



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

September 29, 2014

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

ATTN: Ms. Crystal Amschler
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 33** for the proposed Replacement of Bridge 227 on SR 1006 over Rocky River, Cabarrus County, Federal Aid Project No. BRSTP-1006(32); Division 10; TIP No. B-4972

Dear Madam:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge 227 on SR 1006 (Mount Pleasant Road) with a 4 span, 380' box beam bridge on the existing alignment. There will be no permanent impacts to surface waters and 0.01 acre of temporary impacts to surface waters resulting from a temporary causeway.

Please see enclosed copies of the Pre-Construction Notification (PCN), Stormwater Management Plan, Permit Drawings, Roadway Plansheets. A Programmatic Categorical Exclusion (PCE) was completed in January 2014 and distributed shortly thereafter. Additional copies are available upon request.

This project calls for a letting date of June 16, 2015 and a review date of April 28, 2015; however, the let date may advance as additional funding becomes available.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-707-6000
FAX: 919-212-5785
WEBSITE: NCDOT.GOV

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

A copy of this permit application and its distribution list will be posted on the NCDOT Website at: <http://connect.ncdot.gov/resources/Environmental>. If you have any questions or need additional information, please call Jeff Hemphill at (919) 707-6126.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Hancock', with a long horizontal flourish extending to the right.

for Richard W. Hancock, P.E., 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:	<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 type="checkbox"/> 401 Water Quality Certification – Regular <input type="checkbox"/> Non-404 Jurisdictional General Permit <input checked="" 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 227 on SR 1006 over Rocky River
2b. County:	Cabarrus
2c. Nearest municipality / town:	Mount Pleasant
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no.:	B-4972

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) 707-6126
3g. Fax no.:	(919) 212-5785
3h. Email address:	jhemphill@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: 35.3137 (DD.DDDDDD) Longitude: - 80.4788 (-DD.DDDDDD)
1c. Property size:	3.7 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Rocky River
2b. Water Quality Classification of nearest receiving water:	C
2c. River basin:	Yadkin-Pee Dee
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: Forestland interspersed with residential development	
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: 188	
3d. Explain the purpose of the proposed project: To replace a structurally deficient (and/ or) functionally obsolete bridge.	
3e. Describe the overall project in detail, including the type of equipment to be used: Replace an existing 201' five span concrete girder bridge with a four span, 380' box beam bridge on the existing alignment. 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: NCDOT 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):						
<input type="checkbox"/> Wetlands		<input checked="" type="checkbox"/> Streams - tributaries		<input type="checkbox"/> Buffers		
<input type="checkbox"/> Open Waters		<input type="checkbox"/> 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						
2h. Comments: The two wetlands onsite will not be impacted by the project.						
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	Temp Causeway	Rocky River	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	36	43
Site 1 <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 1 <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						0 Perm 43 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				

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?	<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: Project is not on the main stem of the Catawba					

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 new structure has been designed with no permanent impacts to surface waters.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. Grass lined ditches will be utilized for stormwater runoff treatment.		
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: No permanent impacts	
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:		
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?

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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments: If required from 1a, see attached buffer permit drawings.	<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	
<p>5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat?</p> <p>NCDOT personnel have conducted in-season surveys for Schweinitz sunflower in 2008, 2010, 2011 and 2013 along roadside habitat in the project area with no specimens found. Jay Mays, USFWS rep, requested on 5/19/14 that one more survey prior to construction because of a known population a quarter of a mile from the project. A survey was performed on September 24, 2014 with no specimens found – No Effect. A June 2009 survey for Carolina heelsplitter determined No Effect/No Habitat.</p> <p>A US Fish and Wildlife Service proposal for listing the Northern Long-eared Bat (<i>Myotis septentrionalis</i>) as an Endangered species was published in the Federal Register in October 2013. The listing will become effective on or before April, 2015. Furthermore, this species is included in USFWS's current list of protected species for Cabarrus County. NCDOT is working closely with the USFWS to understand how this proposed listing may impact NCDOT projects. NCDOT will continue to coordinate appropriately with USFWS to determine if this project will incur potential effects to the Northern long-eared bat, and how to address these potential effects, if necessary.</p>		
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		
<i>for</i> <u>Richard W. Hancock, PE.</u> Applicant/Agent's Printed Name	 Applicant/Agent's Signature <small>(Agent's signature is valid only if an authorization letter from the applicant is provided.)</small>	<u>9-29-2014</u> Date



North Carolina Department of Transportation
Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR LINEAR ROADWAY PROJECTS



(Version 1.2; Released September 2011)

General Project Information

Project No.:	B-4972	Project Type:	Bridge Replacement	Date:	7/11/2013
NCDOT Contact:	William S. Zerman, PE	Contractor / Designer:	HNTB North Carolina, P.C		
Address:	1020 Birch Ridge Rd. Raleigh, NC 27610	Address:	343 E. Six Forks Road, Suite 200 Raleigh, NC 27609		
	Phone: 919-707-6755		Phone:	919-424-0437	
	Email: bzerman@ncdot.gov		Email:	jabyrd@hntb.com	
City/Town:	Midland	County(ies):	Cabarrus		
River Basin(s):	Yadkin-Pee Dee	CAMA County?	No		
Primary Receiving Water:	Rocky River	NCDWQ Stream Index No.:	13-17		
NCDWQ Surface Water Classification for Primary Receiving Water	Primary:	Class C			
	Supplemental:	None			
Other Stream Classification:	None				
303(d) Impairments:	copper (Cu)	zinc (Zn)	turbidity		
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	0.25	Surrounding Land Use:	Rural Residential		
Project Built-Up Area (ac.)	Proposed Project		Existing Site		
	1.00	ac.	0.69	ac.	
Typical Cross Section Description:	2 - 12' asphalt paved lanes with paved shoulders & grassed shoulders.		2 - 11' asphalt paved lanes with grassed shoulders		
Average Daily Traffic (veh/hr/day):	Design/Future:	10800 (2035)	Existing:	4115 (2013)	
General Project Narrative:	Replacement of Bridge No. 227 on SR 1006 (Mt. Pleasant Rd.) with a 2 @ 100' - 0" & 2 @ 90' - 0" 39" Box Beam Bridge. Total bridge length is 380 ft with a total width of 36' - 0" out to out. Deck drains will be utilized on this project, however, no stormwater will be discharged inside the channel banks. The project also involves 970 ft of roadway improvements.				

References

09.08/99

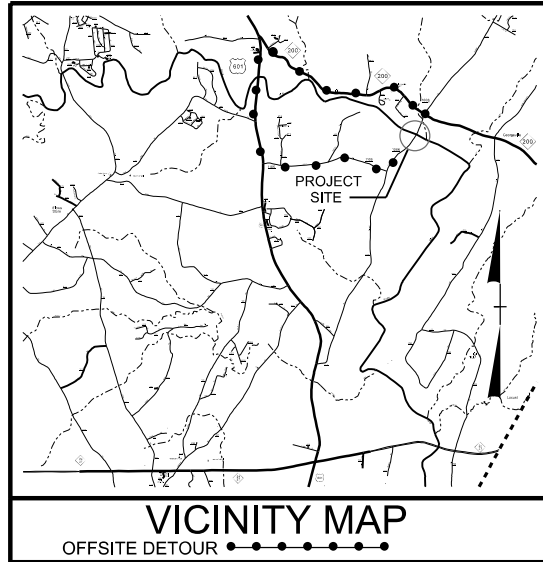
See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CABARRUS COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4972	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40096.1.1	BRSTP-1006 (32)	PE	
40096.2.FD1	BRSTP-1006 (32)	RW, UTILITIES	

TIP PROJECT: B-4972



LOCATION: BRIDGE NO. 227 OVER ROCKY RIVER ON SR 1006

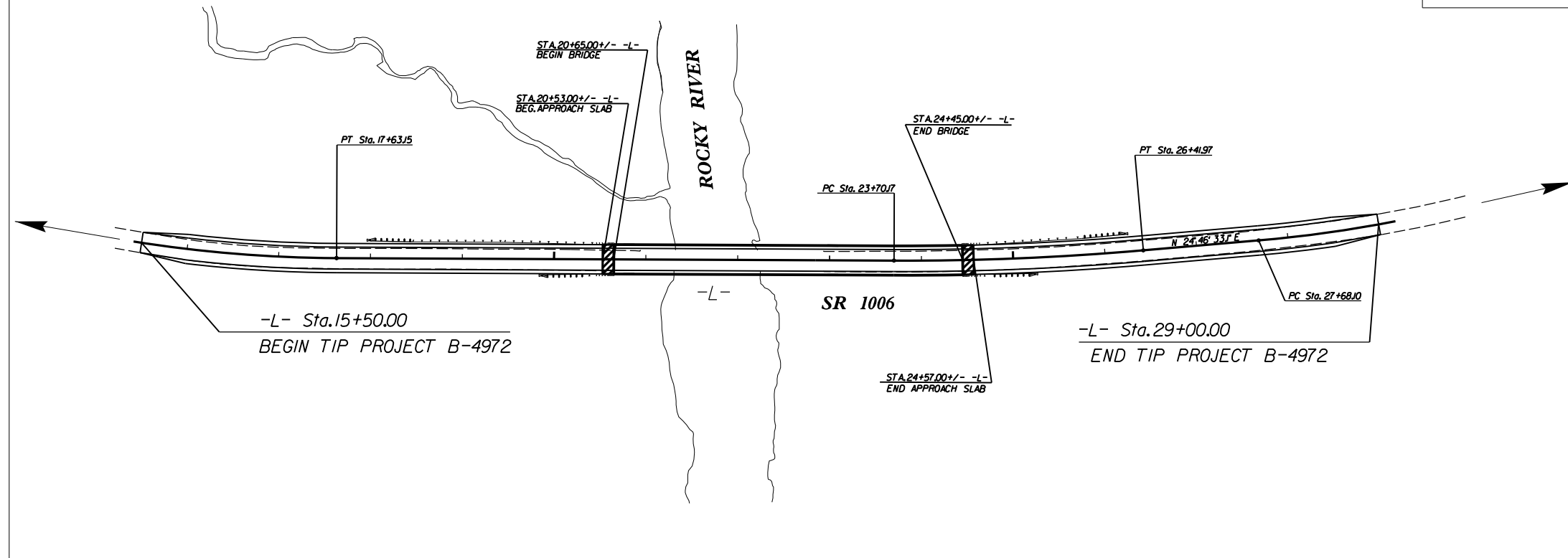
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

WETLAND & STREAM IMPACTS



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARY

4

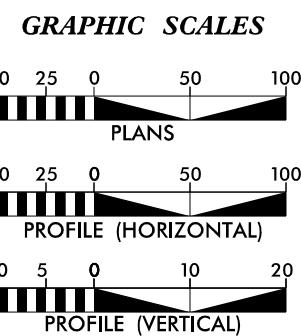


PERMIT DRAWINGS
SHEET 1 OF 5

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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

CONTRACT:



DESIGN DATA

ADT 2014	=	4,420
ADT 2035	=	10,800
K	=	10 %
D	=	55 %
*T	=	13 %
V	=	55 MPH

(RURAL LOCAL)
SUB-REGIONAL TIER
* TTST 3 % + DUAL 10%

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4972	=	0.184 MI
LENGTH OF STRUCTURE TIP PROJECT B-4972	=	0.072 MI
TOTAL LENGTH OF TIP PROJECT B-4972	=	0.256 MI

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

2012 STANDARD SPECIFICATIONS

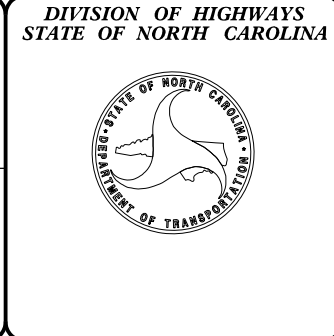
RIGHT OF WAY DATE: JUNE 25, 2014	G. E. BREW PE PROJECT ENGINEER
LETTING DATE: JUNE 16, 2015	W. T. BEST PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

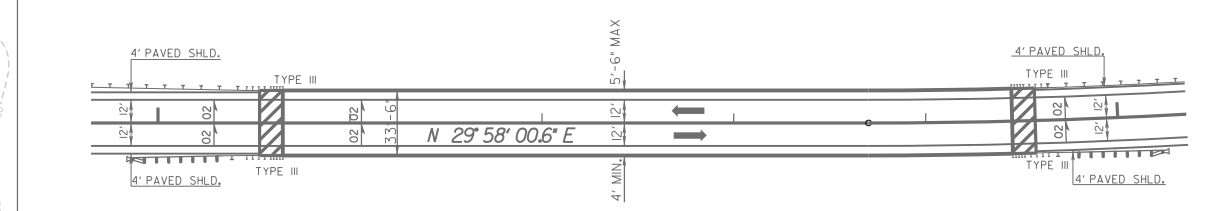
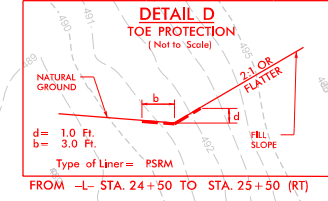
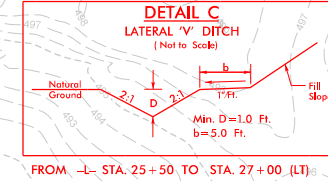
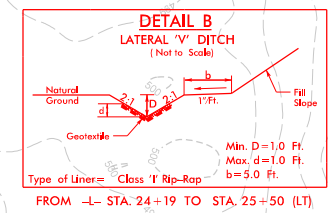
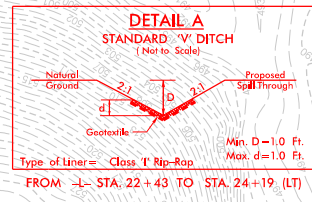
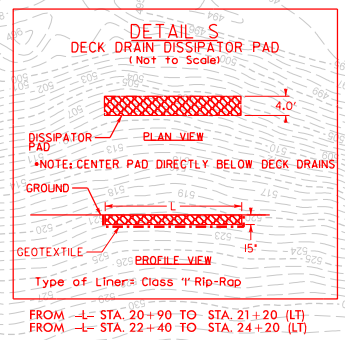
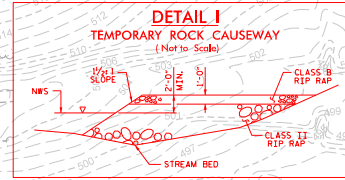
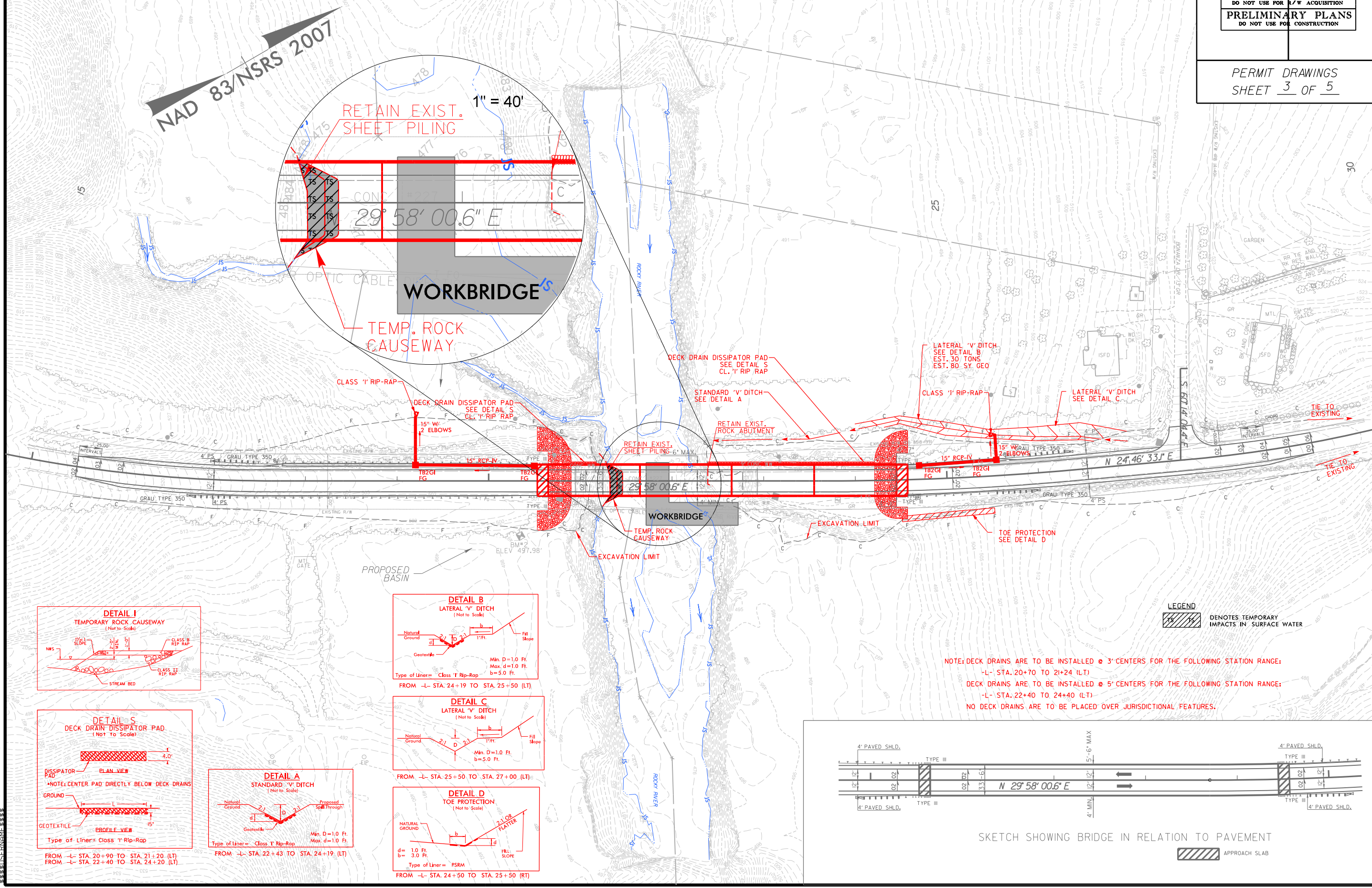


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\$\$\$\$\$SERVNAME\$\$\$\$\$

8.17/99

WETLAND & STREAM IMPACTS

PROJECT REFERENCE NO. B-4972	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
PERMIT DRAWINGS SHEET 3 OF 5	

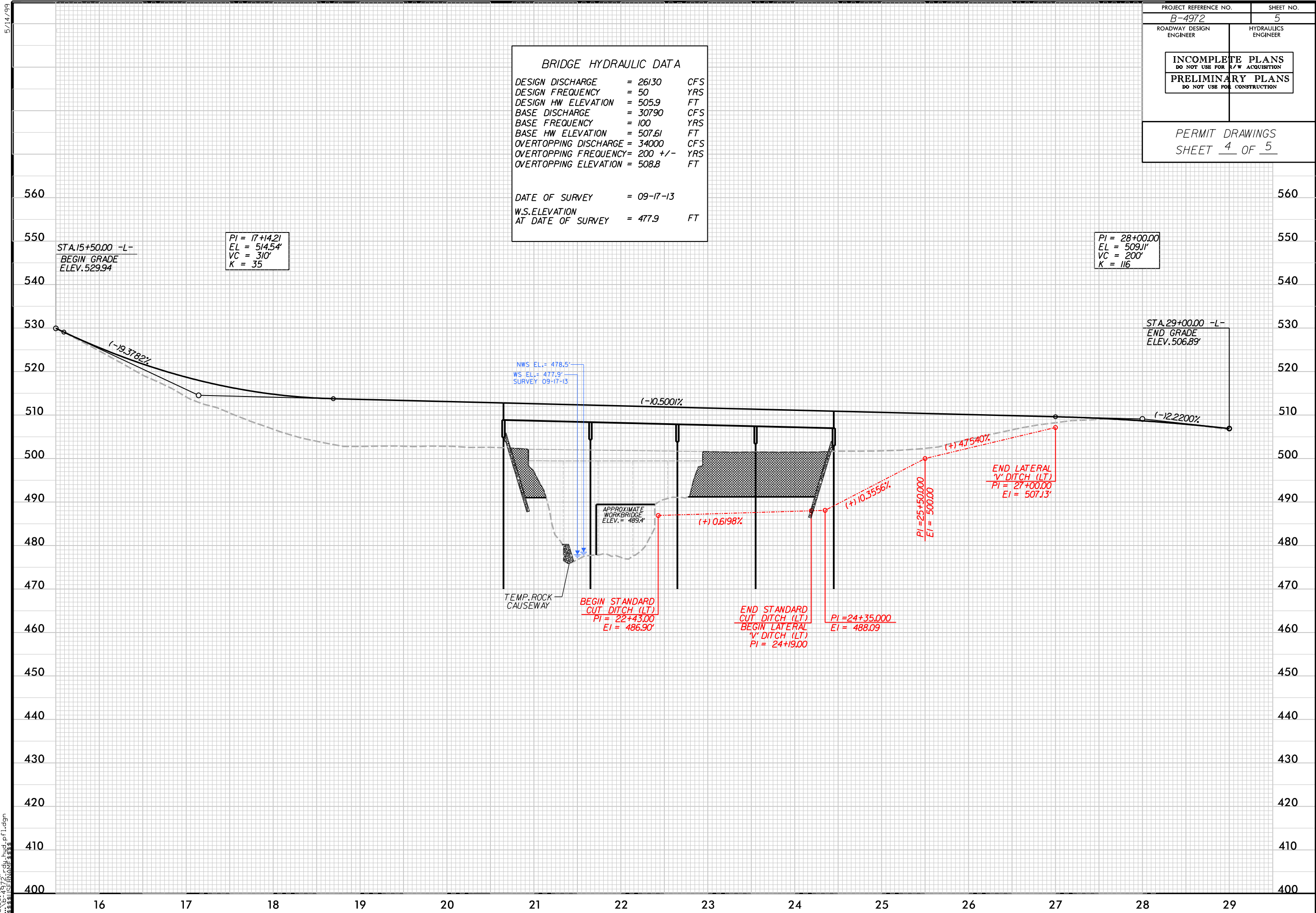


NOTE: DECK DRAINS ARE TO BE INSTALLED @ 3' CENTERS FOR THE FOLLOWING STATION RANGE:
 -L- STA. 20+70 TO 21+24 (LT)
 DECK DRAINS ARE TO BE INSTALLED @ 5' CENTERS FOR THE FOLLOWING STATION RANGE:
 -L- STA. 22+40 TO 24+40 (LT)
 NO DECK DRAINS ARE TO BE PLACED OVER JURISDICTIONAL FEATURES.

LEGEND
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

1:25 31 PM 1/20/22 227_hyd_p.r.m_02.dgn

BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 26130	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 505.9	FT
BASE DISCHARGE	= 30790	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 507.61	FT
OVERTOPPING DISCHARGE	= 34000	CFS
OVERTOPPING FREQUENCY	= 200 +/-	YRS
OVERTOPPING ELEVATION	= 508.8	FT
DATE OF SURVEY	= 09-17-13	
W.S. ELEVATION AT DATE OF SURVEY	= 477.9	FT



STA. 15+50.00 -L-
 BEGIN GRADE
 ELEV. 529.94'

PI = 17+14.21
 EL = 514.54'
 VC = 310'
 K = 35

PI = 28+00.00
 EL = 509.11'
 VC = 200'
 K = 116

NWS. EL. = 478.5'
 WS. EL. = 477.9'
 SURVEY 09-17-13

STA. 29+00.00 -L-
 END GRADE
 ELEV. 506.89'

Grades: (-)19.3782%, (-)10.5001%, (+)0.6198%, (+)10.3556%, (+)4.7540%, (-)12.2200%

Vertical Curve Data:

- PI = 25+50.00, EL = 500.00'
- PI = 24+35.00, EL = 488.09'
- PI = 27+00.00, EL = 507.13'

Ditch and Causeway Data:

- BEGIN STANDARD CUT DITCH (LT): PI = 22+43.00, EL = 486.90'
- END STANDARD CUT DITCH (LT): PI = 24+19.00
- BEGIN LATERAL "V" DITCH (LT): PI = 24+19.00
- END LATERAL "V" DITCH (LT): PI = 27+00.00, EL = 507.13'

Other Labels: TEMP. ROCK CAUSEWAY, APPROXIMATE WORKBRIDGE ELEV. = 489.4'

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER 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)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 21+27 TO 21+46	Temporary Causeway						0.01			43	
TOTALS*:								0.01			43	

*Rounded totals are sum of actual impacts

- NOTES:
- Temporary Rock Causeway is for the removal of existing bridge pier.
 - Permanent Stream Impacts from bridge construction = < 0.01 acres (64 sq. ft.)
 - Temporary Stream Impacts from work bridge construction = < 0.01 acres (40 sq. ft.)

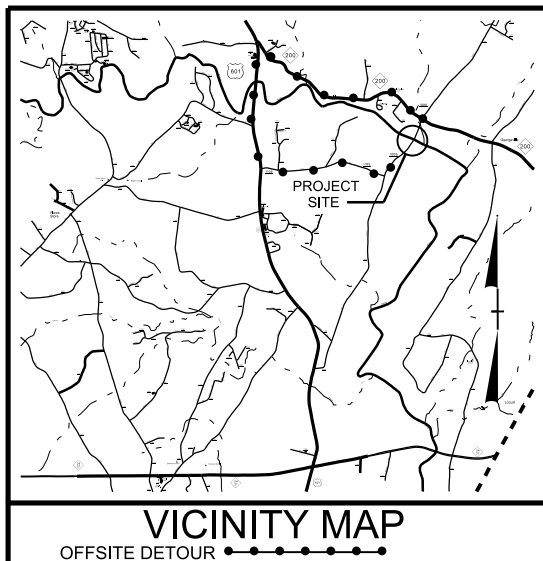
NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 7/11/2014
 CABARRUS COUNTY
 BRIDGE 227 ON SR 1006
 OVER ROCKY RIVER
 SHEET 5 OF 5

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

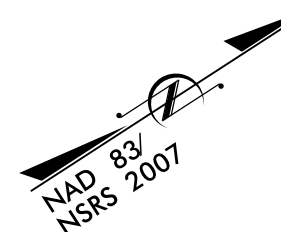
CABARRUS COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4972	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40096.1.1	BRSTP-1006 (32)	PE	
40096.2.FD1	BRSTP-1006 (32)	R/W, UTILITIES	



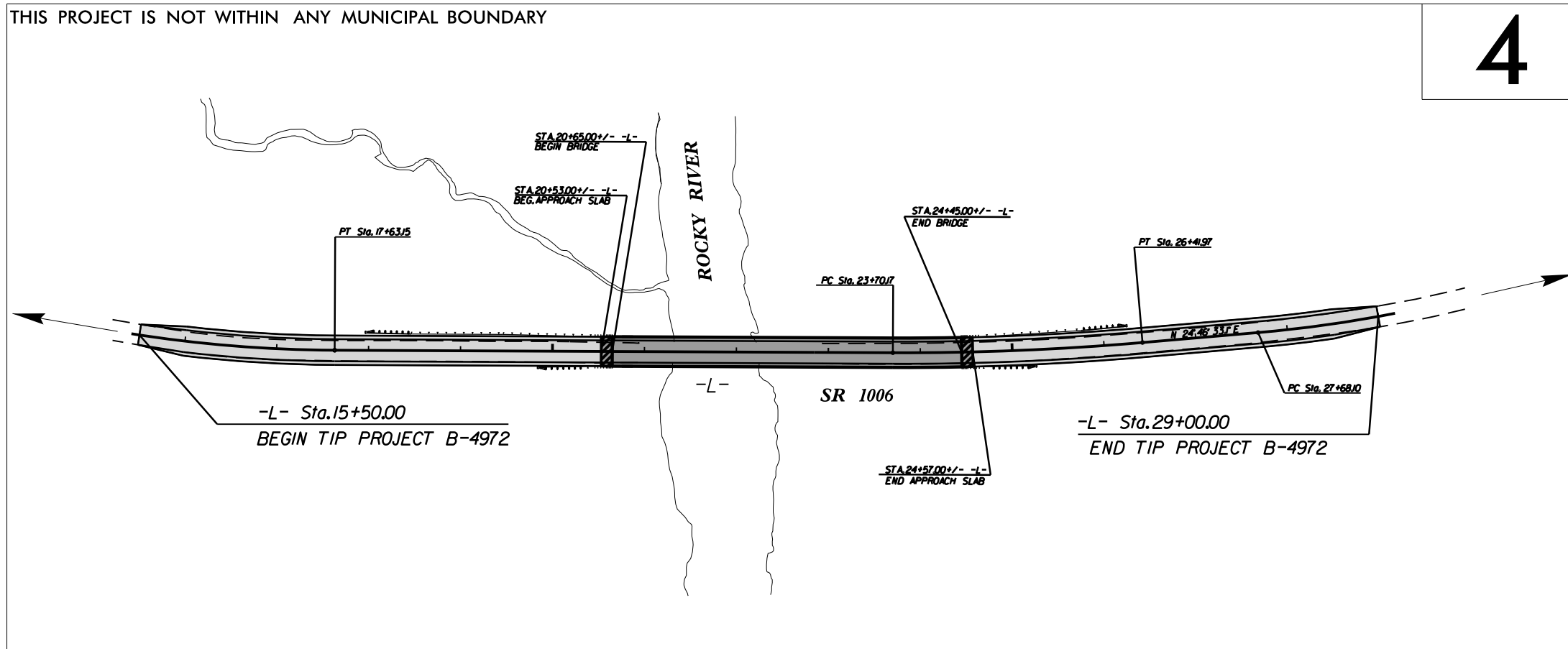
LOCATION: BRIDGE NO. 227 OVER ROCKY RIVER ON SR 1006

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE



TIP PROJECT: B-4972

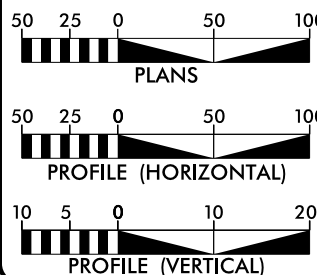
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARY



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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2014 = 4,420
ADT 2035 = 10,800
K = 10 %
D = 55 %
*T = 13 %
V = 55 MPH
(RURAL LOCAL)
SUB-REGIONAL TIER
* TTST 3 % + DUAL 10%

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4972 = 0.184 MI
LENGTH OF STRUCTURE TIP PROJECT B-4972 = 0.072 MI
TOTAL LENGTH OF TIP PROJECT B-4972 = 0.256 MI

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 25, 2014

LETTING DATE:
JUNE 16, 2015

G. E. BREW PE
PROJECT ENGINEER

W. T. BEST
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



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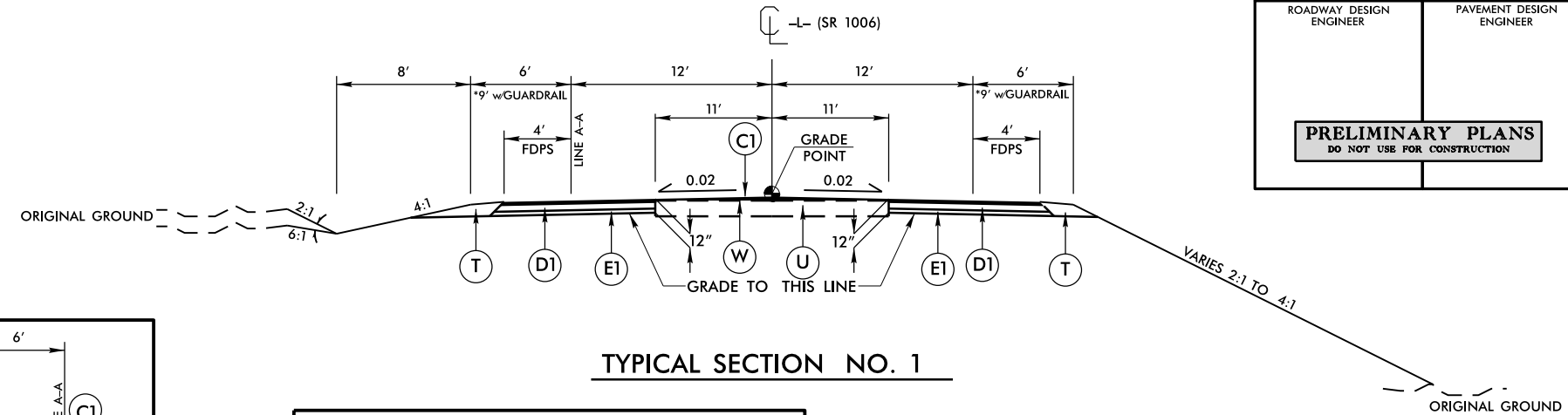
CONTRACT:

6/2/99

PROJECT REFERENCE NO. B-4972	SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

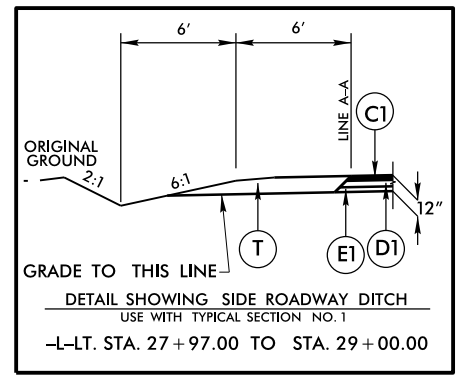
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
D1	PROP. APPROX. 3-1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5 1/2" 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 5 1/2" IN DEPTH.
R1	CONCRETE SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING OF EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT. (WEDGING)

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

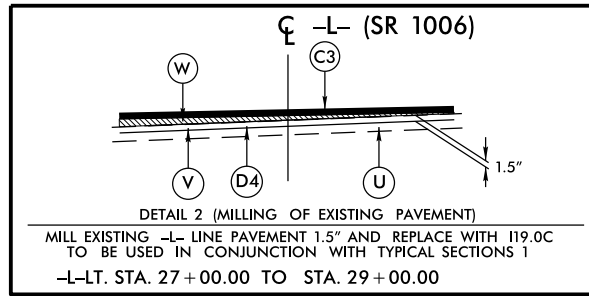


TYPICAL SECTION NO. 1

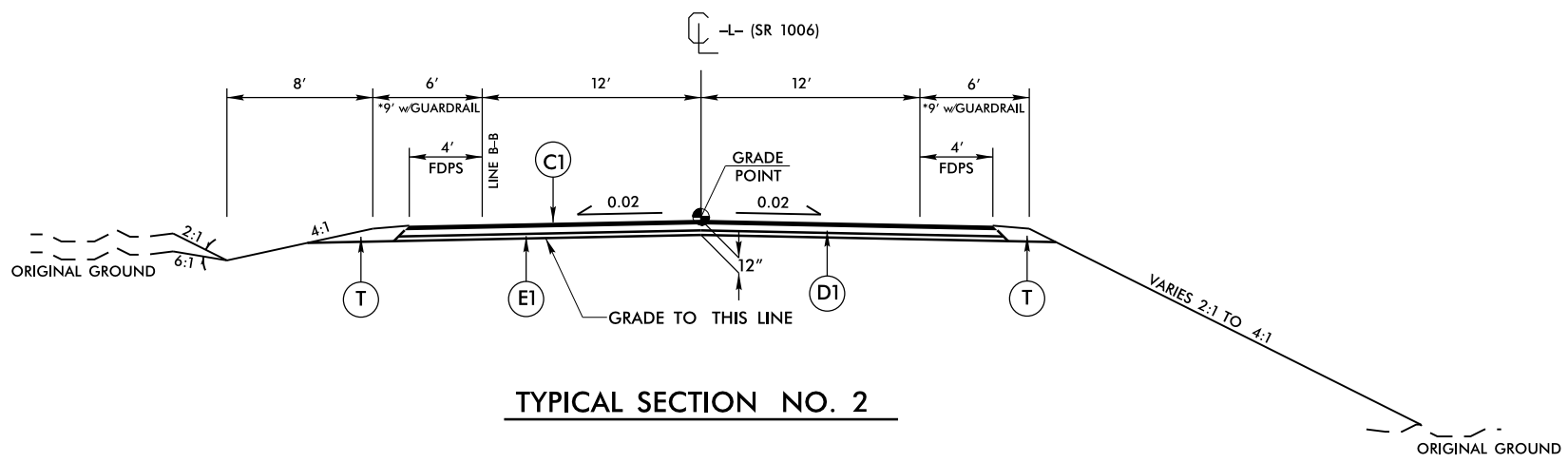
USE TYPICAL SECTION NO. 1
 -L- STA. 15+50.00 TO STA. 15+75.00, TRANSITION FROM EXISTING TO TYP. SEC. NO. 1
 -L- STA. 27+00.00 TO STA. 28+75.00
 -L- STA. 28+75.00 TO STA. 29+00.00, TRANSITION FROM TYP. SEC. NO. 1 TO EXISTING



DETAIL SHOWING SIDE ROADWAY DITCH
USE WITH TYPICAL SECTION NO. 1
-L-LT. STA. 27+97.00 TO STA. 29+00.00



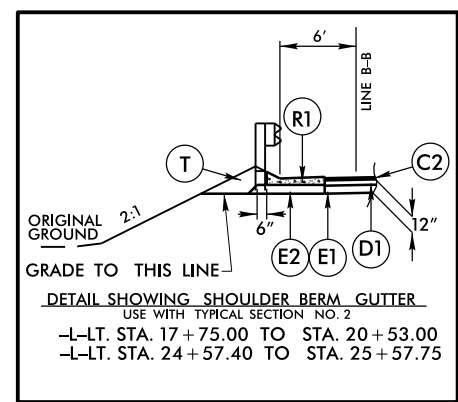
DETAIL 2 (MILLING OF EXISTING PAVEMENT)
MILL EXISTING -L- LINE PAVEMENT 1.5" AND REPLACE WITH I19.0C TO BE USED IN CONJUNCTION WITH TYPICAL SECTIONS 1
-L-LT. STA. 27+00.00 TO STA. 29+00.00



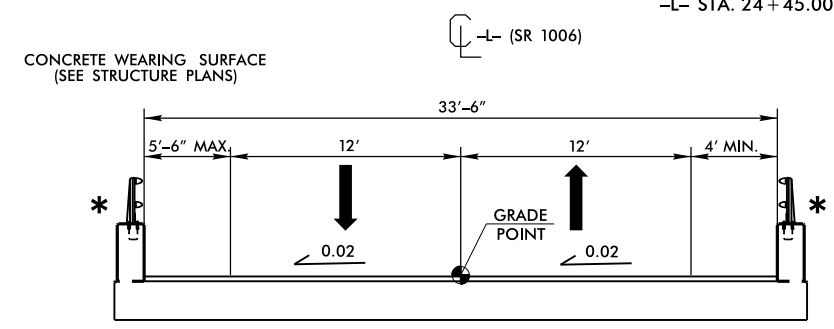
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
 -L- STA. 15+75.00 TO STA. 20+65.00 +/- (BEGIN BRIDGE)
 -L- STA. 24+45.00 +/- (END BRIDGE) TO STA. 27+00.00

DESIGN DATA -L-	
ADT 2014	= 4,420
ADT 2035	= 10,800
DHV	= 10%
DIR	= 55%
TTST	= 3%
DUAL	= 10%
V	= 55 mph
FUNCTIONAL CLASS	= RURAL LOCAL
SUB-REGIONAL TIER	GUIDELINES

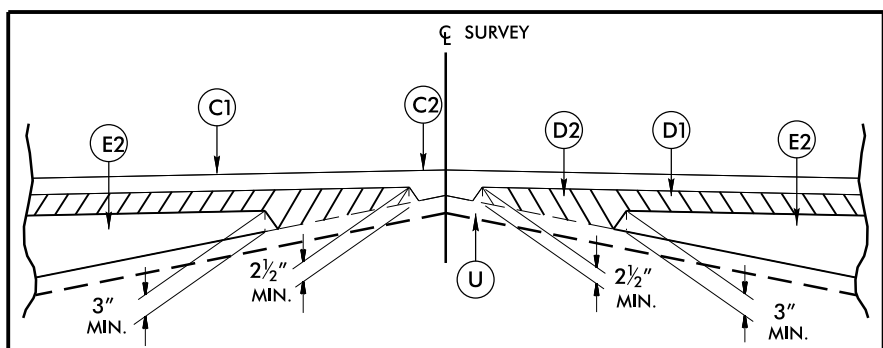


DETAIL SHOWING SHOULDER BERM GUTTER
USE WITH TYPICAL SECTION NO. 2
-L-LT. STA. 17+75.00 TO STA. 20+53.00
-L-LT. STA. 24+57.40 TO STA. 25+57.75



TYPICAL SECTION NO. 3

* BICYCLE SAFETY RAIL
 USE TYPICAL SECTION NO. 3
 -L- STA. 20+65.0 +/- (BEGIN BRIDGE) TO STA. 24+45.0 +/- (END BRIDGE)



Detail Showing Method of Wedging

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Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	Ⓢ
Existing Fence Line	-x-x-x-
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	○
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	-----
False Sump	-----

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
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 RW Marker	-----
Proposed Control of Access Line with Concrete CA Marker	-----
Existing Control of Access	-----
Proposed Control of Access	-----
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	-----

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	⊕
Storm Sewer	----- S

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
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	⊕
Telephone Booth	□
Telephone Pedestal	□
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	□
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	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	----- A/G Water

TV:

TV Satellite Dish	☼
TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	□
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	⊕
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	□
Utility Unknown U/G Line	----- TUTL
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
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

- Preliminary -

PROJECT REFERENCE NO.	SHEET NO.
B-4972	I-C
Location and Surveys	

L			
TYPE	STATION	NORTH	EAST
PC	10+00.00	571527.9409	1558180.2262
PT	13+30.89	571752.2250	1558423.1750
PC	14+21.19	571817.7492	1558485.3098
PT	17+63.15	572091.2070	1558689.3095
PC	23+70.17	572617.0770	1558992.5148
PT	26+41.97	572858.3637	1559117.4328
PC	27+68.10	572972.8825	1559170.2894
PT	31+70.96	573357.7616	1559284.5306
POT	32+86.92	573472.5118	1559301.2471

Y			
TYPE	STATION	NORTH	EAST
POT	10+00.00	573011.3016	1559078.3015
POT	11+00.00	572961.6565	1559165.1080

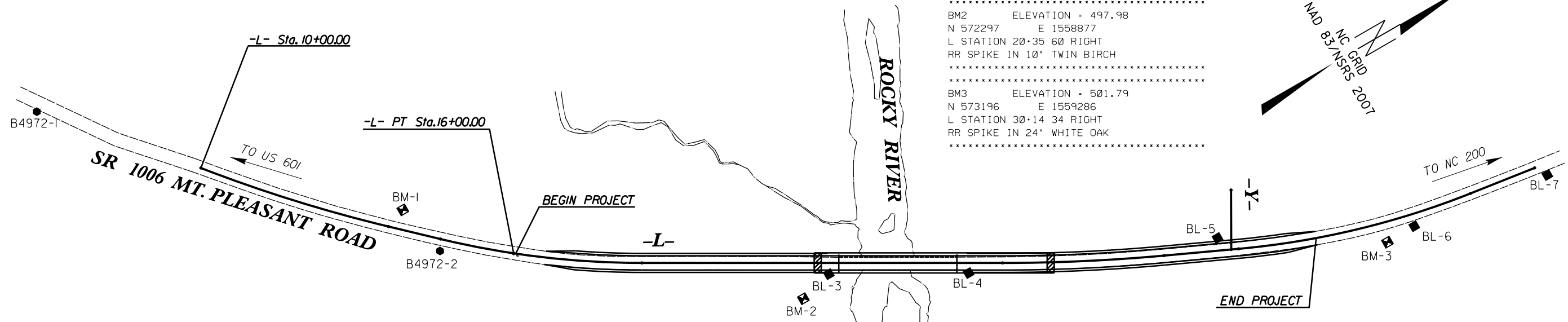
BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B4972-1	571335.9990	1557960.2960	557.63	OUTSIDE PROJECT LIMITS	
2	B4972-2	571806.8390	1558502.1960	539.90	14+24.84	19.76 RT
3	BL-3	572354.2425	1558862.7082	500.61	20+77.63	18.83 RT
4	BL-4	572558.9429	1558978.6030	500.80	23+12.86	16.99 RT
5	BL-5	572951.2524	1559136.7779	508.73	27+34.41	21.36 LT
6	BL-6	573248.0211	1559284.9108	498.96	30+63.87	20.35 RT
7	BL-7	573485.0086	1559322.2005	494.71	OUTSIDE PROJECT LIMITS	

DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4972-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 571806.8391 FT) EASTING: 1558502.1961 FT) ELEVATION: 539.901 FT) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998530 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4972-2" TO -L- PT STATION 15+46.50 IS N 31°49'02" E 124.02' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

.....
 BM1 ELEVATION = 543.53
 N 571787 E 1558411
 L STATION 13+48 33 LEFT
 RR SPIKE IN 15' RED OAK

 BM2 ELEVATION = 497.98
 N 572297 E 1558877
 L STATION 20+35 60 RIGHT
 RR SPIKE IN 10' TWIN BIRCH

 BM3 ELEVATION = 501.79
 N 573196 E 1559286
 L STATION 30+14 34 RIGHT
 RR SPIKE IN 24' WHITE OAK



NOTES:

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: [HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION](https://connect.ncdot.gov/resources/location)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
 B4972_LS_CONTROL.TXT
 B4972_LS_LOCAL.TXT
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM, UTILIZING THE NCGS RTN SYSTEM (VRS).
 MONUMENTS USED OR SET FOR PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT:
 ● INDICATES GEODETIC CONTROL MONUMENTS FOR HORIZONTAL CONTROL
 ■ INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL
 ☒ INDICATES BENCHMARKS FOR VERTICAL CONTROL

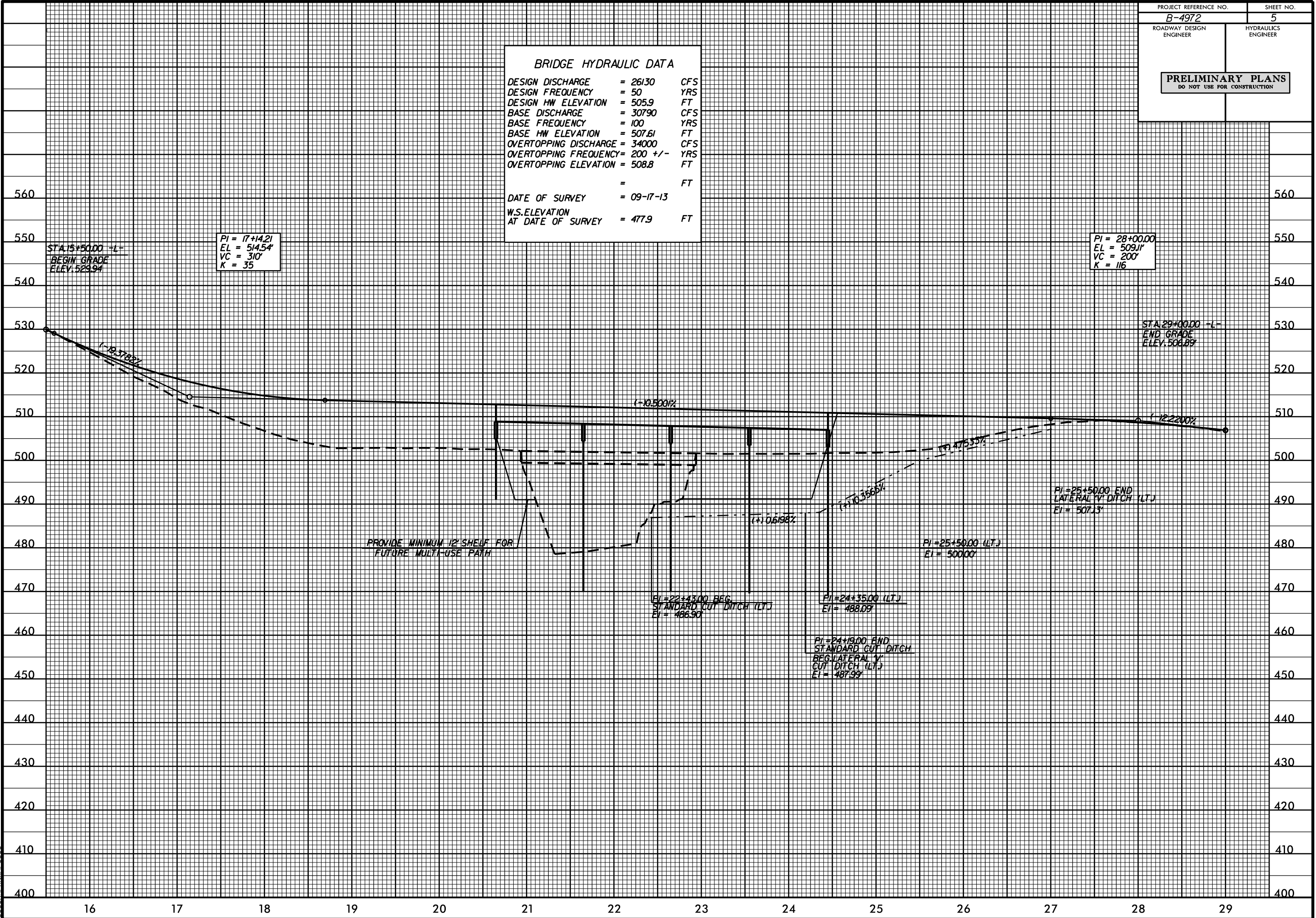
ALIGN	STATION	OFFSET	NORTH	EAST
L	15+25.00	29.67	571876.7413	1558576.9210
L	15+25.00	-30.33	571914.8118	1558530.5355
L	15+25.00	63.00	571855.5985	1558602.6816
L	15+25.00	-50.00	571927.2882	1558515.3341
L	17+63.15	63.00	572059.7386	1558743.8874
L	17+63.15	-50.00	572116.1820	1558645.9938
L	18+75.00	-75.00	572225.5666	1558680.2047
L	23+70.17	-75.00	572654.5394	1558927.5412
L	23+70.17	63.00	572585.6086	1559047.0927
L	24+85.00	-75.00	572752.5781	1558981.5951
L	25+77.00	-55.00	572823.8000	1559040.1435
L	26+41.97	63.00	572831.9623	1559174.6340
L	26+41.97	-55.00	572881.4125	1559067.4954
L	27+27.64	-55.00	572959.1954	1559103.3964
L	27+68.10	63.00	572946.4811	1559227.4905
L	29+50.00	63.00	573123.7562	1559295.7304
L	29+50.00	30.96	573133.3001	1559265.1475

NOTE: DRAWING NOT TO SCALE

5/14/99

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 26130	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 505.9	FT
BASE DISCHARGE	= 30790	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 507.61	FT
OVERTOPPING DISCHARGE	= 34000	CFS
OVERTOPPING FREQUENCY	= 200 +/-	YRS
OVERTOPPING ELEVATION	= 508.8	FT
DATE OF SURVEY	= 09-17-13	FT
W.S.ELEVATION AT DATE OF SURVEY	= 477.9	FT



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