



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

November 6, 2007

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: **Application for Nationwide Permits 23 and 33, Water Quality Certification, and Tar-Pamlico Riparian Buffer Authorization**, for the proposed replacement of Bridge 84 on SR 1410 over Latham Creek in Beaufort County. Federal Aid Project No. BRZ-1410(2), State Project No. 8.2150901, TIP No. B-4021. Debit \$240 from WBS 33388.1.1

Please find enclosed the permit drawings, Pre-Construction Notification form (PCN), and half-size plan sheets for the above referenced project. A Programmatic Categorical Exclusion (PCE) was completed for this project on March 9, 2004, and distributed shortly thereafter. Additional copies are available upon request. The North Carolina Department of Transportation (NCDOT) proposes to replace existing Bridge No. 84 on SR 1410 over Latham Creek in Beaufort County. The project involves replacement of the existing bridge structure with a 120 foot bridge at approximately the same location and roadway elevation as the existing structure using top-down construction. Permanent impacts will consist of 0.04 acre to wetlands adjacent to Latham Creek and 6,668 ft² of riparian buffer. Traffic will be detoured off-site along surrounding roads during construction.

Impacts to Waters of the United States

General Description: The project is located in the Tar-Pamlico River Basin (Hydrologic Unit 03020103). A best usage classification of "C SW NSW" has been assigned to Latham Creek [DWQ Index # 28-103-14-2]. Neither High Quality Waters (HQW), Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds), nor Outstanding Resource Waters (ORW) occur within 1.0 mile of the project study area. Latham Creek is not designated as a North Carolina Natural or Scenic River, or as a National Wild and Scenic

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

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

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

River. Additionally, Latham Creek is not listed on the Final 2006 303(d) list of impaired waters due to sedimentation for the Tar-Pamlico River Basin, nor does it drain into any Section 303(d) waters within 1.0 mile of the project study area.

Permanent Impacts: Wetlands adjacent to Latham Creek will be impacted by the proposed project. Construction of the proposed project will result in permanent impacts of 0.04 acre due to fill material (see permit drawings).

Temporary Impacts: This project will result in 0.02 acre of temporary fill in wetlands in the Hand Clearing areas for the installation of erosion control measures, including some or all of the following: Temporary Silt Fence, Special Sediment Control Fence, and/or Temporary Rock Silt Checks.

Hand Clearing: Hand clearing of 0.08 acre in wetlands will be necessary for project construction.

Utility Impacts: No impacts to jurisdictional resources will occur due to relocation of utilities in the project area. Existing utility lines including NC Natural Gas and Sprint telephone are in conflict with the proposed project. Wetland impacts due to the relocation of these facilities will be avoided by using directional bore techniques. A Beaufort County water line is also in conflict with parts of this project; however, this conflict occurs outside of jurisdictional areas.

Bridge Demolition: The existing bridge is a two-span structure consisting of a pre-stressed concrete channel superstructure with an asphalt-wearing surface. The substructure is composed of concrete caps on timber piles. Best Management Practices for Bridge Demolition and Removal will be followed to prevent any temporary fill from entering Waters of the United States.

Tar-Pamlico River Basin Buffer Rules

This project is located in the Tar-Pamlico River Basin; therefore, the regulations pertaining to the buffer rules apply. There will be a total of 6,668 ft² of impacts to riparian buffers. This includes 3,060 ft² (2,850 ft² in Zone 1 and 210 ft² in Zone 2) due to the bridge crossing. According to the buffer rules, bridges are allowable. In addition, 3,608 ft² (742 ft² in Zone 1 and 2,866 ft² in Zone 2) of impacts will occur from approach fill and mechanized clearing activities due to road crossings. This Road Crossing activity is allowable because impacts are less than the 150-foot/0.3 acre threshold, for which mitigation is required. Uses designated as allowable may proceed within the riparian buffer provided that there are no practical alternatives to the requested use pursuant to Item (8) of this rule.

Federally Protected Species

As of May 10, 2007 the US Fish and Wildlife Service (USFWS) has listed seven federally protected species for Beaufort County. The bald eagle, however, was removed from the Endangered Species List on August 8, 2007. The 6 remaining species are listed in Table 1. A biological conclusion of “no effect” remains valid for each species due to lack of suitable habitat.

Table 1. Federally protected species of Beaufort County.

Common Name	Scientific Name	Federal Status	Habitat	Biological Conclusion
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	E	No	No Effect
Red wolf	<i>Canis rufus</i>	E (XN)	No	No Effect
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	No	No Effect
West Indian manatee	<i>Trichechus manatus</i>	E	No	No Effect
Rough-leaved loosestrife	<i>Lysimachia asperulaefolia</i>	E	No	No Effect
Sensitive joint-vetch	<i>Aeschynomene virginica</i>	T	No	No Effect

Key: E = Endangered, T = Threatened, E (XN) = Experimental (nonessential)

Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) was delisted from the Endangered Species Act as of August 8, 2007. However, it is still protected under the Bald and Golden Eagle Protection Act. As noted in the NRTR (2003), no suitable habitat exists within 660 ft of the project area.

In-Stream Work Moratorium

A project commitment in the PCE included a North Carolina Division of Marine Fisheries moratorium from February 15 to September 30. However, Latham Creek falls under the jurisdiction of the NC Wildlife Resources Commission (NCWRC). As required by NCWRC, and as agreed to via a telephone conversation between NCDOT Biologist Chris Manley and NCWRC Biologist Travis Wilson (February 24, 2005), NCDOT will adhere to an in-water work moratorium from February 15 to June 15. In addition, the Stream Crossing Guidelines for Anadromous Fish Passage will be implemented.

Avoidance and Minimization

Avoidance examines all appropriate and practicable possibilities of averting impacts to "Waters of the United States". Due to the presence of surface waters and wetlands within the project study area, avoidance of all impacts is not possible. The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts. Minimization measures incorporated as part of the project design included:

- Fill slopes in wetlands will be at a 3:1 ratio
- Use of an off-site detour during construction
- Construction of a 49-foot longer bridge
- The new structure will span the creek, therefore there will be no interior bents in the water
- Measures used to minimize impacts to the buffer zone include using the existing alignment
- Best Management Practices will be utilized during demolition of the existing bridge and construction of the new bridge
- Stream Crossing Guidelines for Anadromous Fish Passage

- Design Standards in Sensitive Watersheds will be utilized during demolition of the existing bridge and construction of the new bridge

Mitigation

Due to the limited amount of impacts to jurisdictional wetlands as well as impacts to riparian buffers have not exceeded the threshold requiring compensatory mitigation, NCDOT is not proposing mitigation for this project.

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. We are also requesting the issuance of a Nationwide Permit 33 for the temporary fill due to the installation of erosion control measures. (72 CFR; 11092-11198, March 12, 2007).

Section 401 Certification: We anticipate 401 General Certification numbers 3701 and 3688 will apply to this project, and are requesting written concurrence from the North Carolina Department of Environmental and Natural Resources, Division of Water Quality. Therefore, in accordance with 15A NCAC 2H, Section .0500(a), we are providing five copies of this application to the NCDWQ for their review and approval. Authorization to debit the \$240 Permit Application Fee from WBS Element 33388.1.1 is hereby given.

Tar-Pamlico River Basin Buffer Authorization: NCDOT requests that the NC Division of Water Quality review this application and issue a written approval for a Tar-Pamlico Riparian Buffer Authorization.

CAMA: Due to the absence of any Areas of Environmental Concern (see attached email dated July 23, 2003), this project will not require a CAMA permit as confirmed by North Carolina Division of Coastal Management staff. As previously stated the project will require a Nationwide permit, which has been determined to be consistent with the State's coastal program.

A copy of this application will be posted on the NCDOT website at: <http://www.doh.dot.state.nc.us/preconstruct/pe/neu/permit.html>

Thank you for your time and assistance with this project. Please contact David E. Bailey at debailey@dot.state.nc.us or (919) 715-7257 if you have any questions or need additional information.

Sincerely,



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

cc:

w/attachment:

- Mr. John Hennessy, NCDWQ (5 Copies)
- Mr. Travis Wilson, NCWRC
- Mr. Gary Jordan, USFWS
- Mr. Ron Sechler, NMFS
- Mr. Michael Street, NCDMF
- Dr. David Chang, P.E., Hydraulics
- Mr. Greg Perfetti, P.E., Structure Design
- Mr. Victor Barbour, P.E., Project Services Unit
- Mr. Mark Staley, Roadside Environmental
- Mr. C. E. Lassiter, P.E. Div. 2 Engineer
- Mr. Jay Johnson, Div. 2 Environmental Officer

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
- Mr. John L. Williams, P.E., PDEA
- Mr. Stephen Lane, NCDCM

Office Use Only:

Form Version March 05

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

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

I. Processing

1. Check all of the approval(s) requested for this project:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Section 404 Permit | <input checked="" type="checkbox"/> Riparian or Watershed Buffer Rules |
| <input type="checkbox"/> Section 10 Permit | <input type="checkbox"/> Isolated Wetland Permit from DWQ |
| <input checked="" type="checkbox"/> 401 Water Quality Certification | <input type="checkbox"/> Express 401 Water Quality Certification |

2. Nationwide, Regional or General Permit Number(s) Requested: NWP 23 and 33

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

4. If payment into the North Carolina Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, complete section VIII, and check here:

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

II. Applicant Information

1. Owner/Applicant Information

Name: Gregory J. Thorpe, Ph.D., Environmental Management Director
Mailing Address: 1598 Mail Service Center

Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794

E-mail Address: _____

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)

Name: _____

Company Affiliation: _____

Mailing Address: _____

Telephone Number: _____ Fax Number: _____

E-mail Address: _____

III. Project Information

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

1. Name of project: Replacement of Bridge 84 on SR 1410 over Latham Creek in Beaufort County
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4021
3. Property Identification Number (Tax PIN): N/A
4. Location
County: Beaufort Nearest Town: Old Ford
Subdivision name (include phase/lot number): N/A
Directions to site (include road numbers/names, landmarks, etc.): Take US 264 to US 17 North and turn left onto SR 1410 (Voa Rd). You will come to bridge 84 after approximately 1.5 miles.
5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
Decimal Degrees (6 digits minimum): 35.654382 °N 77.094960 °W
6. Property size (acres): N/A
7. Name of nearest receiving body of water: Tranters Creek
8. River Basin: Tar-Pamlico
(Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at <http://h2o.enr.state.nc.us/admin/maps/>.)
9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The project is located in a rural area in Beaufort county. Land around the site is mostly forested or under agricultural cultivation.

10. Describe the overall project in detail, including the type of equipment to be used: Standard NCDOT construction equipment will be used.
The existing structure was built in 1962 and has an overall length of 61 feet. It has an asphalt wearing surface on concrete channels with timber piles and timber abutments. The proposed project will replace the existing bridge in place with a new bridge that is 70 feet long.
11. Explain the purpose of the proposed work: The purpose of the project is to replace a structurally deficient bridge to ensure the safety of those traveling over the bridge.

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules. A jurisdictional determination was issued by the USACE for this project on February 26, 2003 under Action Id. 200310362.

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.
No future permit requests are anticipated for this project.

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

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) should be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: Construction of the proposed project will result in permanent impacts of 0.04 acre to wetlands due to fill material (see permit drawings). This project will result in 0.02 acres of temporary fill in wetlands in the Hand Clearing areas for the installation of erosion control measures

2. Individually list wetland impacts. Types of impacts include, but are not limited to mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

Wetland Impact Site Number (indicate on map)	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Area of Impact (acres)
1	Permanent Fill				0.04
Total Wetland Impact (acres)					0.04

3. List the total acreage (estimated) of all existing wetlands on the property: 2.0 acre

4. Individually list all intermittent and perennial stream impacts. Be sure to identify temporary impacts. Stream impacts include, but are not limited to placement of fill or culverts, dam construction, flooding, relocation, stabilization activities (e.g., cement walls, rip-rap, crib walls, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included. To calculate acreage, multiply length X width, then divide by 43,560.

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
N/A						
Total Stream Impact (by length and acreage)					0.0	0.0

5. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.). Open water impacts include, but are not limited to fill, excavation, dredging, flooding, drainage, bulkheads, etc.

Open Water Impact Site Number (indicate on map)	Name of Waterbody (if applicable)	Type of Impact	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)	Area of Impact (acres)
N/A				
Total Open Water Impact (acres)				0.0

6. List the cumulative impact to all Waters of the U.S. resulting from the project:

Stream Impact (acres):	0.0
Wetland Impact (acres):	0.04
Open Water Impact (acres):	0.0
Total Impact to Waters of the U.S. (acres)	0.04
Total Stream Impact (linear feet):	0.0

7. Isolated Waters

Do any isolated waters exist on the property? Yes No

Describe all impacts to isolated waters, and include the type of water (wetland or stream) and the size of the proposed impact (acres or linear feet). Please note that this section only applies to waters that have specifically been determined to be isolated by the USACE.

N/A

8. Pond Creation

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

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

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

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

Current land use in the vicinity of the pond: N/A

Size of watershed draining to pond: N/A Expected pond surface area: N/A

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts. The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts. Minimization measures incorporated as part of the project design included fill slopes in wetlands will be at a 3:1 ratio, use of an off-site detour during construction, construction of a 49 foot longer bridge, the new structure will span the creek, therefore there will be no interior bents in the water. Measures used to minimize impacts to the buffer zone include using the existing alignment. Stream Crossing Guidelines for Anadromous Fish Passage, Design Standards in Sensitive Watersheds will be utilized during demolition of the existing bridge and construction of the new bridge

VIII. Mitigation

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

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on January 15, 2002, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors

including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

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

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.

Due to the limited amount of impacts to jurisdictional wetlands as well as impacts to riparian buffers have not exceeded the threshold requiring compensatory mitigation, NCDOT is not proposing mitigation for this project.

2. Mitigation may also be made by payment into the North Carolina Ecosystem Enhancement Program (NCEEP). Please note it is the applicant's responsibility to contact the NCEEP at (919) 715-0476 to determine availability, and written approval from the NCEEP indicating that they are will to accept payment for the mitigation must be attached to this form. For additional information regarding the application process for the NCEEP, check the NCEEP website at <http://h2o.enr.state.nc.us/wrp/index.htm>. If use of the NCEEP is proposed, please check the appropriate box on page five and provide the following information:

Amount of stream mitigation requested (linear feet): N/A

Amount of buffer mitigation requested (square feet): N/A

Amount of Riparian wetland mitigation requested (acres): N/A

Amount of Non-riparian wetland mitigation requested (acres): N/A

Amount of Coastal wetland mitigation requested (acres): N/A

IX. Environmental Documentation (required by DWQ)

1. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? Yes No

2. If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)?
Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.
Yes No
3. If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter. Yes No

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

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

1. Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 02B .0243 (Catawba) 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify Tar-Pamlico)? Yes No
2. If "yes", identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1	3,592	3 (2 for Catawba)	0
2	3,076	1.5	0
Total	6,668		0

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

3. If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Riparian Buffer Restoration / Enhancement, or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0244, or .0260. N/A

XI. Stormwater (required by DWQ)

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

the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level. N/A

XII. Sewage Disposal (required by DWQ)

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

N/A

XIII. Violations (required by DWQ)

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

Yes No

Is this an after-the-fact permit application? Yes No

XIV. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes No

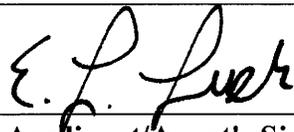
If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at <http://h2o.enr.state.nc.us/ncwetlands>. If no, please provide a short narrative description: _____

N/A

XV. Other Circumstances (Optional):

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

N/A

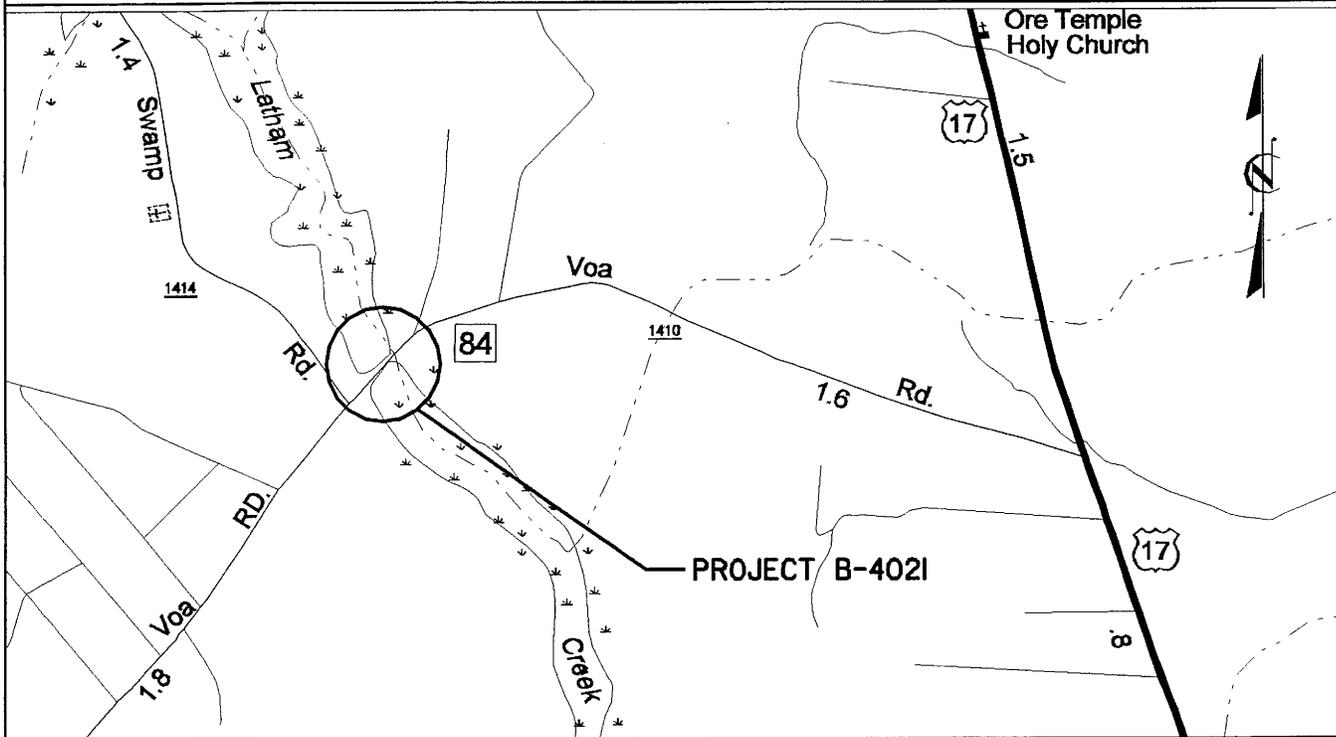
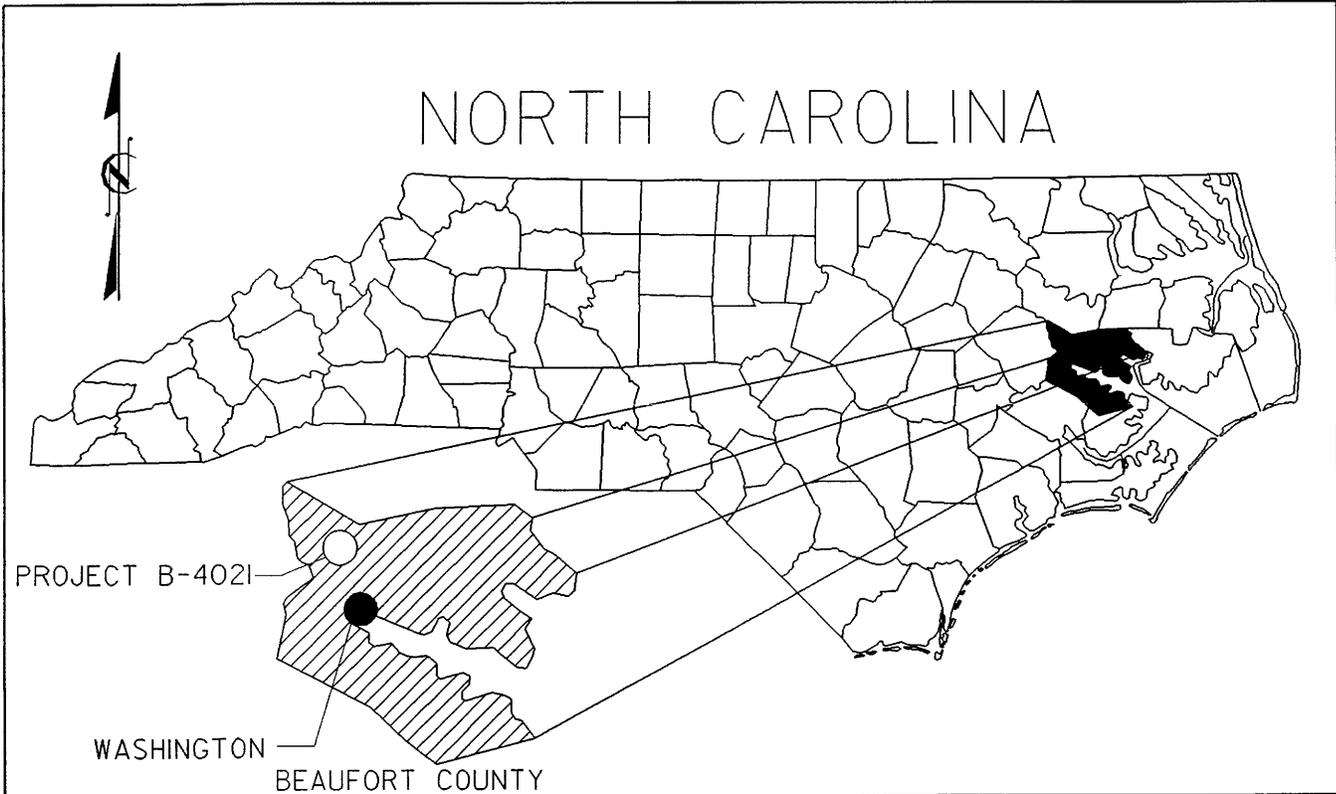


Applicant/Agent's Signature

11.5.07

Date

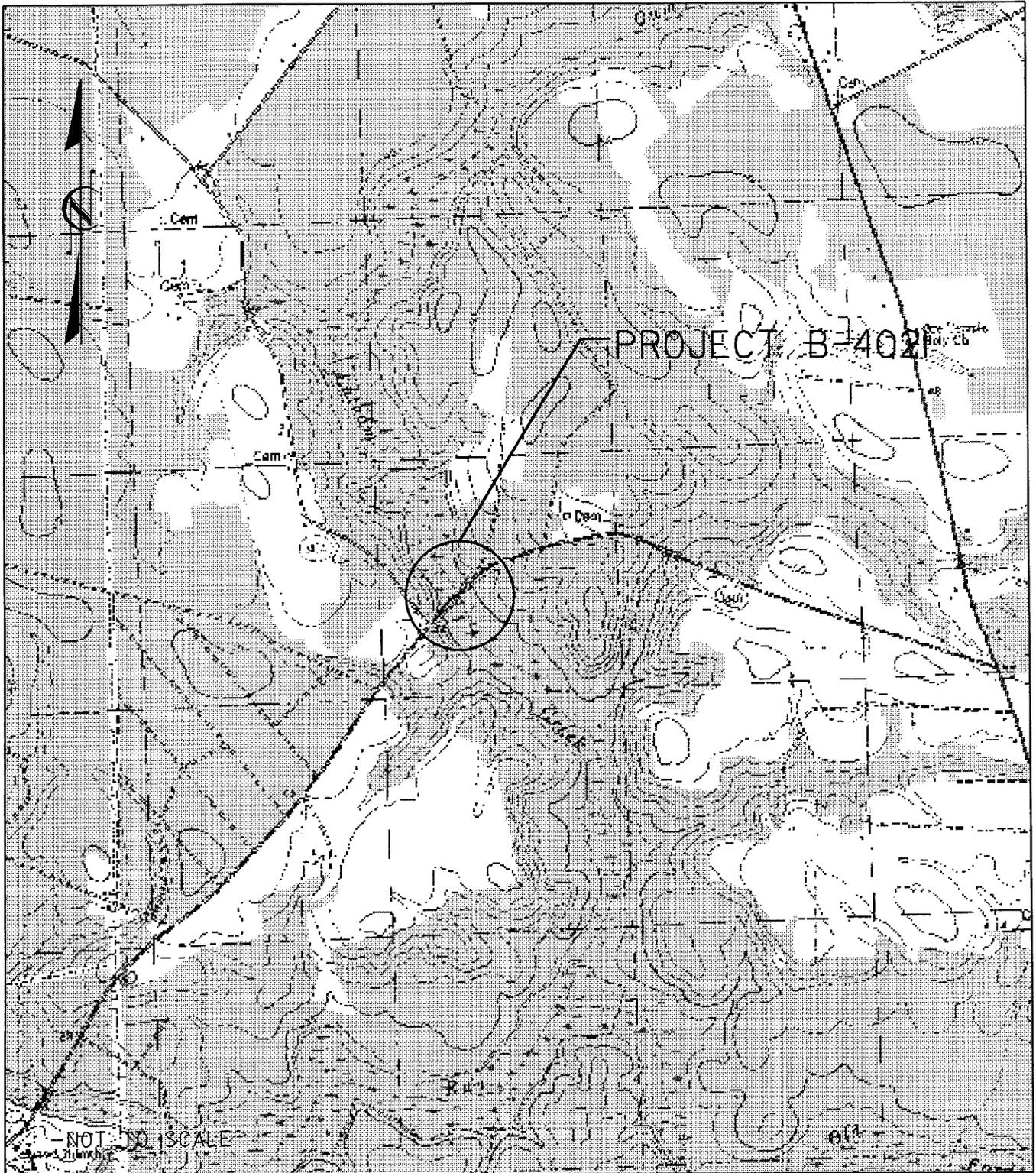
(Agent's signature is valid only if an authorization letter from the applicant is provided.)



TAR-PAMLICO BUFFER
VICINITY
MAPS

NCDOT
DIVISION OF HIGHWAYS
BEAUFORT COUNTY
PROJECT: 33388.1.1 (B-4021)

REPLACEMENT OF BRIDGE #84 ON
SR 1410 OVER LATHAM CREEK



TAR-PAMLICO BUFFER
 LOCATION
 MAPS

N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 BEAUFORT COUNTY

PROJECT: 33388.1.1 (B-4021)
 REPLACEMENT OF BRIDGE #84 ON
 SR 1410 OVER LATHAM CREEK

SHEET OF 7 / 16 / 04

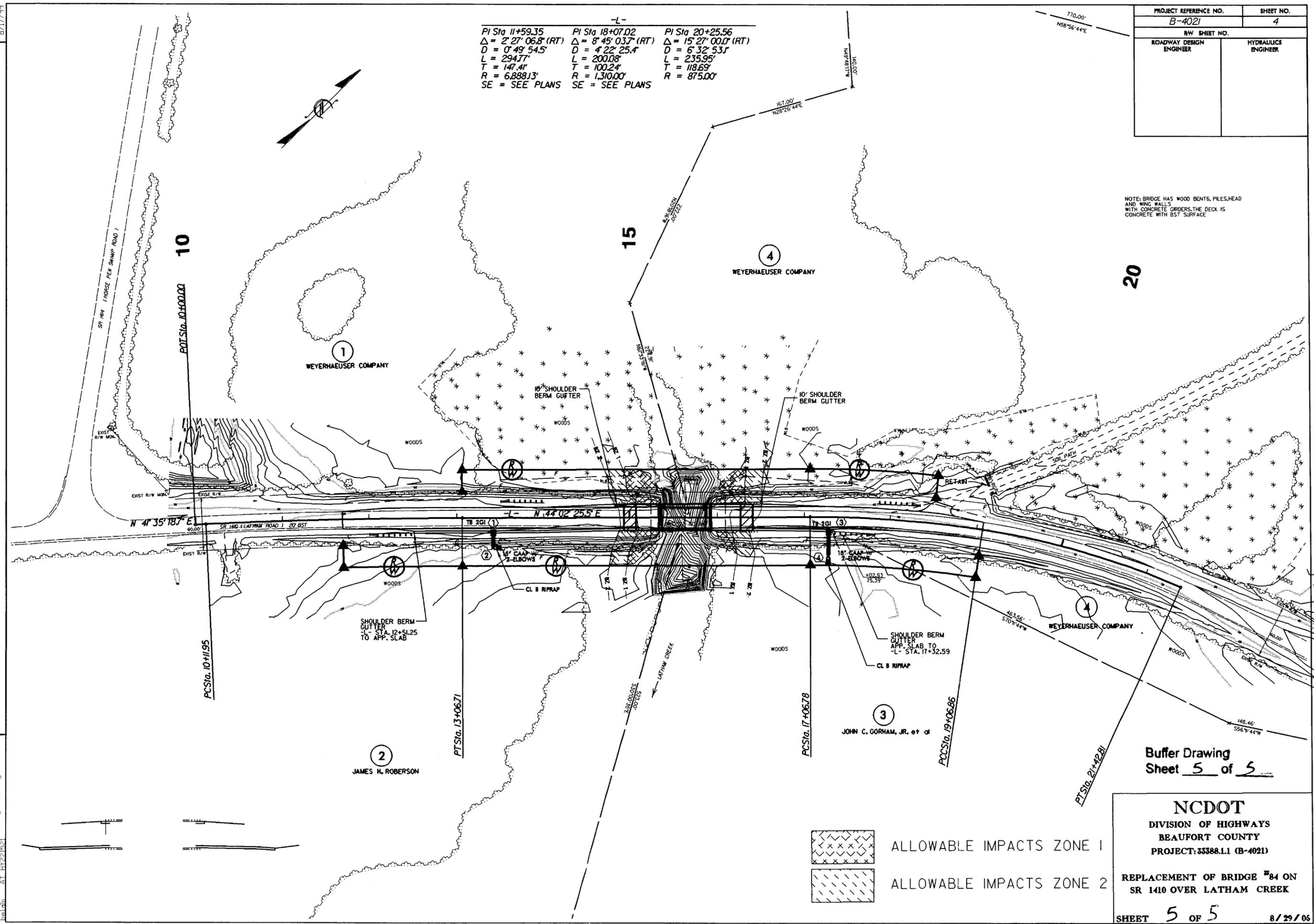
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4021	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

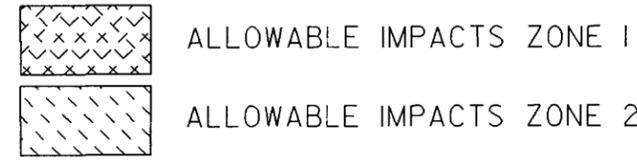
PI Sta 11+59.35 Δ = 2° 27' 06.8" (RT) D = 0' 49' 54.5" L = 294.77' T = 147.41' R = 6,888.13' SE = SEE PLANS	PI Sta 18+07.02 Δ = 8° 45' 03.7" (RT) D = 4' 22' 25.4" L = 200.08' T = 100.24' R = 1,310.00' SE = SEE PLANS	PI Sta 20+25.56 Δ = 15° 27' 00.0" (RT) D = 6' 32' 53.1" L = 235.95' T = 118.69' R = 875.00' SE = SEE PLANS
---	---	--

NOTE: BRIDGE HAS WOOD BENTS, PILES, HEAD AND WING WALLS WITH CONCRETE GRADERS. THE DECK IS CONCRETE WITH BST SURFACE

REVISIONS



28-SEP-2007 10:44
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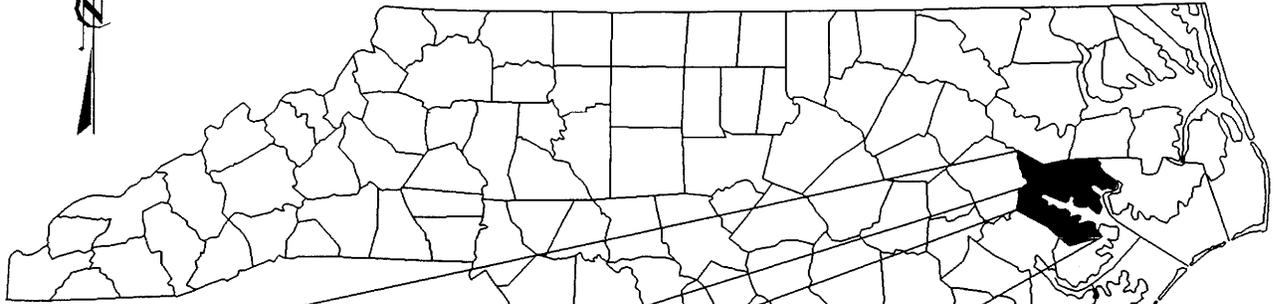
Buffer Drawing
 Sheet 5 of 5

NCDOT
 DIVISION OF HIGHWAYS
 BEAUFORT COUNTY
 PROJECT: 35388.1.1 (B-4021)

REPLACEMENT OF BRIDGE #84 ON
 SR 1410 OVER LATHAM CREEK

SHEET 5 OF 5 8/29/05

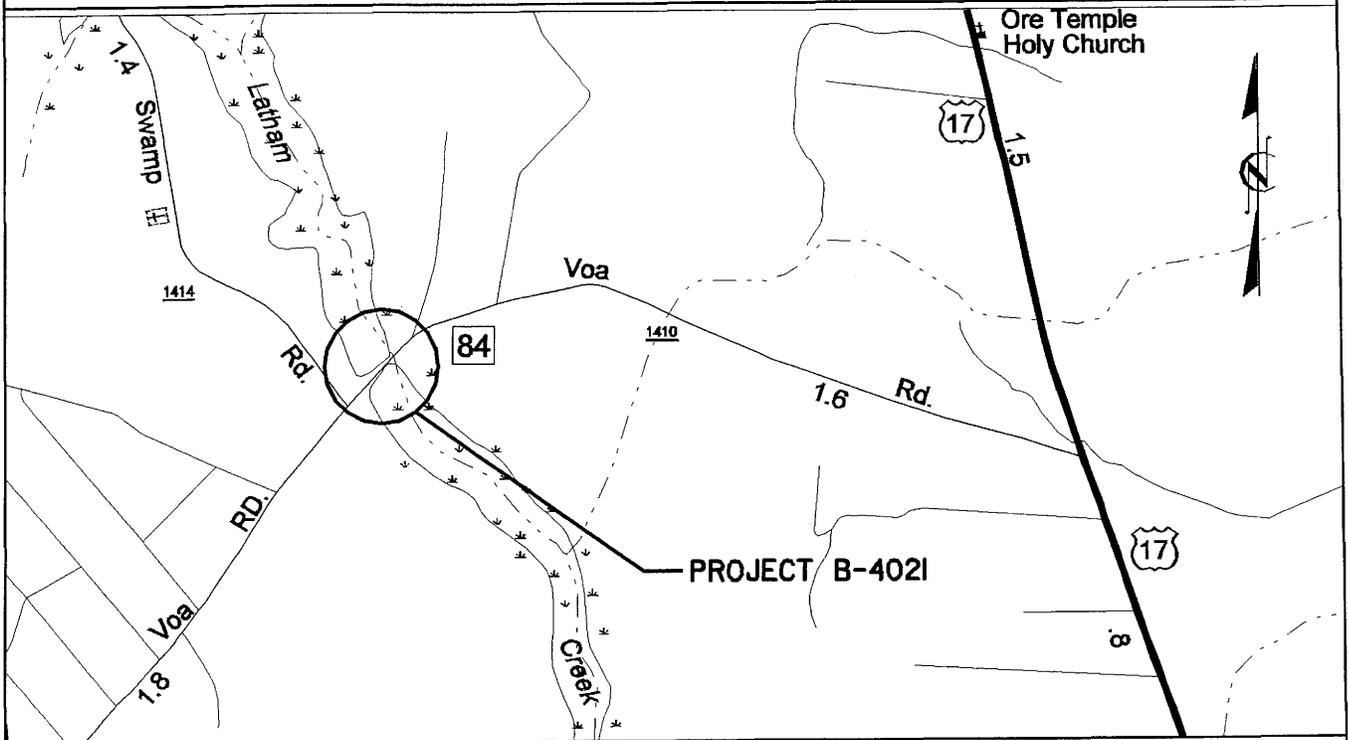
NORTH CAROLINA



PROJECT B-4021

WASHINGTON

BEAUFORT COUNTY



VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS

BEAUFORT COUNTY

PROJECT: 33388.1.1 (B-4021)

REPLACEMENT OF BRIDGE #84 ON
SR 1410 OVER LATHAM CREEK

SHEET 1 OF 5

2 / 22 / 05

Permit Drawing
Sheet 1 of 9

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	WEYERHAEYSER CO.	1123 DINAHS LANDING RD. WASHINGTON, NC 27889
2	JAMES H. ROBERSON	910 W. 15TH STREET WASHINGTON, NC 27889
3	JOHN C. GORHAM, Jr. et al	8235 HWY. 17 N. WASHINGTON, NC 27889
4	WEYERHAEYSER CO.	1123 DINAHS LANDING RD. WASHINGTON, NC 27889

NCDOT

DIVISION OF HIGHWAYS

BEAUFORT COUNTY

PROJECT: 33388.1.1 (B-4021)

**REPLACEMENT OF BRIDGE #84 ON
SR 1410 OVER LATHAM CREEK**

SHEET 4 OF 5

8/1/2005

**Permit Drawing
Sheet 2 of 4**

WETLAND PERMIT IMPACT SUMMARY																				
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS													
			Permanent Fill in Wetlands (ac)	Temp. Fill in Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)								
1	13+90-L- L.T. +/- 15+24-L- L.T. +/-	FILL	0.016					0.036												
2	15+97-L- L.T. +/- 16+50-L- L.T. +/-	FILL	0.028					0.044												
TOTALS:			0.04					0.08												

Permit Drawing
Sheet 3 of 9

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 BEAUFORT COUNTY
 WBS - 33388.1.1 (B-4021)

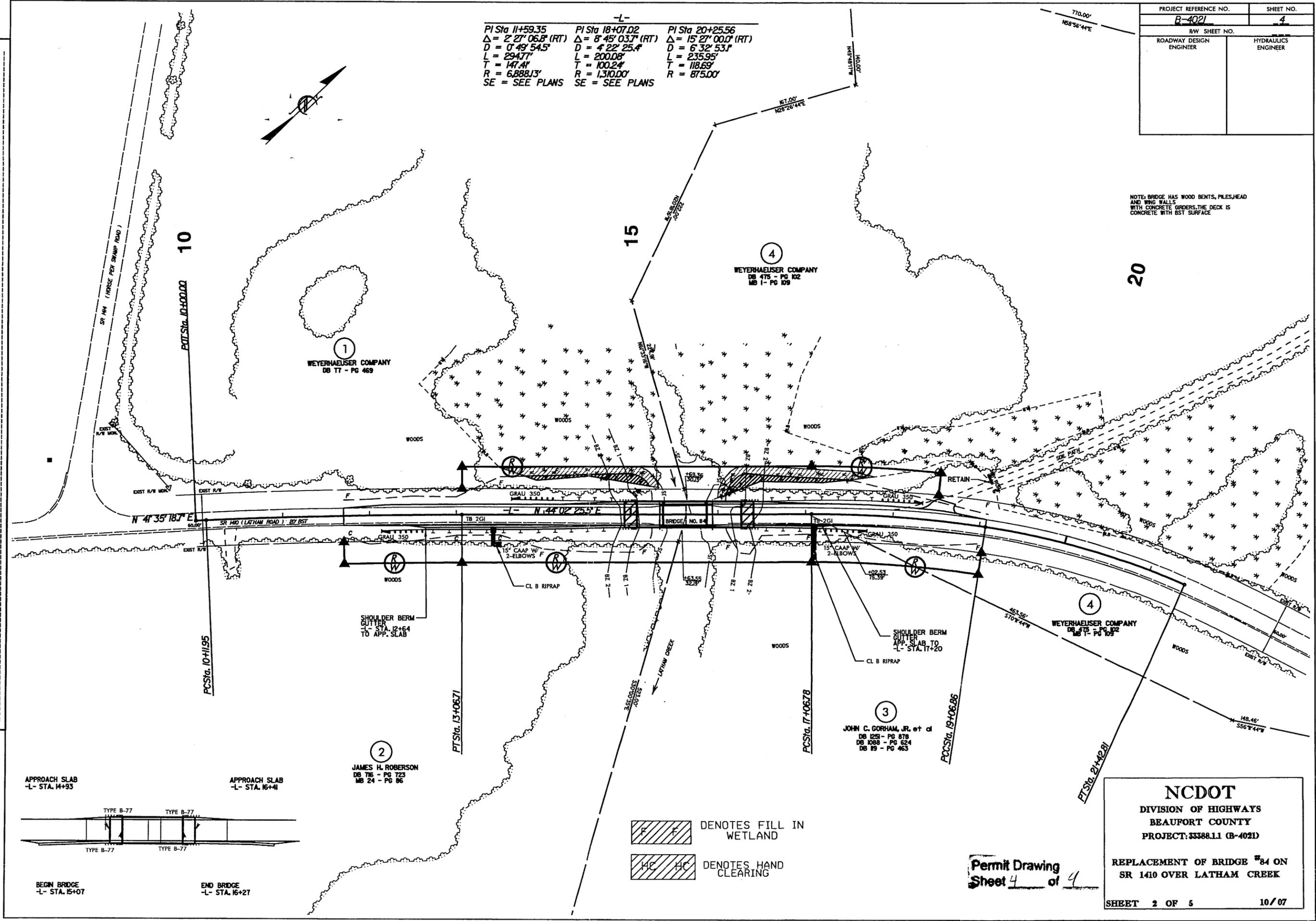
Note: There will be 0.02 acre of temporary fill in wetlands in the hand clearing areas for the installation of erosion control measures

PROJECT REFERENCE NO. B-4021	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

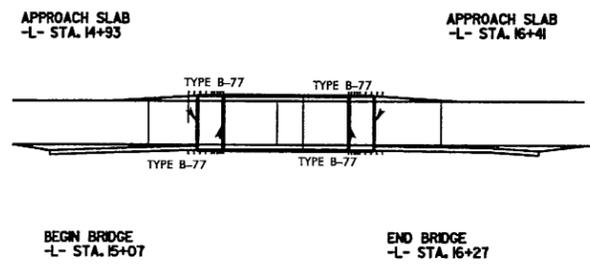
-L-

PI Sta 11+59.35 Δ = 2° 27' 06.8" (RT) D = 0' 49' 54.5" L = 294.77' T = 147.41' R = 6,888.13' SE = SEE PLANS	PI Sta 18+07.02 Δ = 8° 45' 03.7" (RT) D = 4' 22' 25.4" L = 200.08' T = 100.24' R = 1,310.00' SE = SEE PLANS	PI Sta 20+25.56 Δ = 15° 27' 00.0" (RT) D = 6' 32' 53.1" L = 235.95' T = 118.69' R = 875.00' SE = SEE PLANS
---	---	--

REVISIONS



NOTE: BRIDGE HAS WOOD BENTS, PILES/HEAD AND WING WALLS WITH CONCRETE SIDINGS. THE DECK IS CONCRETE WITH GST SURFACE.



DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

NCDOT
DIVISION OF HIGHWAYS
BEAUFORT COUNTY
PROJECT: 33388.11 (B-4021)

REPLACEMENT OF BRIDGE #84 ON
SR 1410 OVER LATHAM CREEK

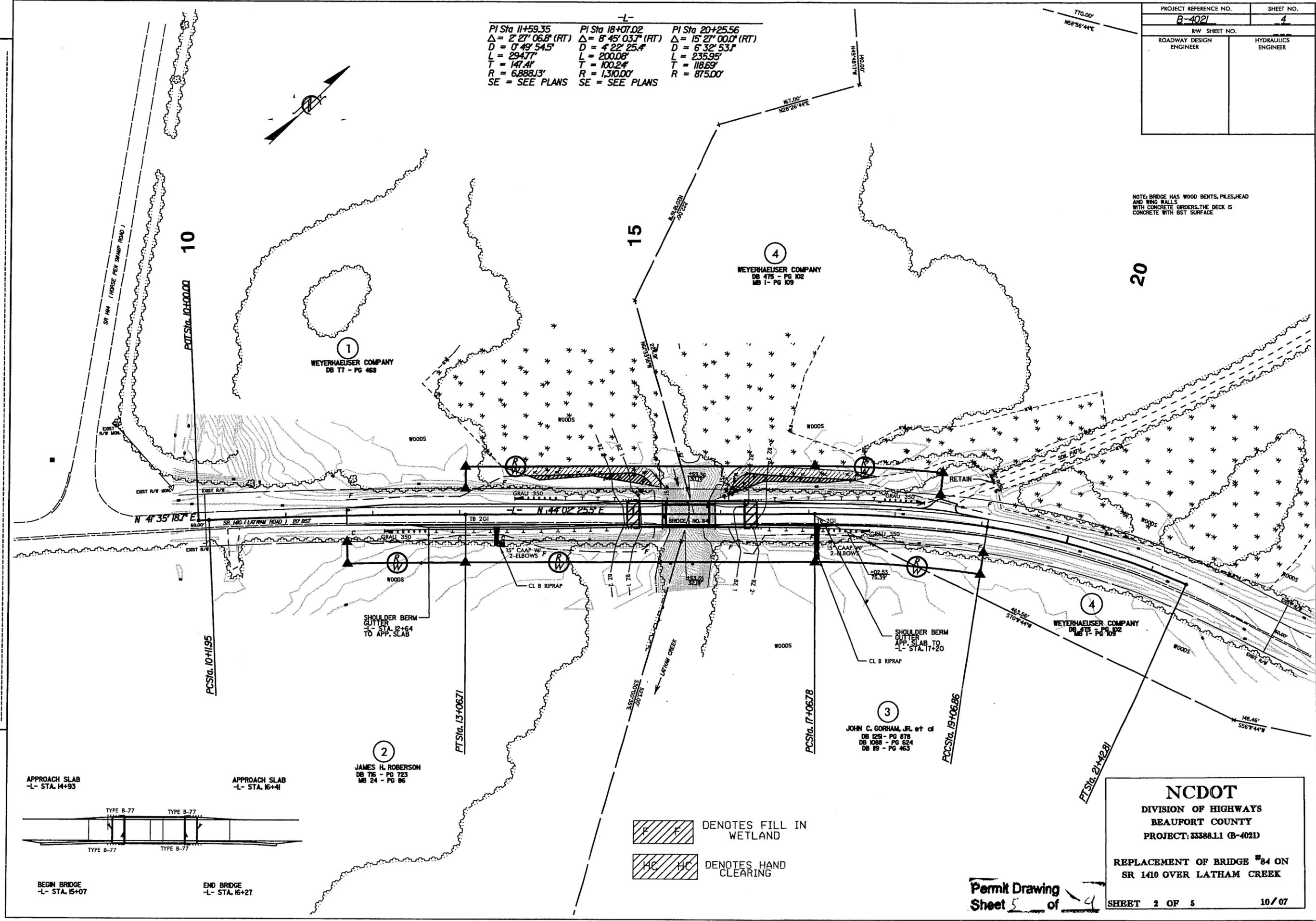
Permit Drawing
Sheet 4 of 4

SHEET 2 OF 5 10/07

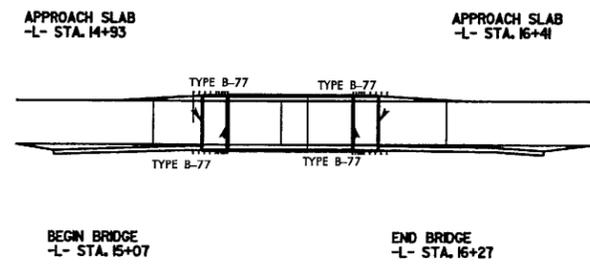
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-		
PI Sta 11+59.35	PI Sta 18+07.02	PI Sta 20+25.56
$\Delta = 2' 27" 06.8 (RT)$	$\Delta = 8' 45" 03.7 (RT)$	$\Delta = 15' 27" 00.0 (RT)$
$D = 0' 49" 54.5$	$D = 4' 22" 25.4$	$D = 6' 32" 53.1$
$L = 294.77'$	$L = 200.08'$	$L = 235.95'$
$T = 147.41'$	$T = 100.24'$	$T = 118.69'$
$R = 6,888.13'$	$R = 1,310.00'$	$R = 875.00'$
SE = SEE PLANS	SE = SEE PLANS	

REVISIONS



NOTE: BRIDGE HAS WOOD BENTS, PILES, HEAD AND WING WALLS WITH CONCRETE GRIDDERS. THE DECK IS CONCRETE WITH BST SURFACE.



DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

NCDOT
 DIVISION OF HIGHWAYS
 BEAUFORT COUNTY
 PROJECT: 33388.11 (B-4021)

REPLACEMENT OF BRIDGE #84 ON
 SR 1410 OVER LATHAM CREEK

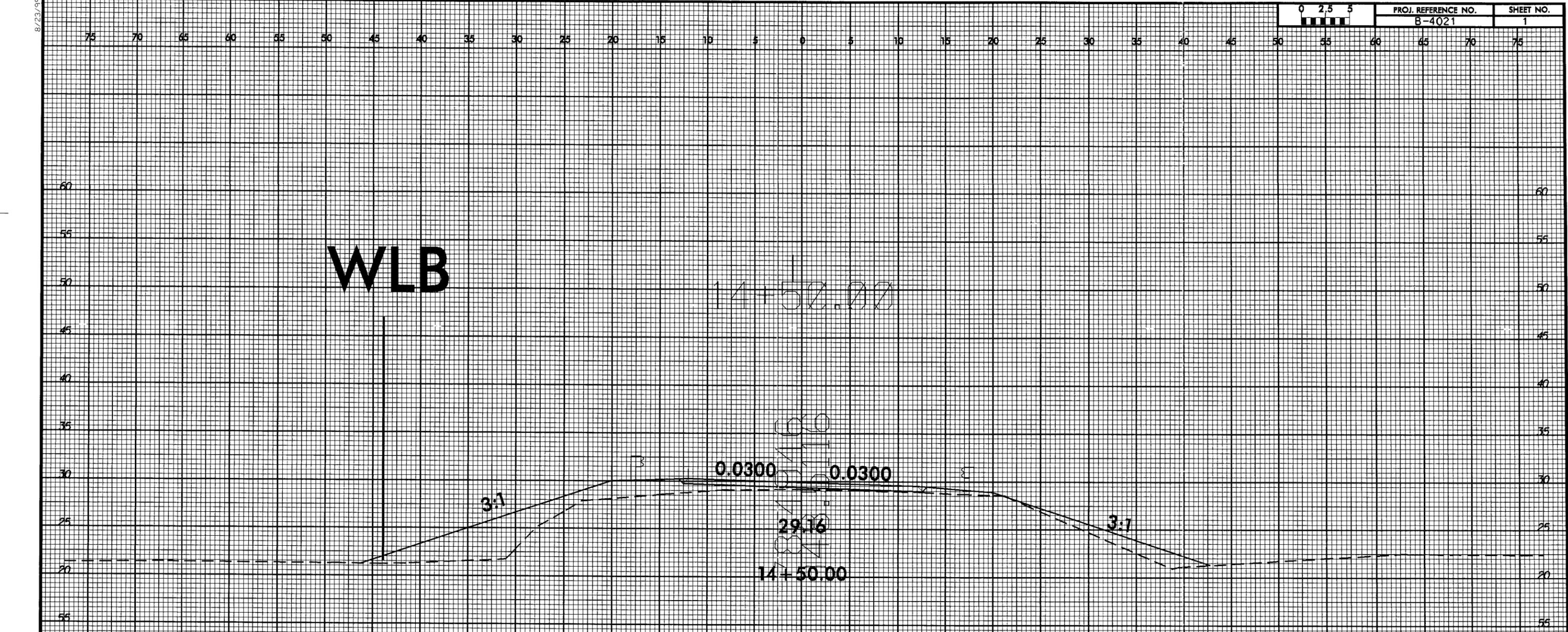
Permit Drawing
 Sheet 5 of 4

SHEET 2 OF 5 10/07

8/23/99

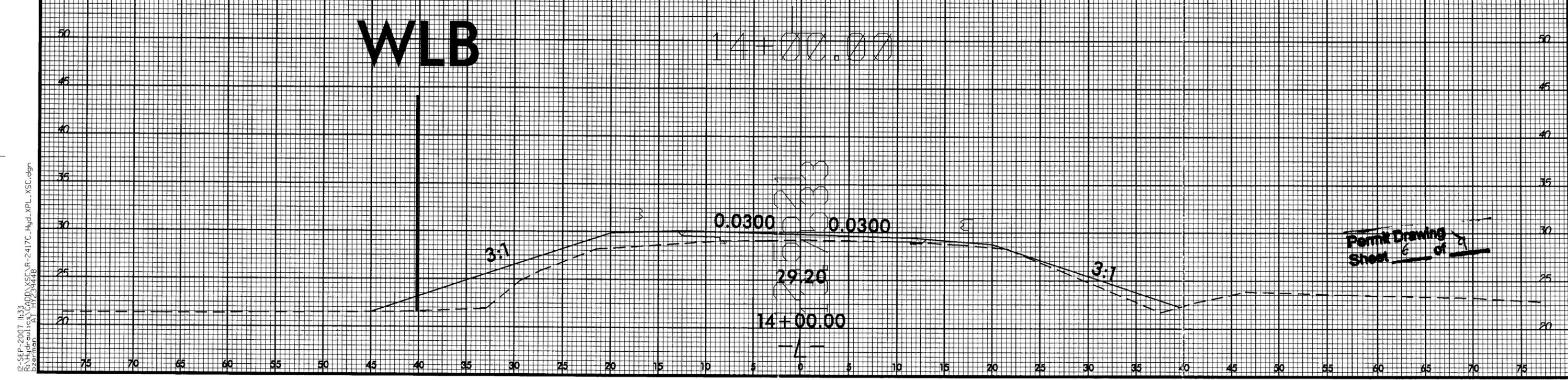
WLB

14+50.00



WLB

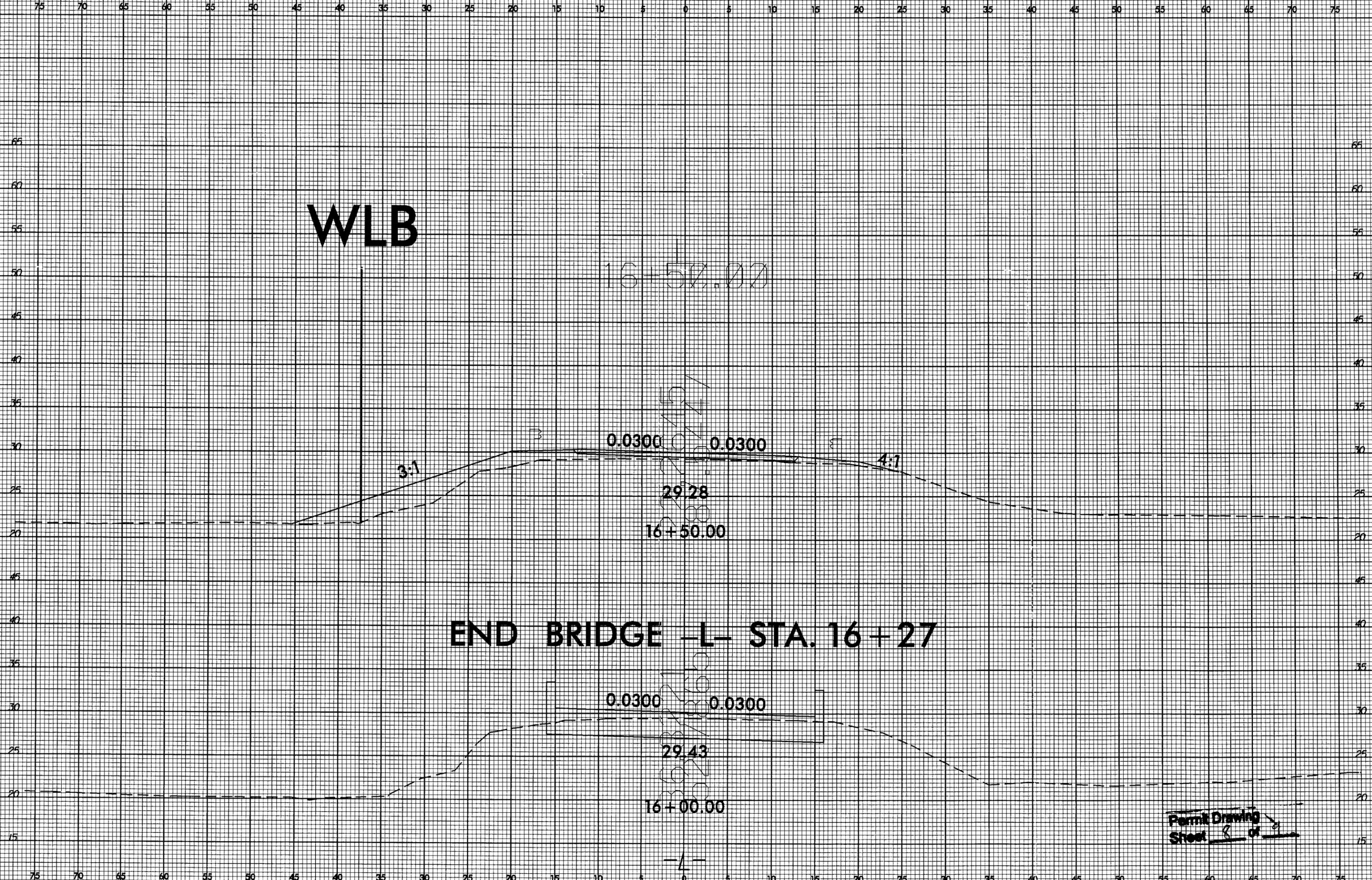
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Permit Drawing
Sheet 6 of 2

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8/23/99

8/23/99



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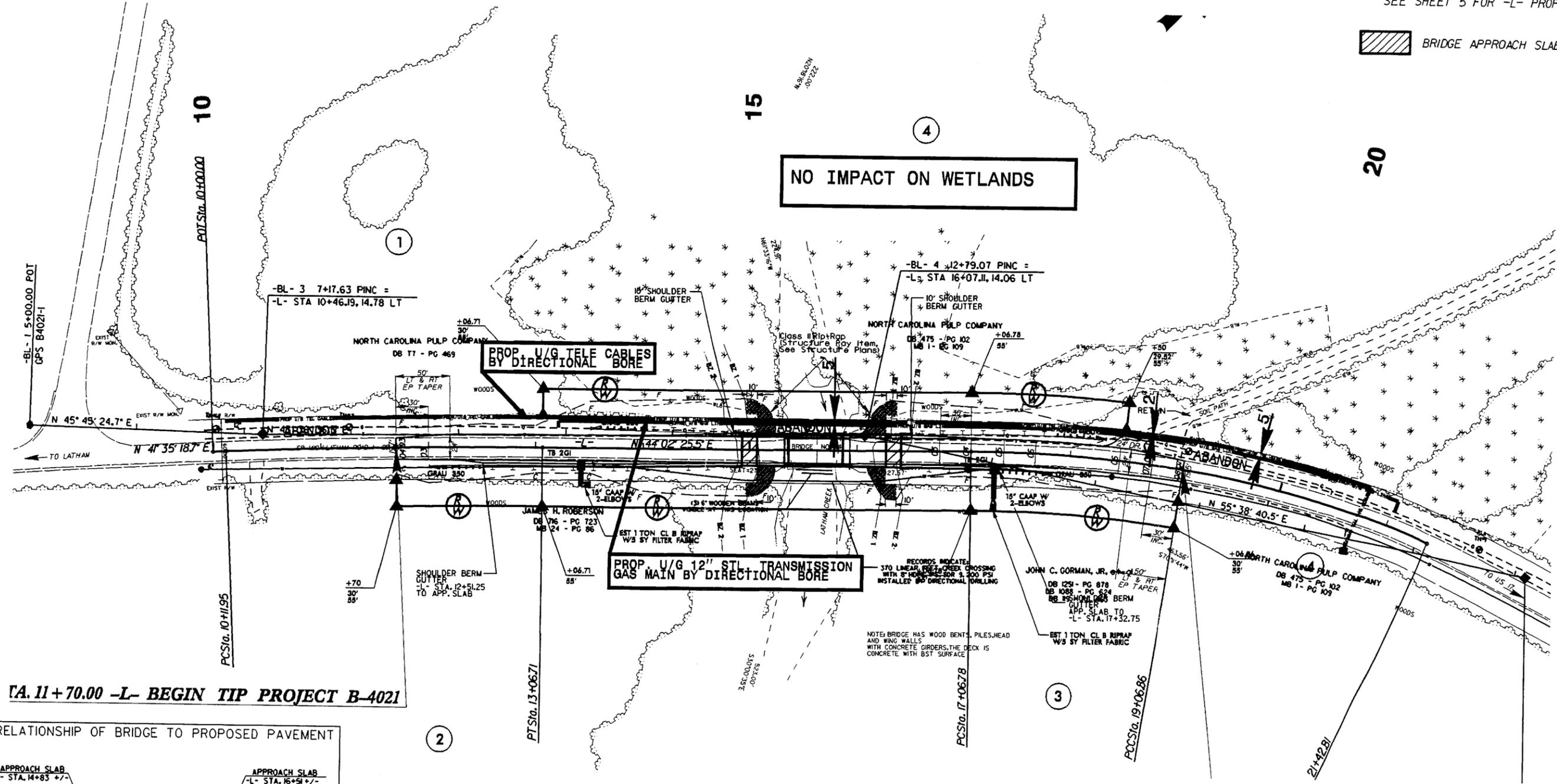
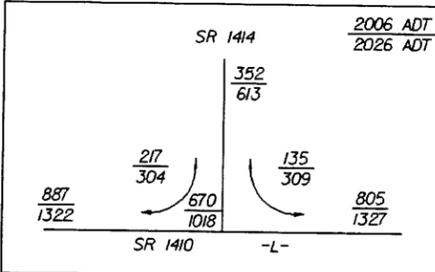
8/17/99

Utility Drawings

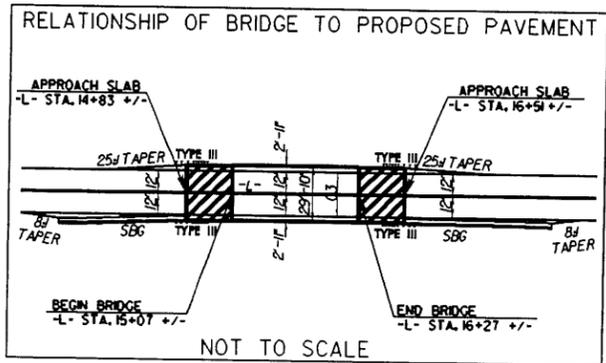
PROJECT REFERENCE NO. B-4021		SHEET NO. 4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

SEE SHEET 5 FOR -L- PROFILE

 BRIDGE APPROACH SLAB



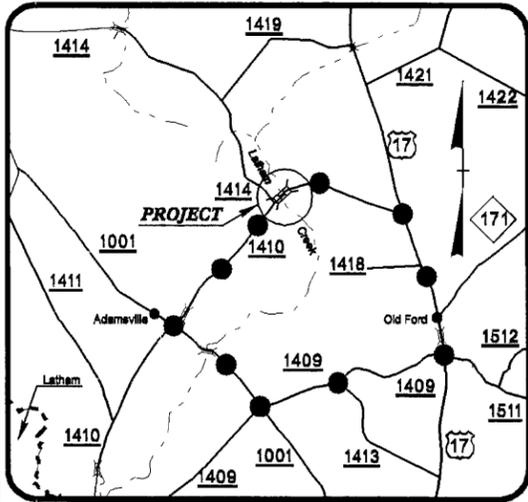
TA. 11+70.00 -L- BEGIN TIP PROJECT B-4021



REVISIONS

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11:51:11 AM
13-01-01

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



VICINITY MAP

PROPOSED DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

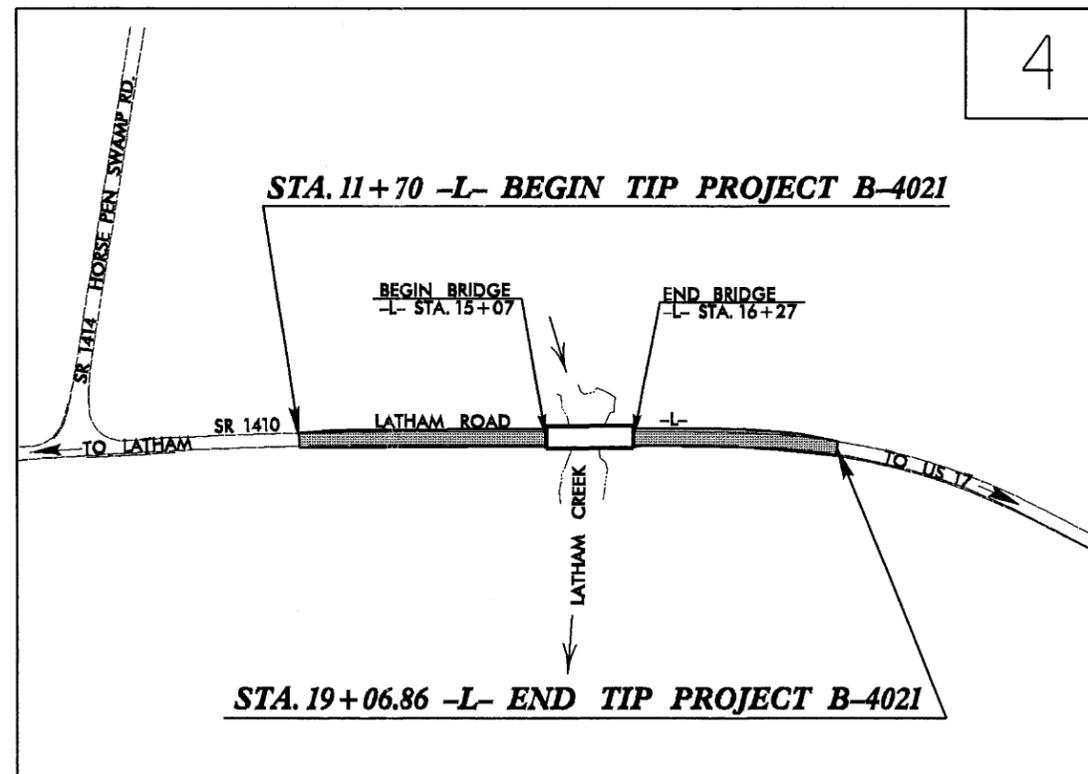
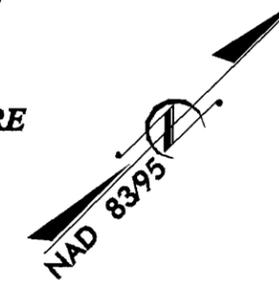
BEAUFORT COUNTY

LOCATION: BRIDGE NO. 84 OVER LATHAM CREEK ON SR 1410

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

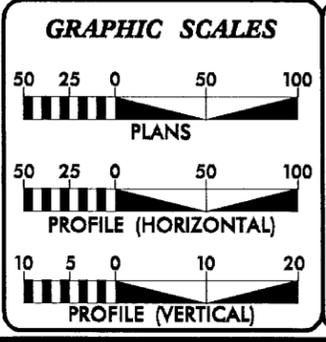
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4021	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33388.1.1	BRZ-1410(2)	PE	
33388.2.1	BRZ-1410(2)	R/W & UTIL	
33388.3.1	BRZ-1410(2)	CONST.	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TIP PROJECT: B-4021

CONTRACT: C201481



DESIGN DATA

ADT 2008 =	857
ADT 2028 =	1379
DHV =	10 %
D =	60 %
T =	3 % *
V =	60 MPH
* TTST 1% DUAL 2%	
FUNC. CLASS =	RURAL LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4021 =	0.117 MILES
LENGTH STRUCTURE TIP PROJECT B-4021 =	0.023 MILES
TOTAL LENGTH TIP PROJECT B-4021 =	0.140 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 8, 2005	GARY LOYERING, P.E. PROJECT ENGINEER
LETTING DATE: MARCH 18, 2008	RON McCOLLUM, P.E. PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

30-OCT-2007 07:48
r:\roadway\proj\B-4021_rdy_tsh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

3/15/06

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

Table listing symbols for boundaries and property: State Line, County Line, Township Line, City Line, Reservation Line, Property Line, Existing Iron Pin, Property Corner, Property Monument, Parcel/Sequence Number, Existing Fence Line, Proposed Woven Wire Fence, Proposed Chain Link Fence, Proposed Barbed Wire Fence, Existing Wetland Boundary, Proposed Wetland Boundary, Existing Endangered Animal Boundary, Existing Endangered Plant Boundary.

BUILDINGS AND OTHER CULTURE:

Table listing symbols for buildings and other culture: Gas Pump Vent or U/G Tank Cap, Sign, Well, Small Mine, Foundation, Area Outline, Cemetery, Building, School, Church, Dam.

HYDROLOGY:

Table listing symbols for hydrology: Stream or Body of Water, Hydro, Pool or Reservoir, Jurisdictional Stream, Buffer Zone 1, Buffer Zone 2, Flow Arrow, Disappearing Stream, Spring, Wetland, Proposed Lateral, Tail, Head Ditch, False Sump.

RAILROADS:

Table listing symbols for railroads: Standard Gauge, RR Signal Milepost, Switch, RR Abandoned, RR Dismantled.

RIGHT OF WAY:

Table listing symbols for right of way: Baseline Control Point, Existing Right of Way Marker, Existing Right of Way Line, Proposed Right of Way Line, Proposed Right of Way Line with Iron Pin and Cap Marker, Proposed Right of Way Line with Concrete or Granite Marker, Existing Control of Access, Proposed Control of Access, Existing Easement Line, Proposed Temporary Construction Easement, Proposed Temporary Drainage Easement, Proposed Permanent Drainage Easement, Proposed Permanent Utility Easement.

ROADS AND RELATED FEATURES:

Table listing symbols for roads and related features: Existing Edge of Pavement, Existing Curb, Proposed Slope Stakes Cut, Proposed Slope Stakes Fill, Proposed Wheel Chair Ramp, Proposed Wheel Chair Ramp Curb Cut, Curb Cut for Future Wheel Chair Ramp, Existing Metal Guardrail, Proposed Guardrail, Existing Cable Guiderail, Proposed Cable Guiderail, Equality Symbol, Pavement Removal.

VEGETATION:

Table listing symbols for vegetation: Single Tree, Single Shrub, Hedge, Woods Line, Orchard, Vineyard.

EXISTING STRUCTURES:

Table listing symbols for existing structures: MAJOR: Bridge, Tunnel or Box Culvert, Bridge Wing Wall, Head Wall and End Wall; MINOR: Head and End Wall, Pipe Culvert, Footbridge, Drainage Box: Catch Basin, DI or JB, Paved Ditch Gutter, Storm Sewer Manhole, Storm Sewer.

UTILITIES:

Table listing symbols for utilities: POWER: Existing Power Pole, Proposed Power Pole, Existing Joint Use Pole, Proposed Joint Use Pole, Power Manhole, Power Line Tower, Power Transformer, U/G Power Cable Hand Hole, H-Frame Pole, Recorded U/G Power Line, Designated U/G Power Line (S.U.E.*).

TELEPHONE:

Table listing symbols for telephone: Existing Telephone Pole, Proposed Telephone Pole, Telephone Manhole, Telephone Booth, Telephone Pedestal, Telephone Cell Tower, U/G Telephone Cable Hand Hole, Recorded U/G Telephone Cable, Designated U/G Telephone Cable (S.U.E.*), Recorded U/G Telephone Conduit, Designated U/G Telephone Conduit (S.U.E.*), Recorded U/G Fiber Optics Cable, Designated U/G Fiber Optics Cable (S.U.E.*).

WATER:

Table listing symbols for water: Water Manhole, Water Meter, Water Valve, Water Hydrant, Recorded U/G Water Line, Designated U/G Water Line (S.U.E.*), Above Ground Water Line.

TV:

Table listing symbols for TV: TV Satellite Dish, TV Pedestal, TV Tower, U/G TV Cable Hand Hole, Recorded U/G TV Cable, Designated U/G TV Cable (S.U.E.*), Recorded U/G Fiber Optic Cable, Designated U/G Fiber Optic Cable (S.U.E.*).

GAS:

Table listing symbols for gas: Gas Valve, Gas Meter, Recorded U/G Gas Line, Designated U/G Gas Line (S.U.E.*), Above Ground Gas Line.

SANITARY SEWER:

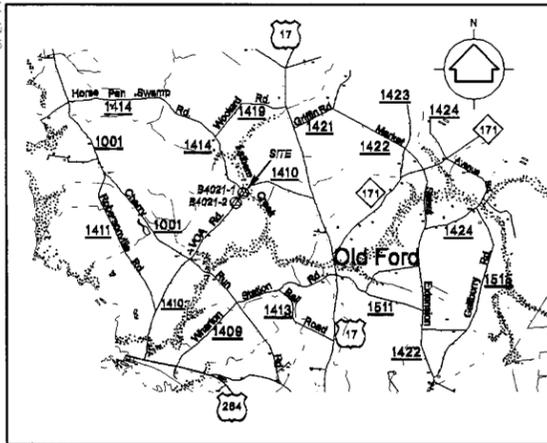
Table listing symbols for sanitary sewer: Sanitary Sewer Manhole, Sanitary Sewer Cleanout, U/G Sanitary Sewer Line, Above Ground Sanitary Sewer, Recorded SS Forced Main Line, Designated SS Forced Main Line (S.U.E.*).

MISCELLANEOUS:

Table listing symbols for miscellaneous: Utility Pole, Utility Pole with Base, Utility Located Object, Utility Traffic Signal Box, Utility Unknown U/G Line, U/G Tank; Water, Gas, Oil, A/G Tank; Water, Gas, Oil, U/G Test Hole (S.U.E.*), Abandoned According to Utility Records, End of Information.

PROJECT REFERENCE NO.	SHEET NO.
B-4021	1-C
Location and Surveys	

SURVEY CONTROL SHEET B-4021

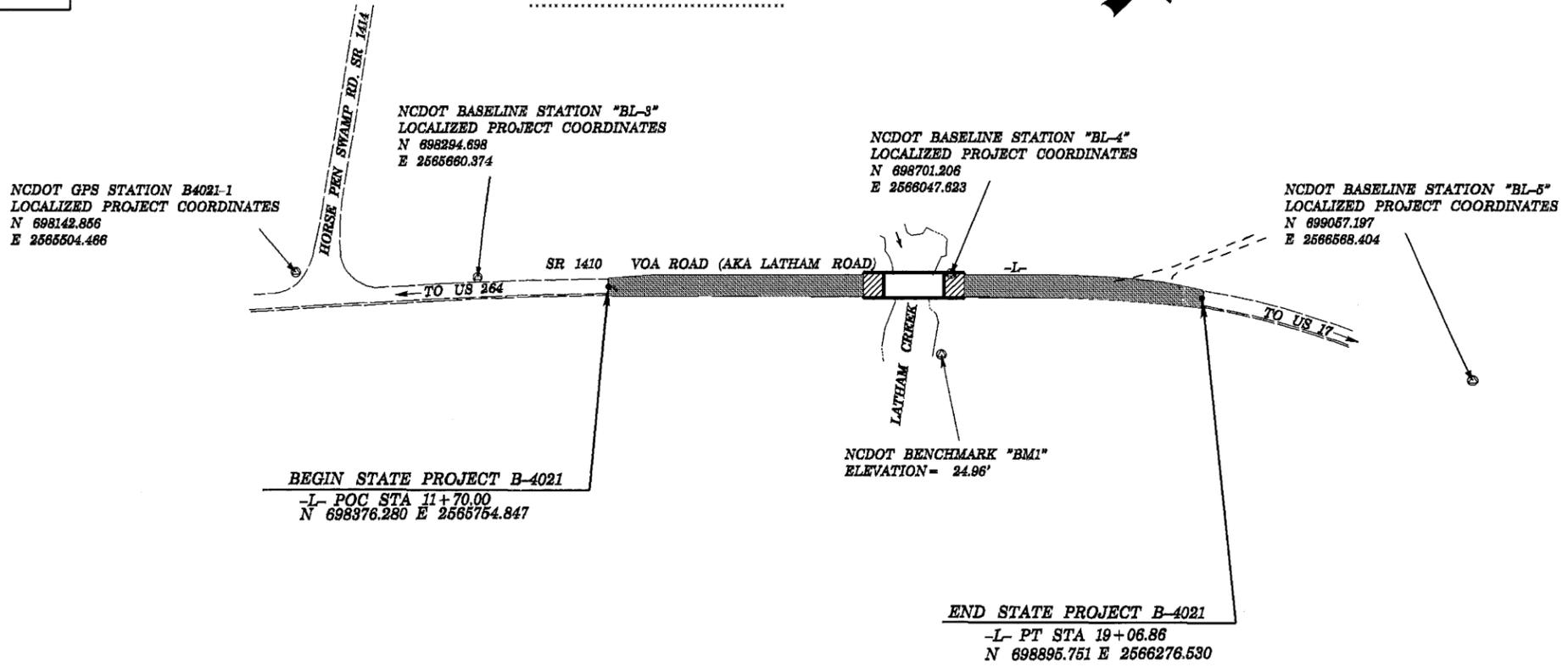
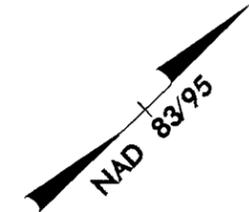


VICINITY MAP
(NOT TO SCALE)

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1		GPS B4021-1	698142.8560	2565504.4660	31.67	OUTSIDE PROJECT LIMITS	
3		BL-3	698294.6982	2565660.3737	29.88	18+46.19	14.78 LT
4		BL-4	698701.2062	2566047.6232	28.69	16+07.11	14.06 LT
5		BL-5	699057.1970	2566568.4036	31.15	OUTSIDE PROJECT LIMITS	

BENCHMARK DATA

.....
 BM1 ELEVATION = 24.96'
 N 698626 E 2566108
 L STATION 15+95 82 RIGHT
 R/R SPIKE SET IN 18" HARDWOOD



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4021-1" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 698142.856(11) EASTING: 2565504.466(11) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99990078 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4021-1" TO 4- STATION 11+70.00 IS N47° 00' 26.3" E 342.312 (11) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAD 88

NOTES:

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project)
 FILE: b4021_1a_control_040714.txt
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- Ⓢ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM. NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)

NOTE: DRAWING NOT TO SCALE

30-OCT-2007 07:22
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 11-02.dwg
 11-02.dwg

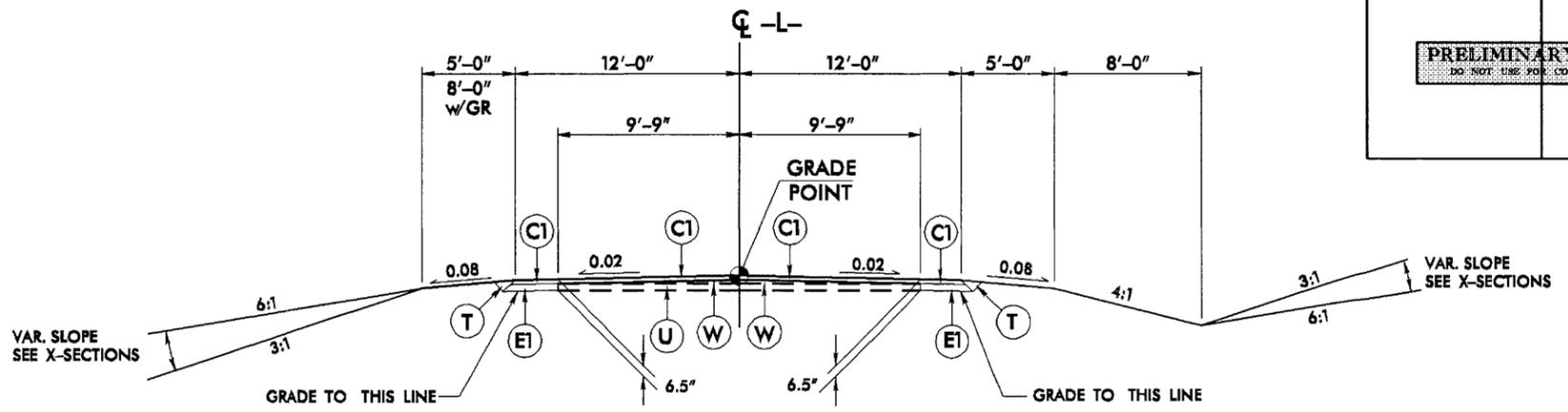
6/2/99

**PAVEMENT SCHEDULE
FINAL DESIGN**

C1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

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

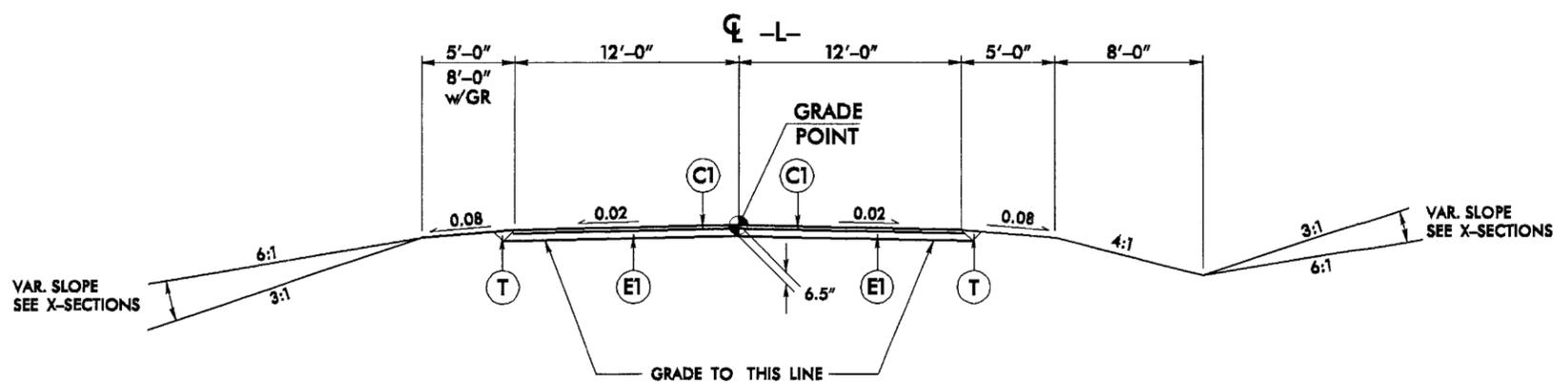
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ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

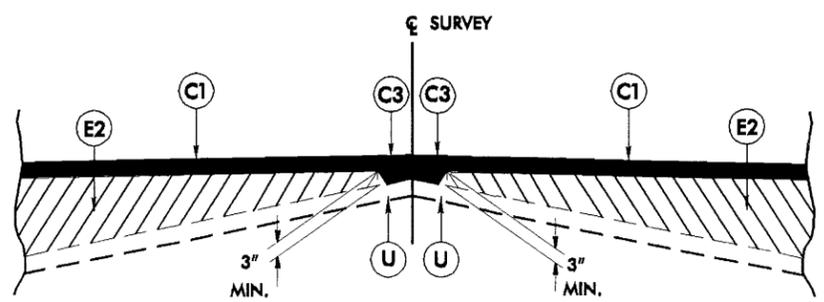
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-L- STA. 16+77 TO -L- STA. 19+06.86



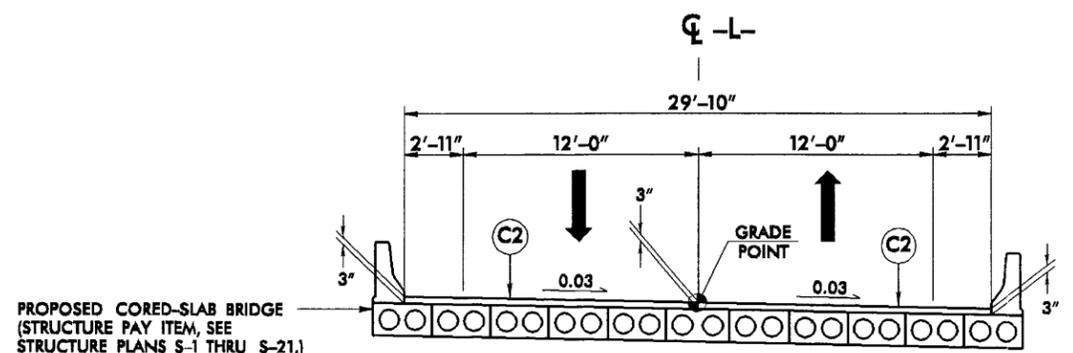
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

-L- STA. 14+50 TO -L- STA. 15+07 (BEG. BRIDGE)
-L- STA. 16+27 (END BRIDGE) TO -L- STA. 16+77



Wedging Detail



PROPOSED CORED-SLAB BRIDGE
(STRUCTURE PAY ITEM, SEE
STRUCTURE PLANS S-1 THRU S-21.)

TYPICAL SECTION ON STRUCTURE

USE TYPICAL SECTION ON STRUCTURE

-L- STA. 15+07 (BEG. BRIDGE) TO -L- STA. 16+27 (END BRIDGE)

30-OCT-2007 01:48 4021.rdy -typ.dgn

8/17/99

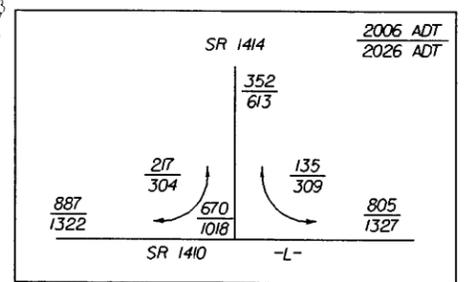
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

SEE SHEET 5 FOR -L- PROFILE

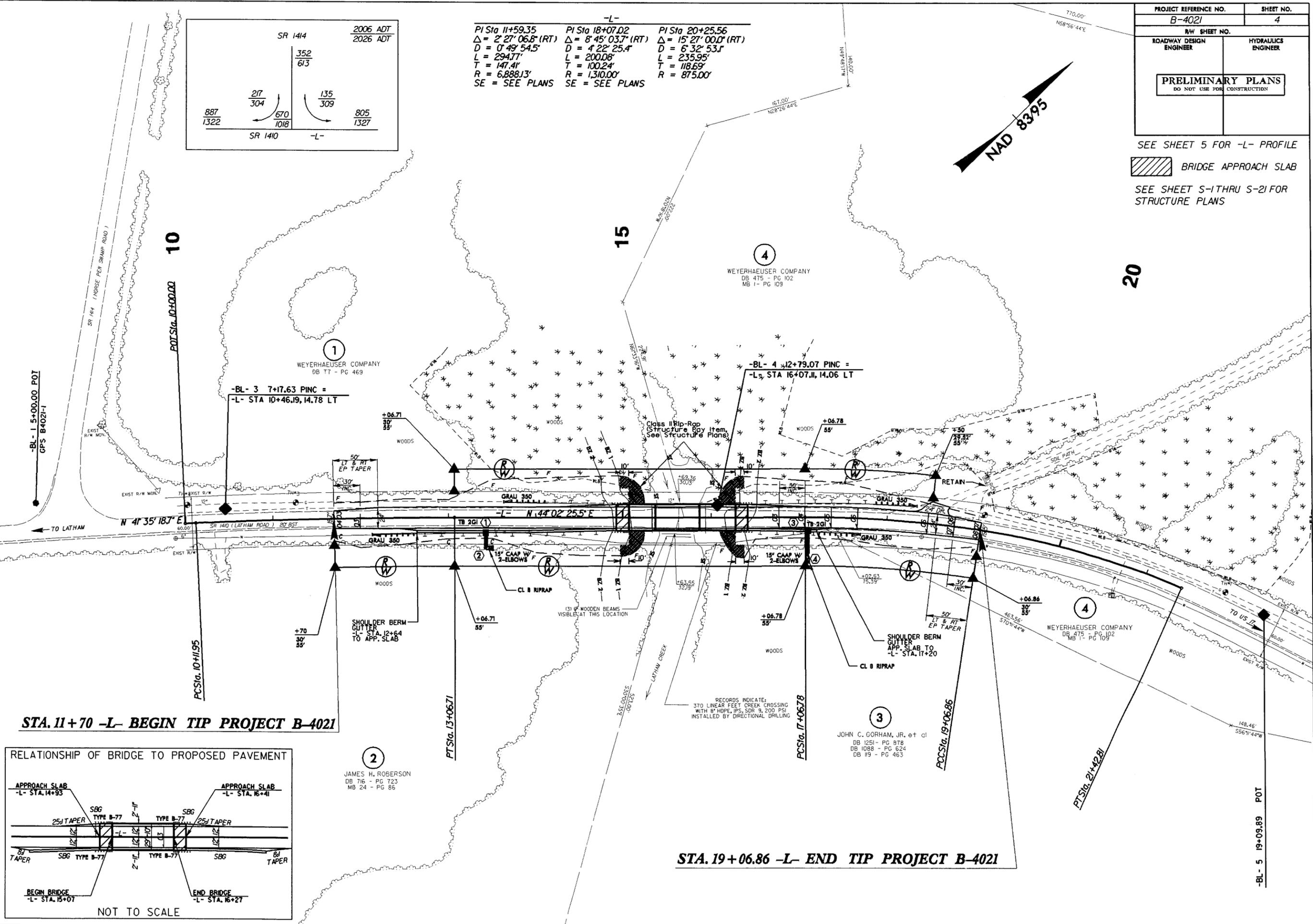
BRIDGE APPROACH SLAB

SEE SHEET S-1 THRU S-21 FOR STRUCTURE PLANS

-L-		
PI Sta 11+59.35 Δ = 2° 27' 06.6" (RT) D = 0° 49' 54.5" L = 294.77' T = 147.41' R = 6,888.13' SE = SEE PLANS	PI Sta 18+07.02 Δ = 8° 45' 03.7" (RT) D = 4° 22' 25.4" L = 200.08' T = 100.24' R = 1,310.00' SE = SEE PLANS	PI Sta 20+25.56 Δ = 15° 27' 00.0" (RT) D = 6° 32' 53.7" L = 235.95' T = 118.69' R = 875.00' SE = SEE PLANS

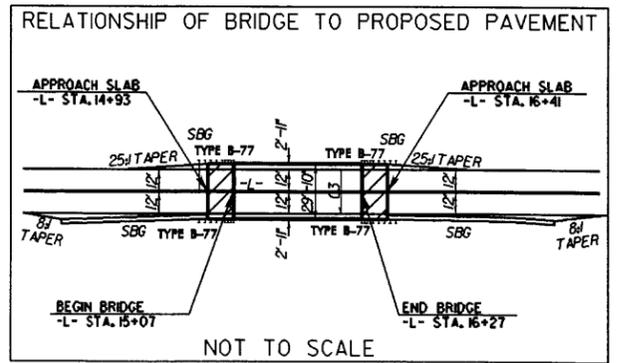


REVISIONS



STA. 11+70 -L- BEGIN TIP PROJECT B-4021

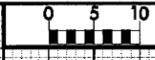
STA. 19+06.86 -L- END TIP PROJECT B-4021



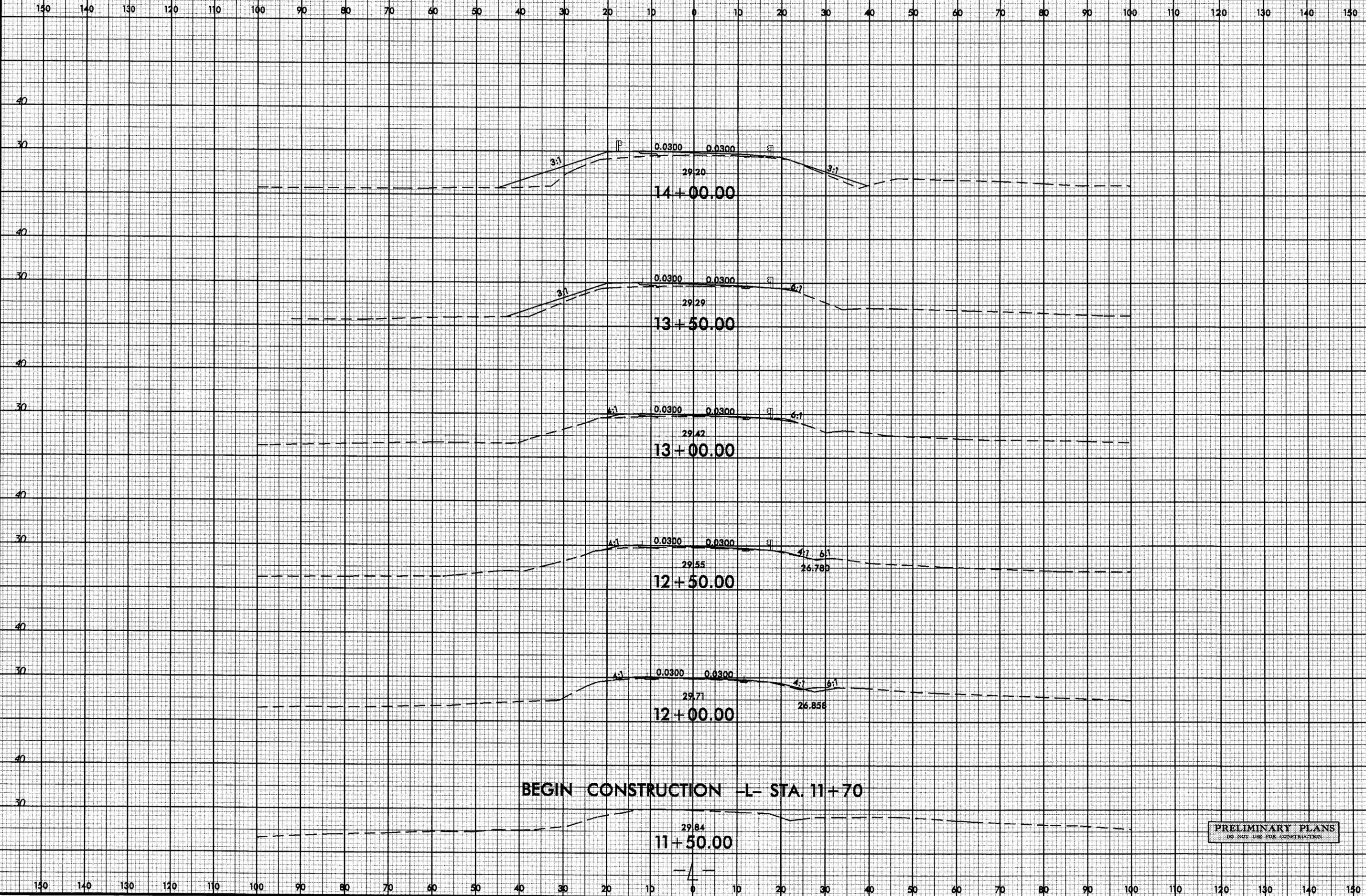
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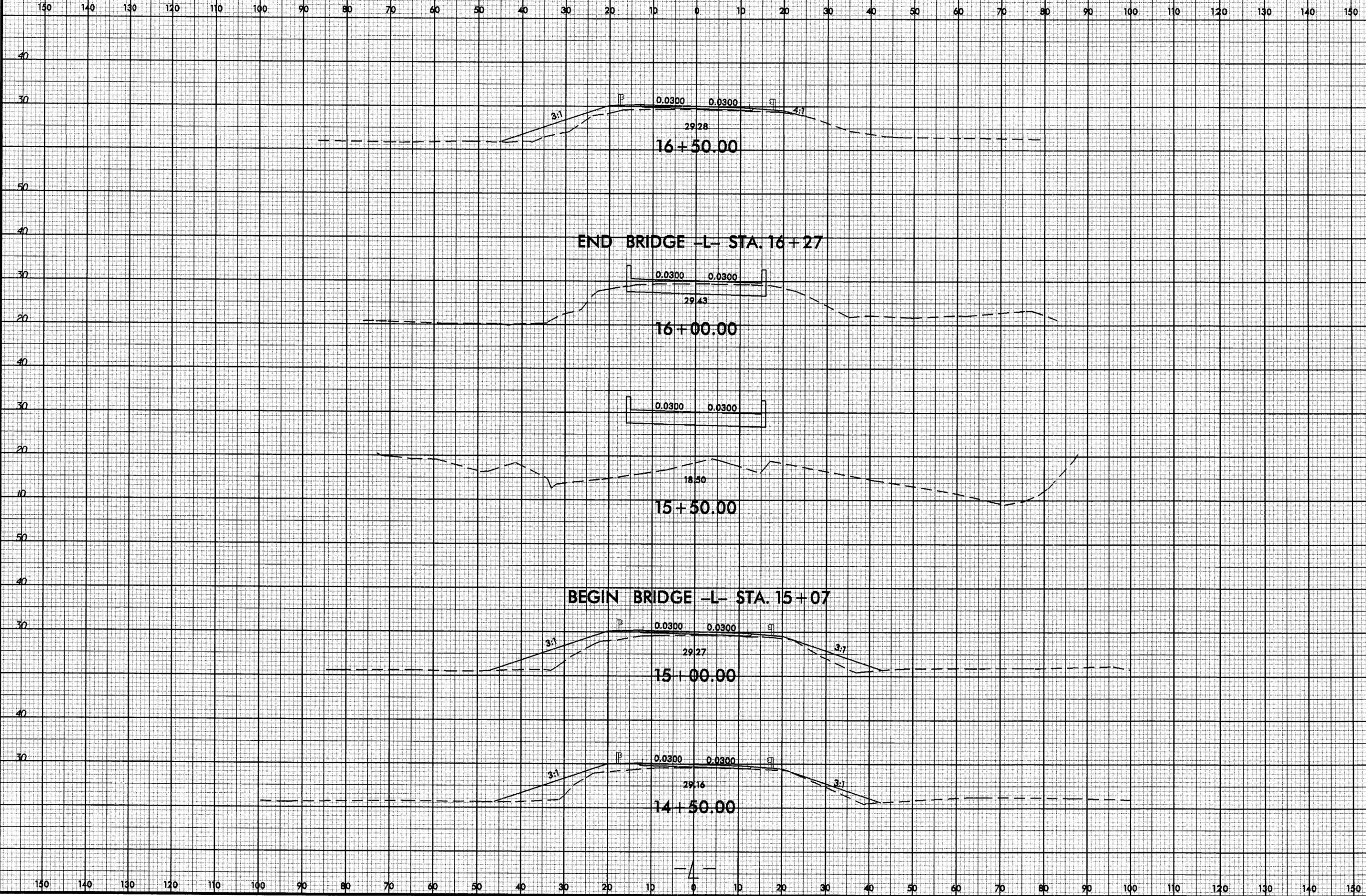
PROJ. REFERENCE NO. B-4021	SHEET NO. X-1
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BEGIN CONSTRUCTION -L- STA. 11+70

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

30-OCT-2007 07:48:021_rdu.xpl.dgn
\$\$\$\$\$



Subject: 2006 Bridge Projects

Date: Wed, 23 Jul 2003 14:37:10 -0400

From: Bill Arrington <Bill.Arrington@ncmail.net>

Organization: NC DENR DCM

To: "Goodwin, William" <bgoodwin@dot.state.nc.us>

CC: "Brittingham, Cathy" <Cathy.Brittingham@ncmail.net>

Hi Bill,

I finally visited all the sites in the coastal counties.

The following are my comments for the proposed bridge replacement sites:

B-3811 - No DCM jurisdiction

• B-4021 - No DCM jurisdiction

B-4022 - I have received no request or information

B-4023 - Public Trust Area (PTA) and Public Trust Shoreline (PTS) Areas of Environmental Concern (AEC's) Yellow light project - Access to the farm road approximately 50' from the bridge in the north east quadrant should be maintained

B-4025 - PTA and PTS AEC's. Yellow light project - Access to the roads along the creek in the north east and north west quadrants should be maintained.

B-4027 - PTA and PTS AEC's. Green light project

B-4073 - PTA and PTS AEC's. Yellow light project - Access to driveway approximately 180 feet from the south east corner of the bridge should be maintained.

• B-4085 - PTA and PTS AEC's. Green light project

• B-4088 - No DCM jurisdiction

B-4151 - No DCM jurisdiction

B-4224 - PTA and PTS AEC's. Green light project

B-4225 - No DCM jurisdiction

B-4226 - No DCM jurisdiction

B-4228 - No DCM jurisdiction

B-4313 - No DCM jurisdiction

B-4420 - No DCM jurisdiction

B-4431 - PTA and PTS AEC's. Green light project

B-4486 - PTA and PTS AEC's. Green light project

Replacing the bridges that have DCM AEC impacts with a similar bridge on the same alignment would qualify for a general permit and require little time to permit after the required complete application, fee and adjacent riparian property notifications are received. Adding additional lanes to the bridge, requesting a work bridge or causeway, requesting an on site

detour bridge or causeway, exceeding the allowable impacts for the general permit or constructing the bridge on a new alignment would require the application for a CAMA major permit as well as more coordination between DOT and DCM and additional time to process the permit application.

Thank you for explaining the process for this years bridge scopings. I appreciate your efforts to distribute the lists of projects well in advance of the comment deadline. I believe next year will work more smoothly.

Bill

CATEGORICAL EXCLUSION ACTION CLASSIFICATION FORM

TIP Project No.	<u>B-4021</u>
State Project No.	<u>8.2150901</u>
WBS No.	<u>33388.1.1</u>
Federal Project No.	<u>BRZ-1410(2)</u>

A. Project Description:

The purpose of this project is to replace Beaufort County Bridge No. 84 on SR 1410 over Latham Creek. The replacement structure will be a bridge 70 feet long and 28 feet wide. The cross section will include two 11-foot lanes and 3-foot offsets. The west approach will be approximately 300 feet long and the east approach will be approximately 335 feet long. The approach cross section will include 11-foot lanes and 6-foot shoulders. Traffic will be detoured offsite during construction (see Figure 1). The roadway will be designed with a 60 mile per hour design speed.

B. Purpose and Need:

Bridge Maintenance Unit records indicate the bridge has a sufficiency rating of 27.3 out of a possible 100 for a new structure. The bridge has a timber substructure that can not reasonably be rehabilitated. The cross section of the bridge does not conform with modern highway standards. Finally the structural evaluation is 2 out of 10 which qualifies the bridge as both structurally deficient and functionally obsolete. For these reasons Bridge No. 28 needs to be replaced.

C. Proposed Improvements:

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

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

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

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

D. Special Project Information:

Estimated Costs:

Total Construction	\$ 375,000
Right of Way	\$ 24,000
Total	\$ 399,000

Estimated Traffic:

Current	-	700
Year 2025	-	1300
TTST	-	1%
Dual	-	2%

Accidents: In a check of a recent three-year period (April 1999 – March 2002), no accidents were recorded.

Design Speed: 60 miles per hour

Functional Classification: Rural Local Route

School Buses: There are eight school bus crossings per day at this location. According to the Transportation Director for Beaufort County, re-routing will be manageable.

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

Bridge Demolition: Bridge Demolition will likely require some fill in waters of the U.S. resulting from a construction pad for a crane. Details of volume will be provided as a function of the final design and permitting process.

Offsite Detour: The offsite detour would utilize US 17, SR 1409, SR 1001, and back to SR 1410. There would be approximately 3.7 miles additional travel (see Figure 1) resulting in 4 minutes delay for the average road user that is within the acceptable range of delay.

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

E. Threshold Criteria

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

<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"/>	<u>X</u>
(2) Does the project involve habitat where federally listed endangered or threatened species may occur?	<input type="checkbox"/>	<u>X</u>
(3) Will the project affect anadromous fish?	<input checked="" type="checkbox"/>	<u> </u>
(4) If the project involves wetlands, is the amount of permanent and/or temporary wetland taking less than one-third (1/3) of an acre and have all practicable measures to avoid and minimize wetland takings been evaluated?	<u>X</u>	<input type="checkbox"/>
(5) Will the project require the use of U. S. Forest Service lands?	<input type="checkbox"/>	<u>X</u>
(6) Will the quality of adjacent water resources be adversely impacted by proposed construction activities?	<input type="checkbox"/>	<u>X</u>
(7) Does the project involve waters classified as Outstanding Water Resources (OWR) and/or High Quality Waters (HQW)?	<input type="checkbox"/>	<u>X</u>
(8) Will the project require fill in waters of the United States in any of the designated mountain trout counties?	<input type="checkbox"/>	<u>X</u>
(9) Does the project involve any known underground storage tanks (UST's) or hazardous materials sites?	<input type="checkbox"/>	<u>X</u>
 <u>PERMITS AND COORDINATION</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"/>	<u>X</u>
(11) Does the project involve Coastal Barrier Resources Act resources?	<input type="checkbox"/>	<u>X</u>
(12) Will a U. S. Coast Guard permit be required?	<input type="checkbox"/>	<u>X</u>

- | | | | |
|------|--|--------------------------|--------------|
| (13) | Will the project result in the modification of any existing regulatory floodway? | <input type="checkbox"/> | <u> X </u> |
| (14) | Will the project require any stream relocations or channel changes? | <input type="checkbox"/> | <u> X </u> |

SOCIAL, ECONOMIC, AND CULTURAL RESOURCES

- | | | <u>YES</u> | <u>NO</u> |
|------|---|--------------------------|--------------------------|
| (15) | Will the project induce substantial impacts to planned growth or land use for the area? | <input type="checkbox"/> | <u> X </u> |
| (16) | Will the project require the relocation of any family or business? | <input type="checkbox"/> | <u> X </u> |
| (17) | Will the project have a disproportionately high and adverse human health and environmental effect on any minority or low-income population? | <input type="checkbox"/> | <u> X </u> |
| (18) | If the project involves the acquisition of right of way, is the amount of right of way acquisition considered minor? | <u> X </u> | <input type="checkbox"/> |
| (19) | Will the project involve any changes in access control? | <input type="checkbox"/> | <u> X </u> |
| (20) | Will the project substantially alter the usefulness and/or land use of adjacent property? | <input type="checkbox"/> | <u> X </u> |
| (21) | Will the project have an adverse effect on permanent local traffic patterns or community cohesiveness? | <input type="checkbox"/> | <u> X </u> |
| (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)? | <u> X </u> | <input type="checkbox"/> |
| (23) | Is the project anticipated to cause an increase in traffic volumes? | <input type="checkbox"/> | <u> X </u> |
| (24) | Will traffic be maintained during construction using existing roads, staged construction, or on-site detours? | <u> X </u> | <input type="checkbox"/> |
| (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? | <u> X </u> | <input type="checkbox"/> |
| (26) | Is there substantial controversy on social, economic, or environmental grounds concerning the project? | <input type="checkbox"/> | <u> X </u> |

- | | | | |
|------|---|--------------------------|--------------------------|
| (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
(Discussion regarding all unfavorable responses in Part E should be provided below. Additional supporting documentation may be attached, as necessary.)

Response to Question (3) Will the project affect anadromous fish. Latham Creek has been identified as an anadromous fish stream. In coordination with the NC Division of Marine Fisheries, an in-water moratorium will be sufficient to protect the resource. The moratorium will be in place from February 16 to September 30 of any given year.

G. CE Approval

TIP Project No. B-4021
State Project No. 8.2150901
WBS No. 33388.1.1
Federal-Aid Project No. BRZ-1410(2)

Project Description:

The purpose of this project is to replace Beaufort County Bridge No. 84 on SR 1410 over Latham Creek. The replacement structure will be a bridge 70 feet long and 28 feet wide. The cross section will include two 11-foot lanes and 3-foot offsets. The west approach will be approximately 300 feet long and the east approach will be approximately 335 feet long. The approach cross section will include 11-foot lanes and 6-foot shoulders. Traffic will be detoured offsite during construction (see Figure 1). The roadway will be designed with a 60 mile per hour design speed.

Categorical Exclusion Action Classification:

 TYPE II(A)
 X TYPE II(B)

Approved:

3-8-04 Jessie Hall
Date Assistant Manager
Project Development & Environmental Analysis Branch

3-8-04 William A. Gooding
Date Project Planning Unit Head
Project Development & Environmental Analysis Branch

3-08-04 John D. Wilkin
Date Project Development Engineer
Project Development & Environmental Analysis Branch

For Type II(B) projects only:

3-09-04 for [Signature]
Date Division Administrator
Federal Highway Administration

PROJECT COMMITMENTS:

**Beaufort County
Bridge No. 84 on SR 1410
Over Latham Creek
Federal Aid Project No. BRZ-1410(2)
State Project No. 8.2150901
W.B.S. No. 33388.1.1
T.I.P. No. B-4021**

Hydraulic Design Unit – Anadramous Fish

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

All Design Groups/ Division Resident Engineer – Anadramous Fish

The North Carolina Division of Marine Fisheries has indicated that a moratorium on in-water construction will be in place from February 15 to September 30 of any given year.

To the extent practical, construction should be accomplished without the use of construction pads.

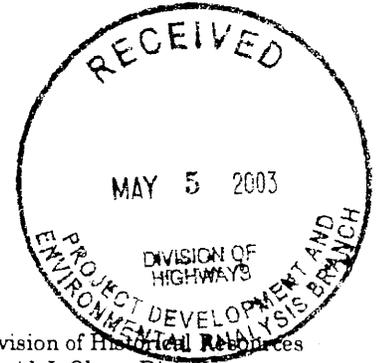
To the extent practical, bridge demolition should occur without getting into the water.

Strong consideration should be given to spanning the stream entirely with one span.



North Carolina Department of Cultural Resources
State Historic Preservation Office

David L. S. Brook, Administrator



Division of Historical Resources
David J. Olson, Director

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary

April 29, 2003

MEMORANDUM

TO: Greg Thorpe, Manager
Project Development and Environmental Analysis Branch
NCDOT Division of Highways

FROM: David Brook *By David Brook*

SUBJECT: Replacement of Bridge No. 84 on SR 1410 over Latham Creek, B-4021,
Beaufort County, ER03-0918

Thank you for your memorandum of April 7, 2003, concerning the above project.

We have conducted a review of the proposed undertaking and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the undertaking as proposed.

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

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763. In all future communication concerning this project, please cite the above referenced tracking number.

cc: Mary Pope Furr

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	4613 Mail Service Center, Raleigh NC 27699-4613	(919) 733-6547 • 715-4801
SURVEY & PLANNING	515 N. Blount St., Raleigh NC	4618 Mail Service Center, Raleigh NC 27699-4618	(919) 733-6545 • 715-4801



North Carolina Department of Environment and Natural Resources
Division of Marine Fisheries

Michael F. Easley, Governor
William G. Ross, Jr., Secretary

Preston P. Pate, Jr., Director

MEMORANDUM

TO: William T. Goodwin, Jr., PE
NCDOT
Bridge Replacement Planning Unit

FROM: Mike Street

DATE: July 16, 2003

SUBJECT: Natural System Report
Replacement of Bridge Numbers : 128, 53, 219, 121, 21, 84, 39, 74, 52

*3-4231
B-4235
B-4234
B-4319
B-4021
B-4025
B-4088
B-4164*

Attached is the Divisions' reply for the above referenced project. If you have any questions, please do not hesitate to contact me.

MS/sw



MEMORANDUM:

TO: William Goodwin, Jr.

THROUGH: Mike Street

FROM: Sean McKenna *SMCK*

DATE: July 14, 2003

SUBJECT: Natural System Report. Replacement of Bridge Numbers 128, 53, 219, 121, 21, 84, 39, 74, and 52.

The following comments by the North Carolina Division of Marine Fisheries (NCDMF) on the Natural System Report for the replacement of the subject bridge's are offered pursuant to G.S. 113-131.

Bridge Numbers 128, 53, 121, 21, 84, 39, 74, and 52.

The NCDMF concurs with the findings in these reports and agrees with DOT's in-stream construction moratoriums to limit the effects on fishery resources and their plan to protect water quality (BMP's for erosion control, and surface waters protection) during construction. The NCDMF encourages DOT to bridge all wetlands for these replacement projects.

Bridge Number 219.

In the Natural System Reports for this bridge DOT makes no mention of anadromous fish utilizing the creek (Hardee) that this bridges traverse. NCDMF data (1974) indicates that Hardee Creek does support river herring. The NCDMF requests that DOT impose an in-water moratorium from February through September to protect adult, egg, and larval stages of these migratory species. If data from the Wildlife Resource Commission or a stream survey shows that these areas no longer support anadromous species then the NCDMF will withdrawal it's request for a moratorium.

FINAL

NATURAL RESOURCES TECHNICAL REPORT

**Replacement of Bridge No. 84
on SR 1410 over Latham Creek
Beaufort County, North Carolina
TIP No. B-4021
(State Project No. 8.2150901)
(Federal Aid Project No. BRZ-1410[2])**

NCDOT Consulting Project No. 02-LO-01



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

February 2003

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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

1.0 INTRODUCTION

1.1 Project Description

This project includes the replacement of Bridge No. 84 on State Road (SR) 1410, (Voice of America [V. O. A.] Road) over Latham Creek in Beaufort County, North Carolina (Figure 1). Bridge No. 84 is located approximately 7.0 miles (11.3 kilometers) north of the city of Washington, NC. The bridge is located approximately 1.5 miles (2.4 kilometers) west of the intersection of SR 1410 and US 17.

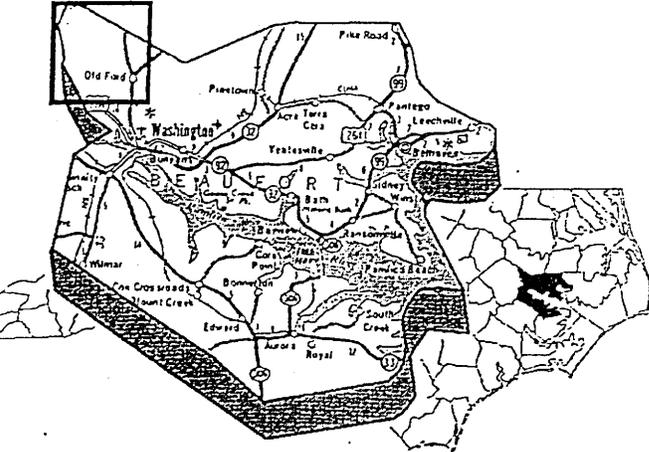
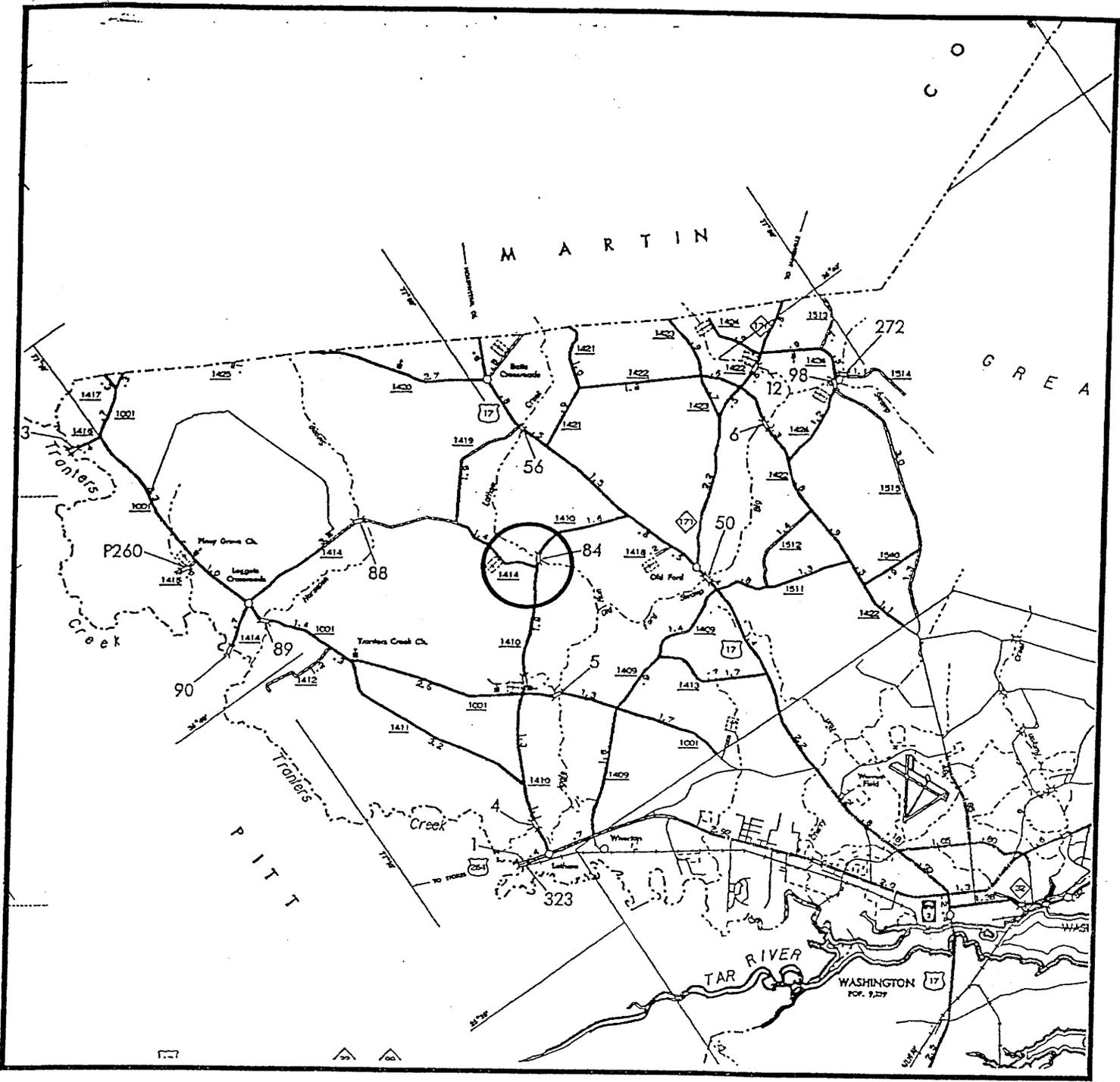
The existing bridge was built in 1962 and has a pre-stressed concrete channel superstructure with concrete caps on timber piles. The proposed project will replace the existing bridge with an undetermined structure. A temporary detour using Horsepen Swamp Road (SR 1414), Wollard Road (SR 1419) and US 17 may be feasible (Figure 2).

1.2 Definitions

A “bubble study” for environmental input for the project was performed since 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 2,900 feet (880 meters) in length and ranges in width from approximately 400 feet (120 meters) to approximately 700 feet (213 meters). The project study area is shown in Figure 3. The **project vicinity** describes an area extending 0.5 mile (0.8 kilometer) on all sides of the project study area.

1.3 Purpose

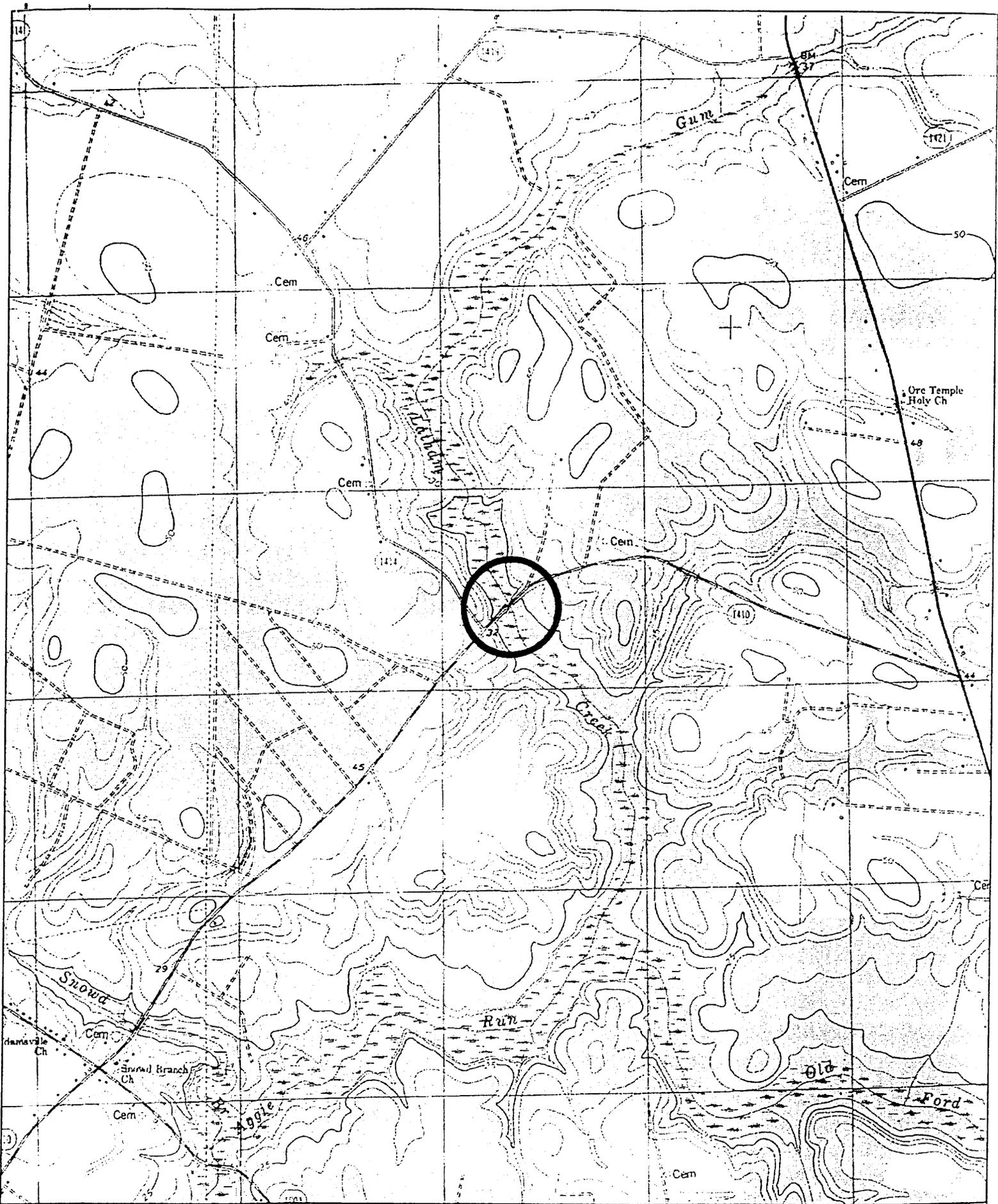
The purpose of this Natural Resource Technical Report is to document this evaluation of existing natural resources in the project study area to assist with the development of project alternatives and the preparation of a Categorical Exclusion (CE). Specifically, the tasks performed for this report include: 1) an assessment of natural resource features within the project study area including 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 evaluation 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.



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

BEAUFORT COUNTY
REPLACE BRIDGE NO. 84 ON SR 1410
OVER LATHAM CREEK
B-4021

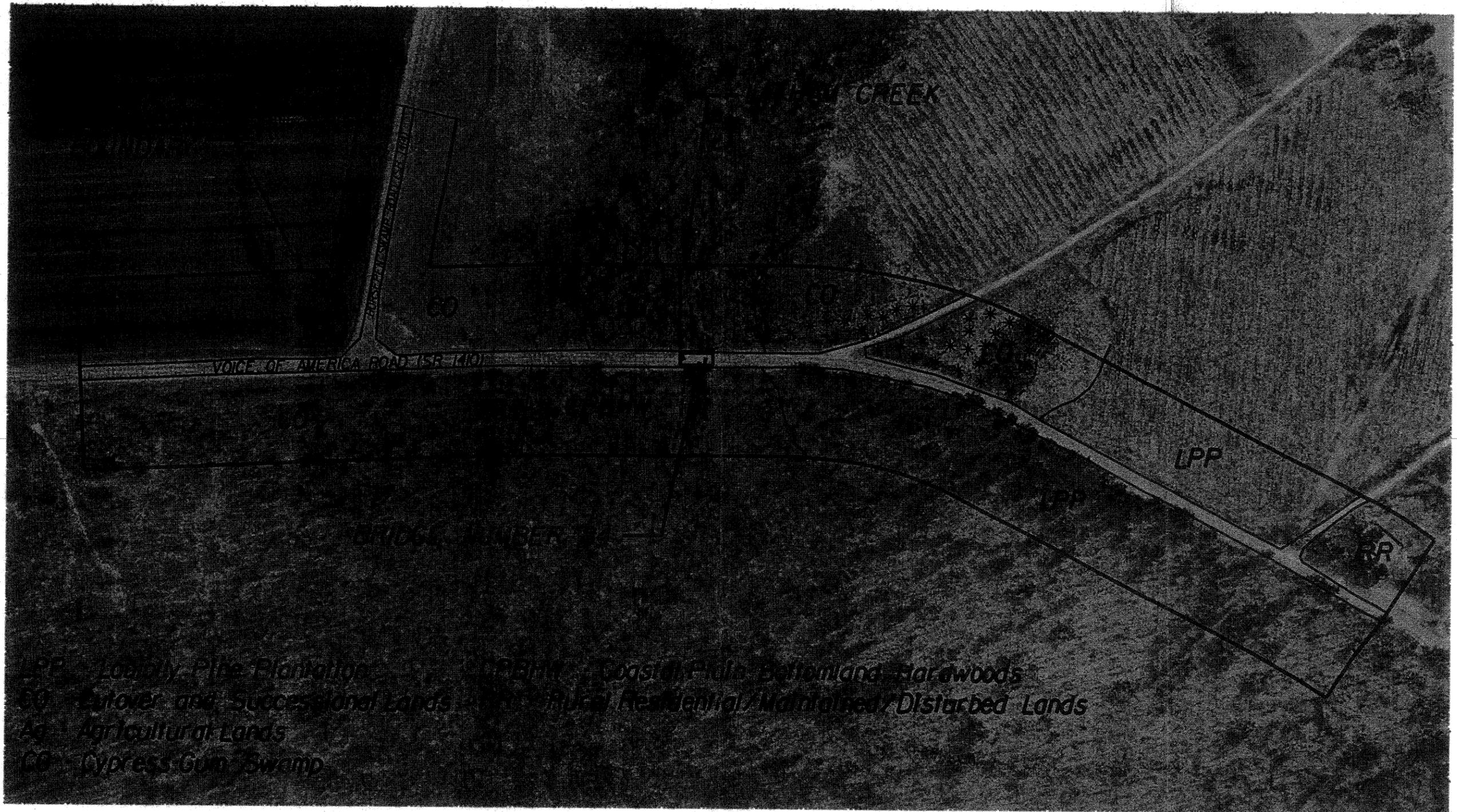
Figure 1



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

Location: 035° 39' 15.1" N 077° 05' 43.9" W
 Caption: B-4021

Figure 2



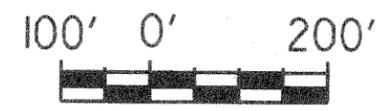
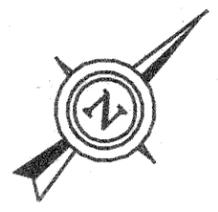
LPP - Loblolly Pine Plantation
 CO - Cypress Gum Swamp
 RR - Rural Residential/Maintained/Disturbed Lands
 PBHW - Coastal Plain Bottomland Hardwoods



LOCHNER
 H.W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27812

**REPLACEMENT OF BRIDGE NO. 84 ON
 SR 140 OVER LATHAM CREEK**

STATE PROJECT NO. 8.2150901
 T.I.P. NO. B-4021



PLANT COMMUNITY /LAND USE /WETLAND TYPE MAP

FIGURE 3

- PAULSTRINE FORESTED WETLANDS (PF06A)
- PAULSTRINE SCRUB-SHRUB/EMERGENT WETLANDS (PSSIA/PEMIA)
- STREAM
- DIRECTION OF STREAM FLOW

1.4 Methodology

Data used in this investigation were obtained from a number of sources. The Old Ford, NC (1979), 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 assessed 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 Latham Creek was derived from the *Tar-Pamlico River Basinwide Water Quality Management Plan* (DWQ 1999) 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 Beaufort 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-4021) were conducted on November 18 and 19, 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 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 20 to 45 feet (6 to 13 meters) above mean sea level (USGS 1979). The project study area consists of existing maintained rights-of-way, cut-over and successional areas, mixed swamp forest, and loblolly pine (*Pinus taeda*) plantations. The project vicinity is rural-residential. Surrounding land uses include agricultural, residential, commercial, and forest lands.

2.1 Soil

The project study area is located within the Muckalee-Dorovan-Currituck soil association (NRCS 1995). 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 series. There are four soil mapping units identified within the project study area. Only one of the soil series mapped in the project area is listed as a hydric soil (SCS 1991). The mapped hydric soil is Muckalee loam (*Typic Fluvaquents*). The three remaining soil mapping units are non-hydric and include: Goldsboro fine sandy loam (*Aquic Paleudults*) 0 to 2 percent slopes; Craven fine sandy loam (*Aquic Hapludults*) 1 to 4 percent slopes; and Craven clay loam, 4 to 12 percent slopes, eroded.

2.2 Water Resources

Stream Characteristics

Latham Creek is a perennial blue-line blackwater creek approximately 10 to 25 feet (2 to 7 meters) wide and up to 4 feet (1.2 meters) deep and flows south through the project study area. The channel is incised south (downstream) of the bridge. The channel bottom here is typical of coastal plain blackwater creeks consisting of fine to sandy sediments. North (upstream) of the bridge the creek channel through the swamp forest was flooded over its banks. The channel at this location appears consistent with the fine to sandy sediments found south of the bridge.

The project study area is located within sub-basin 03-03-06 of the Tar-Pamlico River Basin (DWQ 1999) and is part of USGS hydrologic unit for the Lower Tar River Hydrologic Unit (No. 03020103) (USGS 1974). Latham Creek is a tributary of Aggie Run which flows into Tranters Creek and then into the Tar River. Latham Creek is identified by Stream Index

Number (SIN) 28-103-14-2 by the North Carolina Department of Environment and Natural Resources (DENR 2002), and is a blue-line stream recognized by USGS (1979). The Tar-Pamlico River Basin is 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. Latham Creek has been assigned a Best Usage Classification of "**C; Sw; NSW**" (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. **Sw** (Swamp waters) and **NSW** (Nutrient Sensitive Waters) are supplemental classifications. **Sw** designates waters which have low velocities and other natural characteristics which are different from adjacent streams (15A NCAC 02B .0101(e)(2)). **NSW** are waters subject to growths of microscopic or macroscopic vegetation requiring limitations on nutrient inputs (15A NCAC 02B .0101(e)(3)).

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. Latham Creek is not designated as a North Carolina Natural and Scenic River or as a National Wild and Scenic River.

Water Quality Information

The North Carolina Division of Water Quality (DWQ) monitors water quality through long-term monitoring of macroinvertebrates (DEHNR 1989). There are no long-term macroinvertebrate monitoring stations located on Latham Creek or within 5.0 miles (8.0 km) upstream or downstream of the project study area (DWQ 1999). 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 Latham Creek or within 5.0 miles (8.0 kilometers) upstream or downstream of the project study area (DWQ 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 Latham Creek in the Tar-Pamlico 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 1999). 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 Latham 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, and runoff from bedded pine plantation areas and cut-over areas.

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 for 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 Beaufort 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. 84 is composed of timber, concrete, and steel. The bridge is 58 feet (18 meters) long with a clear deck width of 24 feet (7 meters). The superstructure will be removed without dropping it into "Waters of the United States." The substructure consists of timber and should be removed without dropping any portion into "Waters of the United States." The replacement of Bridge No. 84 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. Logging, selective cutting, reforestation, and other forestry practices have also influenced present vegetative patterns. Two natural plant communities occur within the project study area and four additional community/land use types resulting from human activities have been identified. These plant communities within the project study area were mapped on an aerial photograph base and field verified (Figure 3).

The communities total approximately 24.8 acres (10.0 hectares) of the study area and do not include any open water attributed to Latham Creek [0.4 acre (0.2 hectare)] or impervious road surface [2.6 acres (1.1 hectares)]. Clear areas with open water in the project study area are minimal and associated with the channel at the existing bridge right-of-way. A summary of the coverage of each plant community 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. 84 (TIP B-4021).

Plant Community	Area (acres/hectares)	Percent of Project Study Area
Cypress-Gum Swamp (Blackwater Subtype)	1.4/0.6	6%
Coastal Plain Bottomland Hardwoods (Blackwater Subtype)	2.1/0.8	9%
Loblolly Pine Plantations	8.2/3.3	33%
Cutover and Successional Lands	9.1/3.7	37%
Agricultural Lands	3.2/1.3	12%
Rural Residential/ Maintained/Disturbed Lands	0.8/0.3	3%
Totals:	24.8/10.0	100%

Cypress-Gum Swamp (Blackwater Subtype)

The Cypress-Gum Swamp (Blackwater Subtype) forest (Schafale and Weakley 1990) occupies approximately 1.4 acres (0.6 hectare) [6 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 northwest of SR 1410.

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 [ti-ti] (*Cyrilla racemiflora*), summersweet clethra [coastal sweet-pepperbush] (*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 2.1 acres (0.8 hectare) [9 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 floodplain 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 also be 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 1410, downstream of Bridge No. 84.

The Coastal Plain Bottomland Hardwoods (Blackwater Subtype) is usually dominated by various combinations of bottomland hardwoods and conifers, primarily 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.

Loblolly Pine Plantations

Loblolly pine plantations occupy approximately 8.2 acres (3.3 hectares) [33 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 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 recently planted stands on the north side of SR 1410 (3-4 years old) and a more mature stand with a well developed hardwood understory on the south side of SR 1410.

Cutover and Successional Lands

Cutover and Successional Lands occupy approximately 9.1 acres (3.7 hectares) [37 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). In the project study area these cutover lands were previously vegetated by either Cypress-Gum Swamp (Blackwater Subtype) forest or Coastal Plain Bottomland Hardwood (Blackwater Subtype) forest. The cutover lands in the project study area also vary from "clearcut" to a "high-grade" where the best timber was removed, leaving undersized, broken/diseased, and

poorly formed trees. Cutover lands in the project study area are relatively recent, as undecomposed logging debris is present, and the areas have not yet been fully vegetated by herbaceous species.

Agricultural Lands

Agricultural Lands occupy approximately 3.2 acres (1.3 hectares) [13 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). Identified agricultural lands in the project study area consist of a field which was used to produce cotton during the 2002 growing season.

Rural Residential/Maintained/Disturbed Lands

Rural Residential/Maintained/Disturbed Lands cover approximately 0.8 acre (0.3 hectare) [3 percent] of the study area. Rural Residential/Maintained/Disturbed areas include roadways, roadsides, 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. Species observed within the road rights-of-way include blackberry (*Rubus* spp.), trumpet vine (*Campsis radicans*), lespedeza (*Lespedeza cuneata*), white clover (*Trifolium repens*), and other various roadside grasses. Residential areas are dominated by loblolly pine (*Pinus taeda*), numerous ornamental plants, and various grasses.

Terrestrial Wildlife

The project study area was visually surveyed for signs of terrestrial wildlife. No mammals were observed in the study area at the time the field assessment was conducted in November 2002. However, mammals expected to occur in and around the project study area include such species as white-tail deer (*Odocoileus virginianus*), Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), eastern cottontail (*Sylvilagus floridanus*), as well as rodents such as beaver (*Castor canadensis*), grey squirrel (*Sciurus carolinensis*), white-footed mouse (*Peromyscus leucopus*), and golden mouse (*Ochrotomys nuttalli*). Insectivores such as southeastern shrew (*Sorex longirostris*) and northern short-tailed shrew (*Blarina brevicauda*) may also be present in the project study area.

The project area was assessed and no terrestrial reptiles were observed. Terrestrial reptiles expected to occur in the project study area include such species as five-lined skink (*Eumeces fasciatus*), Carolina anole (*Anolis carolinensis*), broadhead skink (*Eumeces laticeps*), eastern box turtle (*Terrapene carolina*), eastern cottonmouth (*Agkistrodon piscivorus*), copperhead (*Agkistrodon contortrix*), black racer (*Coluber constrictor*), 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*), green treefrog (*Hyla cinerea*), and spring peeper (*Pseudacris crucifer*).

No avian species were observed during the field assessment, but American Crow (*Corvus brachyrhynchos*), Eastern Bluebird (*Sialia sialis*), American Robin (*Turdus migratorius*), and Northern Cardinal (*Cardinalis cardinalis*) likely occur in the study area. Other common species expected to occur in the project study area include Mourning Dove (*Zenaidura macroura*), Blue Jay (*Cyanocitta cristata*), Northern Mockingbird (*Mimus polyglottos*), Carolina Wren (*Thryothorus ludovicianus*), Carolina Chickadee (*Poecile carolinensis*), Pileated Woodpecker (*Dryocopus pileatus*), Hairy Woodpecker (*Picoides villosus*), 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 drainage ways) 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

Aquatic Vegetation

Latham Creek provides the only aquatic habitat located within the project study area. 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 for this assessment. Species expected to occur in Latham Creek include eastern mosquitofish (*Gambusia holbrooki*), pumpkinseed (*Lepomis gibbosus*), warmouth (*Lepomis gulosus*), bluegill (*Lepomis macrochirus*), redbfin pickerel (*Esox americanus*), and golden shiner (*Notemigonus crysoleucas*).

Although Menhinick (1991) does not document anadromous fish species as occurring in the project study area, past sampling of other creeks indicate that anadromous fish species use this part of the Tar-Pamlico River Basin for spawning and as nursery areas (Personal Communication, Shawn McKenna, NC Division of Marine Resources). Anadromous species expected to occur here include herring and shad (*Alosa* spp.).

Latham Creek most likely provides riparian and benthic habitat for a variety of amphibians and aquatic reptiles. Due to the season of year when the field assessment occurred (November), and the high water following precipitation events, sampling for amphibians did not occur. No amphibians were observed in the course of the survey for other biotic factors. Aquatic species expected to occur in the project study area include green frog

(*Rana clamitans*), pickerel frog (*Rana palustris*), brown water snake (*Nerodia taxispilota*), and common snapping turtle (*Chelydra serpentina*).

Although none were observed, aquatic birds expected to utilize this portion of Latham Creek include Mallard (*Anas platyrhynchos*), Wood Duck (*Aix sponsa*), and Great Blue Heron (*Ardea herodias*).

No in-stream benthic macroinvertebrate surveys were conducted. All streambanks in the study area were traversed to locate freshwater mussel middens or other indicators of benthic macroinvertebrates. Visual observation in November 2002 of Latham Creek and its streambanks revealed no evidence of benthic macroinvertebrates. This may be due to the time of year that the work was completed.

3.3 Summary of Anticipated Impacts

Actual impacts associated with the replacement of Bridge No. 84 will vary based on the alternatives that are developed. The following sections discuss the potential for impacts to terrestrial and aquatic communities at various locations.

Terrestrial Communities

An in-place replacement of the existing structure 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 approach 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 include Cypress-Gum Swamp (Blackwater Subtype) (north side of bridge [450 feet (137 meters)]) and Coastal Plain Bottomland Hardwoods (Blackwater Subtype) (south side of bridge [400 feet (122 meters)]). If an alternative crossing location is developed to the south, areas of cutover and successional hardwoods and pine would be affected. Shifting the crossing to the north of the current alignment would affect cutover and successional hardwoods and Cypress-Gum Swamp. Palustrine forested and palustrine scrub-shrub/emergent wetlands would also be affected. 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 acclimated to fragmented landscapes. Designing the new bridge on the existing alignment would limit impacts to near current levels. Shifting the bridge location north or south would further fragment habitat. If this location shift occurs, the existing unused roadbed and remnant bridge structure should be removed and the site restored to match conditions of the surrounding

habitats. Additionally, if the current size opening is maintained, access for wildlife movement will be maintained at current levels. Any design options which increase the under-bridge opening over the current size should be considered to enhance the movement of some wildlife. Reduction of opening size will reduce access for movement by some species. Note that some species move freely across the road and will continue to do so.

Aquatic Communities

Potential impacts to aquatic habitat would be avoided by bridging Latham 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 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 sub-structure in the creek bottom should be avoided if possible. If a small cofferdam is used to redirect stream flow away from where demolition and construction of the bridge abutments 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 including transient and resident species may be temporarily displaced during bridge demolition and construction. Anadromous fish species have been documented to use this part of the river basin for spawning and as a nursery area (Personal Communication, Shawn McKenna, NC Division of Marine Resources). In-water work should be avoided 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 Environmental Protection Agency (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).

Additional salt and brackish water wetlands are defined under The Coastal Area Management Act (CAMA) (15A NCAC 07A). Under these regulations, Beaufort County is defined as a coastal county where coastal wetlands occur. The regulations specifically identify ten wetland species which occur in these salt and brackish environments. The Latham Creek SR 1410 bridge site is part of the headwaters of this drainage and carries freshwater. No CAMA wetlands are present within the study area for this bridge replacement.

The National Wetland Inventory (NWI) mapping (USFWS 1979) for Latham Creek identifies wetlands adjacent to the creek within the study area. These wetlands are identified as palustrine, forested, broad-leaved deciduous, temporarily flooded (PFO1A) (Cowardin *et al.* 1979). The field assessment identified three classes of NWI wetlands in the project study area north (upstream) of Bridge No. 84 (Figure 3). No NWI wetlands were found to occur south (downstream) of Bridge No. 84. The wetland types present north of the bridge include palustrine, forested, deciduous, temporarily flooded (PFO6A), palustrine, scrub-shrub, broad-leaved deciduous, temporarily flooded (PSS1A), and palustrine, emergent, persistent, temporarily flooded (PEM1A) (Cowardin *et al.* 1979). The PSS1A and PEM1A wetlands grade into each other and have therefore been designated as PSS1A/PEM1A wetlands (Figure 3). The PFO6A wetlands (Cowardin *et al.* 1979) are comprised of the Cypress-Gum Swamp (Blackwater Subtype) forest community type (Schafale and Weakley 1990) discussed previously, while the PSS1A/PEM1A wetlands occupy two cutover areas north of SR 1410.

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 2.7 acres (1.1 hectares) of the project study area. The PFO6A wetlands total 1.3 acres (0.5 hectare), and the PSS1A/PEM1A wetlands total 1.4 acres (0.6 hectare). The DWQ Wetland Rating Form was completed (Appendix) with a Wetland Score of 75.

Jurisdictional Streams

U.S. Fish and Wildlife Service (USFWS) classifies Latham Creek as a blue-line, blackwater, perennial stream (USGS 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) (Cowardin *et al.* 1979). 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).

Cowardin Classification

Latham Creek is a perennial stream (USGS 1979) within this palustrine system. The creek is generally slow flowing over a substrate consisting of sand and gravel. The channel ranges from approximately 10 to 25 feet (2 to 7 meters) in width. Perennial systems in the coastal plain generally have slow flowing water, but may draw down for part of the year, and are generally associated with well-developed swamps and floodplains which may flood temporarily, intermittently, seasonally, semi-permanently, or permanently. The waters of Latham Creek are classified as palustrine, forested, broad-leaved deciduous, temporarily flooded (PFO6A), the same as the associated jurisdictional wetlands discussed previously in this section (Cowardin *et al.* 1979).

Other than at the existing bridge site, no signs of human activity channelizing this creek channel was obvious; however, the site was assessed during a time (November 2002) of high seasonal precipitation and water flow. Latham Creek lacks a well-developed floodplain south of the bridge where the channel is more incised. There has been some channelization of the creek channel at the road right-of-way to remove obstructions and sediment deposits.

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 stream segment. 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 the assessment (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. 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 Latham Creek bridge crossing site, a "C" type stream segment occurs upstream (north), and a "F" type stream segment occurs immediately south (downstream) of the bridge (Rosgen 1996). Both stream types have a gently sloped, relatively wide and shallow entrenched channel with moderate to high sinuosity. "C" type stream segments are characterized by active well-developed floodplains and a meandering channel. The difference is that the "F" type stream segments are characterized by a lack of a developed floodplain, a meandering channel, and terraces consisting of abandoned floodplains (Rosgen 1996). This difference is reflected, even in high water, with the presence of a flooded Cypress-Gum Swamp forest immediately north of the creek, and an unflooded Coastal Plain Bottomland Hardwood forest located to the south at a slightly higher elevation.

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 mapping results and the approximately defined project study limits shown in Figure 3. Temporary and permanent impacts to wetlands and surface waters may occur along the north side of the bridge and road where PFO6A and PSS1A/PEM1A wetlands are located. Impacts to PFO6A wetlands extend approximately 400 feet (120 meters), and PSS1A/PEM1A wetlands extend approximately 500 feet (150 meters).

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 should 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 Latham Creek during demolition and construction appears necessary. During the short construction period, a detour of traffic along Horsepen Swamp Road (SR 1414), Wollard Road (SR 1419), and US 17 may be feasible. An assessment of these routes may be necessary, however, to ensure that they can handle the additional traffic volumes.

Since most expected impacts to "Waters of the United States" and Jurisdictional Wetlands will occur near the bridge and approaches, potential impacts will be dependent on the final

bridge design, the established demolition and construction limits, the effectiveness of the erosion and sediment control plan, and the skill and compliance of the contractor.

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 wetland.

It is anticipated that this proposed project will qualify as a CE under National Environmental Policy Act (NEPA) and Federal Highway Administration (FHWA) guidelines. CEs can be prepared for categorical 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 minor impacts. In the event that NWP No. 23 will not apply, 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 (USACE-WD 1998). Notification to the Wilmington USACE office is required if this general permit is to be utilized. NWP 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 for the issuance of a Section 404 Permit.

Potential impacts to open water areas will be limited to the actual right-of-way width and their extent will be determined during the design phase of this project. Impacts to open water areas of Latham Creek are not expected and could be minimized with the use of channel-spanning structures. During bridge removal procedures, 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

North Carolina Rules are in place for the protection and maintenance of Vegetated Riparian Buffers in the Tar-Pamlico River Basin (15A NCAC 02B .0260). These rules require wooded buffers of 50 feet (15.3 meters) along all blue-line stream channels in this river basin. 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. Latham Creek is a blue-line stream under these rules (Figure 2).

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. 84 over Latham 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), Federal Highway Administration (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 (FHWA) 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 downstream to the south.

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.

Potential Mitigation Opportunities

One area that might be available for on-site mitigation is at the edge of the Cypress-Gum Swamp forest in the area southeast of the bridge. This area is newly cut-over. This area might serve as borrow or staging areas for the bridge demolition and construction and then need to be restored. The elevation in this area is just above that of the adjacent swamp forest. Once the elevation is reduced, organic matter could be added and tupelo (*Nyssa biflora*) and baldcypress (*Taxodium distichum*) planted. Two wetland areas northeast of the bridge might be enhanced by the planting of hydrophytic tree species. This planting, however, would result in a change from early successional to later successional community types, decreasing the biotic diversity.

In the project study area, Latham Creek does not have adequate wooded riparian buffers of the required minimum size. It does not appear that on-site opportunities for riparian buffer mitigation exist within the study area.

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.*). The following federally protected species are listed for Beaufort County (USFWS list dated January 2003) (Table 2). Of these species, none has been reported by the North Carolina Natural Heritage Program (Appendix) to occur or have occurred in the area of the Old Ford, NC, 7.5-minute USGS Quad Sheet. Red wolf (*Canis rufus*) was identified as an additional protected species which may have habitat in the project area.

Red Wolf (*Canis rufus*)

Red wolf once roamed from Pennsylvania to central Texas (USFWS 2001d). Like its relative the gray wolf (*Canis lupus*), red wolf was extirpated from its former range by predator control programs. This species derives its name from the reddish color of the head, ears, and legs. The exact identity of red wolf has been a matter of conjecture for years. While some consider it a separate species, others consider it a subspecies of the gray wolf, or even a cross-breed of the coyote (*Canis latrans*) and gray wolf. Red wolf, as a primary predator, occupies a relatively large home range. They travel in family packs headed by the alpha male and female, who are the breeding pair of the pack.

In 1977, attempts were made to capture the remaining individuals for a captive breeding and release program. By 1980, red wolf was extinct in the wild. Individuals from the captive breeding program have been reintroduced into the Alligator River National Wildlife Refuge in Dare County. This population has now ranged into the surrounding five county area (personal communication, David Rabon, USFWS), including Beaufort County.

BIOLOGICAL CONCLUSION: No Effect

The Endangered Species Act permits the reintroduction of endangered animals as "nonessential experimental" populations. Such populations, considered nonessential to the survival of the species, are managed with fewer restrictions than populations listed as endangered. Red wolf is listed as an experimental population for Beaufort County. EXN populations may not be subject to Section 7 consultation and a biological conclusion for this species may not be required. However, this project will have No Effect on red wolf.

Analysis Details -

Methodology: analysis of the possible presence of and impacts to red wolf was conducted as an evaluation of existing information and analysis by the primary investigators for the apparent habitat requirements and presence of red wolf 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.

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

Common Name	Scientific Name	Federal Status	Biological Conclusion
Red Wolf	<i>Canis rufus</i>	EXN	No Effect
West Indian Manatee	<i>Trichechus manatus</i>	E	No Effect
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	No Effect
Red-cockaded Woodpecker	<i>Picooides borealis</i>	E	Unresolved
Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	E	No Effect
Sensitive Joint-vetch	<i>Aeschynomene virginica</i>	T	No Effect
Rough-leaf Loosestrife	<i>Lysimachia asperulifolia</i>	E	No Effect

E- Endangered, T- Threatened, EXN- Introduction in the county of an Endangered "nonessential experimental" population that can be managed with fewer restrictions than populations that are endangered. Such populations are considered nonessential to the survival of the species.

West Indian Manatee (*Trichechus manatus*)

The West Indian manatee is a native of the warm waters of sub-tropical south Florida (USFWS 2001g). They prefer shallow saltwater bays, slow-moving rivers, canals, estuaries, and coastal waters. Manatee spend most of their time feeding, resting, or traveling. They are completely herbivorous marine mammals, feeding on turtle grass (*Thalassia testudinum*), manatee grass (*Syringodium filliforme*), various species of marine algae, and water hyacinths (*Eichhornia crassipes*). They can consume up to 10% of their body weight daily in vegetation. Manatee are a sub-tropical, air breathing species that can grow to over 13 feet (3.5 meters) in length and weigh up to 3,500 pounds (1,500 kilograms). West Indian manatee have very little fat and are susceptible to cold.

Manatee are also migratory animals adapted to both saltwater and freshwater habitats. In coastal areas of the USA, West Indian manatee congregate in Florida in winter. During the summer season, when waters are warmer, manatee may be found as far west as Alabama and as far north as Virginia and the Carolinas. Very rarely are they found further north. Several years ago (~10 years ago), a manatee was reported in the lower Neuse River near New Bern, NC, for a few days in August.

BIOLOGICAL CONCLUSION: No Effect

No suitable habitat for the West Indian manatee exists within the project study area. Latham Creek is a fresh water creek of limited depth and flow, and geographically will drain waters of cooler temperatures and lower salinity than preferred by manatee. This project will have No Effect on West Indian manatee.

Analysis Details -

Methodology: analysis of the possible presence of and impacts to West Indian manatee was conducted as an evaluation of existing information and analysis by the primary investigator of the habitat requirements and occurrence of West Indian manatee in North Carolina.

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

Bald Eagle (*Haliaeetus leucocephalus*)

The Bald Eagle is a large raptor with a wingspan greater than 6 feet (2 meters) (USFWS 2001a). Adult eagles 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 2001a). U.S. Fish and Wildlife Service (USFWS) recommends avoiding any disturbance activities, including construction and tree-cutting, within this primary zone. Within a secondary zone extending from the primary zone boundary out a distance of up to 1.0 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 (USFWS) 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 delisting due to the resurgence of the species.

BIOLOGICAL CONCLUSION: No Effect.

No suitable habitat for the Bald Eagle exists within the project study area, and no large bodies of water are mapped to occur within 5.0 miles (8.0 kilometers) of the project site. This distance is greater than the maximum requirements noted in the literature for roosting and nesting locations from fishing and hunting waters. This project will have No Effect on Bald Eagle.

Analysis Details -

Methodology: analysis of the possible presence of and impacts to Bald Eagle was conducted as an evaluation of existing information and analysis by the primary investigator of the habitat requirements, site conditions, 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.

Red-cockaded Woodpecker (*Picoides borealis*)

This small, non-migratory woodpecker measures 7 to 8.5 inches (17.8 to 21.6 centimeters) long, has a black head, prominent white cheek patch, and black-and-white barred back (USFWS 2001c). Males often have red markings (cockades) behind the eye, but the cockades may be absent or difficult to see (Potter *et al.* 1980). Primary nest sites for Red-cockaded Woodpecker include open pine stands greater than 60 years of age with little or no mid-story development. Foraging habitat is comprised of open pine or pine/mixed hardwood stands 30 years of age or older (Henry 1989). Primary habitat consists of mature to over-mature southern pine forests dominated by loblolly (*Pinus taeda*), long-leaf (*P. palustris*), slash (*P. elliotii*), pond (*P. serotina*), or other southern pine species.

Nest cavities are constructed in the heartwood of living pine trees, generally older than 60 years, that have been infected with red-heart disease. Excavation of a cavity usually

initiates through an old dead branch opening in the bole of the tree. An aggregate of cavity trees is called a cluster and may include 1 to 20+ cavity trees on 3.0 to 60 acres (1.2 to 24 hectares). The average size of a cluster is about 10 acres (4.0 hectares). The typical cluster is occupied by a related group of individuals called a clan. The woodpecker drills holes into the bark around the excavated cavity entrance, resulting in a shiny, resinous buildup around the entrance that allows for easy detection of active nest trees.

The typical territory for a clan will range from 60 to 600 acres (24 to 240 hectares) in size. Red-cockaded Woodpecker prefers mature, open, pine forests and will not generally range greater than about 130 feet (40 meters) over cleared ground or hardwood stands. The clan will only exploit those pine stands for food that are contiguous with their nesting habitat. Pine flatwoods or pine-dominated savannas which have been maintained by frequent natural fires serve as ideal nesting and foraging sites for this woodpecker. Development of a thick understory may result in abandonment of cavity trees.

No large scale field surveys were conducted for Red-cockaded Woodpecker outside of the designated project study area. A review of available aerial mapping indicates that only a small area of potentially contiguous nesting, roosting, or foraging habitat may be present within a 0.5 mile (0.8 kilometer) area required for a Red-cockaded Woodpecker survey.

BIOLOGICAL CONCLUSION: Unresolved

Potentially suitable nesting or foraging habitat for the Red-cockaded Woodpecker may occur within or be contiguous to the project study area. A pine dominated stand of possible sufficient age is located southeast of the crossing of SR 1410 over Latham Creek (Bridge No. 84). This pine stand, however, contains a dense understory, undesirable for Red-cockaded Woodpecker occupation or use. Additionally, no occurrence of Red-cockaded Woodpecker is reported by the Natural Heritage Program to be within 3.0 miles (4.8 kilometers) of the project study area (NHP records review November 2002). A field survey following appropriate protocols identified by Henry (1989) for Red-cockaded Woodpecker is recommended.

Analysis Details -

Methodology: identification of potential habitat for Red-cockaded Woodpecker was conducted as an assessment of available information and analysis by the primary investigator on the habitat requirements of Red-cockaded Woodpecker. Specifically, available records at the NHP were reviewed to assess the possible presence of Red-cockaded Woodpecker in the project vicinity. Aerial photos were also assessed for the identification of potential habitat. The study area was field verified to determine its suitability as preferred habitat.

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

Kemp's Ridley Sea Turtle (*Lepidochelys kempi*)

The Kemp's ridley sea turtle is a marine reptile frequenting the Atlantic Ocean and Gulf of Mexico coasts off the United States and Mexico (USFWS 2001b). They range from Nova Scotia and Newfoundland south to Bermuda and west through the Gulf of Mexico. Nesting adults concentrate in the Gulf of Mexico. Active nesting is reported in Tamaulipas, Mexico and occasionally on Padre Island, Texas.

The Kemp's ridley sea turtle is the smallest of the marine turtles and may weigh 80 to 100 pounds (36 to 45 kilograms) when mature. They typically inhabit red mangrove (*Rhizophora mangle*) subtropical shorelines or shallow coastal and estuarine waters. They feed primarily on spider crabs and other hard-shelled sea animals (shrimp, snails, sea stars), and occasionally marine plants. They spend almost their entire life at sea, except when females will land in large numbers on beaches with elevated dune areas backed by swamps to dig nests and lay a clutch of eggs. Females may nest up to three times in a season (in 10 to 28 day intervals). Each clutch averages 110 eggs and incubation takes from 45 to 70 days. Upon hatching the young will burrow up out of the nest and scramble to the surf.

BIOLOGICAL CONCLUSION: No Effect

No suitable nesting or foraging habitat for the Kemp's ridley sea turtle exists within the project study area. This project will have No Effect on Kemp's ridley sea turtle.

Analysis Details -

Methodology: analysis of the possible presence of and impacts to Kemp's ridley sea turtle was conducted as an evaluation of existing information and analysis by the primary investigator of the habitat requirements and occurrence of Kemp's ridley sea turtle 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.

Sensitive Joint-vetch (*Aeschynomene virginica*)

Sensitive joint-vetch is an annual plant native to the eastern United States (USFWS 2001f). Plants typically reach 3 to 6 feet (1 to 2 meters) in height in a single growing season, although heights up to 7.5 feet (2.4 meters) have been reported. Plants flower from July through September and occasionally as late as October. Germination occurs from late May to early June. Seedlings grow quickly. Non native *A. indica* and *A. rudis* are often confused with *A. virginica* as these two species expand their known historical ranges.

Sensitive joint-vetch grows in the intertidal zone where plants are flooded twice daily. The species seems to prefer the marsh edge at an elevation near the upper limit of tidal fluctuation. It is usually found in areas where plant diversity is high (50 species per acre) and annual species predominate. Bare to sparsely vegetated substrates appear to be a habitat feature of critical importance to this plant. As an annual, it requires such

microhabitats for establishment and growth. Such areas may include accreting point bars that have not yet been colonized by perennial species, low swales within extensive marshes, or areas where muskrats have eaten most of the vegetation. In North Carolina, sensitive joint-vetch appears to be a species that remains at a particular site for a relatively short period of time, and maintains itself by colonizing new, recently disturbed habitats where it may compete successfully among other early-successional species. It is frequently found in the estuarine meander zone of tidal rivers where sediments transported from upriver settle out and extensive marshes are formed. The substrate may be sandy, muddy, gravelly, or peaty.

Sensitive joint-vetch has been reported by NHP to have occurred in Beaufort County, North Carolina within the last 20 years.

BIOLOGICAL CONCLUSION: No Effect

No recent occurrences of sensitive joint-vetch have been documented by the NHP to occur within the project study area. The project study area does not contain any habitat considered suitable for sensitive joint-vetch. Sensitive joint-vetch was not found to occur in the project study area, and no preferred habitat was identified. This project will have No Effect on sensitive joint-vetch.

Analysis Details -

Methodology: analysis of the possible presence of and impacts to sensitive joint-vetch was conducted as an evaluation of existing information and analysis by the primary investigator of the habitat requirements and occurrence of sensitive joint-vetch 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.

Rough-leaf Loosestrife (*Lysimachia asperulaefolia*)

Rough-leaf loosestrife is a rare species endemic to the ecotones of edges between longleaf pine (*Pinus palustris*) uplands and pond pine (*P. serotina*) pocosins in the Carolinas (USFWS 2001e). It typically occurs on moist to seasonally saturated sands and on shallow organic soils overlaying sand. The grass-shrub ecotone, where rough-leaf loosestrife is found, is fire maintained, as are the adjacent plant communities (longleaf pine – scrub oak, savanna, flatwoods, and pocosin). This species is often located at the edge of disturbance areas, such as power line cuts, including wetland areas. Although generally associated with an open canopy or light breaks, records indicate that the species can also be located in shady areas. It typically flowers during May or June and fruits from August to October.

BIOLOGICAL CONCLUSION: No Effect

No known occurrences of rough-leaf loosestrife have been documented within 3.0 miles (4.8 kilometers) of the project study area (NHP records review November 2002). The project study area does not contain any habitat considered suitable for

rough-leaf loosestrife. While the season to assess for this species in the field was not optimum, no rough-leaf loosestrife plants were observed during field surveys for other natural resources. This project will have No Effect on rough-leaf loosestrife.

Analysis Details -

Methodology: analysis of the possible presence of and impacts to rough-leaf loosestrife was conducted as an evaluation of existing information and analysis by the primary investigator of the habitat requirements and occurrence of rough-leaf loosestrife 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 U.S. Fish and Wildlife Service (USFWS) protected species 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 species are listed since they may attain federally protected status in the future. Federal Species of Concern listed for Beaufort County include four species (Table 3). Of these FSC, only Henslow's Sparrow is reported by NHP (records review November 2002) on the Old Ford, NC, 7.5-minute USGS Quad Sheet where this bridge replacement project is located. The NHP records indicate that the reported occurrence is current (within the past 20 years) (Appendix). The reported location for this species is approximately 2.0 miles (3.2 kilometers) northwest of the bridge replacement project.

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

Common Name	Scientific Name	State Status	Potential Habital
Rafinesque's Big-eared Bat	<i>Corynorhinus rafinesquii</i>	T	Yes
Henslow's Sparrow	<i>Ammodramus henslowii</i>	SR	Yes
Carolina Gopher Frog	<i>Rana capito capito</i>	T	No
Venus Flytrap	<i>Dionaea muscipula</i>	SR_L, SC	No

T- Threatened, SR- Significantly Rare, SC- Special Concern, _L- Range of species is limited to North Carolina and adjacent states.

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 Endangered Species Act (G.S. 113-331 *et seq.*) and the North Carolina Plant Protection Act of 1979 (G.S. 106-202.12 *et seq.*). A review of the NHP records indicates that no state listed species have been documented within 3.0 miles (4.8 kilometers) of the project study area. The field assessment for this project was undertaken in late November 2002. This project will not affect any known occurrences as

reported by NHP of state listed species. However, no state listed reptiles, amphibians, or vascular plants are readily identifiable at the season of the year this field assessment was conducted.

5.0 REFERENCES

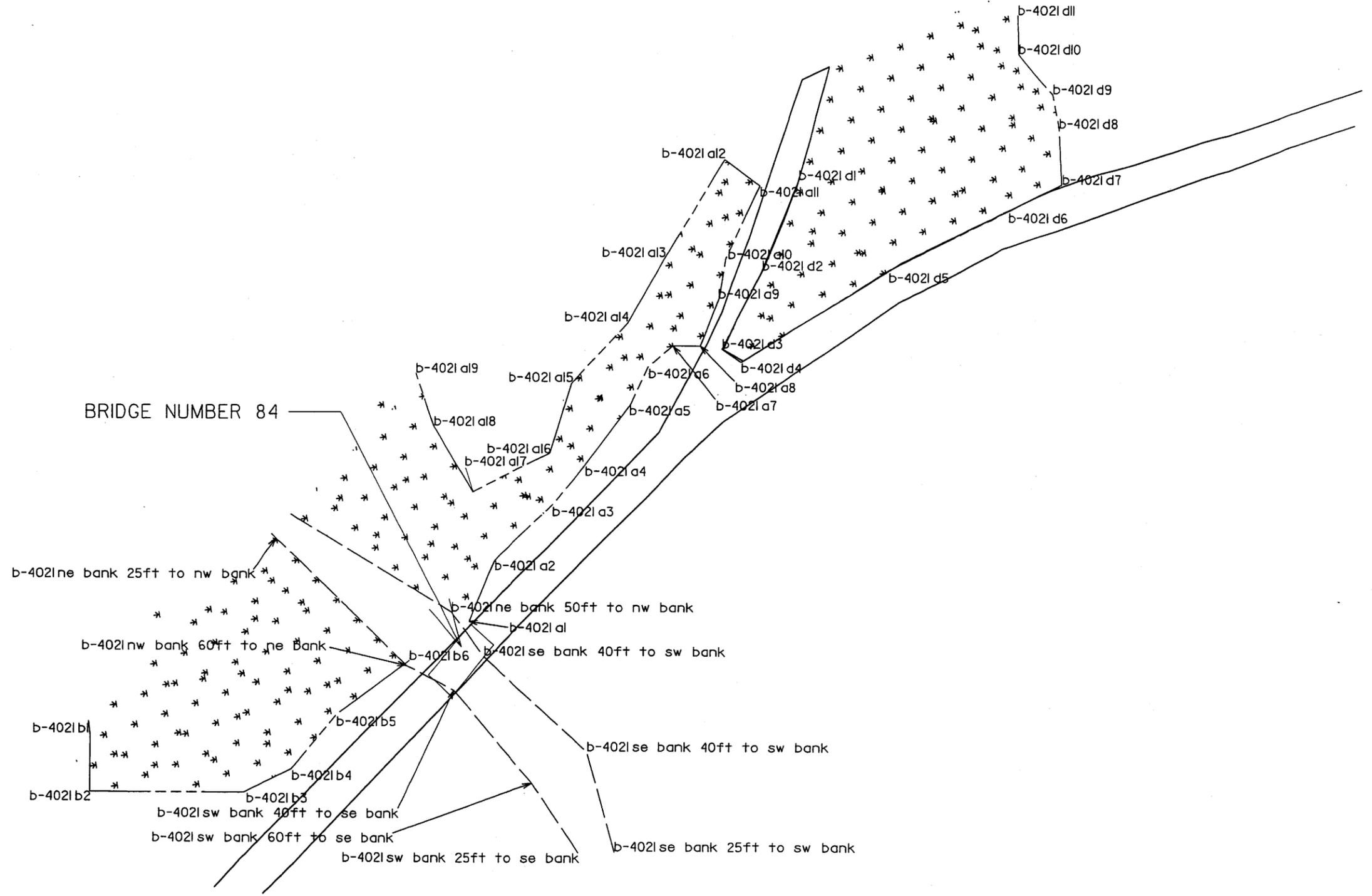
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APPENDIX

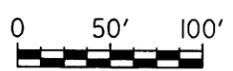
Exhibit A. GPS Located "Waters of the United States" and Jurisdictional Wetlands
GPS Located Wetland Points
USACE and DWQ Wetland and Stream Data Forms
Natural Heritage Program Endangered Species List



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

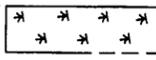
**REPLACEMENT OF BRIDGE NO. 84 ON
 SR 1410 OVER LATHAM CREEK**

STATE PROJECT NO. 8.2150901
 T.I.P. NO. B-4021



GPS LOCATED WATERS OF THE US AND WETLANDS

EXHIBIT A

-  GPS LOCATED WETLANDS
-  GPS LOCATED STREAM

B-4021 GPS Located Wetland Points

POINT NAME	LONGITUDE (°, ', ")	LATITUDE (°, ', ")
b-4021 a1	77 05 40.035894711	35 39 17.432994685
b-4021 a2	77 05 39.747839216	35 39 17.955052894
b-4021 a3	77 05 39.129968069	35 39 18.434500803
b-4021 a4	77 05 38.789155047	35 39 18.770000240
b-4021 a5	77 05 38.310631809	35 39 19.284557870
b-4021 a6	77 05 38.109794248	35 39 19.613754193
b-4021 a7	77 05 37.842808786	35 39 19.795994838
b-4021 a8	77 05 37.554314984	35 39 19.790641255
b-4021 a9	77 05 37.355933891	35 39 20.193540110
b-4021 a10	77 05 37.272403129	35 39 20.538809671
b-4021 a11	77 05 36.903572168	35 39 21.156535839
b-4021 a12	77 05 37.267343635	35 39 21.387150612
b-4021 a13	77 05 37.911771974	35 39 20.560740373
b-4021 a14	77 05 38.318222705	35 39 19.994433268
b-4021 a15	77 05 38.912219592	35 39 19.487099831
b-4021 a16	77 05 39.147193315	35 39 18.884067741
b-4021 a17	77 05 39.976036896	35 39 18.557702464
b-4021 a18	77 05 40.384599589	35 39 19.132044498
b-4021 a19	77 05 40.568027673	35 39 19.593814527
b-4021 b1	77 05 44.062367997	35 39 16.505465054
b-4021 b2	77 05 44.072998285	35 39 16.013627873
b-4021 b3	77 05 42.462027514	35 39 15.985006614
b-4021 b4	77 05 41.966214860	35 39 16.178222885
b-4021 b5	77 05 41.474888957	35 39 16.642873571
b-4021 b6	77 05 40.685032588	35 39 17.099233199
b-4021 d1	77 05 36.492351954	35 39 21.191273520
b-4021 d2	77 05 36.894446645	35 39 20.428863601
b-4021 d3	77 05 37.325151809	35 39 19.762297597
b-4021 d4	77 05 37.122980550	35 39 19.643641757
b-4021 d5	77 05 35.567117057	35 39 20.415197692
b-4021 d6	77 05 34.282006125	35 39 20.907102109
b-4021 d7	77 05 33.701465013	35 39 21.130008501
b-4021 d8	77 05 33.721992262	35 39 21.606303926
b-4021 d9	77 05 33.781269670	35 39 21.898882304
b-4021 d10	77 05 34.141613881	35 39 22.241778039
b-4021 d11	77 05 34.146310164	35 39 22.570818573
b-4021 ne bank 25 ft to nw bank	77 05 42.086525441	35 39 18.178298595
b-4021 ne bank 50 ft to nw bank	77 05 40.221906206	35 39 17.514824498
b-4021 nw bank 60 ft to ne bank	77 05 40.717043001	35 39 17.057735444
b-4021 sw bank 60 ft to se bank	77 05 39.384116130	35 39 16.025933227
b-4021 sw bank 25 ft to se bank	77 05 38.910371234	35 39 15.423765805
b-4021 sw bank 40 ft to se bank	77 05 40.209488529	35 39 16.836437853
b-4021 se bank 40 ft to sw bank	77 05 39.888215981	35 39 17.132094823
b-4021 se bank 40 ft to sw bank	77 05 38.805315393	35 39 16.286232519
b-4021 se bank 25 ft to sw bank	77 05 38.528544820	35 39 15.425082354

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

PROJECT:	B-4021	DATE:	19 November 2002
APPLICANT:	NCDOT	COUNTY:	Beaufort
INVESTIGATOR:	E. Fentress, K. Roeder	QUAD MAP:	Old Ford, NC
Do normal circumstances exist on this site?		No	Community ID: UPL
Is the site significantly disturbed (Atypical Situation)? 2 year old cutover		Yes	Transect ID:
Is this area a Potential Problem Area? (if needed, explain on reverse)		No	Plot ID: B-4021A

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	<i>Liriodendron tulipifera</i>	S	FAC	8.			
2.	<i>Acer rubrum</i>	S	FACW-	9.			
3.	<i>Vitis spp.</i>	V		10.			
4.				11.			
5.				12.			
6.				13.			
7.				14.			

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

Remarks: 2 year old cutover; little vegetation

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>_____ Stream, Lake, or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p>_____ 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>Remarks:</p>	<p>Wetlands Hydrology Indicators:</p> <p style="text-align: center;"><i>Primary Indicators</i></p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p style="text-align: center;"><i>Secondary Indicators (2 or more required)</i></p> <p>_____ Oxidized Root Channels in Upper 12 in.</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ Fac-Neutral Test</p> <p>_____ Other (Explain)</p>
---	--

SOILS

B-4021A UPL

Map Unit Name: (Series and Phase)	Muckalee 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
14	B	10YR 2/1	None	None	Fine 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 (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

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

Remarks:

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

PROJECT:	B-4021	DATE:	19 November 2002
APPLICANT:	NCDOT	COUNTY:	Beaufort
INVESTIGATOR:	E. Fentress, K. Roeder	QUAD MAP:	Old Ford, 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-4021 B

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	<i>Taxodium distichum</i>	C	OBL	8.	<i>Vitis spp.</i>	V	
2.	<i>Liquidambar styraciflua</i>	C, U	FAC+	9.			
3.	<i>Liriodendron tulipifera</i>	C	FAC	10.			
4.	<i>Acer rubrum</i>	C, U	FACW-	11.			
5.	<i>Ligustrum sinense</i>	S	FAC	12.			
6.	<i>Lonicera japonica</i>	V	FAC-	13.			
7.	<i>Toxicodendron radicans</i>	V	FACU	14.			

Percent of Dominant Species that are OBL, FACW, or FAC (Excluding FAC-): 71 %

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>4-6</u> Inches</p> <p>Depth to Free Water in Pit: <u>0</u> Inches</p> <p>Depth to Saturated Soil: <u>0</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-4021 B PFO

Map Unit Name: (Series and Phase)	Muckalee 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
0-4	A	10YR 2/1	None	None	Clay loam
4+	B	10YR 6/2	10YR 6/6		

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-4021
 County: Beaufort
 Nearest Road: SR 1410 (Voa Road)
 Evaluation Team: E.Fentress, K. Roeder

Wetland Site Number: Wetland B-4021B
 Wetland Area (acres): 0.84
 Wetland Width (feet): 465
 Date: 19 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 80 %
 agriculture, urban/suburban 10 %
 impervious surface 10 %

Soil Series: Muckalee

predominantly organic (humus, muck, peat)
 predominantly mineral (non-sandy)
 predominantly sandy

Dominant Vegetation

(1) Taxodium distichum
 (2) Liquidambar styraciflua
 (3) Acer rubrum

Hydraulic Factors

steep topography
 ditched or channelized
465' 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)*

Bottomland Hardwood Forest
 Swamp Forest
 Pocosin
 Freshwater Marsh
 Ephemeral Wetland
 Bog forest
 Seep

Headwater Forest
 Wet Flat
 Pine Savannah
 Estuarine fringe forest
 Carolina Bay
 Bog/fen
 Other _____

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

DEM RATING

Water Storage	<u>5</u>	X 4.00 =	<u>20</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>2</u>	X 2.00 =	<u>4</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: Tar - Pamlico County: Beaufort Evaluator: E. Fentress, K. Roeder

DWQ Project Number: B-4021 Nearest Named Stream: Latham Creek Latitude: 35° 39' 18" Signature:

Date: 19 Nov. 2002 USGS QUAD: Old Ford Longitude: 77° 5' 42" 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

(*NOTE: If Bed & Bank Caused By Ditching And WITHOUT Sinuosity Then Score=0*)

10) Is A 2nd Order Or Greater Channel (As Indicated On Topo Map And/Or In Field) Present? Yes=(3) No=0

PRIMARY GEOMORPHOLOGY INDICATOR POINTS: 9

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	(1.5)

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

SECONDARY HYDROLOGY INDICATOR POINTS: 6

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 Macrobenthos 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*)

SECONDARY BIOLOGY INDICATOR POINTS: 1

TOTAL POINTS (Primary + Secondary) = 26.5 (If Greater Than Or Equal To 19 Points The Stream Is At Least Intermittent,



INTERMITTENT CHANNEL EVALUATION FORM

ACTION ID B-4021 APPLICANT NAME NCDOT DATE 19 Nov. 2002
 PROPOSED CHANNEL WORK (i.e., culvert, relocation, etc.) Bridge replacement
 WATERBODY/RIVER BASIN Latham Creek COUNTY/CITY Beaufort County
 RECENT WEATHER CONDITIONS Sunny, cool

P	SP	NP	Observation	Comments or Description
✓			Fish/Shellfish/Crustaceans Present	
		✓	Benthic Macro Invertebrates	
		✓	Amphibians Present/Breeding	
		✓	Algae And/Or Fungus (water quality function)	
		✓	Wildlife Channel Use (i.e. tracks, feces, shells, others)	
		✓	Federally Protected Species Present (Discontinue)	
		✓	Riffle/Pool Structure	
✓			Stable Streambanks	
		✓	Channel Substrate (i.e. gravel, cobble, rock, coarse sand)	
	✓		Riparian Canopy Present (SP => 50% closure)	
✓			Undercut Banks/Instream Habitat Structure	
	✓		Flow In Channel	
	✓		Wetlands Adjacent To/Contig. With Channel (Discontinue)	
	✓		Persistent Pools/Saturated Bottom (June thru Sept.)	
	✓		Seeps/Groundwater Discharge (June thru Sept.)	
		✓	Adjacent Floodplain Present	
		✓	Wrack Material or Drift Lines	
	✓		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 checked="" type="checkbox"/> Important Channel: _____ LF | PROJECT MGR. Initials _____ |
| <input type="checkbox"/> Intermittent Channel (proceed) | <input type="checkbox"/> Unimportant Channel: _____ LF | |
| <input type="checkbox"/> Ephemeral Channel (no jd) | (attach map indicating location of important/unimportant channel) | |
| <input type="checkbox"/> Ditch Through Upland (no jd) | | |

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

Search Criteria: Beaufort, Listed
Search Results: 17 records found.

Major Group	Scientific Name	Common Name	State Status	Federal Status	State Rank	Global Rank	County Status
Mammal	<i>Canis rufus</i>	Red Wolf	SR	EXN	S1	G1	Obscure - Beaufort - MAP - HABITAT
Mammal	<i>Corynorhinus rafinesquii</i>	Rafinesque's Big-eared Bat	T	FSC	S3	G3G4	Historic - Beaufort - MAP - HABITAT
Mammal	<i>Trichechus manatus</i>	West Indian Manatee	E	E	S1N	G2	Current - Beaufort - MAP - HABITAT
Bird	<i>Ammodramus henslowii</i>	Henslow's Sparrow	SR	FSC	S2B,S1N	G4	Current - Beaufort - MAP - HABITAT
Bird	<i>Haliaeetus leucocephalus</i>	Bald Eagle	T	T	S3B,S3N	G4	Current - Beaufort - MAP - HABITAT
Bird	<i>Picoides borealis</i>	Red-cockaded Woodpecker	E	E	S2	G3	Current - Beaufort - MAP - HABITAT
Reptile	<i>Crotalus horridus</i>	Timber Rattlesnake	SC	-	S3	G4	Obscure - Beaufort - MAP - HABITAT
Reptile	<i>Lepidochelys kempii</i>	Atlantic Ridley	E	E	SAB,SZN	G1	Current - Beaufort - MAP - HABITAT
Reptile	<i>Malaclemys terrapin centrata</i>	Carolina Diamondback Terrapin	SC	-	S3	G4T4	Obscure - Beaufort - MAP - HABITAT
Reptile	<i>Nerodia sipedon williamengelsi</i>	Carolina Water Snake	SC	-	S3	G5T3	Current - Beaufort - MAP - HABITAT
Reptile	<i>Sistrurus miliarius</i>	Pigmy Rattlesnake	SC	-	S3	G5	Current - Beaufort - MAP - HABITAT
Amphibian	<i>Necturus lewisi</i>	Neuse River Waterdog	SC	-	S3	G3	Historic - Beaufort - MAP - HABITAT
Amphibian	<i>Rana capito</i>	Carolina Gopher Frog	T	FSC	S2	G3	Historic - Beaufort - MAP - HABITAT
Vascular Plant	<i>Aeschynomene virginica</i>	Sensitive Jointvetch	E	T	S1	G2	Current - Beaufort - MAP - HABITAT
Vascular Plant	<i>Dionaea muscipula</i>	Venus Flytrap	SR-L, SC	FSC	S3	G3	Current - Beaufort - MAP - HABITAT
Vascular Plant	<i>Lysimachia asperulifolia</i>	Rough-leaf Loosestrife	E	E	S3	G3	Current - Beaufort - MAP - HABITAT
Vascular Plant	<i>Platanthera nivea</i>	Snowy Orchid	T	-	S1	G5	Historic - Beaufort - MAP - HABITAT

NC NHP database updated: January, 2003. Search performed on Thursday, February 6, 2003 at 7:21:20 Eastern Standard Time.

Total number of searches since 01/01/03: 399

Explanation of Codes

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

Search Criteria: =Old Ford

Quads: 1

Major Group	Scientific Name (Habitat link)	Common Name	State Status	Federal Status	State Rank	Global Rank	Quad Status
Bird	Ammodramus henslowii	Henslow's Sparrow	SR	FSC	S2B,S1N G4		Current - OLD FORD

NC NHP database updated: January 2003. Search performed on Thursday, February 6, 2003 at 9:27:48 Eastern Standard Time.

Total number of searches since 01/01/03: 249

[Explanation of Codes](#)

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