seven federal species of concern listed by the FWS for Brunswick County (Table 3). Federal species of concern are not afforded federal protection under the Endangered Species Act and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. In addition, organisms which are listed as Endangered (E), Threatened (T), or Special Concern (SC) by the North Carolina Natural Heritage Program list of Rare Plant and Animal Species are afforded state protection under the NC State Endangered Species Act and the NC Plant Protection and Conservation Act of 1979.

Table 3 lists federal species of concern, the state status of these species (if afforded state protection), and the potential for suitable habitat in the project area for each species. This species list is provided for information purposes as the protection status of these species may be upgraded in the future.

A review of the NHP database of rare species and unique habitats shows one occurrence of FSC species in the project study area. The Northern pine snake has been observed within 1 mile (1.6 kilometers) of the project area.

Table 3. Federal species of concern for Brunswick County

Common Name	Scientific Name	NC Status	Habitat Present
Bachman's Sparrow	*Aimophila aestivalis*	SC	No
Henslow's Sparrow	*Ammodramus henslowii*	SR	No
Carolina Pygmy Sunfish	*Elassoma boehlkei*	T	Yes
Southern Hognose Snake	*Heterodon simus*	SR*	No
Mimic Glass Lizard	*Ophisaurus mimicus*	SC/PT	No
Eastern Painted Bunting	*Passerina ciris ciris*	SR	Yes
Northern Pine Snake	*Pituophis melanoleucus melanoleucus*	SC*	Yes
Carolina Gopher Frog	*Rana capito capito*	SC/PT	No
Buchholz's Dart Moth	*Agrotis buchholzi*	SR	No
Arogos Skipper	*Atrytone arogos arogos*	SR	No
Waccamaw Spike	*Elliptio waccamawensis*	T	No
Venus Flytrap Cutworm Moth	*Hemipachnobia subporphyrea subporphyrea*	SR	No
Greenfield rams-horn	*Helisoma eucosmium*	SR	No
Magnificent Rams-horn	*Planorbella magnifica*	E	No
Rare Skipper	*Problema bulenta*	SR	Yes
Cape Fear Threetooth	*Triodopsis soelneri*	T	Yes
Savanna Indigo-Bush	*Amorpha georgiana* var *confusa*	T	Yes
Honeycomb Head	*Balduina atropurpurea*	C*	No
Chapman's Sedge	*Carex chapmanii*	W1*	Yes
Venus Flytrap	*Dionaea muscipula*	C-SC	No
Dwarf Burhead	*Echinodorus parvulus*	C	Yes
Harper's Fimbry	*Fimbristylis perpusilla*	T	Yes
Pondspice	*Litsea aestivalis*	C	No
Carolina Bogmint	*Macbridea caroliniana*	T	Yes
Loose Watermilfoil	*Myriophyllum laxum*	T	No
Savanna Cowbane	*Oxypolis ternata*	W1	No
Carolina Grass-Of-Parnassus	*Parnassia caroliniana*	E	No
Pineland Plantain	*Plantago sparsiflora*	E	No
Awned Meadow-Beauty	*Rhexia aristosa*	T*	No
Swamp Forest Beaksedge	*Rhynchospora decurrens*	C	Yes
Thorne's Beaksedge	*Rhynchospora thornei*	E	No
Carolina Goldenrod	*Solidago pulchra*	E	No
Spring-Flowering Goldenrod	*Solidago verna*	T	No
Wireleaf Dropseed	*Sporobolus teretifolius sensus stricto*	T	No
Carolina Asphodel	*Tofieldia glabra*	C	No
Dune Bluecurls	*Trichostema sp 1*	C	No
Savanna campylopus	*Campylopus carolinae*	C	No

Note:

C A Candidate is any species which is very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction.

E An Endangered species is one whose continued existence as a viable component of the State's flora is determined to be in jeopardy.

SC A Special Concern species is one which requires monitoring but may be taken or collected and sold under regulations adopted under the provisions of Article 25 of Chapter 113 of the General Statutes (animals) and the Plant Protection and Conservation Act (plants). Only propagated material may be sold of Special Concern plants that are also listed as Threatened or Endangered.

SR A Significantly Rare species is not listed as "E", "T", or "SC", but which exists in the state in small numbers and has been determined to need monitoring.

T A Threatened species is any native or once native species which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range, or one that is designated as a threatened species pursuant to the Endangered Species Act.

W1 A Watch Category 1 species is a rare species whose status in North Carolina is relatively well known and which appears to be relatively secure at this time.

/P_ denotes a species which has been formally proposed for listing as Endangered (PE), Threatened (PT), or Special Concern (PSC), but has not yet completed the listing process.

* Historic record, the species was last observed prior to 1979.

VIII. COMMENTS, COORDINATION AND PUBLIC INVOLVEMENT

On May 22, 2001 a citizens informational workshop was held in Brunswick County for both this project and TIP Project B-3116. This workshop was held to obtain comments and suggestions from the citizens in the project area. Approximately 25 persons attended this meeting. Most of the citizens in attendance opposed the road closure to replace the two bridges. Some of the concerns with closing the road included inconveniences to school buses, evacuation during hurricane season, emergency response time and increased travel cost due to high gas prices. Most citizens, however, agreed the bridge requires replacement.

With the option of closing NC 133 being the proposed recommendation, NCDOT coordinated with Orton Plantation, a set of formal and informal gardens open to the public to determine how this would affect their business. A spokesperson from Orton Plantation was in favor of replacing the bridges and did not object to closing the road. The let date was adjusted to allow construction to begin after mid-September to accommodate Orton Plantation's schedule. This tourist attraction is open March through November.

A meeting was held with natural resource agencies on June 14, 2001. The purpose of this meeting was to discuss alternatives for TIP Projects B-3115 and B-3116 and to obtain concurrence on the recommended alternative for both projects. The result of this meeting was a recommendation to replace Bridge No. 61 in its existing location with a 300-foot (91 meter) bridge.

A meeting was held on July 9, 2001 with public officials in Brunswick County. Representatives from Carolina Power and Light Company's (CP&L) Brunswick Nuclear Plant and local emergency management officials had concerns with the road being closed during hurricane season. They agreed however, the replacement of Bridge No. 61 along with the adjacent bridge project were needed. CP&L and other officials did not object to closing the road; however, they asked that NC 133 not be closed until after Labor Day, in order to avoid the peak tourist season and reduce the amount of time the road will be closed during hurricane season. NCDOT agreed to delay closing NC 133 until after Labor Day. NCDOT will provide CP&L and the emergency management officials with an estimate of the amount of time the road closure will add to evacuation times for the plant.

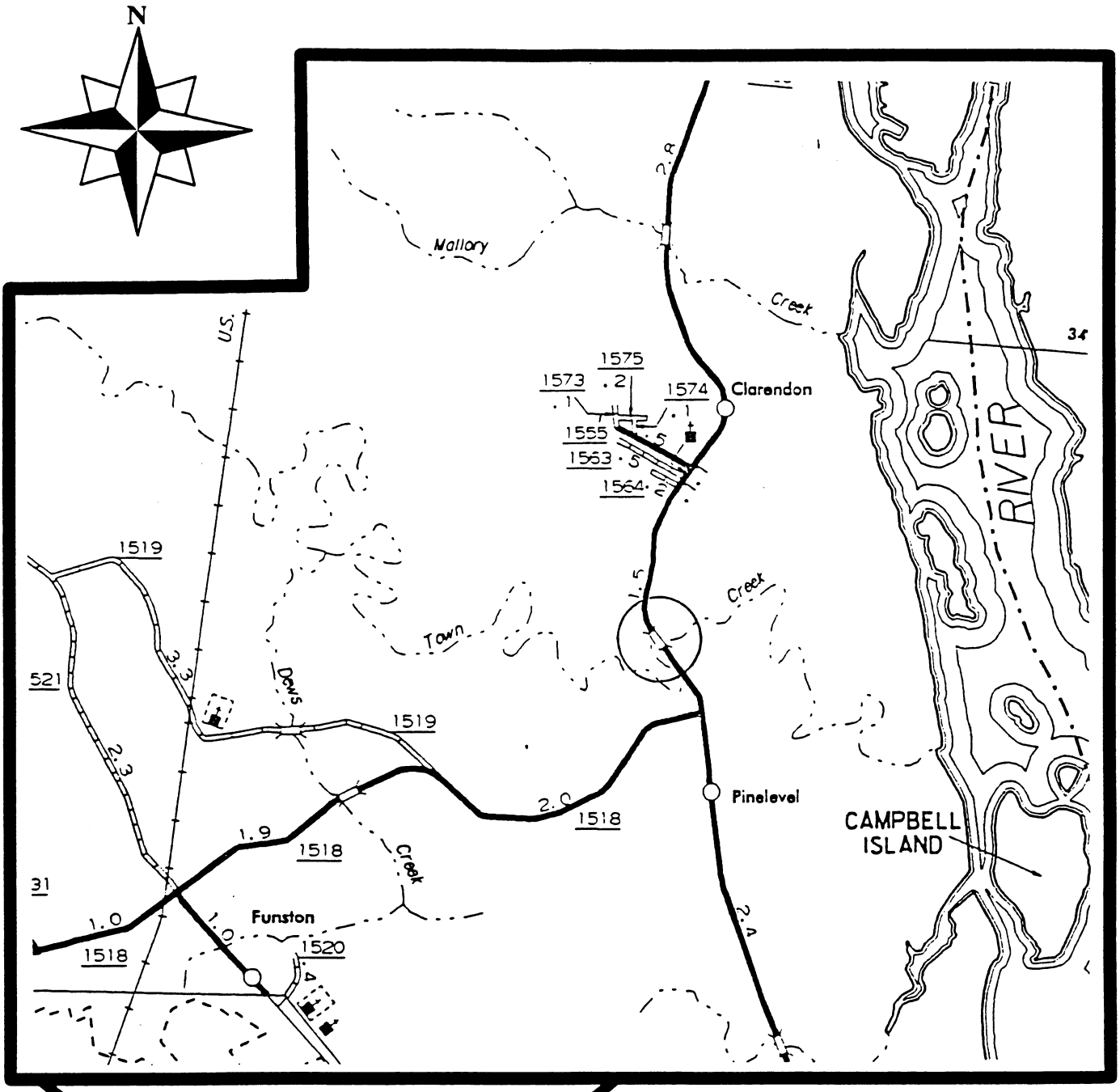
A meeting was held on January 31, 2002 with representatives from emergency management and other local officials from Brunswick County, CP&L, citizens, State and Federal Resource Agencies, and NCDOT representatives. The purpose of this meeting was to discuss closing NC 133 to replace the two bridges. The meeting concluded with NCDOT agreeing to gather information on cost and impacts for replacing the bridge on new location to the east and making a decision after comparing all of the proposed alternatives. NCDOT also agreed to leave Bridge No. 56 open while Bridge No. 61 is being replaced.

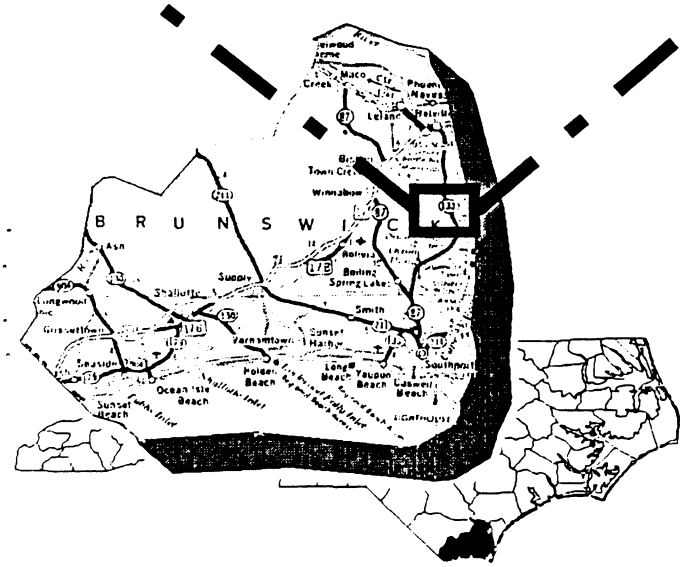
A meeting was held on March 8, 2002 with NCDOT officials at the existing bridge location. After consideration with the Board of Transportation Member for Division 3 and the Division Construction Engineer it was decided to replace the bridge on existing location with road closure and an offsite detour.

IX. CONCLUSION

Based on the above discussion, NCDOT and FHWA conclude the project will cause no significant environmental impacts. Therefore, the project may be processed as a Categorical Exclusion.

FIGURES

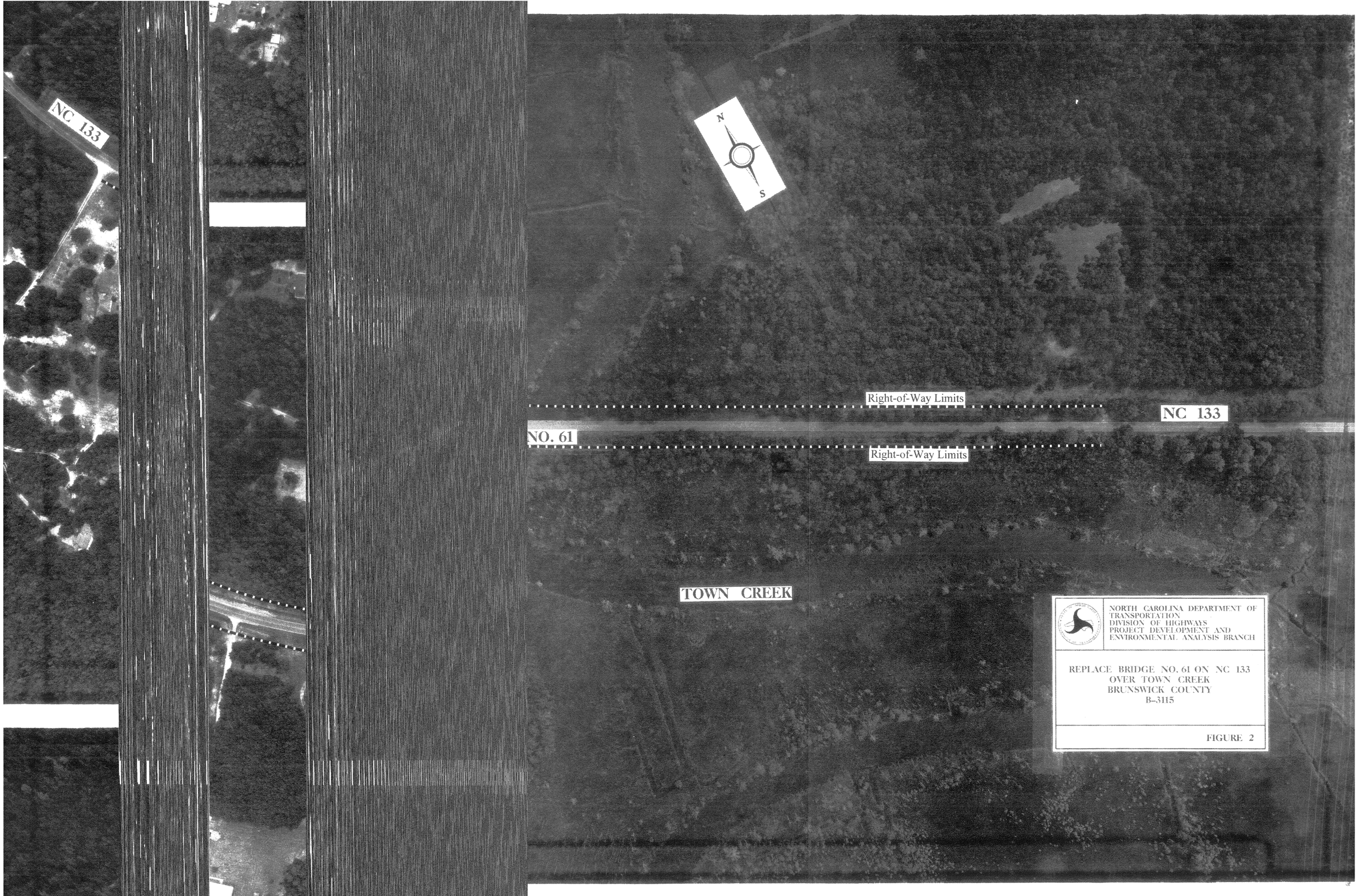


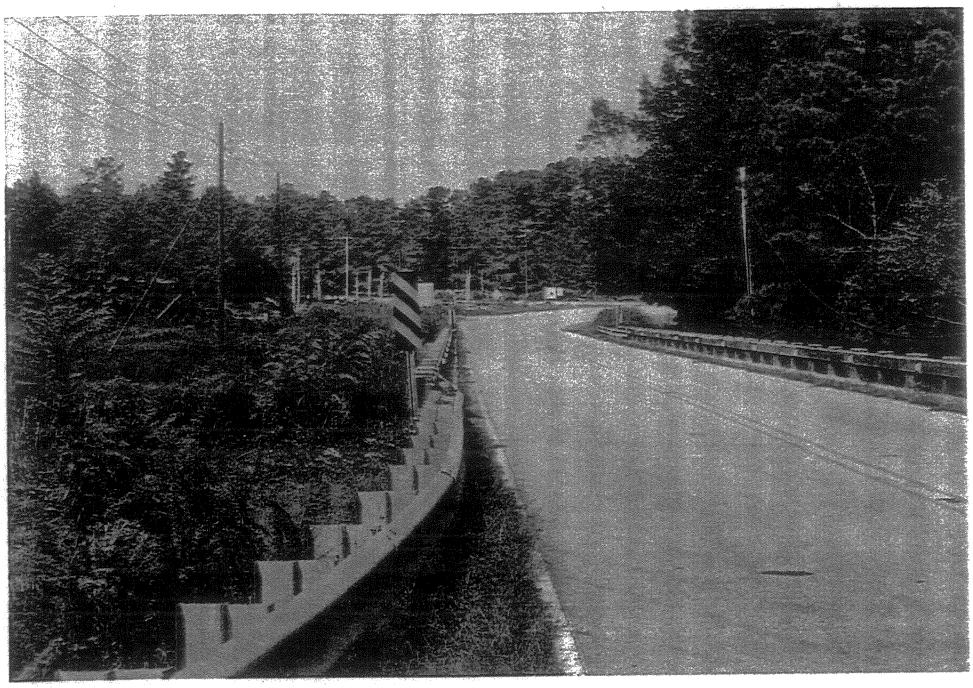


North Carolina Department of Transportation
Division of Highways
Planning & Environmental Branch

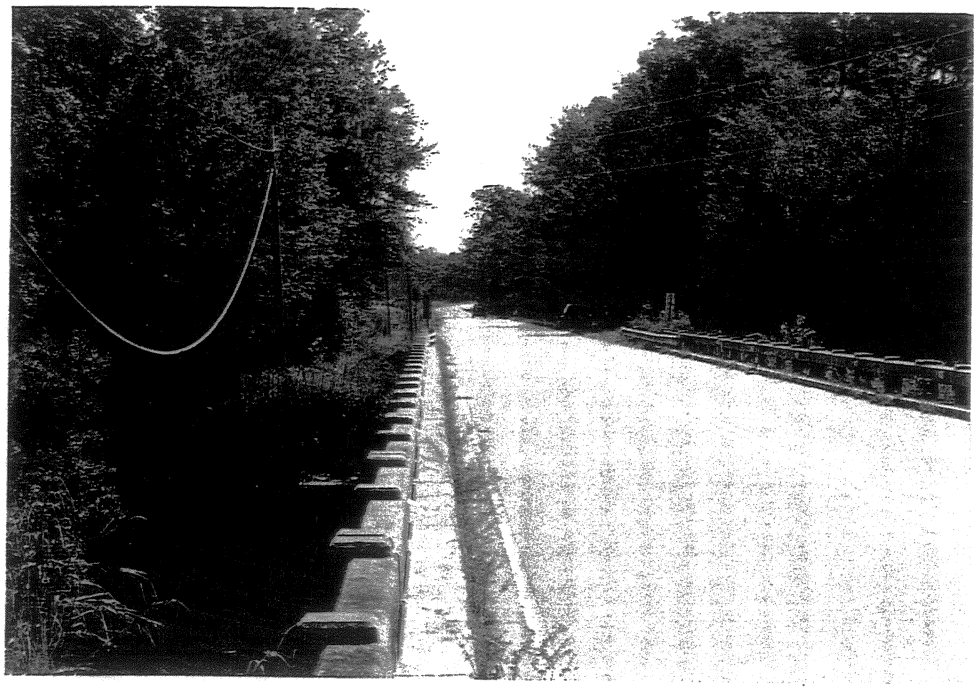
Brunswick County
Replace Bridge No. 61 on NC 133
Over Town Creek
B-3115

Figure One


NC 133
N
S
Right-of-Way Limits
NC 133
NO. 61
Right-of-Way Limits
TOWN CREEK
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH
REPLACE BRIDGE NO. 61 ON NC 133
OVER TOWN CREEK
BRUNSWICK COUNTY
B-3115
FIGURE 2



LOOKING NORTH FROM THE SOUTH END OF BRIDGE



LOOKING SOUTH FROM THE NORTH END OF BRIDGE

FIGURE 3

Proposed Detour Route

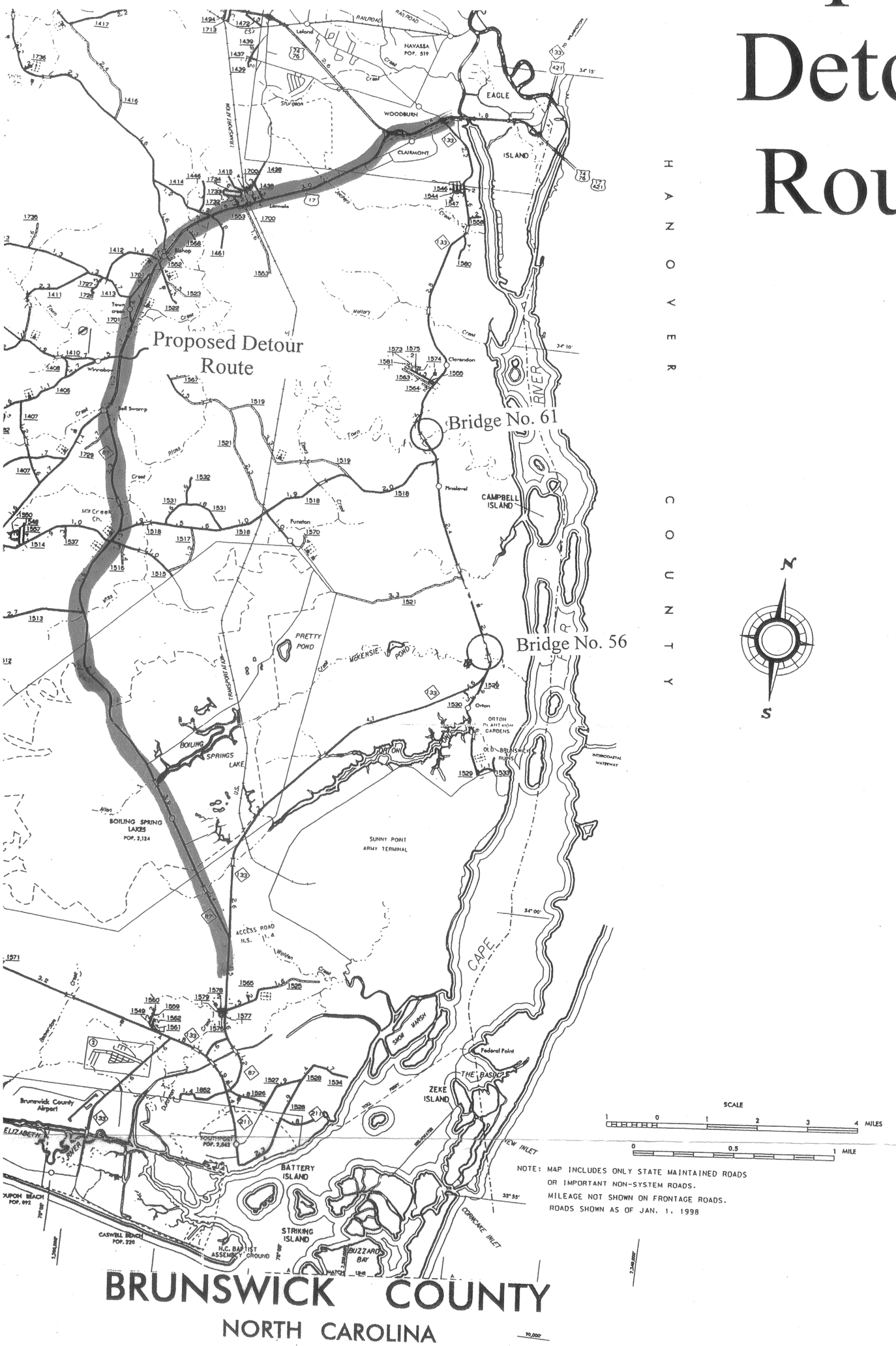
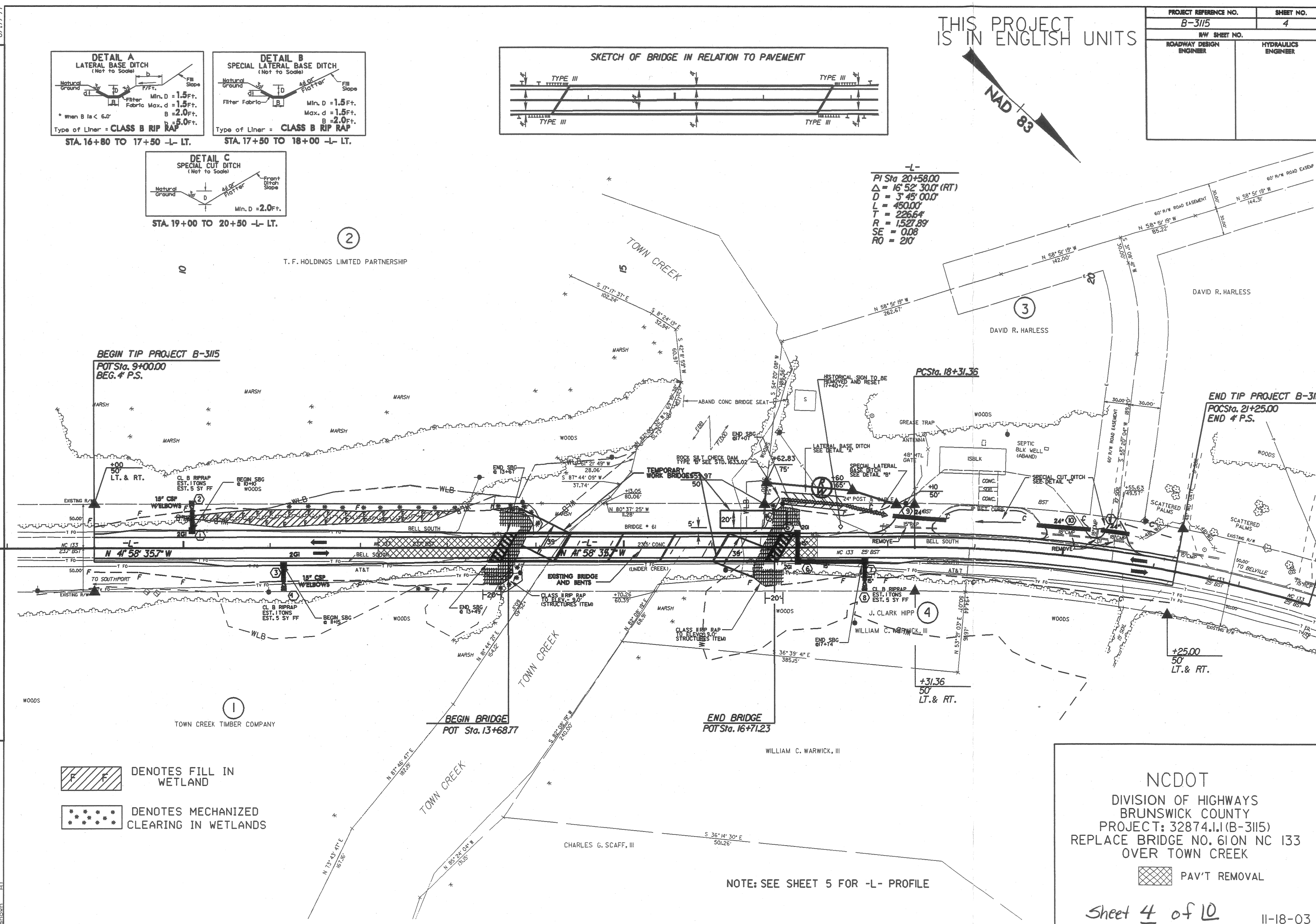


FIGURE 4

APPENDIX


THIS PROJECT IS IN ENGLISH UNITS
PROJECT REFERENCE NO. B-3115
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
SKETCH OF BRIDGE IN RELATION TO PAVEMENT
TYPE III
NAD 83
DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
Filter Fabric
Min. D = 1.5Ft.
Max. d = 1.5Ft.
B = 2.0Ft.
b = 5.0Ft.
* When B is < 6.0'
Type of Liner = CLASS B RIP RAP
STA. 16+80 TO 17+50 -L- LT.
DETAIL B
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Filter Fabric
Fill Slope
Min. D = 1.5Ft.
Max. d = 1.5Ft.
B = 2.0Ft.
Type of Liner = CLASS B RIP RAP
STA. 17+50 TO 18+00 -L- LT.
DETAIL C
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
Front Ditch Slope
Min. D = 2.0Ft.
STA. 19+00 TO 20+50 -L- LT.
-L-
PI Sta 20+58.00
Δ = 16° 52' 30.0" (RT)
D = 3° 45' 00.0"
L = 450.00'
T = 226.64'
R = 1,527.89'
SE = 0.08
RO = 210'
T. F. HOLDINGS LIMITED PARTNERSHIP
DAVID R. HARLESS
TOWN CREEK
BEGIN TIP PROJECT B-3115
POT Sta. 9+00.00
BEG. 4' P.S.
END TIP PROJECT B-3115
POC Sta. 21+25.00
END 4' P.S.
PC Sta. 18+31.36
POT Sta. 7+00.00
REVISIONS
N 41° 58' 35.7" W
BEGIN BRIDGE
POT Sta. 13+68.77
END BRIDGE
POT Sta. 16+71.23
TEMPORARY WORK BRIDGE
EXISTING BRIDGE AND BENTS
BRIDGE # 61
TOWN CREEK TIMBER COMPANY
J. CLARK HIPP
WILLIAM C. WARWICK, III
CHARLES G. SCAFF, III
+25.00
50'
LT.& RT.
+31.36
50'
LT.& RT.
+00
50'
LT.& RT.
TO SOUTHPORT
TO BELVILLE
SCATTERED PALMS
WOODS
MARSH
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING IN WETLANDS
NOTE: SEE SHEET 5 FOR -L- PROFILE

NCDOT

DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 32874.1.1 (B-3115)
REPLACE BRIDGE NO. 61 ON NC 133
OVER TOWN CREEK

PAV'T REMOVAL

Sheet 4 of 10

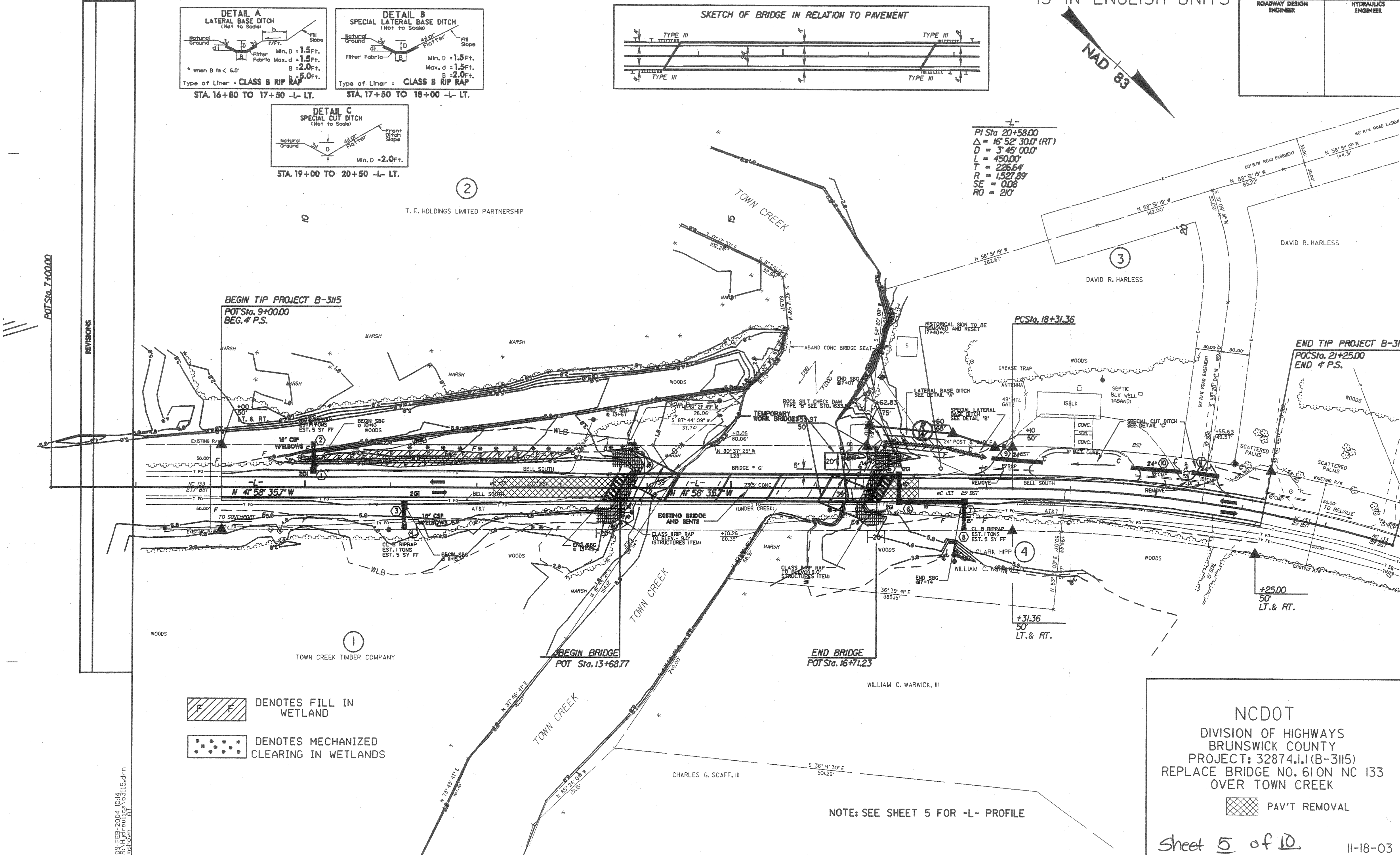
11-18-03

8/17/99

09-FEB-2004 10:14

PROJECT REFERENCE NO.	SHEET NO.
B-3115	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

THIS PROJECT IS IN ENGLISH UNITS



DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Type of Liner = CLASS B RIP RAP
STA. 16+80 TO 17+50 -L- LT.
DETAIL B
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Type of Liner = CLASS B RIP RAP
STA. 17+50 TO 18+00 -L- LT.
DETAIL C
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 2.0Ft.
STA. 19+00 TO 20+50 -L- LT.
SKETCH OF BRIDGE IN RELATION TO PAVEMENT
NAD 83
-L-
PI Sta 20+58.00
Δ = 16° 52' 30.0" (RT)
D = 3° 45' 00.0"
L = 450.00'
T = 226.64'
R = 1,527.89'
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RO = 210'
T. F. HOLDINGS LIMITED PARTNERSHIP
DAVID R. HARLESS
TOWN CREEK
BEGIN TIP PROJECT B-3115
POT Sta. 9+00.00
BEG. 4' P.S.
END TIP PROJECT B-3115
POC Sta. 21+25.00
END 4' P.S.
PC Sta. 18+31.36
BEGIN BRIDGE
POT Sta. 13+68.77
END BRIDGE
POT Sta. 16+71.23
N 41° 58' 35.7" W
TEMPORARY WORK BRIDGE
EXISTING BRIDGE AND BENTS
TOWN CREEK TIMBER COMPANY
WILLIAM C. WARWICK, III
CHARLES G. SCAFF, III
CLARK HIPP
POT Sta. 7+00.00
REVISIONS
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING IN WETLANDS
NOTE: SEE SHEET 5 FOR -L- PROFILE

NCDOT

DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 32874.1.1 (B-3115)
REPLACE BRIDGE NO. 61 ON NC 133
OVER TOWN CREEK

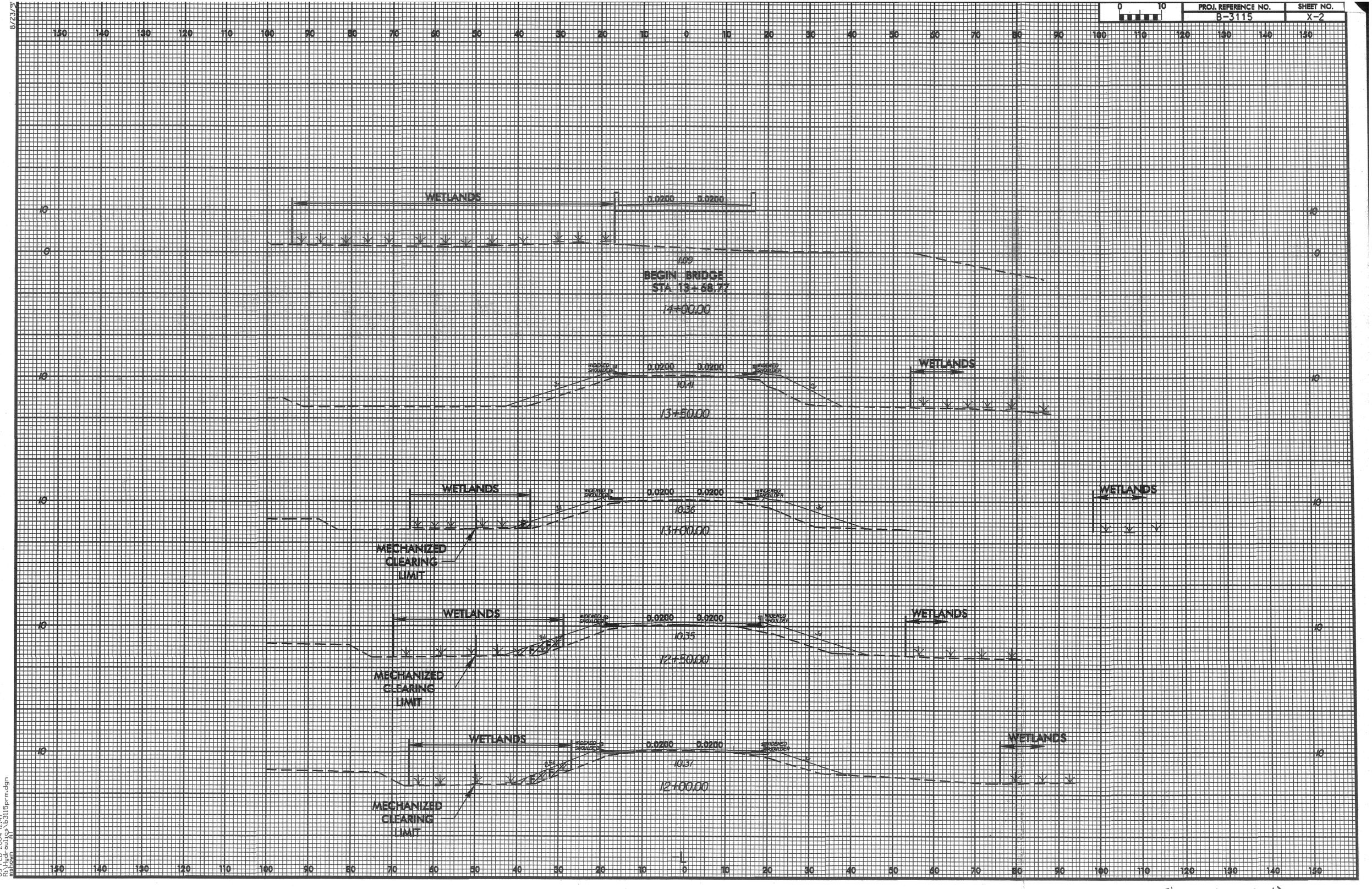
PAV'T REMOVAL

Sheet 5 of 10

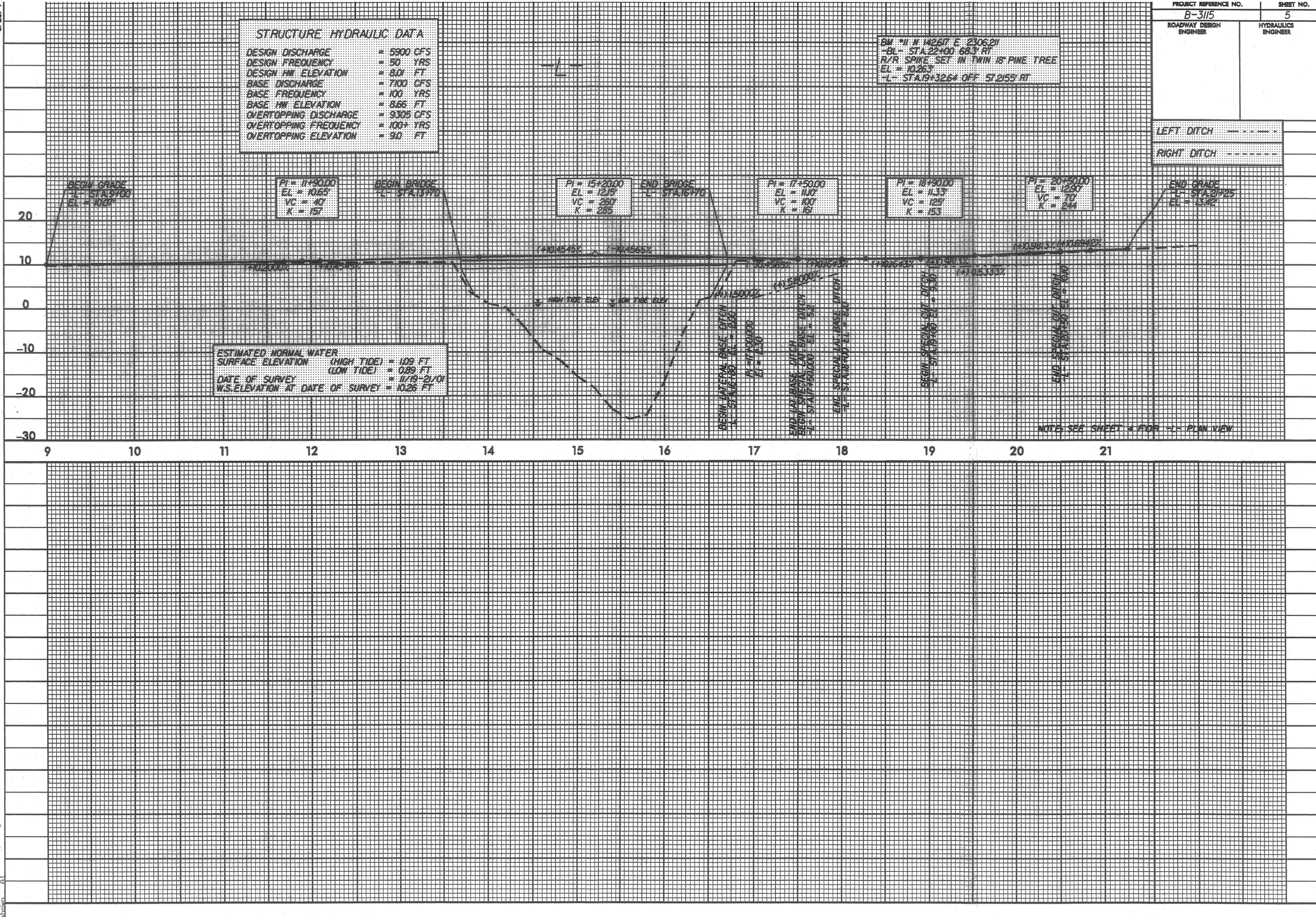
11-18-03

09-FEB-2004 10:14
R:\Hydraulics\b3115.drn
mahorn AT

8/17/99


WETLANDS
0.0200
0.0200
1.09
BEGIN BRIDGE
STA. 13+68.77
14+00.00
WIDENED SHOULDER
10.41
13+50.00
10.36
13+00.00
MECHANIZED CLEARING LIMIT
10.35
12+50.00
10.37
12+00.00

PROJECT REFERENCE NO.	SHEET NO.
B-3115	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



5/28/9

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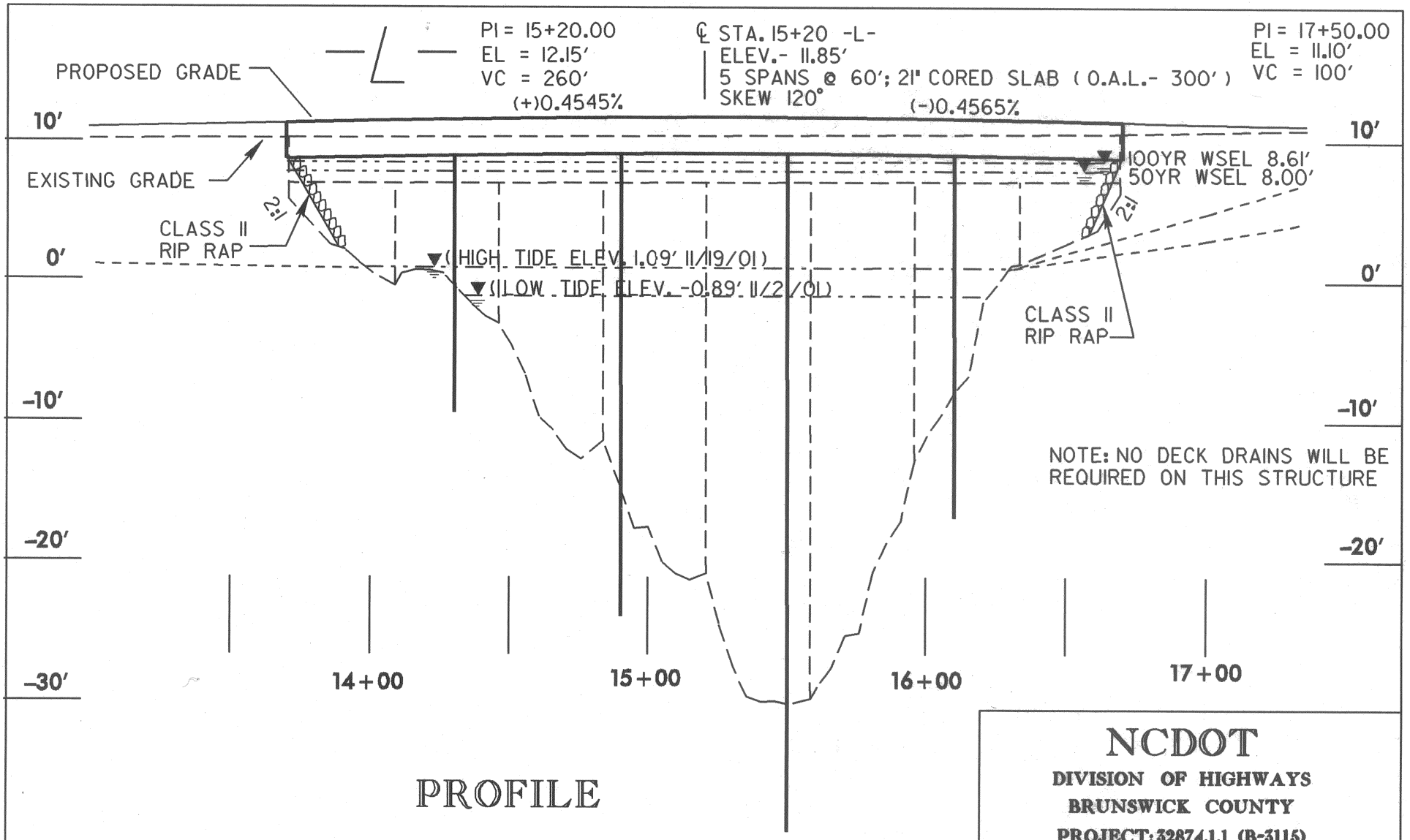
Sheet 7 of 10



PROFILE

NCDOT

DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 32874.1.1 (B-3115)

REPLACE BRIDGE #61 ON NC 133
OVER TOWN CREEK

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.		NAMES	ADDRESSES
2	✓	T. F. HOLDINGS	1202 EASTWOOD RD. WILMINGTON, NC 28403
1	X	TOWN CREEK TIMBER COMPANY	P.O. BOX 4886 WILMINGTON, NC 28406
3	✓	DAVID R. HARLESS	2765 RIVER RD. SE WINNABOW, NC 28479
4	X	J. CLARK HIPP	504 DOCK ST. WILMINGTON, NC 38401
4	X	W.C. WARWICK, III	9165 RIVER OAKS LANE SE WINNABOW, NC 28479

✓ - only property owners currently

NCDOT

DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

PROJECT: 32874.1.1 (B-3115)

REPLACE BRIDGE #61 ON NC 133
OVER TOWN CREEK

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS				SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	13+70 -L- TO	BRIDGE	0.10	<0.01		0.07	<0.01		<0.01		
	16+70 -L-										
TOTALS:			0.10	0	0	0.07	0	0	0	0	0

NOTE: FILL IN SURFACE WATER IS DUE TO THE PIERS FOR THE PROPOSED STRUCTURE AND THE TEMPORARY FILL IN WETLANDS AND TEMPORARY FILL IN SURFACE WATER IS DUE TO THE PILES FOR THE TEMPORARY WORK BRIDGES.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BRUNSWICK COUNTY
PROJECT 32874.1.1 (B-3115)

SHEET 10 OF 10 2/9/2004

Form Revised 3/22/01

Michael F. Easley, Governor
William G. Ross, Jr., Secretary
North Carolina Department of Environment and Natural Resources
Alan W. Klimek, P.E., Director
Division of Water Quality
Wilmington Regional Office

August 6, 2002

Mr. Andrew Nottingham, P.E.
North Carolina Department of Transportation
Hydraulics Unit, 1590 Mail Service Center
Raleigh NC 27699-1590

Subject: **EXEMPTION** from Stormwater Management Permit Regulations
NCDOT Project Number 8.1231401 (B-3115)
Stormwater Project No. SW8 020803
Bridge No. 61 over Town Creek on NC 133
Brunswick County

Dear Mr. Nottingham:

The Wilmington Regional Office received a copy of a Stormwater Management Permit Application Form for the NCDOT Public Road or Bridge project known as Bridge No. 61 over Town Creek on NC 133. Staff of the Wilmington Regional Office have reviewed the application for the applicability of the Stormwater Management rules to the proposed activity at this project. Based on our review, the proposed development activity at this site is not subject to the stormwater requirements as provided for in 15A NCAC 2H.1000. Please be advised that other regulations may potentially apply to the proposed activities.

If your project disturbs five acres or more and has a point source discharge of stormwater runoff, then it is subject to the National Pollutant Discharge Elimination System (NPDES) stormwater discharge requirements. You are required to have an NPDES permit for stormwater discharge from projects meeting these criteria.

This exemption applies only to the Coastal Stormwater Management Permit for the currently proposed activity. If at any time in the future, development of any part of this site is planned, as defined in NCAC 2H.1000, or if the proposed activities differ in any manner from what is shown on the plans on file with the Division, you must submit the project for review of the applicability of the stormwater management rules. If you have any questions concerning this matter, please do not hesitate to call me at (910) 395-3900.

Sincerely,

Rick Shiver

Rick Shiver
Water Quality Regional Supervisor

RSS/arl: S:\WQS\STORMWAT\EXEMPT\020803.Aug
cc: Delaney Aycock, Brunswick County Building Inspections
Linda Lewis
Wilmington Regional Office
Central Files

United States Department of the Interior

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

GUIDELINES FOR AVOIDING IMPACTS TO THE WEST INDIAN MANATEE
Precautionary Measures for Construction Activities in North Carolina Waters

The West Indian manatee (*Trichechus manatus*), also known as the Florida manatee, is a Federally-listed endangered aquatic mammal protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) and the Marine Mammal Protection Act of 1972, as amended (16 U.S.C 1461 *et seq.*). The manatee is also listed as endangered under the North Carolina Endangered Species Act of 1987 (Article 25 of Chapter 113 of the General Statutes). The U.S. Fish and Wildlife Service (Service) is the lead Federal agency responsible for the protection and recovery of the West Indian manatee under the provisions of the Endangered Species Act.

Adult manatees average 10 feet long and weigh about 2,200 pounds, although some individuals have been recorded at lengths greater than 13 feet and weighing as much as 3,500 pounds. Manatees are commonly found in fresh, brackish, or marine water habitats, including shallow coastal bays, lagoons, estuaries, and inland rivers of varying salinity extremes. Manatees spend much of their time underwater or partly submerged, making them difficult to detect even in shallow water. While the manatee's principal stronghold in the United States is Florida, the species is considered a seasonal inhabitant of North Carolina with most occurrences reported from June through October.

To protect manatees in North Carolina, the Service's Raleigh Field Office has prepared precautionary measures for general construction activities in waters used by the species. Implementation of these measure will allow in-water projects which do not require blasting to proceed without adverse impacts to manatees. In addition, inclusion of these guidelines as conservation measures in a Biological Assessment or Biological Evaluation, or as part of the determination of impacts on the manatee in an environmental document prepared pursuant to the National Environmental Policy Act, will expedite the Service's review of the document for the fulfillment of requirements under Section 7 of the Endangered Species Act. These measures include:

1. The project manager and/or contractor will inform all personnel associated with the project that manatees may be present in the project area, and the need to avoid any harm to these endangered mammals. The project manager will ensure that all construction personnel know the general appearance of the species and their habit of moving about completely or partially submerged in shallow water. All construction personnel will be informed that they are responsible for observing water-related activities for the presence of manatees.

2. The project manager and/or the contractor will advise all construction personnel that

there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act and the Endangered Species Act.

3. If a manatee is seen within 100 yards of the active construction and/or dredging operation or vessel movement, all appropriate precautions will be implemented to ensure protection of the manatee. These precautions will include the immediate shutdown of moving equipment if a manatee comes within 50 feet of the operational area of the equipment. Activities will not resume until the manatee has departed the project area on its own volition (i.e., it may not be herded or harassed from the area).

4. Any collision with and/or injury to a manatee will be reported immediately. The report must be made to the U.S. Fish and Wildlife Service (ph. 919.856.4520 ext. 16), the National Marine Fisheries Service (ph. 252.728.8762), and the North Carolina Wildlife Resources Commission (ph. 252.448.1546).

5. A sign will be posted in all vessels associated with the project where it is clearly visible to the vessel operator. The sign should state:

> CAUTION: The endangered manatee may occur in these waters during the warmer months, primarily from June through October. Idle speed is required if operating this vessel in shallow water during these months. All equipment must be shut down if a manatee comes within 50 feet of the vessel or operating equipment. A collision with and/or injury to the manatee must be reported immediately to the U.S. Fish and Wildlife Service (919-856-4520 ext. 16), the National Marine Fisheries Service (252.728.8762), and the North Carolina Wildlife Resources Commission (252.448.1546).

6. The contractor will maintain a log detailing sightings, collisions, and/or injuries to manatees during project activities. Upon completion of the action, the project manager will prepare a report which summarizes all information on manatees encountered and submit the report to the Service's Raleigh Field Office.

7. All vessels associated with the construction project will operate at "no wake/idle" speeds at all times while in water where the draft of the vessel provides less than a four foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

8. If siltation barriers must be placed in shallow water, these barriers will be: (a) made of material in which manatees cannot become entangled; (b) secured in a manner that they cannot break free and entangle manatees; and, (c) regularly monitored to ensure that manatees have not become entangled. Barriers will be placed in a manner to allow manatees entry to or exit from essential habitat.

Prepared by (rev. 06/2003):
U.S. Fish and Wildlife Service
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726
919/856-4520

Figure 1. The whole body of the West Indian manatee may be visible in clear water; but in the dark and muddy waters of coastal North Carolina, one normally sees only a small part of the head when the manatee raises its nose to breathe.

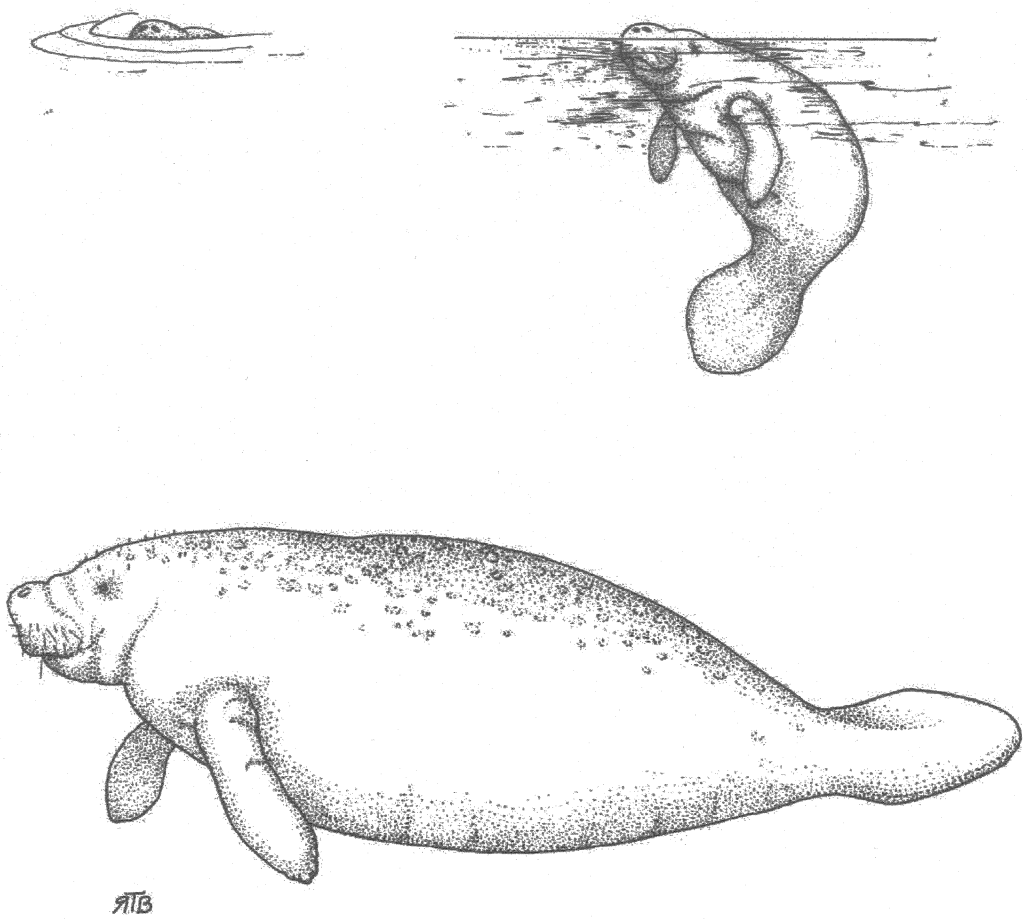


Illustration used with the permission of the North Carolina State Museum of Natural Sciences. Source: Clark, M. K. 1987. Endangered, Threatened, and Rare Fauna of North Carolina: Part I. A re-evaluation of the mammals. Occasional Papers of the North Carolina Biological Survey 1987-3. North Carolina State Museum of Natural Sciences. Raleigh, NC. pp. 52.

CONTRACT: C200887 TIP PROJECT: B-3115

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3115	1	

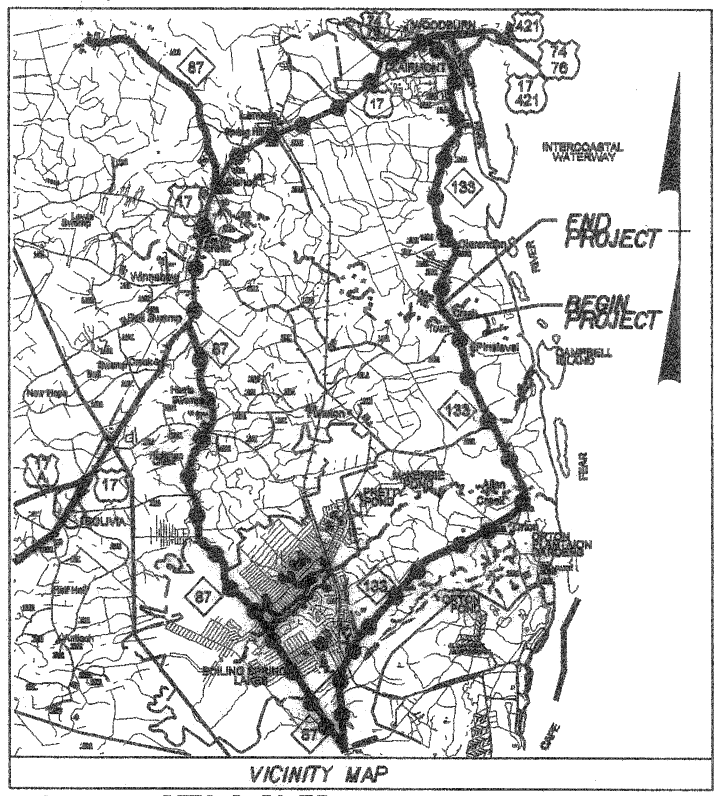
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
32874.1.1	BRSTP-133(1)	P.E.
32874.2.1	BRSTP-133(1)	ROW
32874.3.1	BRSTP-133(5)	CONST.

BRUNSWICK COUNTY

LOCATION: BRIDGE NO. 61 OVER TOWN CREEK ON NC 133

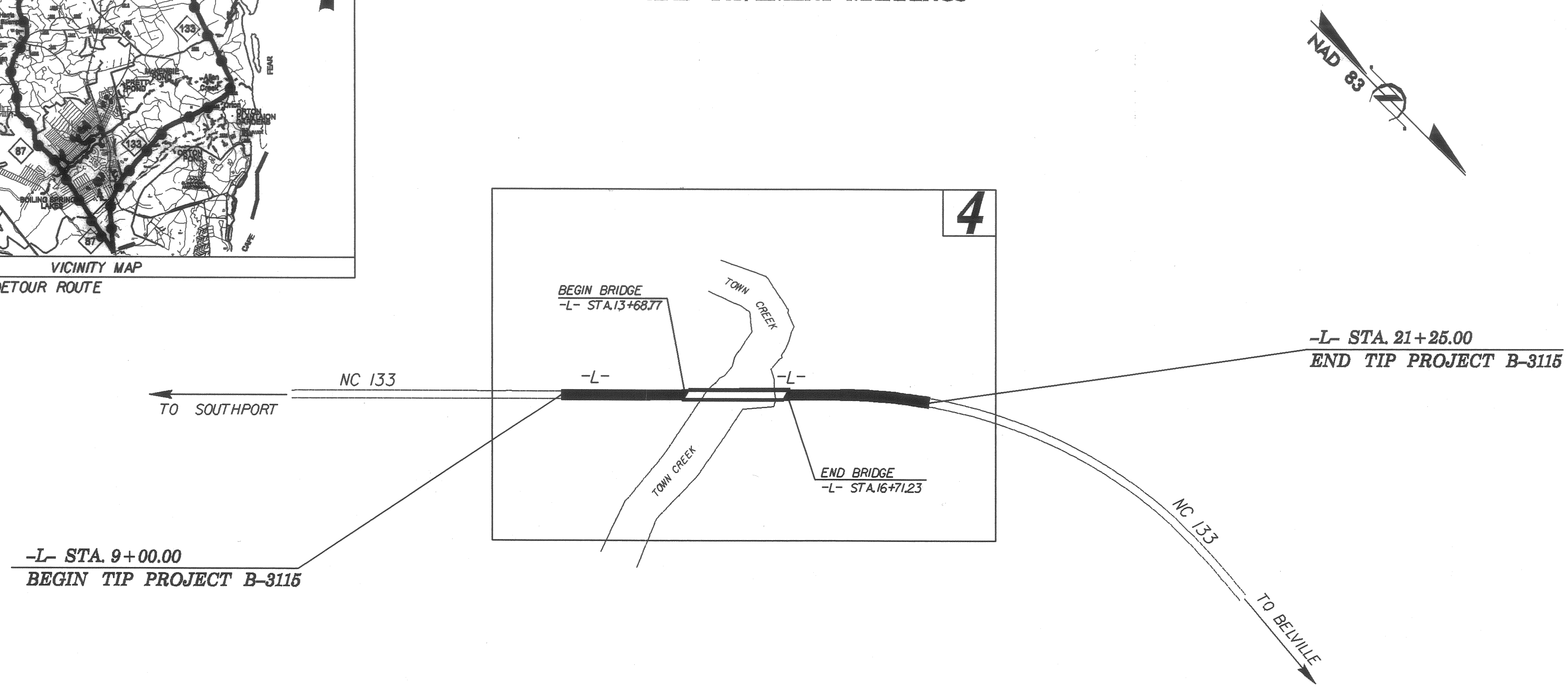
TYPE OF WORK: GRADING, STRUCTURE, DRAINAGE, PAVING AND PAVEMENT MARKINGS

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



VICINITY MAP

DETOUR ROUTE



GRAPHIC SCALES

50 25 0 50 100 — PLANS

50 25 0 50 100 — PROFILE (HORIZONTAL)

10 5 0 10 20 — PROFILE (VERTICAL)

DESIGN DATA

ADT 2004 = 13,600
ADT 2024 = 24,500
DHV = 14 %
D = 60 %
T = 5 % *
V = 60 MPH

* TTST 2 % + DUAL 3 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3115 = 0.175 MI
LENGTH STRUCTURE TIP PROJECT B-3115 = 0.057 MI
TOTAL LENGTH OF TIP PROJECT B-3115 = 0.232 MI

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

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JULY 31, 2003

LETTING DATE: JULY 20, 2004

GARY LOVERING, P.E.
PROJECT ENGINEER

ANTHONY C. WEST
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

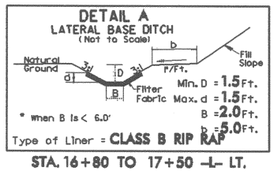
APPROVED
DIVISION ADMINISTRATOR DATE

09/08/99

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3115	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETAIL A
LATERAL BASE DITCH
(Not to Scale)

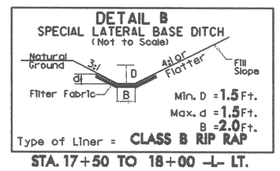


* When B is < 6.0'

Type of Liner = CLASS B RIP RAP

STA. 16+80 TO 17+50 -L- LT.

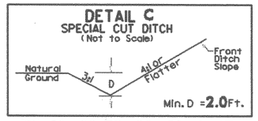
DETAIL B
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Type of Liner = CLASS B RIP RAP

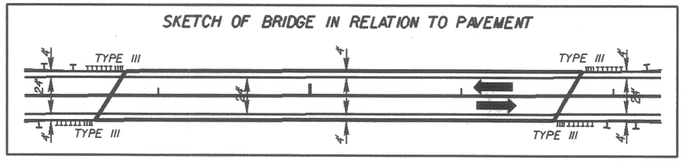
STA. 17+50 TO 18+00 -L- LT.

DETAIL C
SPECIAL CUT DITCH
(Not to Scale)



STA. 19+00 TO 20+50 -L- LT.

SKETCH OF BRIDGE IN RELATION TO PAVEMENT



NAD 83

-L-
PI Sta 20+58.00
Δ = 16° 52' 30.0" (RT)
D = 3° 45' 00.0"
L = 450.00'
T = 226.64'
R = 1,527.89'
SE = 0.08
RO = 210'

BEGIN TIP PROJECT B-3115
POT Sta. 9+00.00
BEG. 4' P.S.

-BL-101
12+27.59 PINC
-L- 9+58.58
17.98' LT.

BL 16+00.00 POT
-11-200 5+00.00 POT
ELEV = 10.02'
NAIL SET
-L- 13+31.10
16.74' LT.

PCSta. 18+31.36

END TIP PROJECT
POCSta. 21+25.00
END 4' P.S.

-BL-103
24+92.35 PINC
-L- 22+15.42
46.82' LT.

BEGIN APPROACH SLAB
-L- POT STA 13+57.93

BEGIN BRIDGE
POT Sta. 13+68.77

END BRIDGE
POT Sta. 16+71.23

END APPROACH SLAB
-L- POT STA 16+82.07

-BL-102 19+61.91 PINC
-L- 16+92.91
15.55' LT.

+31.36
50'
LT.& RT.

+25.00
50'
LT.& RT.

+00
50'
LT. & RT.

16+59.97
50'

+62.83
75'

+80
50'

+55.63
49.57'

N 41° 58' 35.7" W

TOWN CREEK

MARSH

WOODS

ABAND CONC BRIDGE SEAT

HISTORICAL SIGN TO BE REMOVED AND RESET (17+40)-Y-

GREASE TRAP

ANTENNA

48" MTL GATE

ISBLK

SEPTIC BLK WELL (ABAND)

CONC.

SCATTERED PALMS

24" POST & WIRE

LATERAL BASE DITCH SEE DETAIL "A"
CL B RIPRAP
EST. 80 TON
EST. 90 SY FF
DDE = 160 CY

SPECIAL LATERAL BASE DITCH SEE DETAIL "B"
CL B RIPRAP
EST. 90 TON
EST. 110 SY FF

SPECIAL CUT DITCH SEE DETAIL "C"

ROCK SILT CHECK DAM TYPE 'B' SEE STD. 1633.02

CL B RIPRAP
EST. 1 TONS
EST. 5 SY FF

BEGIN SBG @ 10+10

END SBG @ 11+87

BEGIN SBG @ 16+91.34

END SBG @ 13+61.22

END SBG @ 13+48.66

BEGIN SBG @ 8+15

END SBG @ 16+72.78

END SBG @ 17+72.53

18" CSP W/ELBOWS

24" CMP

18" CMP

REMOVE

TYPE III

SEAT ELEV. = 7.18'

SEAT ELEV. = 7.21'

BRIDGE = 61

BELL SOUTH

AT&T

GRAU-350

TAPER

CLASS B RIP RAP TO ELEV. = 9.0' (STRUCTURES ITEM)

CLASS B RIP RAP TO ELEV. 9.0' STRUCTURES ITEM

REM EX GR

TO SOUTHPORT

TO BELVILLE

WLB

NC 133

237' BST

25' BST

2-24' TAPER

26.25' INC.

-L-

-20-

-15-

-10-

-5-

-Y-

-Z-

-X-

-W-

-V-

-T-

-S-

-R-

-Q-

-P-

-M-

-K-

-J-

-H-

-G-

-F-

-E-

-D-

-C-

-B-

-A-

(1) TOWN CREEK TIMBER COMPANY
DB 248 PG 788
DB 475 PG 474

(2) T. F. HOLDINGS LIMITED PARTNERSHIP
DB 987 PG 849

(3) DAVID R. HARLESS
DB 1267 PG 158
MB Z PG 265

DAVID R. HARLESS
DB 1152 PG 193
MB 19 PG 314
MB Z PG 265

(4) J. CLARK HIPP
DB 1287 PG 137
WILLIAM C. WARWICK, III
DB 1074 PG 845

WILLIAM C. WARWICK, III
DB 1074 PG 845
MB Z PG 179

CHARLES G. SCAFF, III
DB 1334 PG 111
MB Z PG 179

PER CHRIS BAKER'S CONVERSATION WITH MRS. DAVID HARLESS CONCERNING HIGH WATER LINE EVIDENCE, SHE STATED THAT THE WATER ROSE TO AN ELEVATION OF 2 TO 3 INCHES BELOW THE SURFACE OF THIS BRIDGE DURING HURRICANE FLOYD OF SEPT. 1999, YIELDING AN APPROXIMATE HIGH WATER LINE ELEVATION OF 10.6 FEET.

NOTE: SEE SHEET 5 FOR -L- PROFILE

20-FEB-2001 07:34
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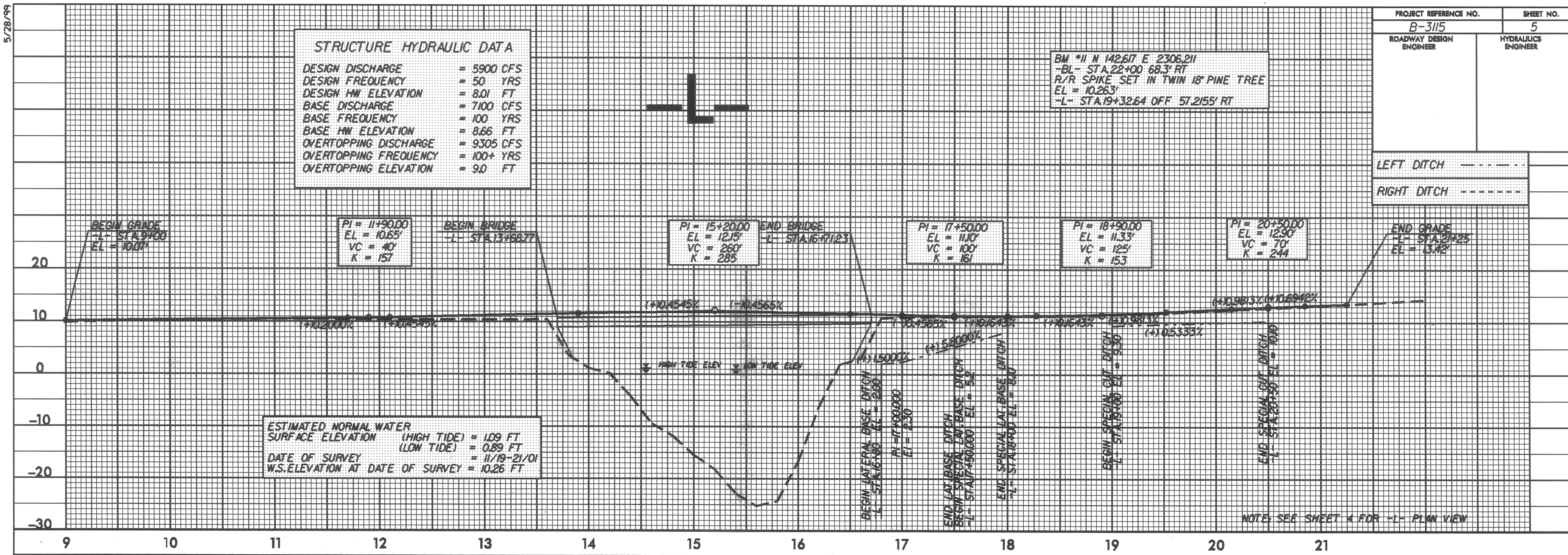
dc_wrap
ALL WRAP
80184295

PROJECT REFERENCE NO.	SHEET NO.
B-3115	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

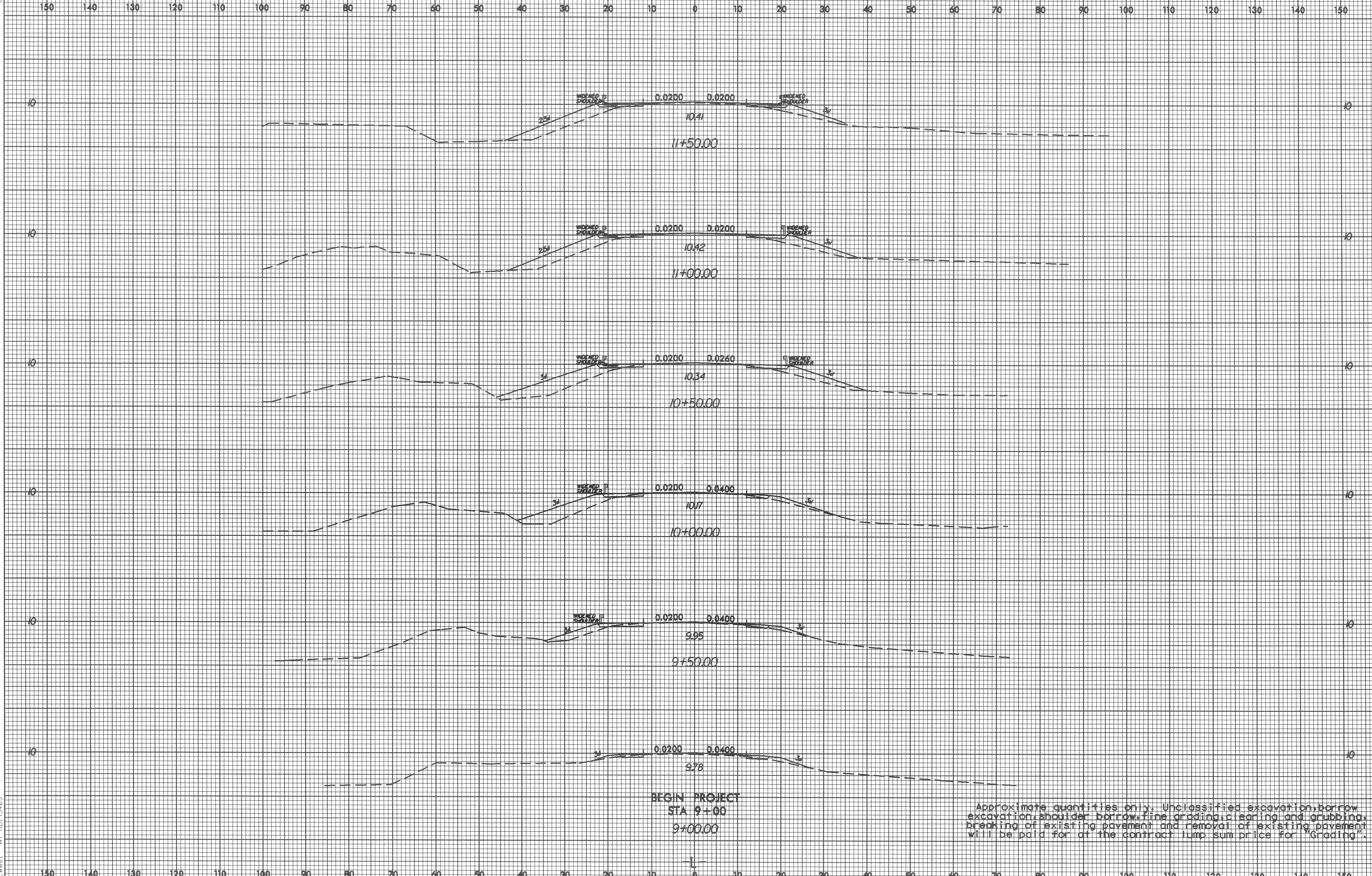


STRUCTURE HYDRAULIC DATA
DESIGN DISCHARGE = 5900 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = 8.01 FT
BASE DISCHARGE = 7100 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 8.66 FT
OVERTOPPING DISCHARGE = 9305 CFS
OVERTOPPING FREQUENCY = 100+ YRS
OVERTOPPING ELEVATION = 9.0 FT
-L-
BM *11 N 142,617 E 2306,211
-BL- STA.22+00 68.3' RT
R/R SPIKE SET IN TWIN 18" PINE TREE
EL = 10.263'
-L- STA.19+32.64 OFF 57.2155' RT
LEFT DITCH
RIGHT DITCH
BEGIN GRADE -L- STA.9+00 EL = 10.07'
PI = 11+90.00 EL = 10.65' VC = 40' K = 157
BEGIN BRIDGE -L- STA.13+68.77
PI = 15+20.00 EL = 12.15' VC = 260' K = 285
END BRIDGE -L- STA.16+71.23
PI = 17+50.00 EL = 11.10' VC = 100' K = 161
PI = 18+90.00 EL = 11.33' VC = 125' K = 153
PI = 20+50.00 EL = 12.90' VC = 70' K = 244
END GRADE -L- STA.21+25 EL = 13.42'
(+)0.2000%
(+)0.4545%
(-)0.4565%
(+)0.1643%
(+)0.9813%
(+)0.5333%
(+)0.6942%
(+)1.5000%
(+)5.6000%
HIGH TIDE ELEV
LOW TIDE ELEV
ESTIMATED NORMAL WATER
SURFACE ELEVATION (HIGH TIDE) = 1.09 FT
(LOW TIDE) = 0.89 FT
DATE OF SURVEY = 11/19-21/01
W.S.ELEVATION AT DATE OF SURVEY = 10.26 FT
BEGIN LATERAL BASE DITCH -L- STA.16+80 EL = 2.80
PI = 17+00.00 EL = 2.30
END LAT.BASE DITCH
BEGIN SPECIAL LAT. BASE DITCH -L- STA.17+50.000 EL = 5.2
END SPECIAL LAT. BASE DITCH -L- STA.18+00 EL = 8.0
BEGIN SPECIAL CUT DITCH -L- STA.19+00 EL = 9.30
END SPECIAL CUT DITCH -L- STA.20+50 EL = 10.10
NOTE: SEE SHEET 4 FOR -L- PLAN VIEW
20
10
0
-10
-20
-30
9
10
11
12
13
14
15
16
17
18
19
20
21

5/28/99

20-FEB-2004 07:34

0 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3115	X-1

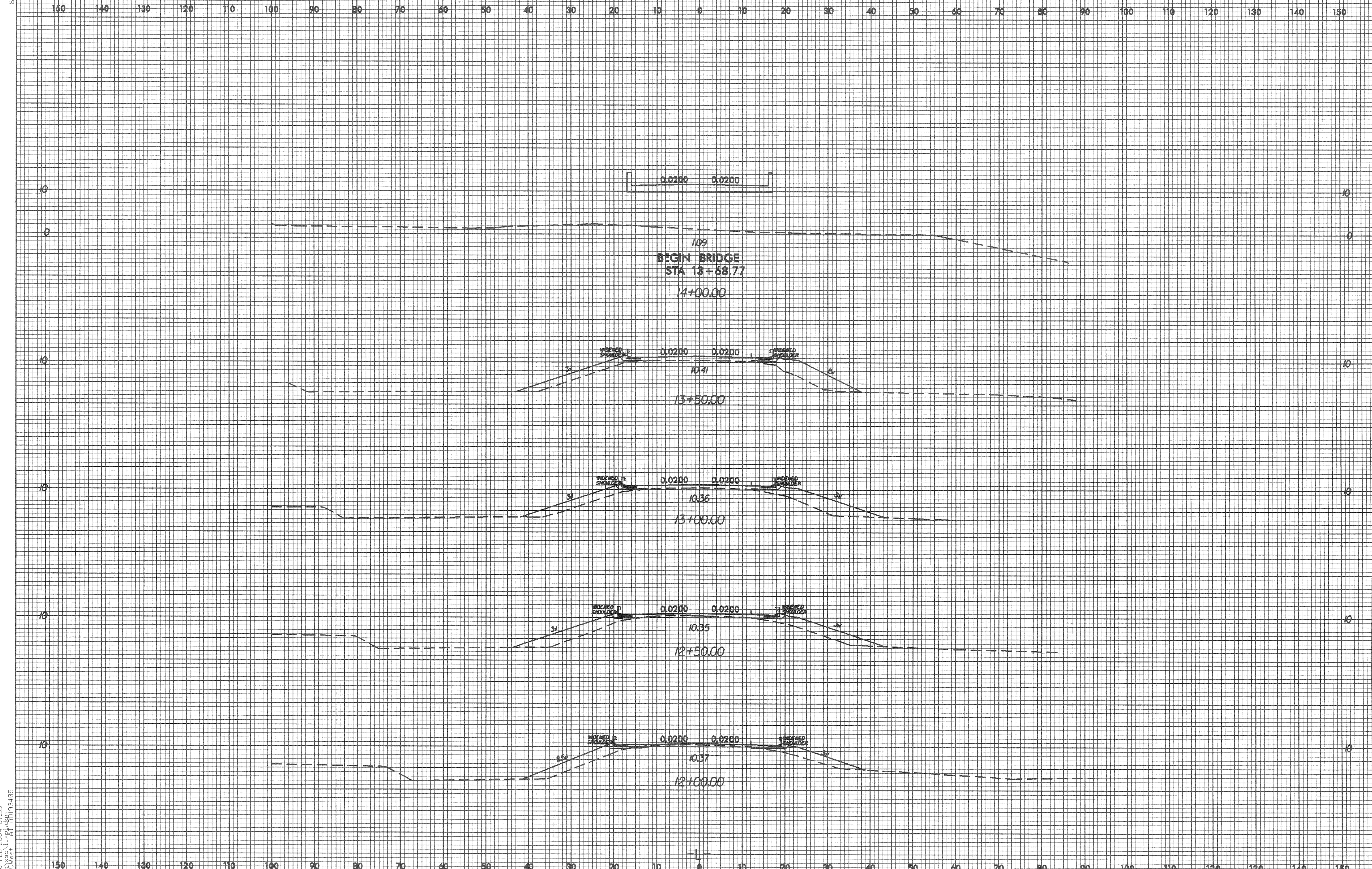


Approximate quantities only. Unclassified excavation, borrow excavation, shoulder borrow, fine grading, clearing and grubbing, breaking of existing pavement and removal of existing pavement will be paid for at the contract lump sum price for "Grading".

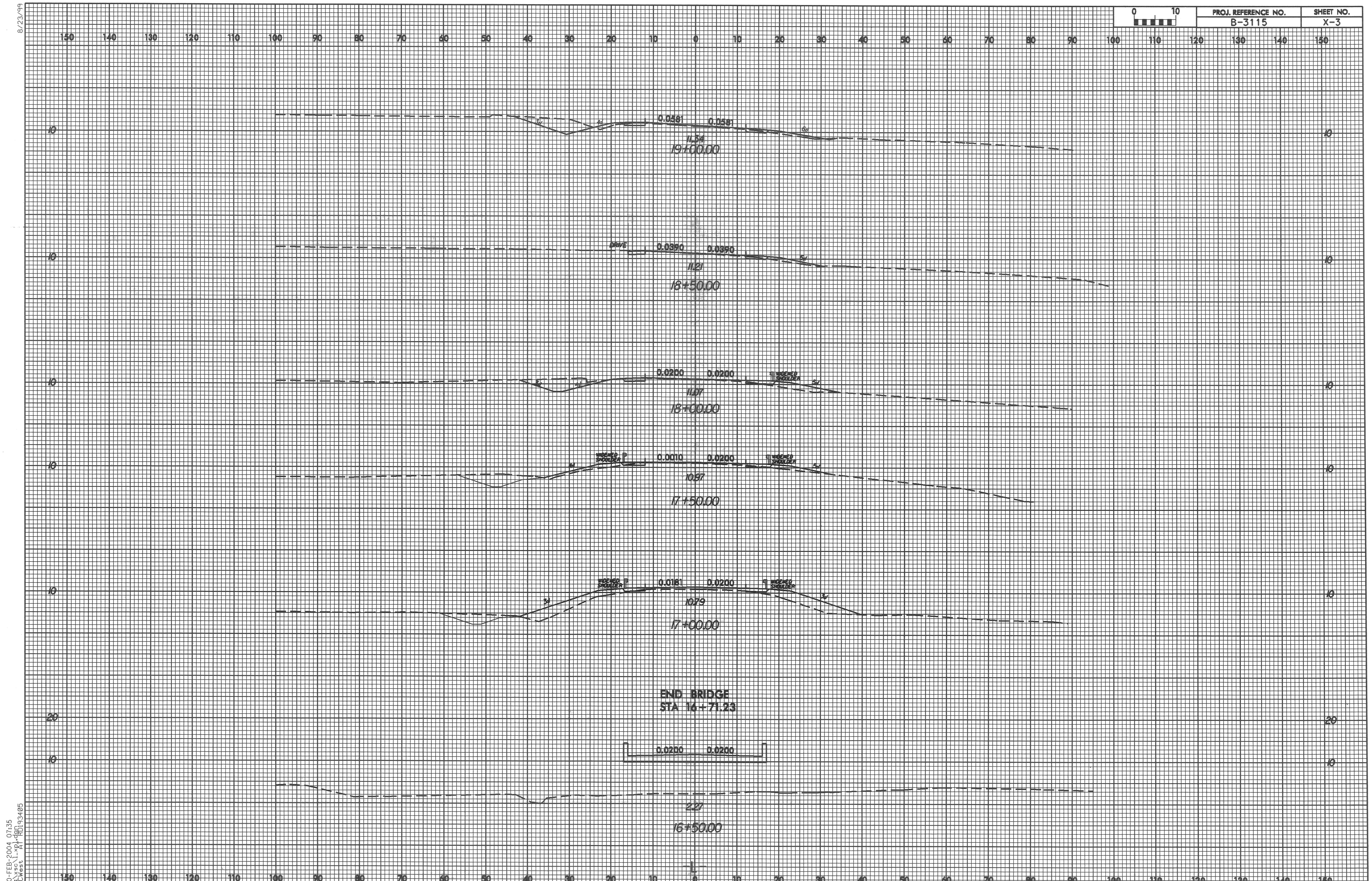
8/23/99

20-FEB-2004 07:34
R:\xsc\l-xp\-Rdy
ACWest AT: ID193405

0 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3115	X-2



PROJ. REFERENCE NO.	SHEET NO.
B-3115	X-3



PROJ. REFERENCE NO.	SHEET NO.
B-3115	X-4