



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

January 16, 2015

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

ATTN: Ms. Lori Beckwith
NCDOT Coordinator

Subject: **Revised Application for Section 404 Nationwide Permits 14 and Section 401 Water Quality Certification** for the Replacement of Bridge 17 on US 221 over the Second Broad River, McDowell County, Federal Aid Project No. BRNHS-221(10); Division 13; TIP No. B-3673; \$570.00 debit WBS No. 33217.1.1.

Reference: Request for NW Permit Application and 401 Water Quality Certification submitted November 10, 2014

Dear Madam:

This is a revised application submittal to take the place of the previous submittal (November 10, 2014). **Changes from the previous application are noted in bold italics.** The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge 17 on US 221 with a 4 span, 320' prestressed concrete girder bridge on a new alignment to the west of the existing bridge. The existing bridge will be utilized as an onsite detour during construction. The new bridge alignment will lead to the reconfiguration of the approaches north and south of the new bridge which will necessitate the relocation of three streams into new longer culverts in the project footprint. There will be **744 lf** of permanent impacts to surface waters consisting of **448 lf** of stream impacts from roadway fill and 296 lf from bank stabilization. There will be 0.08 acre of temporary impacts to surface waters resulting from dewatering and three temporary causeways (Please refer to Table 1 below).

Please see enclosed copies of the Pre-Construction Notification (PCN), EEP Acceptance Letter, Stormwater Management Plan, Permit Drawings, Roadway Plansheets. A Categorical Exclusion (CE) was completed in April 2013 and distributed shortly thereafter. Additional copies are available upon request.

Comments from the North Carolina Wildlife Resources Commission (NCWRC) will be required prior to authorization by the Corps of Engineers. By copy of this letter and attachment, NCDOT hereby requests NCWRC review. NCDOT requests that NCWRC forward their comments to the Corps of Engineers and the NCDOT within 30 calendar days of receipt of this application.

Table 1. B-3673 Final Design Stream Impacts

Permit Site No.	Stream Name	Impact Type	Impact Length (linear feet)	USACE Mitigation	NCDWQ Mitigation
1	UT to Second Broad River	Perm. Fill	75	75	
		Bank Stabilization	--		
		Temp. Fill	28		
2	Second Broad River	Perm. Fill	20	20	20
		Bank Stabilization	--		
		Temp. Fill	--		
3	UT to Second Broad River	Perm. Fill	182	182	182
		Bank Stabilization			
		Temp. Fill	19		
4	UT to Second Broad River	Perm. Fill	135	135	
		Bank Stabilization	--		
		Temp. Fill	10		
5	Second Broad River	Perm. Fill	36	36	36
		Bank Stabilization	--		
		Temp. Fill	--		
6	Second Broad River	Perm. Fill	--		
		Bank Stabilization	107		107
		Temp. Fill	231		
7	UT to Second Broad River	Perm. Fill	--		
		Bank Stabilization	71		
		Temp. Fill	--		
8	Second Broad River	Perm. Fill	--		
		Bank Stabilization	118		118
		Temp. Fill	--		

Total Permanent Impacts (Perm. Fill +Bank Stabilization):	744		
Total Temporary Impacts (Linear feet)	288		
Impacts requiring Mitigation by USACE (2:1)		448	
Impacts requiring Mitigation by NCDWQ (1:1)			463

The attached *Revised* Ecosystem Enhancement Program (EEP) letter will cover mitigation for impacts of 448 linear feet.

This project calls for a letting date of April 21, 2015 and a review date of March 3, 2015; 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 Jeff Hemphill at (919) 707-6126.

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 1.3 Dec 10 2008

Revised January 14, 2014
Revisions in *Bold Italics*

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: 14 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 type="checkbox"/> Yes <input checked="" 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 checked="" type="checkbox"/> Yes	<input 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 17 on US 221 over the Second Broad River
2b. County:	McDowell
2c. Nearest municipality / town:	Marion
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no.:	B-3673

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: 35.5753 (DD.DDDDDD) Longitude: - 81.9758 (-DD.DDDDDD)
1c. Property size:	3.2 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Second Broad River
2b. Water Quality Classification of nearest receiving water:	WS-V
2c. River basin:	Broad River

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: 2,599	
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 117' three span concrete girder bridge with a 4 span, 320' prestressed concrete girder bridge on a new alignment to the west of the existing bridge. The new bridge alignment will lead to the reconfiguration of the approaches north and south of the new bridge which will necessitate the relocation of three streams into new longer culverts in the project footprint. 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: This project was part of the 2004 Verification of R-2597 and not part of the 2012 Re-verification of R-2597	<input checked="" type="checkbox"/> Yes <input 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 checked="" type="checkbox"/> Final
4c. If yes, who delineated the jurisdictional areas? Name (if known): Buck Engineering	Agency/Consultant Company: NCDOT Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. This project area was verified by Angie Pennock of the Corps as part of a larger project, R-2597, the US 221 Widening from I-40 to Rutherfordton, on August 4, 2004. B-3673 was subsequently separated from the larger project and was not part of the 2012 reverification.	
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		
2g. Total wetland impacts						
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) (Perm/Temp)
Site 1 <input checked="" type="checkbox"/> P <input checked="" type="checkbox"/> T	Channel Relocation	UT to Second Broad River	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	2	75/28
Site 2 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Outfall Protection	Second Broad River	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	25	20/00
Site 3 <input checked="" type="checkbox"/> P <input checked="" type="checkbox"/> T	Channel Relocation	UT to Second Broad River	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	3	182/19
Site 4 <input checked="" type="checkbox"/> P <input checked="" type="checkbox"/> T	Roadway Fill	UT to Second Broad River	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	10	135/10
Site 5 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Tail Ditch	Second Broad River	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	25	36/00
Site 6 <input checked="" type="checkbox"/> P <input checked="" type="checkbox"/> T	Bank Stabilization /Work Pads	Second Broad River	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	25	107/231
Site 7 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Bank Stabilization	UT to Second Broad River	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	3	71/00
Site 8 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Bank Stabilization	Second Broad River	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	25	118/00
3h. Total stream and tributary impacts					744 Perm/ 288 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):									
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"/> Tar-Pamlico <input type="checkbox"/> Other: <input type="checkbox"/> Catawba <input type="checkbox"/> Randleman				
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)				
B1 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No						
B2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No						
B3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No						
6h. Total buffer impacts									
6i. Comments:									


D. Impact Justification and Mitigation		
1. Avoidance and Minimization		
1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project. The relocation of the bridge alignment to the west allows the bridge to cross the Second Broad River at a more perpendicular angle which reduces impacts to the flood plain and reduces surface water impacts to the river.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. Stormwater runoff from the bridge deck will be captured with inlets and conveyed to the northeast and southeast sides of the road where it will be discharged to a riprap outlet pads prior to entering the stream.		
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, explain:	
2b. If yes, mitigation is required by (check all that apply):	<input type="checkbox"/> DWQ <input checked="" type="checkbox"/> Corps	
2c. If yes, which mitigation option will be used for this project?	<input type="checkbox"/> Mitigation bank <input checked="" 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 checked="" type="checkbox"/> Yes	
4b. Stream mitigation requested:	448 lf	
4c. If using stream mitigation, stream temperature:	<input type="checkbox"/> warm <input type="checkbox"/> cool <input checked="" type="checkbox"/> cold	
4d. Buffer mitigation requested (DWQ only):	square feet	
4e. Riparian wetland mitigation requested:	acres	
4f. Non-riparian wetland mitigation requested:	acres	
4g. Coastal (tidal) wetland mitigation requested:	acres	
4h. Comments:		
5. Complete if Using a Permittee Responsible Mitigation Plan		
5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.		

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

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1b. If yes, then is a diffuse flow plan included? If 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 type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
5c. If yes, indicate the USFWS Field Office you have contacted.	<input type="checkbox"/> Raleigh	<input 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 conducted in-season surveys for Small whorled pogonia in May 2004 and April 2013 in the project area with no specimens found – No Effect.</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 McDowell 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		
for <u>Richard W. Hancock, PE.</u> Applicant/Agent's Printed Name	 _____ Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	<u>1-16-2015</u> Date



North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Ecosystem Enhancement Program

Donald R. van der Vaart
Secretary

January 13, 2015

Mr. Richard W. Hancock, P.E.
Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Hancock:

Subject: EEP Mitigation Acceptance Letter:

B-3673, Replace Bridge Number 17 over the Second Broad River on US 221, McDowell County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on January 7, 2015, the impacts are located in CU 03050105 of the Broad River basin in the Northern Mountains (NM) Eco-Region, and are as follows:

Broad 03050105 NM	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	448.0	0	0	0	0	0	0	0

*Some of the stream impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

This mitigation acceptance letter replaces the mitigation acceptance letter issued on October 28, 2014. EEP commits to implementing sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the N.C. Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

If you have any questions or need additional information, please contact Beth Harmon at 919-707-8420.

Sincerely,


James B. Stanfill
EEP Asset Management Supervisor

cc: Ms. Lori Beckwith, USACE – Asheville Regulatory Field Office
Mr. Kevin Barrett, NCDWR – Swannanoa Office
Ms. Linda Fitzpatrick, NCDOT – PDEA
File: B-3673



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



(Version 1.2; Released July 2012)

Project/TIP No.: 33217.1.1 (B-3673)
County(ies): Mcdowell
Page 1 **of** 1

General Project Information

Project No.:	33217.1.1 (B-3673)	Project Type:	Bridge Replacement	Date:	7/14/2014
NCDOT Contact:	William "Bill" Zerman, Jr., PE	Contractor / Designer:	Sungate Design Group, PA		
Address:	1590 Mail Service Center Raleigh, NC 27699-1590	Address:	915 Jones Franklin Road Raleigh, NC 27606		
Phone:	(919) 707-6755	Phone:	(919) 859-2243		
Email:	bzerman@ncdot.gov	Email:	jdalton@sungatedesign.com		
City/Town:	Marion	County(ies):	Mcdowell		
River Basin(s):	Broad	CAMA County?	No		
Primary Receiving Water:	Second Broad River	NCDWQ Stream Index No.:	9-41-(0.5)		
NCDWQ Surface Water Classification for Primary Receiving Water		Primary:	Water Supply V (WS-V)		
		Supplemental:	None		
Other Stream Classification:	None				
303(d) Impairments:	None				
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	0.511 Miles	Surrounding Land Use:	Rural		
	Proposed Project		Existing Site		
Project Built-Upon Area (ac.)	3.22 ac.		1.63 ac.		
Typical Cross Section Description:	Two 12' lanes, 4' shoulder sections		Two 10' lanes		
Average Daily Traffic (veh/hr/day):	Design/Future: 11,800	Existing:	7,800		

General Project Narrative: This project involves the replacement of Bridge No. 017 over Second Broad River on US 221. Stormwater runoff from the bridge deck will be captured with inlets and conveyed to the southeast side of the road where it will be discharged to a riprap outlet pad prior to entering the stream. Stormwater runoff north of the bridge will be captured with inlets and conveyed to the northeast side of the road to a riprap outlet pad prior to entering the stream. Due to high velocities and steep topography at these outlets, the use of preformed scour holes is not practical. The southwest quadrant drains away from the bridge. Riprap bank stabilization has been specified where the existing concrete bridge abutments will be removed. Hazardous Spill Basin(s) are not required since this stream is not identified as an ORW or WS-I watersupply, nor is the stream crossing within 1/2 mile of the critical area of a water supply source classified as WS-II, WS-III or WS-IV.

References

09.08/99

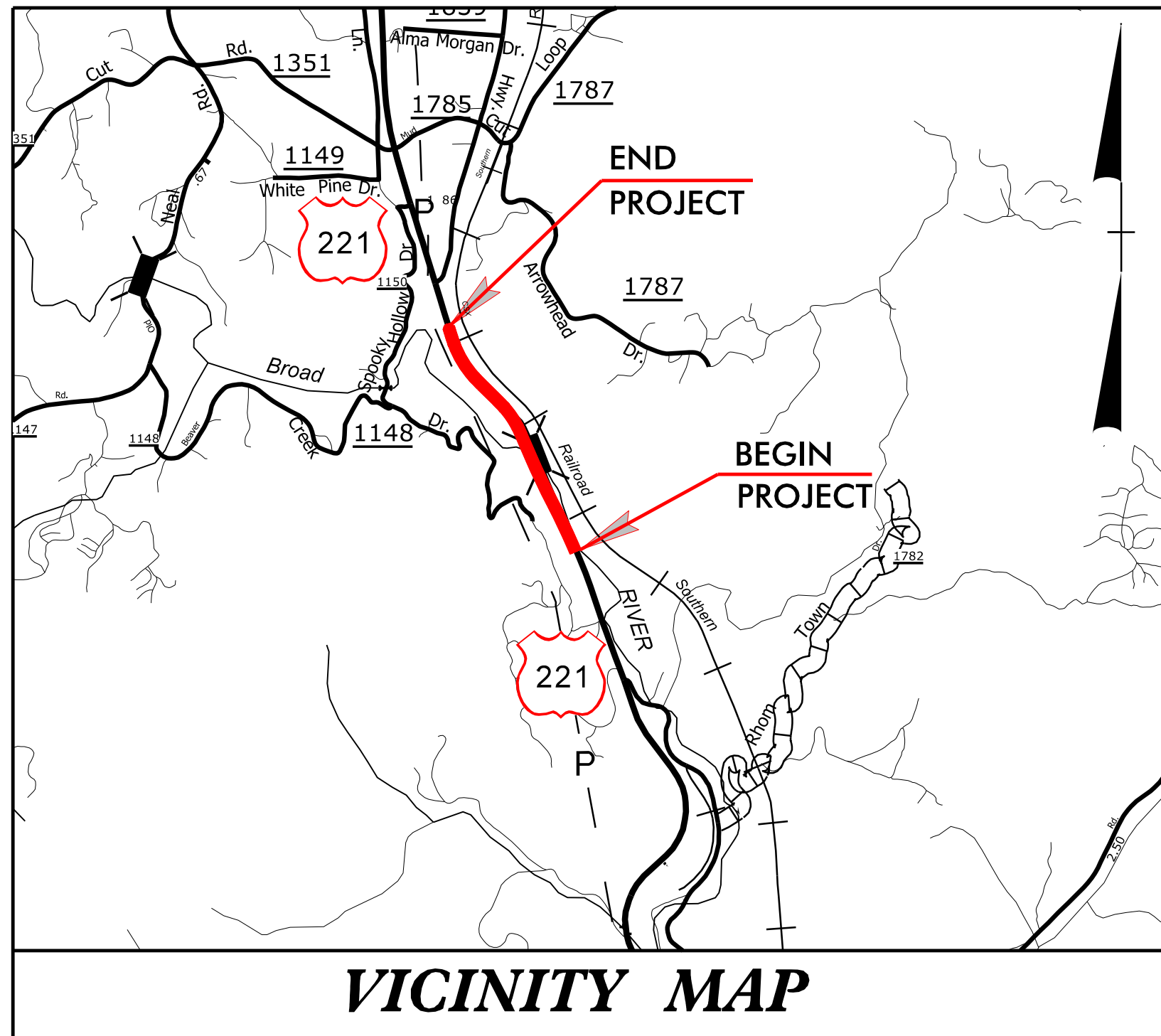
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PERMIT DRAWING
SHEET 1 OF 9

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3673	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33217.1.1	BRNHS-221(10)	PE	
33217.2.UFS1	BRNHS-221(10)	UTILITIES	
33217.2.FS1	BRNHS-221(10)	RIGHT-OF-WAY	

TIP PROJECT: B-3673

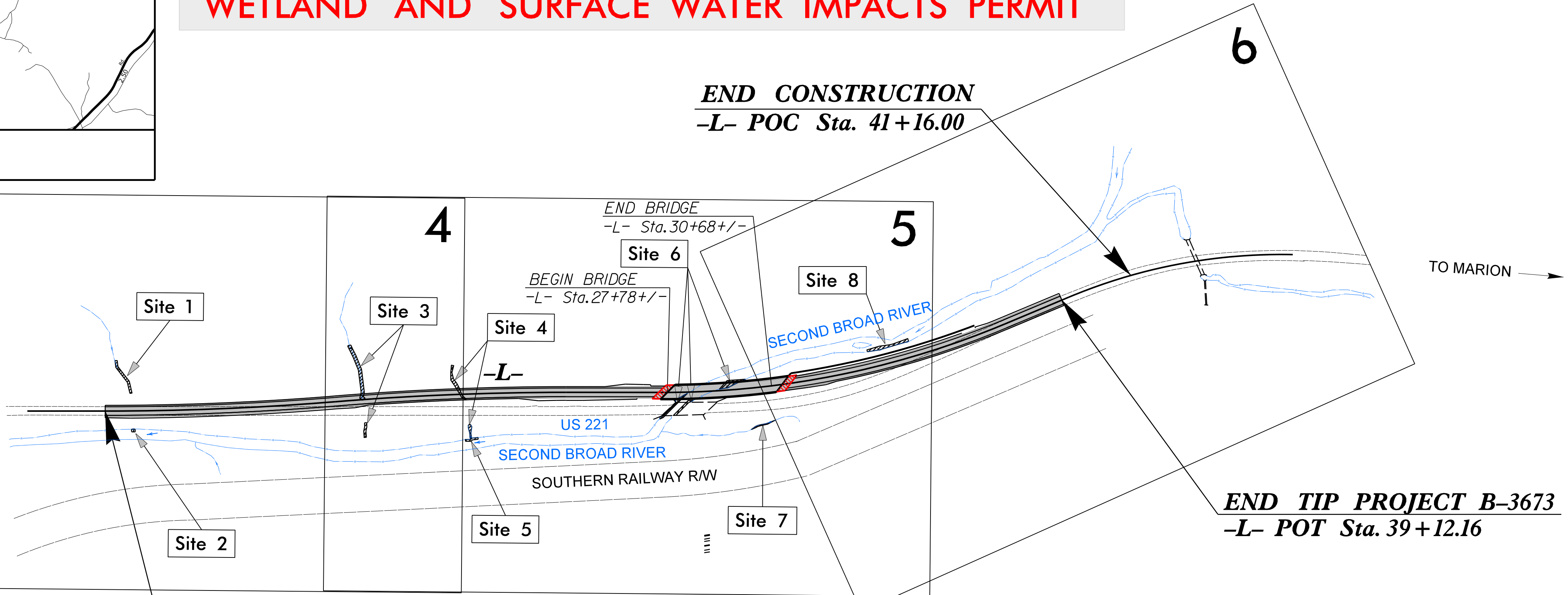
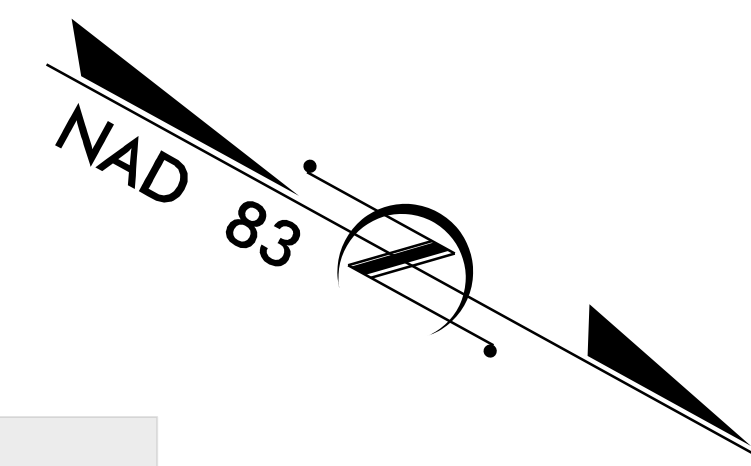


McDOWELL COUNTY

LOCATION: BRIDGE NO.17 OVER SECOND BROAD RIVER ON US 221

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

WETLAND AND SURFACE WATER IMPACTS PERMIT



THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

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

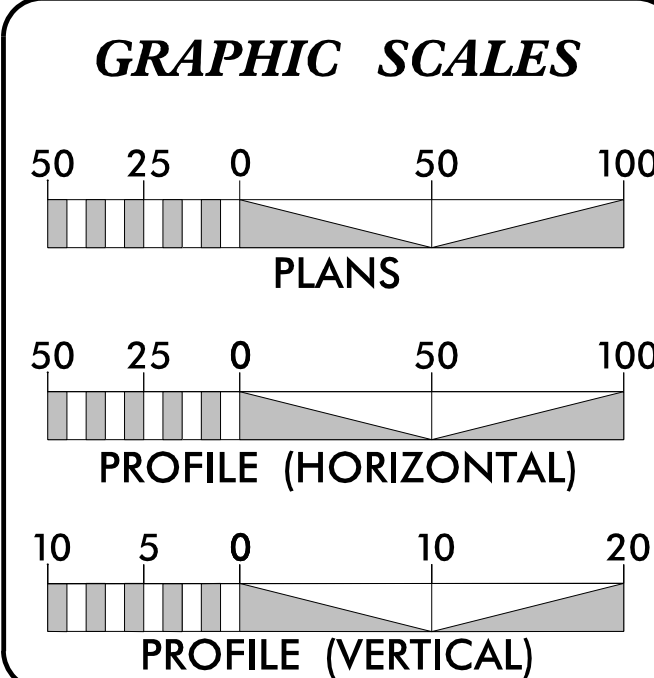
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

BEGIN TIP PROJECT B-3673
-L- PC Sta. 12+16.15
BEGIN CONSTRUCTION

END TIP PROJECT B-3673
-L- POT Sta. 39+12.16

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

CONTRACT:



DESIGN DATA

ADT 2015	=	7,800
ADT 2035	=	11,800
DHV	=	10 %
D	=	55 %
T	=	13 % *
V	=	60 MPH
* TTST	=	8% DUAL 5%
FUNC CLASS	=	RURAL ARTERIAL STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3673	=	0.460 MI
LENGTH STRUCTURE TIP PROJECT B-3673	=	0.051 MI
TOTAL LENGTH OF TIP PROJECT B-3673	=	0.511 MI

Prepared In the Office of:
Baker
2012 STANDARD SPECIFICATIONS

Michael Baker Engineering, Inc.
8000 Regency Parkway, Suite 600
Cary, NC 27518
Professional Corporation License Number: F-1084

RIGHT OF WAY DATE:
SEPTEMBER 20, 2013

LETTING DATE:
APRIL 21, 2015

DAVID L. WILVER, P.E.
PROJECT ENGINEER

WARREN JOHNSON
PROJECT DESIGN ENGINEER

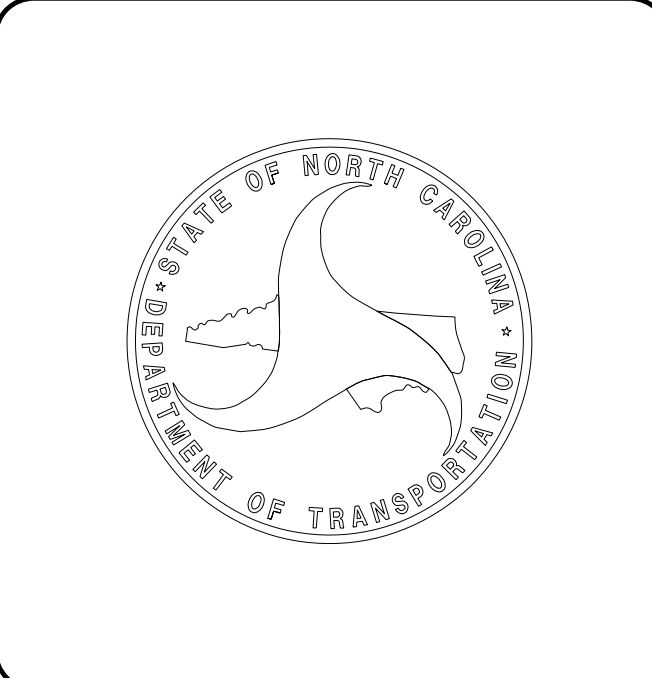
BRENDA L. MOORE, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

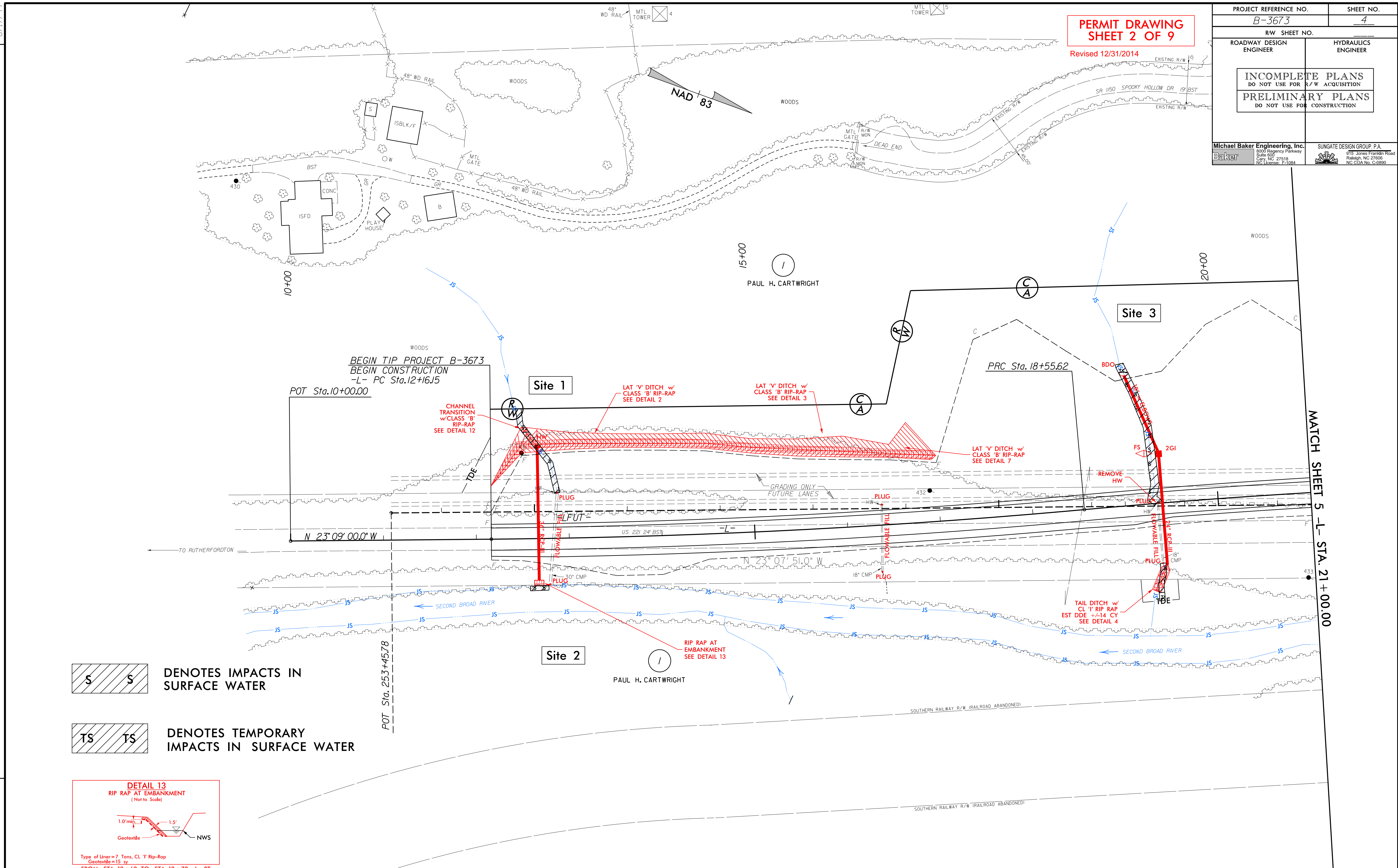
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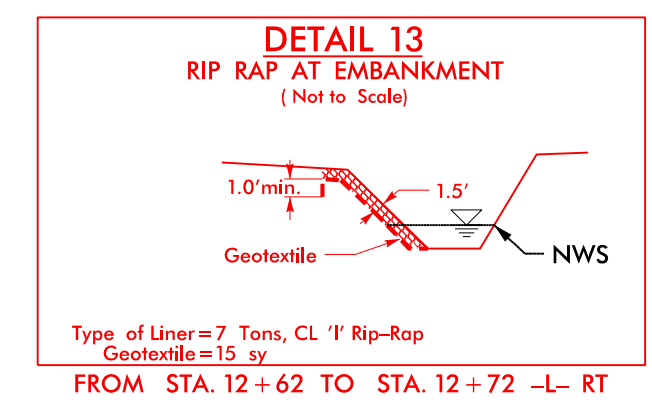
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RW SHEET NO.	
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Michael Baker Engineering, Inc. 8000 Regency Parkway Suite 600 Cary, NC 27518 NC License: P-1084	SUNGATE DESIGN GROUP, P.A. 975 Jones Franklin Road Raleigh, NC 27608 NC CCA No. C-0890

PERMIT DRAWING
SHEET 2 OF 9
Revised 12/31/2014

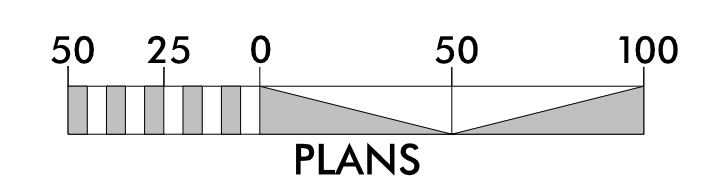
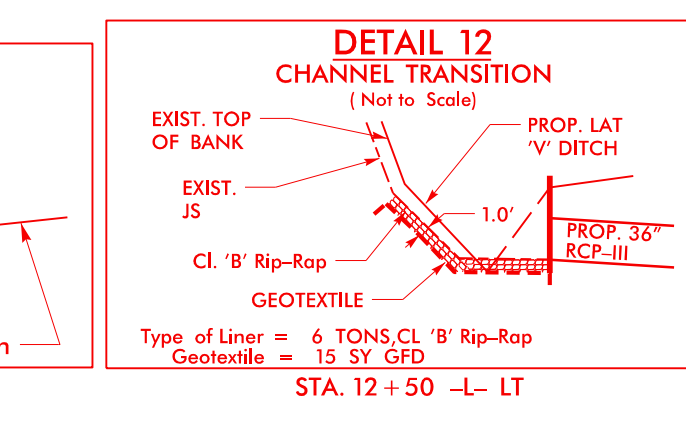
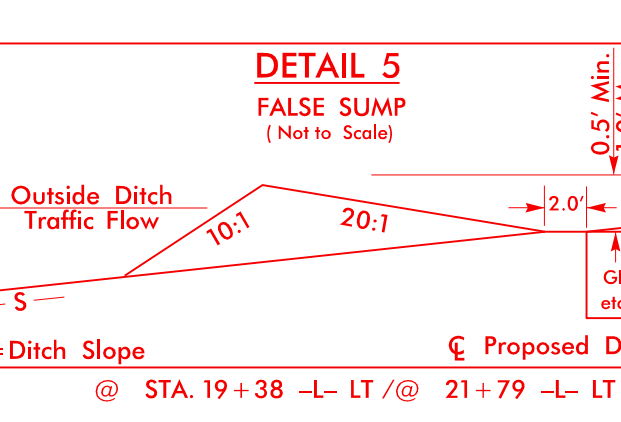
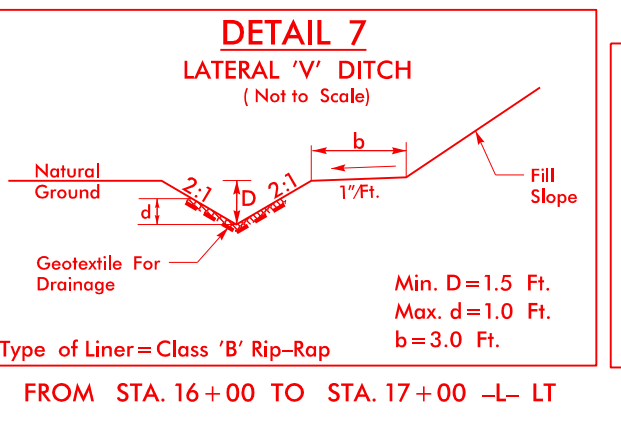
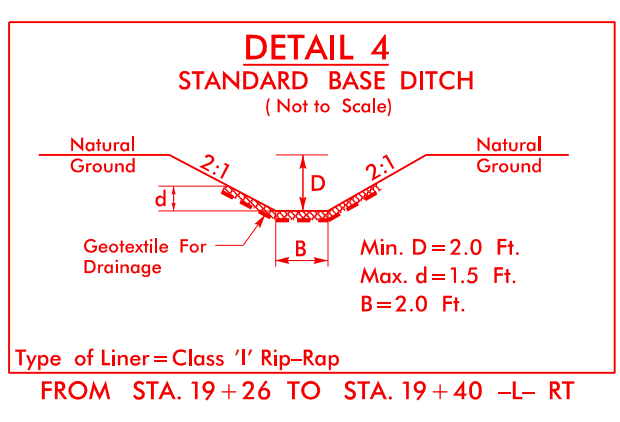
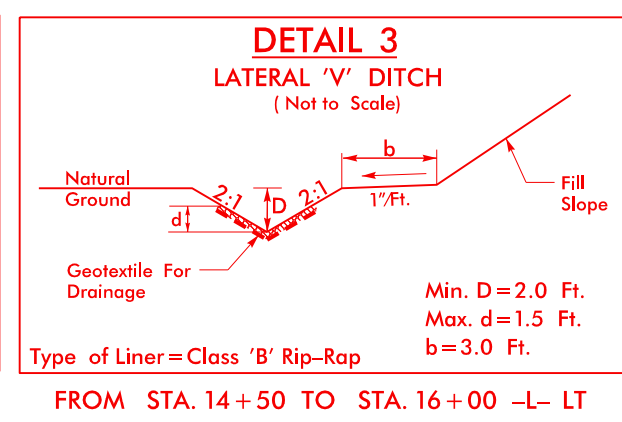
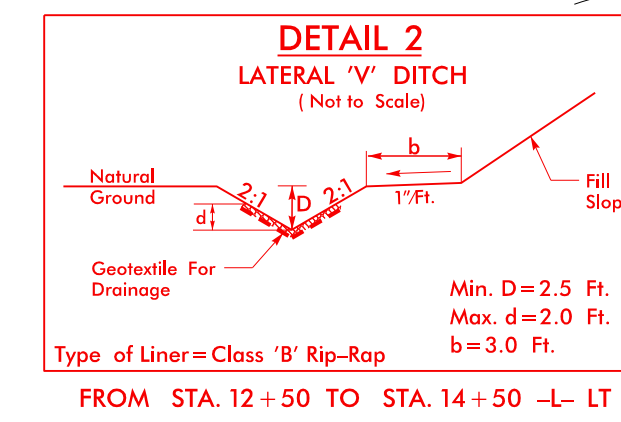


S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER



— PROPOSED DESIGN
- - - FUTURE DESIGN



GFD = GEOTEXTILE FOR DRAINAGE
SEE SHEET 7 FOR -L- PROFILE

REVISIONS

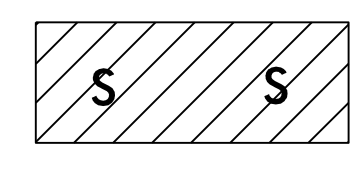
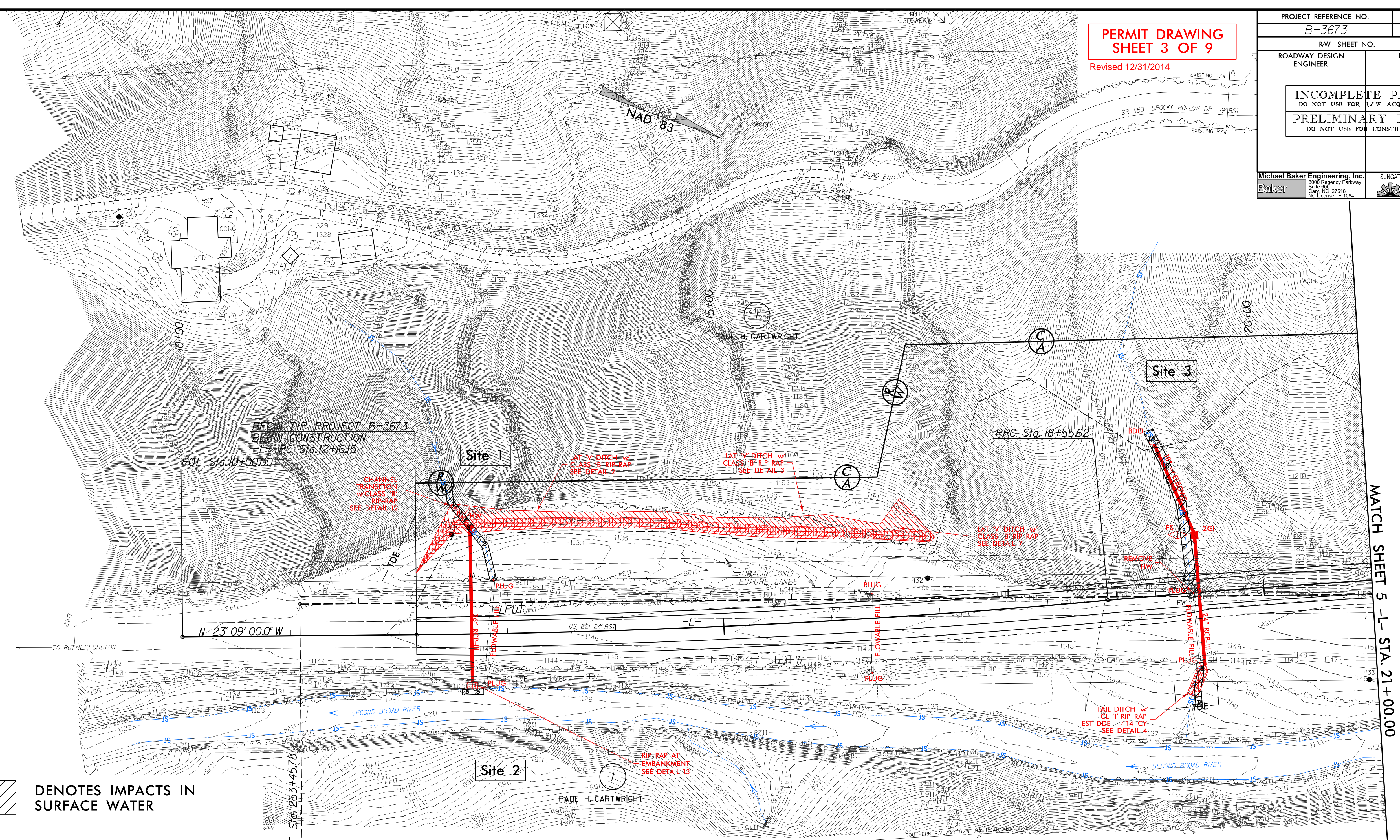
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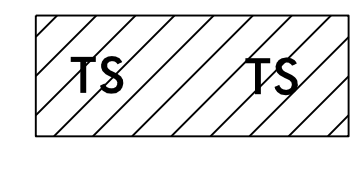
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SHEET 3 OF 9
Revised 12/31/2014

PROJECT REFERENCE NO. B-3673	SHEET NO. 4
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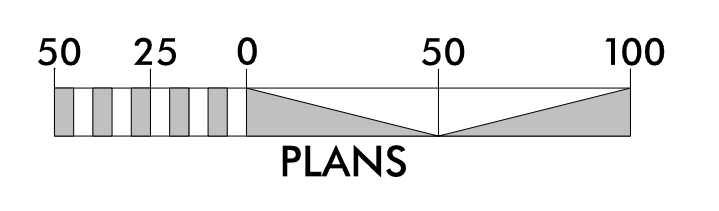
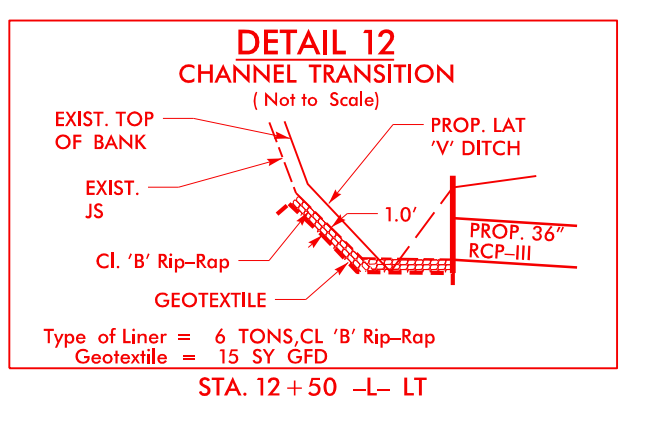
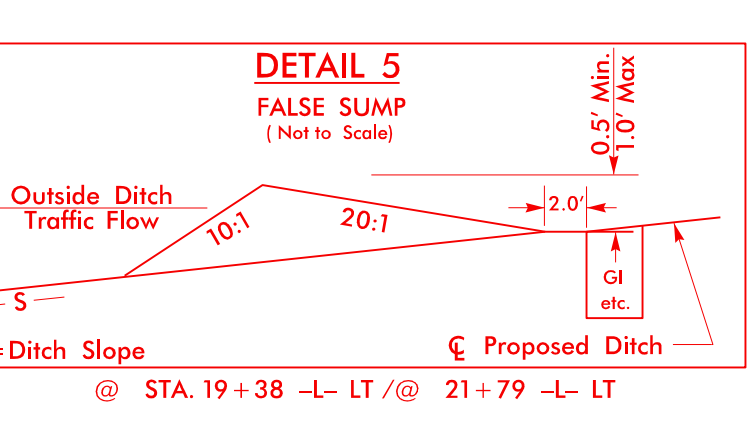
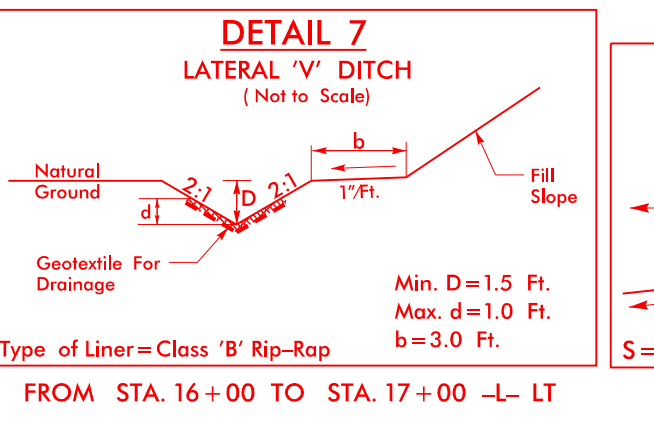
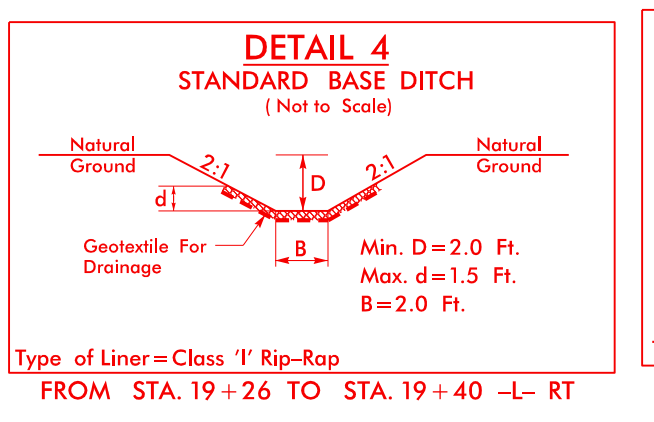
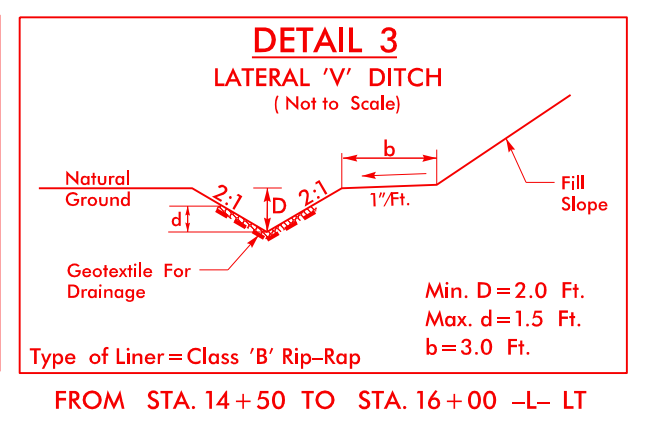
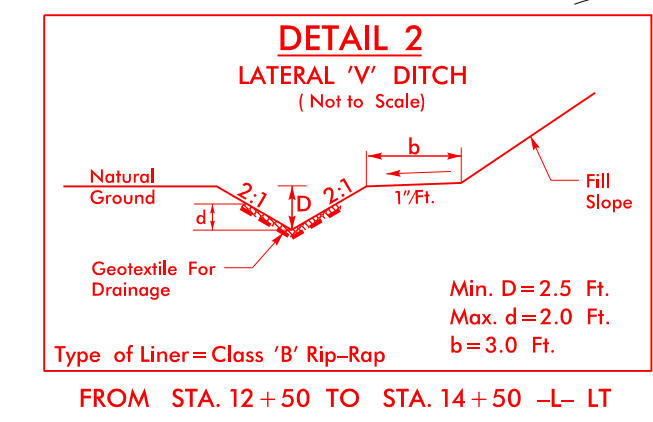
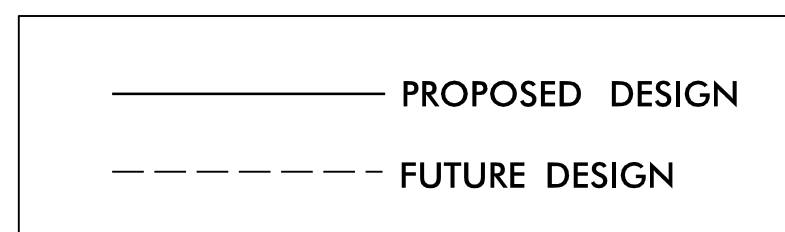
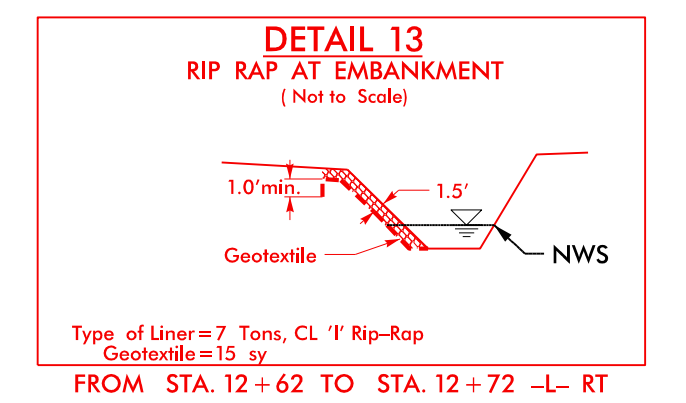
REVISIONS



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER

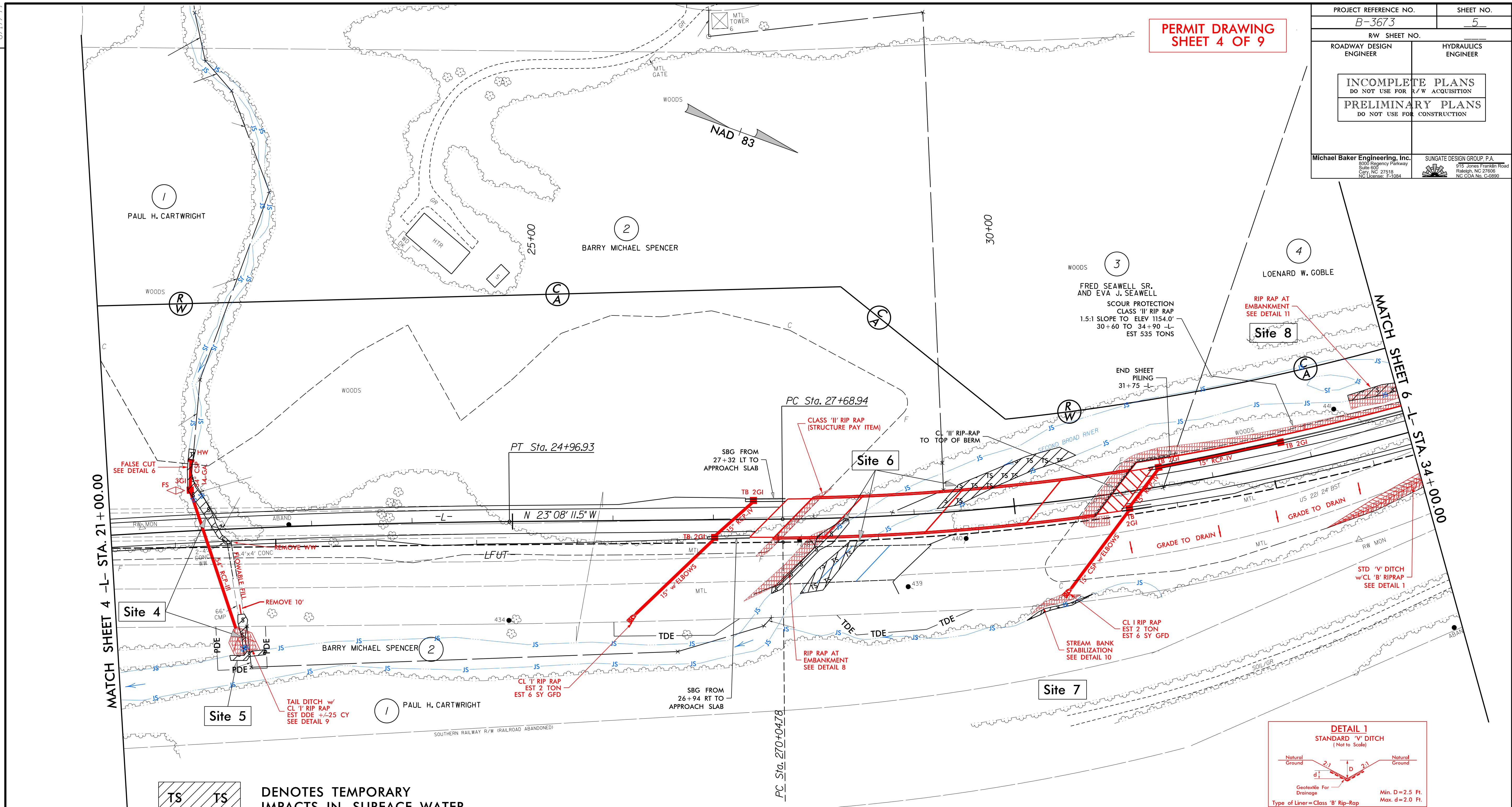


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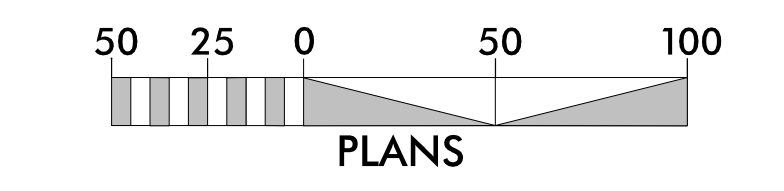
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PERMIT DRAWING
SHEET 4 OF 9

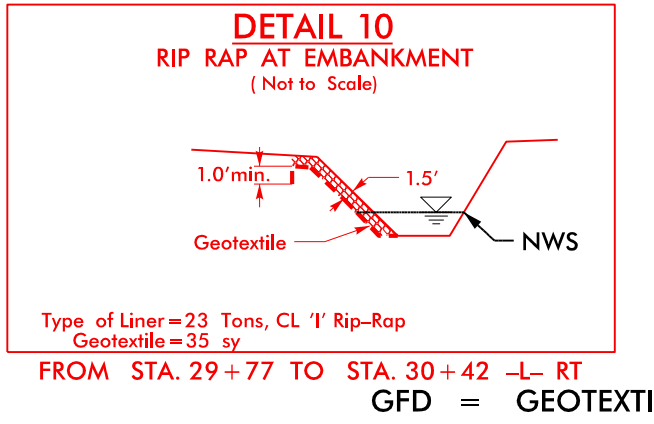
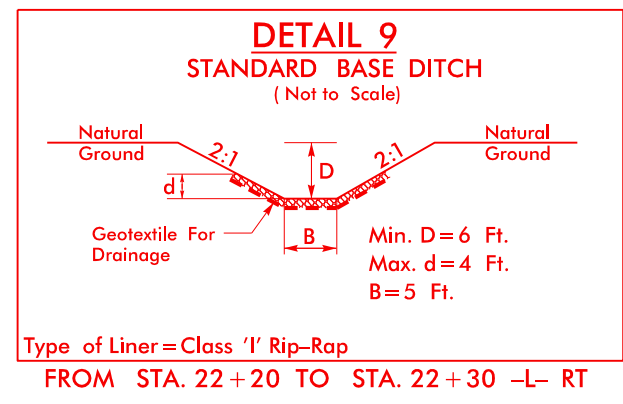
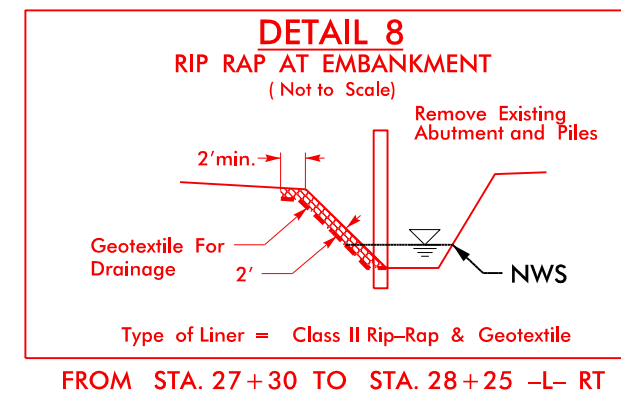
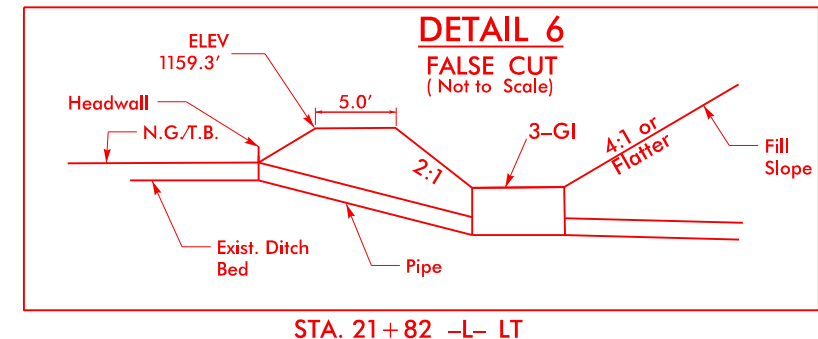
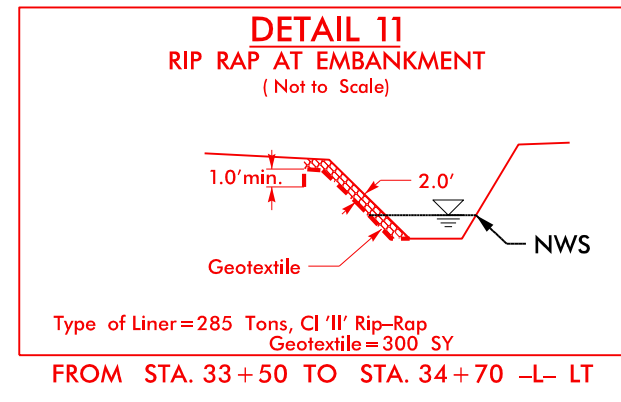
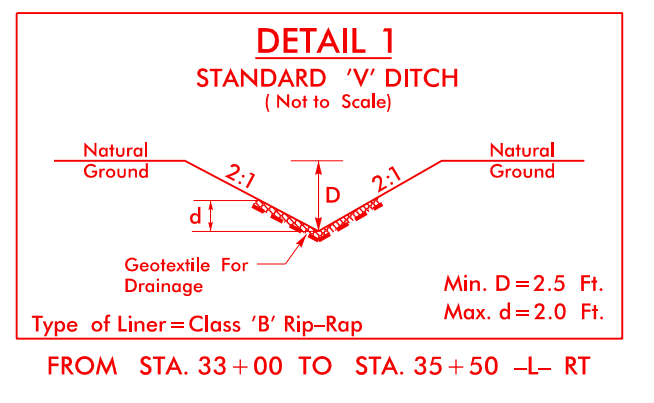


TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER



— PROPOSED DESIGN
- - - FUTURE DESIGN



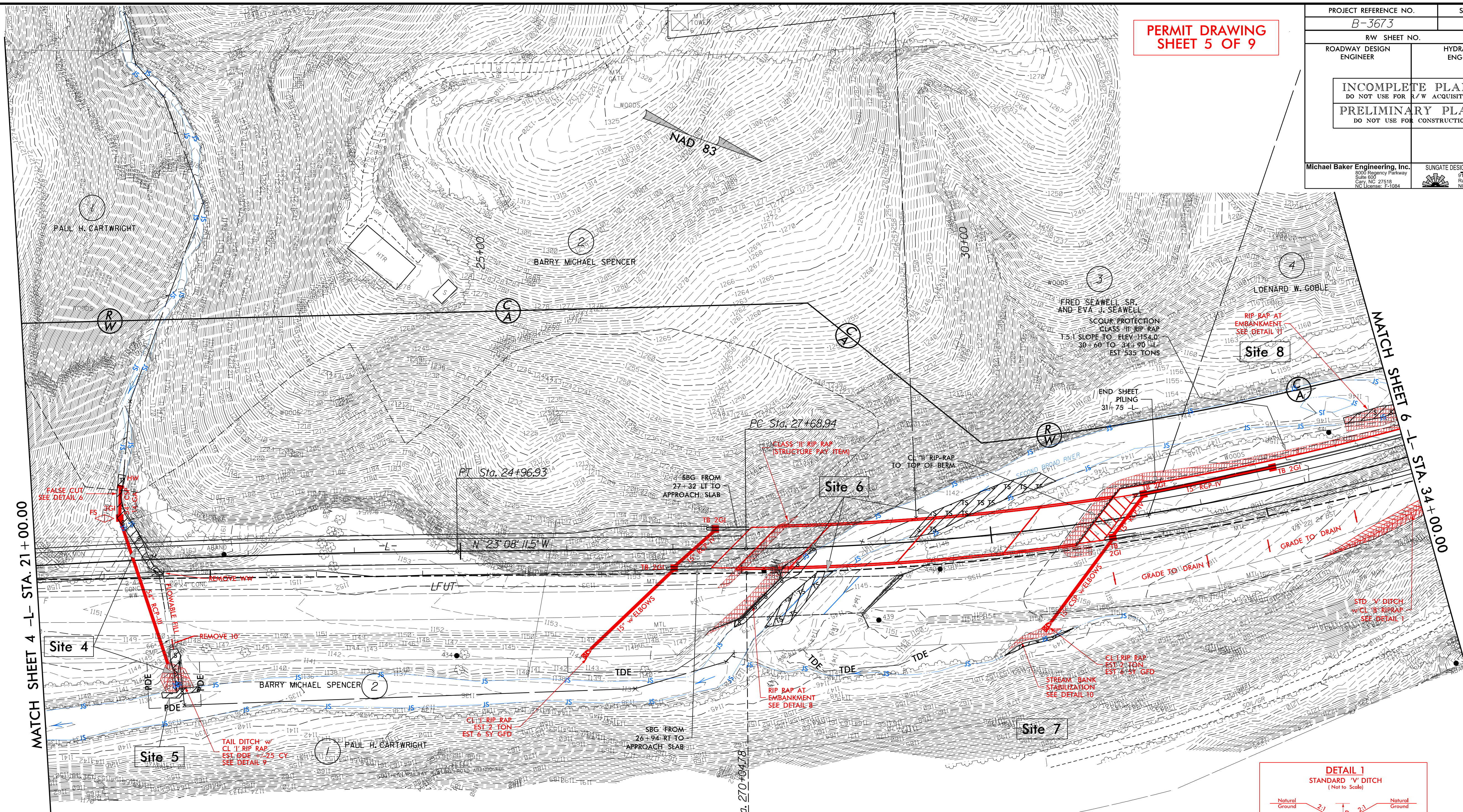
SEE SHEET 7 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-2 FOR STRUCTURE PLANS
SEE SHEETS W-1 THRU W-2 FOR RETAINING WALL PLANS

REVISIONS

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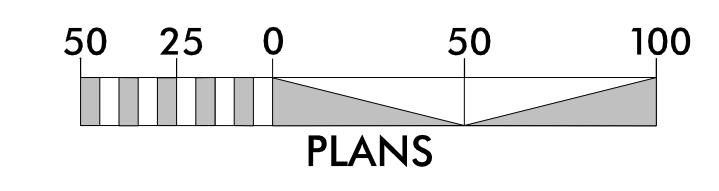
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RW SHEET NO.	
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PERMIT DRAWING
SHEET 5 OF 9

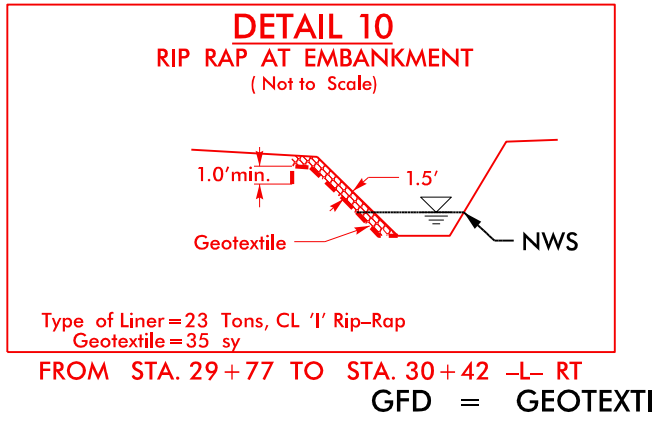
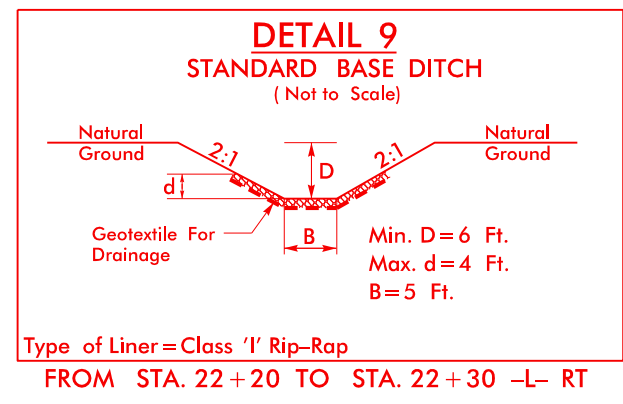
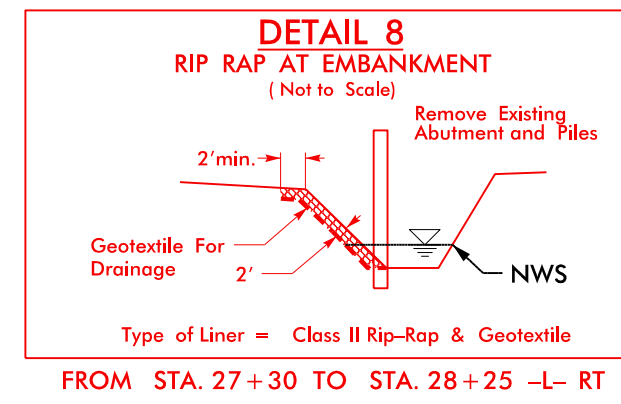
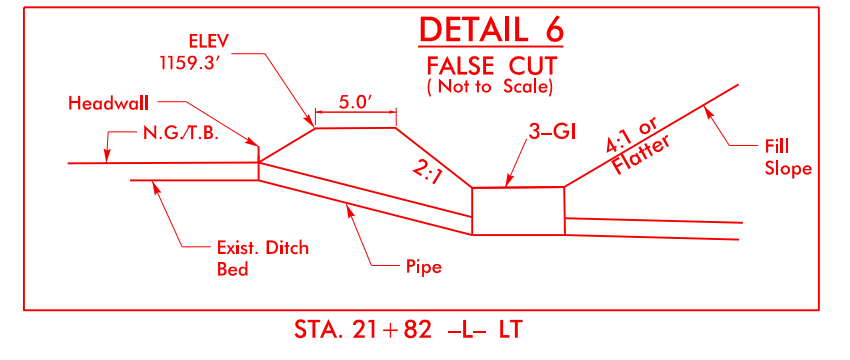
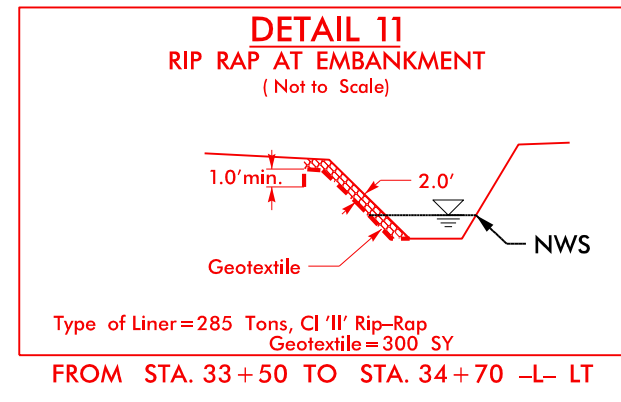
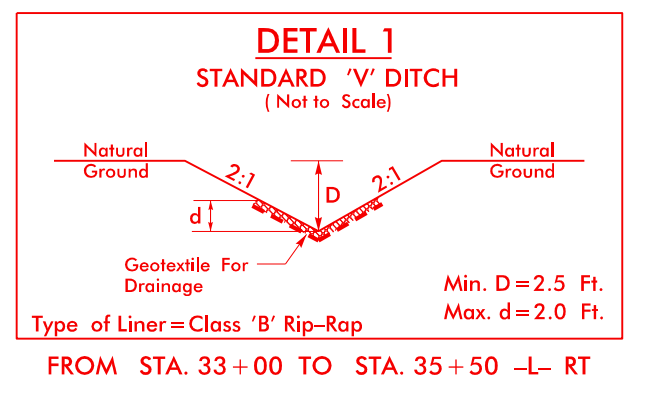


TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER



— PROPOSED DESIGN
 - - - FUTURE DESIGN



GFD = GEOTEXTILE FOR DRAINAGE

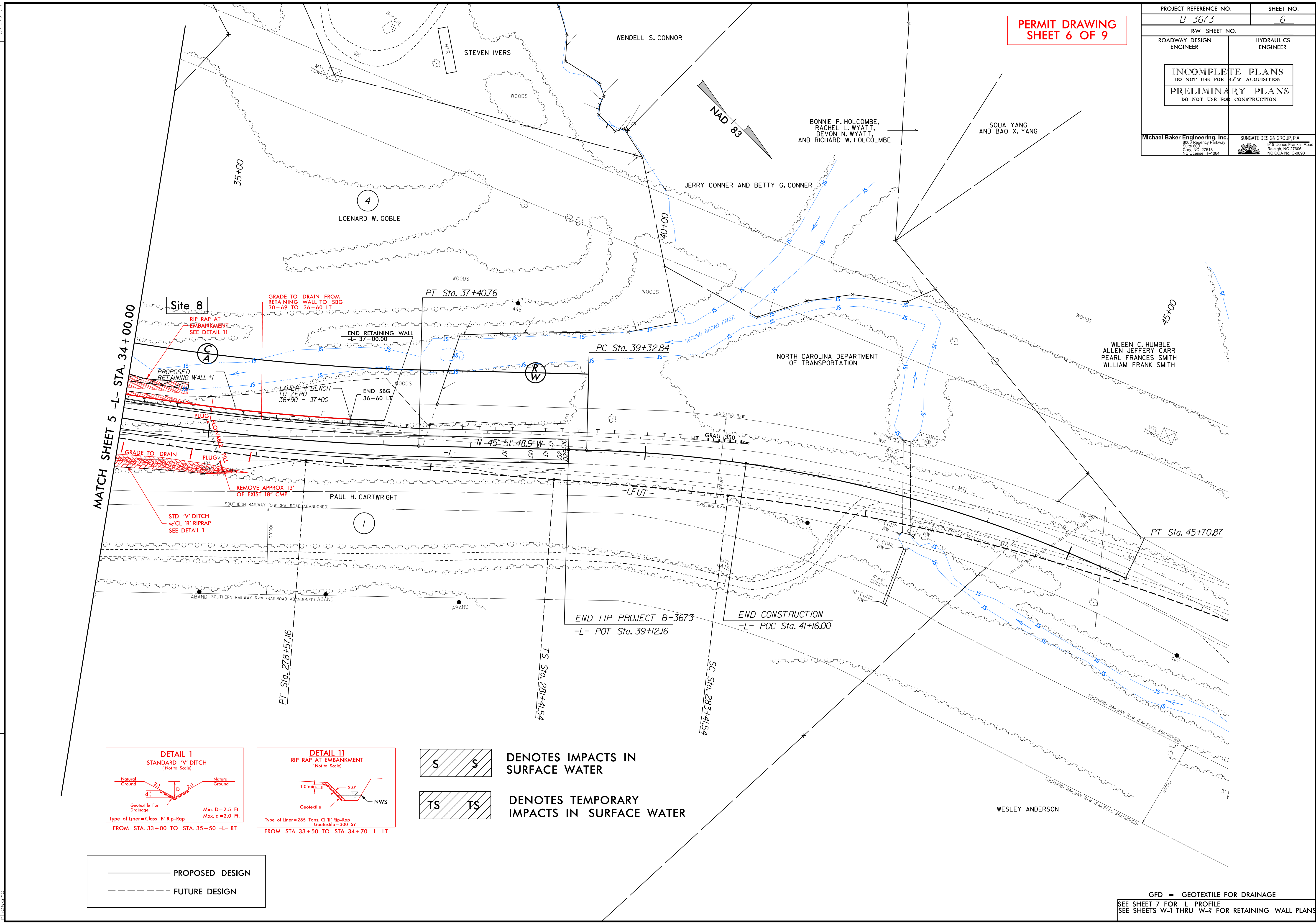
SEE SHEET 7 FOR -L- PROFILE
 SEE SHEETS S-1 THRU S-2 FOR STRUCTURE PLANS
 SEE SHEETS W-1 THRU W-2 FOR RETAINING WALL PLANS

REVISIONS

8/17/99
 12/31/2014 Hyd.prm.wet.psh.05.con.dgn
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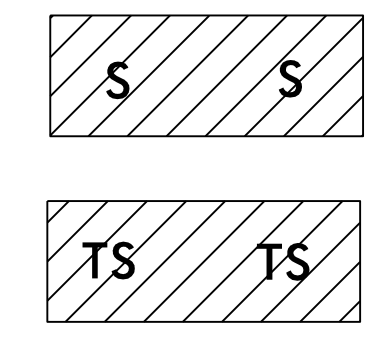
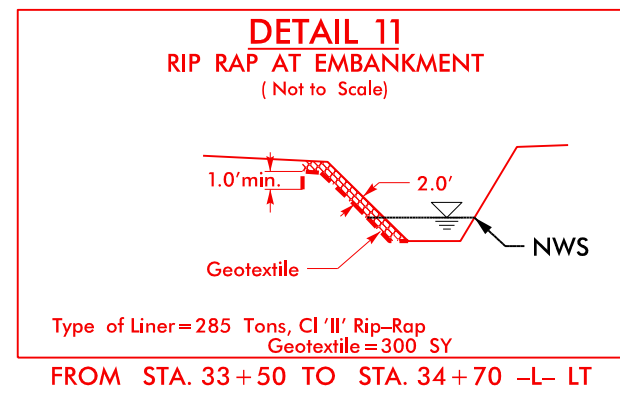
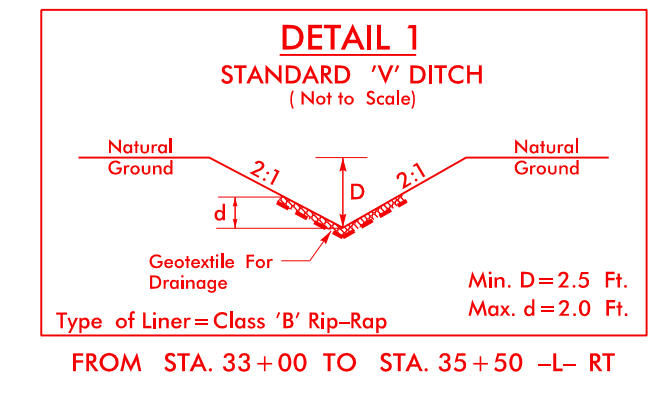
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RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
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PERMIT DRAWING
SHEET 6 OF 9



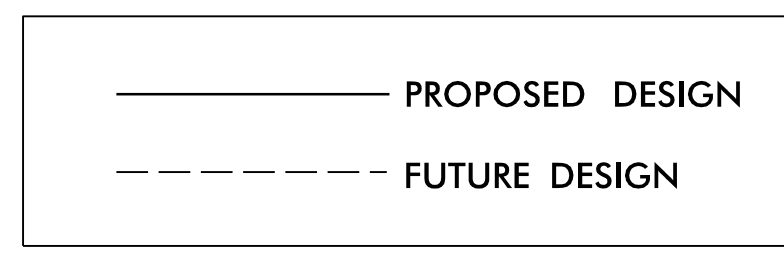
REVISIONS

MATCH SHEET 5 -L- STA. 34+00.00



S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

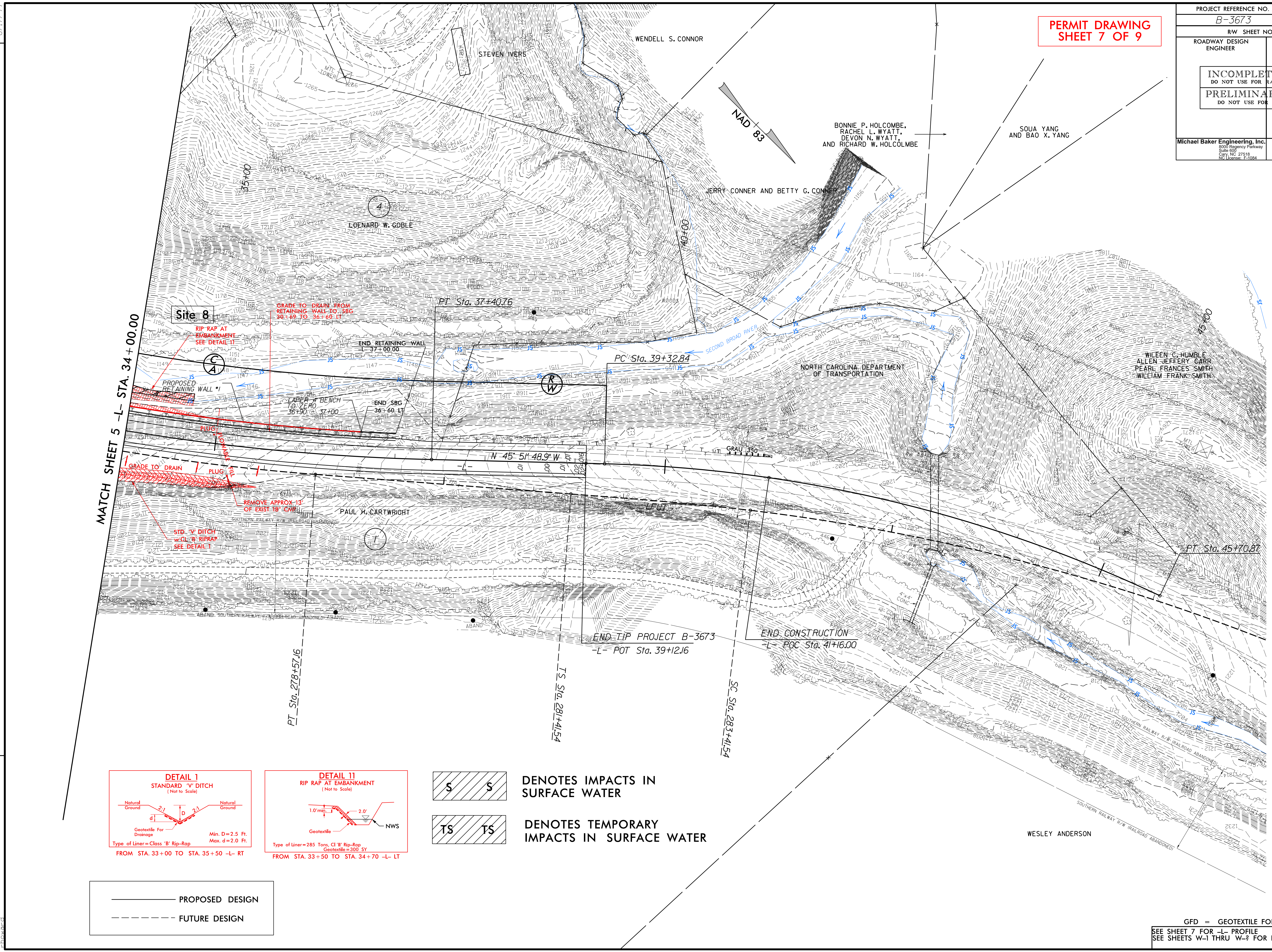


GFD = GEOTEXTILE FOR DRAINAGE
SEE SHEET 7 FOR -L- PROFILE
SEE SHEETS W-1 THRU W-? FOR RETAINING WALL PLANS

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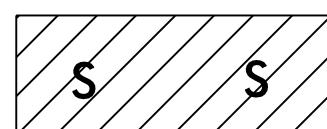
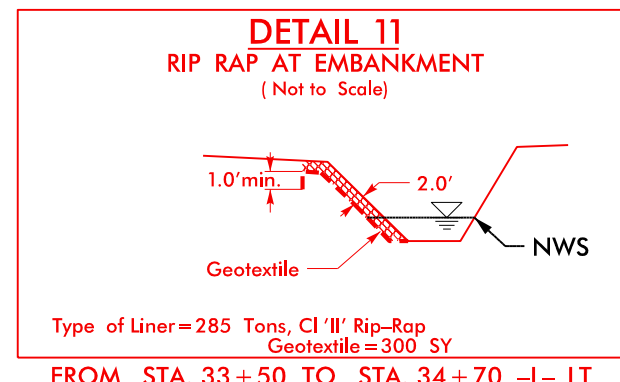
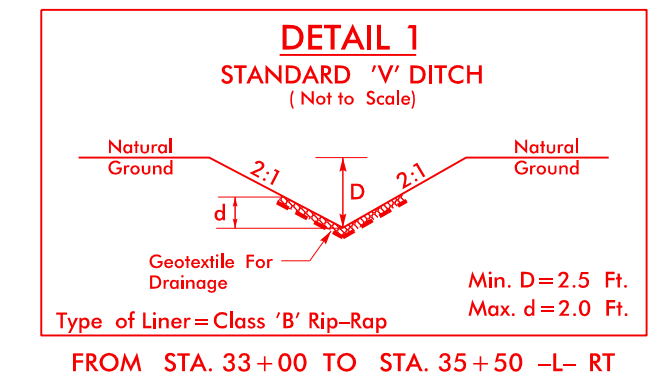
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RW SHEET NO.	
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PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
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PERMIT DRAWING
SHEET 7 OF 9

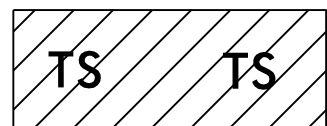


REVISIONS

MATCH SHEET 5 -L- STA. 34+00.00



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER

— PROPOSED DESIGN
- - - FUTURE DESIGN

GFD = GEOTEXTILE FOR DRAINAGE
SEE SHEET 7 FOR -L- PROFILE
SEE SHEETS W-1 THRU W-2 FOR RETAINING WALL PLANS

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PROJECT REFERENCE NO. B-3673	SHEET NO. 7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

36" RCP - CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 27	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 1135.1	FT
BASE DISCHARGE	= 33	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1135.4	FT
OVERTOPPING DISCHARGE	= 49+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 1145.6	FT

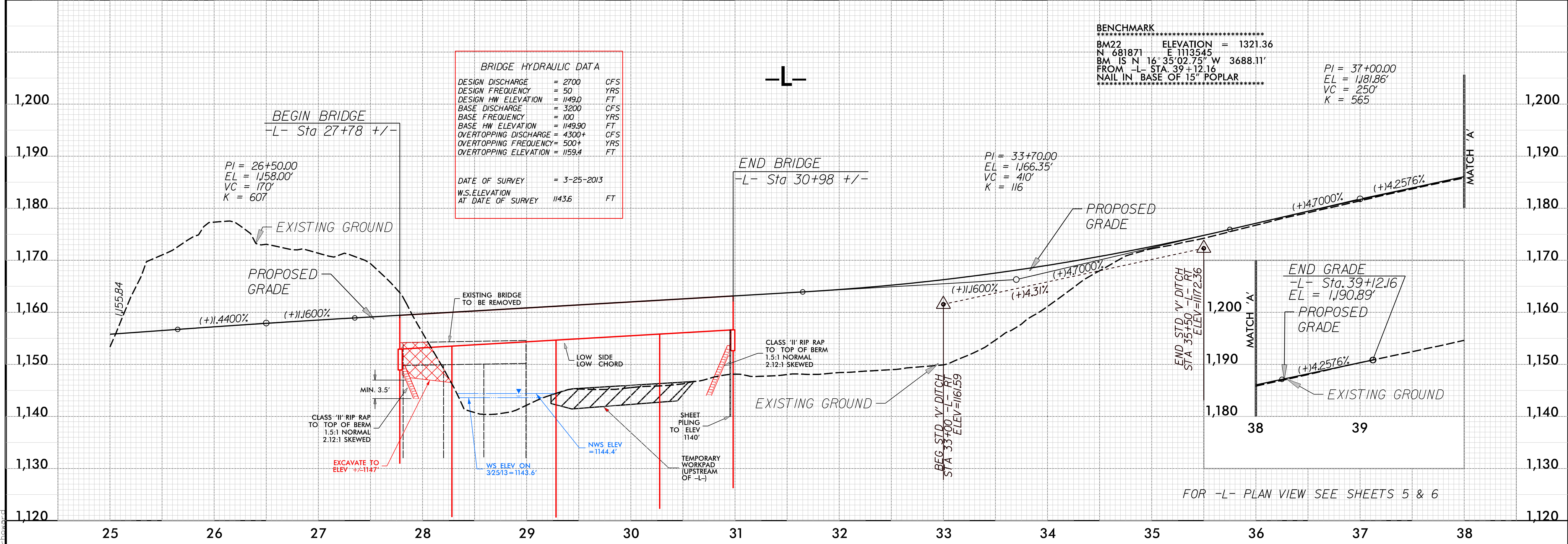
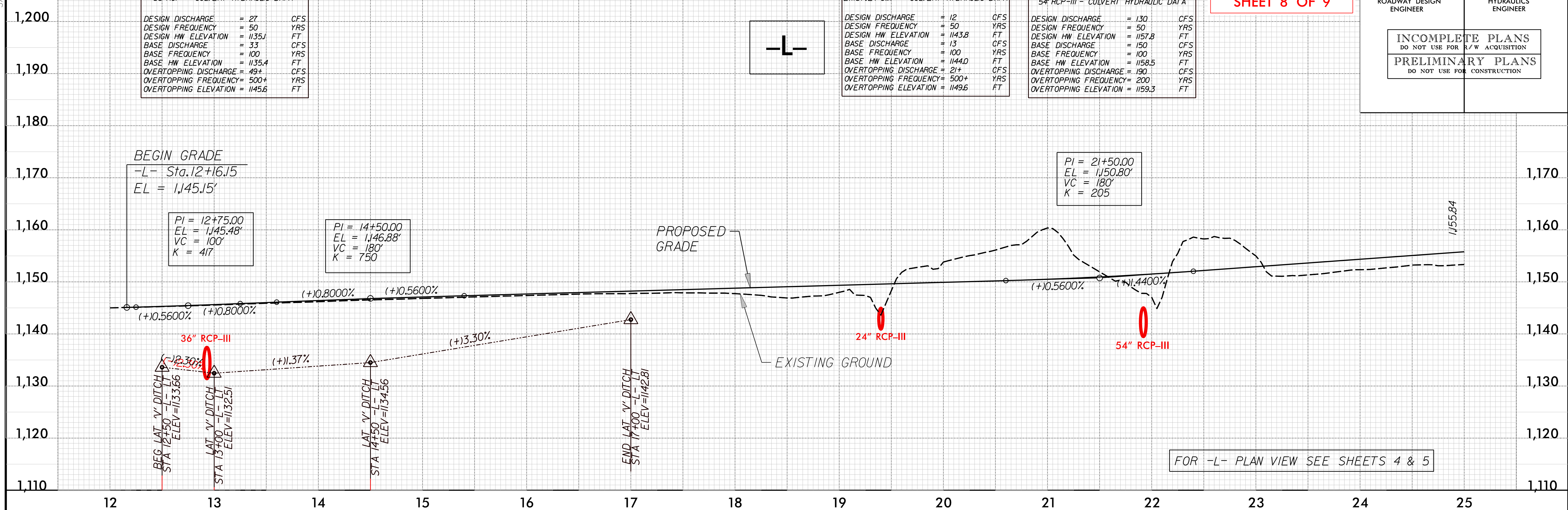
EXIST. 24" CMP - CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 12	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 1143.8	FT
BASE DISCHARGE	= 13	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1144.0	FT
OVERTOPPING DISCHARGE	= 21+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 1149.6	FT

54" RCP-III - CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 130	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 1157.8	FT
BASE DISCHARGE	= 150	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1158.5	FT
OVERTOPPING DISCHARGE	= 190	CFS
OVERTOPPING FREQUENCY	= 200	YRS
OVERTOPPING ELEVATION	= 1159.3	FT

PERMIT DRAWING SHEET 8 OF 9



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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	12+50 -L- Lt	36" RCP						0.01	< 0.01	75	28	
2	12+67 -L- Rt	Bank Stabilization						< 0.01		20		
3	19+00 -L- Lt	18" BDO & Pipe						0.03	< 0.01	150	10	
3	19+50 -L- Rt	24" RCP & Ditch						< 0.01	< 0.01	32	9	
4	21+75 -L- Lt	54" CSP & RCP						0.01	< 0.01	96	10	
4	22+25 -L- Rt	54" RCP						< 0.01		39		
5	22+25 -L- Rt	Tail Ditch							< 0.01	36		
6	28+00 -L- Rt	Bank Stabilization						0.02		107		
6	28+50 -L- Rt	Ex. Bent Removal							0.02		83	
6	29+50 -L- Lt	Work Pad							0.05		148	
7	30+50 -L- Rt	Bank Stabilization						< 0.01		71		
8	34+00 -L- Lt	Bank Stabilization						0.02		118		
TOTALS*:								0.11	0.08	744	288	0
*Rounded totals are sum of actual impacts												
NOTES: NCDOT Structural Design Unit: Permanent SW Impacts 80 sq. ft. (0.0018 ac.)												

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 12/31/2014
 McDOWELL COUNTY
 TIP # B-3673
 WBS # 33217.1.1
 SHEET 9 OF 9

Permit Drawing
 Sheet 9 of 9
 Revised 12/31/2014

Revised 2013 10 24

09/08/99

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

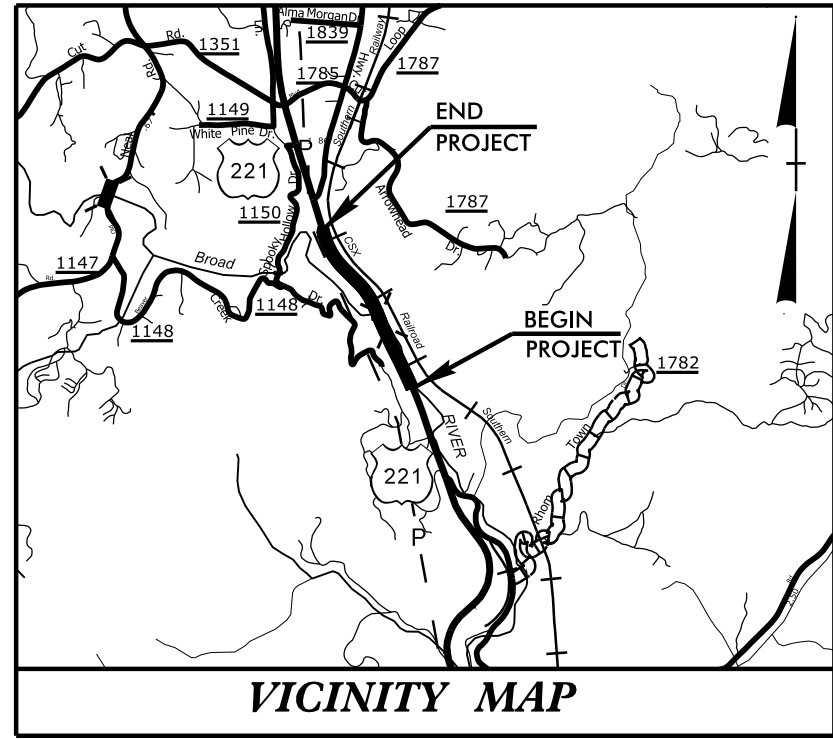
McDOWELL COUNTY

LOCATION: BRIDGE NO. 17 OVER SECOND BROAD RIVER
ON US 221

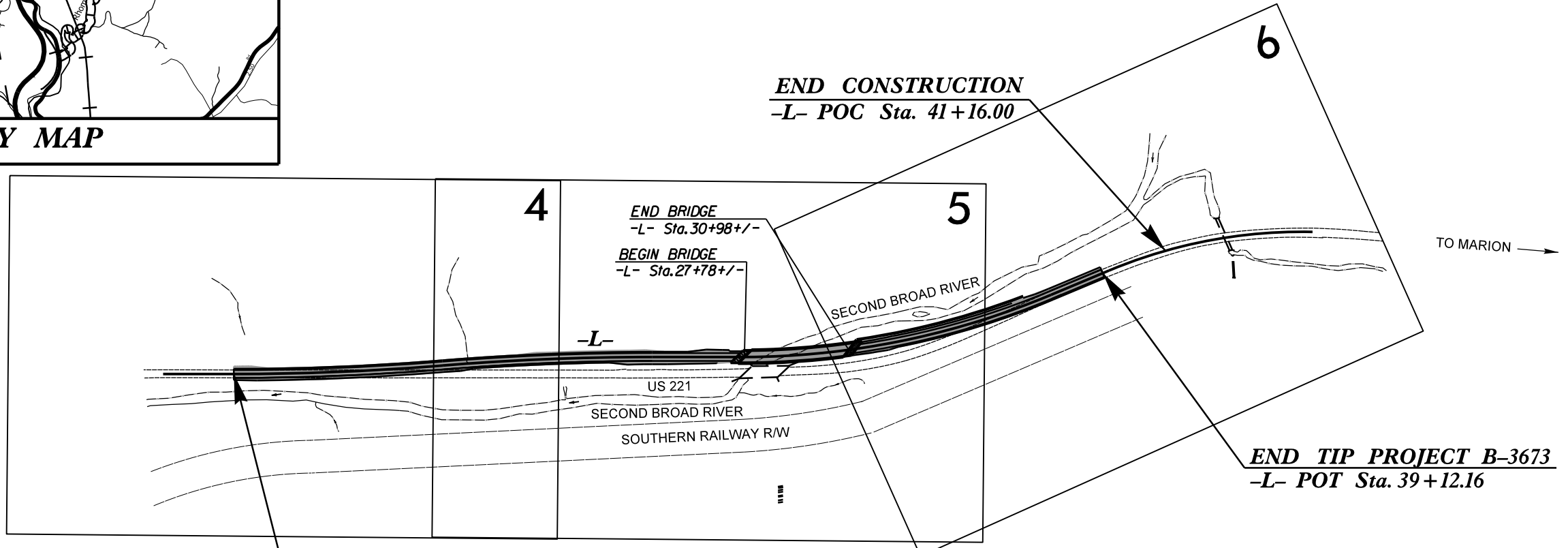
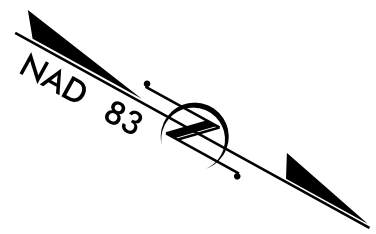
TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURE
AND RETAINING WALL

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3673	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33217.1.1	BRNHS-221(10)	PE	
33217.2.UFS1	BRNHS-221(10)	UTILITIES	
33217.2.FS1	BRNHS-221(10)	RIGHT-OF-WAY	

TIP PROJECT: B-3673



VICINITY MAP



THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

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

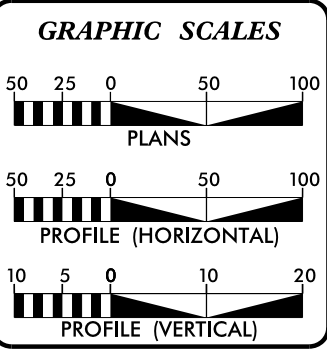
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

BEGIN TIP PROJECT B-3673
-L- PC Sta. 12+16.15
BEGIN CONSTRUCTION

END TIP PROJECT B-3673
-L- POT Sta. 39+12.16

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:



DESIGN DATA

ADT 2015 =	7,800
ADT 2035 =	11,800
DHV =	10 %
D =	55 %
T =	13 % *
V =	60 MPH
* TTST	8% DUAL 5%
FUNC CLASS =	RURAL ARTERIAL
STATEWIDE TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3673	=	0.450 MI
LENGTH STRUCTURE TIP PROJECT B-3673	=	0.061 MI
TOTAL LENGTH OF TIP PROJECT B-3673	=	0.511 MI

Prepared In the Office of:

Baker
2012 STANDARD SPECIFICATIONS

Michael Baker Engineering, Inc.
8000 Regency Parkway, Suite 600
Cary, NC 27518
Professional Corporation License Number:
F-1084

TODD H. BUCKNER, PE
PROJECT ENGINEER

WARREN JOHNSON
PROJECT DESIGN ENGINEER

BRENDA L. MOORE, PE
NCDOT CONTACT

RIGHT OF WAY DATE:
SEPTEMBER 20, 2013

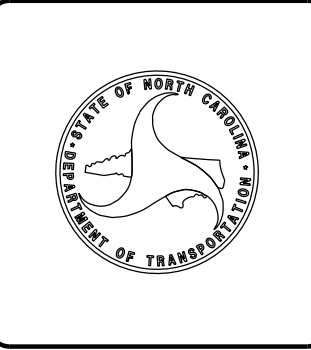
LETTING DATE:
APRIL 21, 2015

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



15-JUL-2014 10:04 R:\Roadway\Proj\B-3673_Rdy_Tsh.dgn \$\$\$USERNAME\$\$\$

04/16/11

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	○ IP
Property Corner	-----
Property Monument	□ EDM
Parcel/Sequence Number	①②③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	----- MLB
Proposed Wetland Boundary	----- MLB
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	○ #
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	----- FLM
False Sump	-----

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	○ IP
Proposed Right of Way Line with Concrete or Granite RW Marker	○ IP
Proposed Control of Access Line with Concrete C/A Marker	○ IP
Existing Control of Access	○ IP
Proposed Control of Access	○ IP
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage / Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Curb Ramp	-----
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	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	○ S
Storm Sewer	-----

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○ P
Power Line Tower	□
Power Transformer	□
H-Frame Pole	●
Recorded U/G Power Line	-----
Designated U/G Power Line (S.U.E.*)	-----

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○ T
Telephone Booth	□
Telephone Pedestal	□
Telephone Cell Tower	☼
U/G Telephone Cable Hand Hole	□ TH
Recorded U/G Telephone Cable	-----
Designated U/G Telephone Cable (S.U.E.*)	-----
Recorded U/G Telephone Conduit	-----
Designated U/G Telephone Conduit (S.U.E.*)	-----
Recorded U/G Fiber Optics Cable	-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----

WATER:

Water Manhole	○ W
Water Meter	○
Water Valve	⊗
Water Hydrant	○ H
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	□ TH
Recorded U/G TV Cable	-----
Designated U/G TV Cable (S.U.E.*)	-----
Recorded U/G Fiber Optic Cable	-----
Designated U/G Fiber Optic Cable (S.U.E.*)	-----

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

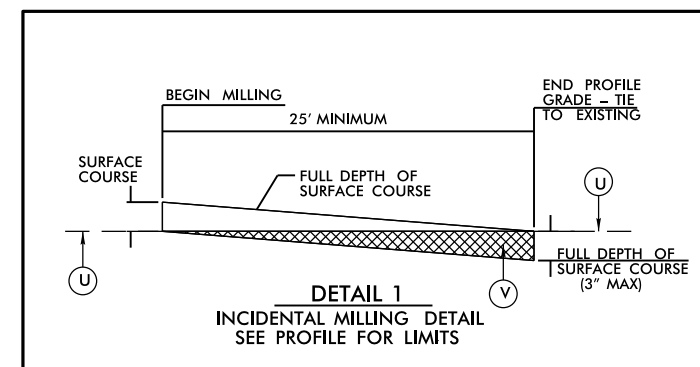
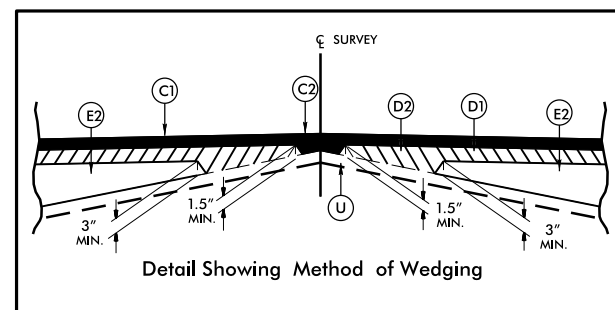
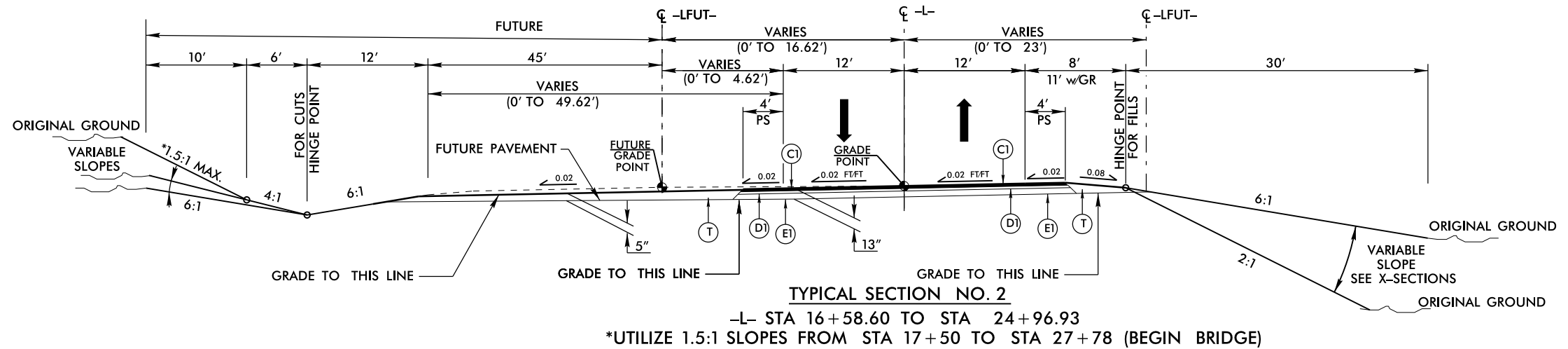
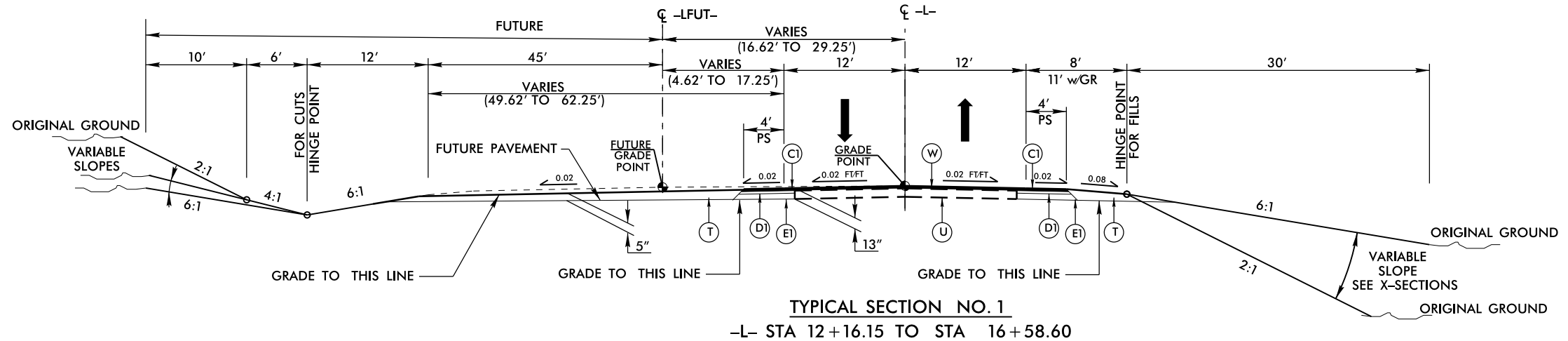
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FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E1	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	U	EXISTING PAVEMENT
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, 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.	V	INCIDENTAL MILLING, VARIABLE MAX. 3"
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	R1	SHOULDER BERM GUTTER	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAILS)
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, 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.	T	EARTH MATERIAL		

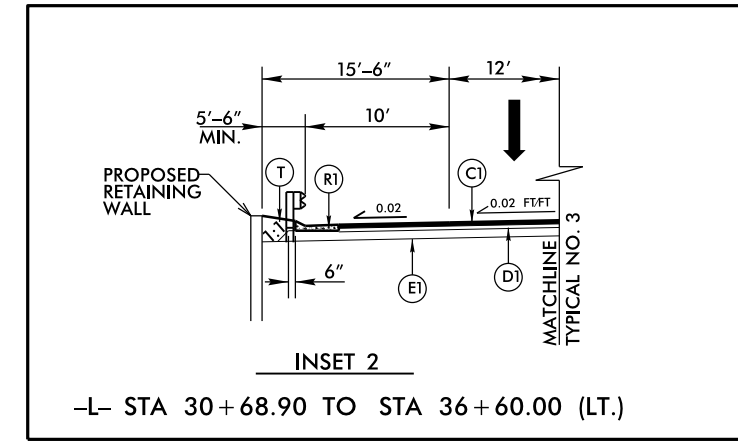
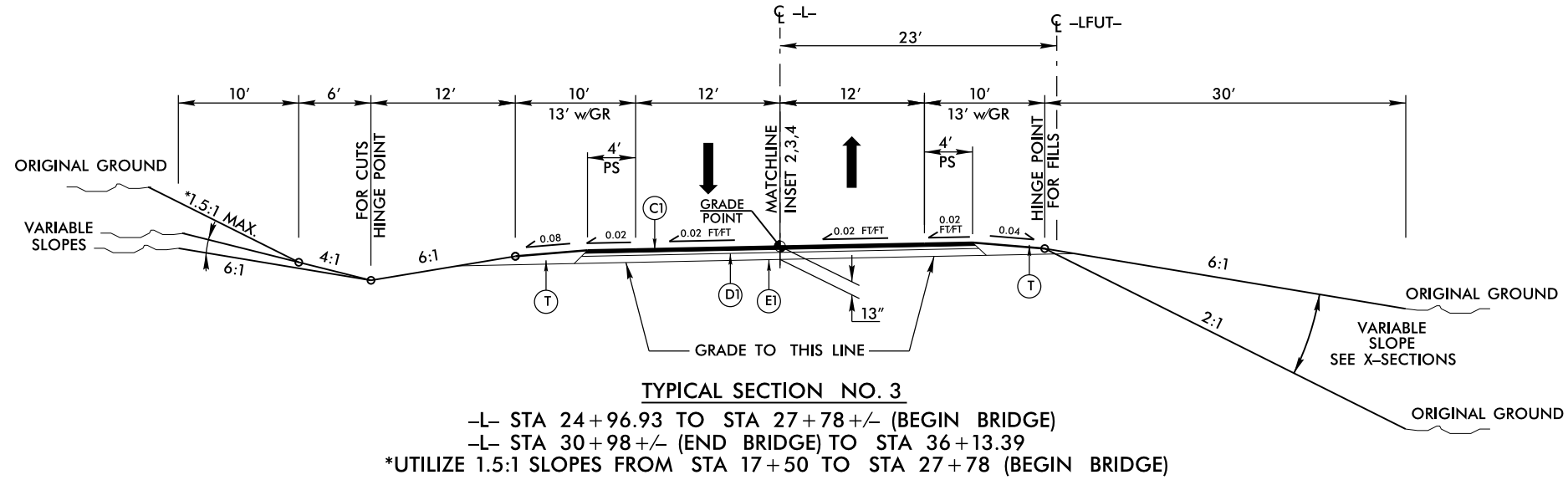
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

PROJECT REFERENCE NO. B-3673	SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Michael Baker Engineering, Inc. 8000 Regency Parkway Suite 600 Cary, NC 27518 Tel: 919-241-1181	NC DEPARTMENT OF TRANSPORTATION PAVEMENT MANAGEMENT UNIT 1503 MAIL SERVICE CENTER RALEIGH, NC 27699-1593

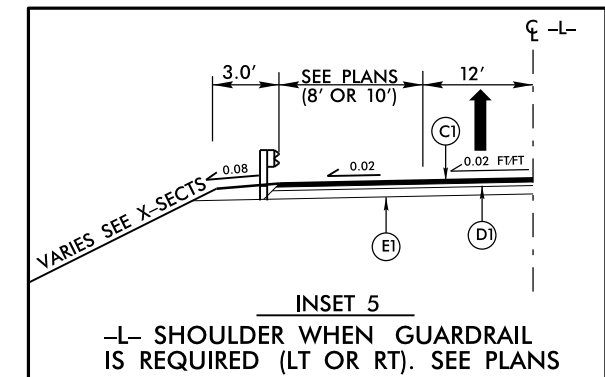
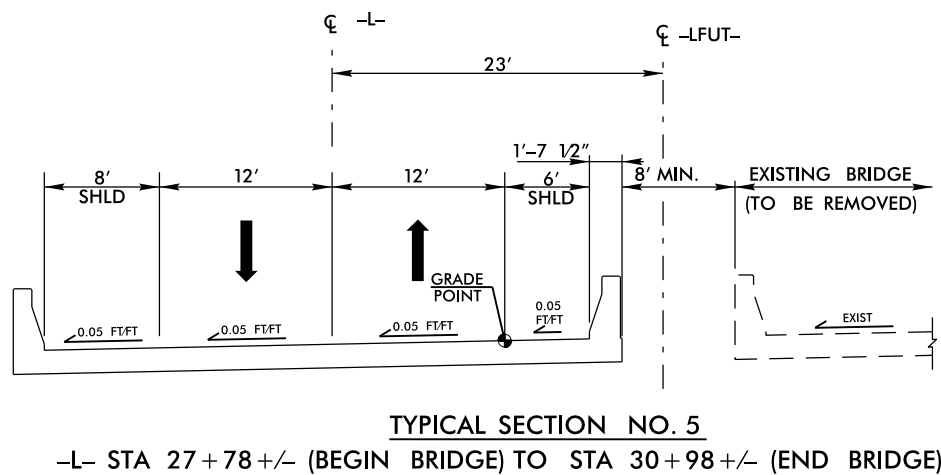
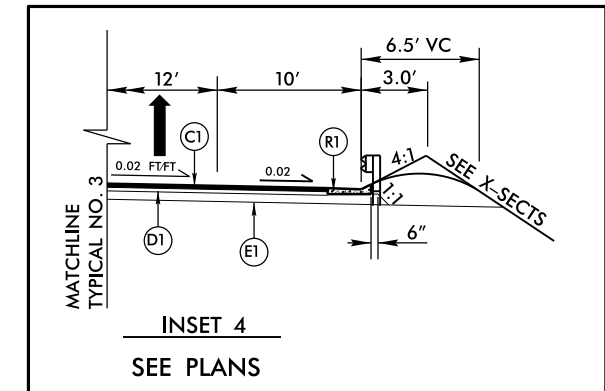
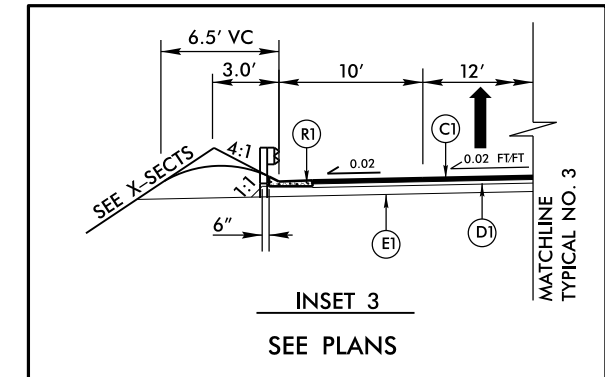
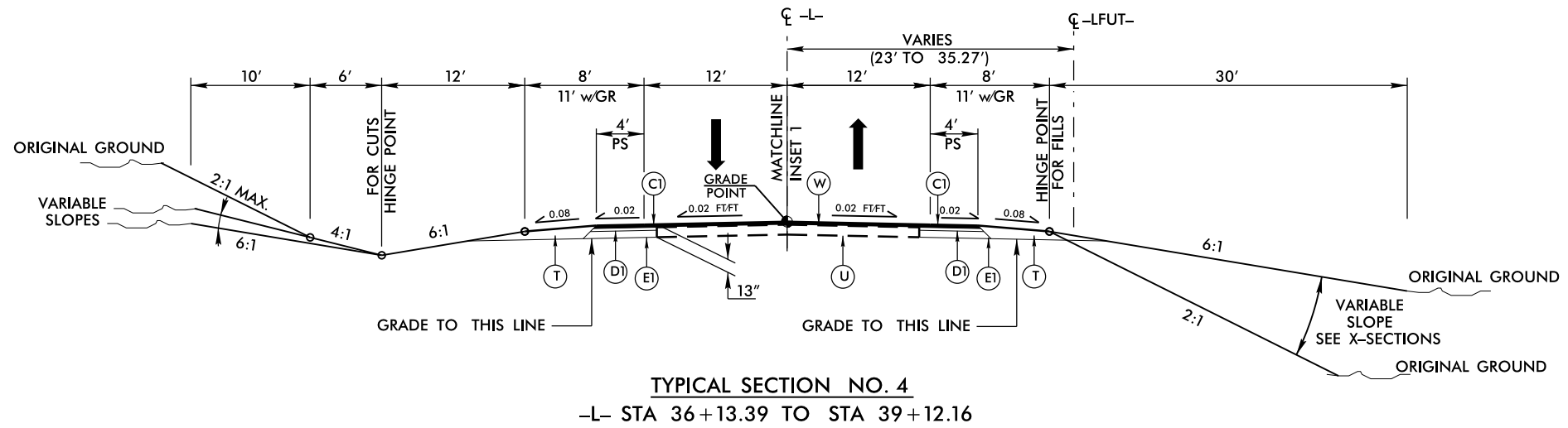


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PROJECT REFERENCE NO. B-3673	SHEET NO. 2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Michael Baker Engineering, Inc. 3020 Regency Parkway Suite 600, 27518 Raleigh, NC 27609-1593	NC DEPARTMENT OF TRANSPORTATION PAVEMENT MANAGEMENT UNIT 1503 MAIL SERVICE CENTER RALEIGH, NC 27699-1593

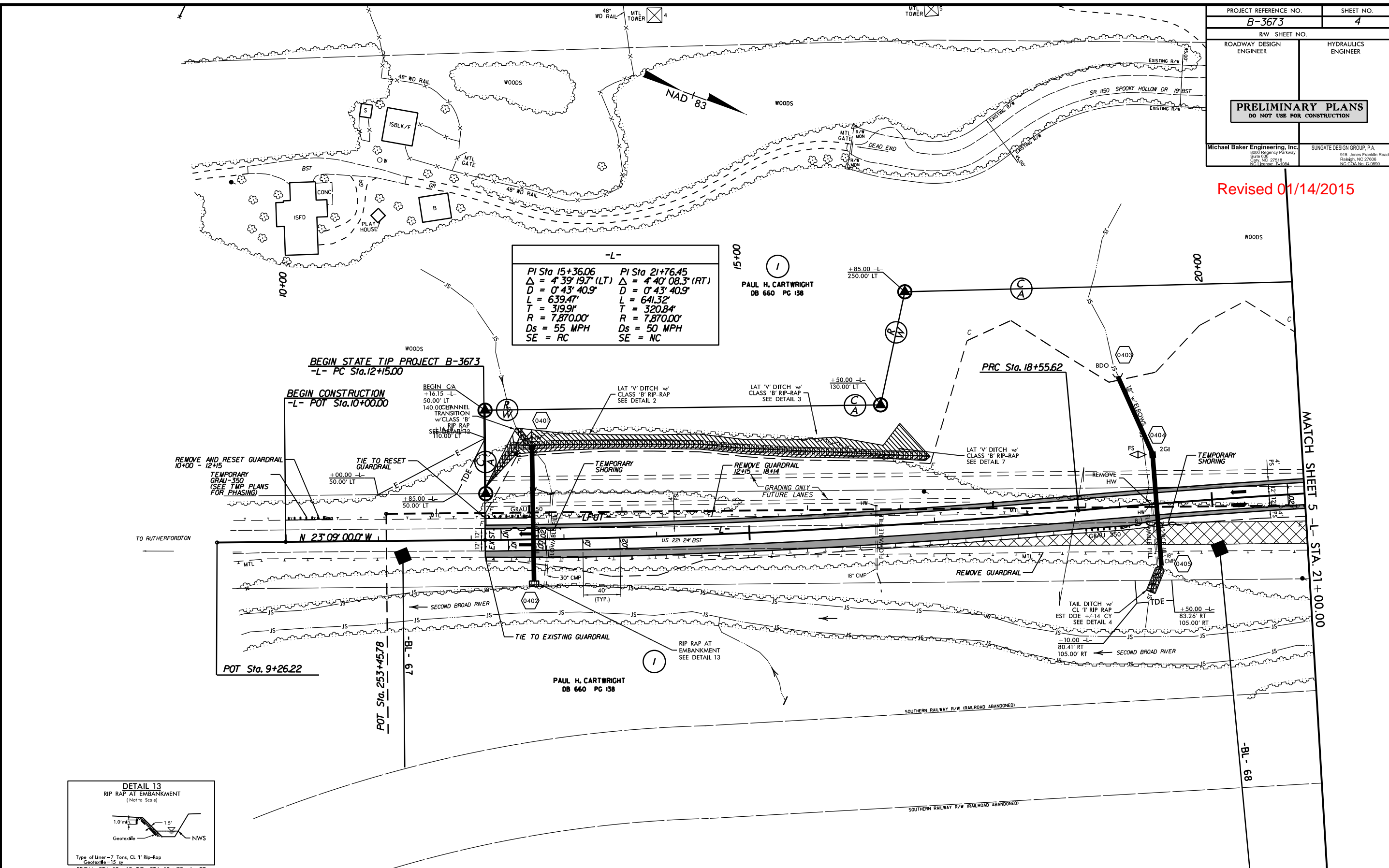


PAVEMENT SCHEDULE	
C1	3" S9.5C
C2	VAR. S9.5C
D1	3" I19.0C
D2	VAR. I19.0C
E1	7" B25.0C
E2	VAR. B25.0C
R1	SHLD BERM GUTTER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	MILLING
W	WEDGING

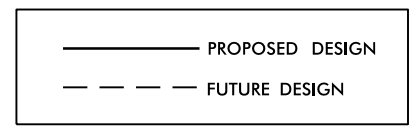
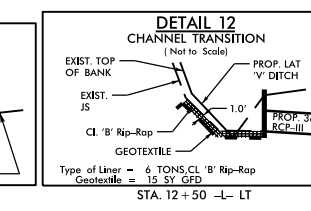
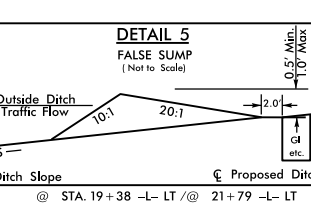
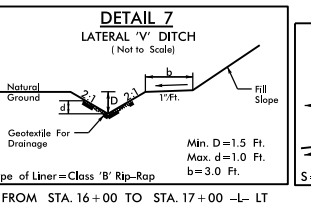
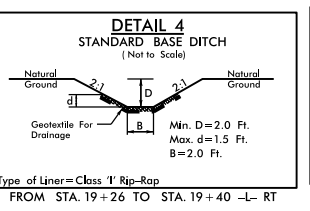
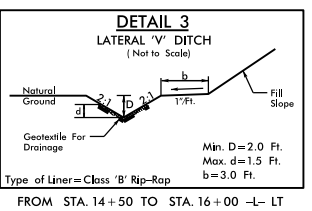
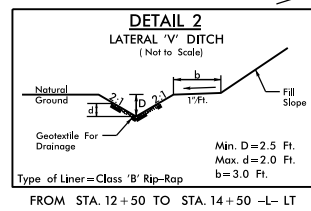
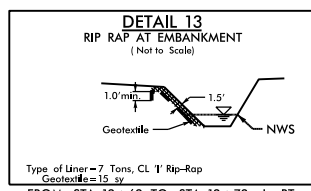


PROJECT REFERENCE NO. B-3673	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Michael Baker Engineering, Inc. 8000 Regency Parkway Suite 600 Cary, NC 27518 Tel: 919.241.4400	SUNGATE DESIGN GROUP, P.A. 915 Jones Franklin Road Raleigh, NC 27608 Tel: 919.876.6000

Revised 01/14/2015



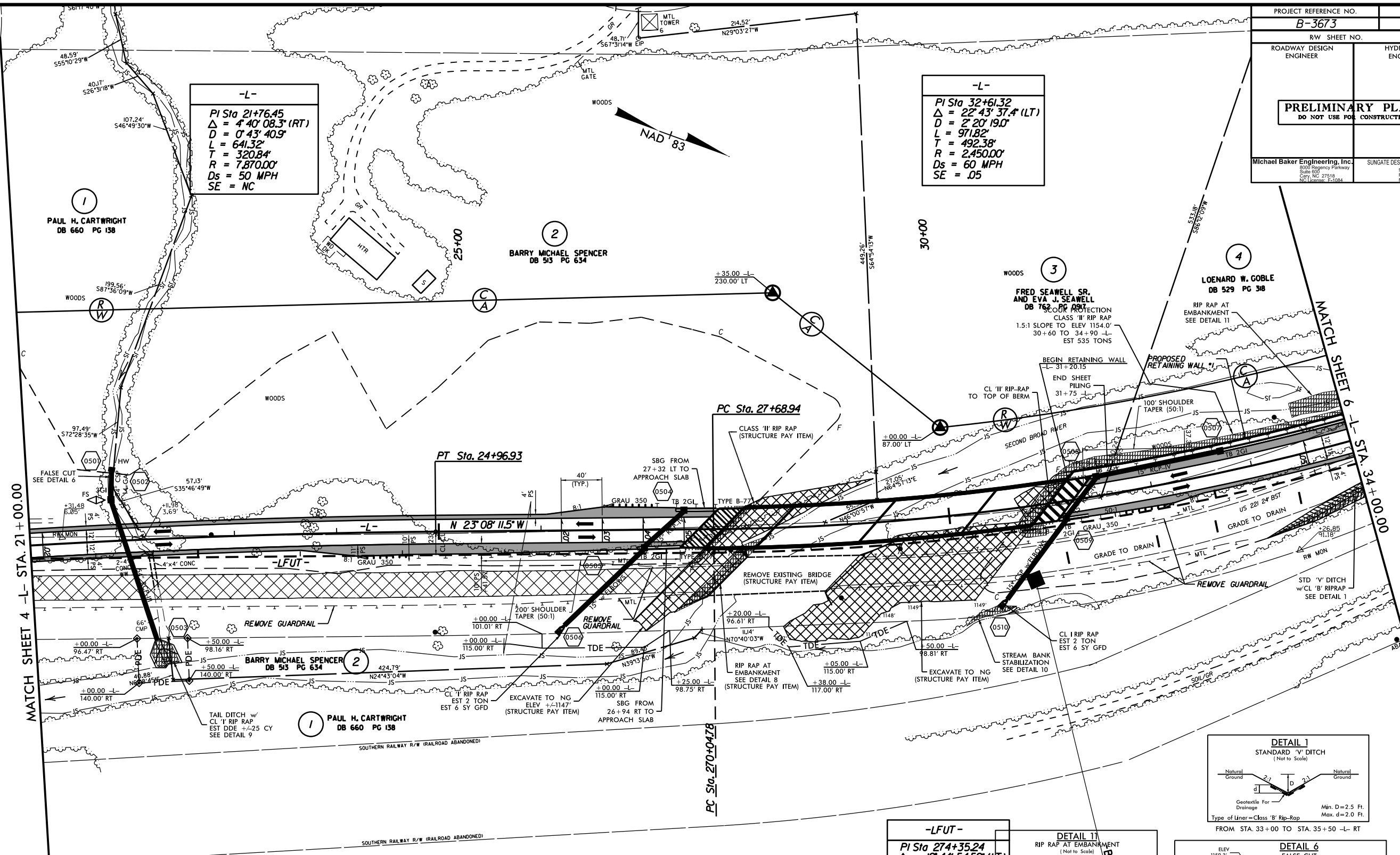
-L-	
PI Sta 15+36.06	PI Sta 21+76.45
$\Delta = 4^{\circ} 39' 19.7''$ (LT)	$\Delta = 4^{\circ} 40' 08.3''$ (RT)
$D = 0^{\circ} 43' 40.9''$	$D = 0^{\circ} 43' 40.9''$
$L = 639.47'$	$L = 641.32'$
$T = 319.91'$	$T = 320.84'$
$R = 7,870.00'$	$R = 7,870.00'$
$D_s = 55$ MPH	$D_s = 50$ MPH
SE = RC	SE = NC



GFD = GEOTEXTILE FOR DRAINAGE
SEE SHEET 7 FOR -L- PROFILE

11/2014 - TEMPORARY CONSTRUCTION EASEMENT ADDED TO PARCEL 1, STA. 11+00.00 TO 12+16.15 LT.
 14-JAN-2015 13:47 B-3673_Rdy_psh_04.dgn
 REVISIONS

PROJECT REFERENCE NO. B-3673	SHEET NO. 5
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Michael Baker Engineering, Inc. 8000 Regency Parkway Suite 600 Cary, NC 27518 Tel: 919.241.8000 Fax: 919.241.8004	SUNGATE DESIGN GROUP, P.A. 915 Jones Franklin Road Raleigh, NC 27606 Tel: 919.876.6200 Fax: 919.876.6201



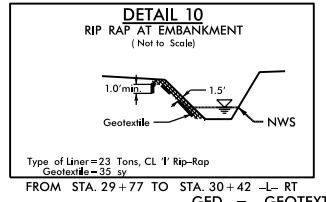
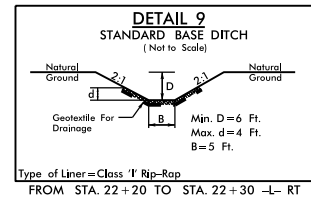
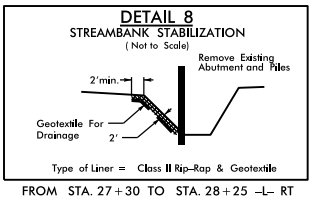
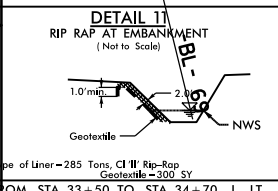
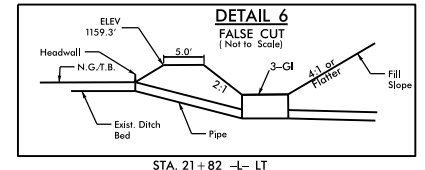
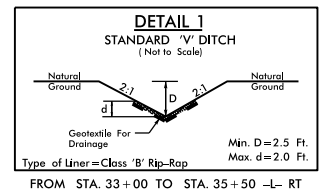
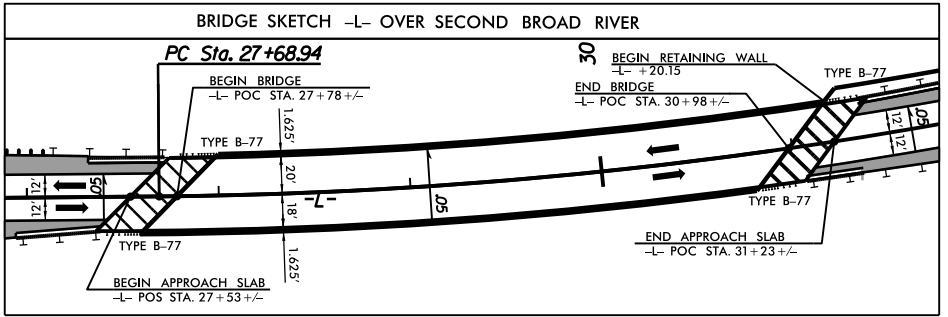
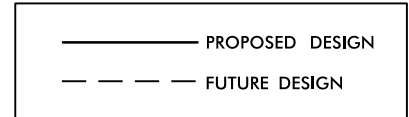
-L-
 PI Sta 21+76.45
 $\Delta = 4^{\circ} 40' 08.3''$ (RT)
 $D = 0^{\circ} 43' 40.9''$
 $L = 641.32'$
 $T = 320.84'$
 $R = 7,870.00'$
 $Ds = 50$ MPH
 $SE = NC$

-L-
 PI Sta 32+61.32
 $\Delta = 22^{\circ} 43' 37.4''$ (LT)
 $D = 2^{\circ} 20' 19.0''$
 $L = 971.82'$
 $T = 492.38'$
 $R = 2,450.00'$
 $Ds = 60$ MPH
 $SE = .05$

-LFUT-
 PI Sta 27+35.24
 $\Delta = 19^{\circ} 44' 54.59''$ (LT)
 $D = 2^{\circ} 19' 06.7''$
 $L = 852.38'$
 $T = 430.46'$
 $R = 2,473.00'$
 $Ds = 60$ MPH
 $SE = .05$

MATCH SHEET 4 -L- STA. 21+00.00

MATCH SHEET 6 -L- STA. 34+00.00



SEE SHEET 7 FOR -L- PROFILE
 SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS
 SEE SHEETS W-1 THRU W-? FOR RETAINING WALL PLANS

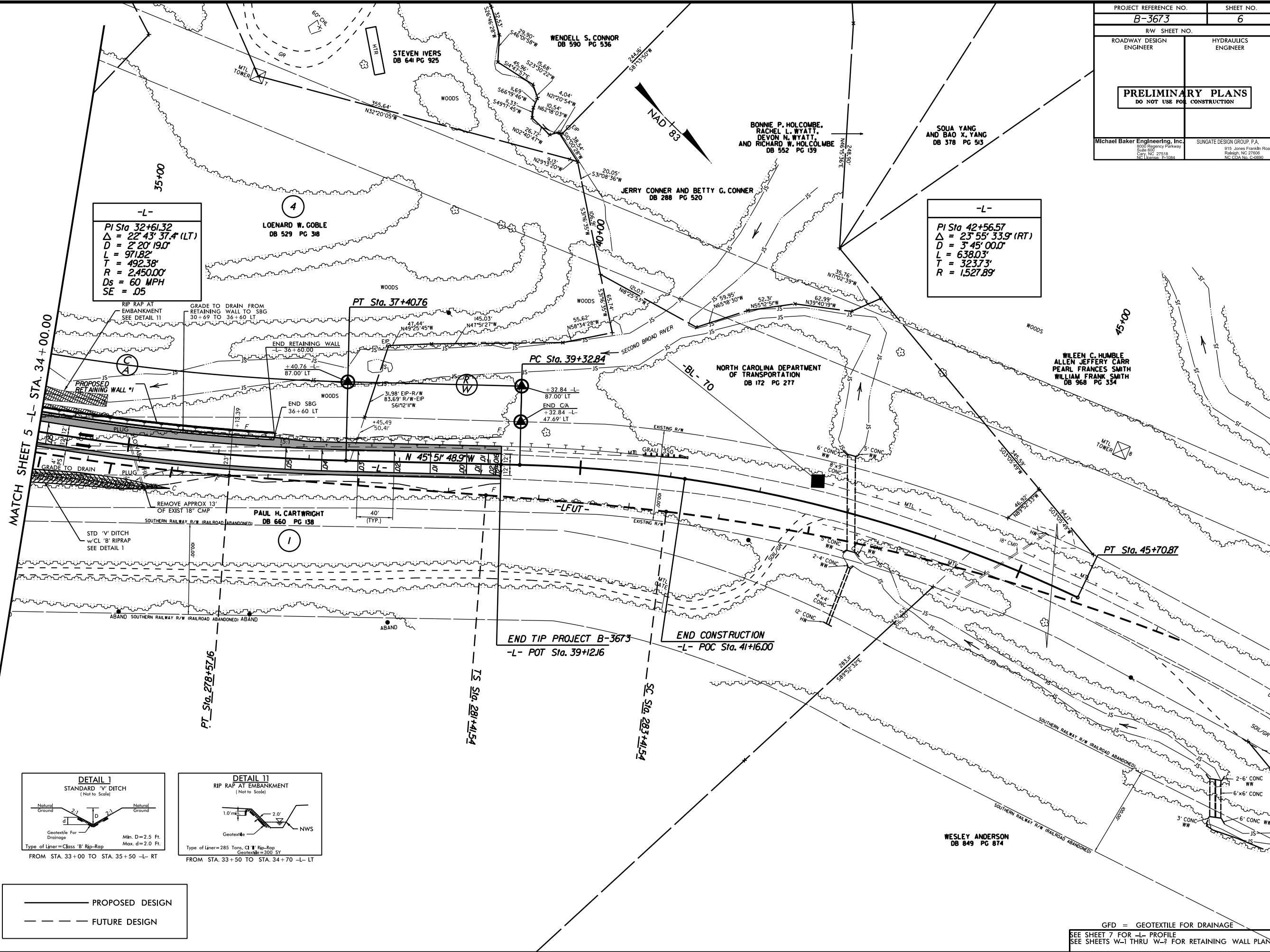
REVISIONS

8/17/99

21-JUL-2014 09:26
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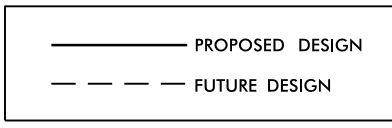
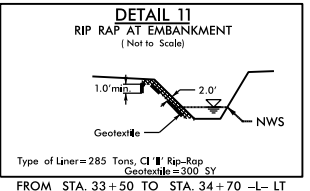
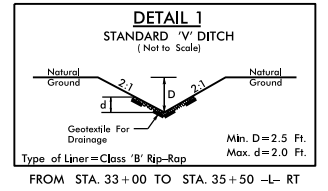
PROJECT REFERENCE NO. B-3673	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Michael Baker Engineering, Inc. 8000 Regency Parkway Suite 600 Cary, NC 27518 NC License: ES-1084	SUNGATE DESIGN GROUP, P.A. 915 Jones Franklin Road Raleigh, NC 27608 NC CDR No. C-0890

8/17/99
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-L-
 PI Sta 32+61.32
 $\Delta = 22^\circ 43' 37.4''$ (LT)
 $D = 2^\circ 20' 19.0''$
 $L = 971.82'$
 $T = 492.38'$
 $R = 2,450.00'$
 $Ds = 60$ MPH
 $SE = 05$

-L-
 PI Sta 42+56.57
 $\Delta = 23^\circ 55' 33.9''$ (RT)
 $D = 3^\circ 45' 00.0''$
 $L = 638.03'$
 $T = 323.73'$
 $R = 1,527.89'$



GFD = GEOTEXTILE FOR DRAINAGE
 SEE SHEET 7 FOR -L- PROFILE
 SEE SHEETS W-1 THRU W-? FOR RETAINING WALL PLANS

5/28/99

36" RCP - CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 27	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 1135.1	FT
BASE DISCHARGE	= 33	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1135.4	FT
OVERTOPPING DISCHARGE	= 49+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 1145.6	FT

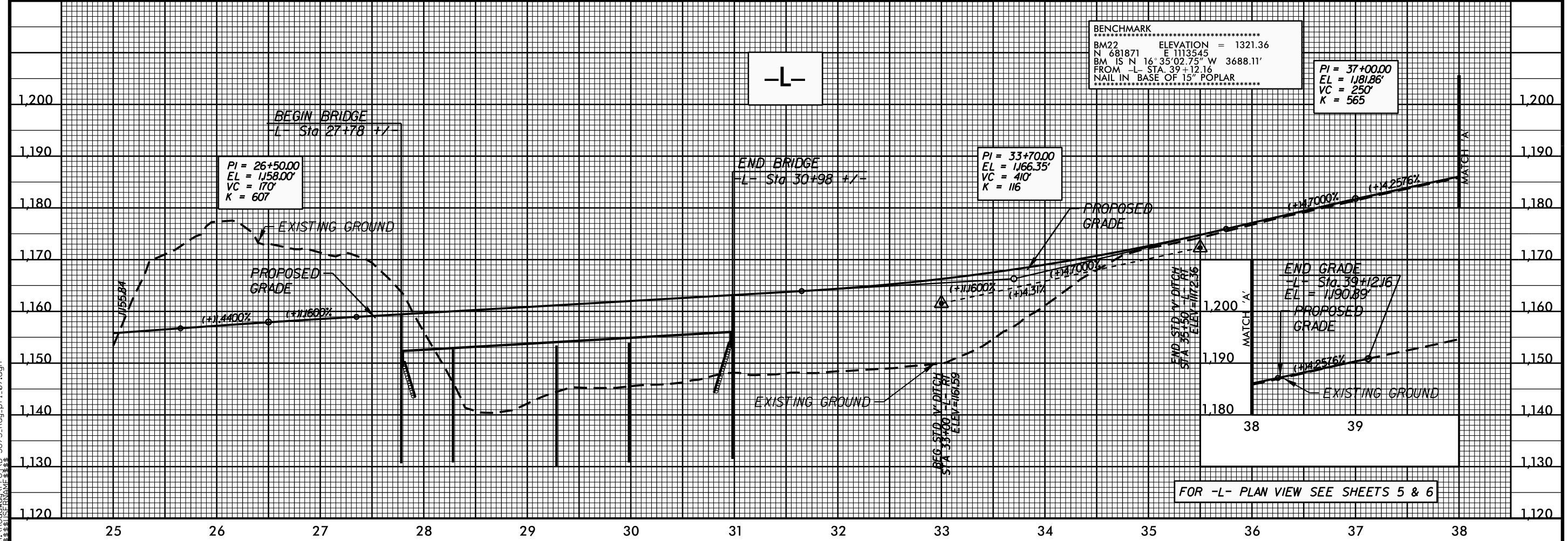
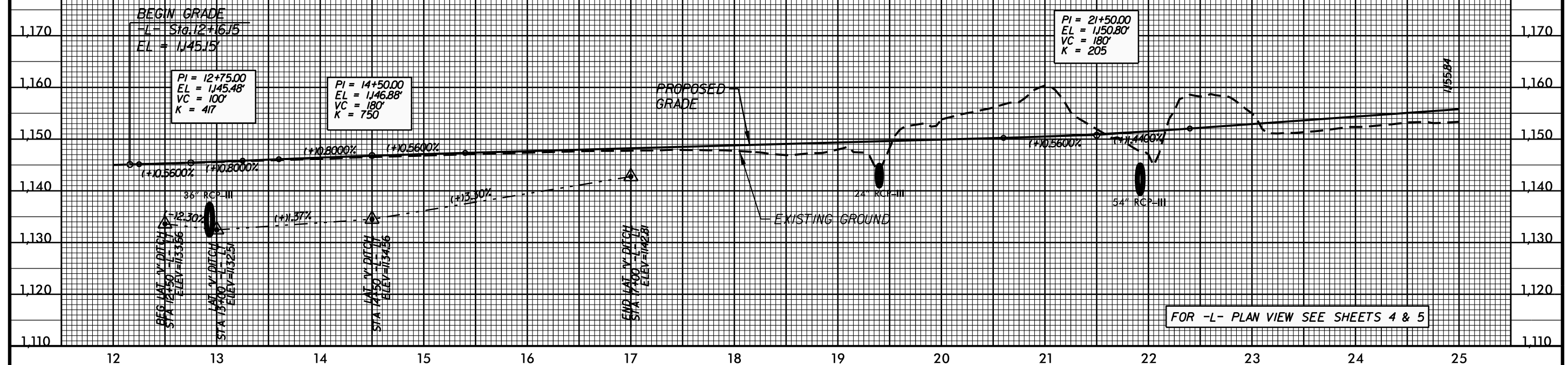
EXIST. 24" CMP - CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 12	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 1143.8	FT
BASE DISCHARGE	= 13	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1144.0	FT
OVERTOPPING DISCHARGE	= 21+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 1149.6	FT

54" RCP-III - CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 130	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 1157.8	FT
BASE DISCHARGE	= 150	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1158.5	FT
OVERTOPPING DISCHARGE	= 190	CFS
OVERTOPPING FREQUENCY	= 200	YRS
OVERTOPPING ELEVATION	= 1159.3	FT

PROJECT REFERENCE NO.	B-3673	SHEET NO.	7
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Michael Baker Engineering, Inc. 6201 Regency Parkway Suite 600 27518 Cary, NC 27518 Tel: 919-487-2700		SUNGATE DESIGN GROUP, P.A. 915 Jones Franklin Road Raleigh, NC 27606 NC CDA No. C-2880	



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