



Pre-Construction Notification (PCN) Form

For Nationwide Permits and Regional General Permits
(along with corresponding Water Quality Certifications)

September 29, 2018 Ver 3

Please note: fields marked with a red asterisk * below are required. You will not be able to submit the form until all mandatory questions are answered.

Also, if at any point you wish to print a copy of the E-PCN, all you need to do is right-click on the document and you can print a copy of the form.

Below is a link to the online help file.

<https://edocs.deq.nc.gov/WaterResources/0/edoc/624704/PCN%20Help%20File%202018-1-30.pdf>

A. Processing Information

County (or Counties) where the project is located: *

Chatham

Lee

Is this project a public transportation project? *

☒ Yes ☐ No

This is any publicly funded by municipal, state or federal funds road, rail, airport transportation project.

Is this a NCDOT Project? *

☒ Yes ☐ No

(NCDOT only) T.I.P. or state project number:

B-4968 (Replacement of Bridge 10 on US15/501-NC87 over Deep River)

WBS # *

40162.1.1

(for NCDOT use only)

1a. Type(s) of approval sought from the Corps: *

- ☒ Section 404 Permit (wetlands, streams and waters, Clean Water Act)
☐ Section 10 Permit (navigable waters, tidal waters, Rivers and Harbors Act)

1b. What type(s) of permit(s) do you wish to seek authorization? *

- ☒ Nationwide Permit (NWP)
☐ Regional General Permit (RGP)
☐ Standard (IP)

This form may be used to initiate the standard/individual permit process with the Corps. Please contact your Corps representative concerning submittals for standard permits. All required items that are not provided in the E-PCN can be added to the miscellaneous upload area located at the bottom of this form.

1c. Has the NWP or GP number been verified by the Corps? *

☒ Yes ☐ No

Nationwide Permit (NWP) Number:

14 - Linear transportation

NWP Numbers (for multiple NWPS):

List all NW numbers you are applying for not on the drop down list.

1d. Type(s) of approval sought from the DWR: *

check all that apply

- | | |
|---|--|
| ☒ 401 Water Quality Certification - Regular | ☐ 401 Water Quality Certification - Express |
| ☐ Non-404 Jurisdictional General Permit | ☐ Riparian Buffer Authorization |
| ☐ Individual Permit | |

1e. Is this notification solely for the record because written approval is not required?

*

For the record only for DWR 401 Certification:

☐ Yes ☒ No

For the record only for Corps Permit:

☐ Yes ☒ No

1f. Is this an after-the-fact permit application? *

☐ Yes

☒ No

1g. 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

Acceptance Letter Attachment

Click the upload button or drag and drop files here to attach document.

FILETYPE MUST BE PDF

1h. Is the project located in any of NC's twenty coastal counties? *

☐ Yes

☒ No

1j. Is the project located in a designated trout watershed? *

☐ Yes ☒ No

Link to trout information: <http://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/Trout.aspx>

B. Applicant Information

1a. Who is the Primary Contact? *

NCDOT

1b. Primary Contact Email: *

jldilday@ncdot.gov

1c. Primary Contact Phone: *

(xxx)xxx-xxxx

(919)707-6111

1d. Who is applying for the permit? *

☒ Owner

(Check all that apply)

☐ Applicant (other than owner)

1e. Is there an Agent/Consultant for this project? *

☐ Yes ☒ No

2. Owner Information

2a. Name(s) on recorded deed: *

Multiple properties

2b. Deed book and page no.:

2c. Responsible party:

(for Corporations)

2d. Address *

Street Address

1000 Birch Ridge Road

Address Line 2

City

Raleigh

Postal / Zip Code

27610

State / Province / Region

NC

Country

USA

2e. Telephone Number: *

(xxx)xxx-xxxx

(919)707-6111

2f. Fax Number:

(xxx)xxx-xxxx

2g. Email Address: *

phariris@ncdot.gov

C. Project Information and Prior Project History

1. Project Information

1a. Name of project: *

B-4968 (Replacement of Bridge 10 on US15/501-NC87 over Deep River) [Central]

1b. Subdivision name:

(if appropriate)

1c. Nearest municipality / town: *

Sanford

2. Project Identification



2a. Property Identification Number:

(tax PIN or parcel ID)

2b. Property size:

(in acres)

2c. Project Address

Street Address

Address Line 2

City

Postal / Zip Code

State / Province / Region

Country

2d. Site coordinates in decimal degrees

Please collect site coordinates in decimal degrees. Use between 4-6 digits (unless you are using a survey-grade GPS device) after the decimal place as appropriate, based on how the location was determined. (For example, most mobile phones with GPS provide locational precision in decimal degrees to map coordinates to 5 or 6 digits after the decimal place.)

Latitude: *

35.578262
ex: 34.208504

Longitude: *

-79.194188
-77.796371

3. Surface Waters

3a. Name of the nearest body of water to proposed project: *

Deep River

3b. Water Resources Classification of nearest receiving water: *

C

[Surface Water Lookup](#)

3c. What river basin(s) is your project located in? *

Cape Fear

3d. Please provide the 12-digit HUC in which the project is located. *

030300030607

[River Basin Lookup](#)

4. Project Description and History

4a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: *

US 15/501-NC87 has a functional classification as a minor arterial. Land use in the project vicinity consists primarily of forestland, agricultural fields and rural residential dwellings.

4b. Have Corps permits or DWR certifications been obtained for this project (including all prior phases) in the past? *

☐ Yes ☒ No ☐ Unknown

4d. Attach an 8 1/2 X 11 excerpt from the most recent version of the USGS topographic map indicating the location of the project site. (for DWR)

[Click the upload button or drag and drop files here to attach document](#)

File type must be pdf

4e. Attach an 8 1/2 X 11 excerpt from the most recent version of the published County NRCS Soil Survey map depicting the project site. (for DWR)

[Click the upload button or drag and drop files here to attach document](#)

File type must be pdf

4f. List the total estimated acreage of all existing wetlands on the property:

0.4

4g. List the total estimated linear feet of all existing streams on the property:

(intermittent and perennial)

500

4h. Explain the purpose of the proposed project: *

The purpose of this project is to replace a structurally deficient bridge

4i. Describe the overall project in detail, including indirect impacts and the type of equipment to be used. *

This project is proposed to replace the structurally deficient, 10-span, 525-foot Bridge No. 10 with a 3-span, 602-foot bridge west (upstream) of the existing alignment. Traffic will be maintained on the existing bridge during construction of the new structure. Standard road building equipment, such as trucks dozers and cranes will be used.

4j. Please upload project drawings for the proposed project.

[Click the upload button or drag and drop files here to attach document](#)

B-4968 Permit Drawings.pdf

2.04MB

B-4968 Roadway.pdf

3.04MB

File type must be pdf

5. Jurisdictional Determinations

5a. Have the wetlands or streams been delineated on the property or proposed impact areas? *

☒ Yes ☐ No ☐ Unknown

Comments:

5b. If the Corps made a jurisdictional determination, what type of determination was made? *

☒ Preliminary ☐ Approved ☐ Not Verified ☐ Unknown ☐ N/A

Corps AID Number:

Example: SAW-2017-99999

5c. If 5a is yes, who delineated the jurisdictional areas?

Name (if known): James Cutler

Agency/Consultant Company: AMEC Foster Wheeler

Other:

5d. List the dates of the Corp jurisdiction determination or State determination if a determination was made by the Corps or DWR.

Field review of resources with Andy Williams (USACE) on April 28, 2016. No written determination has been received.

5d1. Jurisdictional determination upload

Click the upload button or drag and drop files here to attach document

File type must be PDF

6. Future Project Plans

6a. Is this a phased project? *

☐ Yes ☒ No

Are any other NWP(s), regional general permit(s), or individual permits(s) used, or intended to be used, to authorize any part of the proposed project or related activity? This includes other separate and distant crossing for linear projects that require Department of the Army authorization but don't require pre-construction notification.

D. Proposed Impacts Inventory

1. Impacts Summary

1a. Where are the impacts associated with your project? (check all that apply):

☒ Wetlands

☐ Open Waters

☒ Streams-tributaries

☐ Pond Construction

☐ Buffers

2. Wetland Impacts

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

"W." will be used in the table below to represent the word "wetland".

2a. Site # * (?)	2a1 Reason * (?)	2b. Impact type * (?)	2c. Type of W. *	2d. W. name *	2e. Forested *	2f. Type of Jurisdiction * (?)	2g. Impact area *
Site 1	Fill	P	Headwater Forest	WC	No	Corps	0.001 (acres)
Site 1	Fill	T	Headwater Forest	WC	No	Corps	0.001 (acres)

2g. Total Temporary Wetland Impact

0.001

2g. Total Permanent Wetland Impact

0.001

2g. Total Wetland Impact

0.002

2h. Comments:

Impact to wetland is due to fill from armoring of abutment for endbent.

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.

"S." will be used in the table below to represent the word "stream".

3a. Reason for impact * (?)	3b. Impact type *	3c. Type of impact *	3d. S. name *	3e. Stream Type * (?)	3f. Type of Jurisdiction *	3g. S. width *	3h. Impact length *

S1	Site 2-Work Bridge/Containment	Temporary	Workpad/Causeway	Deep River	Perennial	Both	250 Average (feet)	125 (linear feet)
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** All Perennial or Intermittent streams must be verified by DWR or delegated local government.

3i. Total jurisdictional ditch impact in square feet:

0

3i. Total permanent stream impacts:

0

3i. Total temporary stream impacts:

125

3i. Total stream and ditch impacts:

125

3j. Comments:

Work bridge to be used for construction of new bridge and removal of existing bents along with containment structures to limit bridge material from falling into Deep River totals 0.53 acre.

E. Impact Justification and Mitigation

1. Avoidance and Minimization

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

NCDOT Design Standards in Sensitive Watersheds will be employed due to habitat for Cape Fear shiner being present. See Stormwater Management Plan for additional measures. The new bridge will span the river meaning no bents in water (current bridge has 4 bents in river). No deck drains will be present over open water. A proposed preformed scour hole has been designed to dissipate energy from proposed stormwater runoff to non-erosive velocity before entering Deep River.

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

Traffic will be maintained on existing bridge while new bridge is constructed. 4:1 slopes for roadway ditches to treat roadway runoff. Riprap pads placed at pipe outlets to dissipate erosive velocities. USFWS and NCWRC involvement to reduce in-water disturbance of Cape Fear shiner habitat during construction of new bridge and demolition of old.

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

2b. If this project DOES NOT require Compensatory Mitigation, explain why:

Minimal permanent impact to jurisdictional resources. The majority of impacts are temporary.

NC Stream Temperature Classification Maps can be found under the Mitigation Concepts tab on the Wilmington District's [RIBITS](#) website.

F. Stormwater Management and Diffuse Flow Plan (required by DWR)

*** Recent changes to the stormwater rules have required updates to this section .***

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

For a list of options to meet the diffuse flow requirements, click [here](#).

If no, explain why:

Deep River is in a section of the Cape Fear River Basin that is not subject to buffer rules.

2. Stormwater Management Plan

2a. Is this a NCDOT project subject to compliance with NCDOT's Individual NPDES permit NCS000250? *

☒ Yes ☐ No

Comments:

See attached Permit Drawings.

G. Supplementary Information

1. Environmental Documentation

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.) *

☒ Yes ☐ No

NEPA or SEPA Final Approval Letter

Click the upload button or drag and drop files here to attach document

FILETYPE MUST BE PDF

2. Violations (DWR Requirement)

2a. Is the site in violation of DWR Water Quality Certification Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), or DWR Surface Water or Wetland Standards or Riparian Buffer Rules (15A NCAC 2B .0200)? *

☐ Yes ☒ No

3. Cumulative Impacts (DWR 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 "no," provide a short narrative description.

Implementation of the proposed Build Alternative would not contribute, in conjunction with past, present, or future projects, to substantial adverse cumulative effects on resources in the study areas.

4. Sewage Disposal (DWR Requirement)

4a. Is sewage disposal required by DWR for this project? *

☐ Yes ☐ No ☒ N/A

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

5d. Is another Federal agency involved? *

☐ Yes ☒ No ☐ Unknown

5e. Is this a DOT project located within Division's 1-8? *

☒ Yes ☐ No

5j. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? *

N.C. Natural Heritage Program database; USFWS-Raleigh Field Office website; biological surveys for protected species listed for Lee and Chatham Counties, which include red-cockaded woodpecker (RCW), Cape Fear shiner, and harperella. All species received biological conclusions of "No Effect", due to no habitat being present, with the exception of Cape Fear shiner. A Biological Assessment (BA) seeking concurrence of "May Affect, Not Likely to Adversely Affect" from USFWS is being developed for the species. Habitat for bald eagle exists within the study area, however no nest trees were present within 660 feet of the study area, nor is there any known occurrences within 1.13 miles of the study area.

Consultation Documentation Upload

Click the upload button or drag and drop files here to attach document

File type must be PDF

6. Essential Fish Habitat (Corps Requirement)

6a. Will this project occur in or near an area designated as an Essential Fish Habitat? *

☐ Yes ☒ No

6b. What data sources did you use to determine whether your site would impact an Essential Fish Habitat? *

NMFS County Index

7. Historic or Prehistoric Cultural Resources (Corps Requirement)

Link to the State Historic Preservation Office Historic Properties Map (does not include archaeological data: <http://gis.ncdcr.gov/hpoweb/>)

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? *

SEPA documentation

7c. Historic or Prehistoric Information Upload

Click the upload button or drag and drop files here to attach document

File must be PDF

8. Flood Zone Designation (Corps Requirement)

Link to the FEMA Floodplain Maps: <https://msc.fema.gov/portal/search>

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

Miscellaneous

Comments

Miscellaneous attachments not previously requested.

Click the upload button or drag and drop files here to attach document

File must be PDF or KMZ

Signature

*

☒ By checking the box and signing below, I certify that:

- I have given true, accurate, and complete information on this form;
- I agree that submission of this PCN form is a "transaction" subject to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");
- I agree to conduct this transaction by electronic means pursuant to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");
- I understand that an electronic signature has the same legal effect and can be enforced in the same way as a written signature; AND
- I intend to electronically sign and submit the PCN form.

Full Name: *

Mack Christopher Rivenbark III

Signature

Mack C. Rivenbark, III

Date

11/28/2018



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.07; Released October 2016)

WBS Element: 40162.1.1 TIP No.: B-4968 County(ies): Lee Chatham Page 1 of 2

General Project Information

WBS Element:		40162.1.1		TIP Number: B-4968		Project Type: Bridge Replacement		Date: 10/13/2017	
NCDOT Contact:		David Stutts, PE				Contractor / Designer:		Mead & Hunt/ Roger Weadon, PE	
	Address:	1581 Mail Service Center Raleigh, NC 27699-1581					Address:	133 Fayetteville Street, Suite 210 Raleigh, NC 27601	
	Phone:	(919)707-6442					Phone:	(919) 714-8669	
	Email:	dstutts@ncdot.gov					Email:	roger.weadon@meadhunt.com	
City/Town:						County(ies):		Lee	Chatham
River Basin(s):		Cape Fear				CAMA County?		No	No
Wetlands within Project Limits?		No							

Project Description

Project Length (lin. miles or feet):	0.947 Miles	Surrounding Land Use:	Residential
		Proposed Project	Existing Site
Project Built-Up Area (ac.)	4.5 ac.	4.1 ac.	
Typical Cross Section Description:	2-12 foot travel lanes with variable 4'-6' paved shoulders, Shoulder section with variable side slopes to tie into natural ground		2-12 foot travel lanes with 4 foot paved shoulders BST, Shoulder section with variable side slopes to tie into natural ground.
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 9425	Year: 2039	Existing: 7750 Year: 2019
General Project Narrative: (Description of Minimization of Water Quality Impacts)	The project involves replacing Lee Co. bridge number 10 on US 15/501-NC 87 over Deep River in Lee/Chatham Counties. This project also involves some widening to accommodate wider paved shoulders and a realignment to prepare for a divided 4-lane transportation facility in the future. The existing structure is a 10-span bridge with an overall length of 523'. This proposed structure is a 3-span, 600' long, girder bridge located approximately 74' upstream of the existing bridge. The following stormwater control measures have been implemented to minimize water quality impacts: No deck drains will be present over open waters. A proposed preformed scour hole has been designed to dissipate energy from the proposed stormwater runoff to a non-erosive velocity as it discharges into Deep River. 4:1 or flatter side slopes were used for roadway ditches to provide treatment before roadway runoff enters the river. Rip-Rap pads have been placed at proposed pipe outlets to eliminate localized erosion at the pipe.		

Waterbody Information

Surface Water Body (1):	Deep River	NCDWR Stream Index No.:	17-(38.7)
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class C	
	Supplemental Classification:		
Other Stream Classification:	None		
Impairments:	None		
Aquatic T&E Species?	Comments:		
NRTR Stream ID:	N/A	Buffer Rules in Effect:	N/A
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	N/A
Deck Drains Discharge Over Water Body?	No	Dissipator Pads Provided in Buffer?	N/A
(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)	



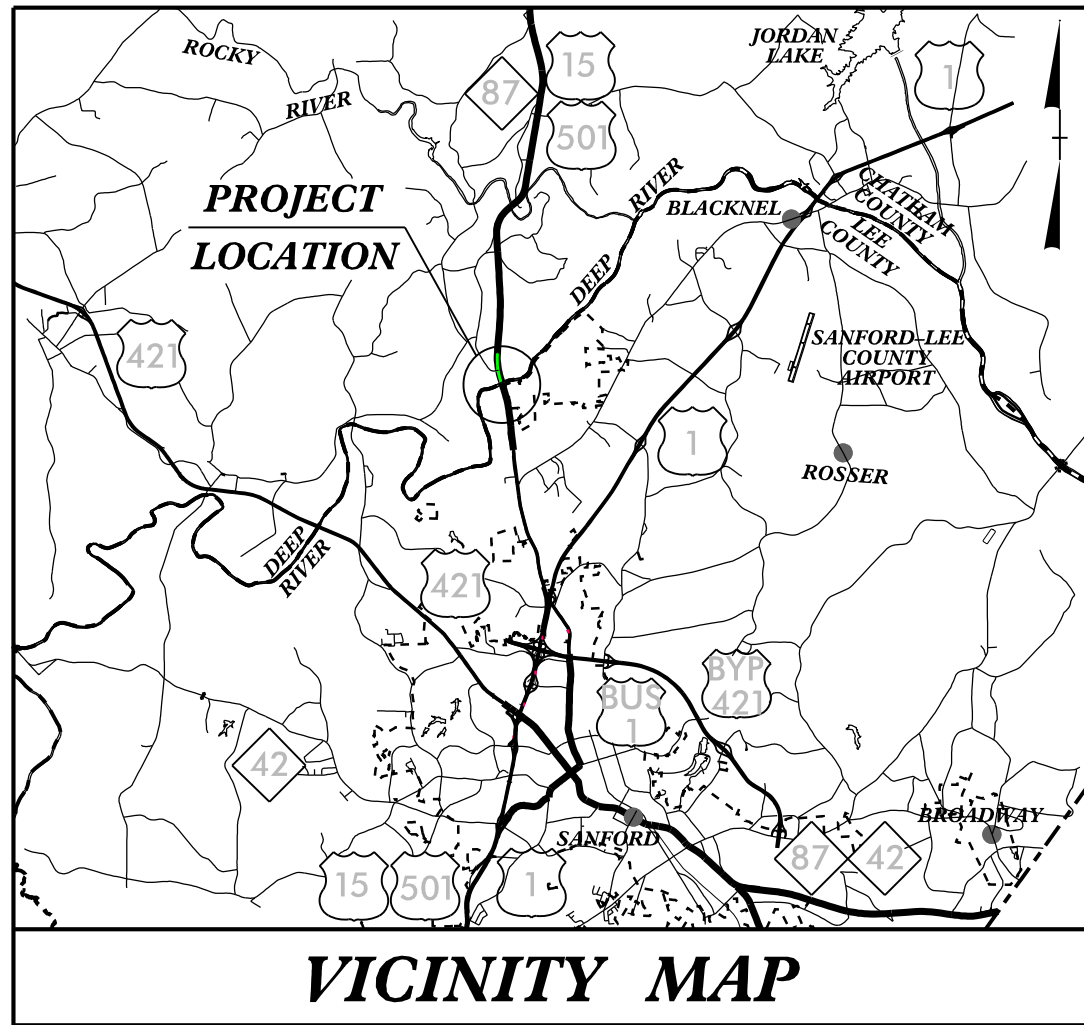
Page 2 of 2

Additional Comments

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

09.08/99

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LEE & CHATHAM COUNTIES

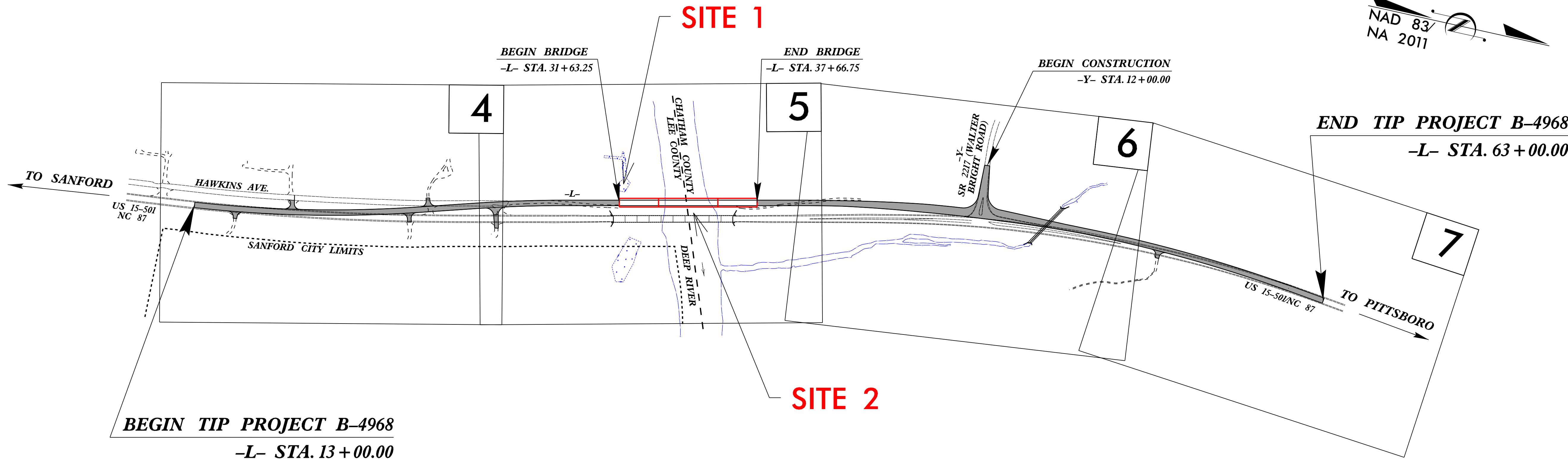
LOCATION: BRIDGE NO.10 OVER DEEP RIVER
ON US 15-501/NC 87

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

WETLAND AND SURFACE WATER IMPACTS PERMIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4968	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40162.1.1	N/A	PE	
40162.2.1	N/A	RW&UTILITY	

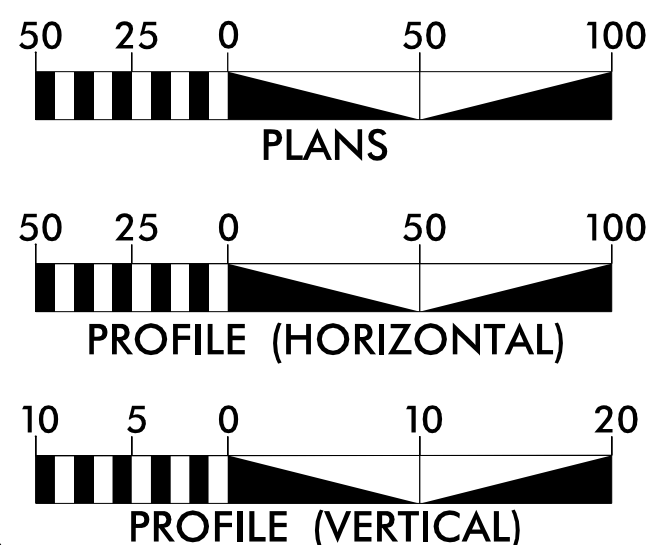
PERMIT DRAWING
SHEET 1 OF 6



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2019 = 7750
ADT 2039 = 9425
K = 9 %
D = 55 %
T = 8 % *
V = 60 MPH
* TTST = 4% + DUAL = 4%
FUNC CLASS =
MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4968 = 0.833 MILES
LENGTH STRUCTURE TIP PROJECT B-4968 = 0.114 MILES
TOTAL LENGTH TIP PROJECT B-4968 = 0.947 MILES

Prepared for NCDOT in the Office of:
Mead&Hunt

133 Fayetteville Street, Suite 210
Raleigh, North Carolina 27601
919-714-8670 | meadhunt.com
NC License No. F-1235

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

MAY 18, 2018

LETTING DATE:

MARCH 19, 2019

RICK DECOLA, PE
PROJECT ENGINEER

SURAJ SANGHANI
PROJECT DESIGN ENGINEER

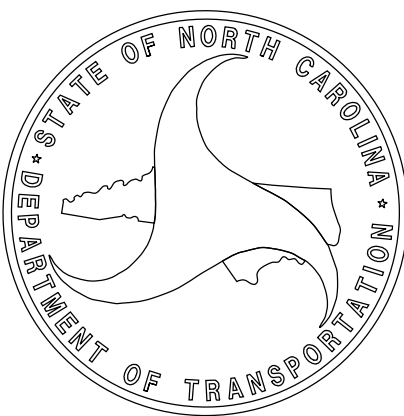
DAVID STUTTS, PE
NCDOT CONTACT

HYDRAULICS
ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN
ENGINEER

SIGNATURE: P.E.



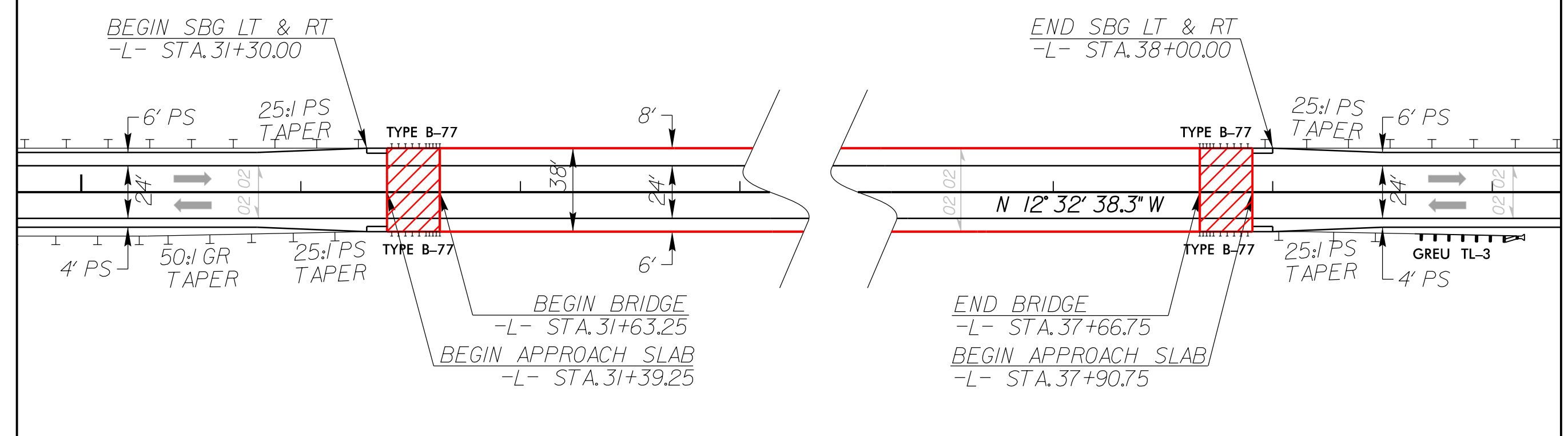
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1784P1d

TIP PROJECT: B-4968

CONTRACT: C204179

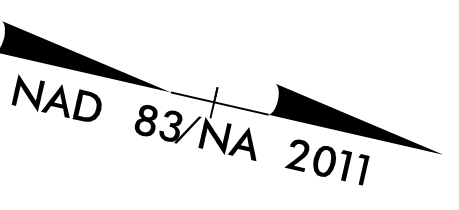
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7/28/2018

RELATIONSHIP OF BRIDGE TO PROPOSED PAVEMENT



-L- CURVE DATA

PI Sta 27+30.66	PI Sta 50+75.26
$\Delta = 3^\circ 49' 37.3''$ (RT)	$\Delta = 20^\circ 05' 46.5''$ (RT)
$D = 1^\circ 02' 30.3''$	$D = 0^\circ 54' 34.0''$
$L = 367.37'$	$L = 2,209.70'$
$T = 183.75'$	$T = 1,116.32'$
$R = 5,500.00'$	$R = 6,300.00'$
$SE = 0.03$	$SE = 0.03$
$RO = 8'$	$RO = 8'$



WETLAND AND SURFACE WATER IMPACTS PERMIT

- TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- F F DENOTES FILL IN WETLAND
- T T DENOTES TEMPORARY FILL IN WETLAND

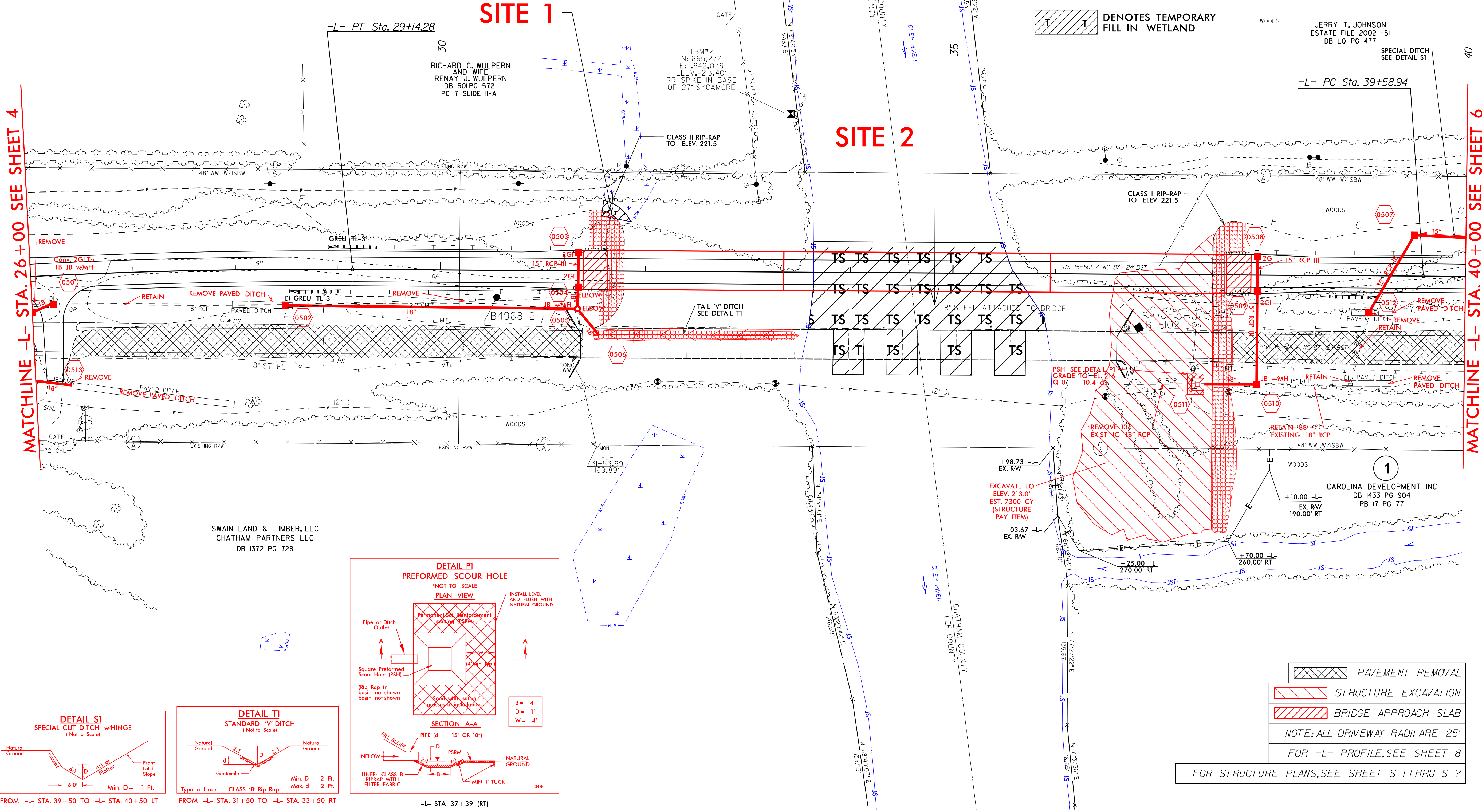
PROJECT REFERENCE NO. B-4968 SHEET NO. 5

RW SHEET NO. ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

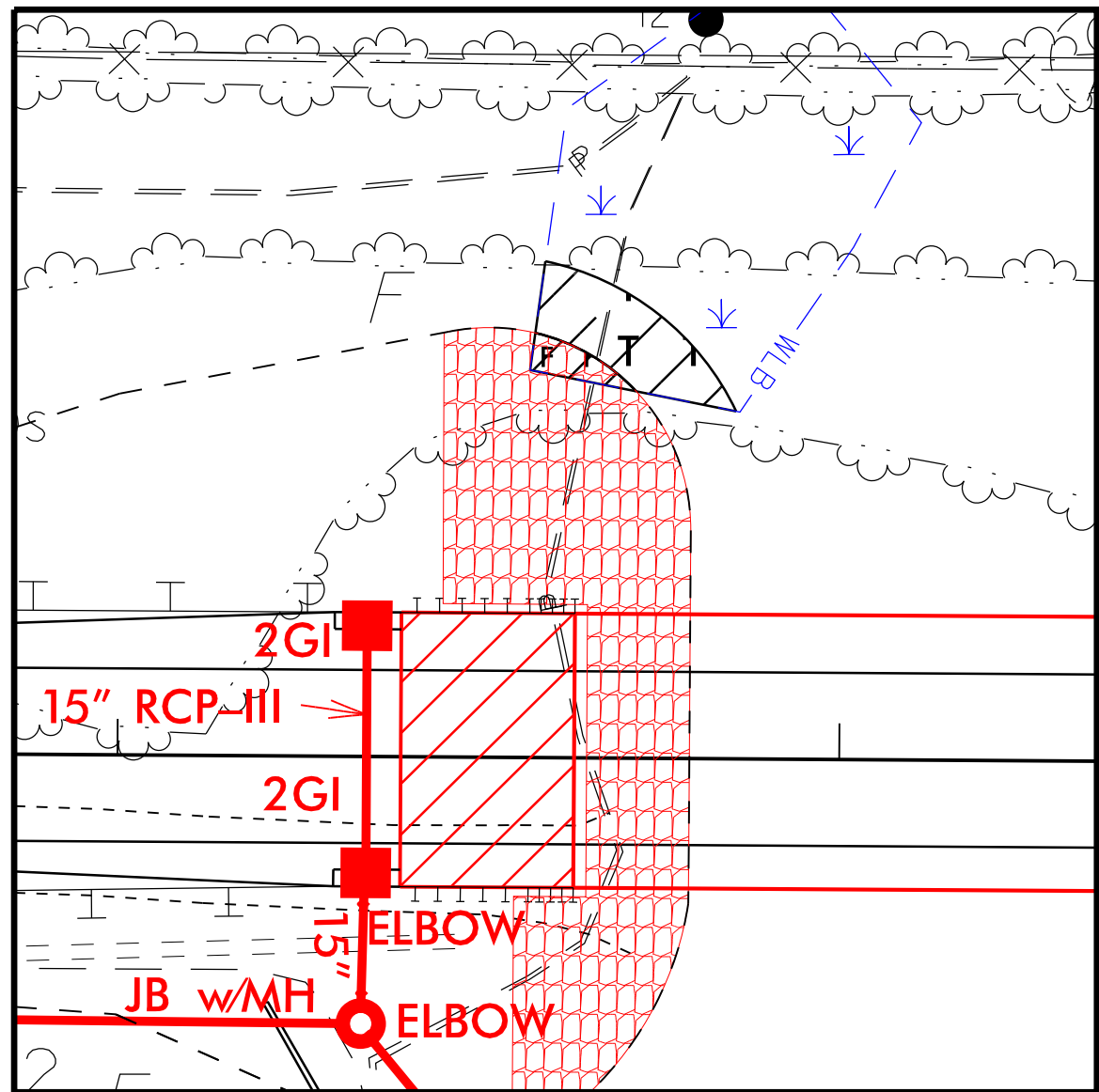
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Mead&Hunt 133 Fayetteville Street, Suite 210 Raleigh, North Carolina 27601 919-714-8670 | mead&hunt.com NC License No. F-1235

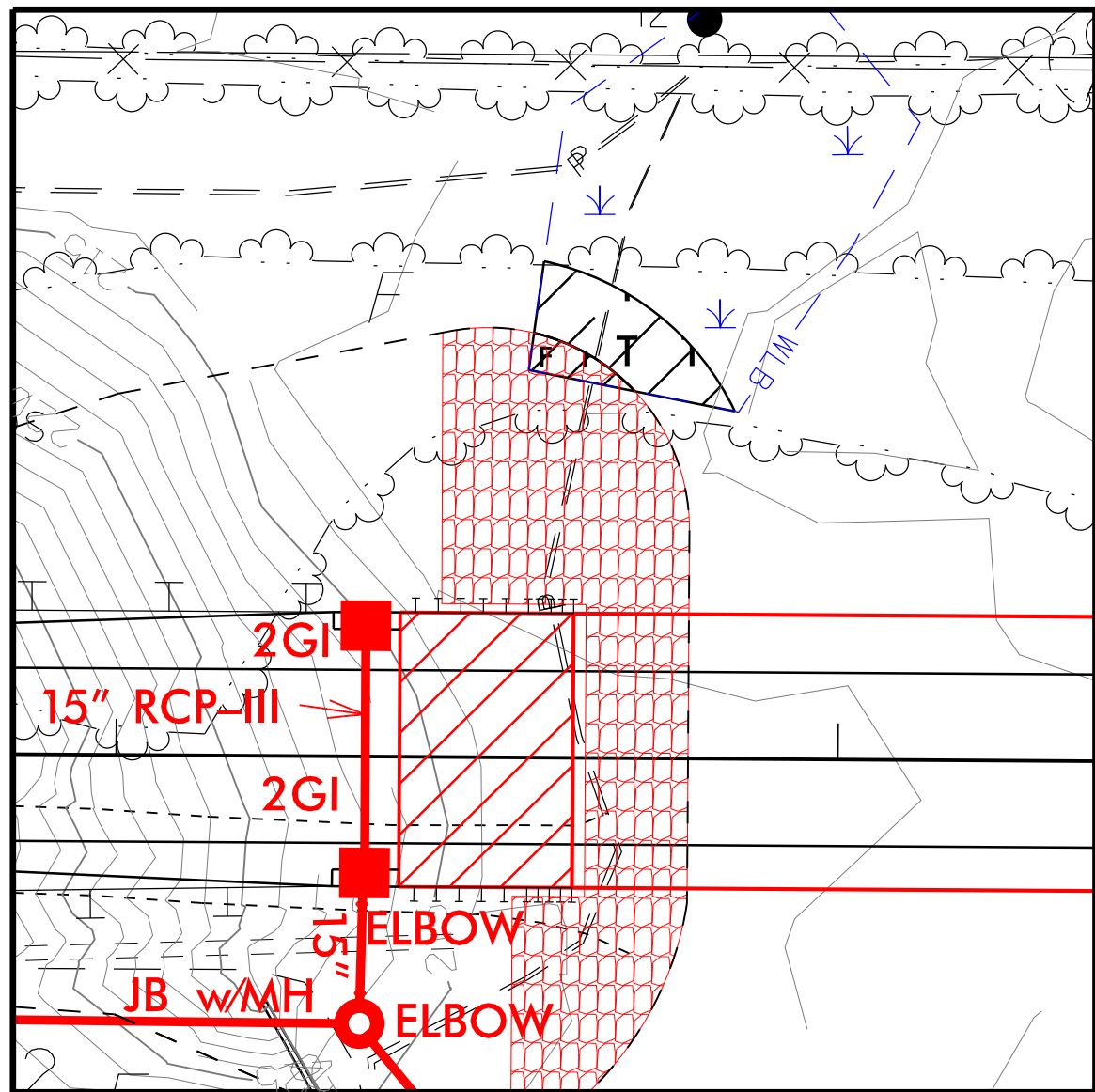
PERMIT DRAWING SHEET 2 OF 6



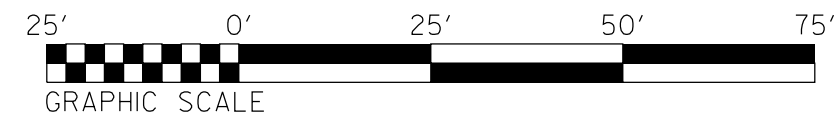
- PAVEMENT REMOVAL
 - STRUCTURE EXCAVATION
 - BRIDGE APPROACH SLAB
- NOTE: ALL DRIVEWAY RADII ARE 25'
- FOR -L- PROFILE, SEE SHEET 8
- FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-?



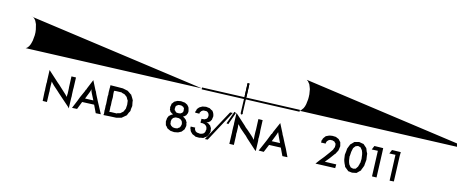
SITE 1 – WETLAND IMPACTS



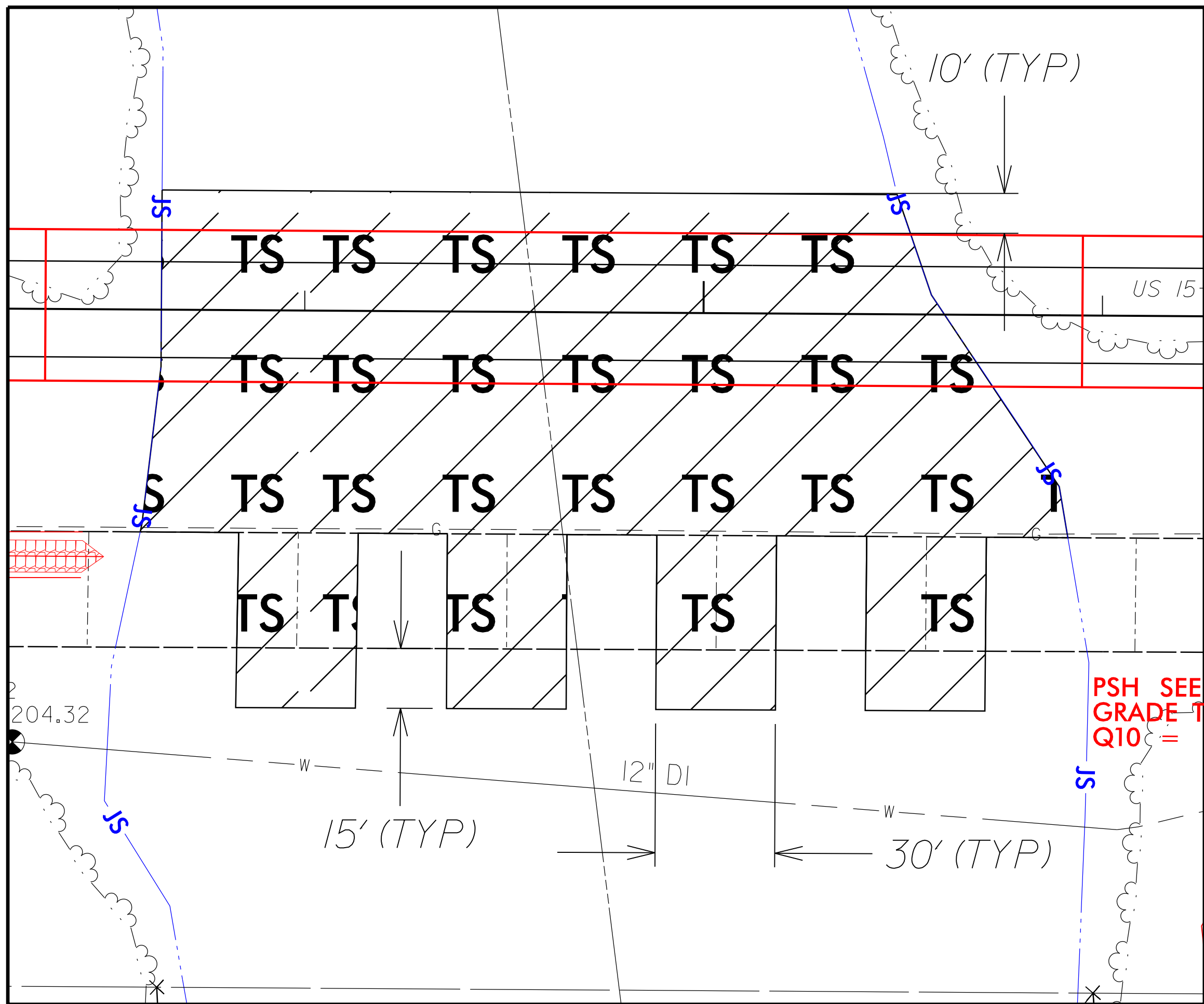
SITE 1 – WETLAND IMPACTS



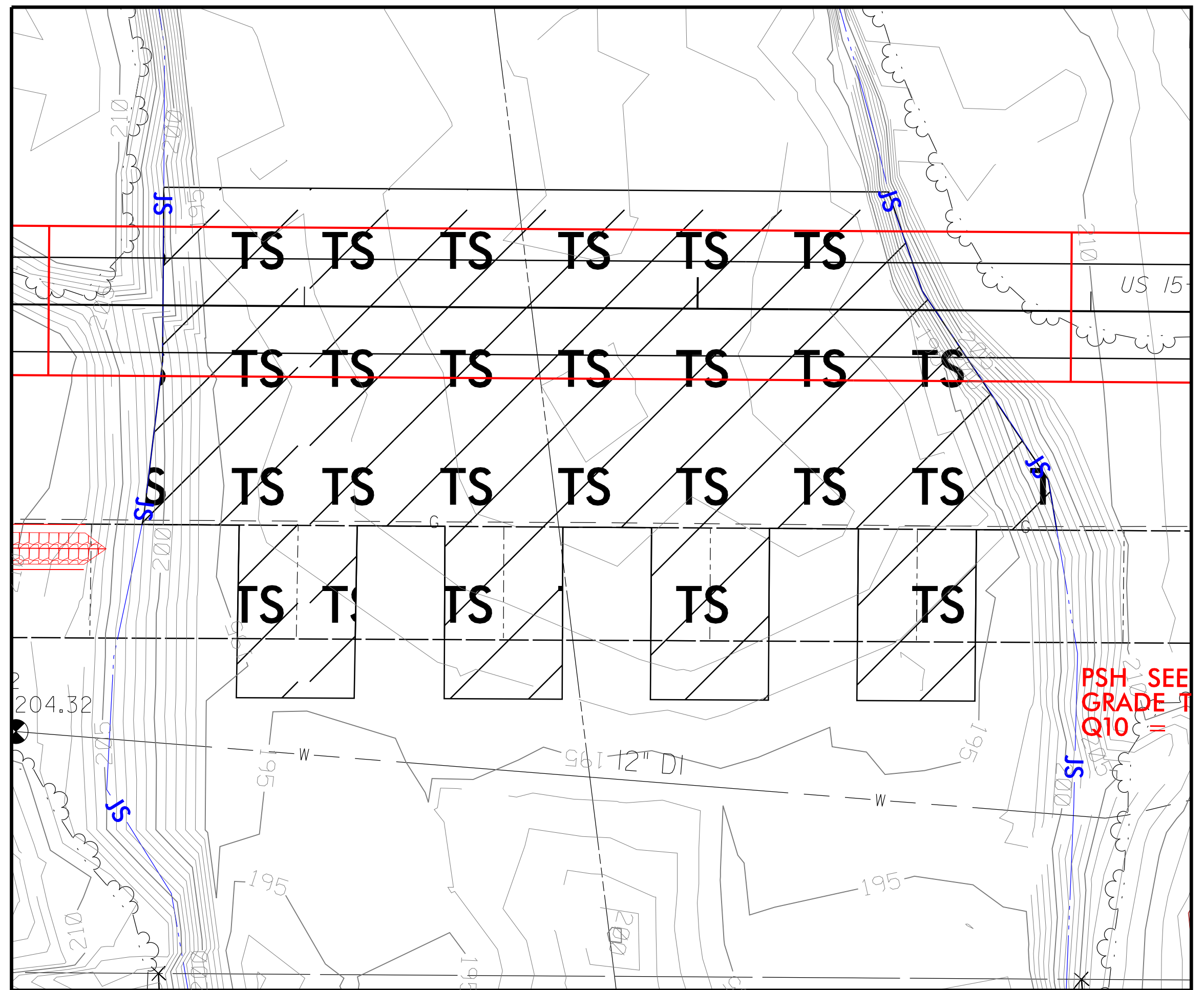
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND
- DENOTES TEMPORARY FILL IN WETLAND



PROJECT REFERENCE NO. <i>B-4968</i>		SHEET NO. <i>5 - INSET</i>
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
Mead&Hunt		133 Fayetteville Street, Suite 210 Raleigh, North Carolina 27601 919-714-8670 meadhunt.com NC License No. F-1235
PERMIT DRAWING SHEET 4 OF 6		



SITE 2 – SURFACE WATER IMPACTS



SITE 2 – SURFACE WATER IMPACTS

WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 31+56 to 31+85 LT	Fill	< 0.01	< 0.01								
2	-L- 33+59 to 35+92	Work Bridge & Baskets							0.53			
TOTALS*:			< 0.01	< 0.01					0.53	0	0	0

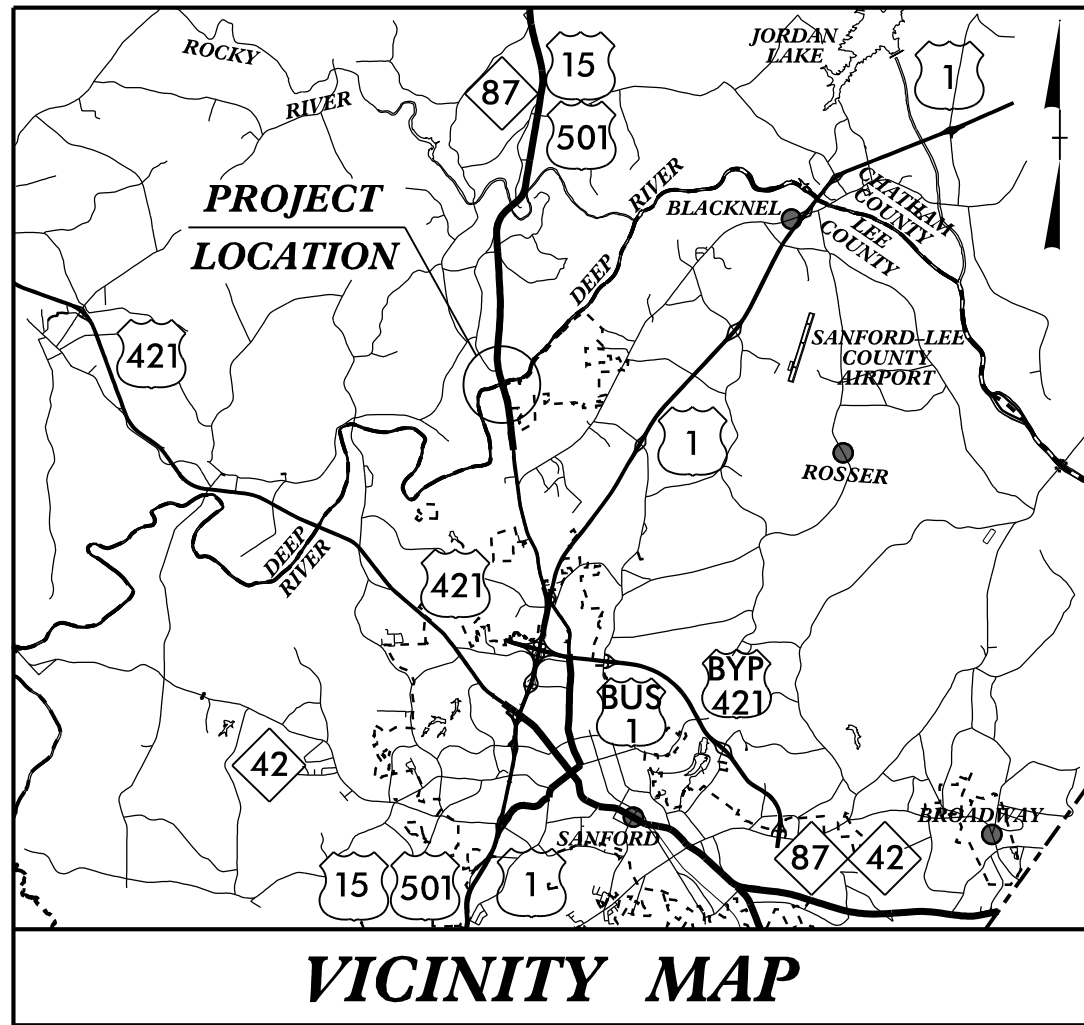
*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
6/15/2018
LEE & CHATHAM COUNTIES
B-4968
40162.1.1
SHEET 6 OF 6

09.08/99

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

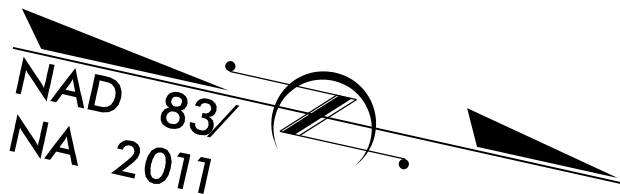
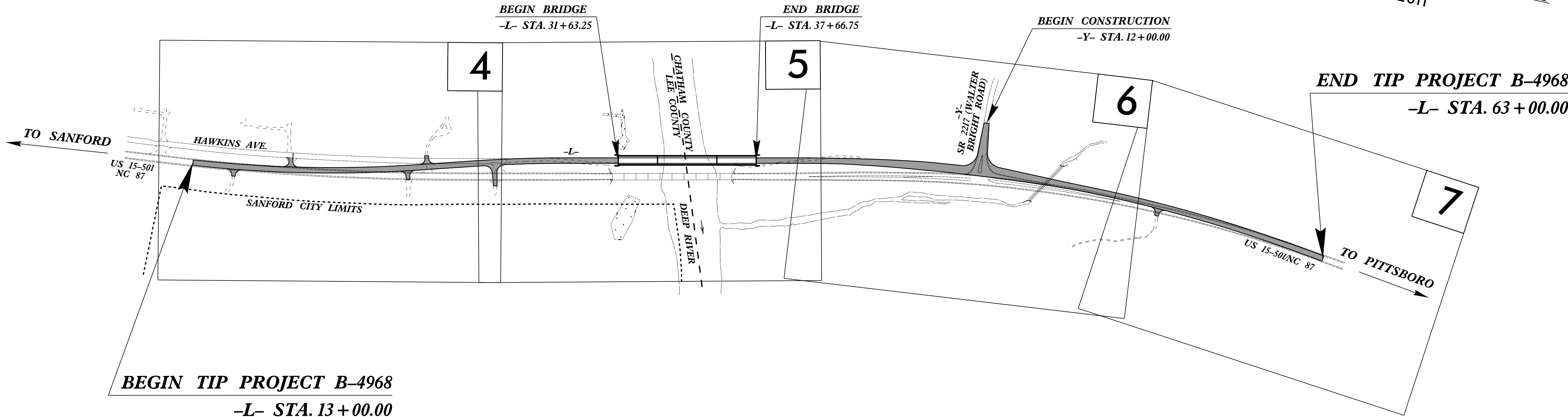
LEE & CHATHAM COUNTIES

LOCATION: BRIDGE NO.10 OVER DEEP RIVER
ON US 15-501/NC 87

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4968	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40162.1.1	N/A	PE	
40162.2.1	N/A	R/W & UTILITY	
40162.3.1	N/A	CONST	

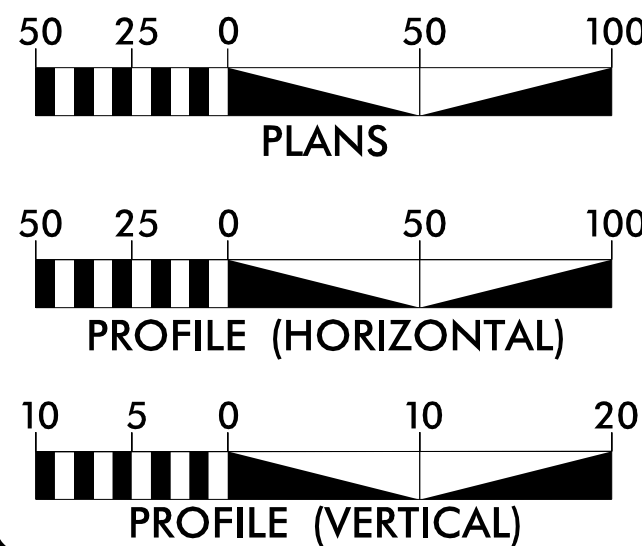
90% PLANS



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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2019 = 7750
ADT 2039 = 9425
K = 9 %
D = 55 %
T = 8 % *
V = 60 MPH
* TTST = 4% + DUAL = 4%
FUNC CLASS =
MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4968 = 0.833 MILES
LENGTH STRUCTURE TIP PROJECT B-4968 = 0.114 MILES
TOTAL LENGTH TIP PROJECT B-4968 = 0.947 MILES

Prepared for NCDOT in the Office of:

Mead&Hunt

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Raleigh, North Carolina 27601
919-714-8670 | meadhunt.com
NC License No. F-1235

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

MAY 18, 2018

LETTING DATE:

MARCH 19, 2019

RICK DECOLA, PE
PROJECT ENGINEER

SURAJ SANGHANI
PROJECT DESIGN ENGINEER

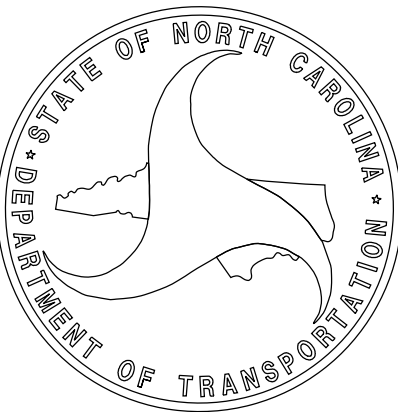
DAVID STUTTS, PE
NCDOT CONTACT

HYDRAULICS
ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN
ENGINEER

SIGNATURE: P.E.



24-SEP-2018 13:50
R:\Roadway\Proj\B4968.Rdy - tsh.dgn
1784r1d

TIP PROJECT: B-4968

CONTRACT: C204179

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	
Computed Property Corner	
Property Monument	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

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	
Buffer Zone 1	
Buffer Zone 2	
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	
False Sump	

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Exist Permanent Easment Pin and Cap	
New Permanent Easement Pin and Cap	
Vertical Benchmark	
Existing Right of Way Marker	
Existing Right of Way Line	
New Right of Way Line	
New Right of Way Line with Pin and Cap	
New Right of Way Line with Concrete or Granite R/W Marker	
New Control of Access Line with Concrete C/A Marker	
Existing Control of Access	
New Control of Access	
Existing Easement Line	
New Temporary Construction Easement	
New Temporary Drainage Easement	
New Permanent Drainage Easement	
New Permanent Drainage /Utility Easement	
New Permanent Utility Easement	
New Temporary Utility Easement	
New Aerial Utility Easement	

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	

*S.U.E. = Subsurface Utility Engineering

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	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	

UTILITIES:

POWER:	
Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
H-Frame Pole	
U/G Power Line LOS B (S.U.E.*)	
U/G Power Line LOS C (S.U.E.*)	
U/G Power Line LOS D (S.U.E.*)	

TELEPHONE:

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Cable LOS B (S.U.E.*)	
U/G Telephone Cable LOS C (S.U.E.*)	
U/G Telephone Cable LOS D (S.U.E.*)	
U/G Telephone Conduit LOS B (S.U.E.*)	
U/G Telephone Conduit LOS C (S.U.E.*)	
U/G Telephone Conduit LOS D (S.U.E.*)	
U/G Fiber Optics Cable LOS B (S.U.E.*)	
U/G Fiber Optics Cable LOS C (S.U.E.*)	
U/G Fiber Optics Cable LOS D (S.U.E.*)	

WATER:

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line LOS B (S.U.E.*)	
U/G Water Line LOS C (S.U.E.*)	
U/G Water Line LOS D (S.U.E.*)	
Above Ground Water Line	

TV:

TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
U/G TV Cable LOS B (S.U.E.*)	
U/G TV Cable LOS C (S.U.E.*)	
U/G TV Cable LOS D (S.U.E.*)	
U/G Fiber Optic Cable LOS B (S.U.E.*)	
U/G Fiber Optic Cable LOS C (S.U.E.*)	
U/G Fiber Optic Cable LOS D (S.U.E.*)	

GAS:

Gas Valve	
Gas Meter	
U/G Gas Line LOS B (S.U.E.*)	
U/G Gas Line LOS C (S.U.E.*)	
U/G Gas Line LOS D (S.U.E.*)	
Above Ground Gas Line	

SANITARY SEWER:

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
SS Forced Main Line LOS B (S.U.E.*)	
SS Forced Main Line LOS C (S.U.E.*)	
SS Forced Main Line LOS D (S.U.E.*)	

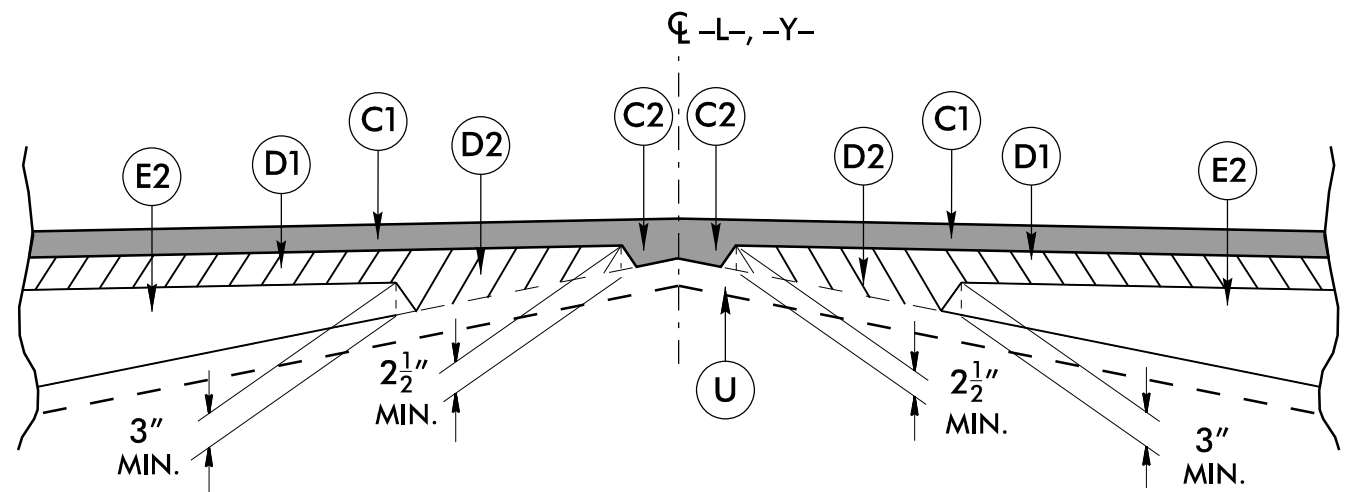
MISCELLANEOUS:

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

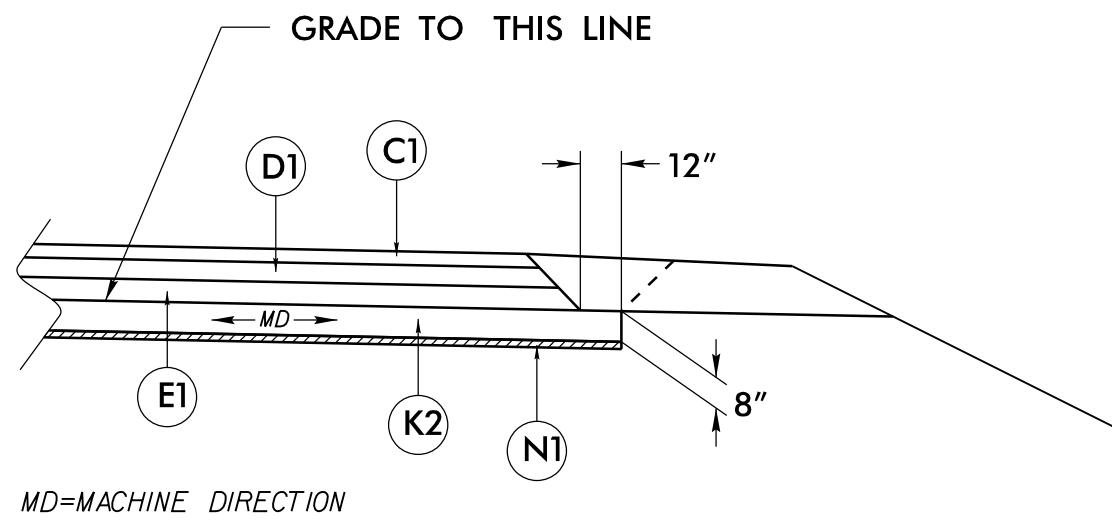
6/2/99
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R:\1784\pav\B4968.Rdy_tup.dgn
1784.dwg

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
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 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
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 5½" IN DEPTH.
K2	PROP. 8" CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	CONCRETE SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

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



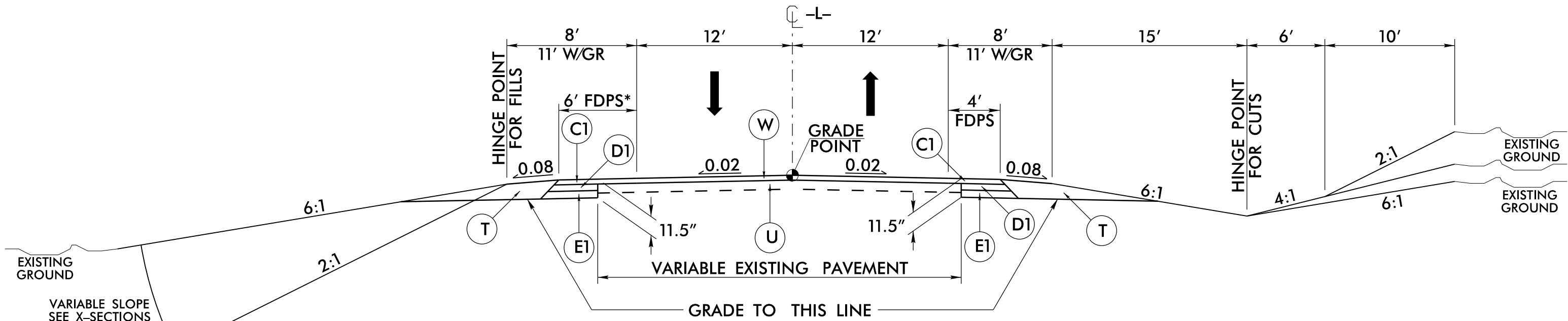
STANDARD WEDGING DETAIL



CLASS IV SUBGRADE STABILIZATION WITH
GEOTEXTILE FOR PAVEMENT STABILIZATION

USE DETAIL

-L- STA. 30+75.00 TO -L- STA. 31+39.25
-L- STA. 37+90.75 TO -L- STA. 38+50.00



TYPICAL SECTION NO. 1

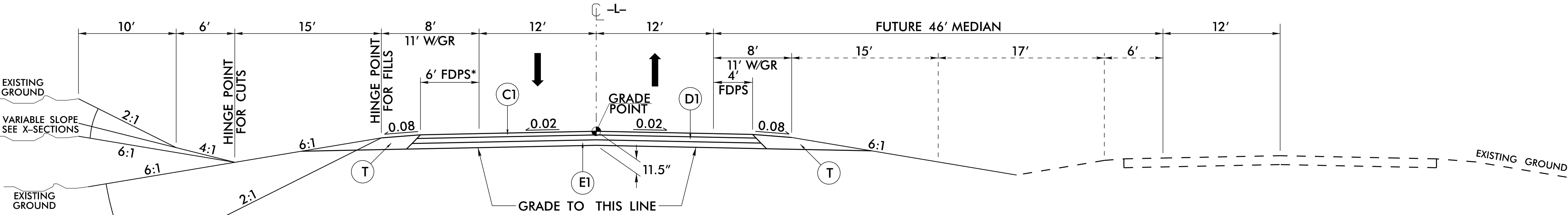
* ADDITIONAL WIDTH IS PROVIDED
FOR BICYCLE ACCOMMODATION

USE TYPICAL SECTION NO. 1

-L- STA. 13+00.00 TO -L- STA. 22+07.00

-L- STA. 46+02.00 TO -L- STA. 63+00.00

NOTE:SEE INCIDENTAL MILLING AND LEFT TURN LANE DETAILS



TYPICAL SECTION NO. 2

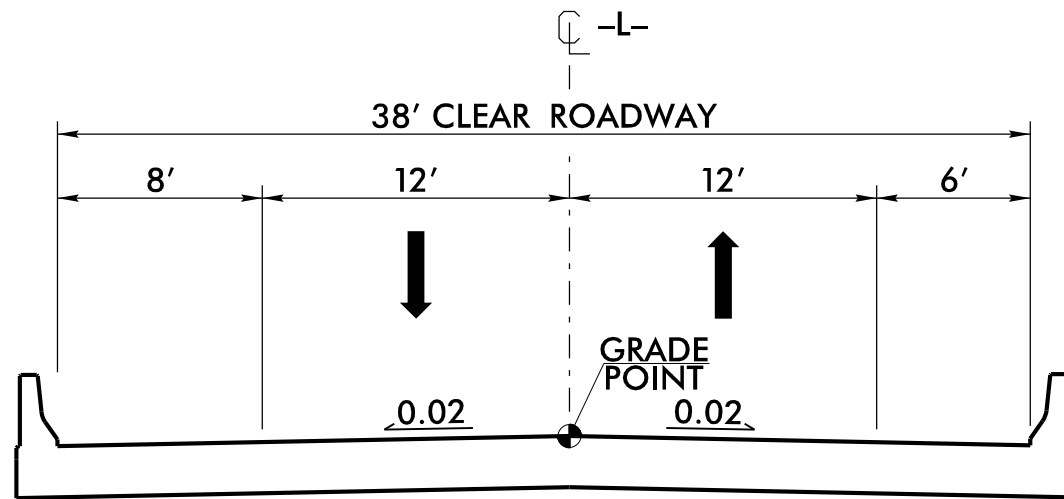
* ADDITIONAL WIDTH IS PROVIDED
FOR BICYCLE ACCOMMODATION

USE TYPICAL SECTION NO. 2

-L- STA. 22+07.00 TO -L- STA. 31+63.25 (BEGIN BRIDGE)

-L- STA. 37+66.75 (END BRIDGE) TO -L- STA. 46+02.00

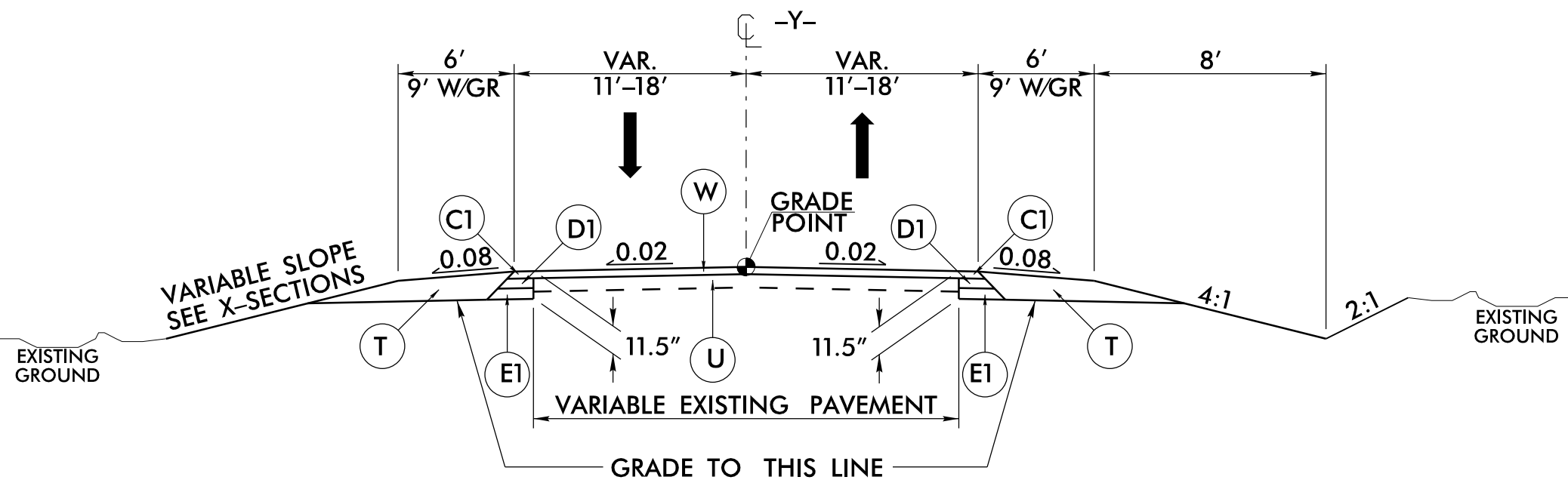
NOTE:SEE LEFT TURN LANE AND SHOULDER BERM GUTTER DETAILS



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

-L- STA. 31+63.25 (BEGIN BRIDGE) TO STA. 37+66.75 (END BRIDGE)

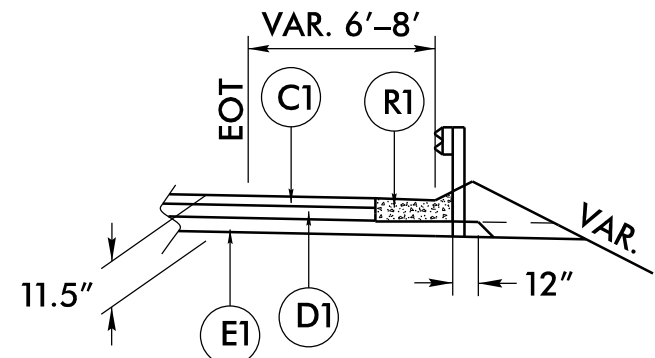


TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4

-Y- STA. 12+00.00 TO -Y- STA. 13+97.25

NOTE:SEE INCIDENTAL MILLING DETAIL



SHOULDER BERM GUTTER DETAIL

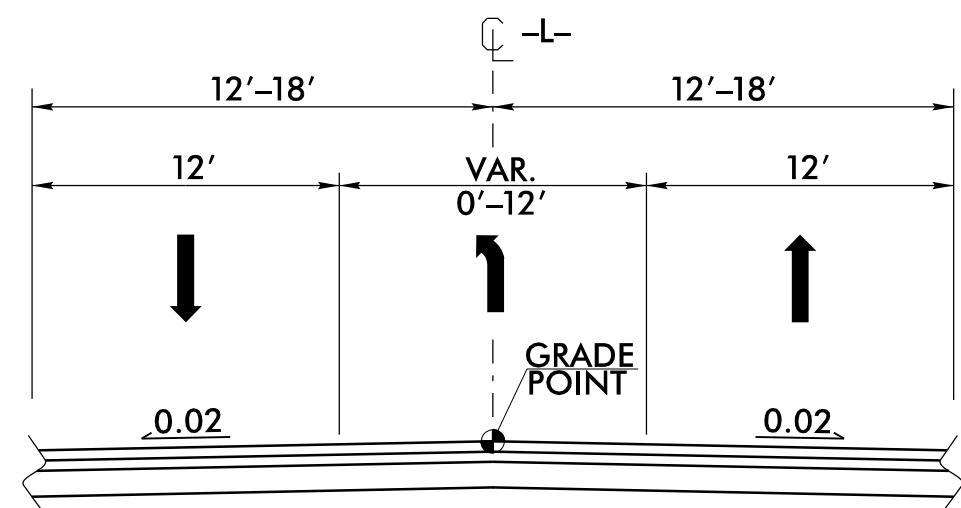
USE SHOULDER BERM GUTTER DETAIL

-L- STA. 31+30.00 TO STA. 31+39.25 LT.

-L- STA. 30+75.00 TO STA. 31+39.25 RT.

-L- STA. 37+90.75 TO STA. 38+00.00 LT.

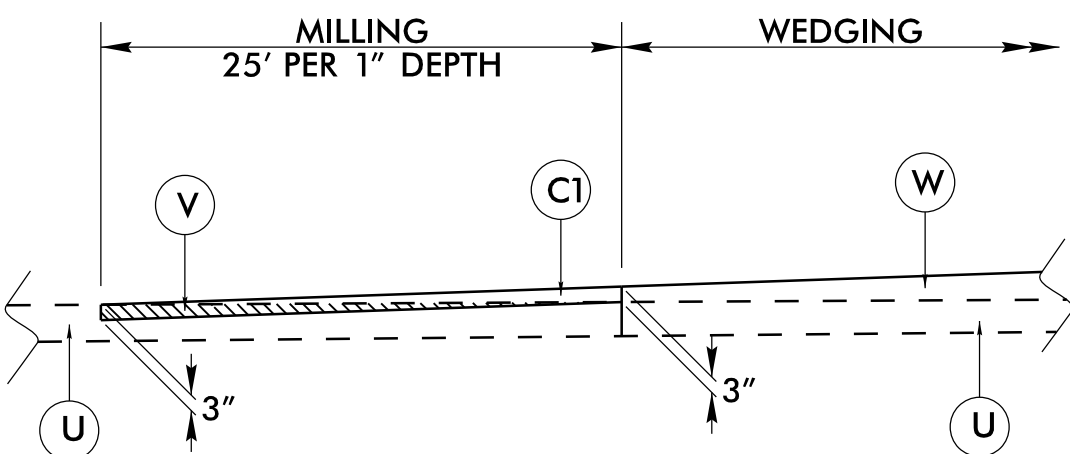
-L- STA. 37+90.75 TO STA. 38+00.00 RT.



LEFT TURN LANE DETAIL

USE LEFT TURN DETAIL

-L- STA. 41+40.00 TO -L- STA. 52+00.00



INCIDENTAL MILLING DETAIL

USE INCIDENTAL MILLING DETAIL

-L- STA. 13+00.00 TO -L- STA. 16+50.00

-L- STA. 62+00.00 TO -L- STA. 63+00.00

-Y- STA. 12+00.00 TO -Y- STA. 12+25.00

JERRY T. JOHNSON
STATE FILE 2002 -51
DB LQ PG 477

133 Fayetteville Street, Suite 210
Raleigh, North Carolina 27601
919-714-8670 | meadhunt.com
NC License No. F-1235

SPECIAL DITCH
SEE DETAIL S1

40

MATCHLINE -L- STA. 40+00 SEE SHEET 6

ALTERNATIVE 1 STA 26+00 SEE SHEET 4

DETAIL S1
SPECIAL CUT DITCH w/HINGE
(Not to Scale)

Natural Ground

4:1

4:1 or Flatter

6.0'

D

Front Ditch Slope

Min. D = 1 Ft.

FROM -L- STA. 39 + 50 TO -L- STA. 40 + 50 LT

DETAIL T1
STANDARD 'V' DITCH
(Not to Scale)

Natural Ground

2:1

D

2:1

Natural Ground

Geotextile

Type of Liner = CLASS 'B' Rip-Rap

Min. D = 2 Ft.
Max. d = 2 Ft.

FROM -L STA. 31+50 TO -L STA. 33+50 RT

DETAIL P1
PREFORMED SCOUR HOLE

"NOT TO SCALE"

PLAN VIEW

Pipe or Ditch Outlet

Permanently Soil Reinforcement (PSRM)

4' min. Rip

W

A

Square Preformed Scour Hole (PSH)

Rip. Rip in basin not shown basin not shown

Spec'd with positive pressure for installation

SECTION A-A

PIPE (d = 15" OR 18")

FILL SLOPE

INFLOW

D

PSRM

NATURAL GROUND

MIN. 1' TUCK

B

2x

1

3

4

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 PAVEMENT REMOVAL
 STRUCTURE EXCAVATION
 BRIDGE APPROACH SLAB
 NOTE: ALL DRIVEWAY RADII ARE 25'
 FOR -L- PROFILE, SEE SHEET 8

FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-42

-L- CURVE DATA	
<i>PI Sta</i> 27+30.66	<i>PI Sta</i> 50+75.26
$\Delta = 3^\circ 49' 37.3''$ (RT)	$\Delta = 20^\circ 05' 46.5''$ (RT)
<i>D</i> = 1'02" 30.3"	<i>D</i> = 0'54" 34.0"
<i>L</i> = 367.37'	<i>L</i> = 2,209.70'
<i>T</i> = 183.75'	<i>T</i> = 1,116.32'
<i>SE</i> = 5,500.00'	<i>SE</i> = 6,300.00'
<i>SE</i> = 0.03	<i>SE</i> = 0.03
<i>RO</i> = 81'	<i>RO</i> = 81'

NAD 83/NA 2011

TEMPORARY SHORING		LOCATIONS (SEE TMP)	
-L- STA. 31 + 00 ±	TO	STA. 31 + 75 ±,	25 ±' RT
-L- STA. 31 + 20 ±	TO	STA. 31 + 70 ±,	50 ±' RT
-L- STA. 37 + 55 ±	TO	STA. 38 + 35 ±,	25 ±' RT
-L- STA. 36 + 65 ±	TO	STA. 37 + 95 ±,	50 ±' RT

RELATIONSHIP OF BRIDGE TO PROPOSED PAVEMENT

Diagram illustrating the plan view of the bridge approach slabs and bridge structure. The diagram shows the layout of the bridge slabs, including the approach slabs and the bridge deck. Key features include:

- Approach Slabs:**
 - Left Approach Slab:**
 - Left side: *BEGIN SBG LT -L- STA.31+30.00*
 - Right side: *BEGIN BRIDGE -L- STA.31+63.25*
 - Bottom left: *BEGIN SBG RT -L- STA.30+75.00*
 - Bottom center: *BEGIN APPROACH SLAB -L- STA.31+39.25*
 - Right Approach Slab:**
 - Left side: *END BRIDGE -L- STA.37+66.75*
 - Right side: *END SBG LT & RT -L- STA.38+00.00*
 - Bottom center: *END APPROACH SLAB -L- STA.37+90.75*
- Bridge Structure:**
 - Center: *TYPE B-77* (Bridge Pier)
 - Width: *N 12° 32' 38.3" W*
 - Dimensions: *38'* (Total width), *24'* (Slab width), *6'* (Approach slab width)
- Other Features:**
 - 6' PS* (Pavement Surface)
 - 25:1 PS TAPER* (Pavement Surface Taper)
 - 50:1 GR TAPER* (Gravel Taper)
 - 4' PS* (Pavement Surface)
 - GREU TL-3* (Gravel Taper)

-L- PT Sta. 29+14.28

RICHARD C. WULPERN
AND WIFE
RENAY J. WULPERN
DB 501PG 572
PC 7 SLIDE II-A

TBM#2
N: 665,272
E: 1,942,079
ELEV.=213.40'
SPIKE IN BAS
27° SYCAMOR

BEGIN 47" W.W. FENCE W/
ONE STRAND BARB WIRE
TIE TO EXISTING

END 47" W.W.FENCE W/
ONE STRAND BARB WIRE
TIE TO WING WALL

TEMPORARY SHORING

TEMPORARY SHORING

-L- PC Sta. 39+58.94

END 47" W.W.FENCE W/
ONE STRAND BARB WIRE
TIE TO WING WALL

BEGIN 47" W.W. FENCE W.
ONE STRAND BARB WIRE
TIE TO EXISTING

BEGIN 47" W.W. FENCE W/

ONE STRAND BARB WIRE

TIE TO WING WALL

END 47" W.W. FENCE W/
ONE STRAND BARB WIRE -
TIE TO EXISTING

CAROLINA DEVELOPMENT INC
DB 1433 PG 904
PB 17 PG 77

EXCAVATE TO
ELEV. 213.0'
EST. 7300 CY
(STRUCTURE
PAY ITEM)

+03.67 -L-
EX. R/W

SWAIN LAND & TIMBER, LLC
CHATHAM PARTNERS LLC
DB 1372 PG 728

3/17/99

7841 Id
R:\Roadway\Proj\B4968-Rdy-psh-5.dgn

-L- STA 37+39 (RT

FROM -L- SIA. 39+50 TO -L- SIA. 40+50 L

FROM -L- STA. 31+50 TO -L- STA. 33+50

8/17/99

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R:\Roadway\B4968.Rdy_psh_6.dgn

-L- CURVE DATA
PI Sta 50+75.26
 $\Delta = 20^{\circ} 05' 46.5''$ (RT)
D = 0' 54' 34.0"
L = 2,209.70'
T = 1,116.32'
R = 6,300.00'
SE = 0.03
RO = 81'

-Y- CURVE DATA
PI Sta 10+82.94
 $\Delta = 12^{\circ} 23' 32.6''$ (LT)
D = 7' 30' 00.0"
L = 165.23'
T = 82.94'
R = 763.94'
SE = EXIST.

NOTE: WATER LINE EXTENSION PLACED BY GIS
BUT CALLED BUT WAS NOT MARKED

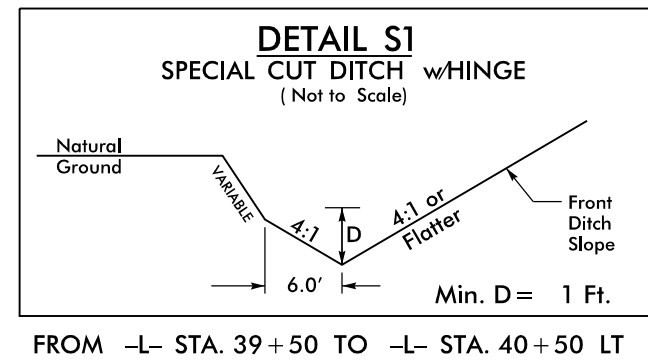
-Y- PC Sta. 10+00.00

NAD 83/NA 2011

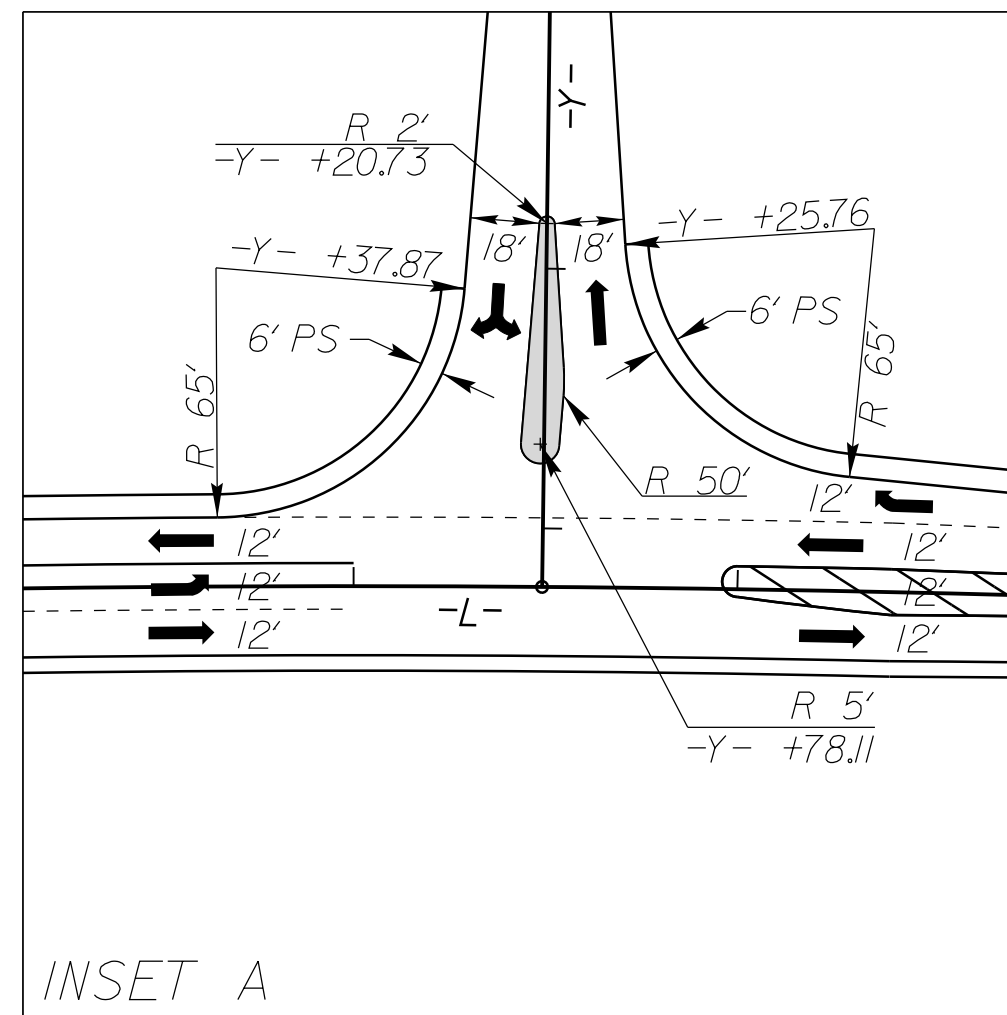
PROJECT REFERENCE NO.		SHEET NO.
B-4968		6
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
Mead&Hunt		133 Fayetteville Street, Suite 210 Raleigh, North Carolina 27601 919-714-8670 meadhunt.com NC License No. F-1235

MATCHLINE -L- STA. 40+00 SEE SHEET 5

MATCHLINE -L- STA. 54+00 SEE SHEET 7



1
CAROLINA DEVELOPMENT INC
DB 1433 PG 904
PB 17 PG 17



	PAVEMENT REMOVAL
FOR -L- PROFILE, SEE SHEET 9	
FOR -Y- PROFILE, SEE SHEET 10	

8/17/99

24-SEP-2018 13:50 R:\Roadway\B4968.Rdy_psh_7.dgn
178418

REVISIONS

MATCHLINE -L- STA. 54+00 SEE SHEET 6

-L- CURVE DATA
PI Sta 50+75.26
 $\Delta = 20^{\circ}05'46.5" (RT)$
 $D = 0^{\circ}54'34.0"$
 $L = 2,209.70'$
 $T = 1,116.32'$
 $R = 6,300.00'$
 $SE = 0.03$
 $RO = 81'$

PATRICK S. GUNTER
DB 1550 PG 345
PB 17 PG 77
PB 2008 PG 347

1
CAROLINA DEVELOPMENT INC
DB 1433 PG 904
PB 17 PG 77

NAD 83/NA 2011

END TIP PROJECT B-4968
-L- STA. 63+00.00

-L- POT Sta. 63+96.74

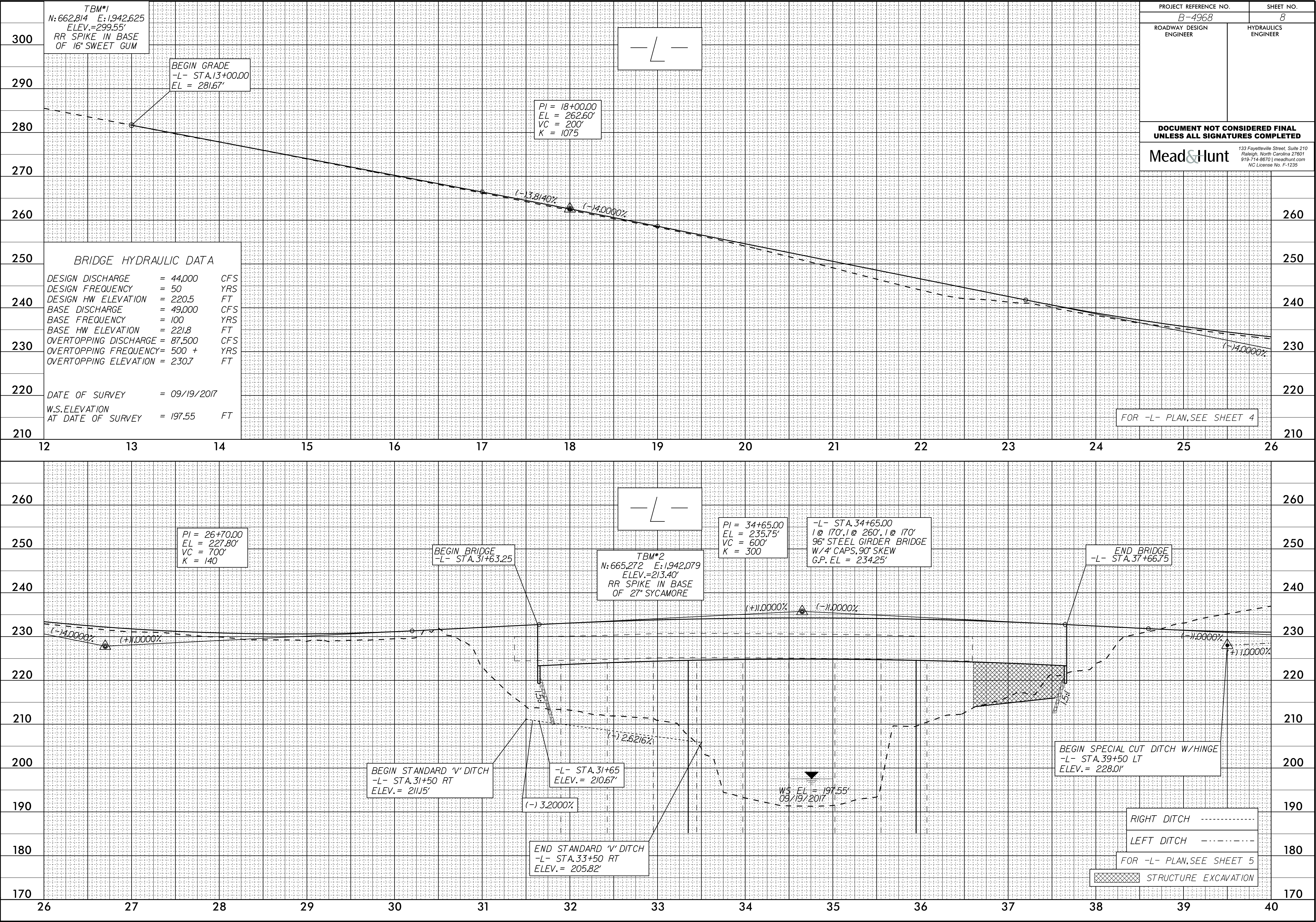
-L- PT Sta. 61+68.64

TM#3
N: 668.416
E: 1,941.928
ELEV. = 283.11'
RR SPIKE IN BASE
OF 15" PINE

NOTE: ALL DRIVEWAY RADII ARE 25'
FOR -L- PROFILE, SEE SHEET 9

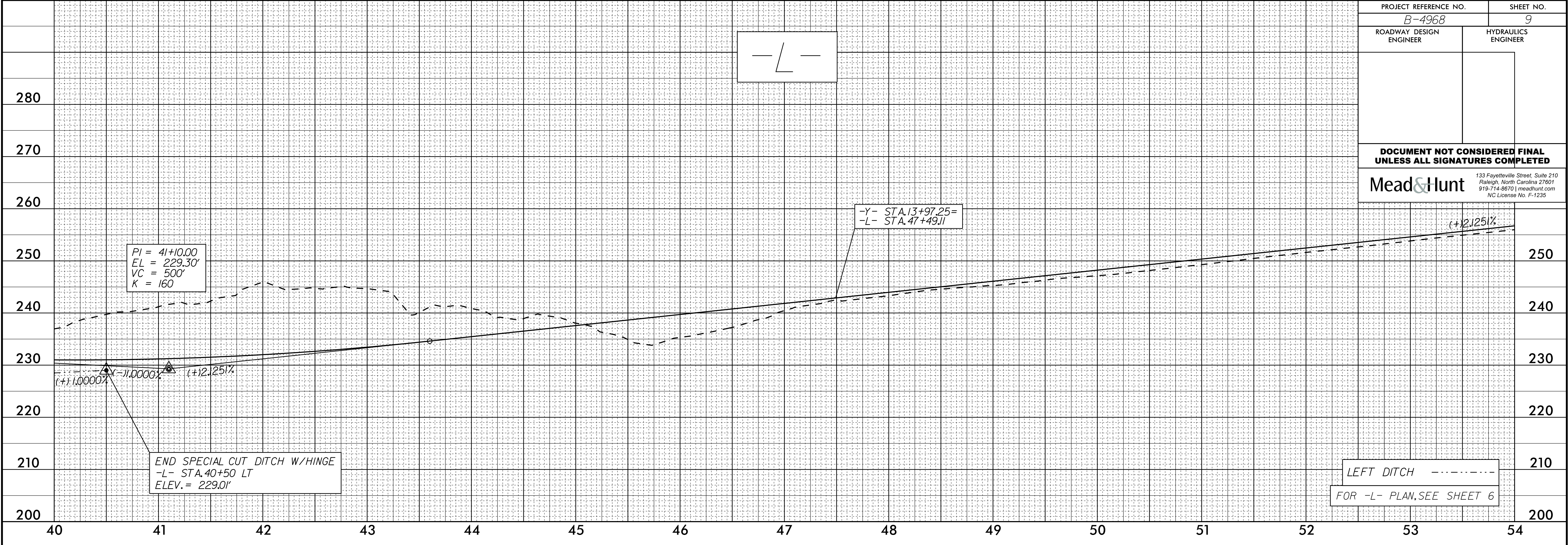
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B-4968		7
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
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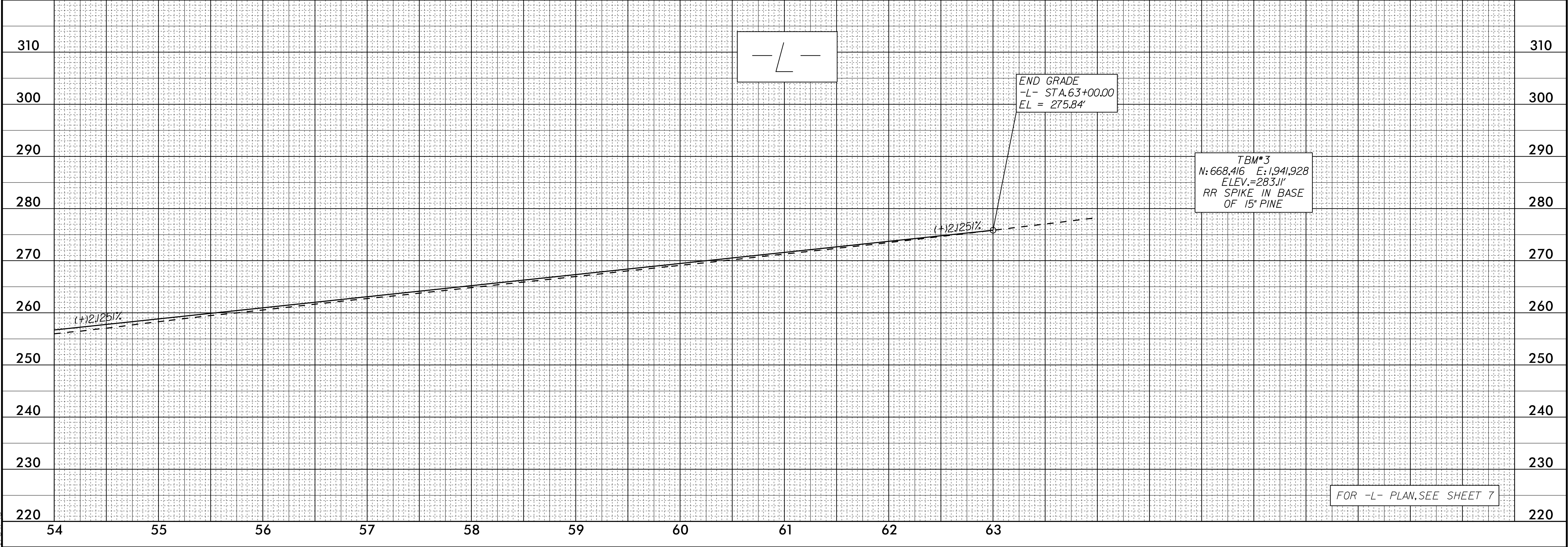
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5/28/99



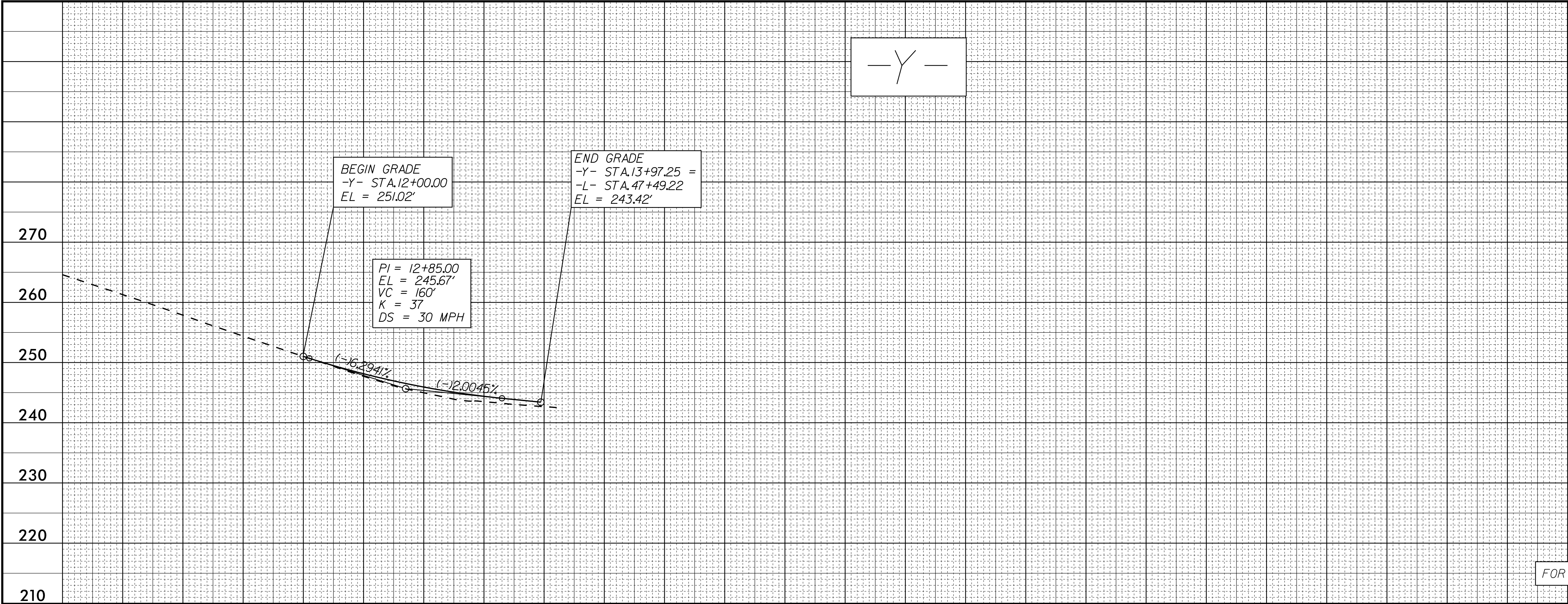
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B-4968		9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
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1784P18



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1784P10



PROJECT REFERENCE NO. B-4968		SHEET NO. 10	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
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		260	
		250	
		240	
		230	
		220	
		210	
FOR -Y- PLAN, SEE SHEET 6			