



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE  
GOVERNOR

EUGENE A. CONTI  
SECRETARY

March 9, 2010

U.S. Army Corps of Engineers  
Regulatory Field Office  
Post Office Box 1890  
Wilmington, NC 28402-1890

ATTENTION: Kimberly Garvey  
NCDOT Coordinator

Dear Madam:

Subject: **Application for Section 404 Nationwide Permits 23 and 33, and Section 401 Water Quality Certification** for the proposed Interchange on US 74-76 and NC 211 (Green Swamp Road) Columbus County. TIP No. R-0061C; Federal Aid Project No. NHF-74(80); Debit \$240.00 from WBS 38783.1.1.

Please find enclosed the PCN form, permit drawings, and half-size plan sheets for the above referenced project. A Categorical Exclusion (CE) was completed for this project in April 2008, and distributed shortly thereafter. Additional copies will be made available upon request. The North Carolina Department of Transportation (NCDOT) proposes to construct an interchange on US 74-76 and NC 211 (Green Swamp Road) Columbus County. The project involves converting an existing at-grade intersection to an interchange in approximately the same location. There will be 0.36 acre of permanent impacts to non-riparian wetlands resulting from fill and excavation on this project.

The let date for this project is September 21, 2010; however, the let date may advance as additional funds become available.

### **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 these activities be authorized by a Nationwide Permit 23 (72 CFR; 11092-11198, March 12, 2007). The NCDOT requests that a Nationwide Permit 33 for temporary impacts resulting from temporary fill for erosion control measures and the temporary causeway be issued to authorize these activities.

**MAILING ADDRESS:**  
NC DEPARTMENT OF TRANSPORTATION  
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS  
1548 MAIL SERVICE CENTER  
RALEIGH NC 27699-1548

TELEPHONE: 919-431-2000  
FAX: 919-431-2001

WEBSITE: [WWW.NCDOT.ORG](http://WWW.NCDOT.ORG)

**LOCATION:**  
4701 Atlantic Ave.  
Suite 116  
Raleigh, NC 27604

Section 401 Water Quality Certification: We anticipate 401 General Certification number 3701 and a 3688 will apply to this project. All general conditions of the Water Quality Certification will be met. NCDOT is providing five copies of this application to the NCDWQ for their review and approval. Authorization to debit the \$240 Permit Application Fee from WBS Element 38783.1.1 is hereby given.

A copy of this application will be posted on the NCDOT website at: <http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html>

Thank you for your time and assistance with this project. Please contact John Merritt at [jsmerritt@ncdot.gov](mailto:jsmerritt@ncdot.gov) or (919) 431-6749 if you have any questions or need additional information.

Sincerely,



*for* Gregory J. Thorpe, Ph.D.  
Environmental Management Director, PDEA

CC:

W/attachment

Mr. Brian Wrenn, NCDWQ (5 copies)

W/o attachment (see website for attachments)

Dr. David Chang, P.E., Hydraulics  
Mr. Greg Perfetti, P.E., Structure Design  
Mr. Victor Barbour, P.E., Project Services Unit  
Mr. Mark Staley, Roadside Environmental  
Mr. Greg Burns, P.E, Division 6 Engineer  
Mr. Jim Rerko, Division 6 Environmental Officer  
Mr. Jay Bennett, P.E., Roadway Design  
Mr. Majed Alghandour, P. E., Programming and TIP  
Mr. Art McMillan, P.E., Highway Design  
Mr. Scott McLendon, USACE, Wilmington  
Mr. Travis Wilson, NCWRC  
Mr. Gary Jordan, USFWS  
Ms. Anne Deaton, NCDMF  
Mr. Ron Sechler, NMFS  
Ms. Kristine O'Conner, P.E., Project Development Engineer



Office Use Only:  
 Corps action ID no. \_\_\_\_\_  
 DWQ project no. \_\_\_\_\_  
 Form Version 1.3 Dec 10 2008

## Pre-Construction Notification (PCN) Form

### A. Applicant Information

#### 1. Processing

1a. Type(s) of approval sought from the Corps:	<input checked="" type="checkbox"/> Section 404 Permit	<input type="checkbox"/> Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 23, 33 or General Permit (GP) number:		
1c. Has the NWP or GP number been verified by the Corps?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1d. Type(s) of approval sought from the DWQ (check all that apply):		
<input checked="" type="checkbox"/> 401 Water Quality Certification – Regular <span style="margin-left: 100px;"><input type="checkbox"/> Non-404 Jurisdictional General Permit</span> <input type="checkbox"/> 401 Water Quality Certification – Express <span style="margin-left: 100px;"><input type="checkbox"/> Riparian Buffer Authorization</span>		
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	For the record only for Corps Permit: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

#### 2. Project Information

2a. Name of project:	Proposed Interchange on US 74-76 and NC 211 (Green Swamp Road)
2b. County:	Columbus
2c. Nearest municipality / town:	Bolton
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no:	R-0061C

#### 3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	<i>not applicable</i>
3c. Responsible Party (for LLC if applicable):	<i>not applicable</i>
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 431-6749
3g. Fax no.:	(919) 431-2002
3h. Email address:	jsmerritt@ncdot.gov

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

<b>B. Project Information and Prior Project History</b>	
<b>1. Property Identification</b>	
1a. Property identification no. (tax PIN or parcel ID):	<i>not applicable</i>
1b. Site coordinates (in decimal degrees):	Latitude: 34.329314 (DD.DDDDDD) Longitude: - 78.419042 (-DD.DDDDDD)
1c. Property size:	130 acres (estimated from plans)
<b>2. Surface Waters</b>	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Gum Swamp
2b. Water Quality Classification of nearest receiving water:	C Sw+
2c. River basin:	Lumber
<b>3. Project Description</b>	
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: Residential and agricultural mixed with forestland.	
3b. List the total estimated acreage of all existing wetlands on the property: 6.25 acres (using NRTR study area)	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 1,120 linear feet (using NRTR study area)	
3d. Explain the purpose of the proposed project: The project involves converting an existing at-grade intersection to an interchange in approximately the same location.	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves a standard diamond interchange is proposed for this location. A new bridge will carry NC 211 over US 74/76. The proposed bridge is approximately 220 feet in length, 60 feet wide, and has a vertical clearance of 16 feet, 8 inches to increase safety and allow for future upgrades of US 74/76 to interstate standards. The existing roadway approach on NC 211 (Green Swamp Road) will be repaved and remain two lanes, with 12-foot wide lanes and 4-foot paved shoulders. In the vicinity of the interchange, NC 211 will be widened to accommodate concrete median islands and designated turning lanes to access US 74/76. Utilities being relocated during construction include buried telephone, cable television and aerial power facilities. For most of the construction, an onsite detour will be utilized for the traffic traveling on NC 211. US 74/76 will remain open throughout construction. Standard road building equipment, such as trucks, dozers, and cranes will be used.	
<b>4. Jurisdictional Determinations</b>	
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: The Jurisdictional Determination request is included with this Permit Application.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	<input type="checkbox"/> Preliminary <input type="checkbox"/> Final
4c. If yes, who delineated the jurisdictional areas? Name (if known):	Agency/Consultant Company: Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.	
<b>5. Project History</b>	
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
5b. If yes, explain in detail according to "help file" instructions.	

**6. Future Project Plans**

6a. Is this a phased project?  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 (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)
Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Fill	Pocosin	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	0.36
Site 2 <input type="checkbox"/> P <input checked="" type="checkbox"/> T	Fill	Pocosin	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	0.23
Site 3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 4 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
<b>2g. Total wetland impacts</b>					0.36 Permanent 0.23 Temporary

2h. Comments: Proposed temporary impacts to wetlands of 0.03 acre of Temporary Fill in Wetlands in the Hand Clearing areas for the installation of erosion control measures, including Temporary Silt Fence and/or Special Sediment Control Fence.

**3. Stream Impacts**

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 4 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		

**3h. Total stream and tributary impacts**                      X Perm  
X Temp

3i. Comments: There will be <0.01 acre of surface water impacts due to interior bent #1.

**4. Open Water Impacts**

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

4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 <input type="checkbox"/> P <input type="checkbox"/> T				
O2 <input type="checkbox"/> P <input type="checkbox"/> T				
O3 <input type="checkbox"/> P <input type="checkbox"/> T				
O4 <input type="checkbox"/> P <input type="checkbox"/> T				
<b>4f. Total open water impacts</b>				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								
<b>5f. Total</b>								

5g. Comments:

5h. Is a dam high hazard permit required?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	If yes, permit ID no:
5i. Expected pond surface area (acres):			
5j. Size of pond watershed (acres):			
5k. Method of construction:			

**6. Buffer Impacts (for DWQ)**

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

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




<b>D. Impact Justification and Mitigation</b>		
<b>1. Avoidance and Minimization</b>		
1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project. The use of 3:1 fill slopes in jurisdictional areas, where practicable, and the use of hand clearing in wetlands where practicable.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. NCDOT Best Management Practices for Construction will be followed, as well as those for Sedimentation and Erosion Control; including grass swales and rip-rap flow diffusion devices.		
<b>2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State</b>		
2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, explain:	
2b. If yes, mitigation is required by (check all that apply):	<input checked="" type="checkbox"/> DWQ <input checked="" type="checkbox"/> Corps	
2c. If yes, which mitigation option will be used for this project?	<input type="checkbox"/> Mitigation bank <input type="checkbox"/> Payment to in-lieu fee program <input checked="" type="checkbox"/> Permittee Responsible Mitigation	
<b>3. Complete if Using a Mitigation Bank</b>		
3a. Name of Mitigation Bank: Juniper Bay		
3b. Credits Purchased (attach receipt and letter)	Type	Quantity
3c. Comments:		
<b>4. Complete if Making a Payment to In-lieu Fee Program</b>		
4a. Approval letter from in-lieu fee program is attached.	<input type="checkbox"/> Yes	
4b. Stream mitigation requested:	linear feet	
4c. If using stream mitigation, stream temperature:	<input type="checkbox"/> warm <input type="checkbox"/> cool <input type="checkbox"/> cold	
4d. Buffer mitigation requested (DWQ only):	square feet	
4e. Riparian wetland mitigation requested:	acres	
4f. Non-riparian wetland mitigation requested:	0.36 acres	
4g. Coastal (tidal) wetland mitigation requested:	acres	
4h. Comments:		
<b>5. Complete if Using a Permittee Responsible Mitigation Plan</b>		
5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan. NCDOT proposed debiting the Juniper Bay Mitigation site at a 3:1 (due to it's location in the another HU within the Lumber River Basin) ratio for the 0.36 acre of unavoidable impacts. As soon as assets have been transferred, NCDOT will forward an updated debit ledger for this site.		

6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ					
6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?				<input type="checkbox"/> Yes	<input type="checkbox"/> No
6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.					
Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)	
Zone 1			3 (2 for Catawba)		
Zone 2			1.5		
<b>6f. Total buffer mitigation required:</b>					
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:					

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

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

<b>5. Endangered Species and Designated Critical Habitat (Corps Requirement)</b>		
5a. Will this project occur in or near an area with federally protected species or habitat?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
5c. If yes, indicate the USFWS Field Office you have contacted.	<input type="checkbox"/> Raleigh <input type="checkbox"/> Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? NHP, USFWS, NCDOT field surveys		
<b>6. Essential Fish Habitat (Corps Requirement)</b>		
6a. Will this project occur in or near an area designated as essential fish habitat?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
<b>7. Historic or Prehistoric Cultural Resources (Corps Requirement)</b>		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
<b>8. Flood Zone Designation (Corps Requirement)</b>		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		
Dr. Gregory J. Thorpe, Ph D Applicant/Agent's Printed Name	 Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	3.9.10 Date

# **STORMWATER MANAGEMENT PLAN**

Project: 38783.1.1  
TIP No. R-0061C  
Columbus County

03/01/2010

Hydraulics Project Manager: Steve Bondor, P.E. (Greenhorne & O'Mara ),  
Marshall Clawson, P.E. (NCDOT Hydraulics Unit)

## **ROADWAY DESCRIPTION**

The project consists of construction of a new interchange and associated improvements to the existing at grade intersection of US 74 and Green Swamp Road (NC 211). The total project length is 0.9 miles along US 74 and 0.5 miles along Green Swamp Road. The project drainage systems consists of roadway ditches with grass shoulders, grated inlets with associated pipe system, and rip rap outlet protection at a pipe outfalls. The majority of the project drains to an unnamed tributary of Ricefield Branch. The existing drainage patterns have been maintained with the hydraulic design of the project.

## **ENVIRONMENTAL DESCRIPTION**

Jurisdictional Streams: No jurisdictional streams are located within the project limits.

The project is located within the Lumber River Basin in Columbus County. There are wetlands located along the existing roadway embankment from sta 39+00 to 50+00 right along the floodplain of the unnamed tributary of Ricefield Branch.

## **BEST MANAGEMENT PRACTICES AND MAJOR STRUCTURES**

The primary goal of Best Management Practices (BMPs) is to prevent degradation of the states surface waters by the location, construction and operation of the highway system. The BMPs are activities, practices and procedures taken to prevent or reduce stormwater pollution. The BMP measures used on this project to reduce stormwater impacts are:

- Sheet flow on grass shoulders
- Roadway ditches function as grass swales
- Rip rap outlet protection at pipe outlet

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**COLUMBUS COUNTY**

LOCATION: PROPOSED INTERCHANGE AT INTERSECTION OF  
US 74 /76 (ANDREW JACKSON HWY.) AND  
NC 211 (GREEN SWAMP RD.)

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

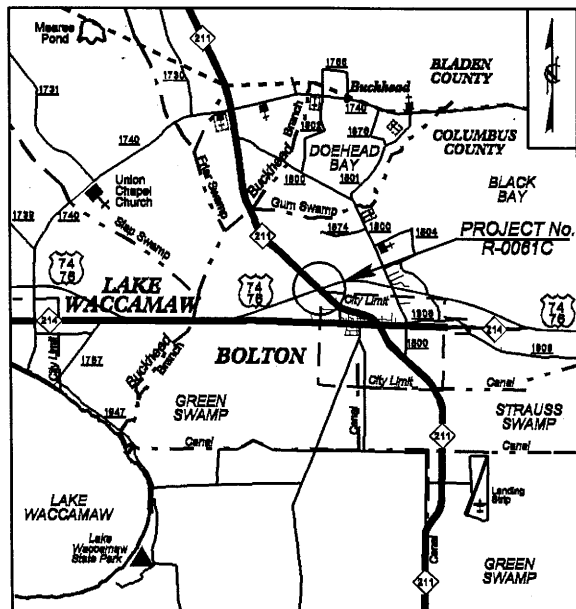
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-0061C	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38783.1.1	NHF-74 (80)	P.E.	
38783.2.1	HPPNHF-0074 (80)	RW	

Permit Drawing  
Sheet 1 of 7

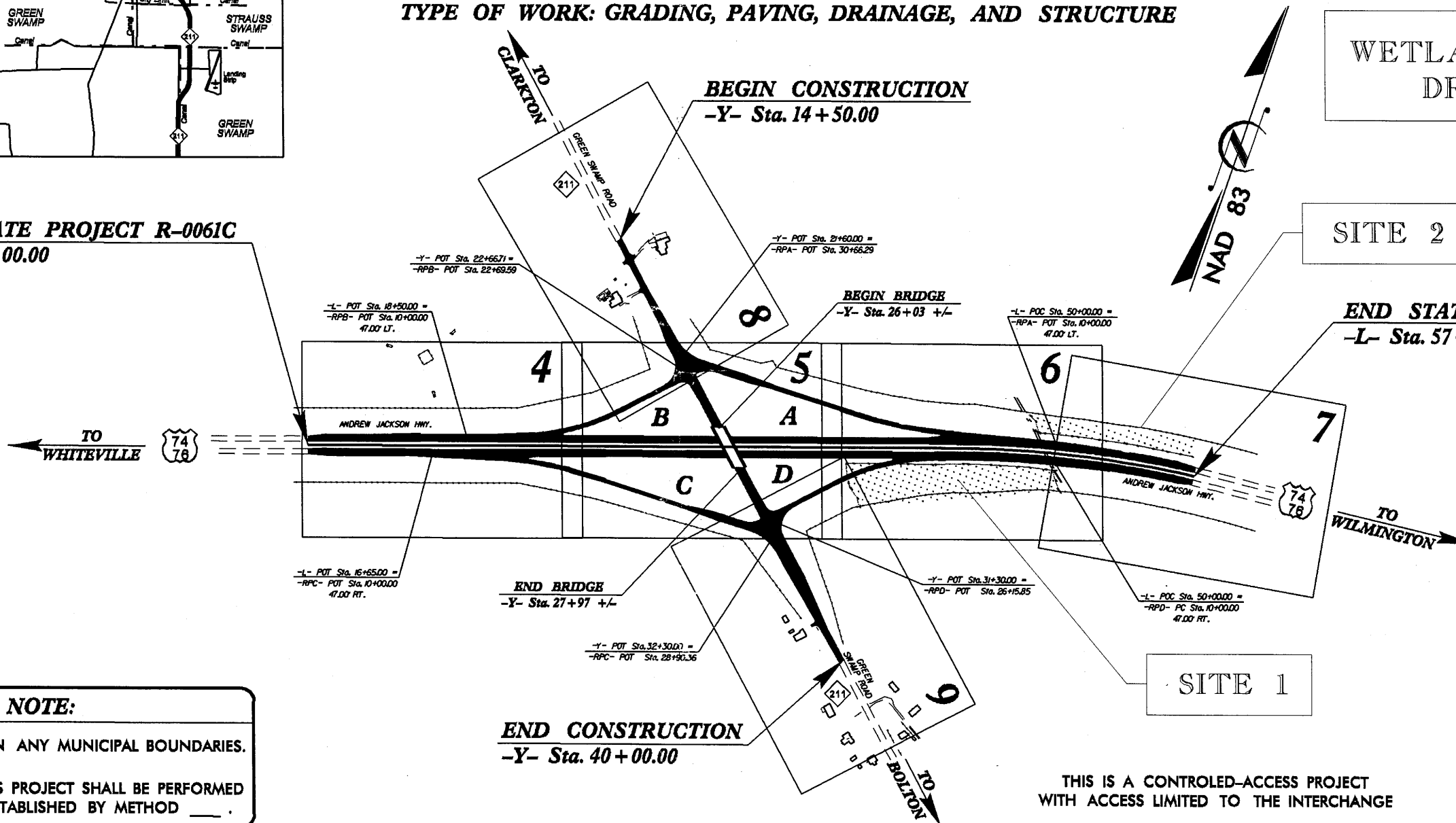
WETLAND PERMIT  
DRAWINGS

TIP PROJECT: R-0061C

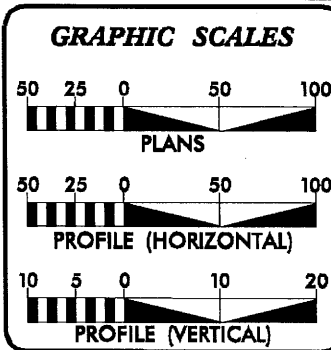
CONTRACT: 38783.1.1



BEGIN STATE PROJECT R-0061C  
-L- Sta. 10+00.00



**NOTE:**  
THIS IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD \_\_\_\_\_.



**DESIGN DATA**

ADT 2005 =	11,000
ADT 2030 =	20,000
DHV =	60 %
D =	10 %
T =	21 % *
V =	60 MPH
* TTST =	17% DUAL = 4%

**PROJECT LENGTH**

LENGTH ROADWAY F.A. PROJECT No. NHF-74(80) =	0.900 Miles
TOTAL LENGTH STATE PROJECT No. 38783.1.1 =	0.900 Miles

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:	AUGUST 18, 2008
LETTING DATE:	AUGUST 17, 2010

FUNC. CLASS FOR PROPOSED	-L- = INTERSTATE
PROPOSED	-Y- = COLLECTOR

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

<b>JIMMY GOODNIGHT, PE</b> PROJECT ENGINEER
<b>STEVE KENDALL, PE</b> PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**DIVISION OF HIGHWAYS**  
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

29-JUL-2009 15:00  
F:\hydraulics\0061c\Edy-fsh.dgn  
ddu\Ffield AT HY244565

8/17/99

PROJECT REFERENCE NO.		SHEET NO.	
R-0061C		6	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER			HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
SEE SHEET No. 11 FOR -L- PROFILE			
SEE SHEET No. 13 FOR -RPA- PROFILE			
SEE SHEET No. 15 FOR -RPD- PROFILE			

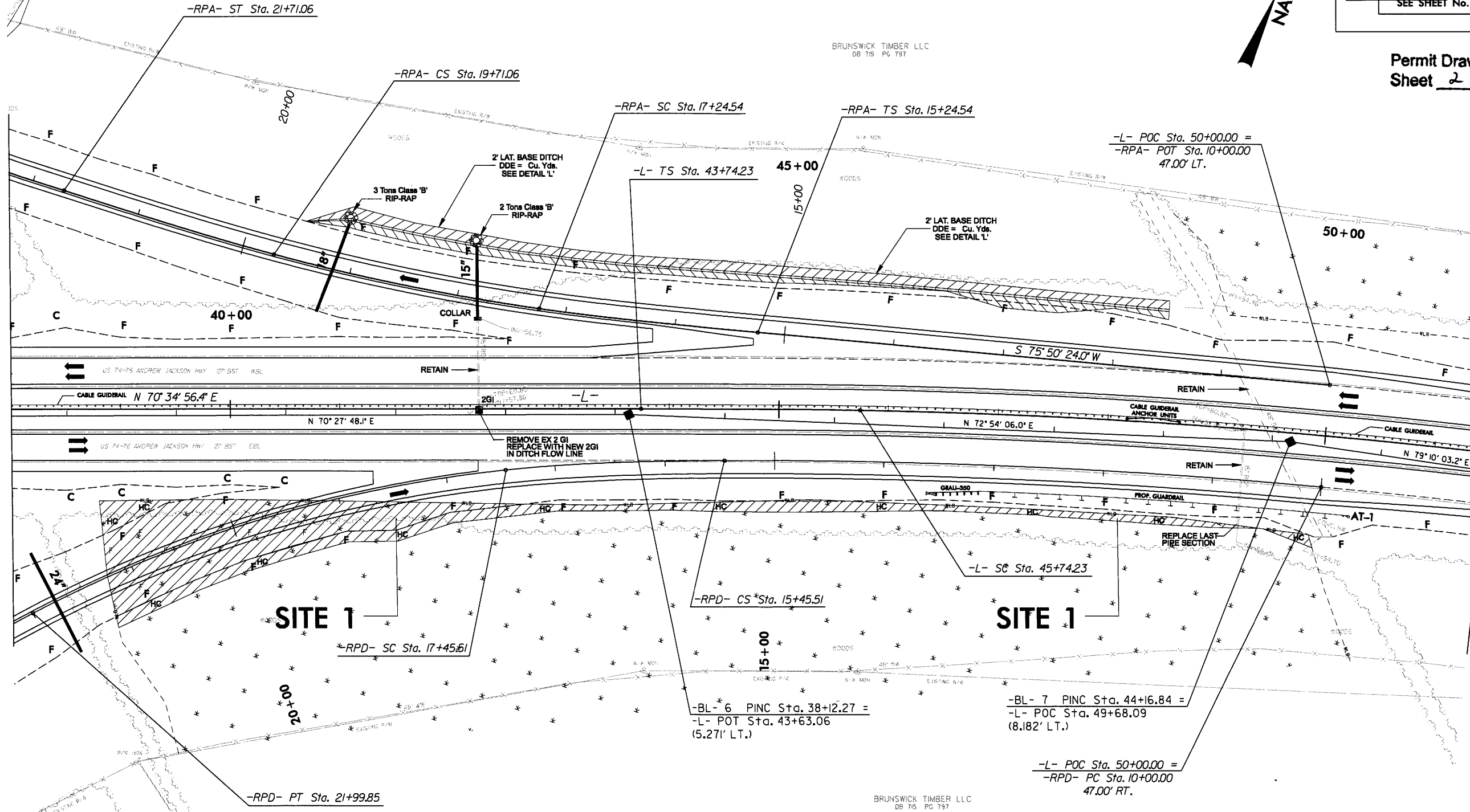
Permit Drawing Sheet 2 of 7

-L-		-RPA-		-RPD-	
Pls Sta 45+07.57	PI Sta 51+64.19	Pls Sta 16+57.89	PI Sta 18+47.96	Pls Sta 20+37.74	PI Sta 29+34.11
Θs = 1°00'00.0"	Δ = 11°45'27.8" (RT)	Θs = 2°51'53.2"	Δ = 7°03'43.7" (RT)	Θs = 2°51'53.2"	Δ = 45°46'04.1" (LT)
Ls = 200.00'	D = 1°00'00.0"	Ls = 200.00'	D = 2°51'53.2"	Ls = 200.00'	D = 38°11'49.9"
LT = 133.34'	L = 1,175.77'	LT = 133.35'	L = 246.51'	LT = 133.35'	L = 119.82'
ST = 66.67'	T = 589.96'	ST = 66.68'	T = 123.41'	ST = 66.68'	T = 63.31'
	R = 5,729.58'		R = 2,000.00'		R = 150.00'



MATCH LINE SHEET No. 5 Sta. 38+00

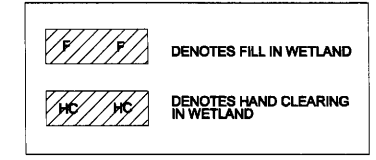
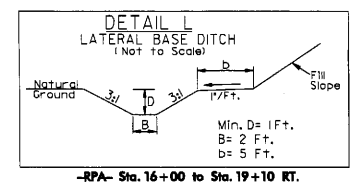
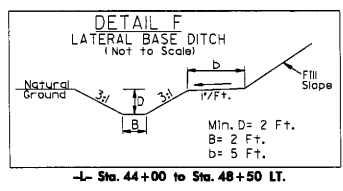
MATCH LINE SHEET No. 7 Sta. 51+50



REVISIONS

NORWOOD G. LONG  
DB 39; PG 535-536

BRUNSWICK TIMBER LLC  
DB 75; PG 797







PROJECT REFERENCE NO. R-0061C	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

SEE SHEET No. 11 FOR -L- PROFILE  
 SEE SHEET No. 13 FOR -RPA- PROFILE  
 SEE SHEET No. 16 FOR -RPD- PROFILE

Permit Drawing  
 Sheet 4 of 7

**-L-**

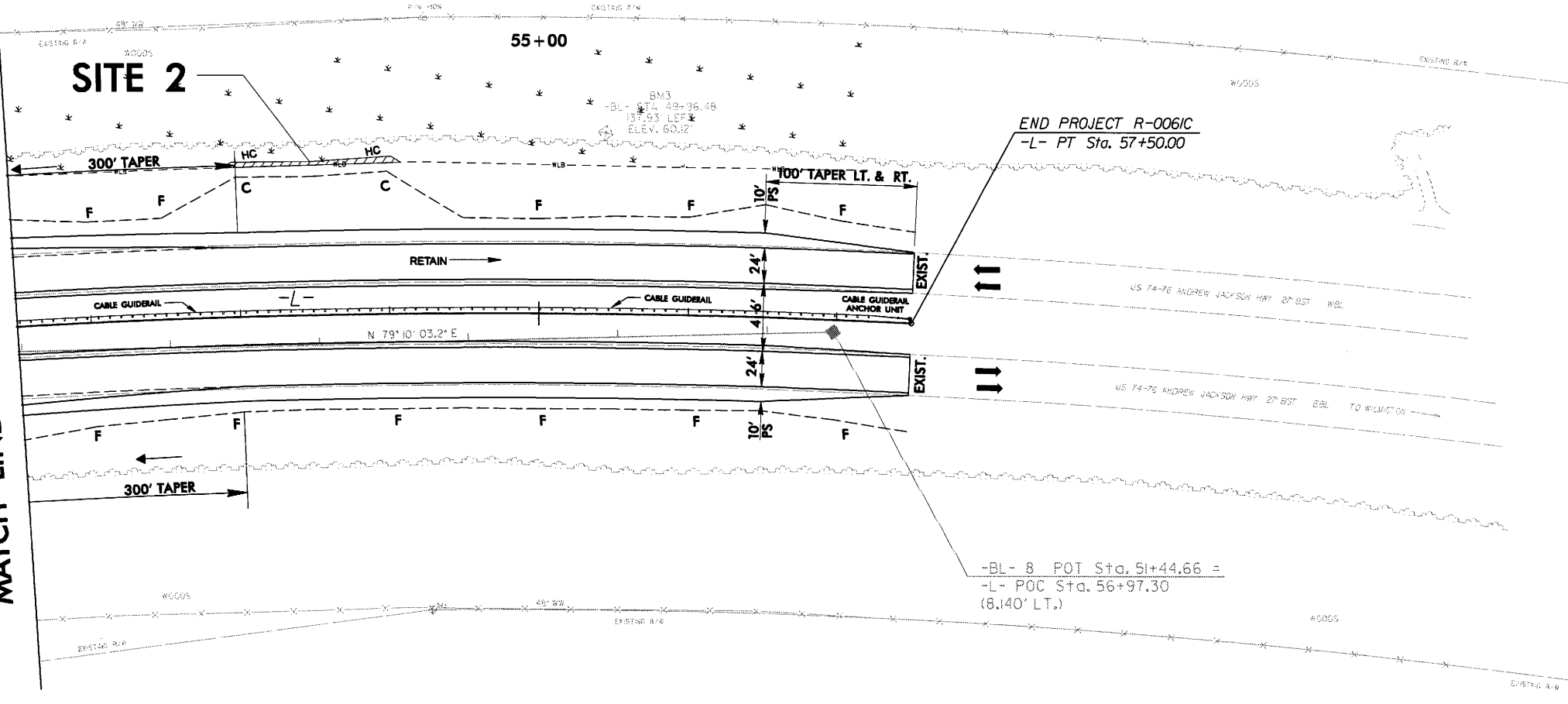
PI Sta 51+64.19  
 $\Delta = 1^\circ 45' 27.8" (RT)$   
 $D = 1^\circ 00' 00.0"$   
 $L = 1,175.77'$   
 $T = 589.96'$   
 $R = 5,729.58'$



BRUNSWICK TIMBER LLC  
 DB 715 PG 797

BRUNSWICK TIMBER LLC  
 DB 715 PG 797

**MATCH LINE SHEET No. 6 Sta. 51+50**



END PROJECT R-0061C  
 -L- PT Sta. 57+50.00

-BL- 8 POT Sta. 51+44.66 =  
 -L- POC Sta. 56+97.30  
 (8,140' LT.)

BRUNSWICK TIMBER LLC  
 DB 715 PG 797

BRUNSWICK TIMBER LLC  
 DB 715 PG 797

HC HC	DENOTES HAND CLEARING IN WETLAND
-------	-------------------------------------

8/17/99

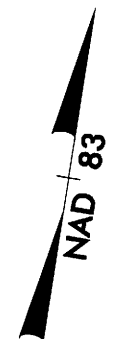
\*\*\*\*\*  
 STATIONING  
 \*\*\*\*\*

8/17/99

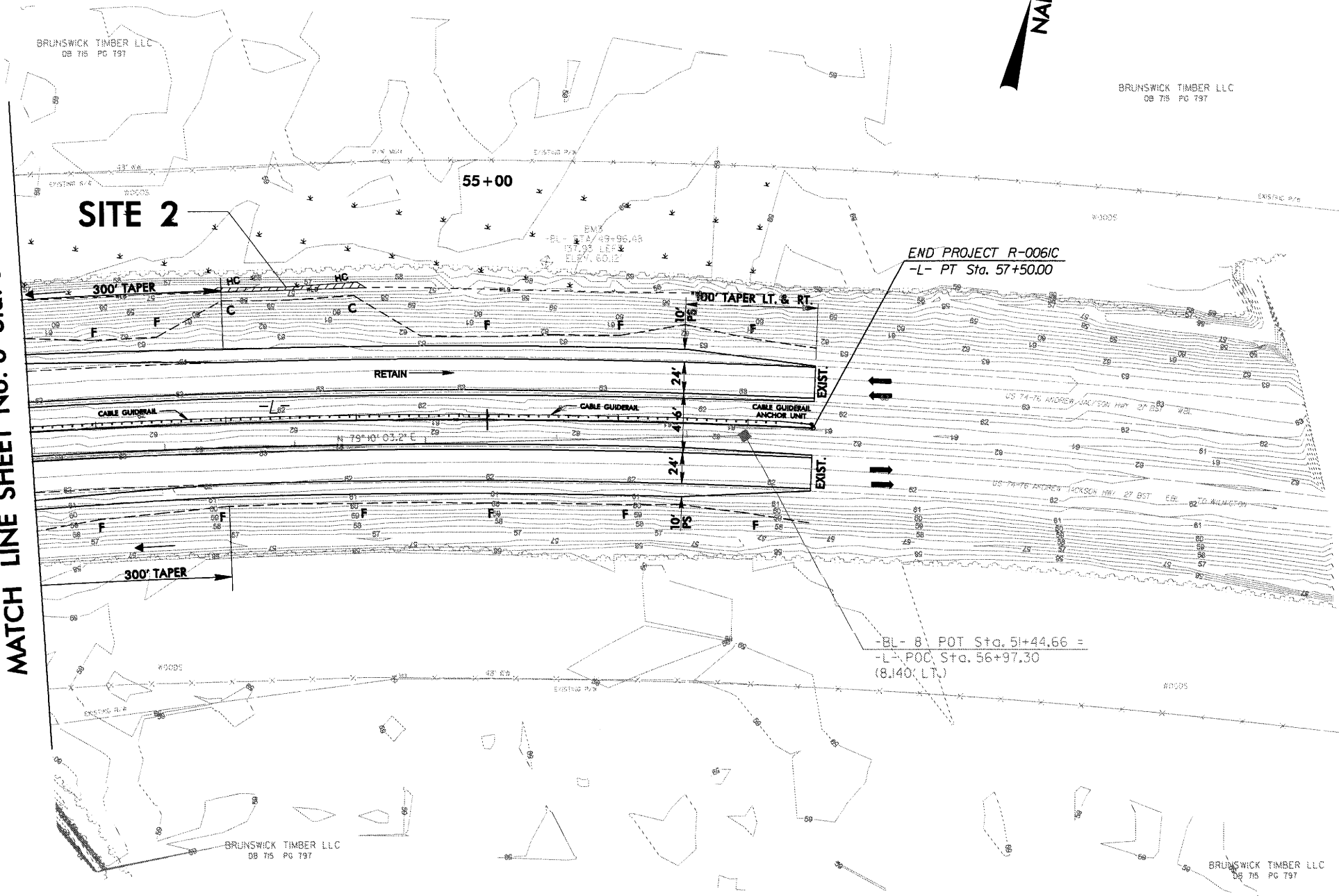
PROJECT REFERENCE NO. R-0061C	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
SEE SHEET No. 11 FOR -L- PROFILE SEE SHEET No. 13 FOR -RPA- PROFILE SEE SHEET No. 16 FOR -RPD- PROFILE	

Permit Drawing  
 Sheet 5 of 7

**-L-**  
 PI Sta 51+64.19  
 $\Delta = 1^\circ 45' 27.8" (RT)$   
 $D = 1^\circ 00' 00.0"$   
 $L = 1175.77'$   
 $T = 589.96'$   
 $R = 5729.58'$



MATCH LINE SHEET No. 6 Sta. 51+50



END PROJECT R-0061C  
 -L- PT Sta. 57+50.00

-BL- B POT Sta. 51+44.66 =  
 -L- POC Sta. 56+97.30  
 (8140' LT.)

**HC HC** DENOTES HAND CLEARING  
 IN WETLAND

SYSTEMS  
 CONSULTING  
 CORPORATION  
 1000  
 UNIVERSITY  
 AVENUE  
 SUITE 100  
 BOSTON  
 MASSACHUSETTS  
 02116

**WETLAND PERMIT IMPACT SUMMARY**

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS						SURFACE WATER IMPACTS									
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)						
1	-L-38+79 TO 49+96 RT	RAMP D / EMBANKMENT	0.36					0.22										
2	-L-53+91 TO 54+11 LT	EMBANKMENT						0.01										
<b>TOTALS:</b>			0.36	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

0.03 acres of Temporary Fill in Wetlands in the Hand Clearing areas for erosion control measures.

**Permit Drawing**  
Sheet 6 of 7

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
COLUMBUS COUNTY  
PROJECT 38783.1.1 (R-0061C)  
INTERCHANGE AT US 74/76  
AND NC 211  
SHEET OF 10/13/2008

PROPERTY OWNERS

PARCEL

OWNER NAME

ADDRESS

N/A

\* SITE IMPACTS WITHIN EXISTING NCDOT ROW

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS

COLUMBUS COUNTY  
PROJECT: 38783.11 (R-0061C)

INTERCHANGE AT US 74//76  
AND NC 211

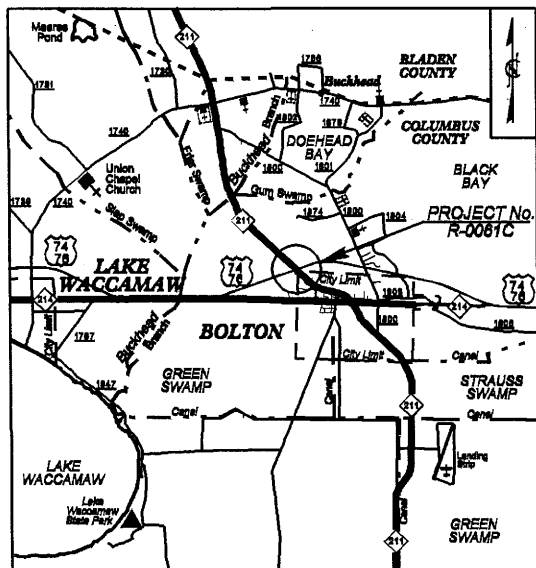
Permit Drawing  
Sheet 7 of 7

SHEET OF 6//29//09

27-JUL-2009 08:26  
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 \$\$\$SERVERNAME\$\$\$

**CONTRACT: 38783.1.1**      **TIP PROJECT: R-0061C**

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS  


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**COLUMBUS COUNTY**

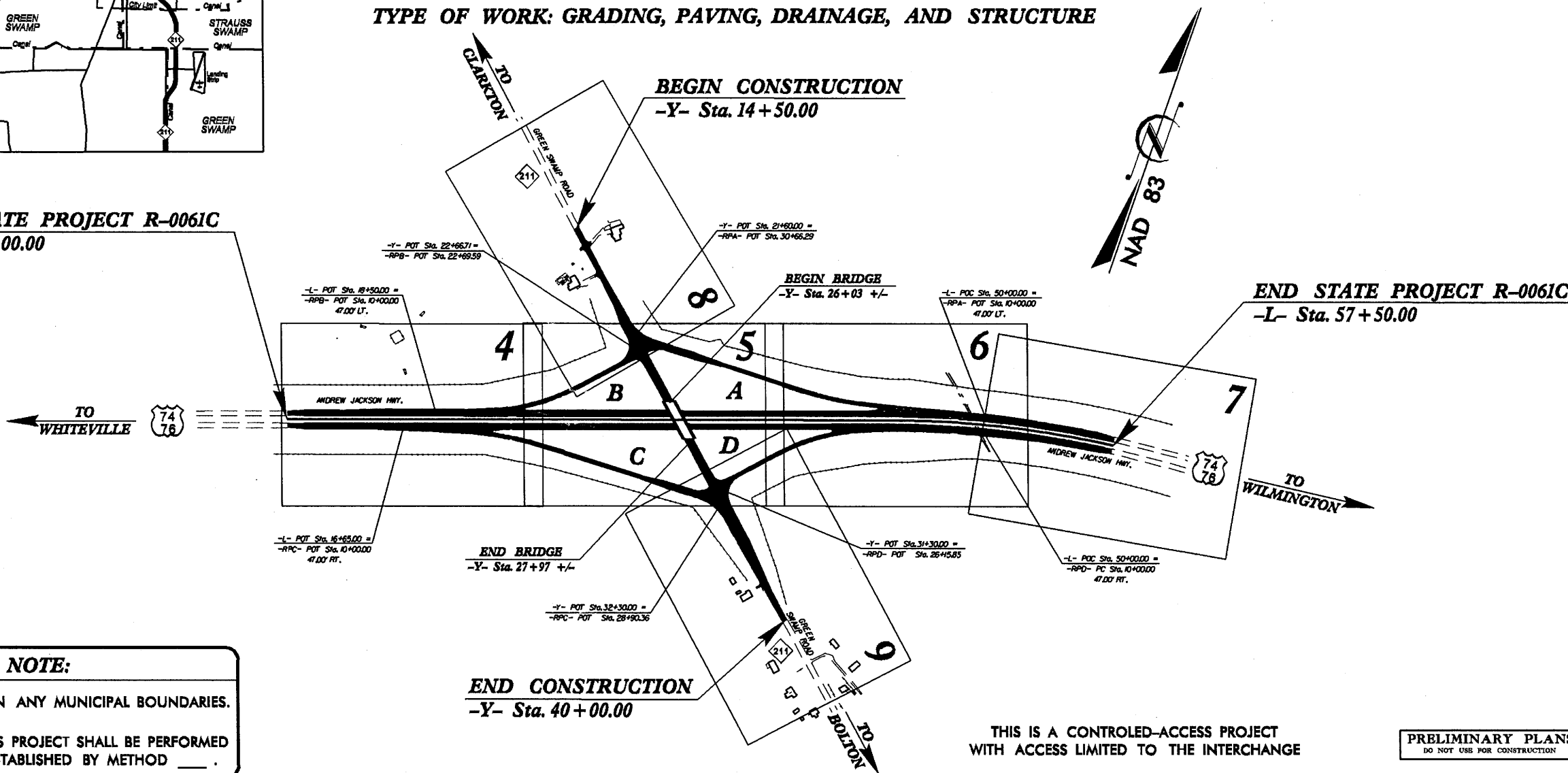

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**LOCATION: PROPOSED INTERCHANGE AT INTERSECTION OF  
 US 74 /76 (ANDREW JACKSON HWY.) AND  
 NC 211 (GREEN SWAMP RD.)**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-0061C	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38783.1.1	NHF-74 (80)	P.E.	
38783.2.1	HPPNHF-0074 (80)	RAW	

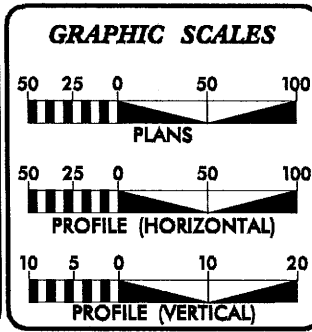
**BEGIN STATE PROJECT R-0061C**  
 -L- Sta. 10 + 00.00



**NOTE:**  
 THIS IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.  
 CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD \_\_\_\_\_

THIS IS A CONTROLLED-ACCESS PROJECT  
 WITH ACCESS LIMITED TO THE INTERCHANGE

PRELIMINARY PLANS  
 DO NOT USE FOR CONSTRUCTION



**DESIGN DATA**

ADT 2005 =	11,000
ADT 2030 =	20,000
DHV =	60 %
D =	10 %
T =	21 % *
V =	60 MPH
* TTST =	17% DUAL = 4%

**PROJECT LENGTH**

LENGTH ROADWAY F.A.PROJECT No. NHF-74(80) =	0.900 Miles
TOTAL LENGTH STATE PROJECT No. 38783.1.1 =	0.900 Miles

FUNC. CLASS FOR PROPOSED	-L- = INTERSTATE
PROPOSED	-Y- = COLLECTOR

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

2006 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
 AUGUST 18, 2008

**LETTING DATE:**  
 AUGUST 17, 2010

**HYDRAULICS ENGINEER**

SIGNATURE \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE \_\_\_\_\_ P.E.

DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

3/15/06

Note: Not to Scale

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

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

Table listing symbols for boundaries and property: State Line, County Line, Township Line, City Line, Reservation Line, Property Line, Existing Iron Pin, 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.

BUILDINGS AND OTHER CULTURE:

Table listing symbols for buildings and other culture: Gas Pump Vent or UG Tank Cap, Sign, Well, Small Mine, Foundation, Area Outline, Cemetery, Building, School, Church, Dam.

HYDROLOGY:

Table listing symbols for hydrology: Stream or Body of Water, Hydro, Pool or Reservoir, Jurisdictional Stream, Buffer Zone 1, Buffer Zone 2, Flow Arrow, Disappearing Stream, Spring, Wetlands, Proposed Lateral, Tail, Head Ditch, False Sump.

RAILROADS:

Table listing symbols for railroads: Standard Gauge, RR Signal Milepost, Switch, RR Abandoned, RR Dismantled.

RIGHT OF WAY:

Table listing symbols for right of way: Baseline Control Point, Existing Right of Way Marker, Existing Right of Way Line, Proposed Right of Way Line, Proposed Right of Way Line with Iron Pin and Cap Marker, Proposed Right of Way Line with Concrete or Granite Marker, Existing Control of Access, Proposed Control of Access, Existing Easement Line, Proposed Temporary Construction Easement, Proposed Temporary Drainage Easement, Proposed Permanent Drainage Easement, Proposed Permanent Utility Easement.

ROADS AND RELATED FEATURES:

Table listing symbols for roads and related features: Existing Edge of Pavement, Existing Curb, Proposed Slope Stakes Cut, Proposed Slope Stakes Fill, Proposed Wheel Chair Ramp, Proposed Wheel Chair Ramp Curb Cut, Curb Cut for Future Wheel Chair Ramp, Existing Metal Guardrail, Proposed Guardrail, Existing Cable Guiderail, Proposed Cable Guiderail, Equality Symbol, Pavement Removal.

VEGETATION:

Table listing symbols for vegetation: Single Tree, Single Shrub, Hedge, Woods Line, Orchard, Vineyard.

EXISTING STRUCTURES:

Table listing symbols for 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:

Table listing symbols for utilities: POWER: Existing Power Pole, Proposed Power Pole, Existing Joint Use Pole, Proposed Joint Use Pole, Power Manhole, Power Line Tower, Power Transformer, UG Power Cable Hand Hole, H-Frame Pole, Recorded UG Power Line, Designated UG Power Line (S.U.E.\*); TELEPHONE: Existing Telephone Pole, Proposed Telephone Pole, Telephone Manhole, Telephone Booth, Telephone Pedestal, Telephone Cell Tower, UG Telephone Cable Hand Hole, Recorded UG Telephone Cable, Designated UG Telephone Cable (S.U.E.\*), Recorded UG Telephone Conduit, Designated UG Telephone Conduit (S.U.E.\*), Recorded UG Fiber Optics Cable, Designated UG Fiber Optics Cable (S.U.E.\*).

WATER:

Table listing symbols for water: Water Manhole, Water Meter, Water Valve, Water Hydrant, Recorded UG Water Line, Designated UG Water Line (S.U.E.\*), Above Ground Water Line.

TV:

Table listing symbols for TV: TV Satellite Dish, TV Pedestal, TV Tower, UG TV Cable Hand Hole, Recorded UG TV Cable, Designated UG TV Cable (S.U.E.\*), Recorded UG Fiber Optic Cable, Designated UG Fiber Optic Cable (S.U.E.\*).

GAS:

Table listing symbols for gas: Gas Valve, Gas Meter, Recorded UG Gas Line, Designated UG Gas Line (S.U.E.\*), Above Ground Gas Line.

SANITARY SEWER:

Table listing symbols for sanitary sewer: Sanitary Sewer Manhole, Sanitary Sewer Cleanout, UG Sanitary Sewer Line, Above Ground Sanitary Sewer, Recorded SS Forced Main Line, Designated SS Forced Main Line (S.U.E.\*).

MISCELLANEOUS:

Table listing symbols for miscellaneous: Utility Pole, Utility Pole with Base, Utility Located Object, Utility Traffic Signal Box, Utility Unknown UG Line, UG Tank; Water, Gas, Oil, A/G Tank; Water, Gas, Oil, UG Test Hole (S.U.E.\*), Abandoned According to Utility Records, End of Information.

6/2/99

27-JUL-2009 09:35  
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\*\*\*\*\*SUSHERMAN\*\*\*\*\*

# PAVEMENT SCHEDULE

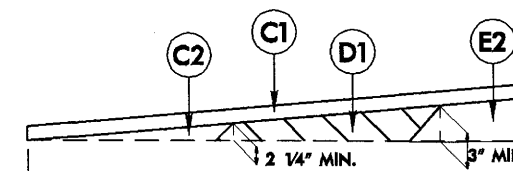
(PRELIMINARY PAVEMENT DESIGN)

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 336 LBS. PER SQ. YD.	J1	PROP. 8" AGGREGATE BASE COURSE.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 336 LBS. PER SQ. YD.	J2	PROP. 10" AGGREGATE BASE COURSE.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	R1	2'-6" CONCRETE CURB AND GUTTER.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	R2	7" MONOLITHIC CONCRETE ISLAND
D2	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	RS	ASPHALT SHOULDERS MILLED RUMBLE STRIPS, Std. 665.01
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/4" IN DEPTH OR GREATER THAN 4" IN DEPTH.	T	EARTH MATERIAL.
D4	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/4" IN DEPTH OR GREATER THAN 4" IN DEPTH.	U	EXISTING PAVEMENT.
E1	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	W W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.		

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

PROJECT REFERENCE NO. R-0061C	SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

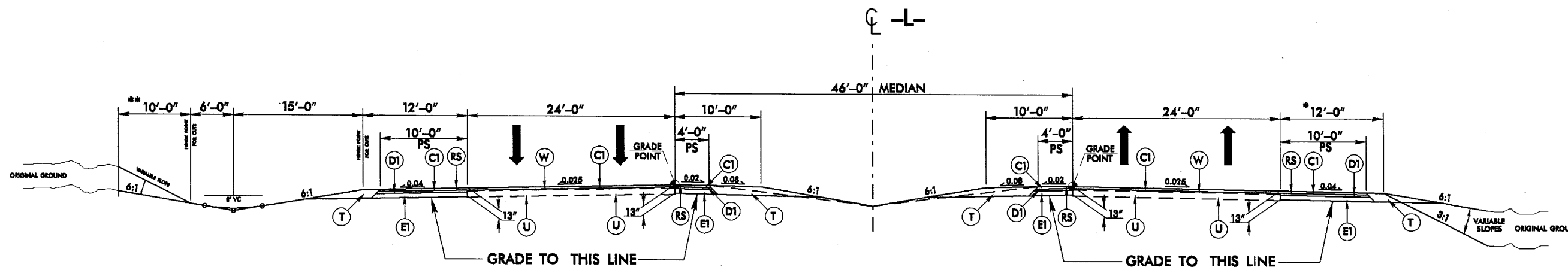
**PRELIMINARY PLANS**  
 DO NOT USE FOR CONSTRUCTION



Wedging Detail For -L- Resurfacing

TRANSITION FROM EXISTING TO TYPICAL No.1  
-L- Sta. 10+00.00 TO Sta. 11+00.00

TRANSITION FROM TYPICAL No.1 TO EXISTING  
-L- Sta. 56+50.00 TO 57+50.00



## TYPICAL SECTION NO. 1

-L- Sta. 11+00.00 TO Sta. 56+50.00

NOTE:

\* 15'-0" WITH GUARDRAIL

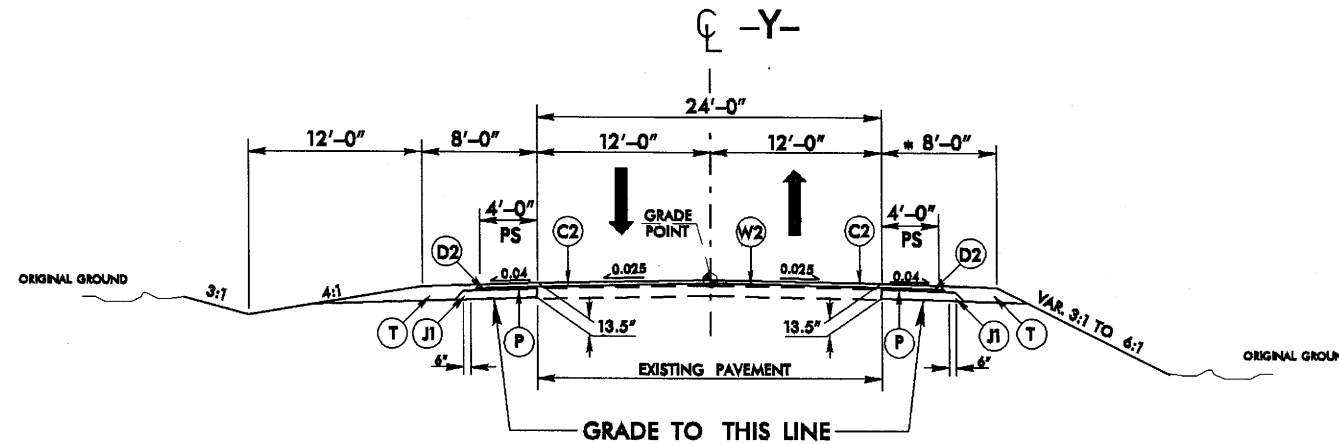
\*\* WHEN SLOPE-STAKE FALLS OUTSIDE THE HINGE POINT DISTANCE, MAINTAIN APPROPRIATE MAXIMUM OR MINIMUM SLOPE.



**PAVEMENT SCHEDULE**

SEE TYPICAL SHEET No. 2 FOR COMPLETE PAVEMENT SCHEDULE

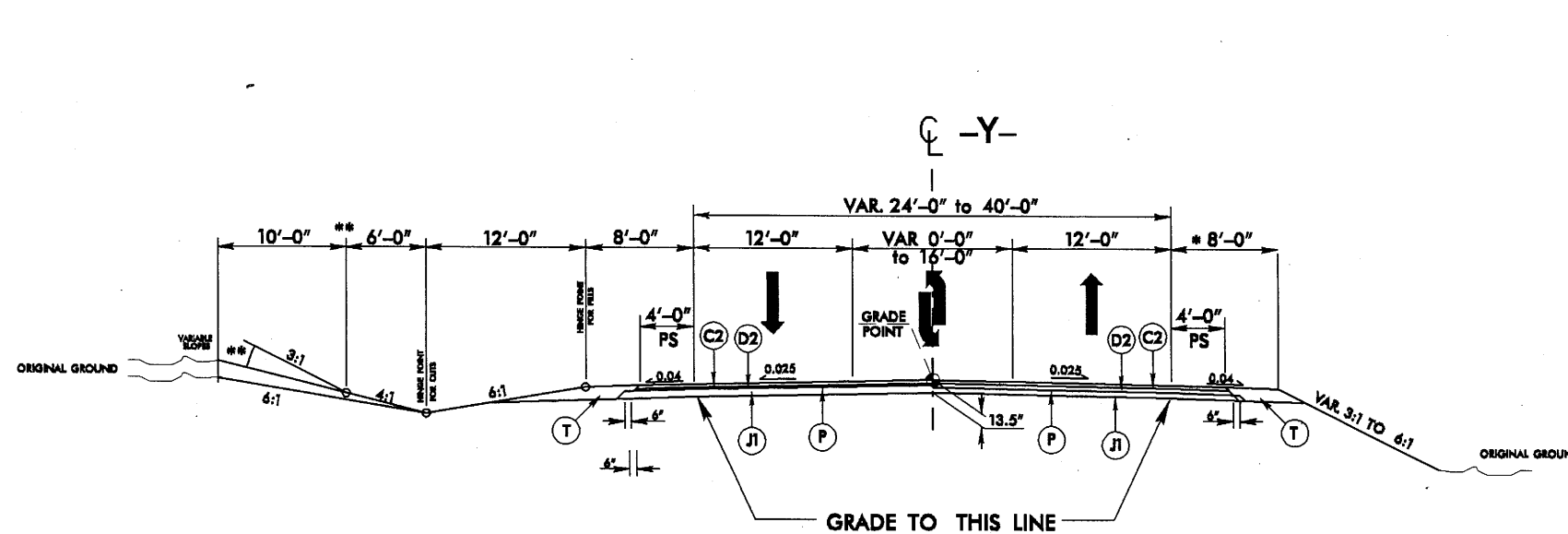
C2	3" S9.5B
C4	VAR. S9.5B
D2	2 1/2" I19.0B
D4	VAR. I19.0B
J1	8" ABC
P	PRIME COAT
T	EARTH MATERIAL
W2	WEDGING (-Y-)



**TYPICAL SECTION NO. 2**

-Y- Sta. 14+50.00 TO Sta. 16+25.00  
 -Y- Sta. 37+00.00 TO Sta. 40+00.00

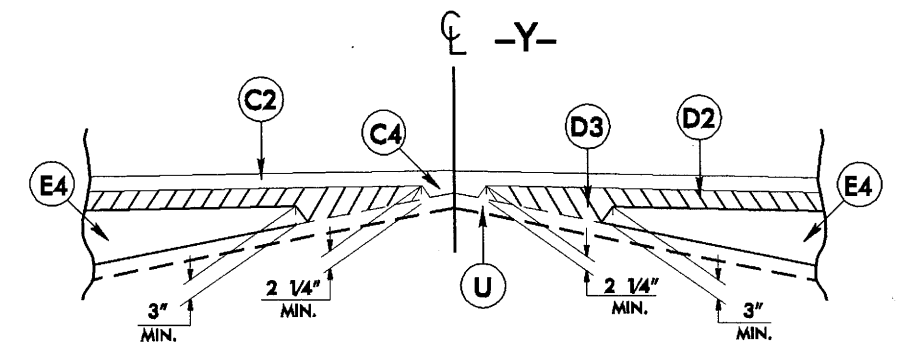
NOTE:  
 \* 11'-0" WITH GUARDRAIL



**TYPICAL SECTION NO. 3**

-Y- Sta. 16+25.00 TO 26+03 +/- BEGIN BRIDGE  
 -Y- Sta. 27+97 +/- END BRIDGE TO Sta. 37+00.00


NOTE:  
 \* 11'-0" WITH GUARDRAIL.  
 \*\* WHEN SLOPE-STAKE FALLS OUTSIDE THE HINGE POINT DISTANCE, MAINTAIN APPROPRIATE MAXIMUM OR MINIMUM SLOPE.



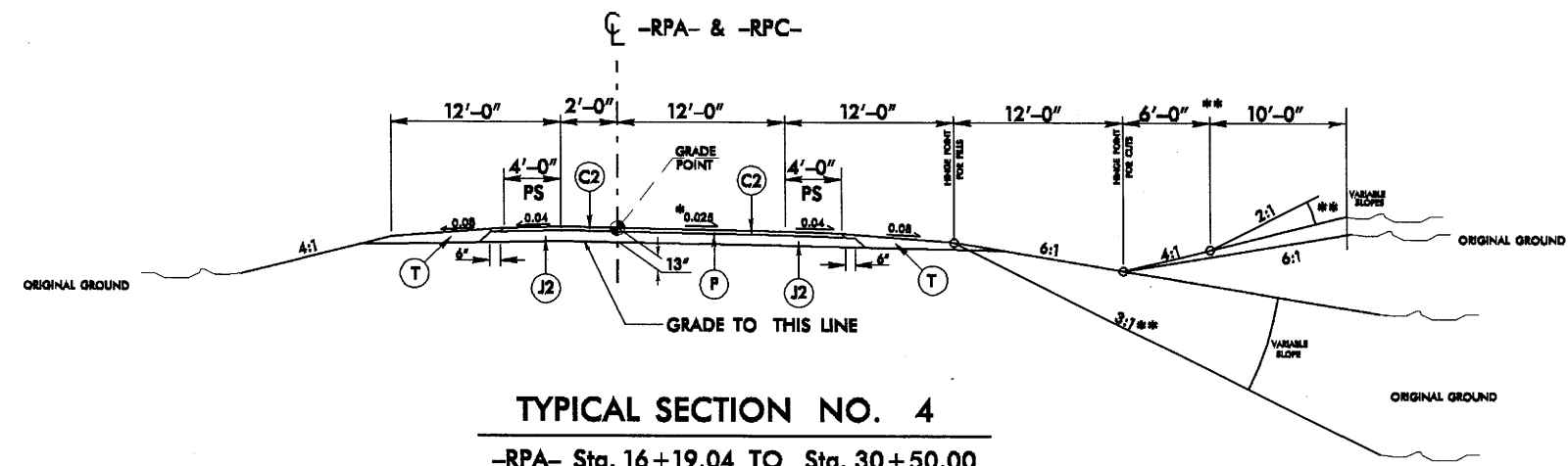
Wedging Detail For -Y- Resurfacing

6/2/98

27 JUL 2009 08:35  
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 \*\*\*\$\*SYTIME\$\*\*\*

PROJECT REFERENCE NO. R-0061C	SHEET NO. 2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
	
<b>PRELIMINARY PLANS</b> <small>DO NOT BE USED FOR CONSTRUCTION</small>	

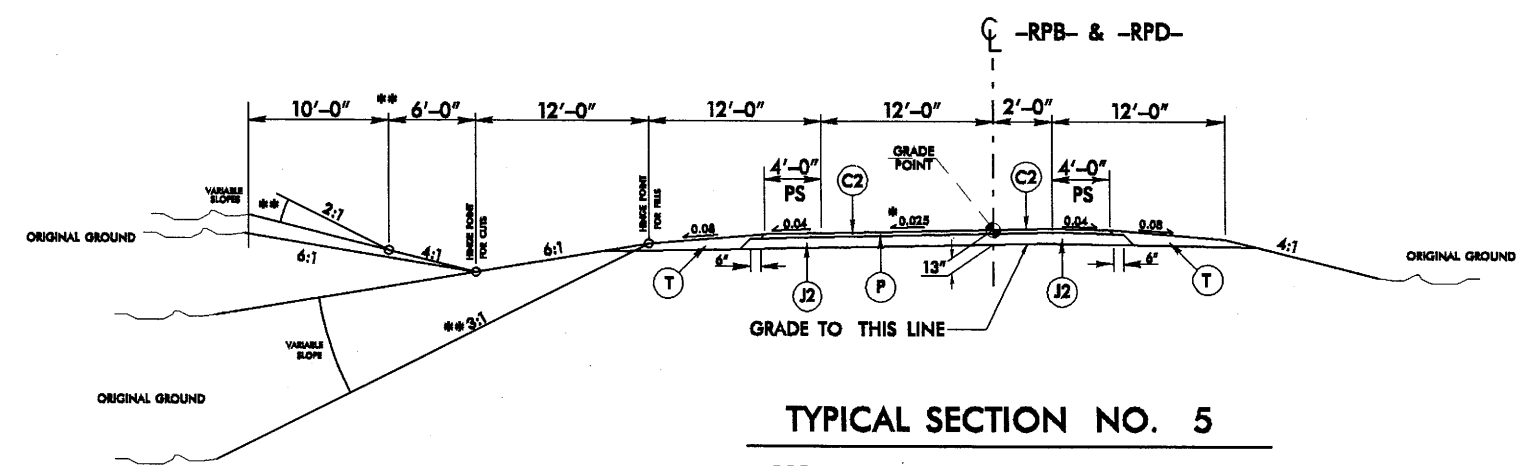
PAVEMENT SCHEDULE		
SEE TYPICAL SHEET No. 2 FOR COMPLETE PAVEMENT SCHEDULE		
C2	3"	S9.5B
J2	10"	ABC
P	PRIME COAT	
T	EARTH MATERIAL	



**TYPICAL SECTION NO. 4**

-RPA- Sta. 16+19.04 TO Sta. 30+50.00  
 -RPC- Sta. 15+15.64 TO Sta. 28+00.00

NOTE: FOR TYPICAL SECTIONS No. 4 AND 5  
 \* SEE PLANS FOR SUPER RATE  
 \*\* WHEN SLOPE-STAKE FALLS OUTSIDE THE HINGE POINT DISTANCE, MAINTAIN APPROPRIATE MAXIMUM OR MINIMUM SLOPE.



**TYPICAL SECTION NO. 5**

-RPB- Sta. 15+14.59 TO Sta. 22+50.00  
 -RPD- Sta. 18+64.32 TO Sta. 25+50.00

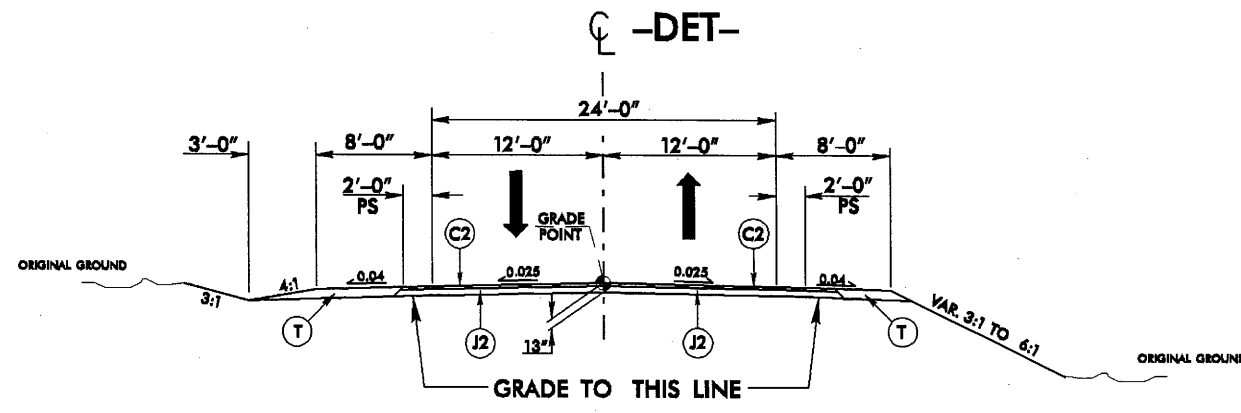
6/2/99

# DETOUR TYPICAL SECTIONS

PROJECT REFERENCE NO. R-0061C	SHEET NO. 2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

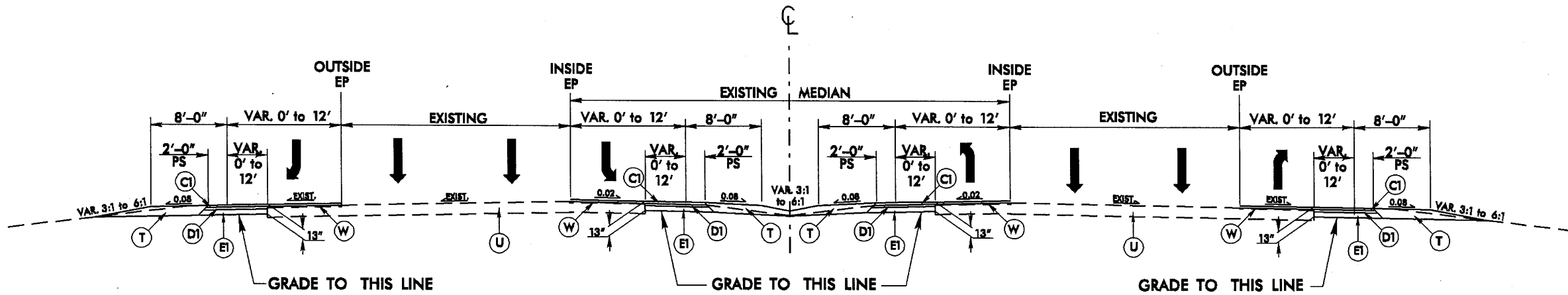
**PAVEMENT SCHEDULE**  
SEE TYPICAL SHEET No. 2 FOR COMPLETE PAVEMENT SCHEDULE

C1	3" S9.5B
C2	3" S9.5B
C4	VAR. S9.5B
D1	3" I19.0C
D3	VAR. I19.0C
E1	7" B25.0C
J2	10" ABC
T	EARTH MATERIAL
U	EXIST. PAVE.
W	WEDGING (SEE DETAIL SHT. 2)



**TYPICAL SECTION NO. 6**  
-DET- Sta. 11+50 to Sta. 17+70.21  
-DET- Sta. 18+75 to Sta. 25+94

## TYPICAL SECTION FOR TEMPORARY PAVEMENT ON -L-

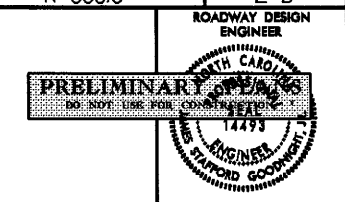


**TYPICAL SECTION NO. 7**  
-L- Sta. 26+50 to Sta. 55+00 +/-

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 \*\*\*\*\*

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# STRUCTURE TYPICAL SECTION

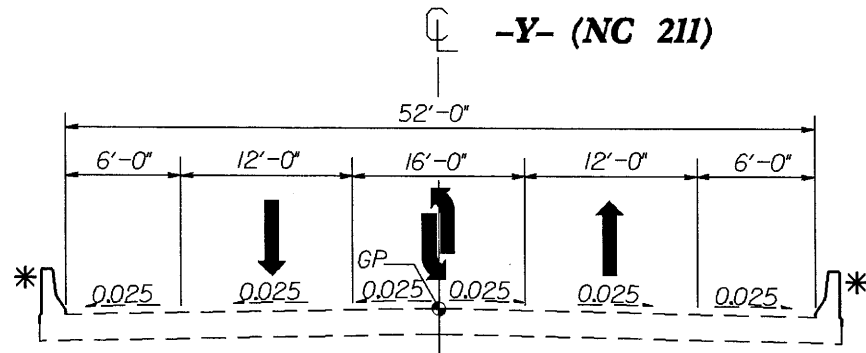


### DESIGN DATA -Y-

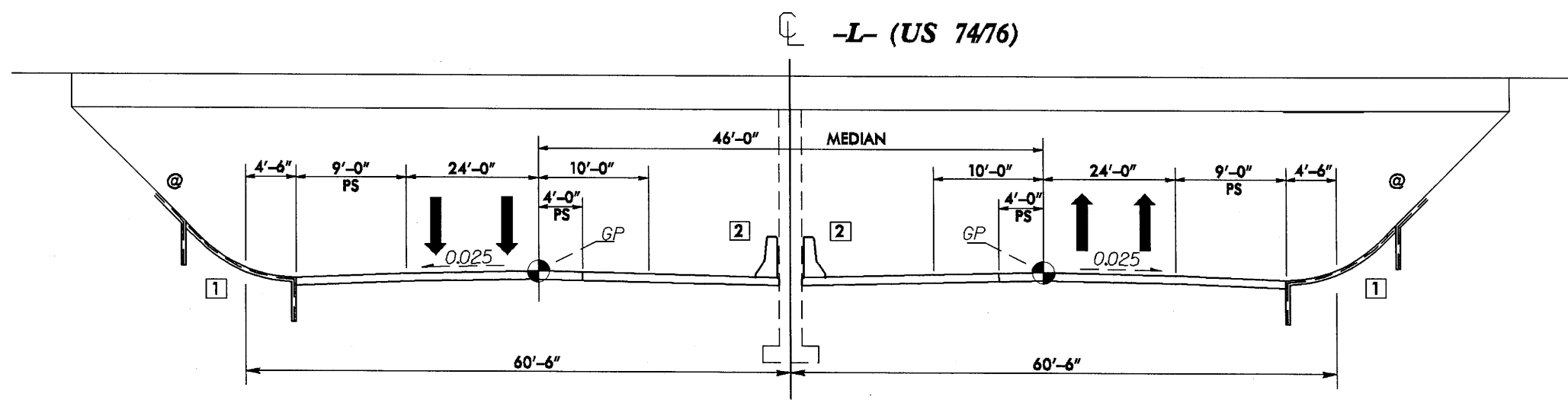
ADT 2005 = 2,900  
 ADT 2030 = 5,200  
 DHV = 60%  
 D = 10%  
 TTST = 2%  
 DUAL = 3%  
 V = 50 mph  
 FUNC CLASS - COLLECTOR  
 MINIMUM VERTICAL CLEARANCE = 16.5'  
 \* BRIDGE RAIL TO BE DETERMINED BY STRUCTURE DESIGN UNIT  
 @ SLOPES DETERMINED BY GEOTECHNICAL ENGINEERING UNIT

1 SEE STD. 610.03

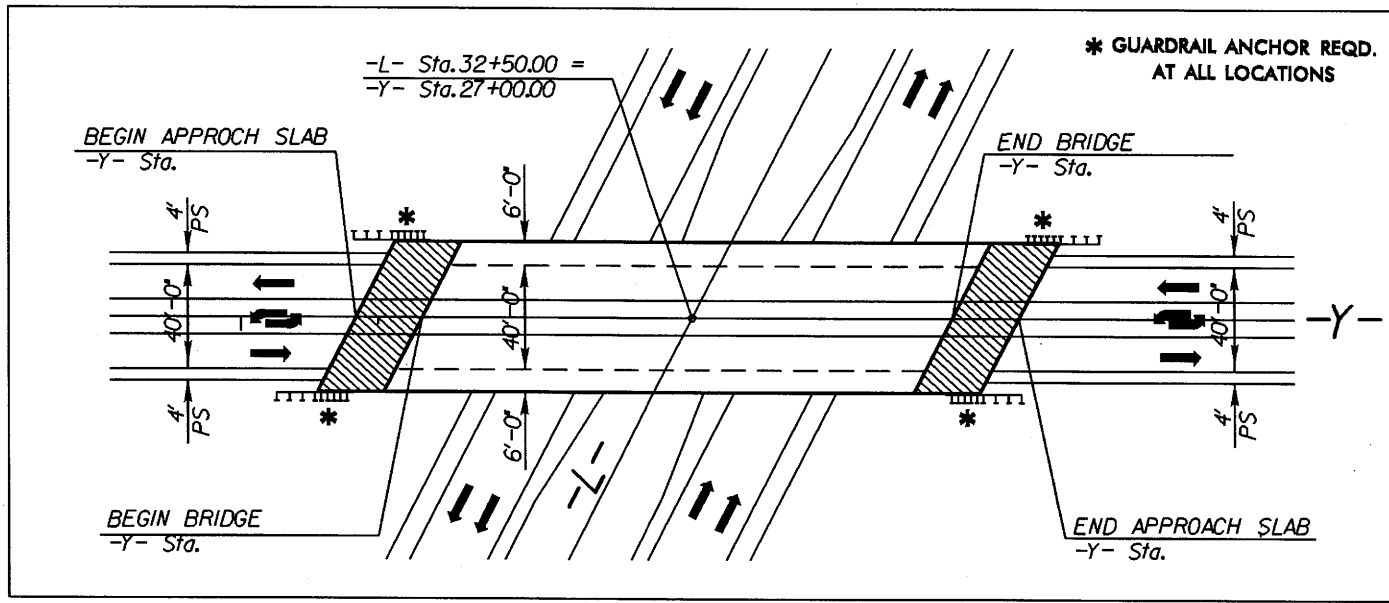
2 PROPOSED PRECAST REINFORCED CONCRETE BARRIERS, SINGLE FACED



TYPICAL SECTION ON STRUCTURE



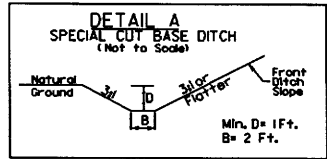
TYPICAL SECTION OF ROADWAY UNDER STRUCTURE



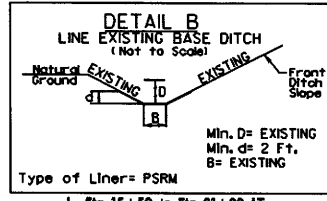
DETAIL SHOWING PAVEMENT / BRIDGE RELATIONSHIP FOR -Y- OVER -L-

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

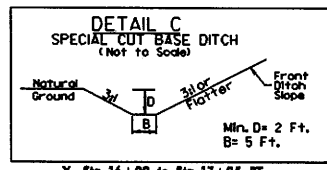
# DITCH DETAILS



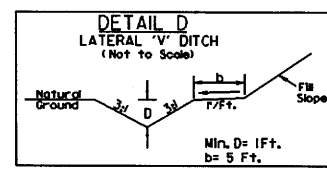
-L- Sta. 22+00 to Sta. 24+80 LT.  
-Y- Sta. 16+50 to Sta. 17+50 LT.



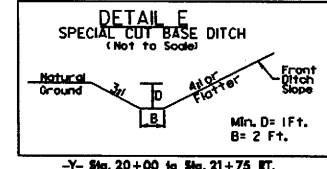
-L- Sta. 15+50 to Sta. 21+00 LT.



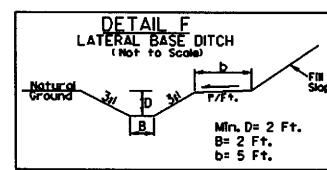
-Y- Sta. 16+00 to Sta. 17+25 RT.  
-RPC- Sta. 11+35 to Sta. 14+35 RT.



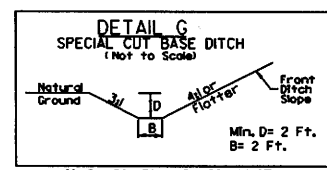
-Y- Sta. 33+50 to Sta. 35+00 RT.  
-Y- Sta. 35+00 to Sta. 36+50 RT.  
-RPA- Sta. 25+00 to Sta. 28+80 RT.  
-RPB- Sta. 19+50 to Sta. 21+00 LT.



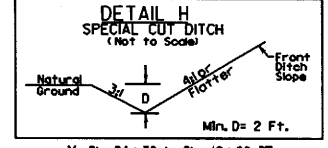
-Y- Sta. 20+00 to Sta. 21+75 RT.  
-RPC- Sta. 14+35 to Sta. 17+41 RT.



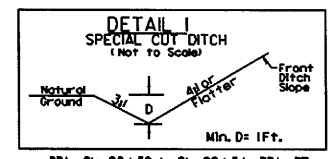
-Y- Sta. 17+60 to Sta. 20+00 RT.  
-Y- Sta. 17+50 to Sta. 20+50 LT.  
-Y- Sta. 33+50 to Sta. 38+00 LT.



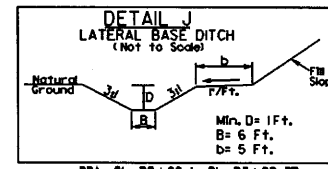
-Y- Sta. 20+50 to Sta. 22+00 LT.  
-RPA- Sta. 29+54 to Sta. 30+00 RT.



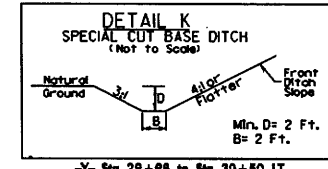
-Y- Sta. 36+50 to Sta. 40+00 RT.



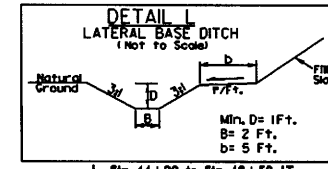
-RPA- Sta. 28+50 to Sta. 29+54 -RPA- RT.



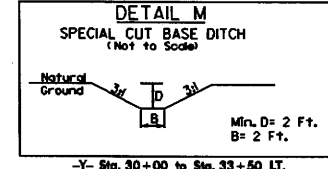
-RPA- Sta. 23+80 to Sta. 25+00 RT.



-Y- Sta. 29+98 to Sta. 30+50 LT.  
-Y- Sta. 32+00 to Sta. 33+50 LT.



-L- Sta. 44+00 to Sta. 48+50 LT.  
-RPA- Sta. 16+00 to Sta. 19+10 RT.

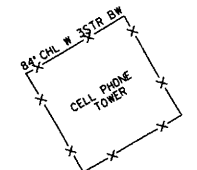


-Y- Sta. 30+00 to Sta. 33+50 LT.

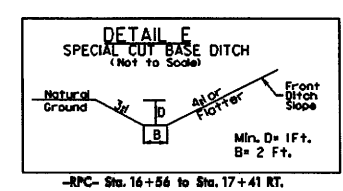
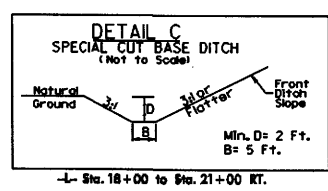
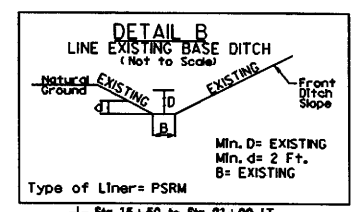
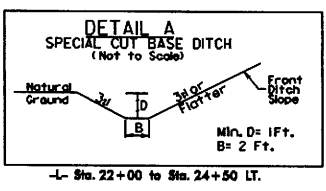
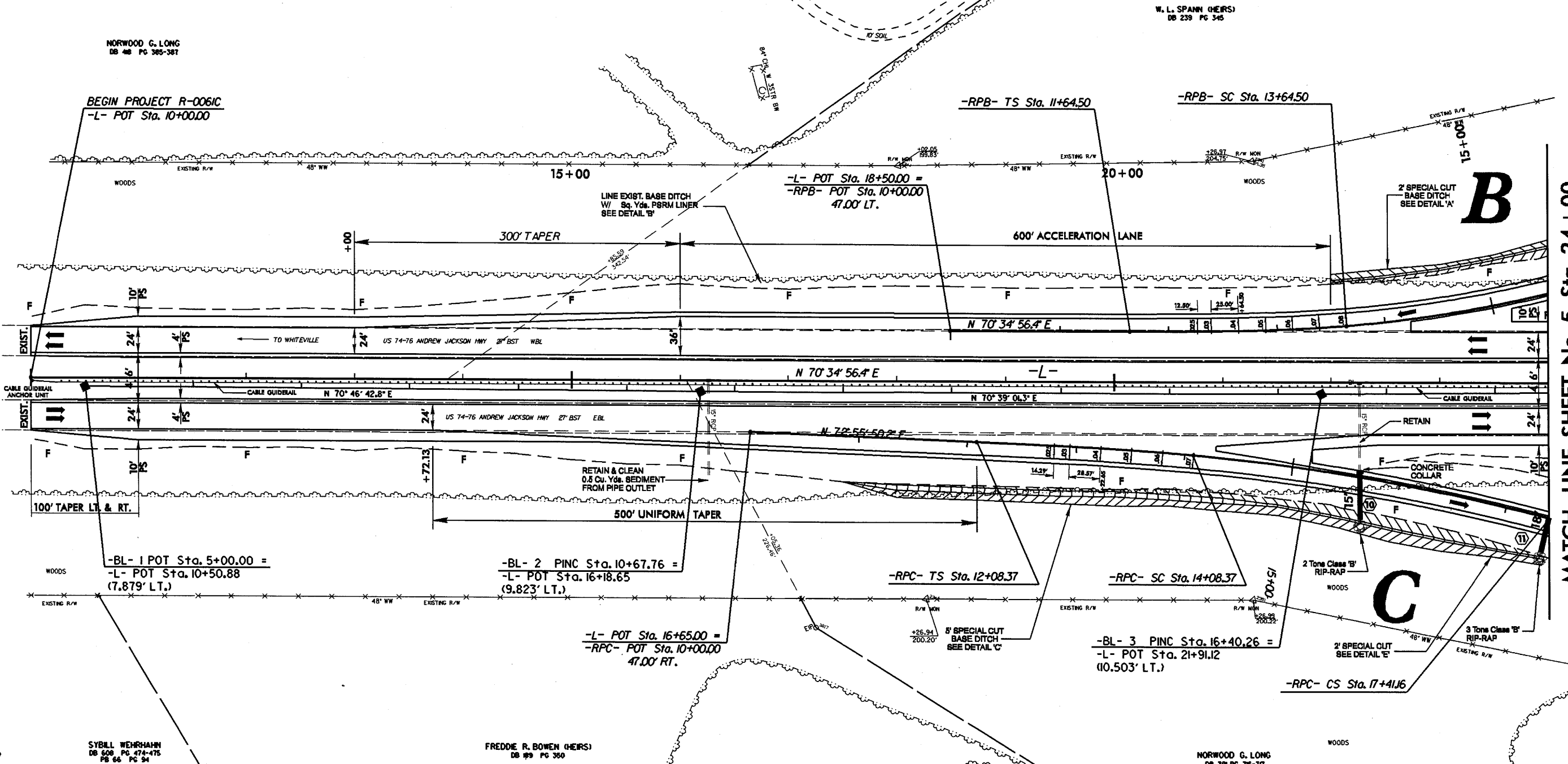
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SYBILL WEHRHAHN DB 609 PG 474-475 PB 66 PC 34

**-RPB-**  
 PIs Sta 12+97.88  
 Es = 4' 46" 28.7"  
 Ls = 200.00'  
 LT = 133.35'  
 ST = 66.71'  
 PI Sta 16+08.03  
 Δ = 22' 56" 37.7" (LT)  
 D = 4' 46" 28.7"  
 L = 480.53'  
 T = 243.53'  
 R = 1,200.00'

**-RPC-**  
 PIs Sta 13+41.73  
 Es = 2' 51" 53.2"  
 Ls = 200.00'  
 LT = 133.35'  
 ST = 66.68'  
 PI Sta 15+75.15  
 Δ = 9' 32" 01.4" (RT)  
 D = 2' 51" 53.2"  
 L = 332.79'  
 T = 166.78'  
 R = 2,000.00'  
 PIs Sta 18+07.85  
 Es = 2' 51" 53.2"  
 Ls = 200.00'  
 LT = 133.35'  
 ST = 66.68'



PROJECT REFERENCE NO. R-0061C	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
SEE SHEET No. 10 FOR -L- PROFILE	
SEE SHEET No. 14 FOR -RPB- PROFILE	
SEE SHEET No. 14 & 15 FOR -RPC- PROFILE	



MATCH LINE SHEET No. 5 Sta. 24+00

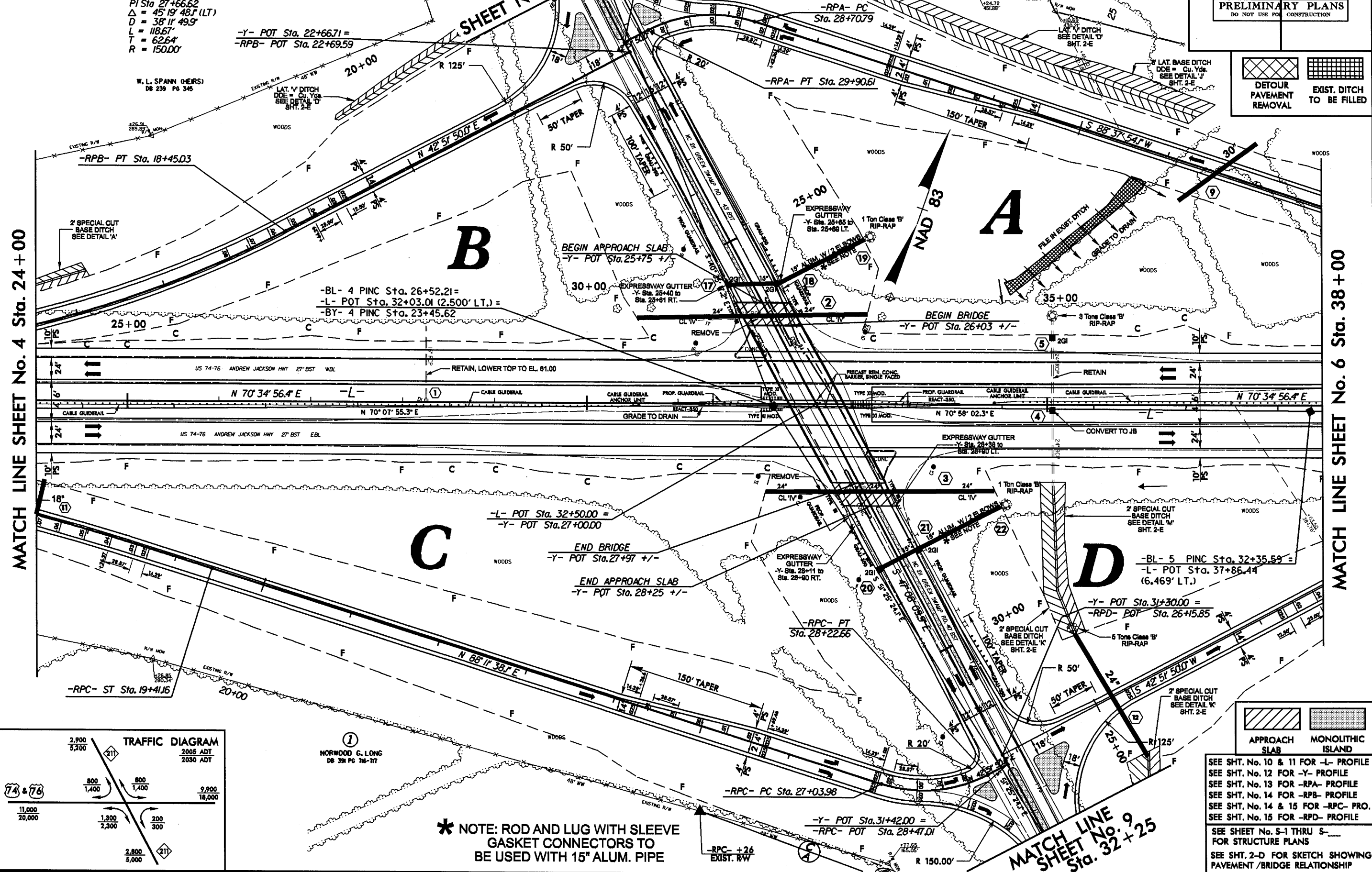
PROJECT REFERENCE NO. R-0061C	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR E/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

 DETOUR PAVEMENT REMOVAL	 EXIST. DITCH TO BE FILLED
-----------------------------	-------------------------------

**-RPB-**  
 PI Sta 16+08.03  
 $\Delta = 22^\circ 56' 37.7" (LT)$   
 $D = 4' 46" 28.7"$   
 $L = 480.53'$   
 $T = 243.53'$   
 $R = 1200.00'$

**-RPC-**  
 Pls Sta 18+07.85  
 $\Theta_s = 2^\circ 51' 53.2"$   
 $L_s = 200.00'$   
 $LT = 133.35'$   
 $ST = 66.68'$

PI Sta 27+66.62  
 $\Delta = 45^\circ 19' 48.7" (LT)$   
 $D = 38' 11" 49.9"$   
 $L = 118.67'$   
 $T = 62.64'$   
 $R = 150.00'$



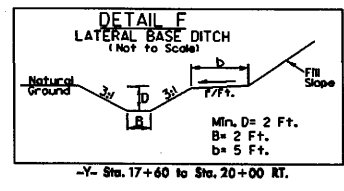
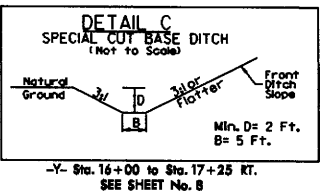
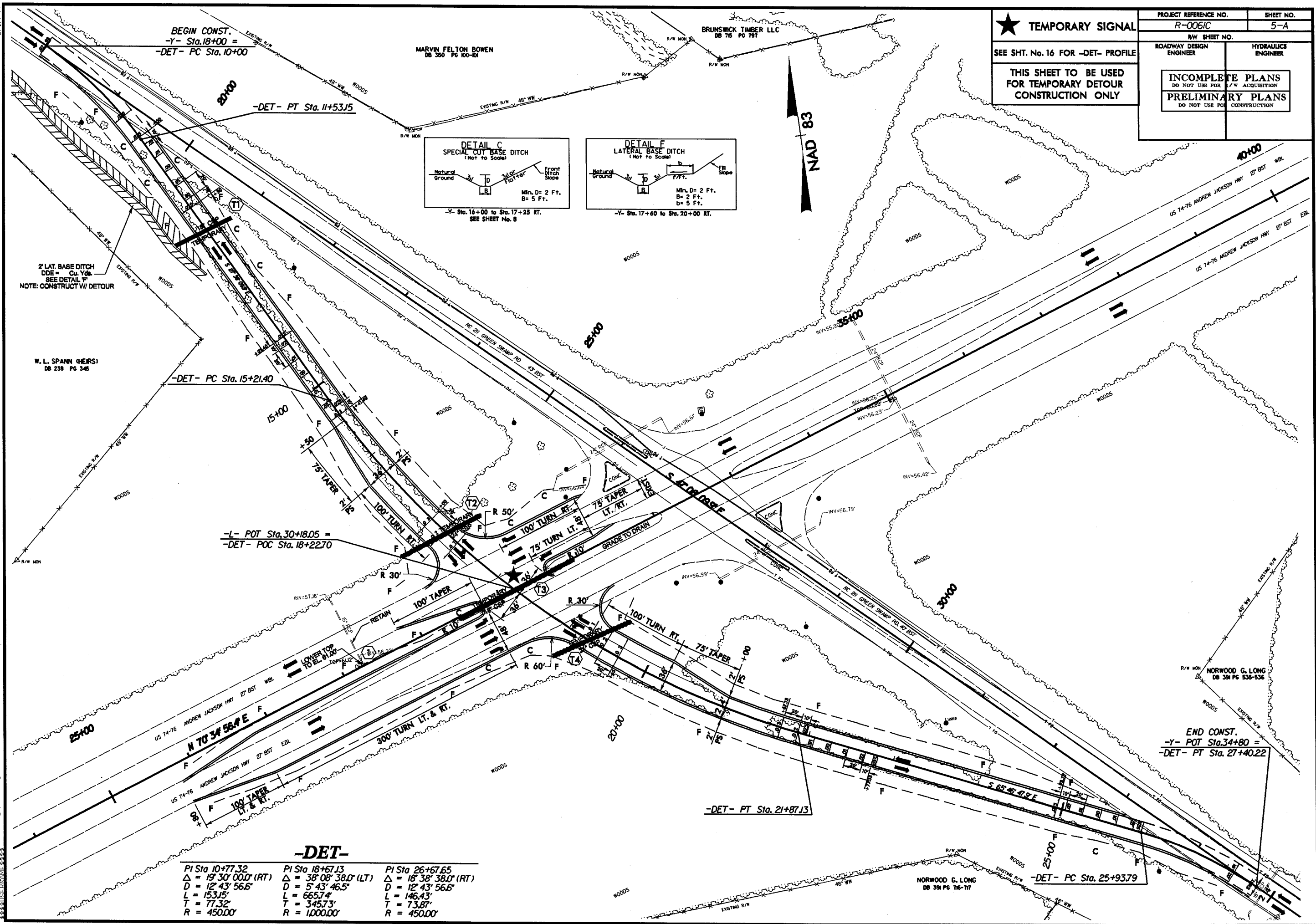
 APPROACH SLAB	 MONOLITHIC ISLAND
SEE SHT. No. 10 & 11 FOR -L- PROFILE SEE SHT. No. 12 FOR -Y- PROFILE SEE SHT. No. 13 FOR -RPA- PROFILE SEE SHT. No. 14 FOR -RPB- PROFILE SEE SHT. No. 14 & 15 FOR -RPC- PRO. SEE SHT. No. 15 FOR -RPD- PROFILE SEE SHEET No. S-1 THRU S-4 FOR STRUCTURE PLANS SEE SHT. 2-D FOR SKETCH SHOWING PAVEMENT / BRIDGE RELATIONSHIP	

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8/17/95  
 27 JUL 2009 08:27 C:\0061c.r\dj\_psh5a.dgn  
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★ **TEMPORARY SIGNAL**  
 SEE SHT. No. 16 FOR -DET- PROFILE  
**THIS SHEET TO BE USED FOR TEMPORARY DETOUR CONSTRUCTION ONLY**

PROJECT REFERENCE NO. R-006/C	SHEET NO. 5-A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



2' LAT. BASE DITCH  
 DDE = Cu. Yds.  
 SEE DETAIL F  
 NOTE: CONSTRUCT W/ DETOUR

**-DET-**

PI Sta 10+77.32	PI Sta 18+67.13	PI Sta 26+67.65
$\Delta = 19^{\circ} 30' 00.0''$ (RT)	$\Delta = 38^{\circ} 08' 38.0''$ (LT)	$\Delta = 18^{\circ} 38' 38.0''$ (RT)
D = 12' 43' 56.6"	D = 5' 43' 46.5"	D = 12' 43' 56.6"
L = 153.15'	L = 665.74'	L = 146.43'
T = 77.32'	T = 345.73'	T = 73.87'
R = 450.00'	R = 1000.00'	R = 450.00'

**END CONST.**  
 -Y- POT Sta. 34+80 =  
 -DET- PT Sta. 27+40.22

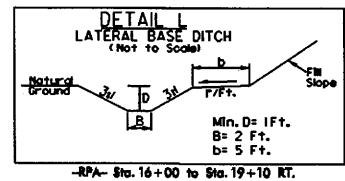
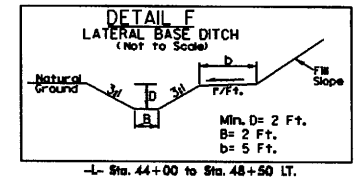
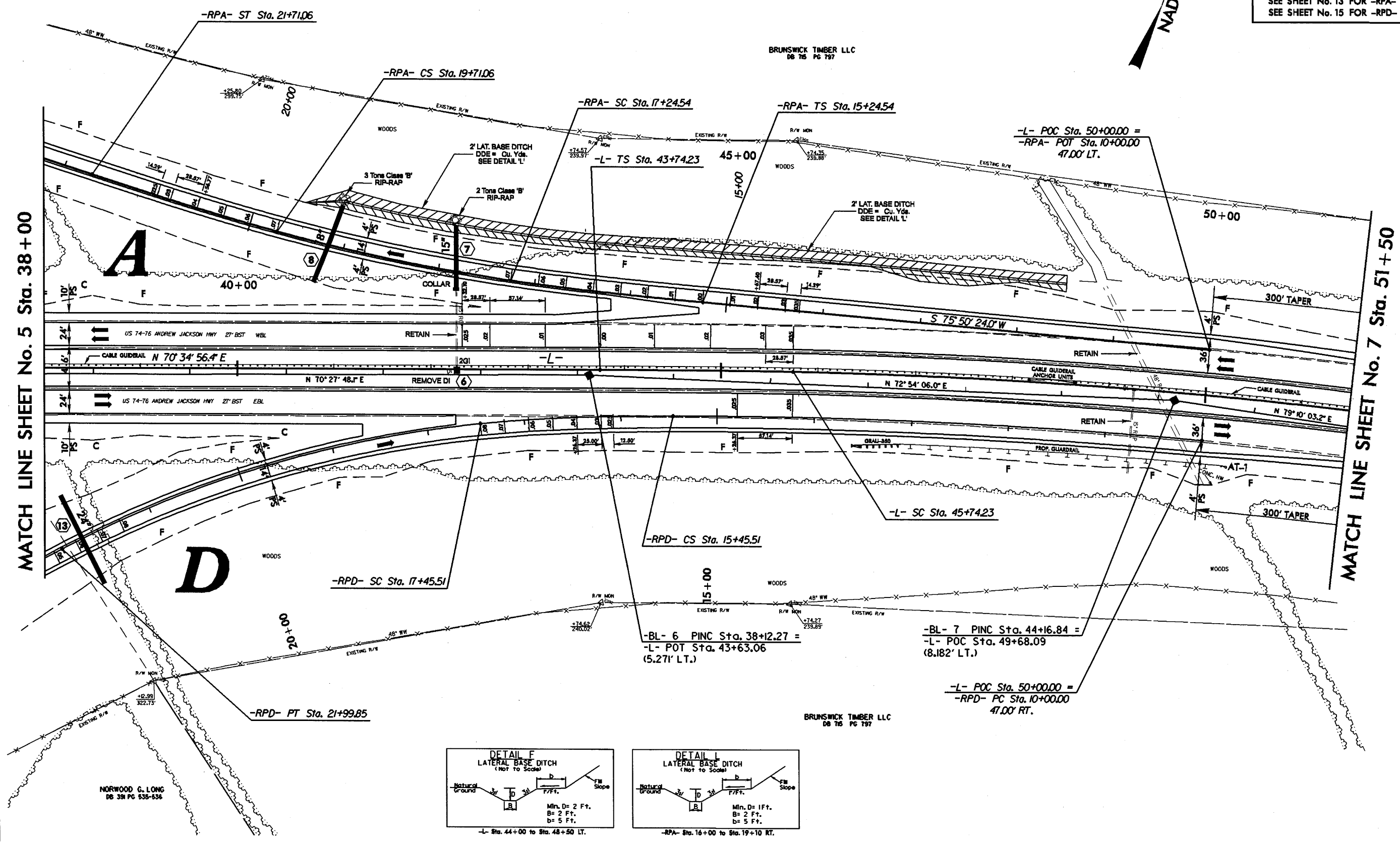


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PROJECT REFERENCE NO. R-0061C		SHEET NO. 6	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
SEE SHEET No. 11 FOR -L- PROFILE SEE SHEET No. 13 FOR -RPA- PROFILE SEE SHEET No. 15 FOR -RPD- PROFILE			

<b>-L-</b> PIs Sta 45+07.57 $\Theta_s = 1'00'00.0''$ $L_s = 200.00'$ $LT = 133.34'$ $ST = 66.67'$	PI Sta 51+64.19 $\Delta = 1'45'27.8''$ (RT) $D = 1'00'00.0''$ $L = 1'175.77'$ $T = 589.96'$ $R = 5'729.58'$	<b>-RPA-</b> PIs Sta 16+57.89 $\Theta_s = 2'51'53.2''$ $L_s = 200.00'$ $LT = 133.35'$ $ST = 66.68'$	PI Sta 18+47.96 $\Delta = 7'03'43.7''$ (RT) $D = 2'51'53.2''$ $L = 246.51'$ $T = 123.41'$ $R = 2,000.00'$	PIs Sta 20+37.74 $\Theta_s = 2'51'53.2''$ $L_s = 200.00'$ $LT = 133.35'$ $ST = 66.68'$	PI Sta 29+34.11 $\Delta = 45'46'04.1''$ (LT) $D = 38'11'49.9''$ $L = 119.82'$ $T = 63.31'$ $R = 150.00'$	<b>-RPD-</b> PIs Sta 12+72.96 $\Delta = 5'30'00.8''$ (LT) $D = 1'00'29.8''$ $L = 545.51'$ $T = 272.96'$ $R = 5,682.58'$	PIs Sta 16+67.30 $\Theta_s = 1'00'28.4''$ $\Theta_s = 4'46'30.1''$ $L_s = 200.00'$ $LT = 121.79'$ $ST = 78.36'$	PI Sta 19+75.43 $\Delta = 2'41'34.7''$ (LT) $D = 4'46'28.7''$ $L = 454.34'$ $T = 229.92'$ $R = 1,200.00'$
--	--	--	--	--	---	---	--	--



NORWOOD G. LONG  
DB 391 PG 535-536

BRUNSWICK TIMBER LLC  
DB 76 PG 797

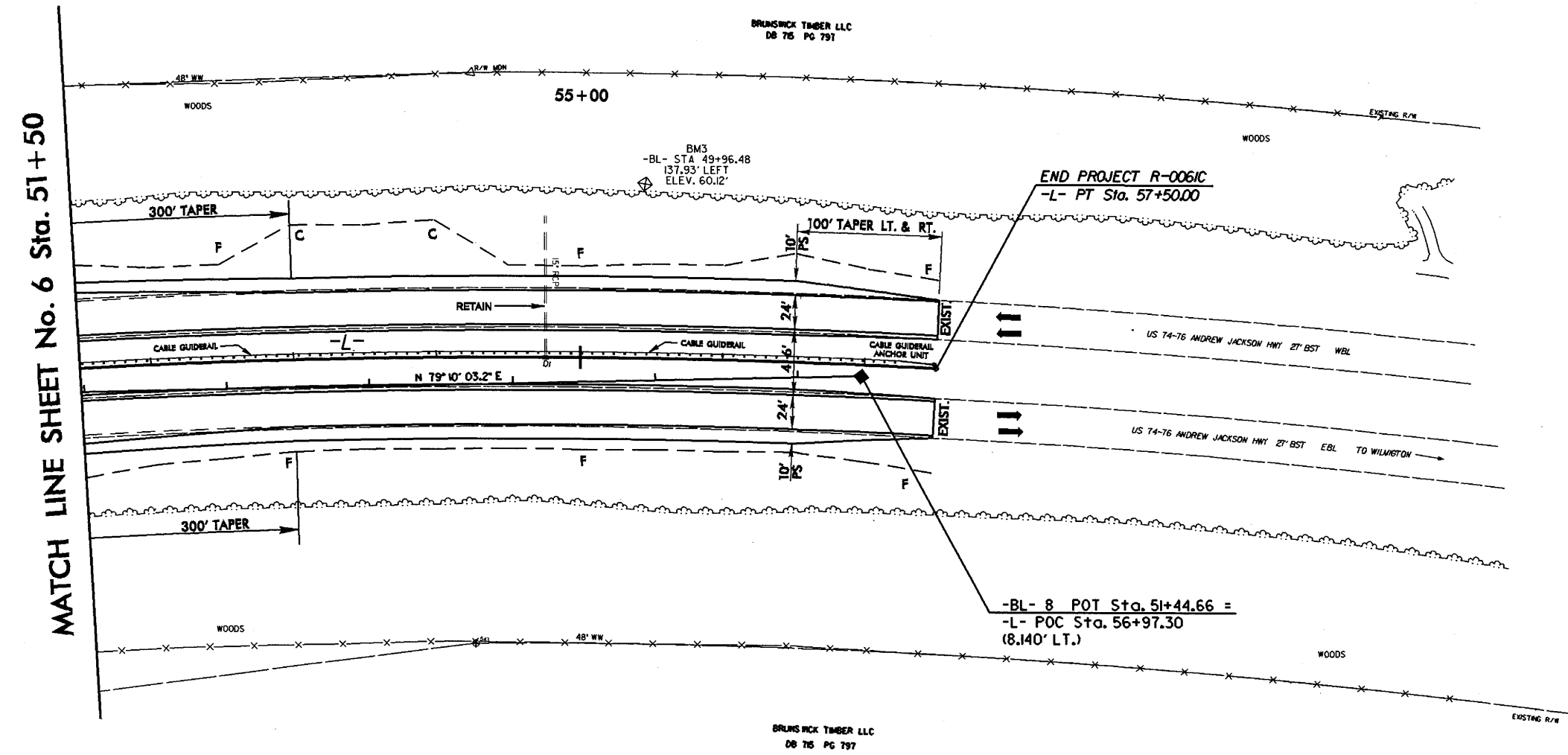
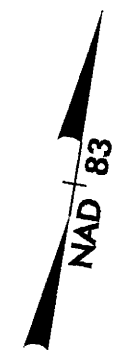
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PROJECT REFERENCE NO. R-0061C		SHEET NO. 7	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION		PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
SEE SHEET No. 11 FOR -L- PROFILE SEE SHEET No. 13 FOR -RPA- PROFILE SEE SHEET No. 16 FOR -RPD- PROFILE			

**-L-**

PI Sta 51+64.19  
 $\Delta = 1^\circ 45' 27.8" (RT)$   
 $D = 1,000.00'$   
 $L = 1,175.77'$   
 $T = 589.96'$   
 $R = 5,729.58'$

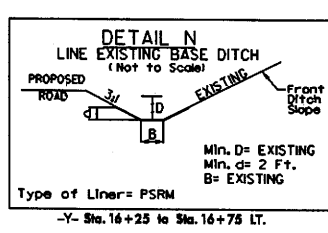
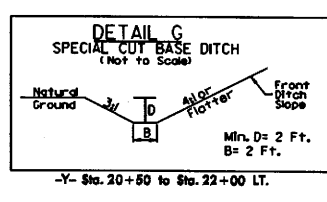
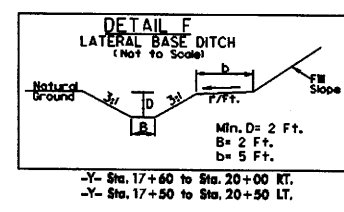
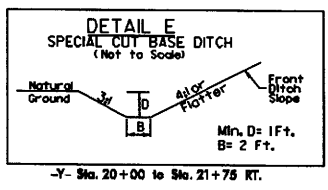
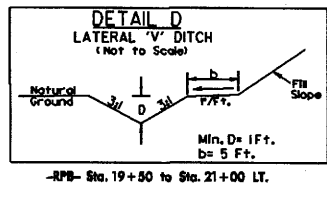
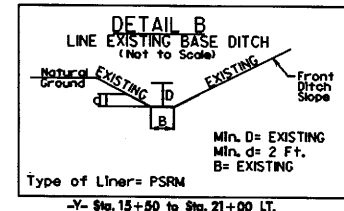
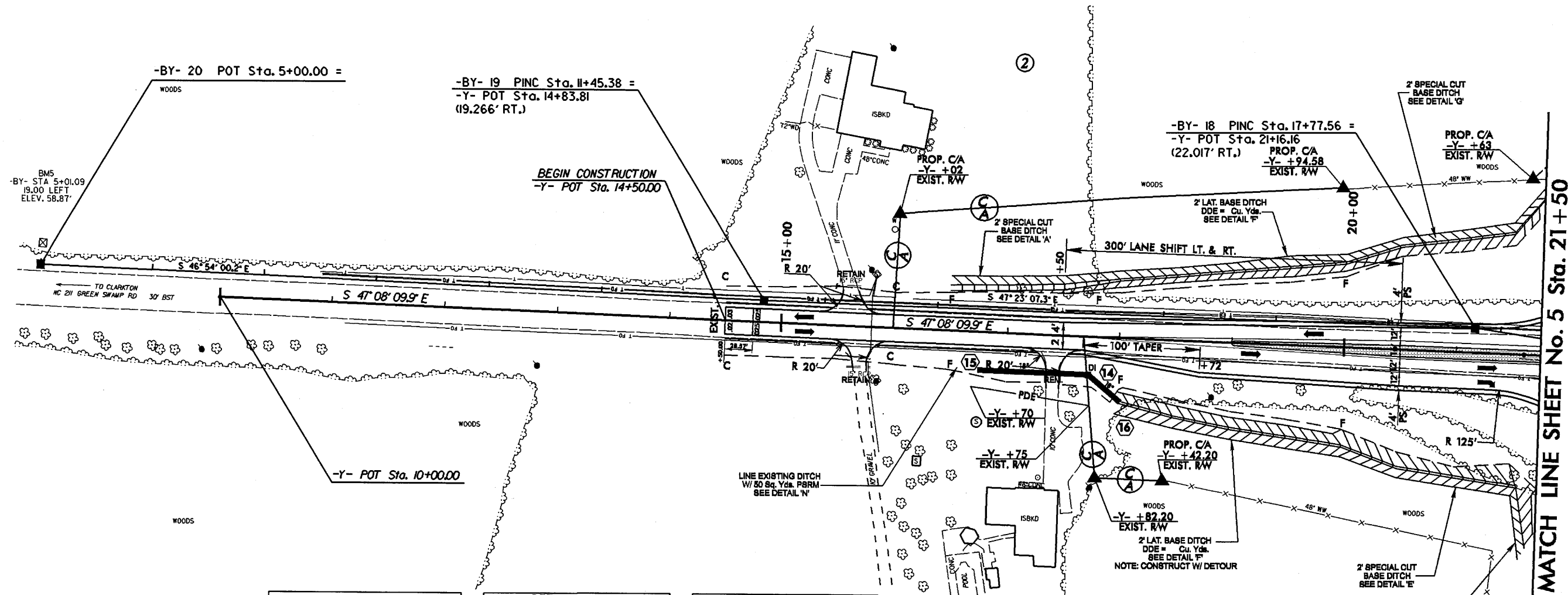
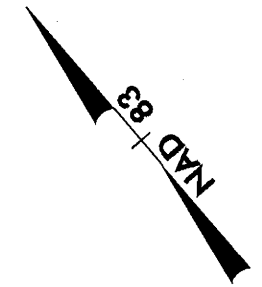


MATCH LINE SHEET No. 6 Sta. 51+50

8/17/99

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PROJECT REFERENCE NO. R-0061C		SHEET NO. 8	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
SEE SHEET No. 12 FOR -Y- PROFILE SEE SHEET No. 13 FOR -RPA- PROFILE SEE SHEET No. 14 FOR -RPB- PROFILE			



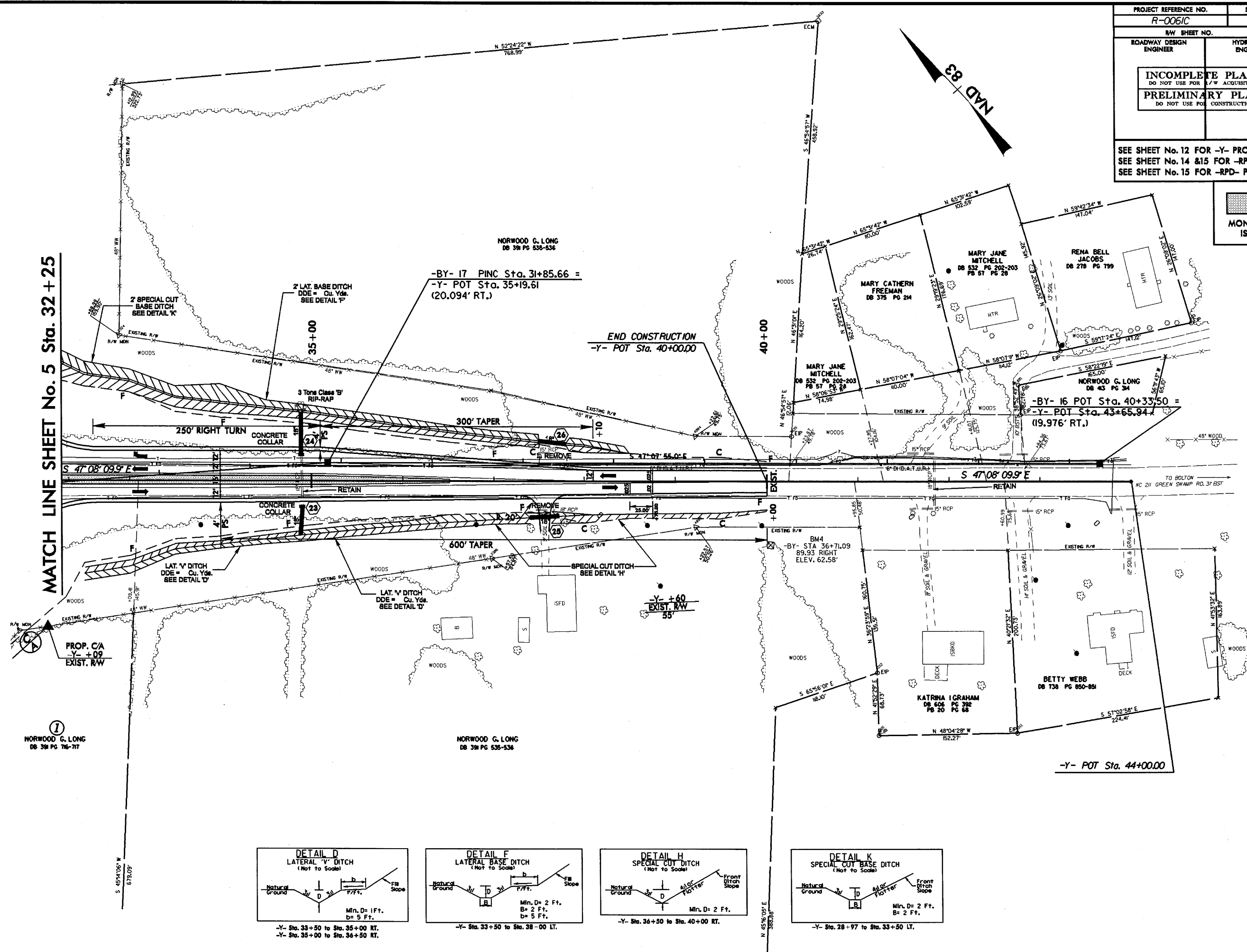
MATCH LINE SHEET No. 5 Sta. 21+50

8/17/99

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PROJECT REFERENCE NO. R-0061C		SHEET NO. 9	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
INCOMPLETE PLANS DO NOT USE FOR A/C ACQUISITION			
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

SEE SHEET No. 12 FOR -Y- PROFILE  
 SEE SHEET No. 14 & 15 FOR -RPC- PROFILE  
 SEE SHEET No. 15 FOR -RPD- PROFILE



MATCH LINE SHEET No. 5 Sta. 32+25

