STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

September 29, 2014

U. S. Army Corps of Engineers
Regulatory Field Office
69 Darlington Avenue
Wilmington, NC 28403

ATTN: Ms. Liz Hair
NCDOT Division 8 Project Coordinator

Subject: **Application for Section 404 Nationwide Permit 14 and Section 401 Water Quality Certification** for widening of US 1 from 1.2 miles north of SR 1606 (Fox Road) to south of SR 1001 (Marston Road), Richmond County, North Carolina, Federal Aid Project No. NHF-1(1), TIP No. R-2501C.

Debit $240.00 from WBS Element No. 34437.2.3

Please find enclosed the Pre-Construction Notification (PCN) form, Jurisdictional Determination (JD), North Carolina Ecosystem Enhancement Program (EEP) Mitigation Acceptance Letter, USFWS Concurrence Letter, stormwater management plan, permit drawings, and roadway design plans for the above referenced project.

The proposed let date for the project is July 21, 2015 with a review date of June 2, 2015. However, the let date may advance as additional funds become available.

A copy of this permit application and its distribution list will be posted on the NCDOT website at https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx under *Quick Links > Permit Applications*. A copy of the FEIS is also available at the above website address under *Quick Links > Environmental Documents*. Thank you for your time and assistance with this project. Please contact Deanna Riffey at either driffey@ncdot.gov or (919) 707-6151 if you have any questions or need additional information.

Sincerely,

for Richard W. Hancock, P.E. Manager
Project Development and Environmental Analysis Unit

Cc: NCDOT Permit Application Standard Distribution List

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
NATURAL ENVIRONMENT SECTION
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-707-6100
FAX: 919-212-5785
WEBSITE: WWW.NCDOT.ORG

PHYSICAL ADDRESS:
Century Center – Building B
1020 Birch Ridge Dr
Raleigh, NC 27610-4328

Office Use Only:
Corps action ID no. _____
DWQ project no. _____
Form Version 1.4 January 2009

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit	☐ Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 14	or General Permit (GP) number:	
1c. Has the NWP or GP number been verified by the Corps?	☒ Yes	☒ No

1d. Type(s) of approval sought from the DWQ (check all that apply):

☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit

☐ 401 Water Quality Certification – Express ☐ Riparian Buffer Authorization

1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☐ Yes ☒ No	For the record only for Corps Permit: ☐ Yes ☒ No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.		☒ Yes ☐ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.		☐ Yes ☒ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?		☐ Yes ☒ No

2. Project Information

2a. Name of project:	Widening of US 1 from 1.2 miles north of SR 1606 to south of SR 1001
2b. County:	Richmond
2c. Nearest municipality / town:	Rockingham
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	R-2501C

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	*not applicable*
3c. Responsible Party (for LLC if applicable):	*not applicable*
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6151
3g. Fax no.:	(919) 212-5785
3h. Email address:	driffey@ncdot.gov

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

B. Project Information and Prior Project History		
1. Property Identification		
1a. Property identification no. (tax PIN or parcel ID):	*not applicable*	
1b. Site coordinates (in decimal degrees):	Latitude: 34.976921 (DD.DDDDDD)	Longitude: - 79.624365 (-DD.DDDDDD)
1c. Property size:	65 acres	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	UT Chock Creek	
2b. Water Quality Classification of nearest receiving water:	WSIII	
2c. River basin:	Yadkin-Pee Dee	
3. Project Description		
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: Land use within the vicinity is predominately residential but includes some areas of general commercial use.		
3b. List the total estimated acreage of all existing wetlands on the property: 0.25 acres		
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 0 linear feet		
3d. Explain the purpose of the proposed project: To reduce congestion in downtown Rockingham by diverting through traffic and truck traffic from local streets and improve mobility on the designated US 1 Strategic Highway Corridor.		
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves widening US 1 to a five-lane facility from north of Fox Road (SR 1606) to the northern terminus at Marston Road (SR 1001). The proposed project is approximately 3.6 miles long. Standard road building equipment, such as trucks, dozers, and cranes will be used.		
4. Jurisdictional Determinations		
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments: SAW-1995-00459	☒ Yes	☐ No ☐ Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☐ Preliminary	☒ Final
4c. If yes, who delineated the jurisdictional areas? Name (if known): Jeff Benton	Agency/Consultant Company: ESI Other:	
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. August 17, 2011		
5. Project History		
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes	☒ No ☐ Unknown
5b. If yes, explain in detail according to “help file” instructions.		
6. Future Project Plans		
6a. Is this a phased project?	☐ Yes	☒ No
6b. If yes, explain.		

C. Proposed Impacts Inventory

1. Impacts Summary

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

☒ Wetlands ☐ Streams - tributaries ☐ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

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

2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction	2f. Area of impact (acres)
Site 1 ☒ P ☐ T	Fill & Mechanized Clearing	Headwater Wetland	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.07
Site 2 ☒ P ☐ T	Fill & Mechanized Clearing	Headwater Wetland	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.18
Site 3 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 4 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 5 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 6 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	0.25 Permanent 0 Temporary

2h. Comments:

3. Stream Impacts

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

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

3h. **Total stream and tributary impacts**	ft Perm ft Temp
3i. Comments:	

4. Open Water Impacts

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

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

4g. Comments:

5. Pond or Lake Construction

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

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

5g. Comments:

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

6. Buffer Impacts (for DWQ)

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

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

6i. Comments: Buffer impacts for this project are less than 40 linear feet for the road crossings and are exempt.

D. Impact Justification and Mitigation

1. Avoidance and Minimization

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

Where possible shifting the alignment was incorporated to avoid water resources, crossing streams perpendicularly, or crossing the narrowest areas of wetland systems. The project involves widening an existing road. Other than no build the minimal effects to one wetland on this project is unavoidable.

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

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

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

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	☒ Yes ☐ No If no, explain:
2b. If yes, mitigation is required by (check all that apply):	☒ DWQ ☒ Corps
2c. If yes, which mitigation option will be used for this project?	☐ Mitigation bank ☒ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

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

3c. Comments:

4. Complete if Making a Payment to In-lieu Fee Program

4a. Approval letter from in-lieu fee program is attached.	☐ Yes
4b. Stream mitigation requested:	linear feet
4c. If using stream mitigation, stream temperature:	☐ warm ☐ cool ☐ cold
4d. Buffer mitigation requested (DWQ only):	square feet
4e. Riparian wetland mitigation requested:	0.50 acres
4f. Non-riparian wetland mitigation requested:	acres
4g. Coastal (tidal) wetland mitigation requested:	acres

4h. Comments:

5. Complete if Using a Permittee Responsible Mitigation Plan

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

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

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

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

5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat?	☒ Yes	☐ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☒ Yes	☐ No
5c. If yes, indicate the USFWS Field Office you have contacted.	☒ Raleigh ☐ Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? NC Natural Heritage Program data, and USFWS website. NCDOT has received USFWS concurrence. National Marine Fisheries and Division of Marine Fisheries agreed with the No Effect calls for the shortnose sturgeon and Atlantic sturgeon made by NCDOT. Last field surveys were in July 2013 for rough-leaved loosestrife and in September 2014 for Michaux's sumac and the red-cockaded woodpecker.		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes	☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☒ Yes	☐ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		

for Richard W. Hancock, P.E. Applicant/Agent's Printed Name	Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	9-29-2014 Date

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **SAW-1995-00459** County: **Richmond** U.S.G.S. Quad: **Diggs, Rockingham, Hamlet And Marston**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner/Agent: **Ms. Deanna Riffey**
NCDOT- PDEA
Address: **1598 Mail Service Center**
Raleigh, NC 27699
Telephone No.:

Property description:
Size (acres) **4030 acres/19 miles** Nearest Town **Rockingham and Hamlet**
Nearest Waterway **Falling Creek** River Basin **Pee Dee River Basin**
USGS HUC **03040201** Coordinates N **34.911444** W **-79.725413**
Location description: **R-2501-US 1 Rockingham Bypass. The project area is located along and south of US Highway 1, between Rockingham and Hamlet, in Richmond County, North Carolina.**

Indicate Which of the Following Apply:

A. Preliminary Determination

_ Based on preliminary information, there may be wetlands on the above described property. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

B. Approved Determination

_ There are Navigable Waters of the United States within the above described project area subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

X There are waters of the U.S. including wetlands on the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ We strongly suggest you have the wetlands on your property delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

X The waters of the U.S. including wetland on your project area have been delineated and the delineation has been verified by the Corps.

_ The waters of the U.S. including wetlands have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on September 29, 2010. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ There are no waters of the U.S., to include wetlands, present on the above described project area which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Wilmington, NC at (910) 796-7215 to determine their requirements.

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Ronnie Smith** at **910-251-4829**.

C. Basis For Determination

This site exhibits wetland criteria as described in the 1987 Corps Wetland Delineation Manual and is adjacent to tributaries the Pee Dee River, which is a traditional navigable water of the United States. The site contains water bodies that exhibit ordinary high water marks as indicated by the absence of vegetation from the stream channel and the presence of wrack lines, sediment deposition and bed and banks. This determination is based on information provided by Environmental Services, Inc and a site visit conducted by Ronnie Smith of the U.S. Army Corps of Engineers on June 7, 2011.

D. Remarks

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B. above)

This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

District Engineer, Wilmington Regulatory Division
Attn: Ronnie Smith, Project Manager,
Wilmington Regulatory Field Office
69 Darlington Ave
Wilmington, North Carolina 28403

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the District Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **October 16, 2011**.

It is not necessary to submit an RFA form to the District Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Ronnie Smith

Date: **August 17, 2011** Expiration Date: **August 17, 2016**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at our website at http://per2.nwp.usace.army.mil/survey.html to complete the survey online.

NCDENR
North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Michael Ellison, Director
Ecosystem Enhancement Program

John E. Skvarla, III
Secretary

September 23, 2014

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

Dear Mr. Hancock:

Subject: EEP Mitigation Acceptance Letter:

R-2501C, US 1 from 1.2 Miles North of SR 1606 (Fox Road) to South of SR 1001 (Marston Road), Richmond County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory riparian wetland mitigation for the subject project. Based on the information supplied by you on September 22, 2014, the impacts are located in CU 03040201 of the Yadkin River basin in the Southern Piedmont (SP) Eco-Region, and are as follows:

Yadkin 03040201 SP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	0	0.25	0	0	0	0

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

This impact and associated mitigation need were under projected by the NCDOT in the 2014 impact data. EEP will commit to implement sufficient compensatory riparian wetland mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the N.C. Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

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

Sincerely,

James B. Stanfill
EEP Asset Management Supervisor

cc: Ms. Liz Hair, USACE – Wilmington Regulatory Field Office
Mr. David Wainwright, NCDWQ – Raleigh Office
Ms. Linda Fitzpatrick, NCDOT – PDEA
File: R-2501C

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

November 6, 2012

Gregory J. Thorpe, Ph.D.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Dr. Thorpe:

This letter is in response to your letter of November 1, 2012 which provided the U.S. Fish and Wildlife Service (Service) with the biological conclusion of the North Carolina Department of Transportation (NCDOT) that the proposed US 1 Rockingham Bypass in Richmond County (TIP No. R-2501) may affect, but is not likely to adversely affect the federally endangered Michaux's sumac (*Rhus michauxii*). In addition, NCDOT has determined that the project will have no effect on the federally endangered red-cockaded woodpecker (*Picoides borealis*), rough-leaved loosestrife (*Lysimachia asperulaefolia*), Carolina heelsplitter (*Lasmigona decorata*), and shortnose sturgeon (*Acipenser brevirostrum*). These comments are provided in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

According to the information provided, surveys for Michaux's sumac were conducted within the project area on September 11 and 19, 2012. No specimens of Michaux's sumac were observed. However, the North Carolina Natural Heritage Program indicates the presence of the species less than one mile from the project area near the northern terminus of the project within the Sandhills Game Land. Based on the survey results and other available information, the Service concurs with your conclusion that the project may affect, but is not likely to adversely affect Michaux's sumac.

According to information provided, surveys were conducted for red-cockaded woodpeckers in 1998, 2004, 2007, 2008 and 2012. Although some potential nesting and foraging habitat occurs near the project area, no cavity trees were observed. Based on the survey data and other available information, the Service concurs with your conclusion that the project will have no effect on the red-cockaded woodpecker.

The last survey conducted for rough-leaved loosestrife occurred in 2007. No specimens of this species were observed, and there are no records within one mile of the project area. Based on current information, the Service concurs with your conclusion that the project will have no effect on rough-leaved loosestrife. However, NCDOT had committed to resurvey for this species in 2013.

As stated in your letter, the Carolina heelsplitter has been removed from the protected species list for Richmond County. Therefore, we concur with your conclusion that the project will have no effect on this species.

The shortnose sturgeon is under the purview of the National Marine Fisheries Service. Therefore, we have no comment on this species. However, please note that the federally endangered Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) has recently been added to the list for Richmond County. This species is also under the purview of the National Marine Fisheries Service.

We believe that the requirements of Section 7(a)(2) of the ESA have been satisfied. We remind you that obligations under Section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,

Gary Jordan

for Pete Benjamin
Field Supervisor

Electronic copy: Ronnie Smith, USACE, Wilmington, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Atlanta, GA
Felix Davila, FHWA, Raleigh, NC

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released July 2012)

Project/TIP No.: R-2501 C **County(ies):** Richmond

General Project Information

Project No.:	R-2501 C	**Project Type:**	Grading, Drainage, Paving, & Signing	**Date:**	10/31/2013
NCDOT Contact:	Charles Smith, PE	**Contractor / Designer:**	MA Engineering Consultants, Inc.; Roger S. Weadon, PE		
Address:	1590 Mail Service Center Raleigh, 27699-1590 1020 Birch Ridge Road, Raleigh, NC 27610 (DELIVERY)	**Address:**	598 East Chatham Street, Suite 137 Cary, NC 27511-6956		
Phone:	919.707.6716	**Phone:**	919.297.0220 x-113		
Email:	crsmith5@ncdot.gov	**Email:**	rweadon@maec.com		
City/Town:	None	**County(ies):**	Richmond		
River Basin(s):	Yadkin-Pee Dee	**CAMA County?**	No		
Primary Receiving Water:		**NCDWQ Stream Index No.:**			
NCDWQ Surface Water Classification for Primary Receiving Water	**Primary:**	None			
	Supplemental:	None			
Other Stream Classification:					
303(d) Impairments:					
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	3.564 miles	**Surrounding Land Use:**	
	Proposed Project	**Existing Site**	
Project Built-Upon Area (ac.)	35.00 ac.	15.00	ac.
Typical Cross Section Description:			
Average Daily Traffic (veh/hr/day):	Design/Future: 15000	Existing:	9450
General Project Narrative:	US 1 FROM NORTH OF SR 1606 (FOX ROAD) TO SOUTH OF SR 1001 (MARSTON ROAD) Avoidance and minimization measures: Discharge of pipes near wetland into ditches to disperse the flow and utilizing toe protection to avoid erosion/sedimentation at edge if wetland.		

References

North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released July 2012)

Project/TIP No.: R-2501 C **County(ies):** Richmond

Project Environmental Summary

Surface Water Impacts

Sheet No.	Station (From / To)	Feature Impacted	Water / Wetland / Buffer Type	Receiving Surface Water Name	NRTR Map ID	NCDWQ Stream Index	NCDWQ Surface Water Classification	303(d) Impairments	Type of Impact	Existing SCM	Proposed SCM
9	1201+25 1208+60	Wetland	Headwater Wetland	UT to Chock Creek				None	Fill	N/A	

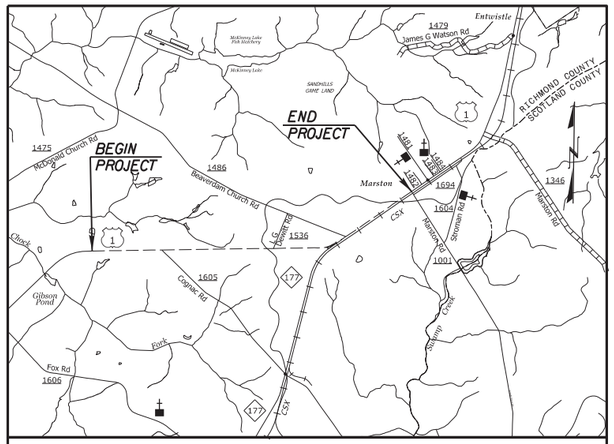
* List all stream and surface water impact locations regardless of jurisdiction or size.
Equalizer Pipes to be noted as a minimization of impacts.
All proposed SCMs listed must also be listed under Swales, Preformed Sour Holes and other Energy Dissipators, or Other Stormwater Control Measures.

09/08/99

TIP PROJECT: R-2501C

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RICHMOND COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2501C	1	

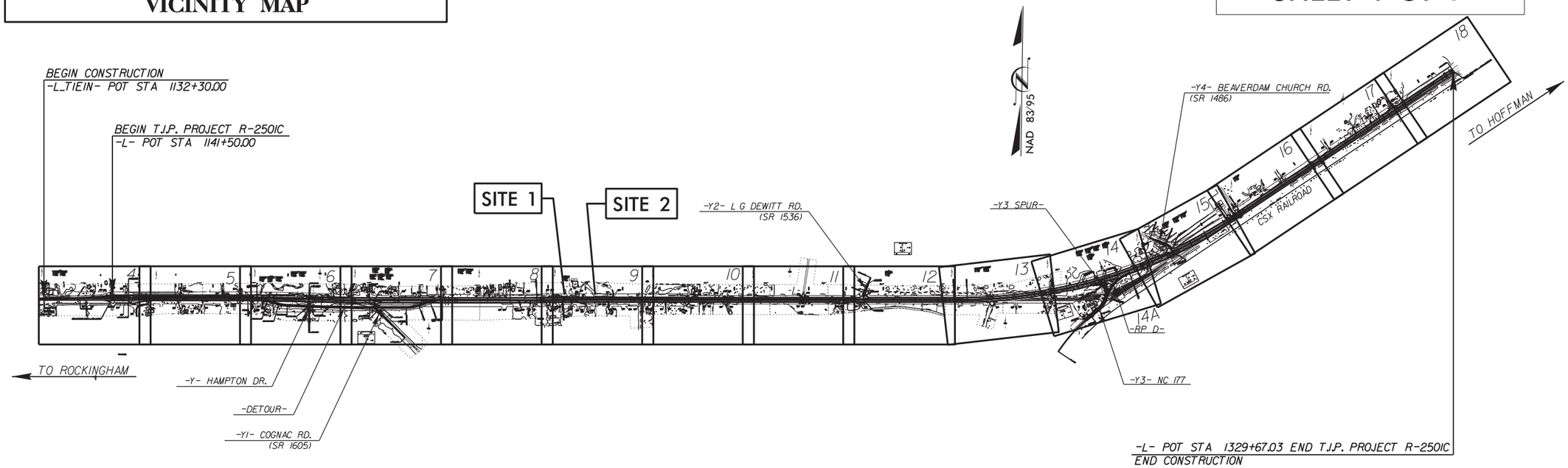
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34437.1.1	NHF-1 (1)	PE
34437.2.3	HPP-0001(144)	ROW
34437.2.UFS1	NHPP-0001(144)	UTIL

LOCATION: US 1 FROM NORTH OF SR 1606 (FOX ROAD) TO SOUTH OF SR 1001 (MARSTON ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & SIGNING

WETLAND AND SURFACE WATER IMPACTS PERMIT

PERMIT DRAWING SHEET 1 OF 7



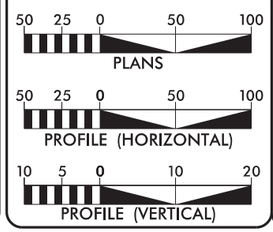
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

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

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2015 = 9450
ADT 2035 = 15,000
DHV = 8 %
D = 60 %
T = 15 % *
V = 50/60 MPH
FUNCTIONAL CLASSIFICATION: RURAL ARTERIAL
TIER: STATEWIDE
* (TTST 10% DUAL 5%)

PROJECT LENGTH

LENGTH OF ROADWAY T.I.P. PROJECT R-2501C = 3.564 MI.

TOTAL LENGTH OF T.I.P. PROJECT R-2501C = 3.564 MI.

Prepared in the Office of:

HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JULY 19, 2013

LETTING DATE:
JULY 21, 2015

ENRICO A. ROQUE, P.E.
PROJECT ENGINEER

BRIAN BLACKWELL, E.I.
PROJECT DESIGN ENGINEER

BRENDA MOORE, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

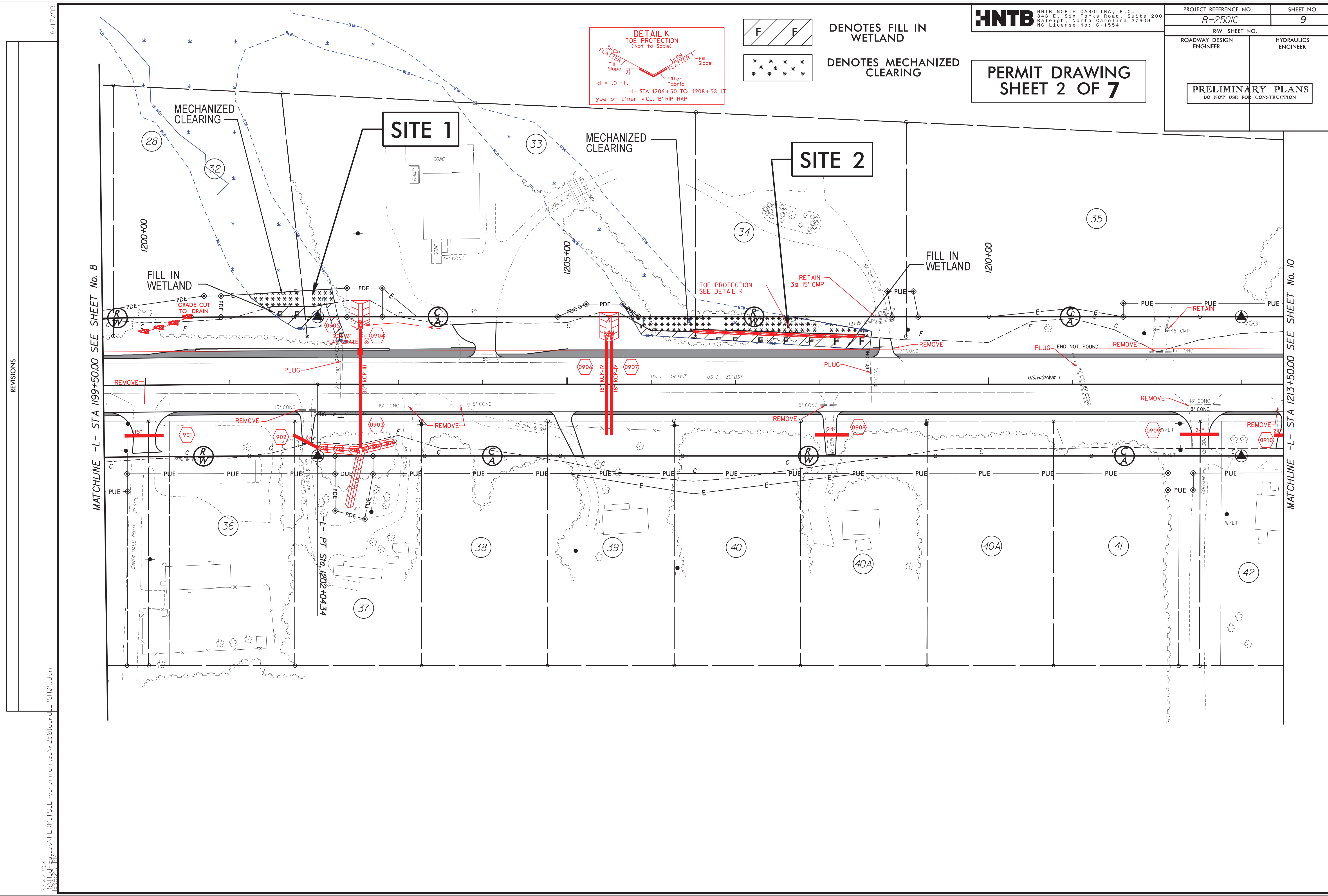
P.E.
SIGNATURE:

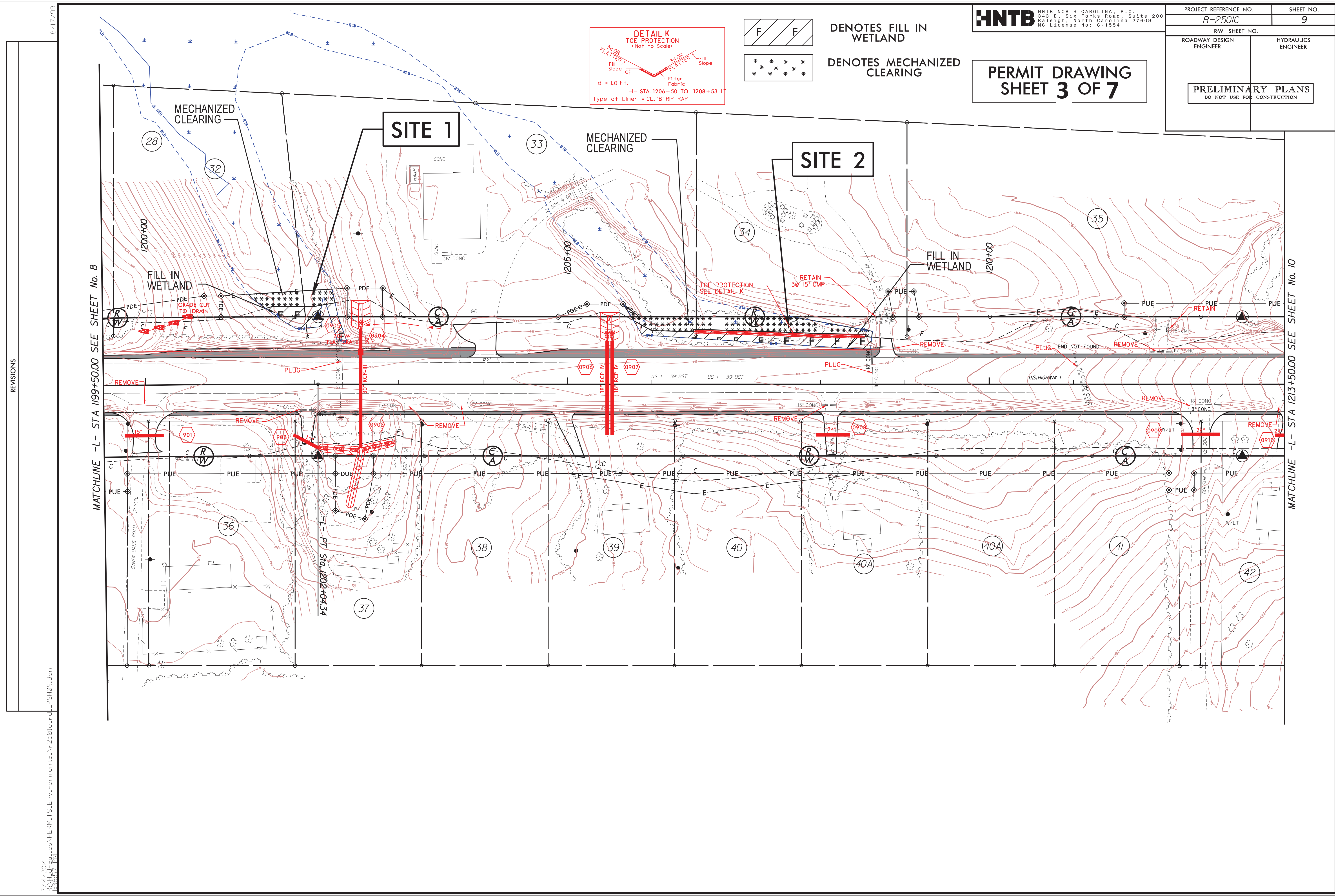
ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

5/23/2014
username
R:\Hydraulics\PERMITS_Environmental\r-2501c_rdy_TSH.dgn


HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554
PROJECT REFERENCE NO.
R-2501C
SHEET NO.
9
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PERMIT DRAWING
SHEET 2 OF 7
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DETAIL K
TOE PROTECTION
(Not to Scale)
d = 1.0 Ft.
-L- STA. 1206+50 TO 1208+53 LT
Type of Liner = CL. 'B' RIP RAP
SITE 1
SITE 2
MECHANIZED CLEARING
FILL IN WETLAND
TOE PROTECTION SEE DETAIL K
RETAIN 3@ 15" CMP
GRADE CUT TO DRAIN
REMOVE
PLUG
US 1
U.S. HIGHWAY 1
1200+00
1205+00
1210+00
-L- PT Sta. 1202+04.34
MATCHLINE -L- STA 1199+50.00 SEE SHEET No. 8
MATCHLINE -L- STA 1213+50.00 SEE SHEET No. 10
REVISIONS
8/17/99
7/14/2014



HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554
PROJECT REFERENCE NO.
R-2501C
SHEET NO.
9
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PERMIT DRAWING
SHEET 3 OF 7
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DETAIL K
TOE PROTECTION
(Not to Scale)
d = 1.0 Ft.
-L- STA. 1206+50 TO 1208+53 LT
Type of Liner = CL. 'B' RIP RAP
SITE 1
SITE 2
MECHANIZED CLEARING
FILL IN WETLAND
TOE PROTECTION SEE DETAIL K
RETAIN 30' 15" CMP
GRADE CUT TO DRAIN
REMOVE
PLUG
1200+00
1205+00
1210+00
MATCHLINE -L- STA 1199+50.00 SEE SHEET No. 8
MATCHLINE -L- STA 1213+50.00 SEE SHEET No. 10
-L- PT Sta. 1202+04.34
US 1
U.S. HIGHWAY 1
SANDY OAKS ROAD
REVISIONS
8/17/99
7/14/2014

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 4 OF 7

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.806

DRAINAGE AREA	= 3.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 9.0	CFS
DESIGN HW ELEVATION	= 357.7	FT
100 YEAR DISCHARGE	= 10.2	CFS
100 YEAR HW ELEVATION	= 357.9	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 19.5	CFS
OVERTOPPING ELEVATION	= 360.7	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.903

DRAINAGE AREA	= 13.7	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 25.9	CFS
DESIGN HW ELEVATION	= 349.7	FT
100 YEAR DISCHARGE	= 30.1	CFS
100 YEAR HW ELEVATION	= 350.0	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 76.5	CFS
OVERTOPPING ELEVATION	= 356.7	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.906-907

DRAINAGE AREA	= 24.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 14.0	CFS
DESIGN HW ELEVATION	= 355.2	FT
100 YEAR DISCHARGE	= 16.9	CFS
100 YEAR HW ELEVATION	= 355.6	FT
OVERTOPPING FREQUENCY	= 500+/-	YRS
OVERTOPPING DISCHARGE	= 29.0	CFS
OVERTOPPING ELEVATION	= 357.8	FT

BM #6 -L- STA 1199+62.26
122.56' LEFT ELEV. 359.38'
RR-SPIKE IN BASE OF 20" PINE

PI = 1197+55.00
EL = 360.27'
VC = 185'
K = 649

PI = 1201+05.00
EL = 357.05'
VC = 170'
K = 275

PI = 1202+75.00
EL = 356.54'
VC = 170'
K = 217

PI = 1204+75.00
EL = 357.51'
VC = 230'
K = 1653

PI = 1209+85.00
EL = 359.27'
VC = 430'
K = 97

(-)0.6339% (-)0.6339% (-)0.9190% (-)0.9190% (-)0.3000% (-)0.3000% (+)0.4846% (+)0.4846% (+)0.3454% (+)0.3454% (+)4.7876%

24" RCP (-)12.04%

END TAIL BASE DITCH
-L- STA.1196+81 (71.57' LT)
EL = 350.85

BEGIN TAIL BASE DITCH
-L- STA.1196+70 (128' LT)
EL = 349.74

30" RCP (-)6.67% (-) 4.00% (+) 9.25% (+)1.31% 0.00%

BEGIN HEAD BASE DITCH
-L- STA.1202+41 (146.5' RT)
EL = 351.60

BEGIN LAT. BASE DITCH
-L- STA.1202+05 RT
EL = 349.00

-L- STA.1202+55
END HEAD BASE DITCH (78.5' RT)
EL = 347.00

BEGIN SPEC. CUT DITCH
BEGIN TAIL BASE DITCH
-L- STA.1202+55 (65.5' LT)
EL = 345.00

END TAIL BASE DITCH
-L- STA.1202+55 (95.5' LT)
EL = 345.00

END LAT. BASE DITCH
-L- STA.1202+95 RT
EL = 350.70

END SPEC. CUT DITCH
-L- STA.1203+50 LT
EL = 352.00

2 @ 18" RCP 0.00%

BEGIN TAIL BASE DITCH
-L- STA.1205+50 (51' LT)
EL = 353.20

END TAIL BASE DITCH
-L- STA.1205+50 (81' LT)
EL = 353.20

1196+00 1197+00 1198+00 1199+00 1200+00 1201+00 1202+00 1203+00 1204+00 1205+00 1206+00 1207+00 1208+00 1209+00 1210+00

400 390 380 370 360 350 340 330 320 310

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.1002

DRAINAGE AREA	= 1.7	AC
DESIGN FREQUENCY	= 50.0	YRS
DESIGN DISCHARGE	= 4.2	CFS
DESIGN HW ELEVATION	= 394.8	FT
100 YEAR DISCHARGE	= 4.8	CFS
100 YEAR HW ELEVATION	= 395.0	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 13.5	CFS
OVERTOPPING ELEVATION	= 397.5	FT

BM #7 -L- STA 1212+81.06
153.90' RIGHT ELEV. 376.57'
RR-SPIKE IN BASE OF POWER POLE

PI = 1216+15.00
EL = 389.43'
VC = 370'
K = 196

PI = 1221+15.00
EL = 403.93'
VC = 100'
K = 628

(+)4.7876% (+)2.8985% (+)2.7394%

BEGIN SPECIAL CUT DITCH
-L- STA.1217+50 RT
EL = 389.08

PI=1218+00 RT
EL = 389.94

END SPECIAL CUT DITCH
-L- STA.1218+50 RT
EL = 392.05

BEGIN TAIL BASE DITCH
-L- STA.1219+08 (540' LT)
EL = 392.65

BEGIN TAIL BASE DITCH
-L- STA.1218+93 (1142.7' LT)
EL = 392.65

(+) 1.72% (+) 4.22% 0.00% 18" RCP

NOTE: FOR -L- PLAN SEE SHEETS 8,9 & 10

1210+00 1211+00 1212+00 1213+00 1214+00 1215+00 1216+00 1217+00 1218+00 1219+00 1220+00 1221+00 1222+00 1223+00 1224+00

430 420 410 400 390 380 370 360 350 340

9:30:15 AM
$$$$USERNAME$$$$

02/03/98

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
R-2501C	X-27	

PERMIT DRAWING
SHEET 5 OF 7

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

℄

WETLAND LIMIT

3:1

0.0200 0.0200

356.77

356.17

6:1

15" DRIVE PIPE

S.S. 351.145

S.S. 340.139

350

340

1202+00.00

WETLAND LIMIT

3:1

0.0200 0.0200

356.94

356.38

6:1

352.74
60.00

3:1

S.S. 358.878

S.S. 340.239

352.745

350

340

1201+50.00

3:1

0.0200 0.0200

357.21

356.70

6:1

353.0
60.00

3:1

S.S. 361.145

S.S. 345.34

353.013

350

340

1201+00.00

5.16:1

0.0200 0.0200

357.57

357.12

6:1

353.37
60.00

3:1

S.S. 361.028

S.S. 350.657

353.373

350

340

1200+50.00

-L-

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

s:\PERMITS\Environmental\r-2501c_rdy.xpl_L PERMIT.dgn
7/3/2014
10:43:55 AM

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
R-2501C	X-30	

PERMIT DRAWING
SHEET 6 OF 7

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

370
360

NO WETLANDS
6:1
S.S. 356.616
0.0200
359.85
0.0200
358.79
355.65
60.00
6:1
3:1
355.651
S.S. 362.765

1209+00.00

360
350

WETLAND LIMIT
WETLANDS
4:1
S.S. 354.852
0.0200
359.14
0.0200
358.44
354.94
60.00
6:1
3:1
354.936
S.S. 364.010

1208+50.00

360
350

WETLAND LIMIT
WETLANDS
3:1
3
S.S. 353.254
0.0200
358.68
0.0200
358.23
354.48
60.00
6:1
3:1
354.479
S.S. 365.797

1208+00.00

360
350

WETLAND LIMIT
WETLANDS
3:1
3
S.S. 352.324
0.0200
358.46
0.0200
358.04
354.26
60.00
6:1
3:1
354.260
S.S. 367.930

1207+50.00

360
350

WETLAND LIMIT
WETLANDS
3:1
3
S.S. 351.560
0.0200
358.29
0.0200
357.89
354.09
60.00
6:1
3:1
354.087
S.S. 370.221

1207+00.00
-L-

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

02/03/98

7/3/2014
10:44:39 AM
s\PERMITS\Environmental\r-2501c_rdy-xpl.L PERMIT.dgn

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From / To)	Structure Size / Type	Permanent Fill in Wetlands (ac)	Temporary Fill in Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW Impacts (ac)	Temporary SW Impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temporary (ft)	Natural Stream Design (ft)
1	L 1201+26 to L 1202+39	FILL	0.03			0.04						
2	L 1205+79 to L 1208+61	FILL	0.08			0.10						
TOTALS:			0.11			0.14						

ROUNDED TOTALS ARE THE SUM OF ACTUAL IMPACTS

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

RICHMOND COUNTY
WBS 34437.1.1 R-2501C

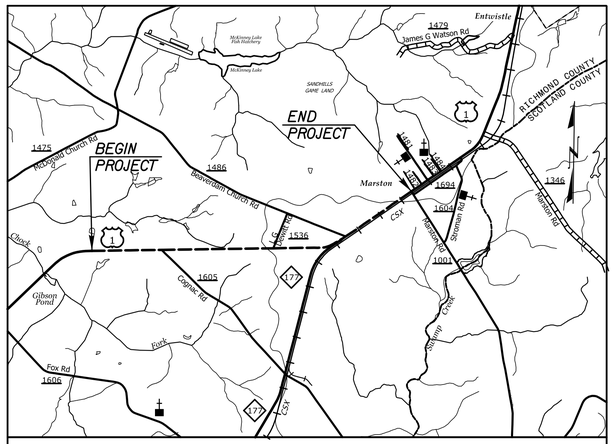
Sheet **7 OF 7** 14-Jul-2014

09/08/99

TIP PROJECT: R-2501C

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

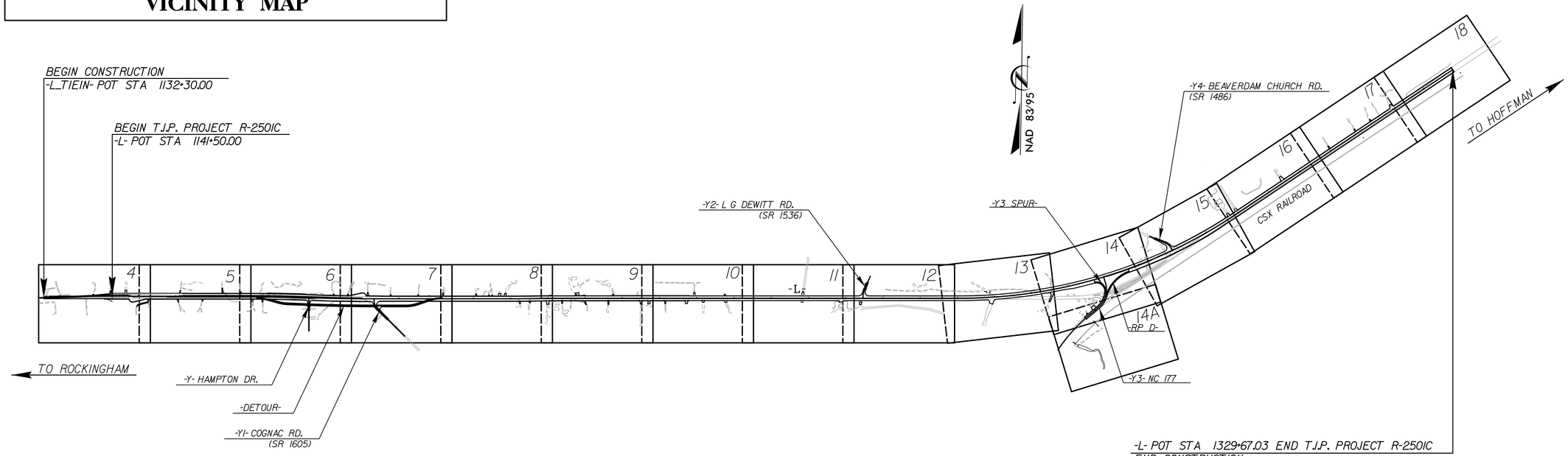
RICHMOND COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2501C	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34437.1.1	NHF-1 (1)	PE
34437.2.FS1	HPP-0001(144)	ROW
34437.2.UFS1	NHPP-0001(144)	UTIL

LOCATION: US 1 FROM NORTH OF SR 1606 (FOX ROAD) TO SOUTH OF SR 1001 (MARSTON ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & SIGNING



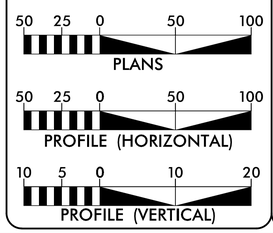
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

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

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2015 = 9450
ADT 2035 = 15,000
DHV = 8 %
D = 60 %
T = 15 % *
V = 50/60 MPH
FUNCTIONAL CLASSIFICATION: RURAL ARTERIAL
TIER: STATEWIDE
* (TTST 10% DUAL 5%)

PROJECT LENGTH

LENGTH OF ROADWAY T.I.P. PROJECT R-2501C = 3.564 MI.

TOTAL LENGTH OF T.I.P. PROJECT R-2501C = 3.564 MI.

Prepared in the Office of:
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JULY 19, 2013

LETTING DATE:
JULY 21, 2015

ENRICO A. ROQUE, P.E.
PROJECT ENGINEER

ANTHONY THOMPSON, P.E.
PROJECT DESIGNER

BRENDA MOORE, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

12:40:14 PM
...\Proj\r2501c_rdy_TSH.dgn
$$$$USERNAME$$$$

04/16/11

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	1B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line

- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

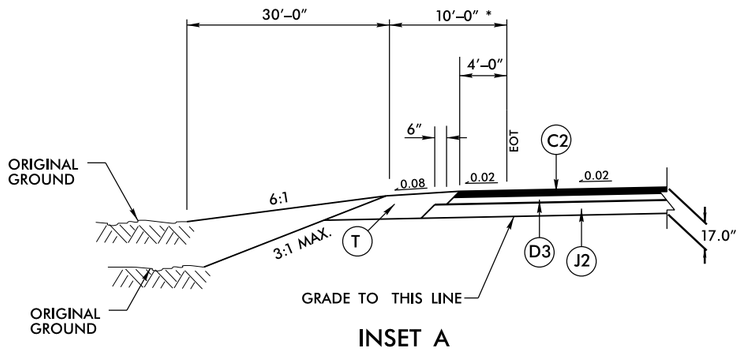
8/17/99

REVISIONS

R/W REVISION NO.1: REVISED TYPICAL SECTION NO.2 STATIONING PER BULB- OUT RELOCATION (05/05/14)

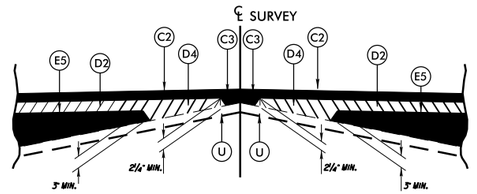
PRELIMINARY PAVEMENT SCHEDULE			
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E5	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF 2 LAYERS.	J1	PROP. 8" 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 LESS THAN 1½" IN DEPTH OR GREATER THAN 2" IN DEPTH.	J2	PROP. 10" AGGREGATE BASE COURSE
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB AND GUTTER.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.	R2	5" MONOLITHIC CONCRETE ISLAND.
D3	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R3	CONCRETE EXPRESSWAY GUTTER.
D4	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 2¼" IN DEPTH OR GREATER THAN 4" IN DEPTH.	R4	1'-6" CONCRETE CURB AND GUTTER.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R5	SHOULDER BERM GUTTER
E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	T	EARTH MATERIAL.
E3	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
E4	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

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



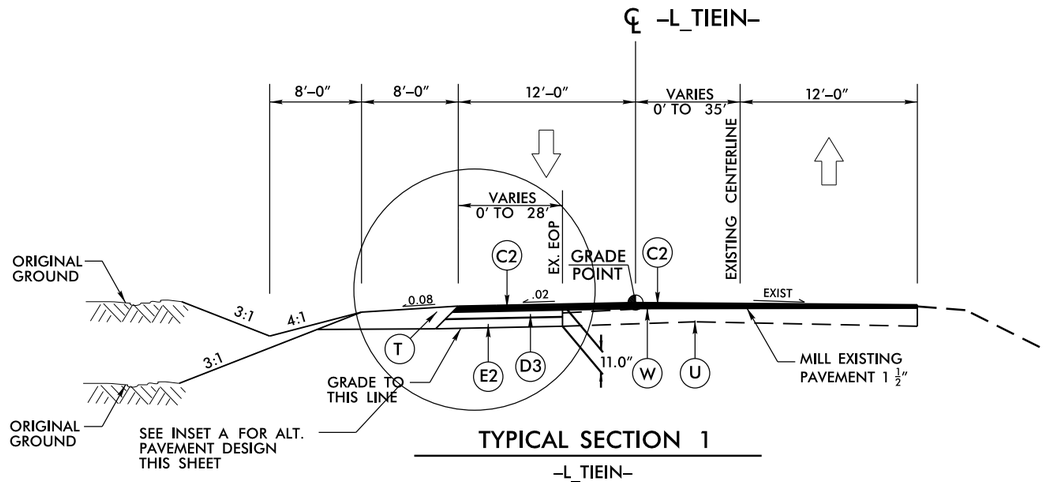
INSET A

ALTERNATE MAINLINE PAVEMENT DESIGN



DETAIL SHOWING METHOD OF WEDGING

SEE TYPICAL SECTIONS

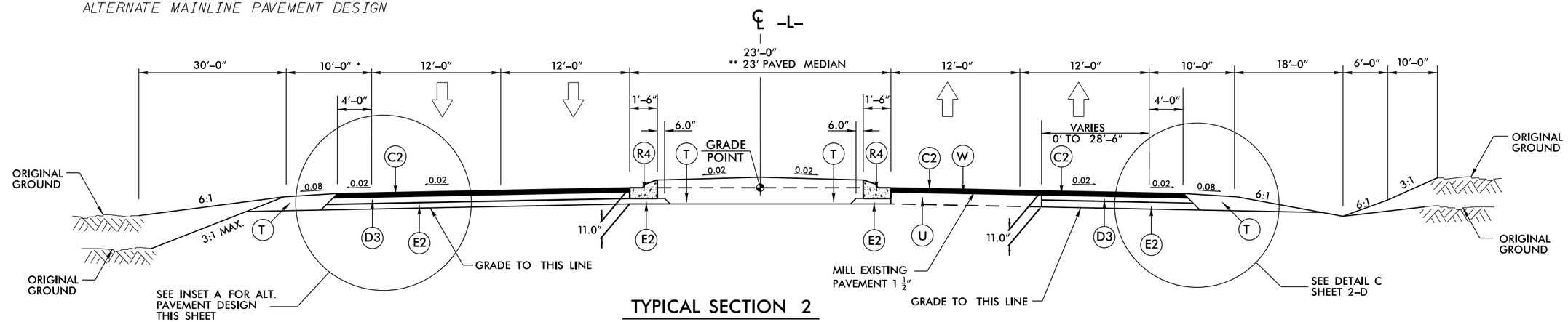


TYPICAL SECTION 1

–L_TIEIN–

USE TYPICAL SECTION NO.1 :

-L_TIEIN- STA 1132+30.00 TO -L_TIEIN- STA 1141+50.00



TYPICAL SECTION 2

USE TYPICAL SECTION NO.2 :

***-L- STA 1141+50.00 TO -L- STA 1143+65+/-*
-L- STA 1143+65+/- TO -L- STA 1167+50+/-

NOTE: * 1) 13'–0" WHERE GUARDRAIL IS WARRANTED
2) SEE PLANS FOR SUPERELEVATION, TURN LANES, AUXILIARY LANES, MONOLITHIC ISLAND, EXPRESSWAY GUTTER , CURB & GUTTER, & LANE TAPER LOCATIONS

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

02-MAY-2014 09:29
R:\Roadway Projects\r-2501c_rdy_TYP.dgn
$$$$USERNAME$$$$

C2	3" ACSC TYPE S9.5C
D3	4 " ACIC TYPE I19.0C
E2	4" ACBC, TYPE B25.0C
R4	1'-6" CURB AND GUTTER.
T	EARTH MATERIAL

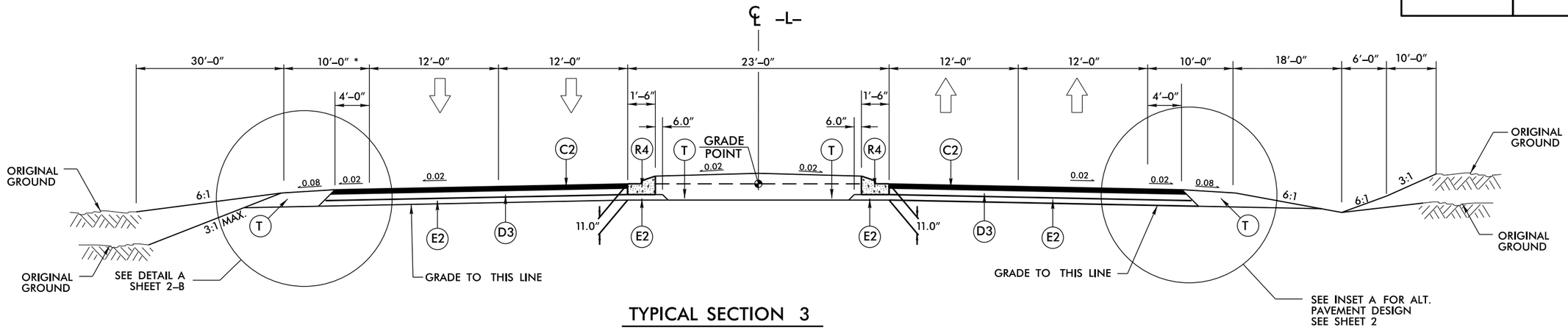
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	2-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

8/17/99

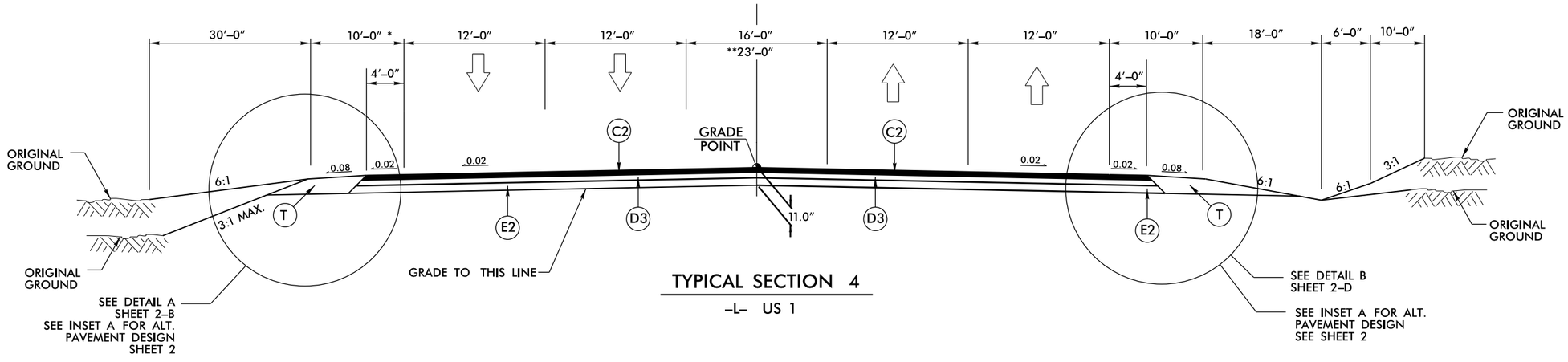


TYPICAL SECTION 3

–L– US 1

USE TYPICAL SECTION NO.3 :

-L- STA 1168+50 TO -L- STA 1175+09.77



TYPICAL SECTION 4

–L– US 1

USE TYPICAL SECTION NO.4 :

** *-L- STA 1175+09.77 TO -L- STA 1176+03.41*
-L- STA 1178+13.41 TO -L- STA 1181+00+/-
-L- STA 1285+48.00 TO -L- STA 1289+78.90

TRANSITION FROM 23' MEDIAN TO 16' MEDIAN:

-L- STA 1176+03.41± TO -L- STA 1178+13.41

TRANSITION FROM TYPICAL SECTION 9 TO TYPICAL SECTION 4 :

-L- STA 1284+28.00 TO -L- STA 1285+48.00

TRANSITION FROM TYPICAL SECTION 4 TO TYPICAL SECTION 6:

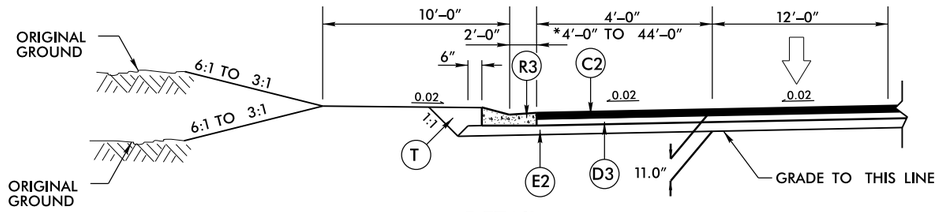
-L- STA 1289+78.90 TO -L- STA 1292+78.90

NOTE: * 1) 13'–0" WHERE GUARDRAIL IS WARRANTED
2) SEE PLANS FOR SUPERELEVATION, TURN LANES, AUXILIARY LANES, MONOLITHIC ISLAND, EXPRESSWAY GUTTER , CURB & GUTTER, & LANE TAPER LOCATIONS

22-JUL-2013 10:17
R:\Roadway\Proj\r-2501c_rdy_TYP.dgn
$$$$USERNAME$$$$

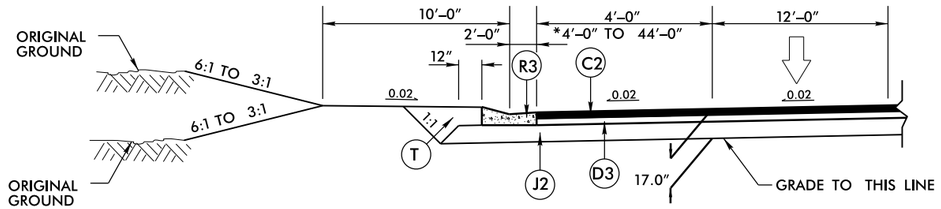
8/17/99

C2	3" ACSC TYPE S9.5C
D3	4 " ACIC TYPE I19.0C
E2	4" ACBC, TYPE B25.0C
R3	EXPRESSWAY GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING



DETAIL A

EXPRESSWAY GUTTER

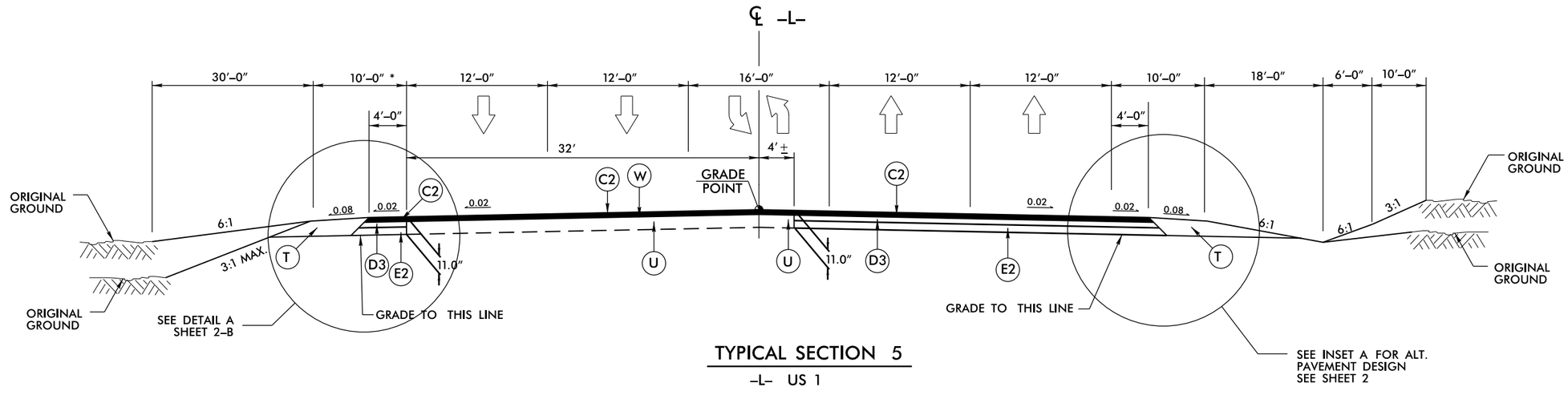


DETAIL A

EXPRESSWAY GUTTER – ALTERNATE PAVEMENT DESIGN

USE DETAIL A :

USE DETAIL A IN CONJUNCTION WITH
TYPICAL SECTION 3,4,& 5 AT THE FOLLOWING LOCATIONS:
-L- STA 1170+80 TO -L- STA 1173+29.70 LEFT SIDE
**-L- STA 1173+29.70 TO -L- STA 1175+60.44 LEFT SIDE (BULBOUT LOCATION)*
-L- STA 1175+60.44 TO -L- STA 1184+00 LEFT SIDE



TYPICAL SECTION 5

–L– US 1

USE TYPICAL SECTION NO.5 :

-L- STA 1181+00± TO -L- STA 1195+00±

NOTE: * 1) 13'–0" WHERE GUARDRAIL IS WARRANTED
2) SEE PLANS FOR SUPERELEVATION, TURN LANES, AUXILIARY LANES, MONOLITHIC ISLAND, EXPRESSWAY GUTTER , CURB & GUTTER, & LANE TAPER LOCATIONS

REVISIONS

22-JUL-2013 10:19
R:\Roadway\Proj\r2501c_rdy_TYP.dgn
$$$$USERNAME$$$$

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	2-B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

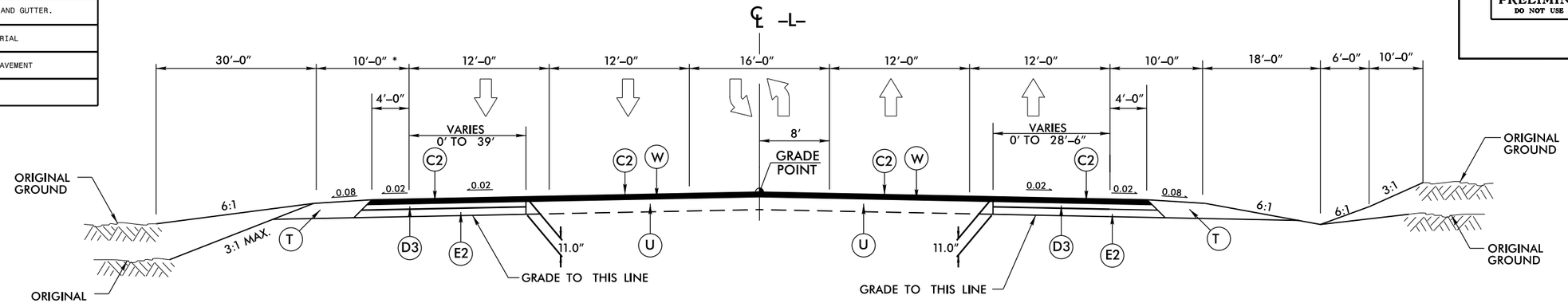
REVISIONS

C2	3" ACSC TYPE S9.5C
D3	4 " ACIC TYPE I19.0C
E2	4" ACBC, TYPE B25.0C
R1	2'-6" CURB AND GUTTER.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	2-C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

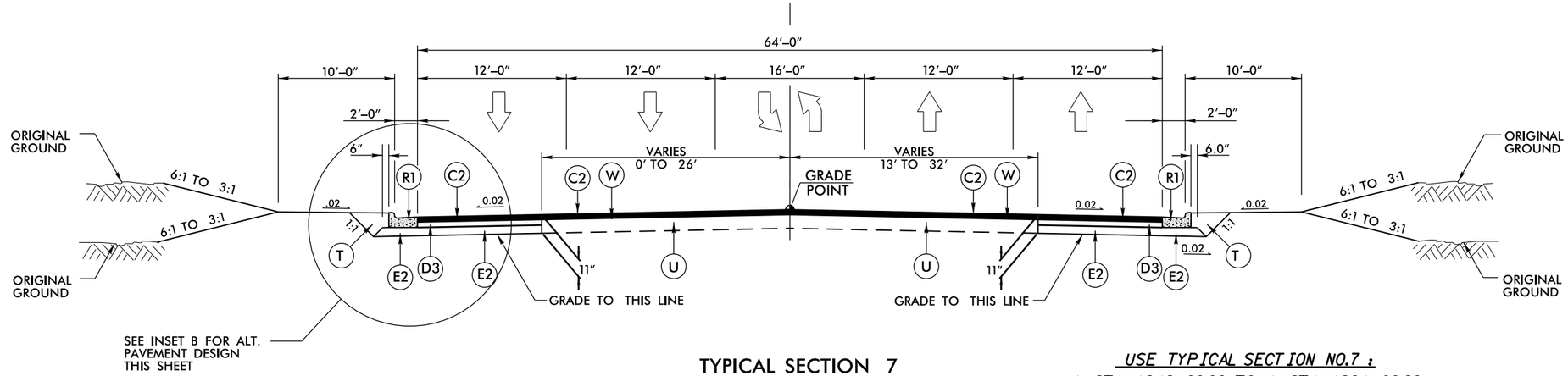


TYPICAL SECTION 6

–L– US 1

USE TYPICAL SECTION NO.6 :

-L- STA 1195+00± TO -L- STA 1219+00.00
-L- STA 1292+78.90 TO -L- STA 1329+67.03

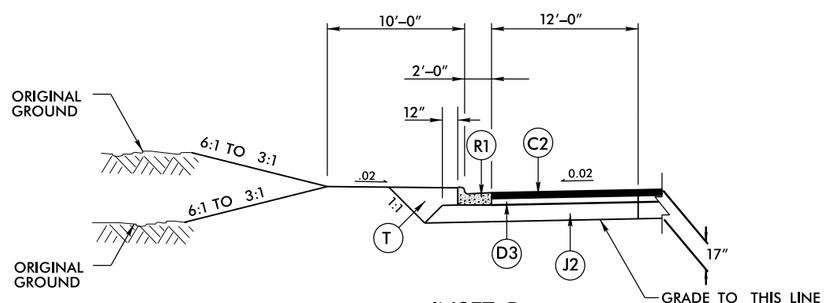


TYPICAL SECTION 7

–L– US 1

USE TYPICAL SECTION NO.7 :

-L- STA 1219+00.00 TO -L- STA 1261+00.00



INSET B

ALTERNATE MAINLINE PAVEMENT DESIGN

NOTE: * 1) 13'–0" WHERE GUARDRAIL IS WARRANTED
2) SEE PLANS FOR SUPERELEVATION, TURN LANES, AUXILIARY LANES, MONOLITHIC ISLAND, EXPRESSWAY GUTTER , CURB & GUTTER, & LANE TAPER LOCATIONS

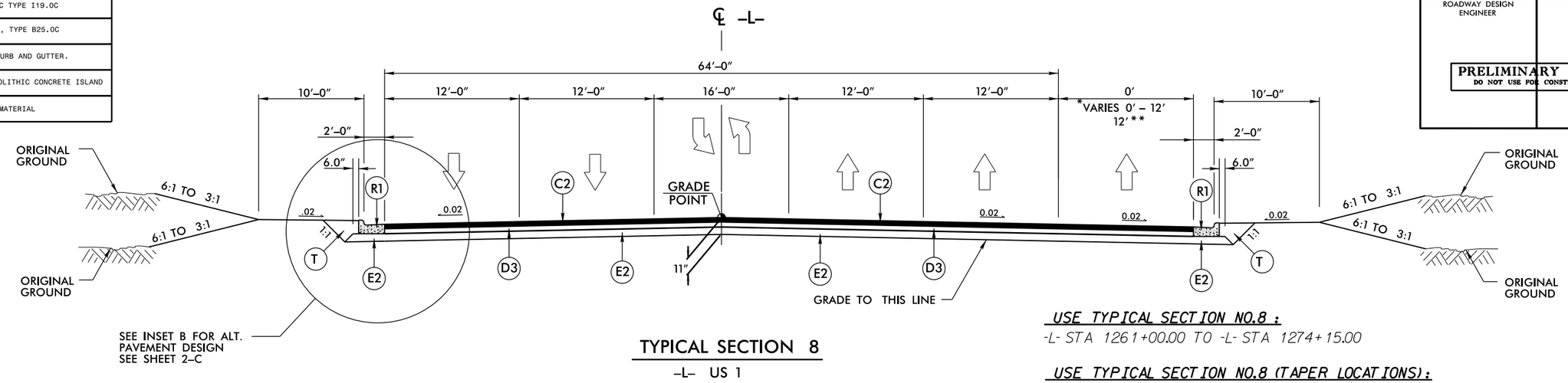
22-JUL-2013 10:20
R:\Roadway\Proj\r-2501c_rdy_TYP.dgn
$$$$USERNAME$$$$

C2	3" ACSC TYPE S9.5C
D3	4 " ACIC TYPE I19.0C
E2	4" ACBC, TYPE B25.0C
R1	2'-6" CURB AND GUTTER.
R2	5" MONOLITHIC CONCRETE ISLAND
T	EARTH MATERIAL

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	2-D
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



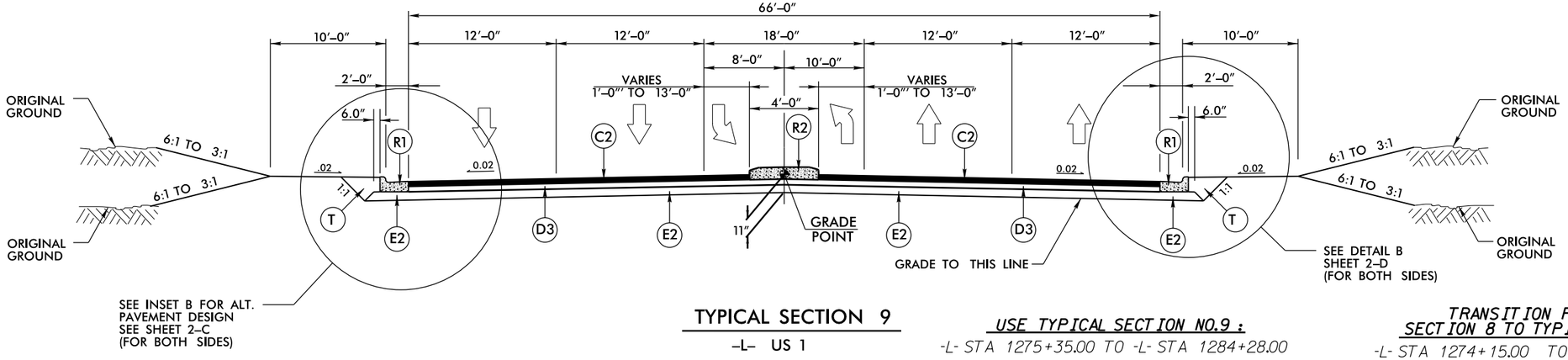
TYPICAL SECTION 8

–L– US 1

USE TYPICAL SECTION NO.8 :
-L- STA 1261+00.00 TO -L- STA 1274+15.00

USE TYPICAL SECTION NO.8 (TAPER LOCATIONS):
** -L- STA 1269+15.60 TO -L- STA 1270+65.60*

USE TYPICAL SECTION NO.8 (ADDITIONAL LANE LOCATIONS):
*** -L- STA 1270+65.60 TO -L- STA 1274+15.00*

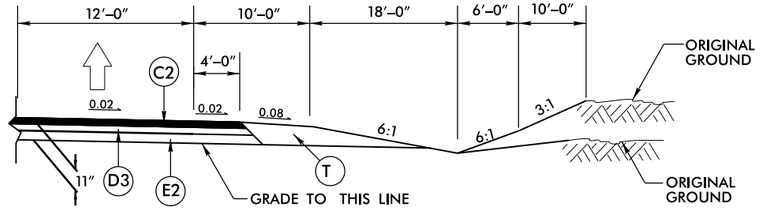


TYPICAL SECTION 9

–L– US 1

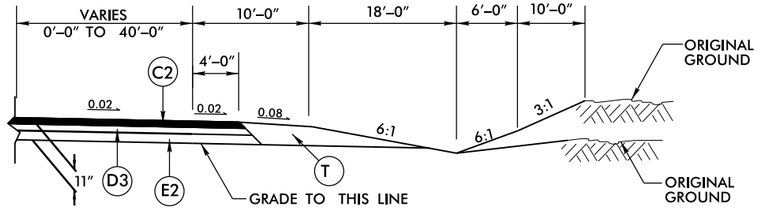
USE TYPICAL SECTION NO.9 :
-L- STA 1275+35.00 TO -L- STA 1284+28.00

TRANSITION FROM TYPICAL SECTION 8 TO TYPICAL SECTION 9 :
-L- STA 1274+15.00 TO -L- STA 1275+35.00



DETAIL B

USE DETAIL B IN CONJUNCTION WITH TYPICAL SECTION 4 & 9 AT THE FOLLOWING LOCATIONS:
-L- STA 1278+38.90 TO -L- STA 1284+28.00 RIGHT SIDE
-L- STA 1285+48.00 TO -L- STA 1289+78.90 RIGHT SIDE



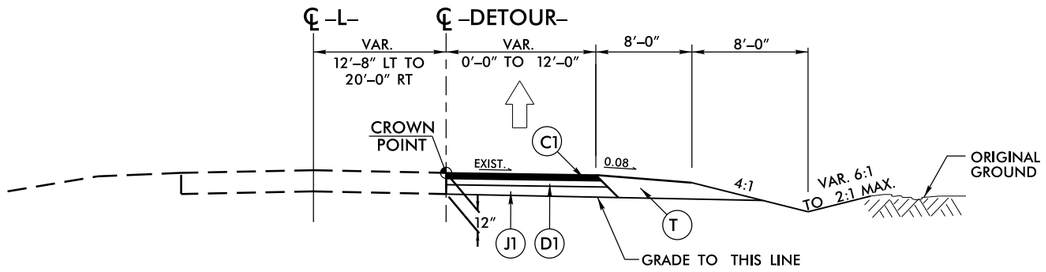
DETAIL C

USE DETAIL C IN CONJUNCTION WITH TYPICAL SECTION 2 AT THE FOLLOWING LOCATION:
-L- STA 1143+74.40 TO -L- STA 1146+05.00 RIGHT SIDE (BULBOUT LOCATION)

NOTE: 1) SEE PLANS FOR SUPERELEVATION, TURN LANES, AUXILIARY LANES, MONOLITHIC ISLAND, EXPRESSWAY GUTTER , CURB & GUTTER, & LANE TAPER LOCATIONS

REVISIONS 8/17/99

C1	1½" ACSC TYPE S9.5C
C2	3" ACSC TYPE S9.5C
D1	2½" ACIC TYPE I19.0C
E4	5" ACBC, TYPE B25.0B
J1	8" ABC
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

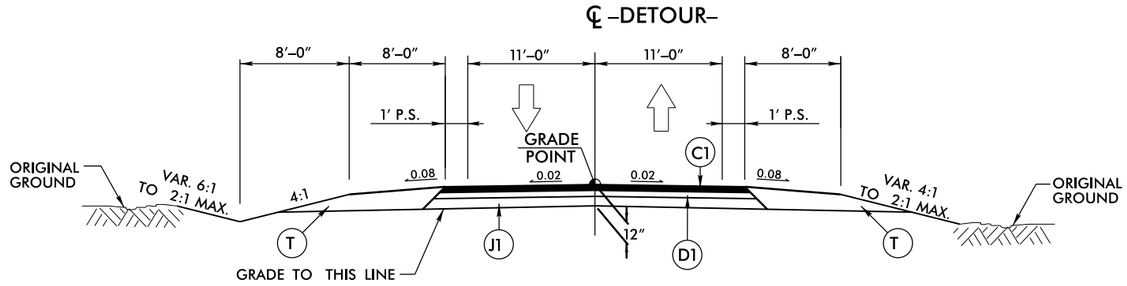


TYPICAL SECTION 10

–DETOUR–

USE TYPICAL SECTION NO. 10 :

-DETOUR- STA 10+00.00 TO -DETOUR- STA 11+50±
-DETOUR- STA 33+50± TO -DETOUR- STA 35+15.70

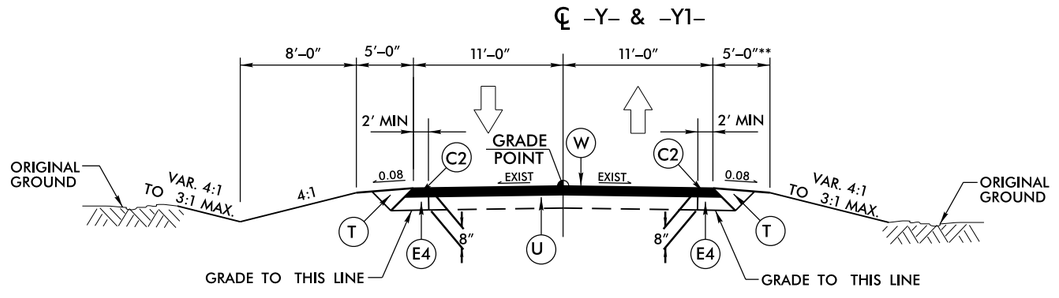


TYPICAL SECTION 11

–DETOUR–

USE TYPICAL SECTION NO. 11 :

-DETOUR- STA 11+50± TO -DETOUR- STA 33+50±



TYPICAL SECTION 12

–Y– HAMPTON DR.
–Y1– COGNAC RD. (SR1605)

USE TYPICAL SECTION NO. 12 :

-Y- STA 10+32.00 TO -Y- STA 11+75.00
-Y1- STA 13+00.00 TO -Y1- STA 13+50.00

NOTE: 1) SEE PLANS FOR SUPERELEVATION, TURN LANES, AUXILIARY LANES, MONOLITHIC ISLAND, EXPRESSWAY GUTTER , CURB & GUTTER, & LANE TAPER LOCATIONS

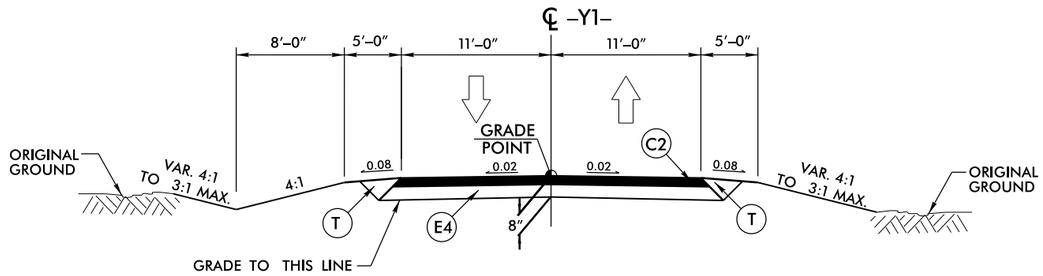
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	2-E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99
REVISIONS

C2	3" ACSC TYPE S9.5C
D2	4 " ACIC TYPE I19.0B
E1	4" ACBC, TYPE B25.0B
E4	5" ACBC, TYPE B25.0B
R1	2'-6" CURB AND GUTTER.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

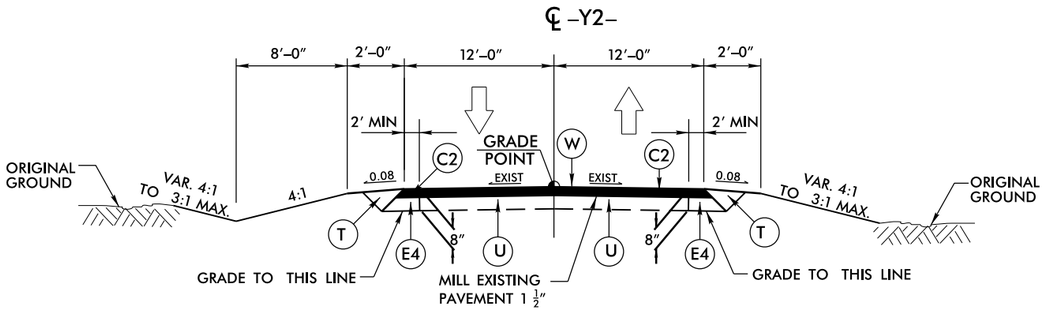


TYPICAL SECTION 13

–Y1– COGNAC RD. (SR1605)

USE TYPICAL SECTION NO. 13 :

-Y1- STA 10+35.40 TO -Y1- STA 13+00.00

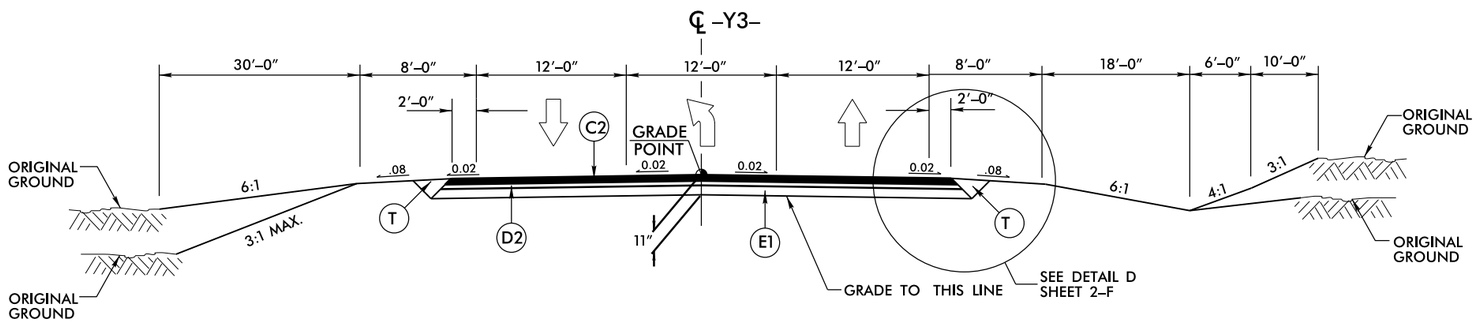


TYPICAL SECTION 14

–Y2– L G DEWITT RD (SR1536)

USE TYPICAL SECTION NO. 14 :

-Y2- STA 10+32.00 TO -Y2- STA 12+25.00

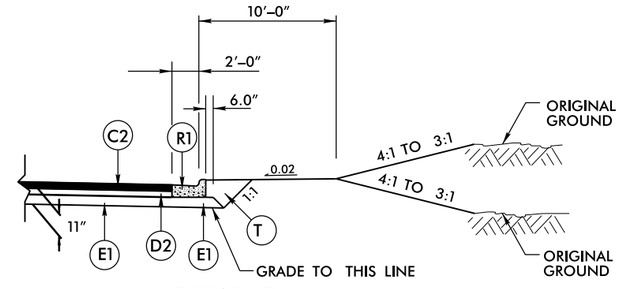


TYPICAL SECTION 15

NC 177

USE TYPICAL SECTION NO. 15 :

-Y3- STA 10+33.29 TO -Y3- STA 16+70.00



DETAIL D

USE DETAIL D IN CONJUNCTION WITH TYPICAL SECTION 15 AT THE FOLLOWING LOCATIONS:
-Y3- STA 10+35± TO -Y3- STA 11+77± LEFT SIDE
-Y3- STA 10+35± TO -Y3- STA 10+95± RIGHT SIDE

NOTE: 1) SEE PLANS FOR SUPERELEVATION, TURN LANES, AUXILIARY LANES, MONOLITHIC ISLAND, EXPRESSWAY GUTTER , CURB & GUTTER, & LANE TAPER LOCATIONS

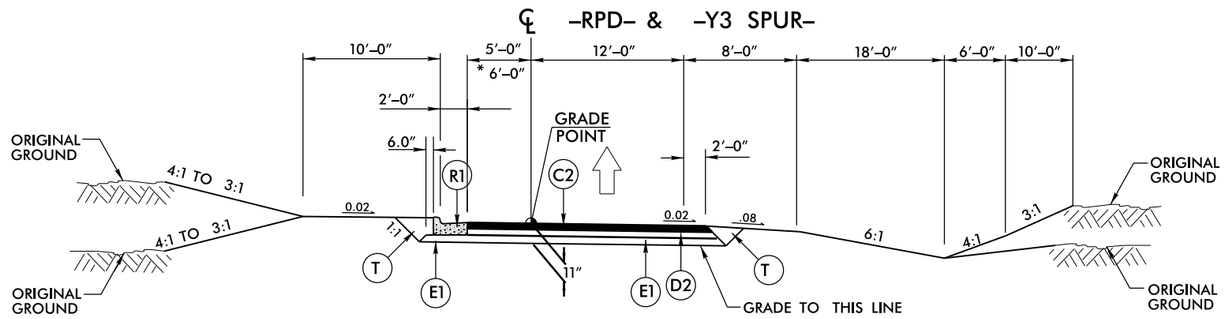
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	2-F
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

22-JUL-2013 10:23
R:\Roadway\Proj\r-2501c_rdy_TYP.dgn
$$$$USERNAME$$$$

C2	3" ACSC TYPE S9.5C
D2	4 " ACIC TYPE I19.0B
D3	4 " ACIC TYPE I19.0C
E1	4" ACBC, TYPE B25.0B
E2	4" ACBC, TYPE B25.0C
E3	4½" ACBC, TYPE B25.0B
J1	8" ABC
R1	2'-6" CURB AND GUTTER.
R5	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING



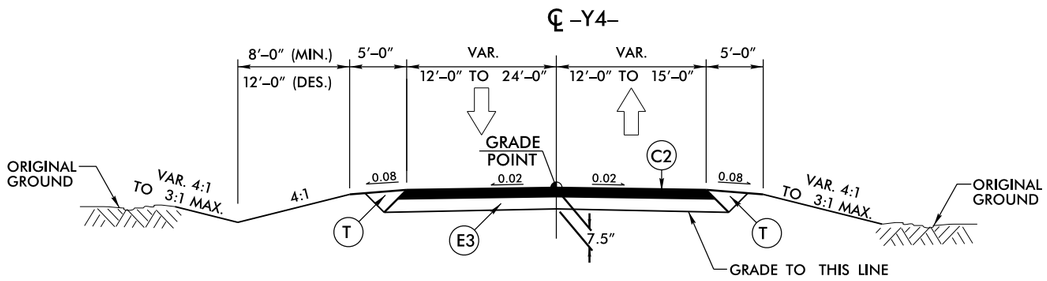
TYPICAL SECTION 16

RAMP D & Y3 SPUR

USE TYPICAL SECTION NO. 16 :

-RPD- STA 10+00.00 TO -RPD- STA 14+73.97

** -Y3 SPUR- STA 5+00.00 TO -Y3 SPUR- STA 7+39.73*

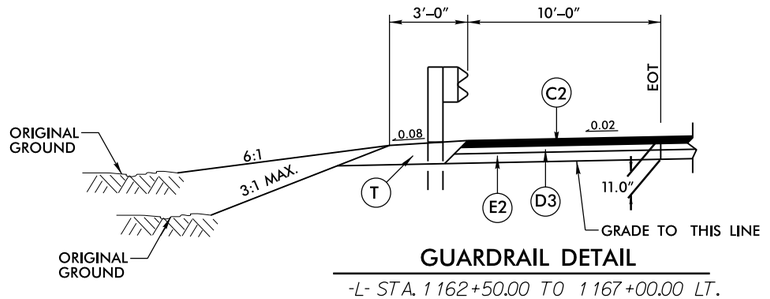


TYPICAL SECTION 17

–Y4– BEAVERDAM CHURCH RD. (SR1486)

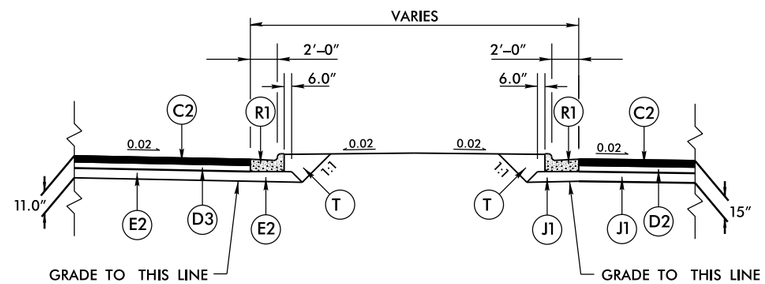
USE TYPICAL SECTION NO. 17 :

-Y4- STA 10+32.00 TO -Y4- STA 13+00.00



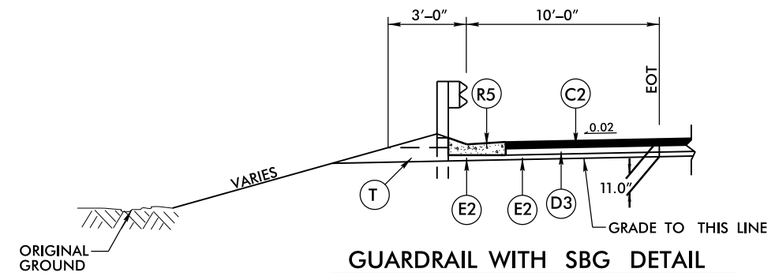
GUARDRAIL DETAIL

-L- STA. 1162+50.00 TO 1167+00.00 LT.
-L- STA. 1200+50.00 TO 1201+50.00 LT.
-L- STA. 1202+89.00 TO 1203+62.50 LT.
-L- STA. 1205+00.00 TO 1208+62.50 LT.



RAISED GRASS ISLAND DETAIL

USE RAISED GRASS ISLAND DETAIL IN CONJUNCTION WITH TYPICAL SECTIONS 9 & 16 AT THE RAISED GRASS ISLAND LOCATIONS LOCATED ON PLAN SHEET No. 14.



GUARDRAIL WITH SBG DETAIL

-L- STA. 1201+50.00 TO 1202+89.00 LT.

NOTE: 1) SEE PLANS FOR SUPERELEVATION, TURN LANES, AUXILIARY LANES, MONOLITHIC ISLAND, EXPRESSWAY GUTTER , CURB & GUTTER, & LANE TAPER LOCATIONS

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	2-G
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

22-JUL-2013 10:24
R:\Roadway\Proj\r-2501c_rdy_TYP.dgn
$$$$USERNAME$$$$

8/17/99

REVISIONS

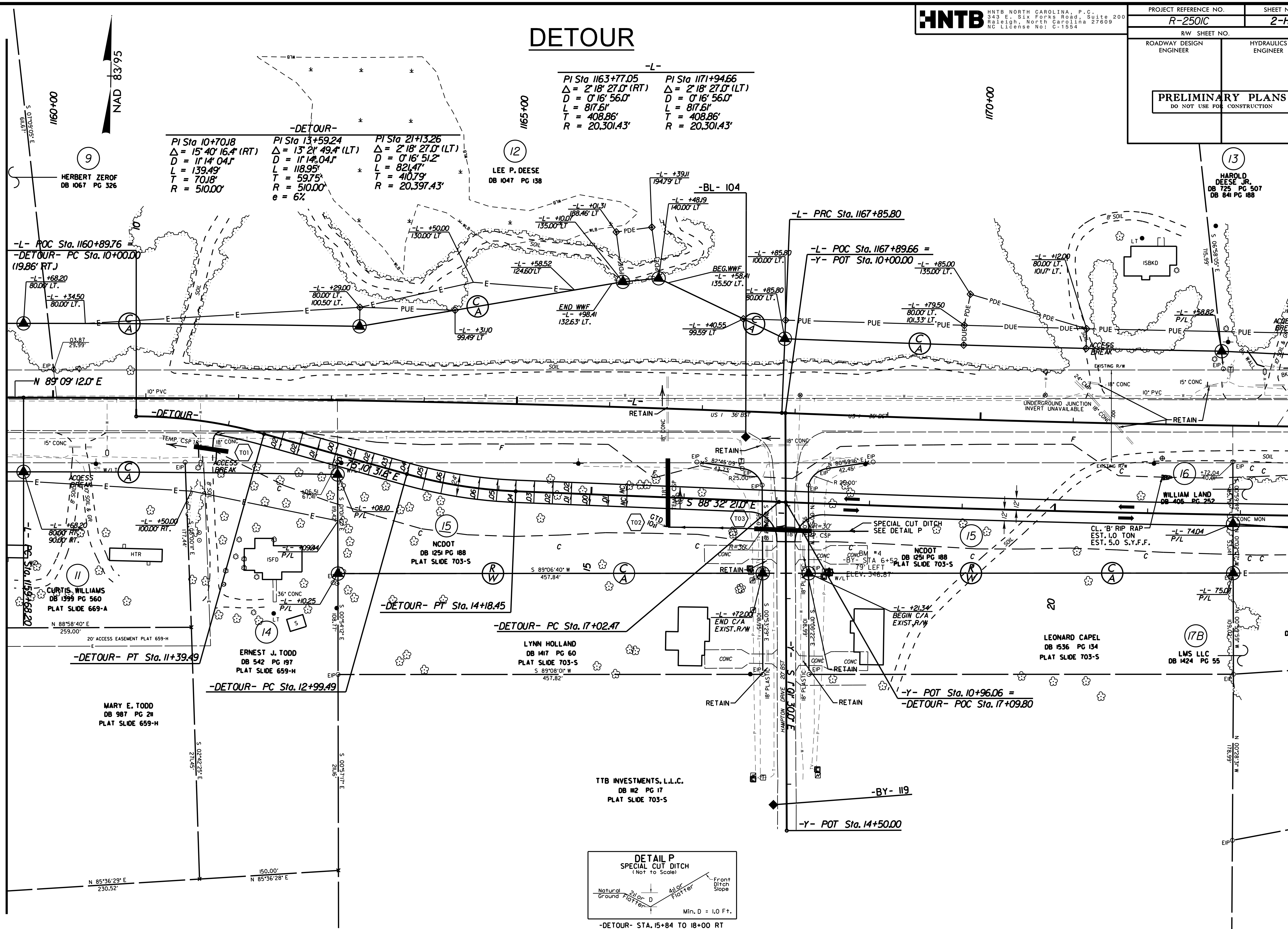
R/W REVISION NO1: REMOVED PUE'S ON LYNN HOLLAND AND LEONARD CAPEL PROPERTIES ALONG -Y-.(05/05/14)

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	2-H
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETOUR



DETAIL P
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground — 2:1 or Flatter — D — 4:1 or Flatter — Front Ditch Slope
Min. D = 1.0 Ft.

-DETOUR- STA. 15+84 TO 18+00 RT

NOTE:
ALL DRIVEWAY RADII ARE 10', UNLESS OTHERWISE NOTED.
FOR DETOUR PROFILE SEE SHEET No. 27

02-MAY-2014 09:34
R:\Roadway\Proj\r2501c_rdy_PSH2H_detour.dgn
$$$$USERNAME$$$$

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	2-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

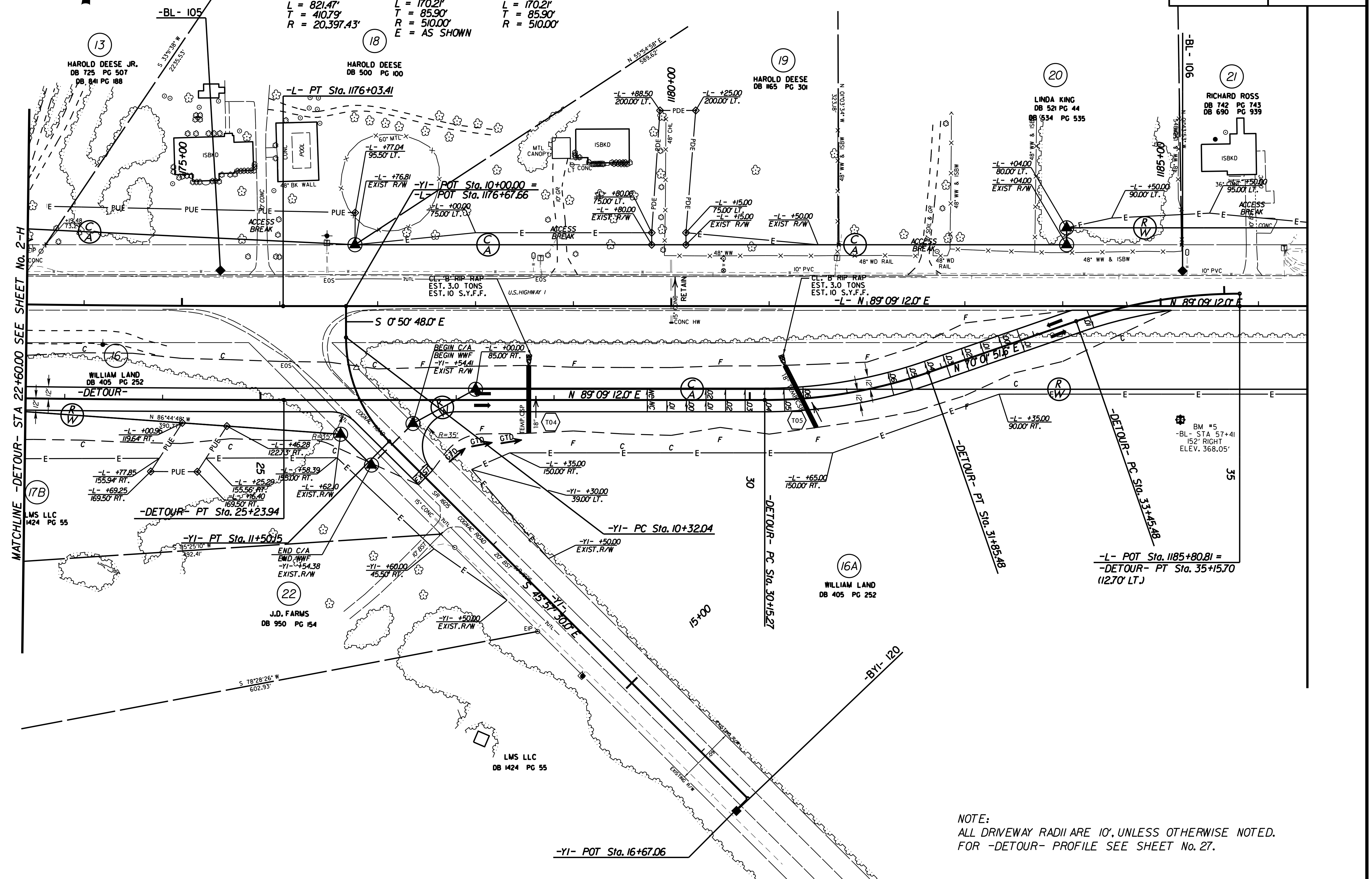
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-DETOUR-

-L-	-YI-
PI Sta 1171+94.66	PI Sta 10+94.35
Δ = 2° 18' 27.0" (LT)	Δ = 45° 06' 42.0" (LT)
D = 0° 16' 56.0"	D = 38° 11' 49.9"
L = 817.61'	L = 118.10'
T = 408.86'	T = 62.30'
R = 20,301.43'	R = 150.00'
	e = .020

-DETOUR-

PI Sta 21+13.26	PI Sta 31+01.18	PI Sta 34+31.39
Δ = 2° 18' 27.0" (LT)	Δ = 19° 07' 20.4" (LT)	Δ = 19° 07' 20.4" (RT)
D = 0° 16' 51.2"	D = 11° 14' 04.1"	D = 11° 14' 04.1"
L = 821.47'	L = 170.21'	L = 170.21'
T = 410.79'	T = 85.90'	T = 85.90'
R = 20,397.43'	R = 510.00'	R = 510.00'
	E = AS SHOWN	



NAD 83/95
-BL- 105
-BL- 106
-BYI- 120
HAROLD DEESE JR.
DB 725 PG 507
DB 841 PG 188
HAROLD DEESE
DB 500 PG 100
HAROLD DEESE
DB 1165 PG 301
LINDA KING
DB 521 PG 44
DB 534 PG 535
RICHARD ROSS
DB 742 PG 743
DB 690 PG 939
WILLIAM LAND
DB 405 PG 252
LMS LLC
DB 1424 PG 55
J.D. FARMS
DB 950 PG 154
MATCHLINE -DETOUR- STA 22+60.00 SEE SHEET No. 2-H
-L- PT Sta. 1176+03.41
-YI- POT Sta. 10+00.00 = -L- POT Sta. 1176+67.66
S 0° 50' 48.0" E
N 89° 09' 12.0" E
U.S. HIGHWAY 1
CL. 'B' RIP RAP EST. 3.0 TONS EST. 10 S.Y.F.F.
-DETOUR- PT Sta. 25+23.94
-YI- PT Sta. 11+50.15
-YI- PC Sta. 10+32.04
-DETOUR- PC Sta. 30+15.27
-DETOUR- PT Sta. 31+85.48
-DETOUR- PC Sta. 33+45.48
-L- POT Sta. 1185+80.81 = -DETOUR- PT Sta. 35+15.70 (12.70' LT.)
-YI- POT Sta. 16+67.06
S 45° 51' 30.0" E
COGNAC ROAD
BM #5 -BL- STA 57+41 152' RIGHT ELEV. 368.05'
ACCESS BREAK
ISBKD
POOL

NOTE:
ALL DRIVEWAY RADII ARE 10', UNLESS OTHERWISE NOTED.
FOR -DETOUR- PROFILE SEE SHEET No. 27.

REVISIONS

02-MAY-2014 09:35
R:\Roadway\Proj\r2501c_rdy_PSH21_detour.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	3D

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	JAMES MARTIN
2	4	JAMES C. MARTIN
3	4	JAMES C. MARTIN
4	4	HORACE E. GRAVES
5	4	JOE L. FITZWATER
6	4 & 5	HORACE E. GRAVES
7	4	CLINTON WISE JR.
7A	4	DANIEL RUSSEL SR
7B	4	TONI ANN MCRAE
8	4 & 5	JAMES SIMMONS JR
9	5 & 6	HERBERT ZEROFF
10	4 & 5	J.B. DAWKINS
11	5 & 6	CURTIS WILLIAMS
12	6	LEE P. DEESE
13	6 & 7	HAROLD DEESE JR.
14	6	ERNEST J. TODD
15	6	NCDOT
16	6 , 7 & 8	WILLIAM LAND
17	6, 7 & 10	LMS LLC
18	7	HAROLD DEESE
19	7	HAROLD DEESE
20	7	LINDA KING
21	7 & 8	RICHARD ROSS
22	7	J.D. FARMS
23	8	DAVID HOPKINS
23A	8	DAVID HOPKINS
24	8	NANCY L. HONEYCUTT
25	8	ROBERT C. BULLARD
26	8	VANCE LAND
27	8	CHARLES SUTTON
28	8 & 9	LUIS L. CRIBB
29	8	ROBERT HARDEN JR.
30	8	SCOTT M. THOMAS
30A	8	TAMMY OGLESBY
31	8 & 9	G.C. CADDELL, JR.
32	9	RAM K. AGARWAL
33	9	FAST TRACK PROPERTIES, INC.
34	9	SUZETTE Y. SMITH
35	9 & 10	TED KELLY
36	9	CARL WARNER
37	9	CHARLES WILLIAMS
38	9	DANNY R. GRAHAM
39	9	T.C. MCCORMICK
40	9	CADDEL AND SPARKS
40A	9	JAMES P. MARKLAND
41	9	RAM K. AGARWAL
42	9 & 10	BRADLEY G. MCINNIS
43	10, 11, 12, 13 & 14	VANCE LAND
44	10	TALBERT MCCORMICK
45	10	THE HOUSE OF PRAYER CHURCH
46	10, 11, 12, 13 & 14	ROCKINGHAM RACEWAY PARK
47	11 & 12	NATIONAL DRAGWAY CORPORATION
48	14	KHAMMAY DOUANGDARA
49	14 & 15	MARTHA ROBBINS
50	14 & 15	JERRY STROMAN
51	15 & 16	WILLIAM LATHAN
51A	15 & 16	HOFFMAN FIRE DEPARTMENT AND RESCUE SQUAD, INC.
52	16	BARNHILL CONTRACTING COMPANY
53	16	BARNHILL CONTRACTING COMPANY
54	16 & 17	JERRY R. BROWN

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
55	17	RICHARD LANIER
56	17	ALETHA LANIER
57	17	H.K. BOGGAN
58	17	MICHAEL D. PARKER
59	17 & 18	CLAUDE F. SMITH
60	14 thru 18	CSX RAILWAY
61	14 thru 17	N C WILDLIFE RESOURCES COMMISSION
62	17 & 18	AMERICAN TIMBERLAND II LLC
63	14	LONNIE WALKER
64	14A	WILLIAM R. LAND III

5/28/99

02-MAY-2014 09:37
R:\Roadway\Proj\r2501c_rdy_PSH03D_Row Parcel Index.dgn
$$$$USERNAME$$$$

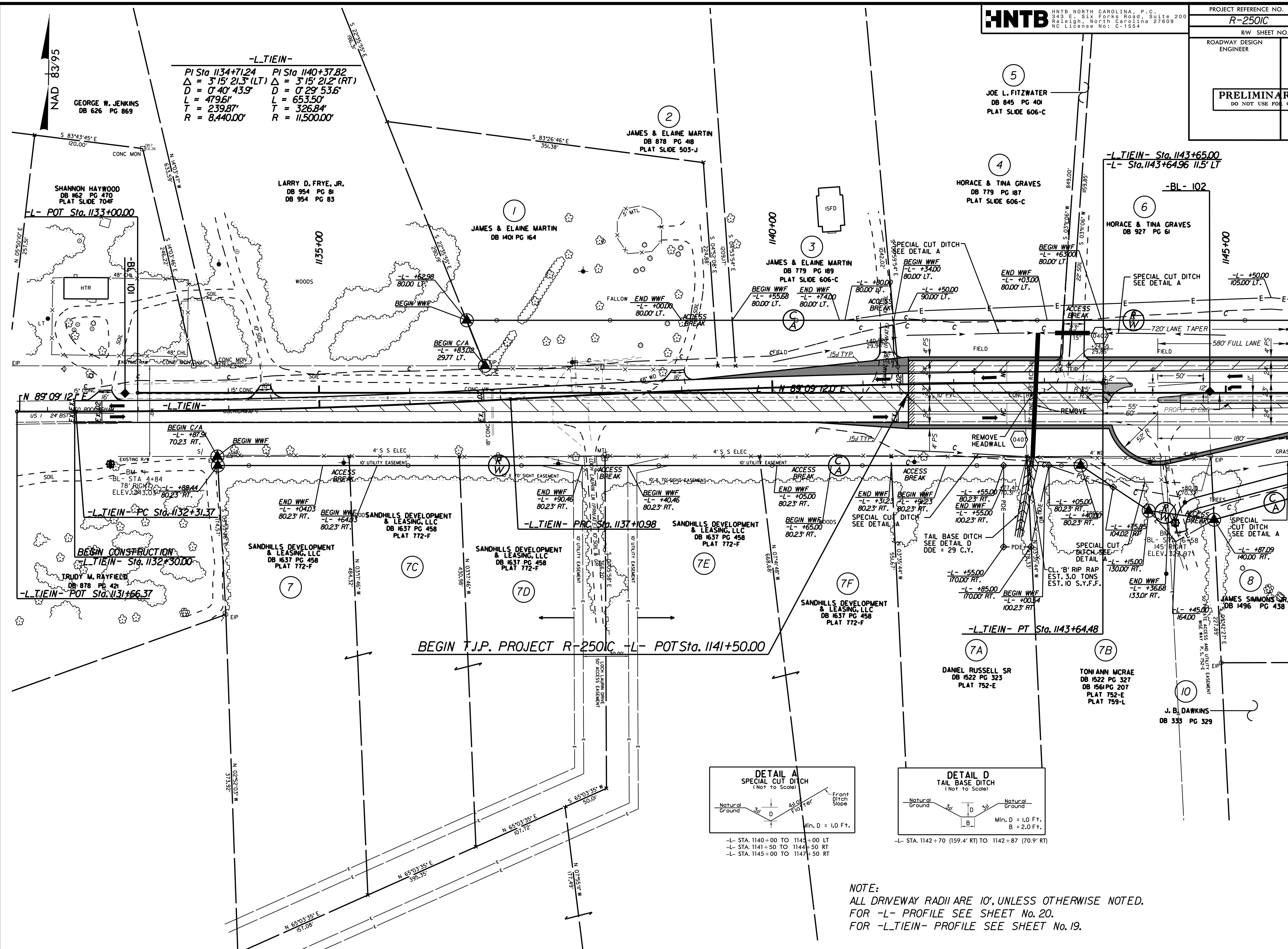
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

R/W REVISION NO.1: NEW 60' ACCESS BREAK BETWEEN -L- STA 1135+04.03 AND -L- STA 1135+64.03 ALONG THE PROPOSED SOUTHERN R/W BOUNDARY LINE.(PARCEL 7)(07/18/14)
NEW 60' ACCESS BREAK BETWEEN -L- STA 1140+05.00 AND -L- STA 1140+65.00 ALONG THE PROPOSED SOUTHERN R/W BOUNDARY LINE.(PARCEL 7)(07/18/14)
UPDATED PROPERTY LINE INFORMATION ON PARCEL 7.ADDED PARCEL 7C,7D,7E,AND 7F (07/18/14)
ADDITIONAL EASEMENT NEEDED ON PARCEL 7B.ADJUSTED DRIVEWAY TIE.(07/18/14)
R/W REVISION NO.2: REVISED -PUE- CALL OUT FROM -L- STA 1143+70.00,100.00' RT TO -L- STA 1143+75.85,104.02' RT ON PARCEL 7B.(08/21/14)



NAD 83/95
-L_TIEIN-
PI Sta 1134+71.24 PI Sta 1140+37.82
Δ = 3°15' 21.3" (LT) Δ = 3°15' 21.2" (RT)
D = 0°40' 43.9" D = 0°29' 53.6"
L = 479.61' L = 653.50'
T = 239.87' T = 326.84'
R = 8,440.00' R = 11,500.00'
GEORGE W. JENKINS DB 626 PG 869
SHANNON HAYWOOD DB 1162 PG 470 PLAT SLIDE 704F
LARRY D. FRYE, JR. DB 954 PG 81 DB 954 PG 83
JAMES & ELAINE MARTIN DB 1401 PG 164
JAMES & ELAINE MARTIN DB 878 PG 418 PLAT SLIDE 503-J
JAMES & ELAINE MARTIN DB 779 PG 189 PLAT SLIDE 606-C
HORACE & TINA GRAVES DB 779 PG 187 PLAT SLIDE 606-C
JOE L. FITZWATER DB 845 PG 401 PLAT SLIDE 606-C
HORACE & TINA GRAVES DB 927 PG 61
SANDHILLS DEVELOPMENT & LEASING, LLC DB 1637 PG 458 PLAT 772-F
TRUDY M. RAYFIELD DB 878 PG 421
DANIEL RUSSELL SR DB 1522 PG 323 PLAT 752-E
TONI ANN MCRAE DB 1522 PG 327 DB 1561 PG 207 PLAT 752-E PLAT 759-L
J. B. DAWKINS DB 333 PG 329
JAMES SIMMONS JR. DB 1496 PG 438
-L- POT Sta. 1133+00.00
-L_TIEIN- PC Sta. 1132+31.37
BEGIN CONSTRUCTION -L_TIEIN- Sta. 1132+30.00
-L_TIEIN- POT Sta. 1131+66.37
-L_TIEIN- PRC Sta. 1137+10.98
-L_TIEIN- PT Sta. 1143+64.48
-L_TIEIN- Sta. 1143+65.00
-L- Sta. 1143+64.96 11.5' LT
BEGIN T.I.P. PROJECT R-2501C -L- POT Sta. 1141+50.00
MATCHLINE -L- STA 1145+75.00 SEE SHEET No. 5
-BL- 102
-BL- 101
N 89°09'12.0" E
720' LANE TAPER
580' FULL LANE
SPECIAL CUT DITCH SEE DETAIL A
TAIL BASE DITCH SEE DETAIL D DDE = 29 C.Y.
CL. 'B' RIP RAP EST. 3.0 TONS EST. 10 S.Y.F.F.
REMOVE HEADWALL
BM 4 -BL- STA 4+84 78' RIGHT ELEV. 343.03'

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 3:1, D, 4:1 or Flatter, Front Ditch Slope
Min. D = 1.0 Ft.
-L- STA. 1140+00 TO 1145+00 LT
-L- STA. 1141+50 TO 1144+50 RT
-L- STA. 1145+00 TO 1147+50 RT

DETAIL D
TAIL BASE DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, Natural Ground, B
Min. D = 1.0 Ft.
B = 2.0 Ft.
-L- STA. 1142+70 (159.4' RT) TO 1142+87 (70.9' RT)

NOTE:
ALL DRIVEWAY RADII ARE 10', UNLESS OTHERWISE NOTED.
FOR -L- PROFILE SEE SHEET No. 20.
FOR -L_TIEIN- PROFILE SEE SHEET No. 19.

21-AUG-2014 07:45
R:\Roadway\Proj\r2501c_rdy_psh04.dgn

8/17/99

8/17/99

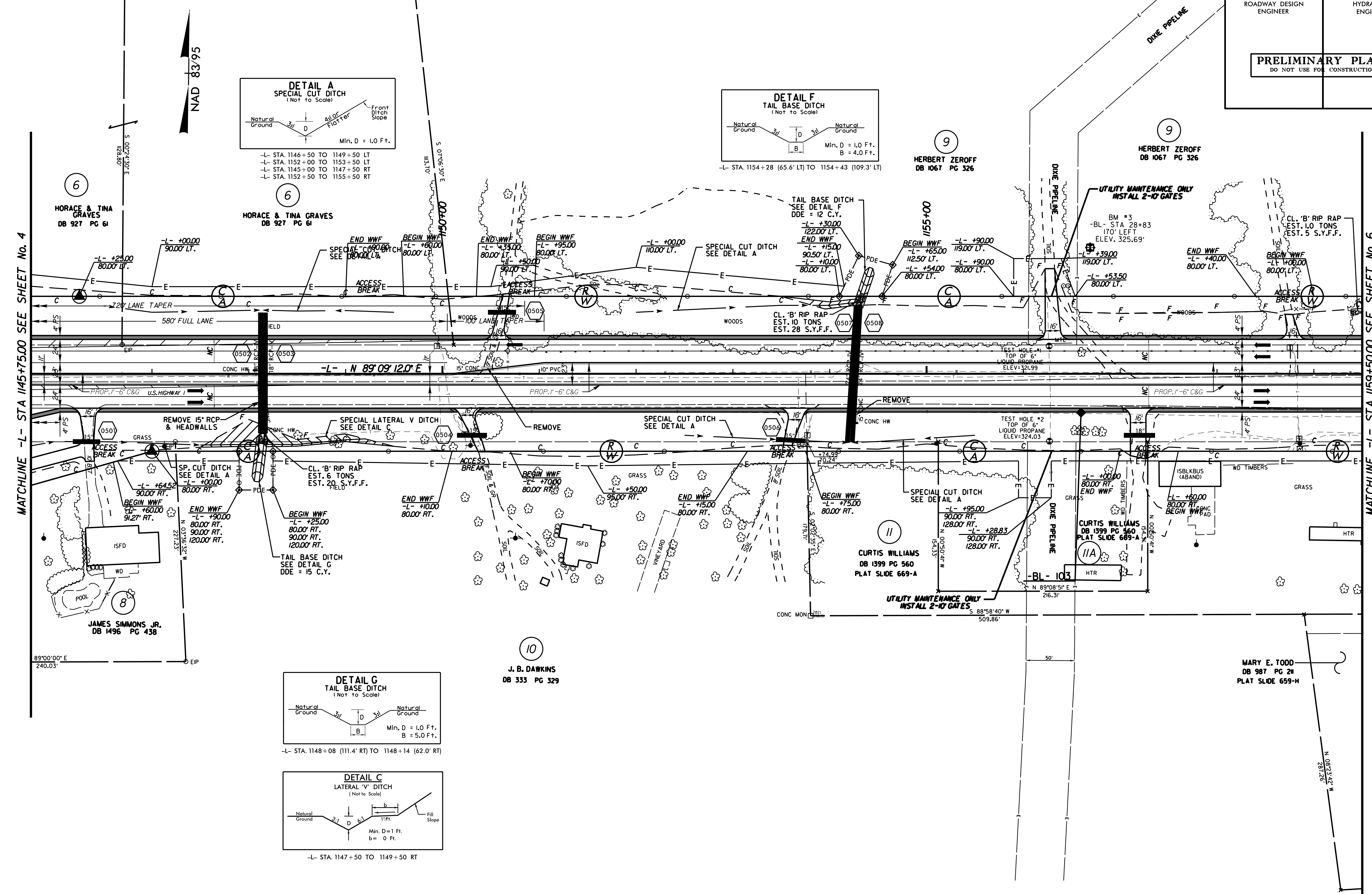
REVISIONS

R/W REVISION NO.1: CORRECTED SPELLING OF PARCEL NAME TO HERBERT ZEROF DATED 12/6/13.
R/W REVISION NO.2: UPDATED PROPERTY LINE FOR NEW PARCEL NO 11A, ADDED A NEW DRIVEWAY, ACCESS BREAK AND ADDED 2-10' GATES FOR DIXIE PIPELINE. (07/18/14)
R/W REVISION NO.3: UPDATED EXISTING PROPERTY LINE FOR PARCEL 6 (SAME OWNERSHIP INFO) AND PROVIDED ACCESS BREAK BETWEEN -L- STA 1149+00 AND -L- STA 1149+60 LT. (08/21/14)

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NAD 83/95
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.0 Ft.
-L- STA. 1146+50 TO 1149+50 LT
-L- STA. 1152+00 TO 1153+50 LT
-L- STA. 1145+00 TO 1147+50 RT
-L- STA. 1152+50 TO 1155+50 RT
DETAIL F
TAIL BASE DITCH
(Not to Scale)
Min. D = 1.0 Ft.
B = 4.0 Ft.
-L- STA. 1154+28 (65.6' LT) TO 1154+43 (109.3' LT)
DETAIL G
TAIL BASE DITCH
(Not to Scale)
Min. D = 1.0 Ft.
B = 5.0 Ft.
-L- STA. 1148+08 (111.4' RT) TO 1148+14 (62.0' RT)
DETAIL C
LATERAL 'V' DITCH
(Not to Scale)
Min. D=1 Ft.
b= 0 Ft.
-L- STA. 1147+50 TO 1149+50 RT
MATCHLINE -L- STA 1145+75.00 SEE SHEET No. 4
MATCHLINE -L- STA 1159+50.00 SEE SHEET No. 6
-L- N 89°09'12.0" E
HORACE & TINA GRAVES
DB 927 PG 61
HERBERT ZEROFF
DB 1067 PG 326
JAMES SIMMONS JR.
DB 1496 PG 438
J. B. DAWKINS
DB 333 PG 329
CURTIS WILLIAMS
DB 1399 PG 560
PLAT SLIDE 669-A
MARY E. TODD
DB 987 PG 211
PLAT SLIDE 659-H
DIXIE PIPELINE
UTILITY MAINTENANCE ONLY
INSTALL 2-10' GATES
BM #3
-BL- STA 28+83
170' LEFT
ELEV. 325.69'
TEST HOLE #1
TOP OF 6"
LIQUID PROPANE
ELEV=321.99
TEST HOLE #2
TOP OF 6"
LIQUID PROPANE
ELEV=324.03
-BL- 103
U.S. HIGHWAY 1

NOTE:
ALL DRIVEWAY RADII ARE 10', UNLESS OTHERWISE NOTED.
FOR -L- PROFILE SEE SHEET No. 20.
FOR -L_TIEIN- PROFILE SEE SHEET No. 19.

21-AUG-2014 07:54
R:\Roadway\Proj\r2501c_rdy_psh05.dgn
$$$$USERNAME$$$$

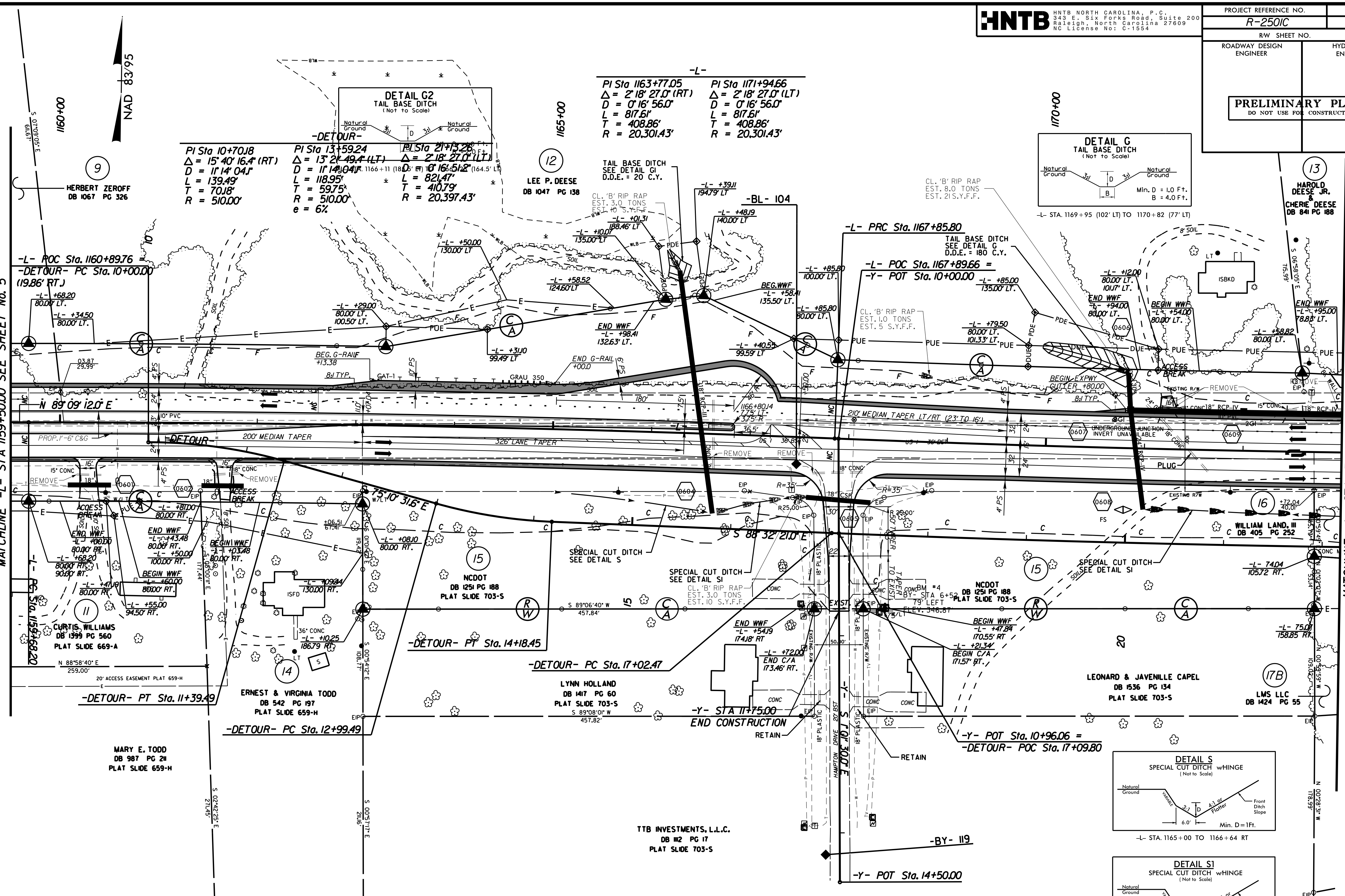
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

R/W REVISION NO.1 - CORRECTED SPELLING OF PARCEL NAME TO HERBERT ZEROF AND CHANGED PARCEL NO.17 TO ITB DATED 12/6/13.
R/W REVISION NO.2 - REVISION DUE TO RELOCATION OF BULB-OUT AFFECTING PARCEL NOs.12 AND 13. REMOVED PUE'S ON LYNN HOLLAND AND LEONARD CAPEL PROPERTIES ALONG -Y- (04/21/14)
R/W REVISION NO.3 - ADDED PUE ON PARCEL 11.(08/14/14)



NAD 83/95
1160+00
1165+00
1170+00
-L-
PI Sta 1163+77.05
Δ = 2° 18' 27.0" (RT)
D = 0° 16' 56.0"
L = 817.61'
T = 408.86'
R = 20,301.43'
PI Sta 1171+94.66
Δ = 2° 18' 27.0" (LT)
D = 0° 16' 56.0"
L = 817.61'
T = 408.86'
R = 20,301.43'
-DETOUR-
PI Sta 10+70.18
Δ = 15° 40' 16.4" (RT)
D = 11° 14' 04.1"
L = 139.49'
T = 70.18'
R = 510.00'
PI Sta 13+59.24
Δ = 13° 21' 49.4" (LT)
D = 11° 14' 04.1"
L = 118.95'
T = 59.75'
R = 510.00'
e = 6%
PI Sta 21+13.26
Δ = 2° 18' 27.0" (LT)
D = 0° 16' 51.2"
L = 821.47'
T = 410.79'
R = 20,397.43'
DETAIL G2
TAIL BASE DITCH
(Not to Scale)
DETAIL G
TAIL BASE DITCH
(Not to Scale)
Natural Ground
Min. D = 1.0 Ft.
B = 4.0 Ft.
-L- STA. 1169+95 (102' LT) TO 1170+82 (77' LT)
HERBERT ZEROFF
DB 1067 PG 326
LEE P. DEESE
DB 1047 PG 138
HAROLD DEESE JR. & CHERIE DEESE
DB 841 PG 188
TAIL BASE DITCH
SEE DETAIL G1
D.D.E. = 20 C.Y.
TAIL BASE DITCH
SEE DETAIL G
D.D.E. = 180 C.Y.
CL. 'B' RIP RAP
EST. 8.0 TONS
EST. 21 S.Y.F.F.
-BL- 104
-L- PRC Sta. 1167+85.80
-L- POC Sta. 1167+89.66 =
-Y- POT Sta. 10+00.00
-L- POC Sta. 1160+89.76 =
-DETOUR- PC Sta. 10+00.00
(19.86' RT.)
MATCHLINE -L- STA 1159+50.00 SEE SHEET No. 5
MATCHLINE -L- STA 1173+00.00 SEE SHEET No. 7
N 89° 09' 12.0" E
200' MEDIAN TAPER
326' LANE TAPER
210' MEDIAN TAPER LT/RT (23' TO 16')
S 75° 10' 31.6" E
S 88° 32' 21.0" E
SPECIAL CUT DITCH
SEE DETAIL S
SPECIAL CUT DITCH
SEE DETAIL S1
NCDOT
DB 1251 PG 188
PLAT SLIDE 703-S
CURTIS WILLIAMS
DB 1399 PG 560
PLAT SLIDE 669-A
ERNEST & VIRGINIA TODD
DB 542 PG 197
PLAT SLIDE 659-H
MARY E. TODD
DB 987 PG 211
PLAT SLIDE 659-H
LYNN HOLLAND
DB 1417 PG 60
PLAT SLIDE 703-S
TTB INVESTMENTS, L.L.C.
DB 1112 PG 17
PLAT SLIDE 703-S
LEONARD & JAVENILLE CAPEL
DB 1536 PG 134
PLAT SLIDE 703-S
WILLIAM LAND, III
DB 405 PG 252
LMS LLC
DB 1424 PG 55
-DETOUR- PT Sta. 11+39.49
-DETOUR- PC Sta. 12+99.49
-DETOUR- PT Sta. 14+18.45
-DETOUR- PC Sta. 17+02.47
-Y- STA 11+75.00
END CONSTRUCTION
-Y- POT Sta. 10+96.06 =
-DETOUR- POC Sta. 17+09.80
-Y- POT Sta. 14+50.00
-BY- 119
HAMPTON DRIVE 20' BST
RETAIN

DETAIL S
SPECIAL CUT DITCH w/HINGE
(Not to Scale)
Natural Ground
Front Ditch Slope
Min. D=1Ft.
-L- STA. 1165+00 TO 1166+64 RT

DETAIL S1
SPECIAL CUT DITCH w/HINGE
(Not to Scale)
Natural Ground
Geotextile
Min. D=1Ft.
Max. d=1Ft.
Type of Liner= CLASS 'B' Rip-Rap
-L- STA. 1166+64 TO 1167+50 RT
-L- STA. 1171+00 TO 1173+50 RT

DETAIL FS
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow
S=Ditch Slope
℄ Proposed Ditch
FROM -L- STA. 1169+36 TO STA. 1169+96

NOTE:
ALL DRIVEWAY RADII ARE 10', UNLESS OTHERWISE NOTED.
FOR -L- PROFILE SEE SHEET No. 20 & 21.
FOR -Y- PROFILE SEE SHEET No. 28.
FOR DETOUR PLANS SEE SHEET No. 2-H & 2-I.

8/17/99

13-AUG-2014 10:16
R:\Roadway\Proj\r2501c_rdy_psh06.dgn

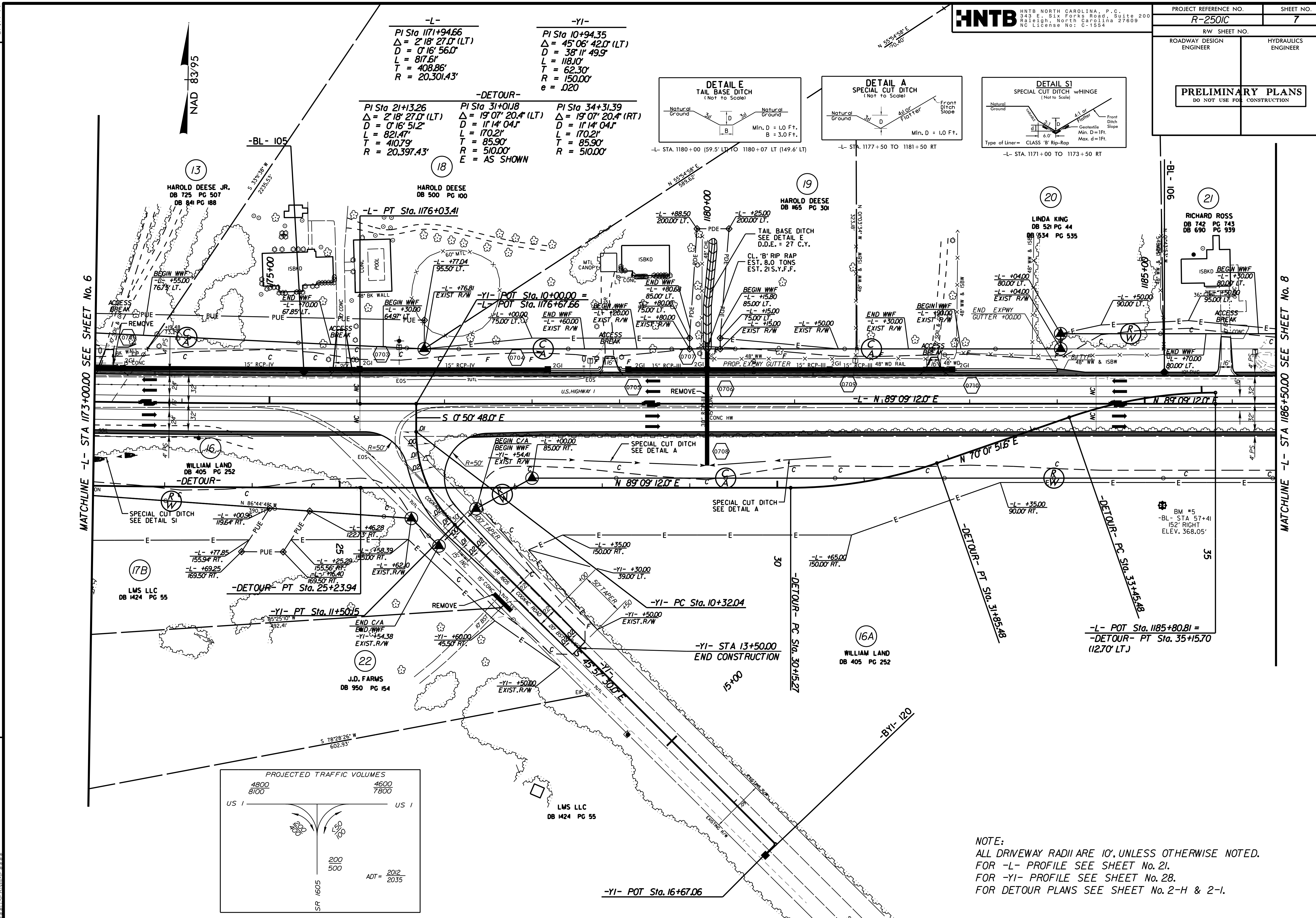
PROJECT REFERENCE NO. R-2501C | SHEET NO. 7

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554



-L-
PI Sta 1171+94.66
Δ = 2° 18' 27.0" (LT)
D = 0° 16' 56.0"
L = 817.61'
T = 408.86'
R = 20,301.43'
-Y1-
PI Sta 10+94.35
Δ = 45° 06' 42.0" (LT)
D = 38° 11' 49.9"
L = 118.10'
T = 62.30'
R = 150.00'
e = .020
-DETOUR-
PI Sta 21+13.26
Δ = 2° 18' 27.0" (LT)
D = 0° 16' 51.2"
L = 821.47'
T = 410.79'
R = 20,397.43'
PI Sta 31+01.18
Δ = 19° 07' 20.4" (LT)
D = 11° 14' 04.1"
L = 170.21'
T = 85.90'
R = 510.00'
E = AS SHOWN
PI Sta 34+31.39
Δ = 19° 07' 20.4" (RT)
D = 11° 14' 04.1"
L = 170.21'
T = 85.90'
R = 510.00'
DETAIL E
TAIL BASE DITCH
(Not to Scale)
Min. D = 1.0 Ft.
B = 3.0 Ft.
-L- STA. 1180+00 (59.5' LT) TO 1180+07 LT (149.6' LT)
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.0 Ft.
-L- STA. 1177+50 TO 1181+50 RT
DETAIL S1
SPECIAL CUT DITCH wHINGE
(Not to Scale)
Type of Liner= CLASS 'B' Rip-Rap
-L- STA. 1171+00 TO 1173+50 RT
NAD 83/95
-BL- 105
-BL- 106
HAROLD DEESE JR.
DB 725 PG 507
DB 841 PG 188
HAROLD DEESE
DB 500 PG 100
HAROLD DEESE
DB 1165 PG 301
LINDA KING
DB 521 PG 44
DB 534 PG 535
RICHARD ROSS
DB 742 PG 743
DB 690 PG 939
WILLIAM LAND
DB 405 PG 252
LMS LLC
DB 1424 PG 55
J.D. FARMS
DB 950 PG 154
MATCHLINE -L- STA 1173+00.00 SEE SHEET No. 6
MATCHLINE -L- STA 1186+50.00 SEE SHEET No. 8
-L- PT Sta. 1176+03.41
-Y1- POT Sta. 10+00.00 = -L- POT Sta. 1176+67.66
-L- N 89° 09' 12.0" E
S 0° 50' 48.0" E
N 70° 01' 51.6" E
U.S. HIGHWAY 1
TAIL BASE DITCH
SEE DETAIL E
D.D.E. = 27 C.Y.
CL. 'B' RIP RAP
EST. 8.0 TONS
EST. 21 S.Y.F.F.
SPECIAL CUT DITCH
SEE DETAIL A
SPECIAL CUT DITCH
SEE DETAIL S1
-DETOUR- PT Sta. 25+23.94
-Y1- PT Sta. 11+50.15
-Y1- PC Sta. 10+32.04
-Y1- STA 13+50.00
END CONSTRUCTION
-DETOUR- PC Sta. 30+15.27
-DETOUR- PT Sta. 31+85.48
-DETOUR- PC Sta. 33+45.48
-L- POT Sta. 1185+80.81 =
-DETOUR- PT Sta. 35+15.70
(12.70' LT.)
BM #5
-BL- STA 57+41
152' RIGHT
ELEV. 368.05'
-BY1- 120
-Y1- POT Sta. 16+67.06
SR 1605
PROJECTED TRAFFIC VOLUMES
US 1
4800
8100
4600
7800
200
500
ADT = 2012 / 2035
NOTE:
ALL DRIVEWAY RADII ARE 10', UNLESS OTHERWISE NOTED.
FOR -L- PROFILE SEE SHEET No. 21.
FOR -Y1- PROFILE SEE SHEET No. 28.
FOR DETOUR PLANS SEE SHEET No. 2-H & 2-I.

REVISIONS

R/W REVISION NO.1 - CHANGED PARCEL NO.17 TO 17B DATED 12/6/13.
R/W REVISION NO.2 - SEPARATE PARCEL NO.16 TO TWO PARCEL NOS. 16 AND 16A DATED 3/12/14.
R/W REVISION NO.3 - REVISION DUE TO RELOCATION OF BULB-OUT AFFECTING PARCEL NOs.13 AND 18.(05/05/14)

8/17/99

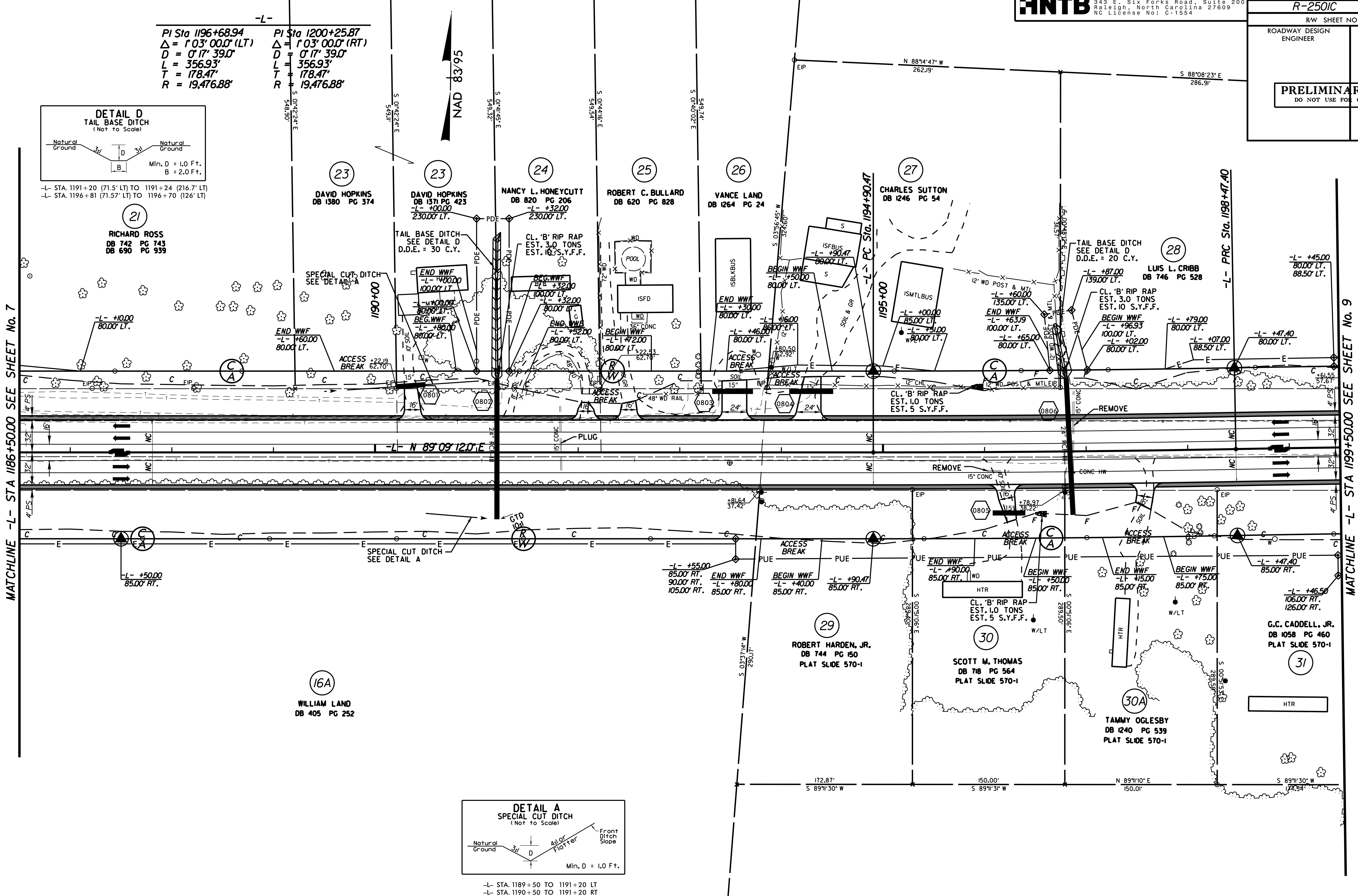
02-MAY-2014 09:48
R:\Roadway\Proj\r2501c_rdy_psh07.dgn

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS
R/W REVISION NO.1 - COMBINED PARCEL NOS.23 AND 23A TO PARCEL NO.23 DATED 12/6/13.
R/W REVISION NO.2 - SEPARATE PARCEL NO.16 TO TWO PARCEL NOS.16 AND 16A DATED 3/12/14.



-L-
PI Sta 1196+68.94
Δ = 1°03' 00.0" (LT)
D = 0°17' 39.0"
L = 356.93'
T = 178.47'
R = 19,476.88'
PI Sta 1200+25.87
Δ = 1°03' 00.0" (RT)
D = 0°17' 39.0"
L = 356.93'
T = 178.47'
R = 19,476.88'
NAD 83/95
DETAIL D
TAIL BASE DITCH
(Not to Scale)
Min. D = 1.0 Ft.
B = 2.0 Ft.
-L- STA. 1191+20 (71.5' LT) TO 1191+24 (216.7' LT)
-L- STA. 1196+81 (71.57' LT) TO 1196+70 (126' LT)
MATCHLINE -L- STA 1186+50.00 SEE SHEET No. 7
MATCHLINE -L- STA 1199+50.00 SEE SHEET No. 9
RICHARD ROSS DB 742 PG 743 DB 690 PG 939
DAVID HOPKINS DB 1380 PG 374
DAVID HOPKINS DB 1371 PG 423
NANCY L. HONEYCUTT DB 820 PG 206
ROBERT C. BULLARD DB 620 PG 828
VANCE LAND DB 1264 PG 24
CHARLES SUTTON DB 1246 PG 54
LUIS L. CRIBB DB 746 PG 528
ROBERT HARDEN, JR. DB 744 PG 150 PLAT SLIDE 570-I
SCOTT M. THOMAS DB 718 PG 564 PLAT SLIDE 570-I
TAMMY OGLESBY DB 1240 PG 539 PLAT SLIDE 570-I
G.C. CADDELL, JR. DB 1058 PG 460 PLAT SLIDE 570-I
WILLIAM LAND DB 405 PG 252
-L- N 89°09'12.0" E
-L- PC Sta. 1194+90.47
-L- PRC Sta. 1198+47.40
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.0 Ft.
-L- STA. 1189+50 TO 1191+20 LT
-L- STA. 1190+50 TO 1191+20 RT

NOTE:
ALL DRIVEWAY RADII ARE 10', UNLESS OTHERWISE NOTED.
FOR -L- PROFILE SEE SHEET No. 21 & 22.

8/17/99
12-MAR-2014 08:11
R:\Roadway\Proj\r2501c_rdy_PSH08.dgn
$$$$$USERNAME$$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

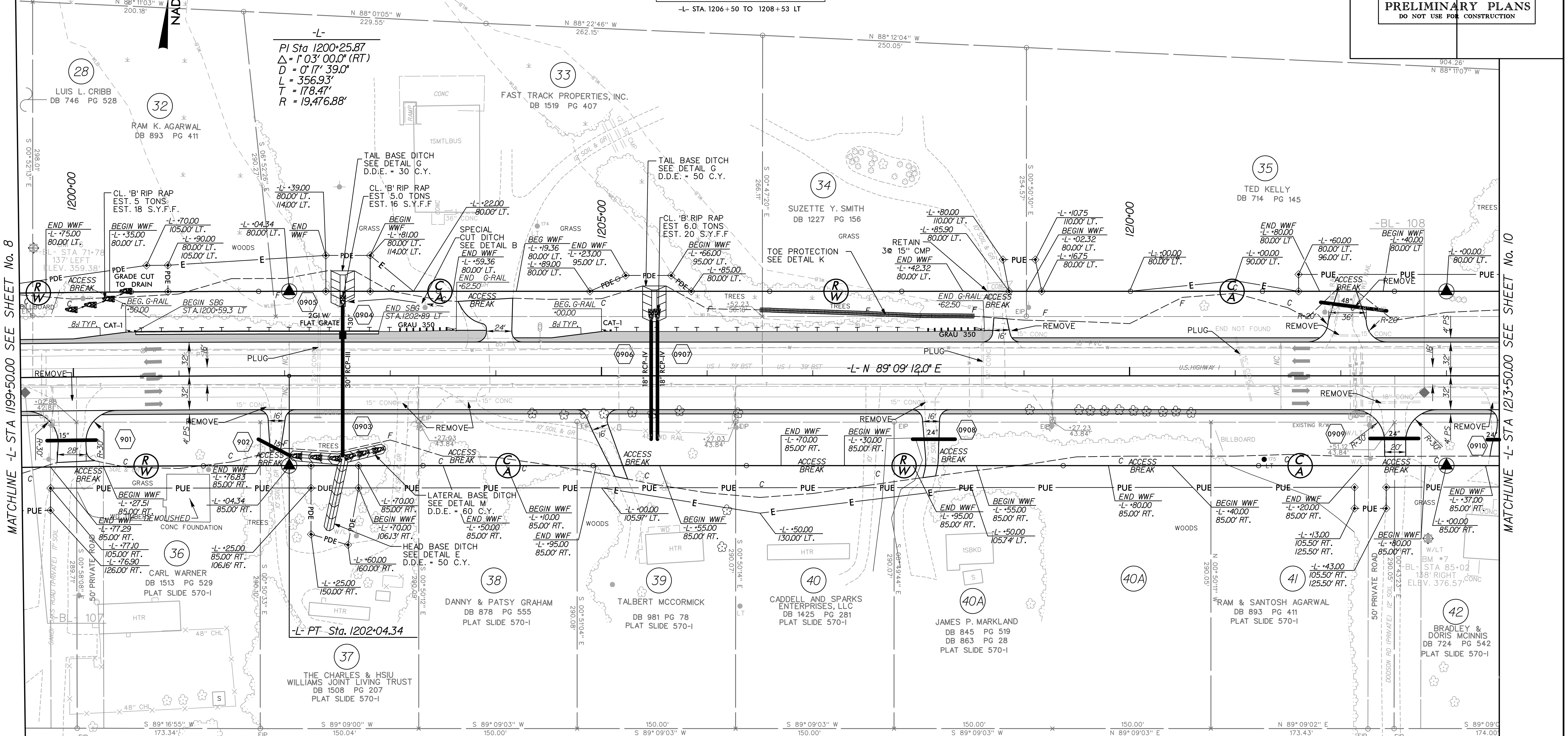
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

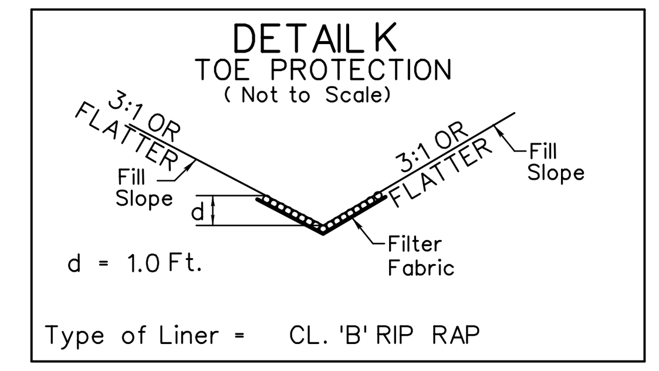
REVISIONS

R/W REVISION NO.1 - ADDED 36' WIDE DRIVEWAY AND PROVIDED AN ACCESS BREAK ON PARCEL 35 FROM STA 1211+80 -L- TO STA 1212+40 -L- (LT); DATED 8/29/14.

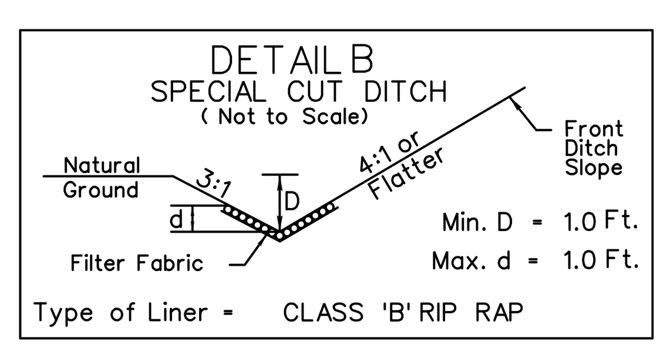
8/17/99



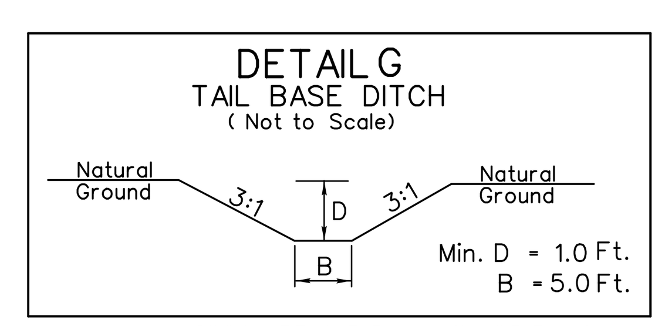
NAD 83/95
-L-
PI Sta 1200+25.87
Δ = 1° 03' 00.0" (RT)
D = 0° 17' 39.0"
L = 356.93'
T = 178.47'
R = 19,476.88'
MATCHLINE -L- STA 1199+50.00 SEE SHEET No. 8
MATCHLINE -L- STA 1213+50.00 SEE SHEET No. 10
-L- N 89° 09' 12.0" E
-L- PT Sta. 1202+04.34
28 LUIS L. CRIBB DB 746 PG 528
32 RAM K. AGARWAL DB 893 PG 411
33 FAST TRACK PROPERTIES, INC. DB 1519 PG 407
34 SUZETTE Y. SMITH DB 1227 PG 156
35 TED KELLY DB 714 PG 145
36 CARL WARNER DB 1513 PG 529 PLAT SLIDE 570-I
37 THE CHARLES & HSIU WILLIAMS JOINT LIVING TRUST DB 1508 PG 207 PLAT SLIDE 570-I
38 DANNY & PATSY GRAHAM DB 878 PG 555 PLAT SLIDE 570-I
39 TALBERT MCCORMICK DB 981 PG 78 PLAT SLIDE 570-I
40 CADDELL AND SPARKS ENTERPRISES, LLC DB 1425 PG 281 PLAT SLIDE 570-I
40A JAMES P. MARKLAND DB 845 PG 519 DB 863 PG 28 PLAT SLIDE 570-I
41 RAM & SANTOSH AGARWAL DB 893 PG 411 PLAT SLIDE 570-I
42 BRADLEY & DORIS MCINNIS DB 724 PG 542 PLAT SLIDE 570-I
TAIL BASE DITCH SEE DETAIL G D.D.E. = 30 C.Y.
TAIL BASE DITCH SEE DETAIL G D.D.E. = 50 C.Y.
SPECIAL CUT DITCH SEE DETAIL B
TOE PROTECTION SEE DETAIL K
LATERAL BASE DITCH SEE DETAIL M D.D.E. = 60 C.Y.
HEAD BASE DITCH SEE DETAIL E D.D.E. = 50 C.Y.



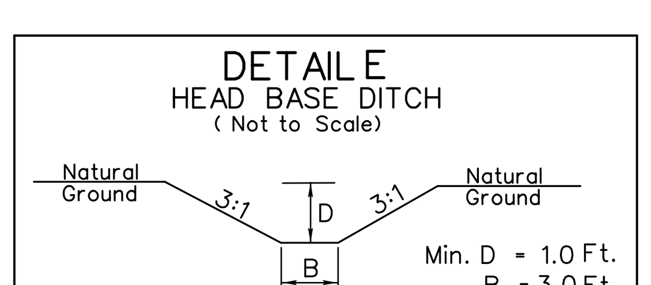
-L- STA. 1206+50 TO 1208+53 LT



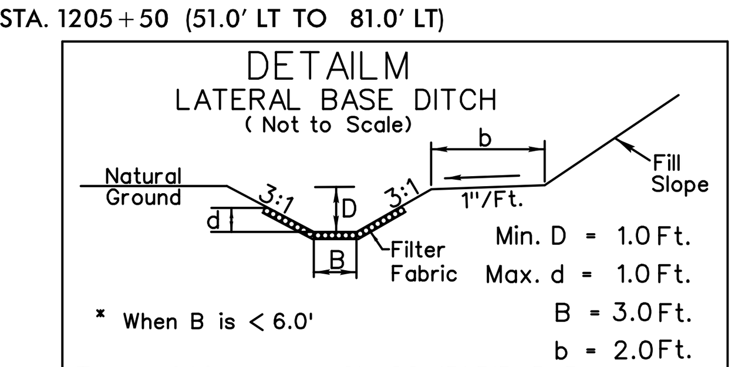
-L- STA. 1202+55 TO 1203+50 LT



-L- STA. 1202+55 (65.5' LT TO 95.5' LT)
-L- STA. 1205+50 (51.0' LT TO 81.0' LT)



-L- STA. 1202+41 (146.5' RT) TO 1202+55 (78.5' RT)



-L- STA. 1202+05 TO 1202+95 RT

NOTE:
ALL DRIVEWAY RADII ARE 10', UNLESS OTHERWISE NOTED.
FOR -L- PROFILE SEE SHEET No. 22.

3:23:36 PM
r2501c_rdy_psh09.dgn
$$$$USERNAME$$$$

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

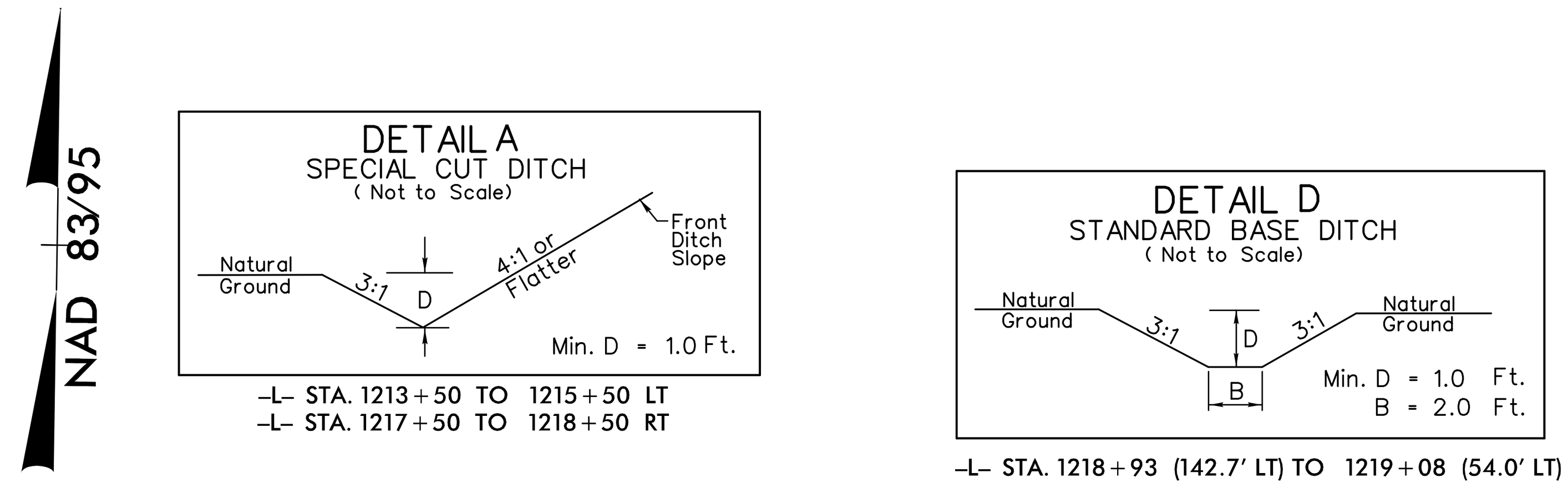
PROJECT REFERENCE NO.	SHEET NO.
R-2501C	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

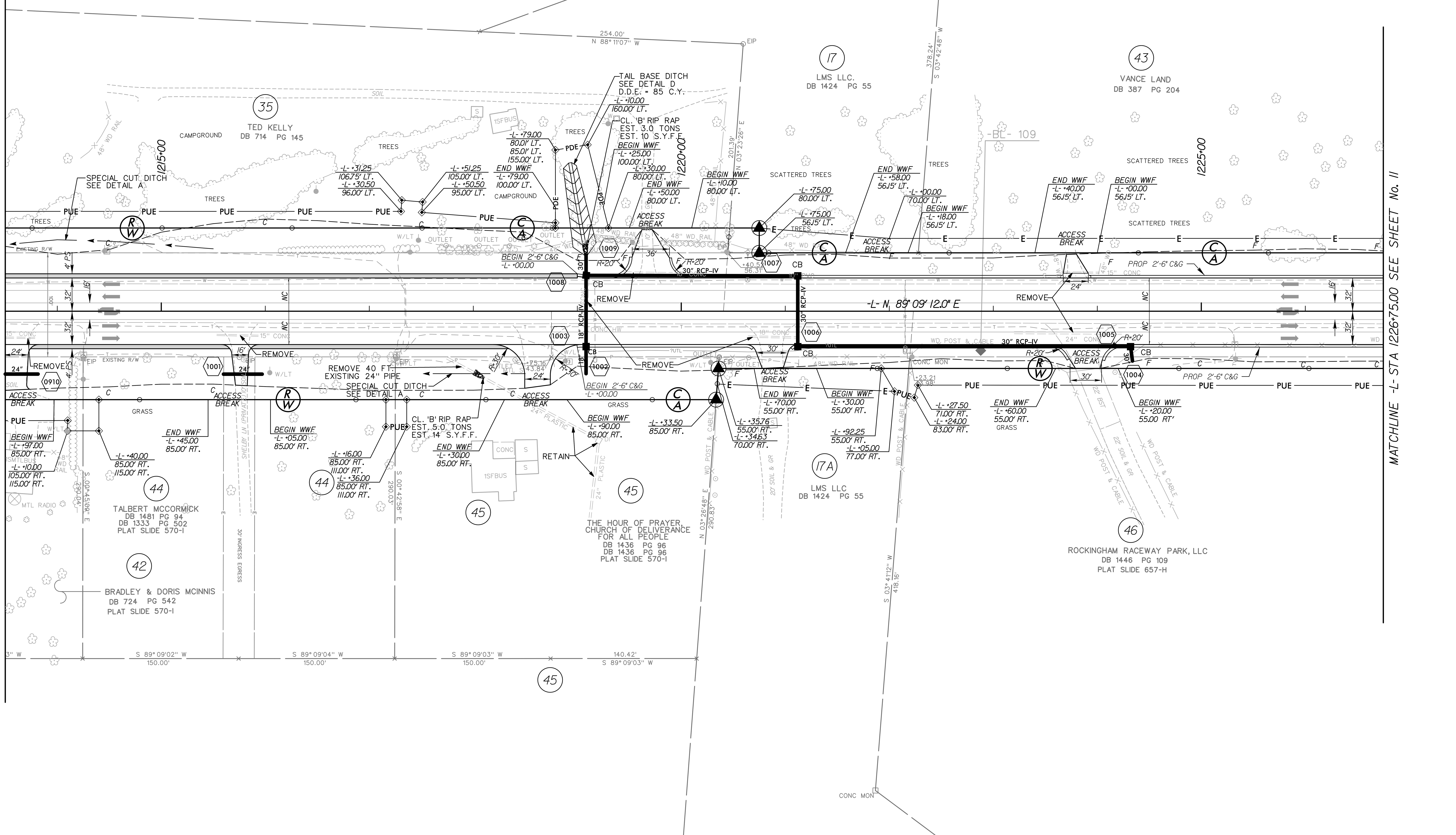
8/17/99

REVISIONS

R/W REVISION NO.1- CHANGED PARCEL NO.17 TO 17A AND CORRECTED PL ON PARCEL NO.45 DATED 12/6/13.
R/W REVISION NO.2 CHANGED DRIVEWAY WIDTH FROM 30' TO 36' ON PARCEL NO.35 DATED 8/29/14.



NAD 83/95
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
3:1
D
4:1 or Flatter
Front Ditch Slope
Min. D = 1.0 Ft.
-L- STA. 1213+50 TO 1215+50 LT
-L- STA. 1217+50 TO 1218+50 RT
DETAIL D
STANDARD BASE DITCH
(Not to Scale)
Natural Ground
3:1
D
B
Min. D = 1.0 Ft.
B = 2.0 Ft.
-L- STA. 1218+93 (142.7' LT) TO 1219+08 (54.0' LT)



MATCHLINE -L- STA 1213+50.00 SEE SHEET No. 9
MATCHLINE -L- STA 1226+75.00 SEE SHEET No. 11
-L- N 89° 09' 12.0" E
TED KELLY
DB 714 PG 145
LMS LLC.
DB 1424 PG 55
VANCE LAND
DB 387 PG 204
TALBERT MCCORMICK
DB 1481 PG 94
DB 1333 PG 502
PLAT SLIDE 570-I
BRADLEY & DORIS MCINNIS
DB 724 PG 542
PLAT SLIDE 570-I
THE HOUR OF PRAYER CHURCH OF DELIVERANCE FOR ALL PEOPLE
DB 1436 PG 96
DB 1436 PG 96
PLAT SLIDE 570-I
LMS LLC
DB 1424 PG 55
ROCKINGHAM RACEWAY PARK, LLC
DB 1446 PG 109
PLAT SLIDE 657-H
TAIL BASE DITCH
SEE DETAIL D
D.D.E. = 85 C.Y.
CL. 'B' RIP RAP
EST. 3.0 TONS
EST. 10 S.Y.F.F.
CL. 'B' RIP RAP
EST. 5.0 TONS
EST. 14 S.Y.F.F.
SPECIAL CUT DITCH
SEE DETAIL A
REMOVE 40 FT.
EXISTING 24" PIPE
SPECIAL CUT DITCH
SEE DETAIL A
30" RCP-IV
18" RCP-IV
PROP 2'-6" C&G
REMOVE
RETAIN
ACCESS BREAK
1215+00
1220+00
1225+00
-BL- 109

NOTE:
ALL DRIVEWAY RADII ARE 10', UNLESS OTHERWISE NOTED.
FOR -L- PROFILE SEE SHEET No. 22 & 23.

3:23:39 PM
...\Proj\r2501c_rdy_psh10.dgn
$$$$USERNAME$$$$

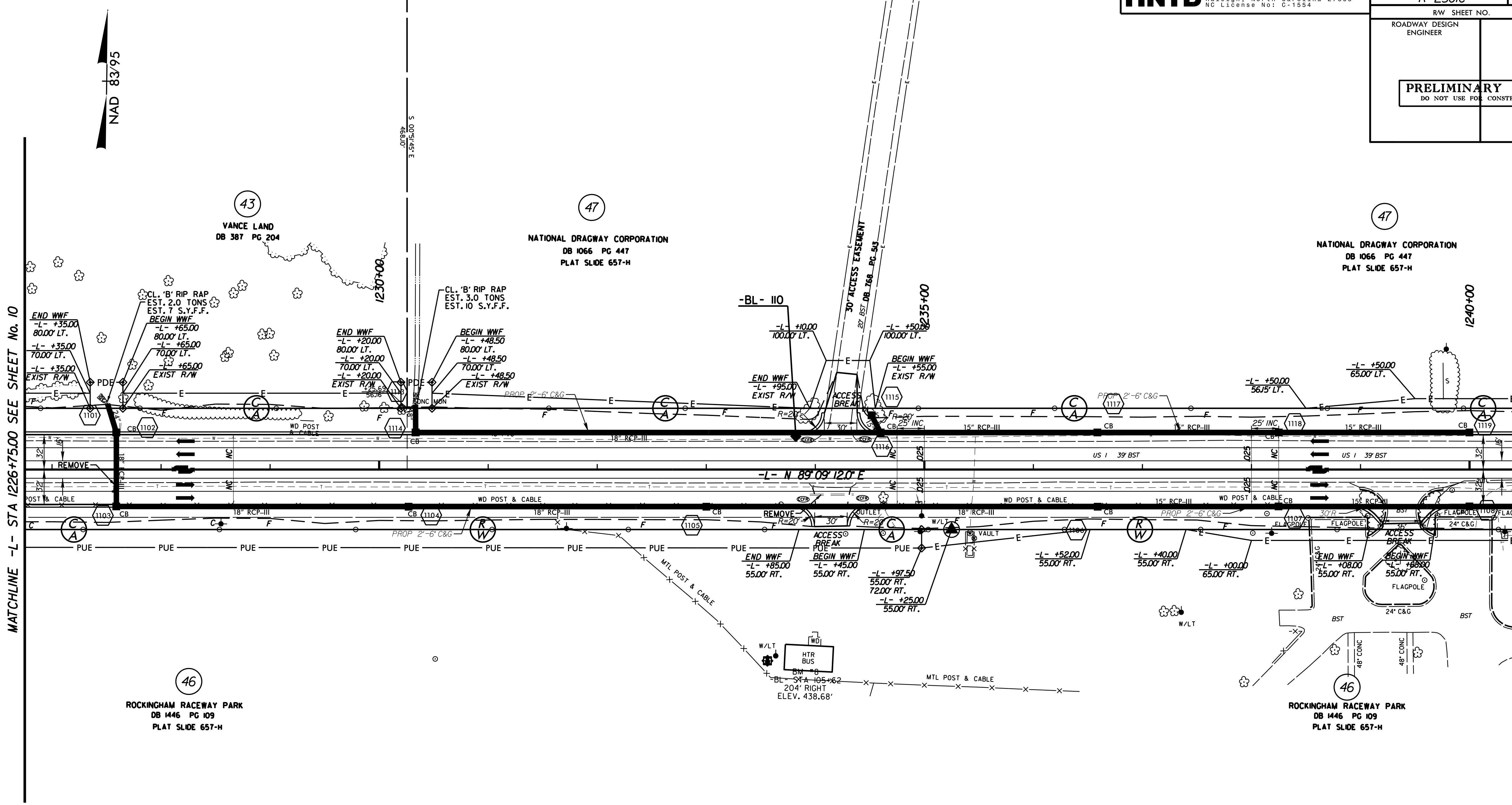
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

8/17/99



NOTE:
FOR -L- PROFILE SEE SHEET No. 23.

20-FEB-2014 10:36
R:\Roadway\Proj\r2501c_rdy_psh11.dgn

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

R/W REVISION NO.1 - CHANGED PARCEL NO.43 TO 43A DATED 12/6/15.

NAD 83/95

-Y2- POT Sta. 13+16.21

-BY2- 121

-Y2-
PI Sta 10+64.73
Δ = 22° 59' 41.0" (RT)
D = 38° 11' 49.9"
L = 60.20'
T = 30.51'
R = 150.00'

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 3:1, D, 4:1 or Flatter, Front Ditch Slope
Min. D = 1.0 Ft.

-Y2- STA. 11+50 TO 13+50 RT (PROJECTED)

SPECIAL CUT DITCH SEE DETAIL A

-Y2- POT Sta. 10+94.42

-Y2- PT Sta. 10+94.42

-Y2- PC Sta. 10+34.22

-Y2- POT Sta. 10+00.00 = -L- POT Sta. 1242+32.35

-Y2- STA 12+25.00 END CONSTRUCTION

-BL- 112

BM #9
-BL- STA 122+63
170' LEFT
ELEV. 441.41'

-L- N 89° 09' 12.0" E

-L- N 0° 50' 48.0" W
U.S. HIGHWAY 1

MATCHLINE -L- STA 1240+50.00 SEE SHEET No. 11

MATCHLINE -L- STA 1253+60.00 SEE SHEET No. 13

47 NATIONAL DRAGWAY CORPORATION DB 1066 PG 447 PLAT SLIDE 657-H

43A WANCE LAND DB 387 PG 204

46 ROCKINGHAM RACEWAY PARK DB 1446 PG 109 PLAT SLIDE 657-H

CL. 'B' RIP RAP EST. 2.0 TONS
EST. 7 S.Y.F.F.

REMOVE

PROP 2'-6" C&G

MTL POST & CABLE

POWER HOOK-UPS

20' BST

24" C&G

NOTE:
FOR -L- PROFILE SEE SHEET No. 23 & 24.
FOR -Y2- PROFILE SEE SHEET No. 28.

20-FEB-2014 10:39
R:\Roadway\Prj\r-2501c_rdy_PSH12.dgn
$$$$USERNAME$$$$

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	13
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

R/W REVISION NO.1 - CHANGED PARCEL NO.43 TO 43A DATED 12/6/13.
R/W REVISION NO.2 - REVISED C/A FENCE LOCATION FOR PARCELS 46 & 63 AND ADDED PUE ON PARCEL 46 WHICH ADJUSTED TCE DATED 8/14/14.
R/W REVISION NO.3 - REVISED PUE AND TCE ON PARCEL 43A AND ADDED PUE ON PARCEL 46 DATED 8/14/14.

NAD 83/95

-L-
PIs Sta 1255+65.56
θs = 0° 46' 31.6"
Ls = 180.00'
LT = 120.00'
ST = 60.00'

PI Sta 1275+42.89
Δ = 32° 10' 00.0" (LT)
D = 0° 51' 41.7"
L = 3,733.40
T = 1,917.33'
R = 6,650.00'

MATCHLINE -L- STA 1253+60.00 SEE SHEET No. 12

-L- TS Sta. 1254+45.56

-L- SC Sta. 1256+25.56

MATCHLINE -L- STA 1267+20.00 SEE SHEET No. 14

43A
VANCE LAND
DB 387 PG 204

46
ROCKINGHAM RACEWAY PARK, LLC
DB 1446 PG 109
PLAT SLIDE 657-H

1255+00

1260+00

1265+00

-BL- 113

CAMPGROUND

SEPTIC DUMP SITE

BERM DITCH SEE RDWY STD. 240.01

-L- +00.00 56.16' LT.

-L- +00.00 66.13' LT.

SOIL & GR

-L- +48.56 65.00' LT.

-L- +48.56 55.00' LT.

END WWF -L- +97.00 55.00' RT.

-L- +60.00 65.00' LT. 90.00' LT.

BEG.WWF -L- +57.00 55.00' RT.

-L- +50.00 90.00' LT.

-L- +81.00 81.50' LT.

-L- +84.00 55.00' LT.

-L- +01.00 84.00' LT.

-L- +04.00 55.00' LT.

-L- +00.00 64.00' LT.

-L- +00.00 55.00' LT.

15" RCP-IV

CB (130)

ACCESS BREAK

R=20'

R=30'

36" MTL

PUE

PROP 2'-6" C&G

6" PVC

BILLBOARD

MTL POST & CABLE

CHORD

60' (TYP.)

-L- +45.56 55.00' RT.

-L- +45.56 70.00' RT.

-L- +23.20 70.00' RT.

-L- +23.27 55.00' RT.

-L- +40.00 55.00' RT.

-L- +40.00 62.00' RT.

-L- +40.00 85.00' RT.

REMOVE

15" CONC

30" RCP-III

RIP RAP

-L- +72.00 83.54' RT.

END WWF -L- +10.00 82.01' RT.

-L- +21.64 87.06' RT.

-L- +83.97 92.01' RT.

-L- +71.50 109.00' RT.

-L- +95.50 93.00' RT.

BEG.WWF -L- +95.00 79.39' RT.

-L- +25.00 90.50' RT.

-L- +19.00 316.50' RT.

-L- +08.50 320.50' RT.

-L- +15.00 339.50' RT.

-L- +49.00 326.50' RT.

CONC

CL. 'B' RIP RAP EST. 8.0 TONS EST. 21 S.Y.F.F.

LATERAL BASE DITCH SEE DETAIL I D.D.E. = 65 C.Y.

LATERAL BASE DITCH SEE DETAIL I D.D.E. = 35 C.Y.

-L- +32.50 83.91' RT.

-L- +32.50 91.00' RT.

CL. 'B' RIP RAP EST. 8.0 TONS EST. 21 S.Y.F.F.

-L- +00.00 77.60' RT.

-L- +50.00 82.87' RT.

END WWF -L- +49.20 102.85' RT.

-L- +89.00 87.24' RT.

BEGIN WWF -L- +87.36 107.17' RT.

TAIL BASE DITCH SEE DETAIL E D.D.E. = 60 C.Y.

-L- +45.00 210.00' RT.

-L- +79.00 211.00' RT.

CL. 'B' RIP RAP EST. 2.0 TONS EST. 7.0 S.Y.F.F.

CONC MON (1306)

EXISTING R/W

CL. 'B' RIP RAP EST. 1.0 TONS EST. 5 S.Y.F.F.

LATERAL BASE DITCH SEE DETAIL H

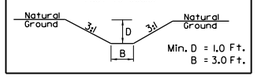
END WWF -L- +20.00 85.42' RT.

GRANITE MONUMENT

GRASS

BLK

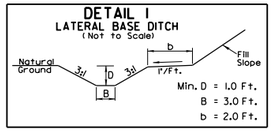
DETAIL E
TAIL BASE DITCH
(Not to Scale)



Min. D = 1.0 Ft.
B = 3.0 Ft.

-L- STA. 1262+69 (62' RT) TO 1262+61 (195' RT)

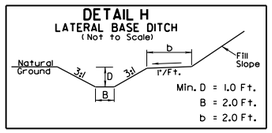
DETAIL I
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.0 Ft.
B = 3.0 Ft.
b = 2.0 Ft.

-L- STA. 1258+50 TO 1259+00 RT
-L- STA. 1260+10 TO 1262+69 RT

DETAIL H
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.0 Ft.
B = 2.0 Ft.
b = 2.0 Ft.

-L- STA. 1267+00 TO 1273+50 RT

NOTE:
FOR -L- PROFILE SEE SHEET No. 24.

14-AUG-2014 08:34
R:\Roadway_Proj\r-2501c_rdy_PSH13.dgn
$$$$$USERNAME$$$$

HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

-L-
PI Sta 1275+42.89
Δ = 32° 10' 00.0" (LT)
D = 0° 51' 41.7"
L = 3,733.40
T = 1,917.33'
R = 6,650.00'

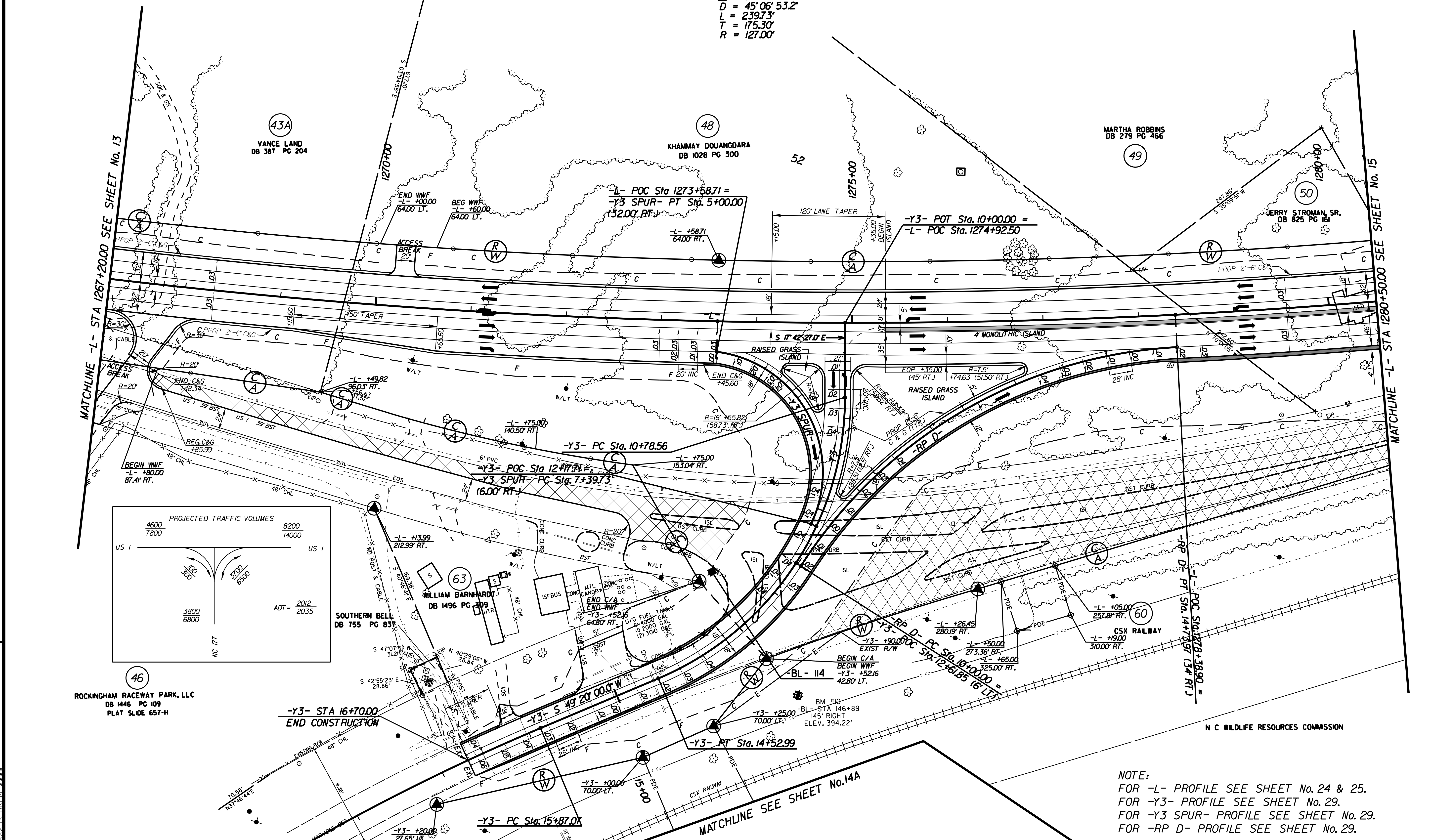
-Y3-
PI Sta 12+90.53
Δ = 67° 02' 27.0" (RT)
D = 17° 54' 17.8"
L = 374.43'
T = 211.97'
R = 320.00'

PI Sta 19+14.34
Δ = 16° 16' 00.0" (LT)
D = 2° 30' 07.2"
L = 650.15'
T = 327.27'
R = 2,290.00'

-RP D-
PI Sta 12+56.49
Δ = 54° 18' 46.9" (RT)
D = 11° 27' 33.0"
L = 473.97'
T = 256.49'
R = 500.00'

-Y3 SPUR-
PI Sta 6+75.30
Δ = 108° 09' 21.0" (RT)
D = 45° 06' 53.2"
L = 239.73'
T = 175.30'
R = 127.00'

REVISIONS
R/W REVISION NO.1 - ON PARCEL 60.CHANGED TDE TO PDE INSIDE RR R/W DATED 11/26/13.
R/W REVISION NO.2 - CHANGED PARCEL NO.43 TO 43A DATED 12/6/13.
R/W REVISION NO.3 - ADDED 60 FT. ACCESS BREAK FOR PARCEL 48 DATED 2/7/14.
R/W REVISION NO.4 - REVISED C/A FENCE LOCATION FOR PARCELS 46 & 63 AND RETAIN A PORTION OF EXISTING PAVEMENT TO PROVIDE ACCESS TO PARCEL 63 DATED 7/18/14.



NAD 83/95
MATCHLINE -L- STA 1267+20.00 SEE SHEET No. 13
MATCHLINE -L- STA 1280+50.00 SEE SHEET No. 15
MATCHLINE SEE SHEET No.14A
43A
VANCE LAND
DB 387 PG 204
48
KHAMMAY DOUANGDARA
DB 1028 PG 300
MARTHA ROBBINS
DB 279 PG 466
49
50
JERRY STROMAN, SR.
DB 825 PG 161
63
WILLIAM BARNHARDT
DB 1496 PG 309
SOUTHERN BELL
DB 755 PG 837
46
ROCKINGHAM RACEWAY PARK, LLC
DB 1446 PG 109
PLAT SLIDE 657-H
60
CSX RAILWAY
N C WILDLIFE RESOURCES COMMISSION
PROJECTED TRAFFIC VOLUMES
US 1
NC 177
ADT= 2012/2035
-L- POC Sta 1273+58.71 =
-Y3 SPUR- PT Sta. 5+00.00
-Y3- POT Sta. 10+00.00 =
-L- POC Sta. 1274+92.50
120' LANE TAPER
150' TAPER
4' MONOLITHIC ISLAND
RAISED GRASS ISLAND
-Y3- PC Sta. 10+78.56
-Y3- POC Sta 12+17.74 =
-Y3 SPUR- PC Sta. 7+39.73
-Y3- STA 16+70.00
END CONSTRUCTION
-Y3- PT Sta. 14+52.99
-Y3- PC Sta. 15+87.07
-BL- 114
BM #10
-BL- STA 146+89
145' RIGHT
ELEV. 394.22'
-RP D- PC Sta. 10+00.00 =
-Y3- POC Sta. 12+61.85 (6' LT)
-L- POC Sta. 1278+38.90 =
-RP D- PT Sta. 14+73.97 (34' RT)

NOTE:
FOR -L- PROFILE SEE SHEET No. 24 & 25.
FOR -Y3- PROFILE SEE SHEET No. 29.
FOR -Y3 SPUR- PROFILE SEE SHEET No. 29.
FOR -RP D- PROFILE SEE SHEET No. 29.

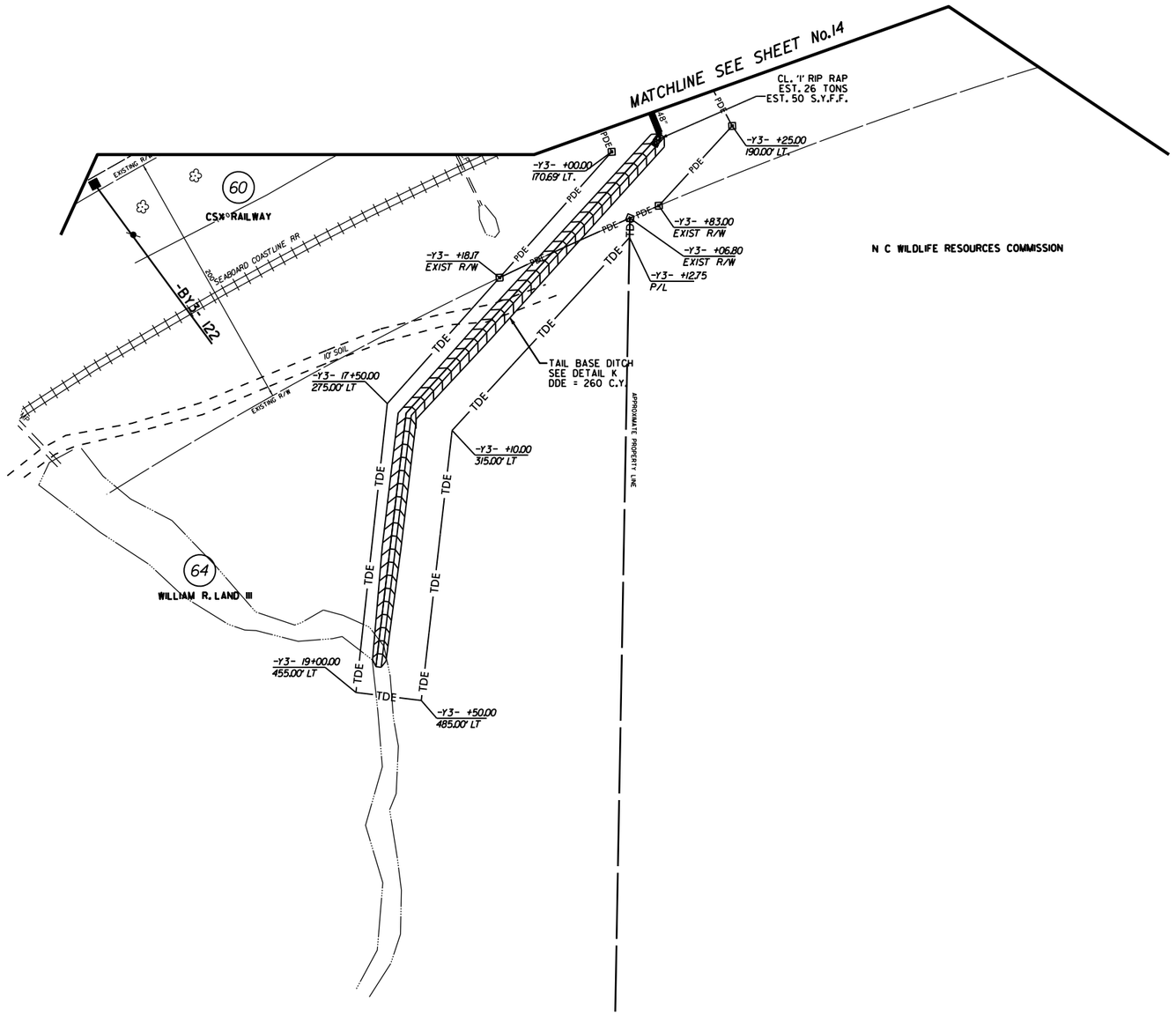
18-JUL-2014 11:57
R:\Roadway\Proj\r2501c_rdy_psh14.dgn

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	14A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS
8/17/99 R/W REVISION ON PARCEL 60.CHANGED TDE TO PDE INSIDE RR R/W DATED 11/26/13.



NOTE:
FOR DITCH PROFILE SEE SHEET No. 29.

20-FEB-2014 11:37
R:\Roadway\Proj\r2501c_rdy_PSH14A.dgn
$$$$USERNAME$$$$

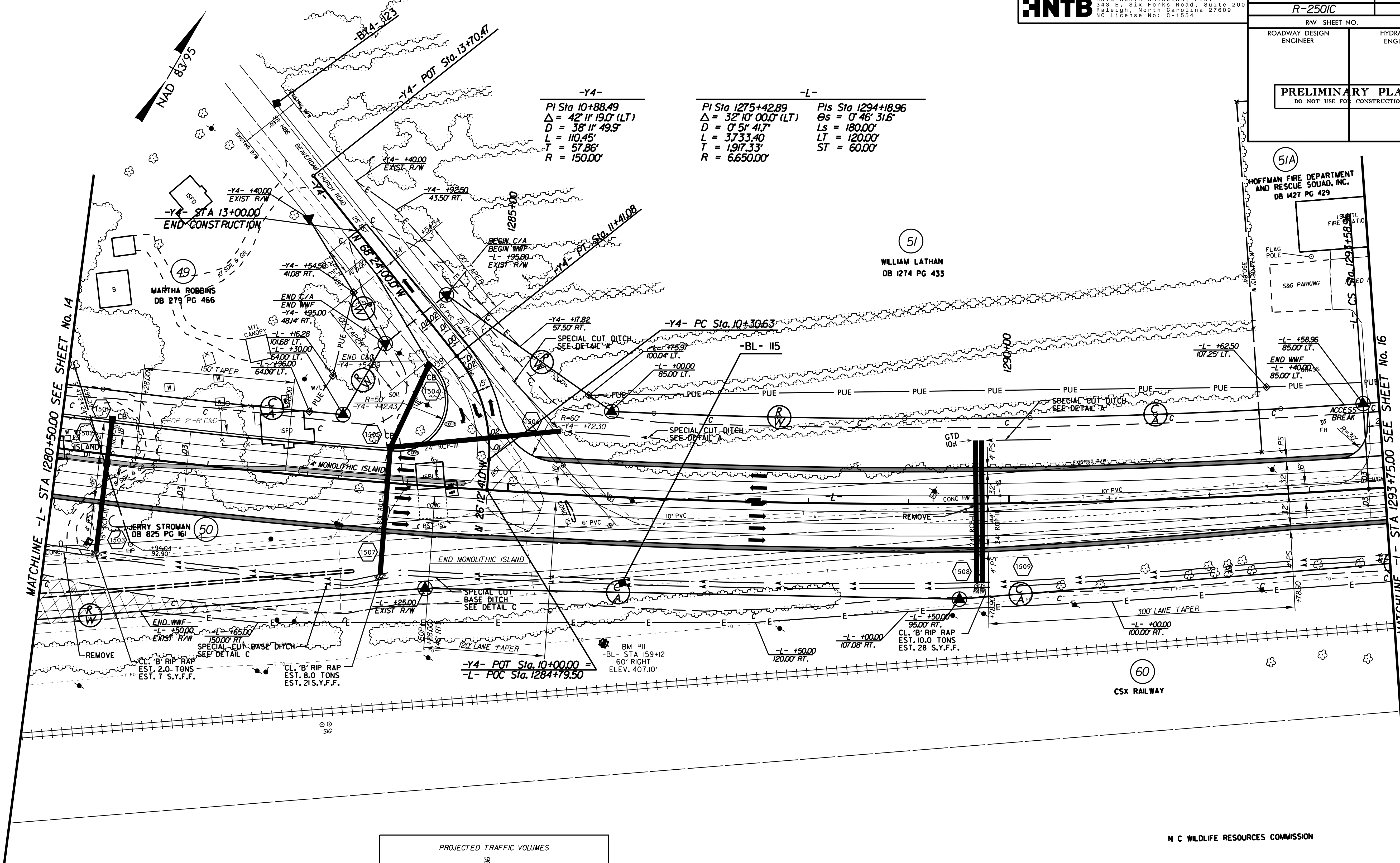
PROJECT REFERENCE NO.	SHEET NO.
R-2501C	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HNTB — HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Road, Suite 200 Raleigh, North Carolina 27609 NC License No: C-1554

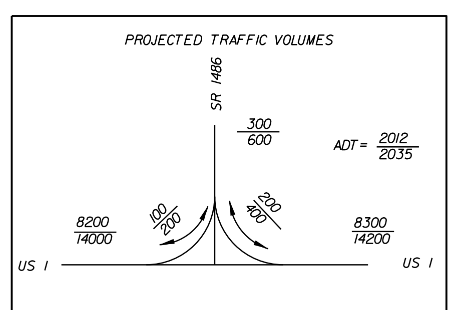
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

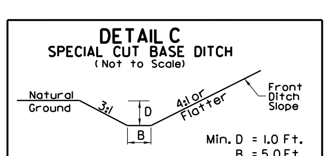
REVISIONS

8/17/99

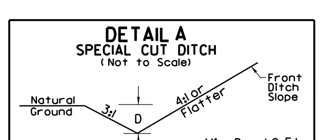


NAD 83/95
-Y4-
PI Sta 10+88.49
Δ = 42° 11' 19.0" (LT)
D = 38° 11' 49.9"
L = 110.45'
T = 57.86'
R = 150.00'
-L-
PI Sta 1275+42.89
Δ = 32° 10' 00.0" (LT)
D = 0° 51' 41.7"
L = 3,733.40
T = 1,917.33'
R = 6,650.00'
PIs Sta 1294+18.96
Θs = 0° 46' 31.6"
Ls = 180.00'
LT = 120.00'
ST = 60.00'
-BY4- 123
-Y4- POT Sta. 13+70.47
-Y4- STA 13+00.00 END CONSTRUCTION
-Y4- PT Sta. 11+41.08
-Y4- PC Sta. 10+30.63
-BL- 115
MARTHA ROBBINS DB 279 PG 466
WILLIAM LATHAN DB 1274 PG 433
HOFFMAN FIRE DEPARTMENT AND RESCUE SQUAD, INC. DB 1427 PG 429
JERRY STROMAN DB 825 PG 161
CSX RAILWAY
MATCHLINE -L- STA 1280+50.00 SEE SHEET No. 14
MATCHLINE -L- STA 1293+75.00 SEE SHEET No. 16
-Y4- POT Sta. 10+00.00 = -L- POC Sta. 1284+79.50
BM #11 -BL- STA 159+12 60' RIGHT ELEV. 407.10'
SPECIAL CUT DITCH SEE DETAIL A
SPECIAL CUT BASE DITCH SEE DETAIL C
CL. 'B' RIP RAP EST. 2.0 TONS EST. 7 S.Y.F.F.
CL. 'B' RIP RAP EST. 8.0 TONS EST. 21 S.Y.F.F.
CL. 'B' RIP RAP EST. 10.0 TONS EST. 28 S.Y.F.F.
4' MONOLITHIC ISLAND
END MONOLITHIC ISLAND
150' TAPER
120' LANE TAPER
300' LANE TAPER
N C WILDLIFE RESOURCES COMMISSION
N C WILDLIFE RESOURCES COMMISSION





-L- STA. 1278+38.90 RT TO 1325+29 RT



-L- STA. 1289+70 LT TO 1290+50 LT
-L- STA. 1285+50 LT TO 1286+50 LT
-Y4- STA. 10+52 RT TO 11+50 RT

NOTE:
FOR -L- PROFILE SEE SHEET No. 25.
FOR -Y4- PROFILE SEE SHEET No. 29.

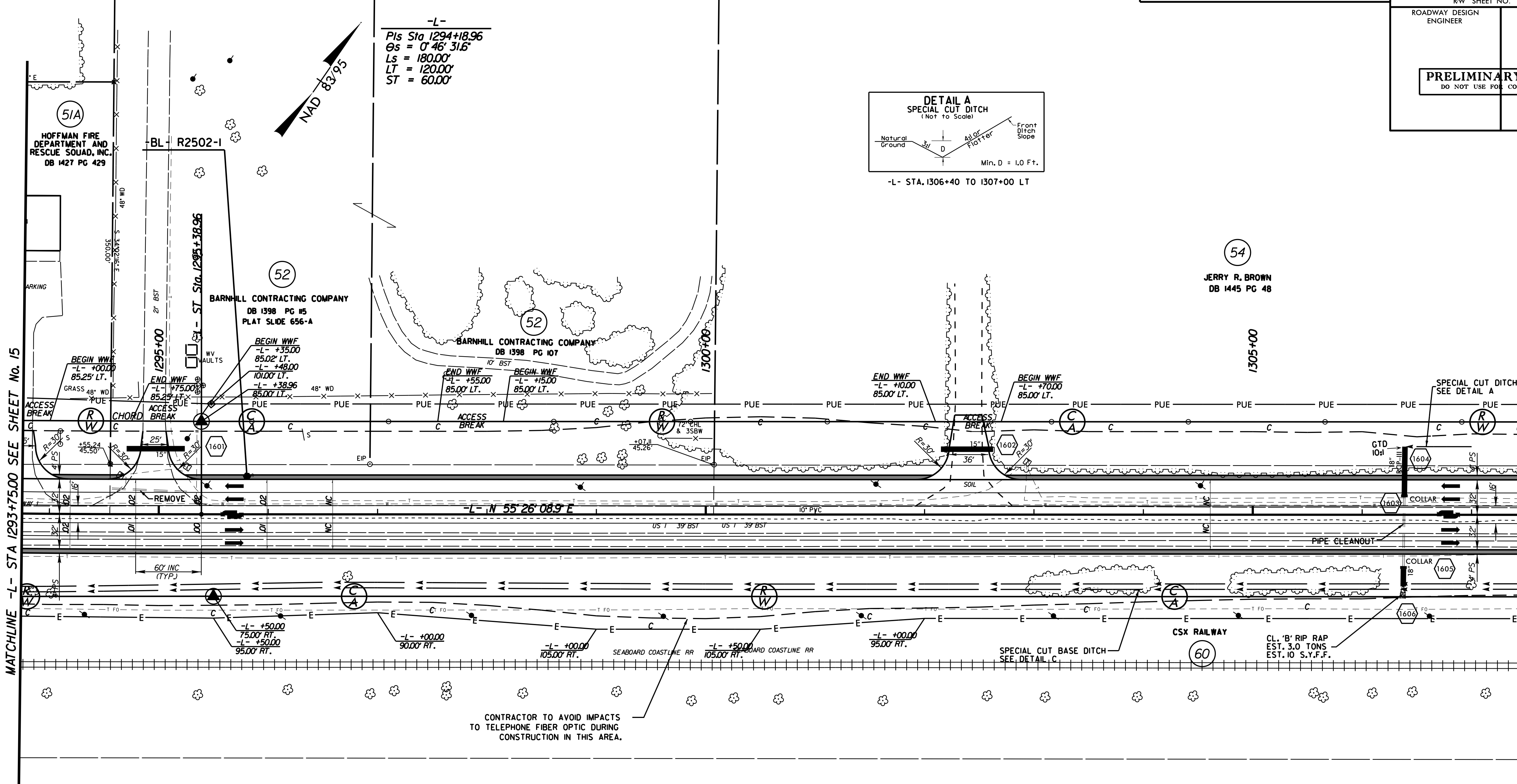
20-FEB-2014 11:45
R:\Roadway\Proj\r2501c_rdy_psh15.dgn

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

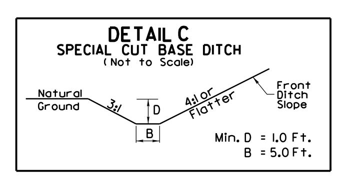
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS
R/W REVISION NO.1 - COMBINED PARCEL NOS.52 AND 53 TO PARCEL NO.52 DATED 12/6/13.



N C WILDLIFE RESOURCES COMMISSION

N C WILDLIFE RESOURCES COMMISSION



-L- STA. 1278+38.90 RT TO 1325+29 RT

NOTE:
ALL DRIVEWAY RADII ARE 10', UNLESS OTHERWISE NOTED.
FOR -L- PROFILE SEE SHEET No. 25.

8/17/99
20-FEB-2014 11:50
r2501c_rdy_psh16.dgn

8/17/99

REVISIONS

R/W REVISION NO.1 - CHANGED PARCEL OWNERSHIP ON PARCEL 57 TO JEFFREY HUGH MOSS SR. DATED 12/6/13.

20-FEB-2014 11:53
R:\Roadway\Proj\r2501c_rdy_PSH17.dgn
$$$$USERNAME$$$$

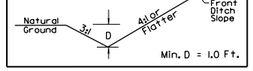
HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

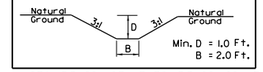
NAD 83/95

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

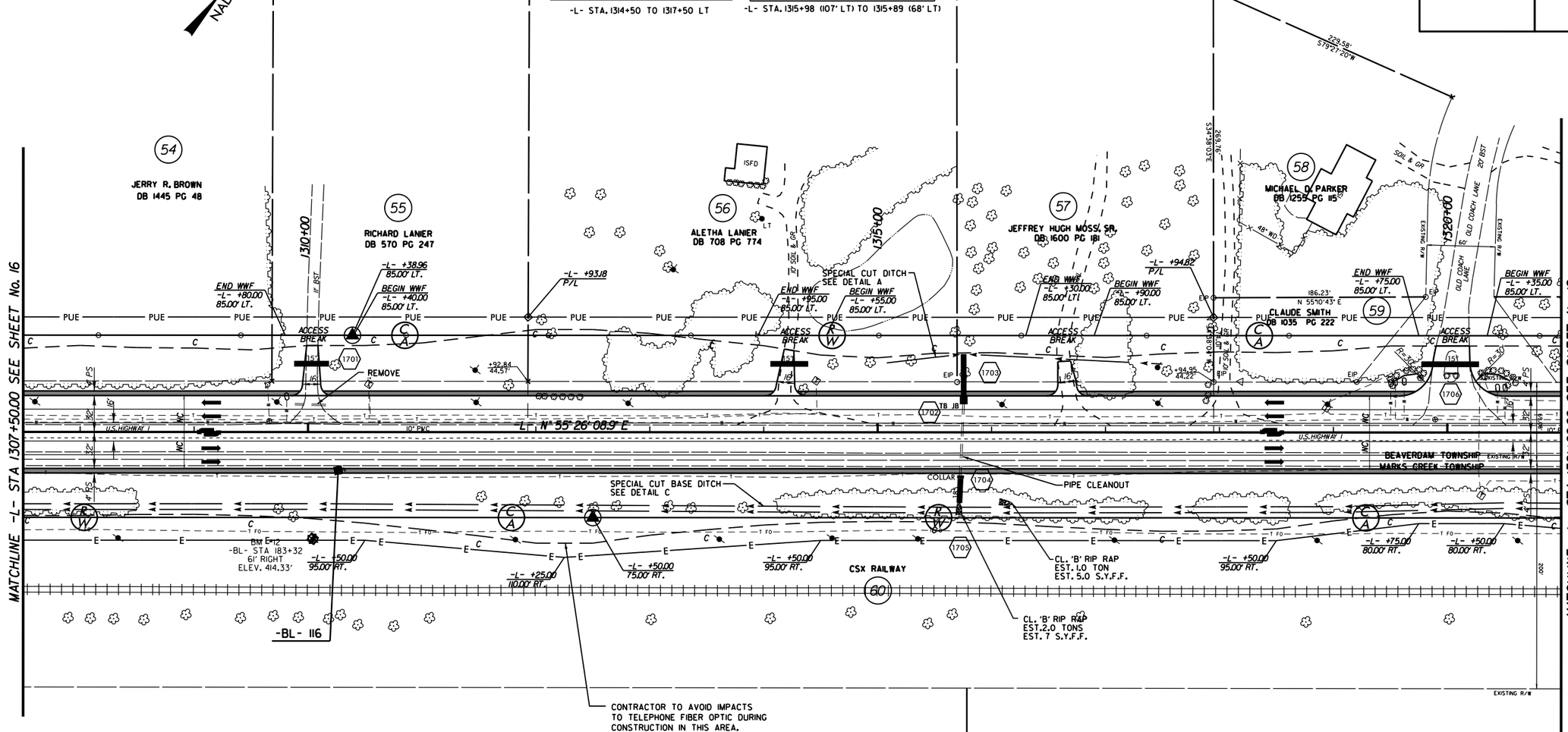


-L- STA. 1314+50 TO 1317+50 LT

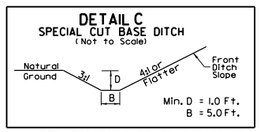
DETAIL O
HEAD BASE DITCH
(Not to Scale)



-L- STA. 1315+98 (107' LT) TO 1315+89 (68' LT)



DETAIL C
SPECIAL CUT BASE DITCH
(Not to Scale)



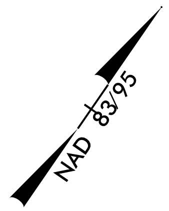
-L- STA. 1278+38.90 RT TO 1325+29 RT

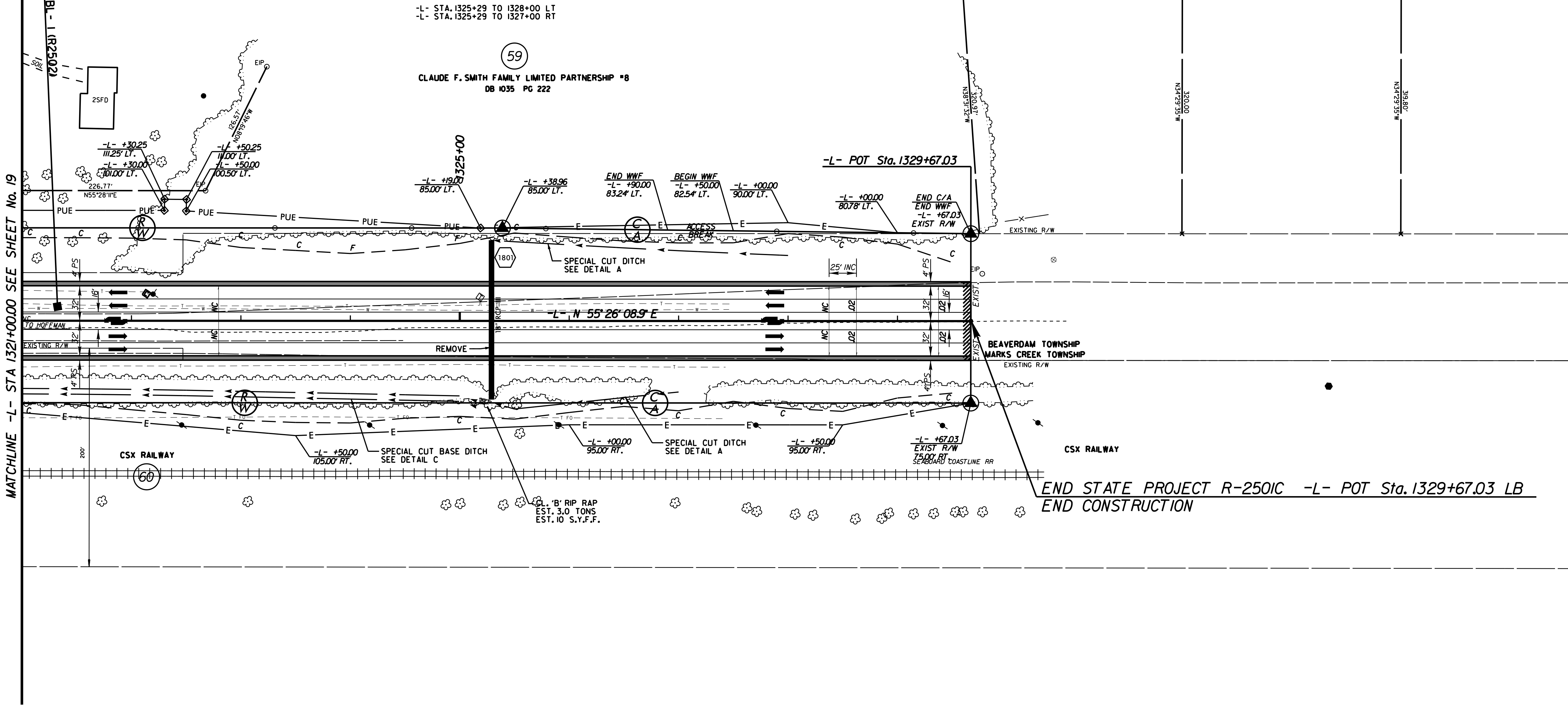
NOTE:
ALL DRIVEWAY RADII ARE 10', UNLESS OTHERWISE NOTED.
FOR -L- PROFILE SEE SHEET No. 25 & 26.

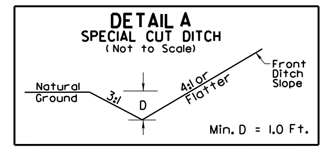
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

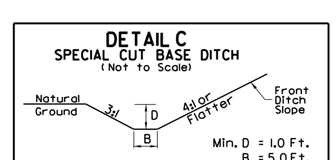
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION







-L- STA. 1325+29 TO 1328+00 LT
-L- STA. 1325+29 TO 1327+00 RT



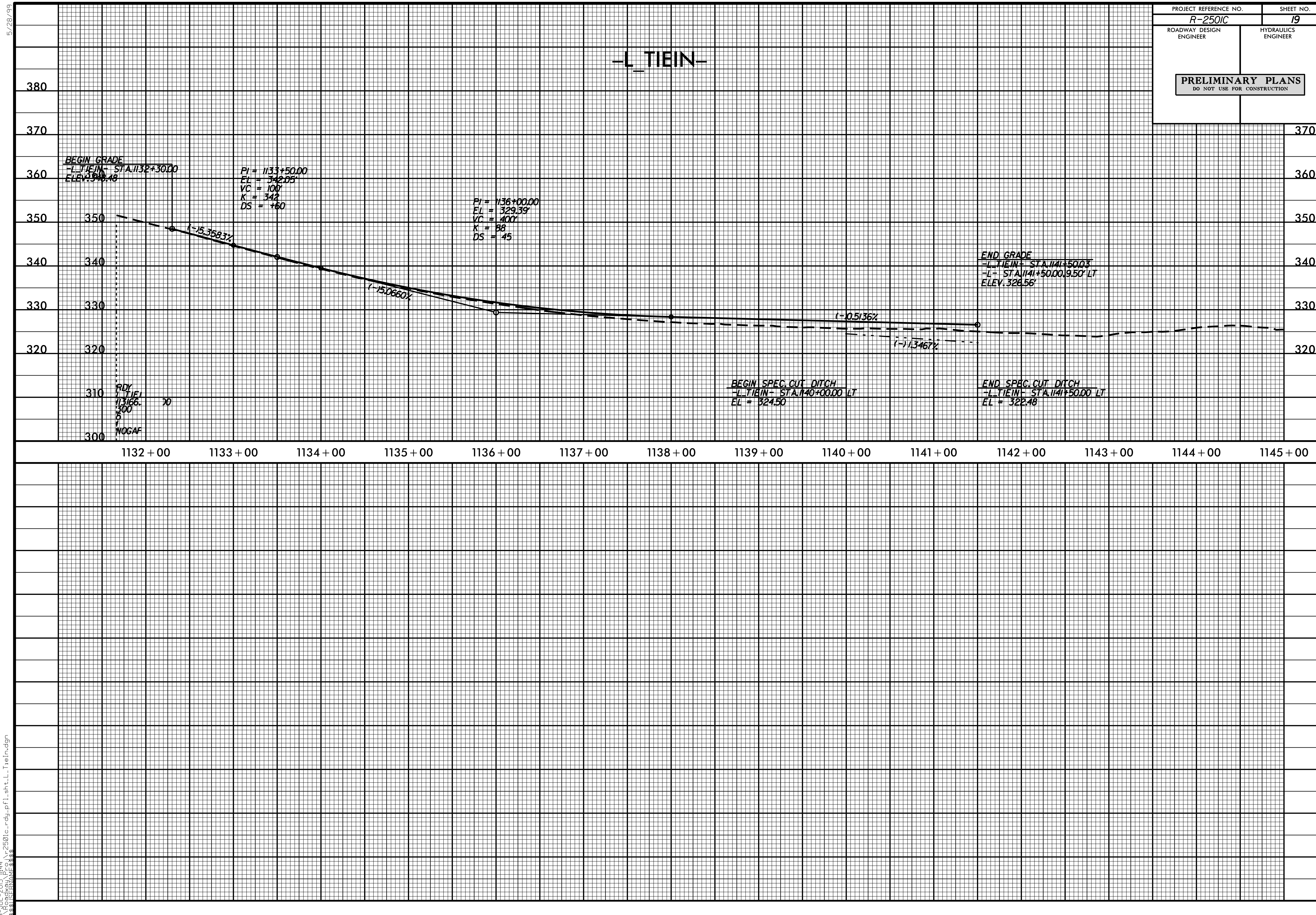
-L- STA. 1278+38.90 RT TO 1325+29 RT

NOTE:
FOR -L- PROFILE SEE SHEET No. 26.

REVISIONS

20-FEB-2014 11:55
8/17/99

5/28/99



24-JUL-2013 11:44
R:\Roadway\Proj\r2501c_rdy_pfl_sht_L_TieIn.dgn
$$$$$SYSTIME$$$$

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.401

DRAINAGE AREA	= 2.6	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 6.0	CFS
DESIGN HW ELEVATION	= 323.7	FT
100 YEAR DISCHARGE	= 6.8	CFS
100 YEAR HW ELEVATION	= 323.8	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 16.5	CFS
OVERTOPPING ELEVATION	= 326.9	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.502-503

DRAINAGE AREA	= 7.8	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 19.7	CFS
DESIGN HW ELEVATION	= 322.7	FT
100 YEAR DISCHARGE	= 22.3	CFS
100 YEAR HW ELEVATION	= 322.8	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 59.0	CFS
OVERTOPPING ELEVATION	= 326.1	FT

BM #2 -L- STA 1144+42.69
145.39 RIGHT ELEV. 323.97'
RR SPIKE IN BASE OF 20" PINE

BEGIN PROPOSED GRADE
-L- STA 1141+50.00
EL = 326.75'

PI = 1142+50.00
EL = 326.45'
VC = 200'
K = 333

PI = 1144+50.00
EL = 327.05'
VC = 200'
K = 283

PI = 1147+60.00
EL = 325.79'
VC = 300'
K = 425

PI = 1149+95.00
EL = 326.49'
VC = 150'
K = 519

PI = 1152+25.00
EL = 327.85'
VC = 310'
K = 1581

(-)0.3000% (+)0.3000% (+)0.3000% (-)0.4065% (-)0.4065% (+)0.3000% (+)0.3000% (+)0.589% (+)0.589% (+)0.364% (-).35% (-).36% (-).35%

(-)0.50% (-)0.82% (+)0.37% (+).48% (-).78% (-).36% (+).40% (+)1.85% (-).78% (+).59%

18" RCP 26" 18" RCP-N

RDY
L
14000.000000
300
10
NOGAP

BEGIN SPECIAL CUT DITCH -L- STA 1141+50 RT EL = 322.49
BEGIN SPECIAL CUT DITCH -L- STA 1141+50 LT EL = 322.28
END TAIL BASE DITCH -L- STA 1142+71 (159.37' RT) EL = 320.13
PI = -L- STA 1142+67 BEGIN TAIL BASE DITCH EL = 321.05
PI = -L- STA 1142+93 LT EL = 322.28
END SPECIAL CUT DITCH -L- STA 1144+50 RT EL = 321.89
BEGIN SPECIAL CUT DITCH -L- STA 1144+50 LT EL = 322.28
BEGIN SPECIAL CUT DITCH -L- STA 1145+68 RT EL = 321.85
END SPECIAL CUT DITCH -L- STA 1147+50 LT EL = 321.98
END SPECIAL CUT DITCH -L- STA 1147+50 RT EL = 320.85
END TAIL BASE DITCH (111' RT) -L- STA 1148+08 EL = 318.36
PI = -L- STA 1148+15 RT BEGIN TAIL BASE DITCH EL = 319.60
PI = -L- STA 1148+15 LT EL = 321.40
END SPECIAL CUT DITCH -L- STA 1149+93 LT EL = 321.94
END LATERAL V DITCH -L- STA 1150+00 RT EL = 321.89
BEGIN SPECIAL CUT DITCH -L- STA 1152+00 LT EL = 323.37
BEGIN SPECIAL CUT DITCH -L- STA 1152+50 RT EL = 323.61
END SPECIAL CUT DITCH -L- STA 1153+50 LT EL = 322.83
BEGIN LATERAL V DITCH -L- STA 1153+50 LT EL = 322.83

1140+00 1141+00 1142+00 1143+00 1144+00 1145+00 1146+00 1147+00 1148+00 1149+00 1150+00 1151+00 1152+00 1153+00 1154+00

370 360 350 340 330 320 310 300 290 280

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.507-508

DRAINAGE AREA	= 3.8	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 10.6	CFS
DESIGN HW ELEVATION	= 325.6	FT
100 YEAR DISCHARGE	= 12.0	CFS
100 YEAR HW ELEVATION	= 325.7	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 29.2	CFS
OVERTOPPING ELEVATION	= 328.6	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.604

DRAINAGE AREA	= 3.3	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 9.1	CFS
DESIGN HW ELEVATION	= 331.2	FT
100 YEAR DISCHARGE	= 10.2	CFS
100 YEAR HW ELEVATION	= 331.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 20.3	CFS
OVERTOPPING ELEVATION	= 334.6	FT

BM #3 -L- STA 1156+67.51
170.43' LEFT ELEV. 326.69'
RR SPIKE IN BASE OF 15" PINE

PI = 1156+50.00
EL = 329.40'
VC = 200'
K = 3091

PI = 1158+50.00
EL = 330.00'
VC = 200'
K = 2000

PI = 1162+50.00
EL = 331.60'
VC = 200'
K = 2000

PI = 1167+00.00
EL = 332.95'
VC = 500'
K = 121

(+)0.364% (+)0.3000% (+)0.3000% (+)0.4000% (+)0.4000% (+)0.3000% (+)0.3000% (+)5.55% (-).30%

(+)1.79% (+)1.44%

26" 18" RCP 18" RCP

END LATERAL V DITCH -L- STA 1154+27 RT EL = 323.00
BEGIN TAIL BASE DITCH -L- STA 1154+27 LT EL = 322.56
PI = -L- STA 1154+27 RT EL = 323.00
END TAIL BASE DITCH -L- STA 1154+43 (109.35' LT) EL = 322.23
END SPECIAL CUT DITCH -L- STA 1155+50 RT EL = 324.77
BEGIN SPECIAL CUT DITCH -L- STA 1165+00 RT EL = 328.18
END SPECIAL CUT DITCH -L- STA 1167+50 RT EL = 332.53
PI = -L- STA 1167+89.56 -Y- STA 10+00.00
PI = -L- STA 1164+27 RT EL = 329.30

1154+00 1155+00 1156+00 1157+00 1158+00 1159+00 1160+00 1161+00 1162+00 1163+00 1164+00 1165+00 1166+00 1167+00 1168+00

370 360 350 340 330 320 310 300 290 280

NOTE: FOR -L- PLAN SEE SHEETS 4.5 & 6

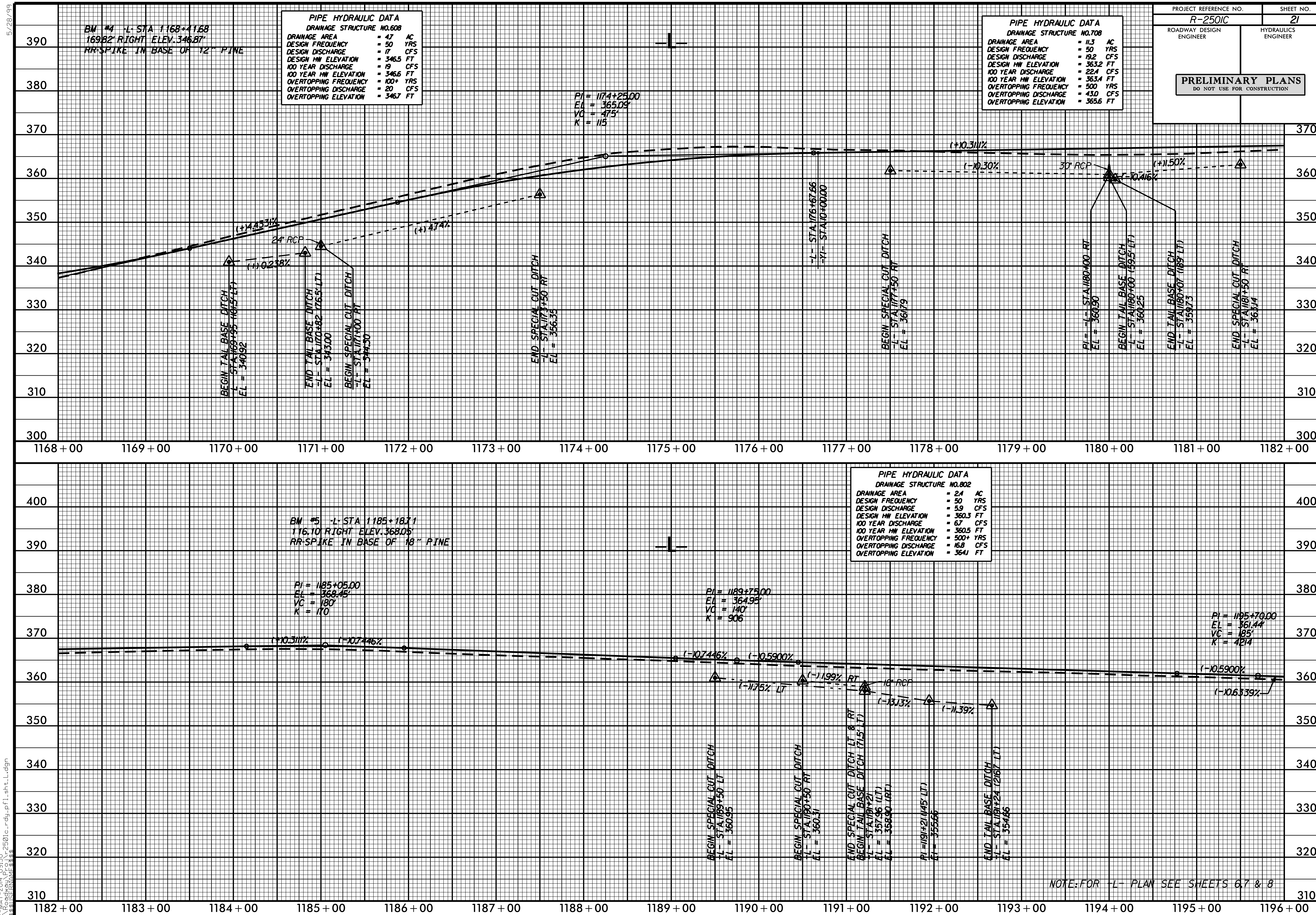
24-JUL-2013 11:49
R:\Roadway Proj\r2501c_rdy_prof1_sht_L.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	21

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.608

DRAINAGE AREA	= 4.7	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 17	CFS
DESIGN HW ELEVATION	= 346.5	FT
100 YEAR DISCHARGE	= 19	CFS
100 YEAR HW ELEVATION	= 346.6	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 20	CFS
OVERTOPPING ELEVATION	= 346.7	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.708

DRAINAGE AREA	= 11.3	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 19.2	CFS
DESIGN HW ELEVATION	= 363.2	FT
100 YEAR DISCHARGE	= 22.4	CFS
100 YEAR HW ELEVATION	= 363.4	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 43.0	CFS
OVERTOPPING ELEVATION	= 365.6	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.802

DRAINAGE AREA	= 2.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 5.9	CFS
DESIGN HW ELEVATION	= 360.3	FT
100 YEAR DISCHARGE	= 6.7	CFS
100 YEAR HW ELEVATION	= 360.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 16.8	CFS
OVERTOPPING ELEVATION	= 364.1	FT

REVISION NO.1: REVISED SPECIAL CUT DITCH RT -L- STA 1171+00 TO -L- STA 1173+50 AND REVISED PIPE HYDRAULIC DATA FOR STRUCTURE NO.608 (05/05/14)

5/28/99

02-MAY-2014 09:50
R:\Roadway\Proj\r2501c_rdy_pfl_sht_L.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	22

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/28/99

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.806

DRAINAGE AREA	= 3.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 9.0	CFS
DESIGN HW ELEVATION	= 357.7	FT
100 YEAR DISCHARGE	= 10.2	CFS
100 YEAR HW ELEVATION	= 357.9	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 19.5	CFS
OVERTOPPING ELEVATION	= 360.7	FT

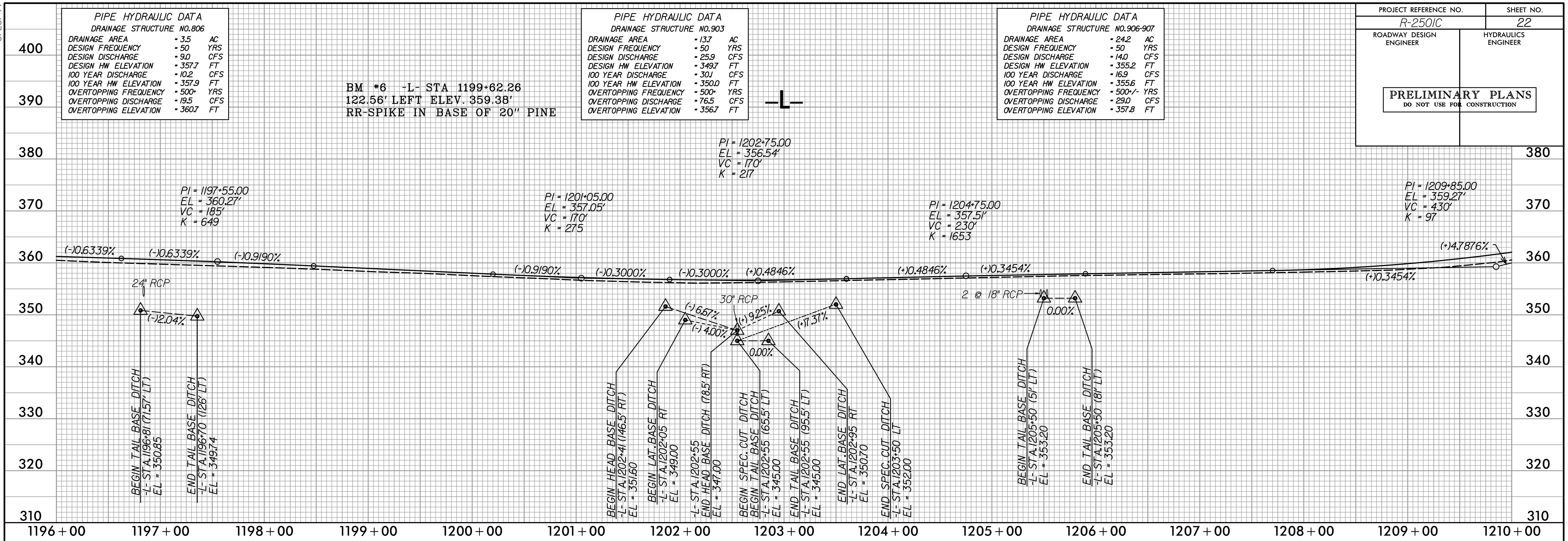
BM #6 -L- STA 1199+62.26
122.56' LEFT ELEV. 359.38'
RR-SPIKE IN BASE OF 20" PINE

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.903

DRAINAGE AREA	= 13.7	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 25.9	CFS
DESIGN HW ELEVATION	= 349.7	FT
100 YEAR DISCHARGE	= 30.1	CFS
100 YEAR HW ELEVATION	= 350.0	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 76.5	CFS
OVERTOPPING ELEVATION	= 356.7	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.906-907

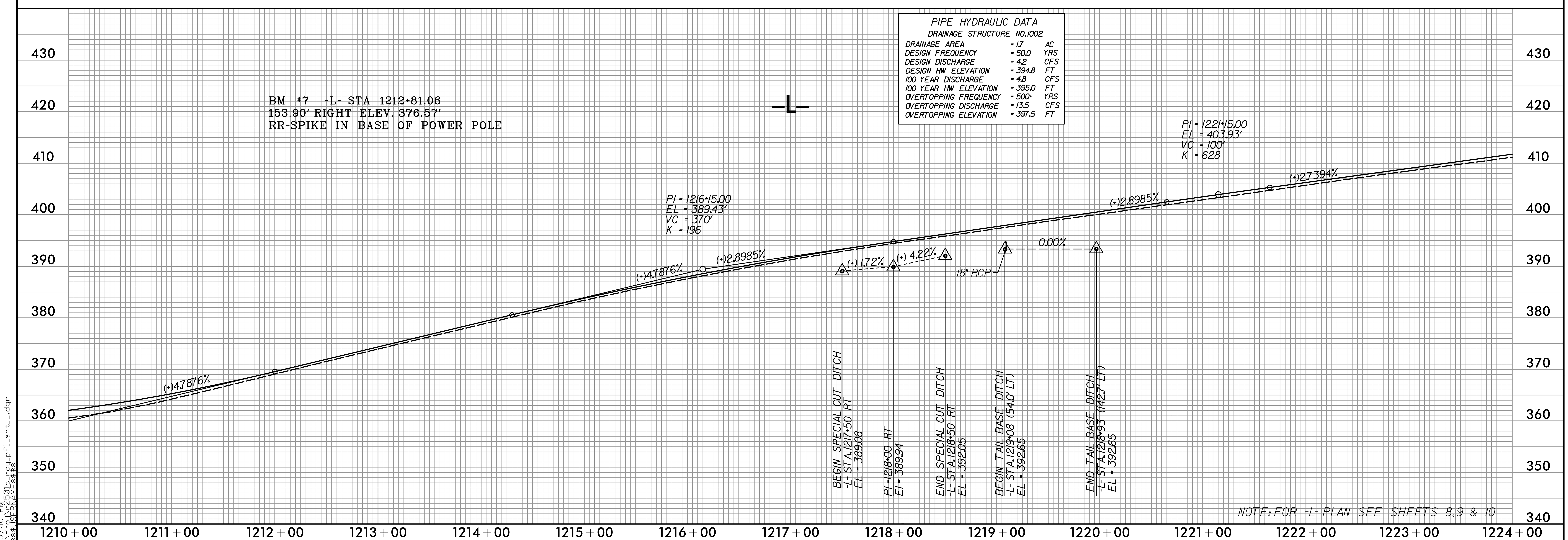
DRAINAGE AREA	= 24.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 14.0	CFS
DESIGN HW ELEVATION	= 355.2	FT
100 YEAR DISCHARGE	= 16.9	CFS
100 YEAR HW ELEVATION	= 355.6	FT
OVERTOPPING FREQUENCY	= 500+/-	YRS
OVERTOPPING DISCHARGE	= 29.0	CFS
OVERTOPPING ELEVATION	= 357.8	FT



BM #7 -L- STA 1212+81.06
153.90' RIGHT ELEV. 376.57'
RR-SPIKE IN BASE OF POWER POLE

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.1002

DRAINAGE AREA	= 1.7	AC
DESIGN FREQUENCY	= 50.0	YRS
DESIGN DISCHARGE	= 4.2	CFS
DESIGN HW ELEVATION	= 394.8	FT
100 YEAR DISCHARGE	= 4.8	CFS
100 YEAR HW ELEVATION	= 395.0	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 13.5	CFS
OVERTOPPING ELEVATION	= 397.5	FT



NOTE: FOR -L- PLAN SEE SHEETS 8,9 & 10

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BM #8 -L- STA 1233+54.63
175.32' RIGHT ELEV.438.68'
RR-SPIKE IN BASE OF POWER POLE

PI = 1233+45.00
EL = 442.25'
VC = 430'
K = 114

PI = 1236+60.00
EL = 441.30'
VC = 200'
K = 329

PI = 1227+10.00
EL = 420.23'
VC = 100'
K = 137

(+)1.2739%
(+)3.4682%
(+)3.4682%
(-)0.3010%
(-)0.3010%
(+)0.3075%
4.1479

BM #9 -L- STA 1250+40.94
151.73' LEFT ELEV.441.41'
RR-SPIKE IN BASE OF 18" PINE

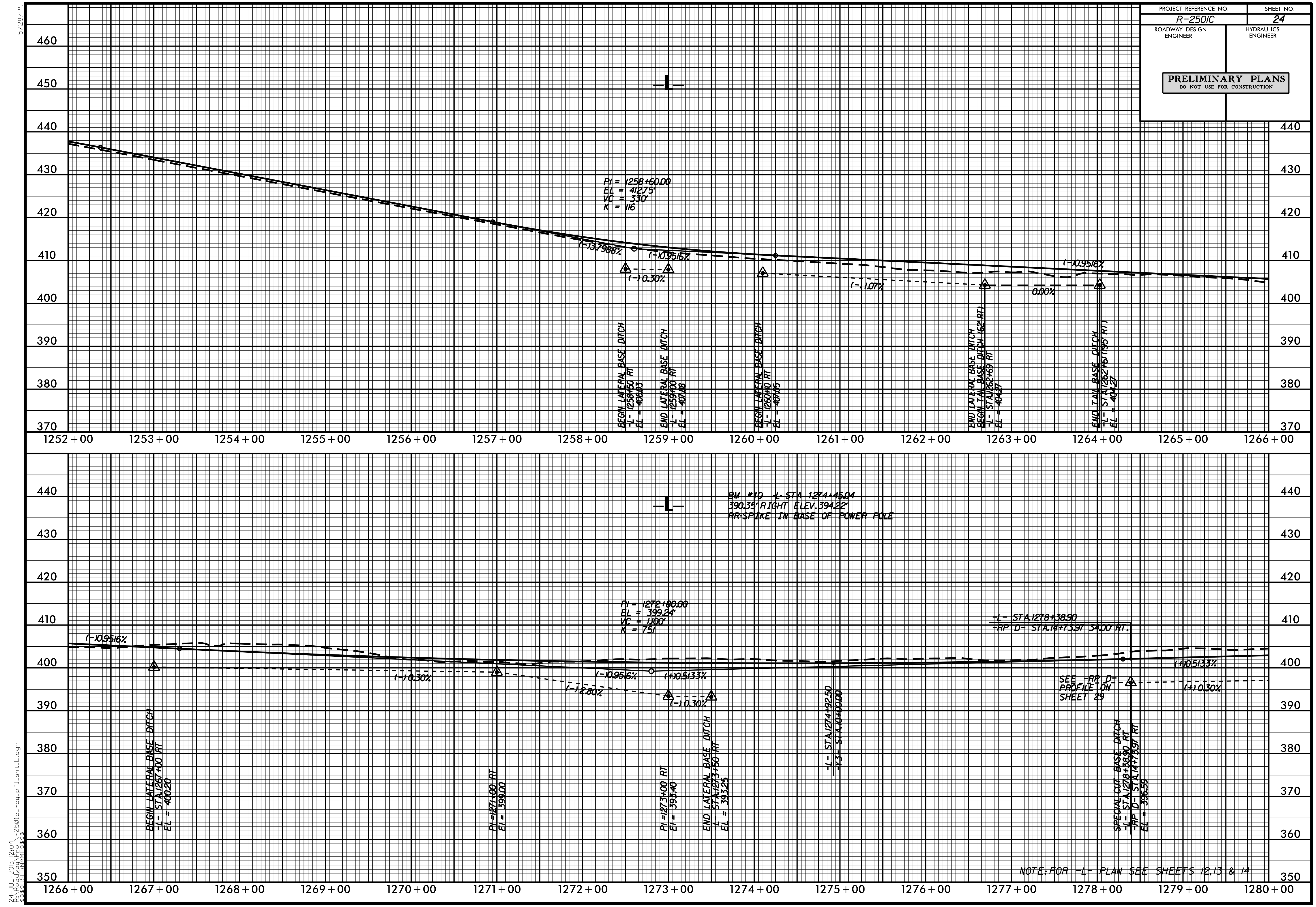
PI = 1250+00.00
EL = 445.42'
VC = 475'
K = 116

(+)0.3075%
(-)3.7988%

-L- STA 1242+32.35
-L2- STA 1240+00.00

NOTE: FOR -L- PLAN SEE SHEETS 10,11 & 12

24-JUL-2013 11:56
R:\Roadway Proj\r2501c_rdy_prf1_sht_L.dgn
$$$$ENGNAME$$$$


PROJECT REFERENCE NO.
R-2501C
SHEET NO.
24
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-L-
PI = 1258+60.00
EL = 412.75'
VC = 330'
K = 116
(-)3.7988%
(-)0.9516%
(-) 0.30%
(-) 1.07%
0.00%
(-)0.9516%
BEGIN LATERAL BASE DITCH
-L- 1258+50 RT
EL = 408.03
END LATERAL BASE DITCH
-L- 1259+00 RT
EL = 407.88
BEGIN LATERAL BASE DITCH
-L- 1260+10 RT
EL = 407.05
END LATERAL BASE DITCH
BEGIN TAIL BASE DITCH (62' RT)
-L- STA.1262+69 RT
EL = 404.27
END TAIL BASE DITCH
-L- STA.1262+61 (195' RT)
EL = 404.27
1252+00 1253+00 1254+00 1255+00 1256+00 1257+00 1258+00 1259+00 1260+00 1261+00 1262+00 1263+00 1264+00 1265+00 1266+00
BM #10 -L- STA 1274+46.04
390.35' RIGHT ELEV. 394.22'
RR-SPIKE IN BASE OF POWER POLE
-L-
PI = 1272+80.00
EL = 399.24'
VC = 1100'
K = 751
-L- STA.1278+38.90
-RP D- STA.14+73.97 34.00' RT.
(-)0.9516%
(-) 0.30%
(-)0.9516%
(+)0.5133%
(-) 2.80%
(-) 0.30%
(+)0.5133%
(+) 0.30%
SEE -RP D- PROFILE ON SHEET 29
BEGIN LATERAL BASE DITCH
-L- STA.1267+00 RT
EL = 400.20
PI = 1271+00 RT
EI = 399.00
PI = 1273+00 RT
EI = 393.40
END LATERAL BASE DITCH
-L- STA.1273+50 RT
EL = 393.25
-L- STA.1274+92.50
-Y3- STA.10+00.00
SPECIAL CUT BASE DITCH
-L- STA.1278+38.90 RT
-RP D- STA.14+73.97 RT
EL = 396.59
NOTE: FOR -L- PLAN SEE SHEETS 12,13 & 14
1266+00 1267+00 1268+00 1269+00 1270+00 1271+00 1272+00 1273+00 1274+00 1275+00 1276+00 1277+00 1278+00 1279+00 1280+00
5/28/99
24-JUL-2013 12:04

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.1508-1509

DRAINAGE AREA	= 41.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 21.9	CFS
DESIGN HW ELEVATION	= 404.6	FT
100 YEAR DISCHARGE	= 26.5	CFS
100 YEAR HW ELEVATION	= 404.9	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 57.0	CFS
OVERTOPPING ELEVATION	= 407.9	FT

BM #11 -L- STA 1286+01.45
145.42' RIGHT ELEV.407.10'
RR SPIKE IN BASE OF POWER POLE

(+)0.51 33%
(+)0.30%
(+)1.11%
(+)0.73%
(+)1.14%
(+)10.51 33%
(+)10.40%
2 @ 24" RCP

-L- STA 1283+80 RT
EL = 399.21

-L- STA 1284+19.50
-Y4 STA 10+00.00

BEGIN SPECIAL CUT DITCH
-L- STA 1285+50 LT
EL = 401.60

END SPECIAL CUT DITCH
-L- STA 1286+50 LT
EL = 401.71

-L- STA 1289+70 RT
EL = 402.50

BEGIN SPECIAL CUT DITCH
-L- STA 1289+70 LT
EL = 402.85

END SPECIAL CUT DITCH
-L- STA 1290+50 LT
EL = 403.76

1280+00 1281+00 1282+00 1283+00 1284+00 1285+00 1286+00 1287+00 1288+00 1289+00 1290+00 1291+00 1292+00 1293+00 1294+00

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.1603-1605

DRAINAGE AREA	= 3.8	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 8.3	CFS
DESIGN HW ELEVATION	= 412.8	FT
100 YEAR DISCHARGE	= 9.4	CFS
100 YEAR HW ELEVATION	= 413.0	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 17.4	CFS
OVERTOPPING ELEVATION	= 415.7	FT

PI = 1300+10.00
EL = 413.25'
VC = 100'
K = 759

(+)0.51 33%
(+)10.51 33%
(+)10.38 15%
(+)10.40%
18" RCP
(+)1.04%

-L- STA 1306+40 RT
EL = 409.17

BEGIN SPECIAL CUT DITCH
-L- STA 1306+39 LT
EL = 411.05

END SPECIAL CUT DITCH
-L- STA 1307+06 LT
EL = 411.58

NOTE: FOR -L- PLAN SEE SHEETS 14,15,16 & 17

1294+00 1295+00 1296+00 1297+00 1298+00 1299+00 1300+00 1301+00 1302+00 1303+00 1304+00 1305+00 1306+00 1307+00 1308+00

24-JUL-2013 12:06
R:\Roadway Proj\r2501c_rdy_prf_sht_L.dgn
$$$$USERNAME$$$$

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.1702-1707

DRAINAGE AREA	= 14.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 91	CFS
DESIGN HW ELEVATION	= 415.2	FT
100 YEAR DISCHARGE	= 110	CFS
100 YEAR HW ELEVATION	= 415.6	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 191	CFS
OVERTOPPING ELEVATION	= 418.9	FT

BM #12 -L- STA 1310+02.93
92.90' RIGHT ELEV.414.33'
RR-SPIKE IN BASE OF POWER POLE

PI = 1309+85.00
EL = 416.97'
VC = 100'
K = 1976

PI = 1322+00.00
EL = 420.99'
VC = 150'
K = 394

(+)0.3815%
(+)0.3309%
(+)0.40%
(+)0.20%
(-)1.60%
(-)1.16%
(+)0.38%
(+)0.3309%
(+)0.91%
(+)0.20%

18" RCP

-L- STA 1310+00.00 RT
EL = 410.61

BEGIN SPECIAL CUT DITCH
-L- STA 1315+00.00 LT
EL = 414.41

-L- STA 1315+70.00 RT
EL = 411.15

END SPECIAL CUT DITCH
-L- STA 1315+95.00 LT
EL = 413.27

BEGIN SPECIAL CUT DITCH
-L- STA 1317+50.00 LT
EL = 415.30

-L- STA 1319+00.00 RT
EL = 413.00

-L- STA 1320+50.00 RT
EL = 414.37

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.1801

DRAINAGE AREA	= 11.1	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 8.0	CFS
DESIGN HW ELEVATION	= 417.7	FT
100 YEAR DISCHARGE	= 9.7	CFS
100 YEAR HW ELEVATION	= 418.3	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 17.4	CFS
OVERTOPPING ELEVATION	= 422.3	FT

END PROPOSED GRADE
-L- STA 1329+07.83
EL = 426.59'

PI = 1322+00.00
EL = 420.99'
VC = 150'
K = 394

PI = 1327+00.00
EL = 424.55'
VC = 150'
K = 2879

(+)0.7119%
(+)0.7640%
(+)2.46%
(+)1.79%
(+)1.79%
(+)0.20%

18" RCP

END SPECIAL CUT BASE DITCH
BEGIN SPECIAL CUT DITCH
-L- STA 1325+29 RT
EL = 415.33

BEGIN SPECIAL CUT DITCH
-L- STA 1325+29 LT
EL = 415.75

END SPECIAL CUT DITCH
-L- STA 1327+00 RT
EL = 419.53

END SPECIAL CUT DITCH
-L- STA 1328+00 LT
EL = 420.60

NOTE: FOR -L- PLAN SEE SHEETS 17 & 18

24-JUL-2013 12:08
R:\Roadway Proj\r2501c_rdy_pfl_sht_L.dgn
$$$$USERNAME$$$$

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-DETOUR-

BEGIN PROPOSED GRADE
-DETOUR- STA. 11+26.00
EL = 330.52'

PI = 16+40.00
EL = 336.61'
VC = 400'
K = 143

(+)11.1864%

(+) 3.07%

TEMPORARY 18" CSP

(+)4.54%

(+)3.9908%

BEGIN SPECIAL CUT DITCH
-DETOUR- STA. 15+84 RT
EL = 332.80

-DETOUR- STA. 17+09.08
-Y- STA. 10+96.06

PI =17+50 RT
EL = 337.90

END SPECIAL CUT DITCH
-DETOUR- STA. 18+00 RT
EL = 340.17

RDY
DETOUR_REV
1000.000000
320
100
20
NOGAP

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

380 370 360 350 340 330 320

PI = 24+25.00
EL = 367.94'
VC = 600'
K = 163

(+)10.3100%

(+)3.9908%

-DETOUR- STA. 26+01.75
-Y- STA. 10+98.12

PI = 30+15.00
EL = 369.77'
VC = 200'
K = 213

(+)10.3100%

(-)10.6288%

TEMPORARY 18" CSP

TEMPORARY 18" CSP

BM #5 -DETOUR- STA 34+32.99
123.64' RIGHT ELEV. 368.05'
RR-SPIKE IN BASE OF 18" PINE

END PROPOSED GRADE
-DETOUR- STA. 33+85.38
EL = 367.44'

-DETOUR-

24 25 26 27 28 29 30 31 32 33 34 35

370 360 350 340 330 320

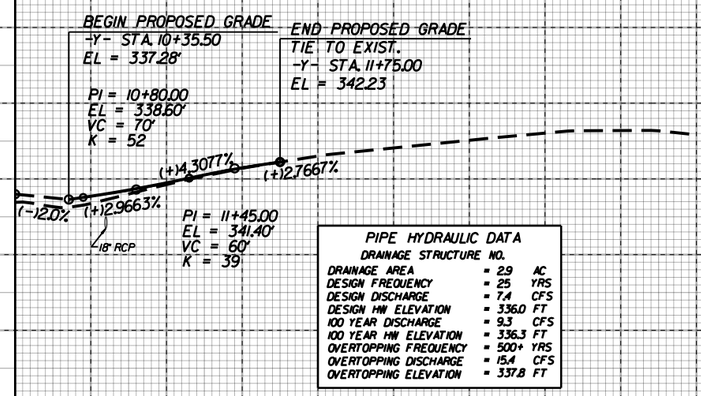
24-JUL-2013 12:12
R:\Roadway Proj\r2501c_rdy_prf1_sht_detour.dgn
$$$$USERNAME$$$$

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y- HAMPTON DR.

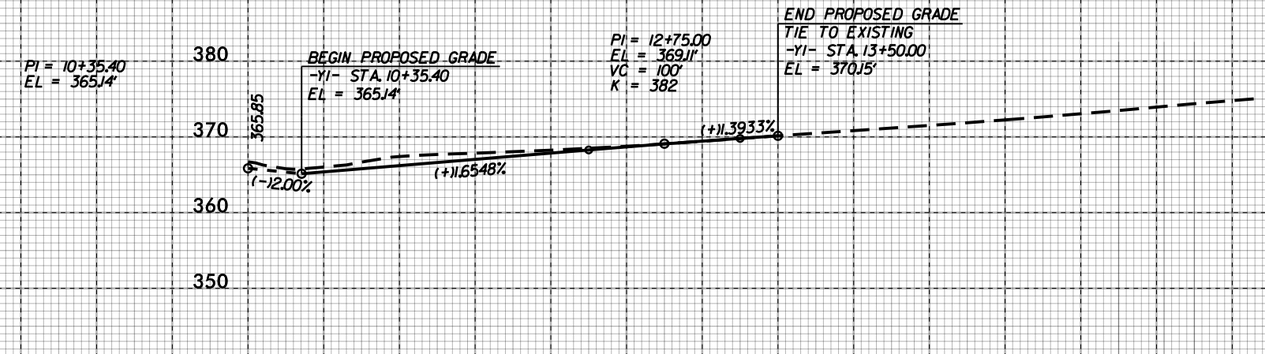


PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 2.9	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 7.4	CFS
DESIGN HW ELEVATION	= 336.0	FT
100 YEAR DISCHARGE	= 9.3	CFS
100 YEAR HW ELEVATION	= 336.3	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 15.4	CFS
OVERTOPPING ELEVATION	= 337.8	FT

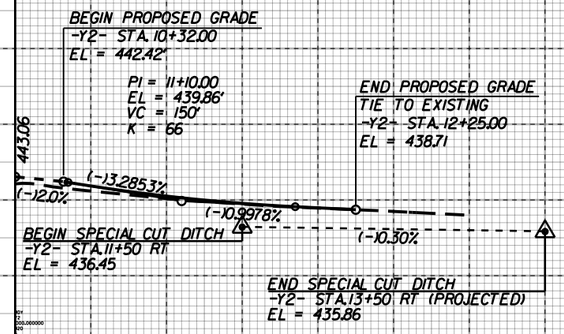
10+00 11+00 12+00 13+00 14+00

-Y1- COGNAC RD.



10+00 11+00 12+00 13+00 14+00 15+00 16+00

-Y2- L G DEWITT RD.



10+00 11+00 12+00

24-JUL-2013 13:20
R:\Roadway Proj\r2501c_rdy_pfl_sht_Y.dgn
$$$$USERNAME$$$$

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2501C	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y3- NC 177

BM #10 -Y3- STA 13+52.88
92.15' RIGHT ELEV. 394.22'
RR-SPIKE IN BASE OF POWER POLE

BEGIN PROPOSED GRADE
-Y3- STA. 10+33.29
EL = 402.07'

401.07

(-)11.5942%

(+)3.00%

PI = 14+70.00
EL = 395.11'
VC = 400'
K = 154

END PROPOSED GRADE
TIE TO EXISTING GRADE
-Y3- STA. 16+70.00
EL = 397.13'

(+)11.0110%

(-)0.12%

(-)0.924%

2 @ 24" RCP

BEGIN SPEC. CUT BASE DITCH
-Y3- STA. 11+00
EL = 395.25'

END SPEC. CUT BASE DITCH
-Y3- STA. 13+50
EL = 392.96'

BEGIN TAIL BASE DITCH
-Y3- STA. 14+60.00 LT
EL = 388.50

END TAIL BASE DITCH
-Y3- STA. 18+67.50 LT
EL = 384.10

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 42.8	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 118.9	CFS
DESIGN HW ELEVATION	= 393.6	FT
100 YEAR DISCHARGE	= 301	CFS
100 YEAR HW ELEVATION	= 394.3	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 60.0	CFS
OVERTOPPING ELEVATION	= 396.5	FT

-Y3- SPUR

TIE -Y3 SPUR- TO -Y3- STA. 12+17.71
-Y3- EL = 399.13' (6' RT.)

BEGIN PROPOSED GRADE
-Y3 SPUR- STA. 5+00.00
EL = 402.08'

PI = 7+00.00
EL = 399.51'
VC = 50'
K = 35

-L-

(-)10.3393%

(-)14.0234%

(-)11.5492%

(-)10.1532%

-Y3-

(-)11.5942%

PI = 5+75.00
EL = 401.83'
VC = 50'
K = 14

PI = 6+30.00
EL = 399.61'
VC = 50'
K = 13

END PROPOSED GRADE
-Y3 SPUR- STA. 7+39.73
EL = 398.89'

TIE -Y3 SPUR- TO -L- STA 173+58.71
-L- EL = 401.12 (32.70' RT.)

-Y4- BEAVERDAM CHURCH RD.

BEGIN PROPOSED GRADE
-Y4- STA. 10+32.00
EL = 404.43'

405.39

(-)13.00%

(+)2.8841%

(+)3.55%

PI = 11+70.00
EL = 408.41'
VC = 200'
K = 61

(-)10.4231%

END PROPOSED GRADE
TIE TO EXISTING
-Y4- STA. 13+00.00
EL = 407.86'

BEGIN SPECIAL CUT DITCH
-Y4- STA. 10+52 RT
EL = 400.60

END SPECIAL CUT DITCH
-Y4- STA. 11+50 RT
EL = 405.04

-RP D-

BEGIN PROPOSED GRADE
-RAMP D- STA. 10+00.00
EL = 398.67'

PI = 11+90.00
EL = 401.67'
VC = 100'
K = 94

END PROPOSED GRADE
-RAMP D- STA. 14+73.97
EL = 403.13'

TIE -RP D- TO -L- STA 1278+38.90
-Y3- EL = 402.11' (34' RT.)

-Y3-

(-)11.5942%

(+)11.5802%

(+)10.5133%

(+)11.23%

(+)10.30%

-L-

(+)10.5133%

SEE -L- PROFILE ON SHEET 25

RDY
RAMPD
1000.000000
380
50
10
NOGAP

TIE -RP D- TO -Y3- STA 12+68.85
-Y3- EL = 398.62' (6' LT.)

BEGIN TAIL BASE DITCH
-RP D- STA. 11+69 (213' RT.)
EL = 393.91'

END TAIL BASE DITCH
BEGIN SPECIAL CUT BASE DITCH
-RP D- STA. 12+50 (59' RT.)
EL = 395.82

SPECIAL CUT BASE DITCH
-RP D- STA. 14+73.91 RT
-L- STA. 1278+38.90 RT
EL = 396.59

24-JUL-2013 13:23
R:\Roadway Proj\r2501c_rdy_pfl_sht_Y.dgn
$$$$USERNAME$$$$