



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

May 28, 2004

U.S. Army Corps of Engineers
Raleigh Field Office
6508 Falls of the Neuse Road/Suite 120
Raleigh, NC 27615

ATTENTION: Mr. John Thomas, Jr.,
NCDOT Coordinator

Dear Sir:

SUBJECT: **Nationwide 23 and 33 Permit Application** for the replacement of
Bridge No. 185 over the Haw River on SR 2712 (Brooks Bridge Road) in
Guilford County, Federal Project No. BRZ-2712 (2), State Project No.
82495201, WBS Element 33192.1.1, Division 7, T.I.P. No. B-3646.

Please find enclosed three copies of the Categorical Exclusion (CE) Document, permit drawings, and design plan sheets. The original CE document recommended Bridge No. 185, which is a 91-foot long bridge, to be replaced with a new 160-foot long bridge by realigning SR 2712 (Brooks Bridge Road) north of the existing bridge. The traffic was to be maintained on the existing alignment during construction. Since the completion of the CE, a new design has been created. Bridge No 185 over the Haw River will be replaced with a new 130-foot long bridge at approximately the same location and roadway elevation as the existing bridge. The new bridge will consist of three spans. Bridge No. 185 will be widened from 19 feet to 36 feet to accommodate a travelway of 25 feet with offsets of 5.5 feet on each side. Three workpads will provide construction access for demolition of existing bridge and drilled shaft installation of the new bridge. The workpads will be built using Class II riprap. Traffic will be detoured offsite along surrounding roads during construction.

IMPACTS TO WATERS OF THE UNITED STATES

The project is located within the Cape Fear River Basin (03-06-01 sub-basin). The Haw River is the only water resource in the project area. The project will result in 0.059 acres of temporary fill in surface water to the Haw River from the placement of three temporary workpads. Best Management Practices for Protection of Surface Waters will be implemented as applicable.

At the project location the Haw River has a width of approximately 60 feet and a depth of 1 to 4 feet. The substrate is comprised primarily of silt, sand, gravel, cobble, and boulders and there is a well-defined bed and bank. The Haw River has been assigned DWQ Index No. 16-(1) by the North Carolina Division of Water Quality and a best usage classification of C NSW.

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 27699

Temporary Impacts

Impacts from this project consist of 0.059 acres of temporary fill in the Haw River. Impacts stem from three workpads that will be used to remove existing bridge and build the new bridge. Please refer to Permit Drawing Sheets 2, 3, and 4 of 6. Workpad 1 will be used for demolition of existing bridge and construction of the new bridge. Workpad 2 will be used for removal of the pier on the existing bridge. Workpad 3 will be used for construction of new bridge. Workpads 1 and 2 will be constructed at the same time. Workpad 2 will be removed after the pier of existing bridge is removed and workpad 1 will be retained for new construction. Workpad 3 will be constructed and be used for new bridge along with workpad 1.

Utility Impacts

No impacts from utility relocations are anticipated as a result of this project.

Bridge Demolition

Bridge No. 185 was built in 1972 and is 91 feet long and 19 feet wide. The superstructure is an asphalt surface on timber deck with steel girders. The substructure is composed of timber piles with timber caps with one concrete pier. There is approximately 19 feet of vertical clearance between the floor beam of the bridge deck and streambed. There is potential for components of the pier to be dropped into Waters of the United States during bridge removal resulting in 10 cubic yards of temporary fill. Best Management Practices for Bridge Demolition and Removal will be implemented during the demolition and construction of Bridge No. 185.

Restoration Plan

Removal and Disposal Plan: The contractor will be required to submit a reclamation plan for the removal of and disposal of all material off-site at an upland location. The contractor will use excavation equipment to remove the riprap used for the temporary workpads for Bridge No. 185. Heavy-duty trucks, dozers, cranes and various other pieces of mechanical equipment necessary for construction of roadways and bridges will be used on site. All material placed in the stream will be removed from the stream at that time. The contractor will have the option of reusing any of the materials that the engineer deems suitable in the construction of project. After the temporary workpads are no longer needed, all temporary materials will become the property of the contractor.

Following construction of the bridge, all material used in the construction of the structure will be removed. The existing approach fill will be removed to natural grade and the area will be re-vegetated according to NCDOT guidelines. Class I riprap and filter fabric will be used for bank stabilization. Pre-project elevations will be restored. NCDOT will restore stream to its pre-project contours.

Schedule: The project calls for a letting of August 17, 2004 with a date of availability of September 28, 2004. It is expected that the contractor will choose to start construction in September.

MITIGATION OPTIONS

Avoidance, Minimization, and Mitigation: The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning and NEPA compliance stages; minimization measures were incorporated as part of the project design.

According to the Clean Water Act (CWA) §404(b)(1) guidelines, NCDOT must avoid, minimize, and mitigate, in sequential order, impacts to waters of the US. The following is a list of the project's jurisdictional stream avoidance/minimization activities proposed or completed by NCDOT:

Avoidance/Minimization:

- The new bridge will not have a bent located in the middle of stream.
- The new bridge will be 39 feet longer than the existing bridge.
- Limited instream activity

- An offsite detour will be used.

Based on the above considerations, it is determined that there is no practicable alternative to the proposed construction in jurisdictional Waters of the U.S. and that the proposed action includes all practicable methods to avoid and/or minimize jurisdictional stream impacts that may result from such use. The impacts from this project do not meet the minimum mitigation threshold of 150 linear feet of stream. Therefore, no mitigation is proposed.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classification of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under the provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003 the United States Fish and Wildlife Service (USFWS) lists one federally protected species for Guilford County, the bald eagle (*Haliaeetus leucocephalus*). Additionally, a review of the Natural Heritage Program database (last updated on April 7, 2004) revealed no occurrences of bald eagle within 1.0 mile of the project area. A biological conclusion of "No Effect", due to lack of suitable habitat, remains valid for the bald eagle.

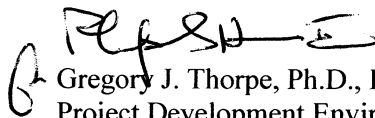
REGULATORY APPROVALS

Section 404 Permit: This project is being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (67 FR 2020; January 15, 2002). We are also requesting the issuance of a Nationwide Permit 33 authorizing use of temporary workpads in the stream for bridge construction.

Section 401 Permit: We anticipate 401 General Water Quality Certification (WQC) 3403 and 3366 will apply to this project. The NCDOT will adhere to all general conditions of these WQCs. Therefore, written concurrence from the NCDWQ is not required. In accordance with 15A NCAC 2H 0.0501(a) and 15A NCAC 2B 0.200 we are providing two copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, as notification.

A copy of this permit application will be posted on the NCDOT website at: <http://www.ncdot.org/planning/pe/naturalunit/Permit.html>. If you have any questions or need additional information please call Ms. Deanna Riffey at (919) 715-1409.

Sincerely,



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

Cc:

w/attachment

Mr. John Hennessy, DWQ (2 copies)

Mr. Gary Jordan, USFWS

Mr. Travis Wilson, NCWRC

Mr. Greg Perfetti, P.E., Structure Design

w/o attachment

Mr. David Franklin, USACE, Wilmington

Mr. Jay Bennett, P.E., Roadway Design

Mr. Omar Sultan, Programming and TIP

Mr. Art McMillan, P.E., Highway Design

Mr. David Chang, P.E., Hydraulics

Mr. Mark Staley, Roadside Environmental

Mr. J. M. Mills, P.E., Div. 7 Engineer

Mr. Jerry Parker, DEO

Ms. Robin Hancock, PDEA

USACE Action ID No. _____ DWQ No. _____

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

I. Processing

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

- Section 404 Permit Riparian or Watershed Buffer Rules
- Section 10 Permit Isolated Wetland Permit from DWQ
- 401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested: NW 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 Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), complete section VIII and check here:

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

II. Applicant Information

1. Owner/Applicant Information

Name: NCDOT

Mailing Address: Project Development & Environmental Analysis Branch
1548 Mail Service Center
Raleigh, NC 27699-1548

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

E-mail Address: gthorpe@dot.state.nc.us

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 No. 185 on SR 2712 over Haw River in Guilford County.
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3646
3. Property Identification Number (Tax PIN): _____
4. Location
County: Guilford Nearest Town: Greensboro
Subdivision name (include phase/lot number): _____
Directions to site (include road numbers, landmarks, etc.): Northeast of Greensboro, 40 West, Exit 127, take 29 North, then 150 East (Osceola-Ossipee Rd), turn onto SR 2712 (Brooks Bridge Rd).

5. Site coordinates, if available (UTM or Lat/Long): 36° 13' 20" N / 79° 32' 43" W
(Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
6. Property size (acres): Approximately 0.30 acres
7. Nearest body of water (stream/river/sound/ocean/lake): Haw River
8. River Basin: Cape Fear
(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/.](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: SR 2712 is a rural local route. Land use in the project area is rural with few urbanized activities nearby.

10. Describe the overall project in detail, including the type of equipment to be used:
The original CE document recommended Bridge No. 185, which is a 91-foot long bridge, to be replaced with a new 160-foot long bridge by realigning SR 2712 (Brooks Bridge Road) north of the existing bridge. The traffic was to be maintained on the existing alignment during construction. Since the completion of the CE, a new design has been created. Bridge No 185 over the Haw River will be replaced with a new 130-foot long bridge at approximately the same location and roadway elevation as the existing bridge. The new bridge will consist of three spans. Bridge No. 185 will be widened from 19 feet to 36 feet to accommodate a travelway of 25 feet with offsets of 5.5 feet on each side. Three workpads will provide construction access for demolition of existing bridge and drilled shaft installation of the new bridge. Traffic will be detoured offsite along surrounding roads during construction. Once the new bridge is completed, the old roadway, workpads, and bridge material will be removed. Construction will be performed using heavy equipment such as dozers, loaders and cranes.

11. Explain the purpose of the proposed work: Bridge No. 185 is considered to be structurally deficient and functionally obsolete,

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.

N/A

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.

N/A

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

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

1. Provide a written description of the proposed impacts: Impacts from this project consist of 0.059 acres of temporary fill to the Haw River from the usage of three temporary workpads that will be used to remove existing bridge and build the new bridge. There are no wetland impacts for this project.

1. Individually list wetland impacts below:

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***
N/A					

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.
 ** 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at <http://www.fema.gov>.
 *** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property: N/A
 Total area of wetland impact proposed: N/A

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

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
Site 1 Bridge Workpads	Temporary	0.059 ac	Haw River	60 ft	Perennial

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

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

Cumulative impacts (linear distance in feet) to all streams on site: 0.059 acres

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

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

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

5. 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.): _____

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

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

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.

Impacts to Site 1 cannot be avoided but are minimized with the use of NCDOT's Best Management Practices for the Protection of Surface Waters, by removing an existing bent from the middle of stream, lengthening bridge 39 feet, limiting instream activity, and using an offsite detour.

VIII. Mitigation

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

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

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

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

N/A

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

Amount of stream mitigation requested (linear feet): _____
 Amount of buffer mitigation requested (square feet): _____
 Amount of Riparian wetland mitigation requested (acres): _____
 Amount of Non-riparian wetland mitigation requested (acres): _____
 Amount of Coastal wetland mitigation requested (acres): _____

IX. Environmental Documentation (required by DWQ)

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

Yes No

If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)?

Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.

Yes No

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

Yes No

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

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

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

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

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

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1		3	
2		1.5	
Total			

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

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

XI. Stormwater (required by DWQ)

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

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

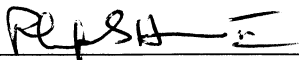
Is this an after-the-fact permit application?

Yes No

XIV. 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

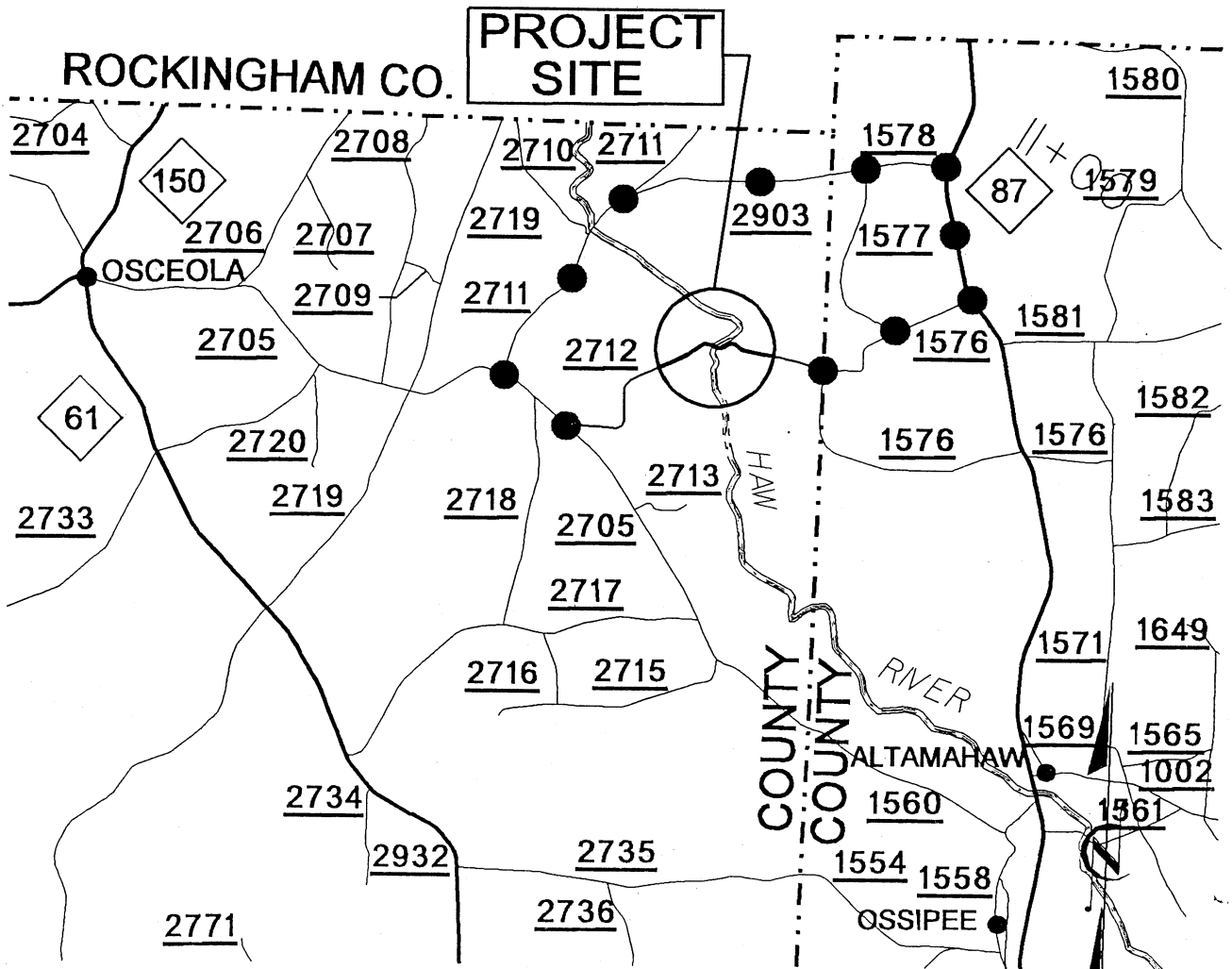
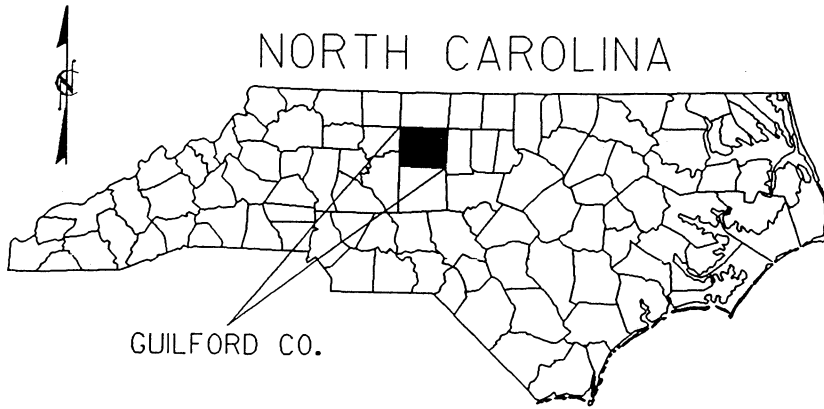


Applicant/Agent's Signature

6/1/04

Date

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



VICINITY
MAPS

NCDOT

DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 33192.1.1 (B-3646)

REPLACE BRIDGE NO.185
ON SR2712 OVER THE
HAW RIVER

15+00

16+00

17+00

18+00

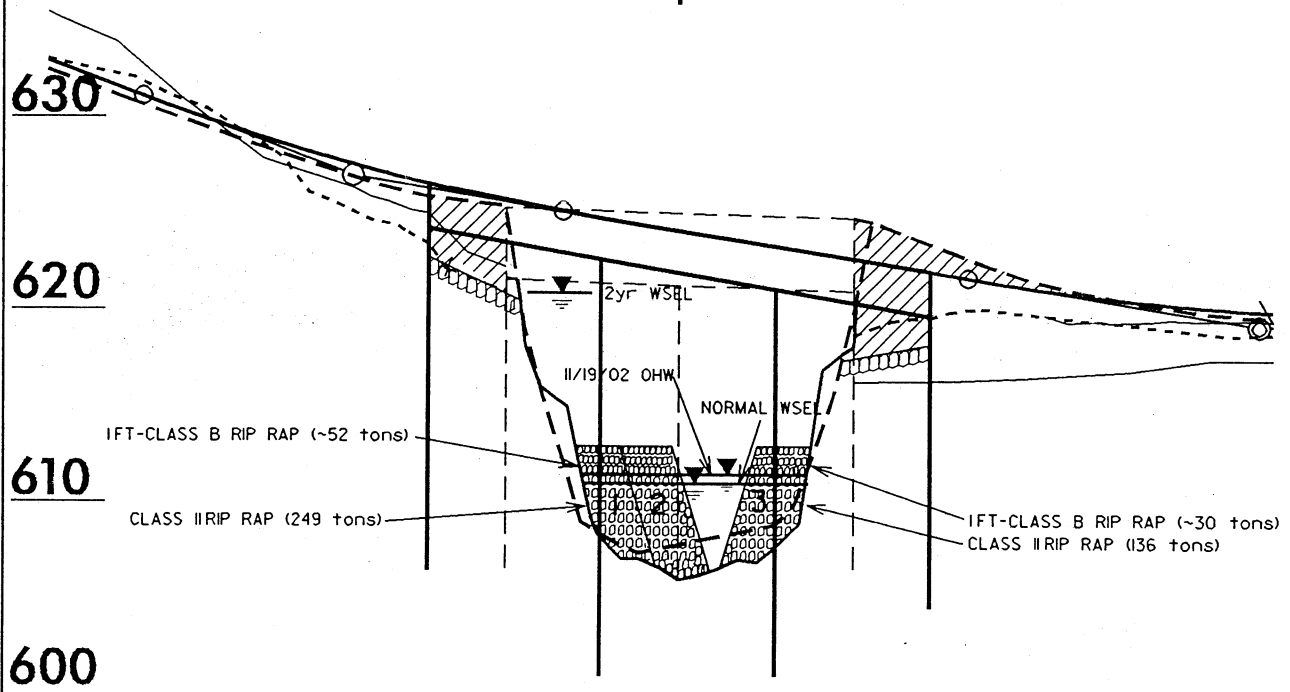
☉ STATION 16+45 -L-

☉ ELEVATION = 624.164'

SKEW 110 DEGREES

1045', 1045', 1040'

21In CORED SLAB



- *Work Pads 1&3 Are Needed For Proposed Bent Construction
- *Work Pad 2 Is Needed For Removal Of The Existing Bent

PLAN VIEW
WORK PAD

NCDOT

DIVISION OF HIGHWAYS

GUILFORD COUNTY

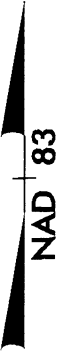
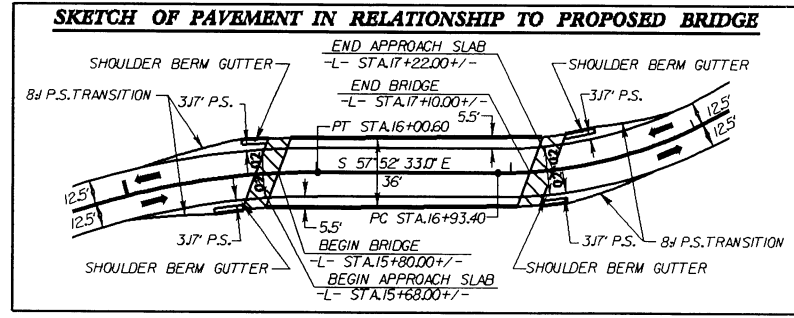
PROJECT: 33192.1.1 (B-3646)

REPLACE BRIDGE NO.185

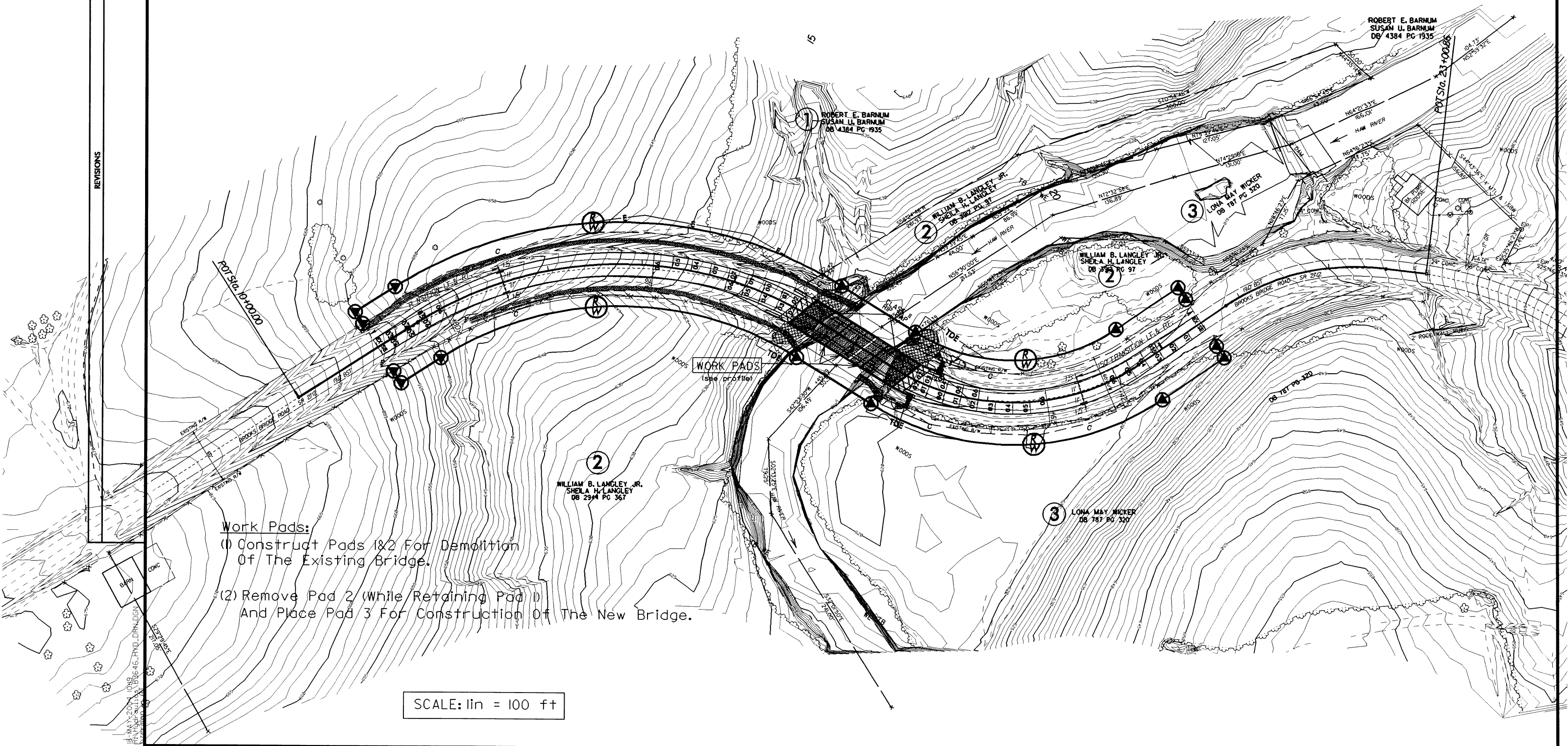
ON SR2712 OVER THE

HAW RIVER

PROJECT REFERENCE NO. <i>B-3646</i>		SHEET NO. <i>3</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			



REVISIONS



Work Pads:

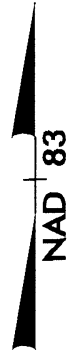
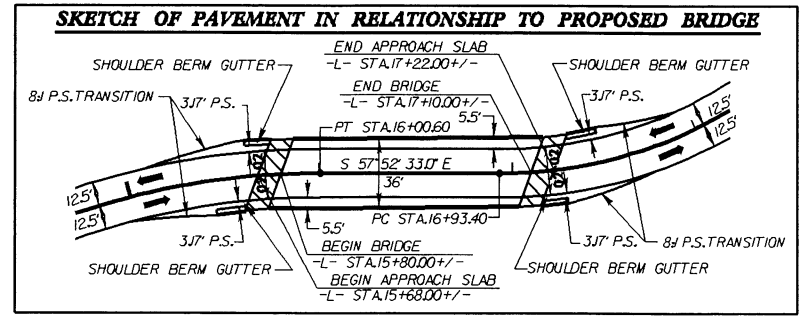
(1) Construct Pads 1&2 For Demolition Of The Existing Bridge.

(2) Remove Pad 2 (While Retaining Pad 1) And Place Pad 3 For Construction Of The New Bridge.

SCALE: 1 in = 100 ft

B-17/99
18 MAY 2004 JONH
PT: 1142 11:13:45 B3646-FWD.DRN.DGN
17/08

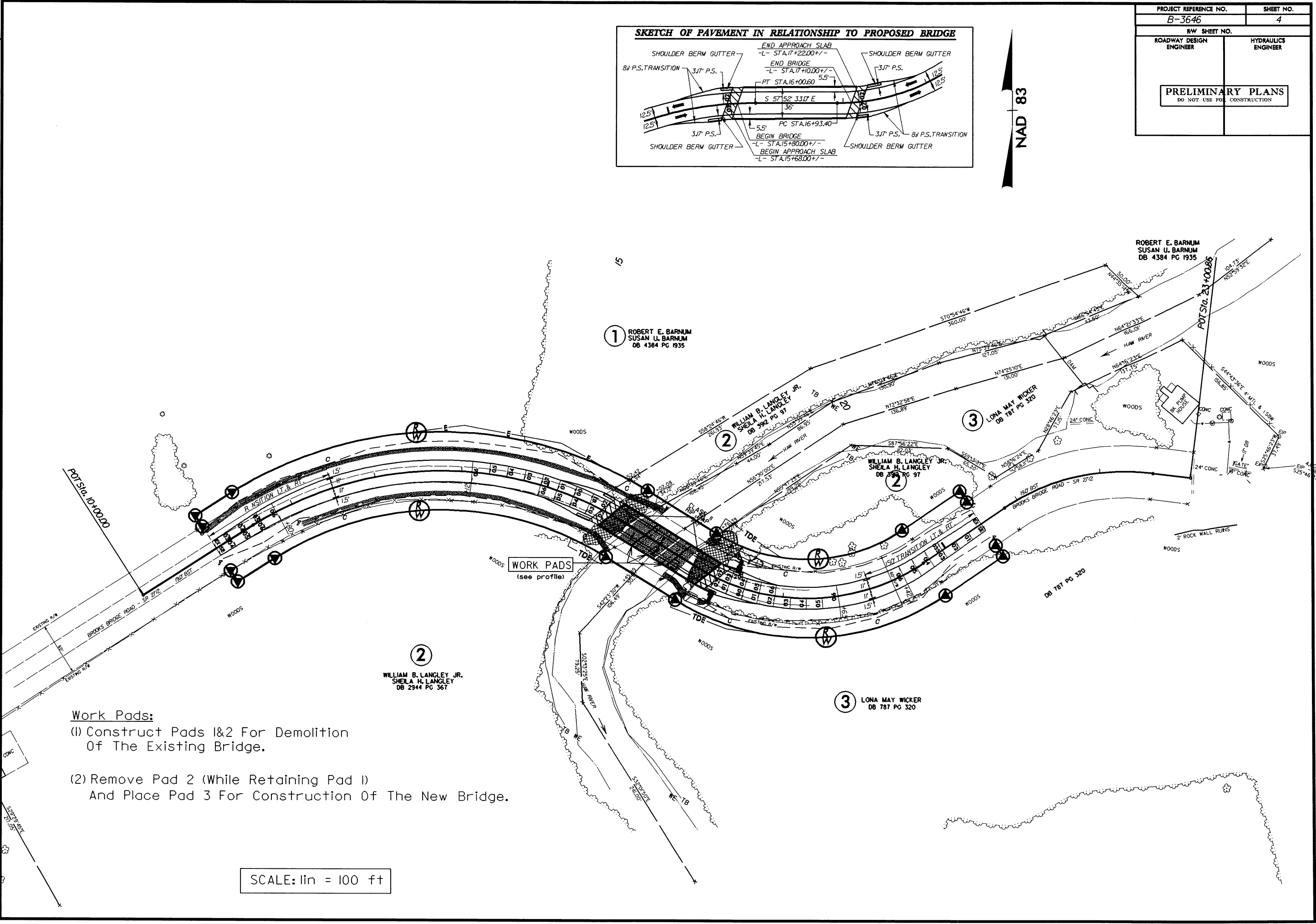
PROJECT REFERENCE NO. B-3646	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



8/17/99

REVISIONS

18-MAY-2004 09:57
R:\Hydraulics\B3646-HYD-DRN.DGN
3/1/05



- Work Pads:**
- (1) Construct Pads 1&2 For Demolition Of The Existing Bridge.
 - (2) Remove Pad 2 (While Retaining Pad 1) And Place Pad 3 For Construction Of The New Bridge.

SCALE: 1/4" = 100 ft

PROPERTY OWNERS
NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	ROBERT E. BARNUM	7389 BROOKS BRIDGE RD. GIBSONVILLE, NC 27249
2	WILLIAM B. LANGLEY, JR.	7400 BROOKS BRIDGE RD. GIBSONVILLE, NC 27249
3	LONA MAY WICKER	7457 BROOKS BRIDGE RD. GIBSONVILLE, NC 27249

DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 33192.1.1 (B-3646)

REPLACE BRIDGE NO.185
ON SR2712 OVER THE
HAW RIVER

SHEET 5 OF 6 10 / 23 / 05

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS				Natural Stream Design (ft)	
			Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)		
1	~15+90&16+70	BRIDGE WORK PADS								0.059		
TOTALS:			0	0	0	0	0	0	0	0.059	0	0

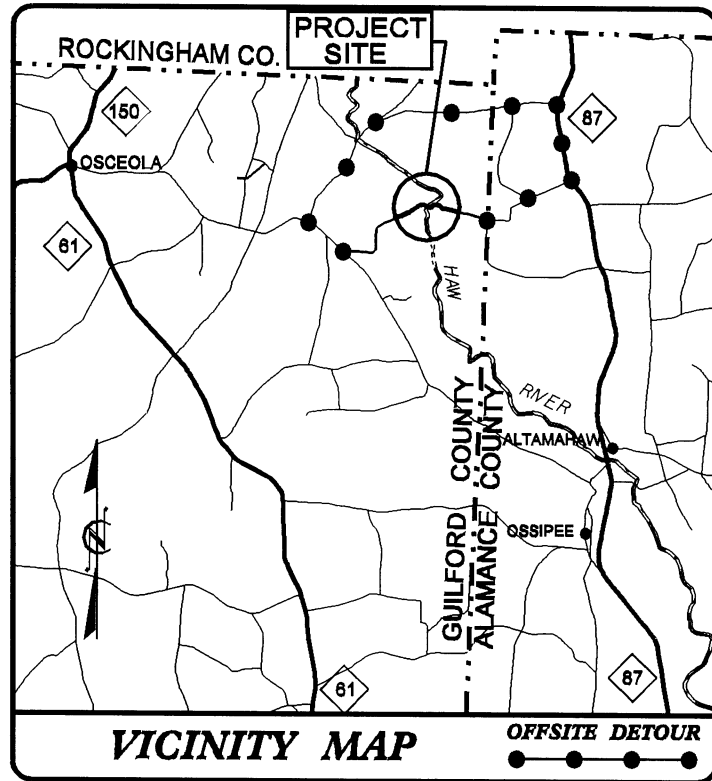
NCDOT

DIVISION OF HIGHWAYS
 GUILFORD COUNTY
 PROJECT 33192.1.1 (B-3646)
 REPLACE BRIGE NO. 185
 ON SR2712 OVER THE
 HAW RIVER

09/08/99

CONTRACT: C200909 TIP PROJECT: B-3646

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



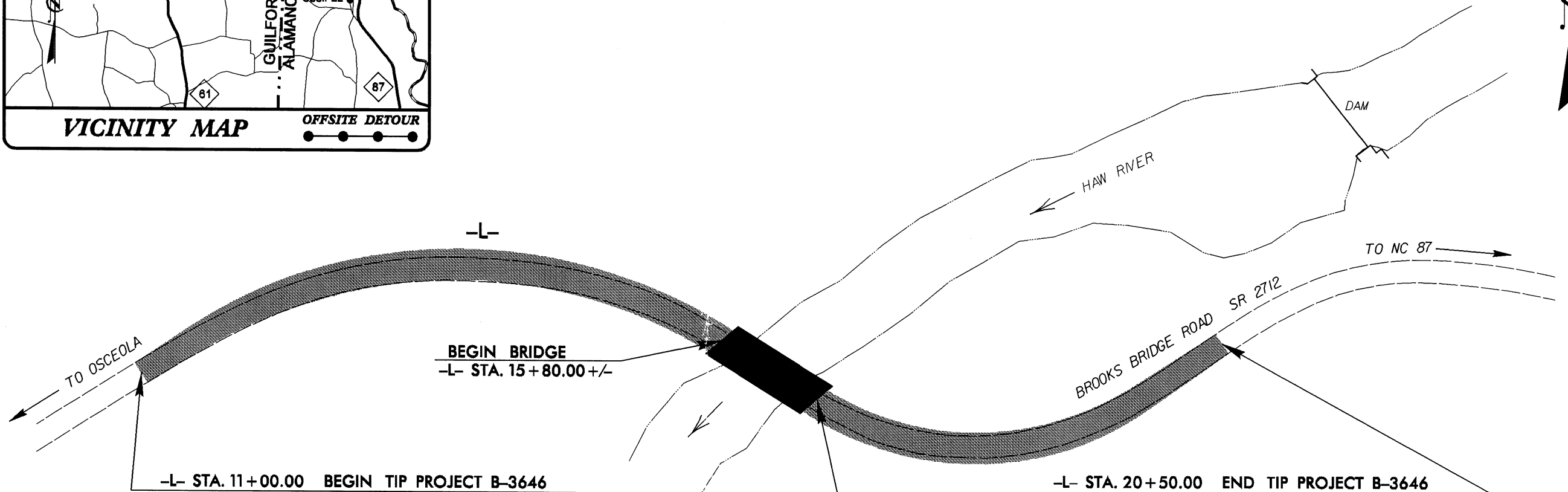
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

**LOCATION: BRIDGE NO. 185 OVER HAW RIVER AND
APPROACHES ON SR 2712 (BROOKS BRIDGE ROAD)**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3646	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
33192.1.1	BRZ-2712(2)	PE	
33192.2.1	BRZ-2712(2)	RW & UTIL	



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES
 CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III
 ** DESIGN EXCEPTION REQUIRED TO REDUCE DESIGN SPEED FROM 55 MPH (STATUTORY) TO 25 MPH

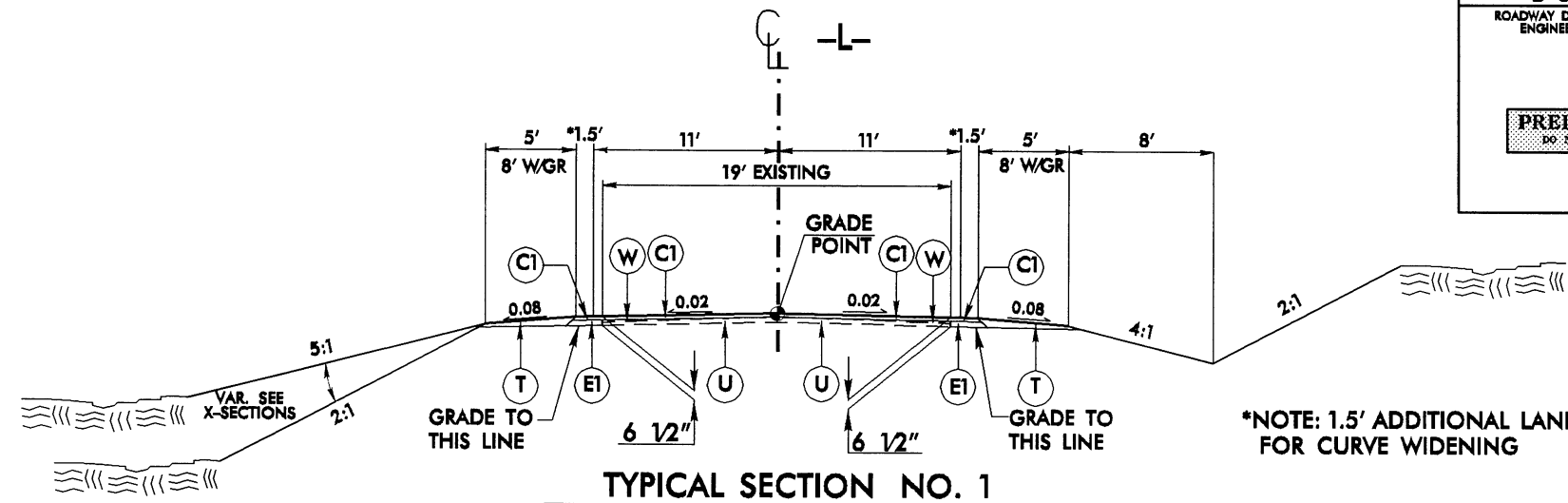
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES PLANS PROFILE (HORIZONTAL) PROFILE (VERTICAL)	DESIGN DATA ADT 2003 = 246 ADT 2025 = 500 DHV = 10 % D = 60 % *T = 3 % **V = 25 MPH * (TTST 1% + DUAL 2%) FUNC CLASS = LOCAL	PROJECT LENGTH LENGTH ROADWAY TIP PROJECT B-3646 = 0.155 MI LENGTH STRUCTURE TIP PROJECT B-3646 = 0.025 MI TOTAL LENGTH OF TIP PROJECT B-3646 = 0.180 MI	Prepared in the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh, NC, 27610		HYDRAULICS ENGINEER P.E. SIGNATURE: _____ ROADWAY DESIGN ENGINEER	DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA STATE DESIGN ENGINEER DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION APPROVED DIVISION ADMINISTRATOR
			2002 STANDARD SPECIFICATIONS RIGHT OF WAY DATE: JULY 31, 2003 LETTING DATE: AUGUST 17, 2004	GLENN W. MUMFORD, PE PROJECT ENGINEER LISA W. SHAPIRO, PE PROJECT DESIGN ENGINEER		

18-FEB-2004 11:35
R:\Roadway\Projects\B3646\RDY_TSH.DGN
Shapiro AL RD195133

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 112 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.



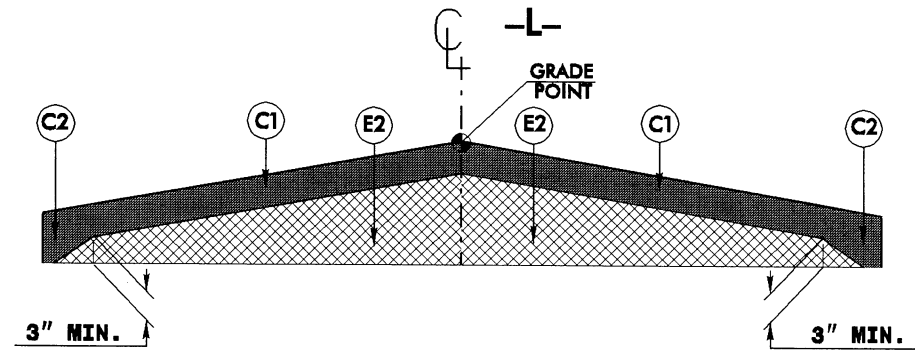
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO.1 AT THE FOLLOWING LOCATIONS:

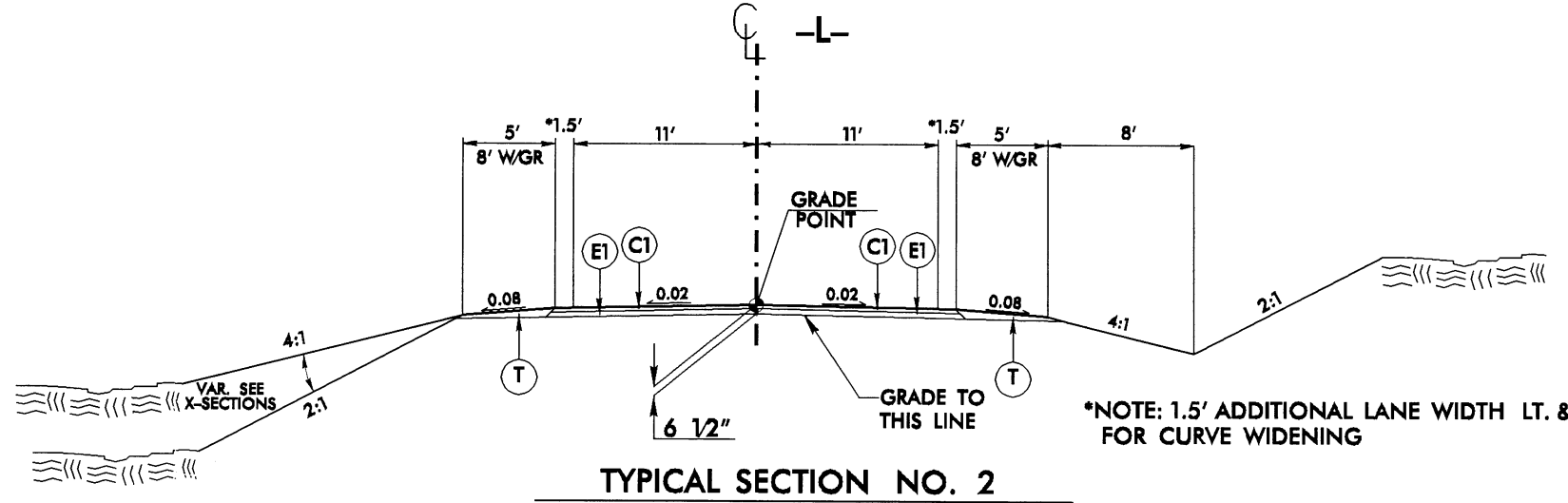
- L- STA. 12+50.00 TO STA. 15+45.00
- L- STA. 17+75.00 TO STA. 19+00.00

TRANSITION FROM EXISTING @ -L- STA. 11+00.00 TO TYPICAL SECTION NO.1 @ STA. 12+50.00

TRANSITION FROM TYPICAL SECTION NO.1 @ -L- STA. 19+00.00 TO EXISTING @ STA. 20+50.00



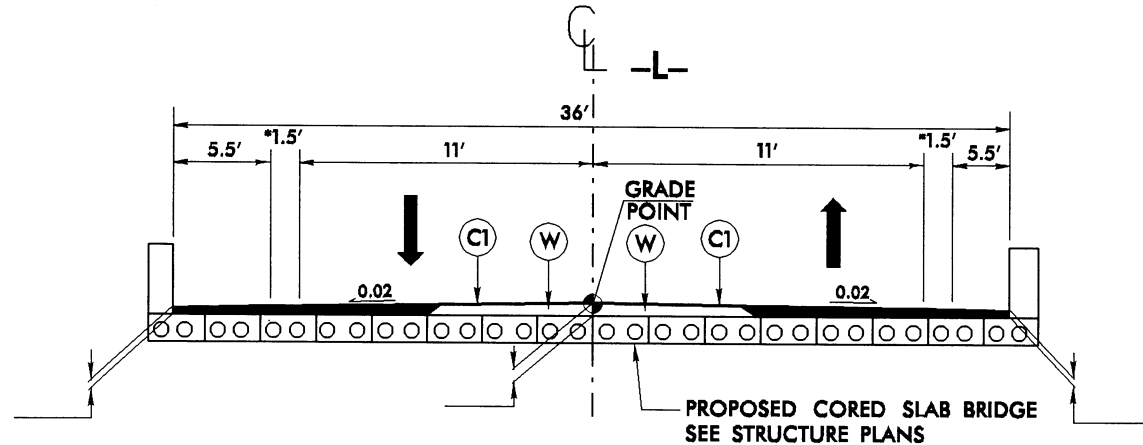
DETAIL SHOWING METHOD OF WEDGING ON BRIDGE
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 3



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO.2 AT THE FOLLOWING LOCATIONS:

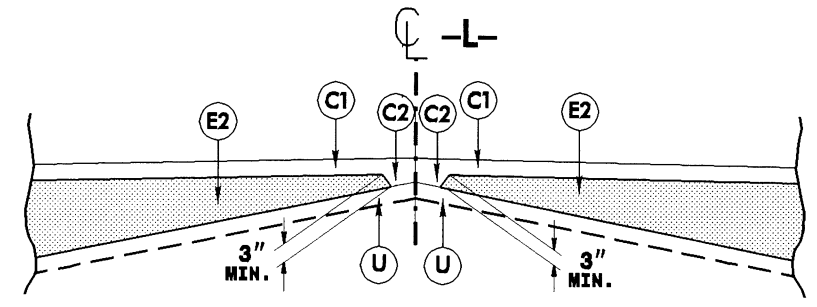
- L- STA. 15+45.00 TO STA. 15+80.00 +/- (BEGIN BRIDGE)
- L- STA. 17+10.00 +/- (END BRIDGE) TO STA. 17+75.00



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO.3 AT THE FOLLOWING LOCATION:

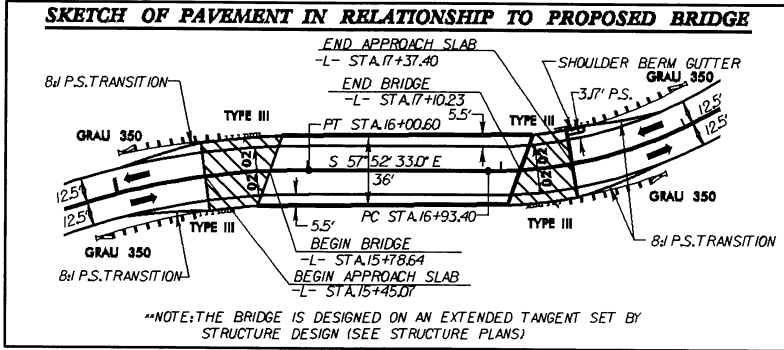
- L- STA. 15+80.00 +/- (BEGIN BRIDGE) TO STA. 17+10.00 +/- (END BRIDGE)



DETAIL SHOWING METHOD OF WEDGING
USE IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1

6/2/99

18-FEB-2004 11:35 AM B:\3646\RDY_TYP.DGN

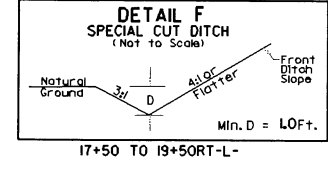
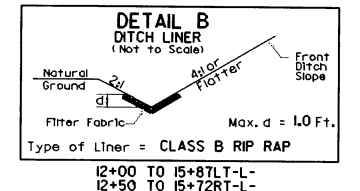
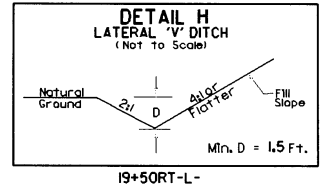
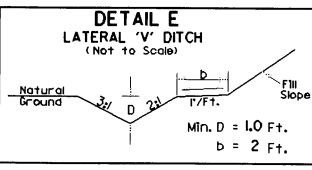
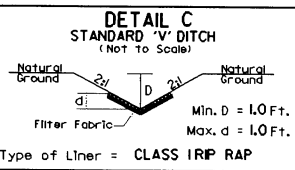
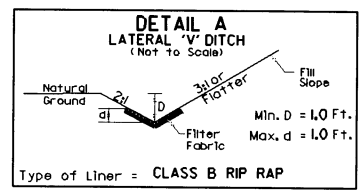
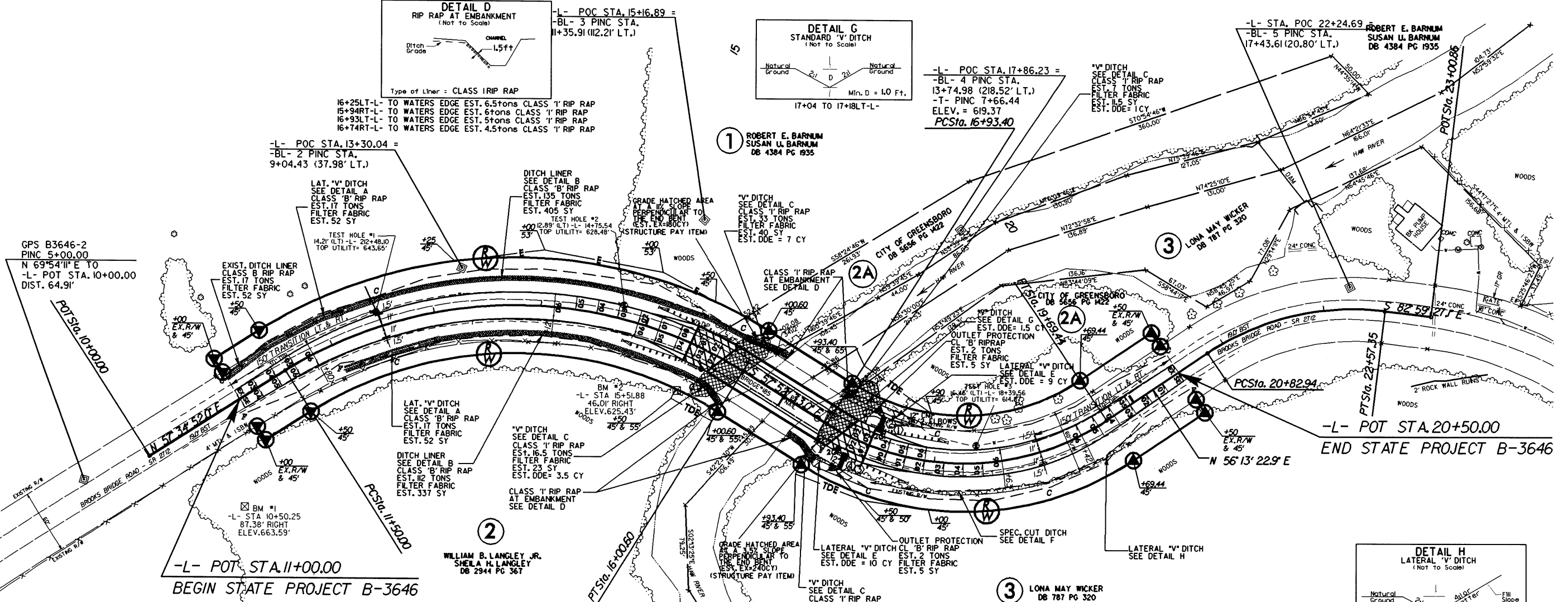
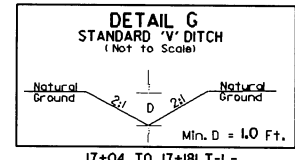
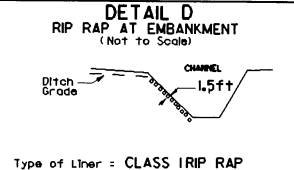


NAD 83

DESIGN SPEED DESIGN EXCEPTION REQUIRED. ALL DESIGN ELEMENTS MEET OR EXCEED A 25 MPH DESIGN SPEED.

-L-		
PI Sta 14+02.59 Δ = 64°32'35.0" (RT) D = 14°19'26.2" L = 450.60' T = 252.59' R = 400.00' S.E. = 0.06 (SEE PLANS) INC. = 20'	PI Sta 18+48.96 Δ = 65°54'04.1" (LT) D = 23°52'23.7" L = 276.05' T = 155.56' R = 240.00' S.E. = 0.06 (SEE PLANS) INC. = 18'	PI Sta 21+74.02 Δ = 40°47'10.0" (RT) D = 23°23'09.7" L = 174.40' T = 91.08' R = 245.00'

SHOULDER BERM GUTTER
-L- STATIONS 17+37.40 - 17+47.78 LT



FOR -L- PROFILE SEE SHEET 5
FOR STRUCTURE PLANS SEE SHEETS S-1 THRU S-28

REVISIONS

15 MAY 2004 09:35 B3646.RDY_PSH_4.DGN

DITCH LEGEND		PROJECT REFERENCE NO. B-3646	SHEET NO. 5
LEFT DITCH	-----	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
RIGHT DITCH	-----	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-L-

BM#1
R/R SPIKE IN 18" OAK 87.38' RT.
OF -L- STA. 10+50.25
ELEV. = 663.59' N 900145 E 1838647

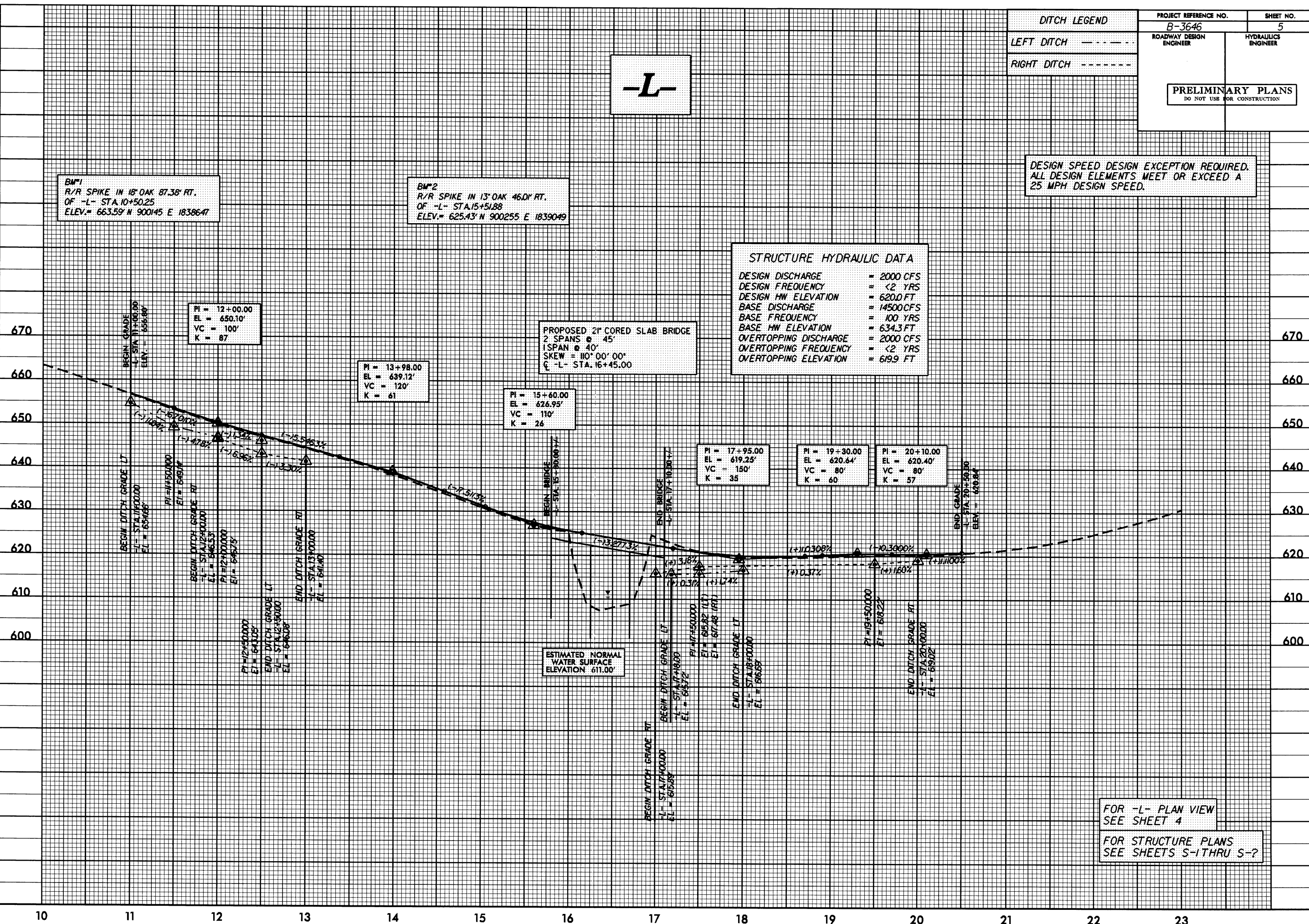
BM#2
R/R SPIKE IN 13" OAK 46.01' RT.
OF -L- STA. 15+51.88
ELEV. = 625.43' N 900255 E 1839049

DESIGN SPEED DESIGN EXCEPTION REQUIRED.
ALL DESIGN ELEMENTS MEET OR EXCEED A
25 MPH DESIGN SPEED.

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 2000 CFS
DESIGN FREQUENCY	= <2 YRS
DESIGN HW ELEVATION	= 620.0 FT
BASE DISCHARGE	= 14500 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 634.3 FT
OVERTOPPING DISCHARGE	= 2000 CFS
OVERTOPPING FREQUENCY	= <2 YRS
OVERTOPPING ELEVATION	= 619.9 FT

PROPOSED 2" CORED SLAB BRIDGE
2 SPANS @ 45'
1 SPAN @ 40'
SKEW @ 110° 00' 00"
C -L- STA. 16+45.00



PI = 12+00.00
EL = 650.10'
VC = 100'
K = 87

PI = 13+98.00
EL = 639.12'
VC = 120'
K = 61

PI = 15+40.00
EL = 626.95'
VC = 110'
K = 26

PI = 17+95.00
EL = 619.25'
VC = 150'
K = 35

PI = 19+30.00
EL = 620.44'
VC = 80'
K = 60

PI = 20+10.00
EL = 620.40'
VC = 80'
K = 57

ESTIMATED NORMAL
WATER SURFACE
ELEVATION = 611.00'

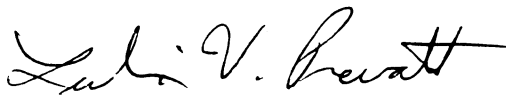
FOR -L- PLAN VIEW
SEE SHEET 4

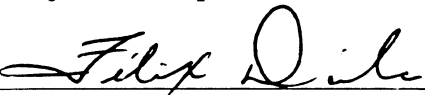
FOR STRUCTURE PLANS
SEE SHEETS S-1 THRU S-?

**Guilford County
Bridge No. 185 on SR 2712
Over the Haw River
Federal Project BRZ-2712(2)
State Project 8.2495201
TIP No. B-3646**

**CATEGORICAL EXCLUSION
U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
N. C. DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**

APPROVED:

12-19-00 
Date William D. Gilmore, PE, Manager
Project Development and Environmental Analysis Branch

12-21-00 
Date ^{for} Nicholas Graf, PE
Division Administrator, FHWA

**Guilford County
Bridge No. 185 on SR 2712
Over the Haw River
Federal Project BRZ-2712(2)
State Project 8.2495201
TIP No. B-3646**

CATEGORICAL EXCLUSION

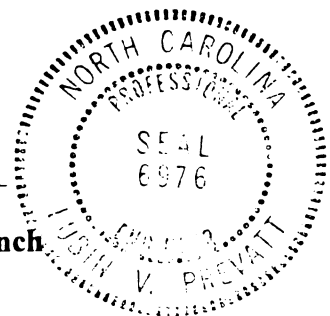
December 2000

**Documentation Prepared in
Project Development and Environmental Analysis Branch By:**

12-19-00 *Robin C. Young*
Date Robin C. Young
Project Planning Engineer

12-19-00 *Wayne Elliott*
Date Wayne Elliott
Bridge Project Planning Engineer, Unit Head

12-19-00 *Lubin V. Prevatt*
Date Lubin V. Prevatt, PE, Assistant Manager
Project Development and Environmental Analysis Branch



PROJECT COMMITMENTS

**Guilford County
Bridge No. 185 on SR 2712
Over the Haw River
Federal Project BRZ-2712 (2)
State Project 8.2495201
TIP No. B-3646**

Commitments Developed Through Project Development and Design

Division 7 Construction, Roadside Environmental Unit, Structure Design Unit, Project Development & Environmental Analysis (Natural Resource Specialist)

Bridge Demolition: Best Management Practices for Bridge Demolition & Removal will be implemented during the construction of Bridge No. 185. This bridge is composed mainly of timber and steel with one concrete pier. There is potential for components of the pier to be dropped into the Waters of the United States. The resulting temporary fill associated with this bridge is 10 cubic yards.

Roadway Design Unit, Roadside Environmental Unit, Division 7 Construction

Once construction of the new bridge and approaches are complete, the existing bridge and road will be removed. The existing approach fill will be removed to natural grade and the area will be re-vegetated with appropriate plant species.

PDEA Environmental Specialist

This project will require a 401 Water Quality Certification from the Division of Water Quality (DWQ) prior to the issuance of the Nationwide Permit. Section 401 of the Clean Water Act requires that the state issue or deny water certification for any federally permitted or licensed activity that may result in a discharge to Waters of the United States.

**Guilford County
Bridge No. 185 on SR 2712
Over the Haw River
Federal Project BRZ-2712(2)
State Project 8.2495201
TIP No. B-3646**

Bridge No. 185 is located in Guilford County over the Haw River. It is programmed in the 2002-2008 Draft Transportation Improvement Program (TIP) as a bridge replacement project. This project is part of the Federal Highway Bridge Replacement and Rehabilitation Program (HBRRP) and has been classified as a "Categorical Exclusion". No substantial environmental impacts are expected.

I. SUMMARY OF RECOMMENDATIONS

Bridge No. 185 will be replaced as recommended in Alternate 1 with a new bridge by realigning SR 2712 north of the existing bridge. The replacement bridge will be constructed at approximately the same roadway elevation of the existing structure (see Figure 2). The new bridge will be approximately 160 feet (48.8 meters) in length and 28 feet (8.5 meters) in width. A travelway of 22 feet (6.6 meters) will be accommodated, with an offset of 3 feet (1 meter) on each side of the bridge.

The approach roadway will consist of two 11-foot (3.3-meter) travel lanes and soil shoulder widths of at least 4 feet (1.2 meters). The shoulder widths will be 3 feet (1 meter) wider where guardrail is warranted.

Traffic will be maintained on the existing alignment during construction.

The estimated cost of the project is \$1,038,000 including \$1,000,000 in construction costs and \$38,000 in right of way costs. The estimated cost shown in the 2002-2008 Draft TIP is \$540,000.

II. ANTICIPATED DESIGN EXCEPTIONS

Based on preliminary design, a design exception will not be required for this project.

III. EXISTING CONDITIONS

SR 2712 is classified as a Rural Local Route in the Statewide Functional Classification System. Currently the traffic volume is 200 vehicles per day (VPD) and projected at 500 VPD for the year 2025. Approximately 2% of the traffic is dual tired vehicles (DUAL) and 1% is truck-tractor semi-trailers (TTST). The posted speed limit in the vicinity of the bridge is 55 mph. The road serves primarily local residential and agricultural traffic.

The existing bridge was completed in 1972. The superstructure has an asphalt surface on a timber deck with steel girders. The substructure consists of timber piles with timber caps with one concrete pier. The deck is 91 feet (27.7 meters) long and 19 feet (5.8 meters) wide. There are approximately 19 feet (5.8 meters) of vertical clearance between the floor beams of the bridge deck and streambed. There are two lanes of traffic on the approaches and room for one lane of travel across the existing bridge.

According to Bridge Maintenance Unit records, the sufficiency rating of the bridge is 23.7 out of a possible 100. Presently the bridge is posted with weight restrictions of 13 tons for single vehicles and 16 tons for truck-tractor semi-trailers.

The existing horizontal alignment is very poor. The existing vertical alignment is fair.

The Traffic Engineering Branch indicates that no accidents have been reported during a recent 3-year period in the vicinity of the project.

According to the Transportation Director for Guilford County, rerouting can be implemented to handle closing of the road. However, rerouting would require two buses to make two 9-mile round trips each, per day, to reach the children on the east side of the bridge.

There is an abandoned brick building in the northwest quadrant of SR 2712 and the Haw River that housed a pumping station for the City of Burlington. The City ceased operation of the pumping station several years ago and the building and surrounding property is currently owned by a private owner. The concrete dam used to pool the Haw River for the pumping operation is still in place. The dam is west of the existing bridge and should have no impact on this proposed project.

There has been some periodic flooding in the vicinity of the project. A decision was made not to raise the grade at this location due to the amount of impacts in the floodplain and the relatively low traffic volumes.

IV. PROPOSED ALTERNATIVES

There is one “build” option considered in this document as follows:

Alternate 1: (Recommended) Replace Bridge No. 185 with a new 160 foot (48.8 meter) long bridge by realigning SR 2712 north of the existing bridge. Construct the replacement bridge at approximately the same roadway elevation as the existing bridge. Traffic will be maintained using the existing alignment during construction.

An off-site detour was considered, but dropped from further consideration due to concerns of school bus transportation and the agricultural nature of this community. The available detours are too long for slow moving farm equipment.

A replace-in-place alternate was not considered for two reasons. First, the existing roadway consists of back and forth curves. Straightening the roadway will be safer for drivers. Second, it would require a temporary detour bridge of length 120 feet (36.5 meters) in length, placed just upstream of the existing bridge.

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

V. ESTIMATED COST (Table 1)

COMPONENT	Recommended ALTERNATE 1
Structure	\$ 336,000
Bridge Removal	\$ 14,000
Roadway & Approaches	\$ 239,000
Detour & Approaches	\$ 0
Mobilization & Miscellaneous	\$ 266,000
Engineering & Contingencies	\$ 145,000
Total Construction	\$ 1,000,000
Right of Way	\$ 38,000
Total Cost	\$ 1,038,000

VI. RECOMMENDED IMPROVEMENTS

Bridge No. 185 will be replaced as recommended in Alternate 1 with a new bridge by realigning SR 2712 north of the existing bridge. The replacement bridge will be constructed at approximately the same roadway elevation of the existing structure (see Figure 2). The new bridge will be approximately 160 feet (48.8 meters) in length and 28 feet (8.5 meters) in width. A travelway of 22 feet (6.6 meters) will be accommodated, with an offset of 3 feet (1 meter) on each side of the bridge. Based on preliminary design, the completed project will provide a design speed of 60 mph

There will be approximately 680 feet (207 meters) of new approach work on the west side of the bridge, and approximately 280 feet (85 meters) on the east side of the bridge. The approach roadway will consist of two 11-foot (3.3-meter) travel lanes and soil shoulder widths of at least 4

feet (1.2 meters). The shoulder widths will be 3 feet (1 meter) wider where guardrail is warranted.

Traffic will be maintained on the existing alignment during construction.

The construction of the recommended alternate does not have the potential to cause substantial impacts to the local environment. The Division 7 Office concurs with the recommendation.

VII. ENVIRONMENTAL EFFECTS

A. GENERAL

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

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

This bridge replacement will not have a substantial adverse effect on the quality of the human or natural environment by implementing the environmental commitments listed in the Project Commitments sheet of this document. In addition, the use of current NCDOT standards and specifications will be implemented.

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

There are no hazardous waste impacts.

No adverse effect on families or communities is anticipated. Right-of-way acquisition will be limited.

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

There are no publicly owned parks, recreational facilities, or wildlife and waterfowl refuges of national, state, or local significance in the vicinity of the project. This project will not impact any resource protected by Section 4(f) of the US Department of Transportation Act of 1966.

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

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

B. AIR AND NOISE

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

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

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

If the project disposes of vegetation by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520.

C. LAND USE & FARMLAND EFFECTS

This project is located in a rural portion of Guilford County with few urbanized activities nearby. Those residences closest to the proposed alignment, will likely incur minor effects such as noise and dust resulting from the construction process, as well as from the temporary altered traffic pattern. However, these impacts should be minor.

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the impact of land acquisition and construction projects on prime and important farmland soils. North Carolina Executive Order Number 96, Preservation of Prime Agricultural and Forest Lands, requires all state agencies to consider the impact of land acquisition and construction projects on prime farmland soils, as designated by the US Soil Conservation Service (SCS). These soils are determined by the SCS based on criteria such as crop yield and level of input of economic resources. Land which is planned or zoned for urban development is not subject to the same level of preservation afforded other rural, agricultural areas.

While there is farmland adjacent to the road near the bridge, the design of the project may include the conversion of some small strips of farmland along the roadside due to the construction process. However, the impacts to existing farmland should be minimal, as the areas involved are adjacent to the road and represent very small strips of land. This project will not result in the substantial loss of any federally or state designated prime, unique, or important farmland soils. In addition, this project is not located on a federally or state designated scenic river.

D. HISTORICAL EFFECTS & ARCHAEOLOGICAL EFFECTS

The State Historic Preservation Office (SHPO) reviewed the subject project. They determined that a historic architectural survey would not be required. An archaeological survey

was conducted and no prehistoric or historic archaeological sites were located within the area of potential effect. The SHPO states the project is not likely to affect any resources of architectural or archaeological significance (see letter dated November 10, 2000).

E. NATURAL RESOURCES

PHYSICAL RESOURCES

Soil and water resources occurring in the study area are discussed below. Soils and availability of water directly influence composition and distribution of flora and fauna in any biotic community.

Regional Characteristics

The project study area lies within the Piedmont physiographic province. The topography in this section of Guilford County is characterized as rolling with moderately steep slopes along the drainageways. The project area is sloping to flat, in the floodplain around the Haw River. Project elevation is approximately 620 feet (189 meters) above mean sea level.

Soils

There are two soil types found within the project boundaries: Congaree loam and Mecklenburg sandy clay loam (6-10% slopes, eroded). These soils are both listed as non-hydric. The physical characteristics of these soils are shown in Table 2.

Table 2. Soils found in the project study area.

Soil Phase	Location	Drainage	Permeability	High Water Table
Congaree loam	Long, narrow, nearly level areas of floodplains	Good	moderate	2.5-4 feet (0.8-1.2 m), frequently floods
Mecklenburg sandy clay loam, 6-10% slopes, eroded	Narrow side slopes on uplands	Good	slow	>6 feet (1.8 meters)

Soil core samples taken within the project area revealed soils with a sandy loam texture. The soils did not exhibit reduced conditions, such as low chroma colors or oxidized rhizospheres. Therefore, hydric soil indicators, as defined in the "Corps of Engineers Wetland Delineation Manual", 1987, were not observed within the project study area.

Water Resources

This section contains information concerning those water resources likely to be impacted by the project. Water resource information encompasses physical aspects of the resource, its relationship to major water systems, Best Usage Standards and water quality of the resources. Probable impacts to these water bodies are also discussed, as are means to minimize impacts.

Waters Impacted and Characteristics

The Haw River [DWQ index no. 16-(1)] will be the only surface water directly affected by the proposed project. This project is in subbasin 030601 of the Cape Fear River Basin. Well downstream of the project, the Haw River is impounded to form Jordan Lake, then joins with the Deep River at the Chatham/Lee county line to form the Cape Fear River. At the time of the site visit to the project location, the Haw River had a width of approximately 60 feet (18.3 meters), a depth of 1-4 feet (0.3-1.2 meters), and a substrate composed of silt, sand, gravel, cobble and boulders.

Best Usage Classification

The Division of Water Quality (DWQ) has assigned streams a best usage classification. The classification of the Haw River at this location is C NSW. The C classification denotes waters suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. The supplemental classification of NSW denotes Nutrient Sensitive Waters, which are waters that require limitations on nutrient inputs.

No High Quality Waters (HQW), Water Supplies (WS-I: undeveloped watersheds or WS-II predominately undeveloped watersheds) or Outstanding Resource Waters (ORW) occur within 1 mile (1.6 km) of project study area.

Water Quality

The DWQ has initiated a basinwide approach to water quality management for the 17 river basins within the state. This approach allows for more intensive sampling of biological, chemical, and physical data that can be used in basinwide assessment and planning. Likewise, benthic macroinvertebrates are intensively sampled for specific river basins. Benthic macroinvertebrates have proven to be a good indicator of water quality because they are sensitive to subtle changes in water quality, have a relatively long life cycle, are non-mobile (compared to fish), and are extremely diverse. The overall species richness and presence of indicator organisms help to assess the health of streams and rivers. River basins are reassessed every five years to detect changes in water quality and to facilitate National Pollutant Discharge Elimination System (NPDES) permit review.

A benthic macroinvertebrate monitoring site on the Haw River at NC 87 [approximately 4.1 miles (6.6 km) downstream of the proposed project] was sampled five times since 1985. This site received ratings of Good-Fair and Fair during this period, with the ratings of Fair likely caused by low flow during those years. The most recent sampling period (1998) received a rating of Fair, with marked decreases in abundance of some aquatic insect species and evidence of toxic stress and nutrient enrichment in others.

The Ambient Monitoring System (AMS) is a network of stream, lake, and estuarine water quality monitoring stations strategically located for the collection of physical and chemical water quality data. The waterbody's freshwater or saltwater classification and corresponding water

quality standards determine the types of water quality data that are collected. An ambient monitoring station on the Haw River at SR 1561 [approximately 4.6 miles (7.4 km) downstream of the proposed project] shows the elevated levels of fecal coliform bacteria and turbidity are the primary water quality problems in this area. Other parameters with observations greater than the NC State Criteria include copper, iron, lead, and zinc.

Point source dischargers located throughout North Carolina are permitted through the National Pollutant Discharge Elimination System (NPDES) Program. Any discharger is required to register for a permit. No NPDES dischargers are located within 1 mile (1.6 km) of the project area.

Non-point source pollution refers to runoff that enters surface waters through stormwater flow or no defined point of discharge. There are many types of land use activities that can serve as sources of non-point source pollution, including land development, construction, crop production, animal feeding lots, failing septic systems, landfills, roads, and parking lots. Sediments and nutrients are major pollution-causing substances associated with non-point source pollution. Others include fecal coliform bacteria, heavy metals, oil and grease, and any other substance that may be washed off the ground and carried into surface waters. The only non-point sources that could be identified during the site visit were road runoff and agricultural practices.

Summary of Anticipated Impacts

Utilizing the entire proposed ROW width, the anticipated impact to the Haw River from construction of the new bridge will be 200 linear feet (60.9 linear meters). The estimated impact for removing the existing bridge is 60 linear feet (18.3 linear meters). Therefore, the total estimated impact to the Haw River is 260 linear feet (78.2 linear meters). Usually, project construction does not require the entire right of way; therefore, actual impacts may be considerably less.

Project construction may result in the following impacts to surface waters:

1. Increased sedimentation and siltation from construction and/or erosion.
2. Changes in light incidence and water clarity due to increased sedimentation and vegetation removal.
3. Alteration of water levels and flows due to interruptions and/or additions to surface and ground water flow from construction.
4. Changes in water temperature due to streamside vegetation removal.
5. Increased nutrient loading during construction via runoff from exposed areas.
6. Increased concentration of toxic compounds from highway runoff, construction, toxic spills, and higher traffic volume.

NCDOT's Best Management Practices for the Protection of Surface Waters and

Sedimentation Control Guidelines should be strictly enforced during the construction stage of the project. There is potential for components of the existing bridge to be dropped into Waters of the U.S. during demolition. The resulting temporary fill associated with the bridge removal is approximately 10 yd³ (7.6 m³). NCDOT's Best Management Practices for Bridge Demolition and Removal (BMP-BDR) will be applied for the removal of this bridge.

BIOTIC RESOURCES

Biotic resources include aquatic and terrestrial ecosystems. This section describes those ecosystems encountered in the study area, as well as the relationships between fauna and flora within these ecosystems. Composition and distribution of biotic communities throughout the project area are reflective of topography, hydrologic influences, and past and present land uses in the study area. Descriptions of the terrestrial systems are presented in the context of plant community classifications and follow descriptions presented by Schafale and Weakley (1990) where possible. Dominant flora and fauna observed, or likely to occur, in each community are described and discussed.

Scientific nomenclature and common names (when applicable) are provided for each animal and plant species described. Plant taxonomy generally follows Radford, *et al.* (1968). Animal taxonomy follows Martof, *et al.* (1980), Menhinick (1991), Potter, *et al.* (1980), and Webster, *et al.* (1985). Subsequent references to the same organism will include the common name only.

Biotic Communities

Four communities are identified in the project study area: Piedmont/Low Mountain Alluvial Forest, Mesic Mixed Hardwood Forest (Piedmont Subtype), maintained/disturbed, and Piedmont perennial stream. Community boundaries within the study area are fairly well defined without a significant transition zone between them, and terrestrial faunal species likely to occur within the study area may exploit all communities for shelter and foraging opportunities or as movement corridors.

Piedmont/Low Mountain Alluvial Forest

A Piedmont/Low Mountain Alluvial Forest community is found along the river, and is the predominant community type found in the project study area. Canopy vegetation observed includes river birch (*Betula nigra*), sycamore (*Platanus occidentalis*), winged elm (*Ulmus alata*), ironwood (*Carpinus caroliniana*), sweetgum (*Liquidambar styraciflua*), and red maple (*Acer rubrum*). Understory vegetation includes flowering dogwood (*Cornus florida*), box elder (*Acer negundo*), elderberry (*Sambucus canadensis*), and saplings of the canopy species. The vine layer is comprised of crossvine (*Bignonia capreolata*), poison ivy (*Toxicodendron radicans*), Japanese honeysuckle (*Lonicera japonica*), grapes (*Vitis* sp.), and greenbrier (*Smilax rotundifolia*). The herb layer includes river oats (*Chasmanthium latifolium*), Virginia spring-beauty (*Claytonia virginica*), Solomon's seal (*Polygonatum biflorum*), violet (*Viola* spp.), wild onion (*Allium*

vineale), cleavers (*Galium aparine*), dock (*Rumex crispus*), and jewelweed (*Impatiens capensis*).

Mesic Mixed Hardwood Forest (Piedmont Subtype)

This community type is located on the upland slopes north of the river and south of the existing road. The canopy is composed of beech (*Fagus grandifolia*), northern red oak (*Quercus rubra*), post oak (*Q. stellata*), tulip poplar (*Liriodendron tulipifera*), shortleaf pine (*Pinus echinata*), Virginia pine (*P. virginiana*), and sweetgum. The understory is composed of American holly (*Ilex opaca*), red maple, eastern redcedar (*Juniperus virginiana*), flowering dogwood, persimmon (*Diospyros virginiana*), mountain laurel (*Kalmia latifolia*), and strawberry-bush (*Euonymus americanus*). The vine layer consists of greenbrier and poison ivy. The herb layer is moderately diverse and contains Christmas fern (*Polystichium acrostichoides*), coralbell (*Heuchera americana*), Solomon's seal, spotted wintergreen (*Chimaphila maculata*), bellwort (*Uvularia perfoliata*), avens (*Geum* sp.), and heartleaf (*Hexastylis* sp.).

Maintained/Disturbed

A maintained/disturbed community is present along the edge of the road. The regularly maintained community at the edge of the road includes fescue (*Festuca* sp.), common plantain (*Plantago major*), vetch (*Vicia* sp.), chickweed (*Stellaria media*), curly dock (*Rumex crispus*), dandelion (*Taraxacum officinale*), red clover (*Trifolium pratense*), bluets (*Houstonia caerulea*), geranium (*Geranium* sp.), horse nettle (*Solanum carolinense*), and wild onion (*Allium* sp.). Less frequently maintained areas farther from the road support species such as goldenrod (*Solidago* spp.), broomsedge (*Andropogon* sp.), evening primrose (*Oenothera biennis*), New York ironweed (*Vernonia novaboracensis*), thistle (*Cirsium* sp.), buttercup (*Ranunculus* spp.), multiflora rose (*Rosa multiflora*), honeysuckle, and blackberries (*Rubus* sp.).

Piedmont Perennial Stream

One aquatic community, a Piedmont Perennial Stream, is found within project boundaries. The substrate is composed of silt, sand, gravel, cobble, and boulders. The water is fast flowing but somewhat turbid. No submerged aquatic vegetation was visible.

Wildlife

The physical characteristics of the terrestrial and aquatic communities in an area will affect the fauna that are present and use the area. This section addresses the fauna likely to be found in the project study area. An asterisk (*) denotes fauna observed during the site visit. Published range distributions and habitat analysis are used in estimating fauna expected to be present within the project area.

Terrestrial Fauna

Terrestrial fauna likely to occur in the forest community includes mammals such as Virginia opossum (*Didelphis virginiana*), gray squirrel* (*Sciurus carolinensis*), golden mouse

(*Ochrotomys nuttali*), raccoon (*Procyon lotor*), and white-tailed deer (*Odocoileus virginianus*). Amphibians and reptiles such as slimy salamander (*Plethodon glutinosus*), spring peeper (*Hyla crucifer*), upland chorus frog* (*Pseudacris triseriata*), eastern box turtle (*Terrapene carolina*), and rat snake (*Elaphe obsoleta*) may utilize the forest as well. Insects, including butterflies such as the eastern tailed-blue* (*Everes comyntas*), pearl crescent (*Phyciodes tharos*), and black swallowtail* (*Papilio polyxenes*), as well as mosquitos* (Family Culicidae) and various other flies are found in the forest and weedy roadside community.

Avian fauna likely to occur in this area includes year-round residents such as song sparrow (*Melospiza melodia*), eastern towhee* (*Pipilo erythrophthalmus*), Carolina chickadee* (*Parus carolinensis*), northern cardinal* (*Cardinalis cardinalis*), white-breasted nuthatch* (*Sitta carolinensis*), tufted titmouse* (*Parus bicolor*), Carolina wren (*Thryothorus ludovicianus*), eastern phoebe (*Sayornis phoebe*), and American crow (*Corvus brachyrhynchos*). In addition, migrant songbirds such as blue-gray gnatcatcher* (*Poliopitila caerulea*), white-eyed vireo* (*Vireo griseus*), ovenbird (*Seiurus aurocapillus*), northern parula (*Parula americana*), and hooded warbler (*Wilsonia citrina*) use this area during the summer breeding season.

Aquatic Fauna

Aquatic fauna likely to occur in the project area includes various species of insects and their larvae, such as craneflies* (Family Tipulidae), dragonflies*/damselflies* (Order Odonata), water striders* (*Gerris* sp.), and caddisflies (Order Tricoptera). Crustaceans such as isopods (Order Isopoda), amphipods (Order Amphipoda), and crayfish (Order Decapoda) may also be found here. Fish that may be present include tolerant species such as margined madtom (*Noturus insignis*), redbreast sunfish (*Lepomis auritus*), green sunfish (*Lepomis cyanellus*) and creek chub (*Semotilus atromaculatus*). Other aquatic fauna that may be present include Asian clam (*Corbicula fluminea*), green frog* (*Rana clamitans*), snapping turtle (*Chelydra serpentina*), and northern water snake (*Nerodia sipedon*).

Summary of Anticipated Impacts

Construction of the proposed widening project will have various impacts on the biotic resources described. Any construction related activities in or near these resources have the potential to impact biological functions. This section quantifies and qualifies impacts to the natural resources in terms of area impacted and ecosystems affected.

Calculated impacts to terrestrial resources reflect the relative abundance of each community present within the study area. Project construction will result in clearing and degradation of portions of these communities. Table 3 (page 12) summarizes potential quantitative losses to these biotic communities, resulting from project construction. Estimated impacts are derived using the entire 80 feet (24.4 meters) proposed right-of-way. If it is necessary to use temporary fill or a causeway in the river during bridge construction, this will be contained within this area. Usually, project construction does not require the entire right-of-way; therefore, actual impacts may be considerably less.

Biotic community impacts associated with removal of the existing roadway will be temporary. The estimated impact for removal of the existing bridge and road is calculated using the existing right-of-way of approximately 60 feet (18.3 meters). This area will be replanted with appropriate species after removal of the old roadway is complete, as well as approximately 0.22 ac (0.09 ha) of area currently under the existing roadway.

Table 3. Anticipated impacts to biotic communities.

Community type	Impact in acres (hectares)
	New location
Piedmont/Low Mountain Alluvial Forest	0.34 (0.14)
Mesic Mixed Hardwood Forest	0.44 (0.18)
Maintained/Disturbed	0.25 (0.10)
Total	1.03 (0.42)

Removal of the existing roadway will have approximately 0.48 acres (0.20 ha) of anticipated impacts to biotic communities. However, this area will be re-vegetated with appropriate plant species after the road is removed. These impacts are an estimate based on the entire corridor width and may be considerably less.

Plant communities found within the proposed project area serve as nesting and sheltering habitat for various species of wildlife. Replacing Bridge No. 185 and the associated improvements will reduce habitat for faunal species, thereby diminishing faunal numbers. However, due to the size and scope of this project, it is anticipated that impacts to fauna will be minimal.

Areas modified by construction (but not paved) will become road shoulders and early successional habitat. Reduced habitat will displace some wildlife further from the roadway while attracting other wildlife by the creation of more early successional habitat. Animals temporarily displaced by construction activities will repopulate areas suitable for the species.

Aquatic communities are sensitive to even small changes in their environment. Stream channelization, scouring, siltation, sedimentation, and erosion from construction-related work will affect water quality and biological constituents. Although direct impacts may be temporary, environmental impacts from these construction processes may result in long term or irreversible effects.

Impacts often associated with in-stream construction include increased channelization and scouring of the streambed. In-stream construction alters the stream substrate and may remove streamside vegetation at the site. Disturbances to the substrate will produce siltation, which clogs the gills and/or feeding mechanisms of benthic organisms (sessile filter-feeders and deposit-feeders), fish, and amphibian species. Benthic organisms can also be covered by excessive amounts of sediment. These organisms are slow to recover or repopulate a stream.

The removal of streamside vegetation and placement of fill material at the construction site

alters the terrain. Alteration of the streambank enhances the likelihood of erosion and sedimentation. Re-vegetation stabilizes and holds the soil thus mitigating these processes. Erosion and sedimentation carry soils, toxic compounds, and other materials into aquatic communities at the construction site. These processes magnify turbidity and can cause the formation of sandbars at the site and downstream, thereby altering water flow and the growth of vegetation. Streamside alterations also lead to more direct sunlight penetration and to elevations of water temperatures, which may impact many species.

JURISDICTIONAL TOPICS

This section provides descriptions, inventories, and impact analysis pertinent to two important issues--Waters of the United States and Rare and Protected species.

Waters of the United States

Surface waters and wetlands fall under the broad category of "Waters of the United States," as defined in Section 33 of the Code of Federal Register (CFR) section 328.3(a). Wetlands, defined in 33 CFR Section 328.3(b), are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated conditions. Any action that proposes to place fill into these areas falls under the jurisdiction of the U.S. Army Corps of Engineers (COE) under Section 404 of the Clean Water Act (33 U.S.C. 1344).

Characteristics of Wetlands and Surface Waters

Potential wetland communities were investigated pursuant to the 1987 "Corps of Engineers Wetland Delineation Manual". The three parameter approach is used where hydric soils, hydrophytic vegetation, and prescribed hydrologic characteristics must all be present for an area to be considered a wetland. Based on these criteria, no jurisdictional wetlands are present within project boundaries.

The Haw River is a jurisdictional surface water under Section 404 of the Clean Water Act (33 U.S.C. 1344). Discussions of the biological, physical, and water quality aspects of this river are presented in previous sections of this report.

Summary of Anticipated Impacts

The maximum potential impact to the Haw River for construction of the new bridge is approximately 200 linear feet (60.9 linear meters), and the anticipated impact for removal of the existing bridge is 60 linear feet (18.3 linear meters). Note that the impact from removing the existing bridge will be a temporary impact and the banks will be restored to a state similar to the surrounding area following bridge removal. The impact is determined by using the entire proposed and existing ROW for the project. Usually, project construction does not require the entire ROW; therefore, actual surface water impacts may be considerably less, especially since the stream will

be bridged.

Bridge No. 185 is composed of mainly of timber and steel, with one concrete pier. There is potential for components of the pier to be dropped into Waters of the United States during bridge removal, resulting in 10 yd³ (7.6 m³) of temporary fill.

Permits

Impacts to jurisdictional surface waters are anticipated. In accordance with provisions of Section 404 of the Clean Water Act, a permit will be required from the COE for the discharge of dredged or fill material into "Waters of the United States."

A Section 404 Nationwide Permit No. 23 is likely to be applicable for all impacts to Waters of the United States from the proposed project. This permit authorizes activities undertaken, assisted, authorized, regulated, funded or financed in whole, or part, by another Federal agency or department where that agency or department has determined that pursuant to the council on environmental quality regulation for implementing the procedural provisions of the National Environmental Policy Act:

- (1) that the activity, work, or discharge is categorically excluded from environmental documentation because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment, and,
- (2) that the office of the Chief of Engineers has been furnished notice of the agency or department's application for the categorical exclusion and concurs with that determination.

A North Carolina Division of Water Quality (DWQ) Section 401 Water Quality General Certification is required prior to the issuance of the Section 404. Section 401 Certification allows surface waters to be temporarily impacted for the duration of the construction or other land manipulations.

Mitigation

The COE has adopted, through the Council on Environmental Quality (CEQ), a wetland and stream mitigation policy which embraces the concept of "no net loss" and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of Waters of the United States. Mitigation has been defined by the CEQ to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR Section 1508.20). Each of these three aspects (avoidance, minimization, and compensatory mitigation) must be considered sequentially.

Avoidance

Avoidance mitigation examines all appropriate and practicable possibilities of averting

impacts to Waters of the United States. A 1990 Memorandum of Agreement (MOA) between the Environmental Protection Agency (EPA) and the COE states that in determining "appropriate and practicable" measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology, and logistics in light of overall project purposes.

Minimization

Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts to Waters of the United States. Implementation of these steps will be required through project modifications and permit conditions. Minimization typically focuses on decreasing the footprint of the proposed project through the reduction of median widths, ROW widths, fill slopes, and/or road shoulder widths. Other practical mechanisms to minimize impacts to Waters of the United States crossed by the proposed project include: strict enforcement of sedimentation control BMP's for the protection of surface waters during the entire life of the project; reduction of clearing and grubbing activity; reduction/elimination of direct discharge into streams; reduction of runoff velocity; re-establishment of vegetation on exposed areas, judicious pesticide and herbicide usage; minimization of "in-stream" activity; and litter/debris control.

Compensatory Mitigation

Compensatory mitigation is not normally considered until anticipated impacts to Waters of the United States have been avoided and minimized to the maximum extent possible. It is recognized that "no net loss" of functions and values may not be achieved in each and every permit action. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been required. Compensatory actions often include restoration, creation, and enhancement of Waters of the United States. Such actions should be undertaken in areas adjacent to or contiguous to the discharge site.

Rare and Protected Species

Some populations of fauna and flora have been in, or are in, the process of decline either due to natural forces or their inability to coexist with human activities. Federal law (under the provisions of the Endangered Species Act of 1973, as amended) requires that any action likely to adversely affect a species classified as federally protected be subject to review by the Fish and Wildlife Service (FWS). Other species may receive additional protection under separate state laws.

Federally-Protected Species

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act (ESA) of 1973, as amended. As of October 12, 2000, the only federally protected species listed by the US Fish and Wildlife Service for Guilford County is the

bald eagle. The bald eagle is listed as “Threatened”, defined as a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. A brief description of this species’ characteristics and habitat follows.

Name: Bald eagle (*Haliaeetus leucocephalus*)

Family: Acciptridae

Status: Threatened

Listed: March 11, 1967

Characteristics:

The bald eagle is a large (from 27-37 inches in length) predatory raptor identified by the large white head in adults and short white tail. The body plumage is dark brown to chocolate-brown in color. Immatures are brown and irregularly marked with white until their fourth year. In flight bald eagles can be identified by their flat-winged soar. The wingspan of adult eagles is from 5-7.5 feet.

Distribution and Habitat:

This large predatory bird is found in North America from Florida to Alaska. It is a common breeder in southeastern coastal Alaska and is found in lesser numbers throughout Canada and the United States. Historically, the bald eagle was a common nesting species throughout the coastal plain of the southeast US, as well as along major lakes and rivers. Currently the only major nesting populations in the southeast occur in Florida; however, migrants and rare nesting pairs do occur in North Carolina.

Eagles nest close (within 0.5 mile) to large expanses of water, usually in the largest tree of an old-growth stand. The nests may measure two meters (6 feet) across and are often as deep. Nests are often used for many years and may increase in size as the birds continue to add to it.

In the southeast United States, nesting activity usually begins in early September, with breeding taking place in December or January. Usually two eggs are laid, which are incubated for 35 days. The young remain in the nest at least 10 weeks, although parental care may extend 4-6 weeks after fledging. Studies of post-fledging movements in the southeastern nesting eagles demonstrate extensive northward migration.

Bald eagles consume a wide range of food items as prey or carrion. Fish is considered to be the major staple of bald eagles; however, prey selection is determined largely by availability. Bald eagle nesting density is dependent of prey availability, which is a function of habitat size. Bald eagles nesting in marine environs were more successful than those in lake and river sites. Birds nesting on smaller water bodies may require other lakes nearby for additional foraging areas.

Threats to Species:

Habitat alterations and hunting related to human encroachment from the time of European

settlement of North America resulted in a slow eagle population decline. The most dramatic declines in eagle populations are attributed to environmental contaminants. Organo-chlorine compounds (DDT and its metabolites) inhibited calcium deposition, which resulted in eggshell thinning and reduced reproductive success.

As a result of various conservation measures and increased public concern, mortality of eagles from shooting has steadily declined since the 1960's. After the use of DDT in the US was banned in 1972, a slow recovery of eagle productivity has occurred. The increase in human population in coastal areas, and the associated habitat alterations as well as disturbance, is currently the major threat to the recovery of the bald eagle.

BIOLOGICAL CONCLUSION

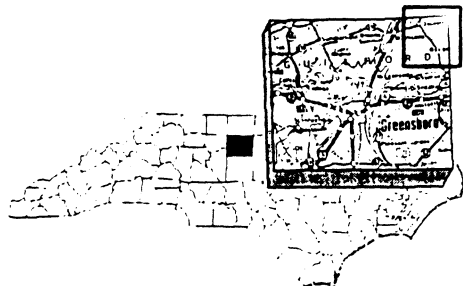
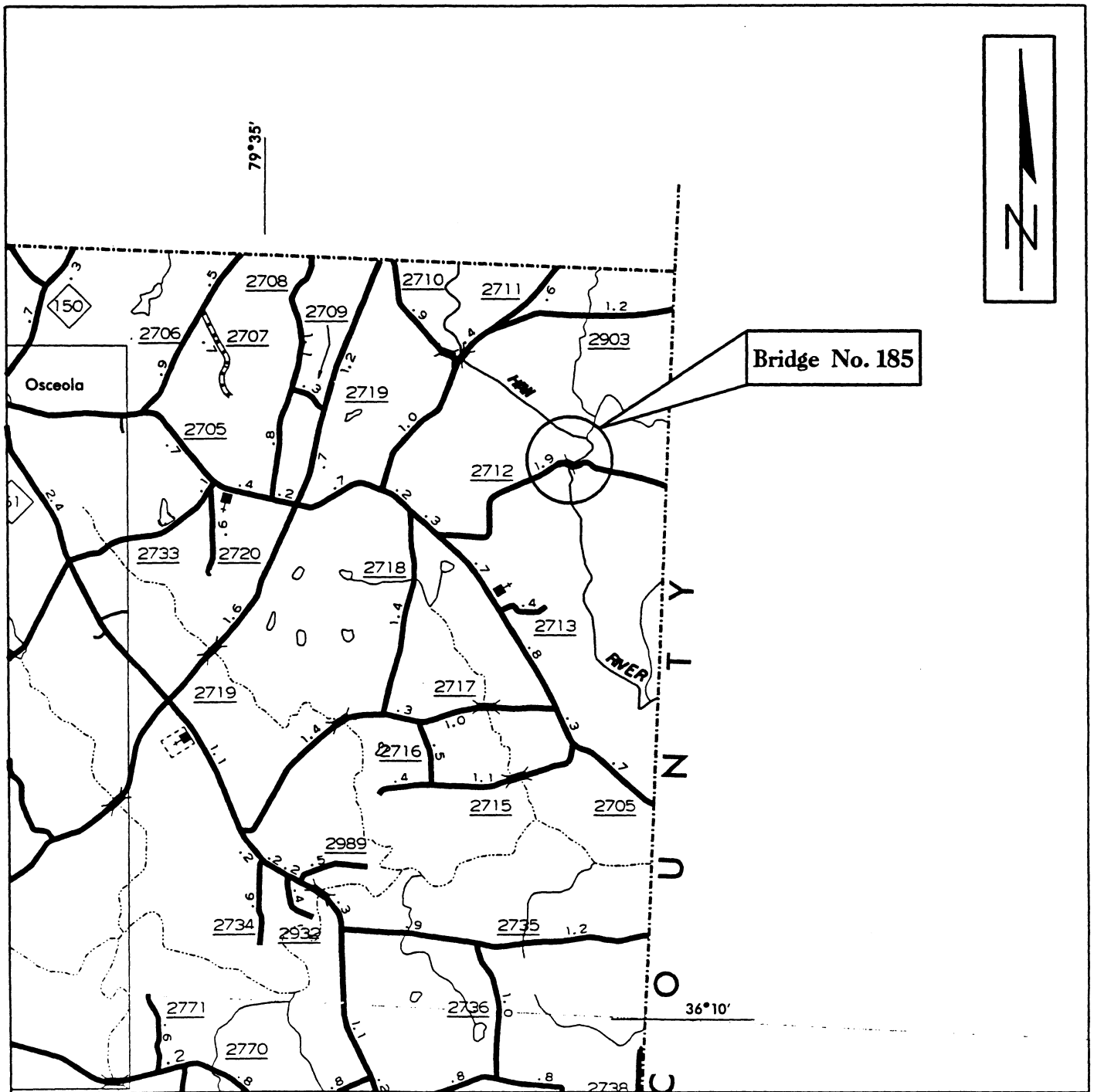
NO EFFECT

Habitat in the form of large stands of trees within a half-mile of open water does not exist in the project area. Lake Burlington, the closest large body of water, is more than 5 miles away. The NC Natural Heritage Program database of rare species and unique habitats has no records for bald eagles in the project vicinity. Therefore, no impact to the bald eagle will result from project construction.

Federal Species of Concern

The Carolina darter (*Etheostoma collis lepidinon*) is the only Federal Species of Concern (FSC) listed for Guilford County as of December 20, 1999. Federal Species of Concern are not afforded federal protection under the ESA and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. Federal Species of Concern are defined as those species that may or may not be listed in the future. These species were formerly candidate species, or species under consideration for listing for which there was insufficient information to support a listing of Endangered, Threatened, Proposed Endangered, and Proposed Threatened. Organisms which are listed as Endangered, Threatened, or Special Concern by the North Carolina Natural Heritage Program (NHP) list of rare plant and animal species are afforded state protection under the State Endangered Species Act and the North Carolina Plant Protection and Conservation Act of 1979.

A survey for this species was not conducted during the site visit, nor were any individuals of this species observed. A review of the N.C. Natural Heritage Program (NHP) database of rare species and unique habitats revealed no records of Federal Species of Concern in or near the project study area.



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

Guilford County
Replace Bridge No. 185 on SR 2712
Over the Haw River
B-3646

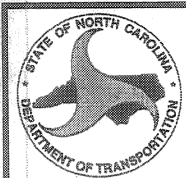
SCALE: 1 in = 1 mi

Figure 1



Bridge No. 185

Haw River



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

Guilford County
Replace Bridge No.185 on SR 2712
Over the Haw River
B-3646

Scale 1:1200

Figure Two



Looking East from the Bridge



Looking West from the Bridge

B-3646

FIGURE 3A



North Face of Bridge



Roadway "Dip" - Looking East

B-3646

FIGURE 3B



Young

North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

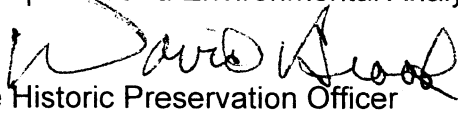
James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

November 10, 2000

MEMORANDUM

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

From: David Brook 
Deputy State Historic Preservation Officer

Re: Replace Bridge No. 185 on SR 2712 over Haw Creek,
TIP No. B-3646, Guilford County, ER 00-7679

Thank you for your recent inquiry concerning the above project. On November 3, 1999, April Montgomery of our office attended a meeting of the minds for the above project. At that meeting we reported our available information on historic architectural and archaeological surveys and resources along with our recommendations. NCDOT provided project area photographs and aerial photographs at the meeting.

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

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

In terms of archaeological sites within the proposed project area we requested that further information on the replacement location, detour structures and approaches be submitted to our office. Since the November 3, 1999 meeting this work has been submitted and cleared by our office. We, therefore, recommend that no further archaeological investigation be conducted in connection with this project.

	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
ARCHAEOLOGY	421 N. Blount St., Raleigh NC	4619 Mail Service Center, Raleigh NC 27699-4619	(919) 733-7342 • 715-2671
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

Page 2 of 2
William D. Gilmore
November 10, 2000

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

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

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

Cc: N. Graf
W. Gilmore
M.P. Furr
T. Padgett



B-3646

☒ North Carolina Wildlife Resources Commission ☒

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

MEMORANDUM

TO: Robin Young, Project Planning Engineer
Project Development & Environmental Analysis Branch, NCDOT

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program *David Cox*

DATE: December 6, 1999

SUBJECT: NCDOT Bridge Replacements in Caswell, Chatham, and Guilford counties. TIP Nos. B-3627, B-3629, B-3630, B-3631, B-3632, B-3633, B-3823, B-3462, B-3463, B-3646, B-3647, and B-3648.

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

On bridge replacement projects of this scope our standard recommendations are as follows:

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.
2. Bridge deck drains should not discharge directly into the stream.
3. Live concrete should not be allowed to contact the water in or entering into the stream.
4. If possible, bridge supports (bents) should not be placed in the stream.

5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.
6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the stream underneath the bridge.
7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.
8. In streams that contain threatened or endangered species, NCDOT biologist Mr. Tim Savidge should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.
9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.
10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.

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

1. The culvert must be designed to allow for fish passage. Generally, this means that the culvert or pipe invert is buried at least 1 foot below the natural stream bed. If multiple cells are required the second and/or third cells should be placed so that their bottoms are at stream bankfull stage (similar to Lyonsfield design). This will allow sufficient water depth in the culvert or pipe during normal flows to accommodate fish movements. If culverts are long, baffle systems are required to trap gravel and provide resting areas for fish and other aquatic organisms.
2. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage.
3. Culverts or pipes should be situated so that no channel realignment or widening is required. Widening of the stream channel at the inlet or outlet of structures usually causes a decrease in water velocity causing sediment deposition that will require future maintenance.
4. Riprap should not be placed on the stream bed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to

avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. B-3627 – Caswell County – Bridge No. 24 over (North) Hyco Creek. This bridge should be replaced with a bridge. There appears to be high quality wetlands on both sides of the bridge. If an on-site detour is necessary, we recommend the upstream side of the bridge. Standard recommendations apply.
2. B-3629 – Caswell County – Bridge No. 11 over Country Line Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.
3. B-3630 – Caswell County – Bridge No. 70 over Lynch Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.
4. B-3631 – Caswell County – Bridge No. 105 over a prong of County Line Creek. No specific comments. Standard recommendations apply.
5. B-3632 – Chatham County – Bridge No. 200 over Bear Creek. We would recommend replacing this bridge with a bridge. A significant fishery exists for sunfish and largemouth bass immediately downstream of this site. We recommend an in-water work moratorium from April 1 to June 15 to minimize impacts to spawning sunfish and largemouth bass. There are also records of the federally endangered Cape Fear shiner (*Notropis mekistocholas*) in the vicinity of this bridge. We recommend that NCDOT biologist, Tim Savidge, be notified and an on-site inspection be scheduled with NCWRC and USFWS biologists as soon as possible.
6. B-3633 – Chatham County – Bridge No. 247 over Little Brush Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.
7. B-3823 – Chatham County – Bridge No. 40 over Landrum Creek. We would recommend replacing this bridge with a bridge. A significant fishery exists for sunfish and largemouth bass of this site. We recommend an in-water work moratorium from April 1 to June 15 to minimize impacts to spawning sunfish and largemouth bass. There are also records of the federally endangered Cape Fear shiner (*Notropis mekistocholas*) in the vicinity of this bridge. We recommend that NCDOT biologist, Tim Savidge, be notified and an on-site inspection be scheduled with NCWRC and USFWS biologists as soon as possible.
8. B-3462 – Guilford County – Bridge No. 194 over Buffalo Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.
9. B-3463 – Guilford County – Bridge No. 171 over South Buffalo Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.
10. B-3646 – Guilford County – Bridge No. 185 over Haw Creek. Standard recommendations apply.

11. B-3647 – Guilford County – Bridge No. 172 over North Buffalo Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.
12. B-3648 – Guilford County – Bridge No. 158 over North Buffalo Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.

We request that NCDOT routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. The NCDOT should install and maintain sedimentation control measures throughout the life of the project and prevent wet concrete from contacting water in or entering into these streams. Replacement of bridges with spanning structures of some type, as opposed to pipe or box culverts, is recommended in most cases. Spanning structures allow wildlife passage along streambanks, reducing habitat fragmentation and vehicle related mortality at highway crossings.

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