STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI
SECRETARY

March 27, 2012

Wilmington Regulatory Field Office
US Army Corps of Engineers
69 Darlington Avenue
Wilmington, North Carolina 28403

ATTN: Mr. Ronnie Smith
NCDOT Coordinator

Dear Sirs:

Subject: **Application for Section 404 Nationwide Permits 12 and 23 and 401 Water Quality Certification** for the Replacement of Bridge No. 5 on NC 242 over Singletary Mill Branch in Bladen County, North Carolina. TIP No. B-4711. Federal Aid Project No. BRSTP-242(3); Debit $240.00 from WBS Element 38486.1.1.

Please find enclosed the Pre-Construction Notification (PCN) form, permit drawings, utility drawings, design plans, stormwater management plan, and jurisdictional determination for the above referenced project. A Programmatic Categorical Exclusion (PCE) was completed for this project on June 24, 2010 and distributed shortly thereafter. Additional copies are available upon request. The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 5 over Singletary Mill Branch on NC 242 in Bladen County. The project involves replacement of the existing 55-foot structure with a 121-foot long bridge in approximately the same location. There will be 0.09 acre of permanent impacts to riparian wetlands resulting from fill and mechanized clearing on this project.

The proposed let date for the project is November 20, 2012 with a review date of October 2, 2012. However, the let date may advance as additional funds become available.

Regulatory Approvals

Section 404 Permit: All aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR

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

TELEPHONE: 919-707-6100
FAX: 919-212-5785
WEBSITE: WWW.NCDOT.ORG

LOCATION:
CENTURY CENTER BUILDING B
1020 BIRCH RIDGE DR.
RALEIGH, NC 27610

771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23. We are also requesting the issuance of a Nationwide Permit 12 for clearing associated with replacing a utility line.

Section 401 Permit: We anticipate 401 General Certification numbers 3819 and 3701 will apply to this project. All general conditions of the Water Quality Certifications will be met. NCDOT is providing five copies of this application to the NCDWQ for their review and approval. Authorization to debit the $240 Permit Application Fee from WBS Element 33788.1.1 is hereby given.

A copy of this permit application will be posted on the NCDOT Website at: http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Amy James at aejames@ncdot.gov or (919) 707-6129.

Sincerely,

Gregory J. Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Unit

cc: NCDOT Permit Application Standard Distribution List

Office Use Only:
Corps action ID no. _____
DWQ project no. _____
Form Version 1.3 Dec 10 2008

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit	☐ Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 12 23	or General Permit (GP) number:	
1c. Has the N WP or GP number been verified by the Corps?	☐ Yes	☒ No

1d. Type(s) of approval sought from the DWQ (check all that apply):

☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit

☐ 401 Water Quality Certification – Express ☐ Riparian Buffer Authorization

1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☐ Yes ☒ No	For the record only for Corps Permit: ☐ Yes ☒ No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.	☐ Yes	☒ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	☐ Yes	☒ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	☐ Yes	☒ No

2. Project Information

2a. Name of project:	Replacement of Bridge No. 5 over Singletary Mill Branch on NC 242
2b. County:	Bladen
2c. Nearest municipality / town:	Bladenboro
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	B-4711

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	*not applicable*
3c. Responsible Party (for L LC if applicable):	*not applicable*
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6129
3g. Fax no.:	(919) 212-5785
3h. Email address:	aejames@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	☐ Agent ☐ Other, specify:
4b. Name:	*not applicable*
4c. Business name (if applicable):	
4d. Street address:	
4e. City, state, zip:	
4f. Telephone no.:	
4g. Fax no.:	
4h. Email address:	
5. Agent/Consultant Information (if applicable)	
5a. Name:	*not applicable*
5b. Business name (if applicable):	
5c. Street address:	
5d. City, state, zip:	
5e. Telephone no.:	
5f. Fax no.:	
5g. Email address:	

B. Project Information and Prior Project History		
1. Property Identification		
1a. Property identification no. (tax PIN or parcel ID):	*not applicable*	
1b. Site coordinates (in decimal degrees):	Latitude: 34.495761 (DD.DDDDDD)	Longitude: - 78.840954 (-DD.DDDDDD)
1c. Property size:	3.4 acres	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Singletary Mill Branch (or Horsepen Branch)	
2b. Water Quality Classification of nearest receiving water:	C; Sw	
2c. River basin:	Lumber	
3. Project Description		
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: Land use in the project vicinity consists primarily of agriculture, interspersed with residential development and forestland.		
3b. List the total estimated acreage of all existing wetlands on the property: 4.9 acres		
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 398 linear feet		
3d. Explain the purpose of the proposed project: To replace a structurally deficient and functionally obsolete bridge.		
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 55-foot bridge with a 121-foot, 2-span cored slab bridge on the existing alignment with an off-site detour. Standard road building equipment, such as trucks, dozers, and cranes will be used.		
4. Jurisdictional Determinations		
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments:	☒ Yes ☐ No ☐ Unknown	
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☒ Preliminary ☐ Final	
4c. If yes, who delineated the jurisdictional areas? Name (if known): NCDOT (Amy James)	Agency/Consultant Company: Other:	
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. March 1, 2010		
5. Project History		
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes ☒ No ☐ Unknown	
5b. If yes, explain in detail according to "help file" instructions.		
6. Future Project Plans		
6a. Is this a phased project?	☐ Yes ☒ No	
6b. If yes, explain.		

C. Proposed Impacts Inventory

1. Impacts Summary

1a. Which sections were completed below for your project (check all that apply):

☒ Wetlands ☒ Streams - tributaries ☐ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.

2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)
Site 1 ☒ P ☐ T	Fill	Riverine Swamp Forest	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.03
Site 1 ☒ P ☐ T	Mechanized Clearing	Riverine Swamp Forest	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.06
Utility Site 3 ☒ P ☐ T	Fill	Riverine Swamp Forest	☒ Yes ☐ No	☒ Corps ☐ DWQ	<0.01
Site 4 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 5 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 6 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	0.09 Permanent 0.0 Temporary

2h. Comments: Due to utility impacts, there will also be 0.29 acre of hand clearing on this project (see utility narrative)

3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact area (acres)
Site 1 ☒ P ☐ T	Fill	Singletary Mill Branch	☒ PER ☐ INT	☒ Corps ☐ DWQ		<0.01
Site 2 ☐ P ☒ T	Temporary fill	Singletary Mill Branch	☒ PER ☐ INT	☒ Corps ☐ DWQ		<0.01
Site 3 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 4 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 5 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 6 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
					3h. **Total stream and tributary impacts**	<0.01 Perm <0.01 Temp

3i. Comments: There will be 15 sq. ft. (<0.01 acre) of permanent surface water impacts due to bents.

4. Open Water Impacts

If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.

4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 ☐ P ☐ T				
O2 ☐ P ☐ T				
O3 ☐ P ☐ T				
O4 ☐ P ☐ T				
			4f. Total open water impacts	X Permanent X Temporary

4g. Comments:

5. Pond or Lake Construction

If pond or lake construction proposed, then complete the chart below.

5a. Pond ID number	5b. Proposed use or purpose of pond	5c. Wetland Impacts (acres)			5d. Stream Impacts (feet)			5e. Upland (acres)
		Flooded	Filled	Excavated	Flooded	Filled	Excavated	Flooded
P1								
P2								
	5f. Total							

5g. Comments:

5h. Is a dam high hazard permit required?	☐ Yes ☐ No If yes, permit ID no:
5i. Expected pond surface area (acres):	
5j. Size of pond watershed (acres):	
5k. Method of construction:	

6. Buffer Impacts (for DWQ)

If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you **MUST** fill out Section D of this form.

6a. Project is in which protected basin?			☐ Neuse ☐ Catawba	☐ Tar-Pamlico ☐ Randleman	☐ Other:
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
B1 ☐ P ☐ T			☐ Yes ☐ No		
B2 ☐ P ☐ T			☐ Yes ☐ No		
B3 ☐ P ☐ T			☐ Yes ☐ No		
		6h. **Total buffer impacts**			
6i. Comments:					

D. Impact Justification and Mitigation

1. Avoidance and Minimization

1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project.

The proposed bridge is 66 feet longer than the existing bridge and at approximately the same grade and alignment as the existing structure; 3:1 or steeper fill slopes in wetlands where practicable.

1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques.

NCDOT Best Management Practices for Bridge Demolition, Removal and Construction will be followed, as well as those for Sedimentation and Erosion Control; and the utilization of an off-site detour.

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	☐ Yes ☒ No If no, explain: Due to minimal impacts, NCDOT is not proposing compensatory mitigation.
2b. If yes, mitigation is required by (check all that apply):	☐ DWQ ☐ Corps
2c. If yes, which mitigat ion option will be used for this project?	☐ Mitigation bank ☐ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

3b. Credits Purchased (attach receipt and letter)	Type	Quantity

3c. Comments:

4. Complete if Making a Payment to In-lieu Fee Program

4a. Approval letter from in-lieu fee program is attached.	☐ Yes
4b. Stream mitigation requested:	linear feet
4c. If using stream mitigation, stream temperature:	☐ warm ☐ cool ☐ cold
4d. Buffer mitigation requested (DWQ only):	square feet
4e. Riparian wetland mitigation requested:	acres
4f. Non-riparian wetland mitigation requested:	acres
4g. Coastal (tidal) wetland mitigation requested:	acres

4h. Comments:

5. Complete if Using a Permittee Responsible Mitigation Plan

5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.

6. **Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ**				
6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?				☐ Yes ☐ No
6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.				
Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
	6f. **Total buffer mitigation required:**			
6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).				
6h. Comments:				

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☐ Yes ☒ No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments:	☐ Yes ☐ No
2. Stormwater Management Plan	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	☒ Yes ☐ No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See attached permit drawings.	
2e. Who will be responsible for the review of the Stormwater Management Plan?	☐ Certified Local Government ☐ DWQ Stormwater Program ☒ DWQ 401 Unit
3. Certified Local Government Stormwater Review	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	☐ Phase II ☐ NSW ☐ USMP ☐ Water Supply Watershed ☐ Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	☐ Coastal counties ☐ HQW ☐ ORW ☐ Session Law 2006-246 ☐ Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No N/A
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	☐ Yes ☐ No N/A
5b. Have all of the 401 Unit submittal requirements been met?	☐ Yes ☐ No N/A

F. Supplementary Information		
1. Environmental Documentation (DWQ Requirement)		
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	☒ Yes	☐ No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	☒ Yes	☐ No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments:	☒ Yes	☐ No
2. Violations (DWQ Requirement)		
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	☐ Yes	☒ No
2b. Is this an after-the-fact permit application?	☐ Yes	☒ No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):		
3. Cumulative Impacts (DWQ Requirement)		
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	☐ Yes ☒ No	
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description. Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.		
4. Sewage Disposal (DWQ Requirement)		
4a. 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. not applicable		

5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat?	☐ Yes	☒ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☐ Yes	☒ No
5c. If yes, ind icate the USFWS Field Office you have contacted.	☐ Raleigh ☐ Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? USFWS county list.		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes	☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☒ Yes	☐ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		

Dr. Gregory J. Thorpe, Ph D Applicant/Agent's Printed Name	Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	03/27/12 Date

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): February 23, 2010

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
Amy James, NCDOT, 1598 Mail Service Center, Raleigh, NC 27699-1598

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: SAW-2009-02252 (NCDOT/ B-4711/ replacement of bridge no. 5 on NC 242 over Horsepen Branch in Bladen County/ Div. 6)

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
B-4711, bridge no. 5 on NC 242 over Horsepen Branch (also known as Singletary Mill Branch) in Bladen County.

(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: North Carolina County/parish/borough: Bladen City: Bladenboro
Center coordinates of site (lat/long in degree decimal format):
Lat. 34.495854° **N**, Long. -78.84097° **W**.
Universal Transverse Mercator:
Name of nearest waterbody: Horsepen Branch; at the crossing, the channel is defined and looks like it was excavated at one point; however, upon entering the forest, Horsepen Branch becomes more swamp-like, having neither a distinct channel nor a distinct streambed and bank (so I only included the acreage of the area around the bridge—see below).

Identify (estimate) amount of waters in the review area:
Non-wetland waters: 500 linear feet: 20 width (ft) and/or 0.23 acre.
Cowardin Class: Riverine
Stream Flow: perennial
Wetlands: 4.6 acres
Cowardin Class: PF06C, PFO1/4A, PEM1/2A

Name of any water bodies on the site that have been identified as Section 10 waters:
Tidal:
Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: February 23, 2010
☐ Field Determination. Date(s):

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: NCDOT.

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

- ☐ Office concurs with data sheets/delineation report.
- ☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

- ☐ USGS NHD data.
- ☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Bladenboro and Chadbourn NE .

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: USDA, Bladen County 1990.

☐ National wetlands inventory map(s). Cite name:

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)

☐ Photographs: ☐ Aerial (Name & Date): .
or ☐ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

3/1/10

Signature and date of Regulatory Project Manager (REQUIRED)

Signature and date of person requesting preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
1	34.4959	-78.8410	Riverine	5 acres	Wetlands
2	34.4959	-78.8410	Riverine	500 linear feet	Stream

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

February 6, 2012

MEMORANDUM TO: File

FROM: Paul F. Fisher, P.E.
Hydraulics Unit

SUBJECT: Stormwater Management Plan
B-4711, Bladen County

ROADWAY DESCRIPTION:

B-4711 consists of constructing a new bridge on NC 242 over Singletary Mill Branch. The total project length is 0.142 miles. This project is in the Lumber River Basin. The jurisdictional stream is Singletary Mill Branch.

ENVIRONMENTAL DESCRIPTION:

This project is in Bladen County, which is not a CAMA county. There are wetland sites on all four quadrants around the bridge that will be impacted by the proposed project. Surface Water Impacts will be minimized to the extent practicable.

BEST MANAGEMENT PRACTICES AND MAJOR STRUCTURES

The primary goal of Best Management Practices (BMP's) is to prevent the degradation of the State's surface waters by the location, construction and operation of the highway system. The BMP's are activities, practices and procedures taken to prevent or reduce stormwater pollution. The BMP measures used on this project to reduce stormwater impacts are:

Rip rap pads were placed at discharge points, in wetlands.

3:1 sideslopes on all new ditches.

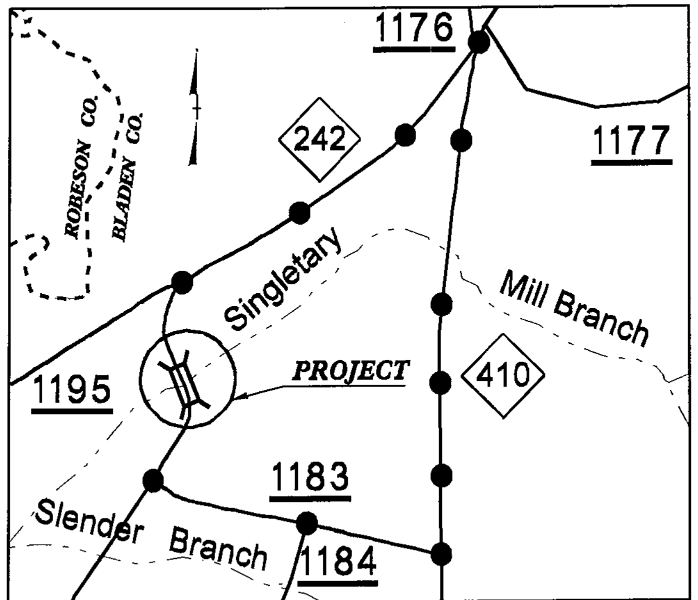
Maintain sheet flow off fill slopes where shoulder berm gutter is not required.

PFF

CONTRACT:

TIP PROJECT: B-4711

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



VICINITY MAP

DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BLADEN COUNTY

LOCATION: BRIDGE NO. 5 OVER SINGLETARY MILL BRANCH ON NC 242

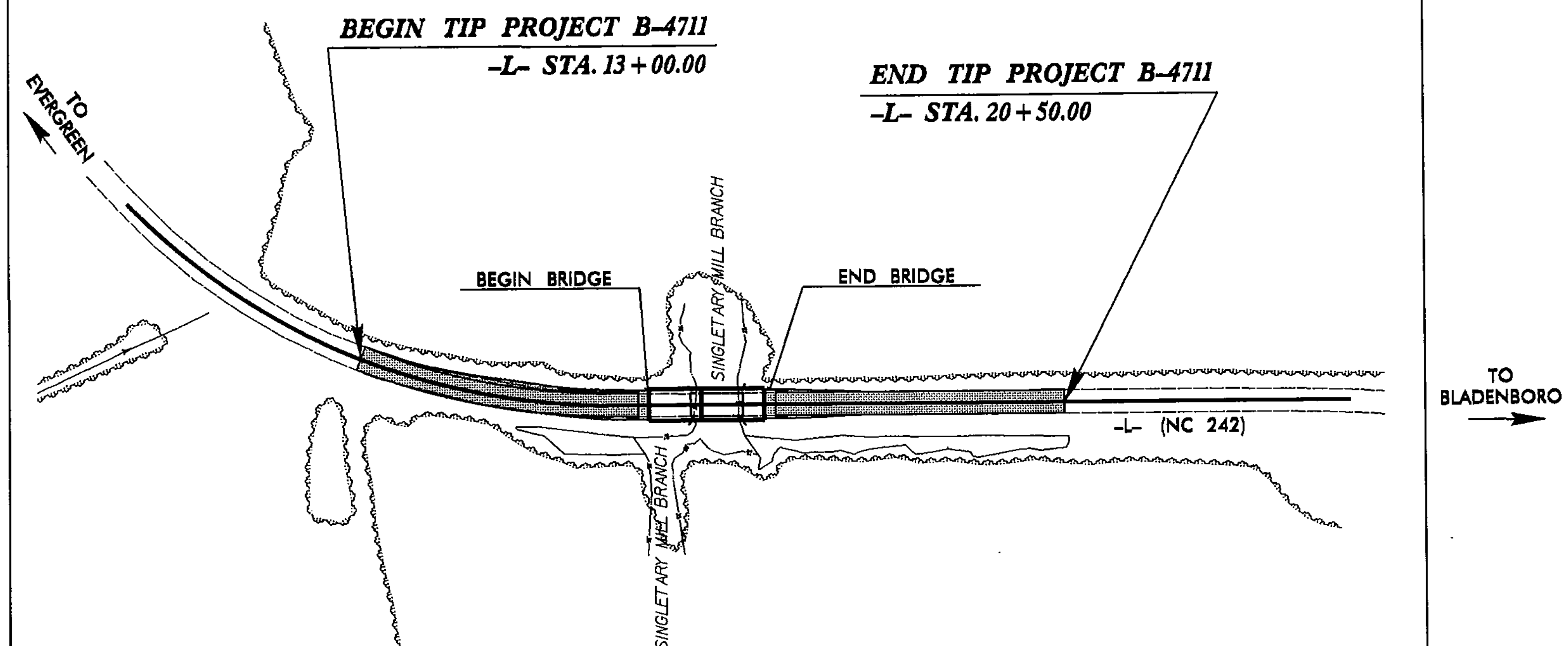
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4711	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
38486.1.1	BRSTP-242(3)	PE
38486.2.1	BRSTP-0242(3)	RW & UTILITIES

NAD 83/95

4



SURFACE WATER & WETLAND IMPACTS

Permit Drawing
Sheet 1 of 9

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
DESIGN EXCEPTION REQUIRED FOR HORIZONTAL CURVE RADIUS OF 750' AND FOR MINIMUM HORIZONTAL STOPPING SIGHT DISTANCE OF 358'.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

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 2012 = 875
ADT 2032 = 1,160
DHV = 12%
D = 55%
T = 20% *
** V = 60 MPH
* TTST 10% DUAL 10%
FUNC. CLASS= RURAL MAJOR COLLECTOR REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4711	=	0.119 MILES
LENGTH STRUCTURE TIP PROJECT B-4711	=	0.023 MILES
TOTAL LENGTH TIP PROJECT B-4711	=	0.142 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 18, 2011

LETTING DATE:
NOVEMBER 20, 2012

PROJECT ENGINEER

PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY DESIGN ENGINEER P.E.

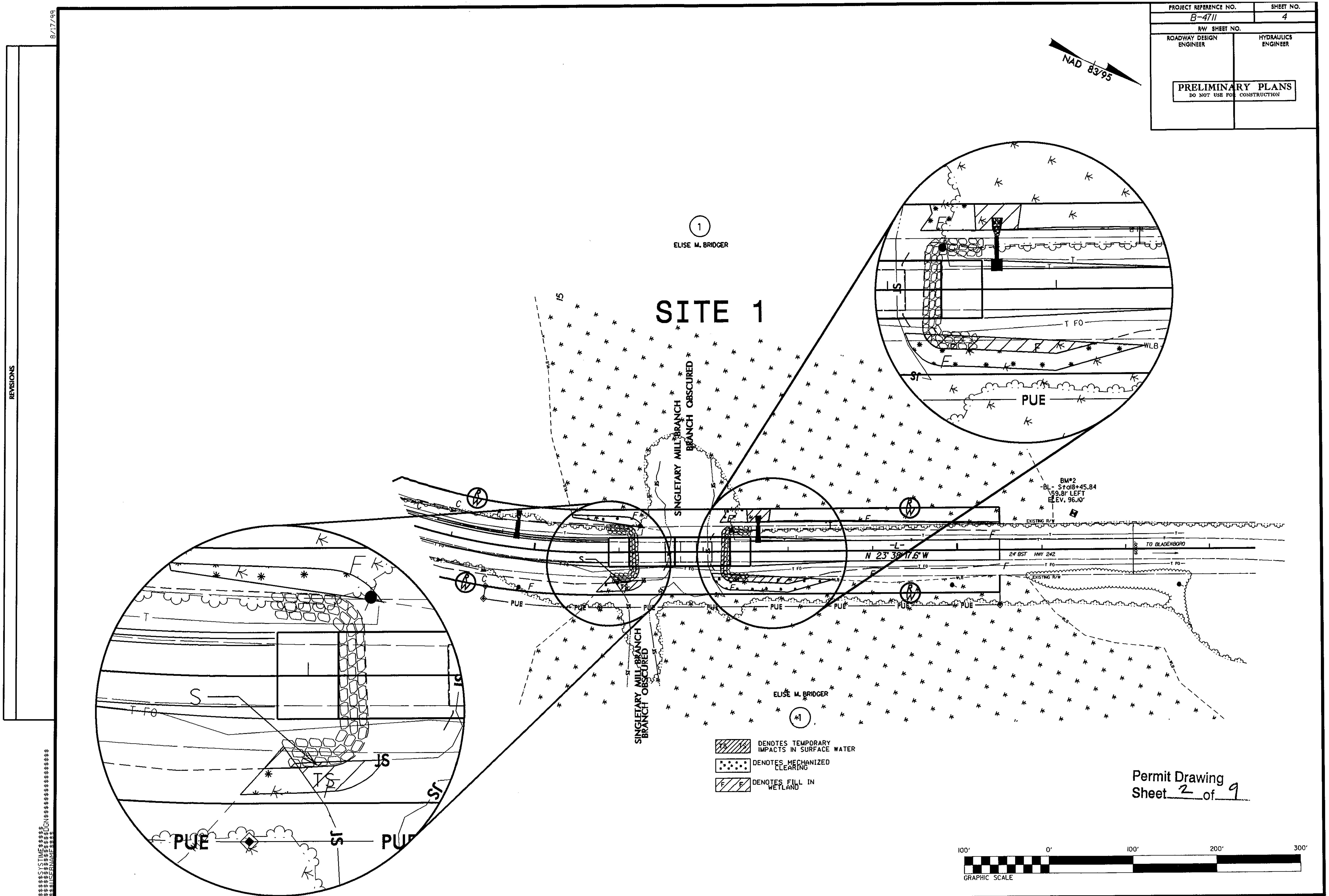
09/08/99

$$$$$$$$SYSTIME$$$$$$$$ $$$$$$$$DGN$$$$$$$$ $$$$$$$$USERNAME$$$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4711	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SITE 1



Permit Drawing
Sheet 2 of 9

PROJECT REFERENCE NO.	SHEET NO.
B-4711	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

$$$$SYSTIME$$$$
$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

SITE 1

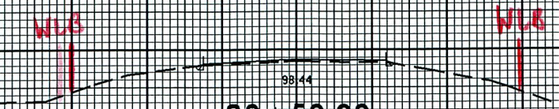
▨ TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

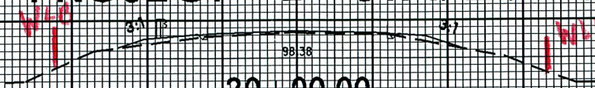
⁙ DENOTES MECHANIZED CLEARING

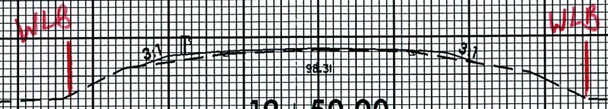
▨ F F DENOTES FILL IN WETLAND

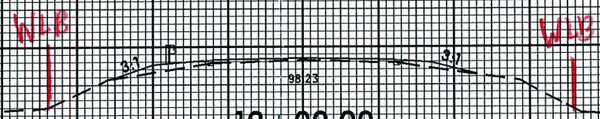
Permit Drawing
Sheet 3 of 9

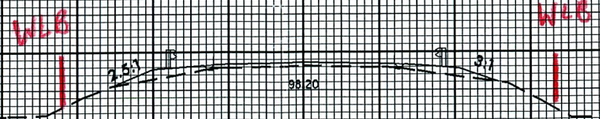
100' 0' 100' 200' 300'
GRAPHIC SCALE

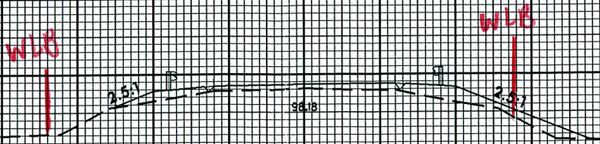












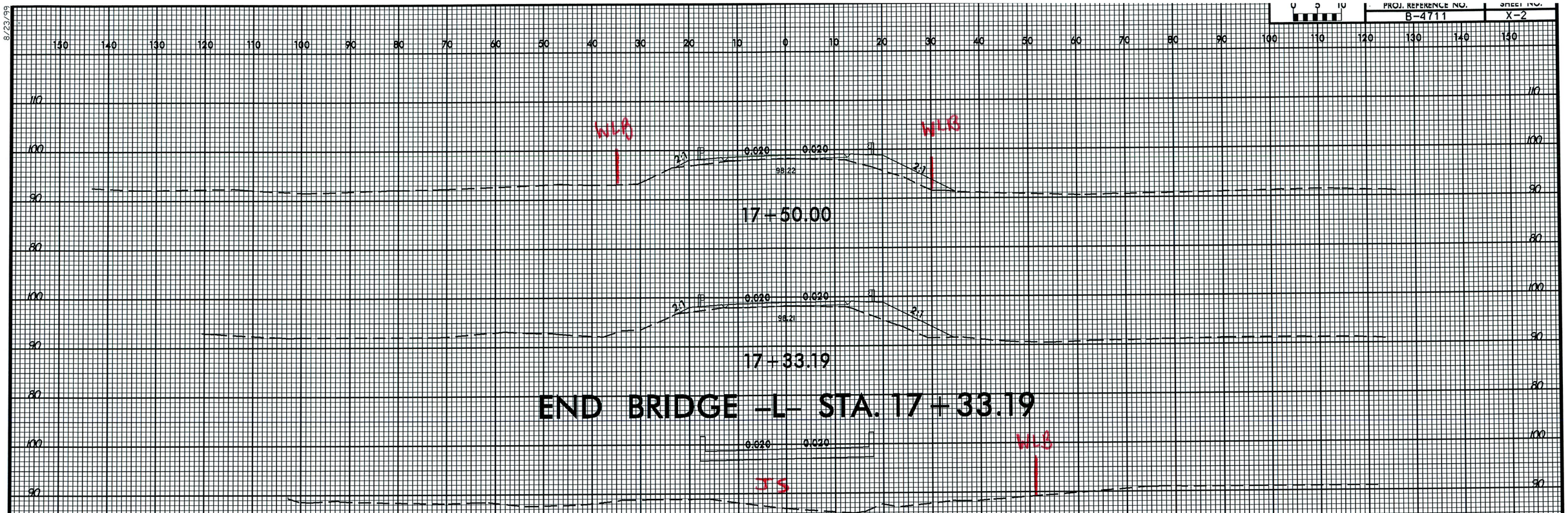
Permit Drawing
Sheet 4 of 9

-4-

PROJ. REFERENCE NO.
B-4711

SHEET NO.
X-2

8/23/99



Permit Drawing
Sheet 5 of 9

-4-

$$$$$SYSTIME$$$$$
$$$$$SIGNED$$$$$
$$$$$USERNAME$$$$$

PROJ. REFERENCE NO.	SHEET NO.
B-4711	X-1

BEGIN PROJECT -L- STA. 13+00.00

-4-

Permit Drawing
Sheet 6 of 9

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

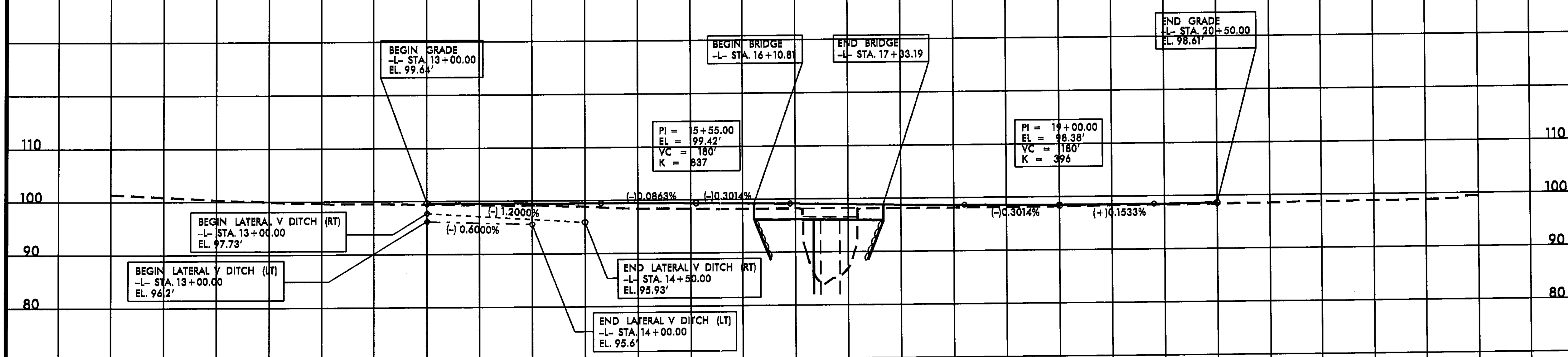
PROJECT REFERENCE NO.	SHEET NO.
B-4711	5

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

BM • 2 RR SPIKE IN BASE OF 15" POPLAR
-L- STA. 21+38.00 42.00' LEFT
ELEVATION 96.10'



10 11 12 13 14 15 16 17 18 19 20 21 22 23

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	500	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	95.2	FT
BASE DISCHARGE	=	679	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	95.5	FT
OVERTOPPING DISCHARGE	>	900	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	98.5	FT

Permit Drawing
Sheet 7 of 9

RIGHT DITCH - - - - - -
LEFT DITCH — - — - —
FOR -L- ALIGNMENT, SEE SHEET 4

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	16+72 -L-	1@ 55', 1@65' BRIDGE	0.03			0.06		<0.01	<0.01			
TOTALS:			0.03			0.06		<0.01	<0.01			

NOTE: THERE WILL BE 15 S.F. OF PERMANENT SURFACE WATER IMPACTS DUE TO BENTS.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BLADEN COUNTY
WBS - 38486.1.1 (B-4711)

12/15/2011

ATN Revised 3/31/05

PROPERTY OWNERS

Site	Last Name	First Name	Address	City/Town	State	Zip Code
1	Bridger	Elise	PO Box 10591	Raleigh	NC	27605

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BLADEN COUNTY
WBS - 38486.1.1 (B-4711)

B-4711 NEU Narrative

Utility Owners:

- **Power:** Four County EMC – (contact: Edward Pope 910-259-1854)
- **Telephone:** CenturyLink (contact: David Walker (910) 678-0243, ext. 717)

General Utility Relocation:

All utility lines inside the project limits will be adjusted as necessary or relocated away from construction. The power and telephone will be relocated prior to the letting.

Existing Utilities:

- **Power:** the existing Four County EMC aerial power pole line runs along east side of NC 242.

- **Telephone:** the existing CenturyLink Telephone lines (fiber optic and copper cables) are underground on the east and west side of NC 242. The telephone lines on the west side are buried up to Singletary Mill Branch then goes aerial across the creek.

Proposed Utility Relocation:

- **Power:** Four County EMC will relocate the power pole line along the proposed R/W line on the east side of NC 242 from Sta. 14+87 to Sta. 22+64.

- **Telephone:** CenturyLink will abandon the aerial and underground facilities on the east and west side of NC 242 after new fiber optic cables and conduits are installed on the east side of NC 242. The proposed underground conduits will be installed by directional bore across the wetlands.

Utility Permit Drawing
Sheet 1 of 5

09/28/99

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

T.I.P. NO.	SHEET NO.
B-4711	UO-1

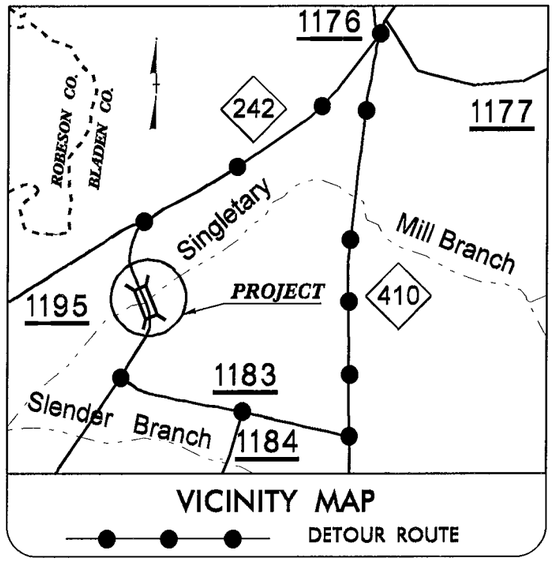
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NEU PERMIT PLANS (12/7/2011)
BLADEN COUNTY

TIP PROJECT: B-4711

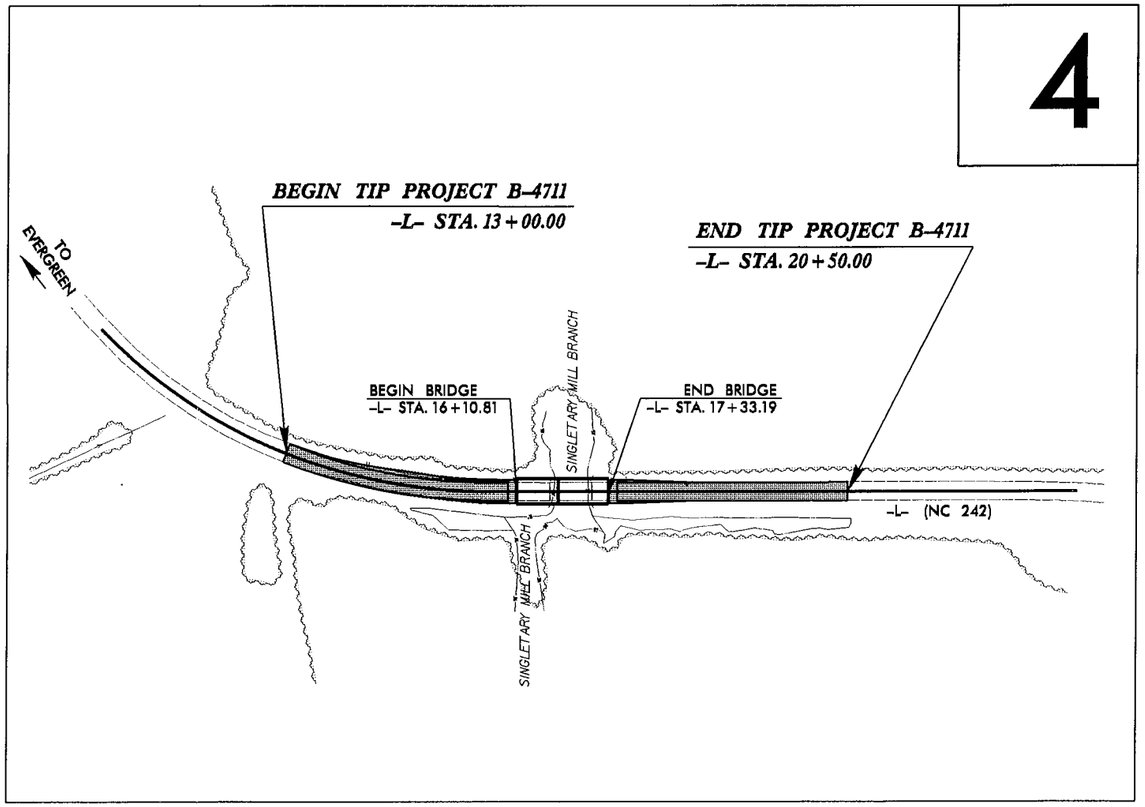
LOCATION: BRIDGE NO. 5 OVER SINGLETARY MILL BRANCH ON NC 242

TYPE OF WORK: RELOCATE POWER AND TELEPHONE



NAD 83/95

4



Utility Permit Drawing
Sheet 2 of 5

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	PLAN SHEET

UTILITY OWNERS ON PROJECT

(1) FOUR COUNTY EMC - POWER
(2) CENTURYLINK - TELEPHONE

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES ENGINEERING SECTION
1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 707-6690
FAX (919) 250-4151

Roger Worthington, P.E. — UTILITIES SECTION ENGINEER
Corey Bousquet, P.E. — UTILITIES SQUAD LEADER PROJECT ENGINEER
Nabil Hamdan — UTILITIES PROJECT DESIGNER

08-DEC-2011 06:41
R:\Utilities\Rdy_Ut\Proj\NEU\b4711_rdy_neu_tsh.dgn
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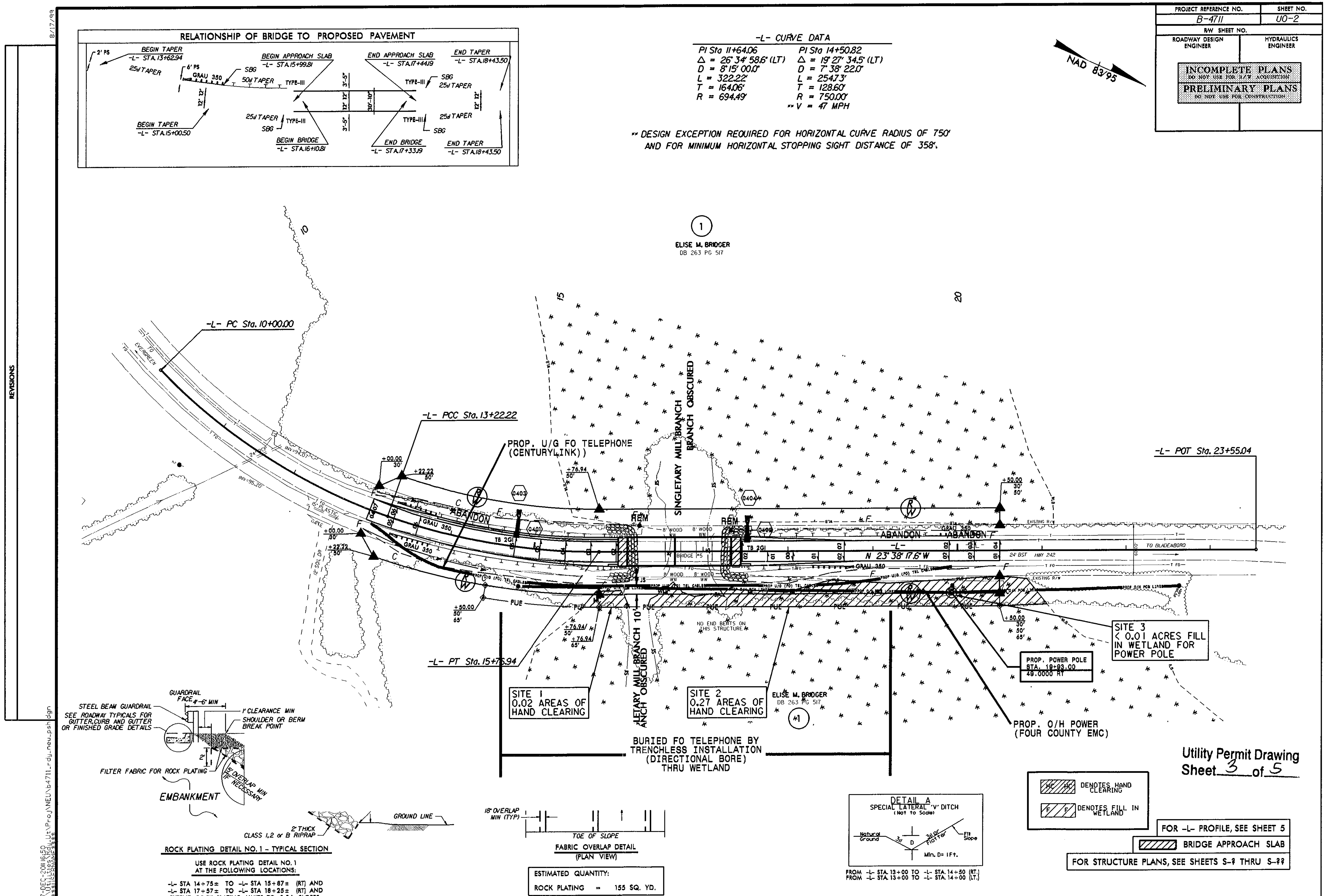


PROJECT REFERENCE NO.
B-4711
SHEET NO.
UO-2
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/95
RELATIONSHIP OF BRIDGE TO PROPOSED PAVEMENT
BEGIN TAPER -L- STA.13+62.94
25:1 TAPER
BEGIN APPROACH SLAB -L- STA.15+99.81
END APPROACH SLAB -L- STA.17+44.19
END TAPER -L- STA.18+43.50
50:1 TAPER
TYPE-III
SBG
25:1 TAPER
BEGIN TAPER -L- STA.15+00.50
BEGIN BRIDGE -L- STA.16+10.81
END BRIDGE -L- STA.17+33.19
END TAPER -L- STA.18+43.50
-L- CURVE DATA
PI Sta 11+64.06
Δ = 26° 34' 58.6" (LT)
D = 8° 15' 00.0"
L = 322.22'
T = 164.06'
R = 694.49'
PI Sta 14+50.82
Δ = 19° 27' 34.5" (LT)
D = 7° 38' 22.0"
L = 254.73'
T = 128.60'
R = 750.00'
** V = 47 MPH
** DESIGN EXCEPTION REQUIRED FOR HORIZONTAL CURVE RADIUS OF 750' AND FOR MINIMUM HORIZONTAL STOPPING SIGHT DISTANCE OF 358'.
ELISE M. BRIDGER
DB 263 PG 517
-L- PC Sta. 10+00.00
-L- PCC Sta. 13+22.22
PROP. U/G FO TELEPHONE (CENTURYLINK))
SINGLETARY MILL BRANCH
BRANCH OBSCURED
-L- POT Sta. 23+55.04
ABANDON
REM
BRIDGE #5
N 23° 38' 17.6" W
TO BLADENBORO
-L- PT Sta. 15+76.94
SITE 1
0.02 AREAS OF HAND CLEARING
SITE 2
0.27 AREAS OF HAND CLEARING
SITE 3
< 0.01 ACRES FILL IN WETLAND FOR POWER POLE
PROP. POWER POLE
STA. 19+83.00
49.0000 RT
PROP. O/H POWER (FOUR COUNTY EMC)
NO END BENTS ON THIS STRUCTURE
BURIED FO TELEPHONE BY TRENCHLESS INSTALLATION (DIRECTIONAL BORE) THRU WETLAND
Utility Permit Drawing
Sheet 3 of 5
DENOTES HAND CLEARING
DENOTES FILL IN WETLAND
FOR -L- PROFILE, SEE SHEET 5
BRIDGE APPROACH SLAB
FOR STRUCTURE PLANS, SEE SHEETS S-? THRU S-??
DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D= 1 Ft.
FROM -L- STA. 13+00 TO -L- STA. 14+50 (RT.)
FROM -L- STA. 13+00 TO -L- STA. 14+00 (LT.)
STEEL BEAM GUARDRAIL
SEE ROADWAY TYPICALS FOR GUTTER,CURB AND GUTTER OR FINISHED GRADE DETAILS
GUARDRAIL FACE
1' CLEARANCE MIN
SHOULDER OR BERM BREAK POINT
FILTER FABRIC FOR ROCK PLATING
5' OVERLAP MIN IF NECESSARY
EMBANKMENT
GROUND LINE
2' THICK CLASS 1,2 or B RIPRAP
ROCK PLATING DETAIL NO. 1 - TYPICAL SECTION
USE ROCK PLATING DETAIL NO. 1 AT THE FOLLOWING LOCATIONS:
-L- STA 14+75± TO -L- STA 15+87± (RT) AND
-L- STA 17+57± TO -L- STA 18+25± (RT) AND
EXTEND ROCK PLATING LIMITS TO 2.5:1 SLOPES.
18" OVERLAP MIN (TYP)
TOE OF SLOPE
FABRIC OVERLAP DETAIL (PLAN VIEW)
ESTIMATED QUANTITY:
ROCK PLATING = 155 SQ. YD.
REVISIONS
8/17/99

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation in Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ac)	WETLAND IMPACTS: Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	SURFACE WATER IMPACTS: Temp. SW impacts (ac)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (ft)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
Site 1	15+59 to 16+12	Power Line					0.020					
Site 2	16+36 to 21+06	Power Line					0.270					
Site 3	19+93	Power Pole	<0.01									
TOTALS:			<0.01				0.290					

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

COUNTY
WBS - 38486.1.1 (B-4711)

ATN Revised 3/31/05

SHEET 4 of 5 12/7/2011

PROPERTY OWNERS
NAMES AND ADDRESSES

REFERENCE NO.	NAMES	ADDRESSES
01	ELISE M. BRIDGER	

Utility Permit Drawing
Sheet 5 of 5

NCDOT
DIVISION OF HIGHWAYS
BLADEN COUNTY
PROJECT: B-4711

BRIDGE NO. 5 OVER SINGLETARY
MILL BRANCH ON 242

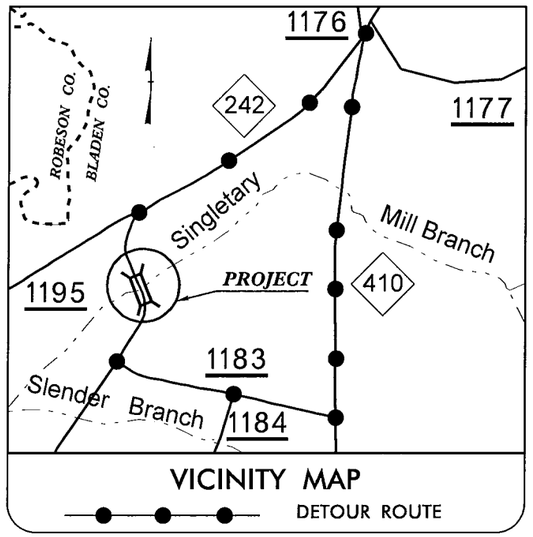
SHEET 1 OF 1 12/07/11

09/08/99

TIP PROJECT: B-4711

CONTRACT: C202955

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BLADEN COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4711	1	

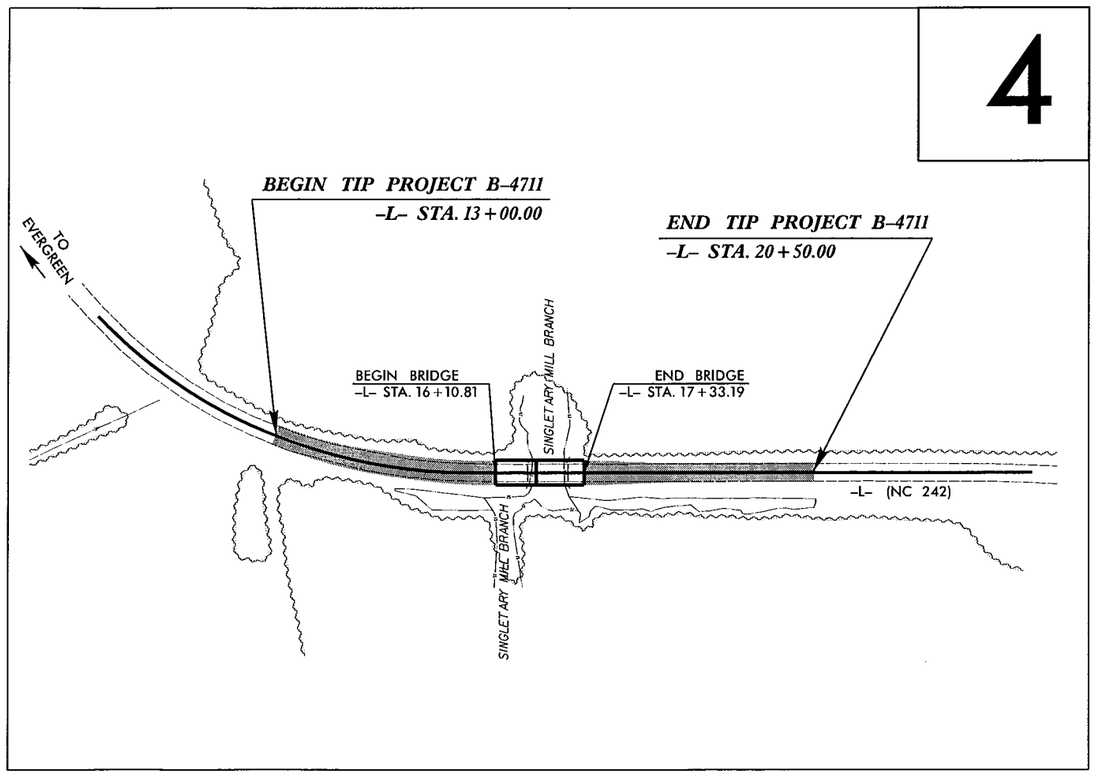
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38486.1.1	BRSTP-242(3)	PE
38486.2.1	BRSTP-0242(3)	RW & UTILITIES

LOCATION: BRIDGE NO. 5 OVER SINGLETARY MILL BRANCH ON NC 242

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

NAD 83/95

4



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
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CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

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 2012 = 875
ADT 2032 = 1,160
DHV = 12%
D = 55%
T = 20% *
** V = 60 MPH
* TTST 10% DUAL 10%
FUNC. CLASS = RURAL MAJOR COLLECTOR REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4711	=	0.119 MILES
LENGTH STRUCTURE TIP PROJECT B-4711	=	0.023 MILES
TOTAL LENGTH TIP PROJECT B-4711	=	0.142 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: NOVEMBER 18, 2011

LETTING DATE: NOVEMBER 20, 2012

GARY LOVERING, PE
PROJECT ENGINEER

KEVIN E. MOORE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION *

21-DEC-2011 15:56
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$$$$USERNAME$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4711	1-A

ROADWAY DESIGN ENGINEER

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
3	SUMMARY OF QUANTITIES
3A	SUMMARY OF DRAINAGE QUANTITIES SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4 THRU	PLAN SHEET
	PROFILE SHEET
TCP-1 THRU TCP-	TRAFFIC CONTROL PLANS
PM-1 THRU PM-	PAVEMENT MARKING PLANS
L-1 THRU L-	LANDSCAPE PLANS
RF-1 THRU RF-	REFORESTATION PLANS
EC-1 THRU EC-	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-	SIGNING PLANS
U-1 THRU U-	UTILITIES PLANS
X-1 THRU X-	CROSS-SECTIONS
S-1 THRU S-	STRUCTURE PLANS

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04/16/11

PROJECT REFERENCE NO.	SHEET NO.
B-4711	1-B

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite Marker
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line

- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter — G
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

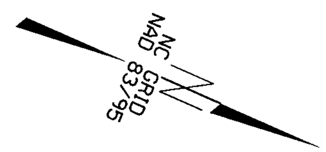
SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

SURVEY CONTROL SHEET B-4711



BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B4711 BL-1	270609.7443	2047897.3502	102.87	OUTSIDE PROJECT LIMITS	
2	B4711 BL-2	271065.1826	2048045.3397	99.79	12+73.39	17.00 RT
3	B4711 BL-3	271501.2189	2047921.0661	97.33	17+24.16	15.86 RT
4	B4711 BL-4	271943.2827	2047730.0077	97.25	22+05.74	18.09 RT

BM1 ELEVATION = 104.29
N 270608 E 2047929
L STATION 23+55.00
S 10°39'46.77" E DIST 1490.04
RR SPIKE IN BASE OF 20 GUM

BM2 ELEVATION = 96.10
N 271857 E 2047702
L STATION 21+38.00 42 LEFT
RR SPIKE IN BASE OF 15 POPLAR

L

TYPE	STATION	NORTH	EAST
PC	10+00.00	270798.6159	2047975.9217
PCC	13+22.22	271113.9206	2048026.4978
PT	15+76.94	271359.9910	2047965.5631
POT	23+55.04	272072.8046	2047653.5762

ROW MARKER IRON PIN AND CAP-E

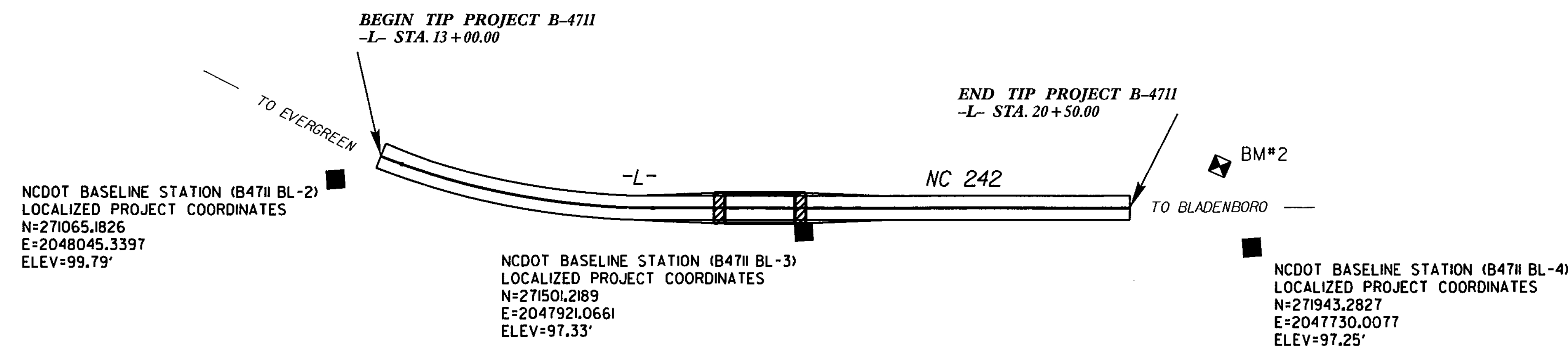
ALIGN	STATION	OFFSET	NORTH	EAST
L	13+00.00	-30.00	271090.5122	2047997.7872
L	13+22.22	-50.00	271110.2773	2047976.6307
L	15+76.94	50.00	271380.0390	2048011.3679
L	13+22.22	50.00	271117.5639	2048076.3649
L	13+00.00	30.00	271092.9679	2048057.7369
L	20+50.00	-30.00	271781.3278	2047748.4032
L	20+50.00	-50.00	271773.3086	2047730.0813
L	20+50.00	30.00	271805.3854	2047803.3689
L	20+50.00	50.00	271813.4046	2047821.6908
L	15+76.94	50.00	271380.0390	2048011.3679
L	15+76.94	-50.00	271339.9430	2047919.7584

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	17+67.00	-60.00	271510.0439	2047834.3920
L	17+40.00	-60.00	271485.3093	2047845.2180
L	16+03.00	-65.00	271357.7995	2047895.5690
L	15+76.94	-65.00	271333.9285	2047906.0169
L	16+03.00	-50.00	271363.8139	2047909.3105
L	17+67.00	-50.00	271514.0535	2047843.5530
L	17+40.00	-50.00	271489.3189	2047854.3789
L	14+50.00	50.00	271252.0022	2048054.9287
L	14+50.00	65.00	271255.6159	2048069.4869
L	15+76.94	65.00	271386.0534	2048025.1093
L	20+50.00	65.00	271819.4190	2047835.4322

BM#1

NCDOT BASELINE STATION (B4711 BL-1)
LOCALIZED PROJECT COORDINATES
N=270609.7443
E=2047897.3502
ELEV=102.87'



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4711-1"
WITH N D 83/95 STATE PLANE GRID COORDINATES OF
NORTHING: 269817.043(ft) EASTING: 2047399.367(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999960195
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4711-1" TO -L- STATION 13+00.00 IS
N 26°14'31.9" E 1421.1731
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B4711_LS_CONTROL_091217.TXT

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

◉ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

6/2/99

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PROJECT REFERENCE NO.	SHEET NO.
B-4711	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

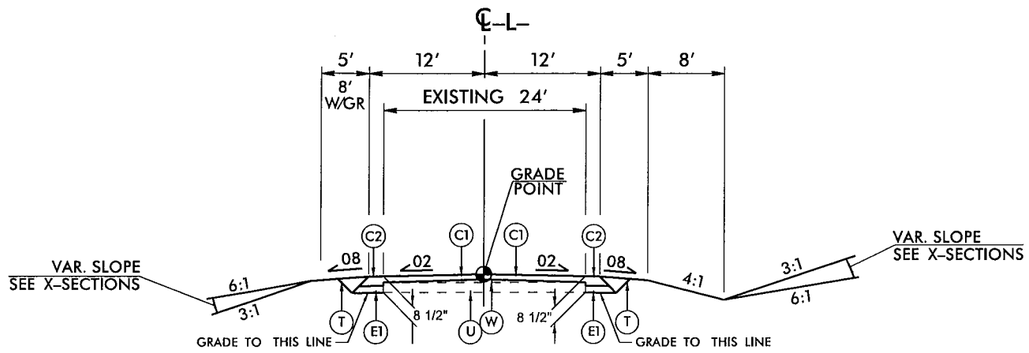
6/2/99

REVISIONS

PAVEMENT SCHEDULE
FINAL DESIGN

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	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 2" IN DEPTH.
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 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 STANDARD WEDGING DETAIL)

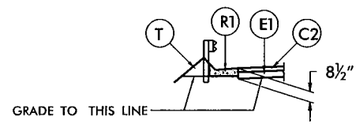
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

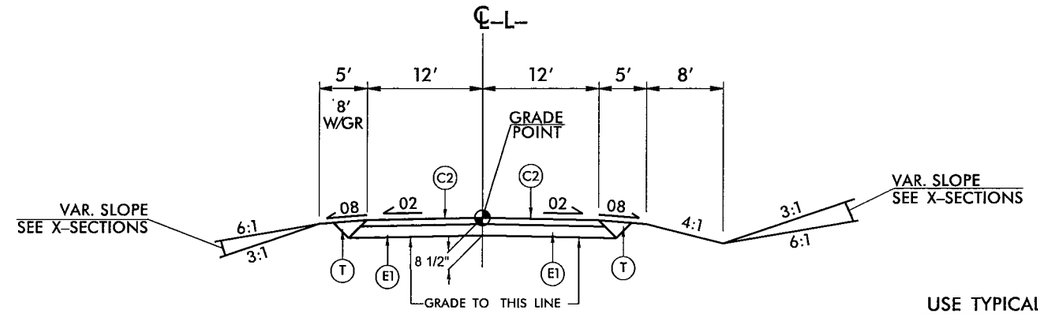
USE TYPICAL SECTION NO. 1

–L– STA. 13+00.00 TO –L– STA. 14+77.00
–L– STA. 18+33.00 TO –L– STA. 20+50.00



DETAIL SHOWING SHOULDER BERM GUTTER ON TOP OF SUBGRADE

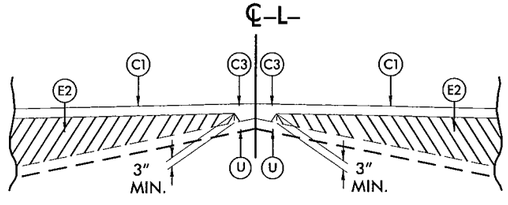
–L– STA. 13+80.00 TO –L– STA. 15+86.81 (LT)



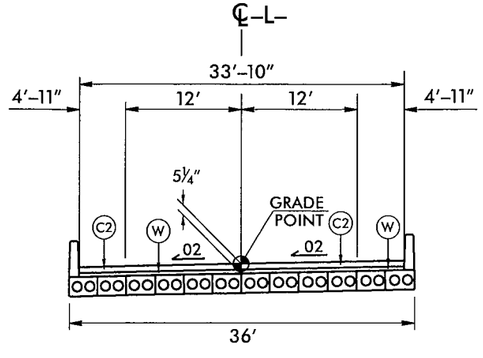
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

–L– STA. 14+77.00 TO –L– STA. 16+10.81 (BEGIN BRIDGE)
–L– STA. 17+33.19 (END BRIDGE) TO –L– STA. 18+33.00



STANDARD WEDGING DETAIL



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

–L– STA. 16+10.81 (BEGIN BRIDGE) TO
–L– STA. 17+33.19 (END BRIDGE)

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12/06/07

COMPUTED BY: T. SNELL	DATE: 3/26/2010	
CHECKED BY: R. J. DECOLA	DATE: 5/10/2011	

PROJECT REFERENCE NO.	SHEET NO.
B-4711	3-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO.		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC)											
SIZE								12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
THICKNESS OR GAUGE		FROM	TO																
-L- 14+77	LT	0401		98.5	95.7														
-L- 14+77	LT	0401	0403		95.7	94.7			20										
-L- 17+52	LT	0402		98.5	95.8														
-L- 17+52	LT	0402	0404		95.8	93.0			16										
PROJECT TOTAL									36										

STATION	C.S. PIPE								R.C. PIPE CLASS III								R.C. PIPE CLASS IV							
SIZE	12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"
THICKNESS OR GAUGE	.064	.064	.064	.064	.079	.079	.109	.109																
-L- 14+77																								
-L- 14+77																								
-L- 17+52																								
-L- 17+52																								
PROJECT TOTAL																								

STATION	*** R. C. PIPE (CLASS V)	**** R. C. PIPE CULVERTS, CONTRACTOR DESIGN	***** R. C. PIPE CULVERTS, CONTRACTOR DESIGN	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS.		QUANTITIES FOR DRAINAGE STRUCTURES	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT.		C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE				CONCRETE TRANSITIONAL SECTION		D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	T.B.D.I. STD. 840.35	CONC. COLLARS CL. "B" C.Y. STD 840.72	DRAINAGE PIPE ELBOWS, NO. & SIZE	PIPE REMOVAL LIN.FT.	REMARKS
				R.C.P.	C.S.P.	PER EACH (0' THRU 5.0')	A 5.0' THRU 10.0'	B 10.0' AND ABOVE		E	F	G		DROP INLET	CATCH BASIN													
-L- 14+77						1																	1	1				
-L- 14+77																										2-15"		
-L- 17+52						1																	1	1				
-L- 17+52																										2-15"		
PROJECT TOTAL						2																	2	2		4-15"		

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH (LF)
-L- (LT)	13+80.00	15+86.81	206.81
		TOTAL:	206.81
		SAY:	210

EXISTING ASPHALT PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	13+89.17	14+76.26	LT	7.83
-L-	14+77.00	16+55.10	CL	478.93
-L-	17+10.72	18+33.00	CL	326.94
			TOTAL:	813.70
			SAY:	820

SUMMARY OF HYDRAULIC RIP RAP & DDE QUANTITIES

CHAIN	STATION	STATION	LOCATION	RIP RAP CLASS (TONS)				FF (SY)	DDE (CY)	DETAIL	COMMENT
				I	II	A	B				
-L-	14+77		LT				1	5			AT OUTLET
-L-	17+52		LT				1	5			AT OUTLET
PROJECT TOTAL:							2	10			

SUMMARY OF EARTHWORK IN CUBIC YARDS

LOCATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L- 13+00.00 – 16+10.81 (BEGIN BRIDGE)	60	726	666	
SUBTOTAL	60	726	666	
-L- 17+33.19 (END BRIDGE) – 20+50.00	10	339	329	
SUBTOTAL	10	339	329	
PROJECT SUBTOTAL	70	1065	995	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT			50	
GRAND TOTAL	70		1045	
SAY	80		1060	

PARCEL INDEX

PARCEL NO.	PROPERTY OWNERS NAME	PLAN SHEET
1	ELISE M. BRIDGER	4

ABBREVATIONS

CY	CUBIC YARD
DDE	DRAINAGE DITCH EXCAVATION
FF	FILTER FABRIC
RR	RIP RAP
SY	SQUARE YARD

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	III	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-L-	13+29.56	16+10.81	LT	281.25'				16+10.81	5.00'	8.00'		5.00'		0.08'		1	1													
-L-	13+29.56	16+10.81	RT	281.25'			16+10.81		5.00'	8.00'	5.00'		0.08'			1	1													
-L-	17+33.19	20+26.94	LT	293.75'			17+33.19		5.00'	8.00'	5.00'		0.08'			1	1													
-L-	17+33.19	18+76.94	RT	143.75'				17+33.19	5.00'	8.00'		5.00'		0.08'		1	1													
			PROJECT SUBTOTAL	1000.00'																										
			LESS ANCHOR DEDUCTION																											
			GRAU – 350 4 @ 50.00' =	200.00'																										
			TYPE III 4 @ 18.75' =	75.00'																										
			TOTAL	725.00'												4	4													
			SAY	725'										ADDITIONAL GUARDRAIL POSTS = 5																

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PROJECT REFERENCE NO.	SHEET NO.
B-4711	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

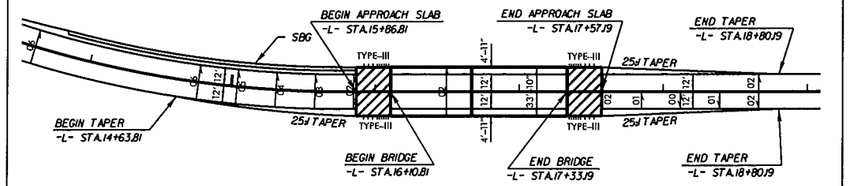
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

DESIGN REVISIONS – SEPTEMBER 28, 2011 – WIDENED THE CORED SLAB BRIDGE DECK BY 3 FEET, EXTENDED THE GUARDRAIL AND SHOULDER BERM GUTTER TO STATION –L– 13+80 ON R/W REVISION – DECEMBER 21, 2011 – REVISED EXISTING RIGHT OF WAY ON PARCEL NO.1 PER UPDATED SURVEY FROM LOCATION AND SURVEYS AND CHANGED PROPERTY OWNER NAME.

RELATIONSHIP OF BRIDGE TO PROPOSED PAVEMENT

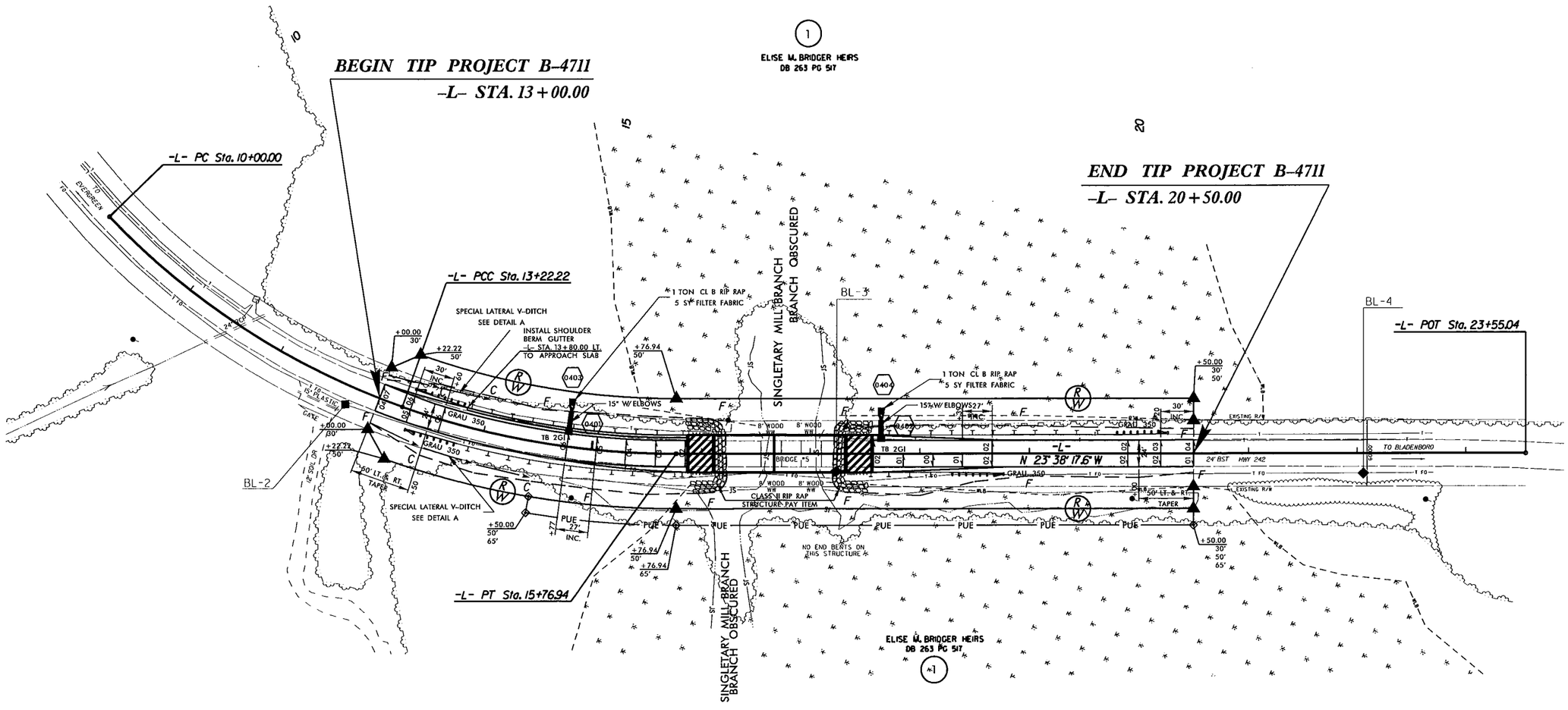


–L– CURVE DATA

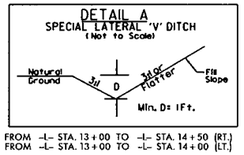
PI Sta 11+64.06	PI Sta 14+50.82
Δ = 26° 34' 58.6" (LT)	Δ = 19° 27' 34.5" (LT)
D = 8° 15' 00.0"	D = 7° 38' 22.0"
L = 322.22'	L = 254.73'
T = 164.06'	T = 128.60'
R = 694.49'	R = 750.00'
	** V = 47 MPH

** DESIGN EXCEPTION REQUIRED FOR HORIZONTAL CURVE RADIUS OF 750' AND FOR MINIMUM HORIZONTAL STOPPING SIGHT DISTANCE OF 358'.

NAD 83/95



DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM –L– STA. 13+00 TO –L– STA. 14+50 (RT.)
FROM –L– STA. 13+00 TO –L– STA. 14+00 (LT.)

FOR –L– PROFILE, SEE SHEET 5

BRIDGE APPROACH SLAB

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

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4711	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

BM * 2 RR SPIKE IN BASE OF 15" POPLAR
-L- STA. 21+38.00 42.00' LEFT
ELEVATION 96.10'

BEGIN GRADE
-L- STA. 13+00.00
EL. 99.64'

BEGIN BRIDGE
-L- STA. 16+10.81

END BRIDGE
-L- STA. 17+33.19

END GRADE
-L- STA. 20+50.00
EL. 98.61'

PI = 15+55.00
EL = 99.42'
VC = 180'
K = 837

PI = 19+00.00
EL = 98.38'
VC = 180'
K = 396

(-)0.0868%
(-)0.3014%
(-)1.2000%
(-)6.6000%
(-)0.3014%
(+)0.1538%

BEGIN LATERAL V DITCH (RT)
-L- STA. 13+00.00
EL. 97.73'

BEGIN LATERAL V DITCH (LT)
-L- STA. 13+00.00
EL. 96.2'

END LATERAL V DITCH (RT)
-L- STA. 14+50.00
EL. 95.93'

END LATERAL V DITCH (LT)
-L- STA. 14+00.00
EL. 95.6'

110
100
90
80

10 11 12 13 14 15 16 17 18 19 20 21 22 23

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 500	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 95.2	FT
BASE DISCHARGE	= 679	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 95.5	FT
OVERTOPPING DISCHARGE	> 900	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 98.5	FT

RIGHT DITCH - - - - - - -
LEFT DITCH — - - — - -

FOR -L- ALIGNMENT, SEE SHEET 4

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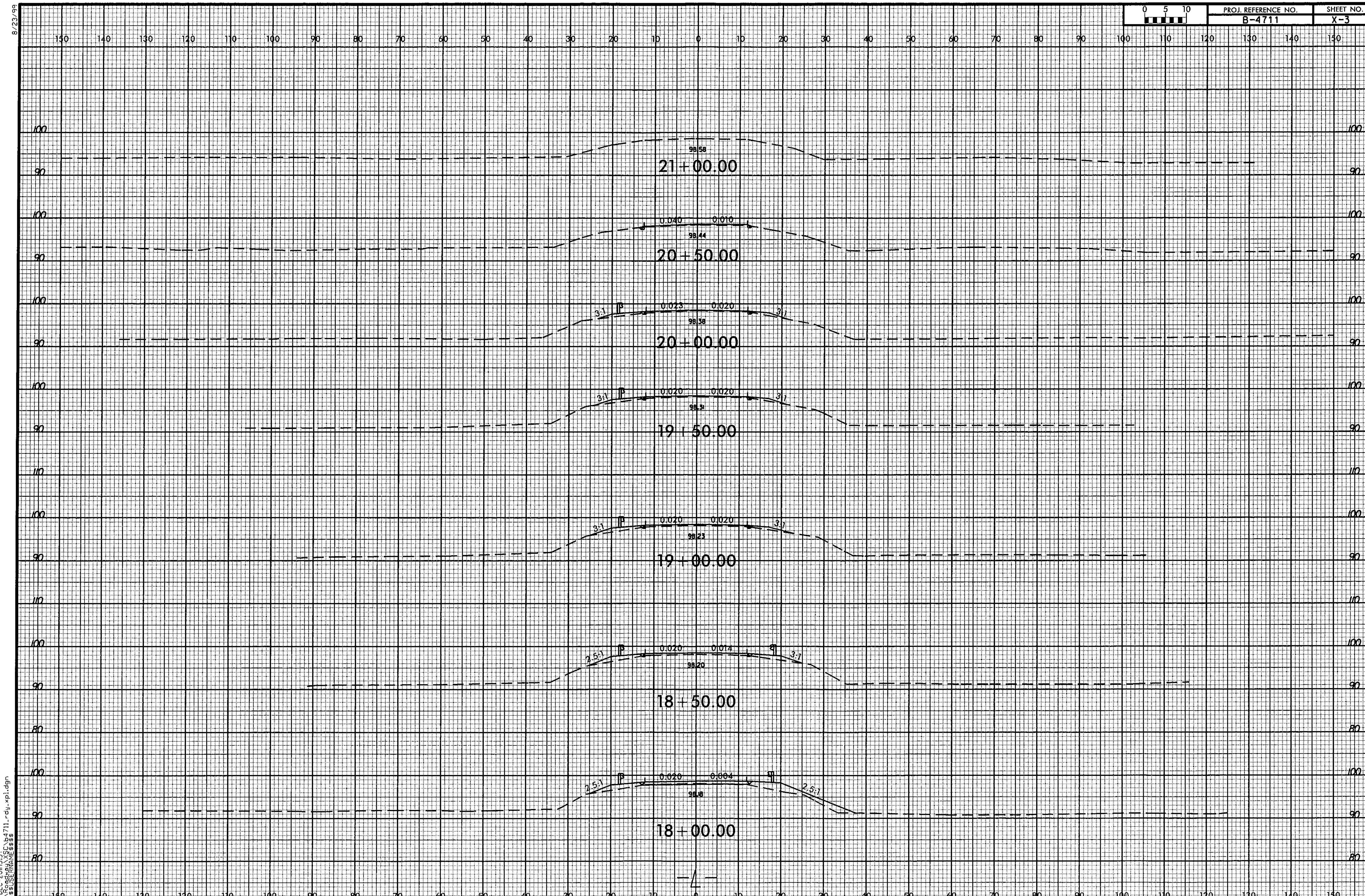
8/23/99



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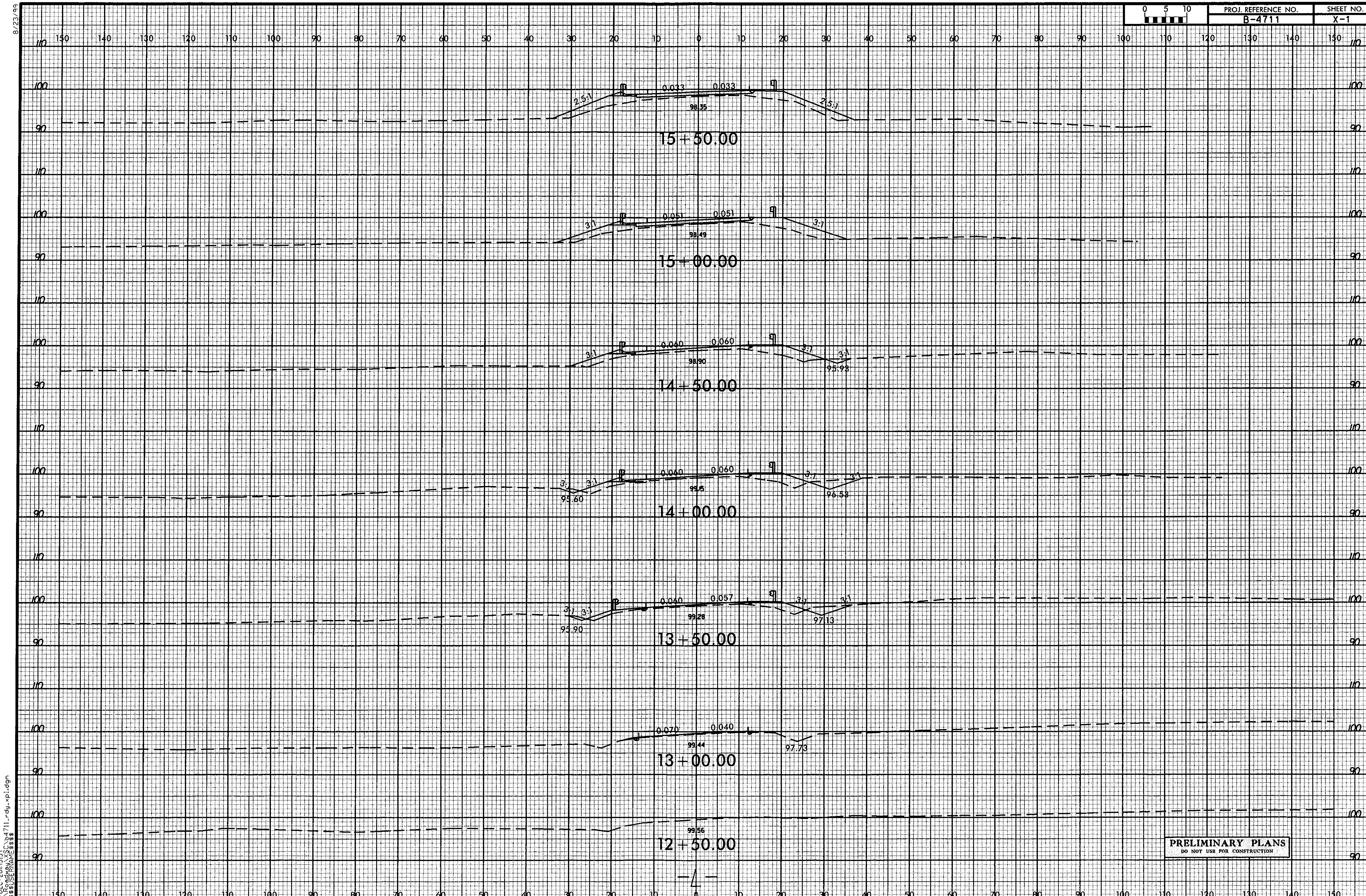
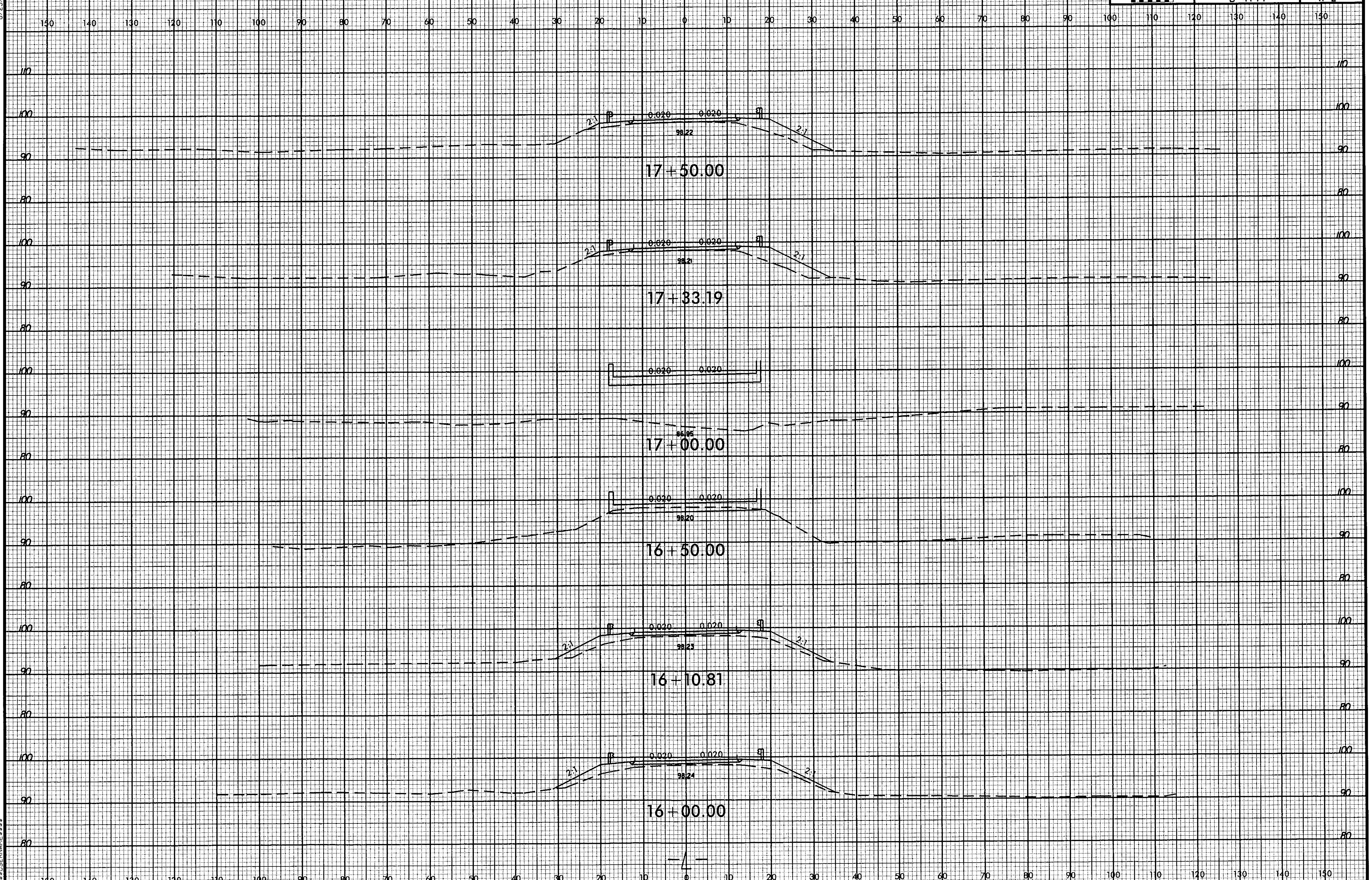


PROJ. REFERENCE NO.
B-4711
SHEET NO.
X-1
0 5 10
8/23/99
15+50.00
0.033
0.033
2.5:1
2.5:1
98.35
15+00.00
0.051
0.051
3:1
3:1
98.49
14+50.00
0.060
0.060
3:1
3:1
3:1
98.90
95.93
14+00.00
0.060
0.060
3:1
3:1
3:1
3:1
99.6
95.60
96.53
13+50.00
0.060
0.057
3:1
3:1
3:1
3:1
99.28
95.90
97.13
13+00.00
0.070
0.040
99.44
97.73
12+50.00
99.56
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-4-

PROJ. REFERENCE NO.	SHEET NO.
B-4711	X-2

8/23/99



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