STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

March 19, 2004

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

Attention: Mr. John Thomas
NCDOT Coordinator

Dear Sir:

Subject: **Nationwide Permit 23 and 33 Application** for the proposed replacement of Bridge No. 174 over Cane Creek on SR 1958 in Orange County, Federal Aid Project No. BRZ-1958(1), State Project No. 8.2502001, WBS Element: 33325.1.1, TIP B-3885

Please find enclosed copies of the Categorical Exclusion (CE) Document, Pre-construction Notification, permit drawings and ½ size plans for the above referenced project. We propose to replace Bridge No. 174 over Cane Creek with a new 3 span pre-stressed concrete girder bridge. The total length of the bridge will be 160 feet and will be built at the same location as the existing bridge. The bridge will have a 22-foot travel way and 3-foot offsets on each side. There will be no permanent impacts to jurisdictional waters of the United States. There will be 0.02 acres of temporary impacts to the surface waters from the temporary causeway. Traffic will be detoured along SR 1972 and NC 54 during construction.

IMPACTS TO WATERS OF THE UNITED STATES

General Description: The project's bridge site is located over Cane Creek approximately three miles below the Cane Creek Reservoir and two miles above the confluence of the Haw River. Cane Creek is located in the Cape Fear River Basin (CPF04 sub-basin) and has a Division of Water Quality (DWQ) Best Usage classification of "C-NSW". The "C"

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

TELEPHONE: 919-715-1500
FAX: 919-715-1501
WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD
PLB SUITE 168
RALEIGH NC 27604

classification denotes waters protected for secondary recreation, fishing, wildlife, fish and aquatic life propagation and agriculture. The supplemental classification of NSW (nutrient sensitive waters) is necessary for this surface water because of the likelihood of nuisance microscopic or macroscopic growth of vegetation. This stream, like many other Carolina Slate Belt streams is prone to low flow conditions during the summer so flows may be extremely restricted during dry seasons.

Temporary Impacts: The project will result in temporary impacts of 0.02 acres of fill to surface waters. The fill will be the result of a temporary causeway next to the existing bents installed for bridge construction.

- Schedule: All steps will be taken to minimize stream impacts for Cane Creek. NCDOT will request the contractor to complete construction in a timely manner. The project schedule calls for a Let date of June 15, 2004 with a date of availability of July 19, 2004.

- Restoration Plan: The material used for installation of the temporary causeway within the surface waters of Cane Creek will be removed after its purpose has been served. The temporary approach associated with the causeway is expected to recover naturally, since the natural streambed and plant material will not be dramatically impacted.

- Removal and Disposal Plan: After the causeways are no longer needed, the contractor will use excavating equipment to remove all materials. All causeway 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. The entire causeway footprint shall be returned to the original contours and elevations.

BRIDGE DEMOLITION

Bridge No. 174 was constructed in 1954. The bridge contains six spans totaling 121 ft in length. The bridge superstructure consists of a timber deck with timber joists and steel beams. The end bents and three interior bents consist of timber caps, posts and sills. The remaining two interior bents are composed of mass concrete. The superstructure, timber end bents and timber interior bents will be removed without dropping any of their components into Waters of the United States. The temporary causeway will be extended over the surface water and concrete components from the bridge demolition will not enter the water.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered and Proposed Threatened are protected under provisions of Section 7 of the Endangered Species Act of 1973, as amended. As of February 25, 2003, the U. S. Fish and Wildlife Service (USFWS) lists five federally protected species for Orange county. See table below.

Table 2. Federally-Protected Species for Orange County

Scientific Name	Common Name	Status	Biological Conclusion
Picoides borealis	red-cockaded woodpecker	Endangered	No Effect
Alasmidonta heterodon	dwarf wedgemussel	Endangered	No Effect
Echinacea laevigata	smooth coneflower	Endangered *	May affect, but not likely to adversely affect
Isotria medeoloides	small-whorled pogonia	Threatened *	No Effect
Rhus michauxii	Michaux's sumac	Endangered	May affect, but not likely to adversely affect

Threatened species are species that are likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
Endangered is defined as a species that is in danger of extinction throughout all or a significant portion of its range.
"*" denotes no specimen from Orange County found in the past twenty years.

Potential habitat for Michaux's sumac and smooth coneflower is present in the project area. However NCDOT biologists did not observe any specimens of Michaux's sumac or coneflower during surveys conducted on August 27, 2001 and October 15, 2003. The US Fish and Wildlife Service (in a letter dated November 10, 2003) has concurred with these findings. A copy of the concurrence letter is attached for your convenience.

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 installation of the temporary causeway. This project is being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (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. 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 review.

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

w/attachment
- Mr. John Hennessy, Division of Water Quality
- Mr. Travis Wilson (Div. 7)
- Mr. Gary Jordan (Div. 7) USFWS
- 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. J. M. Mills, P.E. (Div. 7)
- Mr. Jerry Parker (Div. 7), DEO
- Mr. Joel Johnson, PDEA Project Planning Engineer

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: (919)-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. 174 on SR 1958 Over Cane Creek

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3885

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

4. Location
   County: Orange Nearest Town: Carrboro
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers, landmarks, etc.): Orange County – From Carrboro take 54 west for approximately 6 miles until you reach SR 1958. Go left onto SR 1958 and travel approximately 3 miles until you reach the bridge.

5. Site coordinates, if available (UTM or Lat/Long): 79.258/35.928
   (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): 800' x 80' = 64000sq'= 1.47 acres

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

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

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The site is located in a rural area of North Carolina with land comprised of forest, row crops, pastures and scattered residential areas.

10. Describe the overall project in detail, including the type of equipment to be used:
The project will consist of replacing the old bridge with a new 160 ft 3-span pre-stressed concrete girder bridge. The bridge will be replaced at the existing location. The traffic will be detoured along SR 1972 and NC 54 during construction. A temporary causeway will be installed for construction. Construction equipment will consist of heavy duty trucks, earth moving equipment, cranes, etc.

11. Explain the purpose of the proposed work: The existing bridge has a sufficiency rating of 21.5 out of a possible 100. The deck and substructure of this 46-year old bridge are in poor condition. Therefore, the bridge needs to be replaced.

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.

1. Provide a written description of the proposed impacts: The proposed impacts for this project will be temporary fill of 0.02 acres to the 75 linear feet of surface waters due to a temporary causeway during construction.

2. 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

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

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
Site 1	Temporary Fill	75	Cane Creek	26 feet	Perennial

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

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

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

4. 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.)
Site 1	Temporary Fill	0.03	Cane Creek	Stream

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

5. Pond Creation
   If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.
   Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands
   Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): 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 temporary causeway will be installed for bridge construction. Impacts from the bridge demolition (concrete bents that may fall in the water) are minimized by the length of the causeway into the creek bed.

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

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
NA			
Total			

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

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

XI. Stormwater (required by DWQ)

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

NA

XII. Sewage Disposal (required by DWQ)

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

NA

XIII. Violations (required by DWQ)

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

Yes ☐ No ☒

Is this an after-the-fact permit application?

Yes ☐ No ☒

XIV. Other Circumstances (Optional):

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

NA

3/15/04

Applicant/Agent's Signature **Date**

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

United States Department of the Interior

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

November 10, 2003

Brett Feulner
North Carolina Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Feulner:

This letter is in response to your letter of October 27, 2003 which provided the U.S. Fish and Wildlife Service (Service) with the biological conclusion of the North Carolina Department of Transportation (NCDOT) that the proposed replacement of Bridge No. 174 over Cane Creek, Orange County, North Carolina (TIP No. B-3885) will have no effect on the federally-protected red-cockaded woodpecker (*Picoides borealis*), dwarf wedgemussel (*Alasmidonta heterodon*) and small-whorled pogonia (*Isotria medeoloides*), and may affect, but is not likely to adversely affect smooth coneflower (*Echinacea laevigata*) and Michaux's sumac (*Rhus michauxii*). These comments are provided in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

Due to lack of habitat, and after a field inspection by Gary Jordan of my staff on October 30, 2003, the Service concurs that the proposed project will have no effect on the red-cockaded woodpecker, dwarf wedgemussel and small-whorled pogonia. According to the information you provided, a plant survey was conducted for smooth coneflower and Michaux's sumac on August 27, 2001 and October 15, 2003. No specimens of either species were observed. Due to the negative survey results, the Service concurs that the proposed project may affect, but is not likely to adversely affect smooth coneflower and Michaux's sumac.

We believe that the requirements of section 7 (a)(2) of the ESA have been satisfied. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

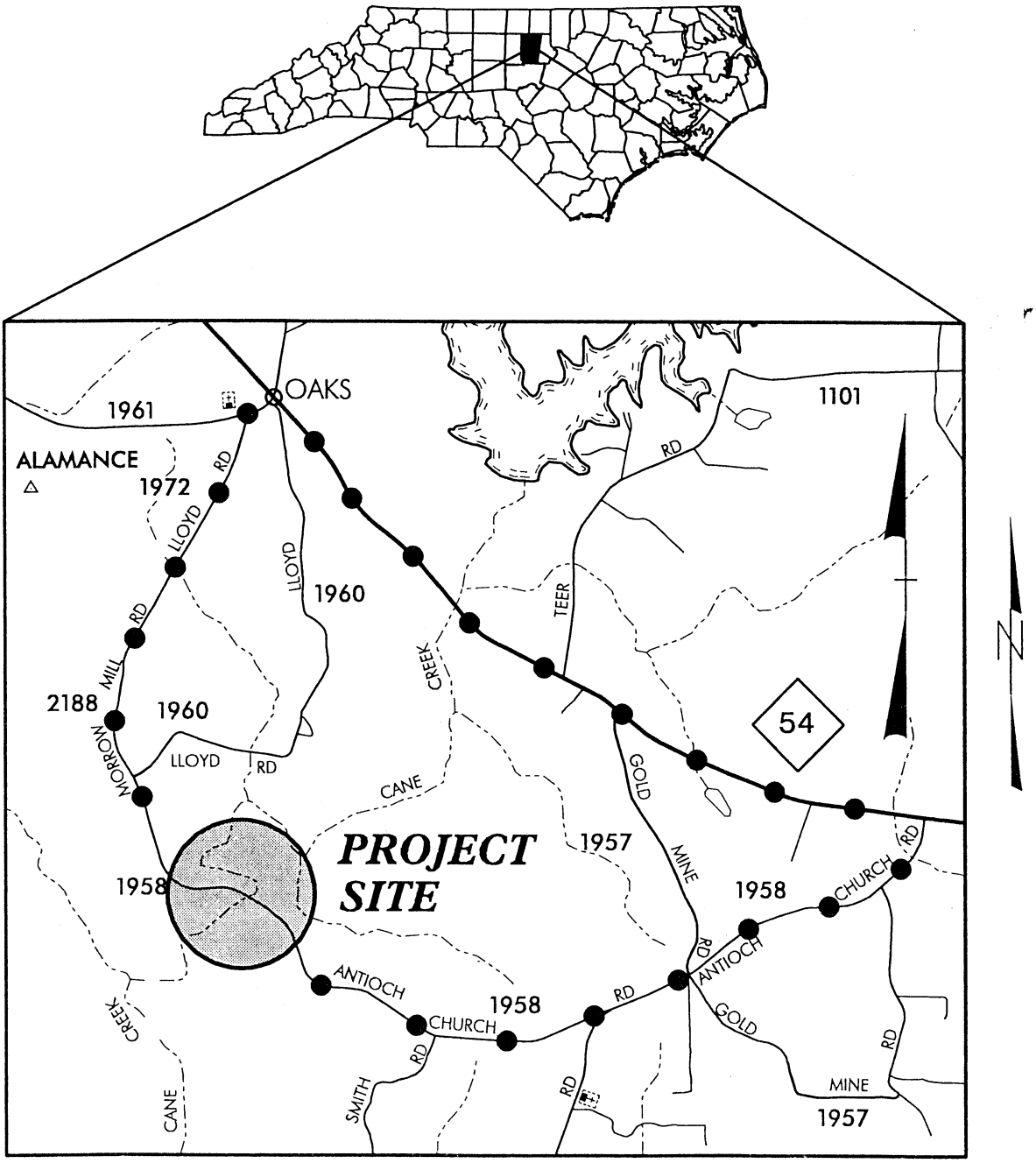
The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,

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

cc: John Thomas, USACE, Raleigh, NC
David Franklin, USACE, Wilmington, NC
Beth Barnes, NCDWQ, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC

VICINITY MAP



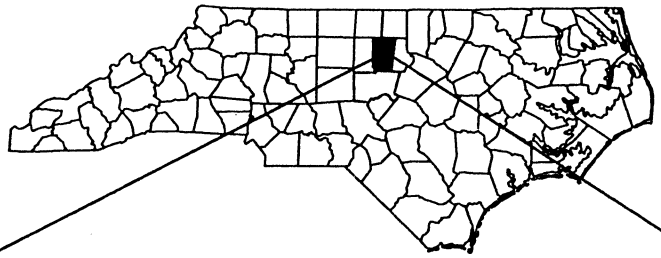
N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
ORANGE COUNTY

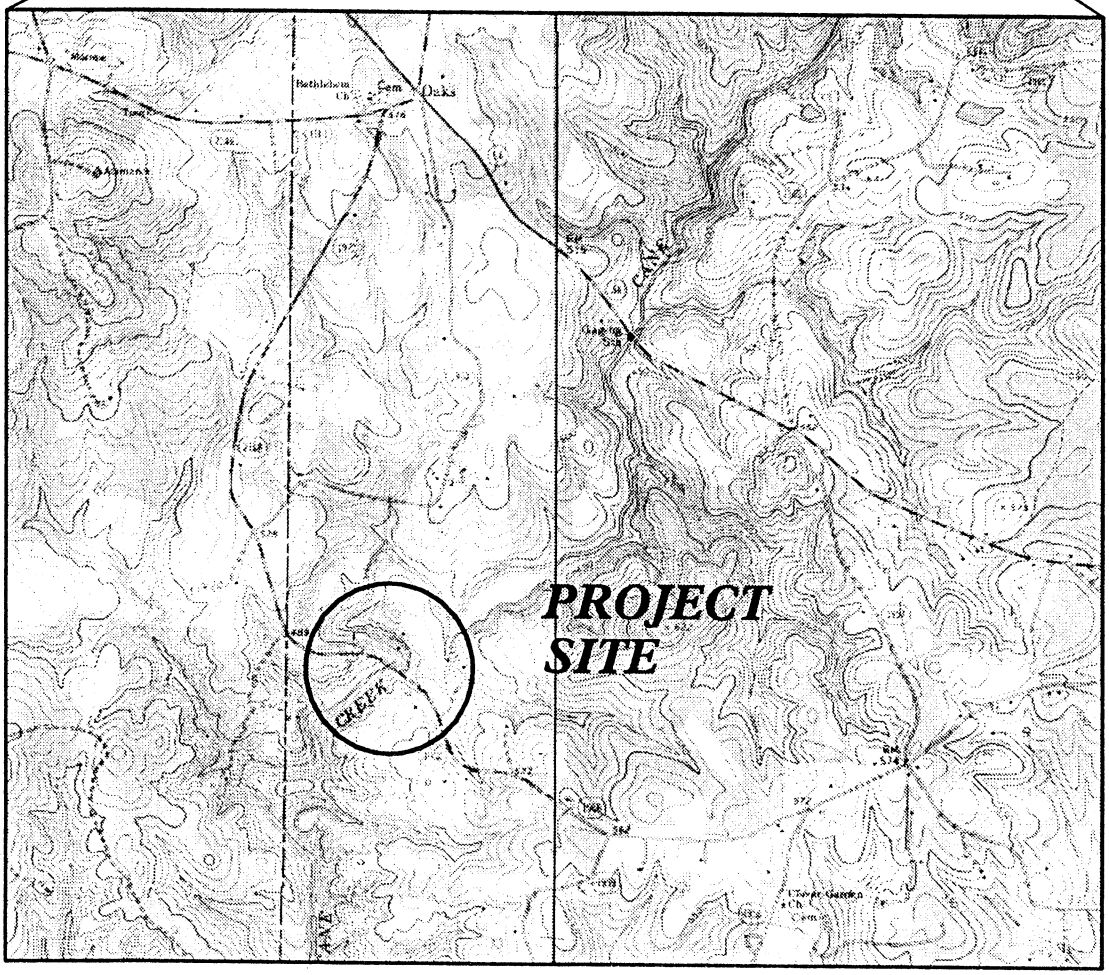
PROJECT: 8.2502001 (B-3885)

BRIDGE NO. 174
OVER CANE CREEK
ON SR 1958

SHEET 1 OF 8 7/15/03

VICINITY MAP



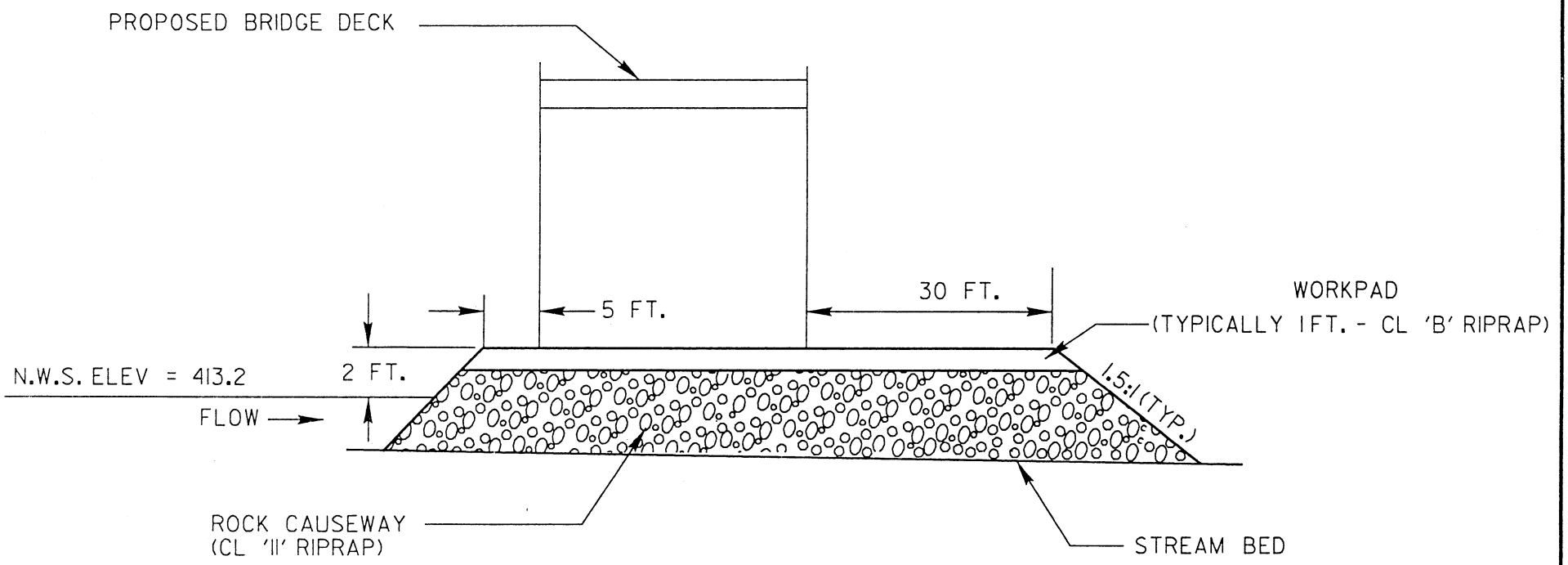


N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
ORANGE COUNTY

PROJECT: 8.2502001 (B-3885)

BRIDGE NO. 174
OVER CANE CREEK
ON SR 1958

SHEET 2 OF 8 7/15/03



ROCK CAUSEWAY DETAIL

NOT TO SCALE

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

ORANGE COUNTY

PROJECT: 8.2502001 B-3403

SHEET 3 OF 8 **7/9/03**

PROJECT REFERENCE NO.	SHEET NO.
B-3885	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

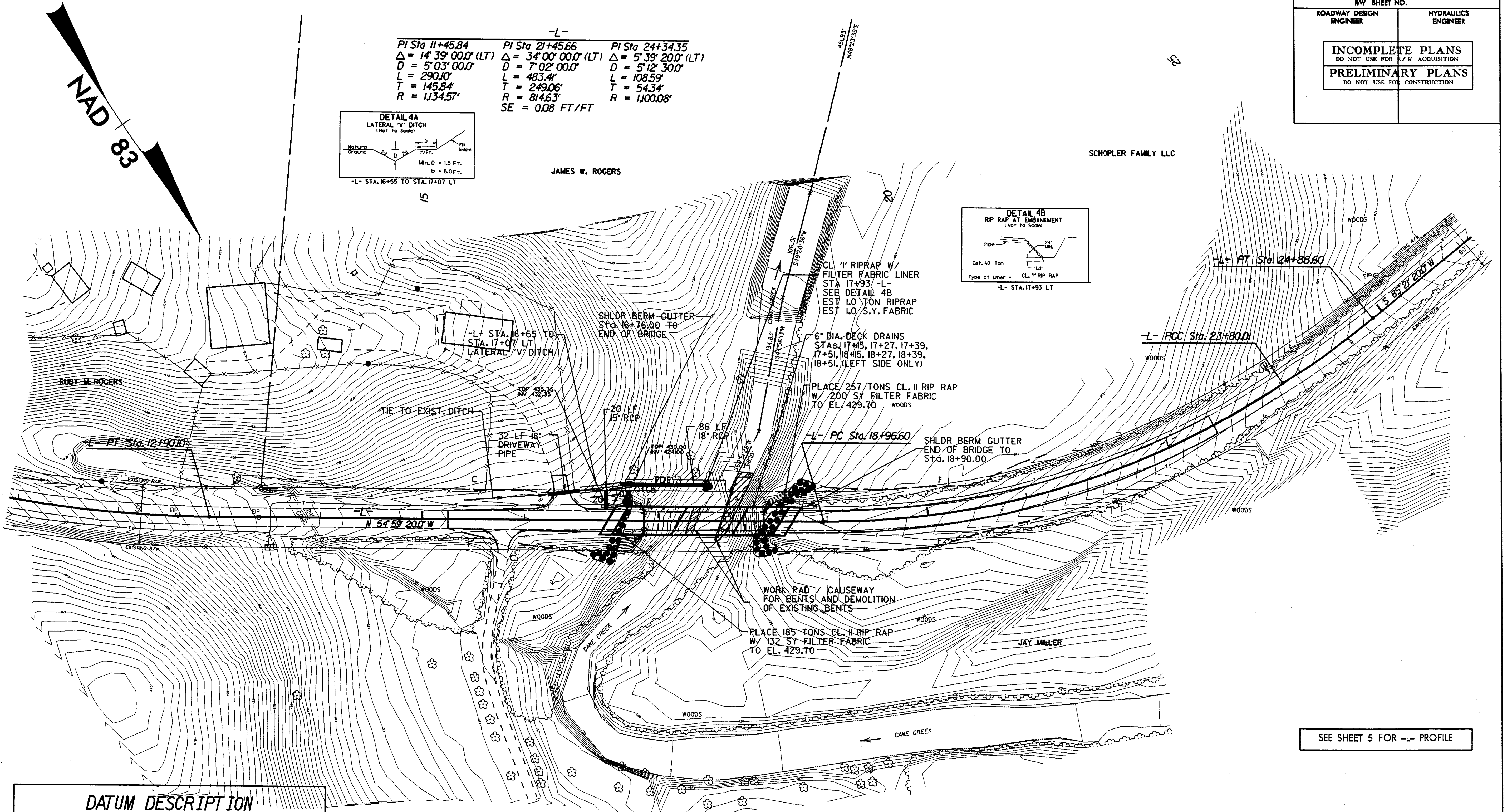
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

-L-

PI Sta 11+45.84	PI Sta 21+45.66	PI Sta 24+34.35
Δ = 14° 39' 00.0" (LT)	Δ = 34° 00' 00.0" (LT)	Δ = 5° 39' 20.0" (LT)
D = 5° 03' 00.0"	D = 7° 02' 00.0"	D = 5° 12' 30.0"
L = 290.10'	L = 483.41'	L = 108.59'
T = 145.84'	T = 249.06'	T = 54.34'
R = 1,134.57'	R = 814.63'	R = 1,100.08'
	SE = 0.08 FT/FT	



SEE SHEET 5 FOR -L- PROFILE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3885-1"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 792450.4032 (ft) EASTING: 1924115.026 (ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99992943
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3885-1" TO -L- Sta 15+25.00 IS
N 55° 50' 22.25" W DIST. 492.4045 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

TEMPORARY FILL IN SURFACE WATERS

02-MAR-2004 15:42
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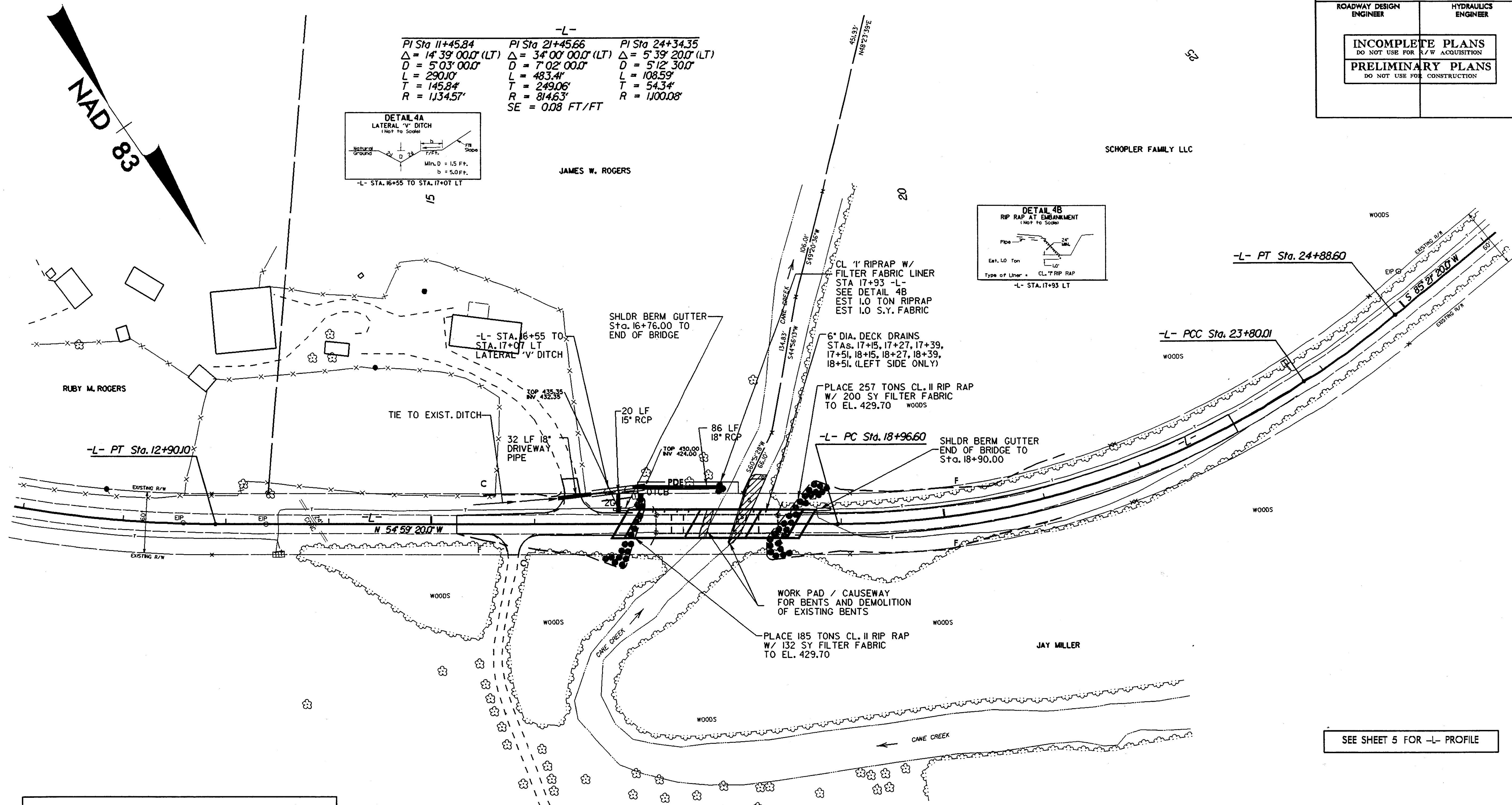
Sheet 4 of 8

PROJECT REFERENCE NO.	SHEET NO.
B-3885	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-L-
PI Sta 11+45.84
Δ = 14° 39' 00.0" (LT)
D = 5° 03' 00.0"
L = 290.10'
T = 145.84'
R = 1,134.57'
PI Sta 21+45.66
Δ = 34° 00' 00.0" (LT)
D = 7° 02' 00.0"
L = 483.41'
T = 249.06'
R = 814.63'
SE = 0.08 FT/FT
PI Sta 24+34.35
Δ = 5° 39' 20.0" (LT)
D = 5° 12' 30.0"
L = 108.59'
T = 54.34'
R = 1,100.08'
NAD 83
DETAIL 4A
LATERAL 'V' DITCH
-L- STA. 16+55 TO STA. 17+07 LT
DETAIL 4B
RIP RAP AT EMBANKMENT
-L- STA. 17+93 LT
JAMES W. ROGERS
SCHOPLER FAMILY LLC
RUBY M. ROGERS
JAY MILLER
WOODS
CANE CREEK
-L- PT Sta. 12+90.10
-L- PC Sta. 18+96.60
-L- PCC Sta. 23+80.01
-L- PT Sta. 24+88.60
N 54° 59' 20.0" W
S 85° 21' 20.0" W
TIE TO EXIST. DITCH
32 LF 18" DRIVEWAY PIPE
-L- STA. 16+55 TO STA. 17+07 LT LATERAL 'V' DITCH
20 LF 15" RCP
86 LF 18" RCP
SHLDR BERM GUTTER Sta. 16+76.00 TO END OF BRIDGE
CL 'I' RIPRAP W/ FILTER FABRIC LINER STA 17+93 -L- SEE DETAIL 4B EST 1.0 TON RIPRAP EST 1.0 S.Y. FABRIC
6" DIA. DECK DRAINS STAs. 17+15, 17+27, 17+39, 17+51, 18+15, 18+27, 18+39, 18+51. (LEFT SIDE ONLY)
PLACE 257 TONS CL. II RIP RAP W/ 200 SY FILTER FABRIC TO EL. 429.70
SHLDR BERM GUTTER END OF BRIDGE TO Sta. 18+90.00
WORK PAD / CAUSEWAY FOR BENTS AND DEMOLITION OF EXISTING BENTS
PLACE 185 TONS CL. II RIP RAP W/ 132 SY FILTER FABRIC TO EL. 429.70
SEE SHEET 5 FOR -L- PROFILE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3885-1"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 792450.4032 (ft) EASTING: 1924115.026 (ft)
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N 55° 50' 22.25" W DIST. 492.4045 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

TEMPORARY FILL IN SURFACE WATERS

REVISIONS

8/17/99

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Sheet 5 of 8

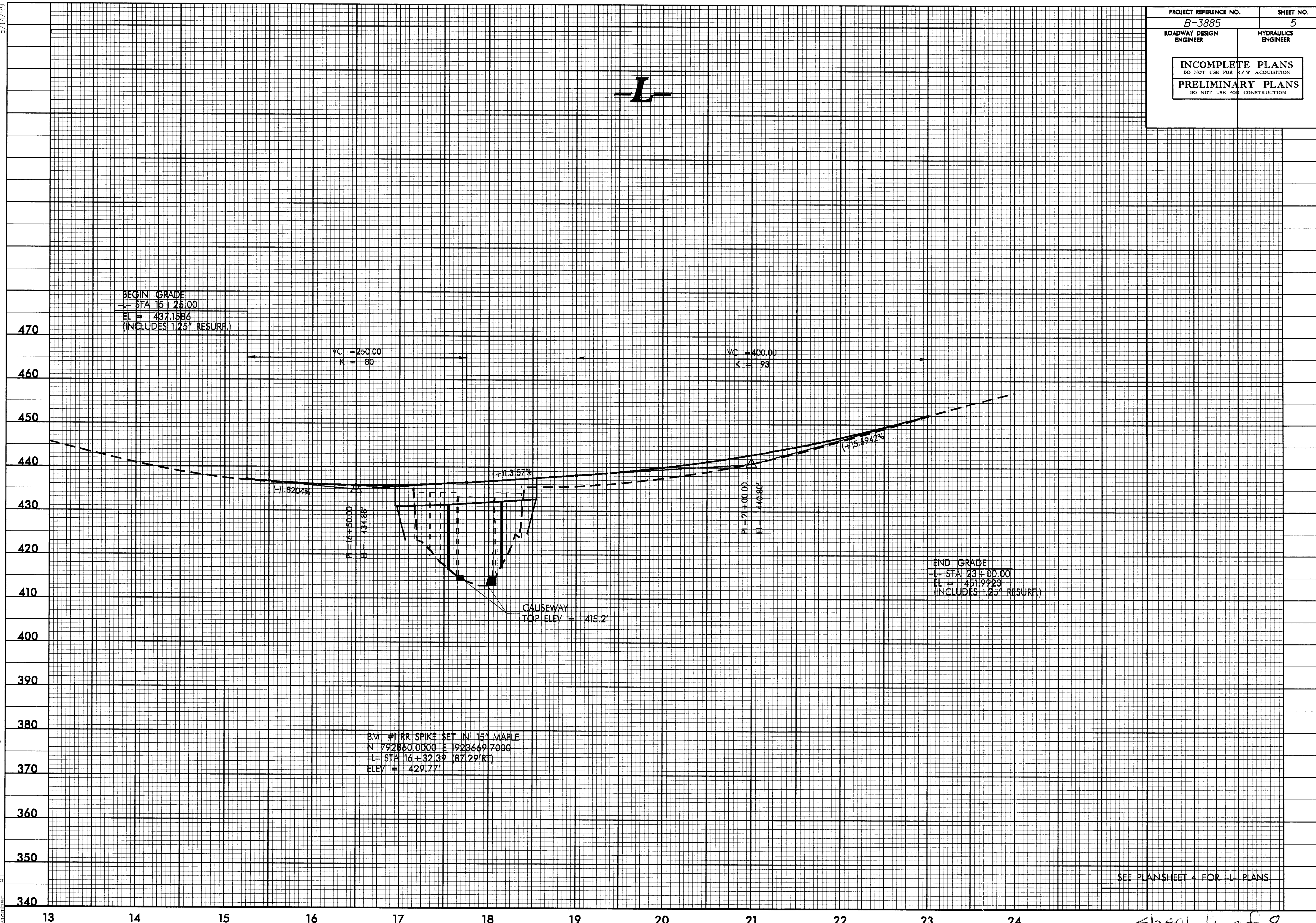
PROJECT REFERENCE NO.	SHEET NO.
B-3885	5

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-



BEGIN GRADE
-L- STA 15+25.00
EL = 437.1586
(INCLUDES 1.25" RESURF.)
VC = 250.00
K = 80
VC = 400.00
K = 93
(-)1.8204%
(+)1.3157%
(+)5.5942%
PI = 16+50.00
El = 434.88'
PI = 21+00.00
El = 440.80'
END GRADE
-L- STA 23+00.00
EL = 451.9923
(INCLUDES 1.25" RESURF.)
CAUSEWAY
TOP ELEV = 415.2'
BM #1 RR SPIKE SET IN 15" MAPLE
N 792860.0000 E 1923669.7000
-L- STA 16+32.39 (87.29' RT)
ELEV = 429.77'
470
460
450
440
430
420
410
400
390
380
370
360
350
340
13
14
15
16
17
18
19
20
21
22
23
24

SEE PLANSHEET 4 FOR -L- PLANS

29-JAN-2004 08:12
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PROPERTY OWNERS

Jay Miller	7923 Morrow Mill Road Chapel Hill, NC 27516
James Rogers	7802 Morrow Mill Road Chapel Hill, NC 27516-7379
Schopler Family LLC	8220 Morrow Mill Road Chapel Hill, NC 27516
Louise Rogers	P O Box 882 Graham, NC 27253-0882
Ruby Rogers	7802 Morrow Mill Road Chapel Hill, NC 27516-7389

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

PROJECT: 8.2502001 (B-3885)

BRIDGE NO. 174
OVER CANE CREEK
ON SR 1958

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS				SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	-L- 17+85 to	Temporary Causeway							0.02		
	-L- 18+08										
TOTALS:			0	0	0	0	0	0	0.02	0	0

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ORANGE COUNTY
PROJECT 8.2502501 B-3885

SHEET 8 OF 8 7/9/03

Form Revised 1/28/04

CATEGORICAL EXCLUSION ACTION CLASSIFICATION FORM

TIP Project No. B-3885
State Project No. 8.2502001
Federal Project No. BRZ-1958(1)

A. Project Description:

NCDOT will replace Bridge No. 174 over Cane Creek on SR 1958 in Orange County. The new replacement structure will be a bridge approximately 140 feet (42.6 meters) in length at approximately the same location as the existing bridge. The bridge will have a 22-foot (6.7-meter) travelway and 3-foot (9.1-meter) offsets on each side. The roadway grade will be approximately the same as the existing. The project length will be approximately 650 feet (198.1 meters). Traffic will be detoured along SR 1972 and NC 54 during construction.

B. Purpose and Need:

Bridge No. 174 has a sufficiency rating of 21.5 out of 100. The bridge is structurally deficient and functionally obsolete. The substructure is in poor condition. The bridge is posted at 17 tons for single vehicles and 24 tons for truck-tractor semi-trailer. For these reasons Bridge No. 174 needs to be replaced.

C. Proposed Improvements:

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

1. Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing).

    a. Restoring, Resurfacing, Rehabilitating, and Reconstructing pavement (3R and 4R improvements)
    b. Widening roadway and shoulders without adding through lanes
    c. Modernizing gore treatments
    d. Constructing lane improvements (merge, auxiliary, and turn lanes)
    e. Adding shoulder drains
    f. Replacing and rehabilitating culverts, inlets, and drainage pipes, including safety treatments
    g. Providing driveway pipes
    h. Performing minor bridge widening (less than one through lane)

2. Highway safety or traffic operations improvement projects including the installation of ramp metering control devices and lighting.

a. Installing ramp metering devices
b. Installing lights
c. Adding or upgrading guardrail
d. Installing safety barriers including Jersey type barriers and pier protection
e. Installing or replacing impact attenuators
f. Upgrading medians including adding or upgrading median barriers
g. Improving intersections including relocation and/or realignment
h. Making minor roadway realignment
i. Channelizing traffic
j. Performing clear zone safety improvements including removing hazards and flattening slopes
k. Implementing traffic aid systems, signals, and motorist aid
l. Installing bridge safety hardware including bridge rail retrofit

3. Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings.

a. Rehabilitating, reconstructing, or replacing bridge approach slabs
b. Rehabilitating or replacing bridge decks
c. Rehabilitating bridges including painting (no red lead paint), scour repair, fender systems, and minor structural improvements
d. Replacing a bridge (structure and/or fill)

4. Transportation corridor fringe parking facilities.

5. Construction of new truck weigh stations or rest areas.

6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.

7. Approvals for changes in access control.

8. Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.

9. Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.

10. Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks and related street improvements) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.

11. Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.

12. Acquisition of land for hardship or protective purposes, advance land acquisition loans under section 3(b) of the UMT Act. Hardship and protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CE only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed.

D. Special Project Information

Environmental Commitments:

All standard procedures and measures will be implemented to avoid or minimize environmental impacts. All practical Best Management Practices (BMP's) will be included and properly maintained during project construction.

Estimated Cost:

Construction	$ 575,000
Right of Way	$ 37,600
Total	**$ 612,600**

Estimated Traffic

Current	-	400 VPD
Year 2025	-	700 VPD
TTST	-	1%
Dual	-	2%

Proposed Typical Roadway Section:

The approach roadway will be 22 feet wide with at least 4-foot shoulders. Shoulder width will be increased by three feet where guardrail is warranted.

Design Speed:

45 mph

Functional Classification:

Rural Local

Division Office Comments:

The Division 7 Office concurs with the recommendation of replacing the bridge in place and detouring traffic along SR 1972 and NC 54 during construction.

E. Threshold Criteria

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

ECOLOGICAL		YES	NO
(1)	Will the project have a substantial impact on any unique or important natural resource?	☐	X
(2)	Does the project involve any habitat where federally listed endangered or threatened species may occur?	☐	X
(3)	Will the project affect anadromous fish?	☐	X
(4)	If the project involves wetlands, is the amount of permanent and/or temporary wetland taking less than one-third (1/10) acre and have all practicable measures to avoid and minimize wetland takings been evaluated?	X	☐
(5)	Will the project require use of U. S. Forest Service lands?	☐	X
(6)	Will the quality of adjacent water resources be adversely impacted by proposed construction activities?	☐	X
(7)	Does the project involve waters classified as Outstanding Water Resources (OWR) and/or High Quality Waters (HQW)?	☐	X

		YES	NO
(8)	Will the project require fill in waters of the United States in any of the designated mountain trout counties?	☐	X
(9)	Does the project involve any known underground storage tanks (UST's) or hazardous materials sites?	☐	X
	PERMITS AND COORDINATION	**YES**	**NO**
(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)?	☐	X
(11)	Does the project involve Coastal Barrier Resources Act resources?	☐	X
(12)	Will a U. S. Coast Guard permit be required?	☐	X
(13)	Will the project result in the modification of any existing regulatory floodway?	☐	X
(14)	Will the project require any stream relocations or channel changes?	☐	X
	SOCIAL, ECONOMIC, AND CULTURAL RESOURCES	**YES**	**NO**
(15)	Will the project induce substantial impacts to planned growth or land use for the area?	☐	X
(16)	Will the project require the relocation of any family or business?	☐	X
(17)	Will the project have a disproportionately high and adverse human health and environmental effect on any minority or low-income population?	☐	X
(18)	If the project involves the acquisition of right of way, is the amount of right of way acquisition considered minor?	X	☐
(19)	Will the project involve any changes in access control?	☐	X

(20)	Will the project substantially alter the usefulness and/or land use of adjacent property?	☐	X
(21)	Will the project have an adverse effect on permanent local traffic patterns or community cohesiveness?	☐	X
(22)	Is the project included in an approved thoroughfare plan and/ or Transportation Improvement Program (and is, therefore, in conformance with the Clean Air Act of 1990)?	X	☐
(23)	Is the project anticipated to cause an increase in traffic volumes?	☐	X
(24)	Will traffic be maintained during construction using existing roads, staged construction, or on-site detours?	X	☐
(25)	If the project is a bridge replacement project, will the bridge be replaced at its existing location (along the existing facility) and will all construction proposed in association with the bridge replacement project be contained on the existing facility?	X	☐
(26)	Is there substantial controversy on social, economic and environmental grounds concerning aspects of the action?	☐	X
(27)	Is the project consistent with all Federal, State, and local laws relating to the environmental aspects of the project?	X	☐
(28)	Will the project have an "effect" on structures/properties eligible for or listed on the National Register of Historic Places?	☐	X
(29)	Will the project affect any archaeological remains which are important to history or pre-history?	☐	X
(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)?	☐	X
(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?	☐	X

(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? ☐ X

F. Additional Documentation Required for Unfavorable Responses in Part E
(Discussion regarding all unfavorable responses in Part E should be provided below. Additional supporting documentation may be attached, as necessary.)

G. CE Approval

TIP Project No. B-3885
State Project No. 8.2502001
Federal-Aid Project No. BRZ-1958(1)

Project Description:

The purpose of this project is to replace Bridge No. 174 over Cane Creek on SR 1958 in Orange County. The new replacement structure will be a bridge approximately 140 feet (42.6 meters) in length at approximately the same location as the existing bridge. The bridge will have a 22-foot (6.7-meter) travelway and 3-foot (9.1-meter) offsets on each side. The roadway grade will be approximately the same as the existing. The project length will be approximately 650 feet (198 meters). Traffic will be detoured along SR 1972 and NC 54 during construction.

Categorical Exclusion Action Classification:

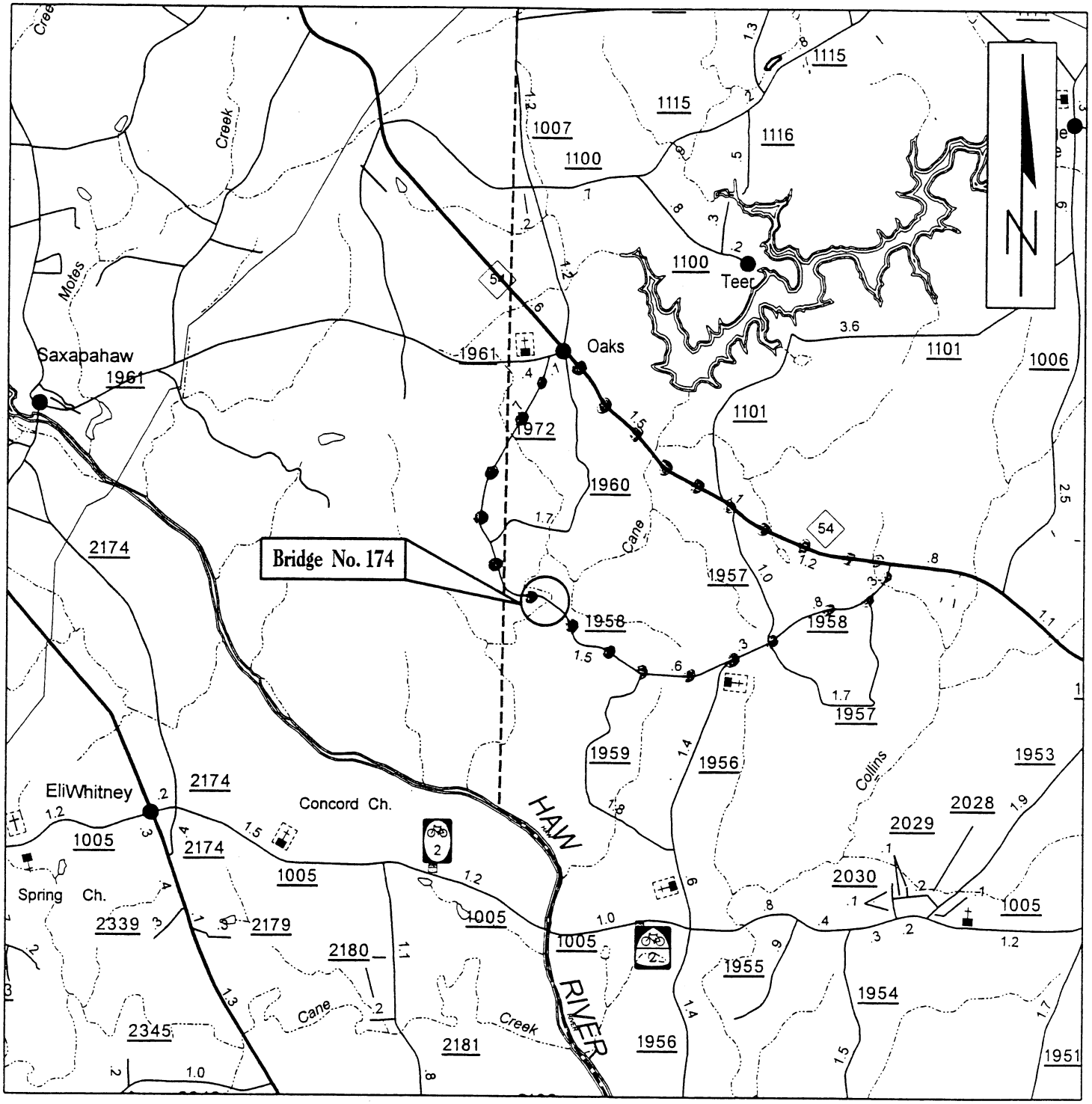
X TYPE II(A)
_____ TYPE II(B)

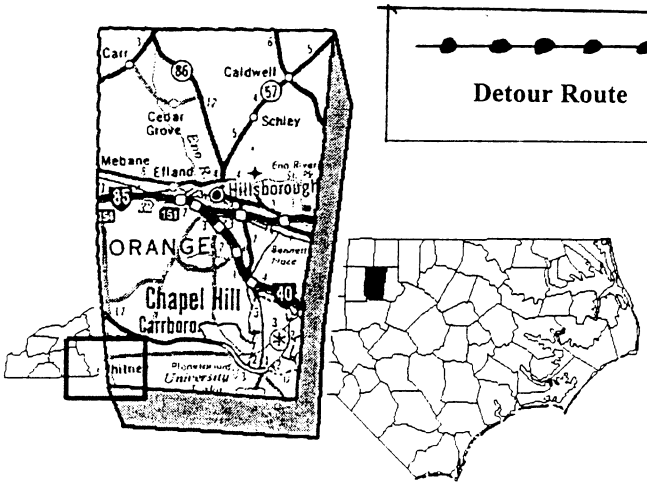
Approved:

2-1-02 Lubin V. Prevatt
Date Lubin V. Prevatt, Assistant Manager
Project Development and Environmental Analysis Branch

1-31-02 William T. Goodwin Jr.
Date William T. Goodwin Jr., P.E., Unit Head
Bridge Replacement Planning Unit

1-31-02 Joel A. Johnson
Date Joel A. Johnson
Project Development Engineer





Detour Route

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

Orange County
Replace Bridge No. 174 on SR 1958
Over Cane Creek
B-3885

SCALE: 1 in = 1 mi

Figure 1

North Carolina Department of Cultural Resources
State Historic Preservation Office
David L. S. Brook, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

October 8, 2001

MEMORANDUM

TO: Mary Pope Furr
Project Development and Environmental Analysis Branch
Division of Highways
Department of Transportation

FROM: David Brook RGG for David Brook

SUBJECT: Replace Bridge 174 on SR 1958 over Cane Creek,
B-3885, Orange County, ER 02-7297

Thank you for your letter of August 6, 2001, transmitting the Historic Architectural Resources Survey Report for the above referenced undertaking. We have reviewed the report and concur that there are no National Register-listed or eligible properties within the projects area of potential effect.

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

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

DB:kgc

cc: William Gilmore

	Location	Mailing Address	Telephone/Fax
Administration	507 N. Blount St, Raleigh, NC	4617 Mail Service Center, Raleigh 27699-4617	(919) 733-4763 •733-8653
Restoration	515 N. Blount St, Raleigh , NC	4613 Mail Service Center, Raleigh 27699-4613	(919) 733-6547 •715-4801
Survey & Planning	515 N. Blount St, Raleigh, NC	4618 Mail Service Center, Raleigh 27699-4618	(919) 733-4763 •715-4801

Federal Aid # **BRZ-1958(1)** *TIP #* **B-3885** *County*: **Orange**

CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Project Description: **Replace Bridge No. 174 on SR 1958 over Cane Creek**

On **2 August 2001** representatives of the

☒ North Carolina Department of Transportation (NCDOT)
☒ Federal Highway Administration (FHWA)
☒ North Carolina State Historic Preservation Office (SHPO)
☐ Other

reviewed the subject project at

☐ Scoping meeting
☒ Historic architectural resources photograph review session/consultation
☐ Other

All parties present agreed

☐ there are no properties over fifty years old within the project's area of potential effects.
☒ there are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.
☒ there are properties over fifty years old within the project's Area of Potential Effects (APE), but based on the historical information available and the photographs of each property, the property identified as **Property #2: Bridge No. 174** is considered not eligible for the National Register and no further evaluation of it is necessary.
(Note: Property #1, Morrow Mill, to be evaluated in a Phase II report and submitted to HPO)
☒ there are no National Register-listed properties within the project's area of potential effects.

☐ all properties greater than 50 years of age located in the APE have been considered at this consultation, and based upon the above concurrence, all compliance for historic architecture with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.

Signed:

Richard L. Shumate — 2 August 2001
Representative, NCDOT — Date

[signature] — 8/8/01
FHWA, for the Division Administrator, or other Federal Agency — Date

[signature] — 8/2/01
Representative, SHPO — Date

David Brook — 8/2/01
State Historic Preservation Officer — Date

If a survey report is prepared, a final copy of this form and the attached list will be included.

North Carolina Department of Cultural Resources

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

Division of Archives and History
William S. Price, Jr., Director

January 3, 2000

MEMORANDUM

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

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

Re: Replacement of Bridge No. 174 on SR 1958 over Cane Creek,
TIP No. B-3885, Orange County, ER 01-7943

On November 28, 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. She 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 one historic structure located within the area of potential effect:

Morrow's Mill (OR 879), on the north side of SR 1958
approximately 1600 ft from the Alamance County line

We recommend that an architectural historian on your staff evaluate the above property to determine its eligibility for listing in the National Register of Historic Places. We recommend that no historic architectural survey be conducted for this project.

There are no known archaeological sites within the proposed project area. Based on our present knowledge of the area, there is a high potential for prehistoric archaeological sites. We, therefore, recommend that an archaeological survey be conducted in connection with this project.

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: M.P. Furr

Urthner

North Carolina Department of Cultural Resources

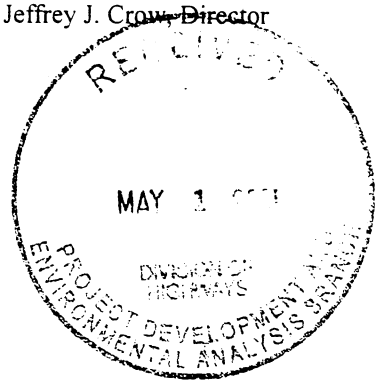
State Historic Preservation Office

David L. S. Brook, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

April 25, 2001



MEMORANDUM

TO: William D. Gilmore, PE, Manager
NCDOT, Project Development & Environmental Analysis Branch

FROM: David Brook for David Brook
Deputy State Historic Preservation Officer

RE: Archaeological Survey Report, Replacement of Bridge 174 on SR 1958, Orange County, TIP No. B-3885, Federal Aid No. BRZ-1958(1), ER 01-7943

Thank you for your letter of March 7, 2001, transmitting the archaeological survey report by Paul Mohler concerning the above project.

During the course of the survey no prehistoric or historic archaeological sites were located within the project area. Due to the disturbed nature of the soils and the absence of cultural resources, Mr. Mohler has 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.

DB:kgc

cc: Wadsworth, FHwA
Tom Padgett, NCDOT
Paul Mohler, NCDOT

	Location	Mailing Address	Telephone/Fax
Administration	507 N. Blount St. Raleigh, NC	4617 Mail Service Center, Raleigh 27699-4617	(919) 733-4763 •733-8653
Restoration	515 N. Blount St. Raleigh , NC	4613 Mail Service Center, Raleigh 27699-4613	(919) 733-6547 •715-4801
Survey & Planning	515 N. Blount St. Raleigh, NC	4618 Mail Service Center, Raleigh 27699-4618	(919) 733-4763 •715-4801

PROJECT COMMITMENTS

Replacement of Bridge No. 174
On SR 1958 over Cane Creek
Orange County
Federal-Aid No. BRZ-1958(1)
State Project No. 8.2502001
T.I.P. No. B-3885

Commitments Developed Through Project Development and Design

Hydraulics Unit, Roadside Environmental Unit, Division Seven Construction Office, Structure Design Unit

NCDOT will adhere to the Best Management Practices (BMPs) for "Bridge Demolition and Removal" during the removal of Bridge No. 174 .

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

August 31, 2001

MEMORANDUM TO: Karen Orthner
Project Planning Engineer

FROM: Karen M. Lynch, Natural Systems Specialist
Natural Systems Unit

SUBJECT: Replacement of Bridge No. 174 on SR 1958 over Cane Creek, Orange County. Federal Aid Project No. BRZ-1958(1), State Project No. 8.2502001, TIP No. B-3885.

This report is submitted to assist in the preparation of a Programmatic Categorical Exclusion (PCE) for the subject project. Water resources, biotic resources and jurisdictional issues such as wetlands and federally protected species are included in this report. A completed ecological threshold checklist for a PCE is also attached.

PROJECT DESCRIPTION

This project is located in the Carolina Slate Belt ecoregion within the Piedmont Physiographic province in central North Carolina in the southwestern corner of Orange County. Surrounding land use is rural with land comprised of forests, row crops, pastures and scattered residential areas. Much of the land in this area consists of gently rolling hills.

This project involves the proposed replacement of Bridge No. 174 on SR 1958 over Cane Creek (Figure 1) in the existing location with an off-site detour. This is the only Alternate proposed for this project (Figure 2). The existing cross section is approximately 18.0 ft (5.4 m) wide with an approach width of 18.0 ft (5.4 m). The proposed cross section is 28.0 ft (8.5 m) including two 11 ft (3.3 m) lanes and 3.0 ft (1.0 m) offsets. The existing right-of-way is assumed to be ditch line to ditch line with a proposed right-of-way of 80.0 ft (24.4 m). Project length is approximately 650 ft (198 m).

Bridge No. 174 contains six spans totaling 121 ft (37 m) in length. The bridge superstructure consists of a timber deck with timber joists and steel beams. The end

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

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

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

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

bents and three interior bents consist of timber caps, posts, and sills. The remaining two interior bents are composed of mass concrete. The superstructure, timber end bents and timber interior bents will be removed without dropping any of their components into Waters of the United States. However, there is potential for components of the mass concrete interior bents to be dropped into Waters of the United States during bridge demolition. The resulting potential temporary fill associated with the mass concrete interior bents is approximately 84 yd^3 (77 m^3).

METHODOLOGY

Information sources used in the pre-field investigation of the study area include: U.S. Geological Survey (USGS) quadrangle maps (Saxapahaw), and NCDOT aerial photographs of the project area (1"=100'). Water resource information was obtained from publications of the NC Department of Environment and Natural Resources, Division of Water Quality (NCDENR 1996) and from publications posted on the World Wide Web (NCDENR 2001). Information concerning the occurrence of federal and state protected species in the study area was gathered from the United States Fish and Wildlife Service (USFWS) list of protected species and species of concern (February 26, 2001), and the NC Natural Heritage Program (NCNHP) database of rare species and unique habitats (April 6, 2001).

General field surveys were conducted along the proposed alignment by NCDOT biologists Karen M. Lynch and Lynn Smith on April 9, 2001. An additional field visit was conducted on August 27, 2001 by the same biologists to review updated plans. Plant communities and their associated wildlife were identified and recorded. Wildlife identification involved using one or more of the following observation techniques: active searching and capture, visual observations (binoculars) and identifying characteristic signs of wildlife (sounds, scat, tracks and burrows). Jurisdictional wetland determinations (if present) were performed utilizing delineation criteria prescribed in the "Corps of Engineers Wetland Delineation Manual" (Environmental Laboratory, 1987).

QUALIFICATIONS OF INVESTIGATOR

Investigator: Karen M. Lynch, Environmental Specialist, Project Development and Environmental Analysis Branch, NCDOT.
Education: B.S. Wildlife Biology and Fisheries, North Carolina State University, 1980.
Experience: Environmental Specialist – NC Dept. of Transportation, Nov. 1998 - present
Environmental Biologist – NCDENR- Division of Water Quality, Nov. 1984 - Nov. 1998

DEFINITIONS

Definitions for aerial descriptions used in this report are as follows: **Project Study Area** denotes the area bounded by proposed ROW limits; **Project Vicinity** describes an area extending 1.0 mi (1.6 km) 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 with the project occupying the central position.

WATER RESOURCES

Cane Creek [DWQ Index no. 16-27 – (7)] and an unnamed tributary (Ut) will be the only surface waters potentially affected by the proposed project. Cane Creek and the Ut occur within subbasin 03-06-04 of the Cape Fear River Basin and have a Division of Water Quality (DWQ) Best Usage classification of "C-NSW". The "C" classification denotes waters protected for secondary recreation, fishing, wildlife, fish and aquatic life propagation and survival, agriculture and other uses suitable for "Class C" waters. Secondary recreation involves human body contact with water where such activities take place in an infrequent manner. The supplemental classification of "NSW" denotes Nutrient Sensitive Waters, whereby nutrient management is necessary for surface waters because of the likelihood of nuisance microscopic or macroscopic growth of vegetation.

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

The project site is located approximately two miles below Cane Creek Reservoir. One benthic sample was collected at this bridge by the DWQ during 1994 and yielded a water quality rating of Good (nearly Excellent). Cane Creek was sampled by the DWQ for benthic macroinvertebrates (above Cane Creek Reservoir) in the winter of 1998 and attained a bioclassification ratings of "Good-Excellent". This stream, like many other Carolina Slate Belt streams is prone to low flow conditions during the summer so flows may be extremely restricted during dry seasons.

The Ambient Monitoring System (AMS) is a network of stream, lake and estuarine water quality monitoring stations strategically located for the collection of physical and chemical water quality data. The classification (freshwater or saltwater) of a waterbody and corresponding water quality standards determine the type of water quality data or parameters that are collected. There are no AMS stations on this section of Cane Creek.

Point source dischargers located throughout North Carolina are permitted through the NPDES Program. Dischargers are required to register for a permit. There are no point source dischargers located within a 1.0 mi (1.6 km) radius of the project study area.

Impacts to surface waters are anticipated as a result of construction activities. This may include scouring of the streambed, siltation, runoff of toxic substances, and damage to the stream banks. Limiting earth removal, vegetation removal, and in-stream activities best minimizes impacts to surface waters. NCDOT's Best Management Practices for the

Protection of Surface Waters and Sedimentation Control Guidelines must be enforced during the construction stage of the project.

Bridge demolition is discussed on the first page of this memo under "Project Description". There is potential for the bents of the bridges to be dropped into Waters of the U.S. during construction. NCDOT's Best Management Practices for Bridge Demolition and Removal (BMP-BDR) must be applied for the removal of these bridges. This project is classified as "Case 3", whereby there are no special restrictions beyond those outlined in the BMP-BDR.

The possibility of significant mussels exists at this location, therefore a mussel survey will be conducted in Cane Creek by NCDOT biologists. In 1991, two important mussels were found at this site and recorded in NCNHP files. The mussel, notched rainbow, *(Villosa constricta)* which is proposed for Special Concern in NC and squawfoot (*Strophitus undulatus*) listed as State-Threatened were both found at this site.

There are no waters classified as Outstanding Resource Waters, High Quality Waters or Water Supply I (undeveloped watersheds) or II (predominately undeveloped watersheds) within 1.0 mi (1.6 km) of the project study area.

BIOTIC RESOURCES

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

Scientific nomenclature and common names (when applicable) are provided for each animal and plant species described. Plant taxonomy generally follows Radford, et al. (1968). Animal taxonomy follows Martof, et al. (1980), Menhinick (1991), Potter, et al. (1980), and Webster, et al. (1985). Subsequent references to the same organism will include the common name only. Fauna observed during the site visit are denoted by an asterisk (*). Published range distributions and habitat analysis are used in estimating fauna expected to be present within the project area.

Biotic Communities

Five biotic communities are found within the project boundaries: maintained disturbed, mixed hardwood forest, piedmont/low mountain alluvial forest (piedmont alluvial forest), streamside riparian area and piedmont perennial waters (creeks). The maintained/ disturbed community is comprised of frequently mowed road shoulder and horse pasture and residential landscape. In addition to various grasses, typical weedy roadside species including henbit (*Lamium purpureum*), Carolina geranium (*Geranium carolinianum*), violets (*Viola* sp.), clover (*Trifolium* sp.), dandelion (*Taraxacum*

officiale), corn salad (*Valerianella* sp.) and honeysuckle (*Lonicera japonica*) are found on road shoulders. In addition, wingstem (*Verbesina occidentalis)* multiflora rose (*Rosa multiflora*) and English ivy (*Hedera helix*) are found in the occasionally mowed ROW. Southern magnolia (*Magnolia grandiflora*) and elaeagnus (Elaeagnus pungens) were planted at the edge of a driveway.

The mixed hardwood forest occurs on the north side of the creek. Dominant canopy trees include hickory (*Carya* spp.), various oaks (red oak - *Quercus rubra*, white oak - *Q. alba*), loblolly pine (*Pinus taeda*), beech (*Fagus grandifolia*), tulip poplar (*Liriodendron tulipifera*) and sweetgum (*Liquidambar styraciflua*). Subcanopy trees include ironwood (*Carpinus caroliniana*), dogwood (*Cornus florida*) and red maple (*Acer rubrum*). The shrub layer is sparse and ground vegetation is dominated by honeysuckle, poison ivy (*Toxicodendron radicans*) and trout lilies (*Erythronium americanum*).

Adjacent to Cane Creek on the south side of the creek are vegetation indicative of a piedmont alluvial forest that receives only occasional flooding. Sycamore (*Platanus occidentalis*), tulip poplar, hackberry (*Celtis laevigata*), box elder (*Acer negundo*) and black walnut (*Juglans nigra*) are dominant canopy constituents. Shrubs consist of buckeye (*Aesculus sylvatica*), spice bush (*Lindera benzoin*) and sugar maple (*Acer barbatum*). Herbaceous growth such as sweet chervil (*Osmorhiza longistylis*), foamflower (*Tiarella cordifolia*), river oats (*Chasmanthium latifolia*) and honeysuckle occur on the forest floor.

The streamside riparian area adjacent to Cane Creek consists of elderberry (*Sambucus canadensis*) along with an abundance of herbaceous vegetation including jewelweed (*Impatiens capensis*), Japanese grass (*Microstegium vimineum*), false nettle (*Boehmeria cylindrica*), smartweed (*Polygonum* spp), pokeberry (*Phytolacca americana*) and cardinal flower (*Lobelia cardinalis*). This community has a fairly open canopy dominated by river birch *(Betula nigra*), sweetgum and box elder.

Cane Creek, a piedmont perennial stream, exhibits a fairly sinuous stream pattern. At the time of the site visit, Cane Creek was approximately 26 ft (8 m) wide with variable depth and a moderate current. Cane Creek exhibited clear water during the two field visits. Substrate includes boulders, gravel, sand and silt. Aquatic fauna likely to occur in the project area includes various species of insect larvae and nymphs, such as mayflies* (Order: Ephemeroptera), stoneflies (Order: Plecoptera), caddisflies* (Order: Trichoptera) and dragonflies*/damselflies (Order: Odonata). An additional small perennial stream (Ut to Cane Creek) originates in the southwest quadrant outside of the project limits. This unnamed tributary arises from an underground spring and flows north, crosses under the road to the southeast corner near the project and continues flowing north until its confluence with Cane Creek outside of the project area. This small stream has moderate flow, approximately 2 ft (<1 m) wide and 1 to 2 in (3 to 5 cm) deep. Instream substrate is comprised of silt and sand with little gravel. There were no benthic macroinvertebrates observed in this Ut. This stream (Ut) flows through the maintained/disturbed and piedmont alluvial forest communities.

Terrestrial fauna likely to occur throughout these communities includes Virginia opossum (*Didelphis virginiana*), muskrat (*Ondatra zibethicus*), raccoon* (*Procyon lotor*), white-tailed deer* (*Odocoileus virginianus*), marbled salamander (*Ambystoma opacum*) spring peeper (*Hyla crucifer*), pickerel frog (*Rana palustris*), eastern box turtle (*Terrapene carolina*) and rat snake (*Elaphe obsoleta*).

Avian fauna likely to occur in this area includes permanent residents such as belted kingfisher* (*Megaceryle alcyon*), field sparrow* (*Spizella pusilla*), northern cardinal* (*Cardinalis cardinalis*), goldfinch* (*Carduelis tristis*), eastern phoebe (*Sayornis phoebe*), chickadee* (*Parus carolinensis*), tufted titmouse* (*Parus bicolor*), Carolina wren* (*Thryothorus ludovicianus*), red bellied wood pecker* (*Melanerpes carolinus*), bluebird* (*Sialia sialis*), cedar waxwing* (*Bombycilla cedrorum*) and mourning dove* (*Zenaida macroura*). Migratory species that may use the area for feeding and nesting include red-eyed vireo (*Vireo olivaceous*), ovenbird* (*Seiurus aurocapillus*), northern parula warbler* (*Parula americana*), Louisiana waterthrush* (*Seiurus moticilla*) and yellow warbler* (*Dendroica petechia*).

Sampling for community structure of fish was conducted by the DWQ in March 1994 upstream of the project site and above Cane Creek Reservoir. Found in abundance were creek chubsucker (*Erimyzon oblongus*), several species of bream (redbreast sunfish – *Lepomis auritus*, green sunfish – *L. cyanellus*, pumpkinseed – *L. gibbosus*, and bluegill – *L. macrochirus*), bluehead chub (*Nocomis leptocephalus*), creek chub (*Semotilus atromaculatus*) and in riffle areas, tessellated darter (*Etheostoma olmstedi*). A similar fish community would be expected at the project site in Cane Creek, since these portions of Cane Creek were contiguous before the creation of Cane Creek Reservoir.

IMPACTS TO COMMUNITIES

Calculated impacts to terrestrial resources reflect the relative abundance of each community present within the study area. Project construction may result in clearing and degradation of portions of these communities. Table 1 summarizes potential quantitative losses to these communities, resulting from project construction. Estimated impacts are derived using the entire proposed right-of-way. Usually, project construction does not require the entire right-of-way; therefore, actual impacts may be considerably less.

Table 1. Anticipated Impacts to Terrestrial Communities
(values cited are in acres (hectares)

Community type	Impacts
Maintained/disturbed	0.46 (0.19)
Mixed hardwood forest	0.32 (0.13)
Piedmont alluvial forest	0.09 (0.04)
Streamside riparian area	0.03 (0.01)
Total	0.90 (0.37)

Plant communities found within the proposed project area serve as nesting and sheltering habitat for various wildlife. Replacing Bridge No. 174 may reduce habitat for

faunal species, thereby diminishing faunal numbers. However, due to the size and scope of this project, it is anticipated that impacts to fauna will be minimal.

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

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

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

JURISDICTIONAL ISSUES

This section provides descriptions, inventories and impact analysis pertinent to two important issues – waters of the United States and rare and protected species.

Surface Waters and Wetlands

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

Criteria to determine the presence of jurisdictional wetlands include evidence of hydrology, hydric soils and hydrophytic vegetation. Hydrologic indicators such as hydric soils and hydric vegetation are absent on the project site. **Therefore, jurisdictional wetlands are not present within the project boundaries.**

Cane Creek and the Ut are jurisdictional surface waters under Section 404 of the Clean Water Act (33 U.S.C. 1344). Discussion of the biological, physical, and water quality aspects of this creek and Ut are presented in previous sections of this report.

Summary of Anticipated Impacts

The anticipated total impact to surface waters from the proposed project is 80 linear feet (24 linear meters). Considering the current design, there are no impacts to the small Ut to Cane Creek which occurs just outside project boundaries, however, an increase in ROW width or lengthening of the project on the southern end would result in minor impacts to this unnamed tributary. Impacts to the project are determined using the entire proposed ROW width. Usually, project construction does not require the entire ROW; and the bridge over Cane Creek will be replaced with a bridge, therefore, actual surface water impacts may be considerably less.

As previously mentioned, there is potential for components of the mass concrete interior bents to be dropped into Waters of the United States during bridge demolition. The resulting potential temporary fill associated with the mass concrete interior bents is approximately 84 yd^3 (77 m^3).

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

A Section 404 Nationwide 23 Permit is likely to be applicable for all impacts to Waters of the United States from the proposed project. This permit authorizes activities undertaken, assisted, authorized, regulated, funded or financed in whole, or part, by another Federal agency or department where that agency or department has determined that pursuant to the Council on Environmental Quality Regulation for implementing the procedural provisions of the National Environmental Policy Act:

(1) that the activity, work, or discharge is categorically excluded from environmental documentation because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment, and;

(2) that the office of the Chief of Engineers has been furnished notice of the agency or department's application for the categorical exclusion and concurs with that determination.

A North Carolina Division of Water Quality Section 401 Water Quality Certification is required prior to the issuance of the Section 404 permit. Section 401 Certification states that water quality standards will not be violated.

Federally-Protected Species

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act (ESA) of 1973, as amended. As of February 26, 2001, there are five Federally Protected Species for Orange County as depicted in Table 2.

Table 2. Federally-Protected Species for Orange County

Scientific Name	Common Name	Status
Picoides borealis	red-cockaded woodpecker	Endangered
Alasmidonta heterodon	dwarf wedgemussel	Endangered
Echinacea laevigata	smooth coneflower	Endangered *
Isotria medeoloides	small-whorled pogonia	Threatened *
Rhus michauxii	Michaux's sumac	Endangered

Threatened species are species that are likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Endangered is defined as a species that is in danger of extinction throughout all or a significant portion of its range.

"*" denotes no specimen from Orange County found in the past twenty years.

Picoides borealis (red-cockaded woodpecker) **Endangered**

Animal Family: Picidae
Date Listed: October 13, 1970

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

The RCW uses open old growth stands of southern pines, particularly longleaf pine *(Pinus palustris)*, for foraging and nesting habitat. A forested stand must contain at least 50% pine, lack a thick understory, and be contiguous with other stands to be appropriate habitat for the RCW. These birds nest exclusively in trees that are ≥60 years old and are contiguous with pine stands at least 30 years of age. The foraging range of the RCW is up to 500 ac (200.0 ha). This acreage must be contiguous with suitable nesting sites.

These woodpeckers nest exclusively in living pine trees and usually in trees that are infected with the fungus that causes red-heart disease. Cavities are located in colonies from 12 – 100 ft (3.6-30.3 m) above the ground and average 30-50 ft (9 - 16 m) high. Cavity trees can be identified by a large incrustation of running sap that surrounds the tree. The RCW lays its eggs in April, May, and June; the eggs hatch approximately 10 - 12 days later.

BIOLOGICAL CONCLUSION **No Effect**

Possible habitat for the red-cockaded woodpecker does not occur in the project vicinity. The NC Natural Heritage Program database of rare and unique habitats does not contain records for RCW within the project study area, therefore this bridge replacement project will not affect the red-cockaded woodpecker.

Alasmidonta heterodon (dwarf wedgemussel) **Endangered**
Animal Family: Unionidae
Date Listed: March 14, 1990

Alasmidonta heterodon formerly ranged from the Petitcodiac River, Canada to the Neuse River, North Carolina. In North Carolina populations are found in Middle Creek and the Little River of the Neuse River Basin and in the upper Tar River and Cedar, Crooked, and Stony Creeks of the Tar River system.

The dwarf wedgemussel is a small mussel ranging in size from 1.0 to 1.6 in (2.5 to 3.8 cm) in length. Its shell is distinguishable by two lateral teeth on the right half and one on the left half. The periostracum (outer shell) is olive green to dark brown in color and the nacre (inner shell) is bluish to silvery white.

Successful reproduction is dependent on the attachment of larval mussels to a host fish. The exact species of host fish is not known, but evidence suggests that it is either an anadromous or catadromous species. This mussel is sensitive to agricultural, domestic, and industrial pollutants and requires a stable silt free streambed with well oxygenated water to survive.

Biological Conclusion: **Unresolved**

While this mussel is listed for Orange County, it has never been found in the Cape Fear drainage, to which Cane Creek flows. A review of the NC Natural Heritage Program database of rare species and unique habitats in April 2001 indicated that there are no known occurrences of dwarf wedgemussel in this creek or in the Cape Fear River system. However, a search will be conducted for this species in the event that it does occur in the Cape Fear River system.

Echinacea laevigata (smooth coneflower) **Endangered**
Plant Family: Asteraceae
Federally Listed: December 9, 1991
Flowers Present: June - early July

Smooth coneflower is a perennial herb that grows from simple or branched rhizomes. This herb has a smooth stem and few leaves. The basal leaves are the largest, and these leaves are smooth to slightly rough, tapered to the base and elliptical to broadly lanceolate. Mid-stem leaves have short or no petioles and are smaller than the basal leaves. Flowers are light pink to purplish in color and solitary. The petal-like rays usually droop. Fruits are gray-brown, oblong-prismatic and four-angled.

Habitat for the smooth coneflower is found in areas of meadows, open woodlands, glades, cedar barrens, roadsides, power line rights-of-way, clear cuts, and dry limestone bluffs. Plants usually grow in soil derived from calcareous parent material. North Carolina populations are found in soils derived from Diabase, a circumneutral igneous

rock. Optimal sites are in areas with abundant sunlight and little competition from other herbaceous plants.

BIOLOGICAL CONCLUSION **No Effect**

Potential habitat for smooth coneflower is present at the edge of the woods of the project study area. A search of the project area on April 9 and August 27, 2001, revealed no stalks of coneflower. No species within the genus *Echinacea* was observed during the survey. A review of the NCNHP database of rare species and unique habitats in April 2001, revealed no smooth coneflower plants within the project region. Therefore, project construction will not affect smooth coneflower.

Isotria medeoloides (small whorled pogonia) **Threatened**
Plant Family: Orchidaceae
Federally Listed: September 10, 1982
Flowers Present: mid May-mid June

Small whorled pogonia is a perennial orchid having long pubescent roots and a hollow stem. Stems terminate in a whorl of five or six light green, elliptical leaves that are somewhat pointed. One or two light green flowers are produced at the end of the stem. Flowers of small-whorled pogonia have short sepals.

The small whorled pogonia grows in second growth deciduous or deciduous-coniferous forests, with an open canopy, open shrub layer, and sparse herb layer. This plant prefers acidic soils. Flowering is inhibited in areas where there is relatively high shrub coverage or high sapling density.

BIOLOGICAL CONCLUSION **No Effect**

Typical habitat such as second growth or deciduous coniferous forest does not exist within the project study area. This area was surveyed on April 9 and August 27, 2001 for protected species and there were no plants of small whorled pogonia present. In addition, The NC Natural Heritage Program database of rare and unique habitats does not contain records for this species in this area. Therefore, the bridge replacement project will not impact small whorled pogonia.

Rhus michauxii (Michaux's sumac) **Endangered**
Plant Family: Cashew (Anacardiaceae)
Federally Listed: September 28, 1989
Best Search Time: During the growing season (June - September)

Michaux's sumac is a dioecious shrub growing to a height of 1.0 to2.0 ft (0.3 to 0.6 m). Plants flower in June, producing a terminal, erect, dense cluster of 4-5 parted greenish-yellow to white flowers. Fruits, produced from August through September, are red, densely short-pubescent drupes, 0.25 in (5-6 mm) across. Most populations, however, are single sexed and reproduce only by rhizomes. The entire plant is densely

pubescent. The deciduous leaves are composed of 9-13 sessile, oblong leaflets on a narrowly winged or wingless rachis. The acute to acuminate leaflets have rounded bases and are 1.5 to 3.5 in (4 to 9 cm) long and 1.0 to 2.0 in (2 to 5 cm) wide. They are simply or doubly serrate. Distinctive characteristics include short stature, densely pubescent throughout, evenly serrate leaflets.

This species prefers sandy, rocky, open woods and roadsides. Its survival is dependent on disturbance (mowing, clearing, fire) to maintain an open habitat. It is often found with other members of its genus as well as with poison ivy. There is no longer believed to be an association between this species and specific soil types.

Michaux's sumac is endemic to the inner Coastal Plain and Piedmont physiographic provinces of Virginia, North Carolina, South Carolina and Georgia. Most populations occur in North Carolina. This species is threatened by loss of habitat. Since its discovery, 50 percent of Michaux's sumac habitat has been lost due to its conversion to silvicultural and agricultural purposes and development. Fire suppression and herbicide drift have also negatively impacted this species.

BIOLOGICAL CONCLUSION **No Effect**

Potential habitat for Michaux's sumac is present within the wooded edge of the project area. A survey for Michaux's sumac, within areas of potential habitat was conducted on April 9, 2001 by NCDOT biologists. There were no plants of Michaux's sumac observed during the survey. A review of the NCNHP database of rare species and unique habitats, in April 2001 reveals no records of Michaux's sumac within the project region. Therefore, project construction will not affect Michaux's sumac.

Federal Species of Concern and State Listed Species

There are eleven Federal Species of Concern (FSC) listed for Orange County as of February 26, 2001. Federal Species of Concern are not afforded federal protection under the ESA and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. Federal Species of Concern are defined as those species that may or may not be listed in the future. These species were formerly candidate species, or species under consideration for listing for which there was insufficient information to support a listing of Endangered, Threatened, Proposed Endangered and Proposed Threatened. Organisms which are listed as Endangered, Threatened, or Special Concern by the North Carolina Natural Heritage Program list of rare plant and animal species are afforded state protection under the State Endangered Species Act and the North Carolina Plant Protection and Conservation Act of 1979.

Table 3 lists Federal Species of Concern, the species state status and the presence of suitable habitat for each species in the study area. This species list is provided for information purposes as the status of these species may be upgraded in the future.

Table 3. Federal Species of Concern for Orange County

Scientific Name	Common Name	State Status	Habitat
Etheostoma collis lepidinion	Carolina darter	SC	yes
Moxostoma sp. 2	Carolina redhorse	SR	possibly
Alasmidonta varicosa	Brook floater	T/PE	possibly
Diacyclops jeanneli putei	Carolina well diacyclops	SR/PSC*	no
Fusconaia masoni	Atlantic pigtoe	T/PE	possibly
Lampsilis cariosa	Yellow lampmussel	T/PE	possibly
Lasmigona subviridis	Green floater	E	no
Toxolasma pullus	Savanna lilliput	T/PE	possibly
Juglans cinerea	Butternut	W5	no
Monotropsis odorata	Sweet pinesap	C*	no
Plagiochila columbiana	A liverwort	W2	possibly

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

"T"--A Threatened species is one which is likely to become endangered species within the foreseeable future throughout all or a significant portion of its range.

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

"C"--A Candidate species is one which is very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction, direct exploitation or disease. The species is also either rare throughout its range or disjunct in North Carolina from a main range in a different part of the country or the world.

"SR"--A Significantly Rare species is one which is very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction, direct exploitation or disease. The species is generally more common elsewhere in its range, occurring peripherally in North Carolina.

"W2"--A Watch Category 2 species is a rare to uncommon species in North Carolina, but is not necessarily declining or in trouble.

"W5"--A Watch Category 5 species is a species with increasing amounts of threats to its habitat; populations may or may not be known to be declining.

"/P_"--denotes a species which has been formally proposed for listing as Endangered, Threatened, or Special Concern, but has not yet completed the listing process.

* -- Historic record - the species was last observed in the county more than 50 years ago.

Surveys for these species were not conducted during the site visits, nor were any of these species incidentally observed. A review of the NC Natural Heritage Program database of rare species and unique habitats (April 6, 2001) revealed no records of Federal Species of Concern in or near the project study area.

Please contact me at (919) 733-7844 extension 291 if you have any further questions regarding this project.

cc: Randy Turner, Natural Systems Unit Head
File B-3885

REFERENCES

Amoroso, Jame L., and A. S. Weakley, 1999. "Natural Heritage Program List of the Rare Plant Species of North Carolina". North Carolina Natural Heritage Program.

Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.

LeGrand, Jr., H.E., and S. P. Hall, 1999. "Natural Heritage Program List of the Rare Animal Species of North Carolina". North Carolina Natural Heritage Program.

Martof, B.S., W.M. Palmer, J.R. Bailey and J.R. Harrison III. 1980. Amphibians and Reptiles of the Carolinas and Virginia. Chapel Hill, The University of North Carolina Press.

Menhenick, E.F. 1991. The Freshwater Fishes of North Carolina. NC WRC, Raleigh.

NCDENR-DWQ. Internet site 2001: http://h2o.enr.state.nc.us/bims/reports/basins andwaterbodies/hydro/Cape_Fear.pdf. Raleigh.

NCDENR-DWQ. Internet site 2001:http://www.esb.enr.state.nc.us/Basinwide CPF1999. pdf. Raleigh.

NCDEHNR-DWQ. 1996. "Cape Fear River Basinwide Water Quality Management Plan". Raleigh.

Potter, E.F., J.F. Parnell and R.P. Teulings. 1980. Birds of the Carolinas. Chapel Hill, The University of North Carolina Press.

Radford, A.E., H.E. Ahles and G.R. Bell. 1968. Manual of the Vascular Flora of the Carolinas. Chapel Hill, The University of North Carolina Press.

Schafale, M.P. and A.S. Weakley. 1990. Classification of The Natural Communities of North Carolina. Third Approximation. North Carolina Natural Heritage Program, Division of Parks and Recreation, NCDEHNR.

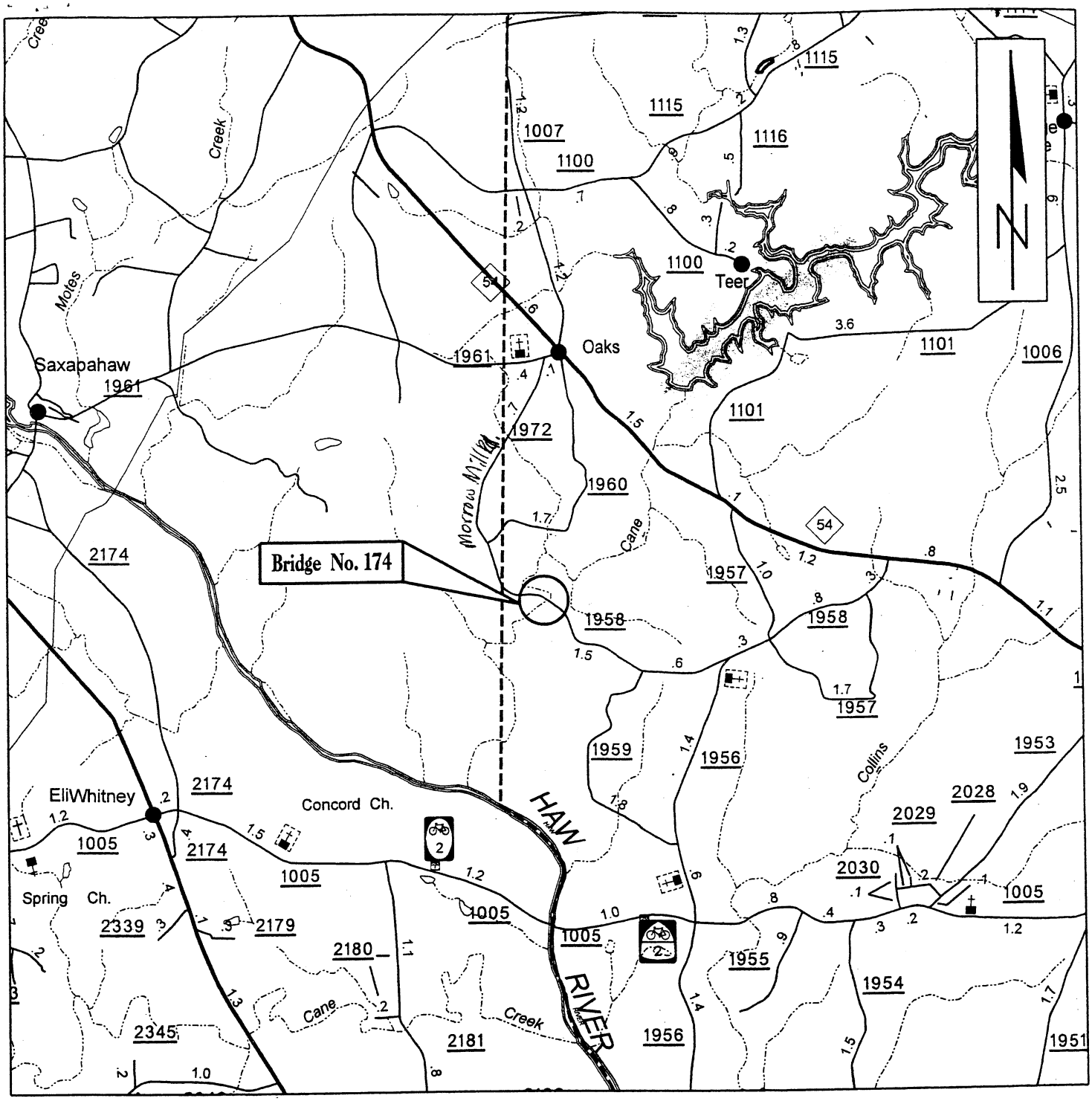
U.S. Fish and Wildlife Service. 1979. Classifications of Wetlands and Deepwater Habitats of the United States., U.S. Government Printing Office, Washington D.C.

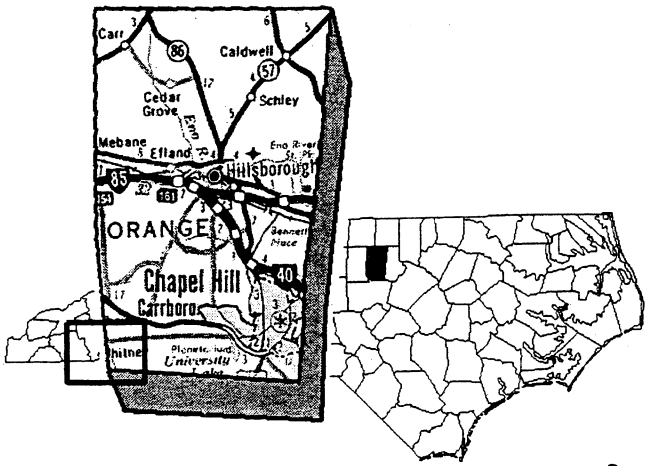
Webster, W.D., J.F. Parnell and W.C. Biggs. 1985. Mammals of the Carolinas, Virginia and Maryland. Chapel Hill, The University of North Carolina Press.

E. Threshold Criteria

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

ECOLOGICAL for B-3885, Bridge replacement over Cane Creek		YES	NO
(1)	Will the project have a substantial impact on any unique or important natural resource?		X
(2)	Does the project involve habitat where federally listed endangered or threatened species may occur?		X
(3)	Will the project affect anadromous fish?		X
(4)	If the project involves wetlands, is the amount of permanent and/or temporary wetland taking less than one-third (1/3) of an acre and have all practicable measures to avoid and minimize wetland takings been evaluated?	X	
(5)	Will the project require the use of U. S. Forest Service lands?		X
(6)	Will the quality of adjacent water resources be adversely impacted by proposed construction activities?		X
(7)	Does the project involve waters classified as Outstanding Water Resources (OWR) and/or High Quality Waters (HQW)?		X
(8)	Will the project require fill in waters of the United States in any of the designated mountain trout counties?		X
(9)	Does the project involve any known underground storage tanks (UST's) or hazardous materials sites?		X
PERMITS AND COORDINATION		YES	NO
(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)?		X
(11)	Does the project involve Coastal Barrier Resources Act resources?		X
(12)	Will a U. S. Coast Guard permit be required?		X
(13)	Will the project result in the modification of any existing regulatory floodway?		X
(14)	Will the project require any stream relocations or channel changes?		X



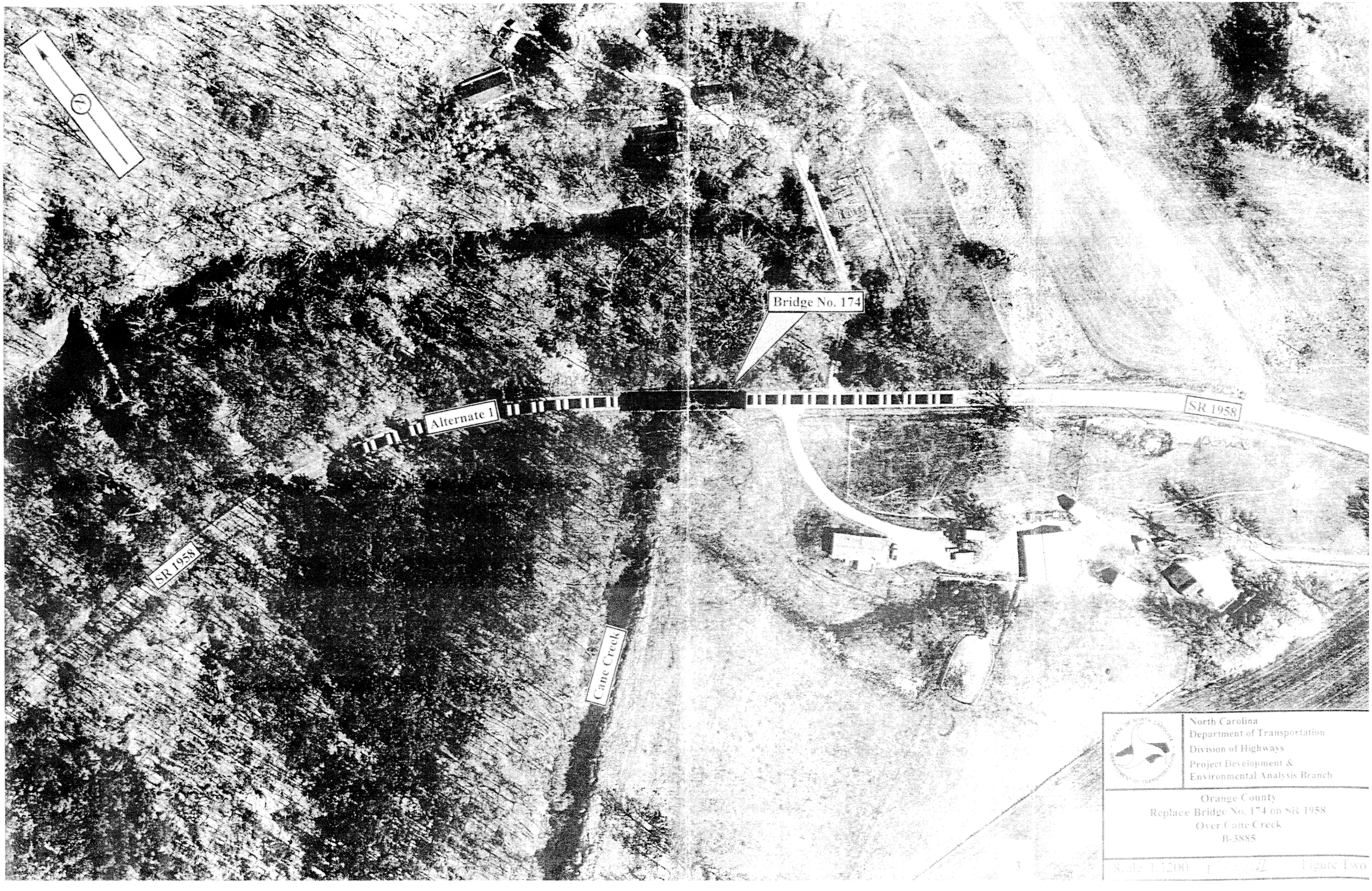


North Carolina
Department of Transportation
Division of Highways
Project Development &
Environmental Analysis Branch

Orange County
Replace Bridge No. 174 on SR 1958
Over Cane Creek
B-3885

SCALE: 1 in = 1 mi

Figure 1



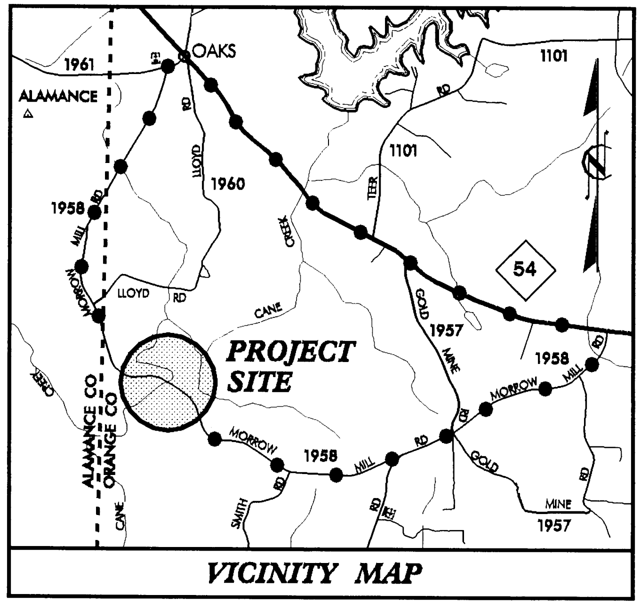
North Carolina
Department of Transportation
Division of Highways
Project Development &
Environmental Analysis Branch

Orange County
Replace Bridge No. 174 on SR 1958
Over Cane Creek
B-3885

Scale 1:2000 Figure Two

CONTRACT: C020865 TIP PROJECT: B-3885

See Sheet 1-A For Index of Sheets



DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ORANGE COUNTY

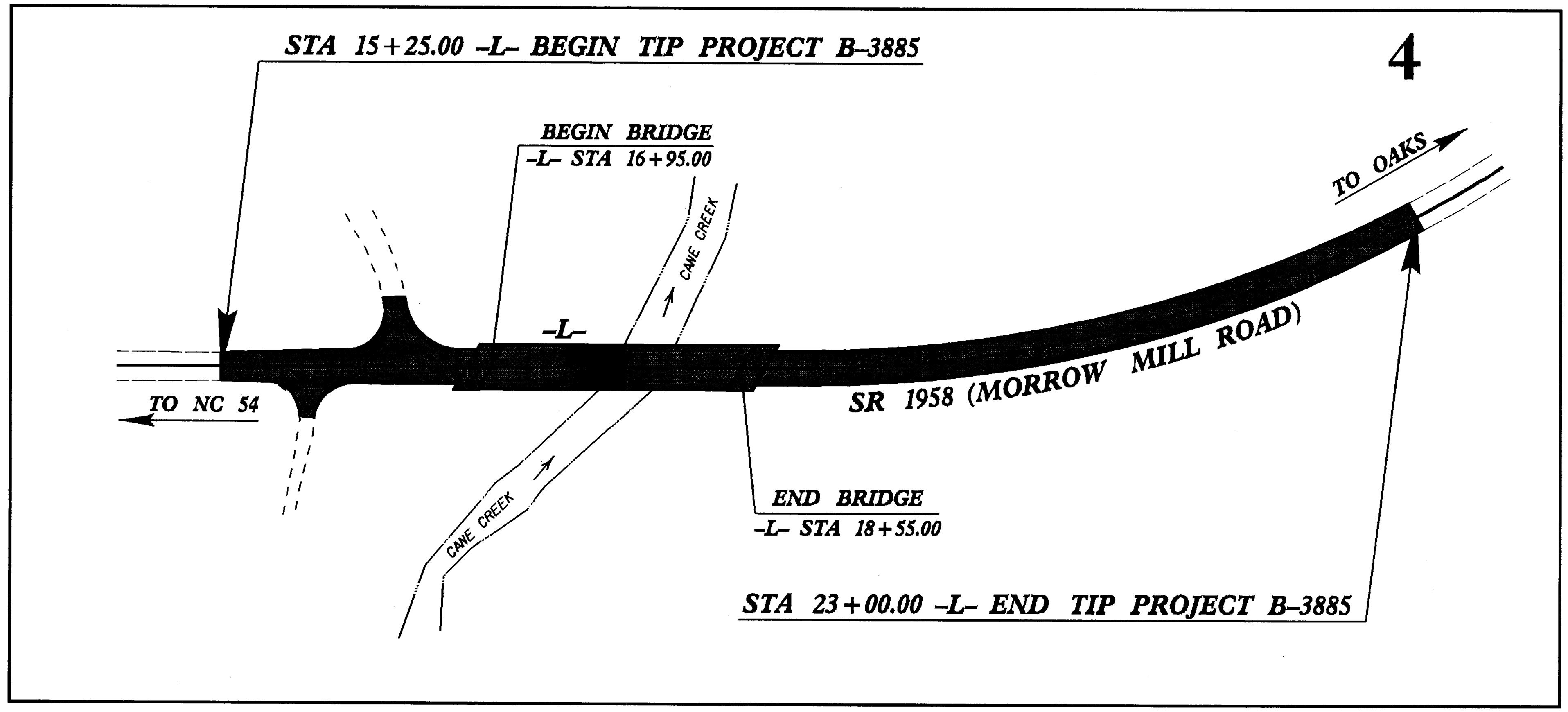
LOCATION: BRIDGE No. 174 OVER CANE CREEK ON SR 1958 (MORROW MILL ROAD) AND APPROACHES

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3885	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33325.1.1	BRZ-1958(1)	PE
33325.2.2	BRZ-1958(2)	R/W, UTIL
33325.3.1	BRZ-1958(3)	CONST

NAD 83



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2004 = 450
ADT 2025 = 700
DHV = 10 %
D = 60 %
T = 3 % *
V = 45 MPH

* TTST 1 % DUAL 2 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3885 = 0.117 MILE
LENGTH STRUCTURE TIP PROJECT B-3885 = 0.030 MILE
TOTAL LENGTH TIP PROJECT B-3885 = 0.147 MILE

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

1995 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 21, 2003

LETTING DATE:
JUNE 18, 2004

TERESA M. BRUTON, PE
PROJECT ENGINEER

DAVIDIAN BYRD
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

PROJECT REFERENCE NO.	SHEET NO.
B-3885	I-B

5/28/99

*S.U.E = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

- Edge of Pavement
- Curb
- Prop. Slope Stakes Cut (C)
- Prop. Slope Stakes Fill (F)
- Prop. Woven Wire Fence
- Prop. Chain Link Fence
- Prop. Barbed Wire Fence
- Prop. Wheelchair Ramp (WCR)
- Curb Cut for Future Wheelchair Ramp (CCFR)
- Exist. Guardrail
- Prop. Guardrail
- Equality Symbol
- Pavement Removal

RIGHT OF WAY

- Baseline Control Point
- Existing Right of Way Marker
- Exist. Right of Way Line w/Marker
- Prop. Right of Way Line with Proposed R/W Marker (Iron Pin & Cap)
- Prop. Right of Way Line with Proposed (Concrete or Granite) R/W Marker
- Exist. Control of Access Line (C A)
- Prop. Control of Access Line (C A)
- Exist. Easement Line (E)
- Prop. Temp. Construction Easement Line (E)
- Prop. Temp. Drainage Easement Line (TDE)
- Prop. Perm. Drainage Easement Line (PDE)

HYDROLOGY

- Stream or Body of Water
- River Basin Buffer (BZ)
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Shoreline
- Falls, Rapids
- Prop Lateral, Tail, Head Ditches (FLOW)

STRUCTURES

MAJOR

- Bridge, Tunnel, or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR

- Head & End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Boxes (CB)
- Paved Ditch Gutter

UTILITIES

- Exist. Pole
- Exist. Power Pole
- Prop. Power Pole
- Exist. Telephone Pole
- Prop. Telephone Pole
- Exist. Joint Use Pole
- Prop. Joint Use Pole
- Telephone Pedestal (T)
- U/G Telephone Cable Hand Hold (H)
- Cable TV Pedestal (C)
- U/G TV Cable Hand Hold (H)
- U/G Power Cable Hand Hold (H)
- Hydrant
- Satellite Dish
- Exist. Water Valve
- Sewer Clean Out
- Power Manhole (P)
- Telephone Booth
- Cellular Telephone Tower
- Water Manhole (W)
- Light Pole
- H-Frame Pole
- Power Line Tower
- Pole with Base
- Gas Valve
- Gas Meter
- Telephone Manhole (T)
- Power Transformer
- Sanitary Sewer Manhole
- Storm Sewer Manhole (S)
- Tank; Water, Gas, Oil
- Water Tank With Legs
- Traffic Signal Junction Box (S)
- Fiber Optic Splice Box (F)
- Television or Radio Tower
- Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement (TS)
- Recorded Water Line (W)
- Designated Water Line (S.U.E.*) (W)
- Sanitary Sewer (SS)
- Recorded Sanitary Sewer Force Main (FSS)
- Designated Sanitary Sewer Force Main(S.U.E.*) (FSS)
- Recorded Gas Line (G)
- Designated Gas Line (S.U.E.*) (G)
- Storm Sewer (S)
- Recorded Power Line (P)
- Designated Power Line (S.U.E.*) (P)
- Recorded Telephone Cable (T)
- Designated Telephone Cable (S.U.E.*) (T)
- Recorded U/G Telephone Conduit (TC)
- Designated U/G Telephone Conduit (S.U.E.*) (TC)
- Unknown Utility (S.U.E.*) (?UTL)
- Recorded Television Cable (TV)
- Designated Television Cable (S.U.E.*) (TV)
- Recorded Fiber Optics Cable (FO)
- Designated Fiber Optics Cable (S.U.E.*) (FO)
- Exist. Water Meter
- U/G Test Hole (S.U.E.*)
- Abandoned According to U/G Record (ATTUR)
- End of Information (E.O.I.)

BOUNDARIES & PROPERTIES

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Property Line Symbol
- Exist. Iron Pin (EIP)
- Property Corner
- Property Monument (ECM)
- Property Number (123)
- Parcel Number (6)
- Fence Line (WW & ISBW)
- Existing Wetland Boundaries (WLB)
- High Quality Wetland Boundary (HQ WLB)
- Medium Quality Wetland Boundaries (MQ WLB)
- Low Quality Wetland Boundaries (LQ WLB)
- Proposed Wetland Boundaries (WLB)
- Existing Endangered Animal Boundaries (EAB)
- Existing Endangered Plant Boundaries (EPB)

BUILDINGS & OTHER CULTURE

- Buildings
- Foundations
- Area Outline
- Gate
- Gas Pump Vent or U/G Tank Cap
- Church
- School
- Park
- Cemetery
- Dam
- Sign (S)
- Well (W)
- Small Mine
- Swimming Pool

TOPOGRAPHY

- Loose Surface
- Hard Surface
- Change in Road Surface
- Curb
- Right of Way Symbol (R/W)
- Guard Post (GP)
- Paved Walk
- Bridge
- Box Culvert or Tunnel
- Ferry
- Culvert
- Footbridge
- Trail, Footpath
- Light House

VEGETATION

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard (VINEYARD)

RAILROADS

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)

revised 02/02/00

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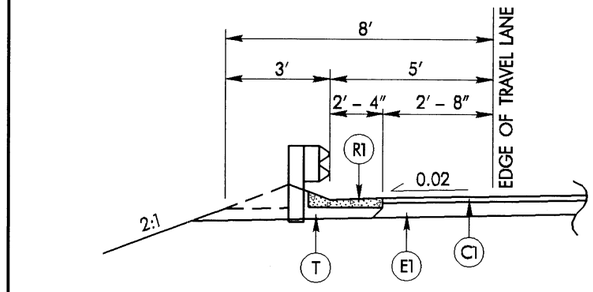
PROJECT REFERENCE NO.	SHEET NO.
B-3885	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

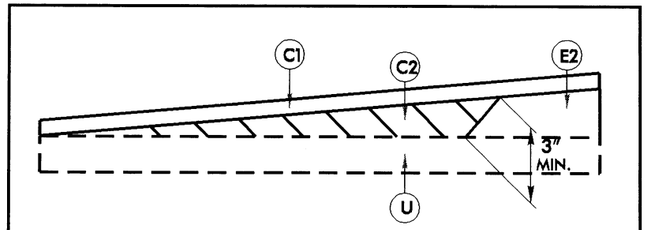
PAVEMENT SCHEDULE

C1	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

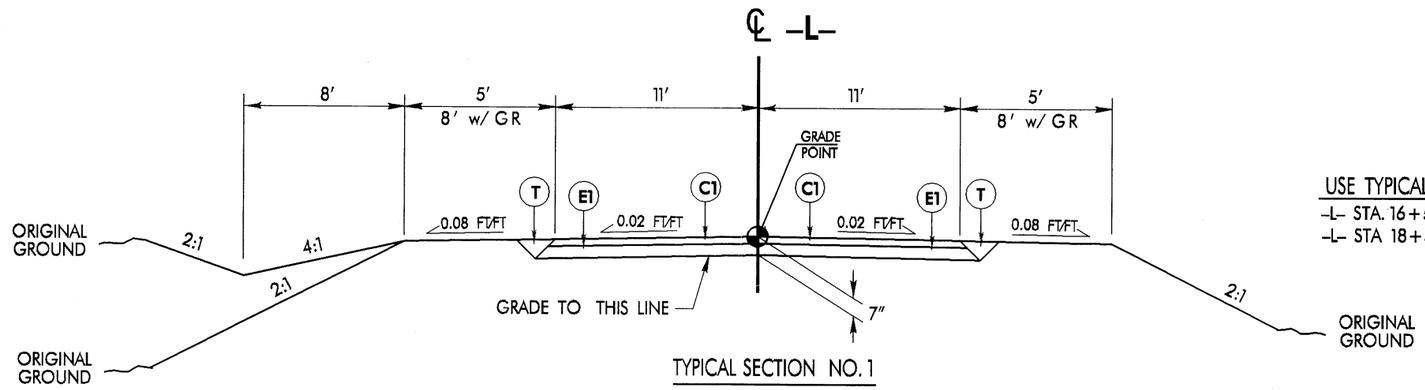
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



DETAIL SHOWING SHOULDER BERM GUTTER PLACEMENT
(SEE PLANS FOR LOCATION)

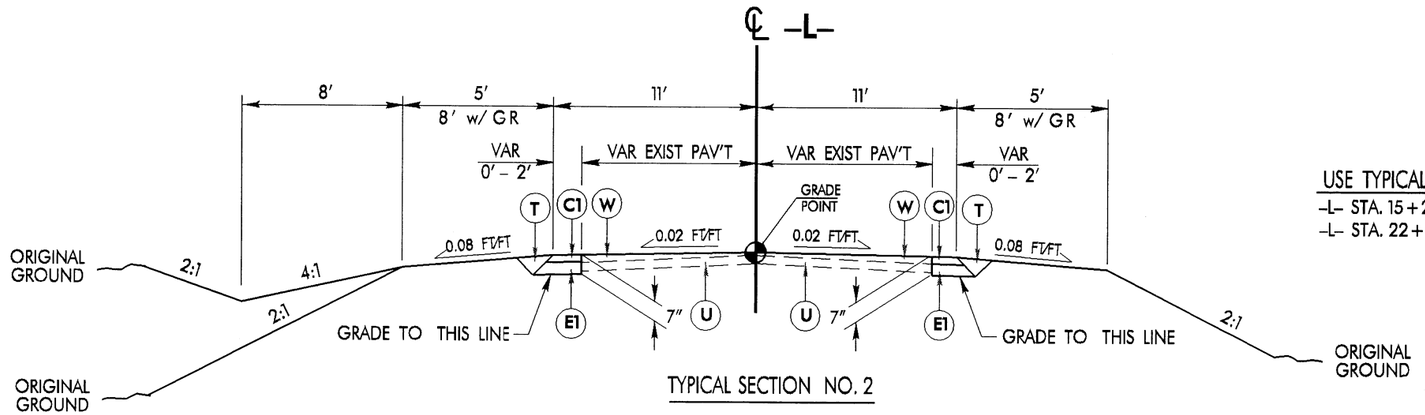


WEDGING DETAIL FOR VARIABLE DEPTH ASPHALT PAVEMENT



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 FOR THE FOLLOWING:
–L– STA. 16+50.00 TO –L– STA 16+95.00 (BEGIN BRIDGE)
–L– STA 18+55.00 (END BRIDGE) TO –L– STA 22+00.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 FOR THE FOLLOWING:
–L– STA. 15+25.00 TO –L– STA. 16+50
–L– STA. 22+00.00 TO –L– STA 23+00.00

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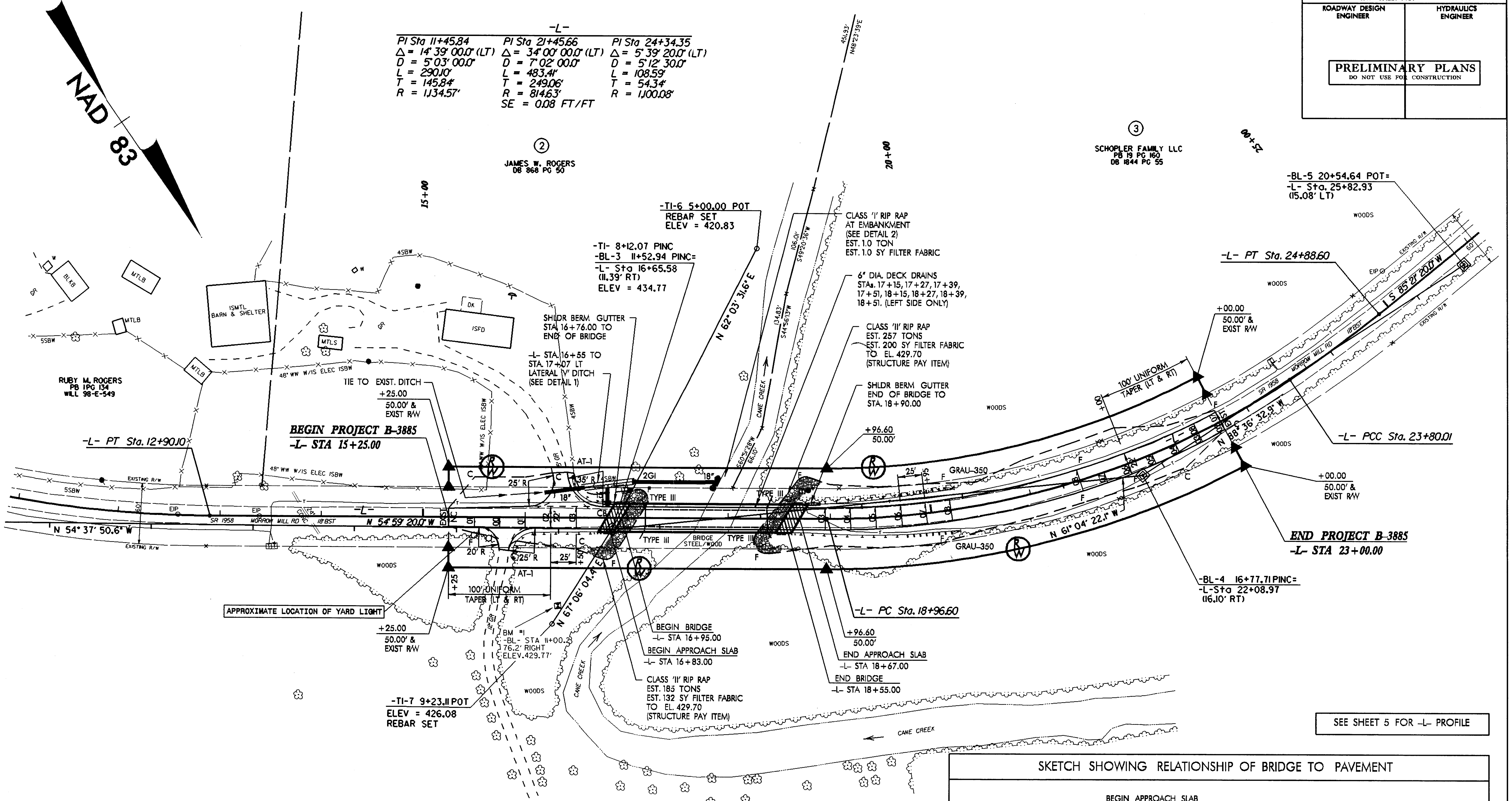
PROJECT REFERENCE NO.	SHEET NO.
B-3885	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

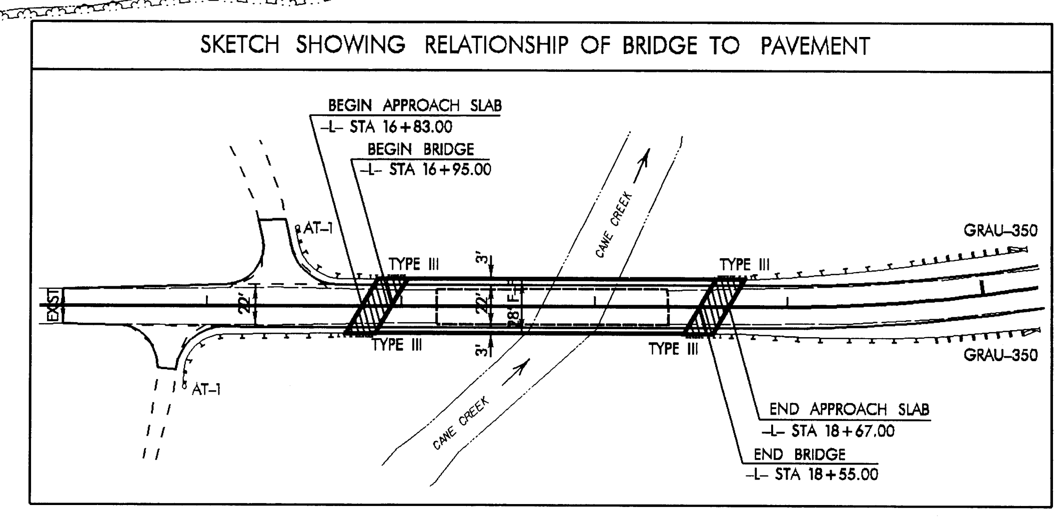
REVISIONS

Plan Revision on Parcel 2 – Widening the entrance driveway and extending the driveway pipe. 10/23/03



NAD 83
-L-
PI Sta 11+45.84
Δ = 14° 39' 00.0" (LT)
D = 5° 03' 00.0"
L = 290.10'
T = 145.84'
R = 1,134.57'
PI Sta 21+45.66
Δ = 34° 00' 00.0" (LT)
D = 7° 02' 00.0"
L = 483.41'
T = 249.06'
R = 814.63'
SE = 0.08 FT/FT
PI Sta 24+34.35
Δ = 5° 39' 20.0" (LT)
D = 5° 12' 30.0"
L = 108.59'
T = 54.34'
R = 1,100.08'
2
JAMES W. ROGERS
DB 868 PG 50
3
SCHOPLER FAMILY LLC
PB 19 PG 160
DB 1844 PG 55
RUBY M. ROGERS
PB 1 PG 134
WILL 98-E-549
1
JAY MILLER
PB 82 PG 124
DB 2012 PG 164
-TI-6 5+00.00 POT
REBAR SET
ELEV = 420.83
-TI- 8+12.07 PINC
-BL-3 11+52.94 PINC=
-L- Sta 16+65.58
(11.39' RT)
ELEV = 434.77
-TI-7 9+23.11 POT
ELEV = 426.08
REBAR SET
BEGIN PROJECT B-3885
-L- STA 15+25.00
END PROJECT B-3885
-L- STA 23+00.00
-L- PT Sta. 12+90.10
-L- PT Sta. 24+88.60
-L- PCC Sta. 23+80.01
-L- PC Sta. 18+96.60
-BL-5 20+54.64 POT=
-L- Sta. 25+82.93
(15.08' LT)
-BL-4 16+77.71 PINC=
-L-Sta 22+08.97
(16.10' RT)
N 54° 37' 50.6" W
N 54° 59' 20.0" W
N 62° 03' 31.6" E
N 67° 06' 04.4" E
N 61° 04' 22.1" W
N 88° 36' 32.9" W
S 85° 21' 20.0" W
CLASS 'I' RIP RAP
AT EMBANKMENT
(SEE DETAIL 2)
EST. 1.0 TON
EST. 1.0 SY FILTER FABRIC
6" DIA. DECK DRAINS
STAs. 17+15, 17+27, 17+39,
17+51, 18+15, 18+27, 18+39,
18+51. (LEFT SIDE ONLY)
CLASS 'II' RIP RAP
EST. 257 TONS
EST. 200 SY FILTER FABRIC
TO EL. 429.70
(STRUCTURE PAY ITEM)
SHLDR BERM GUTTER
END OF BRIDGE TO
STA. 18+90.00
SHLDR BERM GUTTER
STA 16+76.00 TO
END OF BRIDGE
-L- STA. 16+55 TO
STA. 17+07 LT
LATERAL 'V' DITCH
(SEE DETAIL 1)
TIE TO EXIST. DITCH
+25.00
50.00' &
EXIST R/W
+96.60
50.00'
+00.00
50.00' &
EXIST R/W
100' UNIFORM
TAPER (LT & RT)
APPROXIMATE LOCATION OF YARD LIGHT
BM #1
-BL- STA 11+00.2
76.2' RIGHT
ELEV. 429.77'
BEGIN BRIDGE
-L- STA 16+95.00
BEGIN APPROACH SLAB
-L- STA 16+83.00
CLASS 'II' RIP RAP
EST. 185 TONS
EST. 132 SY FILTER FABRIC
TO EL. 429.70
(STRUCTURE PAY ITEM)
END BRIDGE
-L- STA 18+55.00
END APPROACH SLAB
-L- STA 18+67.00
SR 1958 MORROW MILL RD 18' BST
BRIDGE STEEL/WOOD
TYPE III
GRAU-350
AT-1
2GI
CANE CREEK
WOODS
ISMTL BARN & SHELTER
ISFD
MTLB
MTLS
15+00
20+00
25+00

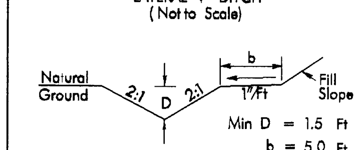
SEE SHEET 5 FOR -L- PROFILE



DATUM DESCRIPTION

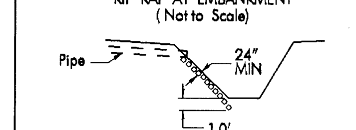
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3885-1"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 792450.4032 (ft) EASTING: 1924115.026 (ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99992943
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3885-1" TO -L- Sta 15+25.00 IS
N 55° 50' 22.25" W DIST. 492.4045 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

DETAIL 1
LATERAL 'V' DITCH
(Not to Scale)



-L- STA. 16+55 TO STA. 17+07 LT

DETAIL 2
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = Class 'I' Rip Rap

-L- STA. 17+93 LT

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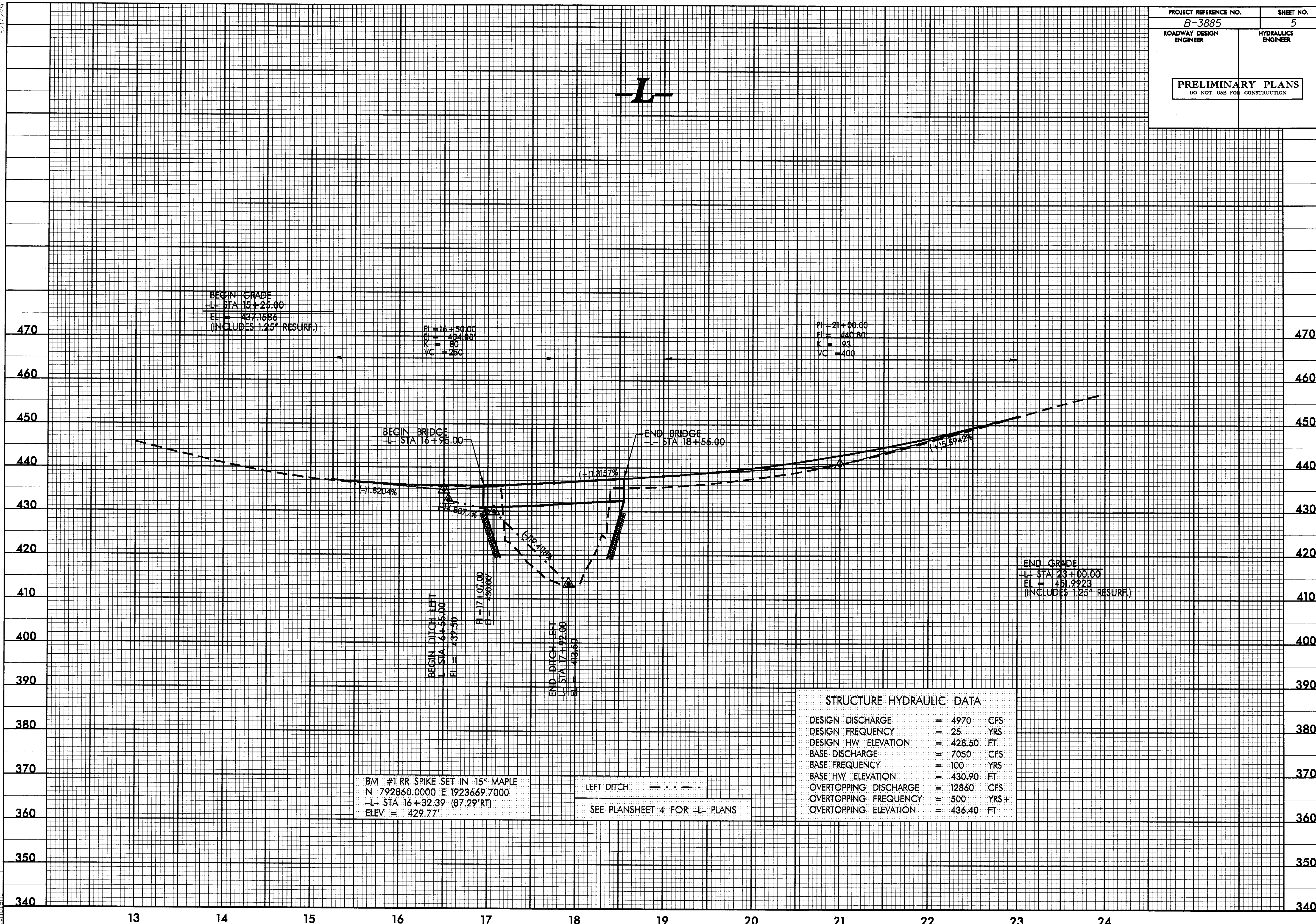
PROJECT REFERENCE NO.	SHEET NO.
B-3885	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-



BM #1 RR SPIKE SET IN 15" MAPLE
N 792860.0000 E 1923669.7000
-L- STA 16+32.39 (87.29'RT)
ELEV = 429.77'

LEFT DITCH — · · —

SEE PLANSHEET 4 FOR -L- PLANS

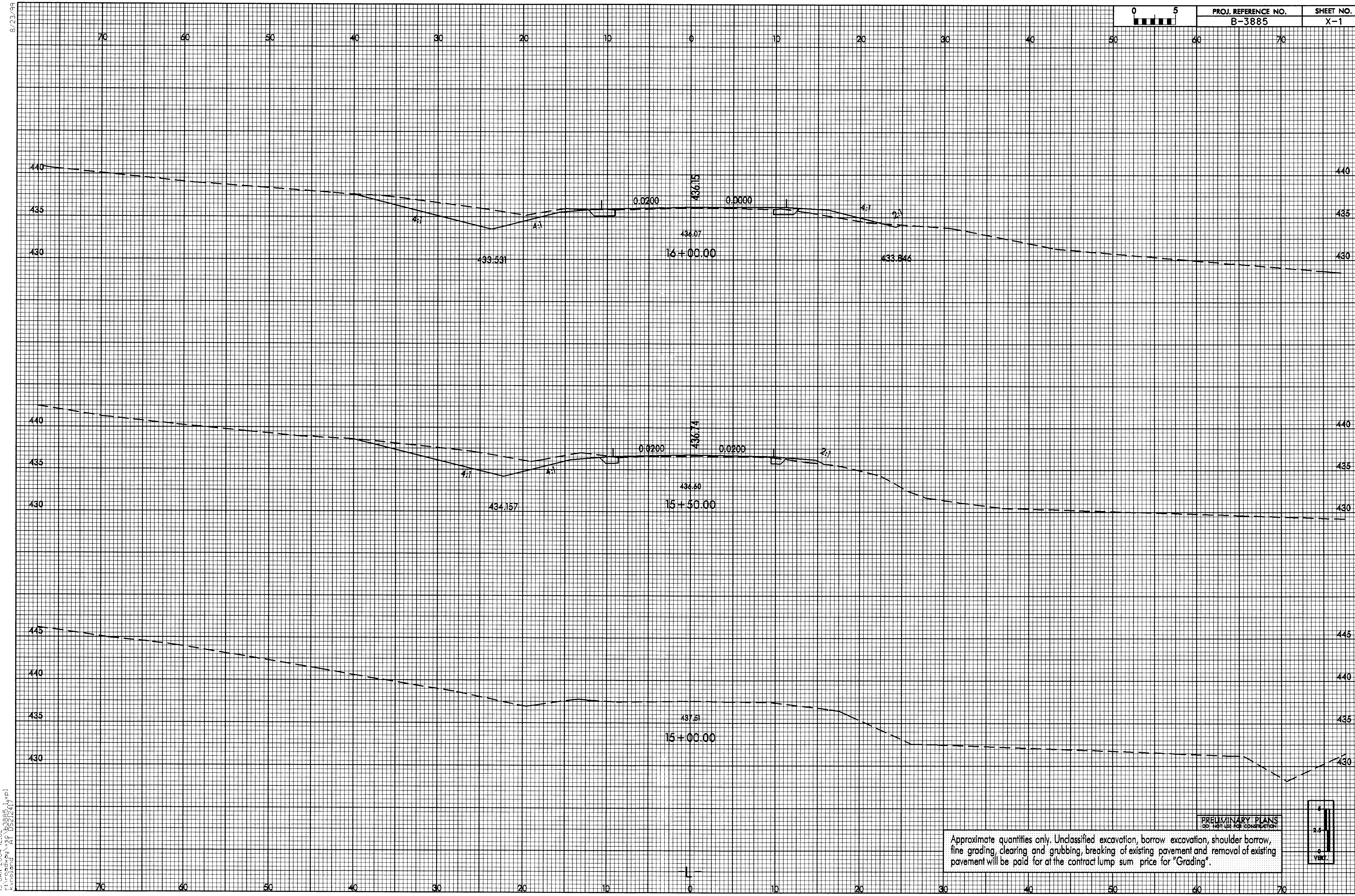
STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	4970	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	428.50	FT
BASE DISCHARGE	=	7050	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	430.90	FT
OVERTOPPING DISCHARGE	=	12860	CFS
OVERTOPPING FREQUENCY	=	500	YRS+
OVERTOPPING ELEVATION	=	436.40	FT

5/14/99

13-JAN-2004 13:05
R:\Roadway\Proj\b3885.pfl

PROJ. REFERENCE NO.	SHEET NO.
B-3885	X-1



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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

13-JAN-2004 12:02
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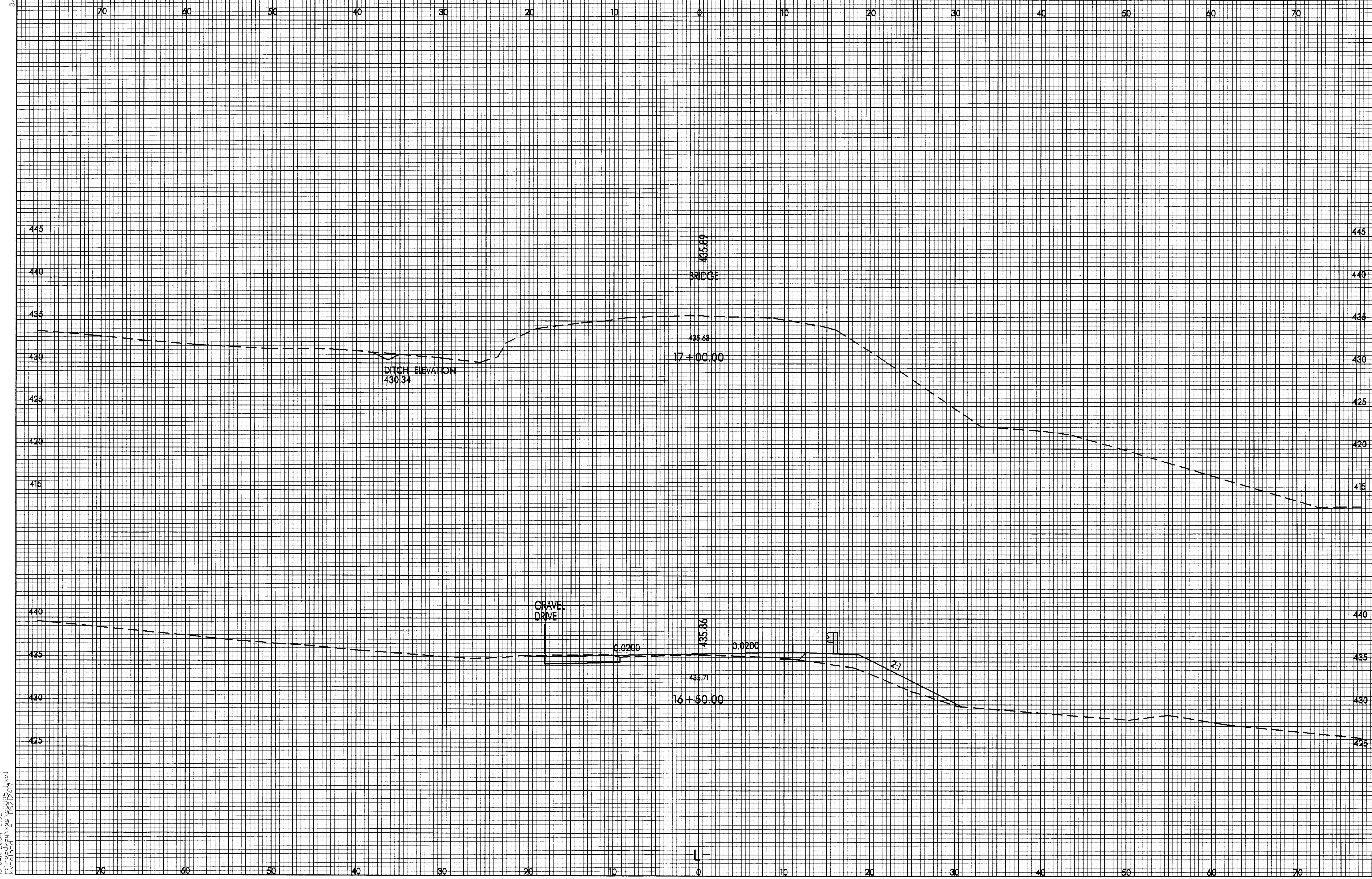
kvnoland AT DS21241Y

PROJ. REFERENCE NO.	SHEET NO.
B-3885	X-2



8/23/99

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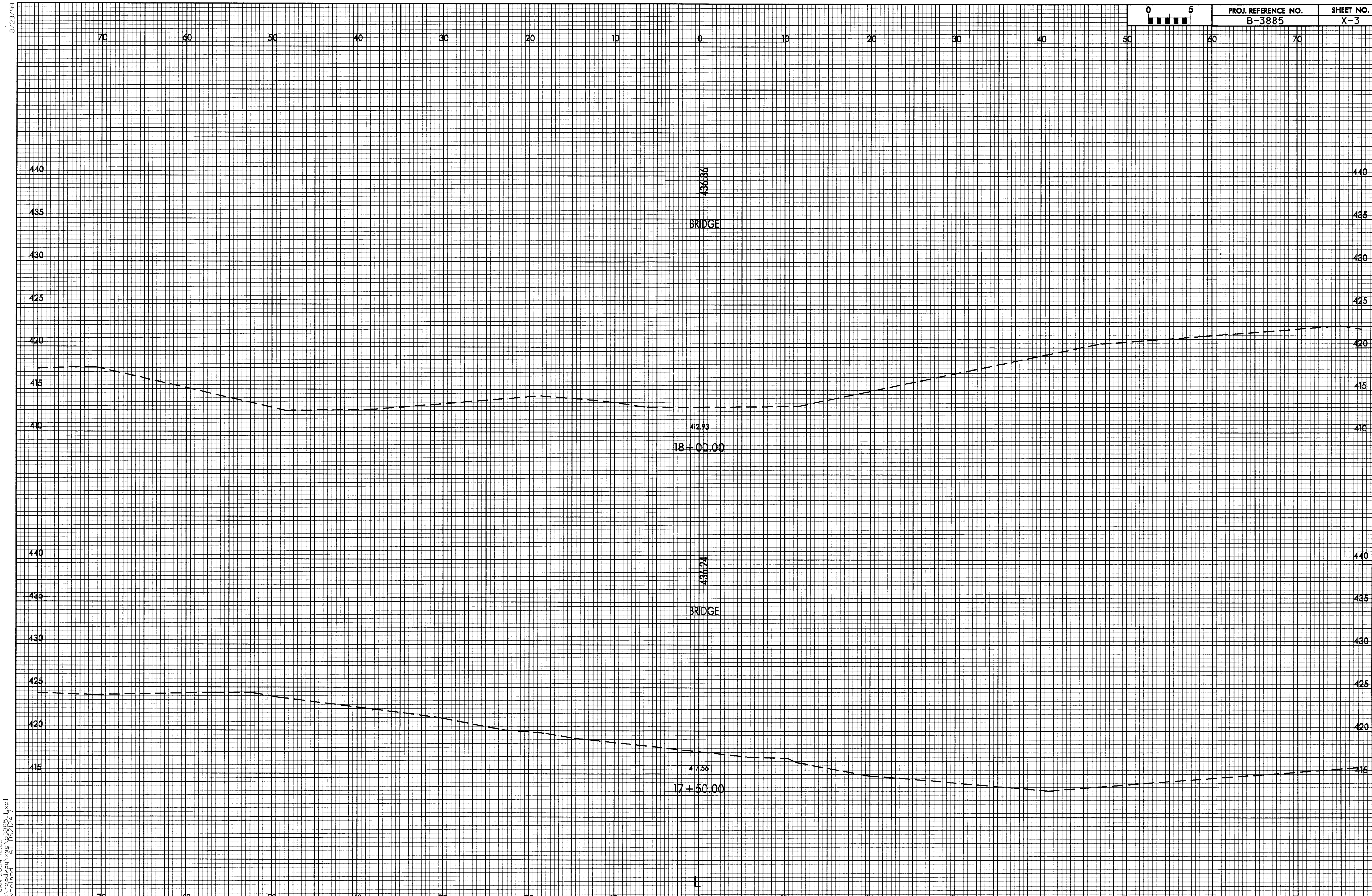
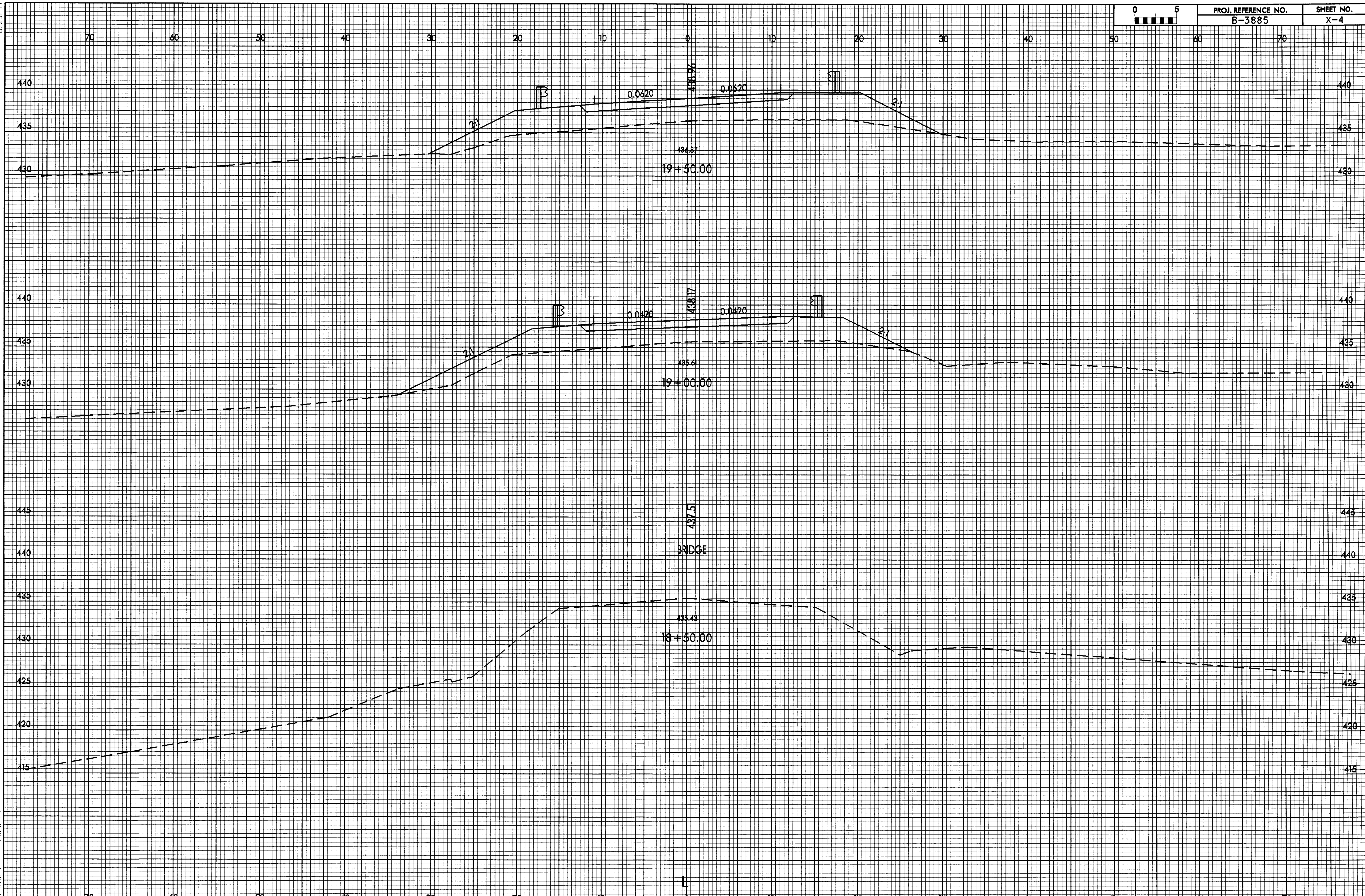
kvnoland AT DS212417

PROJ. REFERENCE NO.	SHEET NO.
B-3885	X-3

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B-3885
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X-4
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8/23/99
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2:1
436.37
19+50.00
438.17
0.0420
0.0420
2:1
2:1
435.61
19+00.00
437.51
BRIDGE
435.43
18+50.00
70 60 50 40 30 20 10 0 10 20 30 40 50 60 70
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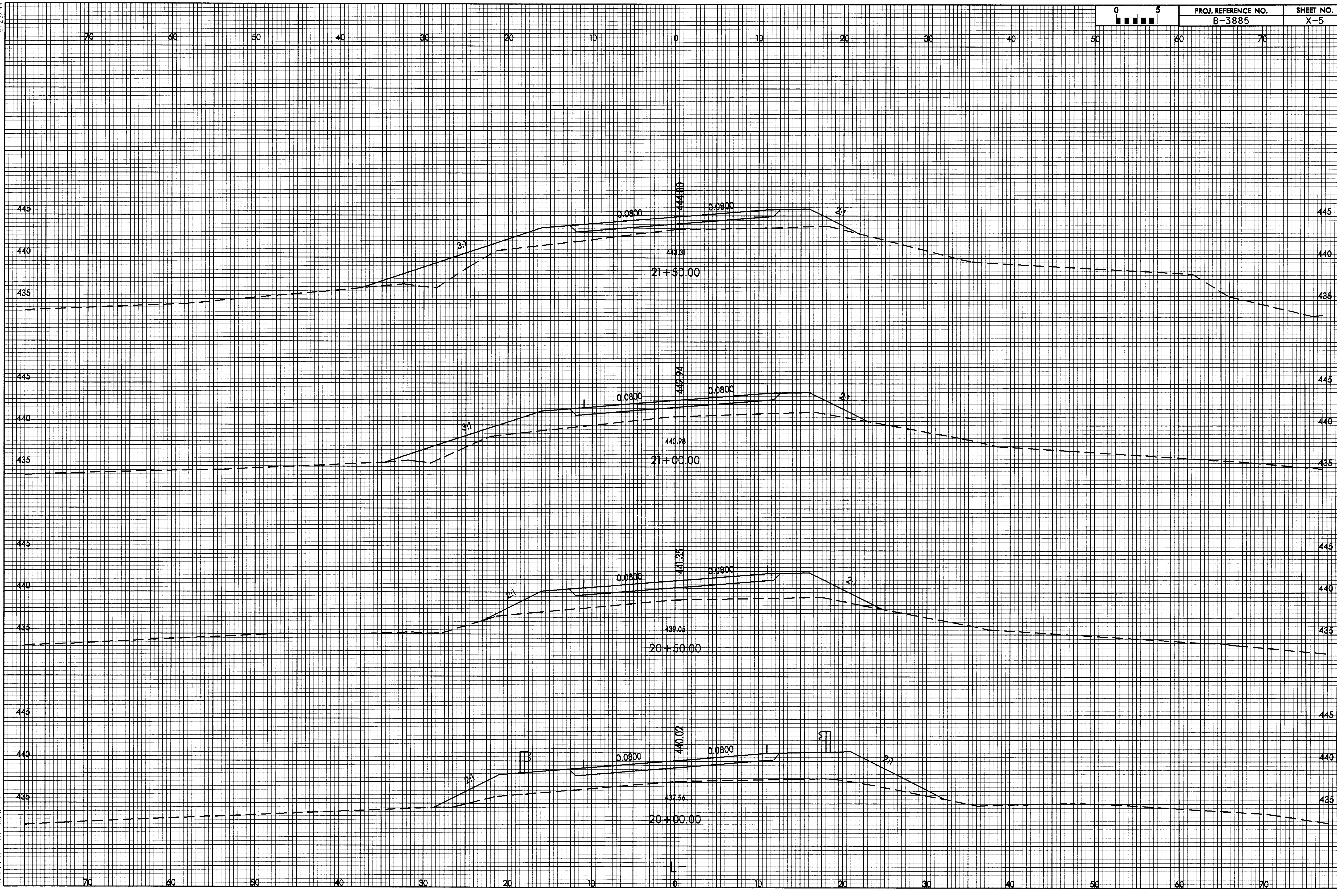
8/23/99



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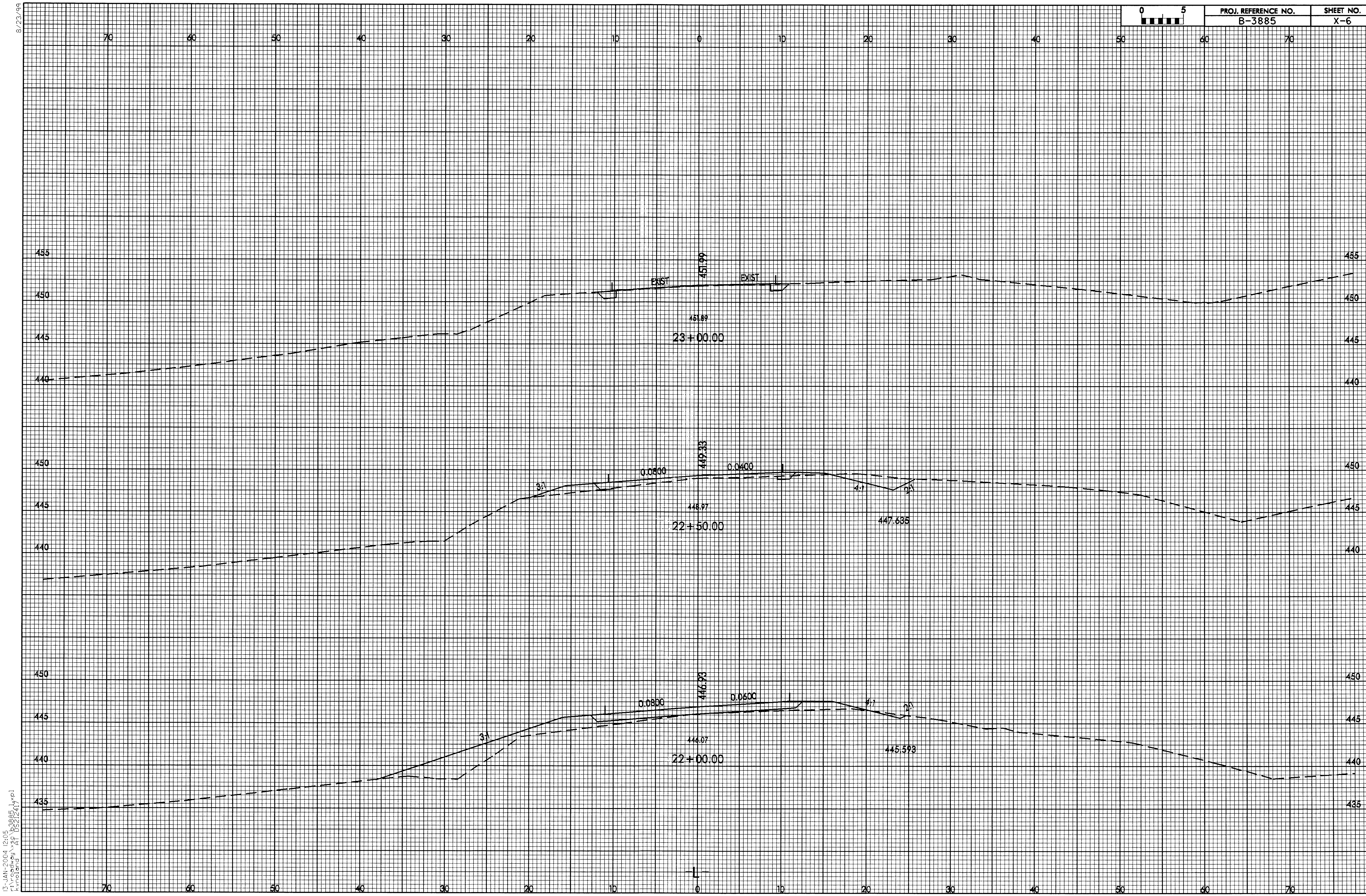

PROJ. REFERENCE NO.
B-3885
SHEET NO.
X-6
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8/23/99
EXIST
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4:1
2:1
448.97
447.635
22+50.00
0.0800
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445.593
22+00.00
13-JAN-2004 12:05
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