



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

April 13, 2006

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

ATTENTION: Mr. William Wescott
NCDOT Coordinator

Dear Sir:

SUBJECT: **Nationwide Permit 23 Application** for the proposed replacement of Bridge No. 36 on SR 1523 over Smithwick Creek, in Martin County. Federal Aid Project No. BRZ-1523(5), WBS Element 33535.1.1, TIP No. B-4188, Division 1.

Please find enclosed a copy of the categorical exclusion (CE), natural resource technical report (NRTR), permit drawings, and Ecosystem Enhancement Program (EEP) Mitigation Acceptance Letter for the above referenced project. NCDOT proposes to replace Bridge No. 36 on the existing alignment with a 90' single span concrete box beam bridge with sloping spill-through abutments. There will be 0.075 acre of permanent impacts to riverine wetlands. Traffic will be detoured offsite during construction.

Impacts to Waters of the United States

General Description: Smithwick Creek, located in the Roanoke River Basin, has been assigned a Best Usage Classification of "C", by the North Carolina Department of Environment and Natural Resources. Stream Index Number is 23-50-2 and the Hydrologic Unit is 03010107. Smithwick Creek is not designated as a North Carolina Natural or Scenic River, or as a national Wild and Scenic River, nor is it listed as a 303(d) stream. No designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply II (WS-II) waters occur within 3.0 miles of the project study area.

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

TELEPHONE: 919-715-1334
FAX: 919-715-5501
WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD.
PARKER LINCOLN BUILDING, SUITE 240
RALEIGH NC 27604

This reach of Smithwick Creek has potential as a travel corridor for anadromous fish. Therefore, an in-stream moratorium will be in effect from February 15 to June 15. The “Stream Crossing Guidelines for Anadromous Fish Passage” will be implemented, as applicable.

Permanent Impacts: Construction of the proposed project will result in 0.039 acre of permanent fill in wetlands. The construction will also require 0.036 acre of mechanized clearing in wetlands. Therefore, 0.075 acre of wetlands will be permanently impacted due to the fill slope of the approach to the bridge on the west side of Smithwick Creek.

Temporary Impacts: NCDOT does not anticipate any temporary impacts for this project. No temporary workpads or causeways are needed to construct the bridge.

There are no utility impacts for this project.

Bridge Demolition

Bridge No. 36 has a superstructure composed of timber flooring on steel I-beams with timber railing. The substructure is composed of timber bulkheads with timber piles. There are no interior bents. This is classified as a Case 2 demolition. There is no anticipated fill from bridge demolition in Smithwick Creek.

Federally Protected Species

As of March 8, 2006, the United States Fish and Wildlife Service lists one federally protected species, the Bald eagle (*Haliaeetus leucocephalus*), for Martin County (Table 1). A description of the Bald eagle and its history as it relates to the project are provided in the referenced NRTR or CE. The Bald eagle is listed as Threatened (proposed for delisting), and carries a Biological Conclusion of “May Effect-Not Likely to Adversely Affect”. Concurrence from USFWS is also included with this application.

Avoidance and Minimization

NCDOT has minimized impacts to the fullest extent possible. The wetlands are directly adjacent to the road on the west side. Therefore, improving the approach and raising the bridge forces minor impacts to the wetlands. The new bridge is a single span structure being constructed at the existing location. Therefore, no permanent or temporary impacts will occur to Smithwick Creek as a result of the bridge construction. An offsite detour will support traffic during construction.

Mitigation

The EEP will provide compensatory mitigation for the 0.075 acre of wetland impacts. EEP’s acceptance letter is attached to this application.

Regulatory Approvals

Section 404 Permit: All 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

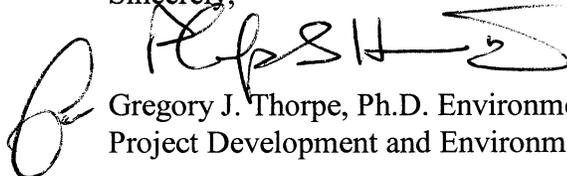
NCDOT requests that these activities be authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certification number 3403 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.

A copy of this permit application will be posted on the DOT website at:
<http://www.ncdot.org/planning/pe/naturalunit/Permit.html>.

If you have any questions or need additional information, please contact Mr. Chris Manley at (919) 715-1487 or cdmanley@dot.state.nc.us.

Sincerely,



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

The "cc" List:

W/attachment

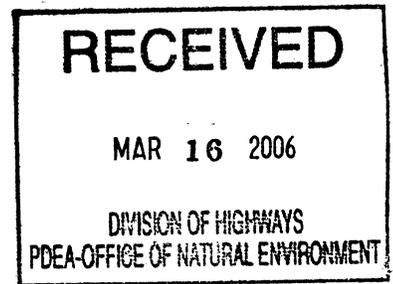
Mr. John Hennessy, NCDWQ (2 Copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Ron Sechler, NMFS
Mr. Michael Street, NCDMF
Ms. Cathy Brittingham, NCDCM
Ms. Wanda Gooden, NCDCM
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. Anthony Roper, P.E., Division 1 Engineer

W/o attachment

Mr. Scott McLendon, USACE, Wilmington
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Ms. Beth Harmon, EEP
Mr. Todd Jones, NCDOT External Audit Branch
Mr. William (Bill) T. Goodwin, P.E., Project Development Unit Head
Mr. Clay Willis, Division 1 Environmental Officer



March 13, 2006



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

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

B-4188, Bridge Number 36 over Smith Creek on SR 1523, Martin County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory riverine wetland mitigation for the subject project. Based on the information supplied by you in a letter dated February 20, 2006, the impacts are located in CU 03010107 of the Roanoke River Basin in the Northern Outer Coastal Plain (NOCP) Eco-Region, and are as follows:

Riverine Wetlands: 0.075 acre

Mitigation for this project will be provided in accordance with the Memorandum of Agreement between the N. C. Department of Environment and Natural Resources, the N. C. Department of Transportation, and the U. S. Army Corps of Engineers. EEP will commit to implementing sufficient compensatory riverine wetland mitigation to offset the impacts associated with this project by the end of the MOA year in which this project is permitted. If the above referenced impacts amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

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

Sincerely,

A handwritten signature in black ink that reads "James B. Stanfill Sr." in a cursive script.

William D. Gilmore, P.E.
EEP Director

cc: Mr. Bill Biddlecome, USACE-Washington
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-4188

Restoring... Enhancing... Protecting Our State

North Carolina Ecosystem Enhancement Program, 1652 Mail Service Center, Raleigh, NC 27699-1652 / 919-715-0476 / www.nceep.net





March 13, 2006

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

Dear Mr. Wescott:

Subject: EEP Mitigation Acceptance Letter:

B-4188, Bridge Number 36 over Smith Creek on SR 1523, Martin County; Roanoke River Basin (Cataloging Unit 03010107); Northern Outer Coastal Plain (NOCP) Eco-Region

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory riverine wetland mitigation for the unavoidable impact associated with the above referenced project. As indicated in the NCDOT's mitigation request letter dated February 20, 2006, the project will impact 0.075 acre of riverine wetlands.

Mitigation for this project will be provided in accordance with Section X of the Memorandum of Agreement between the N. C. Department of Environment and Natural Resources, the N. C. Department of Transportation, and the U. S. Army Corps of Engineers. EEP commits to implement sufficient compensatory riverine wetland mitigation up to a 2:1 ratio to offset the impacts associated with this project by the end of the MOA year in which this project is permitted. If the impacts change from the above listed amount, then this mitigation strategy letter will no longer be valid and a new mitigation strategy letter will be required from EEP.

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

Sincerely,

William D. Gilmore, P.E.
EEP Director

cc: Mr. Gregory J. Thorpe, Ph.D., NCDOT-PDEA
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-4188

Restoring... Enhancing... Protecting Our State





United States Department of the Interior

FISH AND WILDLIFE SERVICE

Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

December 3, 2003



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

Dear Dr. Thorpe:

This letter is in response to your letter of November 20, 2003 which provided the U.S. Fish and Wildlife Service (Service) with the biological conclusion of the North Carolina Department of Transportation (NCDOT) that the replacement of Bridge No. 36 over Smithwick Creek in Martin County (TIP No. B-4188) may affect, but is not likely to adversely affect the federally-threatened bald eagle (*Haliaeetus leucocephalus*). These comments are provided in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

According to the information you submitted, a survey was conducted for bald eagle nests within a 1.0 mile radius of the project site on November 18, 2003. No nests or bald eagles were observed. Based on the negative survey results, the Service concurs with your conclusion that the proposed bridge replacement may affect, but is not likely to adversely affect the bald eagle. We believe that the requirements of section 7 (a)(2) of the ESA have been satisfied. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

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

Sincerely,

Garland B. Pardue, Ph.D.
Ecological Services Supervisor

cc: Bill Biddlecome, USACE, Washington, NC
David Franklin, USACE, Wilmington, NC
John Hennessy, NCDWQ, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

November 19, 2003

Memorandum To: Chris Manley
Office of Natural Environment
Project Management Unit

From: Rachelle Beauregard
Office of Natural Environment
Biological Survey Unit

Subject: Bald eagle survey results for Bridge No. 36 over Smithwick Creek,
Martin County; TIP # B-4188.

The proposed action calls for the replacement of Bridge No. 36 over Smithwick Creek in Martin County. The bald eagle (*Haliaeetus leucocephalus*) is listed by the US Fish and Wildlife Service as occurring in Martin County.

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.

NCDOT biologists Rachelle Beauregard and Chris Manley visited the project site on November 18, 2003. Smithwick Creek is a medium sized creek. A 1.0 mile radius from the project site was surveyed for bald eagle nests. Surveys were performed from the ground by driving around within the area on all accessible roads. Most of the area has is used for agriculture and silviculture. No large bodies of water exist in the survey area. Large trees exist in area along the creek and in forested areas adjacent to the creek. No nests were seen and no bald eagles were seen flying around the area.

Only marginal habitat exists within 1.0 mile of the project site and no bald eagles were seen. Tall trees are found within the area but the nearest large body of water for the bald eagle to possibly forage in is located approximately 6.3 miles at the Roanoke River. The North Carolina Natural Heritage Program lists a record of a bald eagle nest

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
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TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

approximately 4.2 miles from the project to the east. No known bald eagle nests are located within 1.0 mile of the project site. In conclusion, because of the marginal habitat by the presence of tall trees for nesting, this project “may effect-will not likely to adversely affect” the bald eagle.

Biological Conclusion:

May Effect-Not Likely To Adversely Affect

cc: NEBSU file

CATEGORICAL EXCLUSION ACTION CLASSIFICATION FORM

TIP Project No.	<u>B-4188</u>
State Project No.	<u>8.2090501</u>
WBS No.	<u>33535.1.1</u>
Federal Project No.	<u>BRZ-1523(5)</u>

A. Project Description:

This project proposes to replace Bridge No. 36 on SR 1523 over Smithwick Creek in Martin County (See Figure 1). The bridge will be replaced with a 55-foot long cored slab bridge at the location of the existing structure and one foot higher in elevation than the existing bridge. The cross section of the new bridge will include two 11-foot lanes with 3-foot offsets. The approach work will consist of earthwork, paving, some resurfacing and tying back into the existing roadway for approximately 385 feet to the west and 380 feet to the east. Guardrail will be installed where warranted. Traffic will be detoured offsite during construction (See Figure 1 and Section D, Studied Detour Route).

B. Purpose and Need:

Bridge Maintenance Records indicate that Bridge No. 36 has a sufficiency rating of 30.0 out of a possible 100. The bridge, built in 1953, has a superstructure composed of timber flooring on steel I-beams with timber railing and a substructure composed of timber bulkheads with timber piles. There are no interior bents. The structural appraisal for the existing bridge is two out of a possible 9. Therefore, the bridge is considered to be structurally deficient according to FHWA standards and therefore eligible for FHWA's Highway Bridge Replacement Program.

C. Proposed Improvements:

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

1. Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing).
 - a. Restoring, Resurfacing, Rehabilitating, and Reconstructing pavement (3R and 4R improvements)
 - b. Widening roadway and shoulders without adding through lanes
 - c. Modernizing gore treatments
 - d. Constructing lane improvements (merge, auxiliary, and turn lanes)
 - e. Adding shoulder drains
 - f. Replacing and rehabilitating culverts, inlets, and drainage pipes, including safety treatments
 - g. Providing driveway pipes
 - h. Performing minor bridge widening (less than one through lane)
 - i. Slide Stabilization
 - j. Structural BMP's for water quality improvement
2. Highway safety or traffic operations improvement projects including the installation of ramp metering control devices and lighting.

- a. Installing ramp metering devices
 - b. Installing lights
 - c. Adding or upgrading guardrail
 - d. Installing safety barriers including Jersey type barriers and pier protection
 - e. Installing or replacing impact attenuators
 - f. Upgrading medians including adding or upgrading median barriers
 - g. Improving intersections including relocation and/or realignment
 - h. Making minor roadway realignment
 - i. Channelizing traffic
 - j. Performing clear zone safety improvements including removing hazards and flattening slopes
 - k. Implementing traffic aid systems, signals, and motorist aid
 - l. Installing bridge safety hardware including bridge rail retrofit
3. Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings.
- a. Rehabilitating, reconstructing, or replacing bridge approach slabs
 - b. Rehabilitating or replacing bridge decks
 - c. Rehabilitating bridges including painting (no red lead paint), scour repair, fender systems, and minor structural improvements
 - d. Replacing a bridge (structure and/or fill)
4. Transportation corridor fringe parking facilities.
5. Construction of new truck weigh stations or rest areas.
6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.
7. Approvals for changes in access control.
8. Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.
9. Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.
10. Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks and related street improvements) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.
11. Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.
12. Acquisition of land for hardship or protective purposes, advance land acquisition loans under section 3(b) of the UMT Act. Hardship and protective buying will be

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

- 13. Acquisition and construction of wetland, stream and endangered species mitigation sites.
- 14. Remedial activities involving the removal, treatment or monitoring of soil or groundwater contamination pursuant to state or federal remediation guidelines.

D. Special Project Information:

Estimated Costs:

Total Construction	\$ 550,000
Right of Way	\$ 40,000 *
Total	\$ 590,000

* TIP Cost Estimates.

Estimated Traffic:

Current	- 500 vpd
Year 2025	- 900 vpd
TTST	- 2%
Dual	- 2%

Proposed Typical Cross Section:

The proposed approach typical section will consist of two 11-foot lanes with five-foot grass shoulders. The shoulders will be widened to eight feet where guardrail is required.

Design Speed:

60 mph

Functional Classification:

Rural Local Route

Studied Detour Route:

The studied detour route utilizes SR 1114, SR 1516, and SR 1525. The length of the detour is approximately 3.2 miles with an expected delay estimated at 5 minutes. Martin County Emergency Management Services stated that this delay is acceptable to them and that they can work around the road closure.

Division Office Comments:

The Division One Construction Offices concurs with replacing Bridge No. 36 with a new bridge in the existing location of the current structure while detouring traffic on surrounding roads.

Bridge Demolition:

Bridge No. 36 has a superstructure composed of timber flooring on steel I-beams with timber railing. The substructure is composed of timber bulkheads with timber piles. There are no interior bents. This is classified as a Case 2 demolition. There is no anticipated fill from bridge demolition in Smithwick Creek.

Alternates Eliminated from Further Study

The no-build alternate for this project is not prudent or feasible. The existing bridge will continue to deteriorate necessitating eventual closure of the bridge. This is unacceptable due to the traffic that SR 1523 serves.

Rehabilitation of the existing structure was eliminated from further study due to the substructure's timber composition.

Replacing the structure on new location was eliminated from further study due to the increase in environmental impacts.

Maintaining traffic onsite with a temporary detour is not prudent due to the wetlands in the project vicinity. The expected delay on the studied detour route is approximately five minutes, which is acceptable. Please reference the detour discussion under Section D, Studied Detour Route.

E. Threshold Criteria

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

<u>ECOLOGICAL</u>	<u>YES</u>	<u>NO</u>
(1) Will the project have a substantial impact on any unique or important natural resource?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(2) Does the project involve habitat where federally listed endangered or threatened species may occur?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(3) Will the project affect anadromous fish?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(4) If the project involves wetlands, is the amount of permanent and/or temporary wetland taking less than one-tenth (1/10) of an acre and have all practicable measures to avoid and minimize wetland takings been evaluated?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(5) Will the project require the use of U. S. Forest Service lands?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(6) Will the quality of adjacent water resources be adversely impacted by proposed construction activities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(7) Does the project involve waters classified as Outstanding Water Resources (OWR) and/or High Quality Waters (HQW)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(8) Will the project require fill in waters of the United States in any of the designated mountain trout counties?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(9) Does the project involve any known underground storage tanks (UST's) or hazardous materials sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
 <u>PERMITS AND COORDINATION</u>	 <u>YES</u>	 <u>NO</u>
(10) If the project is located within a CAMA county, will the project significantly affect the coastal zone and/or any "Area of Environmental Concern" (AEC)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(11) Does the project involve Coastal Barrier Resources Act resources?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(12) Will a U. S. Coast Guard permit be required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(13) Will the project result in the modification of any existing regulatory floodway? X

(14) Will the project require any stream relocations or channel changes? X

SOCIAL, ECONOMIC, AND CULTURAL RESOURCES

YES NO

(15) Will the project induce substantial impacts to planned growth or land use for the area? X

(16) Will the project require the relocation of any family or business? X

(17) Will the project have a disproportionately high and adverse human health and environmental effect on any minority or low-income population? X

(18) If the project involves the acquisition of right of way, is the amount of right of way acquisition considered minor? X

(19) Will the project involve any changes in access control? X

(20) Will the project substantially alter the usefulness and/or land use of adjacent property? X

(21) Will the project have an adverse effect on permanent local traffic patterns or community cohesiveness? X

(22) Is the project included in an approved thoroughfare plan and/or Transportation Improvement Program (and is, therefore, in conformance with the Clean Air Act of 1990)? X

(23) Is the project anticipated to cause an increase in traffic volumes? X

(24) Will traffic be maintained during construction using existing roads, staged construction, or on-site detours? X

(25) If the project is a bridge replacement project, will the bridge be replaced at its existing location (along the existing facility) and will all construction proposed in association with the bridge replacement project be contained on the existing facility? X

(26) Is there substantial controversy on social, economic, or environmental grounds concerning the project? X

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

F. Additional Documentation Required for Unfavorable Responses in Part E

ITEM NO.

2. The Bald Eagle is the only Federally Protected Species listed for Martin County. NCDOT biologists Rachelle Beauregard and Chris Manley surveyed the project site on November 18, 2003. The survey yielded a biological conclusion of "May Affect-Not Likely to Adversely Affect." USFWS has concurred with this conclusion in an attached letter dated December 3, 2003. Therefore, Section 7 has been satisfied.
3. North Carolina Division of Marine Fisheries stated that anadromous fish are found in this section of Smithwick Creek. Therefore, an in stream work moratorium from February 15 to ~~September 30~~ ^{June 15th} will be in effect. NCDOT will adhere to the "Stream Guidelines for Anadromous Fish Crossings."
4. The amount of wetland impact is estimated to be 0.1 acre. The proposed project replaces the existing bridge with a new bridge in the same location. The proposed typical section for the approach roadway work is the minimum required for safety. The project has avoided and minimized the impacts to the wetlands to the extent possible.

G. CE Approval

TIP Project No.	<u>B-4188</u>
State Project No.	<u>8.2090501</u>
WBS No.	<u>33535.1.1</u>
Federal Project No.	<u>BRZ-1523(5)</u>

Project Description:

This project proposes to replace Bridge No. 36 on SR 1523 over Smithwick Creek in Martin County (See Figure 1). The bridge will be replaced with a 55-foot long cored slab bridge at the location of the existing structure and one foot higher in elevation than the existing bridge. The cross section of the new bridge will include two 11-foot lanes with 3-foot offsets. The approach work will consist of earthwork, paving, some resurfacing and tying back into the existing roadway for approximately 385 feet to the west and 380 feet to the east. Guardrail will be installed where warranted. Traffic will be detoured offsite during construction (See Figure 1 and Section D, Studied Detour Route).

Categorical Exclusion Action Classification:

 TYPE II(A)
 X TYPE II(B)

Approved:

<u>4-30-04</u> Date	<u>Suzsa Hart</u> Assistant Branch Manager Project Development and Environmental Analysis Branch
<u>4-30-04</u> Date	<u>William F. Hooding</u> Project Planning Unit Head Project Development & Environmental Analysis Branch
<u>4/30/04</u> Date	<u>Karen B. Capps, PE.</u> Project Development Engineer Project Development & Environmental Analysis Branch

For Type II(B) projects only:

<u>4/30/04</u> Date	<u>for Harold G. [Signature]</u> John F. Sullivan, III, PE, Division Administrator Federal Highway Administration
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PROJECT COMMITMENTS

Martin County
Bridge No. 36 on SR 1523 Over Smithwick Creek
Federal Aid Project No. BRZ-1523(5)
State Project No. 8.2090501
WBS No. 33535.1.1
T.I.P. No. B-4188

Division 1 Construction Engineer, Structure Design Unit

The proposed structure should be designed to facilitate top-down construction. If it is determined that top-down construction cannot be used, then additional coordination with the United States Army Corps of Engineers will be required.

No deck drains will be allowed to discharge directly into Smithwick Creek.

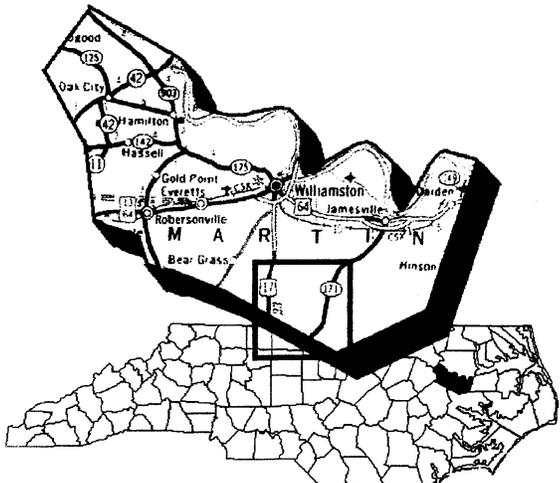
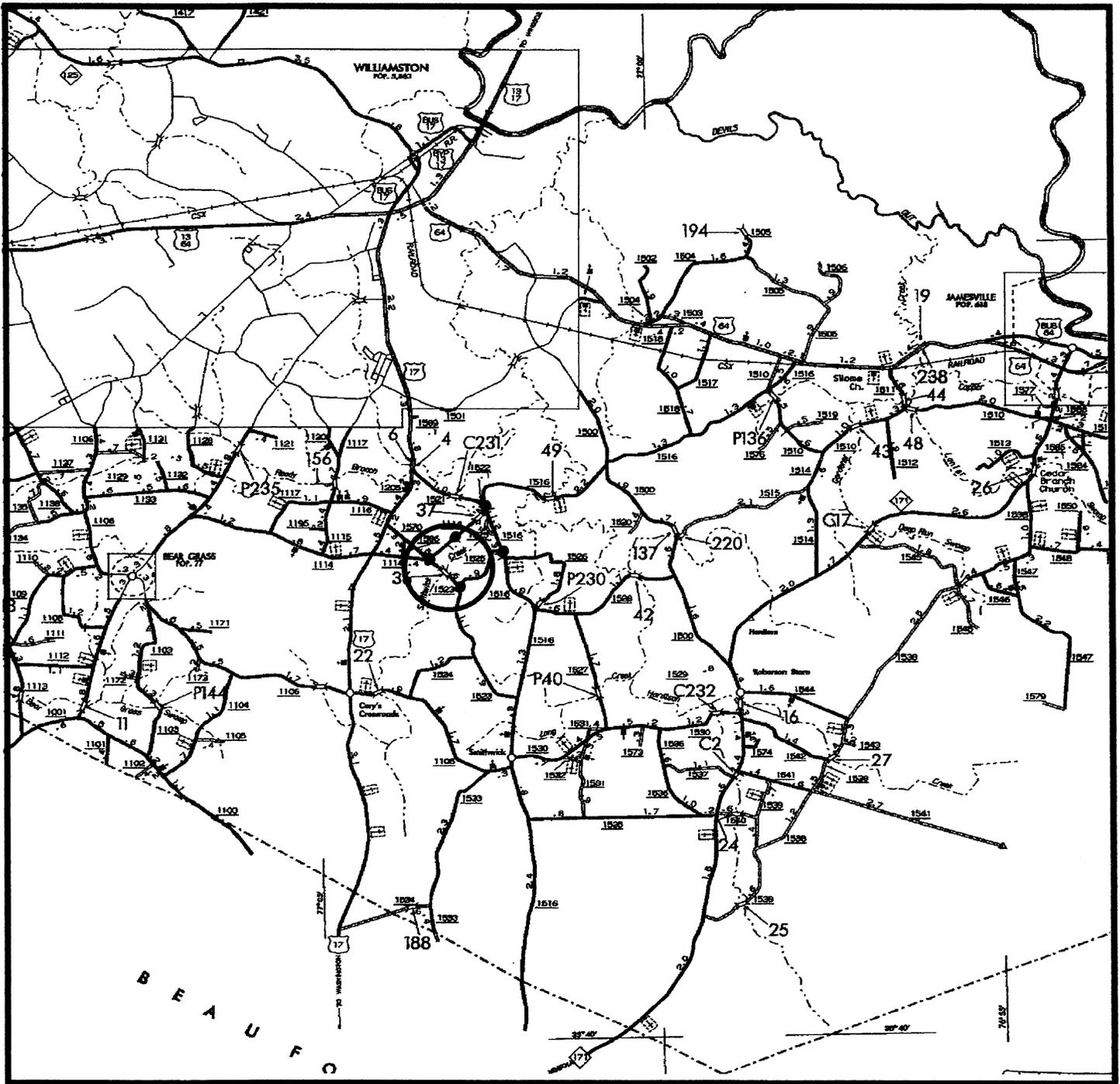
Division 1 Construction Engineer, Structure Design Unit, Roadway Design Unit

The total time of **road closure** for this project should be held to to a minimum due to Martin County Emergency Management Services' desire to keep response times to a minimum. The contractor should be given incentives to minimize the road closure for the project. The **total project construction time** can be longer, as long as work can be done under traffic. Martin County Emergency Management Services will be notified a minimum of thirty (30) days in advance of the beginning of the road closure.

This reach of Smithwick Creek has potential as a travel corridor for anadromous fish. Therefore, an in-stream moratorium will be in effect from February 15 to September 30. The Stream Crossing Guidelines for Anadromous Fish Passage will be implemented, as applicable.

Project Development and Environmental Analysis Branch

The survey for the Bald Eagle in the project vicinity will expire November 18, 2005.



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Studied Detour

	<p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS BRANCH</p>
<p>MARTIN COUNTY REPLACE BRIDGE NO. 36 ON SR 1523 OVER SMITHWICK CREEK B-4188</p>	
<p>Figure 1</p>	



North Carolina Department of Cultural Resources
State Historic Preservation Office

David L. S. Brook, Administrator

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

Division of Historical Resources

January 21, 2004

MEMORANDUM

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

FROM: David Brook *David Brook by BJS*

SUBJECT: Replacement of Bridge No. 36 on SR 1523 over Smithwick Creek, B-4188,
Martin County, ER03-0953

On November 24, 2003, Sarah McBride, our preservation specialist for transportation projects, met with North Carolina Department of Transportation (NCDOT) staff concerning the above project. 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 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 recorded archaeological sites within the proposed project area. Based on our present knowledge of the area, it is unlikely that any archaeological resources, which may be eligible for listing in the National Register of Historic Places, will be affected by the project construction. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

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

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

www.hpo.dcr.state.nc.us

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount St, Raleigh, NC	4617 Mail Service Center, Raleigh, NC 27699-4617	(919) 733-4763 • 733-8653
RESTORATION	515 N. Blount St, Raleigh, NC	4617 Mail Service Center, Raleigh, NC 27699-4617	(919) 733-6547 • 715-4801
SURVEY & PLANNING	515 N. Blount St, Raleigh, NC	4617 Mail Service Center, Raleigh, NC 27699-4617	(919) 733-4763 • 715-4801

FINAL

NATURAL RESOURCES TECHNICAL REPORT

**Replacement of Bridge No. 36
on SR 1523 over Smithwick Creek
Martin County, North Carolina
(B-4188)
(State Project No. 8.2090501)
(Federal Aid Project No. BRZ-1523[5])**

NCDOT Consulting Project No. 02-LO-01



**The North Carolina Department of Transportation
Raleigh, North Carolina**

February 2003

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Exhibit A. GPS Located "Waters of the United States" and Jurisdictional Wetlands
GPS Located Wetland Points
USACE and DWQ Wetland and Stream Data Forms
Natural Heritage Program Endangered Species List

1.0 INTRODUCTION

1.1 Project Description

This project is the replacement of Bridge No. 36 on State Route (SR) 1523 over Smithwick Creek in Martin County, North Carolina (Figure 1). Bridge No. 36 is located approximately 5.0 miles (8.0 kilometers) south of the Town of Williamston, NC, and 1.0 mile (1.6 kilometer) southeast of the intersection of US 17 and Thurman Griffin Road (SR 1523).

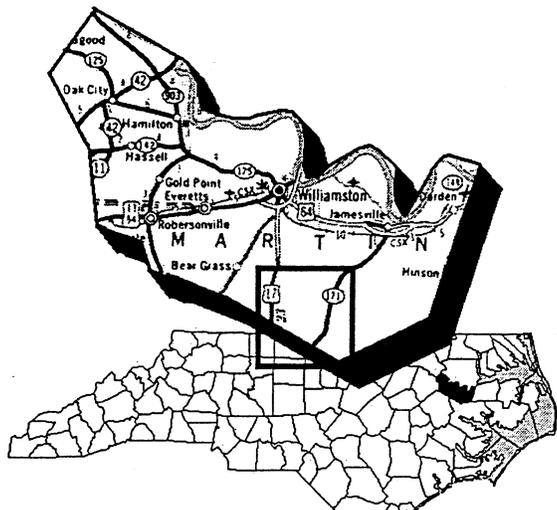
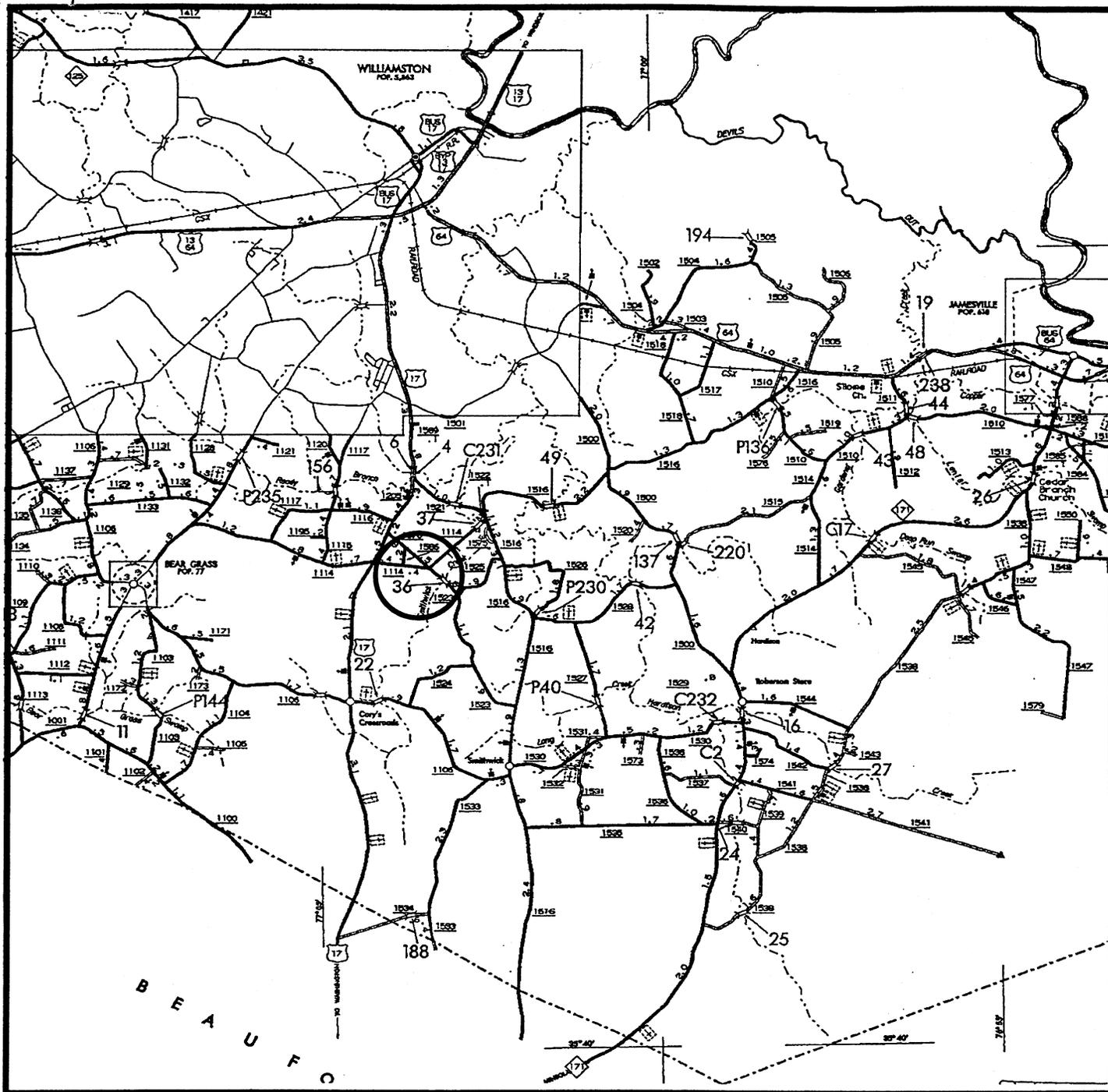
The existing bridge was built in 1953 and has a timber deck on steel I-beams with timber caps and piles. The proposed project will replace the existing bridge with an undetermined structure. A temporary detour using Canyon Road (SR 1114), Johnny Corey Road (SR 1516), and SR 1525 may be feasible and would eliminate the need for a temporary crossing during construction (Figure 2).

1.2 Definitions

A "bubble study" to obtain early environmental information for the project was undertaken. No alternatives for the replacement of the bridge have been developed at this time. The "bubble study" identifies a project study area around the existing structure to assist with the development of the project alternatives. The **project study area** is approximately 4,000 feet (1,220 meters) in length and ranges from approximately 400 to 800 feet (125 to 250 meters) in width. The **project vicinity** describes an area extending 0.5 mile (0.8 kilometer) on all sides of the project study area.

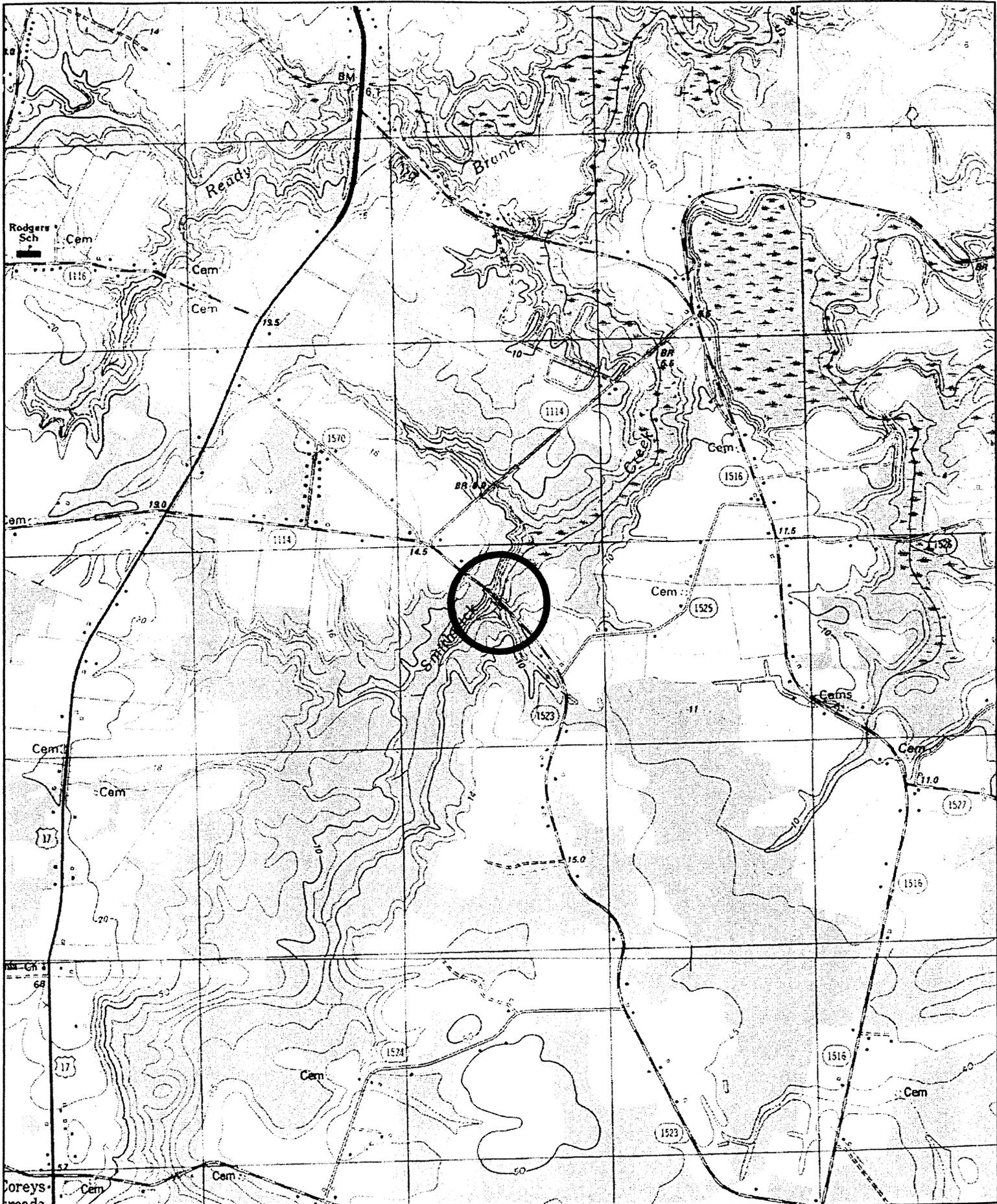
1.3 Purpose

The purpose of this Natural Resource Technical Report is to document this evaluation of existing natural resources in the project study area to assist with the development of project alternatives and the preparation of a Categorical Exclusion (CE). Specifically, the tasks performed for this report include: 1) an assessment of natural resource features within the project study area including descriptions of vegetation, wildlife, protected species, streams, wetlands, and water quality; 2) an evaluation of potential environmental impacts; 3) a preliminary assessment of on-site or adjacent mitigation potential; and 4) a preliminary determination of permit needs. The environmental impact analysis is based on potential impacts within the mapped project study area and does not take into account any specific limits for design, demolition, or construction.



	<p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS BRANCH</p>
<p>MARTIN COUNTY REPLACE BRIDGE No. 36 ON SR 1523 OVER SMITHWICK CREEK B-4188</p>	

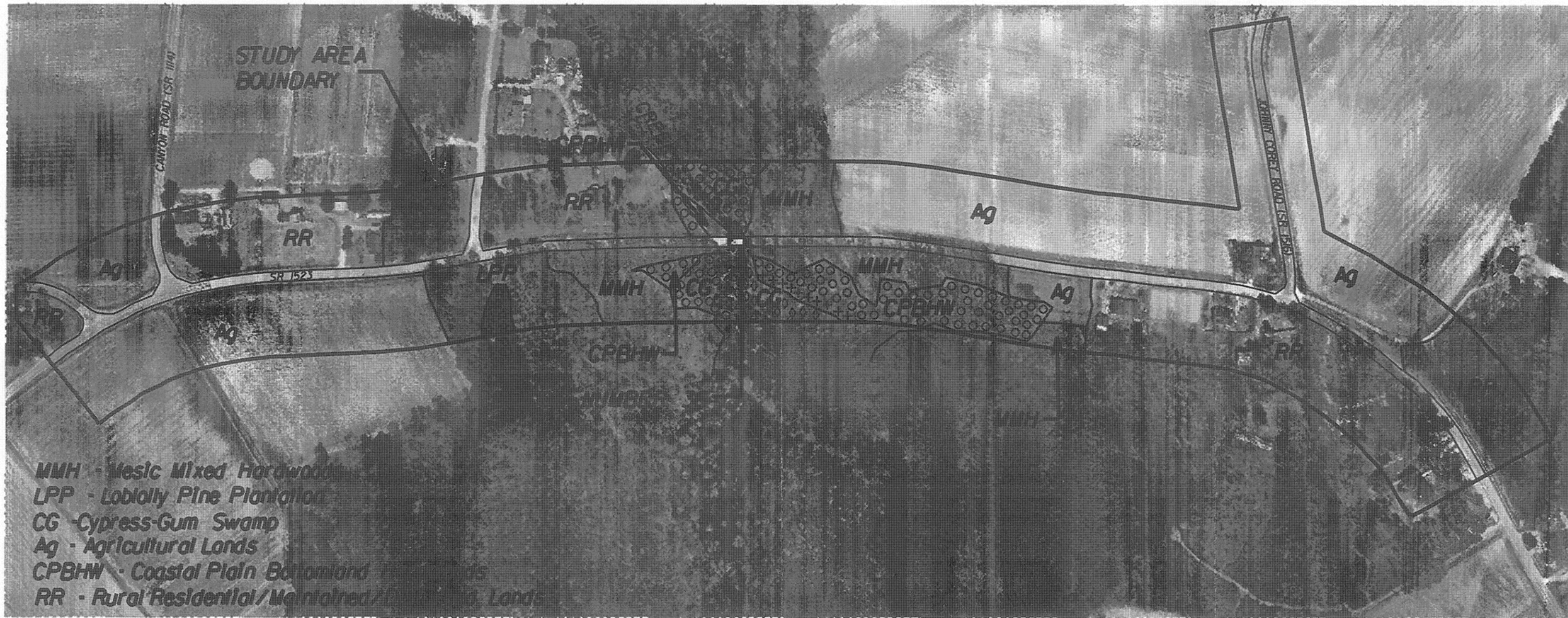
Figure 1



Name: WILLIAMSTON
 Date: 1/10/2002
 Scale: 1 inch equals 2000 feet

Location: 035° 45' 56.8" N 077° 03' 07.5" W
 Caption: B-4188

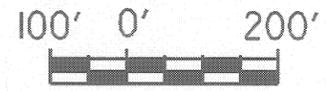
Figure 2



MMH - Mesic Mixed Hardwood
LPP - Loblolly Pine Plantation
CG - Cypress-Gum Swamp
Ag - Agricultural Lands
CPBHW - Coastal Plain Baronland
RR - Rural Residential/Maintained/Developed Lands



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PLANT COMMUNITY /LAND USE /WETLAND TYPE MAP

FIGURE 3

- PAULSTRINE FORESTED WETLANDS (PF06H)
- PAULSTRINE EMERGENT WETLANDS (PEMIF)
- PAULSTRINE OPEN WATER WETLANDS (POW)
- PAULSTRINE SCRUB-SHRUB WETLANDS (PSS6E)
- PAULSTRINE UNCONSOLIDATED BOTTOM (PUBHx)
- STREAM
- DIRECTION OF STREAM FLOW

**REPLACEMENT OF BRIDGE NO. 36 ON
 SR 1523 OVER SMITHWICK CREEK**
 STATE PROJECT NO. 8.2090501
 T.I.P. NO. B-4188

1.4 Methodology

Data used in this investigation were obtained from a number of sources. The Williamston, NC (1982), U.S. Geological Survey (USGS) 7.5-minute topographic map was reviewed to determine physiographic relief and to assess landscape characteristics. U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping was also reviewed to determine what potential wetland types may be encountered in the field. Recent aerial photography (1:2400 scale), taken in 2001, was also used in the evaluation of the study area.

An aerial photograph of the project area serves as the base for mapping plant communities and land uses. Plant community patterns were identified from available mapping sources and then field verified. Plant community descriptions are based on a classification system utilized by the North Carolina Natural Heritage Program (NHP) (Schafale and Weakley 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names typically follow nomenclature found in Radford *et al.* (1968).

Jurisdictional areas were identified using the three parameter approach (hydrophytic vegetation, hydric soils, wetland hydrology) following U.S. Army Corps of Engineers (USACE) delineation guidelines (DOA 1987). Jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979).

Water resource information for Smithwick Creek was derived from the *Roanoke River Basinwide Water Quality Management Plan* (DWQ 2001) and the N.C. Division of Water Quality (DWQ) internet resources. Quantitative sampling was not undertaken to support existing data in the Management Plan.

The most current USFWS list (updated January 2003) of federally protected species with ranges extending into Martin County was reviewed prior to initiation of the field investigation. In addition, NHP records (including those on the internet) documenting reported occurrences of federal and state-listed species were consulted before commencing the field investigation (Amoroso 2001). Expected population distributions were determined through observations of available habitat and review of natural history and other documentation found in Martof *et al.* (1980), Webster *et al.* (1985), and Menhinick (1991).

1.5 Qualifications

Field investigations associated with this bridge replacement project (B-4188) were conducted on November 20, 2002. The H.W. Lochner Inc. environmental scientist team

for this project consisted of Ken Roeder Ph.D., Susan Smith, and Emily Fentress. Dr. Roeder is the lead Environmental Scientist and has a B.S degree in Forestry, a M.S. degree in Forest Genetics, and a Ph.D. in Forestry and Soils. He is a N.C. Licensed Soil Scientist and Registered Forester, a Certified Senior Ecologist, and has more than twenty years professional experience. Susan Smith is a Project Biologist with a B.S. degree in Forestry, a M.S. degree in Wildlife Management, and more than ten years of professional experience. Emily Fentress is a Staff Biologist with a B.S. degree in Biology and one year of professional experience.

2.0 PHYSICAL RESOURCES

The project study area is located in the Middle and Upper Coastal Plain Physiographic Province of the Atlantic Coastal Plain of North Carolina. The topography in the project study area is generally characterized as gently sloping to nearly level. Elevations in the project study area range from less than 13 to greater than 46 feet (4 to 14 meters) above mean sea level (USGS 1982). The project study area consists of existing maintained rights-of-way, mixed swamp forest, upland forest, rural residential, and agricultural areas. The project vicinity is rural residential and agricultural. Surrounding land uses include agricultural, residential, commercial, and forest lands.

On the west side of Bridge No. 36, just beyond the project study limits, there are the remains of an old road bed that was once used to cross the open water and Cypress-Gum Swamp of Smithwick Creek (Figure 3). This old road bed fill extends through the swamp and is vegetated by large trees of several species. The old bridge at this location is gone.

2.1 Soil

The project study area is located within the Goldsboro-Lynchburg-Norfolk soil association (NRCS 1989). Soil associations contain one or more mapping units occupying a unique natural landscape. Mapping units are named for the major soil series within the unit, but may contain minor inclusions of other soils. There are six soil units mapped within the project study area. Two of these soil mapping units are listed as hydric soils (SCS 1991). These hydric soils include Bibb loam, frequently flooded (*Typic Fluvaquents*) and Rains fine sandy loam (*Typic Paleaquults*). The remaining four non-hydric soil mapping units include: Bonneau loamy sand (*Arenic Paleudults*) 0 to 6 percent slopes; Goldsboro fine sandy loam (*Aquic Paleudults*) 0 to 2 percent slopes; Foreston loamy fine sand (*Aquic Paleudults*); and Lynchburg fine sandy loam (*Acric Paleaquults*).

2.2 Water Resources

Stream Characteristics

Smithwick Creek is a blue-line perennial blackwater creek approximately 25 feet (7.6 meters) wide at the bridge and about 2 to 4 feet (0.6 to 1.2 meters) deep. At the study area, Smithwick Creek flows northeast. The channel bottom appears to be typical of coastal plain blackwater creeks consisting of fine to sandy sediments. Northeast and southwest of the bridge the creek was flooded over its banks, with surface waters flowing into mature swamp forest. In the study area, the creek channel is protected by existing wooded riparian buffers greater than 50 feet (15 meters) wide. Delineated wetlands directly abut a residential property northeast of the bridge.

The project study area is located within sub-basin 03-02-09 of the Roanoke River Basin (DWQ 2001) and is part of USGS hydrologic unit for the Lower Roanoke Hydrologic Unit (No. 03010107) (USGS 1974). Smithwick Creek is a tributary of Sweetwater Creek which flows into the Roanoke River. Smithwick Creek is identified by Stream Index Number (SIN) 23-50-2 by the North Carolina Department of Environment and Natural Resources (DENR) (DENR 2002a), and is a blue-line stream recognized by USGS (1982). The Roanoke River Basin is not currently subject to vegetated riparian buffer requirements by the state.

A Best Usage Classification is assigned to waters of the State of North Carolina based on the existing or contemplated best usage of various streams or segments of streams in the basin. Smithwick Creek has been assigned a Best Usage Classification of “C” (DENR 2002a). The C designation indicates freshwaters designated for secondary recreation, fishing, aquatic life including propagation and survival, wildlife, and agriculture (15A NCAC 02B .0101(c)(1)). Secondary recreation is any activity involving human body contact with water on an infrequent or incidental basis.

No Outstanding Resource Waters (**ORW**), High Quality Waters (**HQW**), or Water Supply Waters (**WS-I**, or **WS-II**) occur within 3.0 miles (4.8 kilometers) upstream or downstream of the project study area. Smithwick Creek is not designated as a North Carolina Natural and Scenic River, or as a National Wild and Scenic River.

Water Quality Information

One method used by DWQ to monitor water quality is through long-term monitoring of macroinvertebrates (DEHNR 1989). There are no long-term macroinvertebrate monitoring stations located on Smithwick Creek or within 5.0 miles (8.0 kilometers) upstream or downstream of the project study area (DENR 2001). Another measure of water quality being used by the DWQ is the North Carolina Index of Biotic Integrity (NCIBI), which assesses biological integrity using the structure and health of the fish communities. There

are no NCIBI monitoring stations located on Smithwick Creek or within 5.0 miles (8.0 kilometers) upstream or downstream of the project study area (DENR 2002).

Section 303(d) Waters

Section 303(d) of the Clean Water Act (CWA) requires states to develop a list of waters not meeting water quality standards or which have impaired uses. A review of the 303(d) list for North Carolina indicates that Smithwick Creek in the Roanoke River Basin is not listed as an impaired waterway (DWQ 2002).

Permitted Dischargers

Discharges that enter surface waters through a pipe, ditch, or other well-defined point of discharge are broadly referred to as "point sources." Wastewater "point source" discharges include municipal (city and county) and industrial wastewater treatment plants, and small domestic wastewater treatment systems serving schools, commercial offices, residential subdivisions and individual homes (DWQ 2001). Storm water "point source" discharges include storm water collection systems for municipalities and storm water discharges associated with certain industrial activities. "Point source" dischargers in North Carolina must apply for and obtain a National Pollutant Discharge Elimination System (NPDES) permit. Discharge permits are issued under the NPDES program, delegated to DWQ by the Environmental Protection Agency (EPA). No permitted "point source" dischargers are located on Smithwick Creek (DENR 2002b).

Sources of "non-point source" pollution within the project study area include storm water runoff from existing roads and other impervious surfaces.

Essential Fish Habitat

In 1996 the Magnuson-Stevens Fishery Conservation and Management Act mandated the identification of Essential Fish Habitat (EFH) for managed species as well as measures to conserve and enhance the habitat necessary to fish to carry out their life cycles. Under this Act EFH is defined as:

"those waters and substrate necessary to fish for spawning, breeding, or growth to maturity" (16 USC 1802(10)).

In North Carolina, EFH includes offshore areas as well as inland water habitats used by anadromous fish species, including Martin County.

Impacts to Water Resources

Section 402-2 of NCDOT's *Standard Specifications for Roads and Structures* is titled Removal of Existing Structure. This section outlines restrictions and Best Management Practices (BMPs) for Bridge Demolition and Removal, as well as guidelines for calculating

maximum potential fill in the stream resulting from demolition. Bridge No. 36 is composed entirely of timber. The bridge is 38 feet (11.6 meters) long with a clear deck width of 25 feet (7.6 meters). The superstructure will be removed without dropping it into "Waters of the United States." The substructure consists of timber; this will also be removed without dropping any portion into "Waters of the United States." The replacement of Bridge No. 36 can be classified as a Case 2 by the BMPs for Bridge Demolition and Removal (NCDOT 1999). Case 2 bridge replacements allow no work at all in the water during moratorium periods associated with fish migration, spawning, and larval recruitment into nursery areas. All work potentially affecting the resource will be carefully coordinated with the agency having jurisdiction.

Short-term impacts to water quality, such as sedimentation and turbidity, may result from construction-related activities. Temporary construction impacts due to erosion and sedimentation will be minimized through implementation of a stringent erosion control schedule and the use of BMPs. The contractor will follow contract specifications pertaining to erosion control measures as outlined in 23 CFR 650 Subpart B and Article 107-13 entitled Control of Erosion, Siltation, and Pollution pursuant to NCDOT's *Standard Specifications for Roads and Structures*. These measures include the use of dikes, berms, silt basins, and other containment measures to control runoff, and elimination of construction staging areas in floodplains and adjacent waterways. Disturbed sites will be revegetated with herbaceous cover after any temporary construction impacts.

It is recommended that there be no temporary fill associated with demolition and removal of the superstructure and substructure. In-stream demolition and construction activities should be scheduled to avoid and minimize impacts to aquatic resources and organisms.

Other impacts to water quality could include changes in water temperature and storm water flow. Changes in water temperature result from increased exposure to sunlight due to the removal of stream-side vegetation or increased shade due to the construction of the bridge. Changes in storm water flows could occur due to changes in the amount of impervious surface adjacent to the stream channels if roadway or bridge surface area increases.

3.0 BIOTIC RESOURCES

3.1 Terrestrial Community

Existing Vegetation Patterns

Distribution and composition of plant communities throughout the project study area reflect landscape-level variations in topography, soils, hydrology, and past and present land use

practices. Agriculture and forestry practices have resulted in the present vegetative patterns. Three natural plant communities occur within the project study area and three additional communities/land use types resulting from human activities have been identified (Figure 3). These communities total approximately 34.0 acres (13.7 hectares) and do not include any open water attributed to Smithwick Creek [0.5 acre (0.2 hectare)] or impervious road surface [3.0 acres (1.2 hectares)]. The plant communities and land uses within the project study area were mapped on an aerial photograph base and field verified (Figure 3). A summary of the coverage of each plant community and land use within the project study area is presented in Table 1.

Table 1. Plant Communities and Land Uses occurring within the Project Study Area for Bridge No. 36 (TIP B-4188).

Plant Community/Land Uses	Study Area (acres)/(hectares)	Percent of Project Study Area
Cypress-Gum Swamp (Blackwater Subtype)	1.4/0.6	4%
Coastal Plain Bottomland Hardwoods (Blackwater Subtype)	1.8/0.7	5%
Mesic Mixed Hardwood Forest (Coastal Plain Subtype)	3.3/1.3	10%
Loblolly Pine Plantations	3.9/1.6	12%
Agricultural Lands	14.1/5.7	41%
Rural Residential/ Maintained/Disturbed Land	9.5/3.8	28%
Totals:	34.0/13.7	100%

Cypress-Gum Swamp (Blackwater Subtype)

The Cypress-Gum Swamp (Blackwater Subtype) forest (Schafale and Weakley 1990) occupies approximately 1.4 acres (0.6 hectares) [4 percent] of the project study area. This plant community type typically occurs in backswamps, sloughs, swales, and featureless floodplains of blackwater rivers. Hydrologically this type is palustrine, seasonally to semi-permanently flooded. They have highly variable flow regimes with floods of short duration and periods of very low flow. Waters tend to be very acidic, low in mineral sediment and nutrients, and colored by tannins but relatively clear. This community is located both northeast and southwest of SR 1523.

The Cypress-Gum Swamp (Blackwater Subtype) is typically dominated by tupelo (*Nyssa biflora*) and baldcypress (*Taxodium distichum*). The understory and shrub layer is usually poorly developed. Carolina ash, (*Fraxinus caroliniana*), tupelo (*Nyssa biflora*), and red maple (*Acer rubrum*) are the most typical species present in the shrub layer. Shrub species

may also include swamp cyrilla (*Cyrilla racemiflora*), summersweet clethra (*Clethra alnifolia*), and fetterbush (*Lyonia lucida*). The herbaceous layer ranges from nearly absent to moderate cover. Species may include lizard's-tail (*Saururus cernuus*), giant sedge (*Carex gigantea*), water smartweed (*Polygonum amphibium*), and netted chain-fern (*Woodwardia areolata*). Spanish moss (*Tillandsia usneoides*) and resurrection fern (*Polypodium polypodioides*) are often common.

Coastal Plain Bottomland Hardwoods (Blackwater Subtype)

The Coastal Plain Bottomland Hardwoods (Blackwater Subtype) forest (Schafale and Weakley 1990) occupies approximately 1.8 acres (0.7 hectare) [5 percent] of the project study area. This plant community type is typically found on abandoned or relic natural levee deposits, point bar ridges, and other relatively high parts of the flood plain away from the channel. This community is also found in transition areas between Cypress-Gum Swamp and upland community types. As a result, this community type can be also found in areas of jurisdictional wetlands or non-wetlands. Hydrologically this type is palustrine, seasonally to intermittently flooded. This community occupies sites that have highly variable flow regimes, with floods of short duration and periods of very low flow. Water tends to be very acidic, low in mineral sediments and nutrients, and colored by tannins but clear. This community is located southeast of SR 1523, on the downstream side of Bridge No. 36.

The Coastal Plain Bottomland Hardwoods (Blackwater Subtype) is typically dominated by various combinations of bottomland hardwoods and conifers, primarily swamp laurel oak (*Quercus laurifolia*), overcup oak (*Q. lyrata*), willow oak (*Q. phellos*), water oak (*Q. nigra*), red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), and loblolly pine (*Pinus taeda*). The understory layer may include red maple (*Acer rubrum*), swampbay (*Persea palustris*), American holly (*Ilex opaca*), and sweetbay (*Magnolia virginiana*). The shrub layer is often well developed and may be very dense, including red maple (*Acer rubrum*), American holly (*Ilex opaca*), swamp cyrilla (*Cyrilla racemiflora*), summersweet clethra (*Clethra alnifolia*), and Virginia sweetspire (*Itea virginica*). Giant cane (*Arundinaria gigantea*) may be common. Vines are sometimes dense, and typically may include greenbrier (*Smilax rotundifolia*), poison ivy (*Toxicodendron radicans*), grape (*Vitis rotundifolia*), and rattan-vine (*Berchemia scandens*). Japanese honeysuckle (*Lonicera japonica*) also frequently occurs.

Mesic Mixed Hardwood Forest (Coastal Plain Subtype)

The Mesic Mixed Hardwood Forest (Coastal Plain Subtype) (Schafale and Weakley 1990) occupies approximately 3.3 acres (1.3 hectares) [10 percent] of the project study area. This plant community type is typically found on areas protected from fire, primarily on north facing river bluffs and ravine slopes, less commonly on upland flats or islands surrounded by peatland or swamp communities. Mesic Mixed Hardwood Forests generally occur on sites that are sheltered by topography and moisture from fires. Under natural

conditions these forests are uneven-aged, with old trees present. Reproduction occurs primarily in canopy gaps. Rare severe natural disturbances such as wind storms or severe fires may allow pulses of increased regeneration and allow the less shade-tolerant species to remain in the community. Disturbed areas have increased amounts of pine and weedy hardwoods such as yellow poplar (*Liriodendron tulipifera*) and sweetgum (*Liquidambar styraciflua*). Like floodplain forests, some of these communities are susceptible to invasion by exotic species such as Japanese honeysuckle (*Lonicera japonica*). Mesic Mixed Hardwood Forests usually border Coastal Plain Bottomland Forests, Cypress-Gum Swamp, or Small Stream Swamp on the lower elevation side. Hydrologically this type is terrestrial.

In the study area for Bridge No. 36 over Smithwick Creek, this community type is located upslope on the rolling terrace above the creek bottom where Cypress-Gum Swamp (Blackwater Subtype) and Coastal Plain Bottomland Hardwoods (Blackwater Subtype) communities dominate. These areas are highly disturbed and have historically been cut-over several times as seen in their current state. In some cases, pine plantations have replaced natural hardwoods.

The Mesic Mixed Hardwood Forest (Coastal Plain Subtype) is naturally dominated by various mixtures of mesophytic species of trees such as beech (*Fagus grandifolia*), yellow poplar (*Liriodendron tulipifera*), southern sugar maple (*Acer floridanum*), white oak (*Quercus alba*), red oak (*Q. rubra*), and sweetgum (*Liquidambar styraciflua*). Species such as swamp chestnut oak (*Q. michauxii*), cherrybark oak (*Q. pogoda* (*falcata* var. *pogodaefolia*), and shagbark hickory (*Carya ovata*), more typical of bottomland hardwood communities or non-riverine wet hardwood forests, are sometimes abundant. Dry community species such as white oak (*Q. alba*), Spanish oak (*Q. falcata*), and several hickory (*Carya* spp.) species can also be abundant at times. Understory species commonly include flowering dogwood (*Cornus florida*), American holly (*Ilex opaca*), hop-hornbeam (*Ostrya virginiana*), sourwood (*Oxydendrum arboreum*), ironwood (*Carpinus caroliniana*), red maple (*Acer rubrum*), and swamp red bay (*Persea palustris*).

Loblolly Pine Plantations

Loblolly Pine Plantations occupy approximately 3.9 acres (1.6 hectares) [12 percent] of the project study area. This plant community type is man-created and not identified as a natural community type by Schafale and Weakley (1990). Loblolly pine (*Pinus taeda*) is an early successional woody species typically becoming established on Coastal Plain sites following fire or other disturbance. Current forestry practices on wetter sites recommend bedding to create planting sites in order to establish seedlings and maintain acceptable levels of survival and growth. Understory and herbaceous species becoming established in these plantations include sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), American holly (*Ilex opaca*), blackberries (*Rubus* spp.), greenbrier (*Smilax* spp.), and numerous grasses. Loblolly Pine Plantations found in the project study area include a mid-

aged stand along SR 1523 in an area of rural residential and agricultural land use. There is also an older stand of plantation loblolly pine south of SR 1523. This stand was likely planted as a watershed buffer around the excavated pond located in the uplands.

Agricultural Lands

Agricultural Lands occupy approximately 14.1 acres (5.7 hectares) [41 percent] of the project study area. This mapped type is man-created and not identified as a natural community type by Schafale and Weakley (1990). Identified agricultural lands in the project study area consist of fields which were used to produce cotton (*Gossypium hirsutum*) and soybeans (*Glycine max*) during the 2002 growing season.

Rural Residential/Maintained/Disturbed Lands

Rural Residential/Maintained/Disturbed Lands cover approximately 9.5 acres (3.8 hectares) [28 percent] of the study area. This mapped type is man-created and not identified as a natural community type by Schafale and Weakley (1990). Rural Residential/Maintained/Disturbed areas include roadways, roadsides and fill-slopes, maintained residential yards, sewer line corridors, and areas where other human related activities dominate the landscape. Roadsides and sewer lines are typically maintained by mowing and/or herbicides. Vegetation within this type is diverse and has not been specifically identified. Species observed within the road rights-of-way include blackberry (*Rubus* spp.), trumpet creeper (*Campsis radicans*), lespedeza (*Lespedeza cuneata*), white clover (*Trifolium repens*), and other various roadside grasses. Residential areas are vegetated by loblolly pine (*Pinus taeda*) and numerous ornamental plants and various grasses.

Terrestrial Wildlife

The project study area was visually surveyed for signs of terrestrial wildlife. The only direct evidence of mammals was white-tail deer (*Odocoileus virginianus*) tracks. Other mammals expected to occur in and around the project study area include Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), and eastern cottontail (*Sylvilagus floridanus*), as well as rodents such as beaver (*Castor canadensis*), gray squirrel (*Sciurus carolinensis*), white-footed mouse (*Peromyscus leucopus*), and golden mouse (*Ochrotomys nuttalli*). Insectivores such as eastern mole (*Scalopus aquaticus*), southeastern shrew (*Sorex longirostris*), and northern short-tailed shrew (*Blarina brevicauda*) may also be present in the project study area.

An anole (*Anolis carolinensis*) was the only terrestrial reptile observed within the project study area. Other terrestrial reptiles expected to occur in the project study area include such species as five-lined skink (*Eumeces fasciatus*), broadhead skink (*Eumeces laticeps*), fence lizard (*Sceloporus undulatus*), eastern box turtle (*Terrapene carolina*), black racer (*Coluber constrictor*), copperhead (*Agkistrodon contortrix*), and rat snake (*Elaphe obsoleta*).

No terrestrial or arboreal amphibians were observed within the project study area. Terrestrial or arboreal amphibians expected to occur in the project study area include such species as the pickerel frog (*Rana palustris*), Fowler's toad (*Bufo woodhouseii*), and spring peeper (*Pseudacris crucifer*).

The only birds seen during the field assessment were unidentified ducks. Several nesting boxes for Wood Duck (*Aix sponsa*) were seen in the project vicinity. Other avian species directly observed within the project study area include American Crow (*Corvus brachyrhynchos*), Eastern Bluebird (*Sialia sialis*), American Robin (*Turdus migratorius*), and Northern Cardinal (*Cardinalis cardinalis*). Other common species expected to occur in the project study area include such species as Mourning Dove (*Zenaidura macroura*), Blue Jay (*Cyanocitta cristata*), Northern Mockingbird (*Mimus polyglottos*), Carolina Wren (*Thryothorus ludovicianus*), Carolina Chickadee (*Poecile carolinensis*), Pileated Woodpecker (*Dryocopus pileatus*), Downy Woodpecker (*Picoides pubescens*), Red-shouldered Hawk (*Buteo lineatus*), and Turkey Vulture (*Cathartes aura*).

Most of the terrestrial wildlife species occurring in the project study area are typically adapted to life in fragmented landscapes. Vegetated water courses (or drainageways) provide important wildlife corridors by connecting and allowing travel between habitat fragments. Keeping the bridge replacement within the existing road corridor of the stream crossing would minimize potential impacts to wildlife. A wider and higher opening under the new bridge structure would also enhance wildlife movement at this stream crossing.

3.2 Aquatic Community

Smithwick Creek provides the only aquatic habitat located within the project study area. A visual survey of the stream banks and channel associated with Smithwick Creek within the project study area was conducted to document the aquatic community. No distinct areas containing significant amounts of aquatic vegetation were observed in the channel during the field assessment.

Aquatic Wildlife

Fish sampling was not conducted in any of the surface waters within the project study area. Species expected to occur in Smithwick Creek include tadpole madtom (*Noturus gyrinus*), lined topminnow (*Fundulus lineolatus*), mud sunfish (*Acantharchus pomotis*), bluespotted sunfish (*Enneacanthus gloriosus*), banded sunfish (*Enneacanthus obesus*), warmouth (*Lepomis gulosus*), and glassy darter (*Etheostoma vitreum*).

Anadromous fish species have been documented to use this part of the river basin for spawning and as nursery areas (Personal Communication, Sara Winslow, NC Division of Marine Resources). Species found here include: shad (*Alosa sapidissima*); alewife (*Alosa*

pseudoharengus); blueback herring (*Alose aestivalis*); striped bass (*Morone saxatilis*); catfish (spp.); and yellow perch (*Perca flavescens*). The Albemarle-Pamlico National Estuary Program reports that the Roanoke Basin's rivers and streams include close to 500 miles (800 kilometers) of spawning areas for anadromous fish.

Smithwick Creek most likely provides riparian and benthic habitat for a variety of amphibians and aquatic reptiles. The field assessment was conducted in November 2002 during the wet season. Sampling for amphibians did not occur, and no amphibians were found in the course of the survey for other biotic factors. Aquatic herpetofaunal species are expected to occur in the project study area, including green frog (*Rana clamitans*), pickerel frog (*Rana palustris*), and common snapping turtle (*Chelydra serpentina*).

Although none were observed, aquatic avian species expected to utilize this portion of Smithwick Creek include Canada Goose (*Branta canadensis*), Mallard (*Anas platyrhynchos*), and Great Blue Heron (*Ardea herodias*).

No in-stream benthic macroinvertebrate surveys were conducted. No freshwater mussel middens or other indicators of benthic macroinvertebrates were noted on the stream banks. Visual observation of Smithwick Creek and its streambanks revealed no evidence of benthic macroinvertebrates. This may be due to the time of year that the work was conducted and the amount of surface water and vegetative cover present.

3.3 Summary of Anticipated Impacts

Terrestrial Communities

An in-place replacement of the existing bridge will reduce permanent impacts to plant communities and limit further community fragmentation. Impacts resulting from in-place bridge replacements are generally limited to narrow strips at or adjacent to the existing bridge structure and roadway segments. Potential impacts to plant communities within the project study area would therefore be limited to areas at the bridge and immediately adjacent to the road.

If the bridge is not replaced at the same location, greater impacts would occur to surrounding terrestrial communities. Natural communities along the roadway which may be impacted near the bridge include Cypress-Gum Swamp (Blackwater Subtype) [east side of the bridge about 100 linear feet (30 meters); west side of the bridge about 150 linear feet (45 meters)], Mesic Mixed Hardwood Forest (Coastal Plain Subtype) [east side of the bridge about 200 linear feet (60 meters); west side of the bridge about 900 linear feet (27 meters)], and about 220 linear feet (65 meters) of Loblolly Pine Plantation on the west side of the road to the north. A residence is also located northeast of the bridge. If an alternative design is developed to the west, impacts to rural residential lands will be

decreased, and impacts to Cypress-Gum Swamp and Mesic Mixed Hardwood Forest will increase. Shifting the bridge to the northeast will reduce impacts to natural communities but could impact a rural residence. Actual impacts will be limited to the designed right-of-way and permitted demolition and construction limits.

Wildlife expected to utilize the project study area are generally adapted to fragmented landscapes. Designing the new bridge on the existing alignment would limit impacts to near current levels. Shifting the bridge location slightly northeast or southwest would not extensively further fragment the habitat. If the current size opening under the bridge is maintained, access for some wildlife species will be maintained at current levels. Any design options which increase the under-bridge opening over the current size should be considered to enhance wildlife movement. Reduction of opening size will reduce access for movement by some species.

Aquatic Communities

Potential impacts to downstream aquatic habitat would be avoided by bridging Smithwick Creek to maintain normal flow and stream integrity. Support structures should be designed to avoid wetland or open water habitats whenever possible. In addition, temporary impacts to downstream habitat from increased sedimentation during demolition and construction are expected to be reduced by limiting in-stream work to an absolute minimum. Removal of the portion of the substructure in the creek bottom should be avoided if possible. If a cofferdam is used to redirect stream flow away from where demolition and construction of the bridge abutments and piers occur, the stream bottom should be restored immediately following completion of construction activities.

Waterborne sediment flowing downstream can be minimized by use of a floating silt curtain. Stockpiled material should be kept a minimum of 50 feet (15 meters) from this stream channel. Silt fences should also be erected around any stockpiled material in order to minimize the chance of erosion or run-off from affecting the stream channel. Bridge Demolition and Removal (BDR) will follow current NCDOT Guidelines. Best Management Practices (BMPs) for the protection of surface waters should be strictly enforced to reduce impacts during all construction phases.

Aquatic wildlife may be temporarily displaced during the bridge replacement project. Anadromous fish species have been documented to use this part of the river basin for spawning and as nursery areas (Personal Communication, Sara Winslow, NC Division of Marine Resources). A moratorium on in-water work should be observed from February 15 to September 30.

4.0 JURISDICTIONAL TOPICS

4.1 Waters of the United States

Wetlands

Water bodies such as rivers, lakes, and streams are subject to jurisdictional consideration under the Section 404 program of the CWA. Additionally, wetlands are also classified as "Waters of the United States" and are subject to jurisdictional consideration. Wetlands have been defined by EPA and USACE as:

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

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

Salt and brackish water wetlands are defined under The Coastal Area Management Act (CAMA) (15A NCAC 07A). Under these regulations, Martin County is not identified as one of the 20 CAMA coastal counties where coastal wetlands occur. The CAMA regulations, therefore, are not applicable to this project site.

The NWI mapping (USFWS 1982) for Smithwick Creek identifies wetlands adjacent to the creek throughout the study area. These wetlands are identified as palustrine, forested, broad-leaved deciduous, saturated (PFO1B) (Cowardin *et al.* 1979). Additionally, a pond in uplands is classified as palustrine, unconsolidated bottom, permanently flooded, excavated (PUBHx). The field assessment identified the NWI wetlands in the project study area as palustrine, forested, deciduous, permanently flooded (PFO6H), palustrine, emergent, persistent, semipermanently flooded (PEM1F), and palustrine, open water (POW) (Cowardin *et al.* 1979) (Figure 3). The transitional type between PFO6H and PEM1F is palustrine, scrub-shrub, deciduous, seasonally flooded/saturated (PSS6E). The PFO6H wetlands (Cowardin *et al.* 1979) are comprised of the Cypress-Gum Swamp (Blackwater Subtype) forest community type (Schafale and Weakley 1990) discussed previously.

The H.W. Lochner team delineated the extent of jurisdictional wetland boundaries based on current USACE methodology (DOA 1987), and the wetland/non-wetland boundaries were

subsequently located with Trimble™ Global Positioning System (GPS) units (Exhibit A). A map of delineated wetland areas, a list of GPS point coordinates, and the Wetland Field Data Forms are provided in the Appendix. The wetland areas comprise approximately 3.4 acres (1.4 hectares) of the project study area. The PFO6H wetlands total 2.5 acres (1.0 hectare), the PSS6E wetlands total 0.2 acre (0.1 hectare), the PEM1F wetlands total 0.4 acre (0.2 hectare), the POW wetlands total 0.2 acre (0.01 hectare), and the PUBHx wetlands total 0.2 acre (0.01 hectare).

Jurisdictional Streams

Smithwick Creek is classified as a palustrine system (Cowardin *et al.* 1979). Palustrine systems are identified as those non-tidal wetlands that are dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and all such tidal wetlands where the ocean-derived salinities are below 0.5 parts per thousand (ppt). This category of non-tidal wetlands also includes wetlands that: a) lack such vegetation; b) occupy less than 20 acres (8 hectares) in area; and c) lack a wave formed or bedrock boundary. These wetlands can also occupy a basin where the deepest part is less than 6 feet (2 meters) at low water, and where the ocean-derived salinities are below 0.5 parts per thousand (ppt). Slow moving creeks originating in the Coastal Plain are also referred to as blackwater creeks due to the amounts of tannins and other organics that make their waters tea colored.

Cowardin Classification

The USGS classifies Smithwick Creek as a blue-line perennial stream (USGS 1982) within this palustrine system. This creek has slow flow over substrate consisting of sand and fine sediments. The channel ranges from approximately 25 to 100 feet (7.6 to 30 meters) in width. Perennial systems in the Coastal Plain generally have slow flowing water, and are generally associated with well developed swamps and floodplains which may flood temporarily, intermittently, seasonally, semi-permanently, or permanently. The waters of Smithwick Creek are classified by NWI as palustrine, forested, broad-leaved deciduous, saturated (PFO1B) (Cowardin *et al.* 1979). The field assessment identified the waters of Smithwick Creek as palustrine, forested, deciduous, permanently flooded (PFO6H), palustrine, scrub-shrub, deciduous, seasonally flooded/saturated (PSS6E), palustrine, emergent, persistent, semipermanently flooded (PEM1F), and palustrine, open water (POW) (Cowardin *et al.* 1979).

No channelization of this creek channel was obvious at the time of assessment (November 20, 2002). Smithwick Creek has a well developed floodplain on both the northeast and southwest sides of the roadway. At this time of high seasonal precipitation and water flow, the creek was flooding the swamp forest community both upstream and downstream of the bridge.

Natural Stream Channel Classification

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

At the time of assessment in November 2002, the water in the creek was seasonally high. As a result, some of the classification criteria were estimated in order to determine the Rosgen Stream Type. The Rosgen methodology allows estimates of stream type to be made from calculations from USGS mapping and field observations and measurements when they are possible to obtain. Estimates of stream type were therefore made from measurements taken on USGS mapping of the bridge crossing site. Where possible, the stream channel was traversed to identify any significant changes in channel type both upstream and downstream of the bridge. Estimates of bankfull channel width and depth were made at selected locations to verify channel type.

Preliminary observations within the project study area indicate that at the Smithwick Creek bridge crossing site, a "C" type stream segment is found in the project study area (Rosgen 1996). "C" stream type segments have a gently sloped, relatively wide and shallow, entrenched channel with moderate to high sinuosity, and are characterized by an active well developed floodplain and a meandering channel.

Anticipated Impacts to Waters of the United States

Estimated wetland area is based upon identification of the wetland/non-wetland boundaries by field delineation described above and aerial photography interpretation; however, the total wetland acreage is based upon the GPS field and mapping data and the approximately defined project study limits shown in Figure 3. Wetlands are closest to the road near the bridge site. Temporary and permanent impacts to wetlands and surface waters may occur along both sides of the road if the bridge and roadway approaches are widened. This would require extending the fill slope further out into the adjacent PFO6H wetlands. These PFO6H wetlands are predominantly located in Cypress-Gum Swamp forest near both sides of the road. Potential risk is to approximately 200 linear feet (60 meters) of wetlands along SR 1523. This estimate is based on the amount of jurisdictional area near the proposed right-of-way.

Temporary impacts include those impacts that will result from temporary demolition and construction activities associated with staging areas and/or temporary detours. These temporary impact areas will be restored to their original condition after the project has been completed. Permanent impacts are those areas that will be in the final construction limits and/or the final right-of-way of the new structure and approaches.

No temporary crossing of Smithwick Creek during demolition and construction appears necessary. During the construction period, a detour of traffic along Canyon Road (SR 1114), Johnny Corey Road (SR 1516), and SR 1525 is recommended. An assessment of these routes may be necessary, however, to ensure that they can handle the additional traffic volumes.

4.2 Permits and Consultations

The design and construction of the proposed project will determine if any impacts to surface waters and jurisdictional wetlands will occur. If impacts occur, permits and certifications will be required from various regulatory agencies in charge of protecting the water quality of public water resources. Surface water systems and wetlands receive similar protection and consideration from the regulatory agencies. These permits are authorized under the CWA and are under separate state laws regarding significant water resources.

Section 404 Permits

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

It is anticipated that this proposed project will qualify as a CE under National Environmental Policy Act (NEPA) and Federal Highway Administration (FHWA) guidelines. Categorical Exclusions can be prepared for projects with no significant impact to the human and natural environment. If permits are required under the CWA, it is expected that the project will qualify for a Nationwide or General Permit.

Nationwide Permit (NWP) No. 23 [33 CFR 330.5(a)(23)] is issued by the USACE for projects having no significant impacts. In the event that NWP No. 23 will not suffice, minor impacts attributed to bridging and associated approach improvements are expected to qualify under a Regional General Bridge Permit designated for NCDOT bridges (Permit No. 031) issued by the Wilmington USACE District (USACOE-WD 1998).

Notification to the Wilmington USACE office is required if this general permit is to be utilized. Nationwide Permit No. 33 may be required if temporary construction including cofferdams, access, and dewatering are required for this project. The USACE will determine final permit requirements.

Water Quality Certification

This project will also require a 401 Water Quality General Certification from the DWQ prior to the issuance of a Section 404 Nationwide Permit. Section 401 of the CWA requires that the state issue or deny water quality certification for any federally permitted or licensed activity that may result in a discharge into "Waters of the United States." Section 401 Certification allows surface waters to be temporarily impacted for the duration of the construction or other land manipulation. Issuance of a 401 Certification from the DWQ is a prerequisite to the issuance of a Section 404 Permit by the USACE.

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

Riparian Buffers

Currently, North Carolina has rules in place for the protection and maintenance of vegetated riparian buffers in the Neuse, Tar-Pamlico, and part of the Catawba River Basins. These rules require wooded buffers of 50 feet (15.3 meters) along all blue-line stream channels. In order to impact these buffers, there must be a demonstrated "no practical alternative" and an *Authorization Certificate* pursuant to 15A NCAC 2B .0259. must be obtained for a proposed use that is designated as allowable with mitigation. It is also possible within the rules to obtain a variance (15A NCAC 2B .0259) or to pay into a state Riparian Buffer Restoration Fund. Smithwick Creek is a designated blue-line stream (Figure 2); however, these rules are currently not mandated for the Roanoke River Basin.

Section 9

Bridge construction or replacement over navigable waters may require United States Coast Guard Service (USCGS) authorization pursuant to 33 CFR 114-115. Specifically, federal rule 33 CFR 115.70 gives

"advanced approval to the location and plans of bridges to be constructed across reaches of waterways navigable in law, but not actually navigated other than by logs, log rafts, rowboats, canoes and small motorboats. In such cases the clearances provided for high water stages will be considered adequate to meet reasonable needs of navigation."

The open water area of Bridge No. 36 over Smithwick Creek is small in size and would be given advanced approval by the USCGS.

4.3 Mitigation

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

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

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

Avoidance – Surface waters and jurisdictional wetland areas are present within the project study area. Potential wetland and stream impacts are discussed in Section 4.1. Actual impacts to surface waters and jurisdictional wetland areas will be addressed when alternatives are developed. It may not be possible to avoid all impacts to jurisdictional areas. Impacts can be avoided to specific wetlands and streams with the use of environmentally sensitive design. Impacts to the jurisdictional surface waters can be avoided by bridging the stream channel, avoiding construction activities in the stream channels, and avoiding deposition into the stream channel during bridge demolition and construction.

If the alignment needs to change, impacts to wetlands can be avoided and minimized by shifting the road and bridge location slightly downstream to the east. However, the difference in impacts will be minimal.

Minimization – Impacts to the stream can be minimized by designing support structures to avoid wetland or open water habitats whenever possible. The jurisdictional delineation

within the project study area will be utilized to further minimize wetland and stream impacts when designing the proposed alignment within the project study area. Minimization of jurisdictional impacts can be achieved by the replacement of a bridge in-place and utilizing as much of the existing bridge corridor as possible. This should result in a minimal amount of new impact depending on the final design of the new bridge. Utilization of BMPs is recommended in an effort to minimize impacts, including avoiding placing staging areas within wetlands.

Compensatory mitigation – Impacts to surface waters and jurisdictional wetland areas are not known at this time. Impacts associated with the project could be mitigated by replanting disturbed areas with native species and removal of any temporary fill material within the floodplain upon project completion. If impacts are greater than 0.1 acre (0.04 hectare) compensatory mitigation may be required, and if impacts are greater than 0.5 acre (0.2 hectare) compensatory mitigation is mandatory.

North Carolina Riparian Buffers – Unavoidable impacts to stream buffers require mitigation on the basis of 3:1 or 1.5:1 depending on the zone in the buffer that the impact occurred. Mitigation may consist of payment of a compensatory mitigation fee into the state Riparian Buffer Restoration Fund, donation of real property, or restoration or enhancement of a non-forested riparian buffer. The North Carolina rules for the protection and maintenance of riparian buffers is not mandatory for this project since it is in the Roanoke River Basin.

Potential mitigation opportunities - A mitigation opportunity may be possible by the removal of an old road bed fill located just northeast of the existing bridge and connecting with SR 1523. This old road bed should first be assessed as a cultural resource. Also note that there is another road bed fill in the swamp forest southwest 400 feet (120 meters) of the study area limits. This second road bed fill may be related to the first, but is on another alignment.

Riparian buffers are adequate in three quadrants adjacent to the bridge. In the northeast quadrant there is limited buffer area present as the resident here has cleared their yard to the wetland boundary.

4.4 Protected Species

Species with the federal classification of Endangered (E) or Threatened (T), or Officially Proposed (P) for such listing, are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). One federally protected species is listed for Martin County (current USFWS list dated January 2003) (Table 2). This species has not been reported by the North Carolina Natural Heritage Program (Appendix) to occur or have occurred in the area of the Williamston, N.C., 7.5-minute USGS Quad Sheet. No other protected species were identified which may occur in the project area.

Table 2. Federally Protected Species Listed for Martin County, NC.

Common Name	Scientific Name	Federal Status	Biological Conclusion
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	Unresolved

T- Threatened

Bald Eagle (*Haliaeetus leucocephalus*)

Bald Eagle is a large raptor with a wingspan greater than 6 feet (2 meters). Adult Bald Eagle are dark brown with white head and tail. Immature eagles are brown with whitish mottling on their tail, belly, and wing linings. Bald Eagle typically feed on fish but may also take birds and small mammals. In the Carolinas, nesting season extends from December through May (Potter *et al.* 1980). Birds are thought to mate for life and return to the same nesting site each year.

Bald Eagle usually nest in tall, living trees in a conspicuous location near water, and forage over large bodies of water with adjacent trees available for perching. They usually roost within 0.5 mile (0.8 kilometer) of open water. Preventing disturbance activities within a primary zone extending 750 to 1,500 feet (229 to 457 meters) outward from a nest tree is considered critical for maintaining acceptable conditions for eagles (USFWS 2001). U.S. Fish and Wildlife Service recommends avoiding any disturbance activities, including construction and tree-cutting, within this primary zone. Within a secondary zone extending from the primary zone boundary out a distance of up to 1 mile (1.6 kilometers), construction and land-clearing activities should be restricted to the non-nesting period (June through November). U.S. Fish and Wildlife Service also recommends avoiding alteration of natural shorelines where Bald Eagle forage, and avoiding significant land-clearing activities within the 1,500 feet (457 meters) primary zone of roosting sites.

Bald Eagle is currently listed as threatened, but has been proposed for de-listing due the resurgence of the species.

BIOLOGICAL CONCLUSION: Unresolved.

Although no known occurrence of Bald Eagle has been reported by the NHP to be near the bridge site, as represented by the Williamston, NC, USGS (1982) 7.5-minute Quad Sheet, open water and potential roosting habitat may be present west of the study area. The Cypress-Gum Swamp forest present may contain adequate areas of open water and large roosting trees. The wet season precipitation resulting in the high water may, however, be giving a false impression of the area of open water and therefore the potential suitability of this habitat. Roosting season water levels and dry season areas of open water also need to be considered. Alternative

areas, such as the Roanoke River (6.5 miles [10 kilometers] distant), shown on USGS (1982) mapping, may be more attractive as roosting and foraging habitats, but no Bald Eagle are reported at any other nearby location.

If Bald Eagle is still listed at the time of demolition and construction, the areas around the flooded Cypress-Gum Swamp forest west of and within 1.0 mile (1.6 kilometers) of the bridge site could be inspected for sign of Bald Eagle. This inspection should occur in the spring prior to demolition and construction to determine if Bald Eagle have moved into the area and are roosting within using this area. Alternatively, work could be specified to take place during the non-nesting period (June through November).

Analysis Details -

Methodology: analysis of the possible presence of and impacts to Bald Eagle was conducted as an evaluation of existing information at the Natural Heritage Program and analysis by the primary investigators of the habitat requirements and occurrence of Bald Eagle in North Carolina.

Qualifications: this analysis was conducted by Dr. Ken Roeder and Susan Smith whose credentials are listed in Section 1.5 of this report.

Federal Species of Concern

The January 2003 USFWS list also includes a category of species designated as "Federal Species of Concern" (FSC). The FSC designation provides no federal protection under the ESA for the species listed. However, these are listed since they may attain federally protected status in the future. Federal Species of Concern listed for Martin County include five species (Table 3). Of these FSC, only Chowanoke crayfish and Argo ephemereylan mayfly are reported by NHP (records review November 2002) on the Williamston, N.C., USGS (1982) 7.5-minute Quad Sheet, where this bridge replacement project is located. The NHP records for the Chowanoke crayfish is historic, indicating that the report is older than 20 years (Appendix). The reported location of the Chowanoke crayfish is on Ready Branch (SIN 23-50-1), also a tributary of Sweetwater Creek (SIN 23-50), just downstream of Smithwick Creek (SIN 23-50-2). The report for the Argo ephemereylan mayfly is current (within the past 20 years), but no location on the Quad Sheet has been mapped by NHP. Based on current information, no impacts on FSC are expected.

4.5 State Protected Species

Species of mammals, birds, reptiles, amphibians, and plants with the North Carolina status of Endangered (E), Threatened (T), and Special Concern (SC) receive limited protection under the North Carolina ESA (G.S. 113-331 *et seq.*) and the North Carolina Plant Protection Act of 1979 (G.S. 106-202.12 *et seq.*). A review of the NHP records indicates

that no state listed species have been documented within 3.0 miles (4.8 kilometers) of the project study area. Therefore, this project will not affect any known occurrences of state listed species.

Table 3. Federal Species of Concern (FSC) Listed for Martin County, NC.

Common Name	Scientific Name	State Status	Potential Habitat
Rafinesque’s Big-eared Bat	<i>Corynorhinus rafinesquii</i>	T	Yes
Southeastern Bat	<i>Myotis austroriparius</i>	SC	Yes
Henslow’s Sparrow	<i>Ammodramus henslowii</i>	SR	No
Chowanoke Crayfish	<i>Orconectes virginianus</i>	SC	Yes
Argo Ephemerellid Mayfly	<i>Ephemerella argo</i>	SR	No

T- Threatened, SR- Significantly Rare, SC- Special Concern.

5.0 REFERENCES

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APPENDIX

Exhibit A. GPS Located "Waters of the United States" and Jurisdictional Wetlands
GPS Located Wetland Points
USACE and DWQ Wetland and Stream Data Forms
Natural Heritage Program Endangered Species List



LOCHNER
H.W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

**REPLACEMENT OF BRIDGE NO. 36 ON
SR 1523 OVER SMITHWICK CREEK**
STATE PROJECT NO. 8.2090501
T.I.P. NO. B-4188



GPS LOCATED WETLANDS

GPS LOCATED STREAM

B-4188 GPS Located Wetland Points

POINT NAME	LONGITUDE	LATITUDE
b-4188 a1	77°03'06.52"	35°45'57.28"
b-4188 a2	77°03'07.18"	35°45'57.78"
b-4188 a3	77°03'07.91"	35°45'57.85"
b-4188 a4	77°03'08.61"	35°45'57.76"
b-4188 a5	77°03'08.94"	35°45'57.35"
b-4188 a6	77°03'08.46"	35°45'56.97"
b-4188 a7	77°03'08.21"	35°45'56.47"
b-4188 a8	77°03'08.43"	35°45'56.36"
b-4188 a9	77°03'08.46"	35°45'56.00"
b-4188 a10	77°03'09.19"	35°45'55.76"
b-4188 a11	77°03'09.61"	35°45'55.54"
b-4188 a3-1	7°03'08.65"	35°45'58.63"
b-4188 a3-2 a4-2	77°03'09.02"	35°45'58.78"
b-4188 a4-1	77°03'08.77"	35°45'58.59"
b-4188 b1	77°03'05.97"	35°46'00.61"
b-4188 b2	77°03'05.98"	35°46'00.18"
b-4188 b3	77°03'06.17"	35°45'59.57"
b-4188 b4	77°03'06.67"	35°45'59.17"
b-4188 b5	77°03'06.95"	35°45'58.43"
b-4188 b6	77°03'06.59"	35°45'58.07"
b-4188 b7	77°03'06.40"	35°45'59.01"
b-4188 b8	77°03'06.24"	35°45'59.14"
b-4188 b9	77°03'06.16"	35°45'58.75"
b-4188 b10	77°03'06.09"	35°45'57.66"
b-4188 c1	77°03'05.80"	35°45'57.36"
b-4188 c2	77°03'05.31"	35°45'57.50"
b-4188 c3	77°03'04.95"	35°45'57.81"
b-4188 c4	77°03'04.20"	35°45'58.11"
b-4188 c5	77°03'03.85"	35°45'58.13"
b-4188 c6	77°03'03.70"	35°45'58.94"
b-4188 c7	77°03'03.60"	35°45'59.71"
b-4188 d1	77°03'06.11"	35°45'56.84"
b-4188 d2	77°03'05.85"	35°45'56.47"
b-4188 d3	77°03'05.64"	35°45'55.81"
b-4188 d4	77°03'04.69"	35°45'55.49"
b-4188 d5	77°03'04.50"	35°45'54.71"
b-4188 d6	77°03'04.74"	35°45'54.26"
b-4188 d7	77°03'04.62"	35°45'53.76"
b-4188 d8	77°03'03.93"	35°45'54.14"
b-4188 d9	77°03'03.50"	35°45'53.64"
b-4188 d10	77°03'03.57"	35°45'53.42"
b-4188 d11	77°03'02.78"	35°45'52.93"
b-4188 d12	77°03'02.54"	35°45'52.99"
b-4188 d13	77°03'02.01"	35°45'52.30"
b-4188 d14	77°03'01.68"	35°45'51.60"
b-4188 d15	77°03'01.32"	35°45'51.13"
b-4188 d16	77°03'01.04"	35°45'50.85"

b-4188 d17	77°03'00.98"	35°45'50.59"
b-4188 d18	77°03'02.08"	35°45'50.47"
b-4188 d19	77°03'02.28"	35°45'50.49"
b-4188 d20	77°03'02.63"	35°45'50.99"
b-4188 d21	77°03'03.01"	35°45'51.45"
b-4188 d22	77°03'03.51"	35°45'51.91"
b-4188 d23	77°03'03.78"	35°45'52.44"
b-4188 d24	77°03'04.33"	35°45'52.62"
b-4188 d25	77°03'04.71"	35°45'52.92"
b-4188 d26	77°03'05.25"	35°45'52.99"
b-4188 d27	77°03'05.59"	35°45'53.04"
b-4188 d28	77°03'05.97"	35°45'52.91"
b-4188 nw bank 60ft to ne bank	77°03'06.16"	35°45'58.65"
b-4188 nw bank 50ft to ne bank	77°03'06.20"	35°45'57.66"
b-4188 ne bank 50ft to nw bank	77°03'05.87"	35°45'57.38"
b-4188 sw bank 50ft to se bank	77°03'06.46"	35°45'57.24"
b-4188 se bank 50ft to sw bank	77°03'06.02"	35°45'57.03"

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE WETLAND DELINEATION MANUAL)

PROJECT:	B-4188	DATE:	20 November 2002
APPLICANT:	NCDOT	COUNTY:	Martin
INVESTIGATOR:	E. Fentress, K. Roeder	QUAD MAP:	Williamston, NC
Do normal circumstances exist on this site?		Yes	Community ID: UPL
Is the site significantly disturbed (Atypical Situation)?		No	Transect ID:
Is this area a Potential Problem Area? (if needed, explain on reverse)		No	Plot ID: B-4188 UPL

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	<i>Platanus occidentalis</i>	C	FACW-				
2.	<i>Liquidambar styraciflua</i>	C	FAC+				
3.	<i>Pinus taeda</i>	C	FAC				
4.	<i>Ilex opaca</i>	C	FAC-				
5.							
6.				13.			
7.				14.			

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

Remarks:

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> Inches</p> <p>Depth to Free Water in Pit: <u>>24</u> Inches</p> <p>Depth to Saturated Soil: <u>>24</u> Inches</p>	<p>Wetlands Hydrology Indicators:</p> <p style="text-align: center;"><i>Primary Indicators</i></p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p style="text-align: center;"><i>Secondary Indicators (2 or more required)</i></p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 in.</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> Fac-Neutral Test</p> <p><input type="checkbox"/> Other (Explain)</p>
Remarks:	

SOILS

B- 4188 UPL

Map Unit Name: (Series and Phase)		Bonneau loamy sand	Drainage Class:		Well drained
Taxonomy (Subgroup):		Arenic Paleudults	Field Observations Confirmed Mapped Type?		Yes
<i>Profile Description:</i>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture/Concretions
0-6	A	10YR 2/2	None	None	Loamy sand
6-18	B	10YR 6/1	None	None	Loamy sand
<i>Hydric Soil Indicators:</i>					
_____ Histosol		_____ Concretions		_____ High Organic Content in Surface Layer in Sandy Soil	
_____ Histic Epipedon		_____ Sulfidic Odor		_____ Organic Streaking in Sandy Soil	
_____ Aquic Moisture Regime		_____ Reducing Conditions		_____ Listed on Local Hydric Soils List	
_____ Gleyed or Low-Chroma Colors		_____ Other (Explain in Remarks)		_____ Listed on National Hydric Soils List	
Remarks: 20% slope					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	Is this Sampling Point within a Wetland?	No
Wetland Hydrology Present?	No		
Hydric Soils Present?	No		
Remarks:			

**DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE WETLAND DELINEATION MANUAL)**

PROJECT:	B-4188	DATE:	20 November 2002
APPLICANT:	NCDOT	COUNTY:	Martin
INVESTIGATOR:	E. Fentress, K. Roeder	QUAD MAP:	Williamston, NC
Do normal circumstances exist on this site?		Yes	Community ID: PFO
Is the site significantly disturbed (Atypical Situation)?		No	Transect ID:
Is this area a Potential Problem Area? (if needed, explain on reverse)		No	Plot ID: B-4188 C

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	<i>Taxodium distichum</i>	C	OBL	8.			
2.	<i>Liquidambar styraciflua</i>	C	FAC+	9.			
3.	<i>Acer rubrum</i>	U	FACW-	10.			
4.	<i>Woodwardia aerolata</i>	H	OBL	11.			
5.				12.			
6.				13.			
7.				14.			

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

Remarks:

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <p>Field Observations:</p> <p>Depth of Surface Water: <u>8-10</u> Inches</p> <p>Depth to Free Water in Pit: <u>12</u> Inches</p> <p>Depth to Saturated Soil: <u>12</u> Inches</p> <p>Remarks:</p>	<p>Wetlands Hydrology Indicators:</p> <p style="text-align: center;"><i>Primary Indicators</i></p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p style="text-align: center;"><i>Secondary Indicators (2 or more required)</i></p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 in.</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> Fac-Neutral Test</p> <p><input checked="" type="checkbox"/> Other (Explain) Cypress knees, buttressing</p>
--	---

SOILS

B-4182 C

Map Unit Name: (Series and Phase)	Bibb loam	Drainage Class:	Poorly drained
Taxonomy (Subgroup):	Typic Fluvaquents	Field Observations Confirmed Mapped Type?	Yes

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture/Concretions
0-8	A	10YR 2/1	None	None	Sandy clay loam
8+	B	10YR 2/2	None	None	Sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soil
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soil
<input type="checkbox"/> Aquic Moisture Regime	<input checked="" type="checkbox"/>	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Expain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	Is this Sampling Point within a Wetland?	Yes
Wetland Hydrology Present?	Yes		
Hydric Soils Present?	Yes		

Remarks:

WETLAND RATING WORKSHEET (4th Version)

Project Name: B-4188
 County: Martin
 Nearest Road: SR 1523
 Evaluation Team: E.Fentress, K. Roeder

Wetland Site Number: Wetland B-4188C
 Wetland Area (acres): 0.5
 Wetland Width (feet): 117'
 Date: 20 November 02

Wetland Location

on pond or lake
 on perennial stream
 on intermittent stream
 within interstream divide
 other _____

Adjacent Land Use:

(within 1/2 mile upstream, upslope, or radius)
 forested/natural vegetation 75 %
 agriculture, urban/suburban 20 %
 impervious surface 5 %

Soil Series: Bibb
 predominantly organic (humus, muck, peat)
 predominantly mineral (non-sandy)
 predominantly sandy

Dominant Vegetation

(1) Taxodium distichum
 (2) Liquidambar styraciflua
 (3) Woodwardia areolata

Hydraulic Factors

steep topography
 ditched or channelized
117' total riparian wetland width

Flooding and Wetness

semi to permanently flooded or inundated
 seasonally flooded/inundated
 intermittently flooded or temporary surface water
 no evidence of flooding or surface water

Wetland Type (select one)*

<input type="checkbox"/> Bottomland Hardwood Forest	<input type="checkbox"/> Headwater Forest
<input checked="" type="checkbox"/> Swamp Forest	<input type="checkbox"/> Wet Flat
<input type="checkbox"/> Pocosin	<input type="checkbox"/> Pine Savannah
<input type="checkbox"/> Freshwater Marsh	<input type="checkbox"/> Estuarine fringe forest
<input type="checkbox"/> Ephemeral Wetland	<input type="checkbox"/> Carolina Bay
<input type="checkbox"/> Bog forest	<input type="checkbox"/> Bog/fen
<input type="checkbox"/> Seep	<input type="checkbox"/> Other _____

*The rating system cannot be applied to salt or brackish marshes or stream channels.

DEM RATING

Water Storage	<u>4</u>	X 4.00 =	<u>16</u>
Bank/Shoreline Stability	<u>3</u>	X 4.00 =	<u>12</u>
Pollution Removal	<u>5</u> *	X 5.00 =	<u>25</u>
Wildlife Habitat	<u>4</u>	X 2.00 =	<u>8</u>
Aquatic Life Value	<u>3</u>	X 4.00 =	<u>12</u>
Recreation/ Education	<u>2</u>	X 1.00 =	<u>2</u>

Wetland Score = 75

* Add 1 point if in sensitive watershed and > 10% nonpoint disturbance within 1/2 mile upstream, upslope, or radius

NCDWQ Stream Classification Form

Project Name: Bridge Replacement River Basin: Roanoke County: Martin Evaluator: E. Fentress, K. Roeder

DWQ Project Number: B- 4188 Nearest Named Stream: Smithwick Creek Latitude: 35° 45' 58" Signature:

Date: 20 Nov. 2002 USGS QUAD: Williamston Longitude: 77° 3' 16" Location/Directions:

PLEASE NOTE: If evaluator and landowner agree that the feature is a man-made ditch, then use of this form is not necessary. Also, if in the best professional judgement of the evaluator, the feature is a man-made ditch and not a modified natural stream—this rating system should not be used

Primary Field Indicators: (Circle One Number Per Line)

I. Geomorphology	Absent	Weak	Moderate	Strong
1) Is There A Riffle-Pool Sequence?	0	1	(2)	3
2) Is The USDA Texture In Streambed Different From Surrounding Terrain?	(0)	1	2	3
3) Are Natural Levees Present?	(0)	1	2	3
4) Is The Channel Sinuous?	0	1	(2)	3
5) Is There An Active (Or Relic) Floodplain Present?	0	1	2	(3)
6) Is The Channel Braided?	0	1	(2)	3
7) Are Recent Alluvial Deposits Present?	(0)	1	2	3
8) Is There A Bankfull Bench Present?	0	(1)	2	3
9) Is A Continuous Bed & Bank Present?	0	(1)	2	3
<i>(*NOTE: If Bed & Bank Caused By Ditching And WITHOUT Sinuosity Then Score=0*)</i>				
10) Is A 2 nd Order Or Greater Channel (As Indicated On Topo Map And/Or In Field) Present?	Yes=(3)		No=0	

PRIMARY GEOMORPHOLOGY INDICATOR POINTS: 14

II. Hydrology	Absent	Weak	Moderate	Strong
1) Is There A Groundwater Flow/Discharge Present?	0	1	2	(3)

PRIMARY HYDROLOGY INDICATOR POINTS: 3

III. Biology	Absent	Weak	Moderate	Strong
1) Are Fibrous Roots Present In Streambed?	(3)	2	1	0
2) Are Rooted Plants Present In Streambed?	(3)	2	1	0
3) Is Periphyton Present?	(0)	1	2	3
4) Are Bivalves Present?	(0)	1	2	3

PRIMARY BIOLOGY INDICATOR POINTS: 6

Secondary Field Indicators: (Circle One Number Per Line)

I. Geomorphology	Absent	Weak	Moderate	Strong
1) Is There A Head Cut Present In Channel?	(0)	.5	1	1.5
2) Is There A Grade Control Point In Channel?	(0)	.5	1	1.5
3) Does Topography Indicate A Natural Drainage Way?	0	.5	1	(1.5)

SECONDARY GEOMORPHOLOGY INDICATOR POINTS: 1.5

II. Hydrology	Absent	Weak	Moderate	Strong
1) Is This Year's (Or Last's) Leaf litter Present In Streambed?	1.5	(1)	.5	0
2) Is Sediment On Plants (Or Debris) Present?	(0)	.5	1	1.5
3) Are Wrack Lines Present?	0	.5	(1)	1.5
4) Is Water In Channel And >48 Hrs. Since Last Known Rain? (*NOTE: If Ditch Indicated In #9 Above Skip This Step And #5 Below*)	0	.5	1	(1.5)
5) Is There Water In Channel During Dry Conditions Or In Growing Season?	0	.5	1	(.5)

6) Are Hydric Soils Present In Sides Of Channel (Or In Headcut)? Yes=(1.5) No=0

SECONDARY HYDROLOGY INDICATOR POINTS: 6.5

III. Biology	Absent	Weak	Moderate	Strong
1) Are Fish Present?	0	(.5)	1	1.5
2) Are Amphibians Present?	(0)	.5	1	1.5
3) Are Aquatic Turtles Present?	(0)	.5	1	1.5
4) Are Crayfish Present?	0	(.5)	1	1.5
5) Are Macroinvertebrates Present?	(0)	.5	1	1.5
6) Are Iron Oxidizing Bacteria/Fungus Present?	(0)	.5	1	1.5
7) Is Filamentous Algae Present?	(0)	.5	1	1.5

8) Are Wetland Plants In Streambed? SAV Mostly OBL Mostly FACW Mostly FAC Mostly FACU Mostly UPL
 (* NOTE: If Total Absence Of All Plants In Streambed As Noted Above Skip This Step UNLESS SAV Present*)
 2 1 .75 .5 0 0

SECONDARY BIOLOGY INDICATOR POINTS: 1

TOTAL POINTS (Primary + Secondary) = 32 (If Greater Than Or Equal To 19 Points The Stream Is At Least Intermittent)



INTERMITTENT CHANNEL EVALUATION FORM

ACTION ID B-4188 APPLICANT NAME NCDOT DATE 20 Nov. 2002

PROPOSED CHANNEL WORK (i.e., culvert, relocation, etc.) Bridge Replacement

WATERBODY/RIVER BASIN Smithwick Creek COUNTY/CITY Martin County

RECENT WEATHER CONDITIONS Sunny, cool, rain 3 days prior

P	SP	NP	Observation	Comments or Description
<input checked="" type="checkbox"/>			Fish/Shellfish/Crustaceans Present	
		<input checked="" type="checkbox"/>	Benthic Macro Invertbrates	
		<input checked="" type="checkbox"/>	Amphibians Present/Breeding	
		<input checked="" type="checkbox"/>	Algae And/Or Fungus (water quality function)	
<input checked="" type="checkbox"/>			Wildlife Channel Use (i.e. tracks, feces, shells, others)	<u>Waterfowl, wood duck boxes</u>
		<input checked="" type="checkbox"/>	Federally Protected Species Present (Discontinue)	
<input checked="" type="checkbox"/>			Riffle/Pool Structure	
<input checked="" type="checkbox"/>			Stable Streambanks	
		<input checked="" type="checkbox"/>	Channel Substrate (i.e. gravel, cobble, rock, coarse sand)	
	<input checked="" type="checkbox"/>		Riparian Canopy Present (SP => 50% closure)	
<input checked="" type="checkbox"/>			Undercut Banks/Instream Habitat Structure	
	<input checked="" type="checkbox"/>		Flow In Channel	
	<input checked="" type="checkbox"/>		Wetlands Adjacent To/Contig. With Channel (Discontinue)	
	<input checked="" type="checkbox"/>		Persistent Pools/Saturated Bottom (June thru Sept.)	
	<input checked="" type="checkbox"/>		Seeps/Groundwater Discharge (June thru Sept.)	
	<input checked="" type="checkbox"/>		Adjacent Floodplain Present	
<input checked="" type="checkbox"/>			Wrack Material or Drift Lines	
	<input checked="" type="checkbox"/>		Hydrophytic Vegetation in/adjacent to channel	

Important To Domestic Water Supply? Y N

Does Channel Appear On A Quad Or Soils Map? Y / N

Approx. Drainage Area: _____

Determination:

- | | | |
|--|--|------------------------------------|
| <input checked="" type="checkbox"/> Perennial Channel (stop)
<input type="checkbox"/> Intermittent Channel (proceed)
<input type="checkbox"/> Ephemeral Channel (no jd)
<input type="checkbox"/> Ditch Through Upland (no jd) | <input checked="" type="checkbox"/> Important Channel: _____ LF
<input type="checkbox"/> Unimportant Channel: _____ LF
(attach map indicating location of important/unimportant channel) | PROJECT MGR. Initials _____ |
|--|--|------------------------------------|

Evaluator's Signature: _____
(if other than C.O.E. project manager)

Search Criteria: Martin, Listed
Search Results: 8 records found.

Major Group	Scientific Name	Common Name			State Status	Federal Status	State Rank	Global Rank	County Status
Mammal	<i>Corynorhinus rafinesquii</i>	Rafinesque's Big-eared Bat	T	FSC	S3	G3G4	Current - <u>HABITAT</u>	Martin	- <u>MAP</u> -
Mammal	<i>Myotis austroriparius</i>	Southeastern Bat	SC	FSC	S2?	G3G4	Current - <u>HABITAT</u>	Martin	- <u>MAP</u> -
Bird	<i>Ammodramus henslowii</i>	Henslow's Sparrow	SR	FSC	S2B,S1N	G4	Current - <u>HABITAT</u>	Martin	- <u>MAP</u> -
Bird	<i>Haliaeetus leucocephalus</i>	Bald Eagle	T	T	S3B,S3N	G4	Historic - <u>HABITAT</u>	Martin	- <u>MAP</u> -
Mollusk	<i>Leptodea ochracea</i>	Tidewater Mucket	T	-	S1	G4	Current - <u>HABITAT</u>	Martin	- <u>MAP</u> -
Crustacean	<i>Orconectes virginianus</i>	Chowanoke Crayfish	SC	FSC	S3	G3	Historic - <u>HABITAT</u>	Martin	- <u>MAP</u> -
Insect	<i>Ephemerella argo</i>	Argo Ephemerellan Mayfly	SR	FSC	S1	G4	Current - <u>HABITAT</u>	Martin	- <u>MAP</u> -
Vascular Plant	<i>Schisandra glabra</i>	Magnolia Vine	T-SC	-	S1	G3	Current - <u>HABITAT</u>	Martin	- <u>MAP</u> -

NC NHP database updated: January, 2003. Search performed on Thursday, February 6, 2003 at 8:05:28 Eastern Standard Time.

Total number of searches since 01/01/03: 402

Explanation of Codes

Do NOT bookmark this search results page, instead bookmark: www.ncsparks.net/nhp/county.html

Search Criteria: =Williamston

Quads: 8

Major Group	Scientific Name (Habitat link)	Common Name	State Status	Federal Status	State Rank	Global Rank	Quad Status
Crustacean	Orconectes virginienensis	Chowanoke Crayfish	SC	FSC	S3	G3	Historic - WILLIAMSTON
Insect	Ephemereella argo	Argo Ephemerellan Mayfly	SR	FSC	S1	G4	Current - WILLIAMSTON
Vascular Plant	Carex crus-corvi	Crowfoot Sedge	SR-P	-	S1	G5	Historic - WILLIAMSTON
Vascular Plant	Hottonia inflata	Water Violet	SR-O	-	S2	G4	Historic - WILLIAMSTON
Natural Community	Coastal Plain Levee Forest (Brownwater Subtype)	-	-	-	S4	G5T5	Current - WILLIAMSTON
Natural Community	Cypress--Gum Swamp (Blackwater Subtype)	-	-	-	S5	G5T5	Current - WILLIAMSTON
Natural Community	Cypress--Gum Swamp (Brownwater Subtype)	-	-	-	S5	G5T5	Current - WILLIAMSTON
Natural Community	Mesic Mixed Hardwood Forest (Coastal Plain Subtype)	-	-	-	S4	G5T5	Current - WILLIAMSTON

NC NHP database updated: January 2003. Search performed on Thursday, February 6, 2003 at 7:47:52 Eastern Standard Time.

Total number of searches since 01/01/03: 248

Explanation of Codes

Do NOT bookmark this search results page, instead bookmark: www.ncsparks.net/nhp/quad.html

Project Narrative for Hydraulic Design and Storm Water Management

Martin County
Bridge No. 36 on SR 1523 over Smithwick Creek
F.A. Project No. BRZ-1523(5)
State Project 33535.1.1
T.I.P. No. B-4188

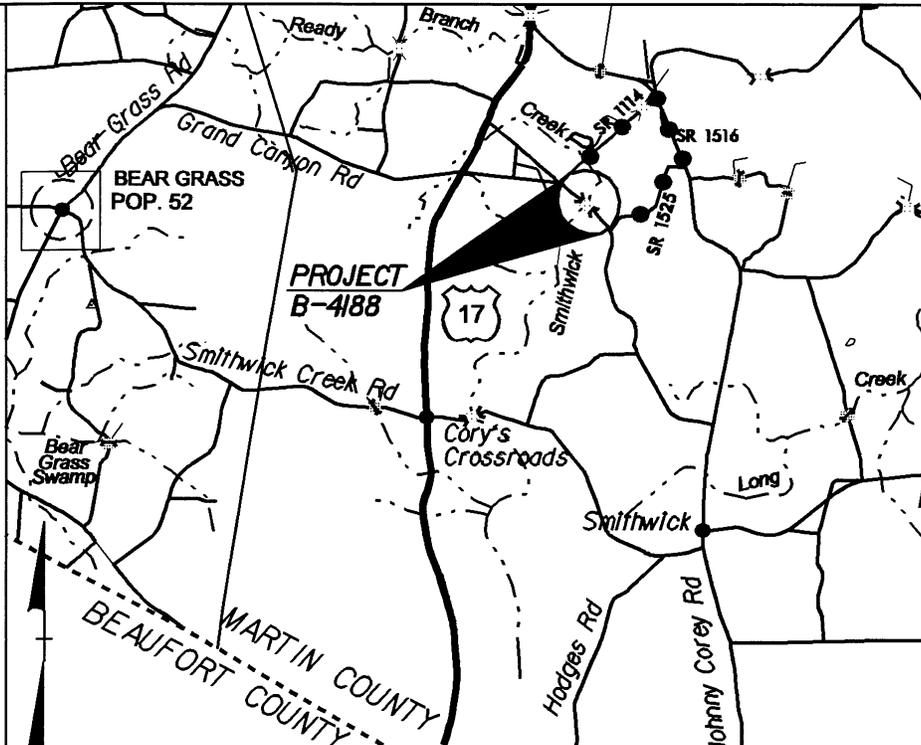
Hydraulic Design

The existing structure is a single span bridge consisting of steel girders with a timber floor and vertical timber abutments. The proposed bridge will be a 90' single span concrete box beam bridge with sloping spill-through abutments. The roadway grade will be raised approximately 2.5' in the vicinity of the bridge to improve the vertical alignment of the roadway.

Storm Water Management

Existing drainage patterns have been maintained with the project design. Roadway drainage is accomplished by sheet flow from the pavement and across grassed shoulders. Existing roadside ditches have been retained or replaced when the roadway footprint fills in the existing ditch. The exception is along the northwest quadrant, where a small drainage system was added to convey water along the toe of slope until it outlets in a roadside ditch that dissipates before entering a small wetland. This system was added for safety concerns (the existing ditch was very deep) and to reduce the project footprint. Drainage from the bridge deck will not be allowed to discharge directly into the creek. Drainage from the end of the bridge is conveyed on either side of the road by short gutter sections. Separate drainage structures then outlet water away from the creek.

NORTH CAROLINA



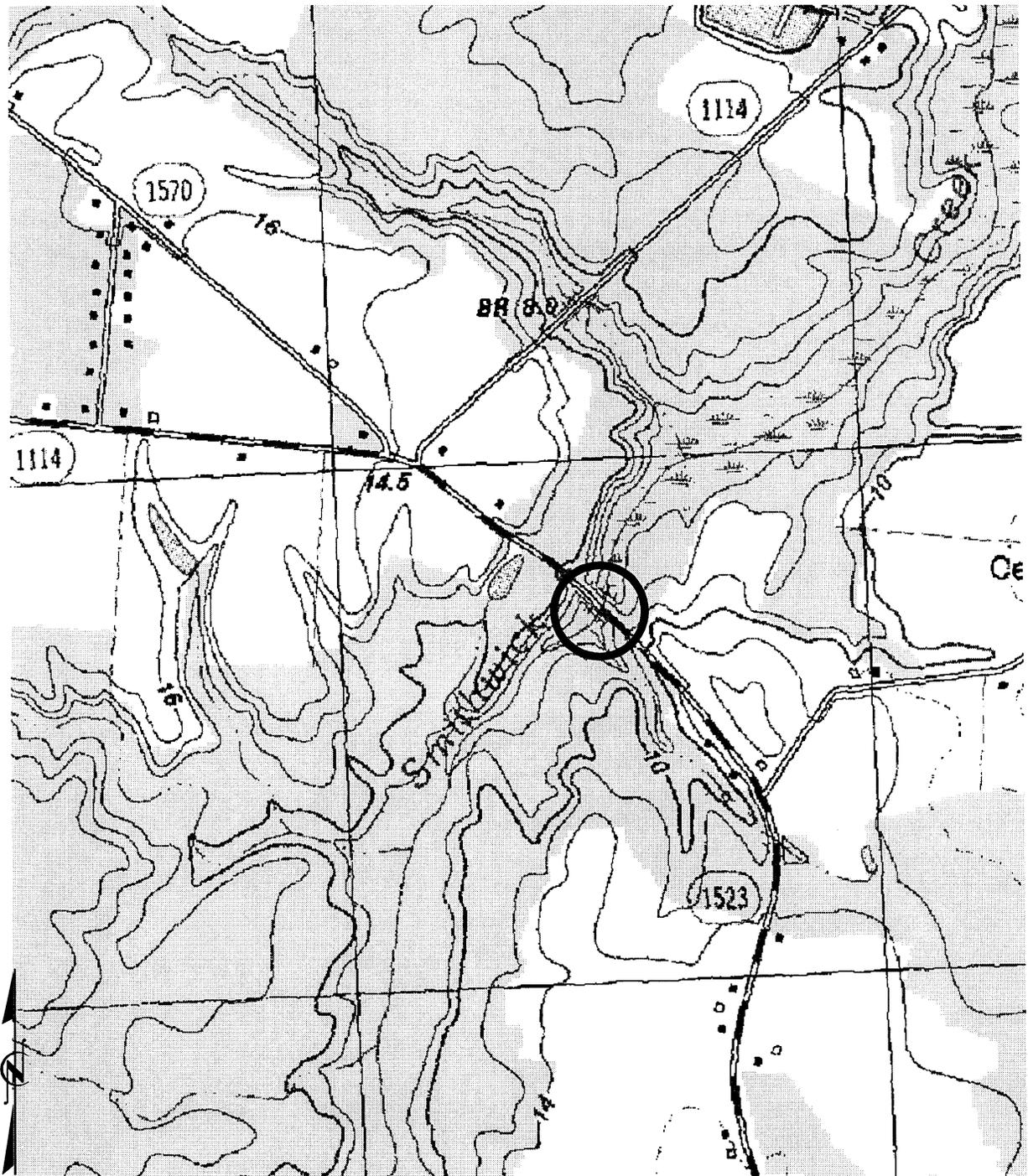
VICINITY
MAPS

NCDOT
DIVISION OF HIGHWAYS
MARTIN COUNTY
PROJECT: 33535.1.1 (B-4188)
BRIDGE #36 OVER SMITHWICK CREEK
ON SR1523

SHEET

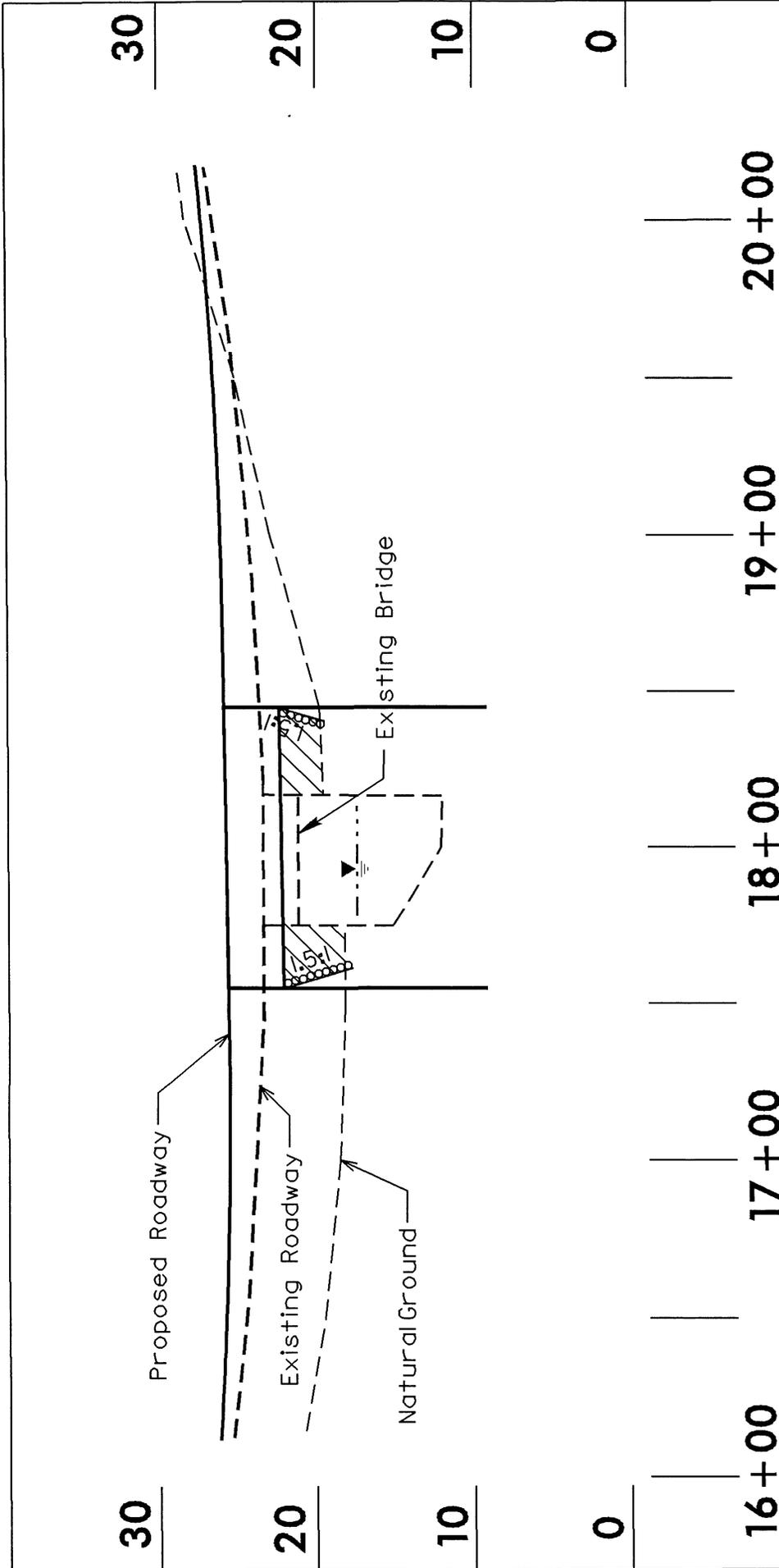
OF

05 / 20 / 05



SITE
MAP

NCDOT
DIVISION OF HIGHWAYS
MARTIN COUNTY
PROJECT: 33535.1.1 (B-4188)
BRIDGE #36 OVER SMITHWICK CREEK
ON SR1523



PROFILE

STA. = 18+00.0

90' SINGLE SPAN BOX BEAM BRIDGE

SKEW = 75°

NCDOT

DIVISION OF HIGHWAYS
MARTIN COUNTY
PROJECT: 33535.1.1 (B-4188)
BRIDGE NO.36 ON SR 1523
OVER SMITHWICK CREEK

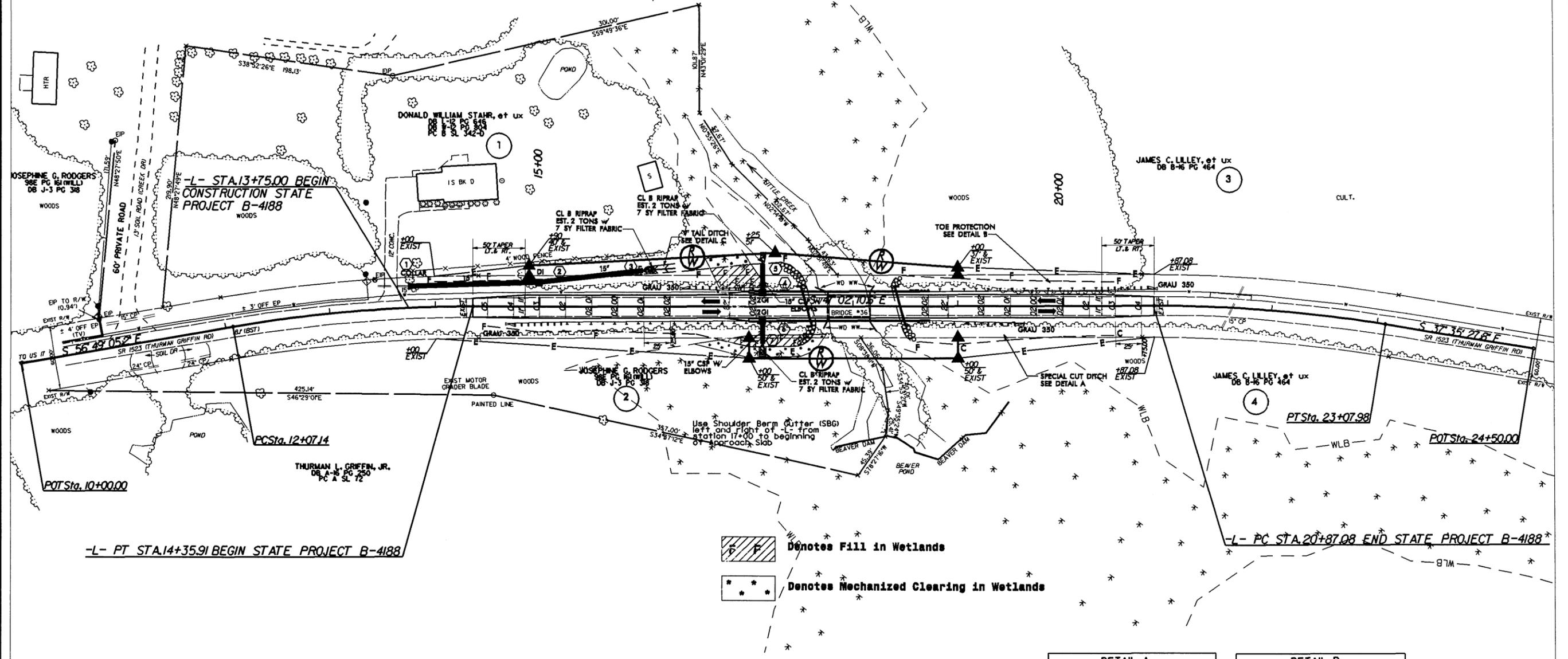
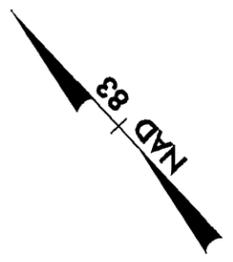
PROPERTY OWNERS
NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
①	Mildred Stahr	2011 Thurman Griffin Road Williamston NC 27892
②	Josephine Rodgers	1905 Thurman Griffin Road Williamston NC 27892
③,④	James C. Lilley	2288 Thurman Griffin RD Williamston NC 27892
	Thurman L. Griffin, Jr.	1731 Thurman Griffin Road Williamston NC 27892

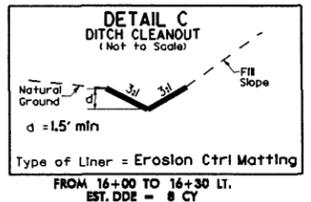
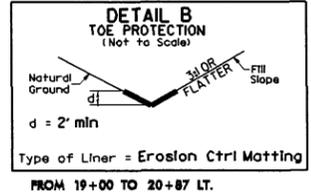
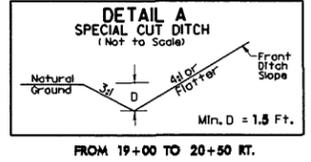
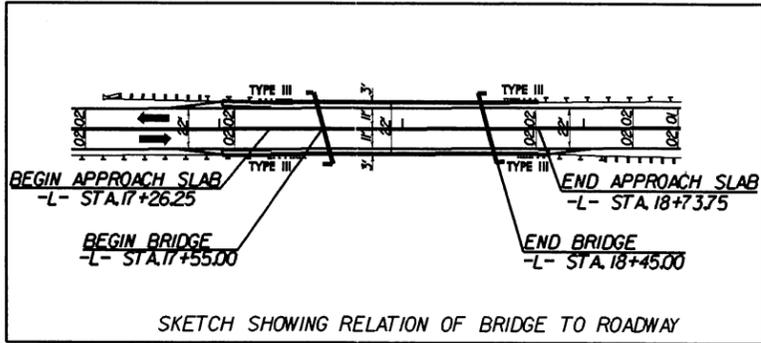
NCDOT
DIVISION OF HIGHWAYS
MARTIN COUNTY
PROJECT: 33535.1.1 (B-4188)
BRIDGE #36 OVER SMITHWICK CREEK
ON SR1523

NOTE: PLEASE SEE SHEET 5 FOR PROFILE

-L-	
PI Sta 13+21.81	PI Sta 21+97.78
$\Delta = 9' 46'' 54.5''$ (RT)	$\Delta = 9' 26'' 42.8''$ (RT)
D = 4' 16'' 32.9'	D = 4' 16'' 32.9'
L = 228.77'	L = 220.90'
T = 114.66'	T = 110.70'
R = 1,340.00'	R = 1,340.00'



F Denotes Fill in Wetlands
***** Denotes Mechanized Clearing in Wetlands

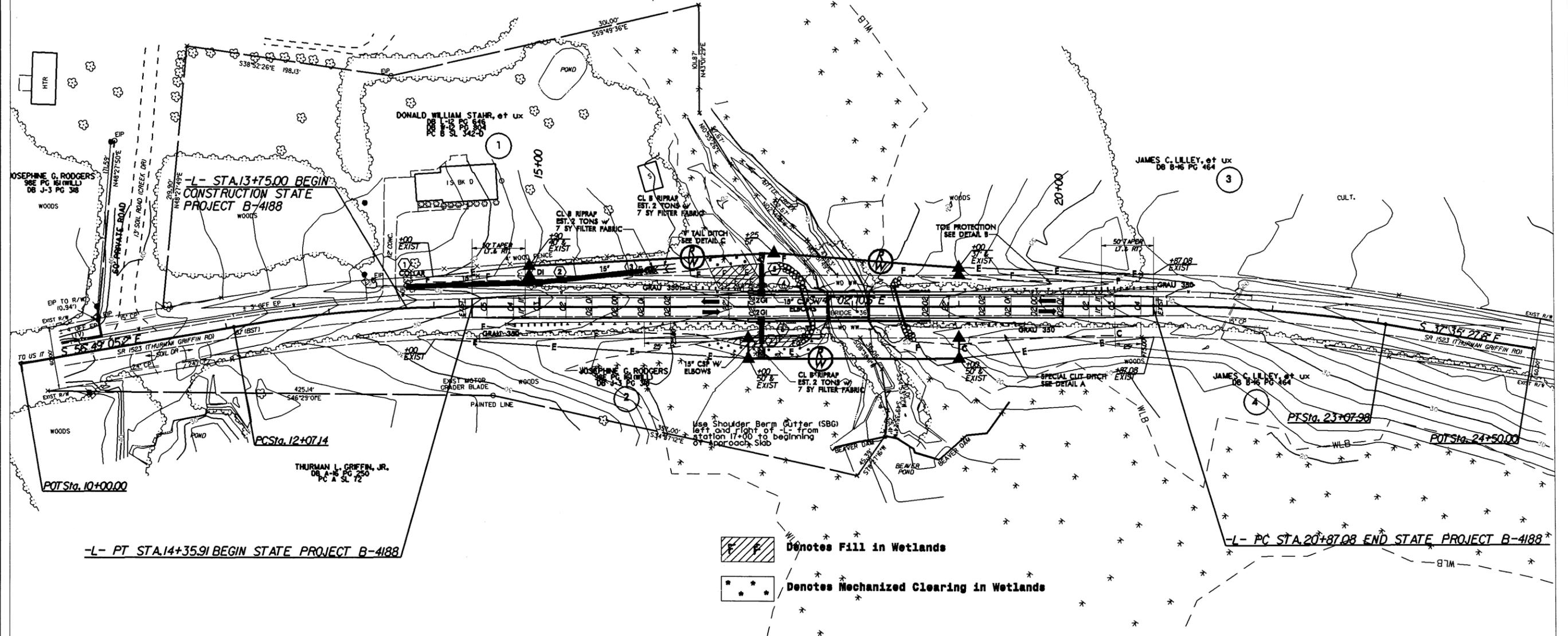


REVISIONS

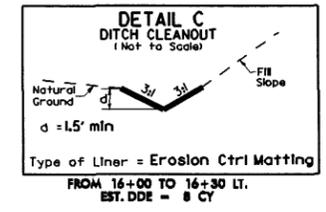
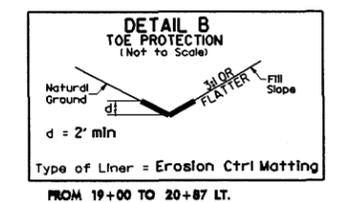
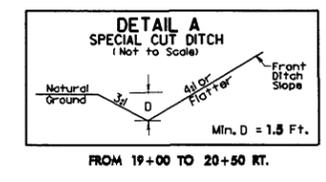
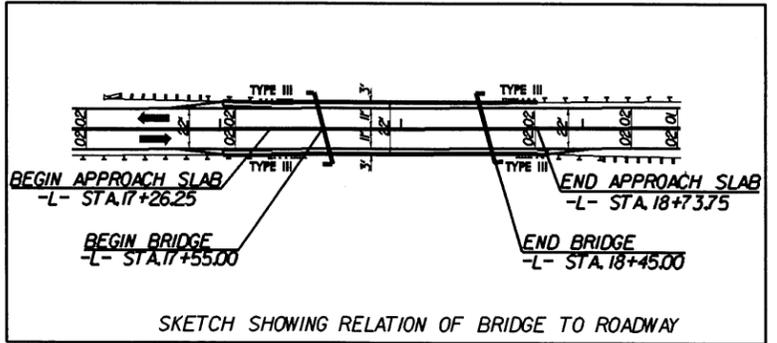
8/17/99
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NOTE: PLEASE SEE SHEET 5 FOR PROFILE

-L-	
PI Sta 13+21.81	PI Sta 21+97.78
$\Delta = 9' 46' 54.5''$ (RT)	$\Delta = 9' 26' 42.8''$ (RT)
D = 4' 16' 32.9"	D = 4' 16' 32.9"
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R = 1,340.00'	R = 1,340.00'



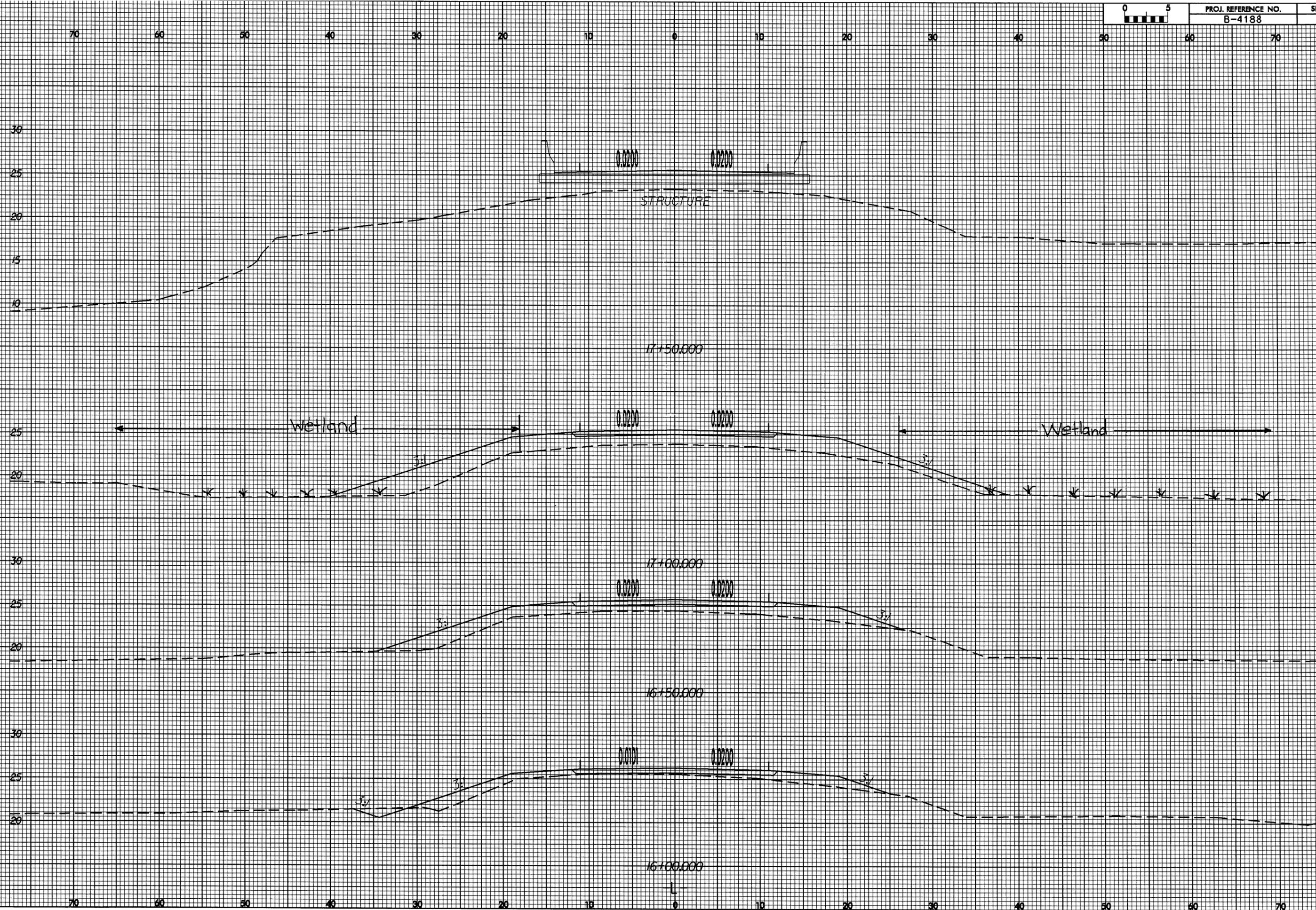
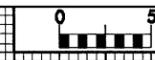
Denotes Fill in Wetlands
 Denotes Mechanized Clearing in Wetlands



REVISIONS

8/17/99

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09/08/99

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

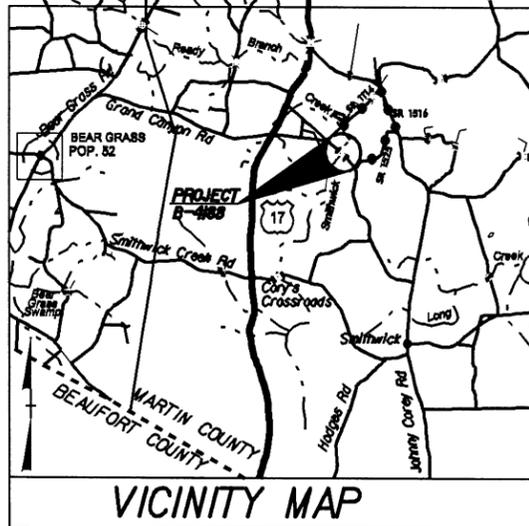
MARTIN COUNTY

LOCATION: BRIDGE NO. 36 OVER SMITHWICK CREEK ON SR 1523

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

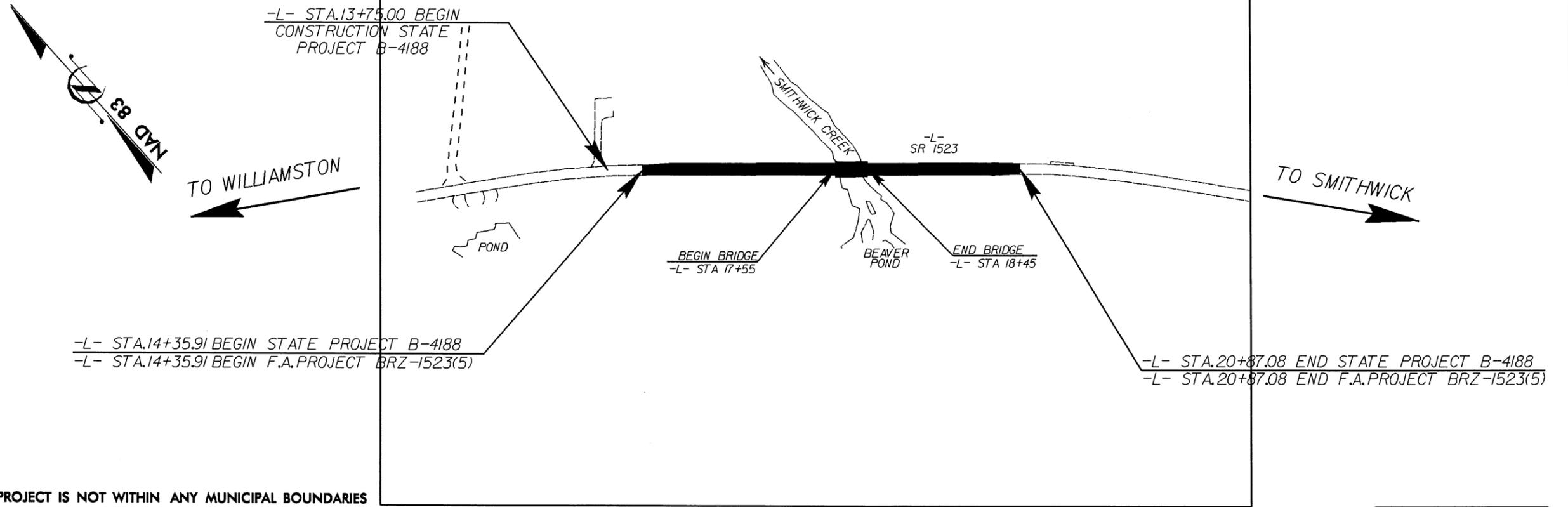
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4188	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33535.1.1	BRZ-1523(5)	P.E.	

TIP PROJECT: B-4188



VICINITY MAP

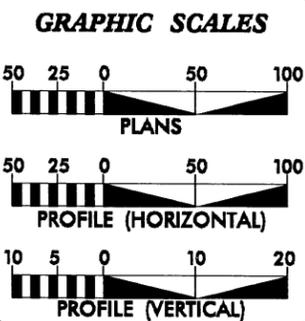
OFFSITE DETOUR



NOTE: THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III
DESIGN EXCEPTION REQUIRED FOR VERTICAL CURVE

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:



DESIGN DATA

ADT 2003 =	500
ADT 2025 =	900
DHV =	10 %
D =	60 %
T =	4 % *
V =	60 MPH
* TTST 2	DUAL 2
FUNC. CLASS =	LOCAL

PROJECT LENGTH

LENGTH ROADWAY F.A. PROJECT BRZ-1523(5) =	0.113 mi.
LENGTH STRUCTURE F.A. PROJECT BRZ-1523(5) =	0.010 mi.
TOTAL LENGTH STATE PROJECT 33535.1.1 =	0.123 mi.

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

2002 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: MARCH 18, 2005	JIMMY GOODNIGHT PROJECT ENGINEER
LETTING DATE: MARCH 21, 2006	MARK HUSSEY 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

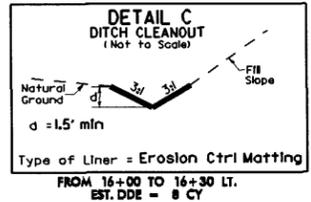
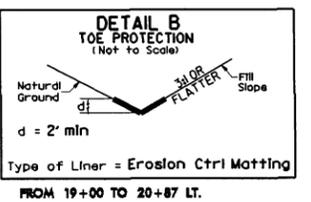
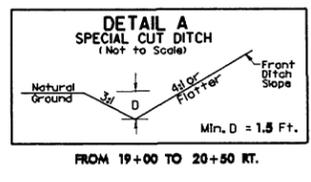
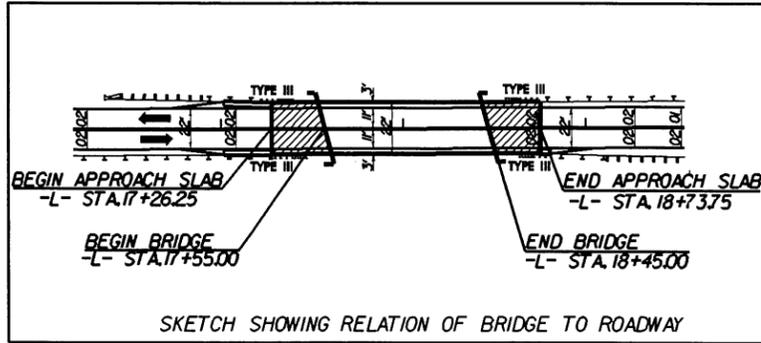
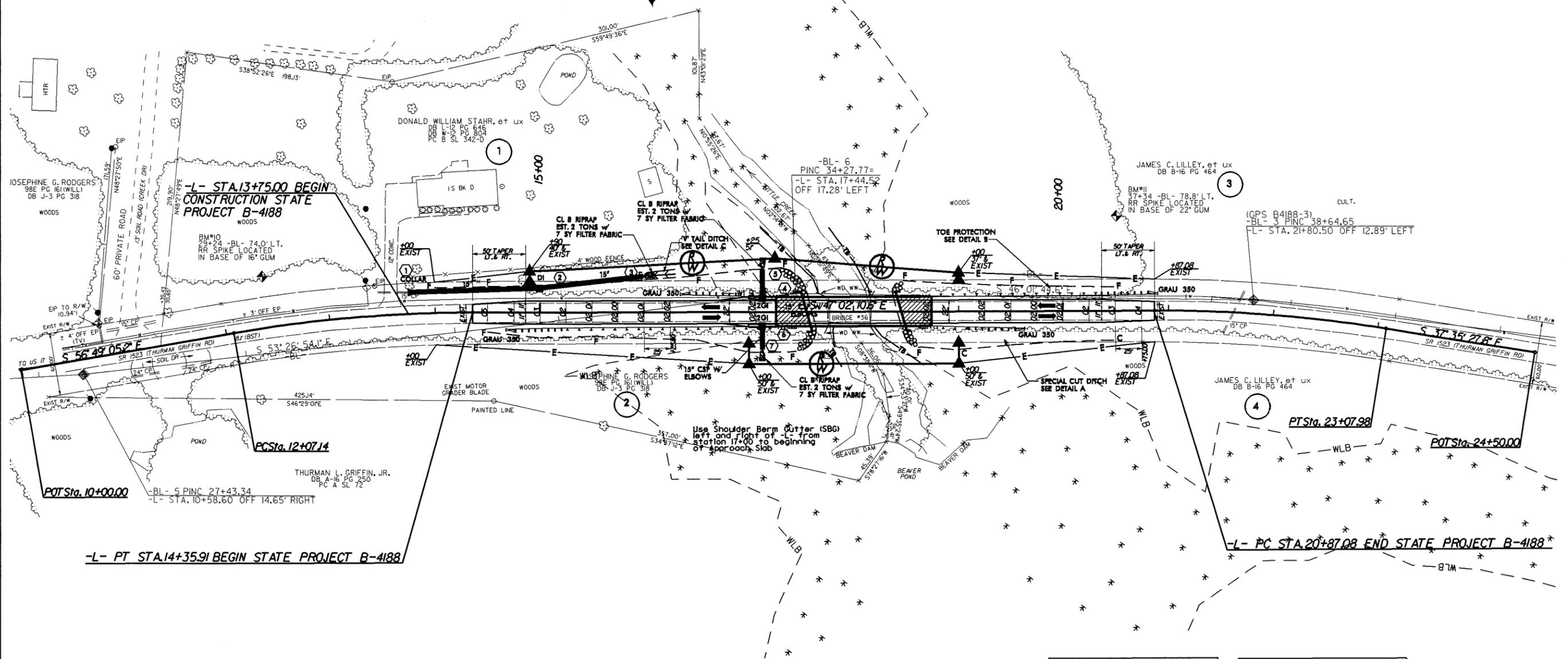
DATE

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PROJECT REFERENCE NO. B-4188	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

SEE SHEET 5 FOR PROFILE

-L-	
PI Sta 13+21.81	PI Sta 21+97.78
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$D = 4' 16' 32.9"$	$D = 4' 16' 32.9"$
$L = 228.77'$	$L = 220.90'$
$T = 114.66'$	$T = 110.70'$
$R = 1,340.00'$	$R = 1,340.00'$

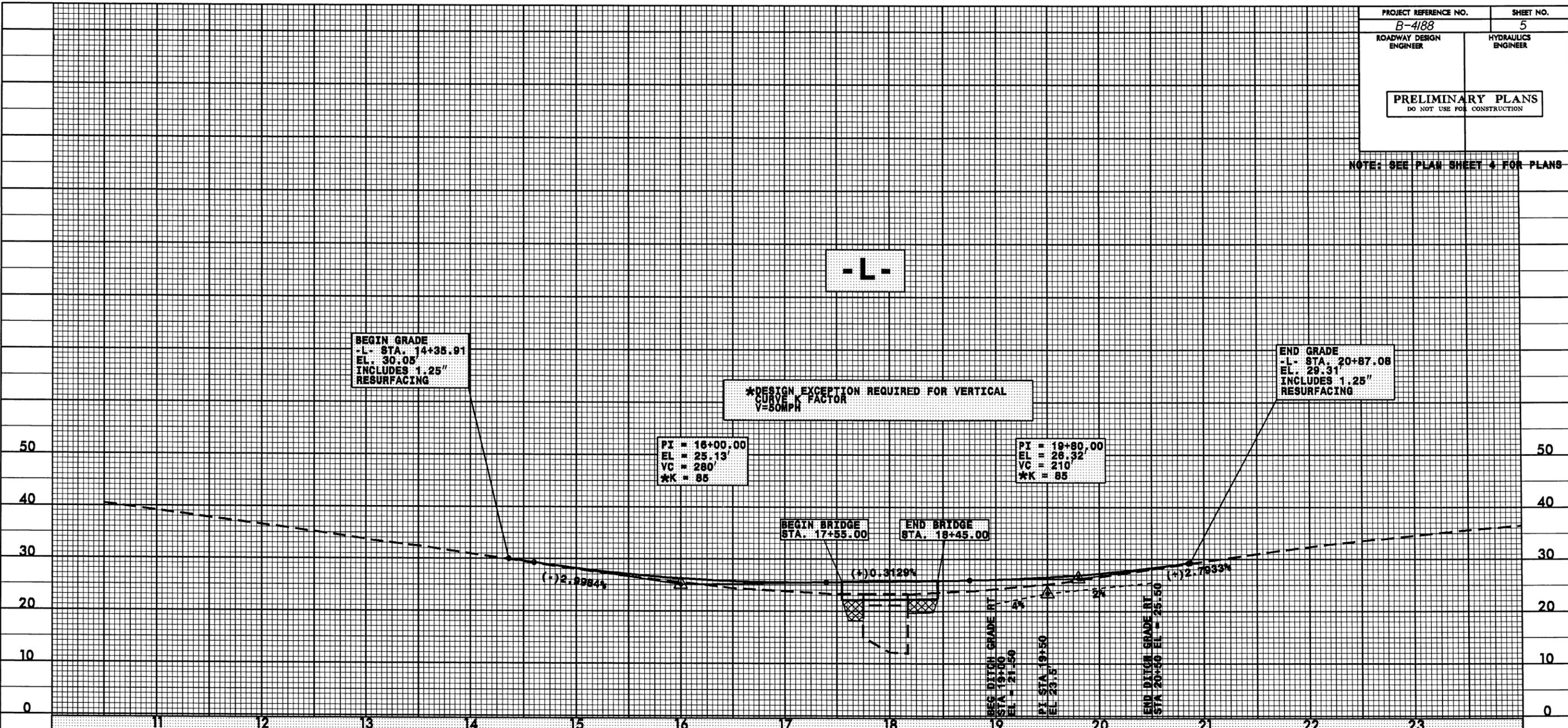


REVISIONS

8/17/99

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psh4.dgn

NOTE: SEE PLAN SHEET 4 FOR PLANS



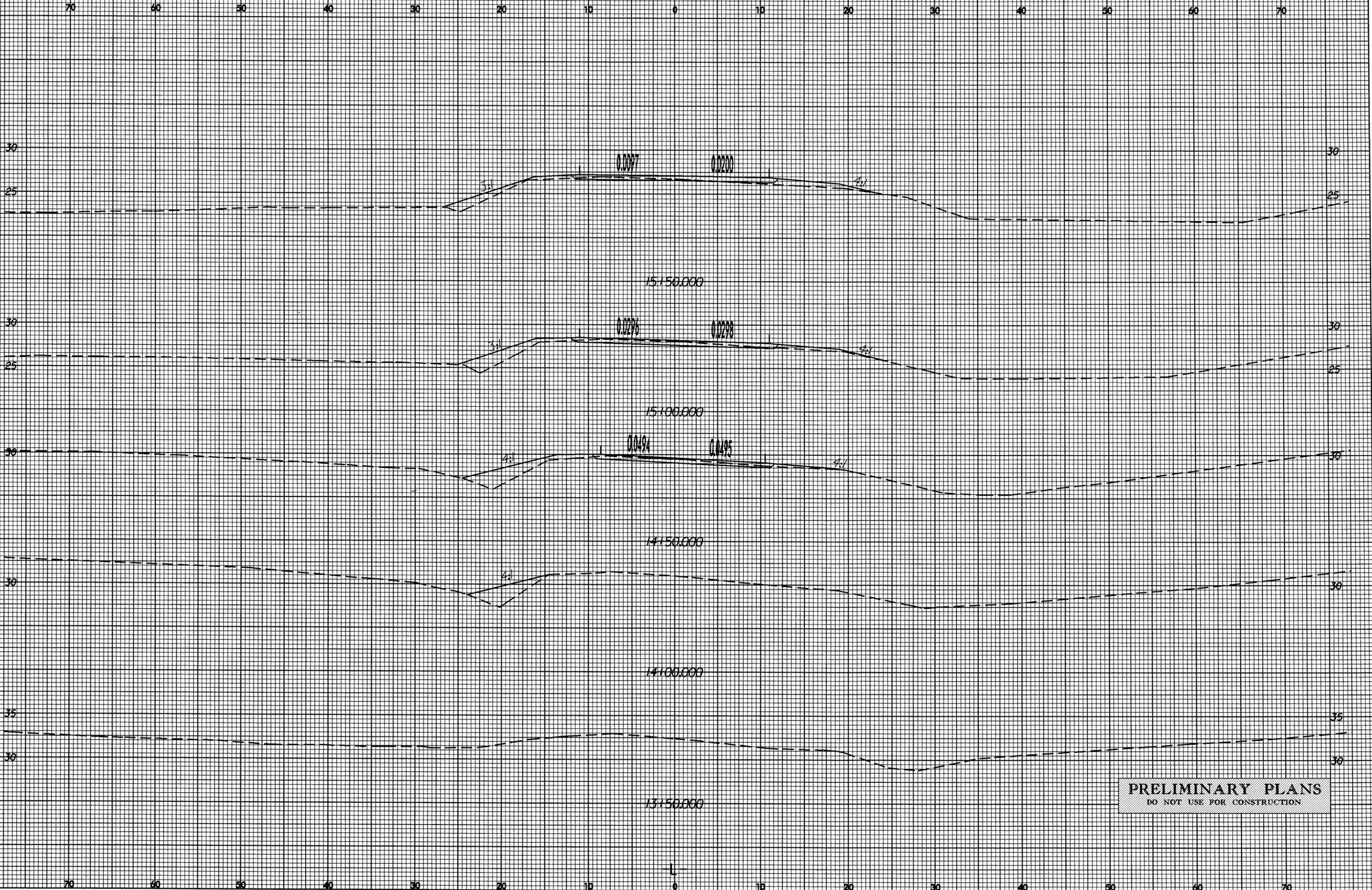
STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 1200 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 22.3 FT
BASE DISCHARGE	= 1900 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 24.6 FT
OVERTOPPING DISCHARGE	= 2300 CFS
OVERTOPPING FREQUENCY	= 100+ YRS
OVERTOPPING ELEVATION	= 25.2 FT

BM#10
29+24 -BL- 74.0' LT.
RR SPIKE LOCATED
IN BASE OF 16" GUM

BM#11
37+34 -BL- 78.8' LT.
RR SPIKE LOCATED
IN BASE OF 22' GUM

8/23/99



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

24-MAY-2005 07:56
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smorgan

