



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

May 28, 2004

U. S. Army Corps of Engineers
Regulatory Branch
Post Office Box 1890
Wilmington, NC 28402-1890

ATTN: Mr. Richard Spencer
NCDOT Coordinator

Subject: **Permit Application for Nationwide 23 and 33** for the Replacement of Bridge No. 163 on SR 2641, over Brush Creek in Randolph County. State Project No. 8.2572901, Federal Aid Project No BRZ-2641(1), WBS Element 33230.1.1, Division 8, TIP No. B-3690

Dear Sir:

Please find enclosed three copies of the Categorical Exclusion (CE) Document, as well as the Pre-construction Notification, permit drawings, ½ size plans and USFWS concurrence request letter for the above referenced project. The NCDOT proposes to replace 170 foot Bridge No. 163 over Brush Creek with a new bridge approximately 50 feet south of the existing bridge. The new bridge will be 237 feet in length with five spans and no bents in the water. At Site 1 a temporary causeway will be installed causing 0.03 acre of temporary fill in the surface water (56 feet of temporary stream channel impacts). At Site 2 there will be 35 feet of permanent impacts due to a driveway relocation and pipe installation for an unnamed tributary (UT) Brush Creek which meets the mainstem downstream from the bridge. Traffic will be detoured offsite during construction. Due to anadromous fish migration and spawning, there will be a moratorium on in-water construction from April 1 to June 15.

IMPACTS TO WATERS OF THE UNITED STATES

General Description: Brush Creek is a large tributary of the Deep River Watershed in the Cape Fear River Basin (CPF 030609), and has a Hydrologic Unit Code of 03030003. The drainage area of Brush Creek at the proposed crossing is 42 square miles. Brush Creek flows

in a southerly direction and UT Brush Creek joins the mainstem south of the bridge on the west side of the creek. The best usage classification for Brush Creek and the UT is "C". The project study area is located in a Proposed Critical Habitat Area, designated by the Wildlife Resources Commission. This proposed designation has not been pursued for legitimate Critical Habitat, although it remains on the list for future designation.

Temporary Impacts (Site 1): The temporary causeway will impose 0.03 acre of fill (56 linear feet) of impacts to the surface water. The causeway will be installed over the creek where the water splits off and then joins the main channel a few hundred feet downstream. This creates a small island where one bent from the new bridge will be located (see Permit Drawing sheet 4 of 11). Temporary pipes will need to be installed in this section of the creek to enable water passage under the causeway. The new bridge will be placed at a higher elevation (approximately 10 feet) than the existing bridge and the bents will be placed outside the water's edge. The new bridge will also be located 50 feet downstream from the existing bridge which will straighten the curve in the road and provide better visibility for traffic.

Permanent Impacts (Site 2): There will be no permanent impacts to surface waters due to the new bridge. However, on the southwest side of the bridge, there will be a driveway relocation due to its proximity to the new bridge (see Permit Drawing sheet 4 of 11). The existing driveway is located on the approach way to the new bridge. A UT to Brush Creek currently flows through a 24-inch pipe under the driveway. The pipe will be replaced with two 36-inch pipes installed under the relocated driveway. The new driveway will be located approximately 50 feet west of the existing driveway. There will be 35 feet of permanent impacts to the UT Brush Creek.

Bridge Demolition: Bridge No. 163 consists of asphalt surface on a timber floor and timber deck with steel girders. The substructure is rubble masonry and concrete. The bridge has 5 spans. The asphalt surface will be removed prior to demolition without dropping any components into surface waters. Best Management Practices for Bridge Demolition and Removal will be followed to avoid any temporary fill from entering Waters of the United States.

Utility Impacts: There will be no sewer, water, electric or other utility impacts due to this bridge replacement project.

Restoration Plan: The material used for installation of the temporary causeway and pipes within the surface waters will be removed after its purpose has been served. The temporary fill areas will be restored to their original contours. After the temporary causeway is no longer needed, the contractor will use excavating equipment to remove all material within jurisdictional areas. All material will become the property of the contractor. The contractor will be required to submit a reclamation plan for removal of and disposal of all material off-site.

Schedule: The project schedule calls for a September 21, 2004 LET date with a date of availability of October 26, 2004.

PROTECTED SPECIES

Plants and animals with federal classification of Endangered, Threatened, Proposed Endangered and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act (ESA). As of January 29, 2003 the US Fish and Wildlife Service (USFWS) lists two federally protected species listed for Randolph County: the Cape Fear shiner and the Schweinitz’s sunflower. No species have been added to or deleted from this list since the completion of the referenced document. Field surveys were conducted in 2000 and 2004 for the Schweinitz’s sunflower and in 2001 and 2004 for the Cape Fear Shiner. A biological conclusion of “May affect, Not Likely to Adversely Affect” is proposed for both species based on habitat found although no species found. NCDOT is currently awaiting a concurrence from the US Fish and Wildlife (see attached request for concurrence, memo dated May 24, 2004.)

Federally Protected Species for Randolph County

Common Name	Scientific Name	Federal Status	Biological Conclusion
Cape Fear Shiner	<i>Notropis mekistocholas</i>	Endangered	May Affect, Not Likely to Adversely Affect
Schweinitz’s sunflower	<i>Helianthus schweinitzii</i>	Endangered	May Affect, Not Likely to Adversely Affect

AVOIDANCE, MINIMIZATION AND MITIGATION

Avoidance examines all appropriate and practicable possibilities of averting impacts to “Waters of the United States”. 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 stages; minimization measures were incorporated as part of the project design. The impacts to Brush Creek are minimized by replacing Bridge No. 163 with a new bridge that will span the creek with no bents in the water. The impacts to the UT Brush creek are minimized by replacing the existing 24 inch terra cotta pipe with two 36 inch pipes that will allow the passage of more water during higher flow conditions. The 35 feet of permanent stream impacts are below the mitigation threshold of 150 feet. Therefore, no mitigation is proposed.

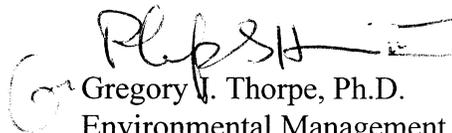
REGULATORY APPROVALS

Section 404 Permit: It is anticipated that the temporary causeway will be authorized under Section 404 Nationwide Permit 33. We are therefore requesting the issuance of a Nationwide Permit 33 for the causeway. The remaining aspects of the project are being processed by the Federal Highway Administration as a “Categorical Exclusion” in accordance with 23 CFR 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certification numbers 3403 and 3366 will apply to this project. All general condition of these Water Quality Certifications will be met, therefore, in accordance with 15A NCAC 2H, Section .0500(a) and 15A NCAC 2B.0200 we are providing two copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their notification.

Thank you for your time and assistance with this project. Please contact Carla Dagnino at (919) 715-1456 if you have any questions or need any additional information.

Sincerely,



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

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. John F. Sullivan, III, FHWA

Mr. T. Johnson, P.E., Division Engineer

Mr. Art King, Div. Environmental Officer

Mr. Dennis Pipkin PDEA

Office Use Only:

Form Version May 2002

USACE Action ID No. _____ DWQ No. _____

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

I. Processing

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

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

2. Nationwide, Regional or General Permit Number(s) Requested: NW23, NW33.

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

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

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

II. Applicant Information

1. Owner/Applicant Information

Name: NC Department of Transportation
 Mailing Address: 1548 Mail Service Center
Raleigh, NC 27699-1548

Telephone Number: (199)-733-3141 Fax Number: (919)-715-1501

E-mail Address: _____

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

Name: NA

Company Affiliation: _____

Mailing Address: _____

Telephone Number: _____ Fax Number: _____

E-mail Address: _____

III. Project Information

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

1. Name of project: Replacement of Bridge No. 163 over Brush Creek
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3690
3. Property Identification Number (Tax PIN): N/A
4. Location
County: Randolph Nearest Town: Ramseur
Subdivision name (include phase/lot number): N/A
Directions to site (include road numbers, landmarks, etc.): From Ramseur – take 22 south to Lambeth Mill Road, go left and the bridge No. 163 will be the 1st bridge crossing.
5. Site coordinates, if available (UTM or Lat/Long): 35°37.66'N / 79°34.83'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): 0.21 mile * 130 feet = 27.3 acres
7. Nearest body of water (stream/river/sound/ocean/lake): Brush Creek
8. River Basin: Cape Fear River Basin
(Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at <http://h2o.enr.state.nc.us/admin/maps/>.)
9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The project is located in a rural area of Randolph County surrounded by forestland and residential houses.

10. Describe the overall project in detail, including the type of equipment to be used: The project will consist of replacing the old bridge over Brush Creek with a new bridge approximately 50 feet south of the existing bridge. The new bridge will be 237 feet in length with five spans and no bents in the water. A temporary causeway will be installed for construction of the bridge. There will also be a driveway relocation and new pipe installation for an unnamed tributary to Brush Creek. Construction equipment will consist of heavy duty trucks, earth moving equipment, cranes, etc.

11. Explain the purpose of the proposed work: The existing bridge is considered structurally deficient and obsolete. The replacement of the bridge will result in a safer and more efficient use for traffic.

IV. Prior Project History

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

NA

V. Future Project Plans

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

NA

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

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be

included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

Provide a written description of the proposed impacts: There will be 0.035 acre of temporary will and 56 feet of temporary stream impacts due to the temporary causeway installed for the bridge construction. There will also be 35 feet of permanent impacts due to a driveway relocation and new pipe installation.

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***
NA					

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

List the total acreage (estimated) of all existing wetlands on the property: 0 acre
 Total area of wetland impact proposed: 0 acre

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

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
1	Fill (T)	0.03 acre	Brush Creek	60 feet	Perennial
1	Piped (T)	56	Brush Creek	60feet	Perennial
2	New pipe (P)	35	UT Brush Creek	3 feet	Perennial

- * List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included.
- ** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at www.usgs.gov

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: 30 feet (all temporary)

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

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

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

4. Pond Creation

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

Pond to be created in (check all that apply): uplands stream wetlands
 Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): NA

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

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

VII. Impact Justification (Avoidance and Minimization)

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

The new bridge will be replace on new location and will span the creek with no impacts associated with the new construction. The new pipes installed for the UT will be 2 @ 35" – larger that the existing 24" pipe which will allow further stability of the pipe and water passage.

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.

NA- no mitigation needed for temporary stream impacts or 35 feet of permanent stream impacts.

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

Amount of stream mitigation requested (linear feet): NA

Amount of buffer mitigation requested (square feet): NA

Amount of Riparian wetland mitigation requested (acres): NA

Amount of Non-riparian wetland mitigation requested (acres): NA

Amount of Coastal wetland mitigation requested (acres): NA

IX. Environmental Documentation (required by DWQ)

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

Yes No

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

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

Yes No

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

Yes No

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

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

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

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

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

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1	13679	3	
2	8365	1.5	
Total	22044		

* 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.

NA

XII. Sewage Disposal (required by DWQ)

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

NA

XIII. Violations (required by DWQ)

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

Yes No

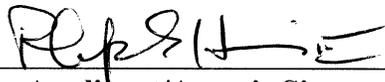
Is this an after-the-fact permit application?

Yes No

XIV. Other Circumstances (Optional):

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

NA



Applicant/Agent's Signature

5/29/04
Date

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



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

May 24, 2004

Gary Jordan
US Fish and Wildlife Service
PO Box 33726
Raleigh, NC 27636-3726

Subject: Biological Concurrence Request for the proposed replacement of Bridge No. 163 on SR 2641 over Brush Creek in Randolph County. State Project No. 8.2511001, Federal Aid Project No. BRZ-2579(1), Division 8, TIP No. B-3690

Dear Mr. Jordan:

The purpose of this letter is to summarize federally protected species surveys to date and to request concurrence from the U.S. Fish and Wildlife Service (Service) pursuant to Section 7 of the Endangered Species Act, as amended (16 U.S.C. 1531 *et seq.*) (ESA).

The Natural Resources Technical Report (NRTR) for this project was completed in December 2000. To support the NRTR document, field surveys were conducted in August 2000 for the Schweinitz's sunflower. A biological conclusion of "No Effect" was determined based on no species found. A Cape Fear Shiner survey was conducted in May of 2001. No species of the Cape Fear Shiner were found during the survey, although it was determined that Brush Creek is good habitat for the shiner. According to the USFWS January 29, 2003 list of endangered and threatened species, no new species have been added or deleted from the list. The USFWS listing of protected species and current Biological Conclusions are listed in the following table.

Federally Protected Species for Randolph County

Common Name	Scientific Name	Status	Habitat	Biological Conclusion
Cape Fear Shiner	<i>Notropis mekistocholas</i>	Endangered	YES	May Affect, Not Likely to Adversely Affect
Schweinitz's sunflower	<i>Helianthus schweinitzii</i>	Endangered	YES	May Affect, Not Likely to Adversely Affect

Suitable habitat exists for the Schweinitz's sunflower along the roadside clearing in the project study area. Habitat also exists for the Cape Fear Shiner in Brush Creek. The site was revisited in May of 2004 by the NCDOT to survey for the sunflower and shiner. No species were found during the most recent site visits. Therefore, a biological conclusion of "May Affect, Not Likely to Adversely Affect" was determined for both the Schweinitz's sunflower and the Cape Fear Shiner.

SURVEY METHODOLOGY

A plant-by-plant survey was conducted for the Schweinitz's sunflower on May 20, 2004. Prior to the survey, the investigators visited a known population of the sunflower to have a fresh visual of the plant that will be surveyed. The survey for the sunflower consisted of a search for purple stemmed, tall (3-4 feet) plants with long slender dark green leaves. The leaves were checked for the soft velvet underside and the rough upper surface. The Schweinitz's sunflower was not observed during the site investigation in the preferred habitat within the project study area. A total of 1 person-hour were spent conducting the survey.

A fish survey was conducted for the Cape Fear Shiner on May 8, 2004. (Please see attached report.) Electrofishing and seining survey methods were used to collect fish in Brush Creek. Fish surveys were conducted 300 meters downstream of the project crossing and 100 meters upstream of the project crossing. No Cape Fear Shiner were found during the survey. A total of 10 person-hours were spent conducting the survey.

QUALIFICATIONS OF PRINCIPAL INVESTIGATOR FOR PLANT SURVEY

Investigator: Carla Dagnino, Environmental Scientist
Education: BA, Environmental Studies, UNC-Wilmington
Experience: NCDOT – Office of Natural Environment, October 2003 to present
NCDWQ – Water Quality Modeling, April 1985 to January 1998
Expertise: Section 7 Field Surveys, Wetland Delineation, Water Quality Analysis

Investigator: Deanna Riffey
Education: B.S. Biology, University of Tennessee, 1991
M.S. Environmental Health Science, East Tennessee State University, 1996
Experience: Environmental Scientist, NCDOT, Raleigh, NC, October 2003 to Present.
Environmental & Safety Compliance Officer, City of Bristol, VA,
September 1996 to October 2003.
Field Tech, Ogden Environmental, Erwin, TN, June to August 1996.
Environmental Intern, Willamette Industries, Kingsport, TN, September 1995
to April 1996.
Expertise: Technical reporting writing and wetland delineation.

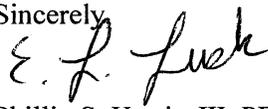
QUALIFICATIONS OF PRINCIPAL INVESTIGATOR FOR CAPE FEAR SHINER SURVEY

Investigator: Neil Medlin, Environmental Specialist
Education: M.A. Biology, Appalachian State University
B.S. Biology, Appalachian State University
Experience: Environmental Specialist, NCDOT, January 2002 - present
Environmental Biologist, NC Division of Water Quality
June 1990 - January 2002
Environmental Biologist, FL Department of Environmental Protection
(formerly Department of Environmental Regulation), August 1986 – June 1990
Expertise: Freshwater fish and benthic macroinvertebrate collection and identification; aquatic habitat evaluations and function; biocriteria and biotic indices evaluations; Endangered species (terrestrial/aquatic) surveys

Based on the above surveys conducted in 2000, 2001 and 2004, the project area does not contain any federally-listed species known to occur in Randolph County. The NCDOT concludes that the proposed project will have a biological conclusion of “May Affect, Not Likely to Adversely Affect” for the Schweinitz’s sunflower and the Cape Fear Shiner. We believe that the requirements of Section 7(a)(2) of the ESA have been satisfied and hereby request your concurrence.

Thank you for your time. Please contact Carla Dagnino at (919) 715-1456 if you have any questions concerning this request.

Sincerely,

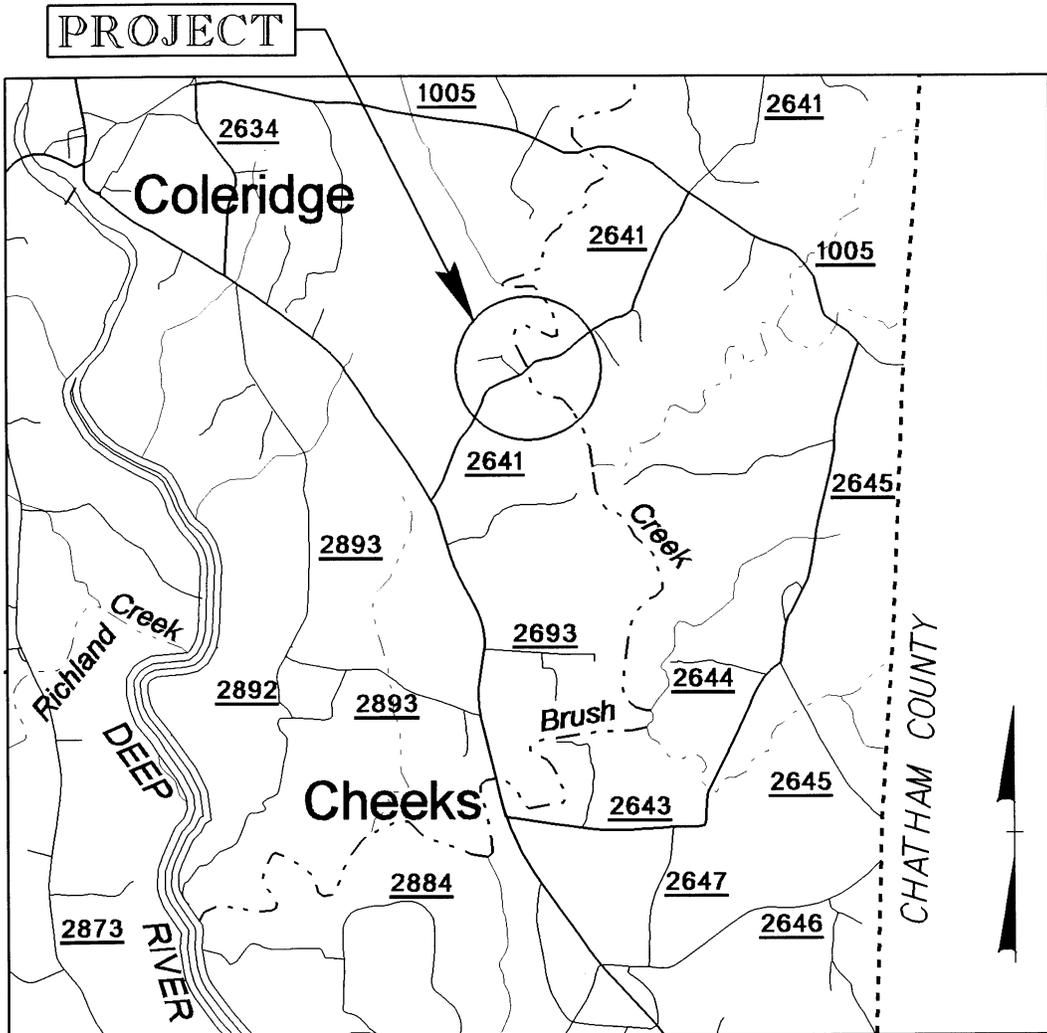
feh


Phillip S. Harris, III, PE.
Manager, Office of Natural Environment

Attachment

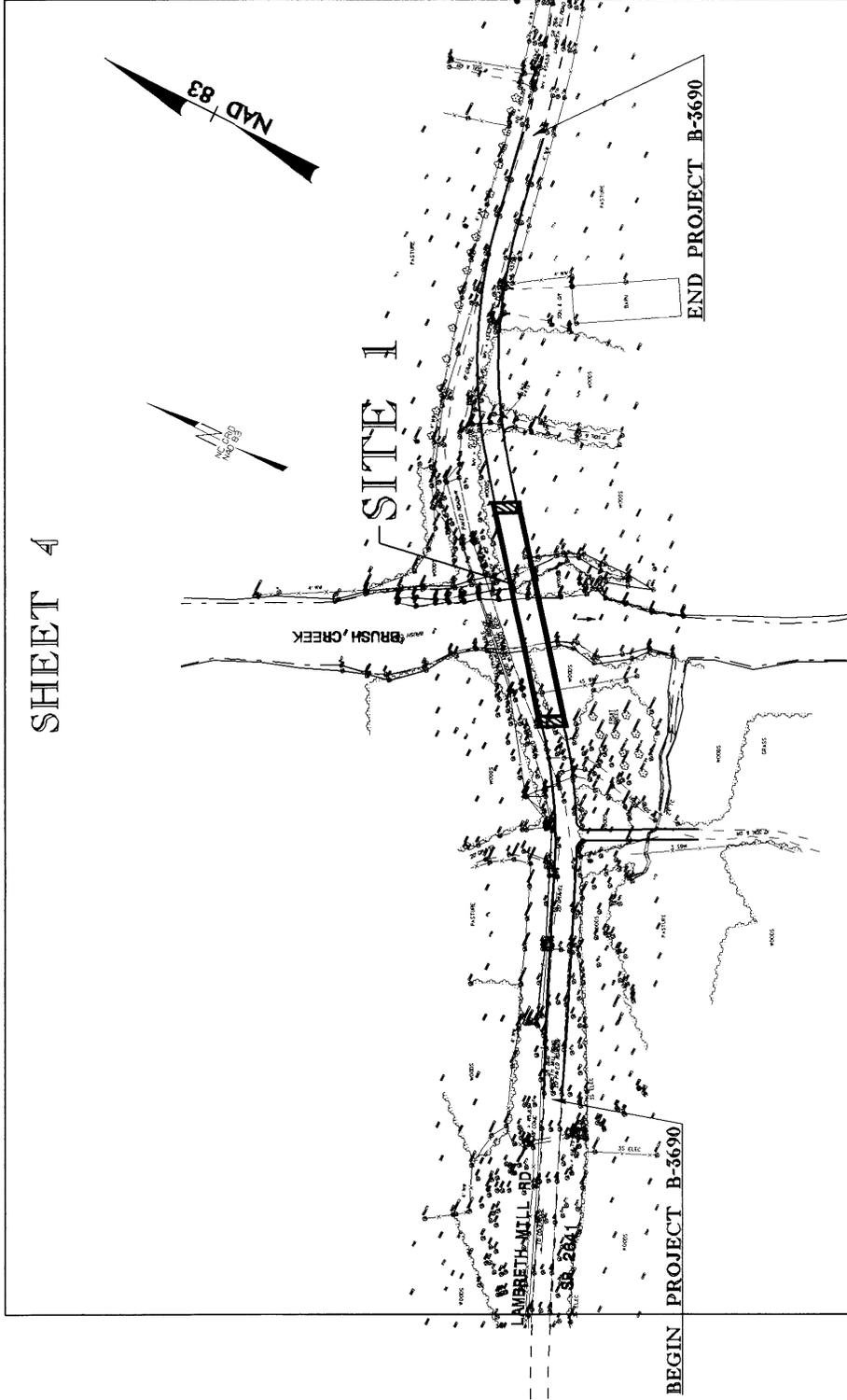
cc: Dennis Pipkin, Project Engineer, PDEA
B-3690 File

VICINITY MAP



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RANDOLPH COUNTY
PROJECT: 8.2572901 (B-3690)
BRIDGE NO. 163 OVER
BRUSH CREEK ON SR 2641

SHEET 4



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

RANDOLPH COUNTY
PROJECT: 8.2572901 (B-3690)

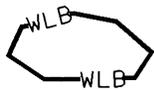
BRIDGE NO. 163 OVER
BRUSH CREEK ON SR 2641

SITE MAP

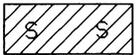
SHEET 2 OF 11 8/02/02

WETLAND LEGEND

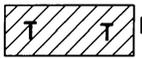
— WLB — WETLAND BOUNDARY

 WETLAND

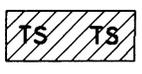
 DENOTES FILL IN WETLAND

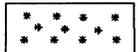
 DENOTES FILL IN SURFACE WATER

 DENOTES FILL IN SURFACE WATER (POND)

 DENOTES TEMPORARY FILL IN WETLAND

 DENOTES EXCAVATION IN WETLAND

 DENOTES TEMPORARY FILL IN SURFACE WATER

 DENOTES MECHANIZED CLEARING

— — — FLOW DIRECTION

— TB — TOP OF BANK

— WE — EDGE OF WATER

— C — PROP. LIMIT OF CUT

— F — PROP. LIMIT OF FILL

— ▲ — PROP. RIGHT OF WAY

— NG — NATURAL GROUND

— PL — PROPERTY LINE

— TDE — TEMP. DRAINAGE EASEMENT

— PDE — PERMANENT DRAINAGE EASEMENT

— EAB — EXIST. ENDANGERED ANIMAL BOUNDARY

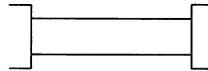
— EPB — EXIST. ENDANGERED PLANT BOUNDARY

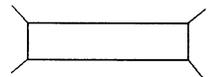
— — — — — WATER SURFACE

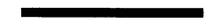
 LIVE STAKES

 BOULDER

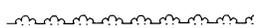
— — — — — CORE FIBER ROLLS

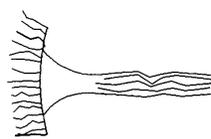
 PROPOSED BRIDGE

 PROPOSED BOX CULVERT

 PROPOSED PIPE CULVERT
 (DASHED LINES DENOTE EXISTING STRUCTURES)
 12"-48" PIPES
 54" PIPES & ABOVE

 SINGLE TREE

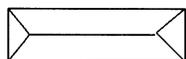
 WOODS LINE

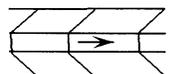
 DRAINAGE INLET

 RIP RAP

 ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE

 PREFORMED SCOUR HOLE (PSH)

 LEVEL SPREADER (LS)

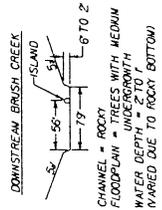
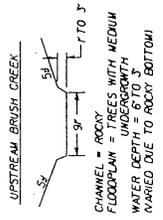
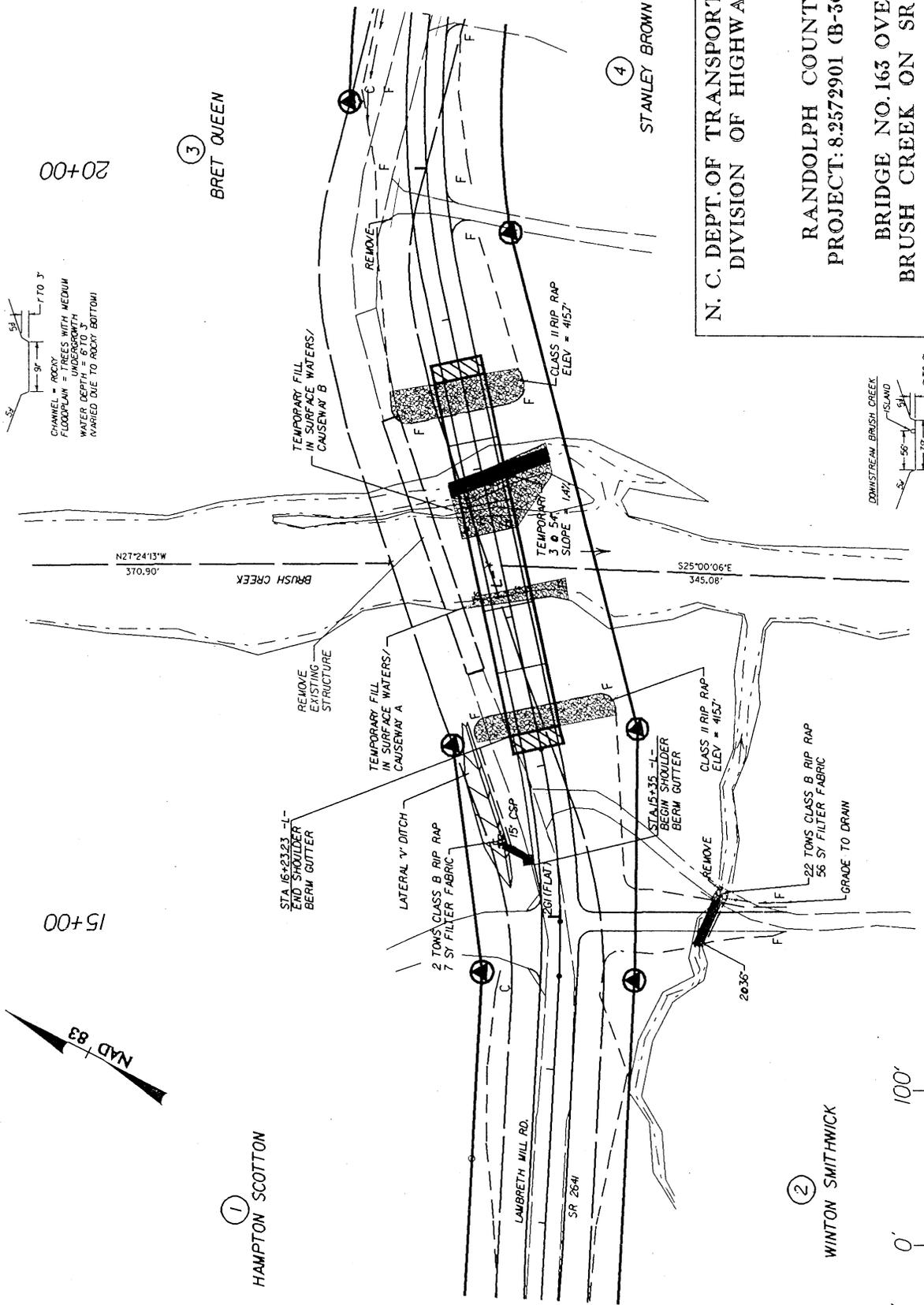
 GRASS SWALE

**N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RANDOLPH COUNTY**

PROJECT: 8.2572901 (B-3690)

**BRIDGE NO. 163 OVER
 BRUSH CREEK ON SR 2641**

SITE 1



HORIZONTAL SCALE

■ DENOTES TEMPORARY FILL IN SURFACE WATER

① HAMPTON SCOTTON

② WINTON SMITHWICK

③ BRET QUEEN

④ STANLEY BROWN

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

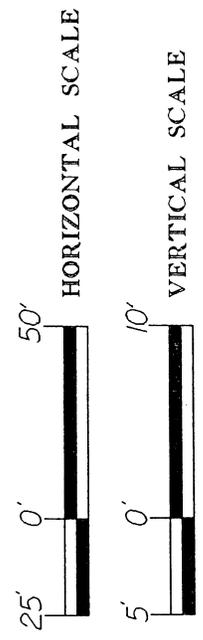
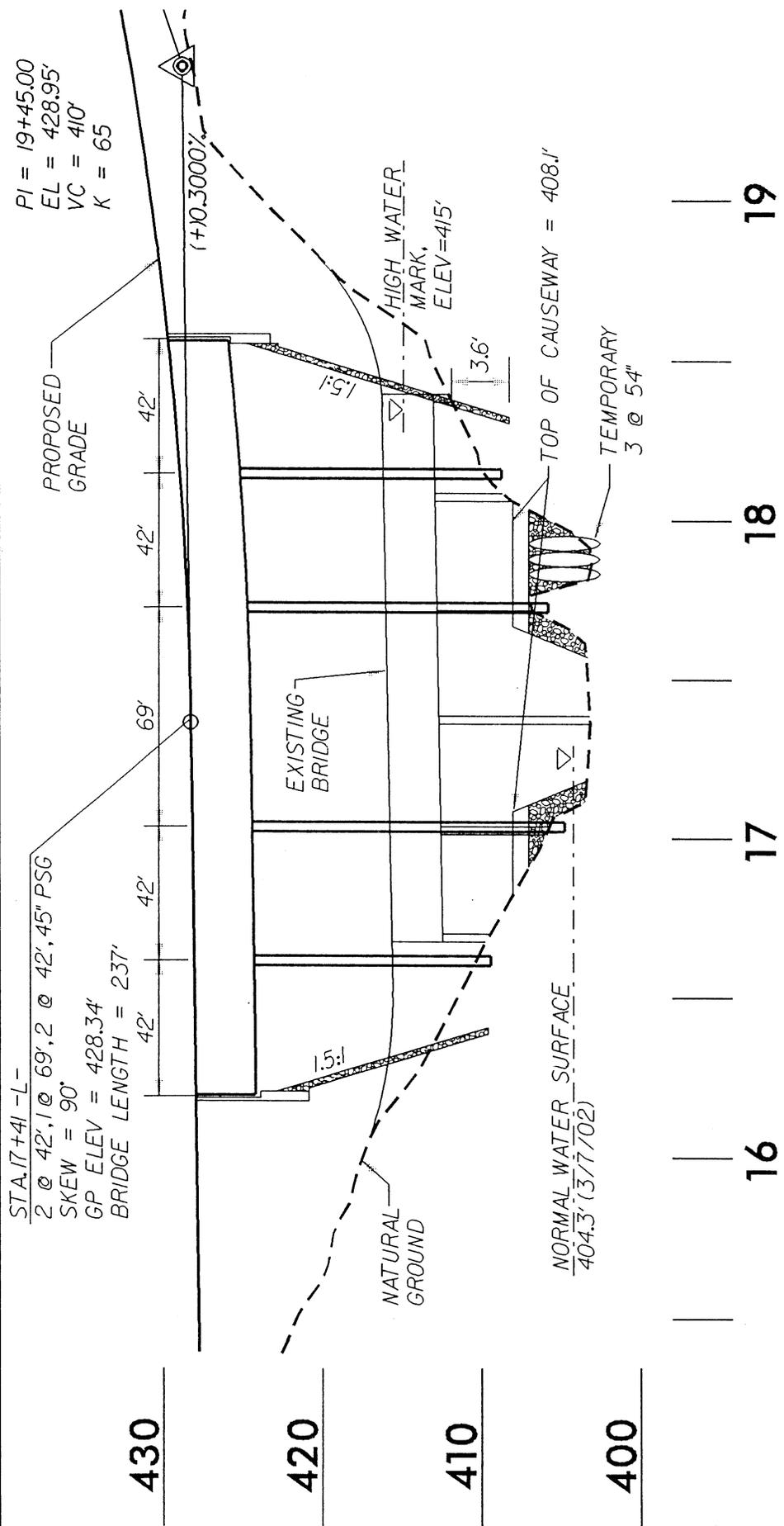
RANDOLPH COUNTY
PROJECT: 8.2572901 (B-5690)

BRIDGE NO. 163 OVER
BRUSH CREEK ON SR 2641

SHEET 4 OF 11
REV. 3/18/05
8/02/02

STA. 17+41 - L -
 2 @ 42', 1 @ 69', 2 @ 42', 45" PSG
 SKEW = 90°
 GP ELEV = 428.34'
 BRIDGE LENGTH = 237'

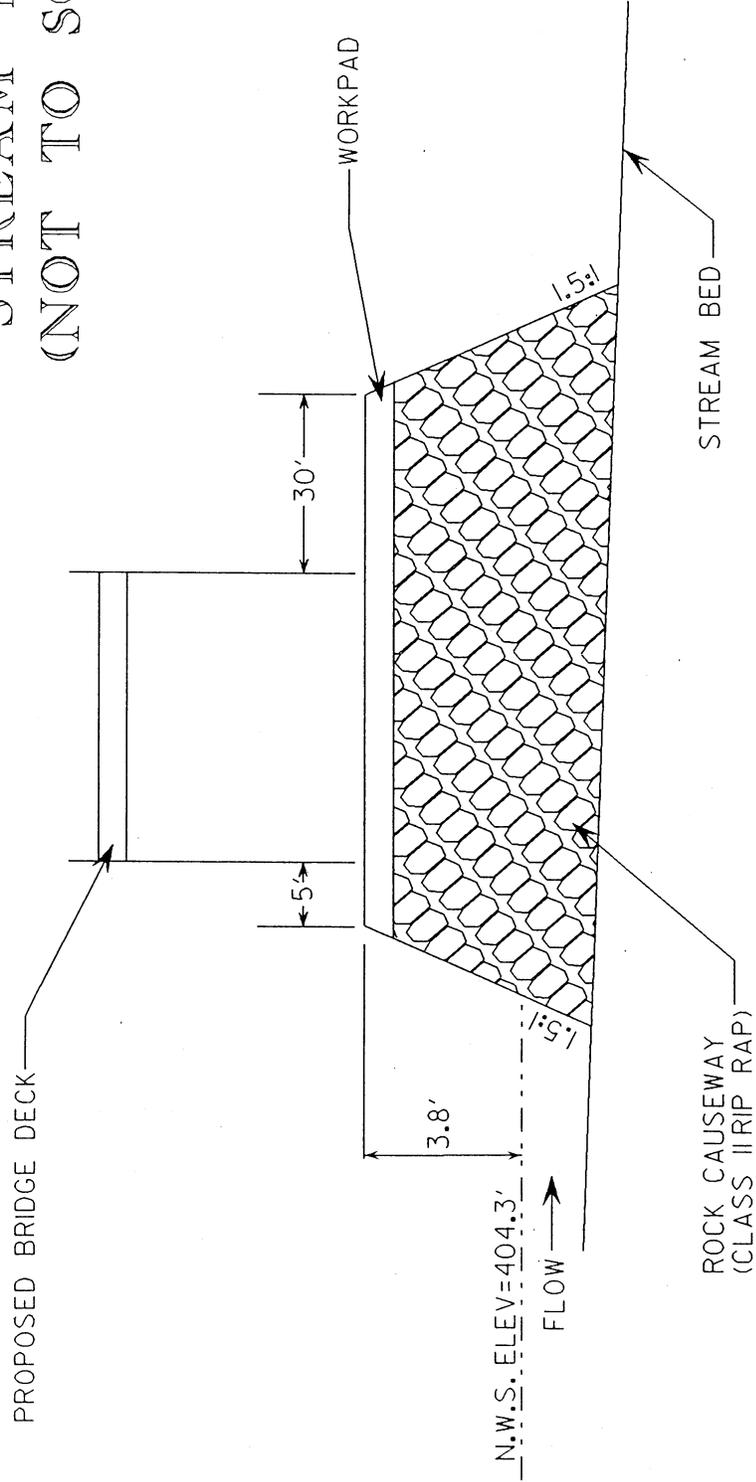
PI = 19+45.00
 EL = 428.95'
 VC = 410'
 K = 65



PROFILE

N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RANDOLPH COUNTY
 PROJECT: 8.2572901 (B-3690)
 BRIDGE NO. 163 OVER
 BRUSH CREEK ON SR 2641
 SHEET 5 OF 1.1
 REV. 3/18/05
 8/02/02

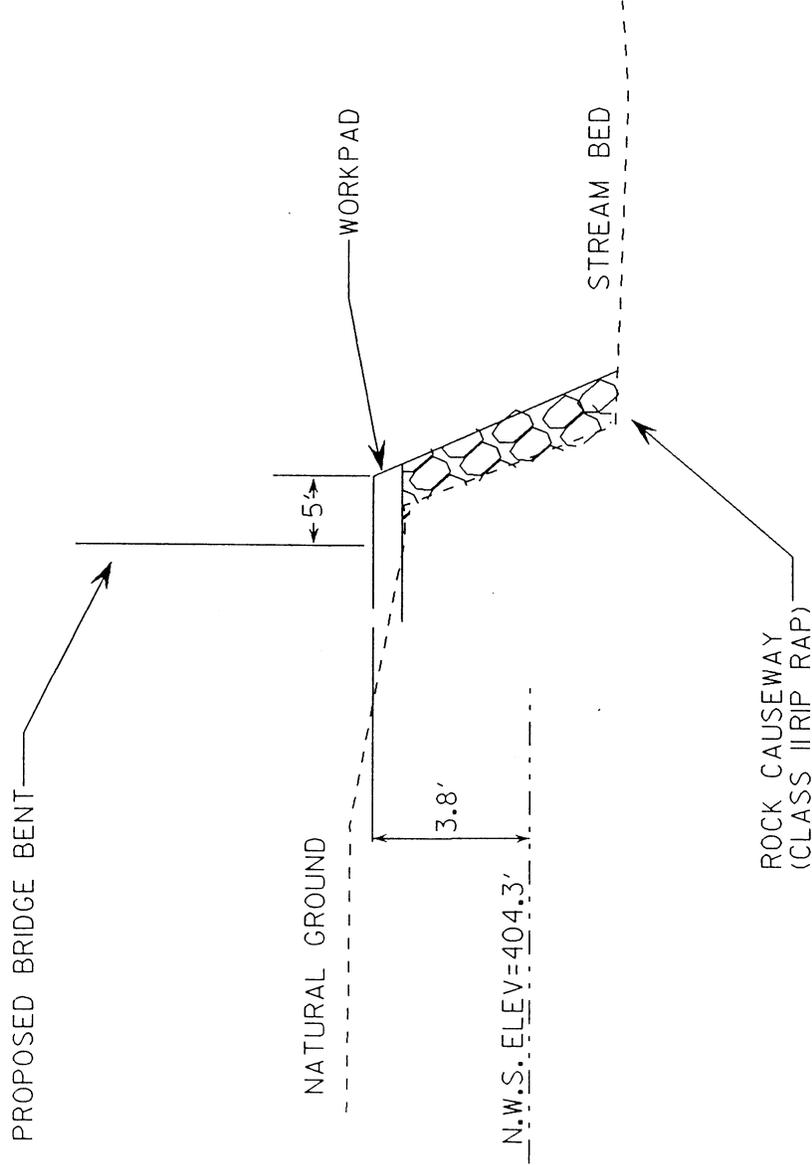
CAUSEWAY A DETAIL
 PARALLEL TO
 STREAM FLOW
 (NOT TO SCALE)



N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RANDOLPH COUNTY
 PROJECT: 8.2572901 (B-3690)
 BRIDGE NO. 163 OVER
 BRUSH CREEK ON SR 2641
 SHEET 6 OF 11 REV. 5/18/05
 8/02/02

QUANTITIES OF ESTIMATES
 VOLUME OF CLASS II RIP RAP = 40 yds³
 Estimate 48 Tons Class II Rip Rap

CAUSEWAY A DETAIL
 PERPENDICULAR
 TO STREAM FLOW
 (NOT TO SCALE)



QUANTITIES OF ESTIMATES

VOLUME OF CLASS II RIP RAP = 40 yds³
 Estimate 48 Tons Class II Rip Rap

N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

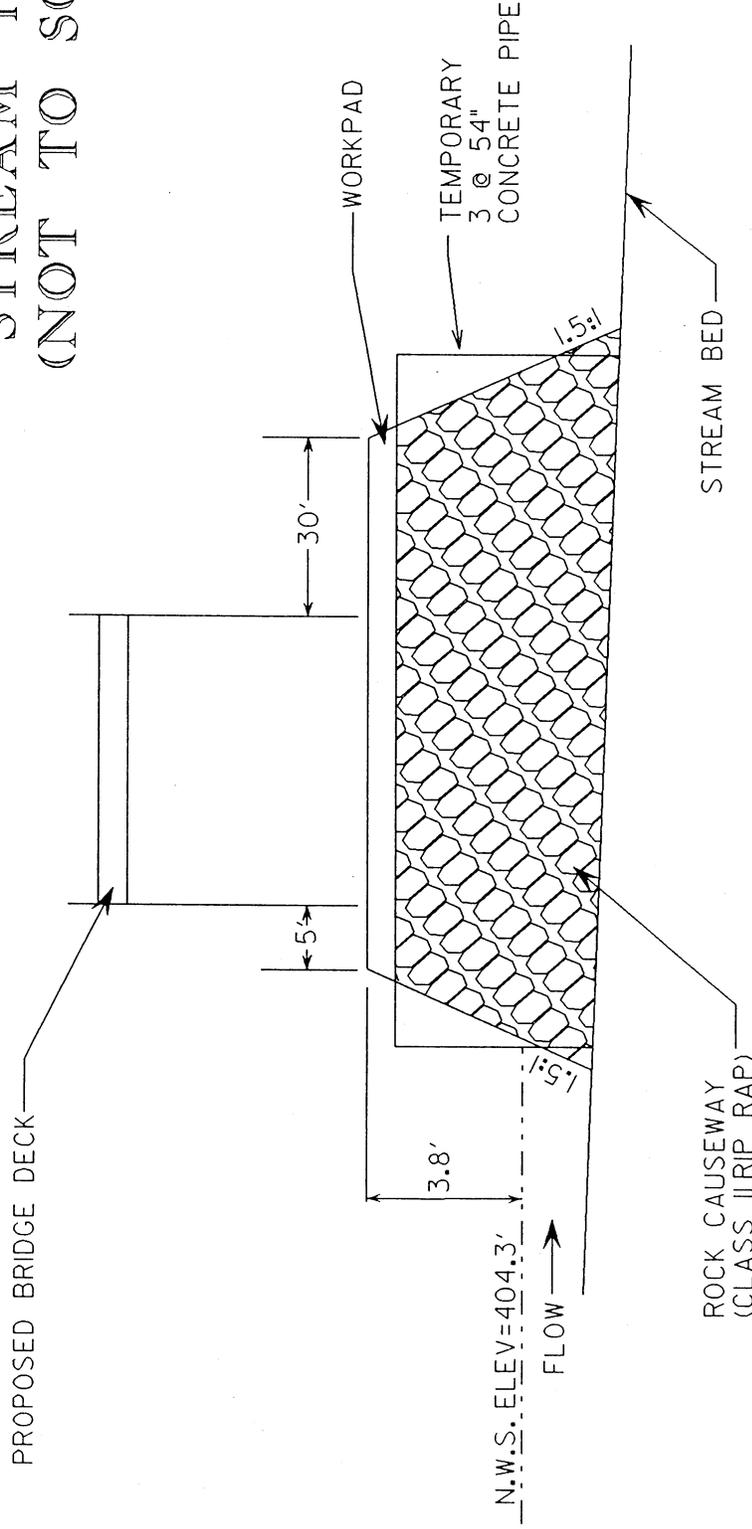
RANDOLPH COUNTY
 PROJECT: 8.2572901 (B-3690)

BRIDGE NO. 165 OVER
 BRUSH CREEK ON SR 2641

SHEET 7 OF 11

REV. 5/18/05
 8/02/02

CAUSEWAY B DETAIL
 PARALLEL TO
 STREAM FLOW
 (NOT TO SCALE)



N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

RANDOLPH COUNTY
 PROJECT: 8.2572901 (B-3690)

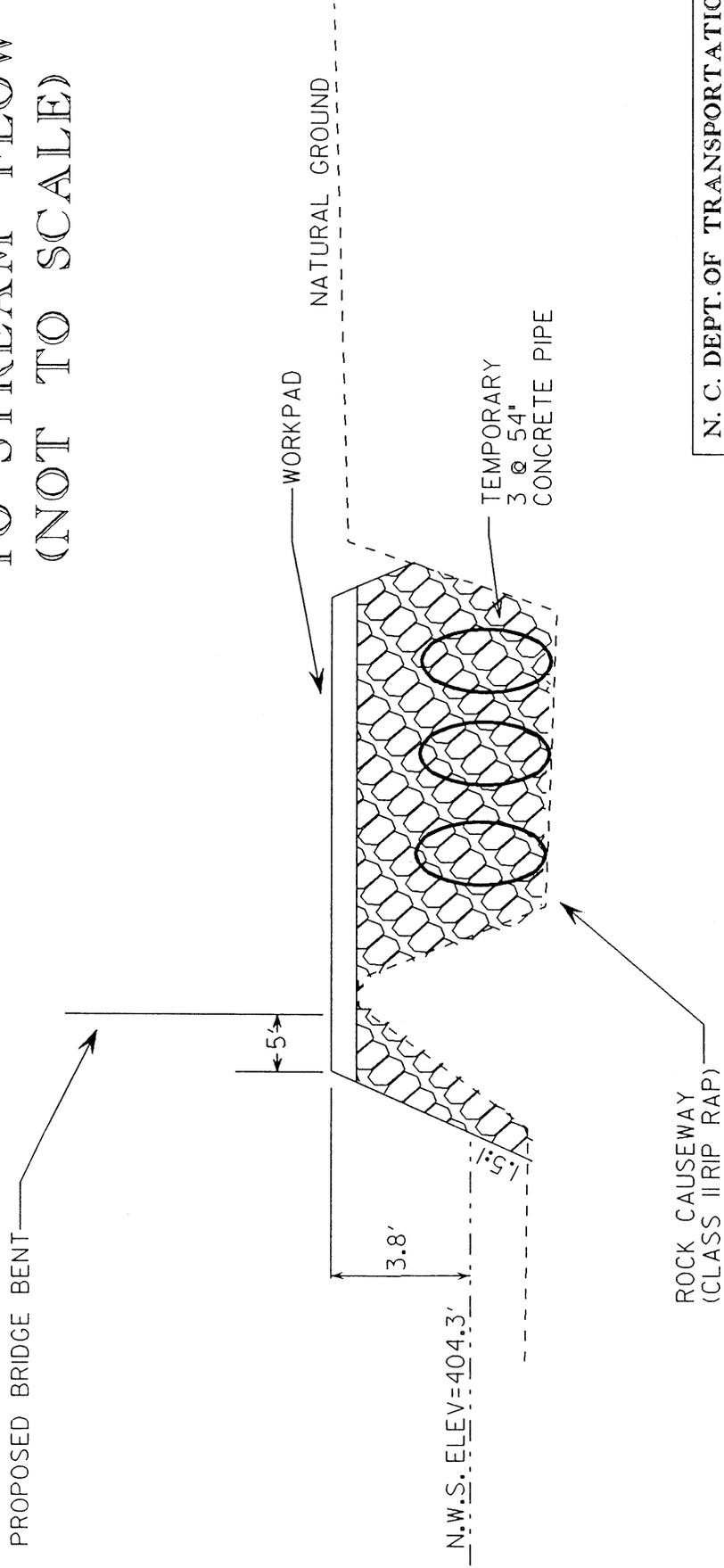
BRIDGE NO. 163 OVER
 BRUSH CREEK ON SR 2641

SHEET 8 OF 11 REV. 5/18/03
 8/02/02

QUANTITIES OF ESTIMATES

VOLUME OF CLASS II RIP RAP = 115 yds³
 Estimate 140 Tons Class II Rip Rap

CAUSEWAY B DETAIL
 PERPENDICULAR
 TO STREAM FLOW
 (NOT TO SCALE)



N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

RANDOLPH COUNTY
 PROJECT: 8.2572901 (B-3690)

BRIDGE NO. 163 OVER
 BRUSH CREEK ON SR 2641

SHEET 9 OF 11 REV. 5/18/05
 8/02/02

QUANTITIES OF ESTIMATES

VOLUME OF CLASS II RIP RAP = 115 yds³
 Estimate 140 Tons Class II Rip Rap

PROPERTY OWNERS

<u>PARCEL</u>	<u>OWNER NAME</u>	<u>ADDRESS</u>
1	HAMPTON SCOTTON	4906 LAMBRETH MILL ROAD, BENNETT, NC 27208
2	WINTON SMITHWICK	4901 LAMBRETH MILL ROAD, BENNETT, NC 27208
3	BRET QUEEN	4816 LAMBRETH MILL ROAD, BENNETT, NC 27208
4	STANLEY BROWN	6504 HWY 22/24, RAMSEUR, NC 27316

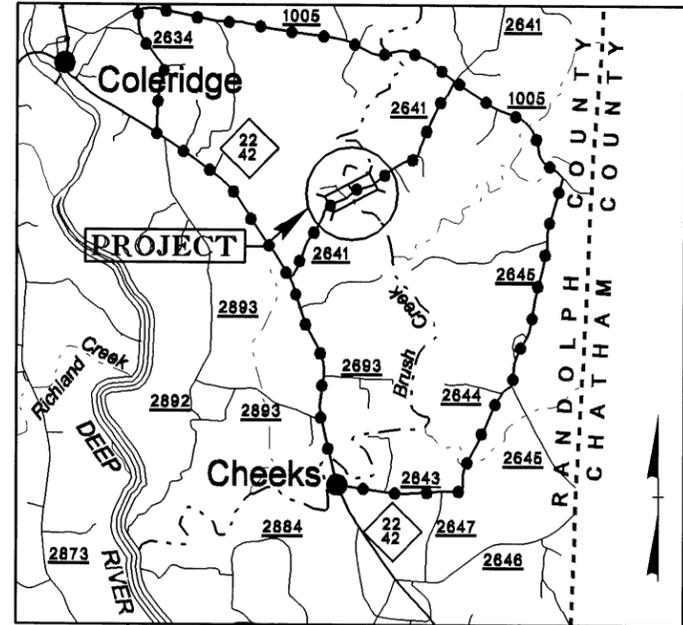
N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

RANDOLPH COUNTY
PROJECT: 8.2572901 (B-3690)

BRIDGE NO. 163 OVER
BRUSH CREEK ON SR 2641

CONTRACT: 200962 TIP PROJECT B-3690

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



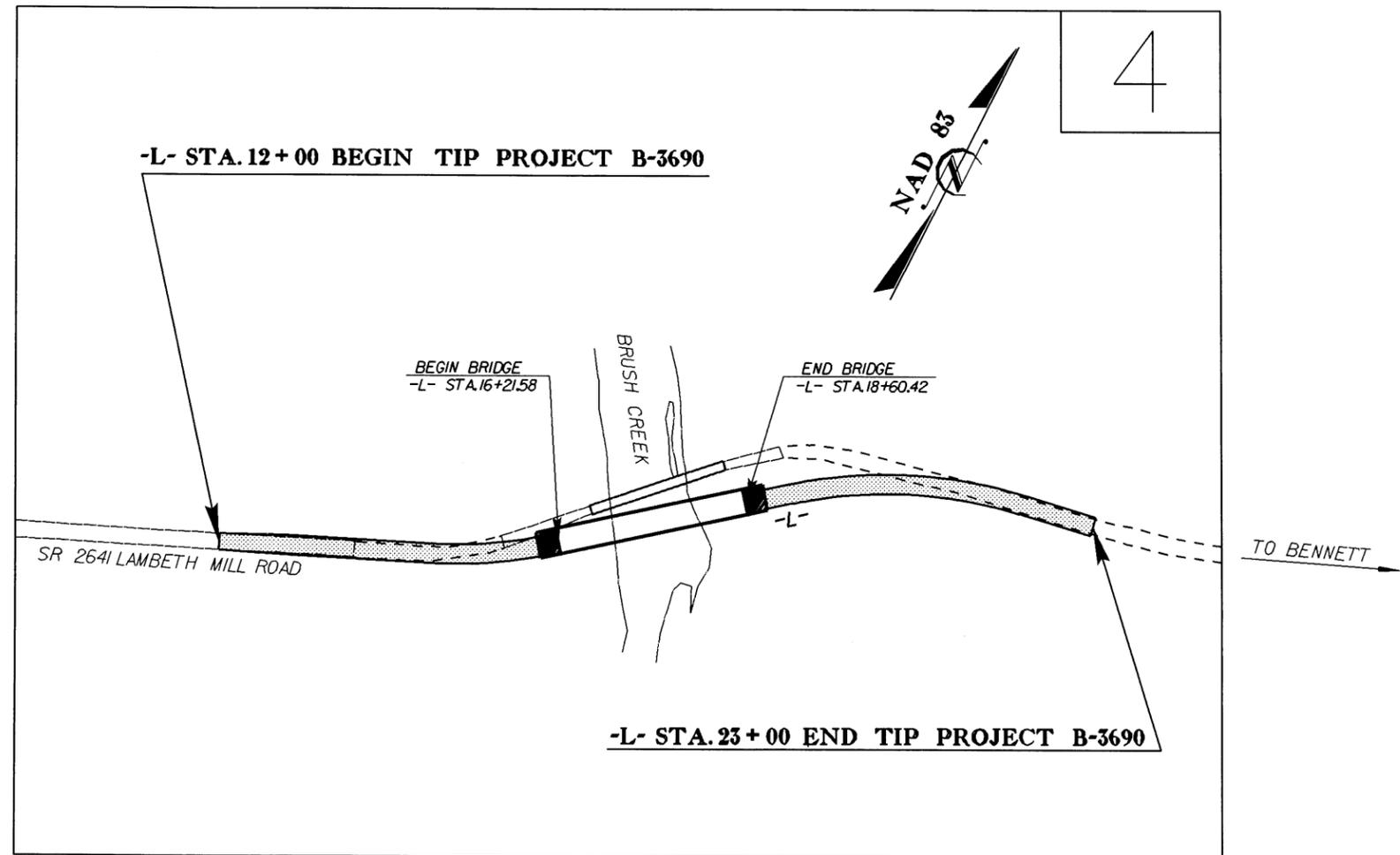
VICINITY MAP
DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
RANDOLPH COUNTY

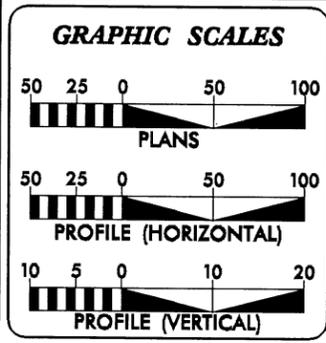
**LOCATION: BRIDGE NO. 163 OVER BRUSH CREEK
ON SR 2641**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3690	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
33230.1.1	BRZ-2641(1)	P.E.	



☆ DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED AND SUPERELEVATION



DESIGN DATA

ADT 2004 =	195
ADT 2025 =	300
DHV =	10 %
D =	60 %
T =	3 % *
V =	40 MPH ☆
* TTST 1 %	DUAL 2 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3690 =	0.163 MI.
LENGTH STRUCTURE TIP PROJECT B-3690 =	0.045 MI.
TOTAL LENGTH OF TIP PROJECT B-3690 =	0.208 MI.

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

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOT AUTHORIZED

LETTING DATE:
SEPTEMBER 21, 2004

ROGER D. THOMAS, P.E.
PROJECT ENGINEER

MICHAEL W. LITTLE, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

PRELIMINARY SEAL
22557

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

SIGNATURE: _____ P.E.

STATE DESIGN ENGINEER

**DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION**

APPROVED
SIGNATURE: _____ DATE: _____

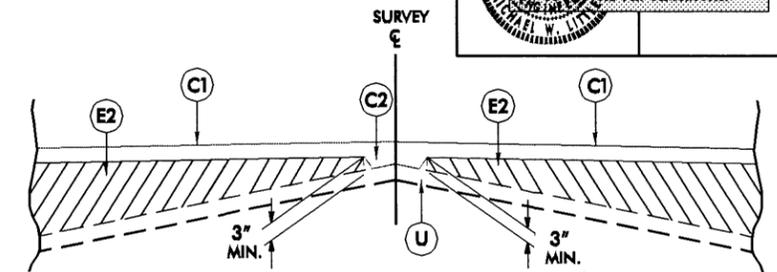
07-MAY-2004 15:27
R:\P\01\B3690\155b
11/11/04 AL RD096273

PAVEMENT SCHEDULE

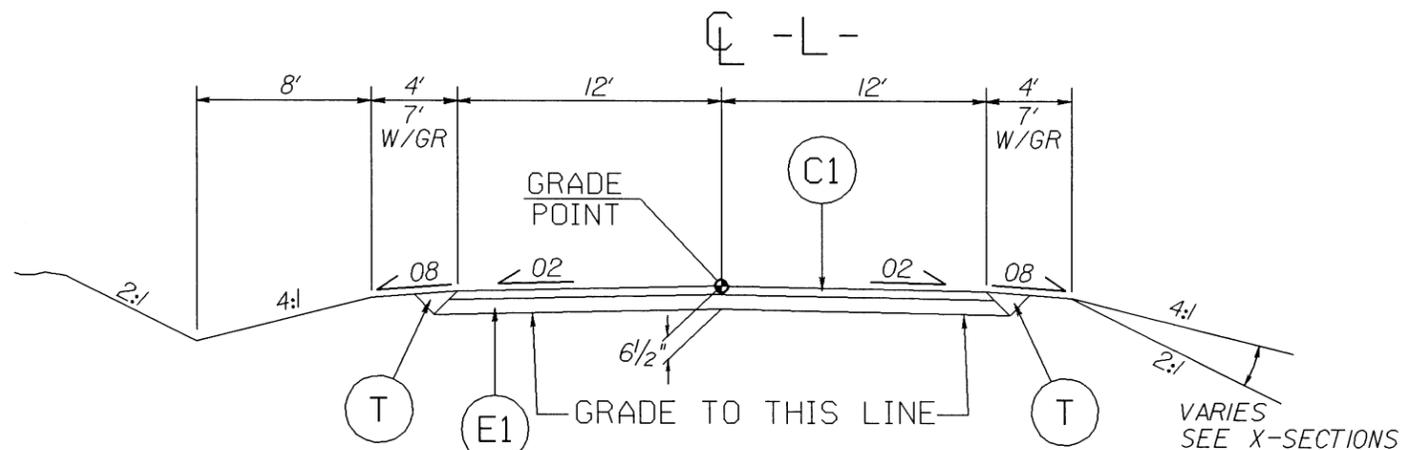
C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	P1	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.	T	EARTH MATERIAL.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)
J1	PROP. 8" AGGREGATE BASE COURSE.		

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

PROJECT REFERENCE NO. B-3690	SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

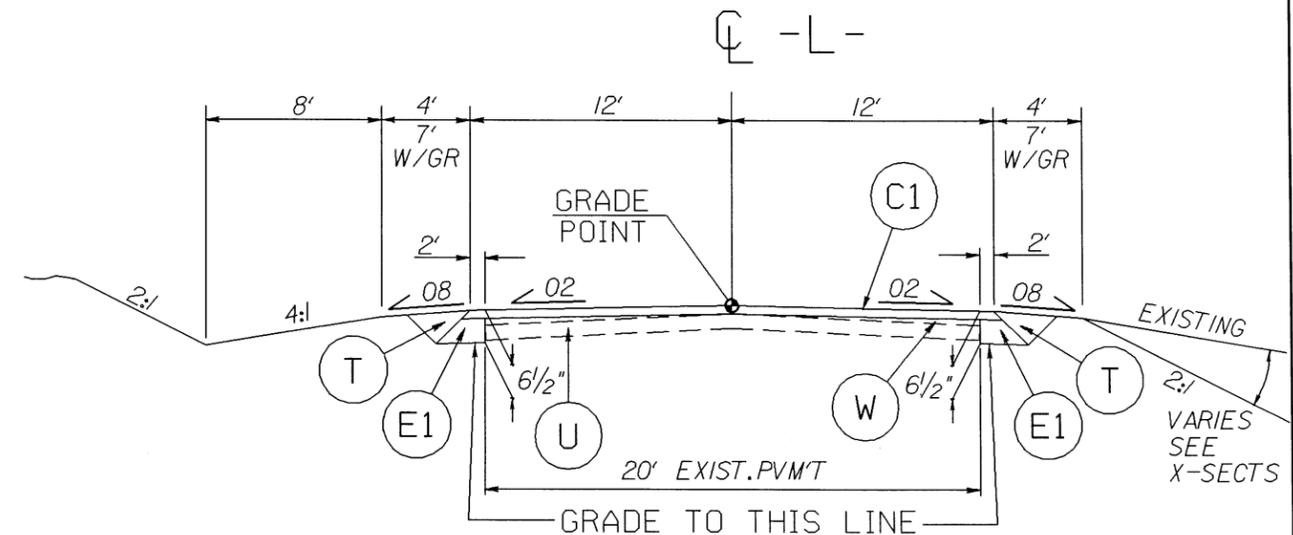


Detail Showing Method of Wedging



TYPICAL SECTION NO. 1

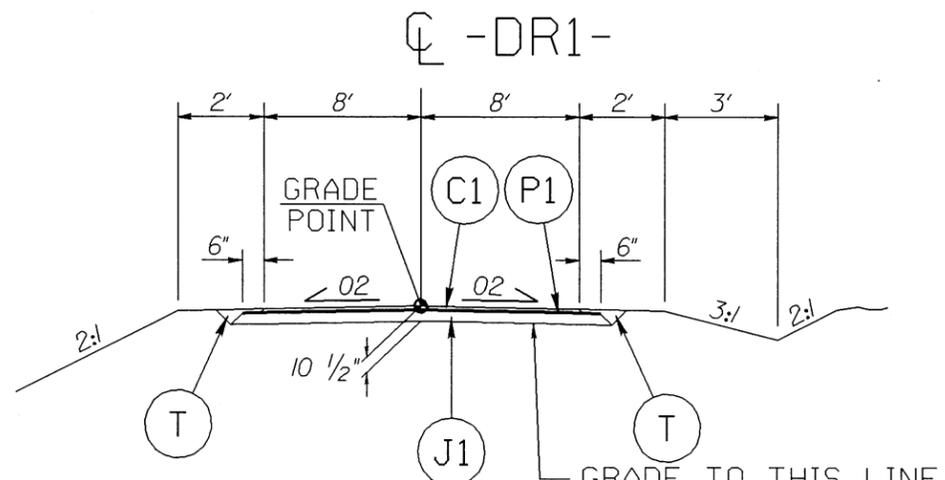
USE TYPICAL SECTION NO. 1 FOR:
 -L- STA. 13+67.40 TO -L- STA. 16+22.50 (BEGIN BRIDGE)
 -L- STA. 18+59.50 (END BRIDGE) TO -L- STA. 23+00.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 FOR:
 -L- STA. 12+80.00 TO -L- STA. 13+67.40

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 2
 -L- STA. 12+00.00 TO -L- STA. 12+80.00

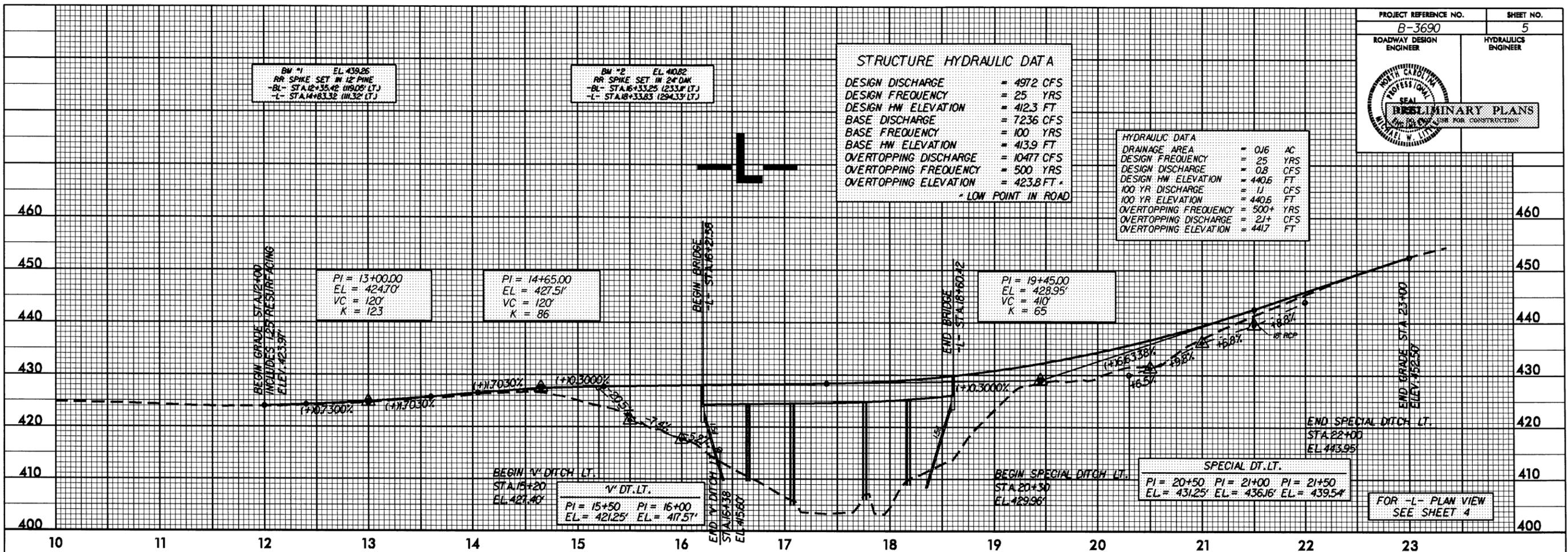


TYPICAL SECTION NO. 3

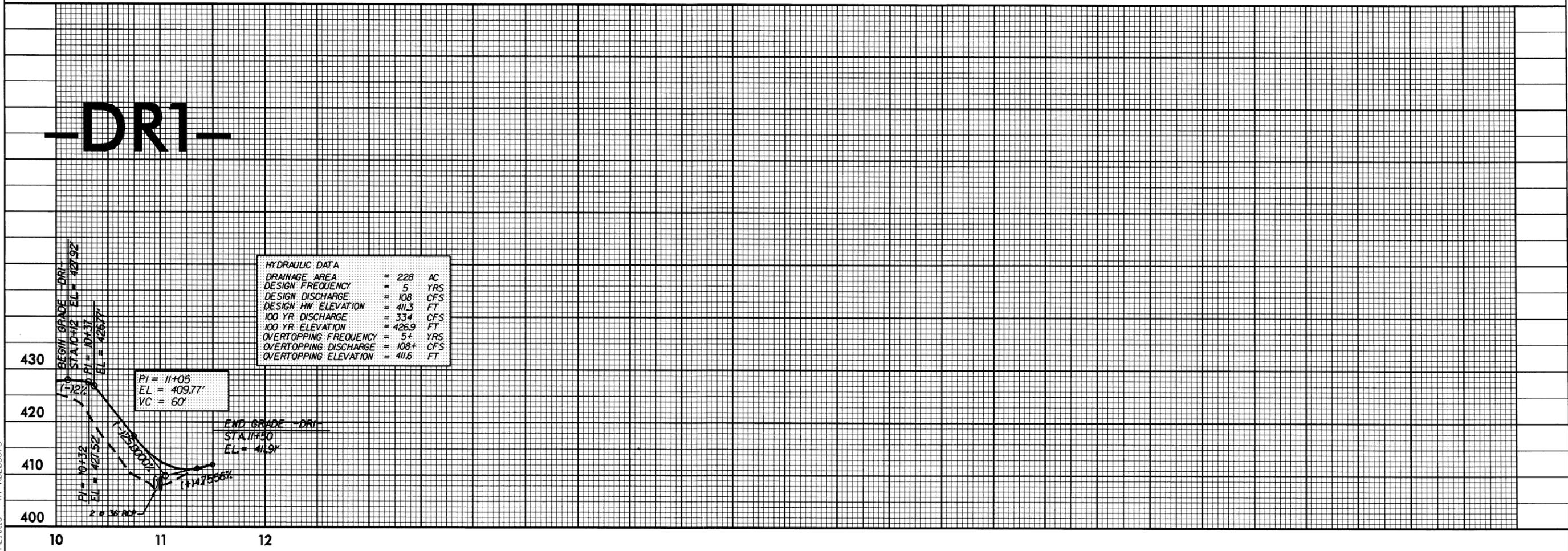
USE TYPICAL SECTION NO. 3 FOR:
 -DRI- STA. 10+12 TO -DRI- STA. 11+50

STRUCTURE HYDRAULIC DATA
 DESIGN DISCHARGE = 4972 CFS
 DESIGN FREQUENCY = 25 YRS
 DESIGN HW ELEVATION = 423 FT
 BASE DISCHARGE = 7236 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 413.9 FT
 OVERTOPPING DISCHARGE = 10477 CFS
 OVERTOPPING FREQUENCY = 500 YRS
 OVERTOPPING ELEVATION = 423.8 FT
 * LOW POINT IN ROAD

HYDRAULIC DATA
 DRAINAGE AREA = 0.6 AC
 DESIGN FREQUENCY = 25 YRS
 DESIGN DISCHARGE = 0.8 CFS
 DESIGN HW ELEVATION = 440.6 FT
 100 YR DISCHARGE = 11 CFS
 100 YR ELEVATION = 440.6 FT
 OVERTOPPING FREQUENCY = 500+ YRS
 OVERTOPPING DISCHARGE = 21+ CFS
 OVERTOPPING ELEVATION = 441.7 FT

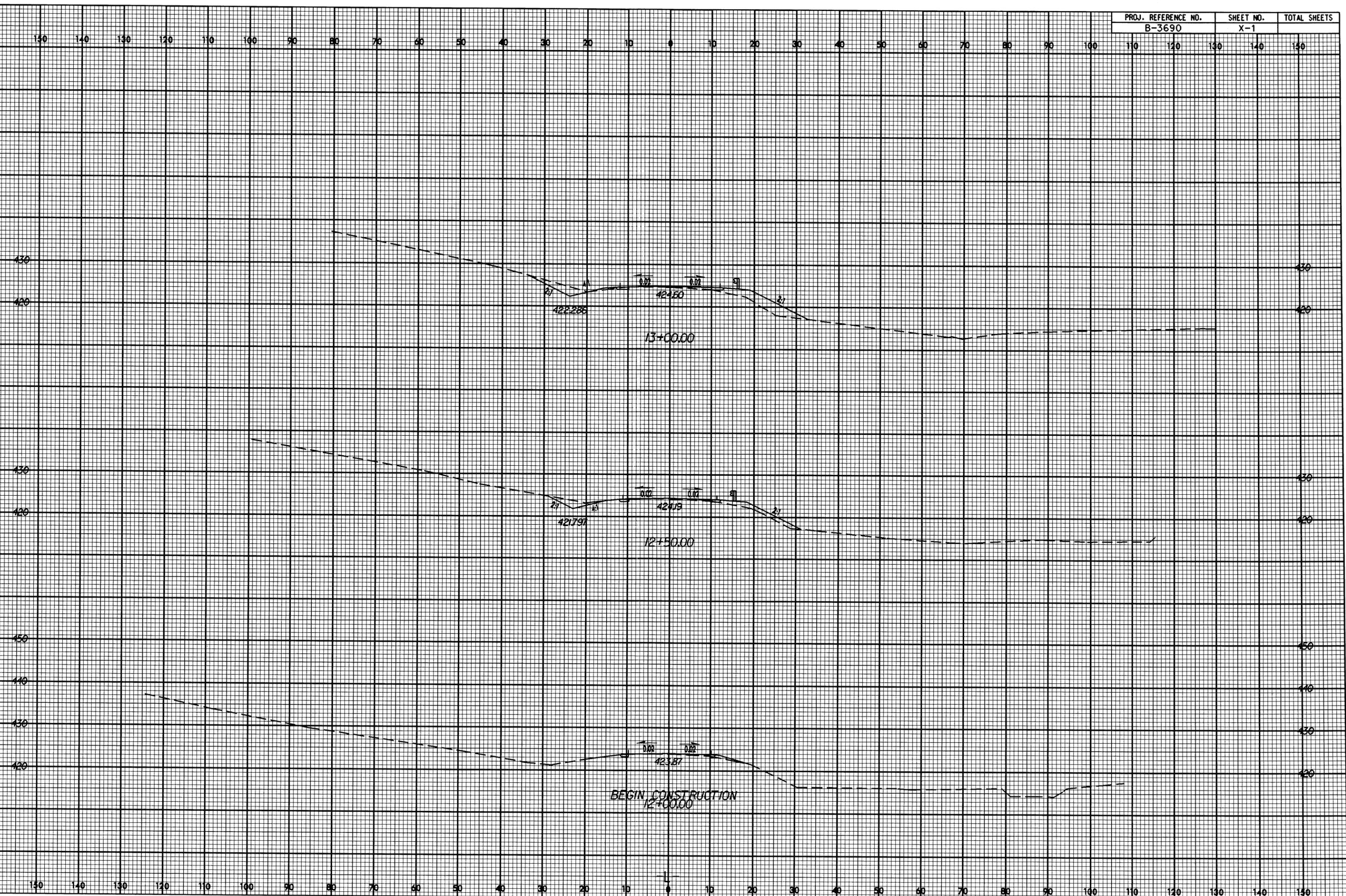


-DRI-



02/03/98

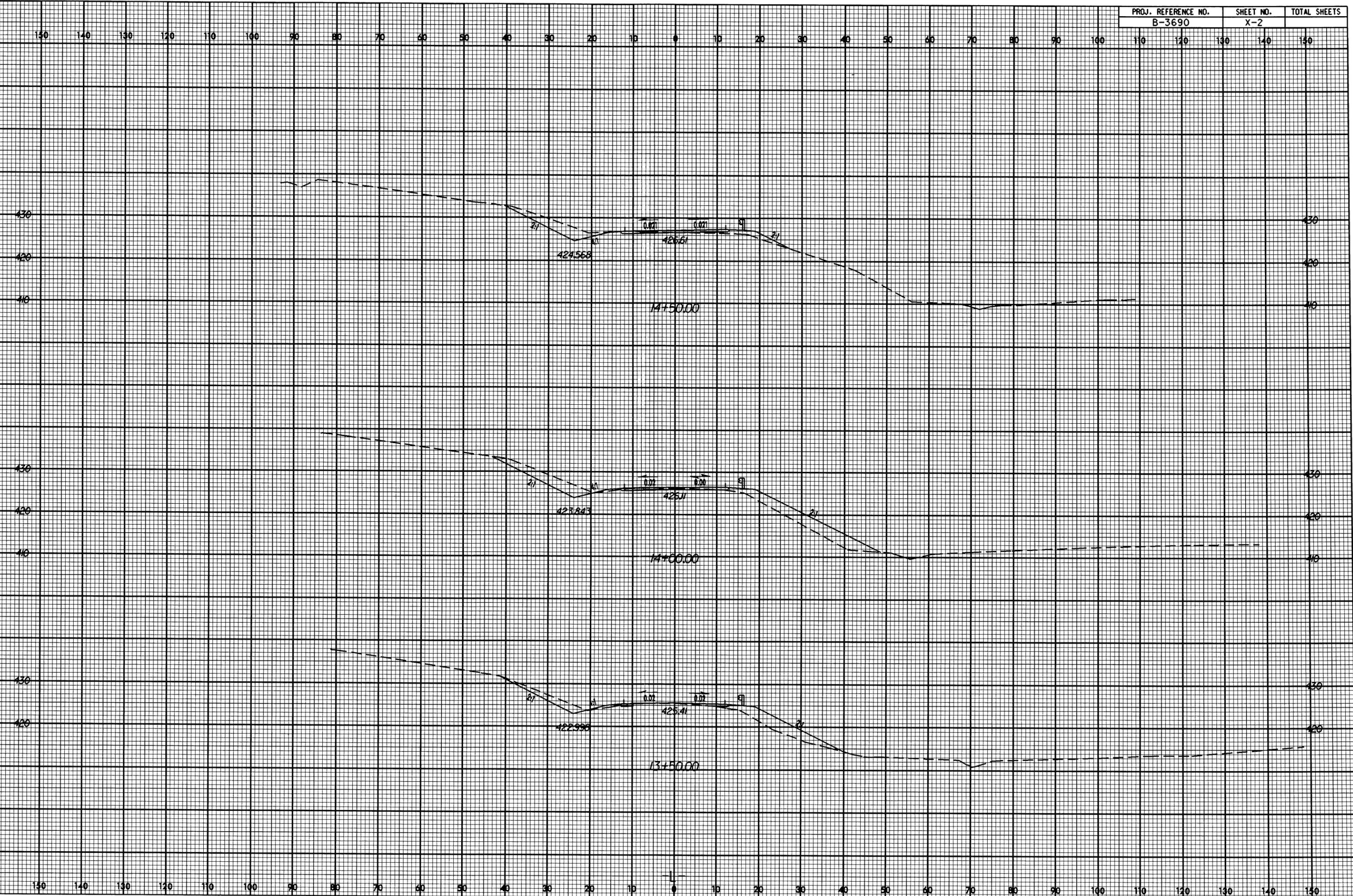
PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-3690	X-1	



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... AT RD283673

02/03/98

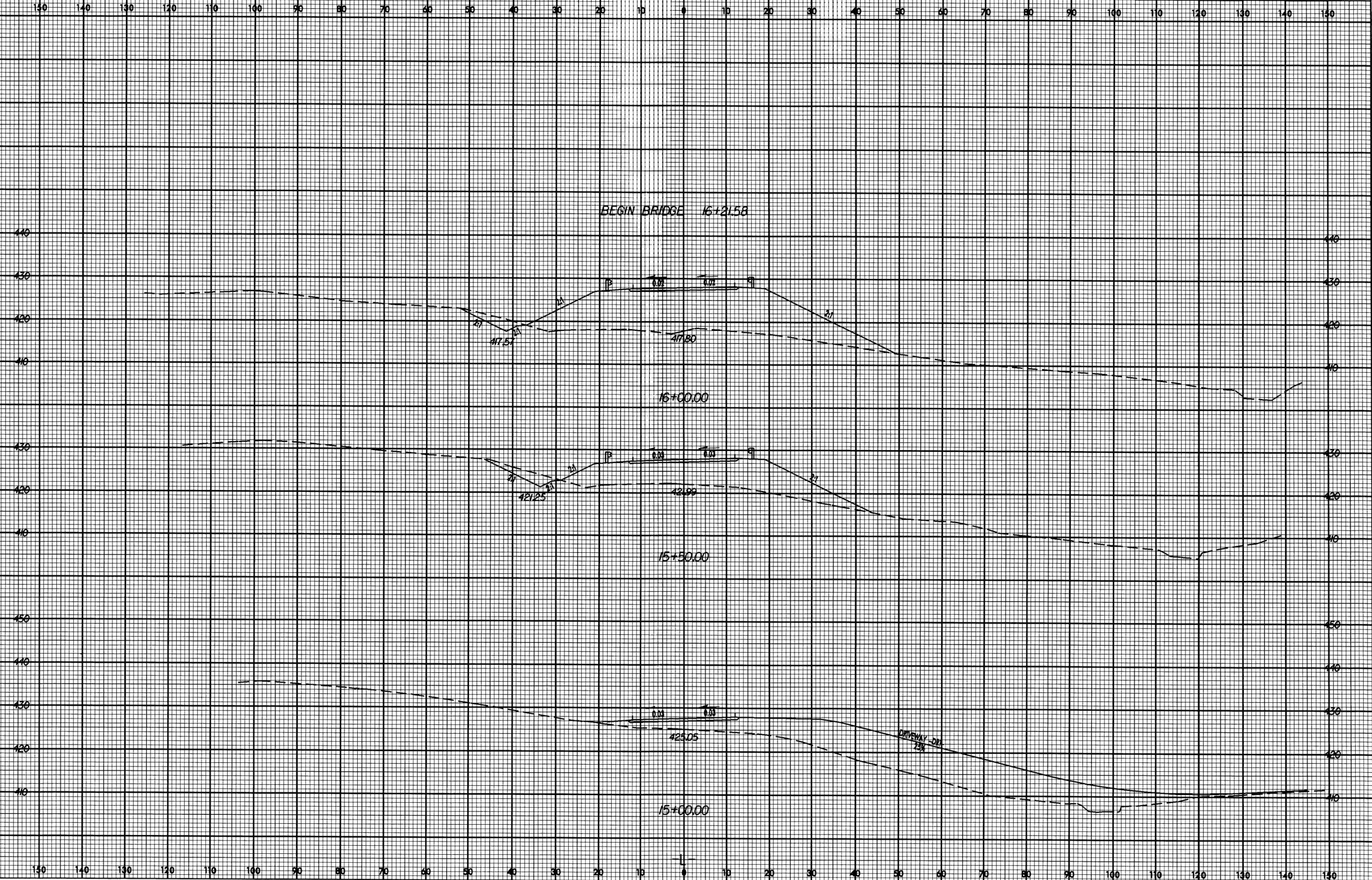
PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-3690	X-2	



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... AT RD283673

02/03/98

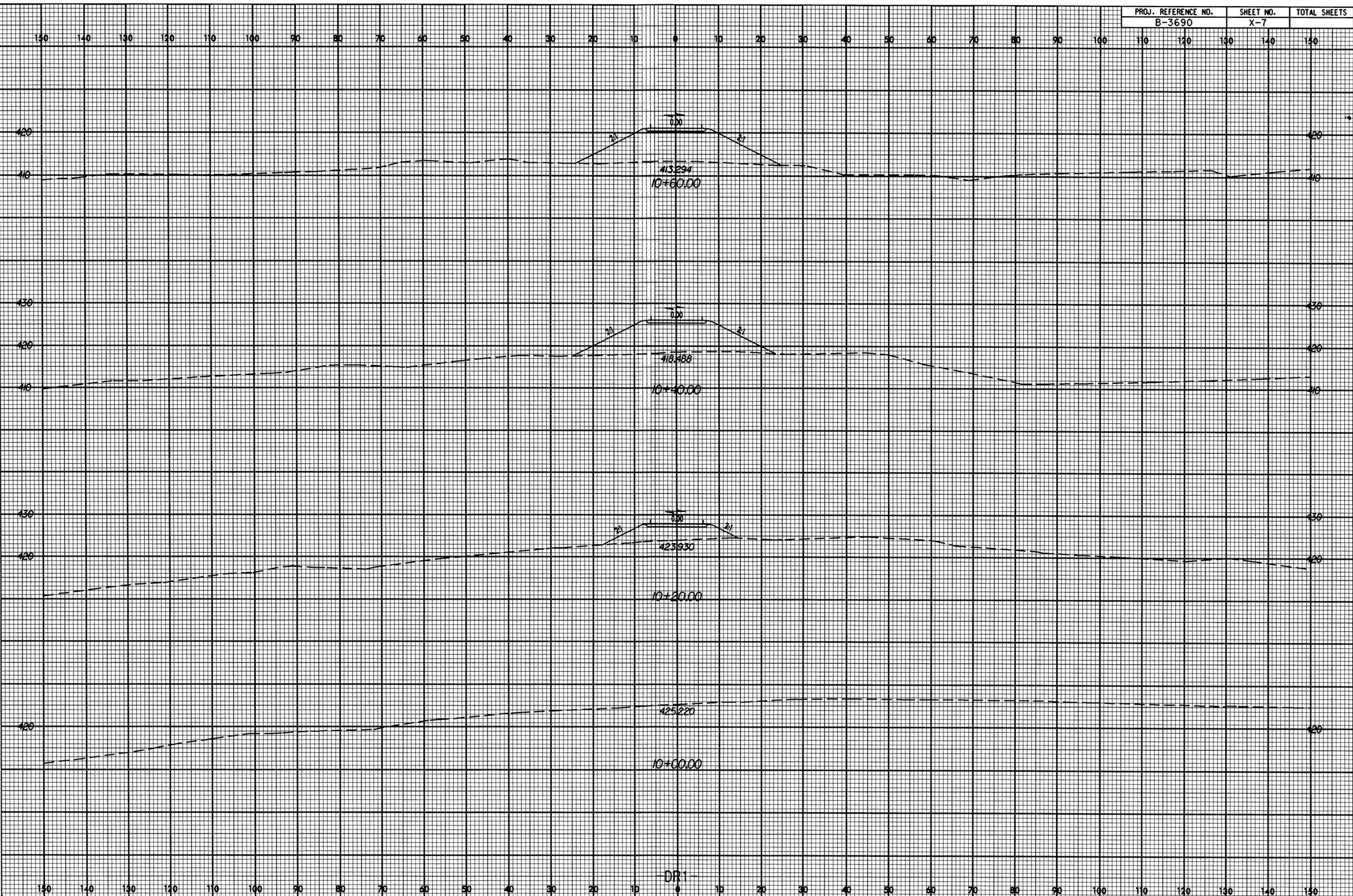
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B-3690	X-3	130



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... AT RD283673

02/03/98

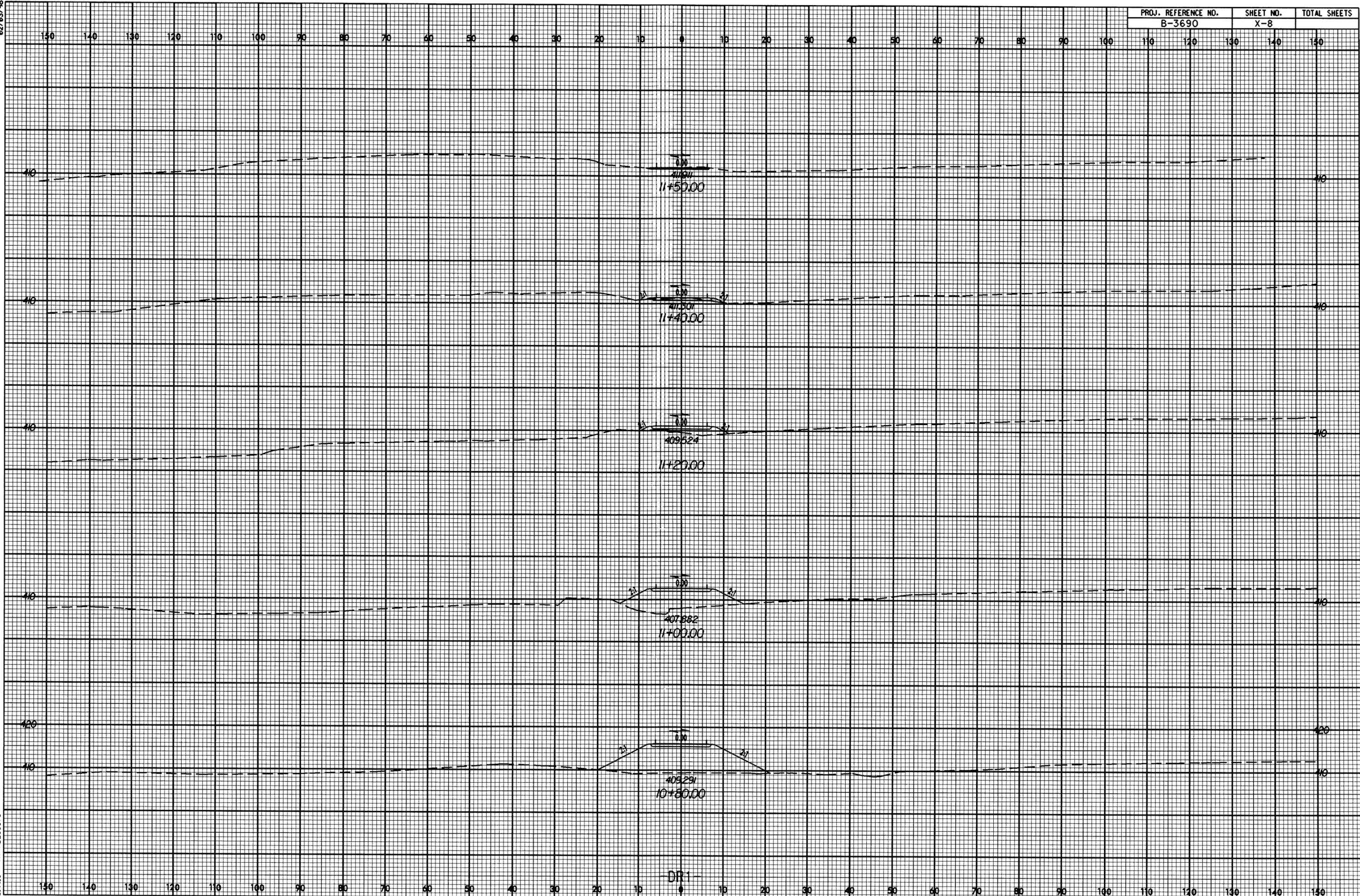
PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-3690	X-7	



07-MAY-2004 15:32
1116 AT RD20363-1.dwg

02/03/98

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-3690	X-8	



07-MAY-2004 15:32
title AT RD3690.dwg

CATEGORICAL EXCLUSION ACTION CLASSIFICATION FORM

TIP Project No.	<u>B-3690</u>
State Project No.	<u>8.2572901</u>
Federal Project No.	<u>BRZ-2641(1)</u>

A. Project Description:

NCDOT will replace Bridge No. 163 on SR 2641, over Brush Creek, in Randolph County. Replacement will be within the same corridor with a new bridge approximately 237 feet (72 meters) in length and 32 feet (9.8 meters) in width. The bridge will have a 24 foot (7.3 meters) travelway. The offset for the bridge will be 2 feet (0.6 m) on the right (south) side and 6 feet (2 m) on the left (north) side.

These unequal offsets are necessary for the deck drainage to accommodate the hydraulic spread due to two design factors which resulted in the need for increased hydraulic storage. First, the use of weep holes was avoided. Secondly, superelevation was used. An additional benefit of the wider offset placed on the side with lower elevation is that the water will not encroach onto the travel lanes, thus lessening dangers of hydroplaning.

The new approach roadway will have a travelway of 24 feet (7.3 meters) width, with shoulders of at least 4 feet (1.2 meters) width. Shoulder width will be increased by at least 3 feet (1 meter) where guardrail is warranted. Traffic will be detoured over existing secondary roads.

B. Purpose and Need: Replace obsolete bridge.

Bridge No. 163 is 48 years old, and has a sufficiency rating of only 19.4 out of a possible 100. This bridge has only one lane, providing a travelway of 11.1 feet (3.4 m). The bridge is composed of a timber deck on steel and timber components, with bents and abutments of rubble masonry. This bridge is considered both structurally deficient and functionally obsolete. For these reasons, the bridge was programmed for replacement.

C. Proposed Improvements:

Circle one or more of the following Type II improvements which apply to the project:

1. Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing).
 - a. Restoring, Resurfacing, Rehabilitating, and Reconstructing pavement (3R and 4R improvements)
 - b. Widening roadway and shoulders without adding through lanes

- c. Modernizing gore treatments
 - d. Constructing lane improvements (merge, auxiliary, and turn lanes)
 - e. Adding shoulder drains
 - f. Replacing and rehabilitating culverts, inlets, and drainage pipes, including safety treatments
 - g. Providing driveway pipes
 - h. Performing minor bridge widening (less than one through lane)
2. Highway safety or traffic operations improvement projects including the installation of ramp metering control devices and lighting.
- a. Installing ramp metering devices
 - b. Installing lights
 - c. Adding or upgrading guardrail
 - d. Installing safety barriers including Jersey type barriers and pier protection
 - e. Installing or replacing impact attenuators
 - f. Upgrading medians including adding or upgrading median barriers
 - g. Improving intersections including relocation and/or realignment
 - h. Making minor roadway realignment
 - i. Channelizing traffic
 - j. Performing clear zone safety improvements including removing hazards and flattening slopes
 - k. Implementing traffic aid systems, signals, and motorist aid
 - l. Installing bridge safety hardware including bridge rail retrofit
3. Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings.
- a. Rehabilitating, reconstructing, or replacing bridge approach slabs
 - b. Rehabilitating or replacing bridge decks
 - c. Rehabilitating bridges including painting (no red lead paint), scour repair, fender systems, and minor structural improvements
 - d. Replacing a bridge (structure and/or fill)
4. Transportation corridor fringe parking facilities.
5. Construction of new truck weigh stations or rest areas.
6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.
7. Approvals for changes in access control.

8. Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.
9. Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.
10. Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks and related street improvements) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.
11. Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.
12. Acquisition of land for hardship or protective purposes, advance land acquisition loans under section 3(b) of the UMT Act. Hardship and protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CE only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed.

D. Special Project Information

Two investigation alternates were originally proposed for this project.

Alternate 1 was to replace within the same corridor and detour traffic offsite during construction.

Alternate 2 was to replace on new alignment to the west and maintain traffic on the existing bridge during construction.

Preliminary design work was done on both these alternates. However, it soon became apparent that the rolling terrain elevations would cause constructability problems with both alternates and would preclude any option of maintaining traffic on the existing bridge with either alternate. These constructability and geometric design issues arose from the hilly local terrain coupled with the fact that any replacement bridge would need to be longer than

the existing bridge, with a wider hydraulic opening. Also, the elevation of the proposed bridge deck would need to be higher than existing if any improvement in design speed were to be realized.

For this reason, Alternate 2 was eliminated from further consideration.

Estimated Costs:

Total Construction Cost	\$1,100,000
Right-of-Way and Utilities	<u>65,000</u>
Total Project Cost	\$1,165,000

Estimated Traffic:

Current - 170 VPD
Year 2025 - 300 VPD

Proposed Typical Roadway Section:

The new approach roadway will have a travelway of 24 feet (7.3 meters) width, with shoulders of at least 4 feet (1.2 meters) width. Shoulder width will be increased by at least 3 feet (1 meter) where guardrail is warranted.

Design Speed:

The design speed will be 40 mph (65 km/hr). A design exception is anticipated due to horizontal curvature and the statutory 55 mph speed limit on approaches.

Functional Classification:

SR 2641 is classified as a Rural Local facility in the Statewide Functional Classification System.

Division Office Comments:

The Division Engineer supports road closure and replacement at the existing location.

E. Threshold Criteria

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

ECOLOGICAL

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

PERMITS AND COORDINATION

	<u>YES</u>	<u>NO</u>
(10) If the project is located within a CAMA county, will the project significantly affect the coastal zone and/or any "Area of Environmental Concern" (AEC)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(11) Does the project involve Coastal Barrier Resources Act resources?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(12) Will a U. S. Coast Guard permit be required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

SOCIAL, ECONOMIC, AND CULTURAL RESOURCES

- | | | <u>YES</u> | <u>NO</u> |
|------|---|--------------------------|--------------------------|
| (15) | Will the project induce substantial impacts to planned growth or land use for the area? | <input type="checkbox"/> | <u> X </u> |
| (16) | Will the project require the relocation of any family or business? | <input type="checkbox"/> | <u> X </u> |
| (17) | Will the project have a disproportionately high and adverse human health and environmental effect on any minority or low-income population? | <input type="checkbox"/> | <u> X </u> |
| (18) | If the project involves the acquisition of right of way, is the amount of right of way acquisition considered minor? | <u> X </u> | <input type="checkbox"/> |
| (19) | Will the project involve any changes in access control? | <input type="checkbox"/> | <u> X </u> |
| (20) | Will the project substantially alter the usefulness and/or land use of adjacent property? | <input type="checkbox"/> | <u> X </u> |
| (21) | Will the project have an adverse effect on permanent local traffic patterns or community cohesiveness? | <input type="checkbox"/> | <u> X </u> |
| (22) | Is the project included in an approved thoroughfare plan and/ or Transportation Improvement Program (and is, therefore, in conformance with the Clean Air Act of 1990)? | <u> X </u> | <input type="checkbox"/> |
| (23) | Is the project anticipated to cause an increase in traffic volumes? | <input type="checkbox"/> | <u> X </u> |
| (24) | Will traffic be maintained during construction using existing roads, staged construction, or on-site detours? | <u> X </u> | <input type="checkbox"/> |
| (25) | If the project is a bridge replacement project, will the bridge be replaced at its existing location (along the existing facility) and will all construction proposed in association with the bridge replacement project be contained on the existing facility? | <u> X </u> | <input type="checkbox"/> |
| (26) | Is there substantial controversy on social, economic and environmental grounds concerning aspects of the action? | <input type="checkbox"/> | <u> X </u> |

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

F. Additional Documentation Required for Unfavorable Responses in Part E

(Also see attached documentation.)

Item E (2): The project stream is a tributary to the Deep River, which has occurrences of the federally protected aquatic species "Cape Fear shiner." A survey for this species was conducted by NCDOT biologists in the project area. No examples were found, and the survey's conclusion was "not likely to adversely affect." The US Fish & Wildlife Service and the NC Wildlife Resources Commission (WRC) were contacted with this information, and Ms. Judith Ratcliffe of the NC WRC advised that no on-site meeting would be necessary for this project.

Item E (3): The project affects a stream where anadromous fish may occur. The Natural resources Technical Report states "Species of anadromous fish may utilize streams in the project study area. Construction guidelines outlined in *NCDOT Stream Crossing Guidelines for Anadromous Fish Passage* will be adhered to for this project. These guidelines are applicable for all projects crossing perennial or intermittent tributaries (delineated on a USGS topographic map) located below the fall line." Due to these fishery concerns, the NC WRC requested a moratorium on in-water work from April 1 to June 15 of any year. (See Greensheet).

G. CE Approval

TIP Project No.	<u>B-3690</u>
State Project No.	<u>8.2572901</u>
Federal Project No.	<u>BRZ-2641(1)</u>

Project Description:

NCDOT will replace Bridge No. 163 on SR 2641, over Brush Creek, in Randolph County. Replacement will be within the same corridor with a new bridge approximately 237 feet (72 meters) in length and 32 feet (9.8 meters) in width. The bridge will have a 24 foot (7.3 meters) travelway. The offset for the bridge will be 2 feet (0.6 m) on the right (south) side and 6 feet (2 m) on the left (north) side.

Categorical Exclusion Action Classification: (Check one)

TYPE II(A)
 TYPE II(B)

Approved:

7/31/03 Jeresa Hart
Date Assistant Manager
Project Development and Environmental Analysis Branch

7-31-03 William T. Goshing
Date Project Planning Unit Head
Project Development and Environmental Analysis Branch

7-31-03 Dennis Pipkin
Date Project Planning Engineer
Project Development and Environmental Analysis Branch

For Type II(B) projects only:

8/25/03 Felix O'Leary
Date Division Administrator
Federal Highway Administration

ENVIRONMENTAL COMMITMENTS:

B-3690, Randolph County

Bridge No. 163, on SR 2641
Over Brush Creek
Federal Aid Project BRZ-2641(1)
State Project 8.2572901

Roadway Design Unit, Structure Design Unit, Project Development & Environmental Analysis Branch (Permits), Resident Engineer:

Bridge Demolition:

The existing bridge is composed of timber and steel components with rubble masonry bents and abutments. The timber and steel components will be removed without dropping into the water. The asphalt wearing surface will be removed prior to demolition without dropping into the water. There is a potential for some masonry components to enter Waters of the US. A maximum of approximately 27 cubic yards of concrete may enter surface waters during demolition.

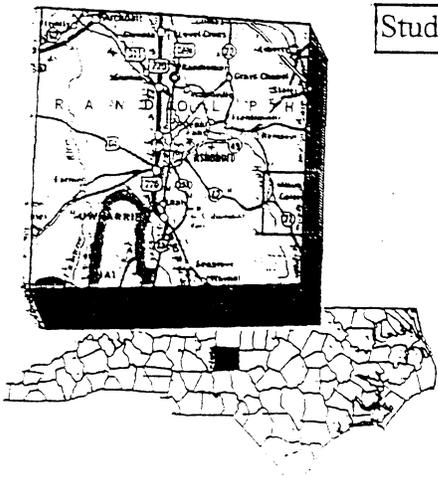
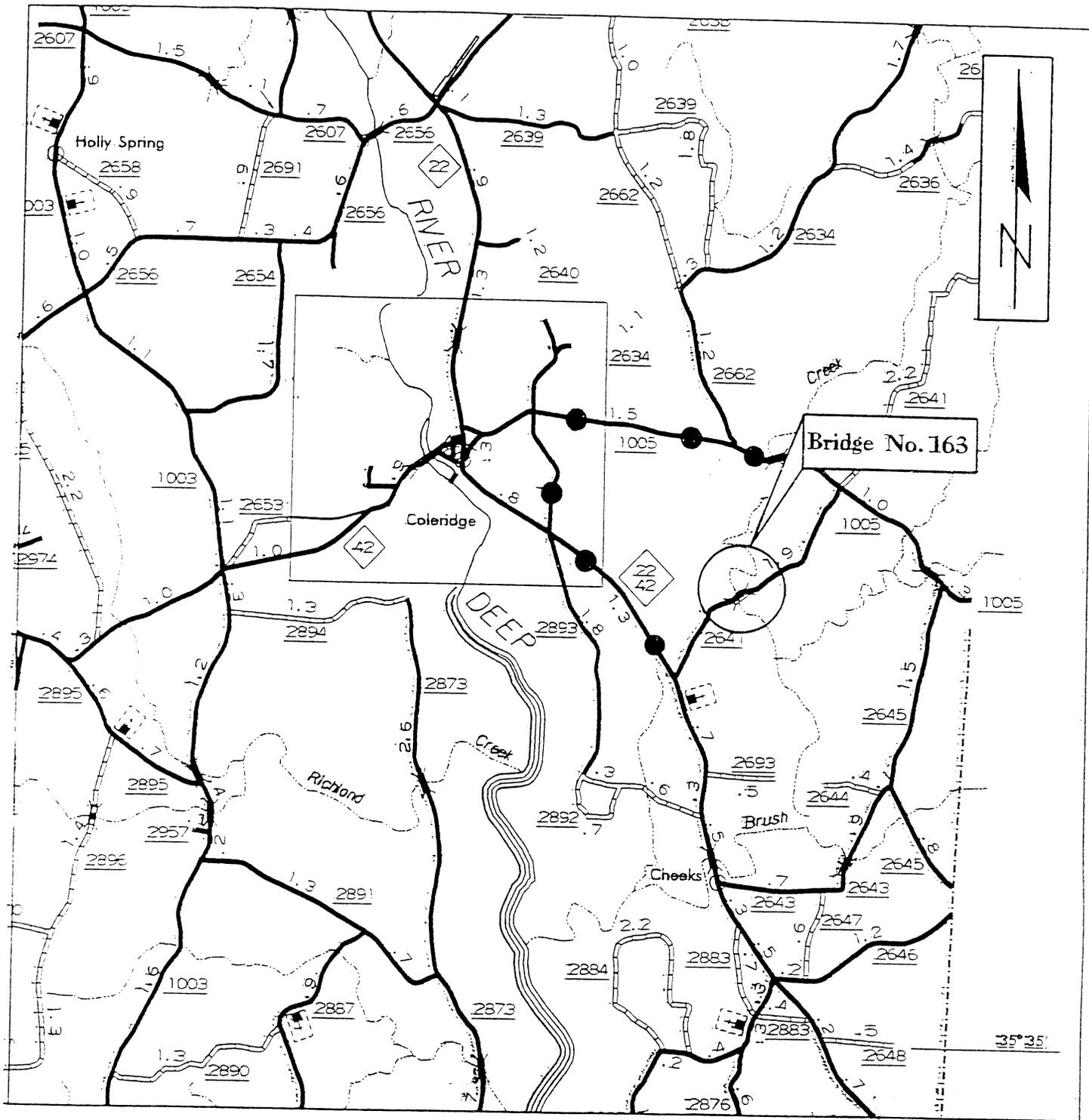
During construction, Best Management Practices for Bridge Demolition and Removal will be followed.

Construction Moratorium:

Due to fish migration and spawning, there will be a moratorium on in-water construction work from April 1 to June 15 of any year.

Anadromous Fish Guidelines:

The mandates in *NCDOT Stream Crossing Guidelines for Anadromous Fish Passage* will be adhered to for this project.



Studied Detour Route —●—●—●—



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

Randolph County
 Replace Bridge No. 163 on SR 2641
 Over Brush Creek
 B-3690



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

July 8, 2003

- Memorandum to: Dennis Pipkin, P.E., Project Engineer
Project Development Unit, PDEA
- From: Matt Haney, Environmental Specialist
Office of Natural Environment
- Subject: (1) Replacement of Bridge No. 163 on SR 2641 over Brush Creek, Randolph
County, Federal Aid Project No. BRZ-2641(1), State Project No. 8.2572901,
TIP No. B-3690.
- (2) Replacement of Bridge No. 221 on SR 2849 over Fork Creek, Randolph
County, Federal Aid Project No. BRZ-2849(1), State Project No. 8.2573001,
TIP No. B-3691.

The NCDOT proposes to replace the bridges listed above. The federally-endangered Cape Fear shiner (*Notropis mekistocholas*) is listed by the U.S. Fish and Wildlife Service (USFWS) as occurring in Randolph County, therefore the Cape Fear shiner must be evaluated for this project.

The Natural Heritage Program (NHP) documented one occurrence of Cape Fear shiner in Deep River within two miles of the project study area for project B-3690. NHP documented one occurrence of Cape Fear shiner in Fork Creek within seven miles of the project study area for project B-3691. Both projects are located within a proposed critical habitat area. Maps are attached showing the location of the bridge projects and the location of known Cape Fear shiner populations.

Aquatic surveys were conducted by Tim Savidge, Logan Williams, and other NCDOT biologists for both projects on May 8, 2001. All fish species were identified in the field. No Cape Fear shiners were observed during these surveys. However, the streams do provide suitable habitat for Cape Fear shiner. Therefore, a biological conclusion of "Not Likely to Adversely Affect" was given. Concurrence with the USFWS is required for this Biological Conclusion.

Mat Handy
PDEA

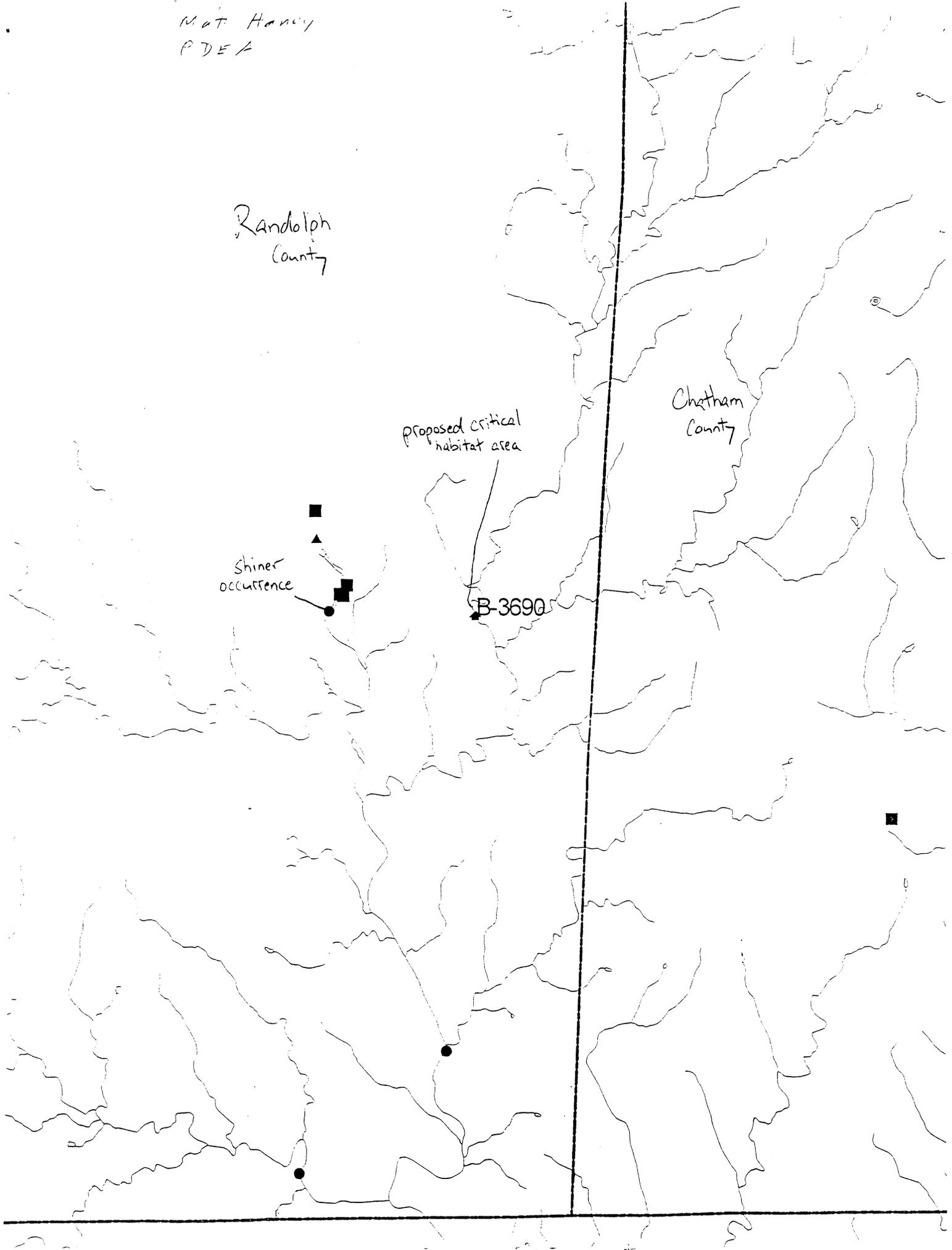
Randolph
County

Chatham
County

Proposed critical
habitat area

Shiner
occurrence

B-3690





North Carolina Wildlife Resources Commission



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

MEMORANDUM

TO: Dennis Pipkin, Project Planning Engineer
Project Development & Environmental Analysis Branch, NCDOT

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program 

DATE: March 10, 2000

SUBJECT: NCDOT Bridge Replacements in Johnston, Randolph, and Rowan counties. TIP Nos. B-3670, B-3686, B-3687, B-3689, B-3690, B-3691 and B-3904.

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

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

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

Project specific comments:

1. B-3670 – Johnston County – Bridge No. 448 over Bernal Creek. Due to recent dam removals in the Neuse River basin it is likely that this stream will be spawning habitat for anadromous fish such as herring and shad. Therefore, we would prefer this bridge be replaced with a bridge. NCDOT should adhere to recommendations contained in the NCDOT document, “Stream Crossing Guidelines for Anadromous Fish Passage.” No in-water work should occur from February 15 to June 15.
2. B-3686 – Randolph County – Bridge No. 49 over Back Creek. We would prefer this bridge be replaced with a bridge. Back Creek is a tributary of Carraway Creek that contains species of state listed mussels. Therefore, we request that NCDOT use sedimentation and erosion control standards for sensitive watersheds (HQW) on this project.
3. B-3687 – Randolph County – Bridge No. 285 over Muddy Creek. We would prefer this bridge be replaced with a bridge. Standard recommendations apply.
4. B-3689 – Randolph County – Bridge No. 370 over Un-named Creek. We would prefer this bridge be replaced with a bridge. Standard recommendations apply.
5. B-3690 – Randolph County – Bridge No. 163 over Brush Creek. Brush Creek supports good numbers of largemouth bass, Redbreast sunfish, catfish and pickerel as well as a good diversity of native non-game fish. Due to the possibility that a quality fishery exists, we would prefer this bridge be replaced with a bridge. We request an in-water work moratorium from April 1 to June 15 to minimize impacts to spawning sunfish and largemouth bass. This stream is a tributary of the Deep River and drains directly into Cape Fear Shiner (*Notropis mekistocholas*) habitat. We request an on-site meeting be held to discuss specific conservation measures for this Federally listed species.
6. B-3691 – Randolph County – Bridge No. 221 over Fork Creek. We would prefer this bridge be replaced with a bridge. The Federally endangered Cape Fear Shiner (*Notropis mekistocholas*) has been found in Fork Creek. We request an on-site meeting be held to discuss specific conservation measures for this Federally listed species.
7. B-3940 – Rowan County – Bridge No. 183 over Un-named Creek. 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.



North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
March 30, 2001

Division of Archives and History
Jeffrey J. Crow, Director

MEMORANDUM

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

From: David Brook *David Brook*
Deputy State Historic Preservation Officer

Re: Replacement of Bridge No. 163 on SR 2641 over South Potts Creek,
TIP No. B-3690. Randolph County. ER 00-8444

On January 20, 2000, April Montgomery of our staff met with North Carolina Department of Transportation (NCDOT) staff for a meeting of the minds concerning the above project. We reported our available information on historic architectural and archaeological surveys and resources along with our recommendations. NCDOT provided project area photographs and aerial photographs at the meeting.

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

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

In terms of archaeological resources there is a high potential for sites within the proposed project area. When an alignment is selected please submit detailed drawings of that alignment so that we can determine whether or not an archaeological survey is needed.

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: Mary Pope Furr
Tom Paolletti

ADMINISTRATION
RESTORATION
SPECIAL PLANNING

Location
505 N. Blount St., Raleigh NC
515 N. Blount St., Raleigh NC
515 N. Blount St., Raleigh NC

Mailing Address
4617 Mail Service Center, Raleigh NC 27699-4617
4613 Mail Service Center, Raleigh NC 27699-4613
4615 Mail Service Center, Raleigh NC 27699-4615

Telephone/Fax
(919) 733-4763 • 733-8653
(919) 733-6547 • 715-4801
(919) 733-6545 • 715-4801

Pipkin



North Carolina Department of Cultural Resources
State Historic Preservation Office

David L. S. Brook, Administrator

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

Division of Historical Resources
David J. Olson, Director

March 15, 2002

MEMORANDUM



TO: William D. Gilmore, Manager
Project Development and Environmental Analysis Branch
Division of Highways
Department of Transportation

FROM: David Brook *for David Brook*

SUBJECT: Archaeological Report, Replacement of Bridge No. 163 on SR 2641 over Brush Creek, B-3690, Federal-Aid No. BRZ 2641(1), Randolph County, ER 00-8444 and ER 02-9078

Thank you for your letter of February 15, 2002, transmitting the archaeological survey report, by Shane Petersen, Caleb Smith and Jesse Zinn, for the above project.

During the course of the survey, no prehistoric or historic archaeological sites were located within the project area. Due to the absence of cultural material, the authors have recommended that no further archaeological investigation be conducted in connection with this project. We concur with this recommendation since the project will not involve significant archaeological resources.

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

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

DB:kgc

cc: Matt Wilkerson, NCDOT

RANDOLPH COUNTY EMERGENCY SERVICES

152 N. Fayetteville Street
Asheboro, North Carolina 27203-5516

Telephone: (336) 318-6911

May 1, 2001

*Dennis Pipkin, P.E.
Project Development Engineer
Project Development and Environmental Analysis Branch
1548 Mail Service Center,
Raleigh NC 27699-1548*

Dear Mr. Pipkin,

After reviewing the below bridge replacement projects the following has been determined:

- Project B-3690 = No detour posting required for emergency services. Post Bridge Closed signs.
Brush Creek #163 on SR 2641*
- Project B-3686 = No detour posting required for emergency services. Post Bridge Closed signs.
Back Creek #49 on SR 1320*
- Project B-3691 = No detour posting required for emergency services. Post Bridge Closed signs.
Fork Creek #221 on SR 2849*

It will always be more beneficial for our Emergency Responders if we have an accurate start date on each project. At that time we will be able to research which addresses/residents will be affected and the alternative routes that our responders will need to take.

At this time we do not see any necessary changes for the above projects. If you have further inquiries, please give me a call at 336-318-6943 or by mailing to the above address.

Sincerely,

Donovan Davis

*Donovan Davis,
Project Coordinator
dldavis@co.randolph.nc.us*



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

DAVID MCCOY
SECRETARY

December 22, 2000

Memorandum To: Wayne Elliott, Unit Head
Bridge Replacement Unit

From: Matt Haney
Natural Systems Unit

Subject: Proposed replacement of Bridge No. 163 on SR 2641 over Brush
Creek in Randolph County. TIP No. B-3690; Federal Aid Project
No. BRZ-2641(1); State Project No. 8.2572901.

Attention: Dennis Pipkin, Project Planning Engineer
Bridge Replacement Unit

The attached Natural Resources Technical Report provides inventories and descriptions of natural resources within the project study area, and estimations of impacts likely to occur to these resources as a result of project construction. Pertinent information concerning waters of the United States and protected species is also provided.

c: File

Proposed Replacement of Bridge No. 163
on SR 2641 over Brush Creek

Randolph County

TIP No. B-3690

State Project No. 8.2572901

Federal Aid Project No. BRZ-2641(1)

Natural Resources Technical Report

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

MATT HANEY
NATURAL SYSTEMS SPECIALIST
DECEMBER 22, 2000

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1.0 INTRODUCTION

The following Natural Resources Technical Report is submitted to assist in the preparation of a Categorical Exclusion for the proposed project.

1.1 Project Description

The project involves the replacement of Bridge No. 163 on SR 2641 over Brush Creek in Randolph County. The existing right-of-way (ROW) is 18.3 m (60 ft). The proposed right-of-way is 18.3 m (60 ft). Two alternates are proposed for this project:

Alternate 1-Replace bridge at same location, detour traffic onto other local roads during construction.

Alternate 2-Replace bridge on new alignment to the west of existing, and maintain traffic on the existing bridge during construction.

Bridge No. 163 consists of an asphalt surface on a timber floor and timber deck, with steel girders. Substructure is rubble masonry and concrete. The bridge has 5 spans. The asphalt surface will be removed prior to demolition without dropping into surface waters. A maximum of approximately 27 yd³ of concrete may enter surface waters during demolition.

1.2 Purpose

The purpose of this technical report is to inventory, catalog, and describe the various natural resources likely to be impacted by the proposed action. This report also attempts to identify and estimate the probable consequences of the anticipated impacts to these resources. Recommendations are made for measures which will minimize resource impacts. These descriptions are relevant only in the context of existing design concepts. If design parameters and criteria change, additional field investigations will need to be conducted.

1.3 Methodology

Research of the project study area was conducted prior to field investigations. Information sources used in the pre-field investigation include: U.S. Geological Survey (USGS) quadrangle map (Coleridge, NC), NCDOT aerial photomosaics of the project study area (1:1200), and Soil Survey of Randolph County (incomplete, USDA, 1990). Water resource information was obtained from publications of the North Carolina Department of Environment and Natural Resources, Division of Water Quality (NCDENR, 2000) and North Carolina Department of Environment, Health, and Natural Resources, Division of Environmental Management (NCDEHNR, 1995). Information concerning the occurrence of federal and state protected species in the study area was

gathered from the U.S. Fish and Wildlife Service (USFWS) list of protected and candidate species (June 16, 2000) and from the North Carolina Natural Heritage Program (NHP) database of rare species and unique habitats.

General field surveys were conducted along the proposed alignment by NCDOT biologists Matt Haney, Jared Gray, Shannon Simpson, and Jill Holmes on August 24, 2000. Plant communities and their associated wildlife were identified and recorded. Wildlife identification involved using one or more of the following observational techniques: active searching and capture, visual observations (binoculars), identifying characteristic signs of wildlife (sounds, scat, tracks, and burrows). Jurisdictional wetland determinations were performed utilizing delineation criteria prescribed in the "Corps of Engineers Wetland Delineation Manual" (Environmental Laboratory, 1987).

Definitions for areal descriptions used in this report are as follows: **Project Study Area** denotes the area bound by proposed ROW limits; **Project Vicinity** describes an area extending 0.8 km (0.5 mi) on all sides of the project study area; and **Project Region** is equivalent to an area represented by a 7.5 minute USGS quadrangle map centered on the project.

1.4 Qualifications of Principal Investigator

Investigator: Matthew M. Haney
Education: B.S. Natural Resources-Ecosystem Assessment, North Carolina State University, Raleigh, North Carolina
Experience: N.C. Dept. of Transportation Oct. 1999-present
N.C. Forest Service May 1998-August 1998
U.S. Forest Service, Center for Forested Wetlands Research May 1997-August 1997

2.0 PHYSICAL CHARACTERISTICS

Soil and water resources, which occur in the project study area, are discussed below. Soil types and availability of water directly influence composition and distribution of flora and fauna in any biotic community.

Randolph County lies in the Piedmont Physiographic Province. Land in the project study area is characterized as relatively flat. The project is located in a rural area of Randolph County surrounded by forestland and residential houses. The project study area is located approximately 137.2 m (450 ft) above mean sea level.

2.1 Soils

One mapped soil unit is located in the project study area, Badin-Tatum complex, 8-15% slopes.

This map unit consists of strongly sloping Badin soils and Tatum soils on uplands. Badin and Tatum soils formed residuum from Carolina slates and other fine grained rocks. Badin soils are moderately deep and well drained. The surface layer is loamy with a significant amount of channels. The subsoil is clayey. Permeability is moderate. Shrink-swell potential is moderate. Soft bedrock is within a depth of 20 to 40 inches. Seasonal high water table is below 6 ft. Tatum soils are deep and well drained. They have a loamy surface layer and a clayey subsoil. Permeability is moderate and shrink-swell potential is moderate. Soft bedrock is within a depth of 40 to 60 inches. Seasonal high water table is below 6 ft. Badin-Tatum complex, 8-15% slopes, is a non-hydric soil.

2.2 Water Resources

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

2.2.1 Subbasin Characteristics

Water resources located within the project study area lie in the Deep River Watershed (Subbasin 03-06-09) of the Cape Fear River Drainage Basin (N.C. Hydrologic Unit 03030003). The Cape Fear River Basin is the largest river basin in the state, covering 9,149 square miles (NCDEHNR, 1995).

2.2.2 Stream Characteristics

The proposed project crosses Brush Creek. Brush Creek at the project site is approximately 25.6 m (84 ft) wide. The depth is approximately 0.3 m (1 ft). The substrate consists of boulder, gravel, and cobble.

2.2.3 Best Usage Classification

Streams have been assigned a best usage classification by the NCDENR (2000). The best usage classification for Brush Creek (Index No. 17-23) is C. Class C waters are suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. The project study area is located in a Proposed Critical Habitat Area.

2.2.4 Water Quality

The DWQ has initiated a whole basin approach to water quality management for the 17 river basins within the state. To accomplish this goal, the DWQ collects biological, chemical, and physical data that can be used in basinwide assessment and planning. Specific river basins within North Carolina are intensively sampled for benthic macroinvertebrates. The macroinvertebrates are a good indicator of water quality because of their sensitivity to subtle environmental changes, mobility (as compared to

fish), diversity, and relatively long life cycle. 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 facilitate the NPDES permit review.

The Benthic Macroinvertebrate Ambient Network (BMAN) monitors ambient water quality by sampling at fixed sites for selected benthic macroinvertebrate organisms that are sensitive to water quality conditions. Criteria have been developed to assign bioclassifications based on the number of taxa present in the intolerant groups Ephemeroptera, Plecoptera, and Trichoptera (EPTs). Brush Creek received Good-Fair bioclassifications (NCDEHNR, 1995). There were no BMAN monitoring sites in the project vicinity.

Point sources refer to discharges that enter surface water through a pipe, ditch, or other defined points of discharge. The term most commonly refers to discharges associated with wastewater treatment plants. Point source dischargers located throughout North Carolina are permitted through the National Pollutant Discharge Elimination System (NPDES) program. Any discharger is required to register for a permit. There are no NPDES sites located within 1.6 km (1.0 mi) of the project study area.

Non-point source 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. Sediment 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 or removed from the atmosphere and carried into surface waters. Excluding road runoff, there were no identifiable non-point sources that could be observed during the site visit.

2.2.5 Anticipated Impacts to Water Resources

Roadway construction in Brush Creek will result in water quality impacts. The proposed project will bridge Brush Creek and result in both temporary and permanent impacts. Clearing and grubbing activities near the creek may result in soil erosion leading to increased sedimentation and turbidity. These effects may extend downstream for considerable distance with decreasing intensity. Potential impacts to water resources in the project study area are dependent upon final construction limits.

Removal of streamside vegetation will have a negative effect on water quality. The vegetation typically shades the water's surface from sunlight, thus moderating water temperature. The removal of streamside canopy during construction will result in fluctuating water temperatures. An increase in water temperature results in a decrease in dissolved oxygen because warmer water holds less oxygen. Streambank vegetation also stabilizes streambanks and reduces sedimentation by trapping soil particles.

Construction activities adjacent to water resources increase the potential for toxic compounds (gas, oil, and highway spills) to be carried into nearby water resources via precipitation, sheet flow, and subsurface drainage. Increased amounts of toxic materials can adversely alter the water quality of any water resource, thus impacting its biological and chemical functions. Indirect impacts to surface waters may extend both upstream and downstream of the project study area. Indirect impacts may include isolated changes in flooding regime, discharge, erosion, and sedimentation patterns.

In order to minimize impacts to water resources in the entire impact area, NCDOT's Best Management Practices (BMP's) for the Protection of Surface Waters must be strictly enforced during the entire life of the project. The NCDOT, in cooperation with the DWQ, has developed a sedimentation control program for highway projects which adopts formal BMP's for the protection of surface waters.

Species of anadromous fish may utilize streams in the project study area. Construction guidelines outlined in *NCDOT Stream Crossing Guidelines for Anadromous Fish Passage* must be adhered to for this project. These guidelines are applicable for all projects crossing perennial or intermittent tributaries (delineated on a USGS topographic map) located below the fall line. The purpose of this document is to provide guidance to NCDOT to ensure that replacement of existing and new highway stream crossing structures will not impede the movement of anadromous fish. The project study area is located within the piedmont and crosses a perennial stream. An in-water work moratorium is recommended from April 1 to June 15 to minimize impacts during the spawning season of sunfish and largemouth bass.

3.0 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. Descriptions of the terrestrial systems are presented in the context of plant community classifications.

Dominant flora and fauna likely to occur in each community are described and discussed. Fauna observed during field investigations are denoted with an asterisk (*). Scientific nomenclature and common names (when applicable) are provided for each animal and plant species described. Subsequent references to the same organism will include the common name only.

Plant community descriptions are based on a classification system utilized by the North Carolina Natural Heritage Program (NHP) (Schafale and Weakley, 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names follow nomenclature found in Radford *et al.* (1968). Habitats used by terrestrial wildlife and aquatic organisms, as well as expected population distributions, were determined through field observations, evaluation of available habitat, and

supportive documentation (Fish, 1960; Martof *et al.*, 1980; Webster *et al.*, 1985; Rohde *et al.*, 1994; Potter *et al.*, 1980).

3.1 Terrestrial Communities

Three terrestrial communities are identifiable in the project study area: maintained/disturbed community, mixed hardwood forest, and riparian fringe.

3.1.1 Maintained/Disturbed Community

This community encompasses two types of habitats that have recently been or are currently impacted by human disturbance: roadside shoulder and abandoned field.

Roadside shoulder is a regularly maintained habitat that is kept in a low-growing, early successional state. Herbs, grasses, and vines located here include fescue (*Festuca* sp.), trumpet creeper (*Campsis radicans*), bermuda grass (*Cynodon dactylon*), wood sorrel (*Oxalis* sp.), common plantain (*Plantago* sp.), clover (*Trifolium* sp.), Virginia creeper (*Parthenocissus quinquefolia*), Japanese honeysuckle (*Lonicera japonica*), bush clover (*Lespedeza* sp.), poison ivy (*Rhus radicans*), bead grass (*Paspalum* sp.), Queen Anne's lace (*Daucus carota*), ragweed (*Ambrosia* sp.), peppergrass (*Lepidium* sp.), and white clover (*Trifolium repens*). One shrub species, blackberry (*Rubus* sp.), was observed in this habitat.

Abandoned field is located in the northwest quadrant of the project study area. The herbaceous canopy is comprised of goldenrod (*Solidago* sp.), wingstem (*Actinomeris alternifolia*), broom sedge (*Andropogon virginicus*), dog fennel (*Eupatorium capillifolium*), bush clover, milkweed (*Asclepias* sp.), aster (*Aster* sp.), and purple top (*Tridens flavus*).

3.1.2 Mixed Hardwood Forest

Mixed hardwood forest is located in the southwest quadrant of the project study area. Herbs, grasses, and vines observed here include groundnut (*Apios americana*), muscadine grape (*Vitis rotundifolia*), poison ivy, greenbrier (*Smilax* sp.), wild yam (*Dioscorea villosa*), Solomon's seal (*Polygonatum* sp.), heart leaf (*Hexastylis* sp.), spotted wintergreen (*Chimaphila maculata*), and cross vine (*Anisostichus capreolata*). Shrub and tree species observed here include red maple (*Acer rubrum*), black cherry (*Prunus serotina*), privet (*Ligustrum* sp.), white oak (*Quercus alba*), American elm (*Ulmus americana*), black gum (*Nyssa sylvatica*), sweetgum (*Liquidambar styraciflua*), mountain laurel (*Kalmia latifolia*), red cedar (*Juniperus virginiana*), sassafras (*Sassafras albidum*), hazel-nut (*Corylus americana*), ironwood (*Carpinus caroliniana*), sourwood (*Oxydendrum arboreum*), hickory (*Carya* sp.), tulip poplar (*Liriodendron tulipifera*), beech (*Fagus grandifolia*), green ash (*Fraxinus pennsylvanica*), holly (*Ilex opaca*), flowering dogwood (*Cornus florida*), northern red oak (*Quercus rubra* var. *borealis*), water oak (*Quercus nigra*), red mulberry (*Morus rubra*), winged elm (*Ulmus alata*),

short-leaf pine (*Pinus echinata*), witch hazel (*Hamamelis virginiana*), winged sumac (*Rhus copallina*), and black walnut (*Juglans nigra*).

3.1.3 Riparian Fringe

Riparian fringe is located adjacent to Brush Creek and serves as a streamside buffer. The herbaceous canopy is comprised of river oats (*Chasmanthium latifolium*), aster, goldenrod, wingstem, strawberry (*Fragaria* sp.), sunflower (*Helianthus* sp.), wisteria (*Wisteria* sp.), morning glory (*Ipomoea* sp.), justicia (*Justicia americana*), and lizard's tail (*Saururus cernuus*). Shrub and tree species observed here include ironwood, river birch (*Betula nigra*), button bush (*Cephalanthus occidentalis*), blueberry (*Vaccinium* sp.), tag alder (*Alnus serrulata*), holly, blackberry, sweetgum, box elder (*Acer negundo*), privet, silky dogwood (*Cornus amomum*), elderberry (*Sambucus canadensis*), black willow (*Salix nigra*), honey locust (*Gleditsia triacanthos*), arrowwood (*Viburnum* sp.), and white mulberry (*Morus alba*).

3.2 Faunal Component

Much of the wildlife in the project area likely use various communities for forage, cover, and nesting habitat. Many species are highly adaptive and may utilize the edges of forests and clearings. In addition, many species utilize both aquatic and terrestrial habitats, such that both are required for survival and reproduction.

The raccoon (*Procyon lotor*) is a carnivore often observed along wetland habitats to moist forests as well as urban areas. White-tailed deer (*Odocoileus virginianus*) are occasionally observed along broken areas of mixed young forests, old fields, and crop lands. These two ubiquitous species are often observed as roadkill on adjacent roadways.

The least shrew (*Cryptotis parva*), eastern harvest mouse (*Reithrodontomys humulis*), and hispid cotton rat (*Sigmodon hispidus*) frequent disturbed or open areas dominated by herbaceous vegetation which provide foraging and nesting habitat. Eastern cottontails (*Sylvilagus floridanus*) prefer brushy edges where they primarily feed on woody perennials.

Mammals commonly occurring in forested habitats include southern short-tailed shrew (*Blarina carolinensis*), gray squirrel (*Sciurus carolinensis*), and white-footed mouse (*Peromyscus leucopus*). Shrews and smaller mice prefer forests with a thick layer of leaf litter.

Eastern fence lizard (*Sceloporus undulatus*) and five-lined skink (*Eumeces fasciatus*) inhabit open habitats with plenty of sunlight. The slimy salamander (*Plethodon glutinosus*) inhabits woodlands where they are known to forage at night and spend the day in burrows under logs, stones, and leaf litter. The spring peeper (*Hyla crucifer*) inhabits woodlands where it may be observed under forest litter or brushy

undergrowth. Eastern box turtles (*Terrapene carolina*) are commonly observed throughout forested habitats where they feed on plants and small animals.

The common crow* (*Corvus brachyrhynchos*) is seen in a wide variety of fields and open country habitats. Cardinals (*Cardinalis cardinalis*) favor woodland margins and residential shrubbery. The mourning dove (*Zenaida macroura*) occurs in open country habitats such as fields, woodland margins, and suburban neighborhoods. Carolina wrens (*Thryothorus ludovicianus*) are found in remote swamps, woodlands, farmyards, and residential sections of cities. The mockingbird (*Mimus polyglottos*) is common in woodlands and residential areas. Other bird species observed in the project study area include eastern wood pewee* (*Contopus virens*) and green heron* (*Butorides striatus*).

3.2 Aquatic Communities

One aquatic community type, piedmont perennial stream, is located in the project study area. Physical characteristics of the surface waters and condition of the water influence the faunal composition of the aquatic communities. Perennial streams support an assemblage of fauna that require a constant source of flowing water, as compared to intermittent or standing water.

Amphibians and reptiles commonly observed in and adjacent to moderately sized perennial streams in rural areas may include northern dusky salamander (*Desmognathus fuscus*), three-lined salamander (*Eurycea guttolineata*), green frog (*Rana clamitans*), pickerel frog (*R. palustris*), and northern water snake (*Nerodia sipedon*).

One mussel species, *Elliptio* sp.*, was observed in Brush Creek during the site visit.

Brush Creek supports good numbers of largemouth bass (*Micropterus salmoides*), redbreast sunfish (*Lepomis auritus*), catfish (*Ameiurus* sp., *Ictalurus* sp., and *Noturus* sp.), and pickerel (*Esox* sp.), as well as a good diversity of native non-game fish. Brush Creek also provides habitat for warmouth (*Lepomis gulosus*), rosyside dace (*Clinostomus funduloides*), shiners (*Cyprinella* sp.), bluehead chub (*Nocomis leptcephalus*), creek chub (*Semotilus atromaculatus*), other sunfish (*Lepomis* sp.), brown bullhead (*Ameiurus nebulosus*), and margined madtom (*Noturus insignis*).

3.3 Anticipated Impacts to Biotic Resources

Construction of the subject 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 the ecosystems affected. Temporary and permanent impacts are considered here as well.

Calculated impacts to terrestrial communities reflect the relative abundance of each community (Table 1). Project construction will result in the clearing and degradation of portions of these communities. Estimated impacts are derived using the entire ROW width and length presented in Section 1.1. Usually, project construction does not require the entire ROW width; therefore, actual impacts may be considerably less.

Table 1. Anticipated Impacts to Biotic Communities.

Community	Alternate 1 In Place Replacement	Alternate 2 New Alignment
Maintained/Disturbed	0.05/0.13	0.17/0.42
Mixed Hardwood Forest		0.09/0.22
Riparian Fringe		0.03/0.06
Total (see note)	0.05/0.13	0.29/0.70

Notes:

- Values are cited in hectares/acres
- Total impacts may not equal the sum impacts associated with each specific community due to rounding of significant digits.
- Alternate 1 In Place Replacement** values indicate permanent impacts associated with the removal and replacement of Bridge No. 163 and adjacent roadway approaches.
- Alternate 2 New Alignment** values indicate permanent impacts associated with the new alignment of SR 2641 and replacement bridge and the removal of Bridge No. 163 and adjacent roadway approaches.

The biotic communities found within the project area will be altered as a result of project construction. Terrestrial communities serve as nesting, foraging, and shelter habitat for fauna. A majority of the project study area is located in maintained/disturbed habitat. The maintained/disturbed areas are currently in a highly altered state and plants and animals here are well adapted to disturbed conditions. Flora and fauna occurring in the disturbed community are common throughout North Carolina because of their ability to persist in disturbed habitats. Moreover, similar additional disturbed habitats will be re-established after project construction.

Construction activities will impact the water resources located in the project area as well as those downstream. Increased sedimentation and siltation is often directly attributable to construction activities. The suspended particles will clog the feeding mechanisms of benthic organisms, fish, and amphibians. These impacts eventually are magnified throughout the food chain and ultimately affect organisms located in higher trophic levels. Strict erosion and sedimentation controls must be maintained during the entire life of the project.

Construction activities often affect water level and flow due to interruption and/or additions to surface and groundwater flow. The change in water level may severely impact spawning activities of mobile and sessile organisms. Construction runoff and highway spills may result in mortality to aquatic species inhabiting the water resources located in the project area.

4.0 JURISDICTIONAL ISSUES

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

4.1 Waters of the United States

Surface waters and jurisdictional wetlands fall under the broad category of "Waters of the United States," under 33 CFR §328.3(a). Wetlands, defined in 33 CFR §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. Surface waters are waters used in interstate or foreign commerce, waters subject to the ebb and flow of tides, all interstate waters including interstate wetlands, and all other waters such as intrastate lakes, rivers, and streams. Any action that proposes to place fill material into these areas falls under the jurisdiction of the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344).

4.1.1 Characteristics of Wetlands and Surface Waters

Brush Creek is considered a jurisdictional surface water under Section 404 of the Clean Water Act. This stream is thoroughly described in Section 2.2.2. Potential jurisdictional wetland communities were examined pursuant to the *1987 U.S. Army Corps of Engineers Wetland Delineation Manual*. The manual is a technical guideline for wetlands. According to the manual, an area is considered a wetland if three parameters, hydric soils, hydrophytic vegetation, and hydrologic characteristics concurrently exist. Based upon the results of the field investigation, the project area contains no jurisdictional wetlands.

4.1.2 Summary of Anticipated Impacts

The proposed project will cross jurisdictional surface waters. Brush Creek is proposed to be bridged. Approximately 18.3 m (60 ft) of Brush Creek is located in the ROW of the In Place Replacement associated with Alternate 1. Approximately 18.3 m (60 ft) of Brush Creek is located in the ROW of the New Alignment associated with Alternate 2. The amount of surface water impacts may be modified by any changes in roadway design.

There is the potential for components of the substructure to be dropped into the waters of the U.S. during construction. The resulting temporary fill associated with the substructure associated with Bridge No. 163 is approximately 27 yd³. This project can be classified as Case 2, which allows no work at all in the water during moratorium periods associated with fish migration, spawning, and larval recruitment into nursery areas.

4.1.3 Permits

Impacts to surface waters are anticipated from project construction. In accordance with provisions of Section 404 of the Clean Water Act, a permit will be required from the COE for discharge of dredge or fill material into “Waters of the United States.” Due to surface water impacts expected at the project study area, a Nationwide 23 Permit will likely be necessary for this project. Final decision concerning applicable permits rests with the COE.

This project will require a 401 Water Quality Certification from the DWQ. Section 401 of the CWA 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. The issuance of a 401 permit from the DWQ is a prerequisite to issuance of a Section 404 permit.

4.1.4 Mitigation

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

4.1.4.1 Avoidance

Avoidance mitigation examines all appropriate and practicable possibilities of averting impacts to waters of the United States. According to a 1990 Memorandum of Agreement (MOA) between the Environmental Protection Agency and the COE, 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.

4.1.4.2 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. Impacts to surface waters can be minimized by: (1) decreasing the footprint of the proposed project through the reduction of ROW widths, fill slopes, and/or road shoulder widths; (2) installation of temporary silt fences, earth berms, and temporary ground cover during construction; (3) strict enforcement of sedimentation and erosion control BMP’s for the protection of surface waters; and (4) reduction of clearing and grubbing activity in and adjacent to water bodies.

4.1.4.3 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 wetlands” functions and values may not be achieved in each and every permit action. Appropriate and practicable compensatory mitigation is required for unavoidable, adverse impacts which 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 to or contiguous to the discharge site.

DWQ regulations state that fill or alteration of more than 0.45 ha (1.0 ac) of wetland will require compensatory mitigation in accordance with 15A NCAC 211 .0506(a) and (h) and fill or alteration of more than 450 linear m (150 linear ft) of streams may require compensatory mitigation in accordance with 15A NCAC 211 .0506(a) and (h). If these acreage and linear thresholds are exceeded from project construction, NCDOT will follow these regulations.

4.2 Protected and Rare Species

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

4.2.1 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 ESA. As of June 16, 2000, there are two federally protected species listed for Randolph County (Table 2). A brief description of each Endangered or Threatened species characteristics and habitat follows.

Table 2. Federally-protected Species for Randolph County.

Common Name	Scientific Name	Status ¹
Cape Fear shiner	<i>Notropis mekistocholas</i>	Endangered
Schweinitz's sunflower	<i>Helianthus schweinitzii</i>	Endangered

¹ Endangered=a taxon in danger of extinction throughout all or a significant portion of its range.

Notropis mekistocholas (Cape Fear shiner)
Animal Family: Cyprinidae
Date Listed: September 25, 1987

The Cape Fear shiner is small, rarely exceeding 2 inches in length. The fish's body is flushed with a pale silvery yellow, and a black band runs along its sides. The fins are yellowish and somewhat pointed. The upper lip is black, and the lower lip bears a thin black bar along its margin. The species is generally associated with gravel, cobble, and boulder substrates and has been observed to inhabit slow pools, riffles, and slow runs. In these habitats, the species is typically associated with schools of other related species, but it is never the numerically dominant species. Potential threats to the species and its habitat could come from such activities as road construction, stream channel modification, changes in stream flows for hydroelectric power, impoundments, land use changes, wastewater discharges, and other projects in the watershed. No information is presently available on the species' breeding behavior, fecundity, or longevity. Plant material forms the primary part of the shiner's diet.

BIOLOGICAL CONCLUSION: UNRESOLVED

Brush Creek is a tributary of the Deep River and drains directly into Cape Fear shiner habitat. The North Carolina Wildlife Resources Commission request an on-site meeting be held to discuss specific conservation measures for this federally listed species. A review of the NHP database for rare species and unique habitats revealed no known populations of Cape Fear shiner within 1.6 km (1.0 mi) of the project study area.

Helianthus schweinitzii (Schweinitz's sunflower)

Plant Family: Asteraceae

Date Listed: May 7, 1991

Flowers Present: September

This rhizomatous perennial herb grows from 1 to 2 meters tall from a cluster of carrot-like tuberous roots. The leaves are opposite on the lower stem, changing to alternate above. In shape, they are lanceolate, wider near their bases, but variable in size, being generally larger on the lower stem, and gradually reduced upwards. Leaf margins are entire or with a few obscure serrations and are generally also somewhat revolute. From September to frost, Schweinitz's sunflower blooms with comparatively small heads of yellow flowers. The nutlets are 3.3 to 3.5 millimeters long and are glabrous with rounded tips.

The species occurs in clearings and edges of upland woods on moist to dryish clays, clay-loams, or sandy clay-loams that often have a high gravel content and are moderately podzolized. The underlying rock types are highly weatherable, generally contain low amounts of resistant minerals such as quartz, and generally weather to fine-textured soils. Schweinitz's sunflower usually grows in open habitats not typical of the current general landscape in the piedmont of the Carolinas.

BIOLOGICAL CONCLUSION: NO EFFECT

A survey for Schweinitz's sunflower was conducted on October 5, 2000. No plants were observed. A review of the NHP database for rare species and unique habitats

revealed no known populations of Schweinitz's sunflower within 1.6 km (1.0 mi) of the project study area. Impacts to this species will not occur from project construction.

4.2.2 Federal Species of Concern

Federal Species of Concern (FSC) are those plant and animal species which may or may not be listed in the future. Six FSC are listed for Randolph County (Table 3).

Table 3. Federal Species of Concern for Randolph County.

Common Name	Scientific Name	NC Status	Habitat
Carolina darter	<i>Etheostoma collis collis</i>	SC	no
Carolina redbhorse	<i>Moxostoma</i> sp.	SR	no
brook floater	<i>Alasmidonta varicosa</i>	T(PE)	yes
Pee Dee crayfish ostracod	<i>Dactylocythere peedeensis</i>	W3*	no
Atlantic pigtoe	<i>Fusconaia masoni</i>	T(PE)	yes
Carolina creekshell	<i>Villosa vaughaniana</i>	SC(PE)	no

* indicates the species was last observed in the county more than 50 years ago.

Threatened (T) species are native or once-native species of wild plant or animal which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. An Endangered (E) species is any native species or once-native species of fauna or flora whose continued existence as a viable component of the State's flora or fauna is determined to be in jeopardy. Significantly Rare (SR) species are very rare in North Carolina, generally with 1-20 populations in the state. Special Concern (SC) species require monitoring but may be collected and sold under regulations adopted under provisions of Article 25 of Chapter 113 of the General Statutes; 1987. Proposed (P_) species have been formally proposed for listing as Endangered, Threatened, or Special Concern, but have not yet completed the legally mandated listing process. Watch Category 3 (W3) includes species which have been reported from North Carolina without adequate documentation.

FSC species 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. Organisms which are listed as Endangered (E), Threatened (T), or Special Concern (SC) by the NHP list of Rare Plant and Animal species are afforded state protection under the State ESA and the North Carolina Plant Protection and Conservation Act of 1979; however, the level of protection given to state listed species does not apply to NCDOT activities.

A review of the NHP database of rare species and unique habitats conducted on August 3, 2000 revealed no records of animal or plant species within 1.6 km (1.0 mi) of the project study area. Surveys for the above-mentioned species were not conducted during the site visit, nor were these species observed during the site visit. A Significant

Natural Heritage Area, Brush Creek Slopes, is located 0.2 mi north of the project study area.

5.0 REFERENCES

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