Transportation

PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

November 6, 2015

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 Permits 13 and Section 401 Water Quality Certification** for the proposed replacement of Bridges No. 14 and 19 over Rocky River and Access Road on US 29 in Cabarrus County; Federal Aid Project No. BRSTP-0029(42); WBS 42265.1.1; Debit 240.00, Division 10; TIP No. B-5123.

Dear Ms. Amschler:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No.14 and Bridge No. 19 over Rocky River with two 220-foot long bridges on same locations, and they both will span Rocky River. An on-site detour structure will be constructed immediately upstream of the existing bridges. The project will utilize the temporary bridges to maintain traffic while the new bridges are under construction.

There will be a total of 127 linear feet (lf) of permanent stream impacts from the placement of streambank stabilization, along with 50 lf of temporary impacts associated with the streambank stabilization.

Please see enclosed copies of the Pre-Construction Notification (PCN), USFWS Concurrence Letter, stormwater management plan, permit drawings and design plans for the above-referenced project. The Categorical Exclusion (CE) was completed in July 2014 and distributed shortly thereafter. Additional copies are available upon request.

This project calls for a letting date of April 19, 2016 and a review date of March 1, 2016; 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://connect.ncdot.gov/resources/Environmental. If you have any questions or need additional information, please call Bill Barrett at (919) 707-6103.

Sincerely,

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 1.4 January 2009

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit ☐ Section 10 Permit	
1b. Specify Nationwide Permit (NWP) number: 13	or General Permit (GP) number:	
1c. Has the NWP or GP number been verified by the Corps?	☐ Yes ☒ No	
1d. Type(s) of approval sought from the DWQ (check all that apply): ☐ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit ☐ 401 Water Quality Certification – Express ☐ Riparian Buffer Authorization		
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☒ Yes ☐ No	For the record only for Corps Permit: ☐ Yes ☒ No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.	☐ Yes ☒ No	
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	☐ Yes ☒ No	
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	☐ Yes ☒ No	

2. Project Information

2a. Name of project:	Replacement of Bridges #14 and #19 over Rocky River and Access Road on US 29.
2b. County:	Cabarrus
2c. Nearest municipality / town:	Concord
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	B-5123

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	*not applicable*
3c. Responsible Party (for LLC if applicable):	*not applicable*
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6103
3g. Fax no.:	(919) 212-5785
3h. Email address:	wabarrett@ncdot.gov

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

B. Project Information and Prior Project History	
1. Property Identification	
1a. Property identification no. (tax PIN or parcel ID):	*not applicable*
1b. Site coordinates (in decimal degrees):	Latitude: 35.359409 (DD.DDDDDD) Longitude: - 80.675289 (-DD.DDDDDD)
1c. Property size:	6.7 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: Development in the area is industrial, commercial, and low-density residential in nature.	
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: 240 LF	
3d. Explain the purpose of the proposed project: To replace two structurally deficient and functionally obsolete bridges.	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 209-foot bridge (Bridge #14) with a 220-foot, 2-span bridge; and replacing a 210-foot bridge (Bridge #19) with a 220-foot, 2-span bridge, both on the existing alignment with an on-site detour located immediately upstream of the existing structures. Standard road building equipment, such as trucks, dozers, and cranes will be used.	
4. Jurisdictional Determinations	
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments:	☐ Yes ☒ No ☐ Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☐ Preliminary ☐ Final
4c. If yes, who delineated the jurisdictional areas? Name (if known):	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?	☐ Yes ☒ No ☐ Unknown
5b. If yes, explain in detail according to “help file” instructions.	
6. Future Project Plans	
6a. Is this a phased project?	☐ Yes ☒ No
6b. If yes, explain.	

C. Proposed Impacts Inventory

1. Impacts Summary

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

☐ Wetlands ☒ Streams - tributaries ☐ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

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

2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction	2f. Area of impact (acres)
Site 1 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	0 Permanent 0 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 ☒ P ☐ T	bank stabilization	Rocky River	☒ PER ☐ INT	☒ Corps ☐ DWQ	40	127
Site 1 ☐ P ☒ T	bank stabilization	Rocky River	☒ PER ☐ INT	☒ Corps ☐ DWQ	40	50 (<0.01 ac.)
Site 3 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 4 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 5 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 6 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
					3h. **Total stream and tributary impacts**	127 Perm 50 Temp (<0.01 ac.)

3i. Comments: There are five (5) areas of streambank stabilization. Impacts are broken down on Permit Sheet 11 of 11.

4. Open Water Impacts

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

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

4g. Comments:

5. Pond or Lake Construction

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

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

5g. Comments:

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

6. Buffer Impacts (for DWQ)

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

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

D. Impact Justification and Mitigation

1. Avoidance and Minimization

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

Stormwater runoff from west of the bridge will be captured in inlets upstream of the bridge and discharged to a tail ditch in the southwest quadrant and to a preformed scour hole in the northwest quadrant before reaching Rocky River.

Runoff from the bridge deck drains to the east approach where it will be captured by inlets and conveyed, along with runoff from the roadway east of the bridge, to a preformed scour hole at the southeast quadrant and a rail ditch in the northeast quadrant before reaching the Rocky River.

Impacts have been minimized by using riprap pads, rail ditches, and preformed scour holes at pipe outlets, and riprpap bank stabilization where ditches tie into Rocky River.

The proposed bridges are 11 and 10 feet longer than the existing bridges; the proposed bridges will be at approximately the same grade as the existing structure; 3:1 fill slopes where practicable.

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

Impacts have been minimized by using riprap pads, rail ditches, and preformed scour holes at pipe outlets, and riprpap bank stabilization where ditches tie into Rocky River.

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

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	☐ Yes ☒ No If no, explain: NCDOT does not propose mitigation for the 127 lf of bank stabilization impacts, as the impacts do not require fill in the stream bed and therefore, under Section 404 of the Clean Water Act, does not constitute Loss of Waters of the U.S. and is not subject to compensatory mitigation. Furthermore, the proposed bank stabilization is necessary to prevent erosion and sedimentatin by preventing bank de-stabilization and thereby minimizing impacts to the environment.
2b. If yes, mitigation is required by (check all that apply):	☐ DWQ ☐ Corps
2c. If yes, which mitigation option will be used for this project?	☐ Mitigation bank ☐ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

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

3c. Comments:	
4. Complete if Making a Payment to In-lieu Fee Program	
4a. Approval letter from in-lieu fee program is attached.	☐ Yes
4b. Stream mitigation requested:	linear feet
4c. If using stream mitigation, stream temperature:	☐ warm ☐ cool ☐cold
4d. Buffer mitigation requested (DWQ only):	square feet
4e. Riparian wetland mitigation requested:	acres
4f. Non-riparian wetland mitigation requested:	acres
4g. Coastal (tidal) wetland mitigation requested:	acres
4h. Comments:	
5. Complete if Using a Permittee Responsible Mitigation Plan	
5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.	
6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ	
6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?	☐ Yes ☐ No
6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.	

Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
	6f. **Total buffer mitigation required:**			

6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).	
6h. Comments:	

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

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

5. Endangered Species and Designated Critical Habitat (Corps Requirement)	
5a. Will this project occur in or near an area with federally protected species or habitat?	☒ Yes ☐ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☒ Yes ☐ No
5c. If yes, indicate the USFWS Field Office you have contacted.	☐ Raleigh ☒ Asheville
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? NHP USFWS, and NCDOT field surveys. see attached USFWS Concurrence Letter (dated October 27, 2015) for NLEB.	
6. Essential Fish Habitat (Corps Requirement)	
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes ☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index	
7. Historic or Prehistoric Cultural Resources (Corps Requirement)	
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes ☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation	
8. Flood Zone Designation (Corps Requirement)	
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☒ Yes ☐ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA	
8c. What source(s) did you use to make the floodplain determination? FEMA Maps	

for Richard W. Hancock, P.E. Applicant/Agent's Printed Name	Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	11-06-2015 Date

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801

October 27, 2015

Mr. Richard W. Hancock
North Carolina Department of Transportation
Project Development and Environmental Analysis Unit
1598 Mail Service Center
Raleigh, NC 27699-1598

Subject: Endangered Species Concurrence for the Proposed Replacement of Bridge Nos. 14 and 19 over the Rocky River and Access Road in Cabarrus County, North Carolina. TIP B-5123, WBS No. 42265.1.1.

Dear Richard:

We have reviewed your concurrence request and supporting documentation regarding impacts to the federally listed threatened northern long-eared bat (NLEB) (Myotis septentrionalis) for the subject project. We provide the following comments in accordance with the provisions of section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act).

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge Nos 14 and 19 over the Rocky River on US 29 in Cabarrus County. According to the information provided, a search for mines and caves was conducted in the project footprint and within a quarter mile of the project and none were found. The existing bridges were checked for bat use and none was observed. Potential summer roosting habitat clearing is estimated at 0.2 acres.

Based on the absence of wintering habitat, no evidence of bat use on the existing structure, and NCDOT's commitment to restrict tree cutting to the time from August 15 to April 15 (of any year) we agree that implementation of this project is "not likely to adversely affect" NLEB in the project area. In view of this, 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.

If you have questions about these comments, please contact Ms. Marella Buncick of our staff at 828/258-3939, Ext. 237. In any future correspondence concerning this project, please reference our Log No. 4-2-15-549.

Sincerely,
- - original signed - -
Janet Mizzi
Field Supervisor

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.02; Released April 2015)

WBS Element:	42265.1.1	**TIP No.:**	B-5123	**County(ies):**	Cabarrus	**Page**	1 of 2

General Project Information

WBS Element:	42265.1.1	**TIP Number:**	B-5123	**Project Type:**	Bridge Replacement	**Date:**	6/16/2015
NCDOT Contact:	Andrew T. Nottingham, PE			**Contractor / Designer:**	Parsons Brinckerhoff		
Address:	Hydraulics Unit 1590 Mail Service Center Raleigh, NC 27699-1590			**Address:**	121 West Trade Street, Suite 1950 Charlotte, NC 28202		
Phone:	919-707-6700			**Phone:**	704-342-5403		
Email:	anottingham@ncdot.gov			**Email:**	dauber@pbworld.com		
City/Town:	Concord			**County(ies):**	Cabarrus		
River Basin(s):	Yadkin-Pee Dee			**CAMA County?**	No		
Wetlands within Project Limits?	No						

Project Description

Project Length (lin. miles or feet):	0.32 miles	**Surrounding Land Use:**	Industrial, Commercial and Motor Sports.

	Proposed Project		**Existing Site**	
Project Built-Upon Area (ac.)	6.7	ac.	3.6	ac.
Typical Cross Section Description:	NB and SB - 3-12' lanes w/ 10' paved sidewalk		SB - 3-12' lanes w/ 6' paved shoulder NB - 2-12' lanes with 6' shoulder	
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 32,300 (53,300)	Year: 2016/2036	Existing: 26,900	Year: 2010

General Project Narrative: (Description of Minimization of Water Quality Impacts)

The project B-5123 consists of constructing 2 new bridges, 220' long, to replace the existing bridges #14 and #19 in Cabarrus County on US 29 over Rocky River. An on-site detour structure will be constructed immediately upstream of the existing bridges. Stormwater runoff from west of the bridge will be captured in inlets upstream of the bridge and discharged to a tail ditch in the southwest quadrant and a preformed scour hole in the northwest quadrant before reaching the stream. Runoff from the bridge deck drains to the east approach where it will be captured by inlets and conveyed along with runoff from the roadway east of the bridge to a preformed scour hole at the southeast quadrant and a tail ditch in the northeast quadrant before reaching the stream.

The project creates a surface water impact by adding bank stabilization to Rocky River. Impacts have been minimized by using riprap pads, tail ditches, and preformed scour holes at pipe outlets and riprap bank stabilization where ditches tie into Rocky River. No impacts are anticipated due to the onsite detour structure.

Waterbody Information

Surface Water Body (1):	Rocky River	**NCDWR Stream Index No.:**	13-17b1		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:	biological impairment				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	RR			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	No	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.02; Released April 2015)

WBS Element: **TIP No.:** B-5123 **County(ies):** Cabarrus

Preformed Scour Holes and Energy Dissipators

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe/Structure Dimensions (in)	Q10 (cfs)	V10 (fps)	BMP Associated w/ Buffer Rules?
4	-L- 18+00 Lt.	(1)Rocky River	PSH	Class 'B'	0.6	Pipe	15	3.3	1.3	N/A
4	-L- 22+84 Rt.	(1)Rocky River	PSH	Class 'B'	1.1	Pipe	15	5.6	1.6	N/A
4	-SRVD- 12+43 Lt.	(1)Rocky River	Riprap Apron / Pad	Class 'B'	1.5	Pipe	24	6.3	1.6	N/A
4	-L- 21+67 Rt.	(1)Rocky River	Riprap Apron / Pad	Class 'B'	1.5	Ditch	18	5.3	1.5	N/A
4	-L- 21+69 Rt	(1)Rocky River	Riprap Apron / Pad	Class 'B'	0.4	Pipe	15	2.2	1.0	N/A
4	-L- 21+78 Lt.	(1)Rocky River	Riprap Apron / Pad	Class 'B'	1.0	Ditch	15	5.3	1.5	N/A

Additional Comments

* Refer to the NCDOT Best Management Practices Toolbox (2014), NCDOT Standards, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.

09/08/99

TIP PROJECT: B-5123

CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5123	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
42265.1.1	BRSTP-0029(42)	P.E.

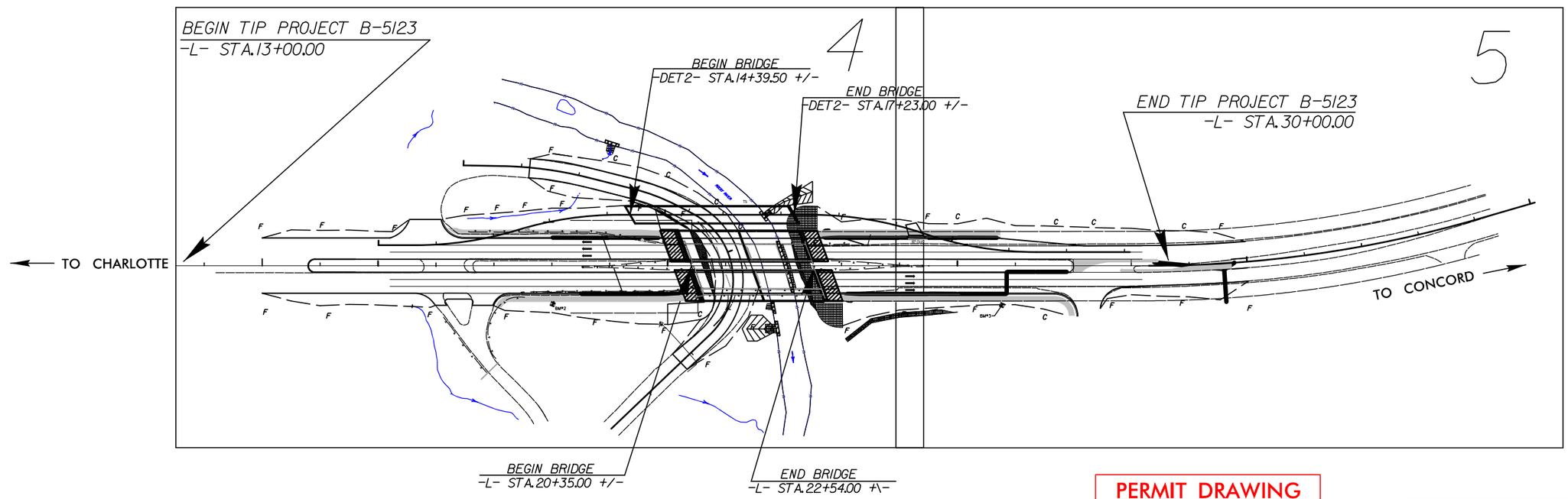
CABARRUS COUNTY

LOCATION: BRIDGES #14 AND #19 ON US 29 OVER ROCKY RIVER AND ACCESS RD.

TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURES

NAD 83

SURFACE WATER IMPACTS PERMIT



PERMIT DRAWING
SHEET 1 OF 11

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

USE CLEARING METHOD NO.

GRAPHIC SCALES

50 25 0 50 100
PLANS

25 0 25 50
BLOWUPS

50 25 0 50 100
PROFILE (HORIZONTAL) 20

10 5 0 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2016 = 32,300
ADT 2036 = 50,300
DHV = 11 %
D = 65 %
T = 5 % *
V = 50 MPH
* TTST =2% DUAL 3%
FUNC CLASS = MAJOR ARTERIAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5123 = 0.27 MILES

LENGTH OF STRUCTURE TIP PROJECT B-5123 = 0.05 MILES

TOTAL LENGTH OF TIP PROJECT B-5123 = 0.32 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 17, 2015

LETTING DATE:
APRIL 19, 2016

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

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

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

PROJECT REFERENCE NO.	SHEET NO.
B-5123	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

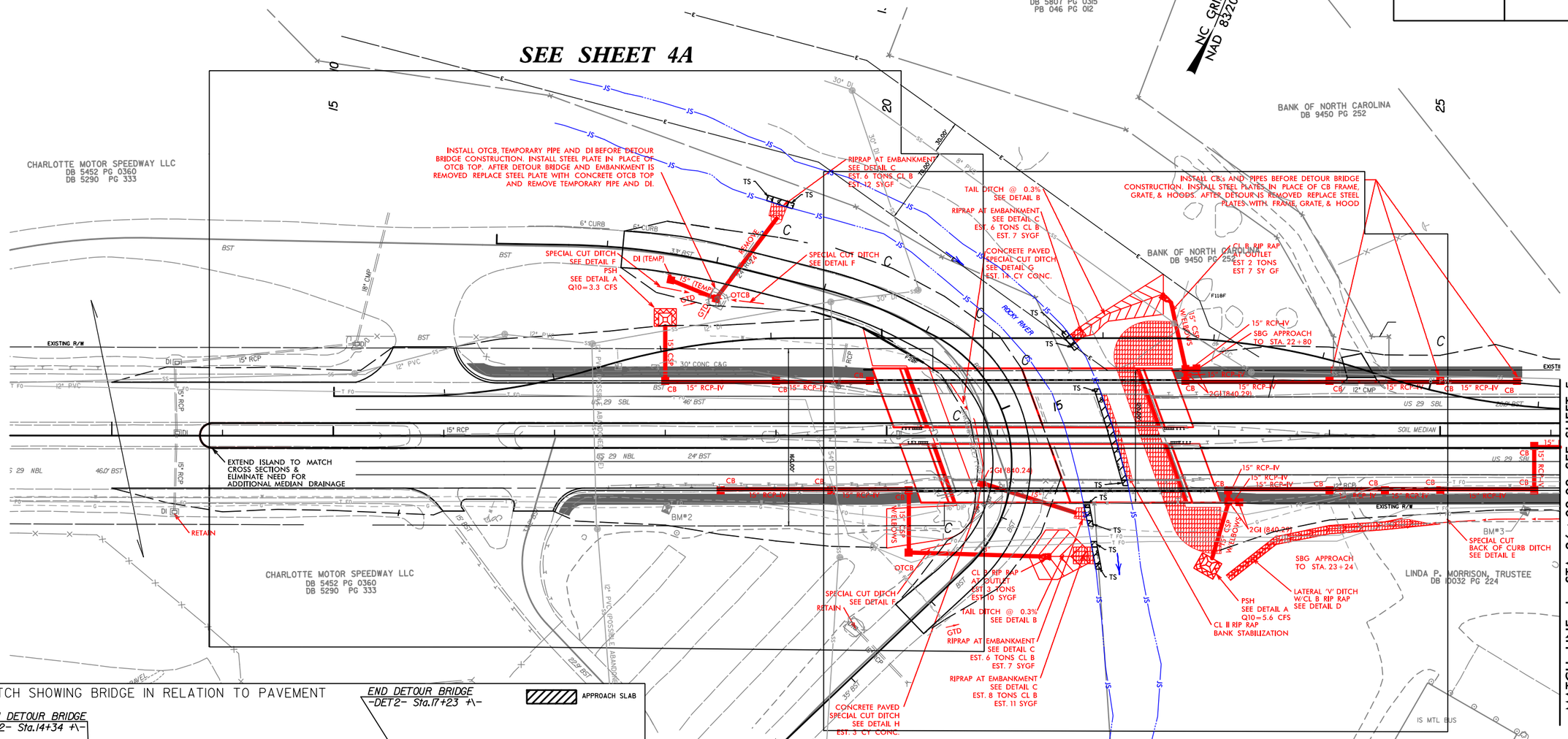
DENOTES IMPACTS IN SURFACE WATER

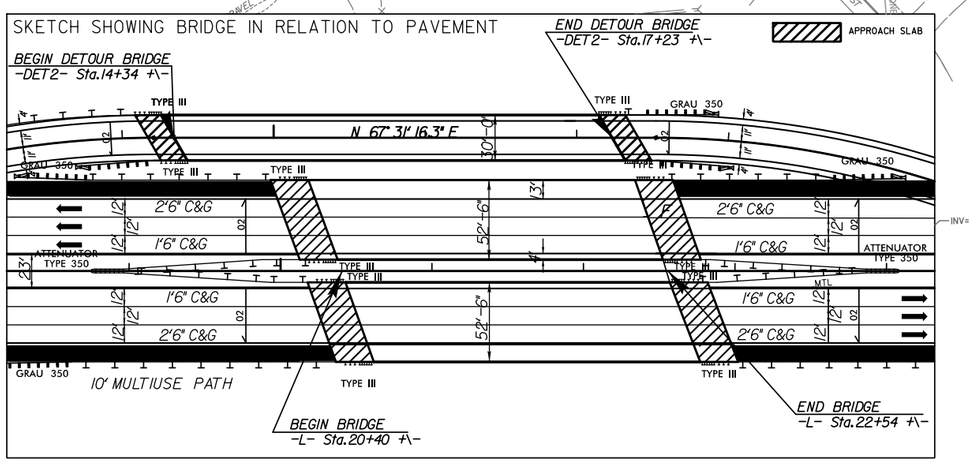
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

PERMIT DRAWING
SHEET 2 OF 11

NC GRID NAD 83/2001





8/17/99

6/30/2015
B-5123A - B-5123\WAT\Hydraulics\PERMITS_Environmental\Drawings\B-5123_prm_psh4_wo_con.dgn
PARSONS BRINCKERHOFF

PROJECT REFERENCE NO.	SHEET NO.
B-5123	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

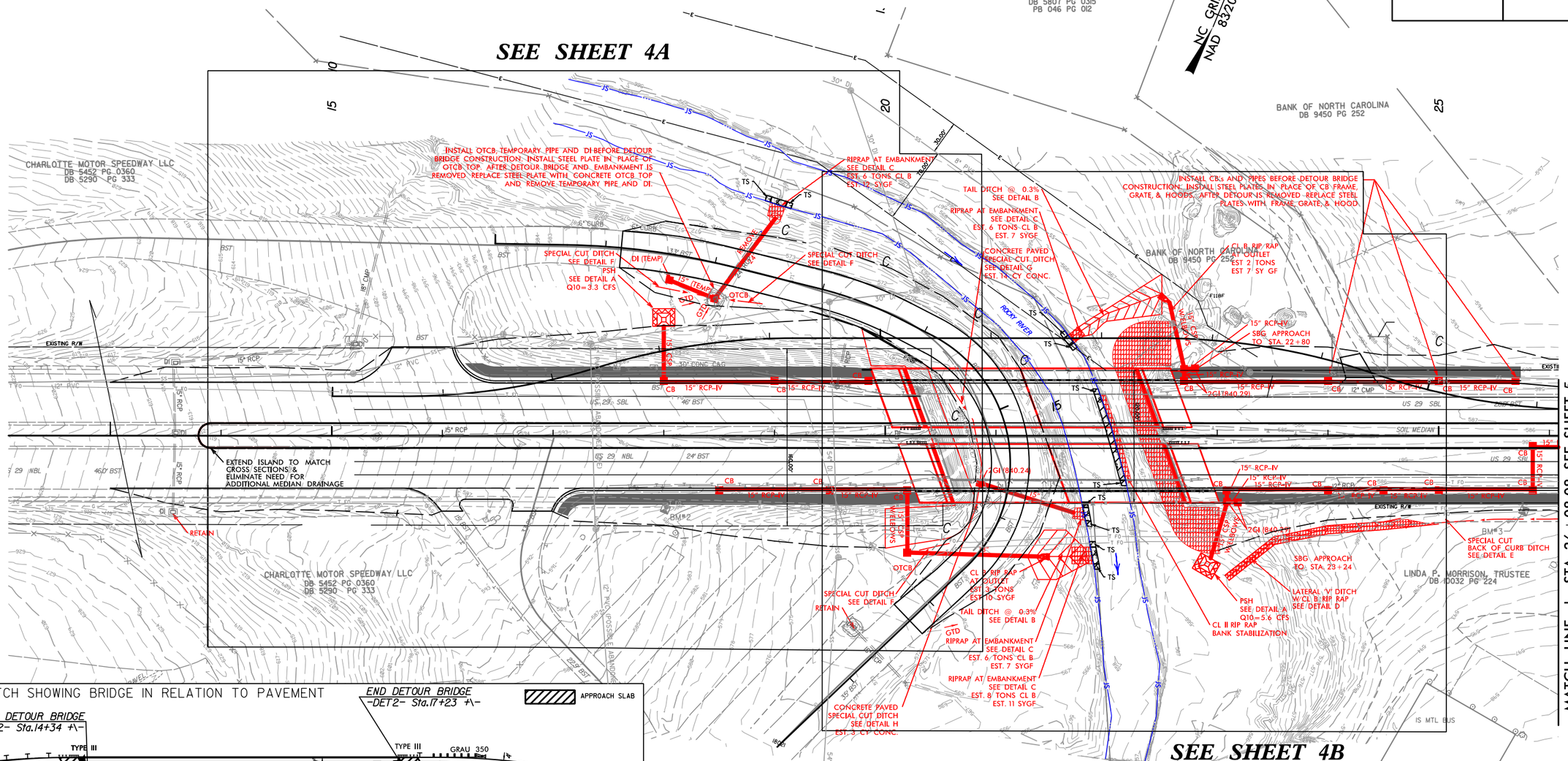
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

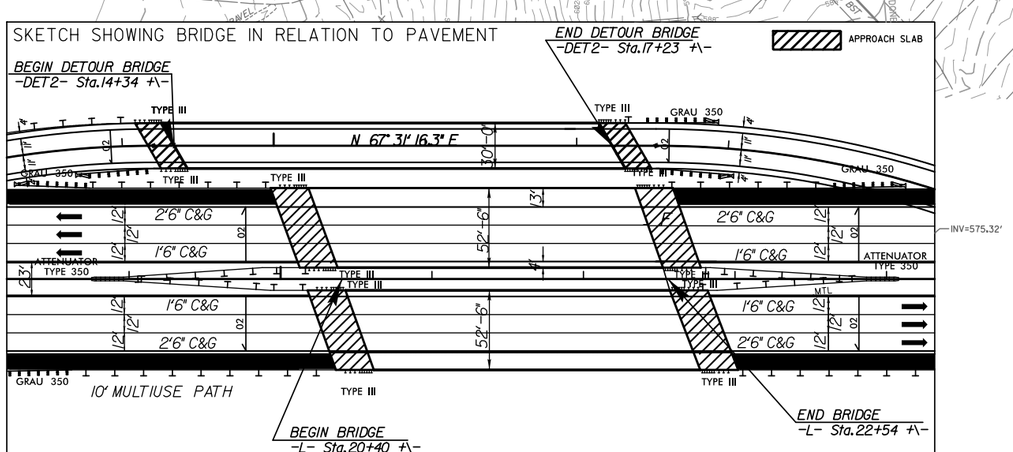
DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

PERMIT DRAWING
SHEET 3 OF 11





8/17/99

6/30/2015
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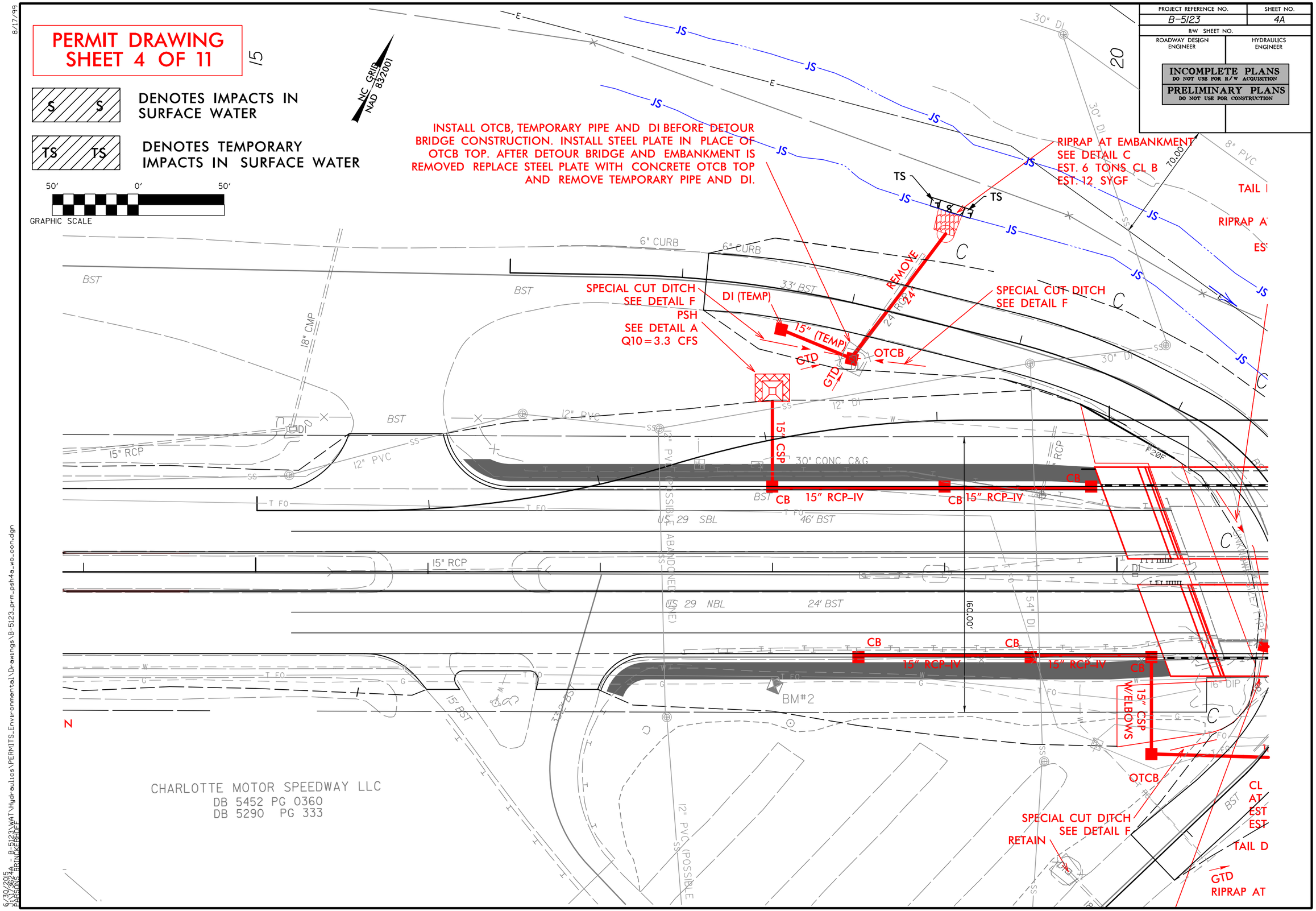
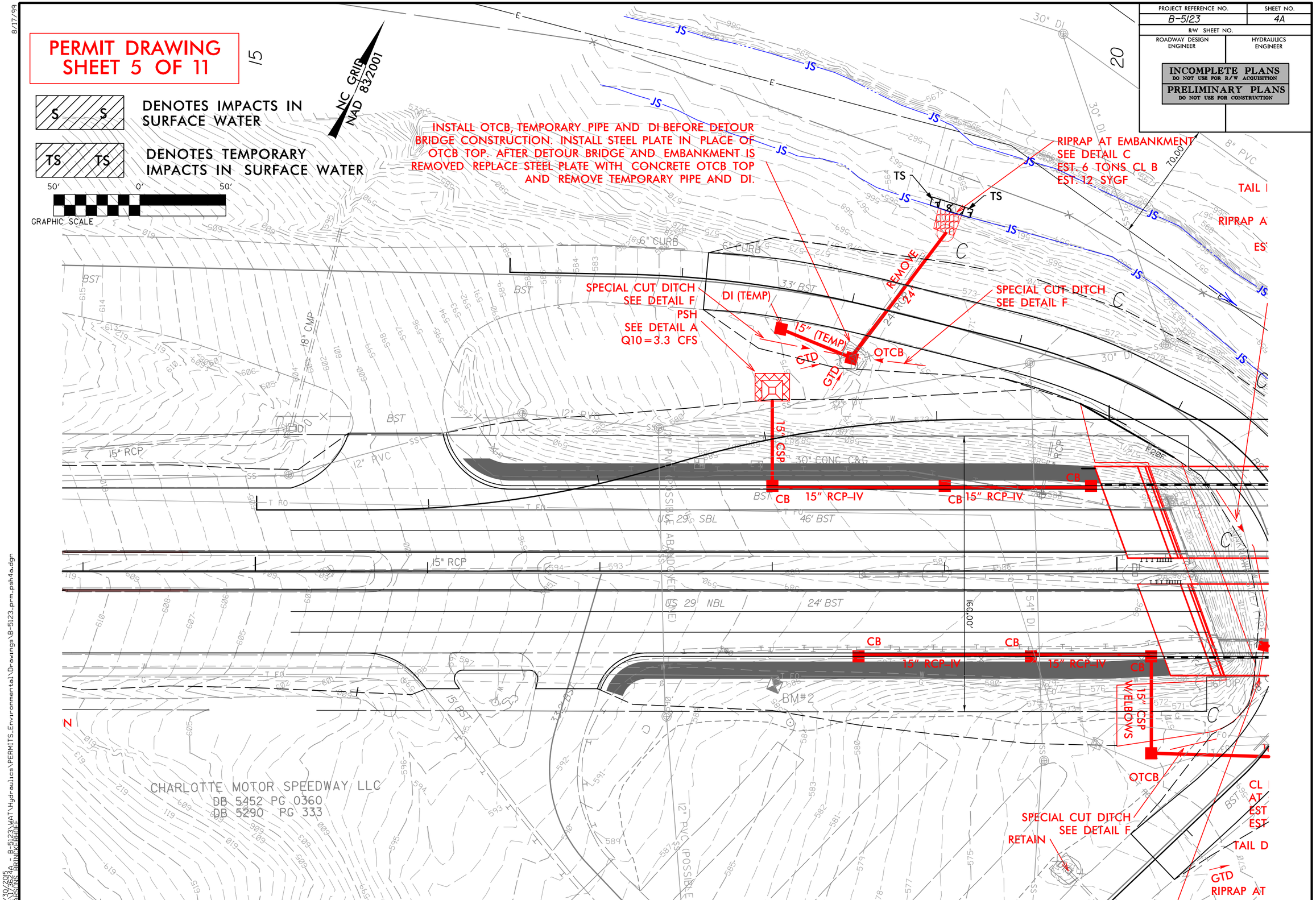
PARSONS BRINCKERHOFF


PERMIT DRAWING
SHEET 4 OF 11
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
GRAPHIC SCALE
NC GRID NAD 83/2001
PROJECT REFERENCE NO. B-5123
SHEET NO. 4A
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INSTALL OTCB, TEMPORARY PIPE AND DI BEFORE DETOUR BRIDGE CONSTRUCTION. INSTALL STEEL PLATE IN PLACE OF OTCB TOP. AFTER DETOUR BRIDGE AND EMBANKMENT IS REMOVED REPLACE STEEL PLATE WITH CONCRETE OTCB TOP AND REMOVE TEMPORARY PIPE AND DI.
RIPRAP AT EMBANKMENT
SEE DETAIL C
EST. 6 TONS CL B
EST. 12 SYGF
SPECIAL CUT DITCH
SEE DETAIL F
PSH
SEE DETAIL A
Q10=3.3 CFS
DI (TEMP)
15" (TEMP)
REMOVE
24"
OTCB
GTD
15" CSP
CB
15" RCP-IV
15" CSP W/ELBOWS
CHARLOTTE MOTOR SPEEDWAY LLC
DB 5452 PG 0360
DB 5290 PG 333
US 29 SBL
US 29 NBL
30" CONC C&G
6" CURB
33' BST
46' BST
24' BST
18" CMP
15" RCP
12" PVC
12" DI
30" DI
8" PVC
54" DI
16" DIP
BM#2
160.00'
70.00'
CL
AT
EST
EST
TAIL D
GTD
RIPRAP AT
RETAIN
TAIL
RIPRAP A
ES
8/17/99
6/30/2015
J:\173624A - B-5123\WAT\Hydraulics\PERMITS_Environmental\Drawings\B-5123_prm_psh4a_wo_con.dgn
PARSONS BRINCKERHOFF

PROJECT REFERENCE NO.	SHEET NO.
B-5123	4A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



8/17/99

6/30/2015
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PARSONS BRINCKERHOFF

PROJECT REFERENCE NO.	SHEET NO.
B-5123	4B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

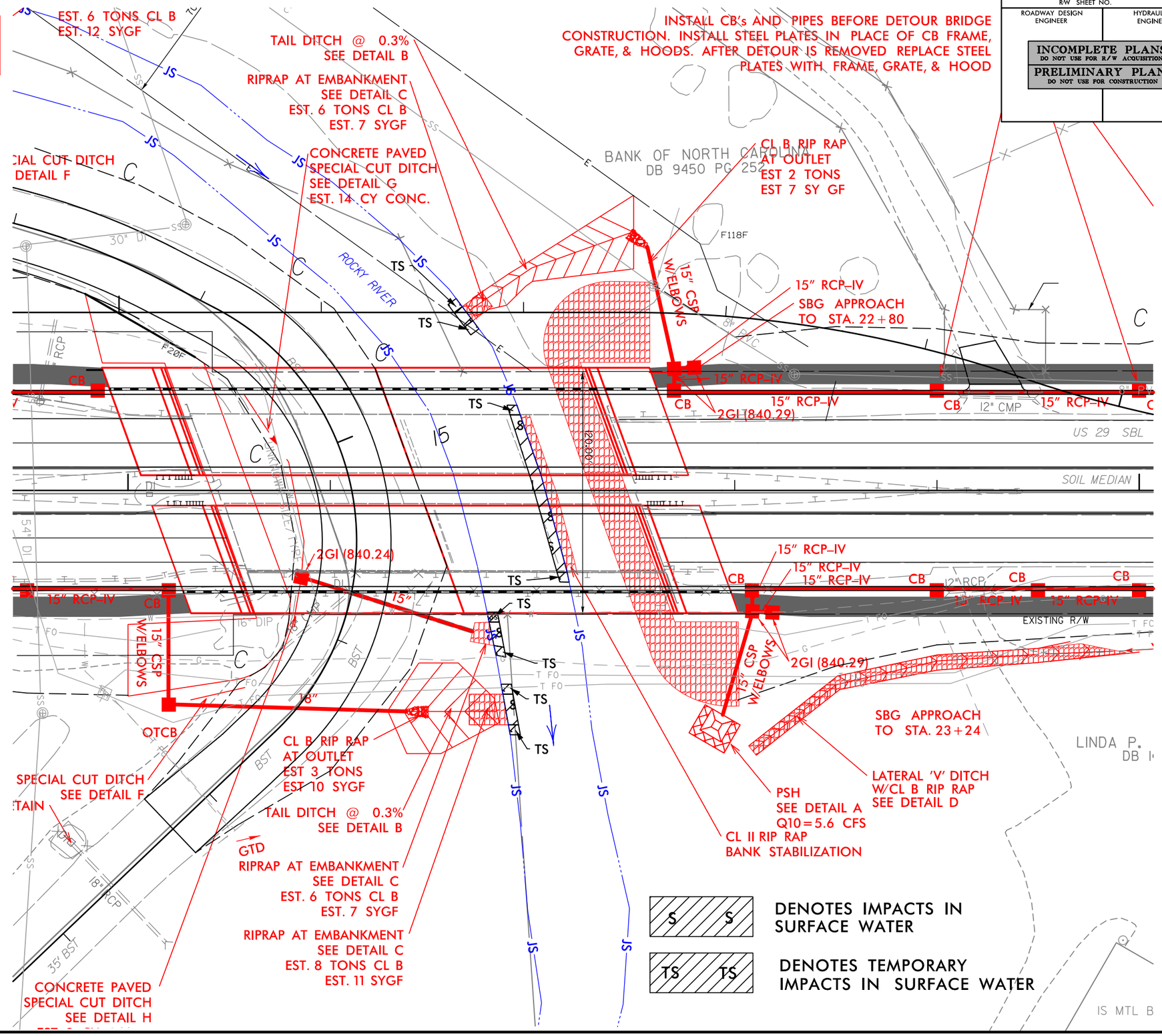
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 6 OF 11

50' 0' 50'
GRAPHIC SCALE

NC GRID
NAD 83/2001



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PARSONS BRINCKERHOFF

PROJECT REFERENCE NO.	SHEET NO.
B-5123	4B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

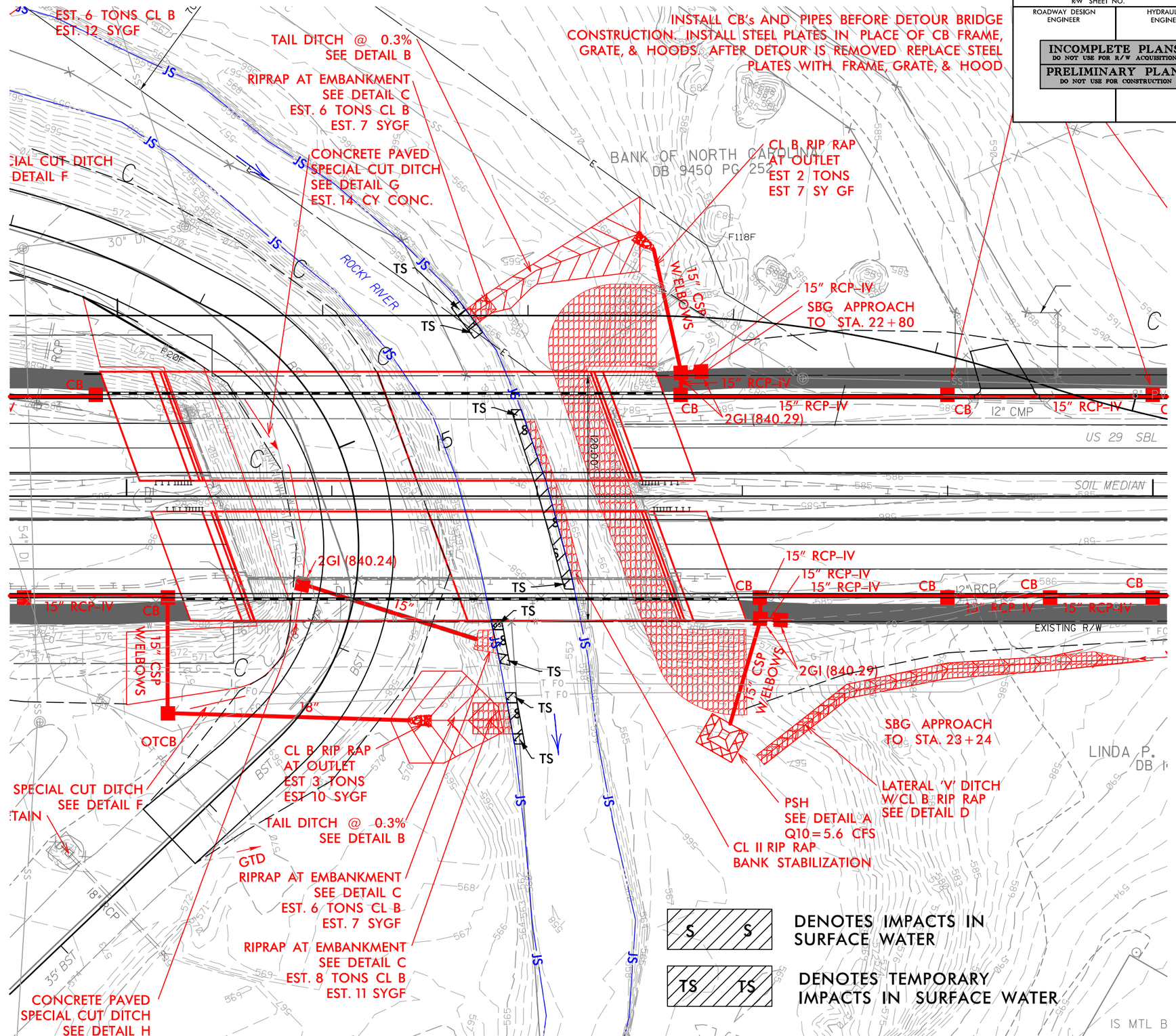
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING SHEET 7 OF 11

50' 0' 50'
GRAPHIC SCALE

NC GRID NAD 83/2001



8/17/99

6/30/2025
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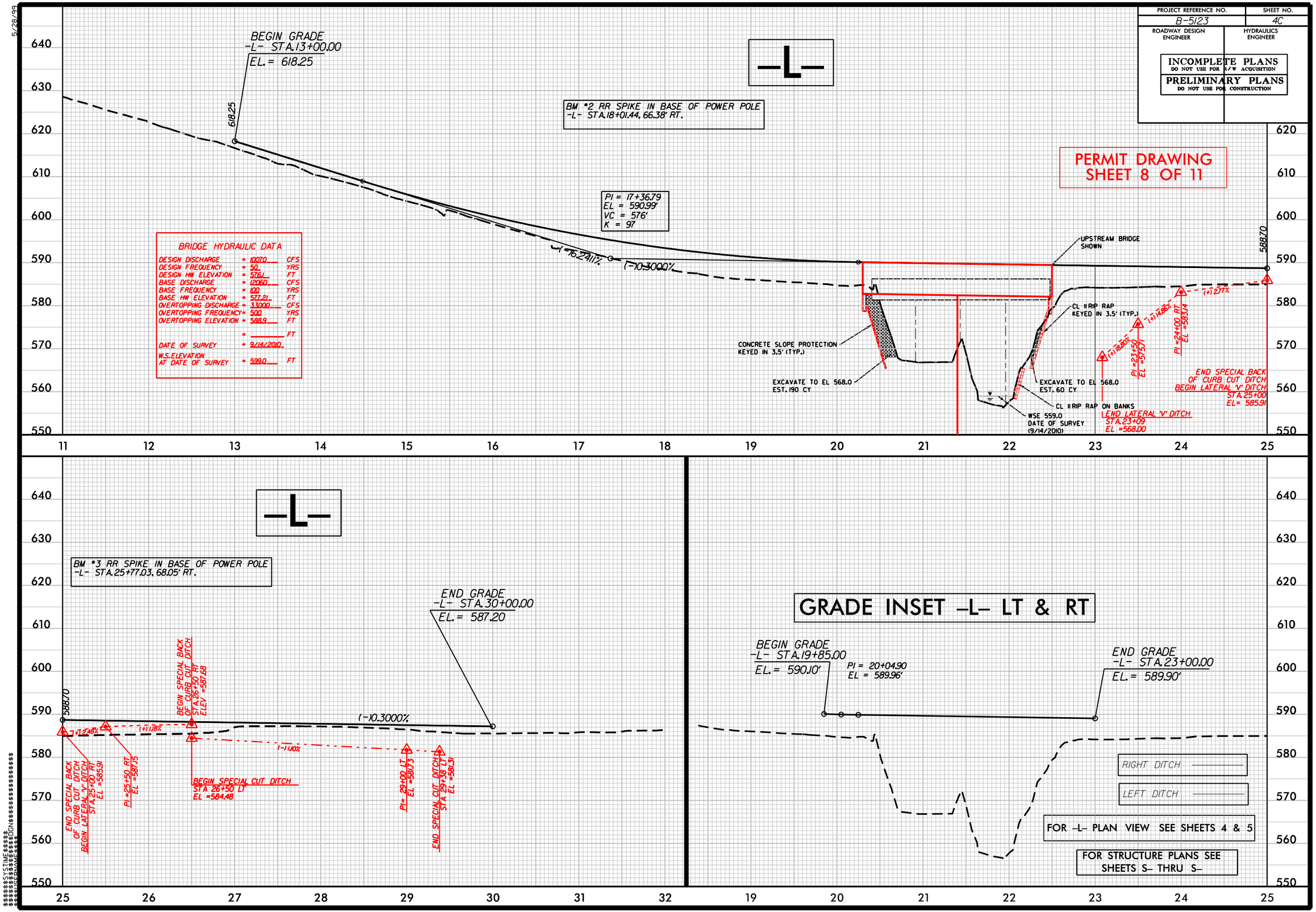
PARSONS BRINCKERHOFF

PROJECT REFERENCE NO.	SHEET NO.
B-5123	4C
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 8 OF 11



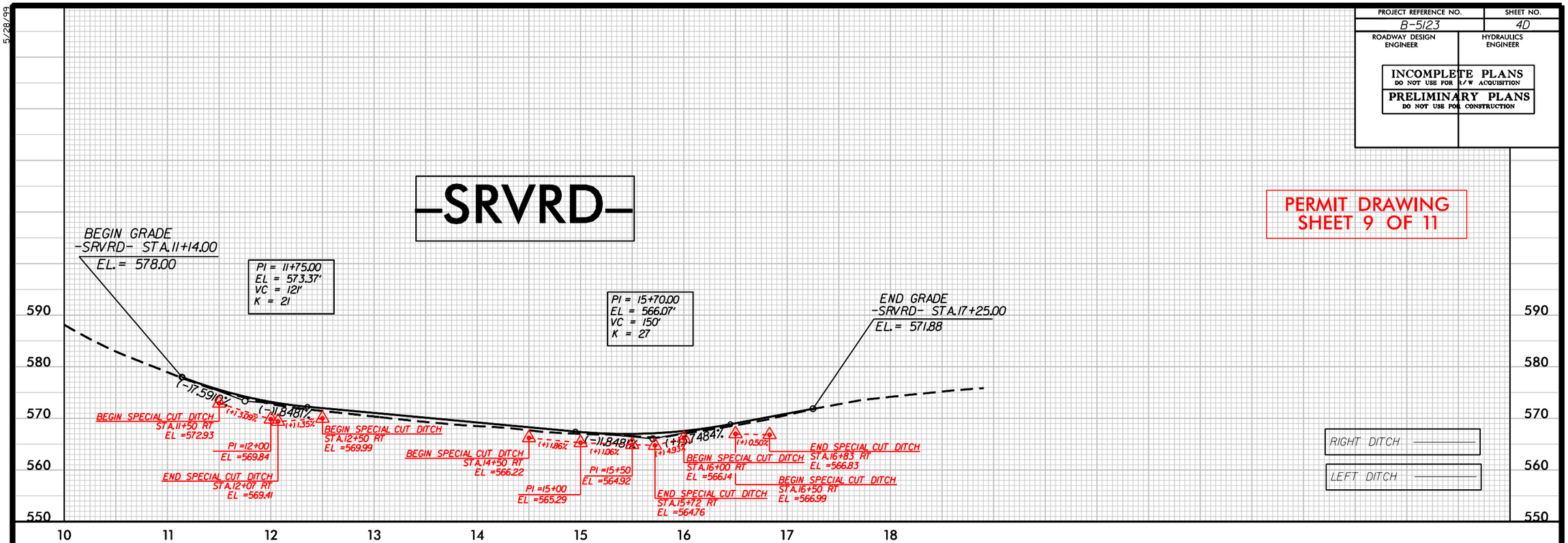
5/28/99

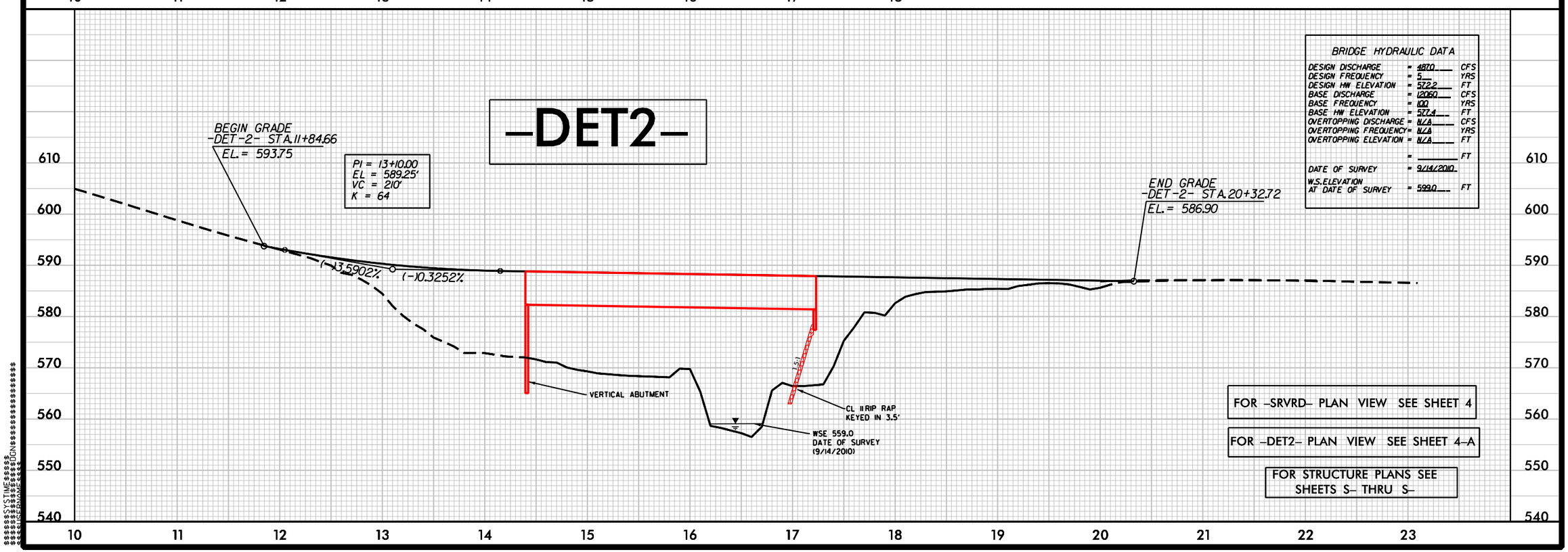
PROJECT REFERENCE NO.	SHEET NO.
B-5123	4D
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 9 OF 11





FOR -SRVRD- PLAN VIEW SEE SHEET 4

FOR -DET2- PLAN VIEW SEE SHEET 4-A

FOR STRUCTURE PLANS SEE SHEETS S- THRU S-

$$$$$SYSTIME$$$$$
$$$$$

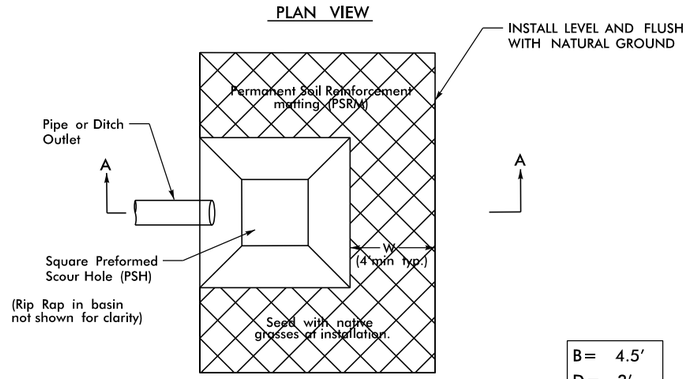
PROJECT REFERENCE NO.	SHEET NO.
B-5123	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 10 OF 11

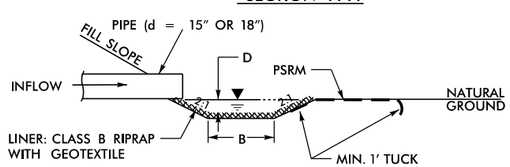
DETAIL A
PREFORMED SCOUR HOLE
*NOT TO SCALE

PLAN VIEW



B= 4.5'
D= 2'
W= 8'

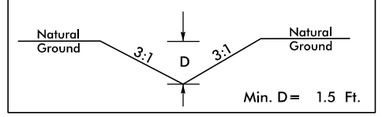
SECTION A–A



3/08

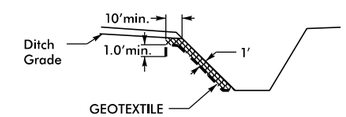
STA. 18+00 LT
STA. 22+84 RT

DETAIL B
TAIL DITCH
(Not to Scale)



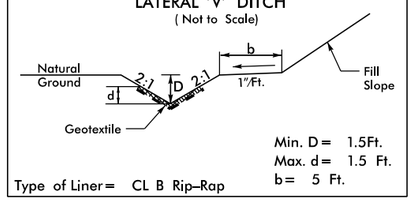
FROM STA. 21+29 TO STA. 21+82 RT
FROM STA. 21+69 TO STA. 22+50 LT

DETAIL C
RIP RAP AT EMBANKMENT
(Not to Scale)



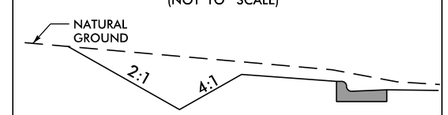
FROM STA. 21+67 TO STA. 21+78 LT
FROM STA. 21+69 TO STA. 21+87 RT

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



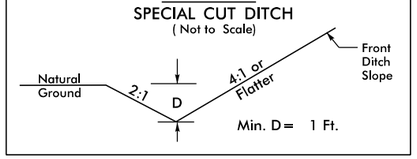
FROM STA. 23+09 TO STA. 25+00 RT

DETAIL E
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



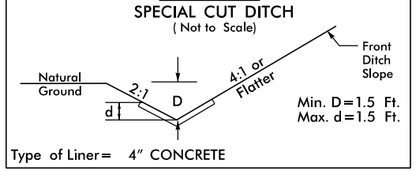
FROM STA. 25+00 TO STA. 26+50

DETAIL F
SPECIAL CUT DITCH
(Not to Scale)



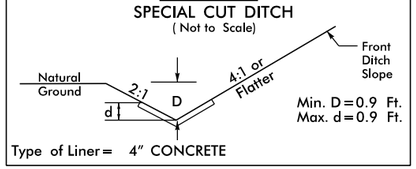
FROM STA. 26+50 TO STA. 29+38 LT
FROM STA. 11+50 TO STA. 12+07 RT –SRVRD–
FROM STA. 12+07 TO STA. 12+50 RT –SRVRD–
FROM STA. 16+50 TO STA. 16+83 RT –SRVRD–

DETAIL G
SPECIAL CUT DITCH
(Not to Scale)



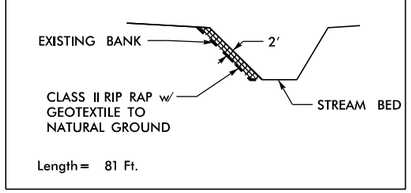
FROM STA. 14+50 TO STA. 15+72 RT –SRVRD–

DETAIL H
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 15+72 TO STA. 16+00 RT –SRVRD–

DETAIL I
RIP RAP BANK STABILIZATION
(Not to Scale)



–L– STA. 22+10

8/17/99

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

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	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	-SRVD- 12+43 Lt	BANK STABILIZATION						< 0.01	< 0.01	9	10	
1	-L- 21+78 Lt	BANK STABILIZATION						< 0.01	< 0.01	9	10	
1	-L- 22+10	BANK STABILIZATION						< 0.01	< 0.01	81	10	
1	-L- 21+69 Rt	BANK STABILIZATION						< 0.01	< 0.01	13	10	
1	-L- 21+67 Lt	BANK STABILIZATION						< 0.01	< 0.01	15	10	
TOTALS*:								0.02	< 0.01	127	50	0

*Rounded totals are sum of actual impacts

NOTES:

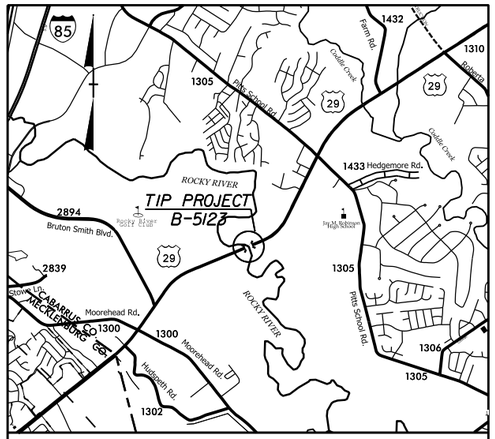
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
6/19/2015
CABARRUS
B-5123
42265.1.1
SHEET 11 OF 11

Revised 2013 10 24

09/08/99

TIP PROJECT: B-5123

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CABARRUS COUNTY

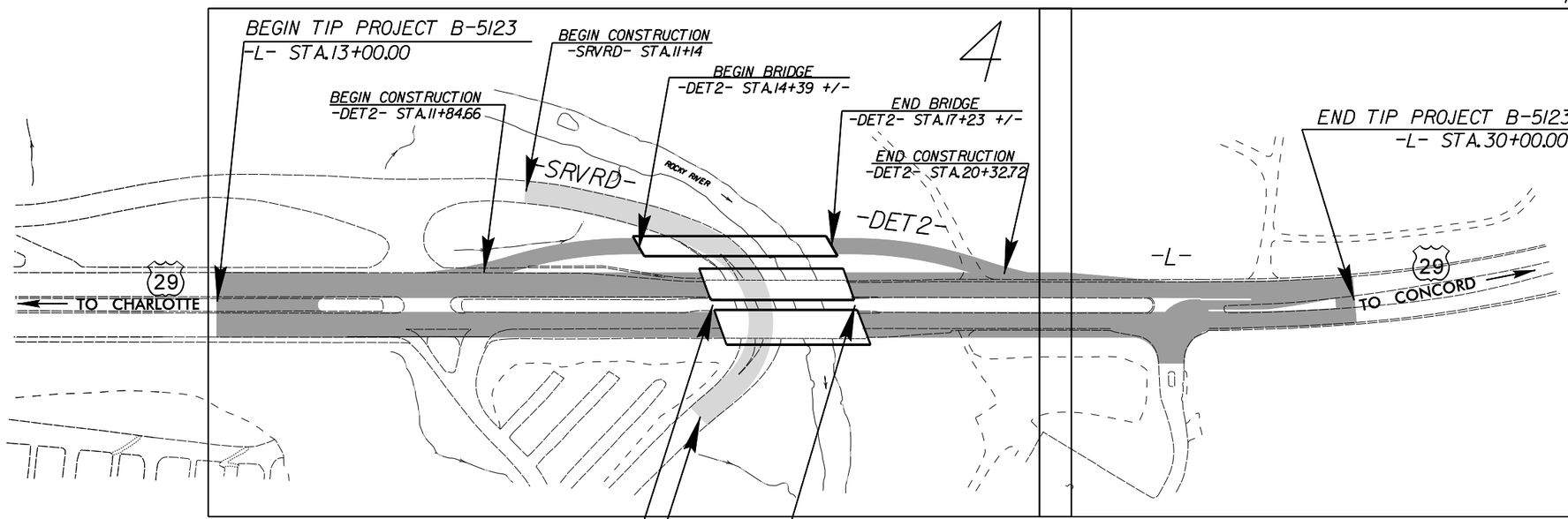
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5123	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
42265.1.1	BRSTP-0029(42)	P.E.
42265.2.1	BRSTP-0029(42)	ROW, UTIL.

LOCATION: BRIDGES #14 AND #19 ON US 29 OVER ROCKY RIVER AND ACCESS RD.

TYPE OF WORK: GRADING, DRAINAGE, GUARDRAIL, PAVING & STRUCTURES

NC GRID NAD 83/2001



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

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF CONCORD.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2016 = 32,300
ADT 2036 = 50,300
DHV = 11 %
D = 65 %
T = 5 % *
V = 50 MPH
* TTST = 2% DUAL 3%
FUNC CLASS = MAJOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5123 = 0.280 MILES

LENGTH OF STRUCTURE TIP PROJECT B-5123 = 0.042 MILES

TOTAL LENGTH OF TIP PROJECT B-5123 = 0.322 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 29, 2015

LETTING DATE:
APRIL 19, 2016

G.E. BREW, PE
PROJECT ENGINEER

THAD F. DUNCAN, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

01-MAY-2015 08:29
R:\Roadway\Proj\B-5123_Rdy_tsh.dgn
$$$$USERNAME$$$$

09/08/09

PROJECT REFERENCE NO.	SHEET NO.
B-5123	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed 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 Wheel Chair Ramp — WCR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

6/2/99

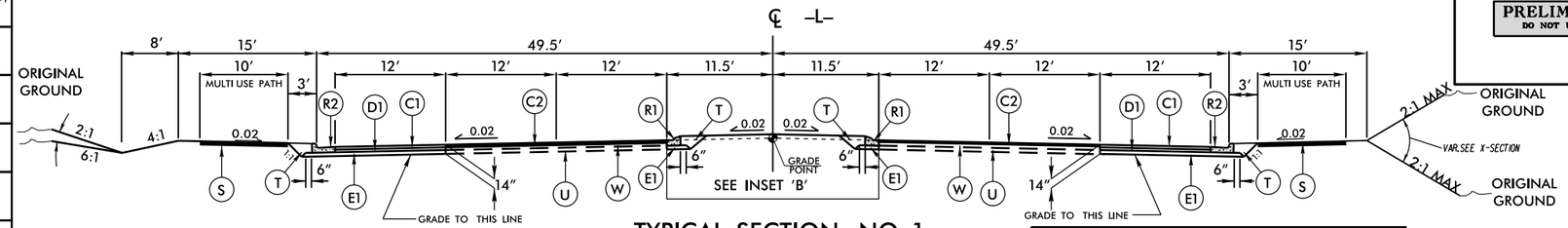
PAVEMENT SCHEDULE

(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. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.B, 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. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE.
R1	1'-6" CONCRETE CURB AND GUTTER.
R2	2'-6" CONCRETE CURB AND GUTTER.
R3	5' CONC. ISLAND
S	4" MULTIUSE PATH
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

PROJECT REFERENCE NO.	SHEET NO.
B-5123	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

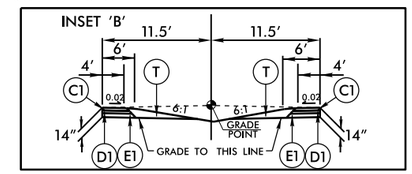
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 1

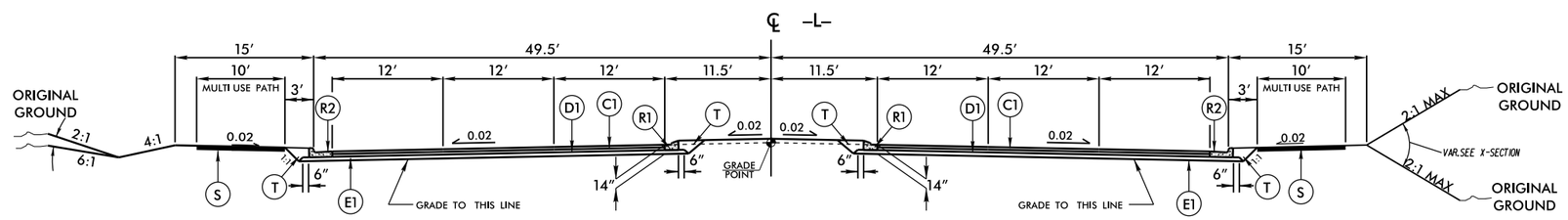
* TRANSITION FROM EXISTING TO TYPICAL SECTION NO.1 FROM -L- STA. 13+00.00 TO -L- STA. 14+50.00

-L- STA. 14+50.00 TO -L- STA. 16+50.00
-L- STA. 24+00.00 TO -L- STA. 26+97.04



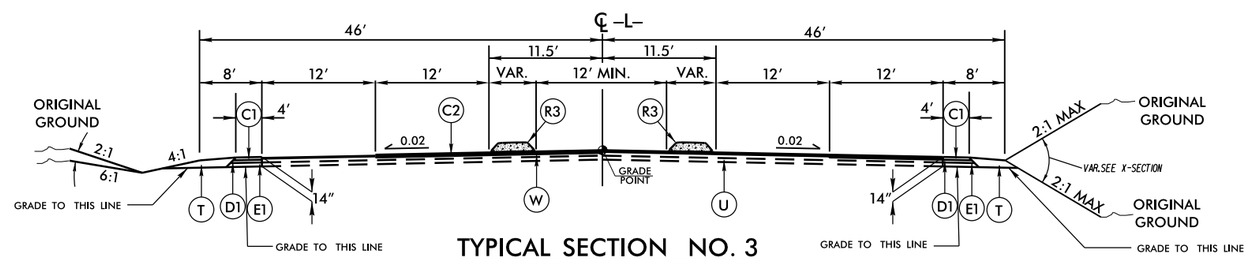
USE INSET 'B' IN CONJUNCTION WITH TYP. SECT. NO. 1

*-L- STA. 13+00.00 TO -L- STA. 14+50.00



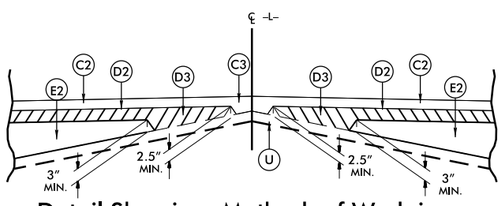
TYPICAL SECTION NO. 2

-L- STA. 16+50.00 TO -L- STA. 20+34+/- (BEGIN BRIDGE)
-L- STA. 22+54+/- (END BRIDGE) TO -L- STA. 24+00.00

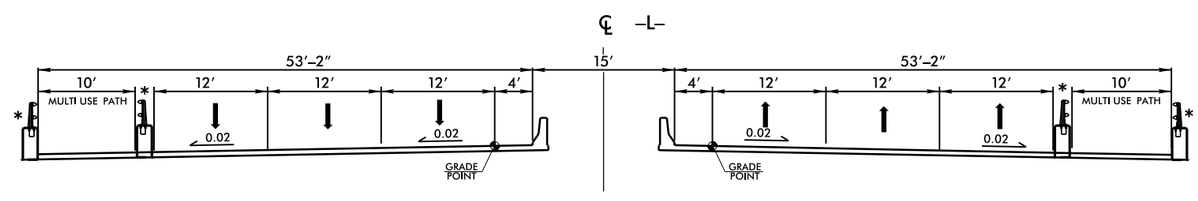


TYPICAL SECTION NO. 3

-L- STA. 26+97.04 TO -L- STA. 30+00.00



Detail Showing Method of Wedging



BRIDGE SECTION

* BICYCLE SAFETY RAIL TO BE DETERMINED BY STRUCTURE MANAGEMENT UNIT

BRIDGE SECTION
-L- STA. 20+34+/- (BEGIN BRIDGE) TO
-L- STA. 22+54+/- (END BRIDGE)

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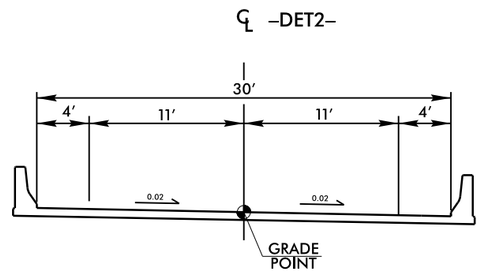
PROJECT REFERENCE NO.	SHEET NO.
B-5123	2A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

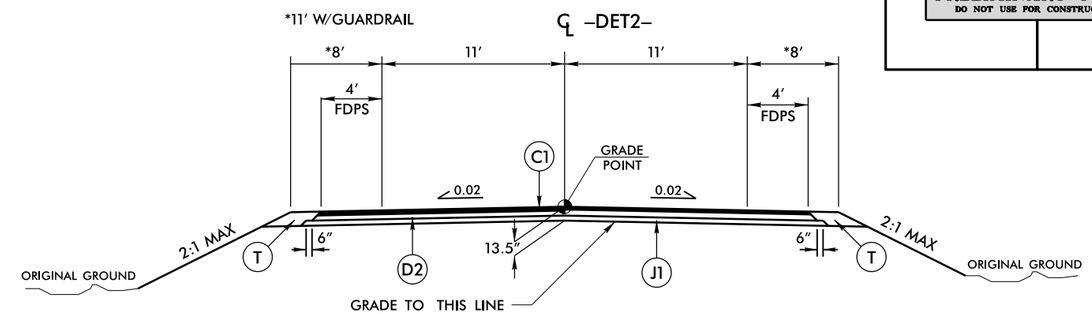
PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

C1	3" S9.5B
C3	VAR. S9.5B
D2	2½" I19.0B
J1	8" ABC
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING



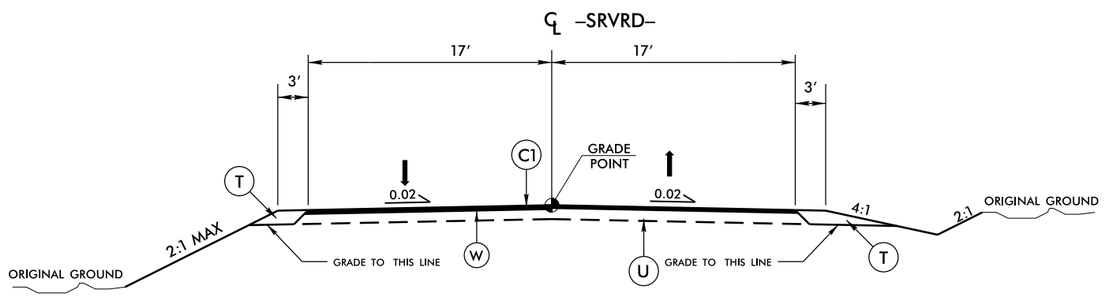
DETOUR BRIDGE SECTION

–DET2– STA. 14+39 +/– (BEGIN BRIDGE) TO
–DET2– STA. 17+23 +/– (END BRIDGE)



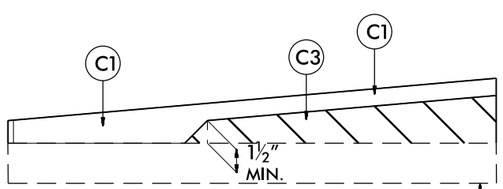
TYPICAL SECTION NO. 3

–DET2– STA. 11+84.66 TO –L– STA. 14+39 +/– (BEGIN BRIDGE)
–DET2– STA. 17+23 +/– (END BRIDGE) TO –DET2– STA. 20+32.72



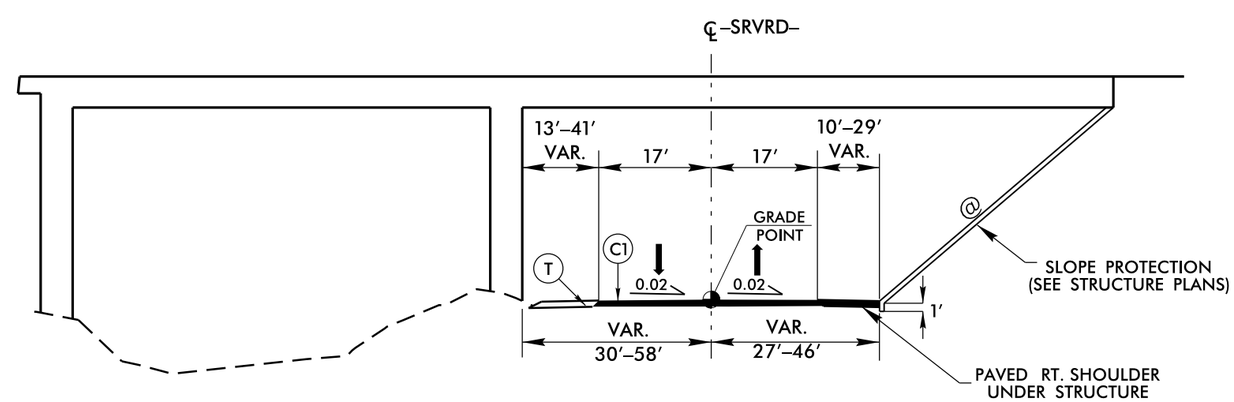
TYPICAL SECTION NO. 4

–SRVRD– STA. 11+14.00 TO –SRVRD– STA. 17+25.00



Detail Showing Method of Wedging

USE WITH TYPICAL SECTION NO. 4



TYPICAL SECTION OF ROADWAY UNDER STRUCTURE

@ SLOPE DETERMINED BY GEOTECHNICAL UNIT

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PROJECT REFERENCE NO.	SHEET NO.
B-5123	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

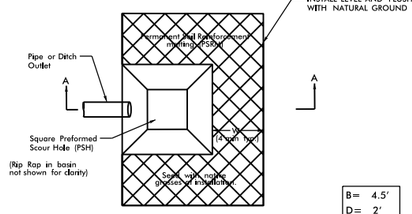
FOR –L– PROFILE SEE SHEET 6

FOR –SRVRD– PROFILE SEE SHEET 7

MATCH LINE –L– STA. 26+00 SEE SHEET 5

DETAIL A
PREFORMED SCOUR HOLE
*NOT TO SCALE

PLAN VIEW

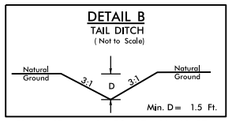


B= 4.5'
D= 2'
W= 8'

SECTION A–A

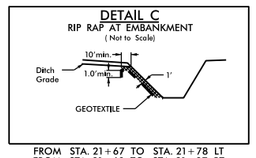
STA. 18+00 LT
STA. 22+84 RT

DETAIL B
TAIL DITCH
(Not to Scale)



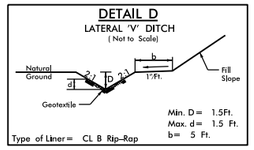
FROM STA. 21+29 TO STA. 21+82 RT
FROM STA. 21+69 TO STA. 22+50 LT

DETAIL C
RIP RAP AT EMBANKMENT
(Not to Scale)



FROM STA. 21+67 TO STA. 21+78 LT
FROM STA. 21+69 TO STA. 21+87 RT

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



Min. D= 1.5Ft.
Max. d= 1.5 Ft.
b= 5 Ft.
Type of Liner= CL B Rip-Rap

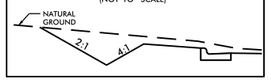
FROM STA. 23+09 TO STA. 25+00 RT

DETAIL H
SPECIAL CUT DITCH
(Not to Scale)

Min. D=0.9 Ft.
Max. d=0.9 Ft.
Type of Liner= 4" CONCRETE

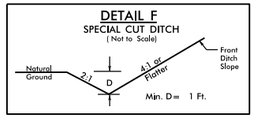
FROM STA. 15+72 TO STA. 16+00 RT –SRVRD–

DETAIL E
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



FROM STA. 25+00 TO STA. 26+50

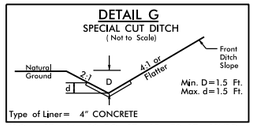
DETAIL F
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1 Ft.

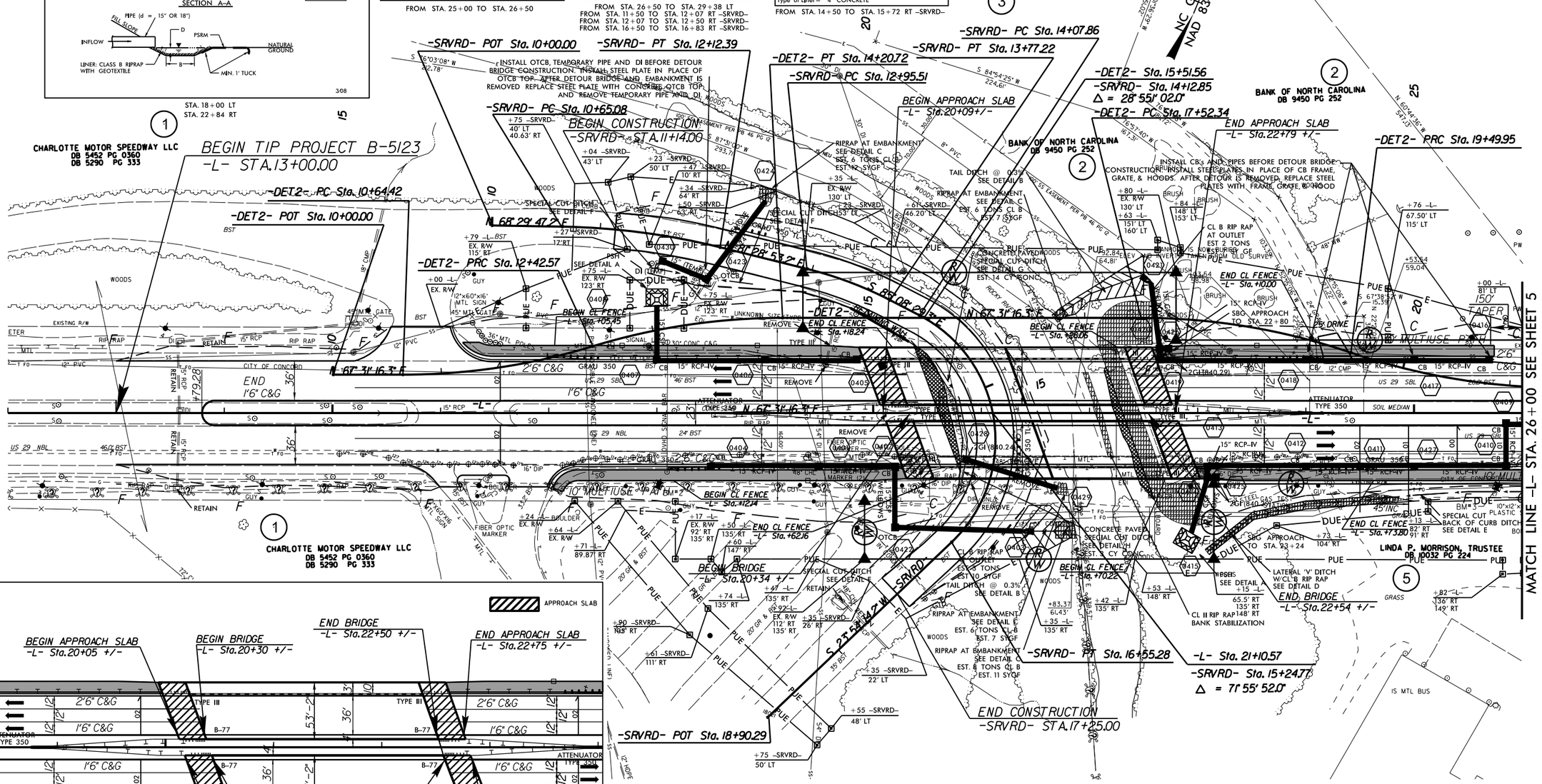
FROM STA. 26+50 TO STA. 29+38 LT
FROM STA. 11+50 TO STA. 12+07 RT –SRVRD–
FROM STA. 12+07 TO STA. 12+50 RT –SRVRD–
FROM STA. 16+50 TO STA. 16+83 RT –SRVRD–

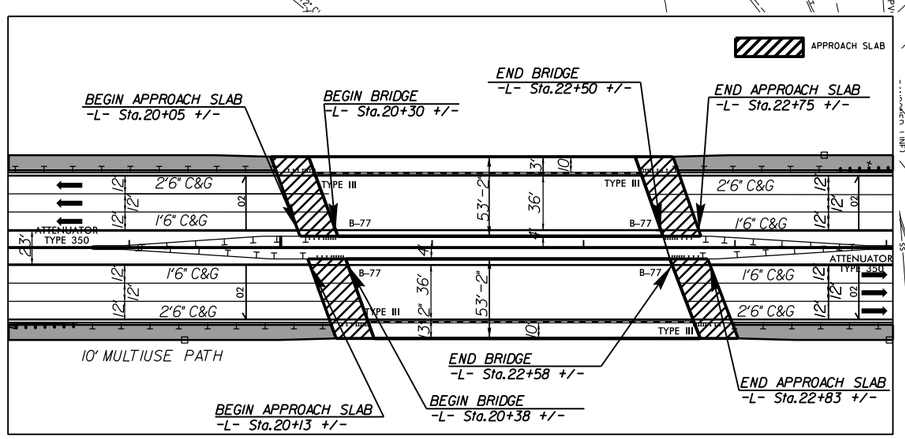
DETAIL G
SPECIAL CUT DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.5 Ft.
Type of Liner= 4" CONCRETE

FROM STA. 14+50 TO STA. 15+72 RT –SRVRD–





SKETCH SHOWING BRIDGE IN RELATION TO PAVEMENT

-SRVRD-

PI Sta 11+39.05	PI Sta 13+36.55	PI Sta 15+90.27
Δ = 12° 59' 06.0" (RT)	Δ = 13° 22' 37.5" (RT)	Δ = 109° 02' 43.5" (RT)
D = 8° 48' 53.0"	D = 16° 22' 12.8"	D = 44° 04' 25.2"
L = 147.31'	L = 81.72'	L = 247.42'
T = 73.97'	T = 41.04'	T = 182.41'
R = 650.00'	R = 350.00'	R = 130.00'

-DET2-

PI Sta 11+54.16	PI Sta 13+32.31
Δ = 17° 00' 43.0" (LT)	Δ = 17° 00' 43.0" (RT)
D = 9° 32' 57.5"	D = 9° 32' 57.5"
L = 178.15'	L = 178.15'
T = 89.73'	T = 89.73'
R = 600.00'	R = 600.00'

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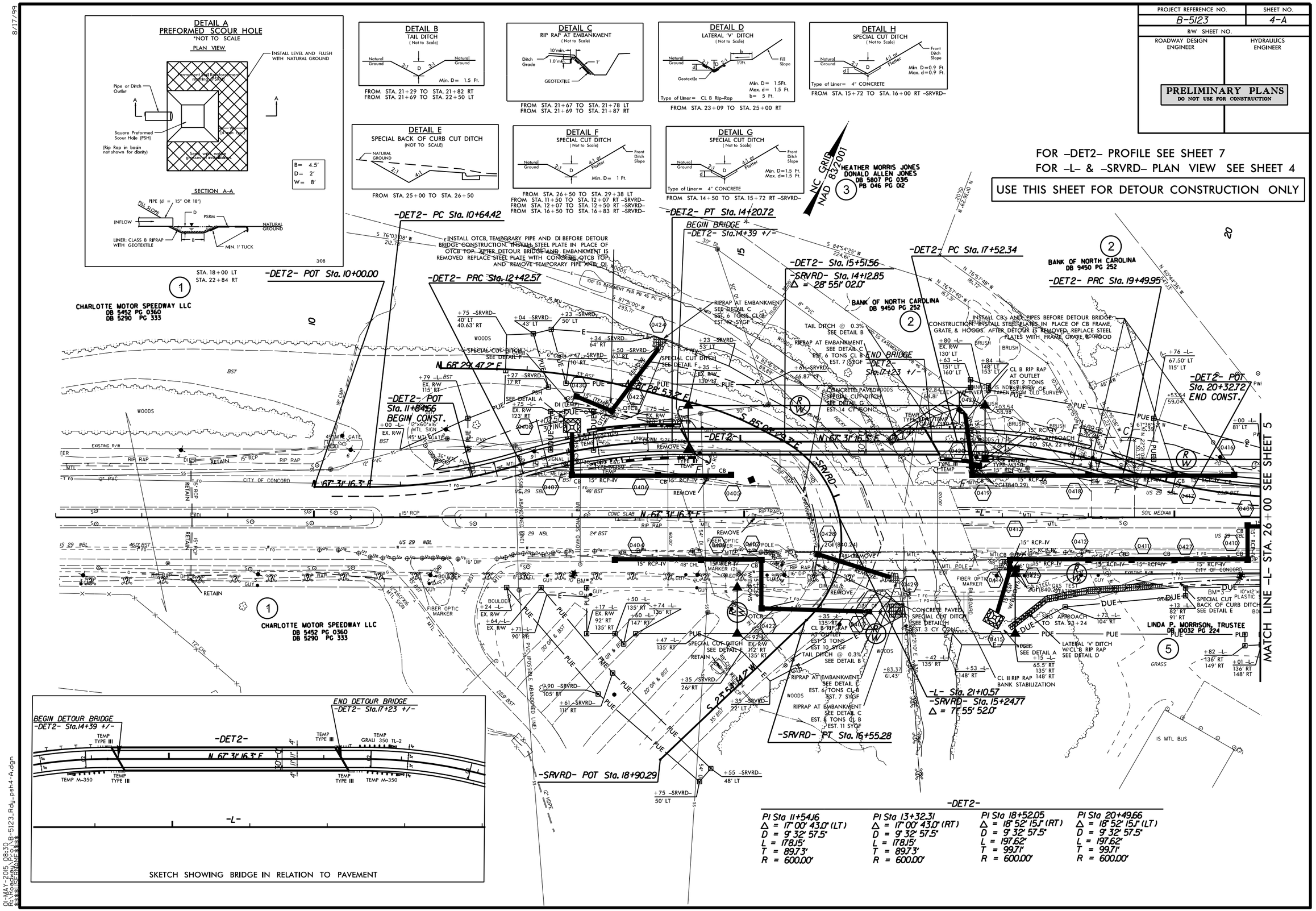
PROJECT REFERENCE NO.	SHEET NO.
B-5123	4-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR –DET2– PROFILE SEE SHEET 7
FOR –L– & –SRVRD– PLAN VIEW SEE SHEET 4

USE THIS SHEET FOR DETOUR CONSTRUCTION ONLY



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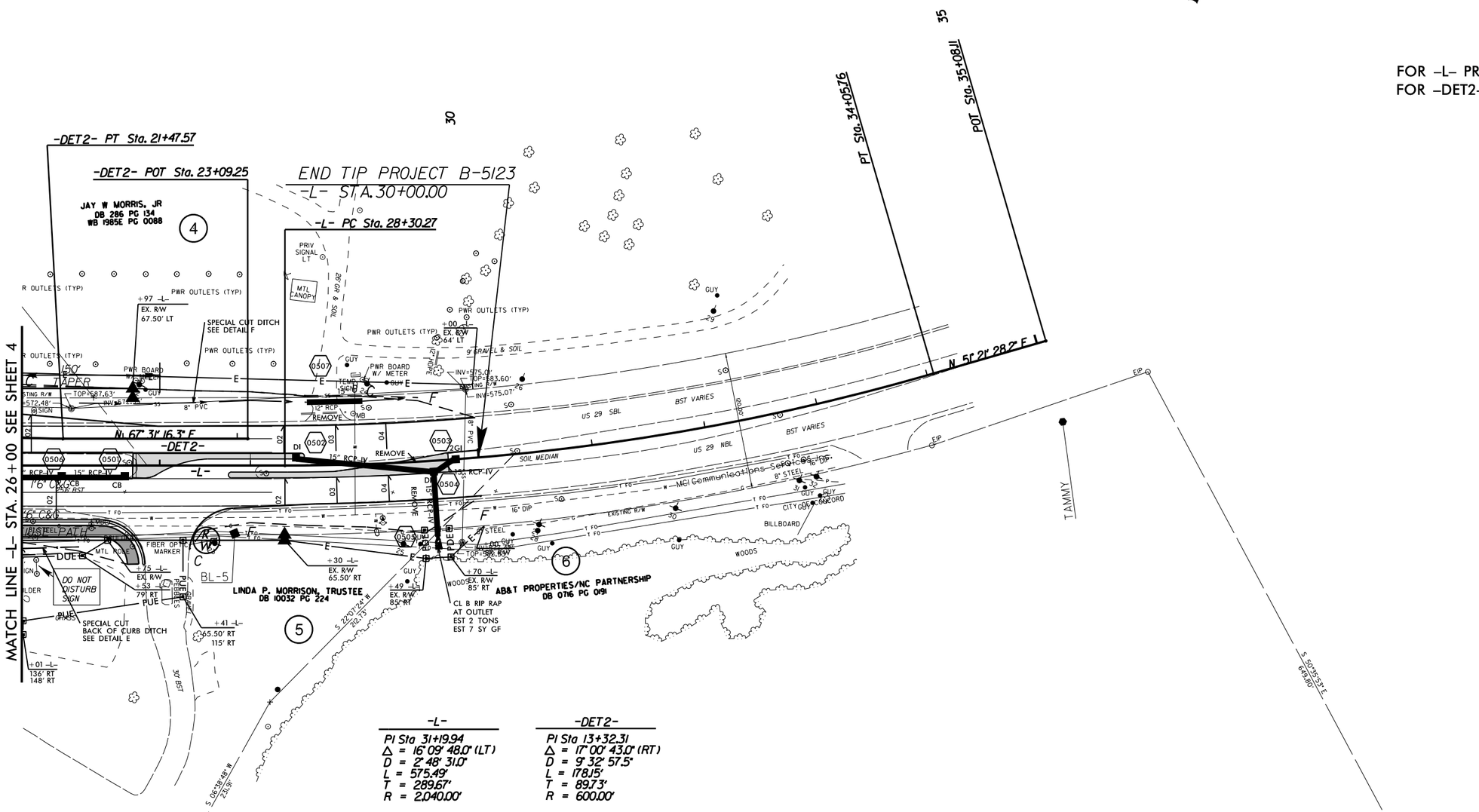
PROJECT REFERENCE NO.	SHEET NO.
B-5123	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR –L– PROFILE SEE SHEET 6
FOR –DET2– PROFILE SEE SHEET 7



-L-	-DET2-
PI Sta 31+19.94	PI Sta 13+32.31
Δ = 16° 09' 48.0" (LT)	Δ = 17° 00' 43.0" (RT)
D = 2° 48' 31.0"	D = 9° 32' 57.5"
L = 575.49'	L = 178.15'
T = 289.67'	T = 89.73'
R = 2,040.00'	R = 600.00'

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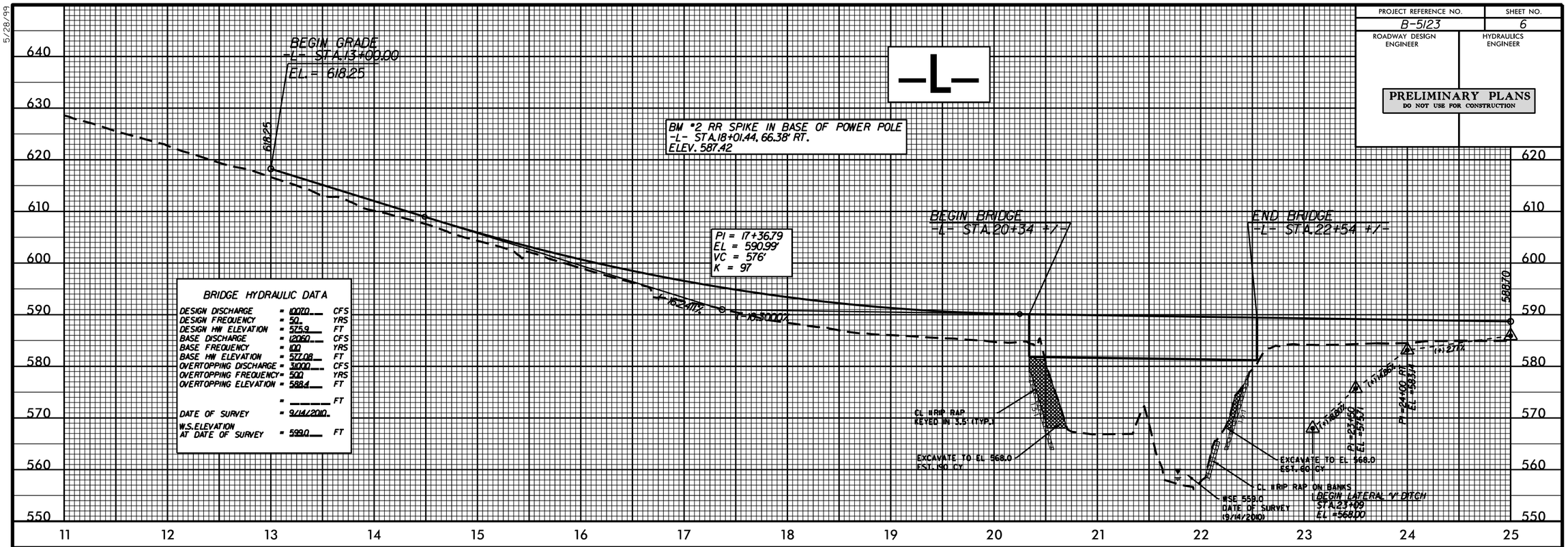
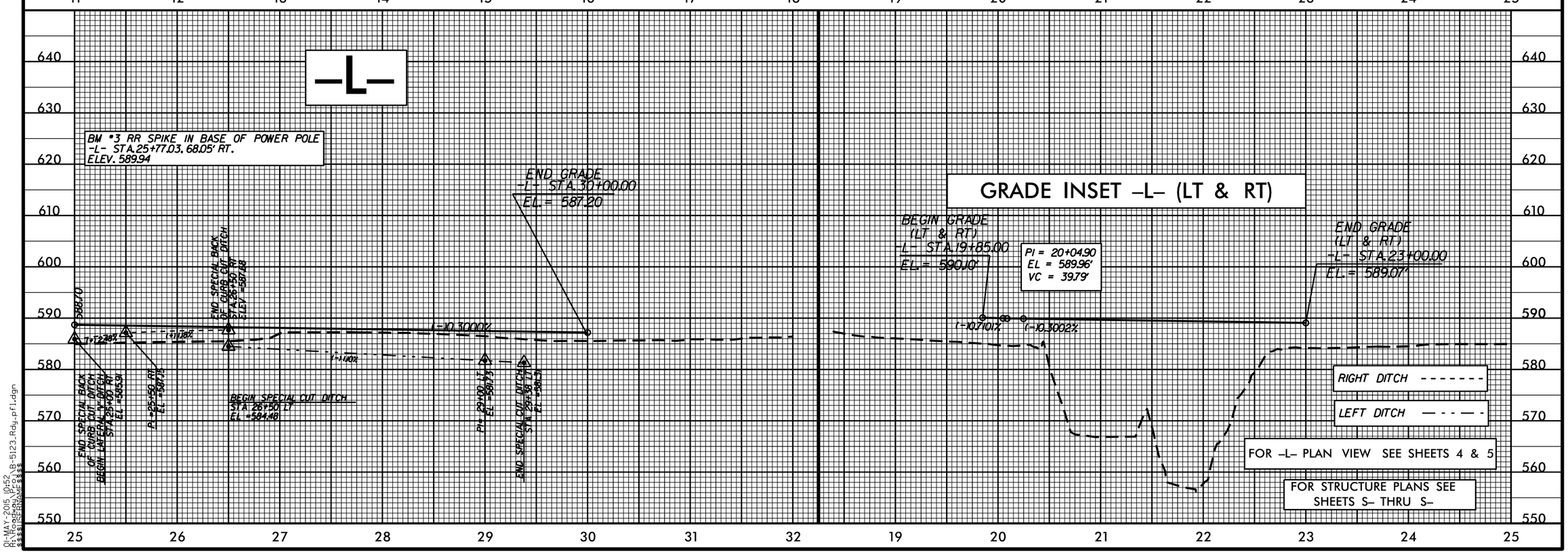
PROJECT REFERENCE NO.	SHEET NO.
B-5123	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





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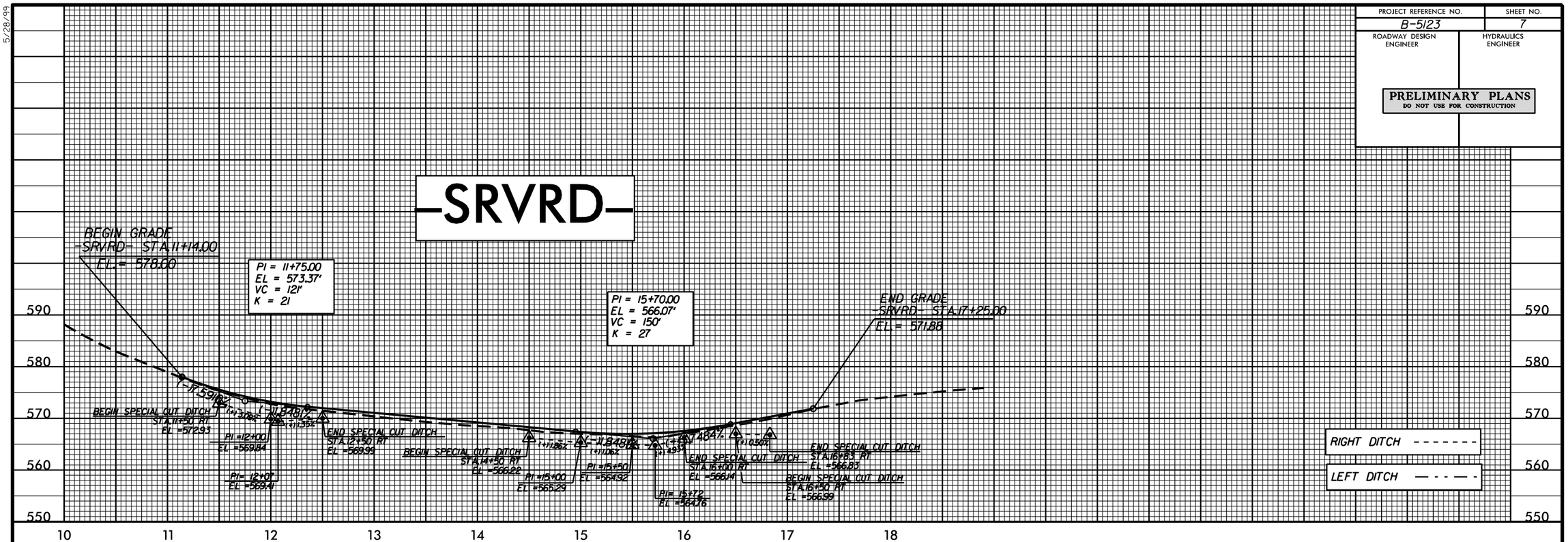
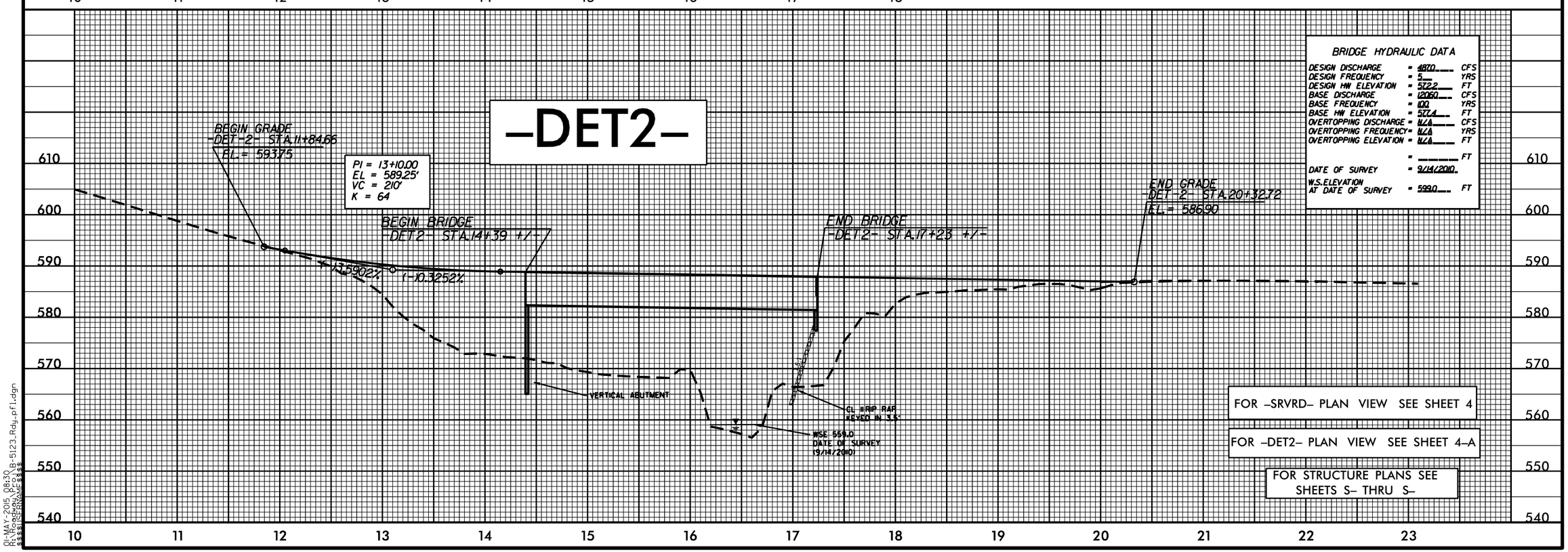
PROJECT REFERENCE NO.	SHEET NO.
B-5123	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 4870	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 572.2	FT
BASE DISCHARGE	= 12060	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 577.4	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING ELEVATION	= N/A	FT
	=	FT
DATE OF SURVEY	= 9/14/2010	
W.S.ELEVATION AT DATE OF SURVEY	= 559.0	FT

FOR -SRVRD- PLAN VIEW SEE SHEET 4

FOR -DET2- PLAN VIEW SEE SHEET 4-A

FOR STRUCTURE PLANS SEE SHEETS S- THRU S-

5/28/99

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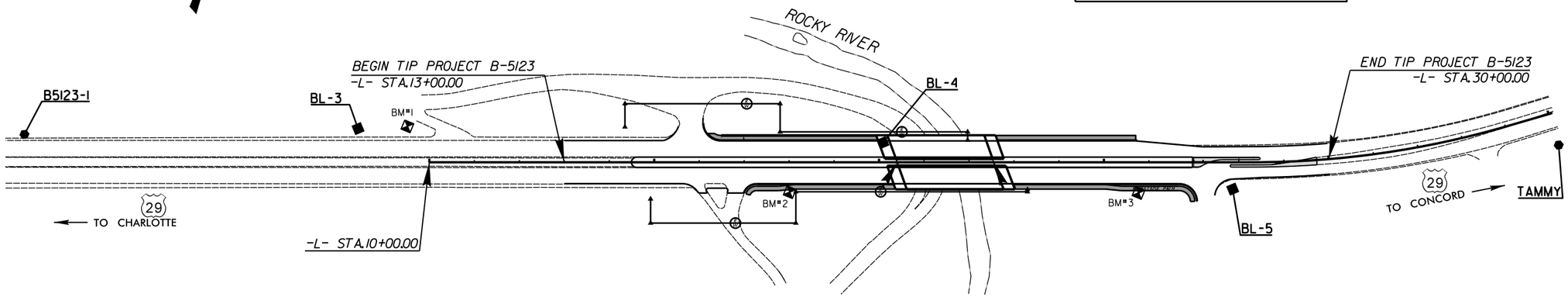
PROJECT REFERENCE NO.	SHEET NO.
B-5123	1C-1
Location and Surveys	

SURVEY CONTROL SHEET
PRELIMINARY

NC GRID
NAD 83/2001

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5123-1"
WITH NAD 83/2001 STATE PLANE GRID COORDINATES OF
NORTHING: 589217.621(ft) EASTING: 1498613.652(ft)
ELEVATION: 679.06(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998740
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"B5123-1" TO -L- STATION 10+00.00 IS
N 71° 27' 27" E 902.47'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88



BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B5123-1	589217.6210	1498613.6520	679.06	OUTSIDE PROJECT LIMITS	
3	BL-3	589513.0960	1499294.1040	644.73	OUTSIDE PROJECT LIMITS	
4	BL-4	589930.5520	1500384.4430	585.73	20+08.49	43.67 LT
5	BL-5	590132.5380	1501142.5960	587.41	27+86.27	59.57 RT
2	TAMMY	590500.1490	1501775.1080	591.04	35+02.61	72.17 RT

****
BM1 ELEVATION = 639.20
N 589560 E 1499394
L STATION 10+00
N 53°55'32" W DIST 93
RR SPIKE IN BASE OF POWER POLE
****
****
BM2 ELEVATION = 587.42
N 589750 E 1500235
L STATION 18+01 66 RIGHT
RR SPIKE IN BASE OF POWER POLE
****
****
BM3 ELEVATION = 589.94
N 590045 E 1500953
L STATION 25+77 68 RIGHT
RR SPIKE IN BASE OF POWER POLE
****

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	589504.6156	1499469.2733
PC	28+30.27	590204.4048	1501160.4828
PT	34+05.76	590496.0427	1501654.3927
POT	35+08.11	590559.9539	1501734.3322

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION*

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B5123_LS_CONTROL.TXT
   B5123_LS_LOCAL.TXT

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

3. *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*

NOTE: DRAWING NOT TO SCALE

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01-MAY-2015 08:30
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$$$$USERNAME$$$$

SURVEY CONTROL SHEET
PRELIMINARY

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT "B5123-1"
WITH NAD 83/2001 STATE PLANE GRID COORDINATES OF
NORTHING: 589217.621(ft) EASTING: 1498613.652(ft)
ELEVATION: 679.06(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.9998740
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"B5123-1" TO -L- STATION 10+00.00 IS
N 71° 27' 27" E 902.47'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	19+35.00	-130.00	589982.2278	1500283.5286
L	19+35.00	-78.40	589934.5529	1500303.2555
L	19+92.00	81.53	589808.5672	1500417.0728
L	19+92.00	135.00	589759.1557	1500437.5183
L	22+80.00	-130.00	590114.1357	1500602.3158
L	22+80.00	-67.50	590056.3844	1500626.2122
L	23+15.00	135.00	589882.6521	1500735.9771
L	23+15.00	65.50	589946.8716	1500709.4043
L	26+97.00	-67.50	590215.8209	1501011.5289
L	26+97.00	-59.34	590208.2765	1501014.6507
L	28+30.00	65.50	590143.7776	1501185.2752
L	28+30.00	60.50	590148.3956	1501183.3643

PERMANENT EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	17+80.00	-124.72	589918.0860	1500142.3241
L	17+80.00	-78.44	589875.3196	1500160.0200
L	18+20.00	-124.72	589933.3797	1500179.2849
L	18+20.00	-78.32	589890.5029	1500197.0265
L	23+54.00	103.13	589927.0120	1500759.8287
L	24+00.00	93.84	589953.1839	1500798.7817
L	25+00.00	84.47	590000.0761	1500887.6012
L	25+00.00	65.81	590017.3216	1500880.4654

NOTES:

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   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B5123_LS_CONTROL.TXT
   B5123_LS_LOCAL.TXT

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

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