



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

July 11, 2011

U. S. Army Corps of Engineers
Regulatory Field Office
151 Patton Avenue Room 208
Asheville, NC 28801-5006

ATTN: Ms. Liz Hair
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 33** for the proposed replacement of Bridge No. 219 over Blythe Creek on SR 1008 (Waxhaw-Indian Trail Road) in Union County, Federal Aid Project No. BRSTP-1008 (11); Division 10; TIP No. B-4293; WBS 33631.1.1

Dear Madam:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 219, a 58-foot four-span bridge over Blythe Creek on Waxhaw-Indian Trail Road (SR 1008), with a 130-foot two-span bridge at existing location. A causeway is required to remove the concrete bent associated with the existing structure and for the construction of the drilled piers resulting in <0.01 acres (48 linear feet) of temporary impacts. There are no permanent impacts associated with the replacement of bridge no. 219.


Please see enclosed copies of the Pre-Construction Notification (PCN) Form, US Fish and Wildlife Service Concurrence Letter, Stormwater Management Plan, Permit drawings and Design plans. The Categorical Exclusion (CE) was completed on April 30, 2009. Documents were distributed shortly thereafter. Additional copies are available upon request.

Concurrence was received from US Fish and Wildlife Service on March 18, 2010 for the Carolina Heelsplitter which received a biological conclusion of May Affect, Not Likely to Adversely Affect. All other listed species have a biological conclusion of No Effect.

This project calls for a letting date of March 20, 2012 and a review date of January 31, 2012; however the let date may advance as additional funding becomes available.

A copy of this permit application and its distribution list will be posted on the NCDOT website at: <http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html>. If you have any questions or need additional information, please call Jennifer Harrod at (919) 707-6124.

Sincerely,

A handwritten signature in black ink, appearing to read "E. J. Thorpe".A handwritten mark in black ink, resembling a stylized letter 'G' or 'J' with a checkmark.

Gregory J. Thorpe, Ph.D.

Environmental Management Director, PDE

Cc: NCDOT Permit Application Standard Distribution List
File



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:	<input checked="" type="checkbox"/> Section 404 Permit <input type="checkbox"/> Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 33 or General Permit (GP) number:	
1c. Has the NWP or GP number been verified by the Corps?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1d. Type(s) of approval sought from the DWQ (check all that apply): <input checked="" type="checkbox"/> 401 Water Quality Certification – Regular <input type="checkbox"/> Non-404 Jurisdictional General Permit <input type="checkbox"/> 401 Water Quality Certification – Express <input type="checkbox"/> 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: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	For the record only for Corps Permit: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

2. Project Information

2a. Name of project:	Replacement of Bridge No. 219 over Blythe Creek on SR 1008 (Waxhaw-Indian Trail Road).
2b. County:	Union
2c. Nearest municipality / town:	Waxhaw
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no:	B-4293

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	<i>not applicable</i>
3c. Responsible Party (for LLC if applicable):	<i>not applicable</i>
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6124
3g. Fax no.:	(919) 212-5785
3h. Email address:	jwharrod@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	<input type="checkbox"/> Agent <input type="checkbox"/> Other, specify:
4b. Name:	<i>not applicable</i>
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:	<i>not applicable</i>
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):	<i>not applicable</i>	
1b. Site coordinates (in decimal degrees):	Latitude: 34.933151 (DD.DDDDDD)	Longitude: - 80.729535 (-DD.DDDDDD)
1c. Property size:	2.13 acres	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Blythe Creek	
2b. Water Quality Classification of nearest receiving water:	C	
2c. River basin:	Catawba	
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: Primarily wooded - Hardwood Forest and Pine/Hardwood Forest with Disturbed/Maintained along roadsides.		
3b. List the total estimated acreage of all existing wetlands on the property: 0		
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 170'		
3d. Explain the purpose of the proposed project: To replace a functionally obsolete and deficient structure.		
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing one 58-foot four-span bridge with a 130-foot two-span bridge at existing location over Blythe Creek; an off-site detour will be utilized. 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:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
4b. If the Corps made the jurisdictional determination, what type of determination was made?	<input type="checkbox"/> Preliminary <input type="checkbox"/> Final	
4c. If yes, who delineated the jurisdictional areas? Name (if known):	Agency/Consultant Company: Other:	
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.		
5. Project History		
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
5b. If yes, explain in detail according to "help file" instructions.		
6. Future Project Plans		
6a. Is this a phased project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 4 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 5 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 6 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
2g. Total wetland impacts					N/A Permanent N/A Temporary

2h. Comments:

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 length (linear feet)
Site 1 <input type="checkbox"/> P <input checked="" type="checkbox"/> T	Temporary Causeway	Blythe Creek	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	15	48.0
Site 2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 4 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 5 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 6 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
3h. Total stream and tributary impacts						N/A Perm 48.0 Temp

3i. Comments:

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 <input type="checkbox"/> P <input type="checkbox"/> T				
O2 <input type="checkbox"/> P <input type="checkbox"/> T				
O3 <input type="checkbox"/> P <input type="checkbox"/> T				
O4 <input type="checkbox"/> P <input type="checkbox"/> T				
4f. Total open water impacts				N/A Permanent N/A 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	Excavat ed	Flooded	Filled	Excavated	Flooded
P1								
P2								
5f. Total								

5g. Comments:

5h. Is a dam high hazard permit required?	<input type="checkbox"/> Yes <input type="checkbox"/> 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?			<input type="checkbox"/> Neuse <input type="checkbox"/> Catawba	<input type="checkbox"/> Tar-Pamlico <input type="checkbox"/> Randleman	<input type="checkbox"/> 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 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No		
B2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No		
B3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> 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 replacement bridge for No. 219 is 74 feet longer than the existing bridge. No deck drains will be discharging between the creek banks; storm drainage is being discharged as far away from the stream as practicable; An off site detour will be used.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. Standard construction techniques apply; Best Management Practices's for Bridge Demolition and Removal and Best Management Practices for Construction and Maintenance Activities will be used. Design Standards in Sensitive Watersheds will be implemented for erosion control for this project.		
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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: only temporary impacts associated w/ this project	
2b. If yes, mitigation is required by (check all that apply):	<input type="checkbox"/> DWQ <input type="checkbox"/> Corps	
2c. If yes, which mitigation option will be used for this project?	<input type="checkbox"/> Mitigation bank <input type="checkbox"/> Payment to in-lieu fee program <input type="checkbox"/> 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.	<input type="checkbox"/> Yes	
4b. Stream mitigation requested:	linear feet	
4c. If using stream mitigation, stream temperature:	<input type="checkbox"/> warm <input type="checkbox"/> cool <input type="checkbox"/> 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?				<input type="checkbox"/> Yes <input type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1b. If yes, then is a diffuse flow plan included? If no, explain why. Comments:	<input type="checkbox"/> Yes <input type="checkbox"/> 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?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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?	<input type="checkbox"/> Certified Local Government <input type="checkbox"/> DWQ Stormwater Program <input checked="" type="checkbox"/> 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):	<input type="checkbox"/> Phase II <input type="checkbox"/> NSW <input type="checkbox"/> USMP <input type="checkbox"/> Water Supply Watershed <input type="checkbox"/> Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	<input type="checkbox"/> Coastal counties <input type="checkbox"/> HQW <input type="checkbox"/> ORW <input type="checkbox"/> Session Law 2006-246 <input type="checkbox"/> Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No N/A
5b. Have all of the 401 Unit submittal requirements been met?	<input type="checkbox"/> Yes <input type="checkbox"/> 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?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2b. Is this an after-the-fact permit application?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
5c. If yes, indicate the USFWS Field Office you have contacted.	<input type="checkbox"/> Raleigh <input checked="" type="checkbox"/> Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? Written Concurrence was received on March 18, 2010 from the USFWS for the Carolina Heelsplitter which received a biological conclusion of May Affect Not Likely to Adversely Affect (see attached). All other listed species remain No Effect. USFWS T/E County Listings and habitat descriptions;		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> 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.)	7.11.11 Date



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801

March 18, 2010

Dr. Gregory J. Thorpe, Manager
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Dr. Thorpe:

Subject: Endangered Species Concurrence for the Replacement of Bridge No.219 over Blythe Creek on Waxhaw Indian Trail Road, Union County, North Carolina (TIP Project No. B-4293).

We have reviewed the survey report for the federally endangered Carolina heelsplitter (*Lasmigona decorata*) for the subject project and are providing the following comments in accordance with the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) (NEPA), section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act); the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e); and the Migratory Bird Treaty Act (16 U.S.C. 703, et seq.).

Federally Listed Species - The federally endangered Carolina heelsplitter (*Lasmigona decorata*) is known to occur in Sixmile Creek along the Mecklenburg and Union County line, in the Twelvemile creek subbasin. The project area is located on Blythe Creek. Blythe Creek and Sixmile Creek are both tributaries to Twelvemile Creek. Accordingly, a mussel survey was conducted 100 meters upstream and 400 meters downstream of the project area on April 30, 2009. No Carolina heelsplitters were discovered during the survey. However, 165 eastern elliptio (*Elliptio complanata*), three Carolina creekshell (*Villosa vauhaniana*) and 6 eastern creekshell (*Villosa delumbis*) mussels were found. Your letter of July 1, 2009 requested our concurrence that the project may affect, but is not likely to adversely affect the Carolina heelsplitter due to its historical distribution within the watershed and the presence of high quality habitat and its companion species within the project area. To issue a concurrence letter that a project "may affect, but is not likely to adversely affect" a listed species, we need to review the analysis of the effect and how the project has been designed to ensure that the effect is not likely to be adverse. Since no information was provided as to how the project would be designed to avoid adverse effects to the listed species, we contacted the North Carolina

Department of Transportation (NCDOT) to request this information. The NCDOT provided additional information about the project in a subsequent letter (via email) on February 16, 2010. As a result, the following measures will be implemented to avoid and minimize potential impacts to the Carolina heelsplitter.

1. Design Standards in Sensitive Watersheds (14A NCAC 04B .0124) will be implemented for erosion control for this project. Measures to control erosion and sediment will be taken during all phases of construction. Wet concrete and construction material will not come into contact with Blythe Creek or water that has the potential to enter the stream, and daily inspections of equipment will occur to ensure that no equipment leaks enter the stream.
2. The proposed replacement bridge is 130 feet long and replaces the existing 59-foot structure. Because of the longer structure, NCDOT will excavate the area at the existing end bents which will provide better hydraulic connectivity for Blythe Creek during flooding events and allow passage for terrestrial wildlife.
3. The new structure's bents will be placed outside of Blythe Creek. Timber crutch bents that were added for stability after the original bridge was built will be removed using a crane with little disturbance to the stream.
4. A causeway approximately 40 feet long measured along the bank and 5-7 feet wide is required for removal of the existing concrete bent and for construction of drilled piers. The causeway will be located on the northeast bank under the existing bridge. The existing concrete bent will be removed by sawing or breaking using hydraulic hammers. The existing superstructure composed of timber deck on steel beams will be removed from above. All attempts will be made to keep existing bridge debris from entering the Blythe Creek. If debris does enter the river, the contractor should use a crane to remove the debris and will not be allowed to use a clam bucket that might result in raking of the streambed.
5. Stormwater from the deck drain 5-10 feet from the top of the bank. Each quadrant of the bridge will discharge stormwater through rip rap and then sheetflow through a vegetated buffer before entering the stream.
6. Sub-regional Tier Guidelines will be implemented to reduce the amount of roadway approach work. The proposed vertical alignment was raised to the minimum height to meet both a 50-mph design speed and keep the low point off the proposed structure which would present a hazard hydraulically.

We agree with the NCDOT's determination that this project may affect, but is not likely to adversely affect the Carolina heelsplitter. Therefore, we believe the requirements under section 7(c) of the Act are fulfilled. However, obligations under section 7 of the Act 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, (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 is determined that may be affected by the identified action.

While we believe obligations under section 7 of the Act are fulfilled, we request that prior to construction the NCDOT move the mussels that were discovered during the survey to a location outside the impact area. The Carolina creekshell is a federal species of concern and is listed as endangered by the North Carolina Natural Heritage Program. Federal species of concern are not legally protected under the Act and are not subject to any of its provisions, including section 7, unless they are formally proposed or listed as endangered or threatened. However, measures taken to protect and conserve federal species of concern may help preclude the need to list these species; therefore, if the mussels are located in an area of the project where they could be injured or killed, we recommend developing a relocation and monitoring plan for these mussels that consists of finding a suitable relocation site, tagging the mussels, handling and transporting individuals, and monitoring survivability once a year for 2 to 3 years. If mussels are relocated, we would assist with the development of the relocation and monitoring plan and would want to approve the final plan.

Fish and Wildlife Resources – We provide the following additional recommendations to reduce impacts to fish and wildlife resources from the construction of the new bridge:

1. The natural dimension, pattern, and profile of the stream above and below the crossing should not be modified by widening the stream channel or changing the depth of the stream.
2. Side ditches should not drain directly into the stream. Ditch water should be diverted into a constructed sump or, where possible, onto stable forested vegetation that can filter sediments before the water reaches the stream.
3. Areas that are disturbed should be revegetated as soon as possible; we recommend planting native grasses and tree species where possible. The removal of vegetation in riparian areas should be minimized, and riprap should be minimized. If rock must be used, we recommend installing only clean, sediment-free rock below the ordinary high-water mark and using native vegetation to stabilize the stream banks above the ordinary high-water mark.
4. If temporary access roads or detours are constructed, they should be removed, and the area should be returned to the original ground elevations immediately upon completion of the project. Disturbed areas should be seeded or mulched and/or matted in order to stabilize the soil; again, we recommend planting native grasses and tree species.
5. Only clean, sediment-free rock should be used as temporary causeways, and it should be removed without excessive disturbance of the natural stream bottom when construction is completed.
6. Equipment should be inspected daily and should be maintained to prevent the contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials. All fuels, lubricants, and other toxic materials should be stored outside the riparian management area of the stream, in a location where the material can be contained.

7. Required materials should be delivered and equipment mobilized in advance so the installation can proceed without delay.

Migratory Birds – The Migratory Bird Treaty Act (16 U.S.C. 703-712) prohibits the taking, killing, possession, transportation, and importation of migratory birds (including the bald eagle), their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. To avoid impacts to migratory birds, we recommend conducting a visual inspection of the bridge and any other migratory bird nesting habitat within the project area during the migratory bird nesting season--March through September. If migratory birds are discovered nesting in the project impact area, including on the existing bridge, the NCDOT should avoid impacting the nests during the migratory bird nesting season (March through September). If birds are discovered nesting on the bridge during years prior to the proposed construction date, the NCDOT, in consultation with us, should develop measures to discourage birds from establishing nests on the bridge by means that will not result in the take of the birds or eggs, or the NCDOT should avoid construction and demolition activities during the nesting period.

If you have questions about these comments, please contact Mr. Troy Wilson of our staff at 828/258-3939, Ext. 226. In any future correspondence concerning this project, please reference our Log Number 4-2-09-363.

cc:

Ms. Marla J. Chambers, Western NCDOT Permit Coordinator, North Carolina Wildlife
Resources Commission, 4614 Wilgrove-Mint Hill Road, Suite M, Charlotte, NC 28227
Ms. Sarah Hair, Asheville Regulatory Field Office, U.S. Army Corps of Engineers, 151 Patton
Avenue, Room 208, Asheville, NC 28801-5006
Ms. Polly Lespinasse, Mooresville Regional Office, North Carolina Division of Water Quality,
610 East Center Avenue, Suite 301, Mooresville, NC 28115

STORMWATER MANAGEMENT PLAN

B-4293, State Project 33631.1.1

Date: 6/16/09

Union County

Hydraulics Project Engineer: R.C. Henegar, PE

ROADWAY DESCRIPTION

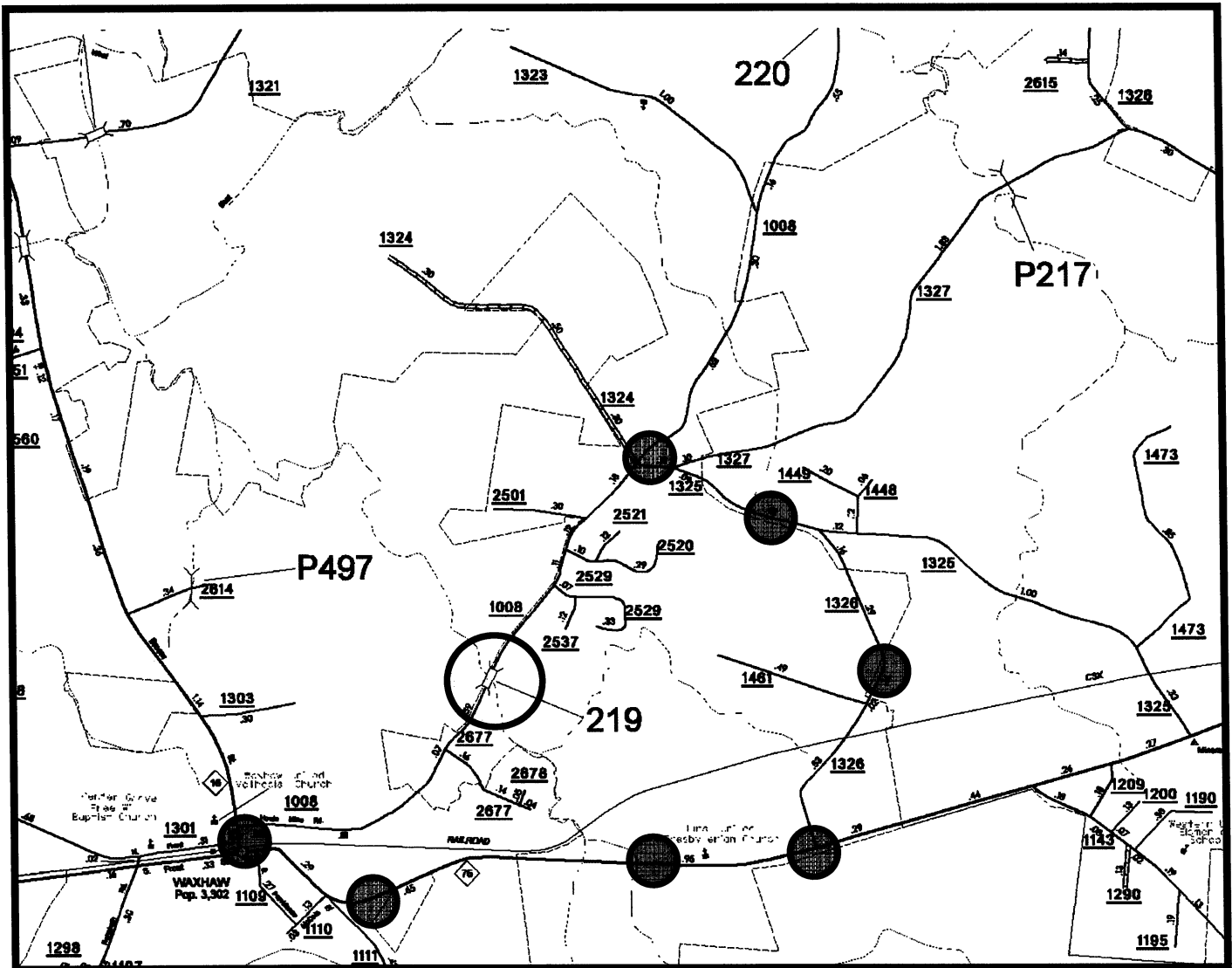
The project involves replacing Bridge No. 219 over Blythe Creek on SR 1008 in Union County. The overall length of the project is 0.152 miles. The existing 20-foot paved road is a two-lane road with 4-foot grass shoulders. The existing structure is a 58.5 ft four span bridge (2@14' 4", 1@14' 11", 1@ 14' 10") with a of clear roadway width of 25 feet. The project will be a two-lane section with 11 foot lanes and 6 foot shoulders (4-foot paved). The proposed bridge will be a 130 foot structure with 2 spans of 65 feet and a clear roadway width of 30 feet. An off site detour is proposed for this project.

ENVIRONMENTAL DESCRIPTION

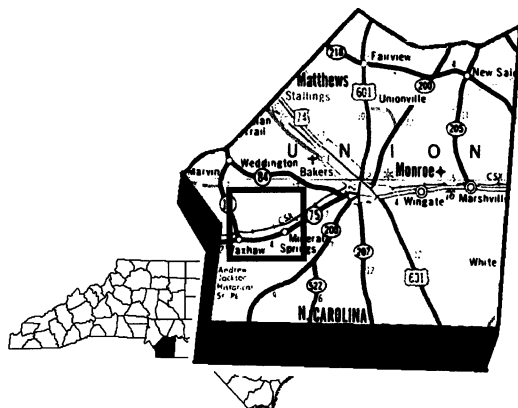
This project is located in the Catawba River Basin. There is one stream crossing on this project, which has a C classification. This stream is not on the 303(d) list. No wetlands will be impacted by the proposed project.

BEST MANAGEMENT PRACTICES AND MAJOR STRUCTURES

There will be no deck drains discharging between the creek banks on the proposed structure. Also the storm drainage is being discharged as far away from the stream as practicable.



Studied Offsite Detour



	<p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS BRANCH</p>
<p align="center">UNION COUNTY</p>	
<p align="center">REPLACE BRIDGE NO. 219 ON SR 1008 (WAXHAW-INDIAN TRAIL ROAD) OVER BLYTHE CREEK B-4293</p>	
<p align="right">Figure 1</p>	

PROPERTY OWNERS
NAMES AND ADDRESSES

PARCEL NO.

NAMES

ADDRESSES

CAUSEWAY WITHIN
EXISTING R/W

NCDOT

DIVISION OF HIGHWAYS

UNION COUNTY

PROJECT: 33631.1.1 (B-4293)

REPLACE BRIDGE #219 OVER
BLYTHE CREEK ON SR 1008

SHEET

OF

01/12/10

Permit Drawing
Sheet 2 of 9

WETLAND PERMIT IMPACT SUMMARY													
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS				Natural Stream Design (ft)		
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW Impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)		Existing Channel Impacts Temp. (ft)	
	27+55 -L-	BRIDGE; 2@65" 45" Prestressed											
		Girders											
		Temp. Causeway										48	
TOTALS:													

NOTE: STRUCTURE DESIGN STATED TOTAL IN-STREAM IMPACTS FOR NEW BRIDGE ARE LESS THAN 0.01 ACRES

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

UNION COUNTY
WBS - 33631.1.1 (B-4293)

ATN Revised 3/31/05

SHEET 4/13/2011

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UNION COUNTY

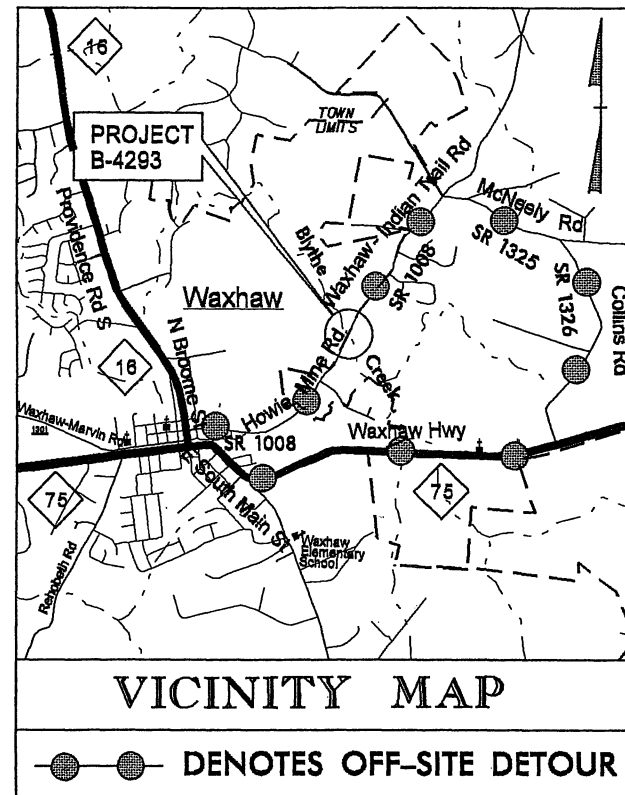
LOCATION: BRIDGE NO. 219 OVER BLYTHE CREEK AND APPROACHES
ON SR 1008 (WAXHAW-INDIAN TRAIL ROAD)

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

STATE	STATE PROJECT REFERENCE NO.	NO.	SHEETS
N.C.	B-4293	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33631.1.1	BRSTP-1008(11)	PE	
33631.2.1	BRSTP-1008(11)	ROW & UTIL	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TIP PROJECT: B-4293

BEGIN TIP PROJECT B-4293
-L- STA. 22+79.00
BEGIN CONSTRUCTION

TO NC 16

WAXHAW TOWN LIMITS

WAXHAW-INDIAN TRAIL ROAD

BEGIN BRIDGE
-L- STA. 26+95.00

SR 1008

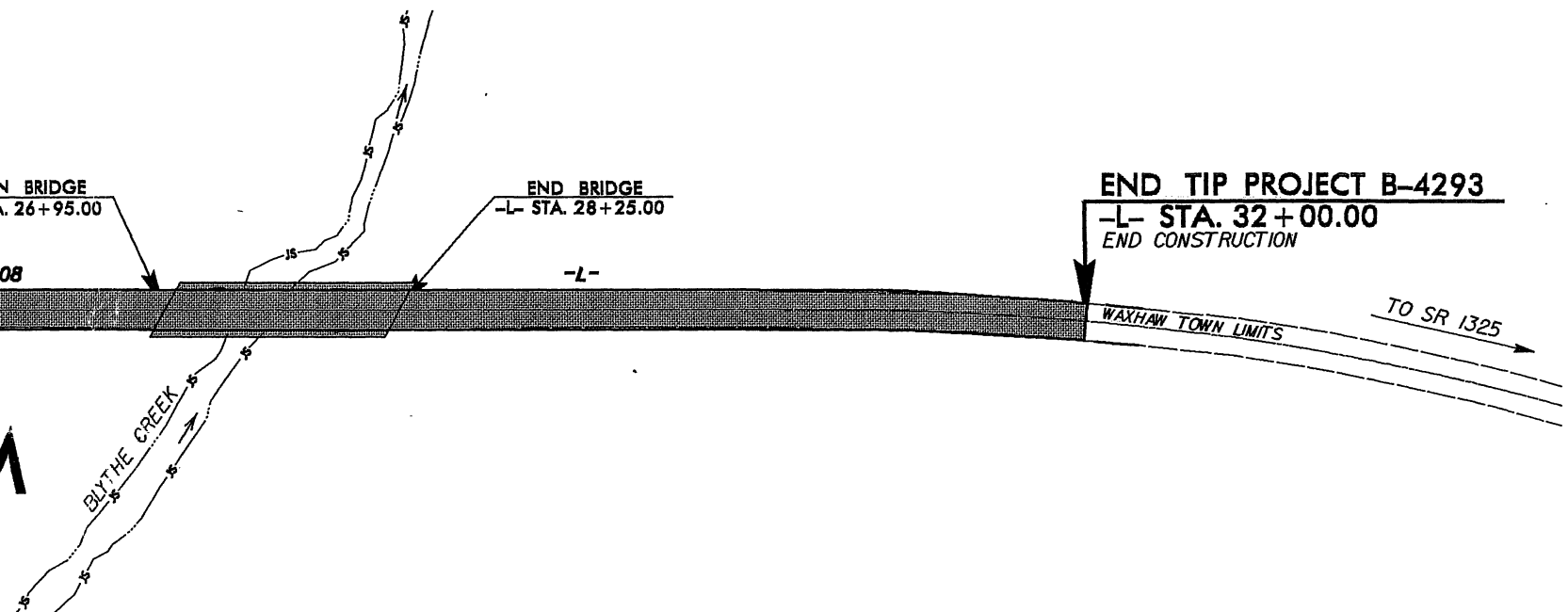
END BRIDGE
-L- STA. 28+25.00

-L-

END TIP PROJECT B-4293
-L- STA. 32+00.00
END CONSTRUCTION

WAXHAW TOWN LIMITS

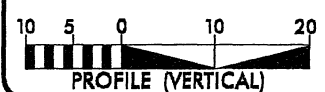
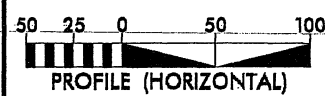
TO SR 1325

WETLAND & STREAM
IMPACTS

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARY OF WAXHAW.

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

GRAPHIC SCALES



DESIGN DATA

ADT 2008 = 3,000
 ADT 2030 = 5,200
 DHV = 10 %
 D = 60 %
 T = 4 % *
 V = 50 MPH
 * (TTST 1% + DUAL 3%)
 TIER = SUBREGIONAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4293 = 0.149 MILE
 LENGTH STRUCTURE TIP PROJECT B-4293 = 0.025 MILE
 TOTAL LENGTH TIP PROJECT B-4293 = 0.174 MILE

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
 JANUARY 28, 2010

LETTING DATE:
 MARCH 20, 2012

REKHA PATEL, PE
 PROJECT ENGINEER

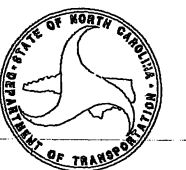
SAMUEL L. ST. CLAIR
 PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

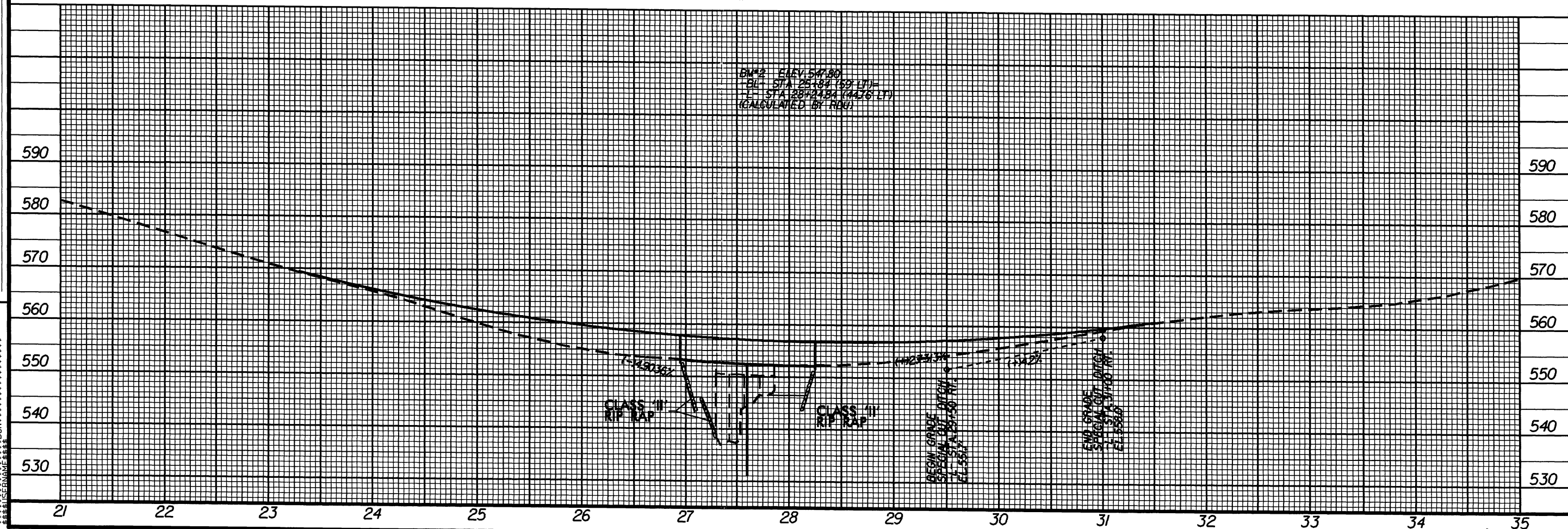
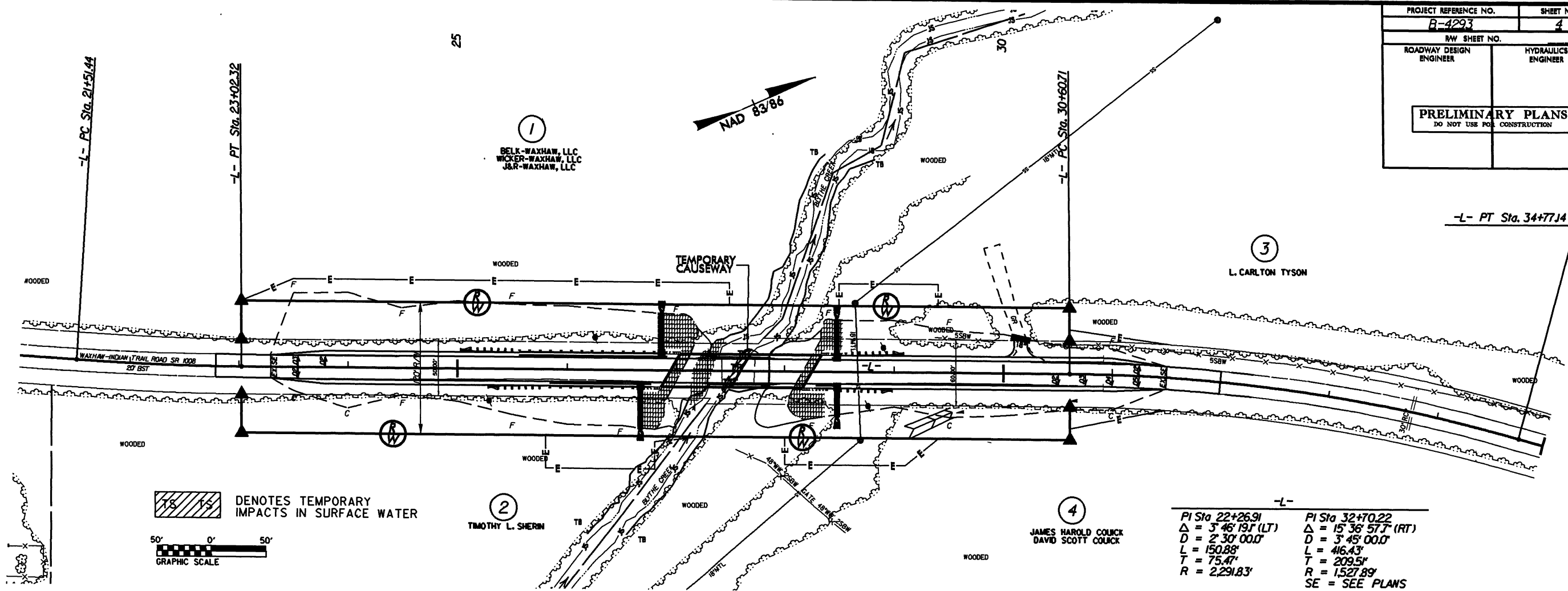
SIGNATURE: _____ P.E.

ROADWAY DESIGN
ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

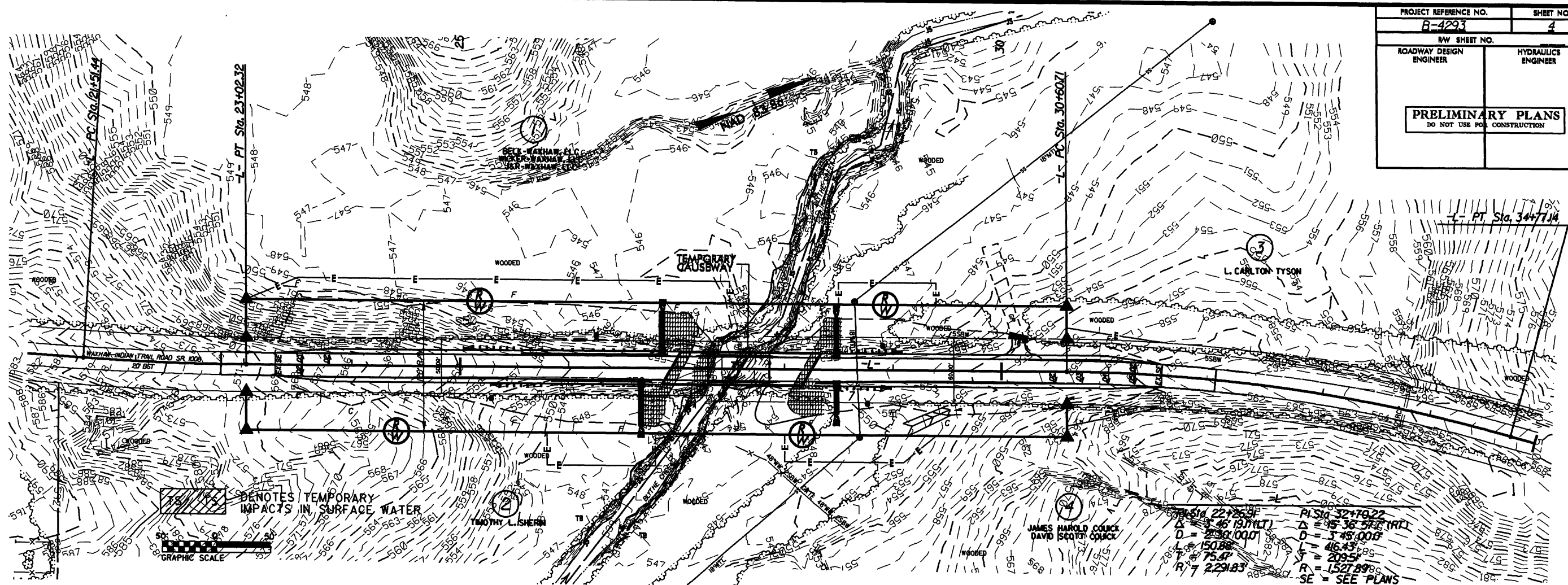
STATE HIGHWAY DESIGN ENGINEER



8/17/99

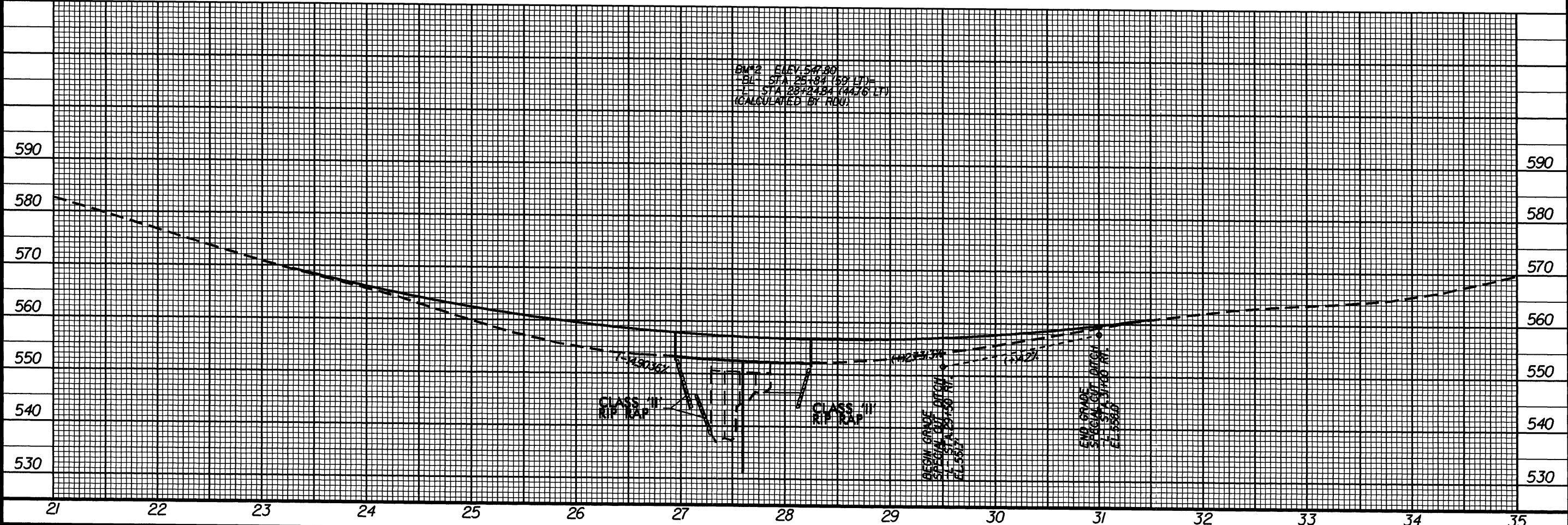
REVISIONS

PROJECT REFERENCE NO.		SHEET NO.	
B-4293		4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<div>PRELIMINARY PLANS</div> <div>DO NOT USE FOR CONSTRUCTION</div>			



PI STA 32+79.22
Δ = 95° 36' 58" (RT)
D = 345.000'
L = 46.43'
R = 1527.89'
SE = SEE PLANS

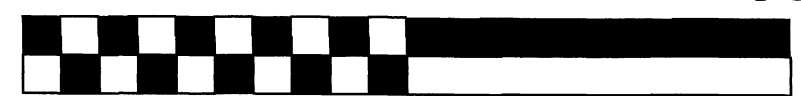
BM#2 ELEV 547.80
BL STA 23+84.69 (LT)
STA 23+84.64 (44.76' LT)
(CALCULATED BY RDW)



8/17/99

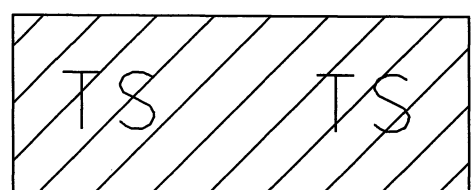
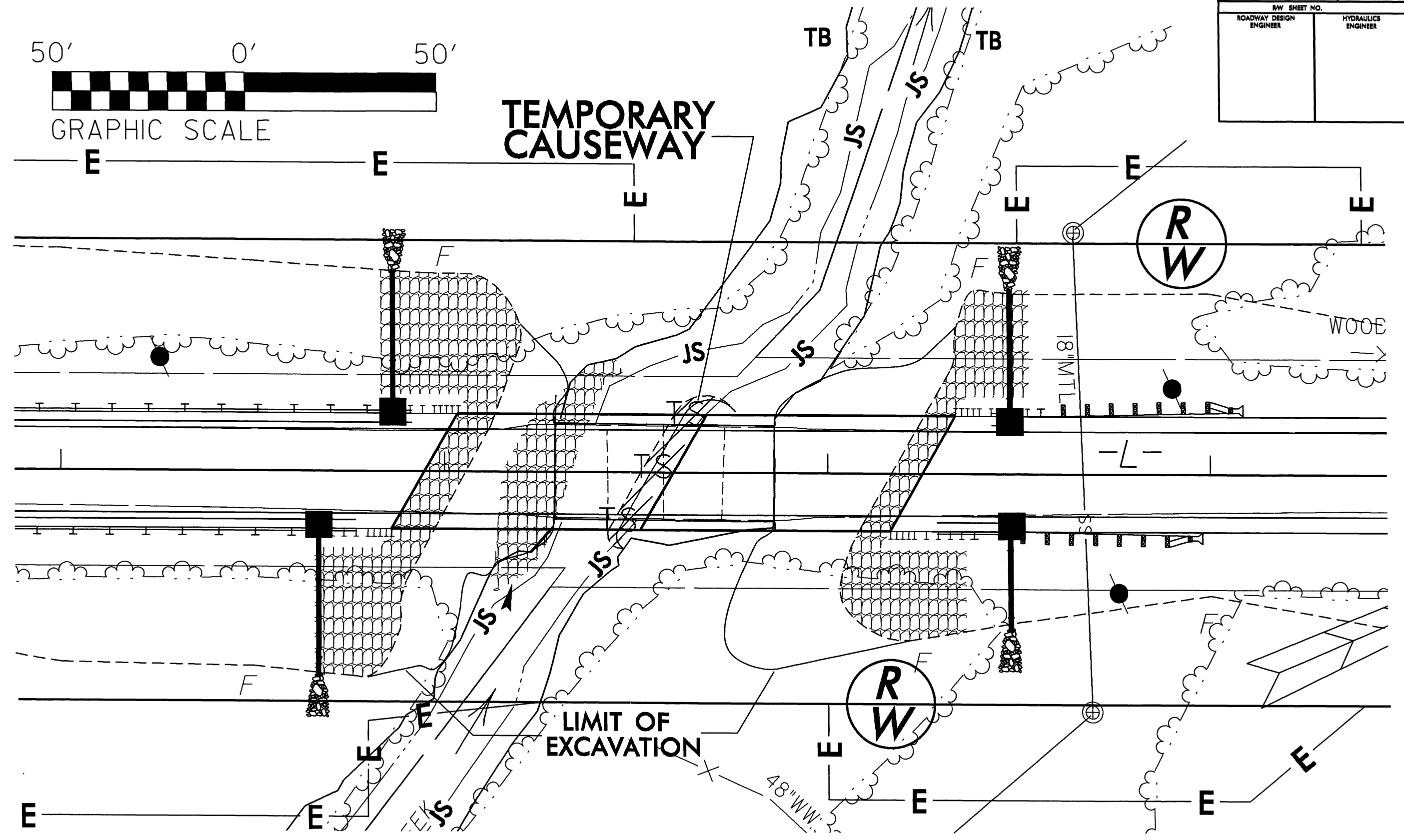
PROJECT REFERENCE NO. B-4293	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

50' 0' 50'



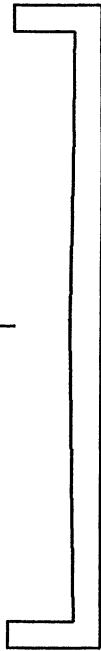
GRAPHIC SCALE

TEMPORARY CAUSEWAY



DENOTES TEMPORARY IMPACTS IN SURFACE WATER

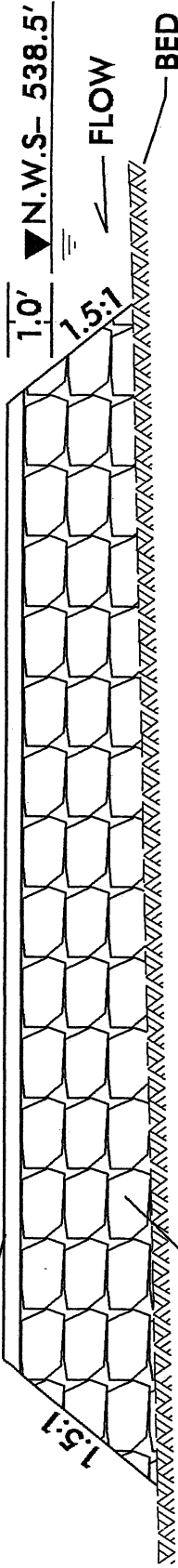
-L-



20'

20'

WORKPAD



1.0'

FLOW

BED

ROCK CAUSEWAY
(CLASS II RIP RAP)

QUANTITIES OF ESTIMATES

VOLUME OF CLASS II RIP RAP- 50cu. yds

AREA OF CLASS II RIP RAP- 0.01ac

NCDOT

DIVISION OF HIGHWAYS
UNION COUNTY

PROJECT: 33631.1.1 (B-4293)

REPLACE BRIDGE #219 OVER
BLYTHE CREEK ON SR 1008

CAUSEWAY DETAIL
(NOT TO SCALE)

SHEET

OF

01 / 11 / 10

PI = 27 + 33.00
 EL = 549.61'
 VC = 808'

CL STA. 27 + 60 -L-
 2@65'
 45" PRESTRESSED GIRDER BRIDGE (O.A.L- 130')
 SKEW- 120°
 EL. 557.06'

(-)4.9036%

(+)2.7313%

560'

550'

540'

EXCAVATION

1.5:1

TEMPORARY CAUSEWAY
 ELEV.- 539.5'

▽ NWS-538.5'

1.5:1

2:1

EXCAVATION

29 + 00-L-

28 + 00-L-

27 + 00-L-

26 + 00-L-



HORIZONTAL SCALE



VERTICAL SCALE

CAUSEWAY PROFILE

NCDOT

DIVISION OF HIGHWAYS
 UNION COUNTY
 PROJECT: 33631.1.1 (B-4293)
 REPLACE BRIDGE #219 OVER
 BLYTHE CREEK ON SR 1008

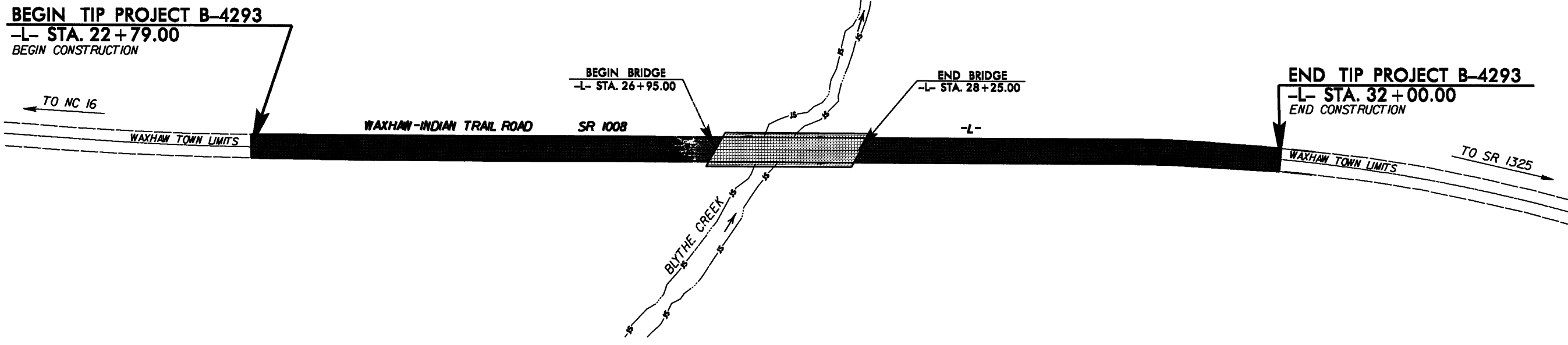
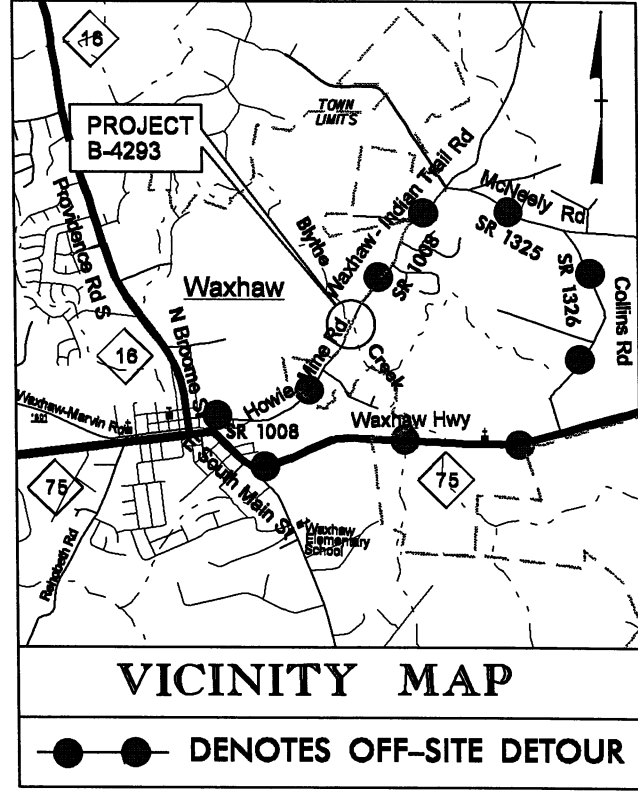
SHEET OF 01 / 11 / 10

09/08/99
10-MAY-2011 13:37
R:\Roadway\Proj\B4293_rdy_tsh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

TIP PROJECT: B-4293

CONTRACT:

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
UNION COUNTY

LOCATION: BRIDGE NO. 219 OVER BLYTHE CREEK AND APPROACHES
ON SR 1008 (WAXHAW-INDIAN TRAIL ROAD)

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

RECEIVED
MAY 11 2011
DIVISION OF HIGHWAYS
PDEA-OFFICE OF NATURAL ENVIRONMENT

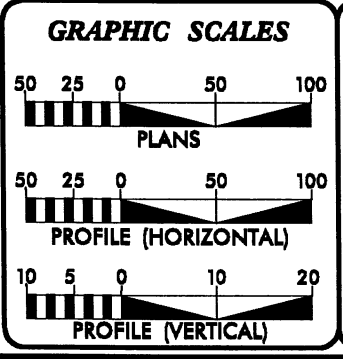
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4293	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33631.1.1	BRSTP-1008(11)	PE	
33631.2.1	BRSTP-1008(11)	ROW & UTIL	

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

NAD 83/86

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARY OF WAXHAW.

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.



DESIGN DATA	
ADT 2008 =	3,000
ADT 2030 =	5,200
DHV =	10 %
D =	60 %
T =	4 % *
V =	50 MPH
* (TTST 1% + DUAL 3%)	
TIER =	SUBREGIONAL

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT B-4293 =	0.149 MILE
LENGTH STRUCTURE TIP PROJECT B-4293 =	0.025 MILE
TOTAL LENGTH TIP PROJECT B-4293 =	0.174 MILE

Prepared In the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh NC, 27610	
2006 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: JANUARY 28, 2010	REKHA PATEL, PE PROJECT ENGINEER
LETTING DATE: MARCH 20, 2012	SAMUEL L. ST. CLAIR PROJECT DESIGN ENGINEER

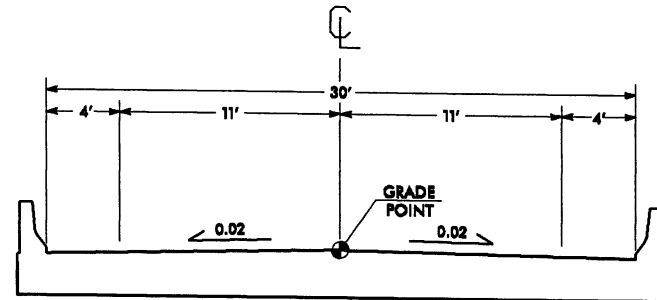
HYDRAULICS ENGINEER	
SIGNATURE: _____	P.E.
ROADWAY DESIGN ENGINEER	
SIGNATURE: _____	P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

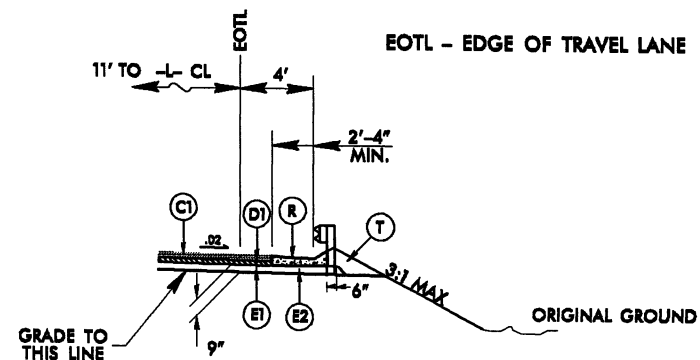
STATE HIGHWAY DESIGN ENGINEER

PAVEMENT SCHEDULE <i>(PRELIMINARY PAVEMENT DESIGN)</i>	
C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.8A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.8A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I10.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I10.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 458 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 8½" IN DEPTH.
R	SHOULDER BERM CUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT

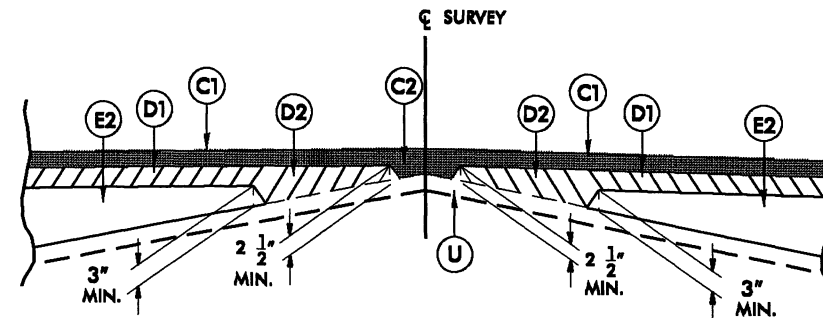
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



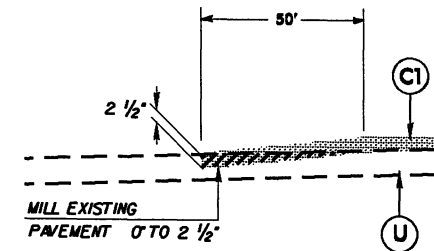
TYPICAL SECTION ON BRIDGE
FROM -L- STA. 26+95.00 TO -L- STA. 28+25.00



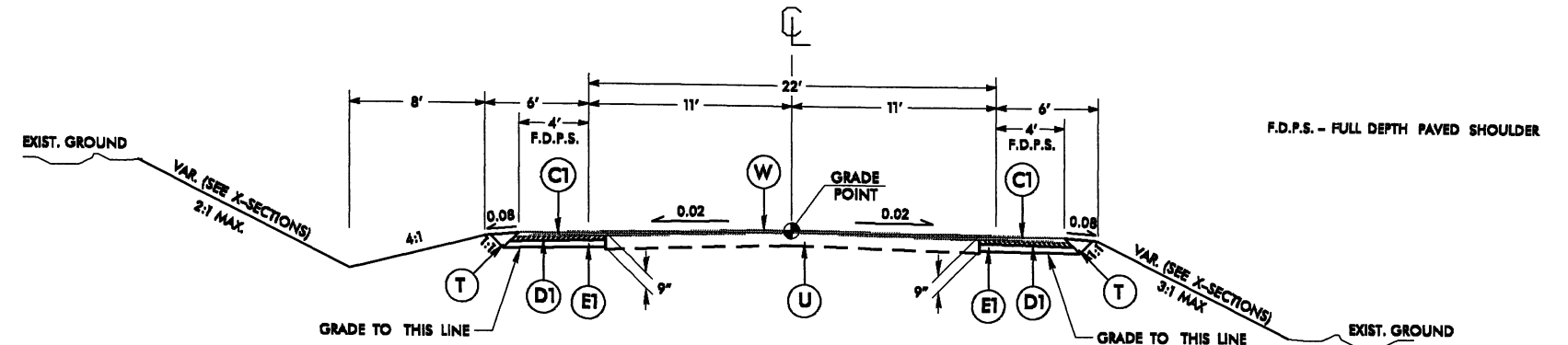
PARTIAL TYPICAL SECTION NO. 2A



Detail Showing Method of Wedging

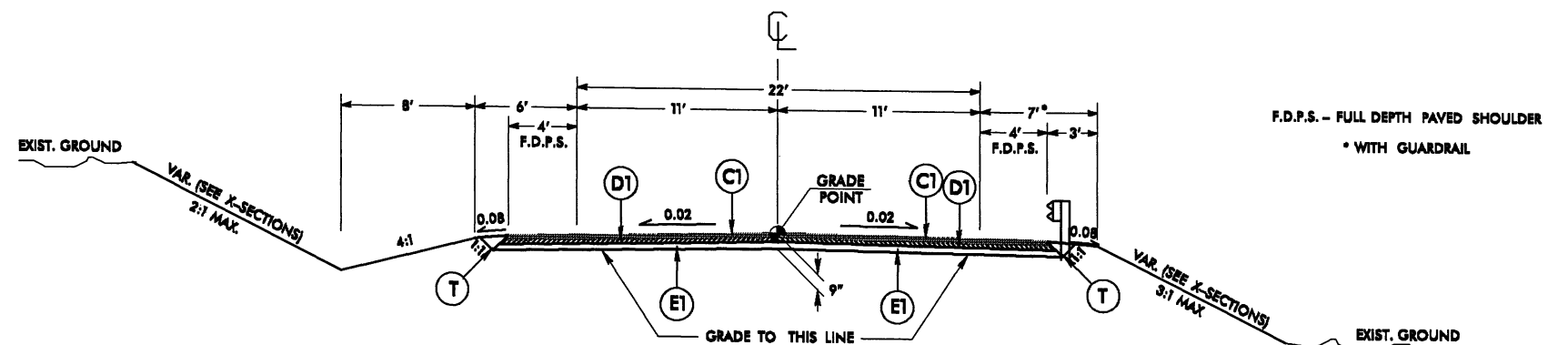


DETAIL OF PAVEMENT TREATMENT AT BEGIN AND END OF PROJECT	
FROM -L- STA. 22 + 79.00 TO	-L- STA. 23 + 29.00
FROM -L- STA. 31 + 50.00 TO	-L- STA. 32 + 00.00



TYPICAL SECTION NO. 1

FROM -L- STA. 23+29.00 TO -L- STA. 24+50.00
 FROM -L- STA. 30+50.00 TO -L- STA. 31+50.00



TYPICAL SECTION NO. 2

FROM -L- STA. 24+50.00 TO -L- STA. 26+95.00 (BEGIN BRIDGE)
FROM -L- STA. 28+25.00 (END BRIDGE) TO -L- STA. STA. 30+50.00

PARTIAL TYPICAL SECTION NO. 2A

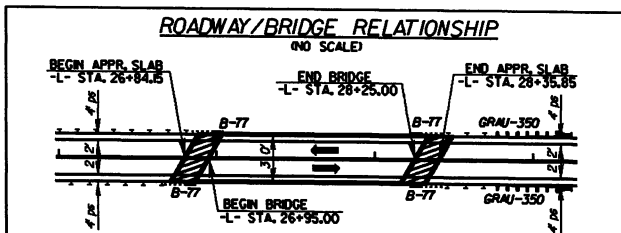
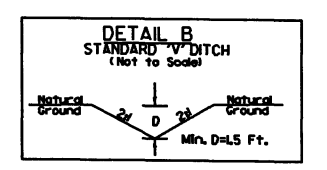
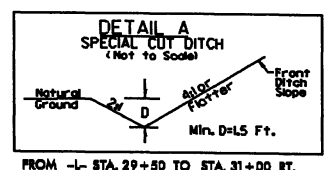
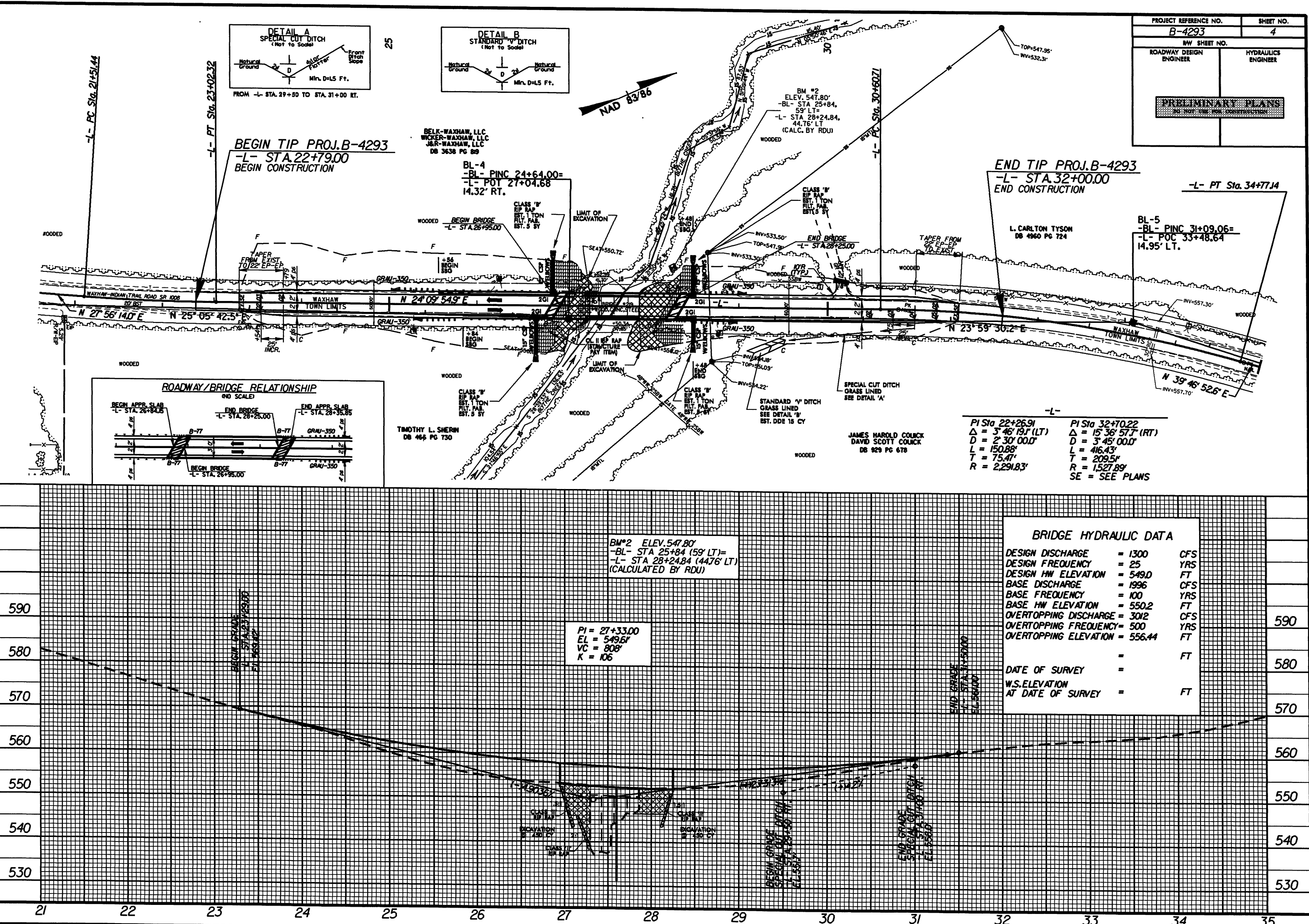
**USE PARTIAL TYPICAL SECTION NO. 2A
IN CONJUNCTION WITH TYPICAL SECTION NO. 2
AS FOLLOWS:**

-L STA. 25+56.0 LT TO -L STA. 26+91.5 +/- LT
 -L STA. 25+84.0 RT TO -L STA. 26+76.8 +/- RT
 -L STA. 28+43.2 +/- LT TO -L STA. 26+48.0 LT
 -L STA. 28+28.5 +/- RT TO -L STA. 28+48.0 RT

8/17/99

10 MAY 2011 13:37
B:\4293\B4293.Rdy.psh.dgn

REVISIONS



-L-

PI Sta. 22+26.91	PI Sta. 32+70.22
$\Delta = 3' 46'' 19.1$ (LT)	$\Delta = 15' 36'' 57.7$ (RT)
$D = 2' 30'' 00.0$	$D = 3' 45'' 00.0$
$L = 150.88'$	$L = 416.43'$
$T = 75.47'$	$T = 209.51'$
$R = 2,291.83'$	$R = 1,527.89'$
	SE = SEE PLANS

BM #2 ELEV. 547.80'
-BL- STA 25+84 (59' LT)=
-L- STA 28+24.84 (44.76' LT)
(CALCULATED BY RDU)

PI = 27+33.00
EL = 549.51'
VC = 808'
K = 106

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1300	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 549.0	FT
BASE DISCHARGE	= 1996	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 550.2	FT
OVERTOPPING DISCHARGE	= 3012	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 556.44	FT
		FT
DATE OF SURVEY	=	
W.S. ELEVATION AT DATE OF SURVEY	=	FT

PROJECT REFERENCE NO. B-4293		SHEET NO. 4
RDW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		
PRELIMINARY PLANS		

BEGIN TIP PROJ. B-4293
-L- STA. 22+79.00
BEGIN CONSTRUCTION

END TIP PROJ. B-4293
-L- STA. 32+00.00
END CONSTRUCTION

-L- PT Sta. 34+77.14

BL-5
-BL- PINC 31+09.06=
-L- POC 33+48.64
14.95' LT.

L. CARLTON TYSON
DB 4960 PG 724

JAMES HAROLD COUNCK
DAVID SCOTT COUNCK
DB 929 PG 678

TIMOTHY L. SHERIN
DB 465 PG 730

BELK-WAXHAW, LLC
WICKER-WAXHAW, LLC
J&R-WAXHAW, LLC
DB 3638 PG 889

BL-4
-BL- PINC 24+64.00=
-L- POC 27+04.68
14.32' RT.

CLASS 'B'
RIP RAP
EST. 1 TON
PLY. FAB.
EST. 5 SY

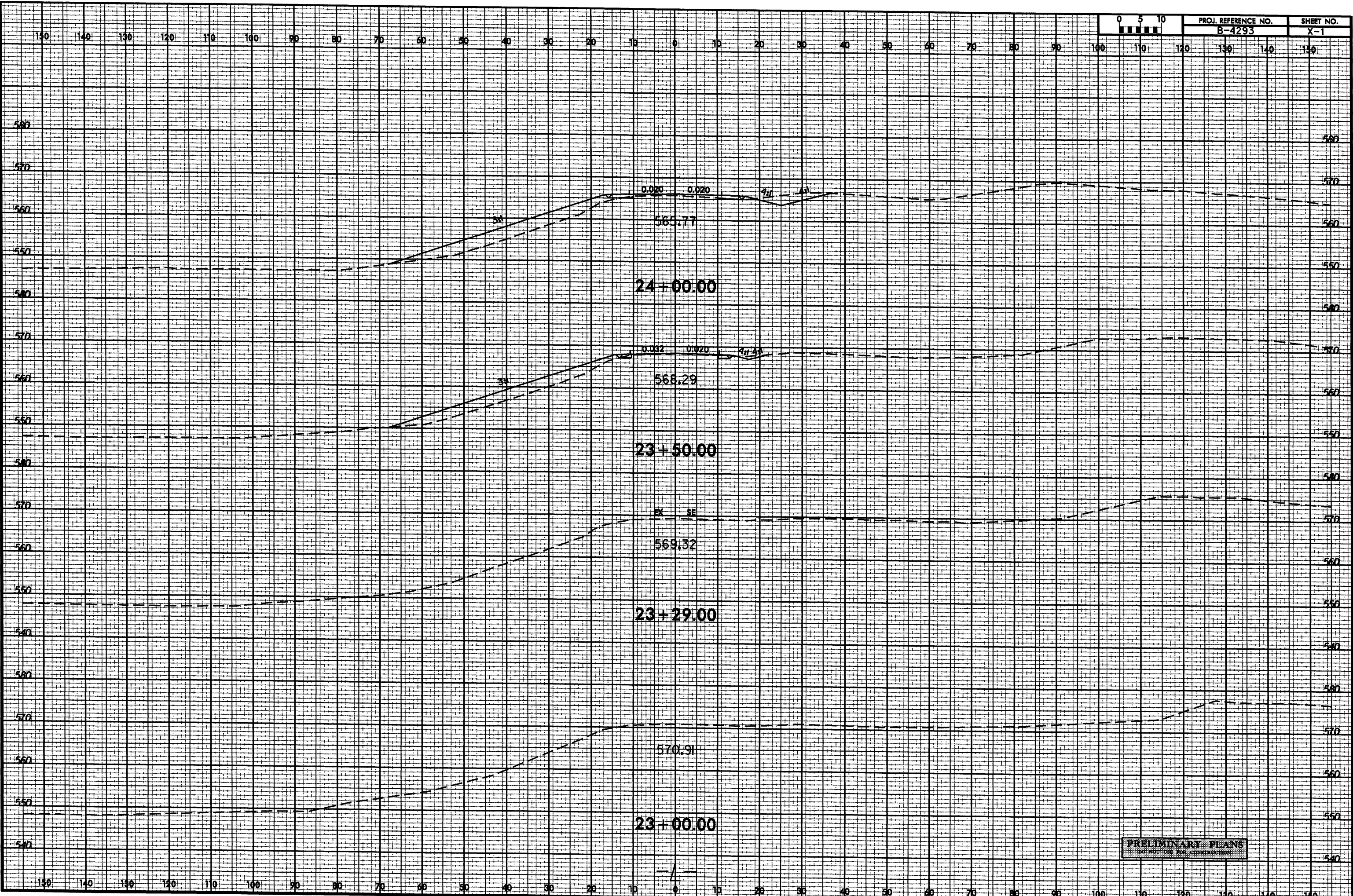
CLASS 'B'
RIP RAP
EST. 1 TON
PLY. FAB.
EST. 5 SY

CLASS 'B'
RIP RAP
EST. 1 TON
PLY. FAB.
EST. 5 SY

CLASS 'B'
RIP RAP
EST. 1 TON
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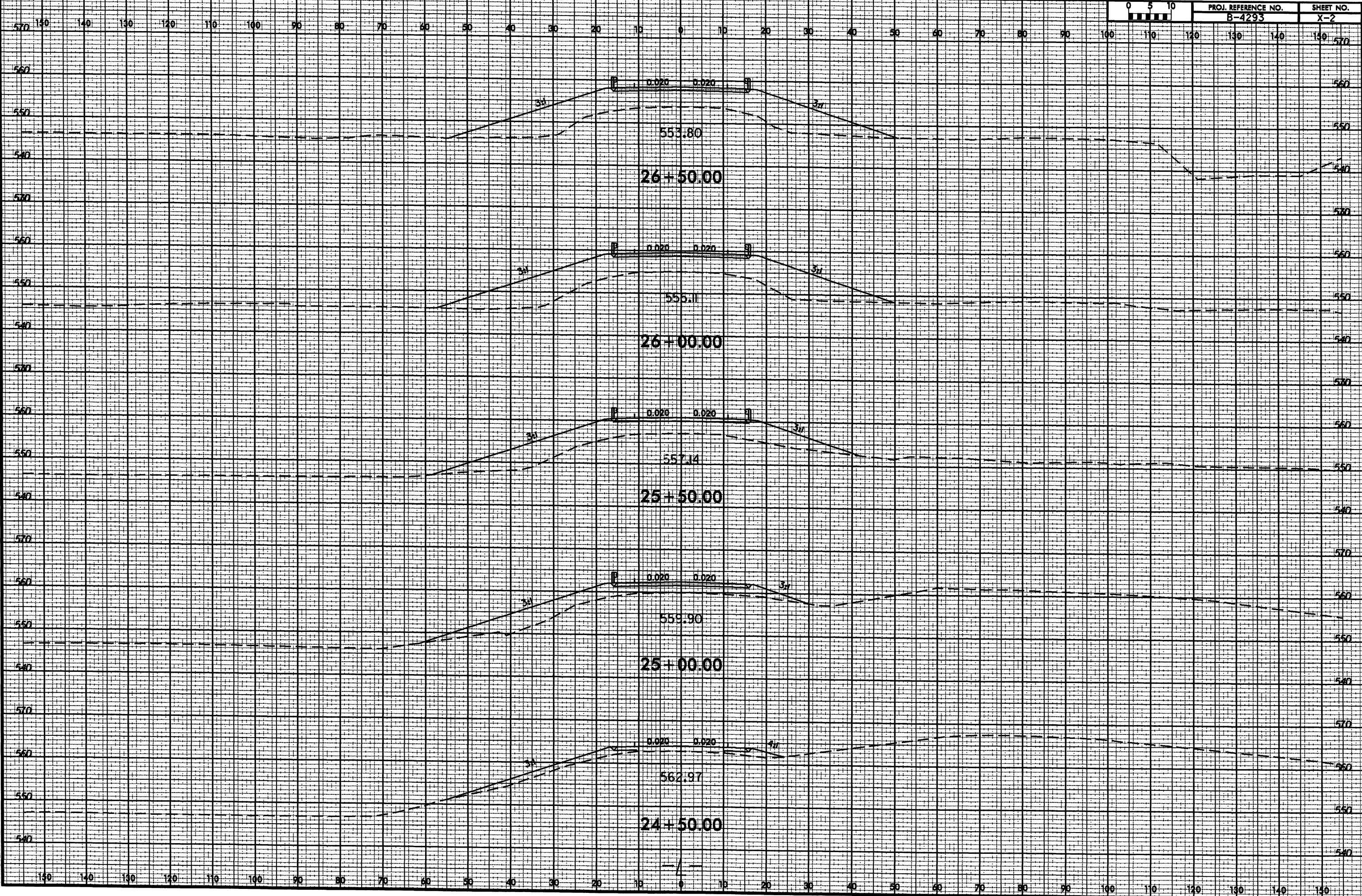
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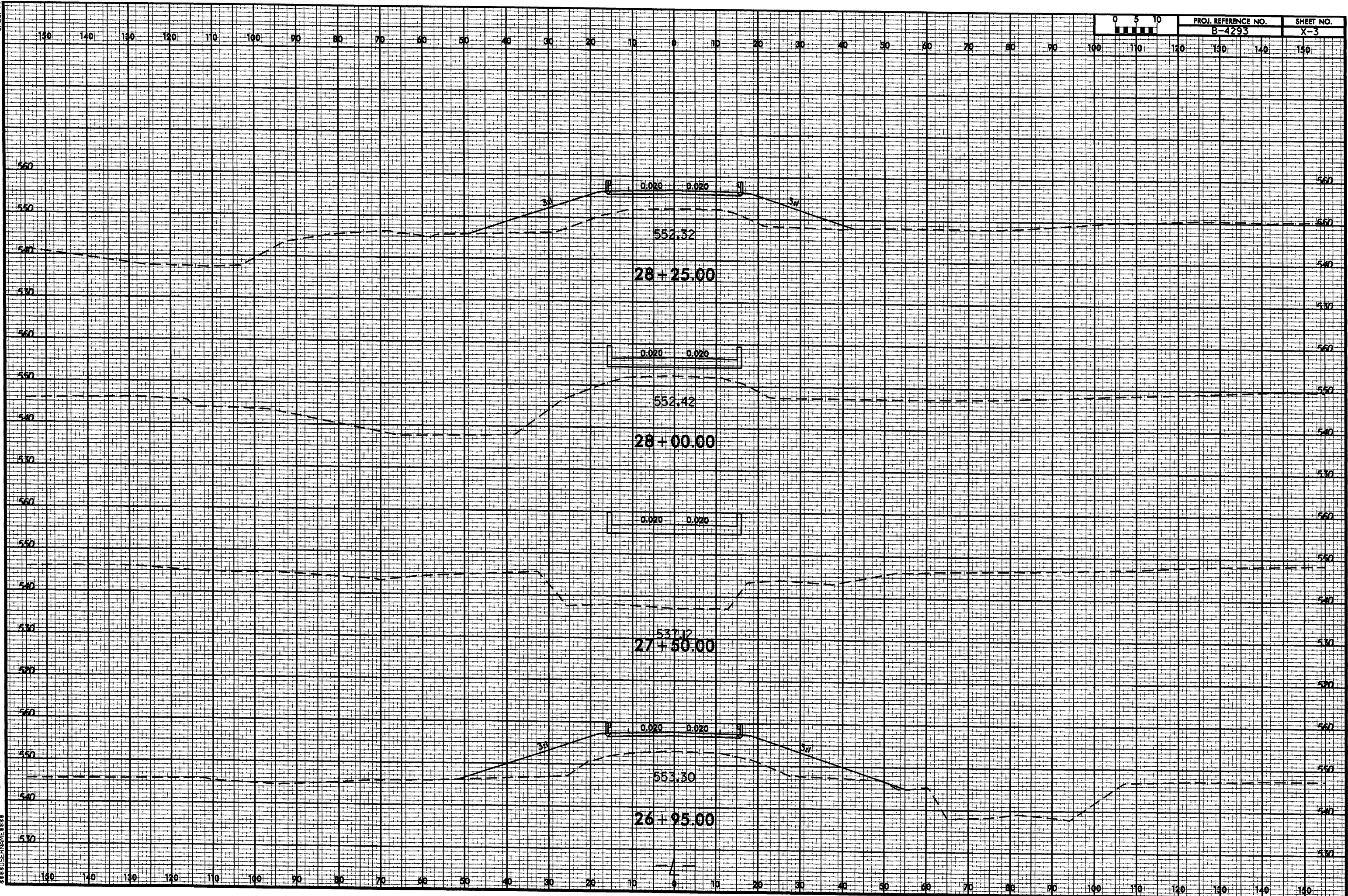
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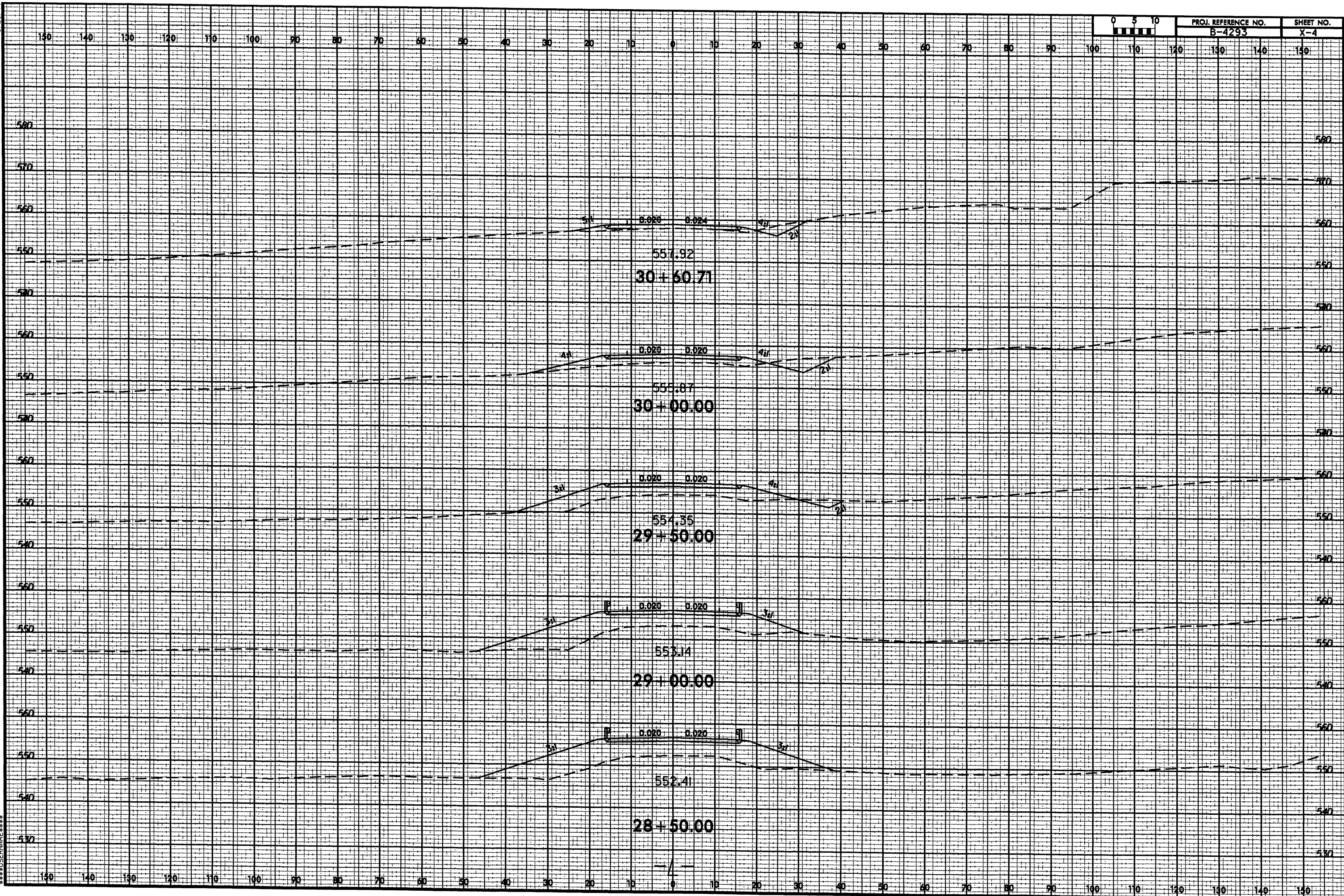


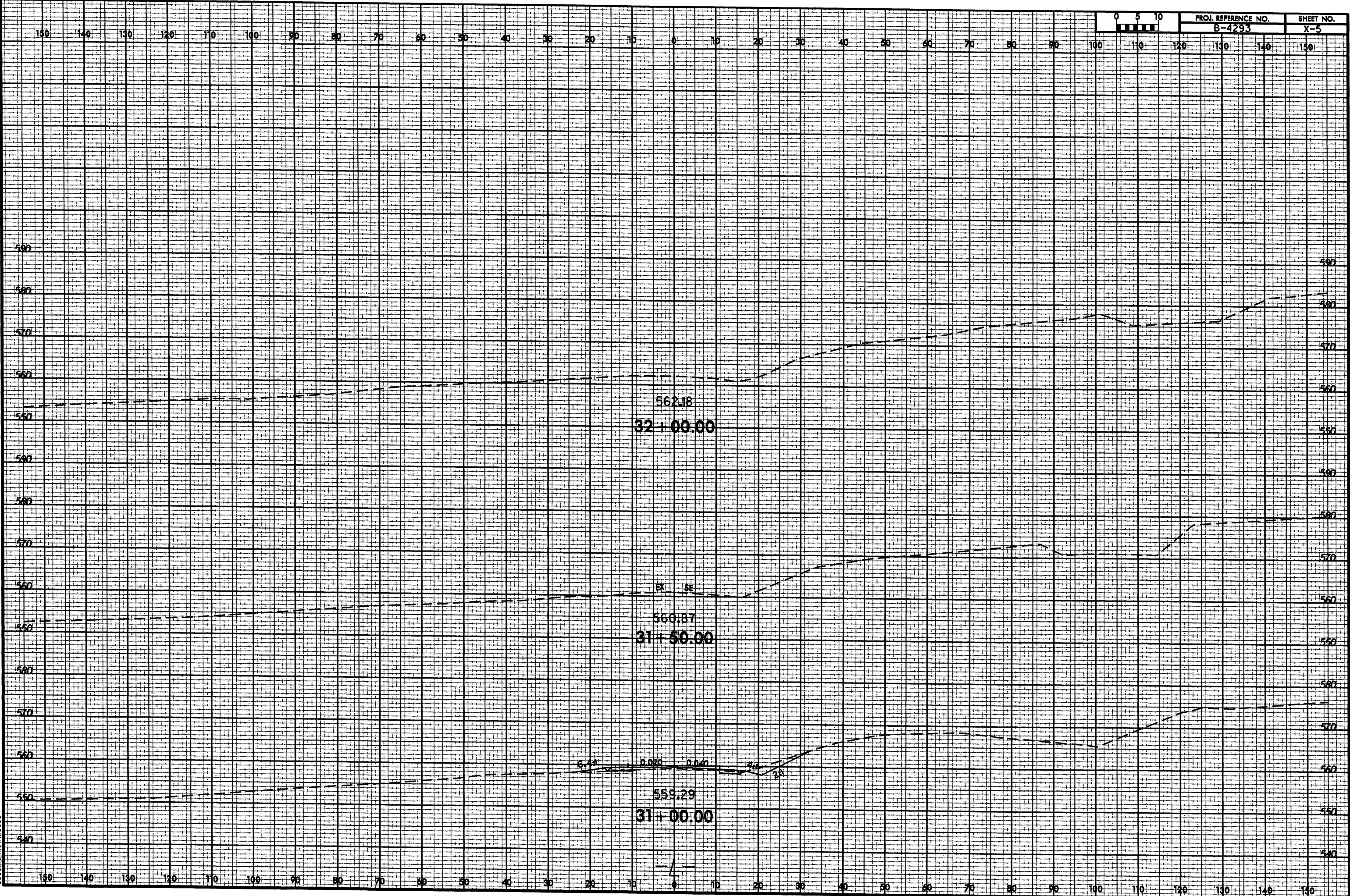
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