Transportation

PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

March 10, 2016

U. S. Army Corps of Engineers
Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

Attention: Mr. Andy Williams
NCDOT Coordinator

Subject: Application for Section 404 Nationwide Permits 13, 23 and Section 401 Water Quality Certification for replacement of Bridge No. 374 over Sandy Creek on SR 2481 (Low Bridge Road), Randolph County, North Carolina, Federal Aid Project No. BRZ-2481(2), TIP No. B-5360.

Debit $240.00 from WBS Element No. 46074.1.1

Dear Sir,

The North Carolina Department of Transportation (NCDOT) proposes to replace existing Bridge No. 374 over Sandy Creek on SR 2481 in Randolph County. The project involves replacement of the existing 78-foot bridge and approaches with a new 290-foot bridge. The new bridge will be placed downstream on new alignment to the east of the existing bridge. The new bridge will include two 10-foot lanes and 3-foot 11 inch offsets. Traffic will be detoured offsite.

Please find enclosed the Pre-Construction Notification (PCN) form, stormwater management plan, permit drawings, and roadway design plans for the above referenced project. A Categorical Exclusion (CE) was completed for this project on January 6, 2015, and distributed shortly thereafter.

The proposed let date for the project is October 18, 2016 with a review date of August 30, 2016. However, the let date may advance as additional funds become available.

Project construction will require 44 feet of permanent stream impacts and 53 feet of temporary stream impacts for bank stabilization along with wetland impacts of <0.01 acre of fill for riprap at the bridge and 0.03 acre of mechanized clearing for the new bridge.

Regulatory Approvals

Section 404 Permit: All aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). The NCDOT requests that the project be authorized by a NW 23 for bridge construction. We are also requesting issuance of NW 13 for bank stabilization resulting from project construction.

Section 401 Permit: We anticipate 401 General Certification numbers 3885 and 3891 will apply to this project.

A copy of this permit application and its distribution list will be posted on the NCDOT website at https://connect.ncdot.gov/resources/Environmental/Pages/. A copy of the CE is also available at the above website address. Please contact Deanna Riffey at either driffey@ncdot.gov or (919) 707-6151 if you have any questions or need additional information.

Sincerely,

for Rodger Rochelle, P.E.,
Technical Services Administrator

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: 23 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 Bridge 374 on SR 2481 (Low Bridge Road) over Sandy Creek
2b. County:	Randolph
2c. Nearest municipality / town:	Ramseur
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	B-5360

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) 707-6151
3g. Fax no.:	(919) 212-5785
3h. Email address:	driffey@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: 35.4706 (DD.DDDDDD) Longitude: - 79.3957 (-DD.DDDDDD)
1c. Property size:	1.1 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Sandy Creek
2b. Water Quality Classification of nearest receiving water:	WS-III
2c. River basin:	Cape Fear
3. Project Description	
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: Land use within the vicinity is agriculture, a power line utility easement, low desity residential housing, and forested areas.	
3b. List the total estimated acreage of all existing wetlands on the property: 0.03 acre	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 79 linear feet	
3d. Explain the purpose of the proposed project: The bridge is considered structurally deficient and is functionally obsolete due to structure and substructure conditions.	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacement of the existing 78-foot bridge and approaches with a new 290-foot bridge. The new bridge will be placed downstream on new alignment to the east of the existing bridge. The new bridge will include two 10-foot lanes and 3-foot 11 inch offsets. Traffic will be detoured offsite. 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): Beth Reed	Agency/Consultant Company: Kimley Horn Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. 4/24/12	
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	Mechanized Clearing	Floodplain Pool	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.03
Site 1 ☒ P ☐ T	Fill	Floodplain Pool	☒ Yes ☐ No	☒ Corps ☐ DWQ	<0.01
Site 3 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 4 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 5 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 6 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	0.03 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	Sandy Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	25	44
Site 1 ☐ P ☒ T	Bank Stabilization	Sandy Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	25	53
Site 3 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 4 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 5 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
					3h. Total stream and tributary impacts	44 ft Perm 53 ft 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 ☐ 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: Buffer impacts for this project are less than 40 linear feet for the road crossings and are exempt.

D. Impact Justification and Mitigation

1. Avoidance and Minimization

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

Shifting of the alignment was incorporated to minimize water resources impacts. Direct runoff from the bridge deck was eliminated from the receiving stream and the drainage systems outlet to rip rap pads. The low water bridge was eliminated to minimize or eliminate debris buildup and road overtopping. Other than no build the minimal effects to one wetland and stream on this project is unavoidable.

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

NCDOT Best Management Practices for Construction and Maintenance Activities and Best Management Practices for the Protection of Surface Waters will be employed.

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: Wetland amount is <0.1 acre and low quality.
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:	
4c. If using stream mitigation, stream temperature:	☐ warm ☐ cool ☐ cold
4d. Buffer mitigation requested (DWQ only):	square feet
4e. Riparian wetland mitigation requested:	0 acres
4f. Non-riparian wetland mitigation requested:	acres
4g. Coastal (tidal) wetland mitigation requested:	acres

4h. Comments:

5. Complete if Using a Permittee Responsible Mitigation Plan

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

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

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☐ Yes ☒ No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments:	☐ Yes ☐ No
2. Stormwater Management Plan	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	☒ Yes ☐ No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See attached permit drawings.	
2e. Who will be responsible for the review of the Stormwater Management Plan?	☐ Certified Local Government ☐ DWQ Stormwater Program ☒ DWQ 401 Unit
3. Certified Local Government Stormwater Review	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	☐ Phase II ☐ NSW ☐ USMP ☐ Water Supply Watershed ☐ Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No N/A
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 the 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? USFWS county list and NCNHP database along with field surveys. Survey last conducted for Schweinitz's sunflower was October 2015. Habitat is present, but no Schweinitz's sunflowers were found. Biological conclusion is No Effect. A survey was conducted for Cape Fear shiner in April 2012. Habitat was present, but no Cape Fear Shiners were found. Biological conclusion is No Effect.		
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 Rodger Rochelle, 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.)	3-10-2016 Date

ATTACHMENT

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): 2-21-13

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
Kimley-Horn and Associates, Inc.
Attn: Beth Reed, PWS, on behalf of NCDOT
P.O. Box 33068
Raleigh, NC 27636-3068

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:
Wimington, NCDOT/B-5360, SAW-2011-2346

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State:NC County/parish/borough: Randolph City: Ramseur
Center coordinates of site (lat/long in degree decimal format): Lat. 35.470634° **N**, Long. 79.395702° **W**.

Universal Transverse Mercator:

Name of nearest waterbody: Sandy Creek

Identify (estimate) amount of waters in the review area:
Non-wetland waters: 444 linear feet: 2-60 width (ft) and/or 0.31 acres.
Cowardin Class: Riverine
Stream Flow: Perennial/ ~~Intermittent~~
Wetlands: 0.03 acres.
Cowardin Class: Palustrine

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

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

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): 04/24/2012, Ronnie Smith, USACE

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

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

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

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Kimley Horn & Associates

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

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

☐ Data sheets prepared by the Corps:

☐ Corps navigable waters' study:

☐ U.S. Geological Survey Hydrologic Atlas:

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

☒ U.S. Geological Survey map(s). Cite scale & quad name: Grays Chapel, 1:24,000

☐ USDA Natural Resources Conservation Service Soil Survey. Citation:

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

☐ State/Local wetland inventory map(s):

☐ FEMA/FIRM maps:

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

☒ Photographs: ☒ Aerial (Name & Date):2010.
or ☐ Other (Name & Date):.

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

☒ Other information (please specify): NCDWQ Stream ID Form
USACE Stream Quality Assessment Worksheet

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

2-21-13

Signature and date of
Regulatory Project Manager
(REQUIRED)

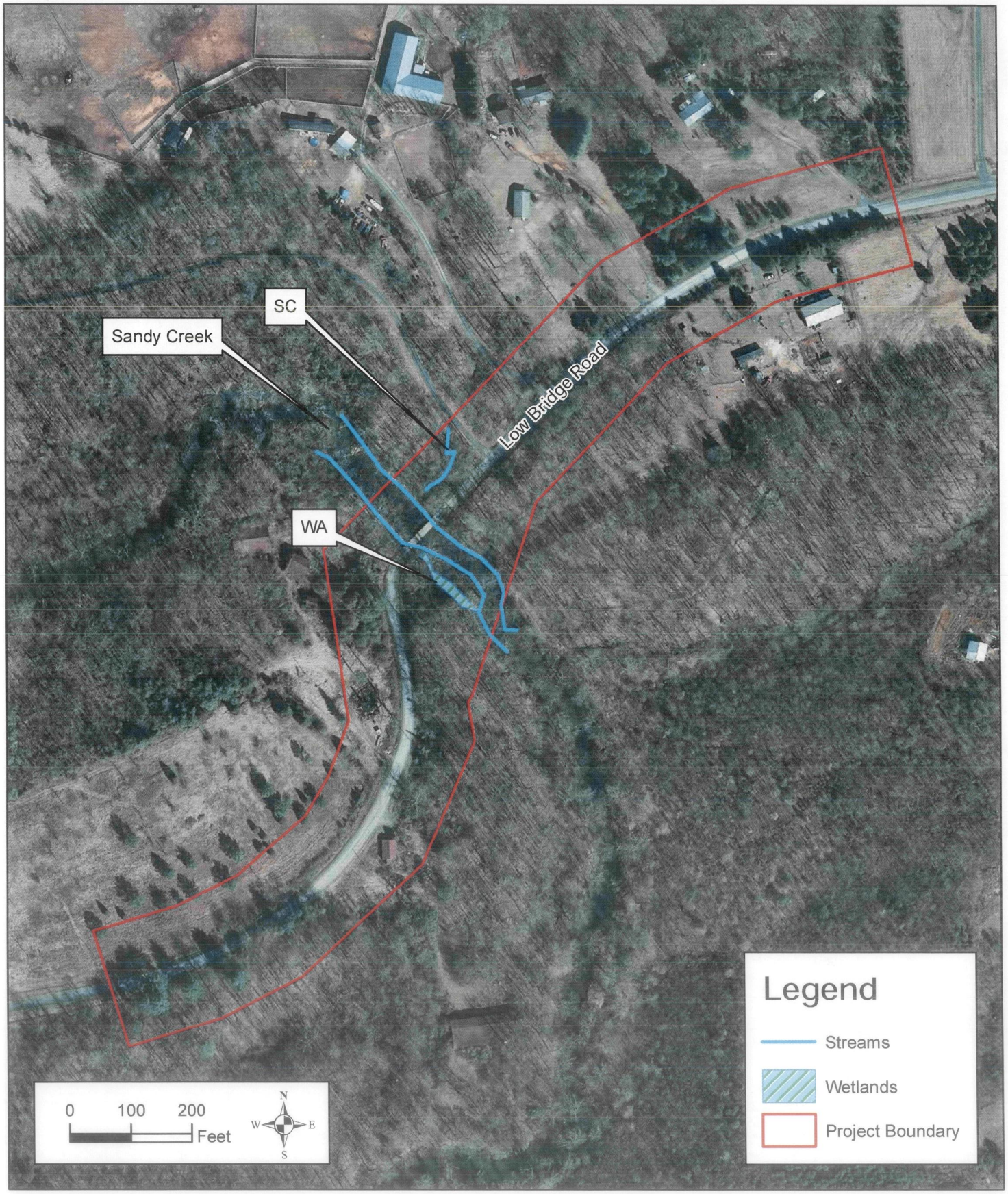
Beth Reed 01/31/2013

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

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
Sandy Creek	35.7853	-79.6655	Riverine	306 linear feet	non-section 10 – non-tidal
SC	35.4708	-78.3956	Riverine	138 linear feet	non-section 10 – non-tidal
WA	35.7851	-79.6654	Palustrine	0.03 acres	non-section 10-wetland

non-wetland

non-wetland



North Carolina Department of Transportation

Figure 3: Jurisdictional Features Map
TIP Project: B-5360
Bridge #374 on SR2481 (Low Bridge Road) over Sandy Creek
Randolph County, North Carolina

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.01; Released December 2014)

WBS Element: (46074.1.1) **TIP No.:** B-5360 **County(ies):** Randolph

General Project Information

WBS Element:	(46074.1.1)	**TIP Number:**	B-5360	**Project Type:**	Bridge Replacement	**Date:**	11/2/2015
NCDOT Contact:	Linda Johns/Craig Lee			**Contractor / Designer:**	Linda Johns/Craig Lee		
Address:	1020 Birch Ridge Dr Raleigh, NC 27610			**Address:**	1020 Birch Ridge Dr Raleigh, NC 27610		
Phone:	919-707-6728 / 919-707-6708			**Phone:**	919-707-6728 / 919-707-6708		
Email:	lmjohns@ncdot.gov / cjlee@ncdot.gov			**Email:**	lmjohns@ncdot.gov / cjlee@ncdot.gov		
City/Town:	Liberty			**County(ies):**	Randolph		
River Basin(s):	Cape Fear			**CAMA County?**	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	0.382 miles	**Surrounding Land Use:**	Woods		
	Proposed Project			**Existing Site**	
Project Built-Upon Area (ac.)	1.1 ac.			0.9 ac.	
Typical Cross Section Description:	10' Travel Lanes, 3' Grass Shoulders. 4:1 Front Slope			15' Single Travel Lane, 2' Grassed Shoulders, 3:1 Front Slopes	
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 700	Year: 2040		Existing: 420	Year:
General Project Narrative: (Description of Minimization of Water Quality Impacts)	The project consists of replacing Bridge# 374 on SR 2481 (Low Bridge Road) over Sandy Creek. The approach work will consist of raising the existing roadway grade and providing paved and grass shoulders and guardrails.Bridge #374 existing 2 span structure (78.0' total length) will be replaced with a 3 span (2@105', 1@80") 39" Box Beam with 4' caps. Bridge #374 eliminates 1 bent which is in the water. Best Mgmt. Practices: -Promotion of sheet flow and infiltration with grassed shoulders except where shoulder berm gutter to 2GI at bridge. -Drainage systems outlet to rip rap pads. Systems in NW quad outlets to proposed ditches. -Elimination of direct runoff from the bridge deck into the receiving stream. -Deck Drains required but only located over deck drain dissipator pads on the overbanks. -Elimination of low water bridge will eliminate debree buildup and road overtopping. -Rip Rap on embankments to prevent erosion. -Bridge low chord is well above the 100-year storm event, and because the natural channel is not constricted, channel flow will experience lower velocities.				

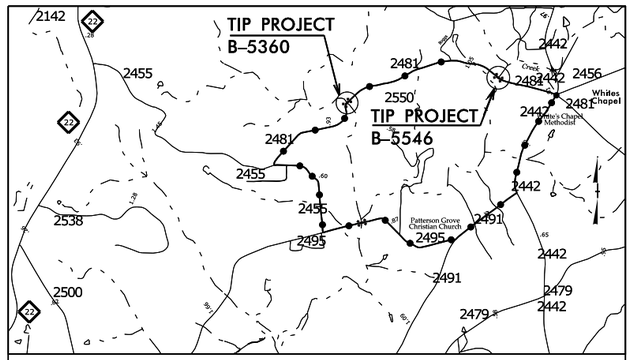
Waterbody Information

Surface Water Body (1):	Sandy Creek		**NCDWR Stream Index No.:**	17-16-1	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply III (WS-III)		
		Supplemental Classification:			
Other Stream Classification:					
Impairments:	None				
Threatened/Endangered Species?	No	Comments:			
NRTR Stream ID:	Sandy Creek			**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)					

09/08/99

CONTRACT: TIP PROJECT: B–5360

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

PERMIT DRAWING
SHEET 1 OF 7

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–5360	1	

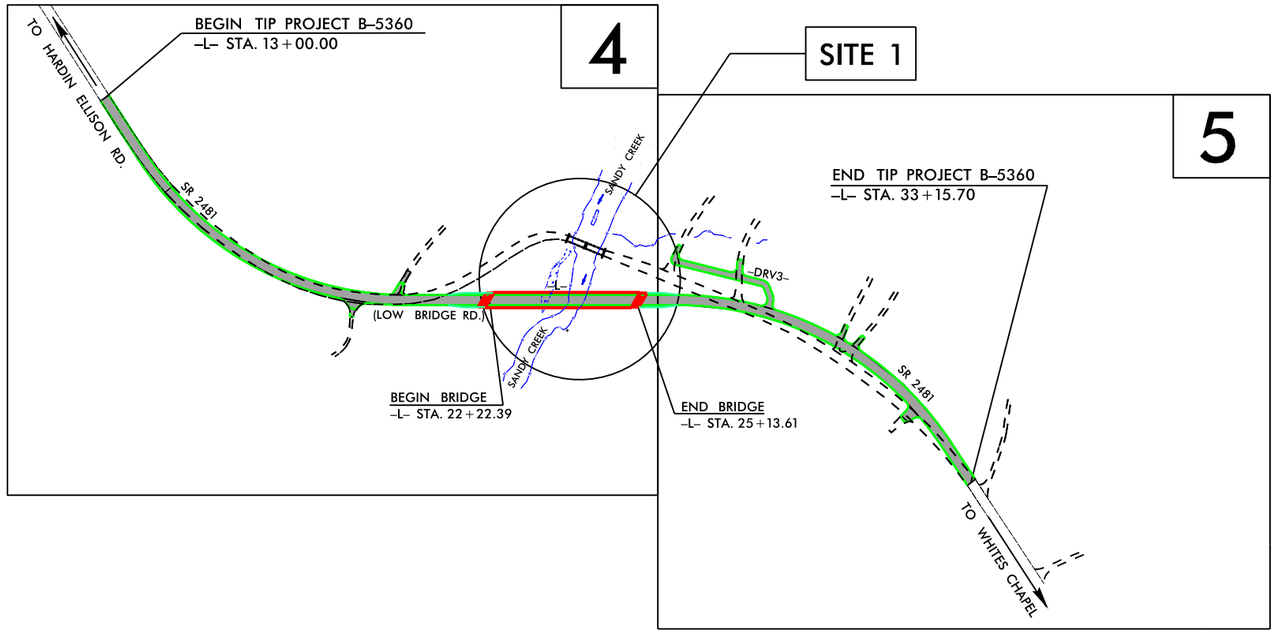
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
46074.1.1	BRZ–2481(2)	PE
46074.2.1	BRZ–2481(2)	R/W
46074.2.2	BRZ–2481(2)	UTILITIES

LOCATION: BRIDGE NO 374 OVER SANDY CREEK ON SR 2481 (LOW BRIDGE RD.)

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

NAD 83/
NA 2011

WETLAND AND SURFACE WATER IMPACTS PERMIT



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
** DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE AND NIGHTTIME STOPPING SIGHT DISTANCE

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 2014 = 400 VPD
ADT 2040 = 700 VPD
K = 13 %
D = 60 %
T = 9 % *
V = 40 MPH
* TTST = 1% DUAL 8%
FUNC CLASS = RURAL, LOCAL

SUB REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B–5360 = 0.327 MI
LENGTH OF STRUCTURE TIP PROJECT B–5360 = 0.055 MI
TOTAL LENGTH OF STATE TIP PROJECT B–5360 = 0.382 MI

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 9, 2015

LETTING DATE:
OCTOBER 18 ,2016

JAMES A. SPEER, PE
PROJECT ENGINEER

ALLISON K. WHITE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

10/30/2015
ejhahn
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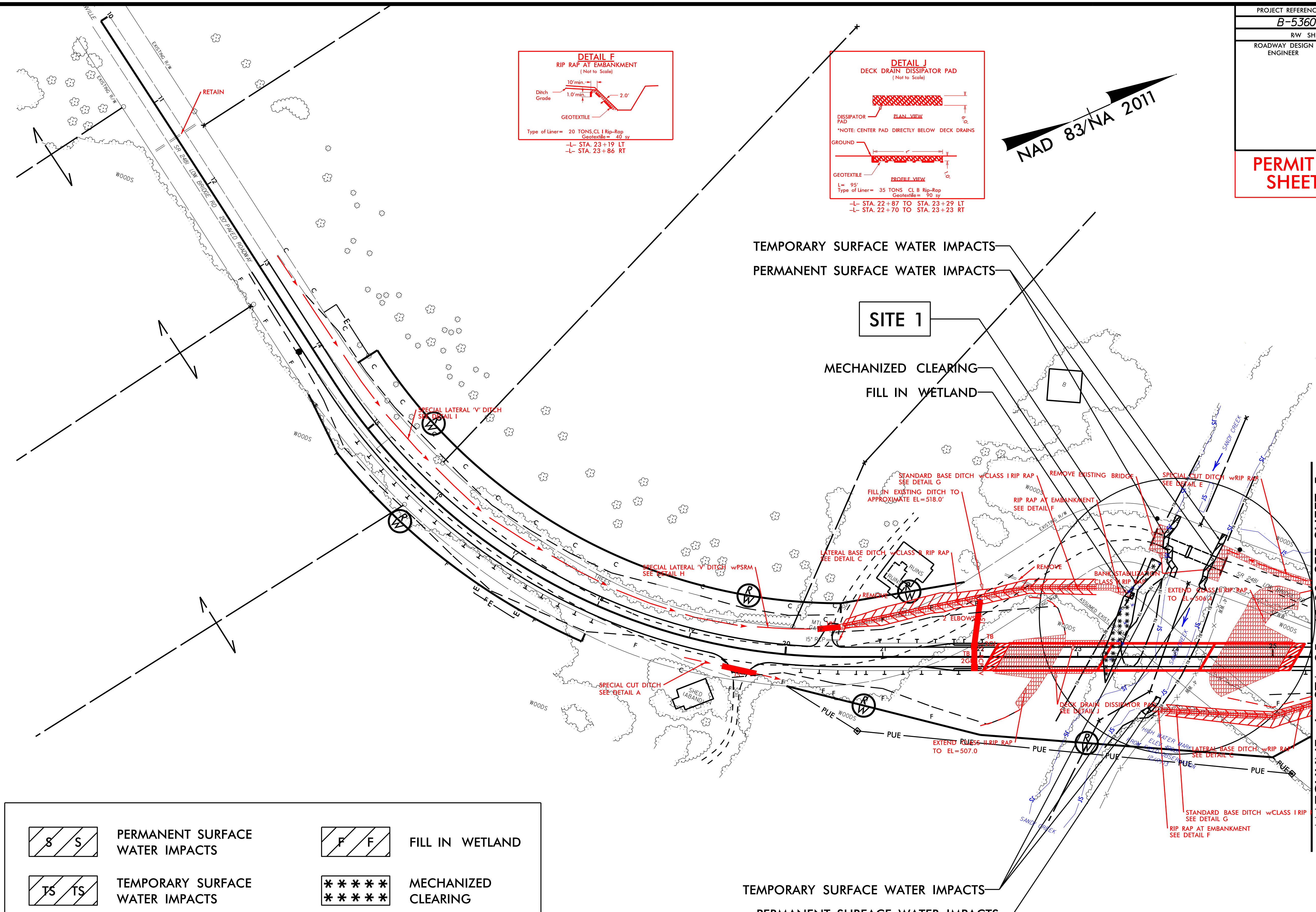
PROJECT REFERENCE NO.	SHEET NO.
B-5360	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 2 OF 7



Symbol	Meaning
S / S	PERMANENT SURFACE WATER IMPACTS
TS / TS	TEMPORARY SURFACE WATER IMPACTS
F / F	FILL IN WETLAND
* * * * *	MECHANIZED CLEARING

100' 0' 100' 200'
GRAPHIC SCALE

SEE SHEET 6 FOR PROFILE

REVISIONS

8/17/99

10/30/2015
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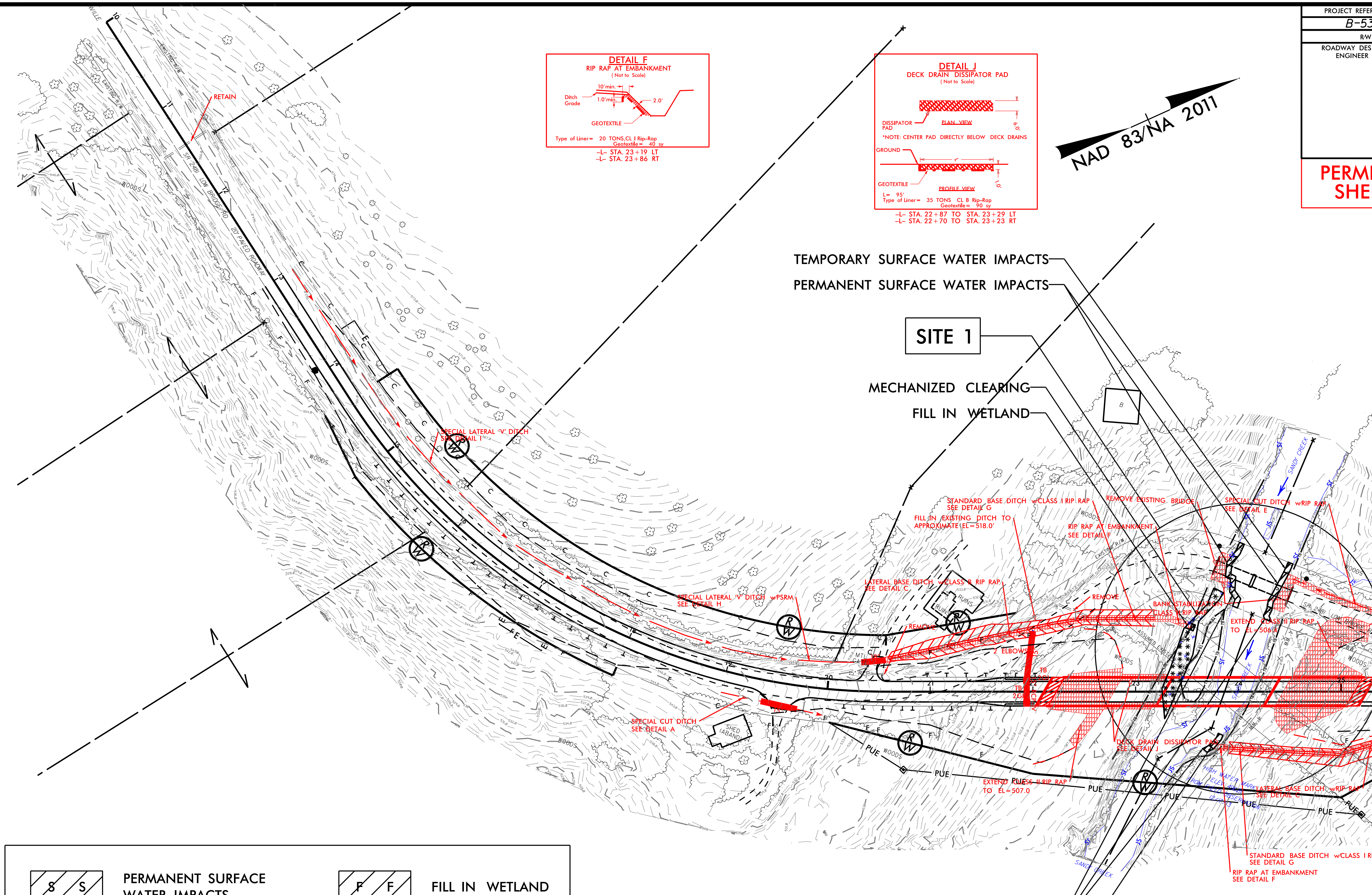
PROJECT REFERENCE NO.	SHEET NO.
B-5360	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 3 OF 7



DETAIL F
RIP RAP AT EMBANKMENT
(Not to Scale)
Ditch Grade
GEOTEXTILE
Type of Liner= 20 TONS,CL I Rip-Rap
Geotextile= 40 sy
-L- STA. 23+19 LT
-L- STA. 23+86 RT
DETAIL J
DECK DRAIN DISSIPATOR PAD
(Not to Scale)
DISSIPATOR PAD
PLAN VIEW
*NOTE: CENTER PAD DIRECTLY BELOW DECK DRAINS
GROUND
GEOTEXTILE
PROFILE VIEW
Type of Liner= 35 TONS CL B Rip-Rap
Geotextile= 90 sy
-L- STA. 22+87 TO STA. 23+29 LT
-L- STA. 22+70 TO STA. 23+23 RT
NAD 83/NA 2011
TEMPORARY SURFACE WATER IMPACTS
PERMANENT SURFACE WATER IMPACTS
SITE 1
MECHANIZED CLEARING
FILL IN WETLAND
RETAIN
WOODS
SR 2481 LOW BRIDGE RD
20' PAVED ROADWAY
SPECIAL LATERAL 'V' DITCH SEE DETAIL I
SPECIAL LATERAL 'V' DITCH w/PSRM SEE DETAIL H
SPECIAL CUT DITCH SEE DETAIL A
SHED (ABAND)
STANDARD BASE DITCH w/CLASS I RIP RAP SEE DETAIL G
FILL IN EXISTING DITCH TO APPROXIMATE EL=518.0'
REMOVE EXISTING BRIDGE
RIP RAP AT EMBANKMENT SEE DETAIL F
SPECIAL CUT DITCH w/RIP RAP SEE DETAIL E
LATERAL BASE DITCH w/CLASS B RIP RAP SEE DETAIL C
REMOVE
BANK STABILIZATION CLASS II RIP RAP
EXTEND CLASS II RIP RAP TO EL=506.0
2 ELBOWS
SANDY CREEK
DECK DRAIN DISSIPATOR PAD SEE DETAIL J
EXTEND CLASS II RIP RAP TO EL=507.0
PUE
LATERAL BASE DITCH w/RIP RAP SEE DETAIL C
STANDARD BASE DITCH w/CLASS I RIP RAP SEE DETAIL G
RIP RAP AT EMBANKMENT SEE DETAIL F
TEMPORARY SURFACE WATER IMPACTS
PERMANENT SURFACE WATER IMPACTS

MATCHLINE -L- STA. 25+40.00 SEE SHEET 5

Symbol	Legend	Symbol	Legend
S / S	PERMANENT SURFACE WATER IMPACTS	F / F	FILL IN WETLAND
TS / TS	TEMPORARY SURFACE WATER IMPACTS	* * * * *	MECHANIZED CLEARING

100' 0' 100' 200'
GRAPHIC SCALE

ENGLISH

SEE SHEET 6 FOR PROFILE

REVISIONS

8/17/99

10/20/2015
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PROJECT REFERENCE NO.	SHEET NO.
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 4 OF 7

NAD 83/NA 2011

REMOVE EXISTING BRIDGE

TEMPORARY SURFACE WATER IMPACTS

PERMANENT SURFACE WATER IMPACTS

TEMPORARY SURFACE WATER IMPACTS

FILL IN EXISTING DITCH TO APPROXIMATE EL=518.0'

MECHANIZED CLEARING

FILL IN WETLAND

DITCH w/CLASS B RIP RAP

REMOVE

BANK STABILIZATION CLASS II RIP RAP

EXTEND CLASS II RIP RAP TO EL=506.4

2 ELBOWS @ 15° PERMANENT SURFACE WATER IMPACTS

TB 2GI

TB 2GI

RCP V

DECK DRAIN DISSIPATOR PAD SEE DETAIL J

TEMPORARY SURFACE WATER IMPACTS

LATERAL BASE DITCH w/RIP RAP SEE DETAIL C

PUE

PUE

PUE

PUE

SR 2481 LOW BRIDGE RD

18' SOIL & GRAVEL ROAD

WOODS

EXISTING R/W

ASSUMED EXIST. R/W

S S PERMANENT SURFACE WATER IMPACTS	F F FILL IN WETLAND
TS TS TEMPORARY SURFACE WATER IMPACTS	***** ***** MECHANIZED CLEARING

40' 0' 40' 80'

GRAPHIC SCALE

ENGLISH

REVISIONS

8/17/99

1/5/2015
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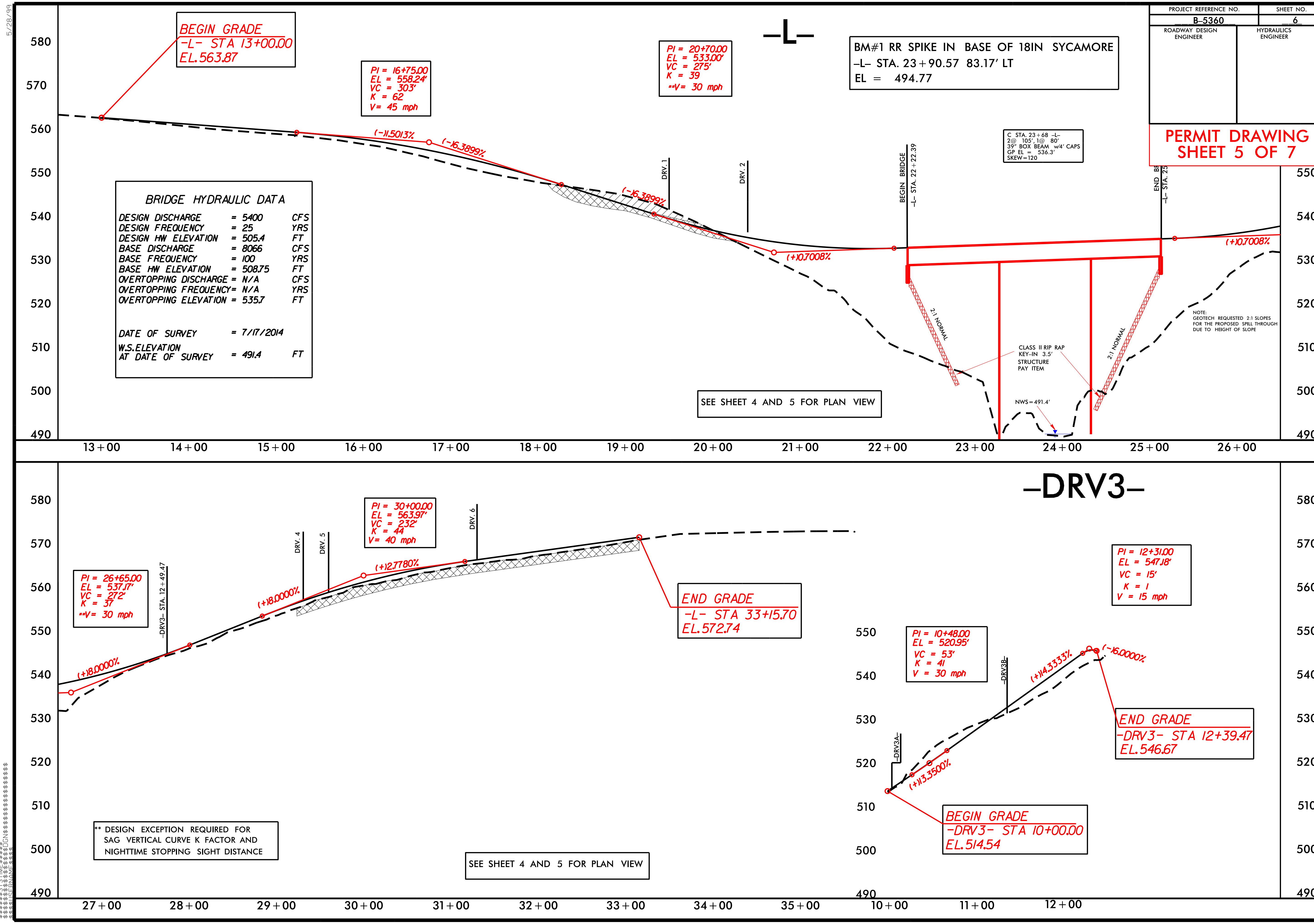
PROJECT REFERENCE NO. B-5360
SHEET NO. 6
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PERMIT DRAWING SHEET 5 OF 7
-L-
BM#1 RR SPIKE IN BASE OF 18IN SYCAMORE
-L- STA. 23+90.57 83.17' LT
EL = 494.77
BEGIN GRADE
-L- STA 13+00.00
EL.563.87
PI = 16+75.00
EL = 558.24'
VC = 303'
K = 62
V= 45 mph
PI = 20+70.00
EL = 533.00'
VC = 275'
K = 39
**V= 30 mph
(-)1.5013%
(-)6.3899%
(+)0.7008%
DRV. 1
DRV. 2
BEGIN BRIDGE -L- STA. 22+22.39
C STA. 23+68 -L-
2@ 105', 1@ 80'
39" BOX BEAM w/4' CAPS
GP EL = 536.3'
SKEW=120
2:1 NORMAL
CLASS II RIP RAP KEY-IN 3.5' STRUCTURE PAY ITEM
NWS=491.4'
NOTE: GEOTECH REQUESTED 2:1 SLOPES FOR THE PROPOSED SPILL THROUGH DUE TO HEIGHT OF SLOPE
BRIDGE HYDRAULIC DATA
DESIGN DISCHARGE = 5400 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = 505.4 FT
BASE DISCHARGE = 8066 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 508.75 FT
OVERTOPPING DISCHARGE = N/A CFS
OVERTOPPING FREQUENCY= N/A YRS
OVERTOPPING ELEVATION = 535.7 FT
DATE OF SURVEY = 7/17/2014
W.S.ELEVATION AT DATE OF SURVEY = 491.4 FT
SEE SHEET 4 AND 5 FOR PLAN VIEW
13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00
-DRV3-
PI = 26+65.00
EL = 537.17'
VC = 272'
K = 37
**V= 30 mph
PI = 30+00.00
EL = 563.97'
VC = 232'
K = 44
V= 40 mph
(+)8.0000%
(+)2.7780%
-DRV3- STA. 12+49.47
DRV. 4
DRV. 5
DRV. 6
END GRADE
-L- STA 33+15.70
EL.572.74
PI = 10+48.00
EL = 520.95'
VC = 53'
K = 41
V = 30 mph
PI = 12+31.00
EL = 547.18'
VC = 15'
K = 1
V = 15 mph
(+)13.3500%
(+)14.3333%
(-)6.0000%
-DRV3A-
-DRV3B-
END GRADE
-DRV3- STA 12+39.47
EL.546.67
BEGIN GRADE
-DRV3- STA 10+00.00
EL.514.54
** DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE K FACTOR AND NIGHTTIME STOPPING SIGHT DISTANCE
SEE SHEET 4 AND 5 FOR PLAN VIEW
27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 10+00 11+00 12+00
580 570 560 550 540 530 520 510 500 490

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5360	X-7

PERMIT DRAWING
SHEET 6 OF 7

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

540 530 520 510 500 490 480 540 530 520

0.020 0.020

490.86

24+00.00

0.020 0.020

510 500 490

WETLAND

496.07

23+50.00

0.020 0.020

530 520 510 500

504.18

23+00.00

490

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

11/2/2015
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$$$$USERNAME$$$$

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	23+25 to 23+85 -L-	proposed bridge				0.03						
1	23+50 -L- LT	rip rap at embankment	< 0.01									
1	23+78 to 24+50 -L- LT	bank stabilization						< 0.01	< 0.01	37	36	
1	23+78 -L- RT	bank stabilization						< 0.01	< 0.01	6	17	
TOTALS*:			< 0.01			0.03		< 0.01	< 0.01	44	53	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
November 2, 2015
Randolph
B-5360
46074.1.1
SHEET 7 OF 7

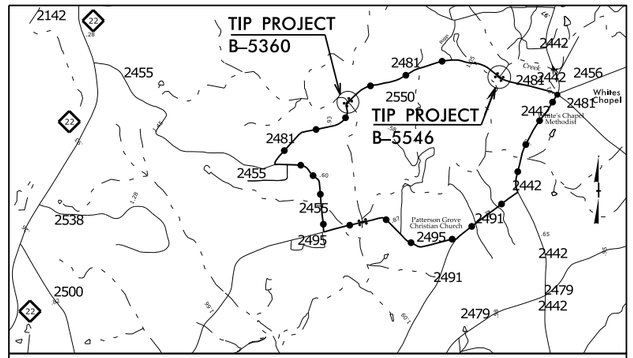
Revised 2013 10 24

09/08/99

TIP PROJECT: B-5360

CONTRACT:

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

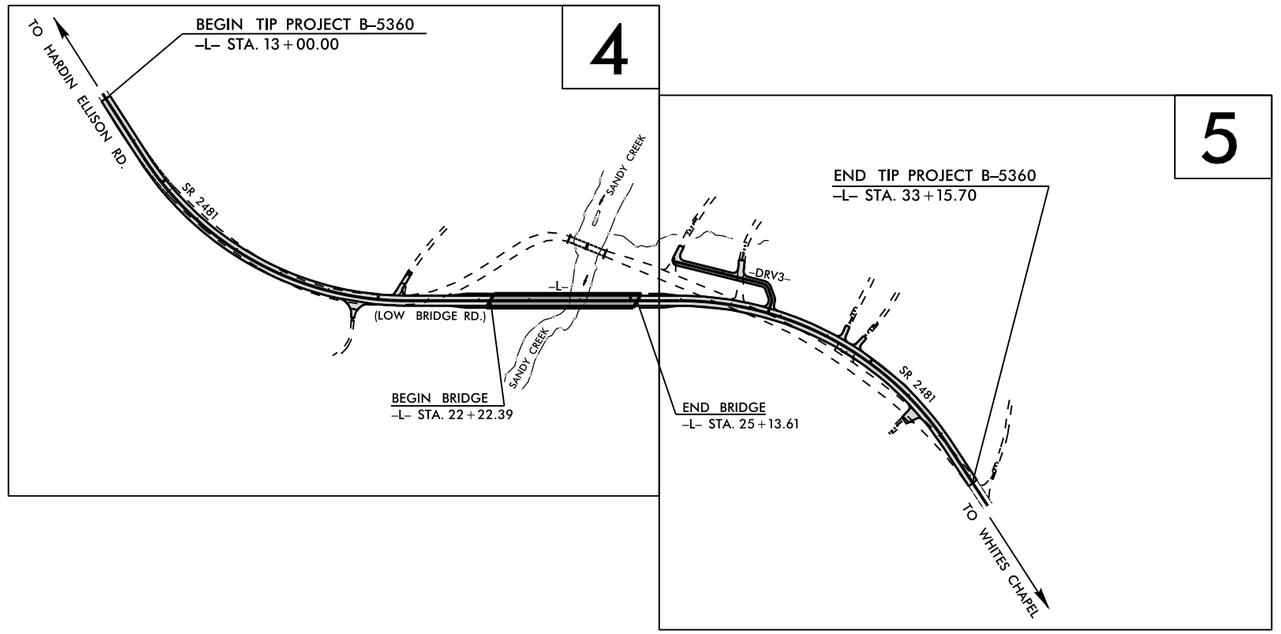
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5360	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
46074.1.1	BRZ-2481(2)	PE
46074.2.1	BRZ-2481(2)	R/W
46074.2.2	BRZ-2481(2)	UTILITIES

LOCATION: BRIDGE NO 374 OVER SANDY CREEK ON SR 2481 (LOW BRIDGE RD.)

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

NAD 83/
NA 2011



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
** DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE AND NIGHTTIME STOPPING SIGHT DISTANCE

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2014 = 400 VPD
ADT 2040 = 700 VPD
K = 13 %
D = 60 %
T = 9 % *
V = 40 MPH
* TTST = 1% DUAL 8%
FUNC CLASS = RURAL, LOCAL

SUB REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5360 = 0.327 MI
LENGTH OF STRUCTURE TIP PROJECT B-5360 = 0.055 MI
TOTAL LENGTH OF STATE TIP PROJECT B-5360 = 0.382 MI

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 9, 2015

LETTING DATE:
OCTOBER 18 ,2016

JAMES A. SPEER, PE
PROJECT ENGINEER

ALLISON K. WHITE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

09-OCT-2015 10:01
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12/05/11

PROJECT REFERENCE NO.	SHEET NO.
B-5360	1B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

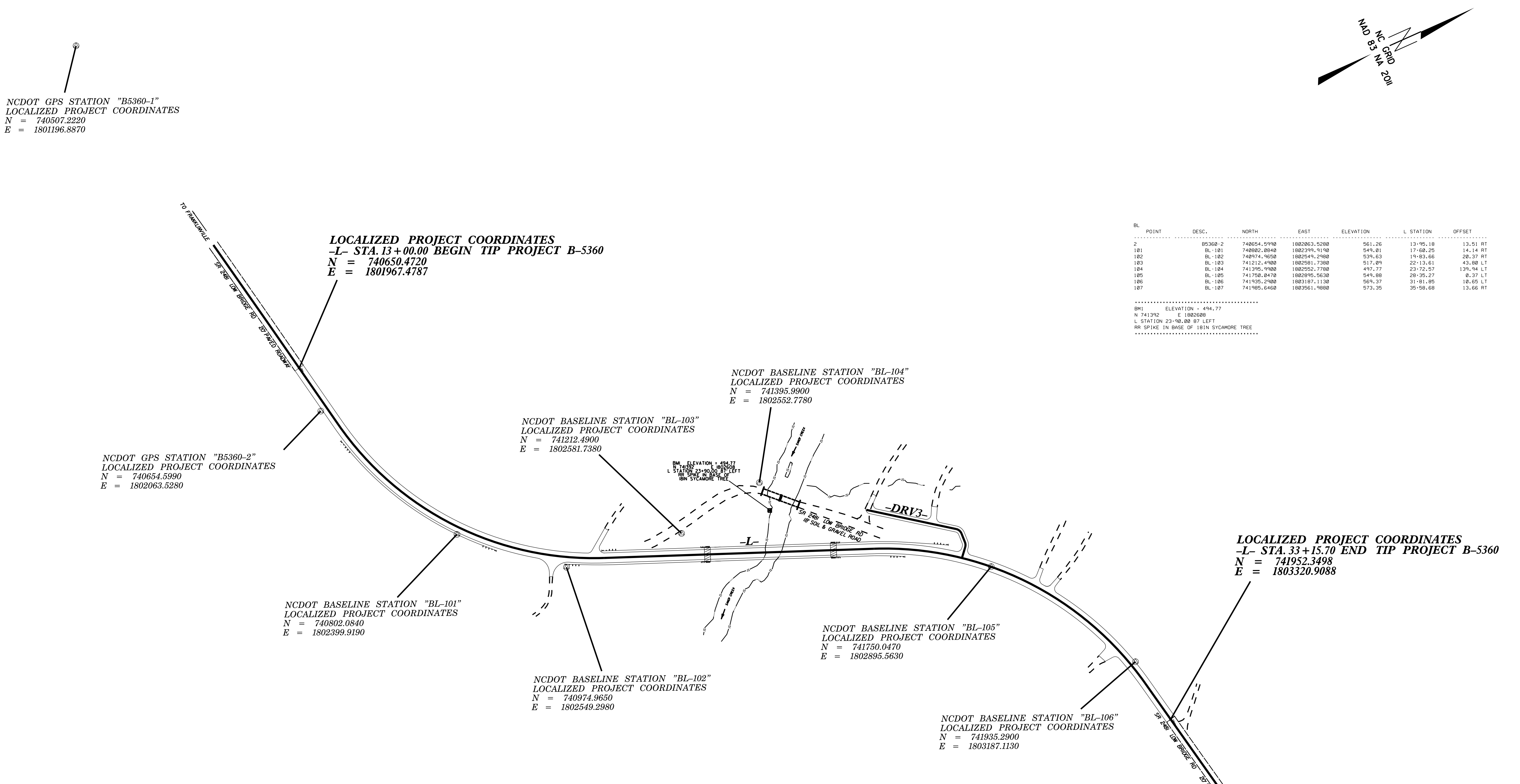
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
B-5360	1C-1
Location and Surveys	

SURVEY CONTROL SHEET B-5360



BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
2	B5360-2	740654.5990	1802063.5280	561.26	13+95.18	13.51 RT
101	BL-101	740802.0840	1802399.9190	549.01	17+60.25	14.14 RT
102	BL-102	740974.9650	1802549.2980	539.63	19+83.66	20.37 RT
103	BL-103	741212.4900	1802581.7380	517.09	22+13.61	43.80 LT
104	BL-104	741395.9900	1802552.7780	497.77	23+72.57	139.94 LT
105	BL-105	741750.0470	1802895.5630	549.88	28+35.27	0.37 LT
106	BL-106	741935.2900	1803187.1130	569.37	31+81.85	10.65 LT
107	BL-107	741985.6460	1803561.9880	573.35	35+58.68	13.66 RT

****
BM1 ELEVATION = 494.77
N 741392 E 1802608
L STATION 23+90.00 87 LEFT
RR SPIKE IN BASE OF 18IN SYCAMORE TREE
****

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5360-2"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 740654.5990(ft) EASTING: 1802063.5280(ft)
ELEVATION: 561.257(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998934721
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5360-2" TO -L- STATION 13+00.00 IS
S 87° 32' 22.7" W 96.138'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

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:
b5360_ls_control.txt

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

⊙ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NOTE: DRAWING NOT TO SCALE

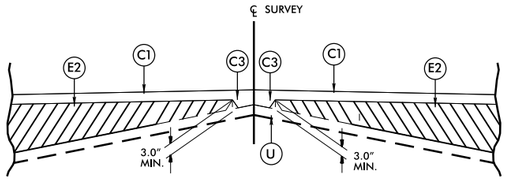
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-5360	2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

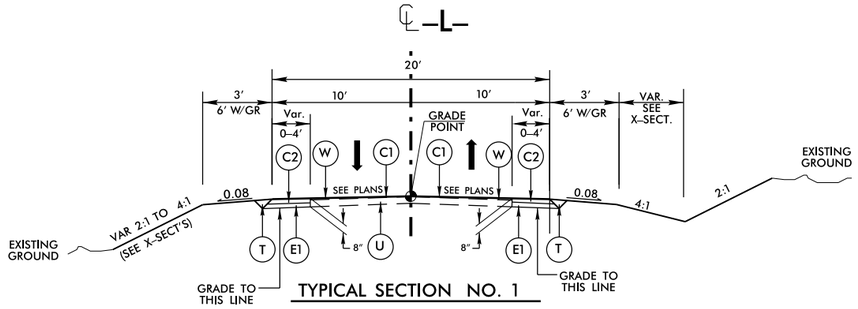
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
E1	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
J	PROP. 6" AGGREGATE BASE COURSE
T	EARTH MATERIAL.
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL NO. 1)

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



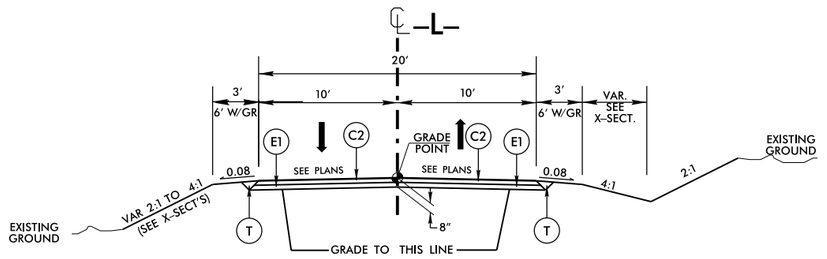
Detail Showing Method of Wedging



TYPICAL SECTION NO. 1

TYPICAL SECTION NO. 1

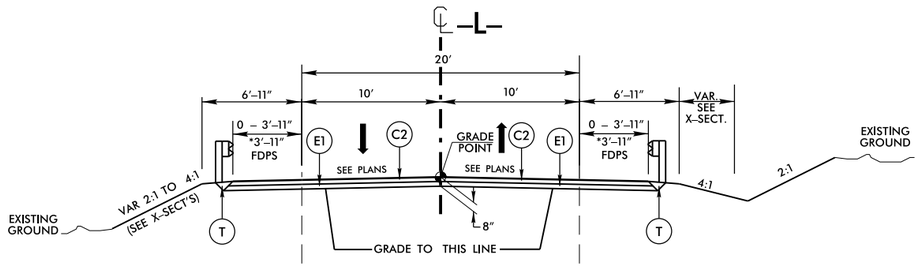
–L– STA. 13+00.00 TO –L– STA. 15+20.00



TYPICAL SECTION NO. 2

TYPICAL SECTION NO. 2

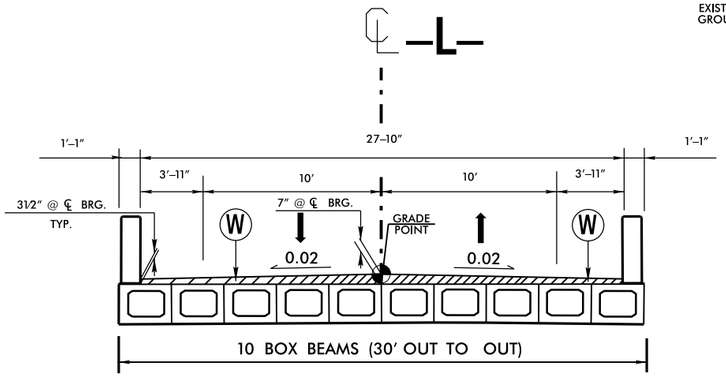
–L– STA. 15+20.00 TO –L– STA. 21+52.00
–L– STA. 25+97.04 TO –L– STA. 33+15.70



TYPICAL SECTION NO. 3

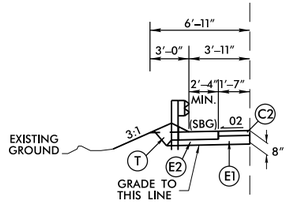
TYPICAL SECTION NO. 3

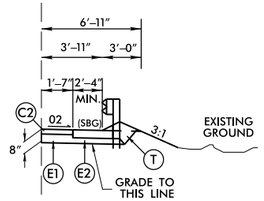
–L– STA. 21+52.00 TO –L– STA. 22+22.39 (BEGIN BRIDGE)
–L– STA. 25+13.61 (END BRIDGE) TO –L– STA. 25+97.04
* 3–11" GR OFFSET TIES TO BRIDGE RAIL OFFSET



TYPICAL SECTION ON STRUCTURE

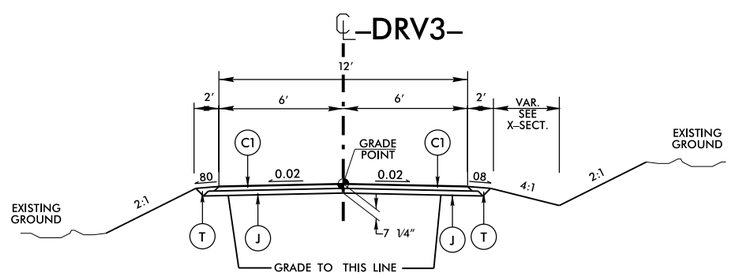
BEGIN BRIDGE –L– STA. 22+22.39 TO END BRIDGE –L– STA. 25+13.61





NOTE:

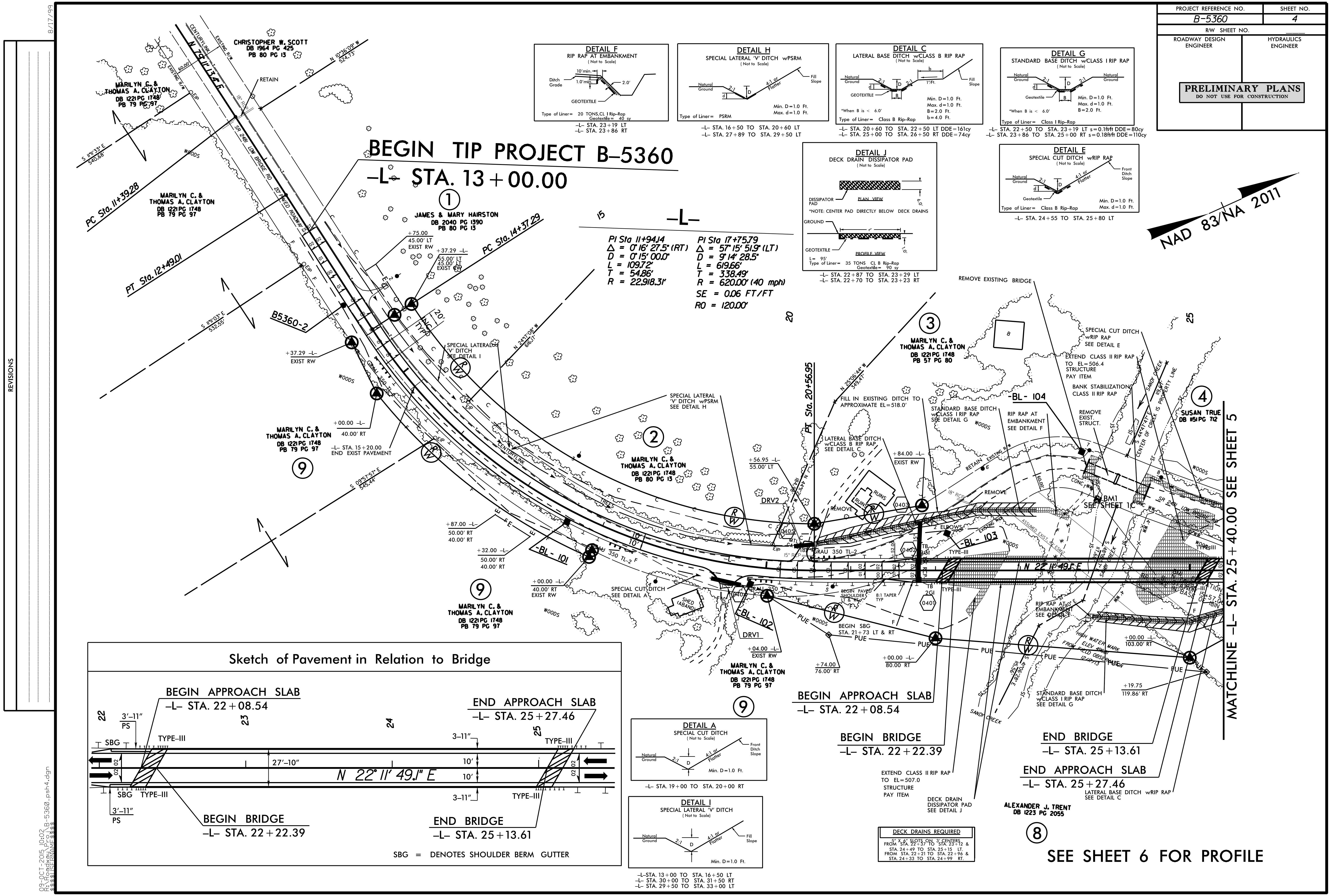
INSTALL SHOULDER BERM GUTTER (SBG) AS FOLLOWS.
–L– STA. 21+85.00 TO STA. 22+08.54 (BEGIN BRIDGE APP. SLAB) LT & RT



TYPICAL SECTION NO. 4

TYPICAL SECTION NO. 4

–DRV3– STA. 10+00.00 TO –DRV3– STA. 12+38.76



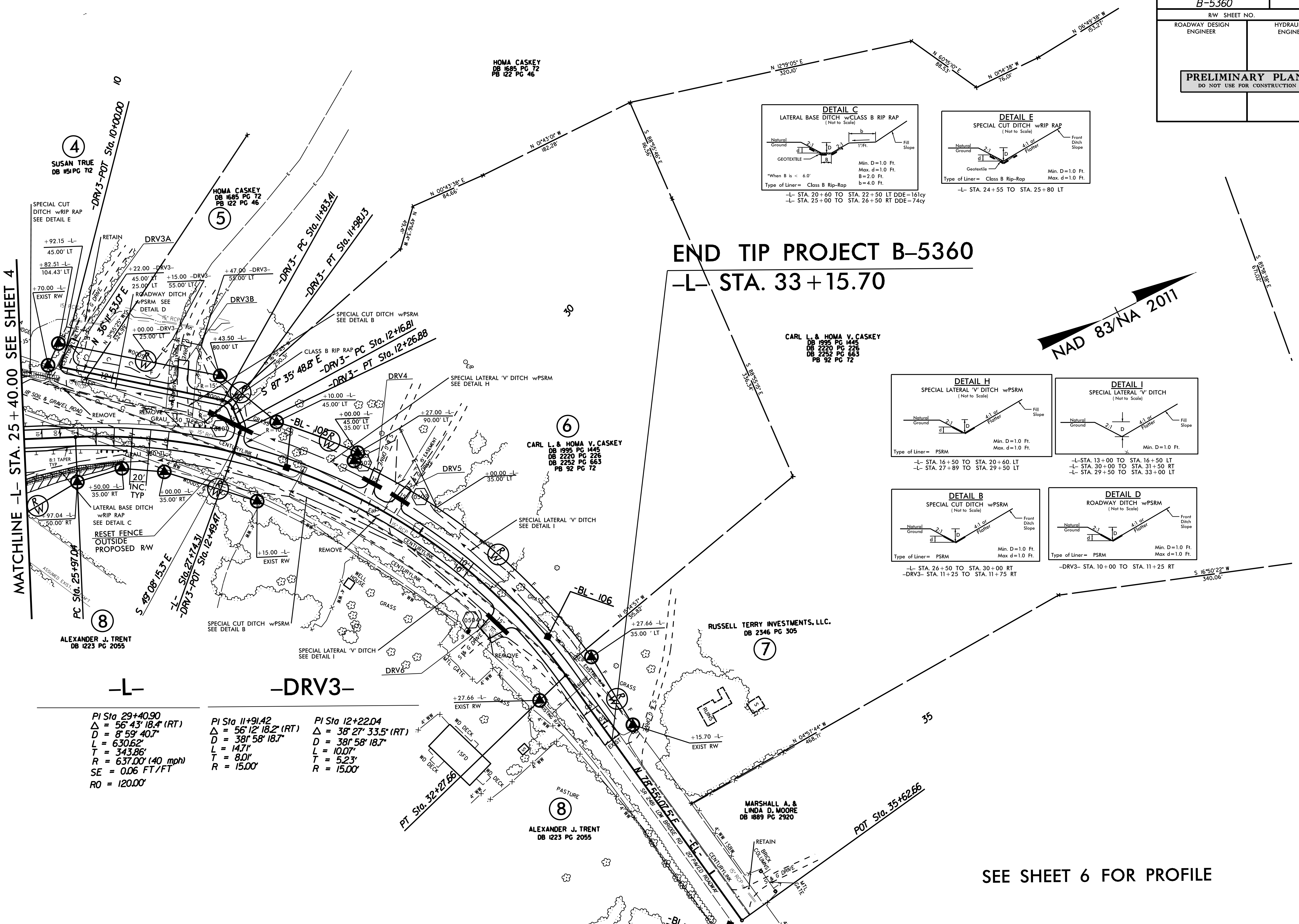
PROJECT REFERENCE NO.
SHEET NO.
B-5360
4
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DETAIL F
RIP RAP AT EMBANKMENT
DETAIL H
SPECIAL LATERAL 'V' DITCH w/PSRM
DETAIL C
LATERAL BASE DITCH w/CLASS B RIP RAP
DETAIL G
STANDARD BASE DITCH w/CLASS I RIP RAP
DETAIL J
DECK DRAIN DISSIPATOR PAD
DETAIL E
SPECIAL CUT DITCH w/RIP RAP
BEGIN TIP PROJECT B-5360
-L- STA. 13+00.00
NAD 83/NA 2011
PI Sta 11+94.14
PI Sta 17+75.79
SE = 0.06 FT/FT
RO = 120.00'
CHRISTOPHER W. SCOTT
DB 1964 PG 425
PB 80 PG 13
MARILYN C. & THOMAS A. CLAYTON
JAMES & MARY HAIRSTON
DB 2040 PG 1390
PB 80 PG 13
SUSAN TRUE
DB 1151 PG 712
ALEXANDER J. TRENT
DB 1223 PG 2055
REMOVE EXISTING BRIDGE
SANDY CREEK
BEGIN APPROACH SLAB
-L- STA. 22+08.54
BEGIN BRIDGE
-L- STA. 22+22.39
END BRIDGE
-L- STA. 25+13.61
END APPROACH SLAB
-L- STA. 25+27.46
MATCHLINE -L- STA. 25+40.00 SEE SHEET 5
SEE SHEET 6 FOR PROFILE
Sketch of Pavement in Relation to Bridge
N 22° 11' 49.1" E
SBG = DENOTES SHOULDER BERM GUTTER
DETAIL A
SPECIAL CUT DITCH
DETAIL I
SPECIAL LATERAL 'V' DITCH
DECK DRAINS REQUIRED
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-5360	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

8/17/99



END TIP PROJECT B-5360
-L- STA. 33+15.70
NAD 83/NA 2011
MATCHLINE -L- STA. 25+40.00 SEE SHEET 4
HOMA CASKEY
DB 1685 PG 72
PB 122 PG 46
SUSAN TRUE
DB 1151 PG 712
CARL L. & HOMA V. CASKEY
DB 1995 PG 1445
DB 2220 PG 226
DB 2252 PG 663
PB 92 PG 72
RUSSELL TERRY INVESTMENTS, LLC.
DB 2346 PG 305
ALEXANDER J. TRENT
DB 1223 PG 2055
MARSHALL A. & LINDA D. MOORE
DB 1889 PG 2920
-DRV3-POT Sta. 10+00.00
-DRV3- PC Sta. 11+83.41
-DRV3- PT Sta. 11+98.13
-DRV3- PC Sta. 12+16.81
-DRV3- PT Sta. 12+26.88
-L- Sta. 27+74.31
-DRV3-POT Sta. 12+49.47
PC Sta. 25+97.04
PT Sta. 32+27.66
POT Sta. 35+62.66
N 36°11'53.0" E
S 87°35'48.8" E
S 49°08'15.3" E
N 78°55'07.5" E
-BL-105
-BL-106
-BL-107
SPECIAL CUT DITCH w/RIP RAP SEE DETAIL E
SPECIAL CUT DITCH w/PSRM SEE DETAIL B
SPECIAL LATERAL 'V' DITCH w/PSRM SEE DETAIL H
SPECIAL LATERAL 'V' DITCH SEE DETAIL I
LATERAL BASE DITCH w/RIP RAP SEE DETAIL C
ROADWAY DITCH w/PSRM SEE DETAIL D
CLASS B RIP RAP
RESET FENCE OUTSIDE PROPOSED R/W
DRV3A
DRV3B
DRV4
DRV5
DRV6
SEE SHEET 6 FOR PROFILE

DETAIL C
LATERAL BASE DITCH w/CLASS B RIP RAP
(Not to Scale)
Min. D=1.0 Ft.
Max. d=1.0 Ft.
B=2.0 Ft.
b=4.0 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip-Rap
-L- STA. 20+60 TO STA. 22+50 LT DDE=161cy
-L- STA. 25+00 TO STA. 26+50 RT DDE=74cy

DETAIL E
SPECIAL CUT DITCH w/RIP RAP
(Not to Scale)
Min. D=1.0 Ft.
Max. d=1.0 Ft.
Type of Liner= Class B Rip-Rap
-L- STA. 24+55 TO STA. 25+80 LT

DETAIL H
SPECIAL LATERAL 'V' DITCH w/PSRM
(Not to Scale)
Min. D=1.0 Ft.
Max. d=1.0 Ft.
Type of Liner= PSRM
-L- STA. 16+50 TO STA. 20+60. LT
-L- STA. 27+89 TO STA. 29+50 LT

DETAIL I
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Min. D=1.0 Ft.
-L-STA. 13+00 TO STA. 16+50 LT
-L- STA. 30+00 TO STA. 31+50 RT
-L- STA. 29+50 TO STA. 33+00 LT

DETAIL B
SPECIAL CUT DITCH w/PSRM
(Not to Scale)
Min. D=1.0 Ft.
Max d=1.0 Ft.
Type of Liner= PSRM
-L- STA. 26+50 TO STA. 30+00 RT
-DRV3- STA. 11+25 TO STA. 11+75 RT

DETAIL D
ROADWAY DITCH w/PSRM
(Not to Scale)
Min. D=1.0 Ft.
Max d=1.0 Ft.
Type of Liner= PSRM
-DRV3- STA. 10+00 TO STA. 11+25 RT

-L-

PI Sta 29+40.90
Δ = 56° 43' 18.4" (RT)
D = 8° 59' 40.7"
L = 630.62'
T = 343.86'
R = 637.00' (40 mph)
SE = 0.06 FT/FT
RO = 120.00'

-DRV3-

PI Sta 11+91.42
Δ = 56° 12' 18.2" (RT)
D = 381° 58' 18.7"
L = 14.71'
T = 8.01'
R = 15.00'

PI Sta 12+22.04
Δ = 38° 27' 33.5" (RT)
D = 381° 58' 18.7"
L = 10.07'
T = 5.23'
R = 15.00'

09-OCT-2015 10:02
R:\Roadway\Proj\B-5360_psh5.dgn

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-5360	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN GRADE
-L- STA 13+00.00
EL.563.87

PI = 16+75.00
EL = 558.24'
VC = 303'
K = 62
V= 45 mph

PI = 20+70.00
EL = 533.00'
VC = 275'
K = 39
**V= 30 mph

BM#1 RR SPIKE IN BASE OF 18IN SYCAMORE
-L- STA. 23+90.57 83.17' LT
EL = 494.77

C STA. 23+68 -L-
2@ 105', 1@ 80'
39" BOX BEAM w/4" CAPS
GP EL = 536.3'
SKEW = 120

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 5400	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 505.4	FT
BASE DISCHARGE	= 8066	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 508.75	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING ELEVATION	= 535.7	FT
DATE OF SURVEY	= 7/17/2014	
W.S.ELEVATION AT DATE OF SURVEY	= 491.4	FT

UNDERCUT EXCAVATION
UNSUITABLE UNCLASSIFIED EXCAVATION

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

SEE SHEET 4 AND 5 FOR PLAN VIEW

BEGIN DITCH LT
STA.13+00
ELEVATION.561.30

PI =6+50.000 LT
EI = 554.30

PI =8+00.000 LT
EI = 546.80

BEGIN DITCH RT
STA.9+00
ELEVATION.542.37

END DITCH RT
STA.20+00
ELEVATION.537.37

PI =20+00.000 LT
EI = 534.00

PI =20+50.000 LT
EI = 530.00

END DITCH LT
STA.22+50
ELEVATION.530.01

BEGIN BRIDGE
-L- STA. 22+22.39

END BRIDGE
-L- STA. 25+13.61

BEGIN DITCH RT
STA.25+00
ELEV.516.50

PI =25+50.000 RT
EI = 524.00

BEGIN DITCH LT
STA.24+55
ELEVATION.493.7

NOTE:
GEOTECH. REQUESTED 2:1 SLOPES FOR THE PROPOSED SPILLTHROUGH DUE TO HEIGHT OF SLOPE

CLASS B RIP RAP
KEY-IN 1.3
STRUCTURE PAY ITEM

END DITCH LT
STA.25+80
ELEVATION.513.26

PI =25+00.000 LT
EI = 499.66

NWS=491.4'

-DRV3-

PI = 30+00.00
EL = 563.97'
VC = 232'
K = 44
V= 40 mph

PI = 26+65.00
EL = 537.17'
VC = 272'
K = 37
**V= 30 mph

PI = 12+31.00
EL = 547.18'
VC = 15'
K = 1
V = 15 mph

PI = 10+48.00
EL = 520.95'
VC = 53'
K = 41
V = 30 mph

END GRADE
-L- STA 33+15.70
EL.572.74

END GRADE
-DRV3- STA 12+39.47
EL.546.67

BEGIN GRADE
-DRV3- STA 10+00.00
EL.514.54

PI =21+50.000 RT
EI = 541.20

BEGIN DITCH LT
STA.27+89
ELEVATION.541.20

PI =29+50.000 LT
EI = 555.80

PI =30+00.000 RT
EI = 560.20

PI =30+50.000 LT
EI = 562.80

PI =31+00.000 LT
EI = 564.80

END DITCH RT
STA.31+50
ELEVATION.565.30

END DITCH LT
STA.33+00
ELEVATION.570.8

BEGIN DITCH LT
STA.11+25 DRV3
ELEVATION.530.7

END DITCH LT
STA.11+75 DRV3
ELEVATION.536.7

** DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE K FACTOR AND NIGHTTIME STOPPING SIGHT DISTANCE

UNDERCUT EXCAVATION
UNSUITABLE UNCLASSIFIED EXCAVATION

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

SEE SHEET 4 AND 5 FOR PLAN VIEW