STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

December 23, 2014

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

ATTN: Mr. Eric Alsmeyer
NCDOT Division 5 Project Coordinator

SUBJECT: **Application for Section 404 Nationwide Permits 13, 23, and 33, and Section 401 Water Quality Certification** for Pavement Rehabilitation on I-85 from North of SR 1162 (Dabney Dr.) in Vance County to the Virginia State Line, Vance and Warren Counties, North Carolina. Federal Aid Project No. IMS-085-4(112)214, TIP No. I-0914B.

Debit $570.00 from WBS Element No. 38688.1.1

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes pavement rehabilitation, drainage improvements, guardrail and signing upgrades of I-85, beginning north of the SR 1162 (Dabney Dr.) interchange in Henderson to the Virginia state line. This project includes the is comprised of Section A and B. Section A begins at the south end of the project in Vance County and ends north of SR 1237 (Manson-Drewery Rd.) in Warren County. Section B begins at the end Section A and continues to the state line. Both sections are being permitted together.

Please find enclosed the Pre-construction Notification (PCN), EEP acceptance letter, Stormwater Management Plan, permit drawings, and roadway design plans for the subject project. A revised Programmatic Categorical Exclusion (PCE) was completed for I-0914B in November 2014.

Please note that the EEP acceptance letter attached does not include the full amount of mitigation we are proposing. Since this acceptance letter, NCDOT has requested another 9 linear feet of stream mitigation. EEP cannot get us a new acceptance letter until after January 5, 2015. I hope that you can begin processing this application and the revised acceptance letter will be forwarded to you as soon as it is processed. Thank you.

The proposed let date for this project is February 17, 2015 with a let review date of December 30, 2014.

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 1
1020 Birch Ridge D
Raleigh, NC 27610-432

A copy of this permit application will be posted on the NCDOT Website at https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx, under *Quick Links > Permit Applications*. Copies of the environmental documents are also available at the above website address under *Quick Links > Environmental Documents*. Thank you for your assistance with this project. If you have any questions or need additional information, please contact Amy James at either aejames2@ncdot.gov or (919) 707-6129.

Sincerely,

Kenneth A Neely for

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

cc: NCDOT Permit Application Standard Distribution List

Office Use Only:
Corps action ID no. _____
DWQ project no. _____
Form Version 1.4 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: 13 23 33 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:	I-85 Pavement Rehabilitation from north of SR 1162 to the VA state line
2b. County:	Vance and Warren
2c. Nearest municipality / town:	Henderson
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	I-0914B

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) 707-6129
3g. Fax no.:	(919) 212-5785
3h. Email address:	aejames2@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: 36.422320 (DD.DDDDDD) Longitude: - 78.306641 (-DD.DDDDDD)
1c. Property size:	256 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Nutbush Creek, Indian Creek, Anderson Swamp Creek, Mill Creek, Smith Creek, Cabin Branch Creek, Terrapin Creek, Blue Mud Creek
2b. Water Quality Classification of nearest receiving water:	C (Nutbush, Indian, Smith, Cabin Branch, Terrapin & Blue Mud Creeks); WS-III, B (Anderson Swamp Creek); B (Mill Creek)
2c. River basin:	Roanoke
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: I-85 is classified as Interstate based on the North Carolina Functional Classification System. The project area consists of maintained NCDOT right-of-way along I-85 and is primarily composed of maintained fill slopes, paved shoulders and interchanges, and forested edges adjacent to the roadway. Land use within the project vicinity ranges from more commercial, industrial, and residential development at the southern end of the project to more agricultural and forest land uses towards the northern end of the project.	
3b. List the total estimated acreage of all existing wetlands on the property: 2.25 acres	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 10,800 linear ft.	
3d. Explain the purpose of the proposed project: The purpose of this project is to address the deteriorating pavement conditions (infrastructure maintenance), improve operations and safety, and bridge rehabilitation and/or replacement on I-85 in Vance and Warren Counties.; however, a secondary purpose is the replacement or improvement of drainage features and structures where needed along the project corridor.	
3e. Describe the overall project in detail, including the type of equipment to be used: Construction activities associated with this project include pavement rehabilitation, rehabilitation and/or replacement of project drainage system, sediment and debris removal from culverts and streams, temporary stream dewatering, and stream bank stabilization, replace/upgrade guardrail and signing upgrades. All practical alternatives will be utilized to minimize the project footprint associated with the pavement reconstruction project. Standard road building equipment such as trucks, dozers, backhoes, 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: Sent all updated information for a preliminary JD to Eric Alsmeyer on 11/10/2014.	☒ 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): Erica McLamb and Amy James	Agency/Consultant Company: NCDOT Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.	

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			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 2 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 3 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 4 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 5 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 6 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	0.03 Permanent 0.07 Temporary

2h. Comments: See the attached wetland impact table for site-by-site impacts.

3. Stream Impacts

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

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 2 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 3 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 4 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 5 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 6 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
					3h. **Total stream and tributary impacts**	892 Perm 427 Temp

3i. Comments: See the attached stream impact table for site-by-site impacts.

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)
Site 25 (BA) ☐ P ☒ T	Pond 1	Temporary Fill	Pond	0.02
Site 25 (BA) ☒ P ☐ T	Pond 1	Permanent Fill	Pond	<0.01
O3 ☐ P ☐ T				
O4 ☐ P ☐ T				
			4f. Total open water impacts	<0.01 Permanent 0.02 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:

D. Impact Justification and Mitigation		
1. Avoidance and Minimization		
1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project. Permanent jurisdictional impacts to wetlands have been minimized to less than 0.10 acre; permanent jurisdictional stream impacts have been minimized to those associated with the maintenance and protection of existing drainage structures and to areas requiring bank stabilization; sediment removal within the culverts and streams has been limited only to the areas required to achieve positive drainage; and any new outlets of stormwater have been located away from jurisdictional resources to the maximum extent practical and will discharge into appropriately sized rip rap pads. For additional minimization measures see Stormwater Management Plans. Impacts are less than were anticipated in the PCE.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. NCDOT's Best Management Practices (BMP) for Construction and Maintenance Activities and BMPs for the Protection of Surface Waters will be used to reduce stormwater impacts to receiving waters and minimize erosion and runoff from the construction sites. Where feasible, all equipment and material staging areas will be located outside of wetlands and streams and will be located within uplands.		
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:	272 linear feet see comments below for ratios	
4c. If using stream mitigation, stream temperature:	☒ warm ☐ cool ☐ cold	
4d. Buffer mitigation requested (DWQ only):	square feet	
4e. Riparian wetland mitigation requested:	acres	
4f. Non-riparian wetland mitigation requested:	acres	
4g. Coastal (tidal) wetland mitigation requested:	acres	

4h. Comments: NCDOT proposes mitigation on all permanent fill to perennial streams. No mitigation is proposed for impacts due to bank stabilization or temporary stream impacts. The proposed mitigation ratio is 2:1 for those streams scoring 42 and above on the USACE stream quality form and 1:1 for those scoring less than a 42 (stream quality forms were sent to the USACE on 11/10/2014). Therefore, NCDOT proposes 2:1 mitigation on 151 lf of stream impacts and 1:1 mitigation on 109 lf of stream impacts. There are no stream forms or SAQ and SAG (Sites 4 and 7B on Section BB) but we are proposing 2:1 mitigation. Because impacts to each site are less than 150 feet no mitigation is required by NCDWR.

No mitigation is proposed for wetlands due to impacts being <0.1

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 this pavement rehabilitation project, it 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, ind icate the USFWS Field Office you have contacted.	☐ Raleigh ☐ Asheville
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? USFWS county list; habitat assessment and field surveys in 2013.	
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	

Richard W. Hancock, P.E. Applicant/Agent's Printed Name	Kenneth M Mills for Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	12/23/14 Date

Stream Impact Table

Site Number	TIP #	3a. Stream Impact 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)	USACE Mitigation Required	Proposed USACE mitigation ratios
HUC 03010102										
1	I-0914BA	T	Temporary Fill	Nutbush Creek	PER	Corps - 404	6	17	0	
1	I-0914BA	P	Bank Stabilization	Nutbush Creek	PER	Corps - 404	6	7	0	
2	I-0914BA	T	Temporary Fill	UT Nutbush Creek	INT	Corps - 404	3	5	0	
2	I-0914BA	P	Permanent Fill	UT Nutbush Creek	INT	Corps - 404	3	10	0	
3	I-0914BA	T	Temporary Fill	Nutbush Creek	PER	Corps - 404	10	10	0	
3	I-0914BA	P	Permanent Fill	Nutbush Creek	PER	Corps - 404	10	12	12	2:1
3	I-0914BA	P	Bank Stabilization	Nutbush Creek	PER	Corps - 404	10	12	0	
4	I-0914BA	T	Temporary Fill	UT Nutbush Creek	INT	Corps - 404	4	5	0	
4	I-0914BA	P	Permanent Fill	UT Nutbush Creek	INT	Corps - 404	4	8	0	
5	I-0914BA	T	Temporary Fill	UT Nutbush Creek	INT	Corps - 404	6	5	0	
5	I-0914BA	P	Permanent Fill	UT Nutbush Creek	INT	Corps - 404	6	13	0	
6	I-0914BA	T	Temporary Fill	UT Nutbush Creek	INT	Corps - 404	3	5	0	
6	I-0914BA	P	Permanent Fill	UT Nutbush Creek	INT	Corps - 404	3	12	0	
7	I-0914BA	P	Stream Relocation	UT Nutbush Creek	INT	Corps - 404	3	39	0	
8	I-0914BA	T	Temporary Fill	UT Nutbush Creek	PER	Corps - 404	10	21	0	
8	I-0914BA	P	Permanent Fill	UT Nutbush Creek	PER	Corps - 404	10	45	45	2:1
9	I-0914BA	P	Stream Relocation	UT Nutbush Creek	INT	Corps - 404	3	77	0	
10	I-0914BA	T	Temporary Fill	UT Nutbush Creek	PER	Corps - 404	6	5	0	

Site Number	TIP #	3a. Stream Impact 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)	USACE Mitigation Required	Proposed USACE mitigation ratios
10	I-0914BA	P	Bank Stabilization	UT Nutbush Creek	PER	Corps - 404	6	13	0	
11	I-0914BA	T	Temporary Fill	UT Nutbush Creek	INT	Corps - 404	6	5	0	
11	I-0914BA	P	Bank Stabilization	UT Nutbush Creek	INT	Corps - 404	6	15	0	
12	I-0914BA	T	Temporary Fill	UT Nutbush Creek	PER	Corps - 404	8	10	0	
12	I-0914BA	P	Bank Stabilization	UT Nutbush Creek	PER	Corps - 404	8	10	0	
13	I-0914BA	T	Dewatering/ Temporary Fill	UT Nutbush Creek	PER	Corps - 404	3	10	0	
13	I-0914BA	P	Bank Stabilization	UT Nutbush Creek	PER	Corps - 404	3	10	0	
14	I-0914BA	T	Dewatering/ Temporary Fill	UT Indian Creek	PER	Corps - 404	5	10	0	
14	I-0914BA	P	Bank Stabilization	UT Indian Creek	PER	Corps - 404	5	20	0	
15	I-0914BA	T	Temporary Fill	UT Indian Creek	PER	Corps - 404	4	14	0	
15	I-0914BA	P	Bank Stabilization	UT Indian Creek	PER	Corps - 404	4	40	0	
15A	I-0914BA	T	Temporary Fill	UT Indian Creek	INT	Corps - 404	3	10	0	
15A	I-0914BA	P	Bank Stabilization	UT Indian Creek	INT	Corps - 404	3	9	0	
16	I-0914BA	T	Dewatering	UT Indian Creek	PER	Corps - 404	5	10	0	
16	I-0914BA	P	Bank Stabilization	UT Indian Creek	PER	Corps - 404	5	5	0	
17	I-0914BA	T	Temporary Fill	UT Anderson Swamp Creek	INT	Corps - 404	5	5	0	
17	I-0914BA	P	Permanent Fill	UT Anderson Swamp Creek	INT	Corps - 404	5	5	0	
18	I-0914BA	P	Permanent Fill	UT Anderson Swamp Creek	PER	Corps - 404	3	61	61	1:1
19	I-0914BA	T	Temporary Fill	UT Anderson Swamp Creek	PER	Corps - 404	8	19	0	

Site Number	TIP #	3a. Stream Impact 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)	USACE Mitigation Required	Proposed USACE mitigation ratios
19	I-0914BA	P	Permanent Fill	UT Anderson Swamp Creek	PER	Corps - 404	8	28	28	1:1
19	I-0914BA	P	Bank Stabilization	UT Anderson Swamp Creek	PER	Corps - 404	8	36	0	
20	I-0914BA	T	Temporary Fill	UT Anderson Swamp Creek	INT	Corps - 404	2	5	0	
20	I-0914BA	P	Permanent Fill	UT Anderson Swamp Creek	INT	Corps - 404	2	22	0	
21	I-0914BA	T	Temporary Fill	UT Anderson Swamp Creek	INT	Corps - 404	2	10	0	
21	I-0914BA	P	Bank Stabilization	UT Anderson Swamp Creek	INT	Corps - 404	2	10	0	
23	I-0914BA	T	Temporary Fill	UT Anderson Swamp Creek	PER	Corps - 404	3	10	0	
23	I-0914BA	P	Permanent Fill	UT Anderson Swamp Creek	PER	Corps - 404	3	26	26	1:1
24	I-0914BA	T	Temporary Fill	UT Anderson Swamp Creek	PER	Corps - 404	3	10	0	
24	I-0914BA	P	Bank Stabilization	UT Anderson Swamp Creek	PER	Corps - 404	3	12	0	
26	I-0914BA	T	Dewatering	UT Anderson Swamp Creek	INT	Corps - 404	3	4	0	
27	I-0914BA	T	Temporary Fill	UT Anderson Swamp Creek	INT	Corps - 404	5	10	0	
27	I-0914BA	P	Permanent Fill	UT Anderson Swamp Creek	INT	Corps - 404	5	11	0	
27	I-0914BA	P	Bank Stabilization	UT Anderson Swamp Creek	INT	Corps - 404	5	10	0	
28	I-0914BA	T	Temporary Fill	UT Anderson Swamp Creek	PER	Corps - 404	4	20	0	
28	I-0914BA	P	Bank Stabilization	UT Anderson Swamp Creek	PER	Corps - 404	4	39	0	

Site Number	TIP #	3a. Stream Impact 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)	USACE Mitigation Required	Proposed USACE mitigation ratios
29	I-0914BA	T	Temporary Fill	UT Mill Creek	PER	Corps - 404	7	10	0	
29	I-0914BA	P	Permanent Fill	UT Mill Creek	PER	Corps - 404	7	10	10	2:1
29	I-0914BA	P	Bank Stabilization	UT Mill Creek	PER	Corps - 404	7	12	0	
31	I-0914BA	T	Dewatering/ Temporary Fill	UT Mill Creek	PER	Corps - 404	3	10	0	
31	I-0914BA	P	Bank Stabilization	UT Mill Creek	PER	Corps - 404	3	11	0	
33	I-0914BA	T	Temporary Fill	UT Mill Creek	PER	Corps - 404	10	32	0	
33	I-0914BA	P	Bank Stabilization	UT Mill Creek	PER	Corps - 404	10	57	0	
35	I-0914BA	T	Temporary Fill	UT Mill Creek	PER	Corps - 404	10	37	0	
35	I-0914BA	P	Permanent Fill	UT Mill Creek	PER	Corps - 404	10	21	21	2:1
36	I-0914BA	T	Temporary Fill	UT Mill Creek	PER	Corps - 404	3	5	0	
36	I-0914BA	P	Permanent Fill	UT Mill Creek	PER	Corps - 404	3	6	6	1:1
37	I-0914BA	T	Temporary Fill	UT Mill Creek	PER	Corps - 404	4	5	0	
37	I-0914BA	P	Permanent Fill	UT Mill Creek	PER	Corps - 404	4	21	21	2:1
1	I-0914BB	T	Temporary Fill	UT Mill Creek	INT	Corps - 404	3	18	0	
1	I-0914BB	P	Permanent Fill	UT Mill Creek	INT	Corps - 404	3	17	0	
Total Mitigation HUC 03010102									**230**	**2:1= 109 1:1= 121**
HUC 03010106										
2	I-0914BB	T	Temporary Fill	UT Smith Creek	PER	Corps - 404	3	10	0	
2	I-0914BB	P	Bank Stabilization	UT Smith Creek	PER	Corps - 404	3	19	0	

Site Number	TIP #	3a. Stream Impact 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)	USACE Mitigation Required	Proposed USACE mitigation ratios
3	I-0914BB	T	Temporary Fill	UT Cabin Branch	PER	Corps - 404	3	11	0	
3	I-0914BB	P	Bank Stabilization	UT Cabin Branch	PER	Corps - 404	3	16	0	
4	I-0914BB	P	Permanent Fill	UT Terrapin Creek	PER	Corps - 404	8	9	9	2:1
5	I-0914BB	T	Temporary Fill	UT Terrapin Creek	PER	Corps - 404	3	15	0	
5	I-0914BB	P	Bank Stabilization	UT Terrapin Creek	PER	Corps - 404	3	17	0	
6	I-0914BB	T	Temporary Fill	UT Blue Mud Creek	PER	Corps - 404	1	11	0	
6	I-0914BB	P	Bank Stabilization	UT Blue Mud Creek	PER	Corps - 404	1	15	0	
7A	I-0914BB	T	Temporary Fill	UT Blue Mud Creek	PER	Corps - 404	4	11	0	
7A	I-0914BB	P	Bank Stabilization	UT Blue Mud Creek	PER	Corps - 404	4	11	0	
7B	I-0914BB	T	Temporary Fill	UT Blue Mud Creek	PER	Corps - 404	4	11	0	
7B	I-0914BB	P	Permanent Fill	UT Blue Mud Creek	PER	Corps - 404	4	15	15	2:1
8	I-0914BB	T	Temporary Fill	UT Blue Mud Creek	PER	Corps - 404	4	6	0	
8	I-0914BB	P	Permanent Fill	UT Blue Mud Creek	PER	Corps - 404	4	18	18	2:1
Total Mitigation HUC 03010106									**42**	**2:1= 42**
3h. **Total Stream and Tributary Impacts**							**Temp: 427** **Perm: 892**			**2:1 = 151** **1:1 = 121**

Wetland Impact Table

Site Number	TIP #	2a. Wetland Impact Permanent (P) or Temporary (T)	2b. Type of Impact	2c. Type of Wetland	2d. Forested (Yes or No)	2e. Type of jurisdiction (Corps or DWR)	2f. Area of Impact (acres)
13	I-0914BA	P	Permanent Fill	Headwater Wetland	Y	Corps	<0.01
13	I-0914BA	P	Mechanized Clearing	Headwater Wetland	Y	Corps	<0.01
13	I-0914BA	P	Excavation	Headwater Wetland	Y	Corps	<0.01
22	I-0914BA	P	Permanent Fill	Bottomland Hardwood Forest	Y	Corps	<0.01
22	I-0914BA	P	Mechanized Clearing	Bottomland Hardwood Forest	Y	Corps	0.01
30	I-0914BA	T	Temporary Fill	Bottomland Hardwood Forest	Y	Corps	<0.01
32	I-0914BA	T	Temporary Fill	Bottomland Hardwood Forest	Y	Corps	0.06
33	I-0914BA	P	Permanent Fill	Bottomland Hardwood Forest	Y	Corps	<0.01
33	I-0914BA	P	Mechanized Clearing	Bottomland Hardwood Forest	Y	Corps	<0.01
34	I-0914BA	P	Mechanized Clearing	Bottomland Hardwood Forest	Y	Corps	<0.01
1	I-0914BB	P	Mechanized Clearing	Headwater Wetland	Y	Corps	0.01
						Temp.	0.07
					2g: Total Wetland Impacts	Perm.	0.03

NCDENR
North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Michael Ellison, Director
Ecosystem Enhancement Program

John E. Skvarla, III
Secretary

December 18, 2014

Mr. Richard W. Hancock, P.E.
Manager, 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:

I-0914B, I-85 Improvements from US 158 (Milepost 213.5) in Vance County to Virginia State Line in Warren County, Vance and Warren Counties

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on December 17, 2014, the impacts are located in CU 03010102 and 03010106 of the Roanoke River basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Stream & Wetlands	River Basin	CU Location	Eco-Region	Stream			Wetlands		
				Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh
Impacts	Roanoke	03010102	CP	0	0	230.0	0	0	0
Impacts	Roanoke	03010106	CP	0	0	33.0	0	0	0

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

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

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

Sincerely,

James B. Stanfill
EEP Asset Management Supervisor

cc: Mr. Eric Alsmeyer, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, Division of Water Resources, Wetlands/401 Unit
File: I-0914B

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: I-0914BA **County(ies):** Vance Warren

General Project Information

Project No.:	I-0914BA	**Project Type:**	Roadway Rehabilitation	**Date:**	10/13/2014
NCDOT Contact:	Bill Zerman	**Contractor / Designer:**	HDR Engineering - James Rice, PE		
Address:	1591 Mail Service Center Raleigh, NC 27699 obab	**Address:**	3733 National Dr Suite 207 Raleigh, NC 27612		
Phone:	(919) 707-6755	**Phone:**	(919) 232-6621		
Email:	bzerman@ncdot.gov	**Email:**	james.rice@hdrinc.com		
City/Town:	Henderson	**County(ies):**	Vance	Warren	
River Basin(s):	Roanoke	**CAMA County?**	No	No	
Primary Receiving Water:	Nutbush Creek	**NCDWQ Stream Index No.:**	23-8-(1)		
NCDWQ Surface Water Classification for Primary Receiving Water	**Primary:**	Class C			
	Supplemental:				
Other Stream Classification:	None				
303(d) Impairments:	biological impairment				
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	11.232 miles	**Surrounding Land Use:**	Urban/ Business

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	133.78 ac.	120.32 ac.
Typical Cross Section Description:	Proposed roadway - 4 lane divided highway with 12' lanes and 10' paved outside shoulders and 4' median paved shoulders. Grass median varies from 28' to 38'.	Existing roadway - 4 lane divided highway with 11.5' lanes and 10' paved outside shoulders and 4' paved inside shoulders. Grass median varies from 36' to 46'.
Average Daily Traffic (veh/hr/day):	Design/Future: 57,900 (2035)	Existing: 37,800 (2014)

General Project Narrative:

Project I-0914BA rehabilitates I-85 from North of SR 1162 in Vance County to North of SR 1237 in Warren County to include roadway, hydraulics, structures, signing and traffic control.

References

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
5	63+06 -NBL- 63+15 -NBL-	Stream	Perennial	Nutbush Creek	S1	23-8-(1)	C	biological impairment	Stabilization	N/A	N/A
5	66+20 -NBL- 66+30 -NBL-	Stream	Intermittent	Trib to Nutbush Creek	S2	23-8-(1)	C	biological impairment	Stabilization	N/A	N/A
7	100+50 -SBL- 100+87 -SBL-	Stream	Perennial	Nutbush Creek	Nutbush Creek	23-8-(1)	C	biological impairment	Stabilization	N/A	N/A
8	111+31 -NBL- 111+45 -NBL-	Stream	Intermittent	Trib to Nutbush Creek	S3	23-8-(1)	C	biological impairment	Stabilization	N/A	N/A
9A	117+86 -NBL- 118+04 -NBL-	Stream	Intermittent	Trib to Nutbush Creek	SC	23-8-(1)	C	biological impairment	Fill	N/A	N/A
9B	142+44 -SBL- 142+60 -SBL-	Stream	Intermittent	Trib to Nutbush Creek	S9	23-8-(1)	C	biological impairment	Fill	N/A	N/A
9C	142+93 -NBL- 143+31 -NBL-	Stream	Intermittent	Trib to Nutbush Creek	SE	23-8-(1)	C	biological impairment	Relocation	N/A	N/A
9C	143+31 -NBL- 143+35 -NBL-	Stream	Perennial	Trib to Nutbush Creek	SD	23-8-(1)	C	biological impairment	Fill	N/A	N/A
9C	143+35 -NBL- 144+10 -NBL-	Stream	Intermittent	Trib to Nutbush Creek	SF	23-8-(1)	C	biological impairment	Relocation	N/A	N/A
10	153+29 -NBL- 153+42 -NBL-	Stream	Perennial	Trib to Nutbush Creek	SG	23-8-(1)	C	biological impairment	Stabilization	N/A	N/A
12	183+18 -NBL- 183+29 -NBL-	Stream	Intermittent	Trib to Nutbush Creek	SJ	23-8-(1)	C	biological impairment	Stabilization	N/A	N/A
14	203+30 -NBL- 203+51 -NBL-	Stream	Perennial	Trib to Nutbush Creek	SL	23-8-(1)	C	biological impairment	Stabilization	N/A	N/A
15	215+09 -NBL- 215+18 -NBL-	Stream	Intermittent	Trib to Nutbush Creek	SM	23-8-(1)	C	biological impairment	Stabilization	N/A	N/A
15	215+09 -NBL- 215+18 -NBL-	Wetland	Headwater Wetland	Trib to Nutbush Creek	WB	23-8-(1)	C	biological impairment	Excavation	N/A	N/A
16	229+71 -NBL- 229+87 -NBL-	Stream	Perennial	Trib to Nutbush Creek	SN	23-8-(1)	C	biological impairment	Stabilization	N/A	N/A
16	241+07 -NBL- 241+90 -NBL-	Stream	Perennial	Trib to Indian Creek	SO	23-8-4-(1)	C	None	Stabilization	N/A	N/A
16	241+17 -NBL- 241+35 -NBL-	Stream	Intermittent	Trib to Indian Creek	SR	23-8-4-(1)	C	None	Stabilization	N/A	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.

Description of Minimization of Impacts or Mitigation

-Used sides slopes of 2:1 or steeper to avoid/minimize impacts to jursidictional features.

References

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
17	249+06 -NBL- 249+10 -NBL-	Stream	Perennial	Trib to Indian Creek	SS	23-8-4-(1)	C	None	Excavation	N/A	N/A
19	275+45 -NBL- 275+55 -NBL-	Stream	Intermittent	Trib to Anderson Swamp Creek	SU	23-8-6-(1)	WS-III, B	None	Fill	N/A	N/A
19	275+42 -SBL- 276+04 -SBL-	Stream	Perennial	Trib to Anderson Swamp Creek	SBH	23-8-6-(1)	WS-III, B	None	Relocation	N/A	N/A
19	277+01 -NBL- 277+87 -NBL-	Stream	Perennial	Trib to Anderson Swamp Creek	ST	23-8-6-(1)	WS-III, B	None	Fill	N/A	N/A
21A	28+68 -Y5SBL- 28+75 -Y5SBL-	Stream	Intermittent	Trib to Anderson Swamp Creek	SX	23-8-6-(1)	WS-III, B	None	Fill	N/A	N/A
21A	306+93 -NBL- 307+07 -NBL-	Stream	Intermittent	Trib to Anderson Swamp Creek	SX	23-8-6-(1)	WS-III, B	None	Stabilization	N/A	N/A
21B	307+96 -SBL- 309+43 -SBL-	Wetland	Bottomland Hardwood	Trib to Anderson Swamp Creek	WW / WV	23-8-6-(1)	WS-III, B	None	Fill	N/A	N/A
22	327+85 -SBL- 328+05 -SBL-	Stream	Perennial	Trib to Anderson Swamp Creek	SBG	23-8-6-(1)	WS-III, B	None	Fill	N/A	N/A
24	355+26 -SBL- 355+32 -SBL-	Stream	Perennial	Trib to Anderson Swamp Creek	SBF	23-8-6-(1)	WS-III, B	None	Stabilization	N/A	N/A
28A	434+67 -SBL- 435+62 -SBL-	Open Water	Pond	Trib to Anderson Swamp Creek	Pond 1	23-8-6-(1)	WS-III, B	None	Excavation	N/A	N/A
28B	436+18 -NBL- 436+21 -NBL-	Stream	Intermittent	Trib to Anderson Swamp Creek	SEE	23-8-6-(1)	WS-III, B	None	Excavation	N/A	N/A
29 / 30	451+95 -NBL- 452+13 -NBL-	Stream	Intermittent	Trib to Anderson Swamp Creek	SGG	23-8-6-(1)	WS-III, B	None	Stabilization	N/A	N/A
30	463+81 -NBL- 464+08 -NBL-	Stream	Perennial	Trib to Anderson Swamp Creek	SHH	23-8-6-(1)	WS-III, B	None	Stabilization	N/A	N/A
33	502+21 -SBL- 506+22 -NBL-	Stream	Perennial	Trib to Anderson Swamp Creek	SII	23-8-6-(1)	WS-III, B	None	Excavation	N/A	N/A
34	519+74 -NBL- 519+85 -NBL-	Stream	Perennial	Trib to Mill Creek	SKK	23-8-6-3	B	None	Fill	N/A	N/A
34	520+19 -NBL- 520+56 -NBL-	Wetland	Bottomland Hardwood	Trib to Mill Creek	WF	23-8-6-3	B	None	Clearing	N/A	N/A
34	520+86 -NBL- 520+97 -NBL-	Stream	Perennial	Trib to Mill Creek	SKK	23-8-6-3	B	None	Stabilization	N/A	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.

Description of Minimization of Impacts or Mitigation

-Used sides slopes of 2:1 or steeper to avoid/minimize impacts to jursidictional features.

References

Project/TIP No.: I-0914BA **County(ies):** Vance Warren

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
34 / 35	521+44 -NBL- 523+58 -NBL-	Wetland	Bottomland Hardwood	Trib to Mill Creek	WG	23-8-6-3	B	None	Clearing	N/A	N/A
35	523+88 -NBL- 525+59 -NBL-	Wetland	Bottomland Hardwood	Trib to Mill Creek	WH	23-8-6-3	B	None	Clearing	N/A	N/A
35	523+76 -NBL- 525+07 -NBL-	Stream	Perennial	Trib to Mill Creek	SJJ	23-8-6-3	B	None	Clearing	N/A	N/A
36	544+93 -NBL- 546+05 -NBL-	Stream	Perennial	Trib to Mill Creek	SNN	23-8-6-3	B	None	Fill	N/A	N/A
40	595+75 -SBL- 595+78 -SBL-	Stream	Perennial	Trib to Mill Creek	SAZ	23-8-6-3	B	None	Fill	N/A	N/A
40	599+39 -SBL- 599+64 -SBL-	Stream	Perennial	Trib to Mill Creek	SBA	23-8-6-3	B	None	Fill	N/A	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.

Description of Minimization of Impacts or Mitigation

-Used sides slopes of 2:1 or steeper to avoid/minimize impacts to jursidictional features.

References

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: I-0914BA **County(ies):** Vance Warren **Page** 5 **of** 5

Preformed Scour Holes and Energy Dissipators

Sheet No.	Station	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe/Structure Dimensions (in)	Q10 (cfs)	V10 (fps)
31	472+50 -NBL- LT	Riprap Energy Dissipator Basin	Class II	10.96	Pipe	24	6.0	1.4

☑ YES ☐ NO Have minimum design criteria, as presented in the NCDOT Best Management Practices Toolbox (2008), NCDOT Standard Details, or FHWA HEC-14 (July 2006), been met and verified, as applicable? If No, provide further explanantion of why design criteria was not met.

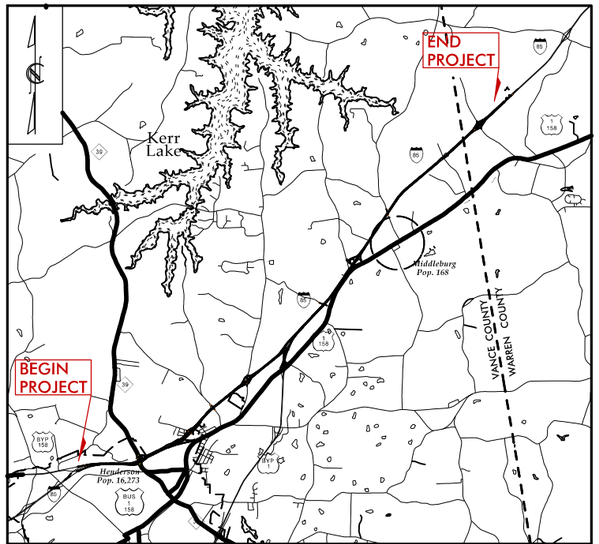
Additional Comments

* Refer to the NCDOT Best Management Practices Toolbox, Version 1 (March 2008), NCDOT Standard Details, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.

09/08/99

TIP PROJECT: I-0914BA

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



VICINITY MAP
(NOT TO SCALE)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

VANCE–WARREN COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I–0914BA	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
WBS 38688	IMS–085–4(116)215	

LOCATION: I–85 FROM NORTH OF SR 1162 (DABNEY DRIVE) IN VANCE COUNTY TO NORTH OF SR 1237 (MANSON–DREWERY ROAD) IN WARREN COUNTY

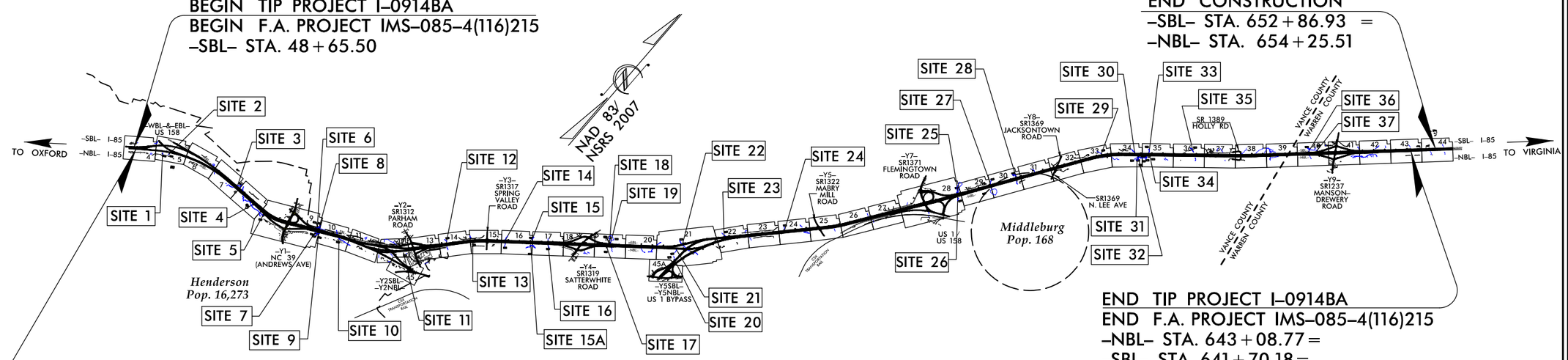
TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL, CABLE GUIDERAIL, STRUCTURES, ITS

I–0914BA
WETLAND AND STREAM IMPACTS
SITE MAP
11–21–2014

PERMIT DRAWINGS
SHEET 1 OF 68

BEGIN TIP PROJECT I–0914BA
BEGIN F.A. PROJECT IMS–085–4(116)215
–SBL– STA. 48 + 65.50

END CONSTRUCTION
–SBL– STA. 652 + 86.93 =
–NBL– STA. 654 + 25.51



BEGIN CONSTRUCTION
–NBL– STA. 51 + 16.09

END TIP PROJECT I–0914BA
END F.A. PROJECT IMS–085–4(116)215
–NBL– STA. 643 + 08.77 =
–SBL– STA. 641 + 70.18 =
BEGIN TIP PROJECT I–0914BB
–L– STA. 39 + 00.00

THIS IS A CONTROLLED–ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

PROJECT PREPARED BY:
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2014 = 37,800
ADT 2035 = 57,900
DHV = 08 %
D = 55 %
T = 20 % *
V = 70 MPH
* TTST = 17% DUAL 3%
FUNC CLASS = INTERSTATE
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I–0914BA = 11.171 MILES
LENGTH STRUCTURE TIP PROJECT I–0914BA = 0.061 MILES
TOTAL LENGTH TIP PROJECT I–0914BA = 11.232 MILES

TOTAL PROJECT LENGTH BASED ON CENTERLINE –SBL– STATIONS.
STRUCTURE LENGTH BASED ON CENTERLINE –NBL– STATIONS.

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 21, 2013

LETTING DATE:
FEBRUARY 17, 2015

PAUL A. MEEHAN, P.E.
PROJECT ENGINEER

DOMINIC M. WAINWRIGHT, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

11/21/2014
7:44:49 AM
...\0914BA_HYD_PRM_TSH.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2D-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

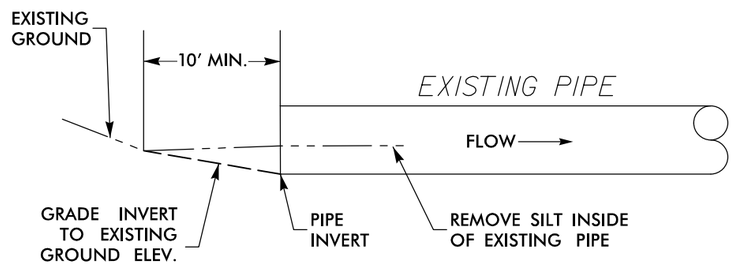
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 2 OF 68

PIPE CLEAN OUT DETAIL INLET END



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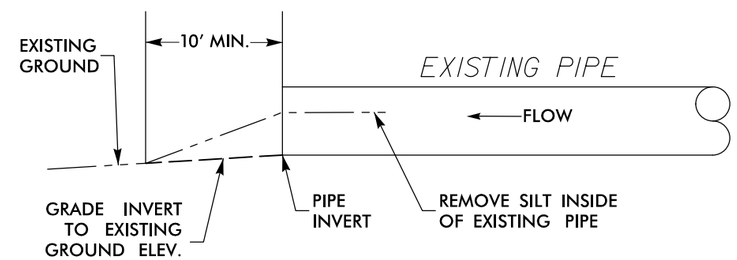
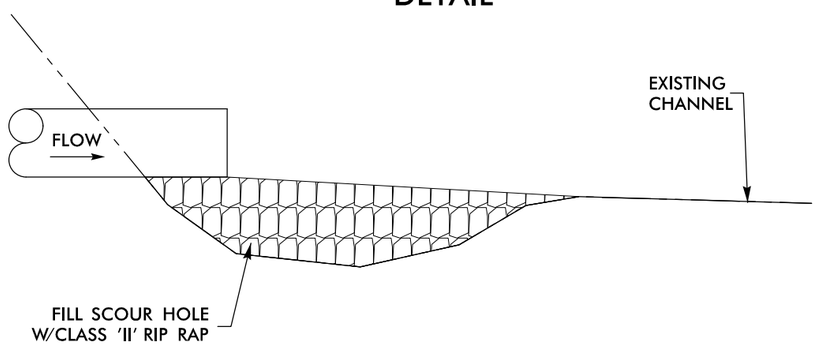
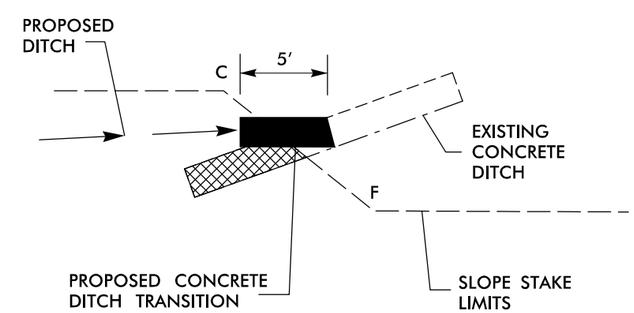


FILL IN SCOUR HOLE DETAIL

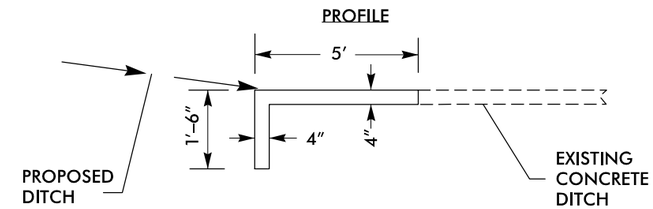


CONCRETE PAD DITCH TRANSITION

PLAN VIEW



PROFILE



* WIDTH AND BASE DIMENSIONS OF PROPOSED CONCRETE DITCH TRANSITION SHALL MATCH THE WIDTH AND BASE DIMENSIONS OF THE EXISTING CONCRETE DITCH.

6/2/99
10/3/2014
I-0914BA_RDY_TYP_DRN_DETAIL_PRM_2D3.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 3 OF 68

LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007

DETAIL T
BEDSCOUR HOLE AND BANK STABILIZATION
(Not to Scale)

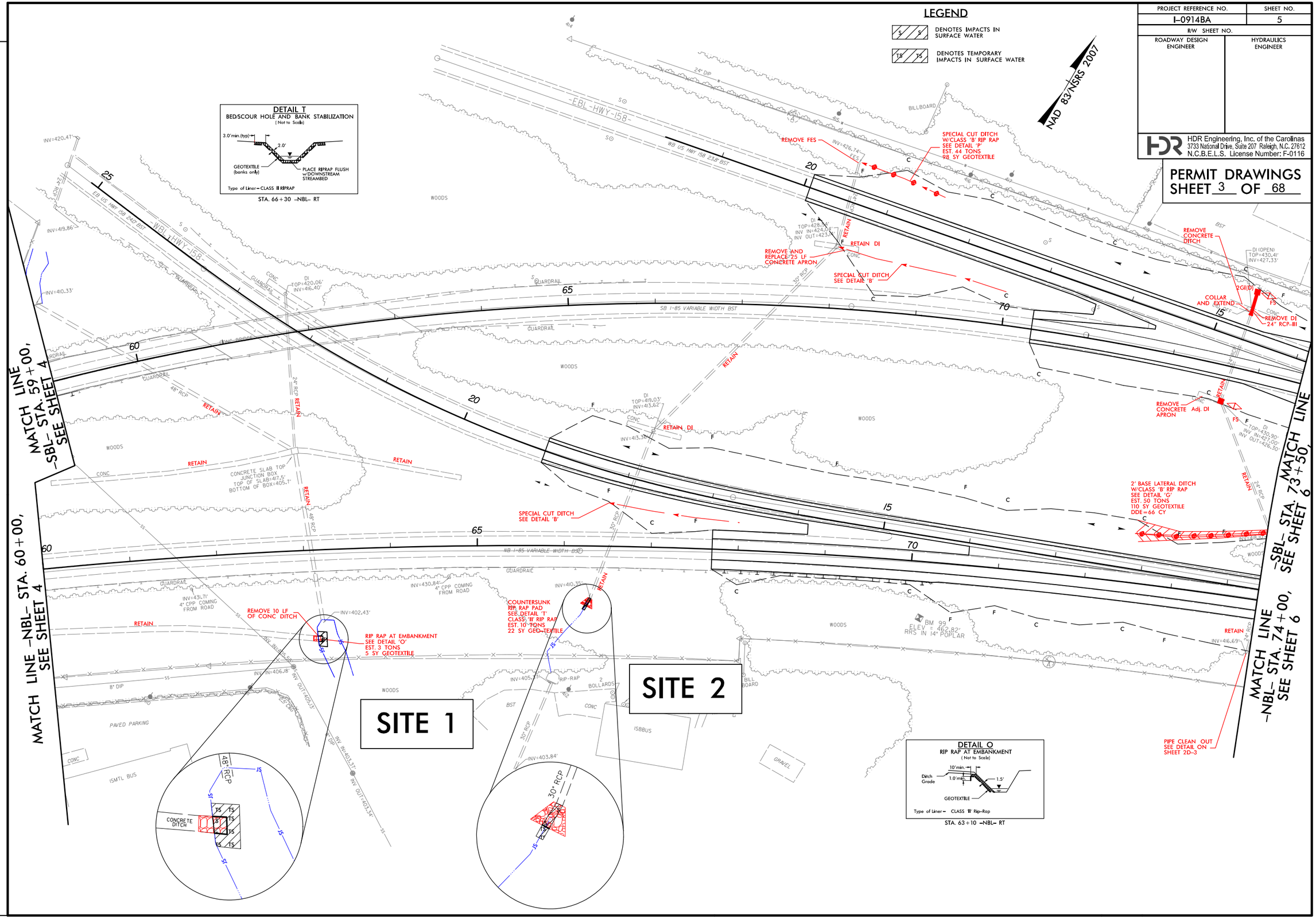
3.0' min. (typ) — 2.0'
GEOTEXTILE (banks only)
PLACE RIPRAP FLUSH w/DOWNSTREAM STREAMBED
Type of Liner = CLASS II RIPRAP

STA. 66+30 -NBL- RT

DETAIL O
RIP RAP AT EMBANKMENT
(Not to Scale)

10' min.
Ditch Grade
1.0' min.
1.5'
GEOTEXTILE
Type of Liner = CLASS II Rip-Rap

STA. 63+10 -NBL- RT



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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

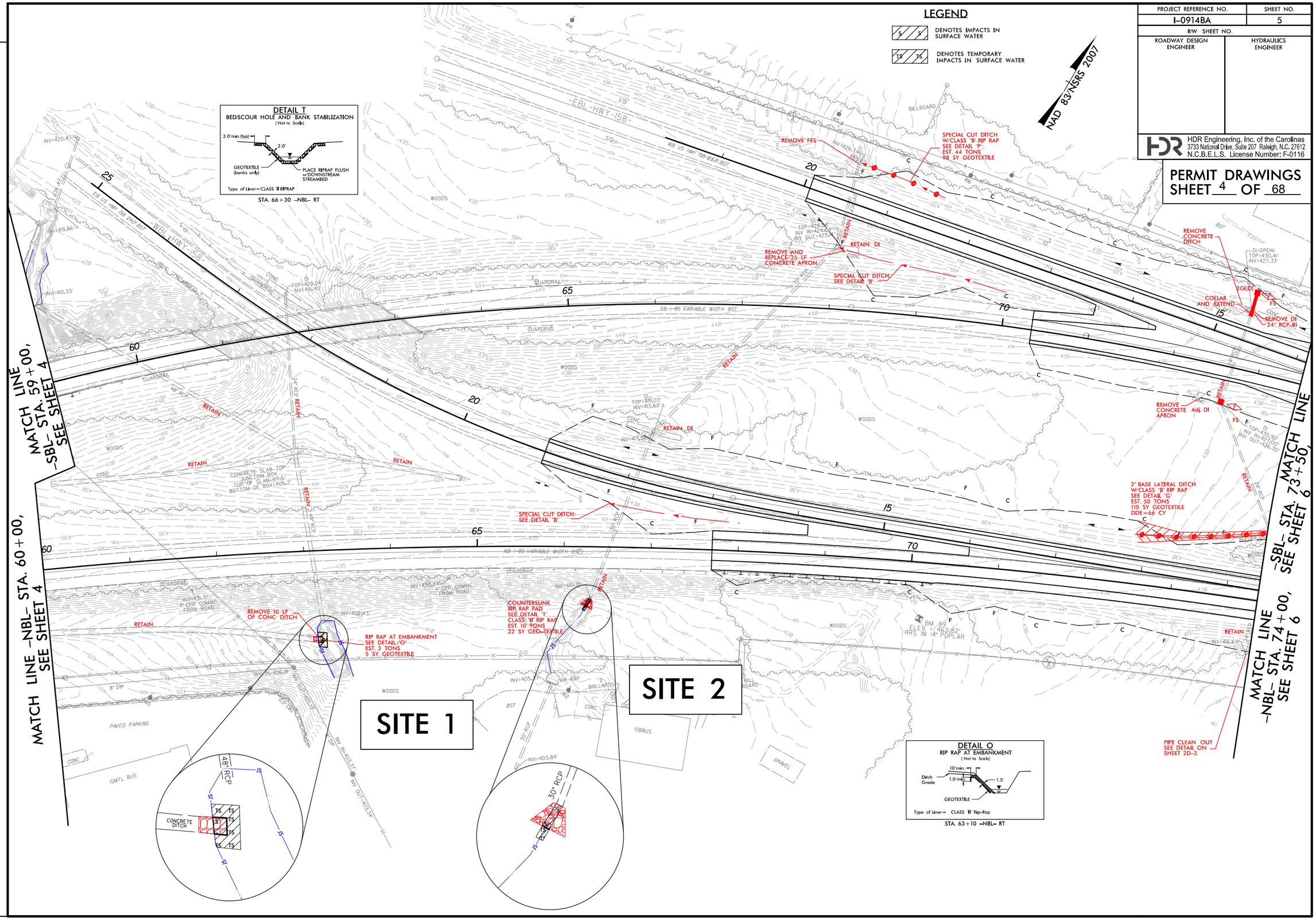
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 4 OF 68

LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

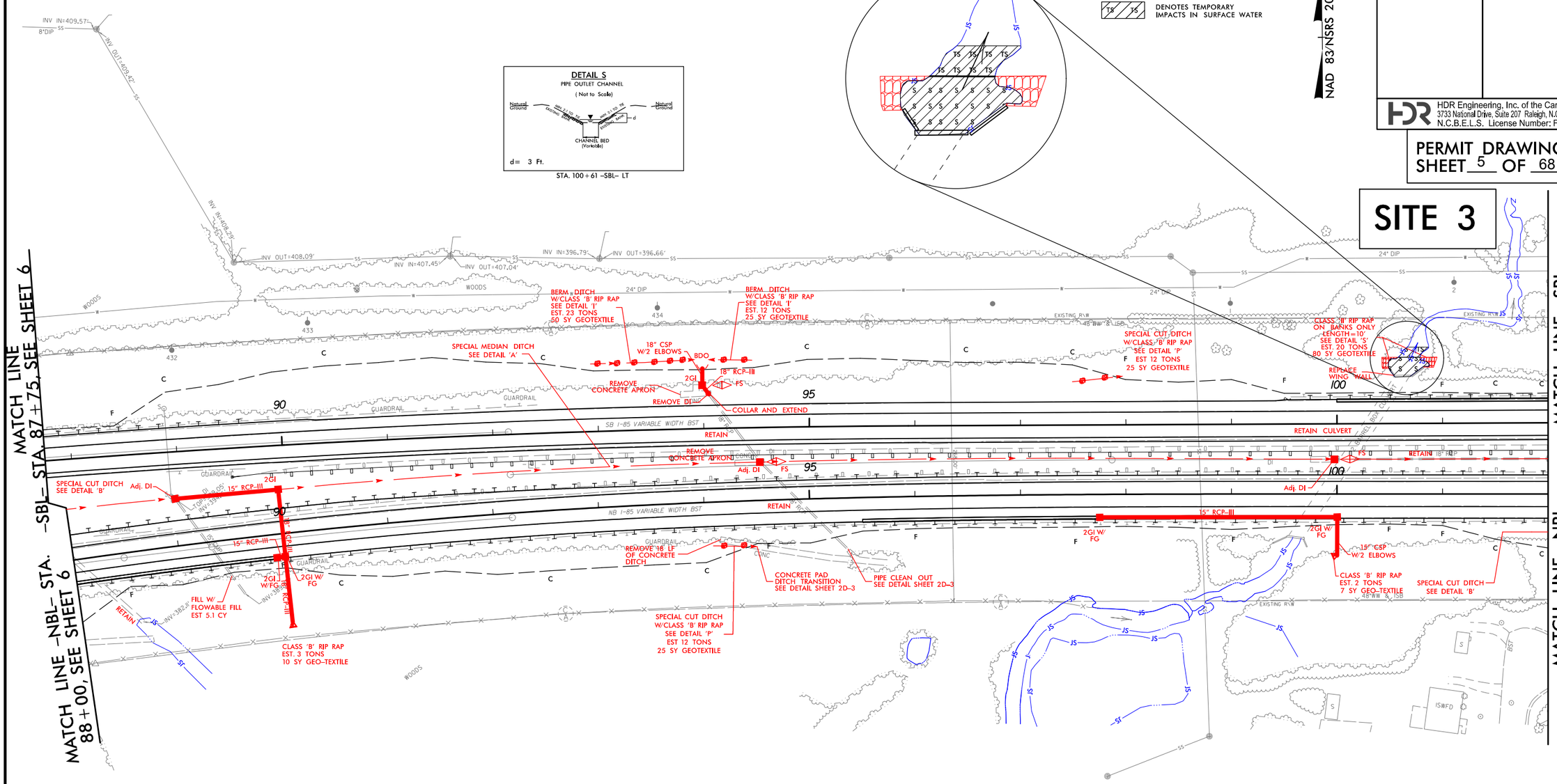
PERMIT DRAWINGS
SHEET 5 OF 68

SITE 3

LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

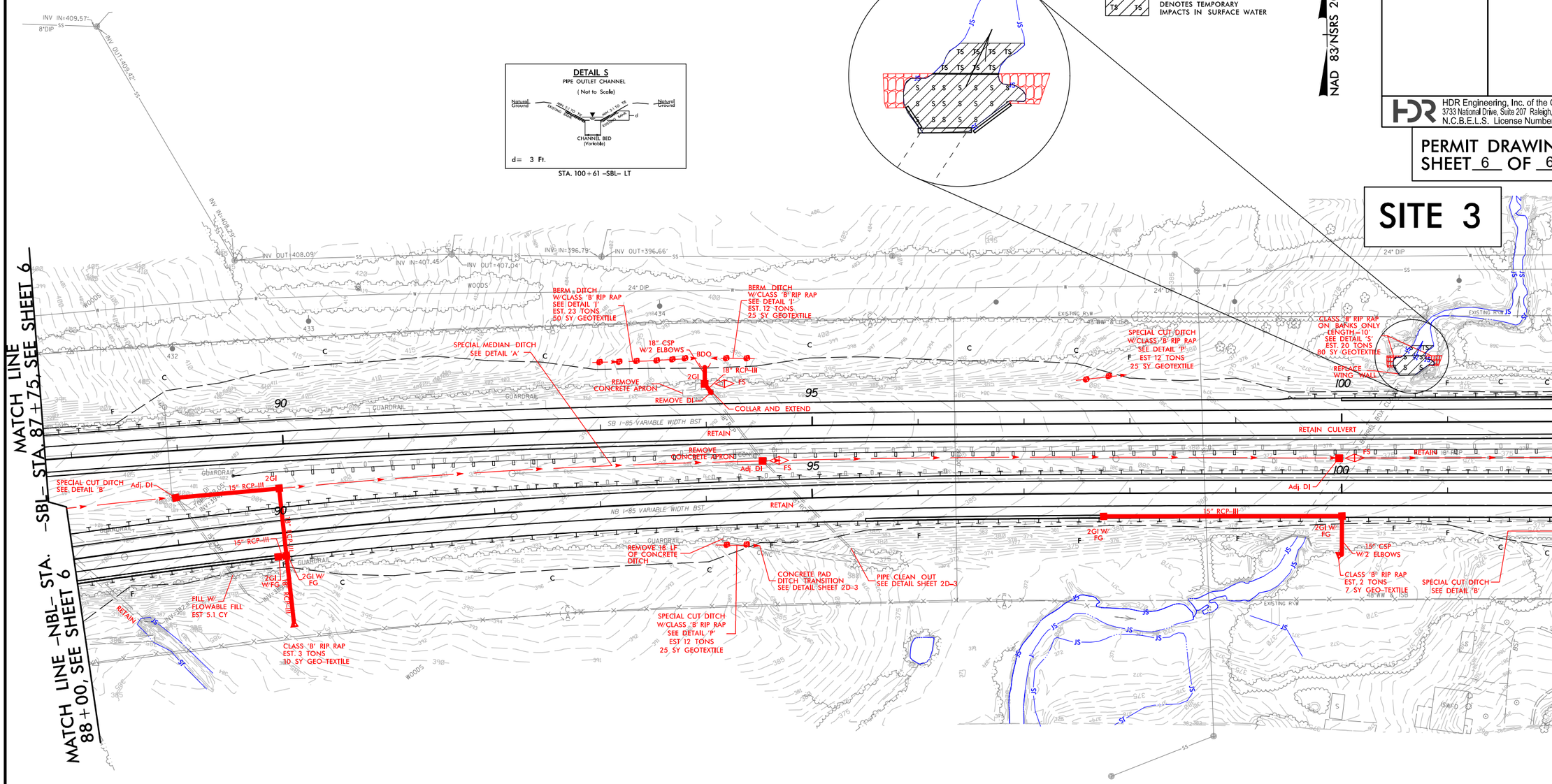
PERMIT DRAWINGS
SHEET 6 OF 68

SITE 3

LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

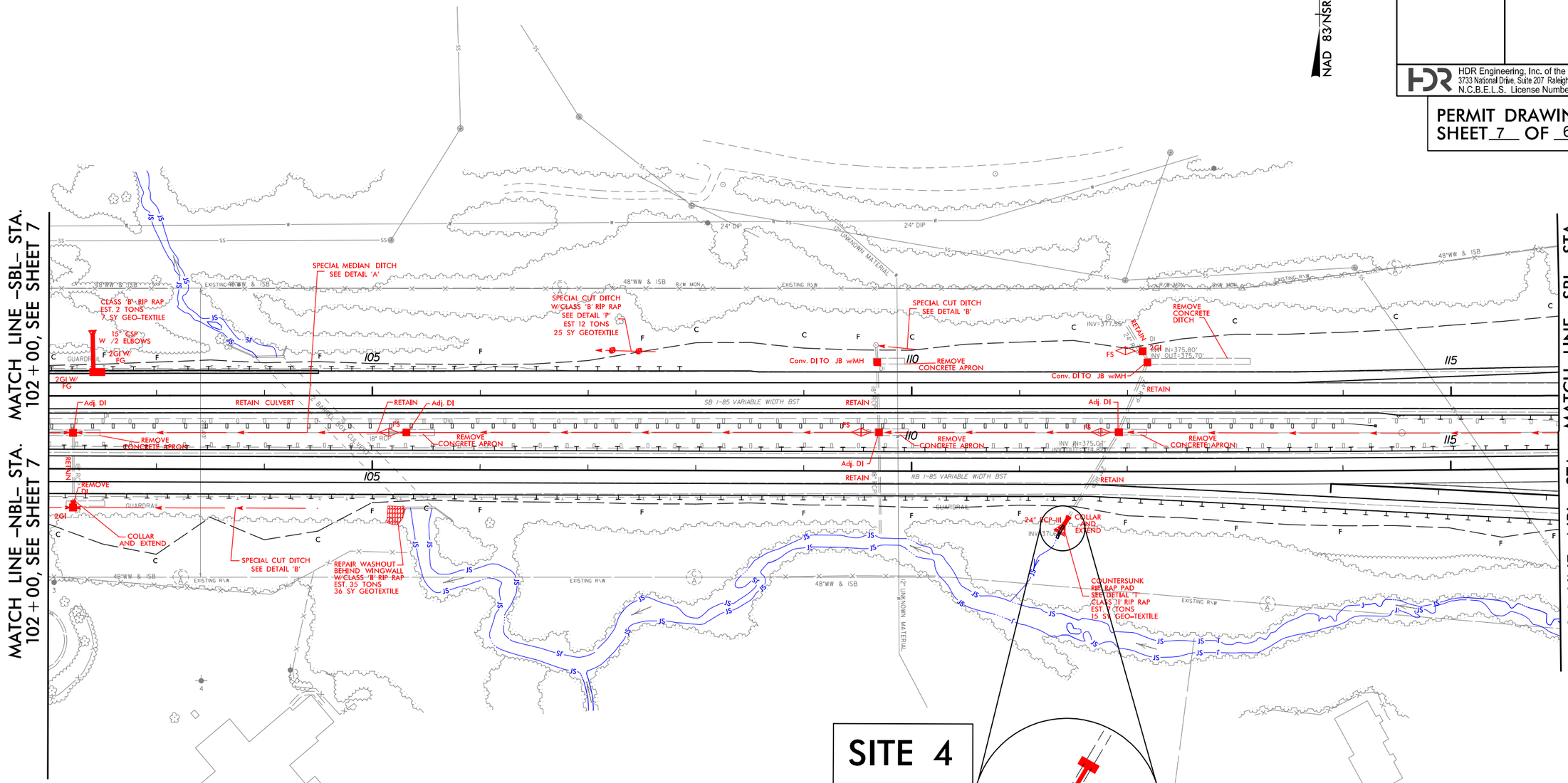
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 7 OF 68

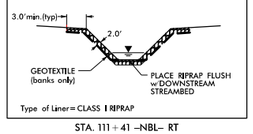
LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



DETAIL T
BEDSCOUR HOLE AND BANK STABILIZATION
(Not to Scale)



Type of Liner= CLASS I RIPRAP

STA. 111+41 -NBL- RT

SEE SHEET NOS. 2B-16 & 2B-17 FOR TEMPORARY CROSSOVERS
SEE SHEET NO. 2D-2 FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NO. 50 FOR -SBL- & -NBL- PROFILE
SEE SHEET NO. 92 FOR -Y1RPC- PROFILE

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

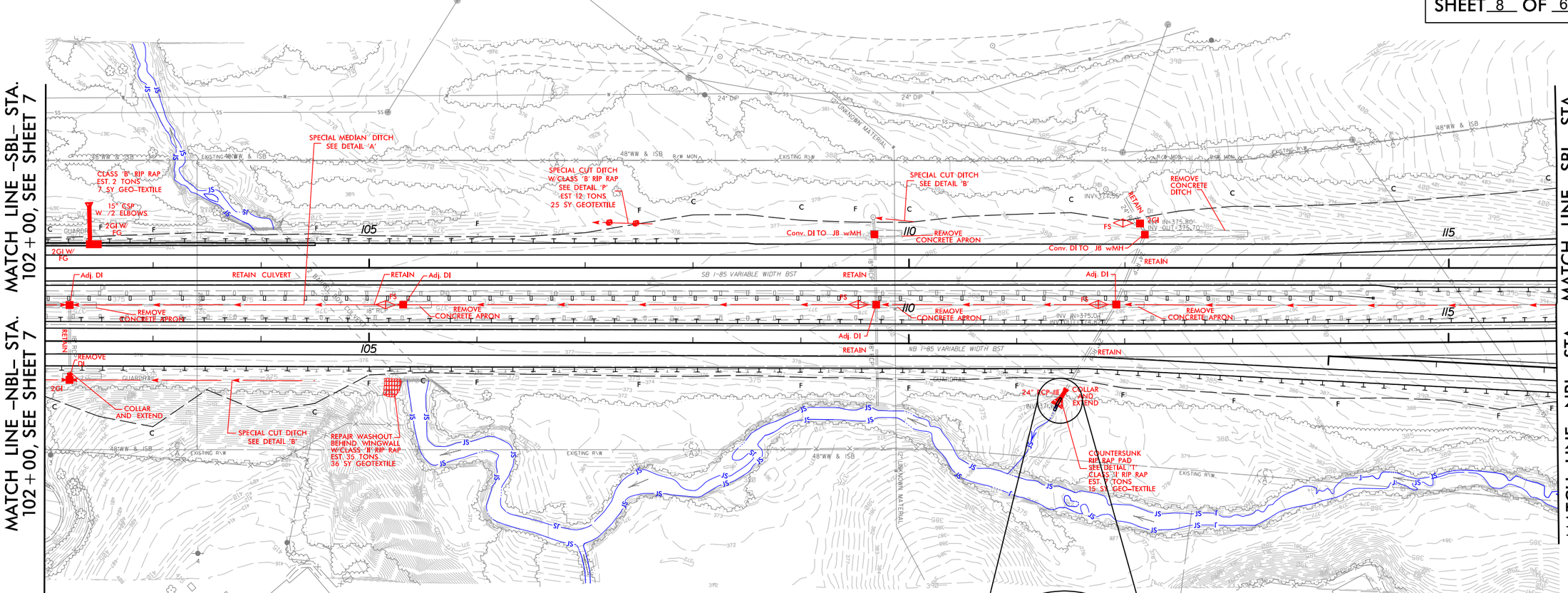
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 8 OF 68

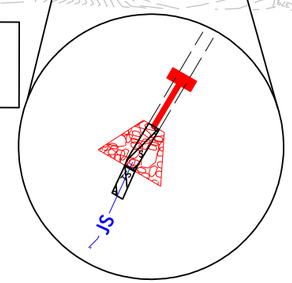
LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

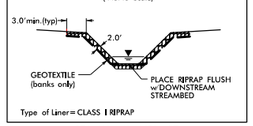
NAD 83/NSRS 2007



SITE 4



DETAIL T
BEDSCOUR HOLE AND BANK STABILIZATION
(Not to Scale)



Type of Liner= CLASS I RIPRAP

STA. 111+41 -NBL- RT

SEE SHEET NOS. 2B-16 & 2B-17 FOR TEMPORARY CROSSOVERS
SEE SHEET NO. 2D-2 FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NO. 50 FOR -SBL- & -NBL- PROFILE
SEE SHEET NO. 92 FOR -Y1RPC- PROFILE

REVISIONS

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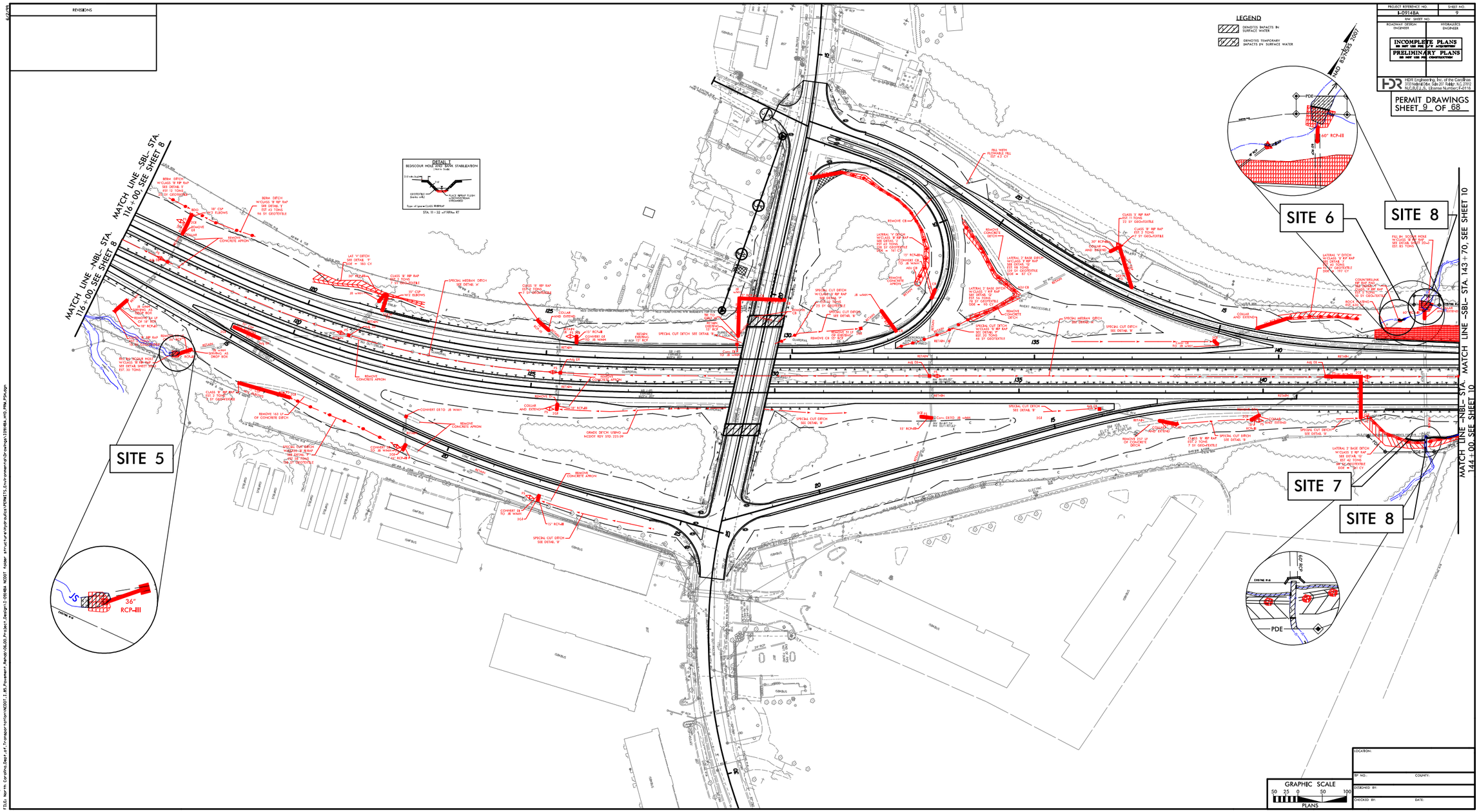
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-5914BA	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 9 OF 68



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TIP NO.:	COUNTY:
DESIGNED BY:	
CHECKED BY:	DATE:

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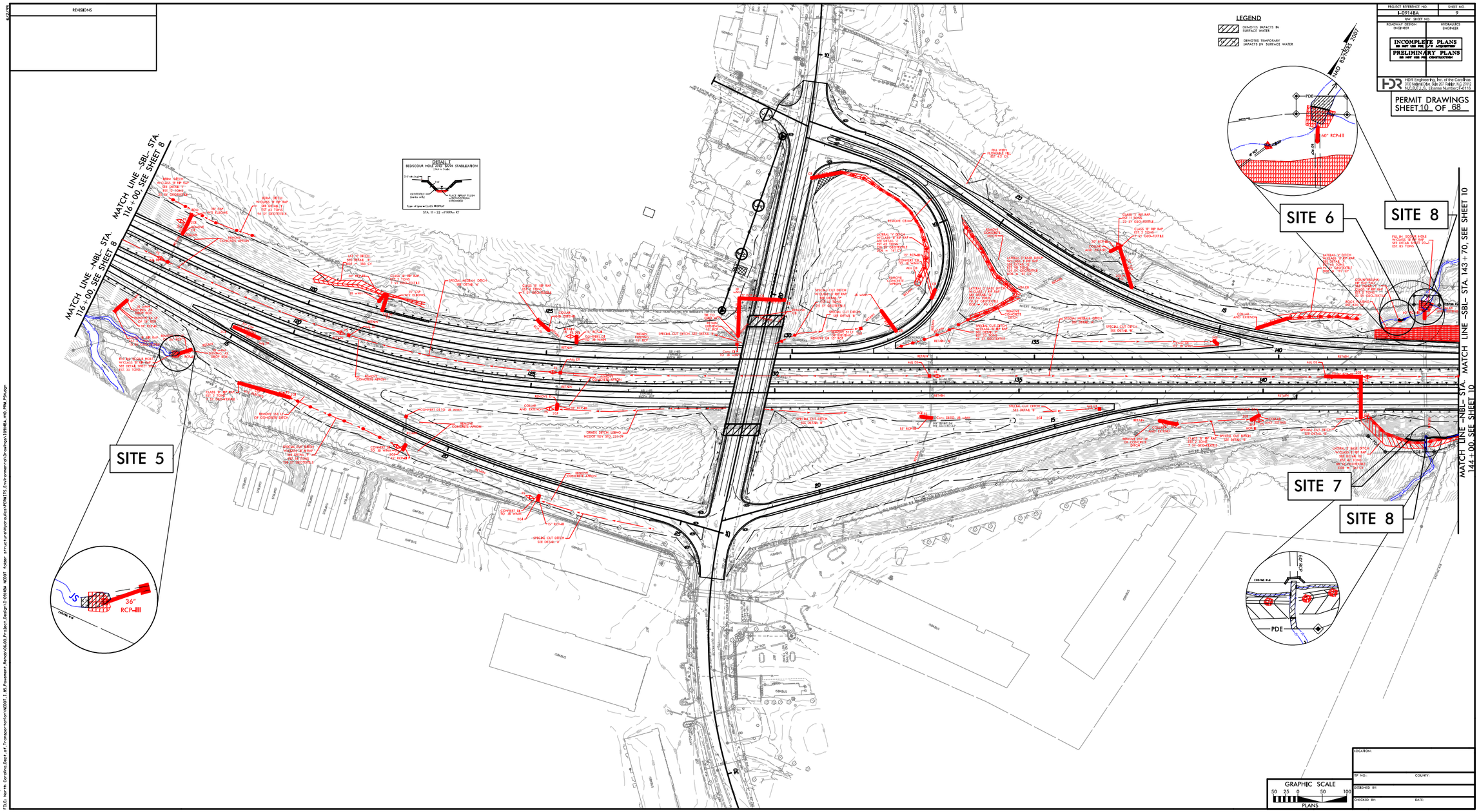
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-5914BA	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3721 National Drive, Suite 201 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 10 OF 68



LOCATION:	
TIP NO.	COUNTY:
DESIGNED BY:	
CHECKED BY:	DATE:

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	9A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

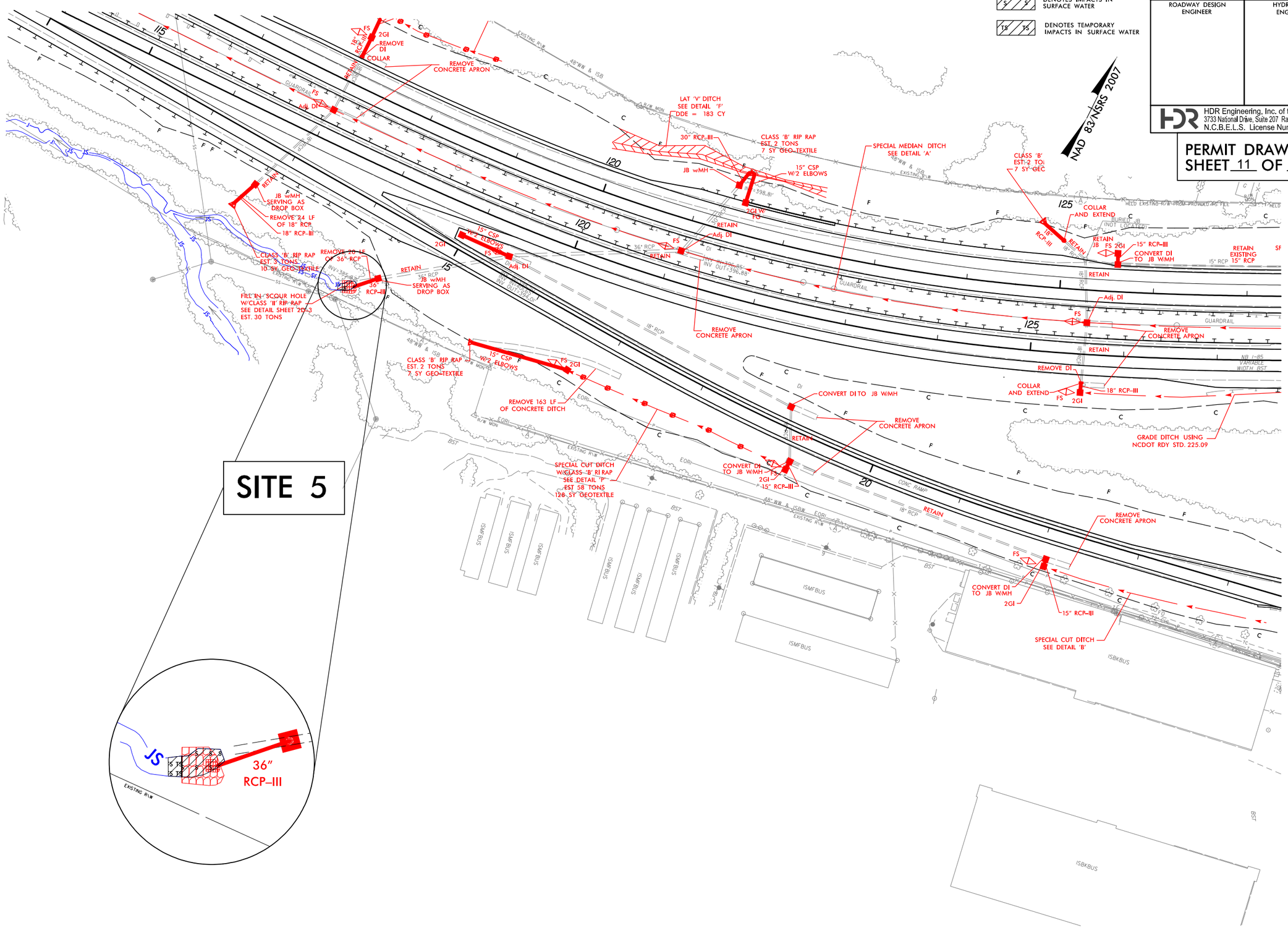
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 11 OF 68

LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	9A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

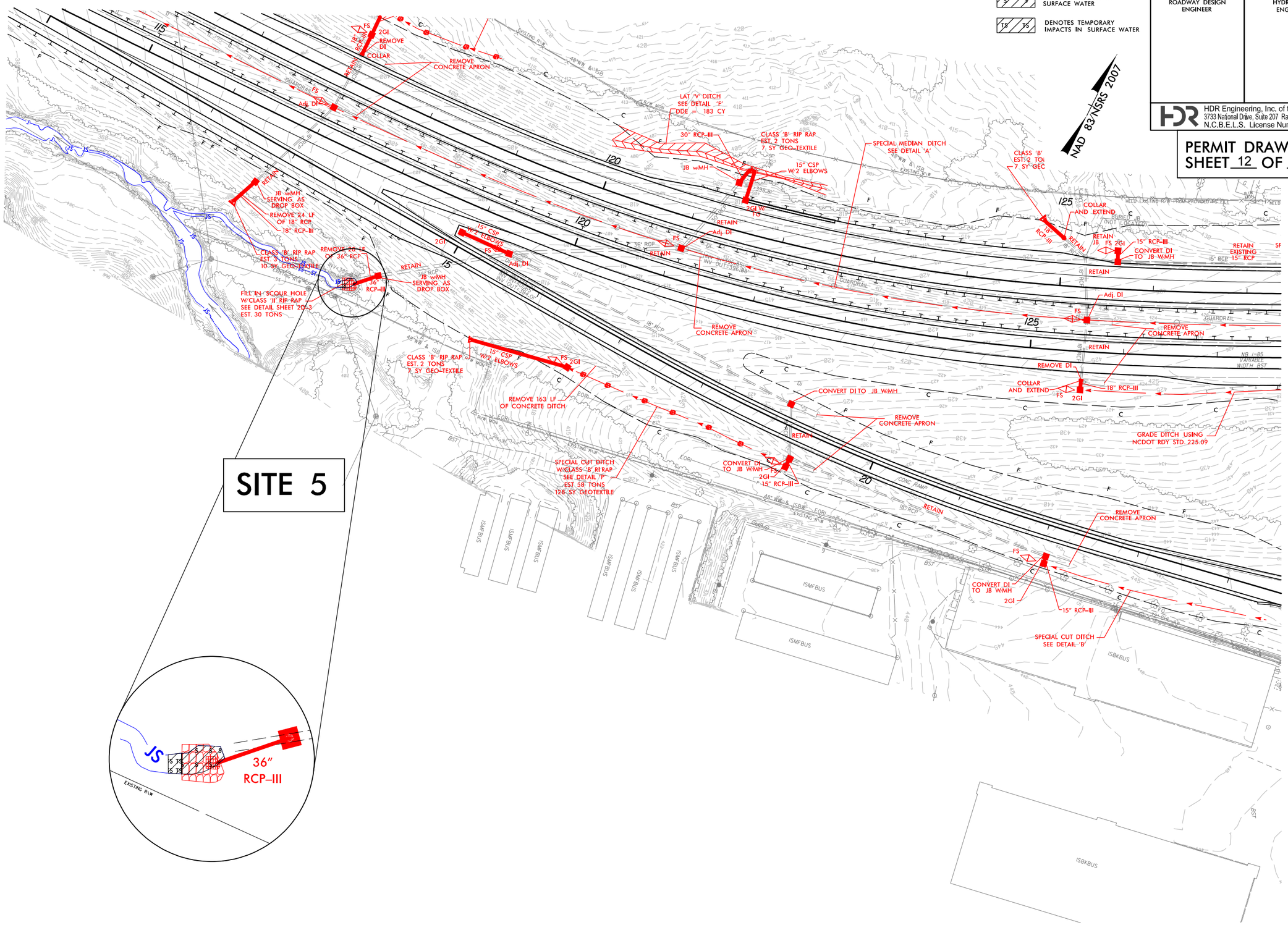
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 12 OF 68

LEGEND

- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	9B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

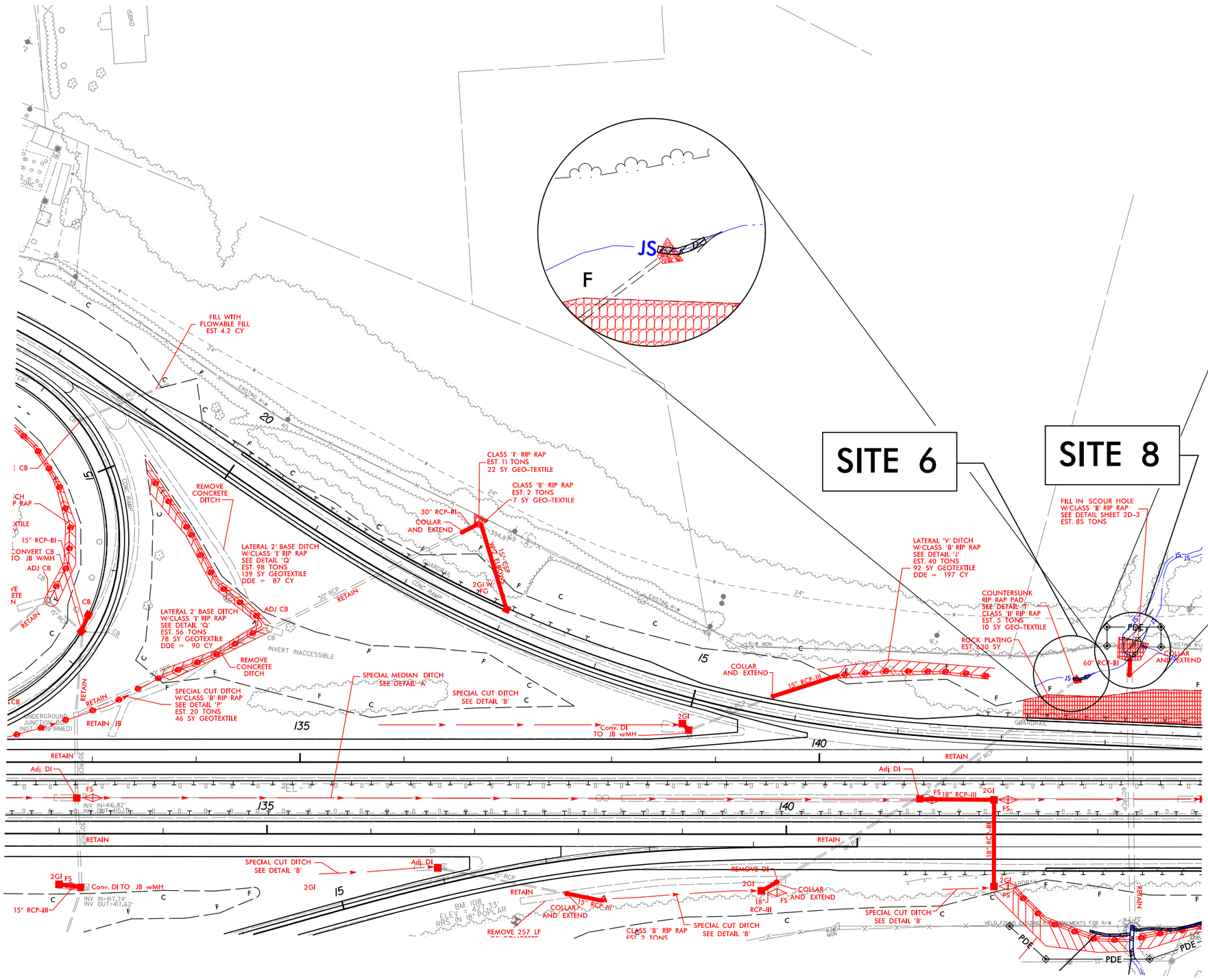
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 13 OF 68

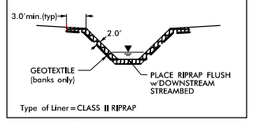
LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



DETAIL T
BED SCOUR HOLE AND BANK STABILIZATION
(Not to Scale)



Type of Liner = CLASS II RIPRAP

STA. 11+32 -Y1RPA- RT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	9B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

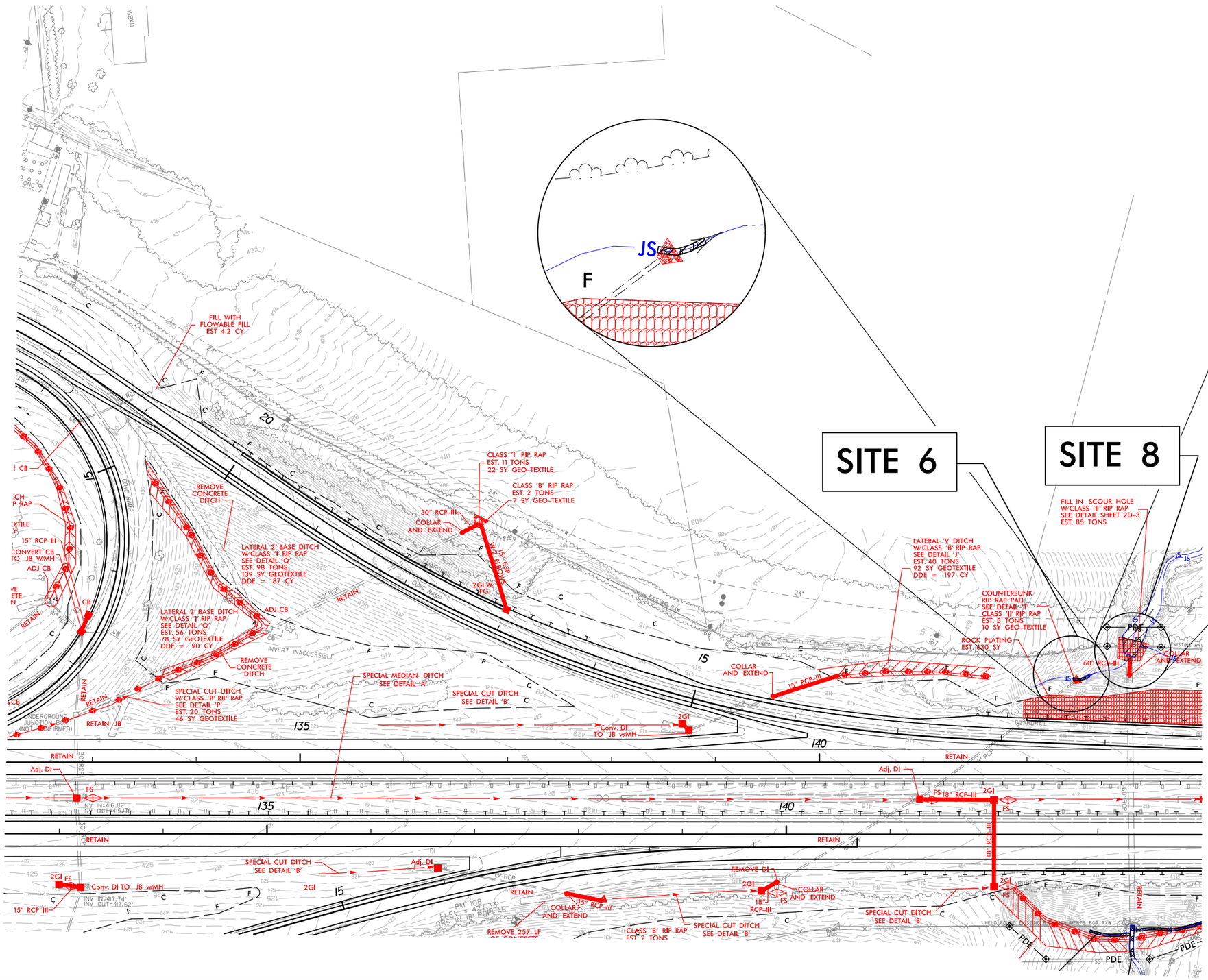
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 14 OF 68

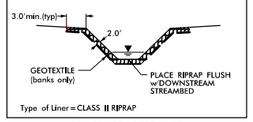
LEGEND

- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



DETAIL T
BED/SCOUR HOLE AND BANK STABILIZATION
(Not to Scale)



Type of Liner = CLASS II RIPRAP

STA. 11+32 -Y1RPA- RT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	9C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

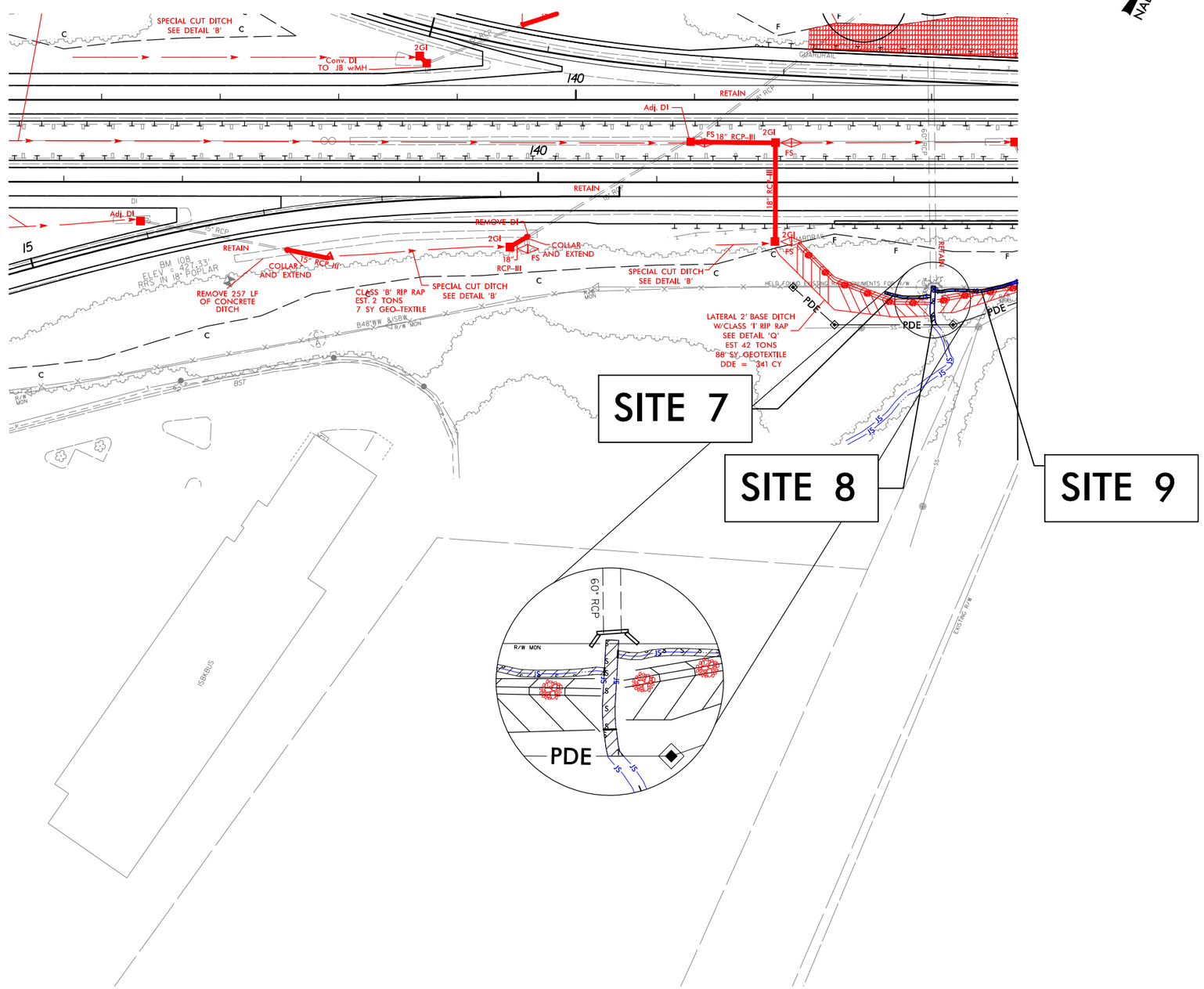
PERMIT DRAWINGS
SHEET 15 OF 68

LEGEND

S/S — DENOTES IMPACTS IN SURFACE WATER

TS/TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	9C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

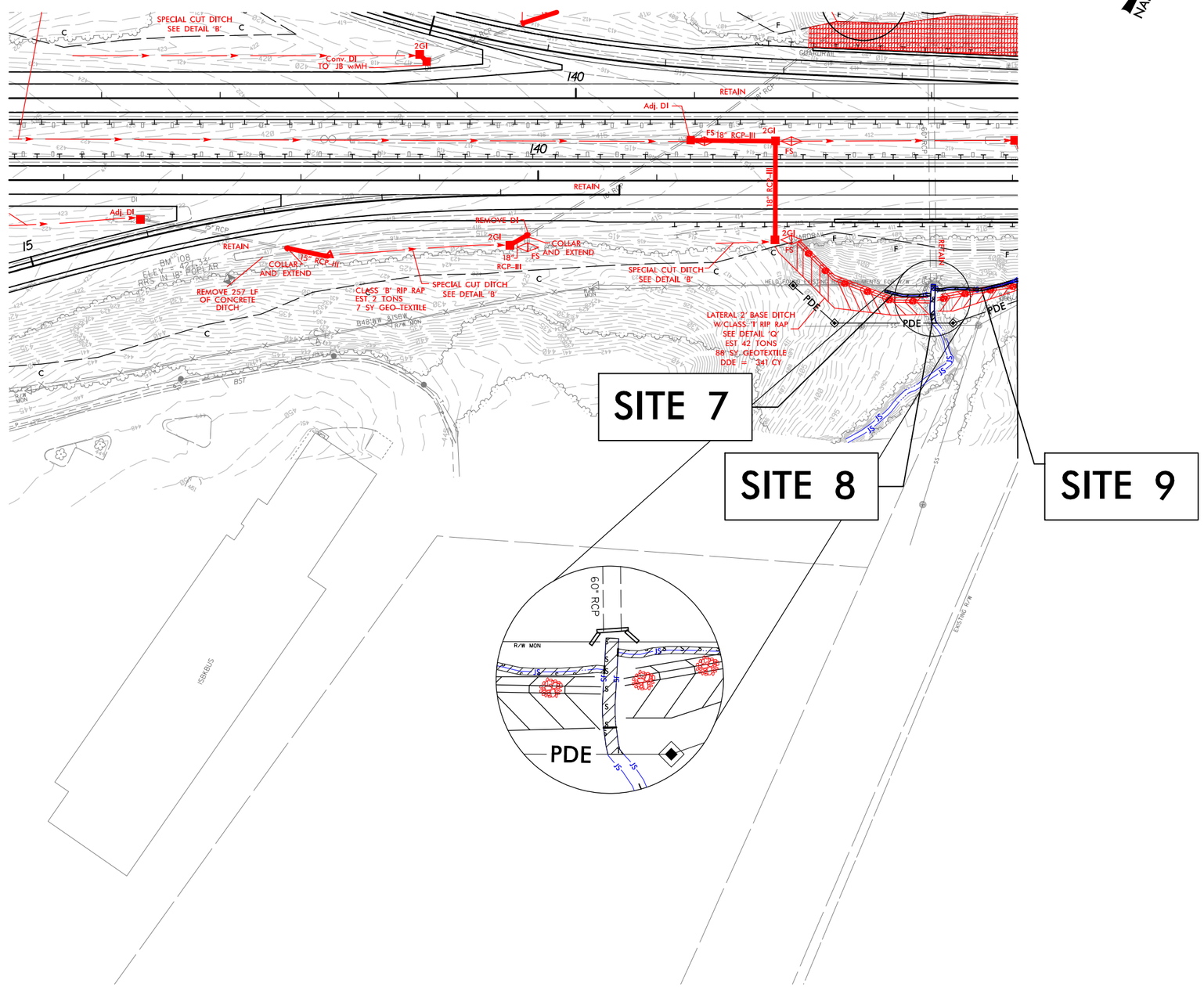
PERMIT DRAWINGS
SHEET 16 OF 68

LEGEND

S / S — DENOTES IMPACTS IN SURFACE WATER

TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

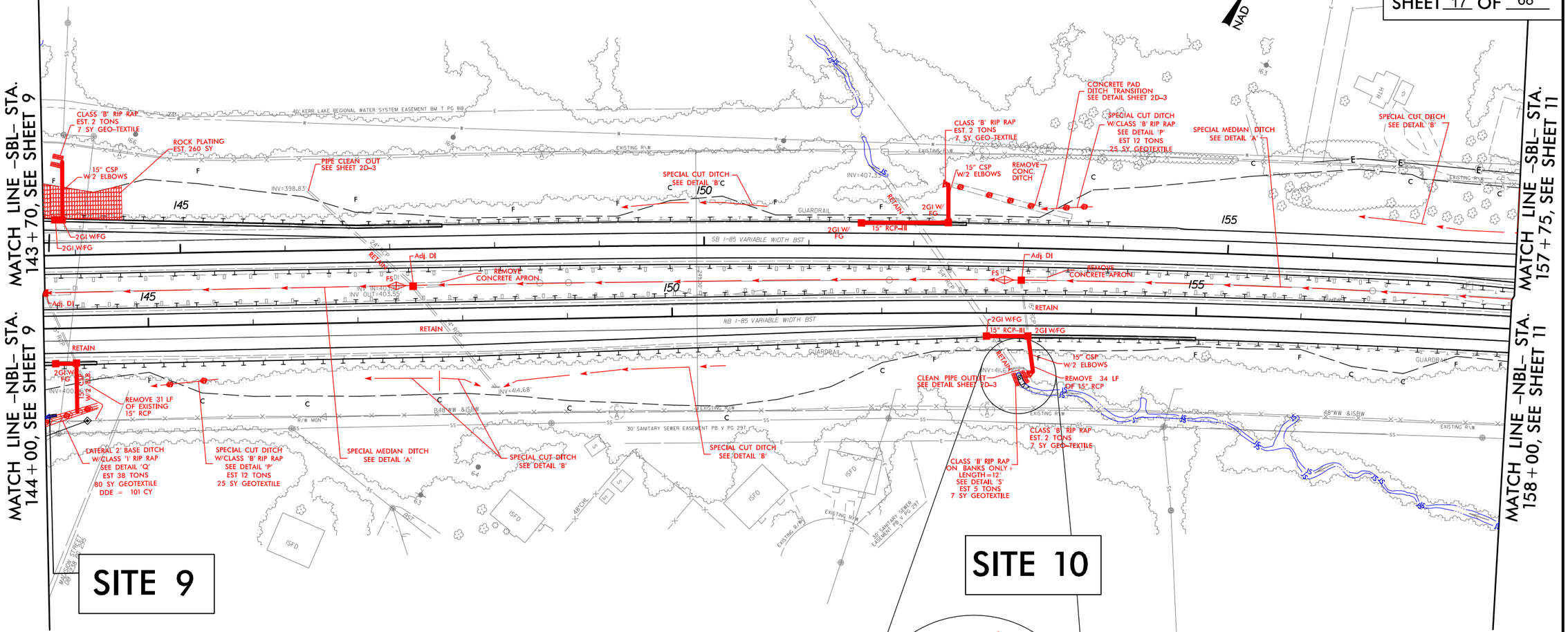
PERMIT DRAWINGS
SHEET 17 OF 68

LEGEND

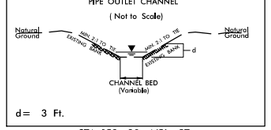
- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

69

NAD 83/NSRS 2007



DETAIL S
PIPE OUTLET CHANNEL
(Not to Scale)



d= 3 Ft.

STA. 153+20 -NBL- RT

REVISIONS

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DATE: 11/21/2014
TIME: 11:04:07 AM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

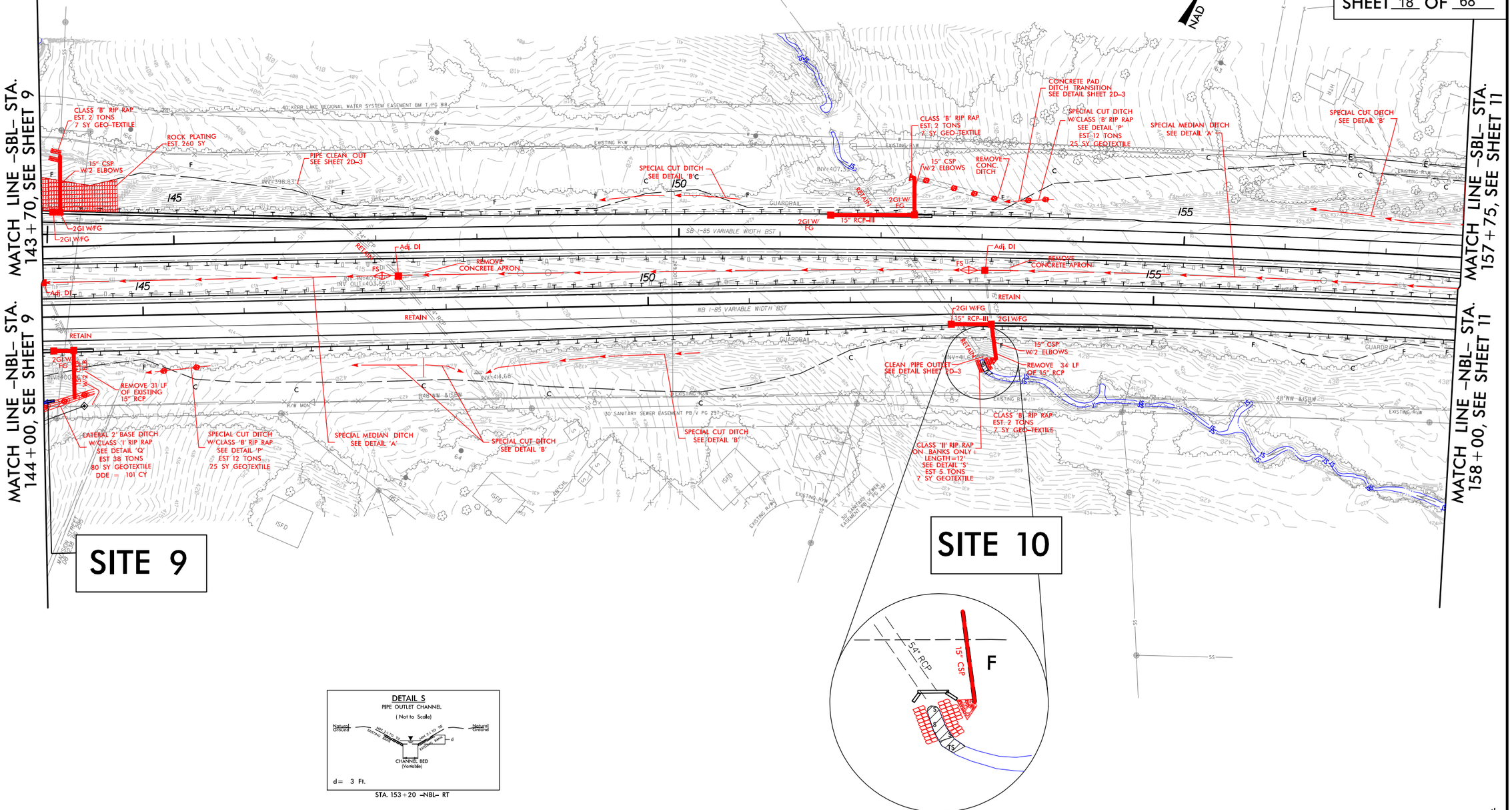
PERMIT DRAWINGS
SHEET 18 OF 68

LEGEND

- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

69

NAD 83/NSRS 2007



DETAIL S
PIPE OUTLET CHANNEL
(Not to Scale)

d = 3 Ft.

STA. 153+20 -NBL- RT

REVISIONS

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TIME: 11:03:36 AM
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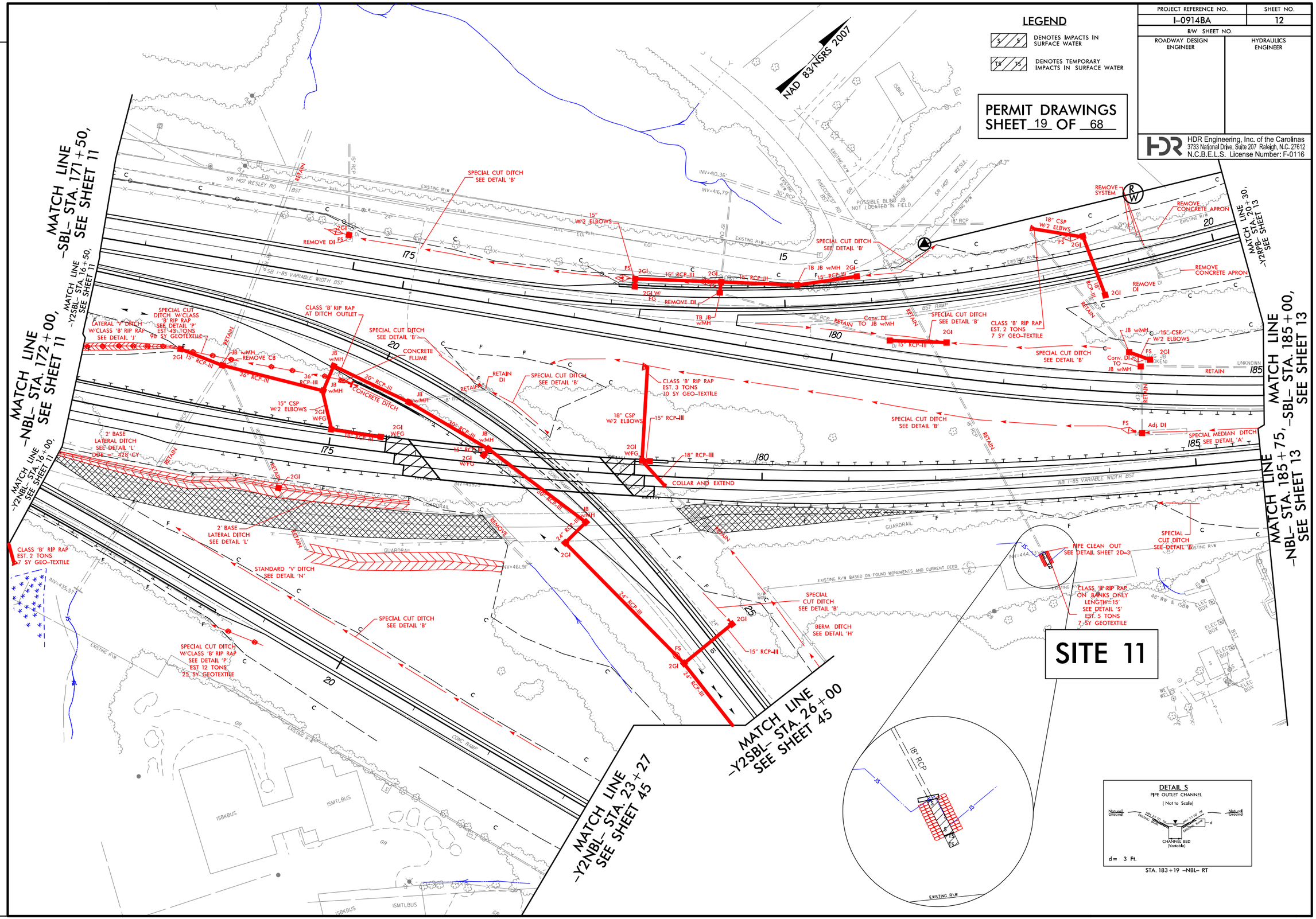
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWINGS
SHEET 19 OF 68



REVISIONS

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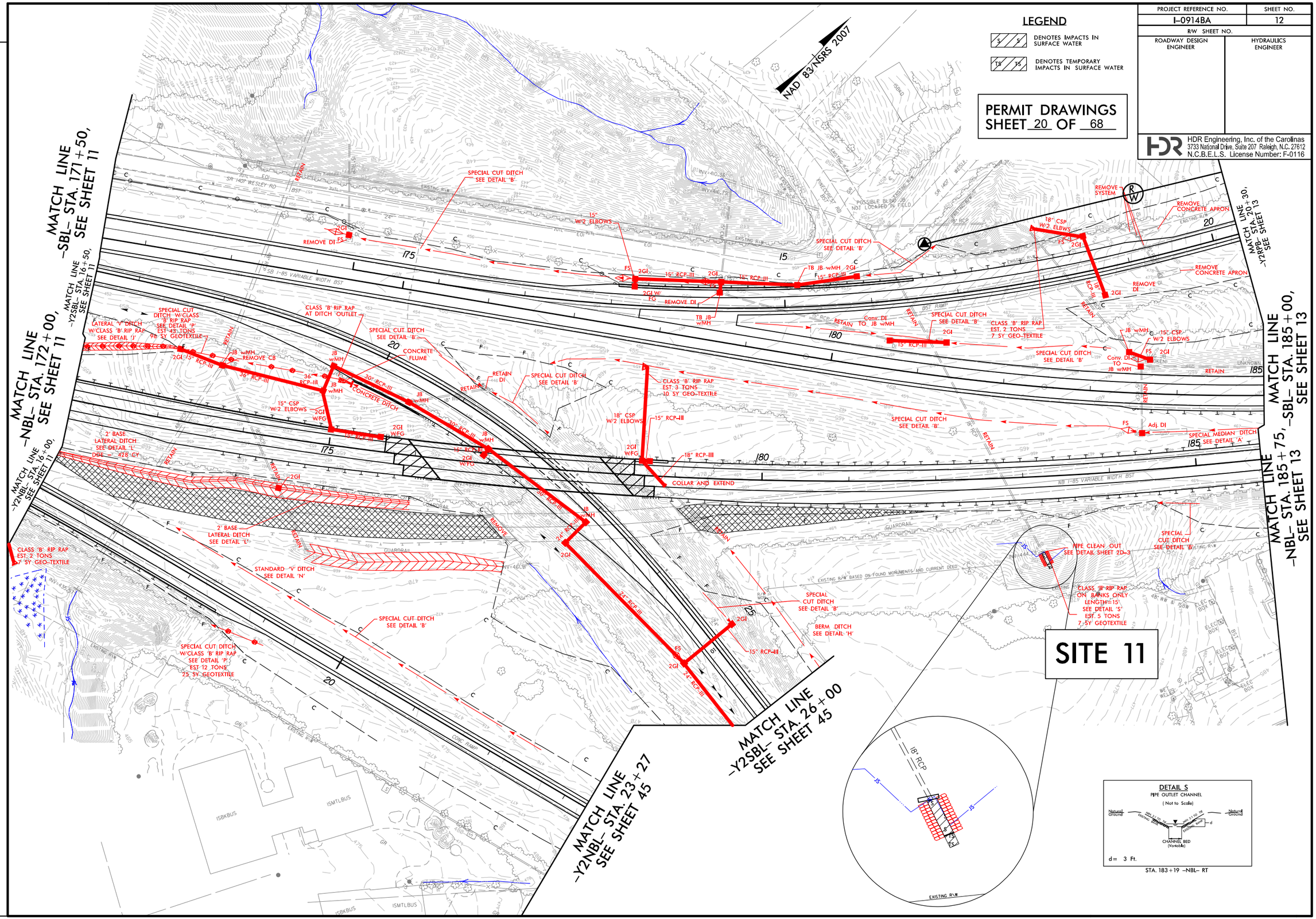
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWINGS
SHEET 20 OF 68



DETAIL S
PIPE OUTLET CHANNEL
(Not to Scale)

d = 3 Ft.

STA. 183+19 -NBL- RT

REVISIONS

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USER: cmyers DATE: 11/21/2014 TIME: 9:44:43 AM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

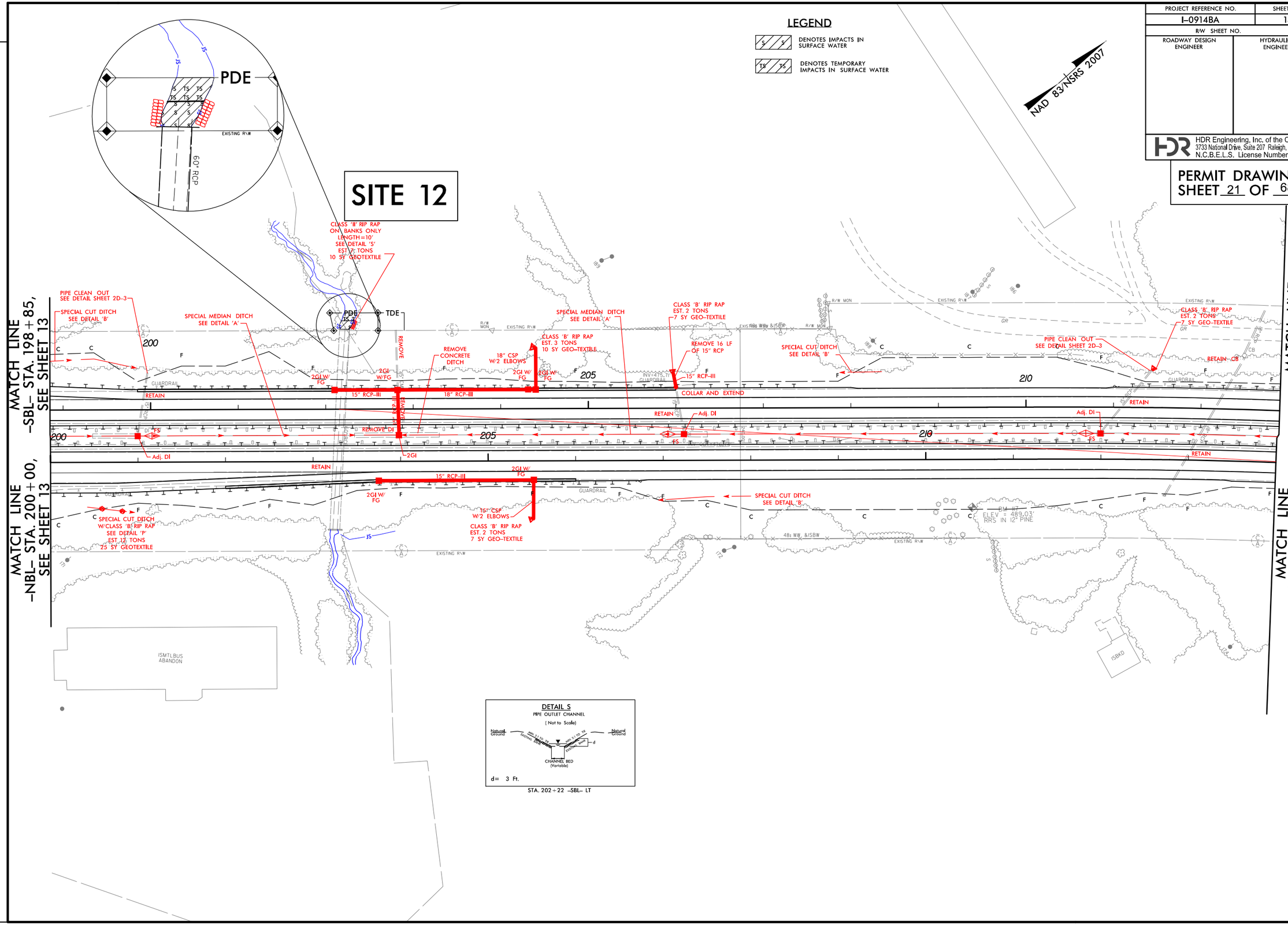
PERMIT DRAWINGS
SHEET 21 OF 68

LEGEND

- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007

SITE 12



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

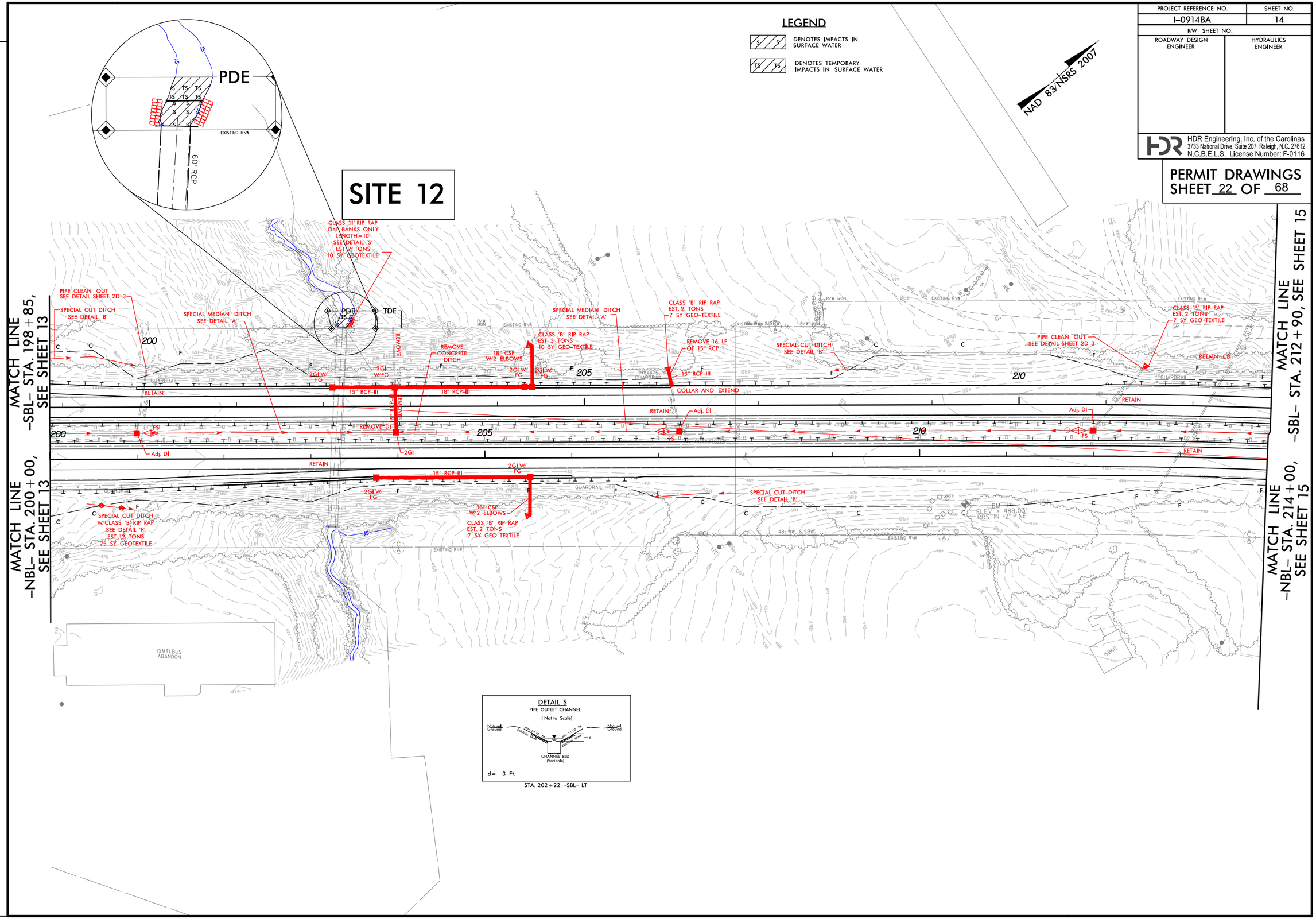
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 22 OF 68

LEGEND

- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



DETAIL S

PIPE OUTLET CHANNEL

(Not to Scale)

d= 3 Ft.

STA. 202+22 -SBL- LT

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt PENTABLE: NCDOT_permits_CON.tbl
USER: cmyers DATE: 11/21/2014 TIME: 9:44:49 AM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

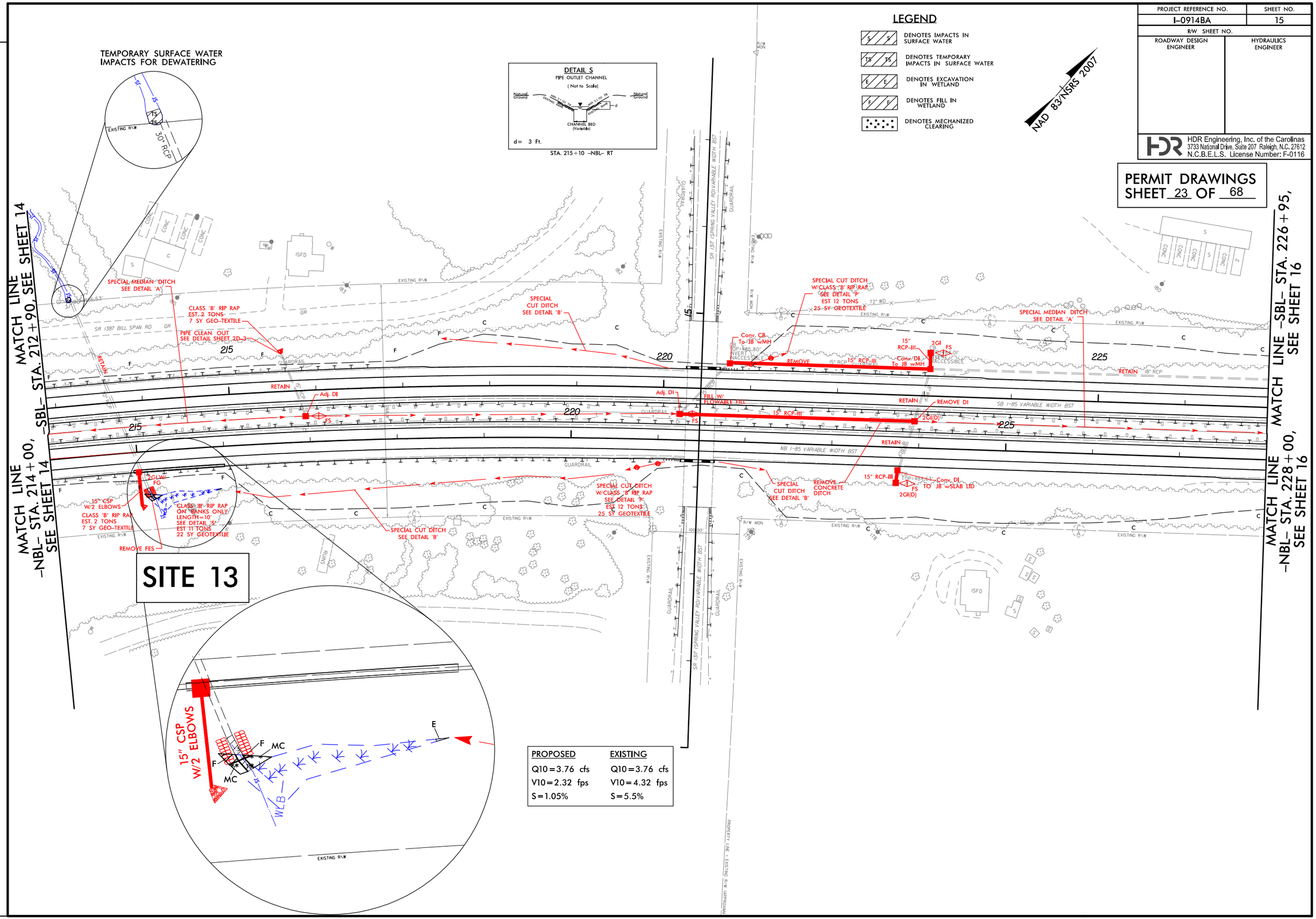
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 23 OF 68

LEGEND

- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- E / E — DENOTES EXCAVATION IN WETLAND
- F / F — DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING

NAD 83/NSRS 2007



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

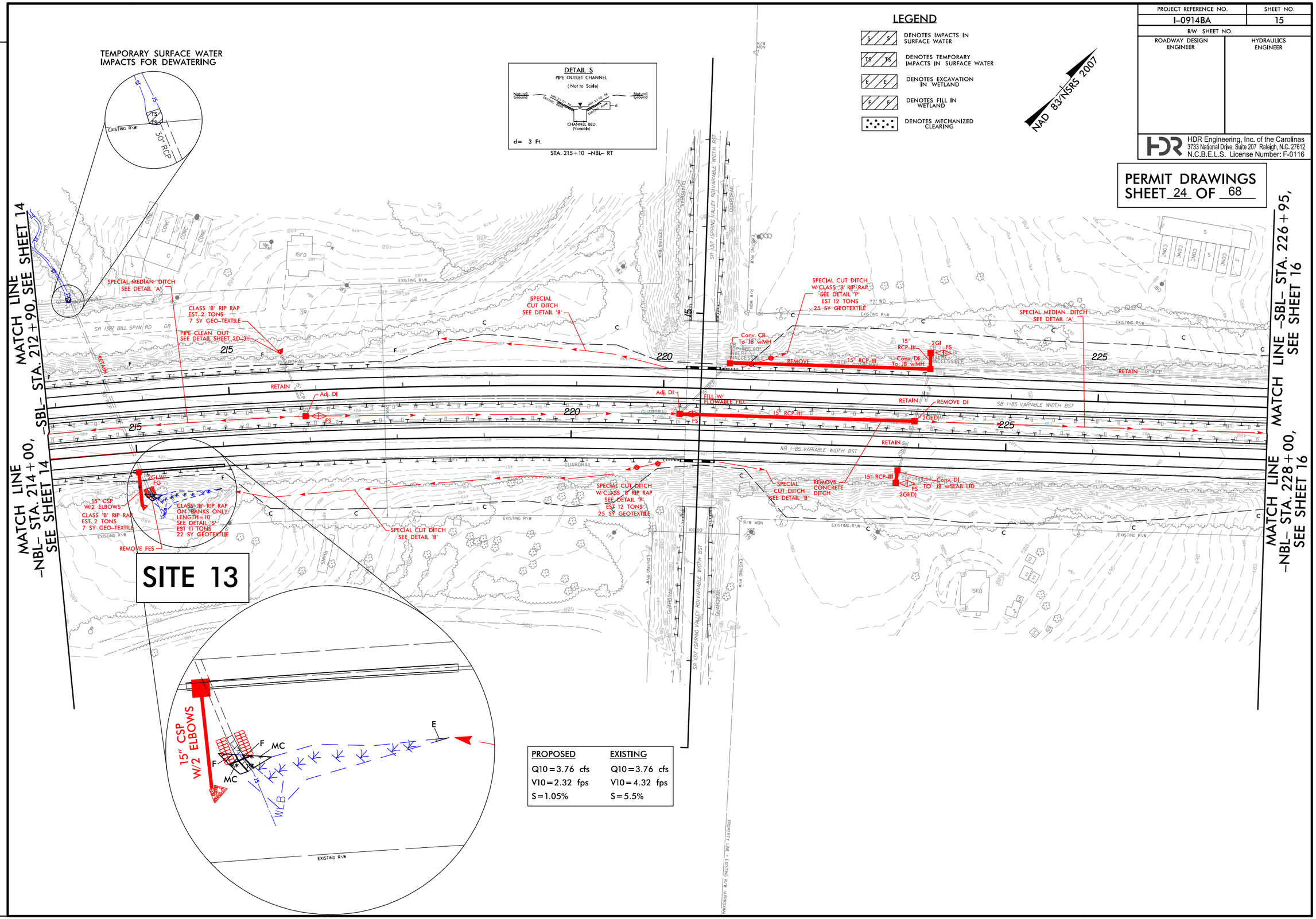
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 24 OF 68

LEGEND

- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- E / E — DENOTES EXCAVATION IN WETLAND
- F / F — DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING

NAD 83/NSRS 2007



REVISIONS

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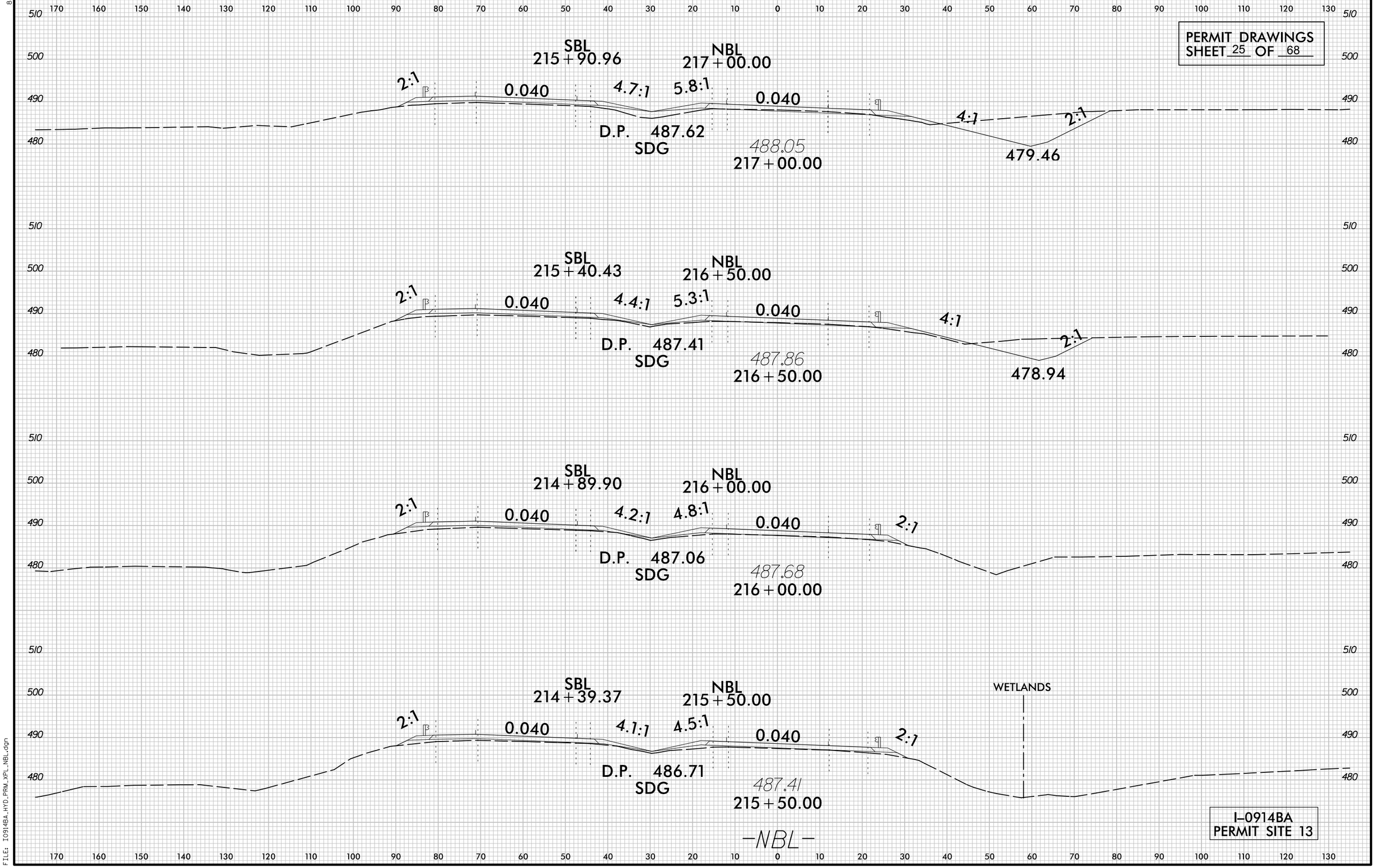
PROJ. REFERENCE NO.	SHEET NO.
I-0914BA	X-102

0 5 10

PERMIT DRAWINGS
SHEET 25 OF 68



8/23/99

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TIME: 11:01:06 AM

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 26 OF 68

NAD 83/NSRS 2007

LEGEND

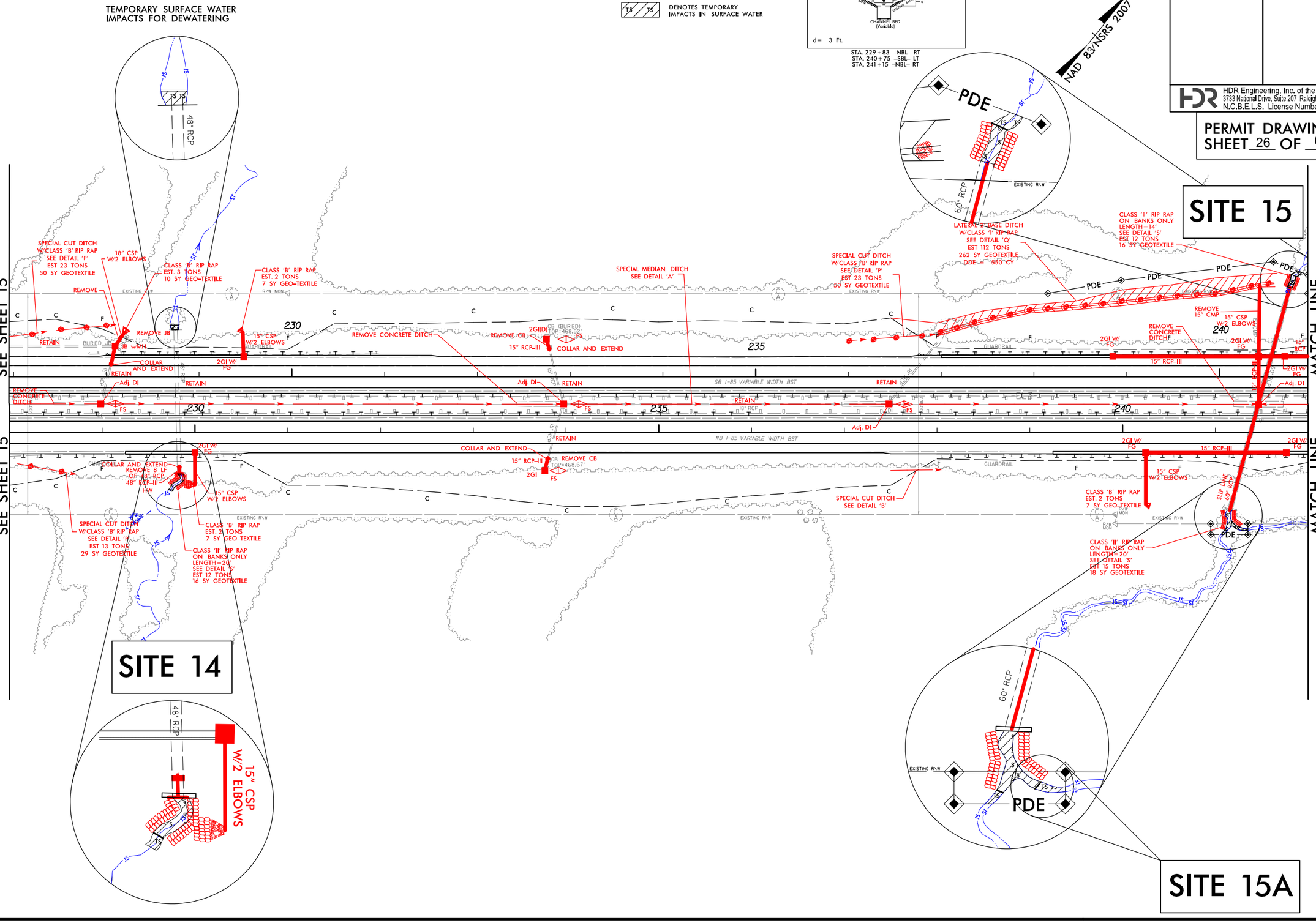
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL S
PIPE OUTLET CHANNEL
(Not to Scale)

d= 3 Ft.

STA. 229+83 -NBL- RT
STA. 240+75 -SBL- LT
STA. 241+15 -NBL- RT

TEMPORARY SURFACE WATER IMPACTS FOR DEWATERING



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 27 OF 68

LEGEND

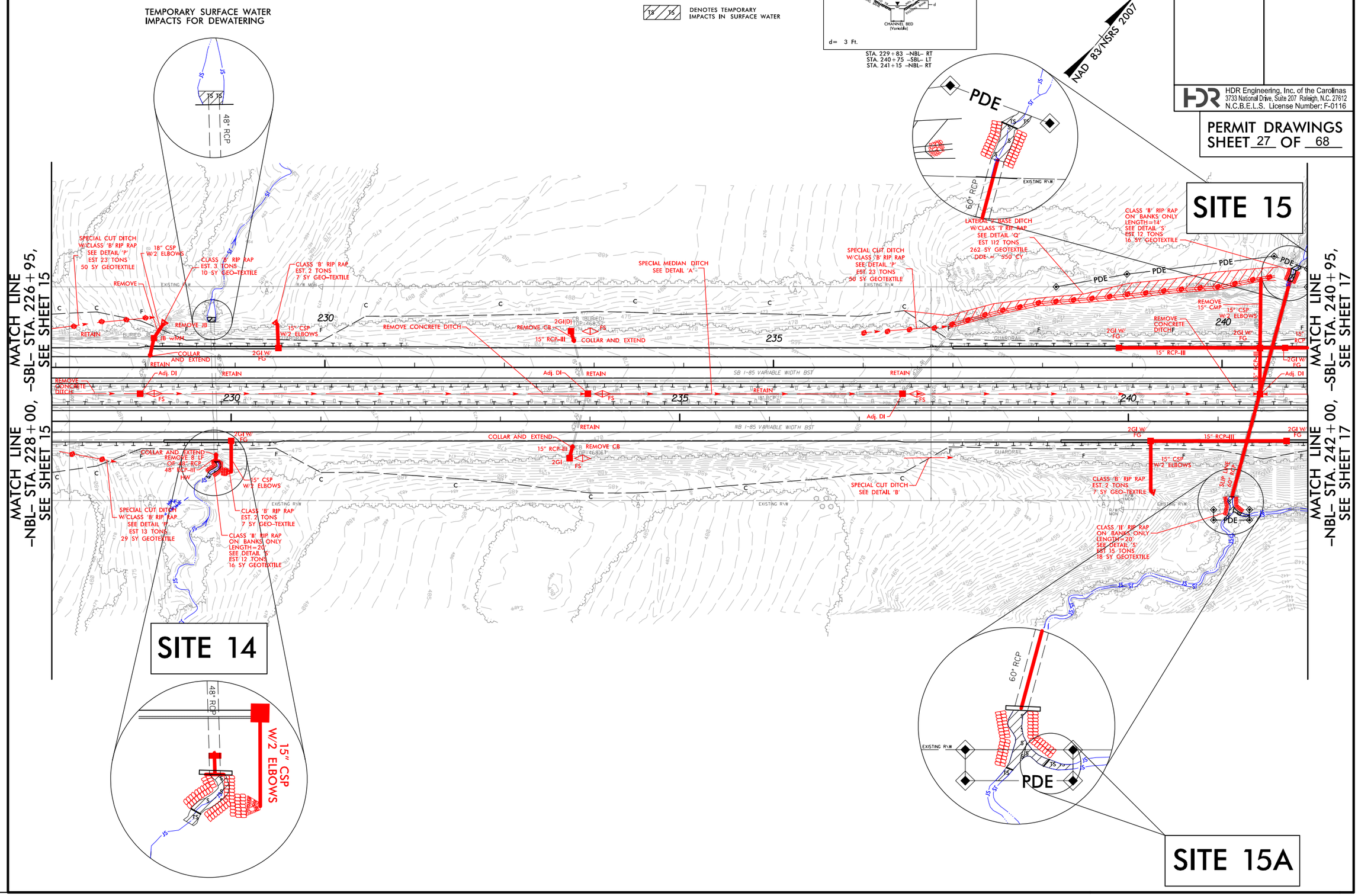
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL S
PIPE OUTLET CHANNEL
(Not to Scale)

d= 3 Ft.

STA. 229+83 –NBL– RT
STA. 240+75 –SBL– LT
STA. 241+15 –NBL– RT

NAD 83/NSRS 2007



REVISIONS

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FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Hydraulics\PERMITS_Environmental\Drawings\I0914BA_HYD_PRM_PSH.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

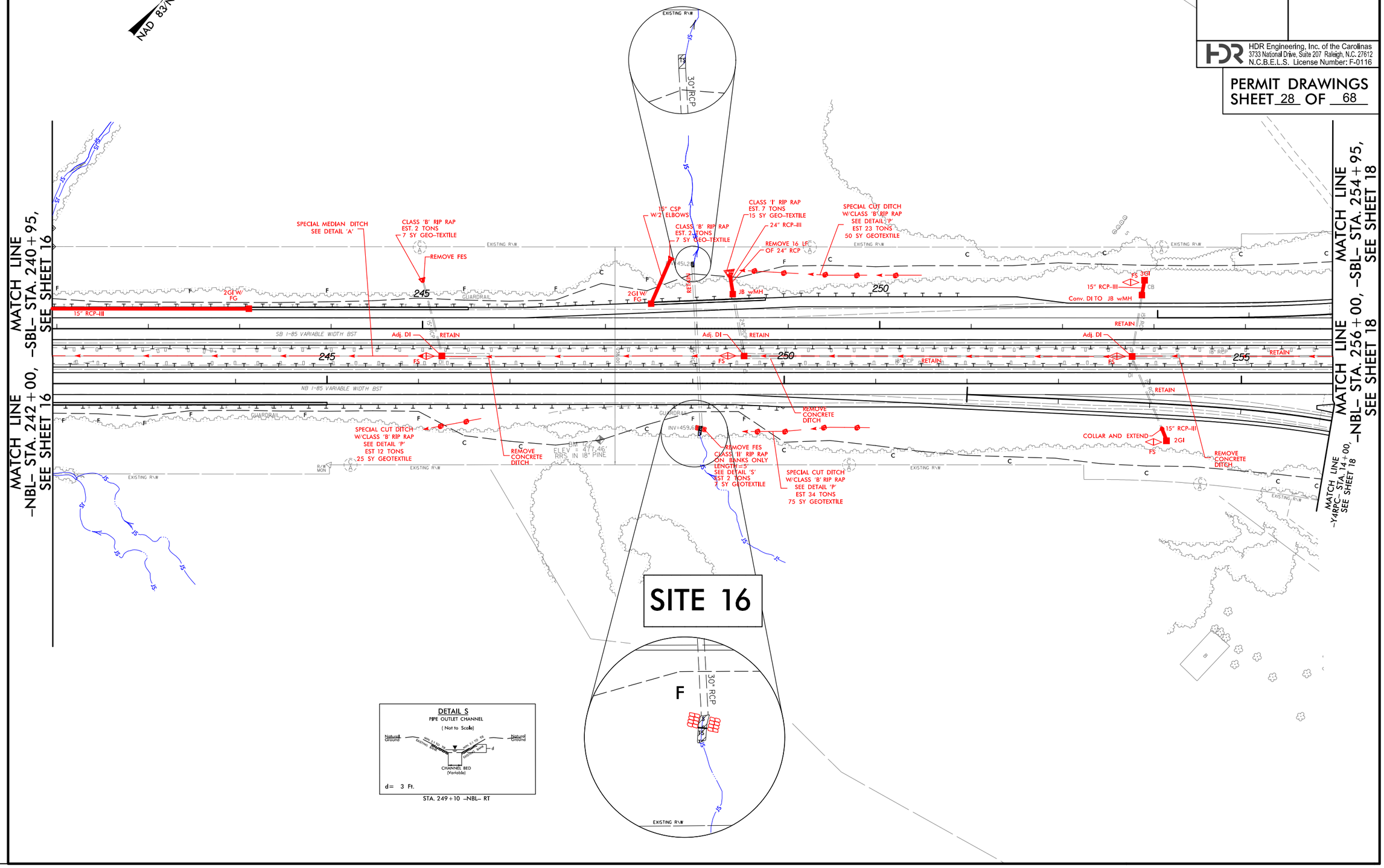
PERMIT DRAWINGS
SHEET 28 OF 68

LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007

TEMPORARY SURFACE WATER IMPACTS FOR DEWATERING



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

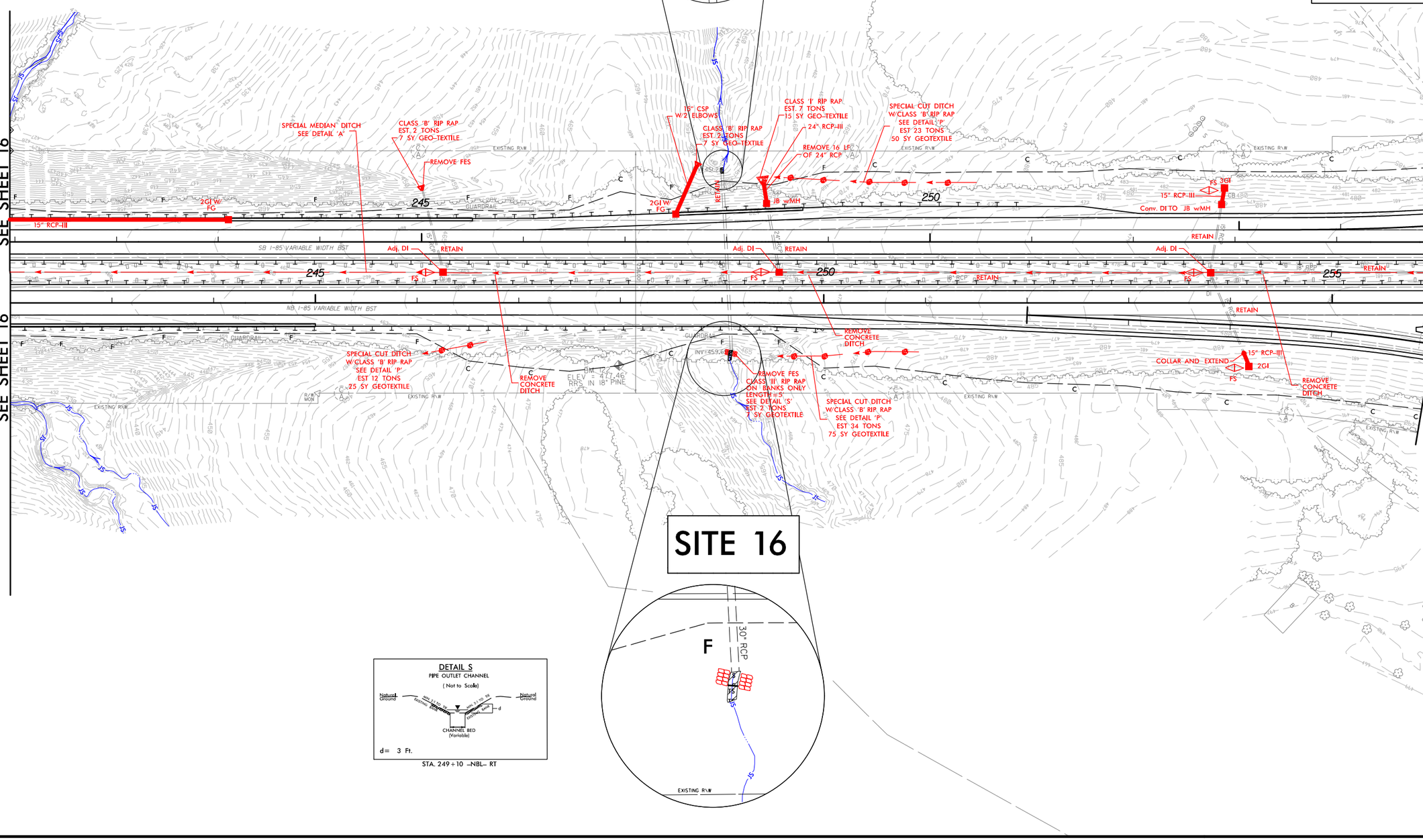
PERMIT DRAWINGS
SHEET 29 OF 68

LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007

TEMPORARY SURFACE WATER IMPACTS FOR DEWATERING



DETAIL S
PIPE OUTLET CHANNEL
(Not to Scale)

d= 3 Ft.

STA. 249+10 -NBL- RT

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt PENTABLE: NCDOT_permits_CON.tbl
USER: cmyers DATE: 11/21/2014 TIME: 9:45:07 AM
FILE: North Carolina.Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Hydraulics\PERMITS_Environmental\Drawings\I0914BA_HYD_PRM_PSH.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

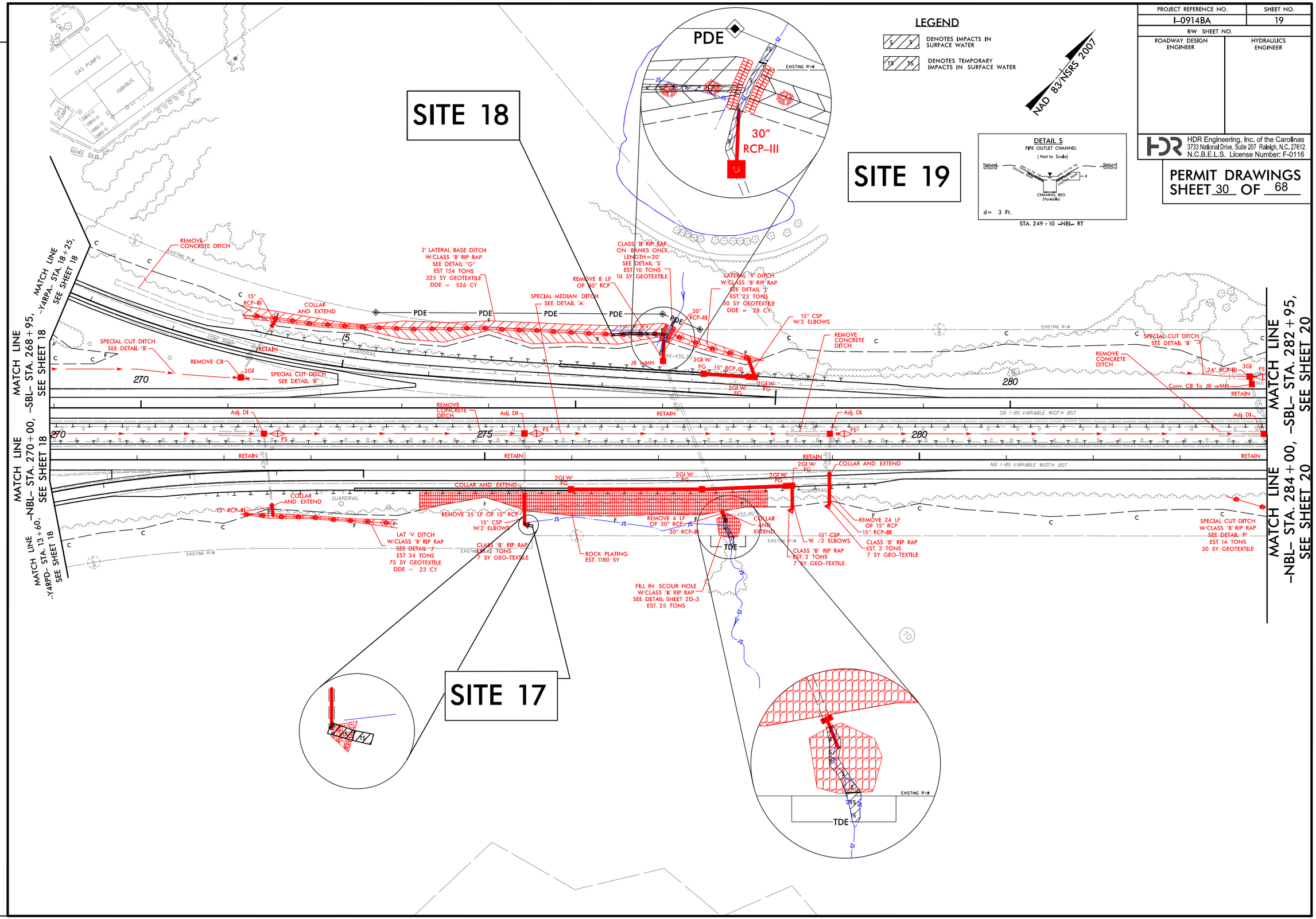
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 30 OF 68

LEGEND

- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt
USER: cmyers
DATE: 11/21/2014
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TIME: 8:55:07 AM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

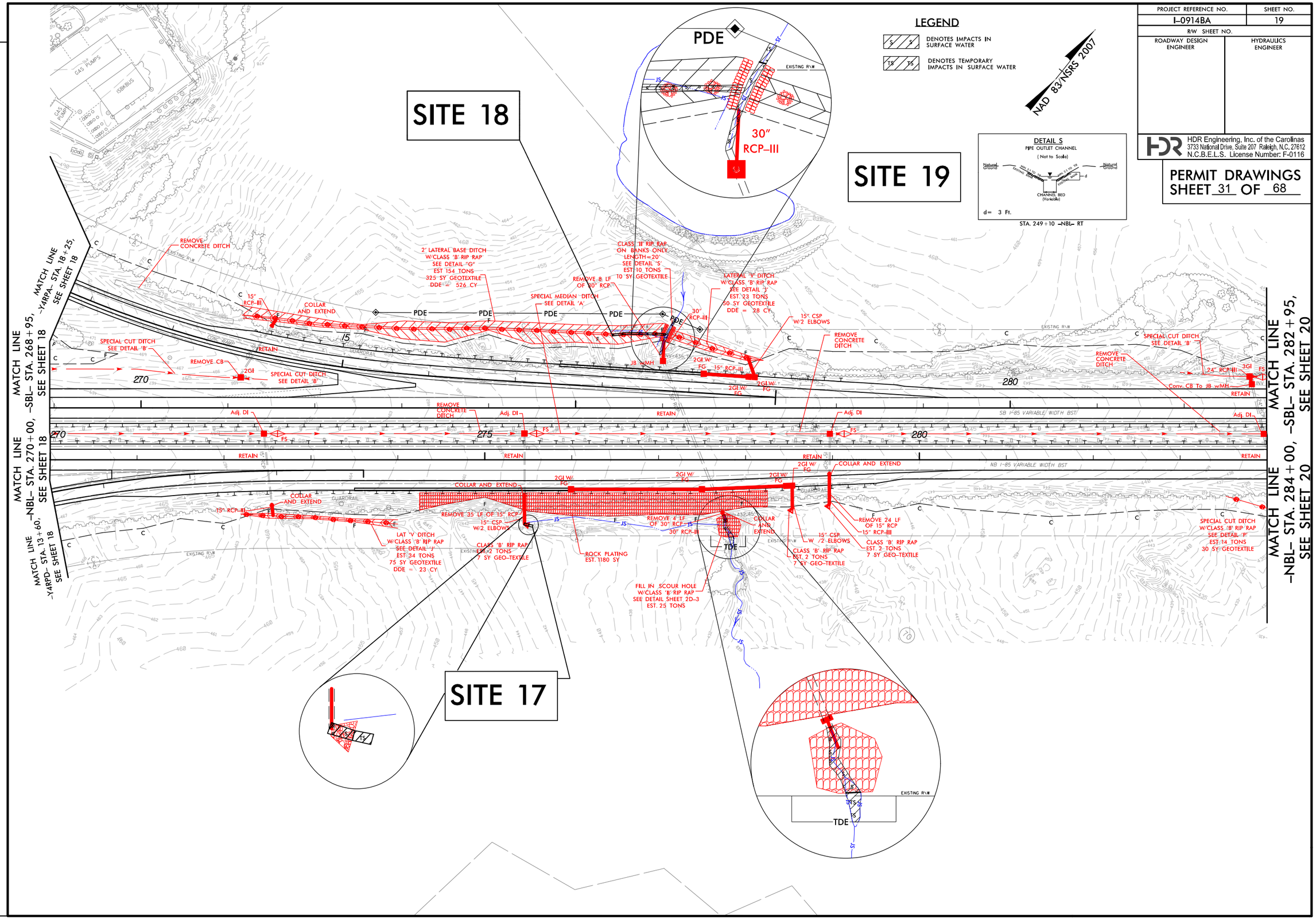
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 31 OF 68

LEGEND

- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



REVISIONS

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USER: cmyers DATE: 11/21/2014 TIME: 9:45:14 AM
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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-5914BA	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3721 National Office Park Dr. Raleigh, N.C. 27610
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 32 OF 68

LEGEND

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

NAD 83/NSRS 2007

PROPOSED
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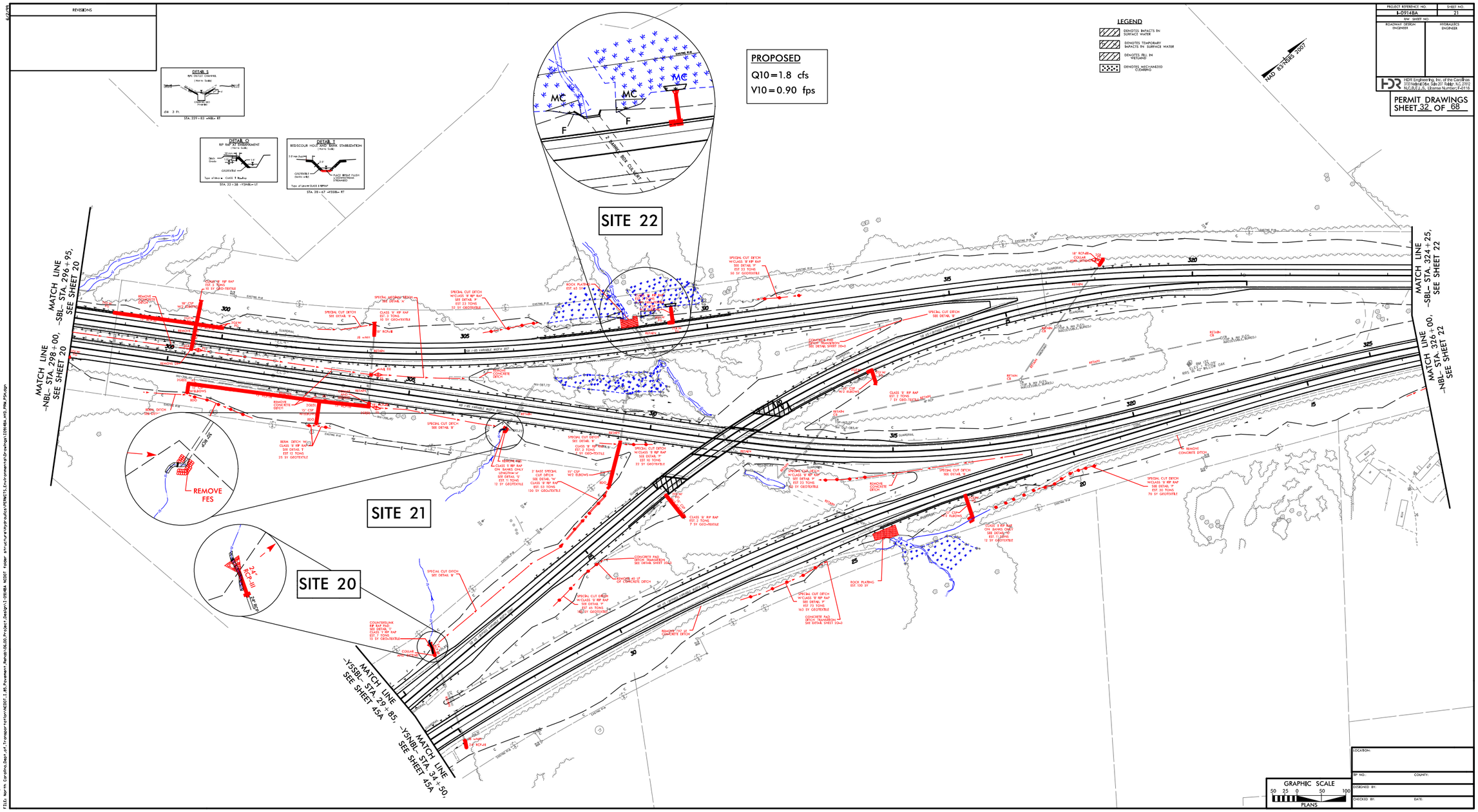
V10 = 0.90 fps



LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

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USER: cmyers
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DATE: 10/21/2014
PENTABLE: NCDOT.pen-mtn.NOCONLYbl
TIME: 8:30:07 AM

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-5914BA	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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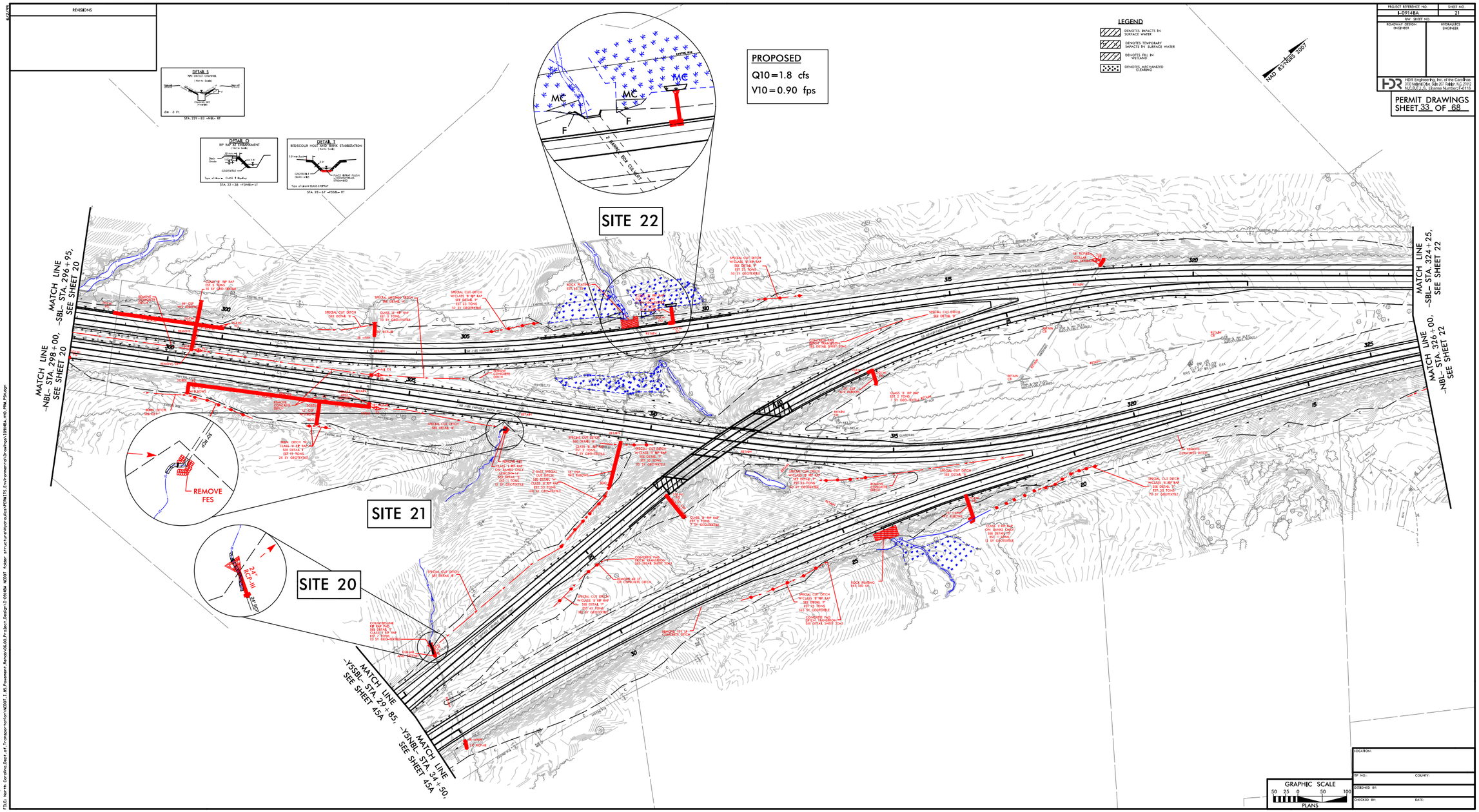
3721 National Drive, Suite 201 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 33 OF 68



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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	21A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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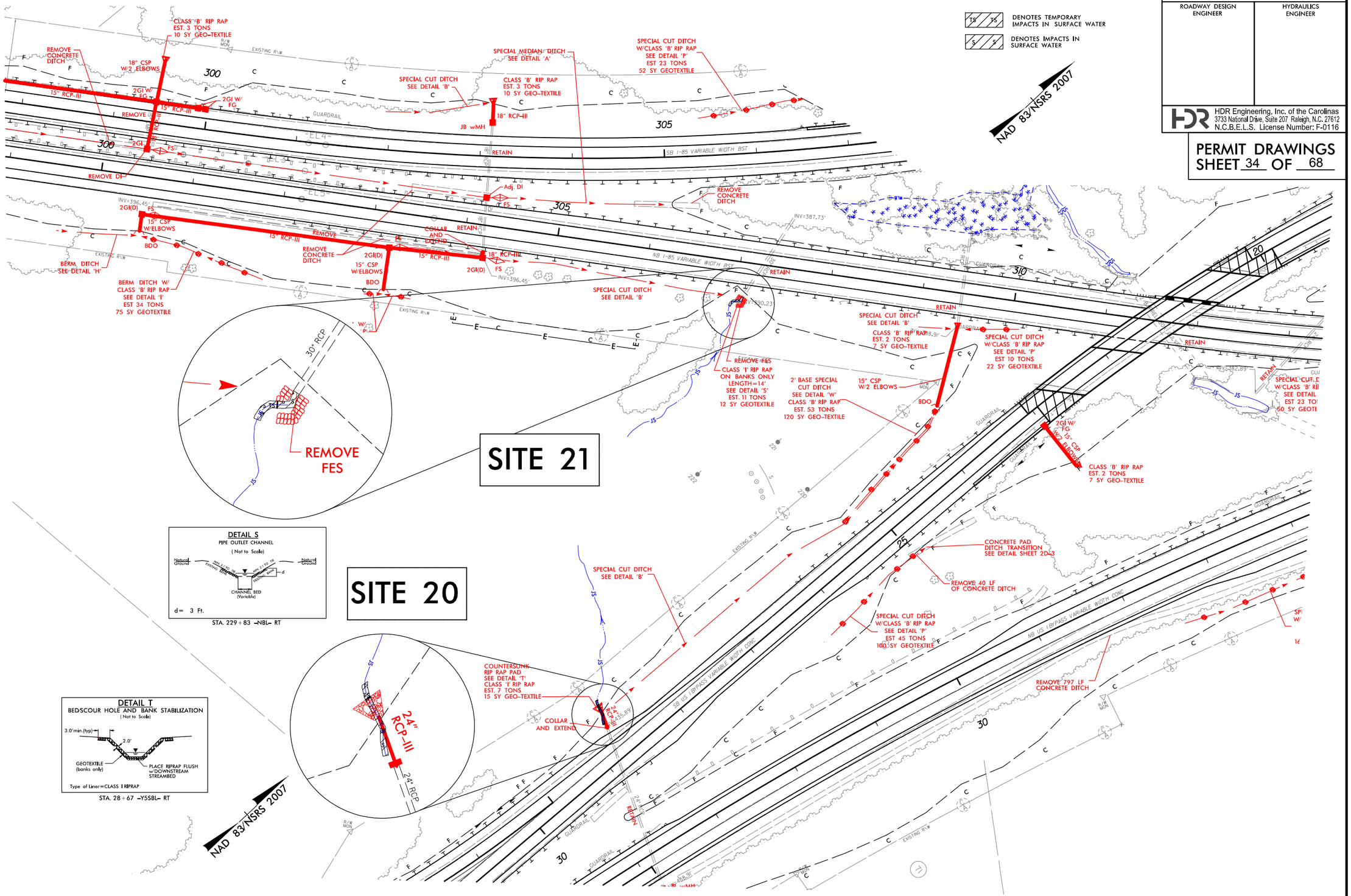
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 34 OF 68



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	21A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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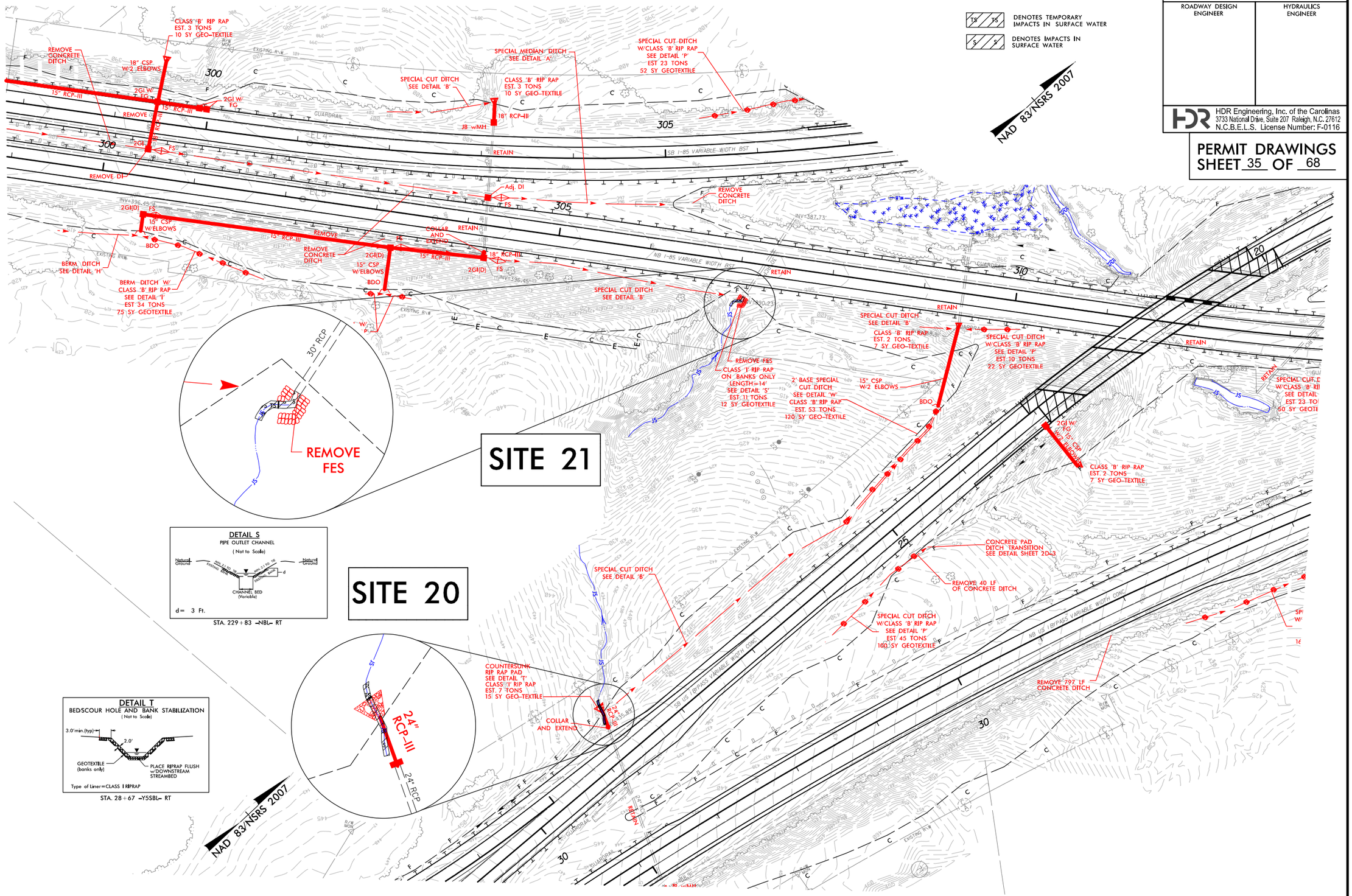
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 35 OF 68

LEGEND

- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- S / S — DENOTES IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



DETAIL S
PIPE OUTLET CHANNEL
(Not to Scale)

d = 3 Ft.

STA. 229+83 -NBL- RT

DETAIL T
BEDSCOUR HOLE AND BANK STABILIZATION
(Not to Scale)

Type of Liner=CLASS I RIPRAP

STA. 28+67 -Y5SBL- RT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	21B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

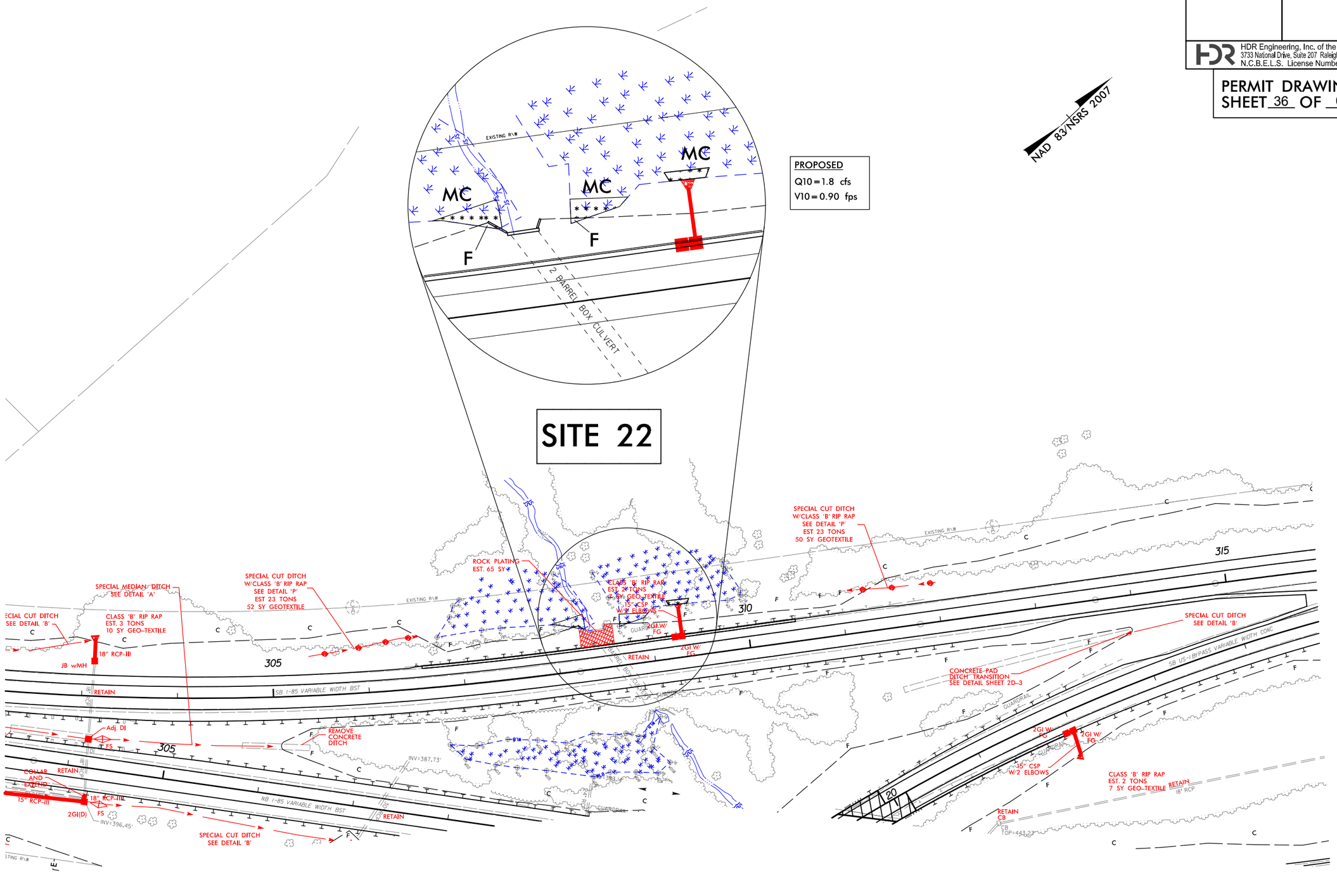
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 36 OF 68

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING

NAD 83/NSRS 2007



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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	21B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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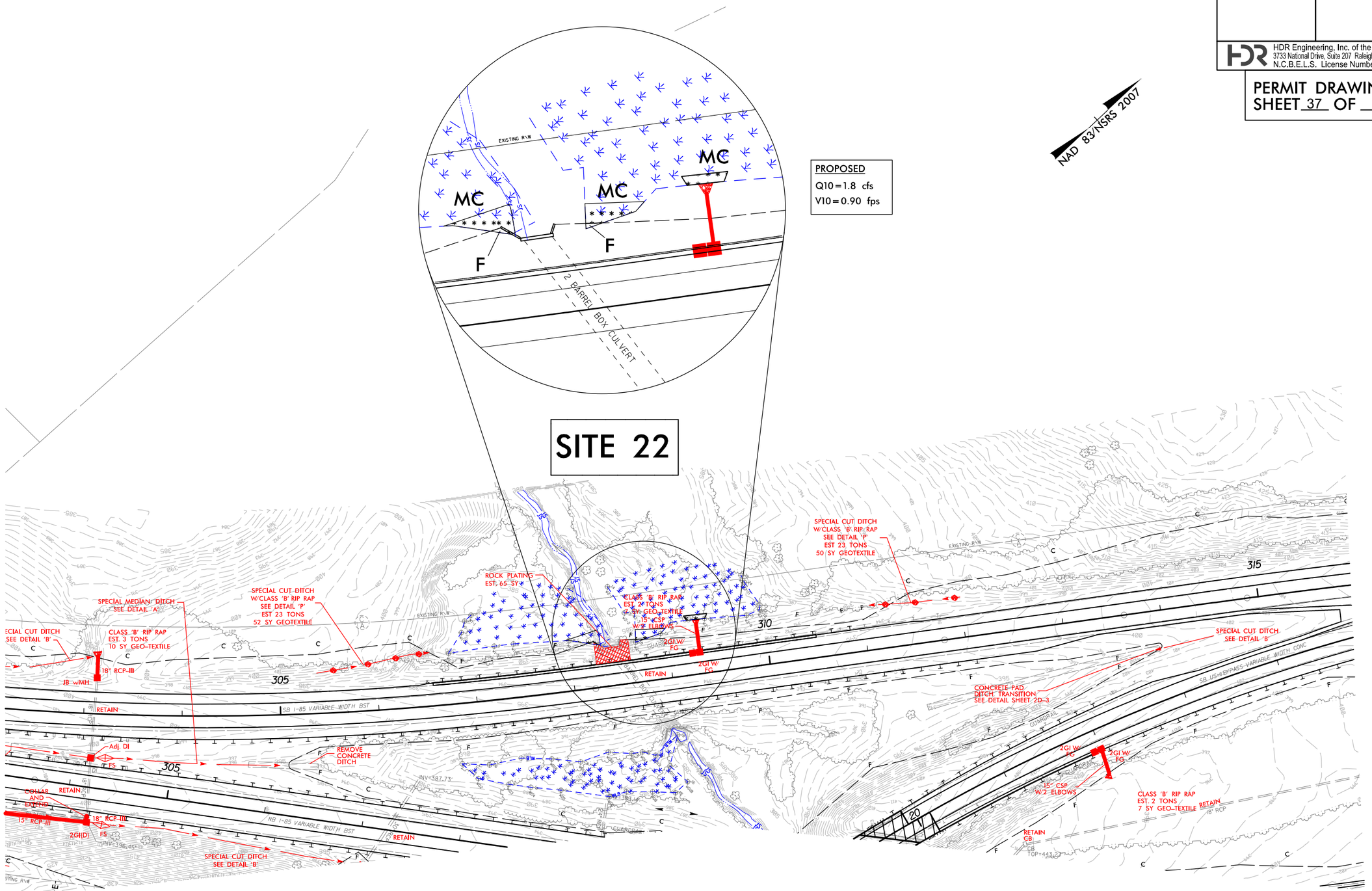
PERMIT DRAWINGS
SHEET 37 OF 68

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING

NAD 83/NSRS 2007



REVISIONS

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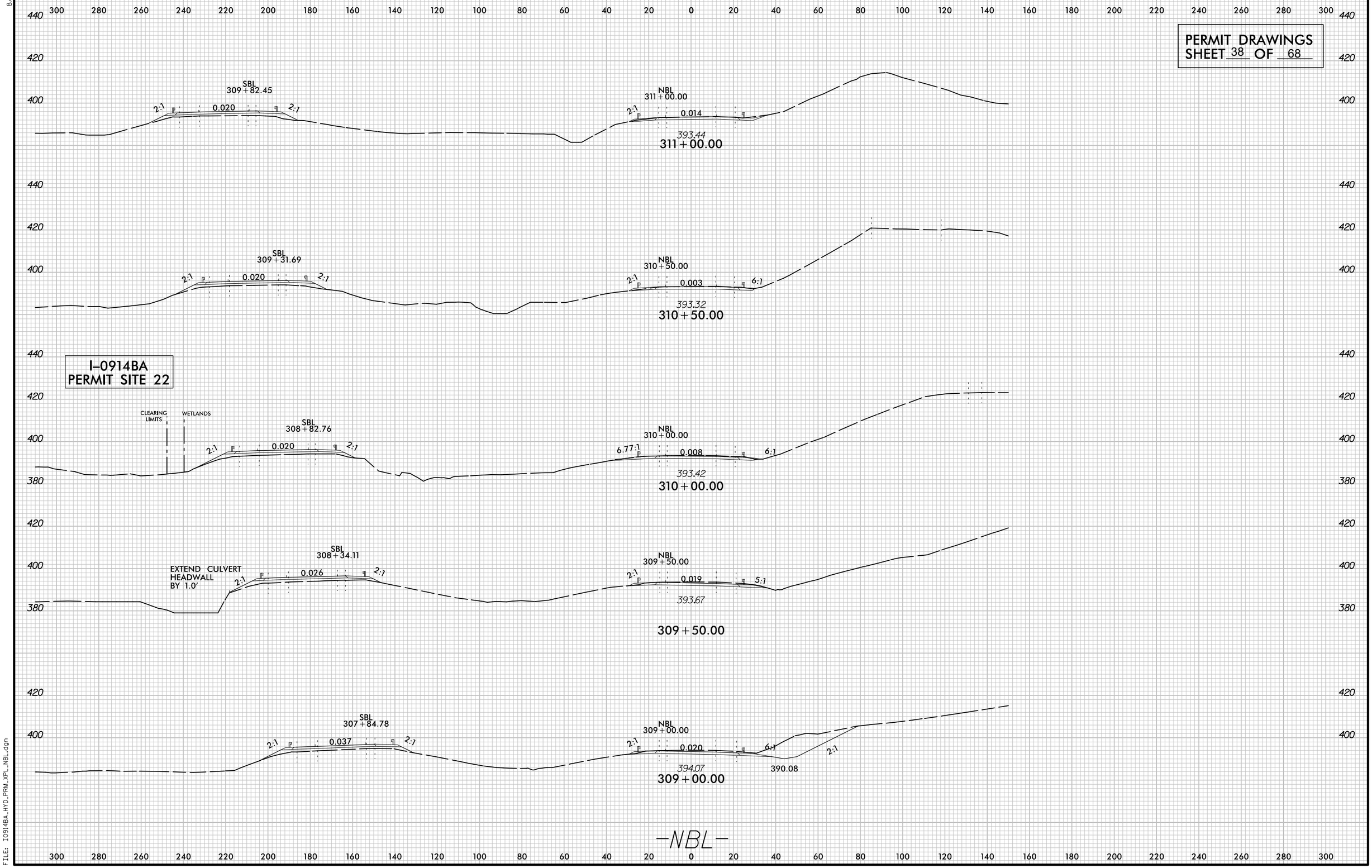
0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-0914BA	X-158

PERMIT DRAWINGS
SHEET 38 OF 68



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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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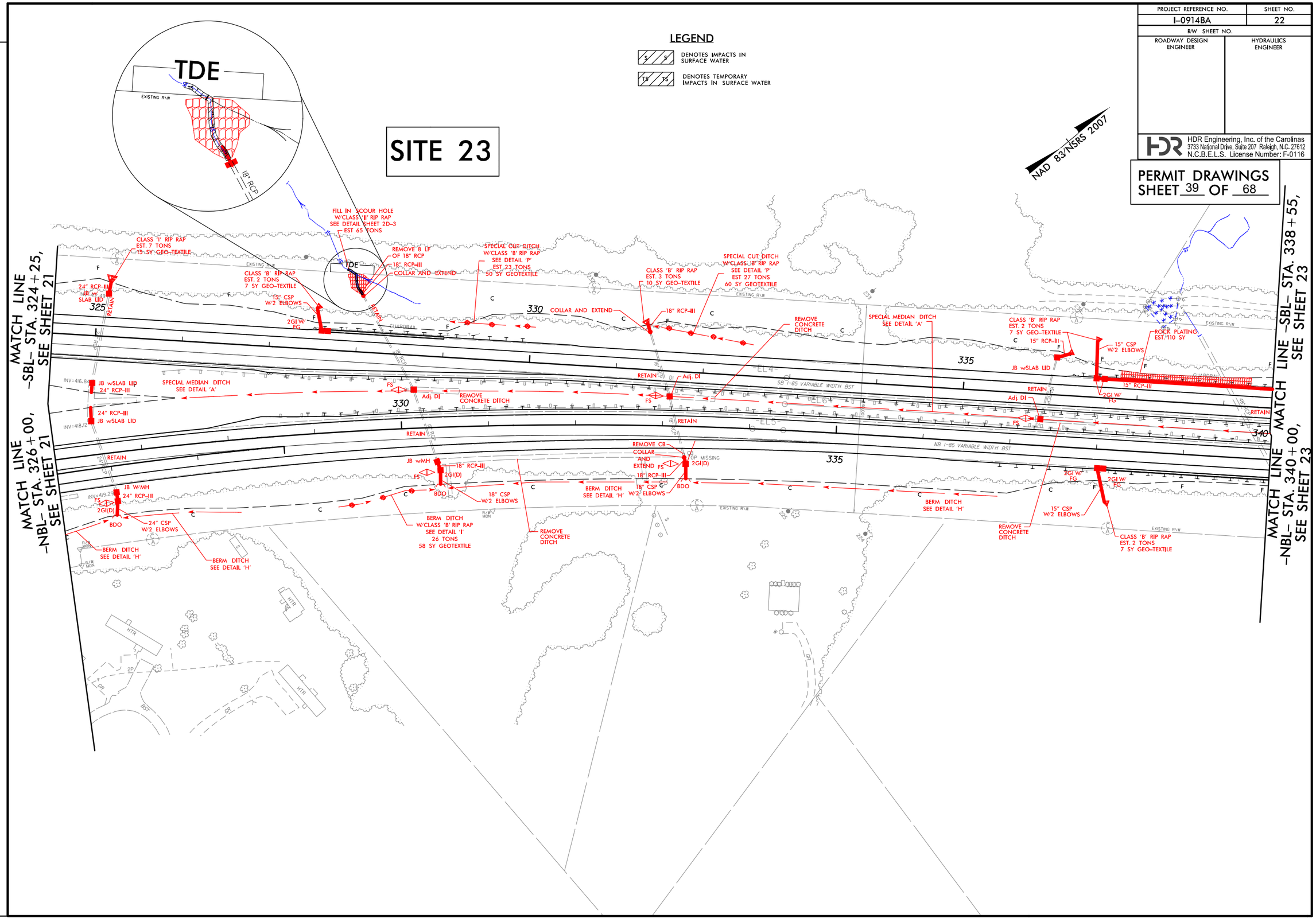
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 39 OF 68



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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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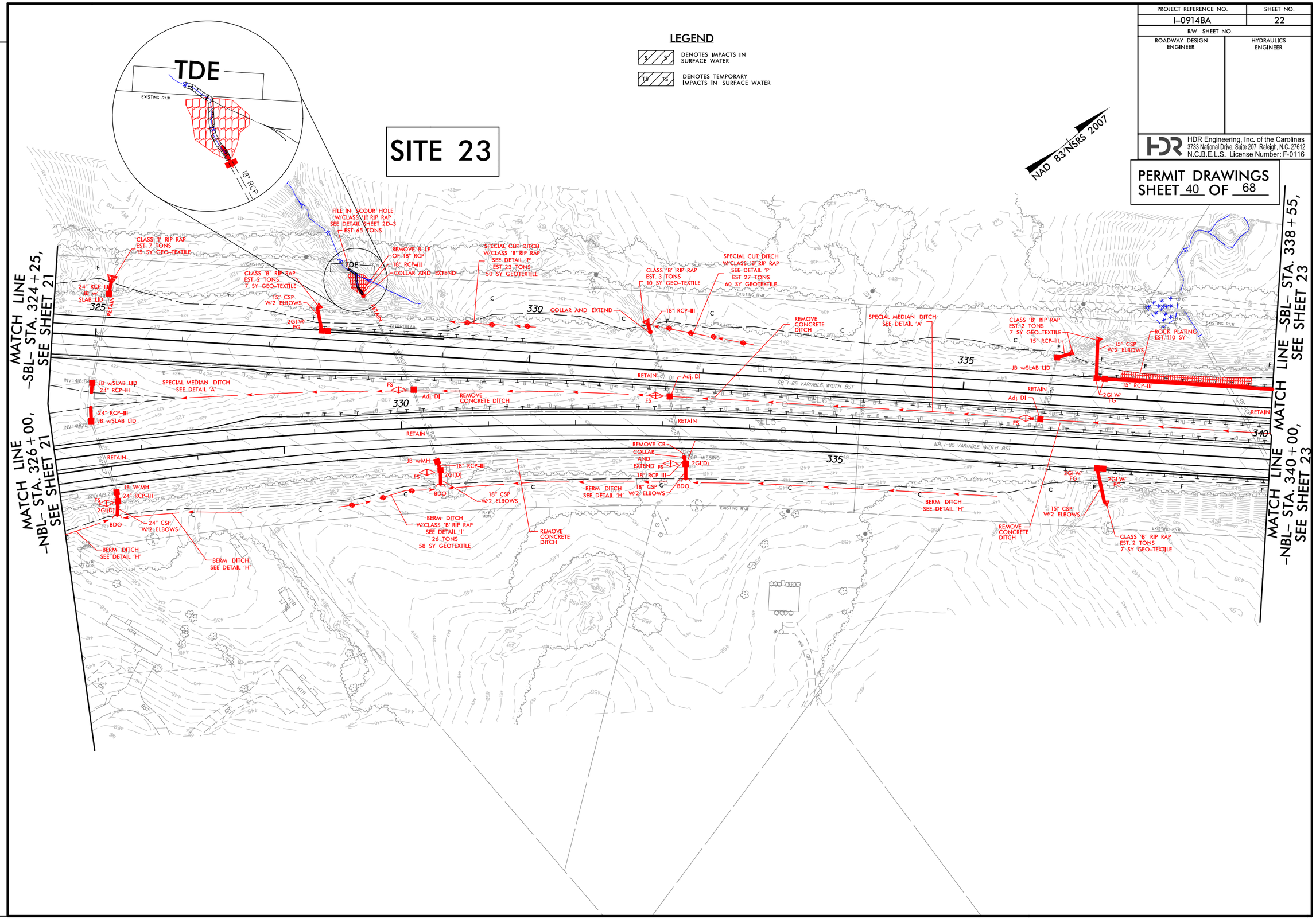
PERMIT DRAWINGS
SHEET 40 OF 68



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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 41 OF 68

LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

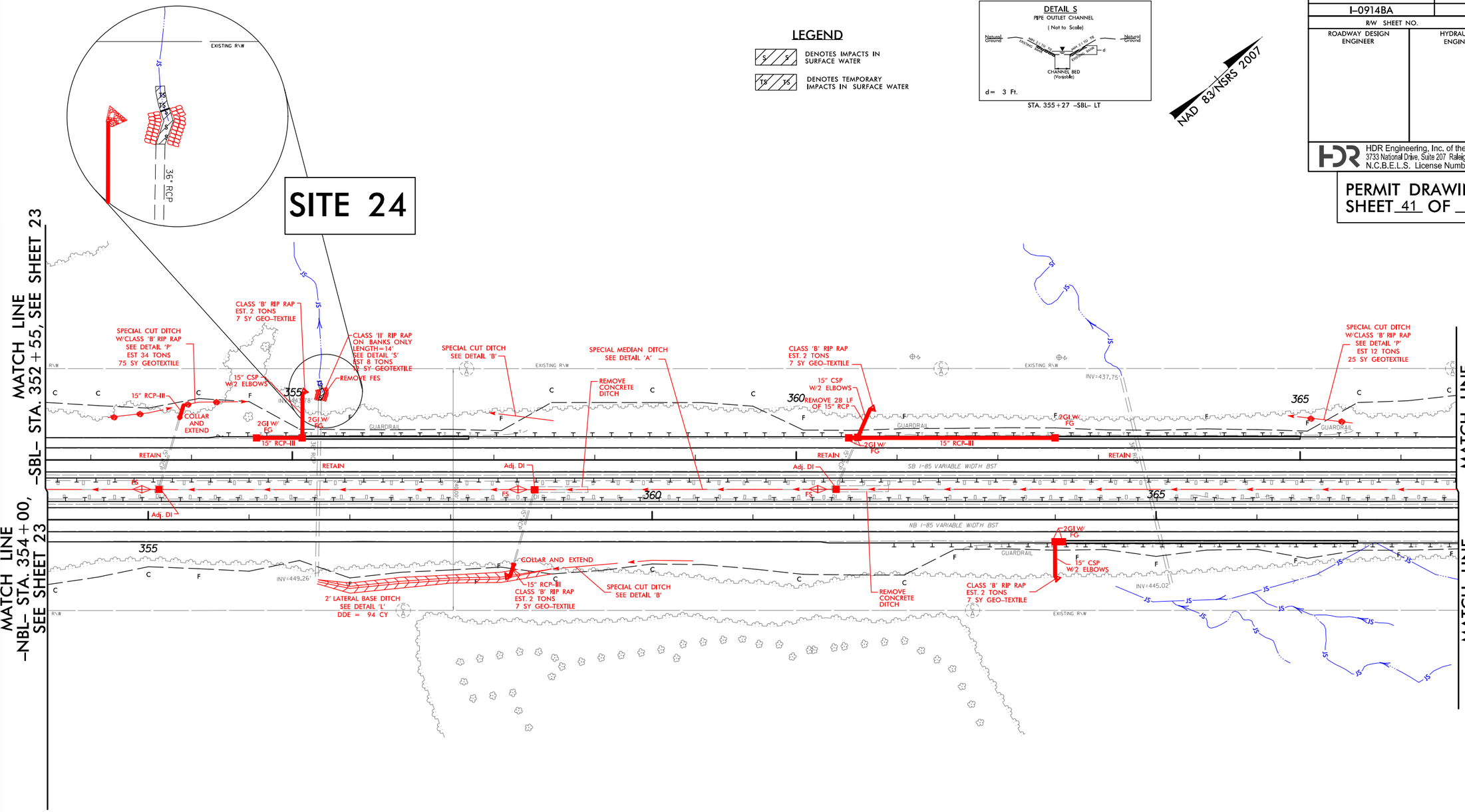
DETAIL S
PIPE OUTLET CHANNEL
(Not to Scale)

d= 3 Ft.

STA. 355+27 -SBL- LT

NAD 83/NSRS 2007

SITE 24



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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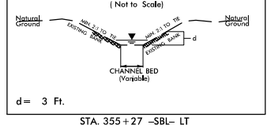
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 42 OF 68

LEGEND

S / S	DENOTES IMPACTS IN SURFACE WATER
TS / TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL S
PIPE OUTLET CHANNEL
(Not to Scale)



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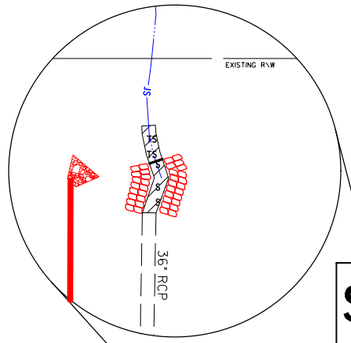
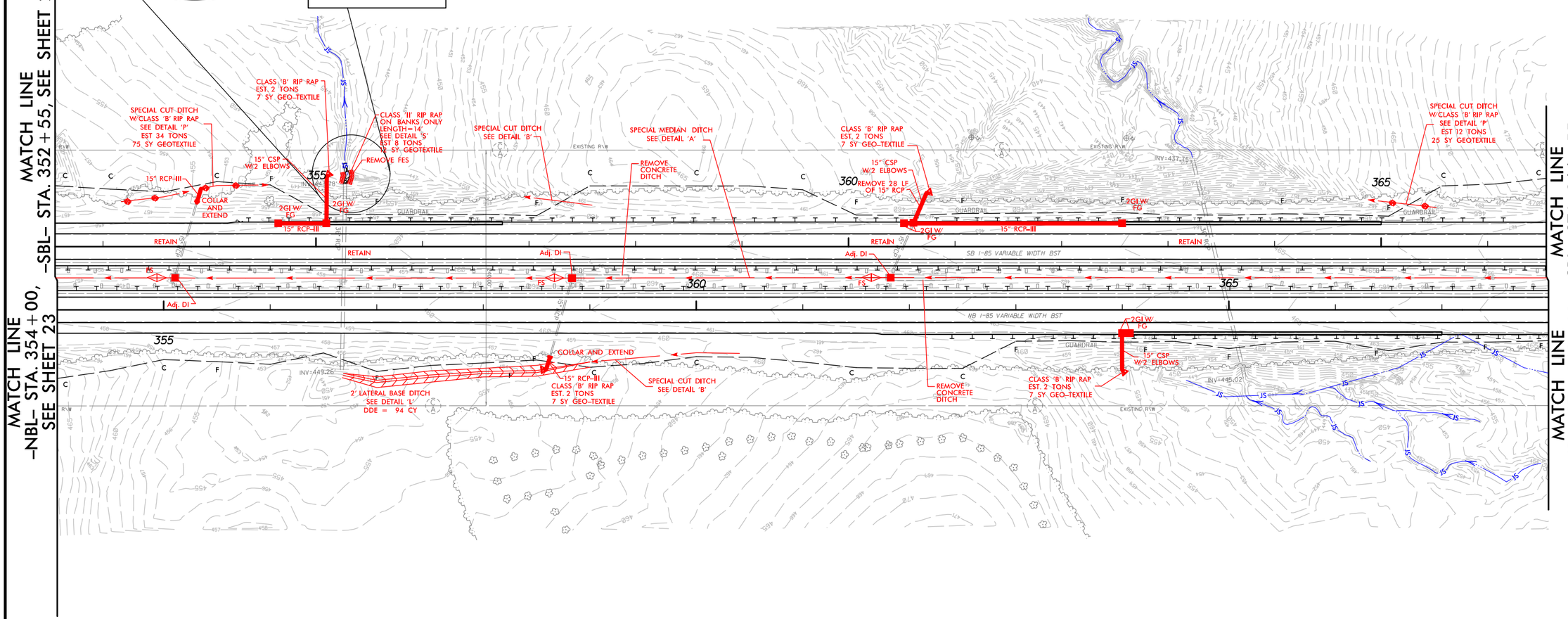
STA. 355+27 –SBL– LT

NAD 83/NSRS 2007

SITE 24





REVISIONS

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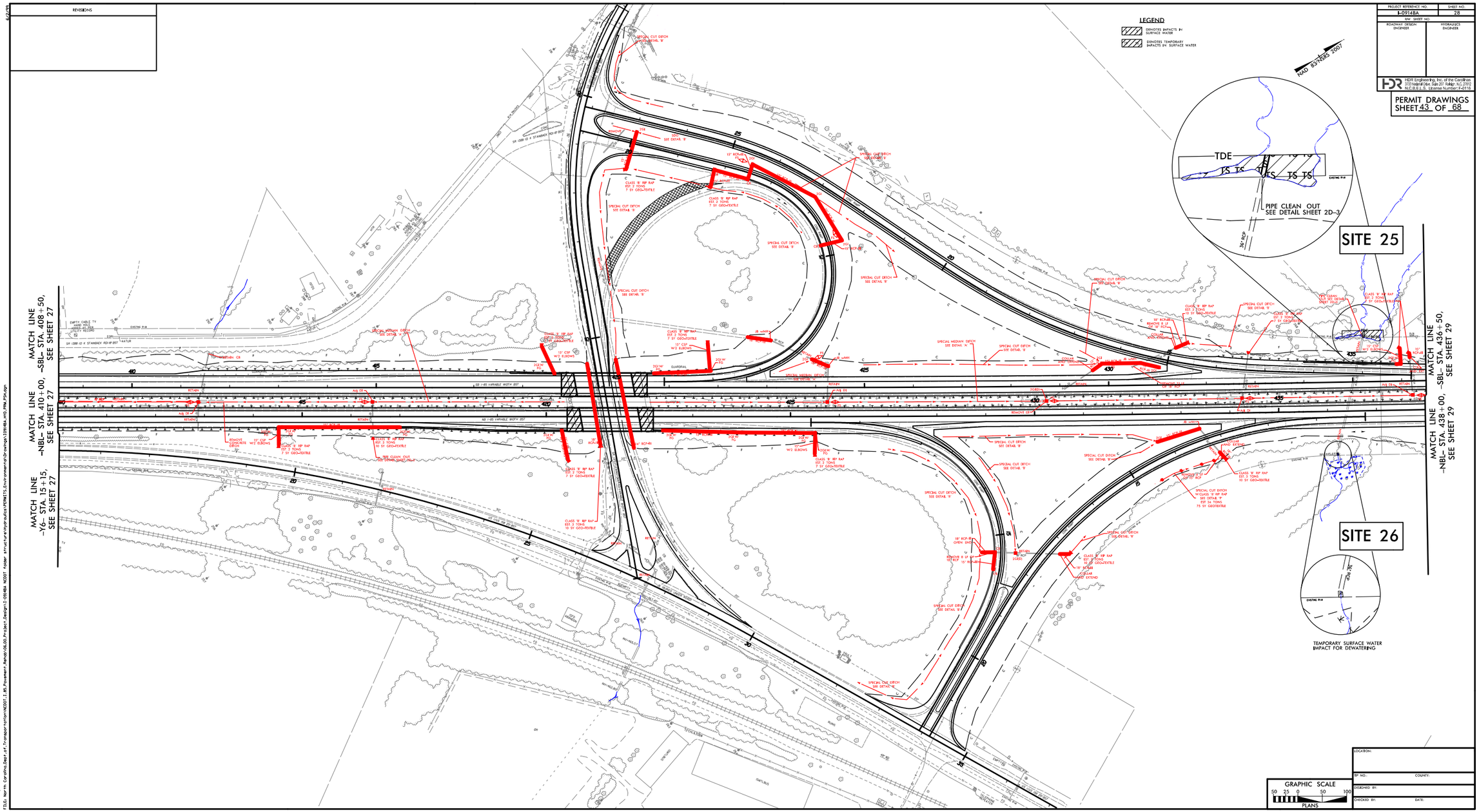
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-5914BA	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3721 National Drive, Suite 201 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 43 OF 68


LEGEND
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
NAD 83/NSRS 2007
MATCH LINE -SBL- STA. 408+50, SEE SHEET 27
MATCH LINE -NBL- STA. 410+00, SEE SHEET 27
MATCH LINE -Y6- STA. 15+15, SEE SHEET 27
MATCH LINE -SBL- STA. 436+50, SEE SHEET 29
MATCH LINE -NBL- STA. 438+00, SEE SHEET 29
SITE 25
SITE 26
TDE
PIPE CLEAN OUT SEE DETAIL SHEET 2D-3
TEMPORARY SURFACE WATER IMPACT FOR DEWATERING
SPECIAL CUT DITCH SEE DETAIL 'B'
SPECIAL MEDIAN DITCH SEE DETAIL 'A'
CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEO-TEXTILE
CLASS 'B' RIP RAP EST. 3 TONS 10 SY GEO-TEXTILE
CLASS 'B' RIP RAP EST. 34 TONS 75 SY GEO-TEXTILE
15" CSP W/2 ELBOWS
18" RCP-B1
REMOVE CONCRETE DITCH
GUARDRAIL
SR 1388 (D K ST ANNEX RD) BF 857
SR 1388 (D K ST ANNEX RD) BF 857
SR 1143 (ROSE ROAD)
SR 1143 (ROSE ROAD)
SR 1143 (ROSE ROAD)

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-5914BA	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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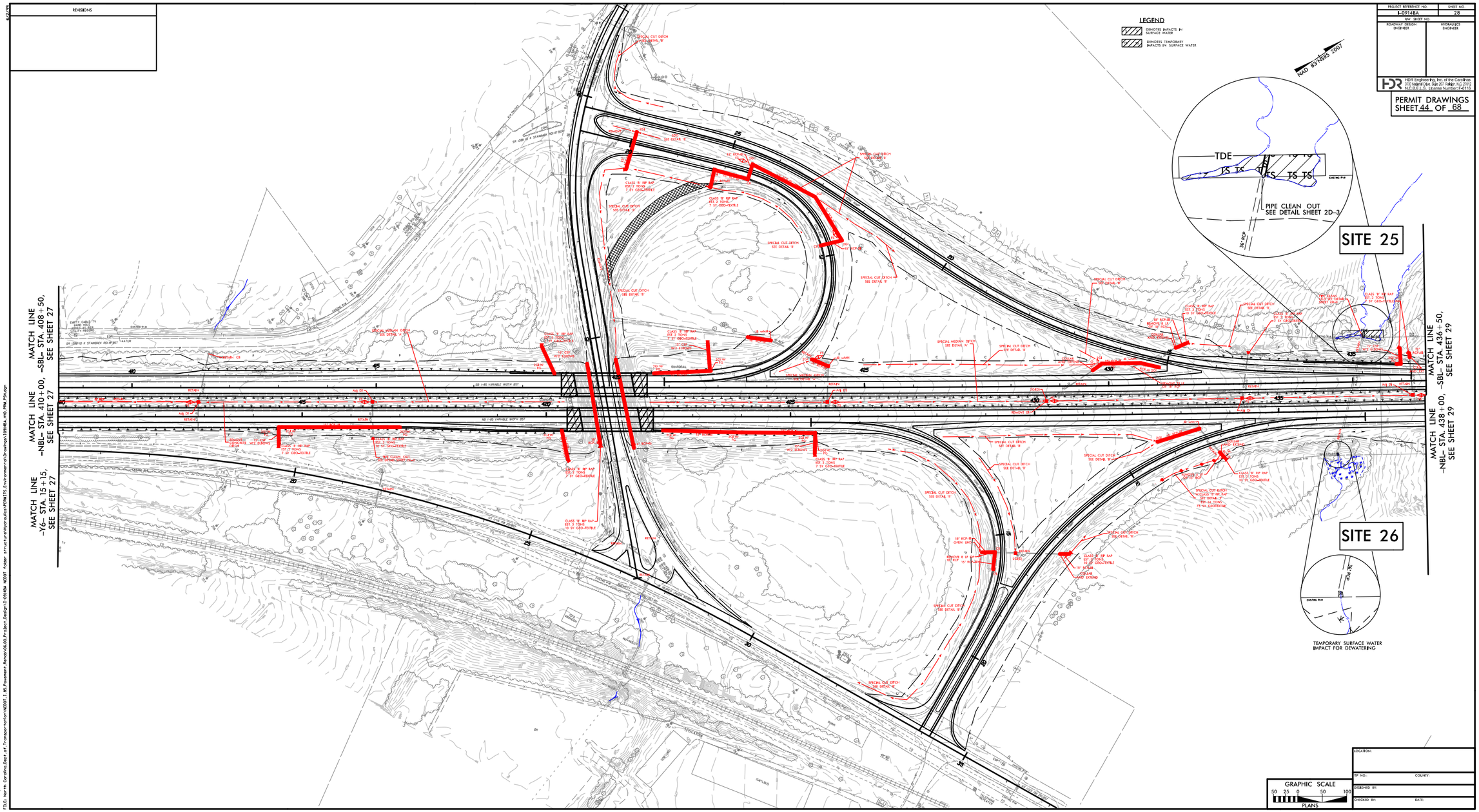
3721 National Drive, Suite 201 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 44 OF 68



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TIP NO.:	COUNTY:
DESIGNED BY:	
CHECKED BY:	DATE:

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	28A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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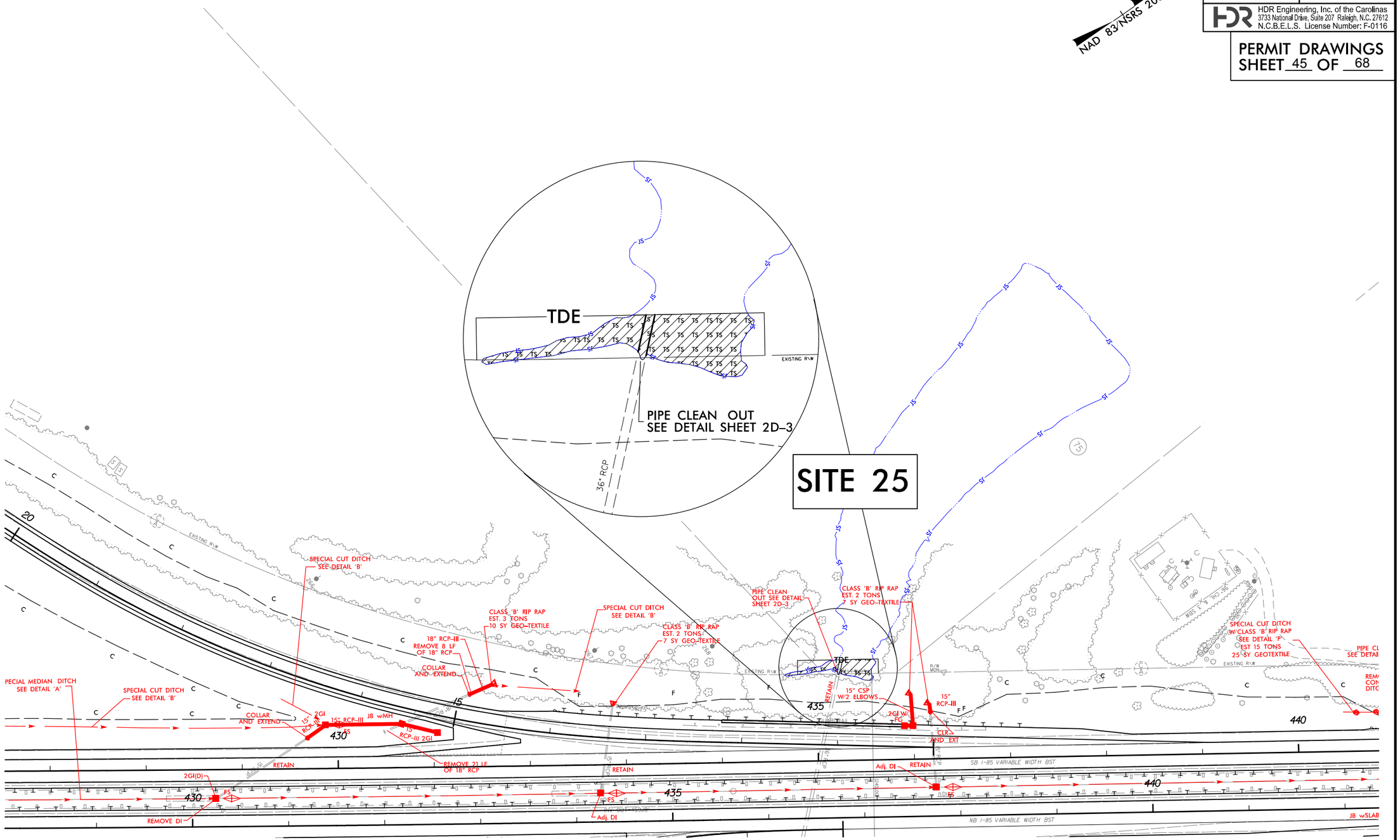
PERMIT DRAWINGS
SHEET 45 OF 68

LEGEND

- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	28A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
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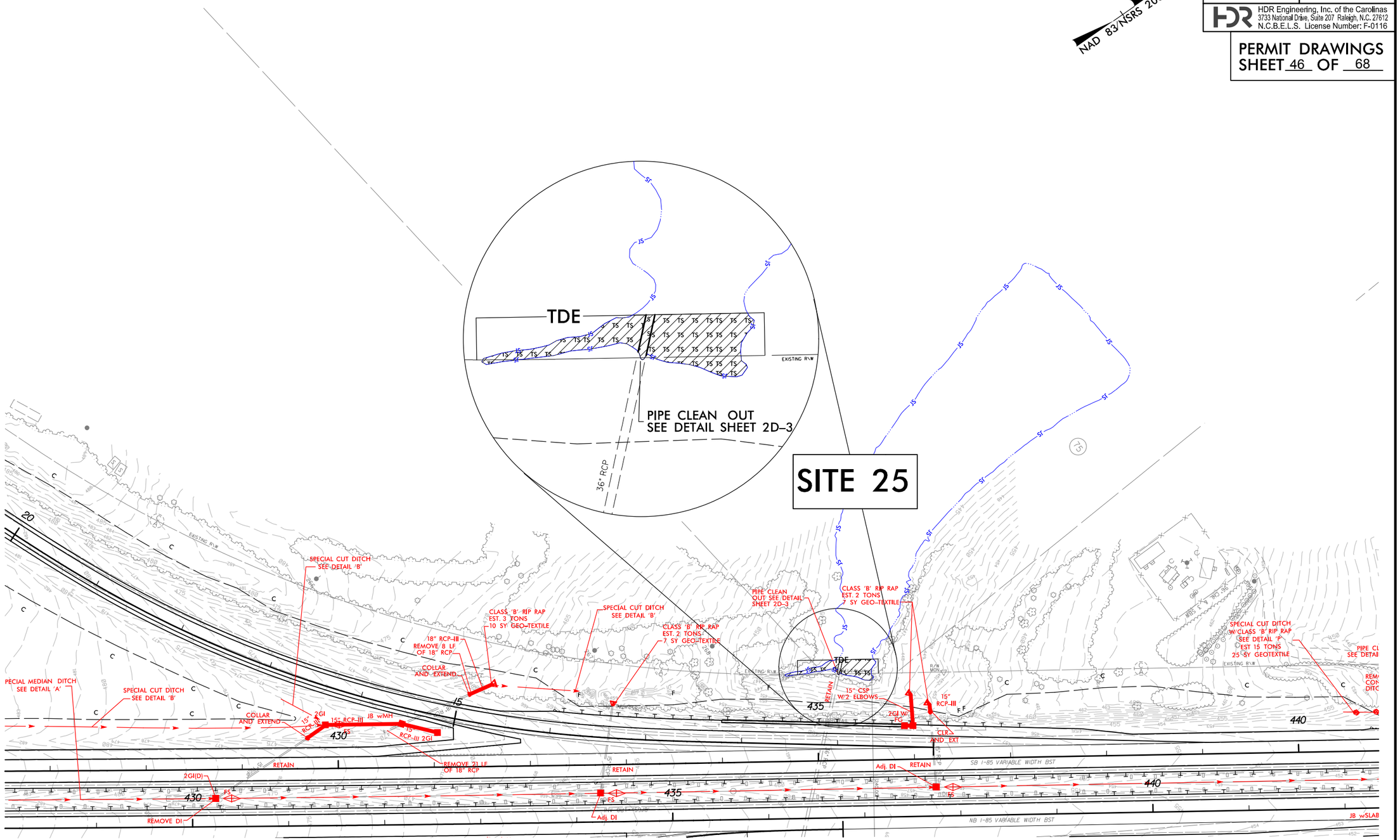
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 46 OF 68

LEGEND

- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	28B
R/W SHEET NO.	
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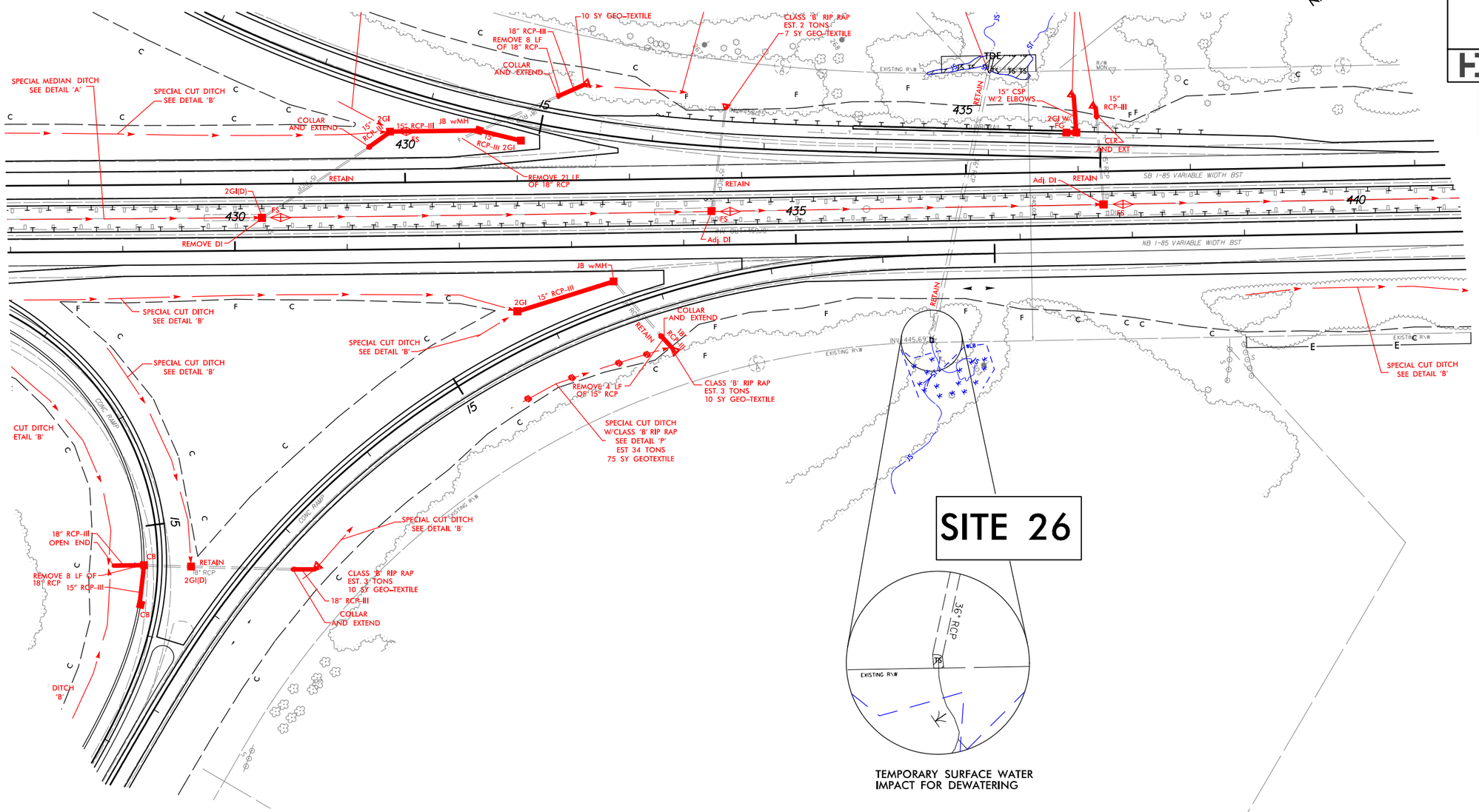
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 47 OF 68

NAD 83/NSRS 2007



SITE 26

TEMPORARY SURFACE WATER IMPACT FOR DEWATERING

LEGEND

S / S	DENOTES IMPACTS IN SURFACE WATER
TS / TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

REVISIONS

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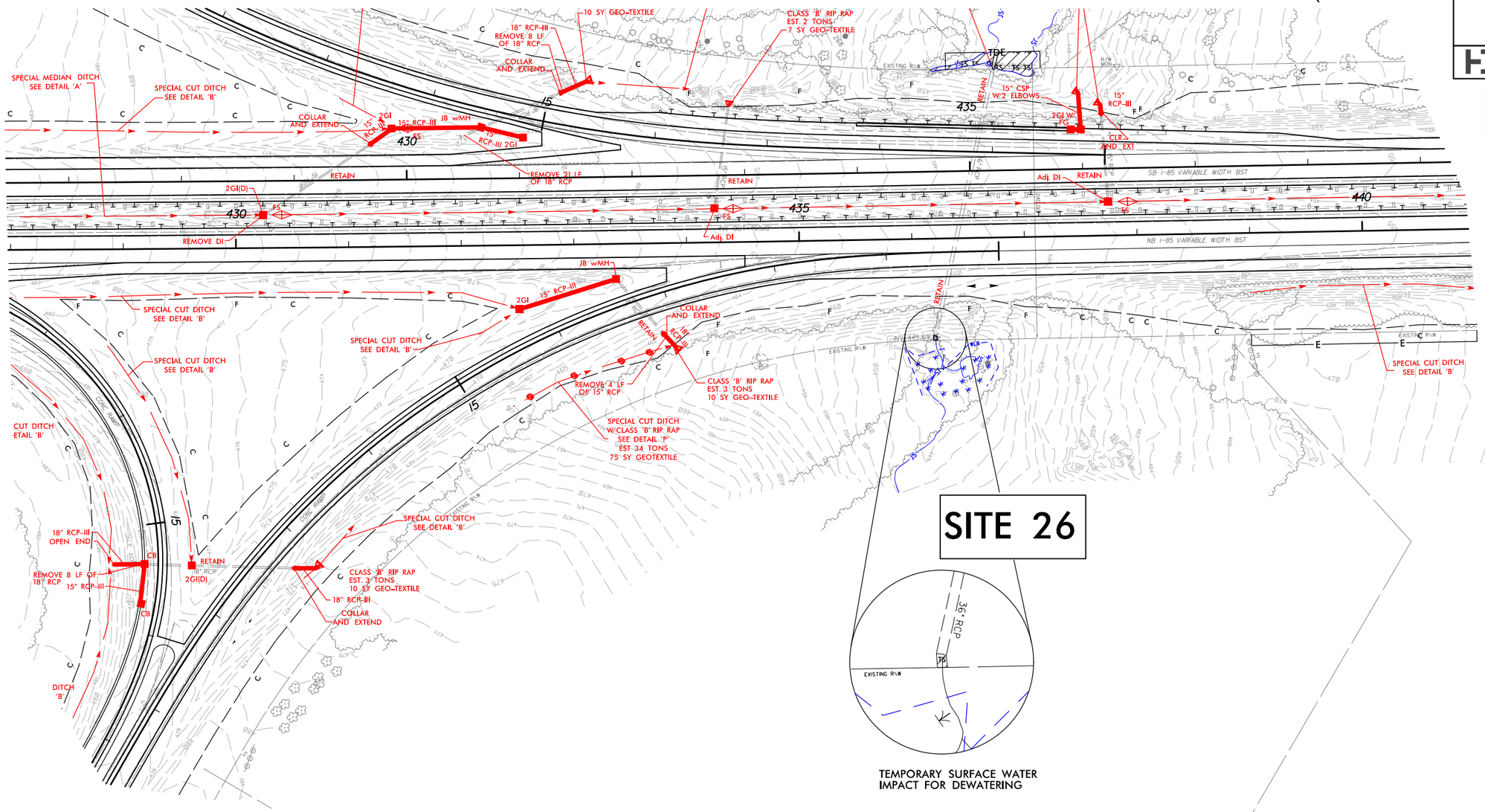
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	28B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 48 OF 68

NAD 83/NSRS 2007



LEGEND

S / S	DENOTES IMPACTS IN SURFACE WATER
TS / TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

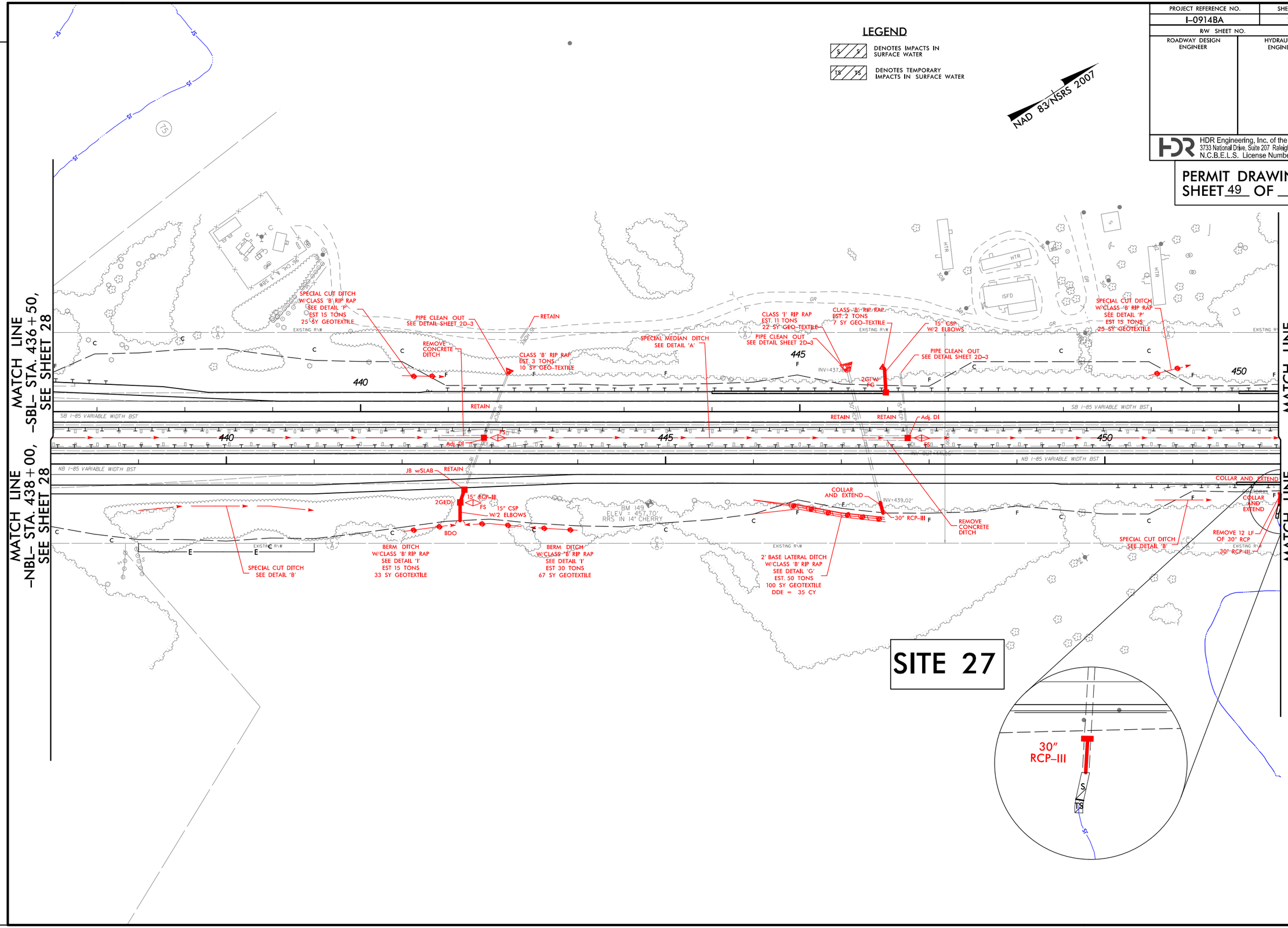
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 49 OF 68

LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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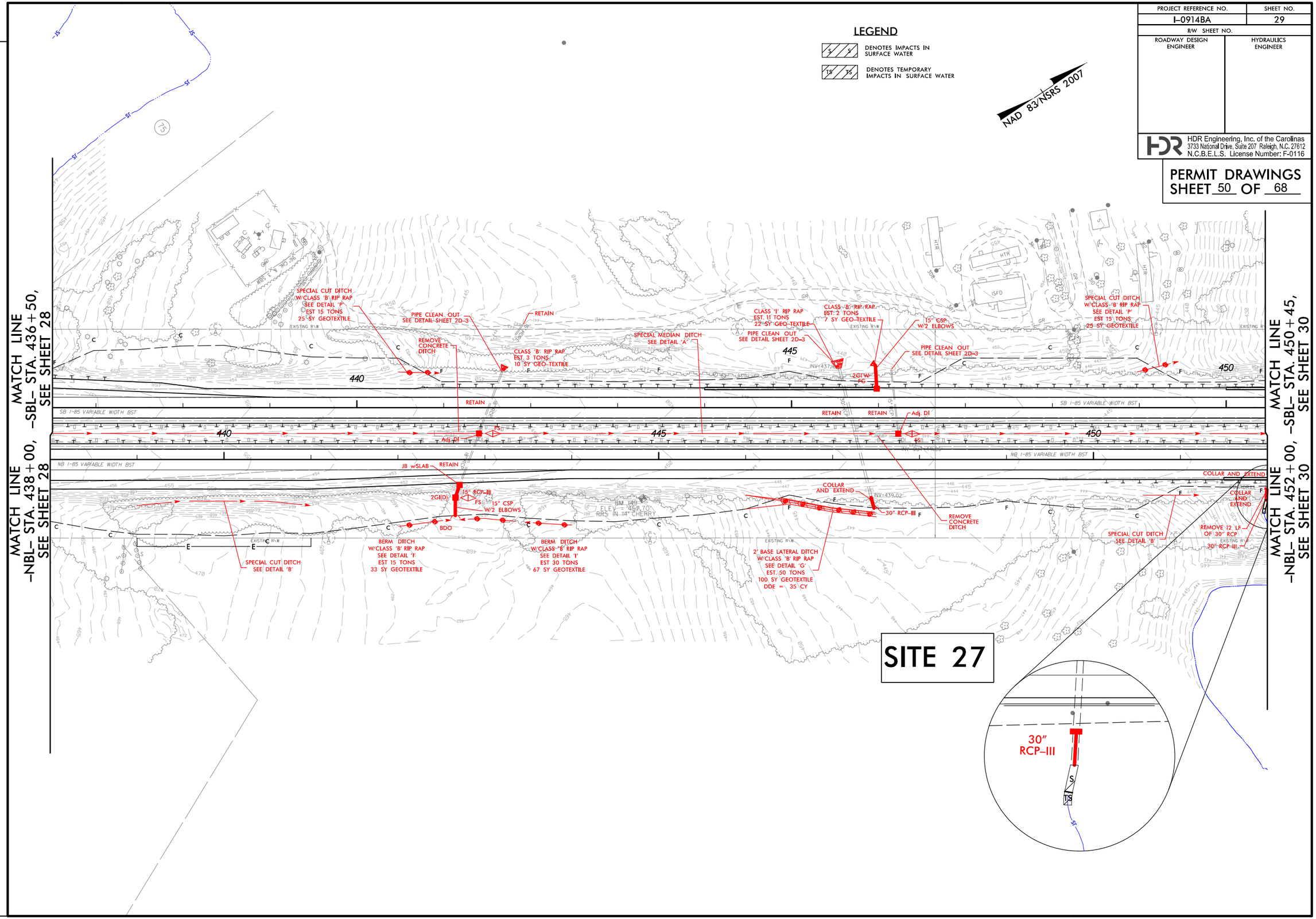
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 50 OF 68

LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007



REVISIONS

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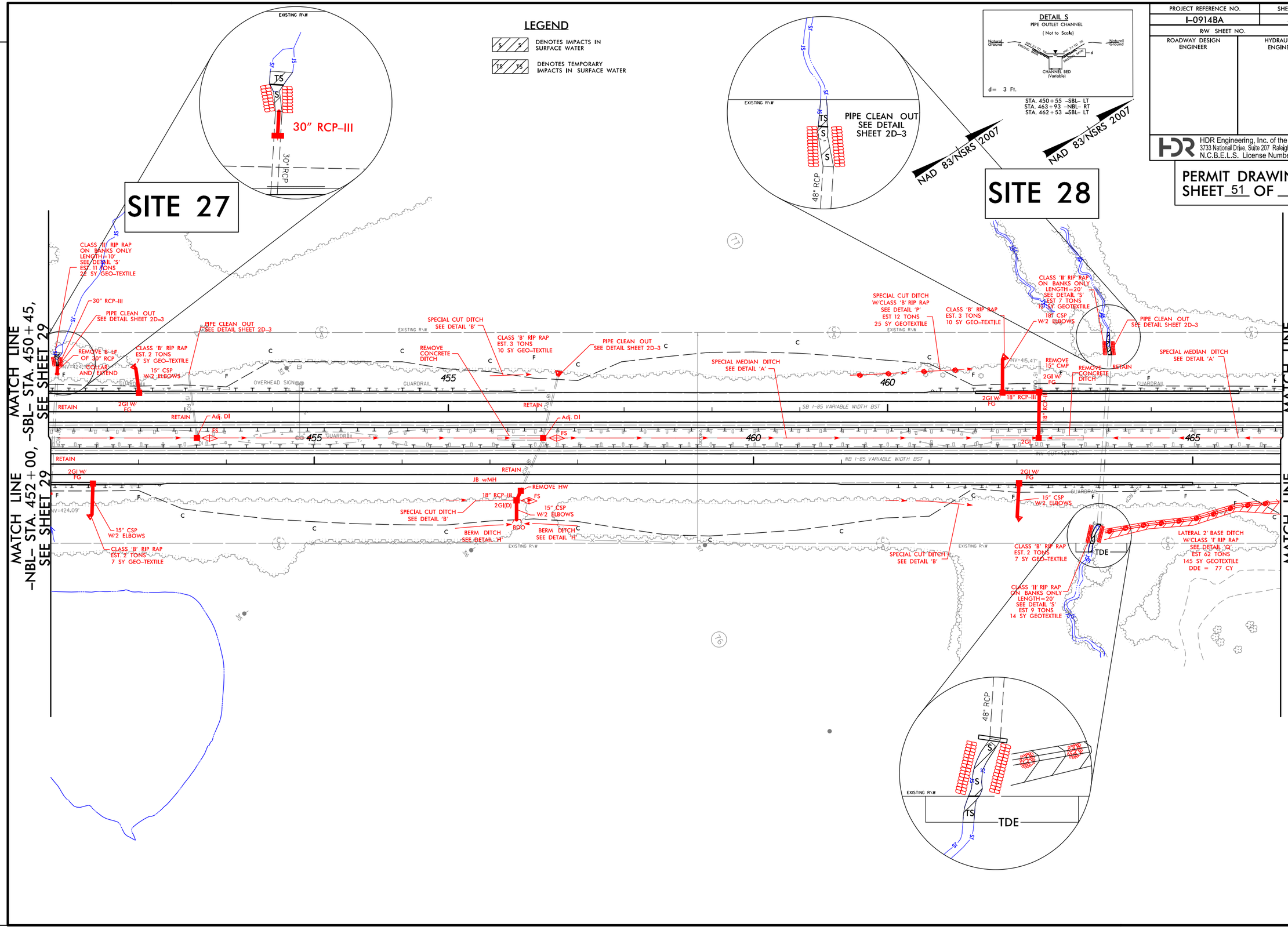
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 51 OF 68

LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



REVISIONS

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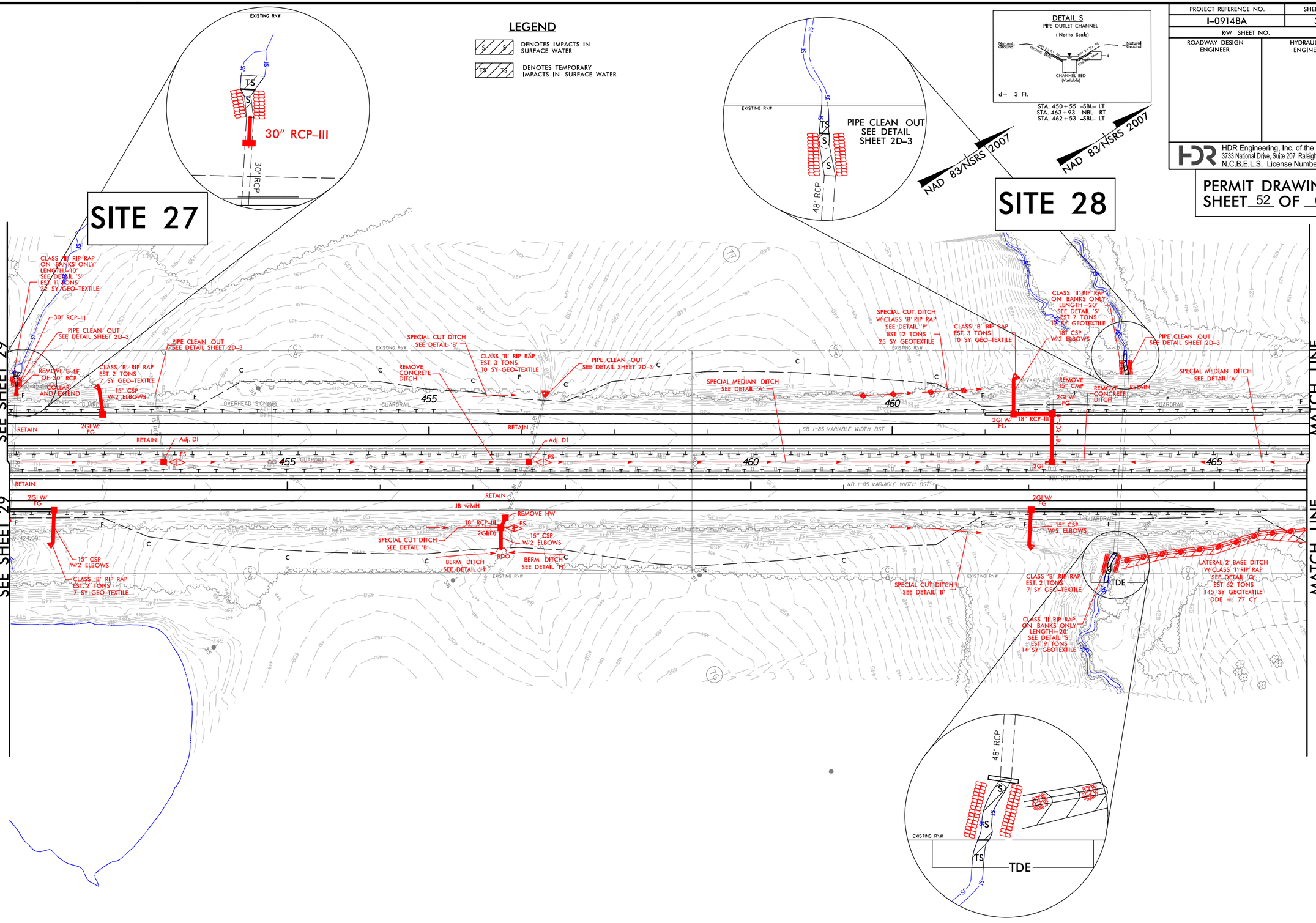
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 52 OF 68

LEGEND

- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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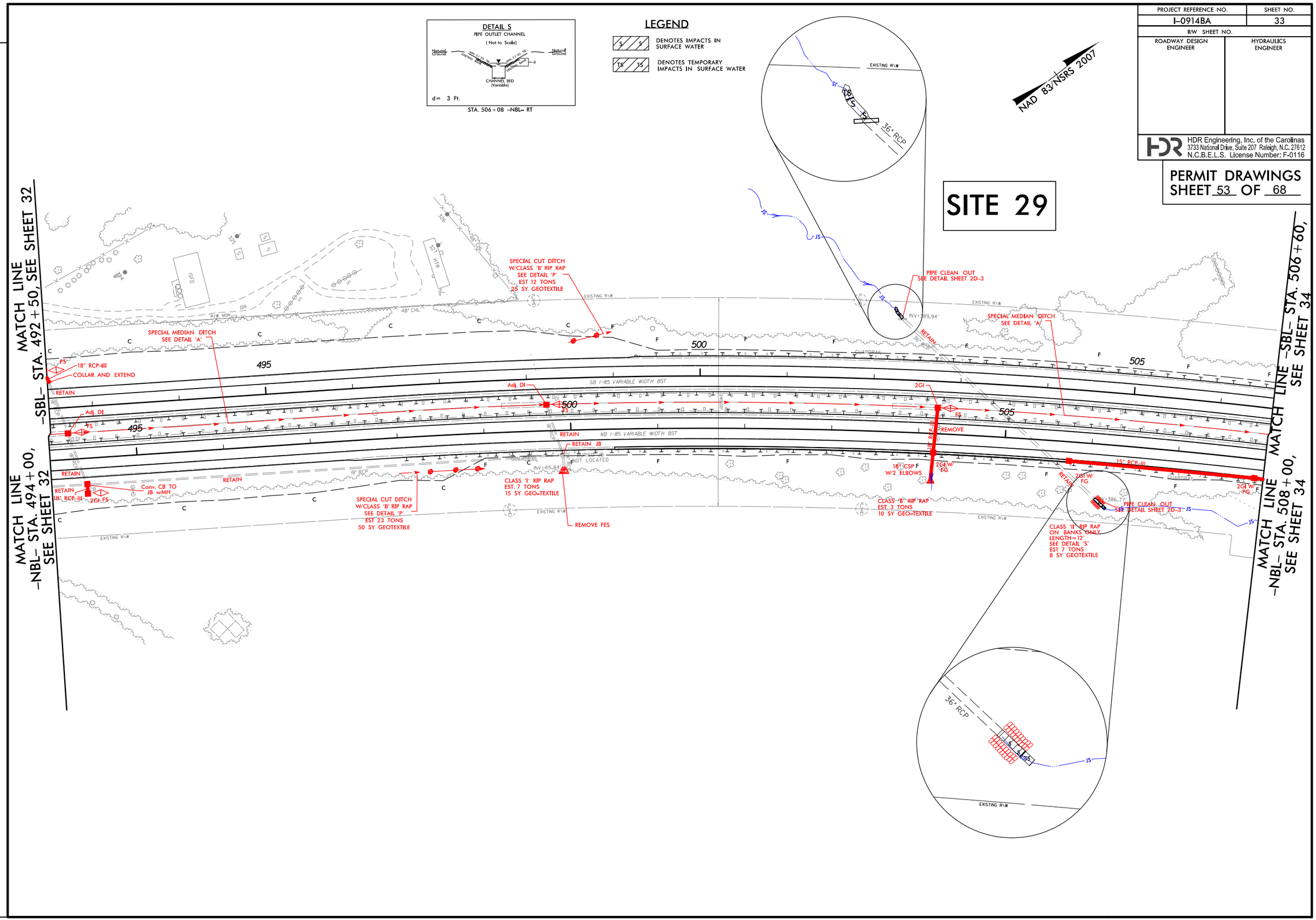
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 53 OF 68

SITE 29



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
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PERMIT DRAWINGS
SHEET 54 OF 68

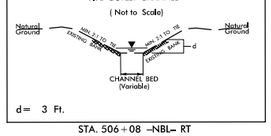
SITE 29

NAD 83/NSRS 2007

DETAIL S

PIPE OUTLET CHANNEL

(Not to Scale)



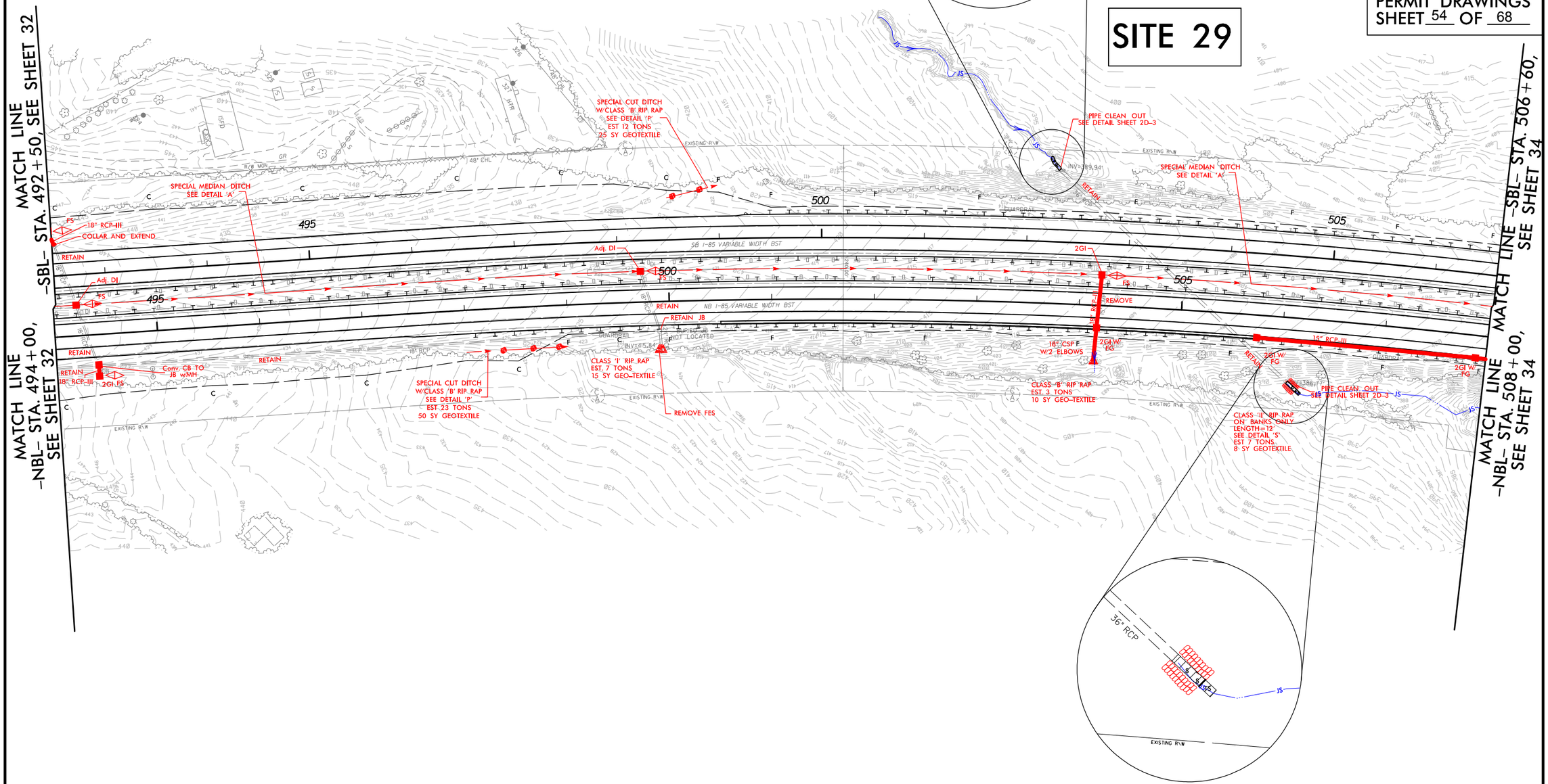
d= 3 Ft.

STA. 506+08 -NBL- RT

LEGEND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER



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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 55 OF 68

LEGEND

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

DETAIL R
2' BASE TAIL DITCH
(Not to Scale)

Natural Ground; 2:1; d; D; B; Geotextile; Natural Ground

Min. D= 1 Ft.
Max. d= 1 Ft.
B= 2 Ft.

*When B is < 6.0'

Type of Liner= Class 'I' Rip-Rap

FROM STA. 519+71 -NBL- TO STA. 519+80 -NBL- RT

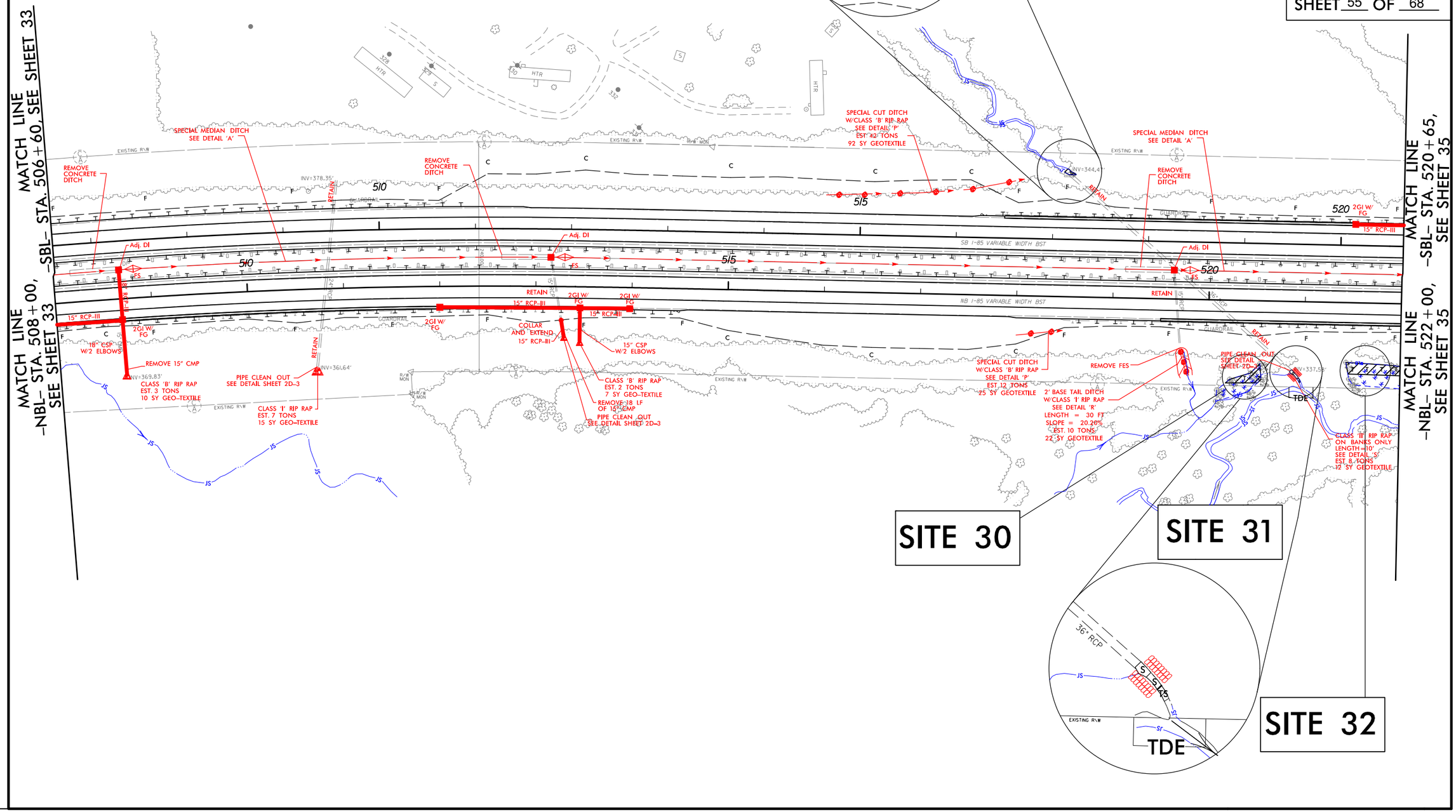
DETAIL S
PIPE OUTLET CHANNEL
(Not to Scale)

Natural Ground; MIN. 1 TO 1 SIDE SLOPE; EXISTING GROUND; d; CHANNEL BED (Variable); Natural Ground

d= 3 Ft.

STA. 520+87 -NBL- RT

NAD 83/NSRS 2007



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 56 OF 68

LEGEND

- S S — DENOTES IMPACTS IN SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- T T T — DENOTES TEMPORARY FILL IN WETLAND

DETAIL R
2' BASE TAIL DITCH
(Not to Scale)

Natural Ground — 2:1 — D — 2:1 — Natural Ground; d; Geotextile; B

Min. D = 1 Ft.
Max. d = 1 Ft.
B = 2 Ft.

*When B is < 6.0'

Type of Liner = Class 'I' Rip-Rap
FROM STA. 519+71 -NBL- TO STA. 519+80 -NBL- RT

DETAIL S
PIPE OUTLET CHANNEL
(Not to Scale)

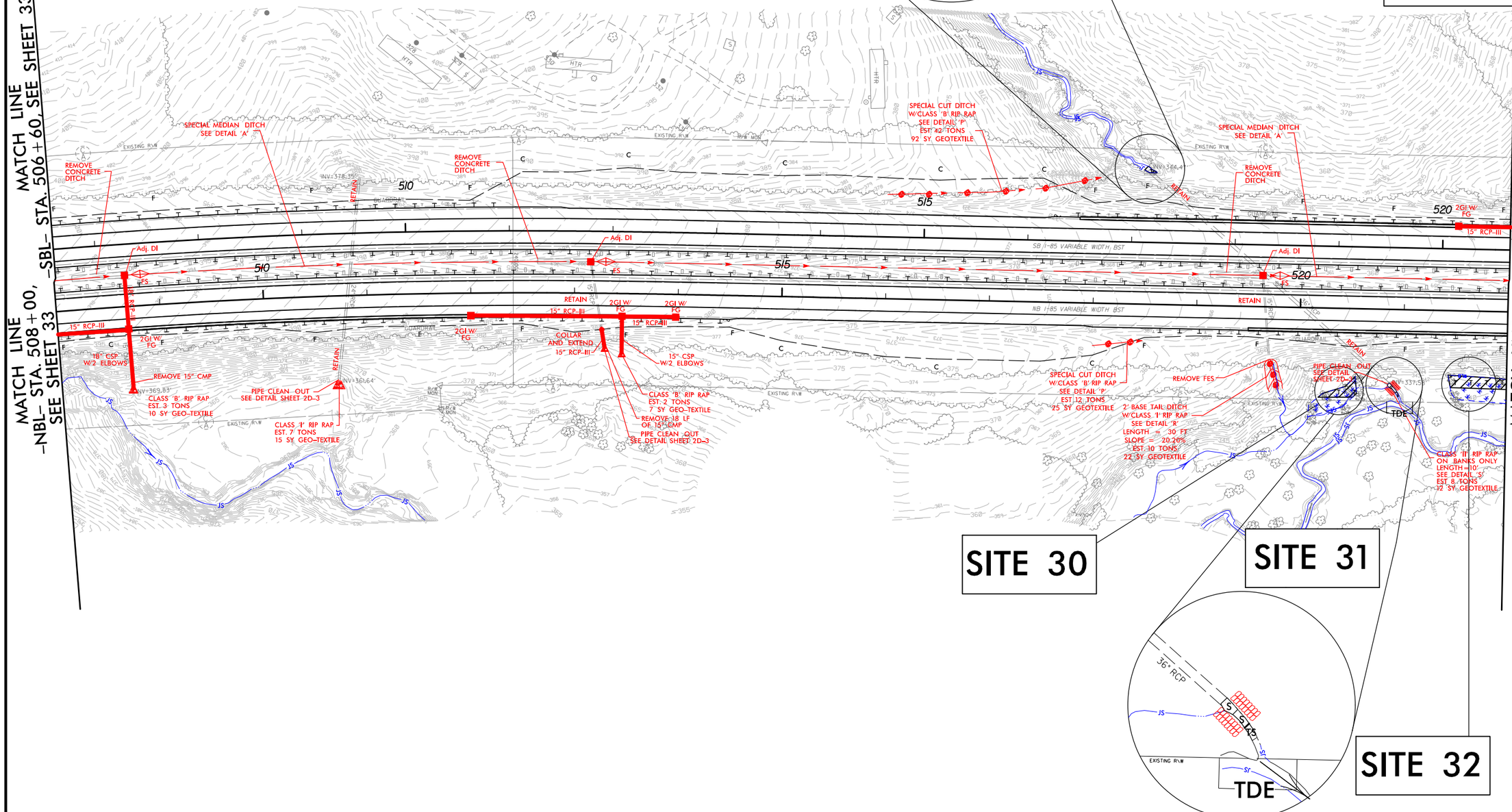
Natural Ground — MIN. 1 TO 1 SIDE SLOPE — Existing Grade — Natural Ground; d; CHANNEL BED (Variable)

d = 3 Ft.

STA. 520+87 -NBL- RT

TEMPORARY SURFACE WATER IMPACTS FOR DEWATERING

NAD 83/NSRS 2007



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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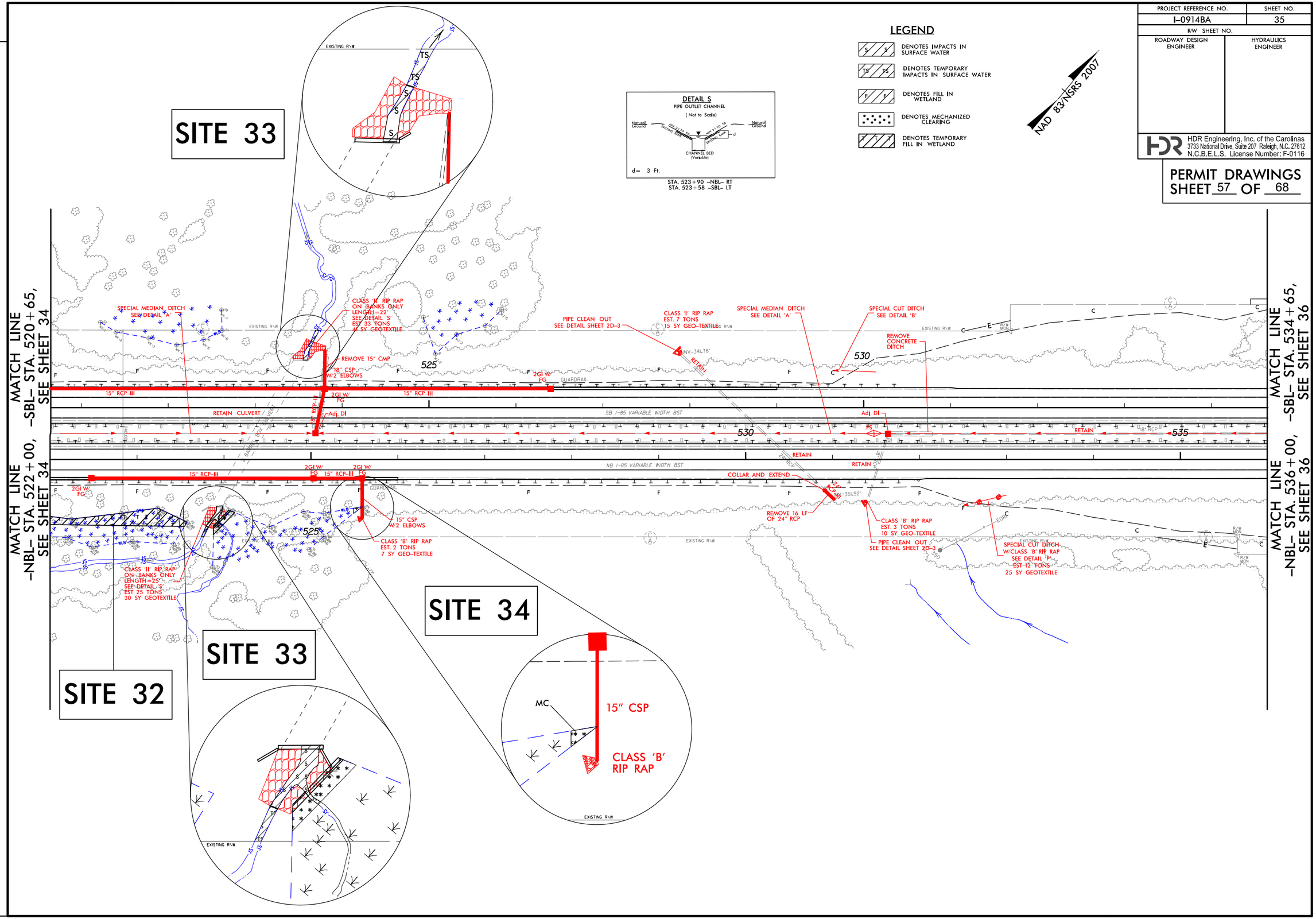
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 57 OF 68

LEGEND

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

NAD 83/NSRS 2007



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

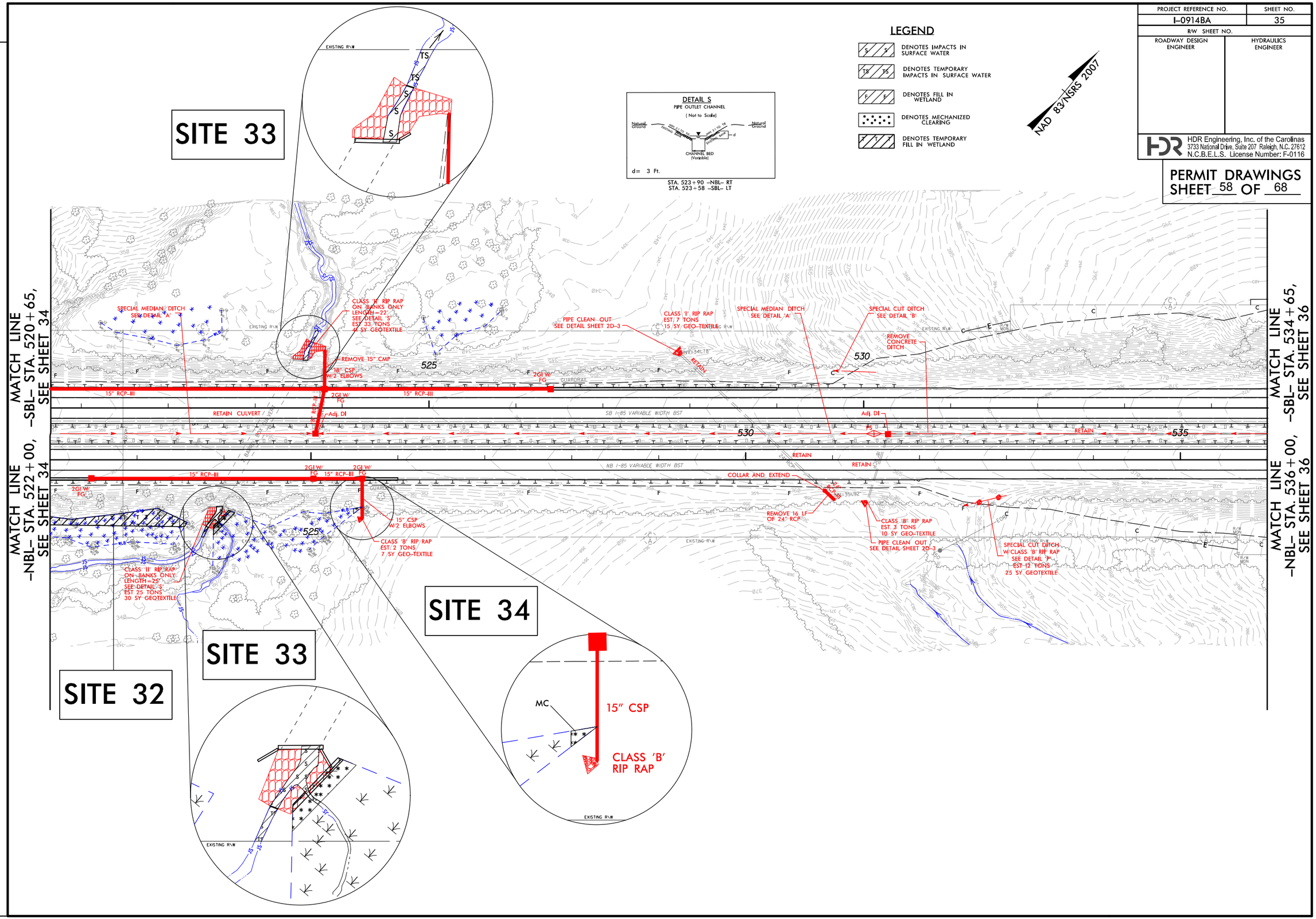
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 58 OF 68

LEGEND

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

NAD 83/NSRS 2007



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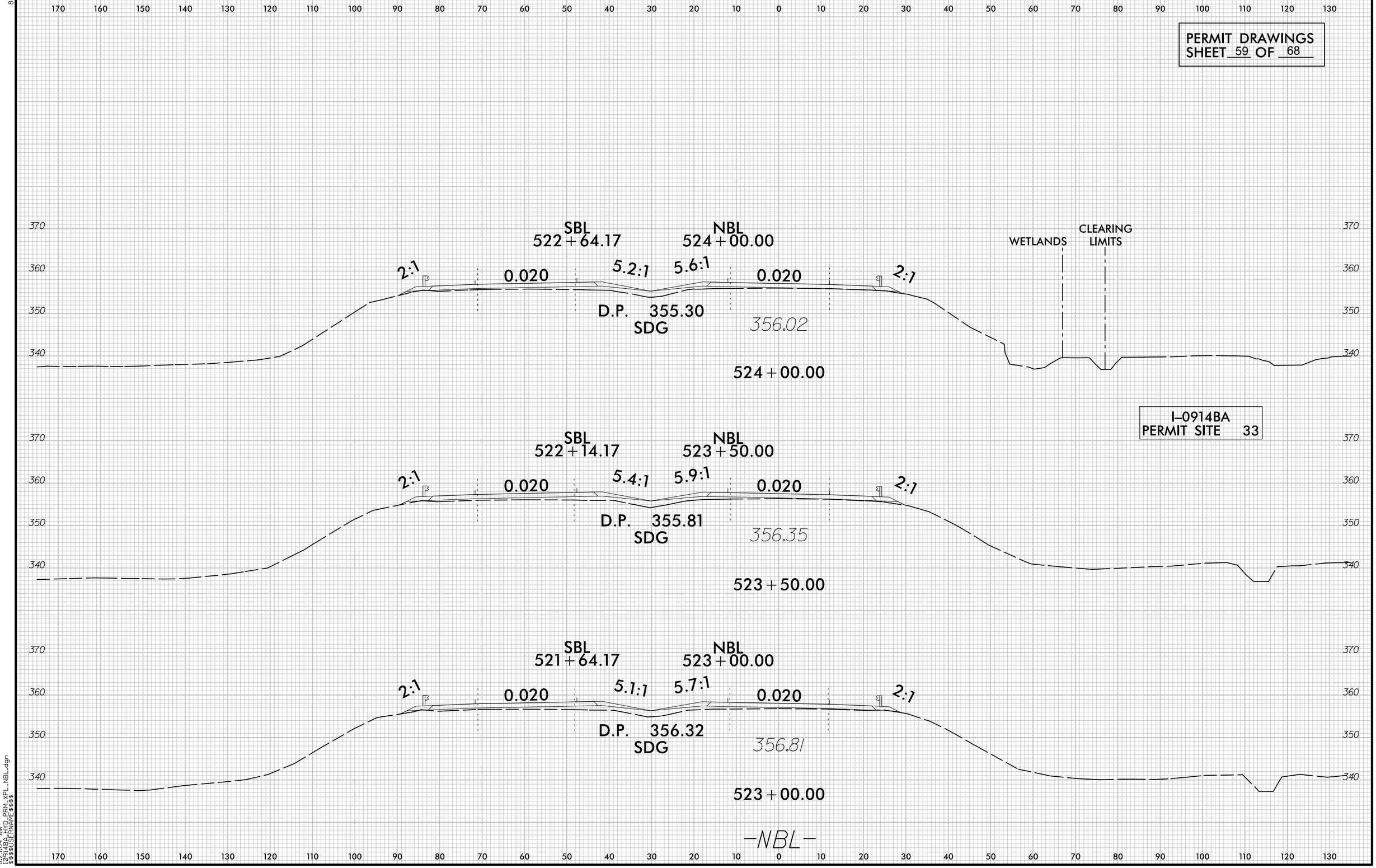
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-0914BA	X-278

PERMIT DRAWINGS
SHEET 59 OF 68



8/23/99

8/23/04 AM
I0914BA_HYD_PRM_XPL_NBL.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	36
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

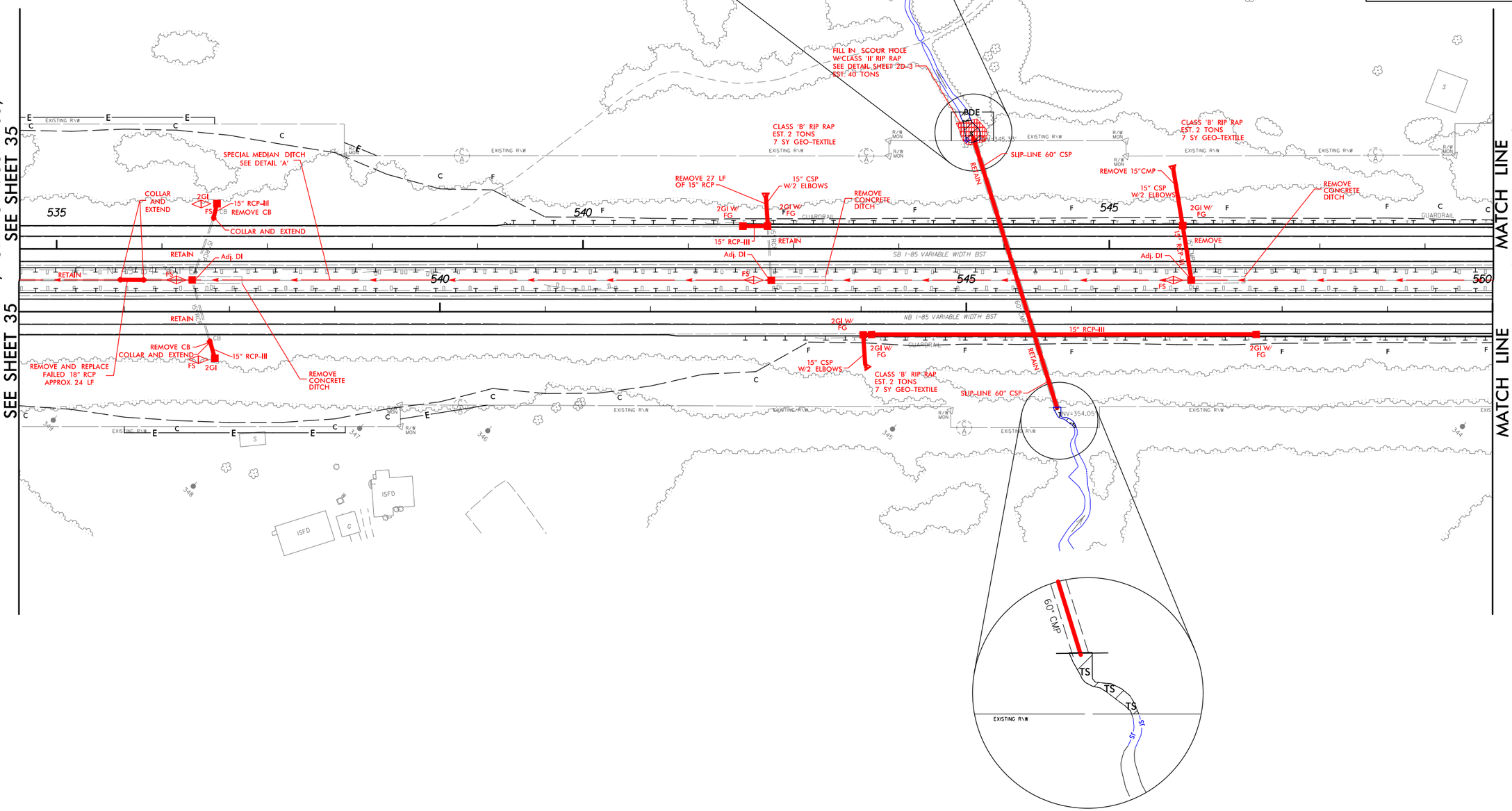
PERMIT DRAWINGS
SHEET 60 OF 68

LEGEND

- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITE 35

NAD 83/NSRS 2007



REVISIONS

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TIME: 8:56:01 AM

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	36
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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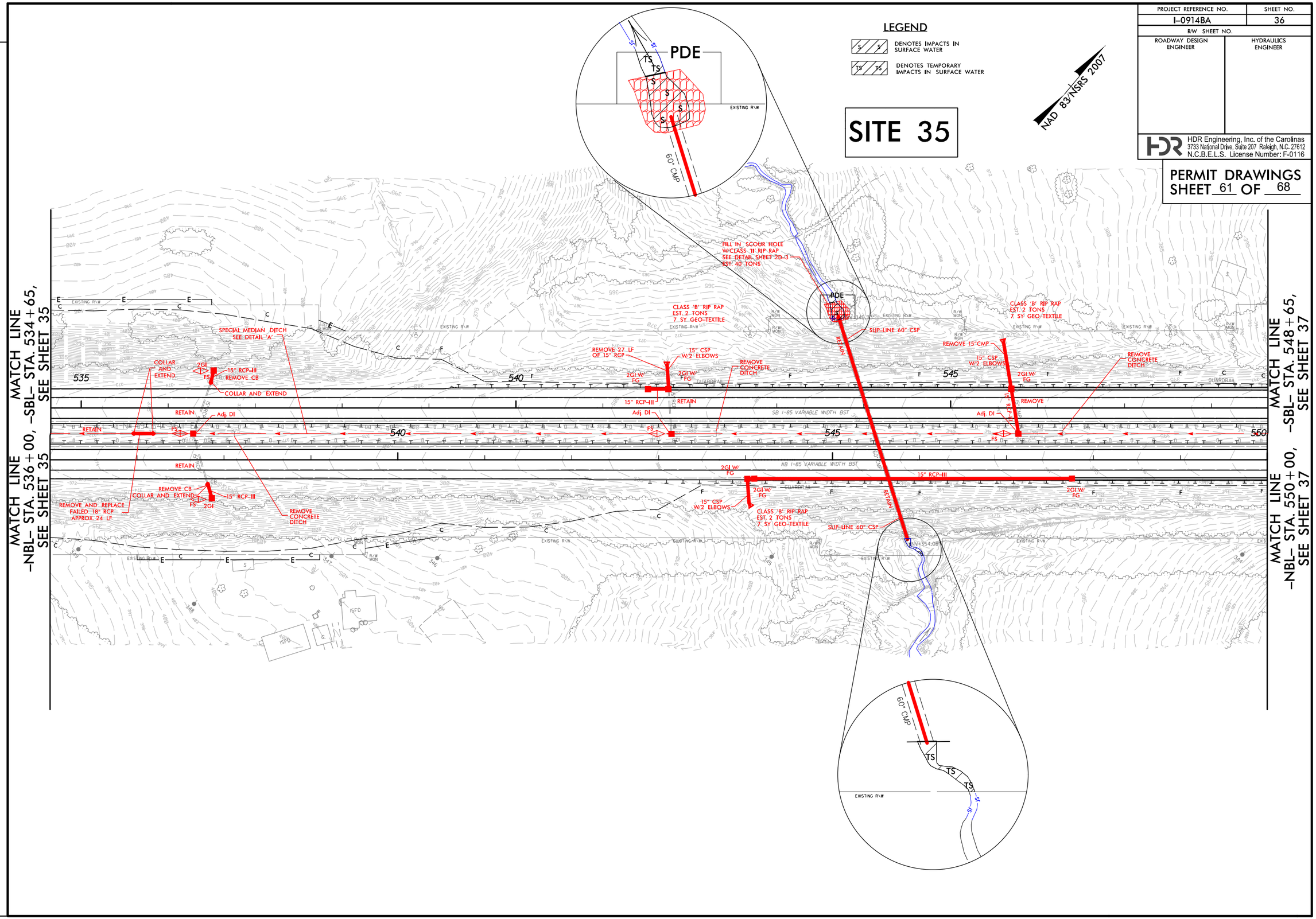
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 61 OF 68



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

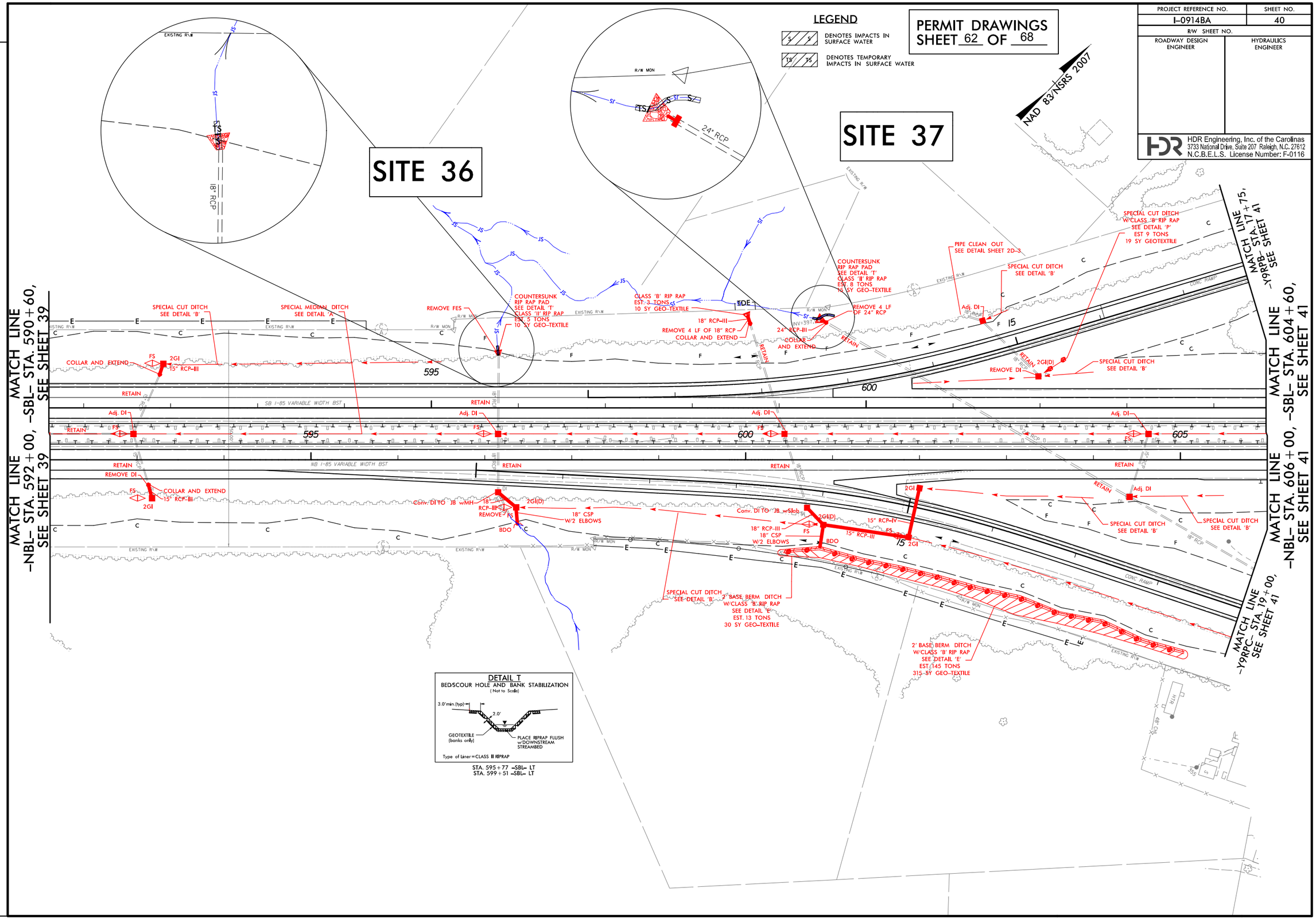
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 62 OF 68

NAD 83/NSRS 2007

LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

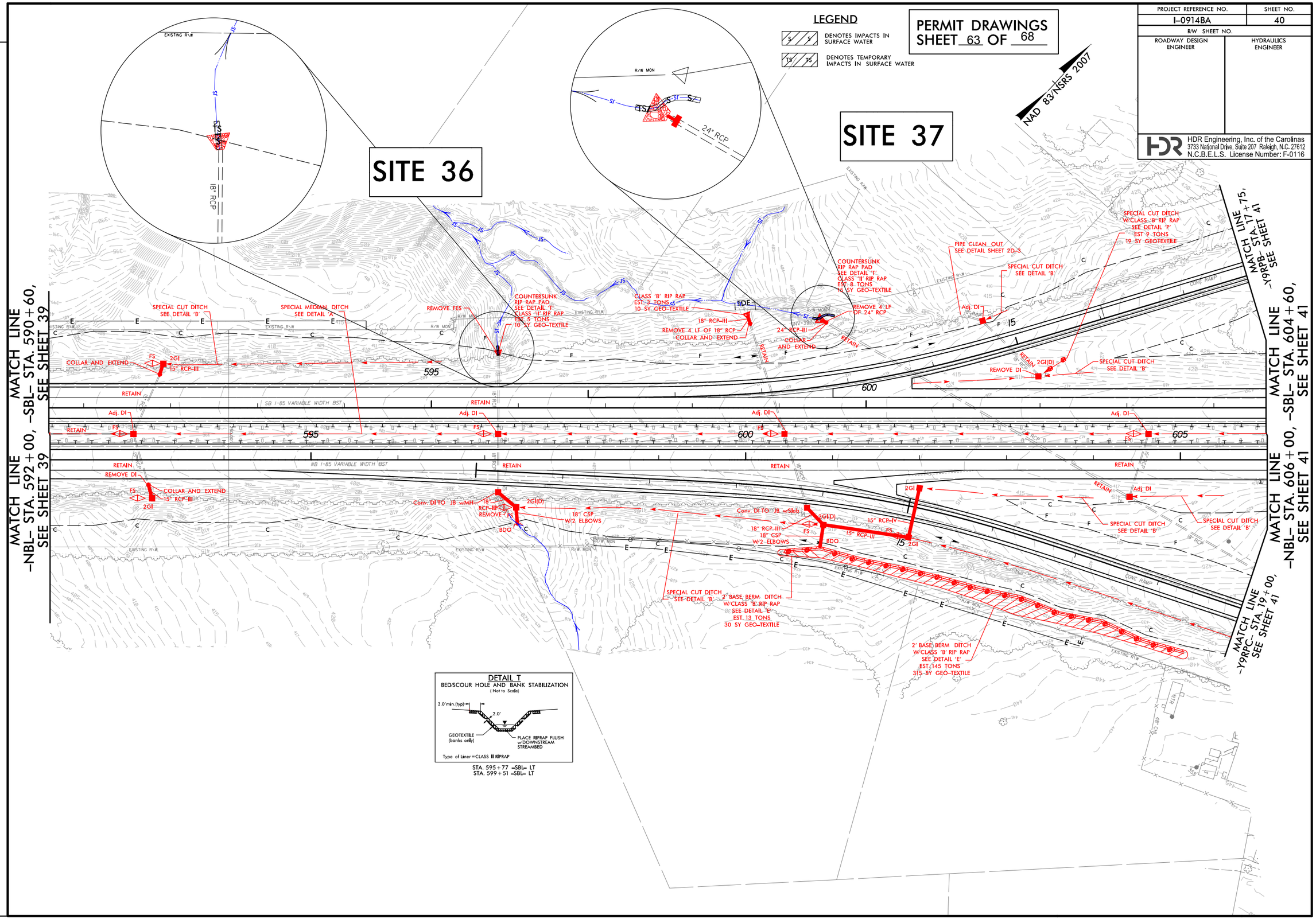
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PERMIT DRAWINGS
SHEET 63 OF 68

NAD 83/NSRS 2007

LEGEND

- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER



REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng.100.plt PENTABLE: NCDOT_permits.CON.tbl
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WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	63+15 -NBL- RT	Bank Stabilization						< 0.01	< 0.01	7	17	
2	66+30 -NBL- RT	Existing 30" RCP						< 0.01	< 0.01	10	5	
3	100+65 -SBL- LT	Replace Wingwall						0.01	< 0.01	12	10	
		Bank Stabilization						< 0.01		12		
4	111+45 -NBL- RT	Existing 24" RCP						< 0.01	< 0.01	8	5	
5	118+00- NBL- RT	Ex. 36" RCP/ Scour Hole						< 0.01	< 0.01	13	5	
6	142+45 -SBL- LT	Existing 18" RCP						< 0.01	< 0.01	12	5	
7	142+24 to 143+32 -NBL- RT	Stream Relocation						< 0.01		39		
8	143+33 -NBL- LT & RT	Ex. 60" RCP/ Scour Hole						< 0.01	< 0.01	45	21	
9	143+35 to 144+60 -NBL- RT	Stream Relocation						< 0.01		77		
10	153+35 -NBL- RT	Bank Stabilization						< 0.01	< 0.01	13	5	
11	183+20 -NBL- RT	Bank Stabilization						< 0.01	< 0.01	15	5	
12	202+25 -SBL- LT	Bank Stabilization						< 0.01	< 0.01	10	10	
TOTALS*:								0.04	0.02	273	88	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/13/2014
VANCE/WARREN
I-0914BA
WBS-38688

Revised 2013 10 24

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
13	215+10 -NBL- RT & LT	Bank Stabilization	< 0.01			< 0.01		< 0.01	< 0.01	10	10	
	215+90 -NBL- RT	Ditch Tie-In			< 0.01							
14	229+85 -NBL- RT & LT	Bank Stabilization							< 0.01	20	10	
15	241+10 to 241+93 -NBL- RT & LT	Bank Stabilization						< 0.01	< 0.01	40	14	
15A	241+17 -NBL- RT	Bank Stabilization						< 0.01	< 0.01	9	10	
16	249+10 -NBL- RT & LT	Bank Stabilization						< 0.01	< 0.01	5	10	
17	275+46 -NBL- RT	15" CSP						< 0.01	< 0.01	5	5	
18	275+42 to 276+03 -SBL- LT & RT	2' Lat Ditch						< 0.01		61		
19	276+01 to 276+71 -NBL- RT & LT	30" RCP/ Scour Hole						< 0.01	< 0.01	28	11	
		Bank Stabilization						< 0.01	< 0.01	36	8	
20	28+60 -Y5SBL- RT	24" RCP						< 0.01	< 0.01	22	5	
21	307+07 -NBL- RT	Bank Stabilization						< 0.01	< 0.01	10	10	
22	307+96 to 308+99 -SBL- LT	Roadway Fill	< 0.01			0.01						
TOTALS*:			< 0.01		< 0.01	0.01		0.02	< 0.01	246	93	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/13/2014
VANCE/WARREN
I-0914BA
WBS-38688

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
23	327+85 to 328+05 -SBL- LT	18" RCP/Scour Hole						< 0.01	< 0.01	26	10	
24	355+27 -SBL- LT	Bank Stabilization						< 0.01	< 0.01	12	10	
25	435+22 -SBL- LT	Exist. 36" RCP						< 0.01	0.02			
26	436+19 -NBL- RT	Exist. 36" RCP							< 0.01		4	
27	450+55 -SBL- LT & RT	Exist. 30" RCP						< 0.01	< 0.01	11	5	
		Bank Stabilization						< 0.01		10	5	
28	463+98 -NBL- RT & LT	Bank Stabilization						< 0.01	< 0.01	39	20	
29	503+68 to 506+22 -NBL- RT & LT	Pipe Clean Out						< 0.01	< 0.01	10	5	
		Bank Stabilization						< 0.01		12	5	
30	520+18 to 520+55 -NBL	Construction Access		< 0.01								
31	518+47 to 520+97 -NBL- RT & LT	Bank Stabilization						< 0.01	< 0.01	11	10	
32	521+42 to 523+58 -NBL-	Construction Access		0.06								
33	523+73 to 525+10 -NBL- RT & LT	Bank Stabilization	< 0.01			< 0.01		< 0.01	< 0.01	57	32	
TOTALS*:			< 0.01	0.07		< 0.01		0.01	0.03	188	106	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/13/2014
VANCE/WARREN
I-0914BA
WBS-38688

Revised 2013 10 24

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
34	525+59 -NBL- RT	15" CSP				< 0.01						
35	544+93 to 546.05 -NBL-	S.L. 60" CSP/ Scour Hole						< 0.01	< 0.01	21	37	
36	595+78 -SBL- LT	18" RCP						< 0.01	< 0.01	6	5	
37	599+51 -SBL- LT	24" RCP						< 0.01	< 0.01	21	5	
TOTALS*:						< 0.01		< 0.01	< 0.01	48	47	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/13/2014
VANCE/WARREN
I-0914BA
WBS-38688

Revised 2013 10 24

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
	TOTAL SHEET 64							0.04	0.02	273	88	
	TOTAL SHEET 65		< 0.01		< 0.01	0.01		0.02	0.01	246	93	
	TOTAL SHEET 66		< 0.01	0.07		< 0.01		0.01	0.03	188	106	
	TOTAL SHEET 67					< 0.01		< 0.01	< 0.01	48	47	
TOTALS*:			< 0.01	0.07	< 0.01	0.02		0.08	0.06	755	334	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/13/2014
VANCE/WARREN
I-0914BA
WBS-38688

Revised 2013 10 24

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released July 2012)

Project/TIP No.: I-0914BB **County(ies):** Warren

General Project Information

Project No.:	I-0914BB	**Project Type:**	Grading, Drainage, Paving, Guardrail	**Date:**	REV 10/14/2014
NCDOT Contact:	William Zerman	**Contractor / Designer:**	Frank Fleming, PE - Ecological Engineering		
Address:	1020 Birch Rdige Drive Raleigh, NC 27610	**Address:**	1151 SE Cary Parkway Suite 101 Cary, NC 27518		
Phone:	919-707-6755	**Phone:**	919-557-0929		
Email:	bzerman@ncdot.gov	**Email:**	ffleming@ecologicaleng.com		
City/Town:	Norlina	**County(ies):**	Warren		
River Basin(s):	Roanoke	**CAMA County?**	No		
Primary Receiving Water:	Cabin Branch, Blue Mud Creek, Smith Creek	**NCDWQ Stream Index No.:**	23-10		
NCDWQ Surface Water Classification for Primary Receiving Water	**Primary:**	Class C			
	Supplemental:	None			
Other Stream Classification:	None				
303(d) Impairments:	Ecological/biological Integrity FishCom	dissolved oxygen (DO)	fecal coliform	Ecological/biological Integrity Benthos	
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	9.4 Miles	**Surrounding Land Use:**	Piedmont rural area, residential and agricultural landuse

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	122.00 ac.	125.50 ac.
Typical Cross Section Description:	Both Directions 2@12.0' paved lane 10' Paved shoulder(outside), 4' Paved shoulder (inside/median).	2@12' paved lane, 10' Paved 2' Grass shoulder(outside), 4' Paved 2' Grass Shoulder (inside/median)
Average Daily Traffic (veh/hr/day):	Design/Future: 25,700/41,600	Existing: 9,900

General Project Narrative:

This project involves a unbonded concrete overlay of the existing NB and SB I-85 concrete pavement from just north of Manson Road to the Virginia State line. Impacts are minimized as the majority of work will remain in the existing highway footprint. This project is considered a pavement rehabilitation project with the shoulders being brought up to interstate standards, as well as, some maintenance/repair of existing drainage structures. Some areas of new shoulder berm gutter is proposed to alleviate on-going slope stability issues along the project corridor and to accomodate improved guardrail standards. Any new outlets of stormwater have been located away from jurisidictional resources to the maximum extent practical and will discharge into appropriately sized rip rap pads. Juridictional impacts can be attributed to bank stabilization at ditch outlets in streams or repair of cross pipes and outlet protection in jusristictional areas . The project is not within one mile of the critical area or water supply intake. I-0914BB is not located within any sensitive watershed areas. The project is in Roanoke Basin therefore there are no regulated buffer zones.

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.: I-0914BB **County(ies):** Warren

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
6	38+34 L LT 38+80 L LT	Stream	Intermittent	UT to Smith Creek	S6/S7	23-10	C	None	Stabilization	N/A	
6	38+34 L LT 38+80 L LT	Wetland	Headwater Wetland	UT to Smith Creek	W2	NA	NA	NA	Stabilization	N/A	
11	115+87 L LT 115+97 L LT	Stream	Perennial	UT to Smith Creek	SVV	23-10	C	None	Stabilization	N/A	
21	261+12 L LT 261+47 L LT	Stream	Perennial	UT to Cabin Branch	SAF	23-10-1	C	None	Stabilization	N/A	
24	316+80 L LT 316+97 L LT	Stream	Perennial	UT to Terrapin Creek	SAG	23-10-3-2	C	None	Stabilization	N/A	
28	369+61 L RT 369+91 L RT	Stream	Perennial	UT to Terrapin Creek	SAJ	23-10-3-2	C	None	Stabilization	N/A	
33	441+91 L RT 442+20 L RT	Stream	Perennial	UT to Blue Mud Creek	SAP	23-10-3-2	C	None	Stabilization	N/A	
34	453+63 L RT 454+07 L LT	Stream	Perennial	UT to Blue Mud Creek	SAV	23-10-3	C	None	Stabilization	N/A	
36	481+78 L LT 482+00 L LT	Stream	Perennial	UT to Blue Mud Creek	SAR	23-10-3	C	None	Stabilization	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.

Description of Minimization of Impacts or Mitigation

Stream and wetland impacts were minimized by burying cross pipes a minimum of 0.5' and by installing rip rap at pipe outlets only on stream banks. In order to minimize erosion, roadside swales were designed with a minimum 2:1 side slope and non-erosive velocites.

References

TIP PROJECT: I–0914BB

CONTRACT:

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I–0914BB	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
38688.1.1	IMS-085-4(117)224	P.E.

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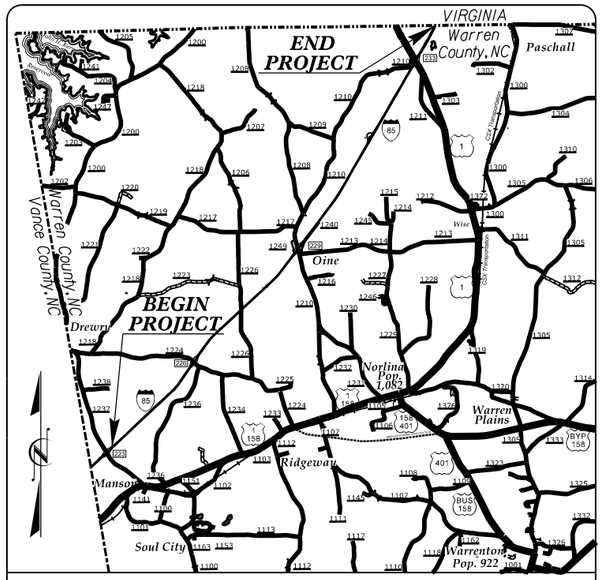
PERMIT DRAWING
SHEET 1 OF 18

See Sheet 1-A For Index of Sheets



VICINITY MAP

NOTE: THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

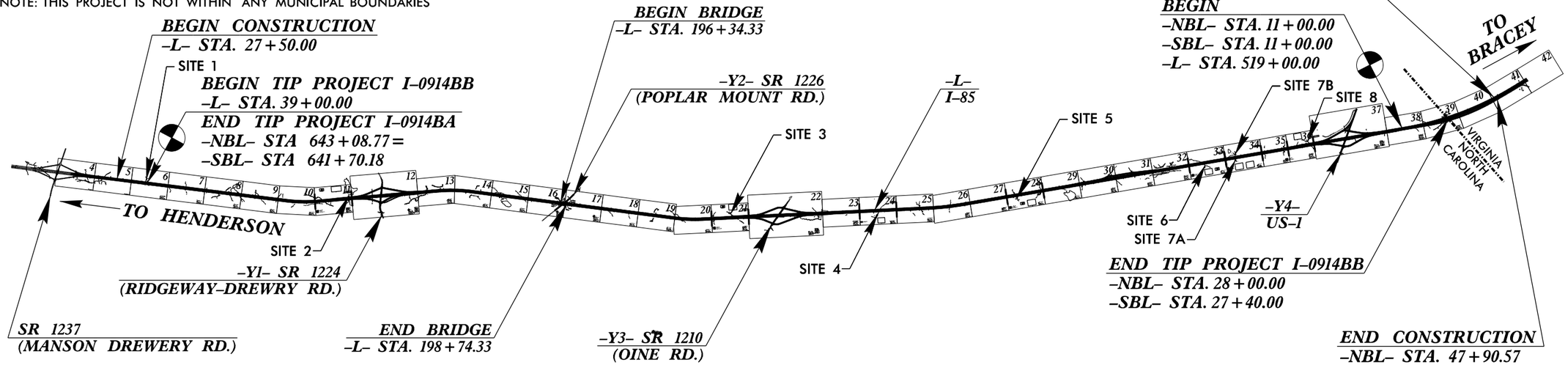
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WARREN COUNTY

LOCATION: I–85 FROM NORTH OF SR 1237 (MANSON DREWERY ROAD) TO THE VIRGINIA STATE LINE

TYPE OF WORK: GRADING, DRAINAGE, PAVING GUARDRAIL, ITS AND STRUCTURES

WETLAND AND SURFACE WATER IMPACTS PERMIT



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE ESTABLISHED BY METHOD III.
THIS IS A CONTROLLED–ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100 — PLANS

50 25 0 50 100 — PROFILE (HORIZONTAL)

10 5 0 10 20 — PROFILE (VERTICAL)

DESIGN DATA

ADT 2014 = 25,700
ADT 2035 = 41,600
DHV = 8 %
D = 55 %
T = 28 % *
V = 70 MPH
*TTST = 22% DUAL = 6%
FUNC CLASS = INTERSTATE
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP I–0914BB = 9.387 MILES

LENGTH STRUCTURES TIP I–0914BB = 0.045 MILES

TOTAL LENGTH PROJECT TIP I–0914BB = 9.432 MILES

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2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEBRUARY 21, 2014

LETTING DATE: FEBRUARY 17, 2015

TRACY N. PARROTT, PE — PROJECT ENGINEER

BRANDON W. JOHNSON, PE — PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

$$$$$$SYTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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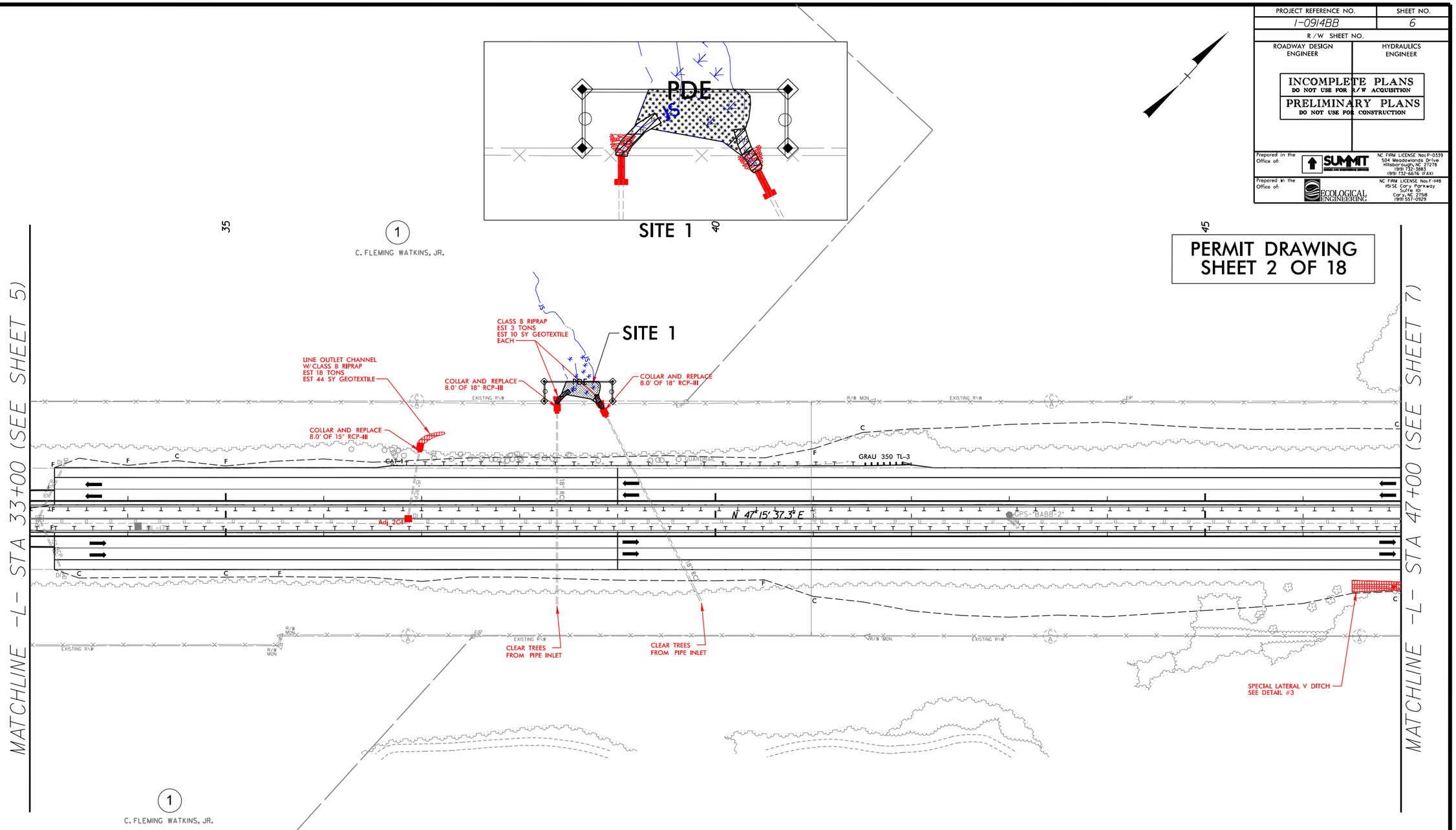
REVISIONS



DENOTES MECHANIZED CLEARING

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR –NBL– & –SBL– PROFILE, SEE SHEET 60
FOR –CR1N– & –CR1S– PROFILE, SEE SHEET 105

NOTES:

1. REMOVE AND REPLACE EXISTING GUARDRAIL AS SHOWN ON PLANS
2. REMOVE EXISTING CABLE GUIDERAIL
3. ALL PIPES AND DRAINAGE STRUCTURES ARE TO BE RETAINED UNLESS NOTED OTHERWISE

$$$$$$SYSTIME$$$$
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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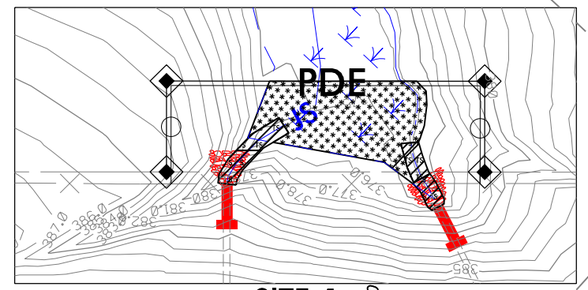

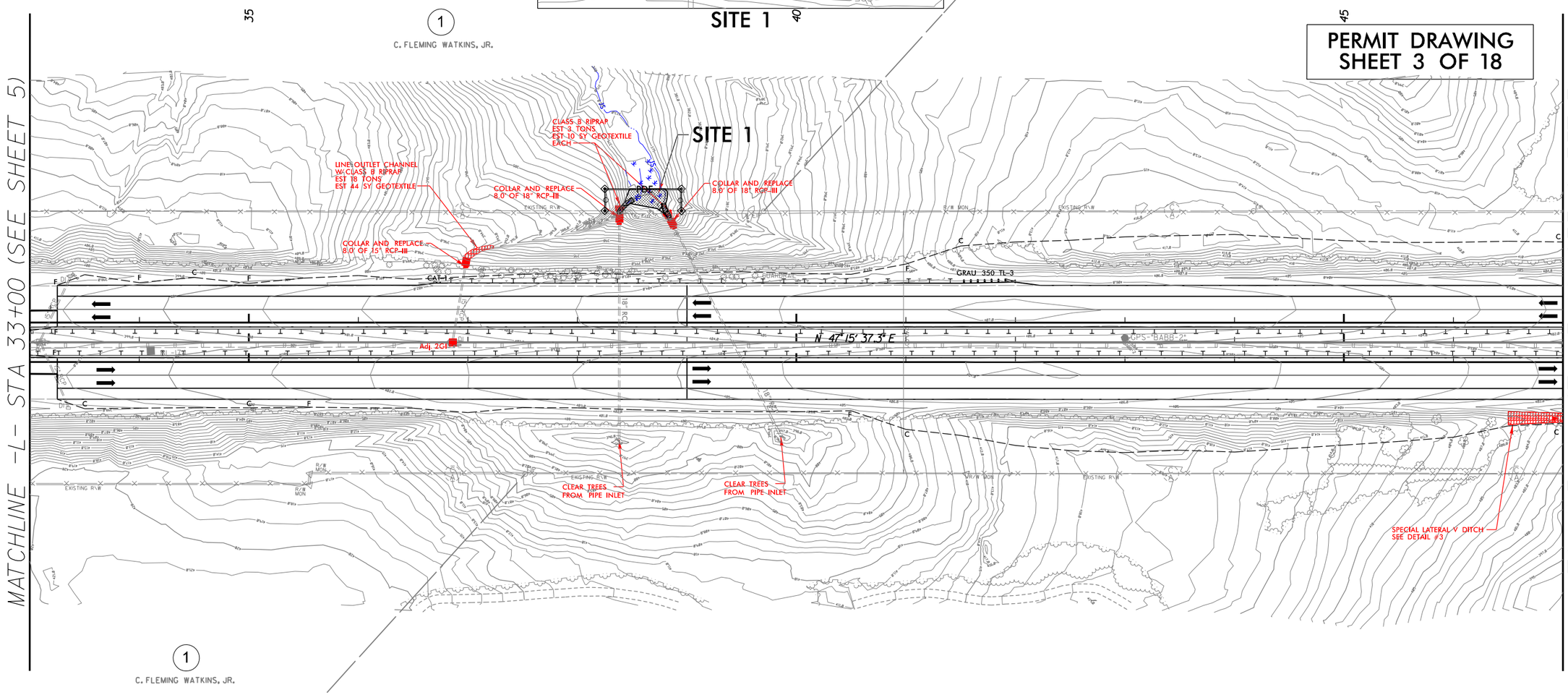

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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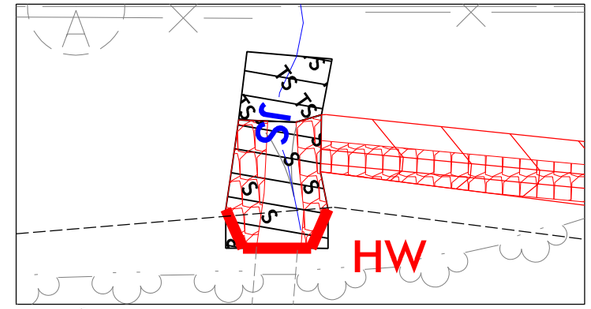
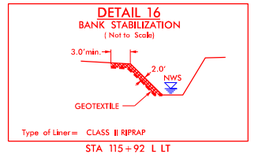
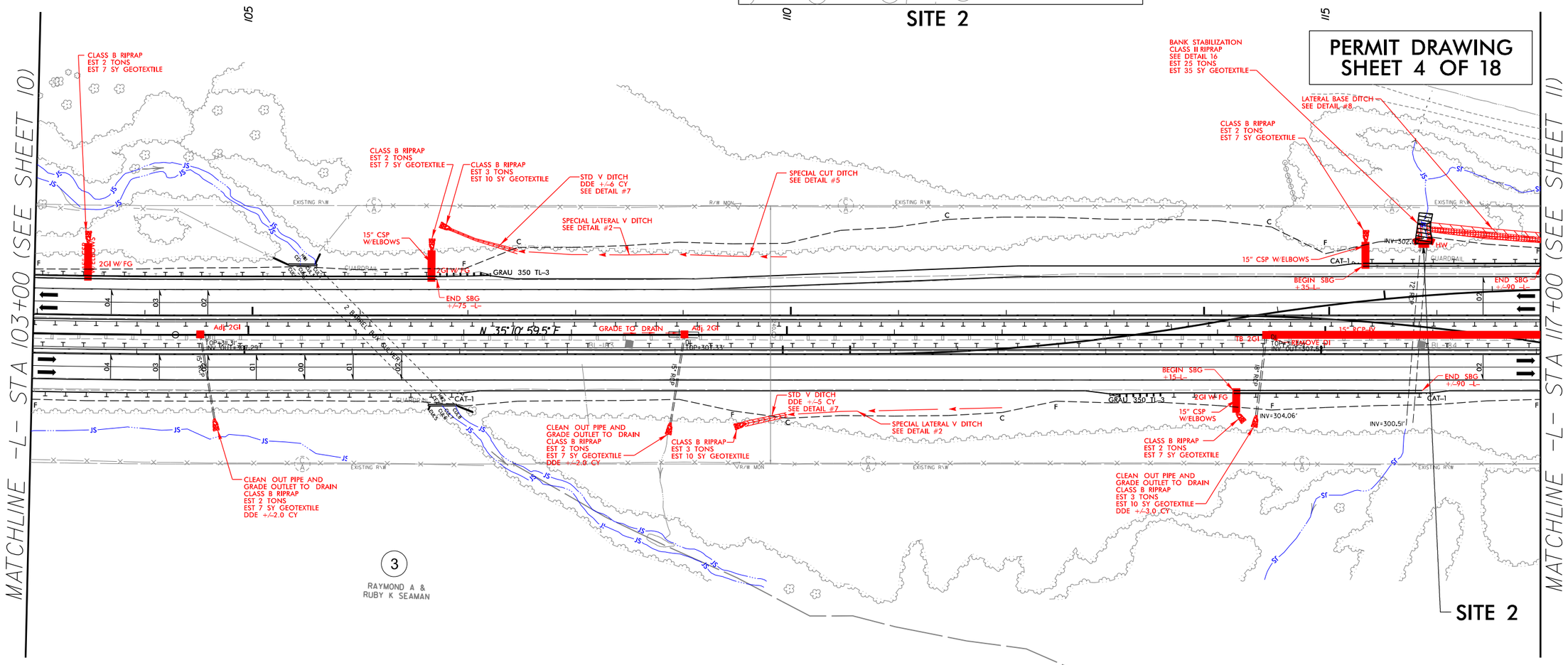




PERMIT DRAWING
SHEET 4 OF 18



S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR -NBL- & -SBL- PROFILE, SEE SHEET 65

FOR -CRY1RPB- PLAN, SEE SHEET 44
FOR -CRY1RPB- PROFILE, SEE SHEET 109

FOR -CRY1RPC- PLAN, SEE SHEET 43
FOR -CRY1RPC- PROFILE, SEE SHEET 110

NOTES:

1. REMOVE AND REPLACE EXISTING GUARDRAIL AS SHOWN ON PLANS
2. REMOVE EXISTING CABLE GUIDERAIL
3. ALL PIPES AND DRAINAGE STRUCTURES ARE TO BE RETAINED UNLESS NOTED OTHERWISE
4. REMOVE EXISTING CONCRETE DITCH

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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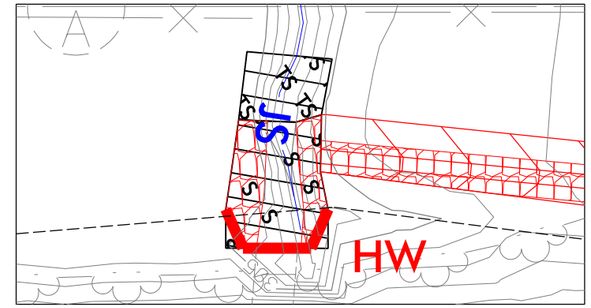
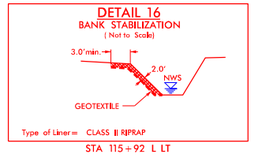
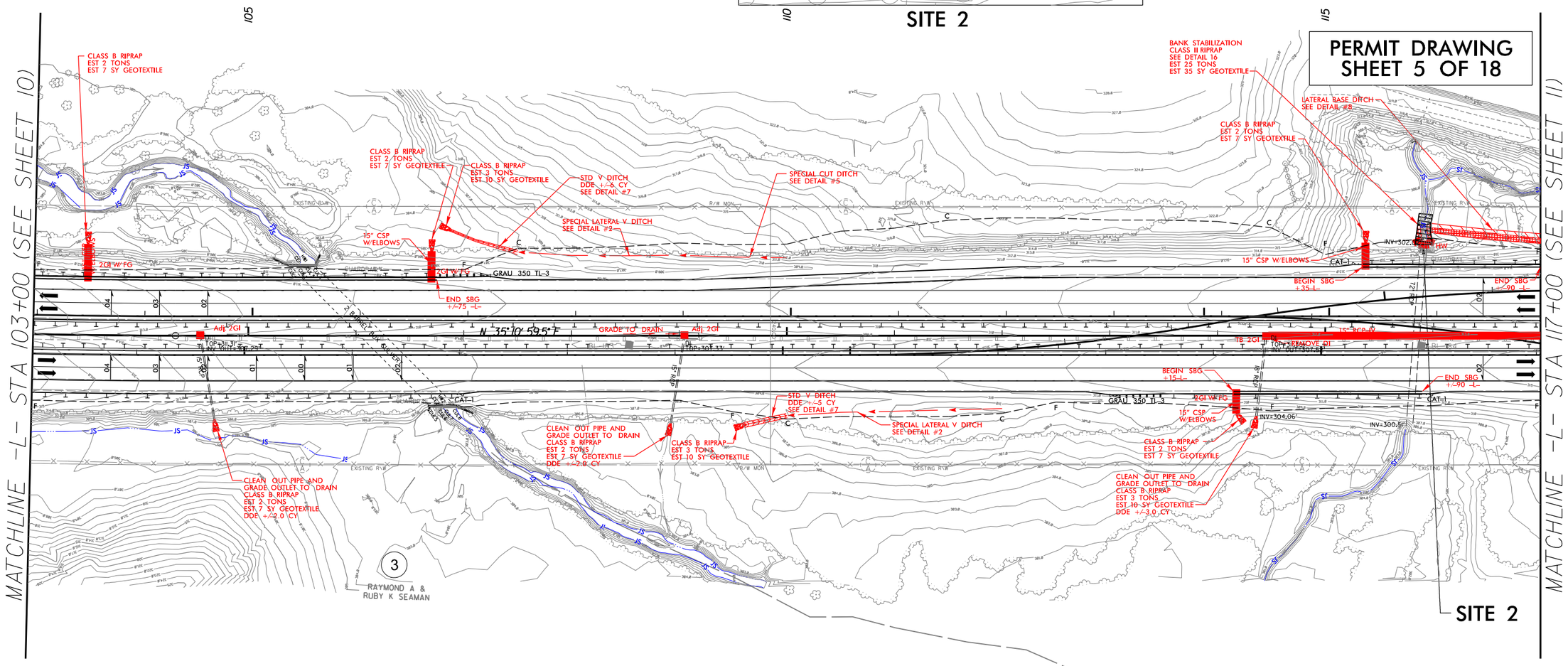




PERMIT DRAWING
SHEET 5 OF 18



S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR –NBL– & –SBL– PROFILE, SEE SHEET 65

FOR –CRY1RPB– PLAN, SEE SHEET 44
FOR –CRY1RPB– PROFILE, SEE SHEET 109

FOR –CRY1RPC– PLAN, SEE SHEET 43
FOR –CRY1RPC– PROFILE, SEE SHEET 110

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4. REMOVE EXISTING CONCRETE DITCH

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	21

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
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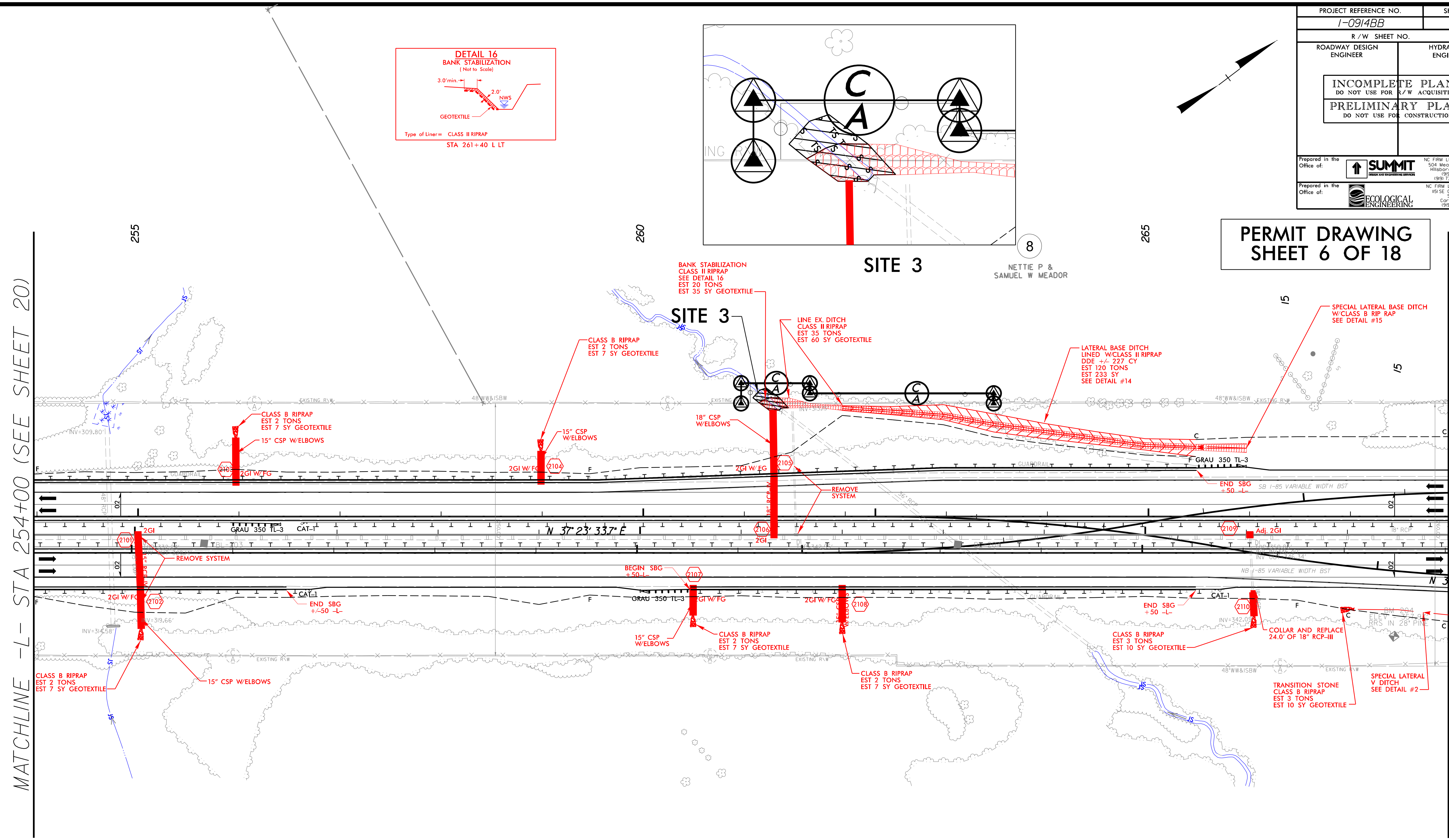
PERMIT DRAWING SHEET 6 OF 18



S S (hatched)	DENOTES IMPACTS IN SURFACE WATER
TS TS (hatched)	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR -NBL- & -SBL- PROFILE, SEE SHEET 76

FOR -CRY3RPB- PLAN, SEE SHEET 48
FOR -CRY3RPB- PROFILE, SEE SHEET 111

FOR -CRY3RPC- PLAN, SEE SHEET 47
FOR -CRY3RPC- PROFILE, SEE SHEET 112

NOTES:

1. REMOVE AND REPLACE EXISTING GUARDRAIL AS SHOWN ON PLANS
2. REMOVE EXISTING CABLE GUIDERAIL
3. ALL PIPES AND DRAINAGE STRUCTURES ARE TO BE RETAINED UNLESS NOTED OTHERWISE

REVISIONS

8/17/99

$$$$$$SYSTIME$$$$$
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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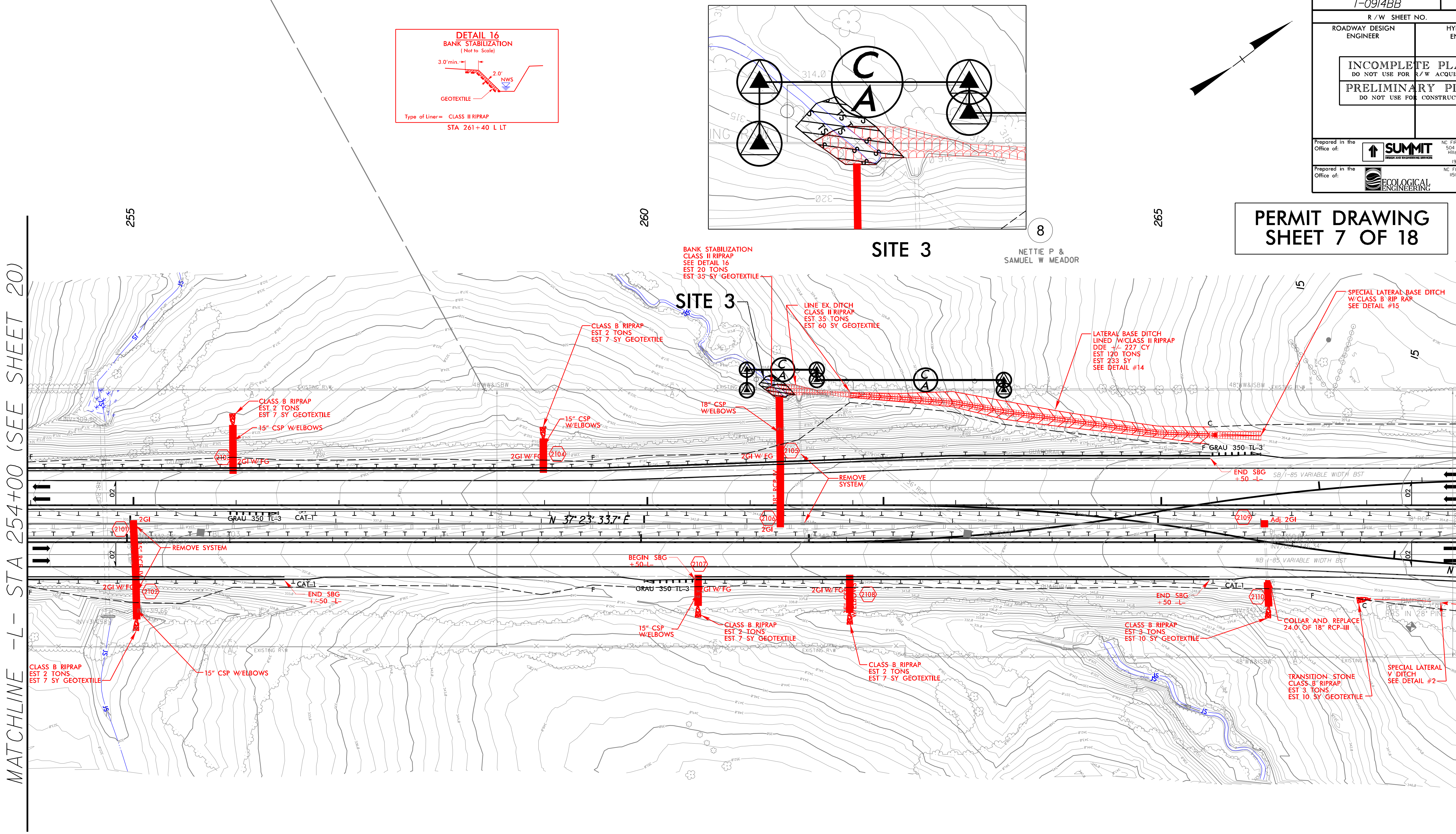
PERMIT DRAWING SHEET 7 OF 18



S / S (hatched)	DENOTES IMPACTS IN SURFACE WATER
TS / TS (hatched)	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR -NBL- & -SBL- PROFILE, SEE SHEET 76

FOR -CRY3RPB- PLAN, SEE SHEET 48
FOR -CRY3RPB- PROFILE, SEE SHEET 111

FOR -CRY3RPC- PLAN, SEE SHEET 47
FOR -CRY3RPC- PROFILE, SEE SHEET 112

NOTES:

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2. REMOVE EXISTING CABLE GUIDERAIL
3. ALL PIPES AND DRAINAGE STRUCTURES ARE TO BE RETAINED UNLESS NOTED OTHERWISE

REVISIONS

8/17/99

$$$$$$SYSTIME$$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$$

PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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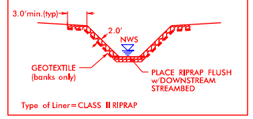
REVISIONS

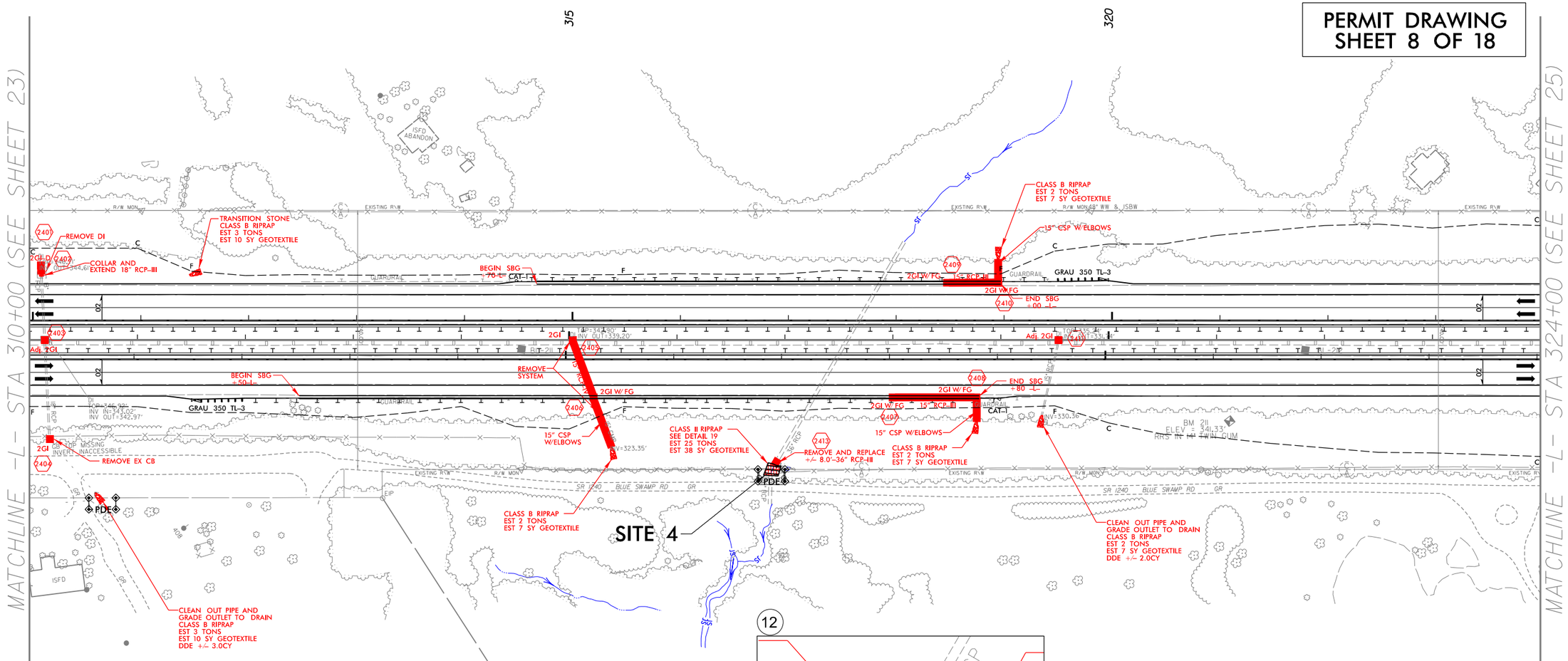
PERMIT DRAWING SHEET 8 OF 18

DETAIL 19
BEDSCOUR HOLE AND BANK STABILIZATION
(Not to Scale)



Type of Liner = CLASS II RIPRAP

STA 316+90 L RT



S S DENOTES IMPACTS IN SURFACE WATER

FOR -NBL- & -SBL- PROFILE, SEE SHEET 80

NOTES:
1. REMOVE AND REPLACE EXISTING GUARDRAIL AS SHOWN ON PLANS
2. REMOVE EXISTING CABLE GUIDERAIL
3. ALL PIPES AND DRAINAGE STRUCTURES ARE TO BE RETAINED UNLESS NOTED OTHERWISE

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$

PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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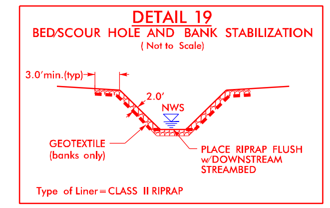
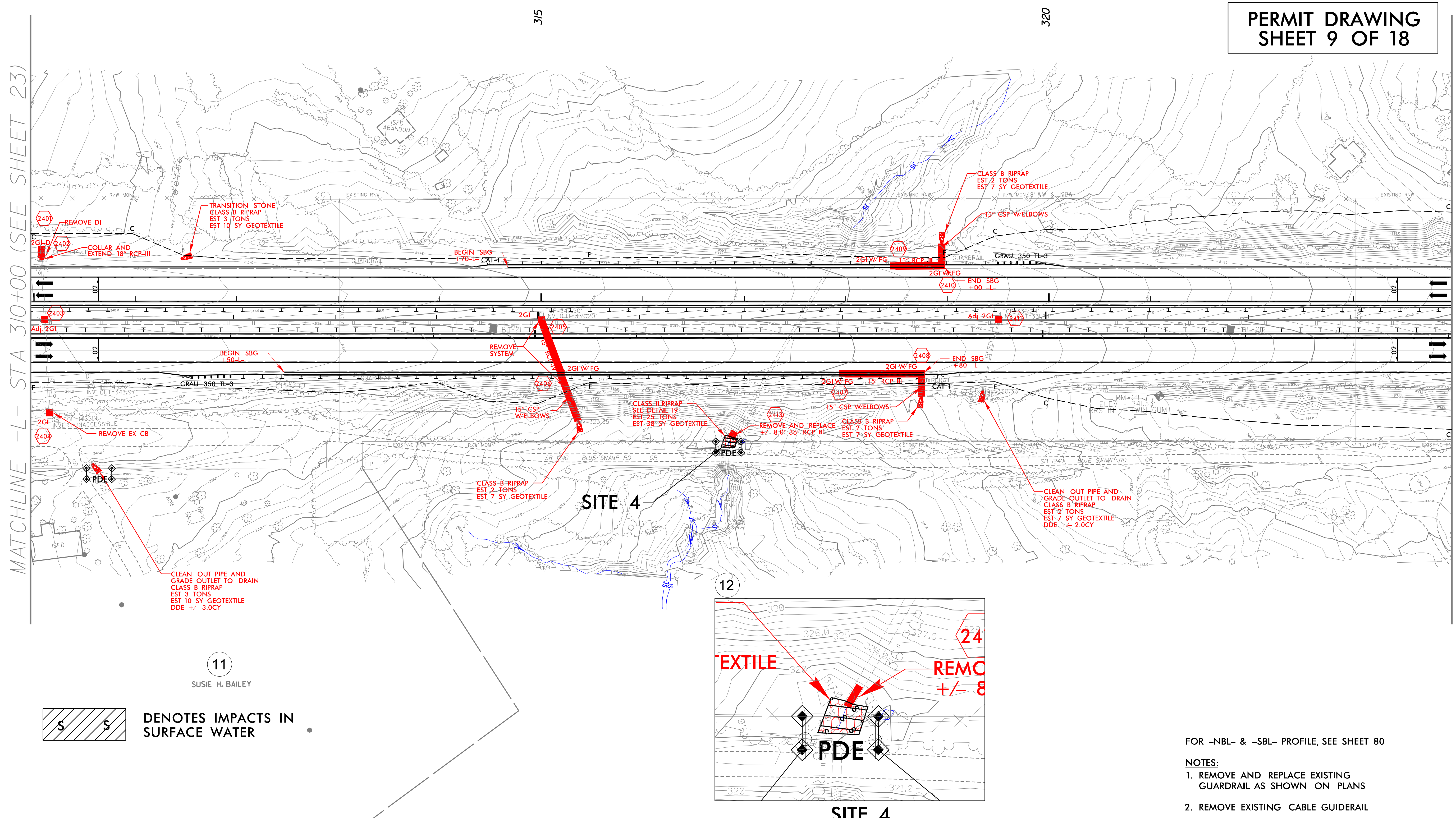
Prepared in the Office of: ECOLOGICAL ENGINEERING — NC FIRM LICENSE No: F-1148, 1151 SE Cary Parkway, Suite 101, Cary, NC 27518, (919) 557-0929

PERMIT DRAWING
SHEET 9 OF 18



STA 316+90 L RT



11

SUSIE H. BAILEY

S S — DENOTES IMPACTS IN SURFACE WATER

FOR -NBL- & -SBL- PROFILE, SEE SHEET 80

NOTES:

1. REMOVE AND REPLACE EXISTING GUARDRAIL AS SHOWN ON PLANS
2. REMOVE EXISTING CABLE GUIDERAIL
3. ALL PIPES AND DRAINAGE STRUCTURES ARE TO BE RETAINED UNLESS NOTED OTHERWISE

PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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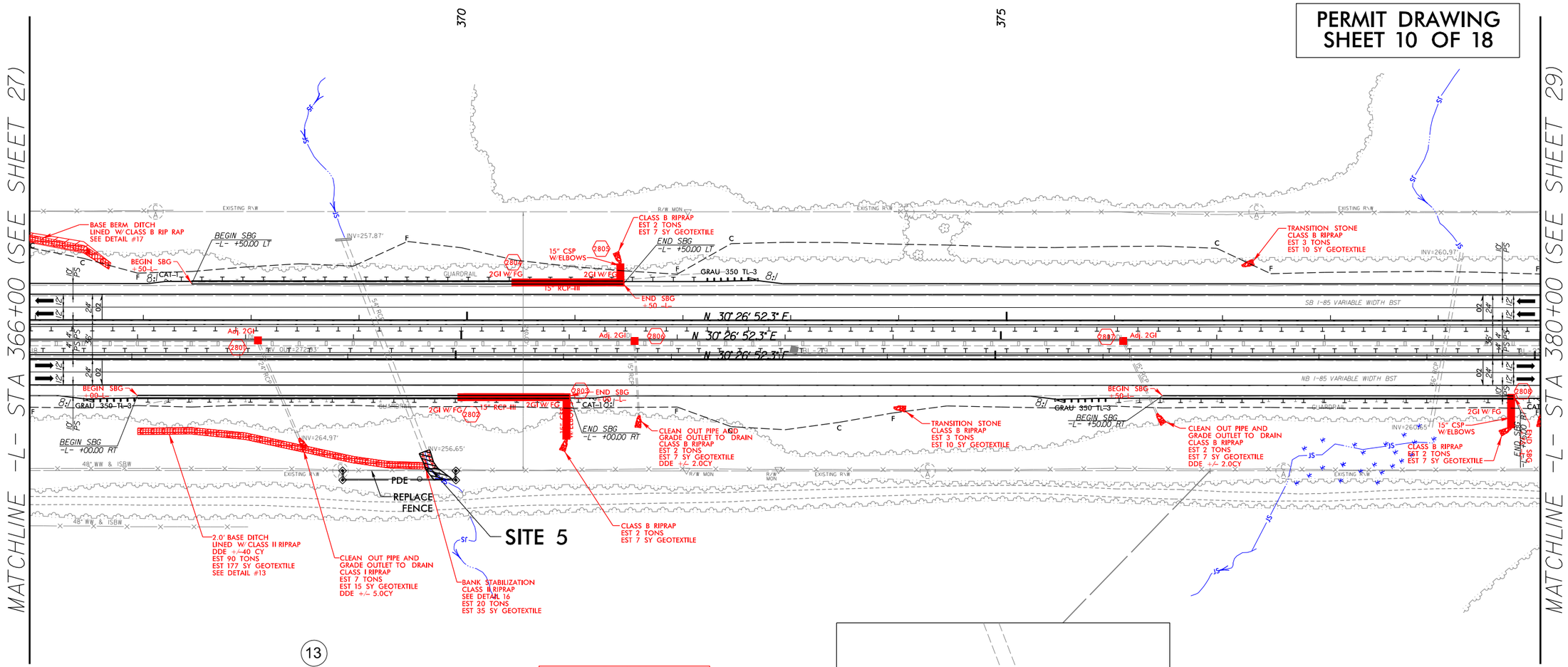
SHEET 10 OF 18



FOR -NBL- & -SBL- PROFILE, SEE SHEET 84

NOTES:

1. REMOVE AND REPLACE EXISTING GUARDRAIL AS SHOWN ON PLANS
2. REMOVE EXISTING CABLE GUIDERAIL
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REVISIONS

8/17/99

$$$$$$SYSTIME$$$$$$
$$$$$$DGN$$$$$$
$$$$$$ENAME$$$$$$

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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1151 SE Cary Parkway
Suite 101
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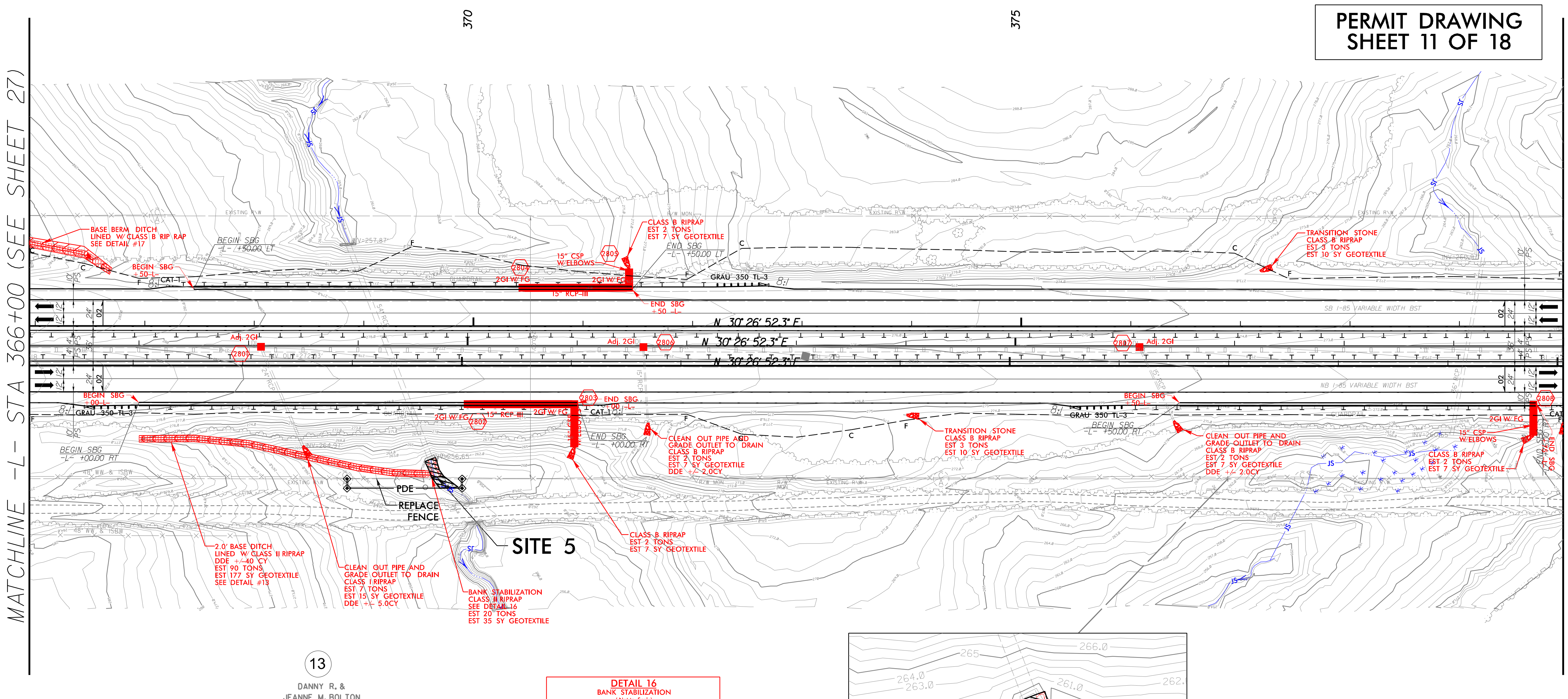
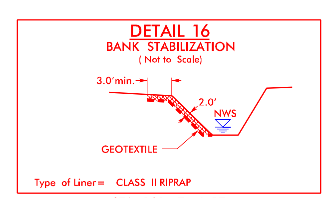
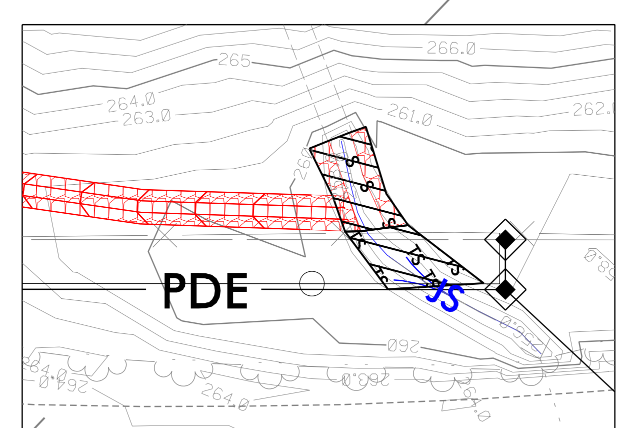
(919) 557-0929

PERMIT DRAWING SHEET 11 OF 18





STA 369+70 L RT



SITE 5

S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR -NBL- & -SBL- PROFILE, SEE SHEET 84

NOTES:
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2. REMOVE EXISTING CABLE GUIDERAIL
3. ALL PIPES AND DRAINAGE STRUCTURES ARE TO BE RETAINED UNLESS NOTED OTHERWISE

$$$$$$SYSTIME$$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$$

PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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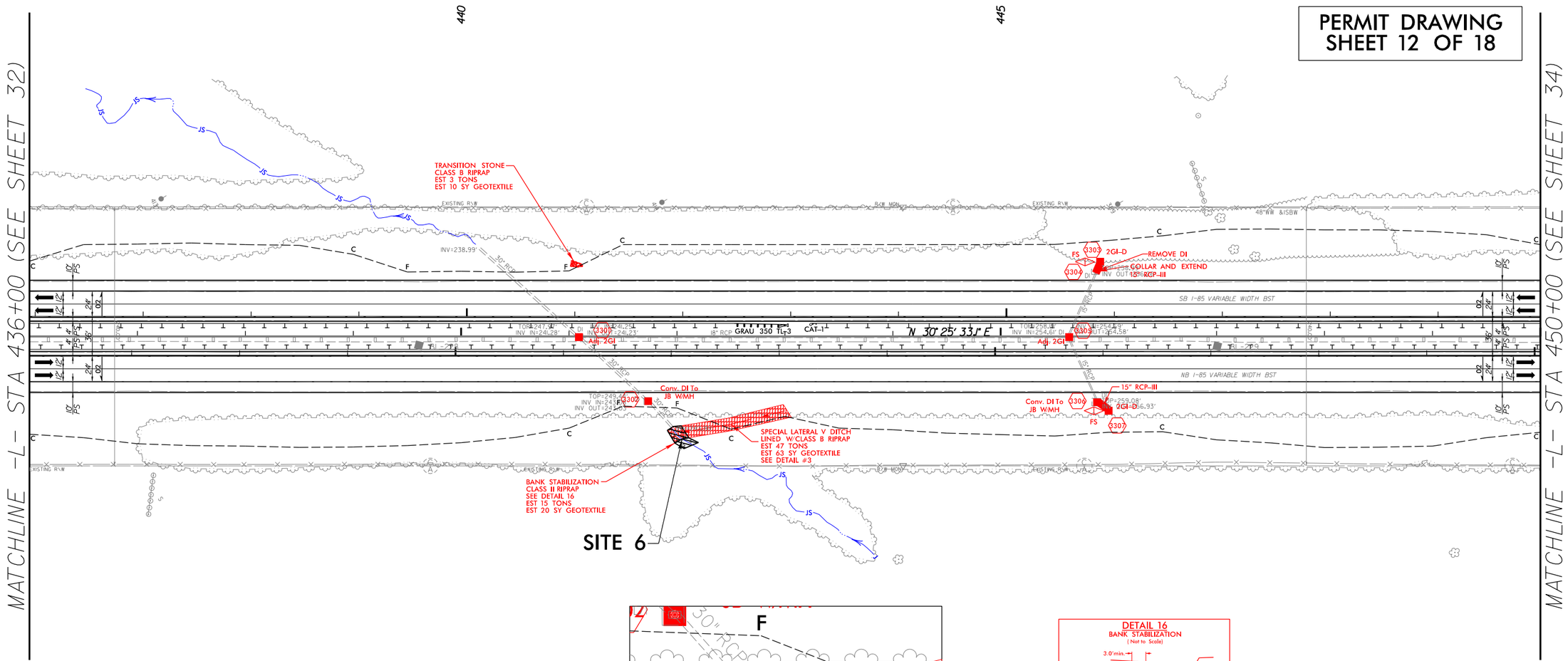
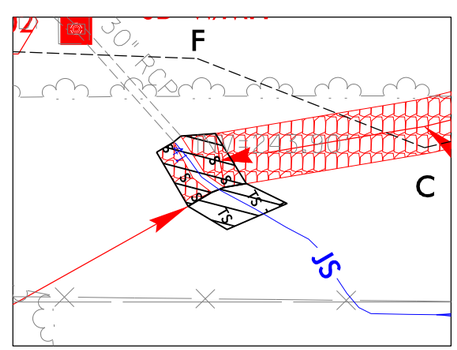
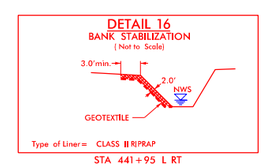
19 SE Cary Parkway
Suite 101
Cary, NC 27511
(919) 557-0929

PERMIT DRAWING
SHEET 12 OF 18





SITE 6



S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR -NBL- & -SBL- PROFILE, SEE SHEET 89

NOTES:

1. REMOVE AND REPLACE EXISTING GUARDRAIL AS SHOWN ON PLANS
2. REMOVE EXISTING CABLE GUIDERAIL
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REVISIONS

8/17/99

$$$$$$$SYSTIME$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$$$$$$$$$ENGINE$$$$

PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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DO NOT USE FOR CONSTRUCTION

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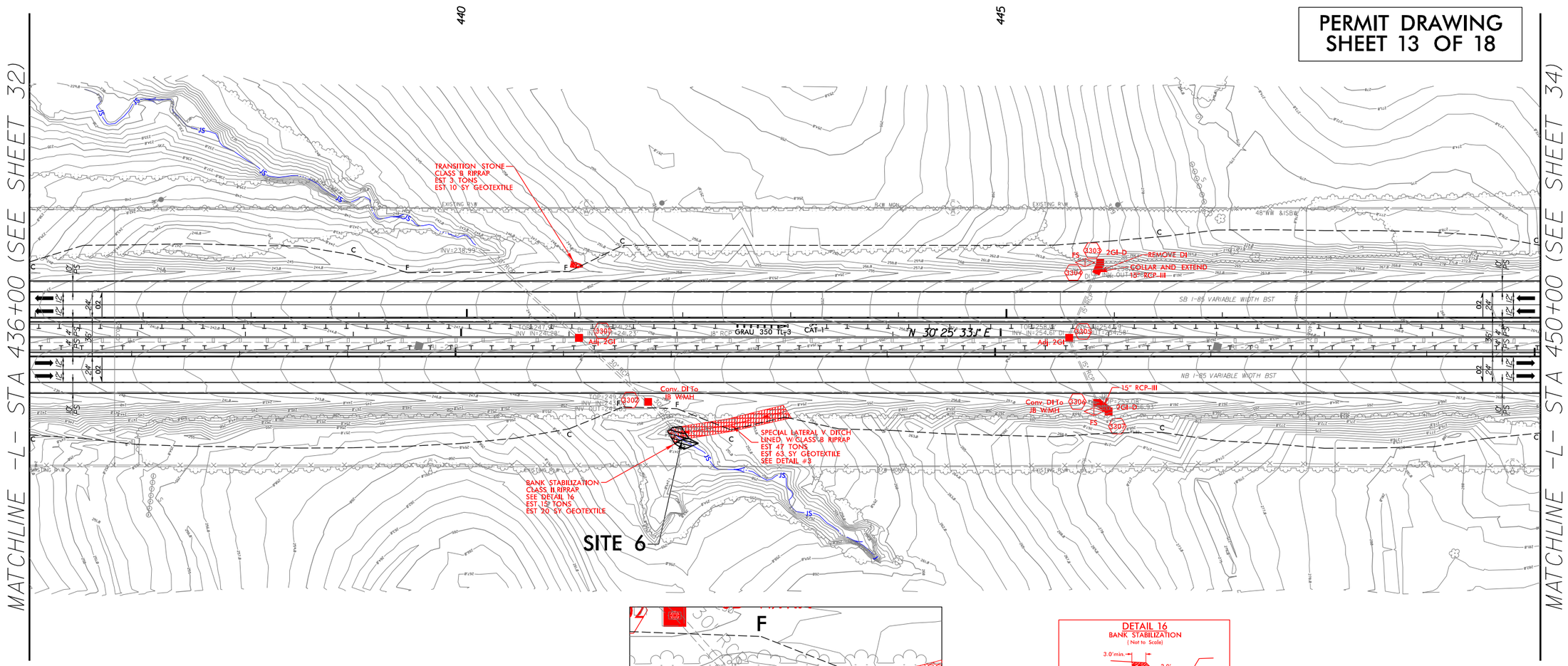
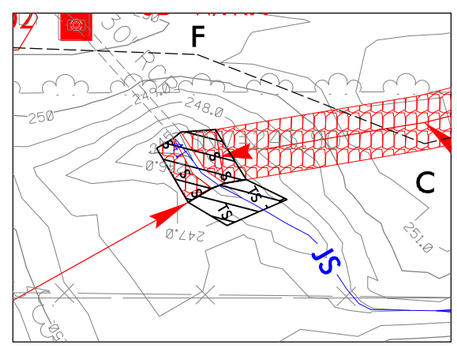
PERMIT DRAWING
SHEET 13 OF 18





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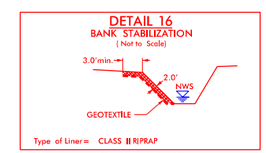

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR –NBL– & –SBL– PROFILE, SEE SHEET 89

NOTES:

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REVISIONS

8/17/99

$$$$$$SYSTIME$$$$$$
$$$$$$DGN$$$$$$
$$$$$$FILENAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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PRELIMINARY PLANS
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Suite 101
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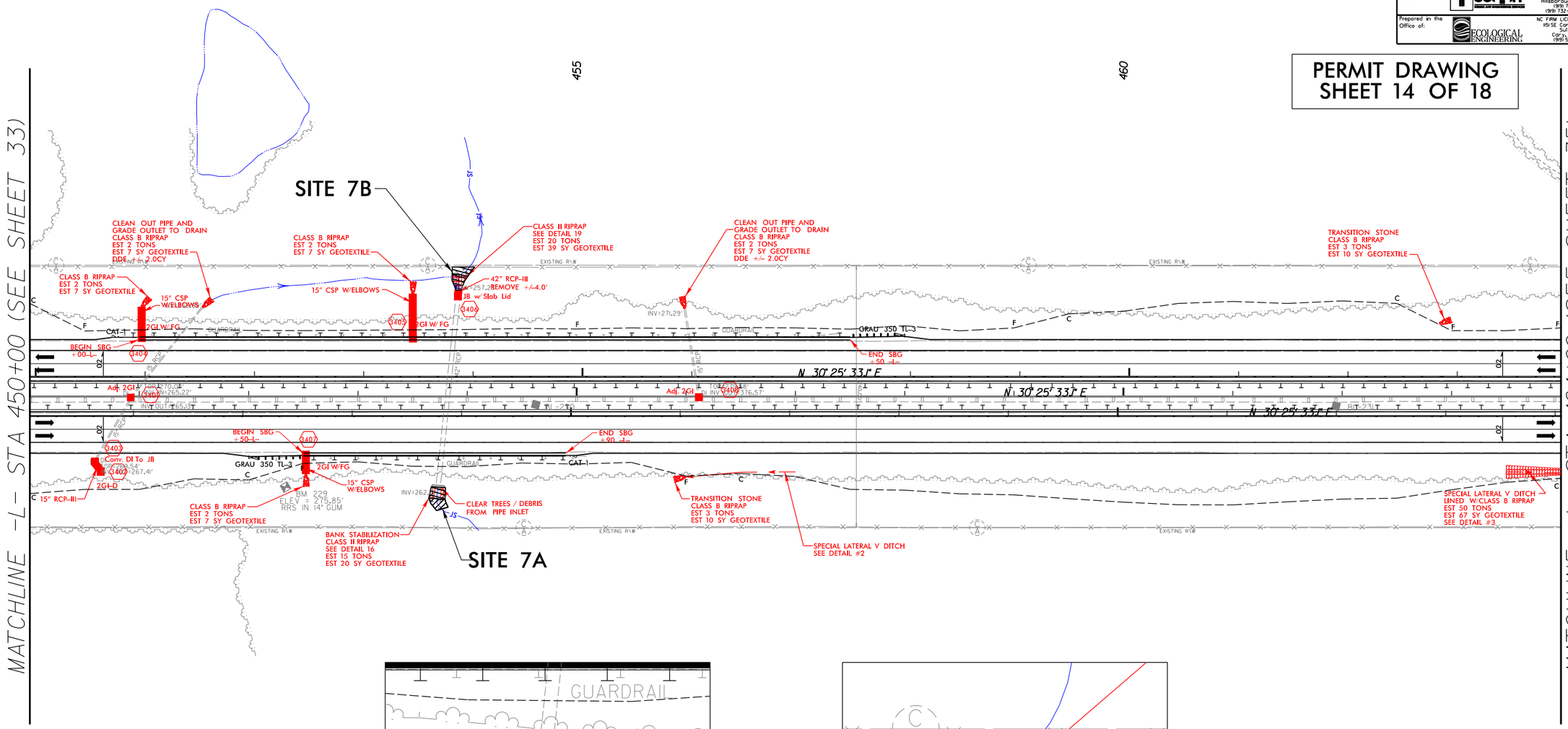
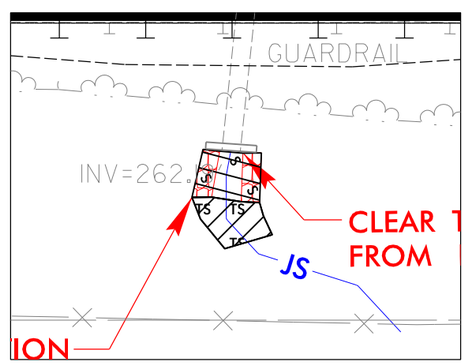
PERMIT DRAWING
SHEET 14 OF 18

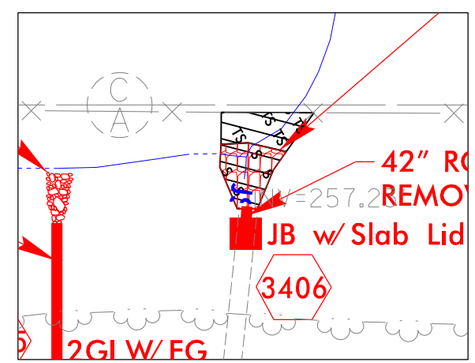


S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER



SITE 7A



SITE 7B

FOR –NBL– & –SBL– PROFILE, SEE SHEET 90

NOTES:
1. REMOVE AND REPLACE EXISTING GUARDRAIL AS SHOWN ON PLANS
2. REMOVE EXISTING CABLE GUIDERAIL
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REVISIONS

8/17/99

$$$$$$SYSTIME$$$$$$
$$$$$$DGN$$$$$$
$$$$$$FILENAME$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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Cary, NC 27518
(919) 557-0929

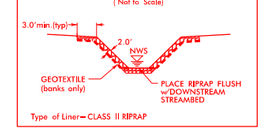
PERMIT DRAWING SHEET 15 OF 18

DETAIL 16
BANK STABILIZATION
(Not to Scale)

Type of Liner= CLASS II RIPRAP

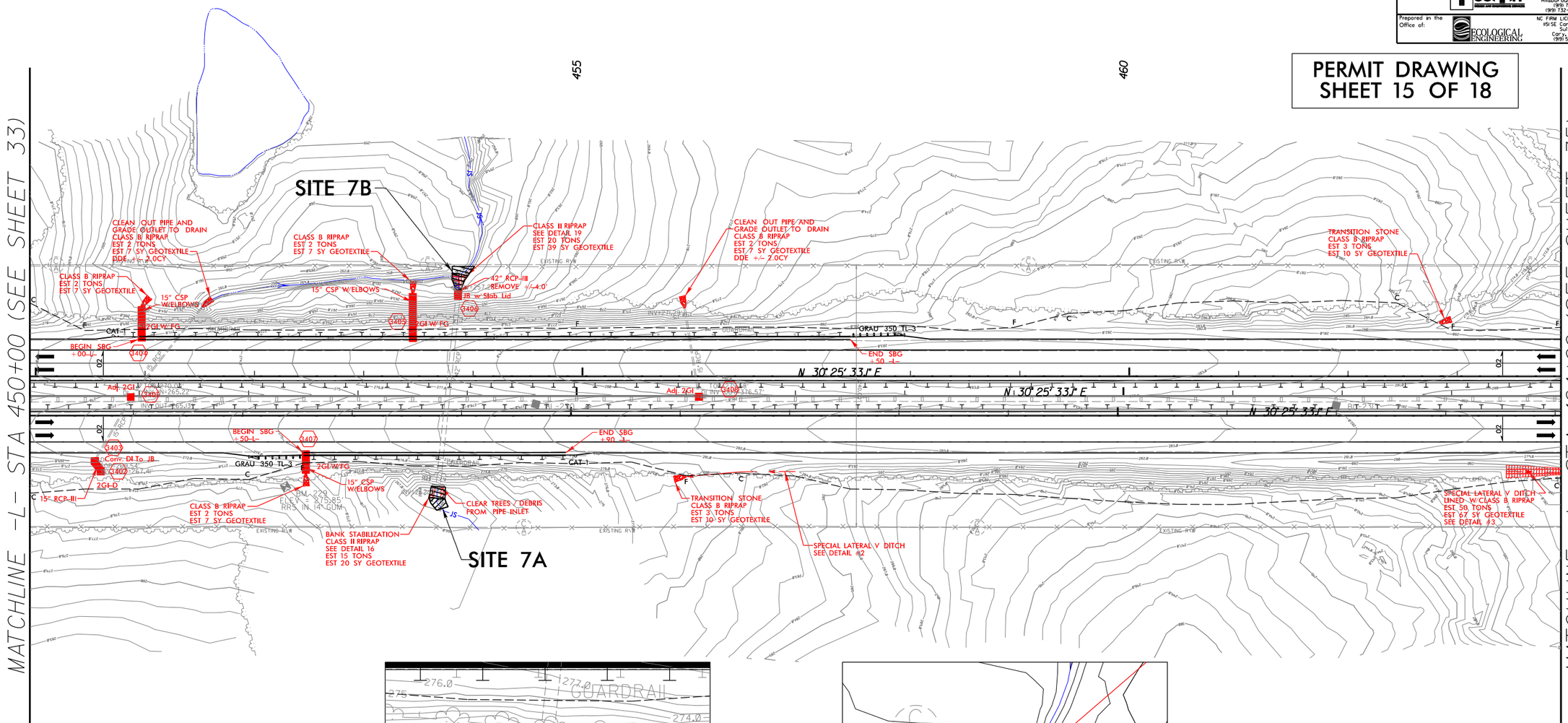
STA 453+73 L RT

DETAIL 19
BED/SCOUR HOLE AND BANK STABILIZATION
(Not to Scale)



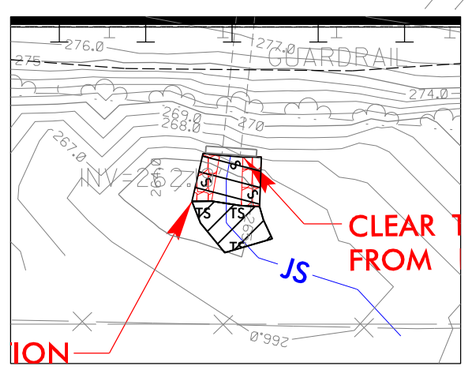
Type of Liner=CLASS II RIPRAP

STA 453+86 L LT

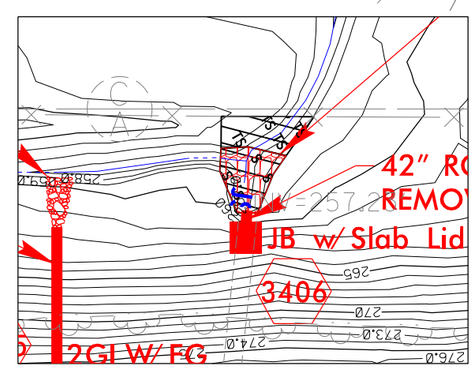


S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER



SITE 7A



SITE 7B

FOR -NBL- & -SBL- PROFILE, SEE SHEET 90

NOTES:

1. REMOVE AND REPLACE EXISTING GUARDRAIL AS SHOWN ON PLANS
2. REMOVE EXISTING CABLE GUIDERAIL
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REVISIONS

8/17/99

$$$$$$SYSTIME$$$$$$
$$$$$$DGN$$$$$$
$$$$$$FILENAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	36
R / W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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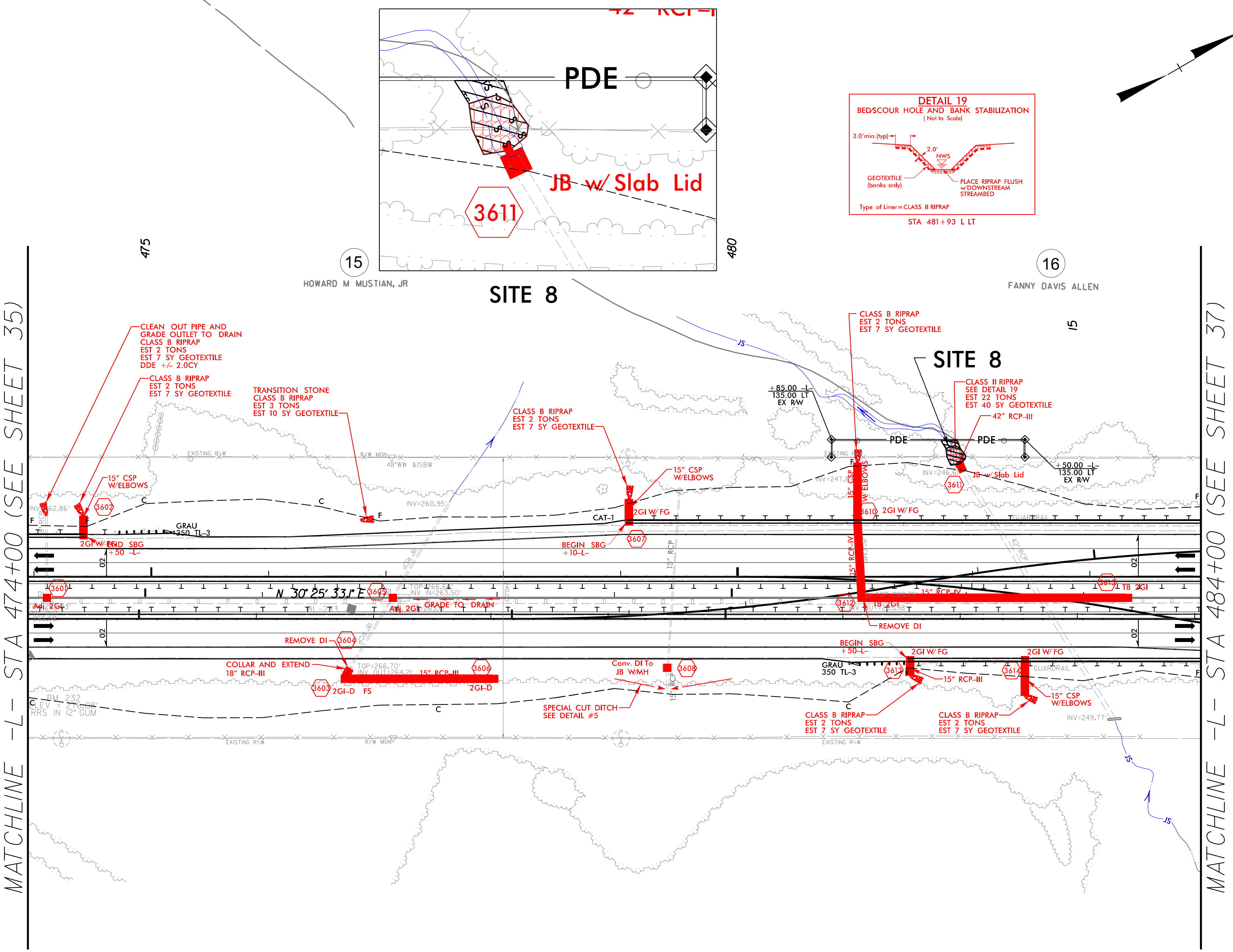
PERMIT DRAWING
SHEET 16 OF 18



DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR -NBL- & -SBL- PROFILE, SEE SHEET 92

FOR -CRWCRPB- PLAN, SEE SHEET 55
FOR -CRWCRPB- PROFILE, SEE SHEET 114

FOR -CRWCRPC- PLAN, SEE SHEET 54
FOR -CRWCRPC- PROFILE, SEE SHEET 115

NOTES:

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2. REMOVE EXISTING CABLE GUIDERAIL
3. ALL PIPES AND DRAINAGE STRUCTURES ARE TO BE RETAINED UNLESS NOTED OTHERWISE
4. REMOVE EXISTING CONCRETE DITCH

REVISIONS

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	36
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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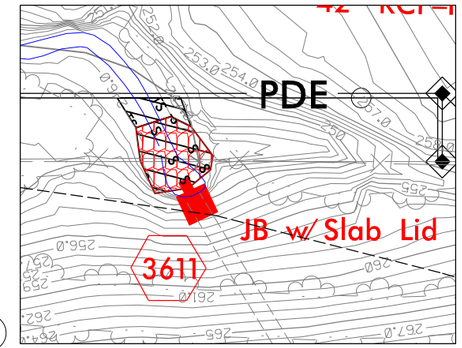
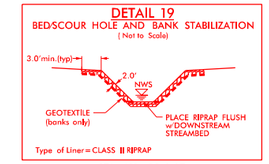
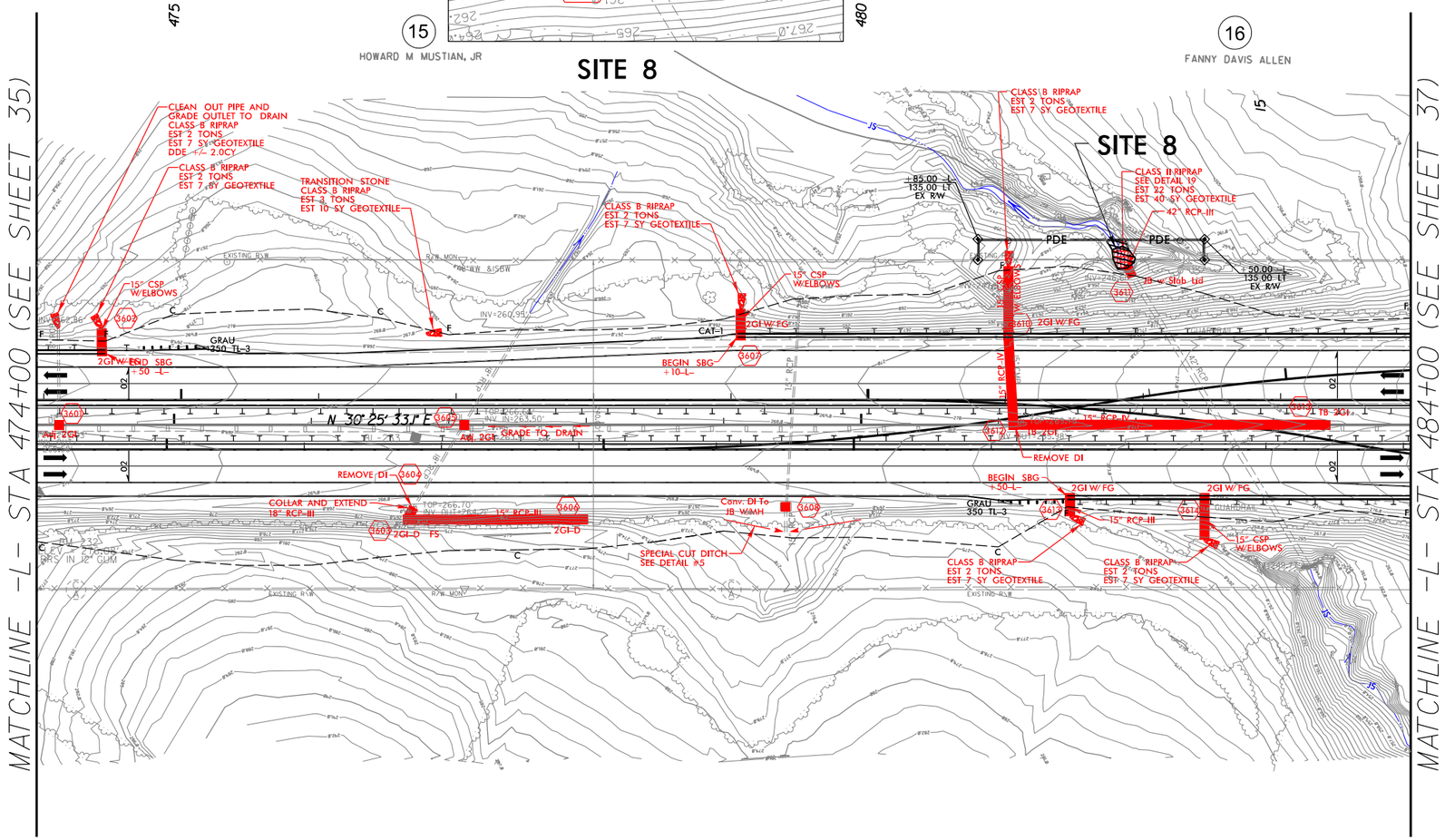
PERMIT DRAWING SHEET 17 OF 18







S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR -NBL- & -SBL- PROFILE, SEE SHEET 92

FOR -CRWCRPB- PLAN, SEE SHEET 55
FOR -CRWCRPB- PROFILE, SEE SHEET 114

FOR -CRWCRPC- PLAN, SEE SHEET 54
FOR -CRWCRPC- PROFILE, SEE SHEET 115

NOTES:

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4. REMOVE EXISTING CONCRETE DITCH

8/17/99

REVISIONS

$$$$$$$SYSTIME$$$$$
$$$$$$$ENGINE$$$$$DGN$$$$$$$$$$$$$$$$$$$$

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	38+36/38+86 -L-	Two 18" RCP Collar and Replace				0.01		< 0.01	< 0.01	17	18	
2	115+87/115+97 -L-	Bank Stabilization, Headwall						< 0.01	< 0.01	19	10	
3	261+12/261+47 -L-	Bank Stablization						< 0.01	< 0.01	16	11	
4	316+80/316+97 -L-	36" RCP, Class II Rip Rap Bed/Scour Hole, Bank Stabilization						< 0.01		9		
5	369+61/369+91 -L-	Bank Stablization						< 0.01	< 0.01	17	15	
6	441+91/442+20 -L-	Bank Stablization						< 0.01	< 0.01	15	11	
7A	453+63/453+80 -L-	Bank Stablization						< 0.01	< 0.01	11	11	
7B	453+86/454+07 -L-	42" RCP, Class II Rip Rap Bed/Scour Hole, Bank Stabilization						< 0.01	< 0.01	15	11	
8	481+78/482+00 -L-	42" RCP, Class II Rip Rap Bed/Scour Hole, Bank Stabilization						< 0.01	< 0.01	18	6	
TOTALS:						0.01		0.03	0.02	137	94	

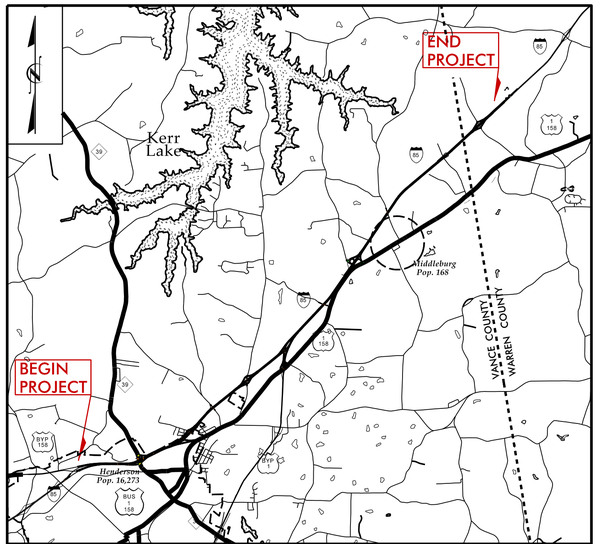
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

WARREN COUNTY
TIP PROJECT: I-0914BB

09/08/99

TIP PROJECT: I-0914BA

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



VICINITY MAP
(NOT TO SCALE)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

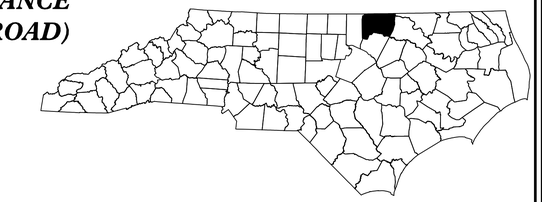
VANCE–WARREN COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I–0914BA	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
WBS 38688.1.2	IMS–085–4(116)215	P.E.
WBS 38688.2.FS2	IMS–085–4(116)215	R/W
WBS 38688.2.FSU1	IMS–085–4(116)215	UTIL

LOCATION: *I–85 FROM NORTH OF SR 1162 (DABNEY DRIVE) IN VANCE COUNTY TO NORTH OF SR 1237 (MANSON–DREWRY ROAD) IN WARREN COUNTY*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, GUARDRAIL, CABLE GUIDERAIL, STRUCTURES, SIGNALS*



BEGIN TIP PROJECT I–0914BA
BEGIN F.A. PROJECT IMS–085–4(116)215
–SBL– STA. 48 + 65.50

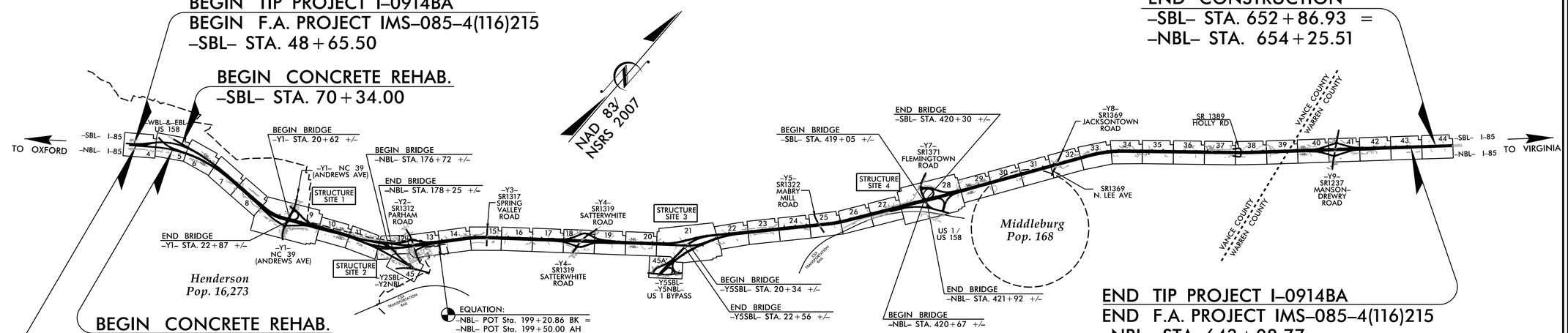
BEGIN CONCRETE REHAB.
–SBL– STA. 70 + 34.00

BEGIN CONCRETE REHAB.
–NBL– STA. 67 + 70.00

BEGIN CONSTRUCTION
–NBL– STA. 51 + 16.09

END CONSTRUCTION
–SBL– STA. 652 + 86.93 =
–NBL– STA. 654 + 25.51

END TIP PROJECT I–0914BA
END F.A. PROJECT IMS–085–4(116)215
–NBL– STA. 643 + 08.77 =
–SBL– STA. 641 + 70.18 =
BEGIN TIP PROJECT I–0914BB
–L– STA. 39 + 00.00



THIS IS A CONTROLLED–ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF HENDERSON AND MIDDLEBURG.

PROJECT PREPARED BY:
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F–0116

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2014 = 37,800
ADT 2035 = 57,900
DHV = 08 %
D = 55 %
T = 20 % *
V = 70 MPH
* TTST =17% DUAL 3%
FUNC CLASS =
INTERSTATE
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I–0914BA = 11.179 MILES
LENGTH STRUCTURE TIP PROJECT I–0914BA = 0.053 MILES
TOTAL LENGTH TIP PROJECT I–0914BA = 11.232 MILES

TOTAL PROJECT LENGTH BASED ON CENTERLINE –SBL– STATIONS.
STRUCTURE LENGTH BASED ON CENTERLINE –NBL– STATIONS.

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 28, 2014

LETTING DATE:
FEBRUARY 17, 2015

PAUL A. MEEHAN, P.E.
PROJECT ENGINEER

DOMINIC M. WAINWRIGHT, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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04/16/11

PROJECT REFERENCE NO.	SHEET NO.
1-0914BA	1-B

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
- Designated U/G Water Line (S.U.E.*)
- 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.

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

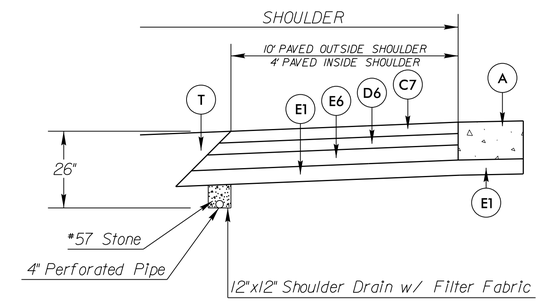
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

A	10" PORTLAND CEMENT CONCRETE PAVEMENT WITH DOWELS	E4	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E5	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
C2	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.	E6	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
C3	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E7	PROP. APPROX. 5.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E8	PROP. APPROX. 9.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C5	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB AND GUTTER
C6	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.	R2	CONCRETE SHOULDER BERM GUTTER
C7	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD IN EACH OF TWO LAYERS.	R3	SPECIAL CONCRETE SHOULDER BERM GUTTER (SEE SPECIAL SBG DETAIL)
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	S	4" CONCRETE SIDEWALK
D2	PROP. APPROX. 3.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	T	EARTH MATERIAL
D3	PROP. APPROX. 4.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
D4	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.	V1	5/8" MILLING OF ULTRATHIN WEARING COURSE
D5	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	V2	3" MILLING OF ASPHALT SURFACE COURSE
D6	PROP. APPROX. 3.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	X	2" PADC
E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	X1	VARIABLE DEPTH PADC (SEE WEDGING DETAIL)
E2	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)
E3	PROP. APPROX. 5.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	Y	MILLED RUMBLE STRIPS

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

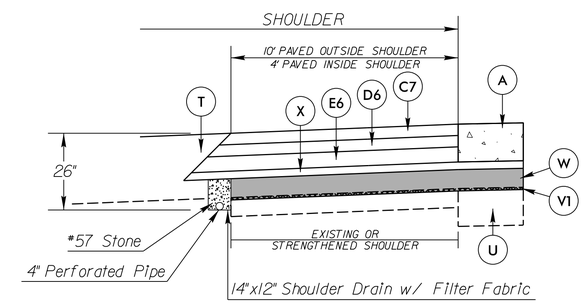


DETAIL OF SHOULDER DRAIN—GRADE CHANGE AREA

TO BE USED ALONG –NBL– & –SBL–, –Y5NBL– & –Y5SBL–

CONCRETE OUTLET PADS LOCATED IN CUT SECTIONS SHALL BE PLACED AT LEAST 6" ABOVE BOTTOM DITCH GRADE.

NTS

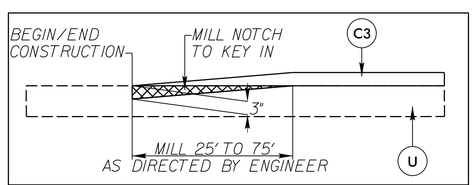


DETAIL OF SHOULDER DRAIN—WEDGING AREA

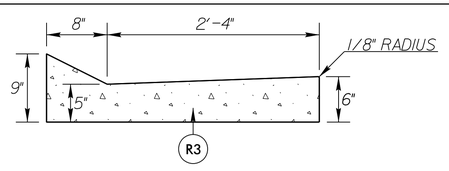
TO BE USED ALONG –NBL– & –SBL–, –Y5NBL– & –Y5SBL–

CONCRETE OUTLET PADS LOCATED IN CUT SECTIONS SHALL BE PLACED AT LEAST 6" ABOVE BOTTOM DITCH GRADE.

NTS



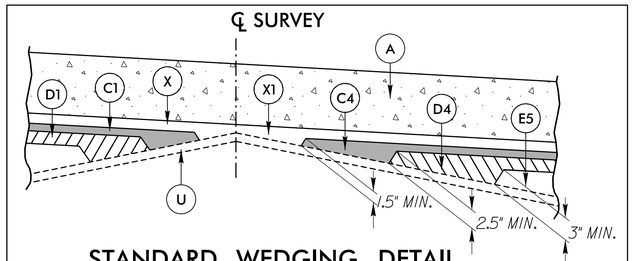
KEY-IN DETAIL



DETAIL OF SPECIAL SHOULDER BERM GUTTER

TO BE USED ALONG –NBL– & –SBL–, –Y5NBL– & –Y5SBL–
SEE PLANS FOR SHOULDER BERM GUTTER LOCATIONS

NTS



STANDARD WEDGING DETAIL

TO BE USED ALONG
–NBL– & –SBL–, –Y5NBL– & –Y5SBL–

NTS

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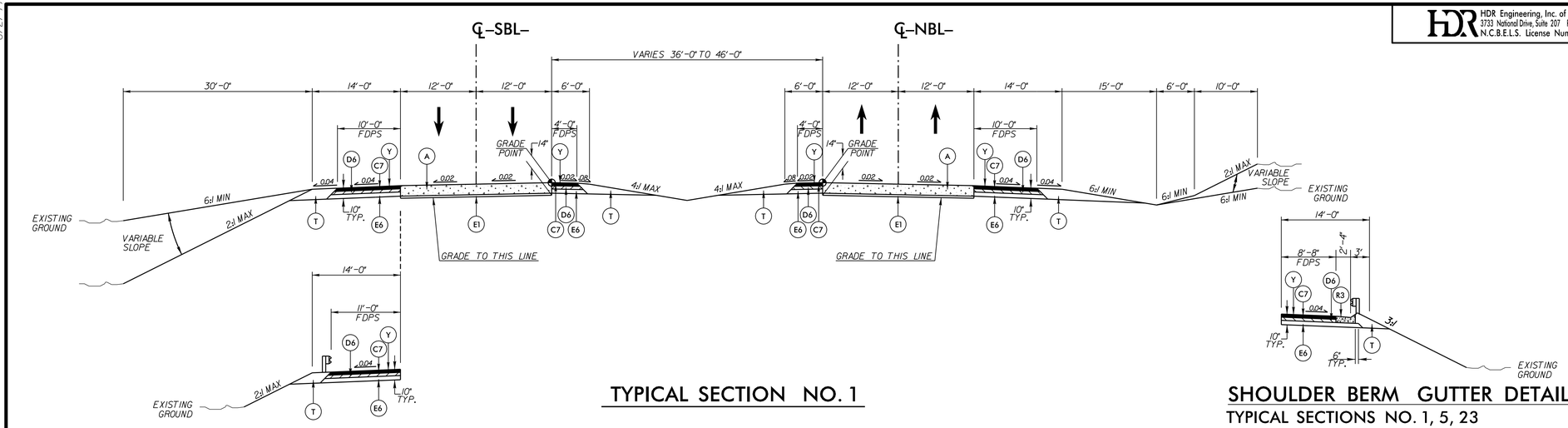
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 1

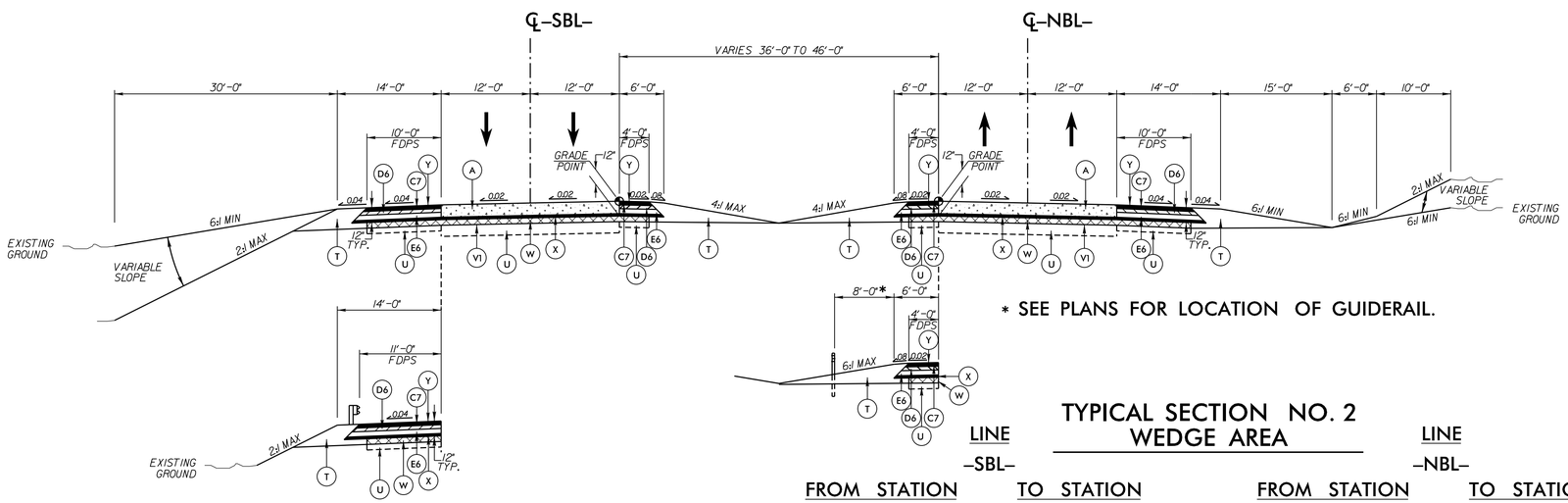
SHOULDER BERM GUTTER DETAIL

TYPICAL SECTIONS NO. 1, 5, 23
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS

LINE -SBL- FROM STATION	TO STATION
183+17.50	197+17.50
216+45.00	226+08.00
254+80.00	266+75.00
366+57.50	375+18.00
410+10.00	419+05 +/- (BEGIN BRIDGE)
420+30 +/- (END BRIDGE)	430+50.00
474+72.50	487+85.00
599+95.00	613+85.00

LINE -NBL- FROM STATION	TO STATION
161+05.19	164+00.00
178+25 +/- (END BRIDGE)	198+00.00
215+85.00	227+75.00
256+50.00	268+25.00
304+05.00	306+00.00
368+25.00	376+80.00
413+00.00	420+67 +/- (BEGIN BRIDGE)
421+92 +/- (END BRIDGE)	431+75.00
476+25.00	489+40.00
601+50.00	617+35.00

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS

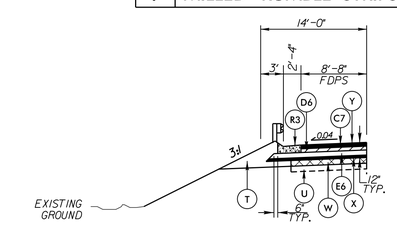


* SEE PLANS FOR LOCATION OF GUIDERAIL.

TYPICAL SECTION NO. 2
WEDGE AREA

LINE -SBL- FROM STATION	TO STATION
89+43.27	163+68.00
176+50.00	183+17.50
197+17.50	216+45.00
226+08.00	254+80.00
266+75.00	305+00.00
326+51.92	366+57.50
375+18.00	410+10.00
430+50.00	474+72.50
487+85.00	599+95.00
613+85.00	641+70.18

LINE -NBL- FROM STATION	TO STATION
89+50.00	161+05.19
198+00.00	215+85.00
227+75.00	256+50.00
268+25.00	304+05.00
328+00.00	368+25.00
376+80.00	413+00.00
431+75.00	476+25.00
489+40.00	601+50.00
617+35.00	643+08.77



SHOULDER BERM GUTTER DETAIL

TYPICAL SECTIONS NO. 2, 4, 6, 19
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS

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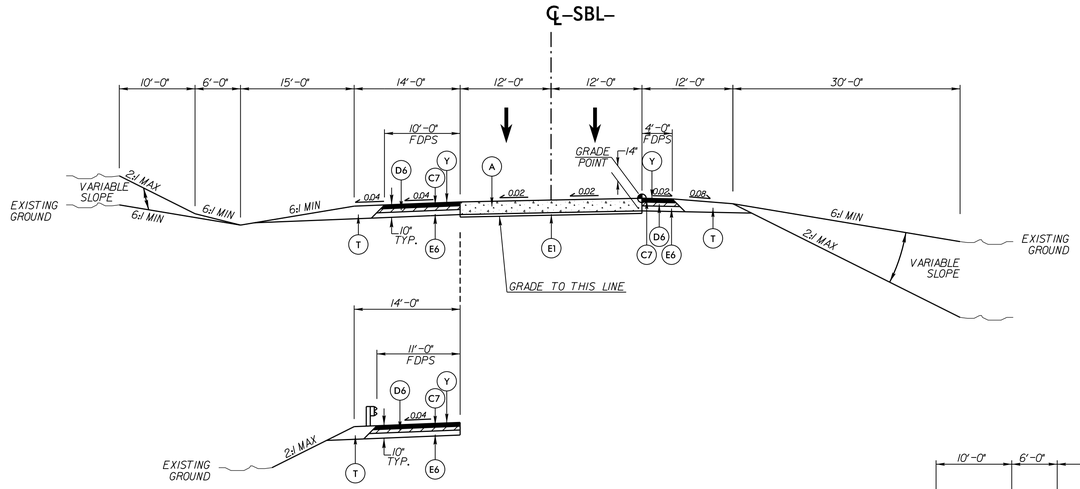
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

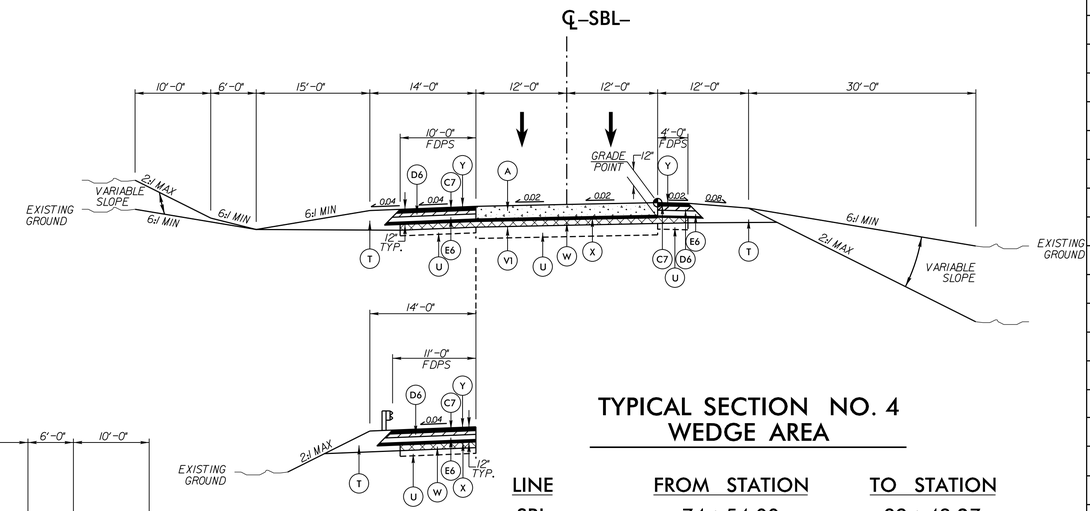
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



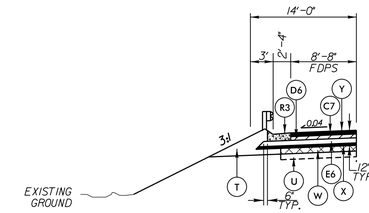
TYPICAL SECTION NO. 3

LINE	FROM STATION	TO STATION
-SBL-	70+34.00	74+54.00



TYPICAL SECTION NO. 4
WEDGE AREA

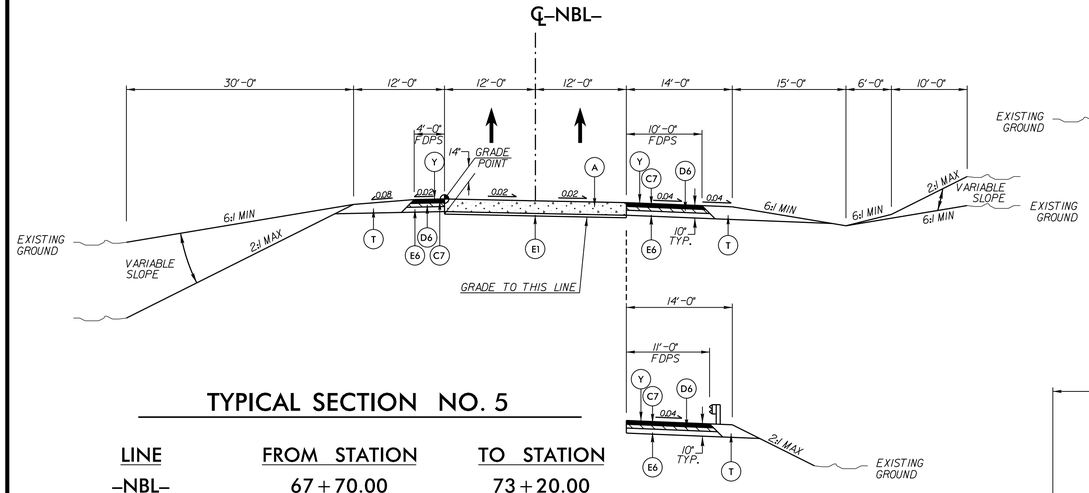
LINE	FROM STATION	TO STATION
-SBL-	74+54.00	89+43.27
-SBL-	163+68.00	176+50.00
-SBL-	305+00.00	326+51.92



SHOULDER BERM GUTTER DETAIL

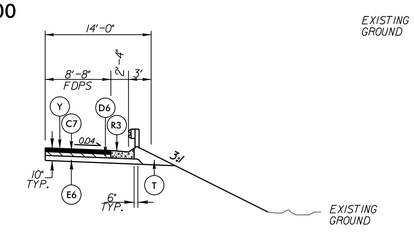
TYPICAL SECTIONS NO. 2, 4, 6, 19
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS



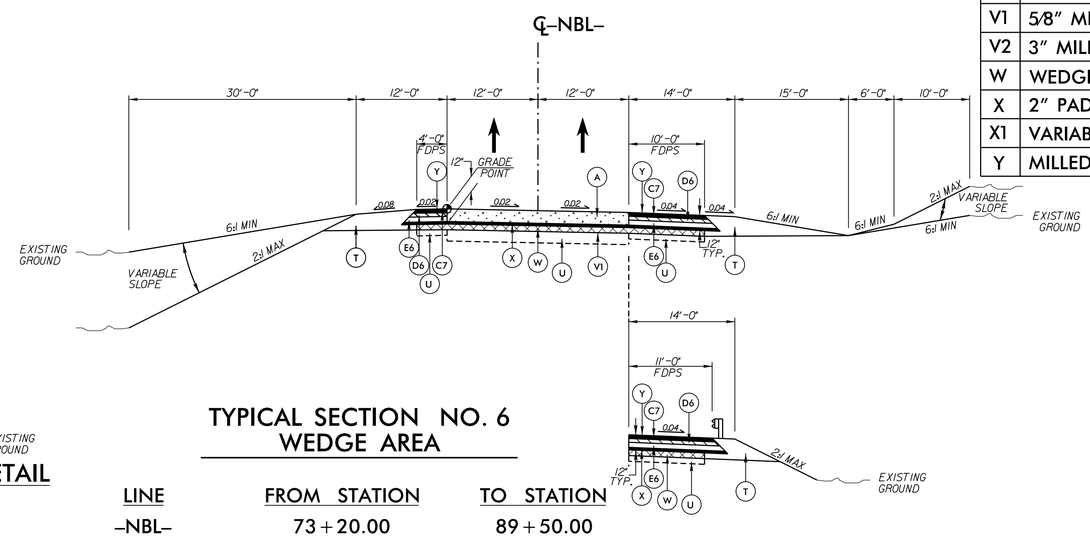
TYPICAL SECTION NO. 5

LINE	FROM STATION	TO STATION
-NBL-	67+70.00	73+20.00
-NBL-	164+00.00	176+72+/- (BEGIN BRIDGE)
-NBL-	306+00.00	318+60.00



SHOULDER BERM GUTTER DETAIL

TYPICAL SECTIONS NO. 1, 5, 23
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS



TYPICAL SECTION NO. 6
WEDGE AREA

LINE	FROM STATION	TO STATION
-NBL-	73+20.00	89+50.00
-NBL-	318+60.00	328+00.00

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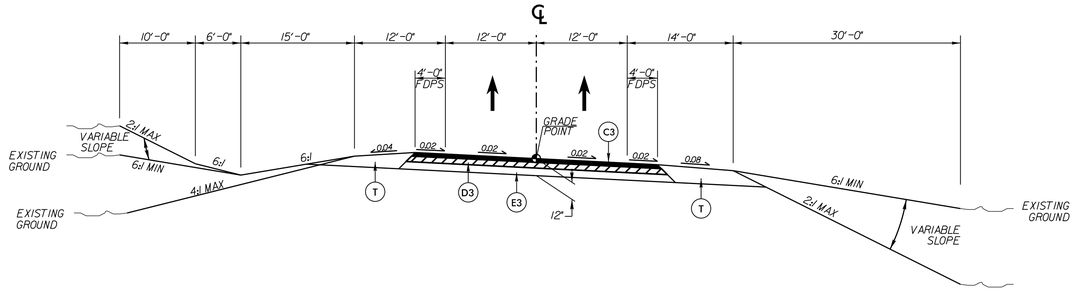
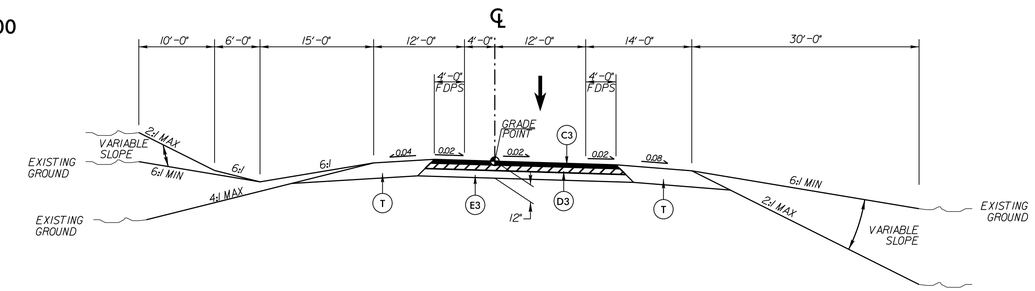
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



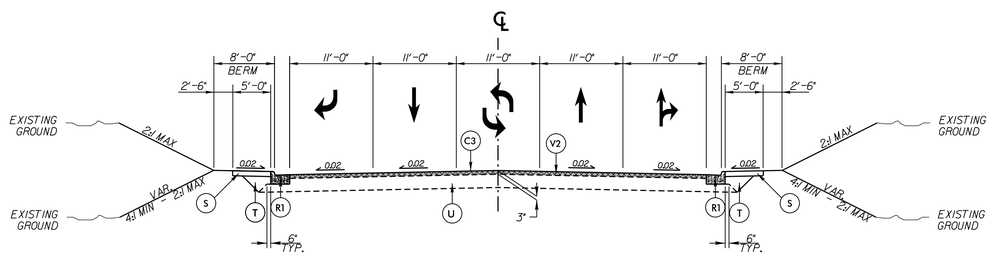
TYPICAL SECTION NO. 7

TO STATION	FROM STATION	LINE
-WBL-	16+38.00	19+93.00



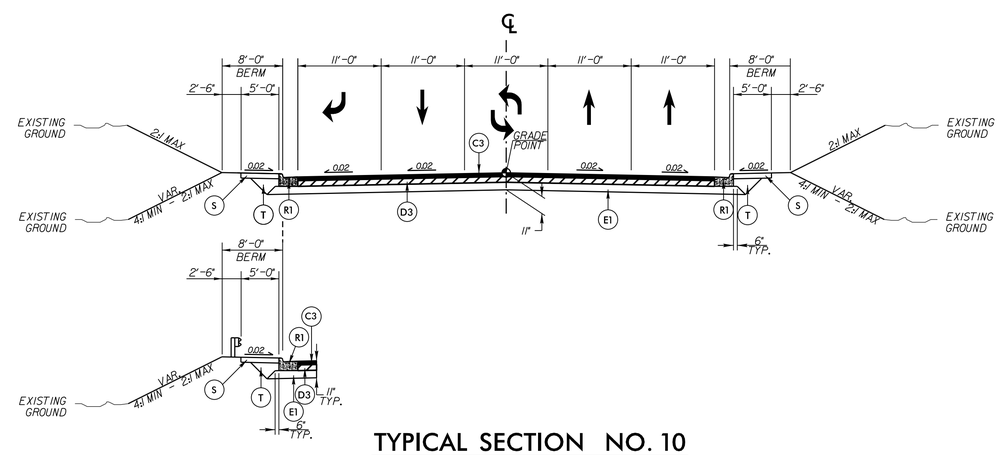
TYPICAL SECTION NO. 8

LINE	FROM STATION	TO STATION
-EBL-	15+86.57	19+00.00



TYPICAL SECTION NO. 9

LINE	FROM STATION	TO STATION
-Y1-	15+56.70	17+90.00
-Y1-	24+60.00	25+95.48



TYPICAL SECTION NO. 10

LINE	FROM STATION	TO STATION
-Y1-	17+90.00	20+62 +/- (BEGIN BRIDGE)
-Y1-	22+87 +/- (END BRIDGE)	24+60.00

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS

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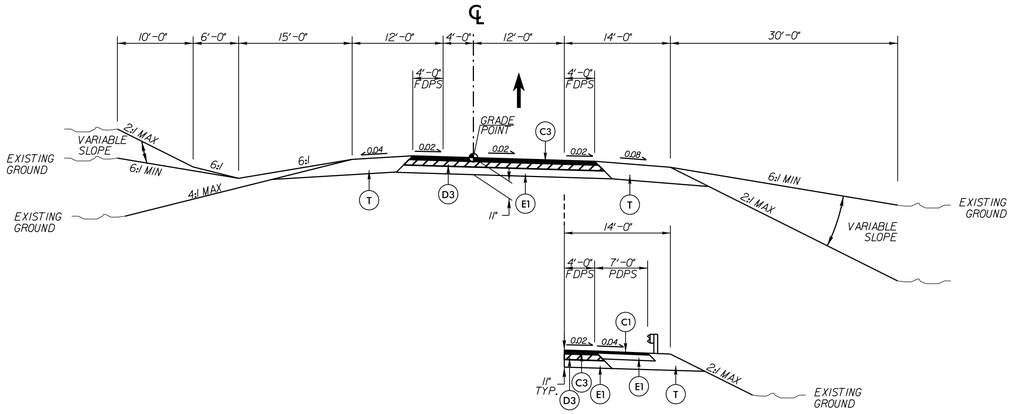
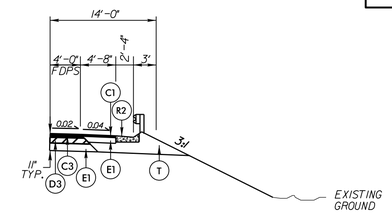
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 11

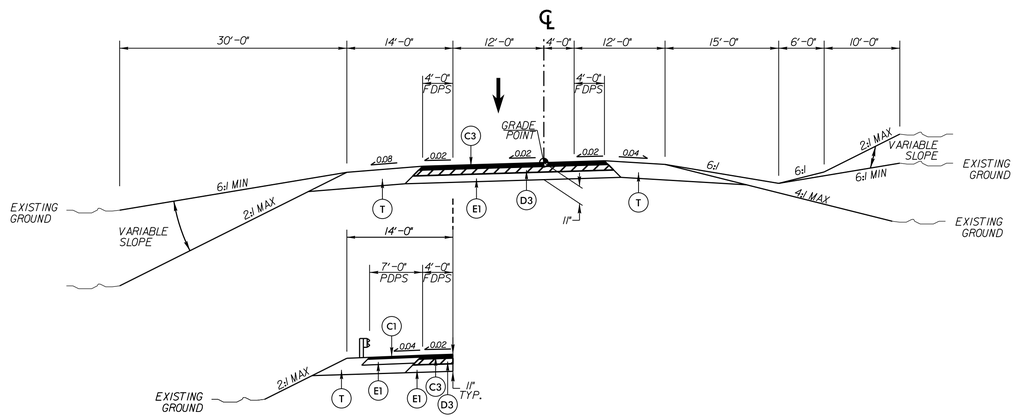
LINE	FROM STATION	TO STATION
-Y1RPA-	14+53.83	24+23.89
-Y1RPC-	14+91.27	25+56.95



SHOULDER BERM GUTTER DETAIL

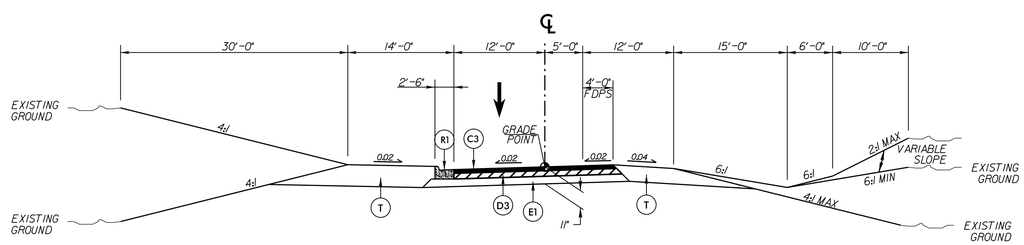
TYPICAL SECTION NO. 11 (-Y1RPA-)
SEE PLANS FOR SHOULDER BERM GUTTER LOCATIONS

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS



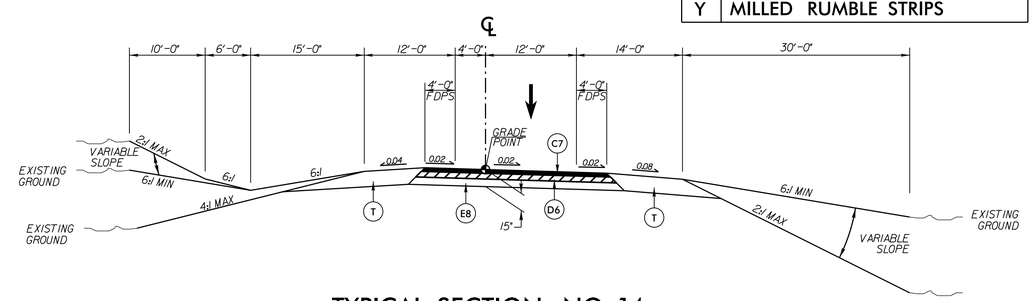
TYPICAL SECTION NO. 12

LINE	FROM STATION	TO STATION
-Y1RPD-	13+73.66	21+78.01



TYPICAL SECTION NO. 13

LINE	FROM STATION	TO STATION
-Y1LPA-	12+11.81	18+14.57



TYPICAL SECTION NO. 14

LINE	FROM STATION	TO STATION
-Y2SBL-	15+90.83	33+18.00

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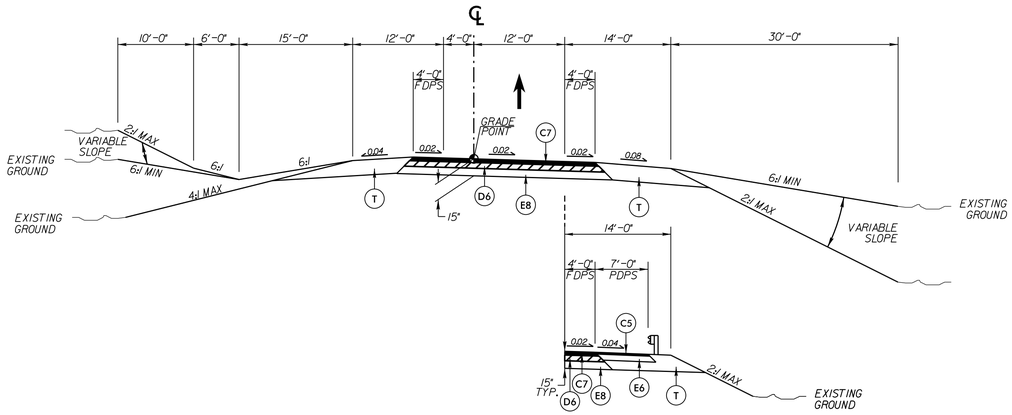
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-E
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

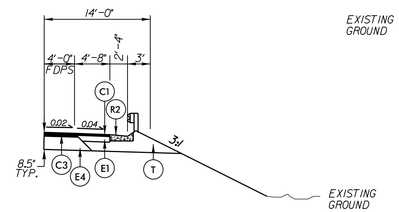


TYPICAL SECTION NO. 15

LINE	FROM STATION	TO STATION
-Y2NBL-	13+43.53	29+60.00

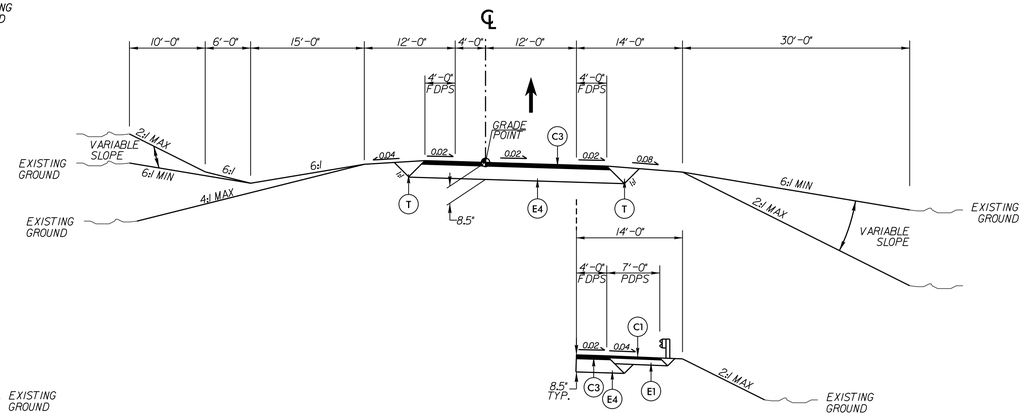
SHOULDER BERM GUTTER DETAIL

TYPICAL SECTION NO. 15
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS



SHOULDER BERM GUTTER DETAIL

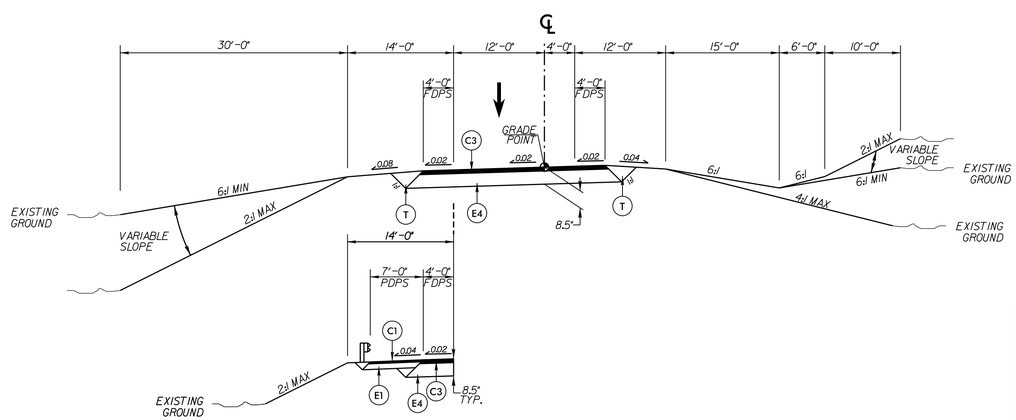
TYPICAL SECTION NO. 16 (-Y4RPA-)
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS



TYPICAL SECTION NO. 16

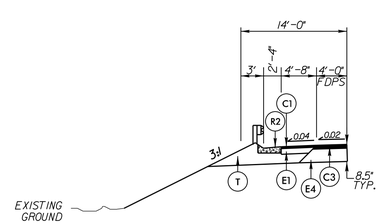
LINE	FROM STATION	TO STATION
-Y2RPA-	14+55.07	20+59.28
-Y4RPA-	15+03.64	21+45.31
-Y4RPC-	14+51.01	20+38.47

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS



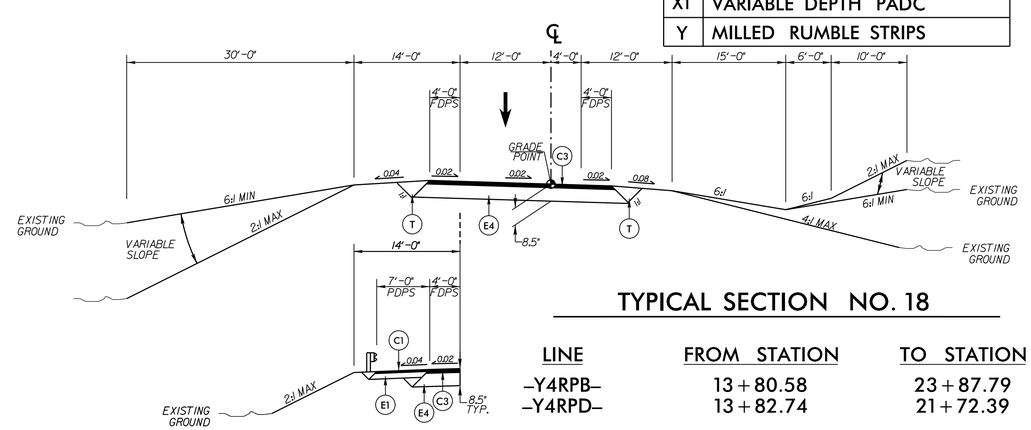
TYPICAL SECTION NO. 17

LINE	FROM STATION	TO STATION
-Y2RPB-	14+45.03	21+86.64
-Y2RPD-	13+72.85	19+20.38



SHOULDER BERM GUTTER DETAIL

TYPICAL SECTION NO. 17 (-Y2RPB-)
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS



TYPICAL SECTION NO. 18

LINE	FROM STATION	TO STATION
-Y4RPB-	13+80.58	23+87.79
-Y4RPD-	13+82.74	21+72.39

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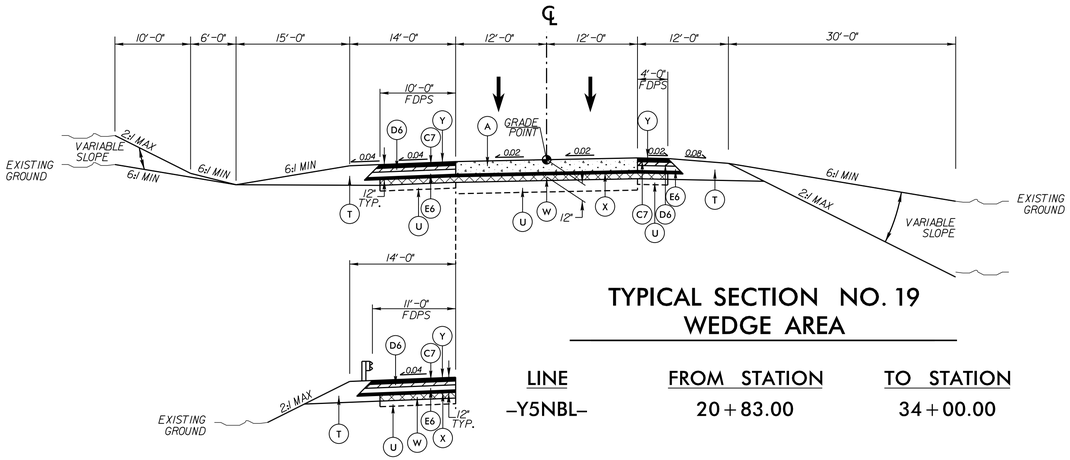
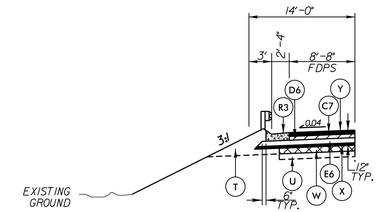
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-F
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



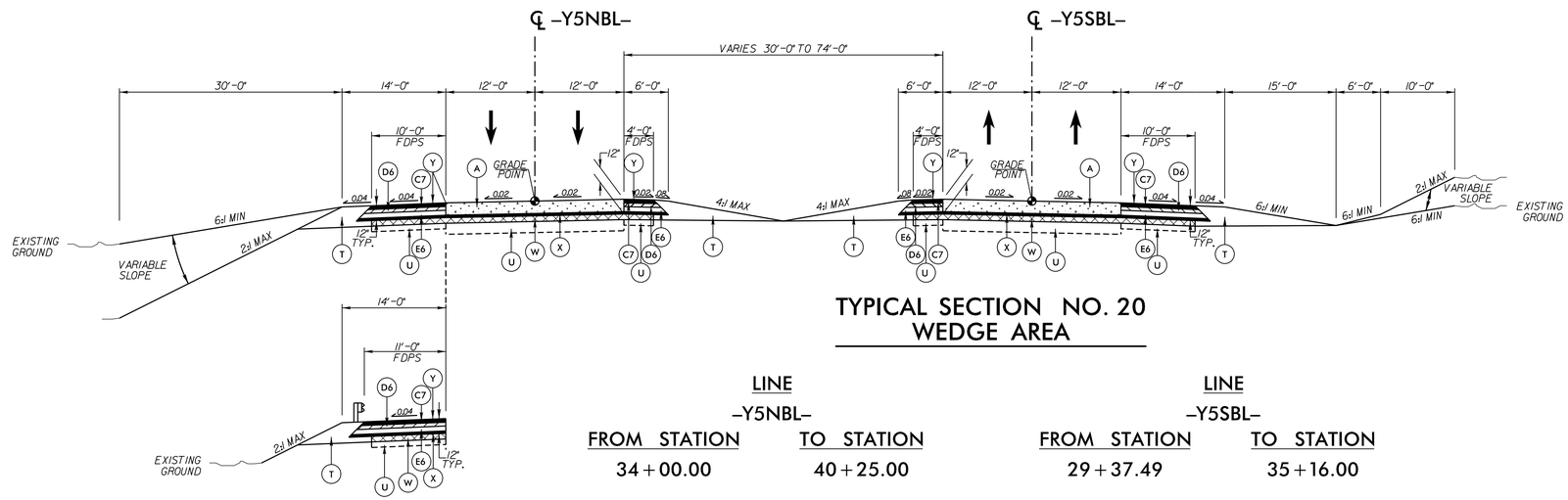
TYPICAL SECTION NO. 19
WEDGE AREA

LINE	FROM STATION	TO STATION
-Y5NBL-	20+83.00	34+00.00



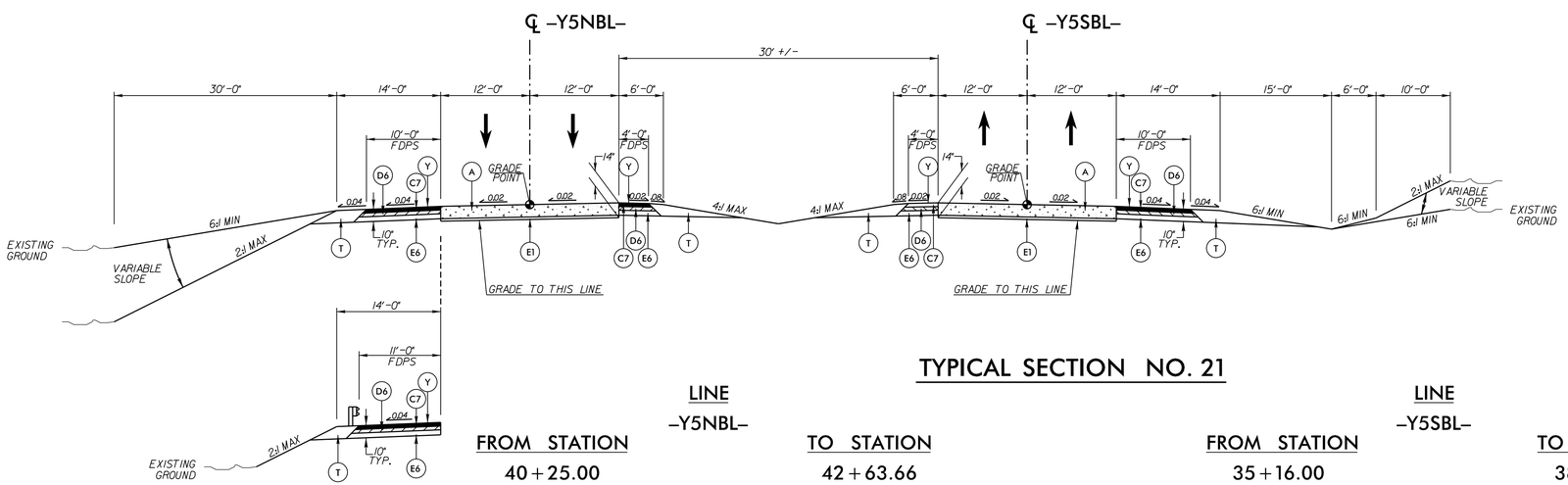
SHOULDER BERM GUTTER DETAIL

TYPICAL SECTIONS NO. 2, 4, 6, 19
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS



TYPICAL SECTION NO. 20
WEDGE AREA

LINE -Y5NBL- FROM STATION	TO STATION	LINE -Y5SBL- FROM STATION	TO STATION
34+00.00	40+25.00	29+37.49	35+16.00



TYPICAL SECTION NO. 21

LINE -Y5NBL- FROM STATION	TO STATION	LINE -Y5SBL- FROM STATION	TO STATION
40+25.00	42+63.66	35+16.00	38+46.31

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS

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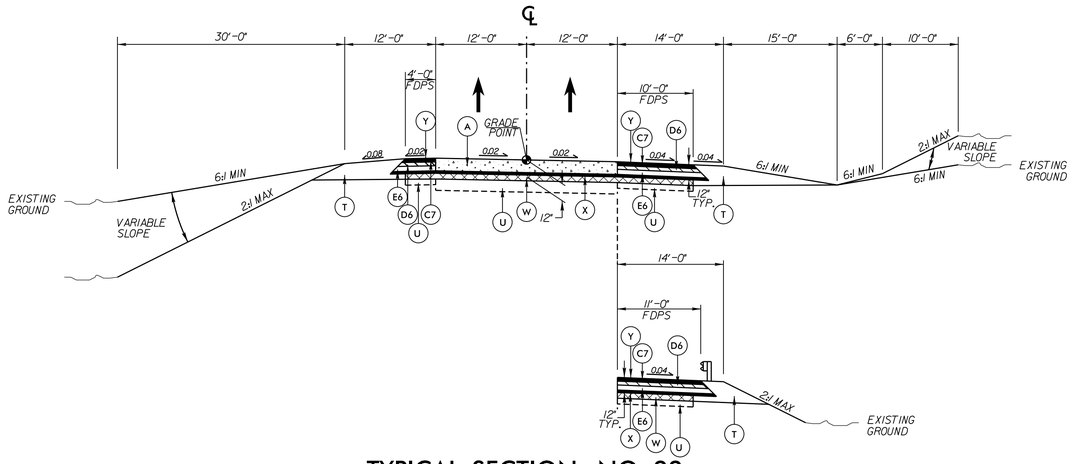
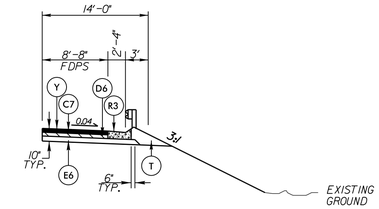
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-G
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 22
WEDGE AREA

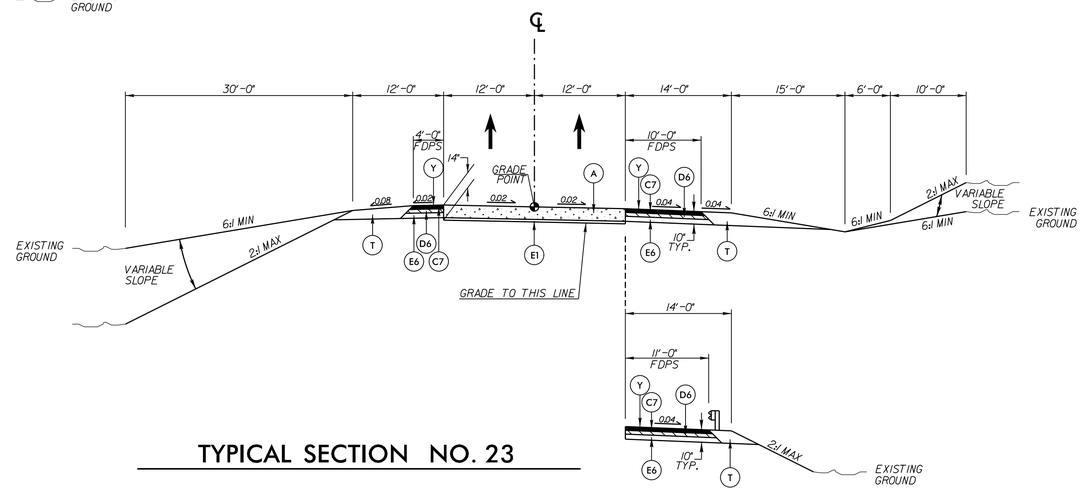
LINE	FROM STATION	TO STATION
-Y5SBL-	15+26.00	17+29.00
-Y5SBL-	26+17.00	29+37.49



SHOULDER BERM GUTTER DETAIL

TYPICAL SECTIONS NO. 1, 5, 23
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS

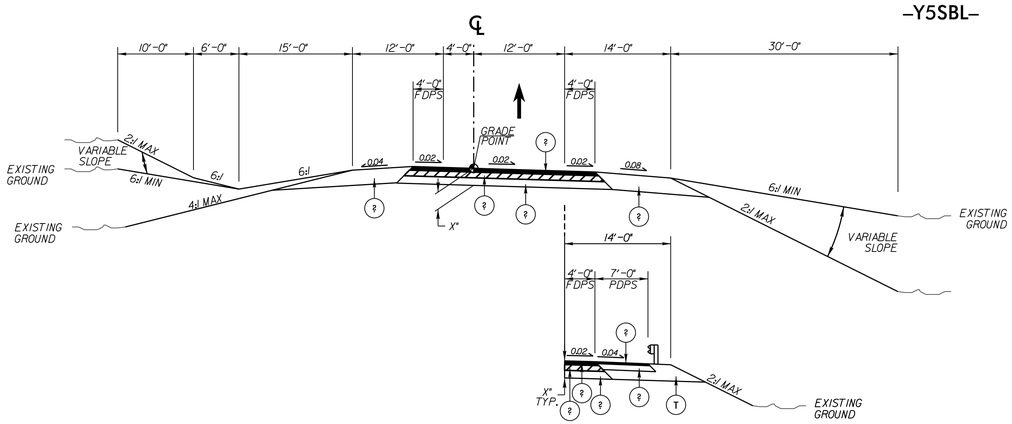
A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS



TYPICAL SECTION NO. 23

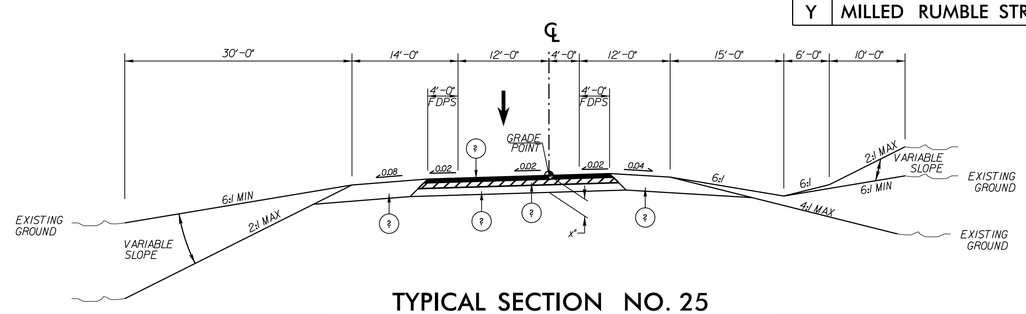
LINE	FROM STATION	TO STATION
-Y5SBL-	17+29.00	22+34+/- (BEGIN BRIDGE)
-Y5SBL-	22+56+/- (END BRIDGE)	26+17.00

AWAITING PROPOSED PAVEMENT DESIGN TO COMPLETE -Y5ALPB- & -Y5ARPB- TYPICAL SECTIONS



TYPICAL SECTION NO. 24

LINE	FROM STATION	TO STATION
-Y5ALPB-	11+76.79	15+94.64



TYPICAL SECTION NO. 25

LINE	FROM STATION	TO STATION
-Y5ARPB-	11+98.65	15+85.29

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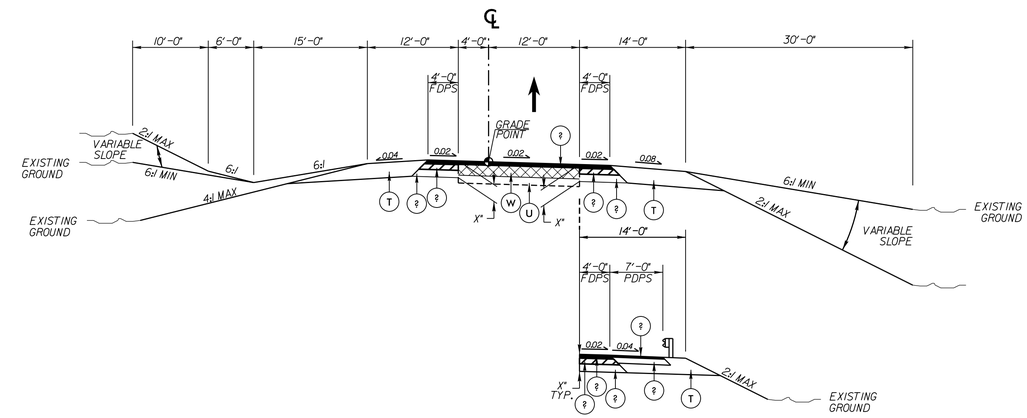
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-H
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

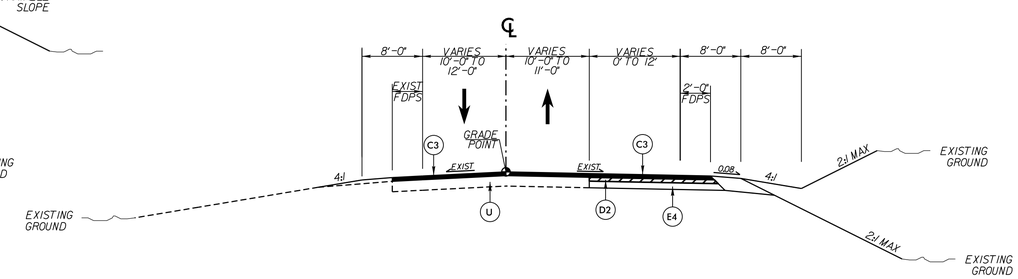
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

AWAITING PROPOSED PAVEMENT DESIGN TO COMPLETE –Y5ARPC– /–Y5ARPBSPUR– TYPICAL SECTION



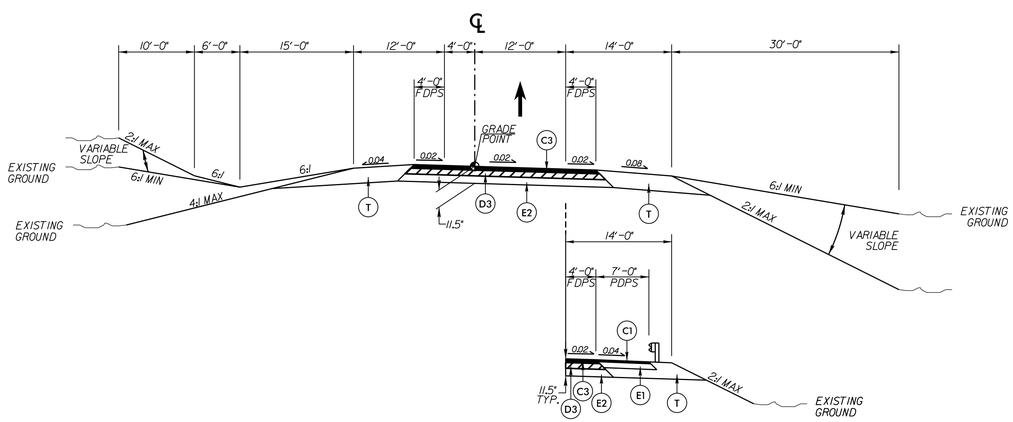
TYPICAL SECTION NO. 26

LINE	FROM STATION	TO STATION
–Y5ARPC–	12+99.70	21+57.61
–Y5ARPBSPUR–	10+37.09	12+83.58



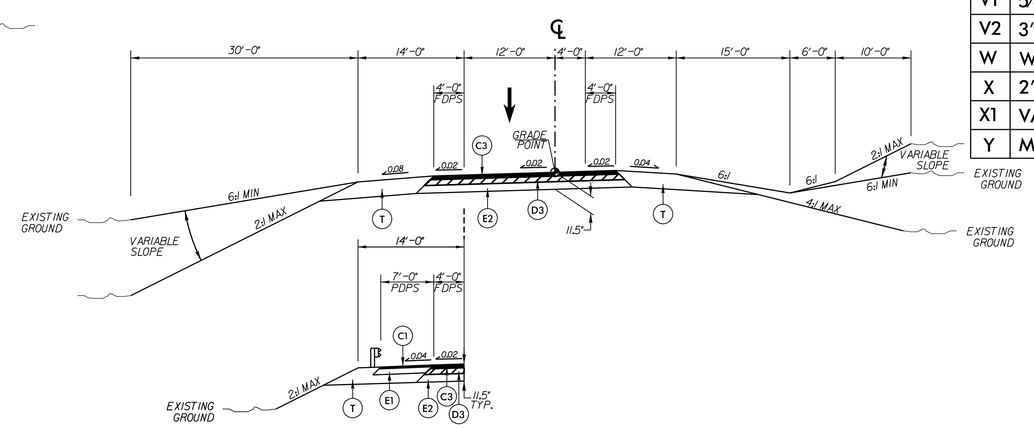
TYPICAL SECTION NO. 27

LINE	FROM STATION	TO STATION
–Y7–	10+19.34	21+94.14



TYPICAL SECTION NO. 28

LINE	FROM STATION	TO STATION
–Y7RPA–	14+99.61	28+04.49



TYPICAL SECTION NO. 29

LINE	FROM STATION	TO STATION
–Y7RPD–	12+95.62	21+76.18

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS

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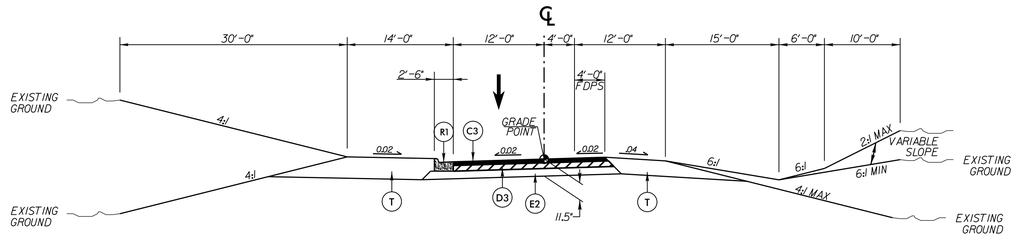
N.C.B.E.L.S. License Number: F-0116

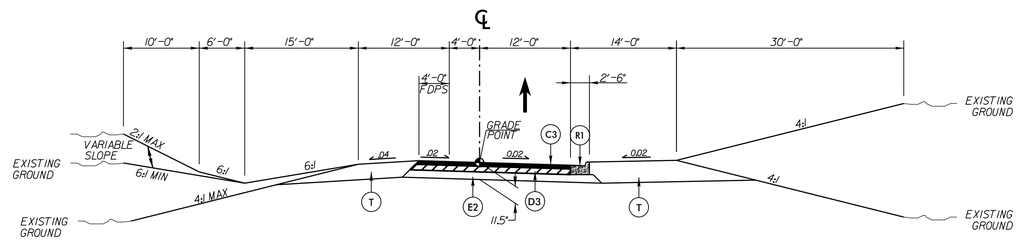
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-I
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



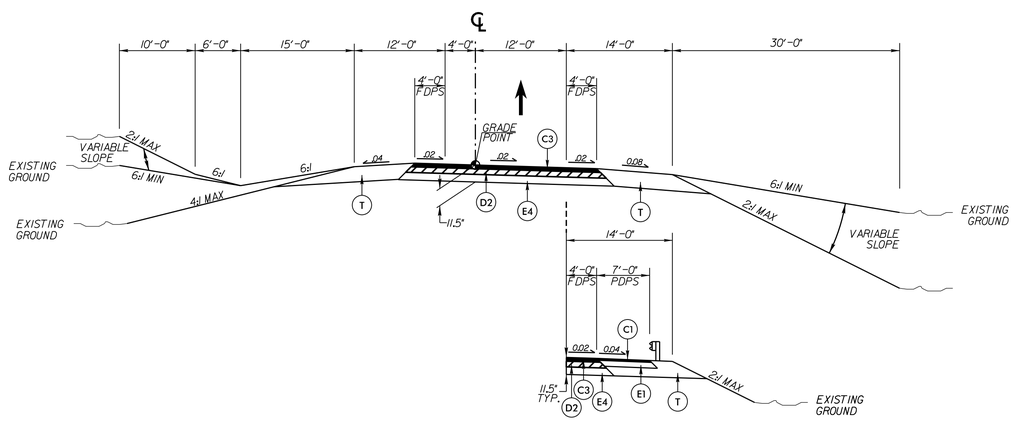
TYPICAL SECTION NO. 30

LINE	FROM STATION	TO STATION
-Y7LPA-	12+17.05	20+95.46



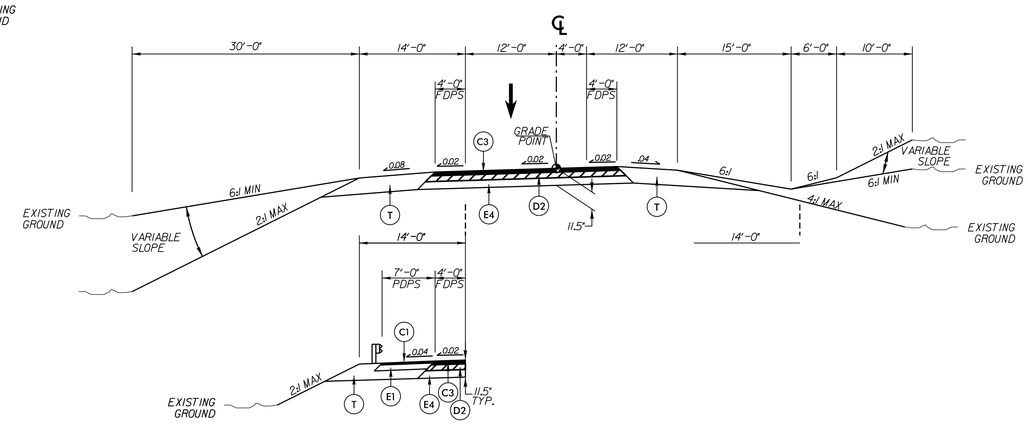
TYPICAL SECTION NO. 31

LINE	FROM STATION	TO STATION
-Y7LPD-	12+51.68	19+31.61



TYPICAL SECTION NO. 32

LINE	FROM STATION	TO STATION
-Y9RPA-	14+86.95	22+02.41
-Y9RPC-	14+83.79	21+69.78



TYPICAL SECTION NO. 33

LINE	FROM STATION	TO STATION
-Y9RPB-	13+72.92	21+65.25
-Y9RPD-	13+50.80	21+52.28

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS

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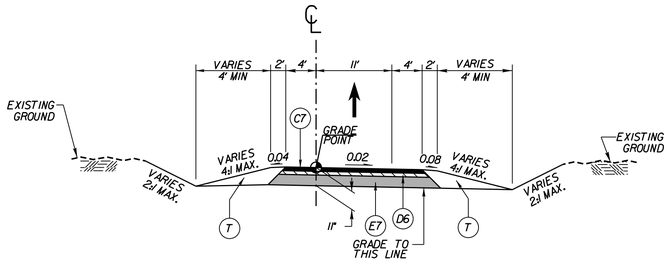
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-J
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

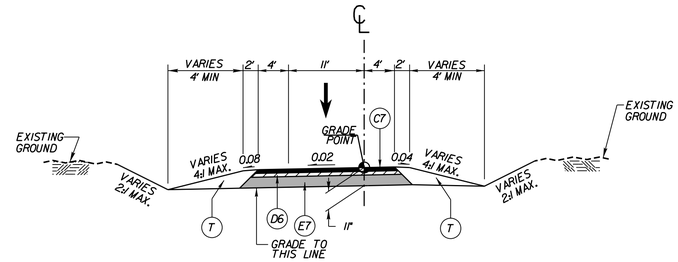
-CR1N-, -CR2N-



TEMPORARY CROSS OVER TYPICAL SECTION NO. 34

-CR1N- STA 10+00.00 TO 16+92.94
-CR2N- STA 10+00.00 TO 17+94.98

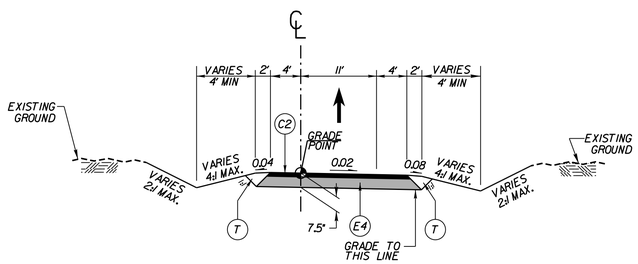
-CR1S-, -CR2S-



TEMPORARY CROSS OVER TYPICAL SECTION NO. 35

-CR1S- STA 10+00.00 TO 15+75.00
-CR2S- STA 10+00.00 TO 14+66.54

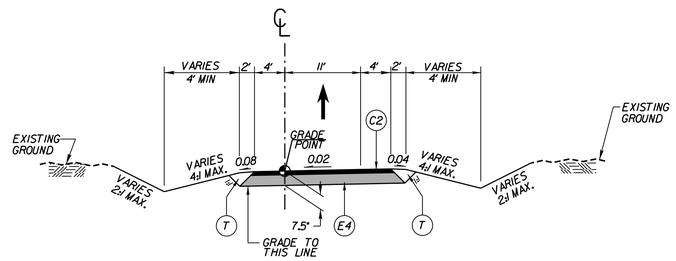
-CRY1RA-, -CRY1RC-, -CRY1LA-, -CRY2RA-, -CRY2RD-, -CRY4RA-, -CRY4RD-, -CRY7RA-, -CRY7RD-, -CRY7LA-, -CRY7LD-, -CRY9RA-, -CRY9RB-, -CRY9RC-, -CRY9RD-



TEMPORARY CROSS OVER TYPICAL SECTION NO. 36

-CRY1RA- STA 10+00.00 TO 13+70.77
-CRY1RC- STA 10+00.00 TO 14+00.15
-CRY1LA- STA 10+76.71 TO 13+30.00
-CRY2RA- STA 10+00.00 TO 14+04.16
-CRY2RD- STA 13+10.55 TO 16+97.49
-CRY4RA- STA 10+00.00 TO 14+52.04
-CRY4RD- STA 12+69.33 TO 16+03.81
-CRY7RA- STA 10+00.00 TO 14+98.91
-CRY7RD- STA 12+68.23 TO 16+03.70
-CRY7LA- STA 10+29.15 TO 13+00.31
-CRY7LD- STA 11+58.51 TO 14+04.27
-CRY9RA- STA 10+00.00 TO 15+39.98
-CRY9RB- STA 12+71.66 TO 16+03.16
-CRY9RC- STA 10+00.00 TO 13+51.77
-CRY9RD- STA 13+90.21 TO 18+81.43

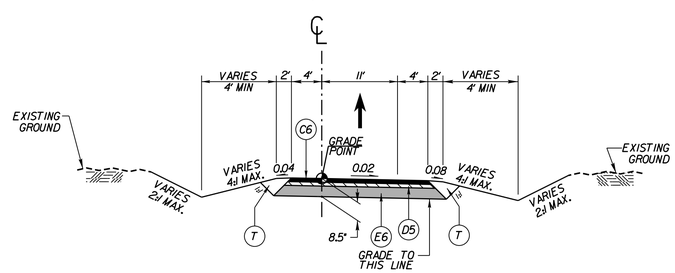
-CRY1RD-, -CRY4RB-, -CRY4RC-



TEMPORARY CROSS OVER TYPICAL SECTION NO. 37

-CRY1RD- STA 13+13.88 TO 17+60.15
-CRY4RB- STA 12+19.62 TO 14+98.77
-CRY4RC- STA 10+00.00 TO 13+50.56

-CRY2S-, -CRY5S-

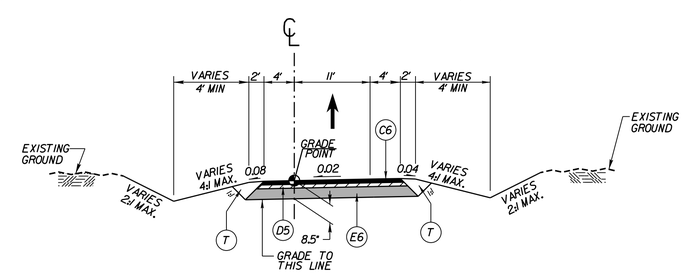


TEMPORARY CROSS OVER TYPICAL SECTION NO. 38

-CRY2S- STA 10+00.00 TO 15+22.03
-CRY5S- STA 10+00.00 TO 15+95.16

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS

-CRY2N-



TEMPORARY CROSS OVER TYPICAL SECTION NO. 39

-CRY2N- STA 11+34.93 TO 14+66.61

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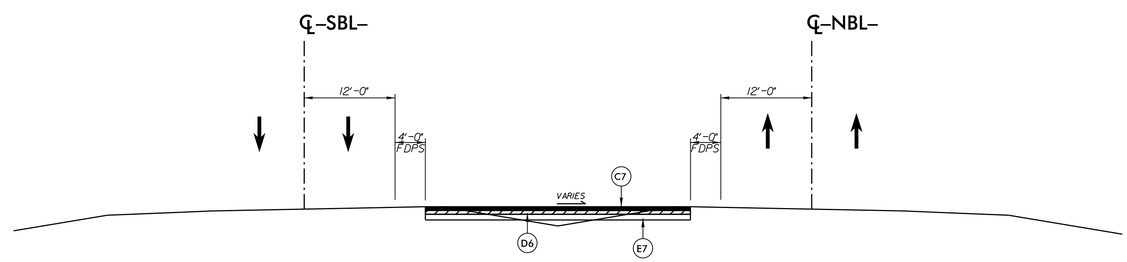
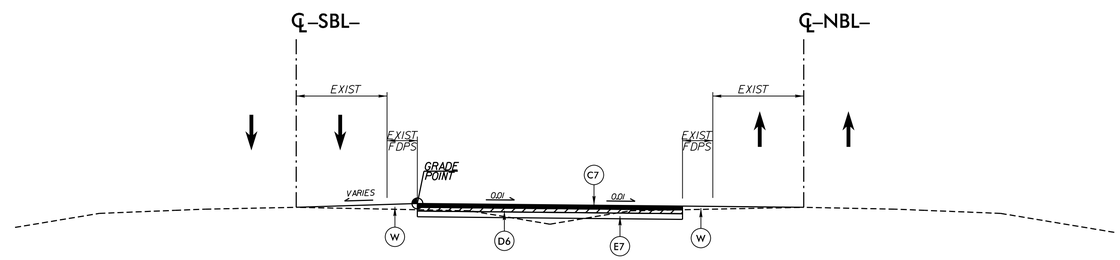
-CR3N-, -CR3S-



TEMPORARY CROSS OVER
DETAIL NO. 1

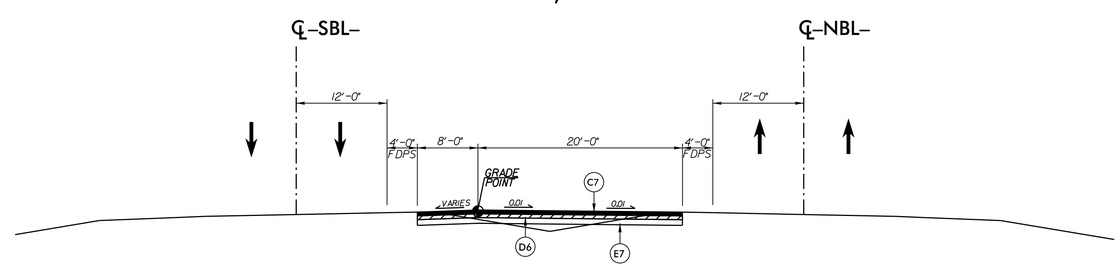
NOTE: PAVEMENT TIES TO PROPOSED -SBL- AND -NBL-.

-CR4N-, -CR4S-



TEMPORARY CROSS OVER
DETAIL NO. 2

-CR5N-, -CR5S-



TEMPORARY CROSS OVER
DETAIL NO. 3

NOTE: PAVEMENT TIES TO PROPOSED -SBL- AND -NBL-.

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-L
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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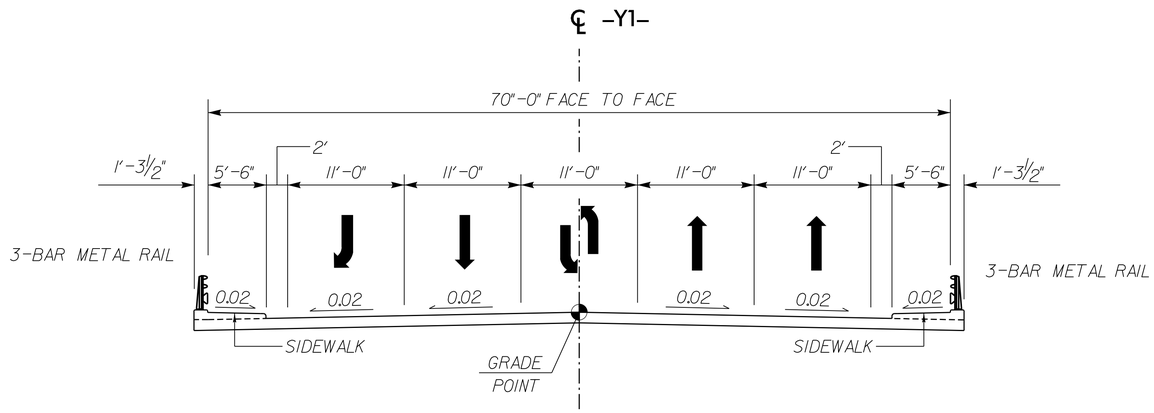
SITE 1 - STRUCTURE TYPICAL SECTIONS

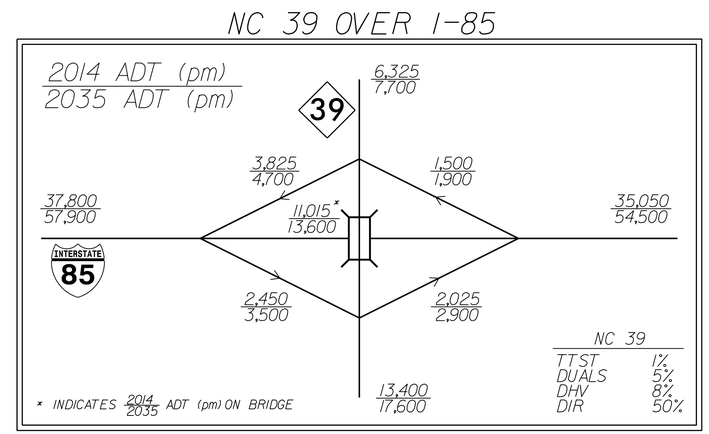


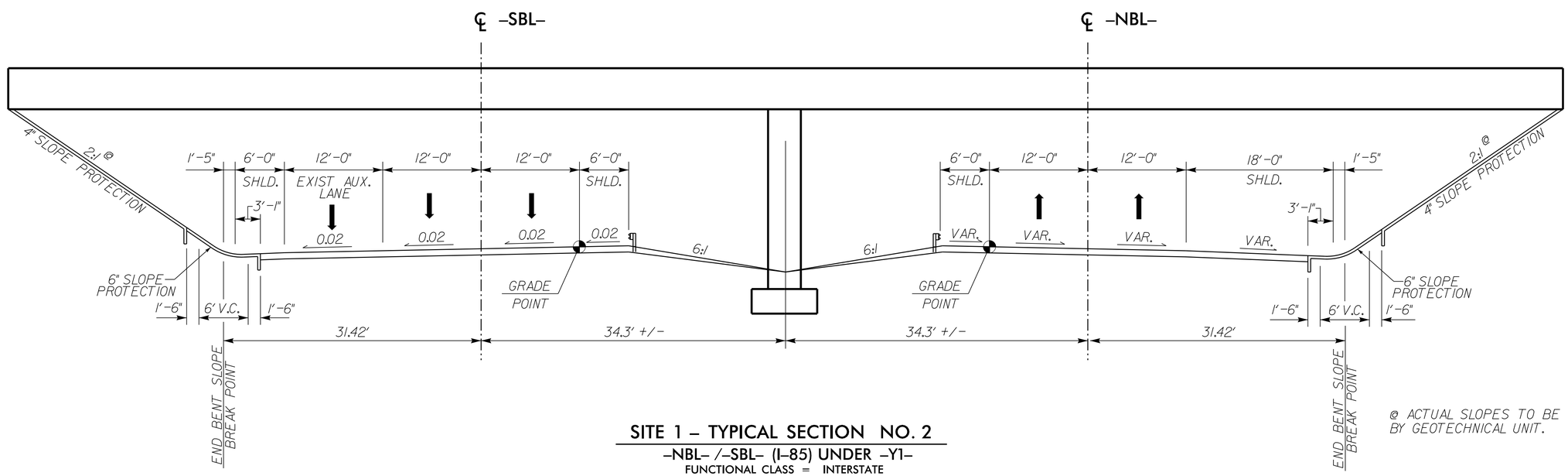
SITE 1 – TYPICAL SECTION NO. 1

-Y1- (NC-39) OVER I-85

FUNCTIONAL CLASS = URBAN ARTERIAL

LINE	FROM STATION	TO STATION
-Y1-	20+62 +/-	22+87 +/-





@ ACTUAL SLOPES TO BE DETERMINED BY GEOTECHNICAL UNIT.

SITE 1 – TYPICAL SECTION NO. 2

-NBL- /-SBL- (I-85) UNDER -Y1-

FUNCTIONAL CLASS = INTERSTATE

MINIMUM VERTICAL CLEARANCE = 17'-0"

SEE SHEET NO. 9 FOR SITE 1 PLAN.
SEE SHEET NO. 91 FOR -Y1- PROFILE.

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-M
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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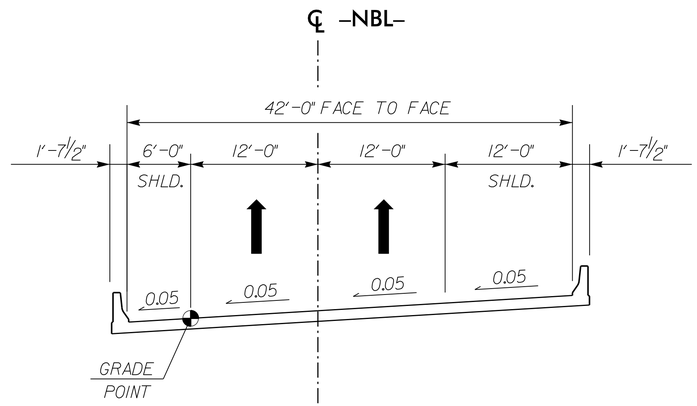
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

SITE 2 - STRUCTURE TYPICAL SECTIONS

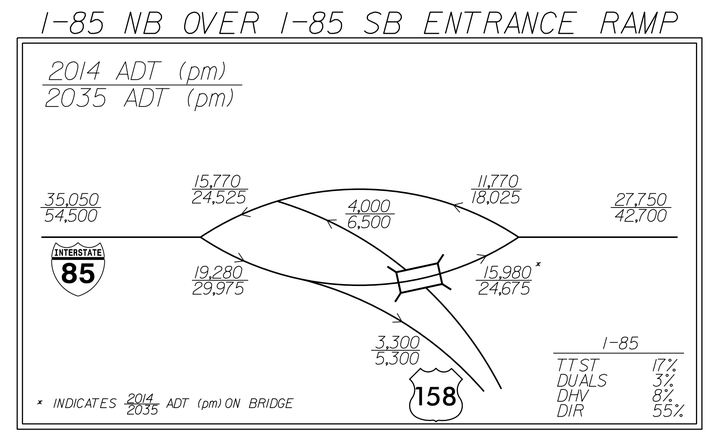


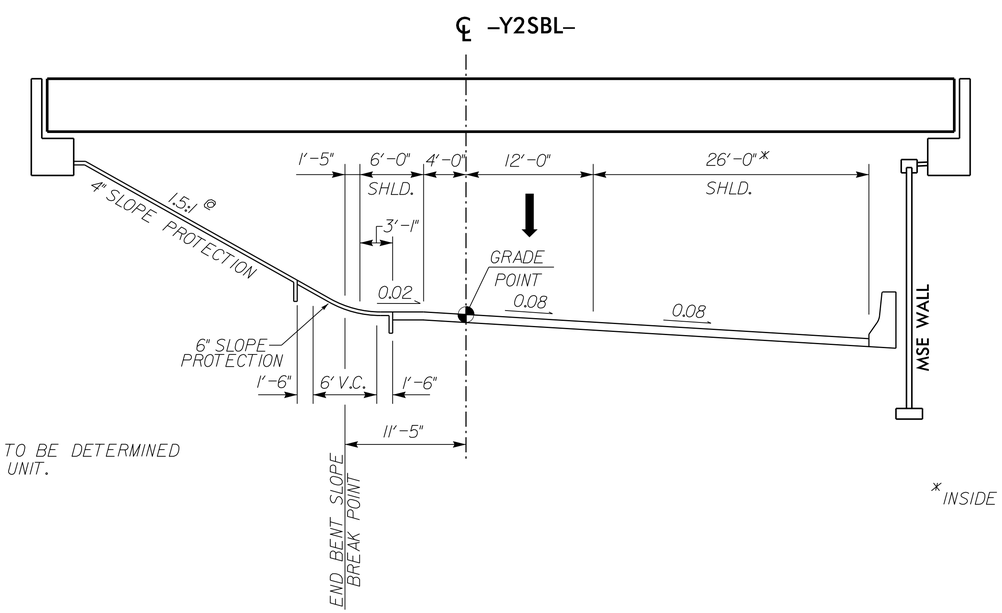
SITE 2 – TYPICAL SECTION NO. 1

-NBL- (I-85) OVER -Y2SBL- (US 158 RAMP)

FUNCTIONAL CLASS = INTERSTATE

LINE	FROM STATION	TO STATION
-NBL-	176+72 +/-	178+25 +/-





@ ACTUAL SLOPE TO BE DETERMINED BY GEOTECHNICAL UNIT.

*INSIDE SHOULDER WIDENED UNDER BRIDGE FOR SIGHT DISTANCE.

SITE 2 – TYPICAL SECTION NO. 2

US 158 RAMP (-Y2SBL-) UNDER -NBL- (I-85)

FUNCTIONAL CLASS = INTERSTATE

MINIMUM VERTICAL CLEARANCE = 16'-6"

SEE SHEET NO. 12 FOR SITE 2 PLAN.
SEE SHEET NO. 55 FOR -NBL- PROFILE.

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-N
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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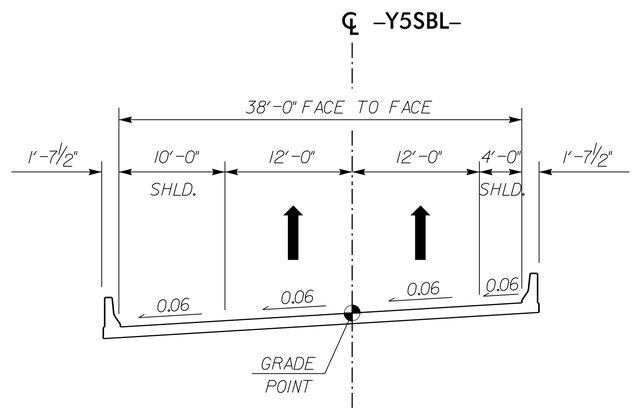
N.C.B.E.L.S. License Number: F-0116

SITE 3 - STRUCTURE TYPICAL SECTIONS

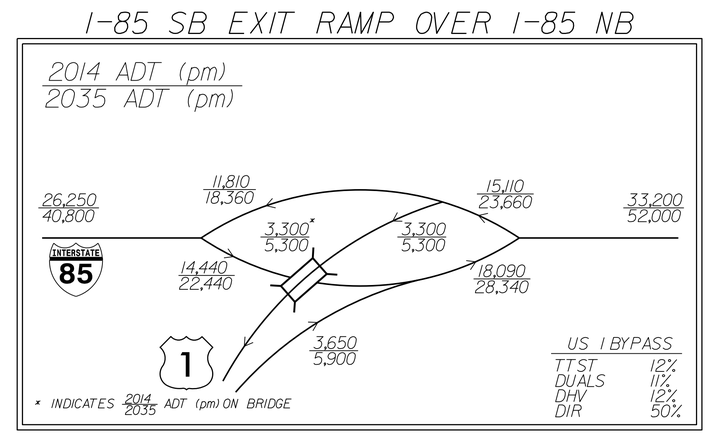


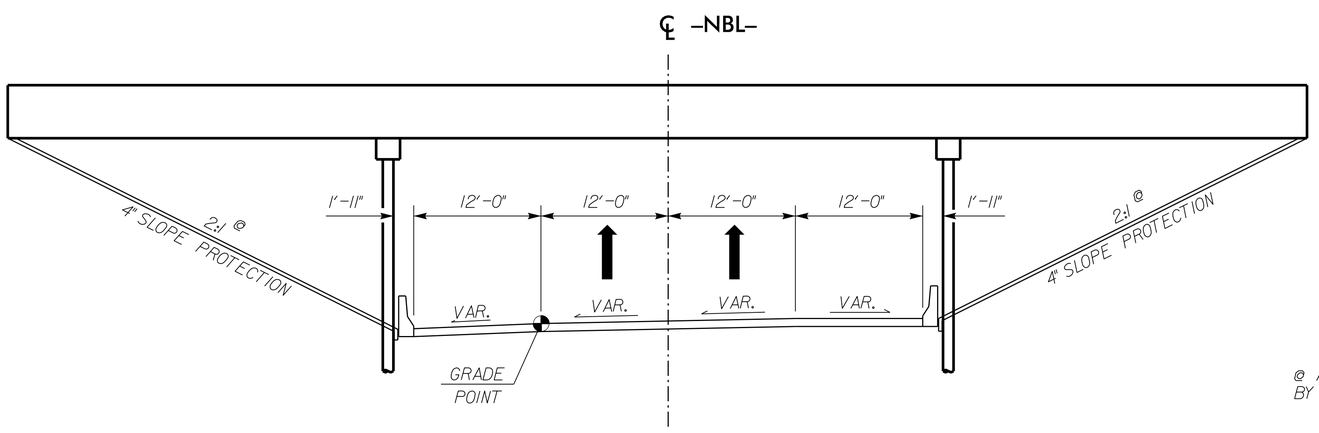
SITE 3 – TYPICAL SECTION NO. 1

-Y5SBL- (US 1 BYPASS) OVER -NBL- (I-85)

FUNCTIONAL CLASSIFICATION = FLYOVER

LINE	FROM STATION	TO STATION
-Y5SBL-	20+34 +/-	22+56 +/-





@ ACTUAL SLOPES TO BE DETERMINED BY GEOTECHNICAL UNIT.

SITE 3 – TYPICAL SECTION NO. 2

-NBL- (I-85) UNDER -Y5SBL- (US 1 BYPASS)

FUNCTIONAL CLASS = INTERSTATE

MINIMUM VERTICAL CLEARANCE = 17'-0"

SEE SHEET NO. 21 FOR SITE 3 PLAN.
SEE SHEET NO. 100 FOR -Y5SBL- PROFILE.

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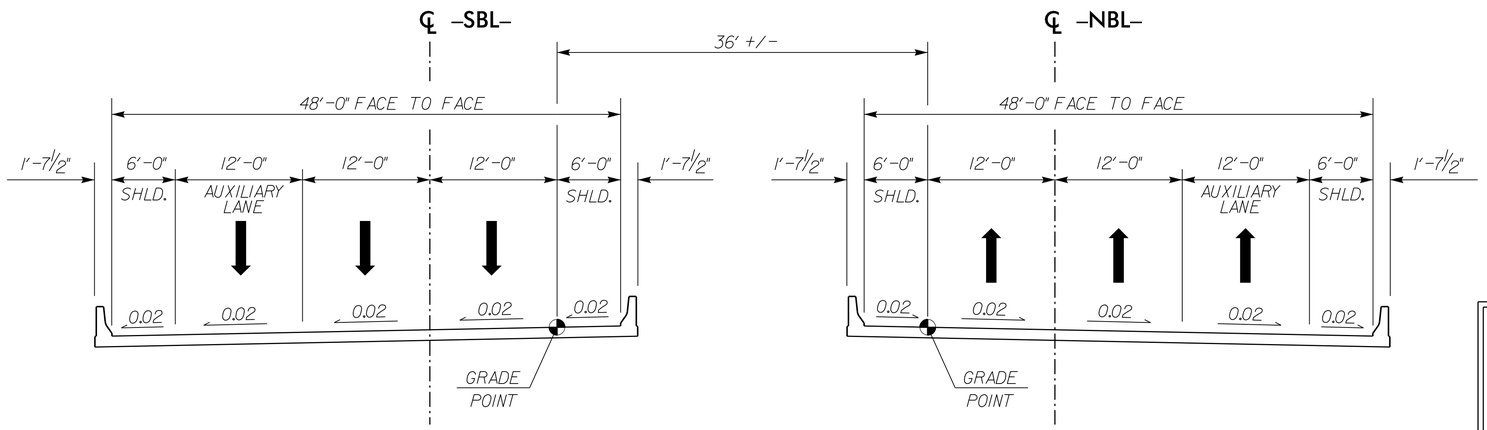
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-O
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

SITE 4 - STRUCTURE TYPICAL SECTIONS

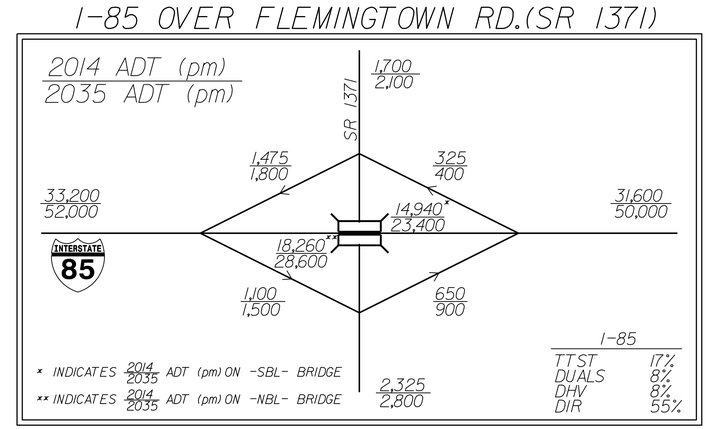


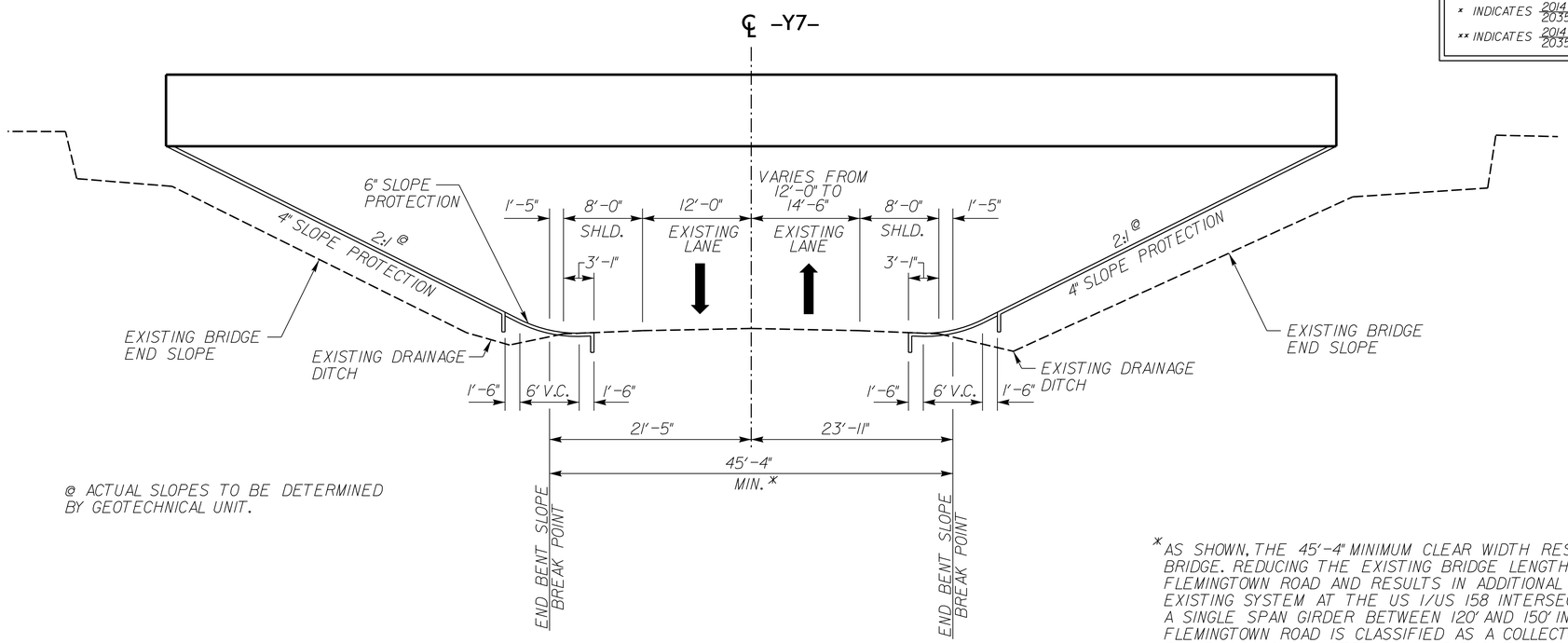
SITE 4 – TYPICAL SECTION NO. 1

-NBL- /-SBL- (I-85) OVER FLEMINGTOWN ROAD (SR 1371)

FUNCTIONAL CLASSIFICATION = INTERSTATE

LINE	FROM STATION	TO STATION
-NBL-	420+67 +/-	421+92 +/-
-SBL-	419+05 +/-	420+30 +/-





@ ACTUAL SLOPES TO BE DETERMINED BY GEOTECHNICAL UNIT.

SITE 4 – TYPICAL SECTION NO. 3

FLEMINGTOWN ROAD (SR 1371) -Y7- UNDER -NBL- /-SBL- (I-85)

FUNCTIONAL CLASS = ARTERIAL

MINIMUM VERTICAL CLEARANCE = 16'-6"

* AS SHOWN, THE 45'-4" MINIMUM CLEAR WIDTH RESULTS IN A 125' APPROXIMATE SINGLE SPAN PROPOSED BRIDGE. REDUCING THE EXISTING BRIDGE LENGTH WILL REDUCE THE EXISTING DITCH DEPTH ALONG FLEMINGTOWN ROAD AND RESULTS IN ADDITIONAL PIPE NEEDED TO CARRY THE DRAINAGE EAST TO TIE THE EXISTING SYSTEM AT THE US 1/US 158 INTERSECTION. A 7'-3" SUPERSTRUCTURE DEPTH WILL ACCOMODATE A SINGLE SPAN GIRDER BETWEEN 120' AND 150' IN LENGTH. WEST OF THE INTERCHANGE WITH I-85, FLEMINGTOWN ROAD IS CLASSIFIED AS A COLLECTOR ROAD. HOWEVER, EAST OF I-85, FLEMINGTOWN ROAD FUNCTIONS AS AN ARTERIAL CONNECTOR FOR US 1/ US 158 ONTO I-85.

SEE SHEET NO. 28 FOR SITE 4 PLAN.
SEE SHEET NO. 72 FOR -NBL- & -SBL- PROFILE.

5/14/99
2/28/2014
...\I-0914BA_RDY_STRUCTURE_TYP.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-P
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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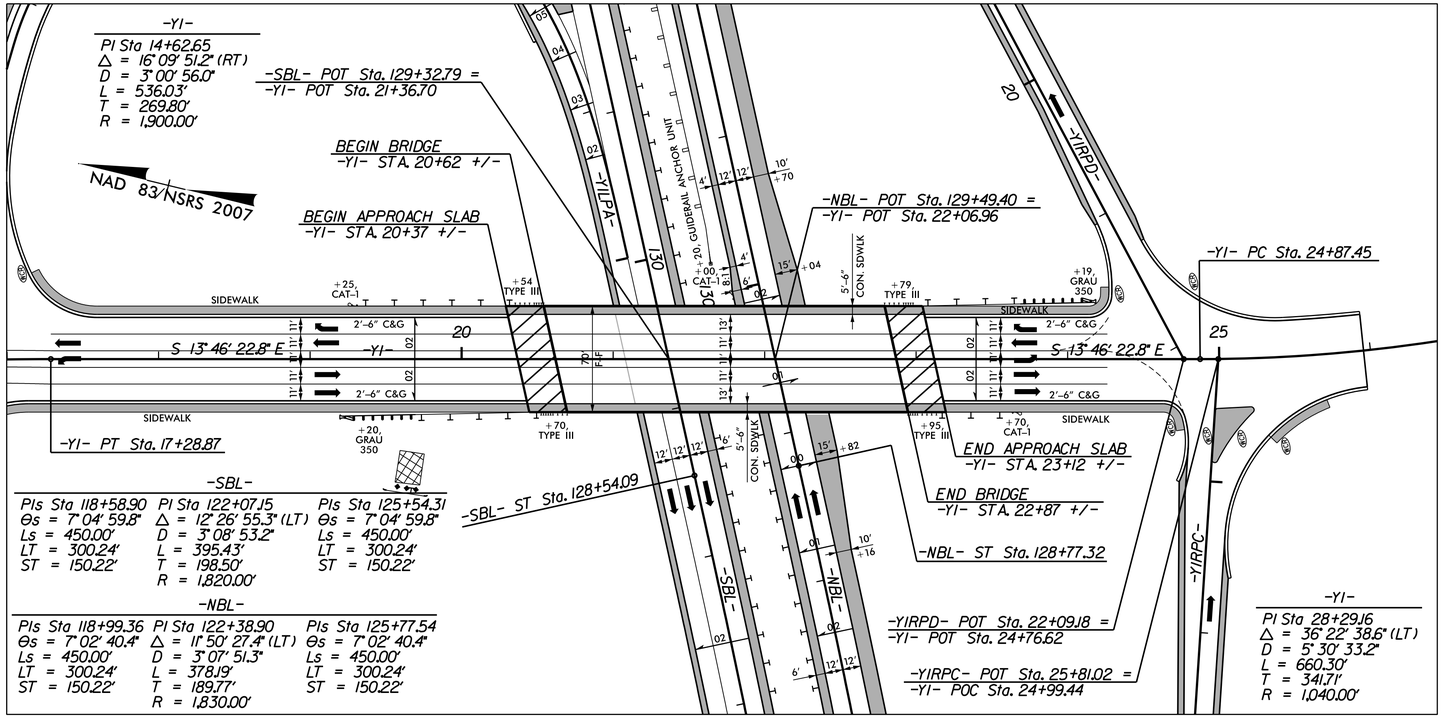
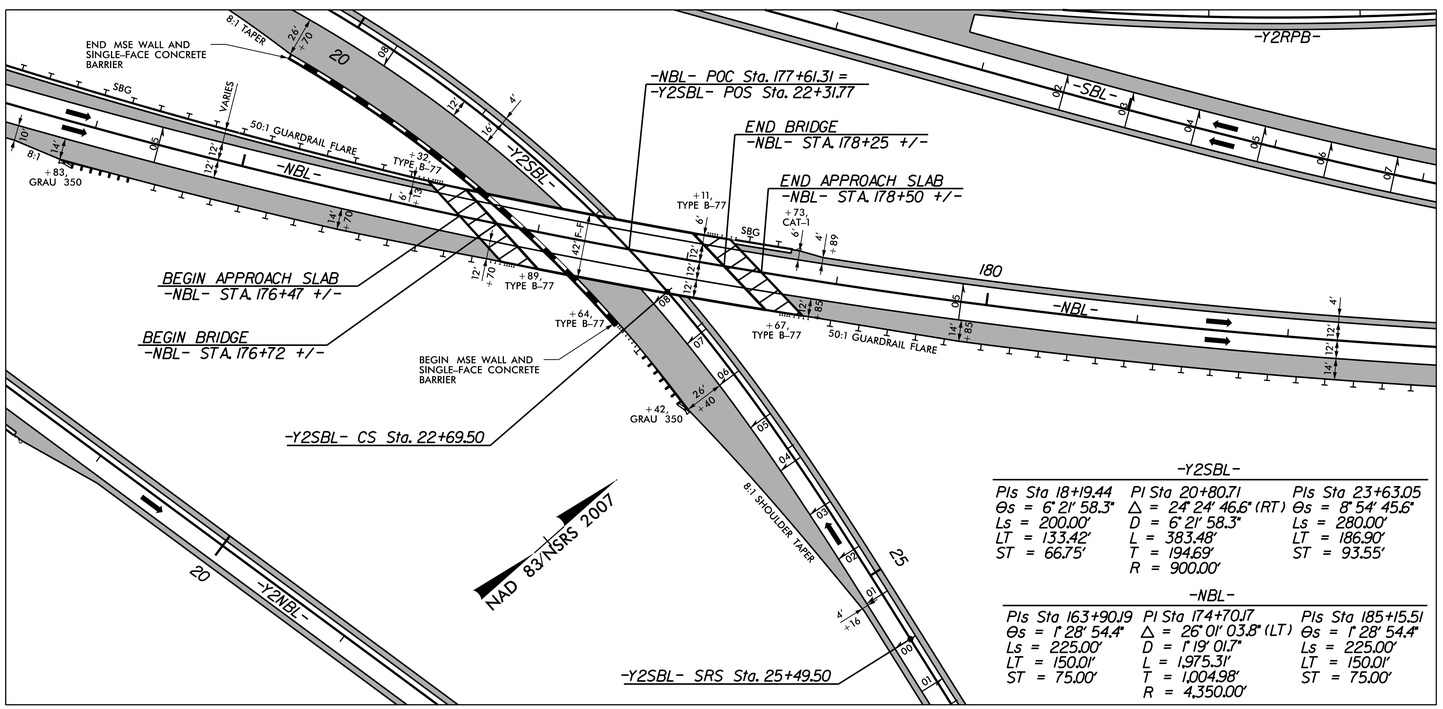


STRUCTURE SITE 1: -Y1- OVER -SBL- AND -NBL- (SEE PLAN SHEET 9)



STRUCTURE SITE 2: -NBL- OVER -Y2SBL- (SEE PLAN SHEET 12)

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-Q
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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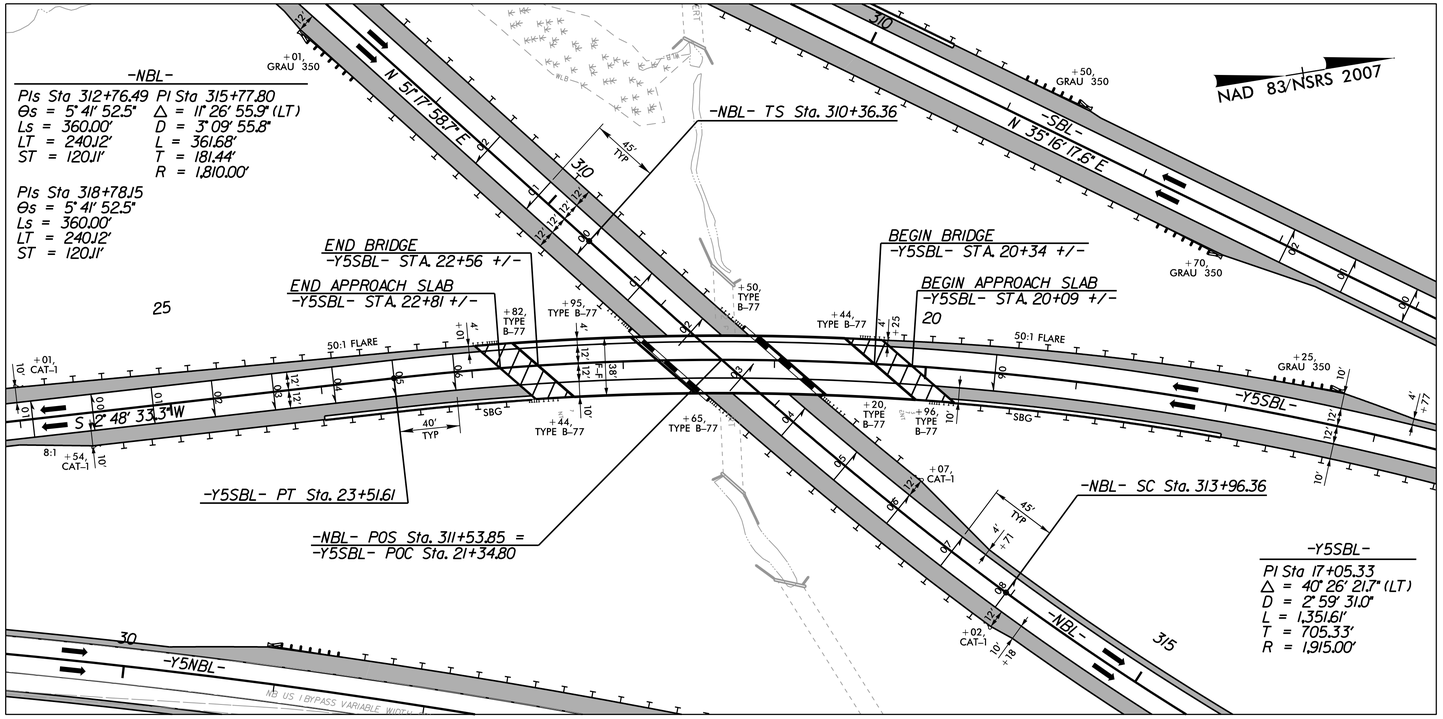
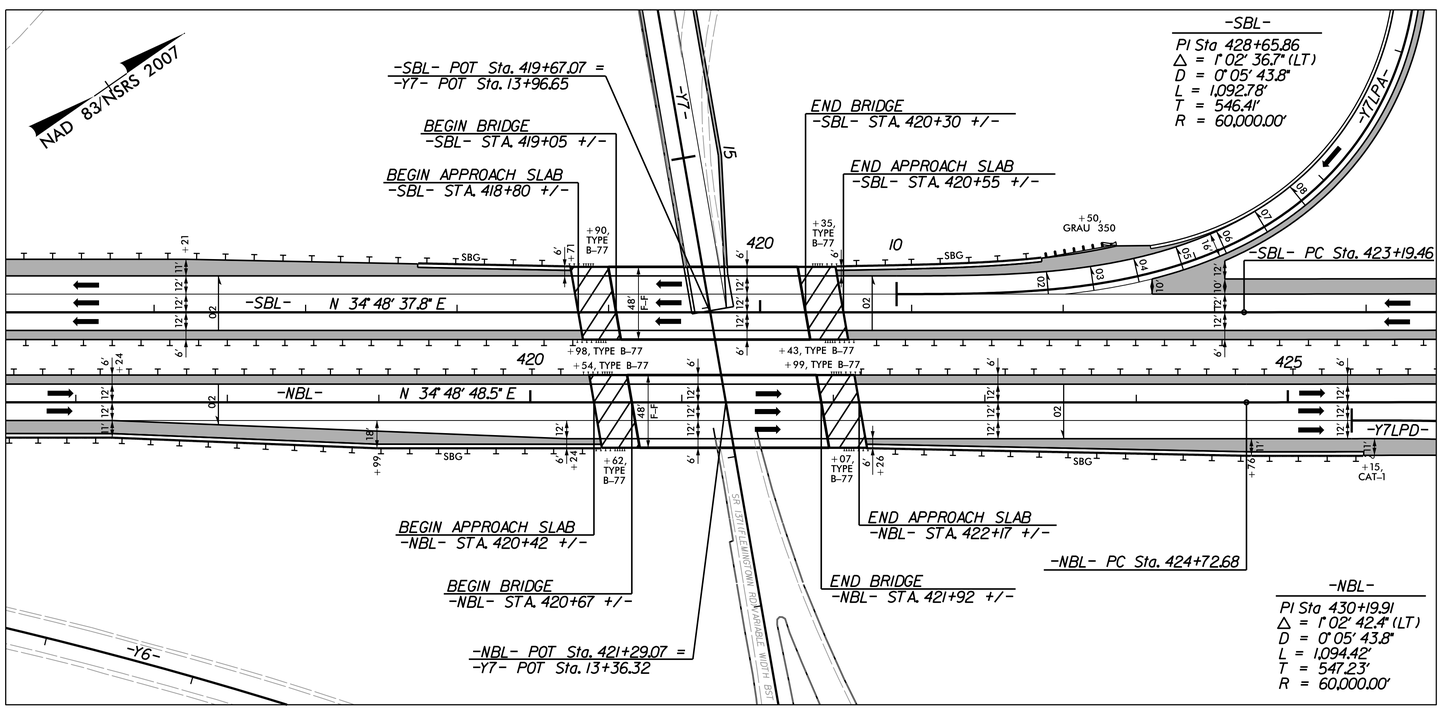
N.C.B.E.L.S. License Number: F-0116



STRUCTURE SITE 3: –Y5SBL– OVER –NBL– (SEE PLAN SHEET 21)



STRUCTURE SITE 4: –SBL– AND –NBL– OVER SR 1371 (FLEMINGTON RD) (SEE PLAN SHEET 28)

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-R
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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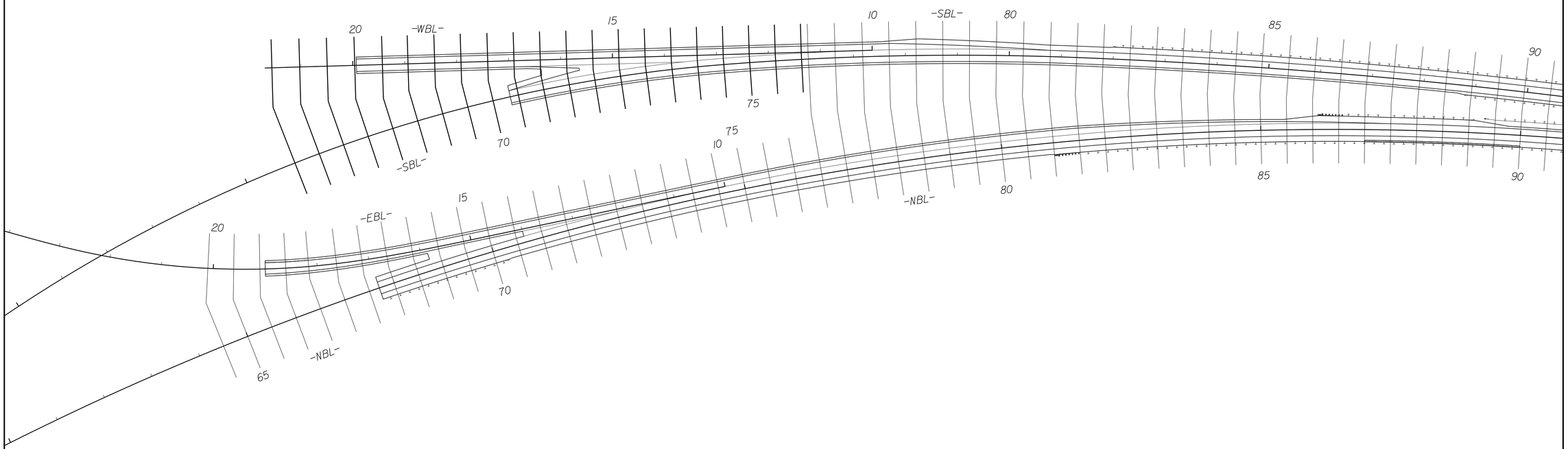
NAD 83/NSRS 2007



-NBL- Cross Sections
-SBL- Cross Sections

SHEAR POINT DIAGRAM

GRAPHIC SCALE
100 50 0 100 200
PLANS

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-S
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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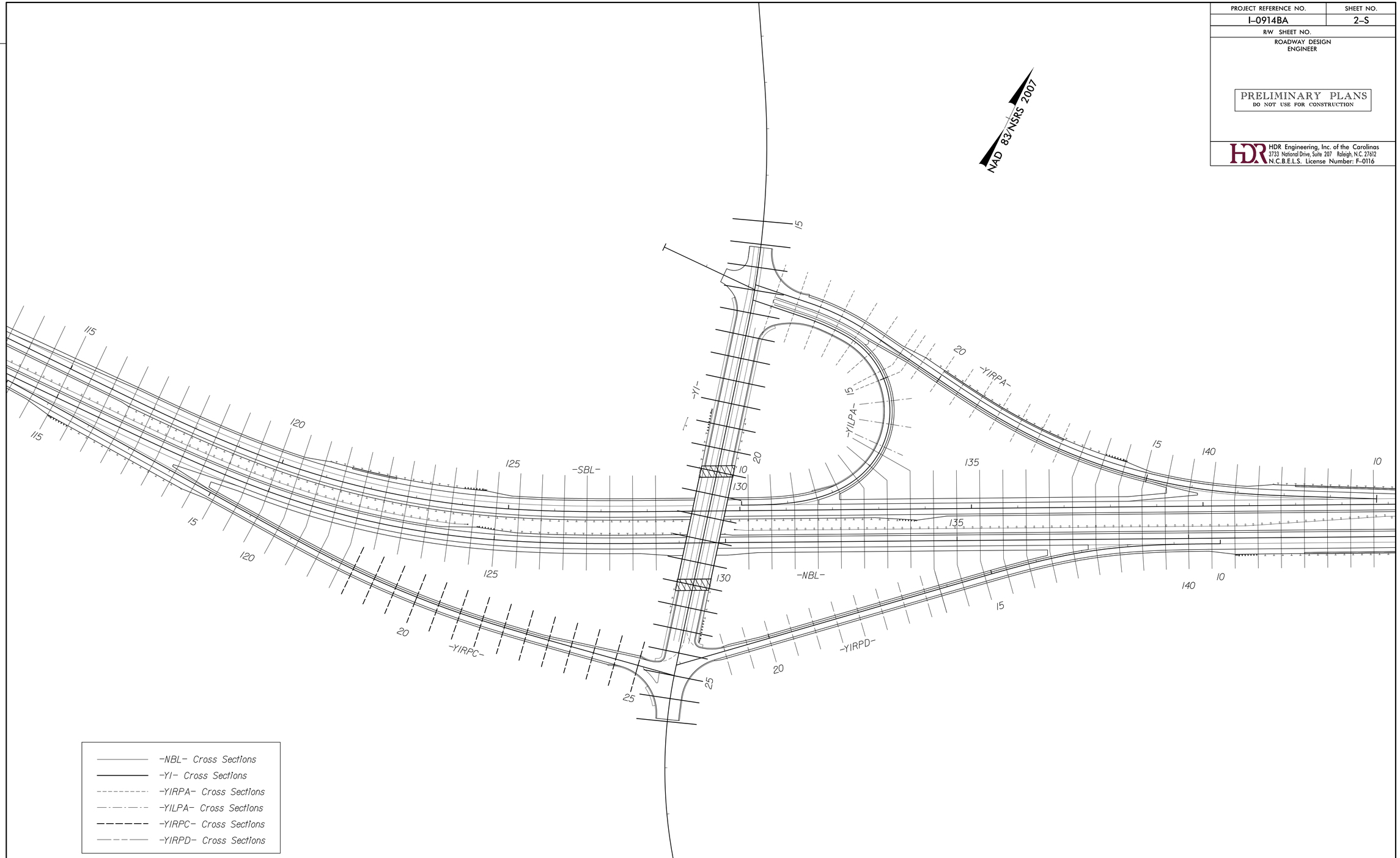

SHEAR POINT DIAGRAM

GRAPHIC SCALE
100 50 0 100 200
PLANS

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-T
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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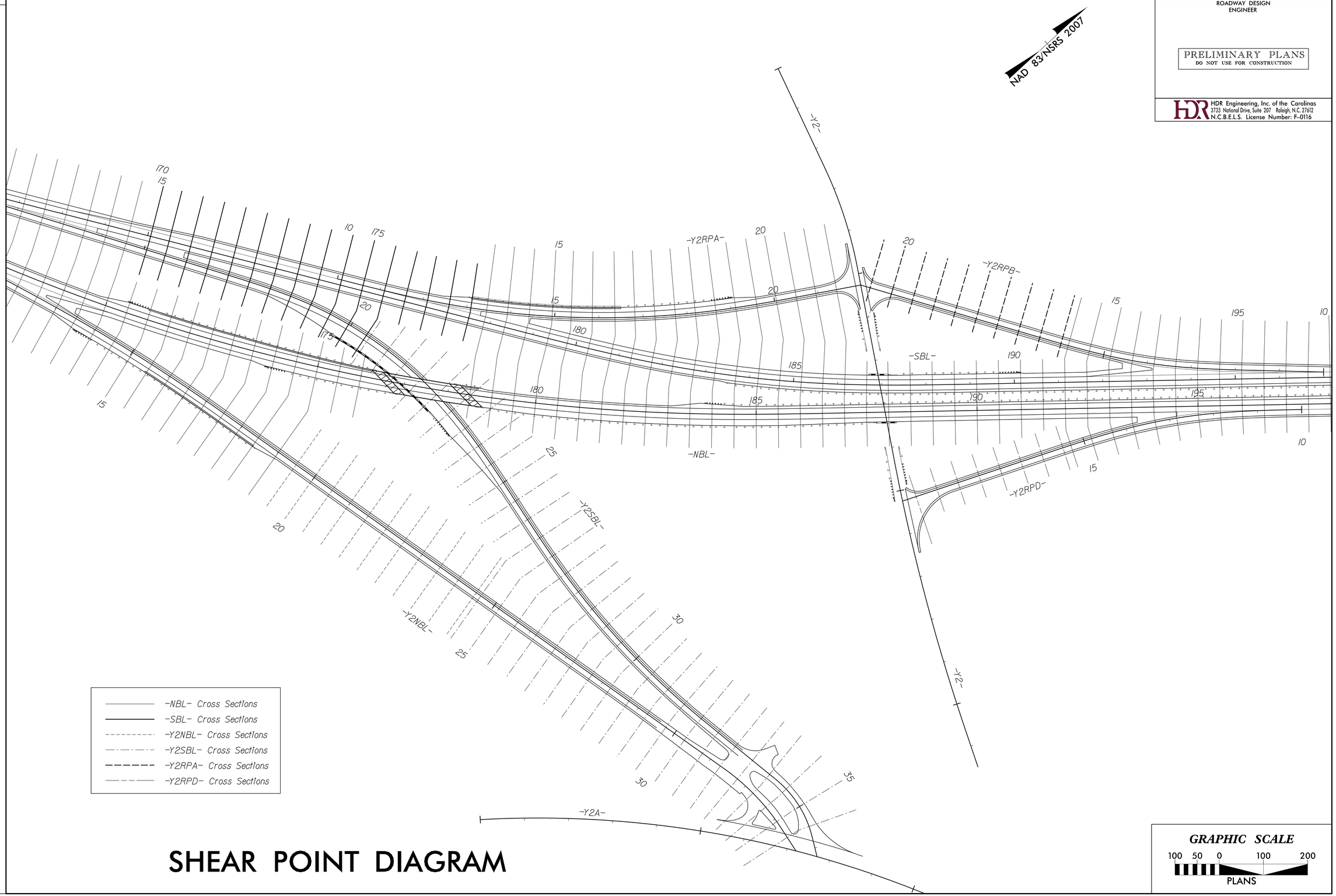
N.C.B.E.L.S. License Number: F-0116



SHEAR POINT DIAGRAM

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-U
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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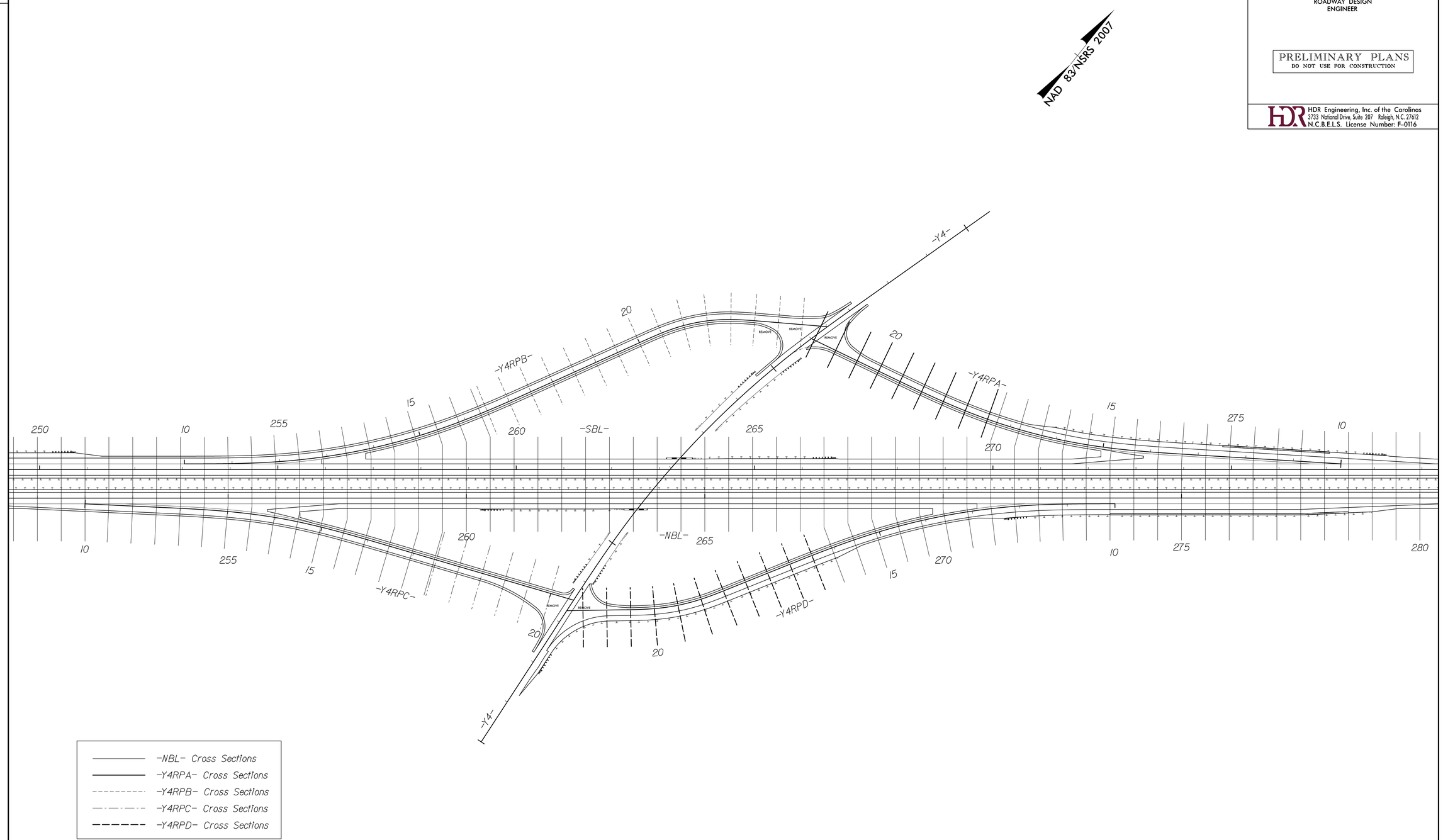
N.C.B.E.L.S. License Number: F-0116



SHEAR POINT DIAGRAM

GRAPHIC SCALE
100 50 0 100 200
PLANS

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-V
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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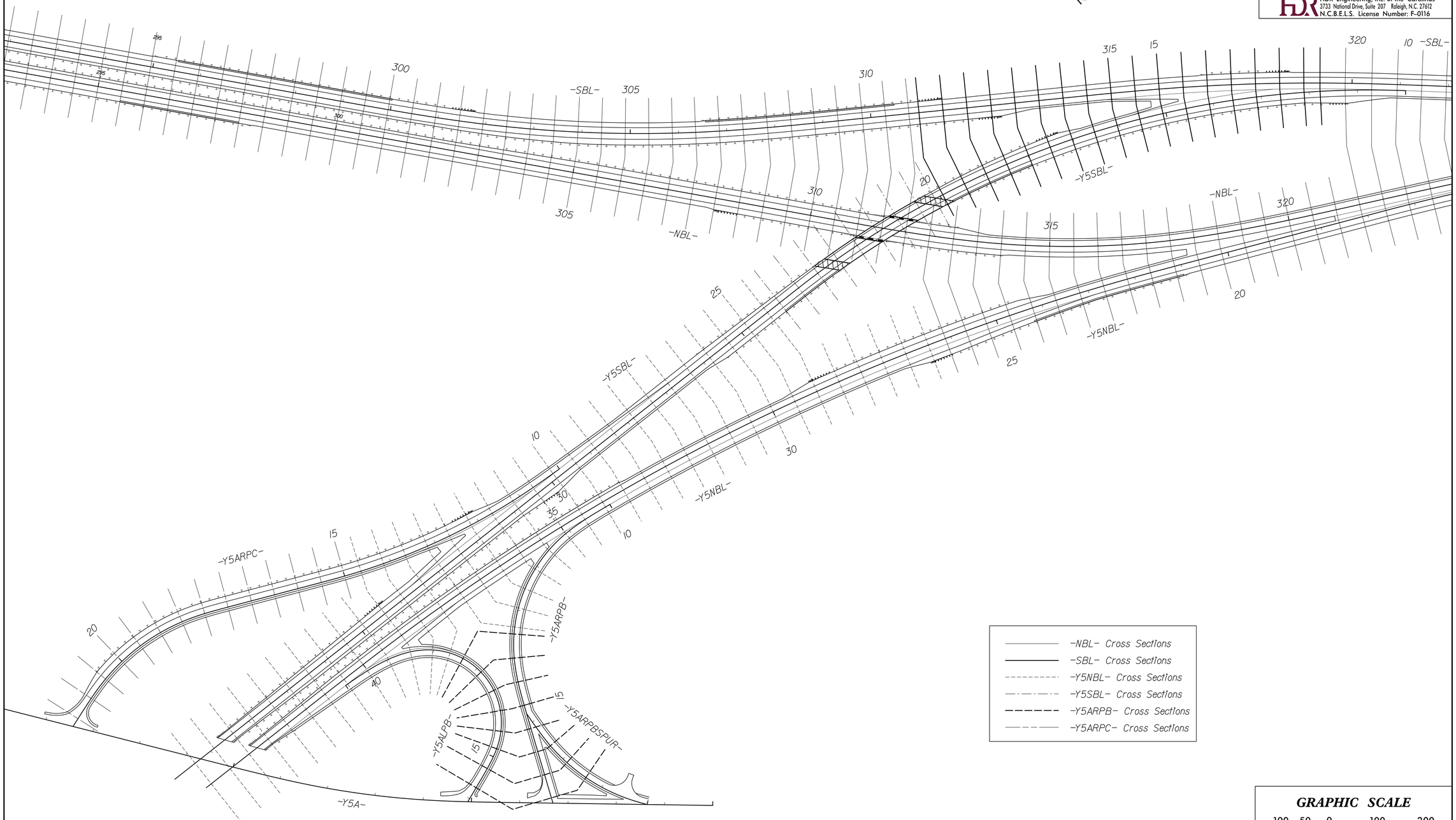
SHEAR POINT DIAGRAM

NAD 83/NSRS 2007



GRAPHIC SCALE
100 50 0 100 200
PLANS

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-W
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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N.C.B.E.L.S. License Number: F-0116

SHEAR POINT DIAGRAM

GRAPHIC SCALE
100 50 0 100 200
PLANS

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-X
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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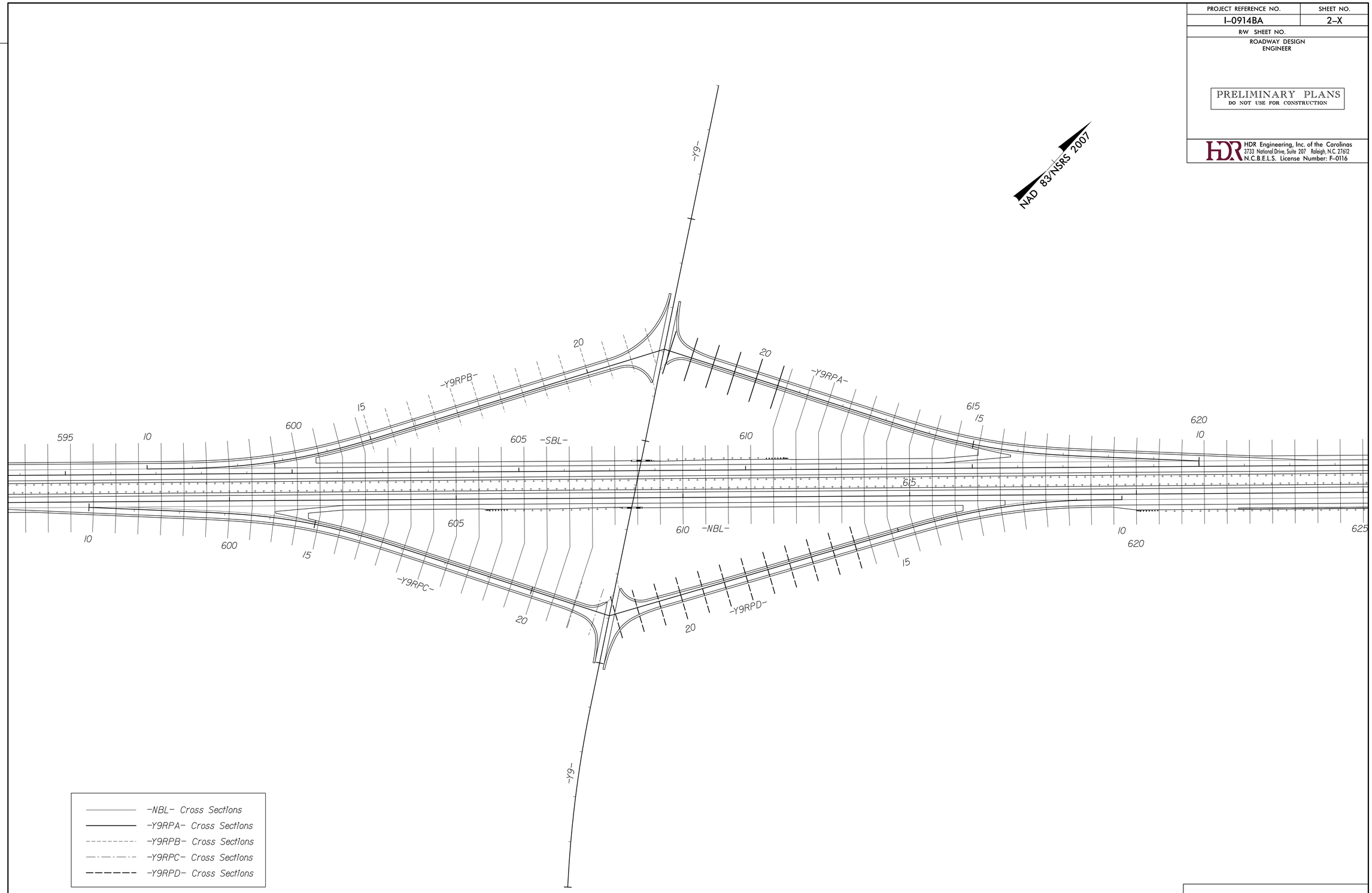
N.C.B.E.L.S. License Number: F-0116



SHEAR POINT DIAGRAM

GRAPHIC SCALE
100 50 0 100 200
PLANS

REVISIONS

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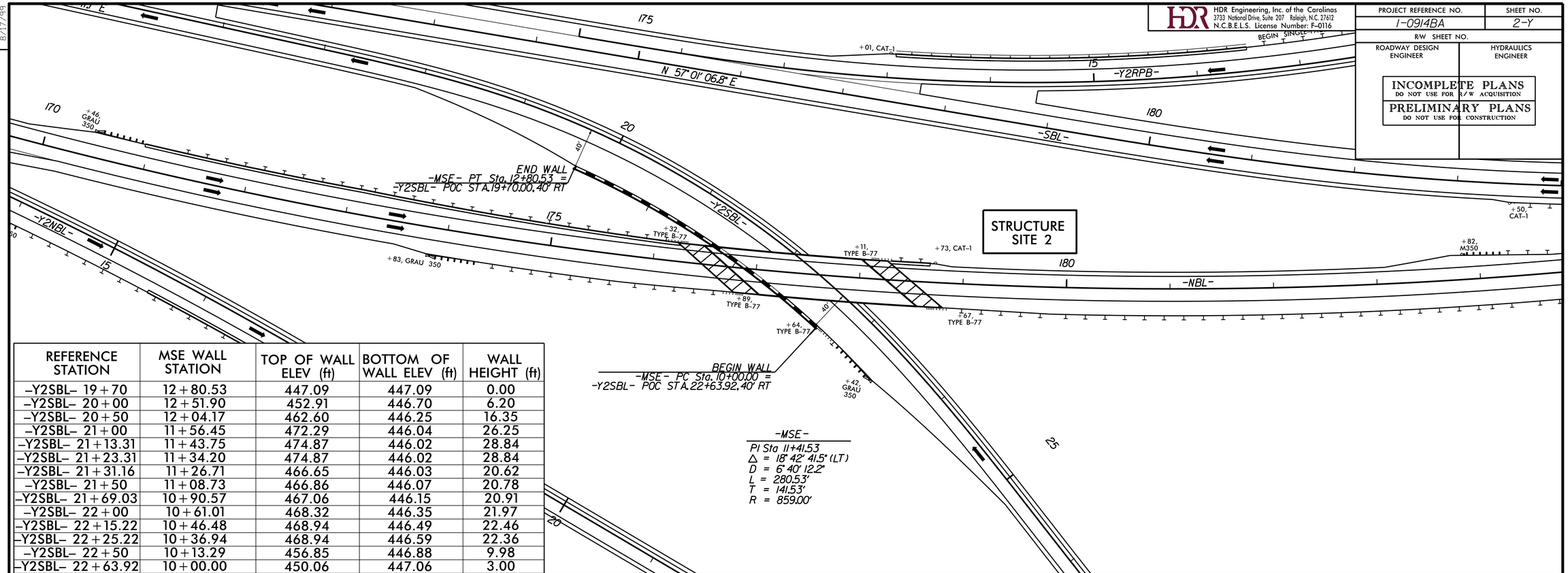
N.C.B.E.L.S. License Number: F-0116

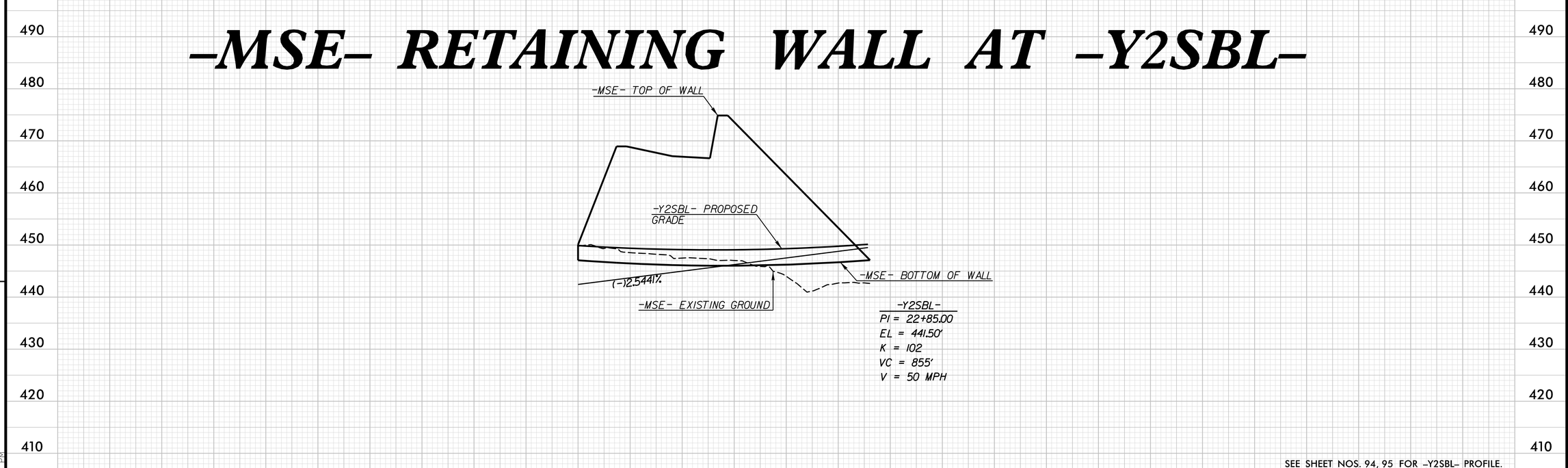
PROJECT REFERENCE NO.	SHEET NO.
1-0914BA	2-Y
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



REFERENCE STATION	MSE WALL STATION	TOP OF WALL ELEV (ft)	BOTTOM OF WALL ELEV (ft)	WALL HEIGHT (ft)
-Y2SBL- 19+70	12+80.53	447.09	447.09	0.00
-Y2SBL- 20+00	12+51.90	452.91	446.70	6.20
-Y2SBL- 20+50	12+04.17	462.60	446.25	16.35
-Y2SBL- 21+00	11+56.45	472.29	446.04	26.25
-Y2SBL- 21+13.31	11+43.75	474.87	446.02	28.84
-Y2SBL- 21+23.31	11+34.20	474.87	446.02	28.84
-Y2SBL- 21+31.16	11+26.71	466.65	446.03	20.62
-Y2SBL- 21+50	11+08.73	466.86	446.07	20.78
-Y2SBL- 21+69.03	10+90.57	467.06	446.15	20.91
-Y2SBL- 22+00	10+61.01	468.32	446.35	21.97
-Y2SBL- 22+15.22	10+46.48	468.94	446.49	22.46
-Y2SBL- 22+25.22	10+36.94	468.94	446.59	22.36
-Y2SBL- 22+50	10+13.29	456.85	446.88	9.98
-Y2SBL- 22+63.92	10+00.00	450.06	447.06	3.00

-MSE- RETAINING WALL AT -Y2SBL-



SEE SHEET NOS. 94, 95 FOR -Y2SBL- PROFILE.

REVISIONS

8/17/99

2/28/2014
1-0914BA_RDY_WALL_PSH_2-Y.dgn
12:40:48 PM

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-Z
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

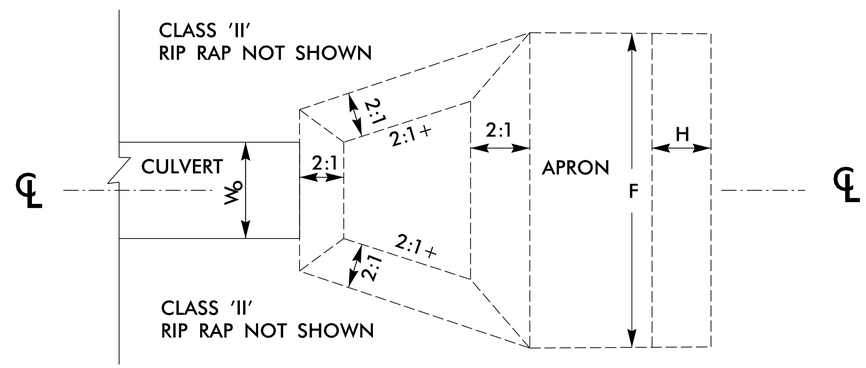
RIP-RAPPED ENERGY DISSIPATOR BASIN
NOT TO SCALE

DIM. (ft)	RIP RAP BASIN # 1		
A	2.0		
B	1.0		
C	2.0		
D	1.0		
E	5.0		
F	10.0		
G	10.0		
H	2.0		

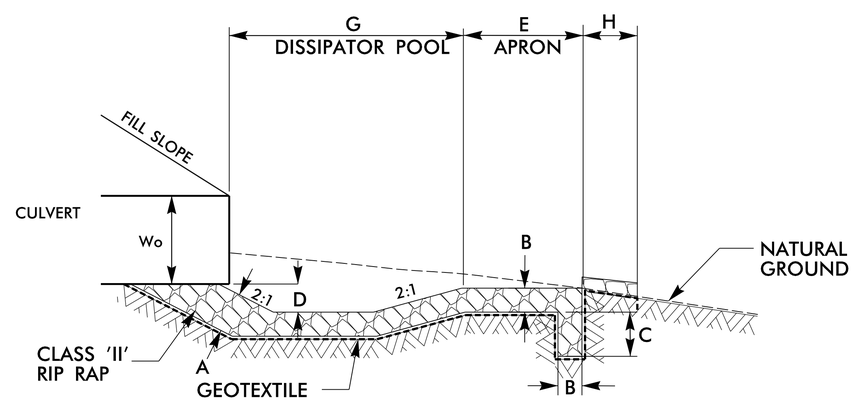
*ALL DIMENSIONS APPROXIMATE

**ENERGY DISSIPATOR BASINS SHALL USE CLASS 'II' RIP RAP.

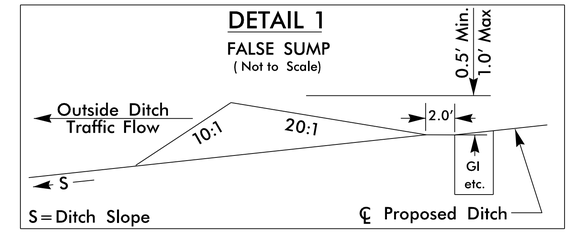
BASIN #	LOCATION (AT OUTLET)
1	472+50 LT NBL

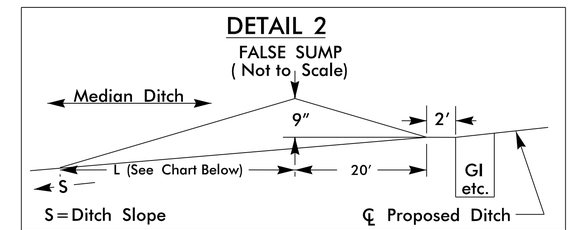


PLAN

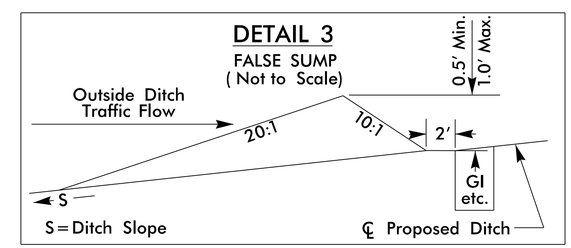


℄ SECTION



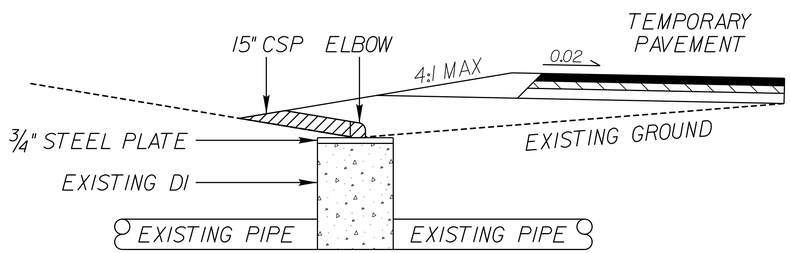


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

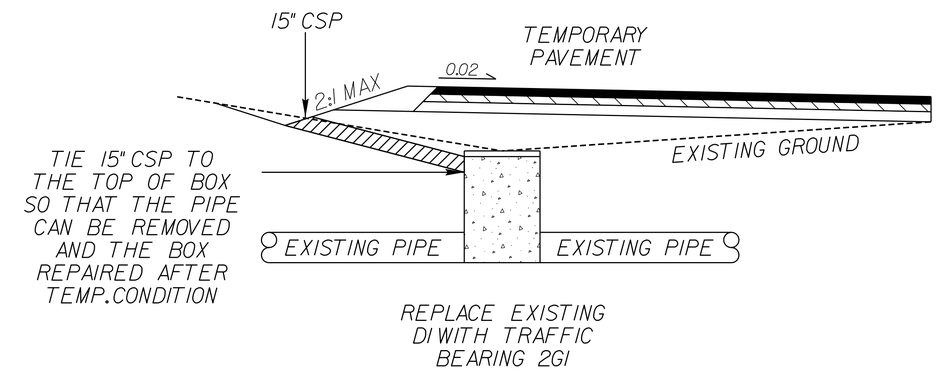


6/2/99
2/28/2014
I-0914BA_RDY_TYP_DRN_DETAIL.dgn
12:06:56 PM

TEMPORARY DRAINAGE DETAIL – A



TEMPORARY DRAINAGE DETAIL – B



TEMPORARY DRAINAGE OPTIONS		
DETAIL A STATION LOCATIONS		DETAIL B STATION LOCATIONS
52+07 -NBL- LT	333+08 -NBL- LT	159+46 -NBL- LT
95+54 -NBL- LT	337+34 -NBL- LT	203+98 -NBL- LT
105+32 -NBL- LT	341+33 -NBL- LT	207+24 -NBL- LT
121+10 -NBL- LT	412+88 -NBL- LT	283+96 -NBL- LT
125+59 -NBL- LT	416+44 -NBL- LT	592+96 -NBL- LT
144+02 -NBL- LT	425+75 -NBL- LT	624+54 -NBL- LT
147+53 -NBL- LT	442+93 -NBL- LT	
153+33 -NBL- LT	447+76 -NBL- LT	
201+00 -NBL- LT	584+64 -NBL- LT	
212+00 -NBL- LT	588+99 -NBL- LT	
237+48 -NBL- LT	629+15 -NBL- LT	
241+47 -NBL- LT	634+30 -NBL- LT	
246+26 -NBL- LT		
249+56 -NBL- LT		
275+46 -NBL- LT		
278+97 -NBL- LT		
289+97 -NBL- LT		

DETAIL A consists of, but not limited to, approximately 8′ of 15″ CSP, 1– 15″ CSP elbow, and a 3/4″ steel plate.

DETAIL B consists of, but not limited to, approximately 8′ of 15″ CSP, the removal of the existing DI, the installation of a Traffic Bearing 2GI (with appropriate temporary lid), the removal of the pipe after temporary condition, and the repair of the box after the pipe has been removed. If a pipe is to be added in the final condition, a pipe stub out should be installed when the new box is being built.

6/2/99
2/28/2014
I-0914BA_RDY_TYP_DRN_DETAIL.dgn
12:06:00 PM

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-AB
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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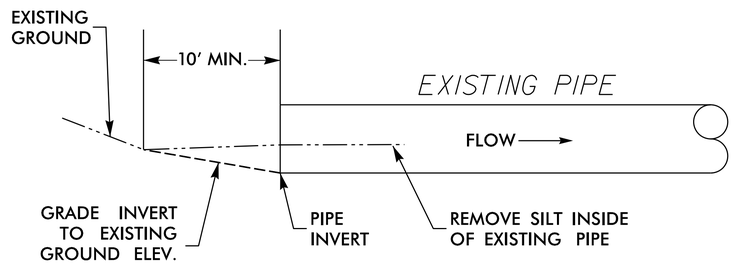
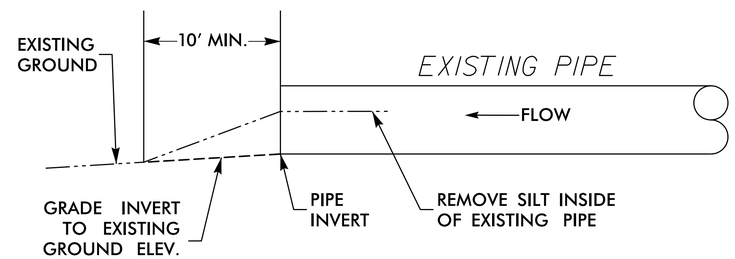
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

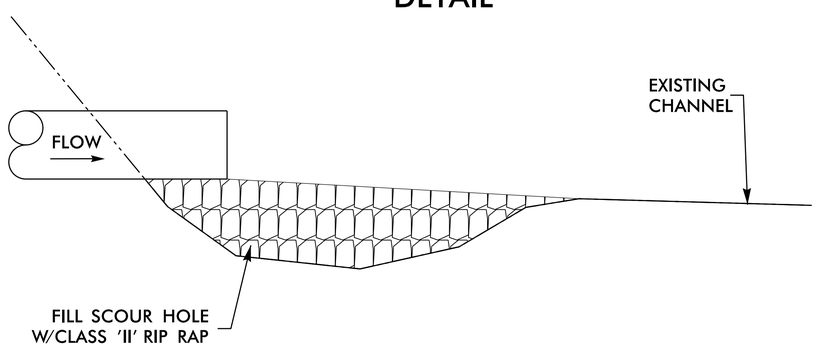
PIPE CLEAN OUT DETAIL INLET END



PIPE CLEAN OUT DETAIL OUTLET END

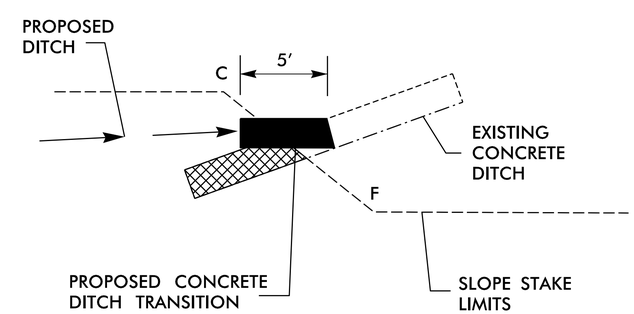


FILL IN SCOUR HOLE DETAIL

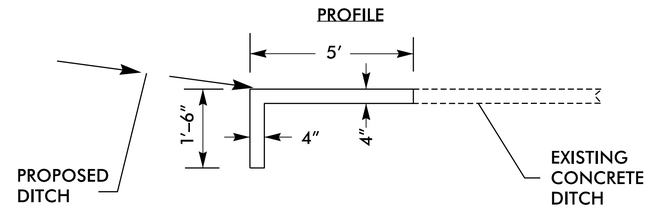


CONCRETE PAD DITCH TRANSITION

PLAN VIEW



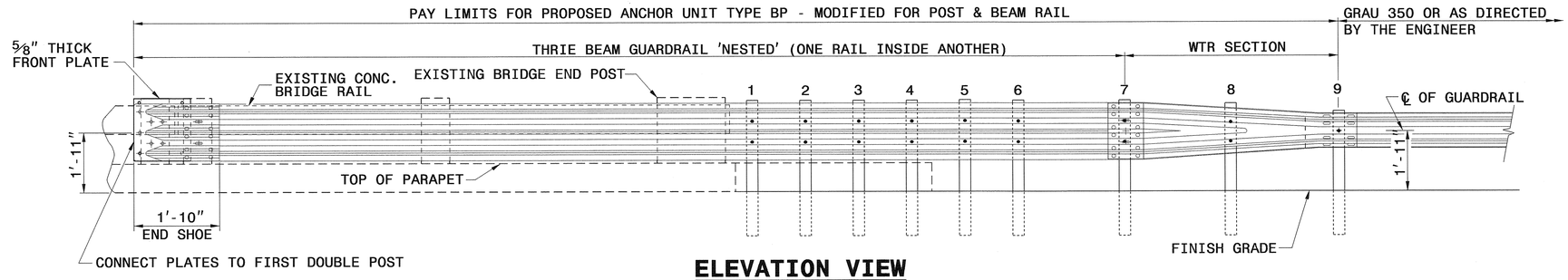
PROFILE



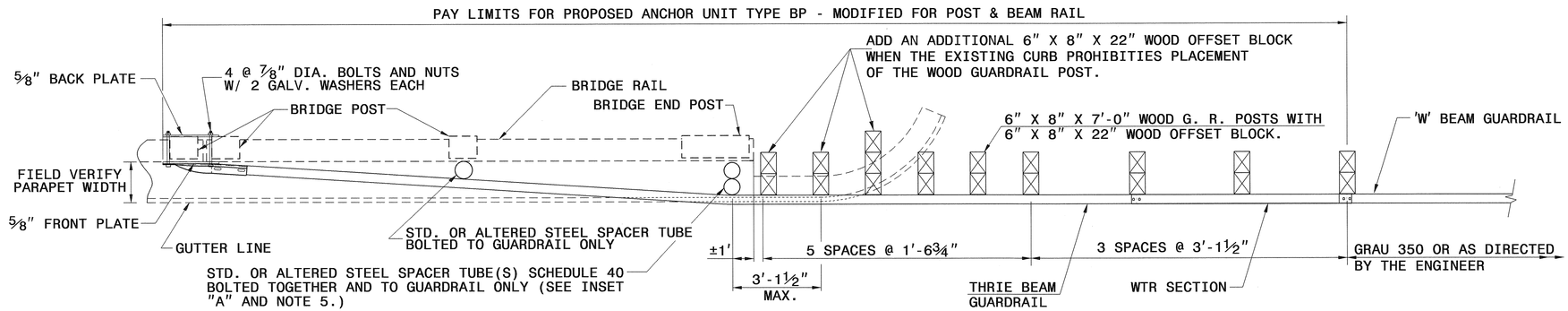
* WIDTH AND BASE DIMENSIONS OF PROPSED CONCRETE DITCH TRANSITION SHALL MATCH THE WIDTH AND BASE DIMENSIONS OF THE EXISTING CONCRETE DITCH.

6/2/99
2/28/2014
I-0914BA_RDY_TYP_DRN_DETAIL.dgn
12:06:01 PM

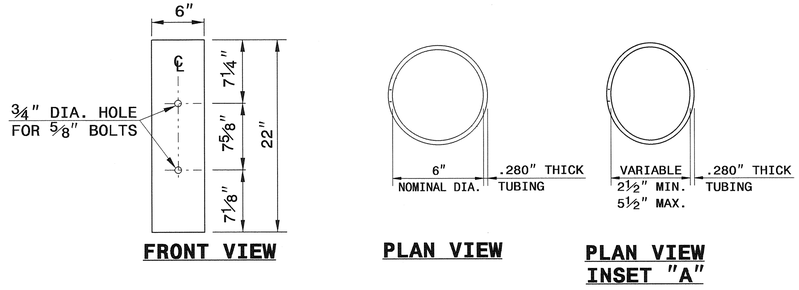
PROJECT REFERENCE NO.	SHEET NO.
I-9014BA	2-AC



ELEVATION VIEW



PLAN VIEW

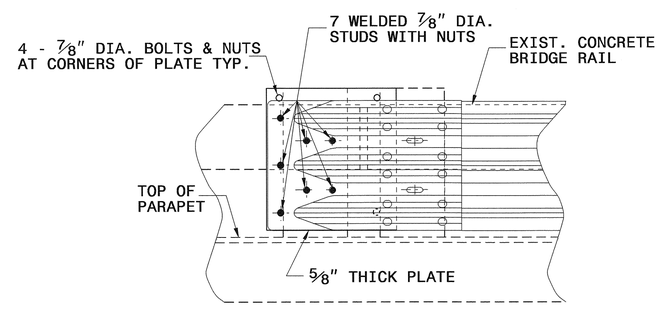


FRONT VIEW

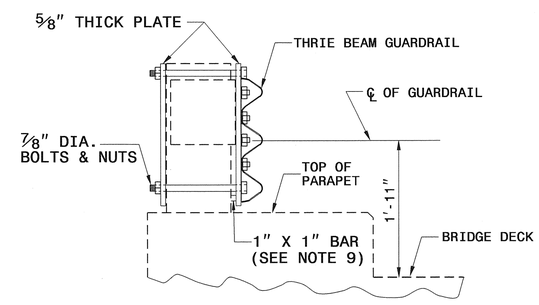
PLAN VIEW

PLAN VIEW INSET "A"

STEEL SPACER TUBE



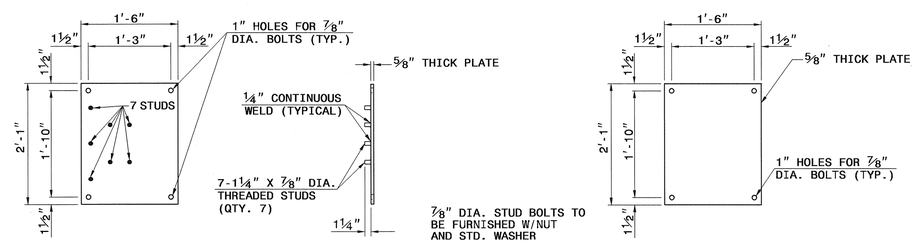
ELEVATION VIEW



SECTION VIEW

GENERAL NOTES:

1. USE NUTS, BOLTS, AND WASHERS CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-307 AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS.
2. TAP NUTS FOR THE 7/8" DIA. STUDS AND BOLTS AFTER GALVANIZING SEE A.S.T.M. A-563.
3. USE PLATES AND TUBES CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-36 AND GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS.
4. ADDITIONAL FIELD HOLES MAY BE DRILLED IN STEEL RAIL AS DIRECTED BY THE ENGINEER.
5. INSTALL FACE OF GUARDRAIL AS NEAR AS POSSIBLE TO PLUMB WITH THE PARAPET FACE AT BRIDGE END POST SPACER TUBE LOCATION BY USING STANDARD OR ALTERED SPACER TUBES OR A COMBINATION THEREOF OR AS DIRECTED BY THE ENGINEER. FOR VERY SMALL PARAPET WIDTHS, GUARDRAIL MAY BE INSTALLED AGAINST BRIDGE RAIL WITHOUT SPACER TUBES.
6. DO NOT DRILL BRIDGE RAIL IN ORDER TO INSTALL GUARDRAIL ANCHOR UNIT.
7. USE THIS DETAIL ONLY FOR BRIGES WITH POST AND BEAM TYPE RAIL.
8. ATTACH 1" X 1" BAR AND THREADED STUDS TO PLATE WITH ¼" WELDS ALL AROUND.
9. 1" X 1" BAR MAY NOT BE NEEDED ON BRIDGE RAILS WHERE FACE OF RAIL DOES NOT PROJECT BEYOND FACE OF POST.
10. PROVIDE SHOP DRAWINGS OF THE PLATES TO THE ENGINEER FOR APPROVAL BEFORE FABRICATING THE PLATES.
11. LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
12. SEE ROADWAY STARDARD DRAWING 862.03 SHEET 3 FOR ADDITIONAL INFORMATION ON THE TYPE III ANCHOR UNIT



FRONT VIEW

SIDE VIEW

FRONT PLATE

BACK PLATE

BRIDGE PLATES

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

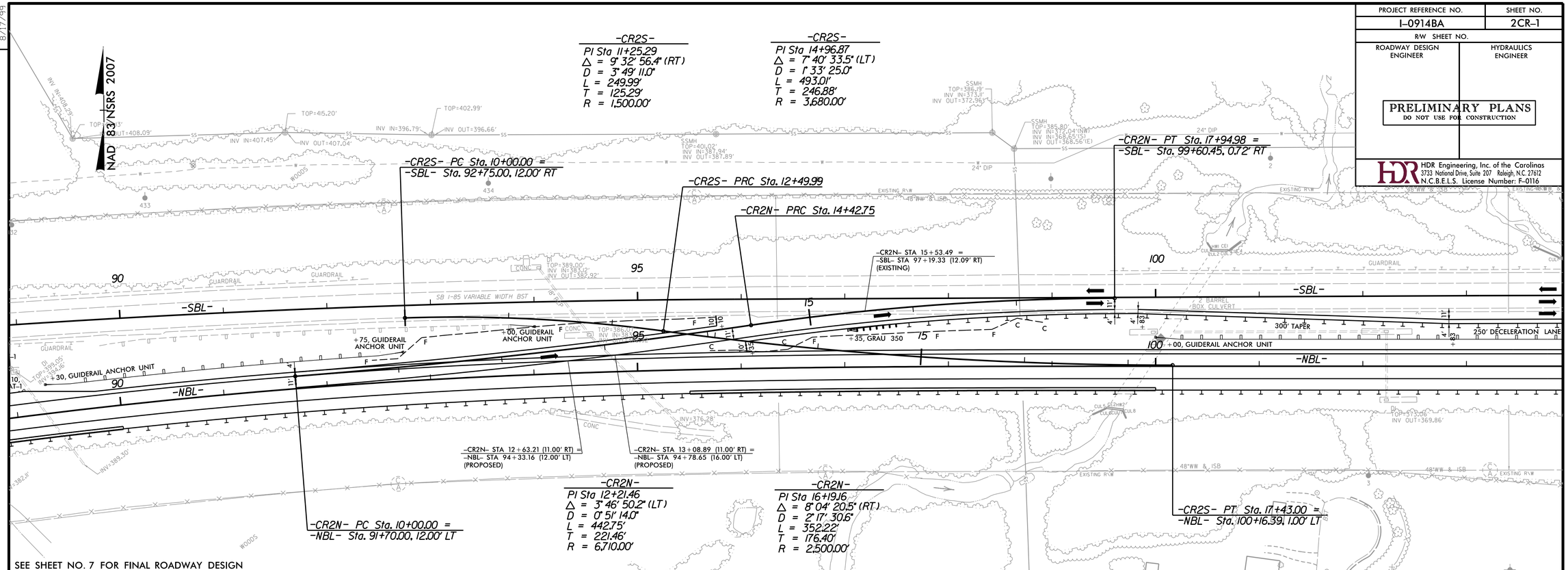
TYPE III MODIFIED FOR POST AND BEAM RAIL

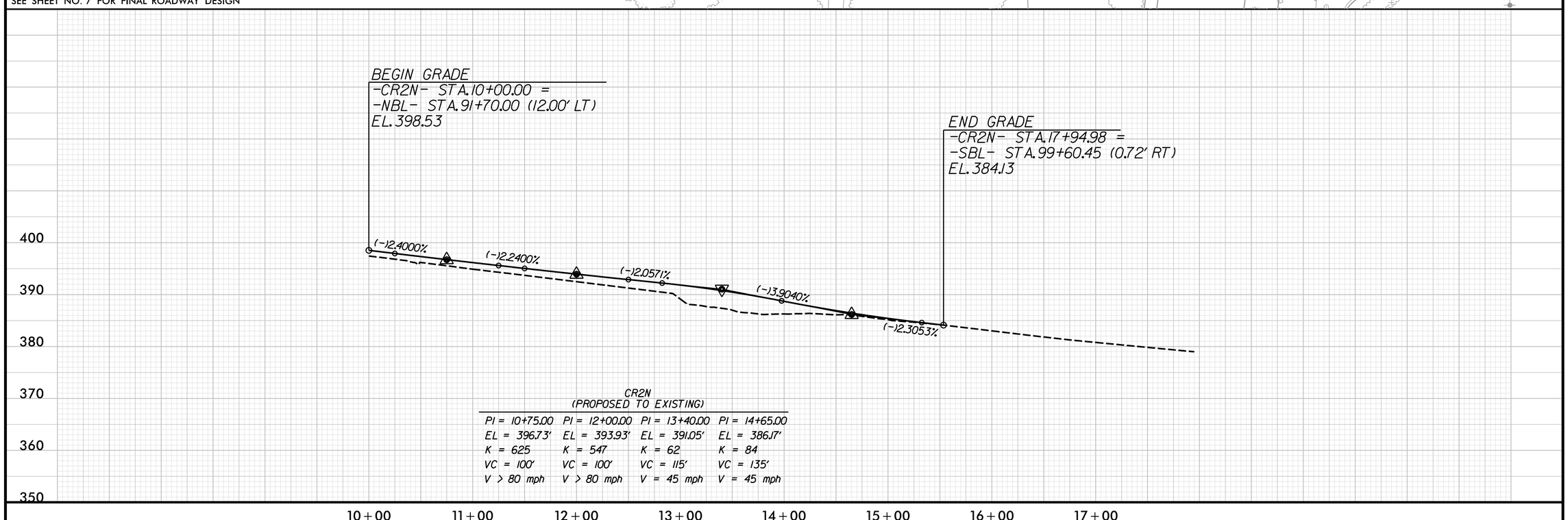
ORIGINAL BY: E.E. WARD DATE: 01-03
MODIFIED BY: E.E. WARD DATE: 02-04
CHECKED BY: [signature] DATE: 10/10/13
FILE SPEC.: s:details\stand\bpiii originial.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116





REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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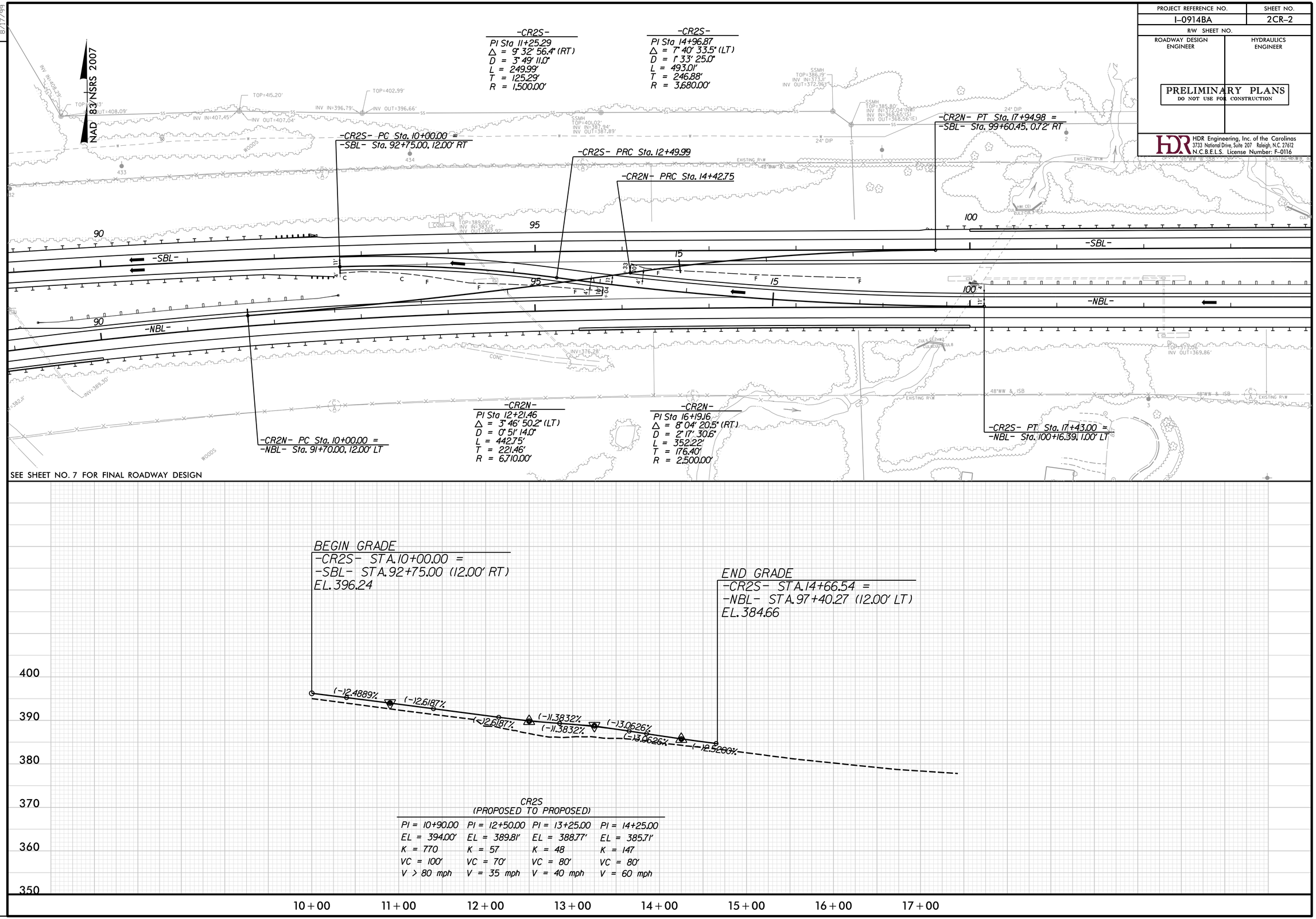
N.C.B.E.L.S. License Number: F-0116



CR2S
(PROPOSED TO PROPOSED)

PI = 10+90.00	PI = 12+50.00	PI = 13+25.00	PI = 14+25.00
EL = 394.00'	EL = 389.81'	EL = 388.77'	EL = 385.71'
K = 770	K = 57	K = 48	K = 147
VC = 100'	VC = 70'	VC = 80'	VC = 80'
V > 80 mph	V = 35 mph	V = 40 mph	V = 60 mph

8/17/99

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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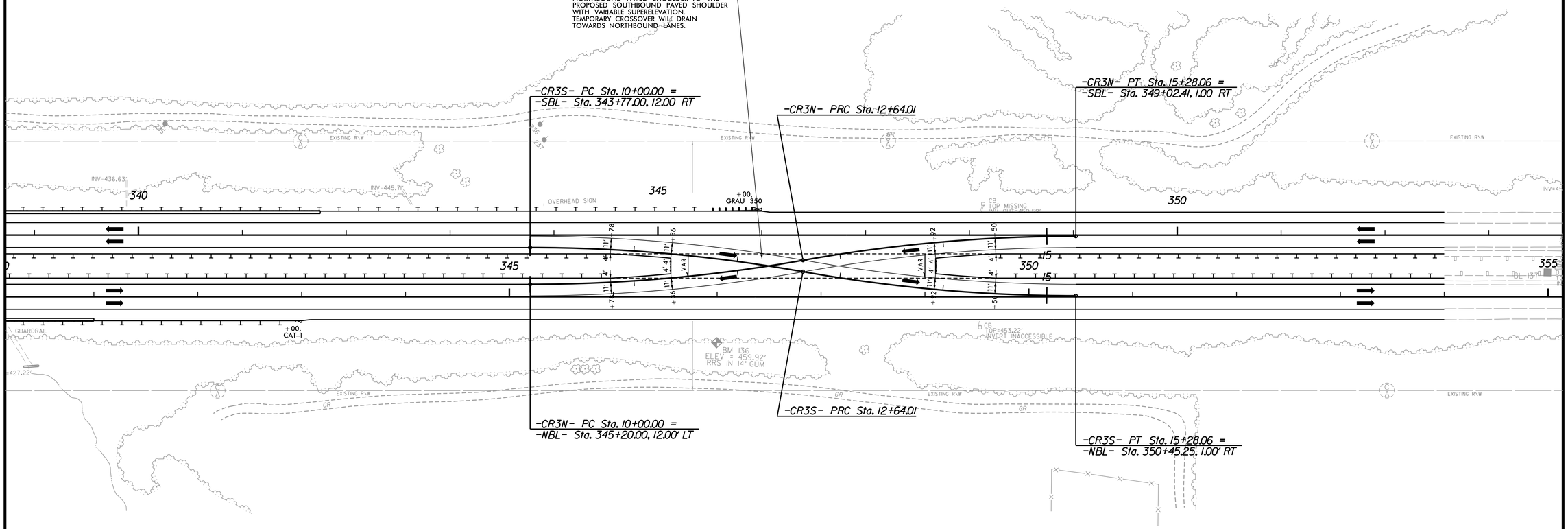
N.C.B.E.L.S. License Number: F-0116

-CR3S-
PI Sta 11+32.35
△ = 10° 05' 04.4" (RT)
D = 3° 49' 11.0"
L = 264.01'
T = 132.35'
R = 1,500.00'

-CR3S-
PI Sta 13+96.38
△ = 10° 05' 08.4" (LT)
D = 3° 49' 11.0"
L = 264.04'
T = 132.36'
R = 1,500.00'

GRADE TEMPORARY CROSSOVER BY PLACING ASPHALT PAVEMENT FROM THE PROPOSED NORTHBOUND PAVED SHOULDER TO THE PROPOSED SOUTHBOUND PAVED SHOULDER WITH VARIABLE SUPERELEVATION. TEMPORARY CROSSOVER WILL DRAIN TOWARDS NORTHBOUND LANES.



-CR3N-
PI Sta 11+32.35
△ = 10° 05' 04.3" (LT)
D = 3° 49' 11.0"
L = 264.01'
T = 132.35'
R = 1,500.00'

-CR3N-
PI Sta 13+96.38
△ = 10° 05' 08.4" (RT)
D = 3° 49' 11.0"
L = 264.04'
T = 132.36'
R = 1,500.00'

SEE SHEET NO. 2-K FOR -CR3N- & -CR3S- DETAIL.
NO PROPOSED PROFILES REQUIRED FOR -CR3S- OR -CR3N-
SEE SHEET NO. 23 FOR FINAL ROADWAY DESIGN

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
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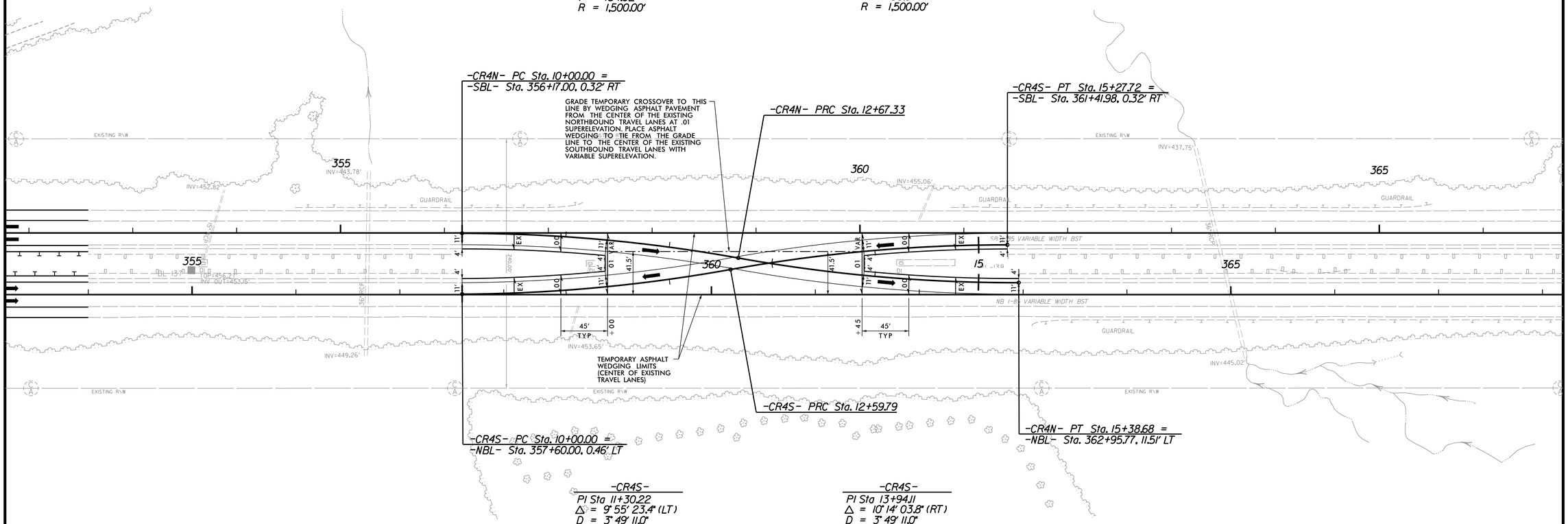
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NO. 2-K FOR -CR4N- & -CR4S- DETAIL.
SEE SHEET NO. 24 FOR FINAL ROADWAY DESIGN

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
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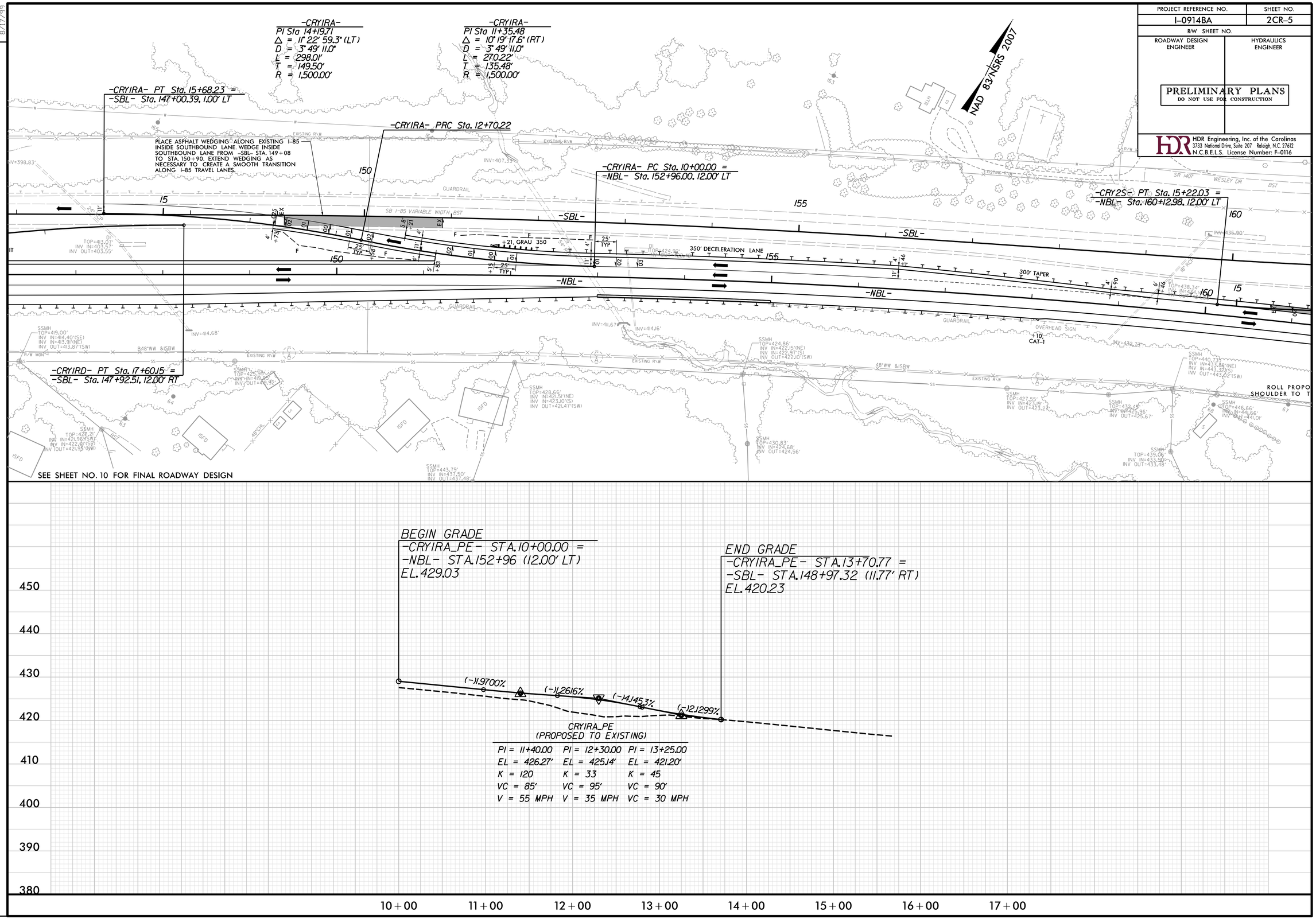
N.C.B.E.L.S. License Number: F-0116



REVISIONS

8/17/99

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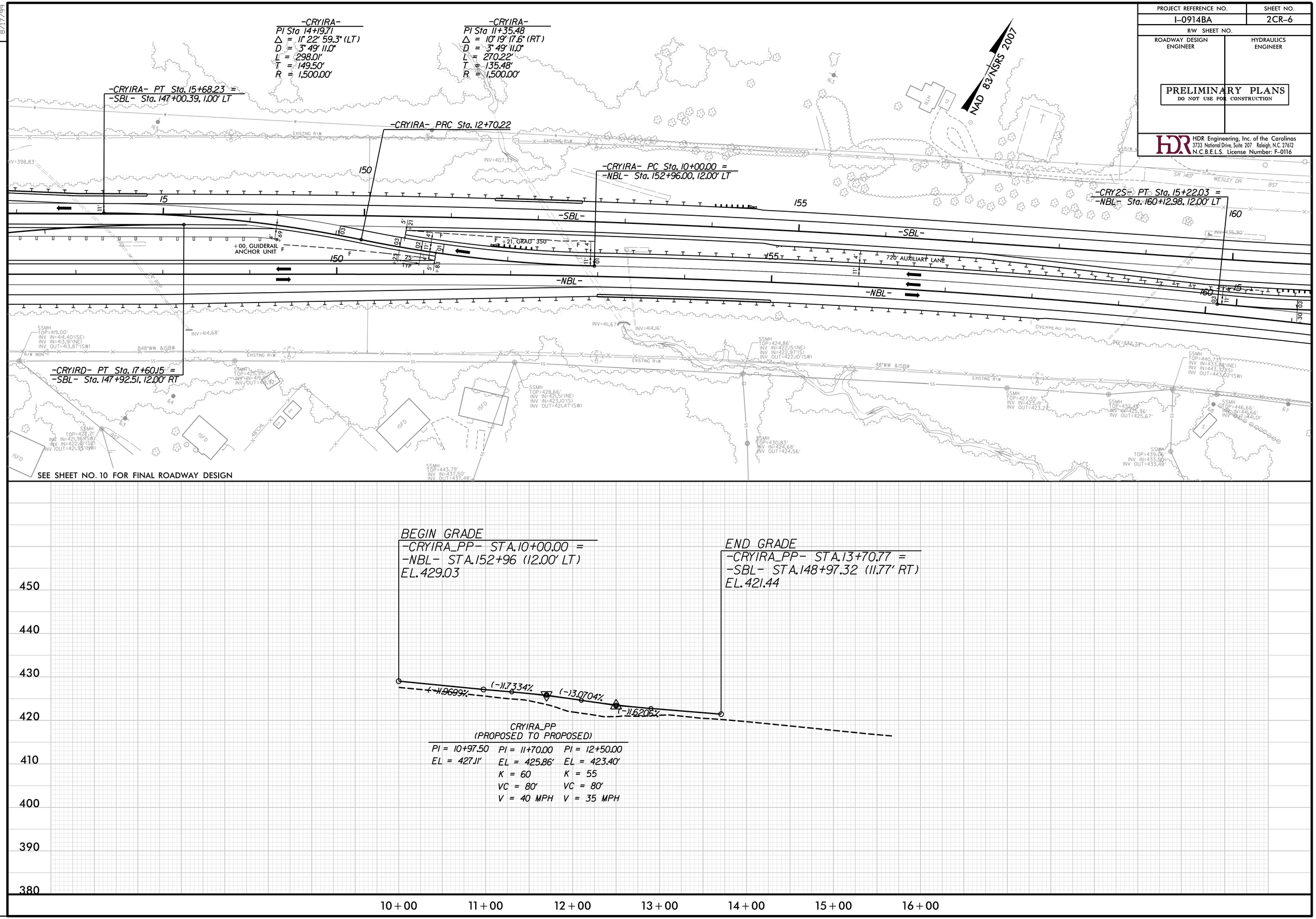
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
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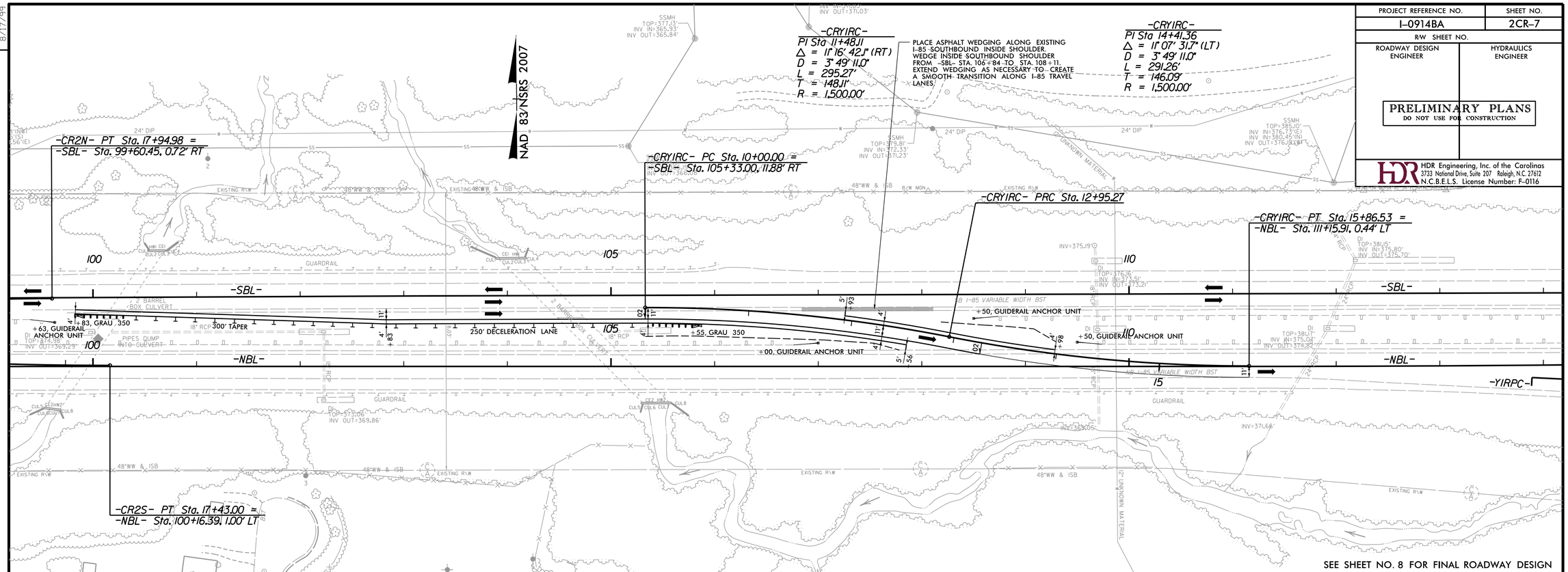
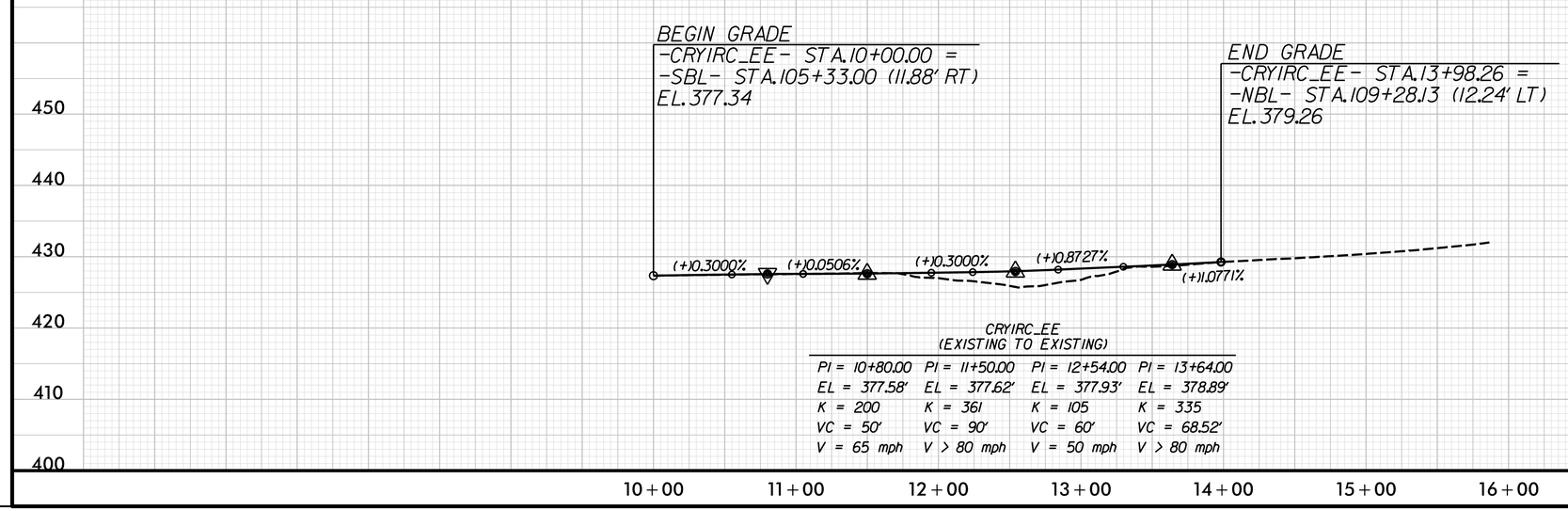
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NO. 8 FOR FINAL ROADWAY DESIGN



CRYIRC_EE
(EXISTING TO EXISTING)

PI = 10+80.00	PI = 11+50.00	PI = 12+54.00	PI = 13+64.00
EL = 377.58'	EL = 377.62'	EL = 377.93'	EL = 378.89'
K = 200	K = 361	K = 105	K = 335
VC = 50'	VC = 90'	VC = 60'	VC = 68.52'
V = 65 mph	V > 80 mph	V = 50 mph	V > 80 mph

8/17/99

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
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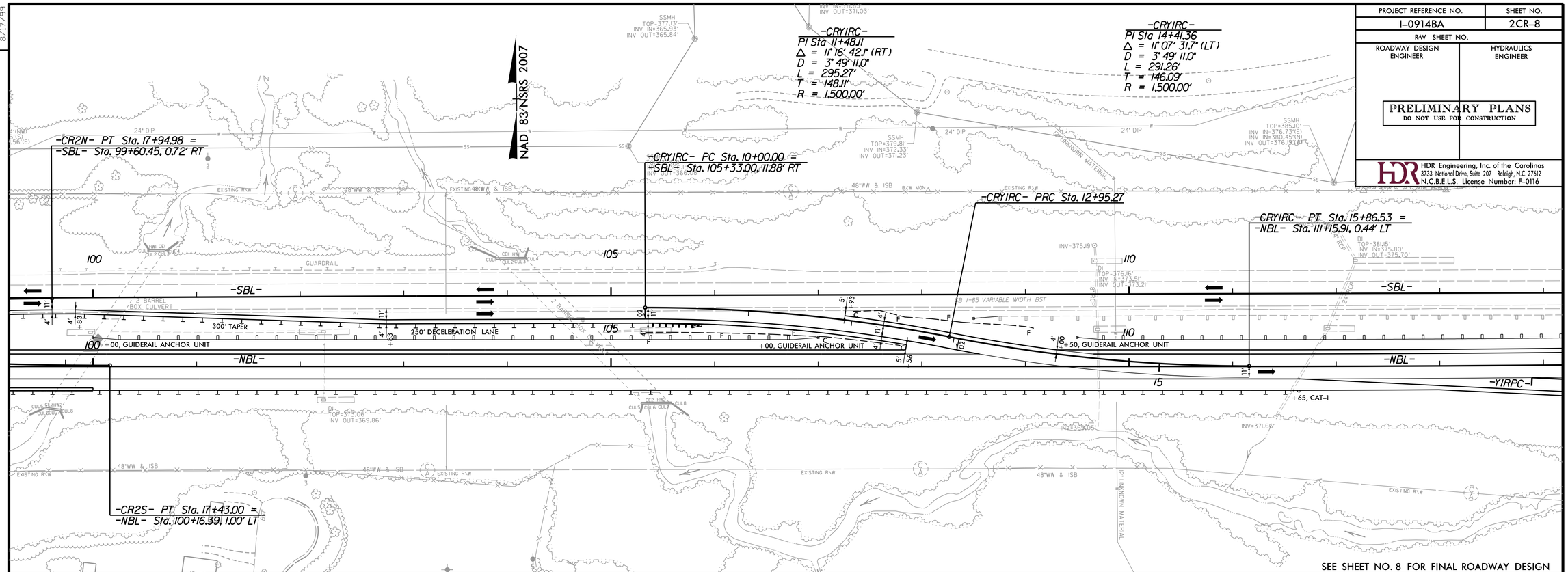
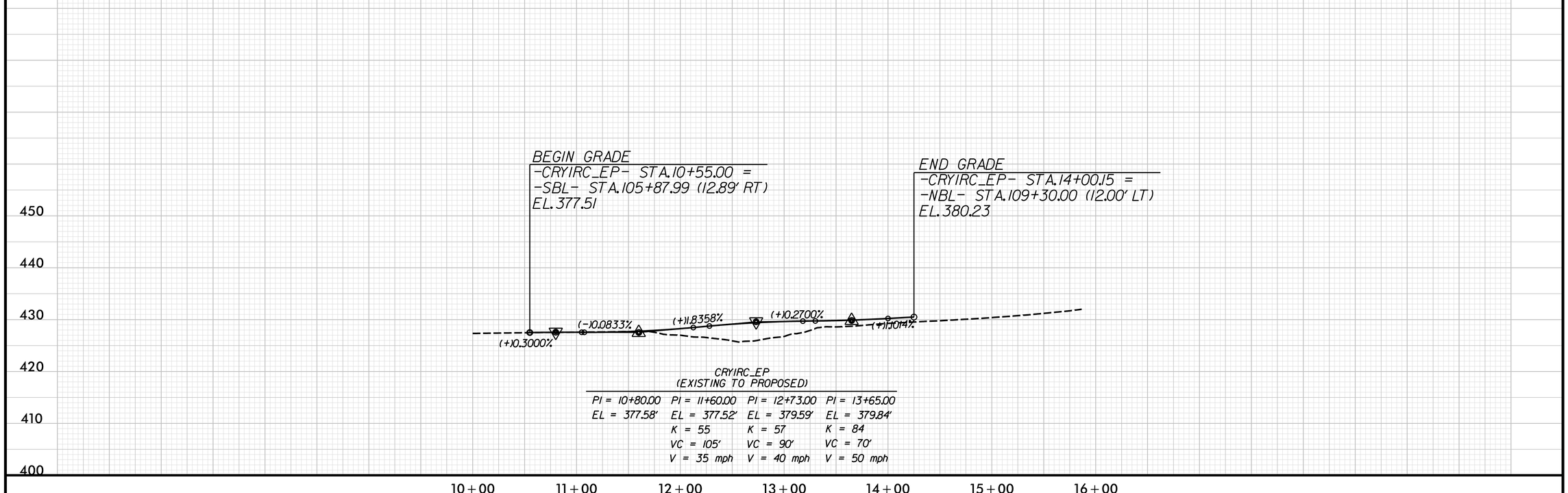
N.C.B.E.L.S. License Number: F-0116





CRYIRC_EP
(EXISTING TO PROPOSED)

PI = 10+80.00	PI = 11+60.00	PI = 12+73.00	PI = 13+65.00
EL = 377.58'	EL = 377.52'	EL = 379.59'	EL = 379.84'
	K = 55	K = 57	K = 84
	VC = 105'	VC = 90'	VC = 70'
	V = 35 mph	V = 40 mph	V = 50 mph

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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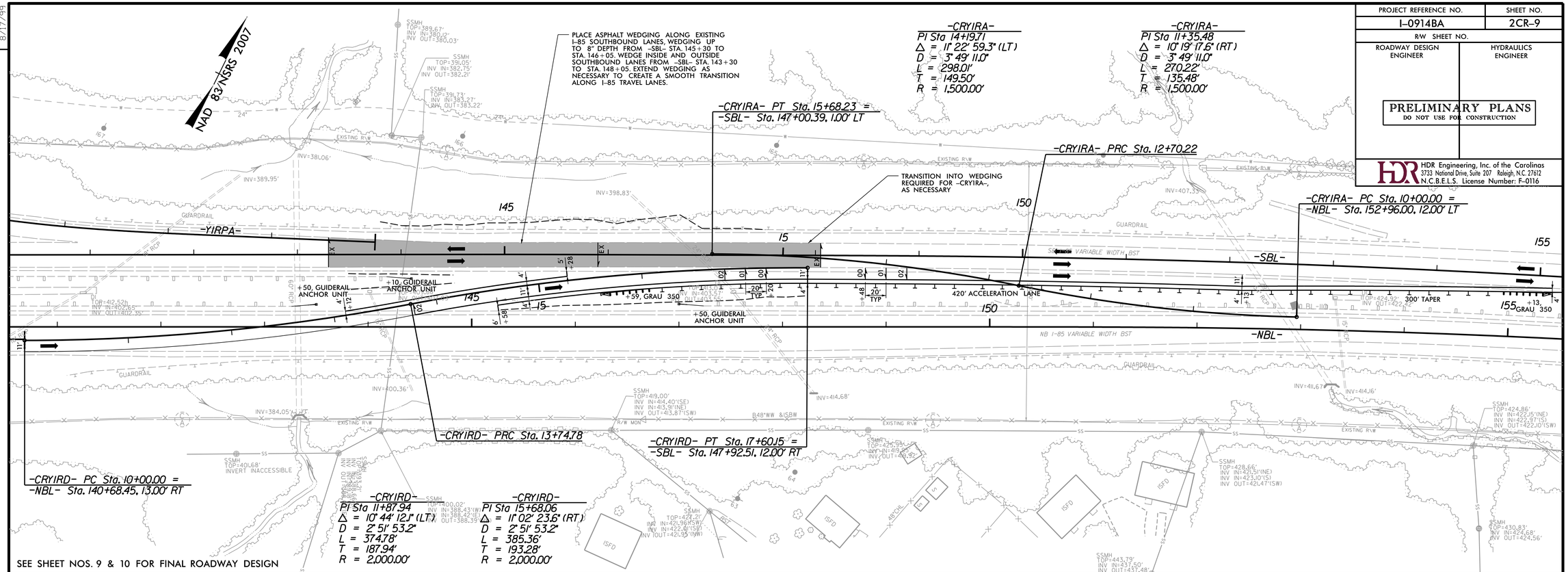
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
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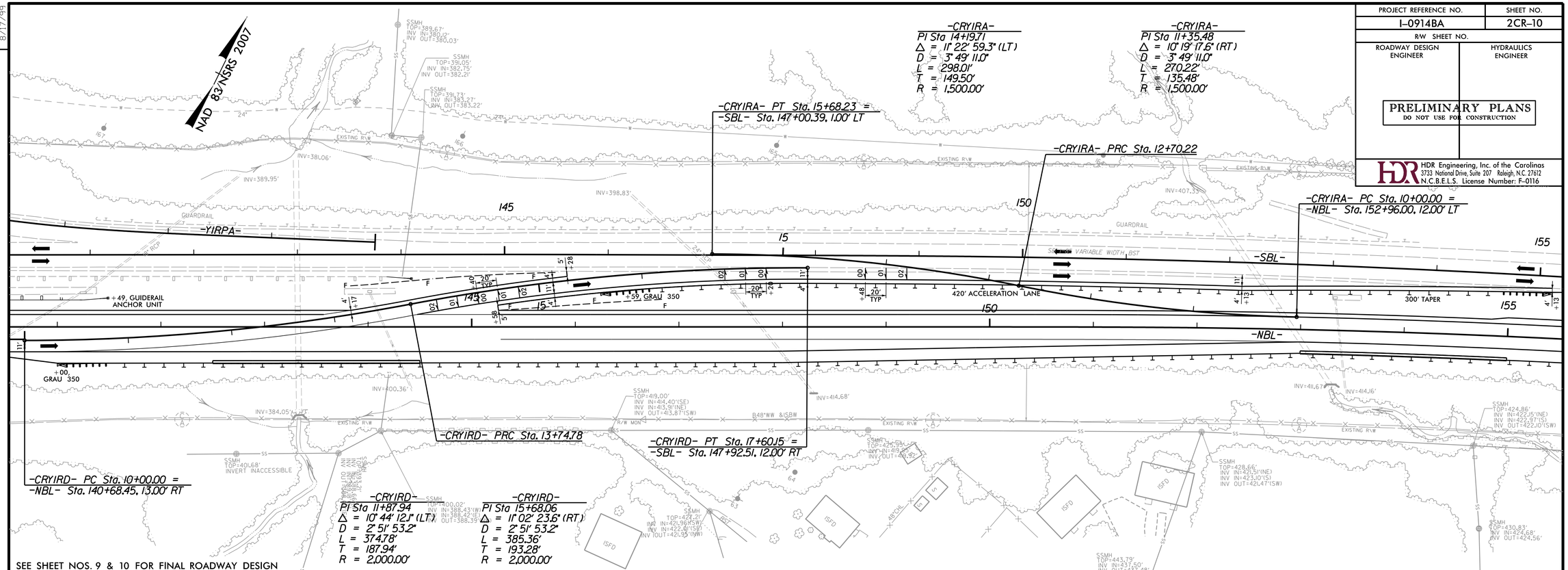
N.C.B.E.L.S. License Number: F-0116



8/17/99

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
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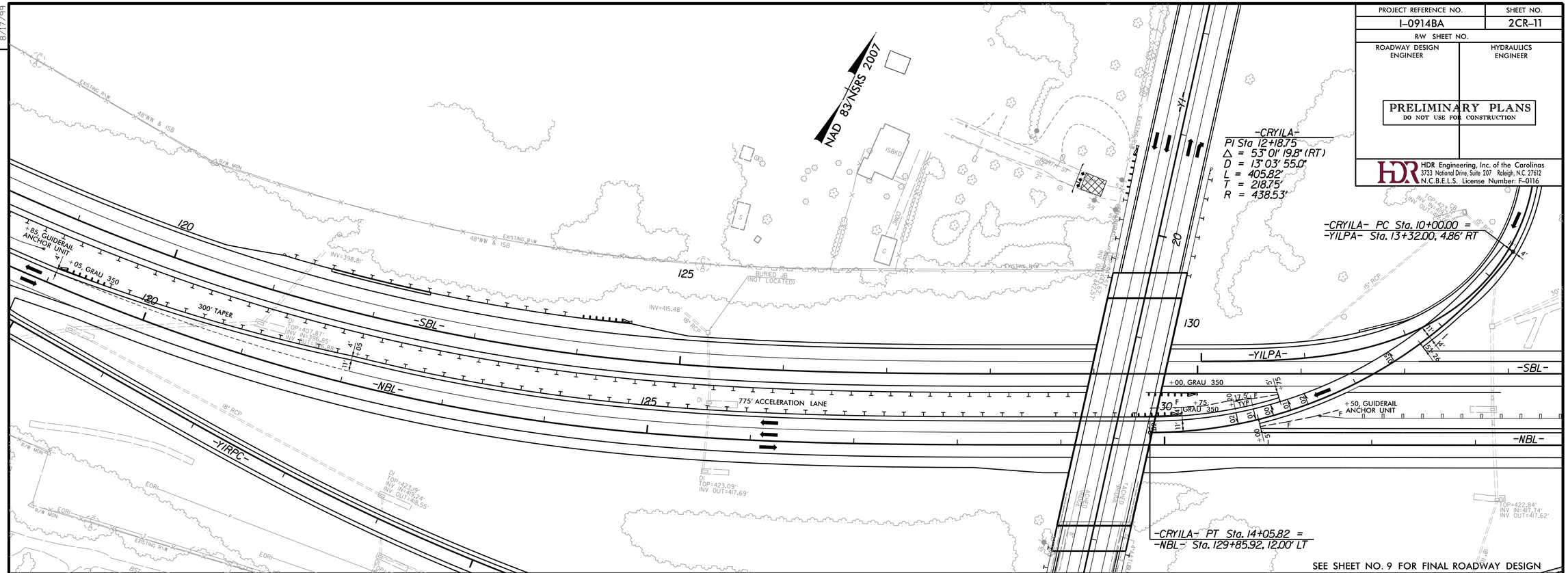
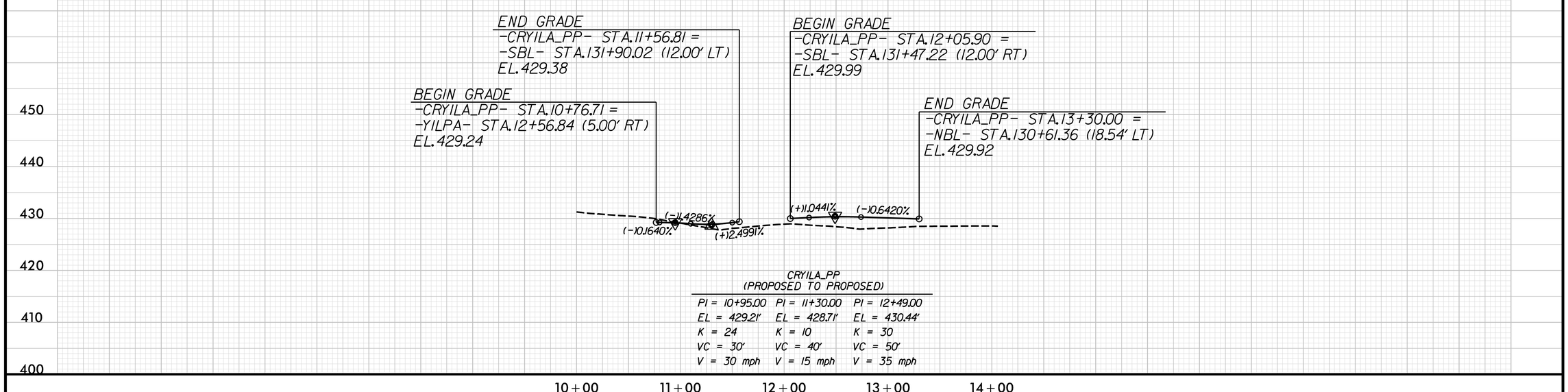
N.C.B.E.L.S. License Number: F-0116





CRYILA_PP
(PROPOSED TO PROPOSED)

PI = 10+95.00	PI = 11+30.00	PI = 12+49.00
EL = 429.21'	EL = 428.71'	EL = 430.44'
K = 24	K = 10	K = 30
VC = 30'	VC = 40'	VC = 50'
V = 30 mph	V = 15 mph	V = 35 mph

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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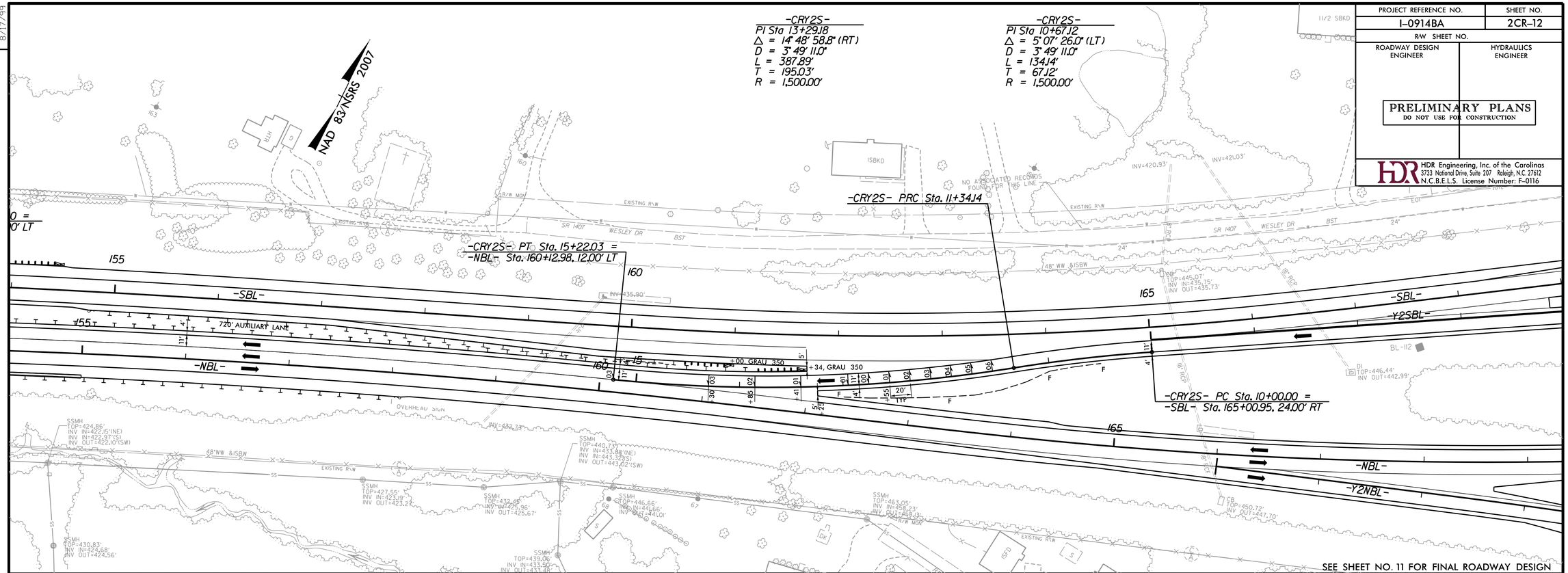
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

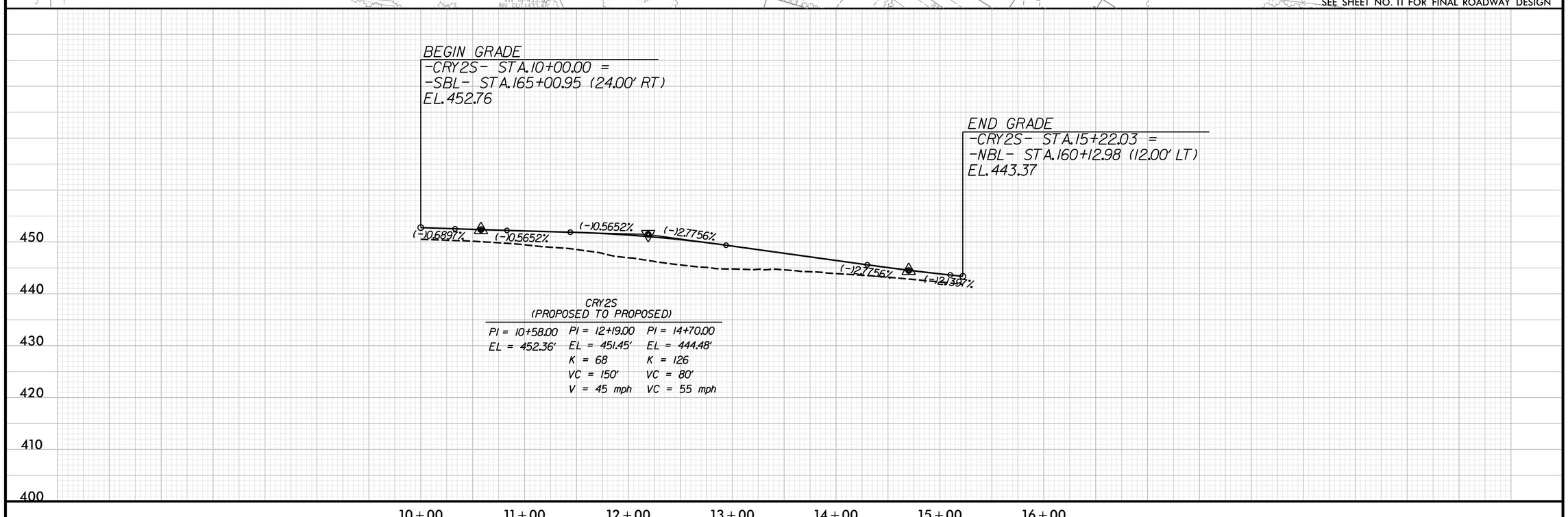
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

-CRY2S-
PI Sta 13+29.18
Δ = 14° 48' 58.8" (RT)
D = 3° 49' 11.0"
L = 387.89'
T = 195.03'
R = 1,500.00'

-CRY2S-
PI Sta 10+67.12
Δ = 5° 07' 26.0" (LT)
D = 3° 49' 11.0"
L = 134.14'
T = 67.12'
R = 1,500.00'





CRY2S
(PROPOSED TO PROPOSED)

PI = 10+58.00	PI = 12+19.00	PI = 14+70.00
EL = 452.36'	EL = 451.45'	EL = 444.48'
	K = 68	K = 126
	VC = 150'	VC = 80'
	V = 45 mph	VC = 55 mph

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:24:57 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\Crossovers\I0914BA_RDY_PSH_2CR-12.dgn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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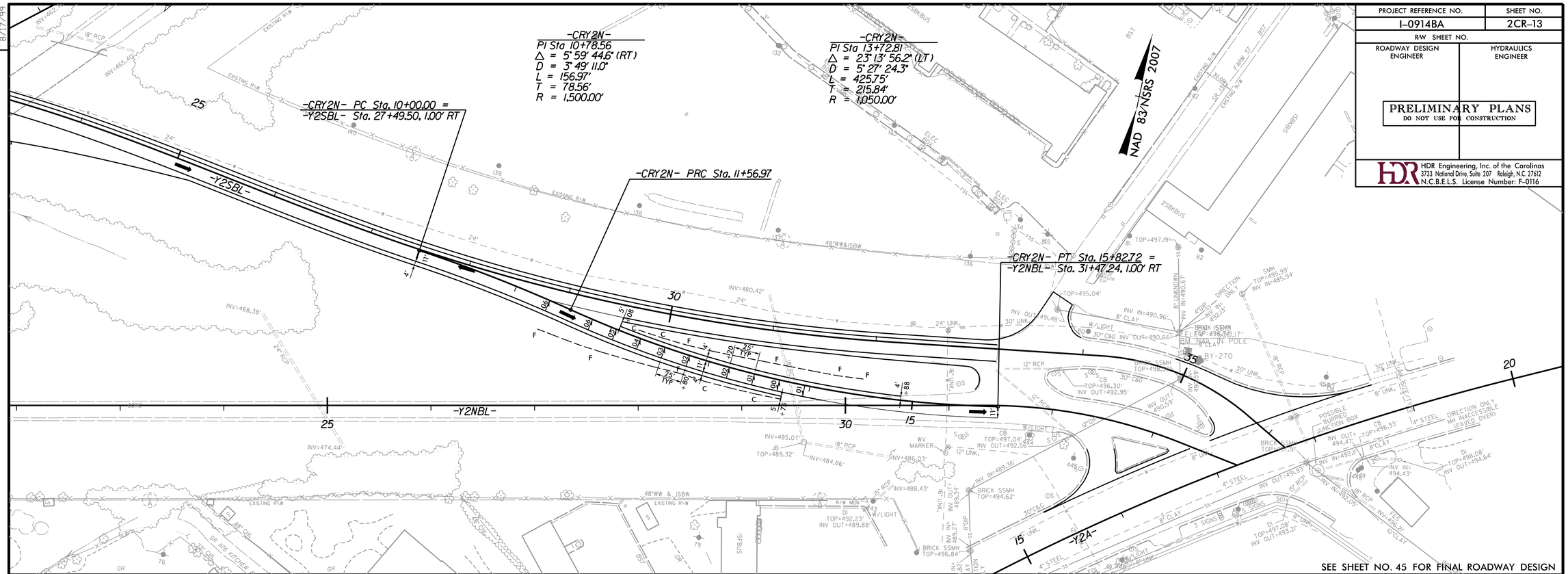

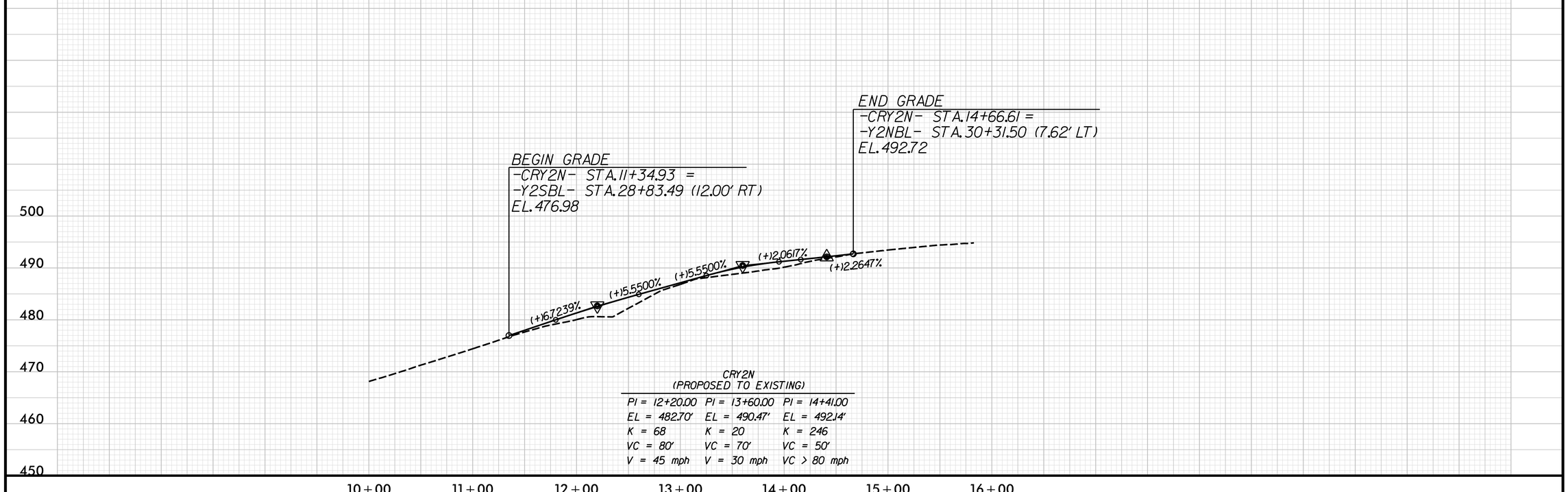

CRY2N
(PROPOSED TO EXISTING)

PI = 12+20.00	PI = 13+60.00	PI = 14+41.00
EL = 482.70'	EL = 490.47'	EL = 492.14'
K = 68	K = 20	K = 246
VC = 80'	VC = 70'	VC = 50'
V = 45 mph	V = 30 mph	VC > 80 mph

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:25:24 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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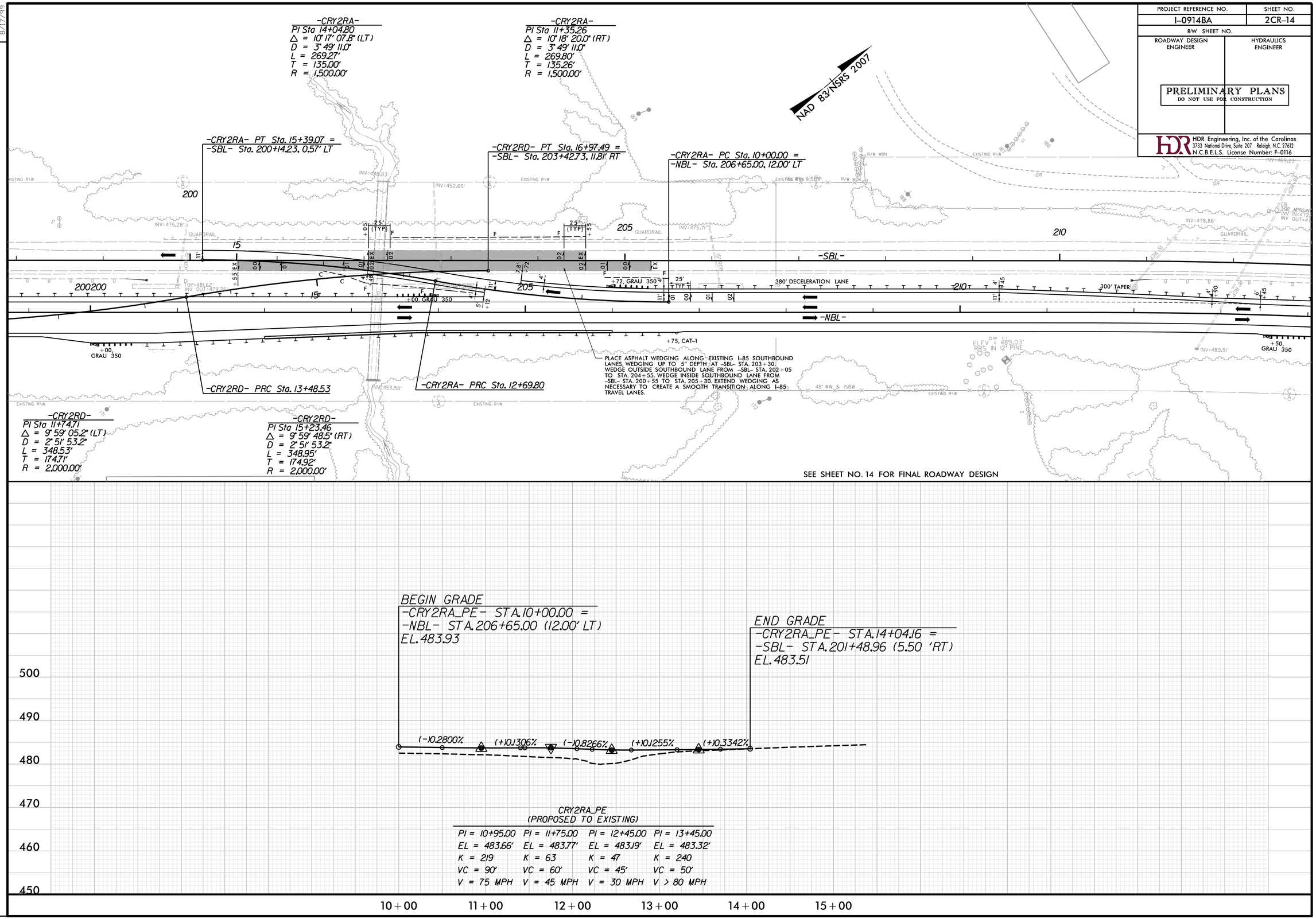

CRY2RA_PE
(PROPOSED TO EXISTING)

PI = 10+95.00	PI = 11+75.00	PI = 12+45.00	PI = 13+45.00
EL = 483.66'	EL = 483.77'	EL = 483.19'	EL = 483.32'
K = 219	K = 63	K = 47	K = 240
VC = 90'	VC = 60'	VC = 45'	VC = 50'
V = 75 MPH	V = 45 MPH	V = 30 MPH	V > 80 MPH

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:25:50 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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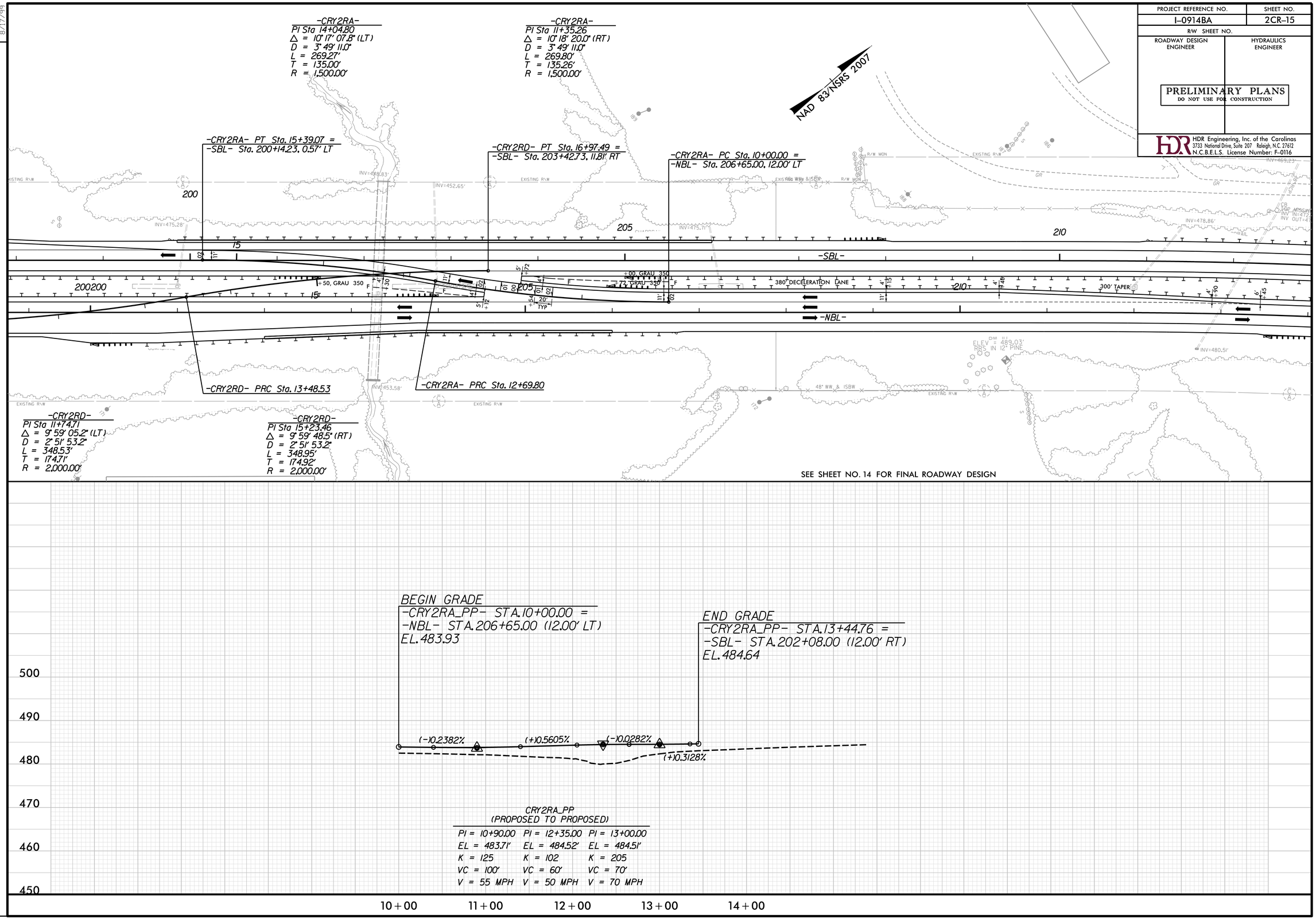

CRY2RA_PP
(PROPOSED TO PROPOSED)

PI = 10+90.00	PI = 12+35.00	PI = 13+00.00
EL = 483.71'	EL = 484.52'	EL = 484.51'
K = 125	K = 102	K = 205
VC = 100'	VC = 60'	VC = 70'
V = 55 MPH	V = 50 MPH	V = 70 MPH

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:26:16 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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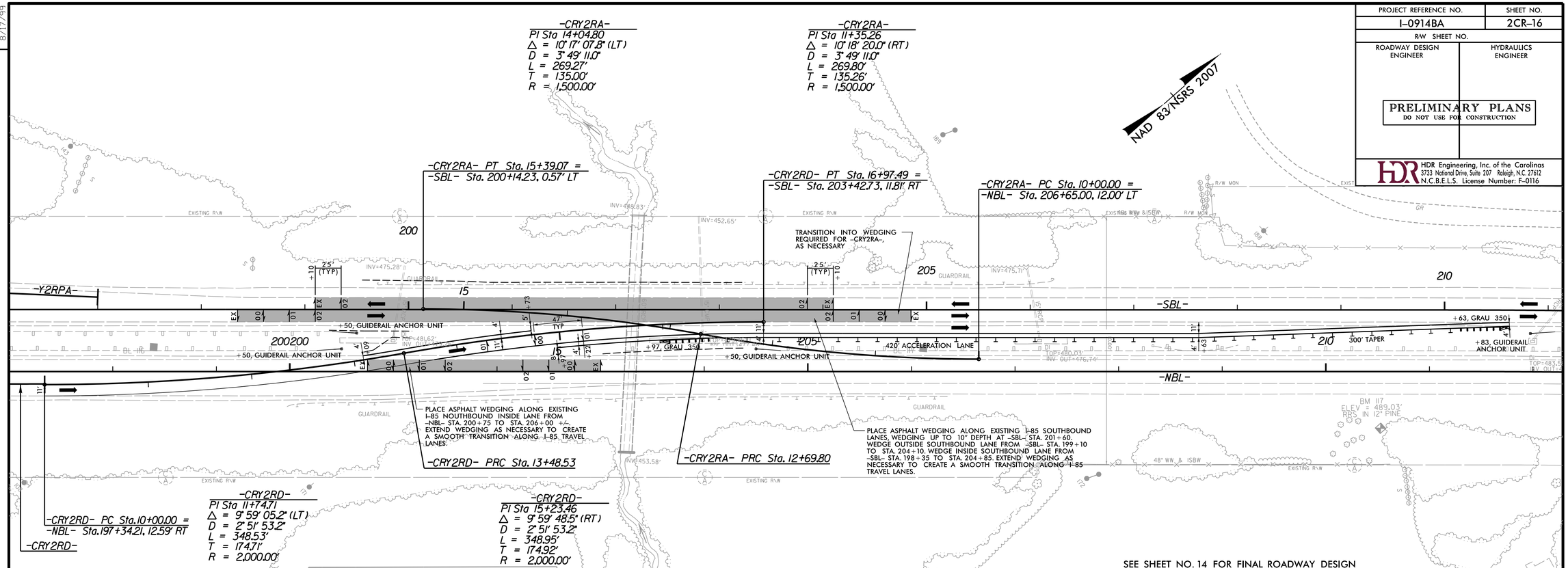
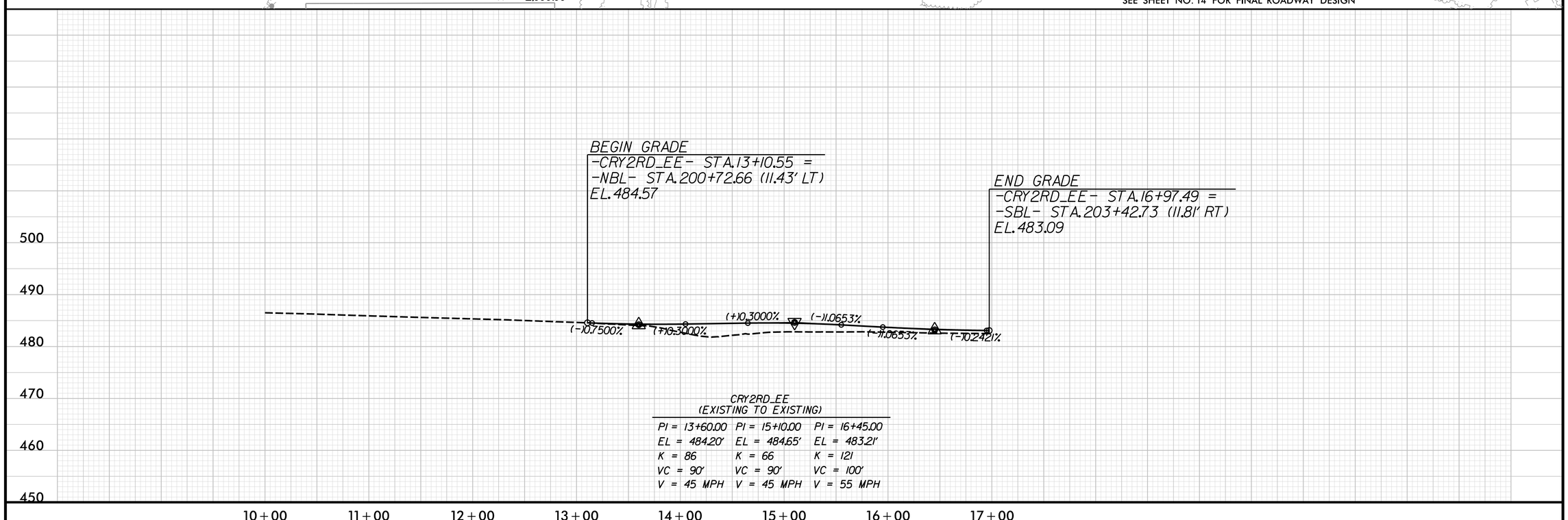
N.C.B.E.L.S. License Number: F-0116





CRY2RD_EE
(EXISTING TO EXISTING)

PI = 13+60.00	PI = 15+10.00	PI = 16+45.00
EL = 484.20'	EL = 484.65'	EL = 483.21'
K = 86	K = 66	K = 121
VC = 90'	VC = 90'	VC = 100'
V = 45 MPH	V = 45 MPH	V = 55 MPH

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:26:45 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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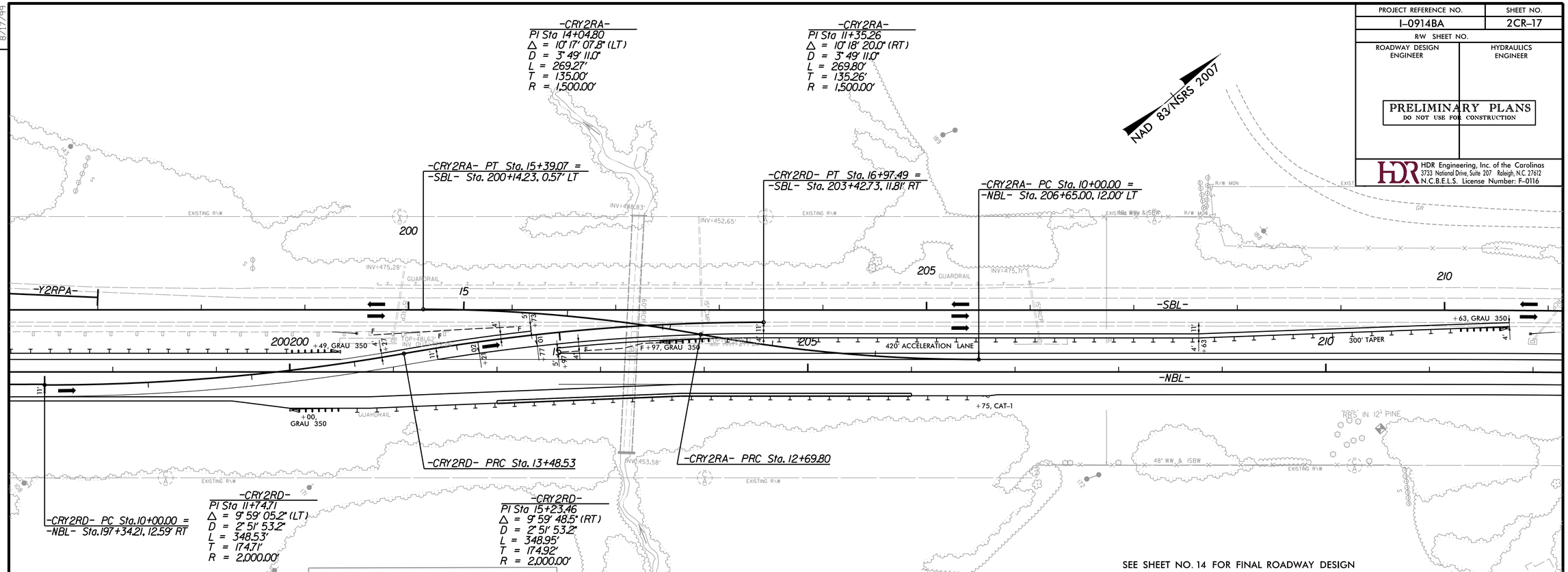

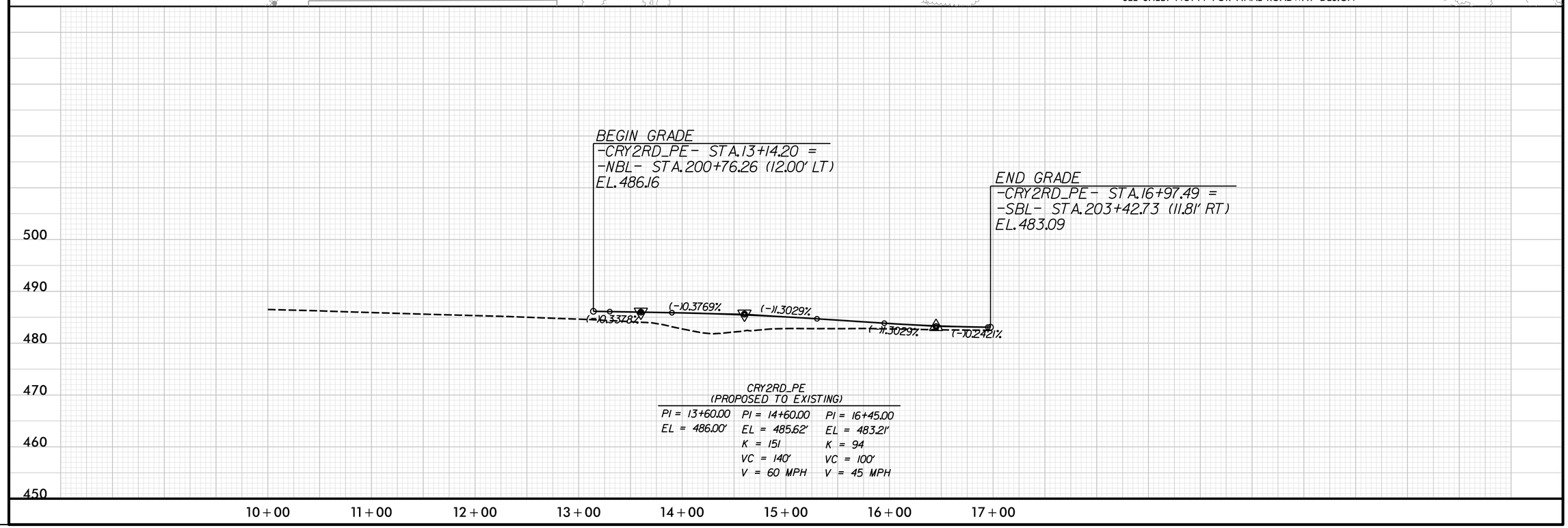

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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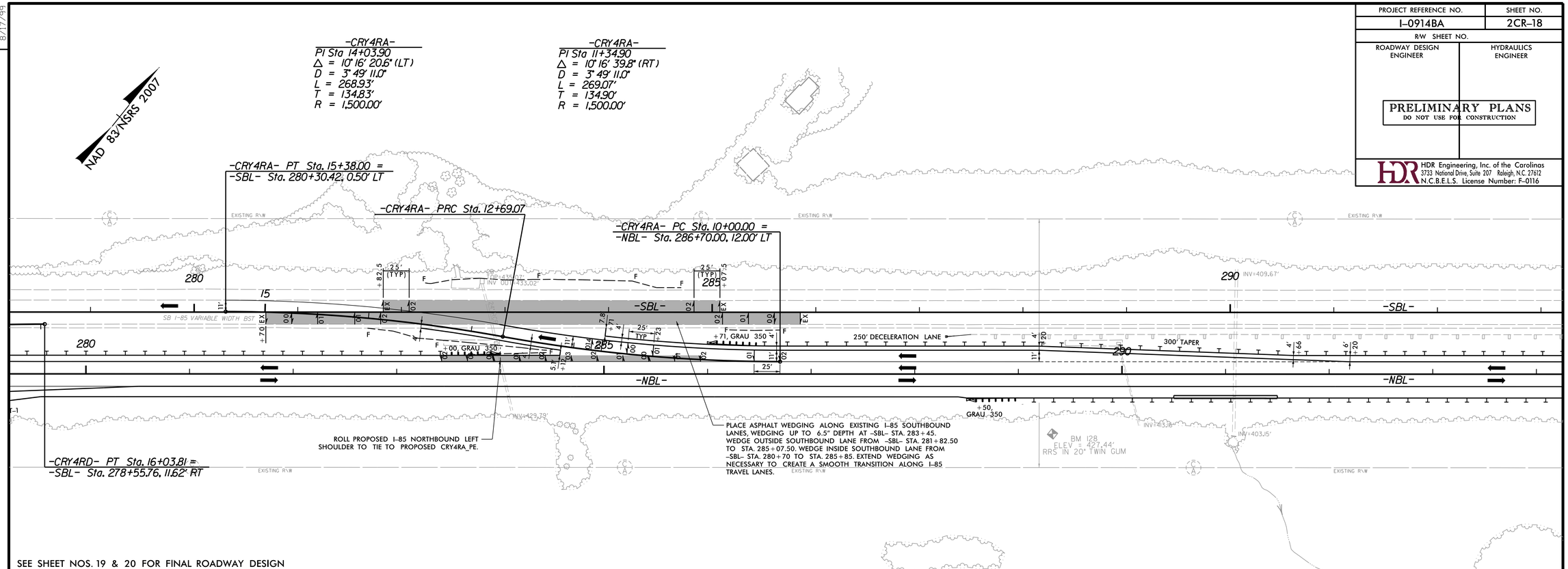
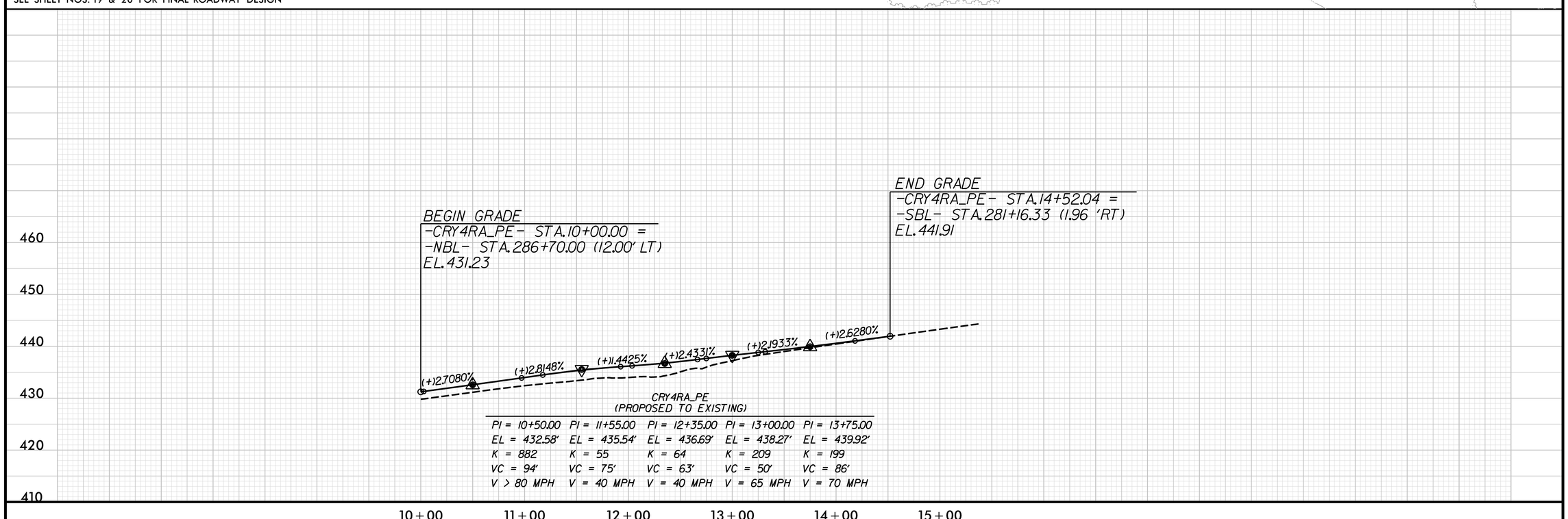


SEE SHEET NOS. 19 & 20 FOR FINAL ROADWAY DESIGN



CRY4RA_PE
(PROPOSED TO EXISTING)

PI = 10+50.00	PI = 11+55.00	PI = 12+35.00	PI = 13+00.00	PI = 13+75.00
EL = 432.58'	EL = 435.54'	EL = 436.69'	EL = 438.27'	EL = 439.92'
K = 882	K = 55	K = 64	K = 209	K = 199
VC = 94'	VC = 75'	VC = 63'	VC = 50'	VC = 86'
V > 80 MPH	V = 40 MPH	V = 40 MPH	V = 65 MPH	V = 70 MPH

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwalnwrl DATE: 2/28/2014 TIME: 9:27:35 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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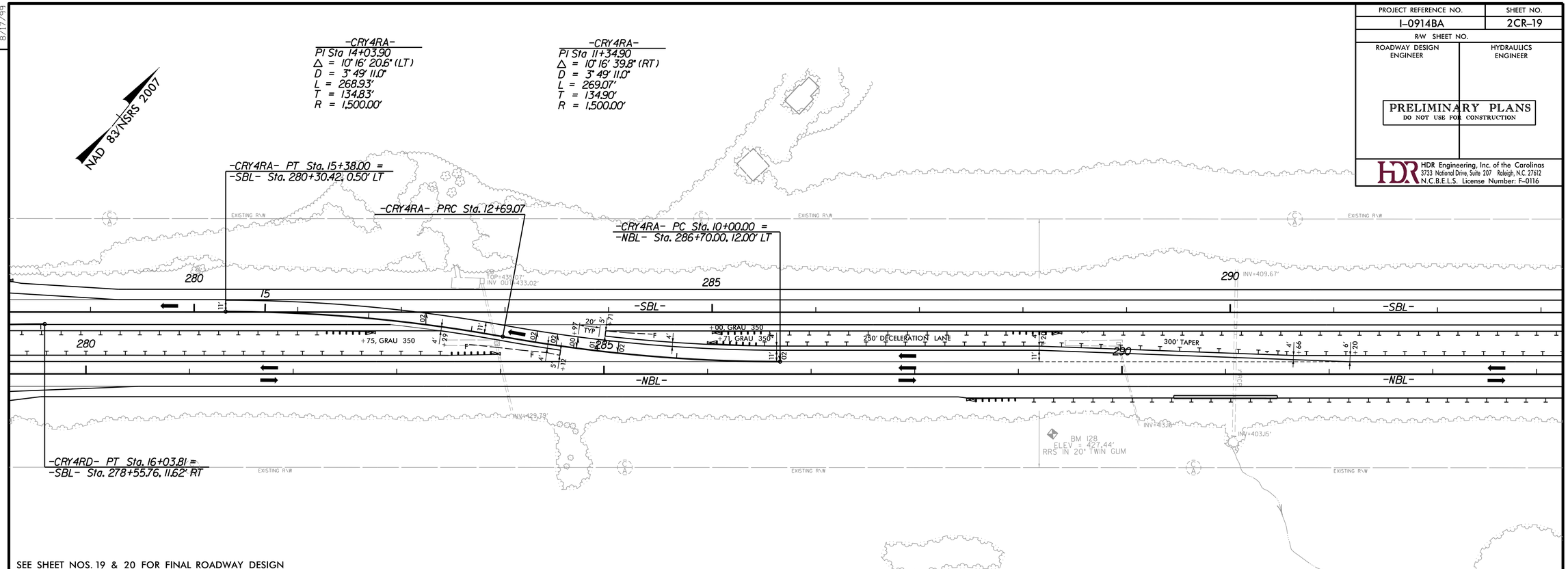
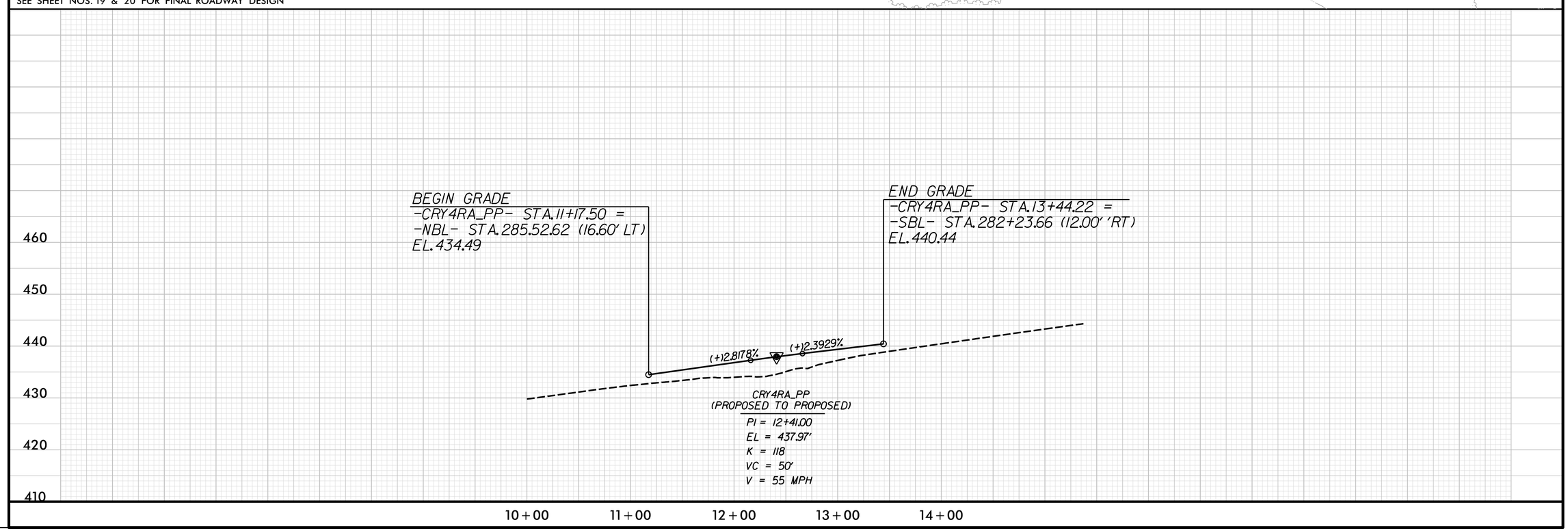
N.C.B.E.L.S. License Number: F-0116





REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwalnwrl DATE: 2/28/2014 TIME: 9:28:01 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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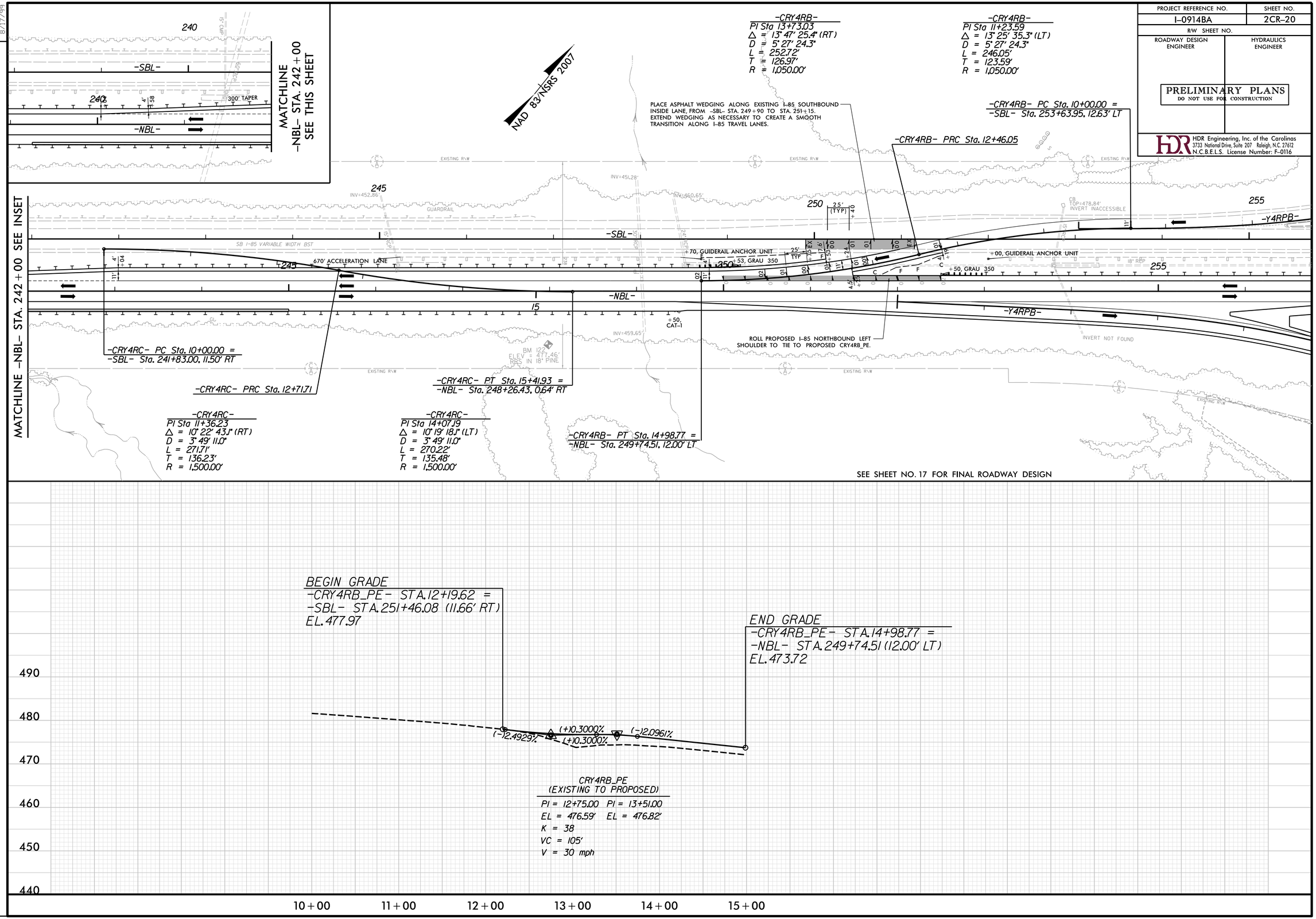

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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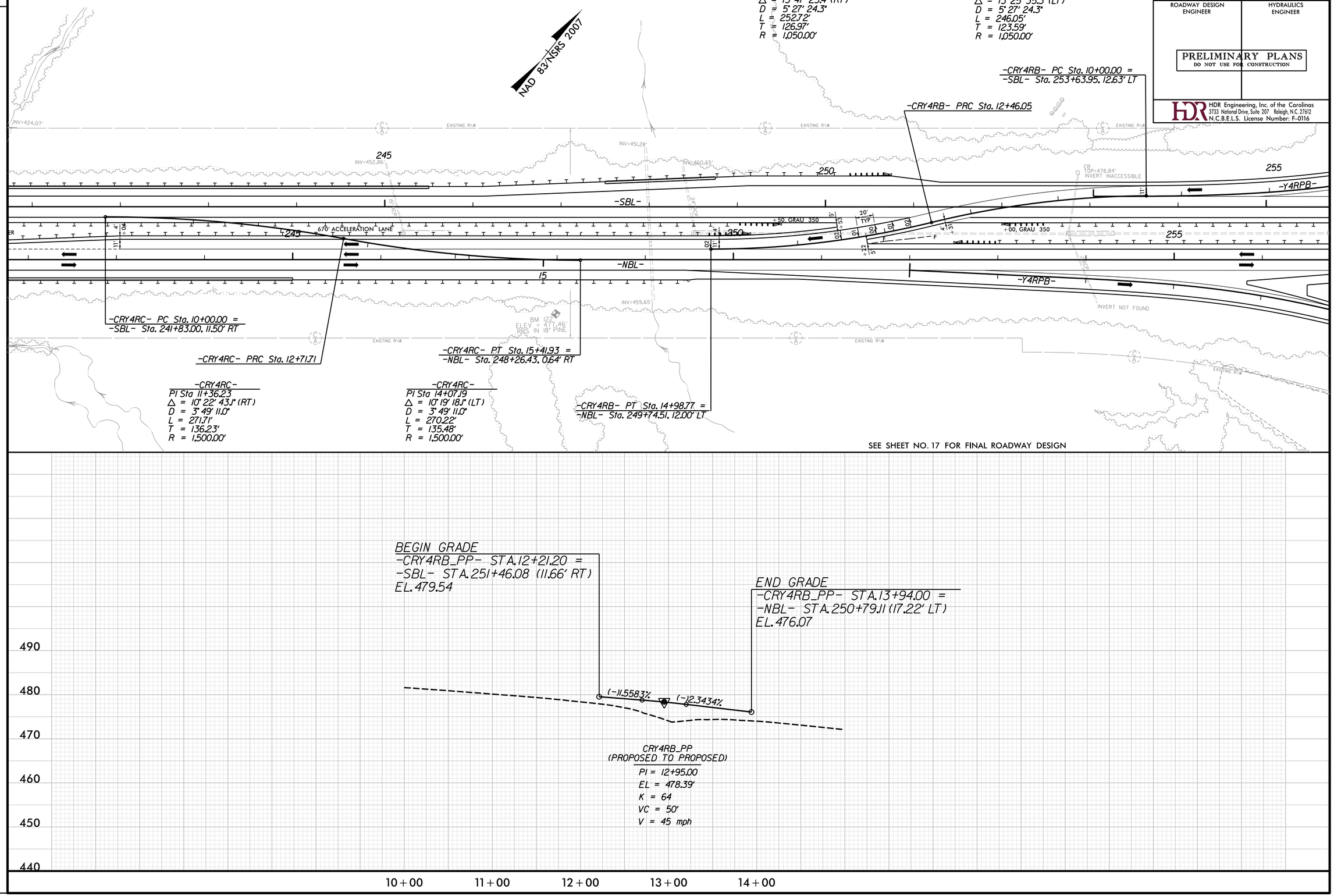

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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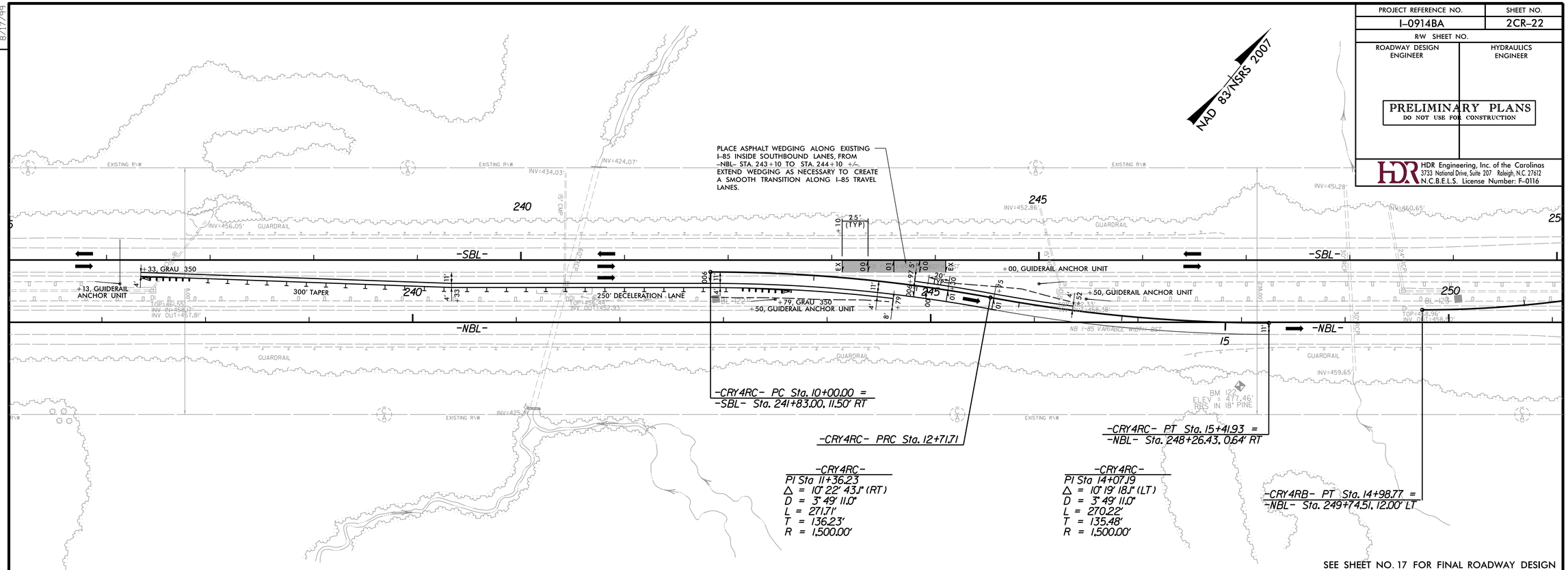
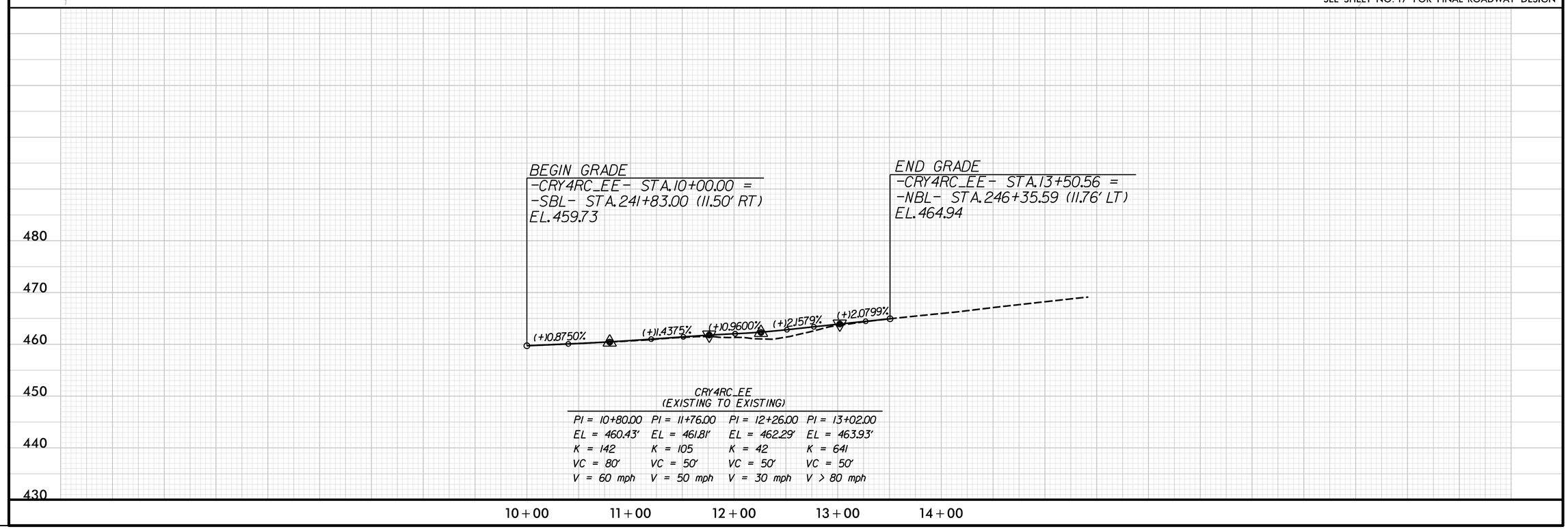
N.C.B.E.L.S. License Number: F-0116

NAD 83/NSRS 2007



SEE SHEET NO. 17 FOR FINAL ROADWAY DESIGN



CRY4RC_EE
(EXISTING TO EXISTING)

PI = 10+80.00	PI = 11+76.00	PI = 12+26.00	PI = 13+02.00
EL = 460.43'	EL = 461.81'	EL = 462.29'	EL = 463.93'
K = 142	K = 105	K = 42	K = 641
VC = 80'	VC = 50'	VC = 50'	VC = 50'
V = 60 mph	V = 50 mph	V = 30 mph	V > 80 mph

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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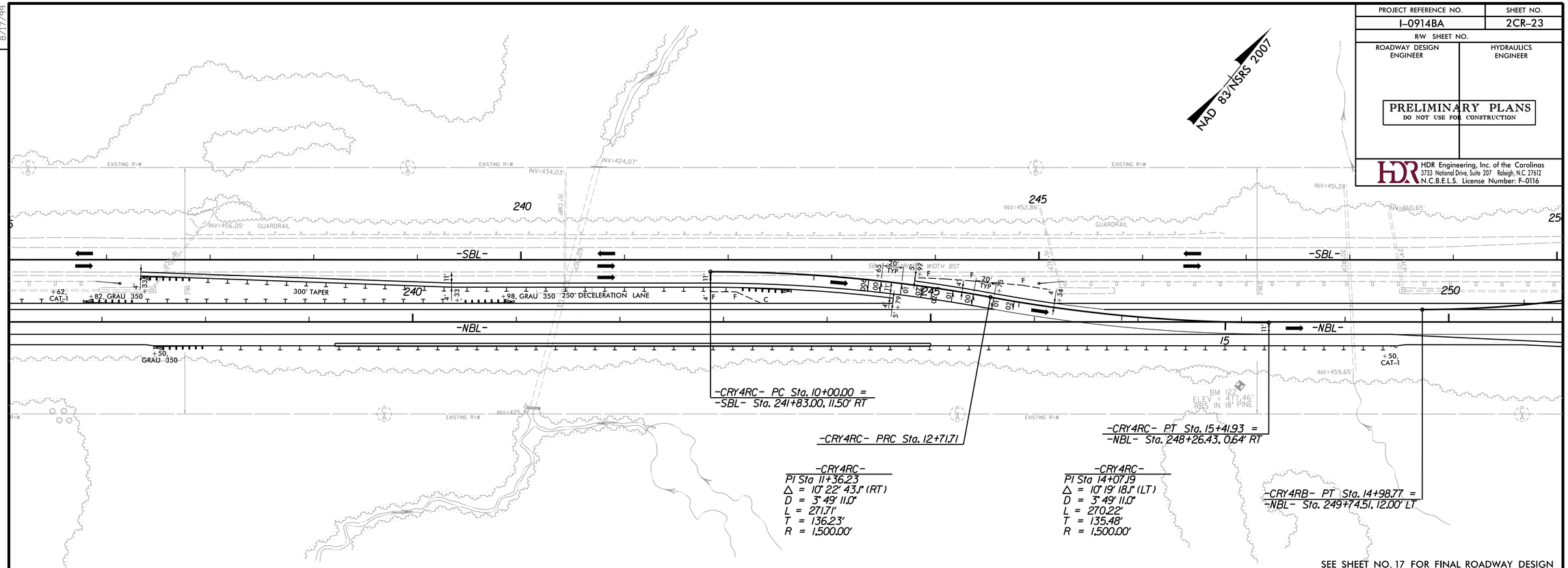
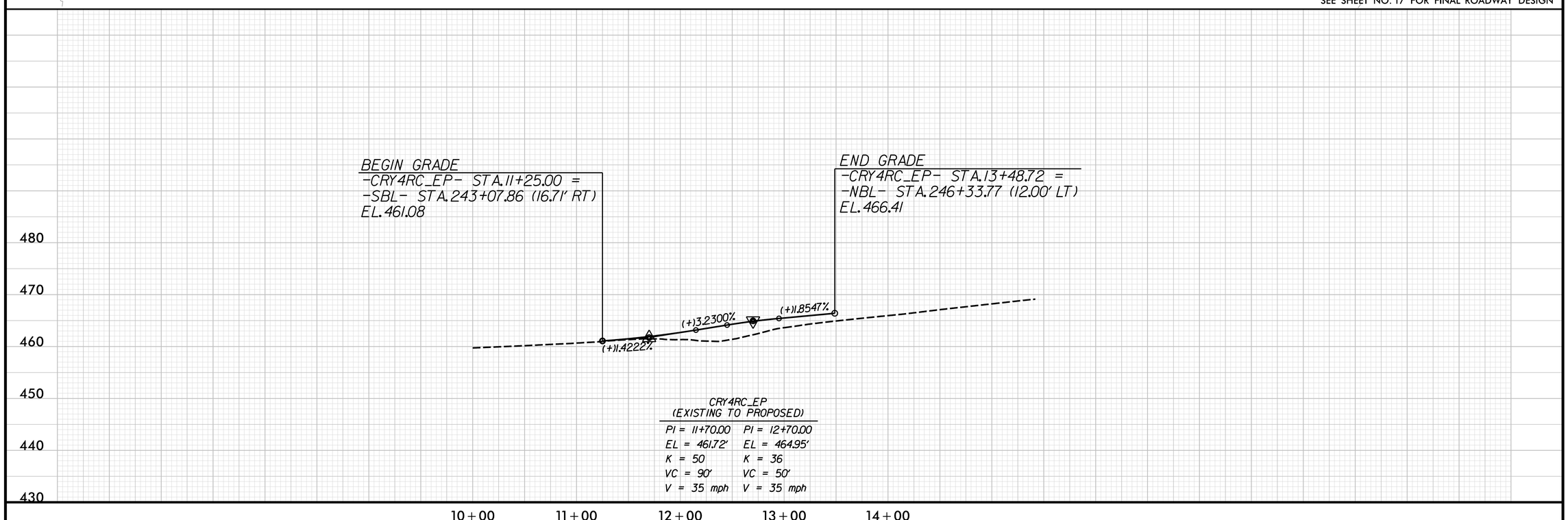
NAD 83/NSRS 2007



SEE SHEET NO. 17 FOR FINAL ROADWAY DESIGN



CRY4RC_EP
(EXISTING TO PROPOSED)

PI = 11+70.00	PI = 12+70.00
EL = 461.72'	EL = 464.95'
K = 50	K = 36
VC = 90'	VC = 50'
V = 35 mph	V = 35 mph

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:29:57 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\Crossovers\I0914BA_RDY_PSH_2CR-23.dgn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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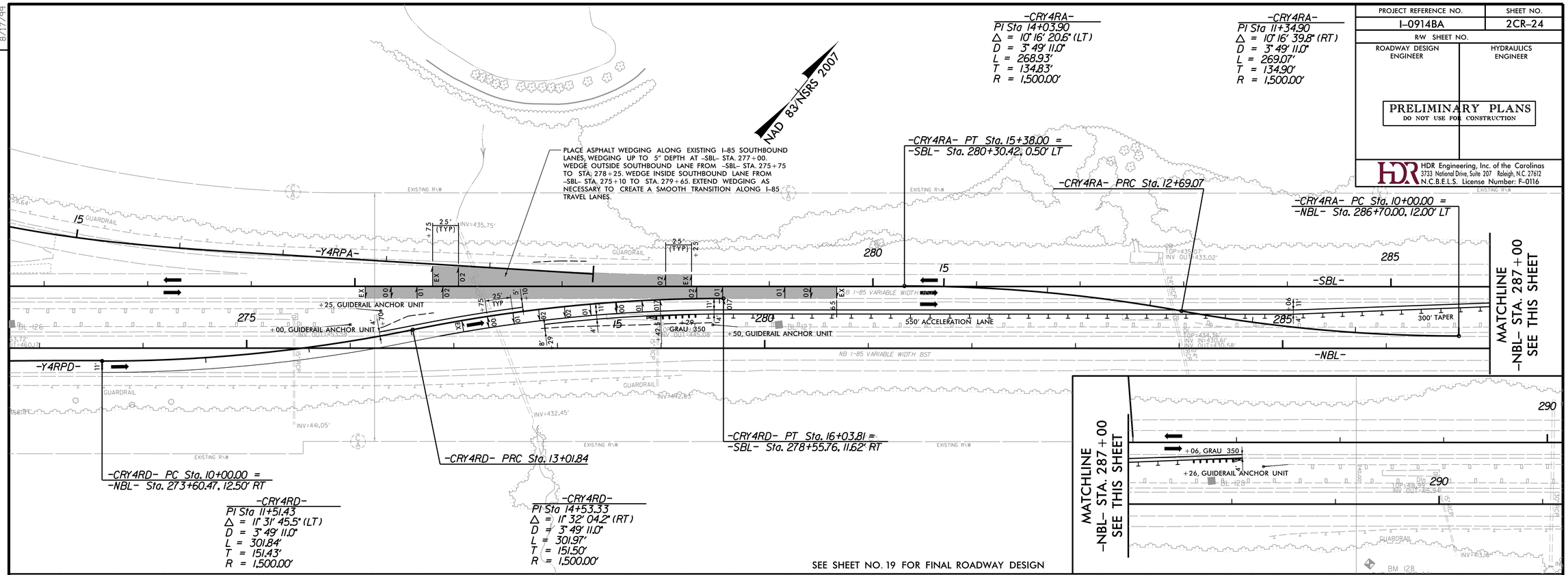
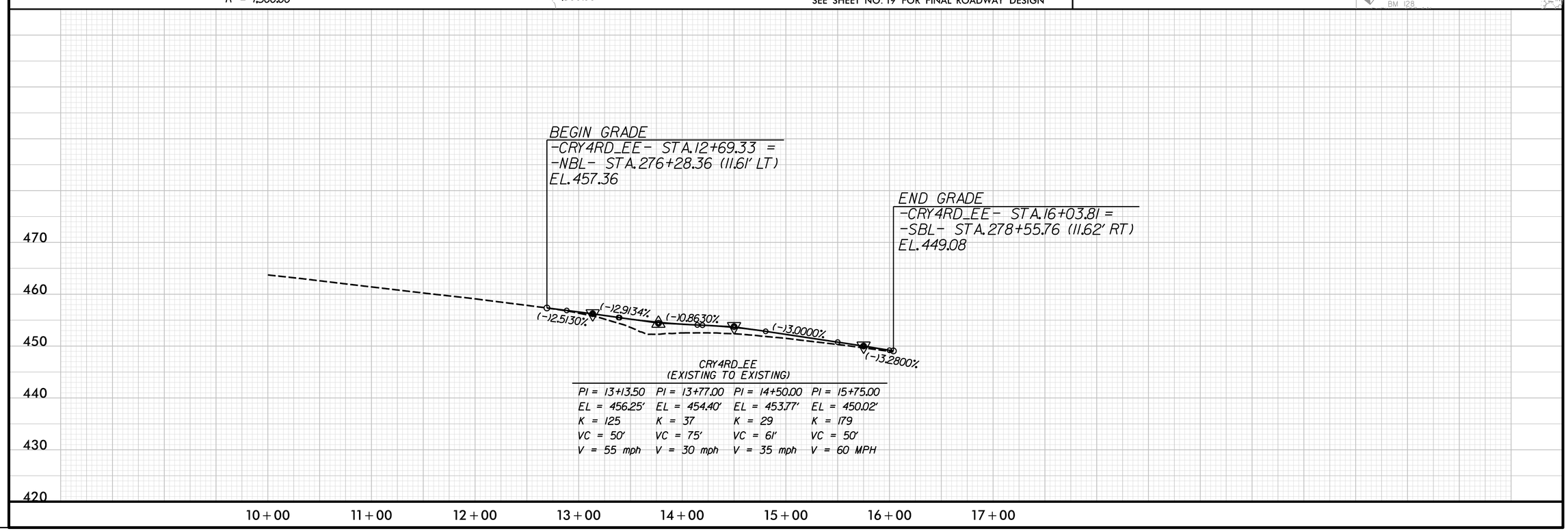


SEE SHEET NO. 19 FOR FINAL ROADWAY DESIGN



CRY4RD_EE
(EXISTING TO EXISTING)

PI = 13+13.50	PI = 13+77.00	PI = 14+50.00	PI = 15+75.00
EL = 456.25'	EL = 454.40'	EL = 453.77'	EL = 450.02'
K = 125	K = 37	K = 29	K = 179
VC = 50'	VC = 75'	VC = 61'	VC = 50'
V = 55 mph	V = 30 mph	V = 35 mph	V = 60 MPH

8/17/99

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:30:20 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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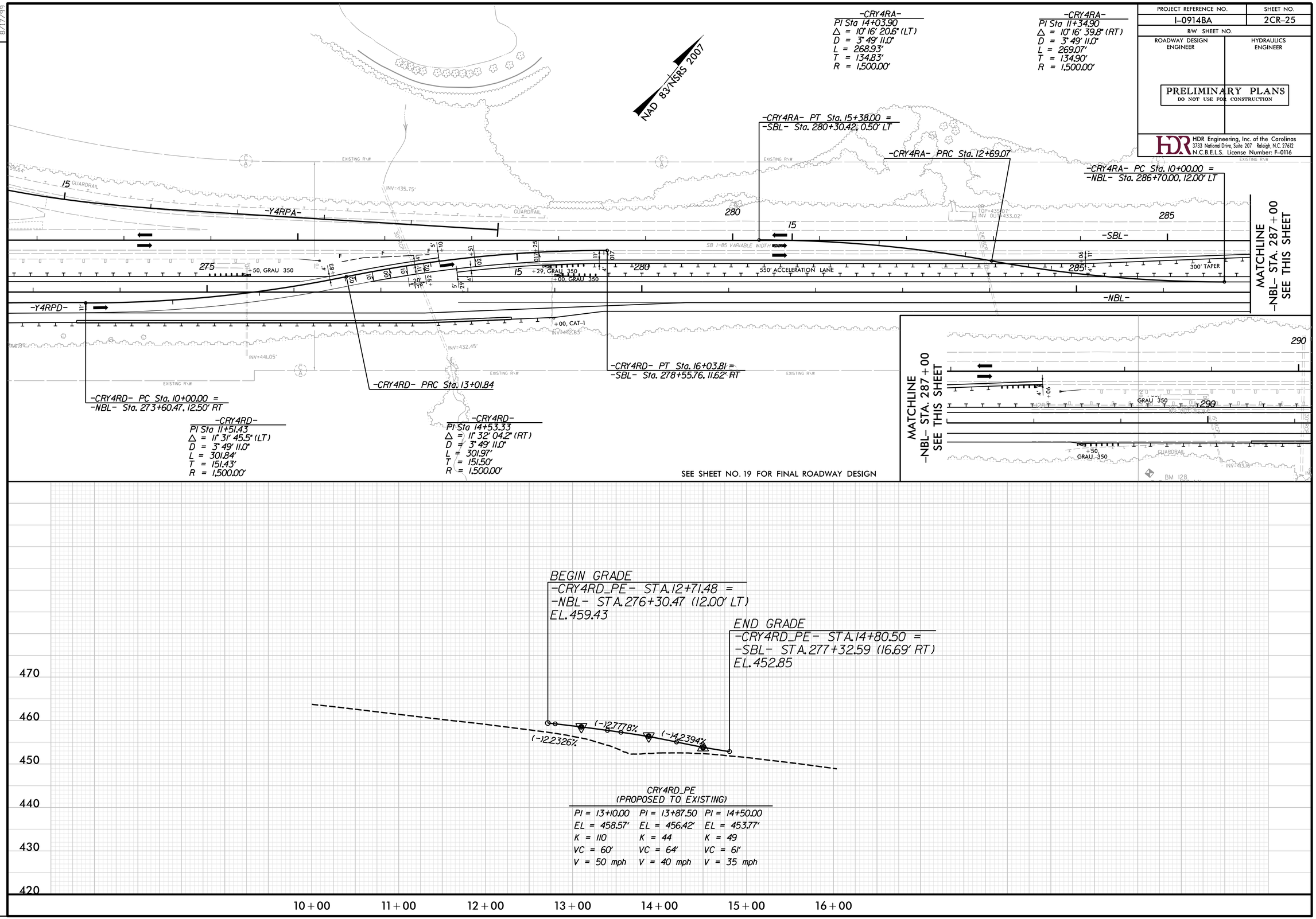

CRY4RD_PE
(PROPOSED TO EXISTING)

PI = 13+10.00	PI = 13+87.50	PI = 14+50.00
EL = 458.57'	EL = 456.42'	EL = 453.77'
K = 110	K = 44	K = 49
VC = 60'	VC = 64'	VC = 61'
V = 50 mph	V = 40 mph	V = 35 mph

8/17/99

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:30:52 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\Crossovers\I0914BA_RDY_PSH_2CR-25.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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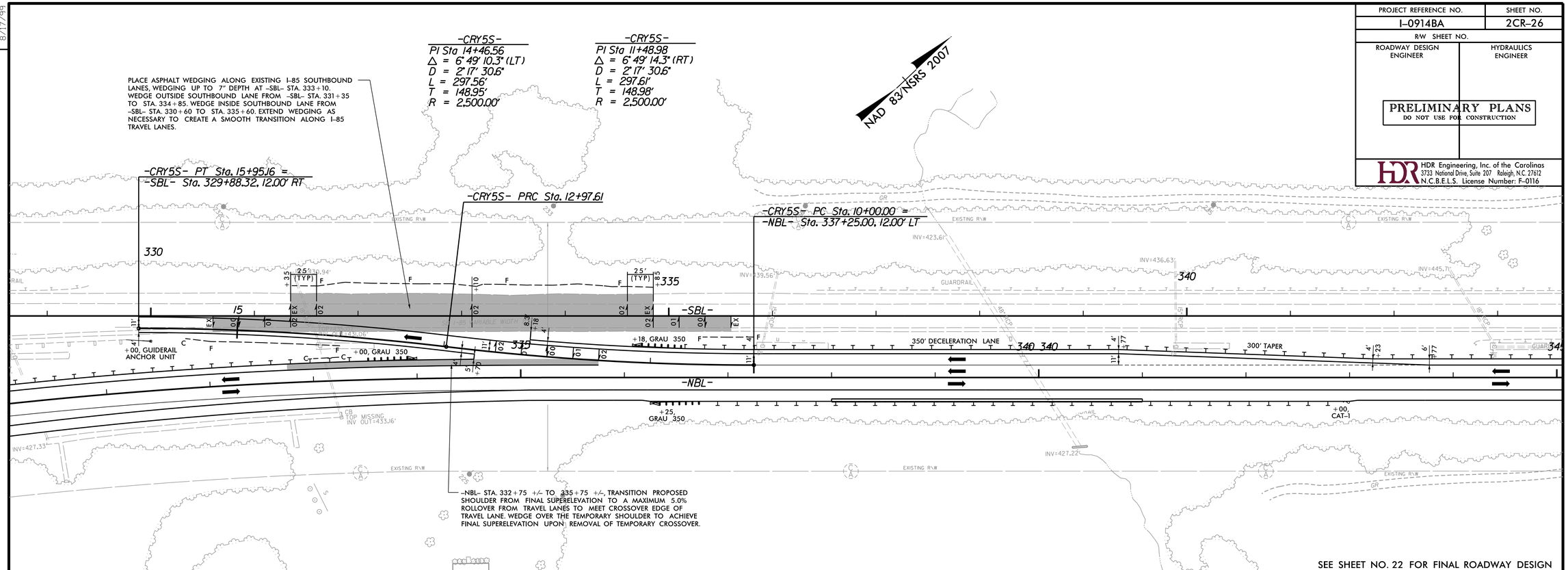
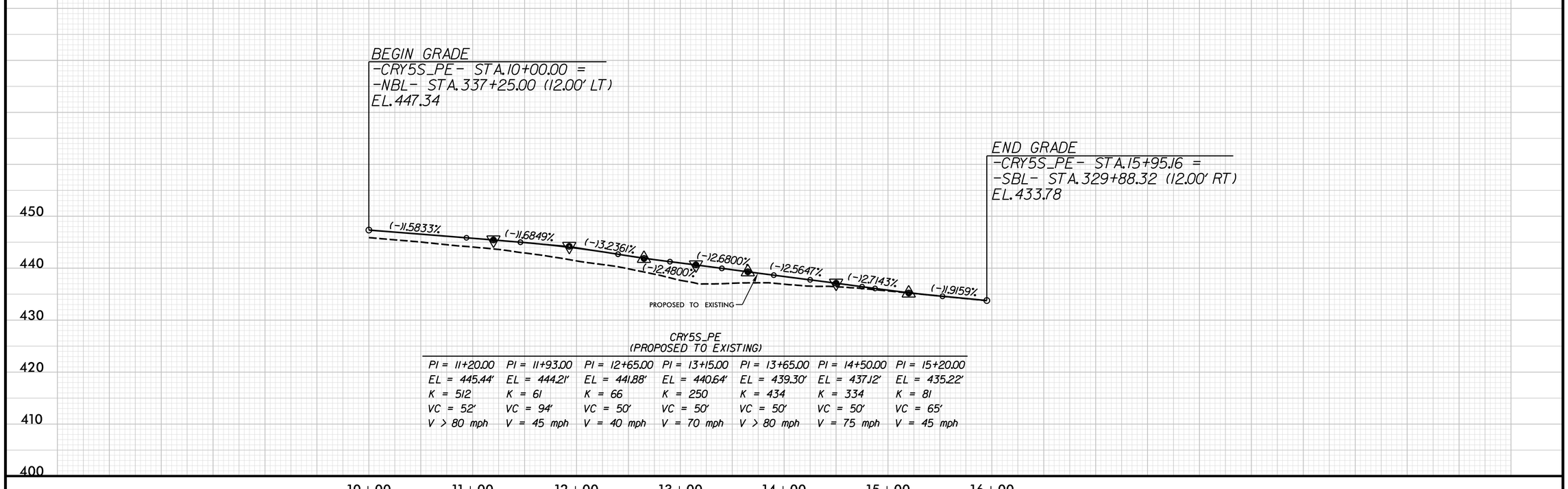


SEE SHEET NO. 22 FOR FINAL ROADWAY DESIGN



CRY5S_PE
(PROPOSED TO EXISTING)

PI = 11+20.00	PI = 11+93.00	PI = 12+65.00	PI = 13+15.00	PI = 13+65.00	PI = 14+50.00	PI = 15+20.00
EL = 445.44'	EL = 444.21'	EL = 441.88'	EL = 440.64'	EL = 439.30'	EL = 437.12'	EL = 435.22'
K = 512	K = 61	K = 66	K = 250	K = 434	K = 334	K = 81
VC = 52'	VC = 94'	VC = 50'	VC = 50'	VC = 50'	VC = 50'	VC = 65'
V > 80 mph	V = 45 mph	V = 40 mph	V = 70 mph	V > 80 mph	V = 75 mph	V = 45 mph

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:31:21 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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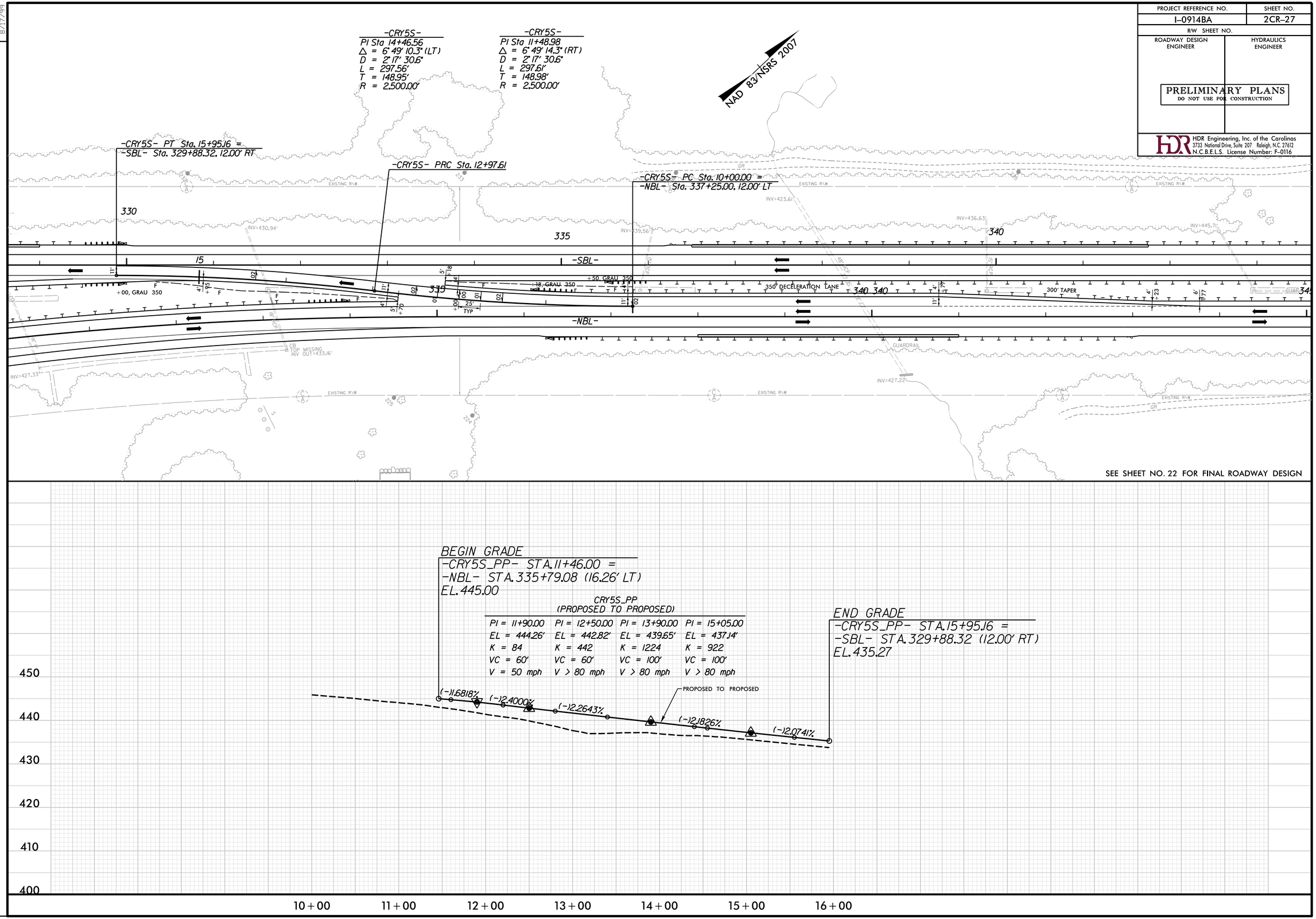

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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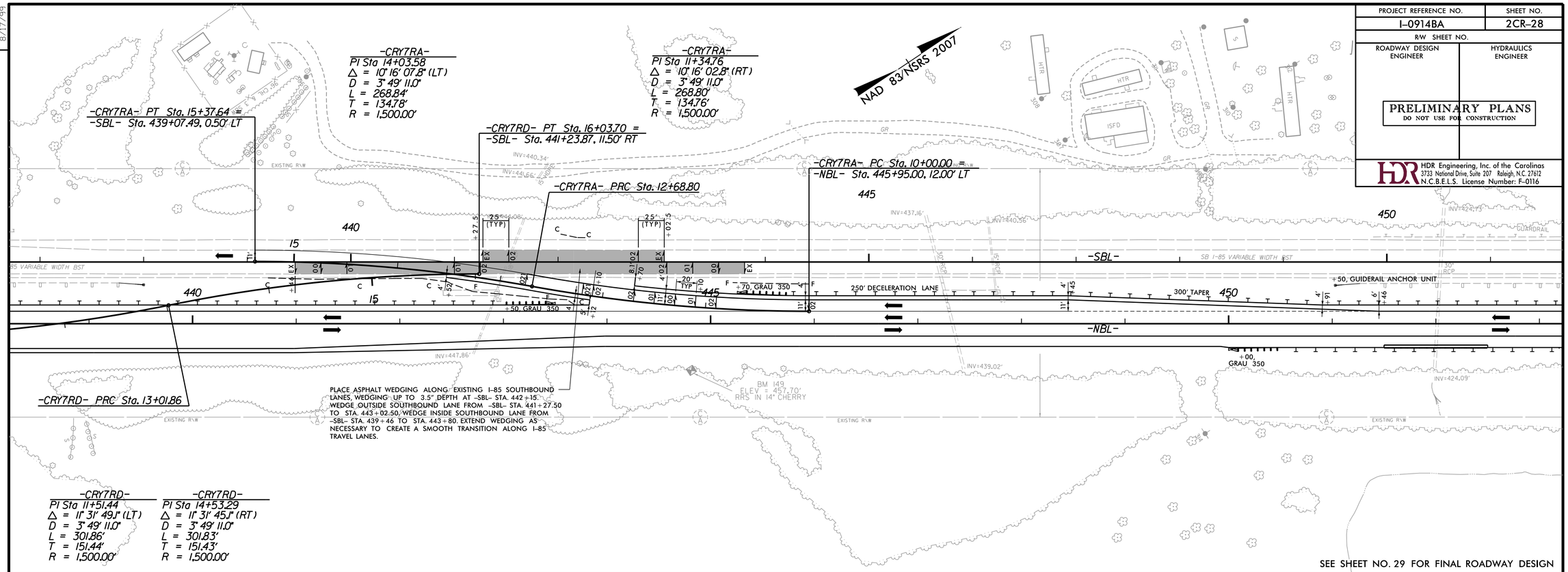
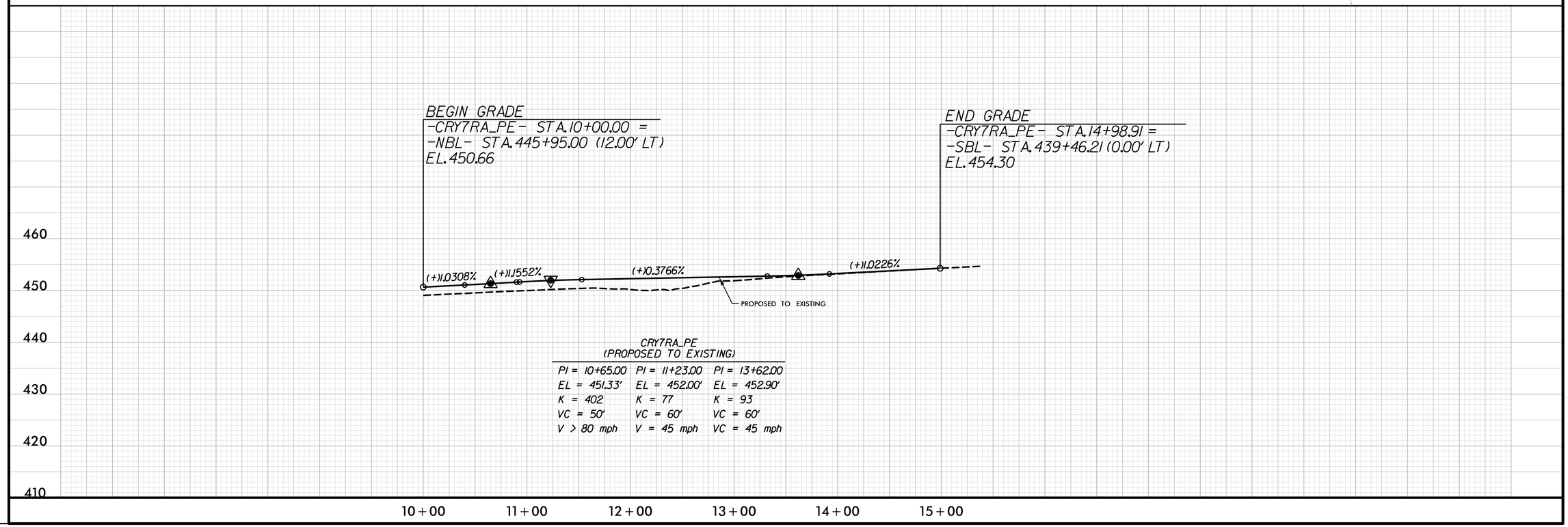


SEE SHEET NO. 29 FOR FINAL ROADWAY DESIGN



CRY7RA_PE
(PROPOSED TO EXISTING)

PI = 10+65.00	PI = 11+23.00	PI = 13+62.00
EL = 451.33'	EL = 452.00'	EL = 452.90'
K = 402	K = 77	K = 93
VC = 50'	VC = 60'	VC = 60'
V > 80 mph	V = 45 mph	VC = 45 mph

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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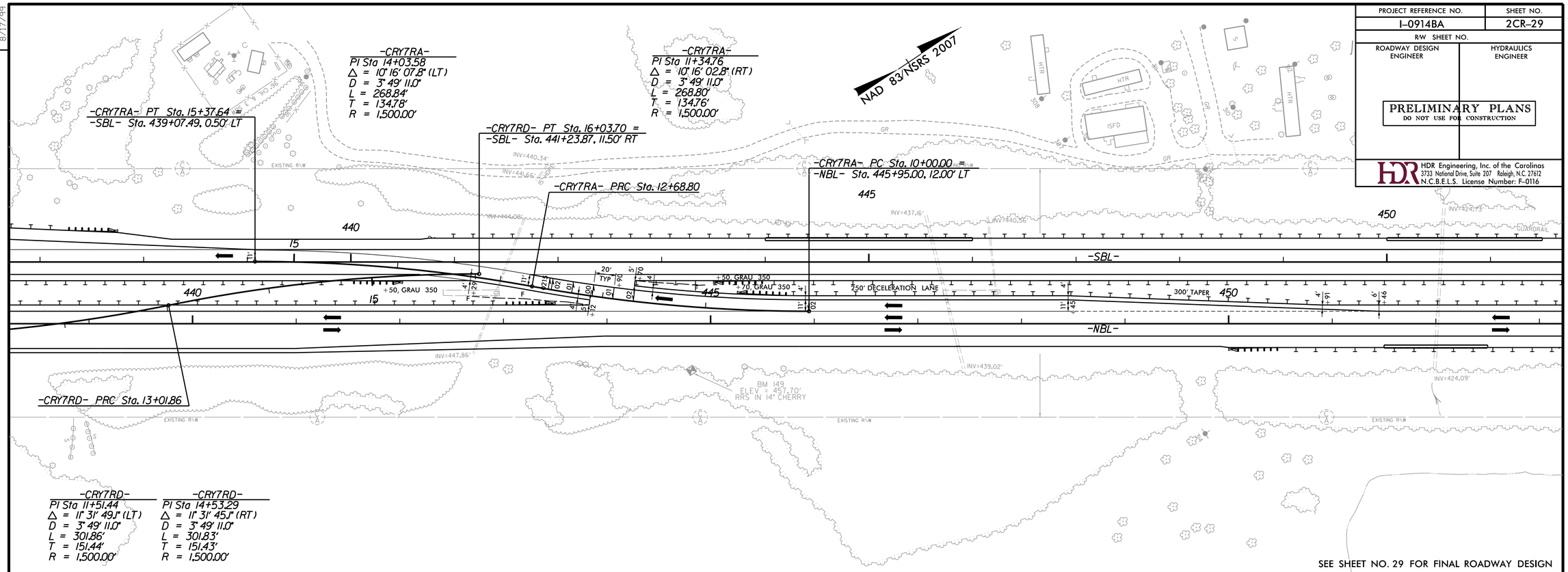
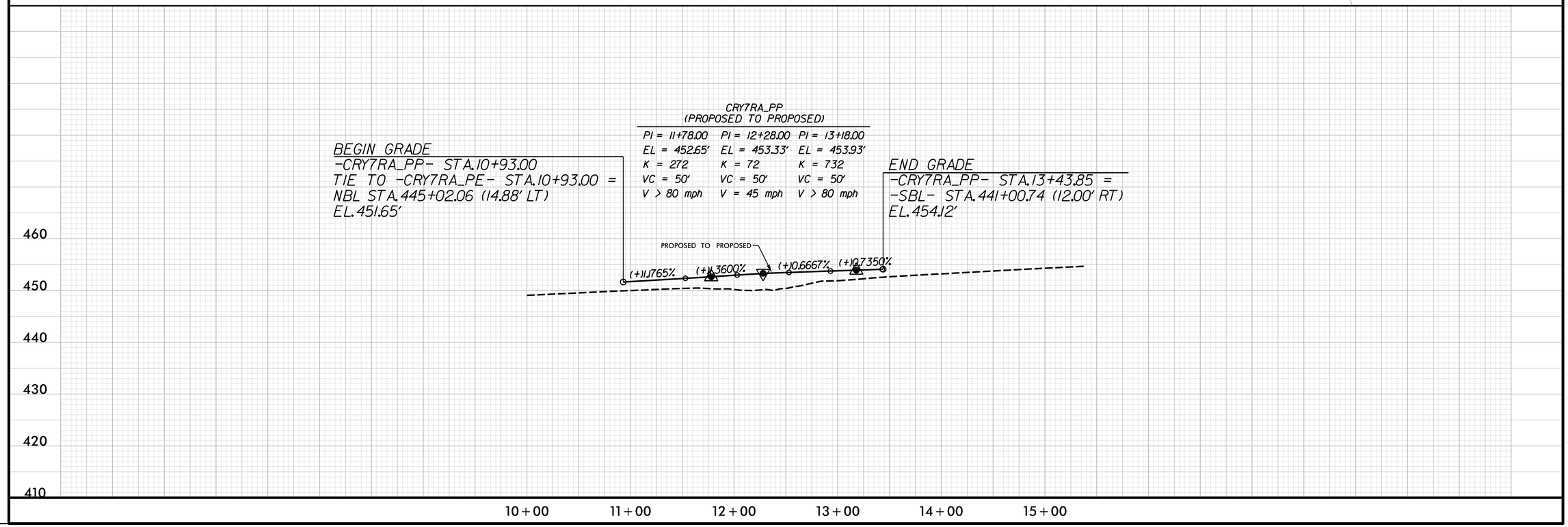
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NO. 29 FOR FINAL ROADWAY DESIGN



REVISIONS

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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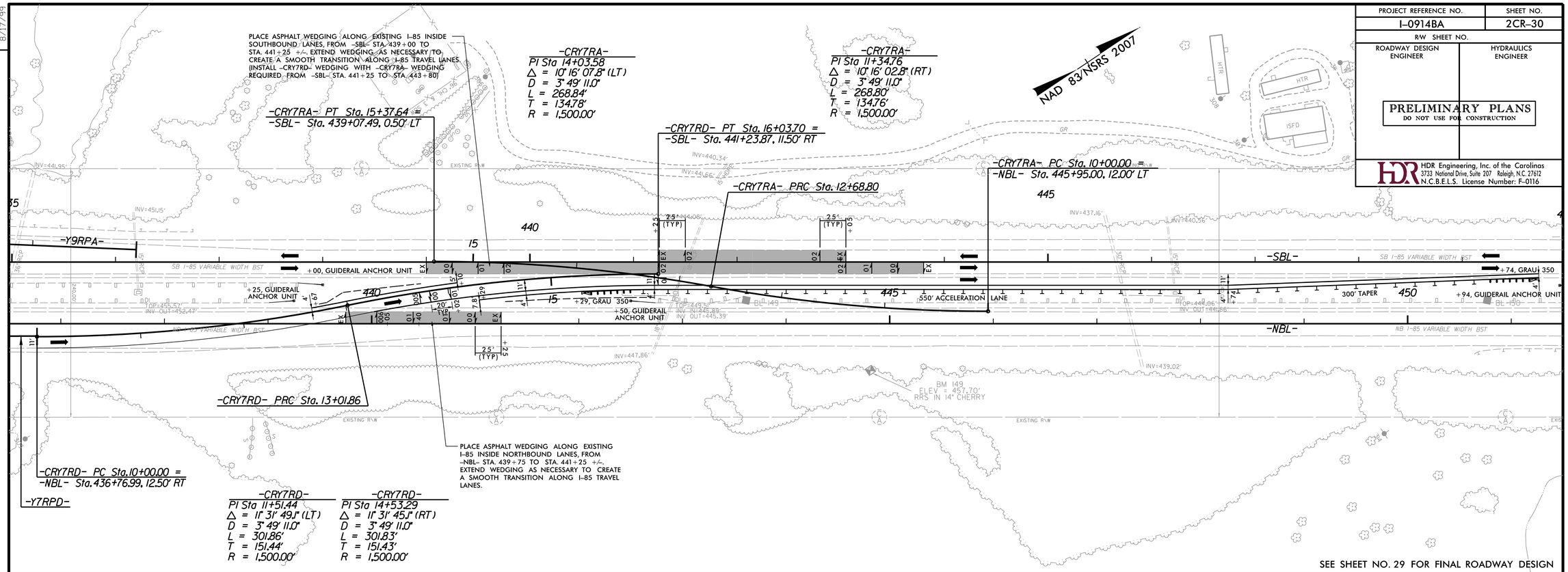
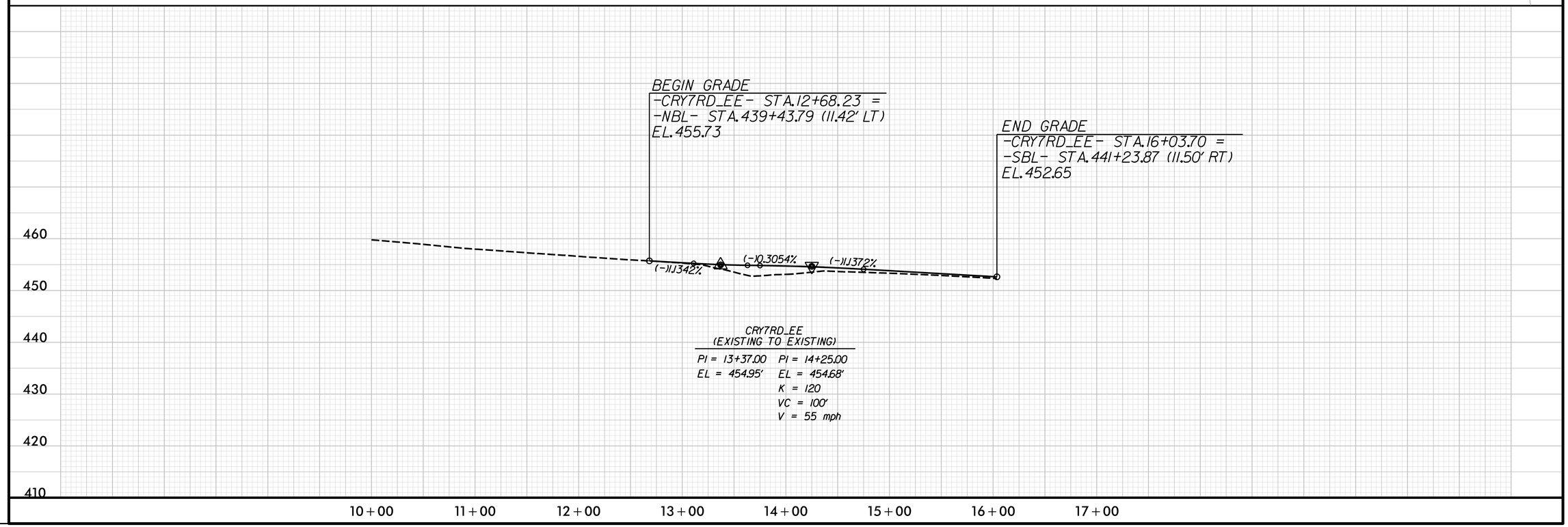


SEE SHEET NO. 29 FOR FINAL ROADWAY DESIGN



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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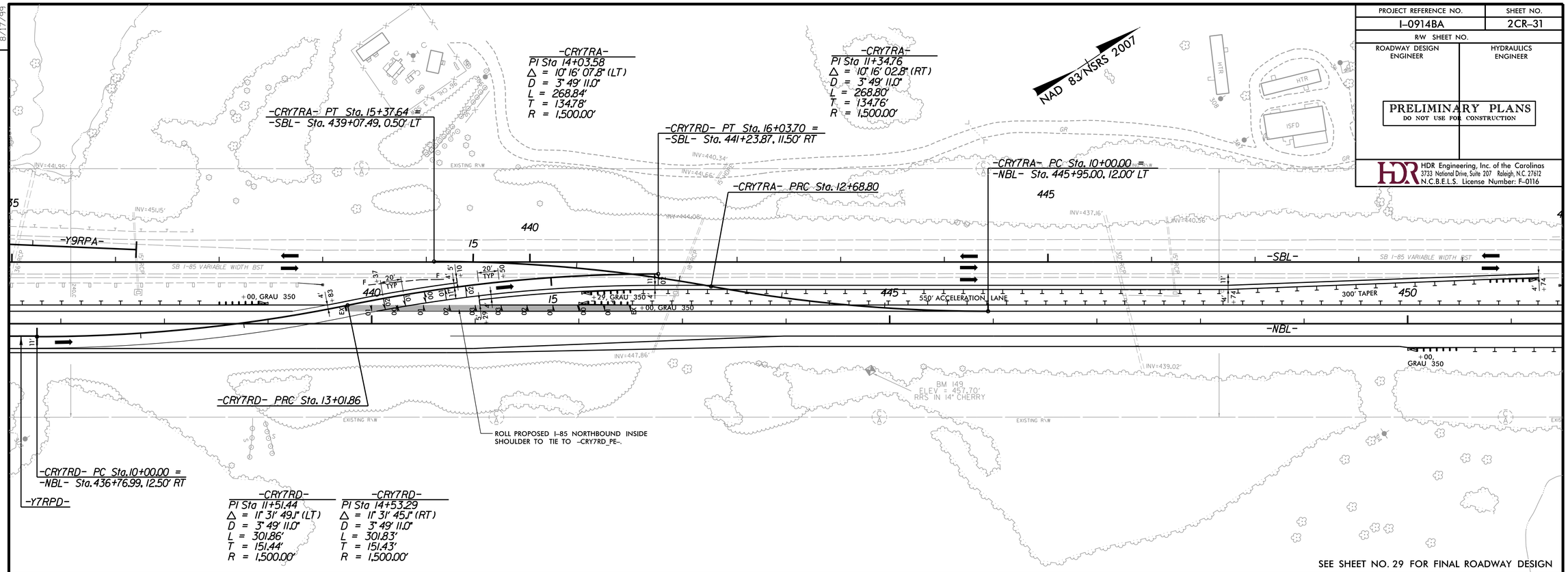
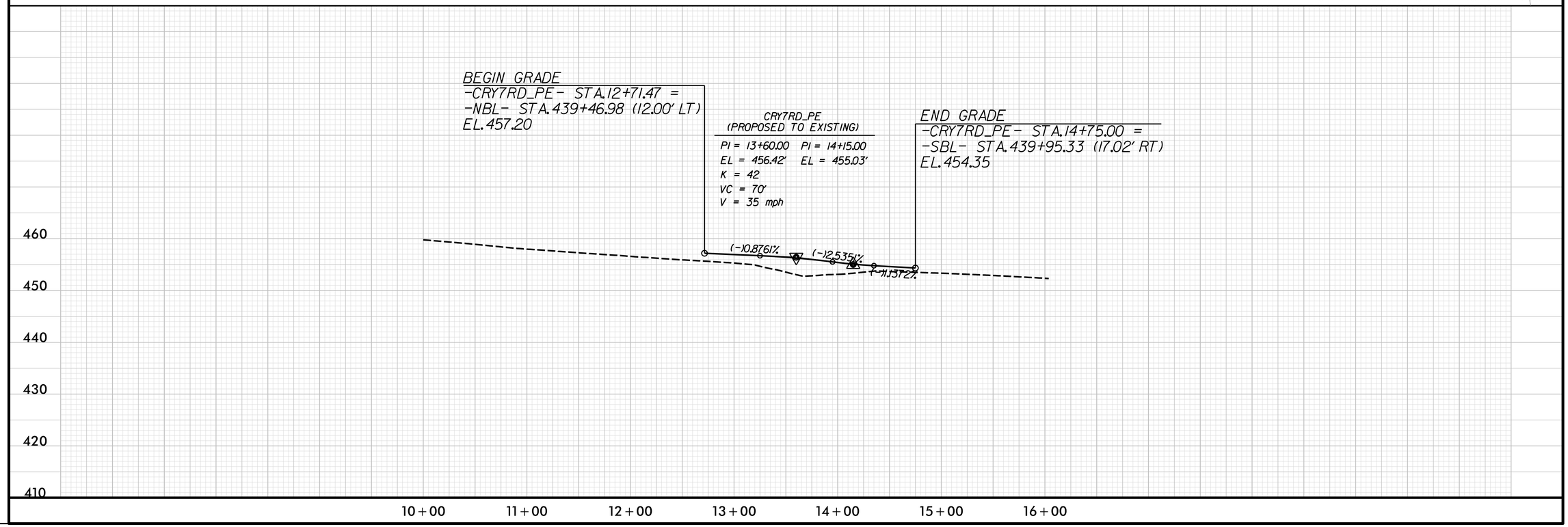
N.C.B.E.L.S. License Number: F-0116





REVISIONS

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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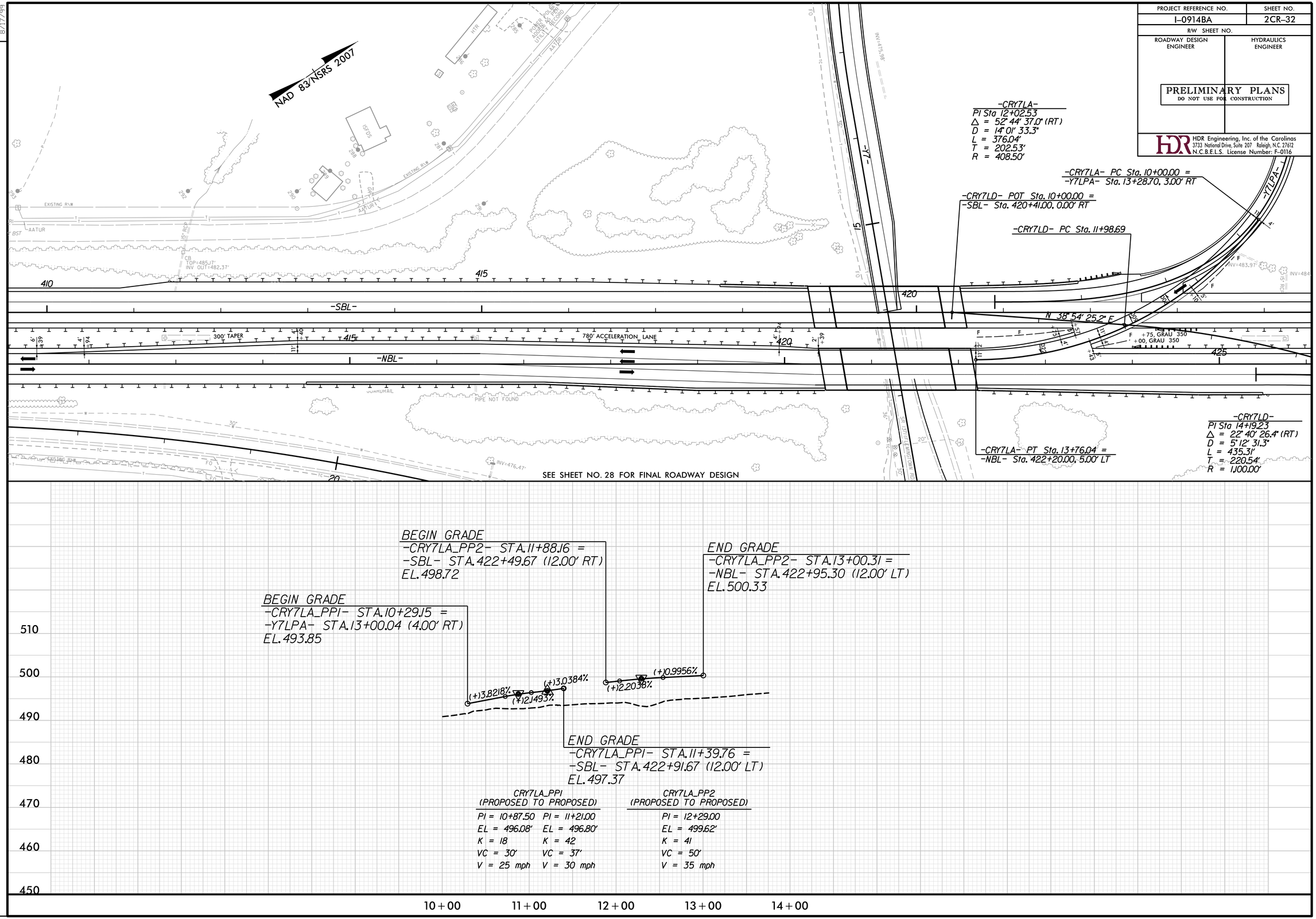

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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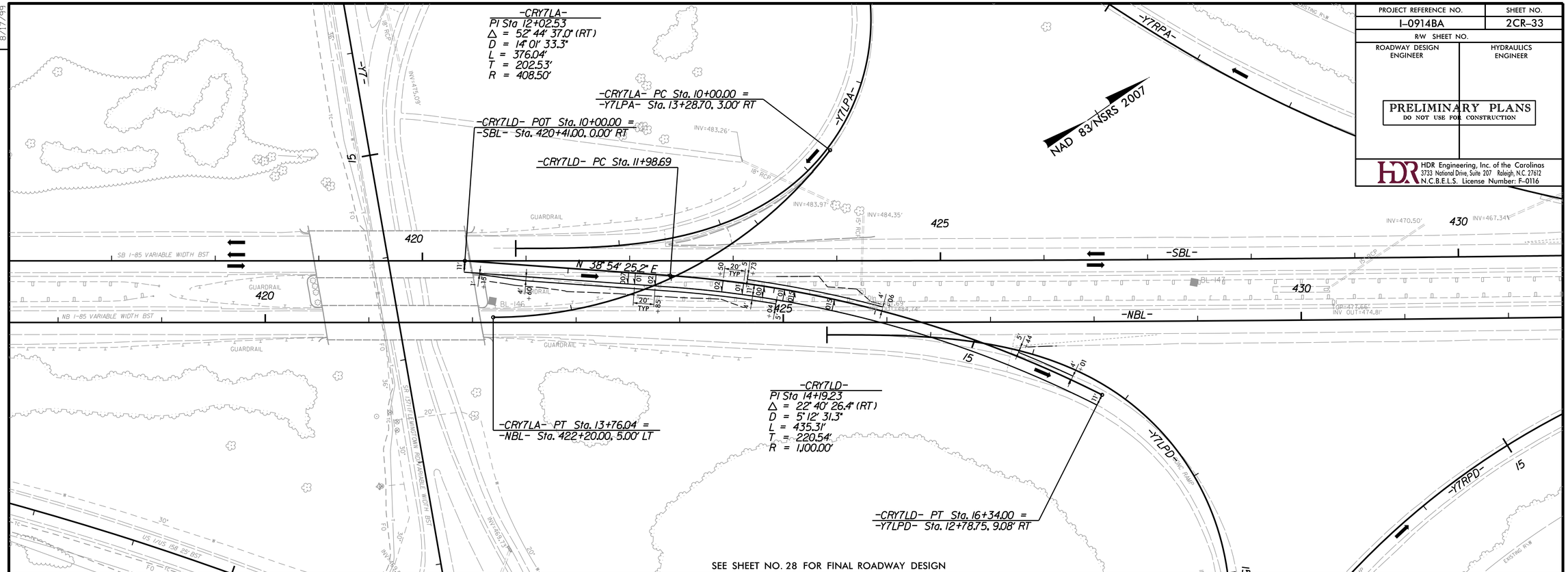

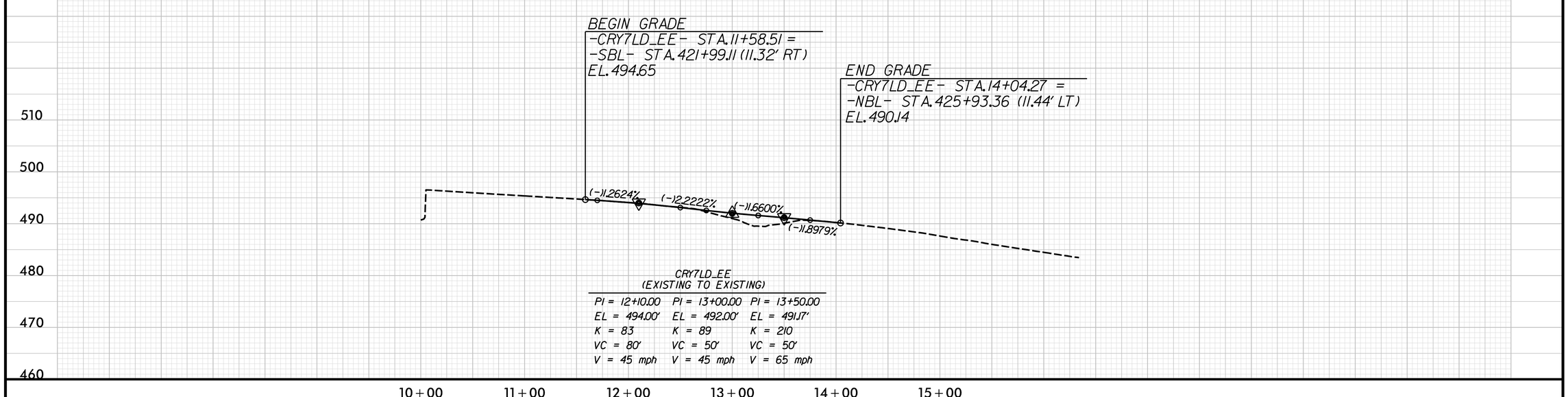

CRY7LD_EE
(EXISTING TO EXISTING)

PI = 12+10.00	PI = 13+00.00	PI = 13+50.00
EL = 494.00'	EL = 492.00'	EL = 491.17'
K = 83	K = 89	K = 210
VC = 80'	VC = 50'	VC = 50'
V = 45 mph	V = 45 mph	V = 65 mph

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:34:26 PM
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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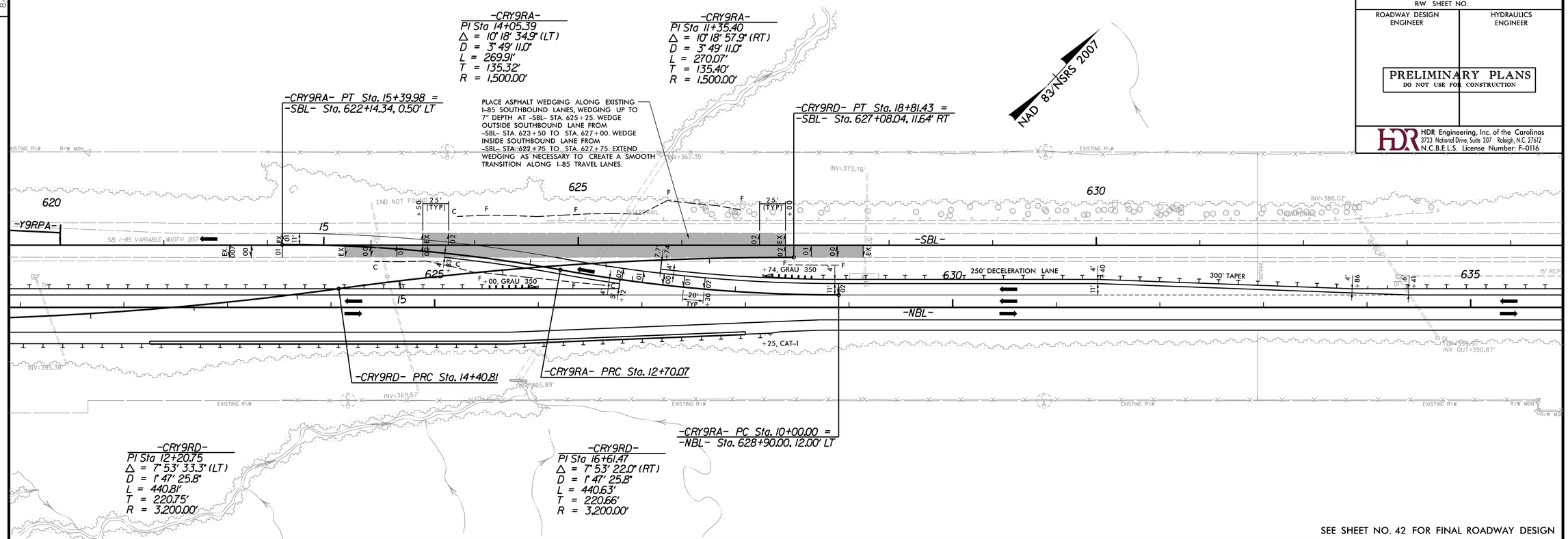
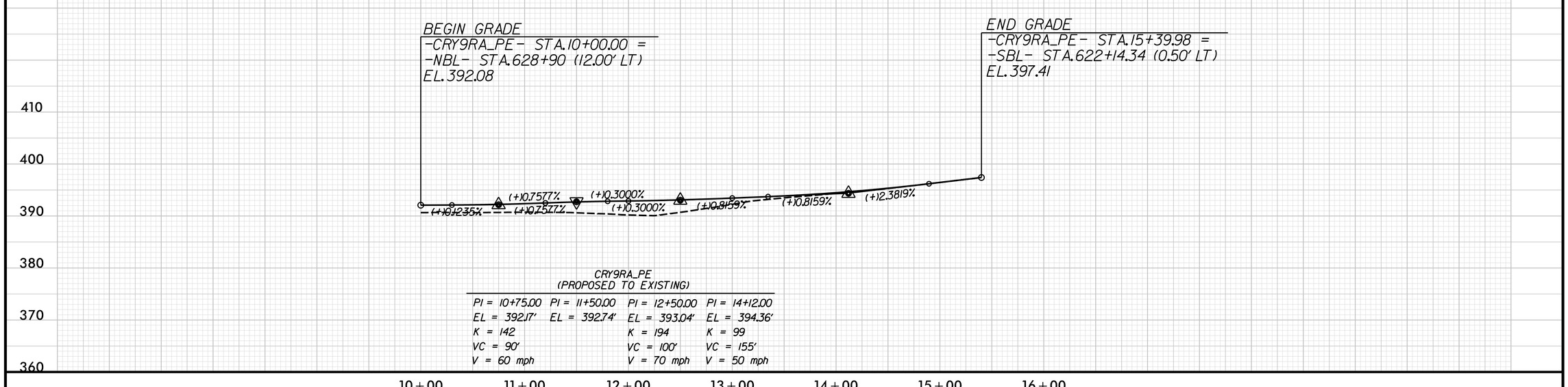
N.C.B.E.L.S. License Number: F-0116





CRY9RA_PE
(PROPOSED TO EXISTING)

PI = 10+75.00	PI = 11+50.00	PI = 12+50.00	PI = 14+12.00
EL = 392.17'	EL = 392.74'	EL = 393.04'	EL = 394.36'
K = 142		K = 194	K = 99
VC = 90'		VC = 100'	VC = 155'
V = 60 mph		V = 70 mph	V = 50 mph

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:34:50 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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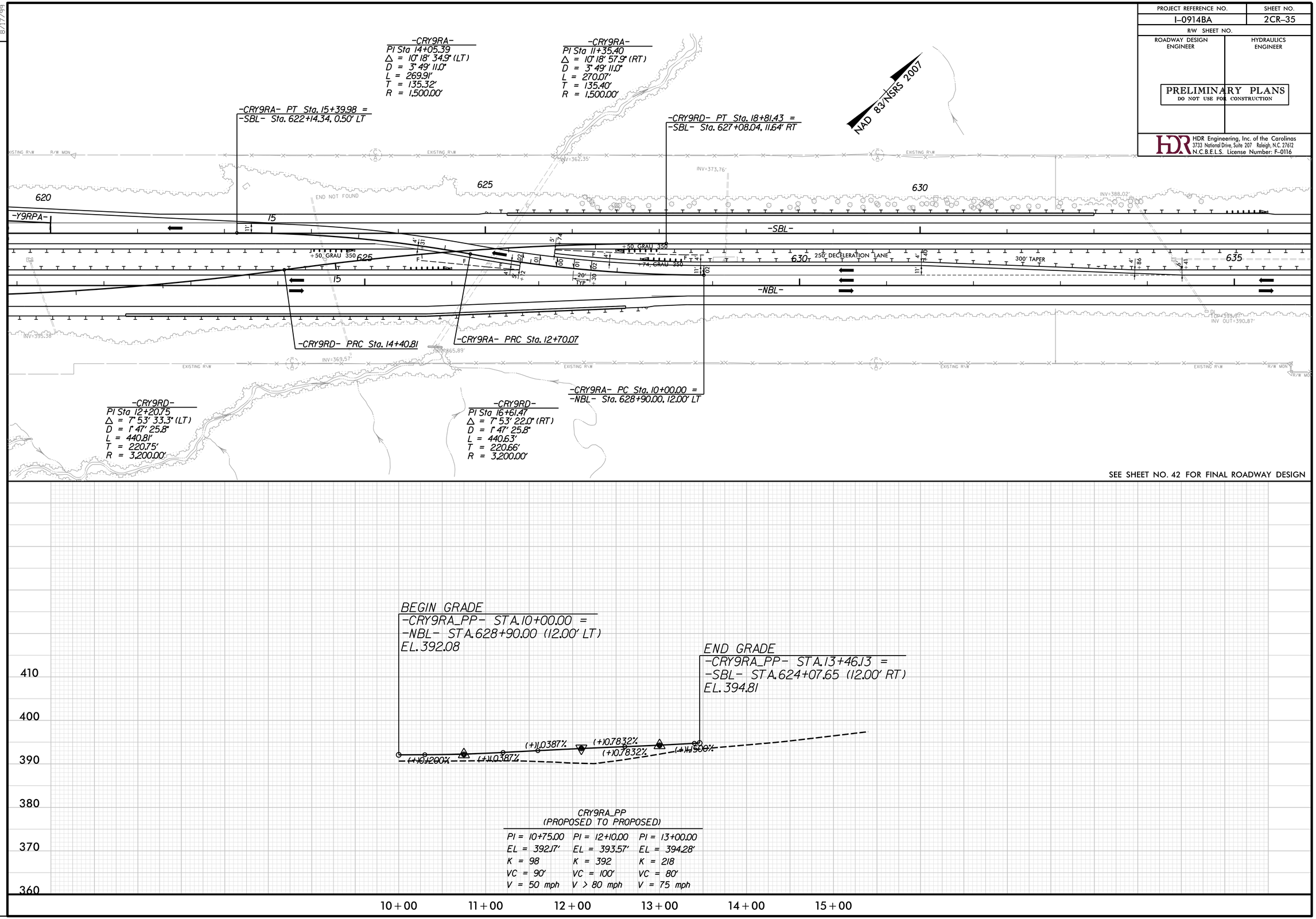

CRY9RA_PP
(PROPOSED TO PROPOSED)

PI = 10+75.00	PI = 12+10.00	PI = 13+00.00
EL = 392.17'	EL = 393.57'	EL = 394.28'
K = 98	K = 392	K = 218
VC = 90'	VC = 100'	VC = 80'
V = 50 mph	V > 80 mph	V = 75 mph

8/17/99

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:35:16 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-36
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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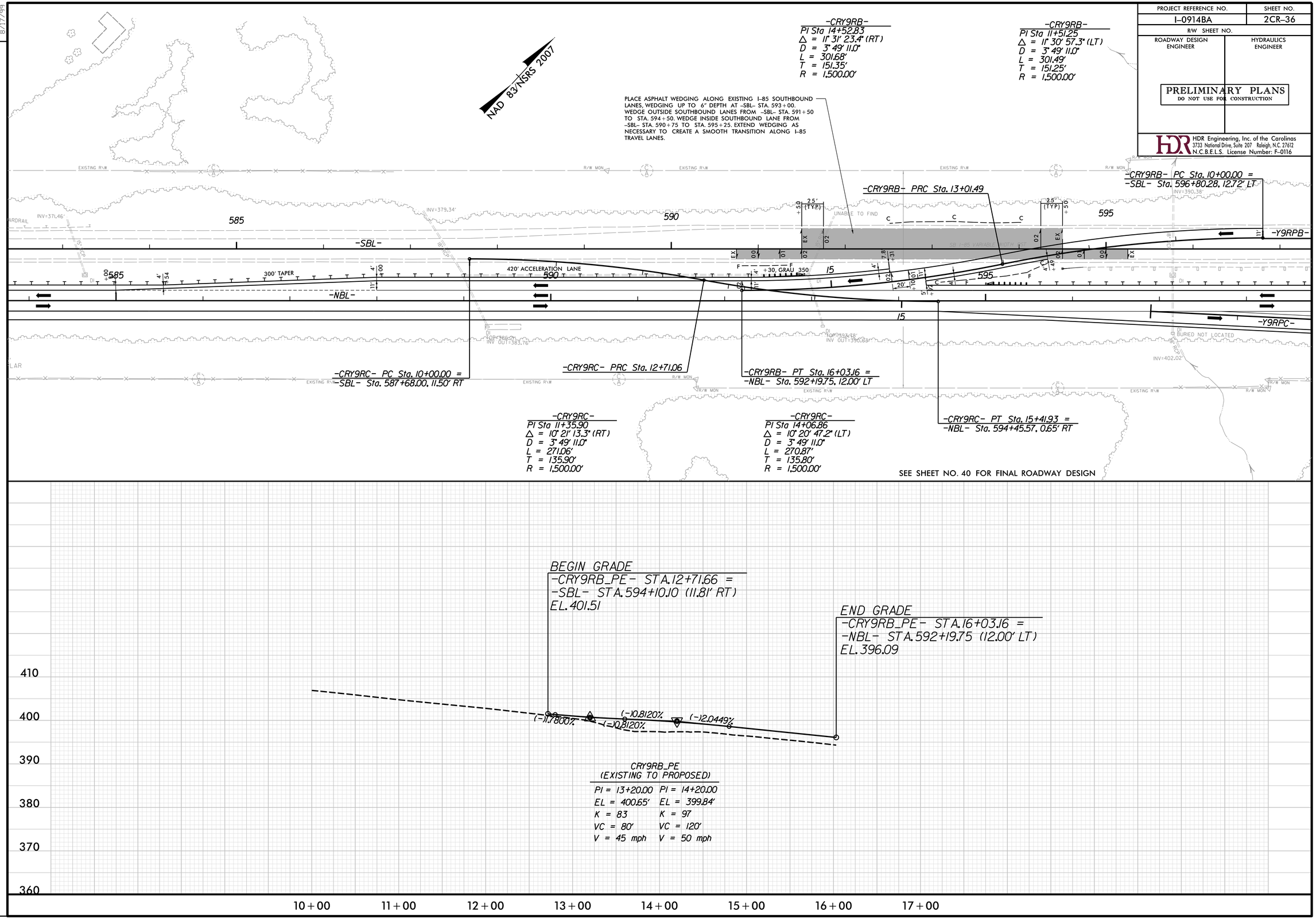
N.C.B.E.L.S. License Number: F-0116



REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-37
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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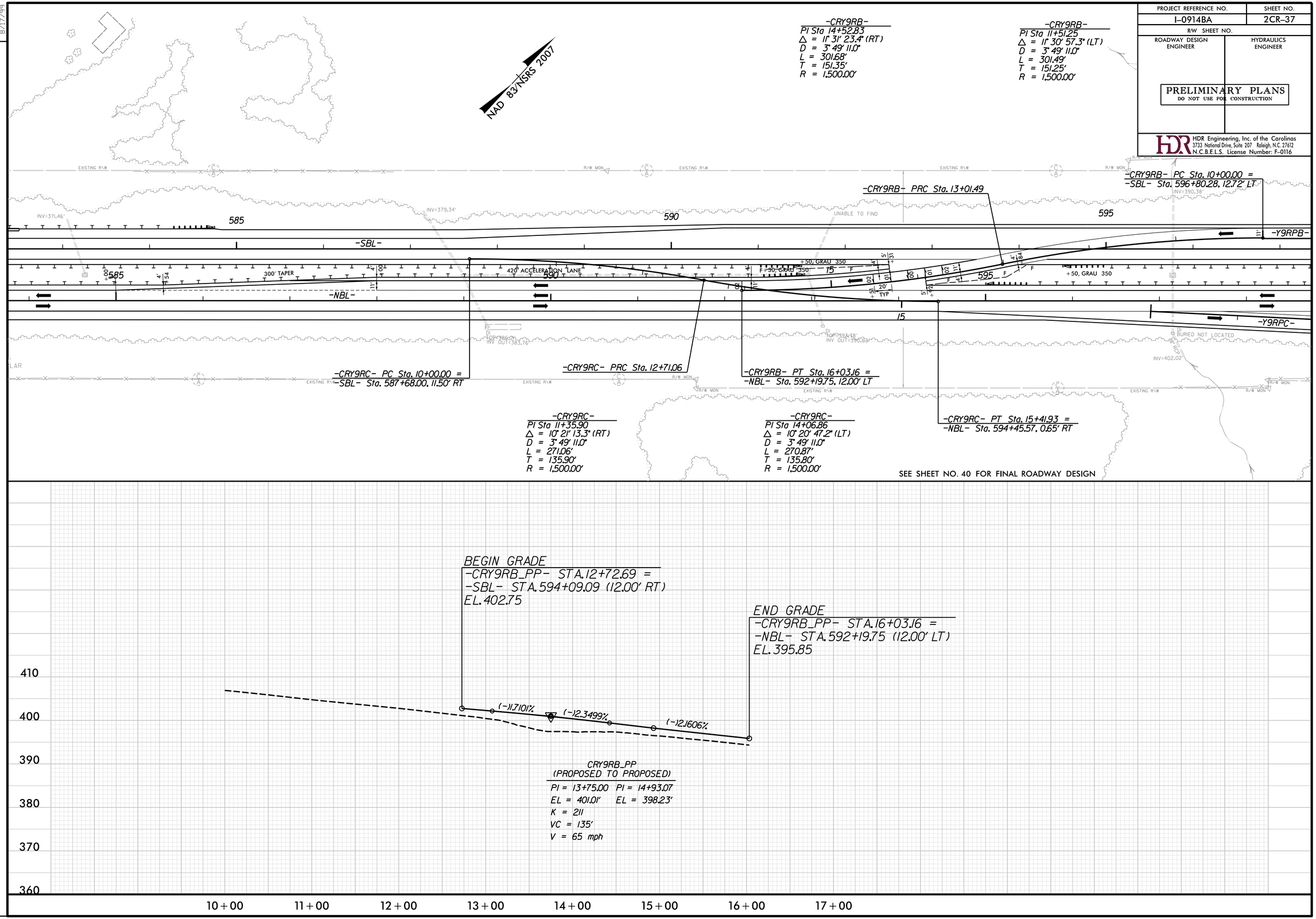
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NO. 40 FOR FINAL ROADWAY DESIGN

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:36:01 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-38
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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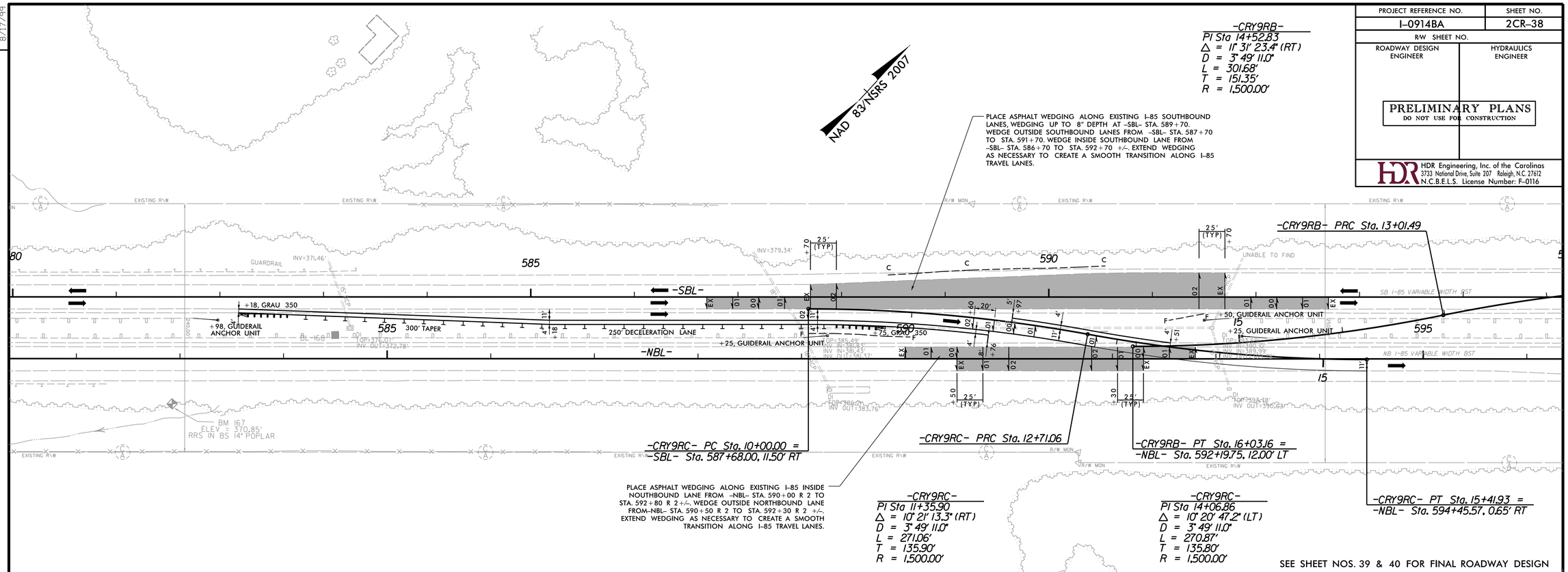
N.C.B.E.L.S. License Number: F-0116



CRY9RC_EE
(EXISTING TO EXISTING)

PI = 10+40.00	PI = 11+70.00	PI = 12+90.00
EL = 389.00'	EL = 392.39'	EL = 393.62'
K = 74	K = 63	K = 82
VC = 80'	VC = 100'	VC = 120'
V = 45 mph	V = 45 mph	V = 45 mph

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:36:21 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-39
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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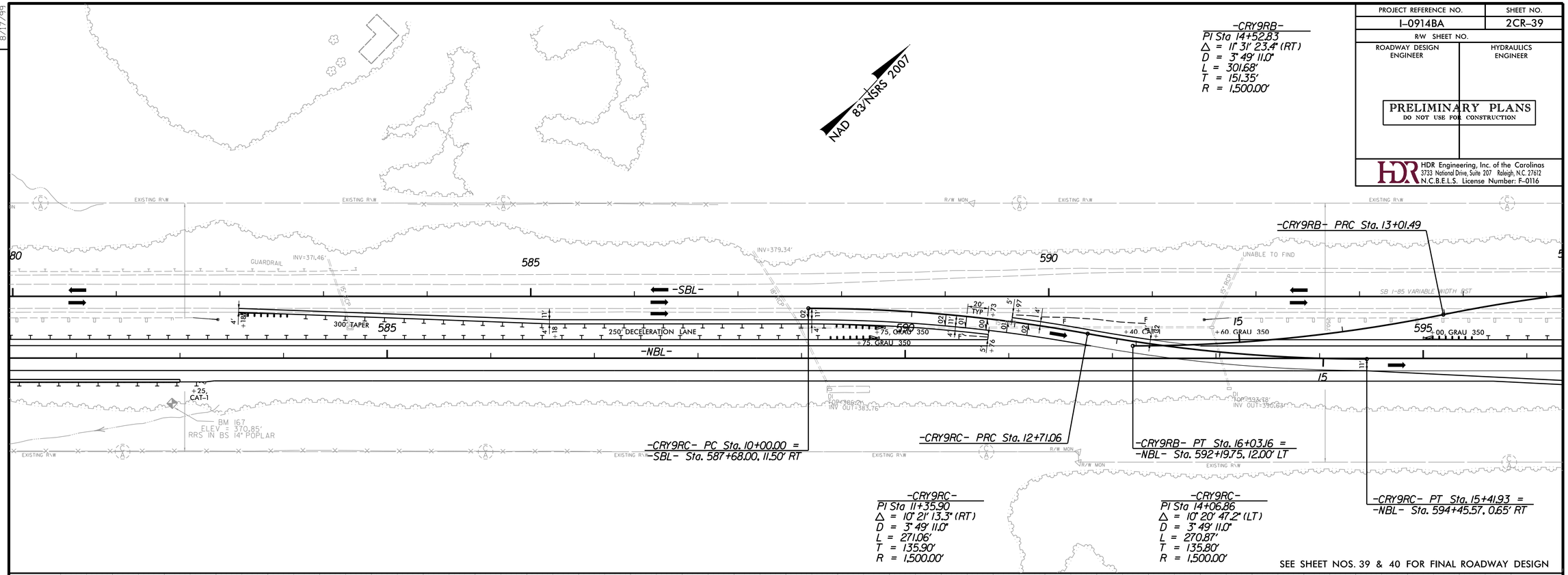
N.C.B.E.L.S. License Number: F-0116



REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:36:46 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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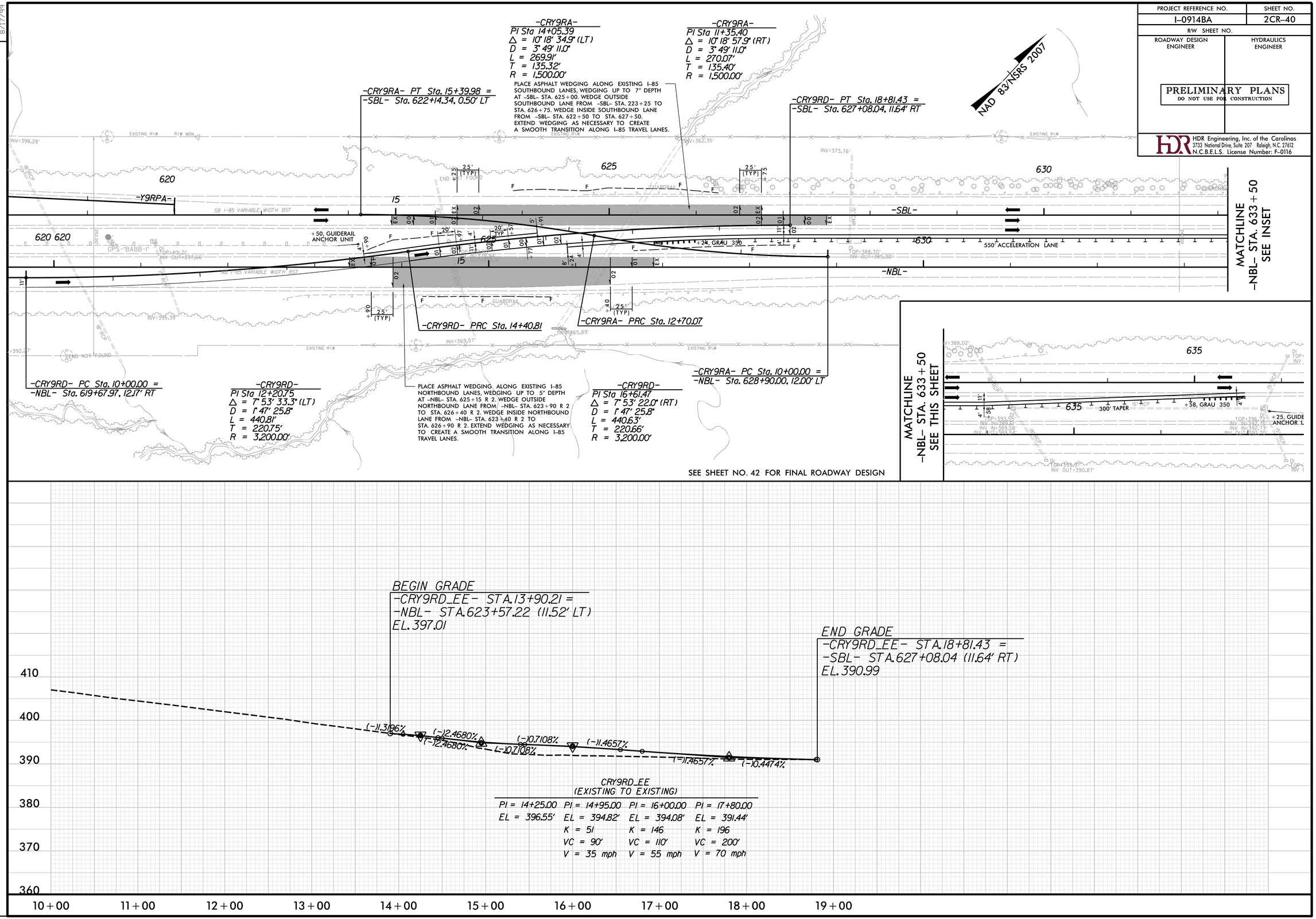
N.C.B.E.L.S. License Number: F-0116



CRY9RD_EE
(EXISTING TO EXISTING)

PI = 14+25.00	PI = 14+95.00	PI = 16+00.00	PI = 17+80.00
EL = 396.55'	EL = 394.82'	EL = 394.08'	EL = 391.44'
	K = 51	K = 146	K = 196
	VC = 90'	VC = 110'	VC = 200'
	V = 35 mph	V = 55 mph	V = 70 mph

8/17/99

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:37:13 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-41
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
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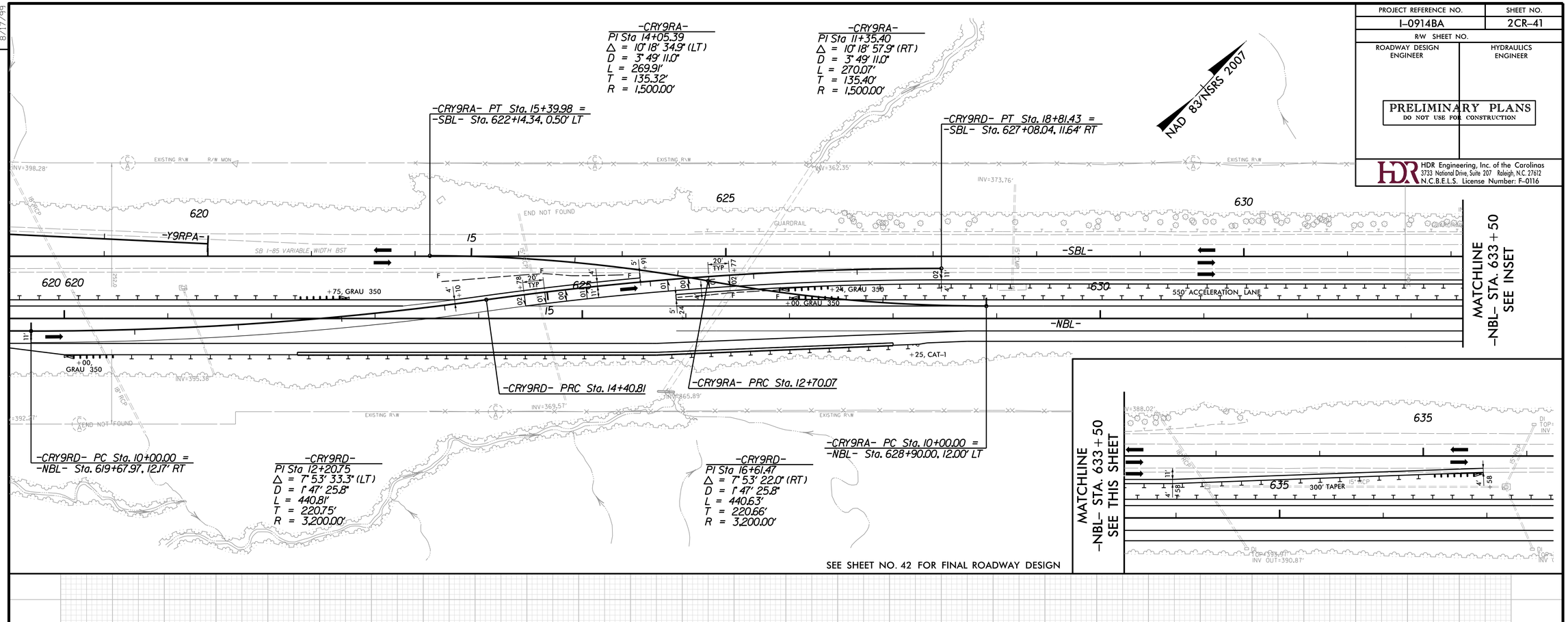
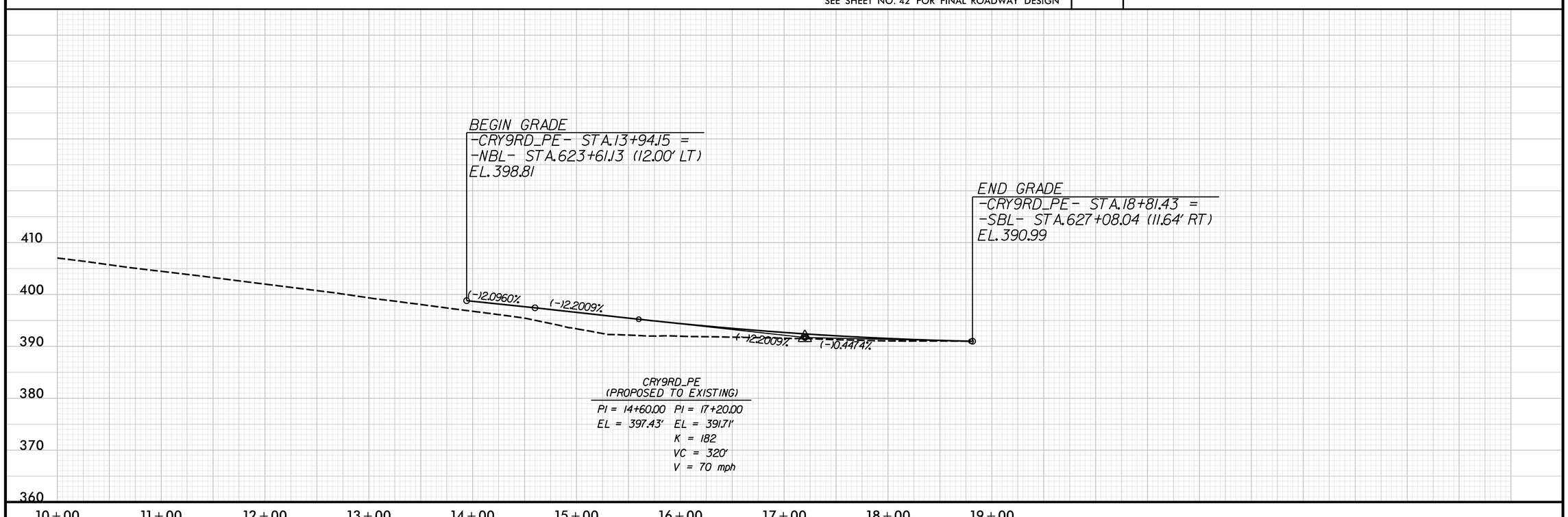
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NO. 42 FOR FINAL ROADWAY DESIGN



REVISIONS

8/17/99

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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LINE	LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + 20%	BORROW	WASTE
	SUMMARY NO. 1					
-NBL-	66+00.00-102+00.00	6,434		10,565	4,131	0
-SBL-	68+00.00-76+13.06	1,422		1,691	269	0
	TOTAL SUMMARY NO. 1	7,856		12,256	4,400	0
	SUMMARY NO. 2					
-NBL-	102+00.00-242+00.00	74,936		107,474	32,538	0
-SBL-	170+06.75-177+50.00	479		3,800	3,321	0
-Y1-	18+00.00-24+50.00	295		1,874	1,579	0
-Y1LPA	13+33.47-15+00.00	362		88	0	274
-Y1RPA-	16+50.78-24+00.00	1,586		2,146	560	0
-Y1RPC-	18+20.96-25+50.00	760		1,196	436	0
-Y1RPD-	16+16.75-21+50.00	939		248	0	691
-Y2NBL-	19+01.23-24+62.59	1,345		290	0	1,055
-Y2RPA-	15+83.02-20+50.00	1,119		290	0	829
-Y2RPD-	15+31.21-19+00.00	3,406		0	0	3,406
-Y2SBL-	20+41.51-33+00.00	12,739		2,255	0	10,484
	TOTAL SUMMARY NO. 2	97,966		119,663	38,435	16,738
	SUMMARY NO. 3					
-NBL-	242+00.00-368+00.00	63,645		40,008	0	23,637
-SBL-	310+79.06-319+33.52	3,896		5,173	1,277	0
-Y4RPA-	17+29.28-20+50.00	735		515	0	220
-Y4RPB-	16+35.28-23+00.00	2,289		77	0	2,212
-Y4RPC-	17+45.74-20+00.00	964		32	0	932
-Y4RPD-	16+05.51-21+00.00	801		25	0	776
-Y5ARPB-	13+35.63-17+00.00	4,155		91	0	4,064
-Y5ARPC-	14+64.68-21+50.00	226		4,123	3,897	0
-Y5NBL-	26+12.13-43+00.00	12,754		12,343	0	411
-Y5SBL-	23+00.00-24+32.38	29		2,071	2,042	0
	TOTAL SUMMARY NO. 3	89,494		64,459	7,217	32,251
	SUMMARY NO. 4					
-NBL-	368+00.00-536+00.00	64,716		68,914	4,198	0
-Y7-	14+00.00-21+50.00	1,314		246	0	1,068
-Y7LPA-	12+98.44-14+87.11	158		830	672	0
-Y7LPD-	13+45.68-19+00.00	2,807		509	0	2,298
-Y7RPA-	17+64.01-27+50.00	4,870		671	0	4,199
-Y7RPD-	14+68.38-17+26.50	596		190	0	406
	TOTAL SUMMARY NO.4	74,461		71,359	4,870	7,972
	SUMMARY NO. 5					
-NBL-	536+00.00-643+08.77	79,544		24,391	0	55,153
-Y9RPA-	19+30.77-22+00.00	2,132		12	0	2,120
-Y9RPB-	14+79.84-21+00.00	4,143		5	0	4,138
-Y9RPC-	20+98.32-21+50.00	151		1	0	150
-Y9RPD-	15+66.25-21+00.00	3,714		50	0	3,664
	TOTAL SUMMARY NO.5	89,684		24,460	0	65,224
	SHEET TOTAL	359,461		292,197	54,922	122,186

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

COMPUTED BY: BLM DATE: 09.23.2013
CHECKED BY: SWW DATE: 09.25.2013

PROJECT REFERENCE NO. I-0914BA
SHEET NO. 3-A

PROJ. REFERENCE NO.	SHEET NO.
I-0914BA	3-AH

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	9	NCDOT
2	9	ANNIE WILLIAMS HEIRS
3	9	VANCE COUNTY CITY OF HENDERSON
4	9	VANCE COUNTY CITY OF HENDERSON
5	9	ZELDER LEE FOSTER
6	9	HERMAN A. DAVIS, JR.
7	9,10	DWIGHT STEVEN HUGHES
8	9	CRAWPROP LLC
9	9, 10	INVESTMENT MANAGEMENT OF HENDERSON, LLC
10	10	DWIGHT STEVEN HUGHES
11	11	DANNY RAY HUGHES AND MARSHALL ANTHONY HUGHES
12	12	NCDOT
13	12	BILLY G. WOODWARD
15	12,13	NCDOT
16	14	J.C. & R. KITTRELL, HEIRS
17	14	EDWARD F. SPAIN AND DONNA C. SPAIN
18	15,16,17,18	EDWARD F. SPAIN AND DONNA C. SPAIN
19	16,17	ADVANTAGE CARE IN HOME SERVICE, INC.
20	18,19,20	CLEMENTS DAVIS CONNOLLY INVESTMENTS, LLC
21	19	VENTURE CAPITAL GR PROJECT #2
22	19,20	DENNIS M. HODGE AND PATRICIA HODGE
23	20,21	SETH T. WOOTEN, JR.
24	21	KEITH ROBERT SMITH AND JAMES H. FALKNER, III
25	21	S.T. WOOTEN CORPORATION
26	21,22	KIRBY LANE AYSCUE
27	21,22	UKNOWN PROPERTY OWNER
28	25,26	THOMAS M. CULLER, JR. AND TINY P. CULLER
29	28	WOODMONT PETROLEUM PRODUCTS, INC.
30	28,29	KAY GRISSOM, WILLIAM EDMONDS, AND BETTY R. WALL
31	29	SHIRLEY A. ROYSTER
32	29,30,31	RONALD E. STAINBACK AND NANCY STAINBACK
33	32	FREDERICK DOUGLAS ALEXANDER
34	32	MARY A. KEITT AND ODELL KEITT
35	34,35	MAURICE J. DURHAM
36	35,36	LISLE BULLOCK
37	35,36	LISLE BULLOCK
38	36,37	VIOLA L. TOWNS AND MACY TOWNS
39	40	CLARENCE BOYD
40	40	JACK FREEMAN AND JUNETTA B. FREEMAN
41	40	ROSA A. BOYD
42	41,42	CLARENCE O. WHITE, JR. AND OTHERS
43	41,42	C. FLEMING WATKINS, JR.
44	42,43	C. FLEMING WATKINS, JR.

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

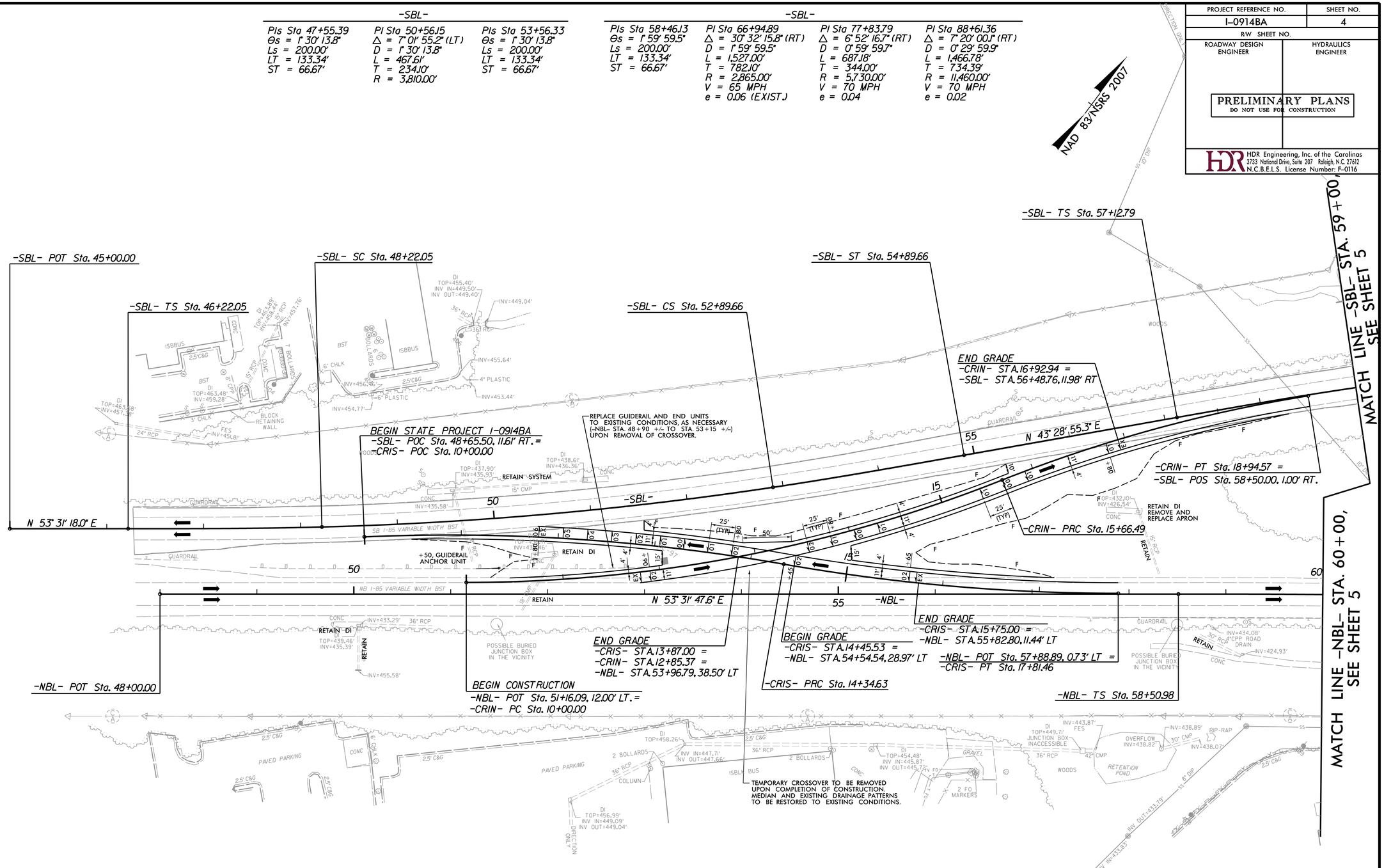
NAD 83/NSRS 2007

-SBL-

PIs Sta 47+55.39	PI Sta 50+56.15	PIs Sta 53+56.33
Θs = 1° 30' 13.8"	Δ = 7° 01' 55.2" (LT)	Θs = 1° 30' 13.8"
Ls = 200.00'	D = 1° 30' 13.8"	Ls = 200.00'
LT = 133.34'	L = 467.61'	LT = 133.34'
ST = 66.67'	T = 234.10'	ST = 66.67'
	R = 3,810.00'	

-SBL-

PIs Sta 58+46.13	PI Sta 66+94.89	PI Sta 77+83.79	PI Sta 88+61.36
Θs = 1° 59' 59.5"	Δ = 30° 32' 15.8" (RT)	Δ = 6° 52' 16.7" (RT)	Δ = 7° 20' 00.1" (RT)
Ls = 200.00'	D = 1° 59' 59.5"	D = 0° 59' 59.7"	D = 0° 29' 59.9"
LT = 133.34'	L = 1,527.00'	L = 687.18'	L = 1,466.78'
ST = 66.67'	T = 782.10'	T = 344.00'	T = 734.39'
	R = 2,865.00'	R = 5,730.00'	R = 11,460.00'
	V = 65 MPH	V = 70 MPH	V = 70 MPH
	e = 0.06 (EXIST.)	e = 0.04	e = 0.02



-CRIS-

PI Sta 12+18.18	PI Sta 16+08.48
Δ = 12° 27' 04.6" (RT)	Δ = 9° 56' 09.1" (LT)
D = 2° 51' 53.2"	D = 2° 51' 53.2"
L = 434.63'	L = 346.83'
T = 218.18'	T = 173.85'
R = 2,000.00'	R = 2,000.00'

-CRIN-

PI Sta 12+86.66	PI Sta 17+31.19
Δ = 21° 38' 18.0" (LT)	Δ = 12° 31' 54.1" (RT)
D = 3° 49' 11.0"	D = 3° 49' 11.0"
L = 566.49'	L = 328.08'
T = 286.66'	T = 164.70'
R = 1,500.00'	R = 1,500.00'

-NBL-

PIs Sta 59+84.31	PI Sta 76+89.47	PIs Sta 94+91.46
Θs = 1° 00' 31.4"	Δ = 32° 10' 56.3" (RT)	Θs = 3° 46' 57.8"
Ls = 200.00'	D = 1° 00' 31.4"	Ls = 750.00'
LT = 133.34'	L = 3,190.38'	LT = 500.11'
ST = 66.67'	T = 1,638.50'	ST = 250.10'
	R = 5,680.00'	
	V = 70 MPH	
	e = 0.04	

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NO. 46 FOR -SBL- & -NBL- PROFILE
SEE SHEET NO. 109 FOR -CR1N- & -CR1S- PROFILES

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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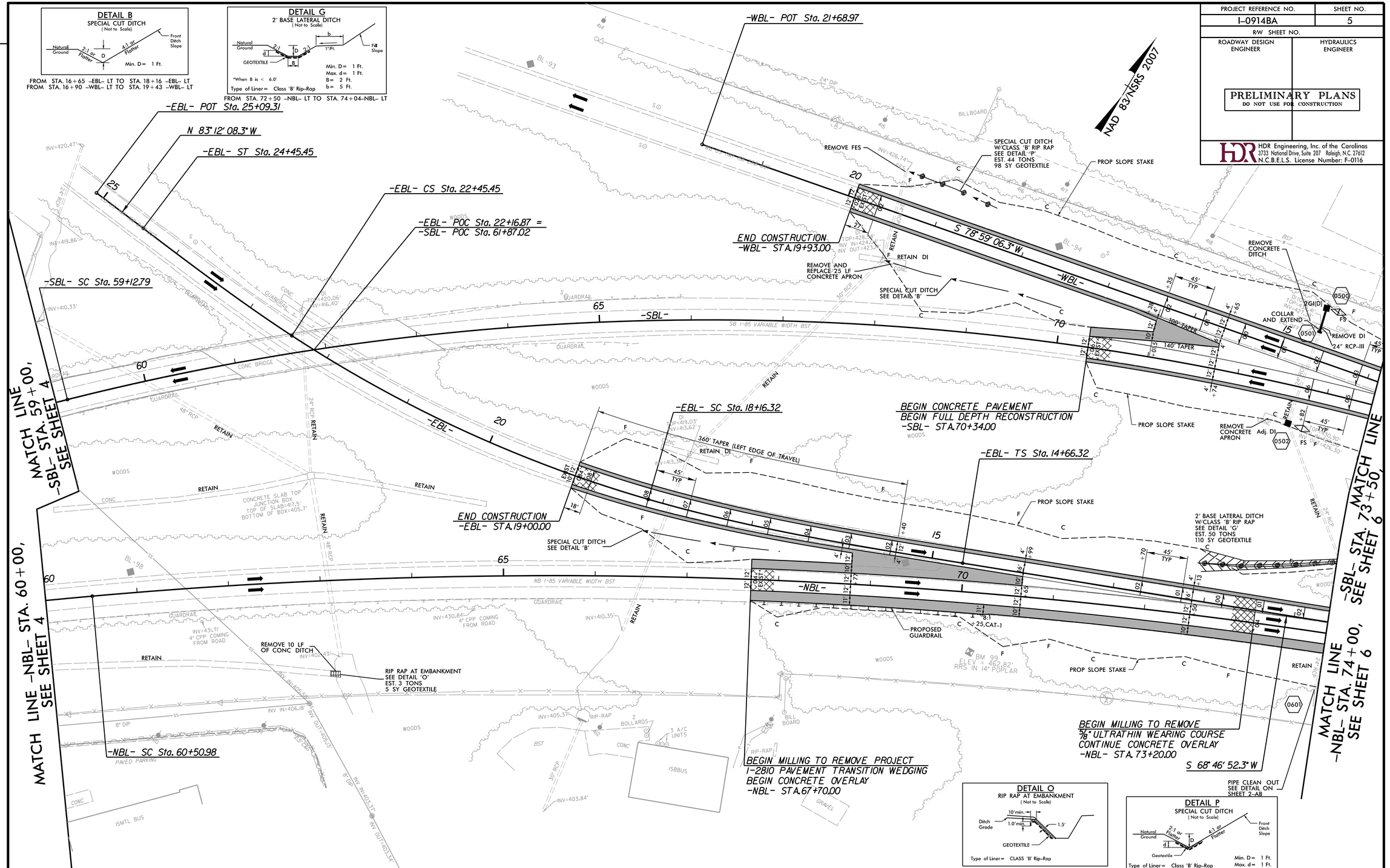
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



-NBL-

Pls Sta 59+84.31	Pl Sta 76+89.47	Pls Sta 94+91.46
Θs = 1°00' 31.4"	Δ = 32°10' 56.3" (RT)	Θs = 3°46' 57.8"
Ls = 200.00'	D = 1°00' 31.4"	Ls = 750.00'
LT = 133.34'	L = 3,190.38'	LT = 500.11'
ST = 66.67'	T = 1,638.50'	ST = 250.10'
	R = 5,680.00'	
	V = 70 MPH	
	e = 0.04	

-SBL-

Pls Sta 58+46.13	Pl Sta 66+94.89	Pl Sta 77+83.79	Pl Sta 88+61.36
Θs = 1°59' 59.5"	Δ = 30°32' 15.8" (RT)	Δ = 6°52' 16.7" (RT)	Δ = 7°20' 00.1" (RT)
Ls = 200.00'	D = 1°59' 59.5"	D = 0°59' 59.7"	D = 0°29' 59.9"
LT = 133.34'	L = 1,527.00'	L = 687.18'	L = 1,466.78'
ST = 66.67'	T = 782.10'	T = 344.00'	T = 734.39'
	R = 2,865.00'	R = 5,730.00'	R = 11,460.00'
	V = 65 MPH	V = 70 MPH	V = 70 MPH
	e = 0.06 (EXIST.)	e = 0.04	e = 0.02

-EBL-

Pls Sta 16+99.84	Pl Sta 20+32.49	Pls Sta 23+12.15
Θs = 6°57' 46.9"	Δ = 17°04' 28.6" (RT)	Θs = 3°58' 43.9"
Ls = 350.00'	D = 3°58' 43.9"	Ls = 200.00'
LT = 233.51'	L = 429.13'	LT = 133.37'
ST = 116.83'	T = 216.17'	ST = 66.70'
	R = 1,440.00'	
	V = 60 MPH	
	e = 0.08	

PAVEMENT REMOVAL

SEE SHEET NO. 47 FOR -SBL- & -NBL- PROFILE
SEE SHEET NO. 90 FOR -WBL- & -EBL- PROFILE

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

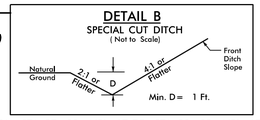
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

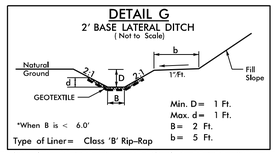
NAD 83/NSRS 2007

-SBL-

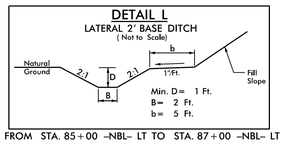
PIs Sta 58+46.13	PI Sta 66+94.89	PI Sta 77+83.79	PI Sta 88+61.36
Θs = 1° 59' 59.5"	Δ = 30° 32' 15.8" (RT)	Δ = 6° 52' 16.7" (RT)	Δ = 7° 20' 00.1" (RT)
Ls = 200.00'	D = 1° 59' 59.5"	D = 0° 59' 59.7"	D = 0° 29' 59.9"
LT = 133.34'	L = 1,527.00'	L = 687.18'	L = 1,466.78'
ST = 66.67'	T = 782.10'	T = 344.00'	T = 734.39'
	R = 2,865.00'	R = 5,730.00'	R = 11,460.00'
	V = 65 MPH	V = 70 MPH	V = 70 MPH
	e = 0.06 (EXIST.)	e = 0.04	e = 0.02



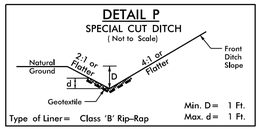
FROM STA. 87+00 -NBL- LT TO STA. 89+03 -NBL- LT



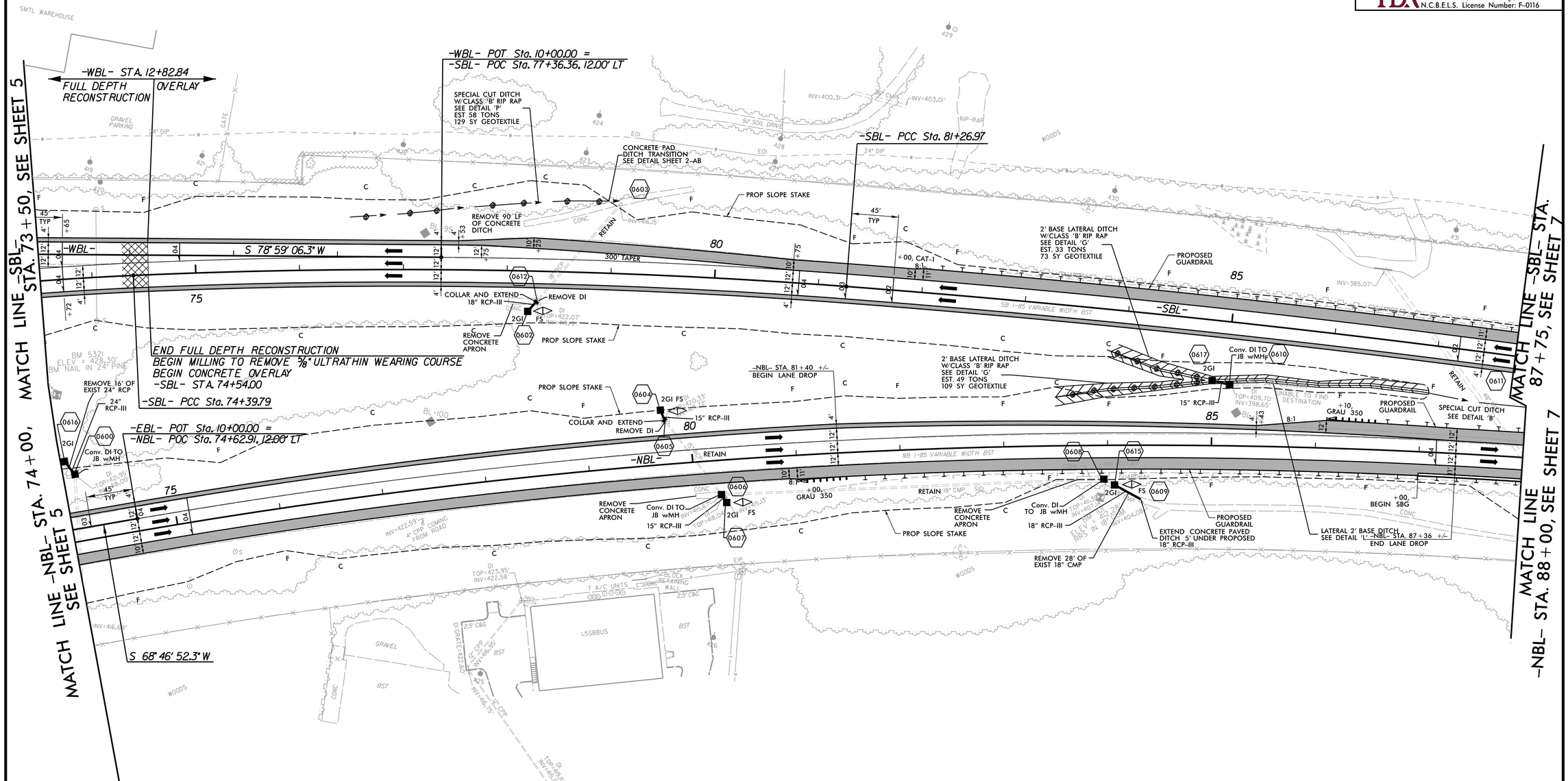
FROM STA. 83+50 -NBL- LT TO STA. 85+00 -NBL- LT
FROM STA. 83+85 -SBL- RT TO STA. 84+87 -SBL- RT



FROM STA. 85+00 -NBL- LT TO STA. 87+00 -NBL- LT



FROM STA. 76+65 -SBL- LT TO STA. 79+23 -SBL- LT



-NBL-

PIs Sta 59+84.31	PI Sta 76+89.47	PIs Sta 94+91.46
Θs = 1° 00' 31.4"	Δ = 32° 10' 56.3" (RT)	Θs = 3° 46' 57.8"
Ls = 200.00'	D = 1° 00' 31.4"	Ls = 750.00'
LT = 133.34'	L = 3,190.38'	LT = 500.11'
ST = 66.67'	T = 1,638.50'	ST = 250.10'
	R = 5,680.00'	
	V = 70 MPH	
	e = 0.04	

PAVEMENT REMOVAL

SEE SHEET NOS. 47, 48 FOR -SBL- PROFILE
SEE SHEET NO. 48 FOR -NBL- PROFILE
SEE SHEET NO. 90 FOR -WBL- & -EBL- PROFILE

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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FILE: North Carolina.Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S06.dgn
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

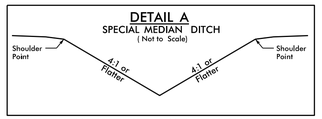
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

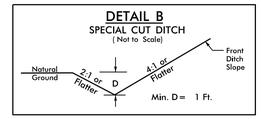
NAD 83/NSRS 2007

-SBL-

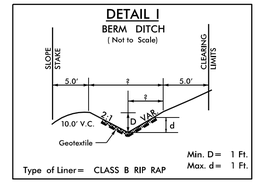
PIs Sta 58+46.13	PI Sta 66+94.89	PI Sta 77+83.79	PI Sta 88+61.36
Θs = 1° 59' 59.5"	Δ = 30° 32' 15.8" (RT)	Δ = 6° 52' 16.7" (RT)	Δ = 7° 20' 00.1" (RT)
Ls = 200.00'	D = 1° 59' 59.5"	D = 0° 59' 59.7"	D = 0° 29' 59.9"
LT = 133.34'	L = 1,527.00'	L = 687.18'	L = 1,466.78'
ST = 66.67'	T = 782.10'	T = 344.00'	T = 734.39'
	R = 2,865.00'	R = 5,730.00'	R = 11,460.00'
	V = 65 MPH	V = 70 MPH	V = 70 MPH
	e = 0.06 (EXIST.)	e = 0.04	e = 0.02



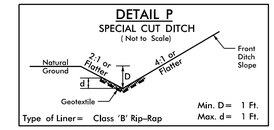
FROM STA. 89+03 -NBL- LT TO STA. 102+23 -NBL- LT



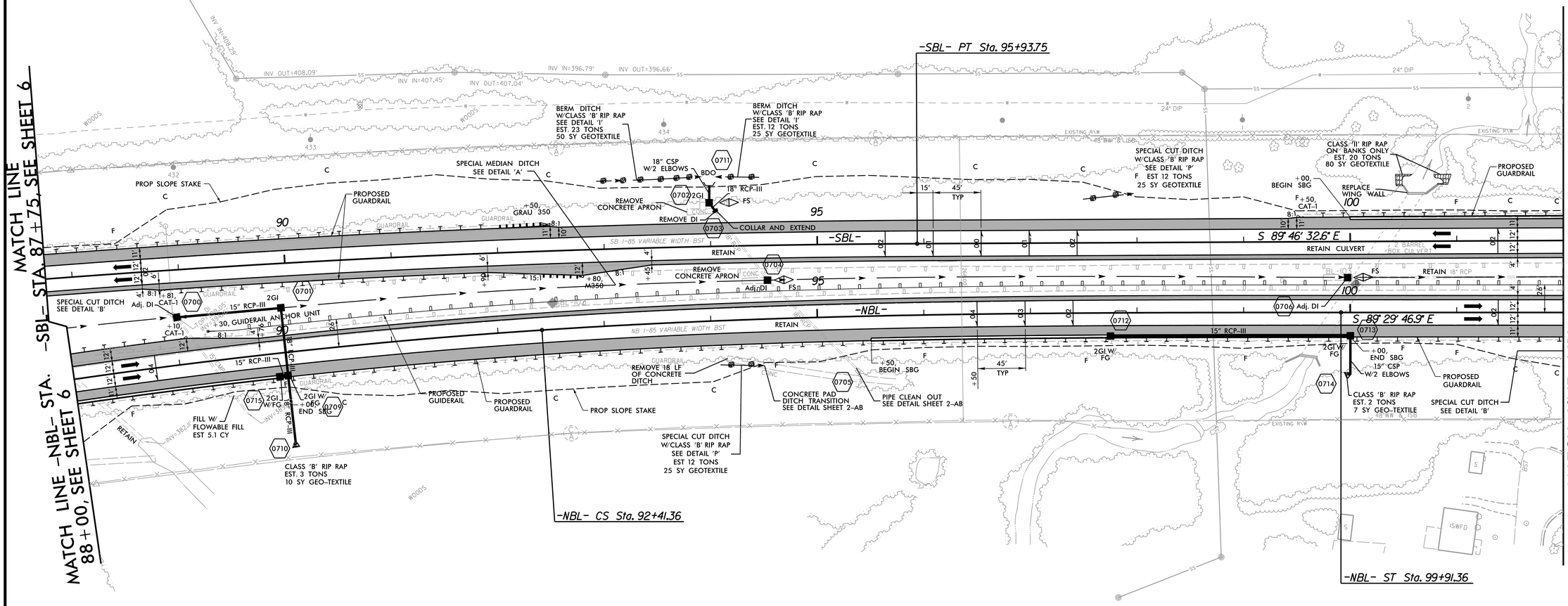
FROM STA. 101+50 -NBL- RT TO STA. 102+22 -NBL- RT



FROM STA. 92+97 -SBL- LT TO STA. 93+98 -SBL- LT
FROM STA. 93+98 -SBL- LT TO STA. 94+48 -SBL- LT



FROM STA. 94+00 -NBL- RT TO STA. 94+50 -NBL- RT
FROM STA. 97+50 -SBL- LT TO STA. 98+00 -SBL- LT



-NBL-

PIs Sta 59+84.31	PI Sta 76+89.47	PIs Sta 94+91.46
Θs = 1° 00' 31.4"	Δ = 32° 10' 56.3" (RT)	Θs = 3° 46' 57.8"
Ls = 200.00'	D = 1° 00' 31.4"	Ls = 750.00'
LT = 133.34'	L = 3,190.38'	LT = 500.11'
ST = 66.67'	T = 1,638.50'	ST = 250.10'
	R = 5,680.00'	
	V = 70 MPH	
	e = 0.04	

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-1 & 2CR-2 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 48, 49 FOR -SBL- PROFILE
SEE SHEET NO. 49 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 4:42:55 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S07.dgn

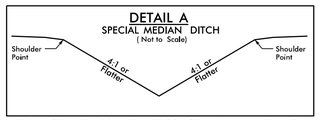
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

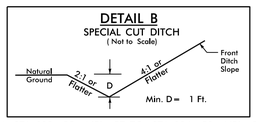
NAD 83/NSRS 2007

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)



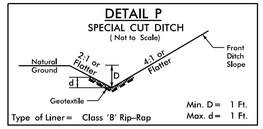
FROM STA. 102+23 -NBL- LT TO STA. 117+04 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 102+22 -NBL- RT TO STA. 104+50 -NBL- RT
FROM STA. 109+68 -SBL- LT TO STA. 110+00 -SBL- LT

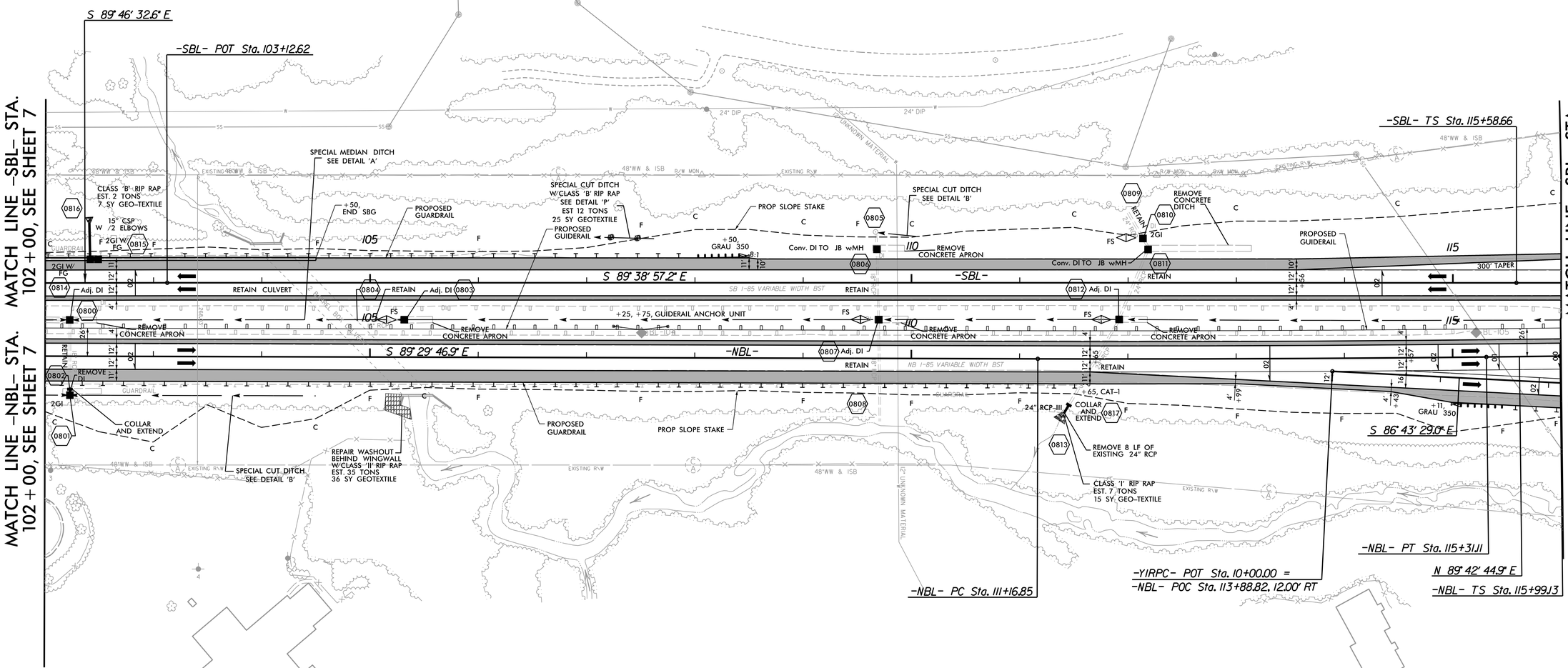
DETAIL P
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 107+00 -SBL- LT TO STA. 107+50 -SBL- LT

-SBL-

PIs Sta 118+58.90	PI Sta 122+07.15	PIs Sta 125+54.31
Θs = 7° 04' 59.8"	Δ = 12° 26' 55.3" (LT)	Θs = 7° 04' 59.8"
Ls = 450.00'	D = 3° 08' 53.2"	Ls = 450.00'
LT = 300.24'	L = 395.43'	LT = 300.24'
ST = 150.22'	T = 198.50'	ST = 150.22'
	R = 1,820.00'	
	V = 70 MPH	
	e = 0.08	



-NBL-

PI Sta 113+23.98
Δ = 0° 47' 28.2" (LT)
D = 0° 11' 27.5"
L = 414.26'
T = 207.13'
R = 30,000.00'
V = 80+ MPH
e = NC

-NBL-

PIs Sta 118+99.36	PI Sta 122+38.90	PIs Sta 125+77.54
Θs = 7° 02' 40.4"	Δ = 11° 50' 27.4" (LT)	Θs = 7° 02' 40.4"
Ls = 450.00'	D = 3° 07' 51.3"	Ls = 450.00'
LT = 300.24'	L = 378.19'	LT = 300.24'
ST = 150.22'	T = 189.77'	ST = 150.22'
	R = 1,830.00'	
	V = 70 MPH	
	e = 0.08	

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-7 & 2CR-8 FOR TEMPORARY CROSSOVERS
SEE SHEET NO. 50 FOR -SBL- & -NBL- PROFILE
SEE SHEET NO. 92 FOR -Y1RPC- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwalnwri DATE: 2/28/2014 TIME: 4:43:14 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S08.dgn

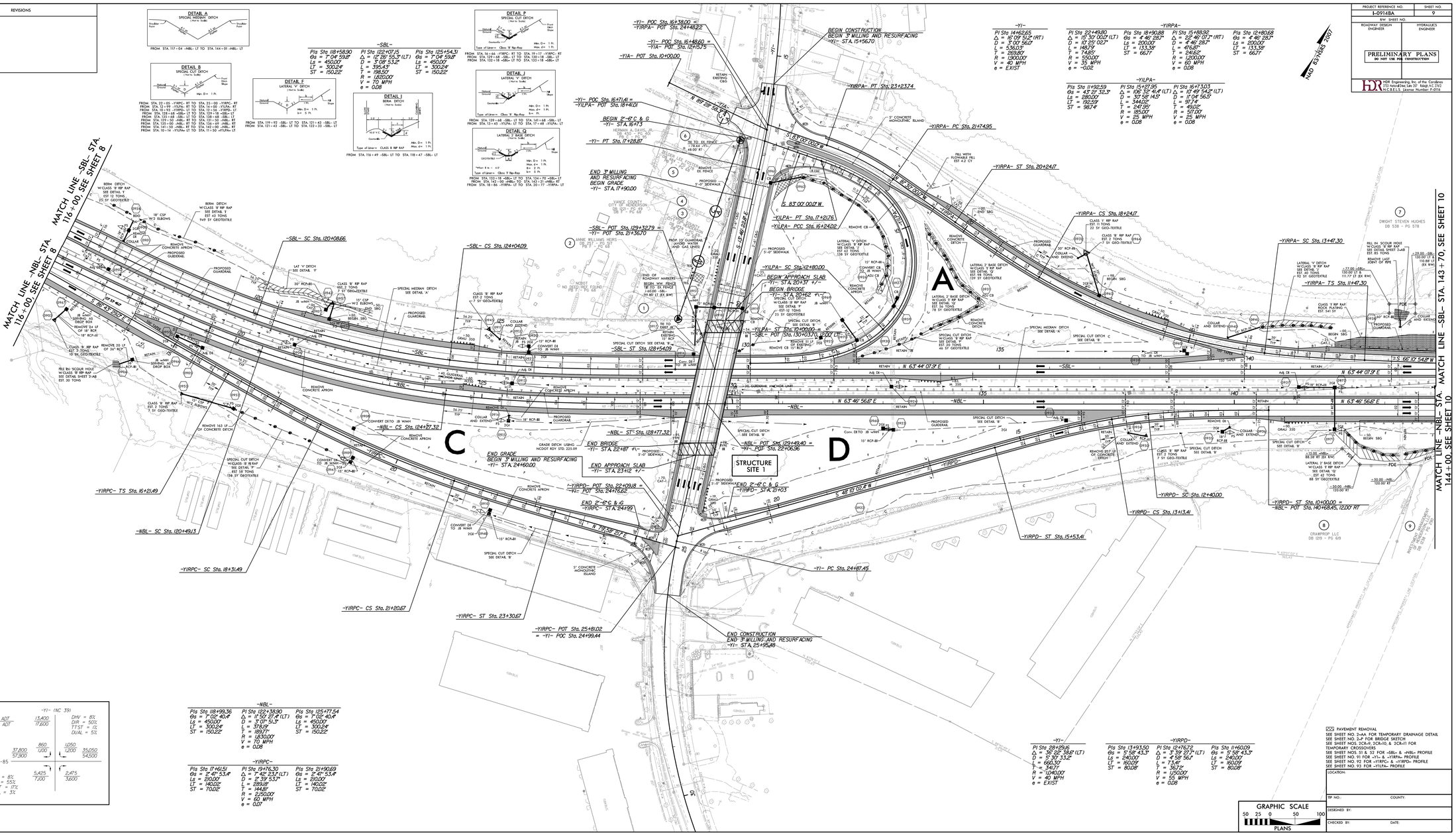
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
2173 Yellowstone Blvd. Suite 201 Raleigh, N.C. 27603
N.C.B.E.L. License Number F-0116

NAD 83/NSRS 2007



DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)
FROM STA. 117+04 -NBL- LT TO STA. 144+01 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)
FROM STA. 32+05 -YIRPC- RT TO STA. 33+00 -YIRPC- RT
FROM STA. 12+99 -YILPA- RT TO STA. 14+00 -YIILPA- RT
FROM STA. 10+93 -YIRPD- LT TO STA. 12+56 -YIRPD- LT
FROM STA. 128+68 -SBL- LT TO STA. 129+58 -SBL- LT
FROM STA. 133+68 -SBL- LT TO STA. 138+68 -SBL- LT
FROM STA. 139+68 -SBL- LT TO STA. 141+68 -SBL- LT
FROM STA. 131+00 -NBL- RT TO STA. 136+69 -NBL- RT
FROM STA. 141+50 -NBL- RT TO STA. 142+00 -NBL- RT
FROM STA. 10+14 -YIILPA- LT TO STA. 11+50 -YIILPA- LT

DETAIL E
LATERAL 'V' DITCH
(Not to Scale)
FROM STA. 119+92 -SBL- LT TO STA. 121+43 -SBL- LT
FROM STA. 121+43 -SBL- LT TO STA. 122+33 -SBL- LT

DETAIL I
BERM DITCH
(Not to Scale)
FROM STA. 116+49 -SBL- LT TO STA. 118+47 -SBL- LT

DETAIL P
SPECIAL CUT DITCH
(Not to Scale)
FROM STA. 16+66 -YIRPC- RT TO STA. 19+17 -YIRPC- RT
FROM STA. 127+68 -SBL- LT TO STA. 130+18 -SBL- LT
FROM STA. 132+18 -SBL- LT TO STA. 133+18 -SBL- LT

DETAIL J
LATERAL 'V' DITCH
(Not to Scale)
FROM STA. 139+68 -SBL- LT TO STA. 141+68 -SBL- LT
FROM STA. 131+43 -YIILPA- LT TO STA. 17+48 -YIILPA- LT

DETAIL Q
LATERAL 'J' BASE DITCH
(Not to Scale)
FROM STA. 133+18 -SBL- LT TO STA. 134+70 -SBL- LT
FROM STA. 142+00 -NBL- TO STA. 143+31 -NBL- RT
FROM STA. 19+66 -YIRPA- LT TO STA. 20+77 -YIRPA- LT

-SBL-

Pls Sta 118+58.90	Pl Sta 122+07.15	Pls Sta 125+54.31
θs = 7°04'59.8"	Δ = 12°28'55.3" (LT)	θs = 7°04'59.8"
Ls = 450.00'	D = 3°08'53.2"	Ls = 450.00'
LT = 300.24'	L = 398.45'	LT = 300.24'
ST = 150.22'	T = 198.50'	ST = 150.22'
	R = 1,820.00'	
	V = 70 MPH	
	e = 0.08	

-Y1-

Pl Sta 14+62.65
Δ = 16°09'51.2" (RT)
D = 3°00'56.0"
L = 536.03'
T = 269.80'
R = 1,900.00'
V = 40 MPH
e = EXIST

-YIRPA-

Pl Sta 22+49.80	Pls Sta 18+90.88	Pl Sta 15+88.92	Pls Sta 10+80.68
Δ = 15°30'00.1" (LT)	θs = 4°46'28.7"	Δ = 22°46'07.7" (RT)	θs = 4°46'28.7"
D = 10°25'02.7"	Ls = 200.00'	D = 4°46'28.7"	Ls = 200.00'
L = 148.73'	LT = 133.39'	L = 476.81'	LT = 133.39'
T = 74.85'	ST = 66.71'	T = 241.65'	ST = 66.71'
R = 550.00'		R = 1,200.00'	
V = 35 MPH		V = 60 MPH	
e = -0.02		e = 0.08	

-YIILPA-

Pls Sta 11+92.59	Pl Sta 15+27.95	Pl Sta 15+47.03
θs = 43°27'32.3"	Δ = 106°32'41.4" (LT)	Δ = 107°49'54.2" (LT)
Ls = 280.00'	D = 30°58'14.5"	D = 11°04'56.5"
LT = 192.59'	L = 344.02'	L = 517.74'
ST = 98.74'	T = 247.05'	T = 492.12'
	R = 185.00'	R = 517.00'
	V = 25 MPH	V = 25 MPH
	e = 0.08	e = 0.08

-NBL-

Pls Sta 118+99.36	Pl Sta 122+38.90	Pls Sta 125+77.54
θs = 1°02'40.4"	Δ = 11°50'27.4" (LT)	θs = 1°02'40.4"
Ls = 450.00'	D = 3°01'51.3"	Ls = 450.00'
LT = 300.24'	L = 378.19'	LT = 300.24'
ST = 150.22'	T = 189.77'	ST = 150.22'
	R = 1,830.00'	
	V = 70 MPH	
	e = 0.08	

-YIRPC-

Pls Sta 17+61.51	Pl Sta 19+76.30	Pls Sta 21+90.69
θs = 2°47'53.4"	Δ = 7°45'23.7" (LT)	θs = 2°47'53.4"
Ls = 210.00'	D = 2°39'53.7"	Ls = 210.00'
LT = 140.02'	L = 289.19'	LT = 140.02'
ST = 70.02'	T = 144.81'	ST = 70.02'
	R = 2,150.00'	
	V = 60 MPH	
	e = 0.07	

-YIRPD-

Pls Sta 13+93.50	Pl Sta 12+76.72	Pls Sta 11+60.09
θs = 9°58'43.3"	Δ = 9°59'07.7" (LT)	θs = 9°58'43.3"
Ls = 240.00'	D = 4°58'56.7"	Ls = 240.00'
LT = 160.09'	L = 73.46'	LT = 160.09'
ST = 80.08'	T = 36.72'	ST = 80.08'
	R = 1,150.00'	
	V = 55 MPH	
	e = 0.08	

2014 ADT	-Y1- (NC 39)	
2035 ADT	13,400 / 17,800	DHV = 8%
		DIR = 50%
		TTST = 1%
		DUAL = 1%
37,800 / 57,300	860 / 1,100	1,050 / 1,200 — 35,050 / 54,500
-L- I-85		
DHV = 8%	5,425 / 7,200	2,475 / 3,600
DIR = 55%		
TTST = 17%		
DUAL = 3%		

PAVEMENT REMOVAL

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NO. 3-P FOR BRIDGE SKETCH
SEE SHEET NOS. 2CR-P, 2CR-10, & 2CR-11 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 51 & 52 FOR -SBL- & -NBL- PROFILE
SEE SHEET NO. 91 FOR -Y1-, -YIRPA-, -YIILPA-, -YIRPD- PROFILE
SEE SHEET NO. 92 FOR -YIILPC-, -YIILPA-, -YIRPD- PROFILE
SEE SHEET NO. 93 FOR -YIILPA- PROFILE

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

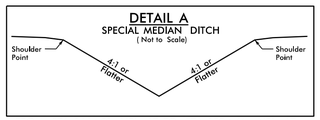
PLOT DRIVEN: NCDOT_pdf_color_eng_100.pltcfg
USER: swallner
CD:\Bentley\Workspace\Projects\Default\Temporary Files\I-0914BA_NCDOT_Folder_structure\Roadway\Plans\I-0914BA_BDP_PGN_SCR.dgn
PENTABLE: NCDOT.pdmpltcfg
TIME: 4:49:50 PM
DATE: 2/28/2024

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

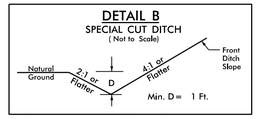
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)



FROM STA. 144+01 -NBL- LT TO STA. 159+46 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 156+72 -SBL- LT TO STA. 159+23 -SBL- LT
FROM STA. 149+50 -NBL- RT TO STA. 150+50 -NBL- RT
FROM STA. 147+00 -NBL- RT TO STA. 149+50 -NBL- RT
FROM STA. 149+18 -SBL- LT TO STA. 150+69 -SBL- LT

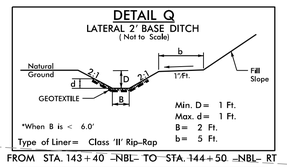
-SBL-
PI Sta 145+33.91
Δ = 0° 15' 00.2" (RT)
D = 0° 13' 45.1"
L = 109.11'
T = 54.55'
R = 25,000.00'
V = 80+ MPH
e = NC

-SBL-
PIs Sta 148+85.55
Θs = 0° 27' 43.4"
Ls = 200.00'
LT = 133.33'
ST = 66.67'

PI Sta 152+57.80
Δ = 2° 49' 24.1" (RT)
D = 0° 27' 43.4"
L = 611.03'
T = 305.58'
R = 12,400.00'
V = 70 MPH
e = 0.03

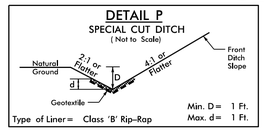
PIs Sta 156+29.92
Θs = 0° 27' 43.4"
Ls = 200.00'
LT = 133.33'
ST = 66.67'

DETAIL Q
LATERAL 2' BASE DITCH
(Not to Scale)

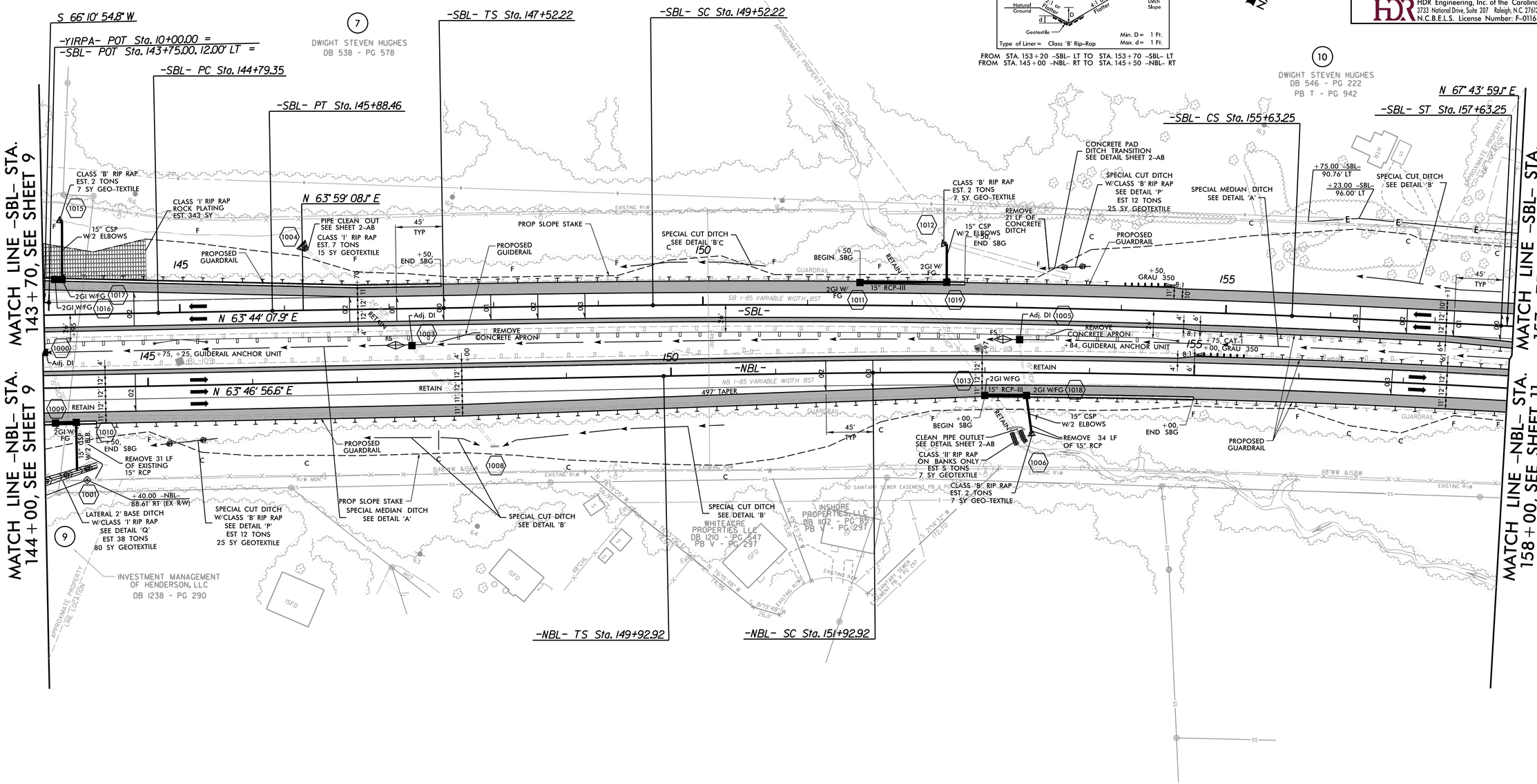


FROM STA. 143+40 -NBL- TO STA. 144+50 -NBL- RT

DETAIL P
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 153+20 -SBL- LT TO STA. 153+70 -SBL- LT
FROM STA. 145+00 -NBL- RT TO STA. 145+50 -NBL- RT



-NBL-

PIs Sta 151+26.25	PI Sta 156+49.43	PIs Sta 161+50.19
Θs = 0° 37' 22.0"	Δ = 5° 40' 53.2" (RT)	Θs = 0° 25' 13.4"
Ls = 200.00'	D = 0° 37' 22.0"	Ls = 135.00'
LT = 133.33'	L = 912.27'	LT = 90.00'
ST = 66.67'	T = 456.51'	ST = 45.00'
	R = 9,200.00'	
	V = 70 MPH	
	e = 0.03	

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-5, 2CR-6, 2CR-9, &
2CR-10 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 52, 53 FOR -SBL- PROFILE
SEE SHEET NO. 53 FOR -NBL- PROFILE
SEE SHEET NO. 91 FOR -Y1RPA- PROFILE

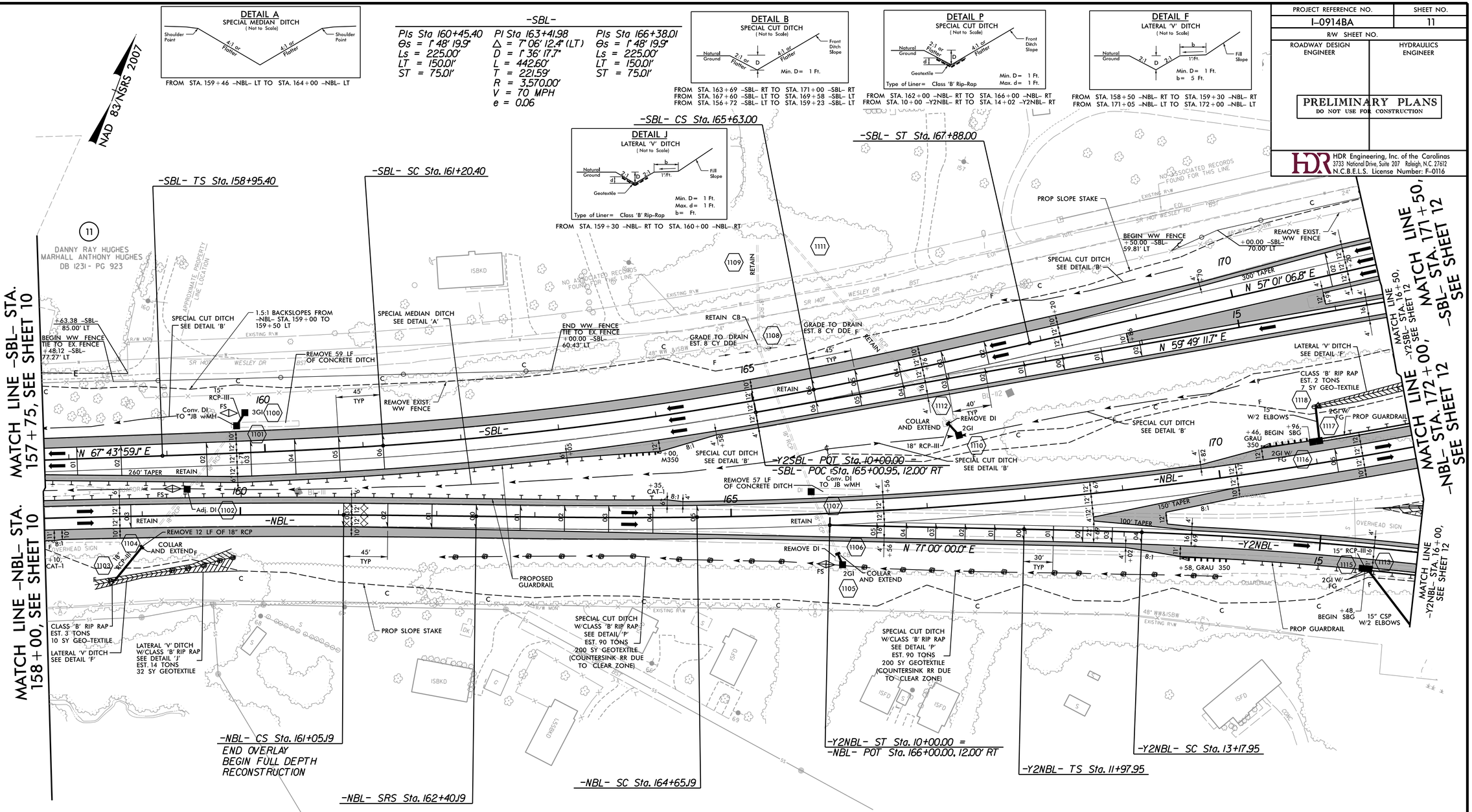
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 4:43:31 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S10.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



-NBL-

PIs Sta 151+26.25	PI Sta 156+49.43	PIs Sta 161+50.J9
Θs = 0° 37' 22.0"	Δ = 5° 40' 53.2" (RT)	Θs = 0° 25' 13.4"
Ls = 200.00'	D = 0° 37' 22.0"	Ls = 135.00'
LT = 133.33'	L = 912.27'	LT = 90.00'
ST = 66.67'	T = 456.51'	ST = 45.00'
	R = 9,200.00'	
	V = 70 MPH	
	e = 0.03	

-NBL-

PIs Sta 163+90.J9	PI Sta 174+70.J7	PIs Sta 185+15.51
Θs = 1° 28' 54.4"	Δ = 26° 01' 03.8" (LT)	Θs = 1° 28' 54.4"
Ls = 225.00'	D = 1° 19' 01.7"	Ls = 225.00'
LT = 150.01'	L = 1,975.31'	LT = 150.01'
ST = 75.00'	T = 1,004.98'	ST = 75.00'
	R = 4,350.00'	
	V = 70 MPH	
	e = 0.05	

-Y2NBL-

PIs Sta 12+77.95	PI Sta 14+96.36	PIs Sta 17+14.51
Θs = 0° 52' 53.3"	Δ = 5° 14' 17.9" (RT)	Θs = 0° 52' 53.3"
Ls = 120.00'	D = 1° 28' 08.8"	Ls = 120.00'
LT = 80.00'	L = 356.56'	LT = 80.00'
ST = 40.00'	T = 178.40'	ST = 40.00'
	R = 3,900.00'	
	V = 60 MPH	
	e = 0.04	

PAVEMENT REMOVAL

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NO. 2CR-12 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 53, 54 FOR -SBL- PROFILE
SEE SHEET NO. 54 -NBL- PROFILE
SEE SHEET NO. 93 FOR -Y2NBL- PROFILE
SEE SHEET NO. 94 FOR -Y2SBL- PROFILE

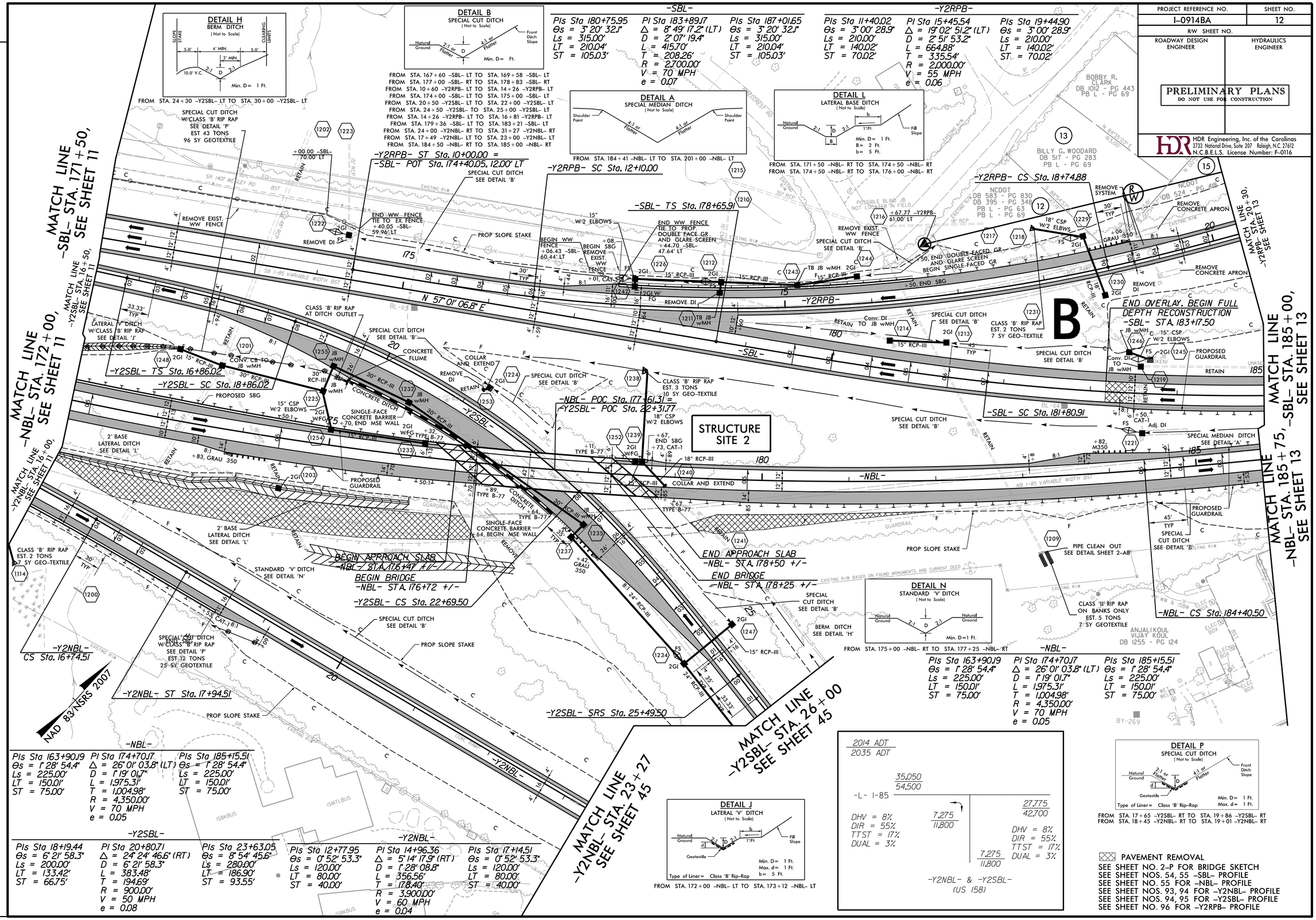
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 4:43:50 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S11.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

NAD 83/NSRS 2007

-Y2-

PI Sta 13+69.33
Δ = 14° 19' 08.6" (RT)
D = 6° 01' 52.1"
L = 237.42'
T = 119.33'
R = 950.00'

PI Sta 22+44.86
Δ = 7° 48' 29.8" (LT)
D = 1° 14' 58.7"
L = 624.84'
T = 312.91'
R = 4,585.00'

-SBL-

PIs Sta 180+75.95
Θs = 3° 20' 32.1"
Ls = 315.00'
LT = 210.04'
ST = 105.03'

PI Sta 183+89.17
Δ = 8° 49' 17.2" (LT)
D = 2° 07' 19.4"
L = 415.70'
T = 208.26'
R = 2,700.00'
V = 70 MPH
e = 0.07

PIs Sta 187+01.65
Θs = 3° 20' 32.1"
Ls = 315.00'
LT = 210.04'
ST = 105.03'

-Y2RPA-

PIs Sta 15+30.34
Θs = 4° 46' 28.7"
Ls = 200.00'
LT = 133.38'
ST = 66.71'

PI Sta 14+07.36
Δ = 5° 22' 39.3" (RT)
D = 4° 46' 28.7"
L = 112.63'
T = 56.36'
R = 1,200.00'
V = 60 MPH
e = 0.08

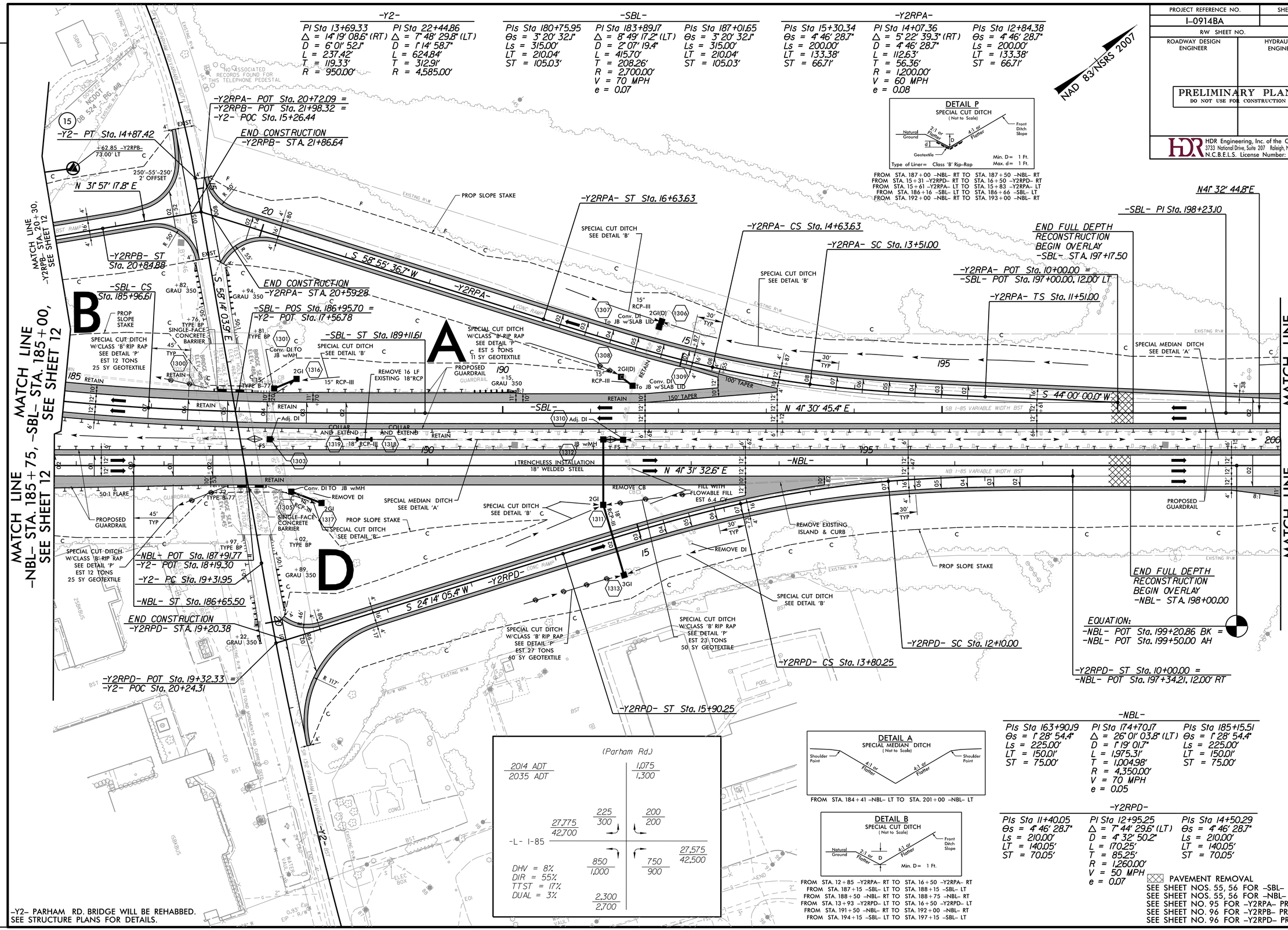
PIs Sta 12+84.38
Θs = 4° 46' 28.7"
Ls = 200.00'
LT = 133.38'
ST = 66.71'

DETAIL P
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground; 2:1 or Flatter; 4:1 or Flatter; Front Ditch Slope; D; d; Geotextile

Type of Liner= Class 'B' Rip-Rap
Min. D= 1 Ft.
Max. d= 1 Ft.

FROM STA. 187+00 -NBL- RT TO STA. 187+50 -NBL- RT
FROM STA. 15+31 -Y2RPD- RT TO STA. 16+50 -Y2RPD- RT
FROM STA. 15+61 -Y2RPA- LT TO STA. 15+83 -Y2RPA- LT
FROM STA. 186+16 -SBL- LT TO STA. 186+66 -SBL- LT
FROM STA. 192+00 -NBL- RT TO STA. 193+00 -NBL- RT



DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)

Shoulder Point; 4:1 or Flatter; 4:1 or Flatter; Shoulder Point

FROM STA. 184+41 -NBL- LT TO STA. 201+00 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground; 2:1 or Flatter; D; 4:1 or Flatter; Front Ditch Slope

Min. D= 1 Ft.

FROM STA. 12+85 -Y2RPA- RT TO STA. 16+50 -Y2RPA- RT
FROM STA. 187+15 -SBL- LT TO STA. 188+15 -SBL- LT
FROM STA. 188+50 -NBL- RT TO STA. 188+75 -NBL- RT
FROM STA. 13+93 -Y2RPD- LT TO STA. 16+50 -Y2RPD- LT
FROM STA. 191+50 -NBL- RT TO STA. 192+00 -NBL- RT
FROM STA. 194+15 -SBL- LT TO STA. 197+15 -SBL- LT

(Parham Rd.)

2014 ADT / 2035 ADT		1,075 / 1,300	
27,775 / 42,700	225 / 300	200 / 200	27,575 / 42,500
-L- I-85			
	850 / 1,000	750 / 900	
	2,300 / 2,700		

DHV = 8%
DIR = 55%
TTST = 17%
DUAL = 3%

-NBL-

PIs Sta 163+90.19
Θs = 1° 28' 54.4"
Ls = 225.00'
LT = 150.01'
ST = 75.00'

PI Sta 174+70.17
Δ = 26° 01' 03.8" (LT)
D = 1° 19' 01.7"
L = 1,975.31'
T = 1,004.98'
R = 4,350.00'
V = 70 MPH
e = 0.05

PIs Sta 185+15.51
Θs = 1° 28' 54.4"
Ls = 225.00'
LT = 150.01'
ST = 75.00'

-Y2RPD-

PIs Sta 11+40.05
Θs = 4° 46' 28.7"
Ls = 210.00'
LT = 140.05'
ST = 70.05'

PI Sta 12+95.25
Δ = 7° 44' 29.6" (LT)
D = 4° 32' 50.2"
L = 170.25'
T = 85.25'
R = 1,260.00'
V = 50 MPH
e = 0.07

PIs Sta 14+50.29
Θs = 4° 46' 28.7"
Ls = 210.00'
LT = 140.05'
ST = 70.05'

PAVEMENT REMOVAL

SEE SHEET NOS. 55, 56 FOR -SBL- PROFILE
SEE SHEET NOS. 55, 56 FOR -NBL- PROFILE
SEE SHEET NO. 95 FOR -Y2RPA- PROFILE
SEE SHEET NO. 96 FOR -Y2RPB- PROFILE
SEE SHEET NO. 96 FOR -Y2RPD- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S13.dgn

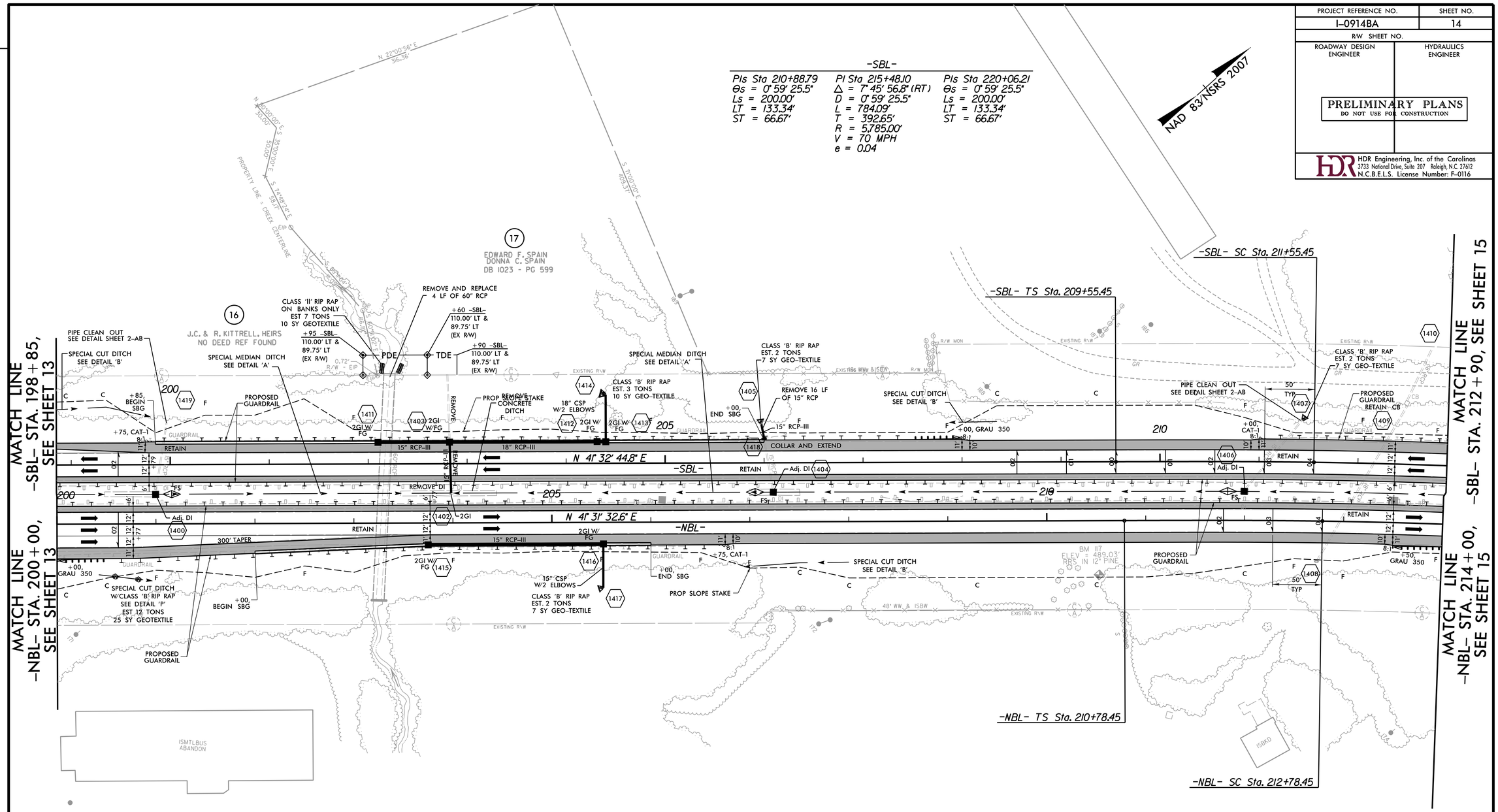
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

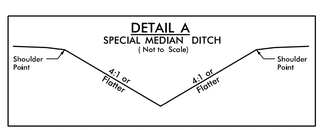
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

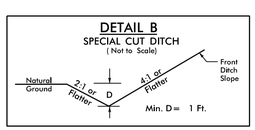
-SBL-

PIs Sta 210+88.79	PI Sta 215+48.10	PIs Sta 220+06.21
Θs = 0° 59' 25.5"	Δ = 7° 45' 56.8" (RT)	Θs = 0° 59' 25.5"
Ls = 200.00'	D = 0° 59' 25.5"	Ls = 200.00'
LT = 133.34'	L = 784.09'	LT = 133.34'
ST = 66.67'	T = 392.65'	ST = 66.67'
	R = 5,785.00'	
	V = 70 MPH	
	e = 0.04	

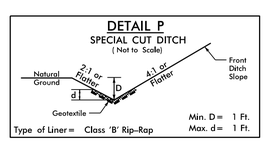




FROM STA. 201+00 -NBL- LT TO STA. 212+00 -NBL LT



FROM STA. 207+85 -SBL- LT TO STA. 208+35 -SBL- LT
FROM STA. 207+00 -NBL- RT TO STA. 208+00 -NBL- RT
FROM STA. 197+15 -SBL- LT TO STA. 199+85 -SBL- LT



FROM STA. 200+50 -NBL- RT TO STA. 201+00 -NBL- RT

-NBL-

PIs Sta 212+11.79	PI Sta 216+51.74	PIs Sta 220+90.57
Θs = 1° 01' 56.5"	Δ = 7° 41' 44.4" (RT)	Θs = 1° 01' 56.5"
Ls = 200.00'	D = 1° 01' 56.5"	Ls = 200.00'
LT = 133.34'	L = 745.45'	LT = 133.34'
ST = 66.67'	T = 373.28'	ST = 66.67'
	R = 5,550.00'	
	V = 70 MPH	
	e = 0.04	

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-14, 2CR-15, 2CR-16, & 2CR-17 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 56, 57 FOR -SBL- PROFILE
SEE SHEET NO. 57 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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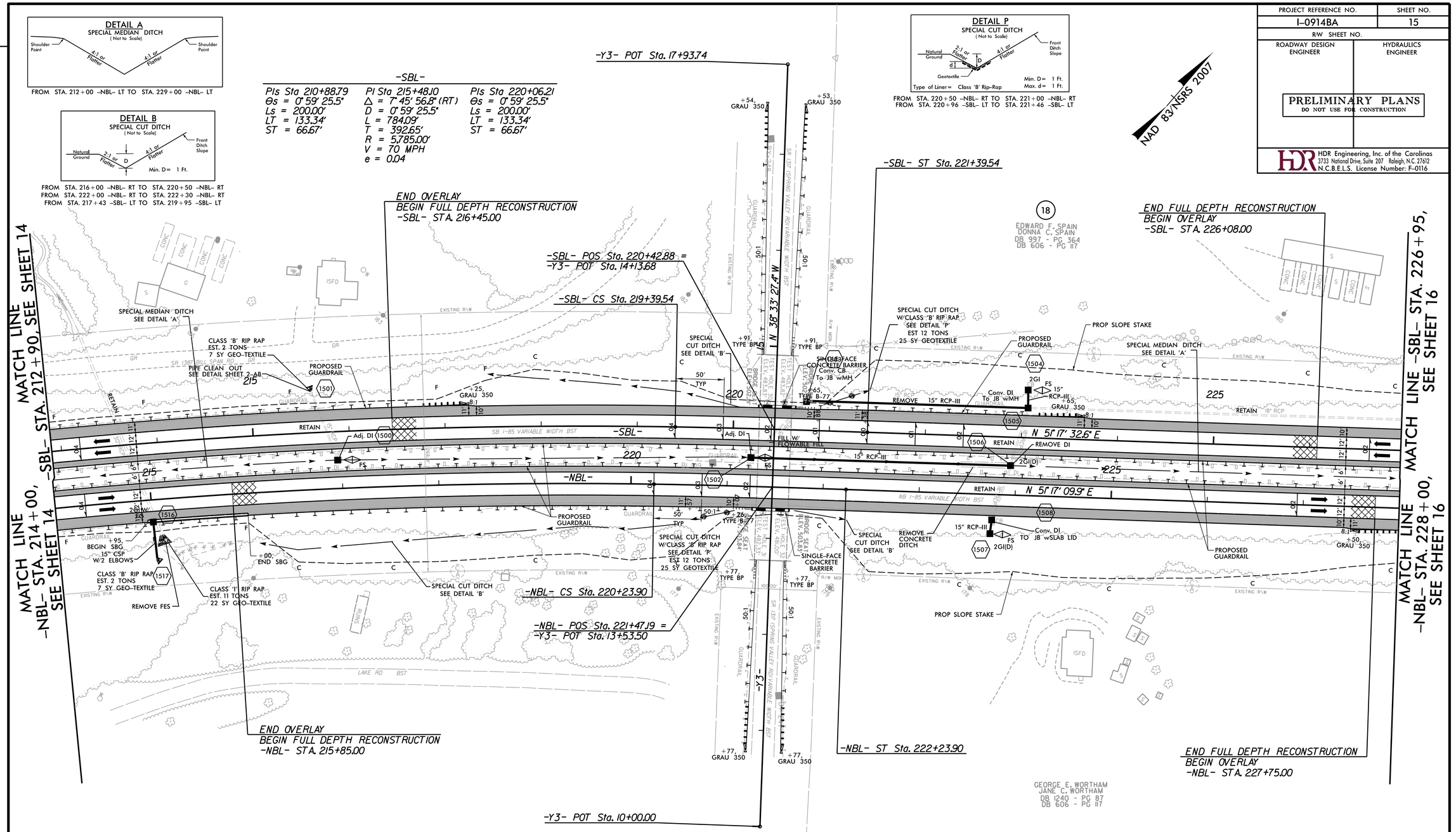
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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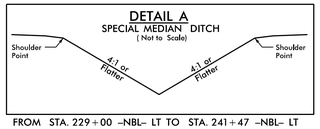
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

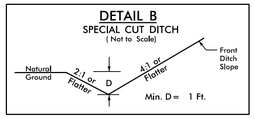
NAD 83/NSRS 2007

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)



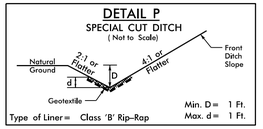
FROM STA. 229+00 -NBL- LT TO STA. 241+47 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



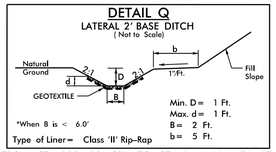
FROM STA. 237+50 -NBL- RT TO STA. 238+00 -NBL- RT

DETAIL P
SPECIAL CUT DITCH
(Not to Scale)

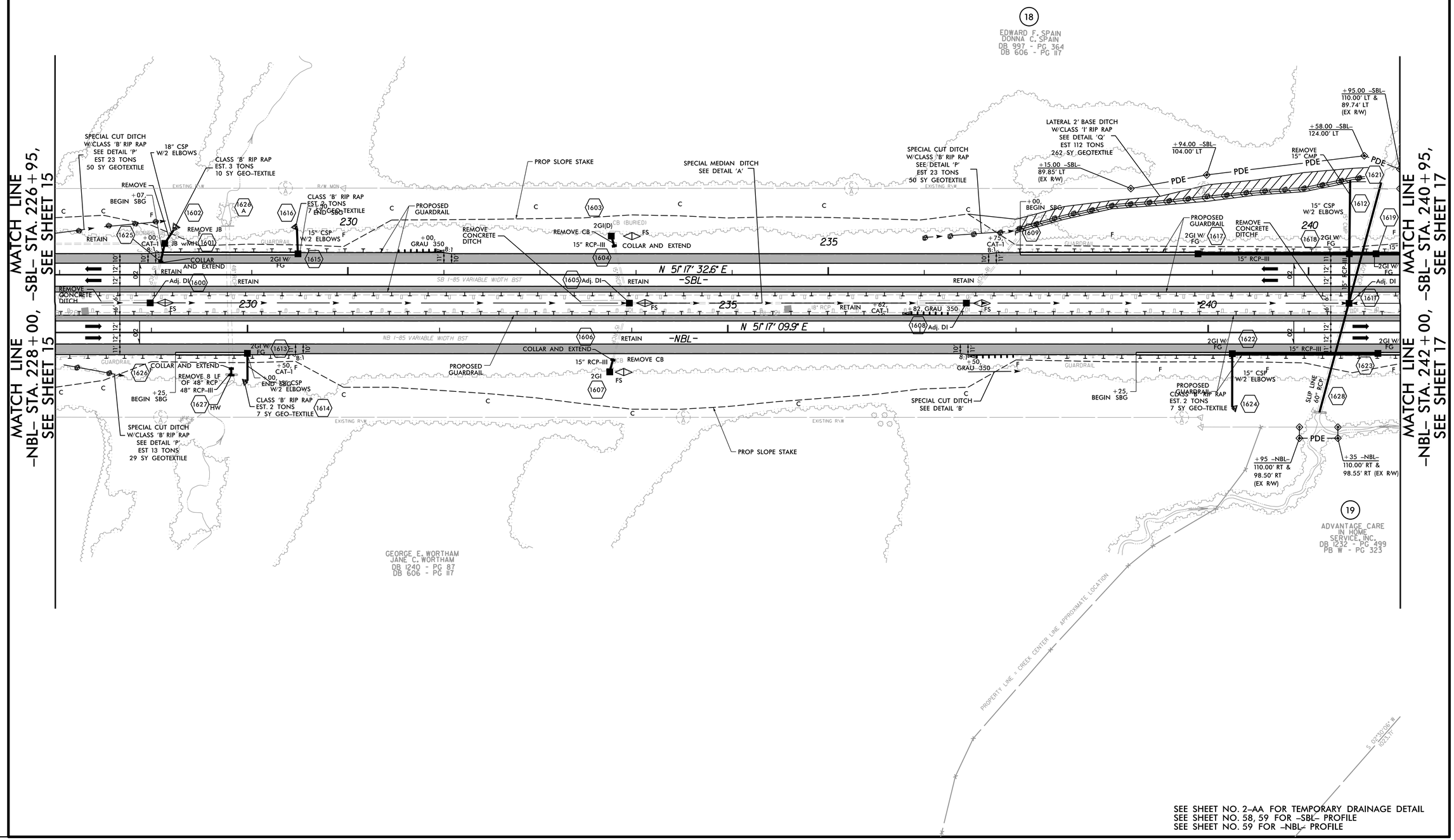


FROM STA. 228+00 -NBL- RT TO STA. 228+58 -NBL- RT
FROM STA. 226+96 -SBL- LT TO STA. 227+96 -SBL- LT
FROM STA. 235+96 -SBL- LT TO STA. 236+96 -SBL- LT

DETAIL Q
LATERAL 2' BASE DITCH
(Not to Scale)



FROM STA. 236+96 -SBL- TO STA. 240+58 -NBL- LT



SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NO. 58, 59 FOR -SBL- PROFILE
SEE SHEET NO. 59 FOR -NBL- PROFILE

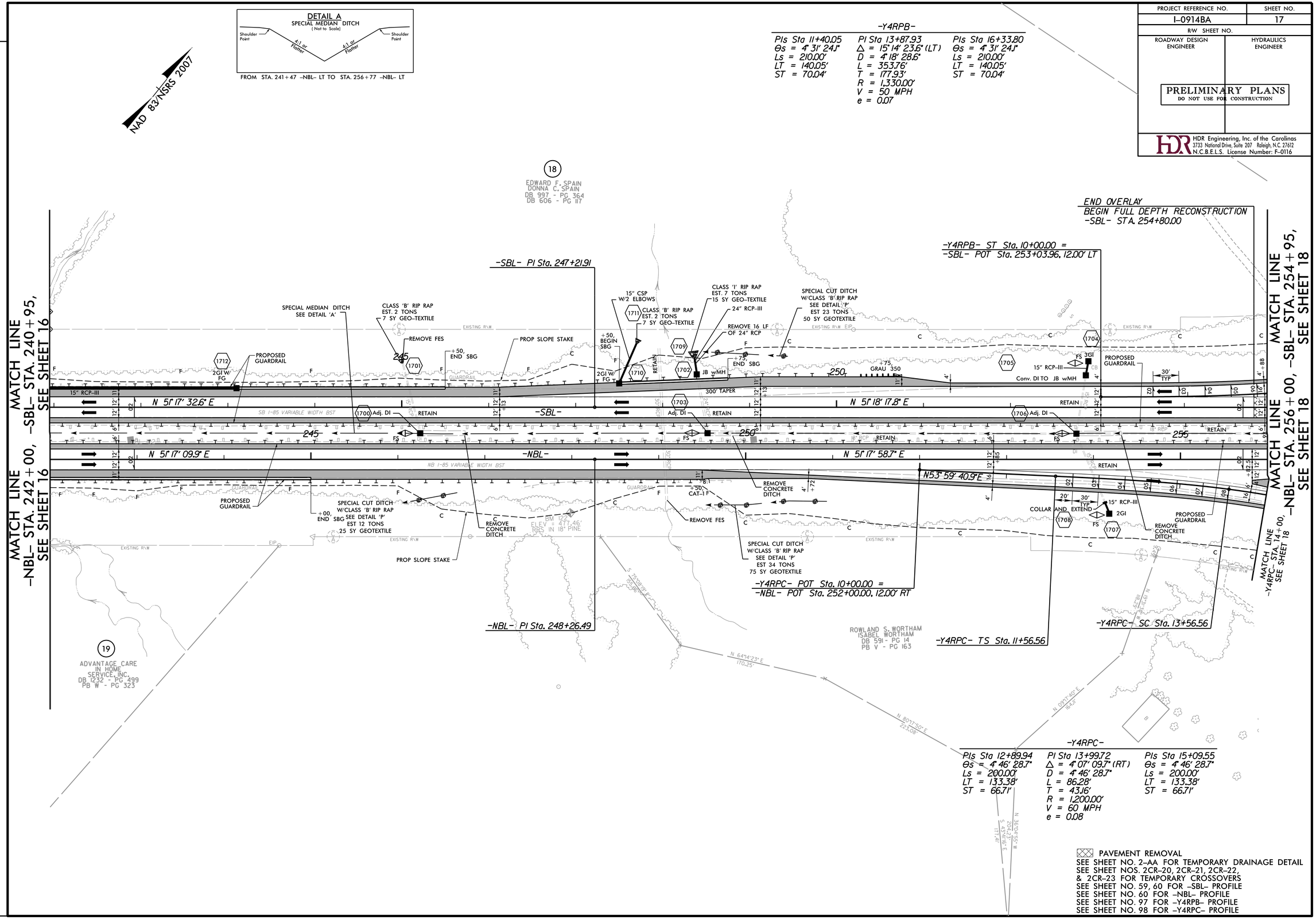
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 4:45:21 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S16.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwalnwri DATE: 2/28/2014 TIME: 4:45:48 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

-Y4RPB-

PIs Sta 11+40.05	PI Sta 13+87.93	PIs Sta 16+33.80
Θs = 4° 31' 24.1"	Δ = 15° 14' 23.6" (LT)	Θs = 4° 31' 24.1"
Ls = 210.00'	D = 4° 18' 28.6"	Ls = 210.00'
LT = 140.05'	L = 353.76'	LT = 140.05'
ST = 70.04'	T = 177.93'	ST = 70.04'
	R = 1,330.00'	
	V = 50 MPH	
	e = 0.07	

-Y4RPB-

PIs Sta 20+55.92	PI Sta 21+33.97	PIs Sta 22+11.40
Θs = 6° 21' 58.3"	Δ = 16° 15' 25.7" (RT)	Θs = 6° 21' 58.3"
Ls = 80.00'	D = 15° 54' 55.8"	Ls = 80.00'
LT = 53.37'	L = 102.15'	LT = 53.37'
ST = 26.70'	T = 51.42'	ST = 26.70'
	R = 360.00'	
	V = 30 MPH	
	e = 0.02	

-Y4-

PIs Sta 14+63.35	PI Sta 17+89.38	PIs Sta 21+12.25
Θs = 3° 00' 56.0"	Δ = 15° 32' 50.6" (RT)	Θs = 3° 00' 56.0"
Ls = 200.00'	D = 3° 00' 56.0"	Ls = 200.00'
LT = 133.35'	L = 515.57'	LT = 133.35'
ST = 66.68'	T = 259.38'	ST = 66.68'
	R = 1,900.00'	

NAD 83/NSRS 2007

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)
Shoulder Point — 4:1 or Flatter — 4:1 or Flatter — Shoulder Point
FROM STA. 256+77 -NBL- LT TO STA. 272+46 -NBL- LT

MATCH LINE -Y4RPC- STA. 14+00, -NBL- STA. 256+00, SEE SHEET 17

MATCH LINE -Y4RPA- STA. 18+25, -NBL- STA. 268+95, SEE SHEET 19

MATCH LINE -Y4RPD- STA. 13+60, -NBL- STA. 270+00, SEE SHEET 19

-Y4RPB- SC Sta. 12+10.00
-Y4RPB- CS Sta. 15+63.76
-Y4RPB- ST Sta. 17+73.76
-Y4RPB- TS Sta. 20+02.55
-Y4RPB- SC Sta. 20+82.55
-Y4RPB- CS Sta. 21+84.70
-Y4RPB- ST Sta. 22+64.70
N 15° 59' 48.0" E
-Y4- ST Sta. 22+45.57
-Y4- POS Sta. 21+42.78 =
-Y4RPB- POT Sta. 24+03.03
END CONSTRUCTION
-Y4RPB- ST A. 23+87.79
N 56° 00' 28.4" E
N 27° 01' 06.1" E
N 51° 18' 17.8" E
N 51° 17' 58.7" E
N 67° 39' 48.1" E
N 5° 34' 54.1" W
S 77° 04' 45.0" W
-Y4RPA- ST Sta. 19+80.56
END CONSTRUCTION
-Y4RPA- ST A. 21+45.31
-Y4- POS Sta. 21+00.70 =
-Y4RPA- POT Sta. 21+56.72
-Y4- CS Sta. 20+45.57
-SBL- POT Sta. 263+22.25 =
-Y4- POC Sta. 16+95.59
END FULL DEPTH RECONSTRUCTION
BEGIN OVERLAY
-SBL- ST A. 266+75.00
-NBL- POT Sta. 263+76.62 =
-Y4- POC Sta. 16+17.58
END FULL DEPTH RECONSTRUCTION
BEGIN OVERLAY
-NBL- ST A. 268+25.00
-Y4- POS Sta. 13+54.85 =
-Y4RPC- POT Sta. 20+49.93
END CONSTRUCTION
-Y4RPD- ST A. 21+72.39
END OVERLAY
BEGIN FULL DEPTH
RECONSTRUCTION
-NBL- ST A. 256+50.00
-Y4RPC- CS Sta. 14+42.84
-Y4RPC- ST Sta. 16+42.84
END CONSTRUCTION
-Y4RPC- ST A. 20+38.47
-Y4- TS Sta. 13+30.00
-Y4- POT Sta. 10+00.00
-Y4- POT Sta. 13+28.55 =
-Y4RPD- POT Sta. 21+83.97
-Y4RPD- CS Sta. 15+16.13
-Y4RPD- ST Sta. 17+26.13
-Y4RPD- TS Sta. 18+32.99
-Y4RPD- SC Sta. 19+12.99
-Y4RPD- CS Sta. 19+87.02
-Y4RPD- ST Sta. 20+67.02
S 29° 23' 39.1" W
S 50° 24' 26.0" W

A
B
C
D

EDWARD F. SPAIN
DONNA C. SPAIN
DB 997 - PG 364
DB 606 - PG 117

CLEMENTS DAVIS CONOLLY
INVESTMENTS, LLC
DB 764 - PG 787

(Satterwhite Point Rd.)

2014 ADT		3,925	
2035 ADT		5,200	
	1,375		225
27,575			300
42,500	1,700		
-L- I-85			26,275
			40,800
DHV = 8%	500		375
DIR = 55%	900		600
TTST = 17%			
DUAL = 3%	3,175		
	4,700		

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

FROM STA. 258+96 -SBL- LT TO STA. 260+57 -SBL- LT
FROM STA. 262+57 -SBL- LT TO STA. 263+46 -SBL- LT
FROM STA. 266+45 -SBL- LT TO STA. 271+15 -SBL- LT
FROM STA. 262+00 -NBL- RT TO STA. 262+50 -NBL- RT
FROM STA. 257+00 -NBL- RT TO STA. 258+00 -NBL- RT

-Y4RPC-

PIs Sta 12+89.94	PI Sta 13+99.72	PIs Sta 15+09.55
Θs = 4° 46' 28.7"	Δ = 4° 07' 09.7" (RT)	Θs = 4° 46' 28.7"
Ls = 200.00'	D = 4° 46' 28.7"	Ls = 200.00'
LT = 133.38'	L = 86.28'	LT = 133.38'
ST = 66.71'	T = 43.16'	ST = 66.71'
	R = 1,200.00'	
	V = 60 MPH	
	e = 0.08	

-Y4RPD-

PIs Sta 20+13.71	PI Sta 19+50.0	PIs Sta 18+86.35
Θs = 5° 27' 24.3"	Δ = 10° 05' 58.4" (RT)	Θs = 5° 27' 24.3"
Ls = 80.00'	D = 13° 38' 30.7"	Ls = 80.00'
LT = 53.36'	L = 74.03'	LT = 53.36'
ST = 26.69'	T = 37.11'	ST = 26.69'
	R = 420.00'	
	V = 35 MPH	
	e = 0.02	

-Y4RPD-

PIs Sta 15+86.18	PI Sta 13+63.73	PIs Sta 11+40.04
Θs = 4° 27' 22.8"	Δ = 12° 59' 33.9" (LT)	Θs = 4° 27' 22.8"
Ls = 210.00'	D = 4° 14' 38.9"	Ls = 210.00'
LT = 140.04'	L = 306.13'	LT = 140.04'
ST = 70.04'	T = 153.73'	ST = 70.04'
	R = 1,350.00'	
	V = 50 MPH	
	e = 0.07	

-Y4RPA-

PIs Sta 18+47.27	PI Sta 16+47.85	PIs Sta 14+47.43
Θs = 4° 46' 28.7"	Δ = 12° 43' 29.8" (RT)	Θs = 4° 46' 28.7"
Ls = 200.00'	D = 4° 46' 28.7"	Ls = 200.00'
LT = 133.38'	L = 266.51'	LT = 133.38'
ST = 66.71'	T = 133.81'	ST = 66.71'
	R = 1,200.00'	
	V = 60 MPH	
	e = 0.08	

PAVEMENT REMOVAL
-Y4- SATTERWHITE RD. BRIDGE WILL BE REHABBED.
SEE STRUCTURE PLANS FOR DETAILS.
SEE SHEET NOS. 60, 61 -SBL- PROFILE
SEE SHEET NO. 61 FOR -NBL- PROFILE
SEE SHEET NO. 97 FOR -Y4RPA- & -Y4RPB- PROFILE
SEE SHEET NO. 98 FOR -Y4RPC- & -Y4RPD- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 4:46:08 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S18.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

NAD 83/NSRS 2007

-Y4RPA-

PIs Sta 18+47.27	PI Sta 16+47.85	PIs Sta 14+43.43
Θs = 4° 46' 28.7"	Δ = 12° 43' 29.8" (RT)	Θs = 4° 46' 28.7"
Ls = 200.00'	D = 4° 46' 28.7"	Ls = 200.00'
LT = 133.38'	L = 266.51'	LT = 133.38'
ST = 66.71'	T = 133.81'	ST = 66.71'
	R = 1,200.00'	
	V = 60 MPH	
	e = 0.08	

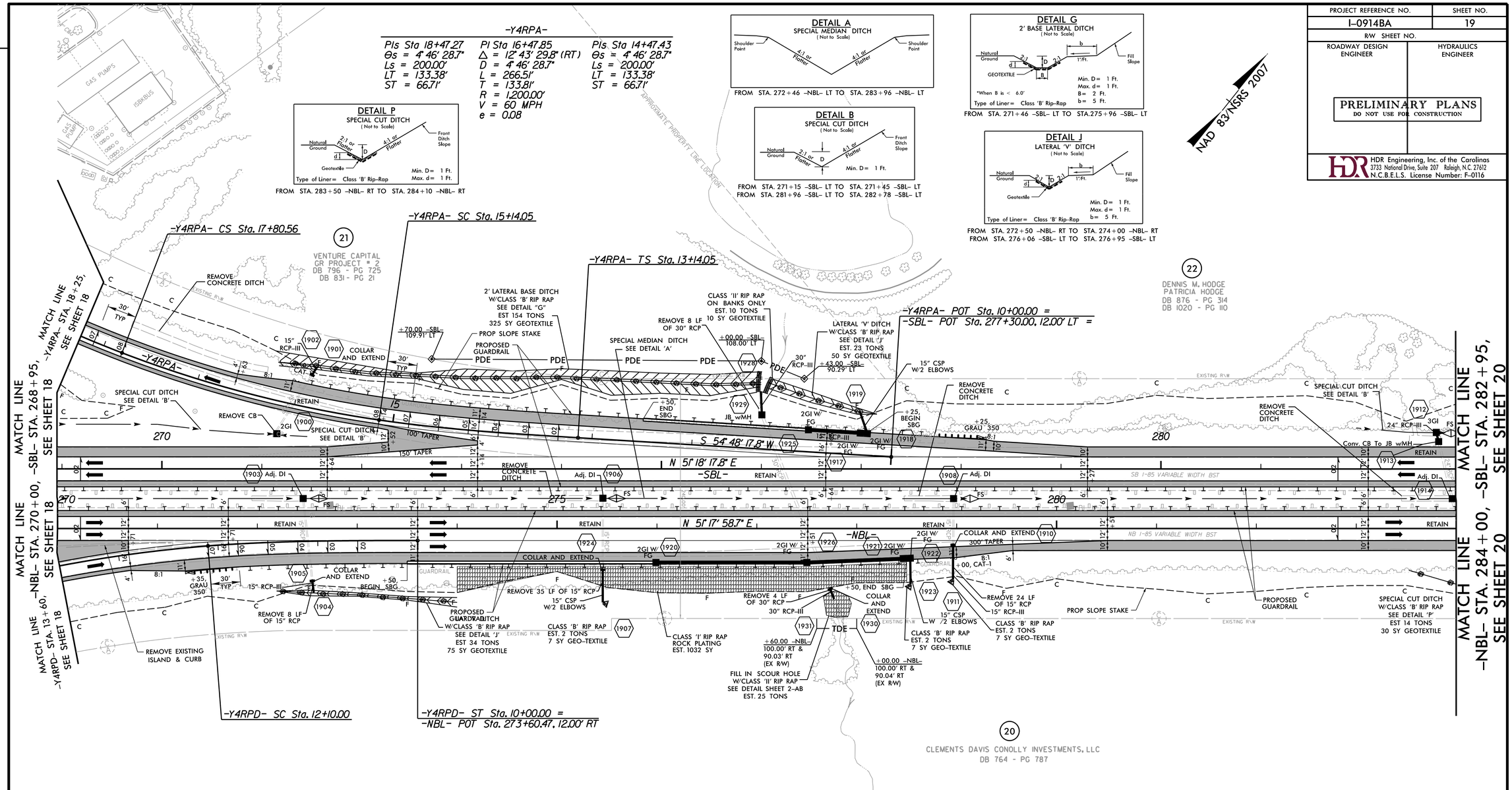
DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)
Shoulder Point — 4:1 or Flatter — 4:1 or Flatter — Shoulder Point
FROM STA. 272+46 -NBL- LT TO STA. 283+96 -NBL- LT

DETAIL G
2' BASE LATERAL DITCH
(Not to Scale)
Natural Ground — 2:1 — D — 2:1 — b — 1'-Ft. — Fill Slope — d — B — GEOTEXTILE
*When B is < 6.0'
Min. D = 1 Ft.
Max. d = 1 Ft.
B = 2 Ft.
b = 5 Ft.
Type of Liner = Class 'B' Rip-Rap
FROM STA. 271+46 -SBL- LT TO STA.275+96 -SBL- LT

DETAIL P
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground — 2:1 or Flatter — D — 4:1 or Flatter — Front Ditch Slope — d — Geotextile
Min. D = 1 Ft.
Max. d = 1 Ft.
Type of Liner = Class 'B' Rip-Rap
FROM STA. 283+50 -NBL- RT TO STA. 284+10 -NBL- RT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground — 2:1 or Flatter — D — 4:1 or Flatter — Front Ditch Slope
Min. D = 1 Ft.
FROM STA. 271+15 -SBL- LT TO STA. 271+45 -SBL- LT
FROM STA. 281+96 -SBL- LT TO STA. 282+78 -SBL- LT

DETAIL J
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground — 2:1 — D — 2:1 — b — 1'-Ft. — Fill Slope — d — Geotextile
Min. D = 1 Ft.
Max. d = 1 Ft.
b = 5 Ft.
Type of Liner = Class 'B' Rip-Rap
FROM STA. 272+50 -NBL- RT TO STA. 274+00 -NBL- RT
FROM STA. 276+06 -SBL- LT TO STA. 276+95 -SBL- LT



-Y4RPD-

PIs Sta 15+86.18	PI Sta 13+63.73	PIs Sta 11+40.04
Θs = 4° 27' 22.8"	Δ = 12° 59' 33.9" (LT)	Θs = 4° 27' 22.8"
Ls = 210.00'	D = 4° 14' 38.9"	Ls = 210.00'
LT = 140.04'	L = 306.13'	LT = 140.04'
ST = 70.04'	T = 153.73'	ST = 70.04'
	R = 1,350.00'	
	V = 50 MPH	
	e = 0.07'	

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-18, 2CR-19, 2CR-24, & 2CR-25 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 61, 62 FOR -SBL- PROFILE
SEE SHEET NO. 62 FOR -NBL- PROFILE
SEE SHEET NO. 97 FOR -Y4RPA- PROFILE
SEE SHEET NO. 98 FOR -Y4RPD- PROFILE

REVISIONS

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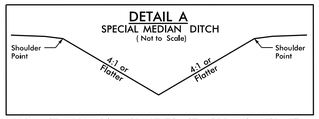
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

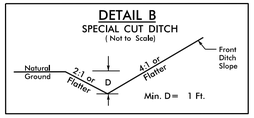
NAD 83/NSRS 2007

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)



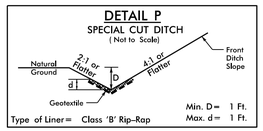
FROM STA. 283+96 -NBL- LT TO STA. 300+46 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



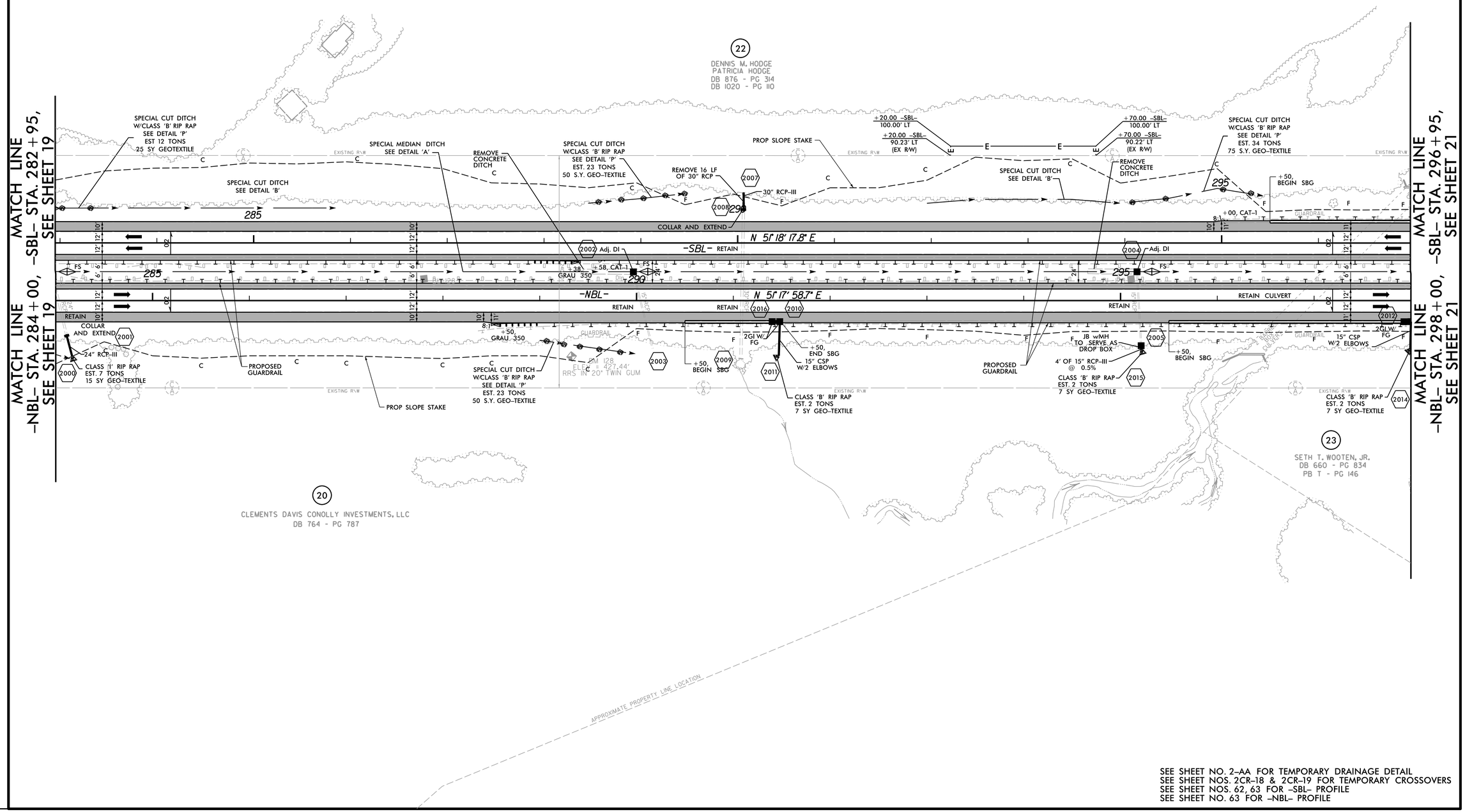
FROM STA. 283+76 -SBL- LT TO STA. 285+96 -SBL- LT
FROM STA. 291+96 -SBL- LT TO STA. 293+96 -SBL- LT

DETAIL P
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

FROM STA. 289+00 -NBL- RT TO STA. 290+00 -NBL- RT
FROM STA. 282+78 -SBL- LT TO STA. 283+46 -SBL- LT
FROM STA. 288+46 -SBL- LT TO STA. 289+45 -SBL- LT
FROM STA. 293+96 -SBL- LT TO STA. 295+46 -SBL- LT



SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-18 & 2CR-19 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 62, 63 FOR -SBL- PROFILE
SEE SHEET NO. 63 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
2730 Yorkmont Drive, Suite 201 Raleigh, N.C. 27609
N.C.B.E.L. License Number F-0116

NAD 83/NSRS 2007

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)

FROM STA. 300+46 -NBL- LT TO STA. 306+00 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)

FROM STA. 23+50 -YSSBL- RT TO STA. 28+50 -YSSBL- RT
FROM STA. 303+50 -NBL- RT TO STA. 305+00 -NBL- RT
FROM STA. 306+50 -NBL- RT TO STA. 307+00 -NBL- RT
FROM STA. 301+94 -SBL- LT TO STA. 303+05 -SBL- LT
FROM STA. 309+00 -NBL- RT TO STA. 309+43 -NBL- RT
FROM STA. 319+50 -SBL- RT TO STA. 321+50 -SBL- RT
FROM STA. 323+00 -NBL- RT TO STA. 324+00 -NBL- RT
FROM STA. 325+00 -NBL- RT TO STA. 326+65 -NBL- RT
FROM STA. 313+30 -SBL- RT TO STA. 314+50 -SBL- RT

DETAIL P
CUT DITCH
(Not to Scale)

Type of Liner= Class 'B' Rip-Rap

FROM STA. 309+38 -SBL- LT TO STA. 306+47 -SBL- LT
FROM STA. 23+75 -YSSBL- RT TO STA. 25+00 -YSSBL- RT
FROM STA. 25+87 -YSNBL- TO STA. 27+36 -YSNBL- LT
FROM STA. 24+83 -YSSBL- LT TO STA. 26+85 -YSSBL- LT
FROM STA. 300+46 -NBL- LT TO STA. 301+00 -NBL- LT
FROM STA. 301+63 -NBL- RT TO STA. 310+00 -NBL- RT
FROM STA. 313+50 -NBL- RT TO STA. 314+50 -NBL- RT

DETAIL W
SPECIAL CUT BASE DITCH
(Not to Scale)

Type of Liner= Class 'B' Rip-Rap

FROM STA. 23+75 -YSSBL- RT TO STA. 25+50 -YSSBL- RT

-SBL-

PIs Sta 300+91.26	PI Sta 304+15.59	PIs Sta 307+39.01
θs = 3°21' 16.8"	Δ = 9°19' 26.5" (LT)	θs = 3°21' 16.8"
Ls = 315.00'	D = 2°07' 47.8"	Ls = 315.00'
LT = 210.04'	L = 437.76'	LT = 210.04'
ST = 105.03'	T = 219.36'	ST = 105.03'
	R = 2,690.00'	
	V = 70 MPH	
	e = 0.07	

-SBL-

PIs Sta 315+45.55	PI Sta 317+93.56	PIs Sta 320+41.37
θs = 1°34' 19.7"	Δ = 4°49' 57.9" (RT)	θs = 1°34' 19.7"
Ls = 225.00'	D = 1°31' 50.8"	Ls = 225.00'
LT = 150.01'	L = 345.82'	LT = 150.01'
ST = 75.01'	T = 173.01'	ST = 75.01'
	R = 4,000.00'	
	V = 70 MPH	
	e = 0.05	

-NBL-

PIs Sta 312+76.49	PI Sta 315+77.80	PIs Sta 318+78.15
θs = 5°41' 52.5"	Δ = 11°26' 55.9" (LT)	θs = 5°41' 52.5"
Ls = 360.00'	D = 3°09' 55.8"	Ls = 360.00'
LT = 240.12'	L = 361.68'	LT = 240.12'
ST = 120.11'	T = 181.44'	ST = 120.11'
	R = 1,810.00'	
	V = 70 MPH	
	e = 0.08	

-NBL-

PIs Sta 323+58.61	PI Sta 329+00.46	PIs Sta 334+38.96
θs = 1°28' 25.4"	Δ = 11°54' 42.4" (RT)	θs = 1°28' 25.4"
Ls = 225.00'	D = 1°16' 49.3"	Ls = 225.00'
LT = 150.00'	L = 930.35'	LT = 150.00'
ST = 75.00'	T = 466.96'	ST = 75.00'
	R = 4,475.00'	
	V = 70 MPH	
	e = 0.05	

-YSSBL-

PI Sta 17+05.33
Δ = 40°28' 21.7" (LT)
D = 2°59' 31.0"
L = 1,351.61'
T = 705.33'
R = 1,915.00'
V = 60 MPH
e = 0.06

-YSNBL-

PI Sta 13+31.57	PI Sta 21+80.71	PI Sta 30+80.55	PI Sta 39+81.93
Δ = 8°04' 14.3" (LT)	Δ = 7°07' 33.2"	Δ = 20°46' 54.6" (LT)	θs = 1°30' 04.3"
D = 1°19' 08.6"	Ls = 180.00'	D = 1°15' 03.6"	Ls = 240.00'
L = 663.04'	LT = 120.00'	L = 1,661.22'	LT = 160.01'
T = 331.57'	ST = 60.00'	T = 839.84'	ST = 80.01'
R = 4,000.00'		R = 4,580.00'	
V = 60 MPH		V = 60 MPH	
e = 0.04		e = 0.04	

-YSNBL = & -YSSBL-
(125 ')

2014 AOT	
2035 AOT	
	DHV = 12%
	DIR = 50%
	TTST = 12%
	DUAL = 1%
26,275 / 40,800	
-L- I-85	
	33,200 / 52,000
DHV = 8%	
DIR = 55%	
TTST = 17%	
DUAL = 3%	
6,925 / 11,200	6,925 / 11,200

PROPERTY OWNERS

22 DENNIS M. HODGE, PATRICIA HODGE, DB 8176 - PG 364, DB 9020 - PG 90

23 SETH T. WOOTEN JR. DB 660 - PG 834, PB 7 - PG 146

24 KEITH ROBERT SMITH, JAMES H. FALKNER, III, DB 900 - PG 145

25 S.T. WOOTEN CORPORATION, DB 760 - PG 713

26 KIRBY LANE AYSCUE, DB 788 - PG 584

27 LIVENSBURN PROPERTY OWNER

MATCH LINE -NBL- STA. 298+00, -SBL- STA. 296+95, SEE SHEET 20

MATCH LINE -NBL- STA. 326+00, -SBL- STA. 324+25, SEE SHEET 22

MATCH LINE -YSSBL- STA. 29+85, -YSNBL- STA. 34+50, SEE SHEET 45A

-SBL- TS Sta. 298+81.22
-SBL- SC Sta. 301+96.22
-SBL- CS Sta. 306+33.98
-SBL- ST Sta. 309+48.98
-SBL- TS Sta. 313+95.54
-SBL- SC Sta. 316+20.54
-SBL- CS Sta. 319+66.37
-SBL- ST Sta. 321+91.37
-NBL- TS Sta. 310+36.36
-NBL- SC Sta. 313+96.36
-NBL- CS Sta. 317+58.04
-NBL- TS Sta. 322+08.60
-NBL- ST Sta. 324+18.04
-NBL- SC Sta. 324+33.60
-YSSBL- PC Sta. 10+00.00 = -SBL- POS Sta. 321+14.43, 12.00' RT
-YSNBL- PT Sta. 16+62.04
-YSNBL- TS Sta. 20+60.71
-YSNBL- SC Sta. 22+40.71
-YSSBL- PT Sta. 23+51.61
-YSARPC- ST Sta. 10+00.00 = -YSSBL- POT Sta. 29+11.44, 12.00' RT
-YSARPB- ST Sta. 10+00.00 = -YSNBL- POC Sta. 33+89.46, 12.00' LT

STRUCTURE SITE 3

BEGIN APPROACH SLAB -YSSBL- STA. 20+09 +/-
BEGIN BRIDGE -YSSBL- STA. 20+34 +/-
END BRIDGE -YSSBL- STA. 22+56 +/-
END APPROACH SLAB -YSSBL- STA. 22+81 +/-
END OVERLAY BEGIN BREAKING OF EXISTING PAVEMENT -YSSBL- STA. 17+29.00
END BREAKING OF EXISTING PAVEMENT BEGIN OVERLAY -YSSBL- STA. 26+17.00
END OVERLAY BEGIN FULL DEPTH RECONSTRUCTION -NBL- STA. 304+05.00
END FULL DEPTH RECONSTRUCTION BEGIN OVERLAY -NBL- STA. 316+60.00
-NBL- POS Sta. 311+53.85 = -YSSBL- POC Sta. 21+34.80

PAVEMENT REMOVAL
SEE SHEET NO. 2-Q FOR BRIDGE SKETCH
SEE SHEET NOS. 63, 64, 65 FOR -SBL- PROFILE
SEE SHEET NOS. 64, 65 FOR -NBL- PROFILE
SEE SHEET NO. 99 FOR -YSNBL- PROFILE
SEE SHEET NOS. 100, 101 FOR -YSSBL- PROFILE
SEE SHEET NO. 102 FOR -YSARPB- PROFILE
SEE SHEET NO. 103 FOR -YSARPC- PROFILE

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

PLOT DRIVEN: NCDOT_cdt_color*.pnp,100pt*
cdOts: wedmer1
FILE: Y:\Pro*Engineering\Dept of Transport\I-0914BA\NCDOT_I-0914_Document\Design\dgn\Project_Design\I-0914BA_NCDOT_Folder_Structure\Roadway\R-0-1\I0914BA_NCDT_PSH_S21.dgn
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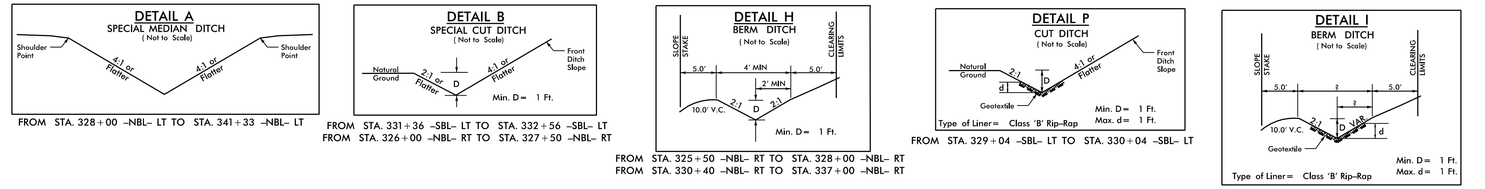
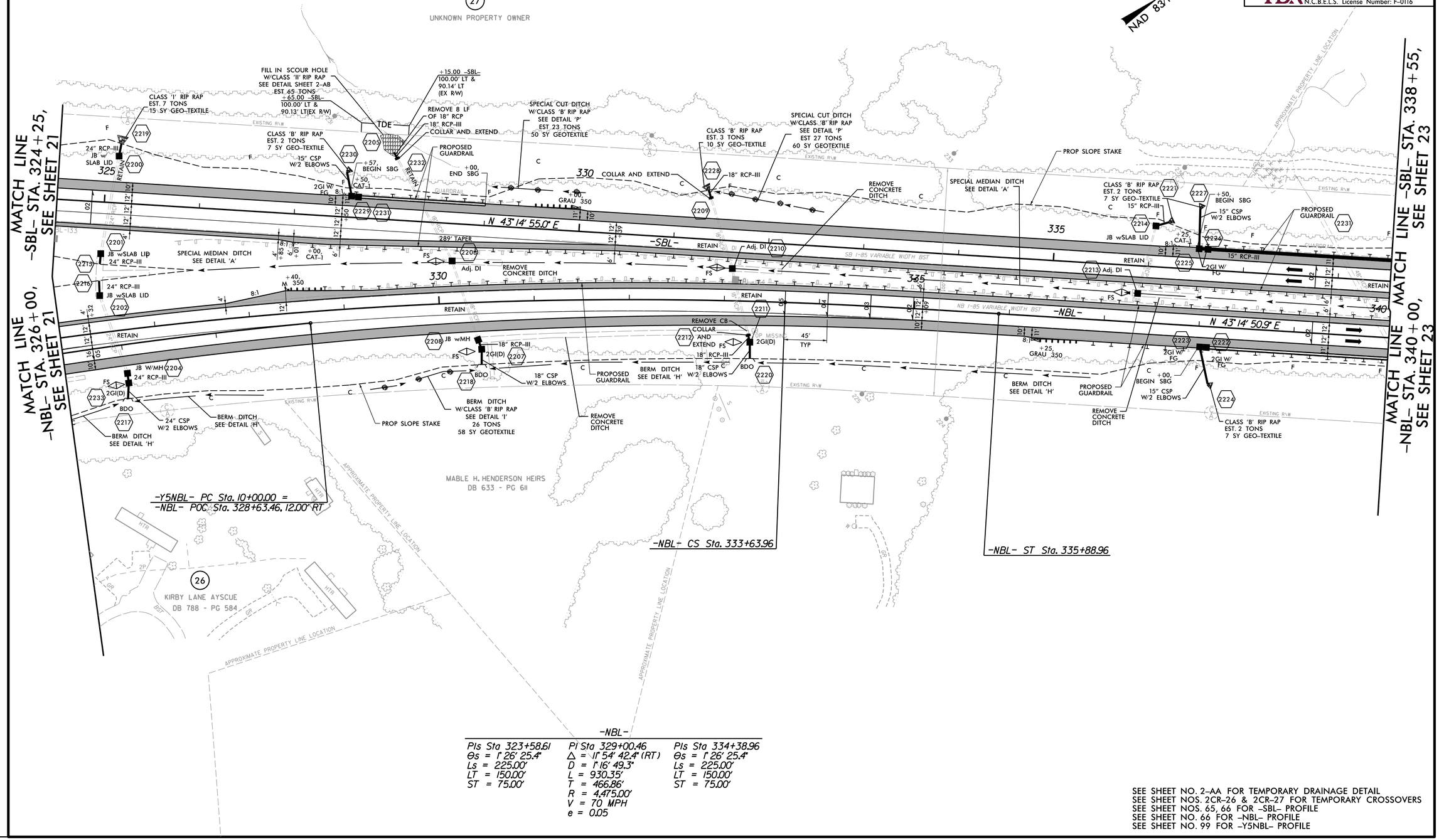
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116





-NBL-

PIs Sta 323+58.61	PI Sta 329+00.46	PIs Sta 334+38.96
Θs = 1° 26' 25.4"	Δ = 11° 54' 42.4" (RT)	Θs = 1° 26' 25.4"
Ls = 225.00'	D = 1° 16' 49.3"	Ls = 225.00'
LT = 150.00'	L = 930.35'	LT = 150.00'
ST = 75.00'	T = 466.86'	ST = 75.00'
	R = 4,475.00'	
	V = 70 MPH	
	e = 0.05	

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-26 & 2CR-27 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 65, 66 FOR -SBL- PROFILE
SEE SHEET NO. 66 FOR -NBL- PROFILE
SEE SHEET NO. 99 FOR -Y5NBL- PROFILE

REVISIONS

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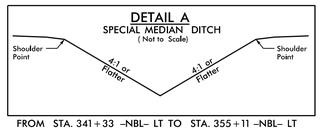
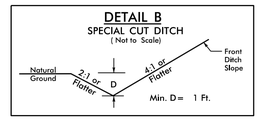
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

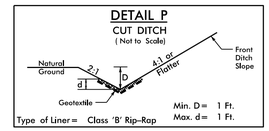
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



FROM STA. 341+33 -NBL- LT TO STA. 355+11 -NBL- LT



FROM STA. 344+00 -NBL- RT TO STA. 345+00 -NBL- RT



FROM STA. 343+07 -SBL- LT TO STA. 343+57 -SBL- LT

NAD 83/NSRS 2007

MATCH LINE
-NBL- STA. 340+00,
SEE SHEET 22

MATCH LINE
-SBL- STA. 338+55, SEE SHEET 22

MATCH LINE
-SBL- STA. 352+55,
SEE SHEET 24

MATCH LINE
-NBL- STA. 354+00,
SEE SHEET 24

CLASS 'B' RIP RAP
EST. 2 TONS
7 SY GEO-TEXTILE

PIPE CLEAN OUT
SEE DETAIL SHEET 2-AB

PROP SLOPE STAKE

SPECIAL MEDIAN DITCH
SEE DETAIL 'A'

PROPOSED GUARDRAIL

+75,
END SBG

CLASS 'B' RIP RAP
EST. 3 TONS
10 SY GEO-TEXTILE

REMOVE 8 LF
OF 18" RCP
18" RCP-III

SPECIAL CUT DITCH
W/CLASS 'B' RIP RAP
SEE DETAIL 'P'
EST 12 TONS
25 SY GEOTEXTILE

+00,
GRAU 350

COLLAR AND EXTEND

REMOVE CB

2GI(D)

15" RCP-III

PROPOSED GUARDRAIL

Conv. CB To JB wMH

REMOVE CONCRETE DITCH

SPECIAL CUT DITCH
SEE DETAIL 'B'

PROP SLOPE STAKE

+00,
END SBG

REMOVE CONCRETE DITCH

PROPOSED GUARDRAIL

+00,
CAT-1

N 43° 14' 55.0" E

N 43° 14' 50.9" E

-SBL-

-NBL-

RETAIN

Adj. DI

EXISTING R/W

OVERHEAD SIGN

GUARDRAIL

15" RCP-III

2GLW

ELEV. = 459.92'
RRS IN HH GUAR

BM 136

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NO. 2CR-3 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 66, 67 FOR -SBL- PROFILE
SEE SHEET NO. 67 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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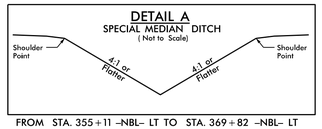
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

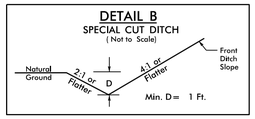
NAD 83/NSRS 2007

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)



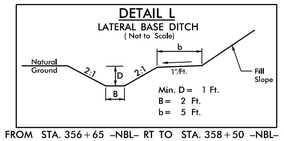
FROM STA. 355+11 -NBL- LT TO STA. 369+82 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



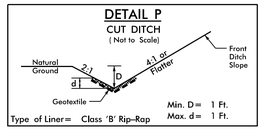
FROM STA. 357+07 -SBL- LT TO STA. 357+57 -SBL- LT
FROM STA. 358+50 -NBL- RT TO STA. 360+50 -NBL- RT

DETAIL L
LATERAL BASE DITCH
(Not to Scale)

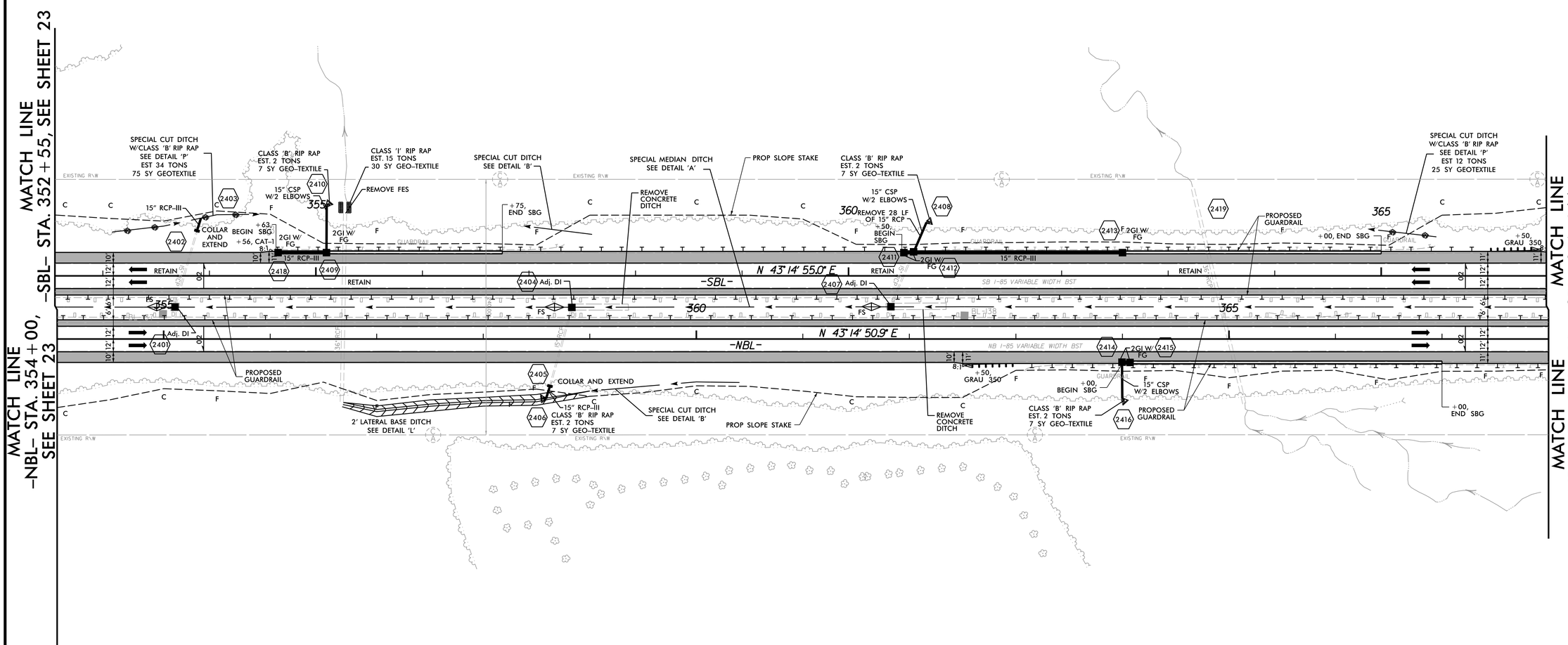


FROM STA. 356+65 -NBL- RT TO STA. 358+50 -NBL- RT

DETAIL P
CUT DITCH
(Not to Scale)



FROM STA. 353+07 -SBL- LT TO STA. 354+57 -SBL- LT
FROM STA. 365+07 -SBL- LT TO STA. 365+57 -SBL- LT



SEE SHEET NO. 2CR-4 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 67, 68 -SBL- FOR PROFILE
SEE SHEET NO. 68 FOR -NBL- PROFILE

REVISIONS

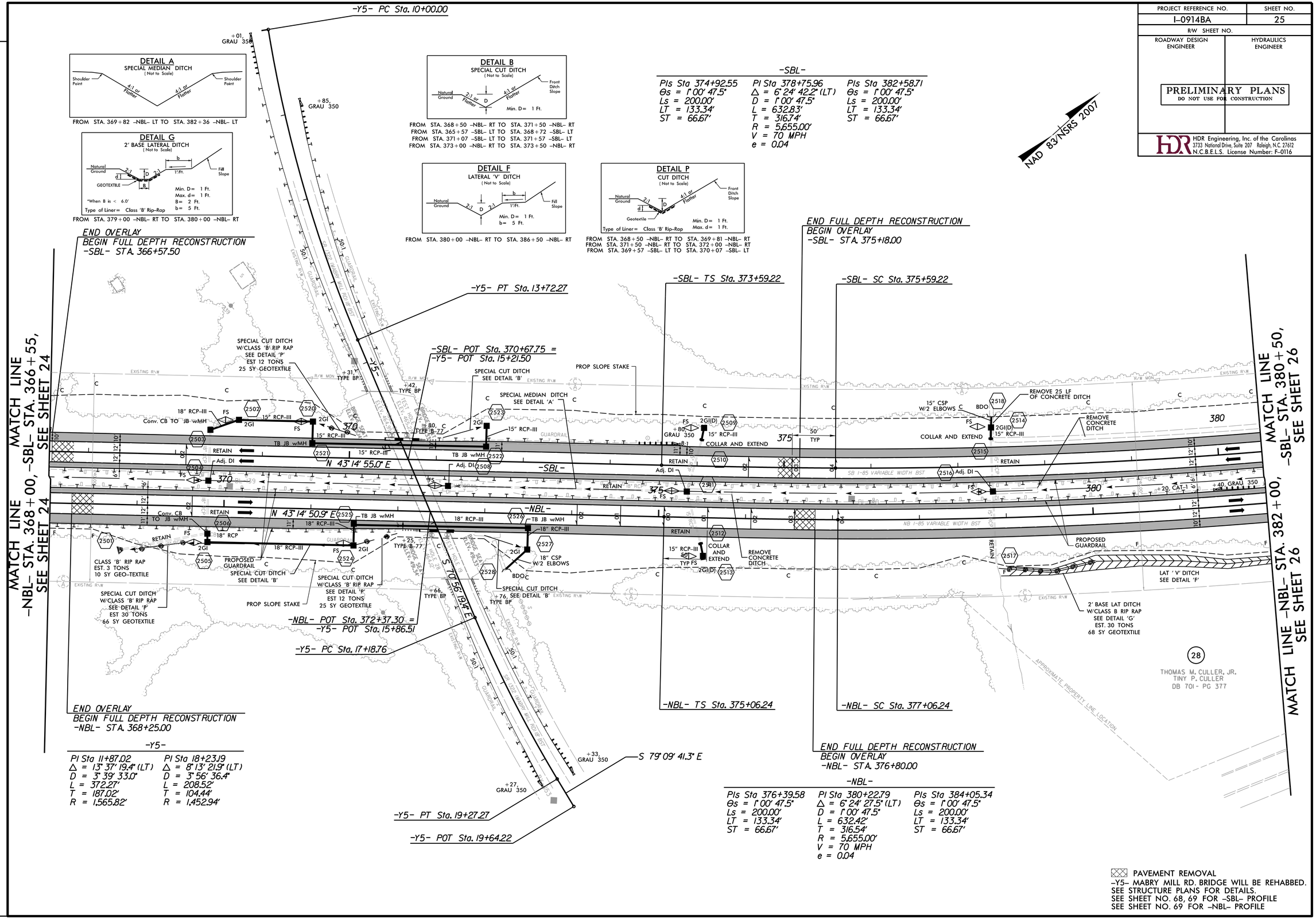
PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:08:09 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S24.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

NAD 83/NSRS 2007



PAVEMENT REMOVAL
-Y5- MABRY MILL RD. BRIDGE WILL BE REHABBED.
SEE STRUCTURE PLANS FOR DETAILS.
SEE SHEET NO. 68, 69 FOR -SBL- PROFILE
SEE SHEET NO. 69 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:08:29 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

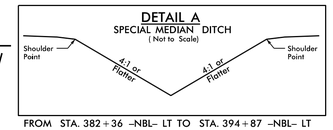
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

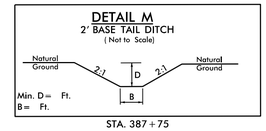
NAD 83/NSRS 2007

-SBL-

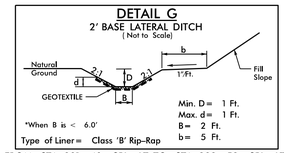
PIs Sta 374+92.55	PI Sta 378+75.96	PIs Sta 382+58.71
Θs = 1° 00' 47.5"	Δ = 6° 24' 42.2" (LT)	Θs = 1° 00' 47.5"
Ls = 200.00'	D = 1° 00' 47.5"	Ls = 200.00'
LT = 133.34'	L = 632.83'	LT = 133.34'
ST = 66.67'	T = 316.74'	ST = 66.67'
	R = 5,655.00'	
	V = 70 MPH	
	e = 0.04	



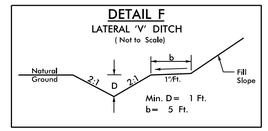
FROM STA. 382+36 -NBL- LT TO STA. 394+87 -NBL- LT



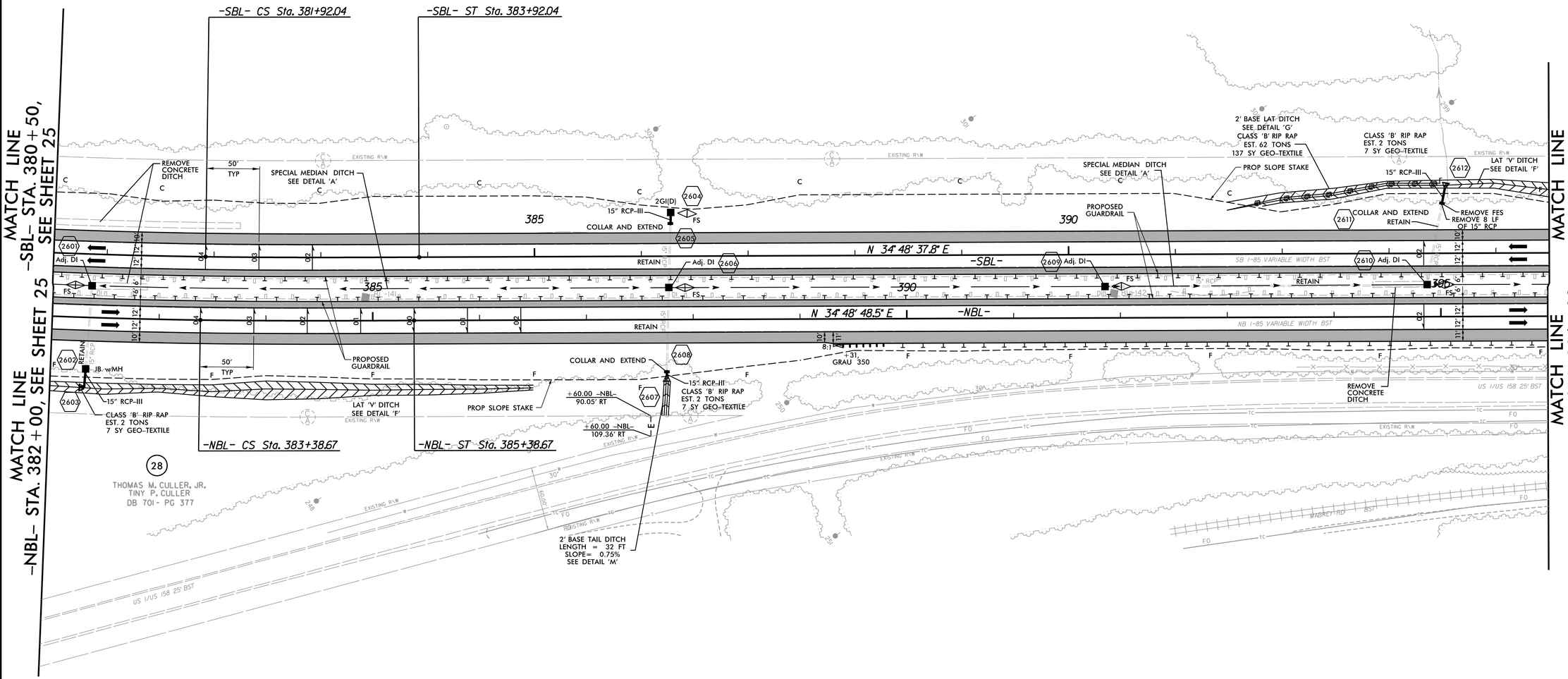
STA. 387+75



FROM STA. 391+48 -SBL- LT TO STA. 393+53 -SBL- LT



FROM STA. 380+00 -NBL- RT TO STA. 386+50 -NBL- RT
FROM STA. 393+53 -SBL- LT TO STA. 396+27 -SBL- LT



-NBL-

PIs Sta 376+39.58	PI Sta 380+22.79	PIs Sta 384+05.34
Θs = 1° 00' 47.5"	Δ = 6° 24' 27.5" (LT)	Θs = 1° 00' 47.5"
Ls = 200.00'	D = 1° 00' 47.5"	Ls = 200.00'
LT = 133.34'	L = 632.42'	LT = 133.34'
ST = 66.67'	T = 316.54'	ST = 66.67'
	R = 5,655.00'	
	V = 70 MPH	
	e = 0.04	

SEE SHEET NOS. 69, 70 FOR -SBL- PROFILE
SEE SHEET NO. 70 FOR -NBL- PROFILE

REVISIONS

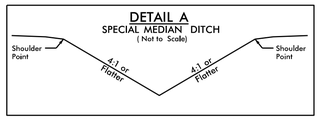
PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:08:47 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S26.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

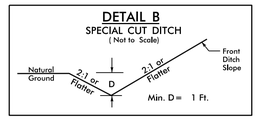
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

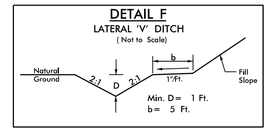
NAD 83/NSRS 2007



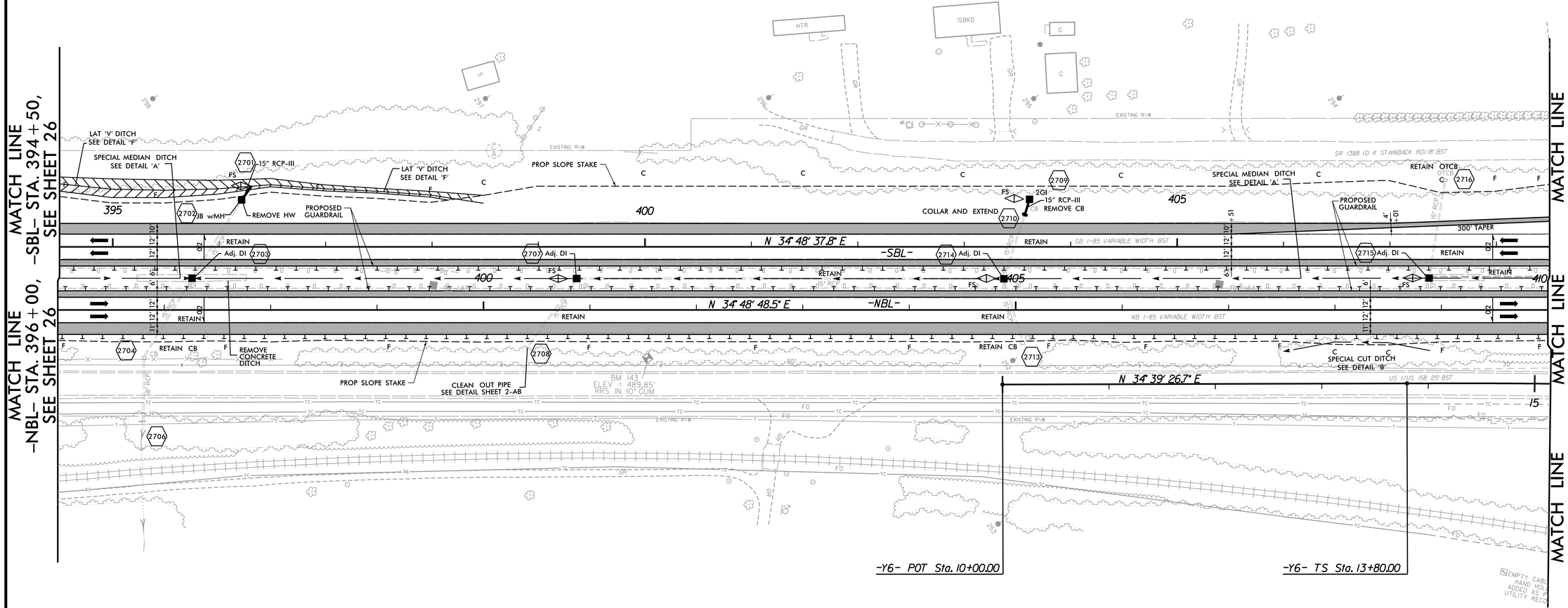
FROM STA. 394+87 -NBL- LT TO STA. 408+88 -NBL- LT



FROM STA. 407+50 -NBL- RT TO STA. 409+00 -NBL- RT



FROM STA. 393+53 -SBL- LT TO STA. 398+48 -SBL- LT



-Y6-

PIs Sta 15+13.34	PI Sta 22+46.86	PIs Sta 29+58.06
Θs = 1° 57' 19.8"	Δ = 25° 38' 38.1" (RT)	Θs = 1° 57' 19.8"
Ls = 200.00'	D = 1° 57' 19.8"	Ls = 200.00'
LT = 133.34'	L = 1,311.38'	LT = 133.34'
ST = 66.67'	T = 666.86'	ST = 66.67'
	R = 2,930.00'	

SEE SHEET NOS. 70, 71 FOR -SBL- PROFILE
SEE SHEET NO. 71 FOR -NBL- PROFILE

REVISIONS

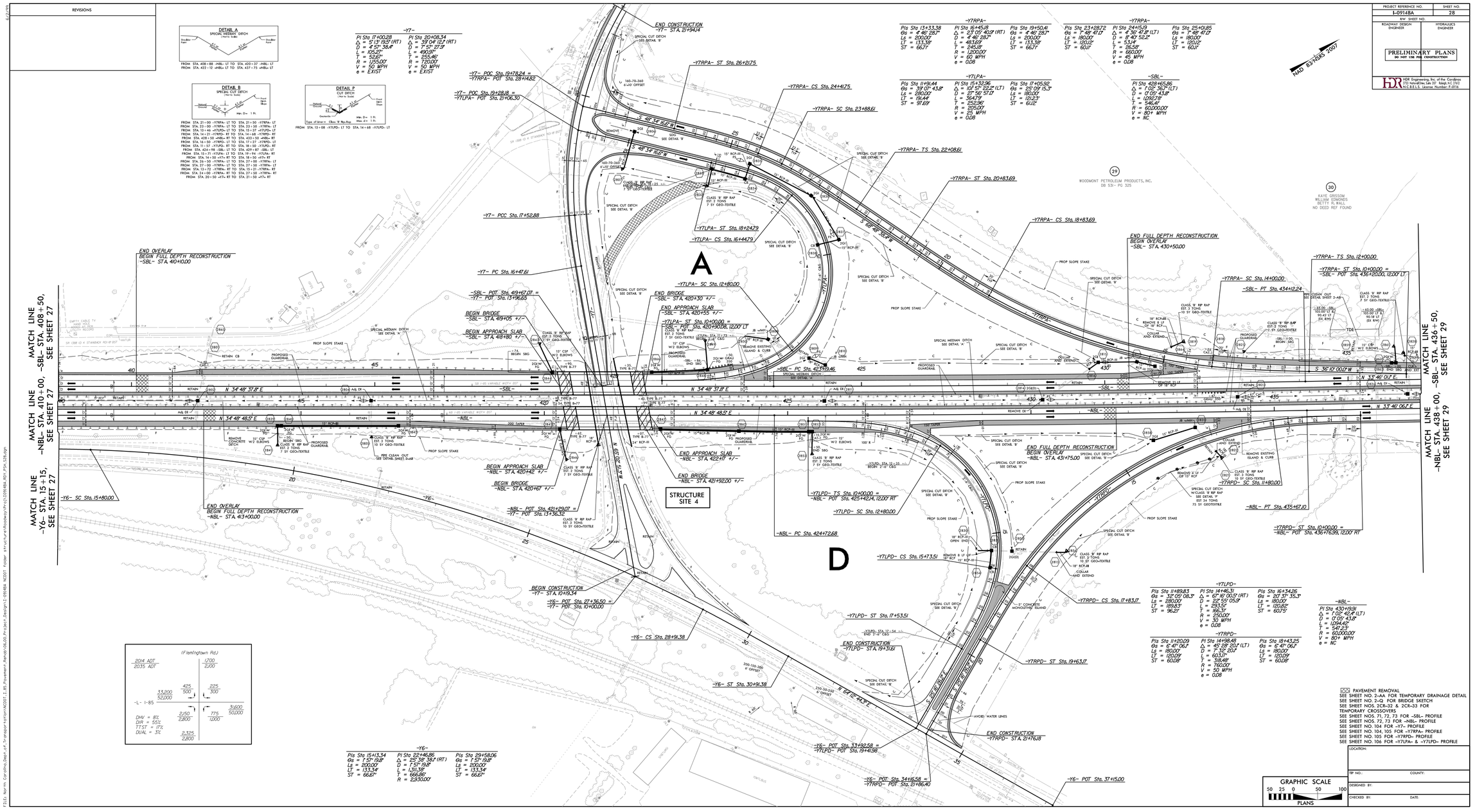
PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:09:04 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S27.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
2173 Yadkin Blvd., Suite 207 Raleigh, N.C. 27610
N.C.B.E.L. License Number F-0116

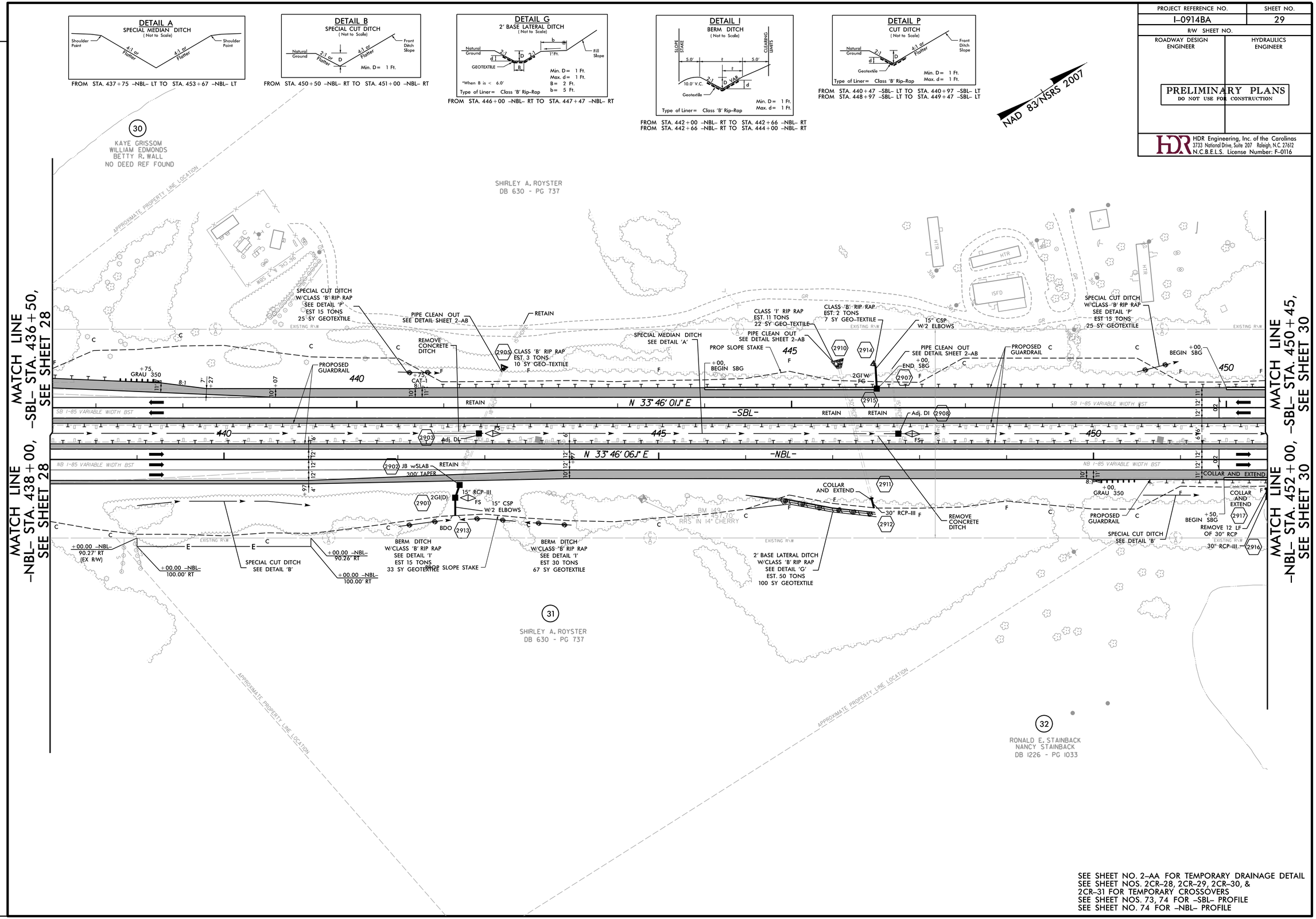
REVISIONS



PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-28, 2CR-29, 2CR-30, & 2CR-31 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 73, 74 FOR -SBL- PROFILE
SEE SHEET NO. 74 FOR -NBL- PROFILE

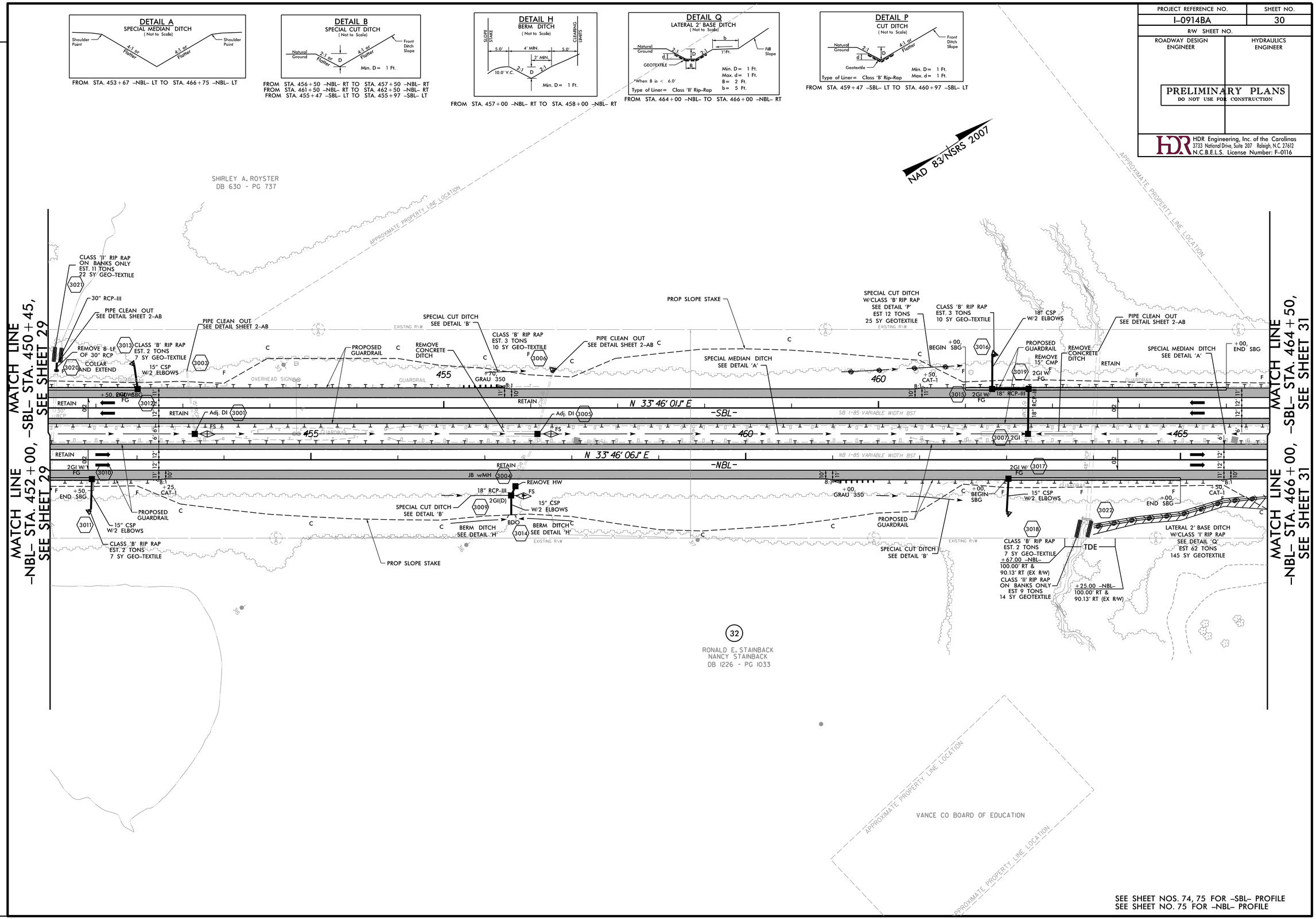
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:09:21 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S29.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NOS. 74, 75 FOR -SBL- PROFILE
SEE SHEET NO. 75 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:09:40 PM
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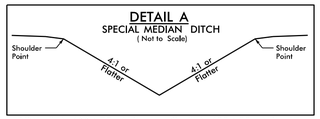
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

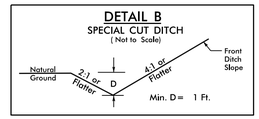
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

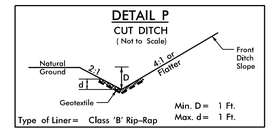
NAD 83/NSRS 2007



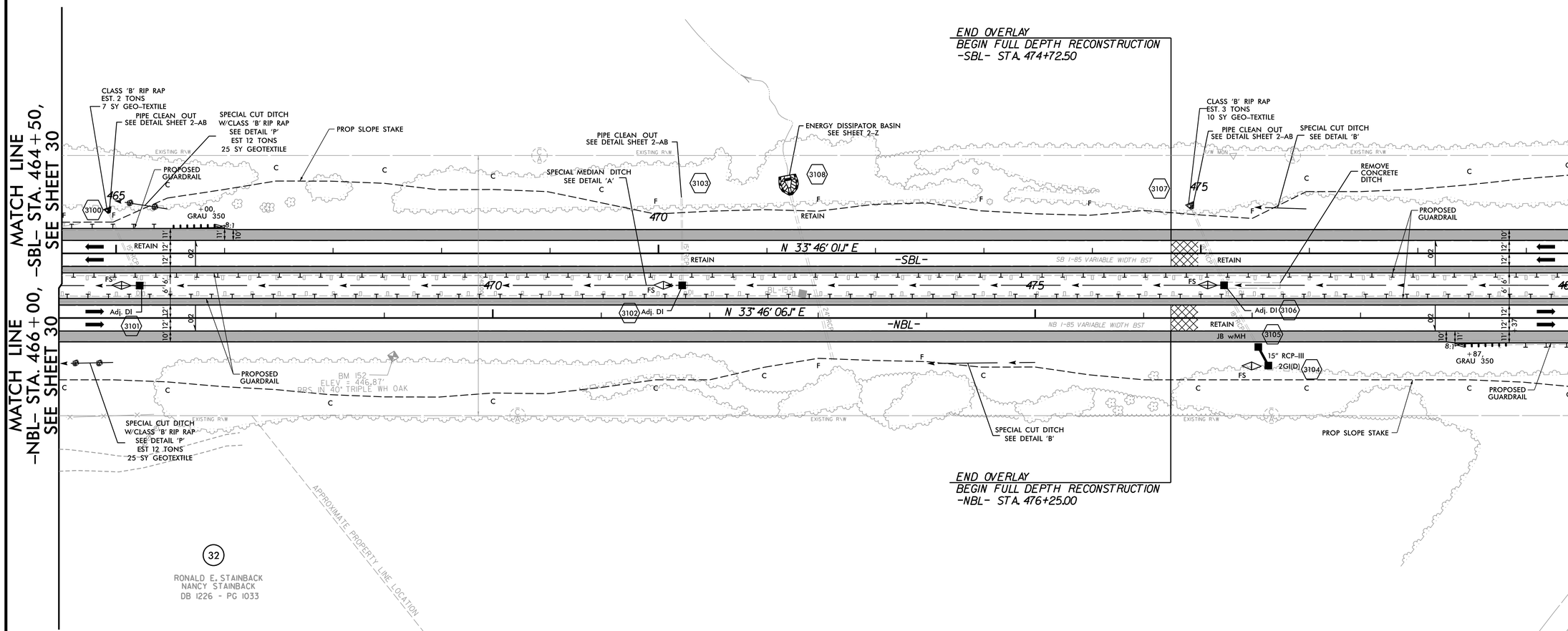
FROM STA. 466+75 -NBL- LT TO STA. 483+00 -NBL- LT



FROM STA. 474+00 -NBL- RT TO STA. 475+00 -NBL- RT
FROM STA. 475+47 -SBL- LT TO STA. 475+97 -SBL- LT



FROM STA. 466+00 -NBL- RT TO STA. 466+50 -NBL- RT
FROM STA. 464+97 -SBL- LT TO STA. 465+47 -SBL- LT



PAVEMENT REMOVAL
SEE SHEET NOS. 75, 76 FOR -SBL- PROFILE
SEE SHEET NO. 76 FOR -NBL- PROFILE

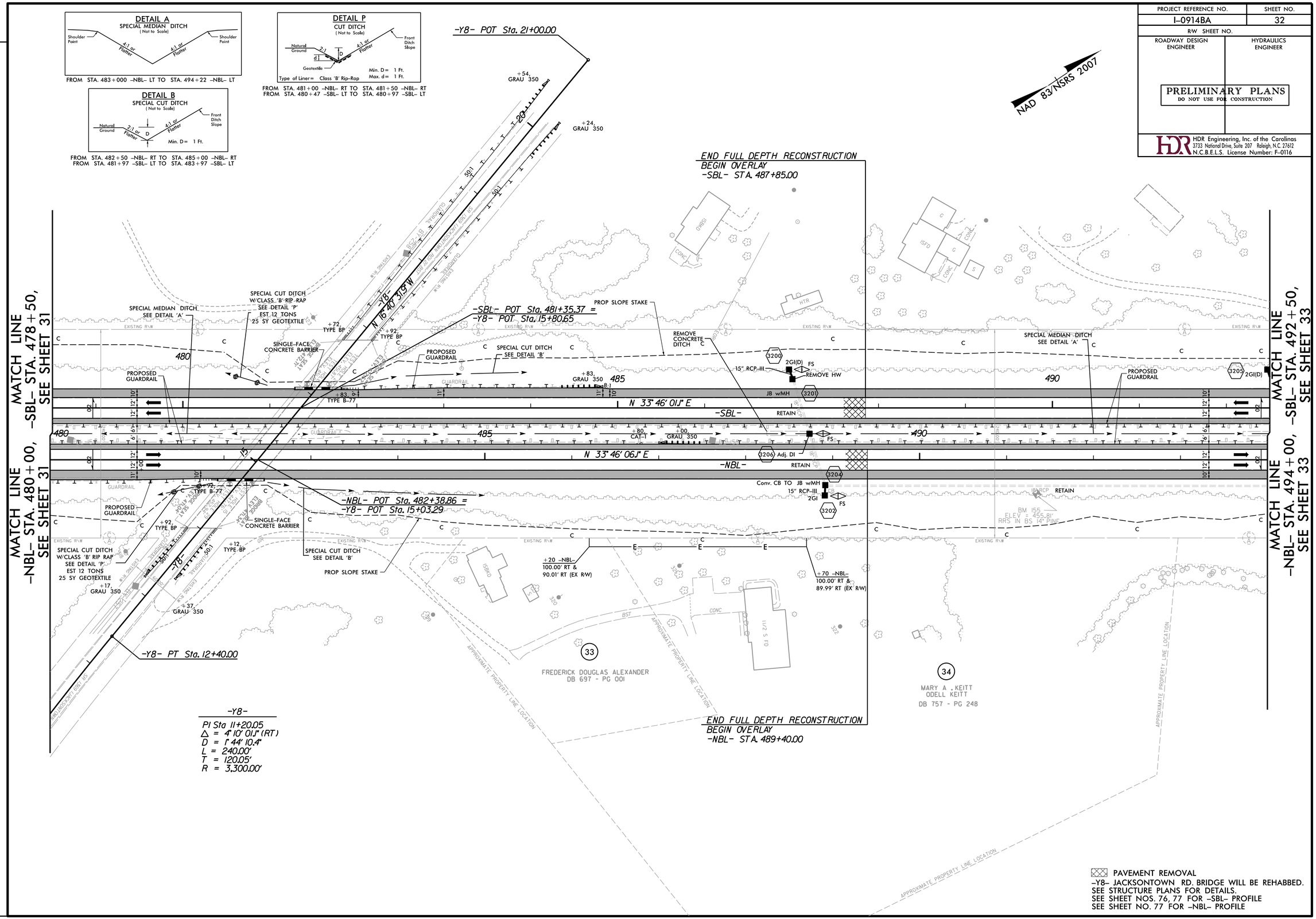
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwrl DATE: 2/28/2014 TIME: 5:09:58 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S31.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:10:14 PM
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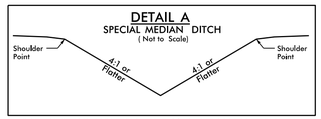
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

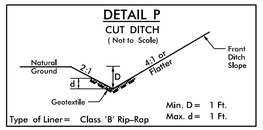
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)



FROM STA. 494+22 -NBL- LT TO STA. 508+68 -NBL- LT

DETAIL P
CUT DITCH
(Not to Scale)

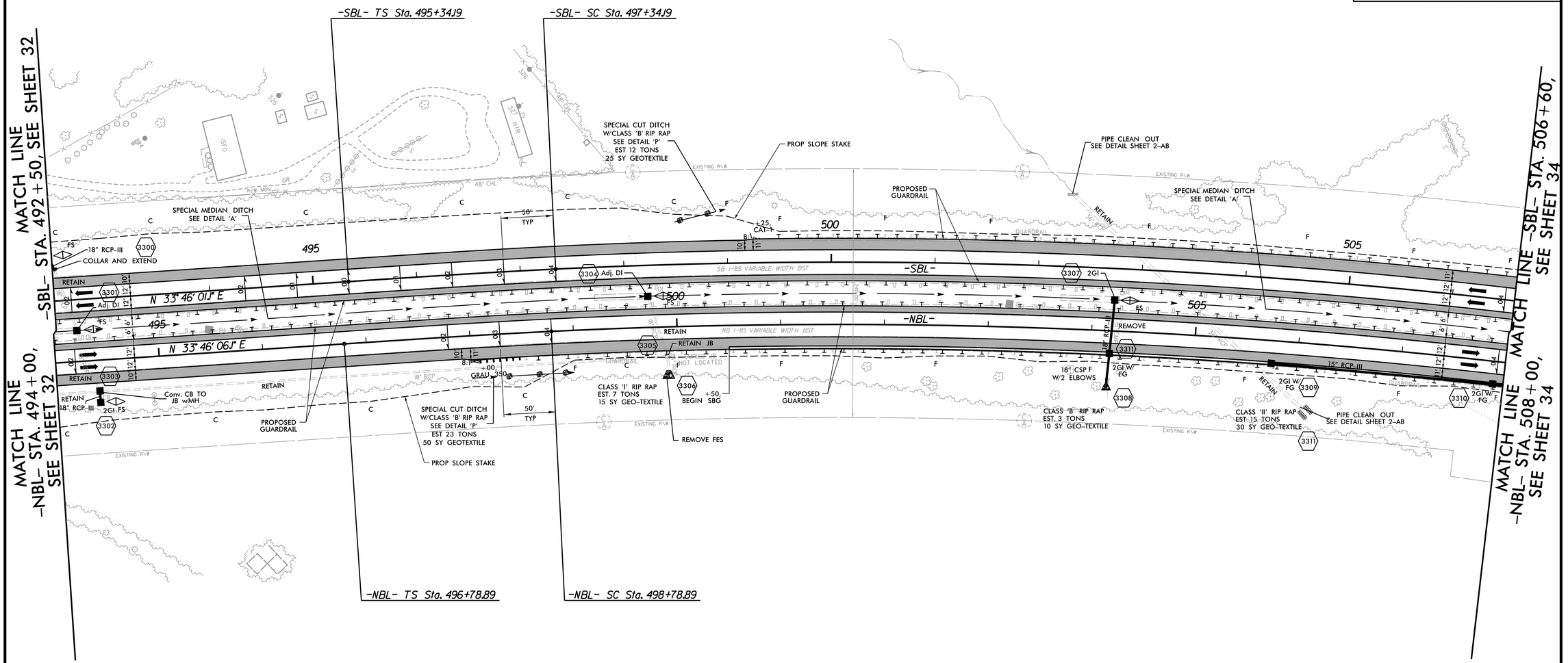


FROM STA. 498+00 -NBL- RT TO STA. 499+00 -NBL- RT
FROM STA. 498+50 -SBL- LT TO STA. 499+00 -SBL- LT

-SBL-

PIs Sta 496+67.53	PI Sta 504+35.03	PIs Sta 511+95.44
Θs = 1° 00' 44.3"	Δ = 14° 07' 02.1" (RT)	Θs = 1° 00' 44.3"
Ls = 200.00'	D = 1° 00' 44.3"	Ls = 200.00'
LT = 133.34'	L = 1,394.58'	LT = 133.34'
ST = 66.67'	T = 700.84'	ST = 66.67'
	R = 5,660.00'	
	V = 70 MPH	
	e = 0.04	

NAD 83/NSRS 2007



-NBL-

PIs Sta 498+12.22	PI Sta 505+79.69	PIs Sta 513+40.07
Θs = 1° 00' 44.3"	Δ = 14° 06' 59.6" (RT)	Θs = 1° 00' 44.3"
Ls = 200.00'	D = 1° 00' 44.3"	Ls = 200.00'
LT = 133.34'	L = 1,394.51'	LT = 133.34'
ST = 66.67'	T = 700.81'	ST = 66.67'
	R = 5,660.00'	
	V = 70 MPH	
	e = 0.04	

SEE SHEET NO. 77, 78 FOR -SBL- PROFILE
SEE SHEET NO. 78 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwalnwri DATE: 2/28/2014 TIME: 5:10:32 PM
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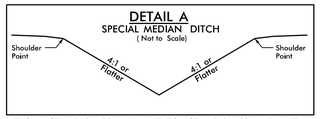
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

NAD 83/NSRS 2007

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)

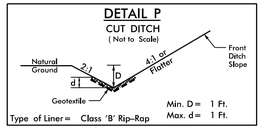


FROM STA. 508+68 –NBL– LT TO STA. 519+63 –NBL– LT

–SBL–

PIs Sta 496+67.53	PI Sta 504+35.03	PIs Sta 511+95.44
Θs = 1° 00′ 44.3″	Δ = 14° 07′ 02.1″ (RT)	Θs = 1° 00′ 44.3″
Ls = 200.00′	D = 1° 00′ 44.3″	Ls = 200.00′
LT = 133.34′	L = 1,394.58′	LT = 133.34′
ST = 66.67′	T = 700.84′	ST = 66.67′
	R = 5,660.00′	
	V = 70 MPH	
	e = 0.04	

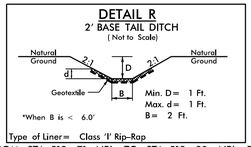
DETAIL P
CUT DITCH
(Not to Scale)



Type of Liner = Class 'B' Rip-Rap

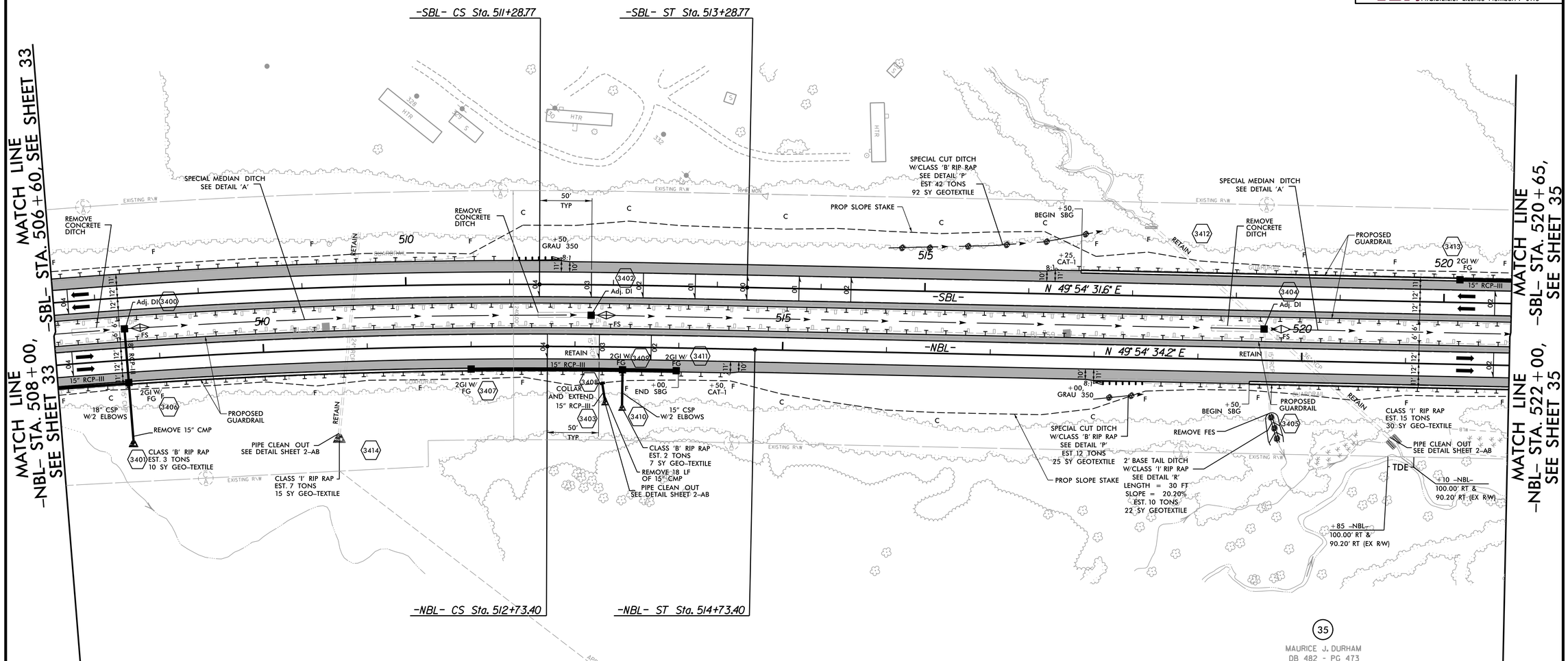
FROM STA. 518+00 –NBL– RT TO STA. 518+50 –NBL– RT
FROM STA. 514+64 –SBL– LT TO STA. 516+47 –SBL– LT

DETAIL R
2' BASE TAIL DITCH
(Not to Scale)



Type of Liner = Class 'I' Rip-Rap

FROM STA. 519+71 –NBL– TO STA. 519+80 –NBL– RT



–NBL–

PIs Sta 498+12.22	PI Sta 505+79.69	PIs Sta 513+40.07
Θs = 1° 00′ 44.3″	Δ = 14° 06′ 59.6″ (RT)	Θs = 1° 00′ 44.3″
Ls = 200.00′	D = 1° 00′ 44.3″	Ls = 200.00′
LT = 133.34′	L = 1,394.51′	LT = 133.34′
ST = 66.67′	T = 700.81′	ST = 66.67′
	R = 5,660.00′	
	V = 70 MPH	
	e = 0.04	

SEE SHEET NOS. 78, 79 –SBL– PROFILE
SEE SHEET NO. 79 FOR –NBL– PROFILE

REVISIONS

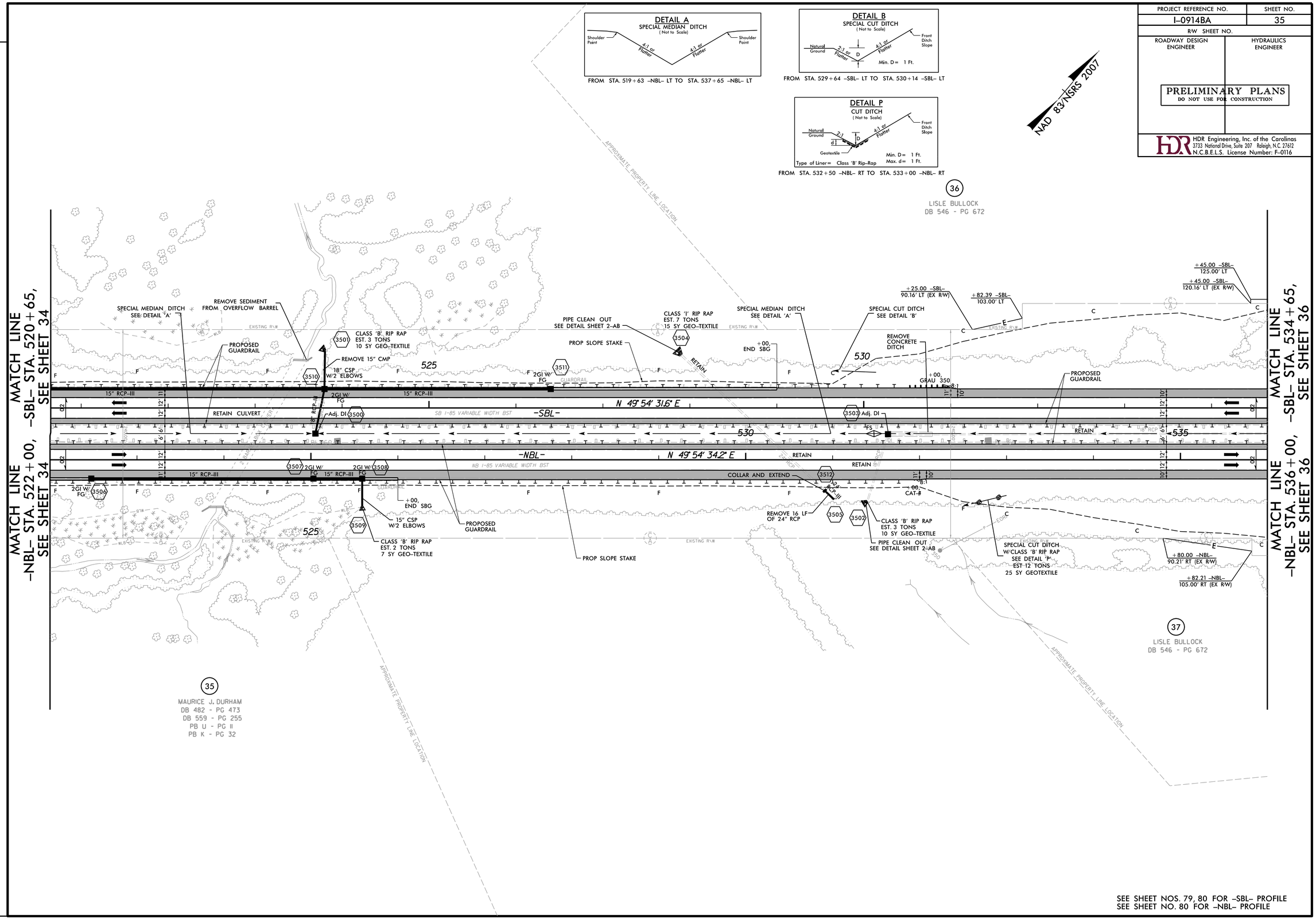
PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:10:49 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S34.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

NAD 83/NSRS 2007



SEE SHEET NOS. 79, 80 FOR -SBL- PROFILE
SEE SHEET NO. 80 FOR -NBL- PROFILE

REVISIONS

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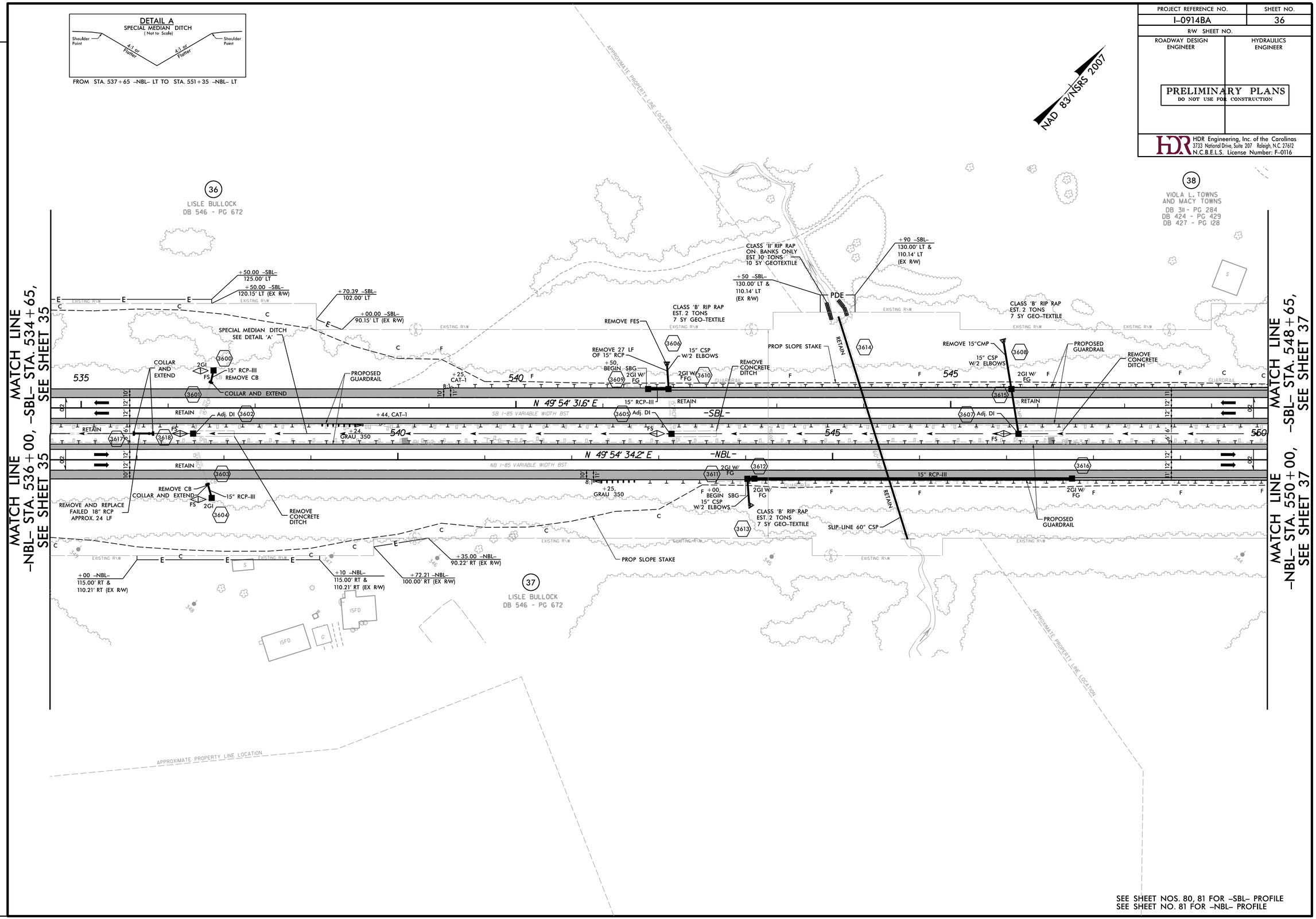
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	36
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NOS. 80, 81 FOR -SBL- PROFILE
SEE SHEET NO. 81 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:11:23 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	37
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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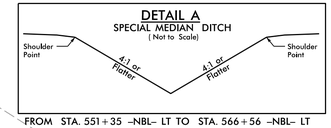
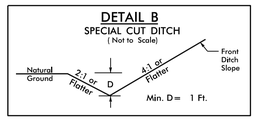
N.C.B.E.L.S. License Number: F-0116

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)



FROM STA. 551+35 -NBL- LT TO STA. 566+56 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)

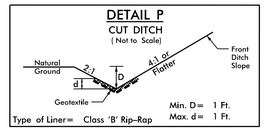


FROM STA. 551+41 -SBL- LT TO STA. 552+64 -SBL- LT

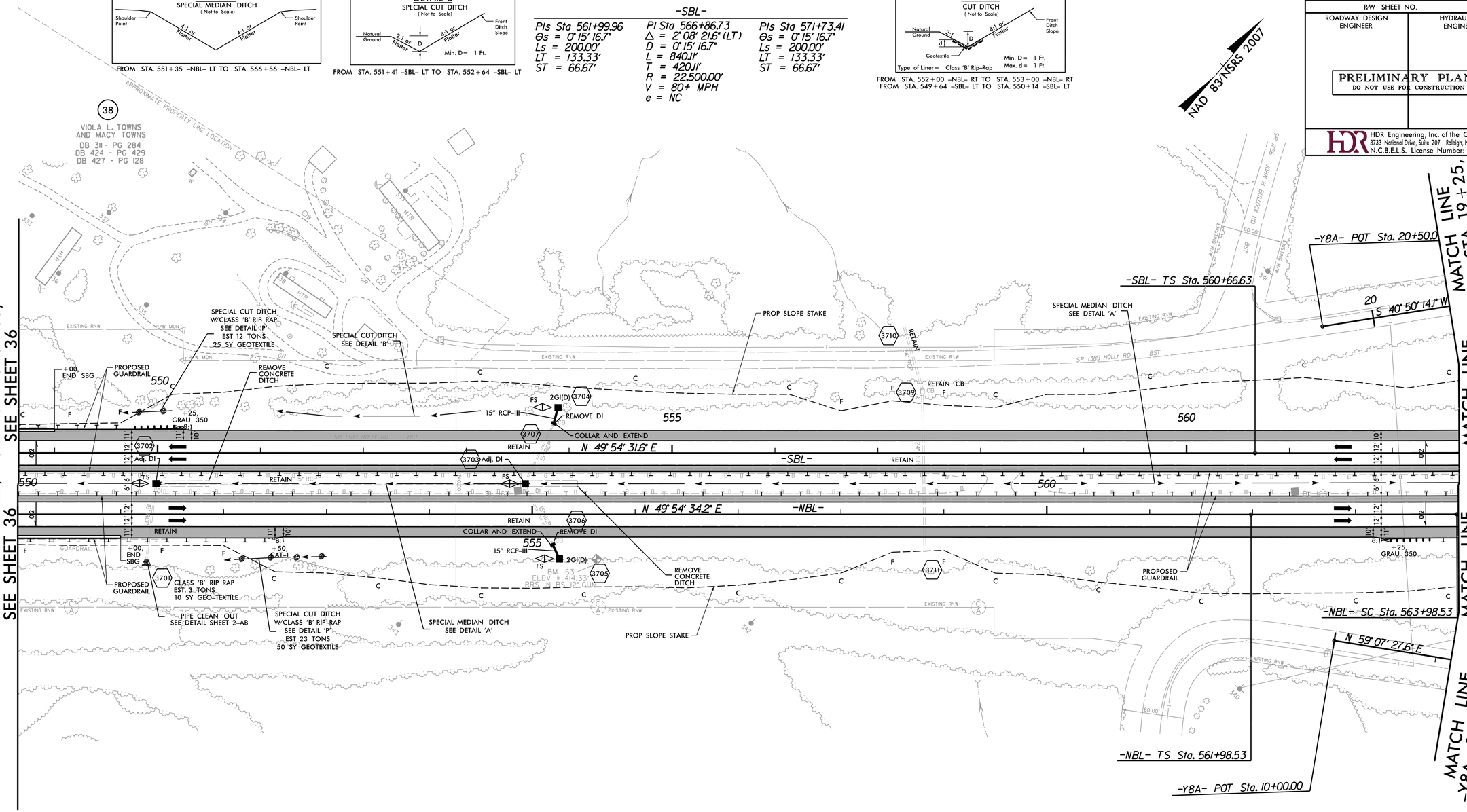
-SBL-

Pls Sta 561+99.96	Pl Sta 566+86.73	Pls Sta 571+73.41
Θs = 0° 15' 16.7"	Δ = 2° 08' 21.6" (LT)	Θs = 0° 15' 16.7"
Ls = 200.00'	D = 0° 15' 16.7"	Ls = 200.00'
LT = 133.33'	L = 840.11'	LT = 133.33'
ST = 66.67'	T = 420.11'	ST = 66.67'
	R = 22,500.00'	
	V = 80+ MPH	
	e = NC	

DETAIL P
CUT DITCH
(Not to Scale)



FROM STA. 552+00 -NBL- RT TO STA. 553+00 -NBL- RT
FROM STA. 549+64 -SBL- LT TO STA. 550+14 -SBL- LT



-NBL-

Pls Sta 563+31.86	Pl Sta 568+17.35	Pls Sta 573+02.74
Θs = 0° 15' 16.7"	Δ = 2° 07' 58.1" (LT)	Θs = 0° 15' 16.7"
Ls = 200.00'	D = 0° 15' 16.7"	Ls = 200.00'
LT = 133.33'	L = 837.55'	LT = 133.33'
ST = 66.67'	T = 418.82'	ST = 66.67'
	R = 22,500.00'	
	V = 80+ MPH	
	e = NC	

SEE SHEET NOS. 81, 82 FOR -SBL- PROFILE
SEE SHEET NO. 82 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:11:42 PM
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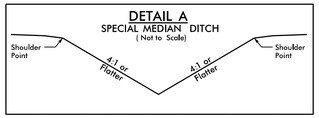
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	38
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

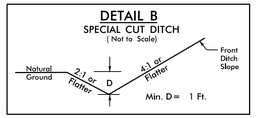
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)



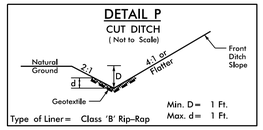
FROM STA. 566+56 -NBL- LT TO STA. 576+95 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 565+50 -NBL- RT TO STA. 566+00 -NBL- RT
FROM STA. 569+00 -NBL- RT TO STA. 569+50 -NBL- RT
FROM STA. 564+14 -SBL- LT TO STA. 564+60 -SBL- LT
FROM STA. 569+62 -SBL- LT TO STA. 570+12 -SBL- LT

DETAIL P
CUT DITCH
(Not to Scale)



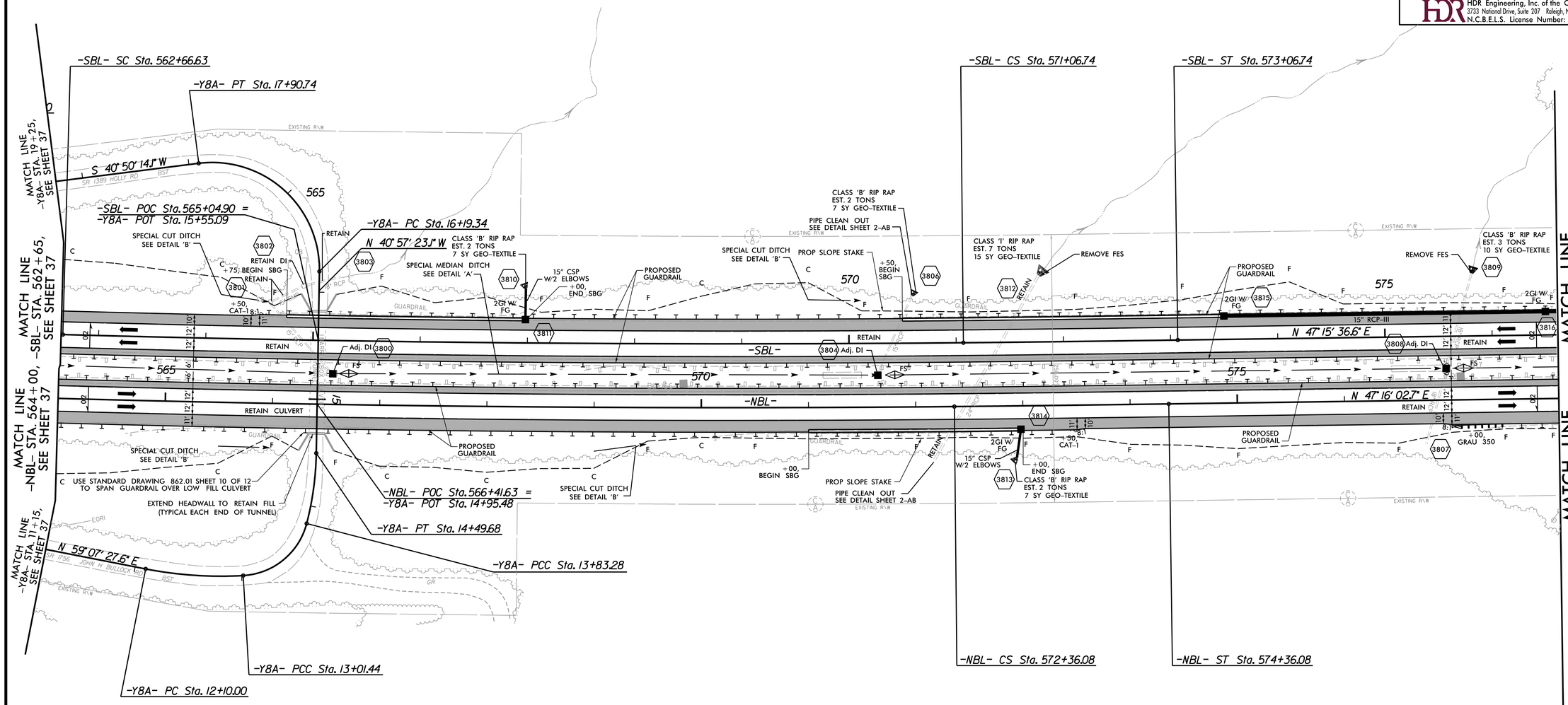
Type of Liner = Class 'B' Rip-Rap

FROM STA. 552+00 -NBL- RT TO STA. 553+00 -NBL- RT
FROM STA. 549+64 -SBL- LT TO STA. 550+14 -SBL- LT

-SBL-

PIs Sta 561+99.96	PI Sta 566+86.73	PIs Sta 571+73.41
Θs = 0° 15' 16.7"	Δ = 2° 08' 21.6" (LT)	Θs = 0° 15' 16.7"
Ls = 200.00'	D = 0° 15' 16.7"	Ls = 200.00'
LT = 133.33'	L = 840.11'	LT = 133.33'
ST = 66.67'	T = 420.11'	ST = 66.67'
	R = 22,500.00'	
	V = 80+ MPH	
	e = NC	

NAD 83/NSRS 2007



-Y8A-

PI Sta 12+55.96	PI Sta 13+48.78	PI Sta 14+16.64	PI Sta 17+34.80
Δ = 14° 21' 11.9" (LT)	Δ = 72° 08' 19.5" (LT)	Δ = 13° 35' 19.3" (LT)	Δ = 98° 12' 22.8" (LT)
D = 15° 41' 50.9"	D = 88° 08' 50.5"	D = 20° 27' 46.0"	D = 57° 17' 44.8"
L = 91.44'	L = 81.84'	L = 66.41'	L = 171.40'
T = 45.96'	T = 47.35'	T = 33.36'	T = 115.46'
R = 365.00'	R = 65.00'	R = 280.00'	R = 100.00'

-NBL-

PIs Sta 563+31.86	PI Sta 568+17.35	PIs Sta 573+02.74
Θs = 0° 15' 16.7"	Δ = 2° 07' 58.1" (LT)	Θs = 0° 15' 16.7"
Ls = 200.00'	D = 0° 15' 16.7"	Ls = 200.00'
LT = 133.33'	L = 837.55'	LT = 133.33'
ST = 66.67'	T = 418.82'	ST = 66.67'
	R = 22,500.00'	
	V = 80+ MPH	
	e = NC	

SEE SHEET NOS. 82, 83 FOR -SBL- PROFILE
SEE SHEET NO. 83 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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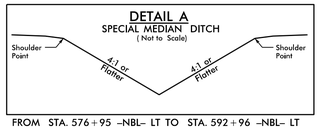
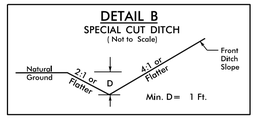
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	39
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

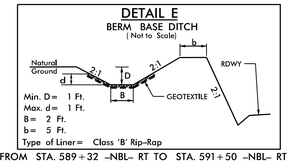
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



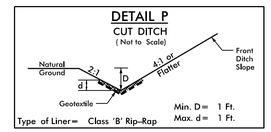
FROM STA. 576+95 -NBL- LT TO STA. 592+96 -NBL- LT



FROM STA. 589.+32 -NBL- RT TO STA. 590+50 -NBL- RT



FROM STA. 589+32 -NBL- RT TO STA. 591+50 -NBL- RT



FROM STA. 583+40 -NBL- RT TO STA. 584+00 -NBL- RT
FROM STA. 588+50 -NBL- RT TO STA. 589+32 -NBL- RT
FROM STA. 583+11 -SBL- LT TO STA. 583+61 -SBL- LT
FROM STA. 587+11 -SBL- LT TO STA. 588+11 -SBL- LT

NAD 83/NSRS 2007

MATCH LINE -NBL- STA. 578+00, -SBL- STA. 576+60, SEE SHEET 38

MATCH LINE -NBL- STA. 592+00, -SBL- STA. 590+60, SEE SHEET 40

LAURA DAVIS LATNEY HEIRS
OCTAVIA TOWNS
DB 73- PG 145
DB 331- PG 190
DB 44 - PG 269
PB 21- PG 86

SPECIAL MEDIAN DITCH SEE DETAIL 'A'
CLASS 'B' RIP RAP EST. 3 TONS 10 SY GEO-TEXTILE
PROPOSED GUARDRAIL
REMOVE 15" CMP
18" CSP W/2 ELBOWS
2GI W/ FG
2GI W/ FG
REMOVE CONCRETE DITCH
PROP SLOPE STAKE
+50 END SBG
CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEO-TEXTILE
REMOVE 8' OF 15" RCP
15" RCP-III
COLLAR AND EXTEND
+75 GRAU 350
SPECIAL CUT DITCH W/CLASS 'B' RIP RAP SEE DETAIL 'P' EST 12 TONS 25 SY GEOTEXTILE
SPECIAL MEDIAN DITCH SEE DETAIL 'A'
CLASS 'B' RIP RAP EST. 3 TONS 10 SY GEO-TEXTILE
18" RCP-III COLLAR AND EXTEND
SPECIAL CUT DITCH W/CLASS 'B' RIP RAP SEE DETAIL 'P' EST 23 TONS 50 SY GEOTEXTILE
PROPOSED GUARDRAIL
300' TAPER
15" RCP-III
RETAIN CULVERT
-SBL-
RETAIN
Adj. DI
N 47° 15' 36.6" E
N 47° 16' 02.7" E
-NBL-
COLLAR AND EXTEND
+50 BEGIN SBG
PROPOSED GUARDRAIL
2GI W/ FG
15" RCP-III
2GI W/ FG
15" CSP W/2 ELBOWS
+00 END SBG
+25 CAT-I
BM 167 ELEV = 370.85' RRS IN BS 14" POPLAR
SPECIAL CUT DITCH W/CLASS 'B' RIP RAP SEE DETAIL 'P' EST 14 TONS 30 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEO-TEXTILE
REMOVE DI
18" RCP-III
2GI
18" CSP W/2 ELBOWS
BDO
SPECIAL CUT DITCH SEE DETAIL 'B'
REMOVE CONCRETE DITCH
PROP SLOPE STAKE
SPECIAL CUT DITCH W/CLASS 'B' RIP RAP SEE DETAIL 'P' EST 19 TONS 41 SY GEOTEXTILE
2' BASE BERM DITCH W/CLASS 'B' RIP RAP SEE DETAIL 'E' EST. 71 TONS 158 SY GEO-TEXTILE
CLEARENCE O. WHITE, JR. AND OTHERS
DB 1198 - PG 775
APPROXIMATE PROPERTY LINE LOCATION
VANCE COUNTY
WARREN COUNTY

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-38 & 2CR-39 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 83, 84 FOR -SBL- PROFILE
SEE SHEET NO. 84 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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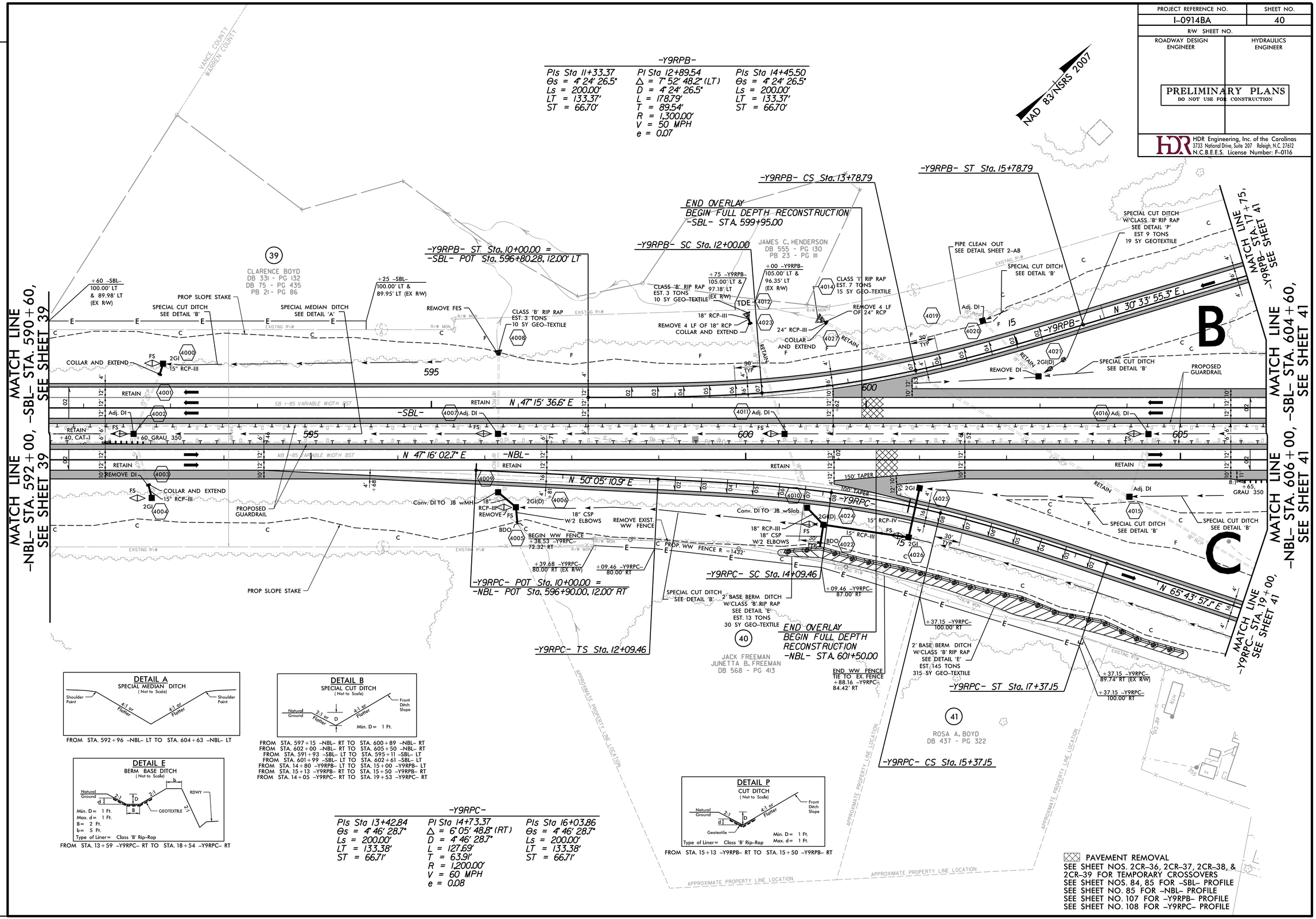
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.E.S. License Number: F-0116



REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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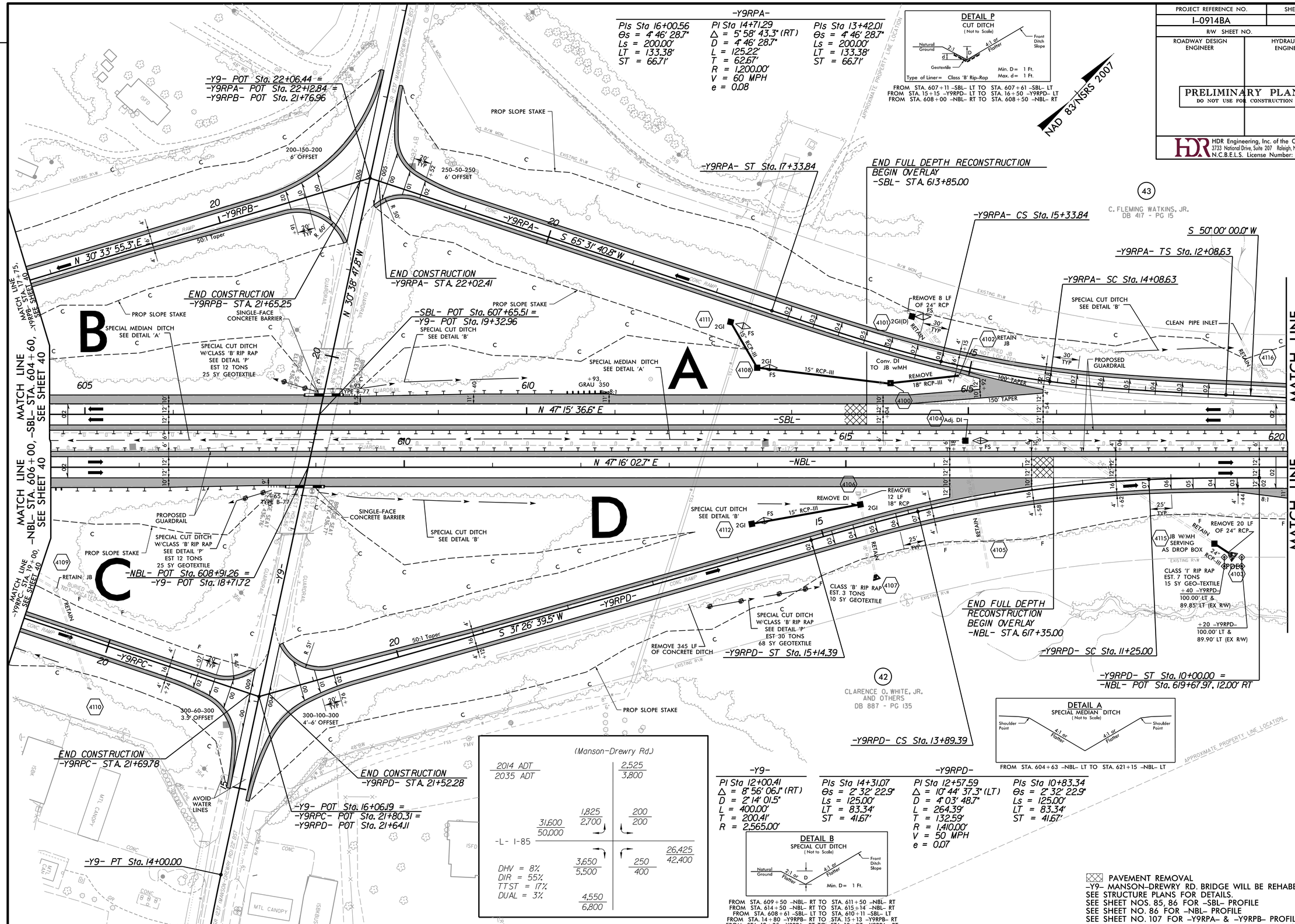
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	41
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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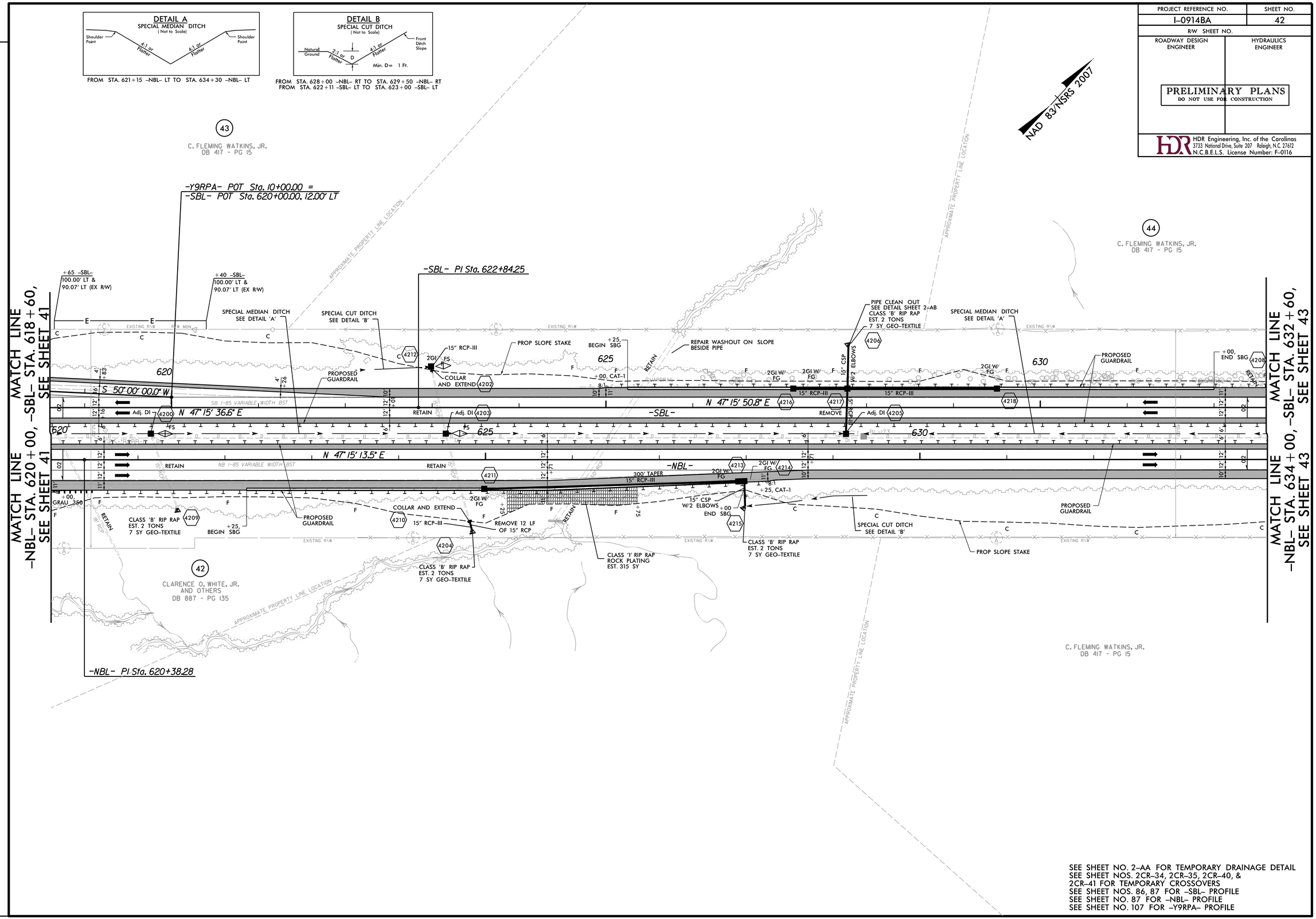
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	42
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-34, 2CR-35, 2CR-40, &
2CR-41 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 86, 87 FOR -SBL- PROFILE
SEE SHEET NO. 87 FOR -NBL- PROFILE
SEE SHEET NO. 107 FOR -Y9RPA- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:13:14 PM
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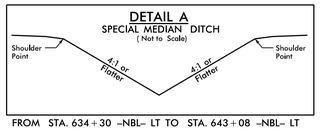
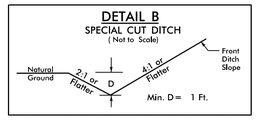
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	43
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

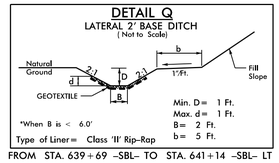
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



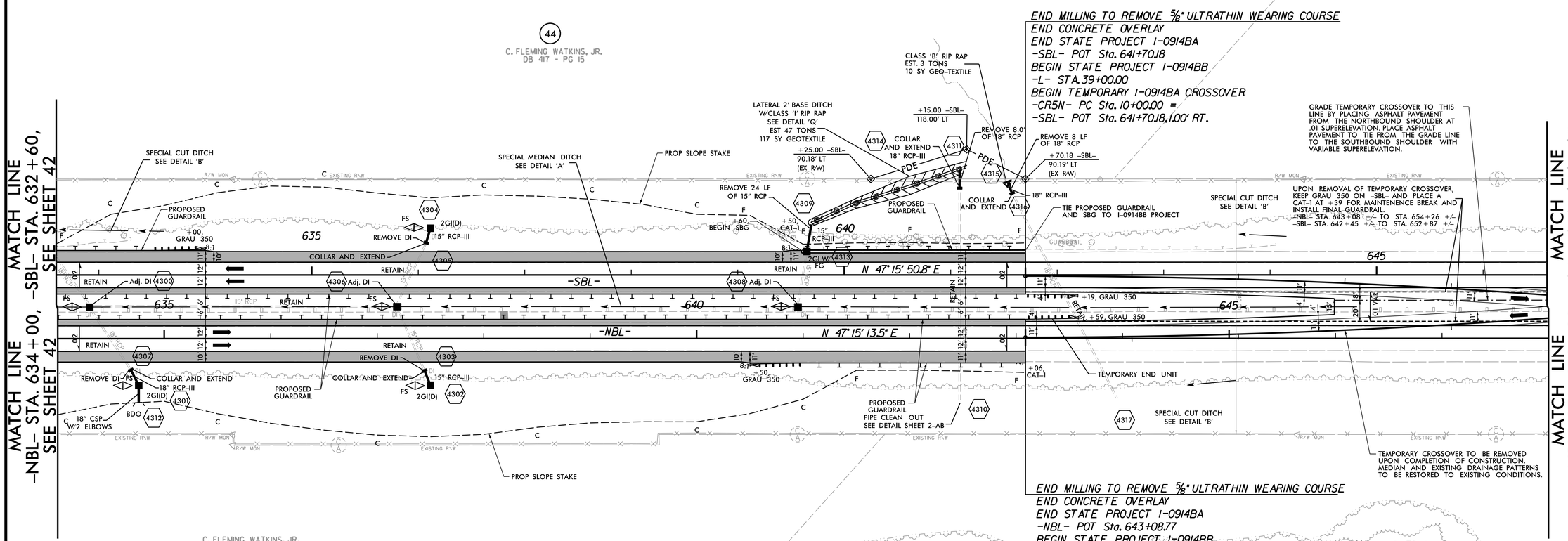
FROM STA. 634+30 -NBL- LT TO STA. 643+08 -NBL- LT



FROM STA. 632+61 -SBL- LT TO STA. 633+61 -SBL- LT
FROM STA. 644+59 -NBL- LT TO STA. 645+09 -NBL- RT
FROM STA. 643+70 -SBL- LT TO STA. 644+20 -SBL- LT



FROM STA. 639+69 -SBL- TO STA. 641+14 -SBL- LT



-CR5N-

PI Sta 12+79.37	PI Sta 18+38.39
Δ = 4° 46' 05.5" (RT)	Δ = 4° 46' 42.9" (LT)
D = 0° 51' 14.0"	D = 0° 51' 14.0"
L = 558.41'	L = 559.63'
T = 279.37'	T = 279.98'
R = 6,710.00'	R = 6,710.00'

-CR5S-

PI Sta 12+79.37	PI Sta 18+38.39
Δ = 4° 46' 05.5" (LT)	Δ = 4° 46' 42.8" (RT)
D = 0° 51' 14.0"	D = 0° 51' 14.0"
L = 558.41'	L = 559.63'
T = 279.37'	T = 279.98'
R = 6,710.00'	R = 6,710.00'

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NO. 2-K FOR -CR5S- & -CR5N- DETAIL
SEE SHEET NOS. 87, 88 FOR -SBL- PROFILE
SEE SHEET NO. 88 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshp_fl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:13:32 PM
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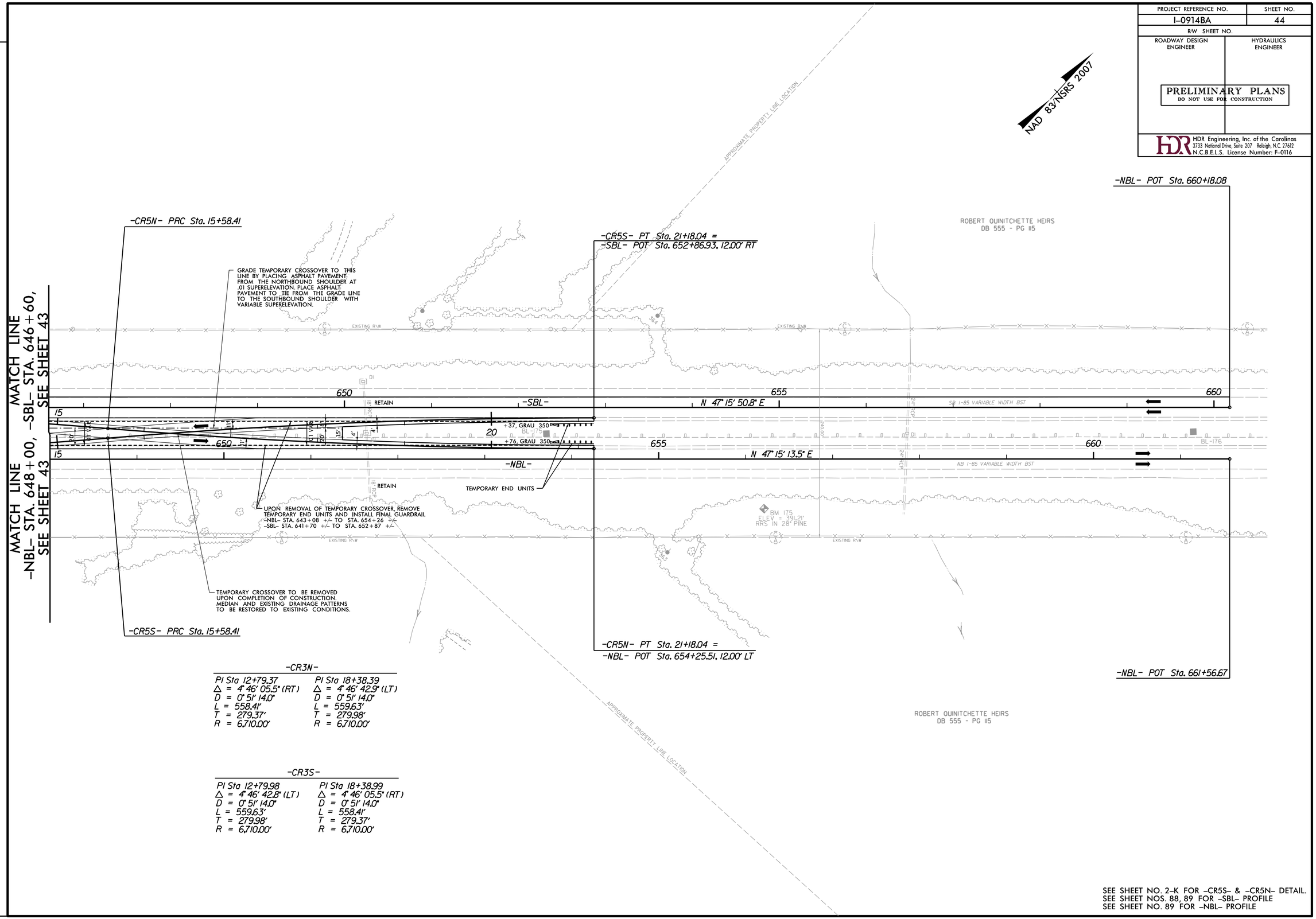
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	44
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



-CR3N-

PI Sta 12+79.37	PI Sta 18+38.39
Δ = 4° 46' 05.5" (RT)	Δ = 4° 46' 42.9" (LT)
D = 0° 51' 14.0"	D = 0° 51' 14.0"
L = 558.41'	L = 559.63'
T = 279.37'	T = 279.98'
R = 6,710.00'	R = 6,710.00'

-CR3S-

PI Sta 12+79.98	PI Sta 18+38.99
Δ = 4° 46' 42.8" (LT)	Δ = 4° 46' 05.5" (RT)
D = 0° 51' 14.0"	D = 0° 51' 14.0"
L = 559.63'	L = 558.41'
T = 279.98'	T = 279.37'
R = 6,710.00'	R = 6,710.00'

SEE SHEET NO. 2-K FOR -CR5S- & -CR5N- DETAIL.
SEE SHEET NOS. 88, 89 FOR -SBL- PROFILE
SEE SHEET NO. 89 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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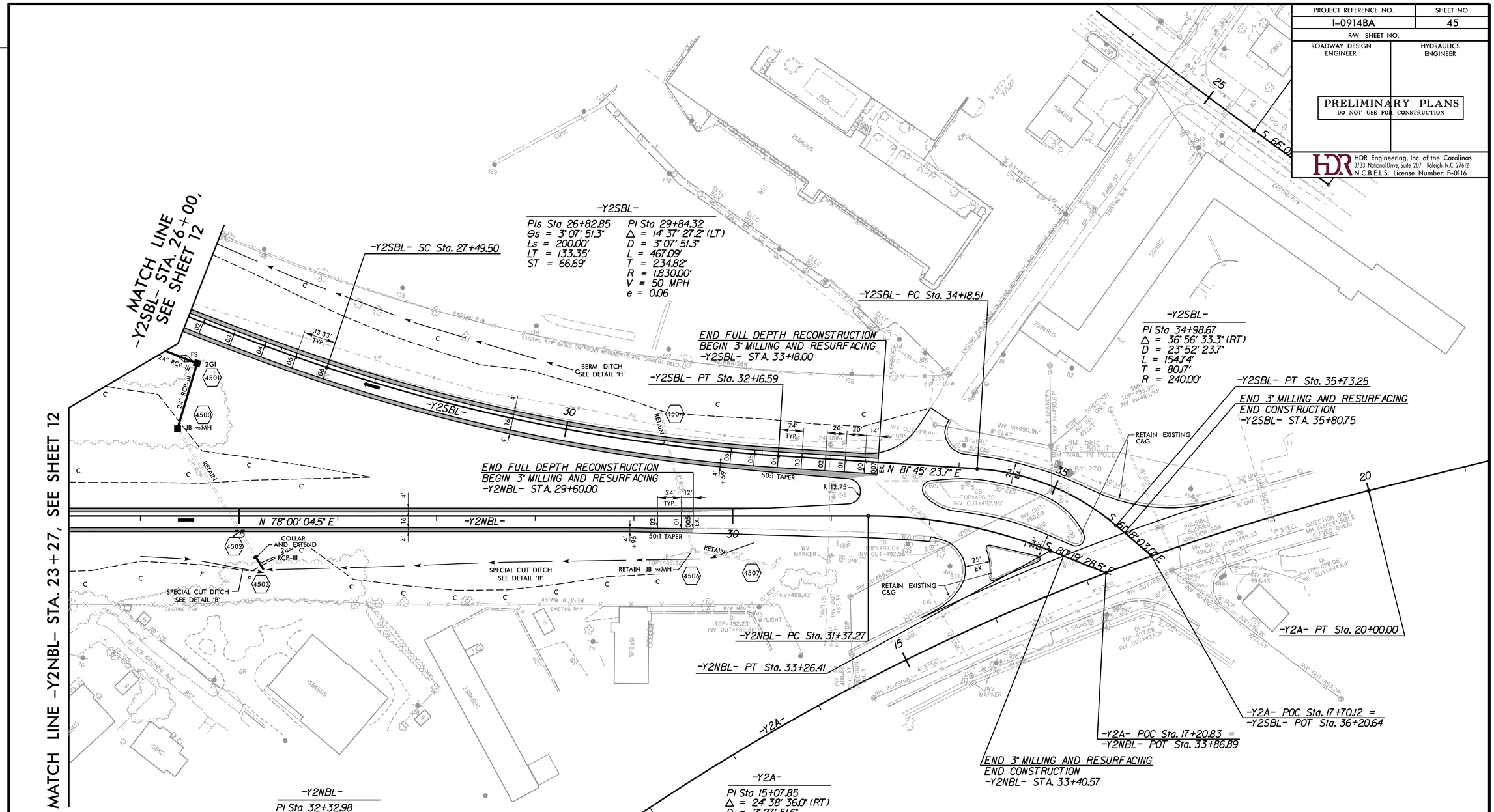
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	45
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NO. 2CR-13 FOR TEMPORARY CROSSOVERS
SEE SHEET NO. 94 FOR -Y2NBL- PROFILE
SEE SHEET NO. 95 FOR -Y2SBL- PROFILE

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	45A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

REVISIONS

-Y5ARPB-

PIs Sta 10+80.17	PI Sta 12+69.70	PIs Sta 14+37.87
Θs = 11° 27' 33.0"	Δ = 53° 02' 22.8" (LT)	Θs = 11° 27' 33.0"
Ls = 120.00'	D = 19° 05' 54.9"	Ls = 120.00'
LT = 80.17'	L = 277.72'	LT = 80.17'
ST = 40.15'	T = 149.70'	ST = 40.15'
	R = 300.00'	
	V = 30 MPH	
	e = 0.08	

-Y5ALPB-

PIs Sta 11+33.67	PI Sta 13+78.62	PIs Sta 14+91.98
Θs = 37° 11' 07.2"	Δ = 100° 49' 42.4" (RT)	Θs = 17° 04' 29.6"
Ls = 196.00'	D = 37° 56' 39.2"	Ls = 90.00'
LT = 133.67'	L = 265.73'	LT = 60.28'
ST = 68.07'	T = 182.62'	ST = 30.26'
	R = 151.00'	
	V = 25 MPH	
	e = 0.08	

-Y5NBL-

PI Sta 30+80.55	PIs Sta 39+81.93
Δ = 20° 46' 54.6" (LT)	Θs = 1° 30' 04.3"
D = 1° 15' 03.6"	Ls = 240.00'
L = 1,661.22'	LT = 160.01'
T = 839.84'	ST = 80.01'
R = 4,580.00'	
V = 60 MPH	
e = 0.04	

-Y5ARPC-

PIs Sta 10+50.00	PI Sta 12+84.63	PIs Sta 15+15.94
Θs = 1° 35' 29.6"	Δ = 17° 39' 10.4" (RT)	Θs = 1° 35' 29.6"
Ls = 75.00'	D = 4° 14' 38.9"	Ls = 75.00'
LT = 50.00'	L = 415.94'	LT = 50.00'
ST = 25.00'	T = 209.63'	ST = 25.00'
	R = 1,350.00'	
	V = 50 MPH	
	e = 0.07	

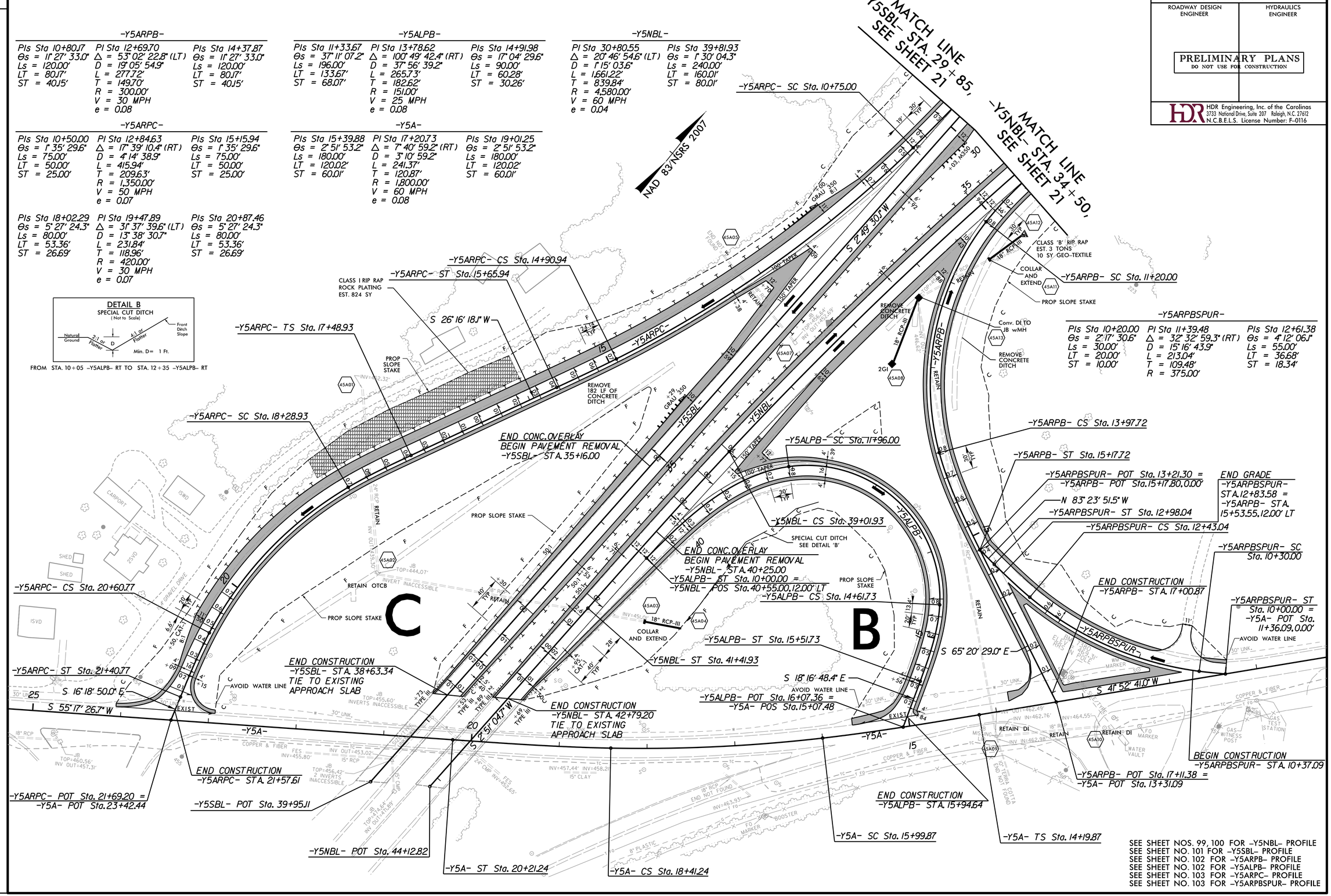
-Y5A-

PIs Sta 15+39.88	PI Sta 17+20.73	PIs Sta 19+01.25
Θs = 2° 51' 53.2"	Δ = 7° 40' 59.2" (RT)	Θs = 2° 51' 53.2"
Ls = 180.00'	D = 3° 10' 59.2"	Ls = 180.00'
LT = 120.02'	L = 241.37'	LT = 120.02'
ST = 60.01'	T = 120.87'	ST = 60.01'
	R = 1,800.00'	
	V = 60 MPH	
	e = 0.08	

PIs Sta 18+02.29	PI Sta 19+47.89	PIs Sta 20+87.46
Θs = 5° 27' 24.3"	Δ = 31° 37' 39.6" (LT)	Θs = 5° 27' 24.3"
Ls = 80.00'	D = 13° 38' 30.7"	Ls = 80.00'
LT = 53.36'	L = 231.84'	LT = 53.36'
ST = 26.69'	T = 118.96'	ST = 26.69'
	R = 420.00'	
	V = 30 MPH	
	e = 0.07	

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)

FROM STA. 10+05 -Y5ALPB- RT TO STA. 12+35 -Y5ALPB- RT



SEE SHEET NOS. 99, 100 FOR -Y5NBL- PROFILE
SEE SHEET NO. 101 FOR -Y5SBL- PROFILE
SEE SHEET NO. 102 FOR -Y5ARPB- PROFILE
SEE SHEET NO. 102 FOR -Y5ALPB- PROFILE
SEE SHEET NO. 103 FOR -Y5ARPC- PROFILE
SEE SHEET NO. 103 FOR -Y5ARPBSPUR- PROFILE

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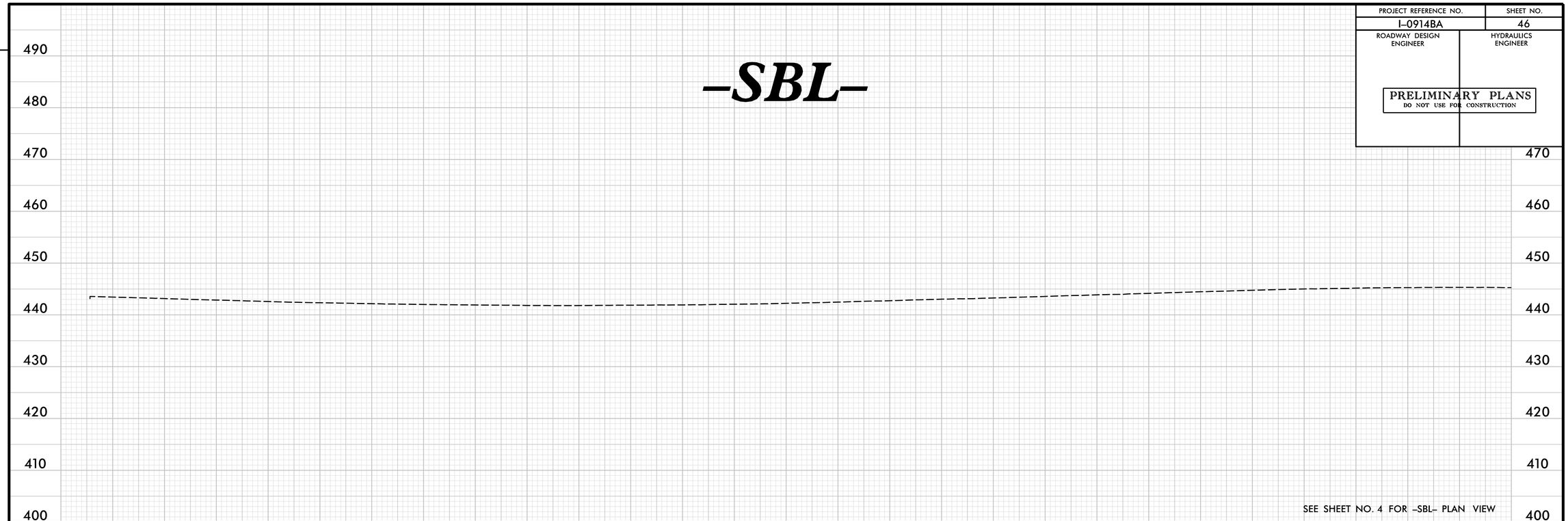
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	46
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

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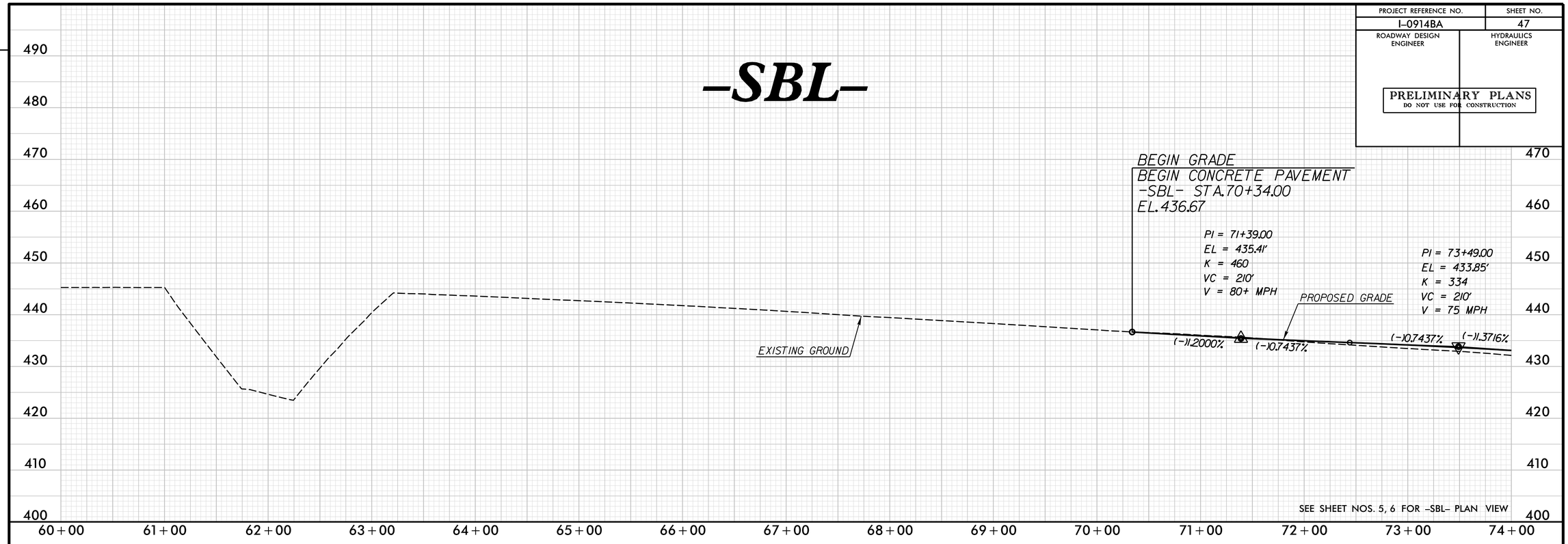
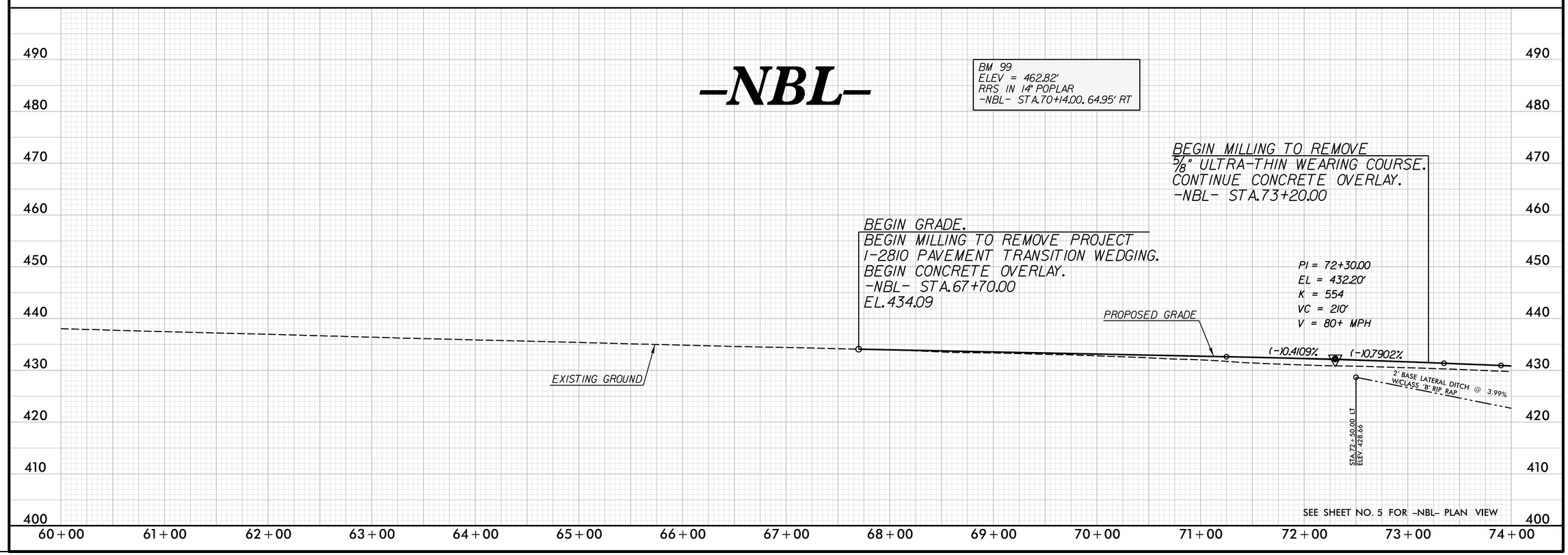
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	47
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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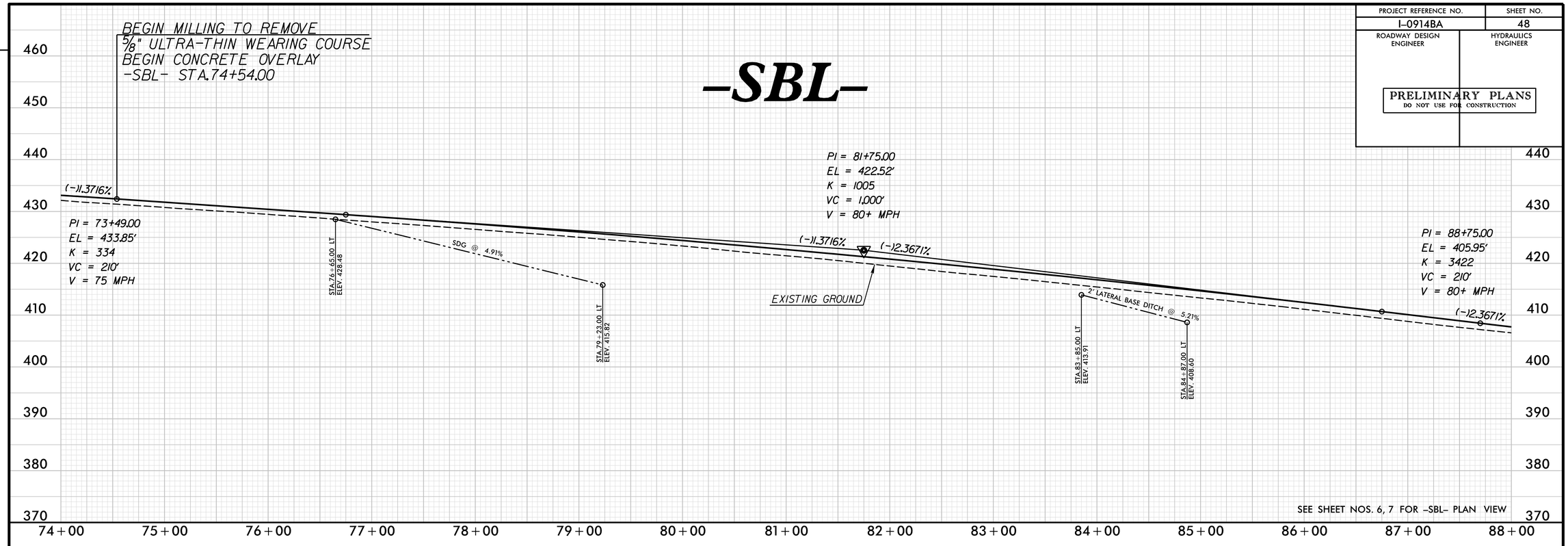
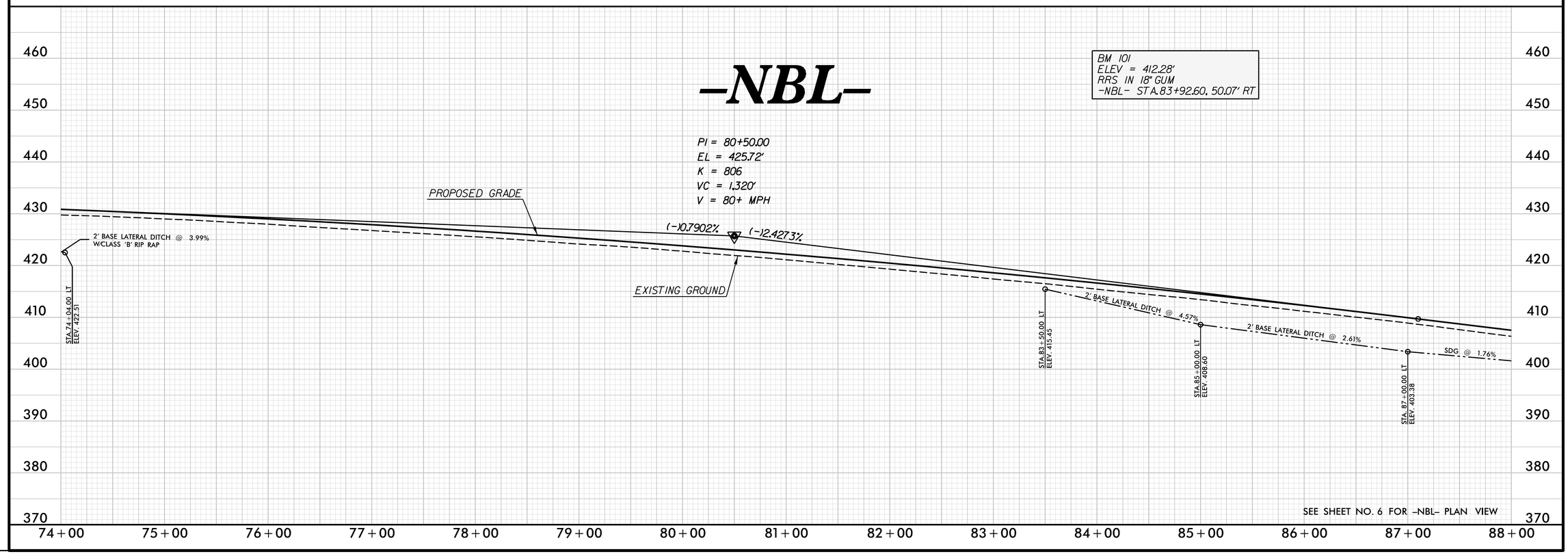
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	48
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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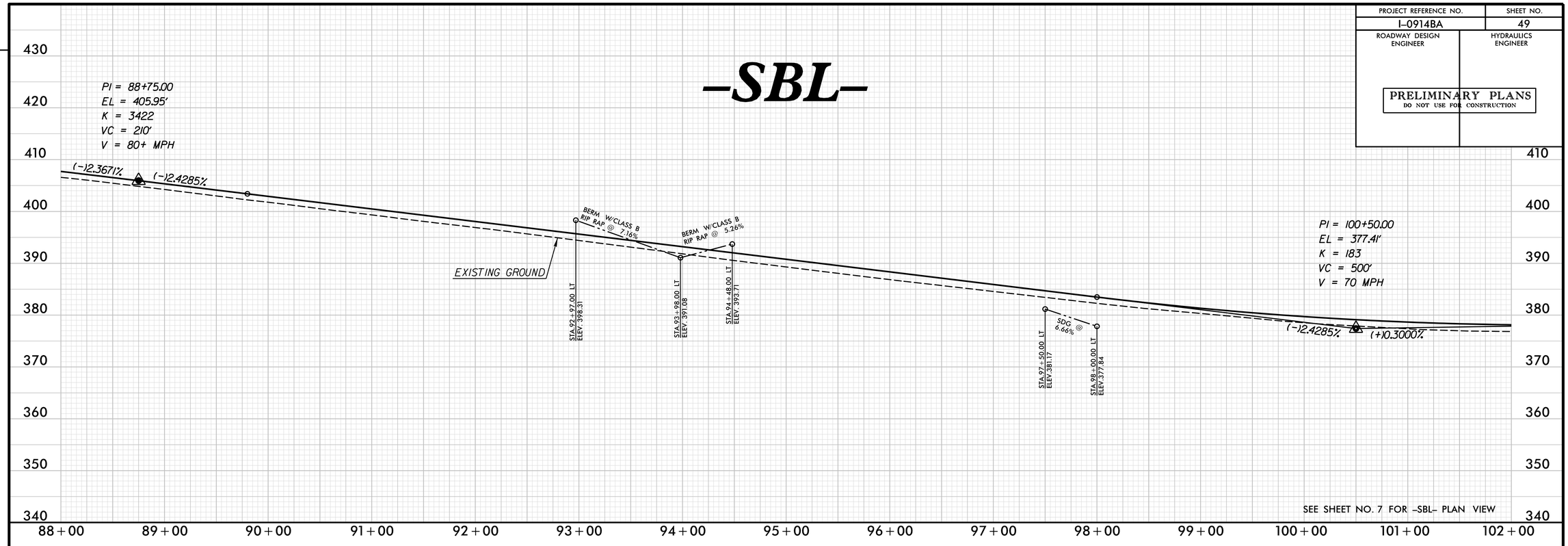
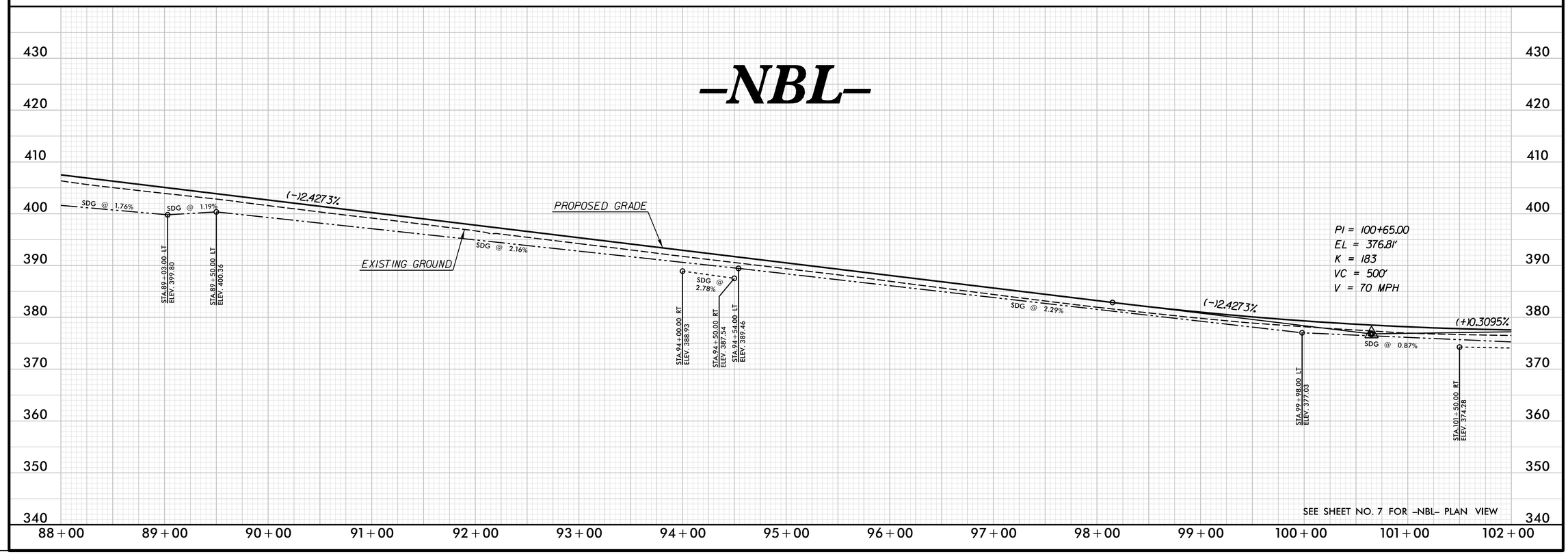
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	49
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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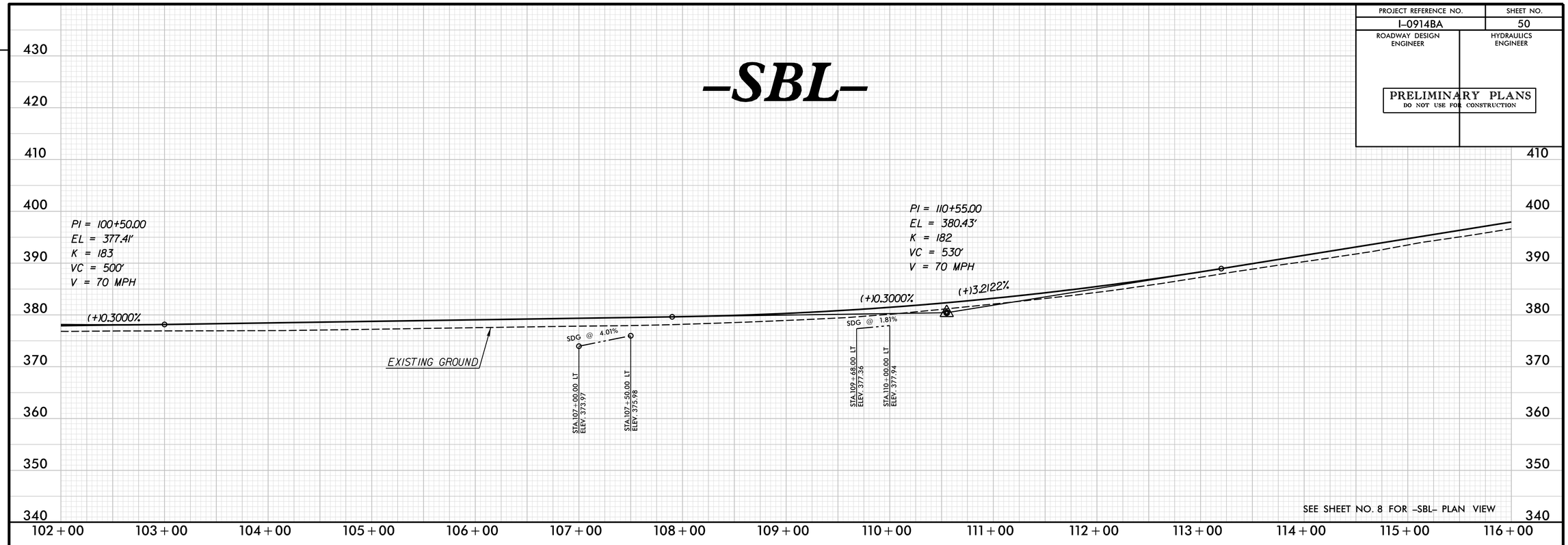
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	50
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

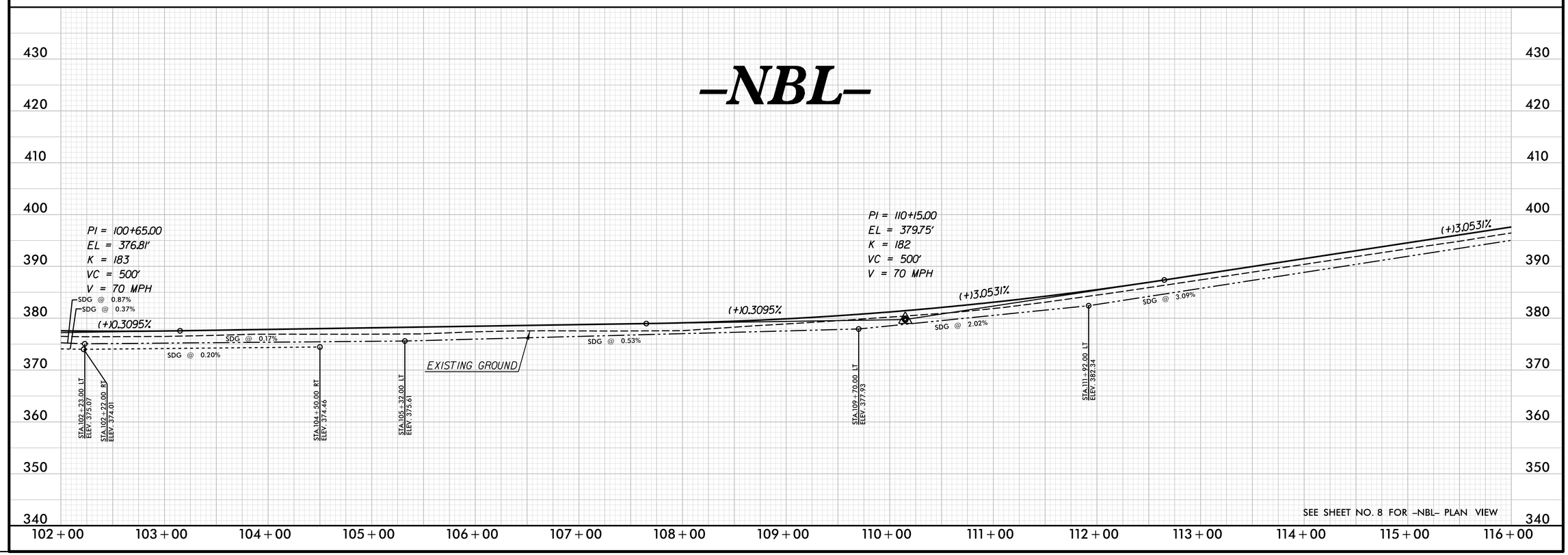
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-SBL-



SEE SHEET NO. 8 FOR -SBL- PLAN VIEW

-NBL-



SEE SHEET NO. 8 FOR -NBL- PLAN VIEW

REVISIONS

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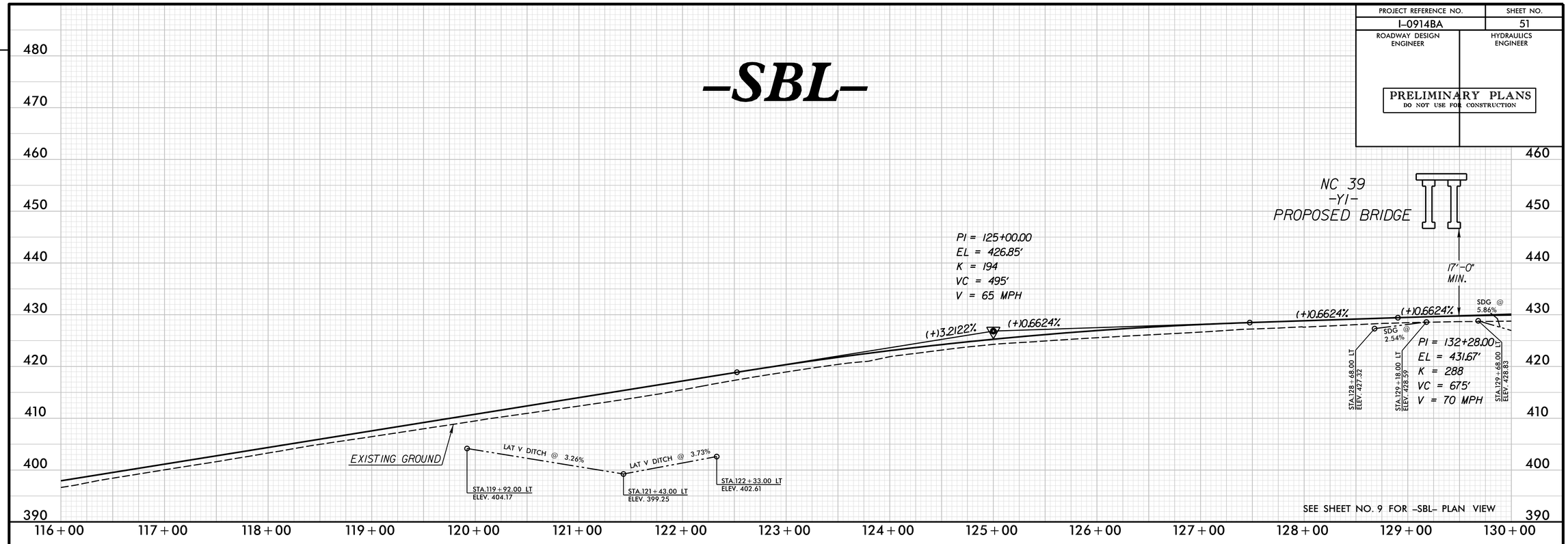
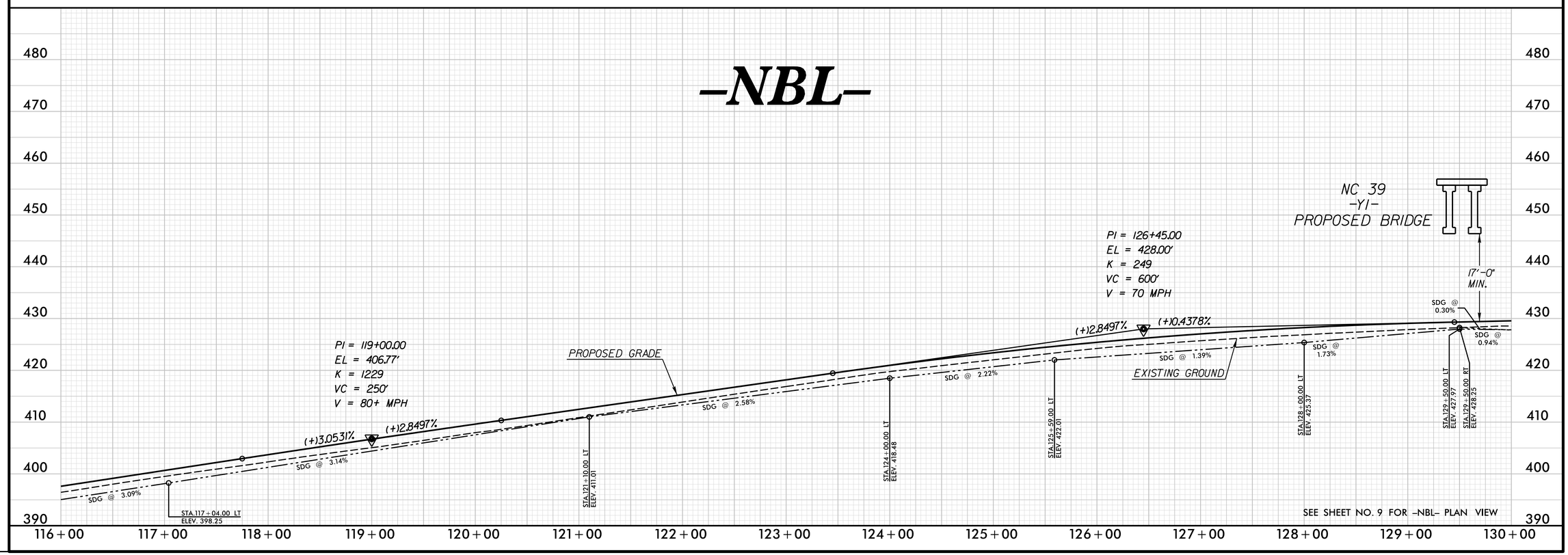
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	51
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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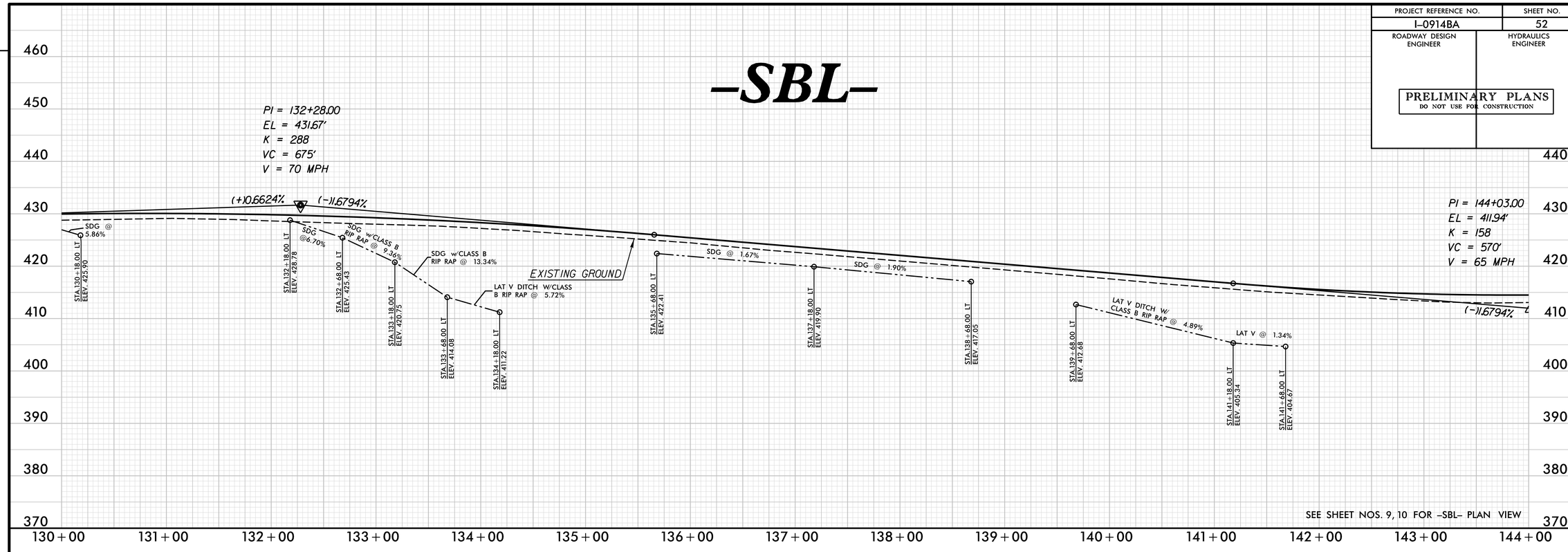
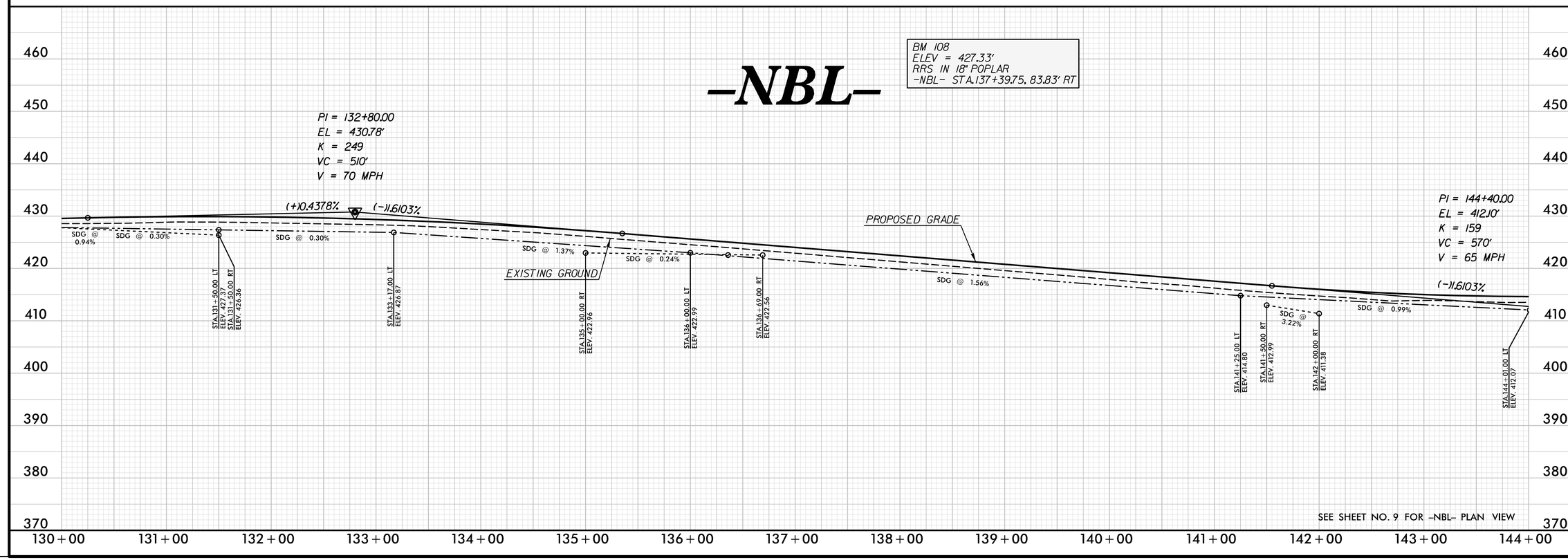
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	52
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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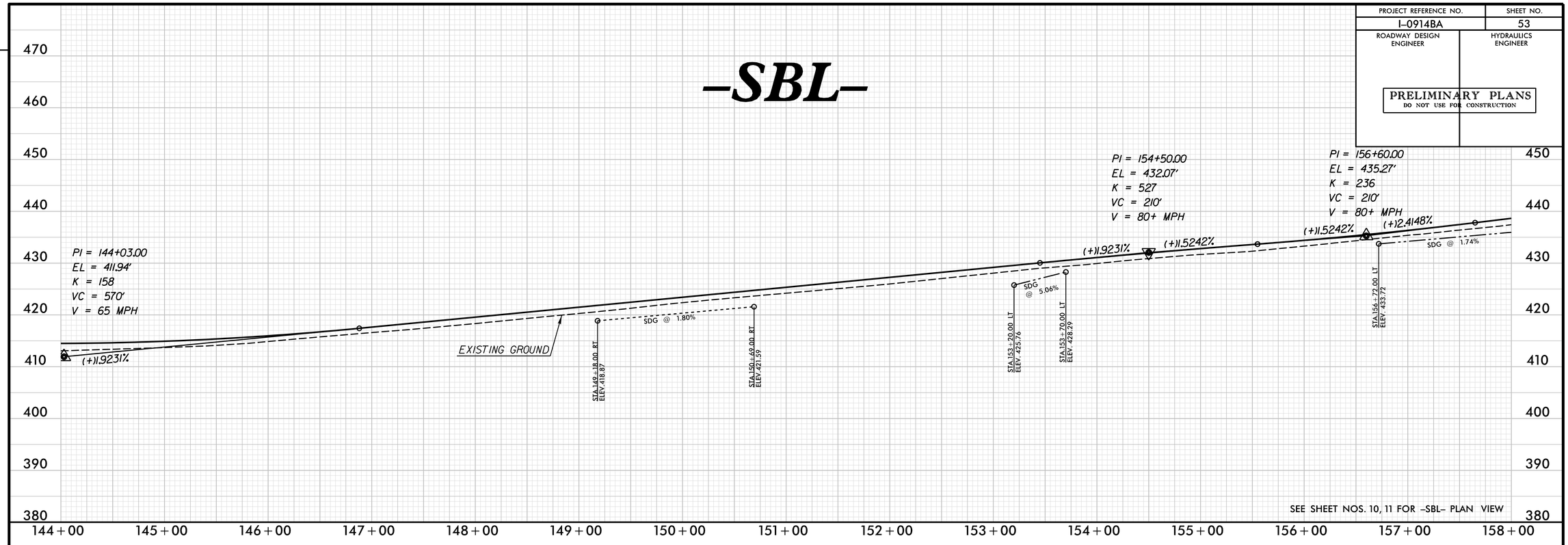
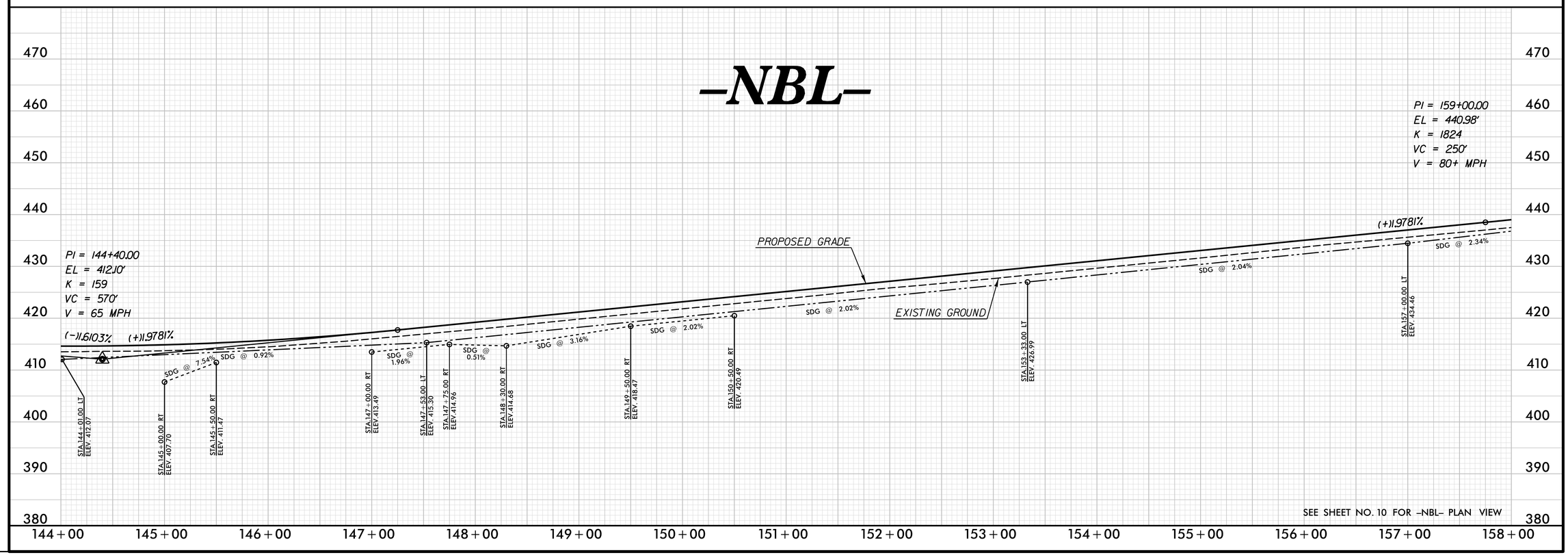
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	53
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 10, 11 FOR -SBL- PLAN VIEW



SEE SHEET NO. 10 FOR -NBL- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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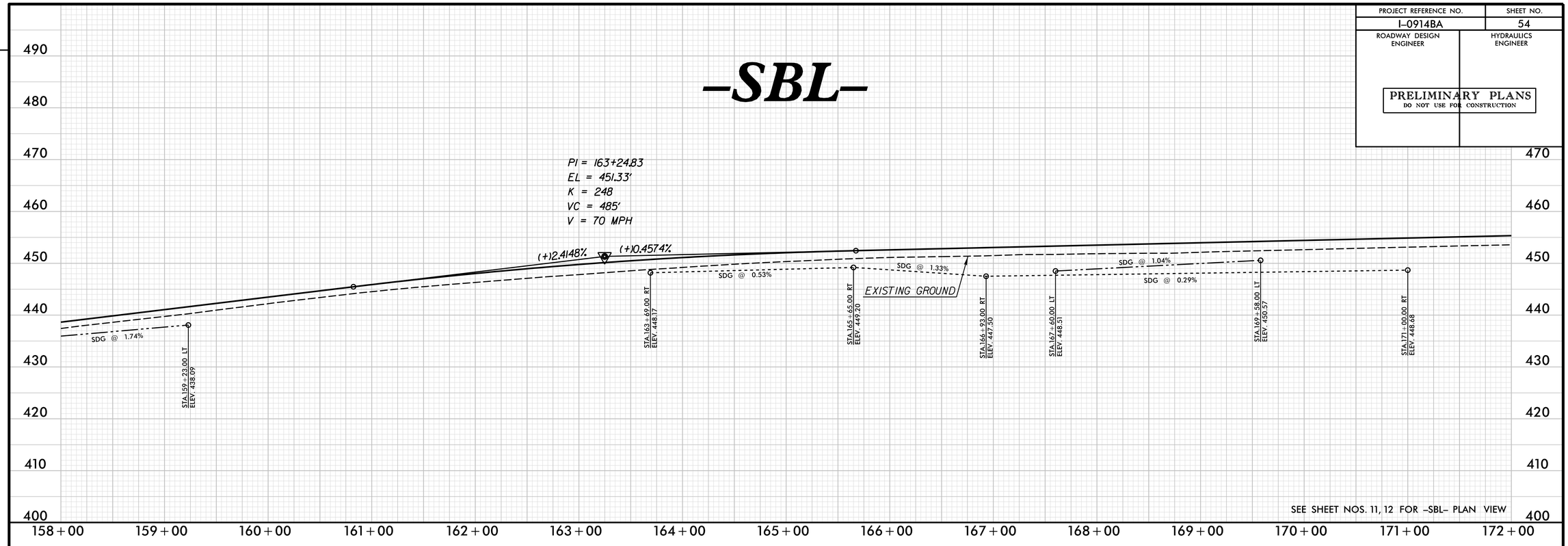
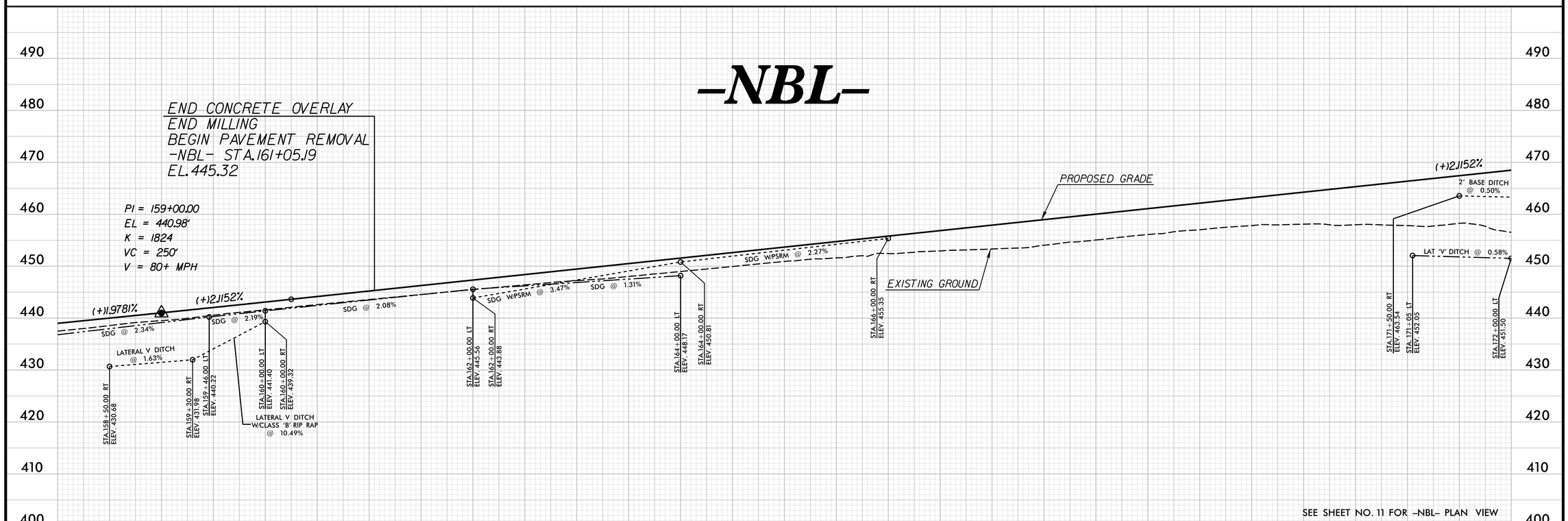
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	54
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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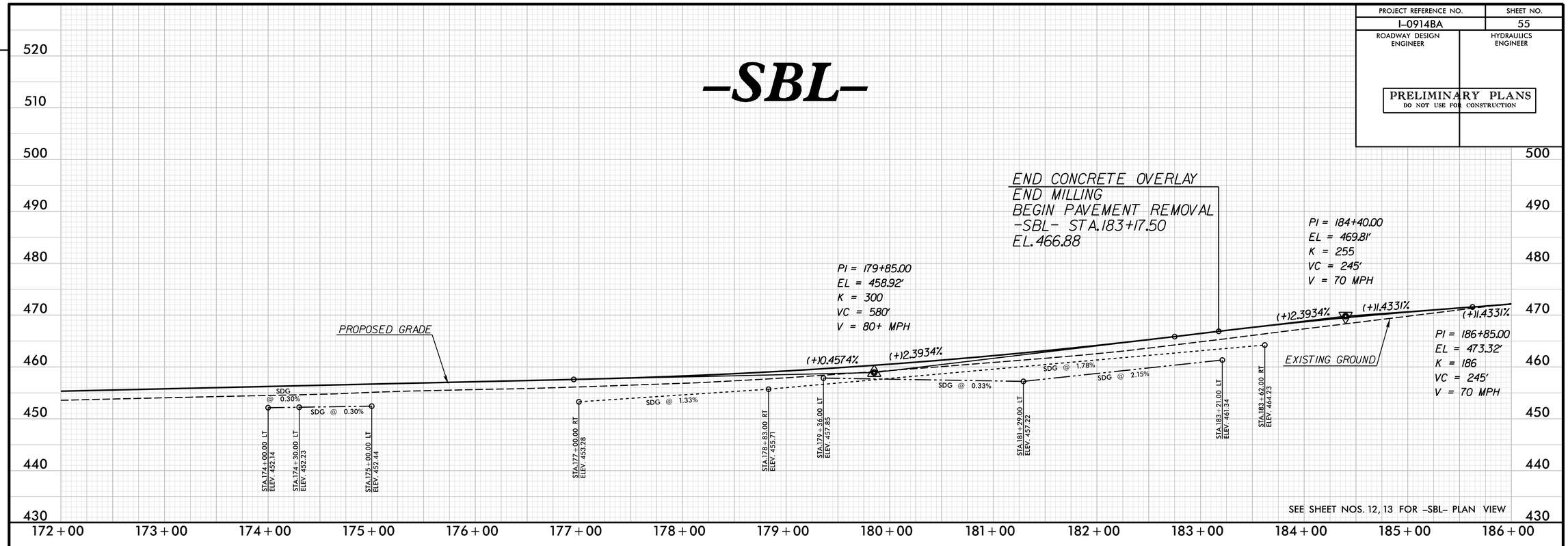
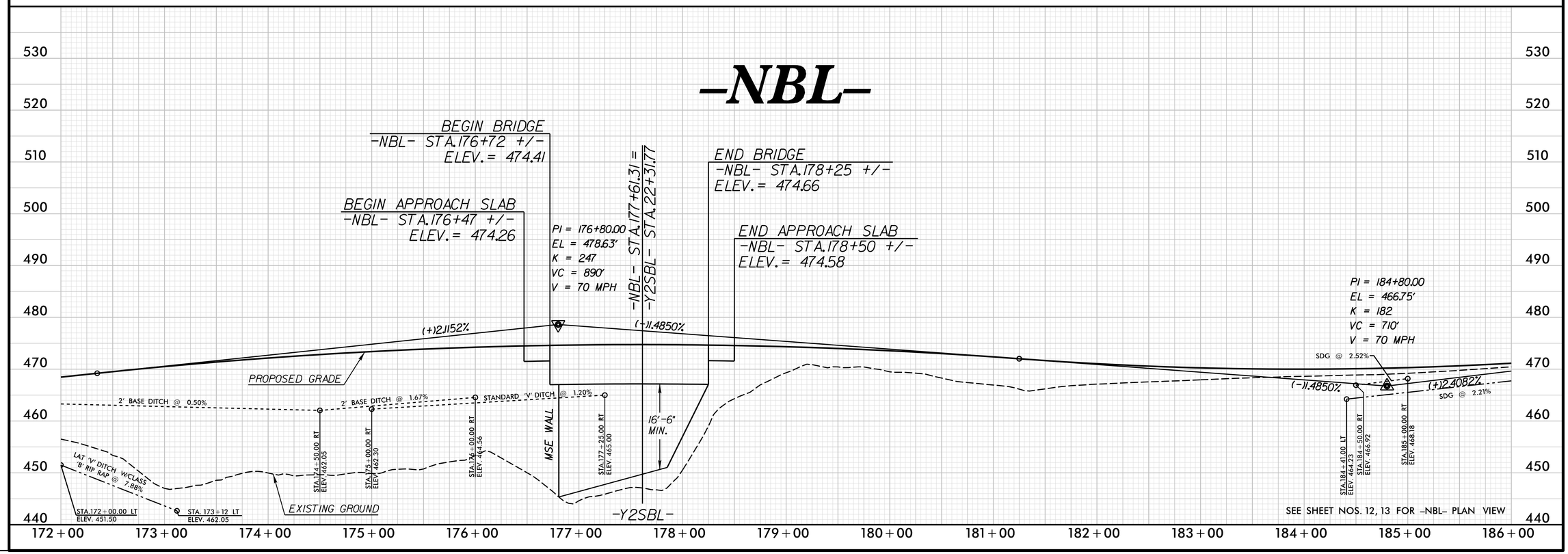
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	55
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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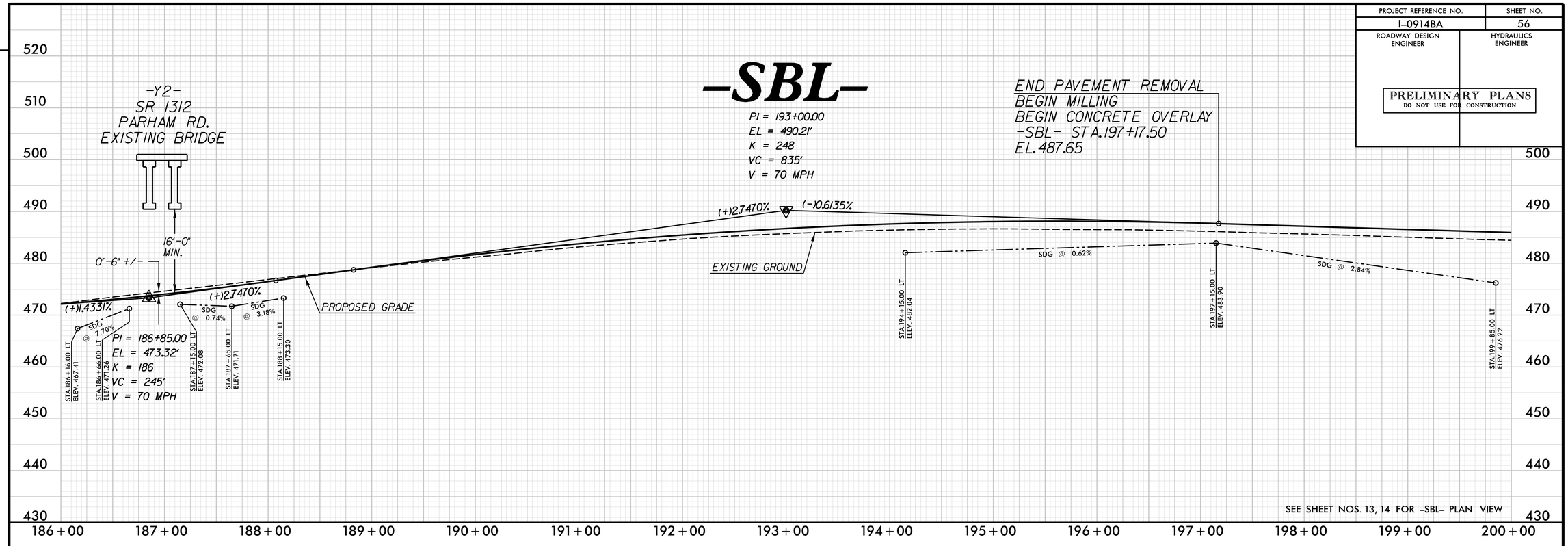
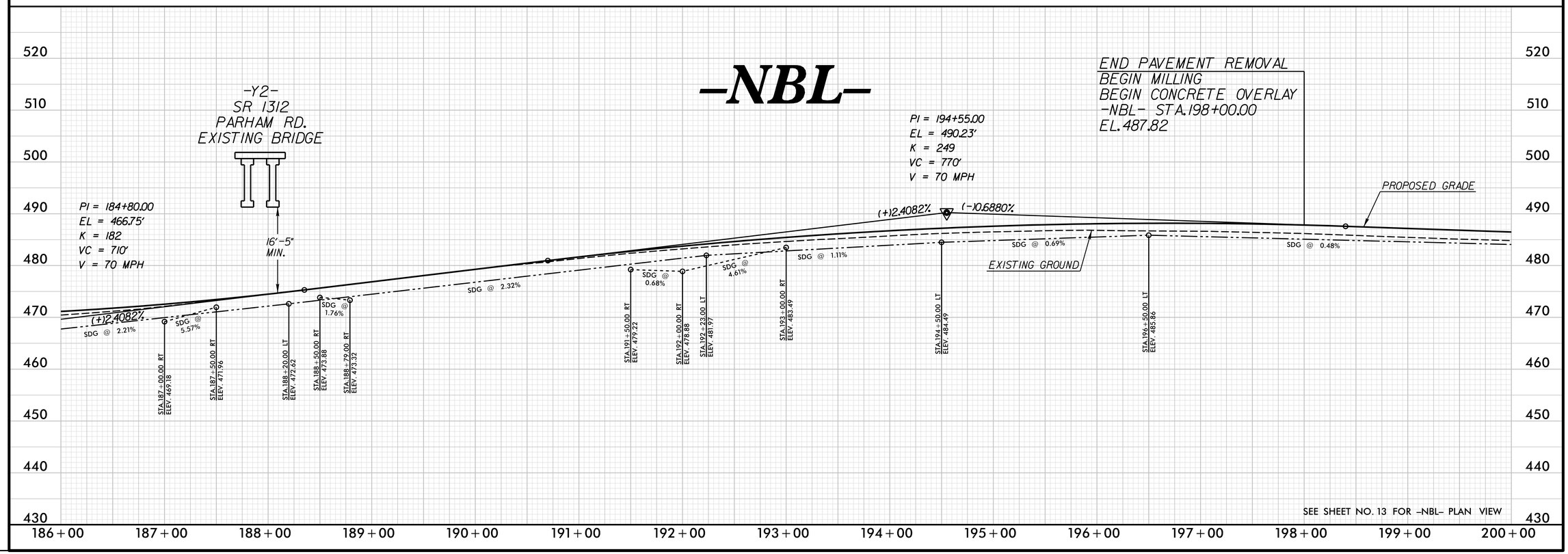
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	56
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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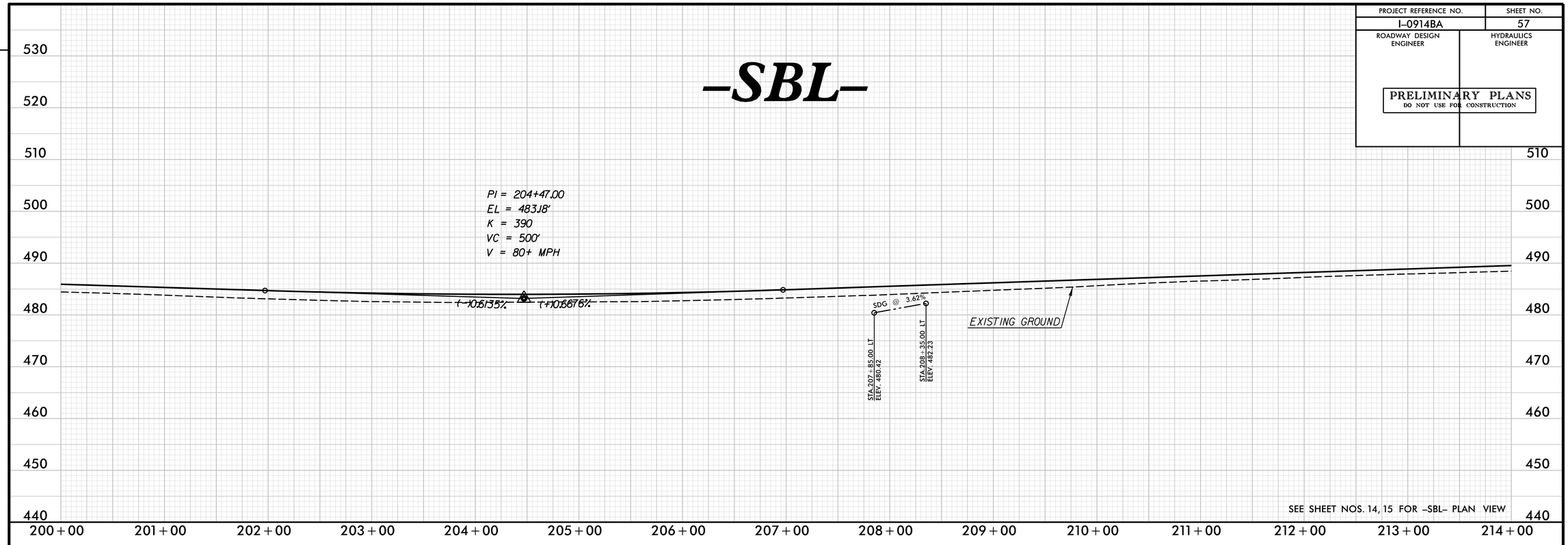
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	57
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

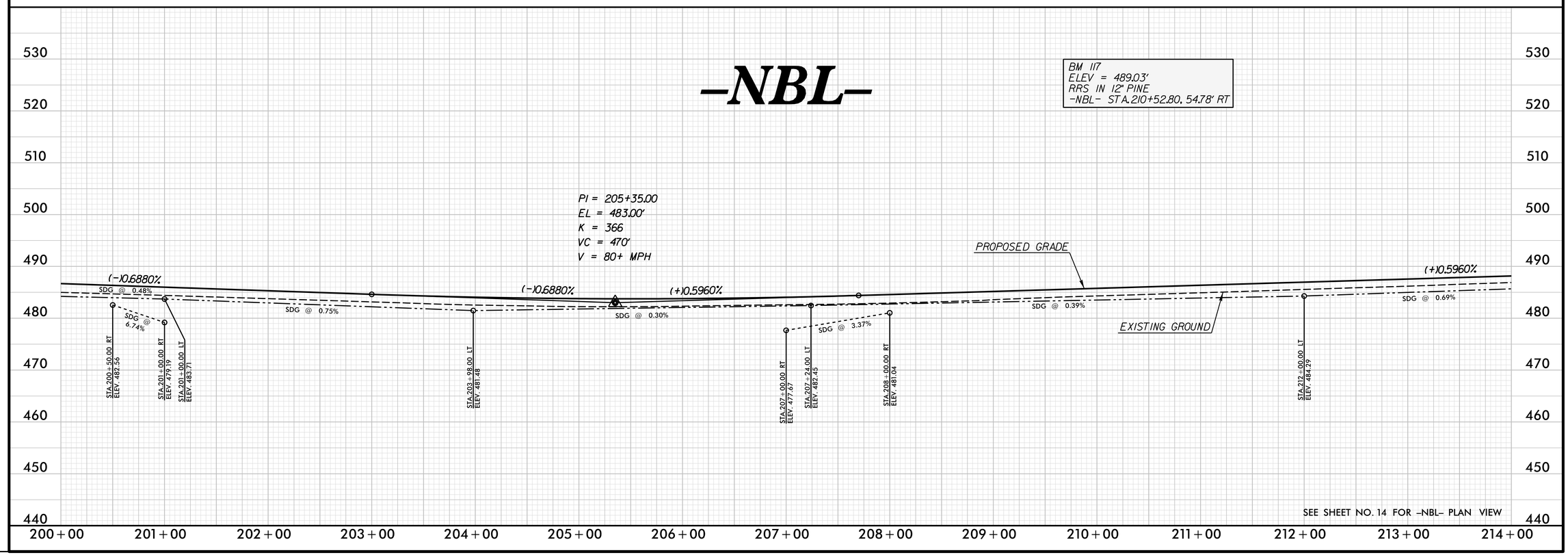
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-SBL-



SEE SHEET NOS. 14, 15 FOR -SBL- PLAN VIEW

-NBL-



SEE SHEET NO. 14 FOR -NBL- PLAN VIEW

REVISIONS

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USER: dwainwri DATE: 2/28/2014 TIME: 10:43:00 AM
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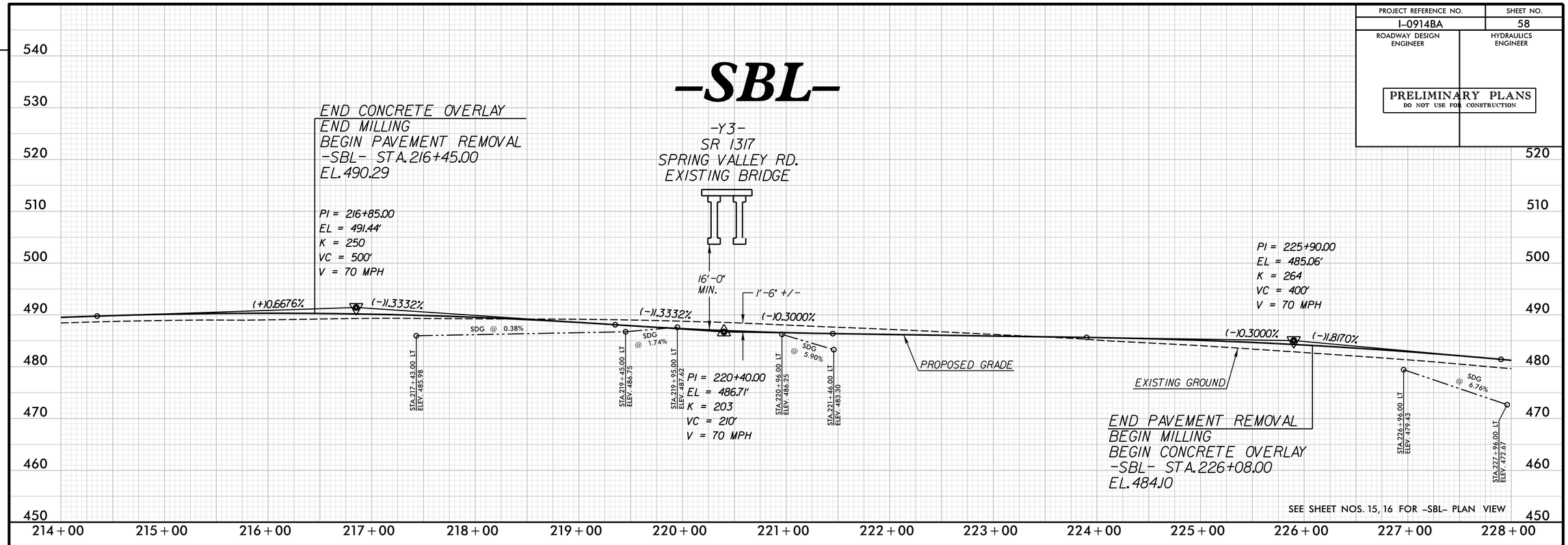
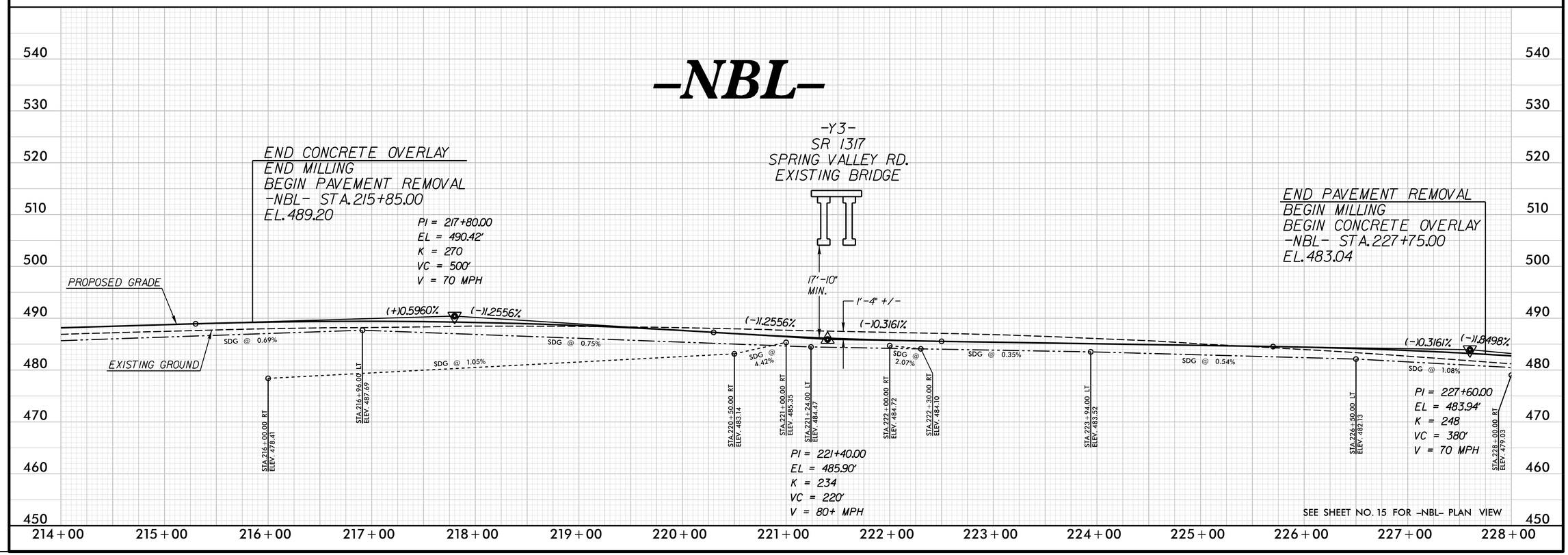
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	58
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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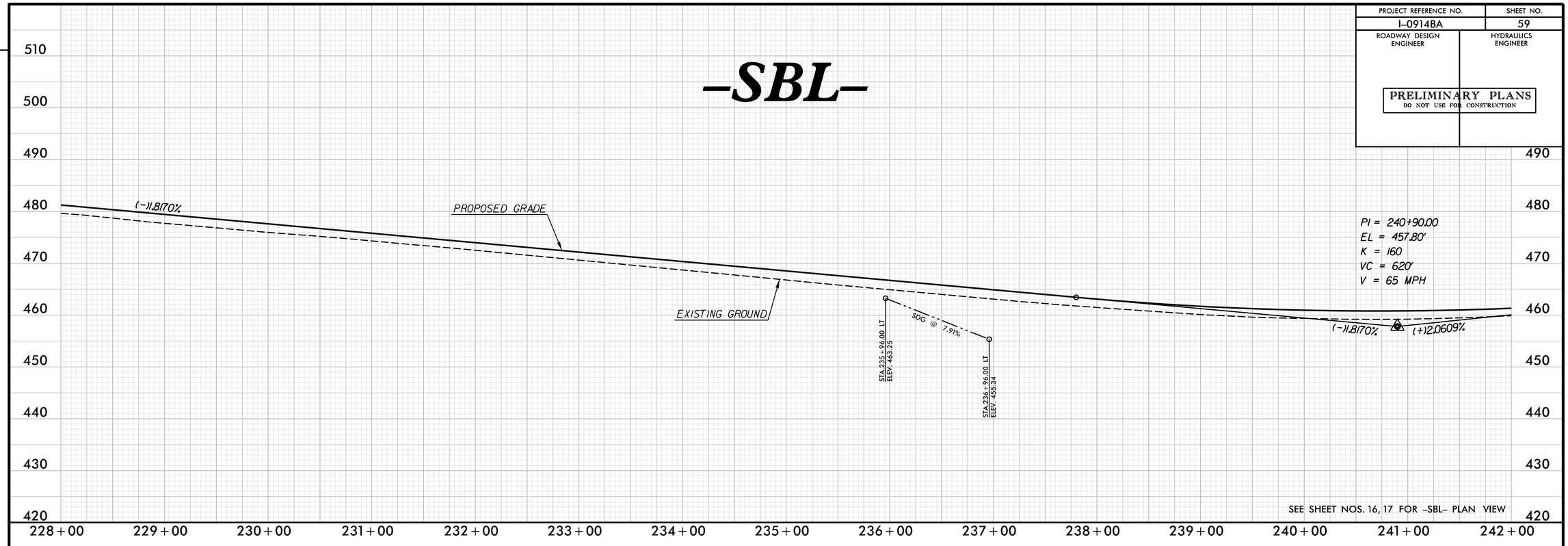
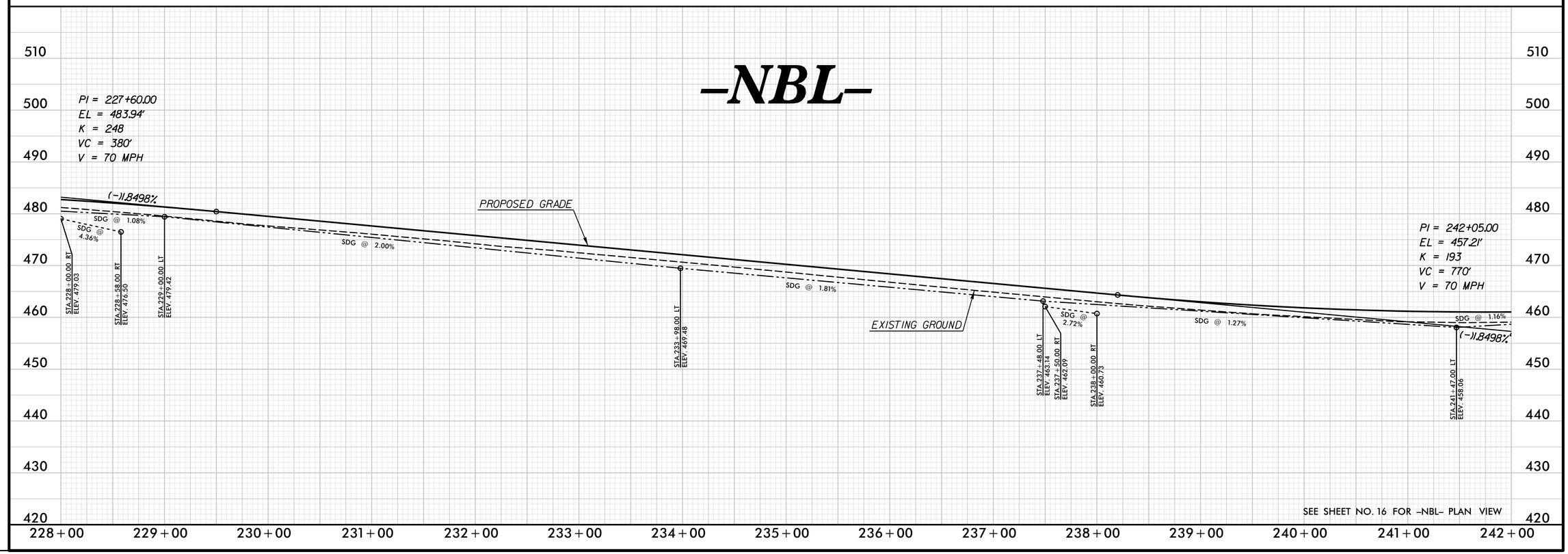
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	59
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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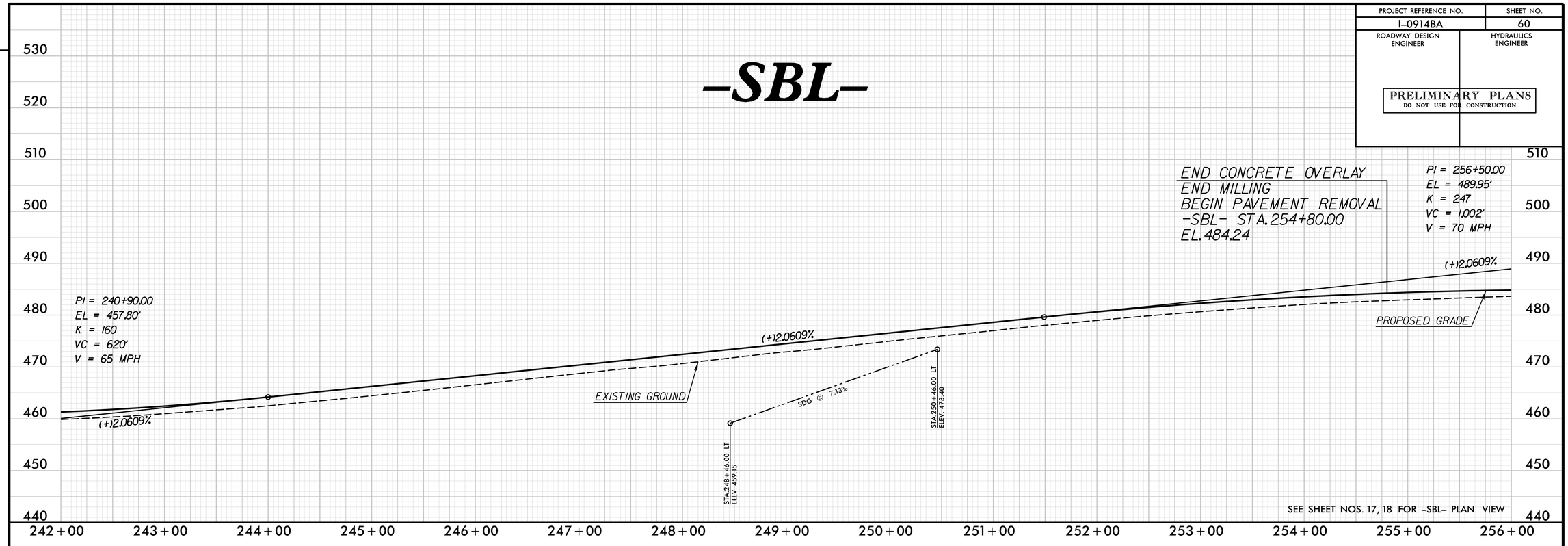
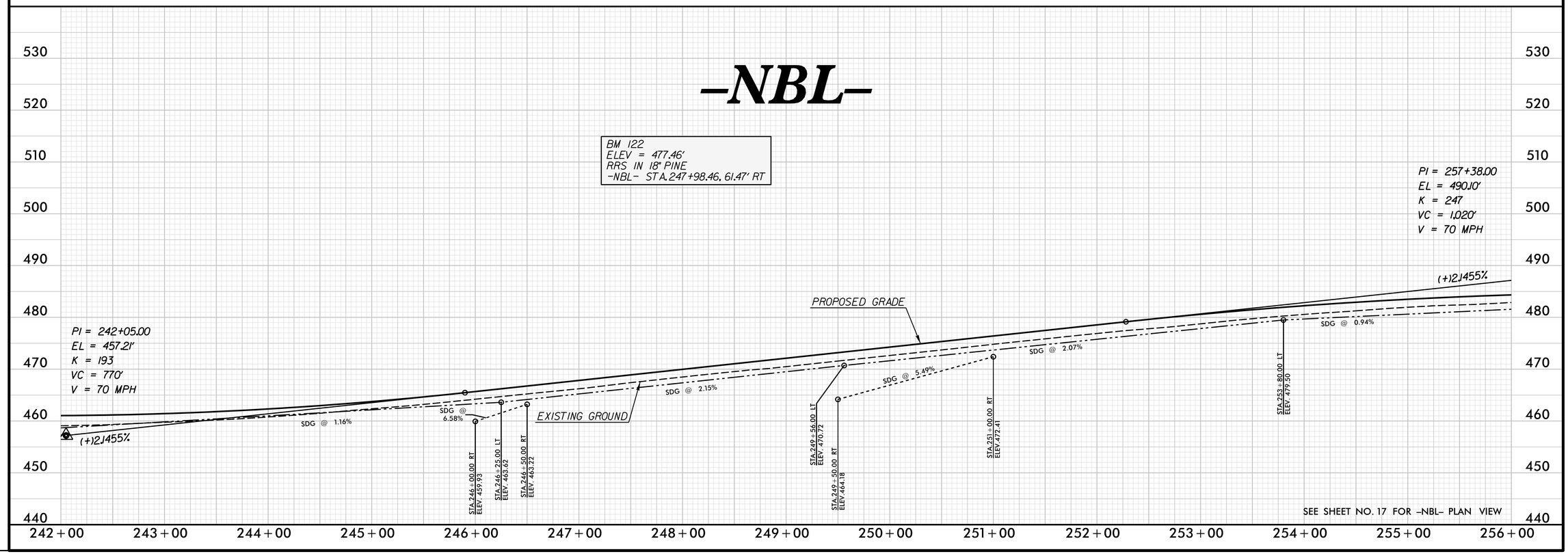
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	60
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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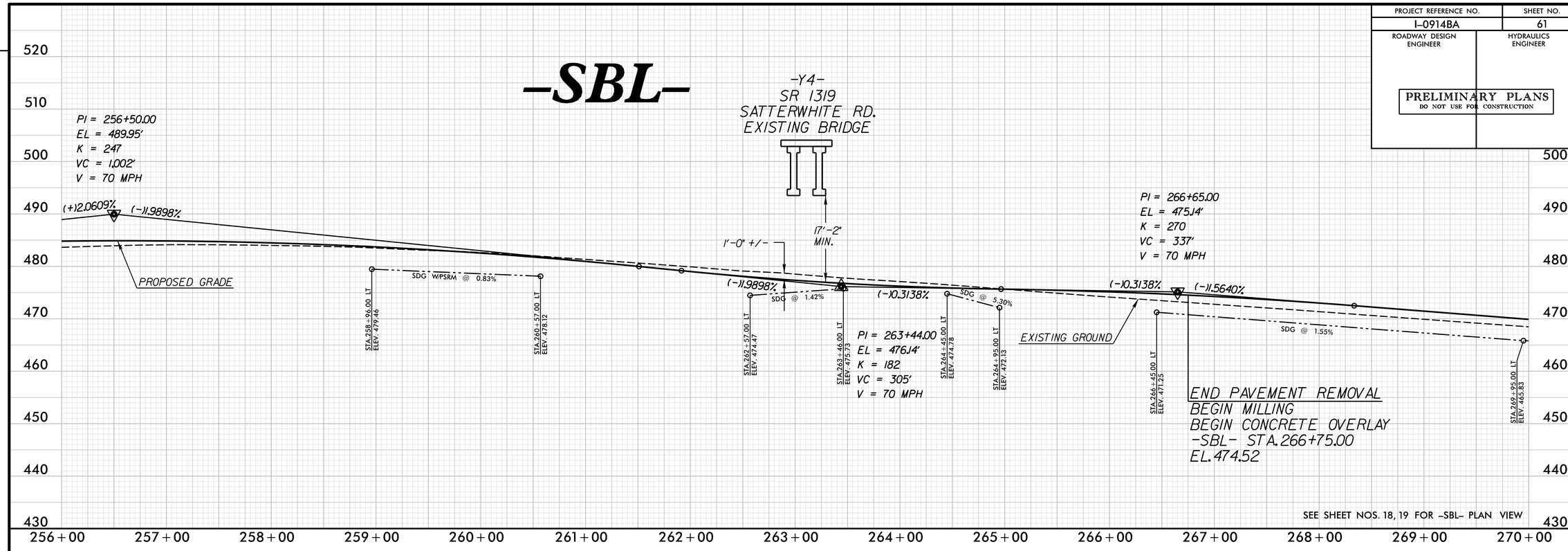
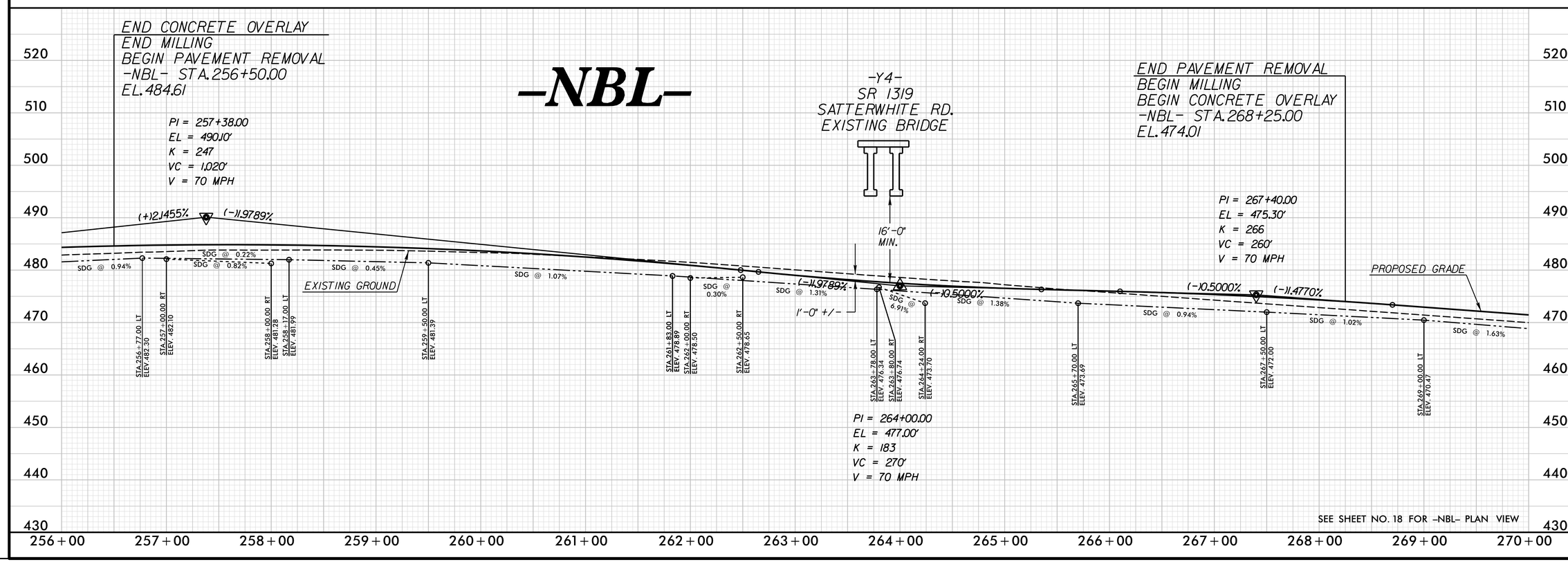
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	61
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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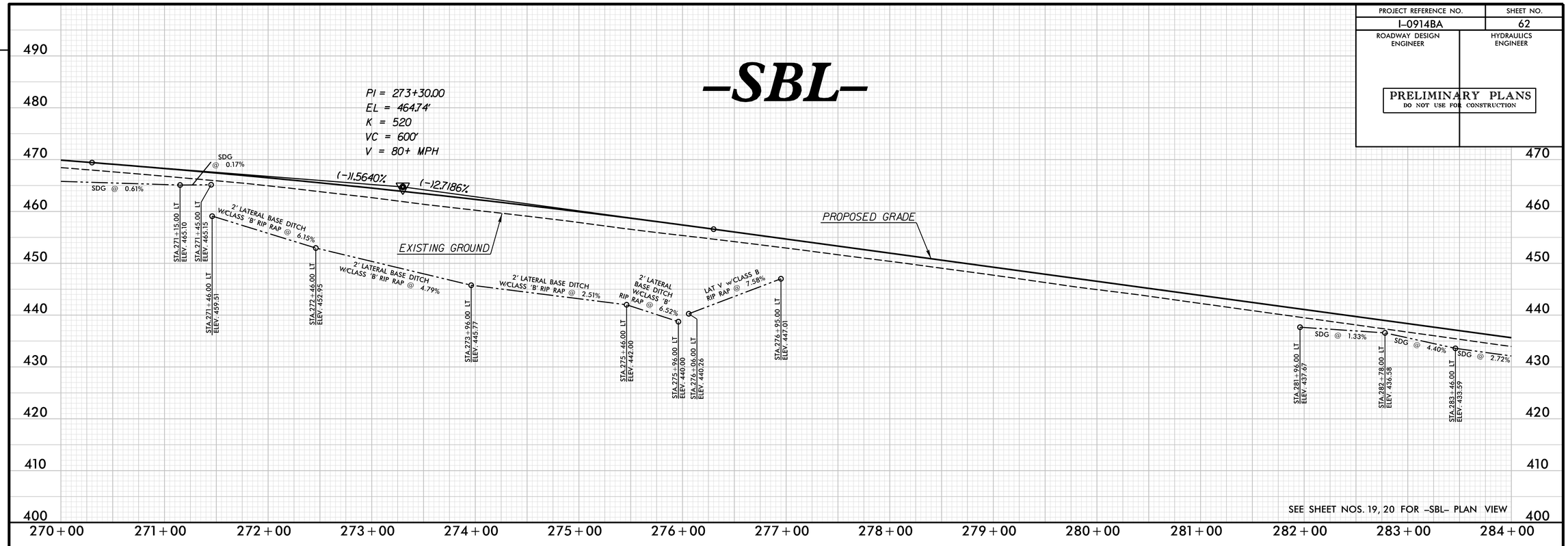
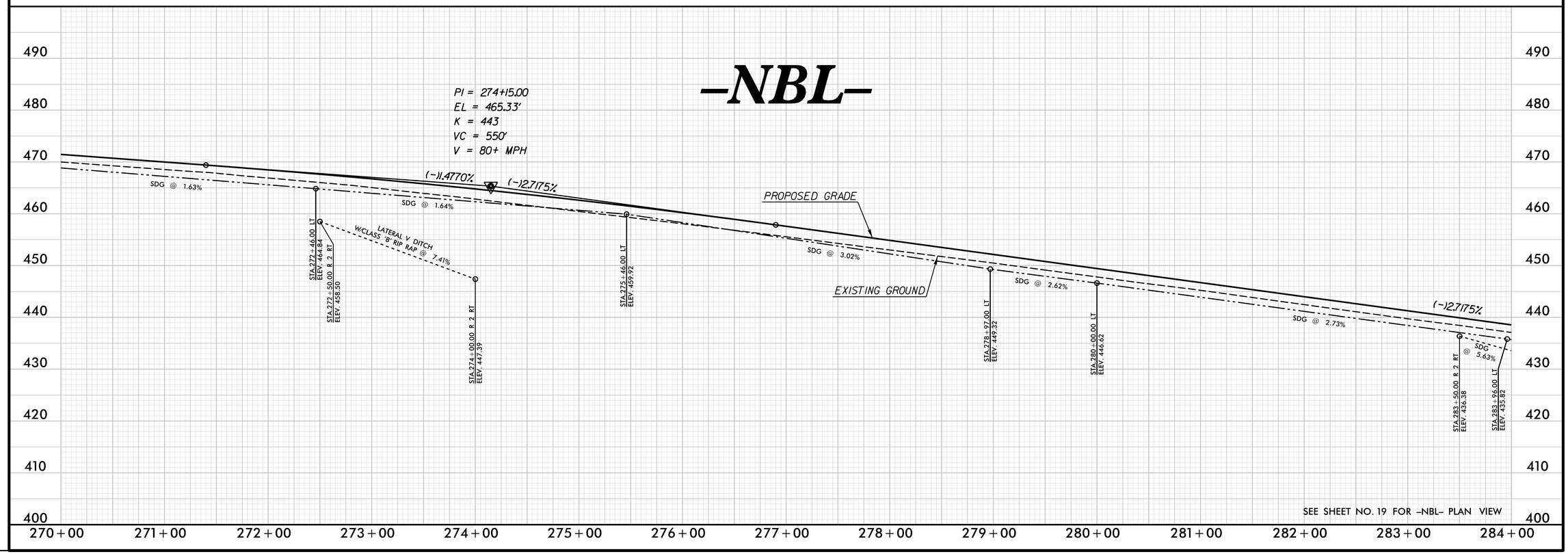
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	62
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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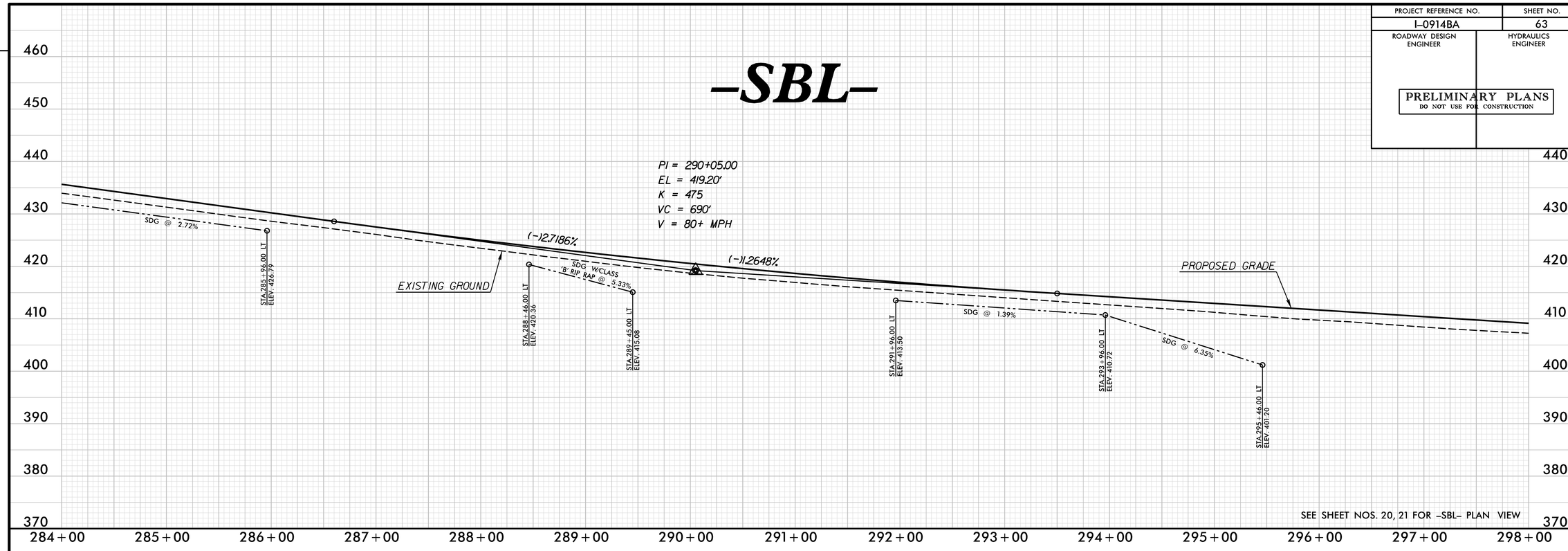
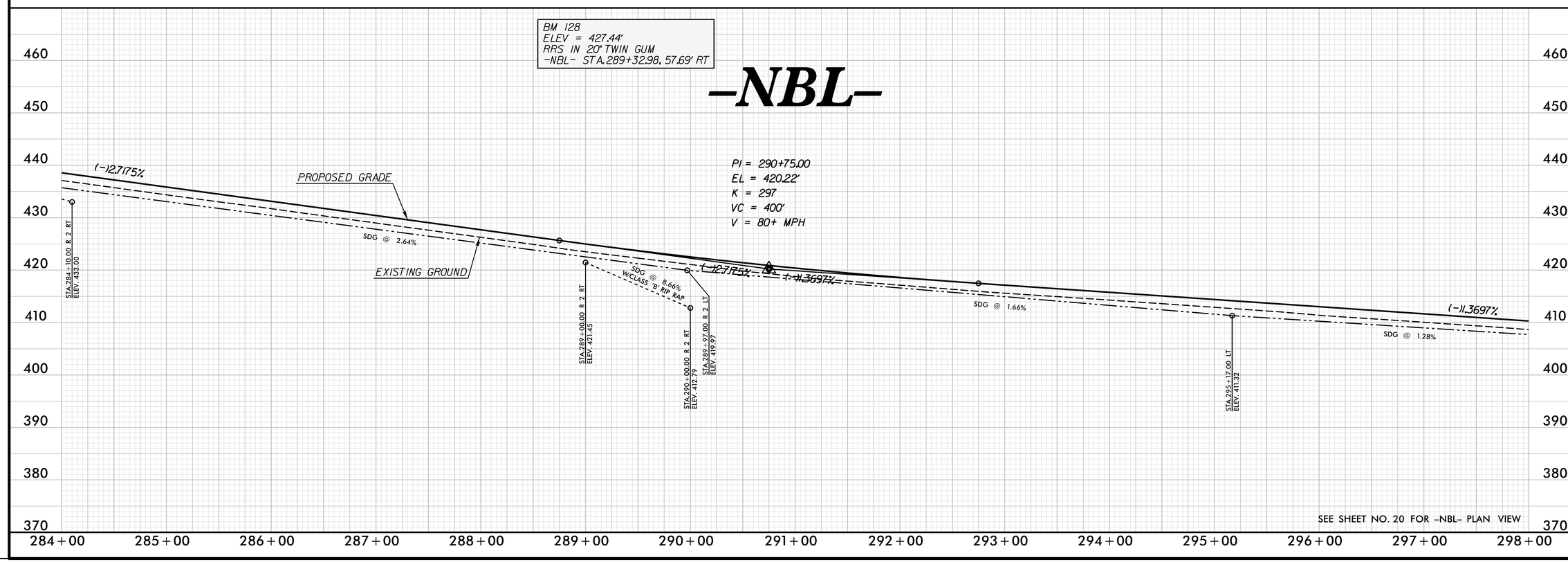
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	63
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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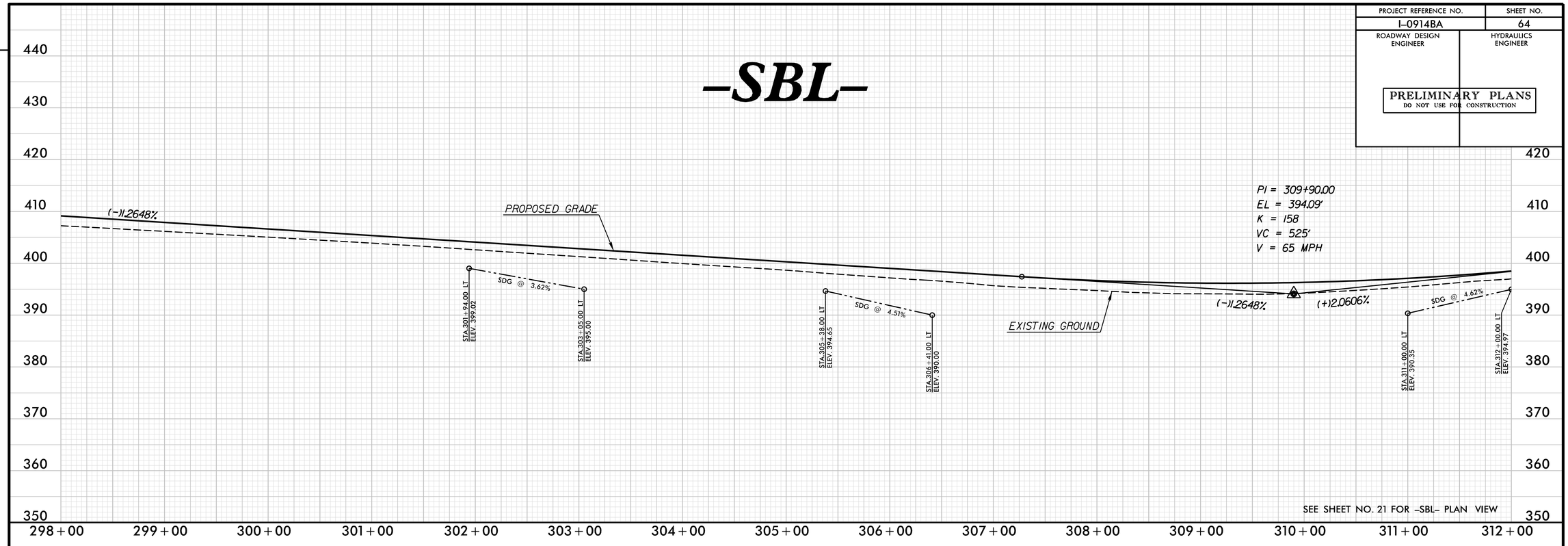
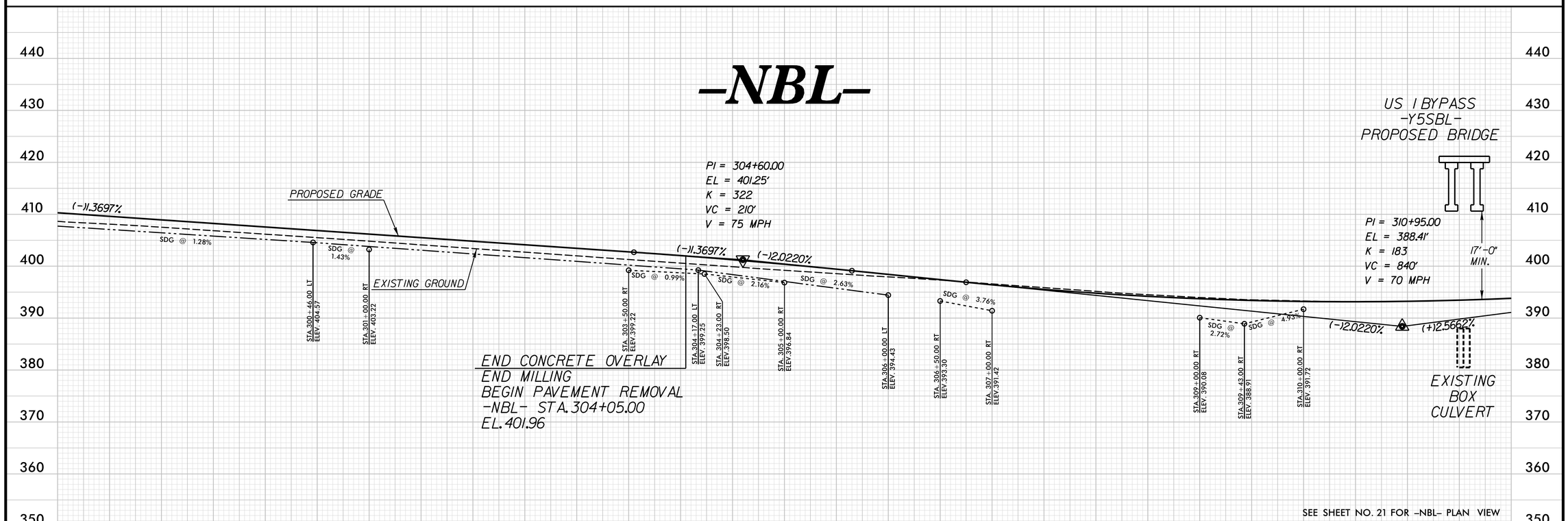
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	64
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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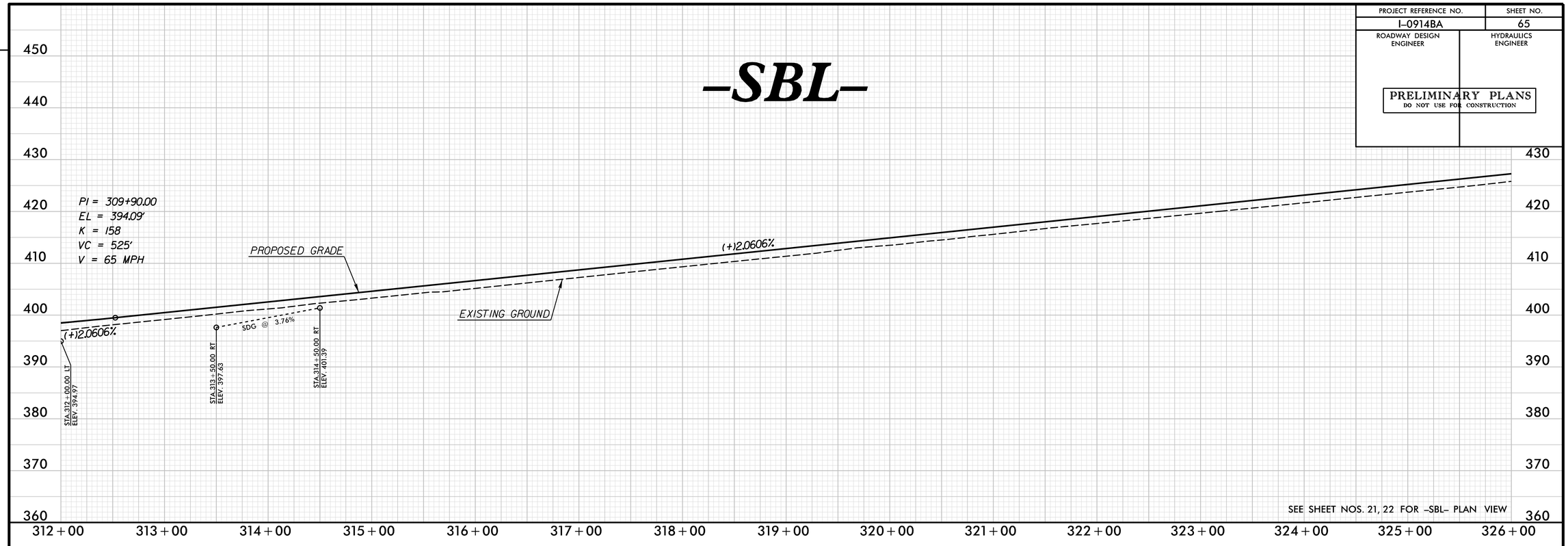
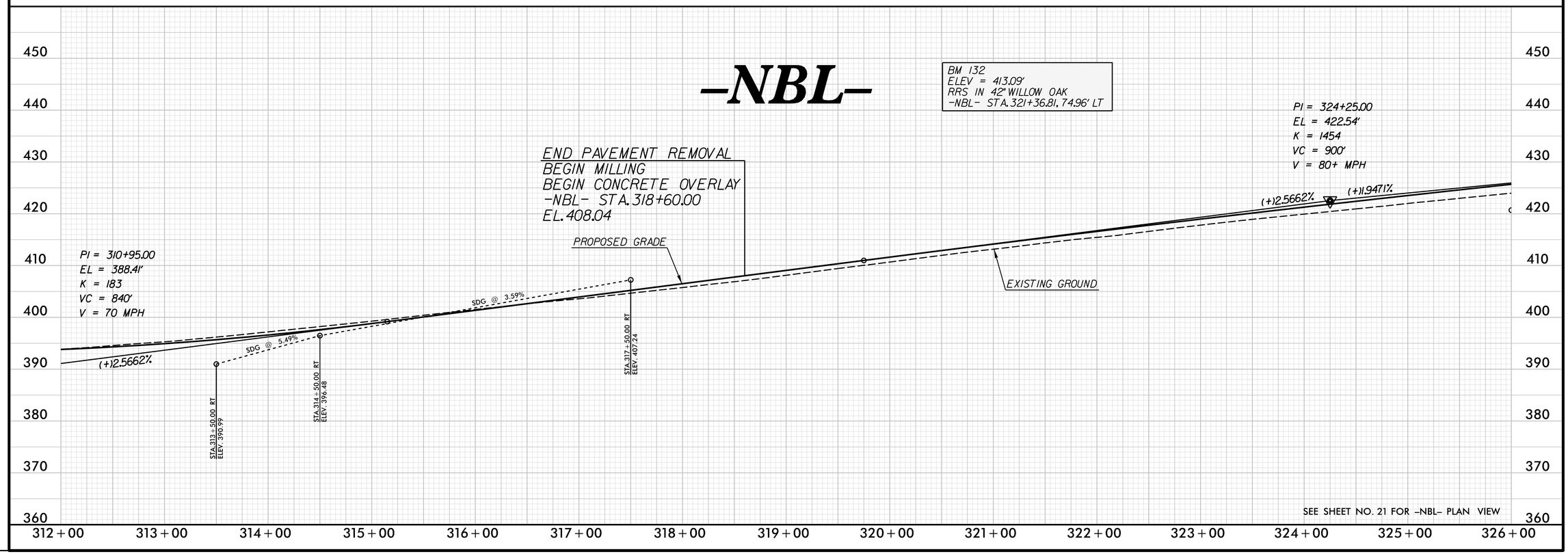
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	65
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 21, 22 FOR -SBL- PLAN VIEW



SEE SHEET NO. 21 FOR -NBL- PLAN VIEW

REVISIONS

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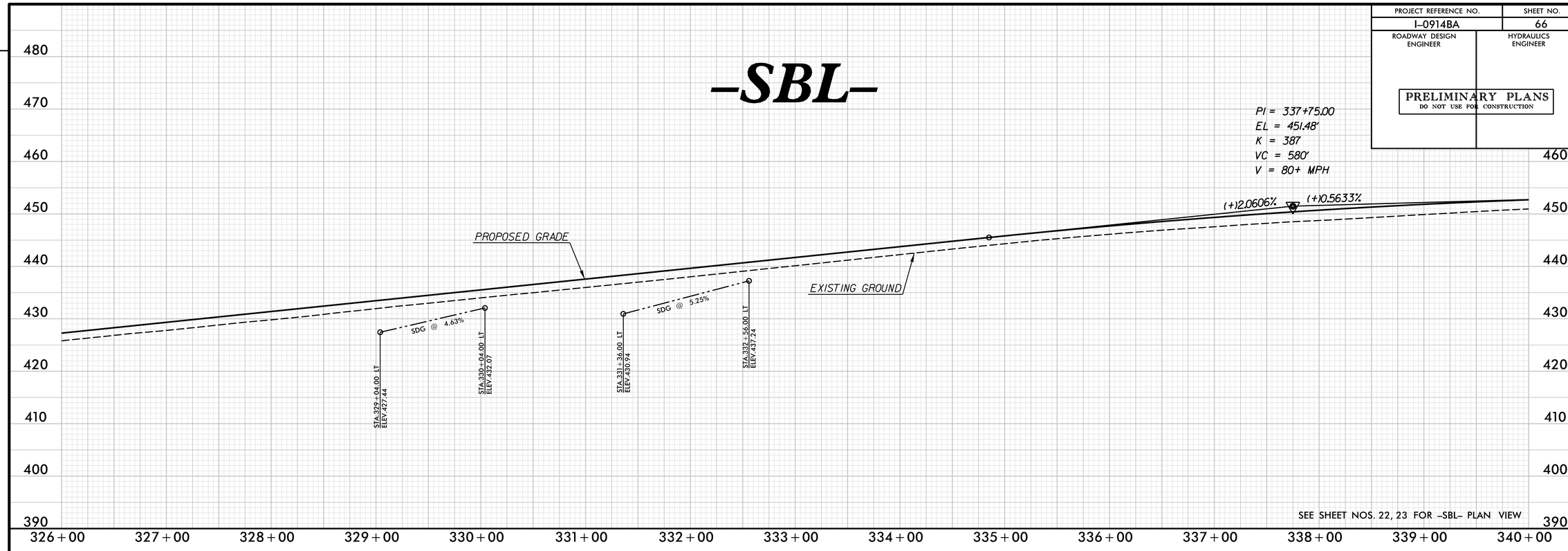
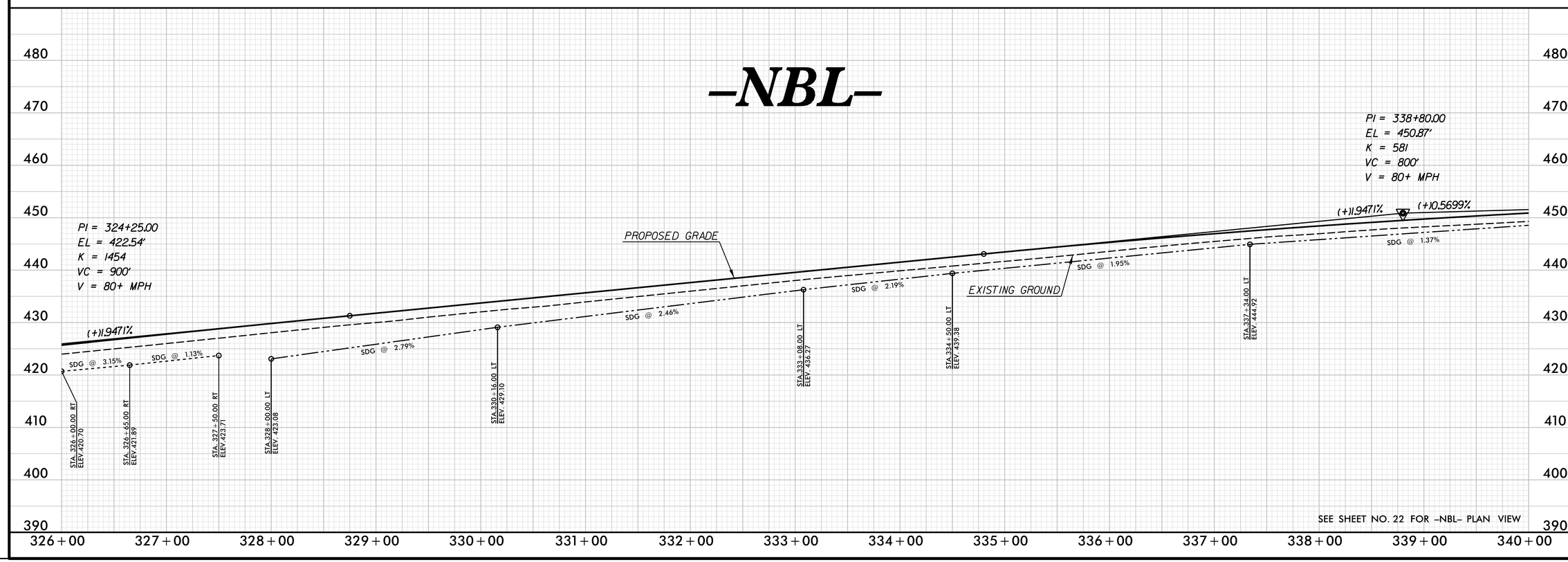
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	66
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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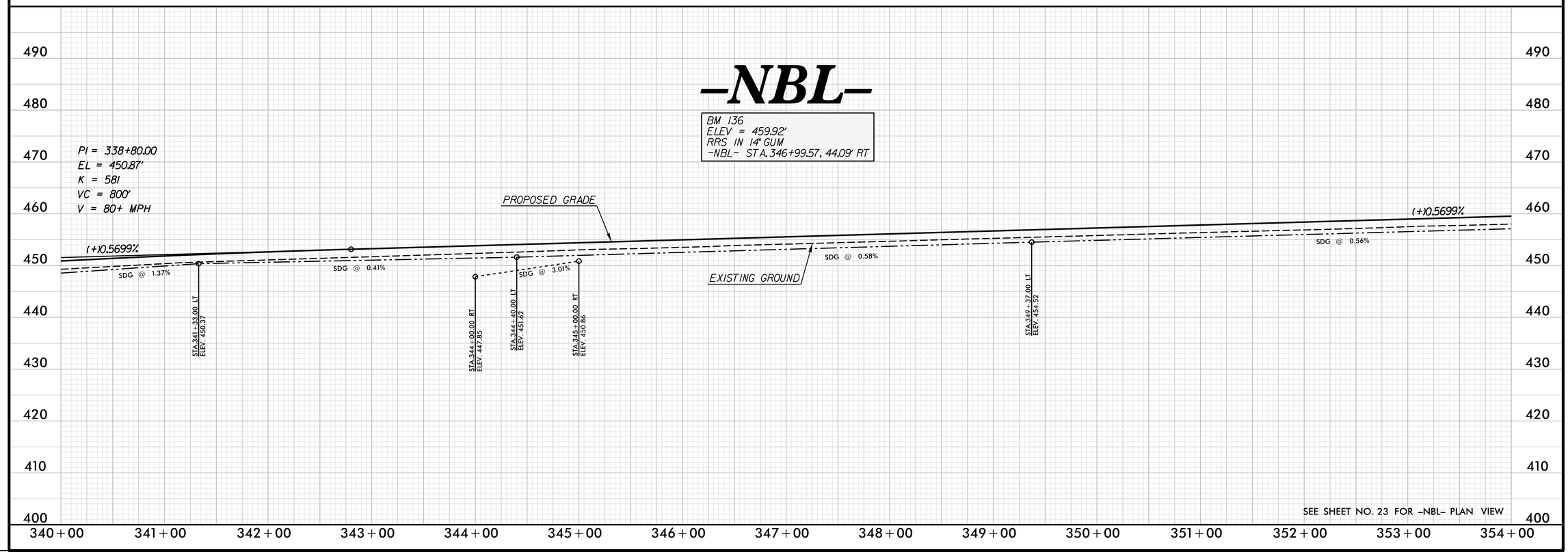
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	67
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET NOS. 23, 24 FOR -SBL- PLAN VIEW



SEE SHEET NO. 23 FOR -NBL- PLAN VIEW

REVISIONS

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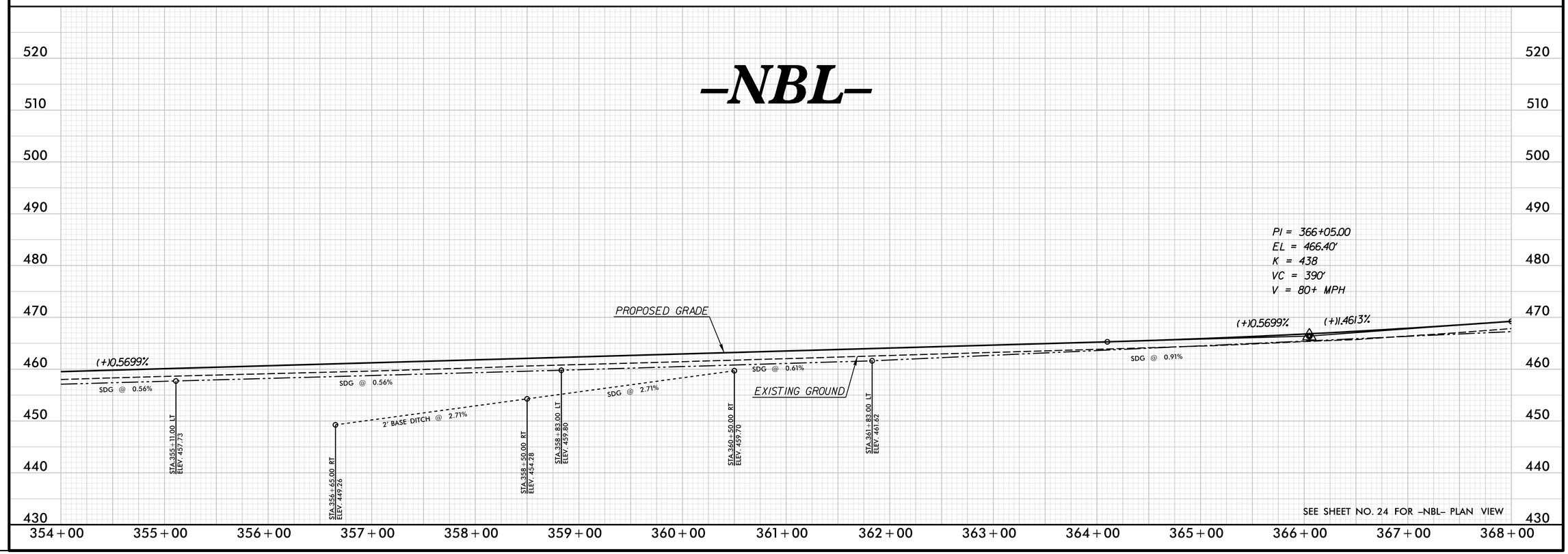
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	68
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

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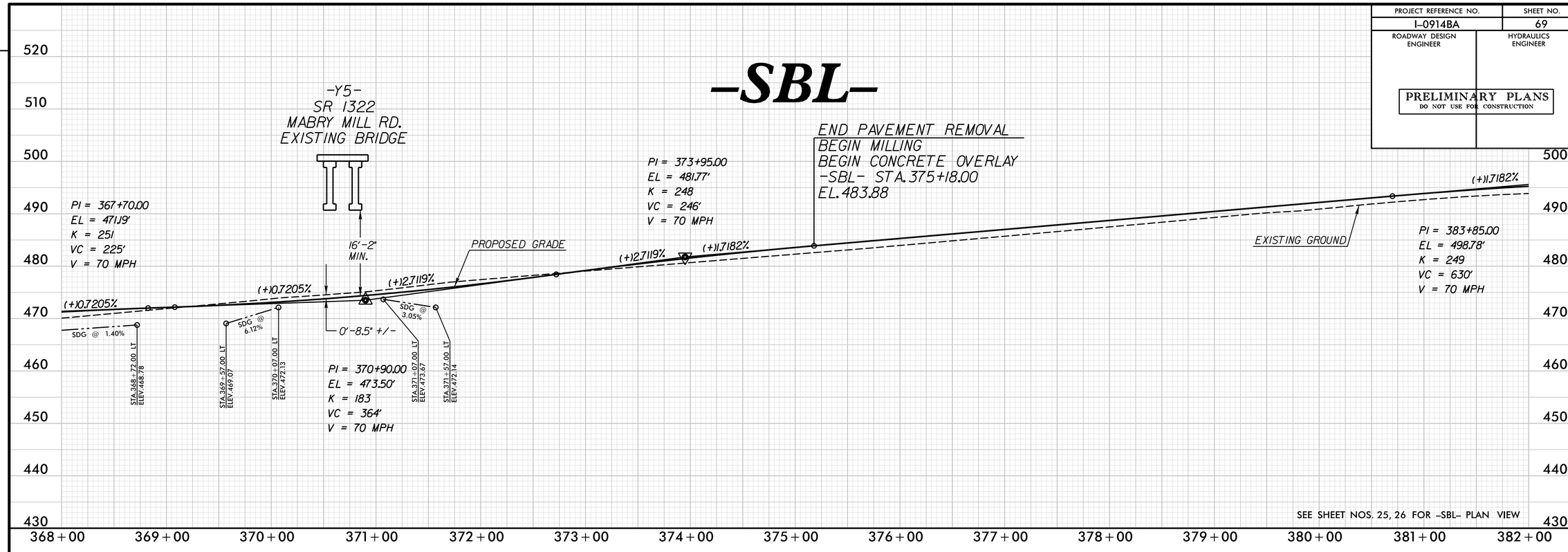
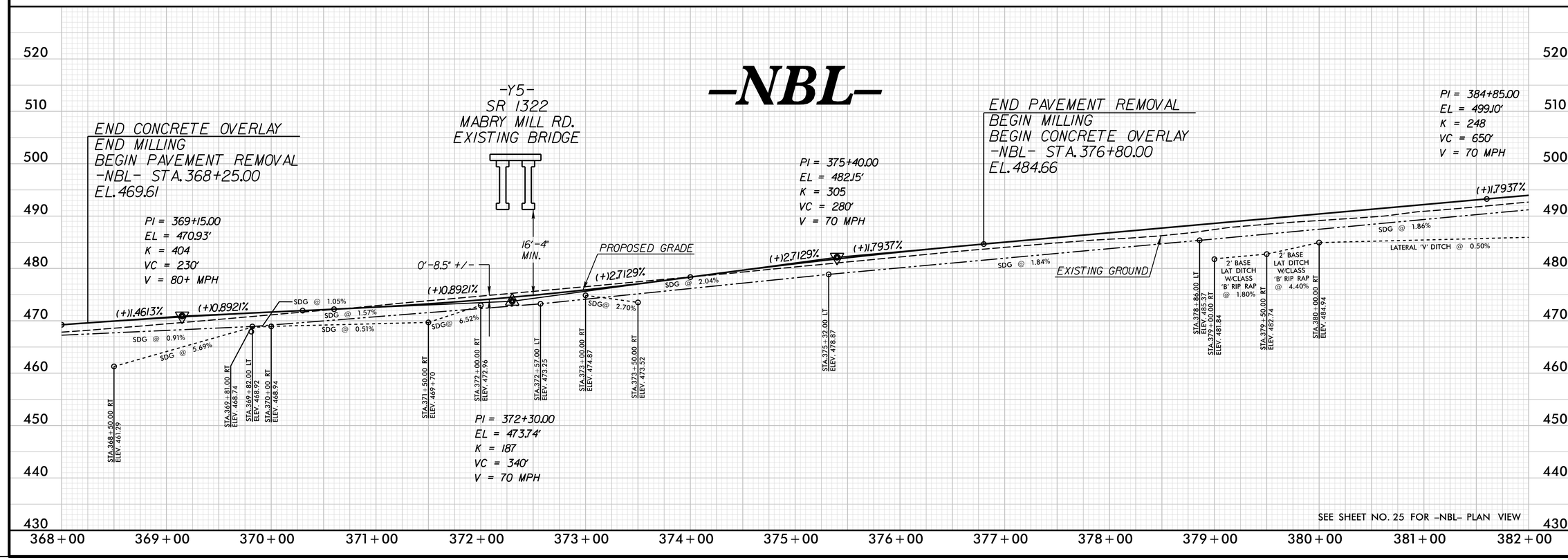
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	69
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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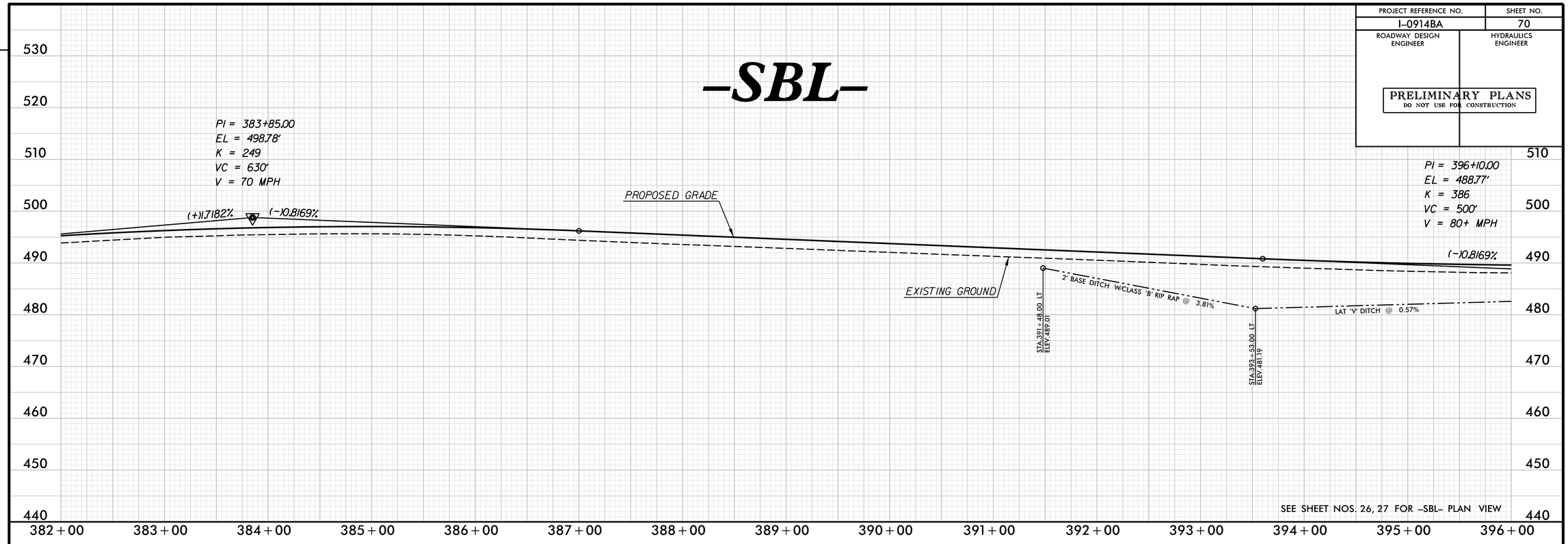
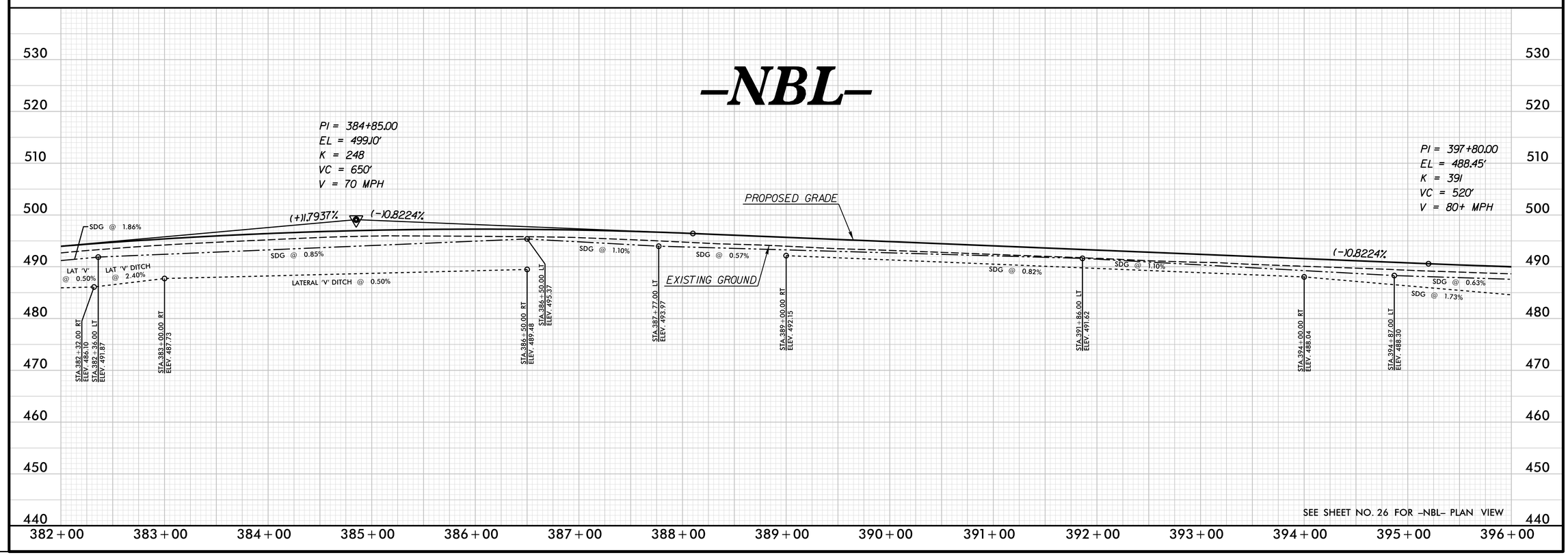
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	70
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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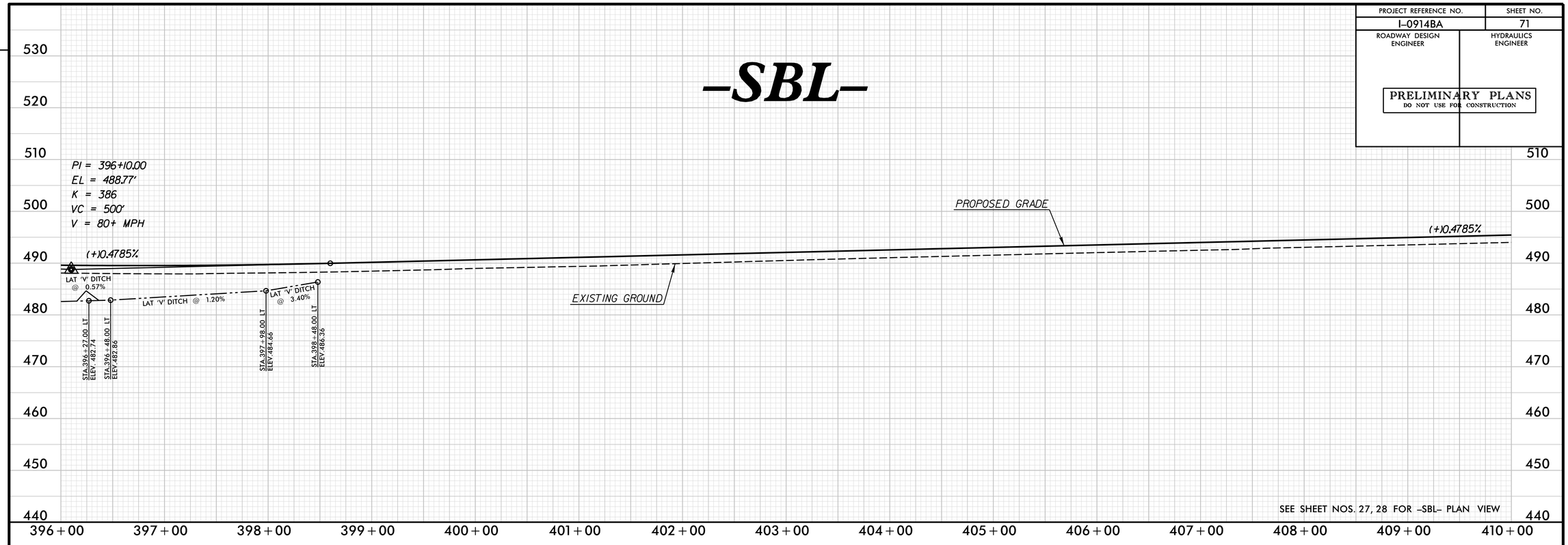
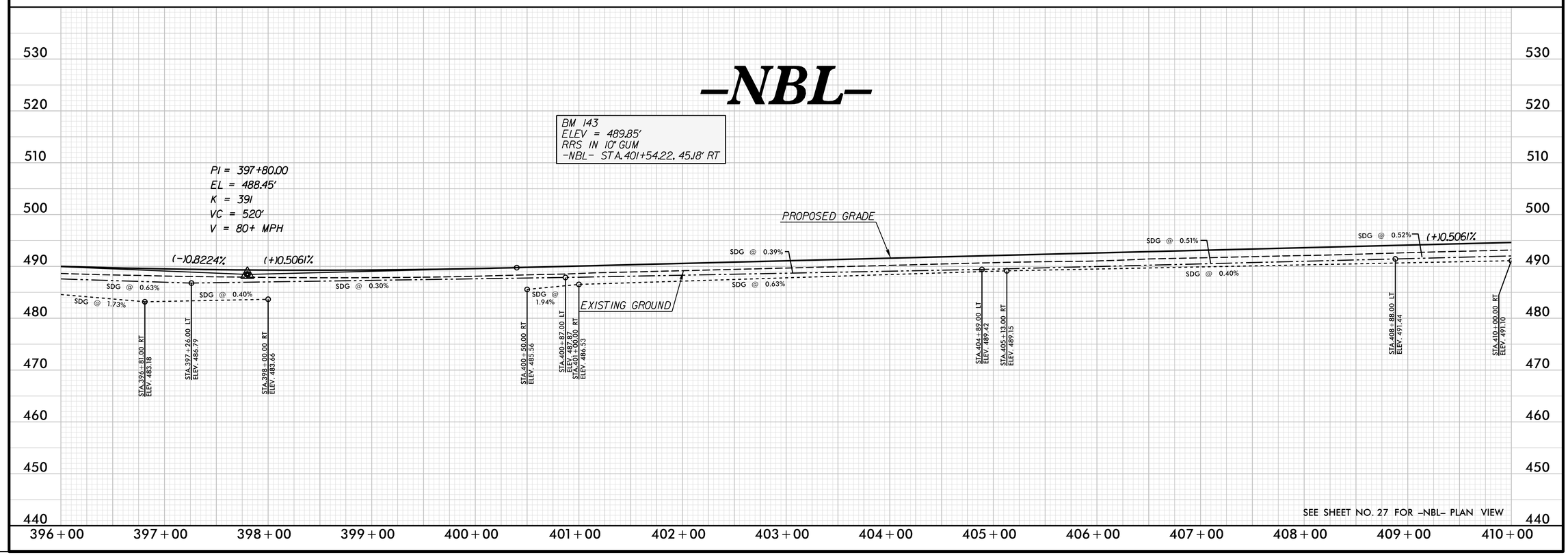
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	71
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 27, 28 FOR -SBL- PLAN VIEW



SEE SHEET NO. 27 FOR -NBL- PLAN VIEW

REVISIONS

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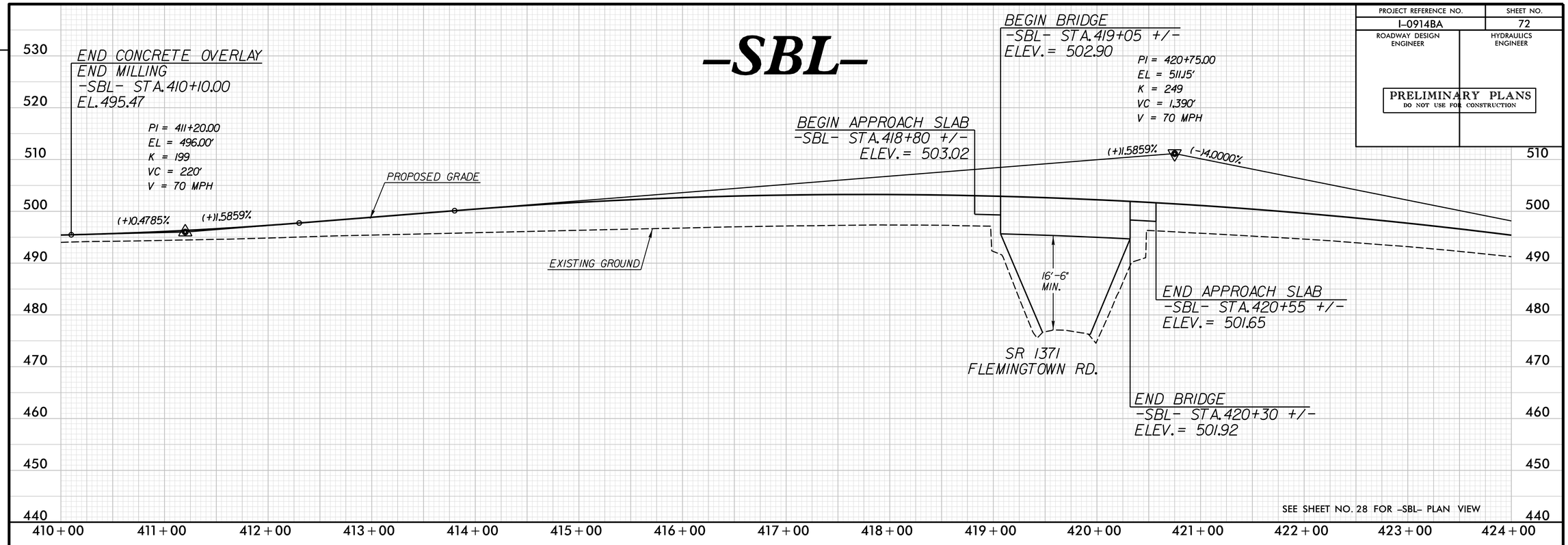
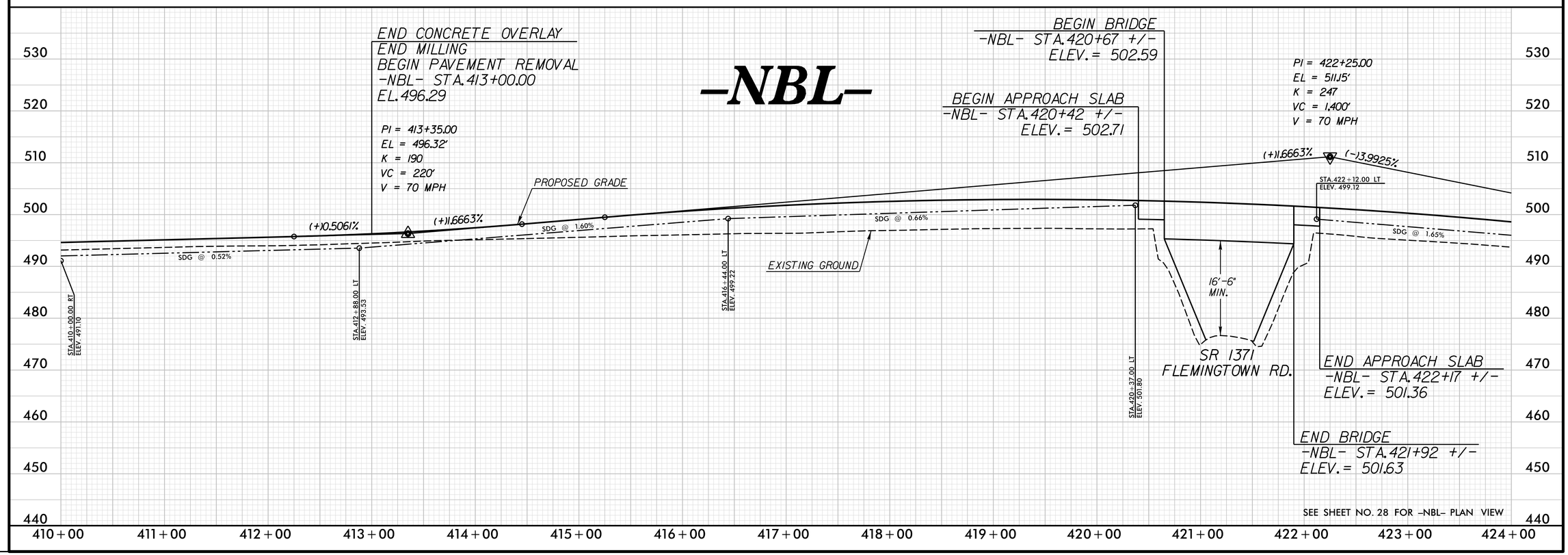
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	72
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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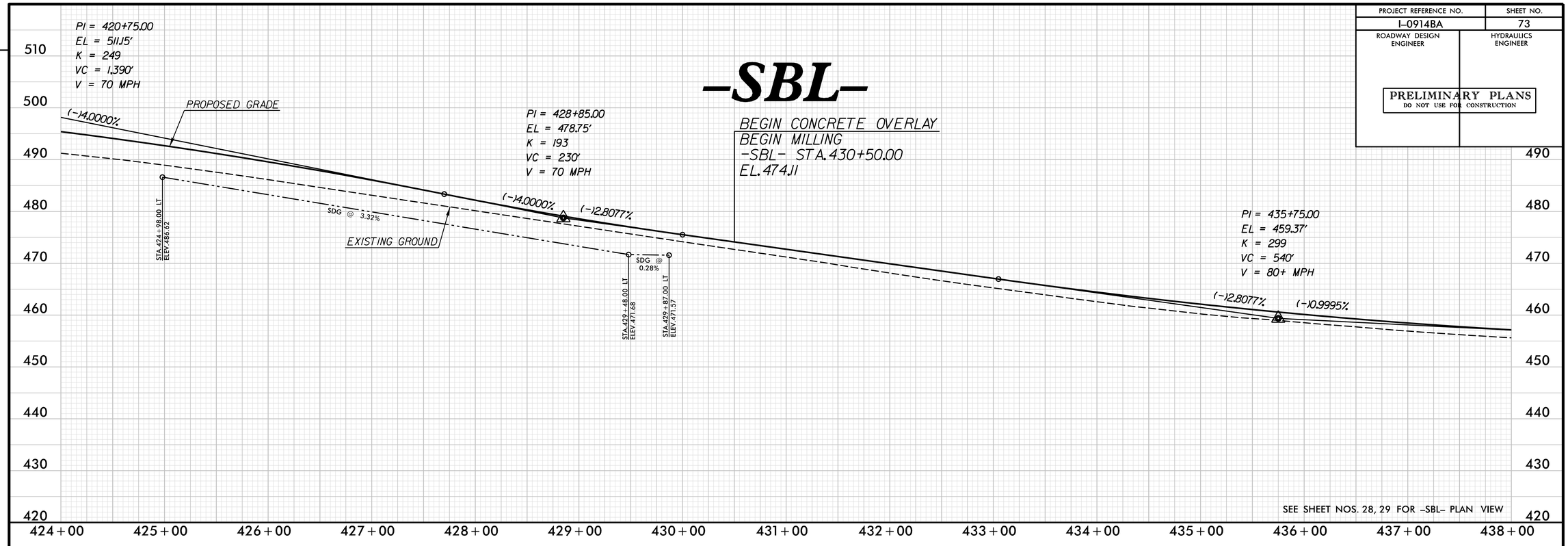
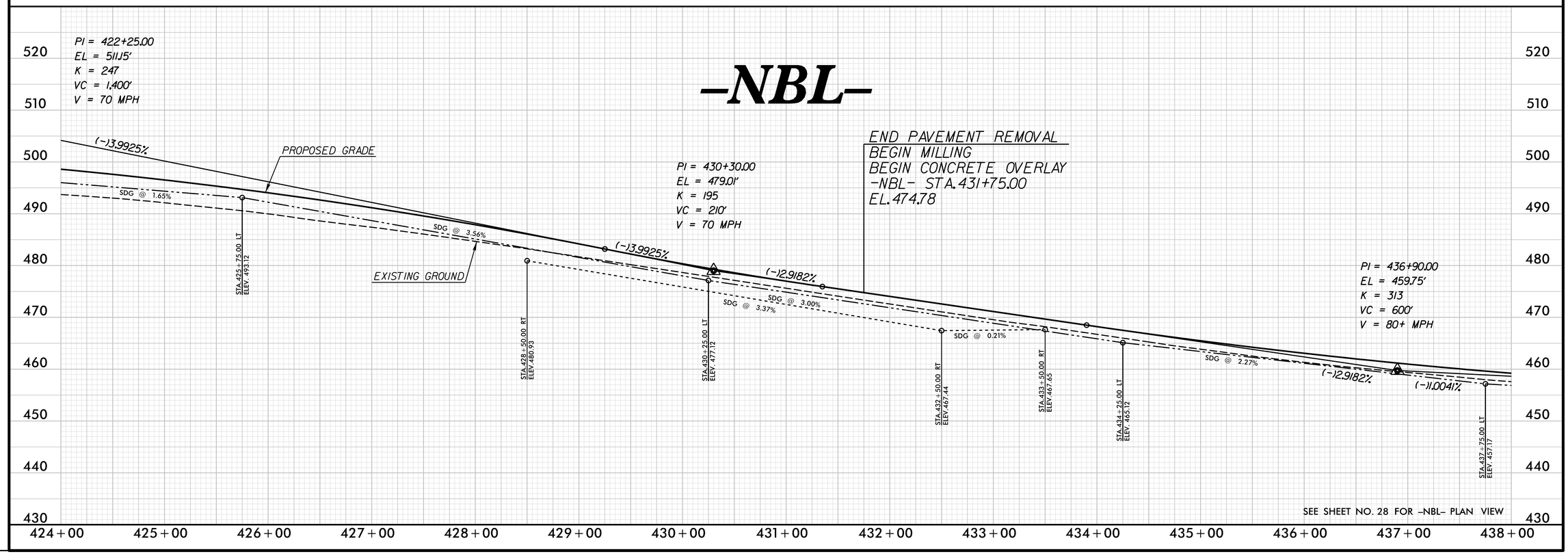
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	73
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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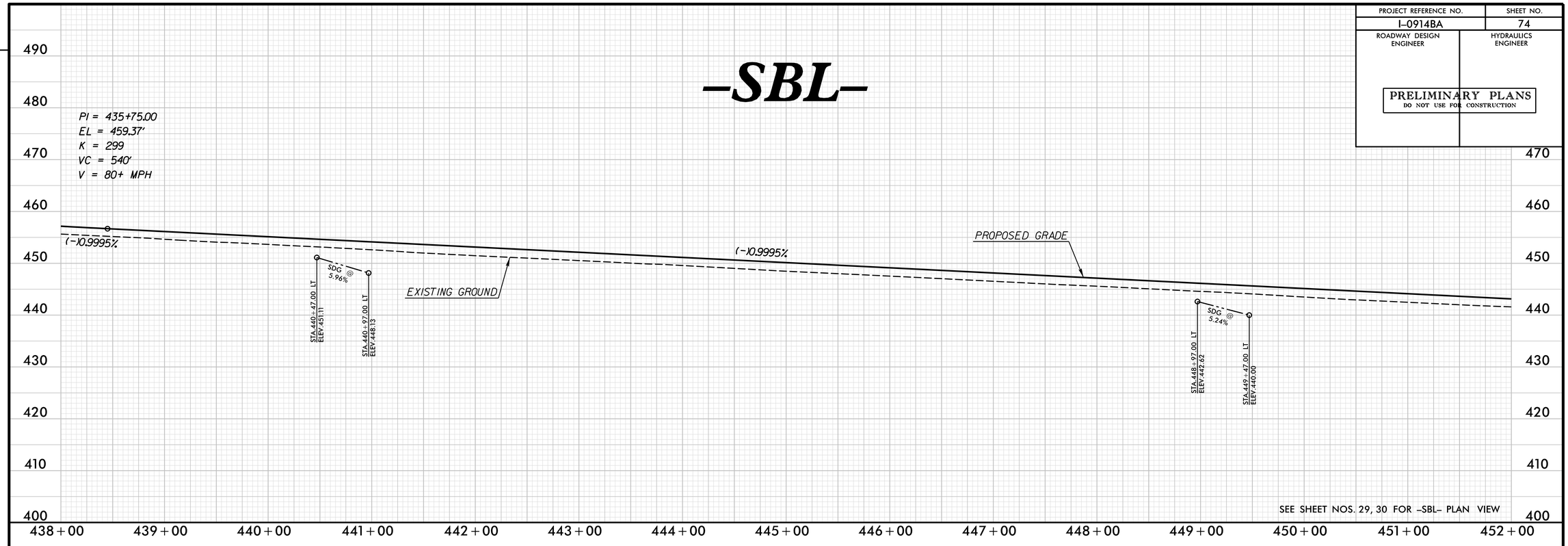
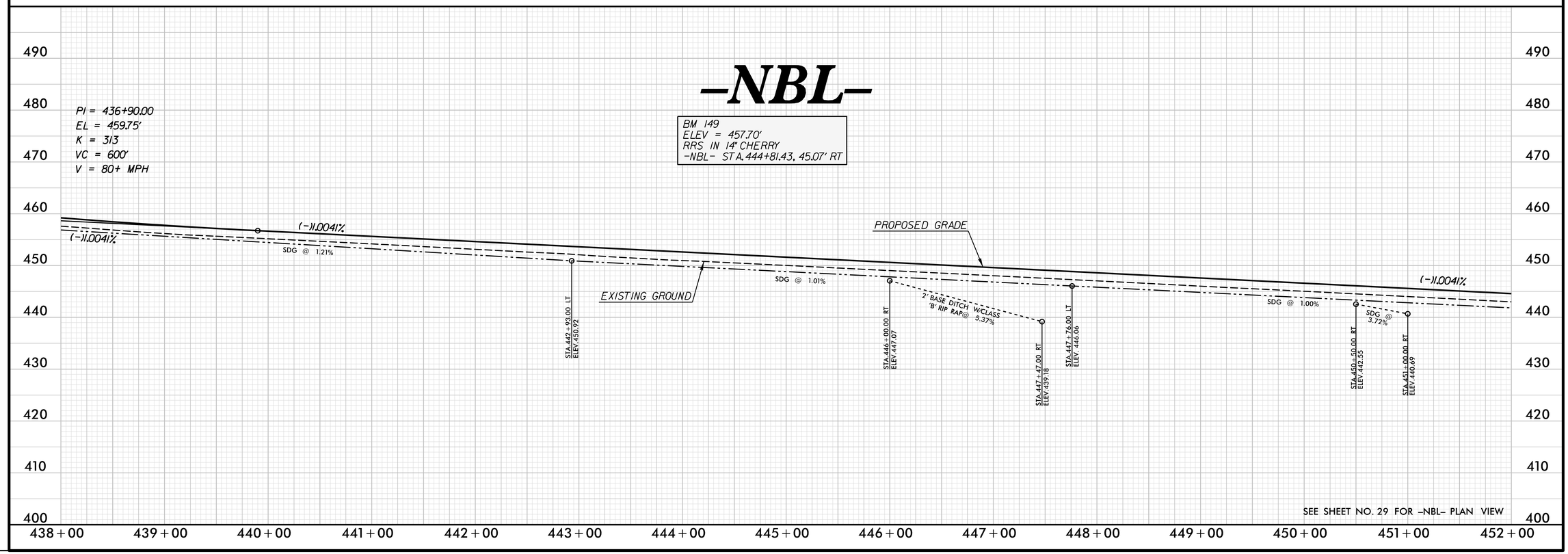
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	74
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 29, 30 FOR -SBL- PLAN VIEW



SEE SHEET NO. 29 FOR -NBL- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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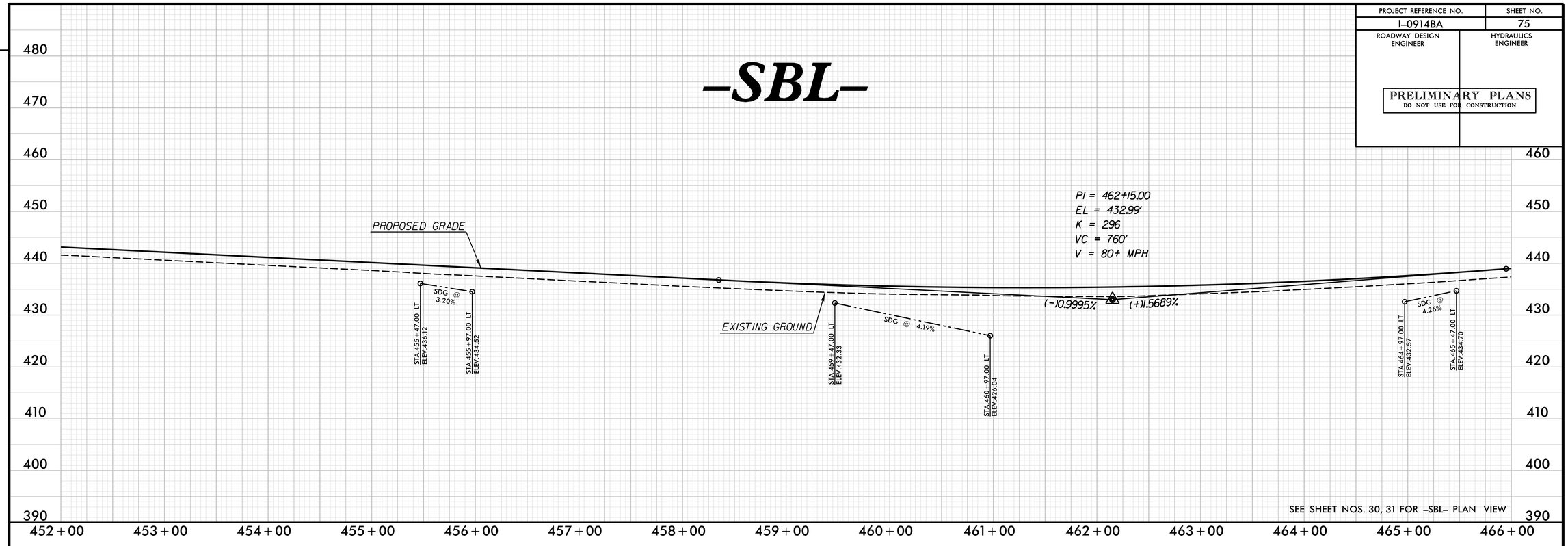
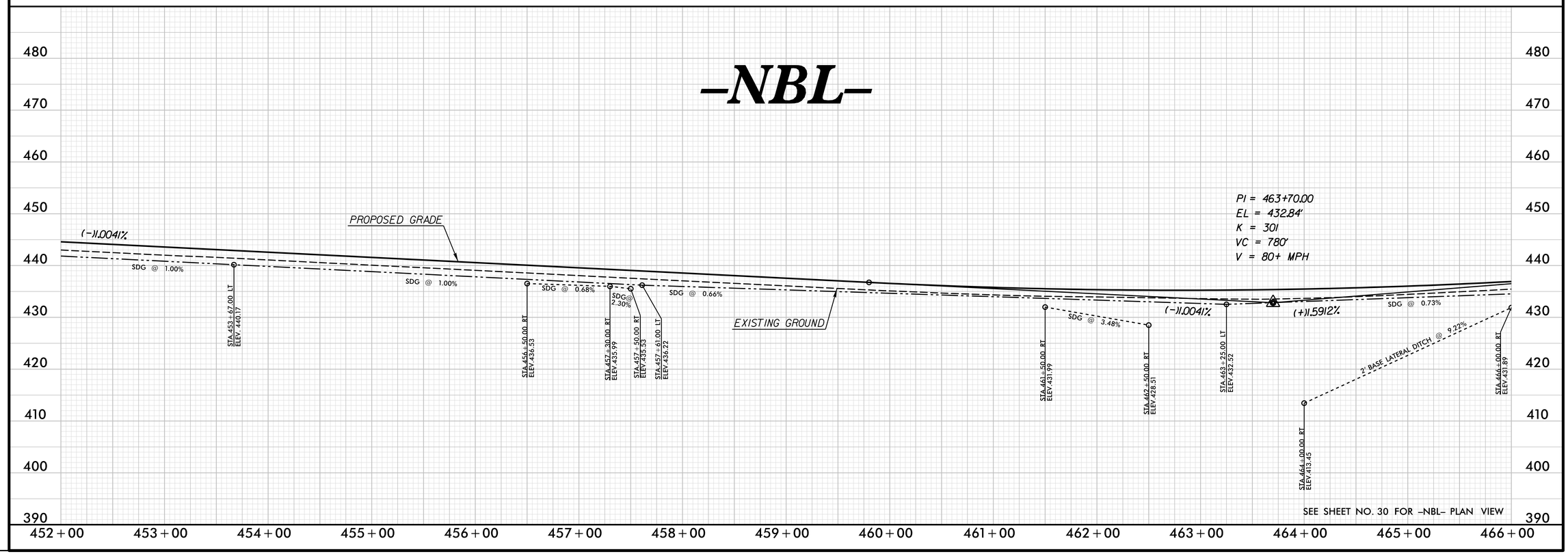
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	75
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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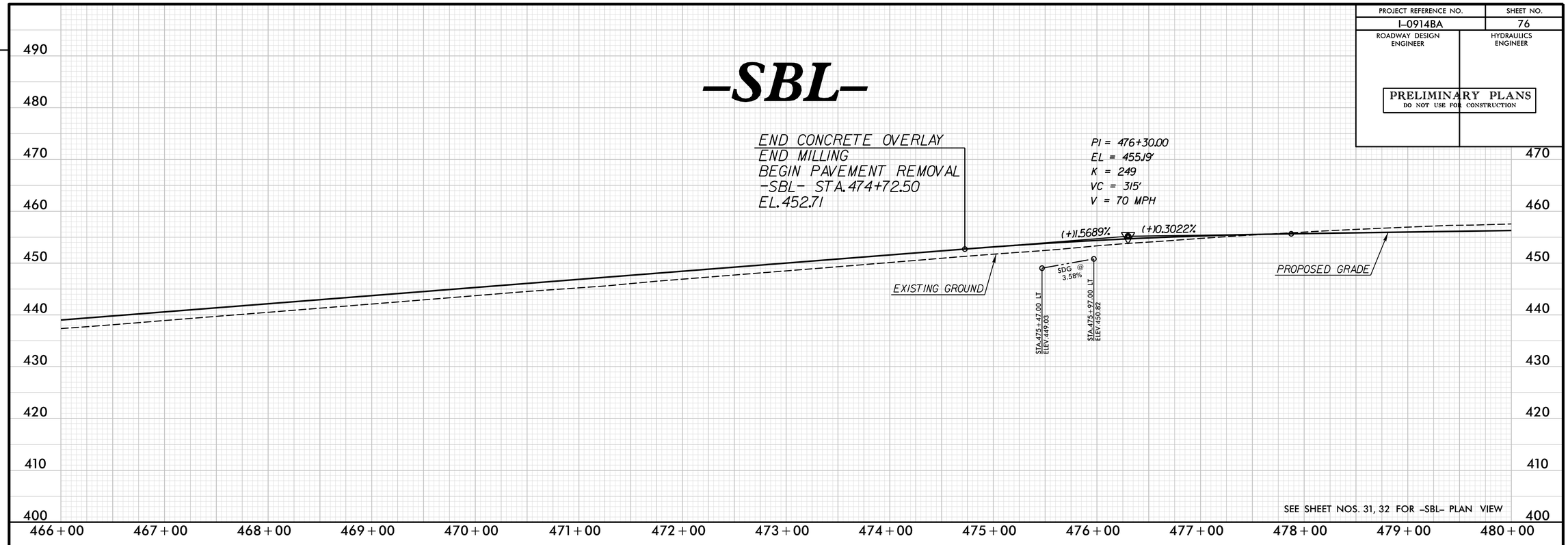
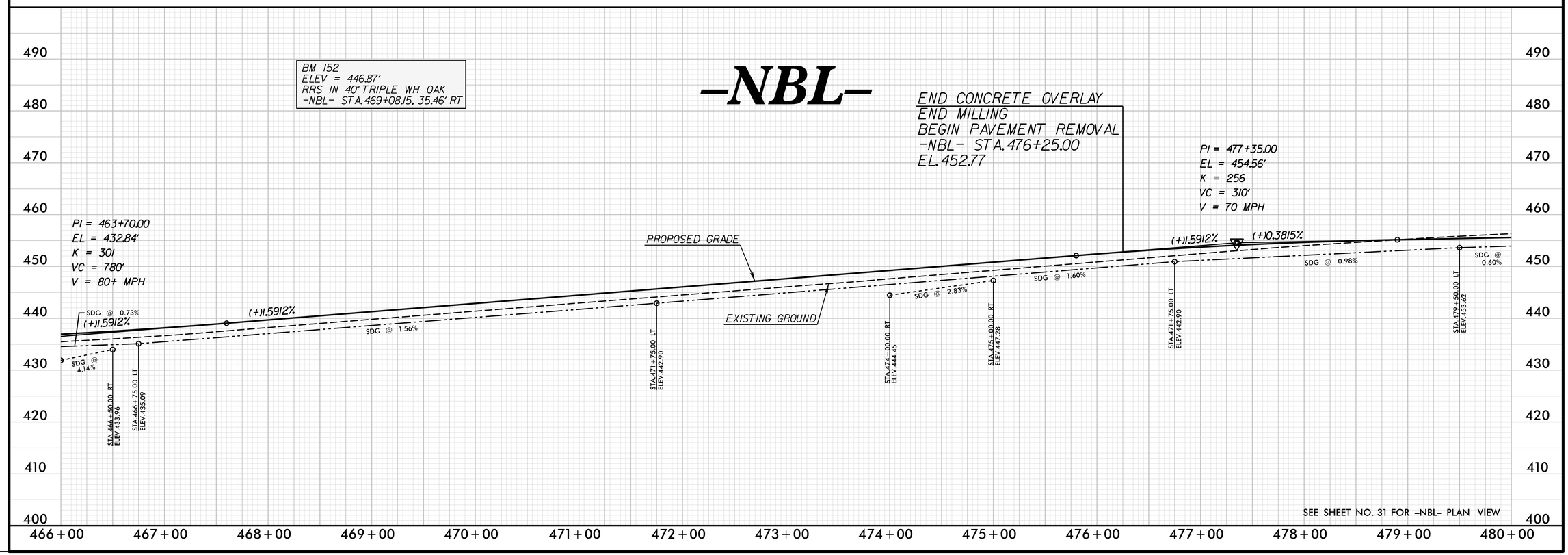
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	76
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 31, 32 FOR -SBL- PLAN VIEW



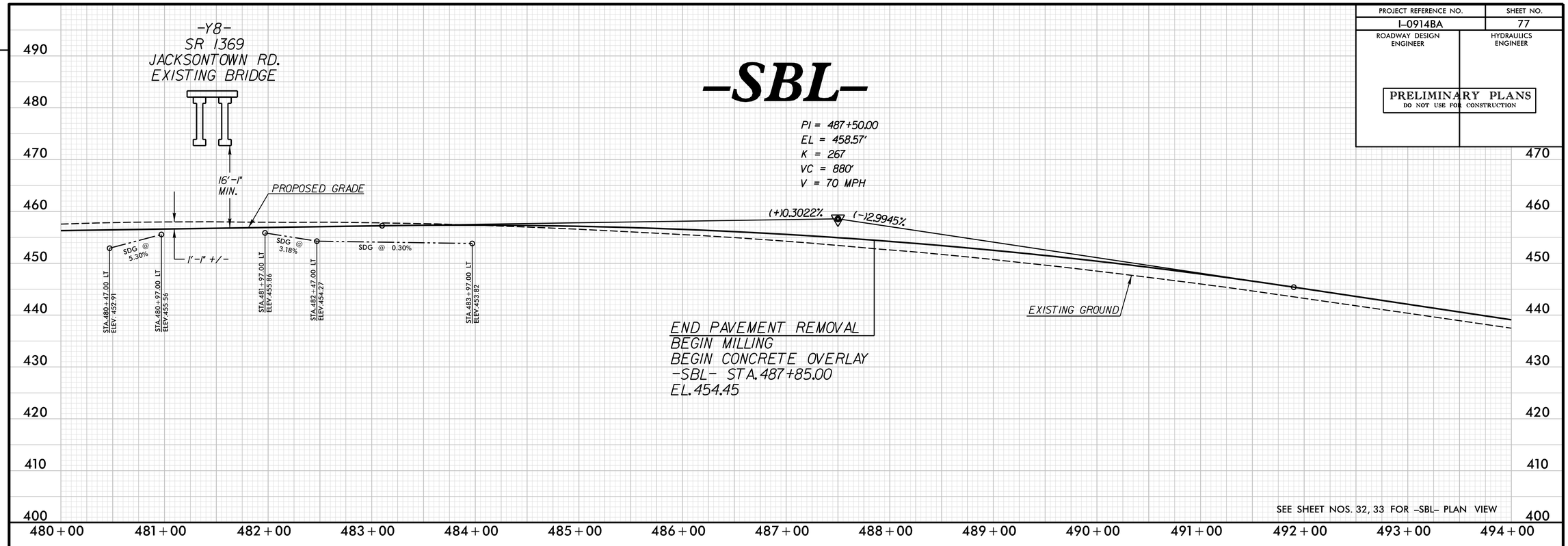
SEE SHEET NO. 31 FOR -NBL- PLAN VIEW

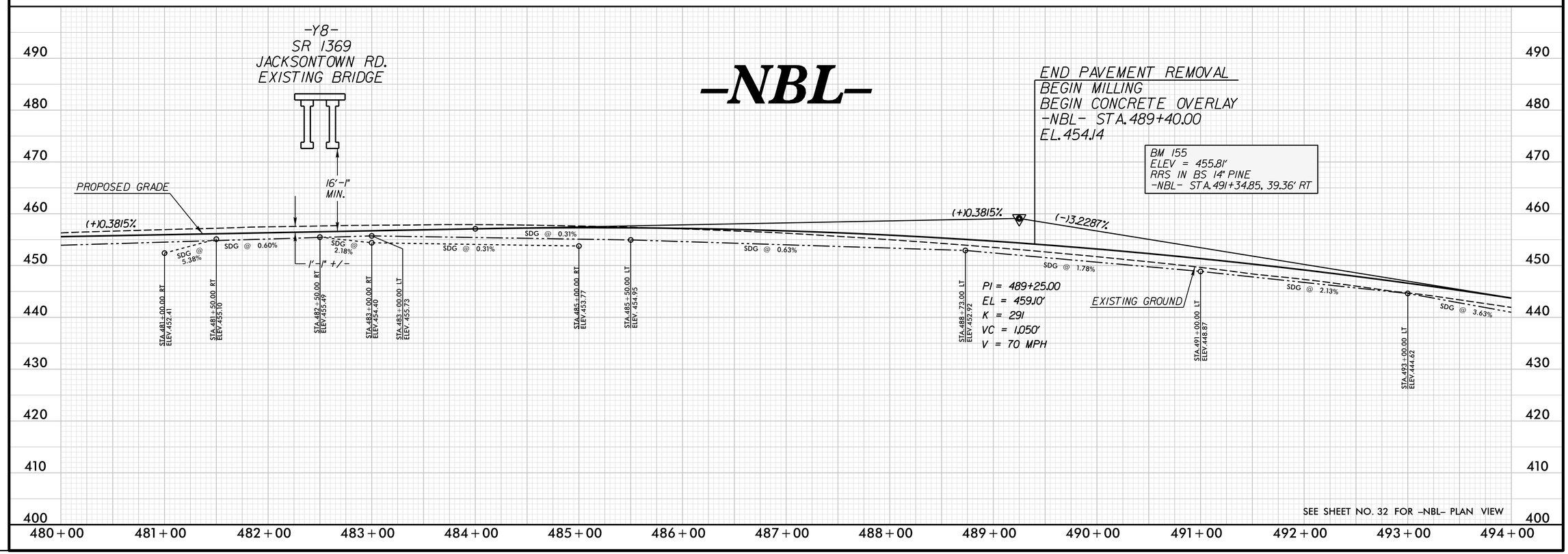
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:50:03 AM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S76.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	77
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





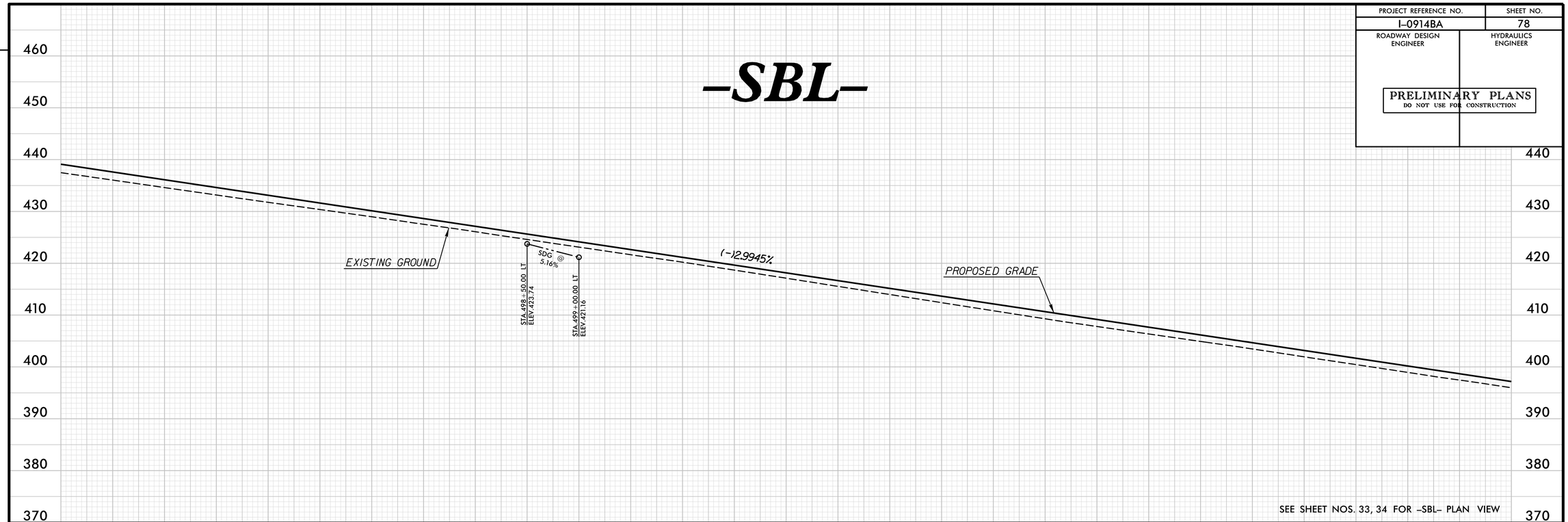
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:50:19 AM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S77.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	78
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

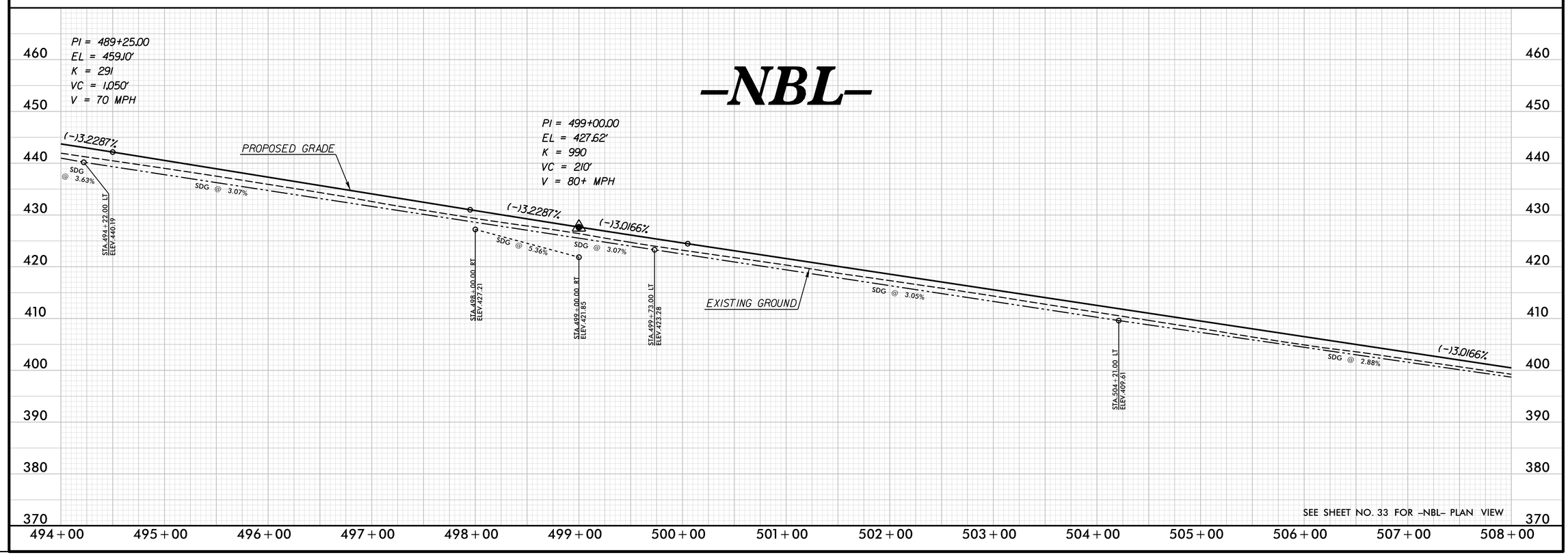
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-SBL-



SEE SHEET NOS. 33, 34 FOR -SBL- PLAN VIEW

-NBL-



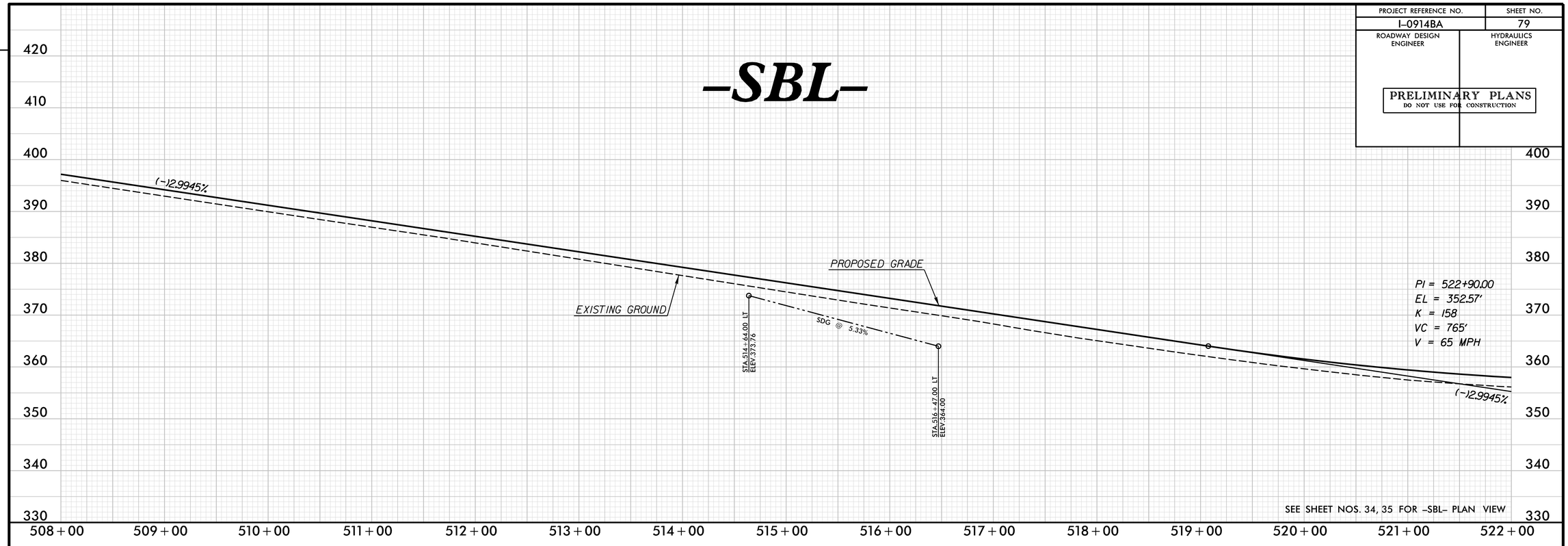
SEE SHEET NO. 33 FOR -NBL- PLAN VIEW

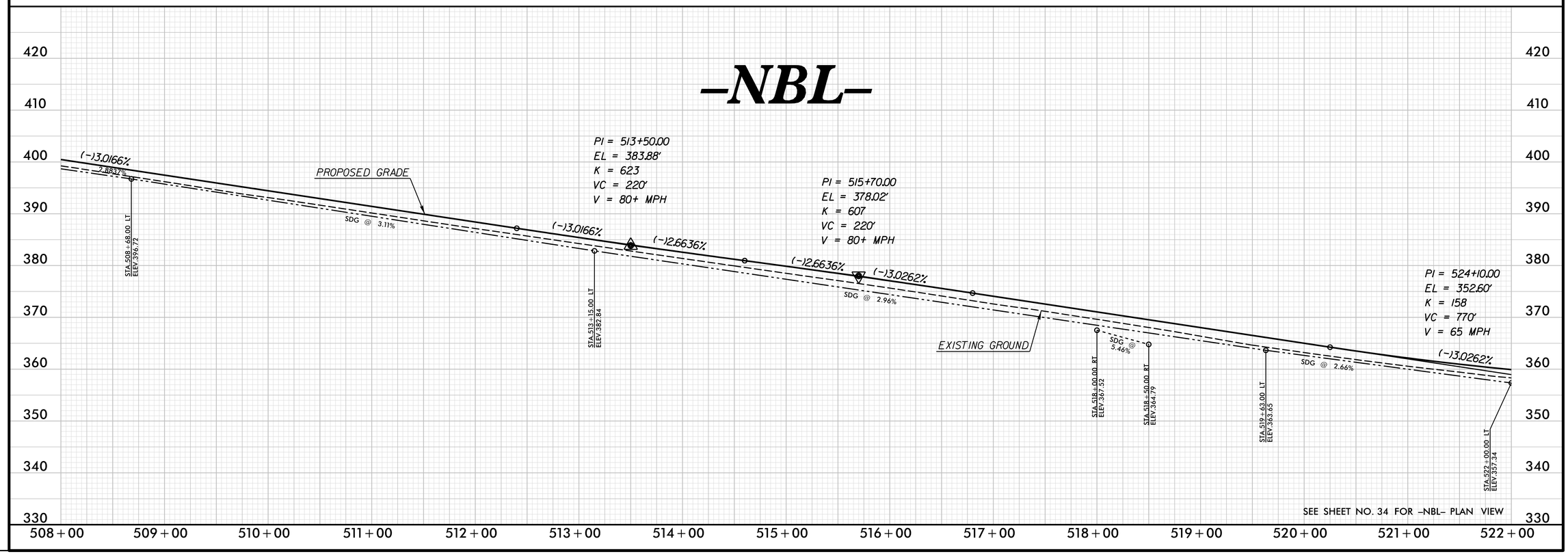
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt
USER: dwainwri
DATE: 2/28/2014
PENTABLE: NCDOT_pshpfl.tbl
TIME: 10:50:37 AM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S78.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	79
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:51:07 AM
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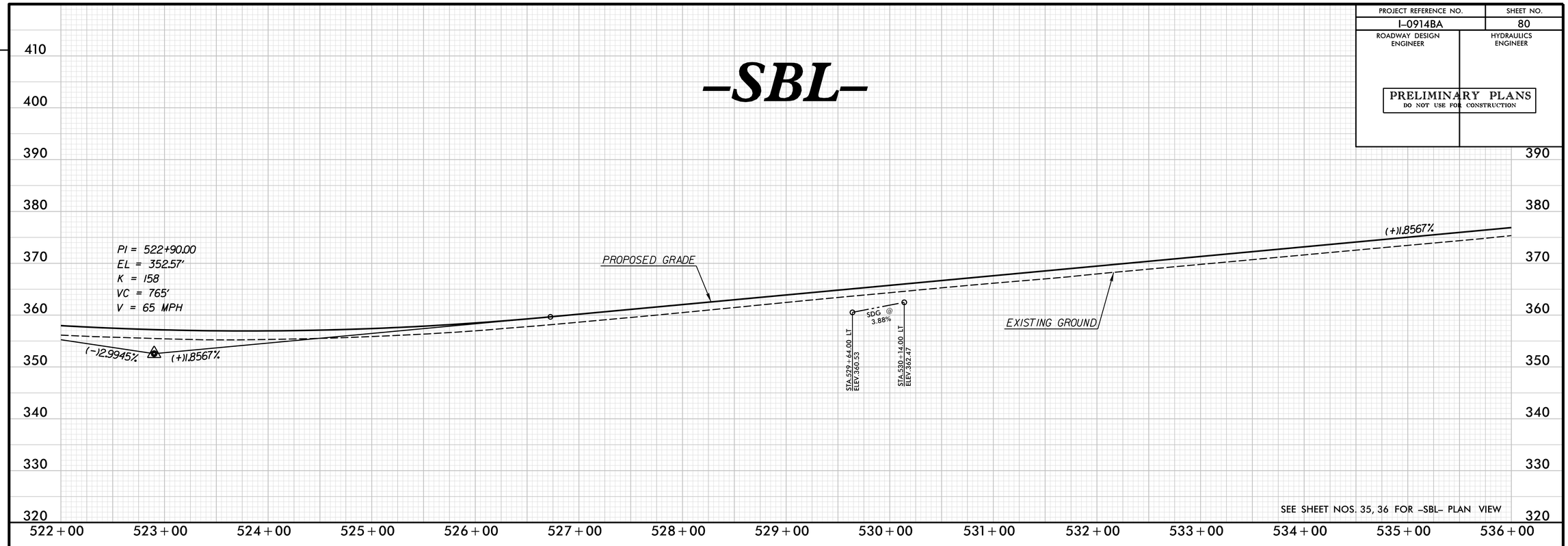
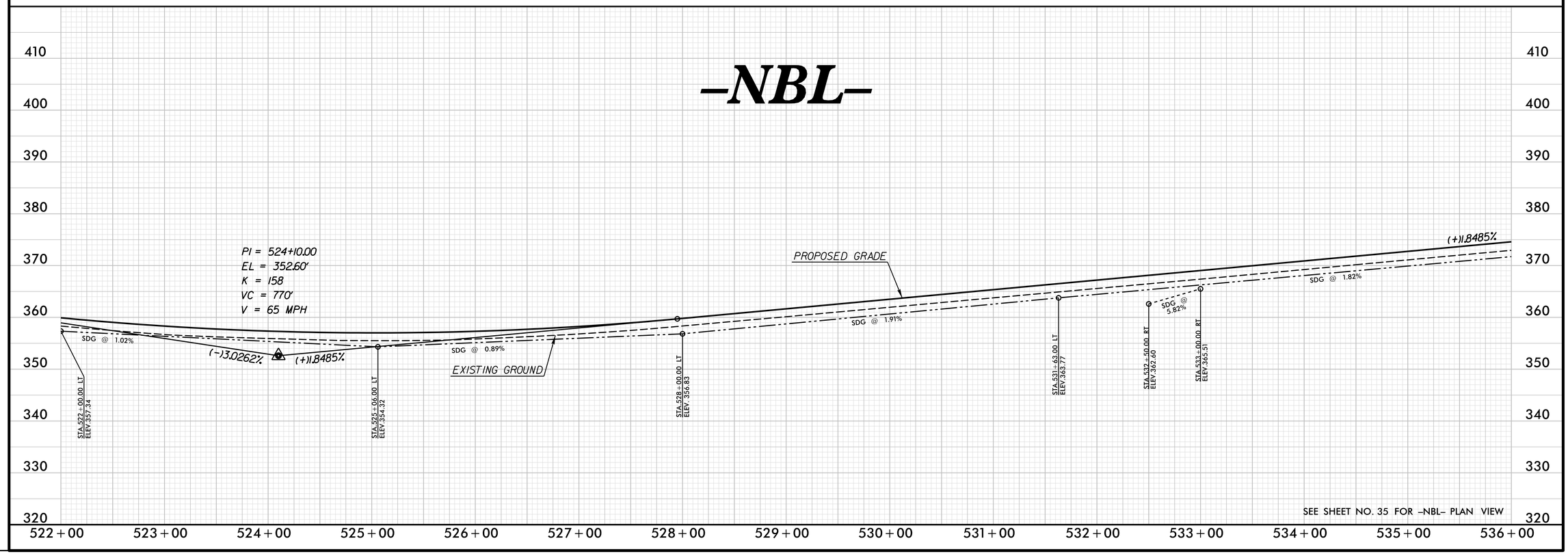
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	80
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 35, 36 FOR -SBL- PLAN VIEW



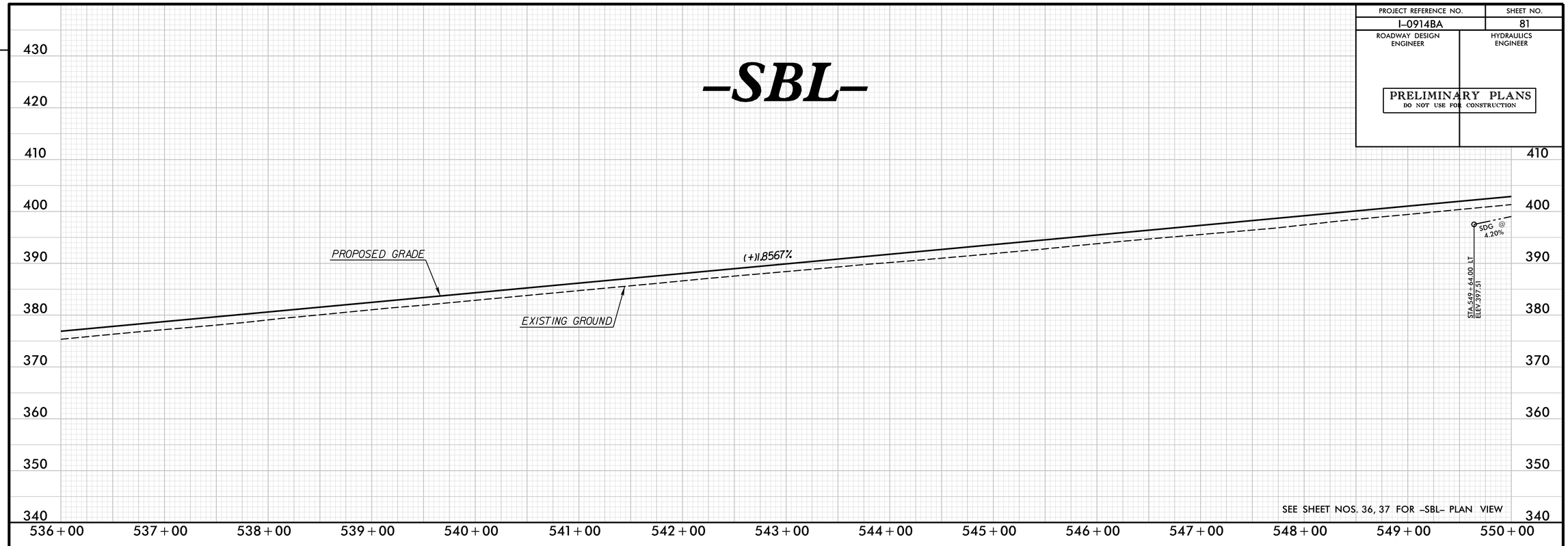
SEE SHEET NO. 35 FOR -NBL- PLAN VIEW

REVISIONS

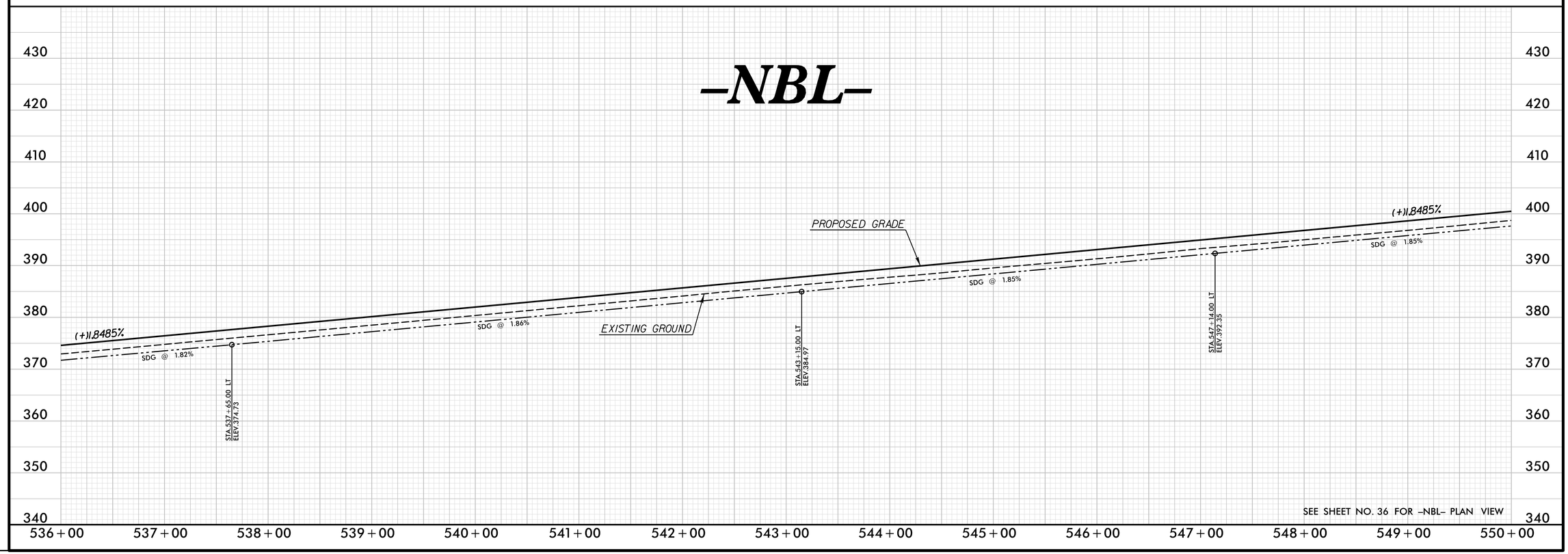
PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:51:21 AM
FILE: North Carolina Dept of Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S80.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	81
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 36, 37 FOR -SBL- PLAN VIEW



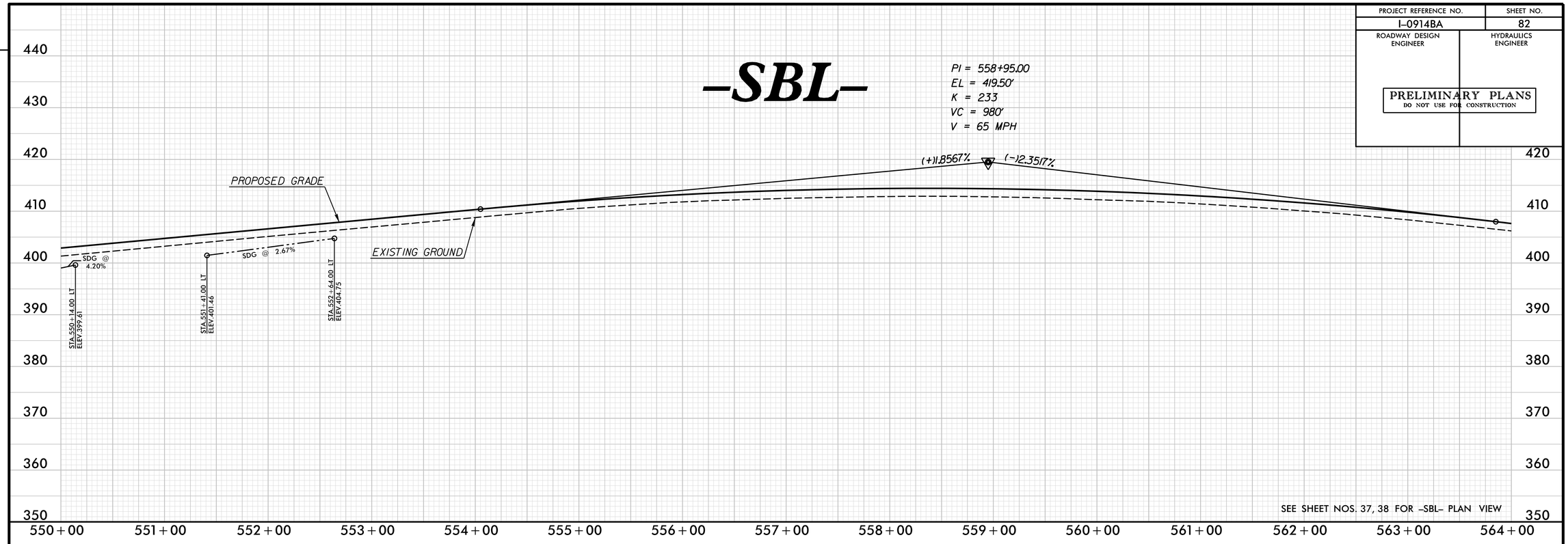
SEE SHEET NO. 36 FOR -NBL- PLAN VIEW

REVISIONS

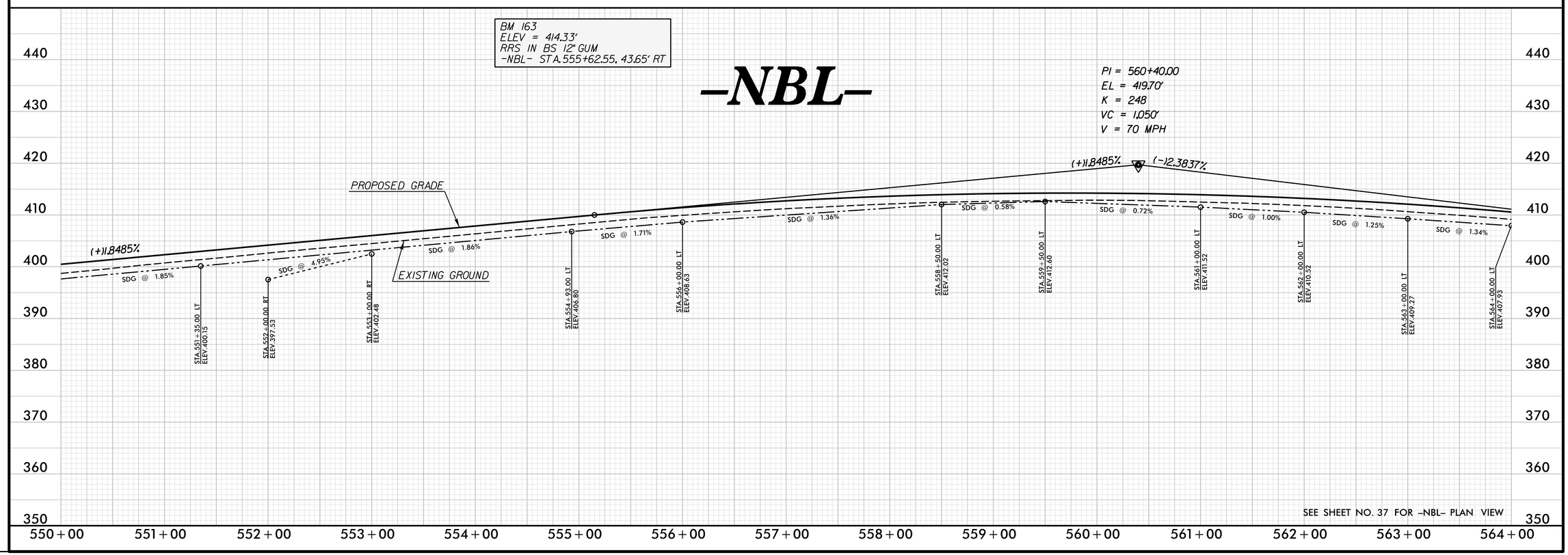
PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:51:37 AM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S81.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	82
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 37, 38 FOR -SBL- PLAN VIEW



SEE SHEET NO. 37 FOR -NBL- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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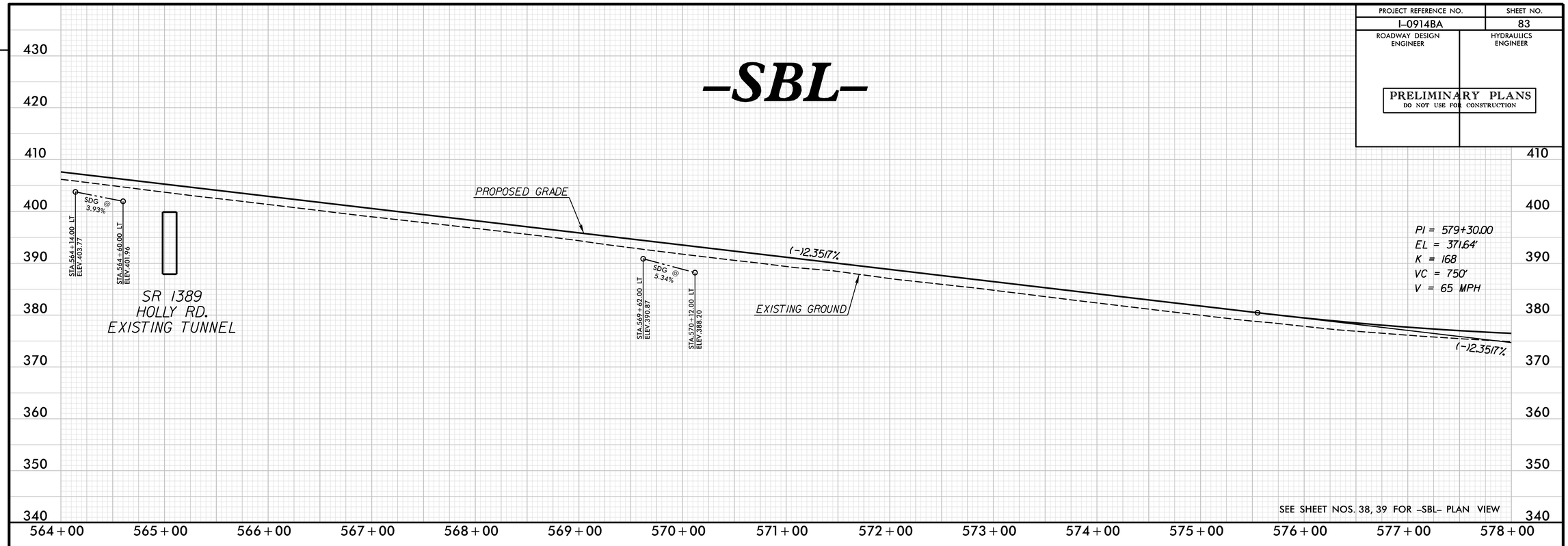
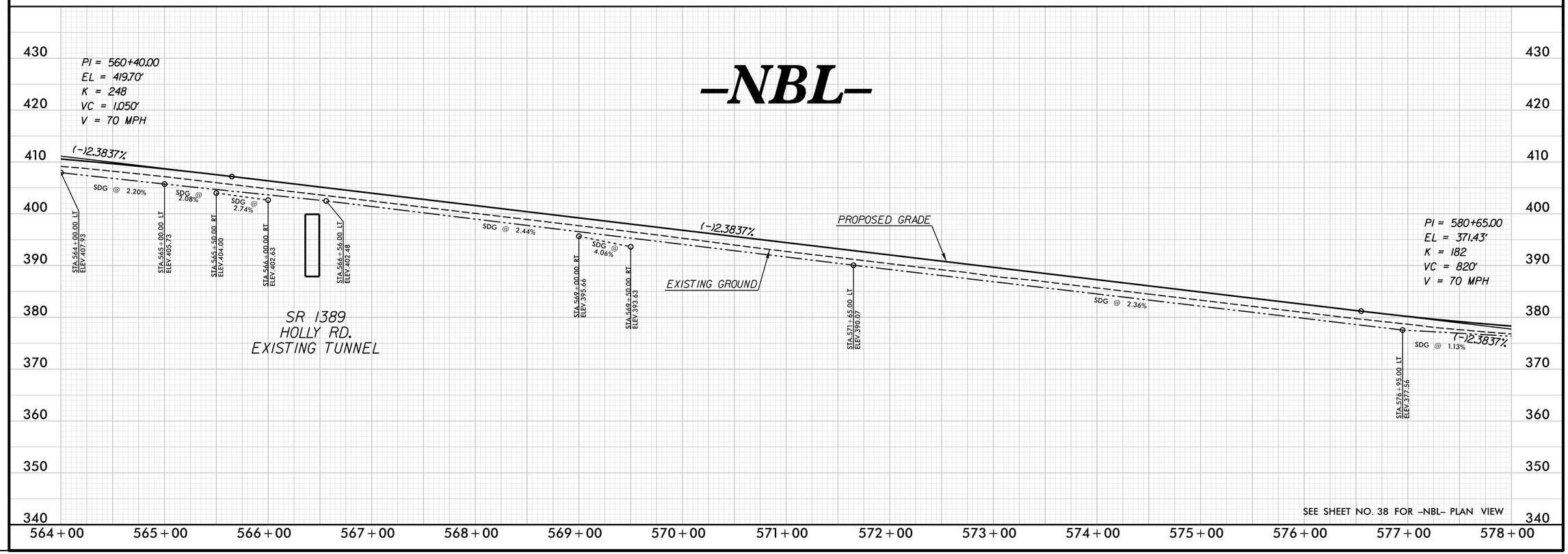
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	83
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 38, 39 FOR -SBL- PLAN VIEW



SEE SHEET NO. 38 FOR -NBL- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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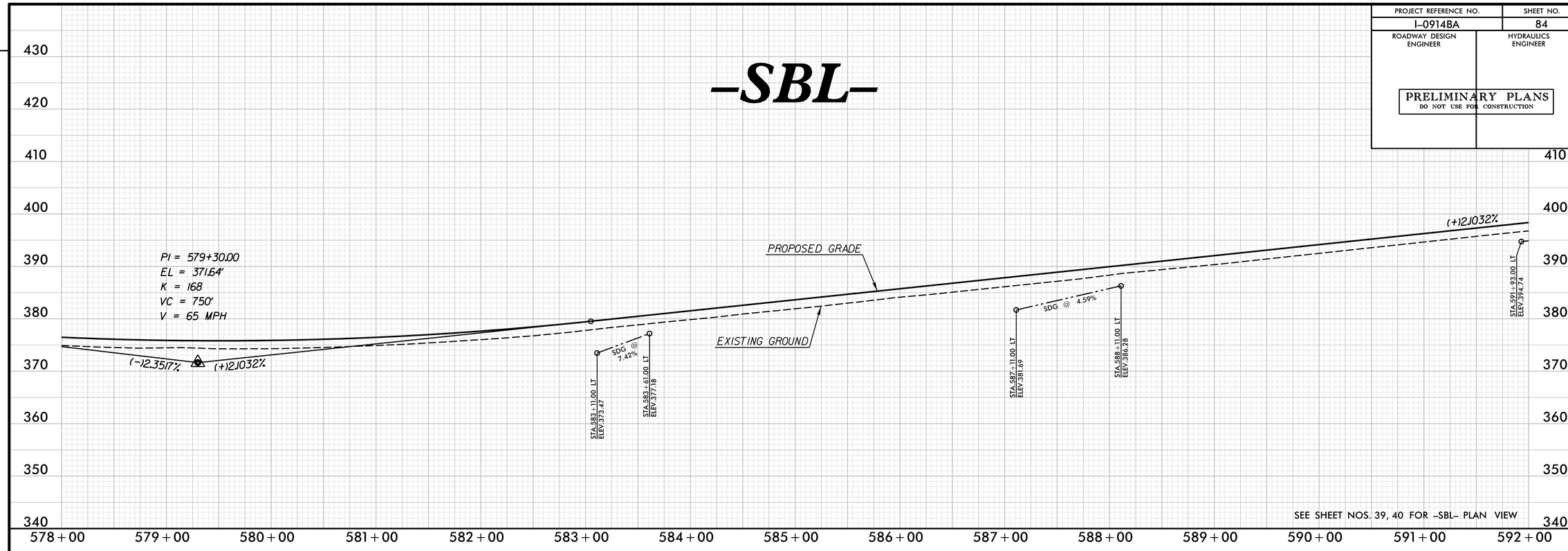
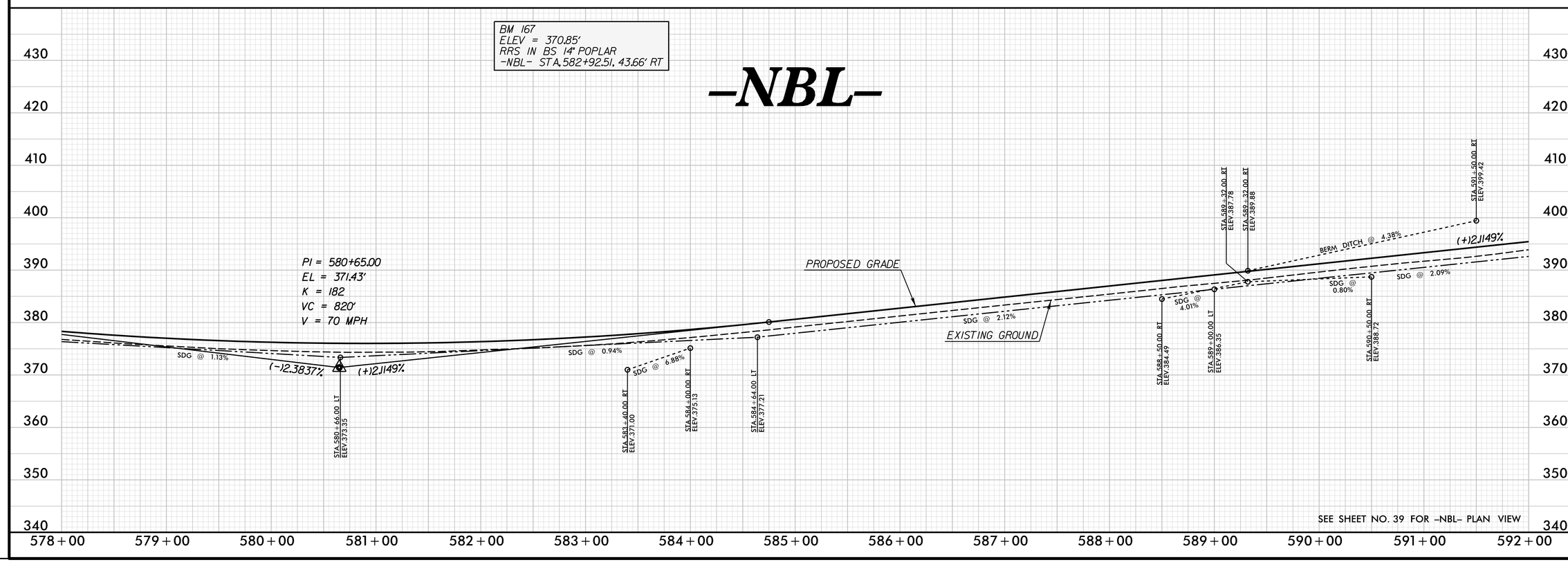
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	84
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 39, 40 FOR -SBL- PLAN VIEW



SEE SHEET NO. 39 FOR -NBL- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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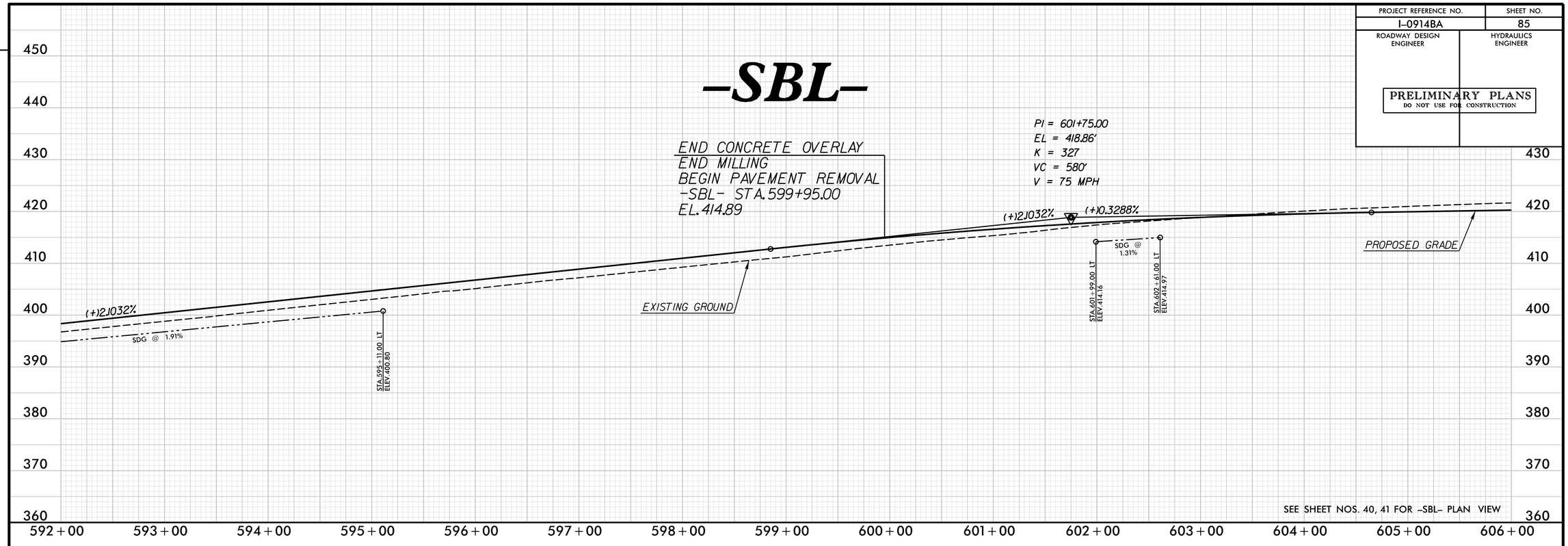
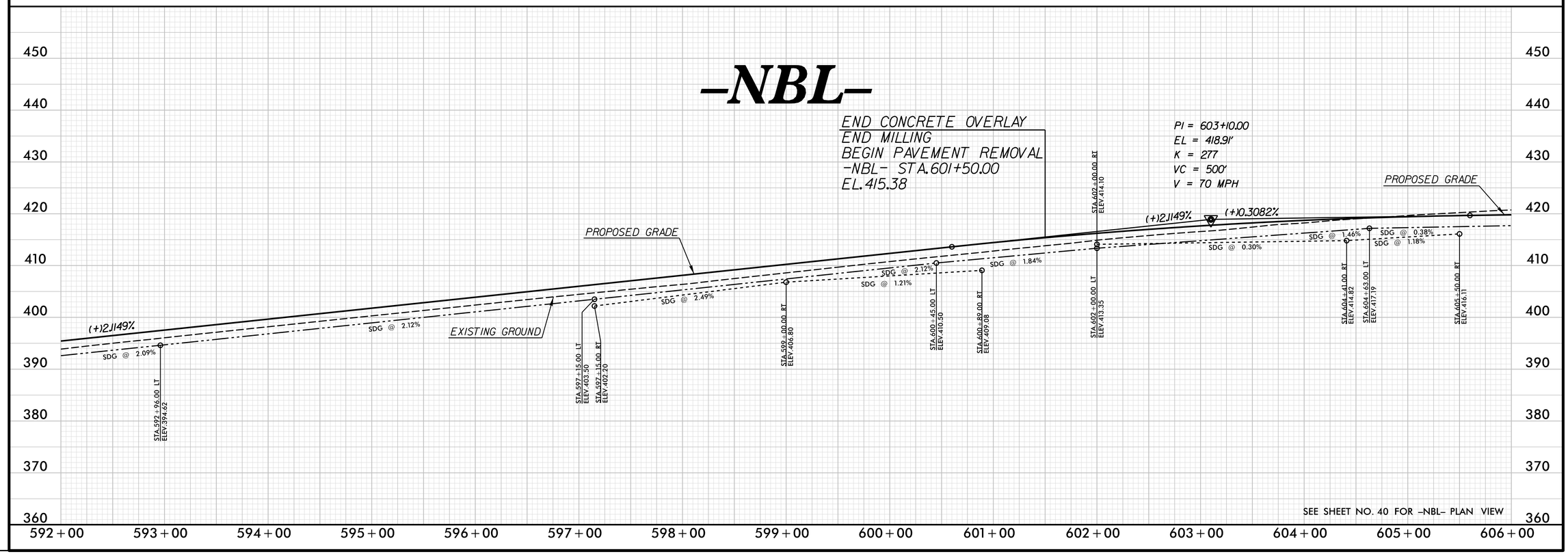
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	85
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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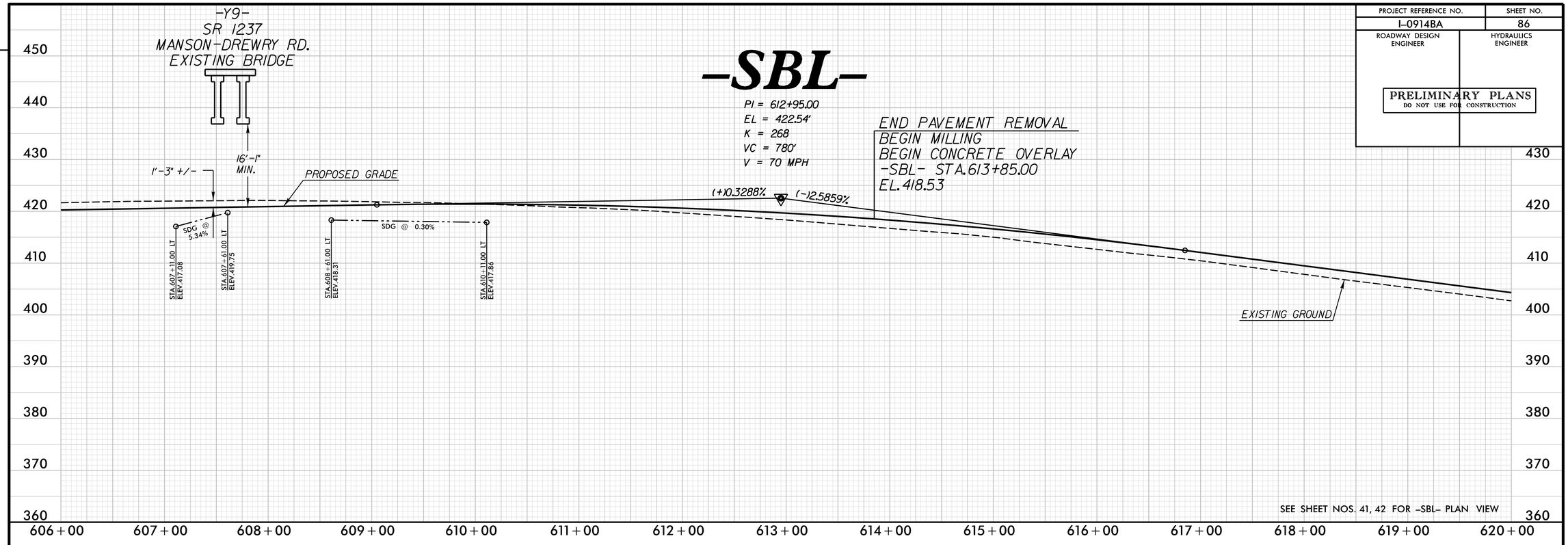
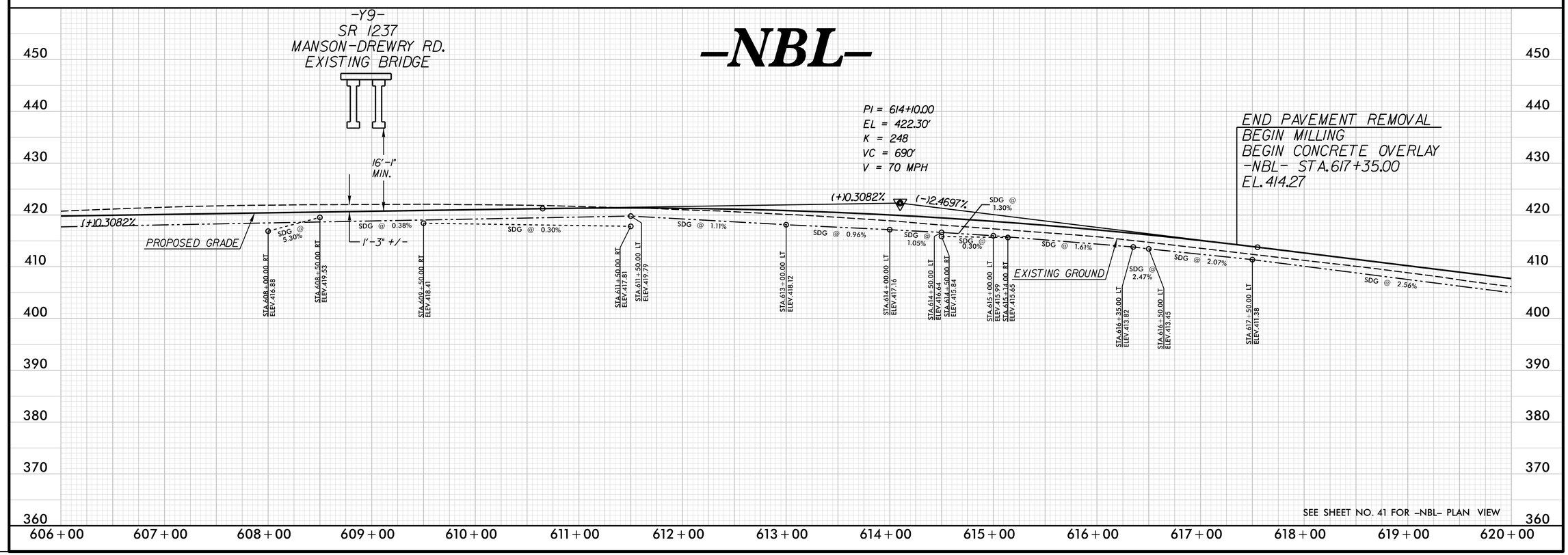
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	86
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:53:21 AM
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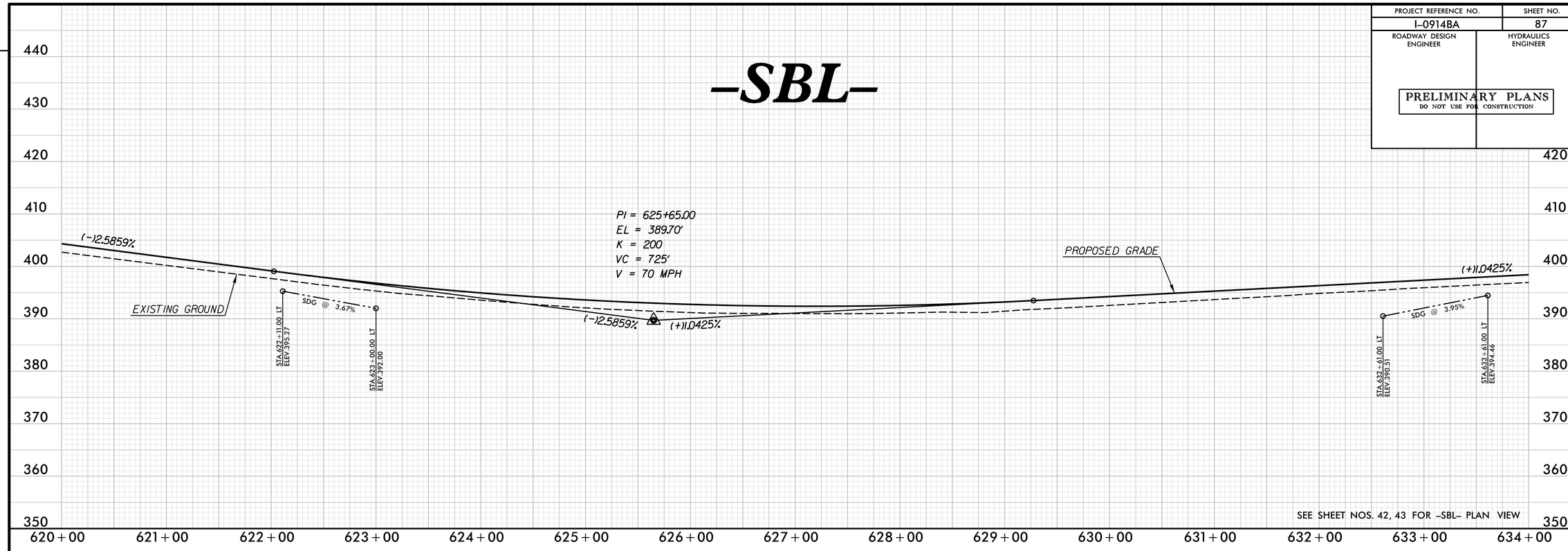
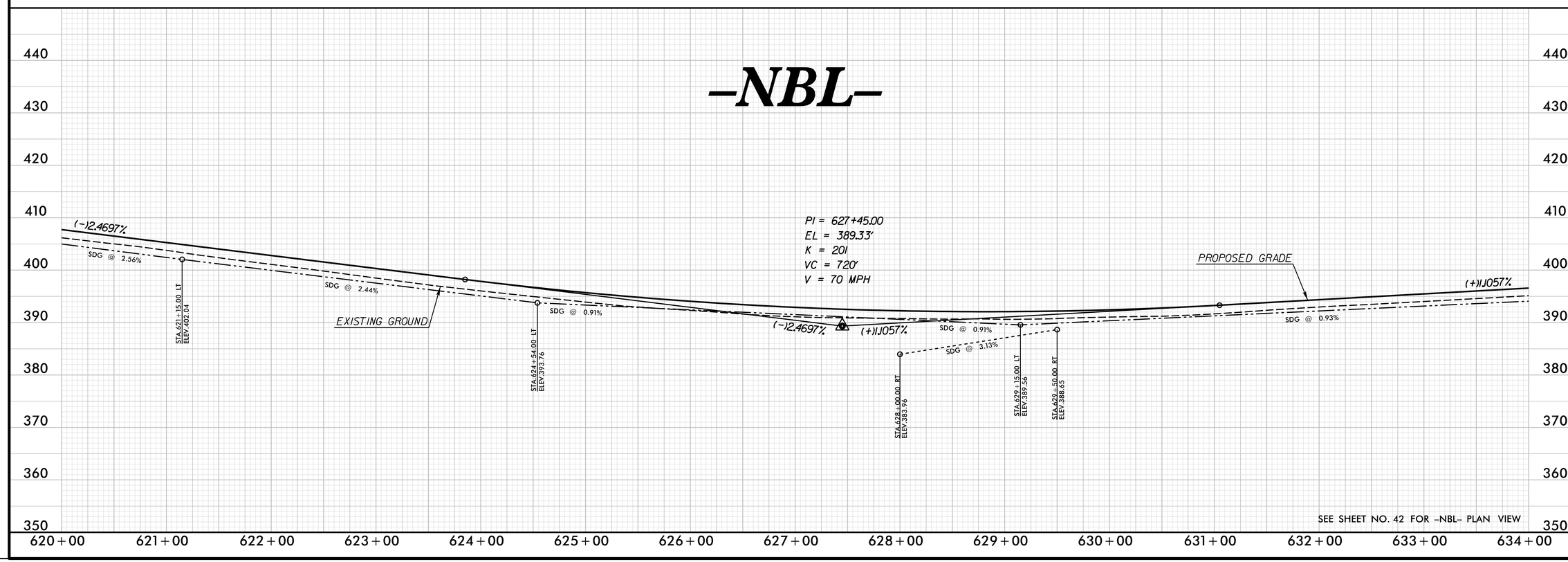
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	87
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 42, 43 FOR -SBL- PLAN VIEW



SEE SHEET NO. 42 FOR -NBL- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:53:38 AM
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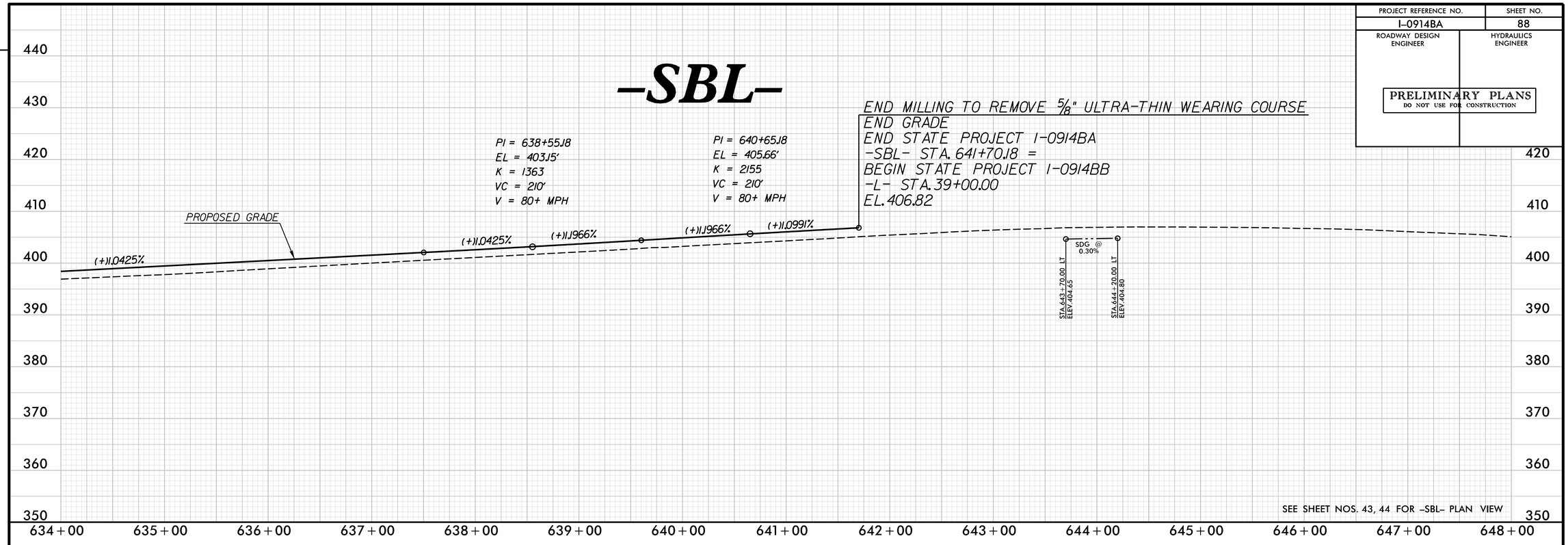
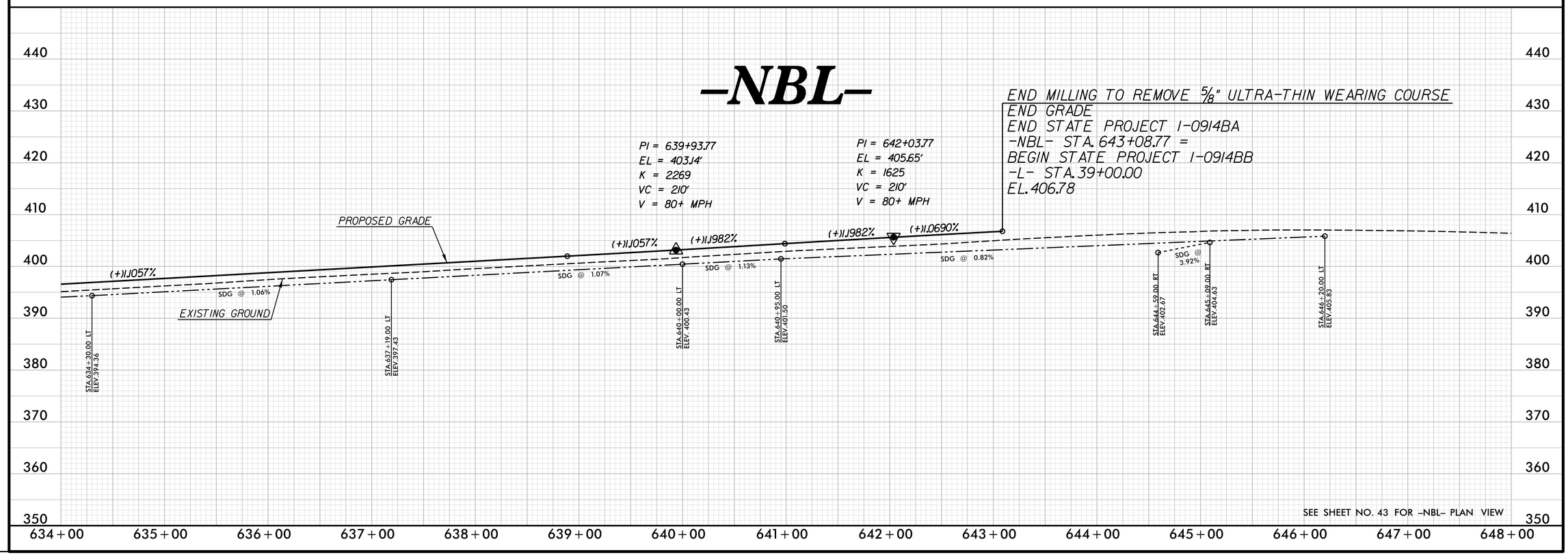
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	88
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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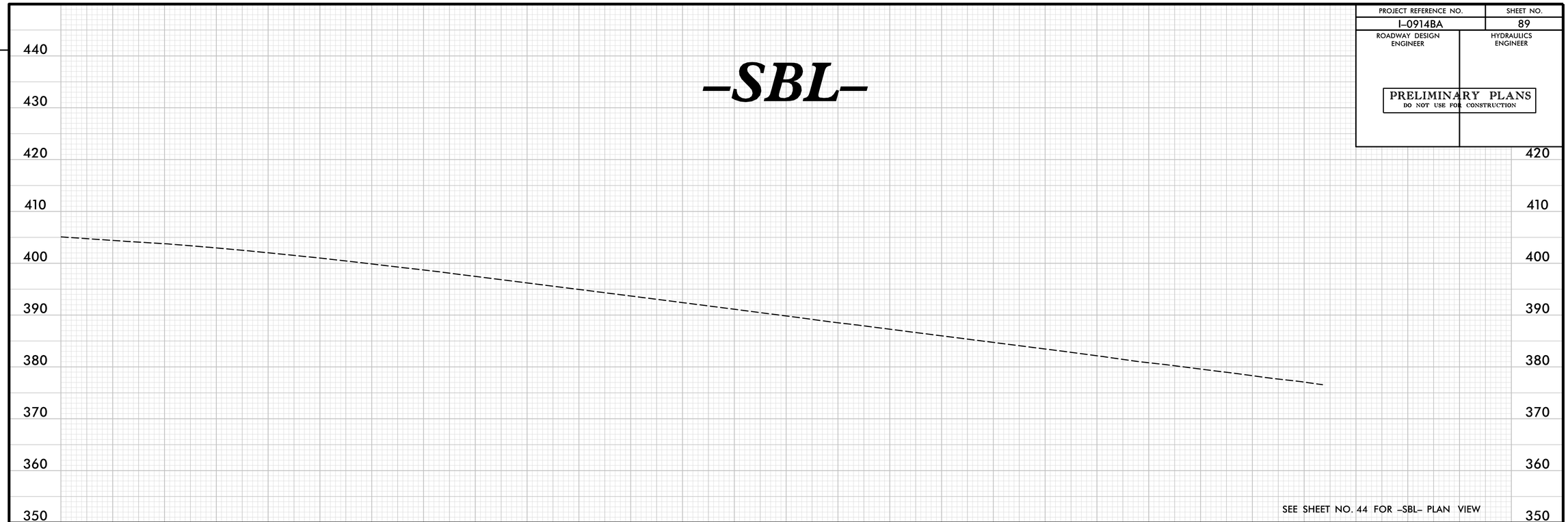
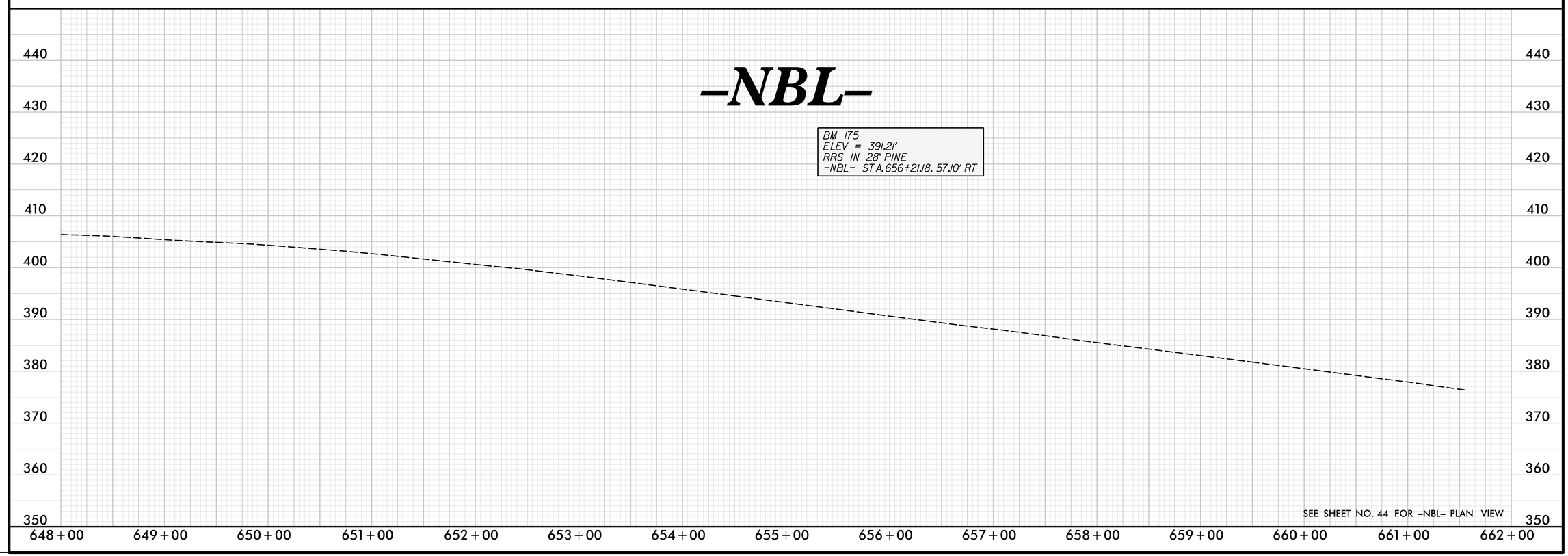
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	89
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



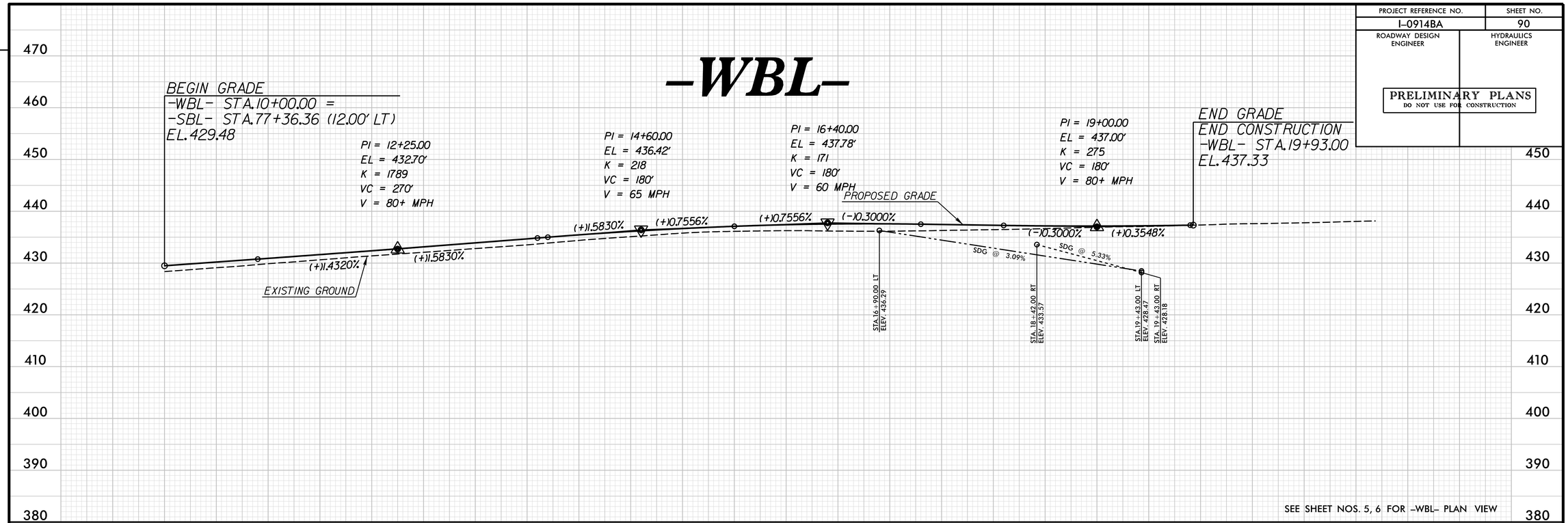


REVISIONS

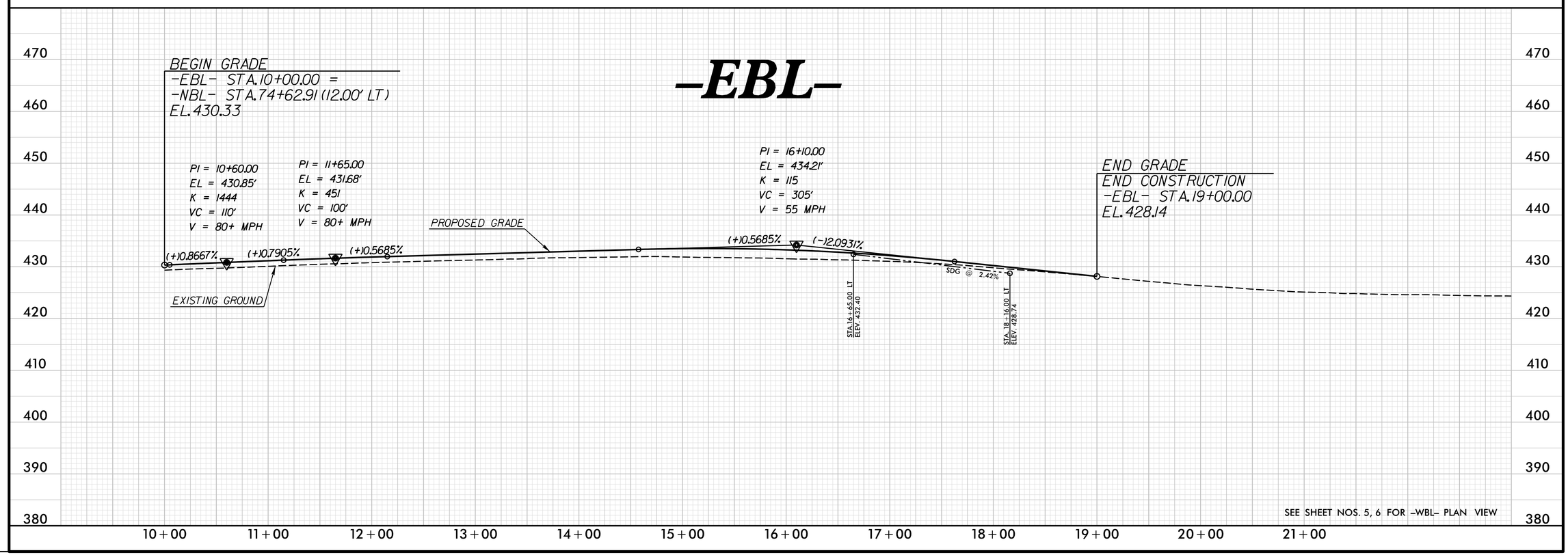
PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:54:05 AM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S89.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	90
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 5, 6 FOR -WBL- PLAN VIEW



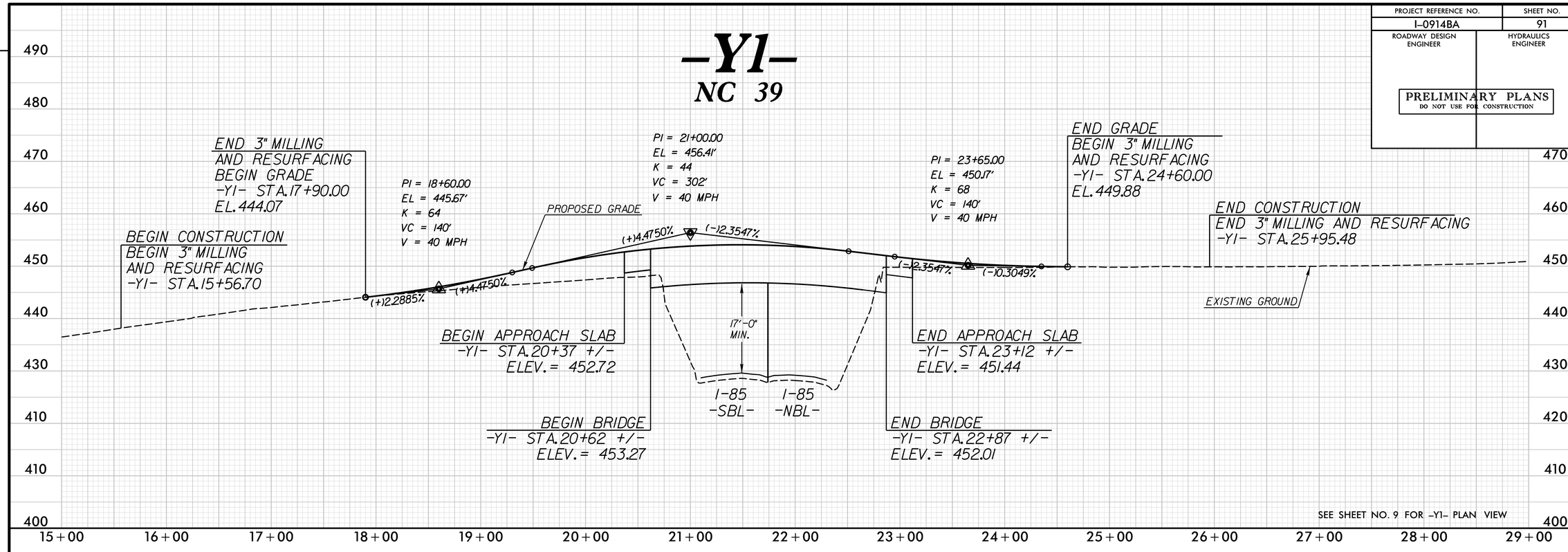
SEE SHEET NOS. 5, 6 FOR -WBL- PLAN VIEW

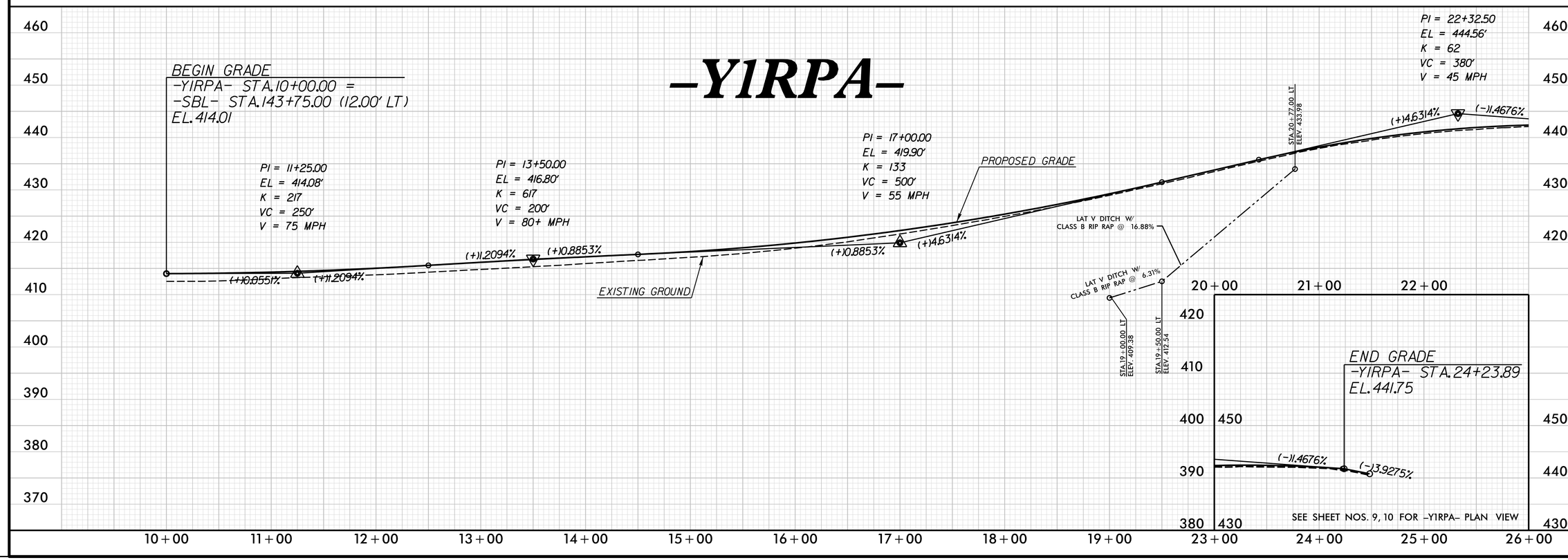
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:54:19 AM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S90.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	91
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:54:37 AM
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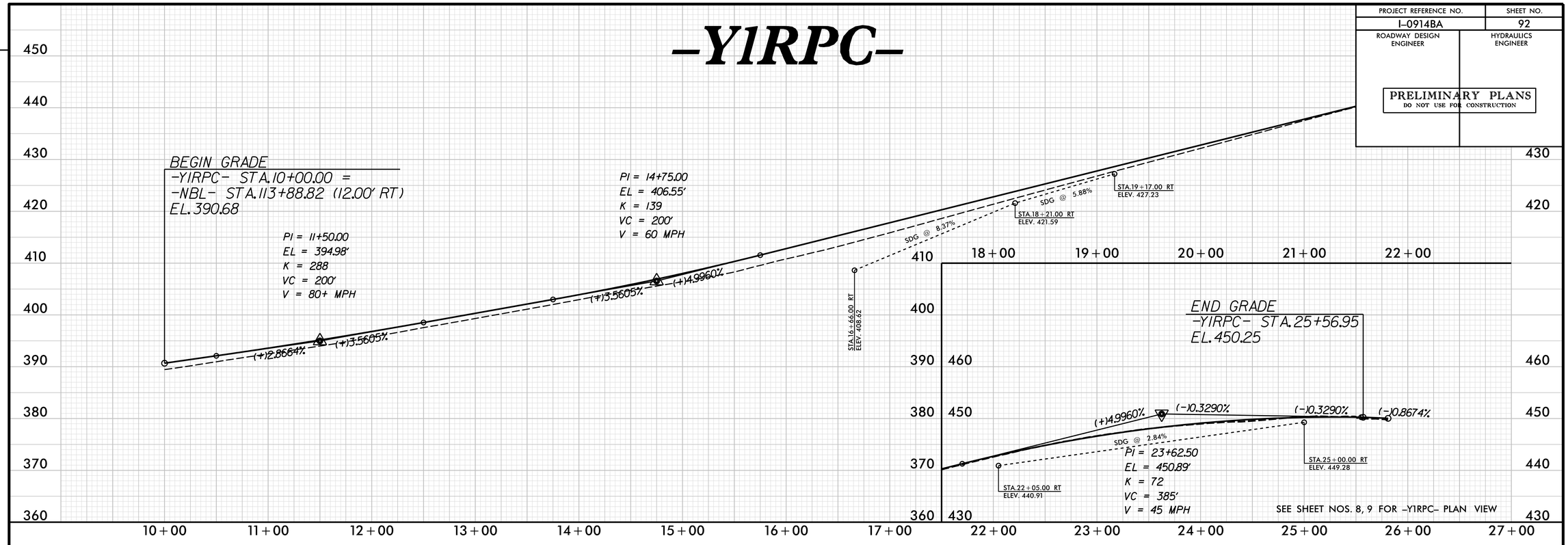
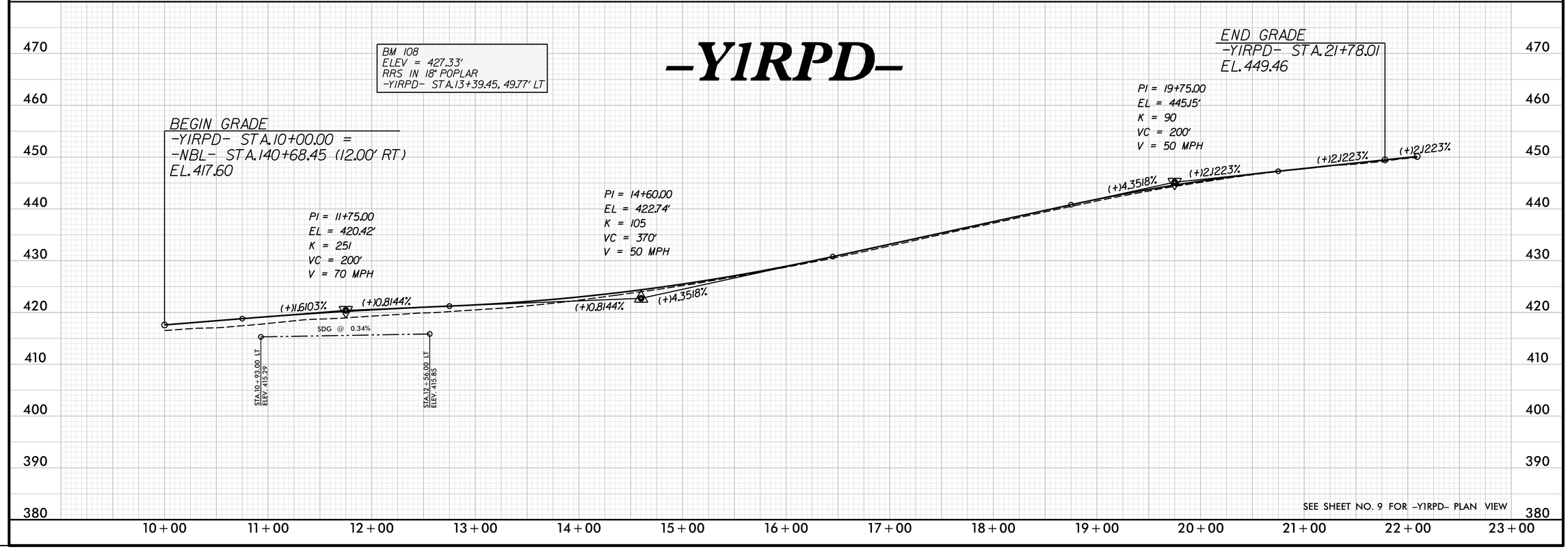
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	92
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y1RPC-



-Y1RPD-



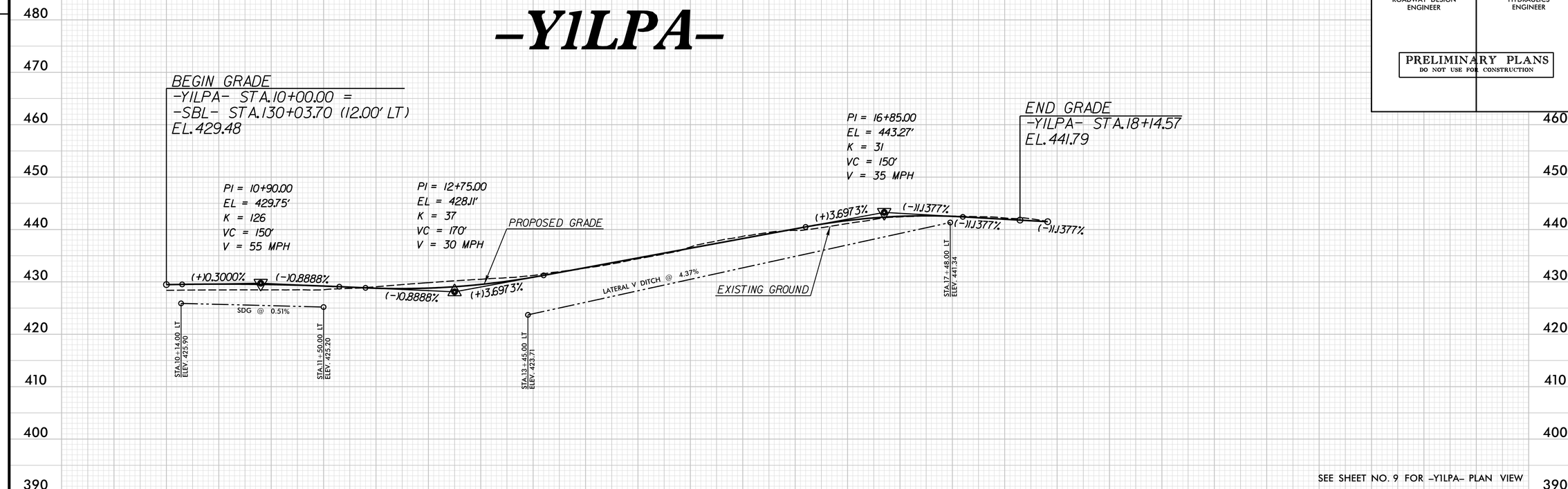
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:54:51 AM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S92.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	93
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

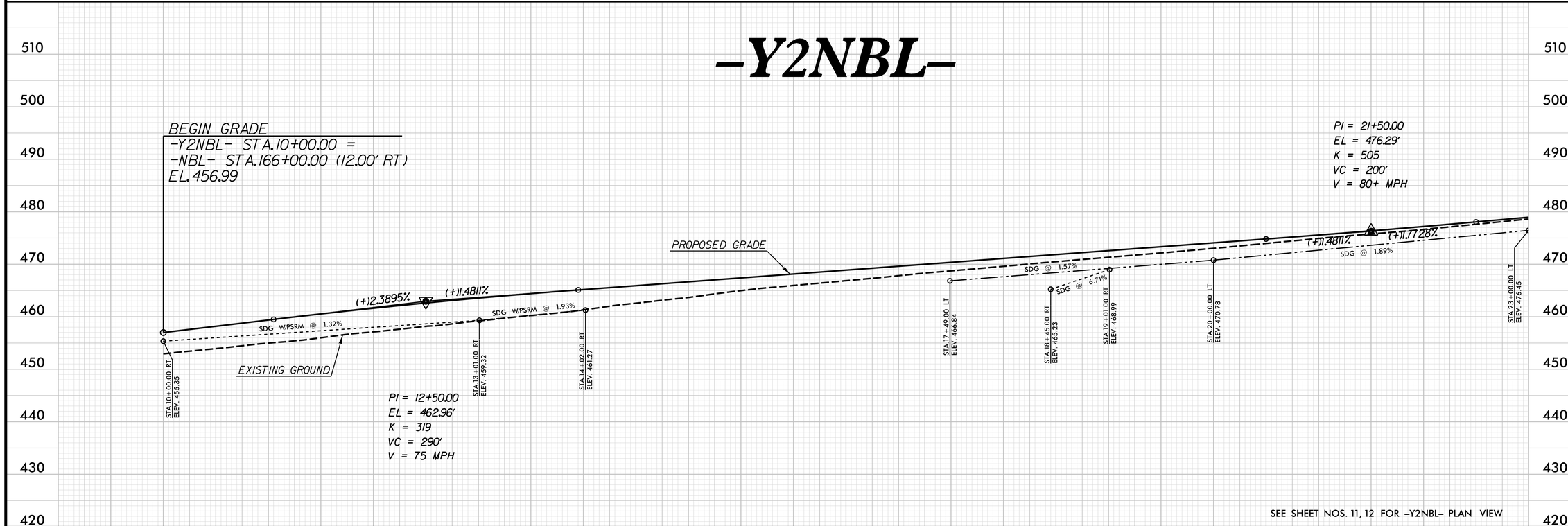
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y1LPA-



SEE SHEET NO. 9 FOR -Y1LPA- PLAN VIEW

-Y2NBL-



SEE SHEET NOS. 11, 12 FOR -Y2NBL- PLAN VIEW

REVISIONS

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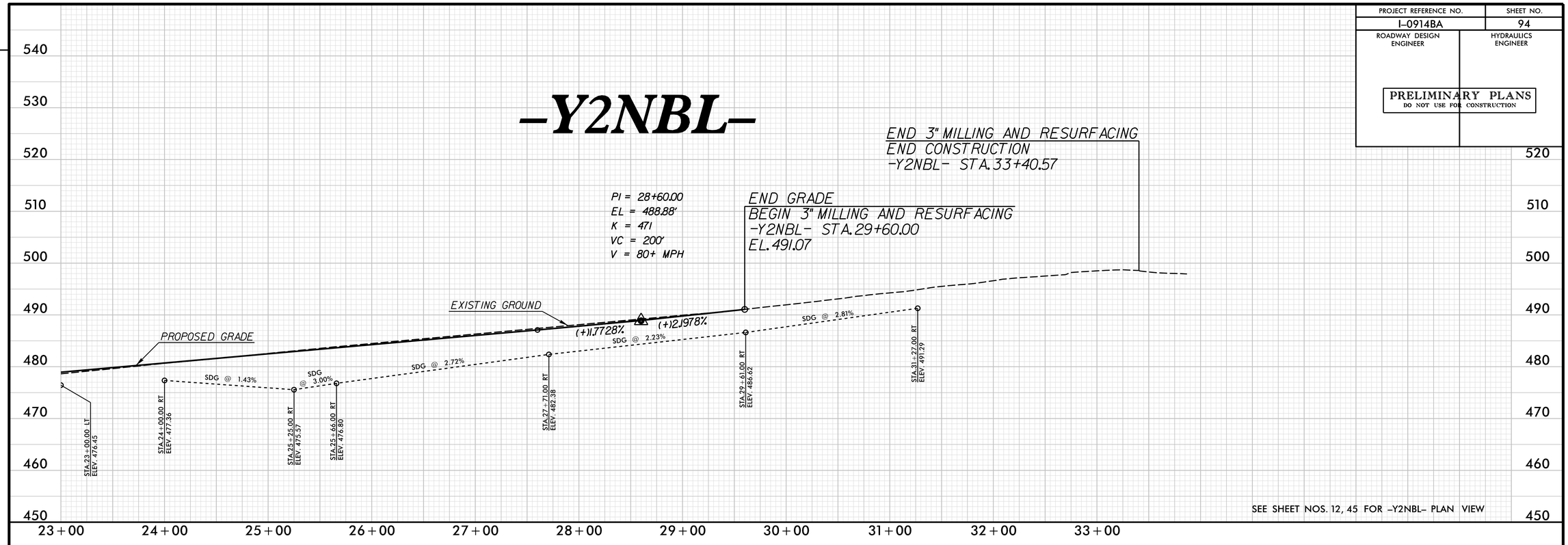
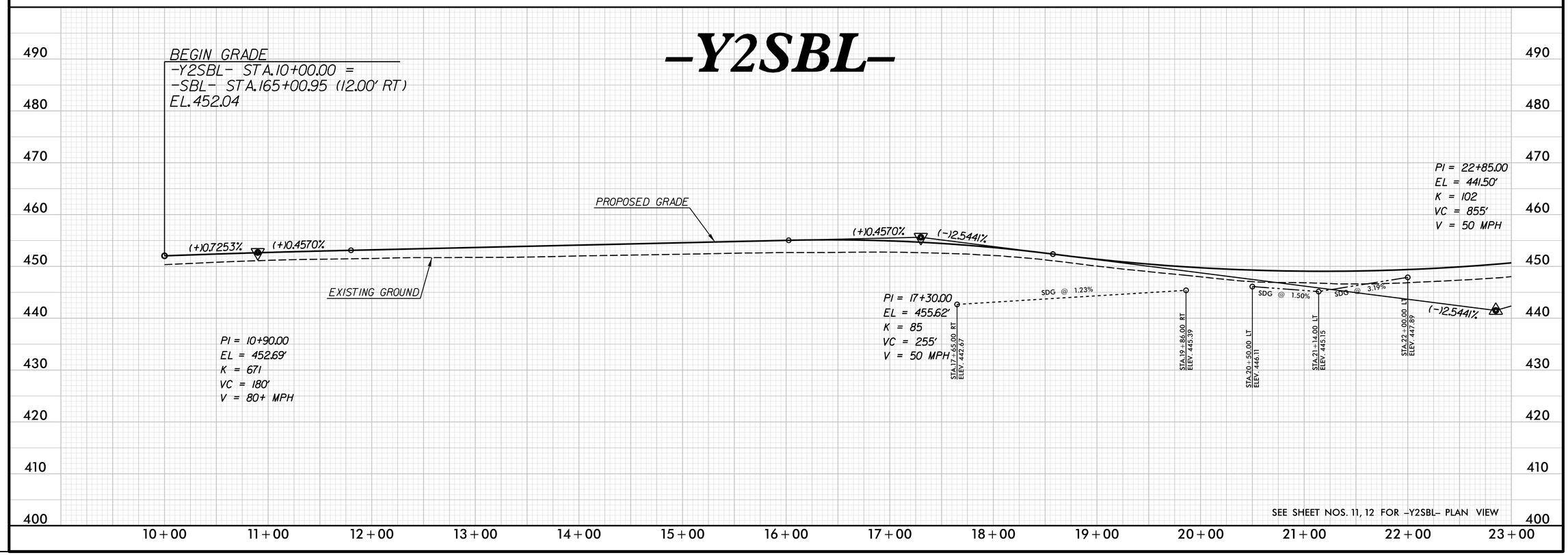
USER: dwainwri DATE: 2/28/2014 TIME: 10:55:04 AM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S93.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	94
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 12, 45 FOR -Y2NBL- PLAN VIEW



SEE SHEET NOS. 11, 12 FOR -Y2SBL- PLAN VIEW

REVISIONS

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USER: dwainwri DATE: 2/28/2014 TIME: 10:55:18 AM
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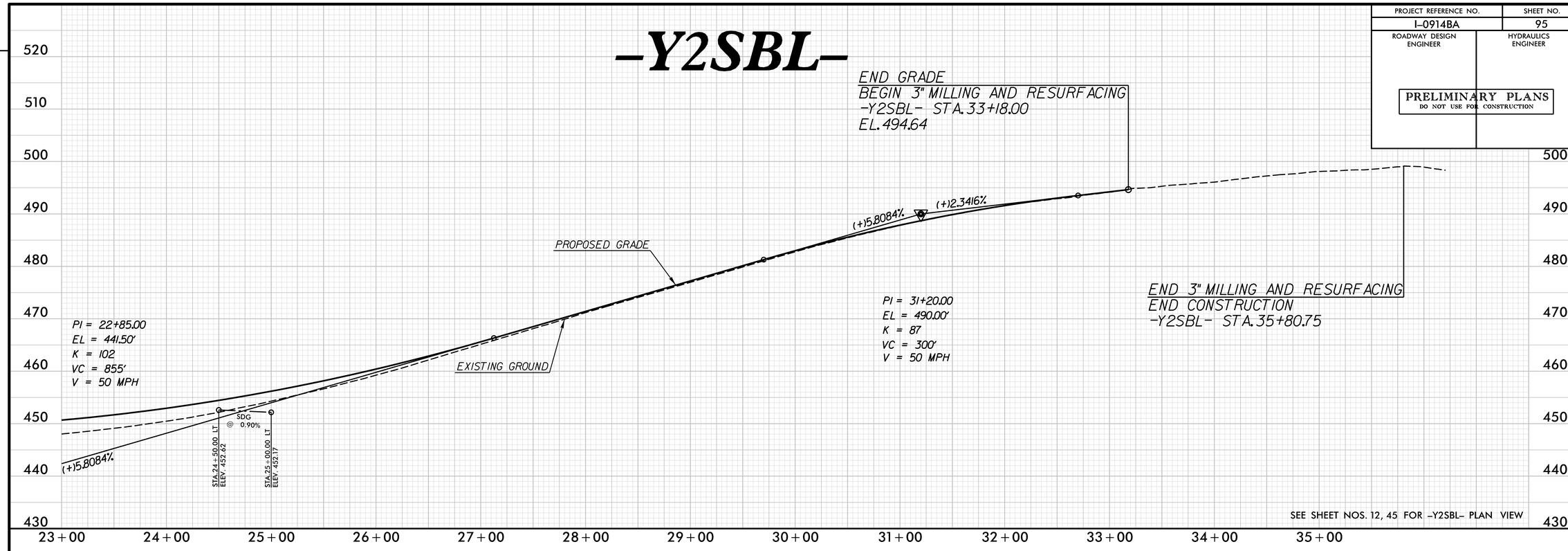
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	95
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

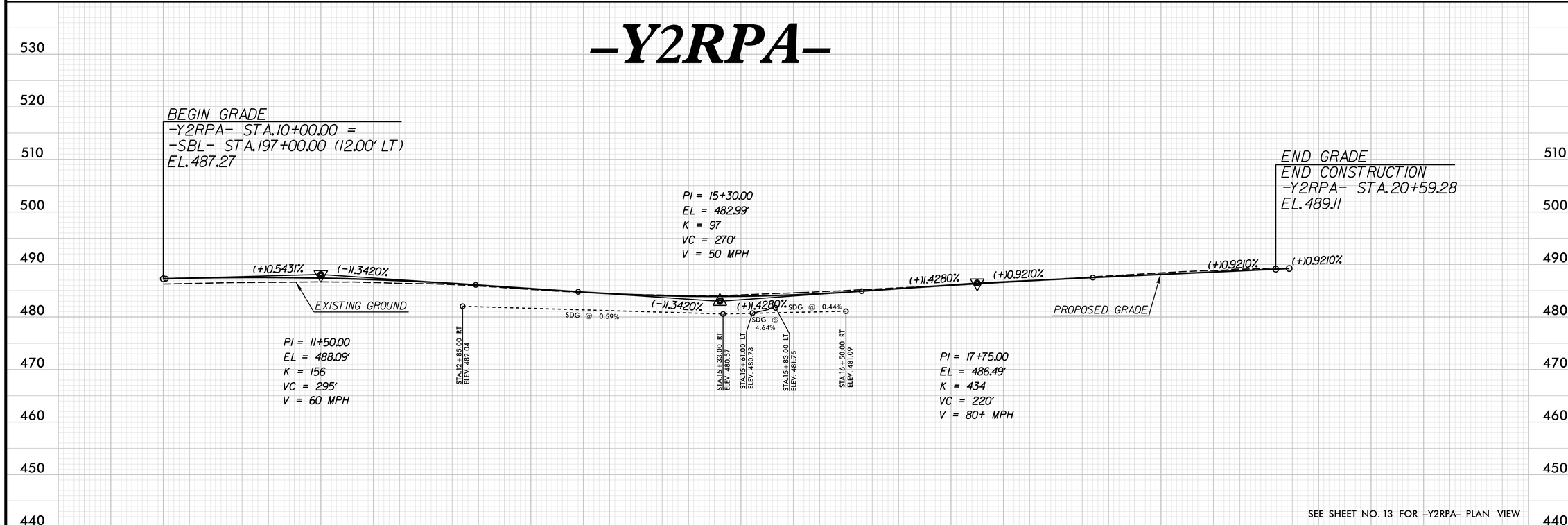
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y2SBL-



SEE SHEET NOS. 12, 45 FOR -Y2SBL- PLAN VIEW

-Y2RPA-



SEE SHEET NO. 13 FOR -Y2RPA- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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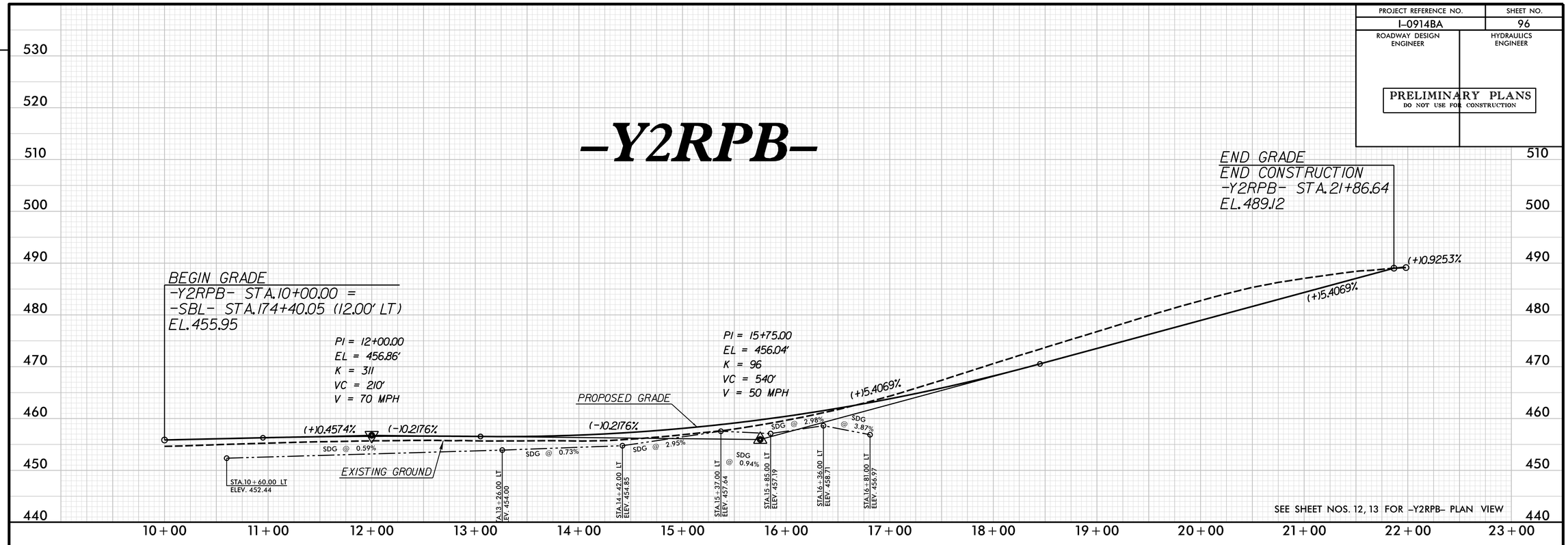
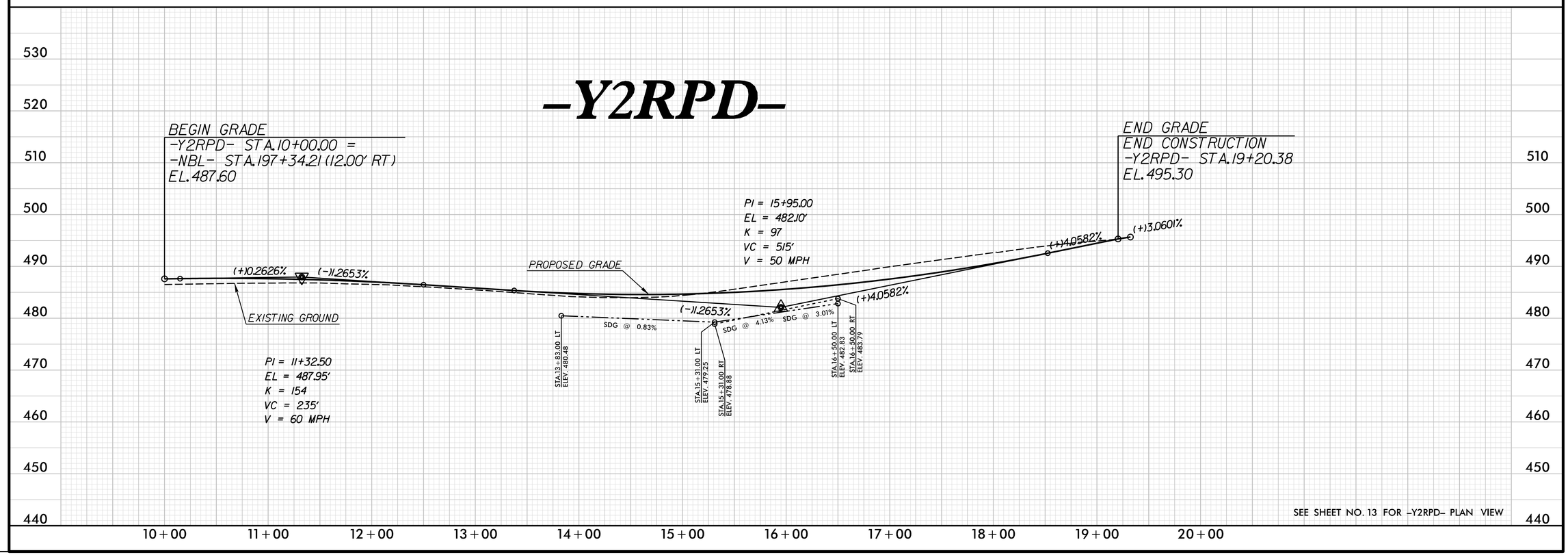
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S95.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	96
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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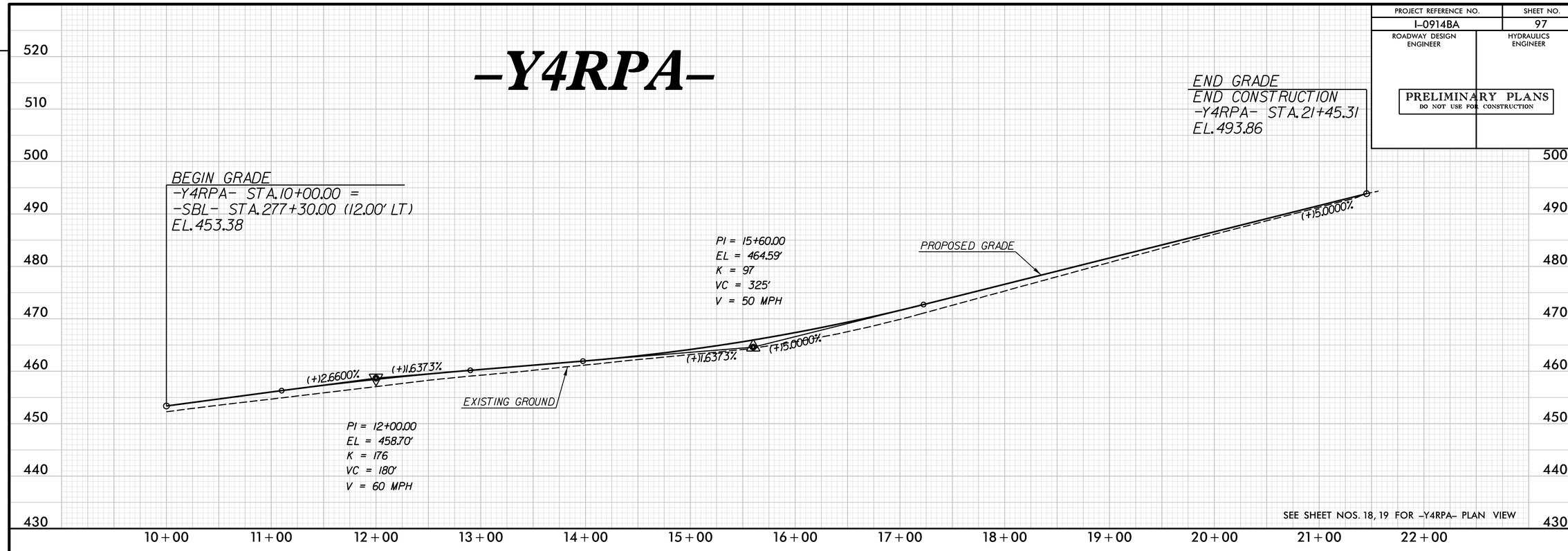
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	97
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

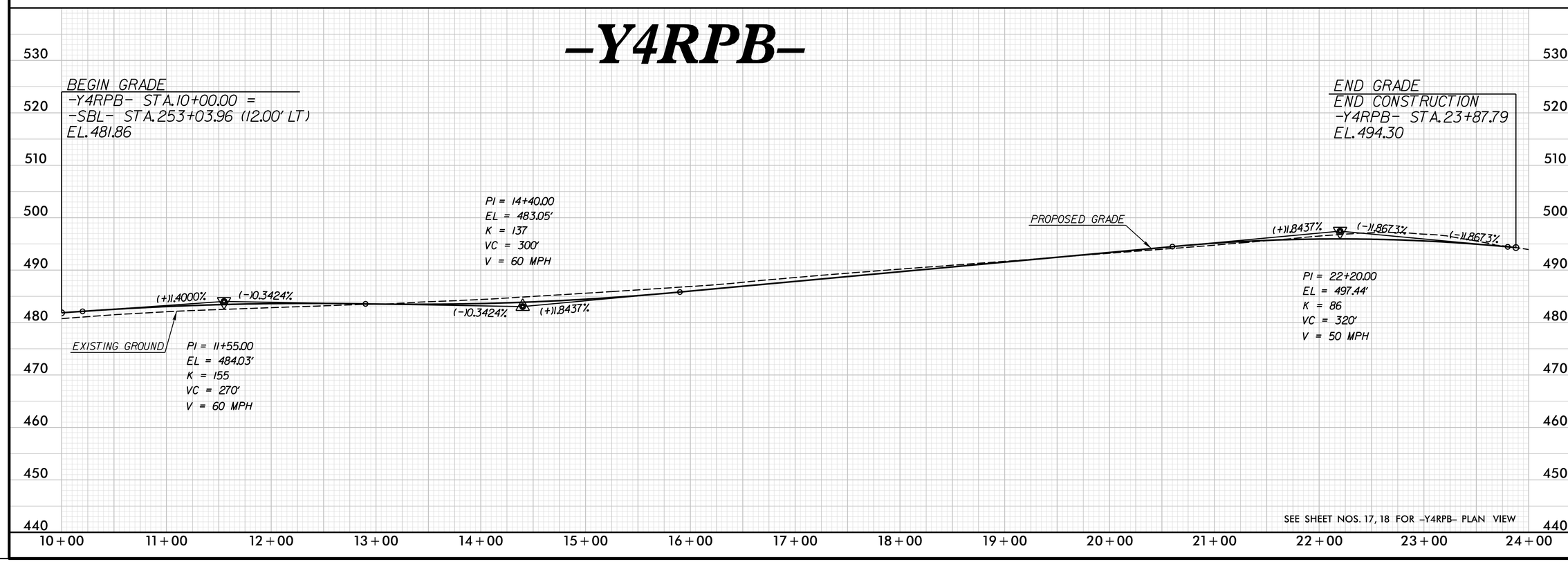
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y4RPA-



SEE SHEET NOS. 18, 19 FOR -Y4RPA- PLAN VIEW

-Y4RPB-



SEE SHEET NOS. 17, 18 FOR -Y4RPB- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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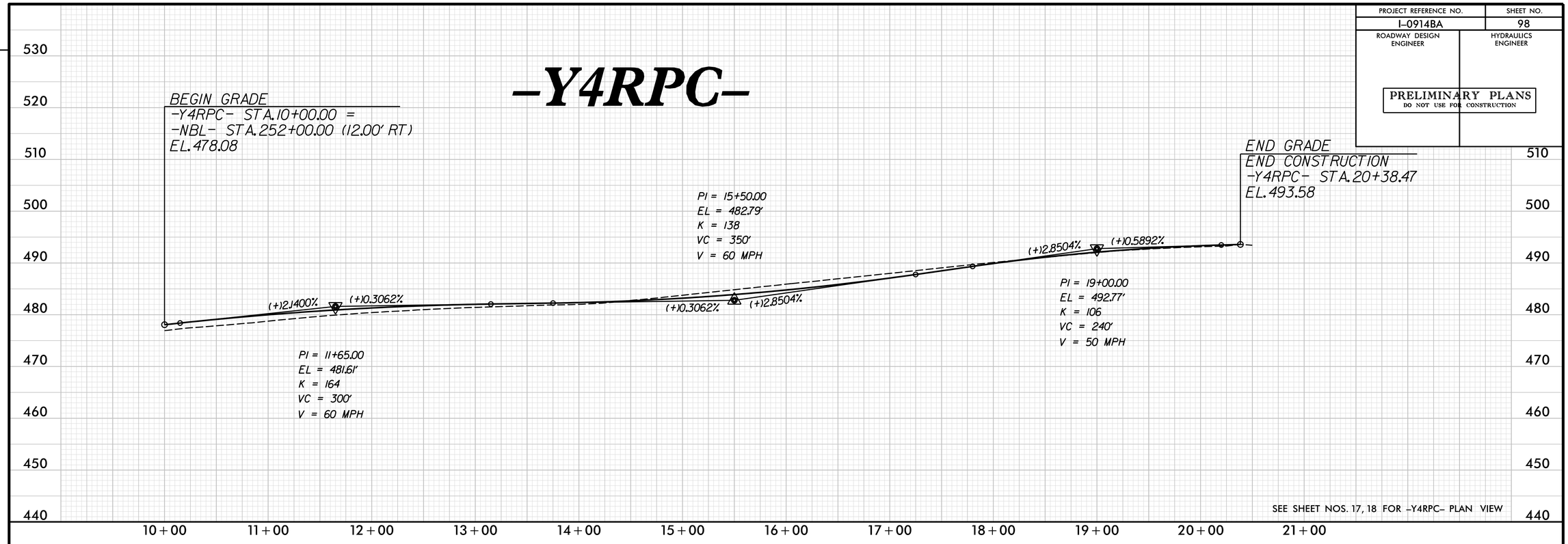
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	98
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

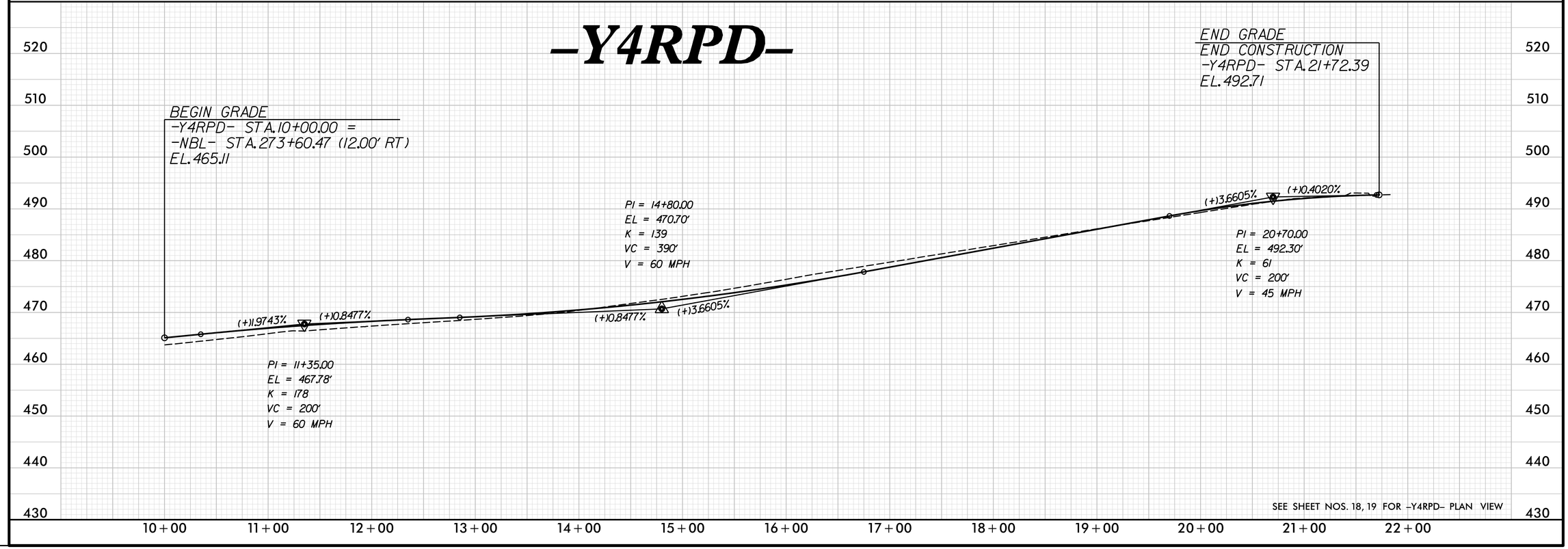
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y4RPC-



SEE SHEET NOS. 17, 18 FOR -Y4RPC- PLAN VIEW

-Y4RPD-



SEE SHEET NOS. 18, 19 FOR -Y4RPD- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:56:20 AM
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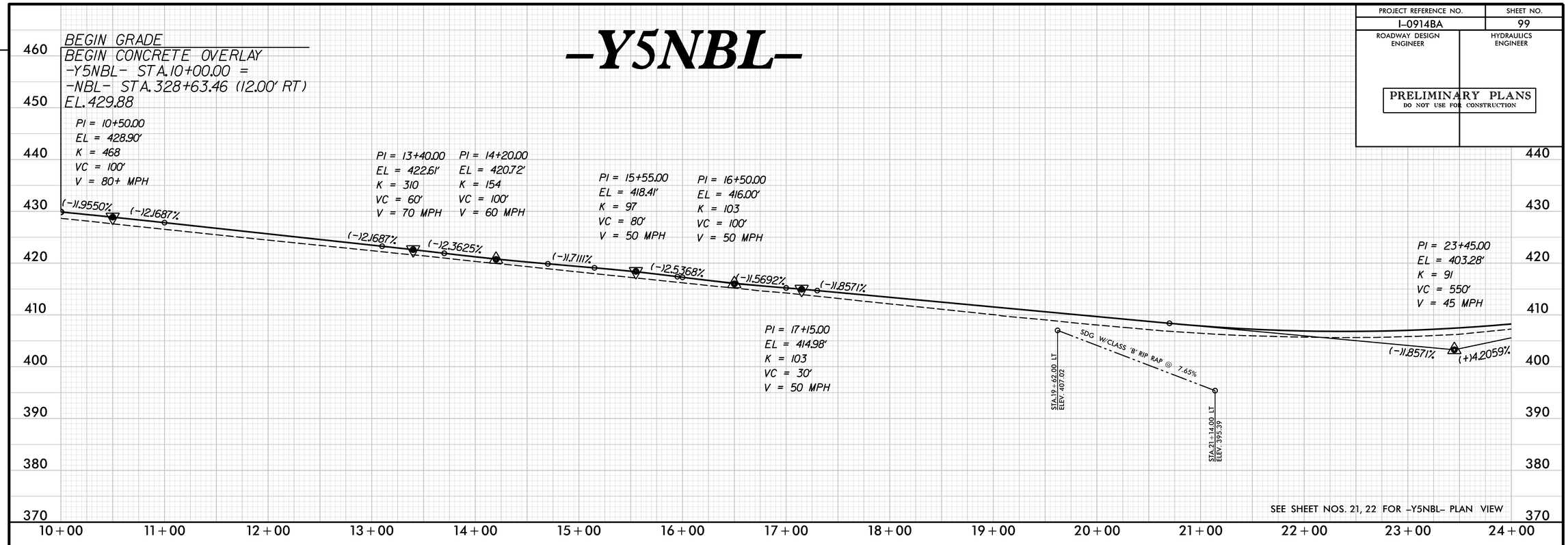
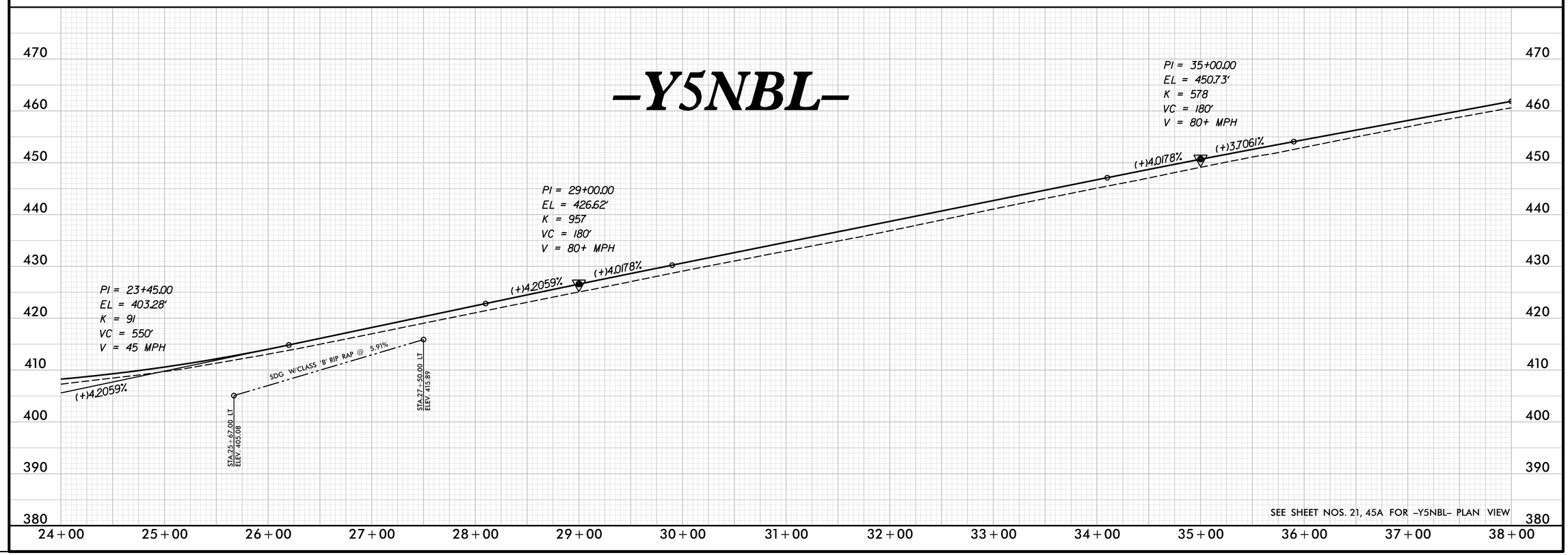
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	99
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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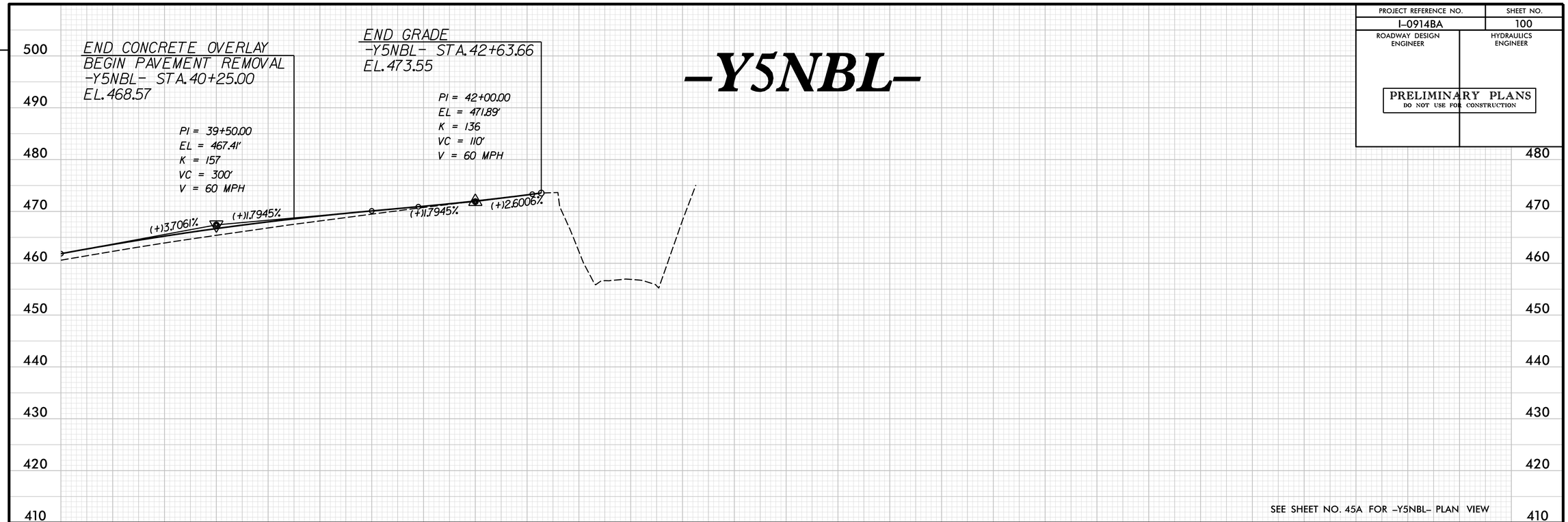
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	100
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

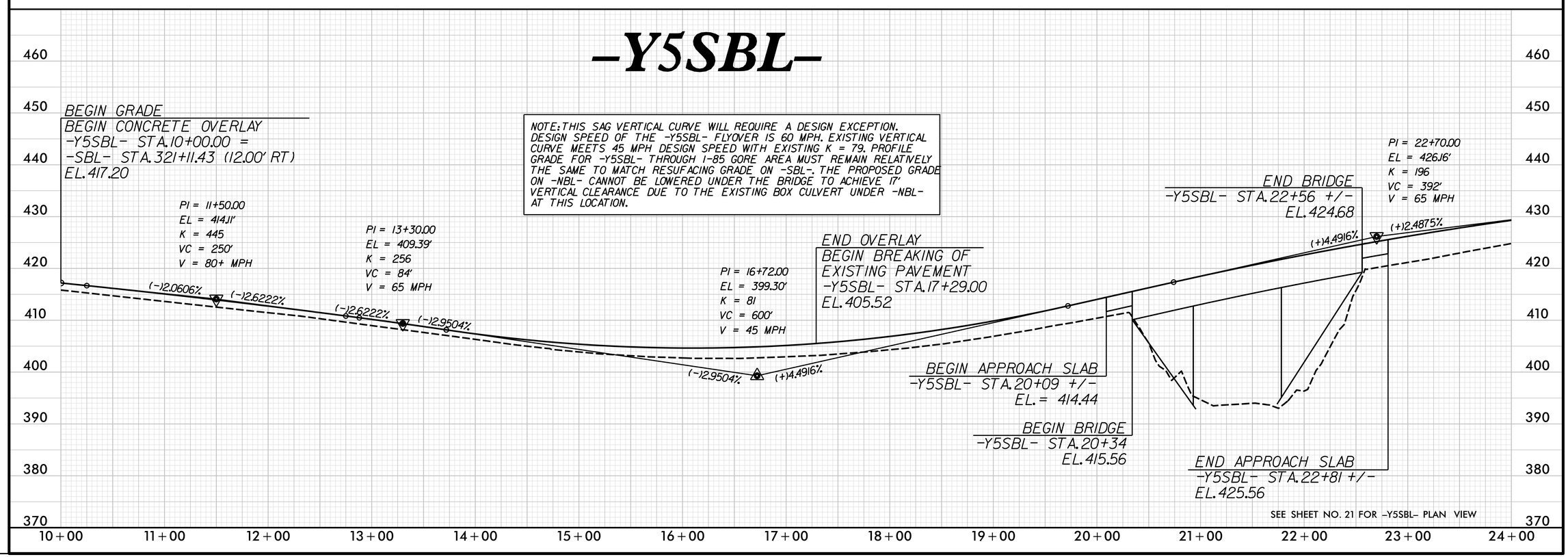
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y5NBL-



SEE SHEET NO. 45A FOR -Y5NBL- PLAN VIEW

-Y5SBL-



SEE SHEET NO. 21 FOR -Y5SBL- PLAN VIEW

REVISIONS

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USER: dwainwri DATE: 2/28/2014 TIME: 10:56:50 AM
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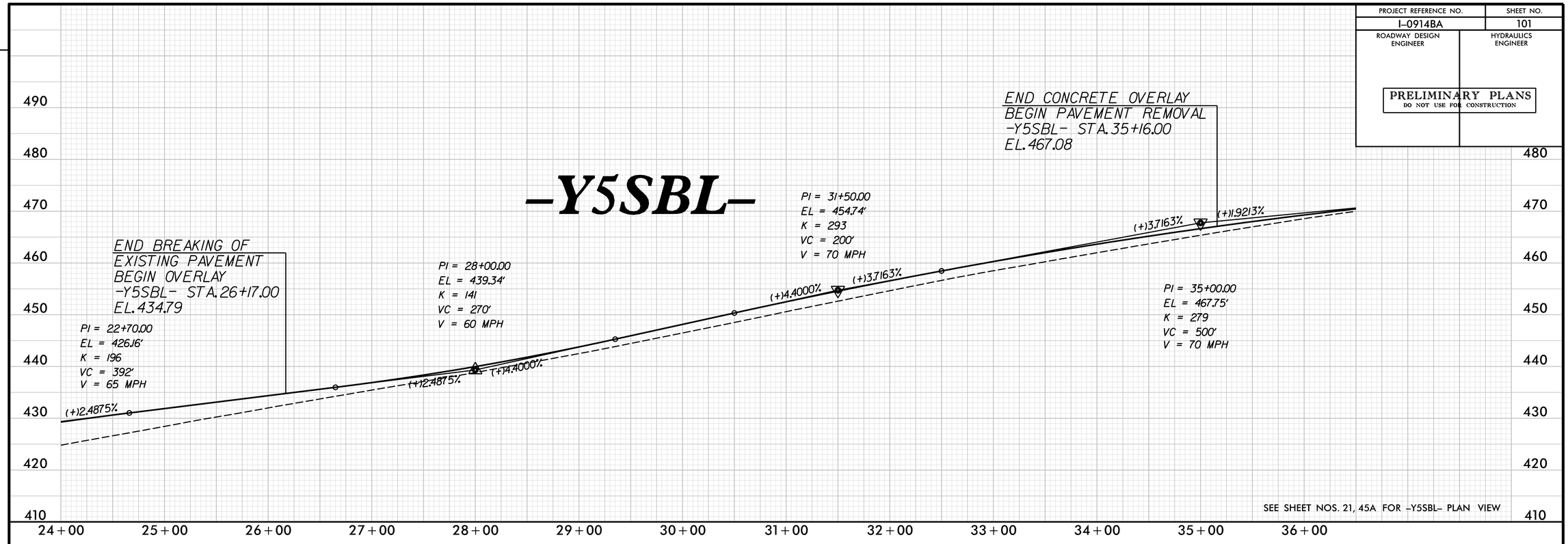
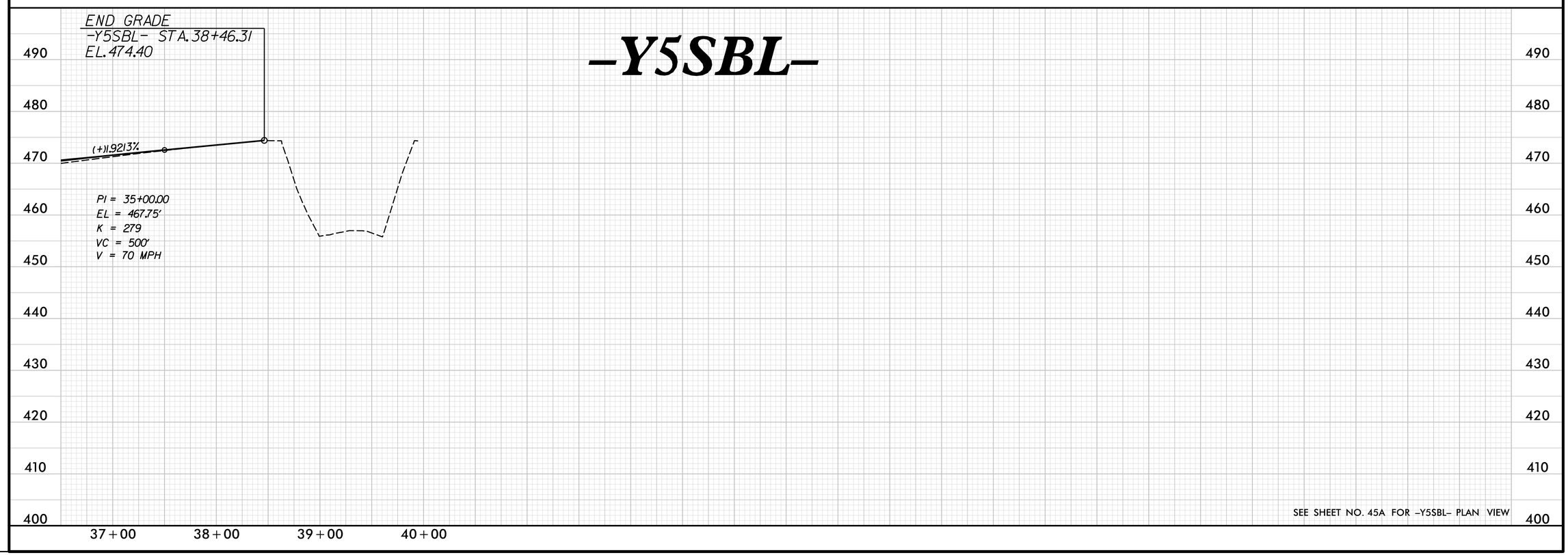
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	101
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 21, 45A FOR -Y5SBL- PLAN VIEW



SEE SHEET NO. 45A FOR -Y5SBL- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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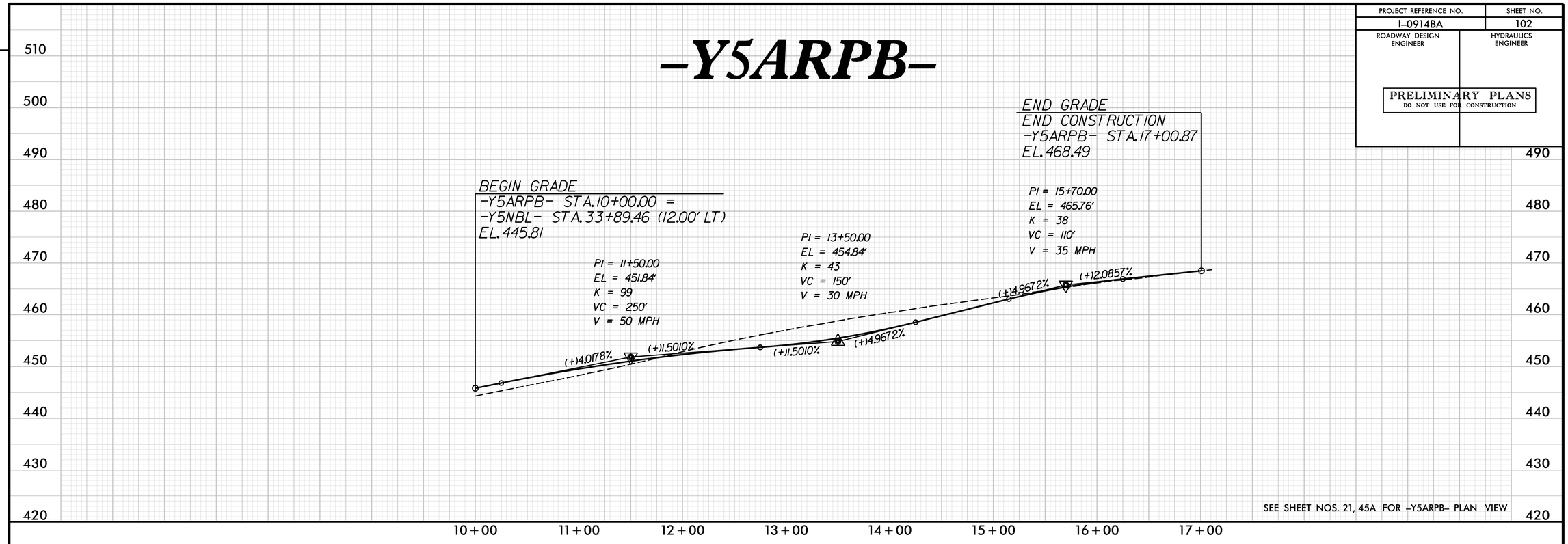
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	102
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

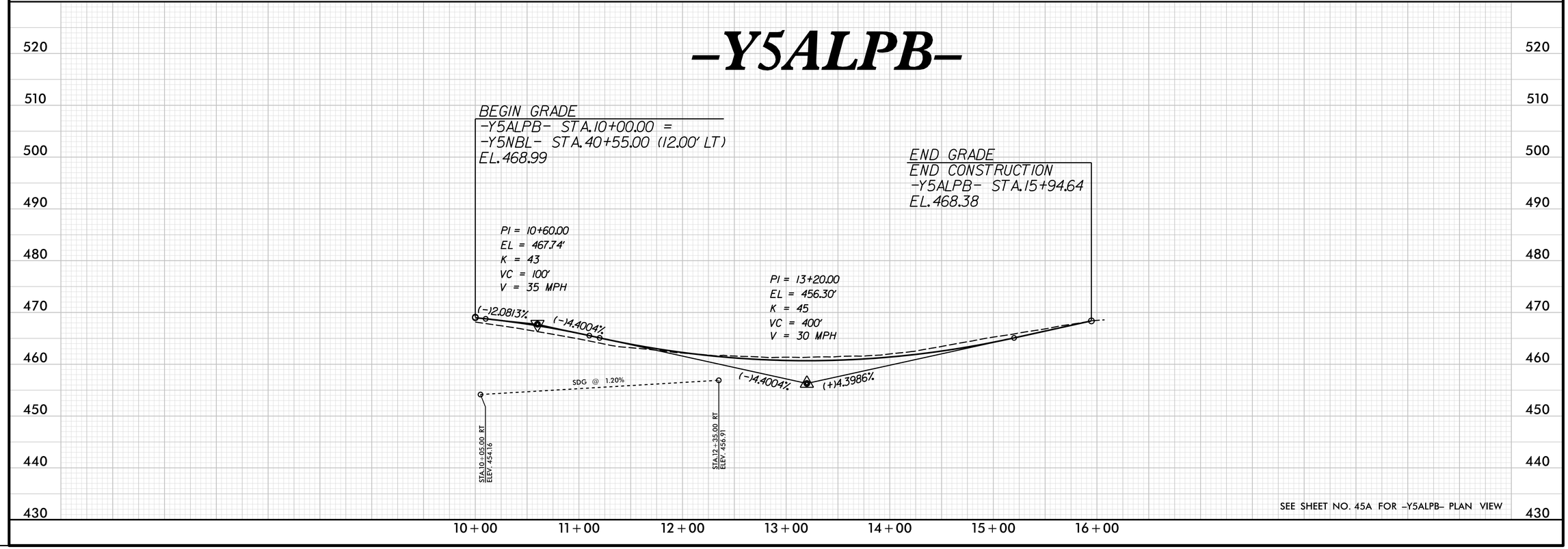
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y5ARPB-



SEE SHEET NOS. 21, 45A FOR -Y5ARPB- PLAN VIEW

-Y5ALPB-



SEE SHEET NO. 45A FOR -Y5ALPB- PLAN VIEW

REVISIONS

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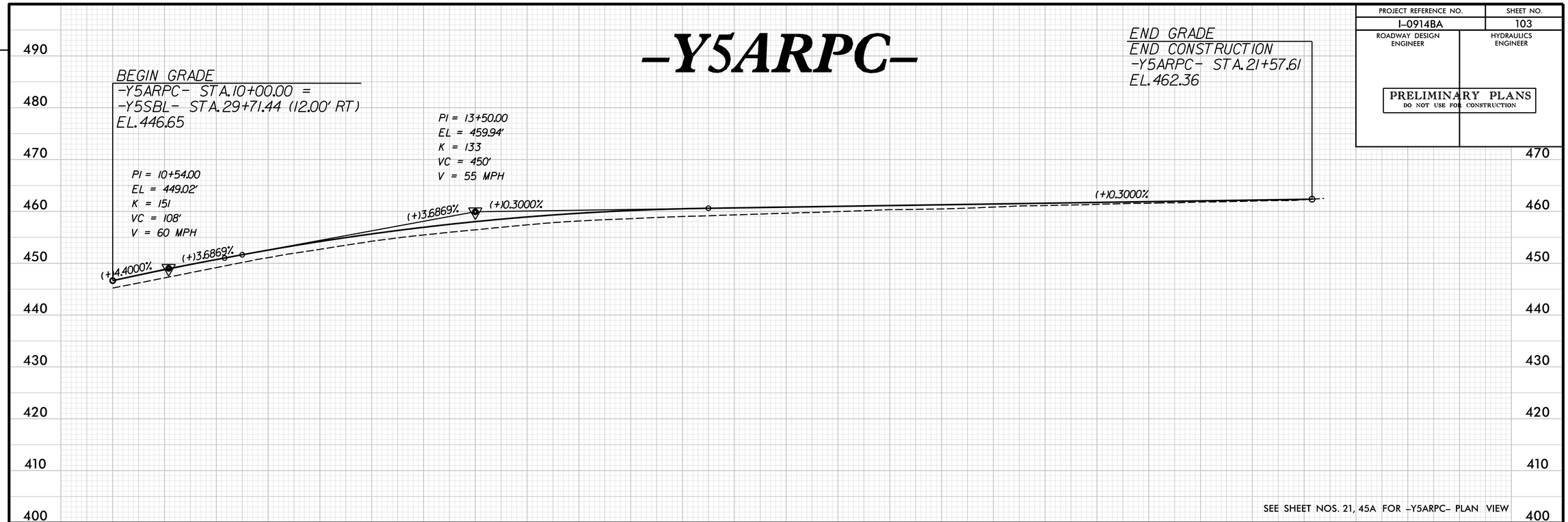
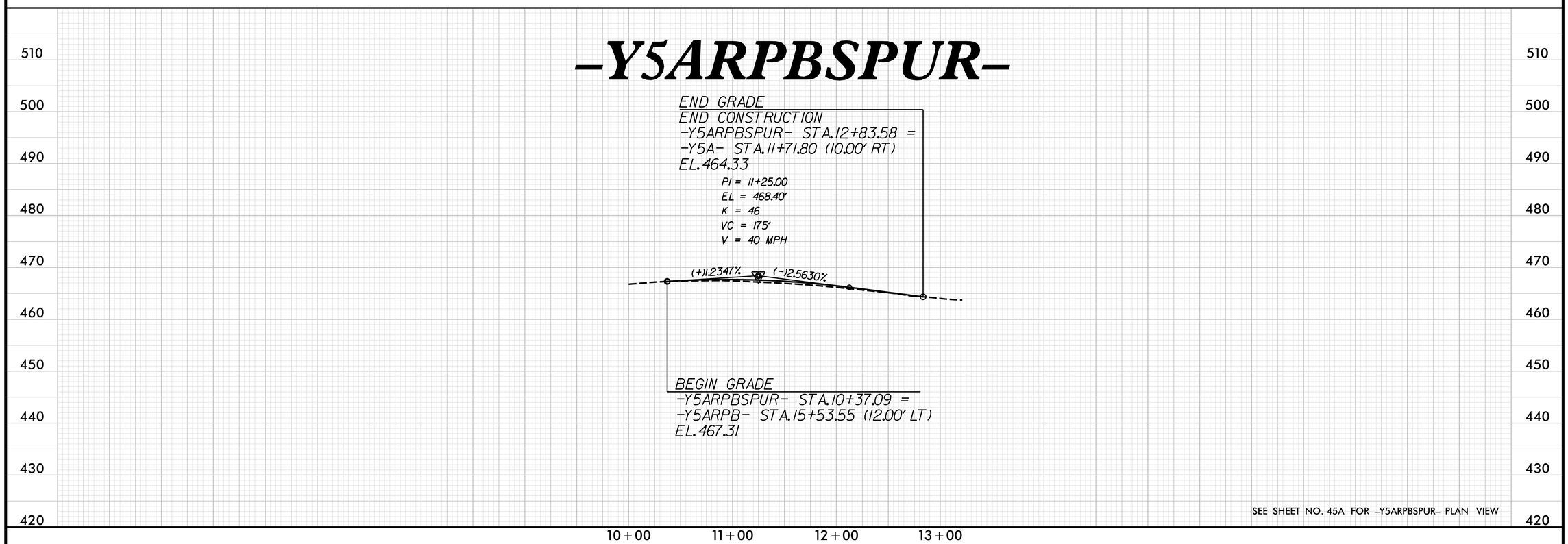
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	103
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 21, 45A FOR -Y5ARPC- PLAN VIEW



SEE SHEET NO. 45A FOR -Y5ARPBSPUR- PLAN VIEW

REVISIONS

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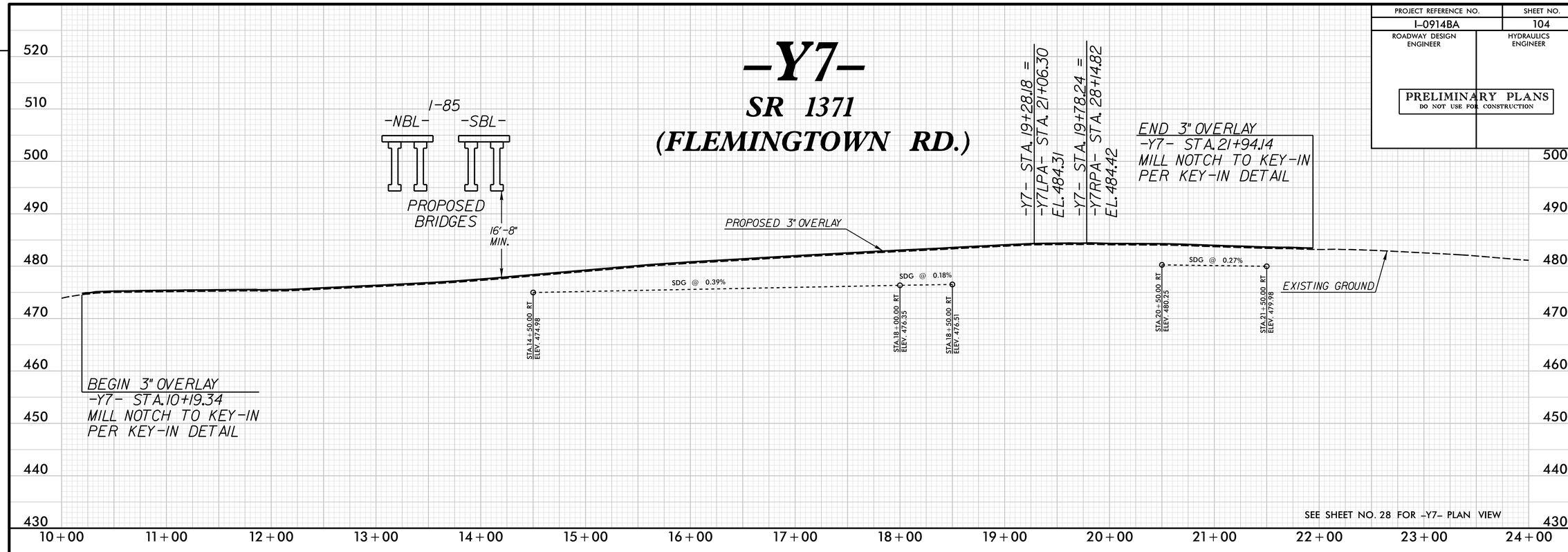
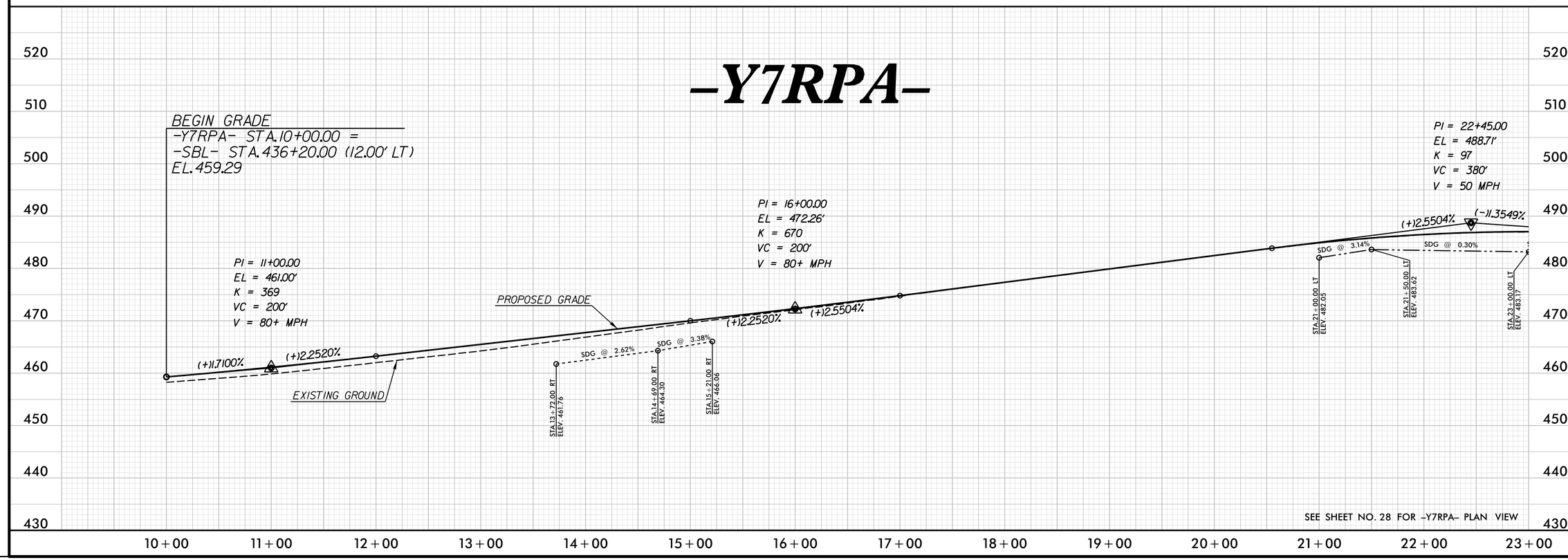
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	104
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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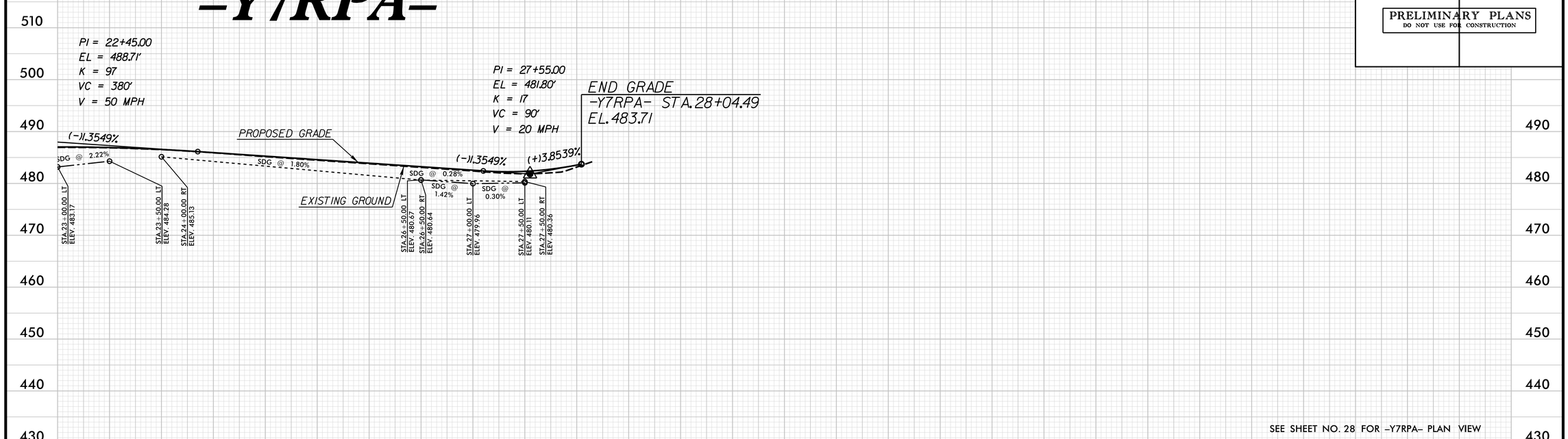
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	105
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

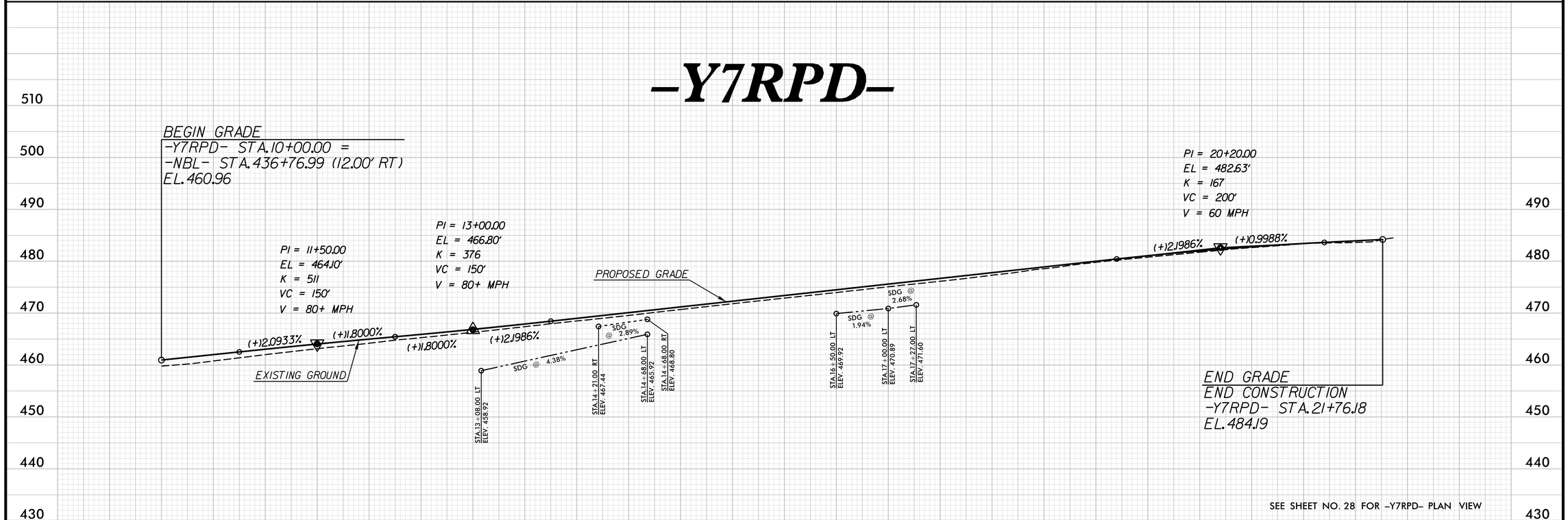
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y7RPA-



SEE SHEET NO. 28 FOR -Y7RPA- PLAN VIEW

-Y7RPD-



SEE SHEET NO. 28 FOR -Y7RPD- PLAN VIEW

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:59:04 AM
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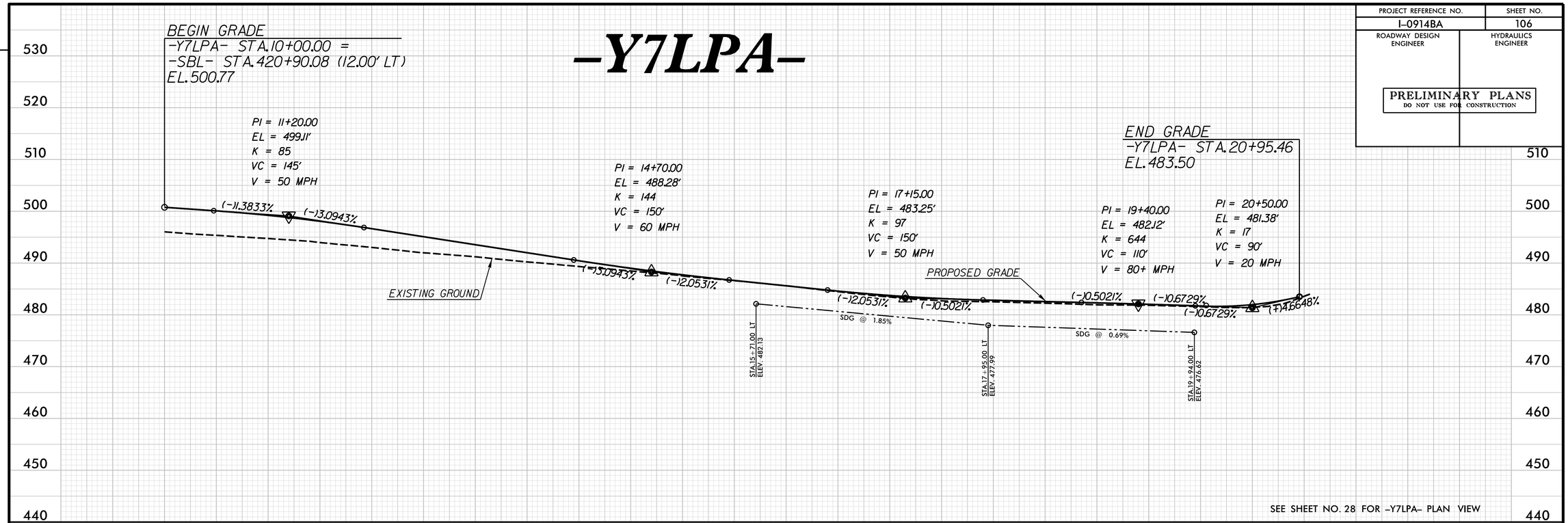
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	106
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

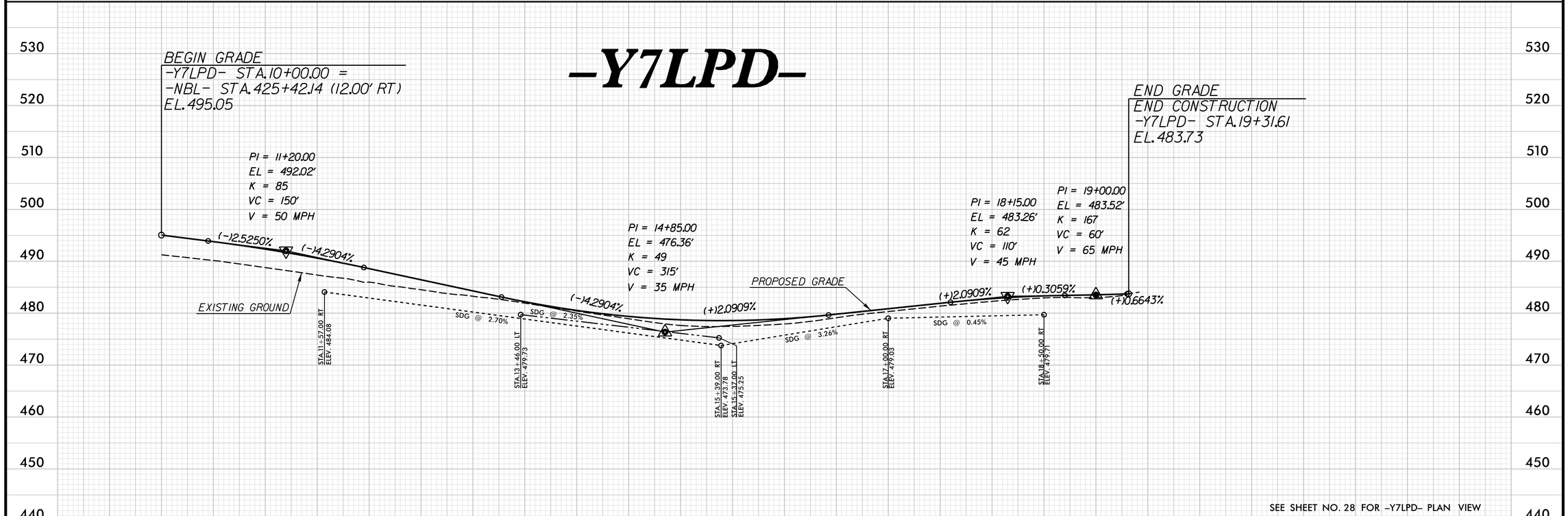
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y7LPA-



SEE SHEET NO. 28 FOR -Y7LPA- PLAN VIEW

-Y7LPD-



SEE SHEET NO. 28 FOR -Y7LPD- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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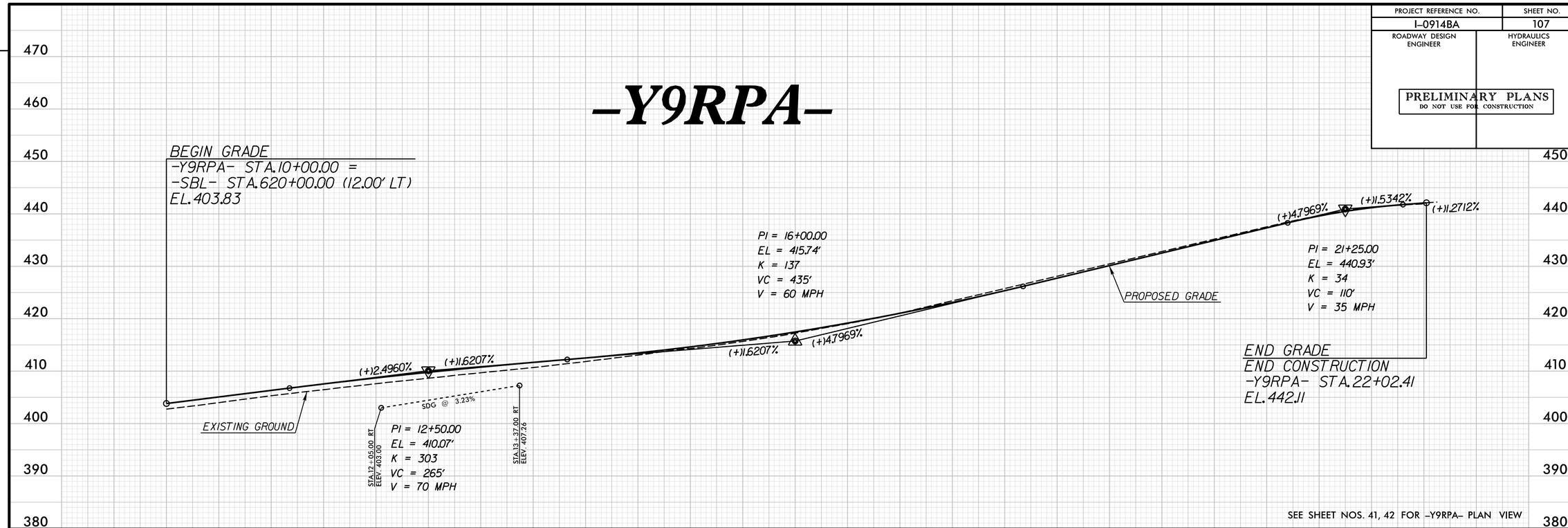
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	107
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

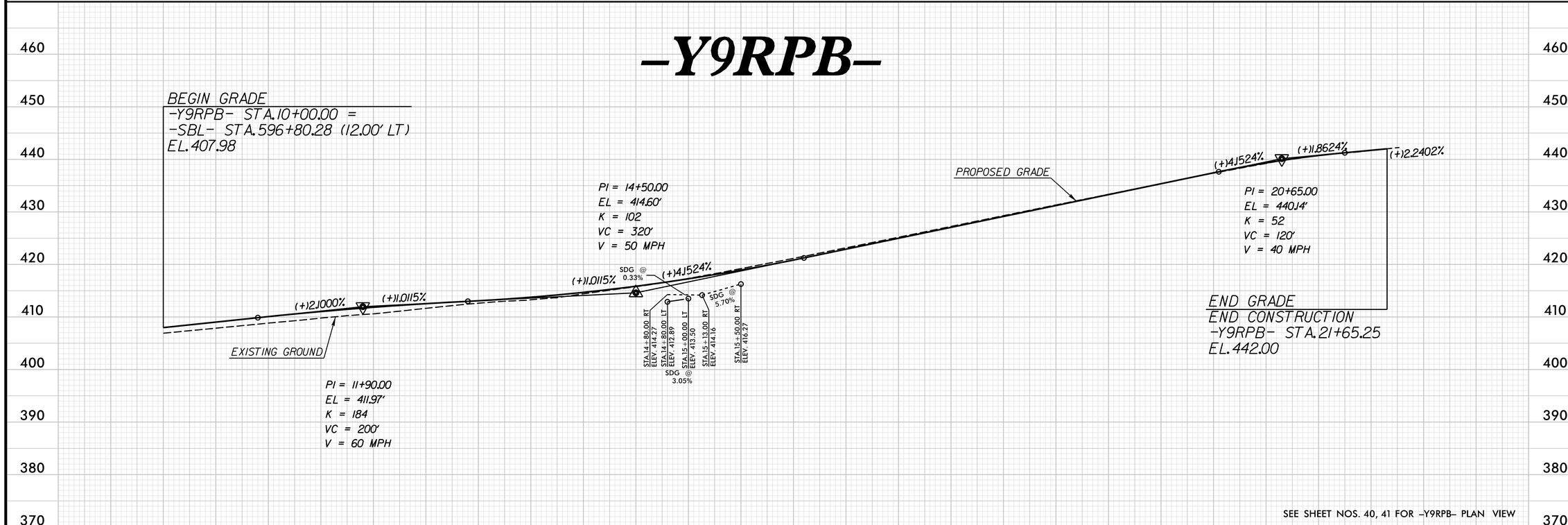
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y9RPA-



SEE SHEET NOS. 41, 42 FOR -Y9RPA- PLAN VIEW

-Y9RPB-



SEE SHEET NOS. 40, 41 FOR -Y9RPB- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 11:01:15 AM
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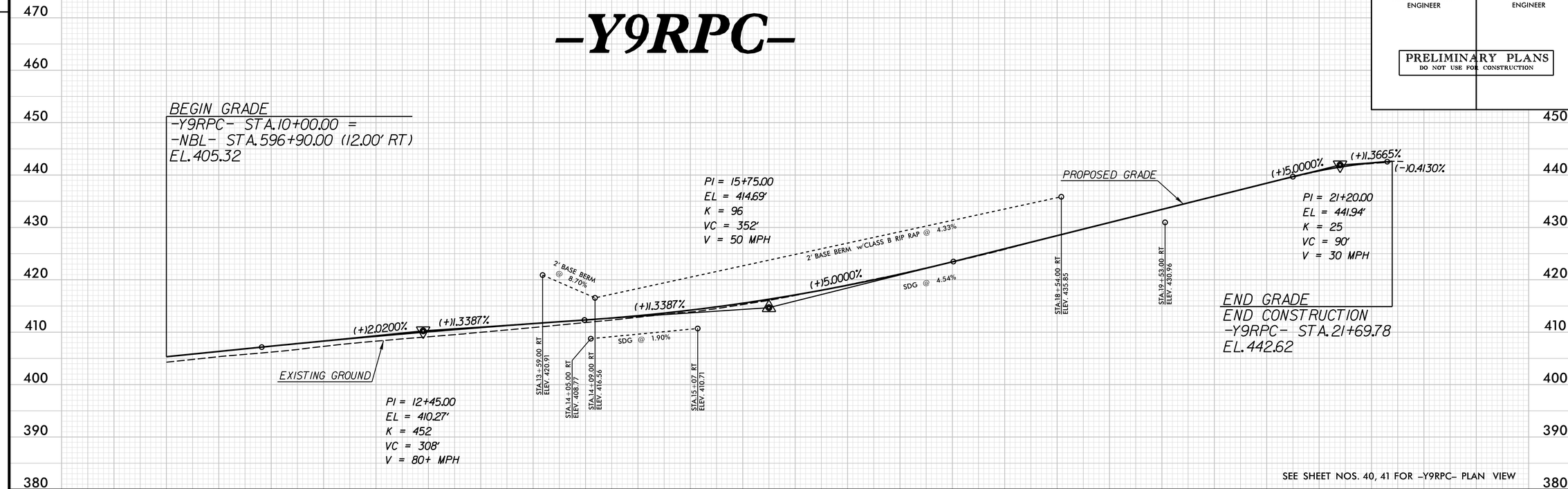
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	108
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

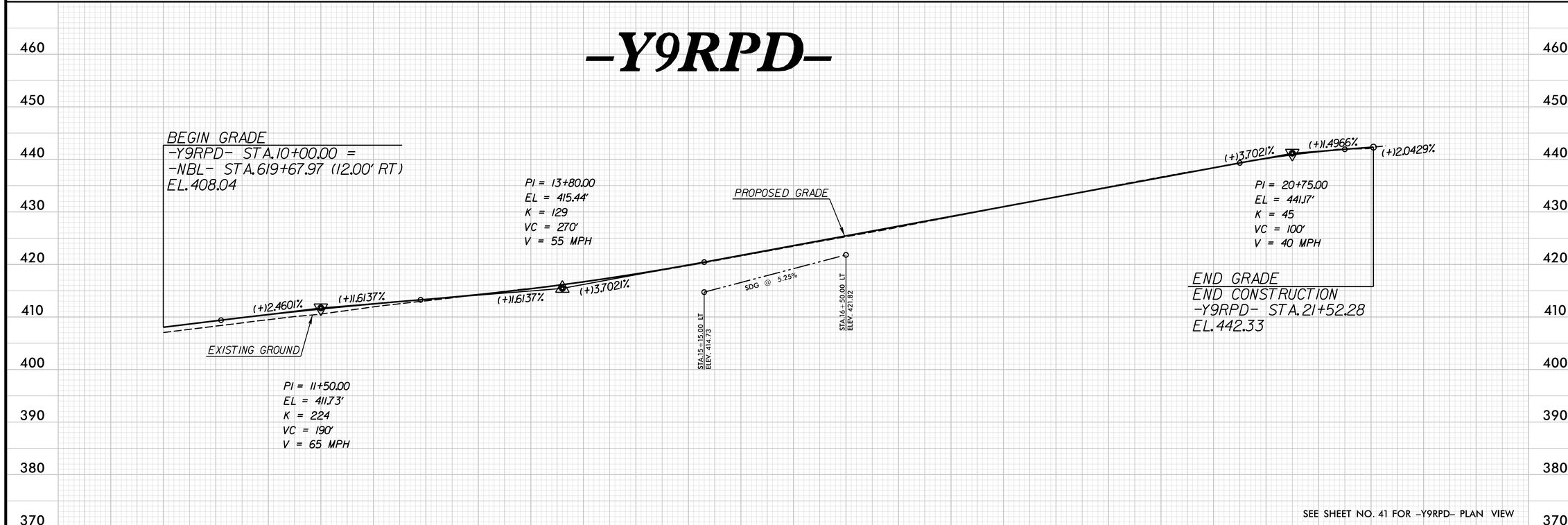
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y9RPC-



SEE SHEET NOS. 40, 41 FOR -Y9RPC- PLAN VIEW

-Y9RPD-



SEE SHEET NO. 41 FOR -Y9RPD- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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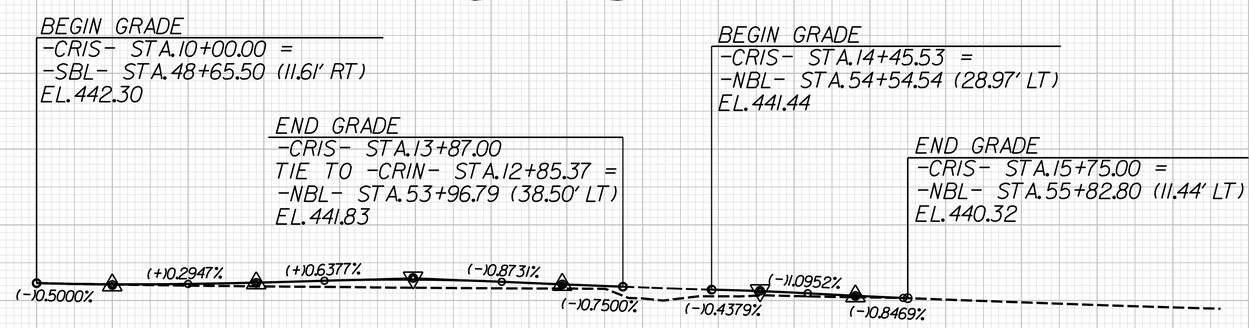
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	109
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-CR1S-

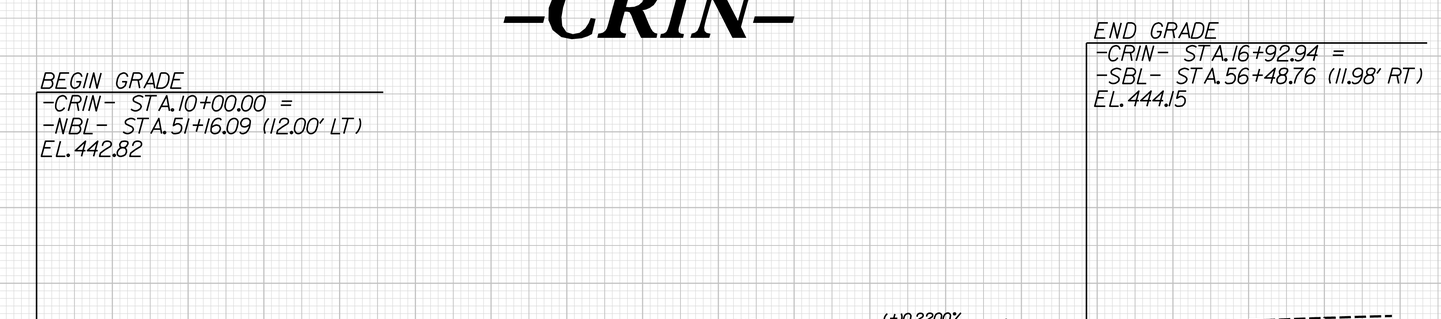


CRIS
(EXISTING TO EXISTING)

PI = 10+50.00	PI = 11+45.00	PI = 12+48.50	PI = 13+47.00	PI = 14+77.50	PI = 15+40.50	PI = 15+72.38
EL = 442.05'	EL = 442.33'	EL = 442.99'	EL = 442.13'	EL = 441.30'	EL = 440.61'	EL = 440.34'
K = 126	K = 262	K = 77	K = 650	K = 96	K = 254	
VC = 100'	VC = 90'	VC = 117'	VC = 80'	VC = 63'	VC = 63'	
V = 55 mph	V > 80 mph	V = 45 mph	V > 80 mph	V = 50 mph	V > 80 mph	

SEE SHEET NO. 4 FOR -CR1S- PLAN VIEW

-CR1N-



CRIN
(EXISTING TO EXISTING)

PI = 13+42.00	PI = 15+40.00	PI = 16+40.00
EL = 441.59'	EL = 443.61'	EL = 443.83'
K = 123	K = 125	K = 260
VC = 170'	VC = 100'	VC = 100'
V = 55 mph	V = 55 mph	V > 80 mph

SEE SHEET NO. 4 FOR -CR1N- PLAN VIEW

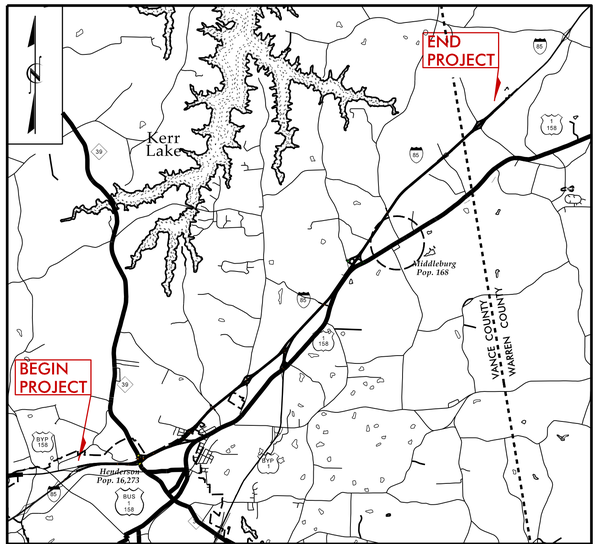
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 11:01:59 AM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S109.dgn

09/08/99

TIP PROJECT: I-0914BA

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



VICINITY MAP
(NOT TO SCALE)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

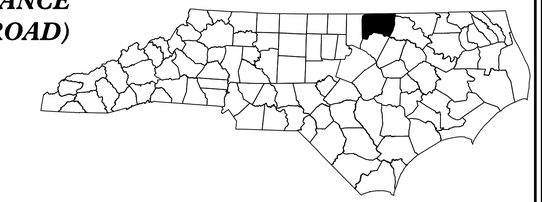
VANCE–WARREN COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I–0914BA	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
WBS 38688.1.2	IMS–085–4(116)215	P.E.
WBS 38688.2.FS2	IMS–085–4(116)215	R/W
WBS 38688.2.FSU1	IMS–085–4(116)215	UTIL

LOCATION: *I–85 FROM NORTH OF SR 1162 (DABNEY DRIVE) IN VANCE COUNTY TO NORTH OF SR 1237 (MANSON–DREWRY ROAD) IN WARREN COUNTY*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, GUARDRAIL, CABLE GUIDERAIL, STRUCTURES, SIGNALS*



BEGIN TIP PROJECT I–0914BA
BEGIN F.A. PROJECT IMS–085–4(116)215
–SBL– STA. 48 + 65.50

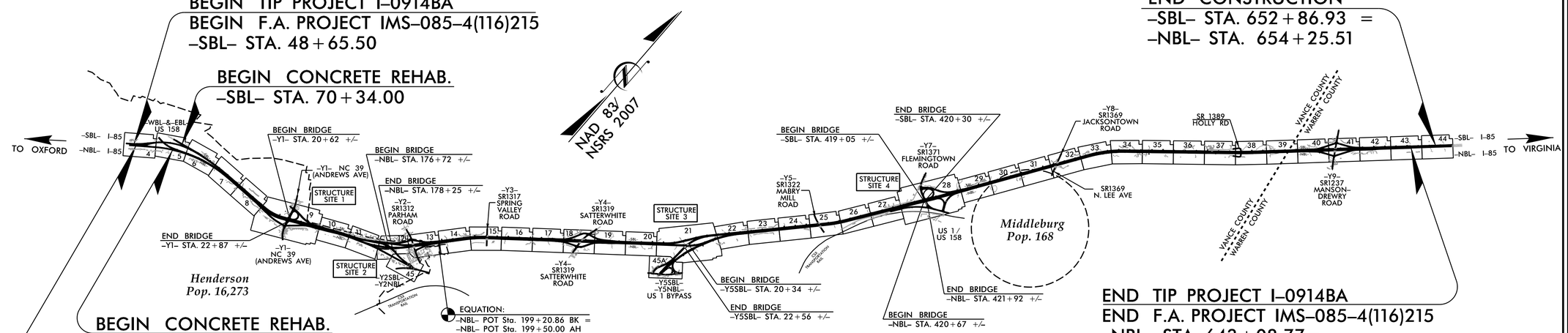
BEGIN CONCRETE REHAB.
–SBL– STA. 70 + 34.00

BEGIN CONCRETE REHAB.
–NBL– STA. 67 + 70.00

BEGIN CONSTRUCTION
–NBL– STA. 51 + 16.09

END CONSTRUCTION
–SBL– STA. 652 + 86.93 =
–NBL– STA. 654 + 25.51

END TIP PROJECT I–0914BA
END F.A. PROJECT IMS–085–4(116)215
–NBL– STA. 643 + 08.77 =
–SBL– STA. 641 + 70.18 =
BEGIN TIP PROJECT I–0914BB
–L– STA. 39 + 00.00



THIS IS A CONTROLLED–ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF HENDERSON AND MIDDLEBURG.

PROJECT PREPARED BY:
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F–0116

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2014 = 37,800
ADT 2035 = 57,900
DHV = 08 %
D = 55 %
T = 20 % *
V = 70 MPH
* TTST =17% DUAL 3%
FUNC CLASS =
INTERSTATE
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I–0914BA = 11.179 MILES
LENGTH STRUCTURE TIP PROJECT I–0914BA = 0.053 MILES
TOTAL LENGTH TIP PROJECT I–0914BA = 11.232 MILES

TOTAL PROJECT LENGTH BASED ON CENTERLINE –SBL– STATIONS.
STRUCTURE LENGTH BASED ON CENTERLINE –NBL– STATIONS.

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 28, 2014

LETTING DATE:
FEBRUARY 17, 2015

PAUL A. MEEHAN, P.E.
PROJECT ENGINEER

DOMINIC M. WAINWRIGHT, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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04/16/11

PROJECT REFERENCE NO.	SHEET NO.
1-0914BA	1-B

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
- Designated U/G Water Line (S.U.E.*)
- 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.

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

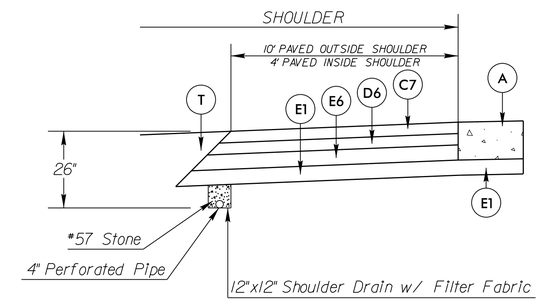
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

A	10" PORTLAND CEMENT CONCRETE PAVEMENT WITH DOWELS	E4	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E5	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
C2	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.	E6	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
C3	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E7	PROP. APPROX. 5.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E8	PROP. APPROX. 9.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C5	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB AND GUTTER
C6	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.	R2	CONCRETE SHOULDER BERM GUTTER
C7	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD IN EACH OF TWO LAYERS.	R3	SPECIAL CONCRETE SHOULDER BERM GUTTER (SEE SPECIAL SBG DETAIL)
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	S	4" CONCRETE SIDEWALK
D2	PROP. APPROX. 3.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	T	EARTH MATERIAL
D3	PROP. APPROX. 4.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
D4	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.	V1	5/8" MILLING OF ULTRATHIN WEARING COURSE
D5	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	V2	3" MILLING OF ASPHALT SURFACE COURSE
D6	PROP. APPROX. 3.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	X	2" PADC
E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	X1	VARIABLE DEPTH PADC (SEE WEDGING DETAIL)
E2	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)
E3	PROP. APPROX. 5.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	Y	MILLED RUMBLE STRIPS

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

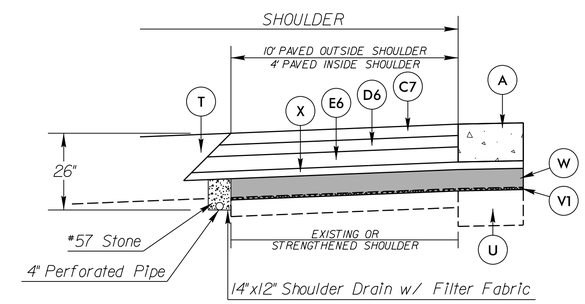


DETAIL OF SHOULDER DRAIN—GRADE CHANGE AREA

TO BE USED ALONG –NBL– & –SBL–, –Y5NBL– & –Y5SBL–

CONCRETE OUTLET PADS LOCATED IN CUT SECTIONS SHALL BE PLACED AT LEAST 6" ABOVE BOTTOM DITCH GRADE.

NTS

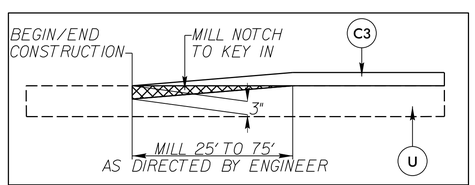


DETAIL OF SHOULDER DRAIN—WEDGING AREA

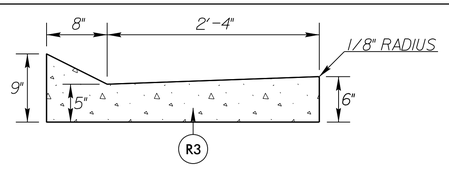
TO BE USED ALONG –NBL– & –SBL–, –Y5NBL– & –Y5SBL–

CONCRETE OUTLET PADS LOCATED IN CUT SECTIONS SHALL BE PLACED AT LEAST 6" ABOVE BOTTOM DITCH GRADE.

NTS



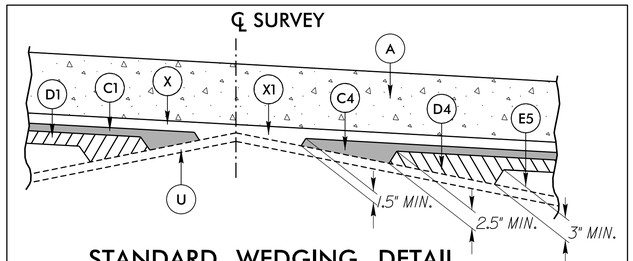
KEY-IN DETAIL



DETAIL OF SPECIAL SHOULDER BERM GUTTER

TO BE USED ALONG –NBL– & –SBL–, –Y5NBL– & –Y5SBL–
SEE PLANS FOR SHOULDER BERM GUTTER LOCATIONS

NTS



STANDARD WEDGING DETAIL

TO BE USED ALONG
–NBL– & –SBL–, –Y5NBL– & –Y5SBL–

NTS

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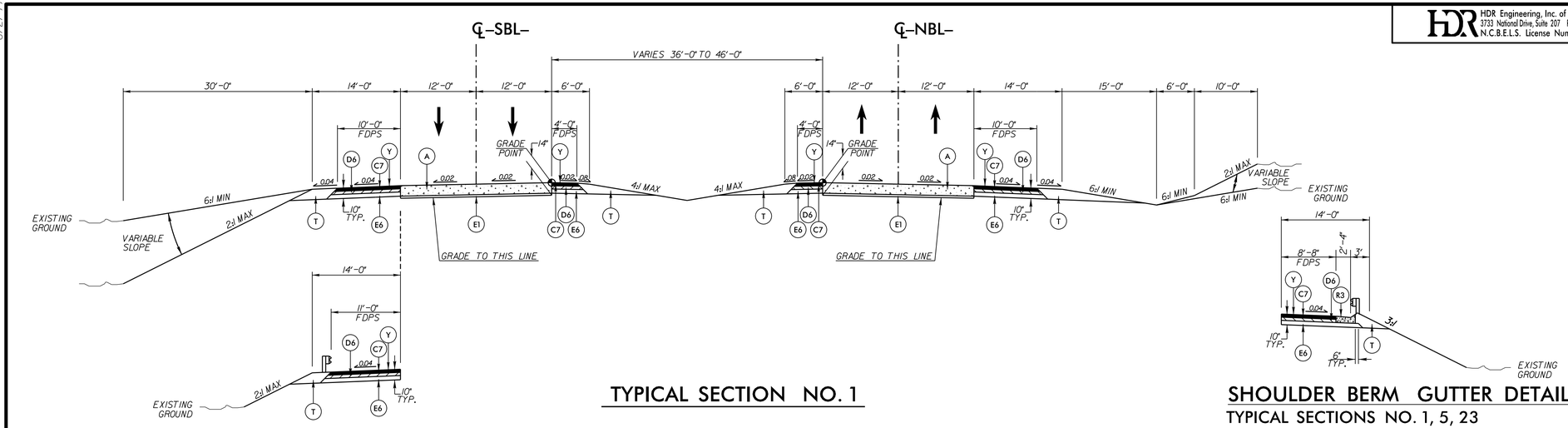
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 1

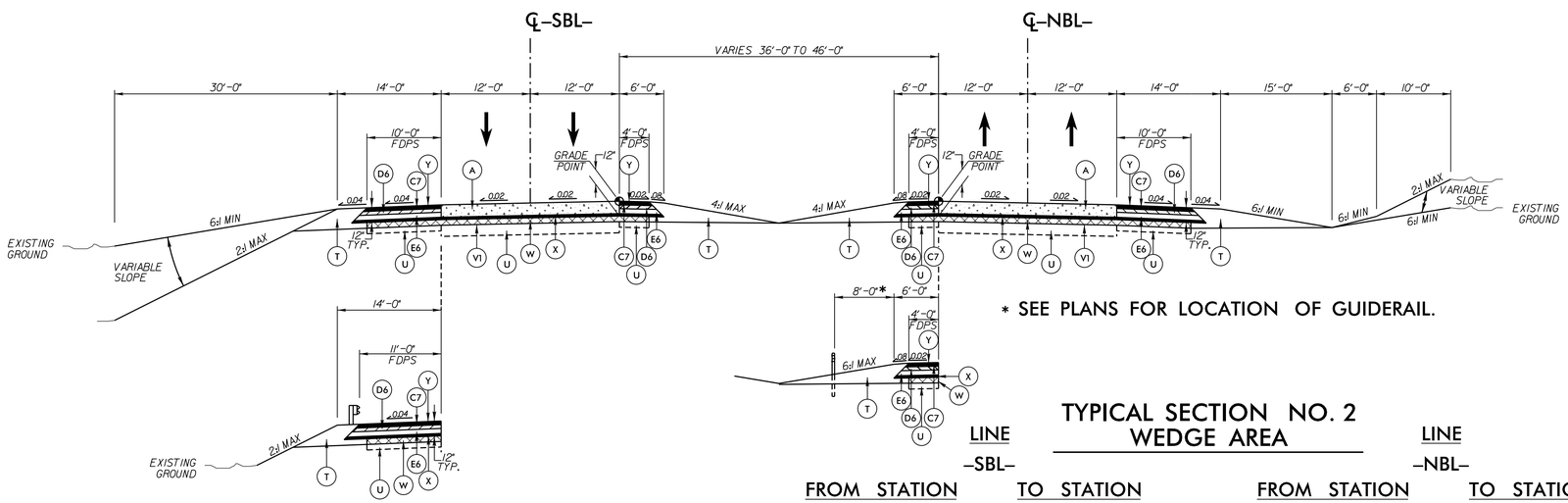
SHOULDER BERM GUTTER DETAIL

TYPICAL SECTIONS NO. 1, 5, 23
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS

LINE -SBL- FROM STATION	TO STATION
183+17.50	197+17.50
216+45.00	226+08.00
254+80.00	266+75.00
366+57.50	375+18.00
410+10.00	419+05 +/- (BEGIN BRIDGE)
420+30 +/- (END BRIDGE)	430+50.00
474+72.50	487+85.00
599+95.00	613+85.00

LINE -NBL- FROM STATION	TO STATION
161+05.19	164+00.00
178+25 +/- (END BRIDGE)	198+00.00
215+85.00	227+75.00
256+50.00	268+25.00
304+05.00	306+00.00
368+25.00	376+80.00
413+00.00	420+67 +/- (BEGIN BRIDGE)
421+92 +/- (END BRIDGE)	431+75.00
476+25.00	489+40.00
601+50.00	617+35.00

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS

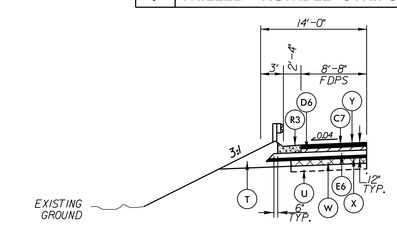


* SEE PLANS FOR LOCATION OF GUIDERAIL.

TYPICAL SECTION NO. 2
WEDGE AREA

LINE -SBL- FROM STATION	TO STATION
89+43.27	163+68.00
176+50.00	183+17.50
197+17.50	216+45.00
226+08.00	254+80.00
266+75.00	305+00.00
326+51.92	366+57.50
375+18.00	410+10.00
430+50.00	474+72.50
487+85.00	599+95.00
613+85.00	641+70.18

LINE -NBL- FROM STATION	TO STATION
89+50.00	161+05.19
198+00.00	215+85.00
227+75.00	256+50.00
268+25.00	304+05.00
328+00.00	368+25.00
376+80.00	413+00.00
431+75.00	476+25.00
489+40.00	601+50.00
617+35.00	643+08.77



SHOULDER BERM GUTTER DETAIL

TYPICAL SECTIONS NO. 2, 4, 6, 19
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS

6/2/99

2/28/2014
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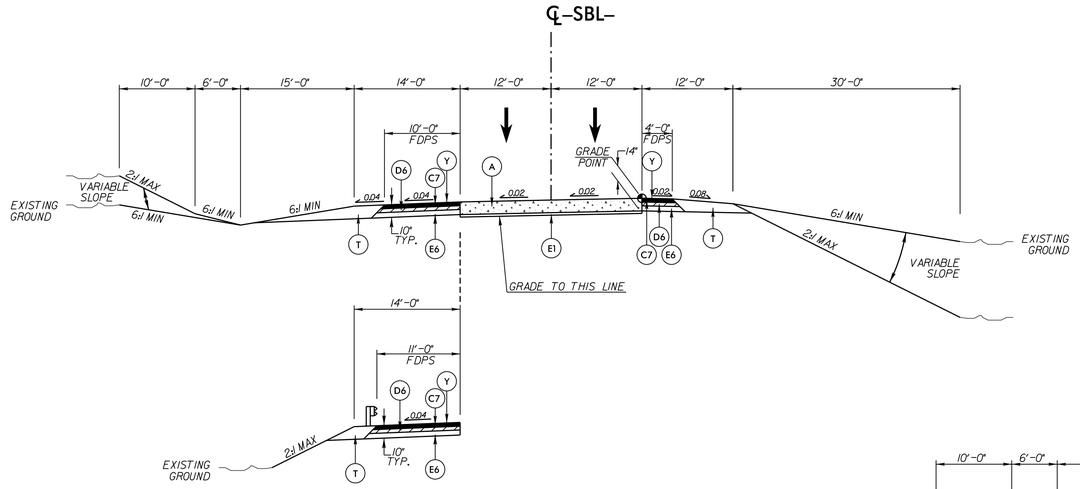
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

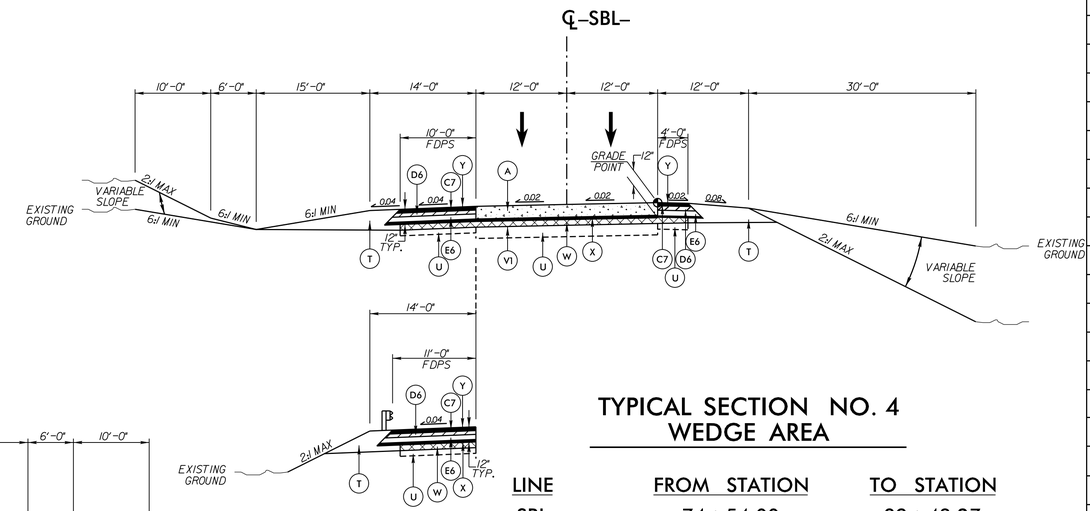
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



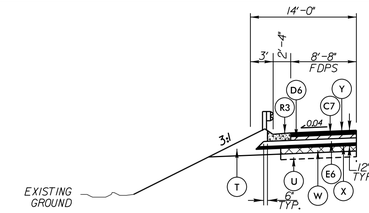
TYPICAL SECTION NO. 3

LINE	FROM STATION	TO STATION
-SBL-	70+34.00	74+54.00



TYPICAL SECTION NO. 4
WEDGE AREA

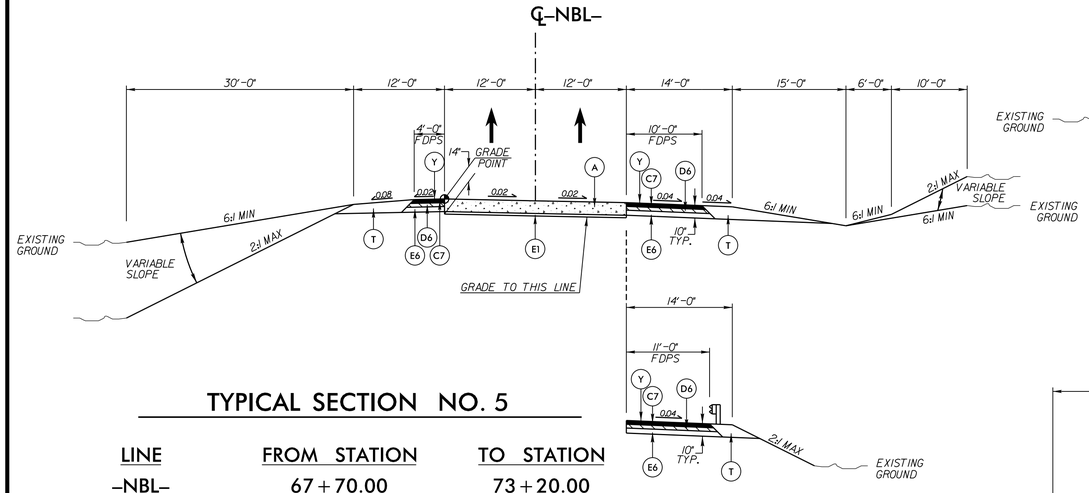
LINE	FROM STATION	TO STATION
-SBL-	74+54.00	89+43.27
-SBL-	163+68.00	176+50.00
-SBL-	305+00.00	326+51.92



SHOULDER BERM GUTTER DETAIL

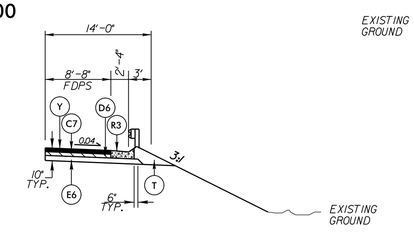
TYPICAL SECTIONS NO. 2, 4, 6, 19
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS



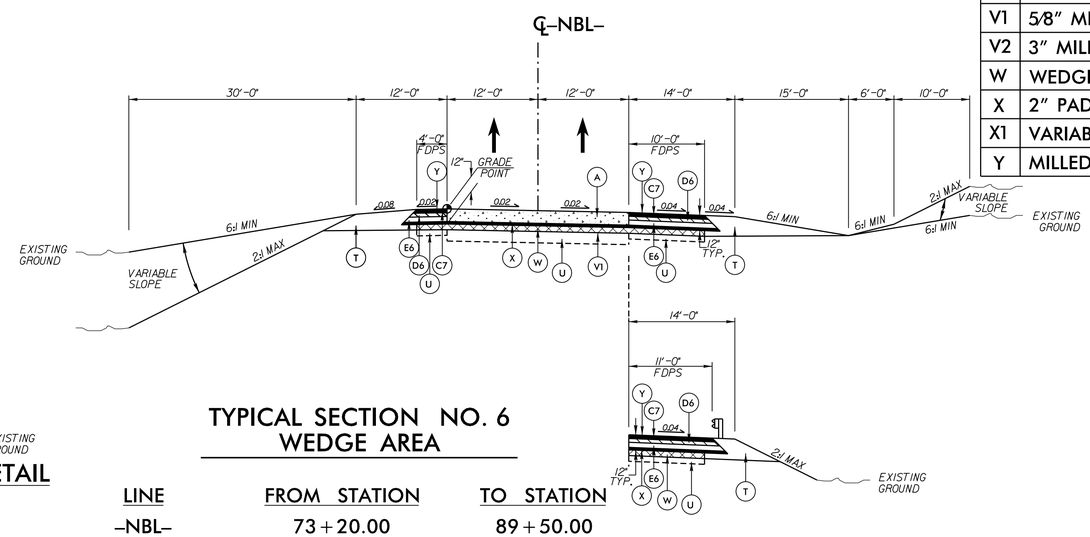
TYPICAL SECTION NO. 5

LINE	FROM STATION	TO STATION
-NBL-	67+70.00	73+20.00
-NBL-	164+00.00	176+72+/- (BEGIN BRIDGE)
-NBL-	306+00.00	318+60.00



SHOULDER BERM GUTTER DETAIL

TYPICAL SECTIONS NO. 1, 5, 23
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS



TYPICAL SECTION NO. 6
WEDGE AREA

LINE	FROM STATION	TO STATION
-NBL-	73+20.00	89+50.00
-NBL-	318+60.00	328+00.00

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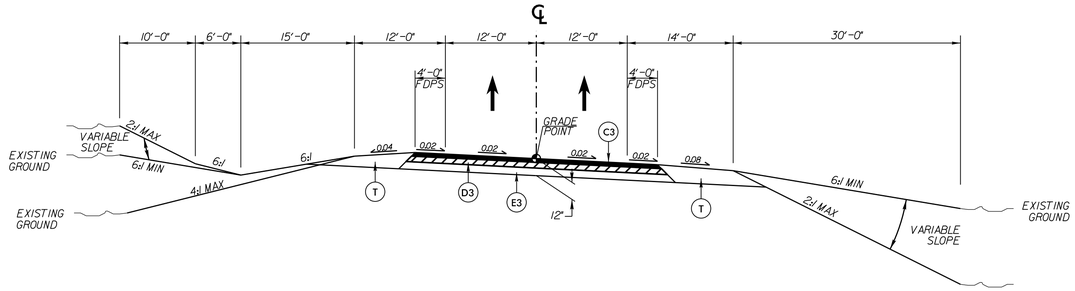
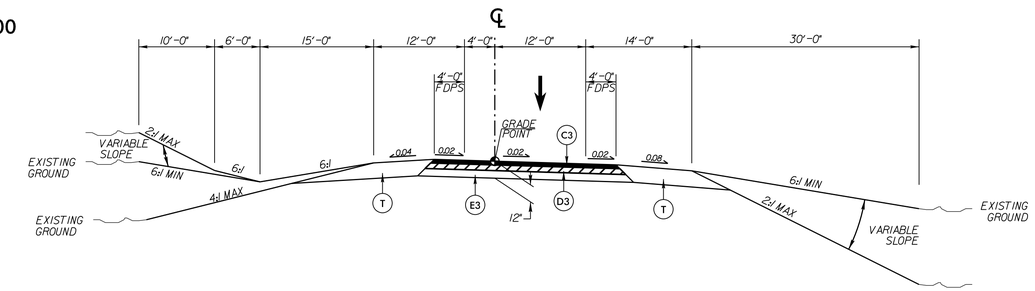
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



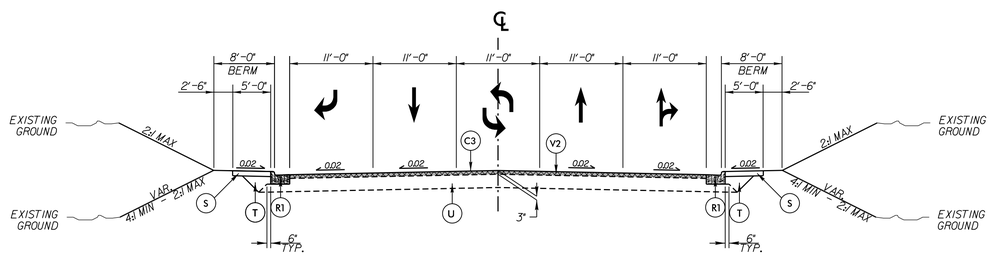
TYPICAL SECTION NO. 7

TO STATION	FROM STATION	LINE
-WBL-	16+38.00	19+93.00



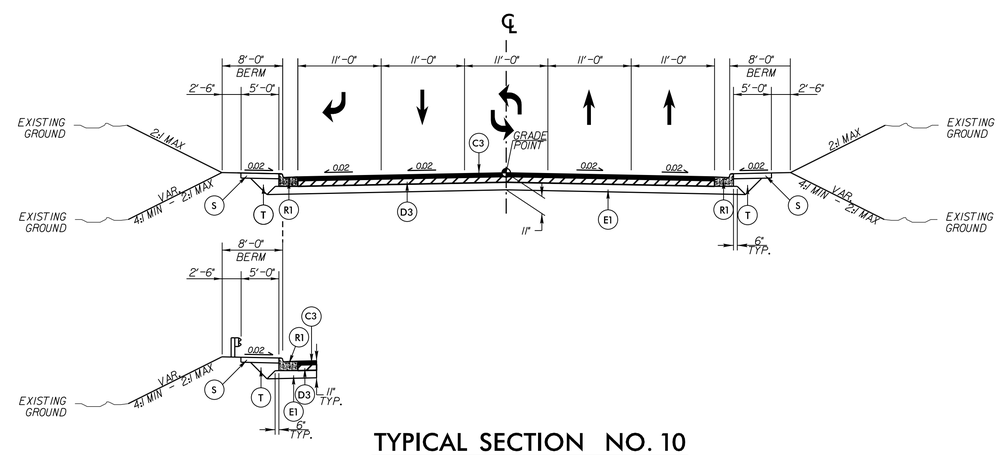
TYPICAL SECTION NO. 8

LINE	FROM STATION	TO STATION
-EBL-	15+86.57	19+00.00



TYPICAL SECTION NO. 9

LINE	FROM STATION	TO STATION
-Y1-	15+56.70	17+90.00
-Y1-	24+60.00	25+95.48



TYPICAL SECTION NO. 10

LINE	FROM STATION	TO STATION
-Y1-	17+90.00	20+62 +/- (BEGIN BRIDGE)
-Y1-	22+87 +/- (END BRIDGE)	24+60.00

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS

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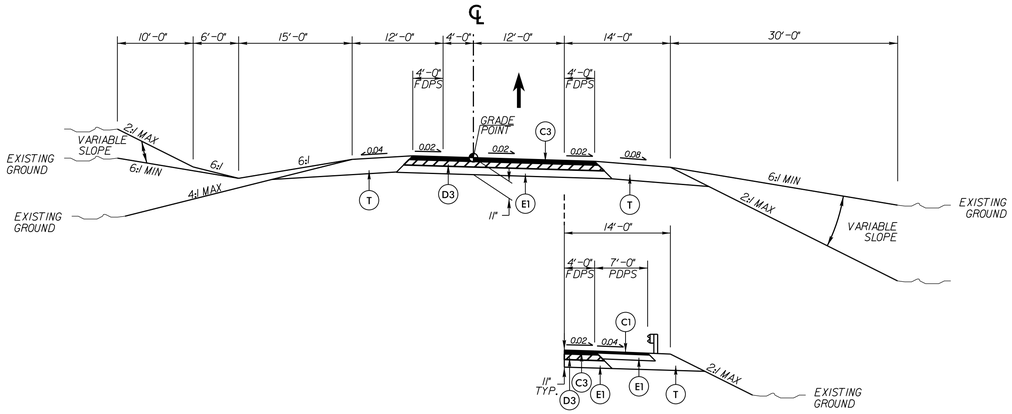
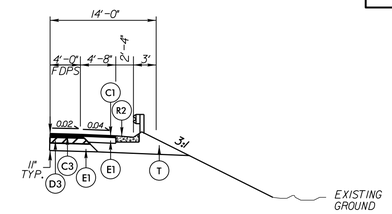
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 11

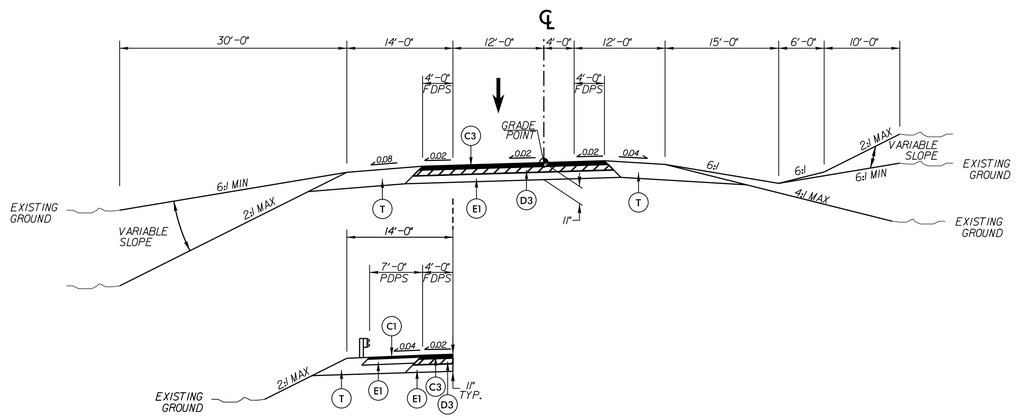
LINE	FROM STATION	TO STATION
-Y1RPA-	14+53.83	24+23.89
-Y1RPC-	14+91.27	25+56.95



SHOULDER BERM GUTTER DETAIL

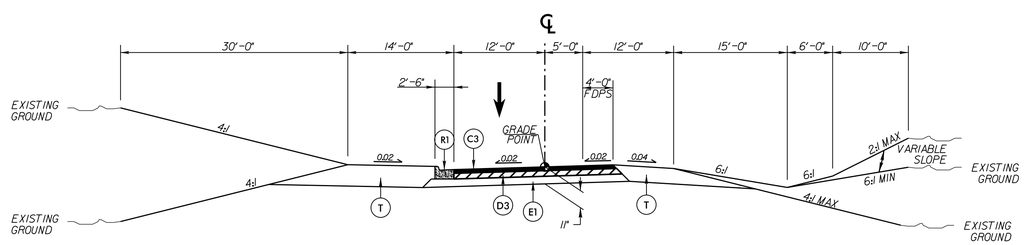
TYPICAL SECTION NO. 11 (-Y1RPA-)
SEE PLANS FOR SHOULDER BERM GUTTER LOCATIONS

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS



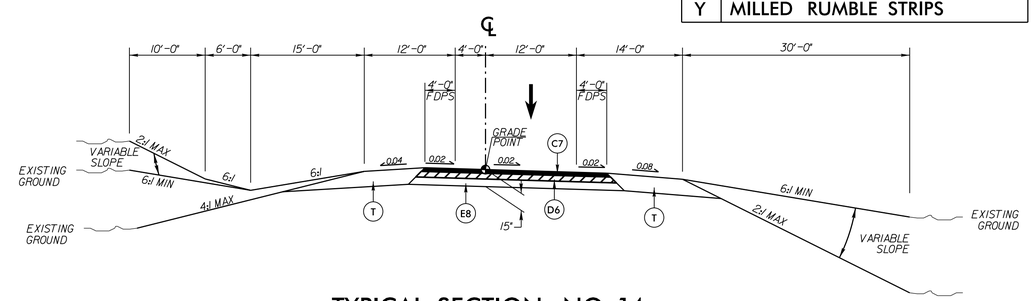
TYPICAL SECTION NO. 12

LINE	FROM STATION	TO STATION
-Y1RPD-	13+73.66	21+78.01



TYPICAL SECTION NO. 13

LINE	FROM STATION	TO STATION
-Y1LPA-	12+11.81	18+14.57



TYPICAL SECTION NO. 14

LINE	FROM STATION	TO STATION
-Y2SBL-	15+90.83	33+18.00

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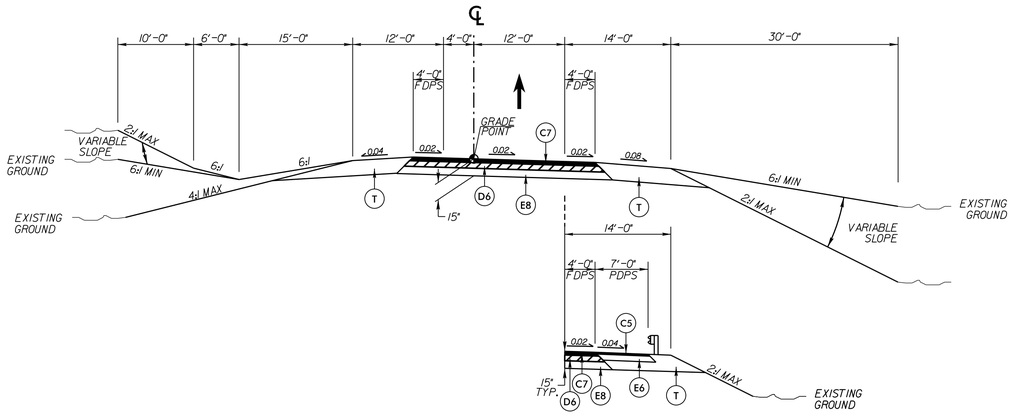
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-E
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

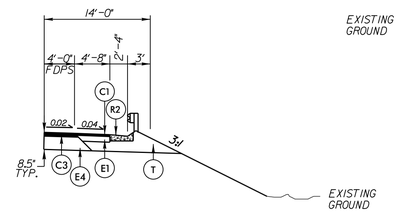


TYPICAL SECTION NO. 15

LINE	FROM STATION	TO STATION
-Y2NBL-	13+43.53	29+60.00

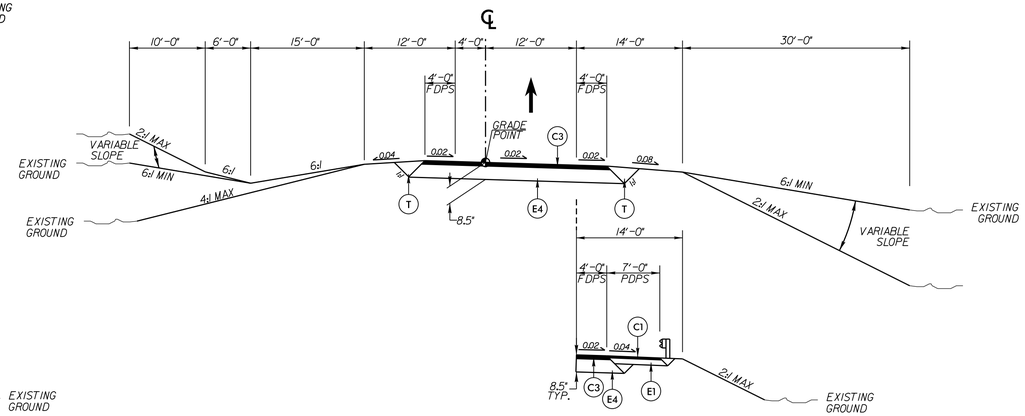
SHOULDER BERM GUTTER DETAIL

TYPICAL SECTION NO. 15
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS



SHOULDER BERM GUTTER DETAIL

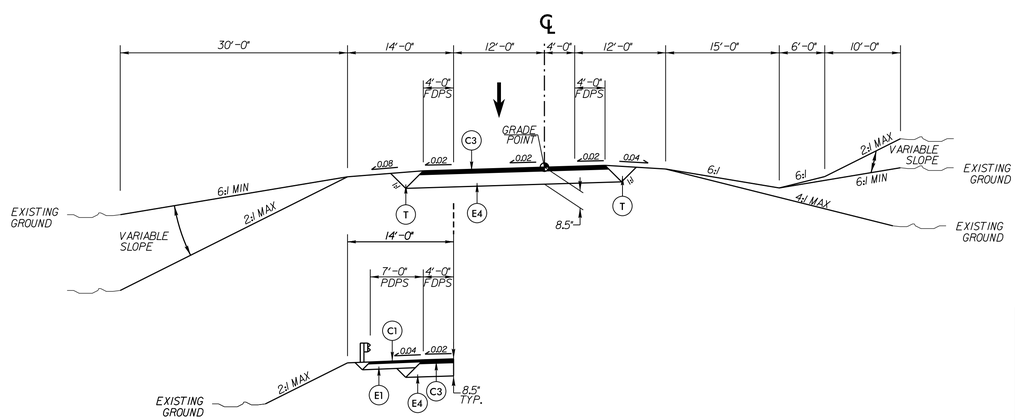
TYPICAL SECTION NO. 16 (-Y4RPA-)
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS



TYPICAL SECTION NO. 16

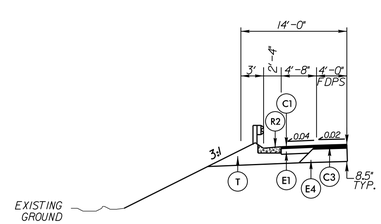
LINE	FROM STATION	TO STATION
-Y2RPA-	14+55.07	20+59.28
-Y4RPA-	15+03.64	21+45.31
-Y4RPC-	14+51.01	20+38.47

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS



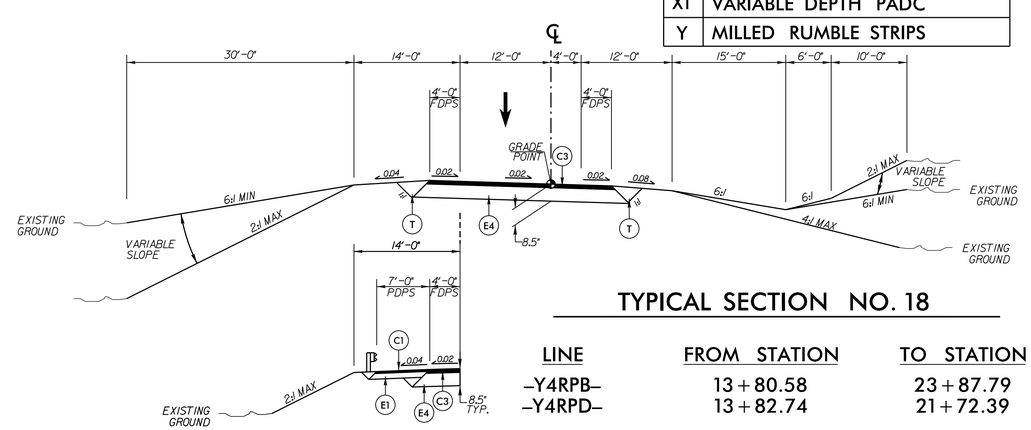
TYPICAL SECTION NO. 17

LINE	FROM STATION	TO STATION
-Y2RPB-	14+45.03	21+86.64
-Y2RPD-	13+72.85	19+20.38



SHOULDER BERM GUTTER DETAIL

TYPICAL SECTION NO. 17 (-Y2RPB-)
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS



TYPICAL SECTION NO. 18

LINE	FROM STATION	TO STATION
-Y4RPB-	13+80.58	23+87.79
-Y4RPD-	13+82.74	21+72.39

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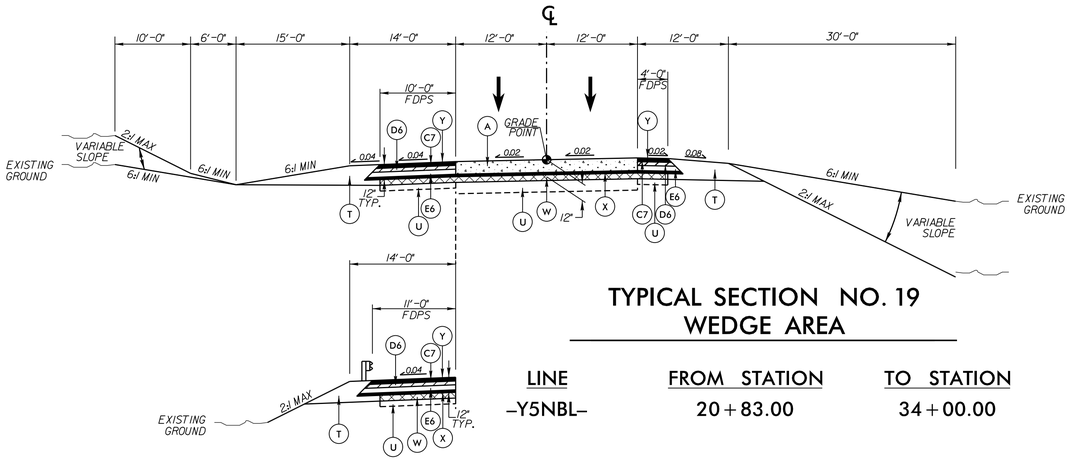
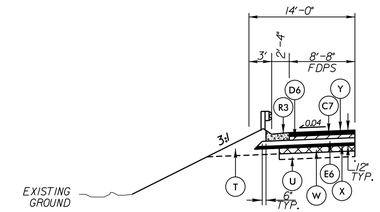
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-F
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



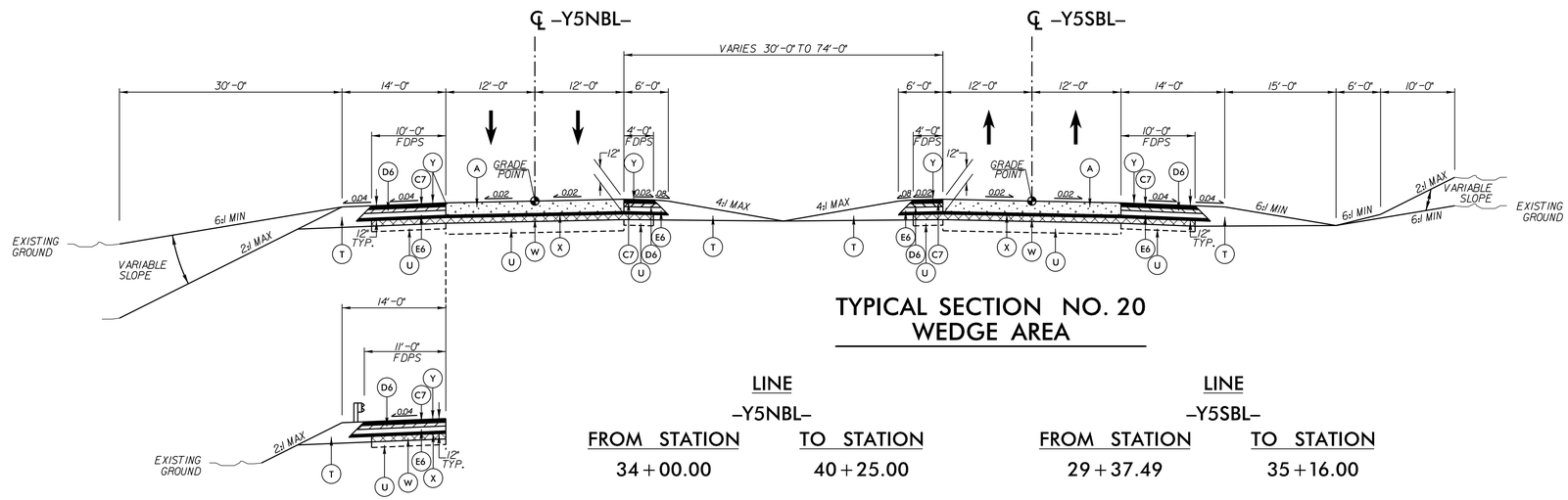
TYPICAL SECTION NO. 19
WEDGE AREA

LINE	FROM STATION	TO STATION
-Y5NBL-	20+83.00	34+00.00



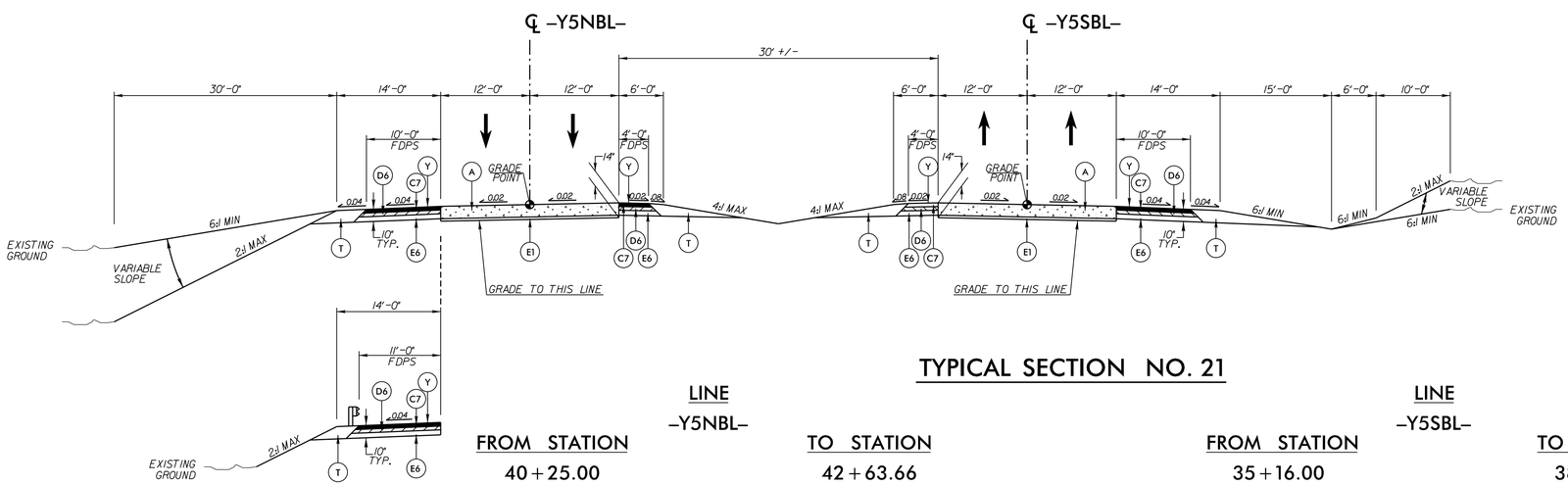
SHOULDER BERM GUTTER DETAIL

TYPICAL SECTIONS NO. 2, 4, 6, 19
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS



TYPICAL SECTION NO. 20
WEDGE AREA

LINE -Y5NBL- FROM STATION	TO STATION	LINE -Y5SBL- FROM STATION	TO STATION
34+00.00	40+25.00	29+37.49	35+16.00



TYPICAL SECTION NO. 21

LINE -Y5NBL- FROM STATION	TO STATION	LINE -Y5SBL- FROM STATION	TO STATION
40+25.00	42+63.66	35+16.00	38+46.31

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS

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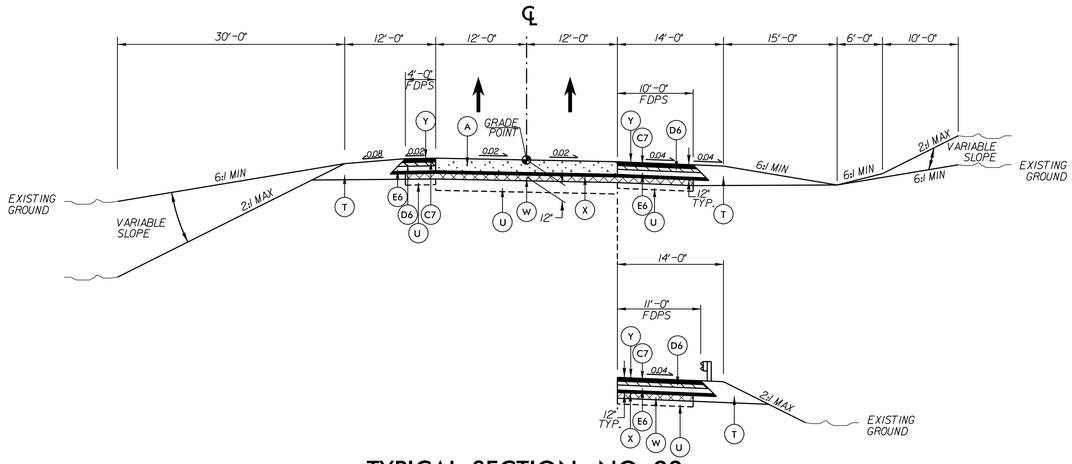
N.C.B.E.L.S. License Number: F-0116

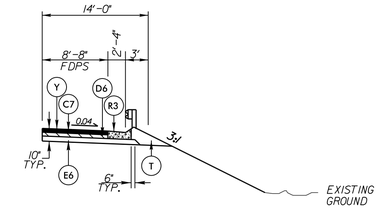
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-G
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 22
WEDGE AREA

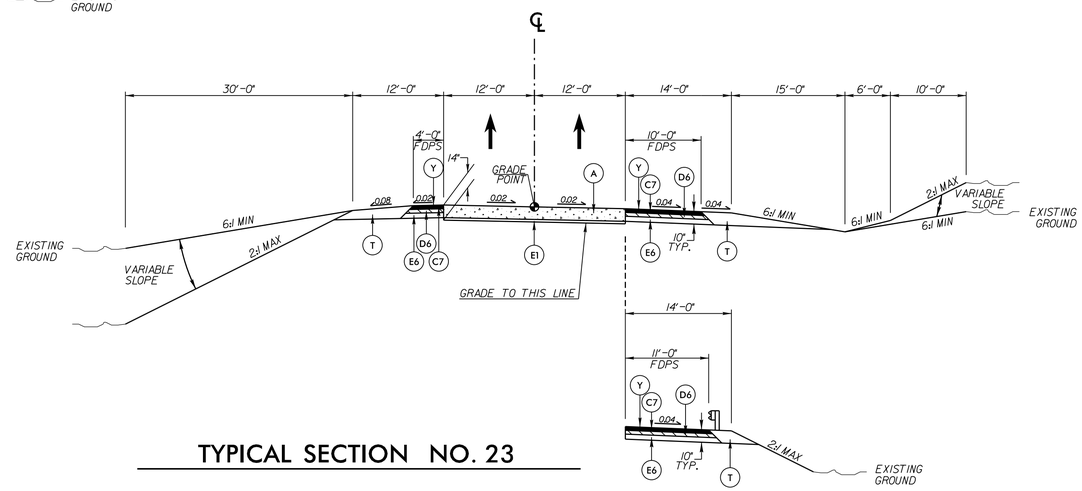
LINE	FROM STATION	TO STATION
-Y5SBL-	15+26.00	17+29.00
-Y5SBL-	26+17.00	29+37.49



SHOULDER BERM GUTTER DETAIL

TYPICAL SECTIONS NO. 1, 5, 23
SEE PLANS FOR SHOULDER BERM
GUTTER LOCATIONS

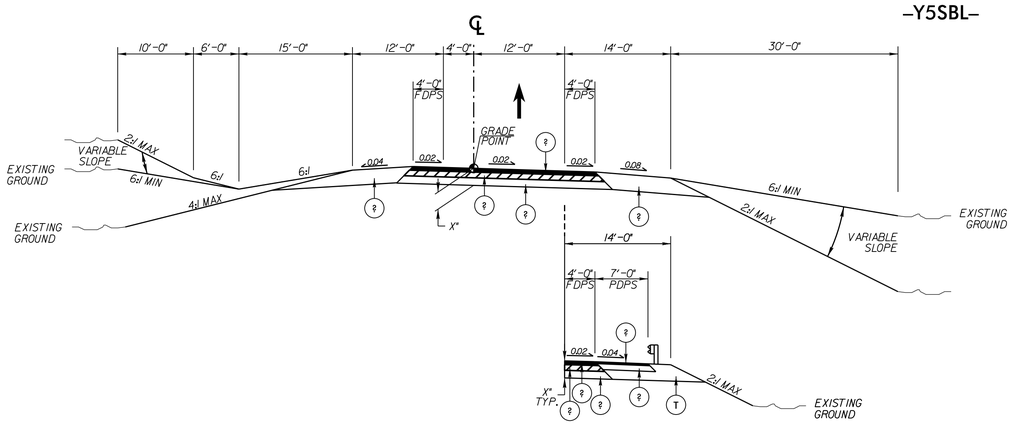
A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS



TYPICAL SECTION NO. 23

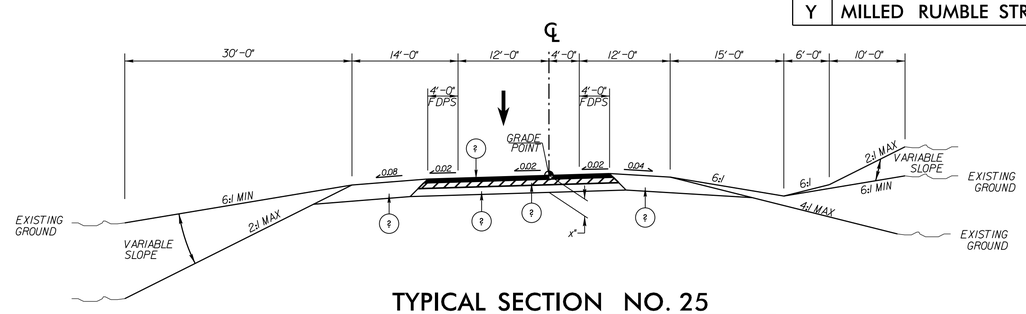
LINE	FROM STATION	TO STATION
-Y5SBL-	17+29.00	22+34+/- (BEGIN BRIDGE)
-Y5SBL-	22+56+/- (END BRIDGE)	26+17.00

AWAITING PROPOSED PAVEMENT DESIGN TO COMPLETE -Y5ALPB- & -Y5ARPB- TYPICAL SECTIONS



TYPICAL SECTION NO. 24

LINE	FROM STATION	TO STATION
-Y5ALPB-	11+76.79	15+94.64



TYPICAL SECTION NO. 25

LINE	FROM STATION	TO STATION
-Y5ARPB-	11+98.65	15+85.29

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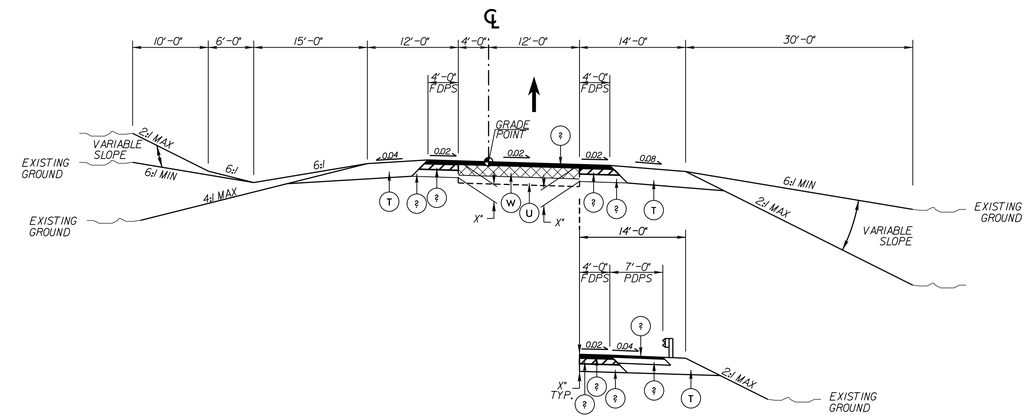
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-H
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

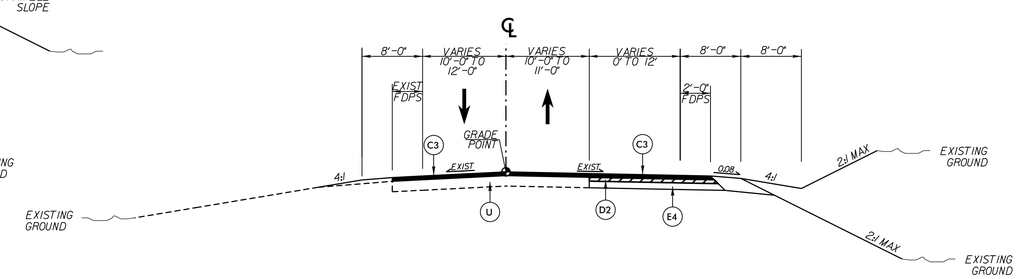
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

AWAITING PROPOSED PAVEMENT DESIGN TO COMPLETE –Y5ARPC– /–Y5ARPBSPUR– TYPICAL SECTION



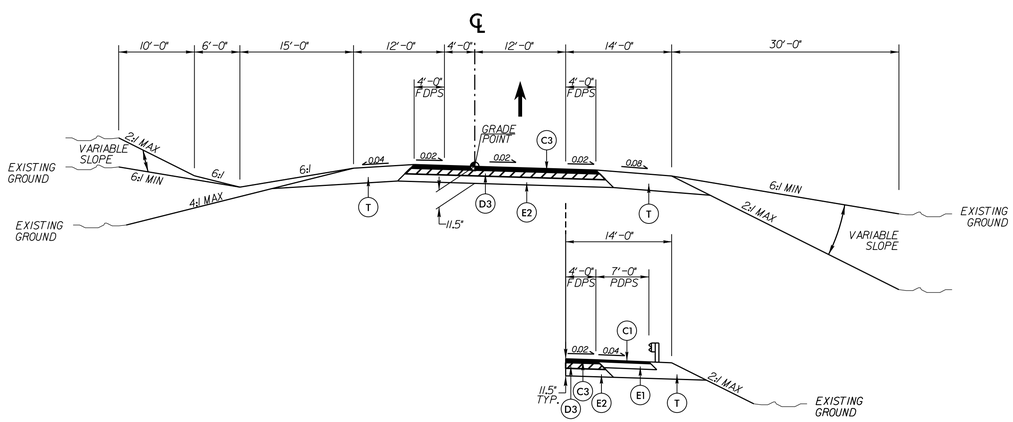
TYPICAL SECTION NO. 26

LINE	FROM STATION	TO STATION
–Y5ARPC–	12+99.70	21+57.61
–Y5ARPBSPUR–	10+37.09	12+83.58



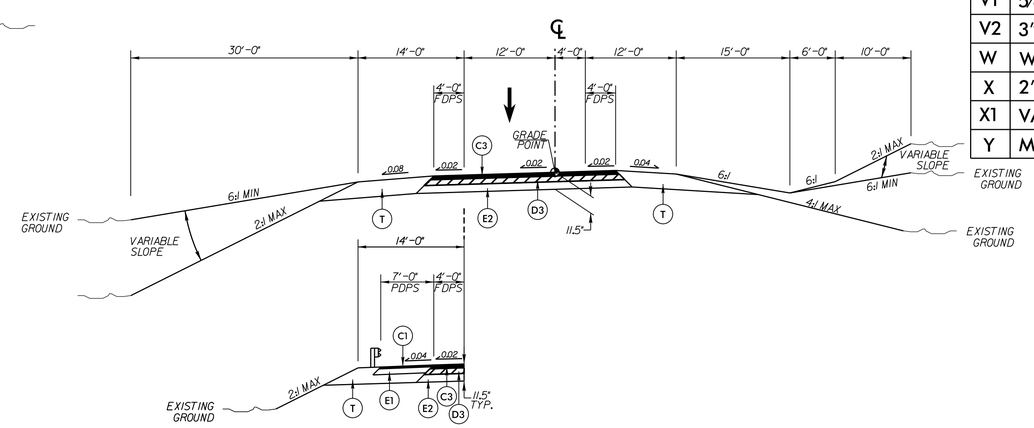
TYPICAL SECTION NO. 27

LINE	FROM STATION	TO STATION
–Y7–	10+19.34	21+94.14



TYPICAL SECTION NO. 28

LINE	FROM STATION	TO STATION
–Y7RPA–	14+99.61	28+04.49



TYPICAL SECTION NO. 29

LINE	FROM STATION	TO STATION
–Y7RPD–	12+95.62	21+76.18

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS

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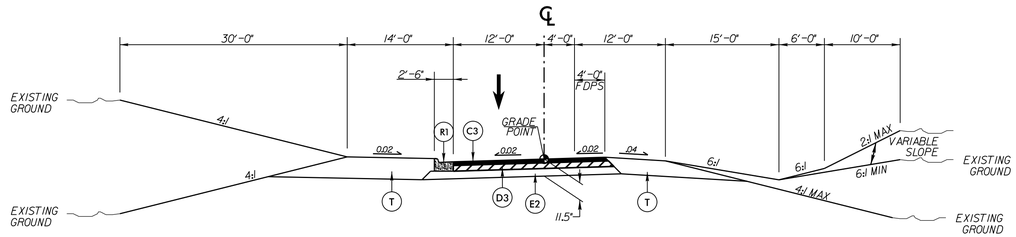
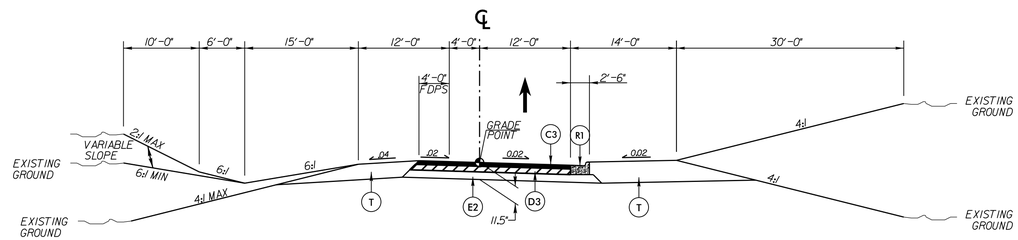
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-I
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



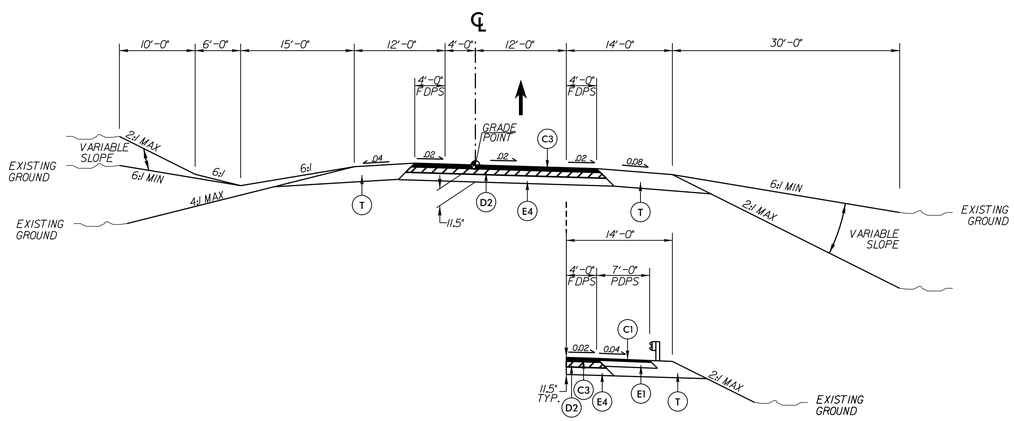
TYPICAL SECTION NO. 30

LINE	FROM STATION	TO STATION
-Y7LPA-	12+17.05	20+95.46



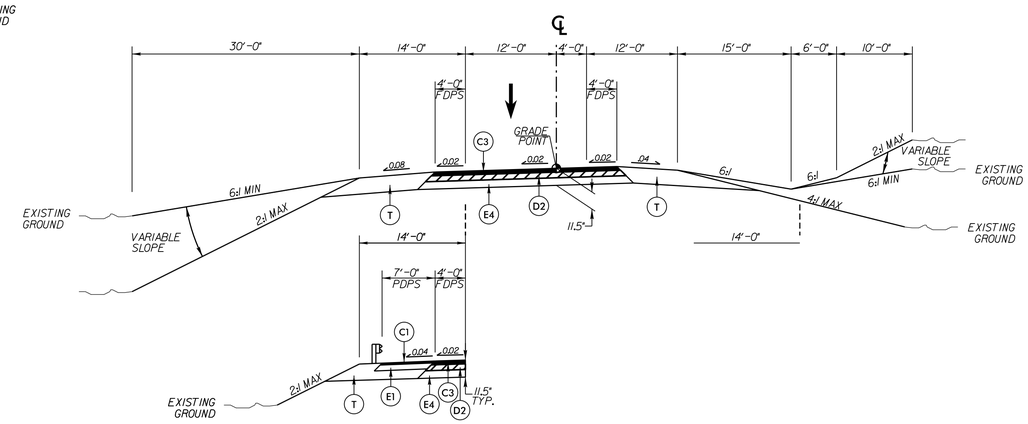
TYPICAL SECTION NO. 31

LINE	FROM STATION	TO STATION
-Y7LPD-	12+51.68	19+31.61



TYPICAL SECTION NO. 32

LINE	FROM STATION	TO STATION
-Y9RPA-	14+86.95	22+02.41
-Y9RPC-	14+83.79	21+69.78



TYPICAL SECTION NO. 33

LINE	FROM STATION	TO STATION
-Y9RPB-	13+72.92	21+65.25
-Y9RPD-	13+50.80	21+52.28

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS

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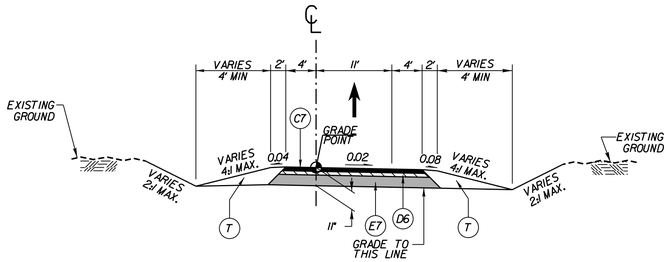
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-J
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

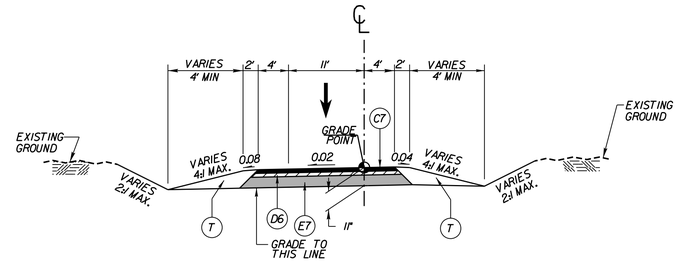
-CR1N-, -CR2N-



TEMPORARY CROSS OVER TYPICAL SECTION NO. 34

-CR1N- STA 10+00.00 TO 16+92.94
-CR2N- STA 10+00.00 TO 17+94.98

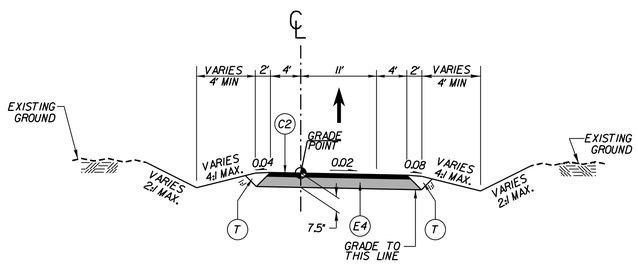
-CR1S-, -CR2S-



TEMPORARY CROSS OVER TYPICAL SECTION NO. 35

-CR1S- STA 10+00.00 TO 15+75.00
-CR2S- STA 10+00.00 TO 14+66.54

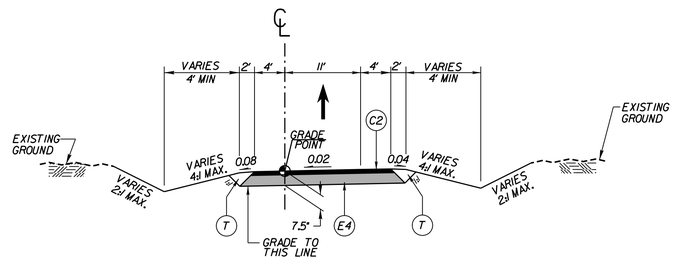
-CRY1RA-, -CRY1RC-, -CRY1LA-, -CRY2RA-, -CRY2RD-, -CRY4RA-, -CRY4RD-, -CRY7RA-, -CRY7RD-, -CRY7LA-, -CRY7LD-, -CRY9RA-, -CRY9RB-, -CRY9RC-, -CRY9RD-



TEMPORARY CROSS OVER TYPICAL SECTION NO. 36

-CRY1RA- STA 10+00.00 TO 13+70.77
-CRY1RC- STA 10+00.00 TO 14+00.15
-CRY1LA- STA 10+76.71 TO 13+30.00
-CRY2RA- STA 10+00.00 TO 14+04.16
-CRY2RD- STA 13+10.55 TO 16+97.49
-CRY4RA- STA 10+00.00 TO 14+52.04
-CRY4RD- STA 12+69.33 TO 16+03.81
-CRY7RA- STA 10+00.00 TO 14+98.91
-CRY7RD- STA 12+68.23 TO 16+03.70
-CRY7LA- STA 10+29.15 TO 13+00.31
-CRY7LD- STA 11+58.51 TO 14+04.27
-CRY9RA- STA 10+00.00 TO 15+39.98
-CRY9RB- STA 12+71.66 TO 16+03.16
-CRY9RC- STA 10+00.00 TO 13+51.77
-CRY9RD- STA 13+90.21 TO 18+81.43

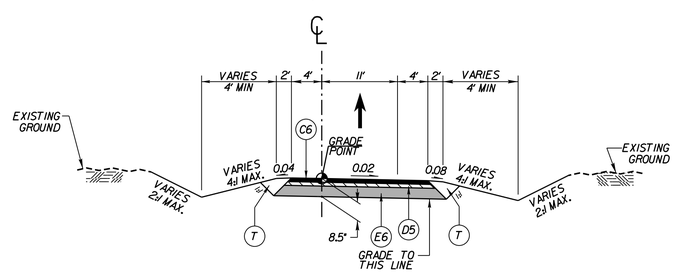
-CRY1RD-, -CRY4RB-, -CRY4RC-



TEMPORARY CROSS OVER TYPICAL SECTION NO. 37

-CRY1RD- STA 13+13.88 TO 17+60.15
-CRY4RB- STA 12+19.62 TO 14+98.77
-CRY4RC- STA 10+00.00 TO 13+50.56

-CRY2S-, -CRY5S-

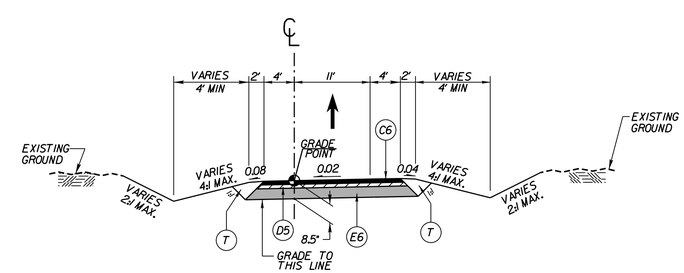


TEMPORARY CROSS OVER TYPICAL SECTION NO. 38

-CRY2S- STA 10+00.00 TO 15+22.03
-CRY5S- STA 10+00.00 TO 15+95.16

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS

-CRY2N-



TEMPORARY CROSS OVER TYPICAL SECTION NO. 39

-CRY2N- STA 11+34.93 TO 14+66.61

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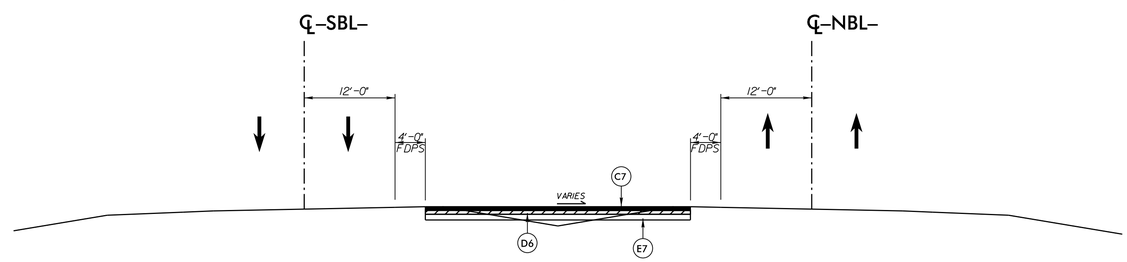
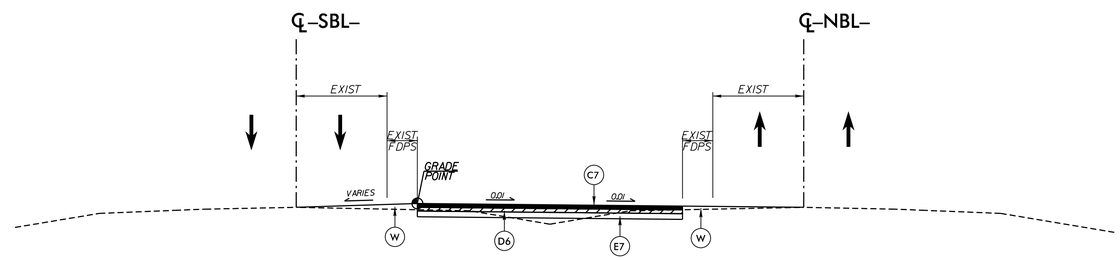
-CR3N-, -CR3S-



TEMPORARY CROSS OVER
DETAIL NO. 1

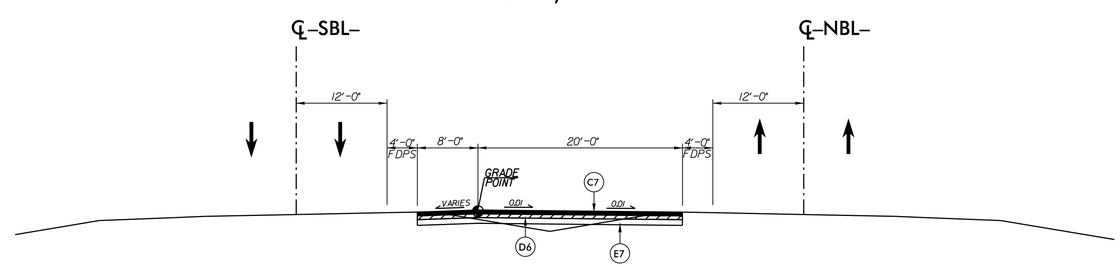
NOTE: PAVEMENT TIES TO PROPOSED -SBL- AND -NBL-.

-CR4N-, -CR4S-



TEMPORARY CROSS OVER
DETAIL NO. 2

-CR5N-, -CR5S-



TEMPORARY CROSS OVER
DETAIL NO. 3

NOTE: PAVEMENT TIES TO PROPOSED -SBL- AND -NBL-.

A	10" CONCRETE W/DOWELS
C1	1.5" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIABLE DEPTH S9.5B
C5	1.5" S9.5C
C6	2" S9.5C
C7	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VARIABLE DEPTH I19.0B
D5	2.5" I19.0C
D6	3" I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5" B25.0B
E4	5.5" B25.0B
E5	VARIABLE DEPTH B25.0B
E6	4" B25.0C
E7	5" B25.0C
E8	9" B25.0C
R1	2'-6" CONCRETE C&G
R2	CONCRETE SBG
R3	SPECIAL CONCRETE SBG
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	5/8" MILLING
V2	3" MILLING
W	WEDGING
X	2" PADC
X1	VARIABLE DEPTH PADC
Y	MILLED RUMBLE STRIPS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-L
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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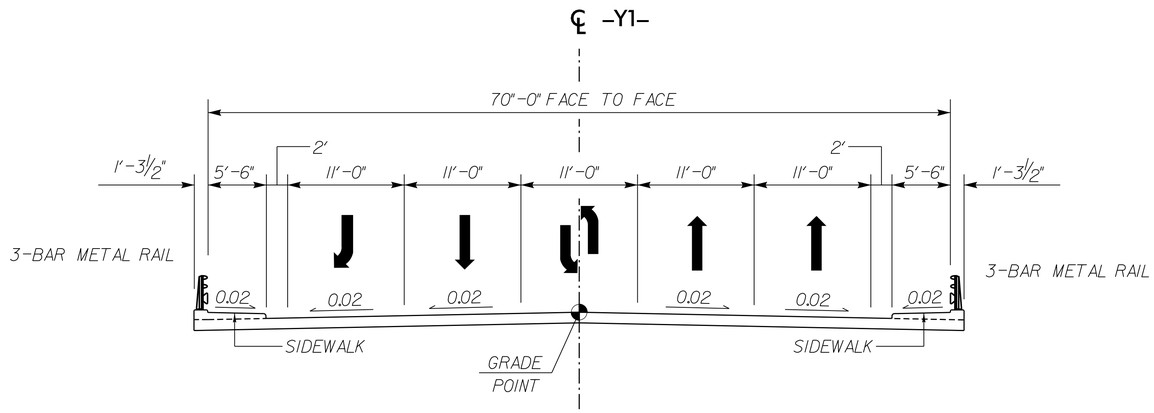
SITE 1 - STRUCTURE TYPICAL SECTIONS

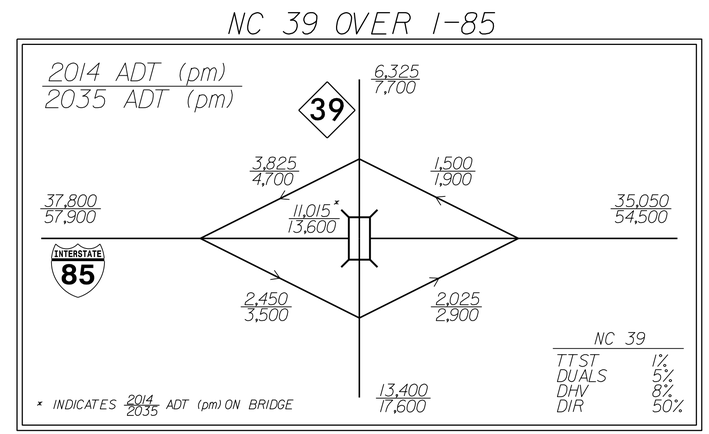


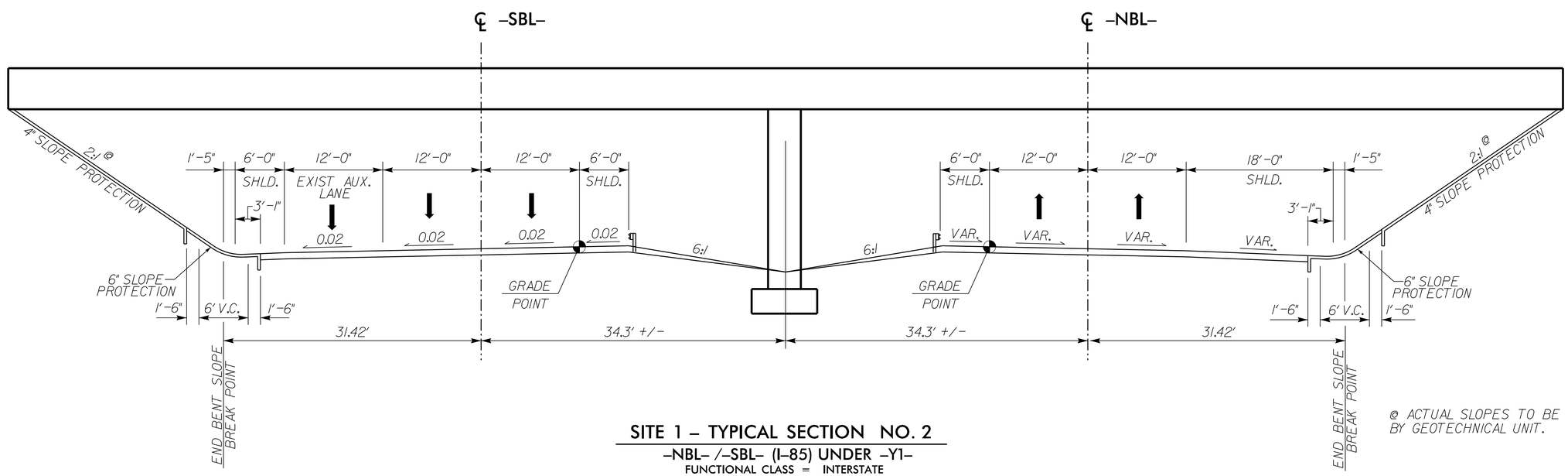
SITE 1 – TYPICAL SECTION NO. 1

-Y1- (NC-39) OVER I-85

FUNCTIONAL CLASS = URBAN ARTERIAL

LINE	FROM STATION	TO STATION
-Y1-	20+62 +/-	22+87 +/-





@ ACTUAL SLOPES TO BE DETERMINED BY GEOTECHNICAL UNIT.

SITE 1 – TYPICAL SECTION NO. 2

-NBL- /-SBL- (I-85) UNDER -Y1-

FUNCTIONAL CLASS = INTERSTATE

MINIMUM VERTICAL CLEARANCE = 17'-0"

SEE SHEET NO. 9 FOR SITE 1 PLAN.
SEE SHEET NO. 91 FOR -Y1- PROFILE.

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-M
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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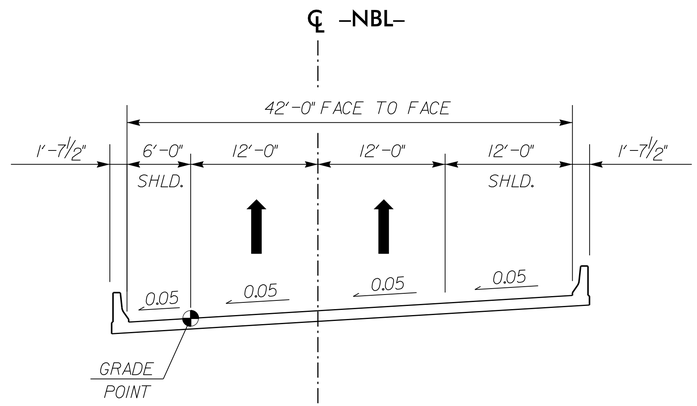
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

SITE 2 - STRUCTURE TYPICAL SECTIONS

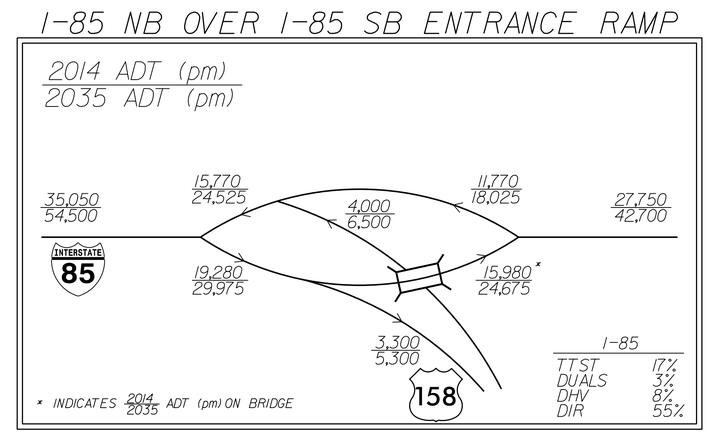


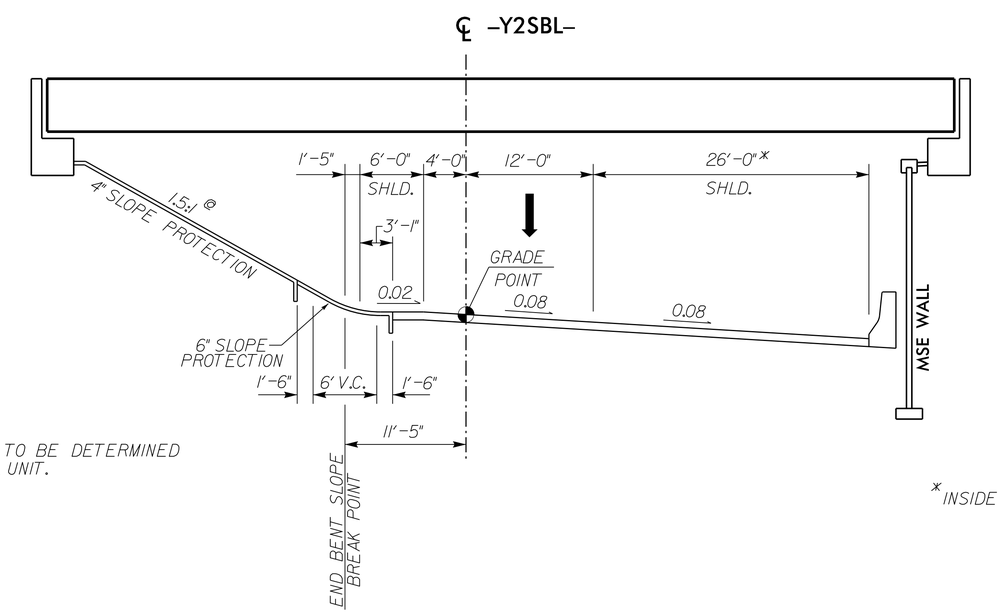
SITE 2 – TYPICAL SECTION NO. 1

-NBL- (I-85) OVER -Y2SBL- (US 158 RAMP)

FUNCTIONAL CLASS = INTERSTATE

LINE	FROM STATION	TO STATION
-NBL-	176+72 +/-	178+25 +/-





@ ACTUAL SLOPE TO BE DETERMINED BY GEOTECHNICAL UNIT.

*INSIDE SHOULDER WIDENED UNDER BRIDGE FOR SIGHT DISTANCE.

SITE 2 – TYPICAL SECTION NO. 2

US 158 RAMP (-Y2SBL-) UNDER -NBL- (I-85)

FUNCTIONAL CLASS = INTERSTATE

MINIMUM VERTICAL CLEARANCE = 16'-6"

SEE SHEET NO. 12 FOR SITE 2 PLAN.
SEE SHEET NO. 55 FOR -NBL- PROFILE.

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-N
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
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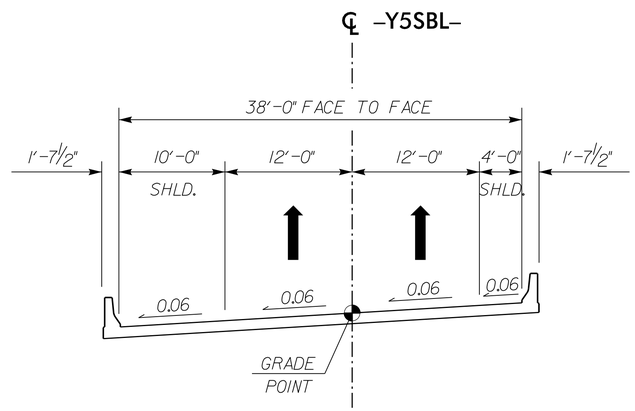
N.C.B.E.L.S. License Number: F-0116

SITE 3 - STRUCTURE TYPICAL SECTIONS

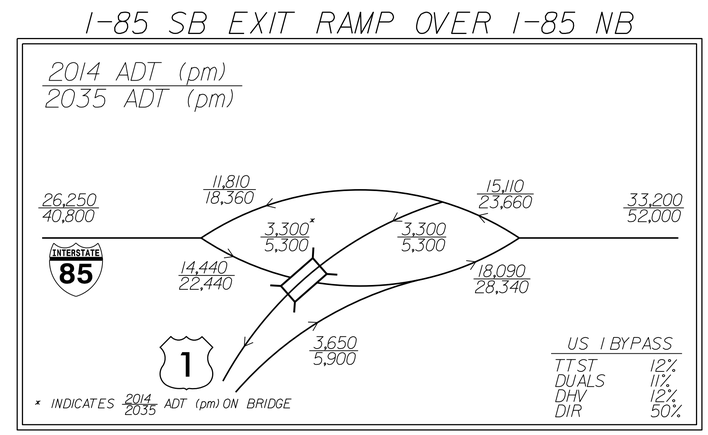


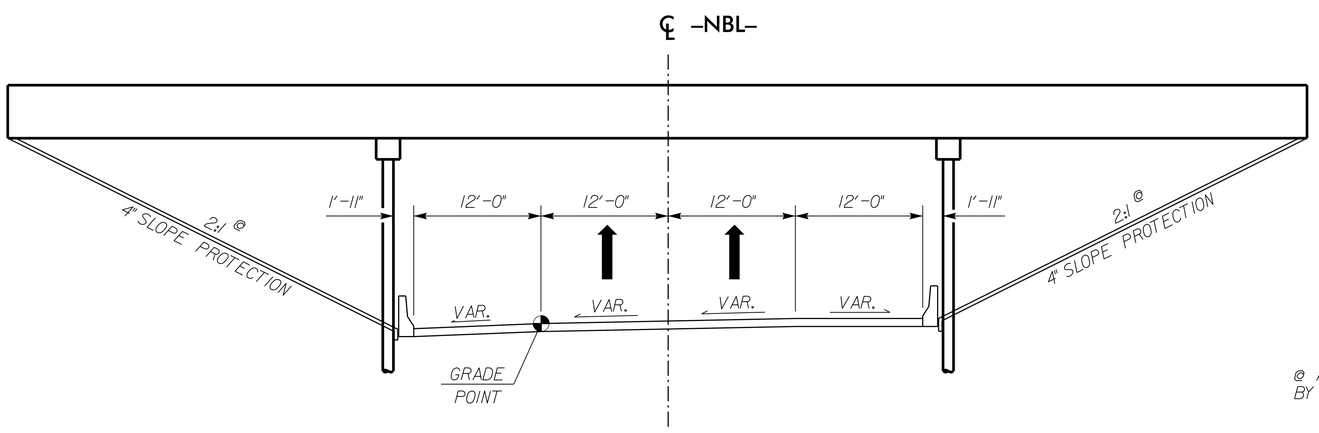
SITE 3 – TYPICAL SECTION NO. 1

-Y5SBL- (US 1 BYPASS) OVER -NBL- (I-85)

FUNCTIONAL CLASSIFICATION = FLYOVER

LINE	FROM STATION	TO STATION
-Y5SBL-	20+34 +/-	22+56 +/-





@ ACTUAL SLOPES TO BE DETERMINED BY GEOTECHNICAL UNIT.

SITE 3 – TYPICAL SECTION NO. 2

-NBL- (I-85) UNDER -Y5SBL- (US 1 BYPASS)

FUNCTIONAL CLASS = INTERSTATE

MINIMUM VERTICAL CLEARANCE = 17'-0"

SEE SHEET NO. 21 FOR SITE 3 PLAN.
SEE SHEET NO. 100 FOR -Y5SBL- PROFILE.

5/14/99
2/28/2014
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...\2_BRIDGE_BODY_STRUCTURE_TYP.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-O
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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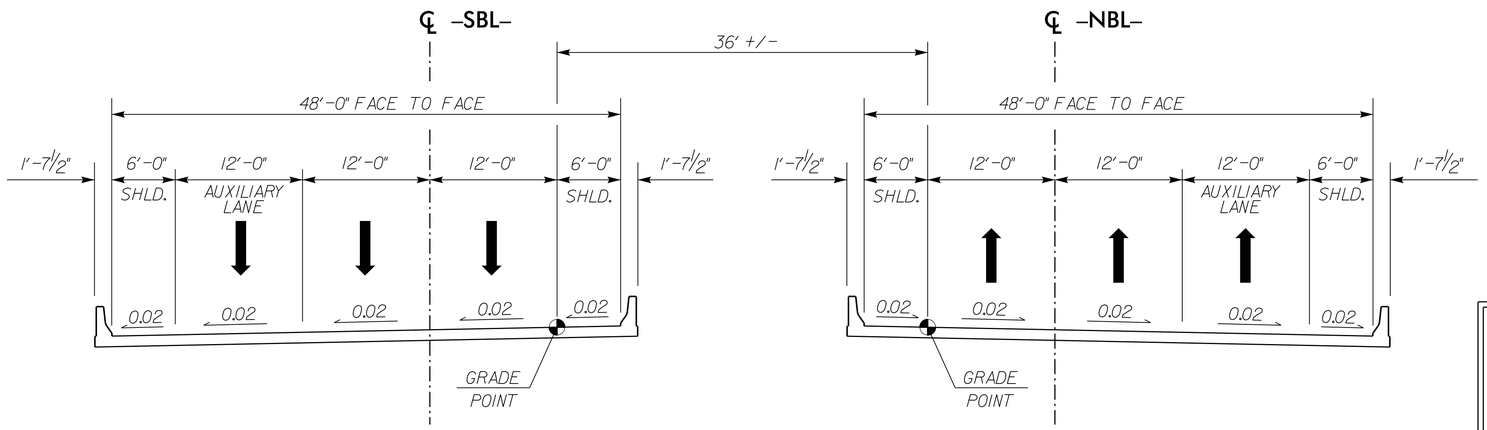
SITE 4 - STRUCTURE TYPICAL SECTIONS

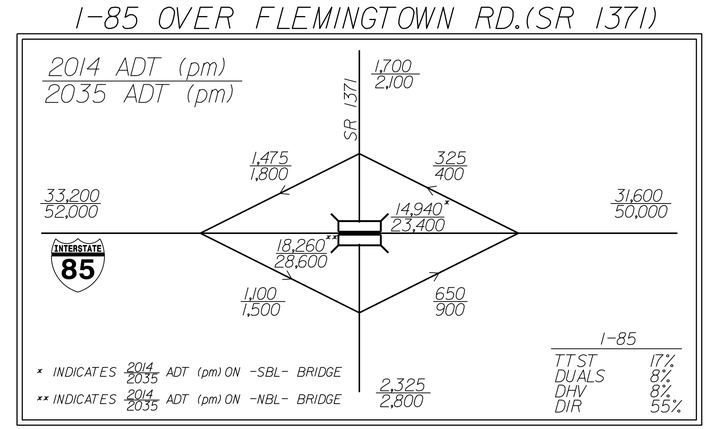


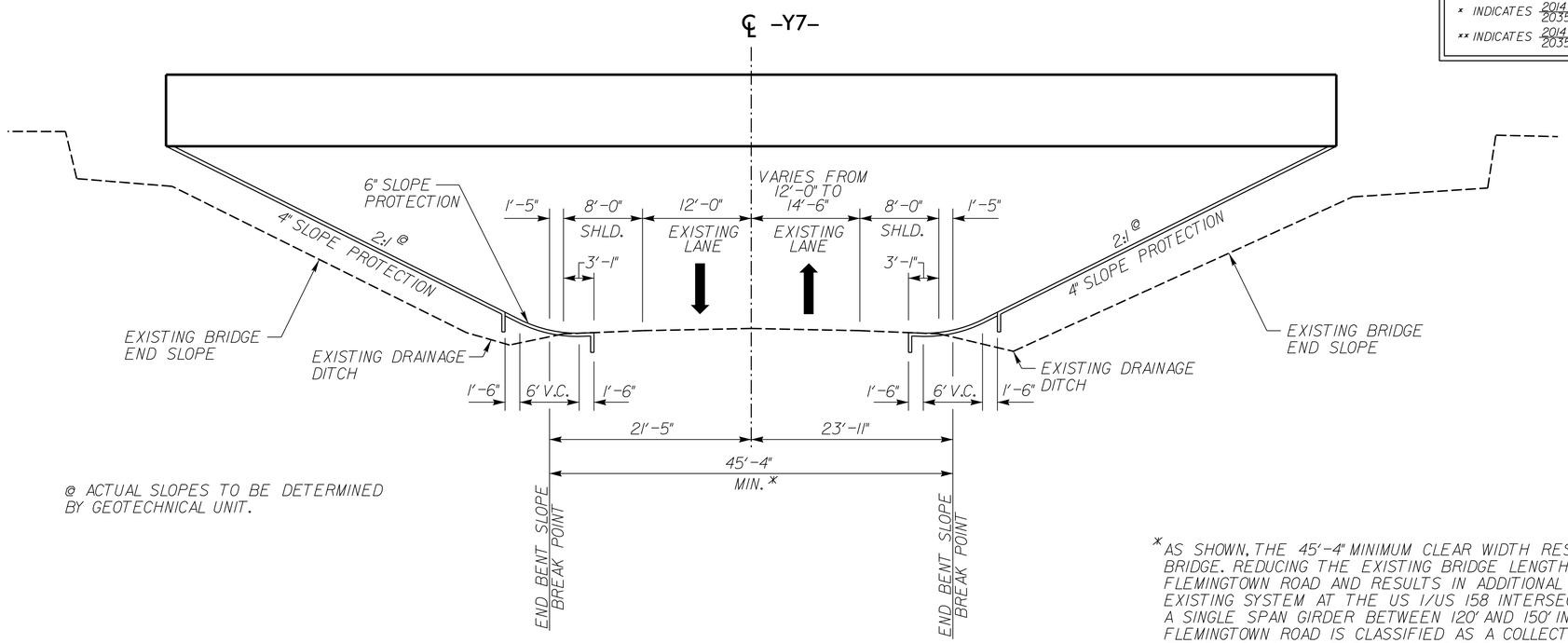
SITE 4 – TYPICAL SECTION NO. 1

-NBL- /-SBL- (I-85) OVER FLEMINGTOWN ROAD (SR 1371)

FUNCTIONAL CLASSIFICATION = INTERSTATE

LINE	FROM STATION	TO STATION
-NBL-	420+67 +/-	421+92 +/-
-SBL-	419+05 +/-	420+30 +/-





@ ACTUAL SLOPES TO BE DETERMINED BY GEOTECHNICAL UNIT.

SITE 4 – TYPICAL SECTION NO. 3

FLEMINGTOWN ROAD (SR 1371) -Y7- UNDER -NBL- /-SBL- (I-85)

FUNCTIONAL CLASS = ARTERIAL

MINIMUM VERTICAL CLEARANCE = 16'-6"

* AS SHOWN, THE 45'-4" MINIMUM CLEAR WIDTH RESULTS IN A 125' APPROXIMATE SINGLE SPAN PROPOSED BRIDGE. REDUCING THE EXISTING BRIDGE LENGTH WILL REDUCE THE EXISTING DITCH DEPTH ALONG FLEMINGTOWN ROAD AND RESULTS IN ADDITIONAL PIPE NEEDED TO CARRY THE DRAINAGE EAST TO TIE THE EXISTING SYSTEM AT THE US 1/US 158 INTERSECTION. A 7'-3" SUPERSTRUCTURE DEPTH WILL ACCOMODATE A SINGLE SPAN GIRDER BETWEEN 120' AND 150' IN LENGTH. WEST OF THE INTERCHANGE WITH I-85, FLEMINGTOWN ROAD IS CLASSIFIED AS A COLLECTOR ROAD. HOWEVER, EAST OF I-85, FLEMINGTOWN ROAD FUNCTIONS AS AN ARTERIAL CONNECTOR FOR US 1/ US 158 ONTO I-85.

SEE SHEET NO. 28 FOR SITE 4 PLAN.
SEE SHEET NO. 72 FOR -NBL- & -SBL- PROFILE.

5/14/99
2/28/2014
...\I-0914BA_RDY_STRUCTURE_TYP.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-P
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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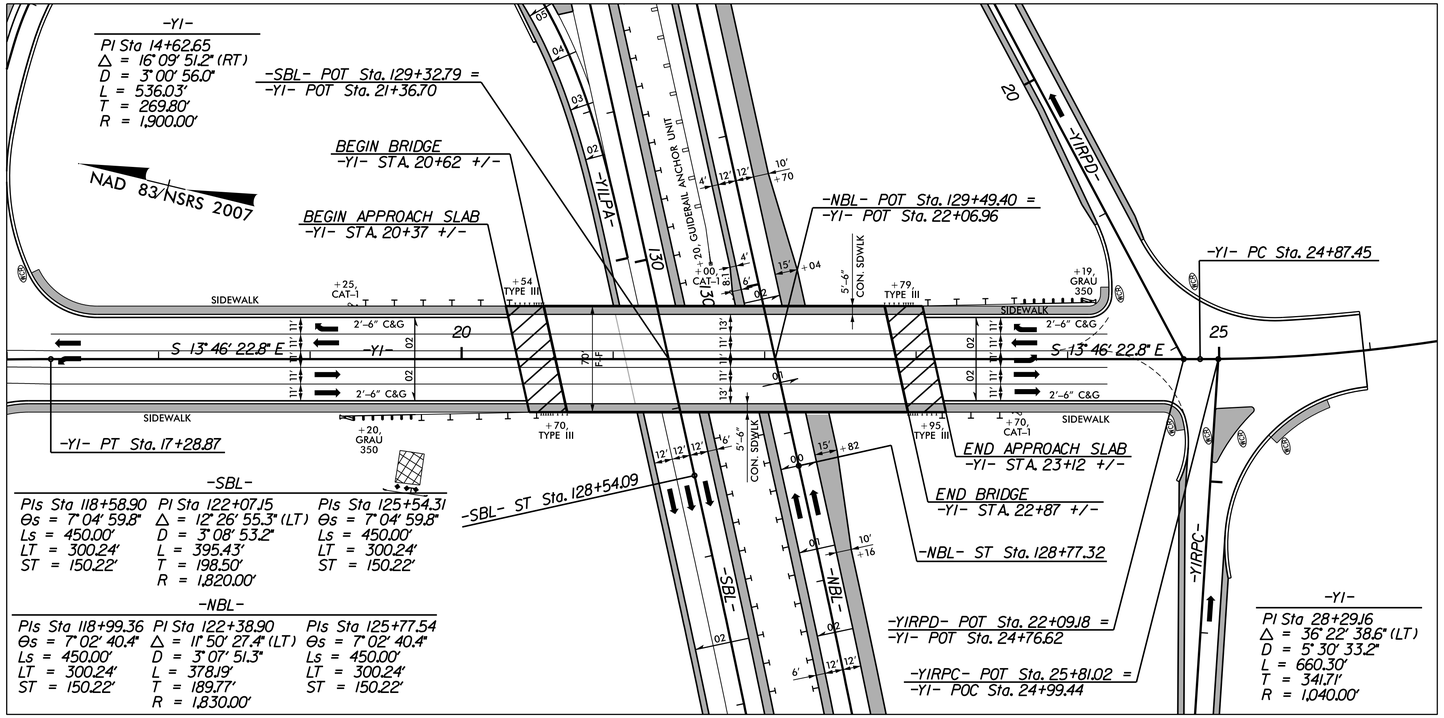
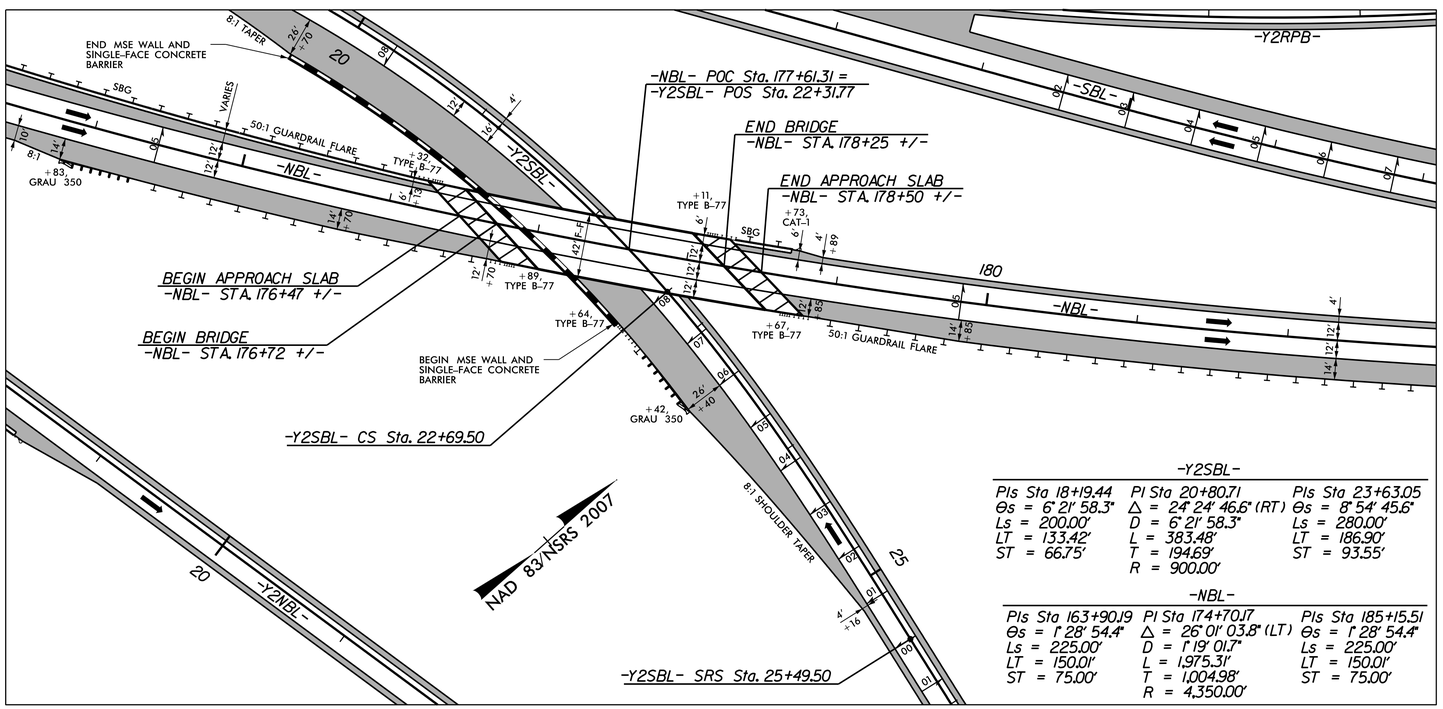


STRUCTURE SITE 1: -Y1- OVER -SBL- AND -NBL- (SEE PLAN SHEET 9)



STRUCTURE SITE 2: -NBL- OVER -Y2SBL- (SEE PLAN SHEET 12)

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-Q
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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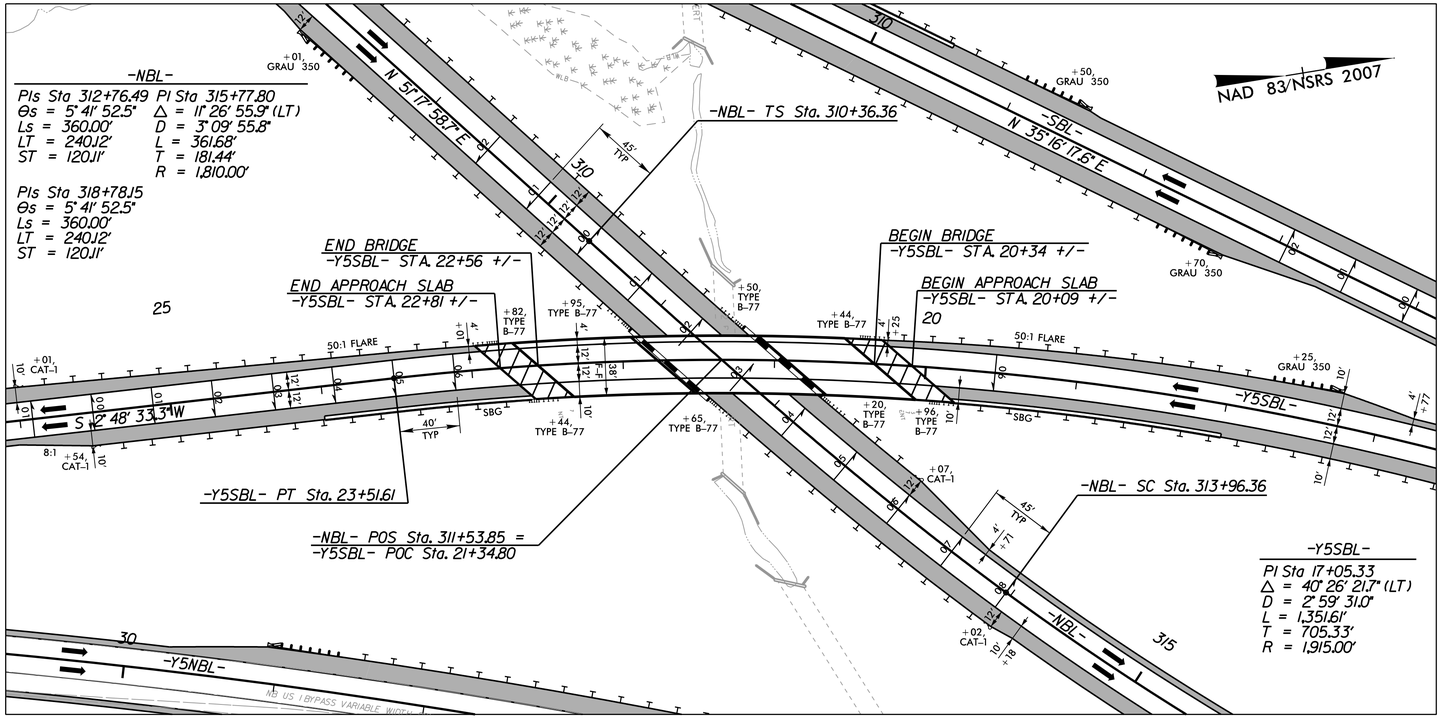
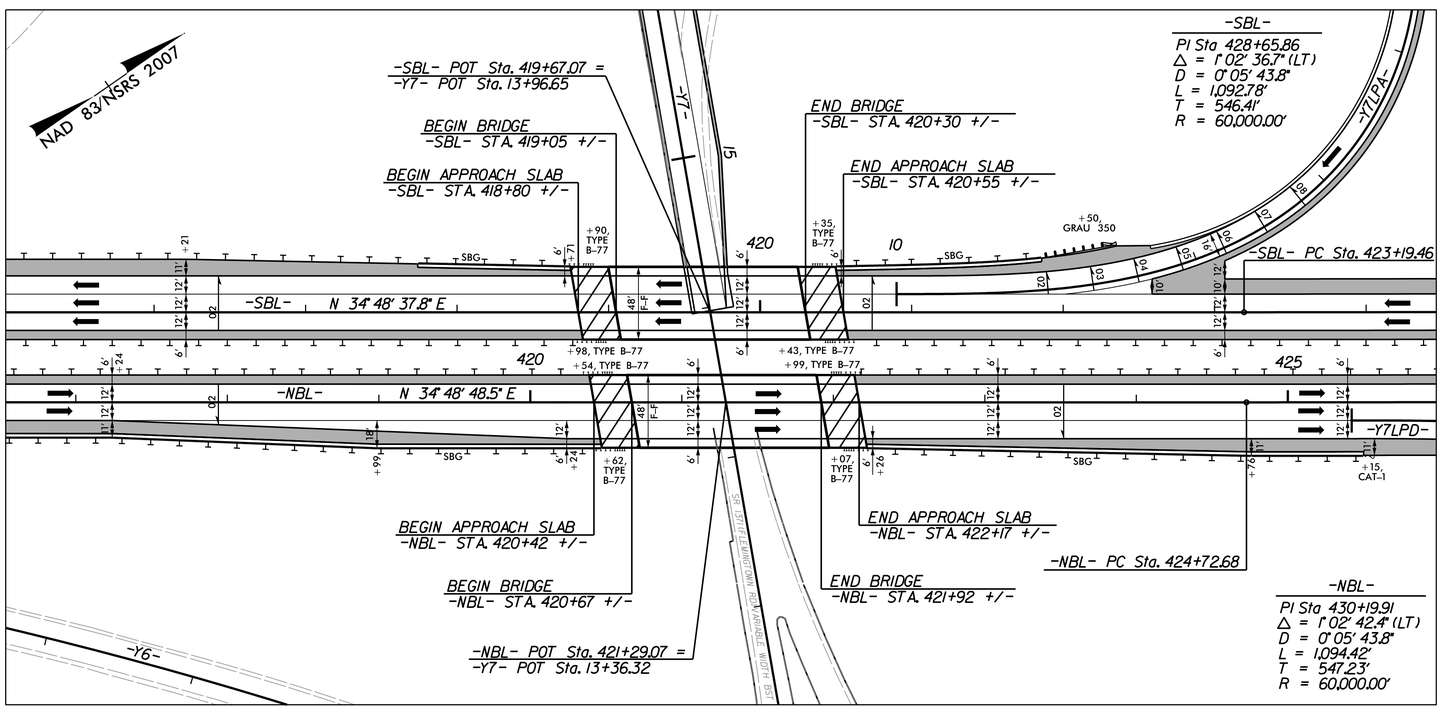
N.C.B.E.L.S. License Number: F-0116



STRUCTURE SITE 3: –Y5SBL– OVER –NBL– (SEE PLAN SHEET 21)



STRUCTURE SITE 4: –SBL– AND –NBL– OVER SR 1371 (FLEMINGTON RD) (SEE PLAN SHEET 28)

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-R
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

PRELIMINARY PLANS
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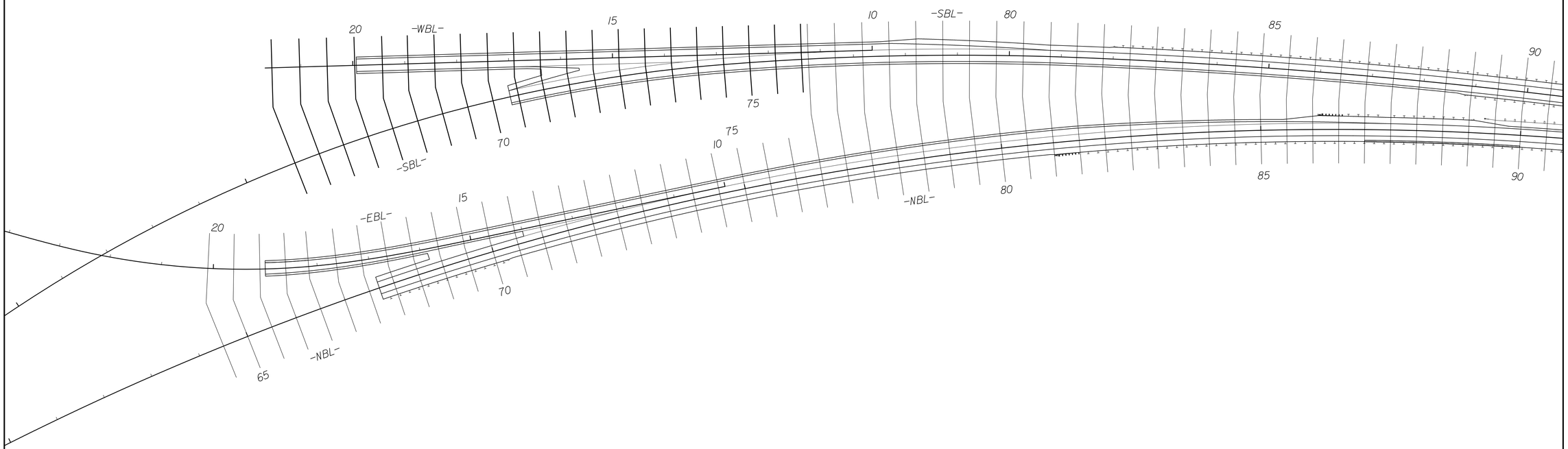
NAD 83/NSRS 2007



-NBL- Cross Sections
-SBL- Cross Sections

SHEAR POINT DIAGRAM

GRAPHIC SCALE
100 50 0 100 200
PLANS

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-S
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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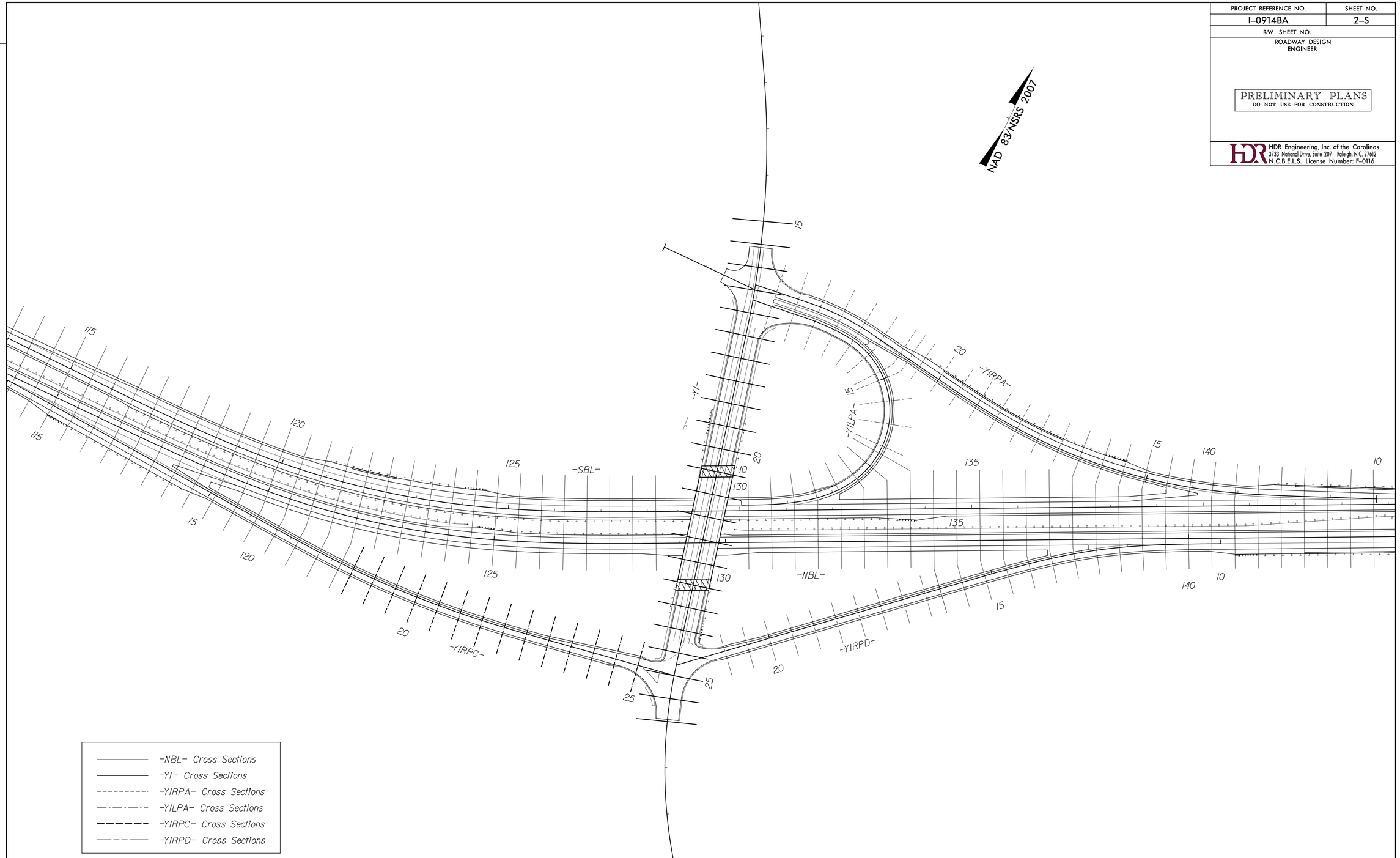

SHEAR POINT DIAGRAM

GRAPHIC SCALE
100 50 0 100 200
PLANS

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-T
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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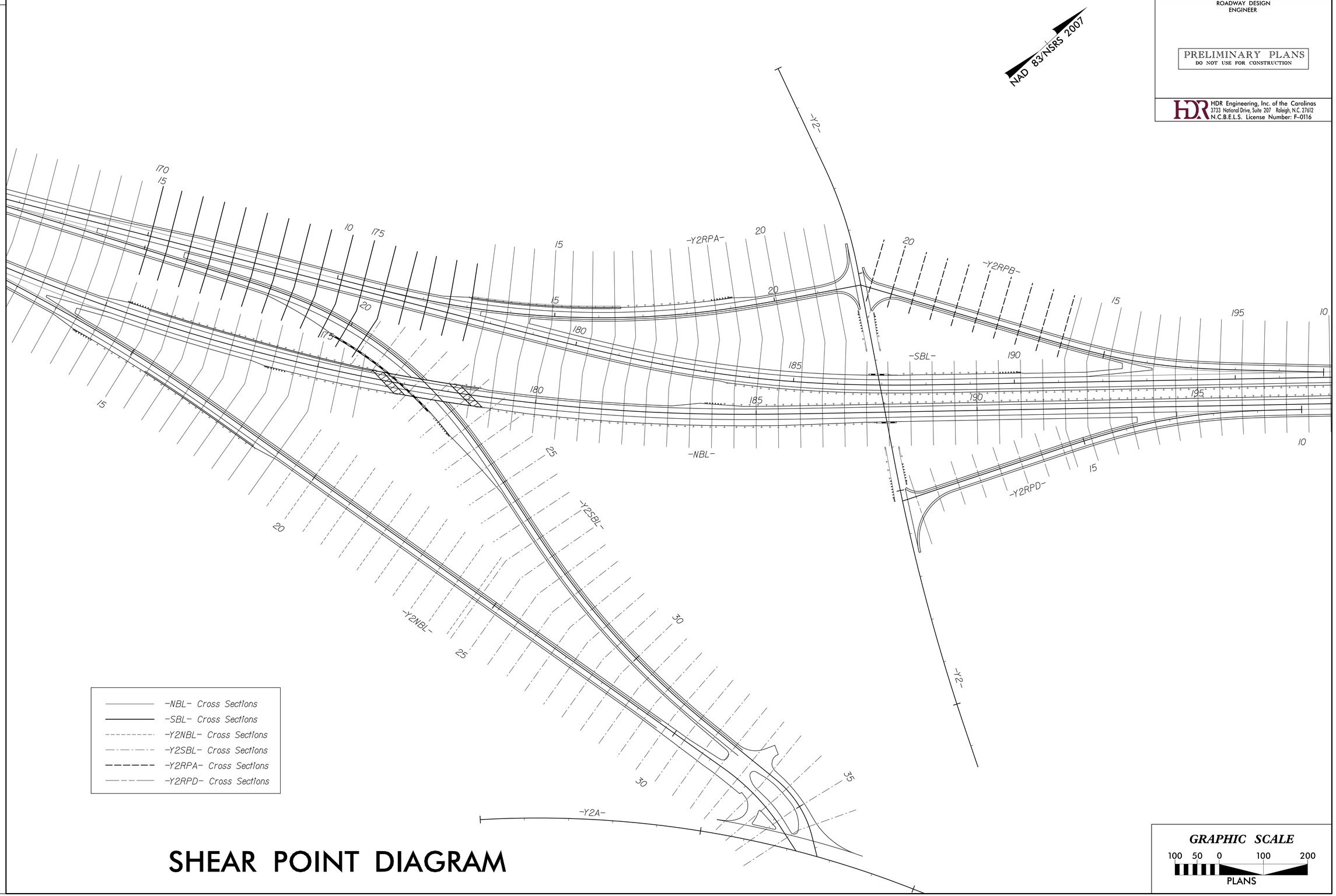
N.C.B.E.L.S. License Number: F-0116



SHEAR POINT DIAGRAM

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-U
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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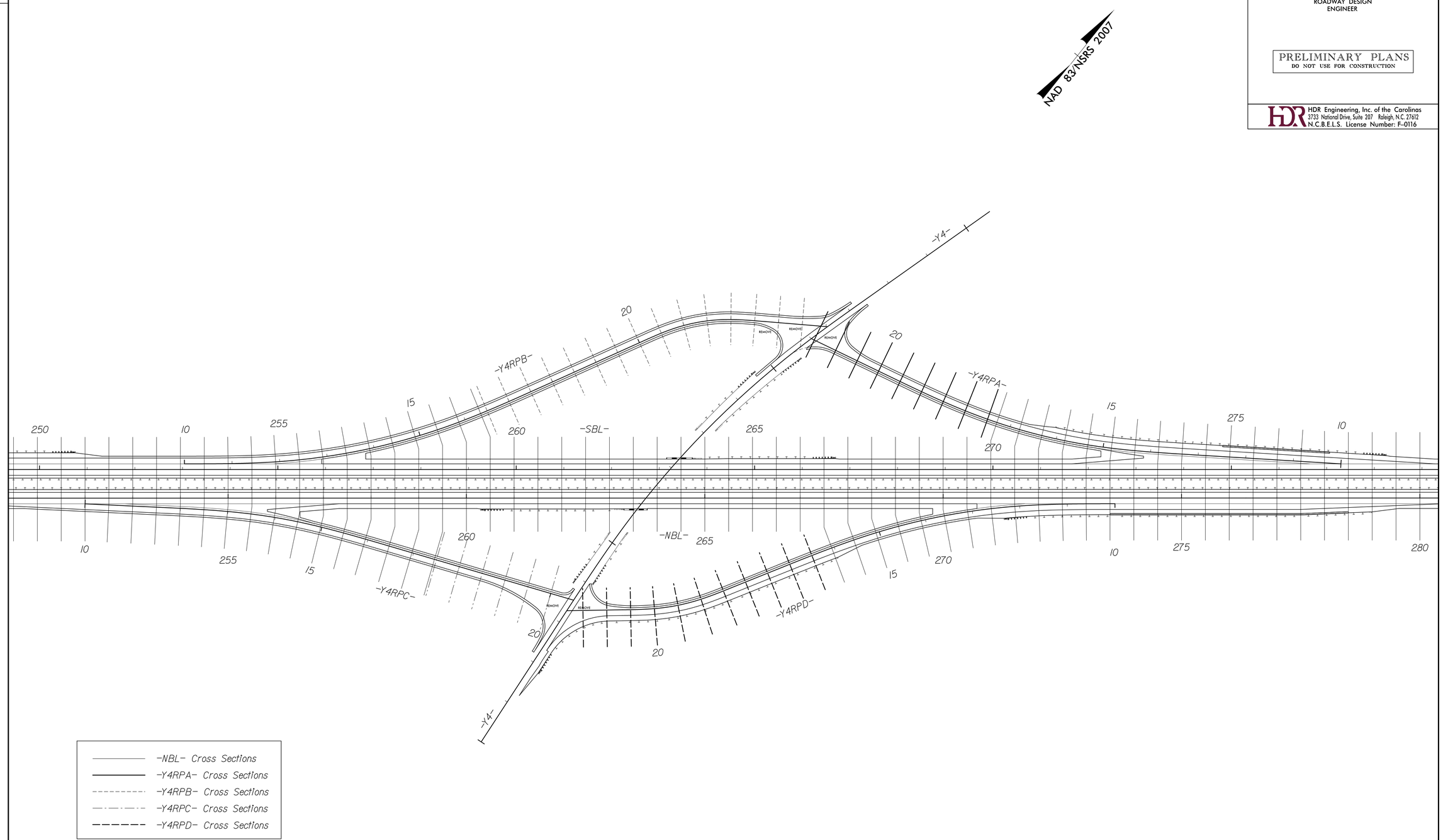
N.C.B.E.L.S. License Number: F-0116



SHEAR POINT DIAGRAM

GRAPHIC SCALE
100 50 0 100 200
PLANS

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-V
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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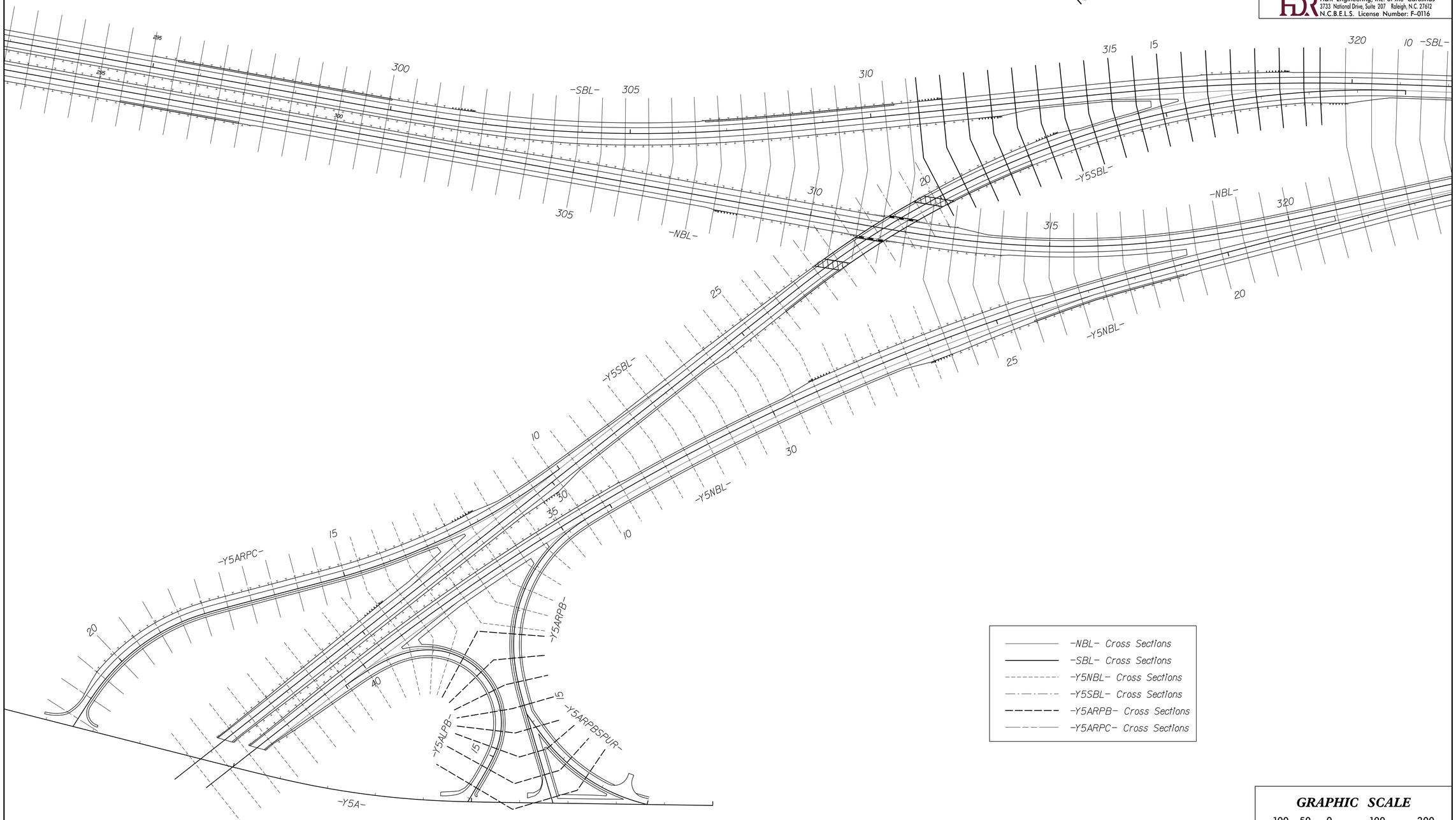
N.C.B.E.L.S. License Number: F-0116

SHEAR POINT DIAGRAM

NAD 83/NSRS 2007



GRAPHIC SCALE
100 50 0 100 200
PLANS

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-W
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

PRELIMINARY PLANS
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N.C.B.E.L.S. License Number: F-0116

SHEAR POINT DIAGRAM

GRAPHIC SCALE
100 50 0 100 200
PLANS

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt PENTABLE: NCDOT_pshpfi.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-X
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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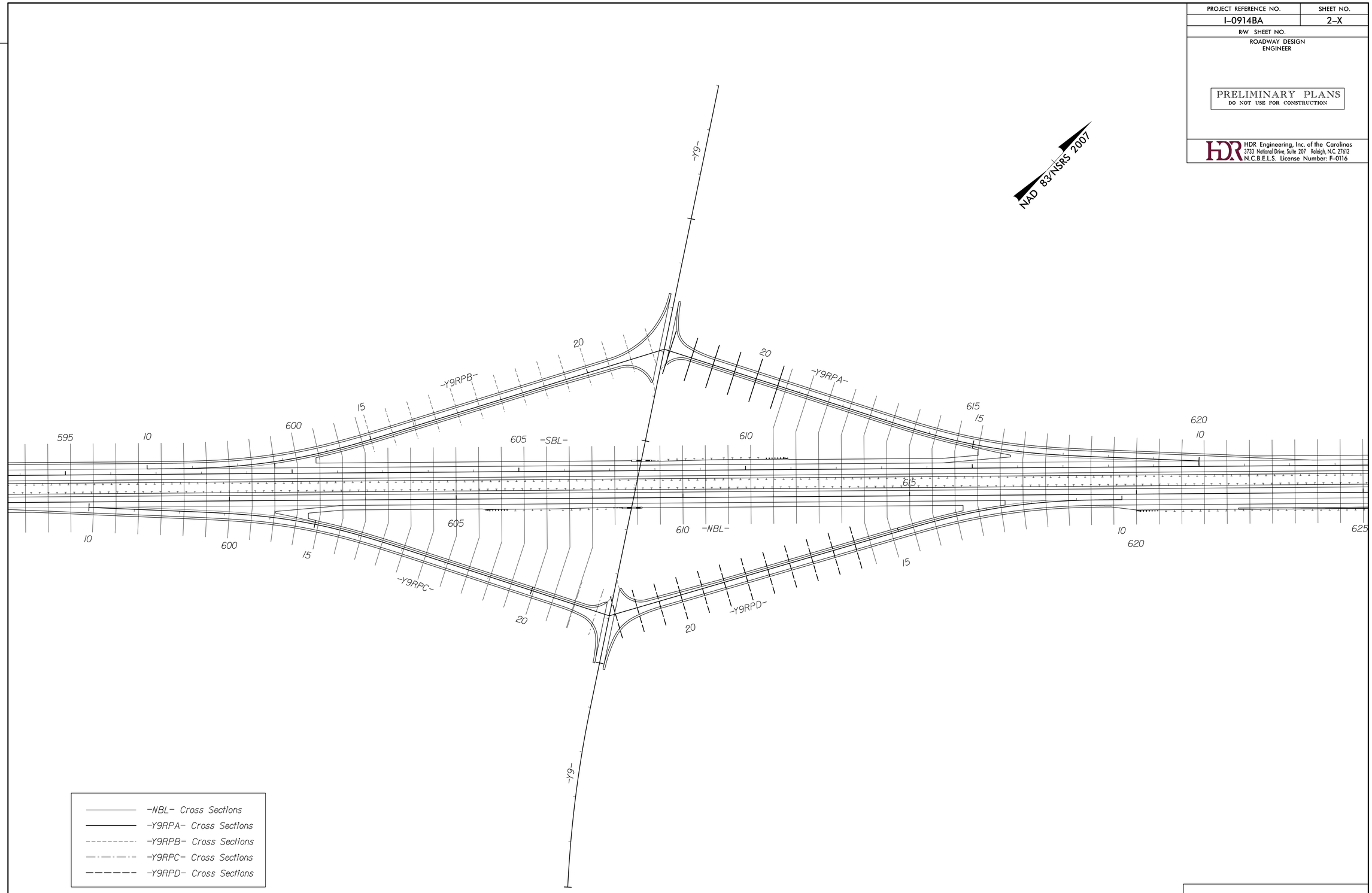
N.C.B.E.L.S. License Number: F-0116



SHEAR POINT DIAGRAM

GRAPHIC SCALE
100 50 0 100 200
PLANS

REVISIONS

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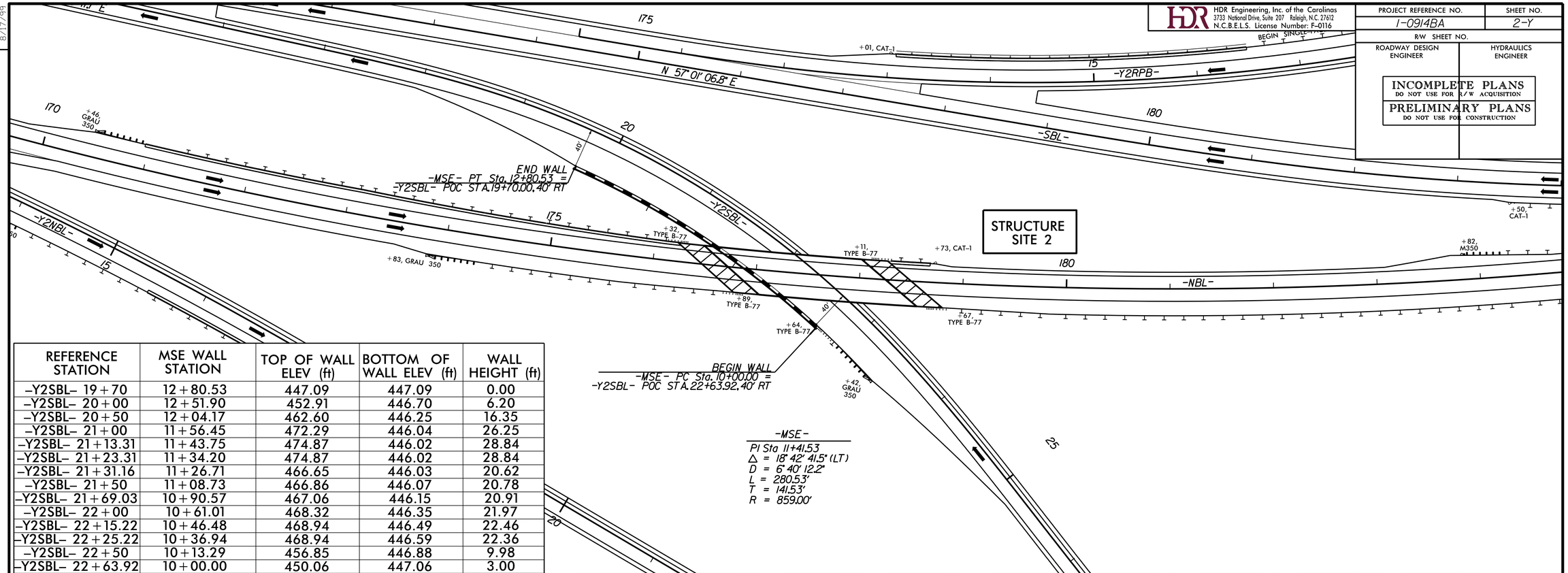
N.C.B.E.L.S. License Number: F-0116

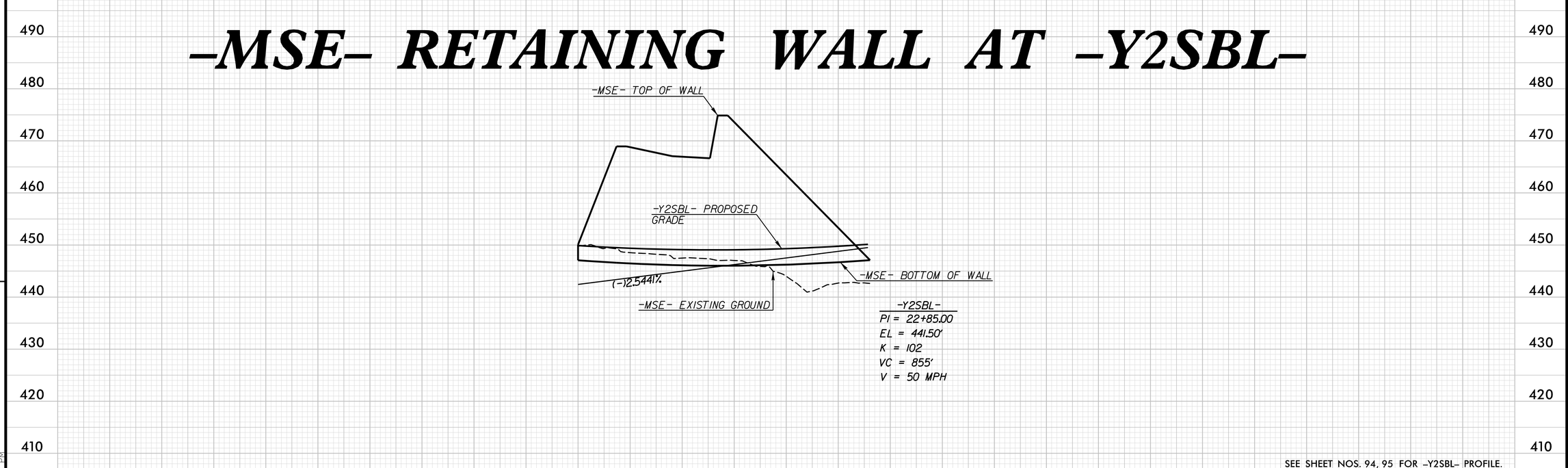
PROJECT REFERENCE NO.	SHEET NO.
1-0914BA	2-Y
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



REFERENCE STATION	MSE WALL STATION	TOP OF WALL ELEV (ft)	BOTTOM OF WALL ELEV (ft)	WALL HEIGHT (ft)
-Y2SBL- 19+70	12+80.53	447.09	447.09	0.00
-Y2SBL- 20+00	12+51.90	452.91	446.70	6.20
-Y2SBL- 20+50	12+04.17	462.60	446.25	16.35
-Y2SBL- 21+00	11+56.45	472.29	446.04	26.25
-Y2SBL- 21+13.31	11+43.75	474.87	446.02	28.84
-Y2SBL- 21+23.31	11+34.20	474.87	446.02	28.84
-Y2SBL- 21+31.16	11+26.71	466.65	446.03	20.62
-Y2SBL- 21+50	11+08.73	466.86	446.07	20.78
-Y2SBL- 21+69.03	10+90.57	467.06	446.15	20.91
-Y2SBL- 22+00	10+61.01	468.32	446.35	21.97
-Y2SBL- 22+15.22	10+46.48	468.94	446.49	22.46
-Y2SBL- 22+25.22	10+36.94	468.94	446.59	22.36
-Y2SBL- 22+50	10+13.29	456.85	446.88	9.98
-Y2SBL- 22+63.92	10+00.00	450.06	447.06	3.00

-MSE- RETAINING WALL AT -Y2SBL-



SEE SHEET NOS. 94, 95 FOR -Y2SBL- PROFILE.

REVISIONS

8/17/99

2/28/2014
1-0914BA_RDY_WALL_PSH_2-Y.dgn
12:40:48 PM

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N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-Z
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

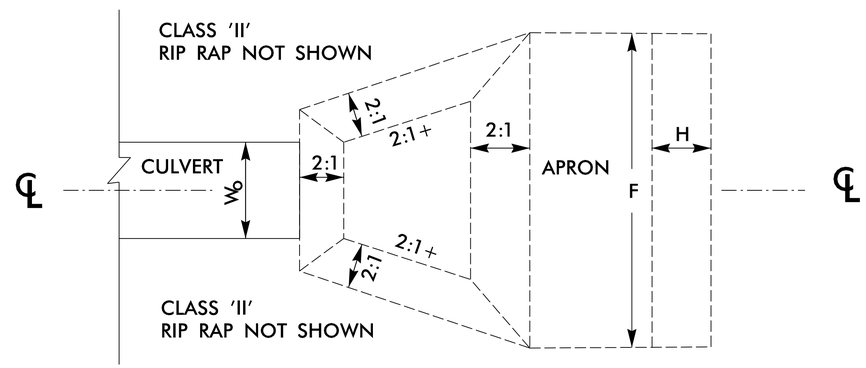
RIP-RAPPED ENERGY DISSIPATOR BASIN
NOT TO SCALE

DIM. (ft)	RIP RAP BASIN # 1		
A	2.0		
B	1.0		
C	2.0		
D	1.0		
E	5.0		
F	10.0		
G	10.0		
H	2.0		

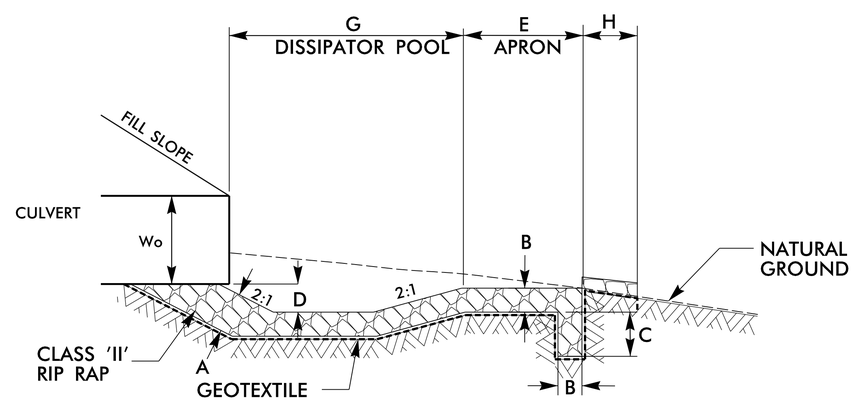
*ALL DIMENSIONS APPROXIMATE

**ENERGY DISSIPATOR BASINS SHALL USE CLASS 'II' RIP RAP.

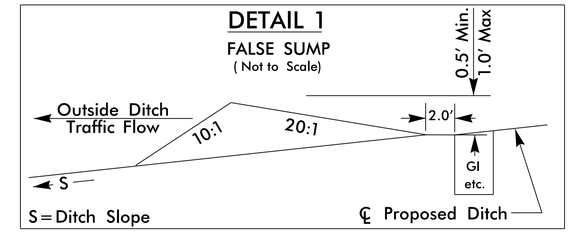
BASIN #	LOCATION (AT OUTLET)
1	472+50 LT NBL

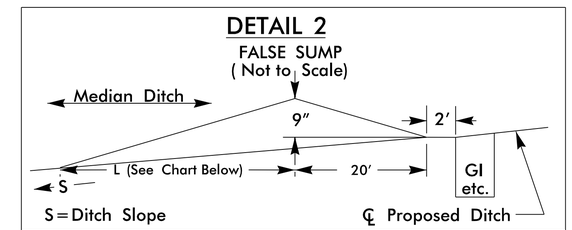


PLAN

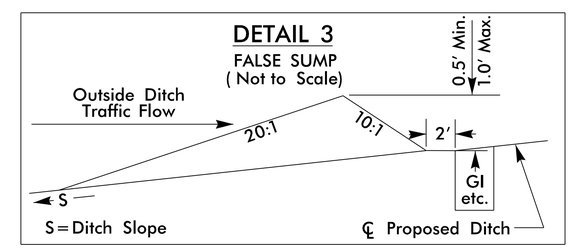


℄ SECTION





Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'



6/2/99
2/28/2014
I-0914BA_RDY_TYP_DRN_DETAIL.dgn
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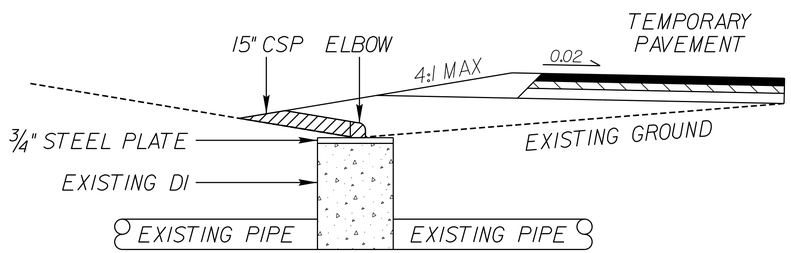
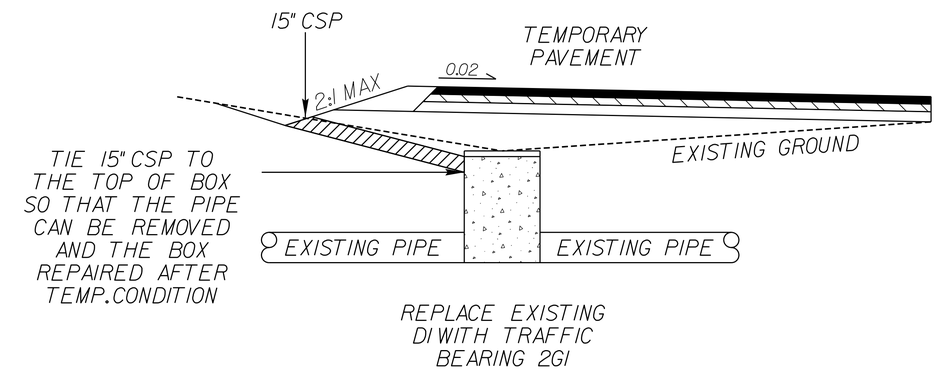
TEMPORARY DRAINAGE DETAIL – A



TEMPORARY DRAINAGE DETAIL – B



TEMPORARY DRAINAGE OPTIONS		
DETAIL A STATION LOCATIONS		DETAIL B STATION LOCATIONS
52+07 -NBL- LT	333+08 -NBL- LT	159+46 -NBL- LT
95+54 -NBL- LT	337+34 -NBL- LT	203+98 -NBL- LT
105+32 -NBL- LT	341+33 -NBL- LT	207+24 -NBL- LT
121+10 -NBL- LT	412+88 -NBL- LT	283+96 -NBL- LT
125+59 -NBL- LT	416+44 -NBL- LT	592+96 -NBL- LT
144+02 -NBL- LT	425+75 -NBL- LT	624+54 -NBL- LT
147+53 -NBL- LT	442+93 -NBL- LT	
153+33 -NBL- LT	447+76 -NBL- LT	
201+00 -NBL- LT	584+64 -NBL- LT	
212+00 -NBL- LT	588+99 -NBL- LT	
237+48 -NBL- LT	629+15 -NBL- LT	
241+47 -NBL- LT	634+30 -NBL- LT	
246+26 -NBL- LT		
249+56 -NBL- LT		
275+46 -NBL- LT		
278+97 -NBL- LT		
289+97 -NBL- LT		

DETAIL A consists of, but not limited to, approximately 8′ of 15″ CSP, 1– 15″ CSP elbow, and a 3/4″ steel plate.

DETAIL B consists of, but not limited to, approximately 8′ of 15″ CSP, the removal of the existing DI, the installation of a Traffic Bearing 2GI (with appropriate temporary lid), the removal of the pipe after temporary condition, and the repair of the box after the pipe has been removed. If a pipe is to be added in the final condition, a pipe stub out should be installed when the new box is being built.

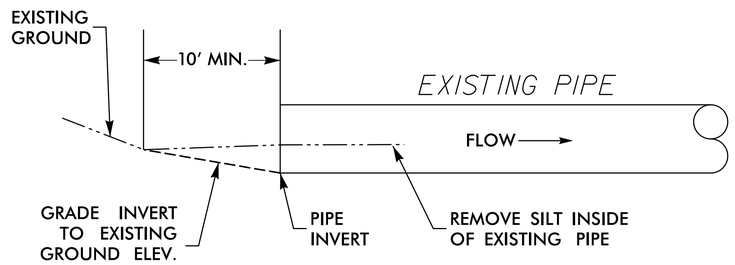
6/2/99
2/28/2014
I-0914BA_RDY_TYP_DRN_DETAIL.dgn
12:06:00 PM

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2-AB
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

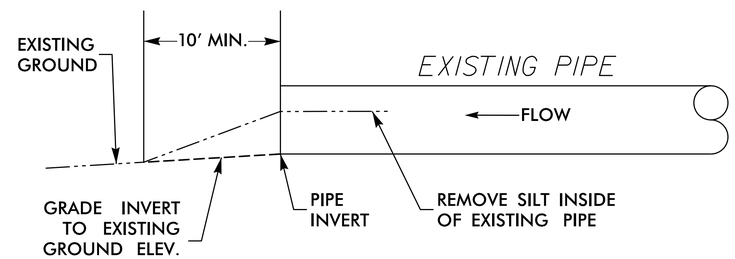
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

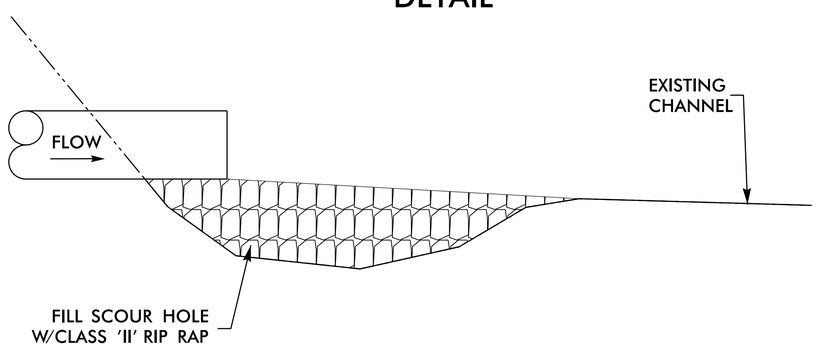
PIPE CLEAN OUT DETAIL INLET END



PIPE CLEAN OUT DETAIL OUTLET END

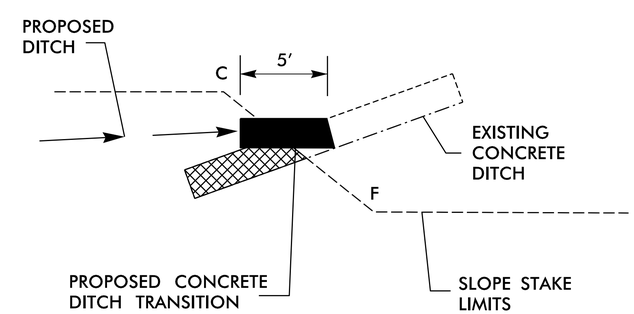


FILL IN SCOUR HOLE DETAIL

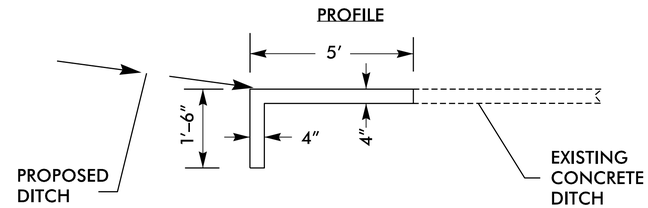


CONCRETE PAD DITCH TRANSITION

PLAN VIEW



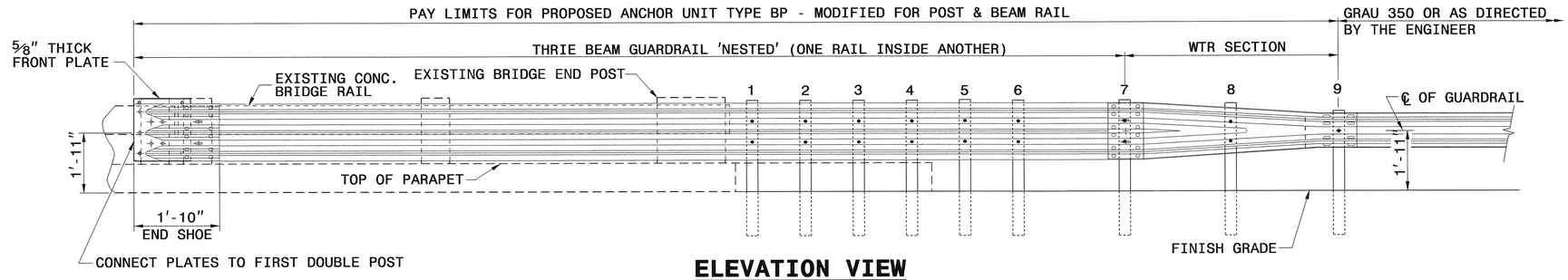
PROFILE



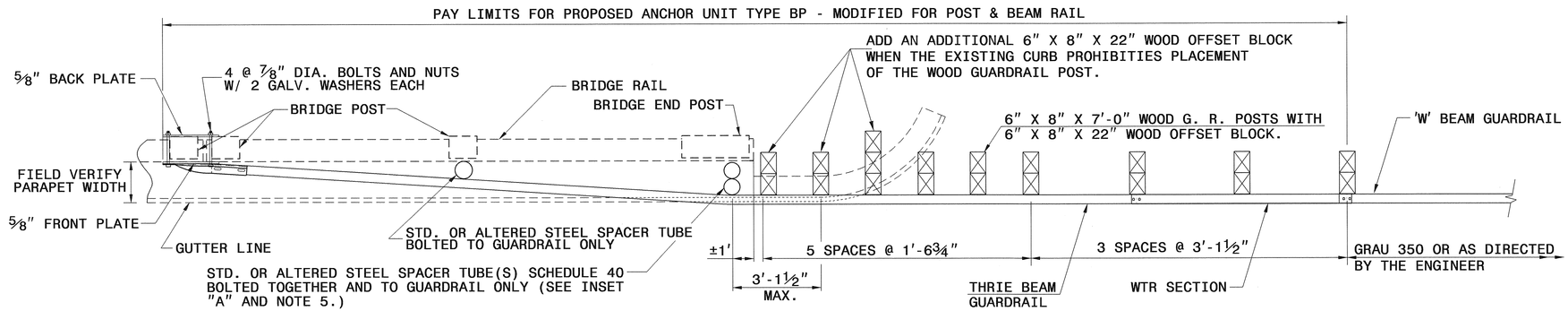
* WIDTH AND BASE DIMENSIONS OF PROPSED CONCRETE DITCH TRANSITION SHALL MATCH THE WIDTH AND BASE DIMENSIONS OF THE EXISTING CONCRETE DITCH.

6/2/99
2/28/2014
I-0914BA_RDY_TYP_DRN_DETAIL.dgn
12:06:01 PM

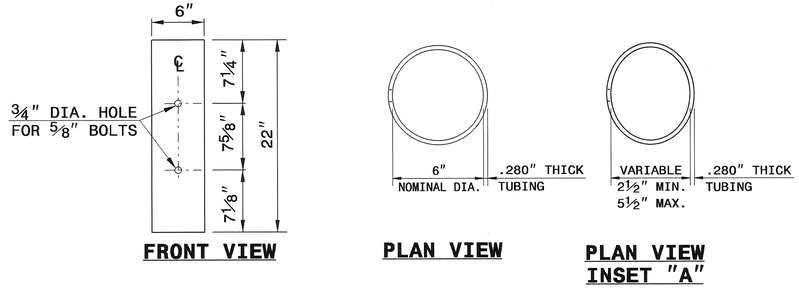
PROJECT REFERENCE NO.	SHEET NO.
I-9014BA	2-AC



ELEVATION VIEW



PLAN VIEW

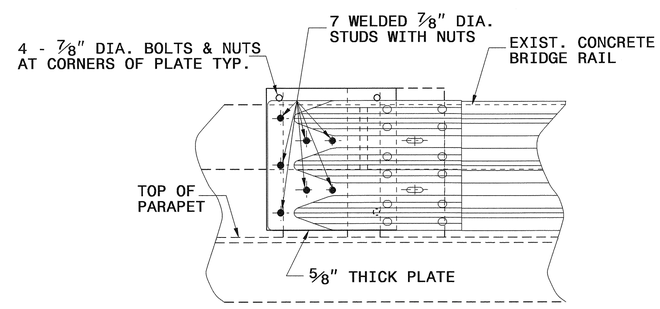


FRONT VIEW

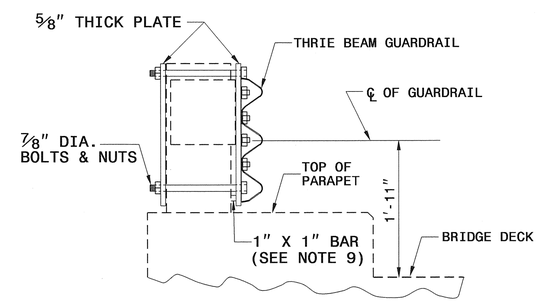
PLAN VIEW

PLAN VIEW INSET "A"

STEEL SPACER TUBE



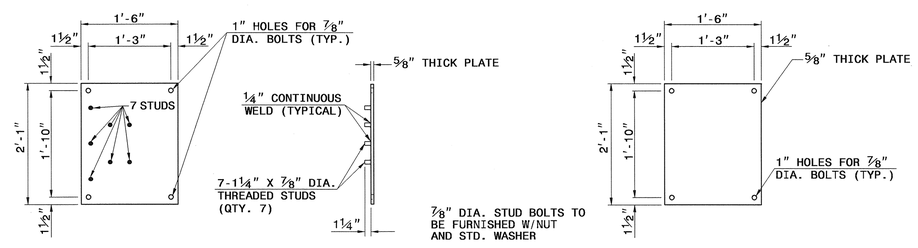
ELEVATION VIEW



SECTION VIEW

GENERAL NOTES:

1. USE NUTS, BOLTS, AND WASHERS CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-307 AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS.
2. TAP NUTS FOR THE 7/8" DIA. STUDS AND BOLTS AFTER GALVANIZING SEE A.S.T.M. A-563.
3. USE PLATES AND TUBES CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-36 AND GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS.
4. ADDITIONAL FIELD HOLES MAY BE DRILLED IN STEEL RAIL AS DIRECTED BY THE ENGINEER.
5. INSTALL FACE OF GUARDRAIL AS NEAR AS POSSIBLE TO PLUMB WITH THE PARAPET FACE AT BRIDGE END POST SPACER TUBE LOCATION BY USING STANDARD OR ALTERED SPACER TUBES OR A COMBINATION THEREOF OR AS DIRECTED BY THE ENGINEER. FOR VERY SMALL PARAPET WIDTHS, GUARDRAIL MAY BE INSTALLED AGAINST BRIDGE RAIL WITHOUT SPACER TUBES.
6. DO NOT DRILL BRIDGE RAIL IN ORDER TO INSTALL GUARDRAIL ANCHOR UNIT.
7. USE THIS DETAIL ONLY FOR BRIGES WITH POST AND BEAM TYPE RAIL.
8. ATTACH 1" X 1" BAR AND THREADED STUDS TO PLATE WITH ¼" WELDS ALL AROUND.
9. 1" X 1" BAR MAY NOT BE NEEDED ON BRIDGE RAILS WHERE FACE OF RAIL DOES NOT PROJECT BEYOND FACE OF POST.
10. PROVIDE SHOP DRAWINGS OF THE PLATES TO THE ENGINEER FOR APPROVAL BEFORE FABRICATING THE PLATES.
11. LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
12. SEE ROADWAY STARDARD DRAWING 862.03 SHEET 3 FOR ADDITIONAL INFORMATION ON THE TYPE III ANCHOR UNIT



FRONT VIEW

SIDE VIEW

FRONT PLATE

BACK PLATE

BRIDGE PLATES

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

TYPE III MODIFIED FOR POST AND BEAM RAIL

ORIGINAL BY: E.E. WARD DATE: 01-03
MODIFIED BY: E.E. WARD DATE: 02-04
CHECKED BY: [signature] DATE: 10/10/13
FILE SPEC.: s:details\stand\bpiii originial.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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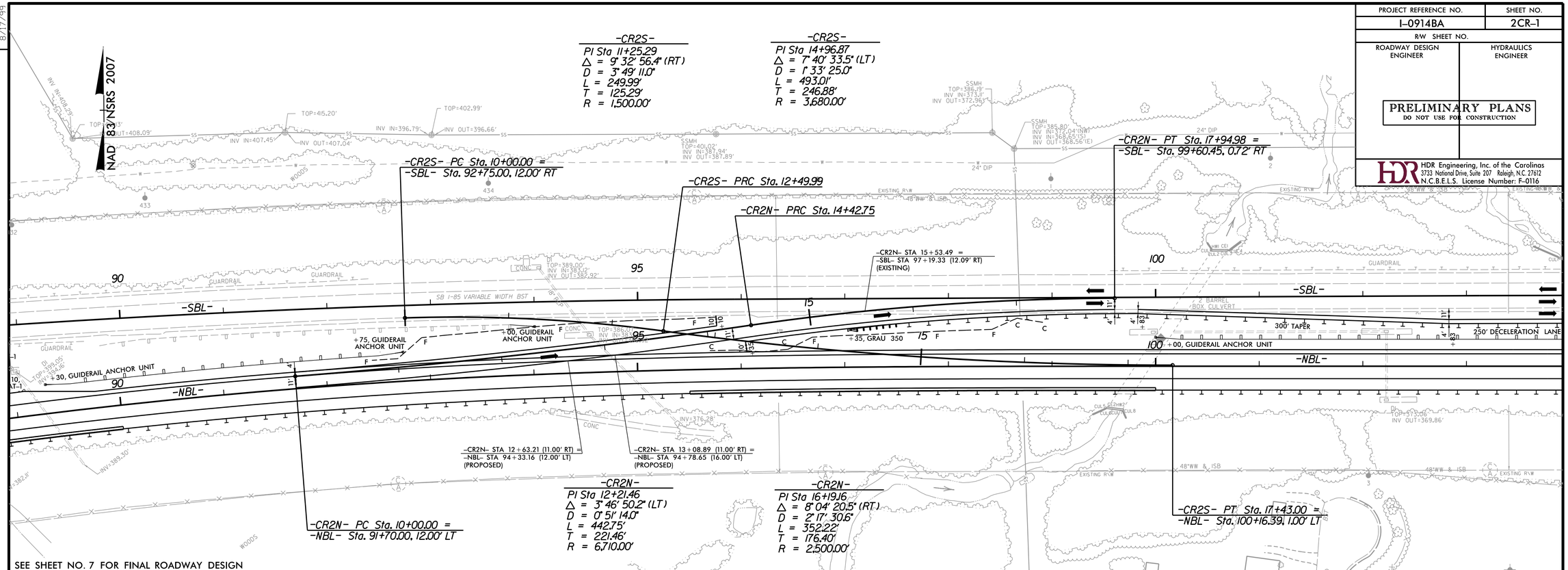
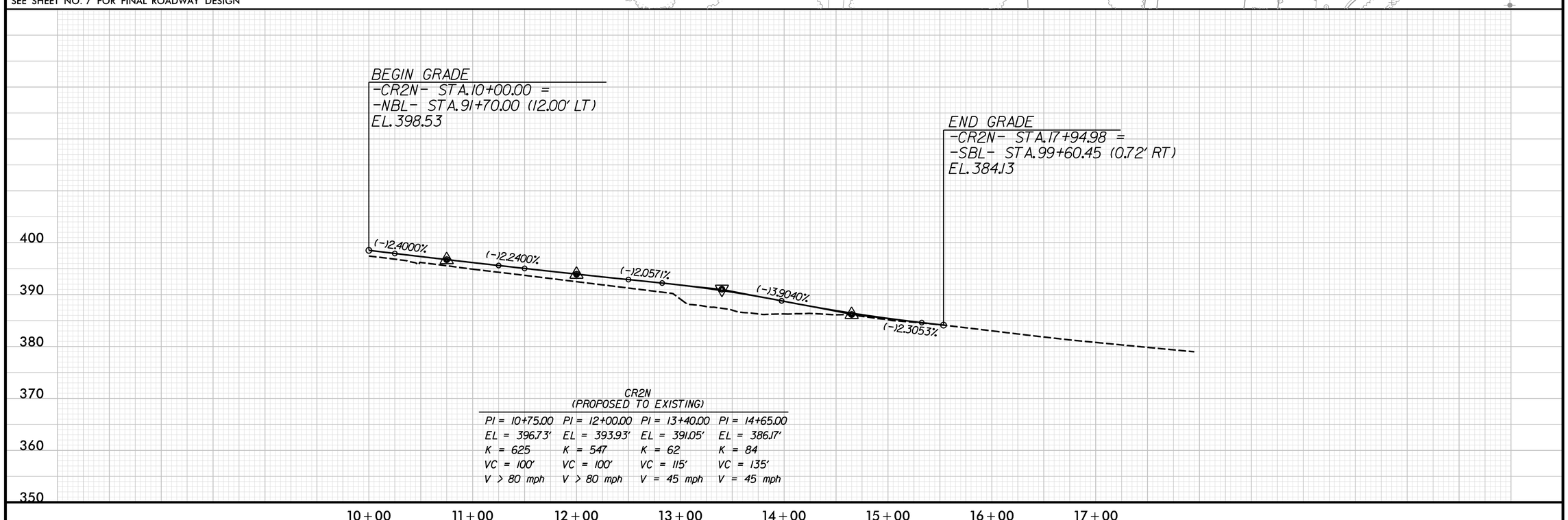
N.C.B.E.L.S. License Number: F-0116





REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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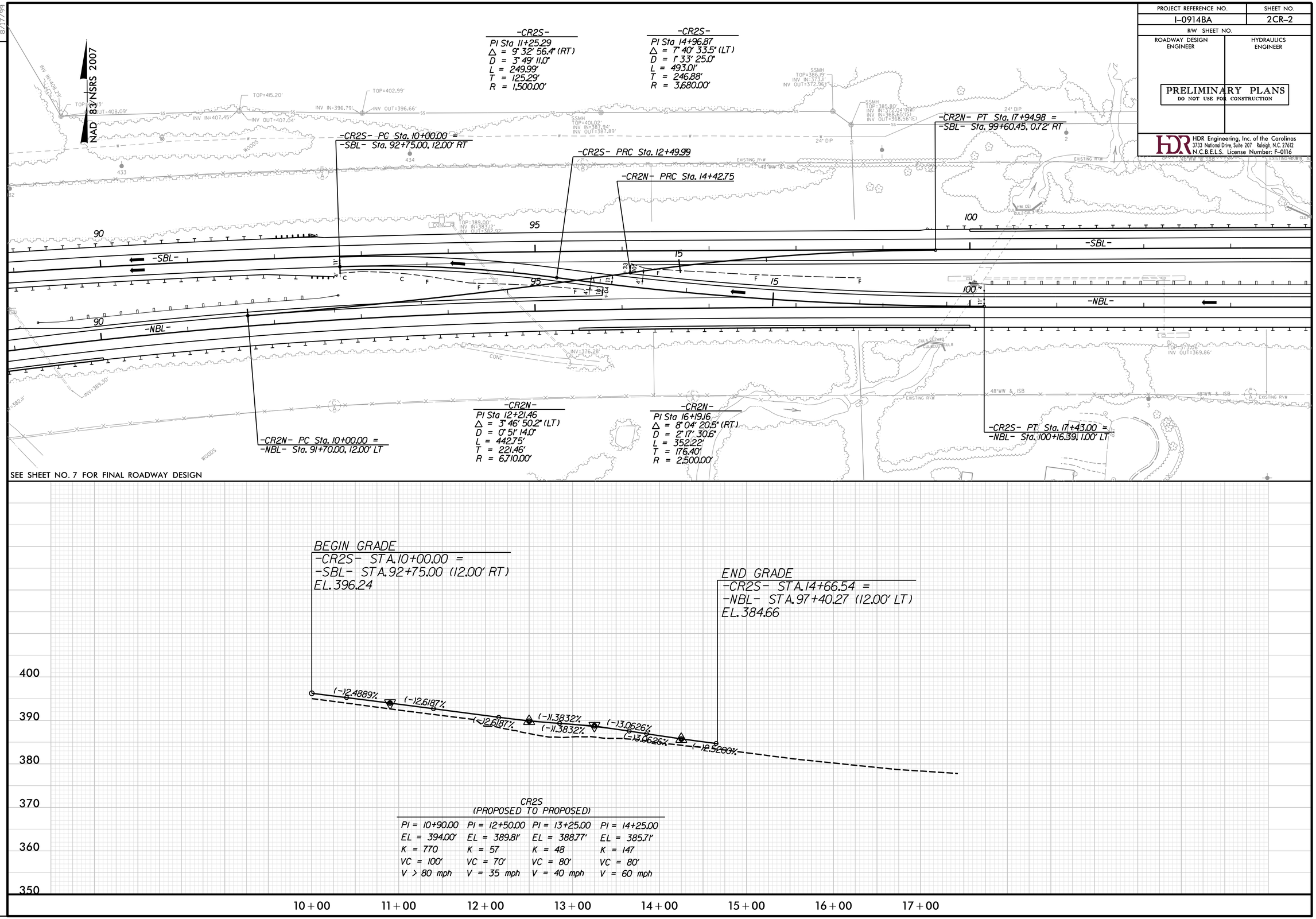
N.C.B.E.L.S. License Number: F-0116



CR2S
(PROPOSED TO PROPOSED)

PI = 10+90.00	PI = 12+50.00	PI = 13+25.00	PI = 14+25.00
EL = 394.00'	EL = 389.81'	EL = 388.77'	EL = 385.71'
K = 770	K = 57	K = 48	K = 147
VC = 100'	VC = 70'	VC = 80'	VC = 80'
V > 80 mph	V = 35 mph	V = 40 mph	V = 60 mph

8/17/99

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
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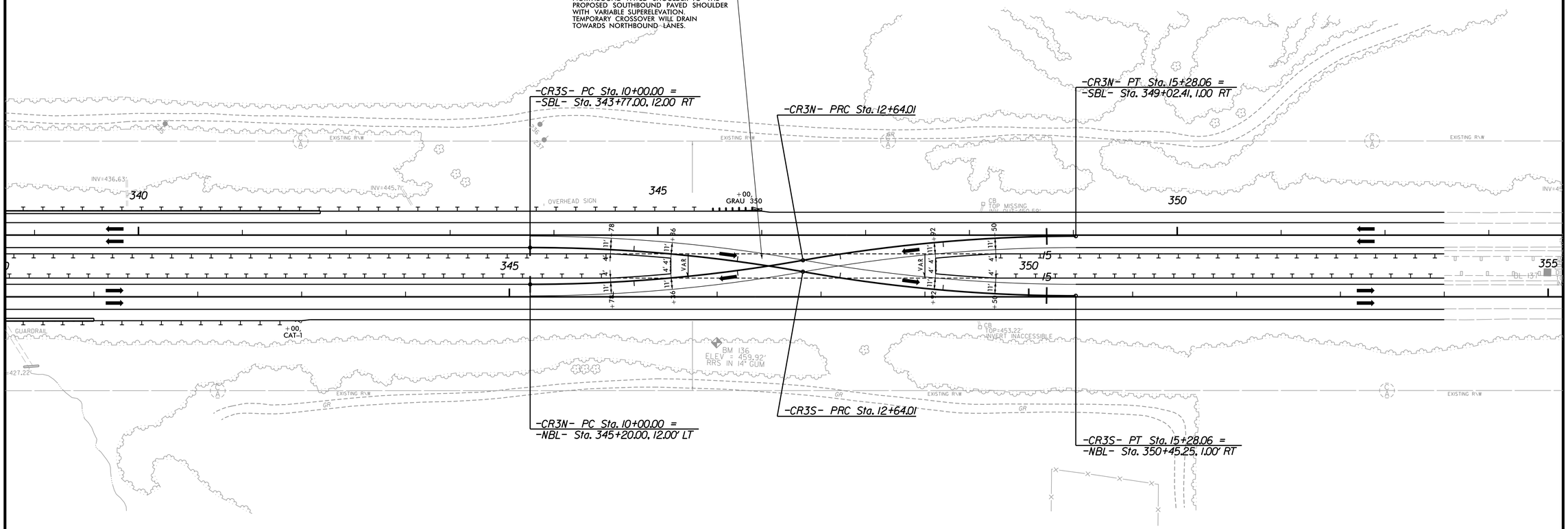
N.C.B.E.L.S. License Number: F-0116

-CR3S-
PI Sta 11+32.35
△ = 10° 05' 04.4" (RT)
D = 3° 49' 11.0"
L = 264.01'
T = 132.35'
R = 1,500.00'

-CR3S-
PI Sta 13+96.38
△ = 10° 05' 08.4" (LT)
D = 3° 49' 11.0"
L = 264.04'
T = 132.36'
R = 1,500.00'

GRADE TEMPORARY CROSSOVER BY PLACING ASPHALT PAVEMENT FROM THE PROPOSED NORTHBOUND PAVED SHOULDER TO THE PROPOSED SOUTHBOUND PAVED SHOULDER WITH VARIABLE SUPERELEVATION. TEMPORARY CROSSOVER WILL DRAIN TOWARDS NORTHBOUND LANES.



-CR3N-
PI Sta 11+32.35
△ = 10° 05' 04.3" (LT)
D = 3° 49' 11.0"
L = 264.01'
T = 132.35'
R = 1,500.00'

-CR3N-
PI Sta 13+96.38
△ = 10° 05' 08.4" (RT)
D = 3° 49' 11.0"
L = 264.04'
T = 132.36'
R = 1,500.00'

SEE SHEET NO. 2-K FOR -CR3N- & -CR3S- DETAIL.
NO PROPOSED PROFILES REQUIRED FOR -CR3S- OR -CR3N-
SEE SHEET NO. 23 FOR FINAL ROADWAY DESIGN

REVISIONS

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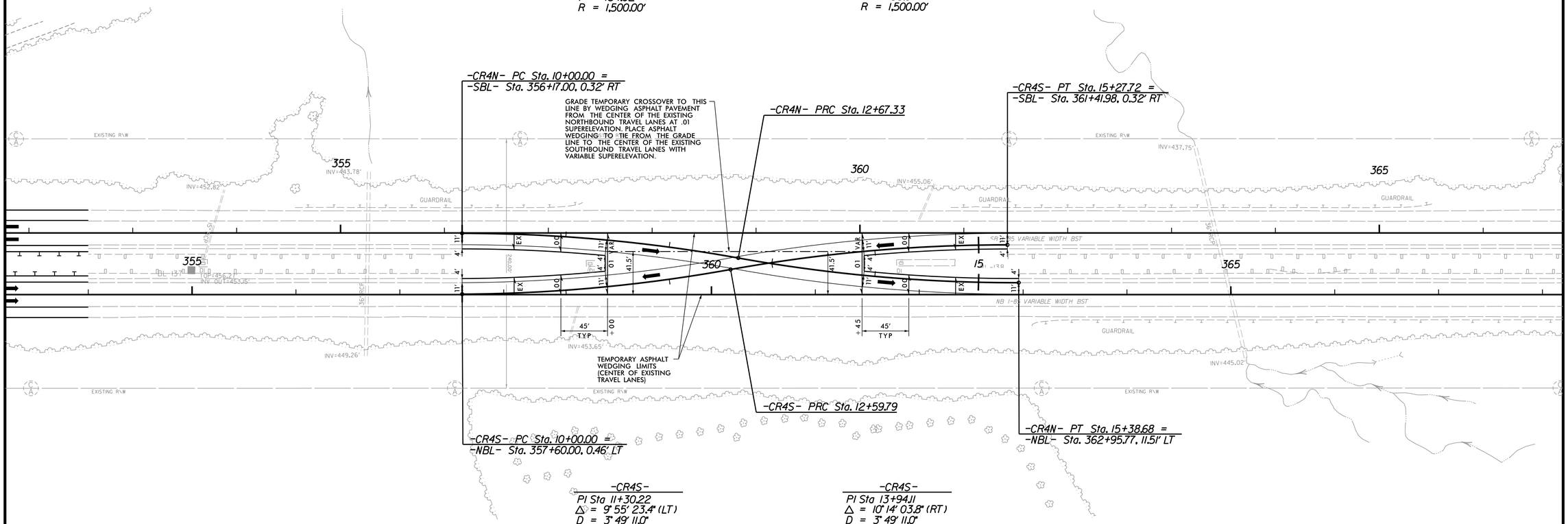
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NO. 2-K FOR -CR4N- & -CR4S- DETAIL.
SEE SHEET NO. 24 FOR FINAL ROADWAY DESIGN

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
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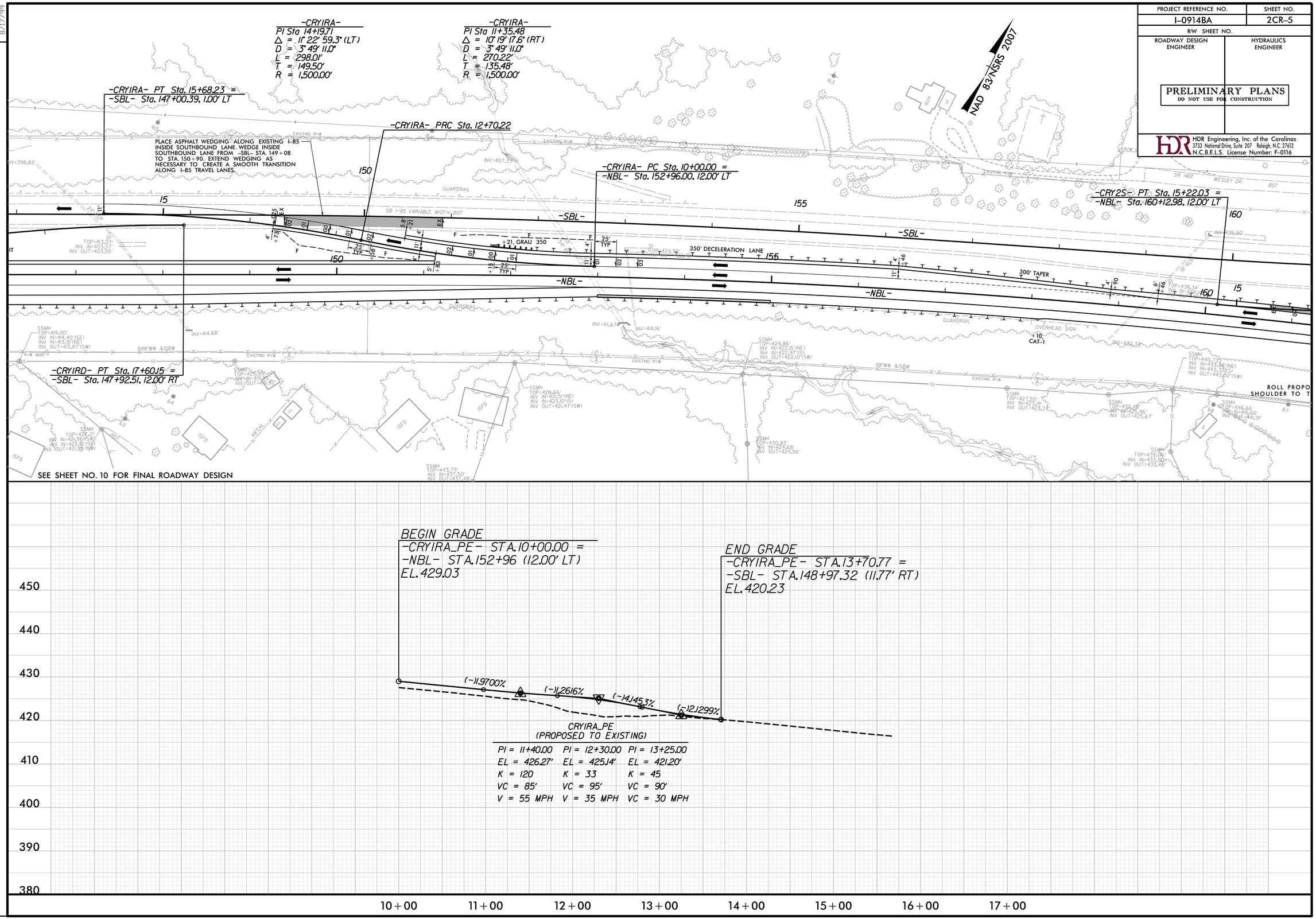
N.C.B.E.L.S. License Number: F-0116



REVISIONS

8/17/99

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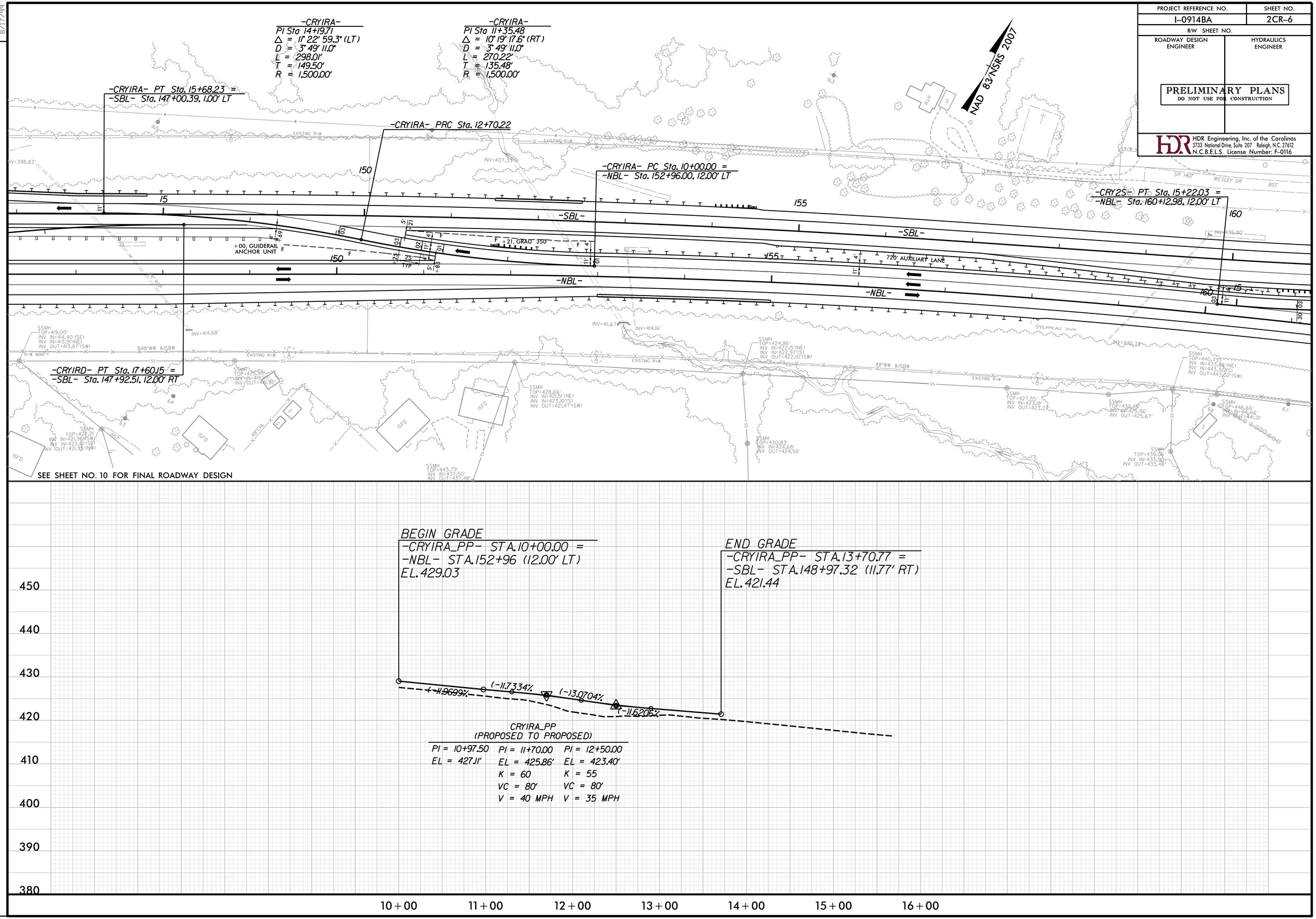
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
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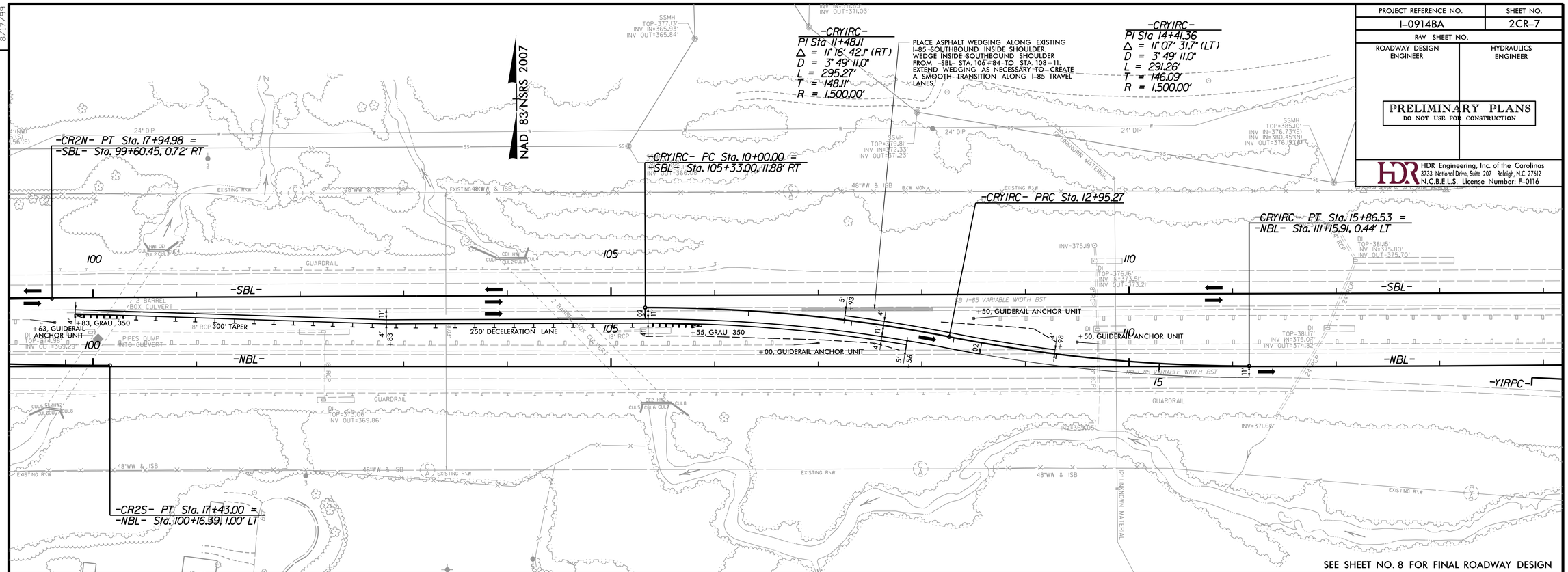
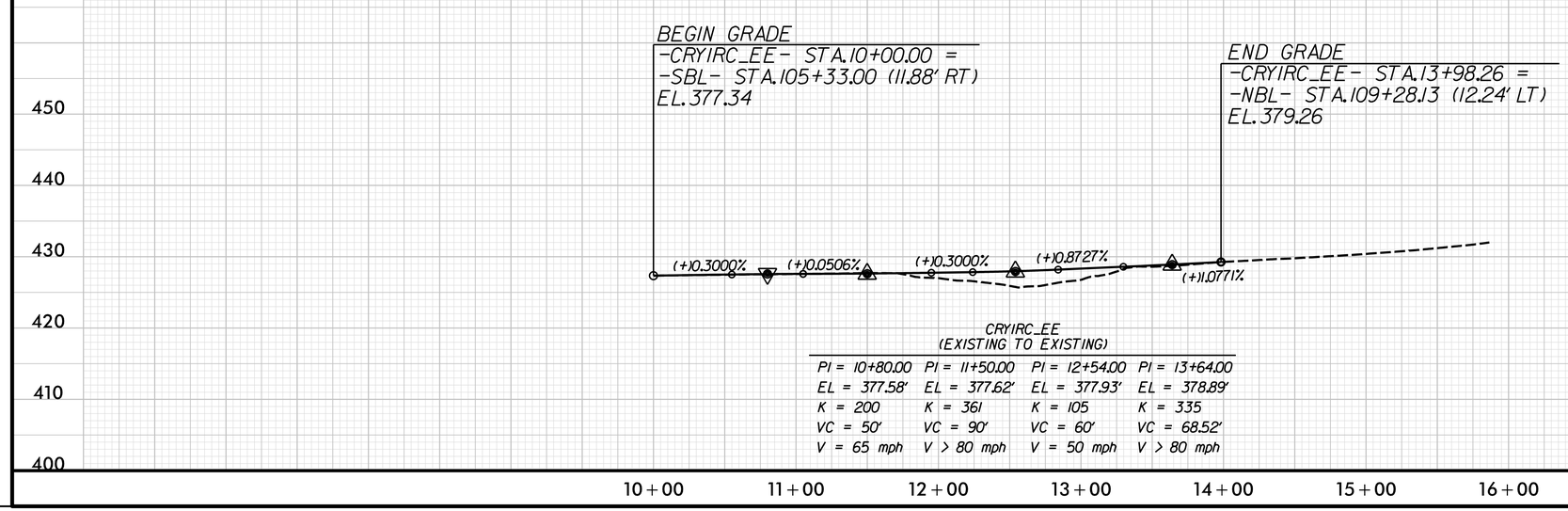
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NO. 8 FOR FINAL ROADWAY DESIGN



CRYIRC_EE
(EXISTING TO EXISTING)

PI = 10+80.00	PI = 11+50.00	PI = 12+54.00	PI = 13+64.00
EL = 377.58'	EL = 377.62'	EL = 377.93'	EL = 378.89'
K = 200	K = 361	K = 105	K = 335
VC = 50'	VC = 90'	VC = 60'	VC = 68.52'
V = 65 mph	V > 80 mph	V = 50 mph	V > 80 mph

8/17/99

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
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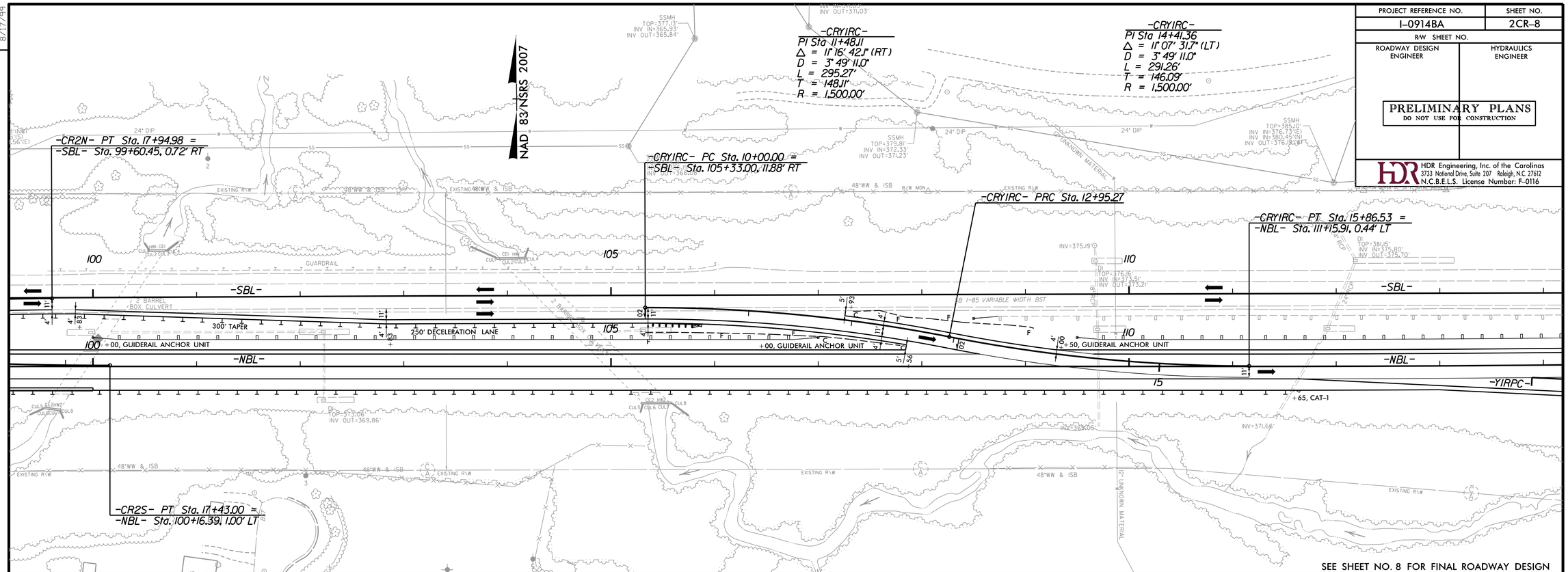
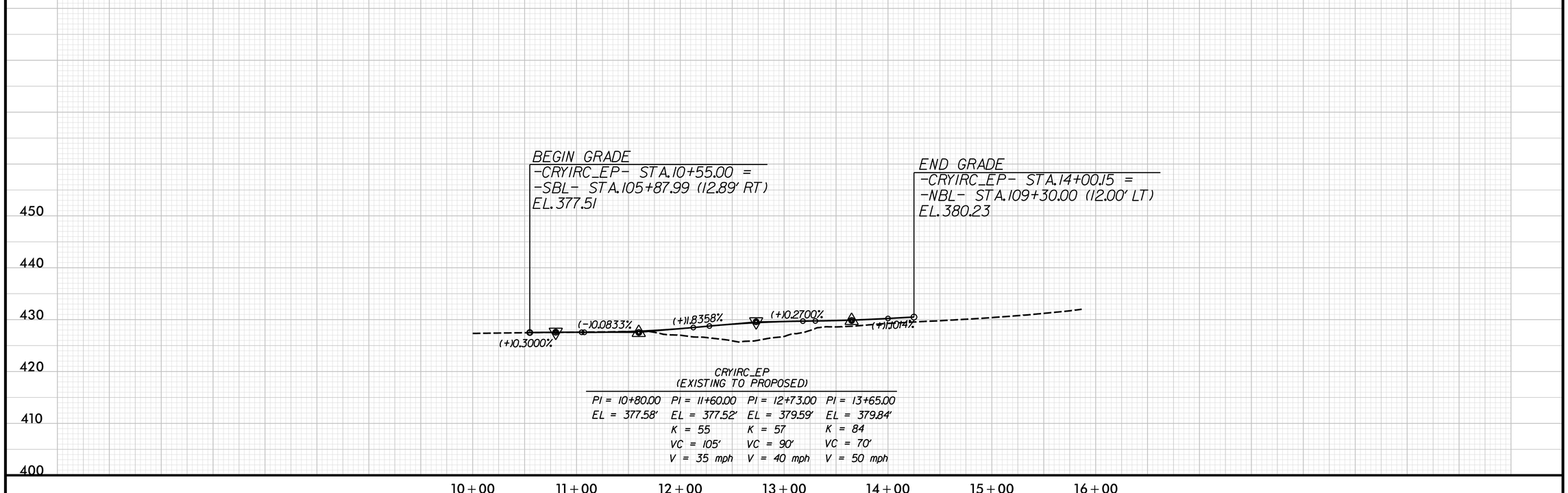
N.C.B.E.L.S. License Number: F-0116





CRYIRC_EP
(EXISTING TO PROPOSED)

PI = 10+80.00	PI = 11+60.00	PI = 12+73.00	PI = 13+65.00
EL = 377.58'	EL = 377.52'	EL = 379.59'	EL = 379.84'
	K = 55	K = 57	K = 84
	VC = 105'	VC = 90'	VC = 70'
	V = 35 mph	V = 40 mph	V = 50 mph

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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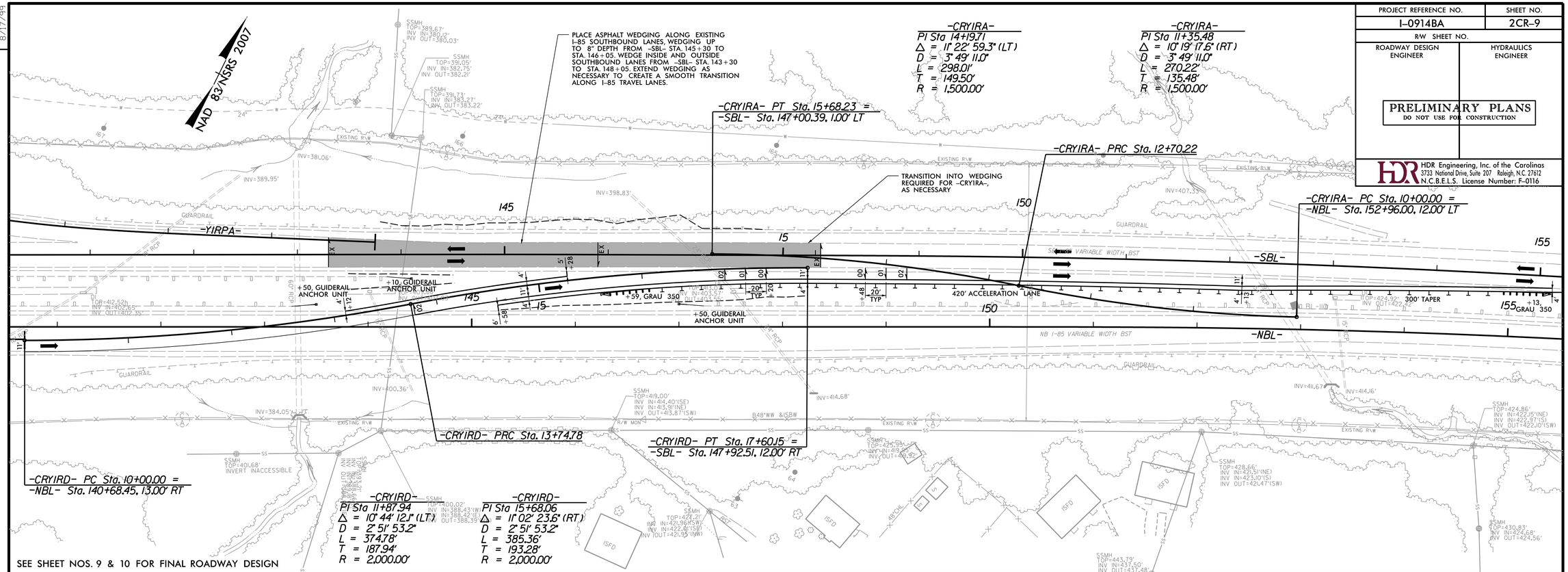
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



REVISIONS

8/17/99

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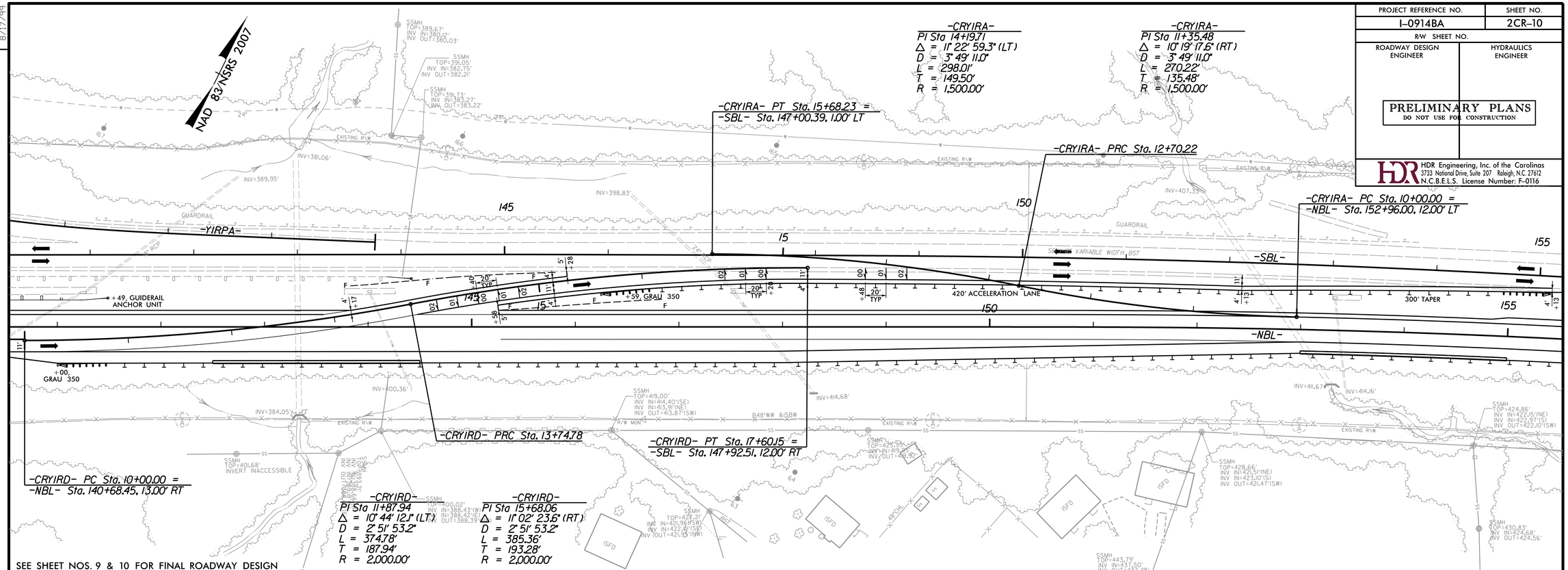
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



8/17/99

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
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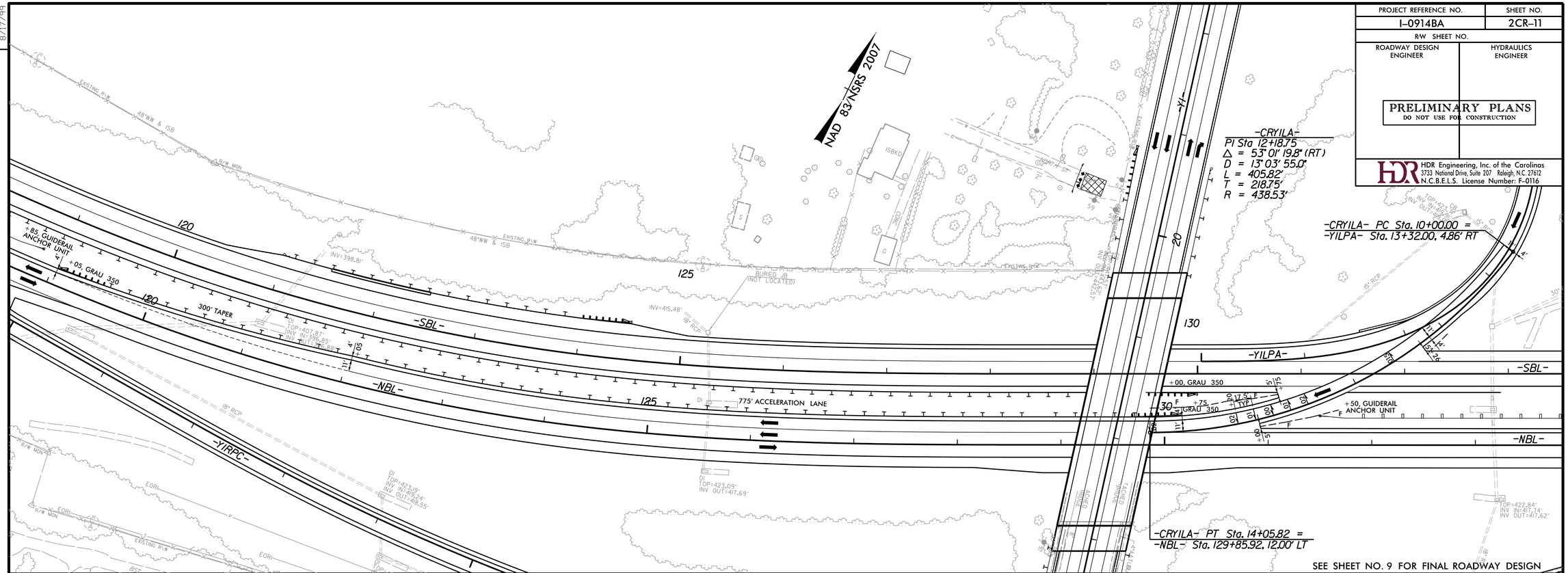
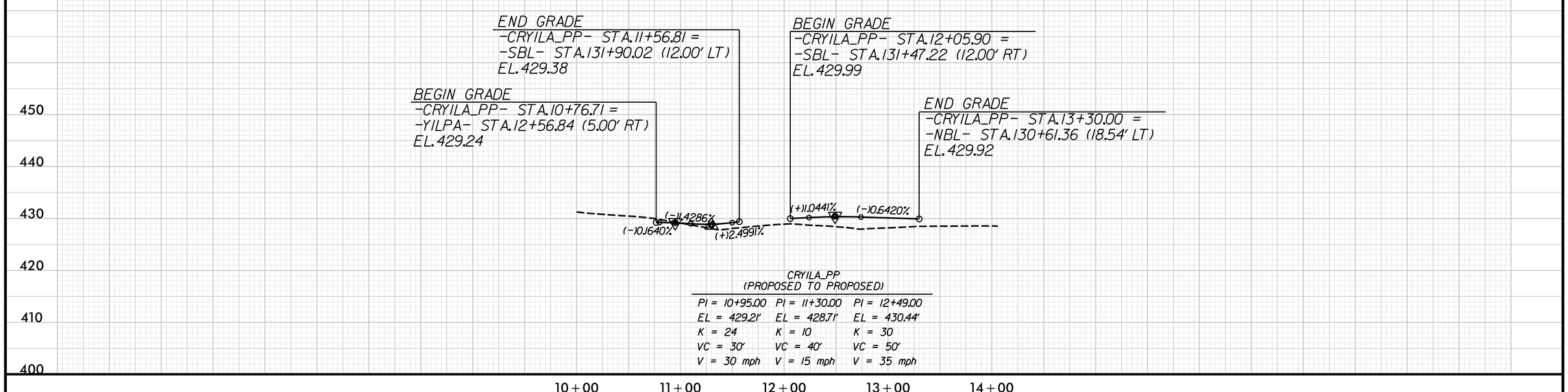
N.C.B.E.L.S. License Number: F-0116





CRYILA_PP
(PROPOSED TO PROPOSED)

PI = 10+95.00	PI = 11+30.00	PI = 12+49.00
EL = 429.21'	EL = 428.71'	EL = 430.44'
K = 24	K = 10	K = 30
VC = 30'	VC = 40'	VC = 50'
V = 30 mph	V = 15 mph	V = 35 mph

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:24:29 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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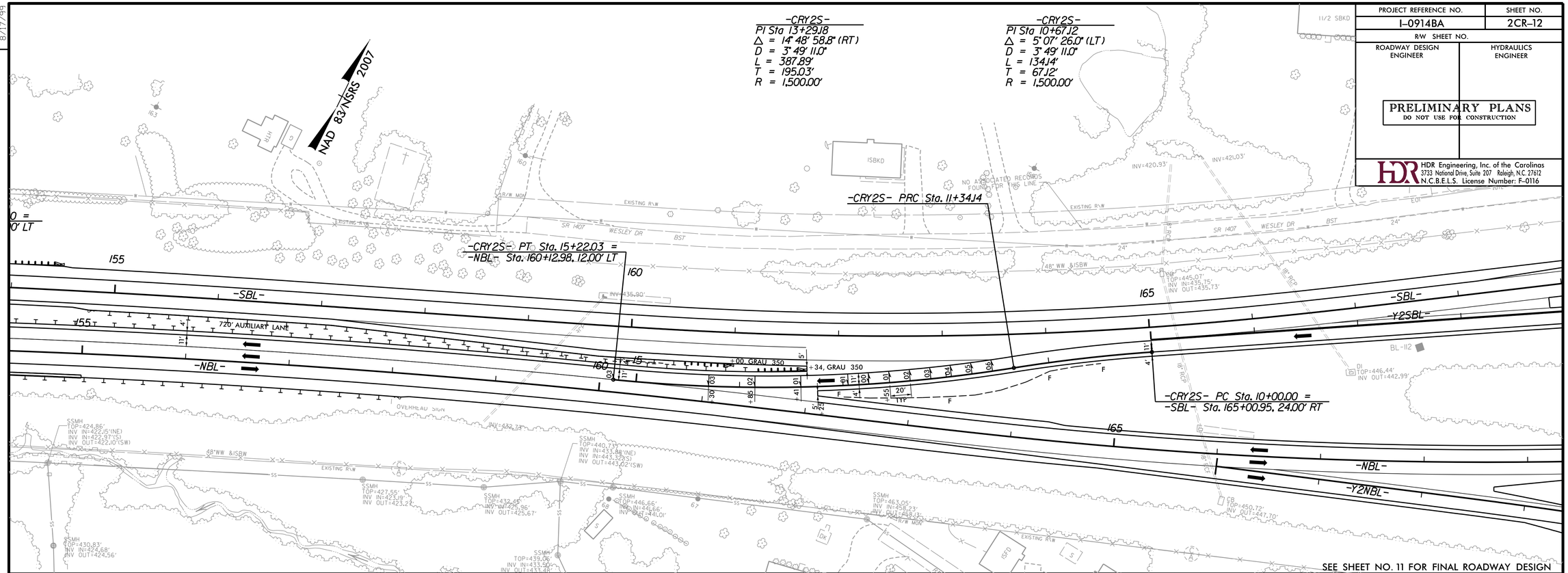
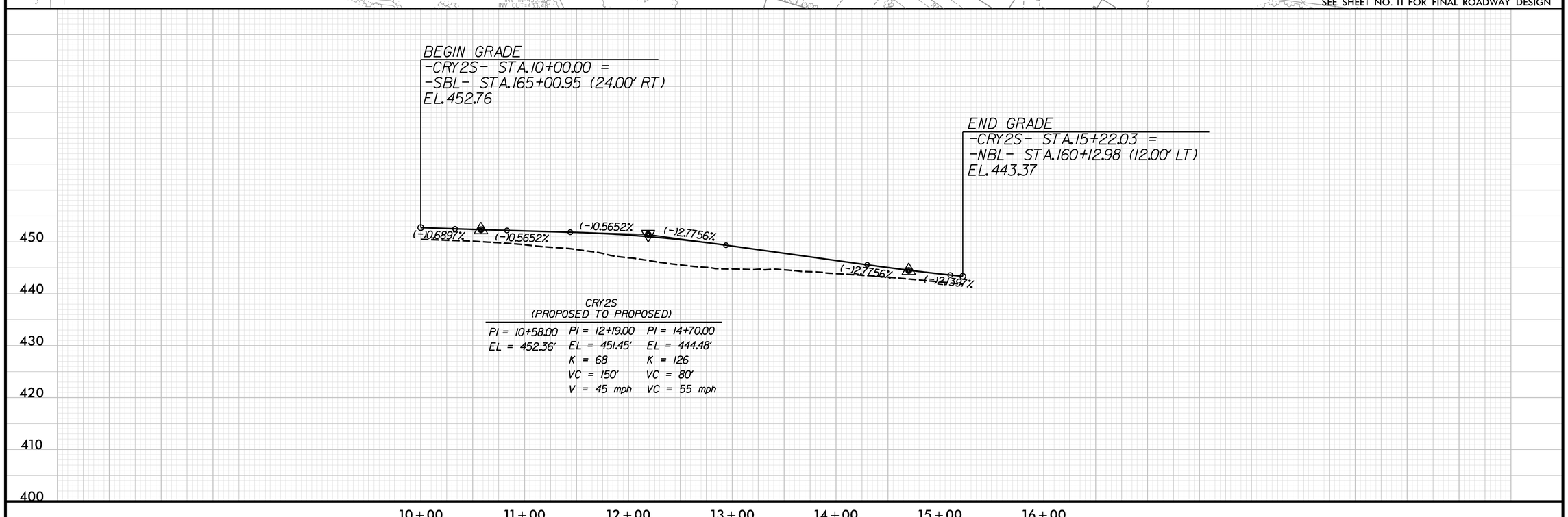
-CRY2S-
PI Sta 13+29.18
Δ = 14° 48' 58.8" (RT)
D = 3° 49' 11.0"
L = 387.89'
T = 195.03'
R = 1,500.00'

-CRY2S-
PI Sta 10+67.12
Δ = 5° 07' 26.0" (LT)
D = 3° 49' 11.0"
L = 134.14'
T = 67.12'
R = 1,500.00'





CRY2S
(PROPOSED TO PROPOSED)

PI = 10+58.00	PI = 12+19.00	PI = 14+70.00
EL = 452.36'	EL = 451.45'	EL = 444.48'
	K = 68	K = 126
	VC = 150'	VC = 80'
	V = 45 mph	VC = 55 mph

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:24:57 PM
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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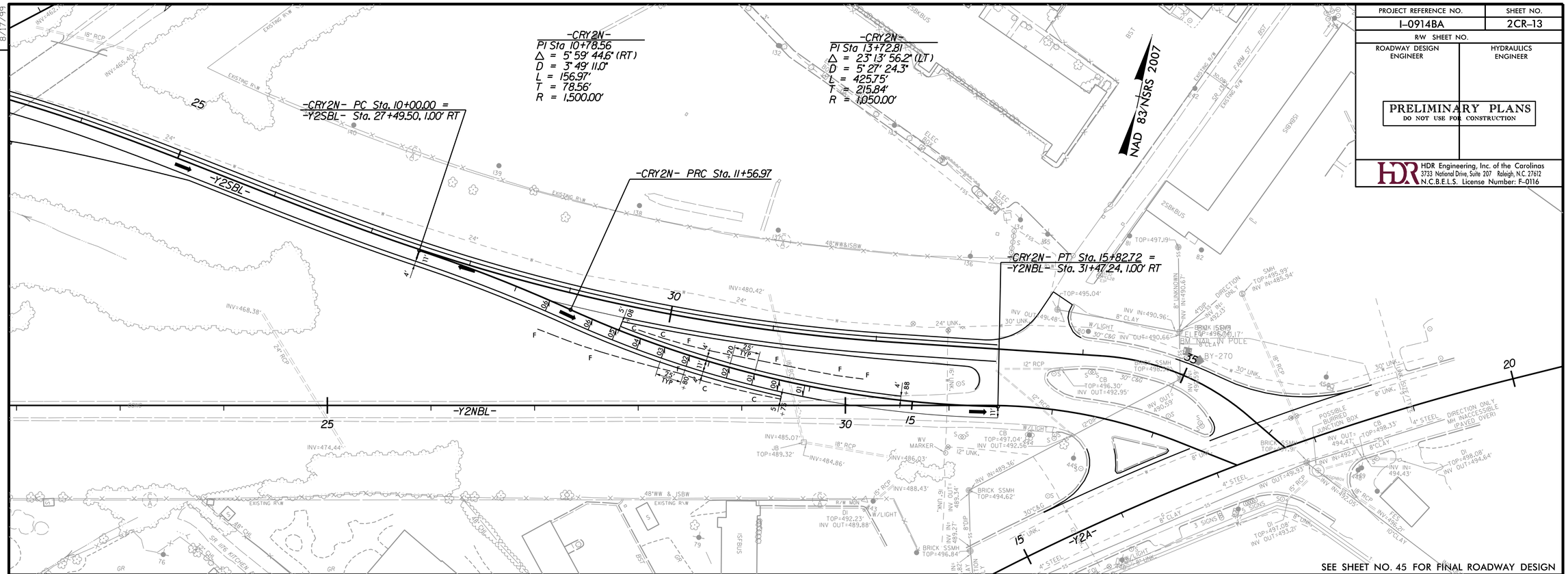
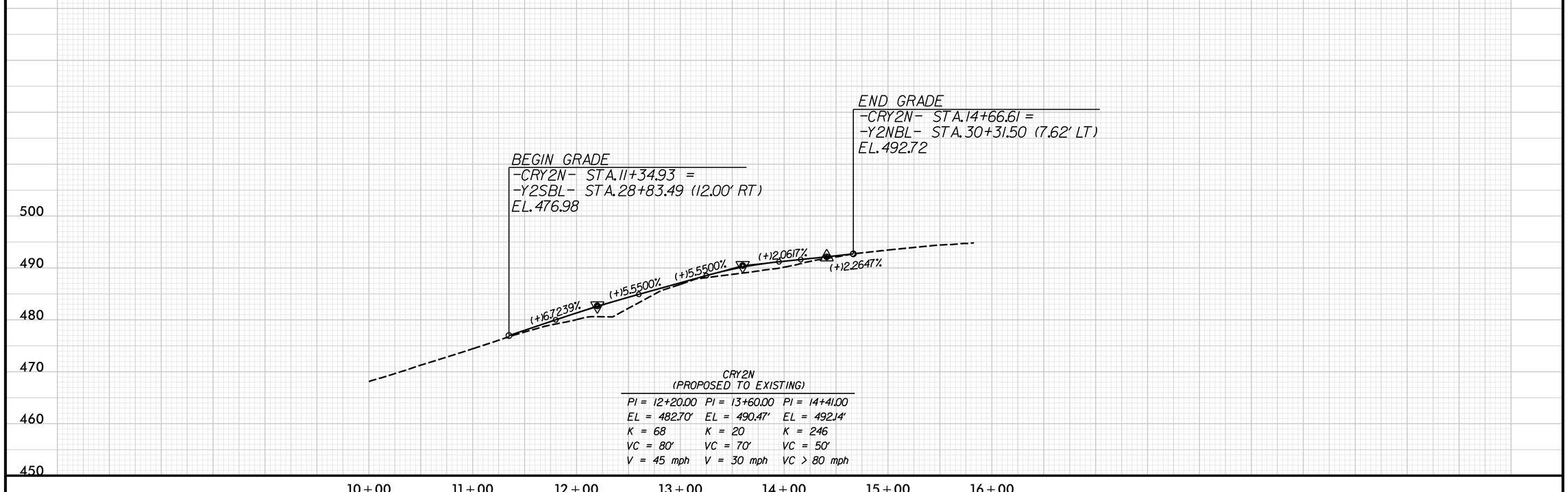
N.C.B.E.L.S. License Number: F-0116





CRY2N
(PROPOSED TO EXISTING)

PI = 12+20.00	PI = 13+60.00	PI = 14+41.00
EL = 482.70'	EL = 490.47'	EL = 492.14'
K = 68	K = 20	K = 246
VC = 80'	VC = 70'	VC = 50'
V = 45 mph	V = 30 mph	VC > 80 mph

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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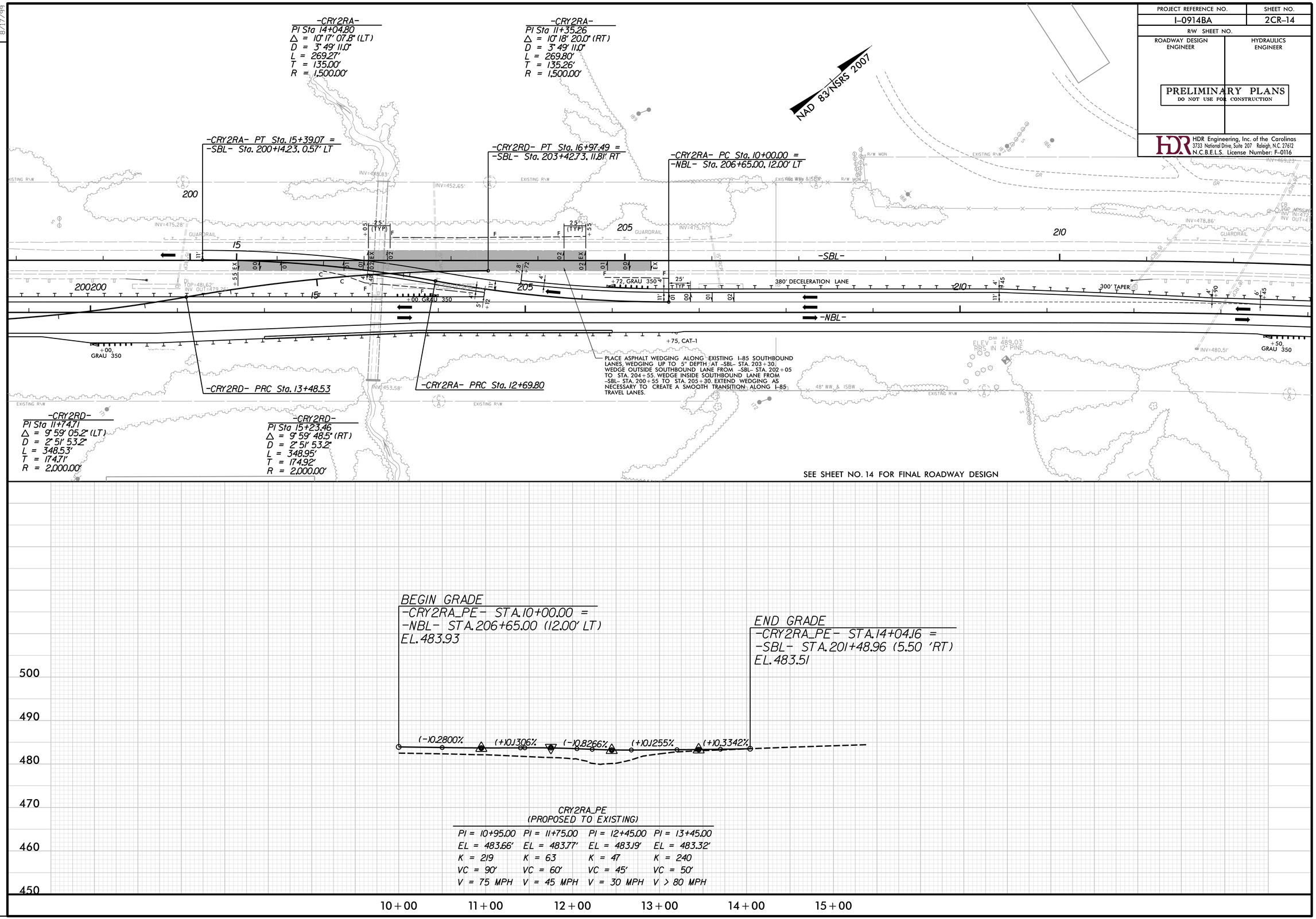

CRY2RA_PE
(PROPOSED TO EXISTING)

PI = 10+95.00	PI = 11+75.00	PI = 12+45.00	PI = 13+45.00
EL = 483.66'	EL = 483.77'	EL = 483.19'	EL = 483.32'
K = 219	K = 63	K = 47	K = 240
VC = 90'	VC = 60'	VC = 45'	VC = 50'
V = 75 MPH	V = 45 MPH	V = 30 MPH	V > 80 MPH

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:25:50 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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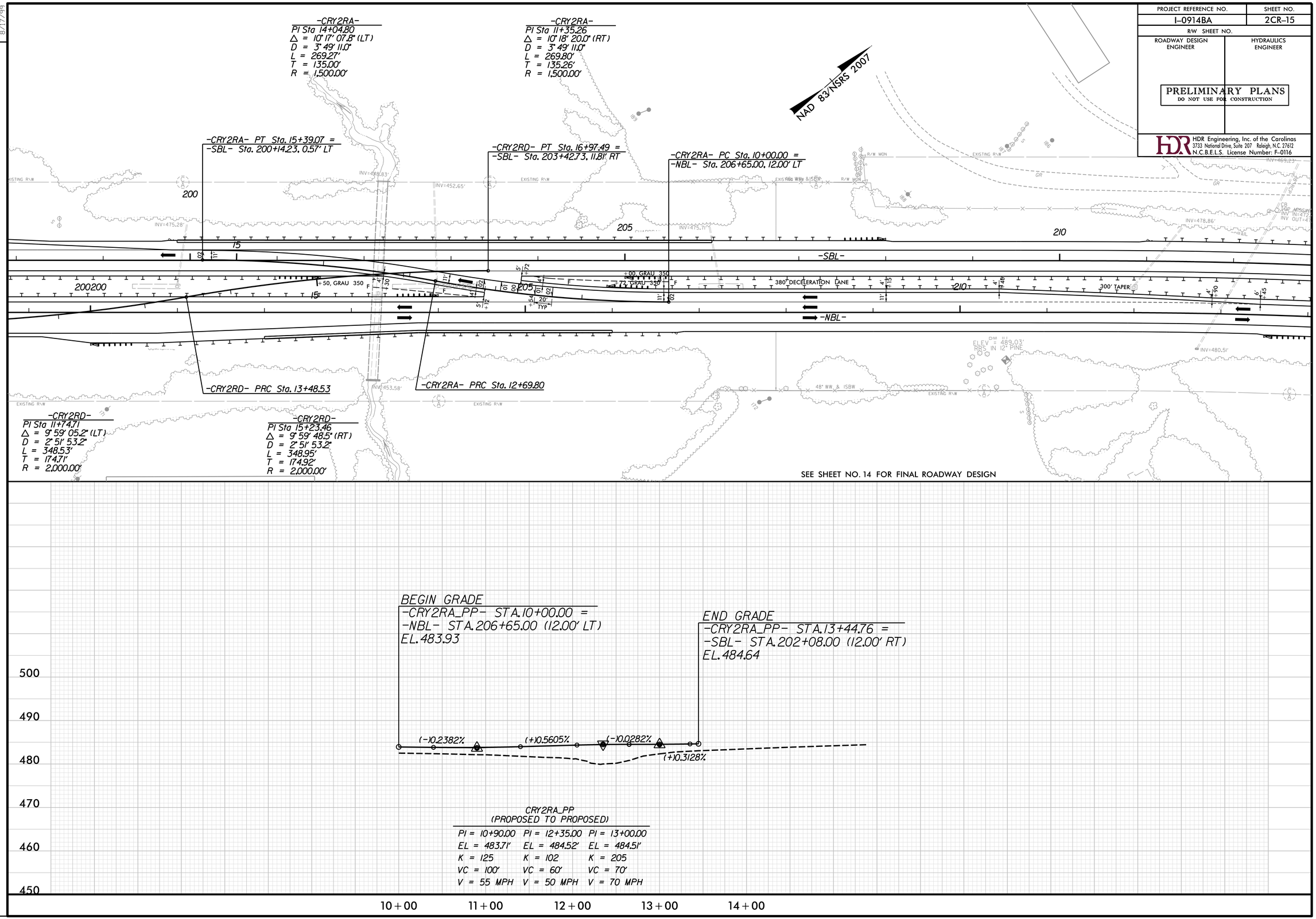
N.C.B.E.L.S. License Number: F-0116



CRY2RA_PP
(PROPOSED TO PROPOSED)

PI = 10+90.00	PI = 12+35.00	PI = 13+00.00
EL = 483.71'	EL = 484.52'	EL = 484.51'
K = 125	K = 102	K = 205
VC = 100'	VC = 60'	VC = 70'
V = 55 MPH	V = 50 MPH	V = 70 MPH

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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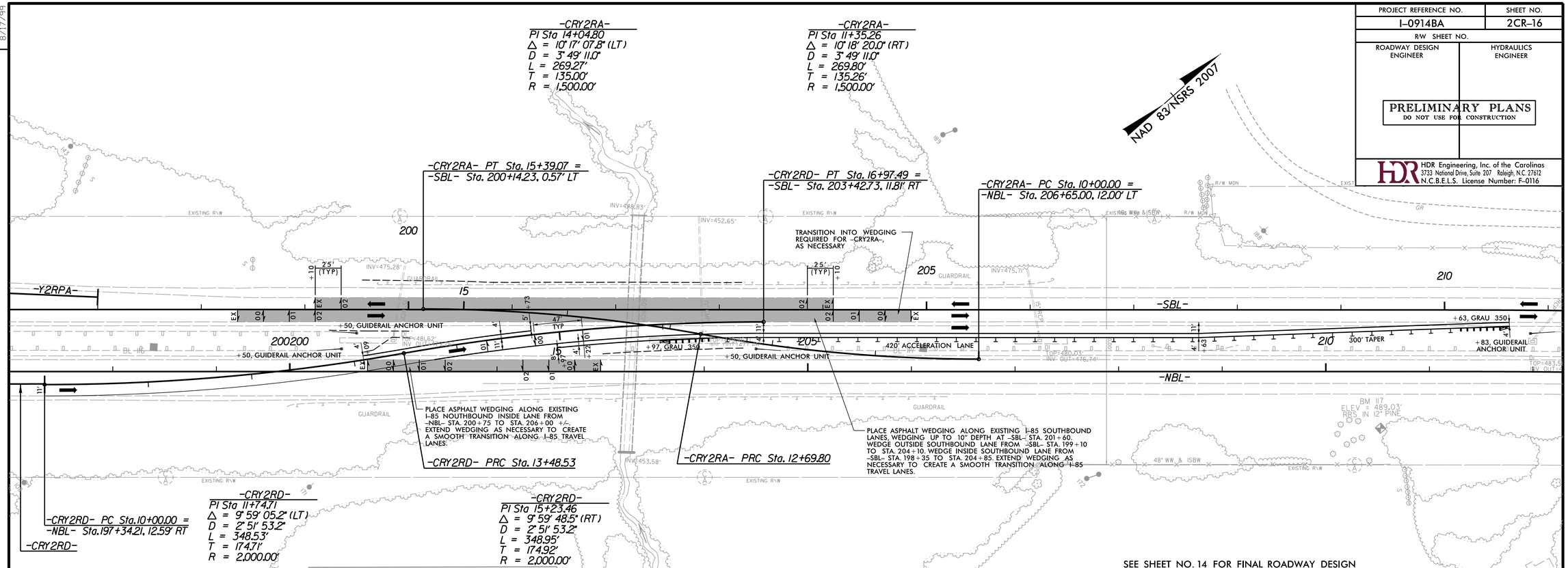
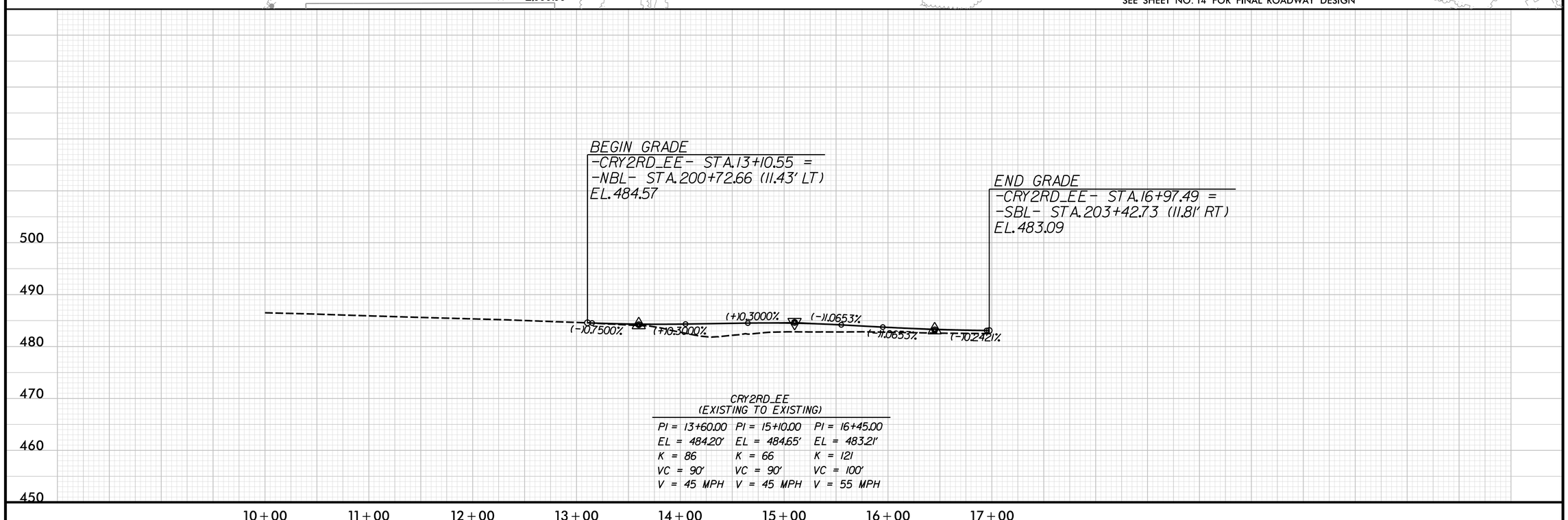
N.C.B.E.L.S. License Number: F-0116





CRY2RD_EE
(EXISTING TO EXISTING)

PI = 13+60.00	PI = 15+10.00	PI = 16+45.00
EL = 484.20'	EL = 484.65'	EL = 483.21'
K = 86	K = 66	K = 121
VC = 90'	VC = 90'	VC = 100'
V = 45 MPH	V = 45 MPH	V = 55 MPH

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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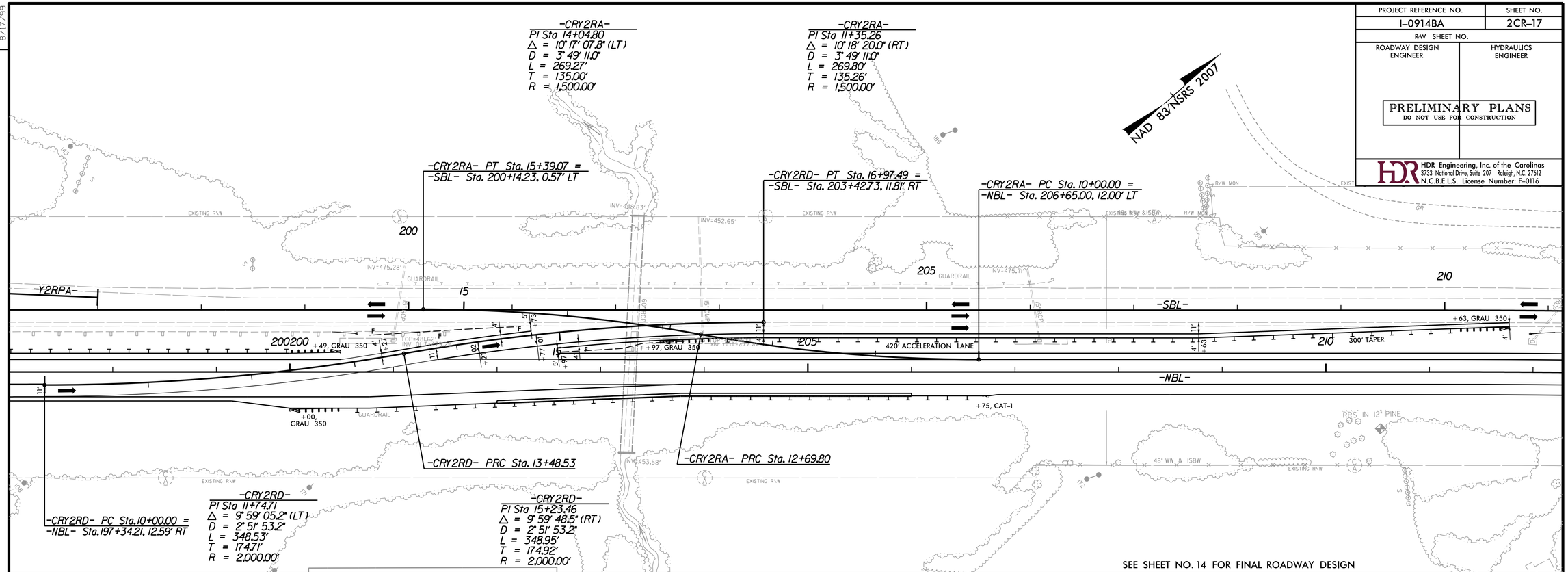
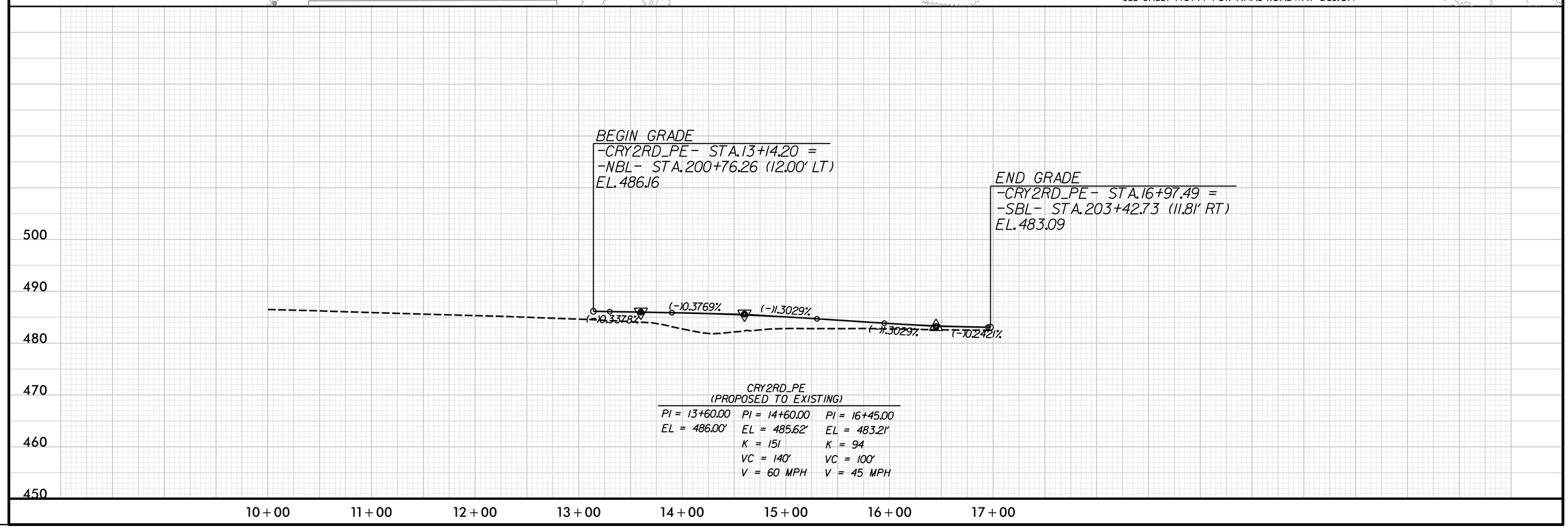
N.C.B.E.L.S. License Number: F-0116





REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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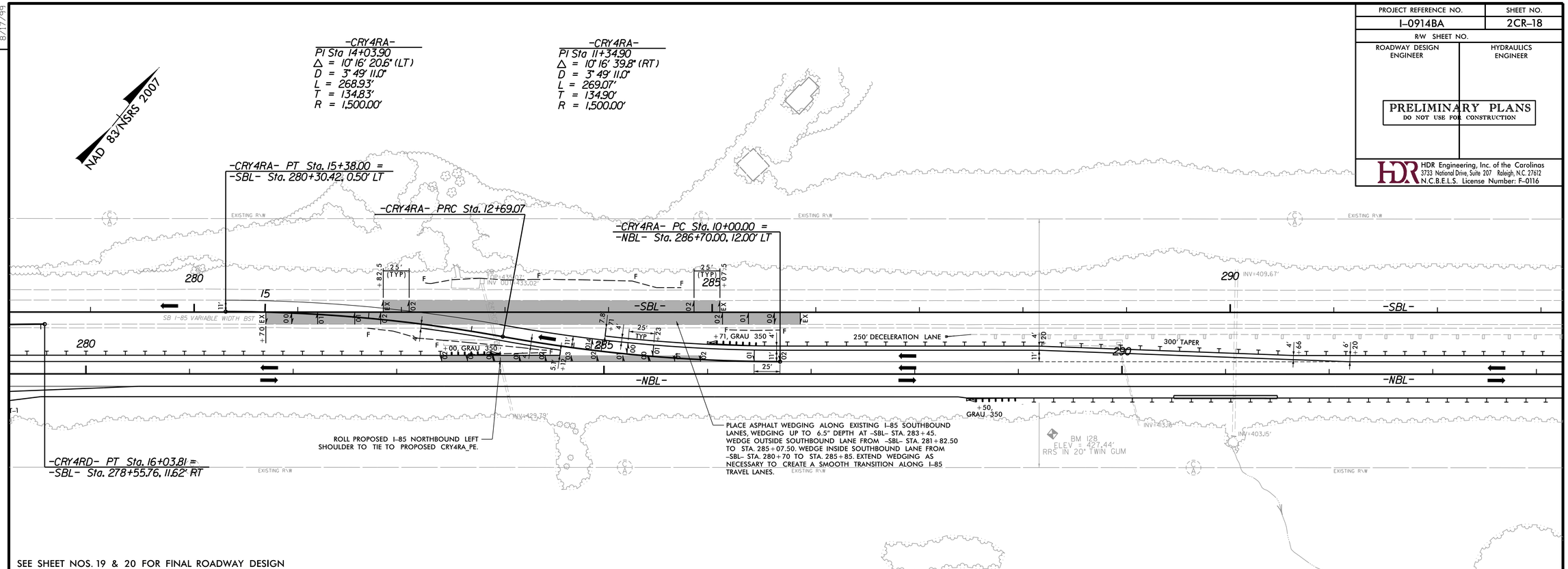
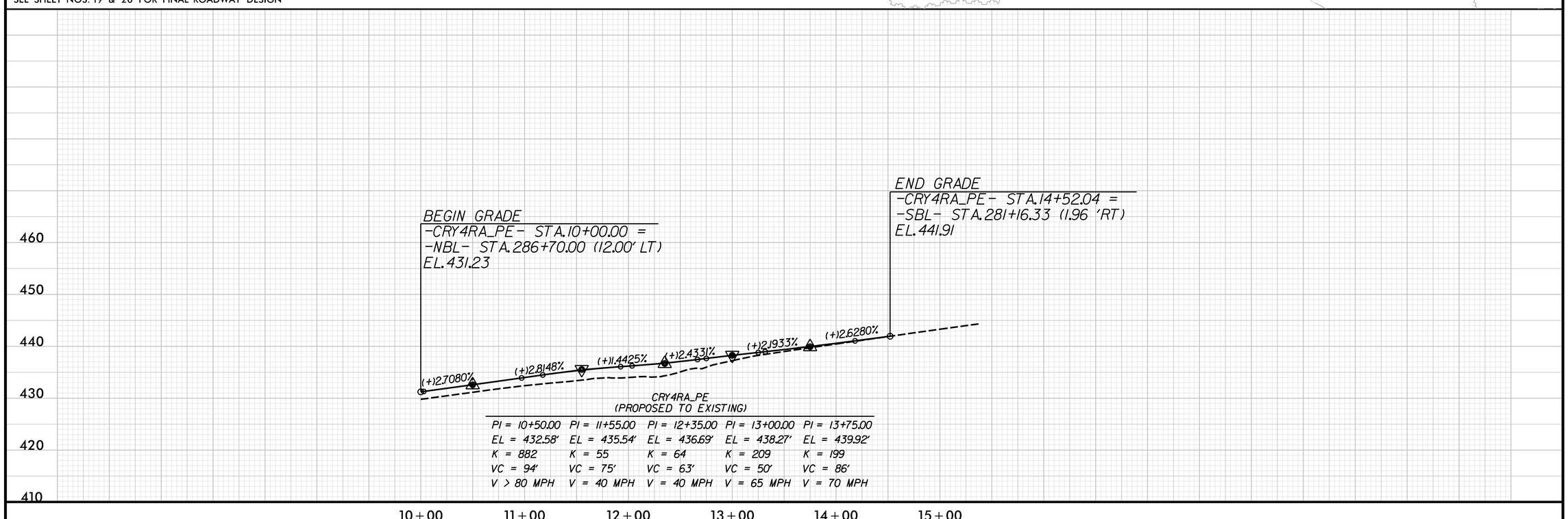
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NOS. 19 & 20 FOR FINAL ROADWAY DESIGN



CRY4RA_PE
(PROPOSED TO EXISTING)

PI = 10+50.00	PI = 11+55.00	PI = 12+35.00	PI = 13+00.00	PI = 13+75.00
EL = 432.58'	EL = 435.54'	EL = 436.69'	EL = 438.27'	EL = 439.92'
K = 882	K = 55	K = 64	K = 209	K = 199
VC = 94'	VC = 75'	VC = 63'	VC = 50'	VC = 86'
V > 80 MPH	V = 40 MPH	V = 40 MPH	V = 65 MPH	V = 70 MPH

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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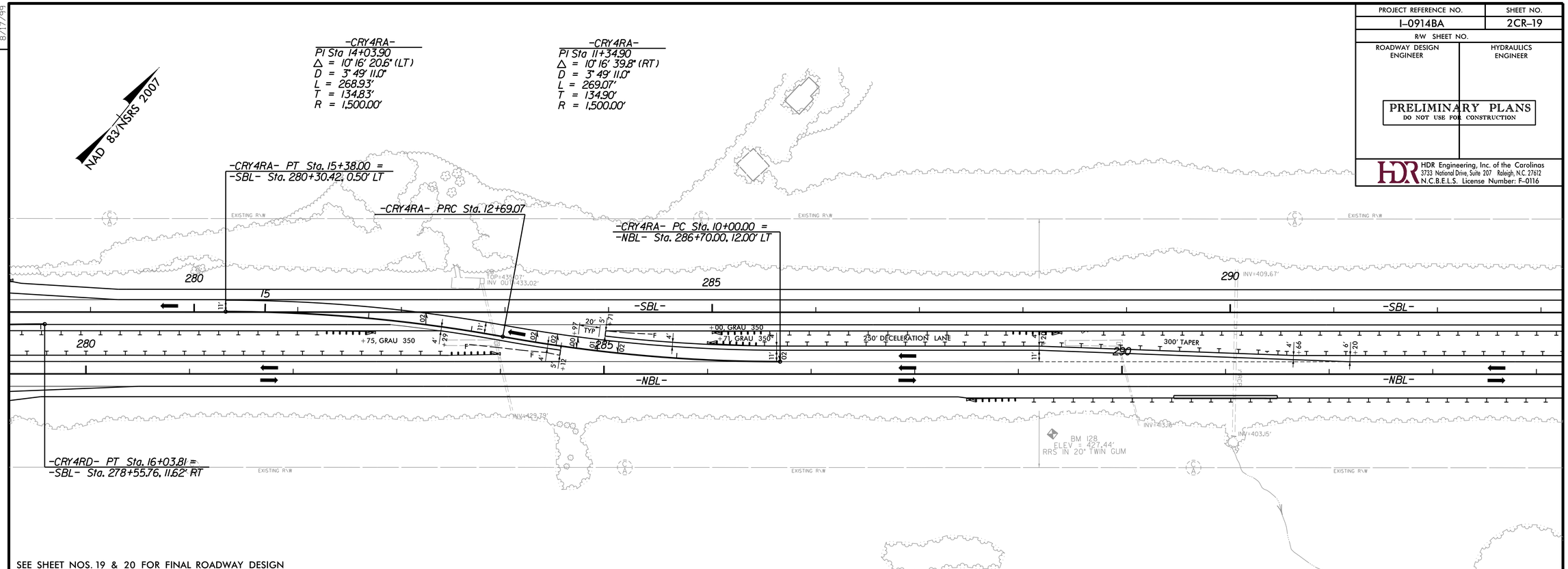
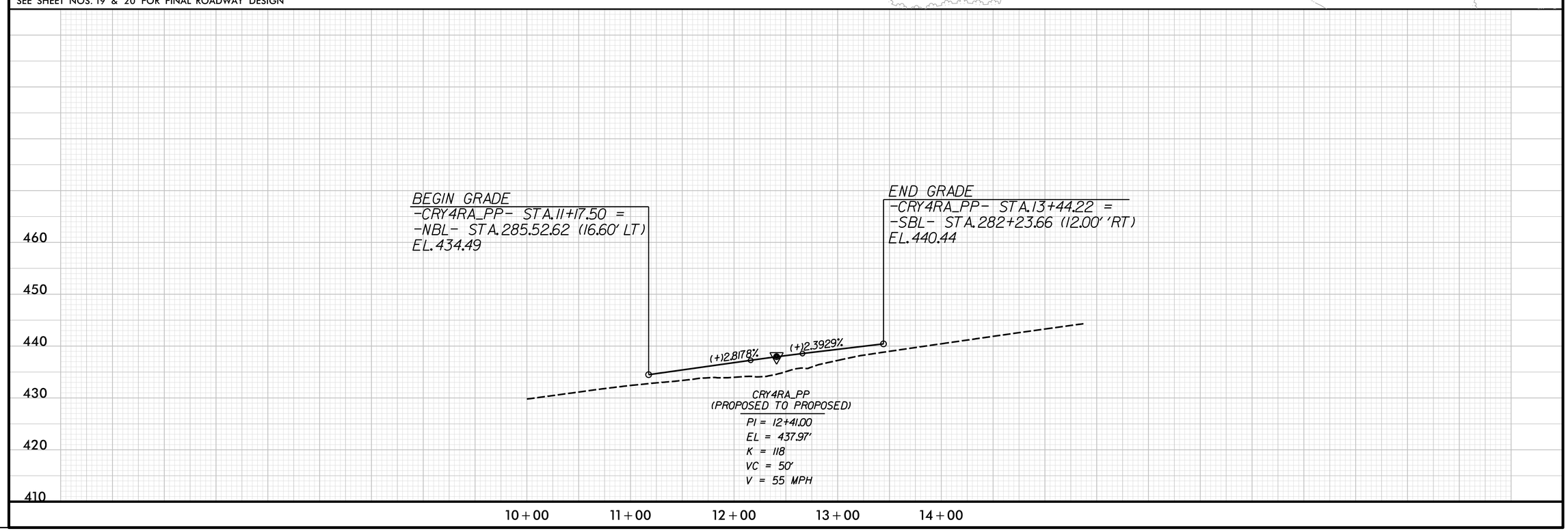
N.C.B.E.L.S. License Number: F-0116





REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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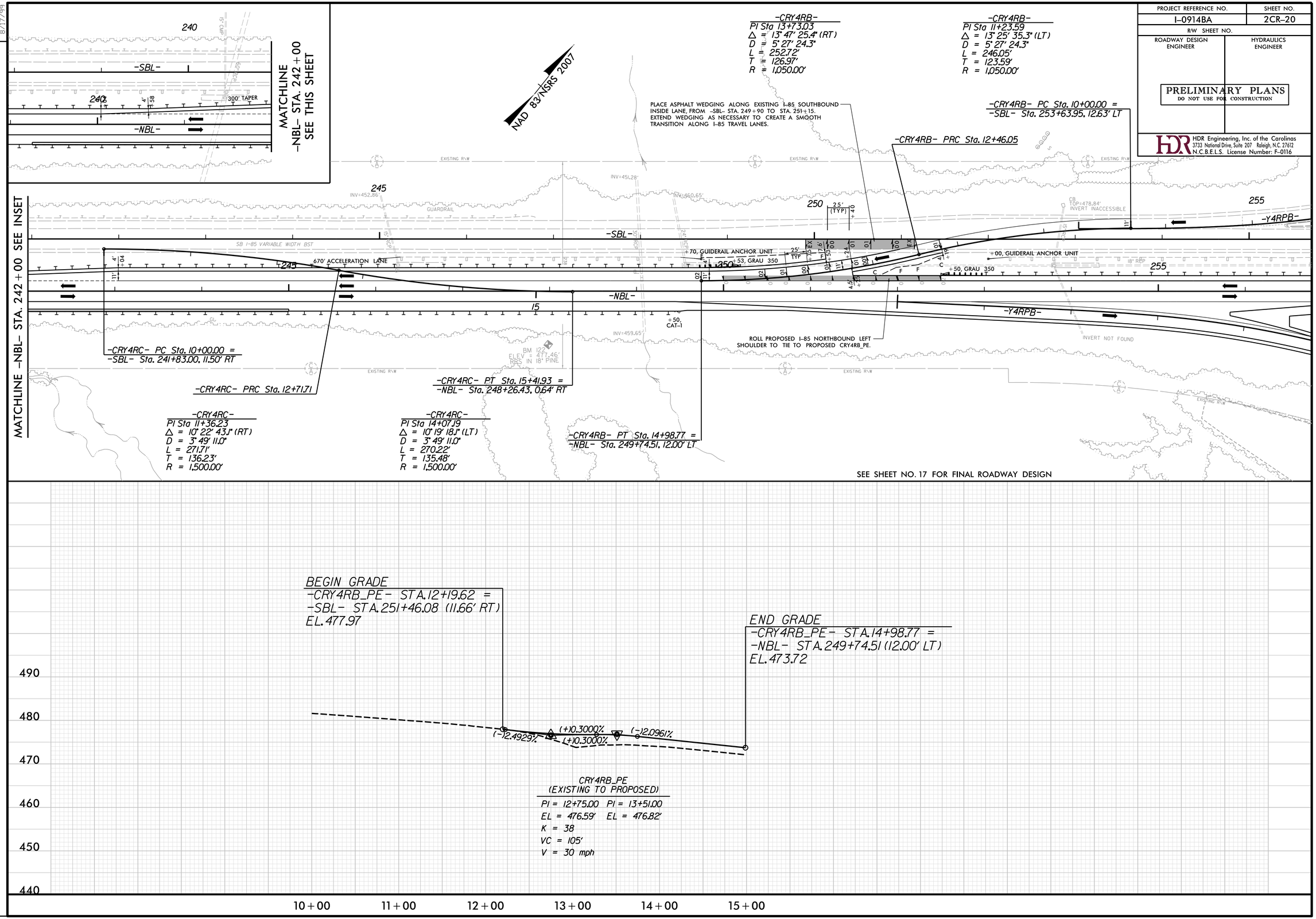
N.C.B.E.L.S. License Number: F-0116

8/17/99



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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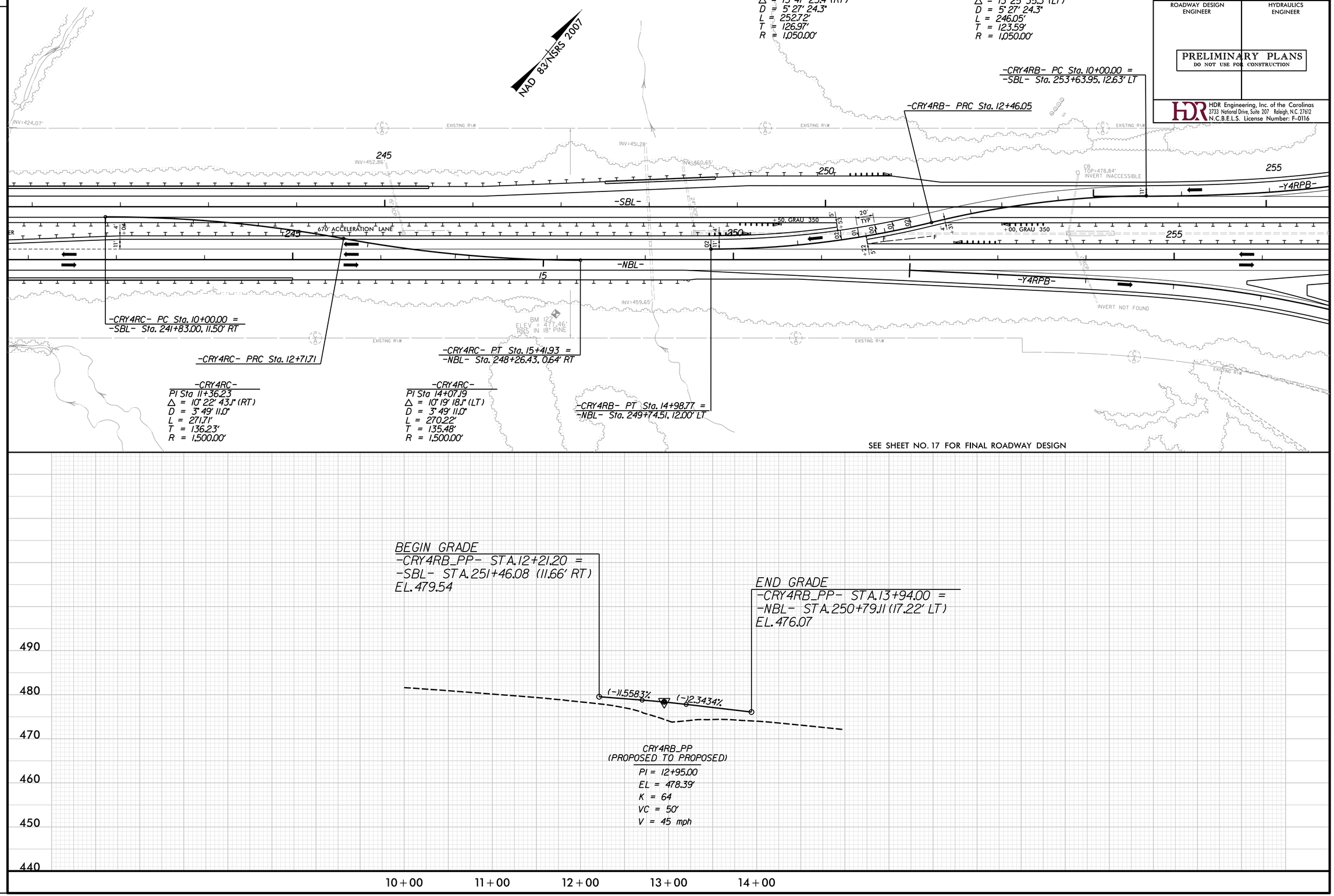
N.C.B.E.L.S. License Number: F-0116



REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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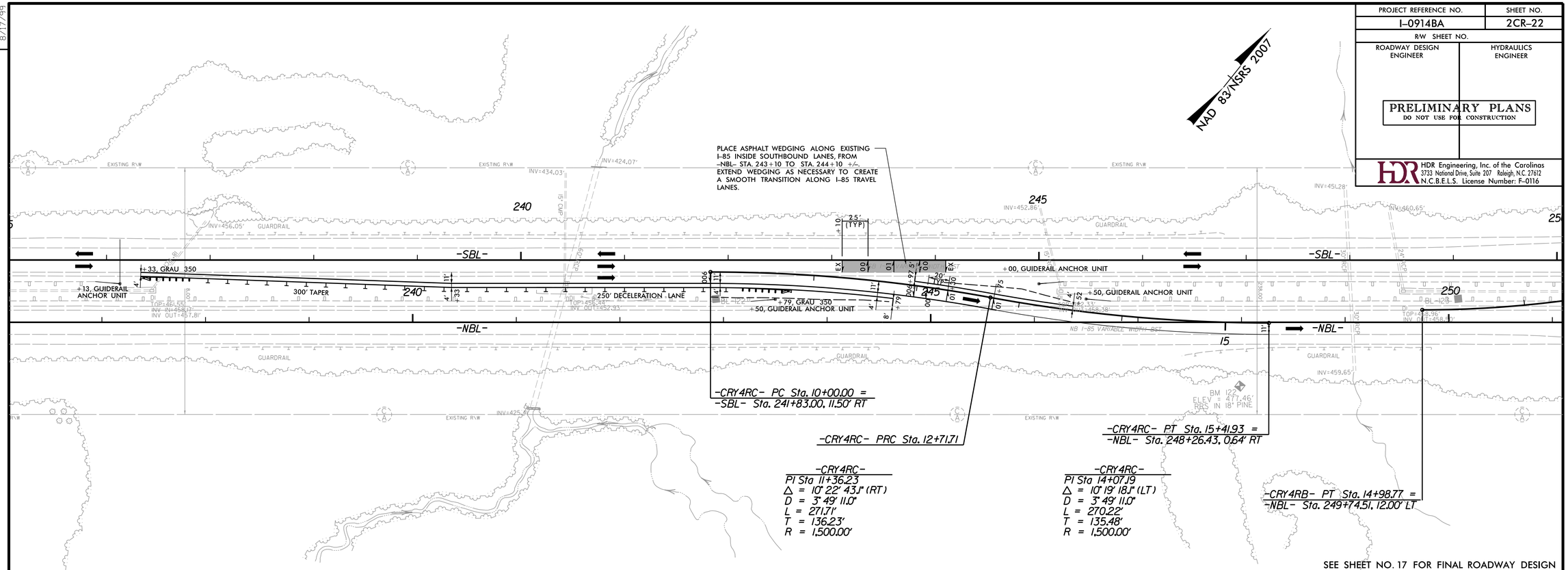
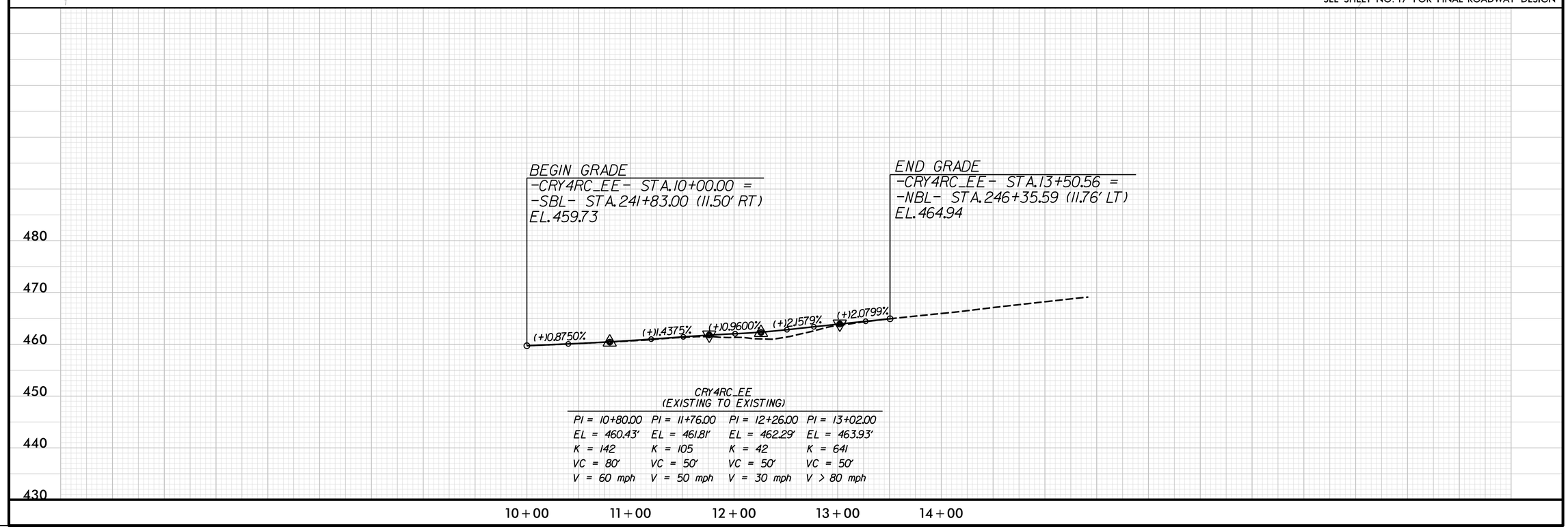
N.C.B.E.L.S. License Number: F-0116

NAD 83/NSRS 2007



SEE SHEET NO. 17 FOR FINAL ROADWAY DESIGN



CRY4RC_EE
(EXISTING TO EXISTING)

PI = 10+80.00	PI = 11+76.00	PI = 12+26.00	PI = 13+02.00
EL = 460.43'	EL = 461.81'	EL = 462.29'	EL = 463.93'
K = 142	K = 105	K = 42	K = 641
VC = 80'	VC = 50'	VC = 50'	VC = 50'
V = 60 mph	V = 50 mph	V = 30 mph	V > 80 mph

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:29:26 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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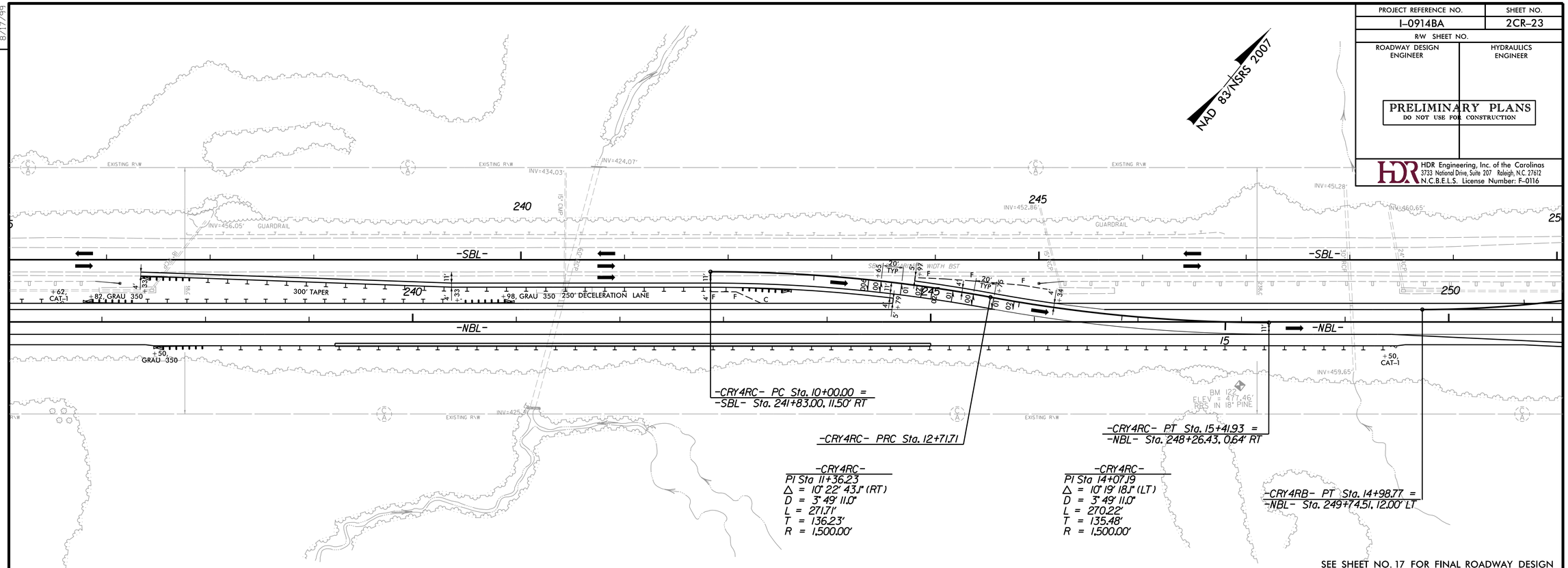
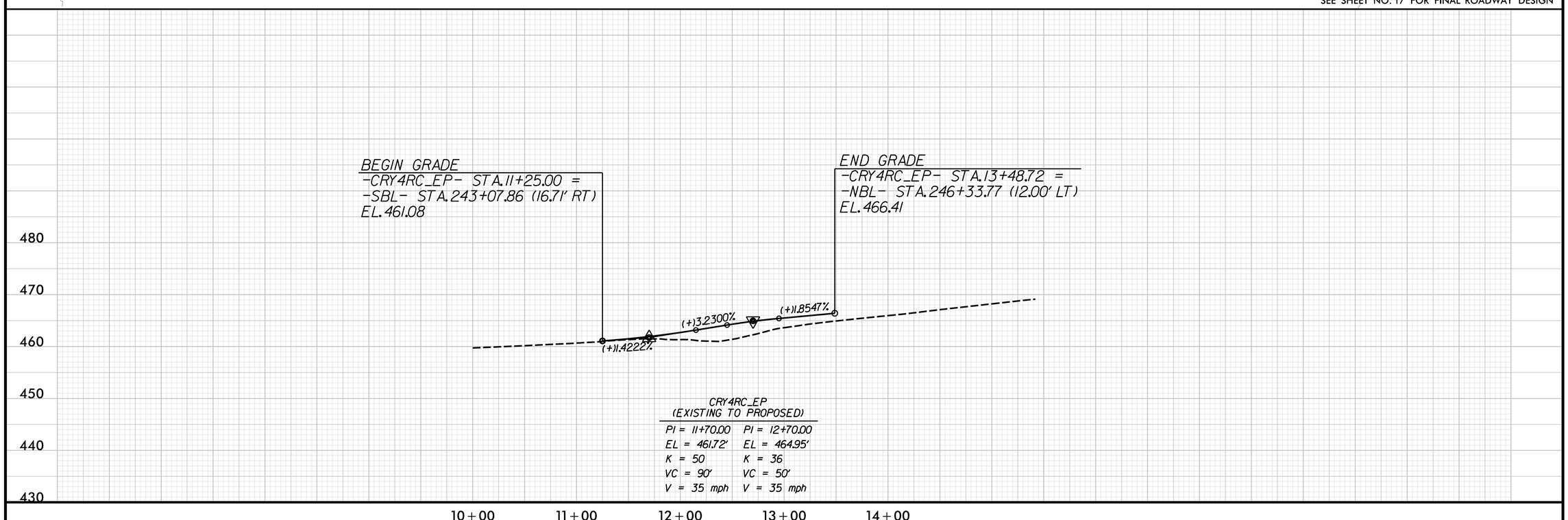
NAD 83/NSRS 2007



SEE SHEET NO. 17 FOR FINAL ROADWAY DESIGN



CRY4RC_EP
(EXISTING TO PROPOSED)

PI = 11+70.00	PI = 12+70.00
EL = 461.72'	EL = 464.95'
K = 50	K = 36
VC = 90'	VC = 50'
V = 35 mph	V = 35 mph

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:29:57 PM
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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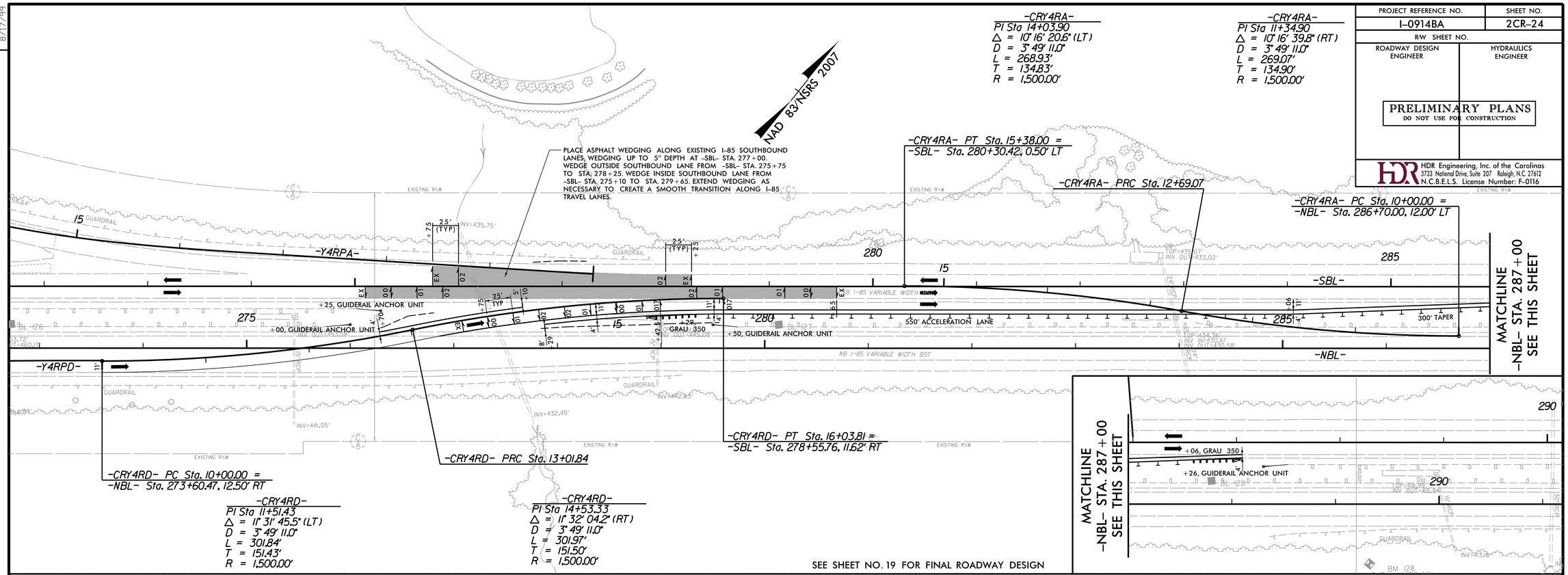
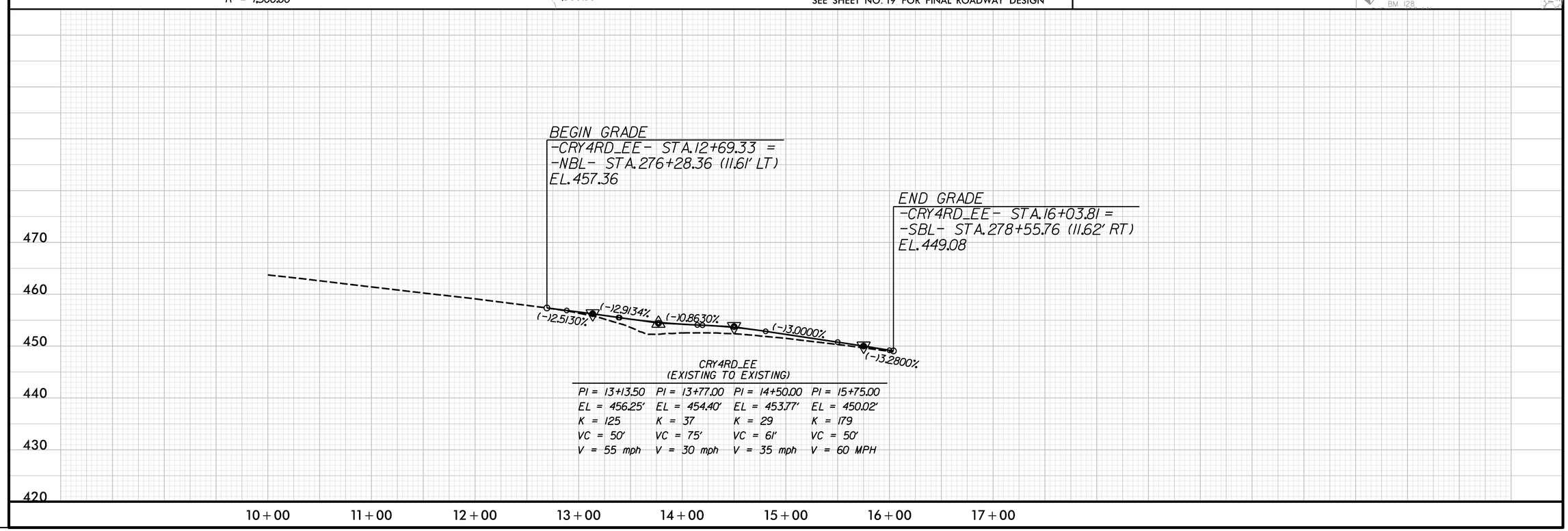
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NO. 19 FOR FINAL ROADWAY DESIGN



CRY4RD_EE
(EXISTING TO EXISTING)

PI = 13+13.50	PI = 13+77.00	PI = 14+50.00	PI = 15+75.00
EL = 456.25'	EL = 454.40'	EL = 453.77'	EL = 450.02'
K = 125	K = 37	K = 29	K = 179
VC = 50'	VC = 75'	VC = 61'	VC = 50'
V = 55 mph	V = 30 mph	V = 35 mph	V = 60 MPH

8/17/99

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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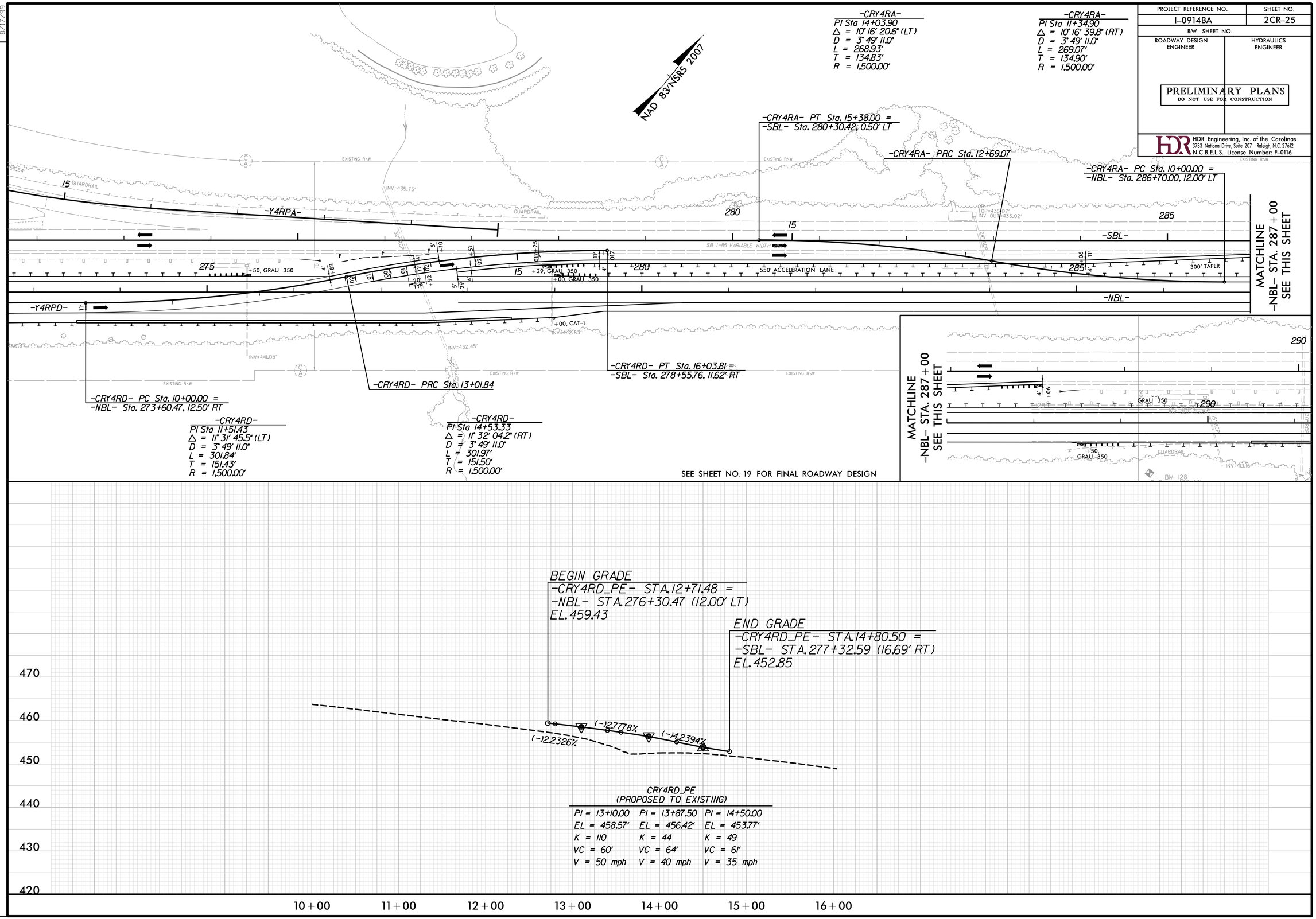
N.C.B.E.L.S. License Number: F-0116



CRY4RD_PE
(PROPOSED TO EXISTING)

PI = 13+10.00	PI = 13+87.50	PI = 14+50.00
EL = 458.57'	EL = 456.42'	EL = 453.77'
K = 110	K = 44	K = 49
VC = 60'	VC = 64'	VC = 61'
V = 50 mph	V = 40 mph	V = 35 mph

8/17/99

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:30:52 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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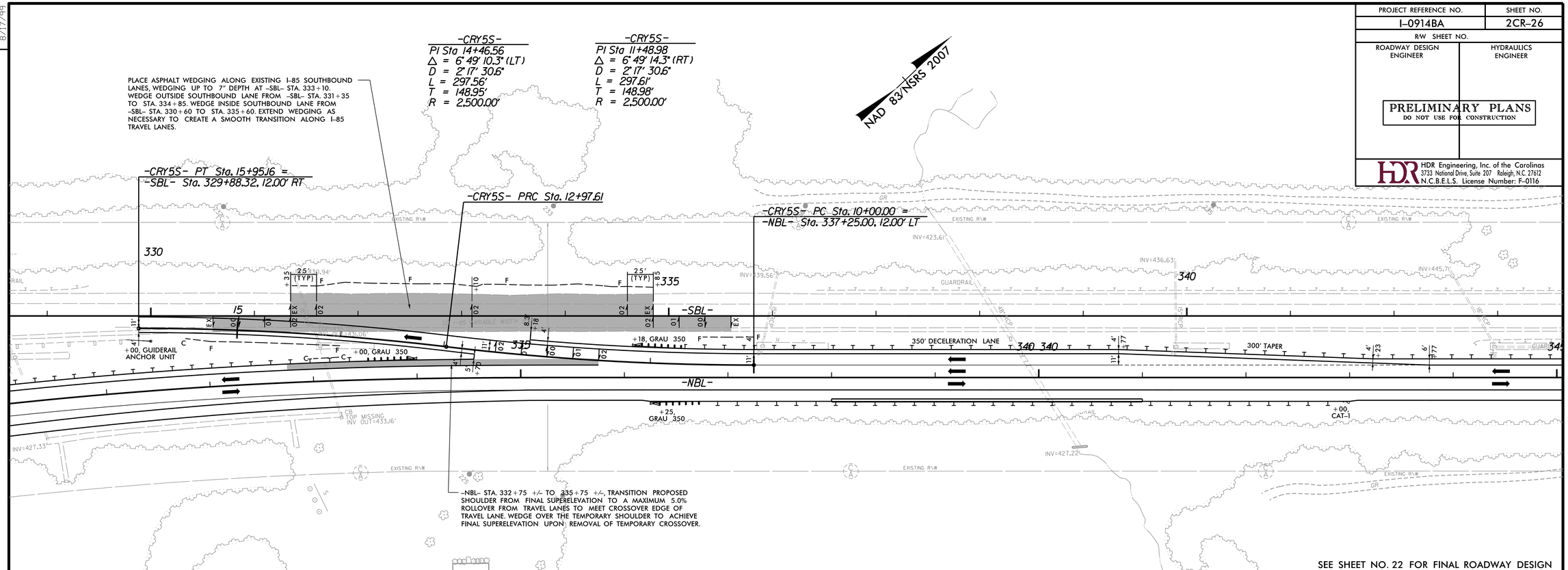
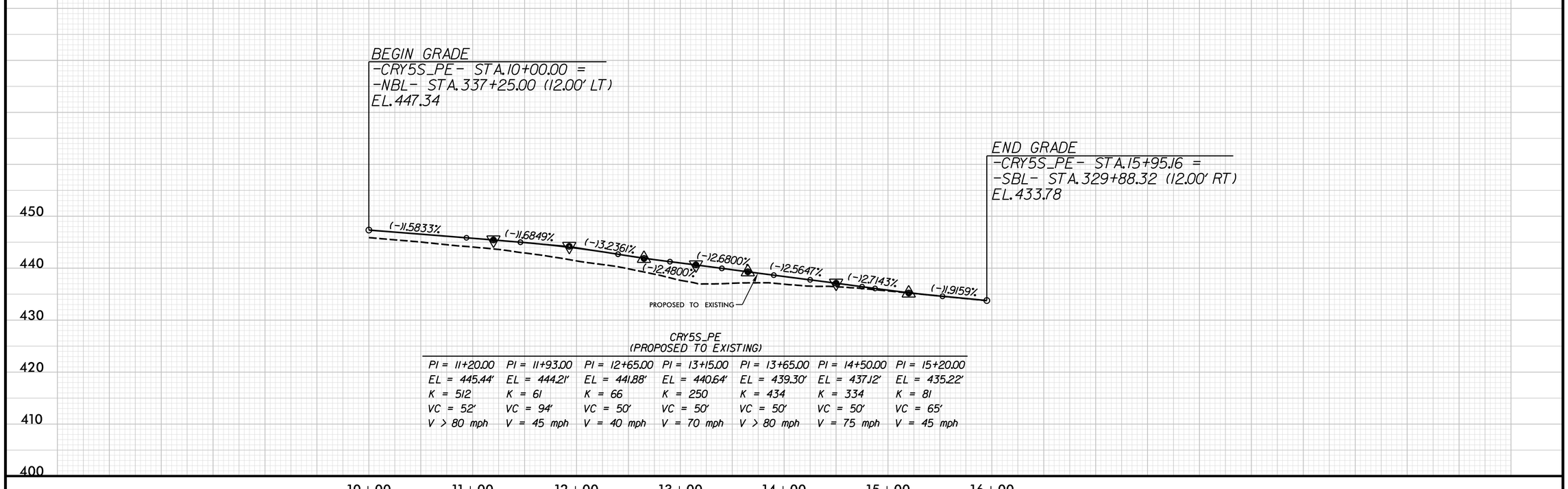


SEE SHEET NO. 22 FOR FINAL ROADWAY DESIGN



CRY5S_PE
(PROPOSED TO EXISTING)

PI = 11+20.00	PI = 11+93.00	PI = 12+65.00	PI = 13+15.00	PI = 13+65.00	PI = 14+50.00	PI = 15+20.00
EL = 445.44'	EL = 444.21'	EL = 441.88'	EL = 440.64'	EL = 439.30'	EL = 437.12'	EL = 435.22'
K = 512	K = 61	K = 66	K = 250	K = 434	K = 334	K = 81
VC = 52'	VC = 94'	VC = 50'	VC = 50'	VC = 50'	VC = 50'	VC = 65'
V > 80 mph	V = 45 mph	V = 40 mph	V = 70 mph	V > 80 mph	V = 75 mph	V = 45 mph

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:31:21 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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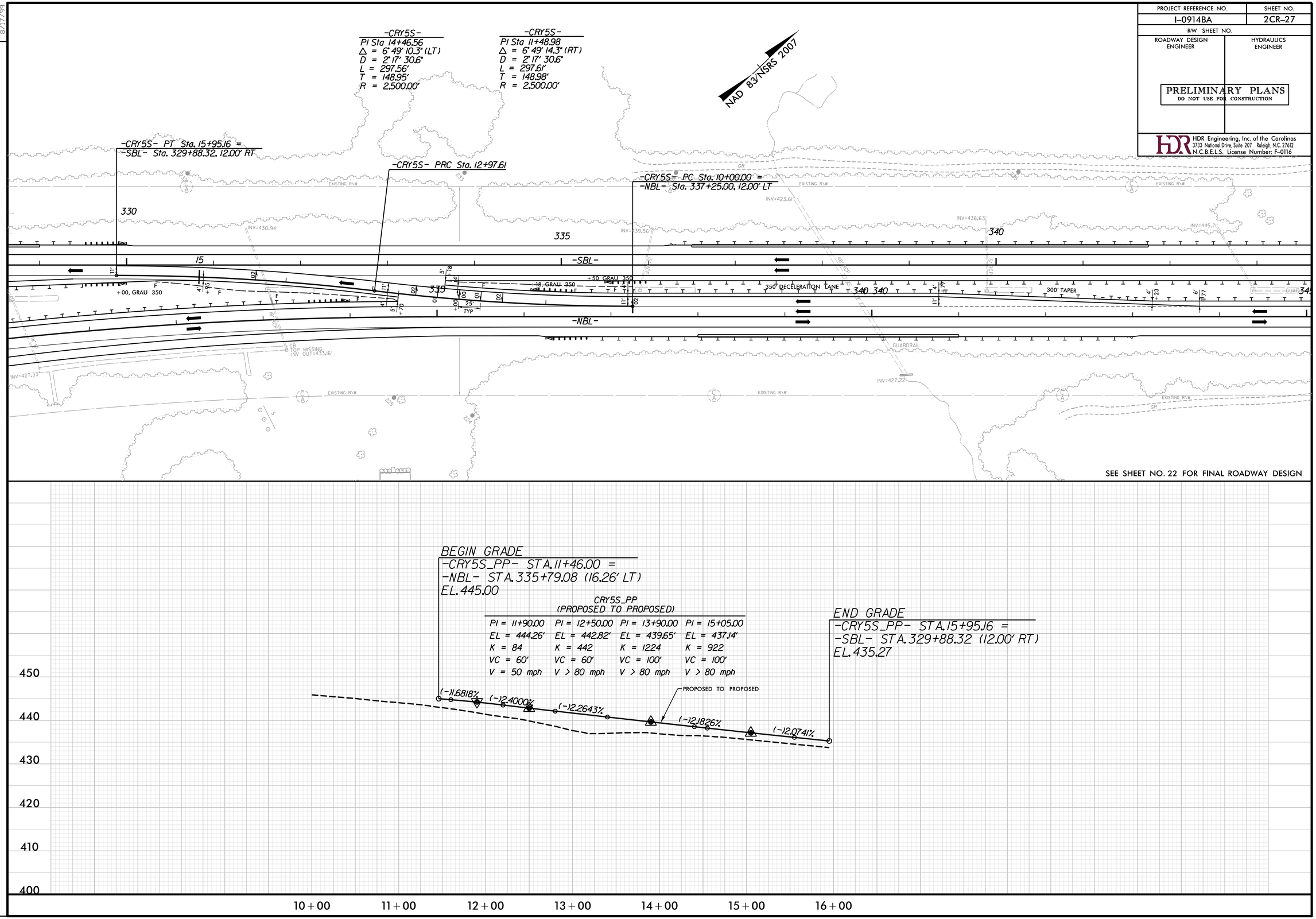

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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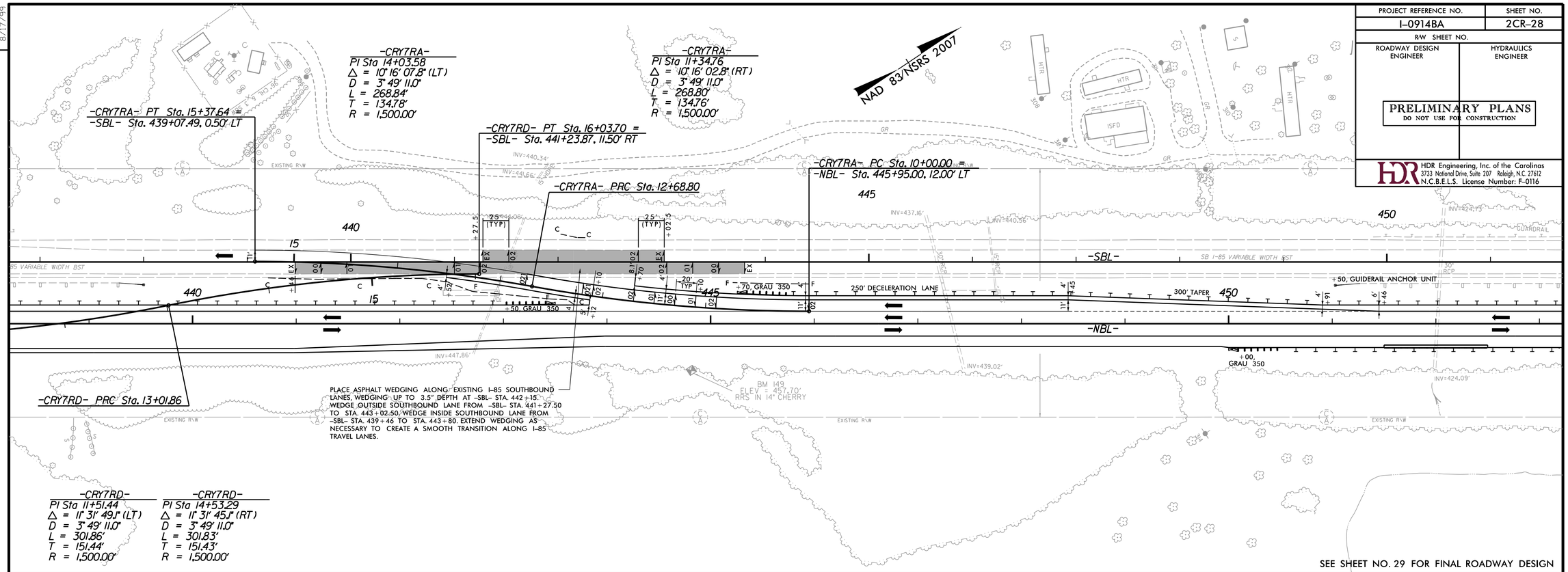
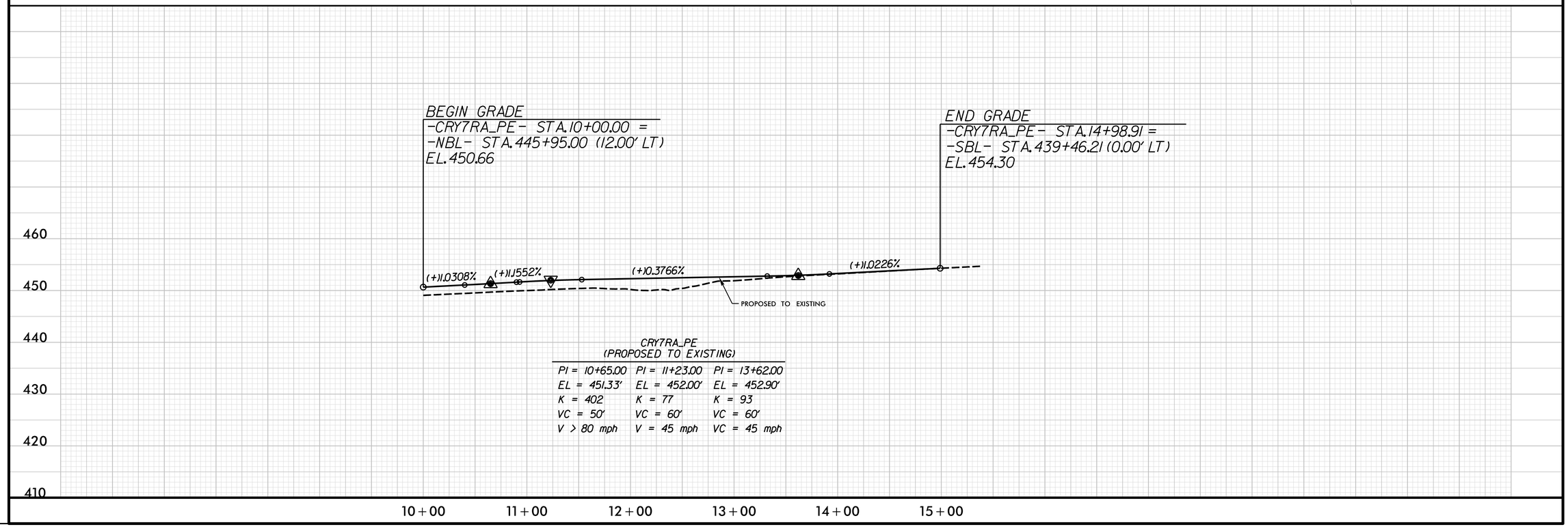


SEE SHEET NO. 29 FOR FINAL ROADWAY DESIGN



CRY7RA_PE
(PROPOSED TO EXISTING)

PI = 10+65.00	PI = 11+23.00	PI = 13+62.00
EL = 451.33'	EL = 452.00'	EL = 452.90'
K = 402	K = 77	K = 93
VC = 50'	VC = 60'	VC = 60'
V > 80 mph	V = 45 mph	VC = 45 mph

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwalnwrl DATE: 2/28/2014 TIME: 9:32:17 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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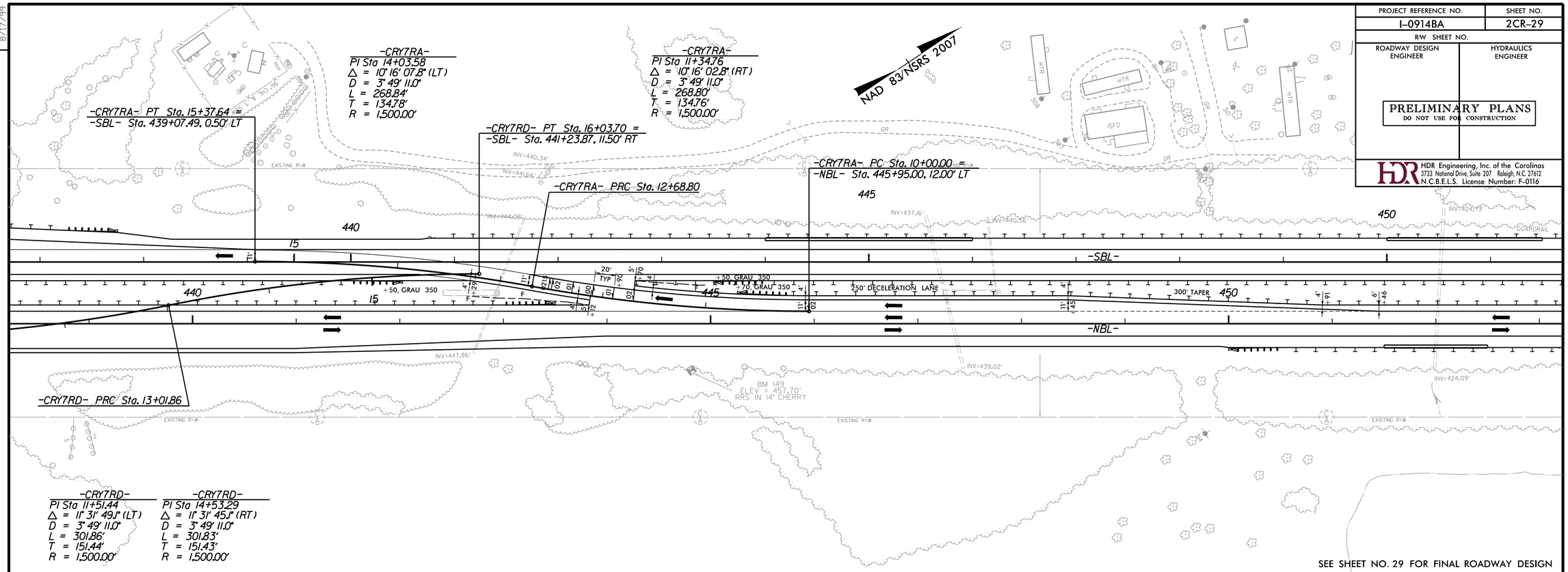
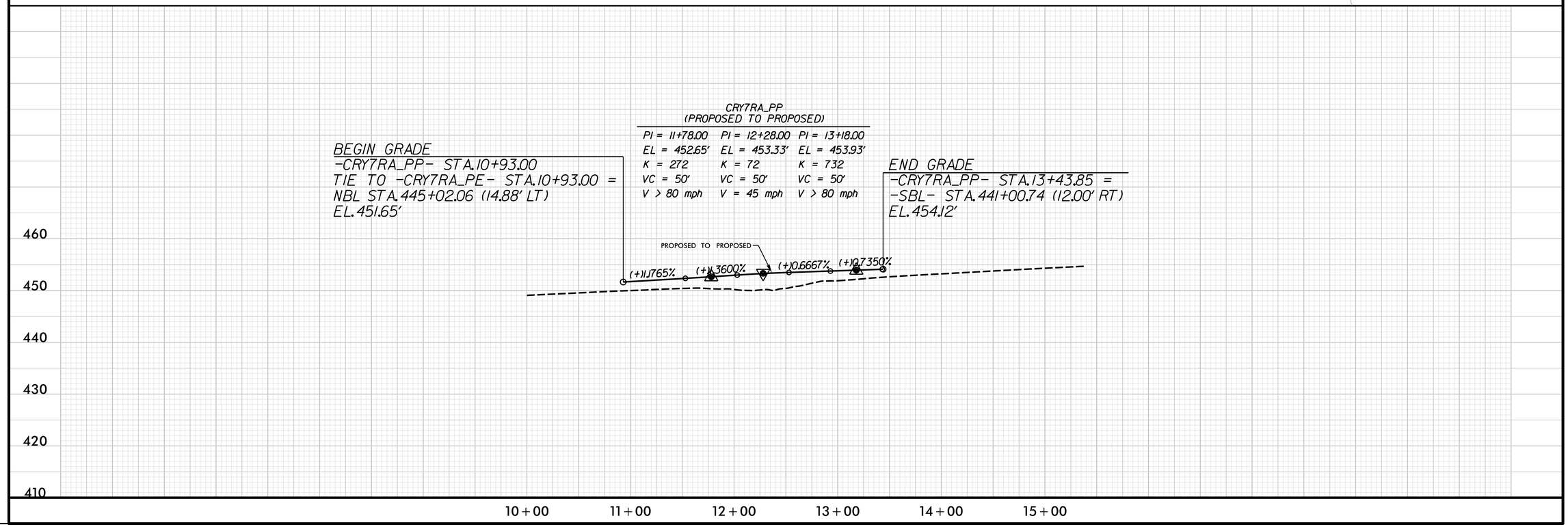


SEE SHEET NO. 29 FOR FINAL ROADWAY DESIGN



REVISIONS

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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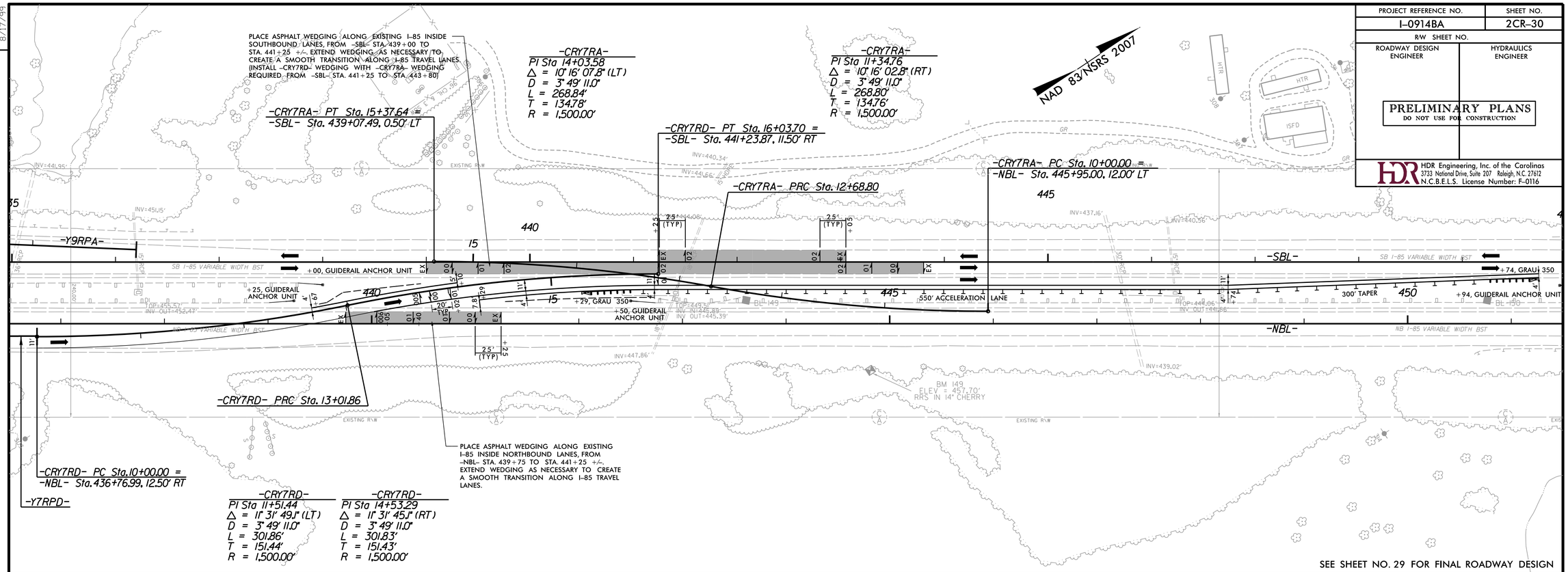
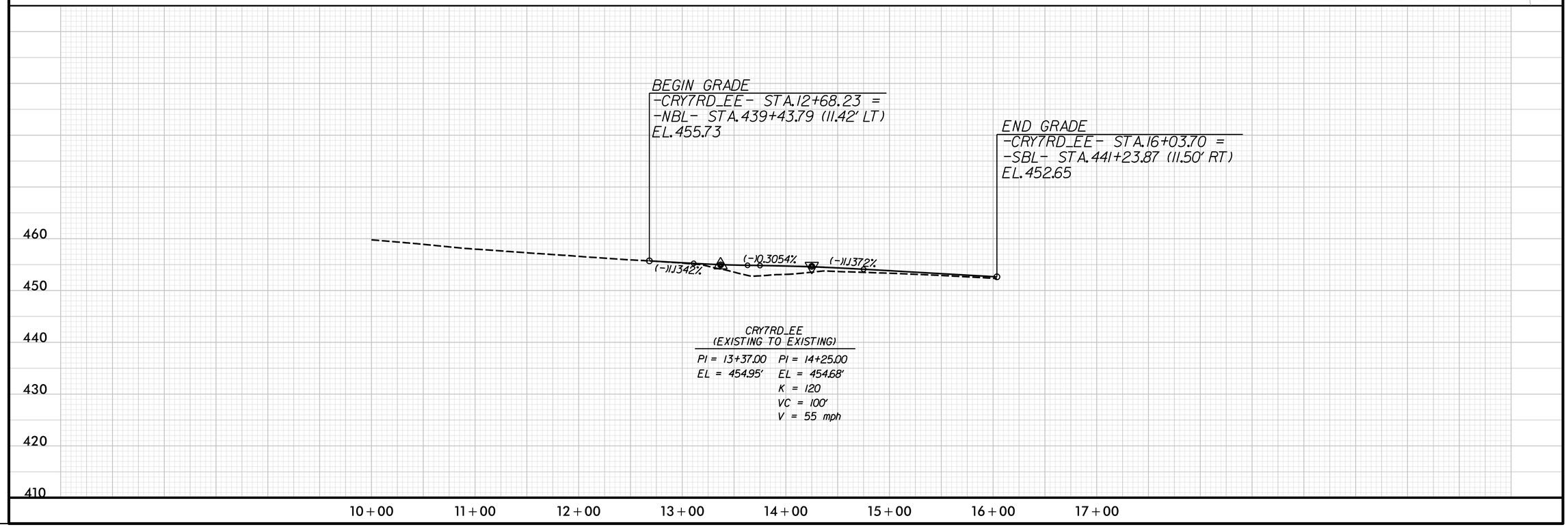


SEE SHEET NO. 29 FOR FINAL ROADWAY DESIGN



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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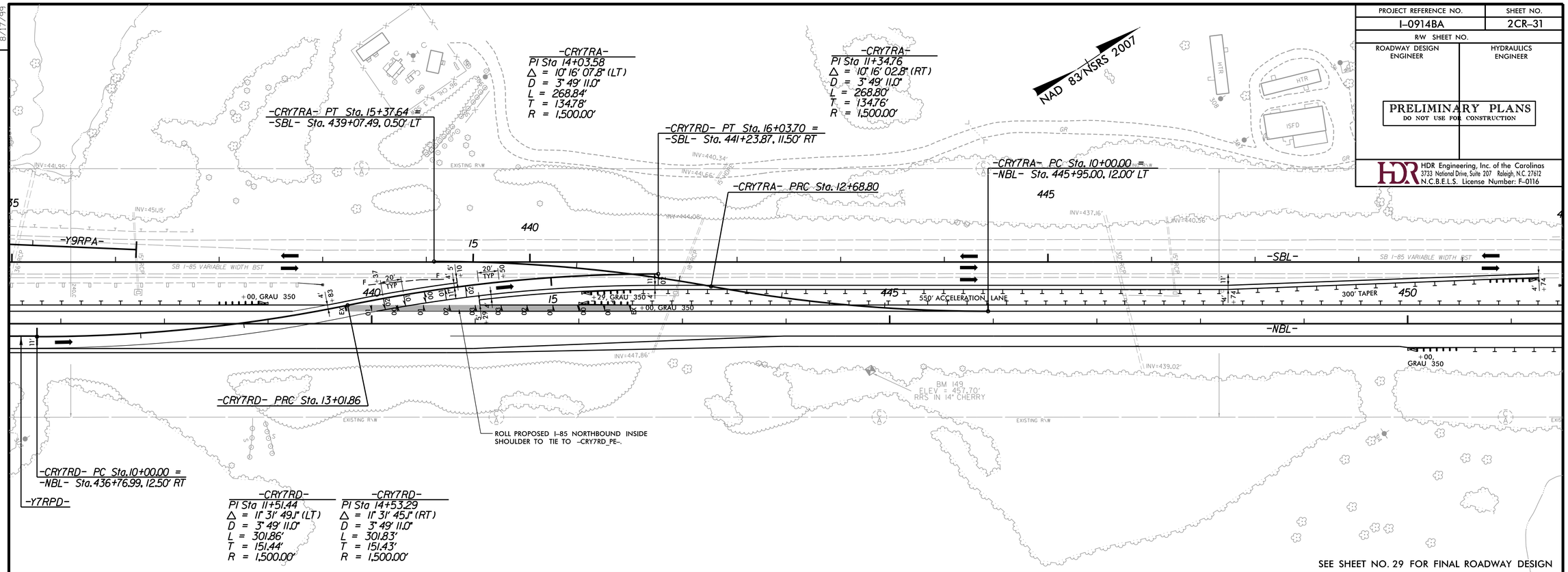

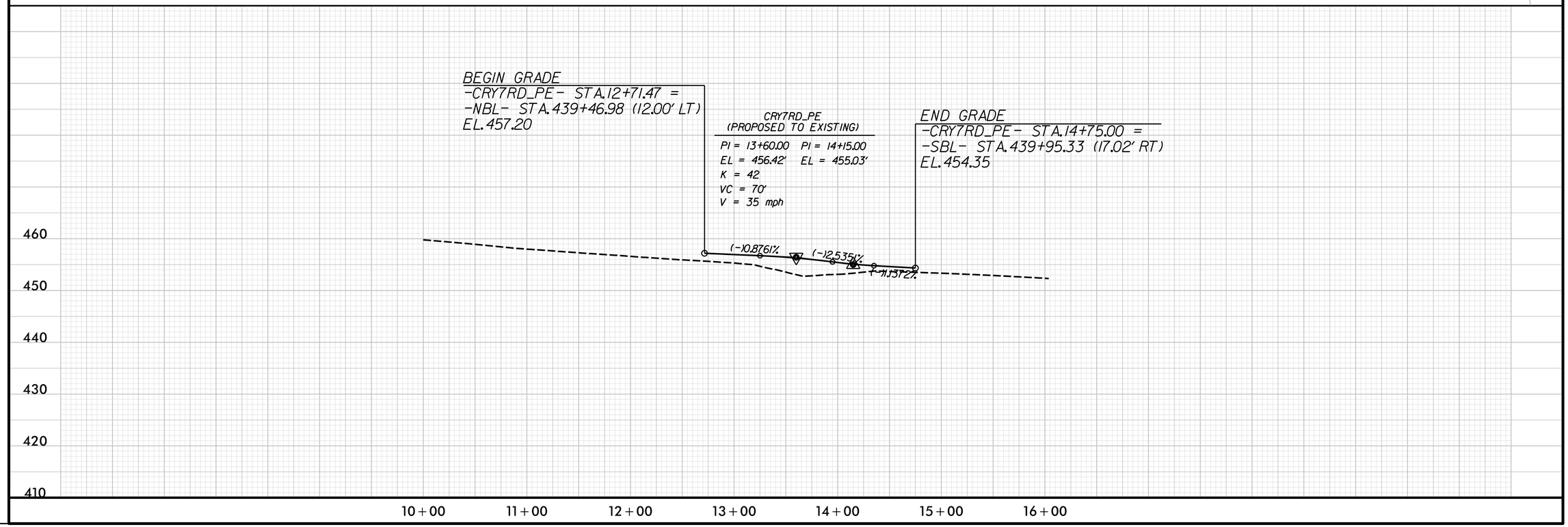

REVISIONS

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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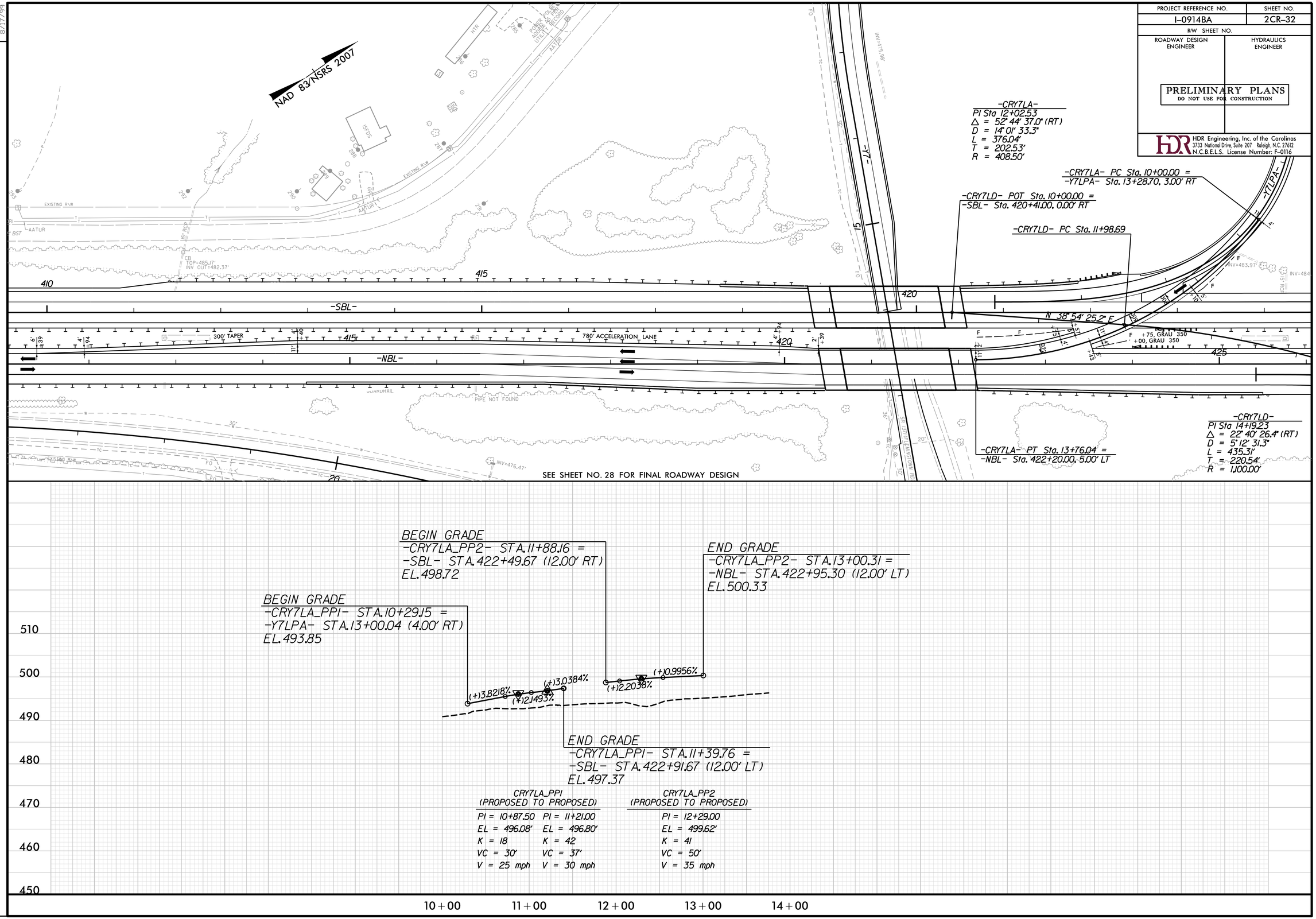

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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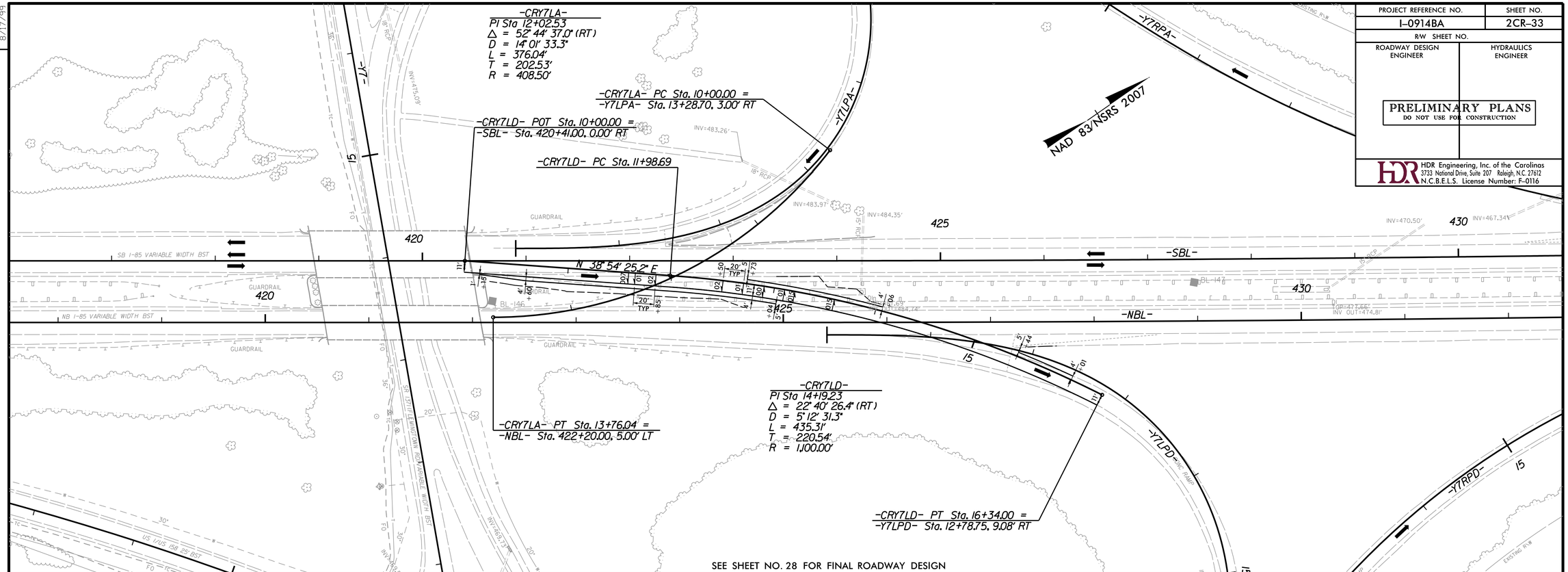

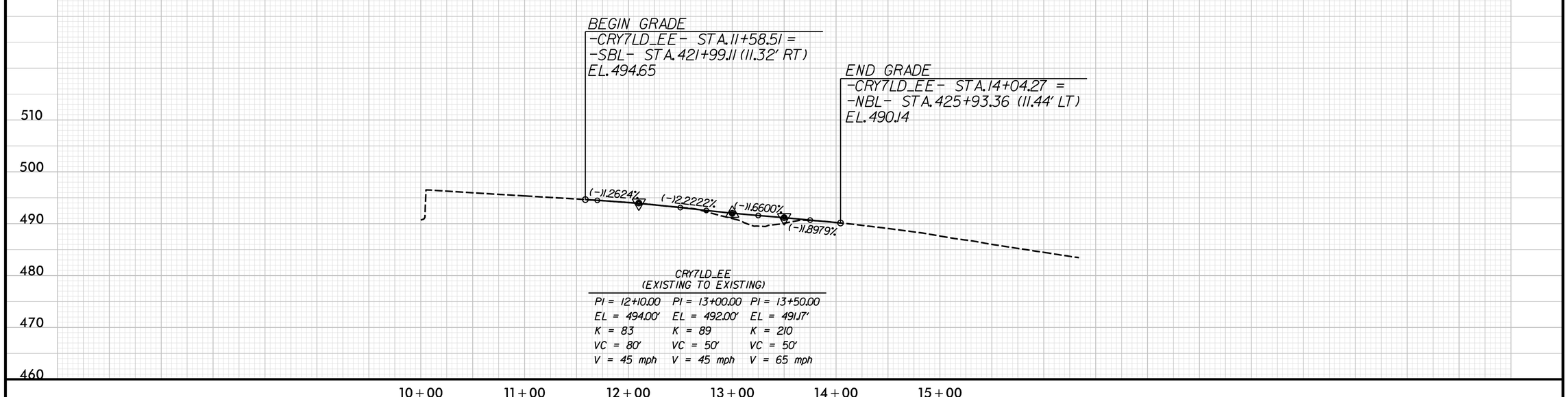

CRY7LD_EE
(EXISTING TO EXISTING)

PI = 12+10.00	PI = 13+00.00	PI = 13+50.00
EL = 494.00'	EL = 492.00'	EL = 491.17'
K = 83	K = 89	K = 210
VC = 80'	VC = 50'	VC = 50'
V = 45 mph	V = 45 mph	V = 65 mph

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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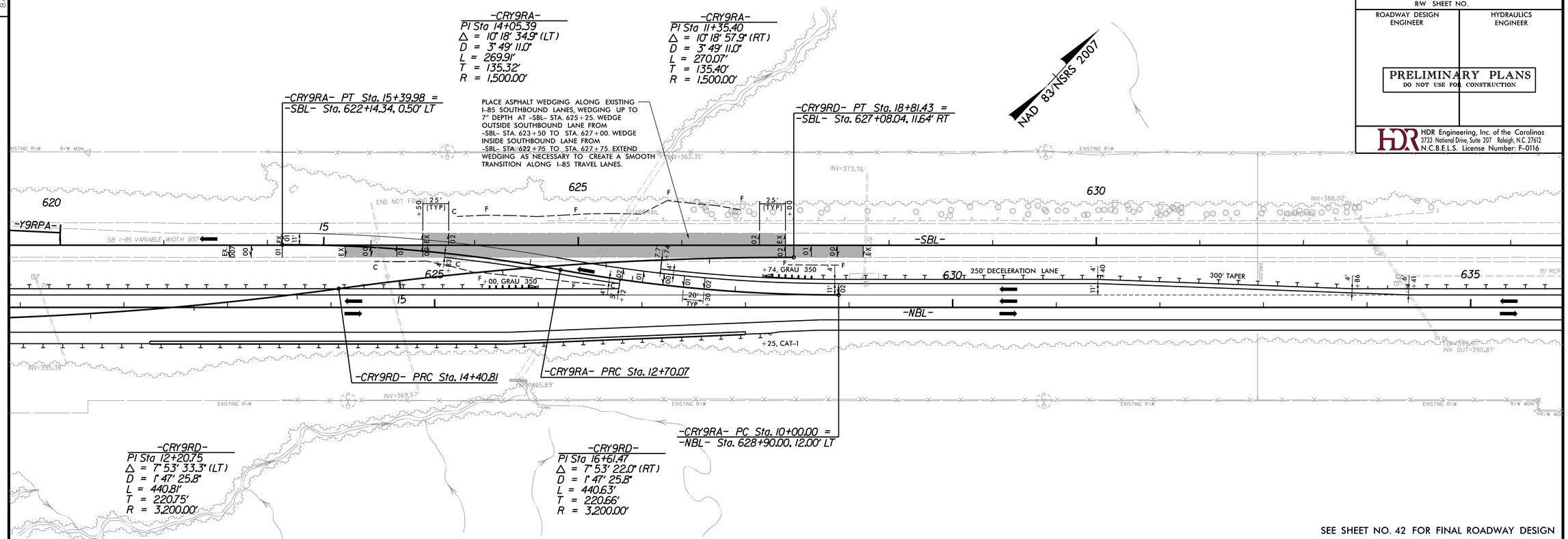

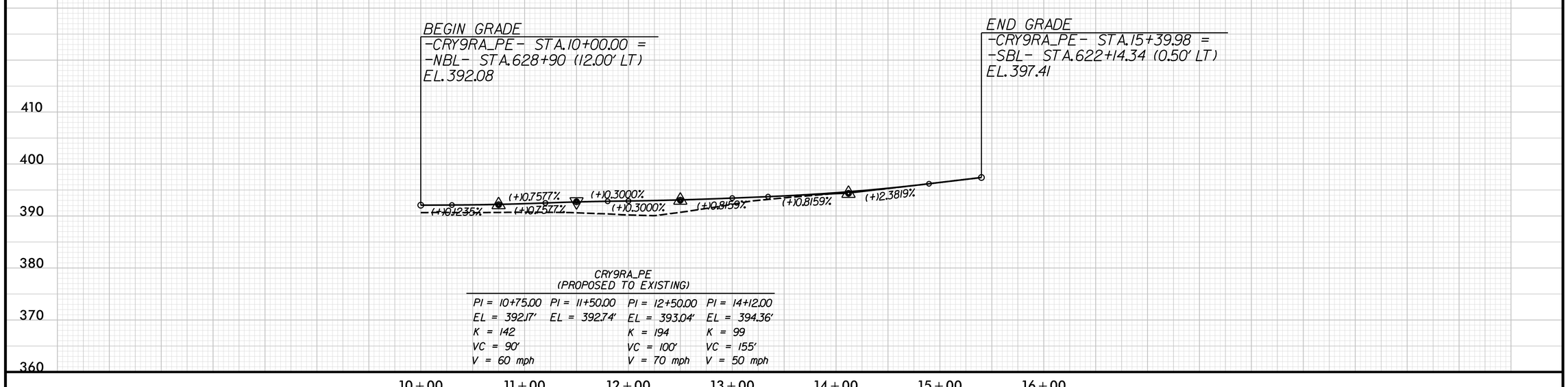

CRY9RA_PE
(PROPOSED TO EXISTING)

PI = 10+75.00	PI = 11+50.00	PI = 12+50.00	PI = 14+12.00
EL = 392.17'	EL = 392.74'	EL = 393.04'	EL = 394.36'
K = 142		K = 194	K = 99
VC = 90'		VC = 100'	VC = 155'
V = 60 mph		V = 70 mph	V = 50 mph

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:34:50 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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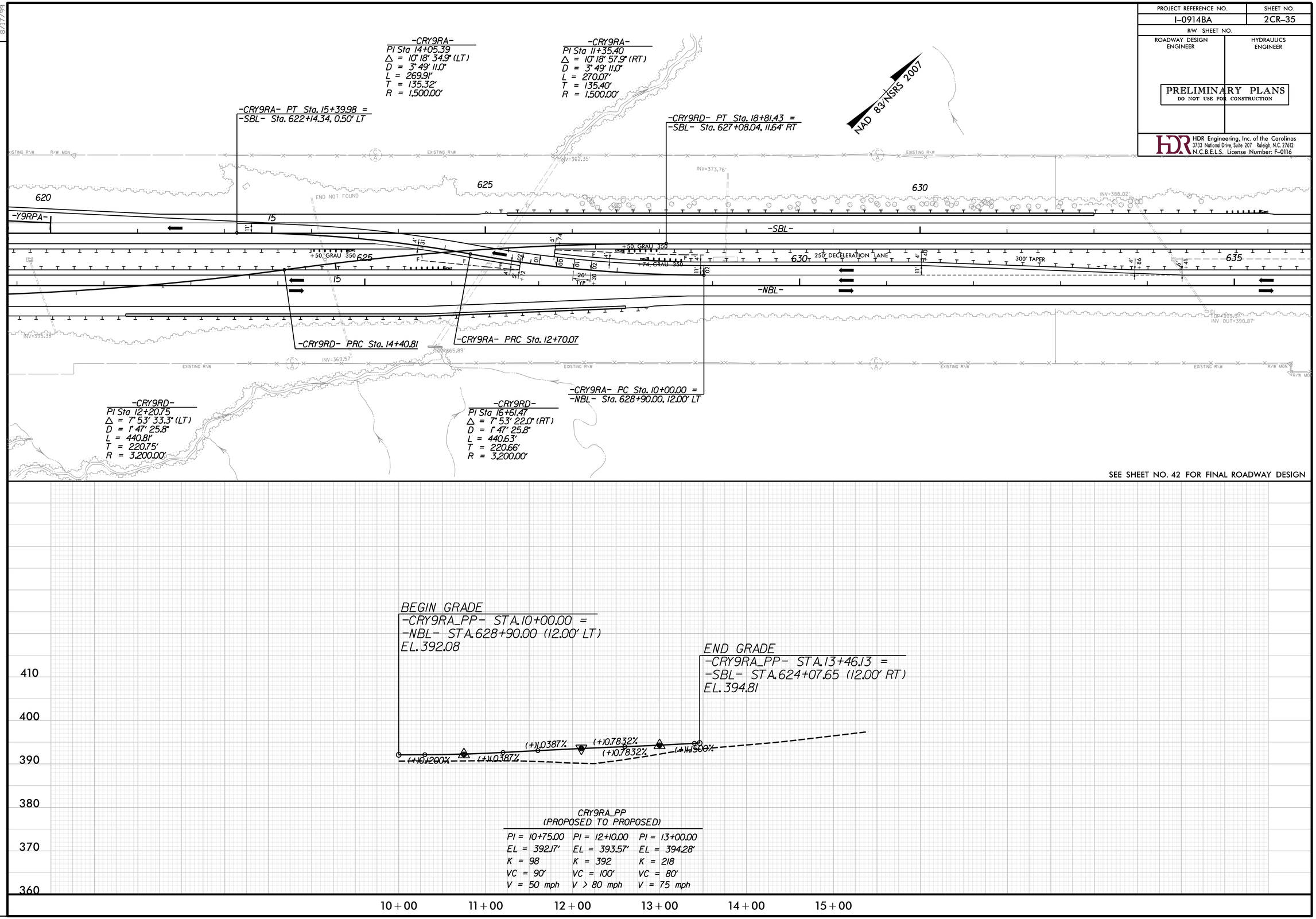

CRY9RA_PP
(PROPOSED TO PROPOSED)

PI = 10+75.00	PI = 12+10.00	PI = 13+00.00
EL = 392.17'	EL = 393.57'	EL = 394.28'
K = 98	K = 392	K = 218
VC = 90'	VC = 100'	VC = 80'
V = 50 mph	V > 80 mph	V = 75 mph

8/17/99

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:35:16 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-36
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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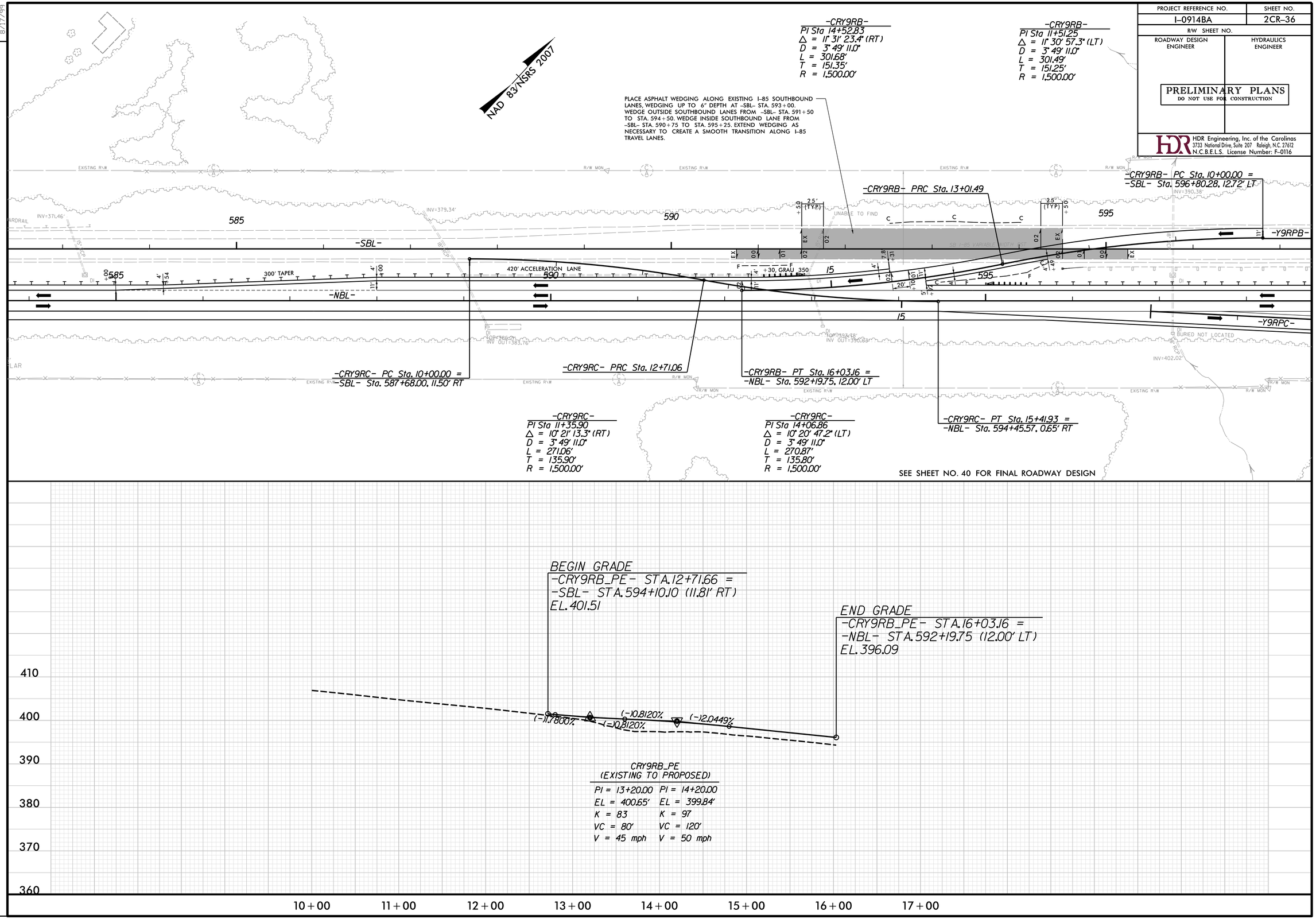

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-37
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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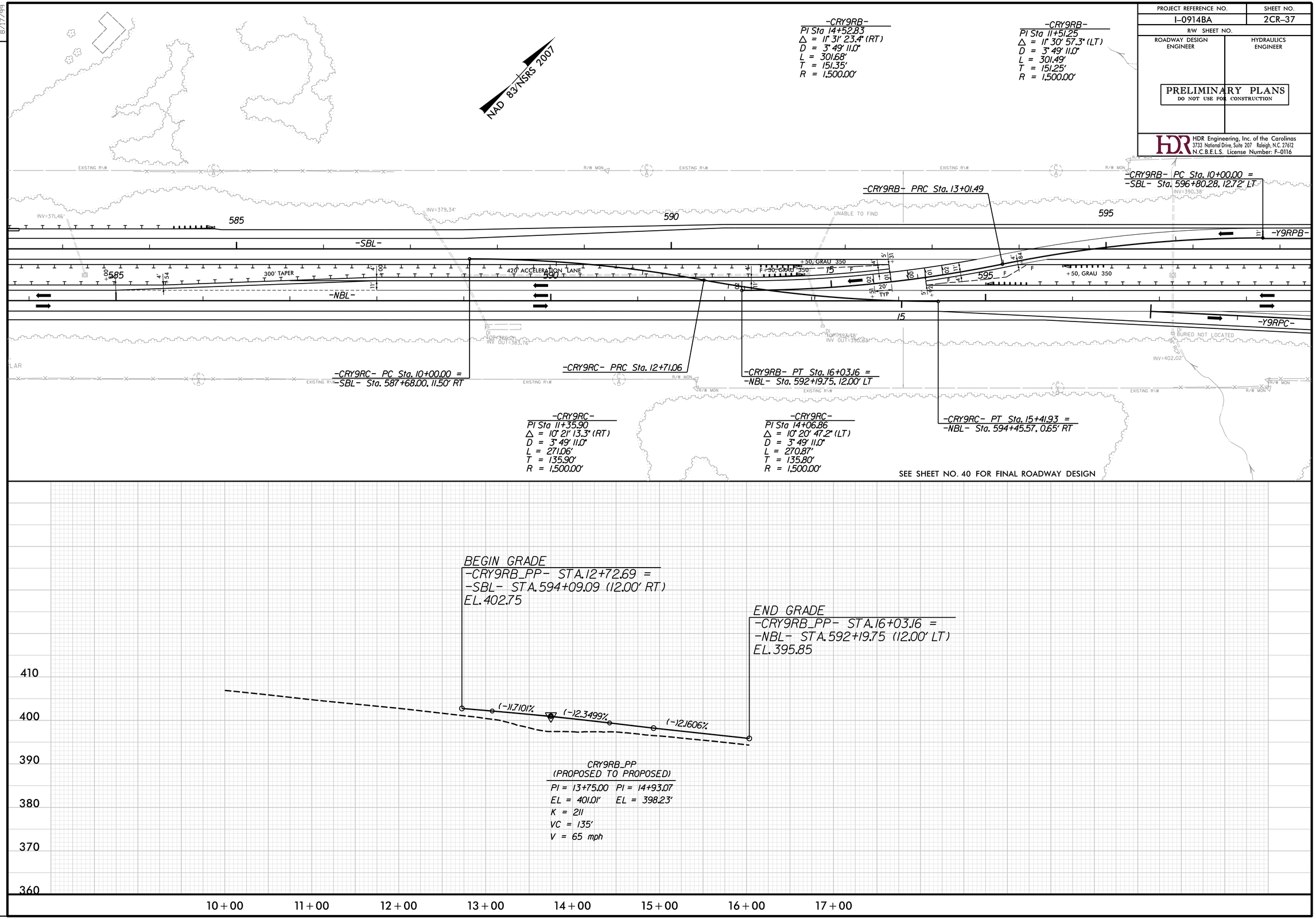

SEE SHEET NO. 40 FOR FINAL ROADWAY DESIGN

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-38
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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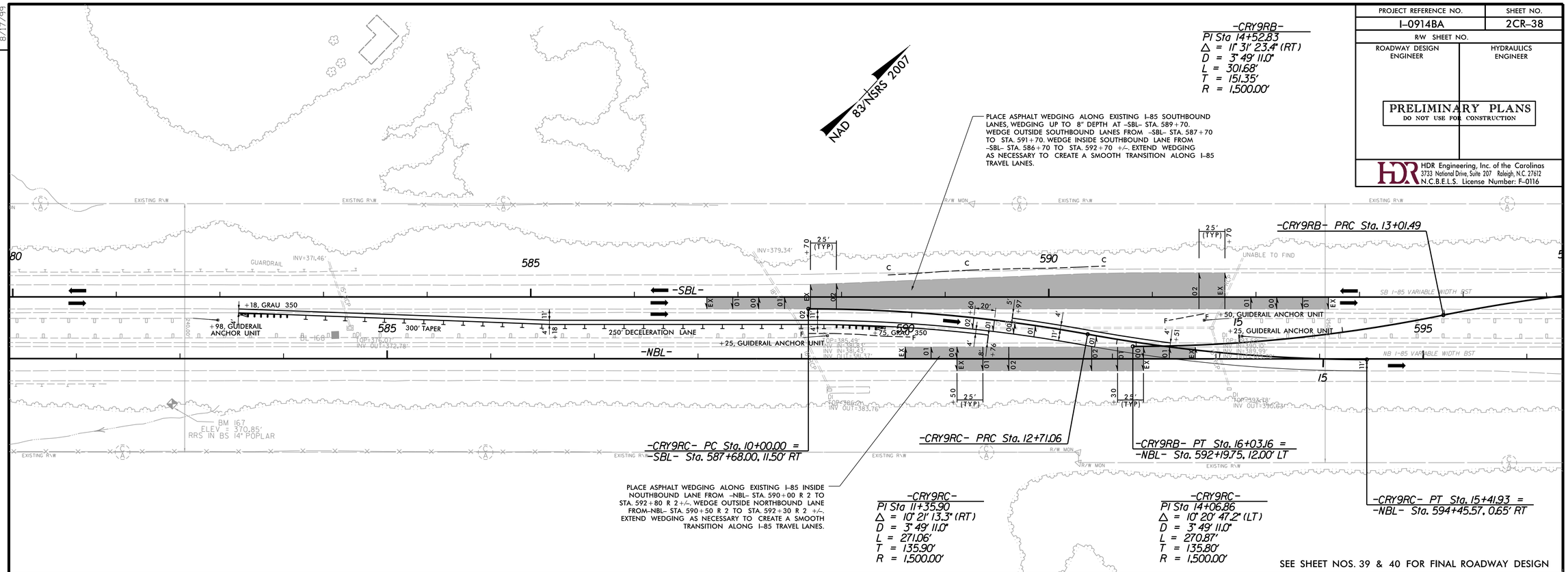
N.C.B.E.L.S. License Number: F-0116



CRY9RC_EE
(EXISTING TO EXISTING)

PI = 10+40.00	PI = 11+70.00	PI = 12+90.00
EL = 389.00'	EL = 392.39'	EL = 393.62'
K = 74	K = 63	K = 82
VC = 80'	VC = 100'	VC = 120'
V = 45 mph	V = 45 mph	V = 45 mph

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 9:36:21 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-39
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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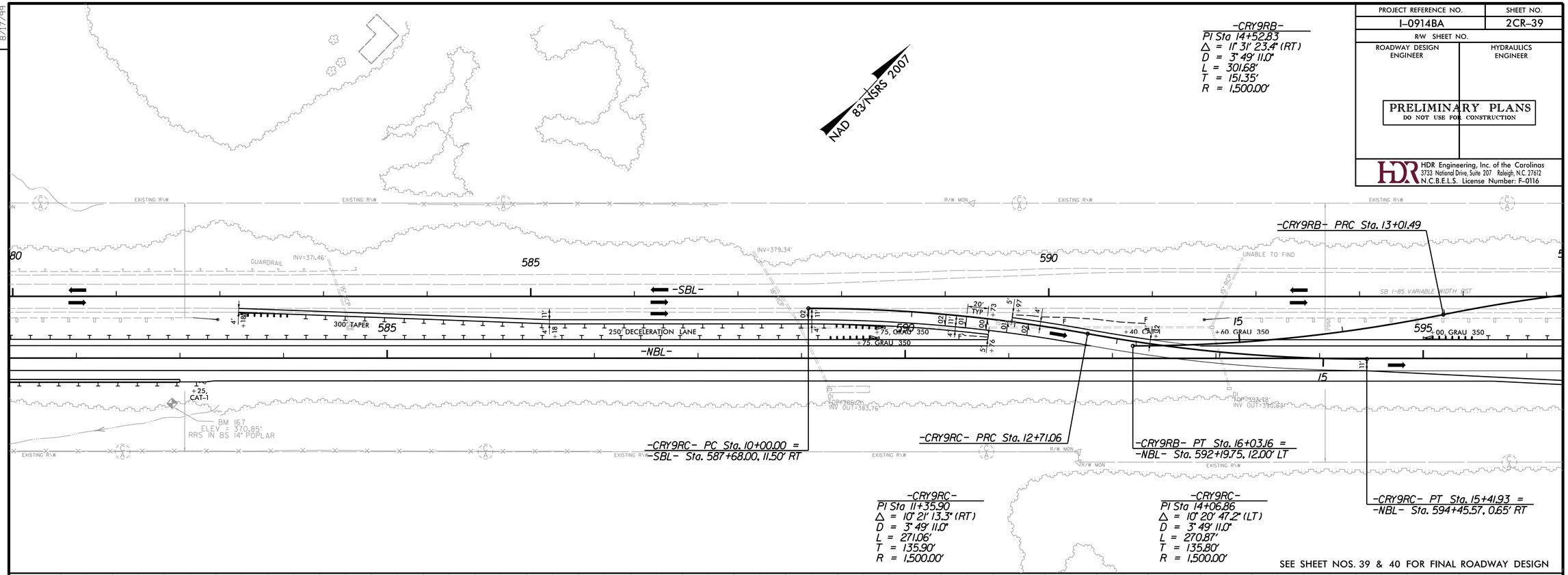

REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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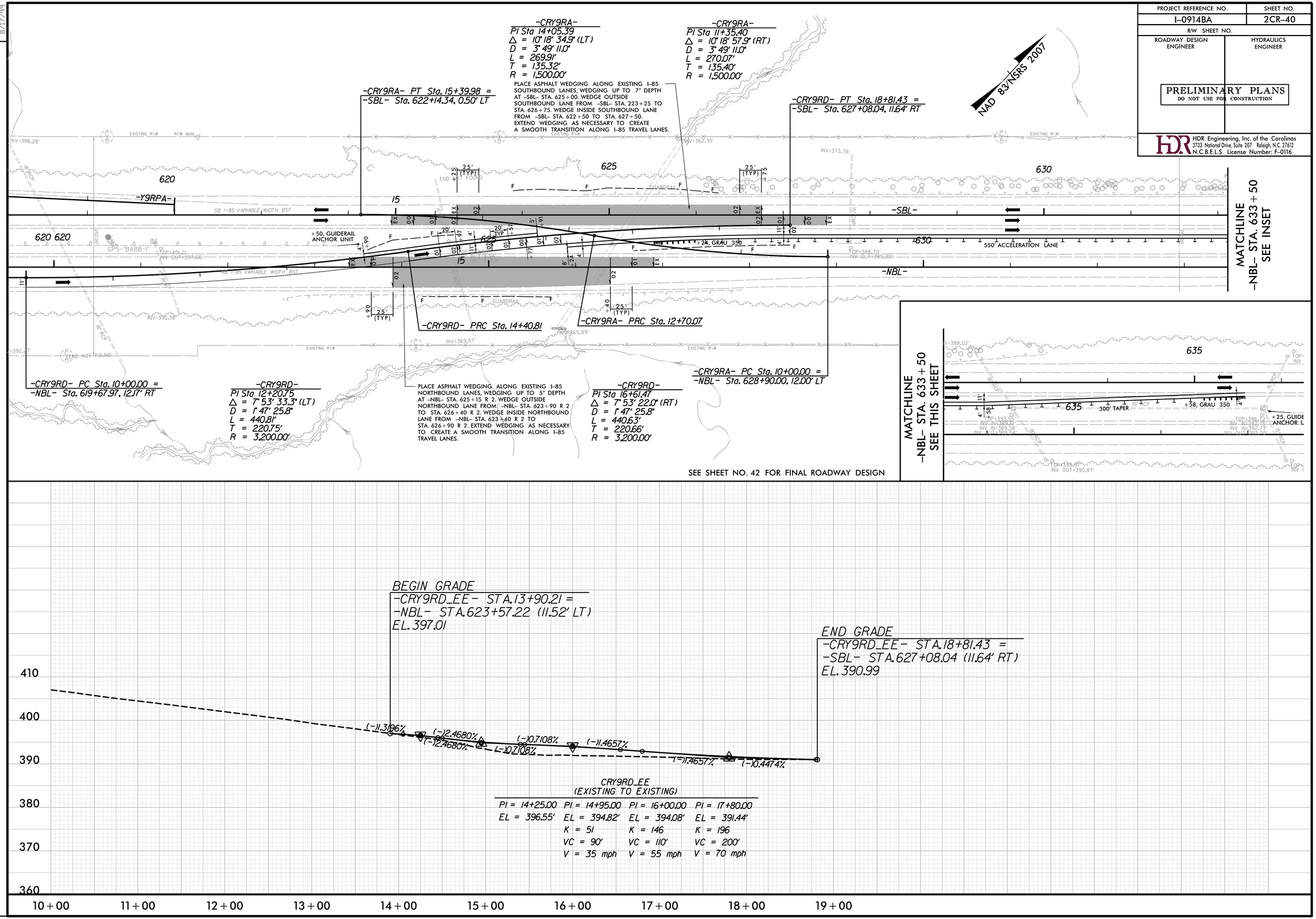
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



CRY9RD_EE
(EXISTING TO EXISTING)

PI = 14+25.00	PI = 14+95.00	PI = 16+00.00	PI = 17+80.00
EL = 396.55'	EL = 394.82'	EL = 394.08'	EL = 391.44'
	K = 51	K = 146	K = 196
	VC = 90'	VC = 110'	VC = 200'
	V = 35 mph	V = 55 mph	V = 70 mph

8/17/99

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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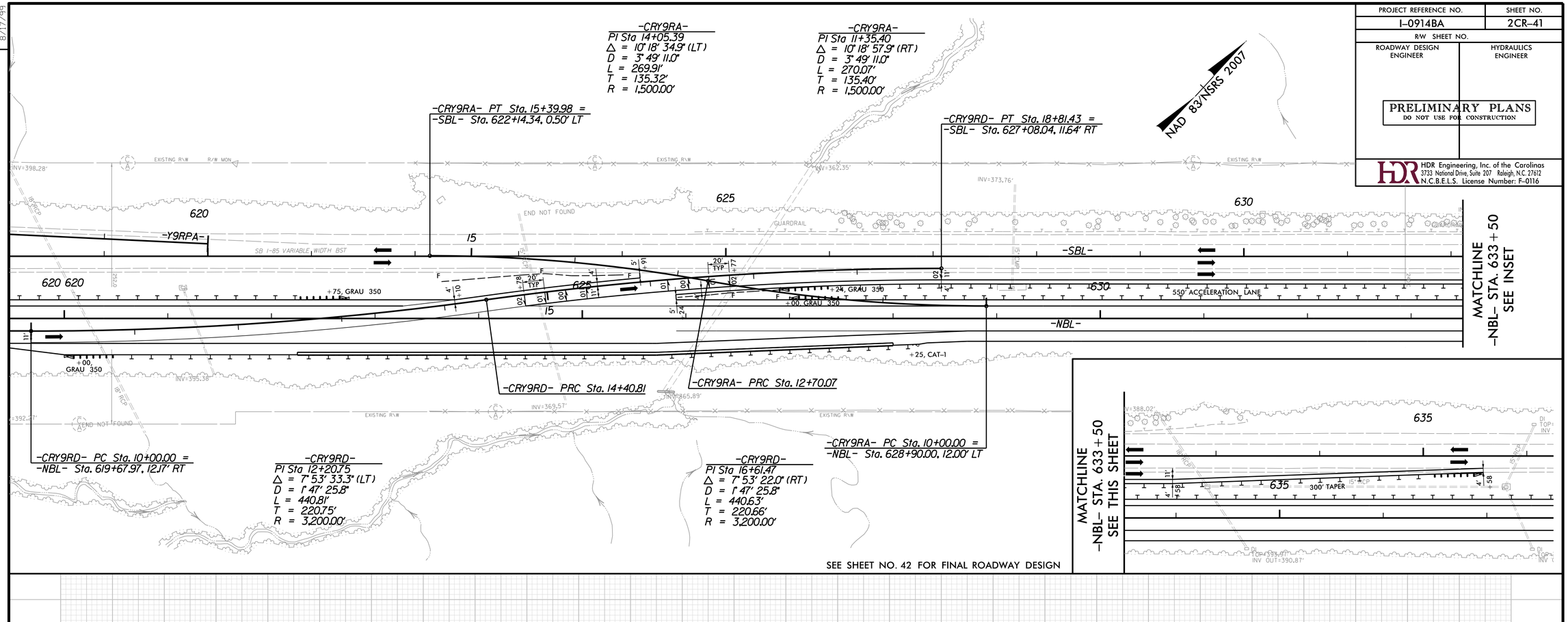
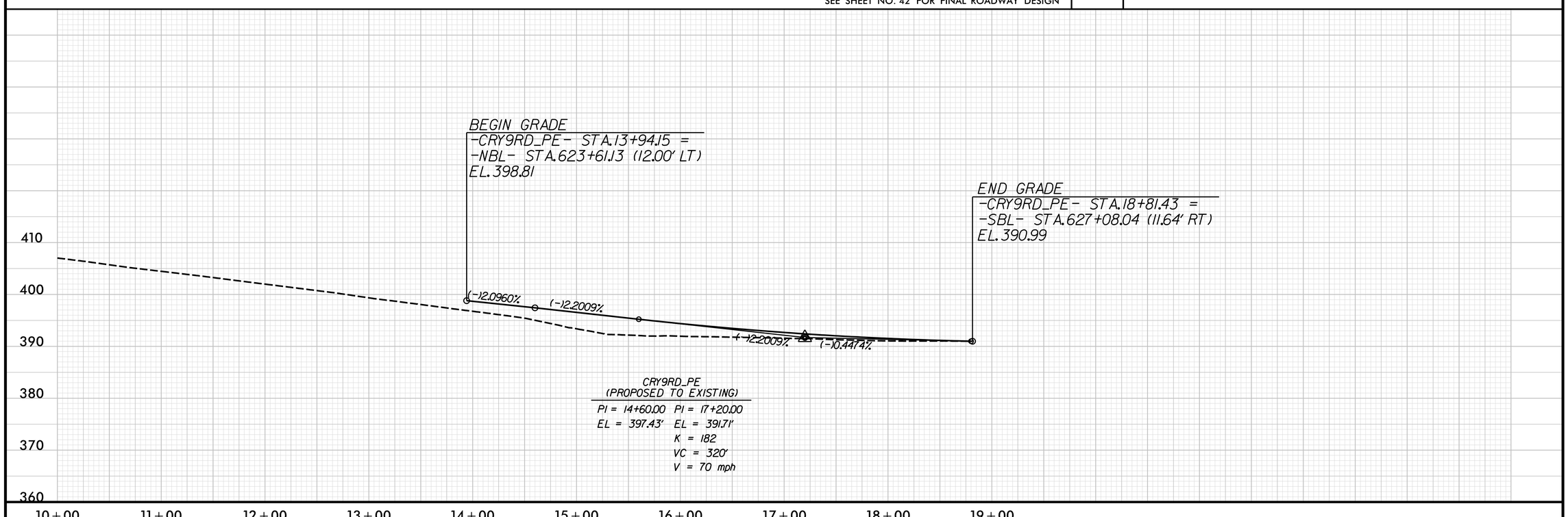
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	2CR-41
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NO. 42 FOR FINAL ROADWAY DESIGN



REVISIONS

8/17/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LINE	LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + 20%	BORROW	WASTE
	SUMMARY NO. 1					
-NBL-	66+00.00-102+00.00	6,434		10,565	4,131	0
-SBL-	68+00.00-76+13.06	1,422		1,691	269	0
	TOTAL SUMMARY NO. 1	7,856		12,256	4,400	0
	SUMMARY NO. 2					
-NBL-	102+00.00-242+00.00	74,936		107,474	32,538	0
-SBL-	170+06.75-177+50.00	479		3,800	3,321	0
-Y1-	18+00.00-24+50.00	295		1,874	1,579	0
-Y1LPA	13+33.47-15+00.00	362		88	0	274
-Y1RPA-	16+50.78-24+00.00	1,586		2,146	560	0
-Y1RPC-	18+20.96-25+50.00	760		1,196	436	0
-Y1RPD-	16+16.75-21+50.00	939		248	0	691
-Y2NBL-	19+01.23-24+62.59	1,345		290	0	1,055
-Y2RPA-	15+83.02-20+50.00	1,119		290	0	829
-Y2RPD-	15+31.21-19+00.00	3,406		0	0	3,406
-Y2SBL-	20+41.51-33+00.00	12,739		2,255	0	10,484
	TOTAL SUMMARY NO. 2	97,966		119,663	38,435	16,738
	SUMMARY NO. 3					
-NBL-	242+00.00-368+00.00	63,645		40,008	0	23,637
-SBL-	310+79.06-319+33.52	3,896		5,173	1,277	0
-Y4RPA-	17+29.28-20+50.00	735		515	0	220
-Y4RPB-	16+35.28-23+00.00	2,289		77	0	2,212
-Y4RPC-	17+45.74-20+00.00	964		32	0	932
-Y4RPD-	16+05.51-21+00.00	801		25	0	776
-Y5ARPB-	13+35.63-17+00.00	4,155		91	0	4,064
-Y5ARPC-	14+64.68-21+50.00	226		4,123	3,897	0
-Y5NBL-	26+12.13-43+00.00	12,754		12,343	0	411
-Y5SBL-	23+00.00-24+32.38	29		2,071	2,042	0
	TOTAL SUMMARY NO. 3	89,494		64,459	7,217	32,251
	SUMMARY NO. 4					
-NBL-	368+00.00-536+00.00	64,716		68,914	4,198	0
-Y7-	14+00.00-21+50.00	1,314		246	0	1,068
-Y7LPA-	12+98.44-14+87.11	158		830	672	0
-Y7LPD-	13+45.68-19+00.00	2,807		509	0	2,298
-Y7RPA-	17+64.01-27+50.00	4,870		671	0	4,199
-Y7RPD-	14+68.38-17+26.50	596		190	0	406
	TOTAL SUMMARY NO.4	74,461		71,359	4,870	7,972
	SUMMARY NO. 5					
-NBL-	536+00.00-643+08.77	79,544		24,391	0	55,153
-Y9RPA-	19+30.77-22+00.00	2,132		12	0	2,120
-Y9RPB-	14+79.84-21+00.00	4,143		5	0	4,138
-Y9RPC-	20+98.32-21+50.00	151		1	0	150
-Y9RPD-	15+66.25-21+00.00	3,714		50	0	3,664
	TOTAL SUMMARY NO.5	89,684		24,460	0	65,224
	SHEET TOTAL	359,461		292,197	54,922	122,186

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

COMPUTED BY: BLM DATE: 09.23.2013
CHECKED BY: SWW DATE: 09.25.2013

PROJECT REFERENCE NO. I-0914BA
SHEET NO. 3-A

PROJ. REFERENCE NO.	SHEET NO.
I-0914BA	3-AH

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	9	NCDOT
2	9	ANNIE WILLIAMS HEIRS
3	9	VANCE COUNTY CITY OF HENDERSON
4	9	VANCE COUNTY CITY OF HENDERSON
5	9	ZELDER LEE FOSTER
6	9	HERMAN A. DAVIS, JR.
7	9,10	DWIGHT STEVEN HUGHES
8	9	CRAWPROP LLC
9	9, 10	INVESTMENT MANAGEMENT OF HENDERSON, LLC
10	10	DWIGHT STEVEN HUGHES
11	11	DANNY RAY HUGHES AND MARSHALL ANTHONY HUGHES
12	12	NCDOT
13	12	BILLY G. WOODWARD
15	12,13	NCDOT
16	14	J.C. & R. KITTRELL, HEIRS
17	14	EDWARD F. SPAIN AND DONNA C. SPAIN
18	15,16,17,18	EDWARD F. SPAIN AND DONNA C. SPAIN
19	16,17	ADVANTAGE CARE IN HOME SERVICE, INC.
20	18,19,20	CLEMENTS DAVIS CONNOLLY INVESTMENTS, LLC
21	19	VENTURE CAPITAL GR PROJECT #2
22	19,20	DENNIS M. HODGE AND PATRICIA HODGE
23	20,21	SETH T. WOOTEN, JR.
24	21	KEITH ROBERT SMITH AND JAMES H. FALKNER, III
25	21	S.T. WOOTEN CORPORATION
26	21,22	KIRBY LANE AYSCUE
27	21,22	UKNOWN PROPERTY OWNER
28	25,26	THOMAS M. CULLER, JR. AND TINY P. CULLER
29	28	WOODMONT PETROLEUM PRODUCTS, INC.
30	28,29	KAY GRISSOM, WILLIAM EDMONDS, AND BETTY R. WALL
31	29	SHIRLEY A. ROYSTER
32	29,30,31	RONALD E. STAINBACK AND NANCY STAINBACK
33	32	FREDERICK DOUGLAS ALEXANDER
34	32	MARY A. KEITT AND ODELL KEITT
35	34,35	MAURICE J. DURHAM
36	35,36	LISLE BULLOCK
37	35,36	LISLE BULLOCK
38	36,37	VIOLA L. TOWNS AND MACY TOWNS
39	40	CLARENCE BOYD
40	40	JACK FREEMAN AND JUNETTA B. FREEMAN
41	40	ROSA A. BOYD
42	41,42	CLARENCE O. WHITE, JR. AND OTHERS
43	41,42	C. FLEMING WATKINS, JR.
44	42,43	C. FLEMING WATKINS, JR.

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

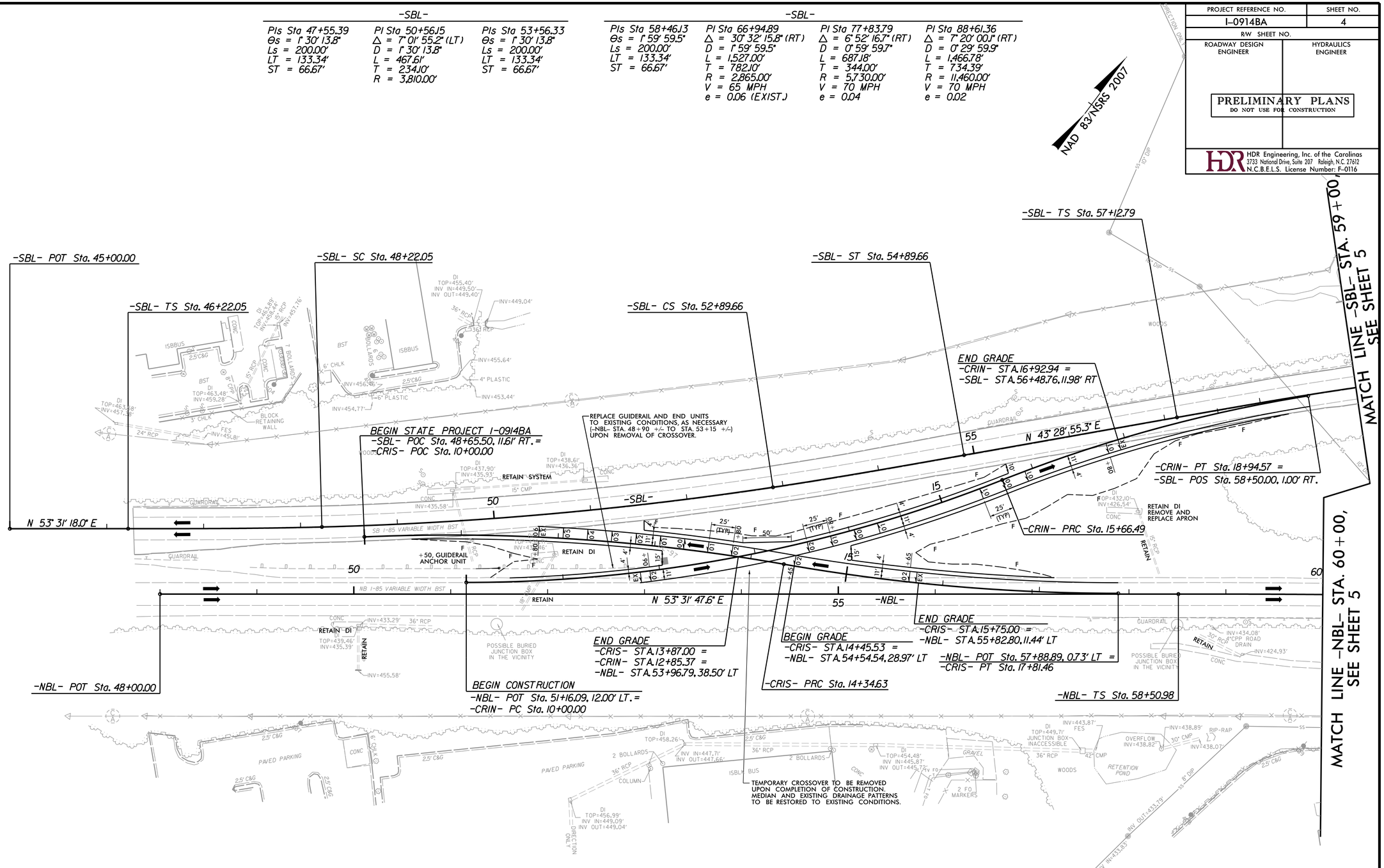
NAD 83/NSRS 2007

-SBL-

PIs Sta 47+55.39	PI Sta 50+56.15	PIs Sta 53+56.33
Θs = 1° 30' 13.8"	Δ = 7° 01' 55.2" (LT)	Θs = 1° 30' 13.8"
Ls = 200.00'	D = 1° 30' 13.8"	Ls = 200.00'
LT = 133.34'	L = 467.61'	LT = 133.34'
ST = 66.67'	T = 234.10'	ST = 66.67'
	R = 3,810.00'	

-SBL-

PIs Sta 58+46.13	PI Sta 66+94.89	PI Sta 77+83.79	PI Sta 88+61.36
Θs = 1° 59' 59.5"	Δ = 30° 32' 15.8" (RT)	Δ = 6° 52' 16.7" (RT)	Δ = 7° 20' 00.1" (RT)
Ls = 200.00'	D = 1° 59' 59.5"	D = 0° 59' 59.7"	D = 0° 29' 59.9"
LT = 133.34'	L = 1,527.00'	L = 687.18'	L = 1,466.78'
ST = 66.67'	T = 782.10'	T = 344.00'	T = 734.39'
	R = 2,865.00'	R = 5,730.00'	R = 11,460.00'
	V = 65 MPH	V = 70 MPH	V = 70 MPH
	e = 0.06 (EXIST.)	e = 0.04	e = 0.02



-CRIS-

PI Sta 12+18.18	PI Sta 16+08.48
Δ = 12° 27' 04.6" (RT)	Δ = 9° 56' 09.1" (LT)
D = 2° 51' 53.2"	D = 2° 51' 53.2"
L = 434.63'	L = 346.83'
T = 218.18'	T = 173.85'
R = 2,000.00'	R = 2,000.00'

-CRIN-

PI Sta 12+86.66	PI Sta 17+31.19
Δ = 21° 38' 18.0" (LT)	Δ = 12° 31' 54.1" (RT)
D = 3° 49' 11.0"	D = 3° 49' 11.0"
L = 566.49'	L = 328.08'
T = 286.66'	T = 164.70'
R = 1,500.00'	R = 1,500.00'

-NBL-

PIs Sta 59+84.31	PI Sta 76+89.47	PIs Sta 94+91.46
Θs = 1° 00' 31.4"	Δ = 32° 10' 56.3" (RT)	Θs = 3° 46' 57.8"
Ls = 200.00'	D = 1° 00' 31.4"	Ls = 750.00'
LT = 133.34'	L = 3,190.38'	LT = 500.11'
ST = 66.67'	T = 1,638.50'	ST = 250.10'
	R = 5,680.00'	
	V = 70 MPH	
	e = 0.04	

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NO. 46 FOR -SBL- & -NBL- PROFILE
SEE SHEET NO. 109 FOR -CR1N- & -CR1S- PROFILES

REVISIONS

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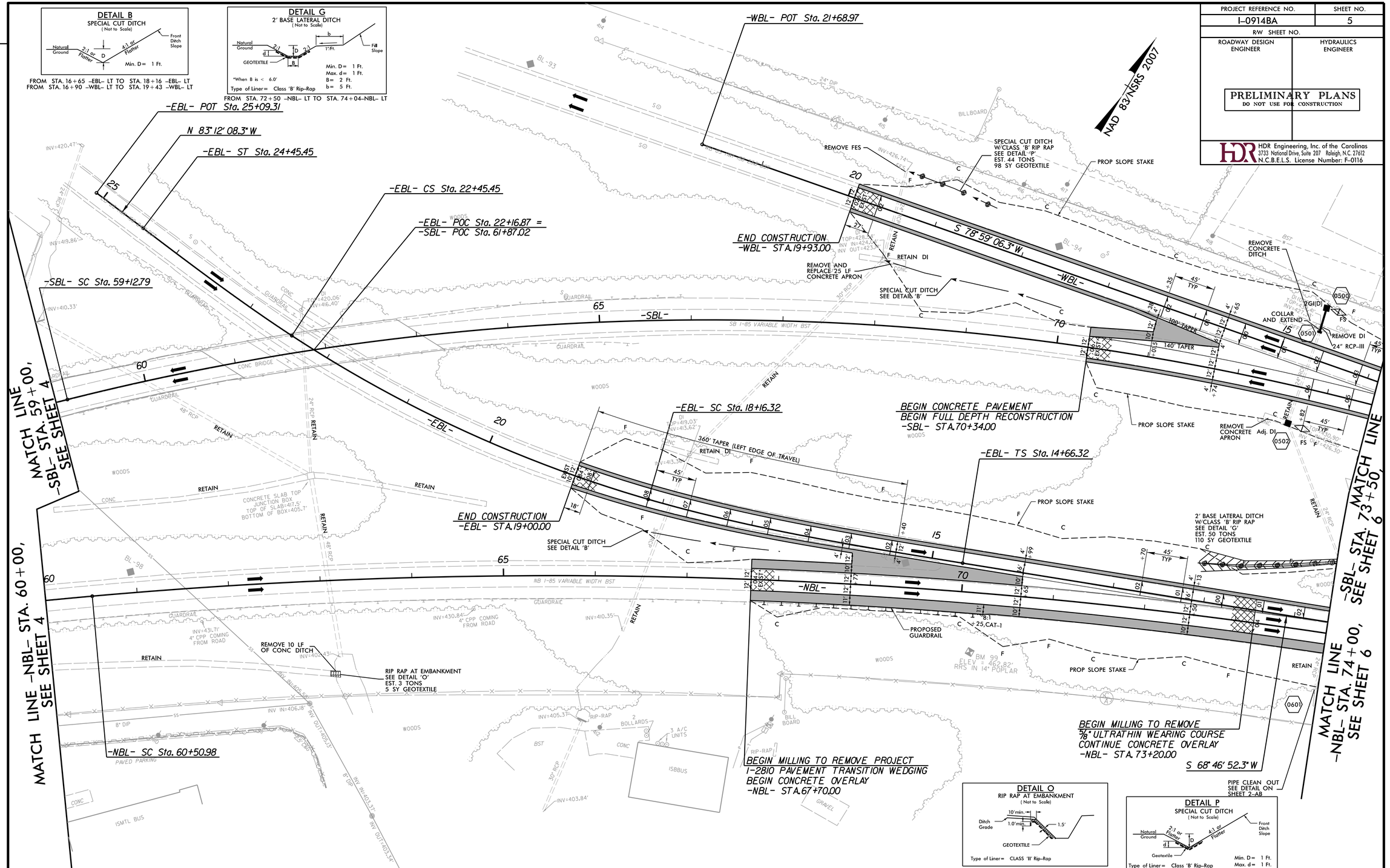
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



-NBL-

Pls Sta 59+84.31	Pl Sta 76+89.47	Pls Sta 94+91.46
Θs = 1°00' 31.4"	Δ = 32°10' 56.3" (RT)	Θs = 3°46' 57.8"
Ls = 200.00'	D = 1°00' 31.4"	Ls = 750.00'
LT = 133.34'	L = 3,190.38'	LT = 500.11'
ST = 66.67'	T = 1,638.50'	ST = 250.10'
	R = 5,680.00'	
	V = 70 MPH	
	e = 0.04	

-SBL-

Pls Sta 58+46.13	Pl Sta 66+94.89	Pl Sta 77+83.79	Pl Sta 88+61.36
Θs = 1°59' 59.5"	Δ = 30°32' 15.8" (RT)	Δ = 6°52' 16.7" (RT)	Δ = 7°20' 00.1" (RT)
Ls = 200.00'	D = 1°59' 59.5"	D = 0°59' 59.7"	D = 0°29' 59.9"
LT = 133.34'	L = 1,527.00'	L = 687.18'	L = 1,466.78'
ST = 66.67'	T = 782.10'	T = 344.00'	T = 734.39'
	R = 2,865.00'	R = 5,730.00'	R = 11,460.00'
	V = 65 MPH	V = 70 MPH	V = 70 MPH
	e = 0.06 (EXIST.)	e = 0.04	e = 0.02

-EBL-

Pls Sta 16+99.84	Pl Sta 20+32.49	Pls Sta 23+12.15
Θs = 6°57' 46.9"	Δ = 17°04' 28.6" (RT)	Θs = 3°58' 43.9"
Ls = 350.00'	D = 3°58' 43.9"	Ls = 200.00'
LT = 233.51'	L = 429.13'	LT = 133.37'
ST = 116.83'	T = 216.17'	ST = 66.70'
	R = 1,440.00'	
	V = 60 MPH	
	e = 0.08	

PAVEMENT REMOVAL

SEE SHEET NO. 47 FOR -SBL- & -NBL- PROFILE
SEE SHEET NO. 90 FOR -WBL- & -EBL- PROFILE

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

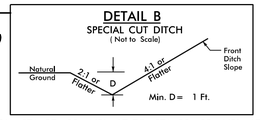
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

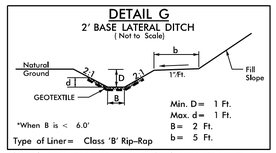
NAD 83/NSRS 2007

-SBL-

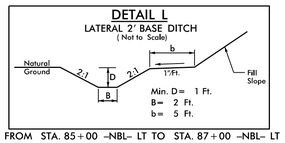
PIs Sta 58+46.13	PI Sta 66+94.89	PI Sta 77+83.79	PI Sta 88+61.36
Θs = 1° 59' 59.5"	Δ = 30° 32' 15.8" (RT)	Δ = 6° 52' 16.7" (RT)	Δ = 7° 20' 00.1" (RT)
Ls = 200.00'	D = 1° 59' 59.5"	D = 0° 59' 59.7"	D = 0° 29' 59.9"
LT = 133.34'	L = 1,527.00'	L = 687.18'	L = 1,466.78'
ST = 66.67'	T = 782.10'	T = 344.00'	T = 734.39'
	R = 2,865.00'	R = 5,730.00'	R = 11,460.00'
	V = 65 MPH	V = 70 MPH	V = 70 MPH
	e = 0.06 (EXIST.)	e = 0.04	e = 0.02



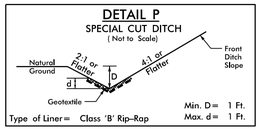
FROM STA. 87+00 -NBL- LT TO STA. 89+03 -NBL- LT



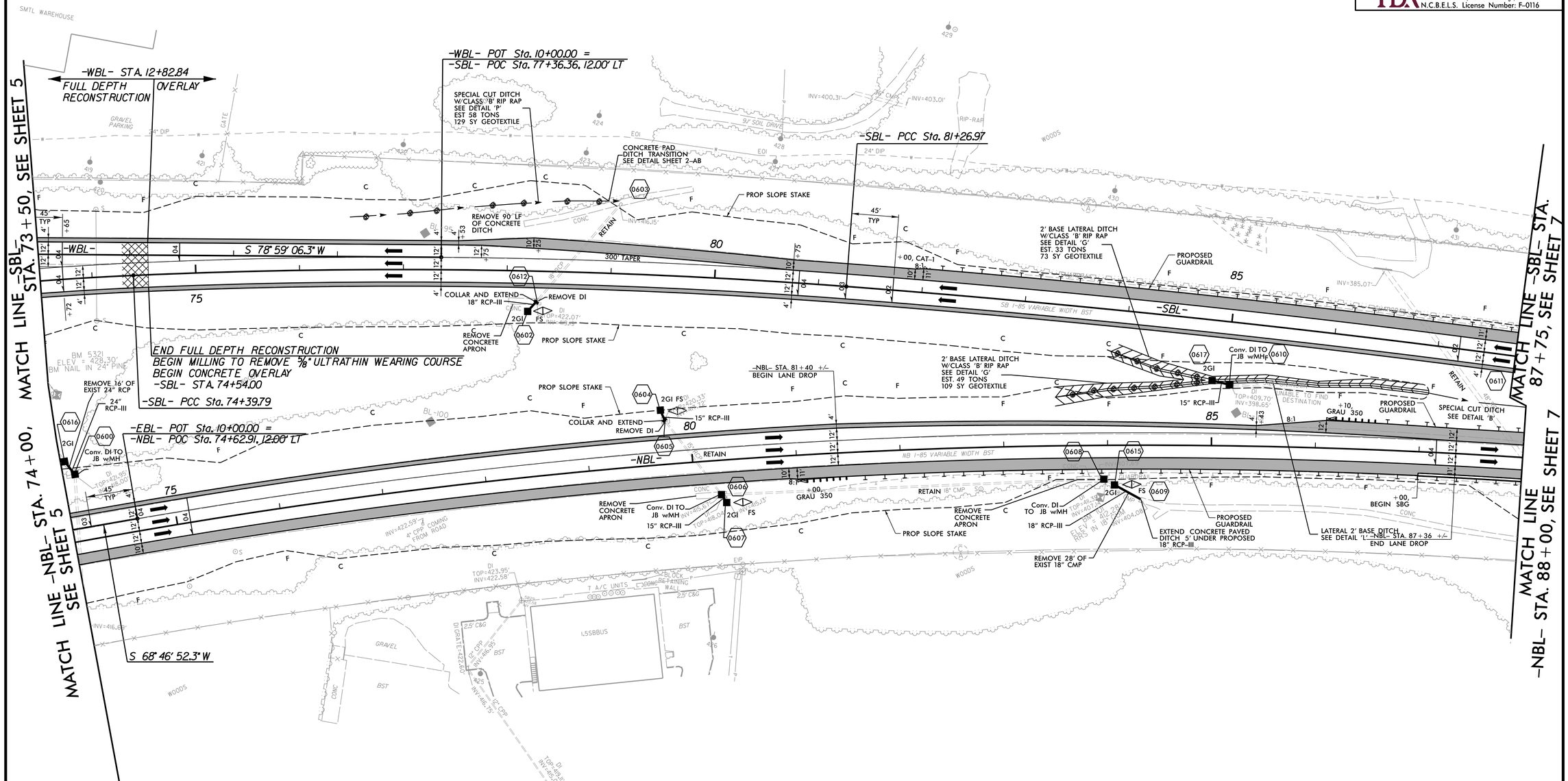
FROM STA. 83+50 -NBL- LT TO STA. 85+00 -NBL- LT
FROM STA. 83+85 -SBL- RT TO STA. 84+87 -SBL- RT



FROM STA. 85+00 -NBL- LT TO STA. 87+00 -NBL- LT



FROM STA. 76+65 -SBL- LT TO STA. 79+23 -SBL- LT



-NBL-

PIs Sta 59+84.31	PI Sta 76+89.47	PIs Sta 94+91.46
Θs = 1° 00' 31.4"	Δ = 32° 10' 56.3" (RT)	Θs = 3° 46' 57.8"
Ls = 200.00'	D = 1° 00' 31.4"	Ls = 750.00'
LT = 133.34'	L = 3,190.38'	LT = 500.11'
ST = 66.67'	T = 1,638.50'	ST = 250.10'
	R = 5,680.00'	
	V = 70 MPH	
	e = 0.04	

PAVEMENT REMOVAL

SEE SHEET NOS. 47, 48 FOR -SBL- PROFILE
SEE SHEET NO. 48 FOR -NBL- PROFILE
SEE SHEET NO. 90 FOR -WBL- & -EBL- PROFILE

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 4:42:38 PM
FILE: North Carolina.Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S06.dgn
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

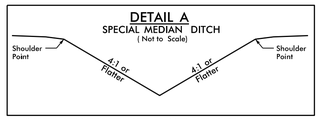
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

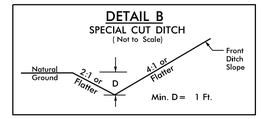
NAD 83/NSRS 2007

-SBL-

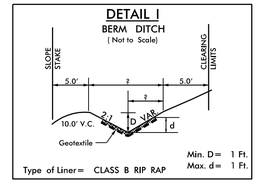
PIs Sta 58+46.13	PI Sta 66+94.89	PI Sta 77+83.79	PI Sta 88+61.36
Θs = 1° 59' 59.5"	Δ = 30° 32' 15.8" (RT)	Δ = 6° 52' 16.7" (RT)	Δ = 7° 20' 00.1" (RT)
Ls = 200.00'	D = 1° 59' 59.5"	D = 0° 59' 59.7"	D = 0° 29' 59.9"
LT = 133.34'	L = 1,527.00'	L = 687.18'	L = 1,466.78'
ST = 66.67'	T = 782.10'	T = 344.00'	T = 734.39'
	R = 2,865.00'	R = 5,730.00'	R = 11,460.00'
	V = 65 MPH	V = 70 MPH	V = 70 MPH
	e = 0.06 (EXIST.)	e = 0.04	e = 0.02



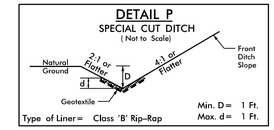
FROM STA. 89+03 -NBL- LT TO STA. 102+23 -NBL- LT



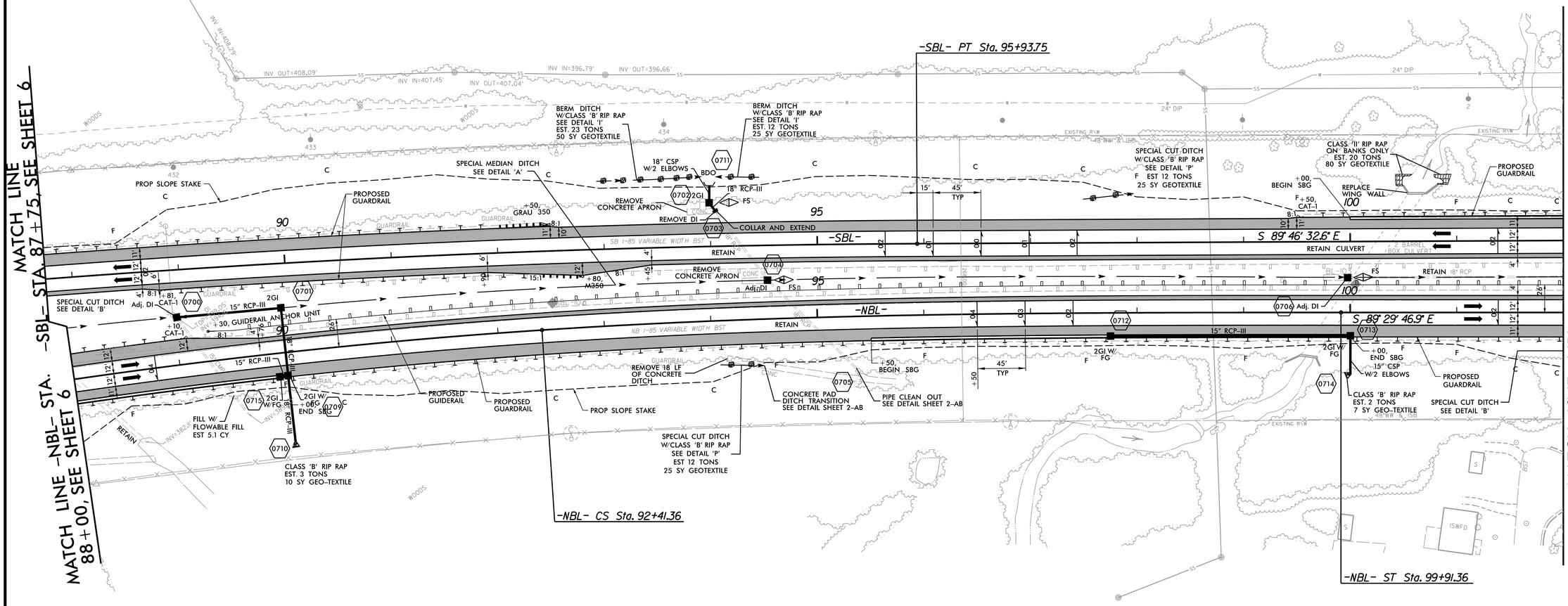
FROM STA. 101+50 -NBL- RT TO STA. 102+22 -NBL- RT



FROM STA. 92+97 -SBL- LT TO STA. 93+98 -SBL- LT
FROM STA. 93+98 -SBL- LT TO STA. 94+48 -SBL- LT



FROM STA. 94+00 -NBL- RT TO STA. 94+50 -NBL- RT
FROM STA. 97+50 -SBL- LT TO STA. 98+00 -SBL- LT



-NBL-

PIs Sta 59+84.31	PI Sta 76+89.47	PIs Sta 94+91.46
Θs = 1° 00' 31.4"	Δ = 32° 10' 56.3" (RT)	Θs = 3° 46' 57.8"
Ls = 200.00'	D = 1° 00' 31.4"	Ls = 750.00'
LT = 133.34'	L = 3,190.38'	LT = 500.11'
ST = 66.67'	T = 1,638.50'	ST = 250.10'
	R = 5,680.00'	
	V = 70 MPH	
	e = 0.04	

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-1 & 2CR-2 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 48, 49 FOR -SBL- PROFILE
SEE SHEET NO. 49 FOR -NBL- PROFILE

REVISIONS

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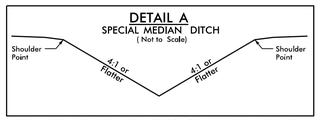
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

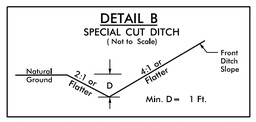
NAD 83/NSRS 2007

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)



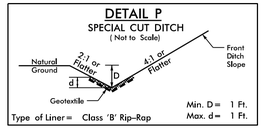
FROM STA. 102+23 -NBL- LT TO STA. 117+04 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 102+22 -NBL- RT TO STA. 104+50 -NBL- RT
FROM STA. 109+68 -SBL- LT TO STA. 110+00 -SBL- LT

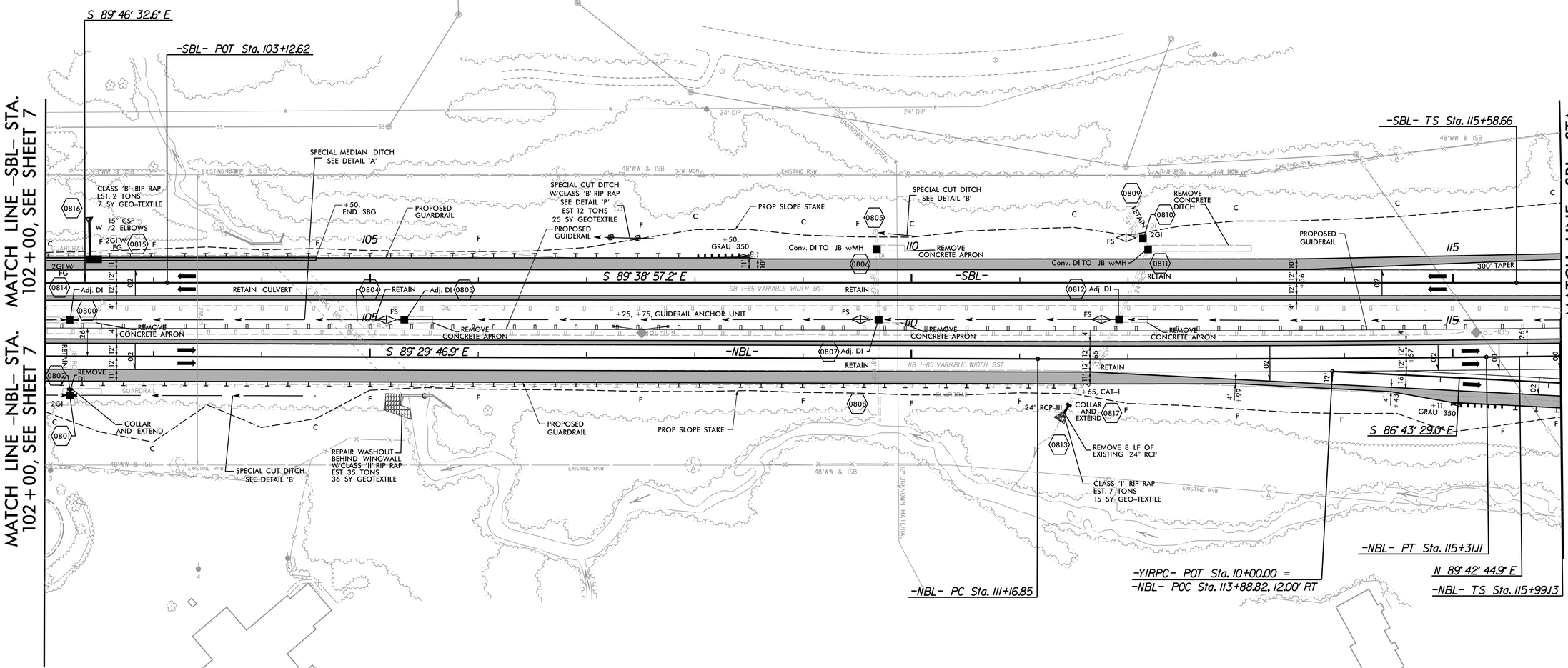
DETAIL P
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 107+00 -SBL- LT TO STA. 107+50 -SBL- LT

-SBL-

PIs Sta 118+58.90	PI Sta 122+07.15	PIs Sta 125+54.31
Θs = 7° 04' 59.8"	Δ = 12° 26' 55.3" (LT)	Θs = 7° 04' 59.8"
Ls = 450.00'	D = 3° 08' 53.2"	Ls = 450.00'
LT = 300.24'	L = 395.43'	LT = 300.24'
ST = 150.22'	T = 198.50'	ST = 150.22'
	R = 1,820.00'	
	V = 70 MPH	
	e = 0.08	



-NBL-

PI Sta 113+23.98
Δ = 0° 47' 28.2" (LT)
D = 0° 11' 27.5"
L = 414.26'
T = 207.13'
R = 30,000.00'
V = 80+ MPH
e = NC

-NBL-

PIs Sta 118+99.36	PI Sta 122+38.90	PIs Sta 125+77.54
Θs = 7° 02' 40.4"	Δ = 11° 50' 27.4" (LT)	Θs = 7° 02' 40.4"
Ls = 450.00'	D = 3° 07' 51.3"	Ls = 450.00'
LT = 300.24'	L = 378.19'	LT = 300.24'
ST = 150.22'	T = 189.77'	ST = 150.22'
	R = 1,830.00'	
	V = 70 MPH	
	e = 0.08	

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-7 & 2CR-8 FOR TEMPORARY CROSSOVERS
SEE SHEET NO. 50 FOR -SBL- & -NBL- PROFILE
SEE SHEET NO. 92 FOR -Y1RPC- PROFILE

REVISIONS

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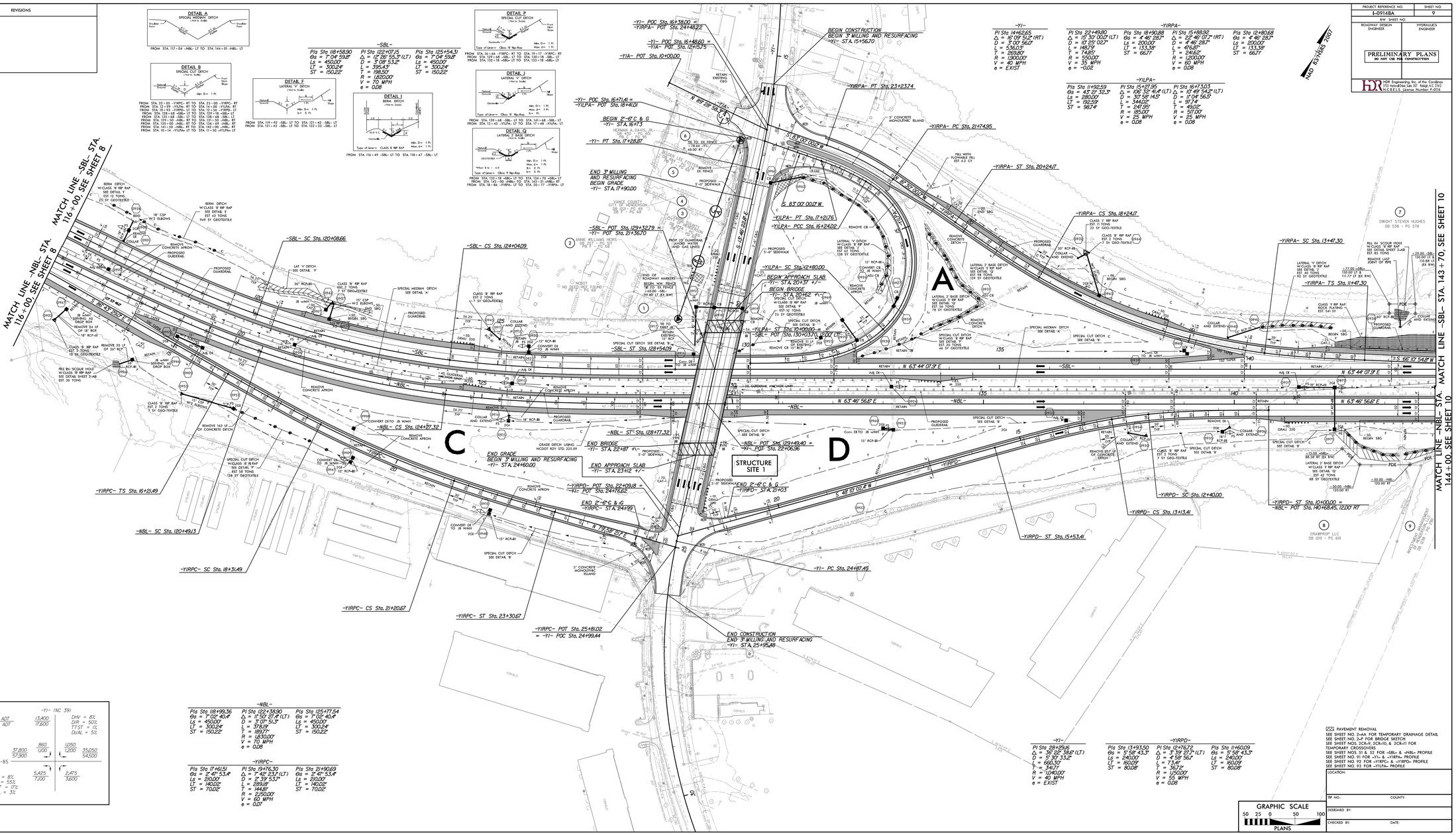
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
2173 Yellowstone Blvd. Suite 201 Raleigh, N.C. 27603
N.C.B.E.L. License Number F-0116

NAD 83/NSRS 2007



DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)
FROM STA. 117+04 -NBL- LT TO STA. 144+01 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)
FROM STA. 32+05 -YIRPC- RT TO STA. 33+00 -YIRPC- RT
FROM STA. 12+99 -YILPA- RT TO STA. 14+00 -YIILPA- RT
FROM STA. 10+93 -YIRPD- LT TO STA. 12+56 -YIRPD- LT
FROM STA. 128+68 -SBL- LT TO STA. 129+58 -SBL- LT
FROM STA. 133+68 -SBL- LT TO STA. 138+68 -SBL- LT
FROM STA. 139+68 -SBL- LT TO STA. 141+68 -SBL- LT
FROM STA. 131+00 -NBL- RT TO STA. 136+69 -NBL- RT
FROM STA. 141+50 -NBL- RT TO STA. 142+00 -NBL- RT
FROM STA. 10+14 -YIILPA- LT TO STA. 11+50 -YIILPA- LT

DETAIL E
LATERAL 'V' DITCH
(Not to Scale)
FROM STA. 119+92 -SBL- LT TO STA. 121+43 -SBL- LT
FROM STA. 121+43 -SBL- LT TO STA. 122+33 -SBL- LT

DETAIL I
BERM DITCH
(Not to Scale)
FROM STA. 116+49 -SBL- LT TO STA. 118+47 -SBL- LT

DETAIL P
SPECIAL CUT DITCH
(Not to Scale)
FROM STA. 16+66 -YIRPC- RT TO STA. 19+17 -YIRPC- RT
FROM STA. 127+68 -SBL- LT TO STA. 130+18 -SBL- LT
FROM STA. 132+18 -SBL- LT TO STA. 133+18 -SBL- LT

DETAIL J
LATERAL 'V' DITCH
(Not to Scale)
FROM STA. 139+68 -SBL- LT TO STA. 141+68 -SBL- LT
FROM STA. 131+43 -YIILPA- LT TO STA. 17+48 -YIILPA- LT

DETAIL Q
LATERAL 'J' BASE DITCH
(Not to Scale)
FROM STA. 133+18 -SBL- LT TO STA. 134+70 -SBL- LT
FROM STA. 142+00 -NBL- TO STA. 143+31 -NBL- RT
FROM STA. 19+66 -YIRPA- LT TO STA. 20+77 -YIRPA- LT

-SBL-

Pls Sta 118+58.90	Pl Sta 122+07.15	Pls Sta 125+54.31
θs = 7°04'59.8"	Δ = 12°28'55.3" (LT)	θs = 7°04'59.8"
Ls = 450.00'	D = 3°08'53.2"	Ls = 450.00'
LT = 300.24'	L = 398.45'	LT = 300.24'
ST = 150.22'	T = 198.50'	ST = 150.22'
	R = 1,820.00'	
	V = 70 MPH	
	e = 0.08	

-Y1-

Pl Sta 14+62.65
Δ = 16°09'51.2" (RT)
D = 3°00'56.0"
L = 536.03'
T = 269.80'
R = 1,900.00'
V = 40 MPH
e = EXIST

-YIRPA-

Pl Sta 22+49.80	Pls Sta 18+90.88	Pl Sta 15+88.92	Pls Sta 10+80.68
Δ = 15°30'00.1" (LT)	θs = 4°46'28.7"	Δ = 22°46'07.7" (RT)	θs = 4°46'28.7"
D = 10°25'02.7"	Ls = 200.00'	D = 4°46'28.7"	Ls = 200.00'
L = 148.73'	LT = 133.39'	L = 476.81'	LT = 133.39'
T = 74.85'	ST = 66.71'	T = 241.65'	ST = 66.71'
R = 550.00'		R = 1,200.00'	
V = 35 MPH		V = 60 MPH	
e = -0.02		e = 0.08	

-YIILPA-

Pls Sta 11+92.59	Pl Sta 15+27.95	Pl Sta 15+47.03
θs = 43°27'32.3"	Δ = 106°32'41.4" (LT)	Δ = 107°49'54.2" (LT)
Ls = 280.00'	D = 30°58'14.5"	D = 11°04'56.5"
LT = 192.59'	L = 344.02'	L = 517.74'
ST = 98.74'	T = 247.05'	T = 492.12'
	R = 185.00'	R = 517.00'
	V = 25 MPH	V = 25 MPH
	e = 0.08	e = 0.08

-NBL-

Pls Sta 118+99.36	Pl Sta 122+38.90	Pls Sta 125+77.54
θs = 1°02'40.4"	Δ = 11°50'27.4" (LT)	θs = 1°02'40.4"
Ls = 450.00'	D = 3°01'51.3"	Ls = 450.00'
LT = 300.24'	L = 378.19'	LT = 300.24'
ST = 150.22'	T = 189.77'	ST = 150.22'
	R = 1,830.00'	
	V = 70 MPH	
	e = 0.08	

-YIRPC-

Pls Sta 17+61.51	Pl Sta 19+76.30	Pls Sta 21+90.69
θs = 2°47'53.4"	Δ = 7°45'23.7" (LT)	θs = 2°47'53.4"
Ls = 210.00'	D = 2°39'53.7"	Ls = 210.00'
LT = 140.02'	L = 289.19'	LT = 140.02'
ST = 70.02'	T = 144.81'	ST = 70.02'
	R = 2,150.00'	
	V = 60 MPH	
	e = 0.07	

-YIRPD-

Pls Sta 13+93.50	Pl Sta 12+76.72	Pls Sta 11+60.09
θs = 9°58'43.3"	Δ = 9°59'07.7" (LT)	θs = 9°58'43.3"
Ls = 240.00'	D = 4°58'56.7"	Ls = 240.00'
LT = 160.09'	L = 73.46'	LT = 160.09'
ST = 80.08'	T = 36.72'	ST = 80.08'
	R = 1,150.00'	
	V = 55 MPH	
	e = 0.08	

2014 ADT	-Y1- (NC 39)	
2035 ADT	13,400 / 17,800	DHV = 8%
		DIR = 50%
		TTST = 1%
		DUAL = 1%
37,800 / 57,300	860 / 1,100	1,050 / 1,200 — 35,050 / 54,500
-L- I-85		
DHV = 8%	5,425 / 7,200	2,475 / 3,600
DIR = 55%		
TTST = 17%		
DUAL = 3%		

PAVEMENT REMOVAL

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NO. 3-P FOR BRIDGE SKETCH
SEE SHEET NOS. 2CR-P, 2CR-10, & 2CR-11 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 51 & 52 FOR -SBL- & -NBL- PROFILE
SEE SHEET NO. 91 FOR -Y1-, -YIRPA-, -YIILPA-, -YIRPD- PROFILE
SEE SHEET NO. 92 FOR -YIILPC-, -YIILPA-, -YIRPD- PROFILE
SEE SHEET NO. 93 FOR -YIILPA- PROFILE

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

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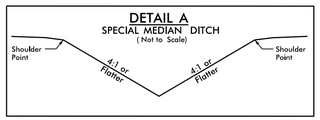
DATE: 2/28/2024

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

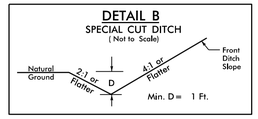
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)



FROM STA. 144+01 -NBL- LT TO STA. 159+46 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 156+72 -SBL- LT TO STA. 159+23 -SBL- LT
FROM STA. 149+50 -NBL- RT TO STA. 150+50 -NBL- RT
FROM STA. 147+00 -NBL- RT TO STA. 149+50 -NBL- RT
FROM STA. 149+18 -SBL- LT TO STA. 150+69 -SBL- LT

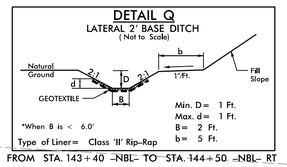
-SBL-
PI Sta 145+33.91
Δ = 0° 15' 00.2" (RT)
D = 0° 13' 45.1"
L = 109.11'
T = 54.55'
R = 25,000.00'
V = 80+ MPH
e = NC

-SBL-
PIs Sta 148+85.55
Θs = 0° 27' 43.4"
Ls = 200.00'
LT = 133.33'
ST = 66.67'

PI Sta 152+57.80
Δ = 2° 49' 24.1" (RT)
D = 0° 27' 43.4"
L = 611.03'
T = 305.58'
R = 12,400.00'
V = 70 MPH
e = 0.03

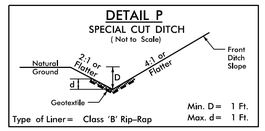
PIs Sta 156+29.92
Θs = 0° 27' 43.4"
Ls = 200.00'
LT = 133.33'
ST = 66.67'

DETAIL Q
LATERAL 2' BASE DITCH
(Not to Scale)

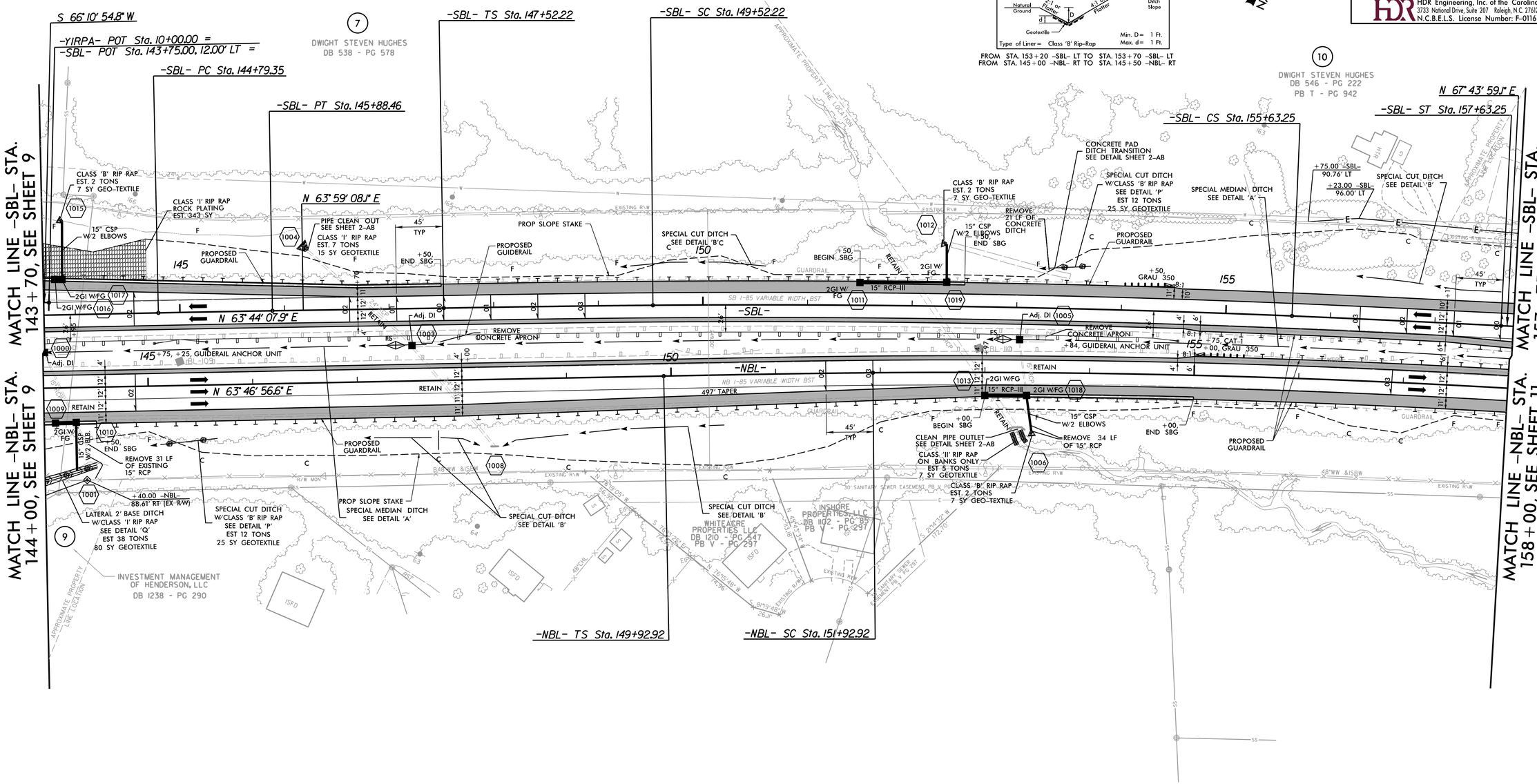


FROM STA. 143+40 -NBL- TO STA. 144+50 -NBL- RT

DETAIL P
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 153+20 -SBL- LT TO STA. 153+70 -SBL- LT
FROM STA. 145+00 -NBL- RT TO STA. 145+50 -NBL- RT



-NBL-

PIs Sta 151+26.25	PI Sta 156+49.43	PIs Sta 161+50.19
Θs = 0° 37' 22.0"	Δ = 5° 40' 53.2" (RT)	Θs = 0° 25' 13.4"
Ls = 200.00'	D = 0° 37' 22.0"	Ls = 135.00'
LT = 133.33'	L = 912.27'	LT = 90.00'
ST = 66.67'	T = 456.51'	ST = 45.00'
	R = 9,200.00'	
	V = 70 MPH	
	e = 0.03	

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-5, 2CR-6, 2CR-9, &
2CR-10 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 52, 53 FOR -SBL- PROFILE
SEE SHEET NO. 53 FOR -NBL- PROFILE
SEE SHEET NO. 91 FOR -Y1RPA- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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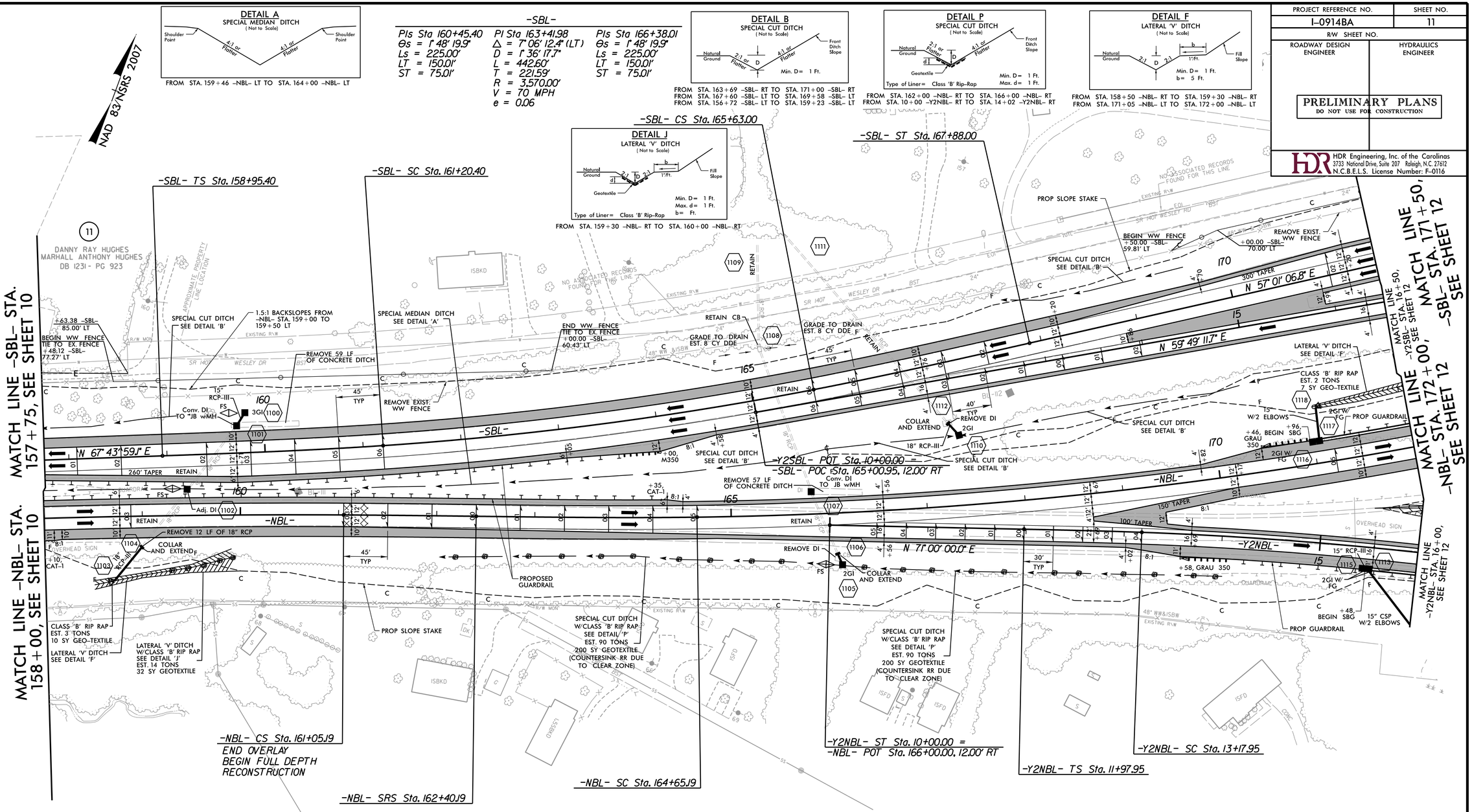
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



-NBL-

PIs Sta 151+26.25	PI Sta 156+49.43	PIs Sta 161+50.J9
Θs = 0° 37' 22.0"	Δ = 5° 40' 53.2" (RT)	Θs = 0° 25' 13.4"
Ls = 200.00'	D = 0° 37' 22.0"	Ls = 135.00'
LT = 133.33'	L = 912.27'	LT = 90.00'
ST = 66.67'	T = 456.51'	ST = 45.00'
	R = 9,200.00'	
	V = 70 MPH	
	e = 0.03	

-NBL-

PIs Sta 163+90.J9	PI Sta 174+70.J7	PIs Sta 185+15.51
Θs = 1° 28' 54.4"	Δ = 26° 01' 03.8" (LT)	Θs = 1° 28' 54.4"
Ls = 225.00'	D = 1° 19' 01.7"	Ls = 225.00'
LT = 150.01'	L = 1,975.31'	LT = 150.01'
ST = 75.00'	T = 1,004.98'	ST = 75.00'
	R = 4,350.00'	
	V = 70 MPH	
	e = 0.05	

-Y2NBL-

PIs Sta 12+77.95	PI Sta 14+96.36	PIs Sta 17+14.51
Θs = 0° 52' 53.3"	Δ = 5° 14' 17.9" (RT)	Θs = 0° 52' 53.3"
Ls = 120.00'	D = 1° 28' 08.8"	Ls = 120.00'
LT = 80.00'	L = 356.56'	LT = 80.00'
ST = 40.00'	T = 178.40'	ST = 40.00'
	R = 3,900.00'	
	V = 60 MPH	
	e = 0.04	

PAVEMENT REMOVAL

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NO. 2CR-12 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 53, 54 FOR -SBL- PROFILE
SEE SHEET NO. 54 -NBL- PROFILE
SEE SHEET NO. 93 FOR -Y2NBL- PROFILE
SEE SHEET NO. 94 FOR -Y2SBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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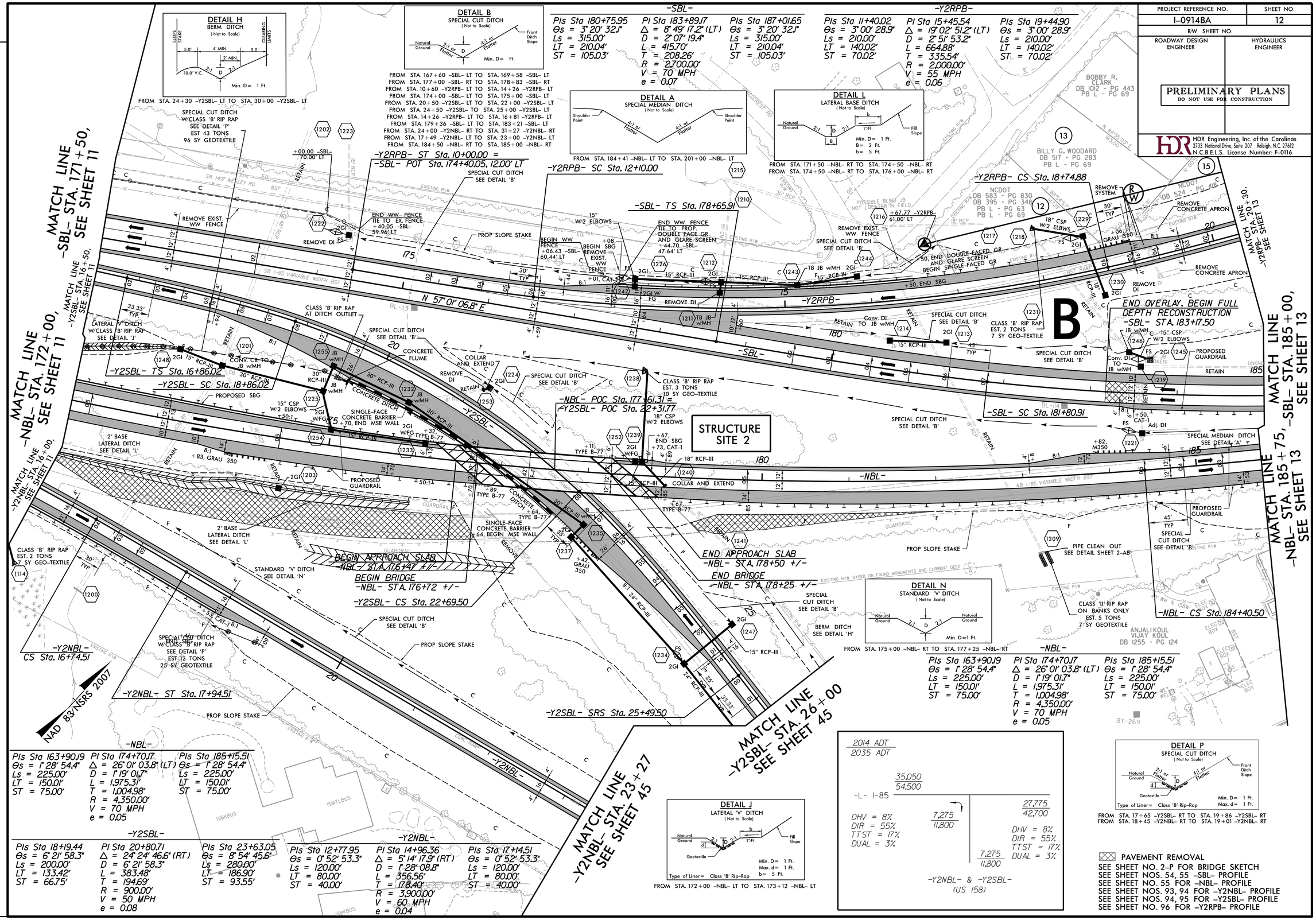
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

NAD 83/NSRS 2007

-Y2-

PI Sta 13+69.33
Δ = 14° 19' 08.6" (RT)
D = 6° 01' 52.1"
L = 237.42'
T = 119.33'
R = 950.00'

PI Sta 22+44.86
Δ = 7° 48' 29.8" (LT)
D = 1° 14' 58.7"
L = 624.84'
T = 312.91'
R = 4,585.00'

-SBL-

PIs Sta 180+75.95
Θs = 3° 20' 32.1"
Ls = 315.00'
LT = 210.04'
ST = 105.03'

PI Sta 183+89.17
Δ = 8° 49' 17.2" (LT)
D = 2° 07' 19.4"
L = 415.70'
T = 208.26'
R = 2,700.00'
V = 70 MPH
e = 0.07

PIs Sta 187+01.65
Θs = 3° 20' 32.1"
Ls = 315.00'
LT = 210.04'
ST = 105.03'

-Y2RPA-

PIs Sta 15+30.34
Θs = 4° 46' 28.7"
Ls = 200.00'
LT = 133.38'
ST = 66.71'

PI Sta 14+07.36
Δ = 5° 22' 39.3" (RT)
D = 4° 46' 28.7"
L = 112.63'
T = 56.36'
R = 1,200.00'
V = 60 MPH
e = 0.08

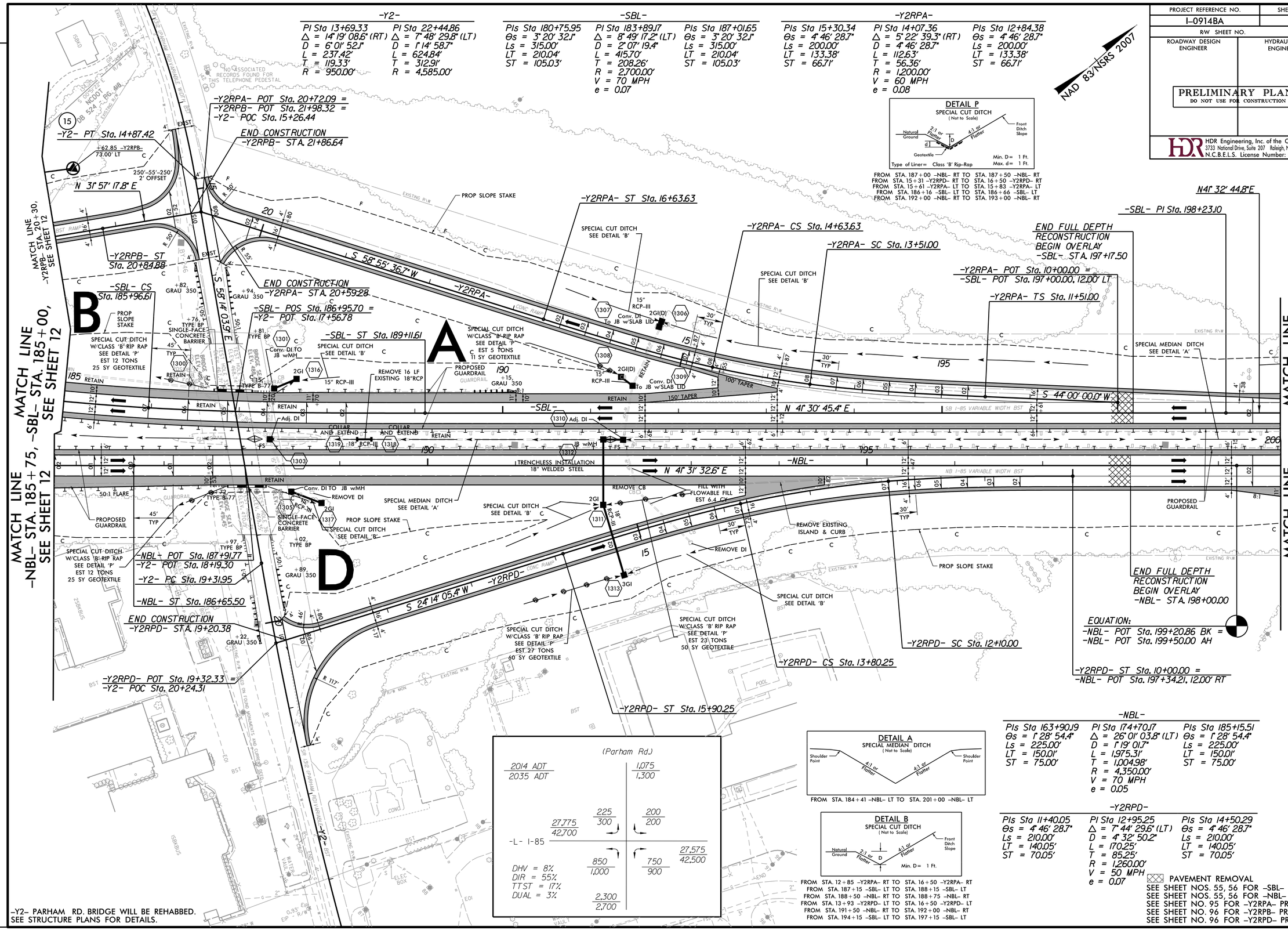
PIs Sta 12+84.38
Θs = 4° 46' 28.7"
Ls = 200.00'
LT = 133.38'
ST = 66.71'

DETAIL P
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground; 2:1 or Flatter; 4:1 or Flatter; Front Ditch Slope; D; d; Geotextile

Type of Liner= Class 'B' Rip-Rap
Min. D= 1 Ft.
Max. d= 1 Ft.

FROM STA. 187+00 -NBL- RT TO STA. 187+50 -NBL- RT
FROM STA. 15+31 -Y2RPD- RT TO STA. 16+50 -Y2RPD- RT
FROM STA. 15+61 -Y2RPA- LT TO STA. 15+83 -Y2RPA- LT
FROM STA. 186+16 -SBL- LT TO STA. 186+66 -SBL- LT
FROM STA. 192+00 -NBL- RT TO STA. 193+00 -NBL- RT



DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)

Shoulder Point; 4:1 or Flatter; 4:1 or Flatter; Shoulder Point

FROM STA. 184+41 -NBL- LT TO STA. 201+00 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground; 2:1 or Flatter; D; 4:1 or Flatter; Front Ditch Slope

Min. D= 1 Ft.

FROM STA. 12+85 -Y2RPA- RT TO STA. 16+50 -Y2RPA- RT
FROM STA. 187+15 -SBL- LT TO STA. 188+15 -SBL- LT
FROM STA. 188+50 -NBL- RT TO STA. 188+75 -NBL- RT
FROM STA. 13+93 -Y2RPD- LT TO STA. 16+50 -Y2RPD- LT
FROM STA. 191+50 -NBL- RT TO STA. 192+00 -NBL- RT
FROM STA. 194+15 -SBL- LT TO STA. 197+15 -SBL- LT

(Parham Rd.)

2014 ADT / 2035 ADT		1,075 / 1,300	
27,775 / 42,700	225 / 300	200 / 200	27,575 / 42,500
-L- I-85			
	850 / 1,000	750 / 900	
	2,300 / 2,700		

DHV = 8%
DIR = 55%
TTST = 17%
DUAL = 3%

-NBL-

PIs Sta 163+90.19
Θs = 1° 28' 54.4"
Ls = 225.00'
LT = 150.01'
ST = 75.00'

PI Sta 174+70.17
Δ = 26° 01' 03.8" (LT)
D = 1° 19' 01.7"
L = 1,975.31'
T = 1,004.98'
R = 4,350.00'
V = 70 MPH
e = 0.05

PIs Sta 185+15.51
Θs = 1° 28' 54.4"
Ls = 225.00'
LT = 150.01'
ST = 75.00'

-Y2RPD-

PIs Sta 11+40.05
Θs = 4° 46' 28.7"
Ls = 210.00'
LT = 140.05'
ST = 70.05'

PI Sta 12+95.25
Δ = 7° 44' 29.6" (LT)
D = 4° 32' 50.2"
L = 170.25'
T = 85.25'
R = 1,260.00'
V = 50 MPH
e = 0.07

PIs Sta 14+50.29
Θs = 4° 46' 28.7"
Ls = 210.00'
LT = 140.05'
ST = 70.05'

PAVEMENT REMOVAL

SEE SHEET NOS. 55, 56 FOR -SBL- PROFILE
SEE SHEET NOS. 55, 56 FOR -NBL- PROFILE
SEE SHEET NO. 95 FOR -Y2RPA- PROFILE
SEE SHEET NO. 96 FOR -Y2RPB- PROFILE
SEE SHEET NO. 96 FOR -Y2RPD- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 4:44:28 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S13.dgn

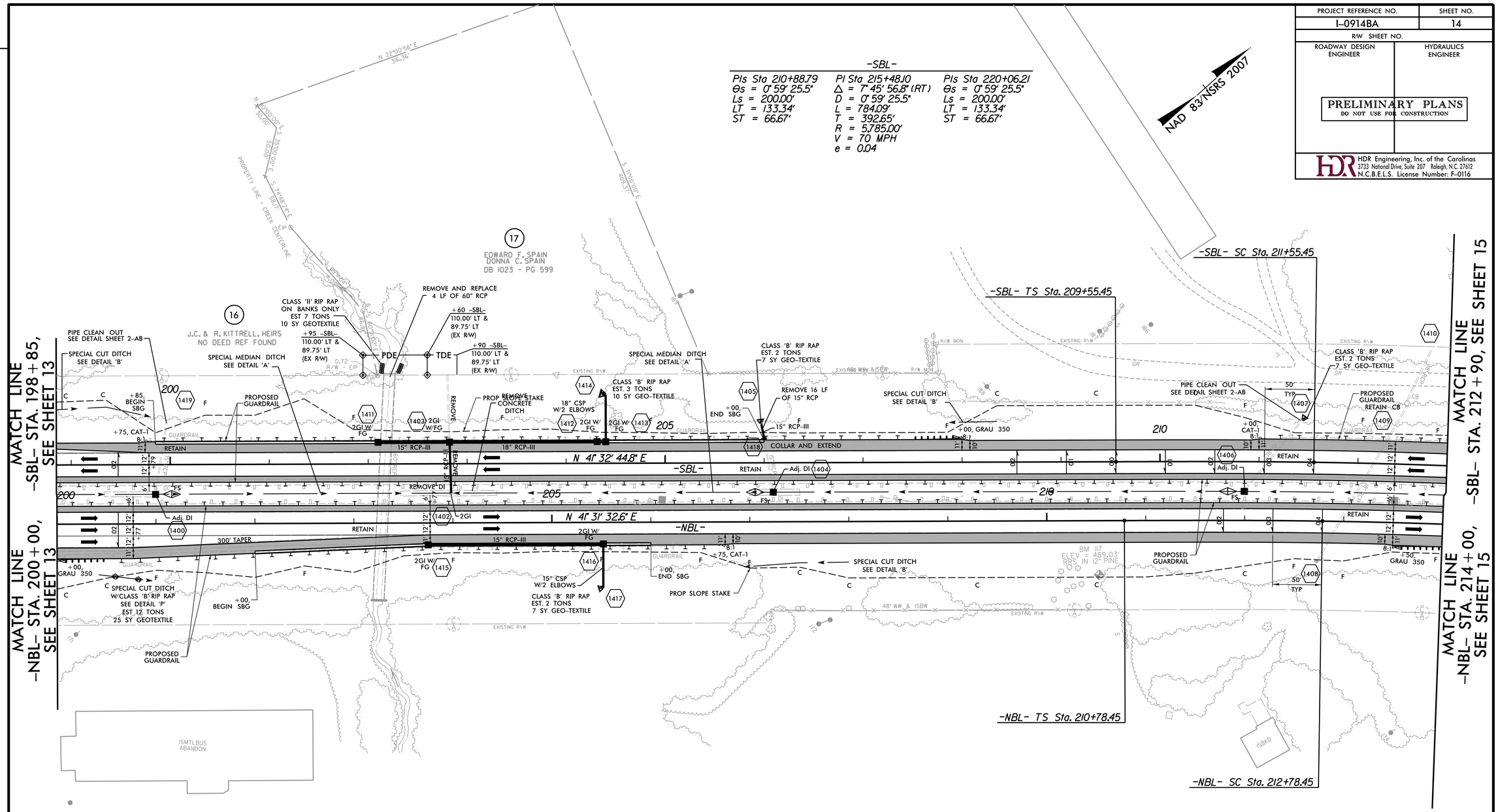
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

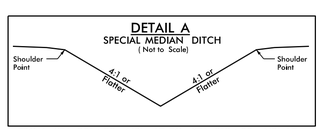
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

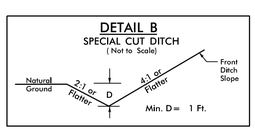
-SBL-

PIs Sta 210+88.79	PI Sta 215+48.10	PIs Sta 220+06.21
Θs = 0° 59' 25.5"	Δ = 7° 45' 56.8" (RT)	Θs = 0° 59' 25.5"
Ls = 200.00'	D = 0° 59' 25.5"	Ls = 200.00'
LT = 133.34'	L = 784.09'	LT = 133.34'
ST = 66.67'	T = 392.65'	ST = 66.67'
	R = 5,785.00'	
	V = 70 MPH	
	e = 0.04	

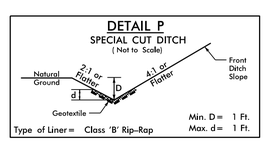




FROM STA. 201+00 -NBL- LT TO STA. 212+00 -NBL LT



FROM STA. 207+85 -SBL- LT TO STA. 208+35 -SBL- LT
FROM STA. 207+00 -NBL- RT TO STA. 208+00 -NBL- RT
FROM STA. 197+15 -SBL- LT TO STA. 199+85 -SBL- LT



FROM STA. 200+50 -NBL- RT TO STA. 201+00 -NBL- RT

-NBL-

PIs Sta 212+11.79	PI Sta 216+51.74	PIs Sta 220+90.57
Θs = 1° 01' 56.5"	Δ = 7° 41' 44.4" (RT)	Θs = 1° 01' 56.5"
Ls = 200.00'	D = 1° 01' 56.5"	Ls = 200.00'
LT = 133.34'	L = 745.45'	LT = 133.34'
ST = 66.67'	T = 373.28'	ST = 66.67'
	R = 5,550.00'	
	V = 70 MPH	
	e = 0.04	

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-14, 2CR-15, 2CR-16, & 2CR-17 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 56, 57 FOR -SBL- PROFILE
SEE SHEET NO. 57 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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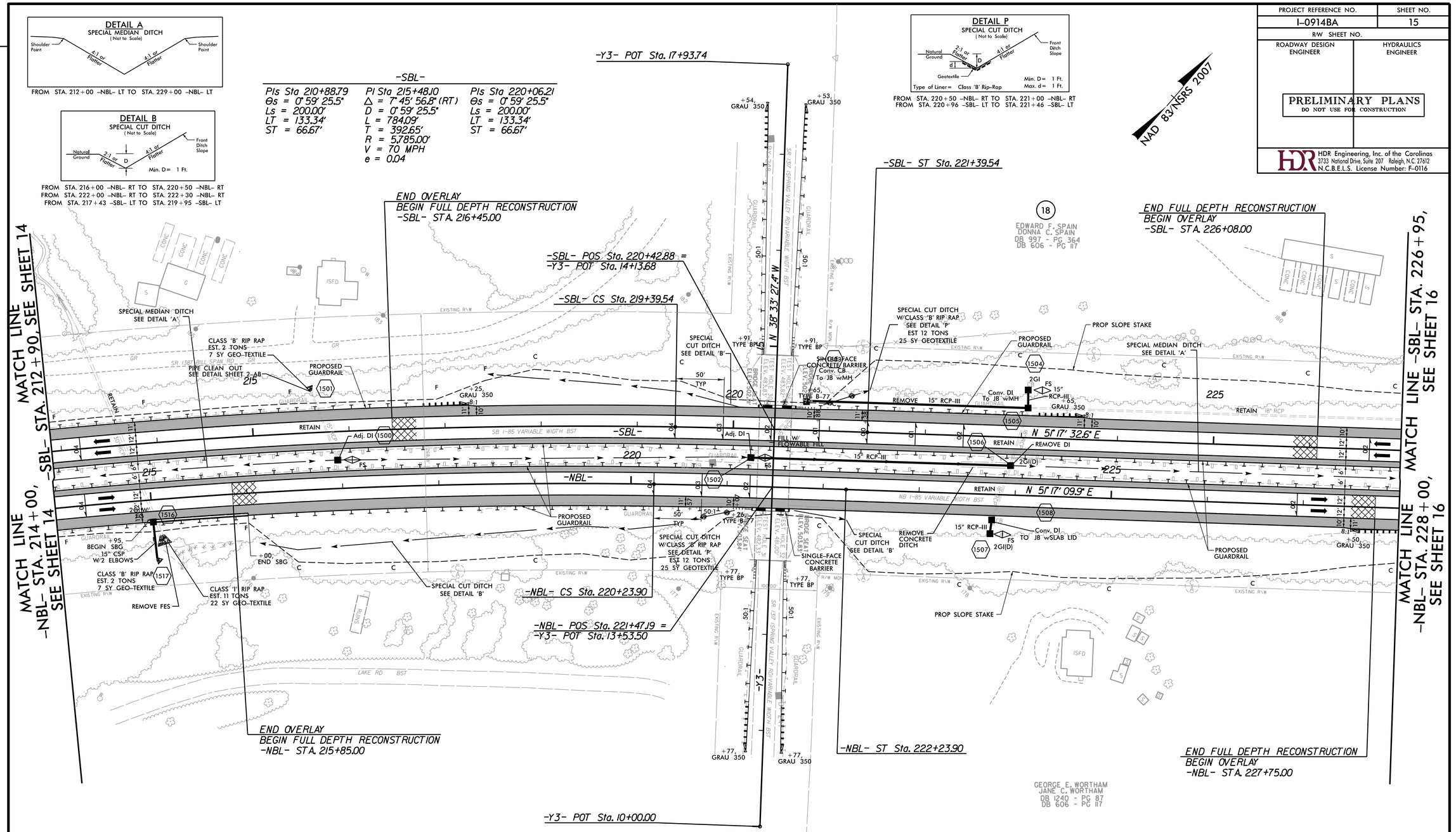
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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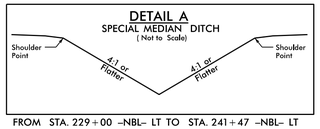
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

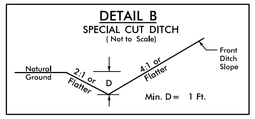
NAD 83/NSRS 2007

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)



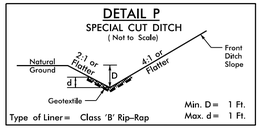
FROM STA. 229+00 -NBL- LT TO STA. 241+47 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



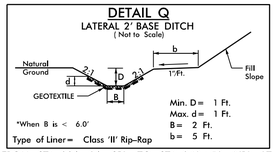
FROM STA. 237+50 -NBL- RT TO STA. 238+00 -NBL- RT

DETAIL P
SPECIAL CUT DITCH
(Not to Scale)

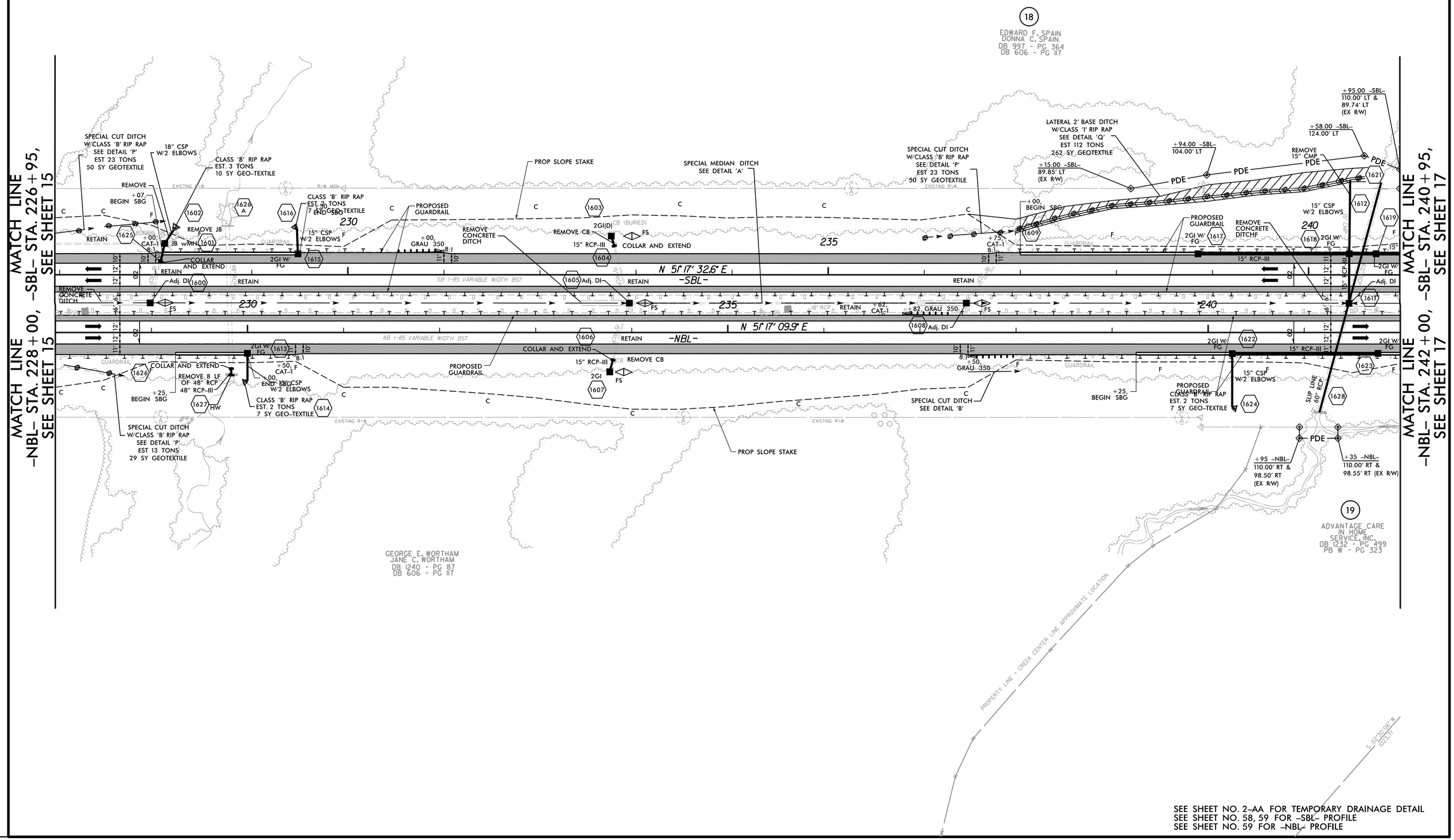


FROM STA. 228+00 -NBL- RT TO STA. 228+58 -NBL- RT
FROM STA. 226+96 -SBL- LT TO STA. 227+96 -SBL- LT
FROM STA. 235+96 -SBL- LT TO STA. 236+96 -SBL- LT

DETAIL Q
LATERAL 2' BASE DITCH
(Not to Scale)



FROM STA. 236+96 -SBL- TO STA. 240+58 -NBL- LT



SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NO. 58, 59 FOR -SBL- PROFILE
SEE SHEET NO. 59 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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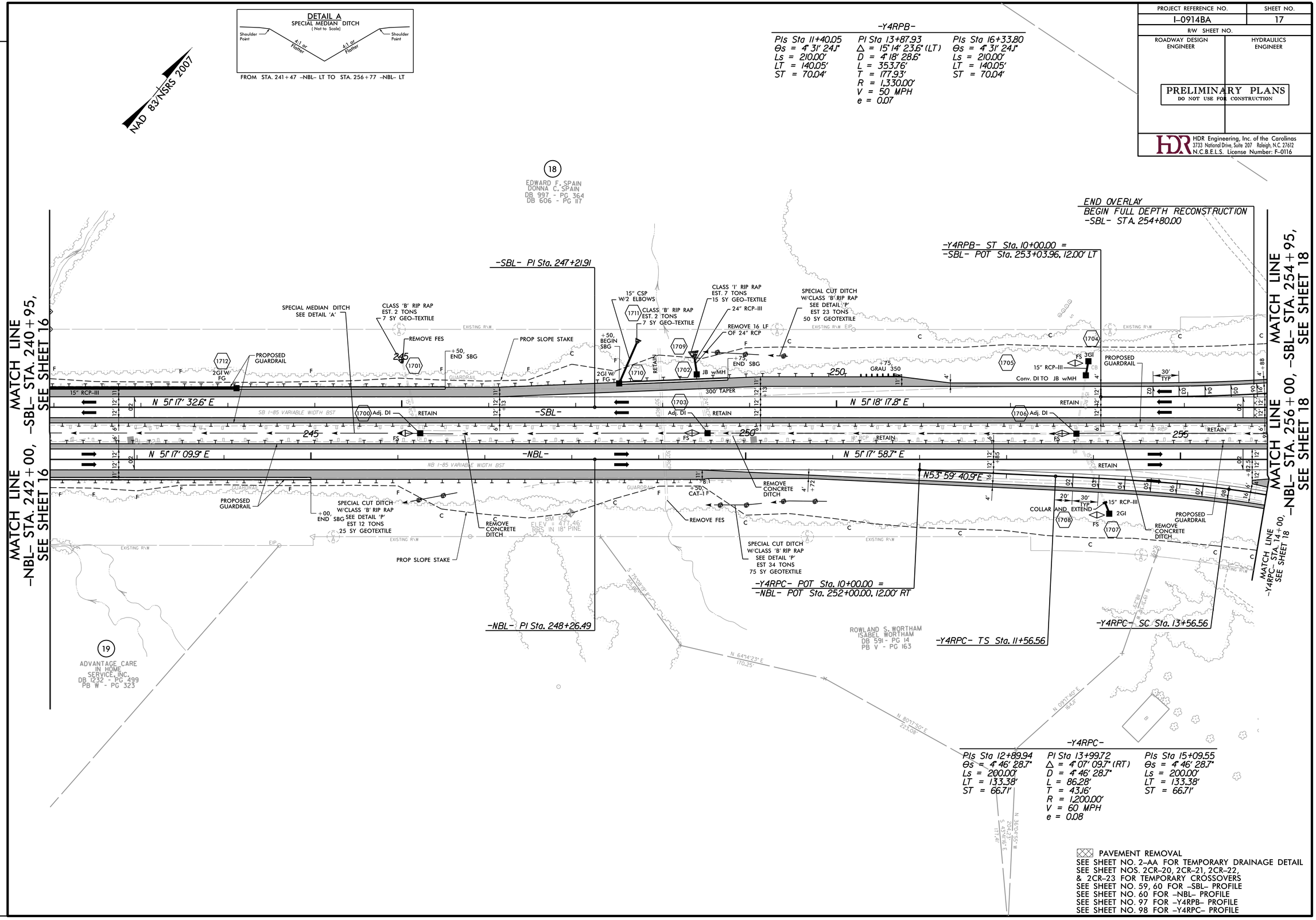
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

-Y4RPB-

PIs Sta 11+40.05	PI Sta 13+87.93	PIs Sta 16+33.80
Θs = 4° 31' 24.1"	Δ = 15° 14' 23.6" (LT)	Θs = 4° 31' 24.1"
Ls = 210.00'	D = 4° 18' 28.6"	Ls = 210.00'
LT = 140.05'	L = 353.76'	LT = 140.05'
ST = 70.04'	T = 177.93'	ST = 70.04'
	R = 1,330.00'	
	V = 50 MPH	
	e = 0.07	

-Y4RPB-

PIs Sta 20+55.92	PI Sta 21+33.97	PIs Sta 22+11.40
Θs = 6° 21' 58.3"	Δ = 16° 15' 25.7" (RT)	Θs = 6° 21' 58.3"
Ls = 80.00'	D = 15° 54' 55.8"	Ls = 80.00'
LT = 53.37'	L = 102.15'	LT = 53.37'
ST = 26.70'	T = 51.42'	ST = 26.70'
	R = 360.00'	
	V = 30 MPH	
	e = 0.02	

-Y4-

PIs Sta 14+63.35	PI Sta 17+89.38	PIs Sta 21+12.25
Θs = 3° 00' 56.0"	Δ = 15° 32' 50.6" (RT)	Θs = 3° 00' 56.0"
Ls = 200.00'	D = 3° 00' 56.0"	Ls = 200.00'
LT = 133.35'	L = 515.57'	LT = 133.35'
ST = 66.68'	T = 259.38'	ST = 66.68'
	R = 1,900.00'	

NAD 83/NSRS 2007

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)
Shoulder Point — 4:1 or Flatter — 4:1 or Flatter — Shoulder Point
FROM STA. 256+77 -NBL- LT TO STA. 272+46 -NBL- LT

MATCH LINE -Y4RPC- STA. 14+00, -NBL- STA. 256+00, SEE SHEET 17

MATCH LINE -Y4RPA- STA. 18+25, -NBL- STA. 268+95, SEE SHEET 19

MATCH LINE -Y4RPD- STA. 13+60, -NBL- STA. 270+00, SEE SHEET 19

-Y4RPB- SC Sta. 12+10.00
-Y4RPB- CS Sta. 15+63.76
-Y4RPB- ST Sta. 17+73.76
-Y4RPB- TS Sta. 20+02.55
-Y4RPB- SC Sta. 20+82.55
-Y4RPB- CS Sta. 21+84.70
-Y4RPB- ST Sta. 22+64.70
N 15° 59' 48.0" E
-Y4- ST Sta. 22+45.57
-Y4- POS Sta. 21+42.78 =
-Y4RPB- POT Sta. 24+03.03
END CONSTRUCTION
-Y4RPB- ST A. 23+87.79
N 56° 00' 28.4" E
N 27° 01' 06.1" E
N 51° 18' 17.8" E
N 51° 17' 58.7" E
N 67° 39' 48.1" E
N 5° 34' 54.1" W
S 77° 04' 45.0" W
-Y4RPA- ST Sta. 19+80.56
END CONSTRUCTION
-Y4RPA- ST A. 21+45.31
-Y4- POS Sta. 21+00.70 =
-Y4RPA- POT Sta. 21+56.72
-Y4- CS Sta. 20+45.57
-SBL- POT Sta. 263+22.25 =
-Y4- POC Sta. 16+95.59
END FULL DEPTH RECONSTRUCTION
BEGIN OVERLAY
-SBL- ST A. 266+75.00
-NBL- POT Sta. 263+76.62 =
-Y4- POC Sta. 16+17.58
END FULL DEPTH RECONSTRUCTION
BEGIN OVERLAY
-NBL- ST A. 268+25.00
-Y4- POS Sta. 13+54.85 =
-Y4RPC- POT Sta. 20+49.93
END CONSTRUCTION
-Y4RPD- ST A. 21+72.39
END OVERLAY
BEGIN FULL DEPTH
RECONSTRUCTION
-NBL- ST A. 256+50.00
-Y4RPC- CS Sta. 14+42.84
-Y4RPC- ST Sta. 16+42.84
END CONSTRUCTION
-Y4RPC- ST A. 20+38.47
-Y4- TS Sta. 13+30.00
-Y4- POT Sta. 10+00.00
-Y4- POT Sta. 13+28.55 =
-Y4RPD- POT Sta. 21+83.97
-Y4RPD- CS Sta. 15+16.13
-Y4RPD- ST Sta. 17+26.13
-Y4RPD- TS Sta. 18+32.99
-Y4RPD- SC Sta. 19+12.99
-Y4RPD- CS Sta. 19+87.02
-Y4RPD- ST Sta. 20+67.02
S 29° 23' 39.1" W
S 50° 24' 26.0" W

A
B
C
D

EDWARD F. SPAIN
DONNA C. SPAIN
DB 997 - PG 364
DB 606 - PG 117

CLEMENTS DAVIS CONOLLY
INVESTMENTS, LLC
DB 764 - PG 787

(Satterwhite Point Rd.)

2014 ADT		3,925	
2035 ADT		5,200	
	1,375		225
27,575			300
42,500	1,700		
-L- I-85			26,275
			40,800
DHV = 8%	500		375
DIR = 55%	900		600
TTST = 17%			
DUAL = 3%	3,175		
	4,700		

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

FROM STA. 258+96 -SBL- LT TO STA. 260+57 -SBL- LT
FROM STA. 262+57 -SBL- LT TO STA. 263+46 -SBL- LT
FROM STA. 266+45 -SBL- LT TO STA. 271+15 -SBL- LT
FROM STA. 262+00 -NBL- RT TO STA. 262+50 -NBL- RT
FROM STA. 257+00 -NBL- RT TO STA. 258+00 -NBL- RT

-Y4RPC-

PIs Sta 12+89.94	PI Sta 13+99.72	PIs Sta 15+09.55
Θs = 4° 46' 28.7"	Δ = 4° 07' 09.7" (RT)	Θs = 4° 46' 28.7"
Ls = 200.00'	D = 4° 46' 28.7"	Ls = 200.00'
LT = 133.38'	L = 86.28'	LT = 133.38'
ST = 66.71'	T = 43.16'	ST = 66.71'
	R = 1,200.00'	
	V = 60 MPH	
	e = 0.08	

-Y4RPD-

PIs Sta 20+13.71	PI Sta 19+50.0	PIs Sta 18+86.35
Θs = 5° 27' 24.3"	Δ = 10° 05' 58.4" (RT)	Θs = 5° 27' 24.3"
Ls = 80.00'	D = 13° 38' 30.7"	Ls = 80.00'
LT = 53.36'	L = 74.03'	LT = 53.36'
ST = 26.69'	T = 37.11'	ST = 26.69'
	R = 420.00'	
	V = 35 MPH	
	e = 0.02	

-Y4RPD-

PIs Sta 15+86.18	PI Sta 13+63.73	PIs Sta 11+40.04
Θs = 4° 27' 22.8"	Δ = 12° 59' 33.9" (LT)	Θs = 4° 27' 22.8"
Ls = 210.00'	D = 4° 14' 38.9"	Ls = 210.00'
LT = 140.04'	L = 306.13'	LT = 140.04'
ST = 70.04'	T = 153.73'	ST = 70.04'
	R = 1,350.00'	
	V = 50 MPH	
	e = 0.07	

-Y4RPA-

PIs Sta 18+47.27	PI Sta 16+47.85	PIs Sta 14+47.43
Θs = 4° 46' 28.7"	Δ = 12° 43' 29.8" (RT)	Θs = 4° 46' 28.7"
Ls = 200.00'	D = 4° 46' 28.7"	Ls = 200.00'
LT = 133.38'	L = 266.51'	LT = 133.38'
ST = 66.71'	T = 133.81'	ST = 66.71'
	R = 1,200.00'	
	V = 60 MPH	
	e = 0.08	

PAVEMENT REMOVAL
-Y4- SATTERWHITE RD. BRIDGE WILL BE REHABBED.
SEE STRUCTURE PLANS FOR DETAILS.
SEE SHEET NOS. 60, 61 -SBL- PROFILE
SEE SHEET NO. 61 FOR -NBL- PROFILE
SEE SHEET NO. 97 FOR -Y4RPA- & -Y4RPB- PROFILE
SEE SHEET NO. 98 FOR -Y4RPC- & -Y4RPD- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 4:46:08 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S18.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

NAD 83/NSRS 2007

-Y4RPA-

PIs Sta 18+47.27	PI Sta 16+47.85	PIs Sta 14+43.43
Θs = 4° 46' 28.7"	Δ = 12° 43' 29.8" (RT)	Θs = 4° 46' 28.7"
Ls = 200.00'	D = 4° 46' 28.7"	Ls = 200.00'
LT = 133.38'	L = 266.51'	LT = 133.38'
ST = 66.71'	T = 133.81'	ST = 66.71'
	R = 1,200.00'	
	V = 60 MPH	
	e = 0.08	

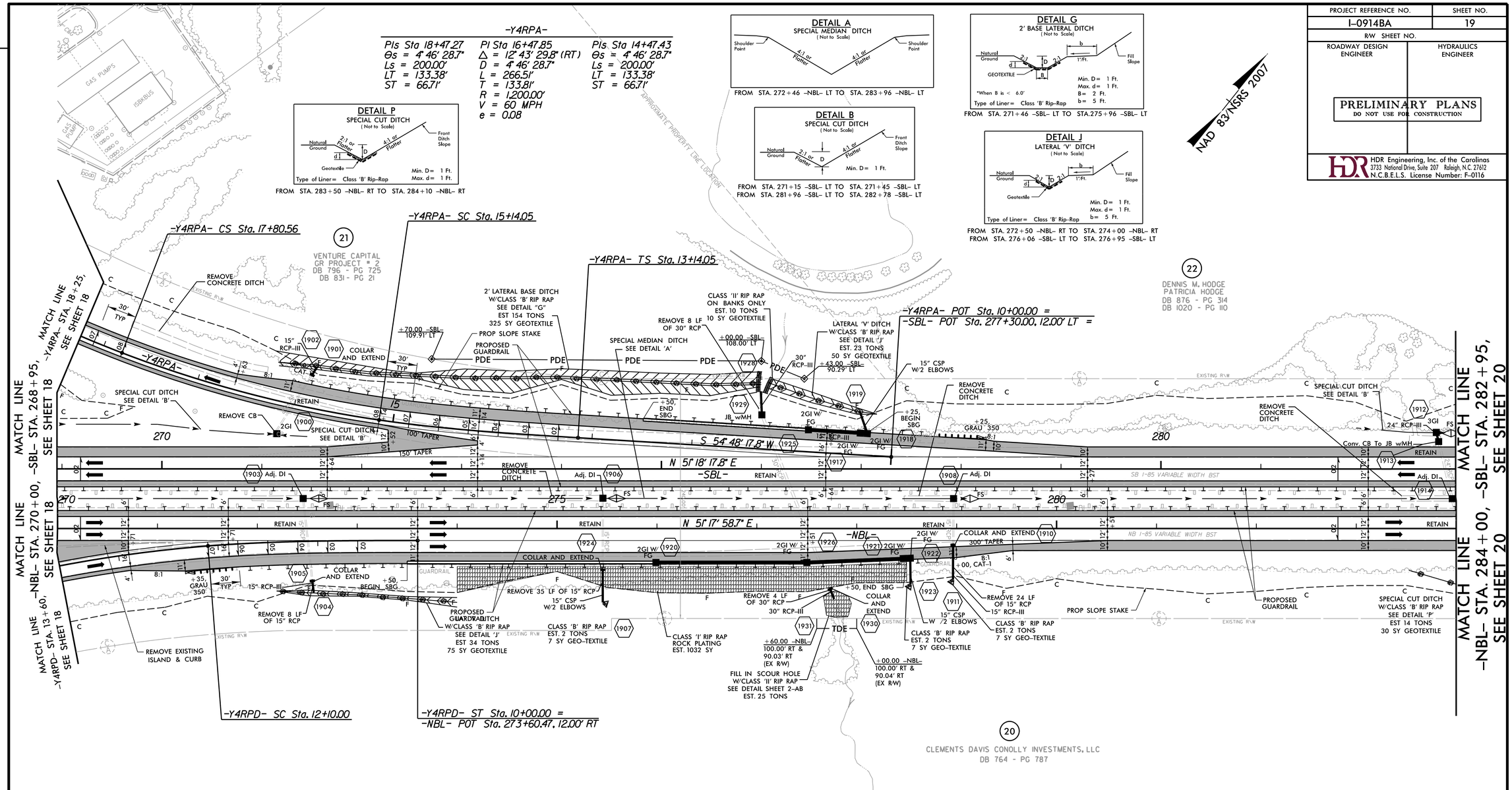
DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)
Shoulder Point — 4:1 or Flatter — 4:1 or Flatter — Shoulder Point
FROM STA. 272+46 -NBL- LT TO STA. 283+96 -NBL- LT

DETAIL G
2' BASE LATERAL DITCH
(Not to Scale)
Natural Ground — 2:1 — D — 2:1 — b — 1'-Ft. — Fill Slope — d — B — GEOTEXTILE
*When B is < 6.0'
Min. D = 1 Ft.
Max. d = 1 Ft.
B = 2 Ft.
b = 5 Ft.
Type of Liner = Class 'B' Rip-Rap
FROM STA. 271+46 -SBL- LT TO STA.275+96 -SBL- LT

DETAIL P
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground — 2:1 or Flatter — D — 4:1 or Flatter — Front Ditch Slope — d — Geotextile
Min. D = 1 Ft.
Max. d = 1 Ft.
Type of Liner = Class 'B' Rip-Rap
FROM STA. 283+50 -NBL- RT TO STA. 284+10 -NBL- RT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground — 2:1 or Flatter — D — 4:1 or Flatter — Front Ditch Slope
Min. D = 1 Ft.
FROM STA. 271+15 -SBL- LT TO STA. 271+45 -SBL- LT
FROM STA. 281+96 -SBL- LT TO STA. 282+78 -SBL- LT

DETAIL J
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground — 2:1 — D — 2:1 — b — 1'-Ft. — Fill Slope — d — Geotextile
Min. D = 1 Ft.
Max. d = 1 Ft.
b = 5 Ft.
Type of Liner = Class 'B' Rip-Rap
FROM STA. 272+50 -NBL- RT TO STA. 274+00 -NBL- RT
FROM STA. 276+06 -SBL- LT TO STA. 276+95 -SBL- LT



-Y4RPD-

PIs Sta 15+86.18	PI Sta 13+63.73	PIs Sta 11+40.04
Θs = 4° 27' 22.8"	Δ = 12° 59' 33.9" (LT)	Θs = 4° 27' 22.8"
Ls = 210.00'	D = 4° 14' 38.9"	Ls = 210.00'
LT = 140.04'	L = 306.13'	LT = 140.04'
ST = 70.04'	T = 153.73'	ST = 70.04'
	R = 1,350.00'	
	V = 50 MPH	
	e = 0.07'	

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-18, 2CR-19, 2CR-24, & 2CR-25 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 61, 62 FOR -SBL- PROFILE
SEE SHEET NO. 62 FOR -NBL- PROFILE
SEE SHEET NO. 97 FOR -Y4RPA- PROFILE
SEE SHEET NO. 98 FOR -Y4RPD- PROFILE

REVISIONS

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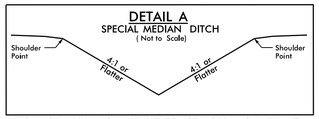
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

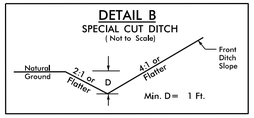
NAD 83/NSRS 2007

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)



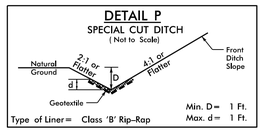
FROM STA. 283+96 -NBL- LT TO STA. 300+46 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



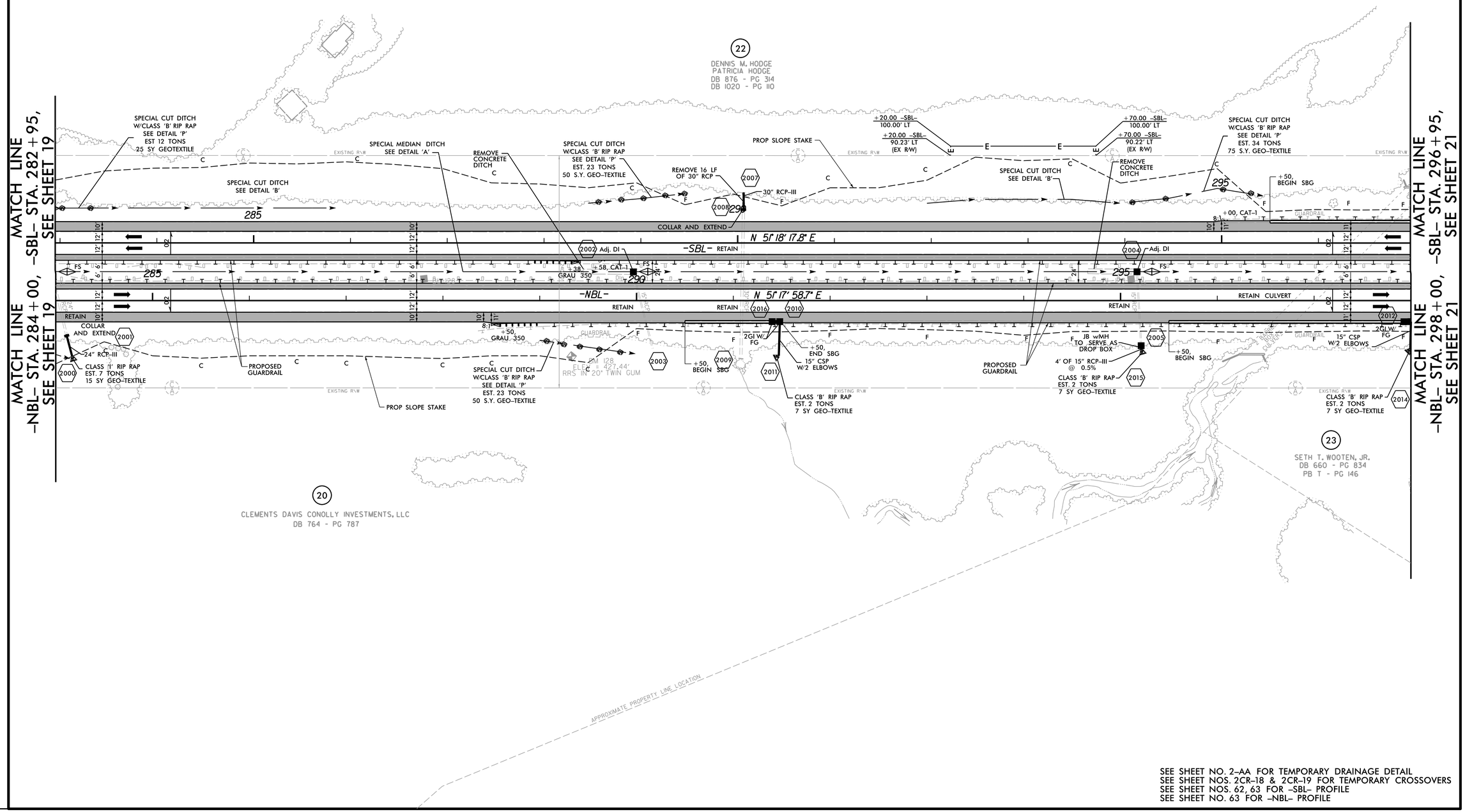
FROM STA. 283+76 -SBL- LT TO STA. 285+96 -SBL- LT
FROM STA. 291+96 -SBL- LT TO STA. 293+96 -SBL- LT

DETAIL P
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

FROM STA. 289+00 -NBL- RT TO STA. 290+00 -NBL- RT
FROM STA. 282+78 -SBL- LT TO STA. 283+46 -SBL- LT
FROM STA. 288+46 -SBL- LT TO STA. 289+45 -SBL- LT
FROM STA. 293+96 -SBL- LT TO STA. 295+46 -SBL- LT



SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-18 & 2CR-19 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 62, 63 FOR -SBL- PROFILE
SEE SHEET NO. 63 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
2730 Yorkmont Drive, Suite 201 Raleigh, N.C. 27609
N.C.B.E.L. License Number F-0116

NAD 83/NSRS 2007

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)

FROM STA. 300+46 -NBL- LT TO STA. 306+00 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)

FROM STA. 23+50 -YSSBL- RT TO STA. 28+50 -YSSBL- RT
FROM STA. 303+50 -NBL- RT TO STA. 305+00 -NBL- RT
FROM STA. 306+50 -NBL- RT TO STA. 307+00 -NBL- RT
FROM STA. 301+94 -SBL- LT TO STA. 303+05 -SBL- LT
FROM STA. 309+00 -NBL- RT TO STA. 309+43 -NBL- RT
FROM STA. 319+50 -SBL- RT TO STA. 321+50 -SBL- RT
FROM STA. 323+00 -NBL- RT TO STA. 324+00 -NBL- RT
FROM STA. 325+00 -NBL- RT TO STA. 326+65 -NBL- RT
FROM STA. 313+30 -SBL- RT TO STA. 314+50 -SBL- RT

DETAIL P
CUT DITCH
(Not to Scale)

Type of Liner= Class 'B' Rip-Rap

FROM STA. 309+38 -SBL- LT TO STA. 306+47 -SBL- LT
FROM STA. 23+75 -YSSBL- RT TO STA. 25+00 -YSSBL- RT
FROM STA. 25+87 -YSNBL- TO STA. 27+36 -YSNBL- LT
FROM STA. 24+83 -YSSBL- LT TO STA. 26+85 -YSSBL- LT
FROM STA. 300+46 -NBL- LT TO STA. 301+00 -NBL- LT
FROM STA. 301+63 -NBL- RT TO STA. 310+00 -NBL- RT
FROM STA. 313+50 -NBL- RT TO STA. 314+50 -NBL- RT

DETAIL W
SPECIAL CUT BASE DITCH
(Not to Scale)

Type of Liner= Class 'B' Rip-Rap

FROM STA. 23+75 -YSSBL- RT TO STA. 25+50 -YSSBL- RT

-SBL-

PIs Sta 300+91.26	PI Sta 304+15.59	PIs Sta 307+39.01
θs = 3°21' 16.8"	Δ = 9°19' 26.5" (LT)	θs = 3°21' 16.8"
Ls = 315.00'	D = 2°07' 47.8"	Ls = 315.00'
LT = 210.04'	L = 437.76'	LT = 210.04'
ST = 105.03'	T = 219.36'	ST = 105.03'
	R = 2,690.00'	
	V = 70 MPH	
	e = 0.07	

-SBL-

PIs Sta 315+45.55	PI Sta 317+93.56	PIs Sta 320+41.37
θs = 1°34' 19.7"	Δ = 4°49' 57.9" (RT)	θs = 1°34' 19.7"
Ls = 225.00'	D = 1°31' 50.8"	Ls = 225.00'
LT = 150.01'	L = 345.82'	LT = 150.01'
ST = 75.01'	T = 173.01'	ST = 75.01'
	R = 4,000.00'	
	V = 70 MPH	
	e = 0.05	

-NBL-

PIs Sta 312+76.49	PI Sta 315+77.80	PIs Sta 318+78.15
θs = 5°41' 52.5"	Δ = 11°26' 55.9" (LT)	θs = 5°41' 52.5"
Ls = 360.00'	D = 3°09' 55.8"	Ls = 360.00'
LT = 240.12'	L = 361.68'	LT = 240.12'
ST = 120.11'	T = 181.44'	ST = 120.11'
	R = 1,810.00'	
	V = 70 MPH	
	e = 0.08	

-NBL-

PIs Sta 323+58.61	PI Sta 329+00.46	PIs Sta 334+38.96
θs = 1°28' 25.4"	Δ = 11°54' 42.4" (RT)	θs = 1°28' 25.4"
Ls = 225.00'	D = 1°16' 49.3"	Ls = 225.00'
LT = 150.00'	L = 930.35'	LT = 150.00'
ST = 75.00'	T = 466.96'	ST = 75.00'
	R = 4,475.00'	
	V = 70 MPH	
	e = 0.05	

-YSSBL-

PI Sta 17+05.33
Δ = 40°28' 21.7" (LT)
D = 2°59' 31.0"
L = 1,351.61'
T = 705.33'
R = 1,915.00'
V = 60 MPH
e = 0.06

-YSNBL-

PI Sta 13+31.57	PI Sta 21+80.71	PI Sta 30+80.55	PI Sta 39+81.93
Δ = 8°04' 14.3" (LT)	Δ = 7°07' 33.2"	Δ = 20°46' 54.6" (LT)	θs = 1°30' 04.3"
D = 1°19' 08.6"	Ls = 180.00'	D = 1°15' 03.6"	Ls = 240.00'
L = 663.04'	LT = 120.00'	L = 1,661.22'	LT = 160.01'
T = 331.57'	ST = 60.00'	T = 839.84'	ST = 80.01'
R = 4,000.00'		R = 4,580.00'	
V = 60 MPH		V = 60 MPH	
e = 0.04		e = 0.04	

-YSNBL = & -YSSBL-
(125 ')

2014 AOT	
2035 AOT	
	DHV = 12%
	DIR = 50%
	TTST = 12%
	DUAL = 1%
26,275 / 40,800	
-L- I-85	
	33,200 / 52,000
DHV = 8%	
DIR = 55%	
TTST = 17%	
DUAL = 3%	
6,925 / 11,200	6,925 / 11,200

PROPERTY OWNERS

22 DENNIS M. HODGE, PATRICIA HODGE, DB 8176 - PG 364, DB 9020 - PG 90

23 SETH T. WOOTEN JR. DB 660 - PG 834, PB 7 - PG 146

24 KEITH ROBERT SMITH, JAMES H. FALKNER, III, DB 900 - PG 145

25 S.T. WOOTEN CORPORATION, DB 760 - PG 713

26 KIRBY LANE AYSCUE, DB 788 - PG 584

27 LIVENSBURN PROPERTY OWNER

MATCH LINE -NBL- STA. 298+00, -SBL- STA. 296+95, SEE SHEET 20

MATCH LINE -NBL- STA. 326+00, -SBL- STA. 324+25, SEE SHEET 22

MATCH LINE -YSSBL- STA. 29+85, -YSNBL- STA. 34+50, SEE SHEET 45A

-SBL- TS Sta. 298+81.22
-SBL- SC Sta. 301+96.22
-SBL- CS Sta. 306+33.98
-SBL- ST Sta. 309+48.98
-SBL- TS Sta. 313+95.54
-SBL- SC Sta. 316+20.54
-SBL- CS Sta. 319+66.37
-SBL- ST Sta. 321+91.37
-NBL- TS Sta. 310+36.36
-NBL- SC Sta. 313+96.36
-NBL- CS Sta. 317+58.04
-NBL- TS Sta. 322+08.60
-NBL- ST Sta. 324+18.04
-NBL- SC Sta. 324+33.60
-YSSBL- PC Sta. 10+00.00 = -SBL- POS Sta. 321+14.43, 12.00' RT
-YSNBL- PT Sta. 16+62.04
-YSNBL- TS Sta. 20+60.71
-YSNBL- SC Sta. 22+40.71
-YSSBL- PT Sta. 23+51.61
-YSARPC- ST Sta. 10+00.00 = -YSSBL- POT Sta. 29+11.44, 12.00' RT
-YSARPB- ST Sta. 10+00.00 = -YSNBL- POC Sta. 33+89.46, 12.00' LT

STRUCTURE SITE 3

BEGIN APPROACH SLAB -YSSBL- STA. 20+09 +/-
BEGIN BRIDGE -YSSBL- STA. 20+34 +/-
END BRIDGE -YSSBL- STA. 22+56 +/-
END APPROACH SLAB -YSSBL- STA. 22+81 +/-
END OVERLAY BEGIN BREAKING OF EXISTING PAVEMENT -YSSBL- STA. 17+29.00
END BREAKING OF EXISTING PAVEMENT BEGIN OVERLAY -YSSBL- STA. 26+17.00
END OVERLAY BEGIN FULL DEPTH RECONSTRUCTION -NBL- STA. 304+05.00
END FULL DEPTH RECONSTRUCTION BEGIN OVERLAY -NBL- STA. 316+60.00
-NBL- POS Sta. 311+53.85 = -YSSBL- POC Sta. 21+34.80

PAVEMENT REMOVAL
SEE SHEET NO. 2-Q FOR BRIDGE SKETCH
SEE SHEET NOS. 63, 64, 65 FOR -SBL- PROFILE
SEE SHEET NOS. 64, 65 FOR -NBL- PROFILE
SEE SHEET NO. 99 FOR -YSNBL- PROFILE
SEE SHEET NOS. 100, 101 FOR -YSSBL- PROFILE
SEE SHEET NO. 102 FOR -YSARPB- PROFILE
SEE SHEET NO. 103 FOR -YSARPC- PROFILE

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

PLOT DRIVEN: NCDOT_cdt_color*.pnp,100pt*
cdOts: wedmer1
FILE: Y:\Pro*Engineering\Dept of Transport\I-0914BA\NCDOT_I-0914_Document\Design\dgn\Project_Design\I-0914BA_NCDOT_Folder_Structure\Roadway\R-0-1\I0914BA_NCDT_PSH_S21.dgn
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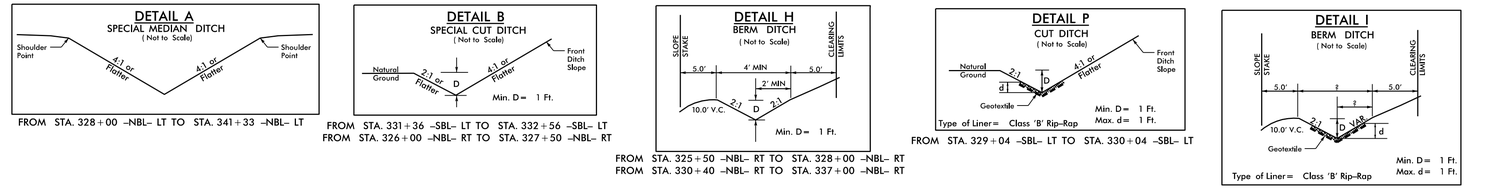
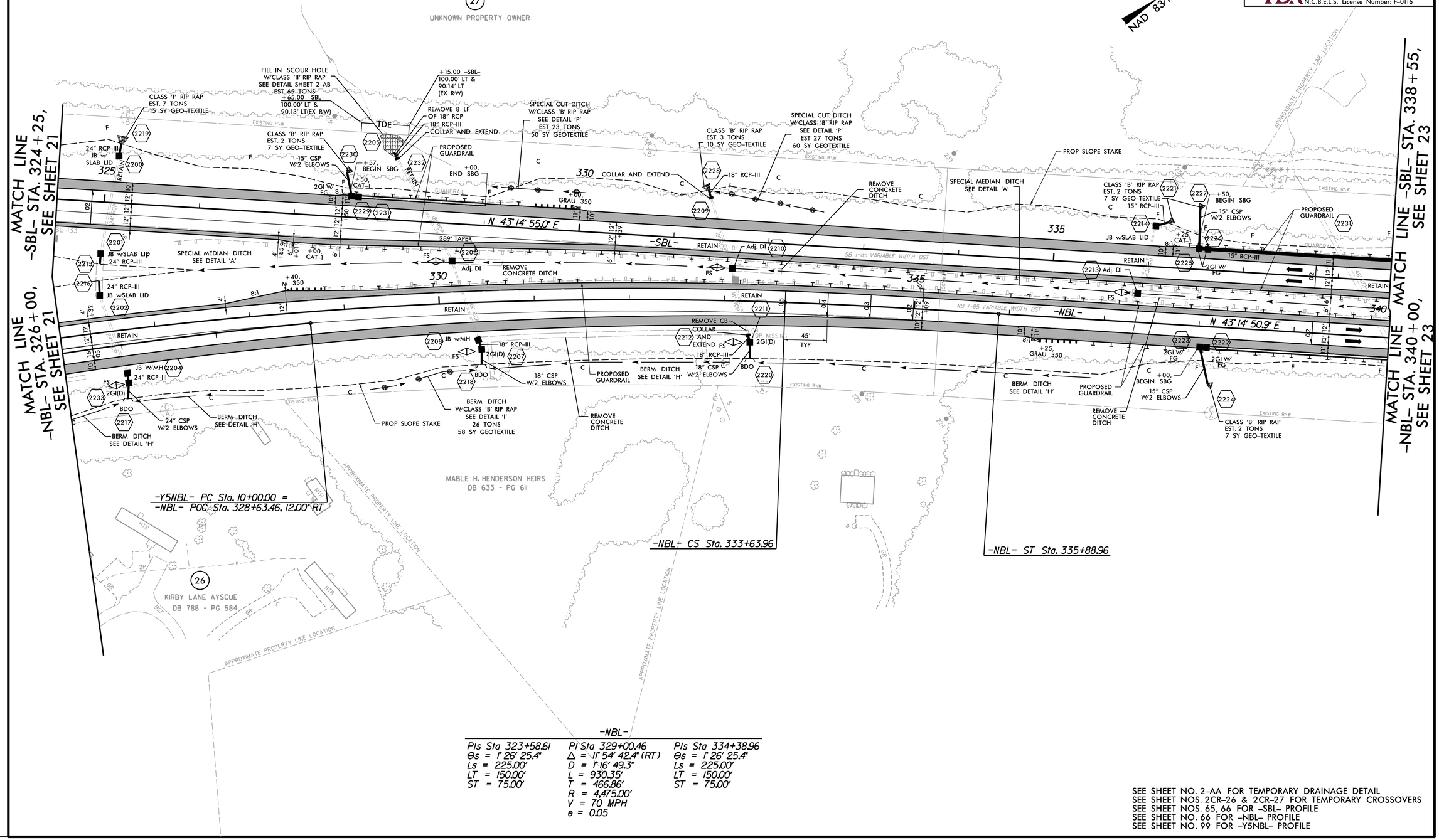
DATE: 2/28/2014

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116





-NBL-

PIs Sta 323+58.61	PI Sta 329+00.46	PIs Sta 334+38.96
Θs = 1° 26' 25.4"	Δ = 11° 54' 42.4" (RT)	Θs = 1° 26' 25.4"
Ls = 225.00'	D = 1° 16' 49.3"	Ls = 225.00'
LT = 150.00'	L = 930.35'	LT = 150.00'
ST = 75.00'	T = 466.86'	ST = 75.00'
	R = 4,475.00'	
	V = 70 MPH	
	e = 0.05	

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-26 & 2CR-27 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 65, 66 FOR -SBL- PROFILE
SEE SHEET NO. 66 FOR -NBL- PROFILE
SEE SHEET NO. 99 FOR -Y5NBL- PROFILE

REVISIONS

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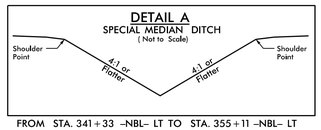
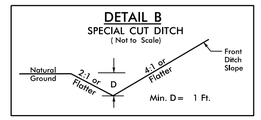
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

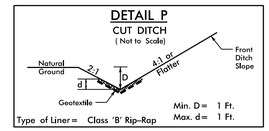
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



FROM STA. 341+33 -NBL- LT TO STA. 355+11 -NBL- LT



FROM STA. 344+00 -NBL- RT TO STA. 345+00 -NBL- RT



FROM STA. 343+07 -SBL- LT TO STA. 343+57 -SBL- LT

NAD 83/NSRS 2007

MATCH LINE
-NBL- STA. 340+00,
SEE SHEET 22

MATCH LINE
-SBL- STA. 338+55, SEE SHEET 22

MATCH LINE
-SBL- STA. 352+55,
SEE SHEET 24

MATCH LINE
-NBL- STA. 354+00,
SEE SHEET 24

CLASS 'B' RIP RAP
EST. 2 TONS
7 SY GEO-TEXTILE

PIPE CLEAN OUT
SEE DETAIL SHEET 2-AB

PROP SLOPE STAKE

SPECIAL MEDIAN DITCH
SEE DETAIL 'A'

PROPOSED GUARDRAIL

+75,
END SBG

CLASS 'B' RIP RAP
EST. 3 TONS
10 SY GEO-TEXTILE

REMOVE 8 LF
OF 18" RCP
18" RCP-III

SPECIAL CUT DITCH
W/CLASS 'B' RIP RAP
SEE DETAIL 'P'
EST 12 TONS
25 SY GEOTEXTILE

+00,
GRAU 350

COLLAR AND EXTEND

REMOVE CB

2GI(D)

15" RCP-III

PROPOSED GUARDRAIL

Conv. CB To JB wMH

REMOVE CONCRETE DITCH

SPECIAL CUT DITCH
SEE DETAIL 'B'

PROP SLOPE STAKE

+00,
END SBG

REMOVE CONCRETE DITCH

PROPOSED GUARDRAIL

+00,
CAT-1

N 43° 14' 55.0" E

N 43° 14' 50.9" E

-SBL-

-NBL-

RETAIN

Adj. DI

EXISTING R/W

OVERHEAD SIGN

GUARDRAIL

15" RCP-III

2GLW

ELEV. = 459.92'
RRS IN HH GUAR

BM 136

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NO. 2CR-3 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 66, 67 FOR -SBL- PROFILE
SEE SHEET NO. 67 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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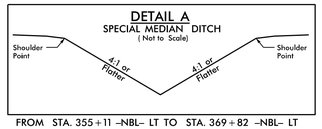
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

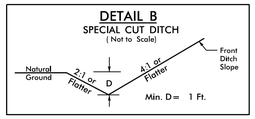
NAD 83/NSRS 2007

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)



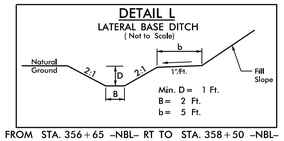
FROM STA. 355+11 -NBL- LT TO STA. 369+82 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



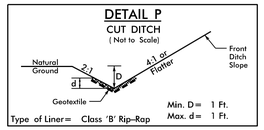
FROM STA. 357+07 -SBL- LT TO STA. 357+57 -SBL- LT
FROM STA. 358+50 -NBL- RT TO STA. 360+50 -NBL- RT

DETAIL L
LATERAL BASE DITCH
(Not to Scale)

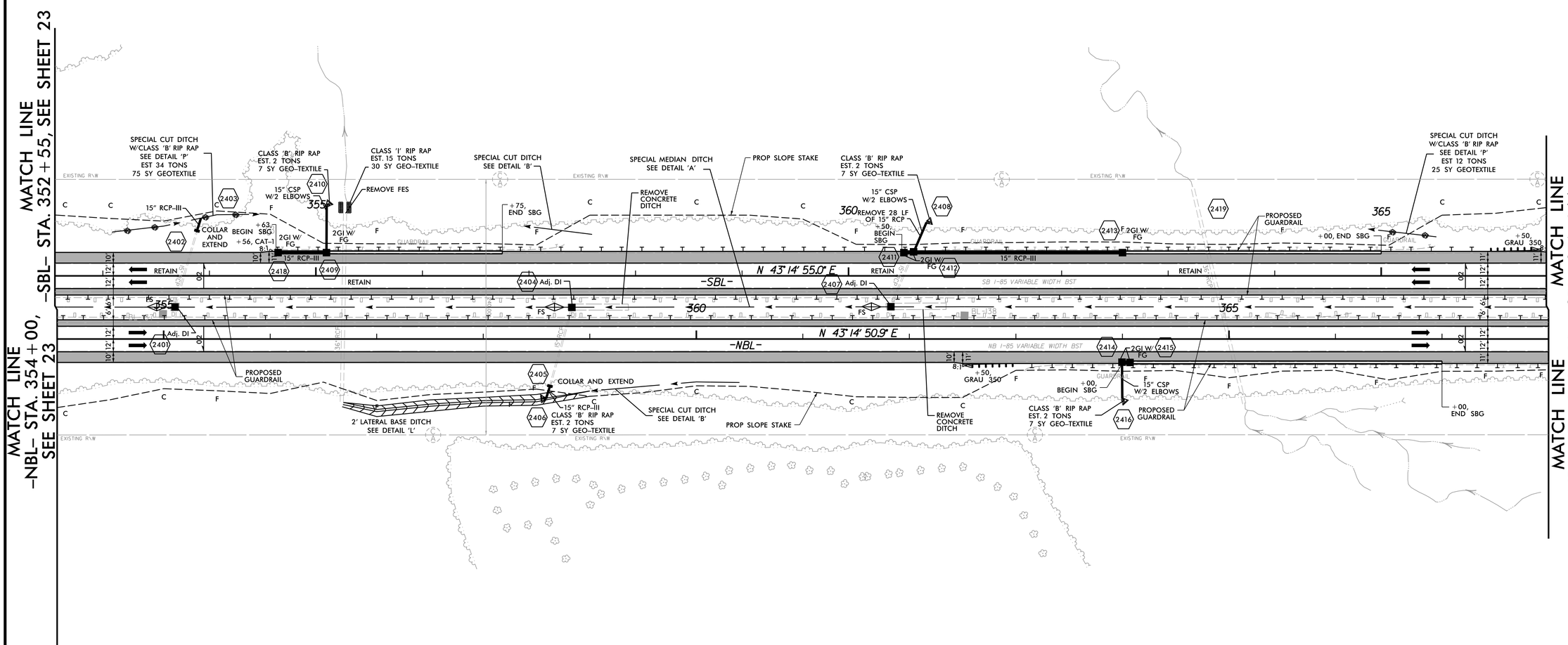


FROM STA. 356+65 -NBL- RT TO STA. 358+50 -NBL- RT

DETAIL P
CUT DITCH
(Not to Scale)



FROM STA. 353+07 -SBL- LT TO STA. 354+57 -SBL- LT
FROM STA. 365+07 -SBL- LT TO STA. 365+57 -SBL- LT



SEE SHEET NO. 2CR-4 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 67, 68 -SBL- FOR PROFILE
SEE SHEET NO. 68 FOR -NBL- PROFILE

REVISIONS

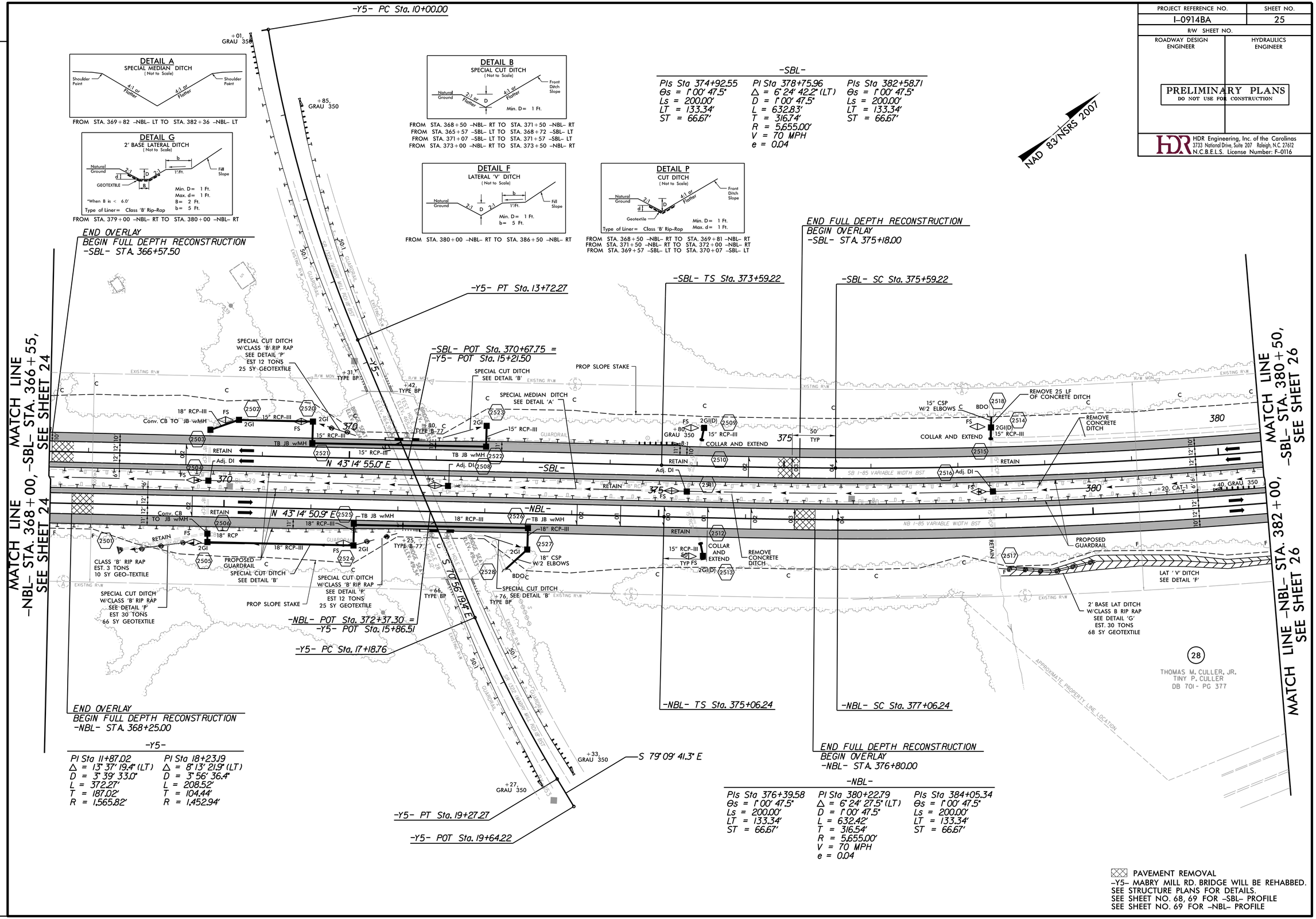
PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:08:09 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S24.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

NAD 83/NSRS 2007



PAVEMENT REMOVAL
-Y5- MABRY MILL RD. BRIDGE WILL BE REHABBED.
SEE STRUCTURE PLANS FOR DETAILS.
SEE SHEET NO. 68, 69 FOR -SBL- PROFILE
SEE SHEET NO. 69 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:08:29 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

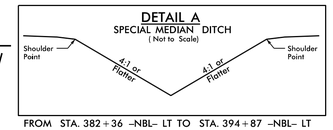
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

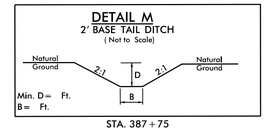
NAD 83/NSRS 2007

-SBL-

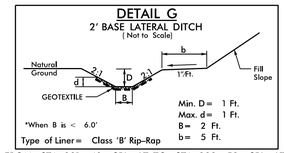
PIs Sta 374+92.55	PI Sta 378+75.96	PIs Sta 382+58.71
Θs = 1° 00' 47.5"	Δ = 6° 24' 42.2" (LT)	Θs = 1° 00' 47.5"
Ls = 200.00'	D = 1° 00' 47.5"	Ls = 200.00'
LT = 133.34'	L = 632.83'	LT = 133.34'
ST = 66.67'	T = 316.74'	ST = 66.67'
	R = 5,655.00'	
	V = 70 MPH	
	e = 0.04	



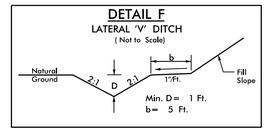
FROM STA. 382+36 -NBL- LT TO STA. 394+87 -NBL- LT



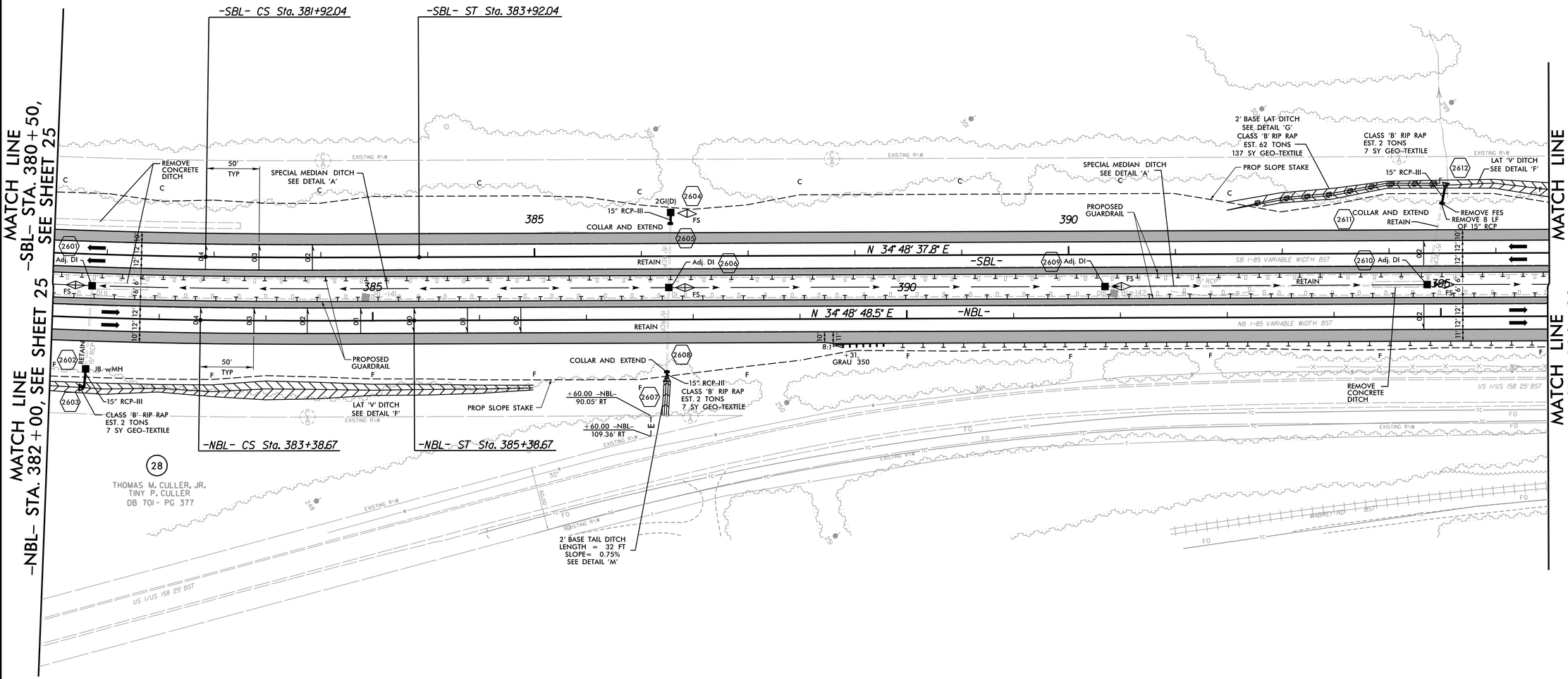
STA. 387+75



FROM STA. 391+48 -SBL- LT TO STA. 393+53 -SBL- LT



FROM STA. 380+00 -NBL- RT TO STA. 386+50 -NBL- RT
FROM STA. 393+53 -SBL- LT TO STA. 396+27 -SBL- LT



-NBL-

PIs Sta 376+39.58	PI Sta 380+22.79	PIs Sta 384+05.34
Θs = 1° 00' 47.5"	Δ = 6° 24' 27.5" (LT)	Θs = 1° 00' 47.5"
Ls = 200.00'	D = 1° 00' 47.5"	Ls = 200.00'
LT = 133.34'	L = 632.42'	LT = 133.34'
ST = 66.67'	T = 316.54'	ST = 66.67'
	R = 5,655.00'	
	V = 70 MPH	
	e = 0.04	

SEE SHEET NOS. 69, 70 FOR -SBL- PROFILE
SEE SHEET NO. 70 FOR -NBL- PROFILE

REVISIONS

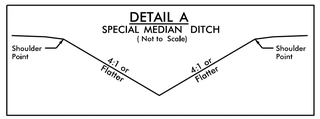
PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:08:47 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S26.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

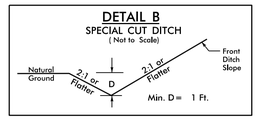
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

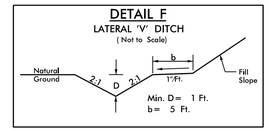
NAD 83/NSRS 2007



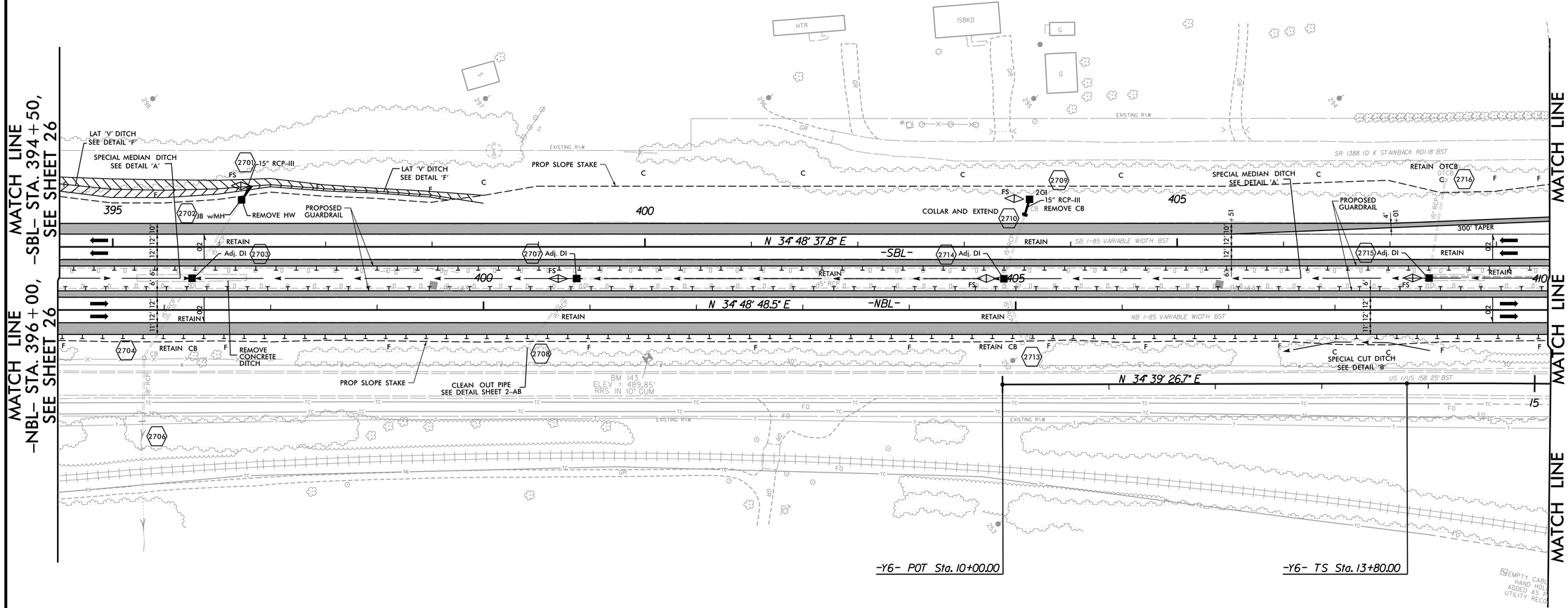
FROM STA. 394+87 -NBL- LT TO STA. 408+88 -NBL- LT



FROM STA. 407+50 -NBL- RT TO STA. 409+00 -NBL- RT



FROM STA. 393+53 -SBL- LT TO STA. 398+48 -SBL- LT



-Y6-

PIs Sta 15+13.34	PI Sta 22+46.86	PIs Sta 29+58.06
Θs = 1° 57' 19.8"	Δ = 25° 38' 38.1" (RT)	Θs = 1° 57' 19.8"
Ls = 200.00'	D = 1° 57' 19.8"	Ls = 200.00'
LT = 133.34'	L = 1,311.38'	LT = 133.34'
ST = 66.67'	T = 666.86'	ST = 66.67'
	R = 2,930.00'	

SEE SHEET NOS. 70, 71 FOR -SBL- PROFILE
SEE SHEET NO. 71 FOR -NBL- PROFILE

REVISIONS

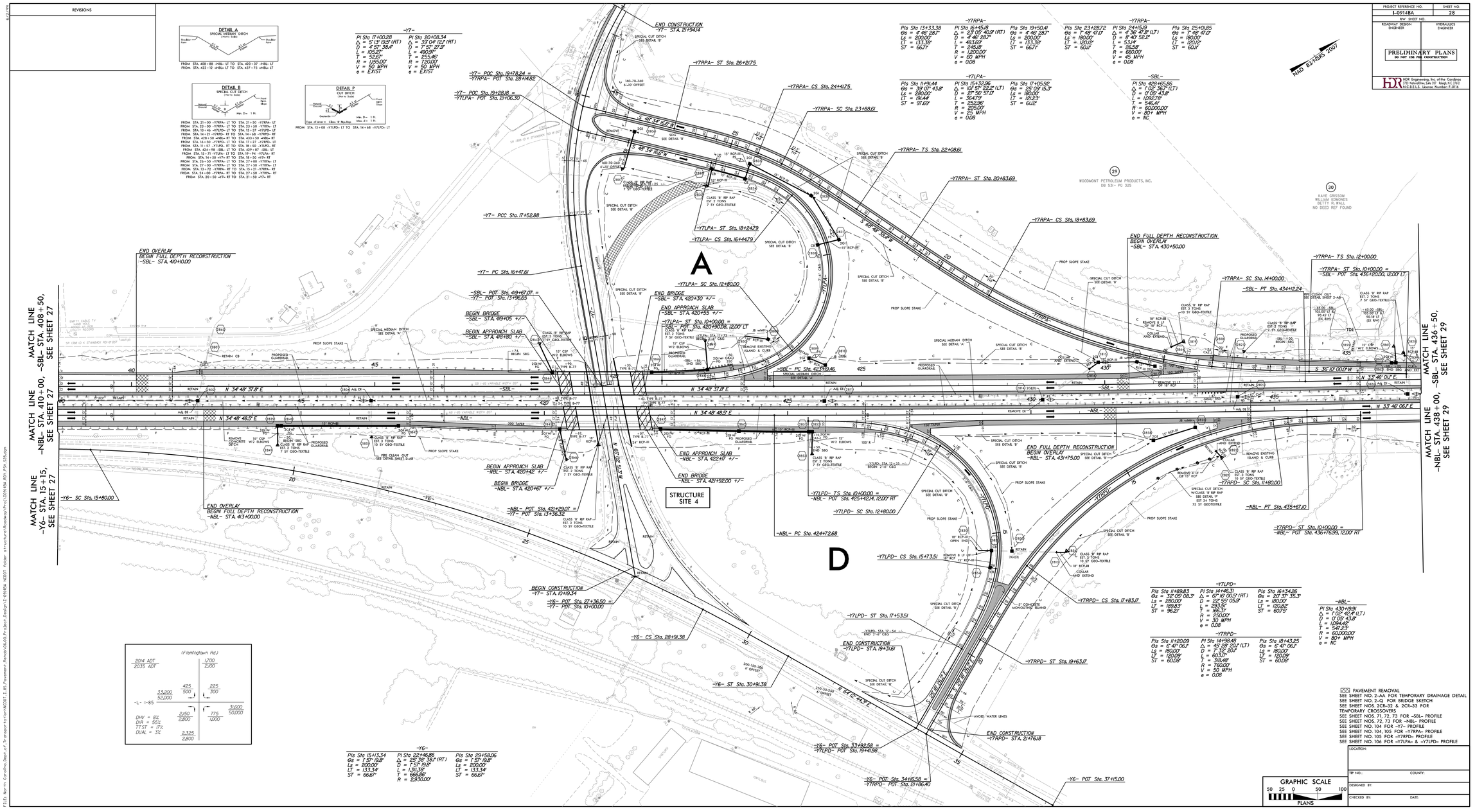
PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:09:04 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S27.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
2173 Yadkin Blvd., Suite 207 Raleigh, N.C. 27610
N.C.B.E.L. License Number F-0116

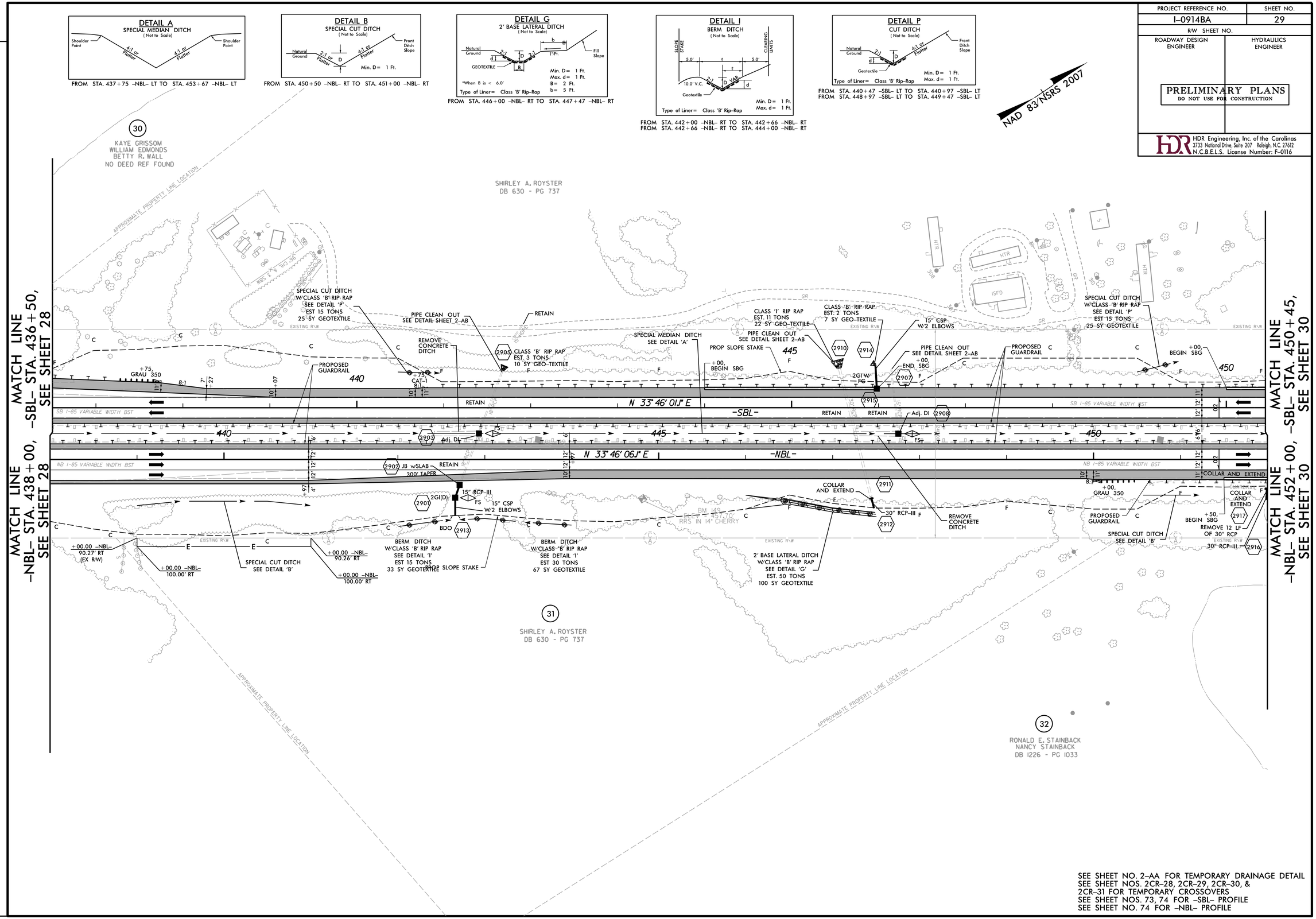
REVISIONS



PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-28, 2CR-29, 2CR-30, & 2CR-31 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 73, 74 FOR -SBL- PROFILE
SEE SHEET NO. 74 FOR -NBL- PROFILE

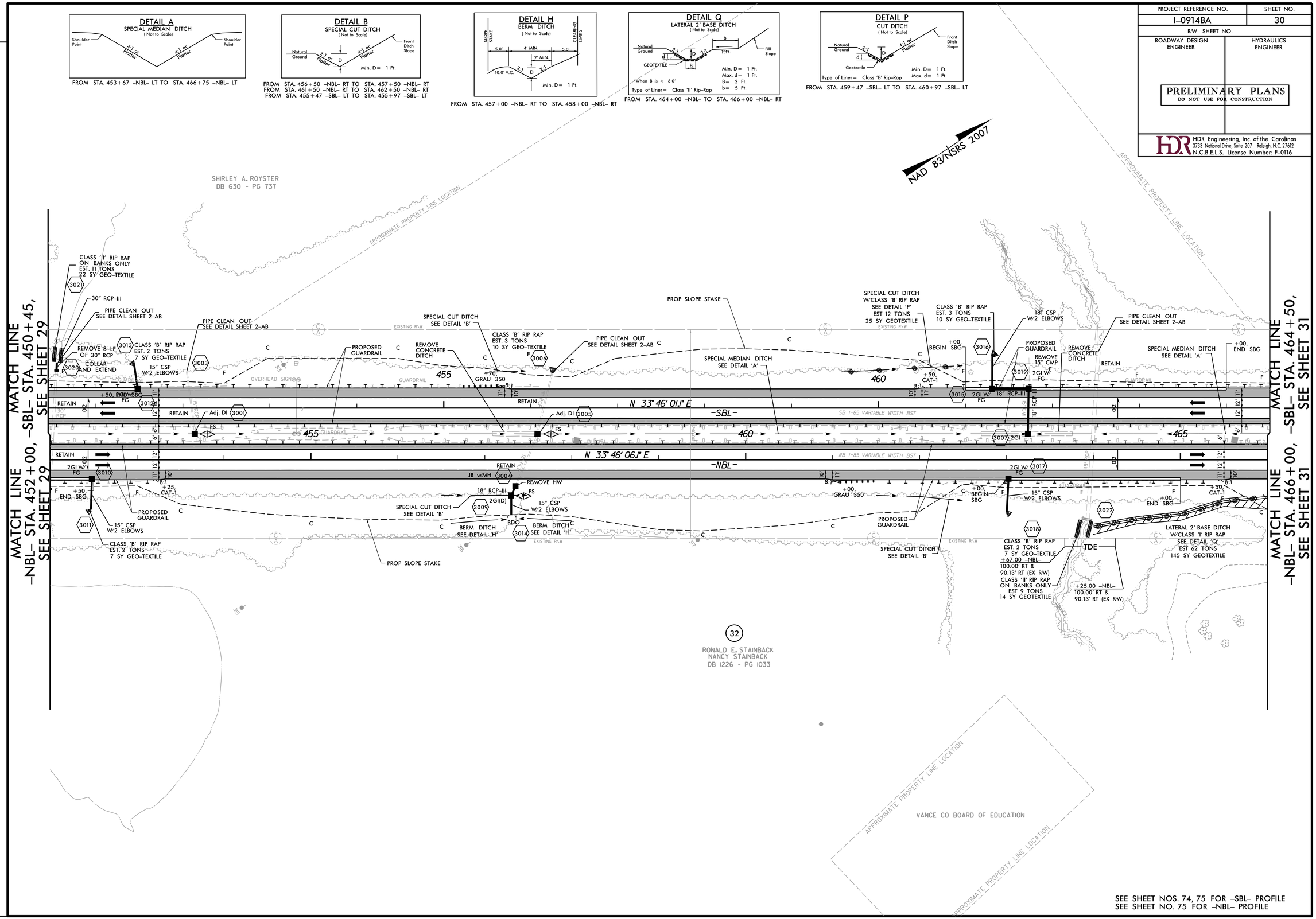
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:09:21 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S29.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NOS. 74, 75 FOR -SBL- PROFILE
SEE SHEET NO. 75 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:09:40 PM
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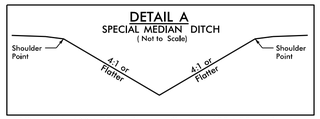
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

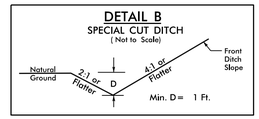
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

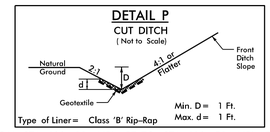
NAD 83/NSRS 2007



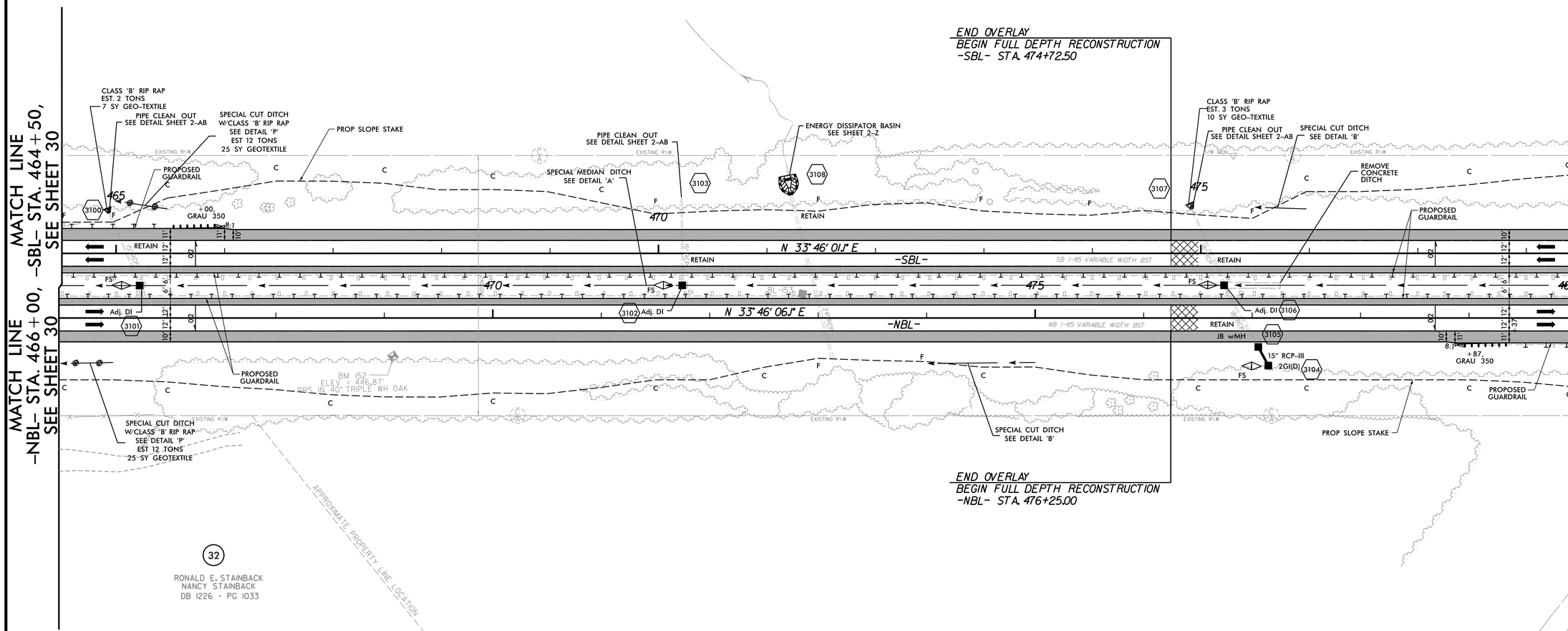
FROM STA. 466+75 -NBL- LT TO STA. 483+00 -NBL- LT



FROM STA. 474+00 -NBL- RT TO STA. 475+00 -NBL- RT
FROM STA. 475+47 -SBL- LT TO STA. 475+97 -SBL- LT



FROM STA. 466+00 -NBL- RT TO STA. 466+50 -NBL- RT
FROM STA. 464+97 -SBL- LT TO STA. 465+47 -SBL- LT



PAVEMENT REMOVAL
SEE SHEET NOS. 75, 76 FOR -SBL- PROFILE
SEE SHEET NO. 76 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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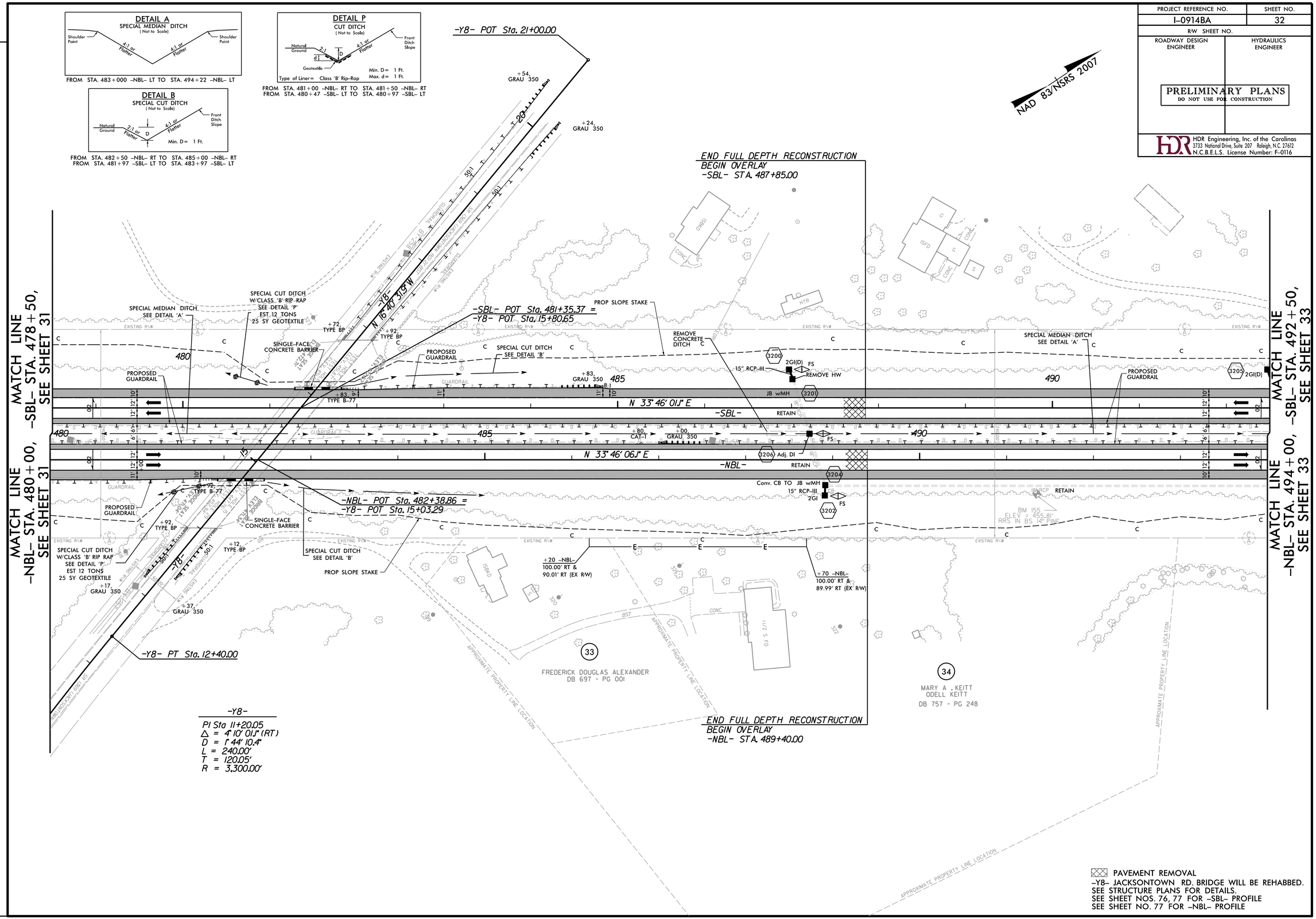
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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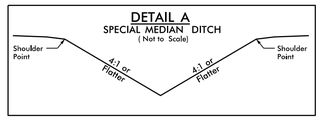
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

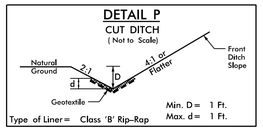
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)



FROM STA. 494+22 -NBL- LT TO STA. 508+68 -NBL- LT

DETAIL P
CUT DITCH
(Not to Scale)

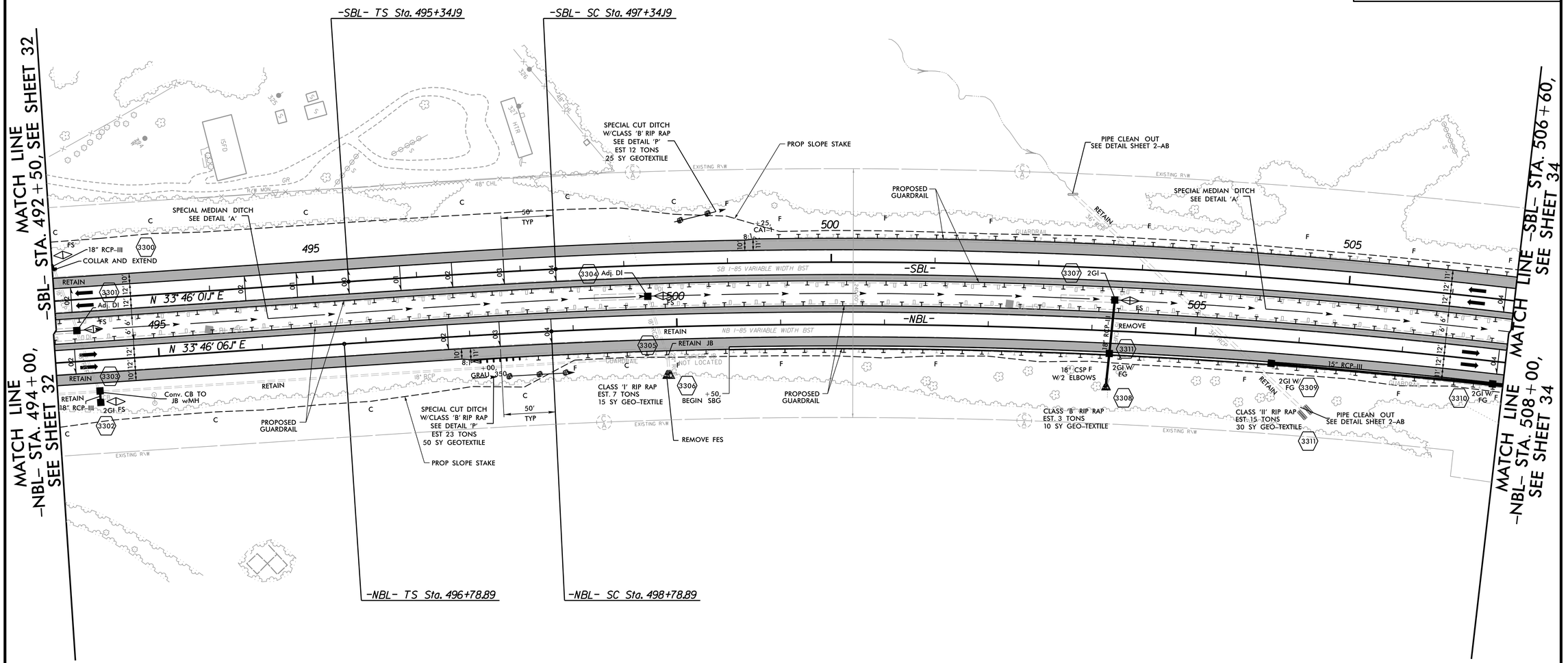


FROM STA. 498+00 -NBL- RT TO STA. 499+00 -NBL- RT
FROM STA. 498+50 -SBL- LT TO STA. 499+00 -SBL- LT

-SBL-

PIs Sta 496+67.53	PI Sta 504+35.03	PIs Sta 511+95.44
Θs = 1° 00' 44.3"	Δ = 14° 07' 02.1" (RT)	Θs = 1° 00' 44.3"
Ls = 200.00'	D = 1° 00' 44.3"	Ls = 200.00'
LT = 133.34'	L = 1,394.58'	LT = 133.34'
ST = 66.67'	T = 700.84'	ST = 66.67'
	R = 5,660.00'	
	V = 70 MPH	
	e = 0.04	

NAD 83/NSRS 2007



-NBL-

PIs Sta 498+12.22	PI Sta 505+79.69	PIs Sta 513+40.07
Θs = 1° 00' 44.3"	Δ = 14° 06' 59.6" (RT)	Θs = 1° 00' 44.3"
Ls = 200.00'	D = 1° 00' 44.3"	Ls = 200.00'
LT = 133.34'	L = 1,394.51'	LT = 133.34'
ST = 66.67'	T = 700.81'	ST = 66.67'
	R = 5,660.00'	
	V = 70 MPH	
	e = 0.04	

SEE SHEET NO. 77, 78 FOR -SBL- PROFILE
SEE SHEET NO. 78 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwalnwri DATE: 2/28/2014 TIME: 5:10:32 PM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PSH_S33.dgn

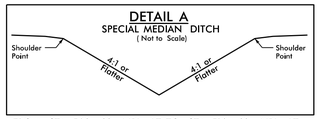
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

NAD 83/NSRS 2007

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)

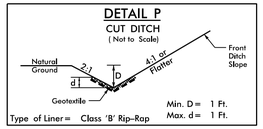


FROM STA. 508+68 –NBL– LT TO STA. 519+63 –NBL– LT

–SBL–

PIs Sta 496+67.53	PI Sta 504+35.03	PIs Sta 511+95.44
Θs = 1° 00′ 44.3″	Δ = 14° 07′ 02.1″ (RT)	Θs = 1° 00′ 44.3″
Ls = 200.00′	D = 1° 00′ 44.3″	Ls = 200.00′
LT = 133.34′	L = 1,394.58′	LT = 133.34′
ST = 66.67′	T = 700.84′	ST = 66.67′
	R = 5,660.00′	
	V = 70 MPH	
	e = 0.04	

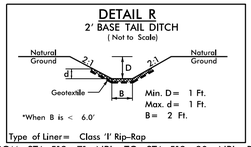
DETAIL P
CUT DITCH
(Not to Scale)



Type of Liner = Class 'B' Rip-Rap

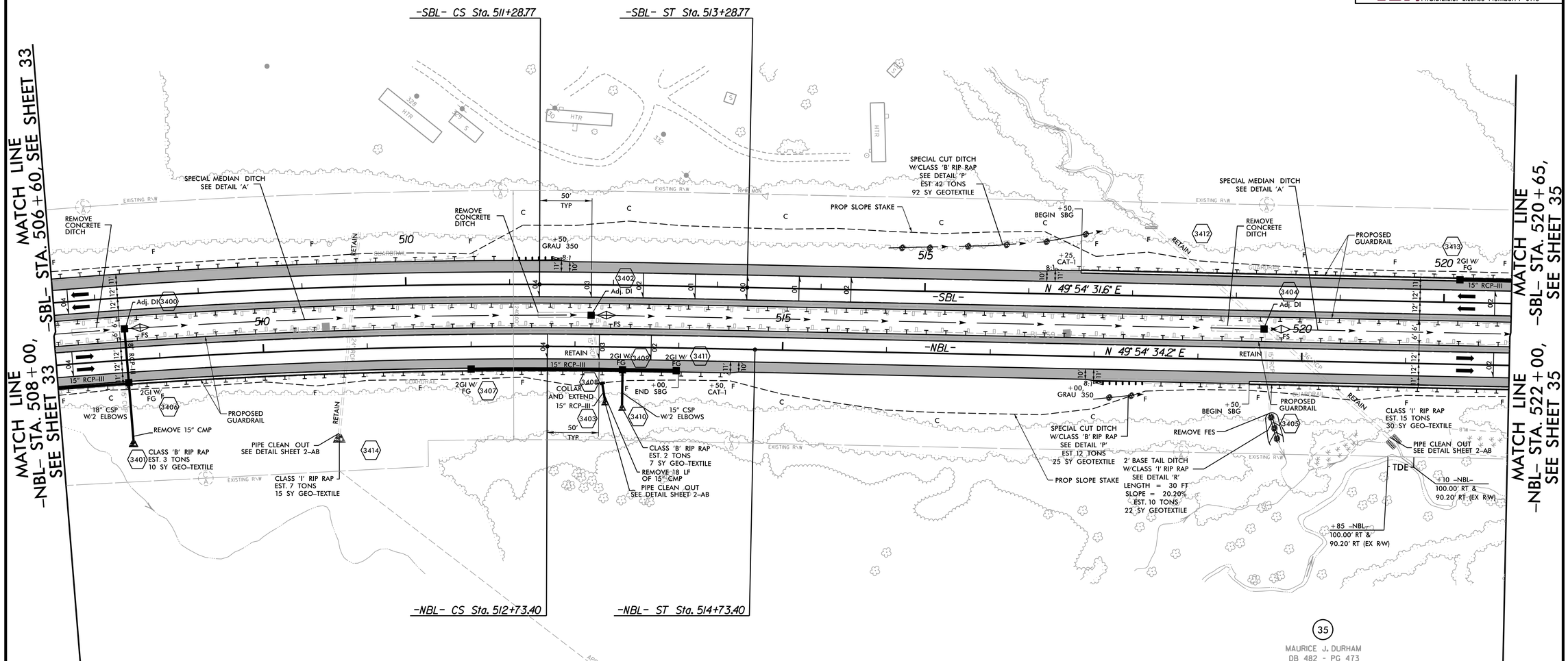
FROM STA. 518+00 –NBL– RT TO STA. 518+50 –NBL– RT
FROM STA. 514+64 –SBL– LT TO STA. 516+47 –SBL– LT

DETAIL R
2' BASE TAIL DITCH
(Not to Scale)



Type of Liner = Class 'I' Rip-Rap

FROM STA. 519+71 –NBL– TO STA. 519+80 –NBL– RT



–NBL–

PIs Sta 498+12.22	PI Sta 505+79.69	PIs Sta 513+40.07
Θs = 1° 00′ 44.3″	Δ = 14° 06′ 59.6″ (RT)	Θs = 1° 00′ 44.3″
Ls = 200.00′	D = 1° 00′ 44.3″	Ls = 200.00′
LT = 133.34′	L = 1,394.51′	LT = 133.34′
ST = 66.67′	T = 700.81′	ST = 66.67′
	R = 5,660.00′	
	V = 70 MPH	
	e = 0.04	

SEE SHEET NOS. 78, 79 –SBL– PROFILE
SEE SHEET NO. 79 FOR –NBL– PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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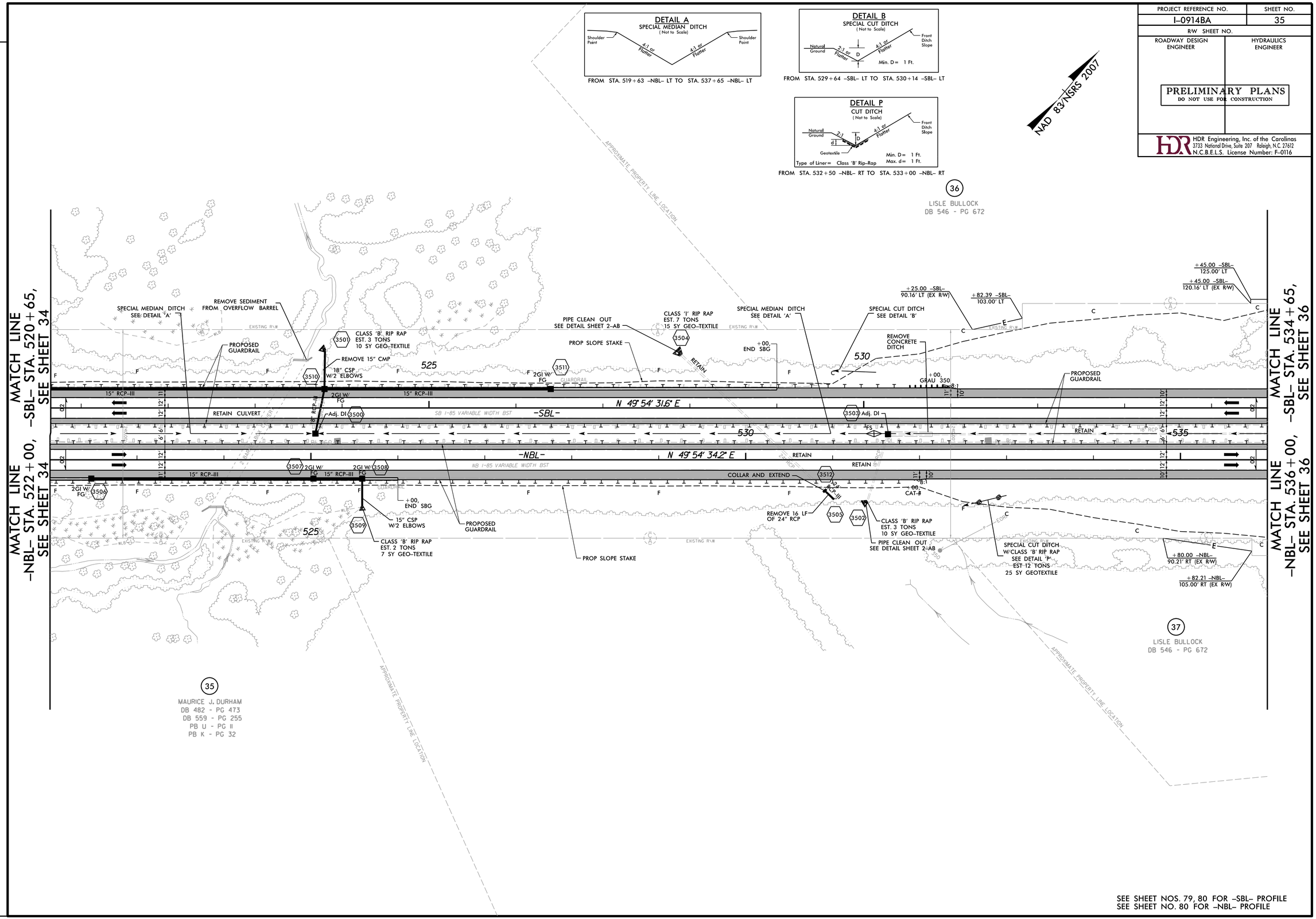
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

NAD 83/NSRS 2007



SEE SHEET NOS. 79, 80 FOR -SBL- PROFILE
SEE SHEET NO. 80 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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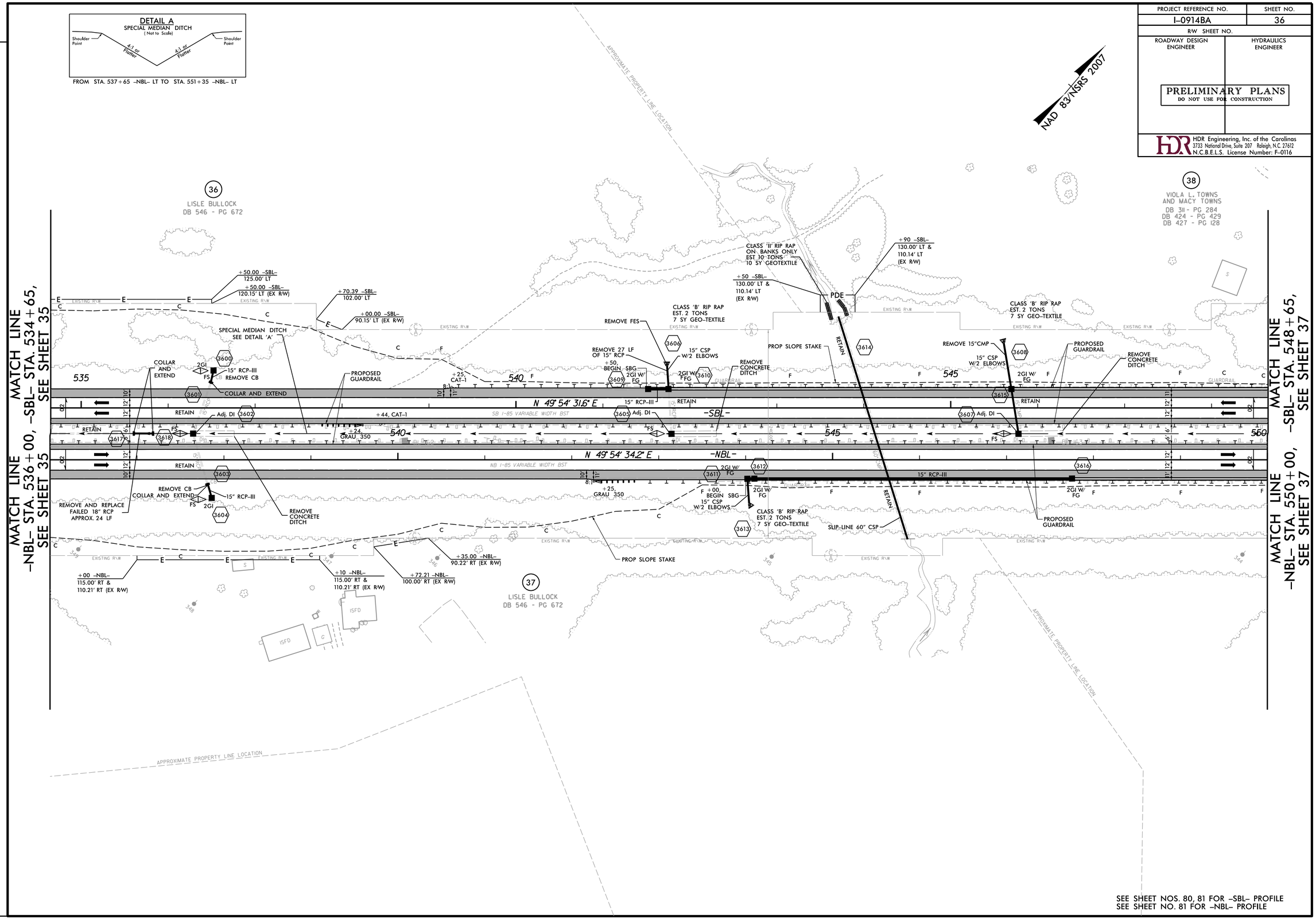
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	36
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NOS. 80, 81 FOR -SBL- PROFILE
SEE SHEET NO. 81 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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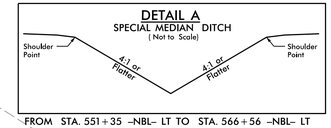
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	37
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

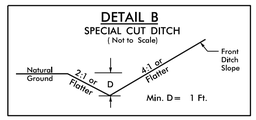
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)



FROM STA. 551+35 -NBL- LT TO STA. 566+56 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)

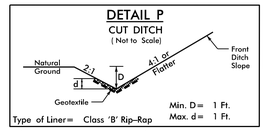


FROM STA. 551+41 -SBL- LT TO STA. 552+64 -SBL- LT

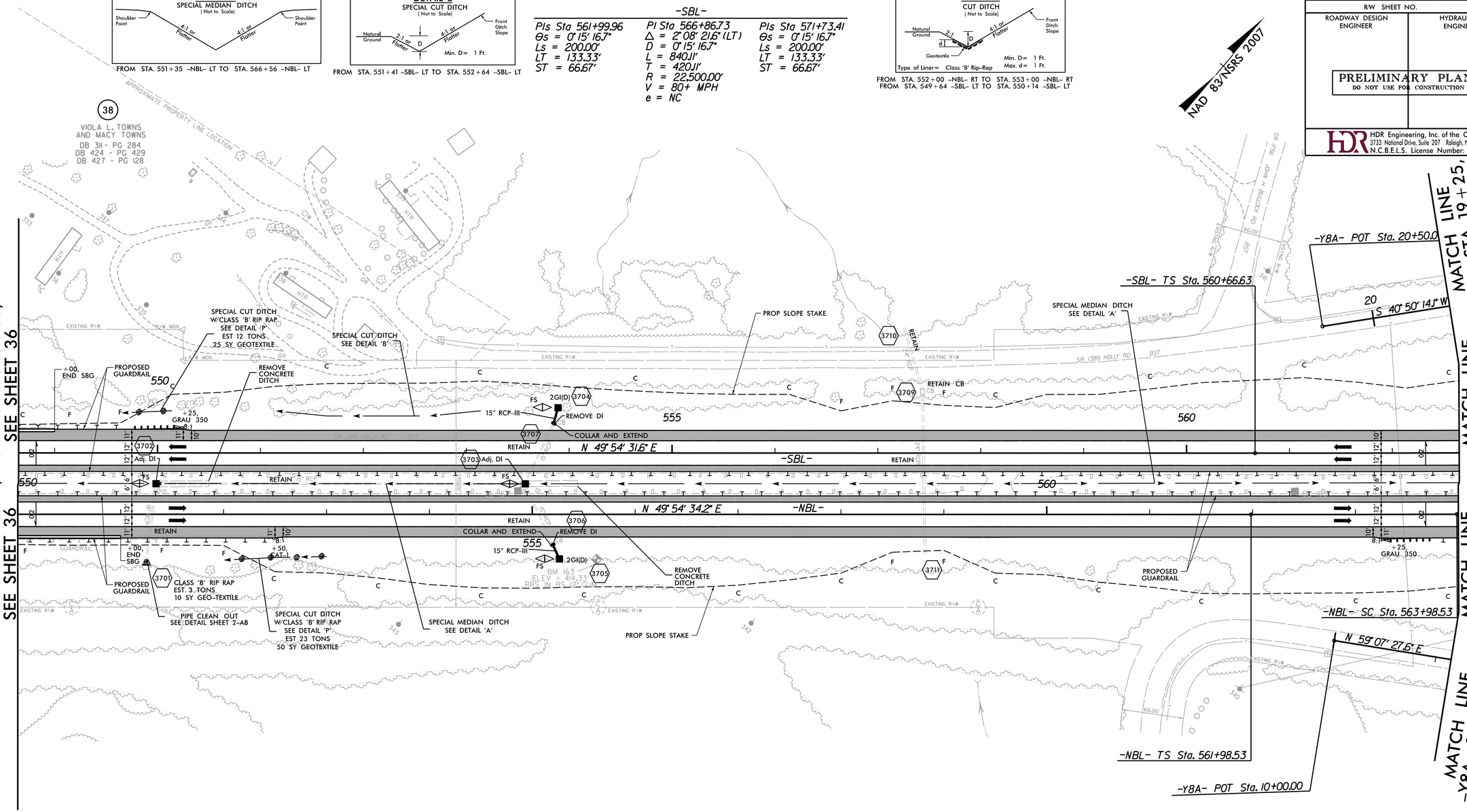
-SBL-

Pls Sta 561+99.96	Pl Sta 566+86.73	Pls Sta 571+73.41
Θs = 0° 15' 16.7"	Δ = 2° 08' 21.6" (LT)	Θs = 0° 15' 16.7"
Ls = 200.00'	D = 0° 15' 16.7"	Ls = 200.00'
LT = 133.33'	L = 840.11'	LT = 133.33'
ST = 66.67'	T = 420.11'	ST = 66.67'
	R = 22,500.00'	
	V = 80+ MPH	
	e = NC	

DETAIL P
CUT DITCH
(Not to Scale)



FROM STA. 552+00 -NBL- RT TO STA. 553+00 -NBL- RT
FROM STA. 549+64 -SBL- LT TO STA. 550+14 -SBL- LT



-NBL-

Pls Sta 563+31.86	Pl Sta 568+17.35	Pls Sta 573+02.74
Θs = 0° 15' 16.7"	Δ = 2° 07' 58.1" (LT)	Θs = 0° 15' 16.7"
Ls = 200.00'	D = 0° 15' 16.7"	Ls = 200.00'
LT = 133.33'	L = 837.55'	LT = 133.33'
ST = 66.67'	T = 418.82'	ST = 66.67'
	R = 22,500.00'	
	V = 80+ MPH	
	e = NC	

SEE SHEET NOS. 81, 82 FOR -SBL- PROFILE
SEE SHEET NO. 82 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:11:42 PM
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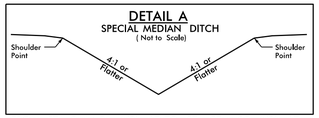
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	38
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

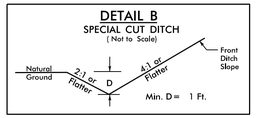
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

DETAIL A
SPECIAL MEDIAN DITCH
(Not to Scale)



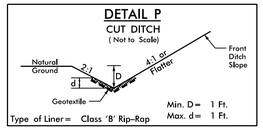
FROM STA. 566+56 -NBL- LT TO STA. 576+95 -NBL- LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 565+50 -NBL- RT TO STA. 566+00 -NBL- RT
FROM STA. 569+00 -NBL- RT TO STA. 569+50 -NBL- RT
FROM STA. 564+14 -SBL- LT TO STA. 564+60 -SBL- LT
FROM STA. 569+62 -SBL- LT TO STA. 570+12 -SBL- LT

DETAIL P
CUT DITCH
(Not to Scale)



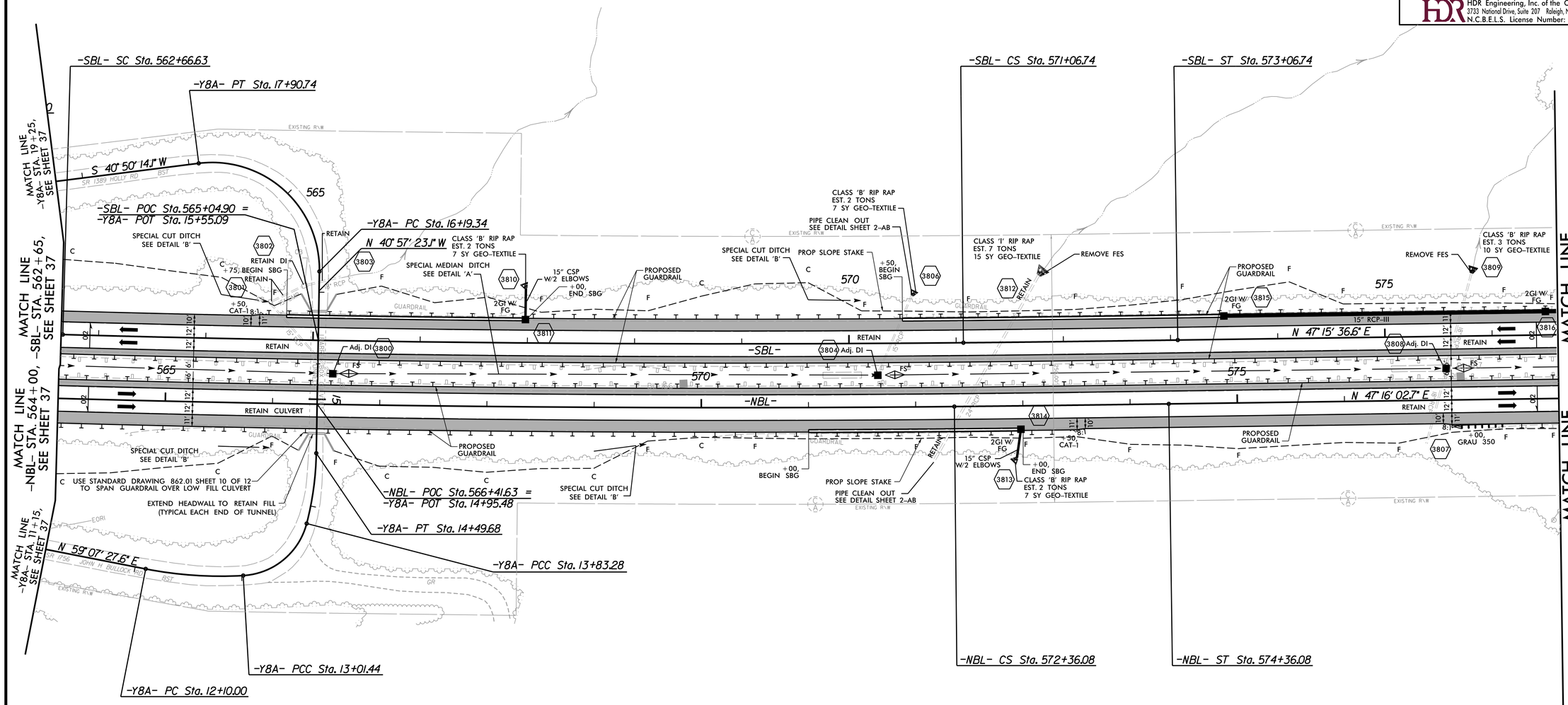
Type of Liner = Class 'B' Rip-Rap

FROM STA. 552+00 -NBL- RT TO STA. 553+00 -NBL- RT
FROM STA. 549+64 -SBL- LT TO STA. 550+14 -SBL- LT

-SBL-

PIs Sta 561+99.96	PI Sta 566+86.73	PIs Sta 571+73.41
Θs = 0° 15' 16.7"	Δ = 2° 08' 21.6" (LT)	Θs = 0° 15' 16.7"
Ls = 200.00'	D = 0° 15' 16.7"	Ls = 200.00'
LT = 133.33'	L = 840.11'	LT = 133.33'
ST = 66.67'	T = 420.11'	ST = 66.67'
	R = 22,500.00'	
	V = 80+ MPH	
	e = NC	

NAD 83/NSRS 2007



-Y8A-

PI Sta 12+55.96	PI Sta 13+48.78	PI Sta 14+16.64	PI Sta 17+34.80
Δ = 14° 21' 11.9" (LT)	Δ = 72° 08' 19.5" (LT)	Δ = 13° 35' 19.3" (LT)	Δ = 98° 12' 22.8" (LT)
D = 15° 41' 50.9"	D = 88° 08' 50.5"	D = 20° 27' 46.0"	D = 57° 17' 44.8"
L = 91.44'	L = 81.84'	L = 66.41'	L = 171.40'
T = 45.96'	T = 47.35'	T = 33.36'	T = 115.46'
R = 365.00'	R = 65.00'	R = 280.00'	R = 100.00'

-NBL-

PIs Sta 563+31.86	PI Sta 568+17.35	PIs Sta 573+02.74
Θs = 0° 15' 16.7"	Δ = 2° 07' 58.1" (LT)	Θs = 0° 15' 16.7"
Ls = 200.00'	D = 0° 15' 16.7"	Ls = 200.00'
LT = 133.33'	L = 837.55'	LT = 133.33'
ST = 66.67'	T = 418.82'	ST = 66.67'
	R = 22,500.00'	
	V = 80+ MPH	
	e = NC	

SEE SHEET NOS. 82, 83 FOR -SBL- PROFILE
SEE SHEET NO. 83 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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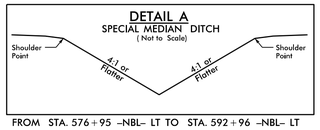
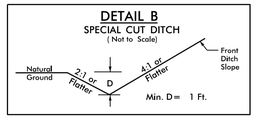
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	39
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

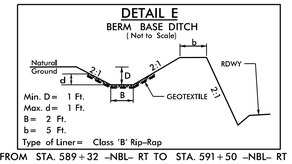
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



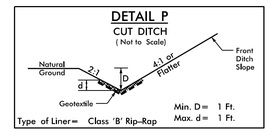
FROM STA. 576+95 -NBL- LT TO STA. 592+96 -NBL- LT



FROM STA. 589.+32 -NBL- RT TO STA. 590+50 -NBL- RT



FROM STA. 589+32 -NBL- RT TO STA. 591+50 -NBL- RT



FROM STA. 583+40 -NBL- RT TO STA. 584+00 -NBL- RT
FROM STA. 588+50 -NBL- RT TO STA. 589+32 -NBL- RT
FROM STA. 583+11 -SBL- LT TO STA. 583+61 -SBL- LT
FROM STA. 587+11 -SBL- LT TO STA. 588+11 -SBL- LT

NAD 83/NSRS 2007

MATCH LINE -NBL- STA. 578+00, -SBL- STA. 576+60, SEE SHEET 38

MATCH LINE -NBL- STA. 592+00, -SBL- STA. 590+60, SEE SHEET 40

LAURA DAVIS LATNEY HEIRS
OCTAVIA TOWNS
DB 73- PG 145
DB 331- PG 190
DB 44 - PG 269
PB 21- PG 86

SPECIAL MEDIAN DITCH SEE DETAIL 'A'
CLASS 'B' RIP RAP EST. 3 TONS 10 SY GEO-TEXTILE
PROPOSED GUARDRAIL
REMOVE 15" CMP
18" CSP W/2 ELBOWS
2GI W/ FG
2GI W/ FG
REMOVE CONCRETE DITCH
PROP SLOPE STAKE
+50 END SBG
CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEO-TEXTILE
REMOVE 8' OF 15" RCP
15" RCP-III
COLLAR AND EXTEND
+75 GRAU 350
SPECIAL CUT DITCH W/CLASS 'B' RIP RAP SEE DETAIL 'P' EST 12 TONS 25 SY GEOTEXTILE
SPECIAL MEDIAN DITCH SEE DETAIL 'A'
CLASS 'B' RIP RAP EST. 3 TONS 10 SY GEO-TEXTILE
18" RCP-III COLLAR AND EXTEND
SPECIAL CUT DITCH W/CLASS 'B' RIP RAP SEE DETAIL 'P' EST 23 TONS 50 SY GEOTEXTILE
PROPOSED GUARDRAIL
300' TAPER
15" RCP-III
RETAIN CULVERT
-SBL-
RETAIN
Adj. DI
N 47° 15' 36.6" E
N 47° 16' 02.7" E
-NBL-
COLLAR AND EXTEND
+50 BEGIN SBG
PROPOSED GUARDRAIL
2GI W/ FG
15" RCP-III
2GI W/ FG
15" CSP W/2 ELBOWS
+00 END SBG
+25 CAT-I
BM 167 ELEV = 370.85' RRS IN BS 14" POPLAR
SPECIAL CUT DITCH W/CLASS 'B' RIP RAP SEE DETAIL 'P' EST 14 TONS 30 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEO-TEXTILE
REMOVE DI
18" RCP-III
2GI
18" CSP W/2 ELBOWS
BDO
SPECIAL CUT DITCH SEE DETAIL 'B'
REMOVE CONCRETE DITCH
PROP SLOPE STAKE
SPECIAL CUT DITCH W/CLASS 'B' RIP RAP SEE DETAIL 'P' EST 19 TONS 41 SY GEOTEXTILE
2' BASE BERM DITCH W/CLASS 'B' RIP RAP SEE DETAIL 'E' EST. 71 TONS 158 SY GEO-TEXTILE
CLEARENCE O. WHITE, JR. AND OTHERS
DB 1198 - PG 775
APPROXIMATE PROPERTY LINE LOCATION
VANCE COUNTY
WARREN COUNTY

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-38 & 2CR-39 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 83, 84 FOR -SBL- PROFILE
SEE SHEET NO. 84 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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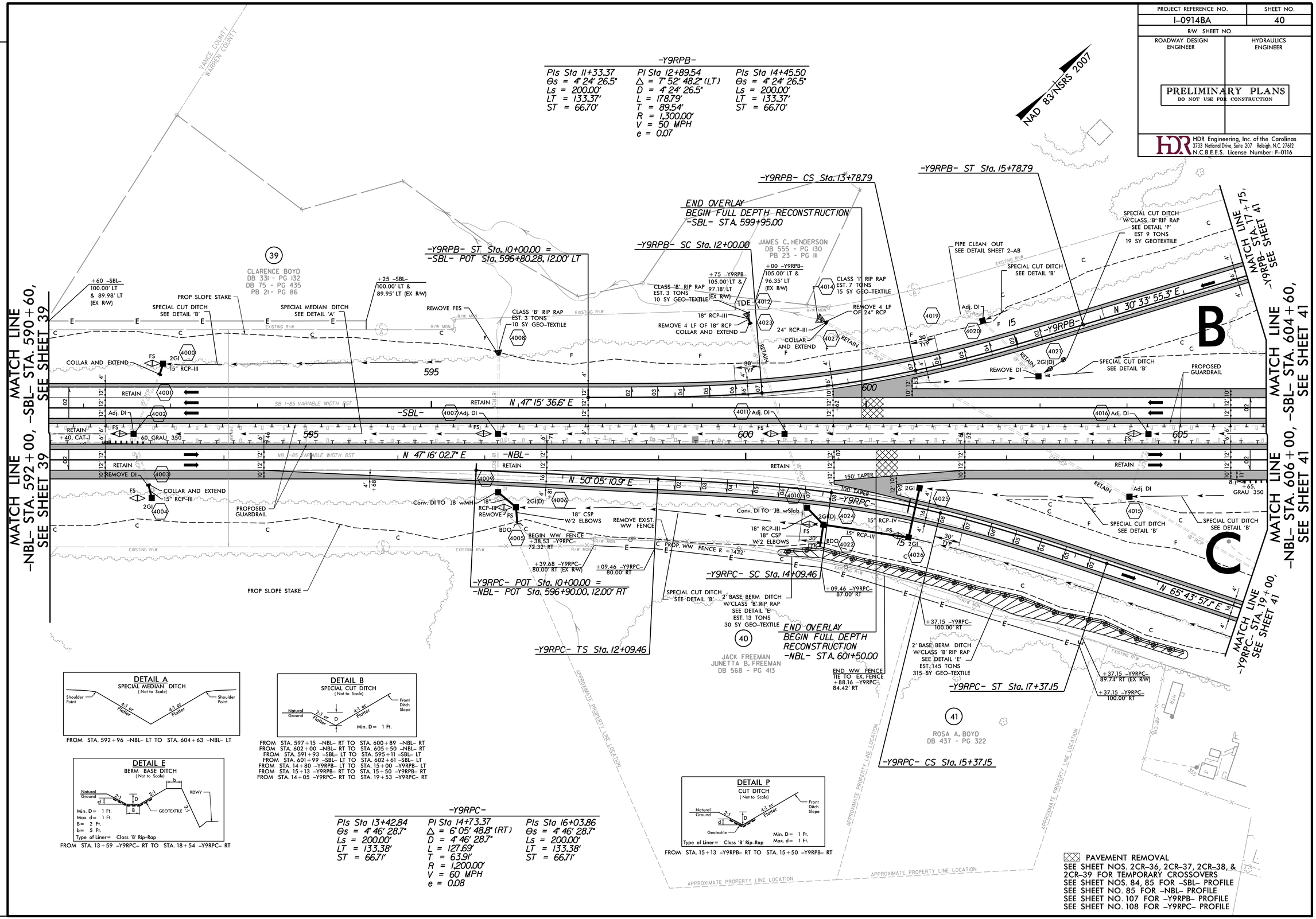
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.E.S. License Number: F-0116



REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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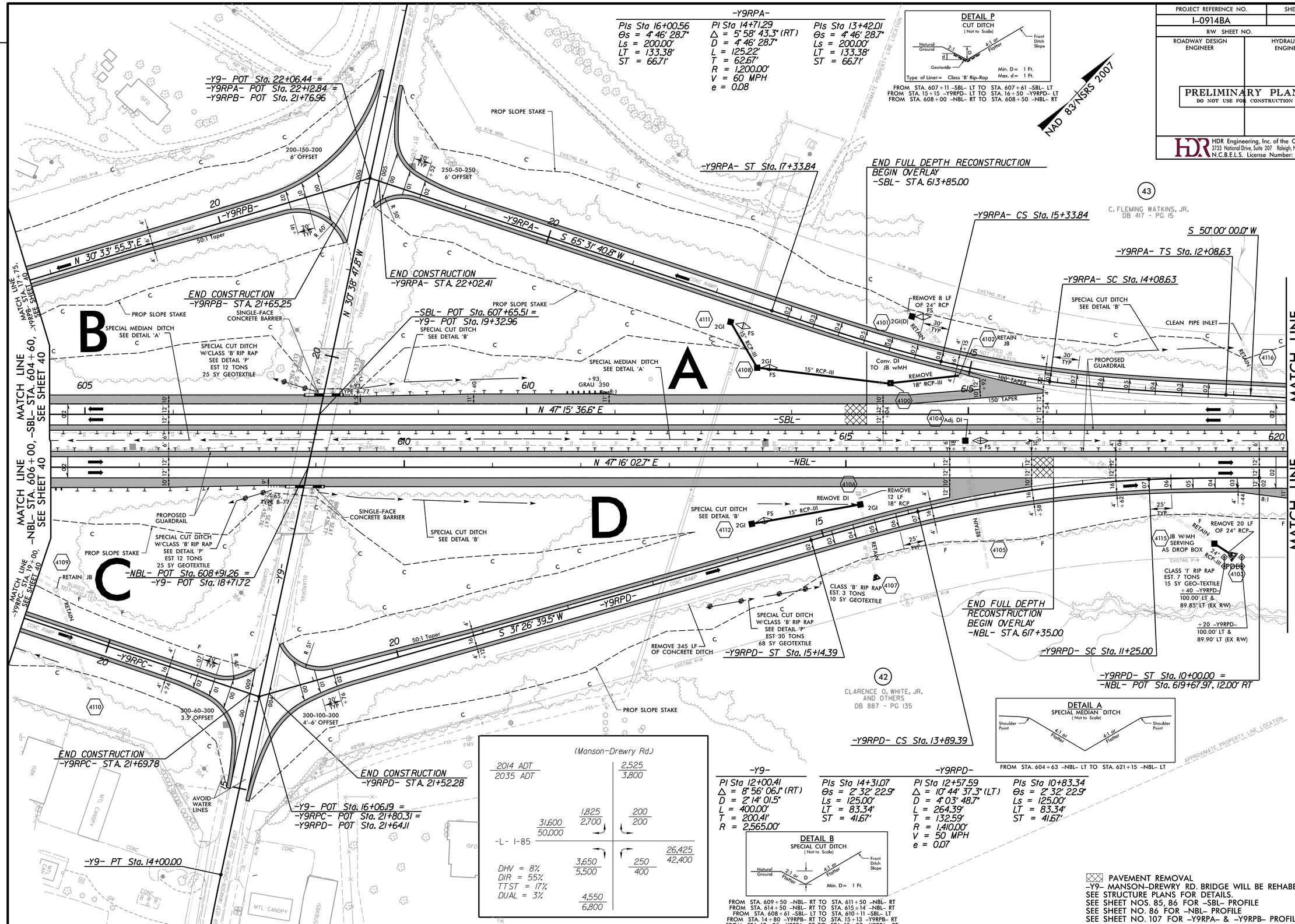
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	41
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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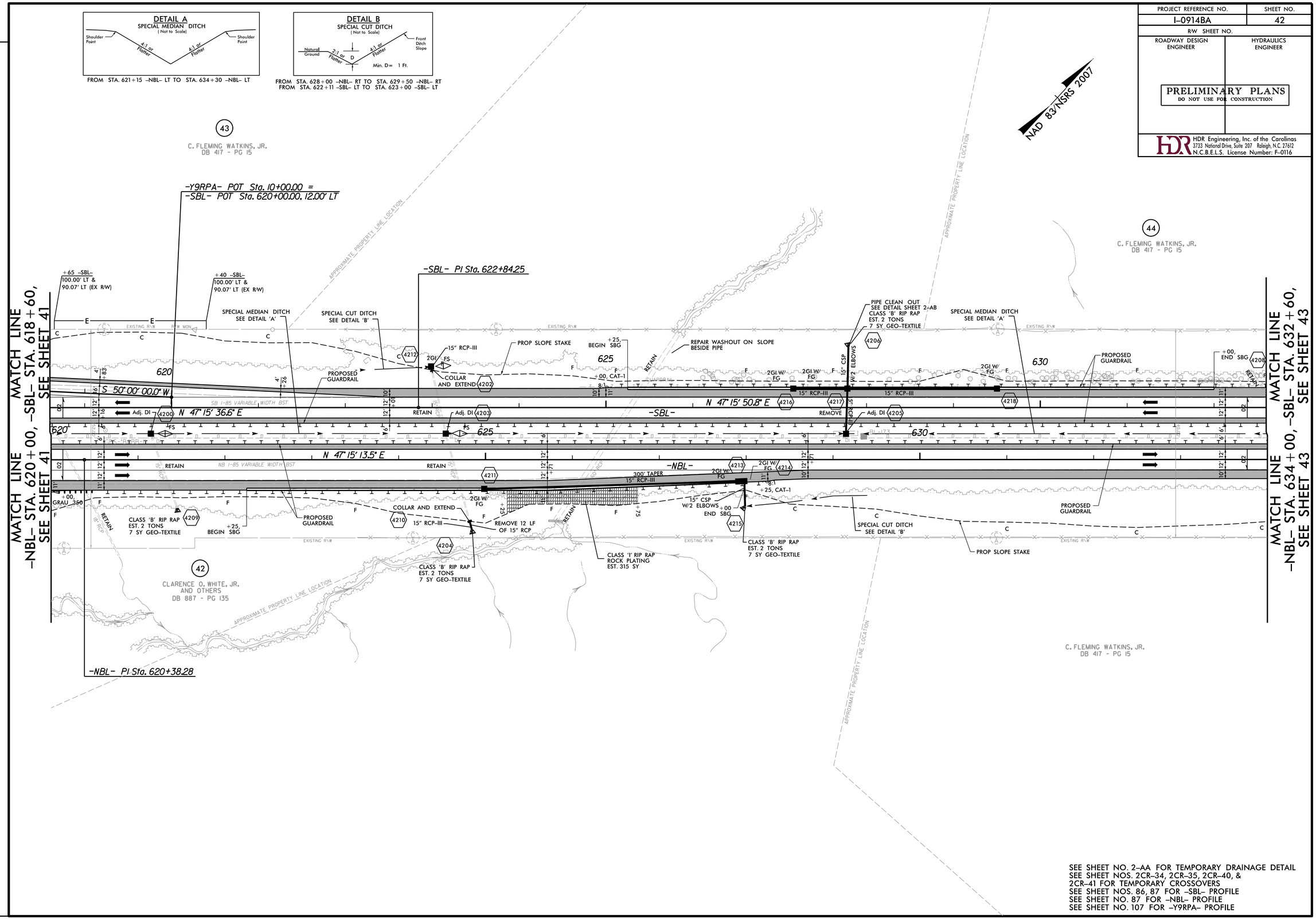
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	42
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NOS. 2CR-34, 2CR-35, 2CR-40, &
2CR-41 FOR TEMPORARY CROSSOVERS
SEE SHEET NOS. 86, 87 FOR -SBL- PROFILE
SEE SHEET NO. 87 FOR -NBL- PROFILE
SEE SHEET NO. 107 FOR -Y9RPA- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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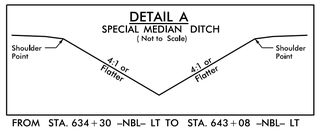
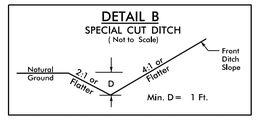
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	43
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

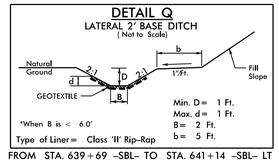
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



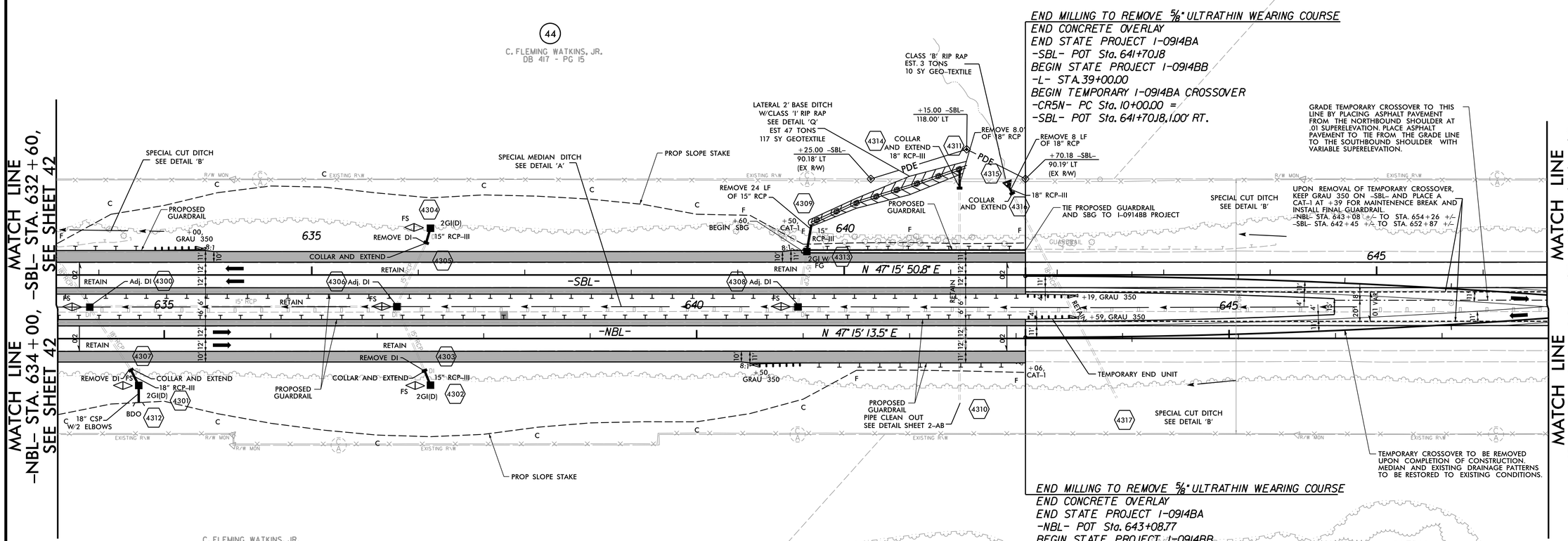
FROM STA. 634+30 -NBL- LT TO STA. 643+08 -NBL- LT



FROM STA. 632+61 -SBL- LT TO STA. 633+61 -SBL- LT
FROM STA. 644+59 -NBL- LT TO STA. 645+09 -NBL- RT
FROM STA. 643+70 -SBL- LT TO STA. 644+20 -SBL- LT



FROM STA. 639+69 -SBL- TO STA. 641+14 -SBL- LT



-CR5N-

PI Sta 12+79.37	PI Sta 18+38.39
Δ = 4° 46' 05.5" (RT)	Δ = 4° 46' 42.9" (LT)
D = 0° 51' 14.0"	D = 0° 51' 14.0"
L = 558.41'	L = 559.63'
T = 279.37'	T = 279.98'
R = 6,710.00'	R = 6,710.00'

-CR5S-

PI Sta 12+79.37	PI Sta 18+38.39
Δ = 4° 46' 05.5" (LT)	Δ = 4° 46' 42.8" (RT)
D = 0° 51' 14.0"	D = 0° 51' 14.0"
L = 558.41'	L = 559.63'
T = 279.37'	T = 279.98'
R = 6,710.00'	R = 6,710.00'

SEE SHEET NO. 2-AA FOR TEMPORARY DRAINAGE DETAIL
SEE SHEET NO. 2-K FOR -CR5S- & -CR5N- DETAIL
SEE SHEET NOS. 87, 88 FOR -SBL- PROFILE
SEE SHEET NO. 88 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshp_fl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:13:32 PM
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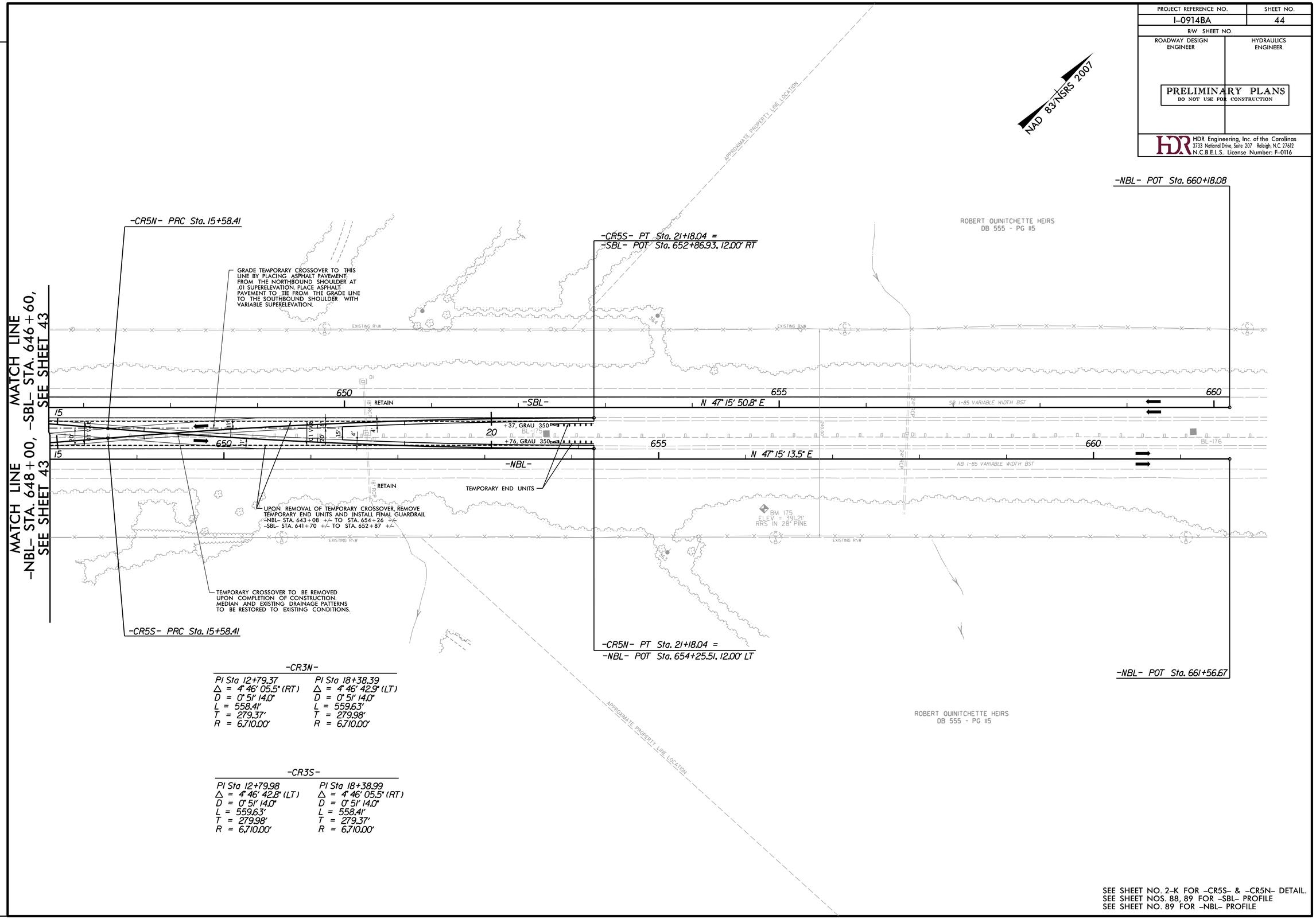
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	44
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



-CR3N-

PI Sta 12+79.37	PI Sta 18+38.39
Δ = 4° 46' 05.5" (RT)	Δ = 4° 46' 42.9" (LT)
D = 0° 51' 14.0"	D = 0° 51' 14.0"
L = 558.41'	L = 559.63'
T = 279.37'	T = 279.98'
R = 6,710.00'	R = 6,710.00'

-CR3S-

PI Sta 12+79.98	PI Sta 18+38.99
Δ = 4° 46' 42.8" (LT)	Δ = 4° 46' 05.5" (RT)
D = 0° 51' 14.0"	D = 0° 51' 14.0"
L = 559.63'	L = 558.41'
T = 279.98'	T = 279.37'
R = 6,710.00'	R = 6,710.00'

SEE SHEET NO. 2-K FOR -CR5S- & -CR5N- DETAIL.
SEE SHEET NOS. 88, 89 FOR -SBL- PROFILE
SEE SHEET NO. 89 FOR -NBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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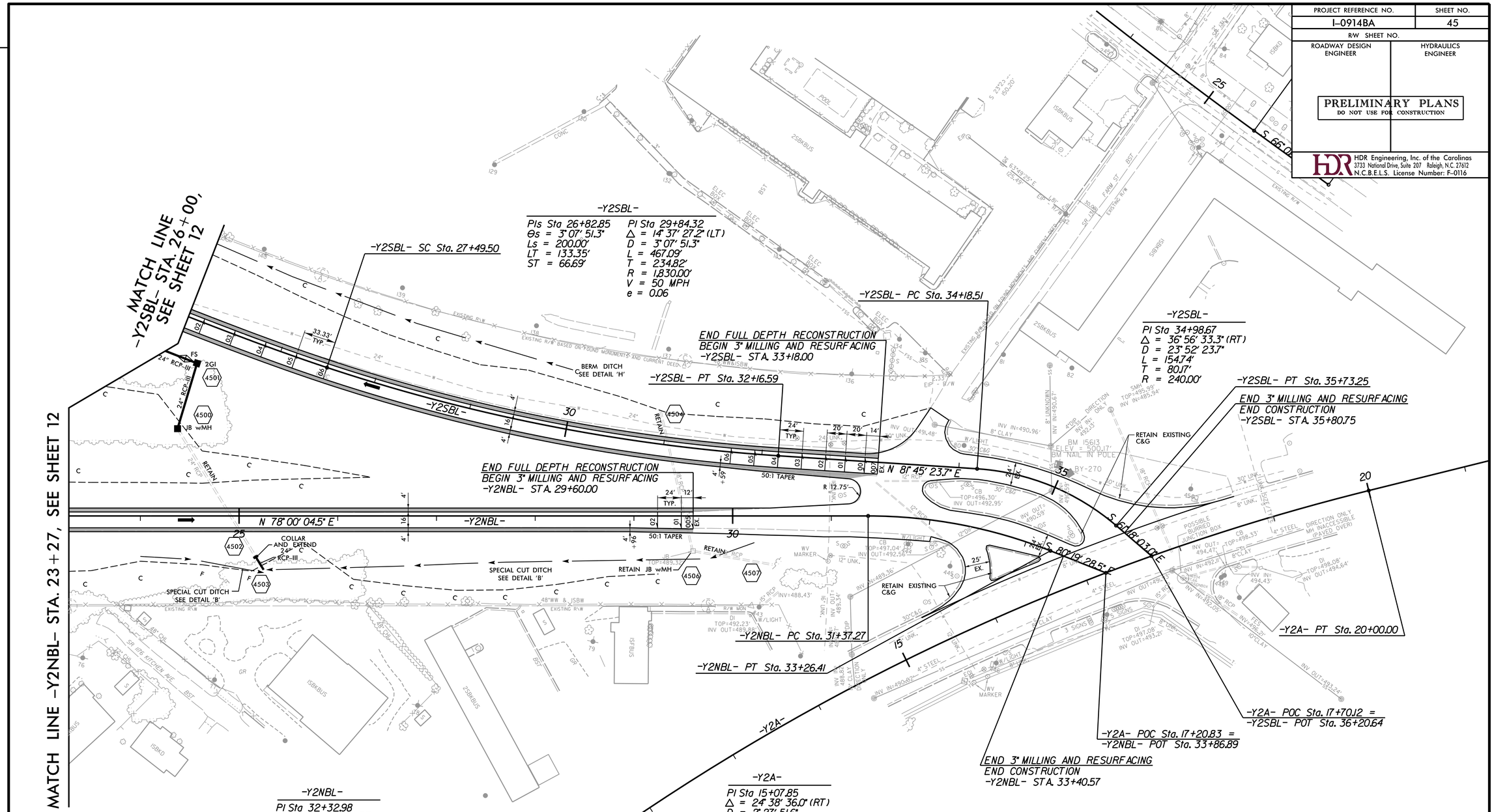
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	45
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



SEE SHEET NO. 2CR-13 FOR TEMPORARY CROSSOVERS
SEE SHEET NO. 94 FOR -Y2NBL- PROFILE
SEE SHEET NO. 95 FOR -Y2SBL- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 5:14:25 PM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	45A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

REVISIONS

-Y5ARPB-

PIs Sta 10+80.17	PI Sta 12+69.70	PIs Sta 14+37.87
Θs = 11° 27' 33.0"	Δ = 53° 02' 22.8" (LT)	Θs = 11° 27' 33.0"
Ls = 120.00'	D = 19° 05' 54.9"	Ls = 120.00'
LT = 80.17'	L = 277.72'	LT = 80.17'
ST = 40.15'	T = 149.70'	ST = 40.15'
	R = 300.00'	
	V = 30 MPH	
	e = 0.08	

-Y5ALPB-

PIs Sta 11+33.67	PI Sta 13+78.62	PIs Sta 14+91.98
Θs = 37° 11' 07.2"	Δ = 100° 49' 42.4" (RT)	Θs = 17° 04' 29.6"
Ls = 196.00'	D = 37° 56' 39.2"	Ls = 90.00'
LT = 133.67'	L = 265.73'	LT = 60.28'
ST = 68.07'	T = 182.62'	ST = 30.26'
	R = 151.00'	
	V = 25 MPH	
	e = 0.08	

-Y5NBL-

PI Sta 30+80.55	PIs Sta 39+81.93
Δ = 20° 46' 54.6" (LT)	Θs = 1° 30' 04.3"
D = 1° 15' 03.6"	Ls = 240.00'
L = 1,661.22'	LT = 160.01'
T = 839.84'	ST = 80.01'
R = 4,580.00'	
V = 60 MPH	
e = 0.04	

-Y5ARPC-

PIs Sta 10+50.00	PI Sta 12+84.63	PIs Sta 15+15.94
Θs = 1° 35' 29.6"	Δ = 17° 39' 10.4" (RT)	Θs = 1° 35' 29.6"
Ls = 75.00'	D = 4° 14' 38.9"	Ls = 75.00'
LT = 50.00'	L = 415.94'	LT = 50.00'
ST = 25.00'	T = 209.63'	ST = 25.00'
	R = 1,350.00'	
	V = 50 MPH	
	e = 0.07	

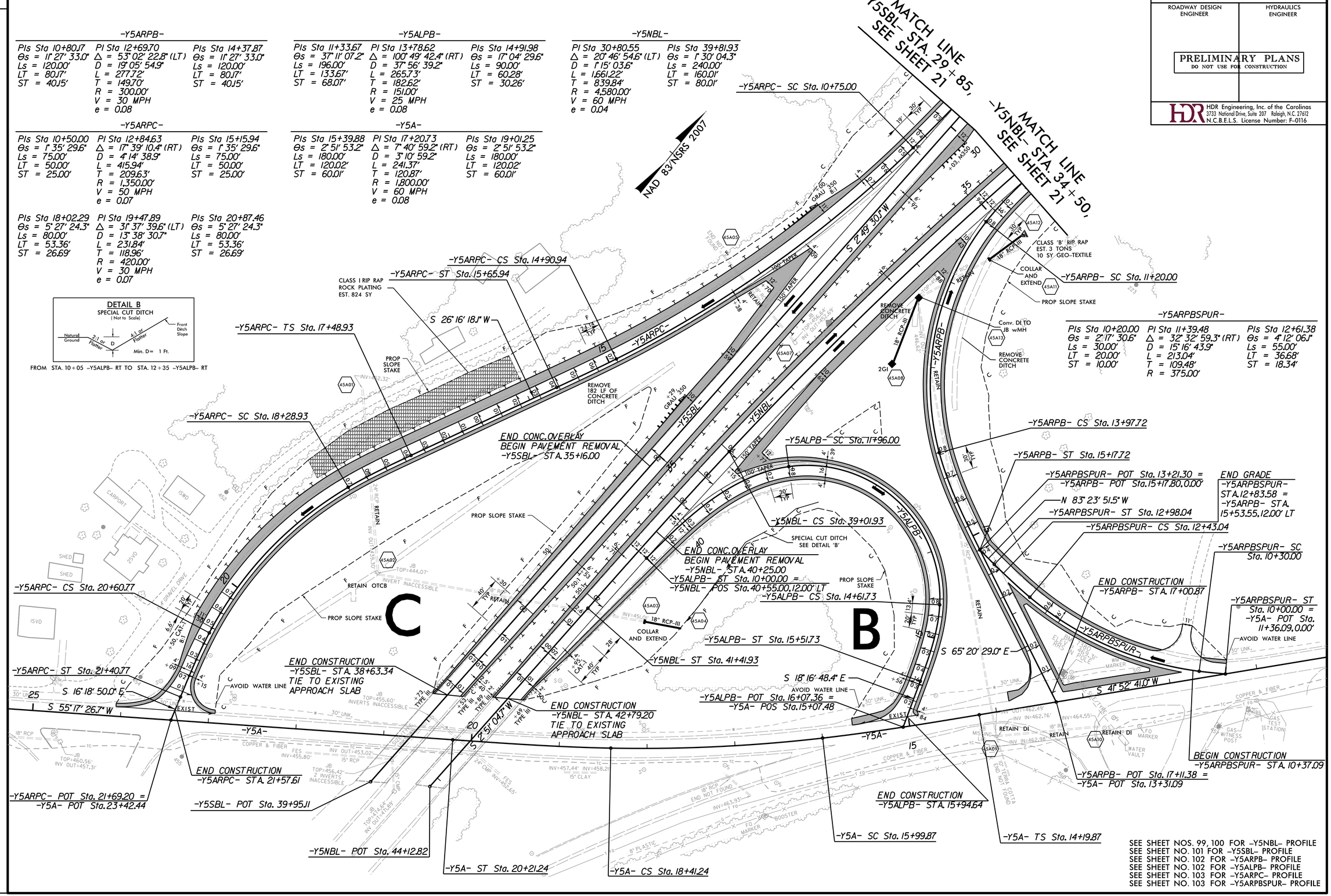
-Y5A-

PIs Sta 15+39.88	PI Sta 17+20.73	PIs Sta 19+01.25
Θs = 2° 51' 53.2"	Δ = 7° 40' 59.2" (RT)	Θs = 2° 51' 53.2"
Ls = 180.00'	D = 3° 10' 59.2"	Ls = 180.00'
LT = 120.02'	L = 241.37'	LT = 120.02'
ST = 60.01'	T = 120.87'	ST = 60.01'
	R = 1,800.00'	
	V = 60 MPH	
	e = 0.08	

PIs Sta 18+02.29	PI Sta 19+47.89	PIs Sta 20+87.46
Θs = 5° 27' 24.3"	Δ = 31° 37' 39.6" (LT)	Θs = 5° 27' 24.3"
Ls = 80.00'	D = 13° 38' 30.7"	Ls = 80.00'
LT = 53.36'	L = 231.84'	LT = 53.36'
ST = 26.69'	T = 118.96'	ST = 26.69'
	R = 420.00'	
	V = 30 MPH	
	e = 0.07	

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)

FROM STA. 10+05 -Y5ALPB- RT TO STA. 12+35 -Y5ALPB- RT



SEE SHEET NOS. 99, 100 FOR -Y5NBL- PROFILE
SEE SHEET NO. 101 FOR -Y5SBL- PROFILE
SEE SHEET NO. 102 FOR -Y5ARPB- PROFILE
SEE SHEET NO. 102 FOR -Y5ALPB- PROFILE
SEE SHEET NO. 103 FOR -Y5ARPC- PROFILE
SEE SHEET NO. 103 FOR -Y5ARPBSPUR- PROFILE

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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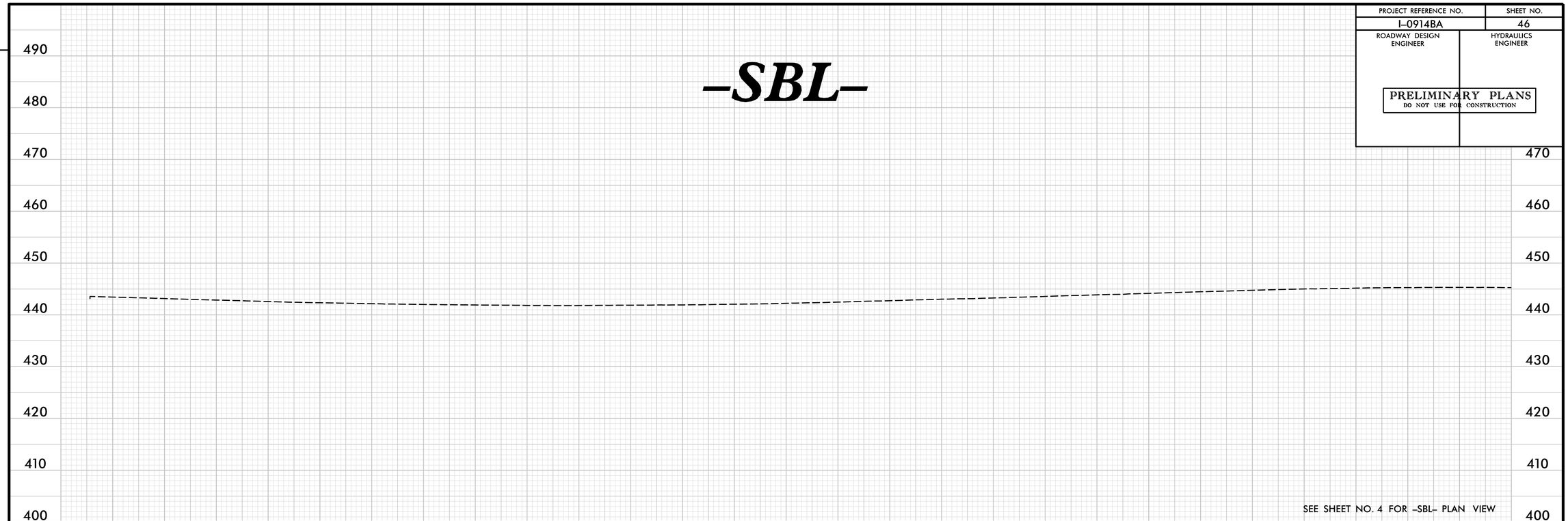
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	46
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

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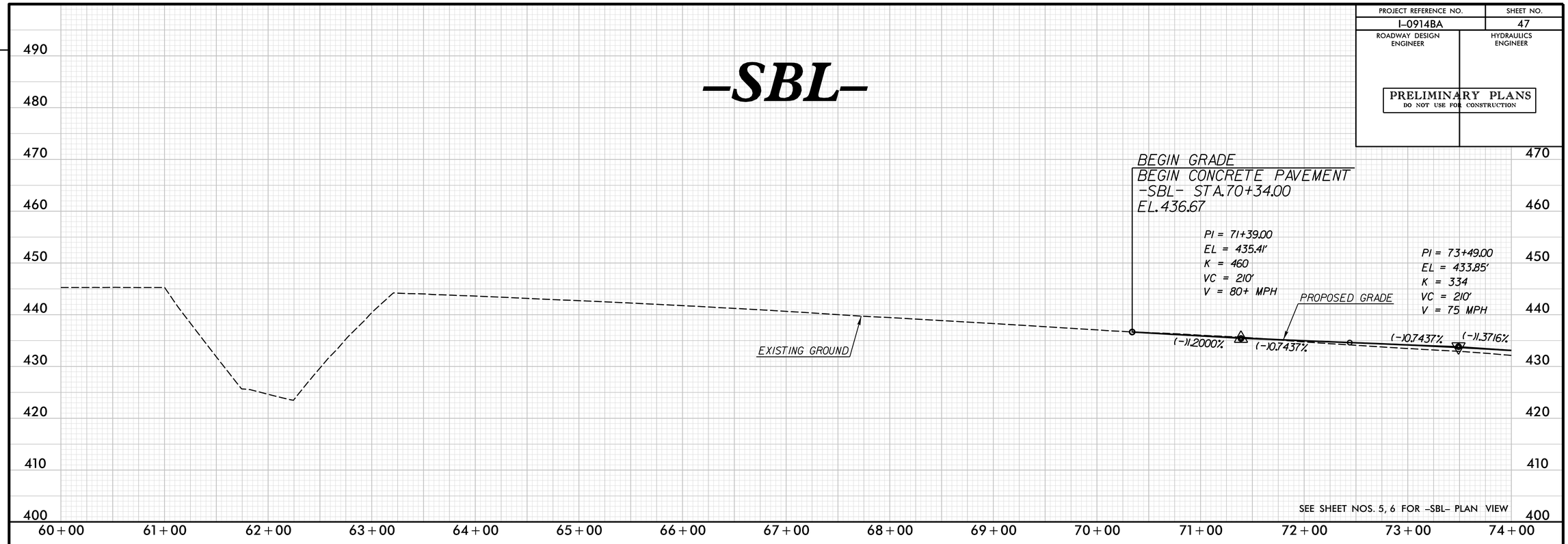
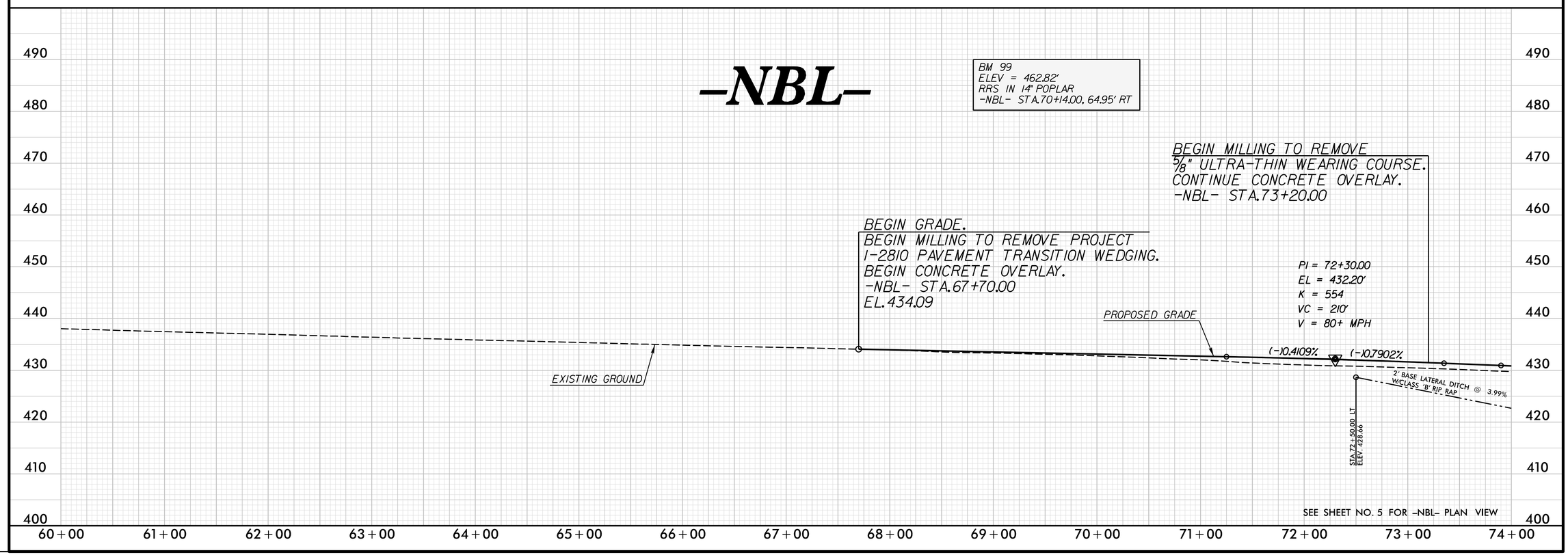
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	47
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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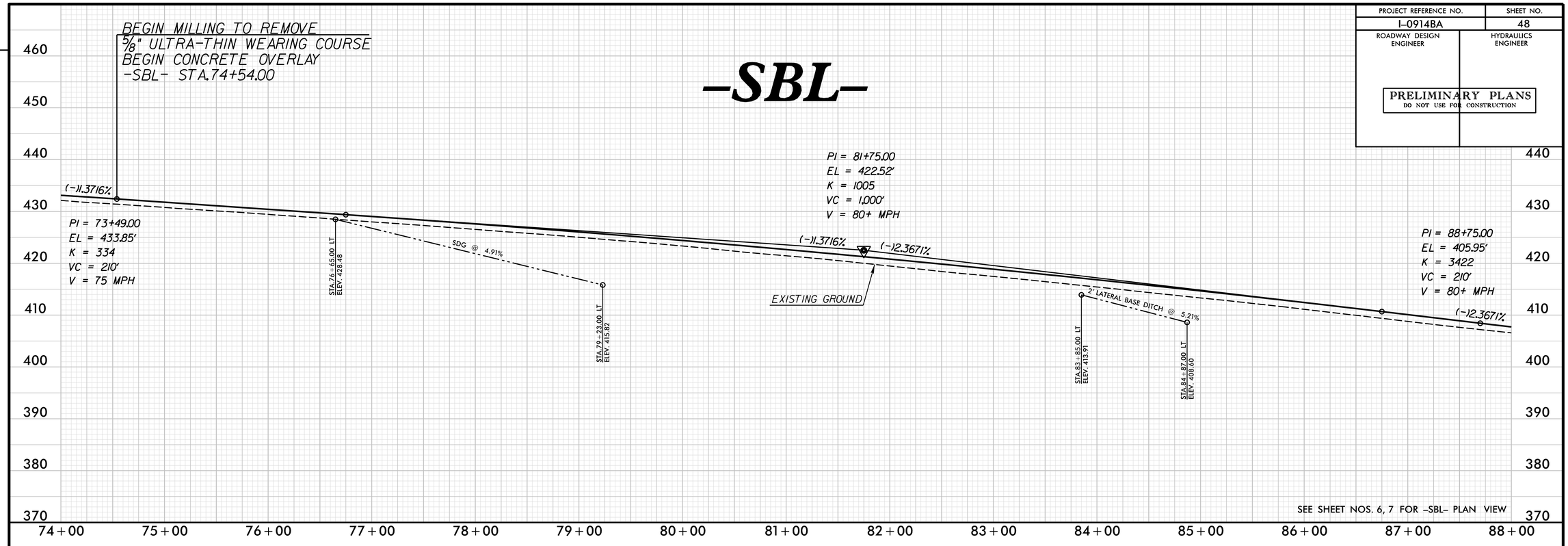
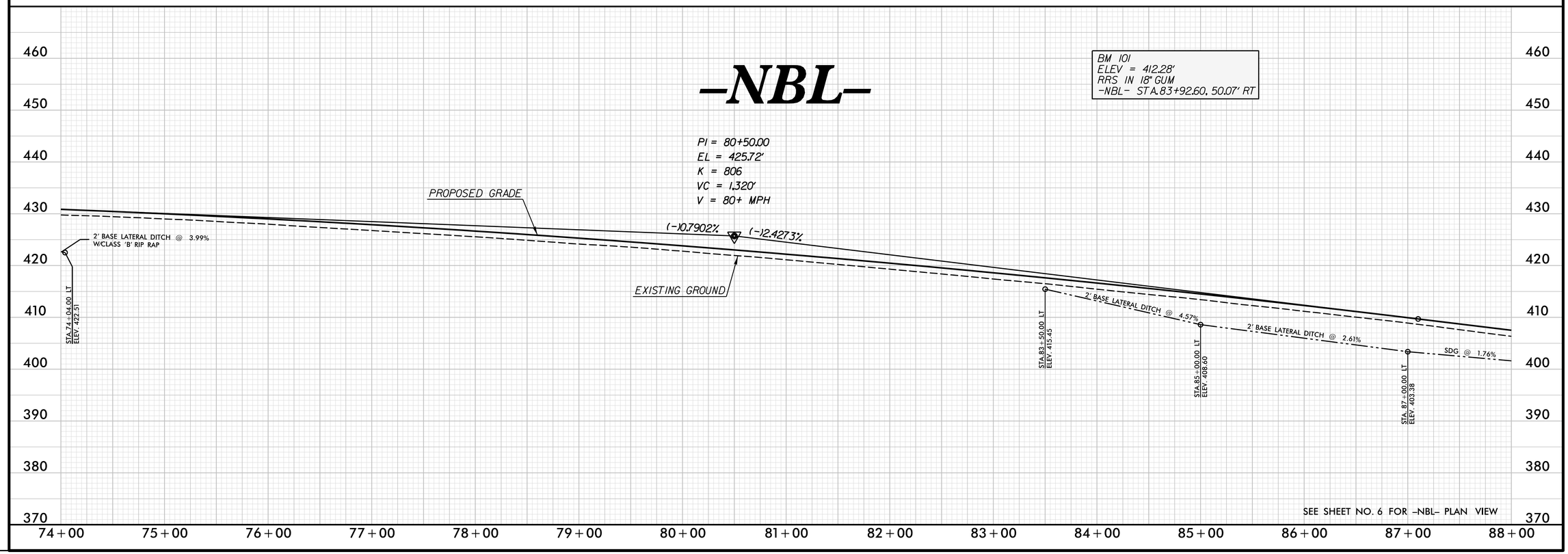
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	48
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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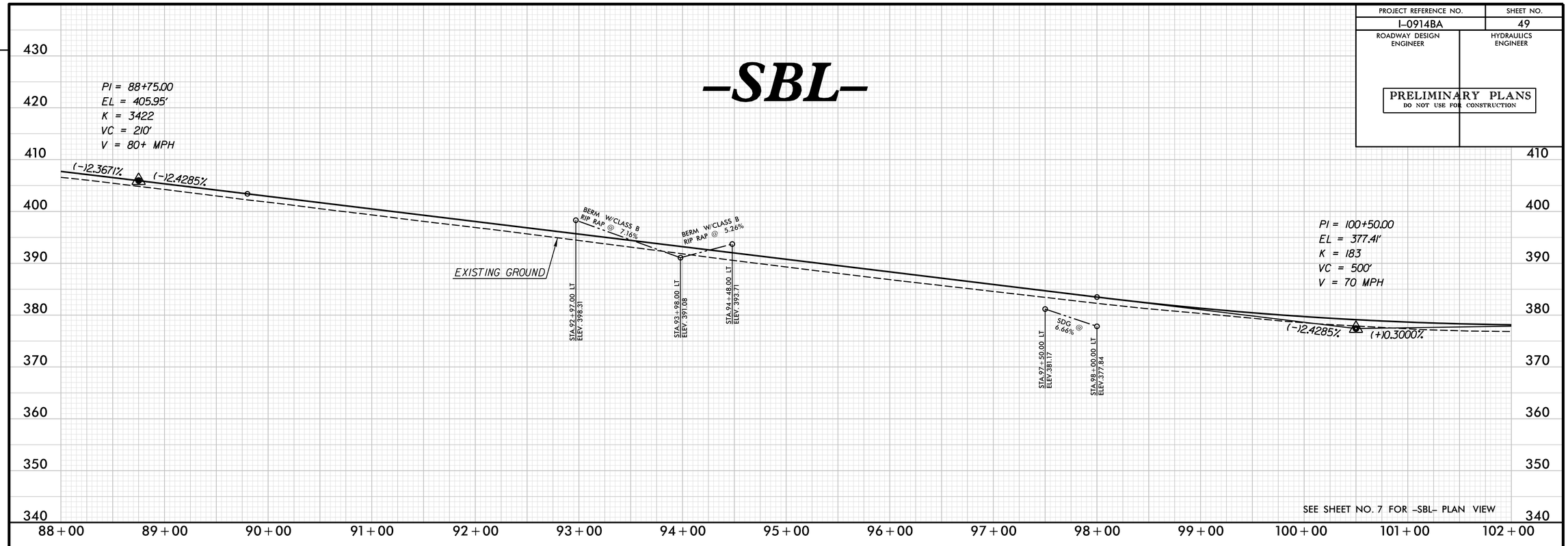
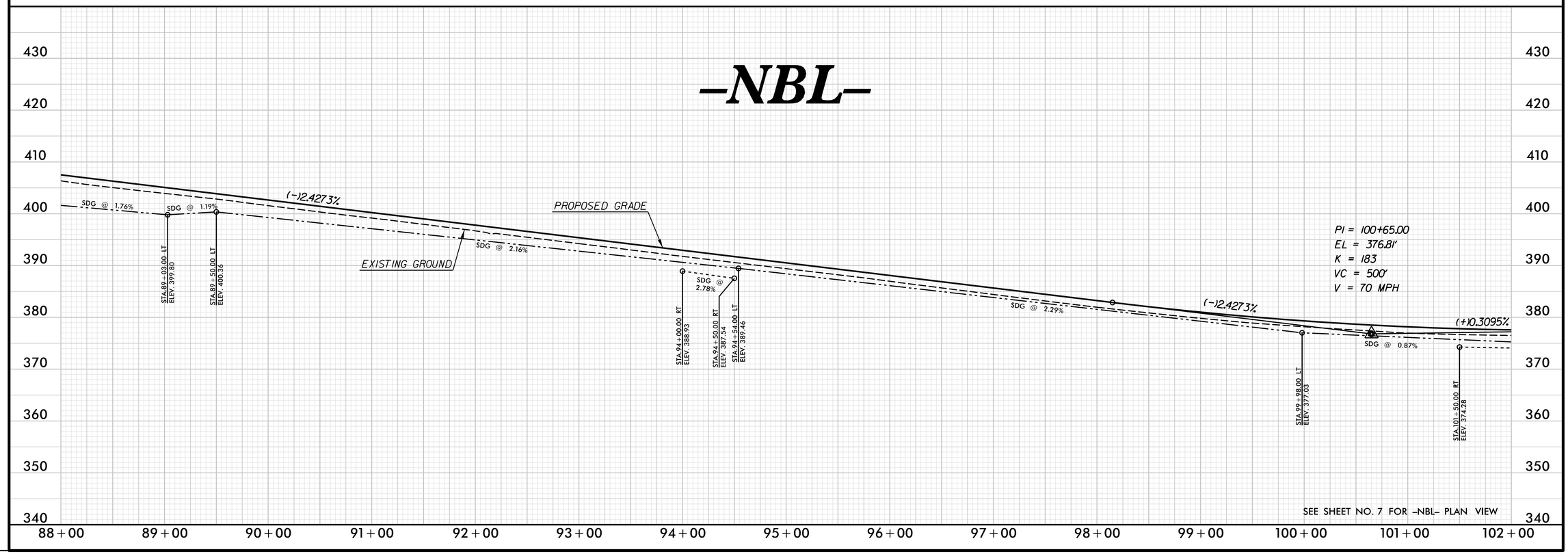
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	49
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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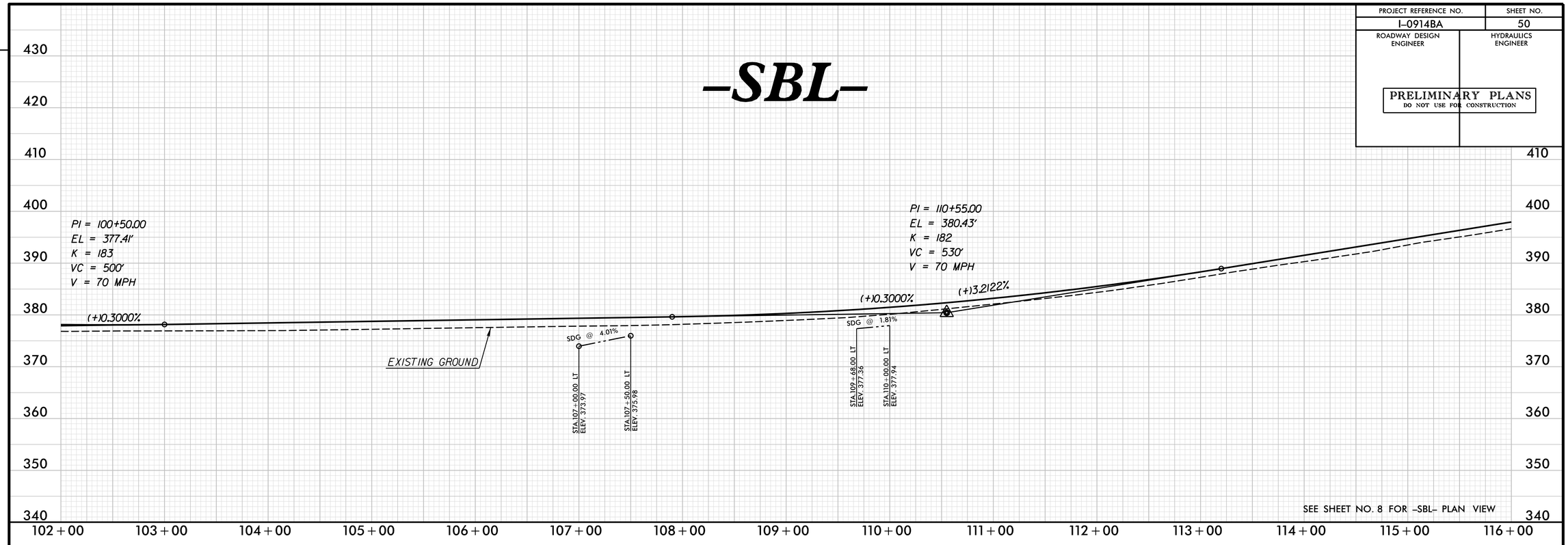
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	50
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

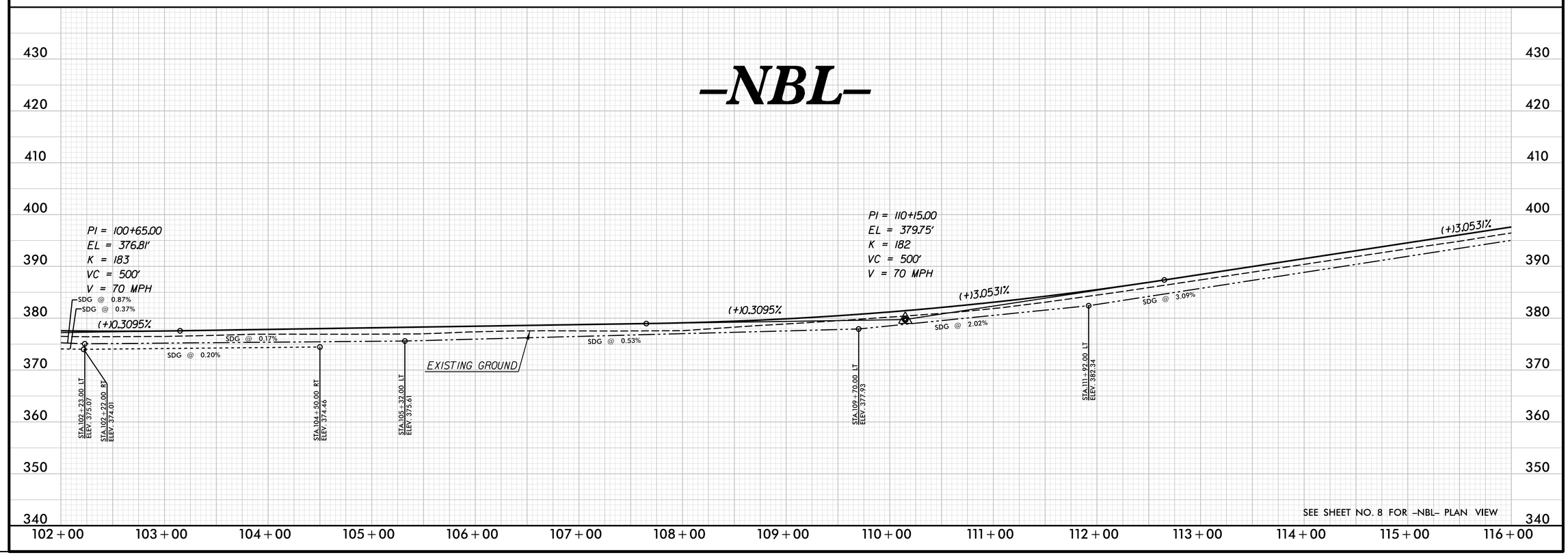
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-SBL-



SEE SHEET NO. 8 FOR -SBL- PLAN VIEW

-NBL-



SEE SHEET NO. 8 FOR -NBL- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt
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DATE: 2/28/2014
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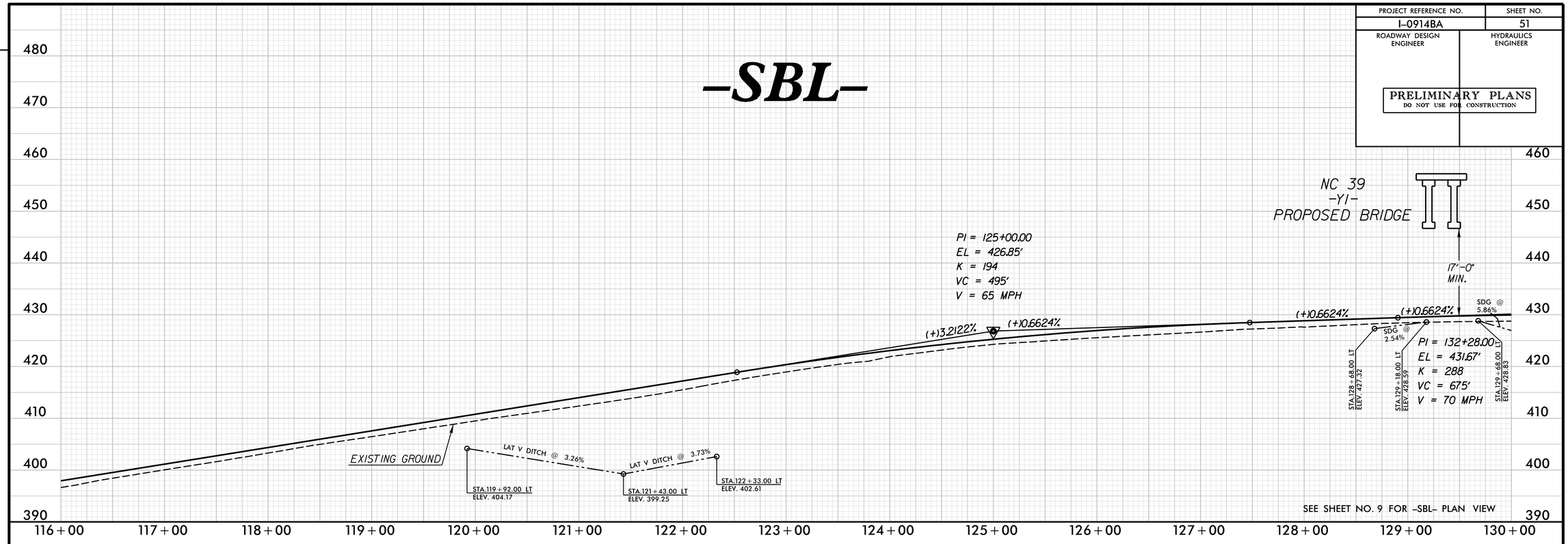
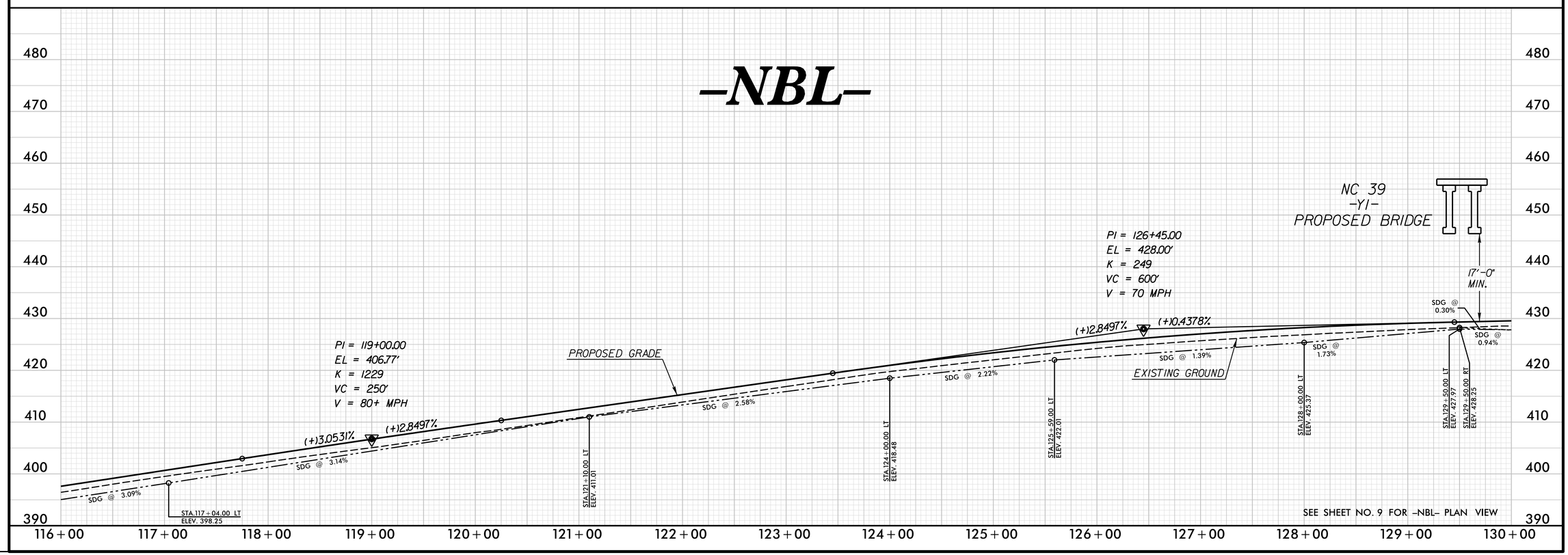
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	51
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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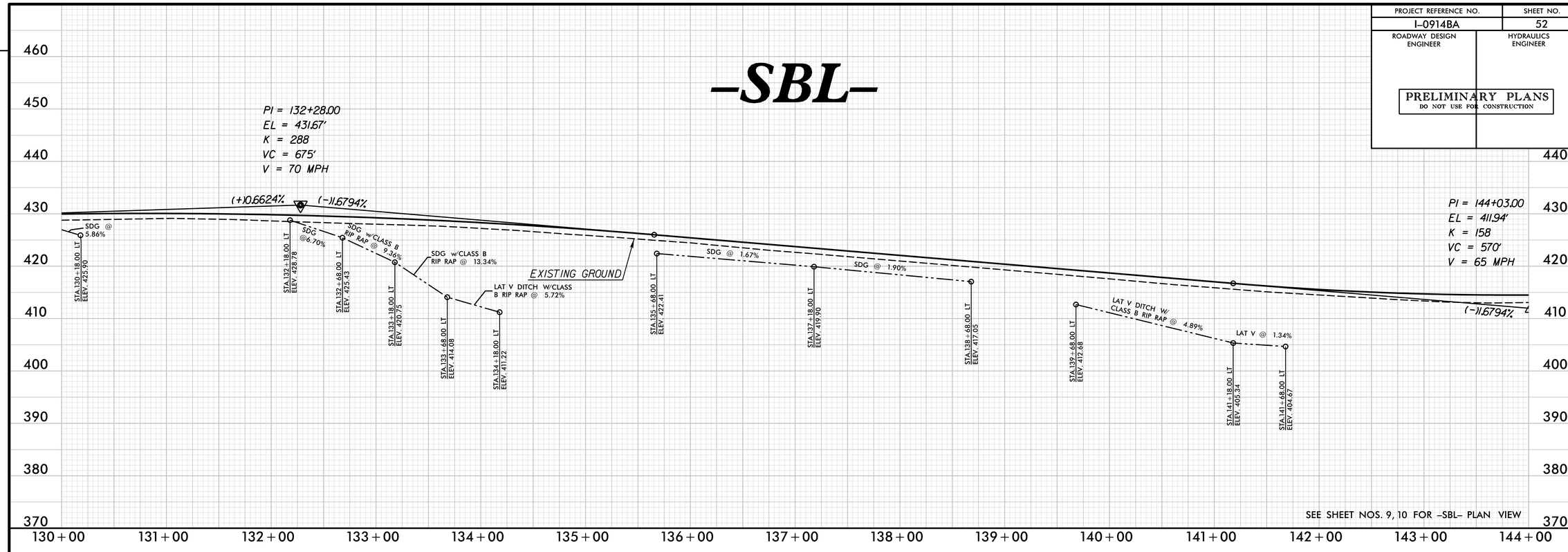
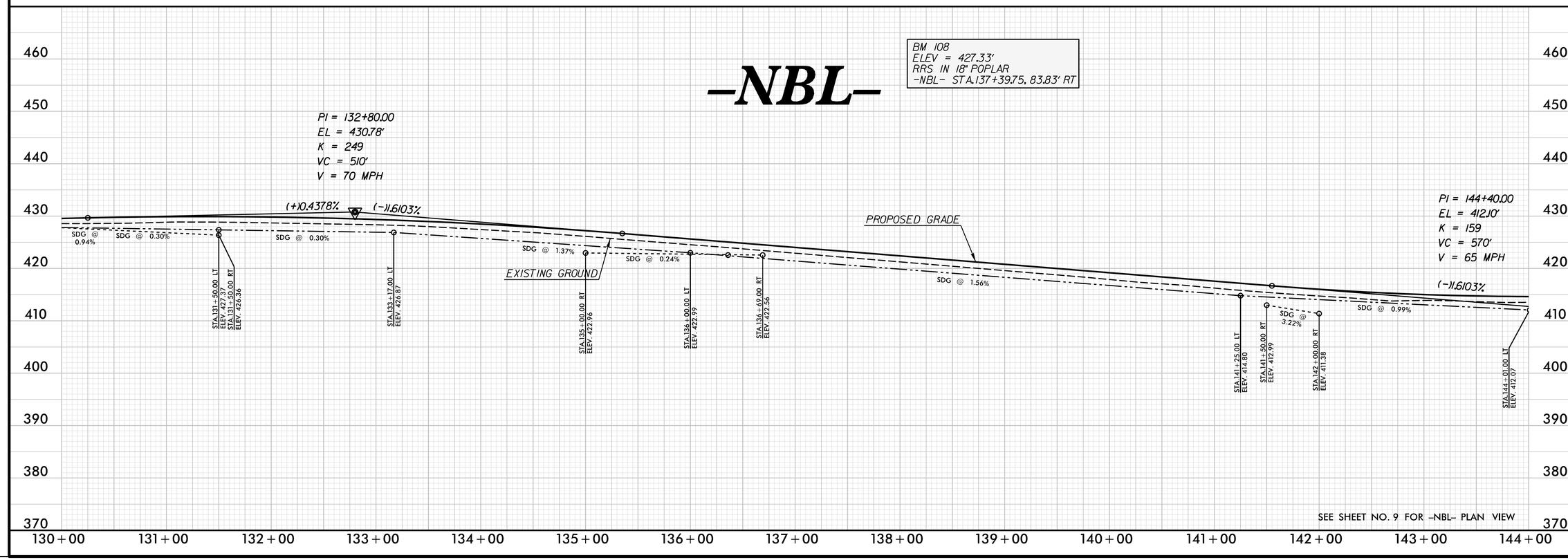
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	52
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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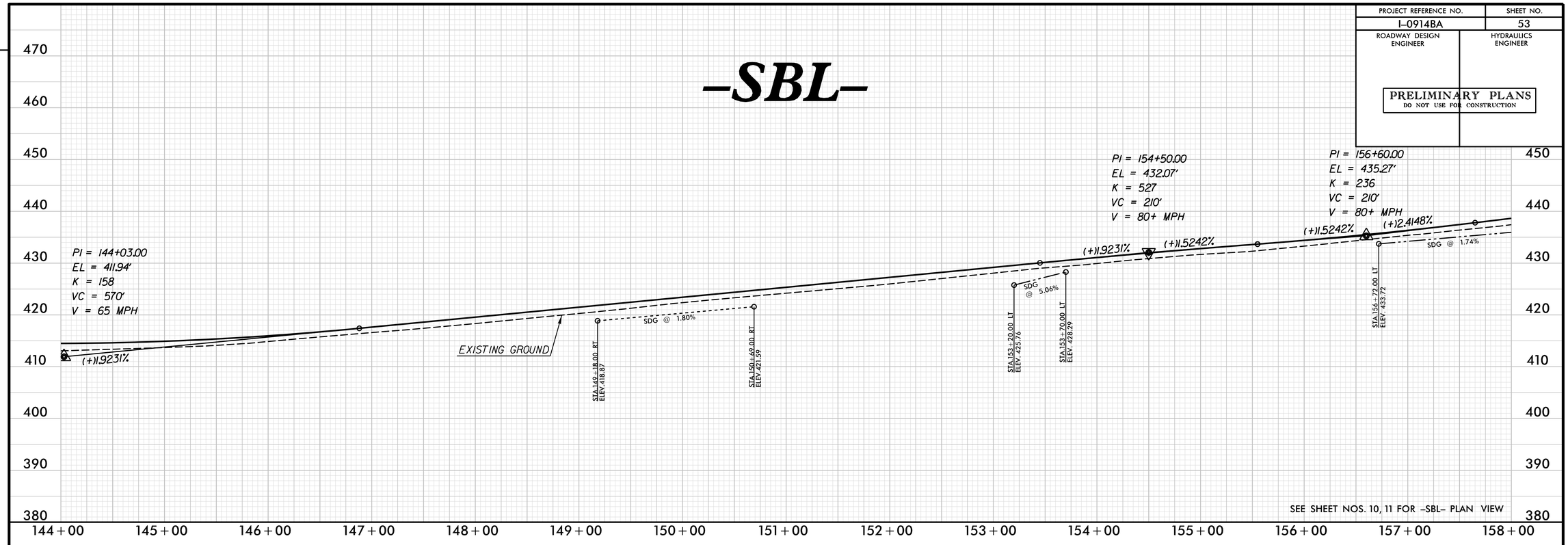
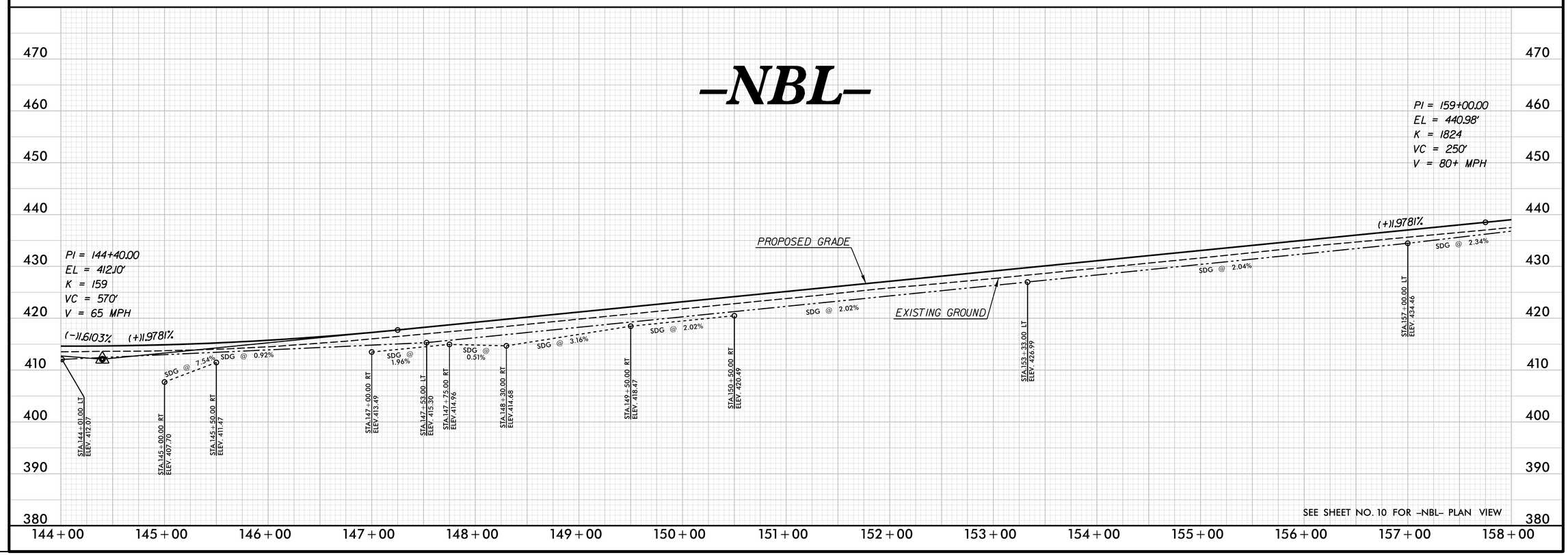
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	53
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 10, 11 FOR -SBL- PLAN VIEW



SEE SHEET NO. 10 FOR -NBL- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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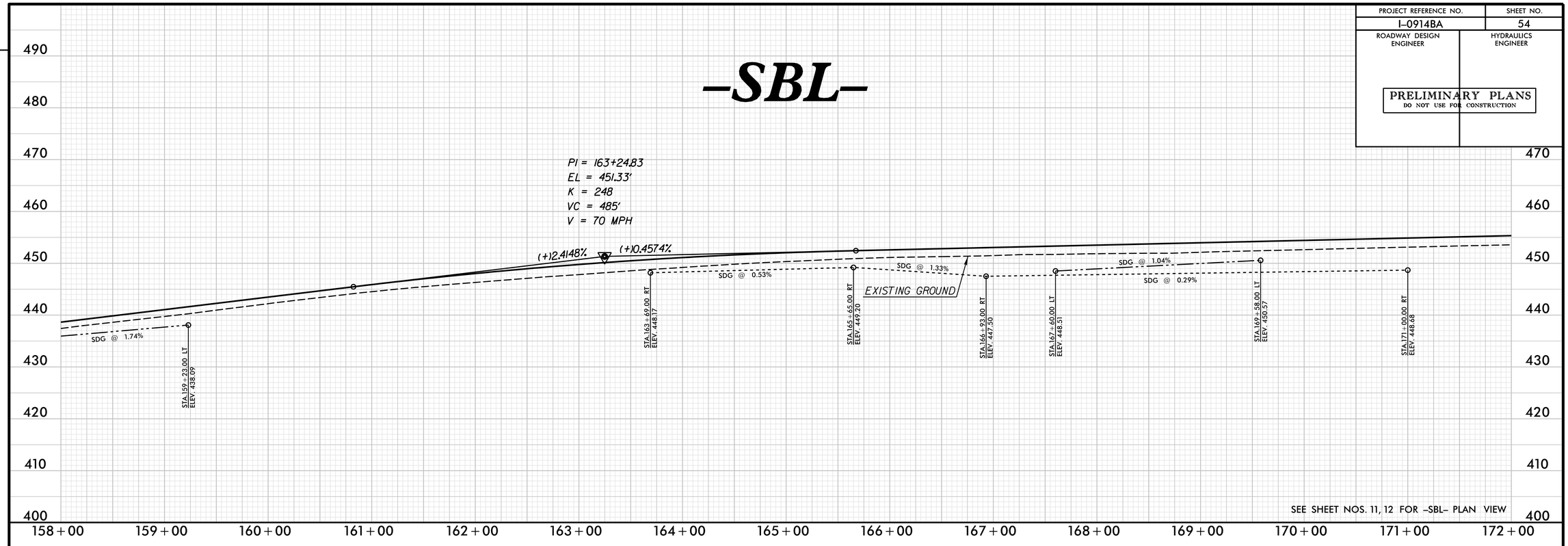
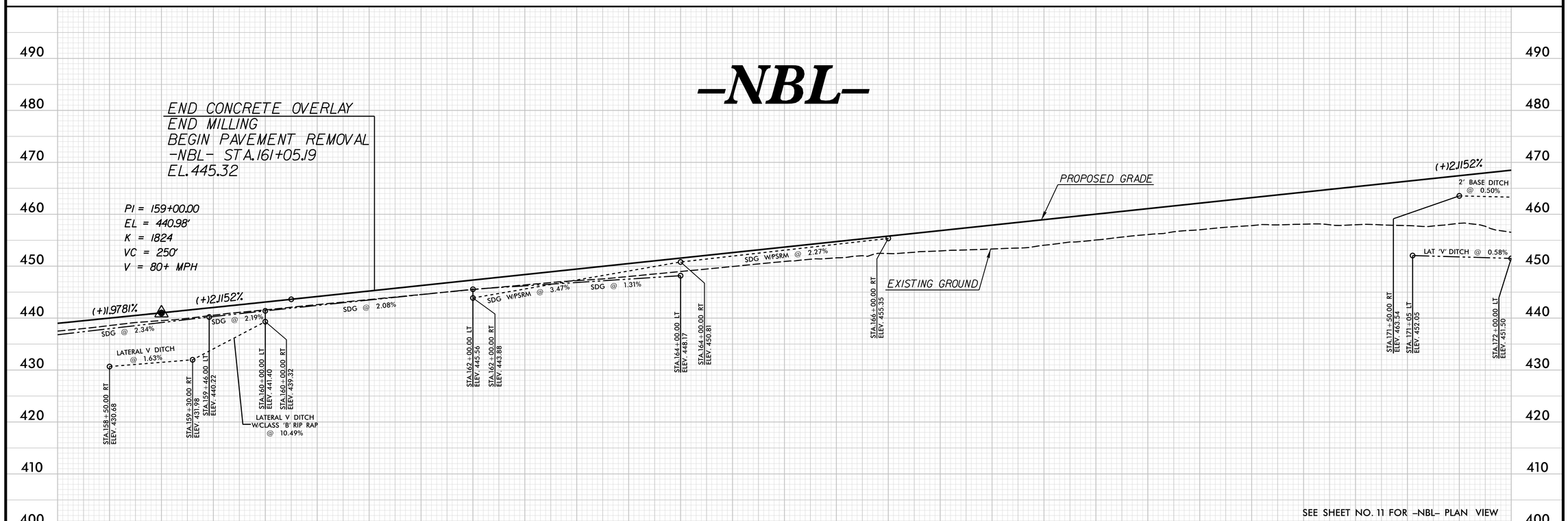
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	54
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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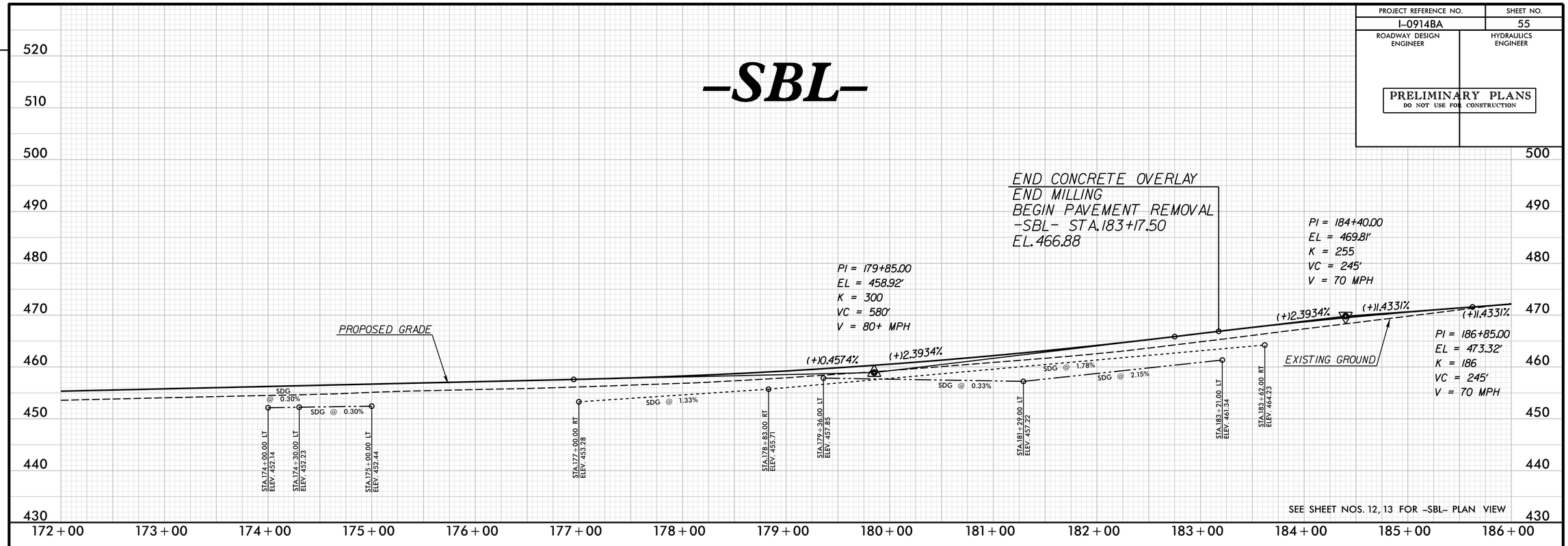
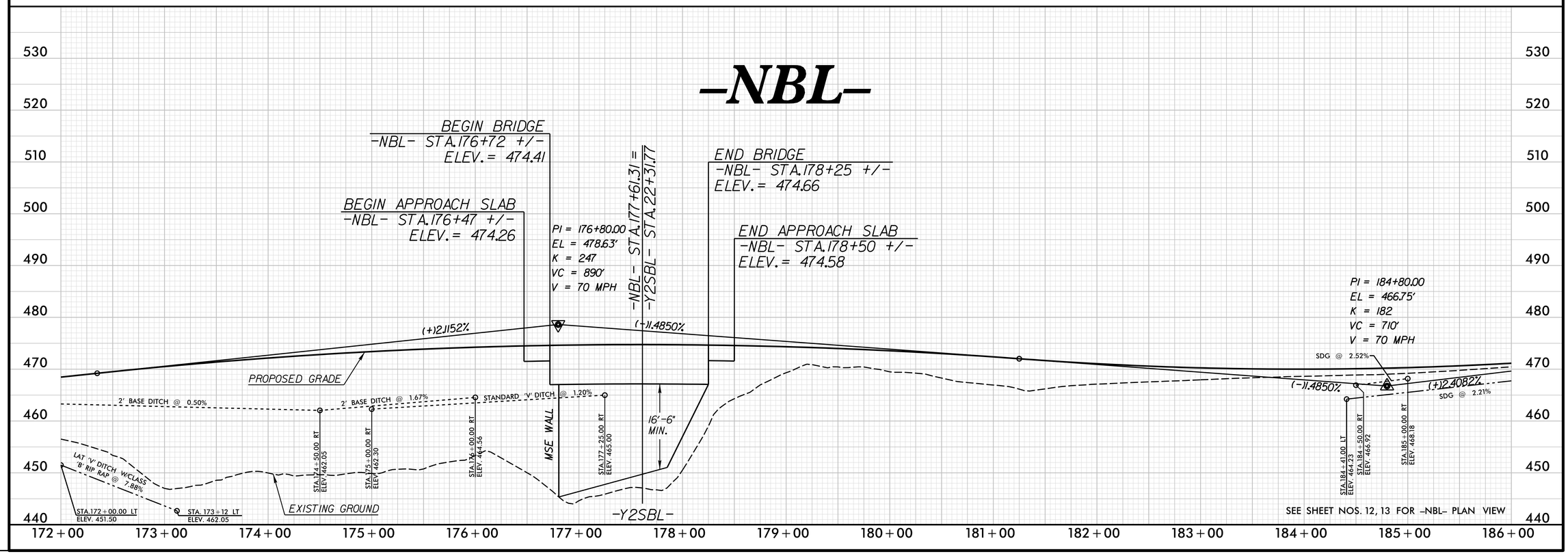
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	55
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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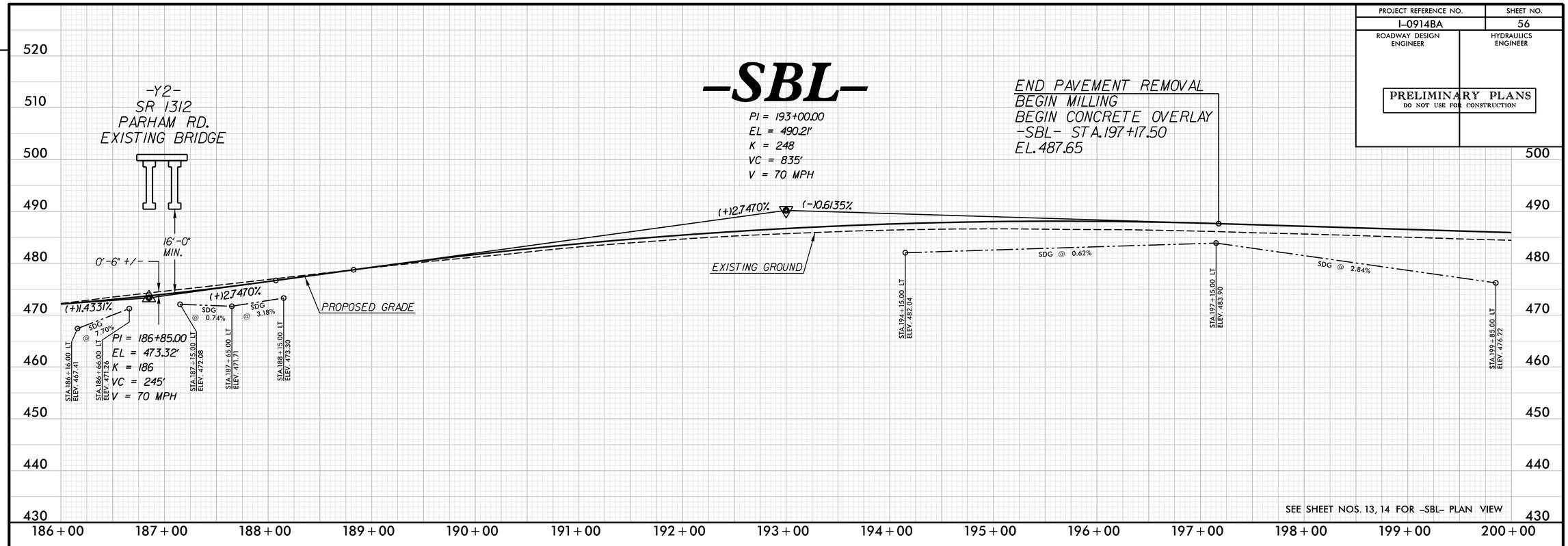
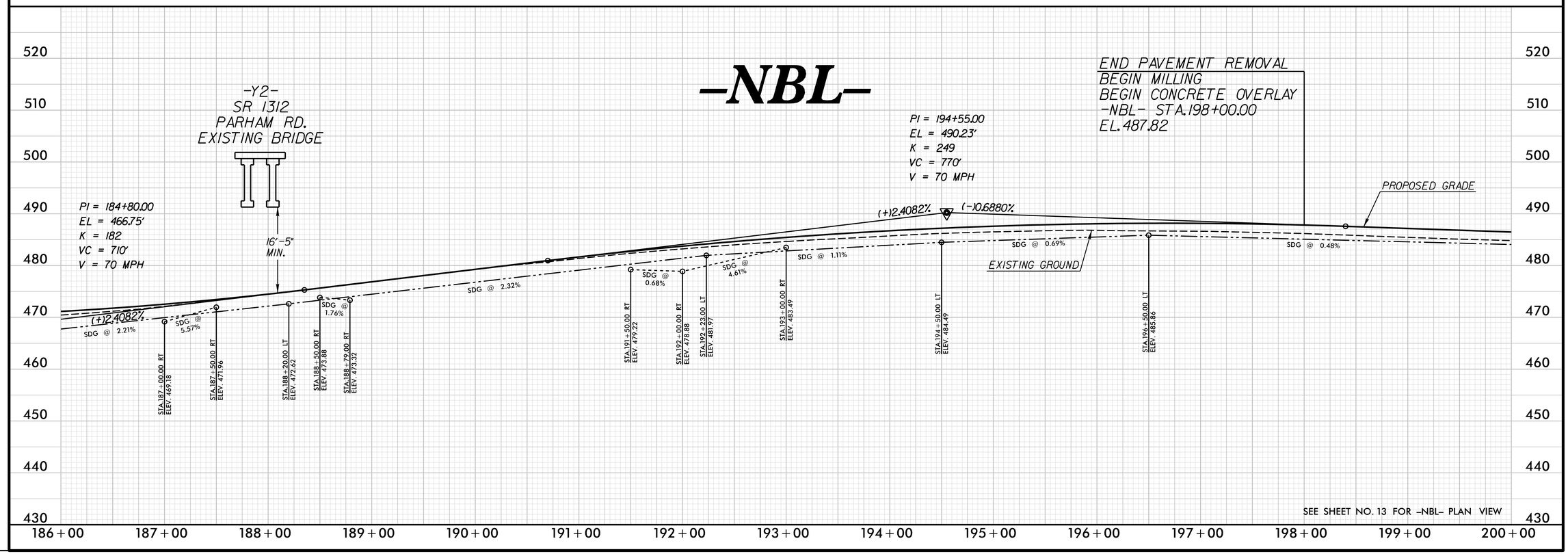
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	56
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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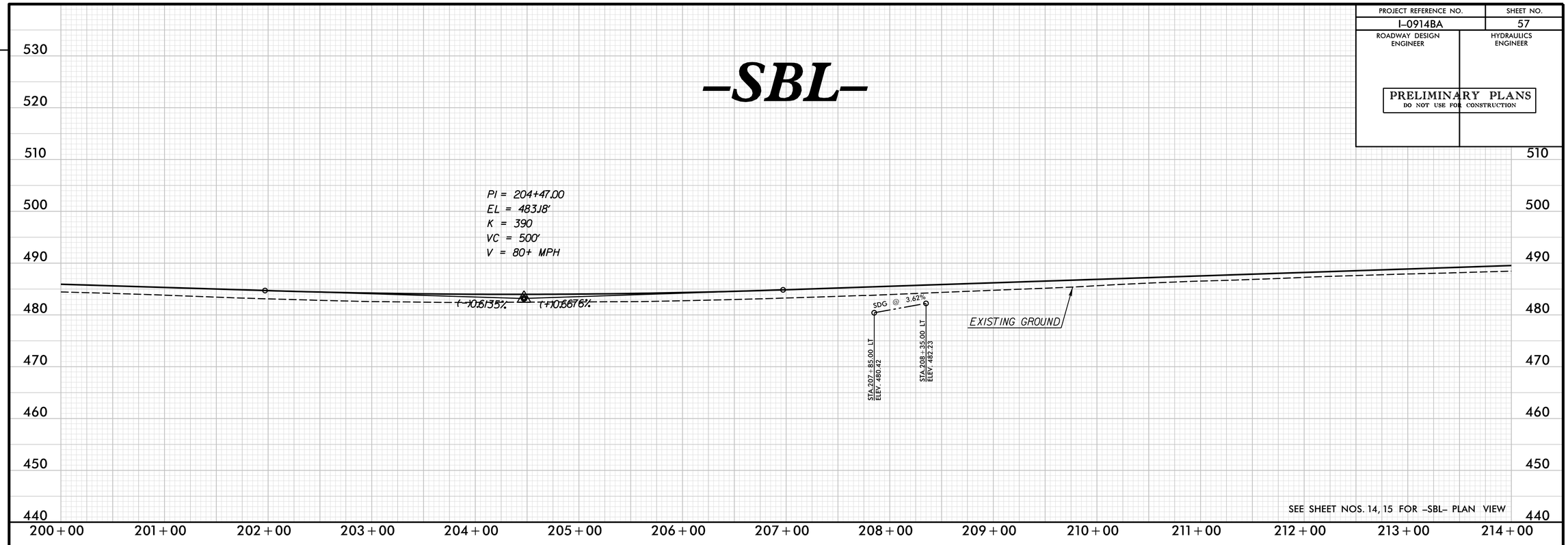
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	57
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

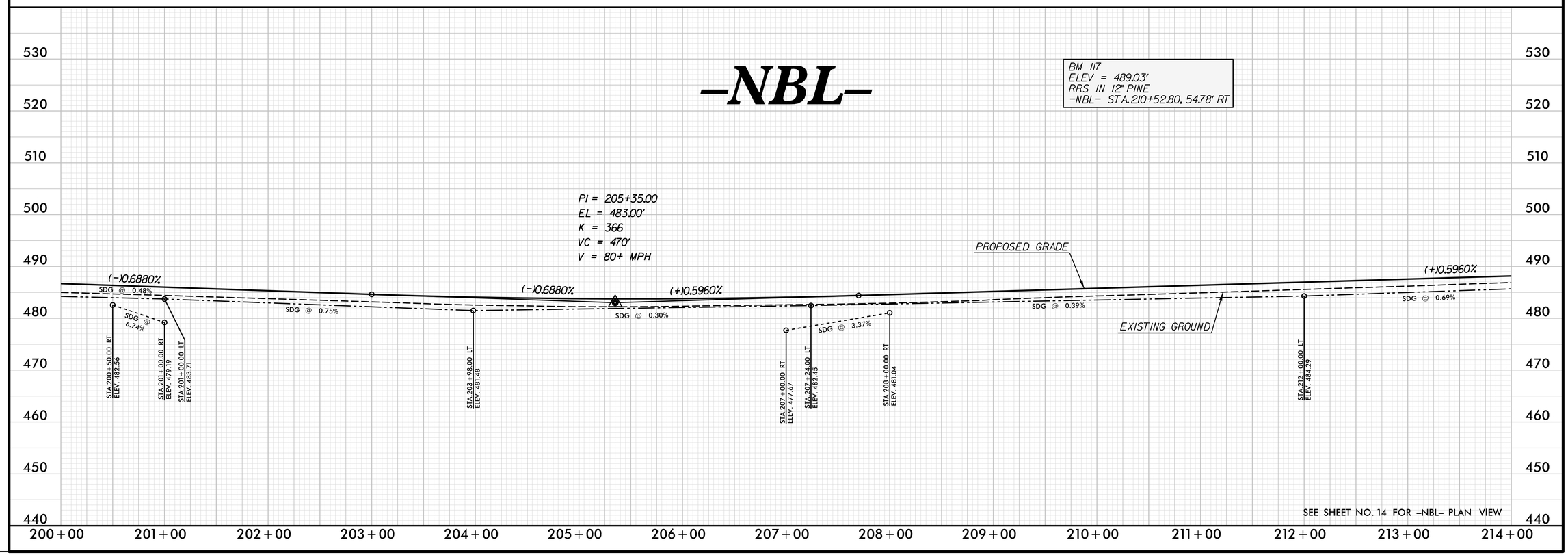
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-SBL-



SEE SHEET NOS. 14, 15 FOR -SBL- PLAN VIEW

-NBL-



SEE SHEET NO. 14 FOR -NBL- PLAN VIEW

REVISIONS

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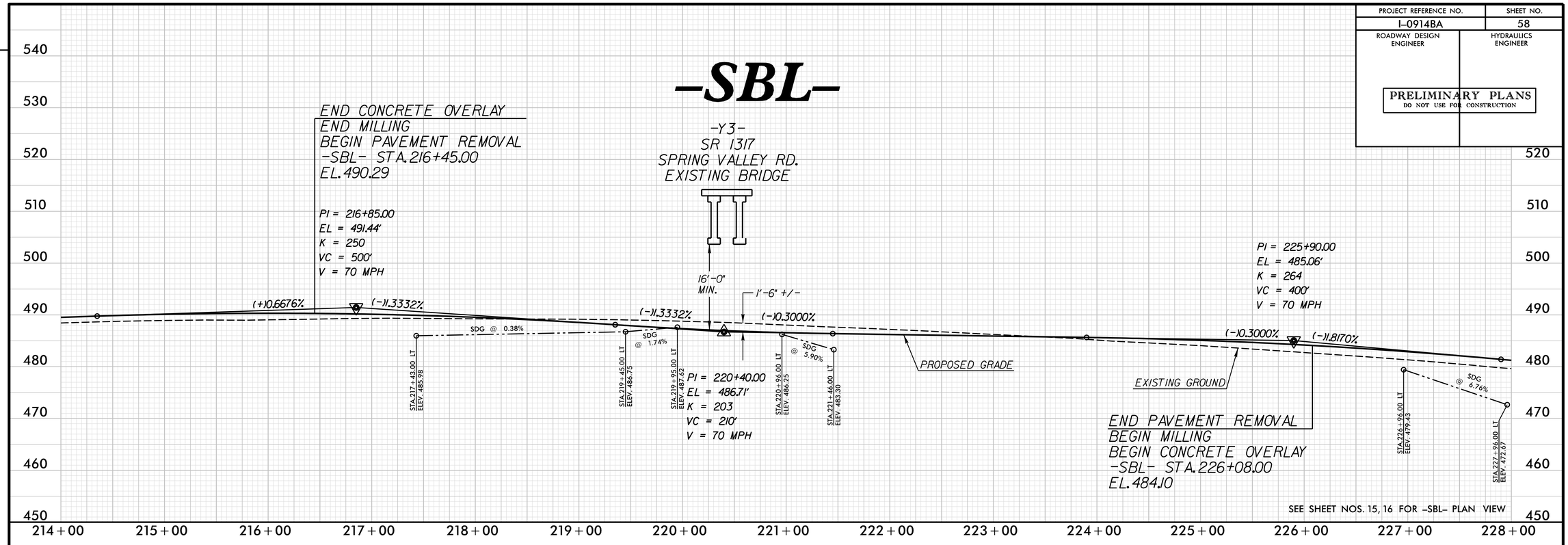
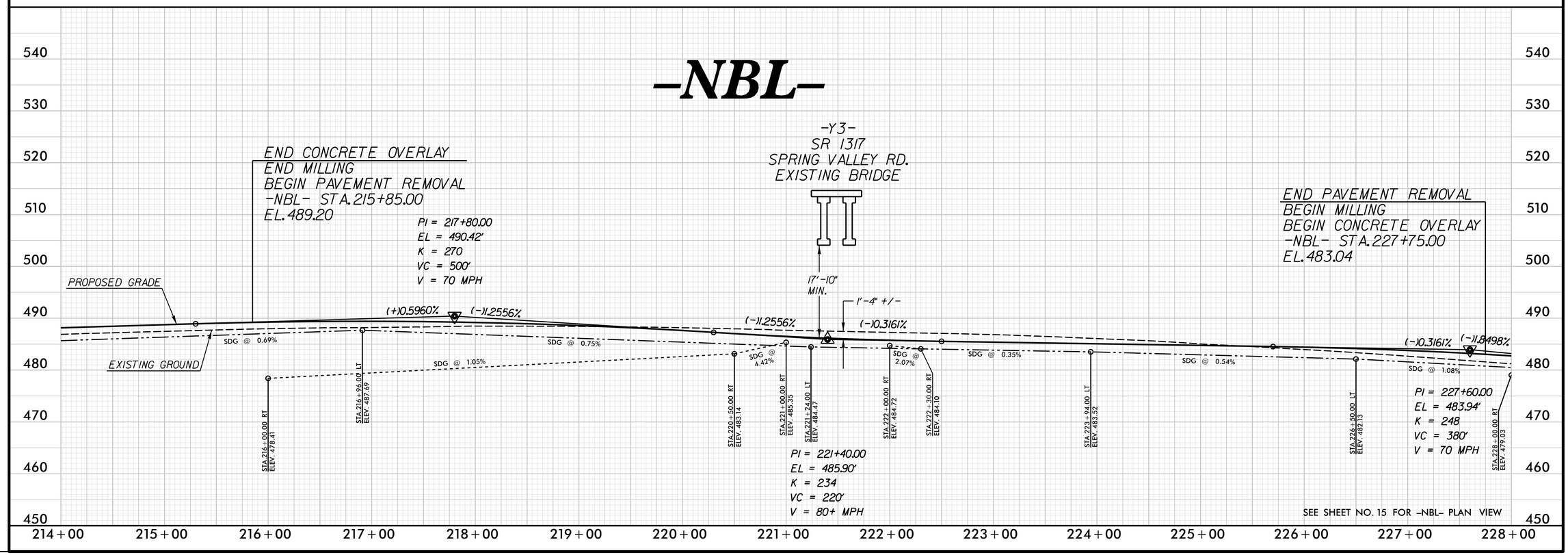
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	58
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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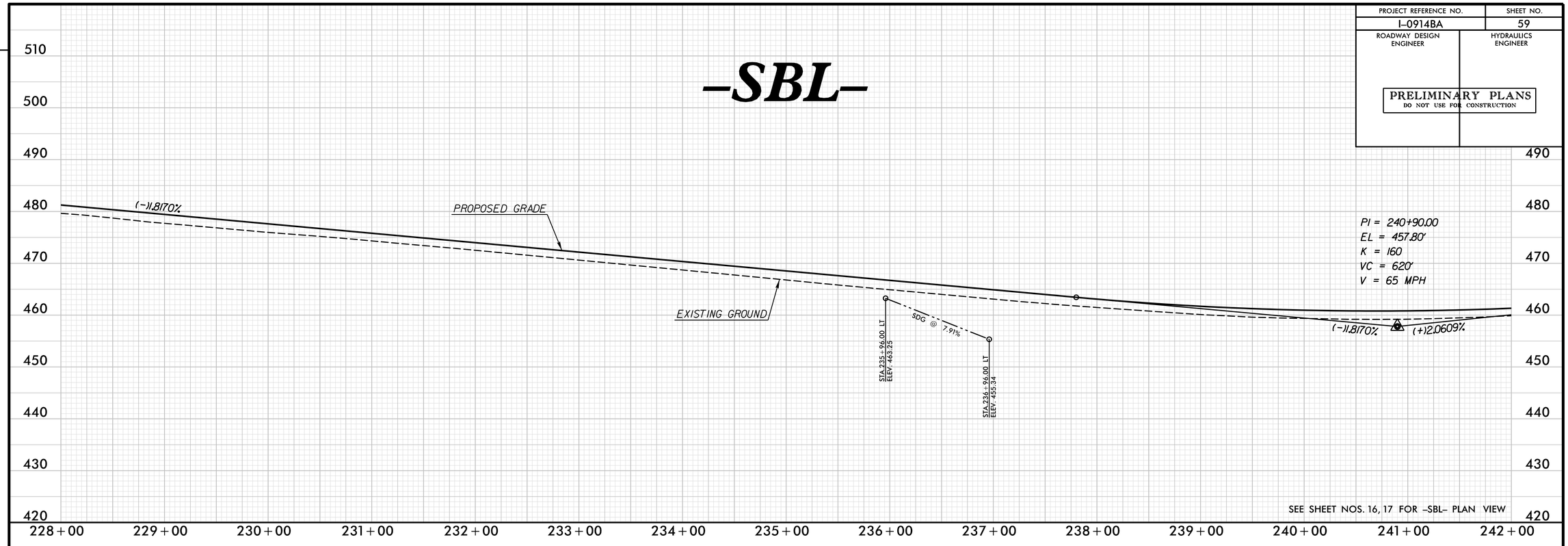
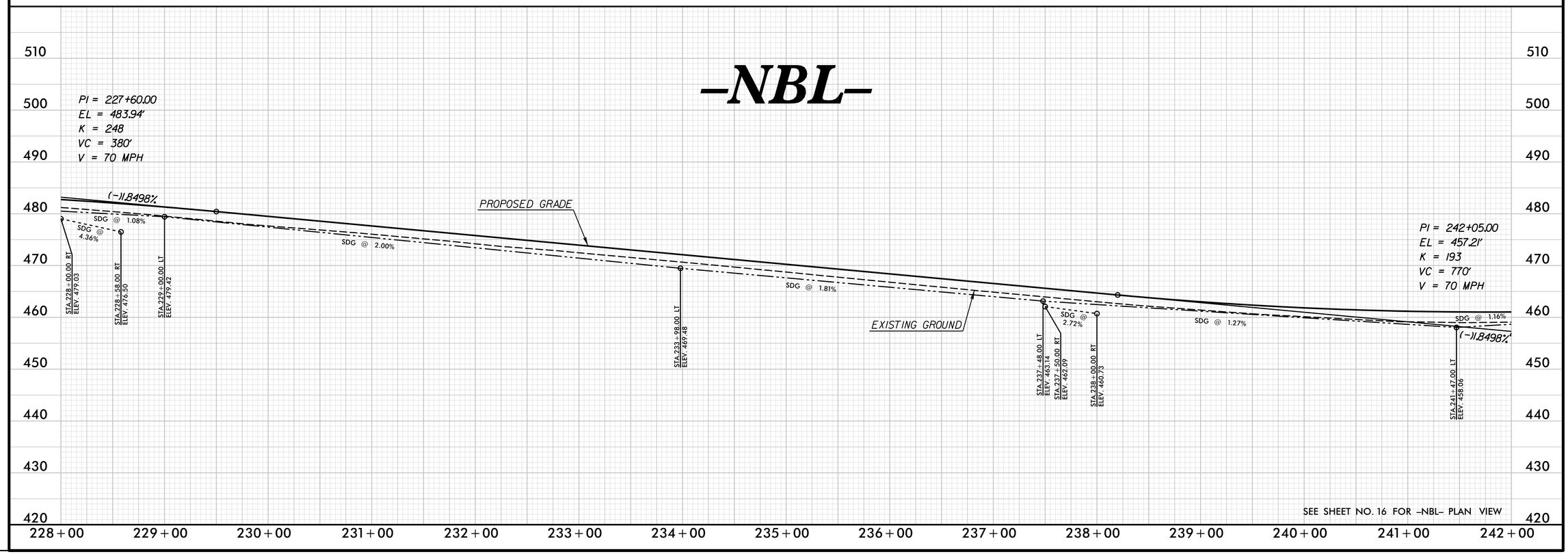
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	59
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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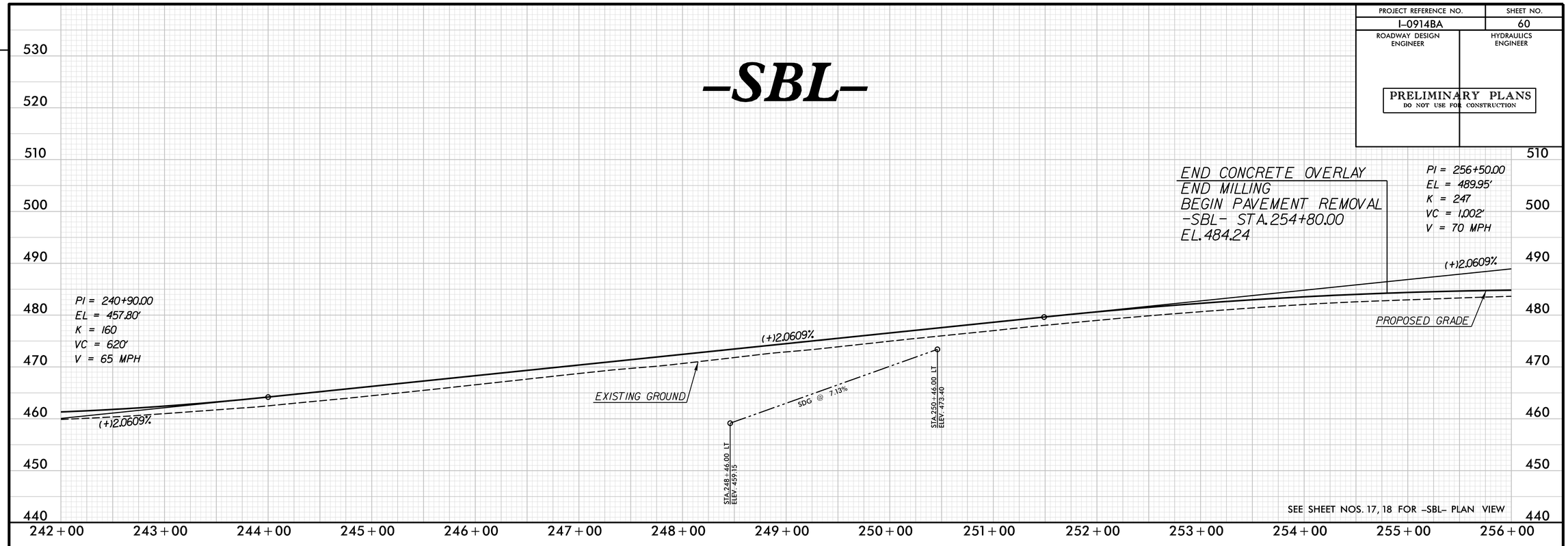
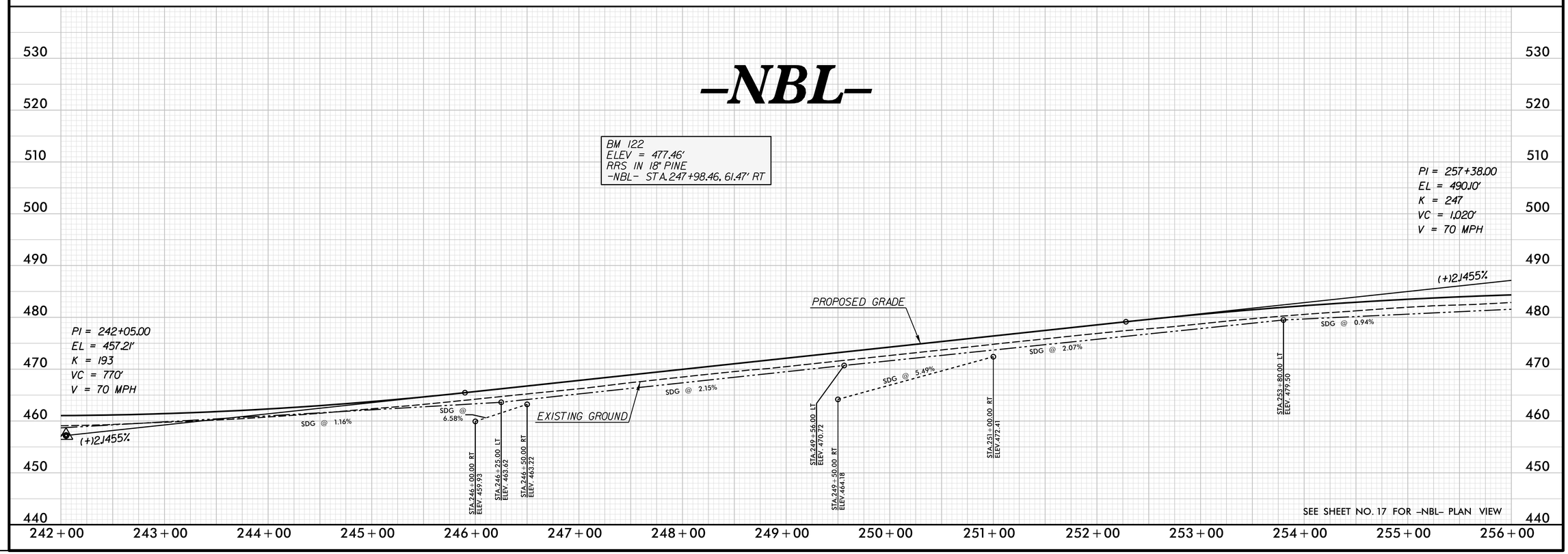
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	60
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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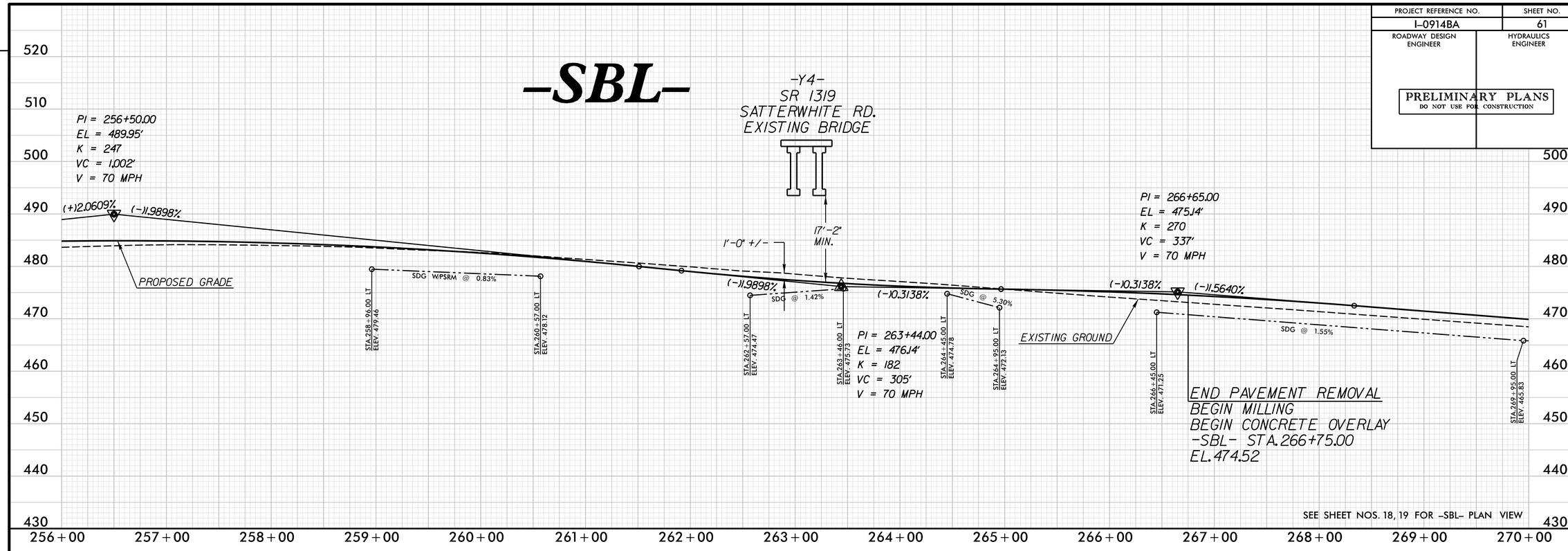
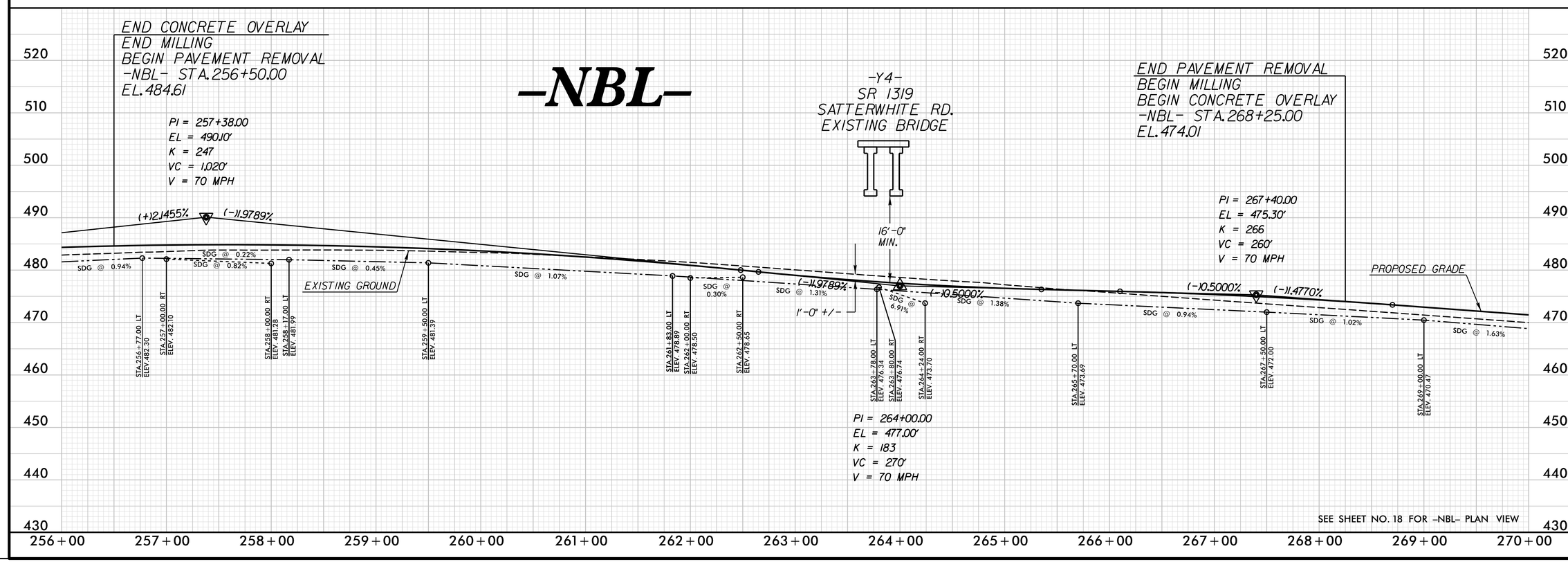
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	61
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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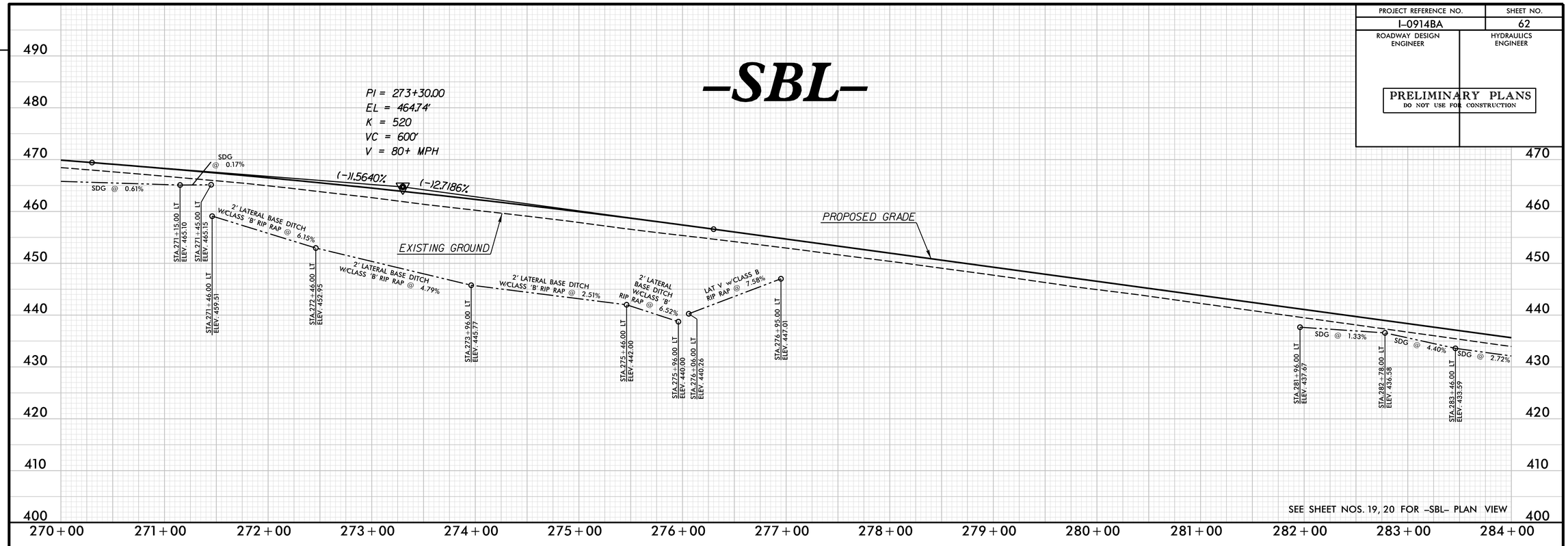
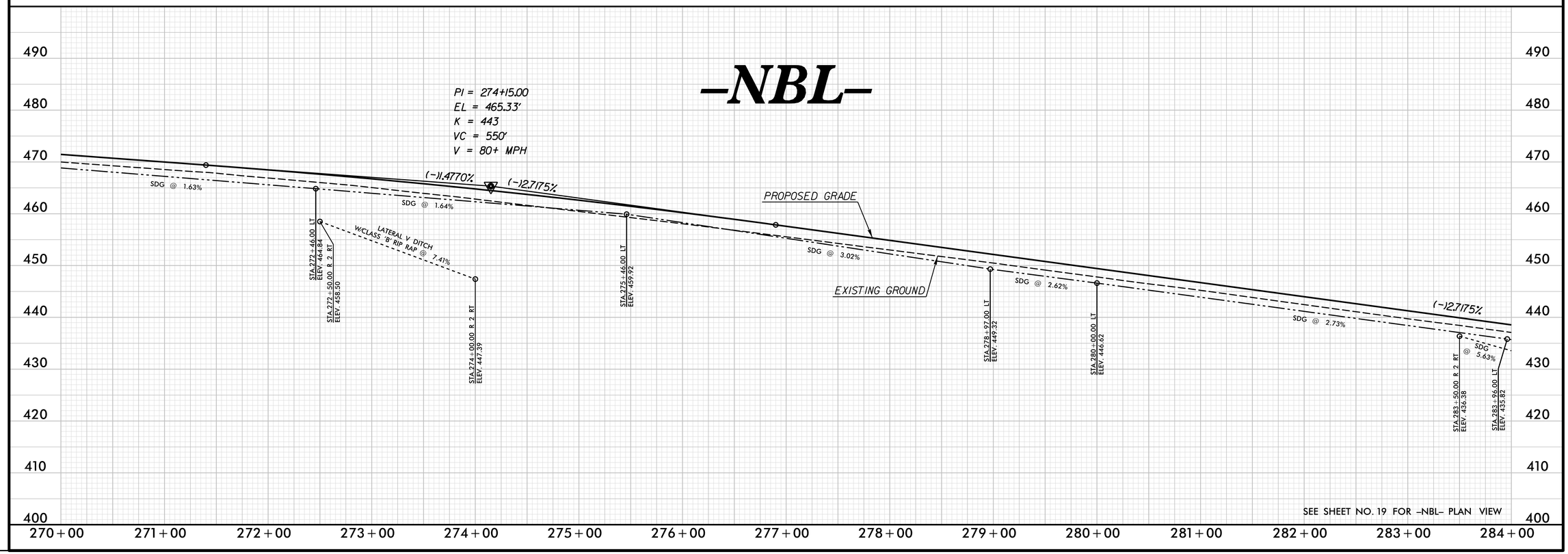
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	62
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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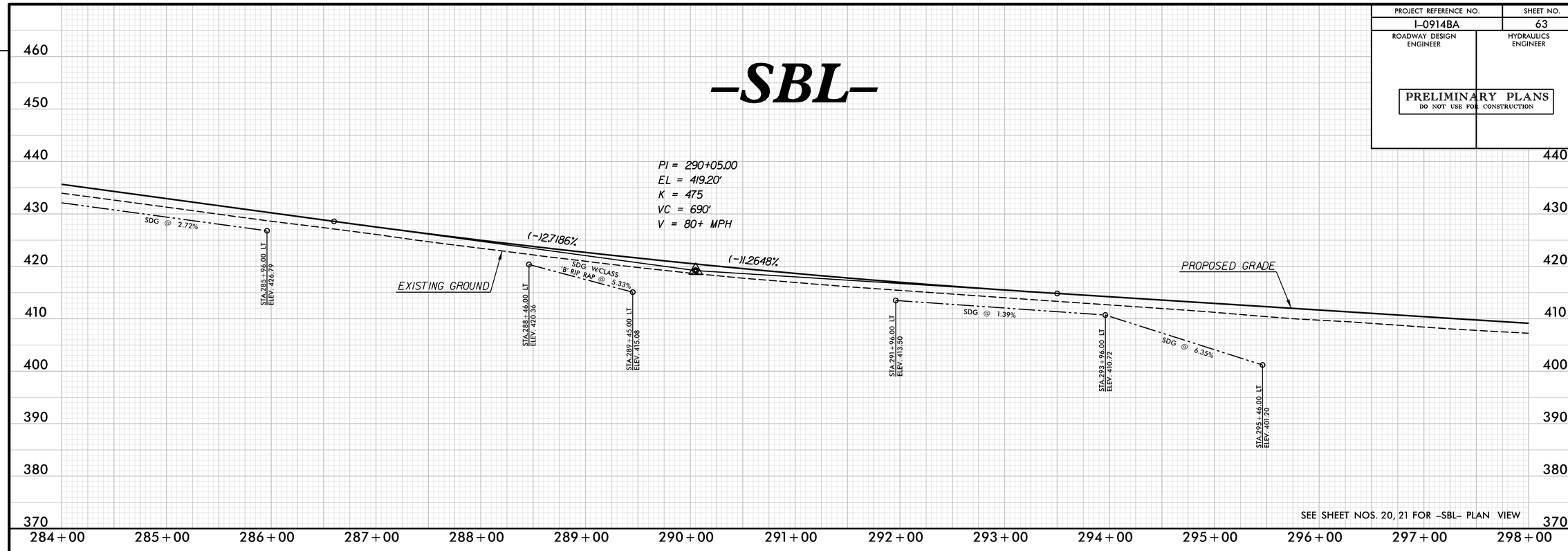
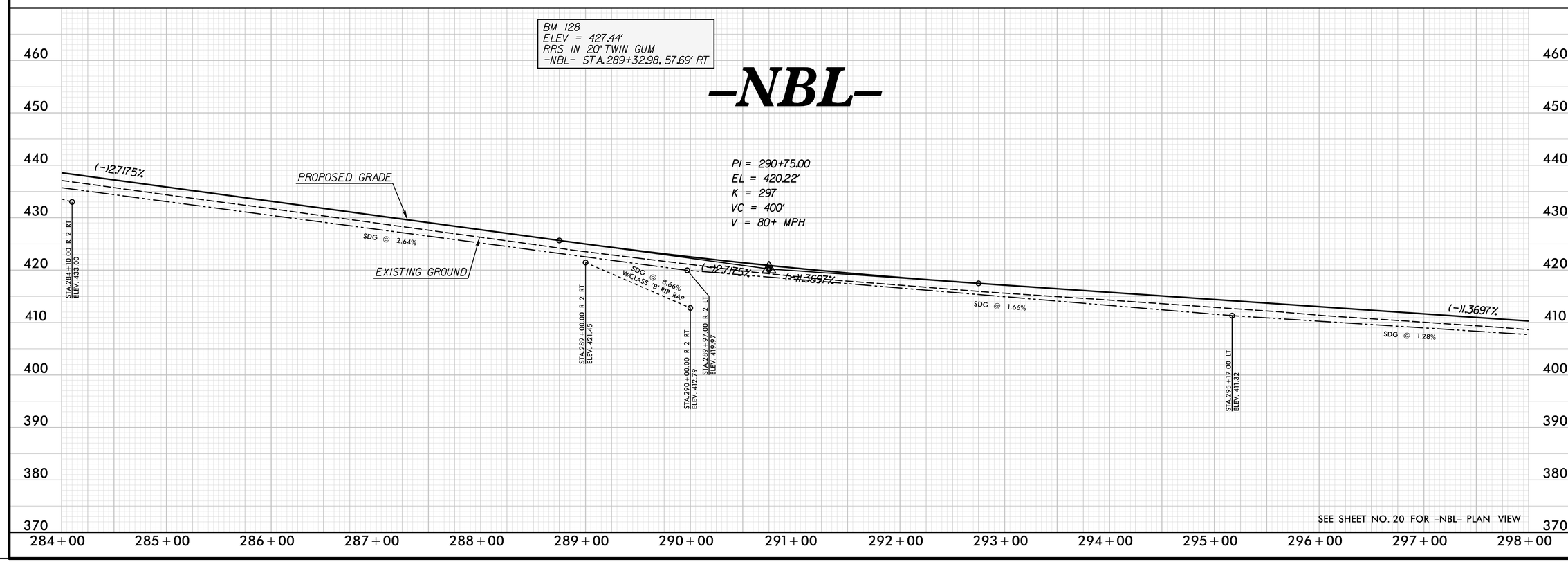
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	63
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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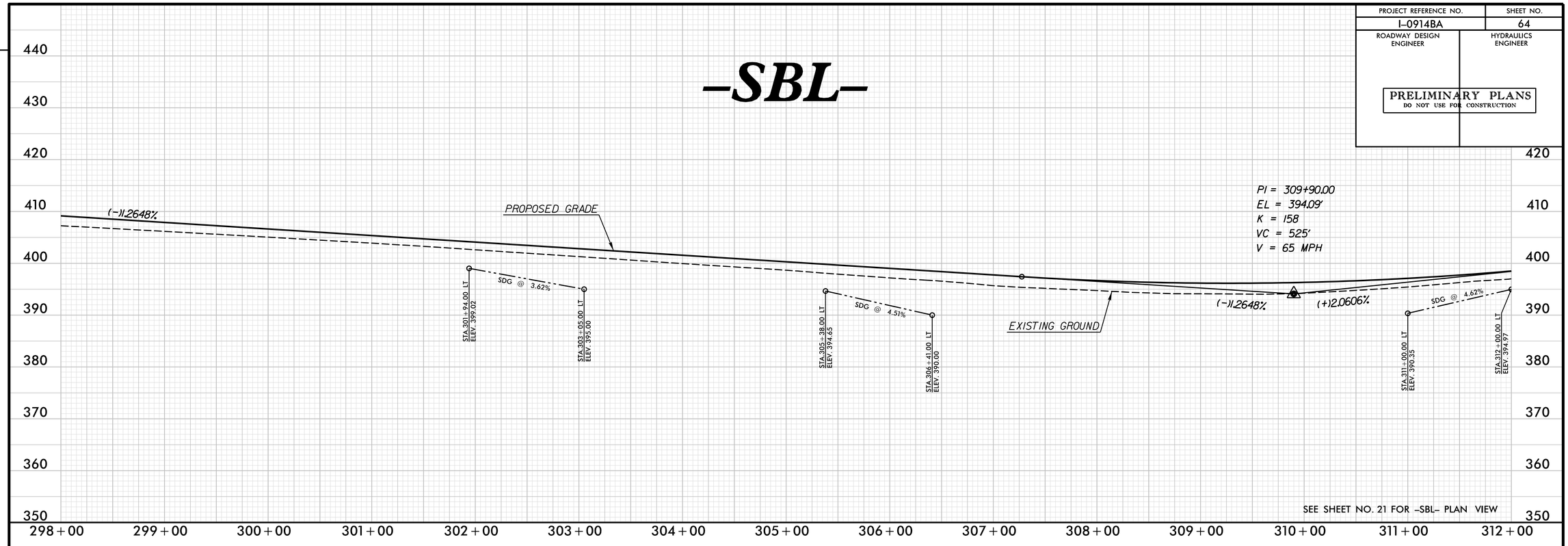
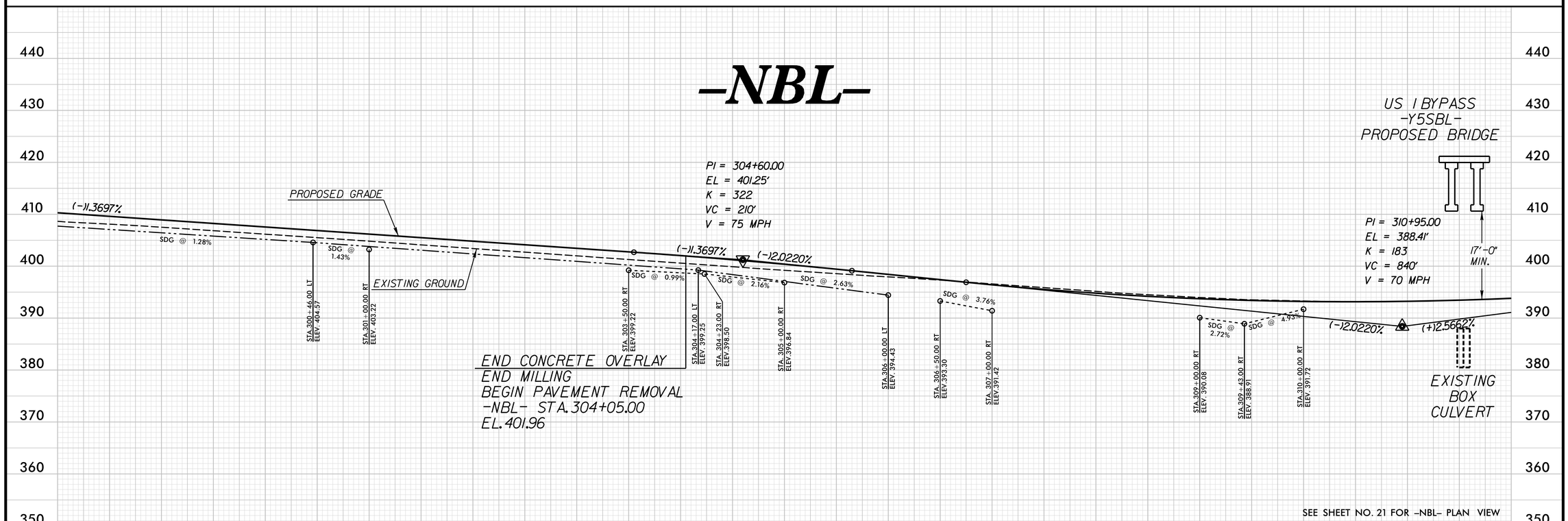
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	64
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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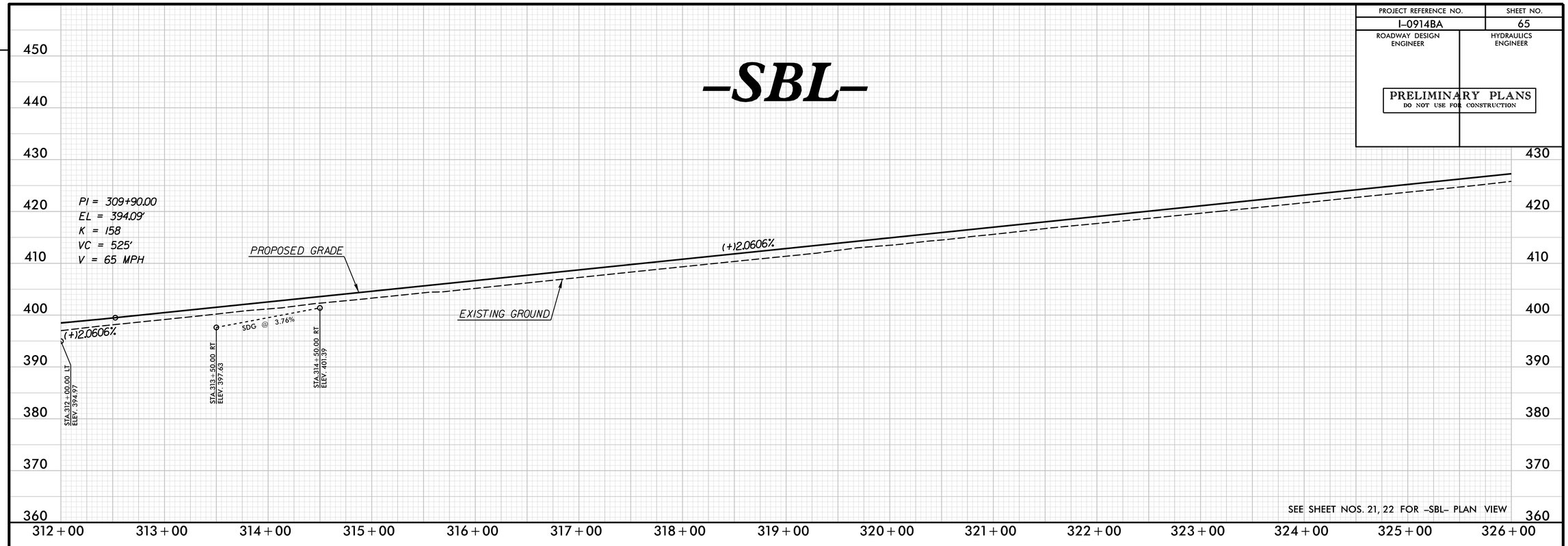
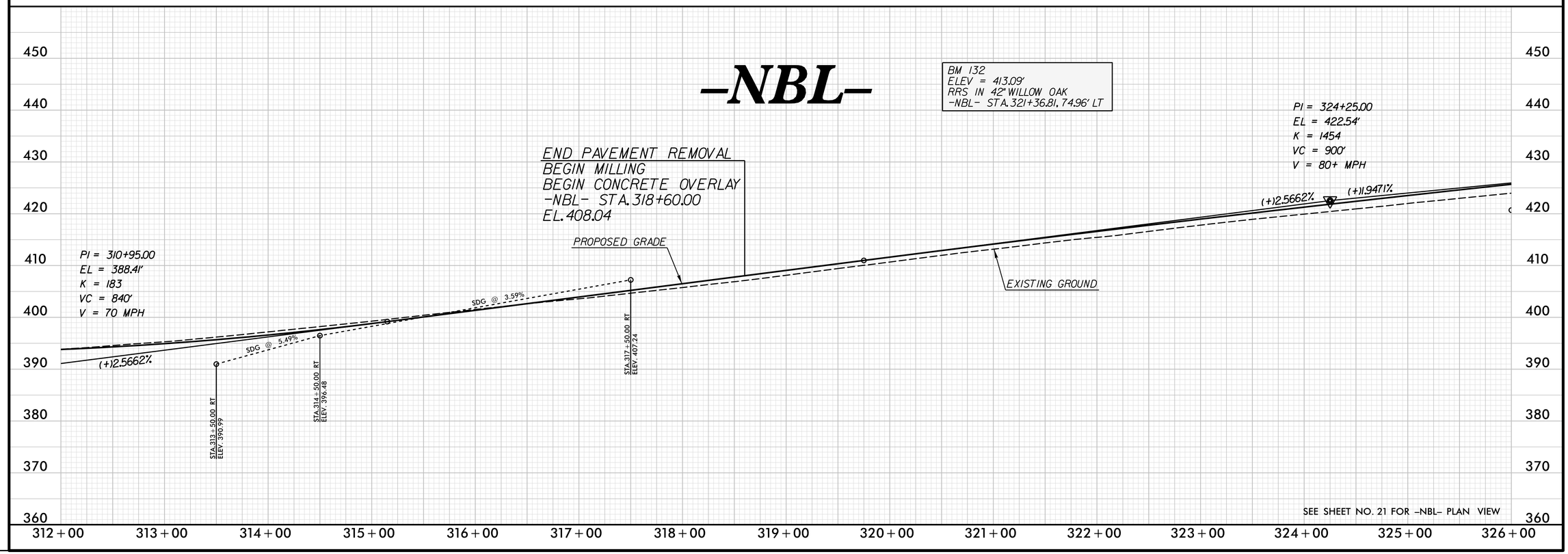
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	65
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 21, 22 FOR -SBL- PLAN VIEW



SEE SHEET NO. 21 FOR -NBL- PLAN VIEW

REVISIONS

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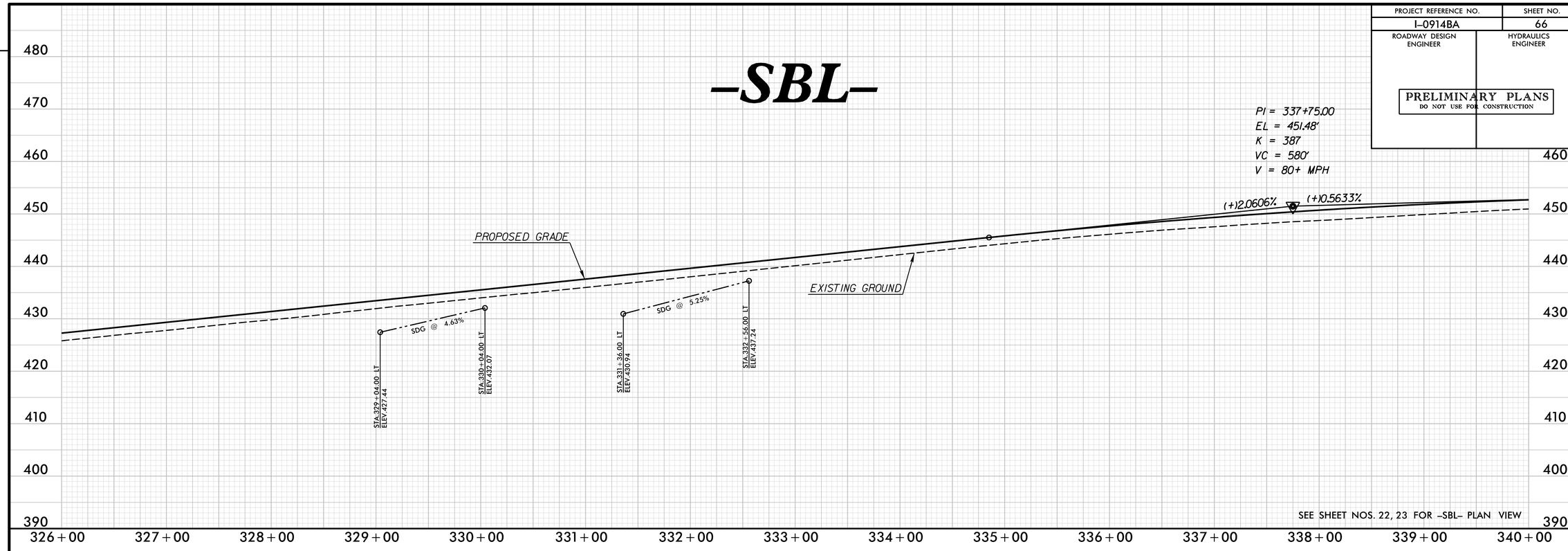
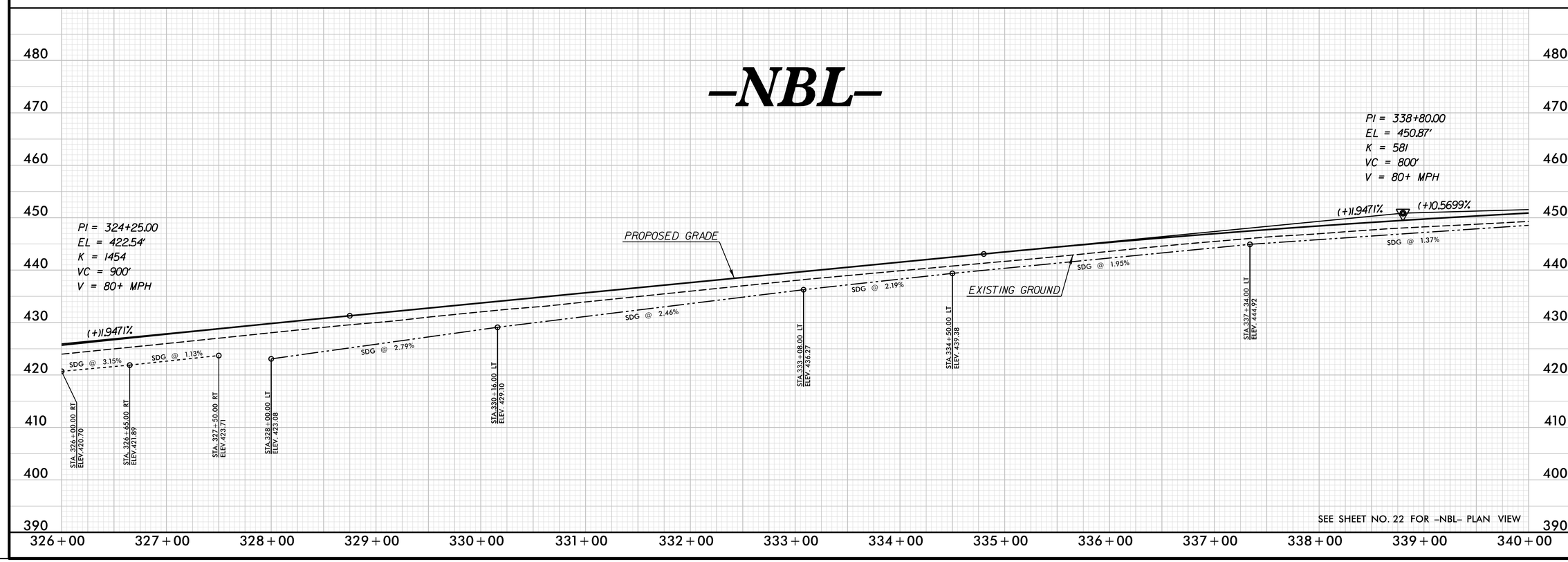
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	66
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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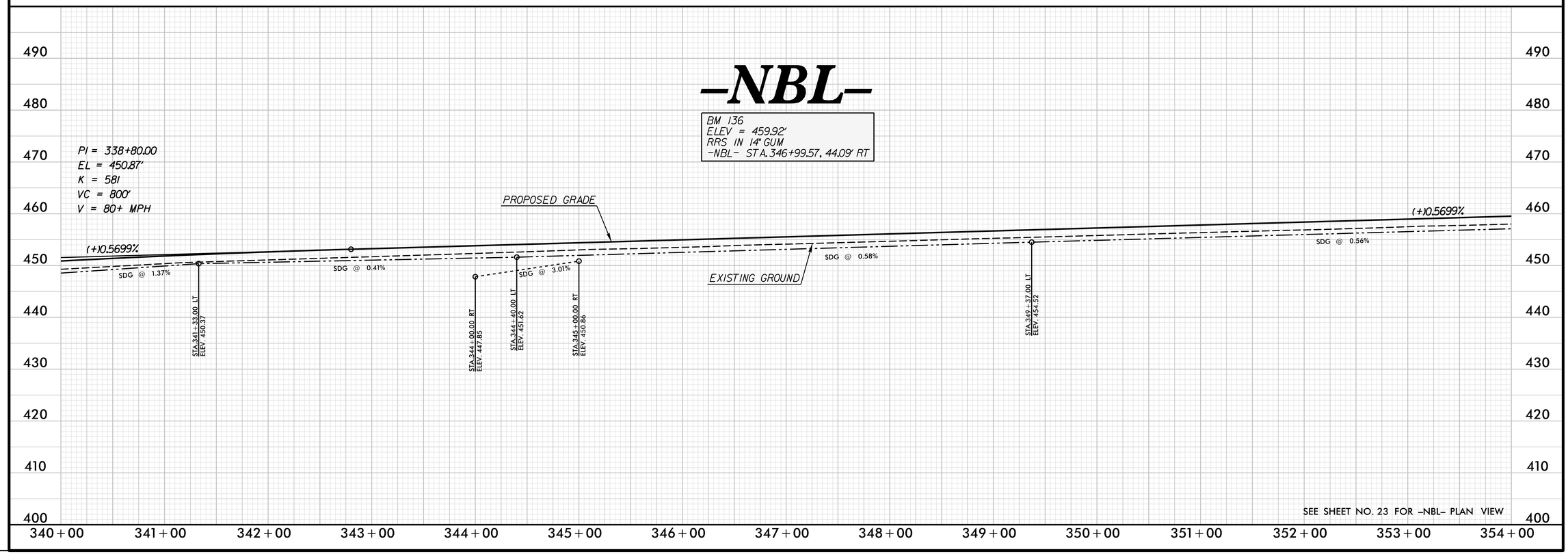
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	67
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET NOS. 23, 24 FOR -SBL- PLAN VIEW



SEE SHEET NO. 23 FOR -NBL- PLAN VIEW

REVISIONS

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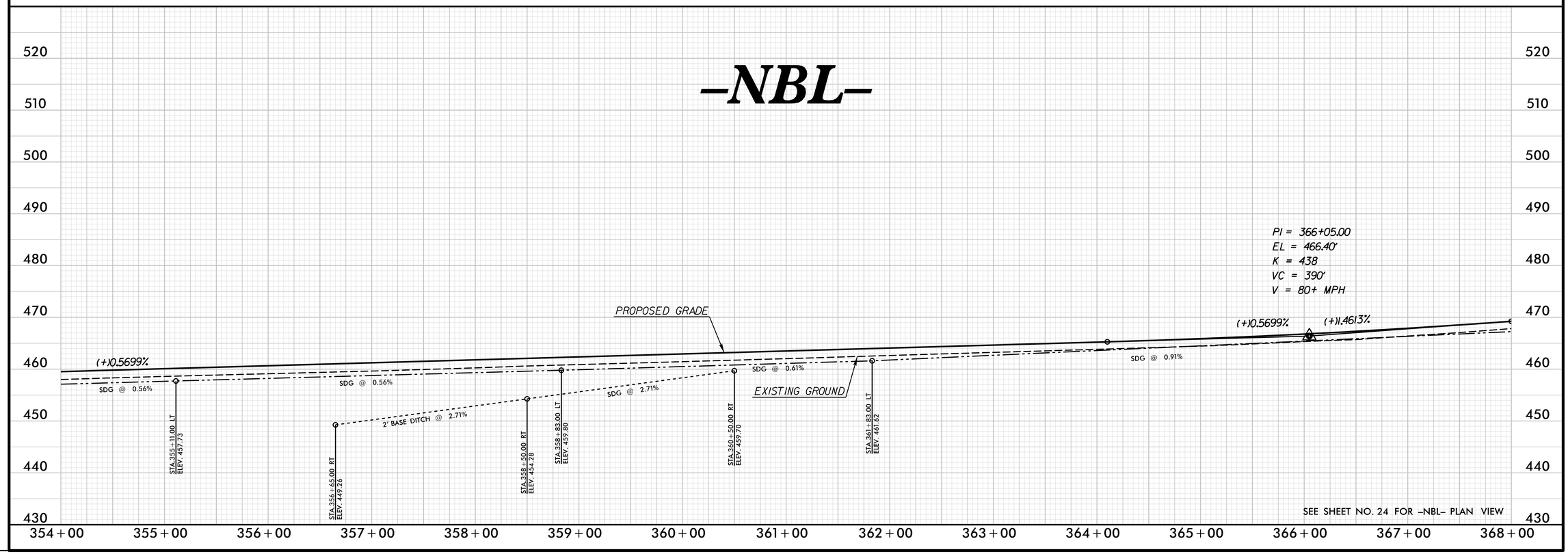
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	68
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

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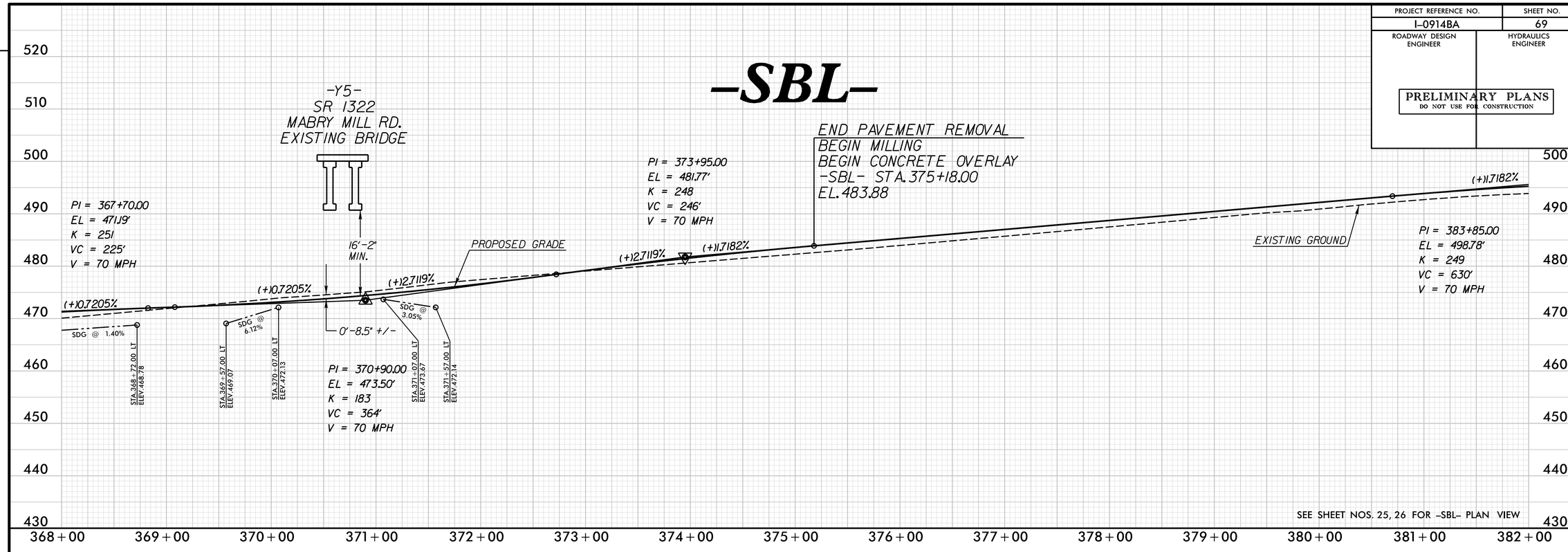
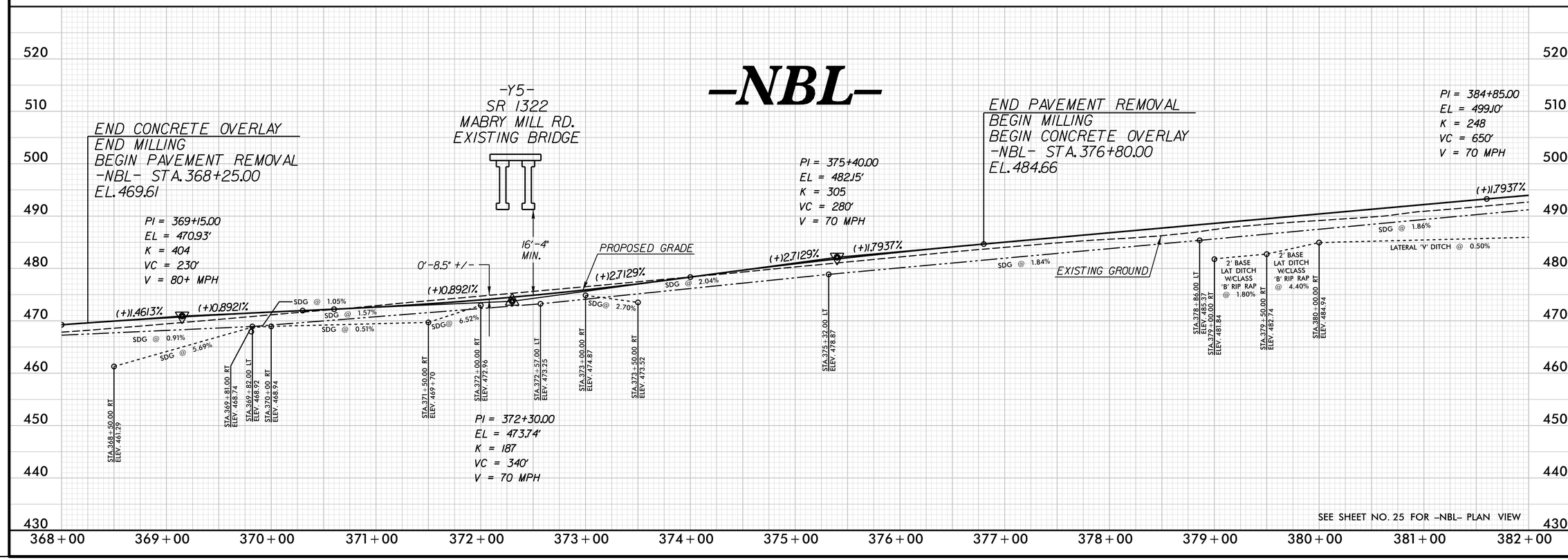
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	69
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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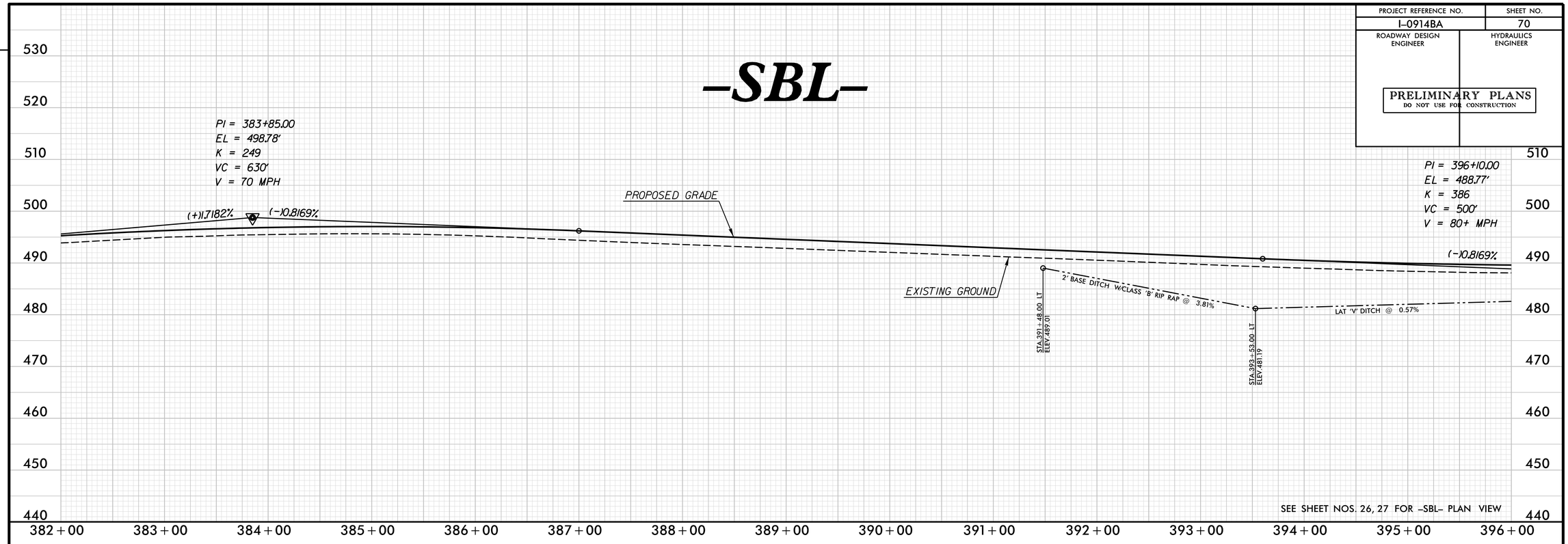
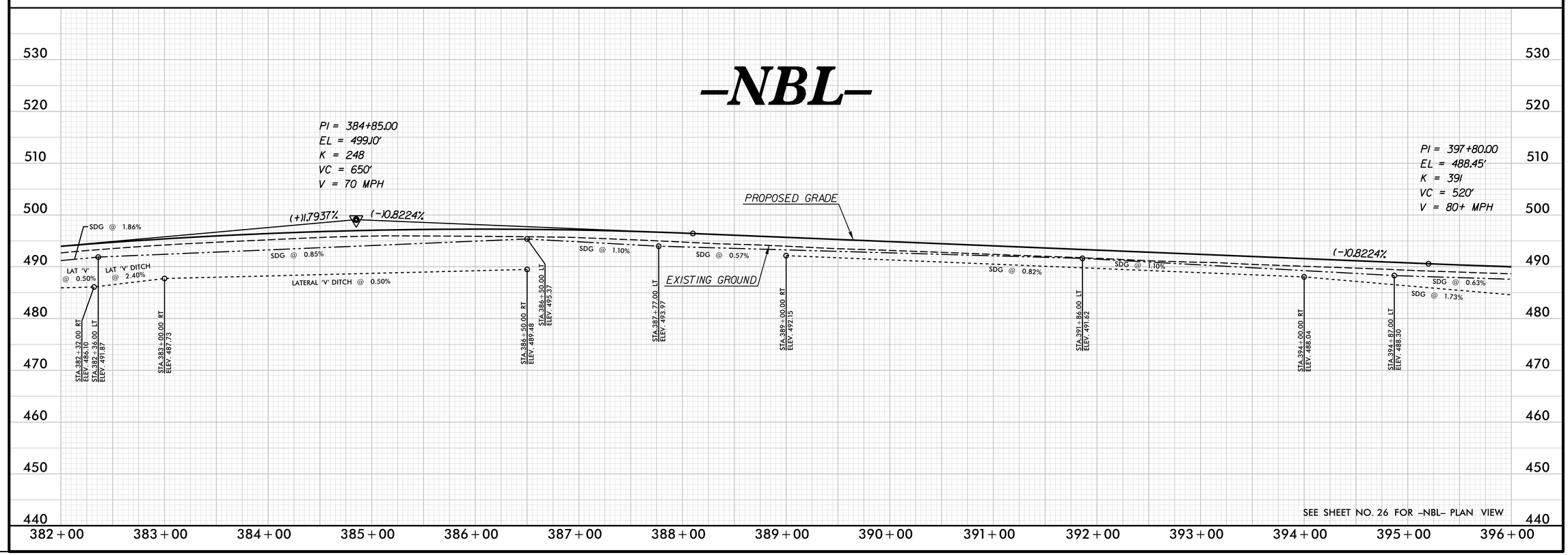
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	70
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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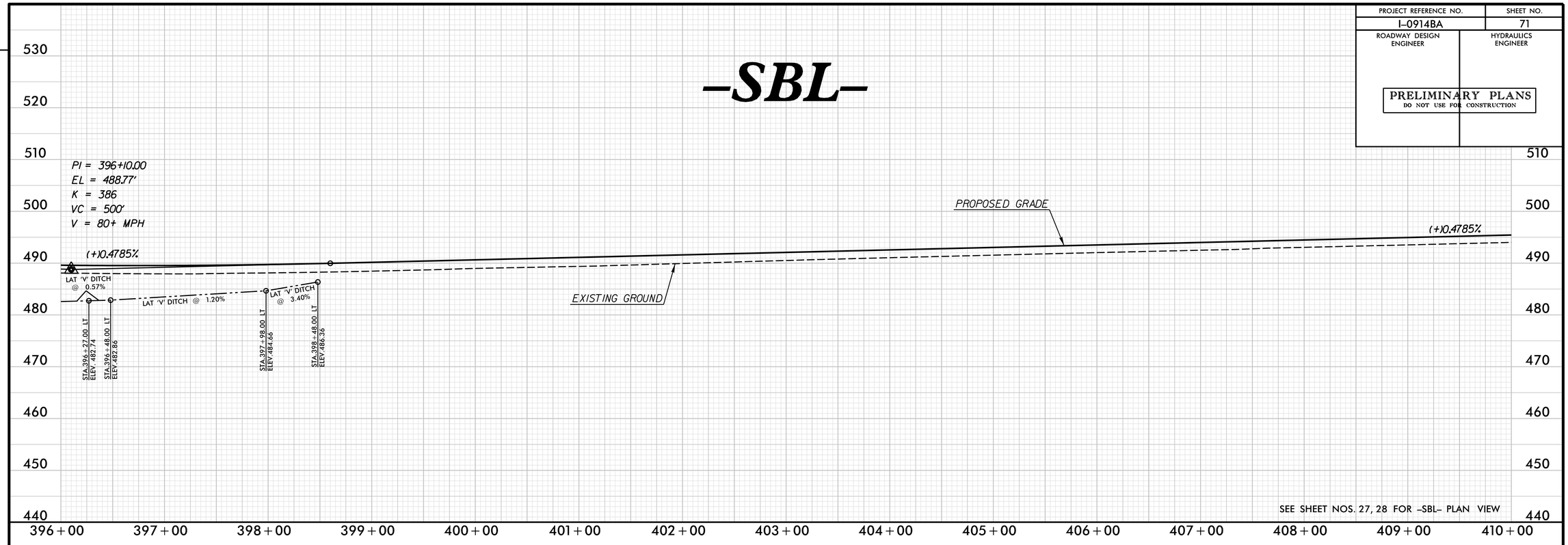
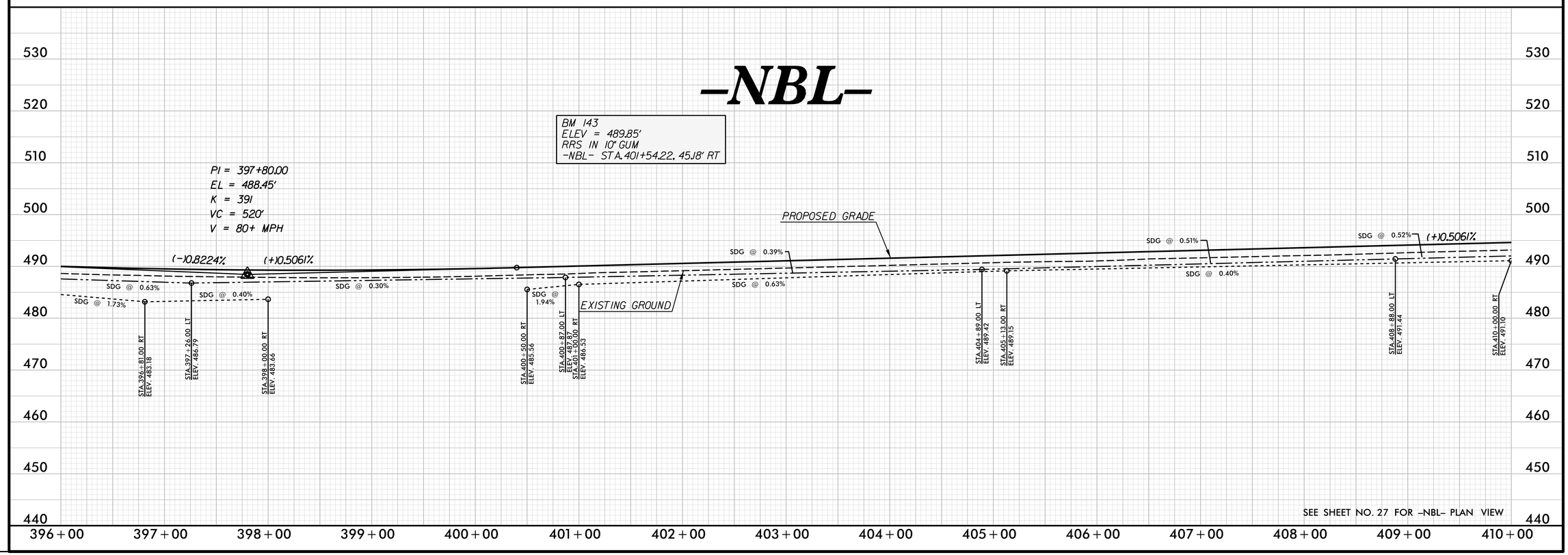
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	71
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 27, 28 FOR -SBL- PLAN VIEW



SEE SHEET NO. 27 FOR -NBL- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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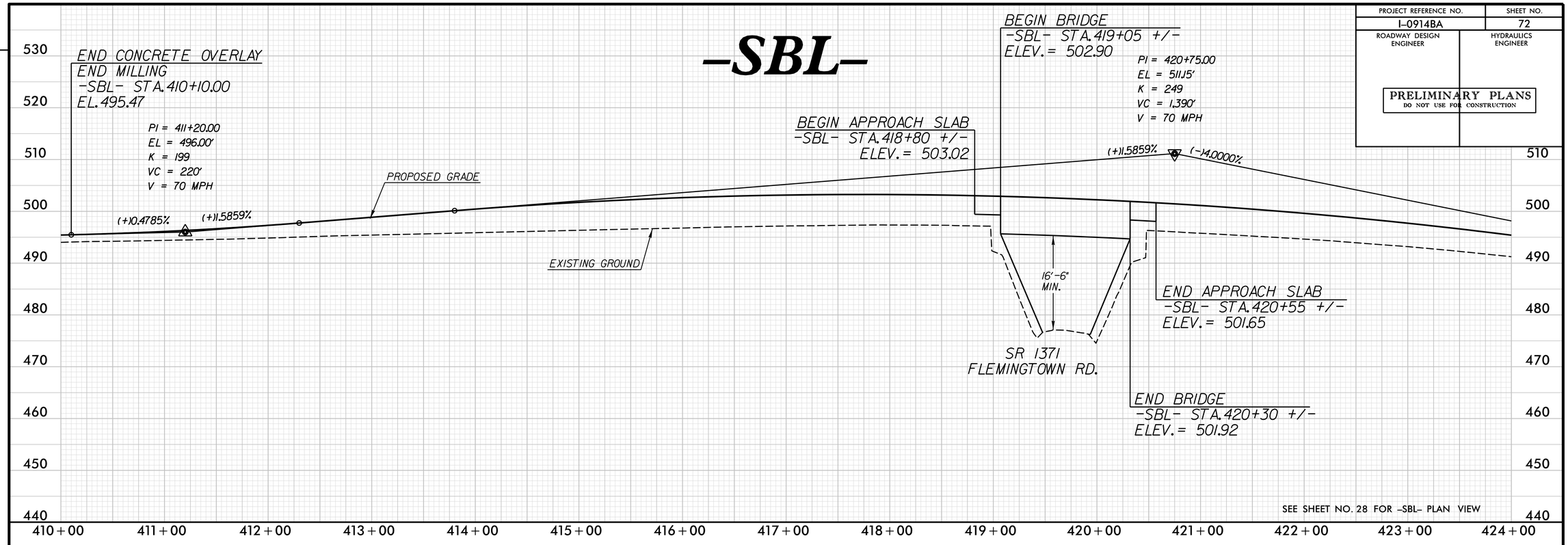
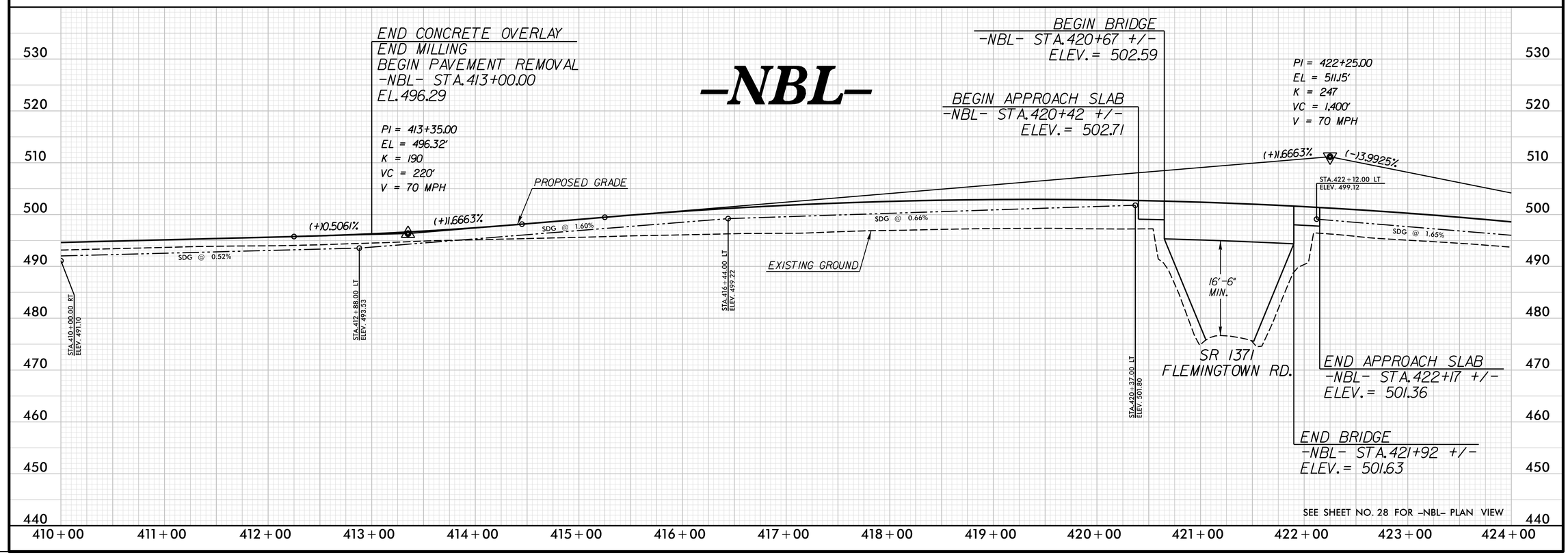
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	72
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:48:38 AM
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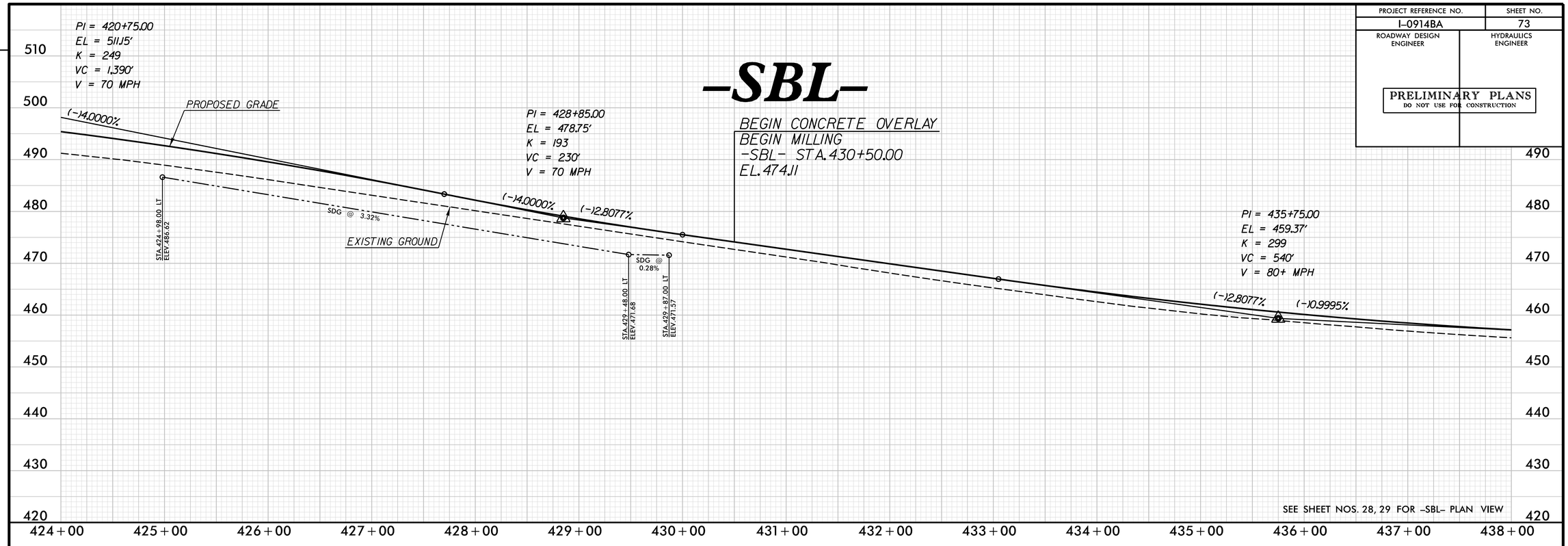
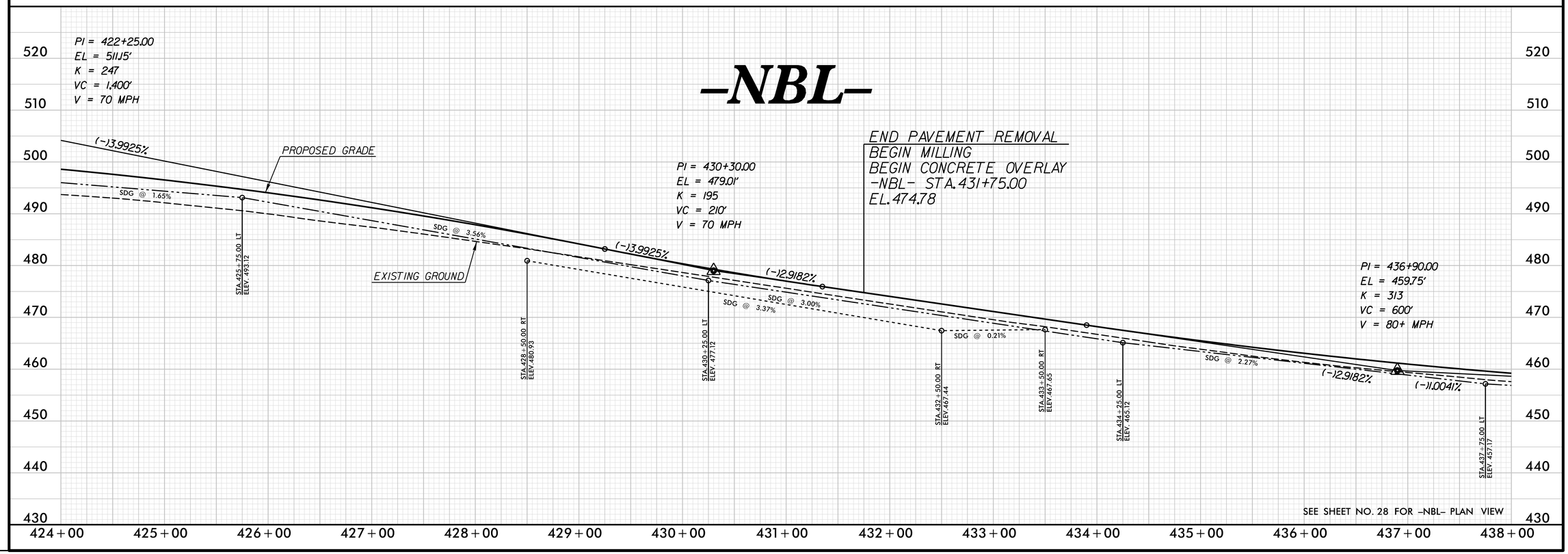
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	73
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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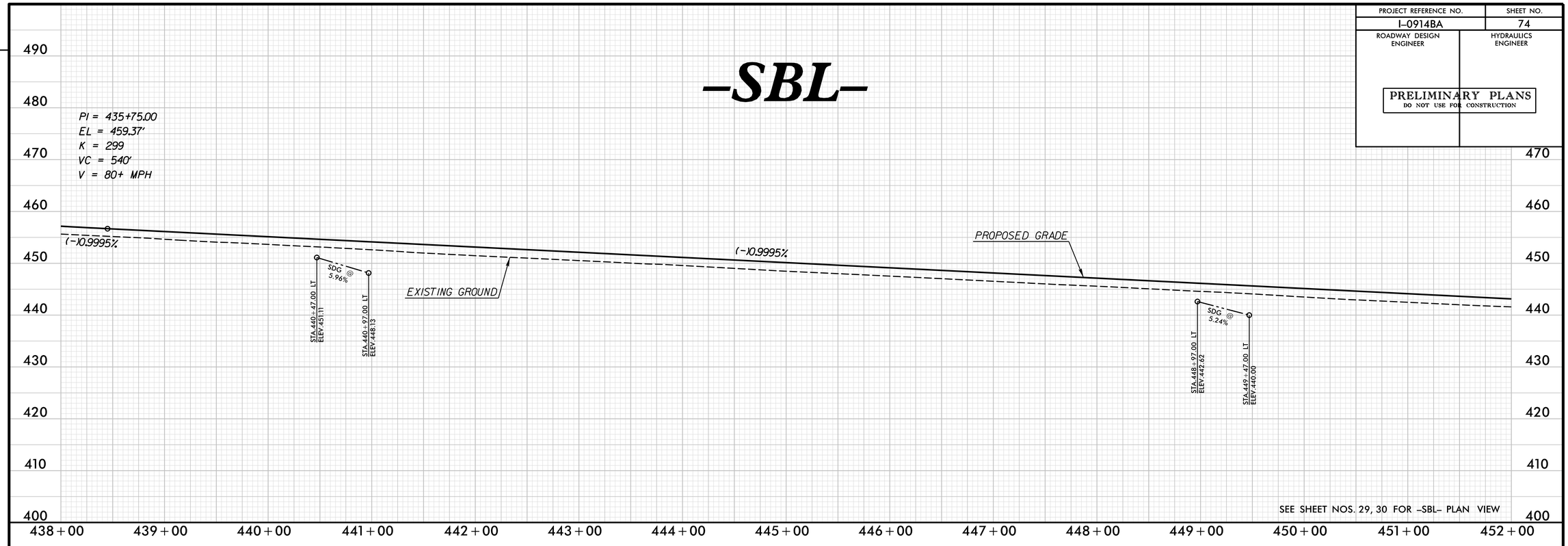
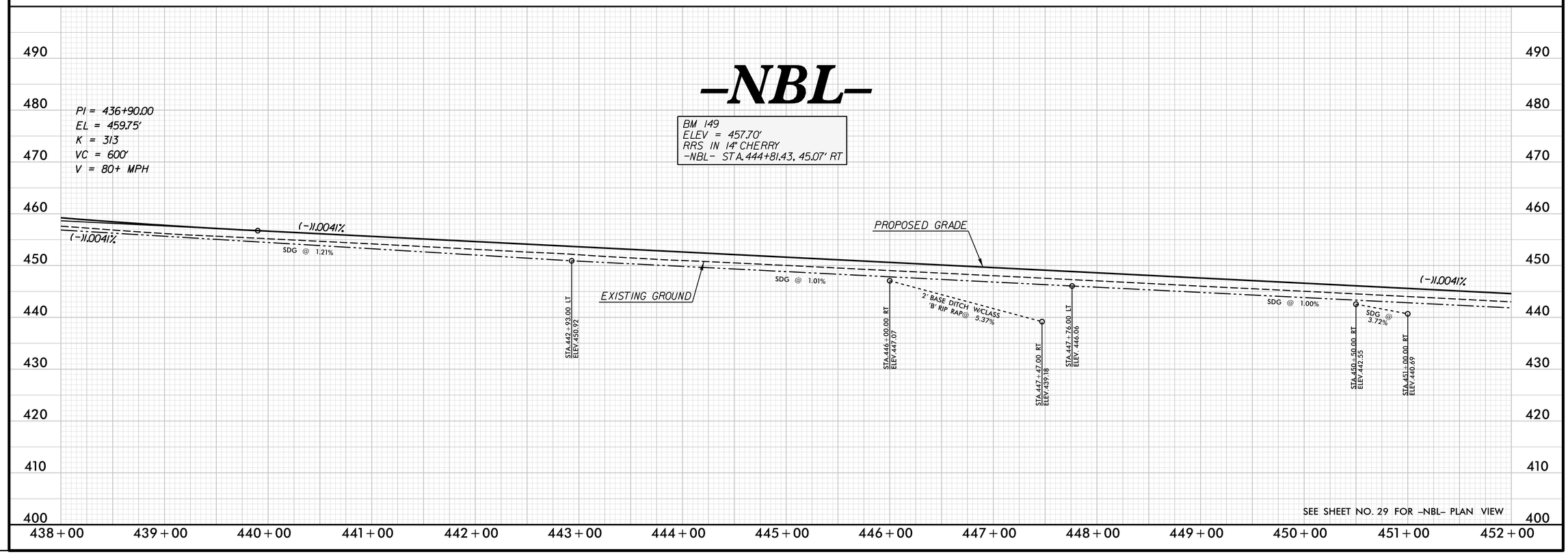
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	74
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 29, 30 FOR -SBL- PLAN VIEW



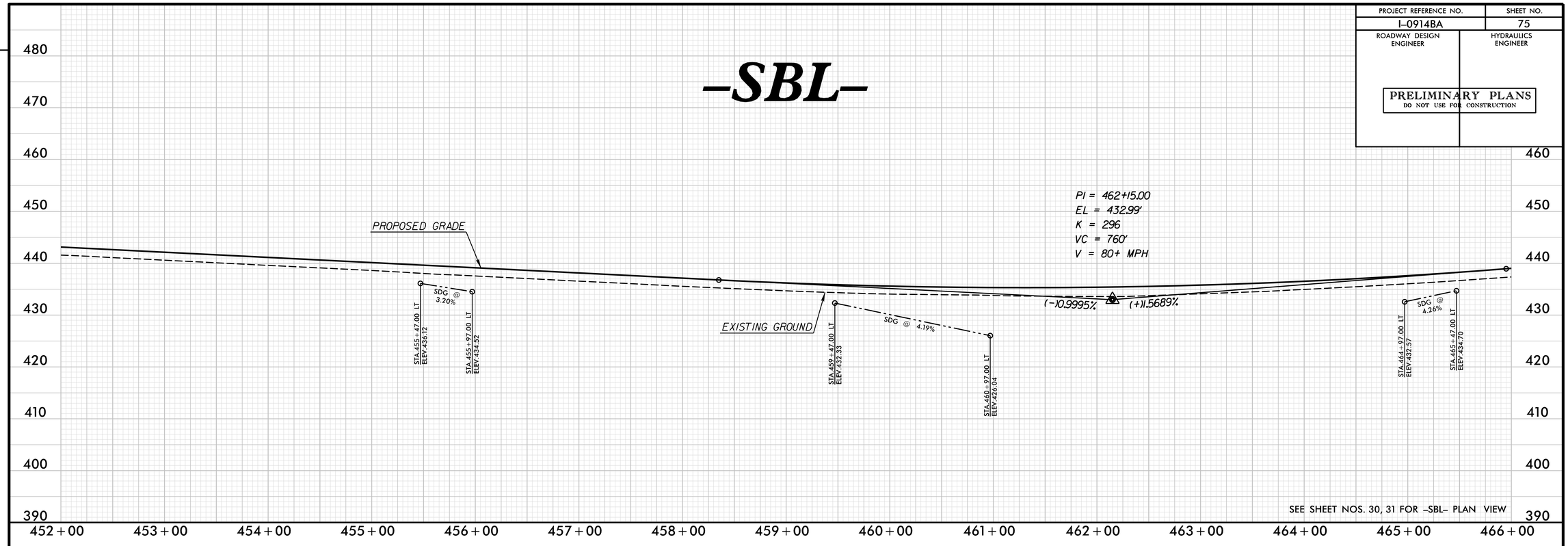
SEE SHEET NO. 29 FOR -NBL- PLAN VIEW

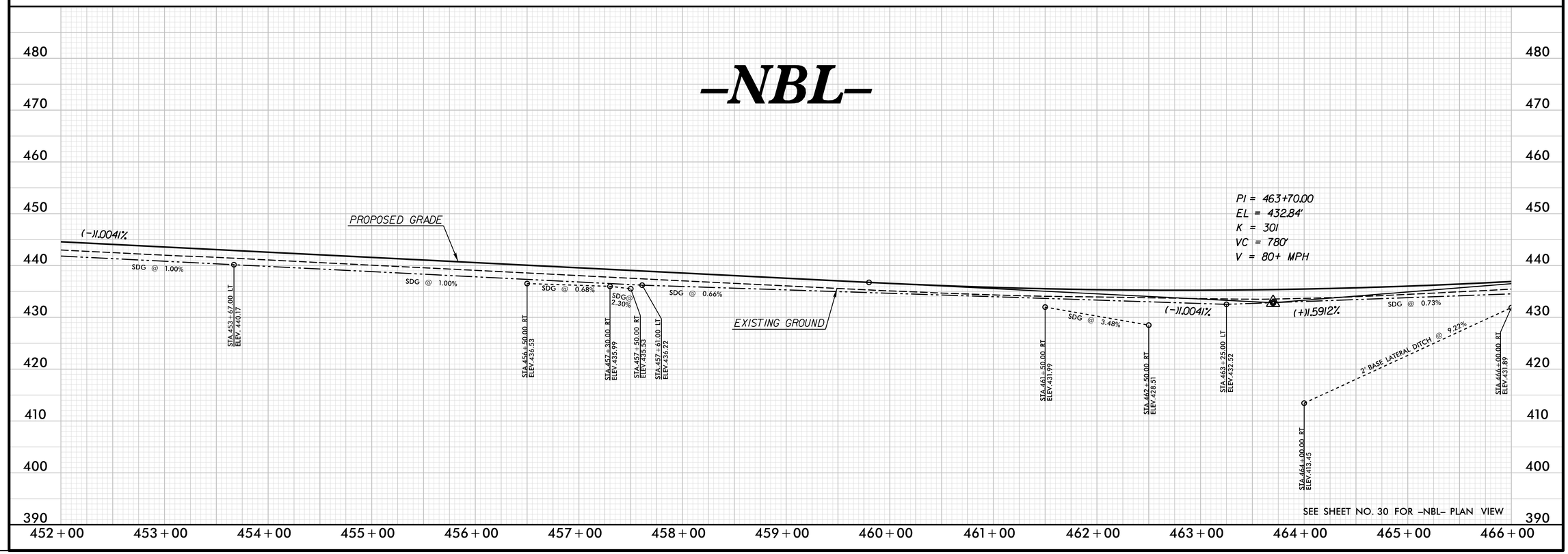
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:49:22 AM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S74.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	75
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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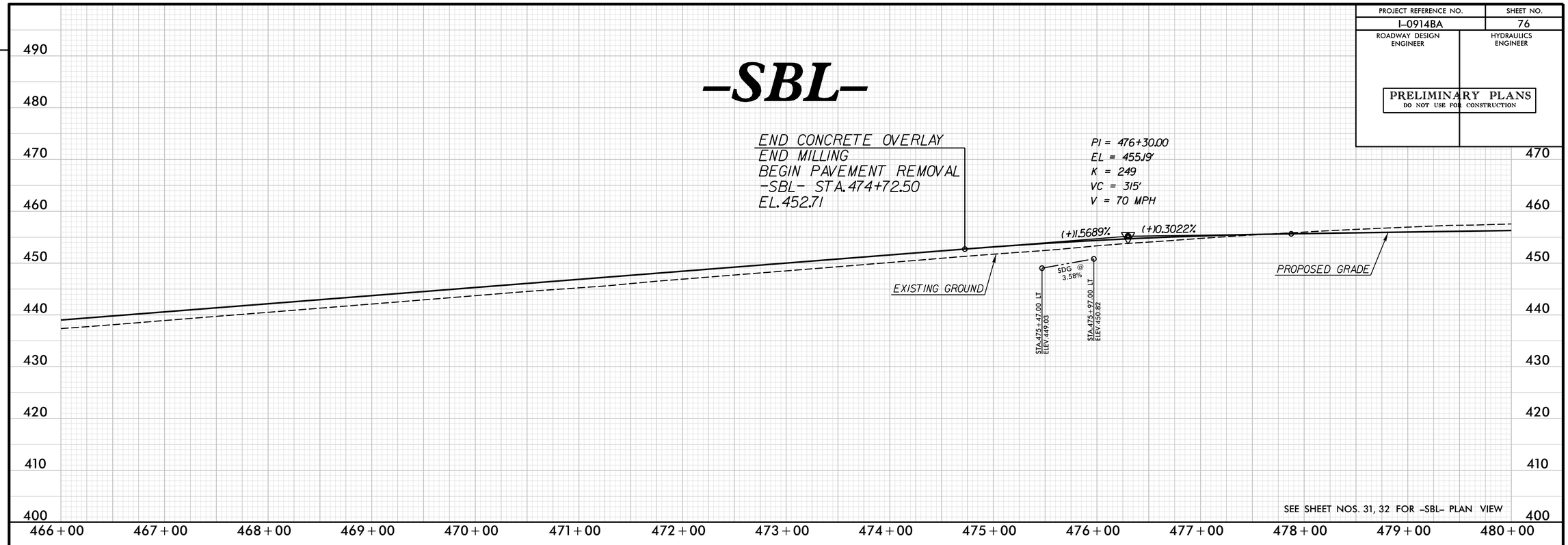
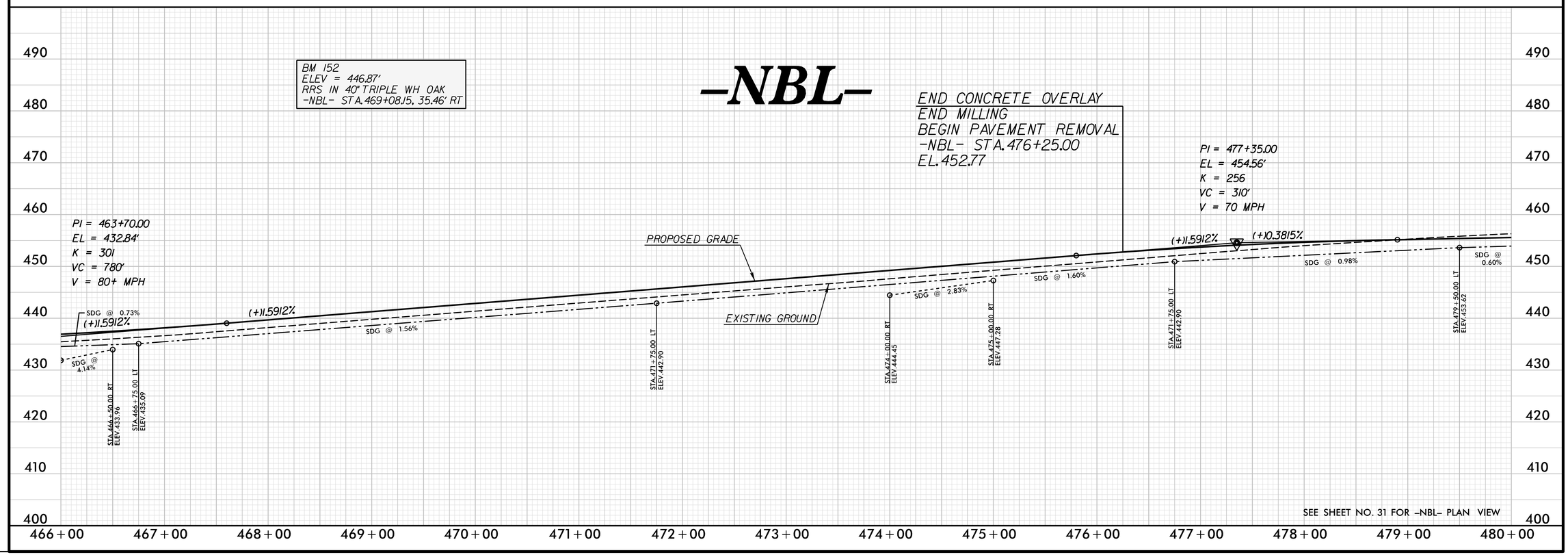
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	76
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 31, 32 FOR -SBL- PLAN VIEW



SEE SHEET NO. 31 FOR -NBL- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:50:03 AM
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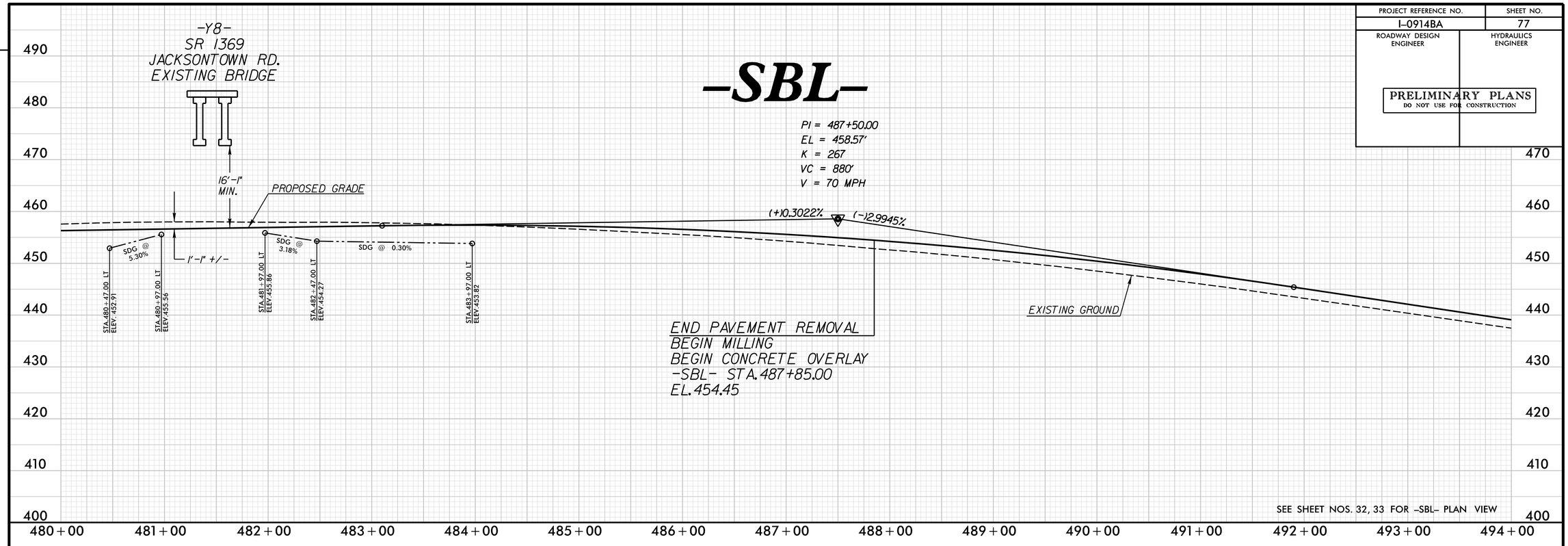
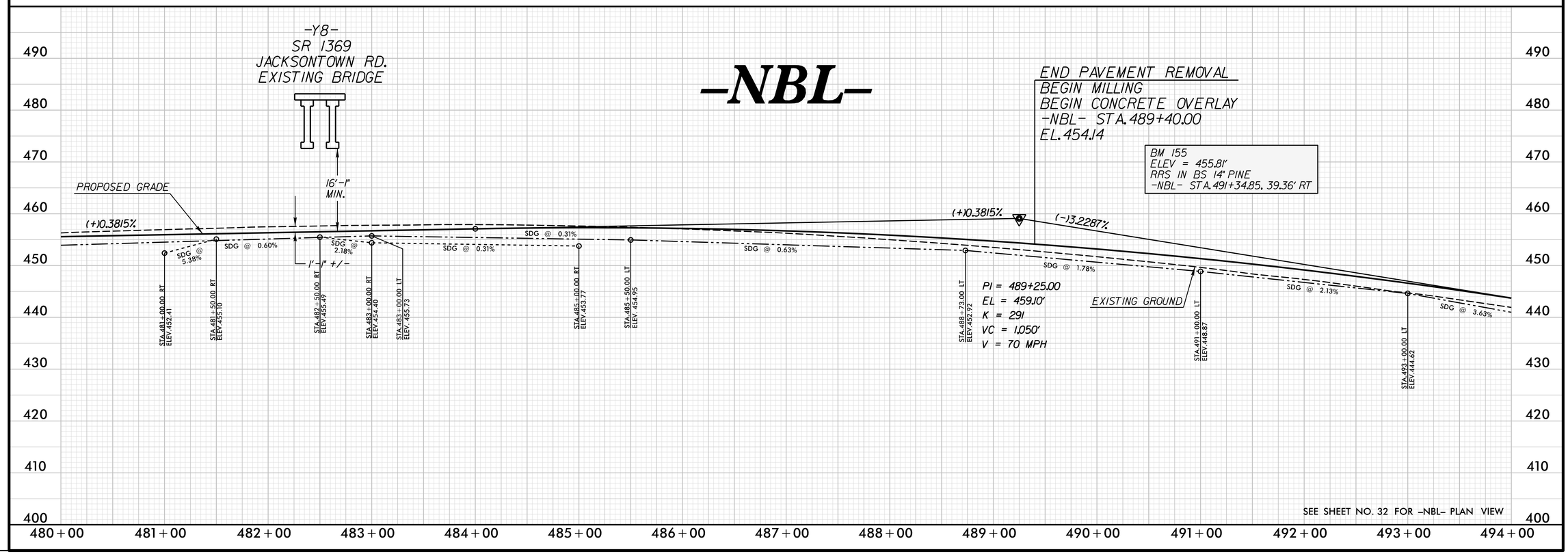
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	77
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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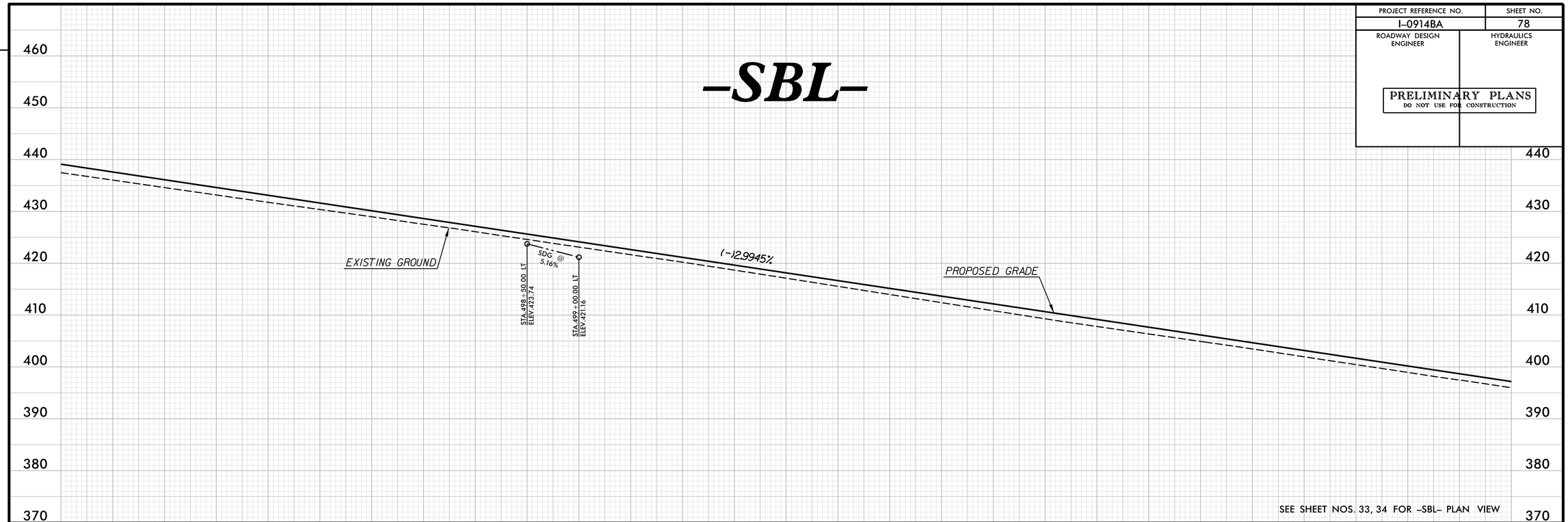
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	78
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

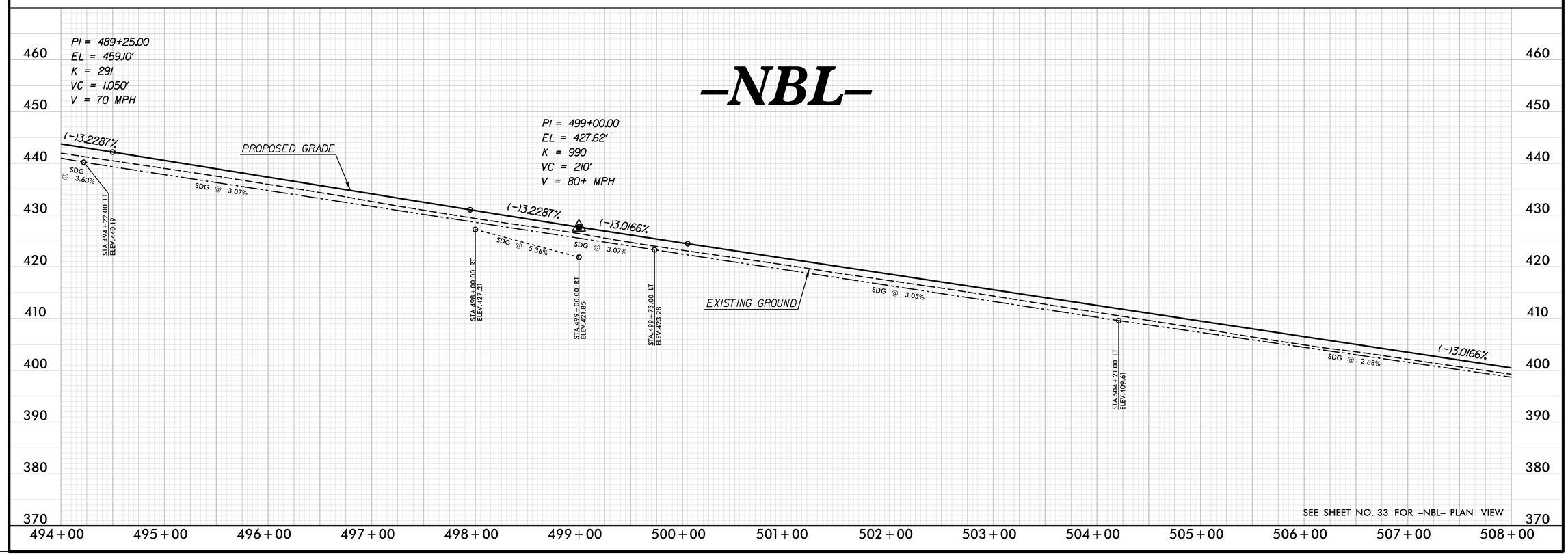
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-SBL-



SEE SHEET NOS. 33, 34 FOR -SBL- PLAN VIEW

-NBL-



SEE SHEET NO. 33 FOR -NBL- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt
USER: dwainwri
DATE: 2/28/2014
PENTABLE: NCDOT_pshpfl.tbl
TIME: 10:50:37 AM
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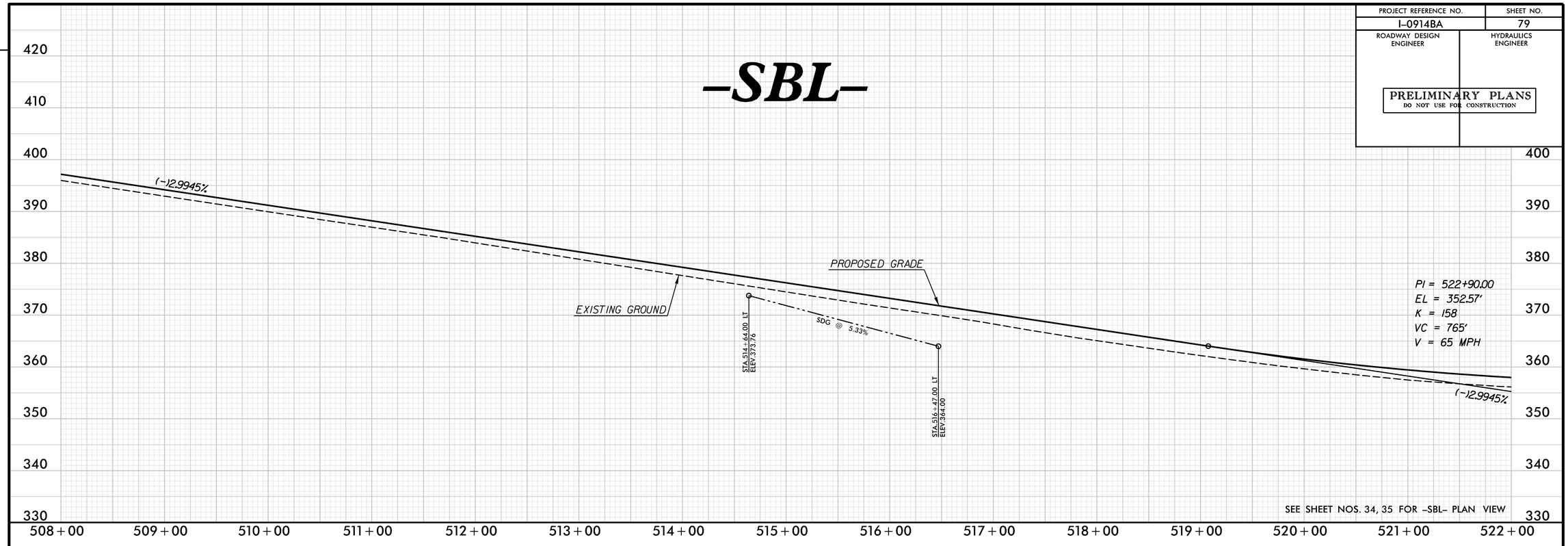
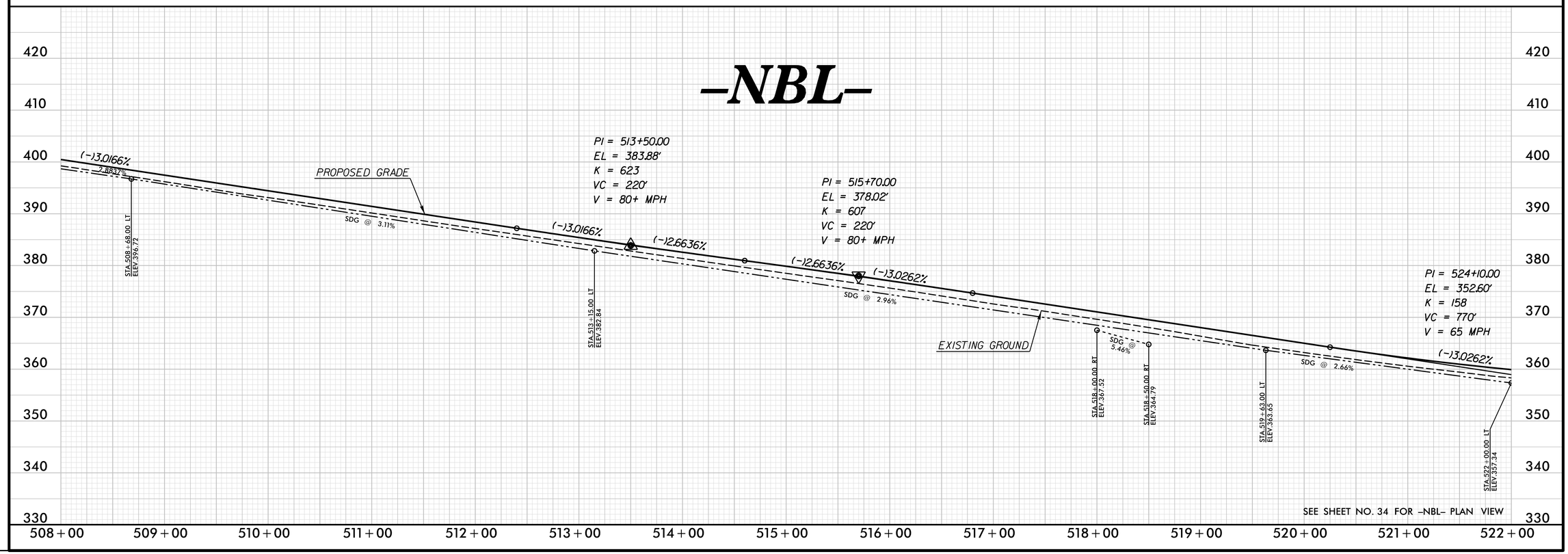
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	79
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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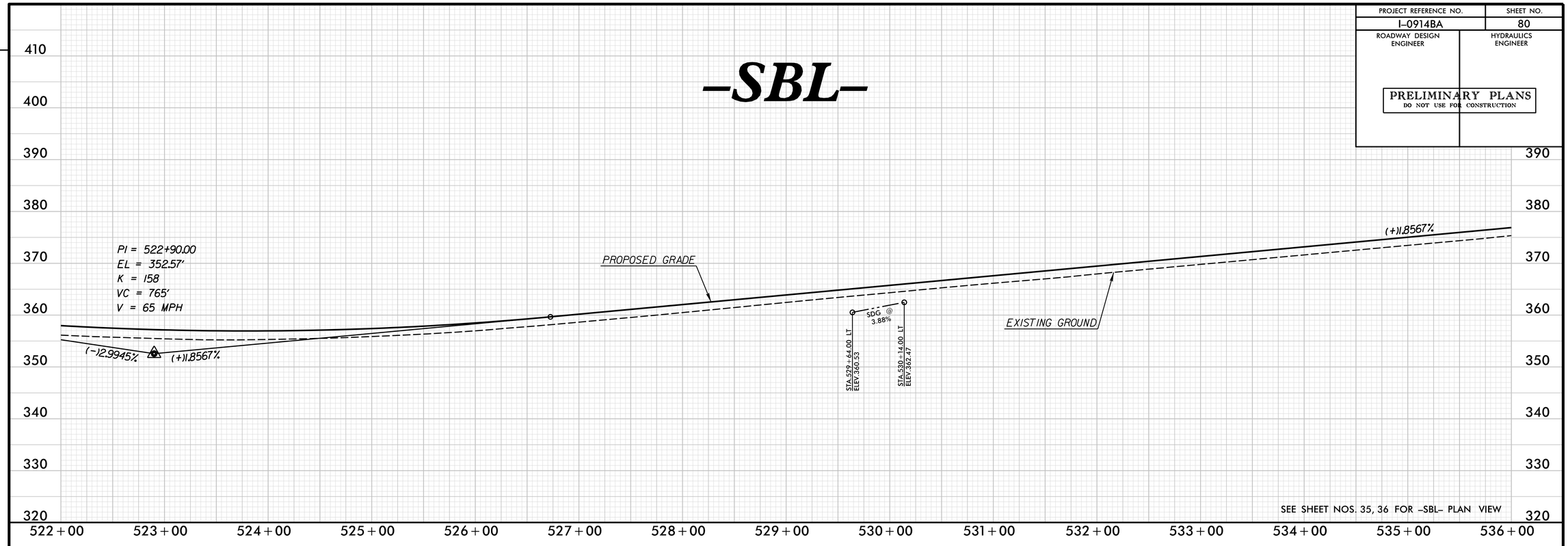
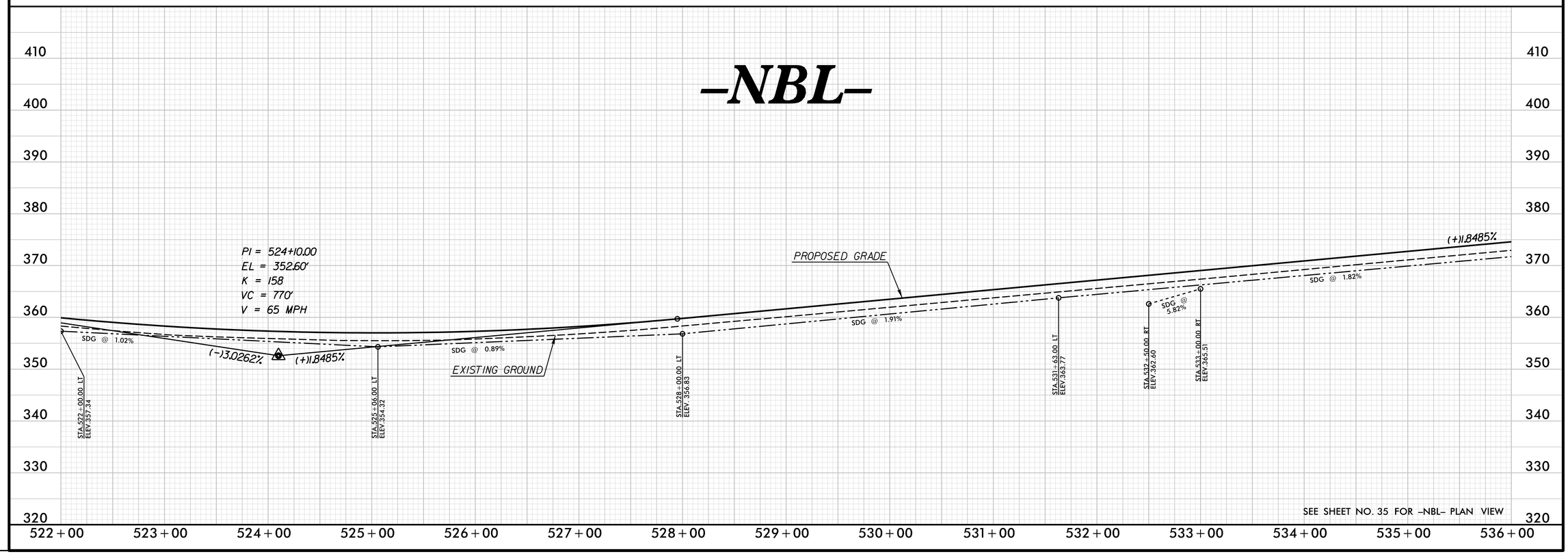
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	80
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 35, 36 FOR -SBL- PLAN VIEW



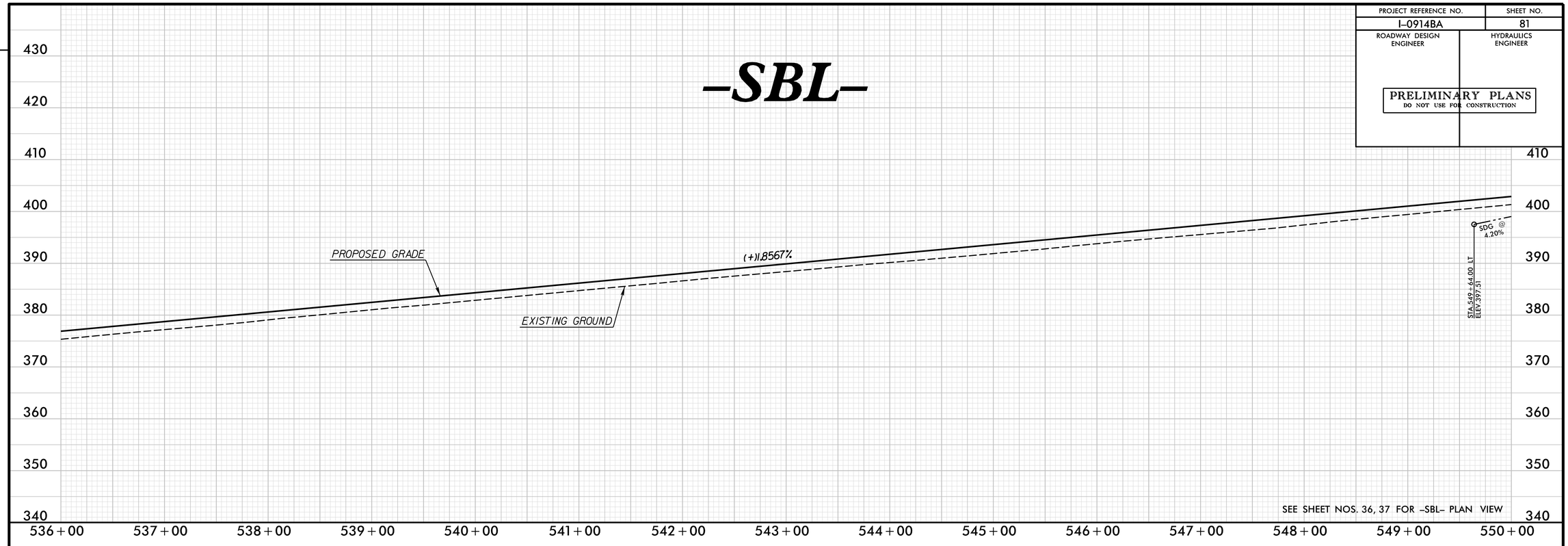
SEE SHEET NO. 35 FOR -NBL- PLAN VIEW

REVISIONS

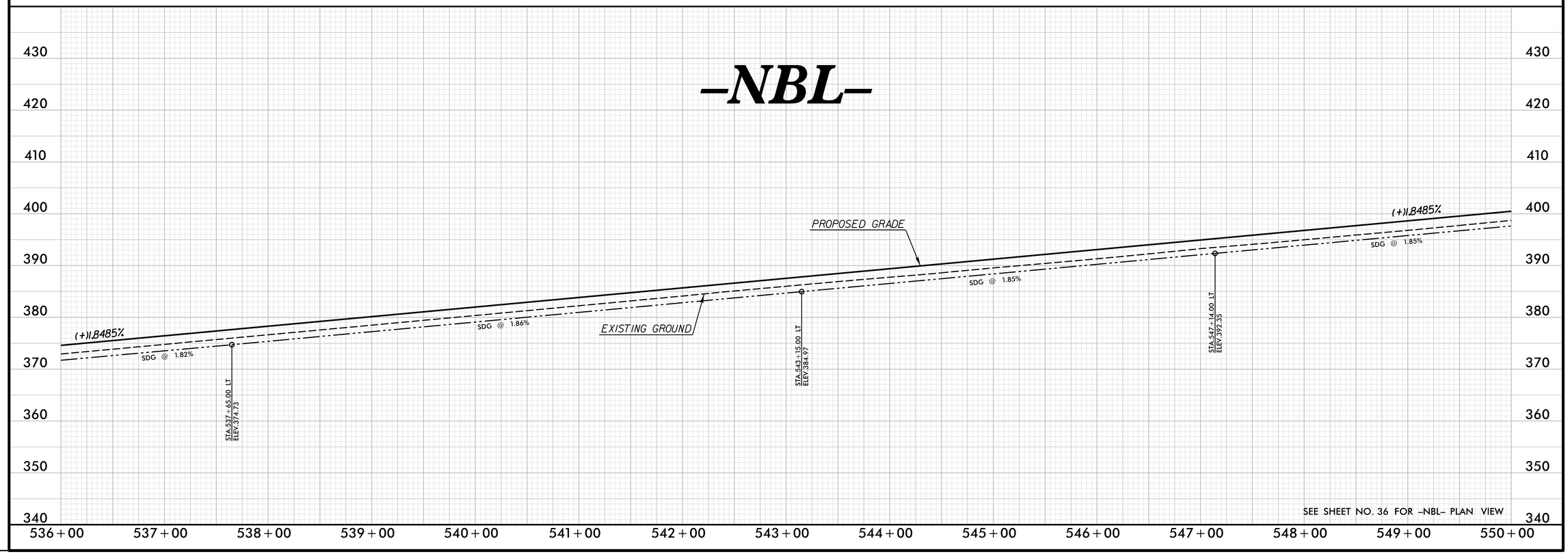
PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:51:21 AM
FILE: North Carolina Dept of Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S80.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	81
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 36, 37 FOR -SBL- PLAN VIEW



SEE SHEET NO. 36 FOR -NBL- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:51:37 AM
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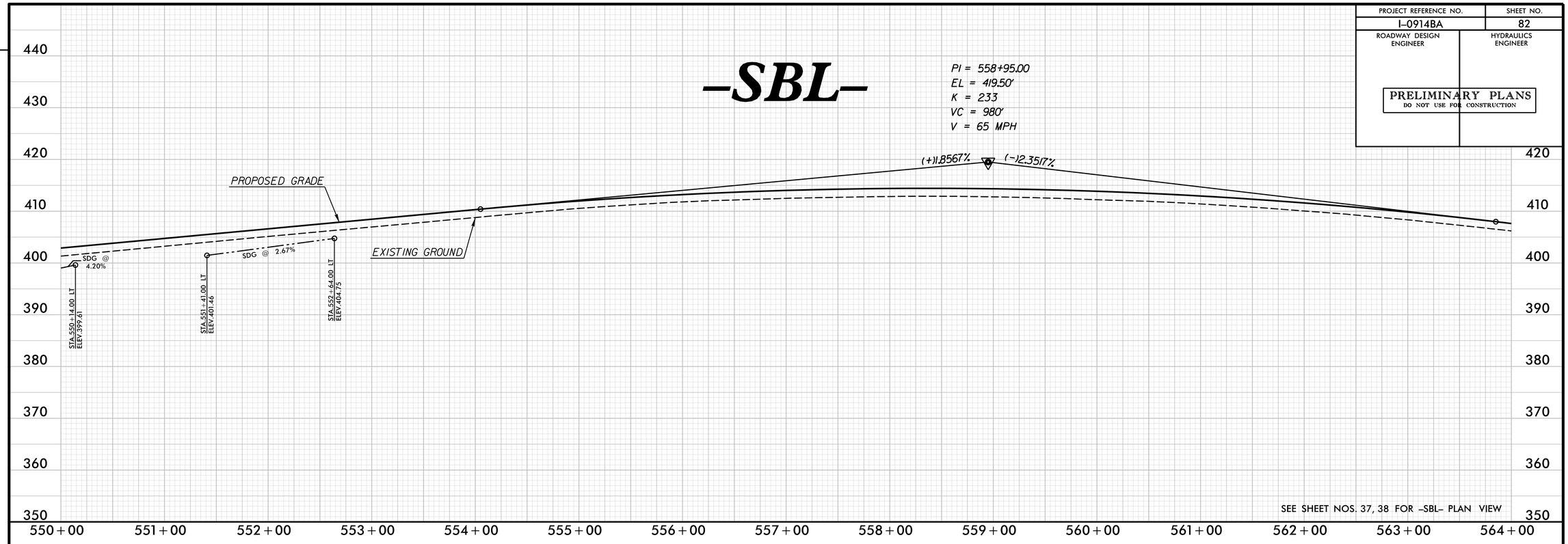
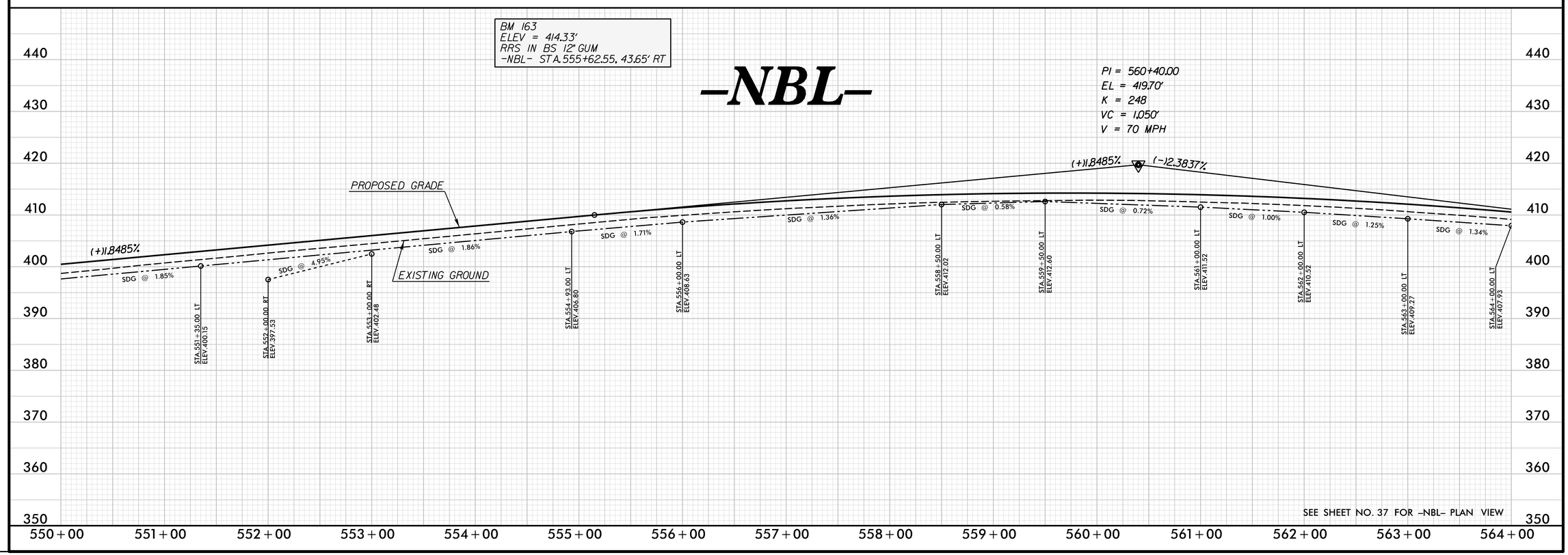
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	82
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 37, 38 FOR -SBL- PLAN VIEW



SEE SHEET NO. 37 FOR -NBL- PLAN VIEW

REVISIONS

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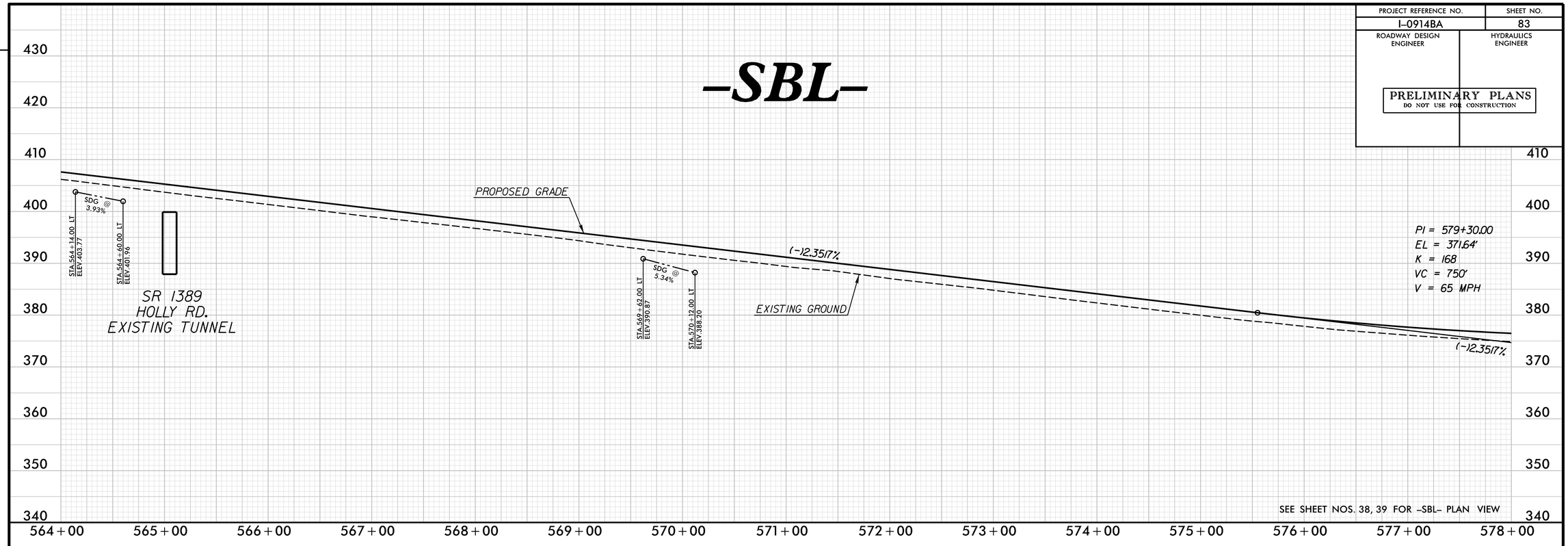
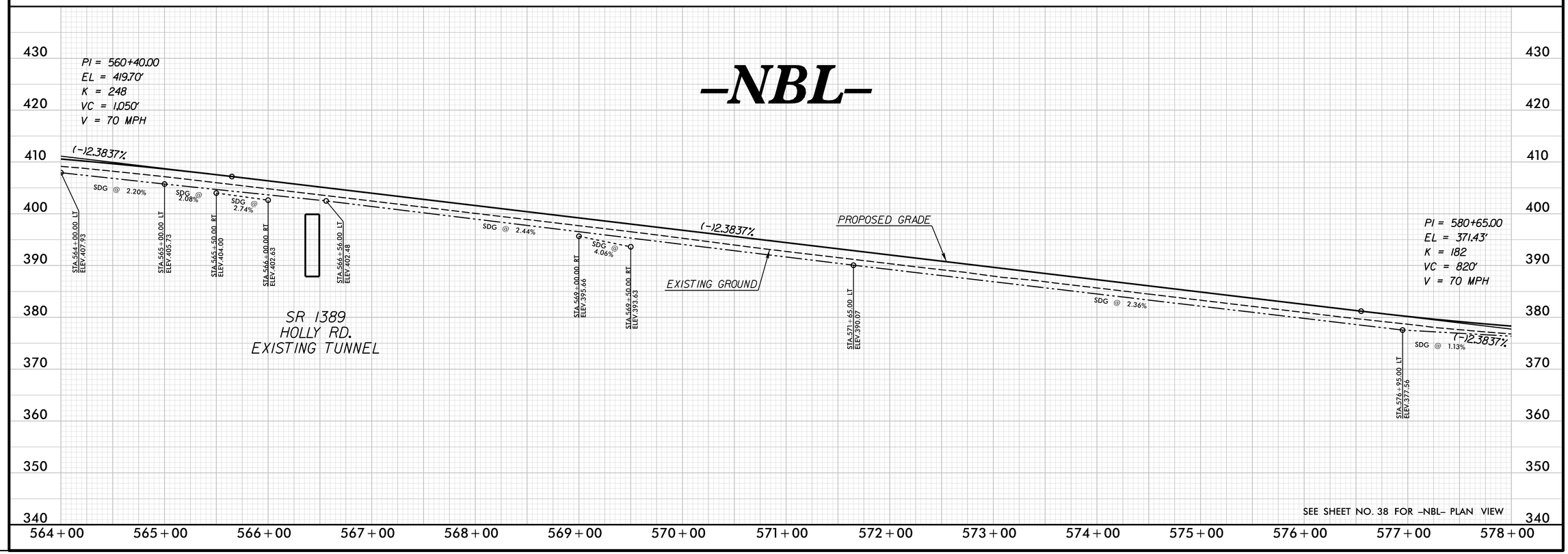
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	83
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 38, 39 FOR -SBL- PLAN VIEW



SEE SHEET NO. 38 FOR -NBL- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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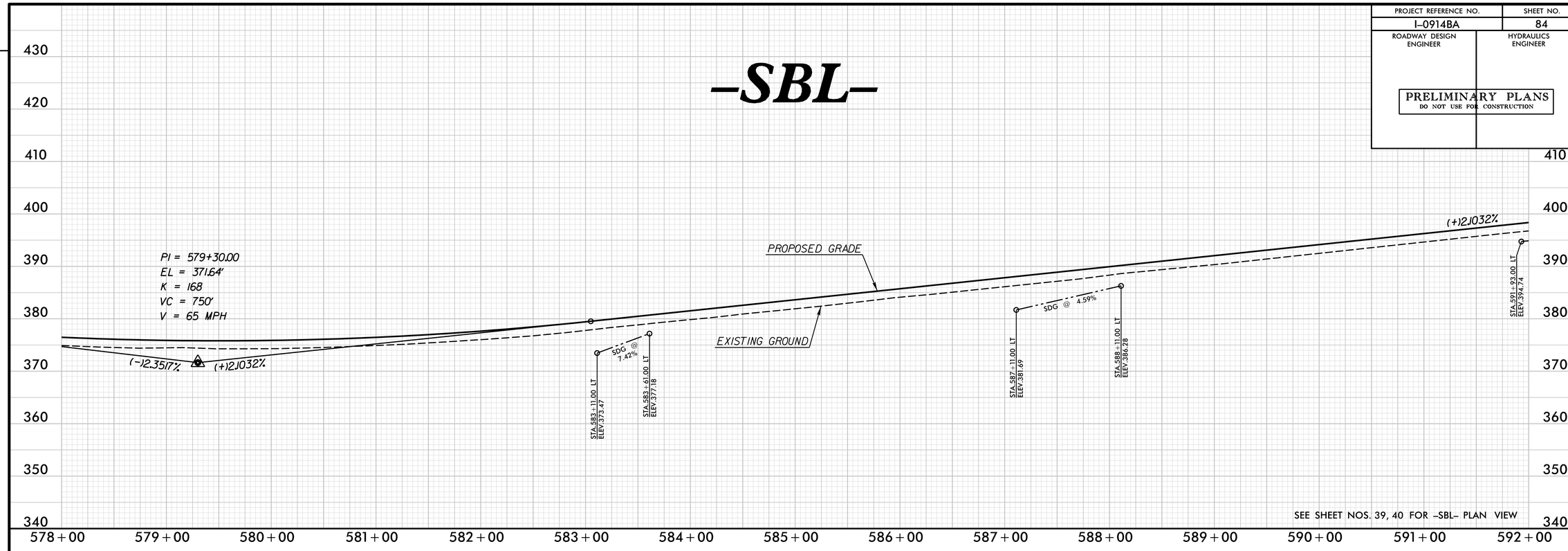
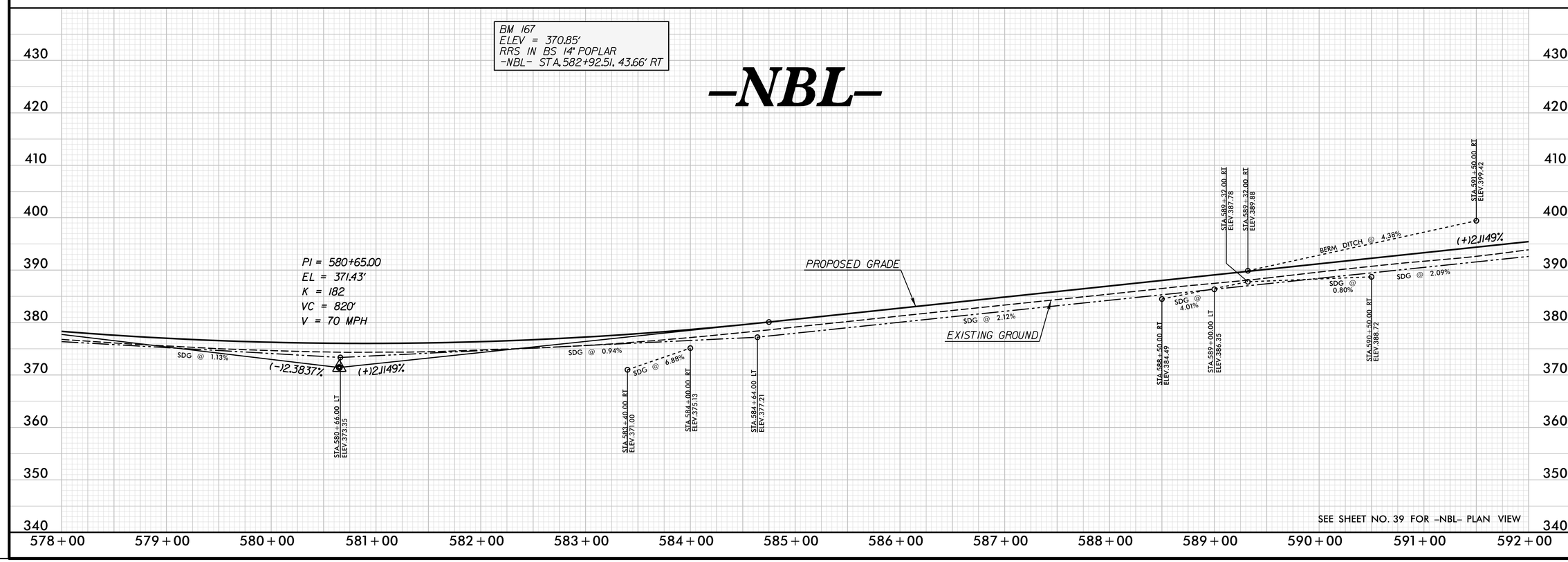
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	84
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 39, 40 FOR -SBL- PLAN VIEW



SEE SHEET NO. 39 FOR -NBL- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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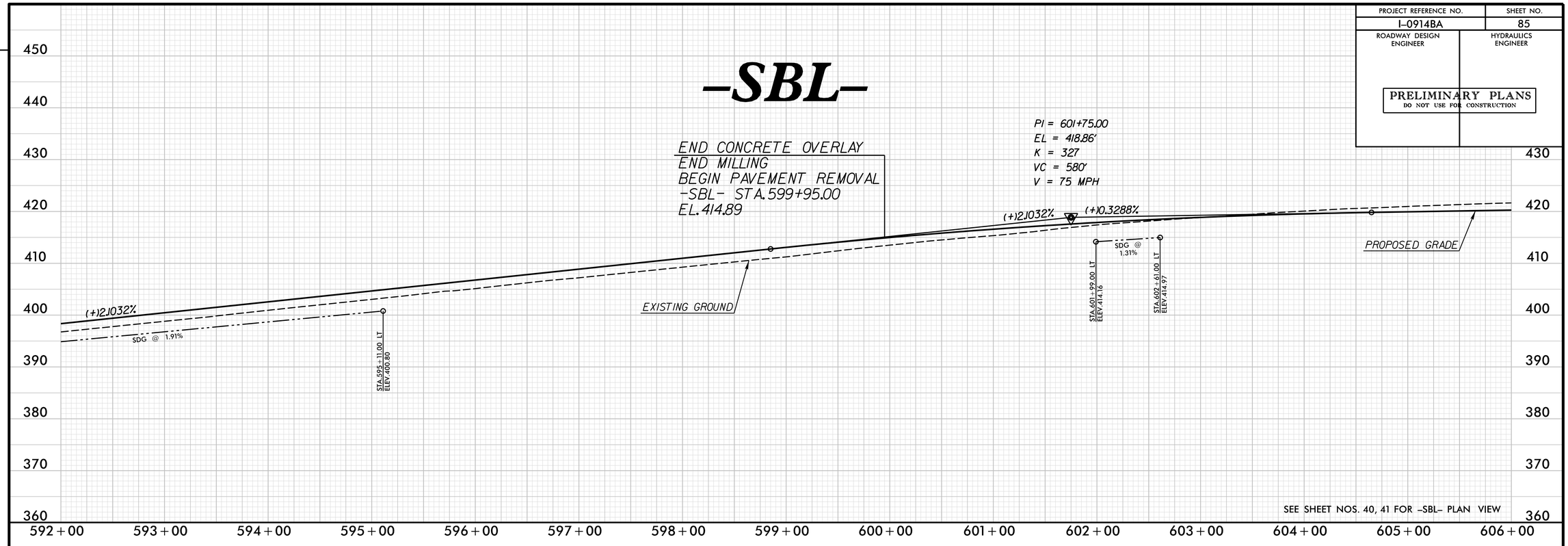
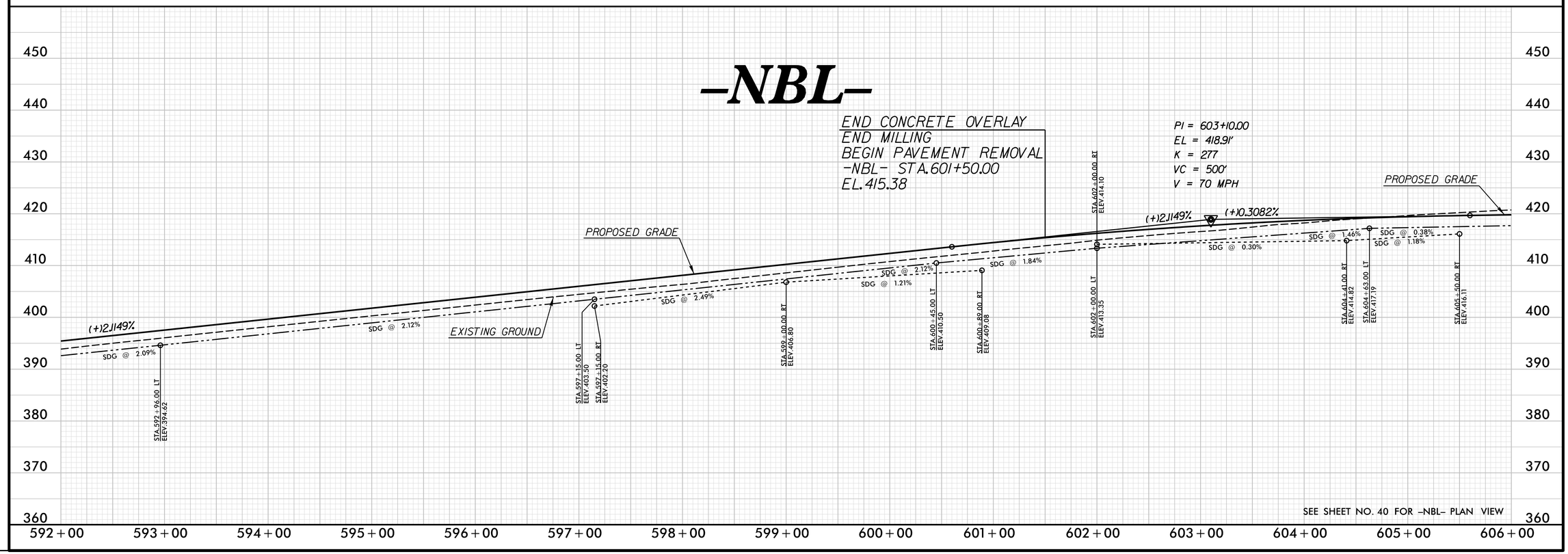
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	85
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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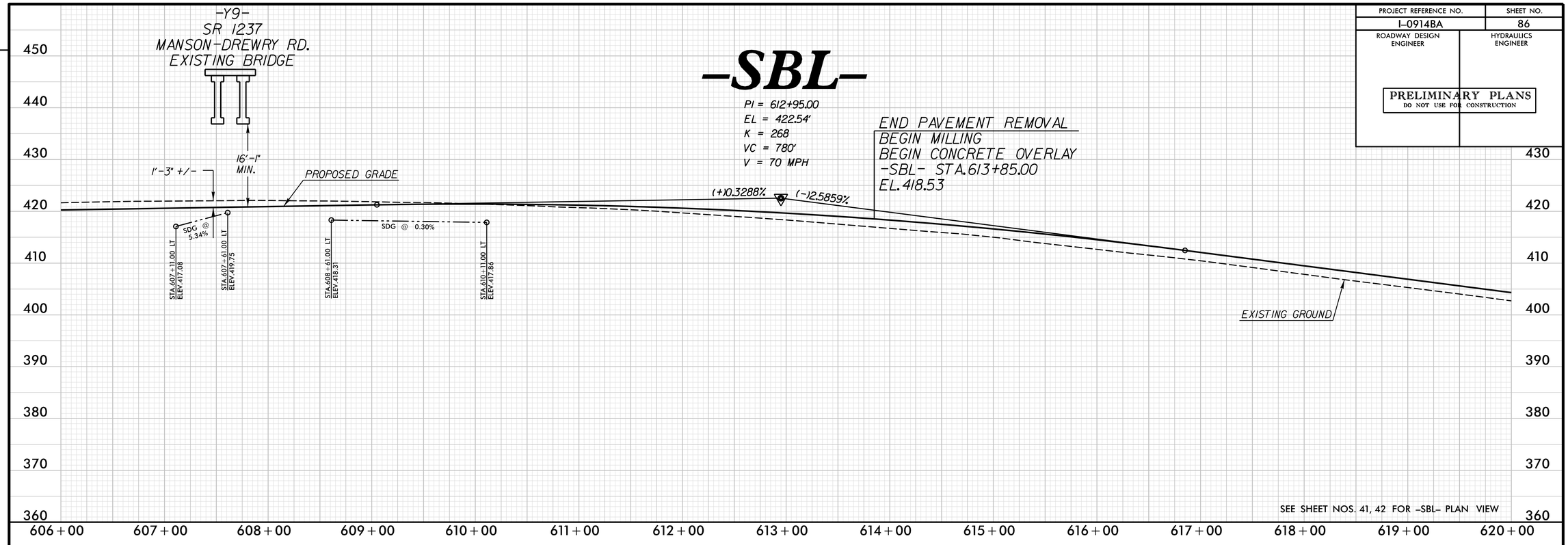
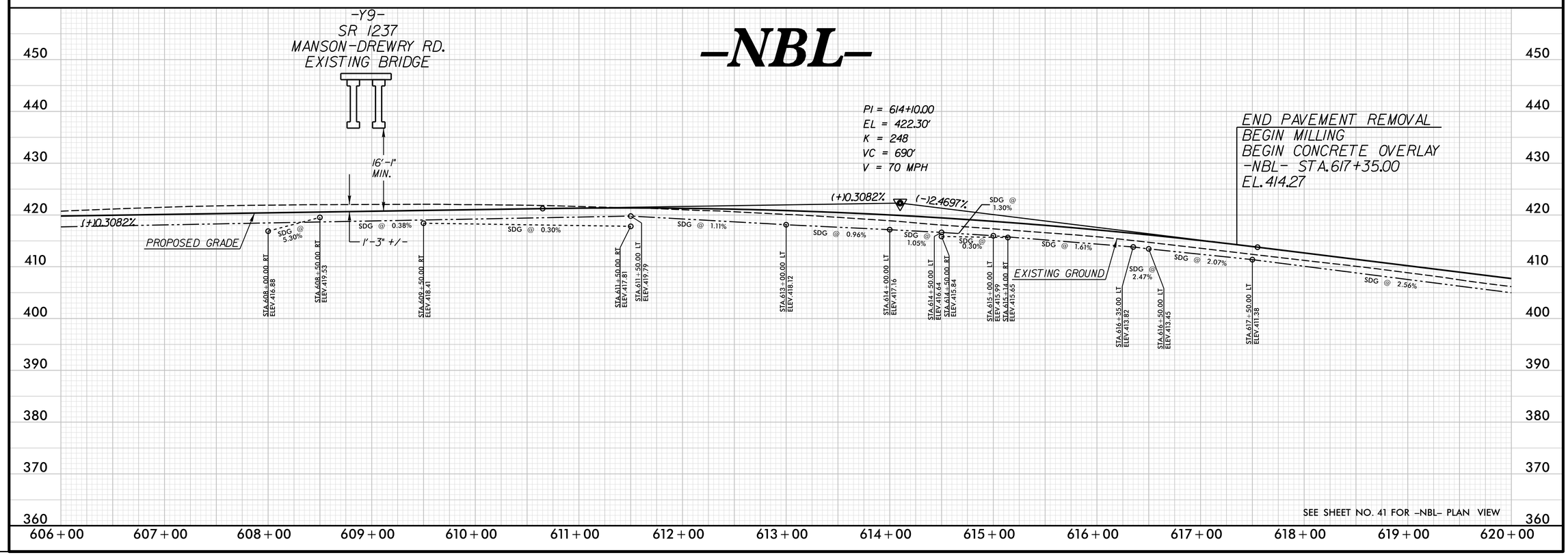
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	86
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



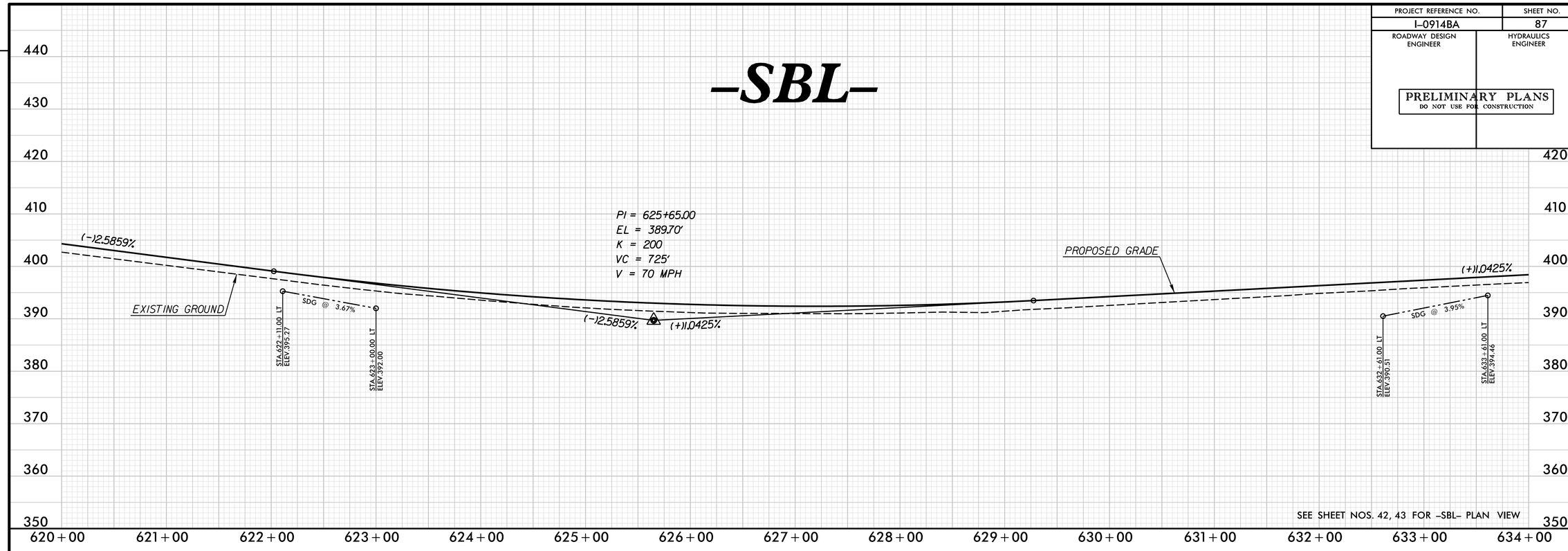


REVISIONS

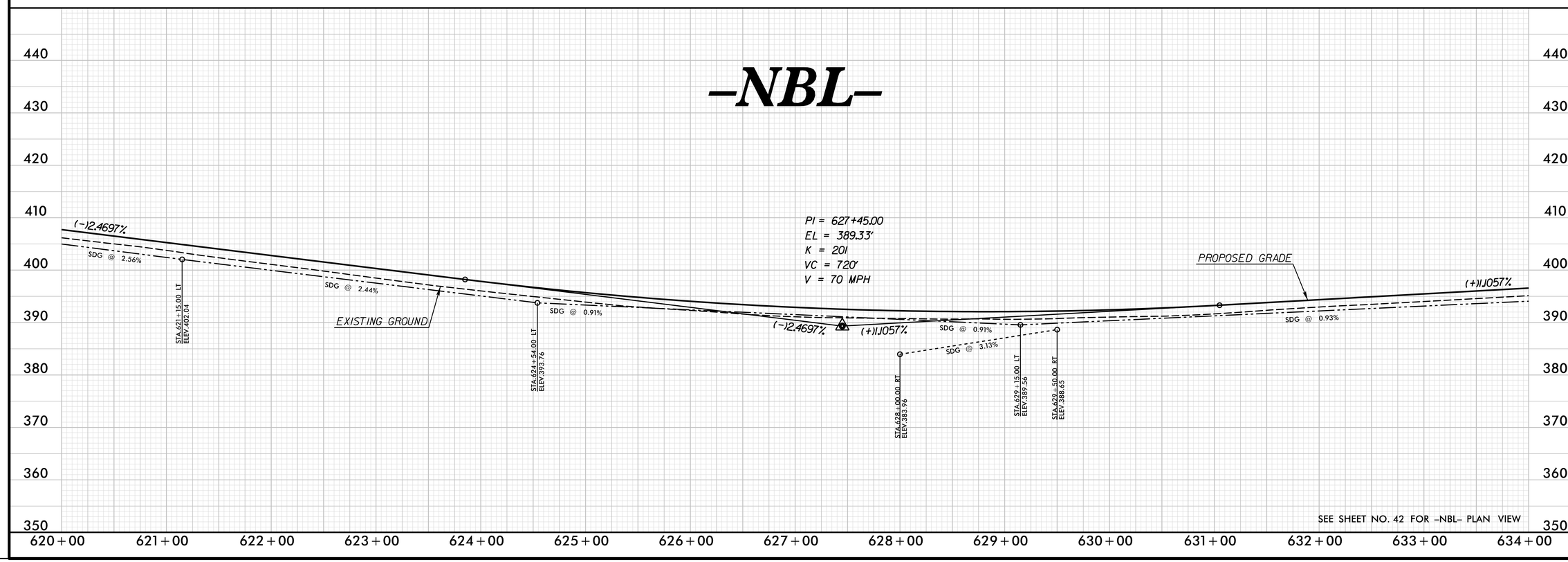
PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:53:21 AM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S86.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	87
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 42, 43 FOR -SBL- PLAN VIEW



SEE SHEET NO. 42 FOR -NBL- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:53:38 AM
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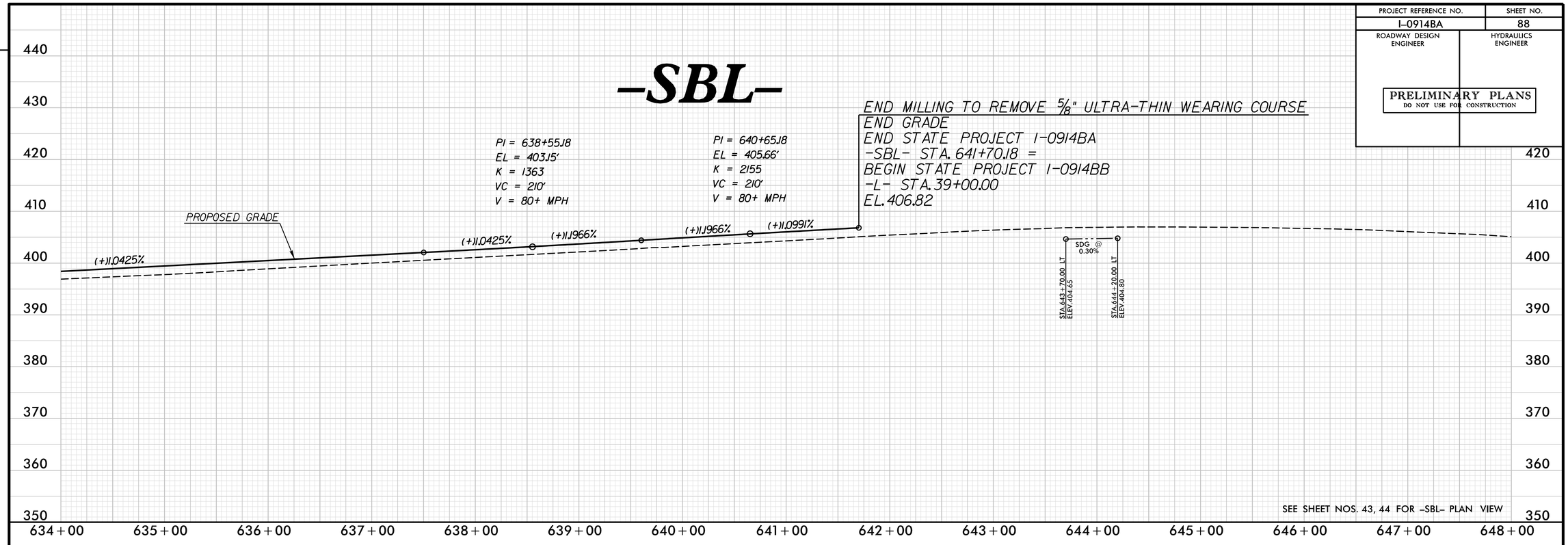
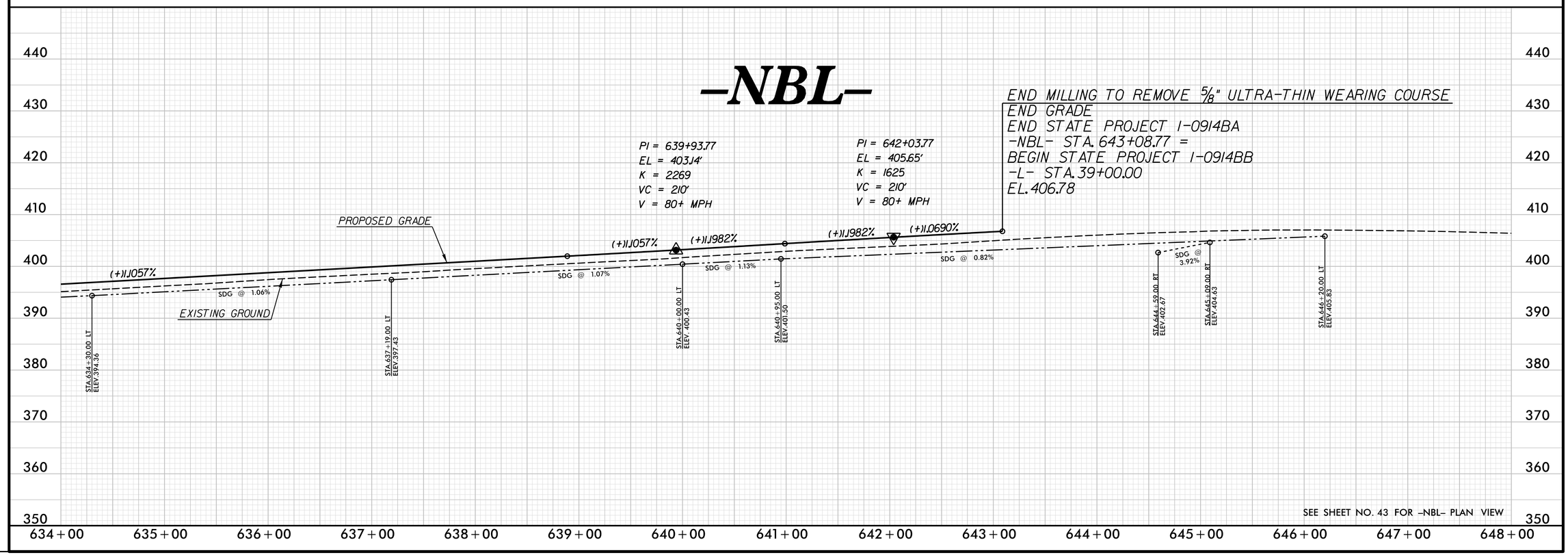
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	88
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:53:51 AM
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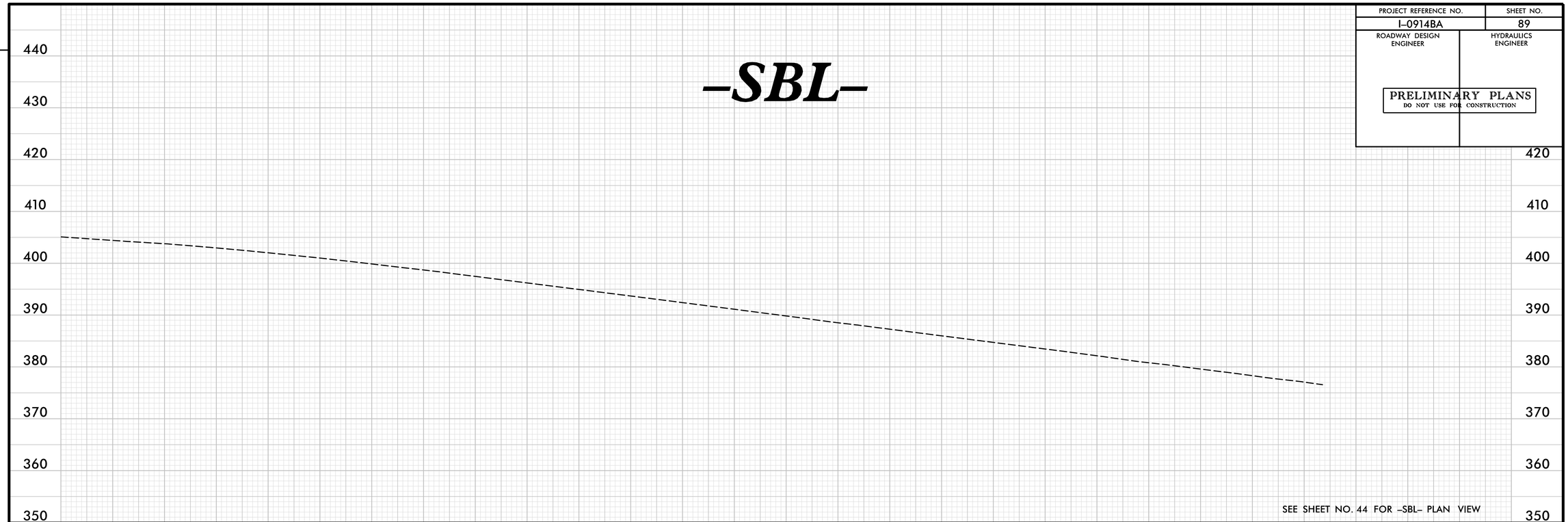
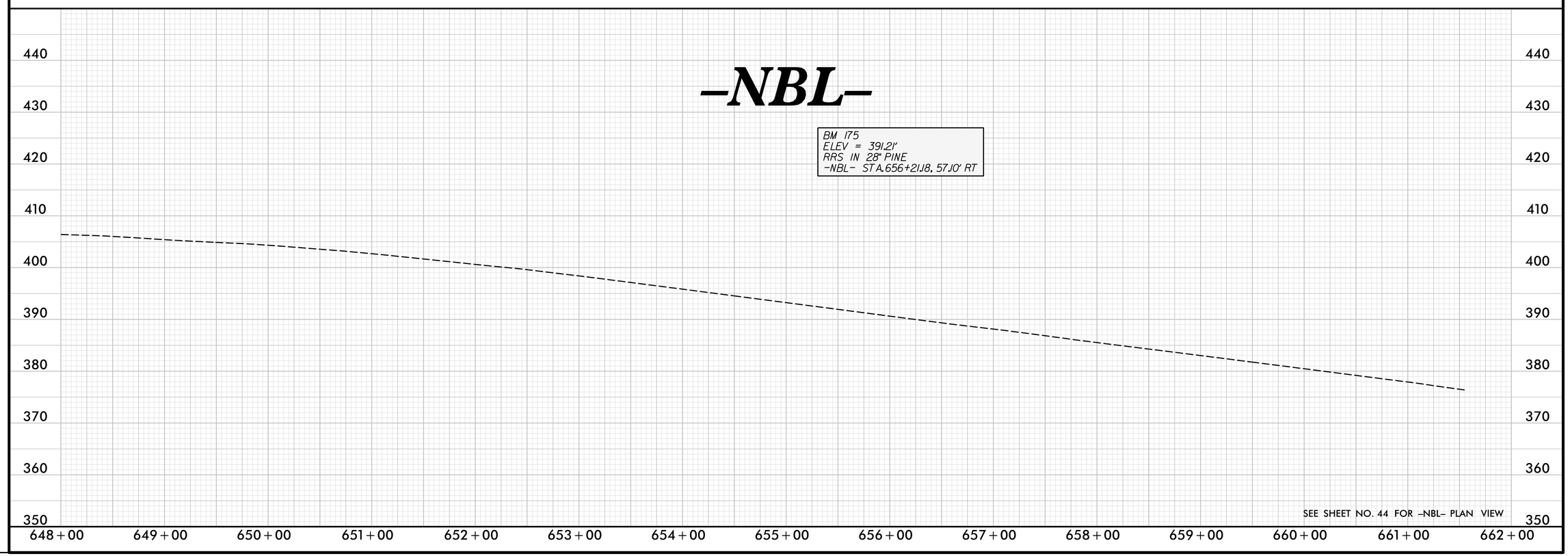
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	89
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



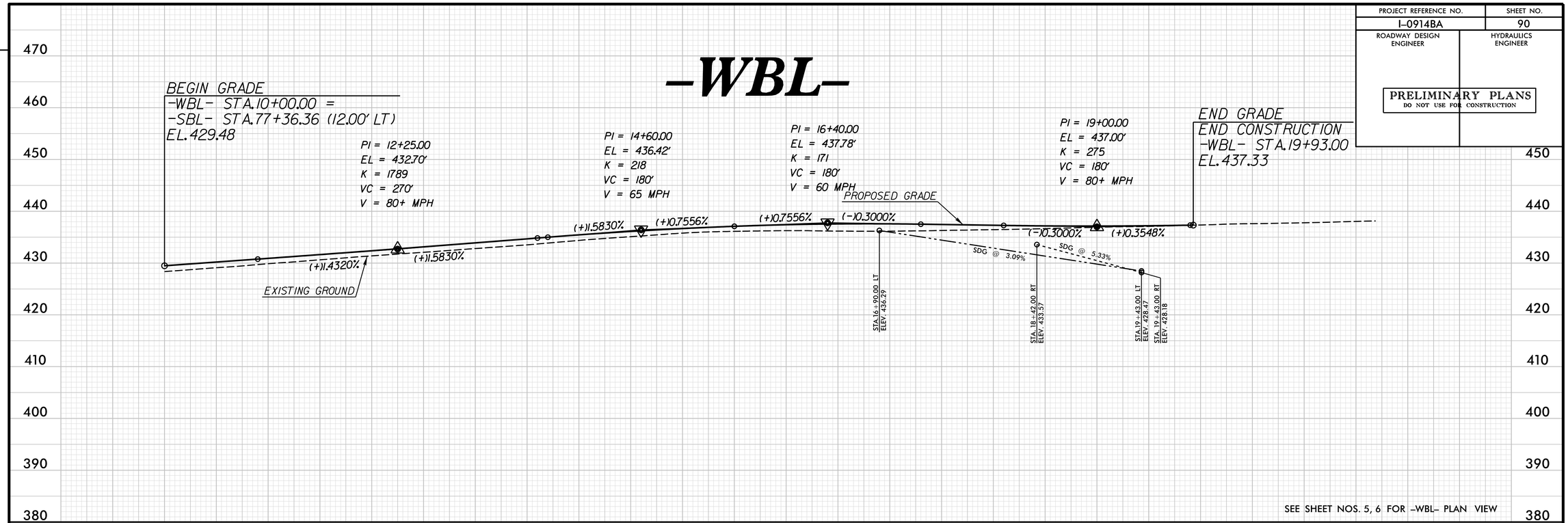


REVISIONS

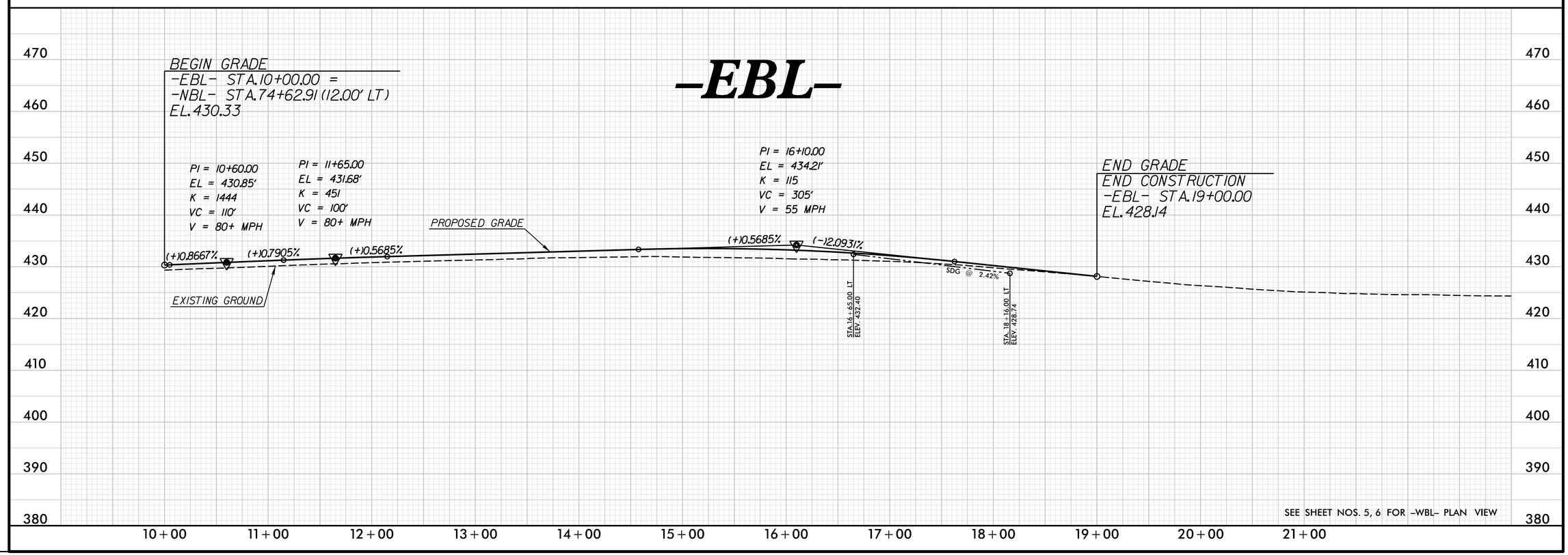
PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:54:05 AM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S89.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	90
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 5, 6 FOR -WBL- PLAN VIEW



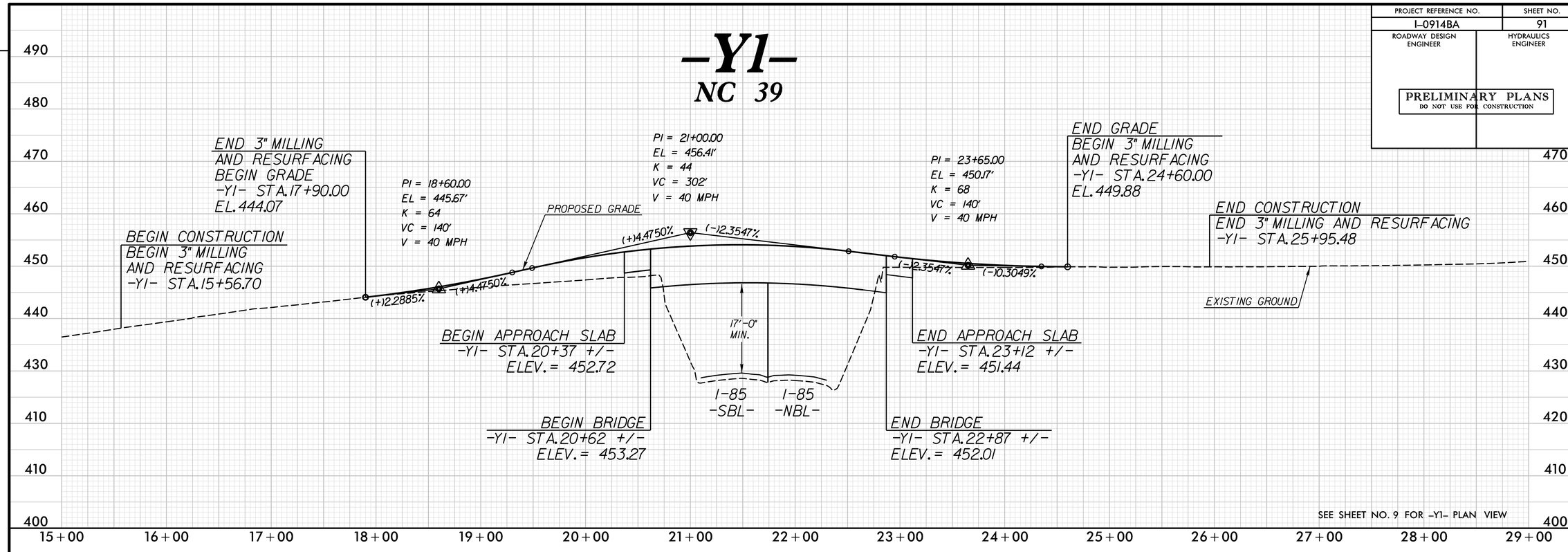
SEE SHEET NOS. 5, 6 FOR -WBL- PLAN VIEW

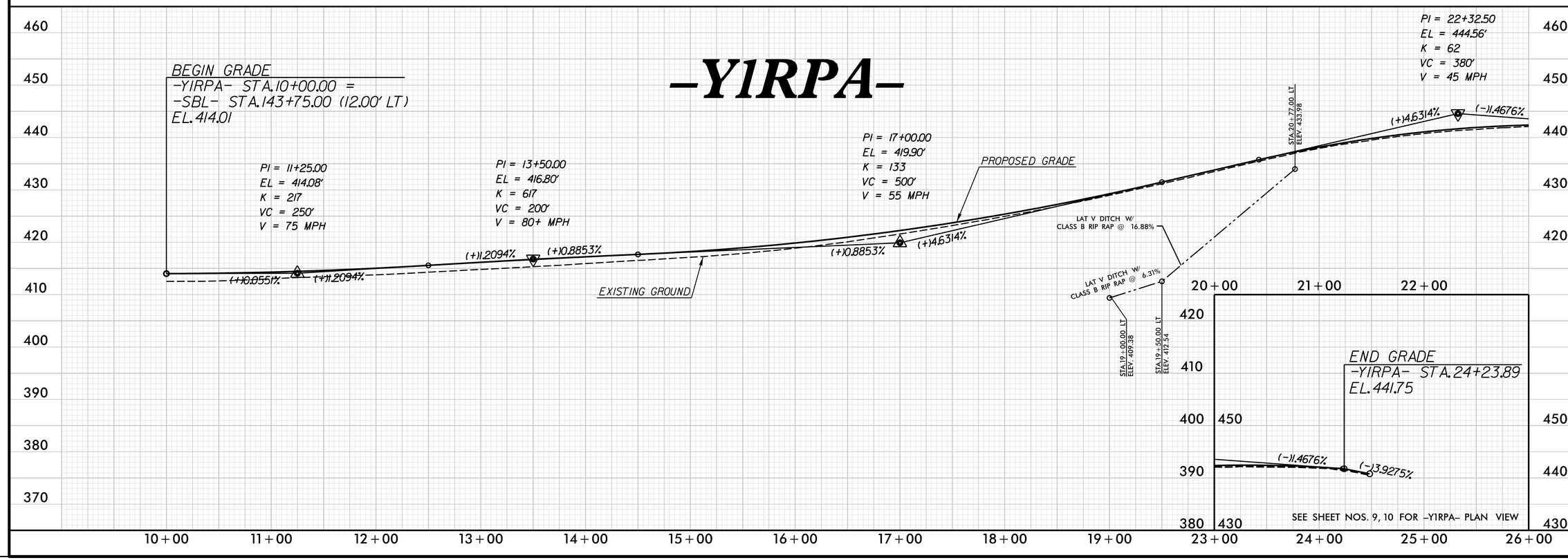
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:54:19 AM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S90.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	91
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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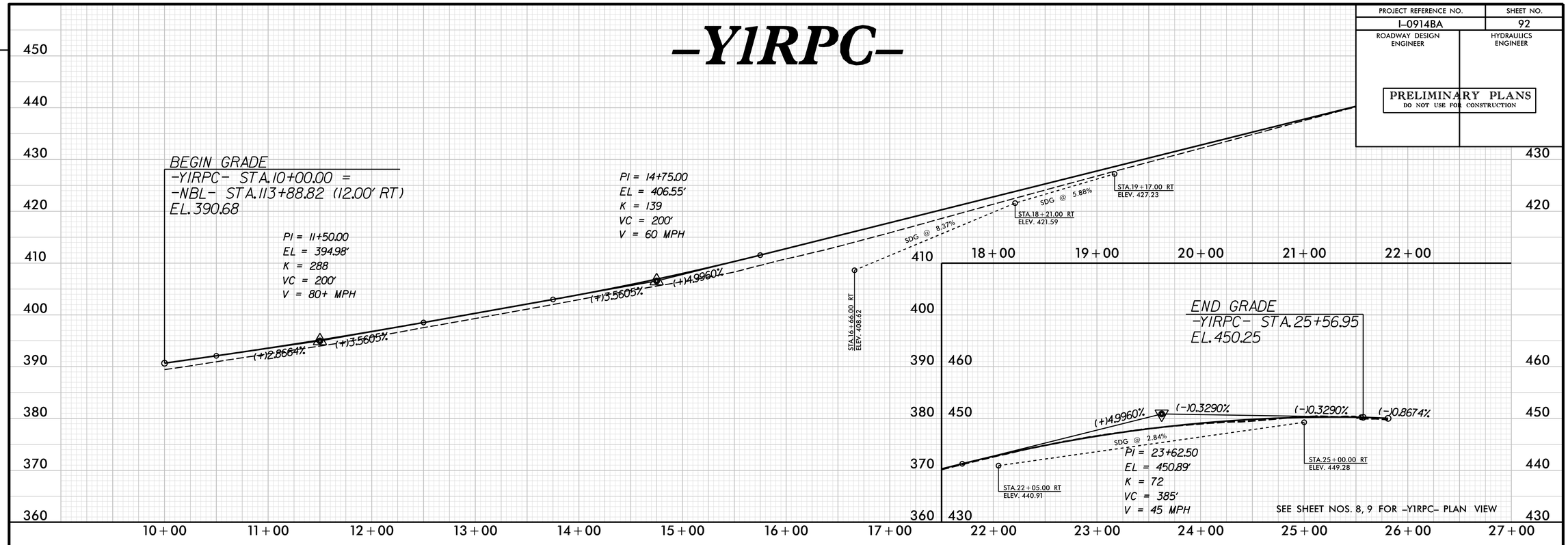
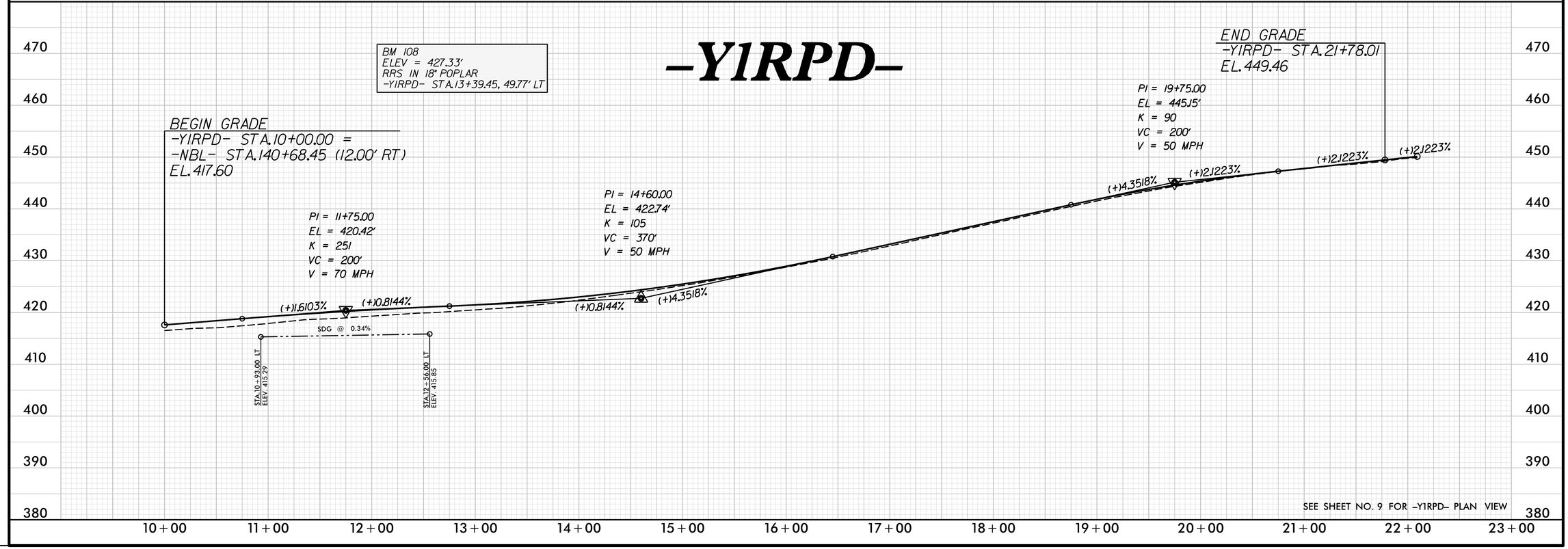
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	92
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y1RPC-



-Y1RPD-



REVISIONS

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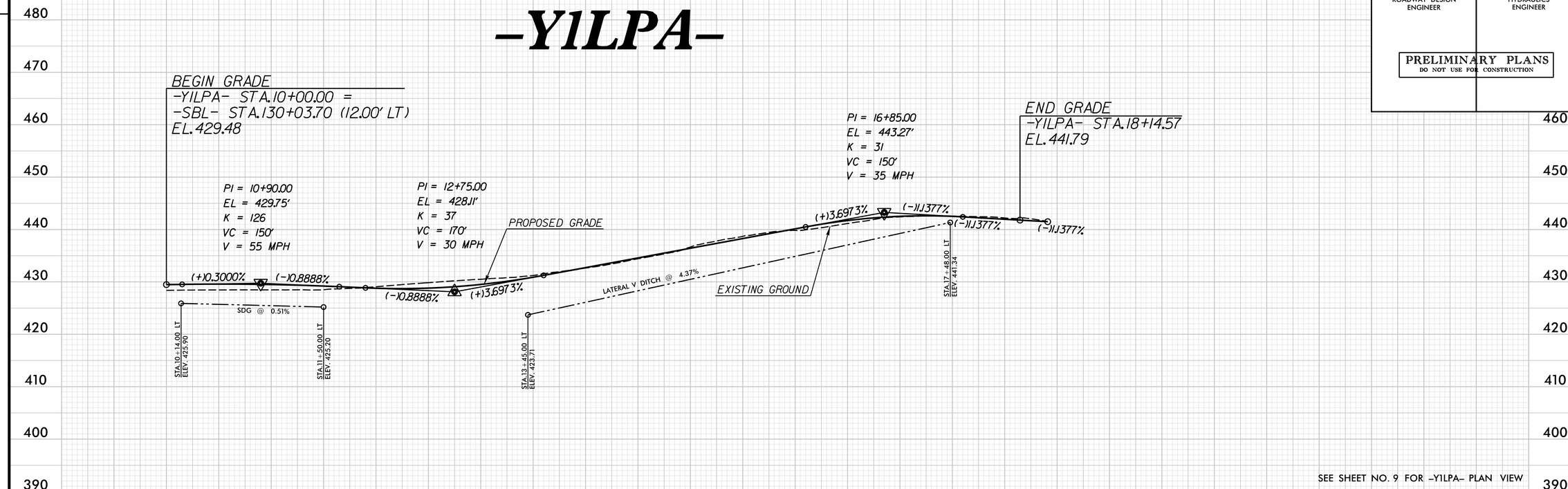
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	93
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

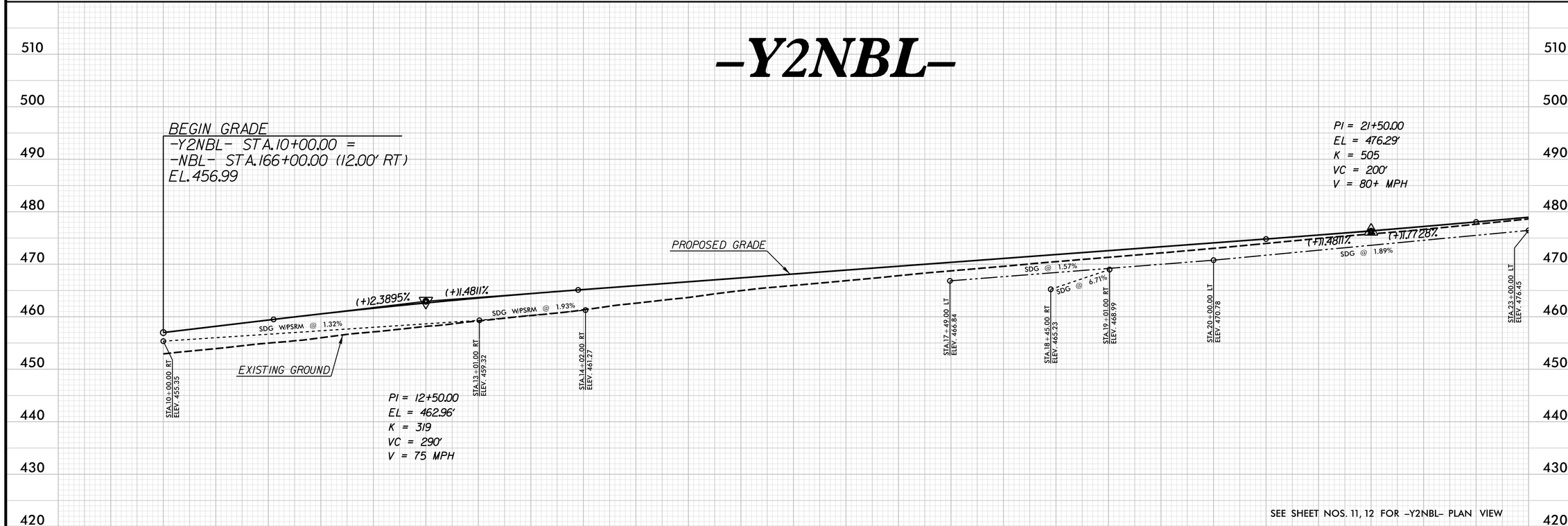
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y1LPA-



SEE SHEET NO. 9 FOR -Y1LPA- PLAN VIEW

-Y2NBL-



SEE SHEET NOS. 11, 12 FOR -Y2NBL- PLAN VIEW

REVISIONS

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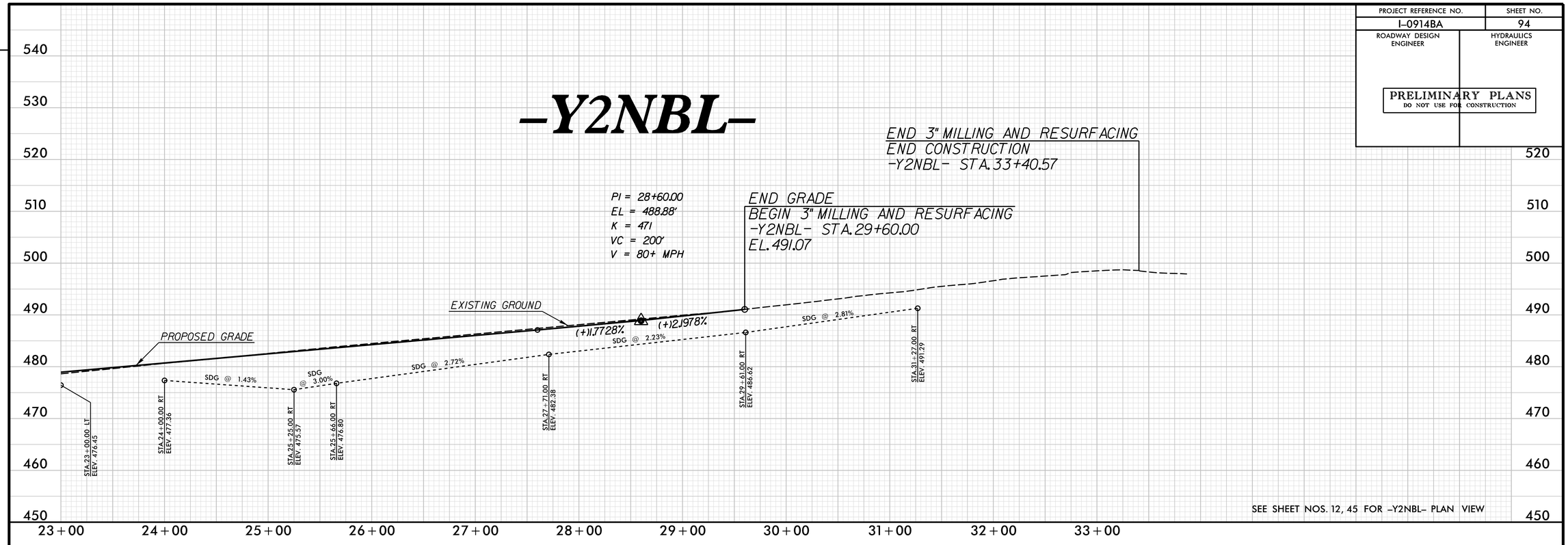
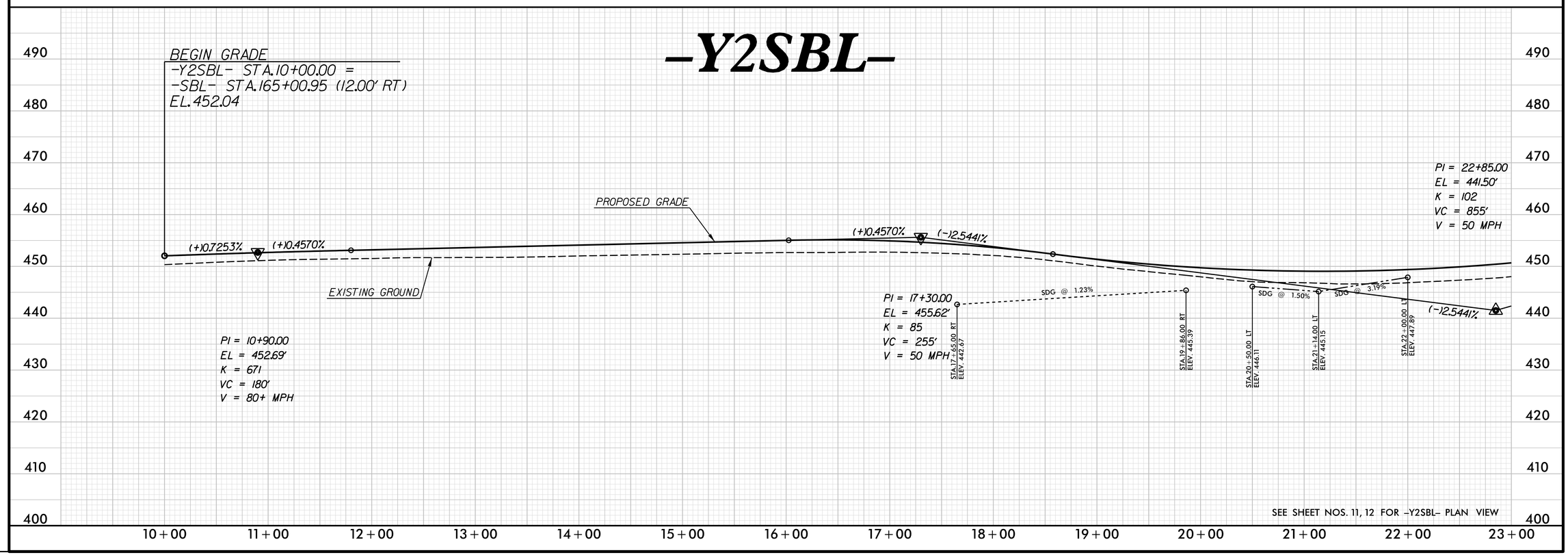
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	94
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 12, 45 FOR -Y2NBL- PLAN VIEW



SEE SHEET NOS. 11, 12 FOR -Y2SBL- PLAN VIEW

REVISIONS

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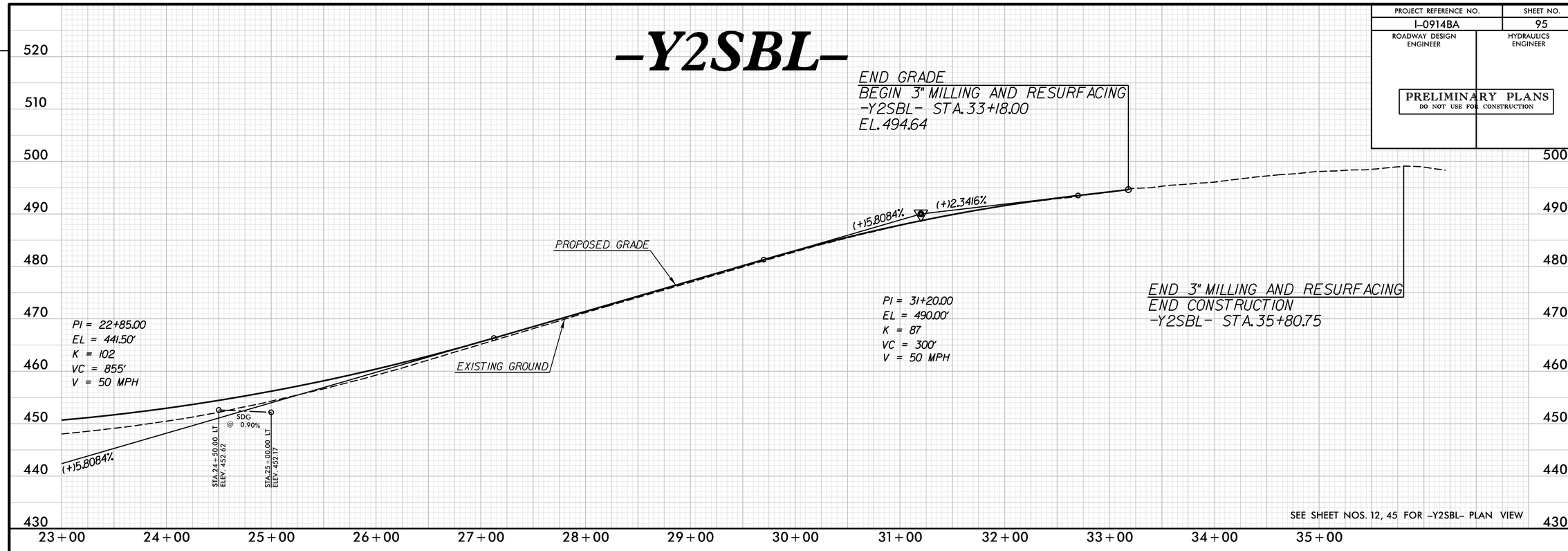
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	95
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

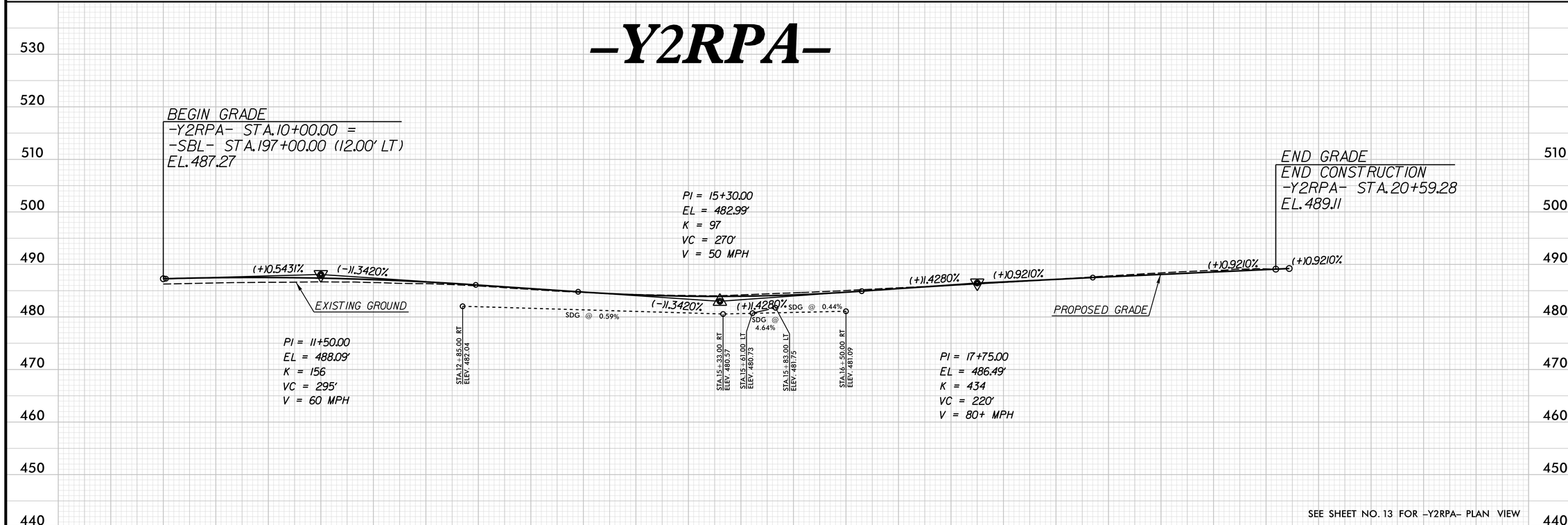
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y2SBL-



SEE SHEET NOS. 12, 45 FOR -Y2SBL- PLAN VIEW

-Y2RPA-



SEE SHEET NO. 13 FOR -Y2RPA- PLAN VIEW

REVISIONS

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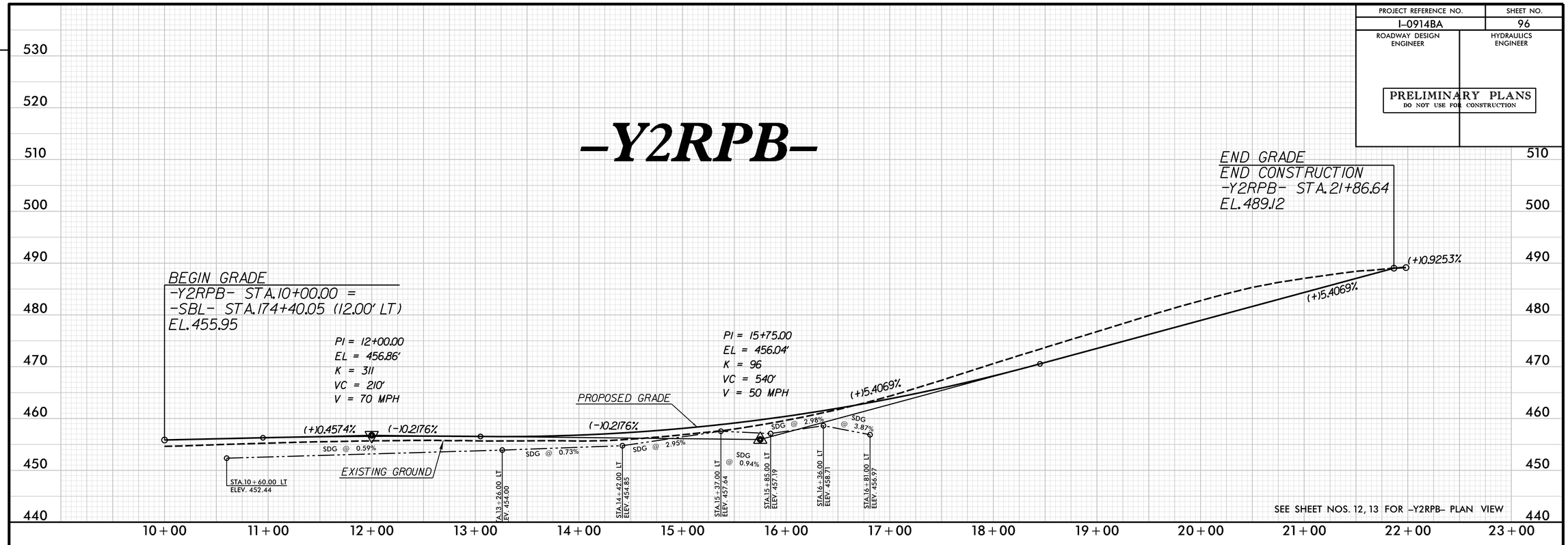
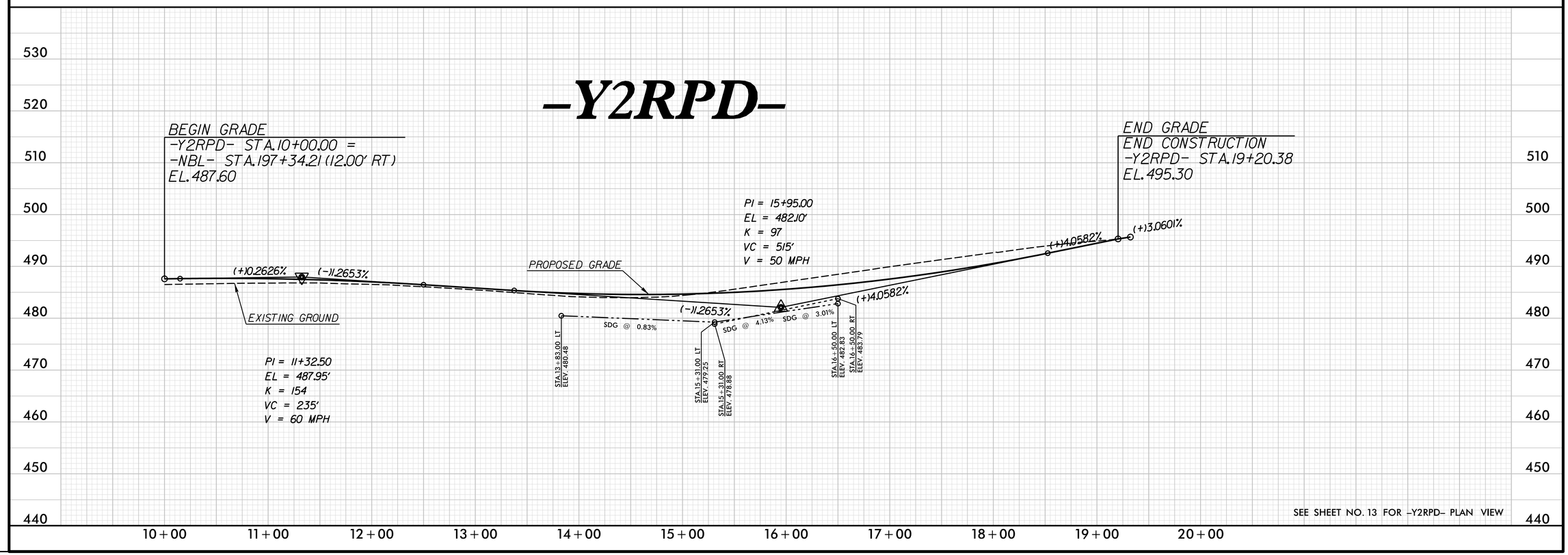
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	96
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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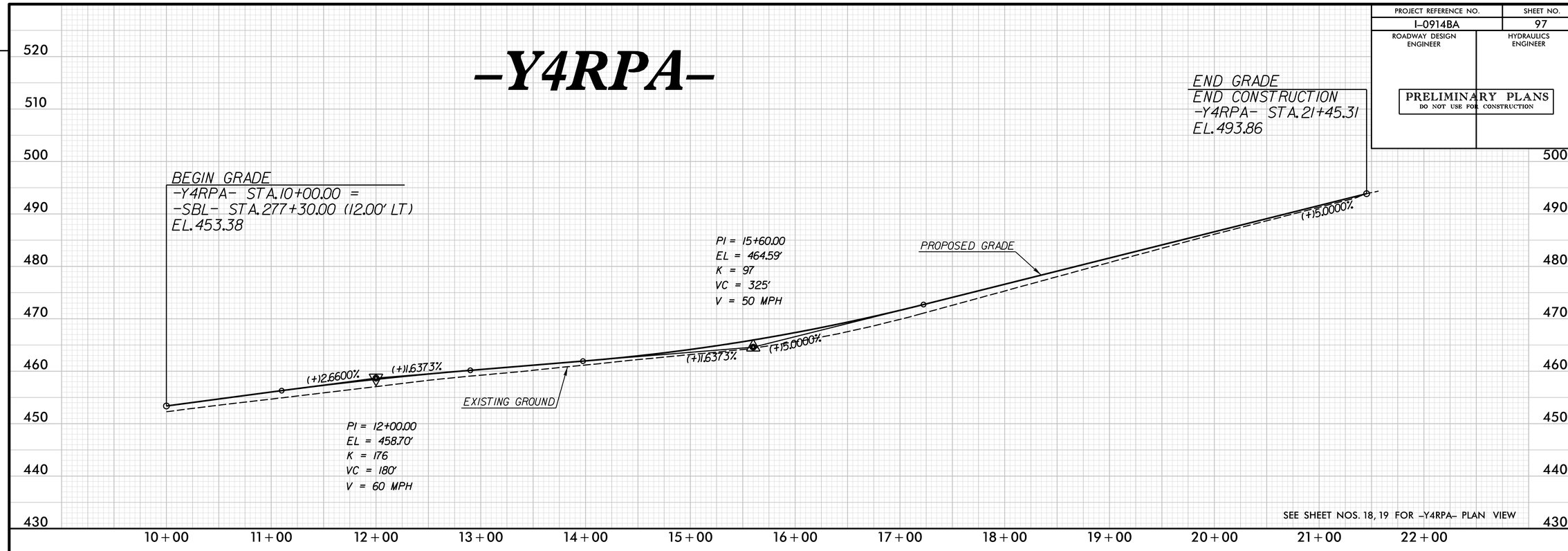
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	97
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

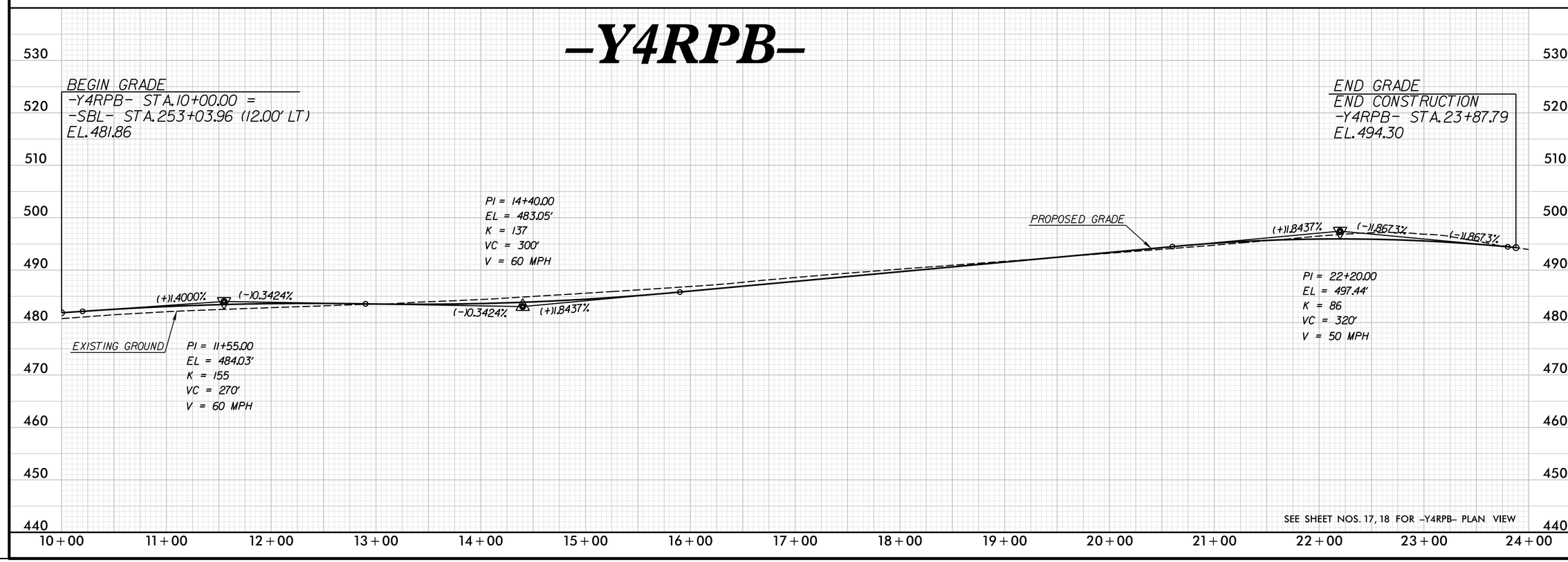
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y4RPA-



SEE SHEET NOS. 18, 19 FOR -Y4RPA- PLAN VIEW

-Y4RPB-



SEE SHEET NOS. 17, 18 FOR -Y4RPB- PLAN VIEW

REVISIONS

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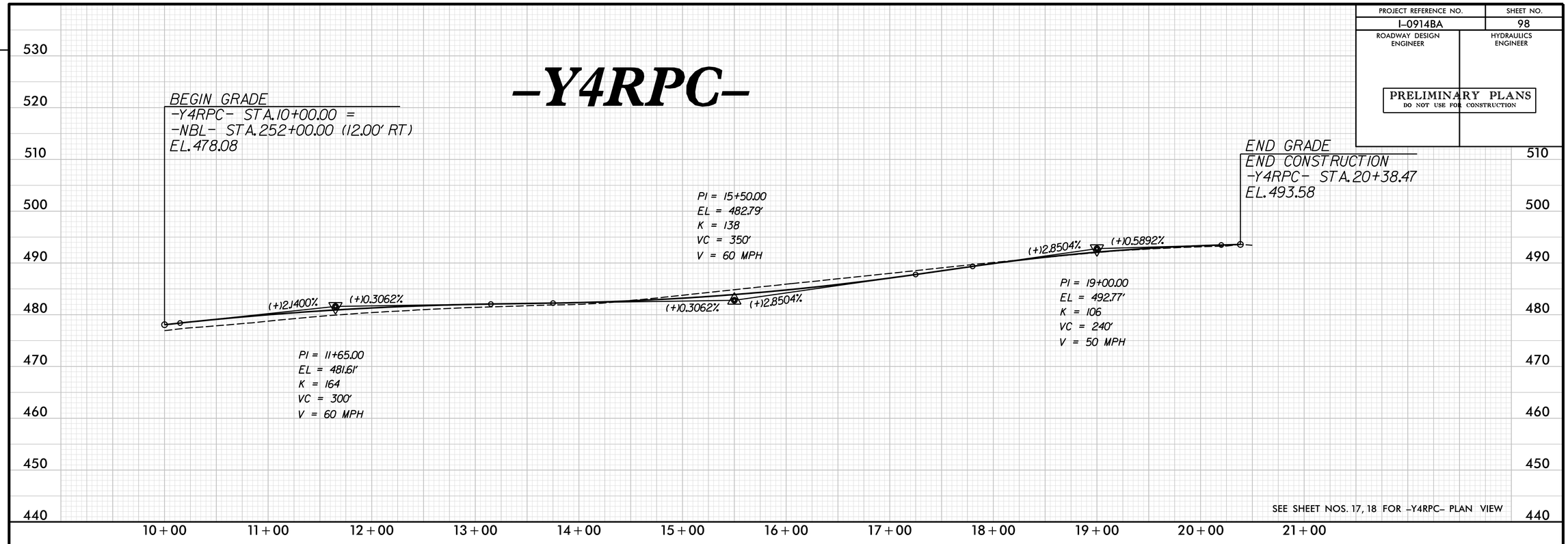
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	98
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

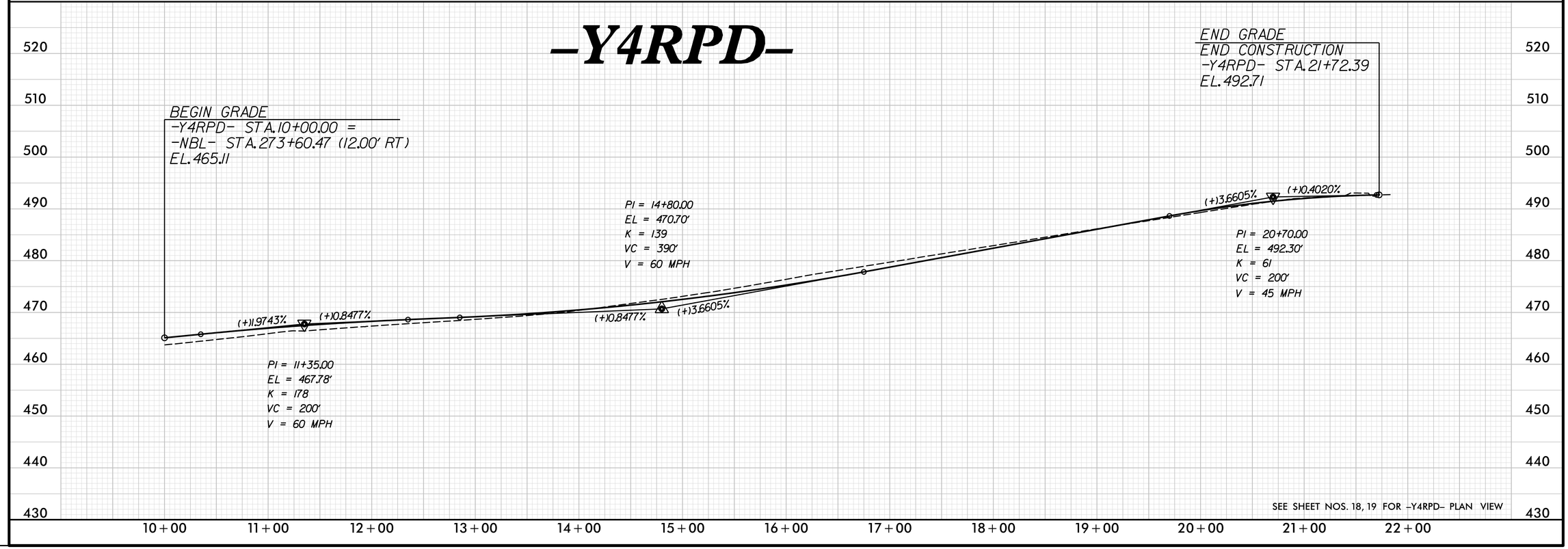
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y4RPC-



SEE SHEET NOS. 17, 18 FOR -Y4RPC- PLAN VIEW

-Y4RPD-



SEE SHEET NOS. 18, 19 FOR -Y4RPD- PLAN VIEW

REVISIONS

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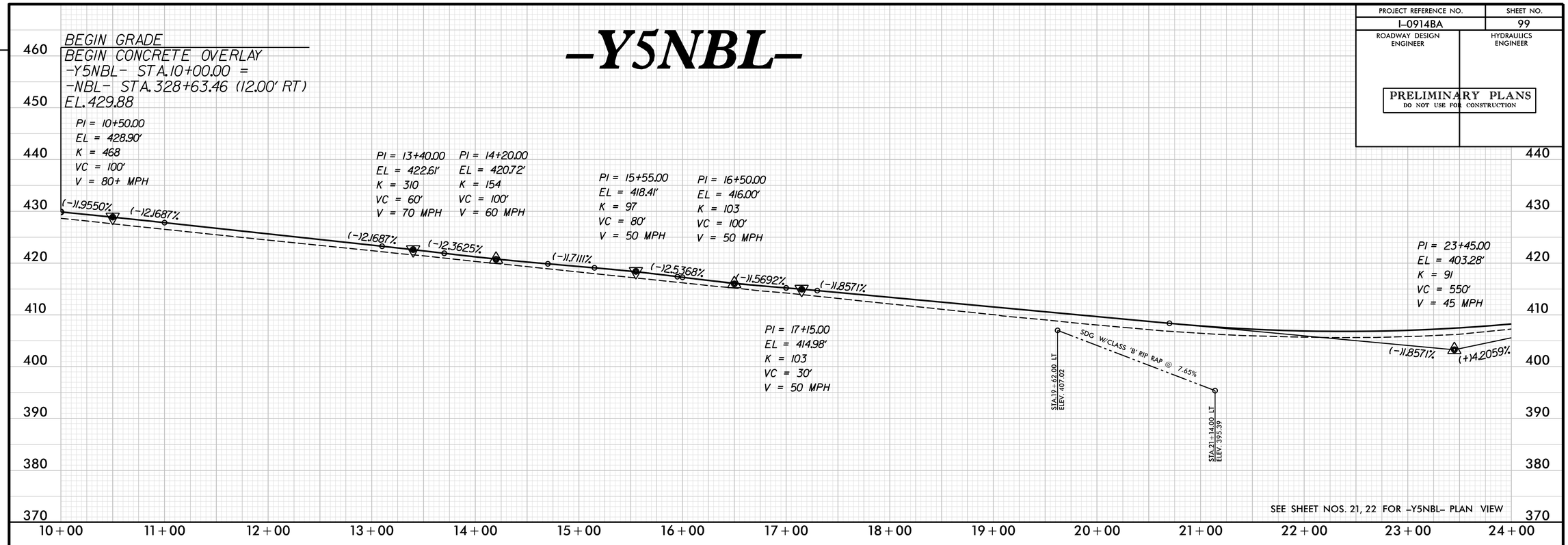
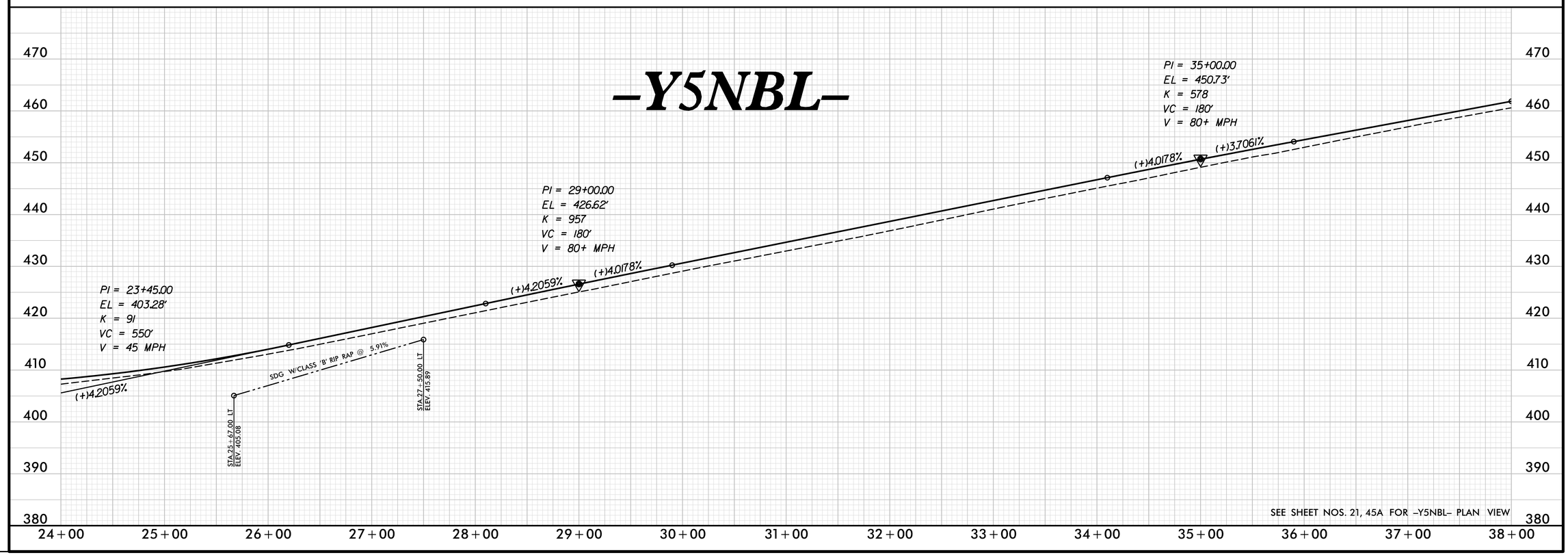
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	99
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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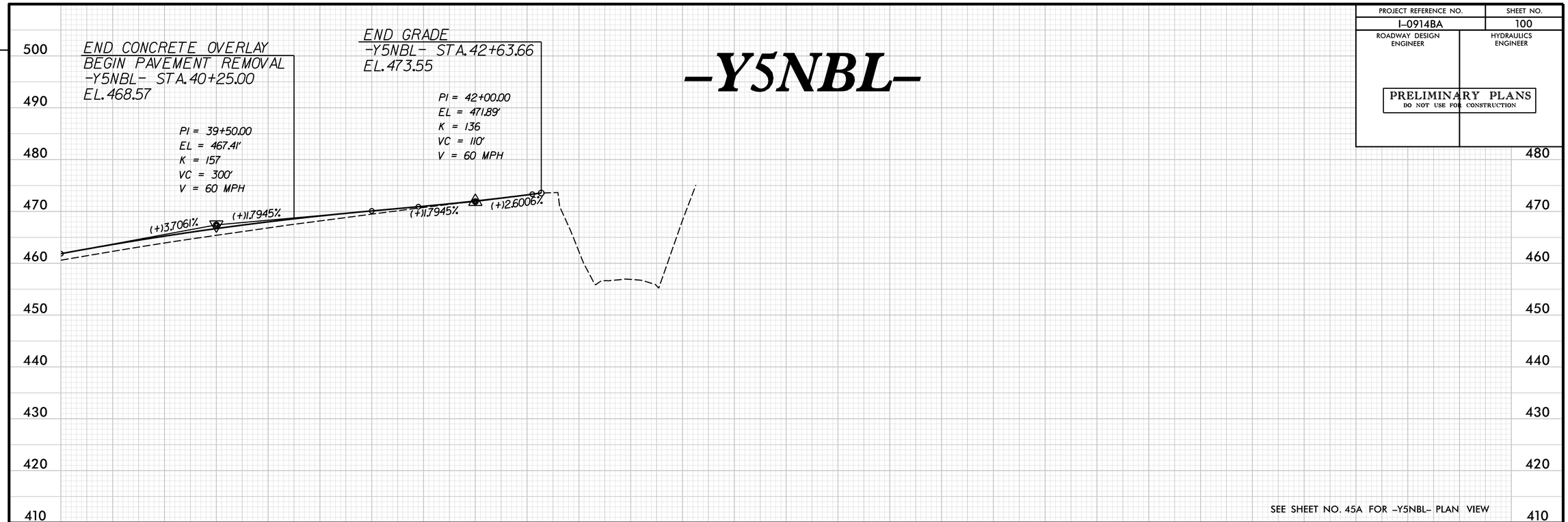
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	100
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

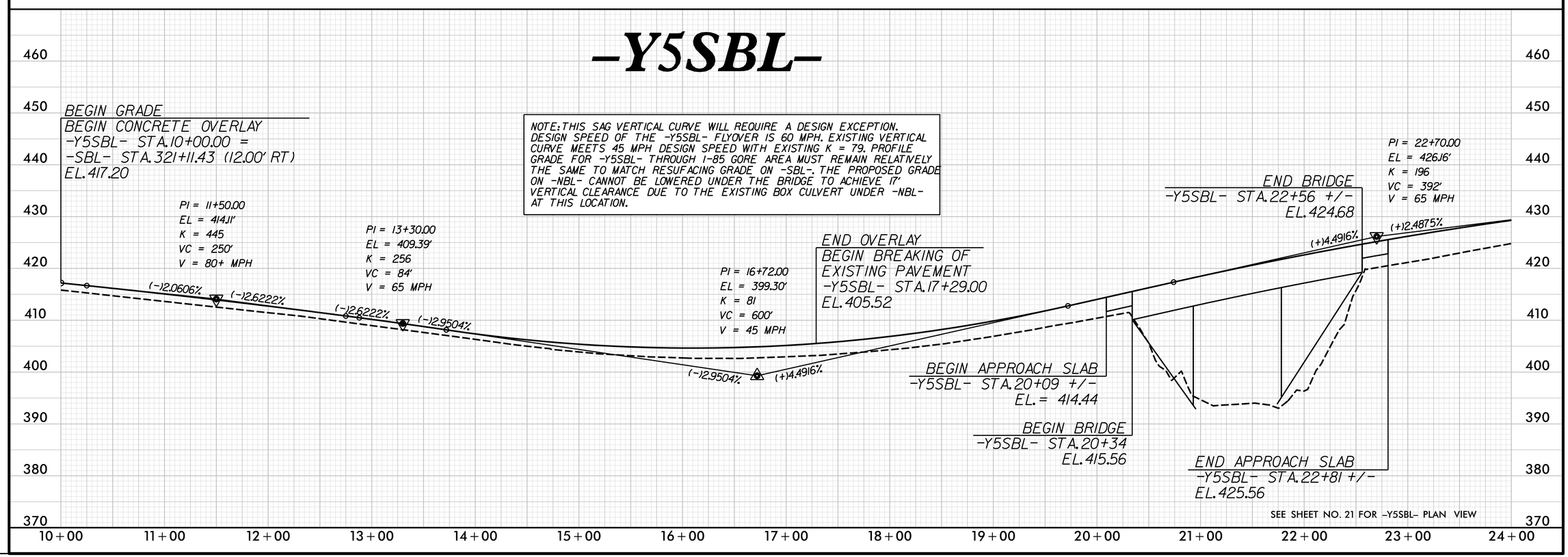
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y5NBL-



SEE SHEET NO. 45A FOR -Y5NBL- PLAN VIEW

-Y5SBL-



SEE SHEET NO. 21 FOR -Y5SBL- PLAN VIEW

REVISIONS

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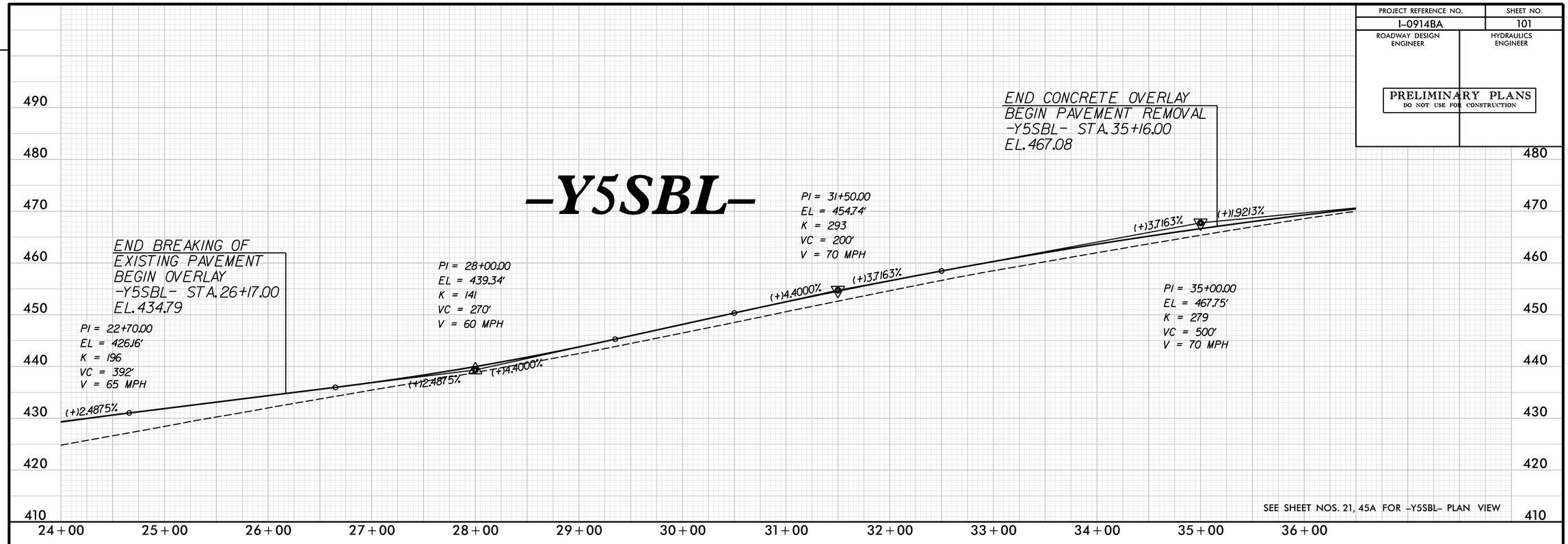
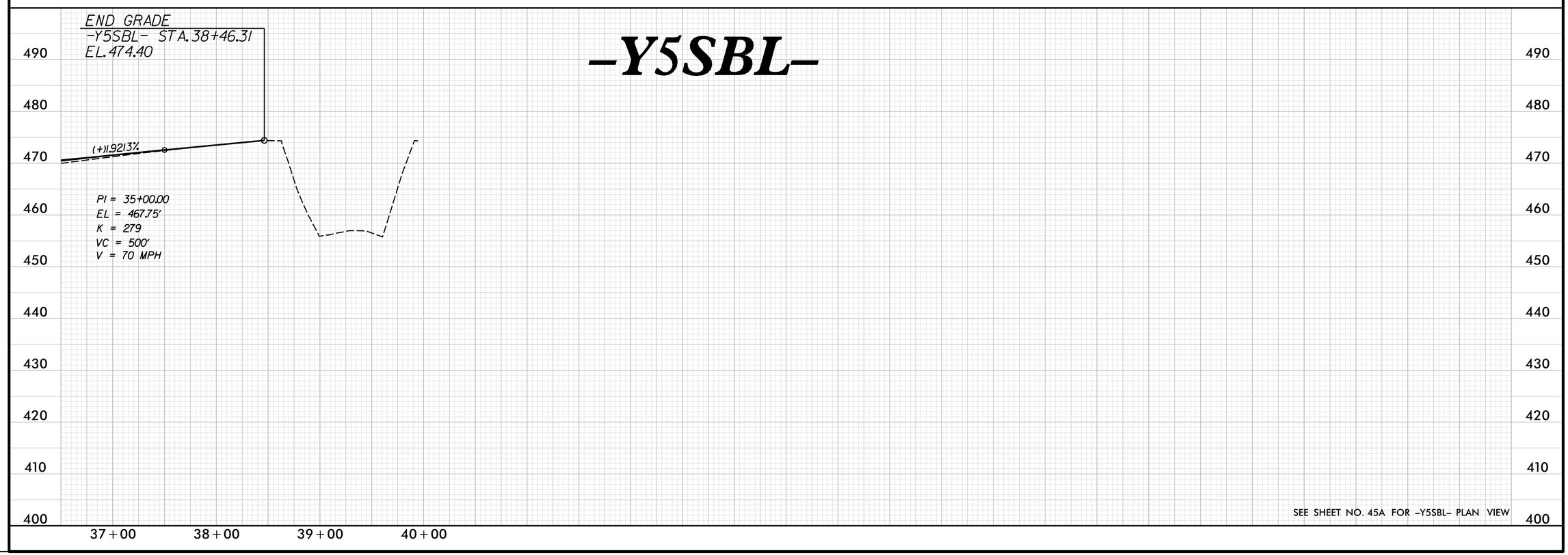
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	101
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 21, 45A FOR -Y5SBL- PLAN VIEW



SEE SHEET NO. 45A FOR -Y5SBL- PLAN VIEW

REVISIONS

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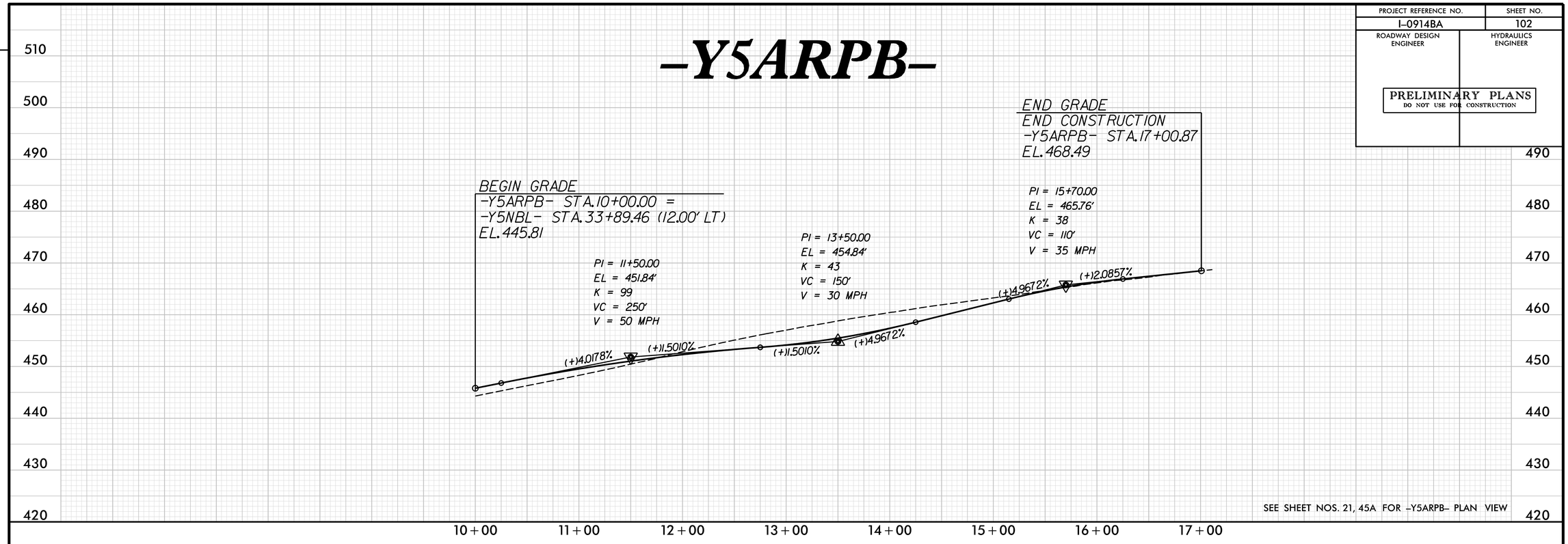
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	102
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

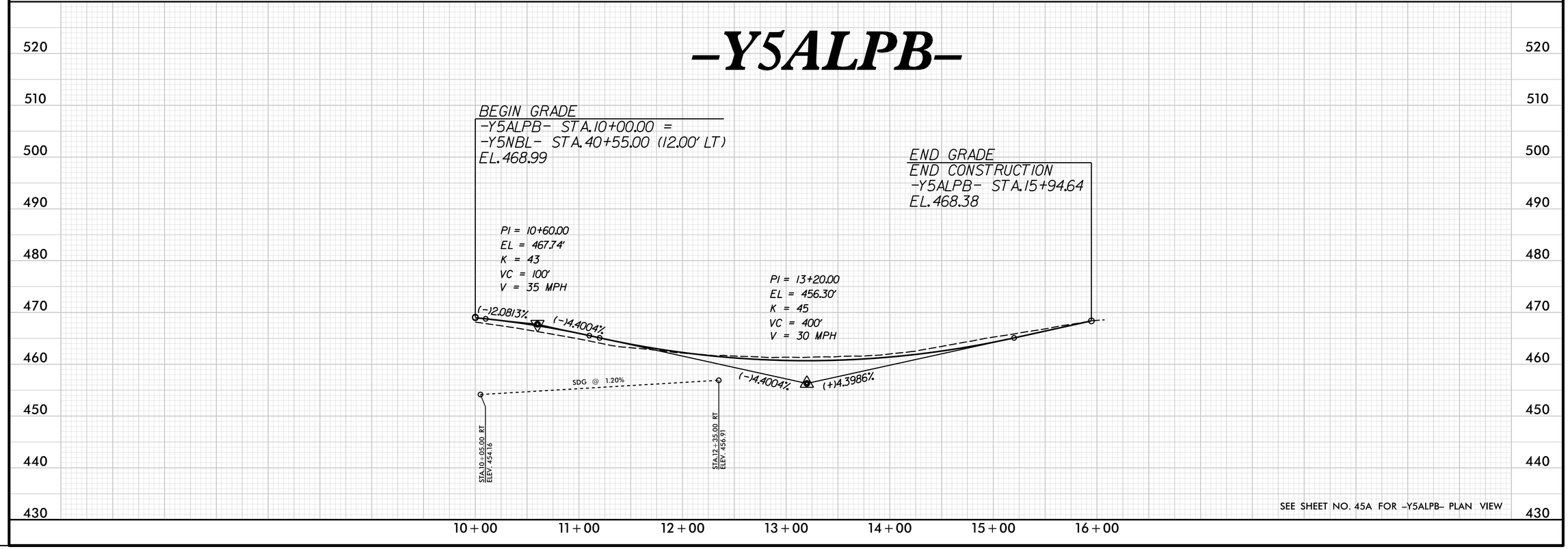
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y5ARPB-



SEE SHEET NOS. 21, 45A FOR -Y5ARPB- PLAN VIEW

-Y5ALPB-



SEE SHEET NO. 45A FOR -Y5ALPB- PLAN VIEW

REVISIONS

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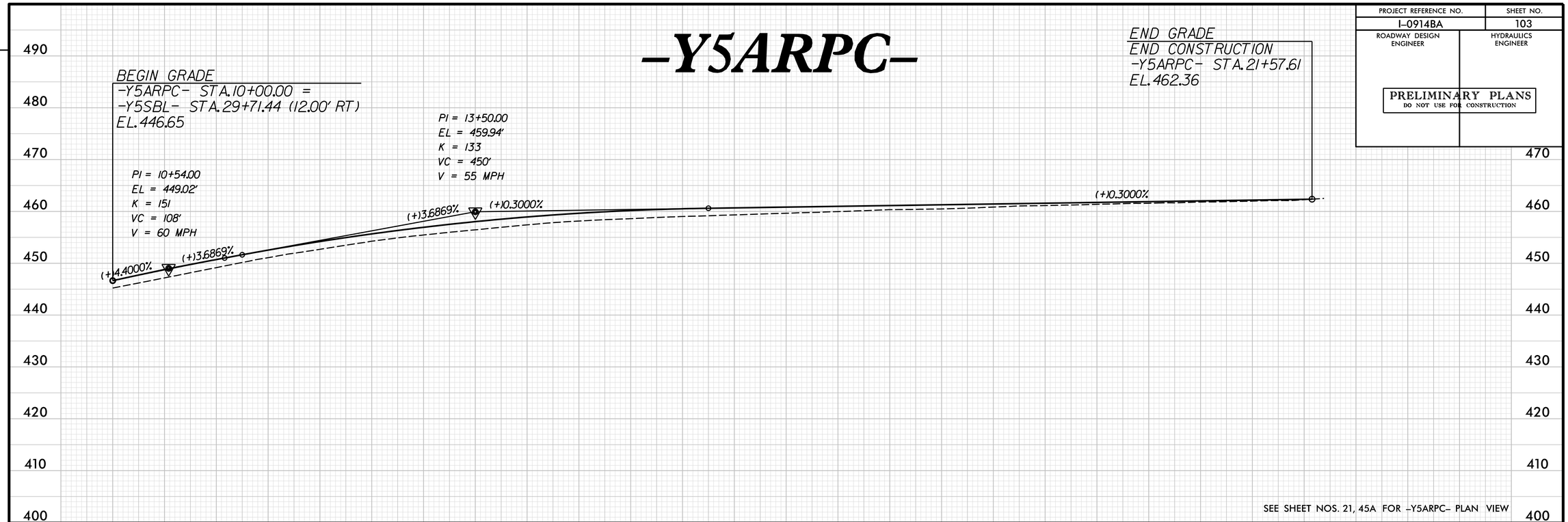
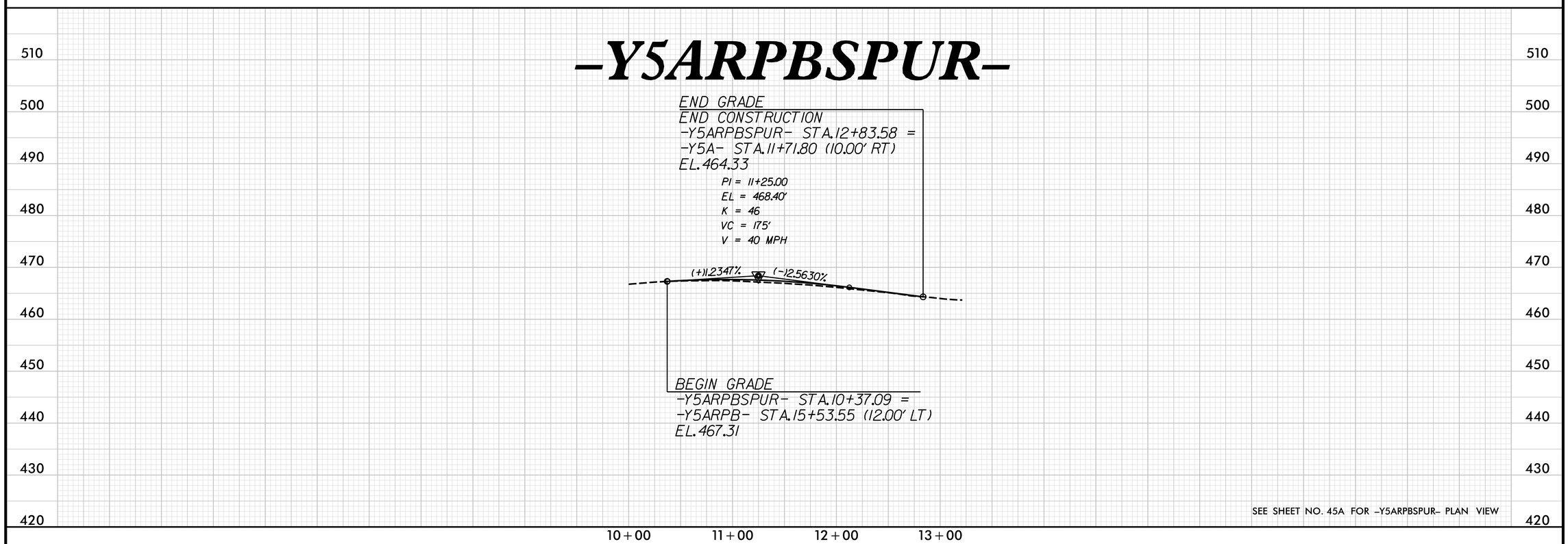
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	103
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET NOS. 21, 45A FOR -Y5ARPC- PLAN VIEW



SEE SHEET NO. 45A FOR -Y5ARPBSPUR- PLAN VIEW

REVISIONS

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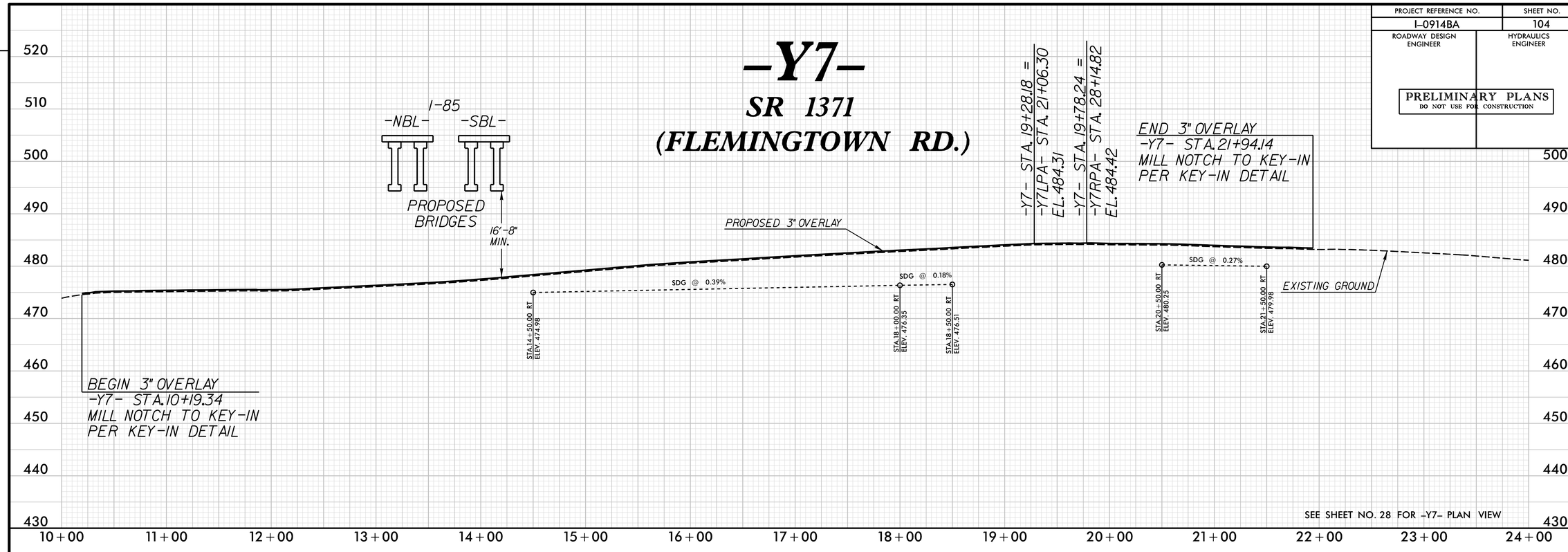
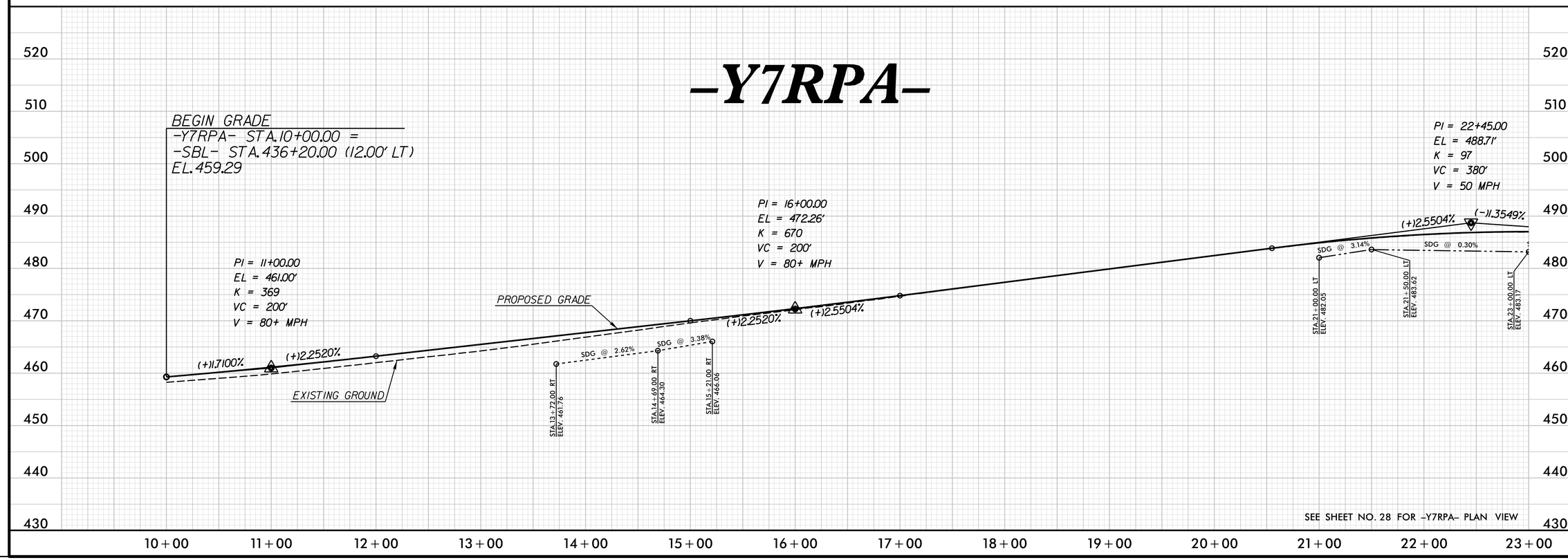
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	104
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





REVISIONS

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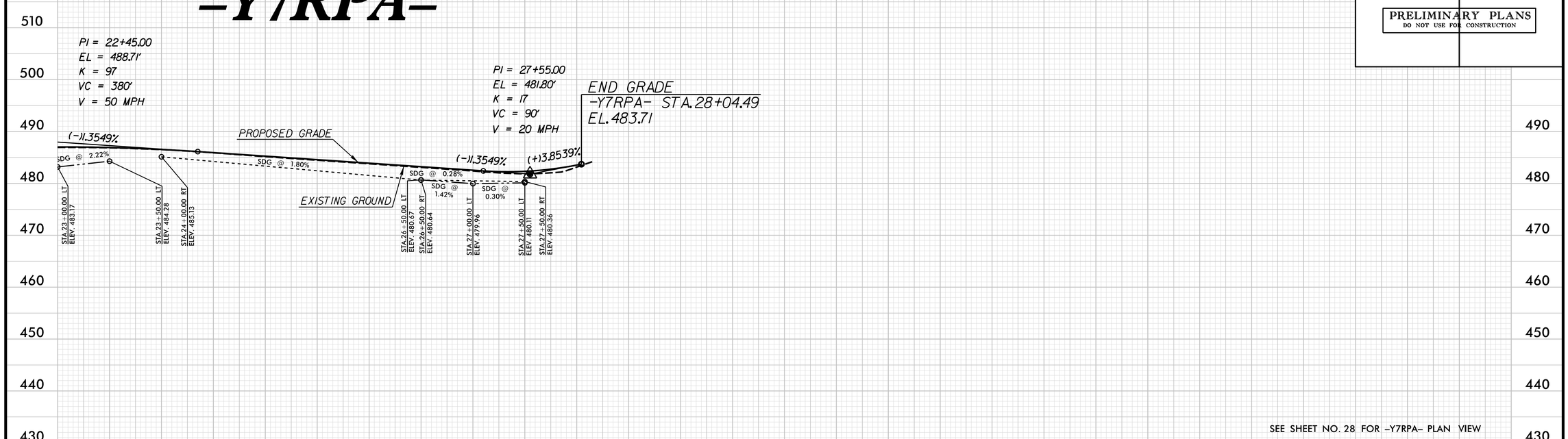
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	105
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

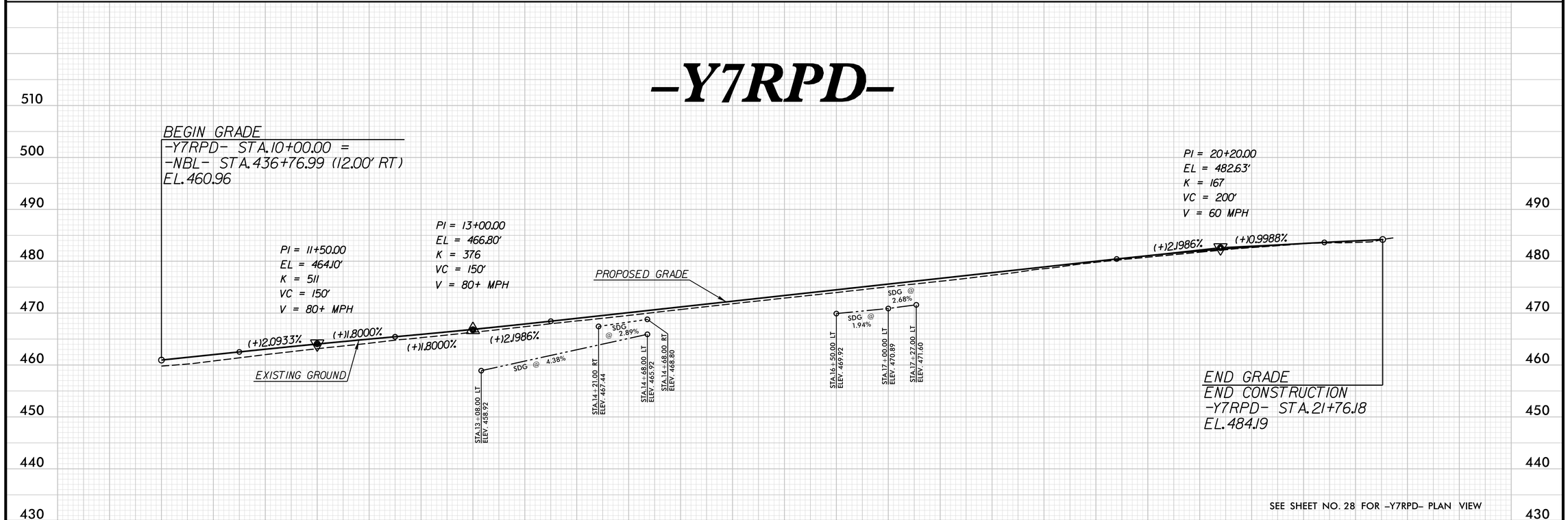
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y7RPA-



SEE SHEET NO. 28 FOR -Y7RPA- PLAN VIEW

-Y7RPD-



SEE SHEET NO. 28 FOR -Y7RPD- PLAN VIEW

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 10:59:04 AM
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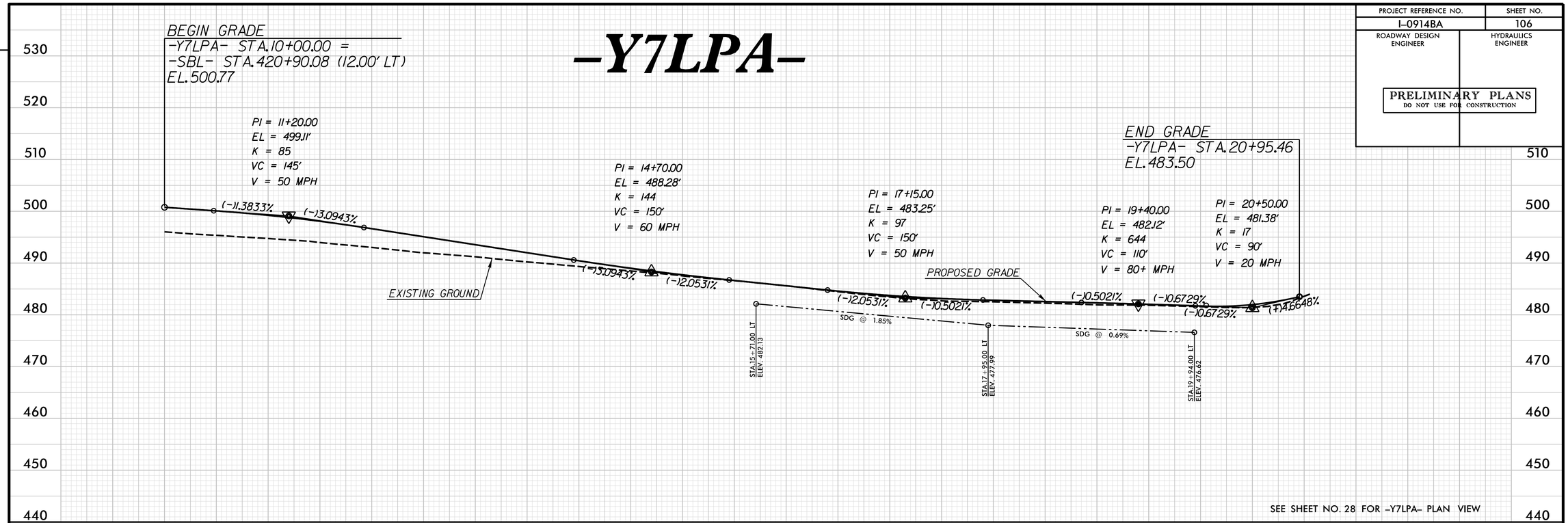
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	106
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

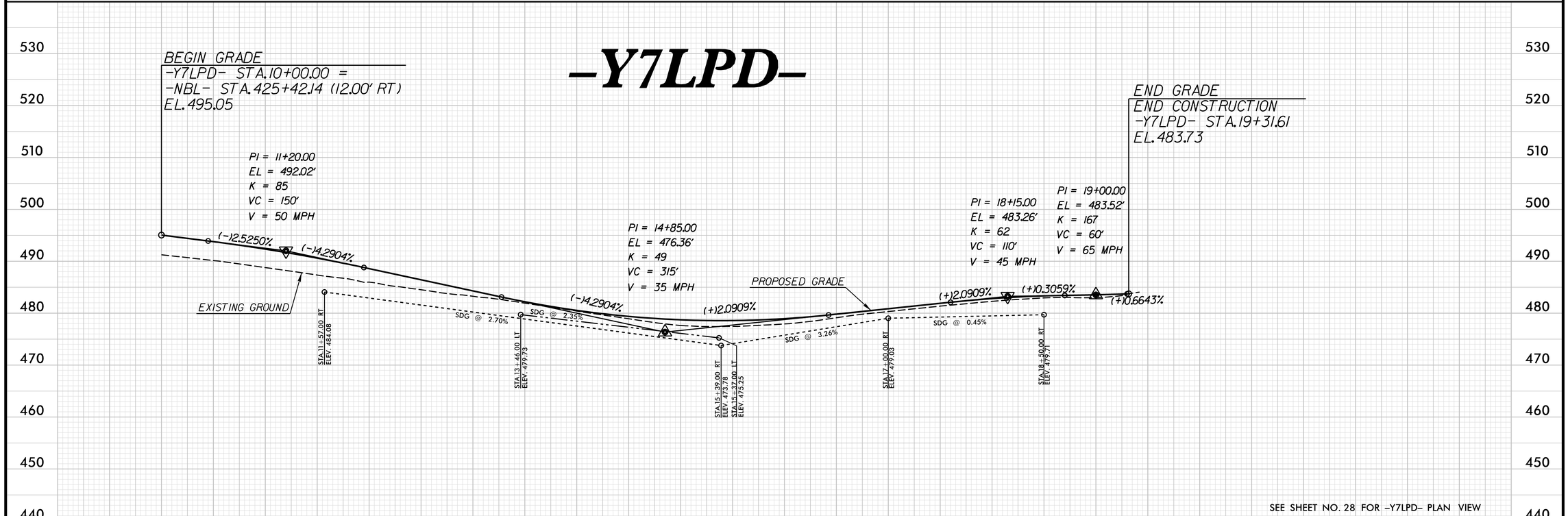
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y7LPA-



SEE SHEET NO. 28 FOR -Y7LPA- PLAN VIEW

-Y7LPD-



SEE SHEET NO. 28 FOR -Y7LPD- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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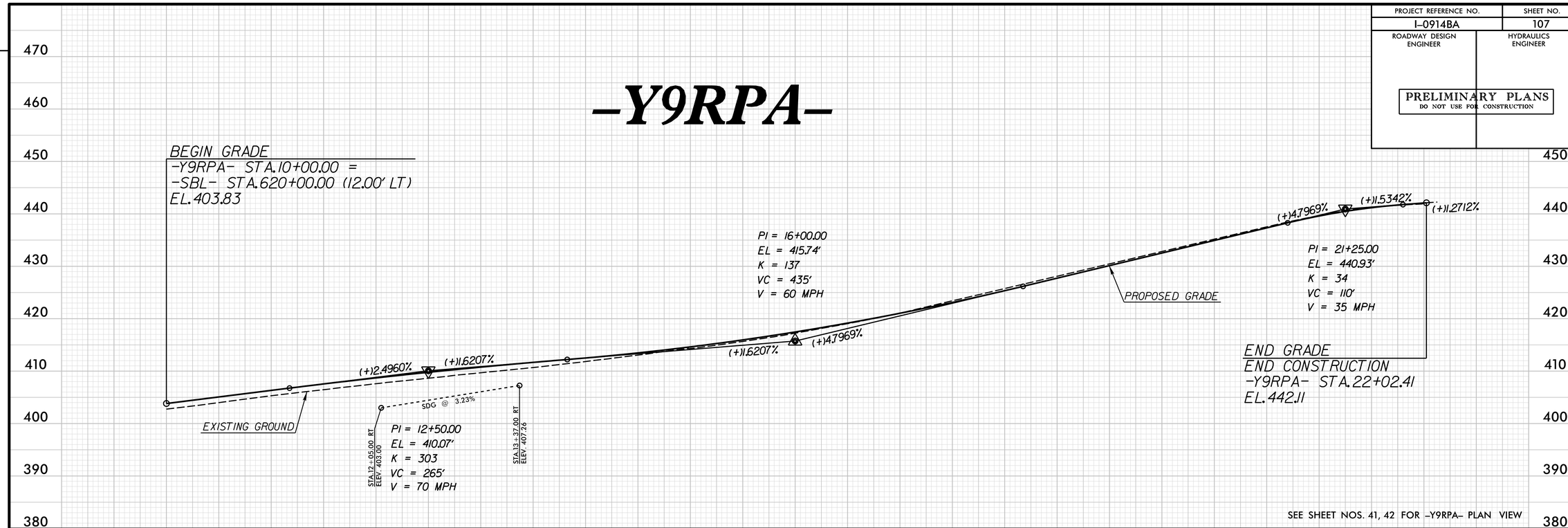
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	107
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

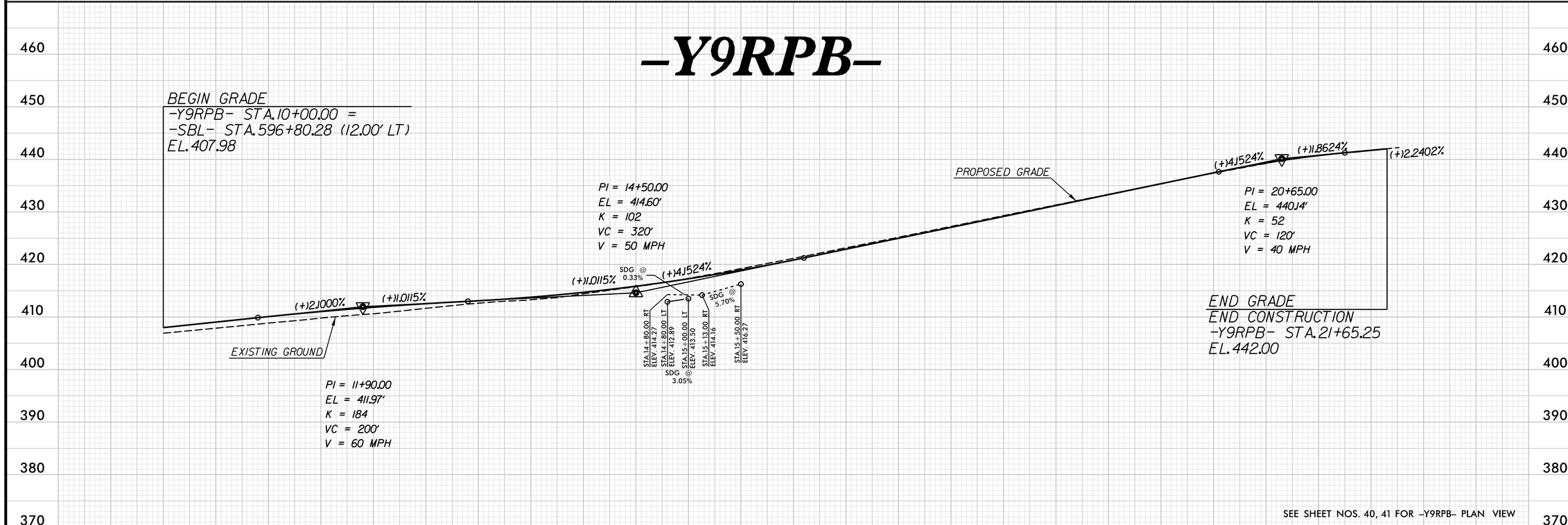
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y9RPA-



SEE SHEET NOS. 41, 42 FOR -Y9RPA- PLAN VIEW

-Y9RPB-



SEE SHEET NOS. 40, 41 FOR -Y9RPB- PLAN VIEW

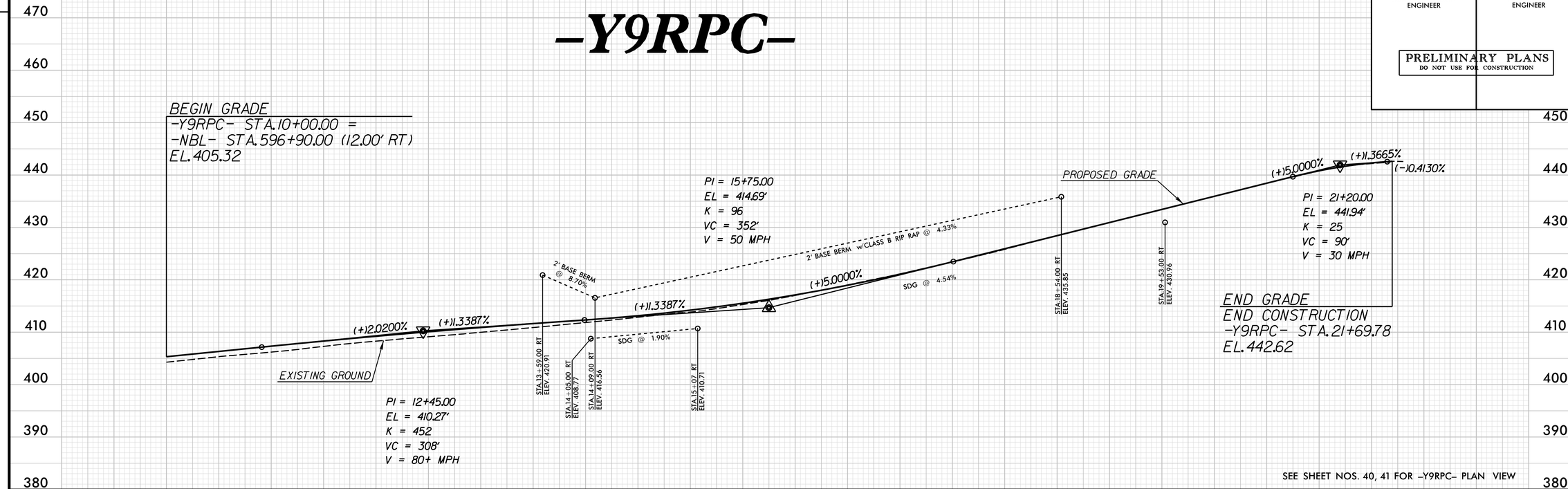
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 11:01:15 AM
FILE: North Carolina_Dept_of_Transportation\NCDOT_I_85_Pavement_Rehab\06.00_Project_Design\I-0914BA NCDOT folder structure\Roadway\Proj\I0914BA_RDY_PFL_S107.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	108
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

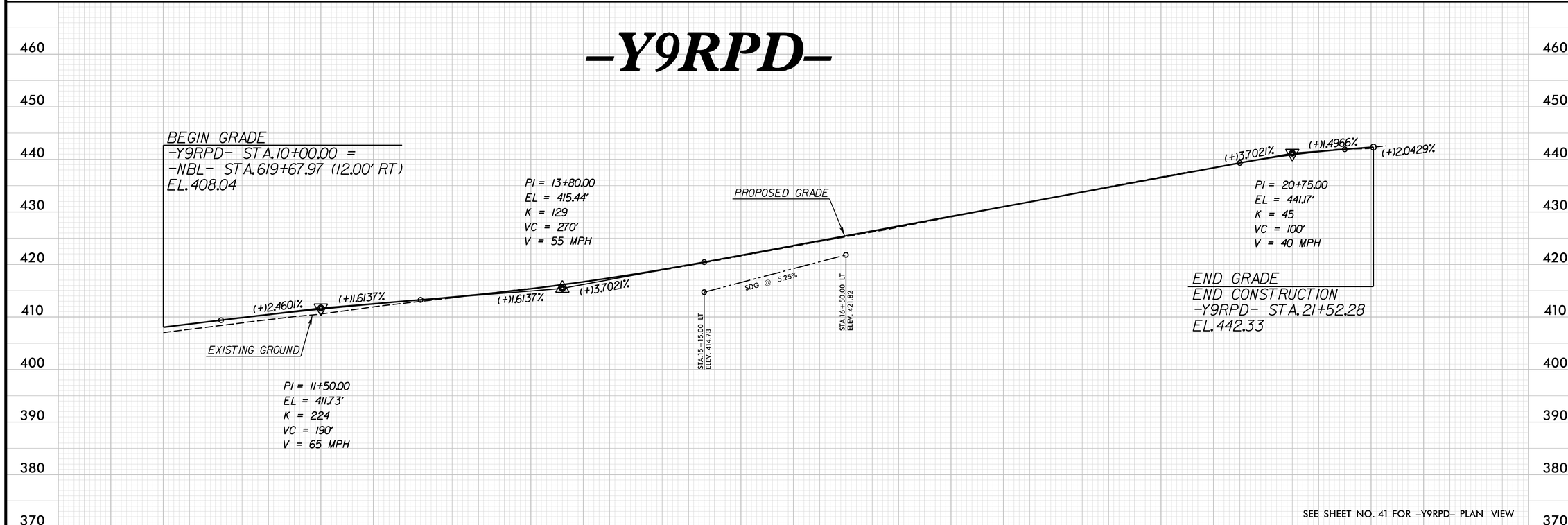
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y9RPC-



SEE SHEET NOS. 40, 41 FOR -Y9RPC- PLAN VIEW

-Y9RPD-



SEE SHEET NO. 41 FOR -Y9RPD- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
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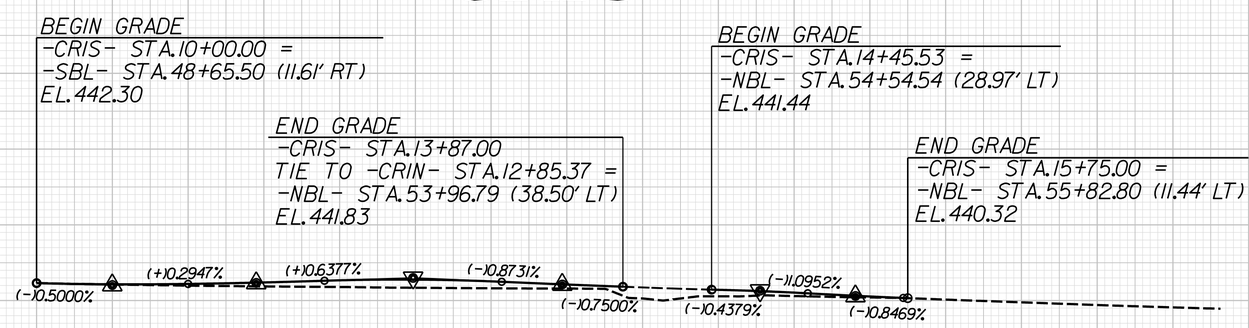
PROJECT REFERENCE NO.	SHEET NO.
I-0914BA	109
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-CR1S-

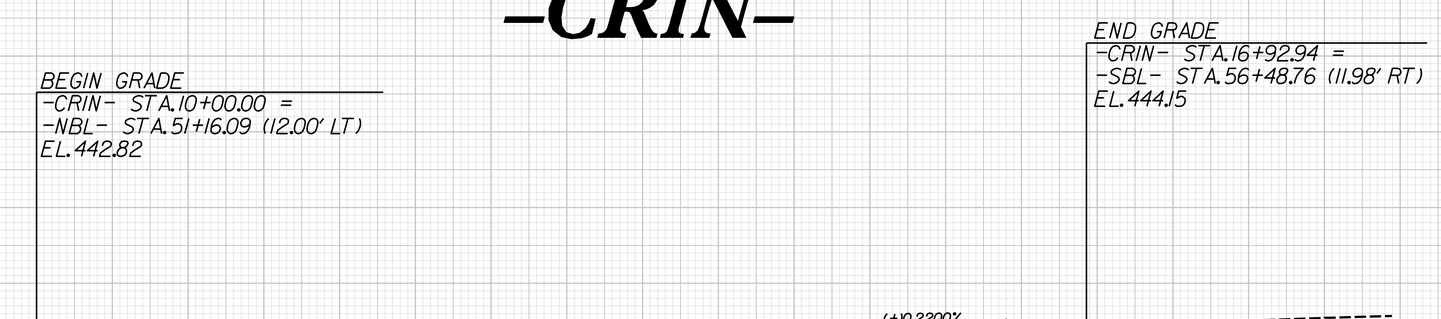


CRIS
(EXISTING TO EXISTING)

PI = 10+50.00	PI = 11+45.00	PI = 12+48.50	PI = 13+47.00	PI = 14+77.50	PI = 15+40.50	PI = 15+72.38
EL = 442.05'	EL = 442.33'	EL = 442.99'	EL = 442.13'	EL = 441.30'	EL = 440.61'	EL = 440.34'
K = 126	K = 262	K = 77	K = 650	K = 96	K = 254	
VC = 100'	VC = 90'	VC = 117'	VC = 80'	VC = 63'	VC = 63'	
V = 55 mph	V > 80 mph	V = 45 mph	V > 80 mph	V = 50 mph	V > 80 mph	

SEE SHEET NO. 4 FOR -CR1S- PLAN VIEW

-CR1N-



CRIN
(EXISTING TO EXISTING)

PI = 13+42.00	PI = 15+40.00	PI = 16+40.00
EL = 441.59'	EL = 443.61'	EL = 443.83'
K = 123	K = 125	K = 260
VC = 170'	VC = 100'	VC = 100'
V = 55 mph	V = 55 mph	V > 80 mph

SEE SHEET NO. 4 FOR -CR1N- PLAN VIEW

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: dwainwri DATE: 2/28/2014 TIME: 11:01:59 AM
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PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	58
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

05-MAR-2014 14:30
I0914BB_Hdy_psh_058.dgn
hpardon (jpason)

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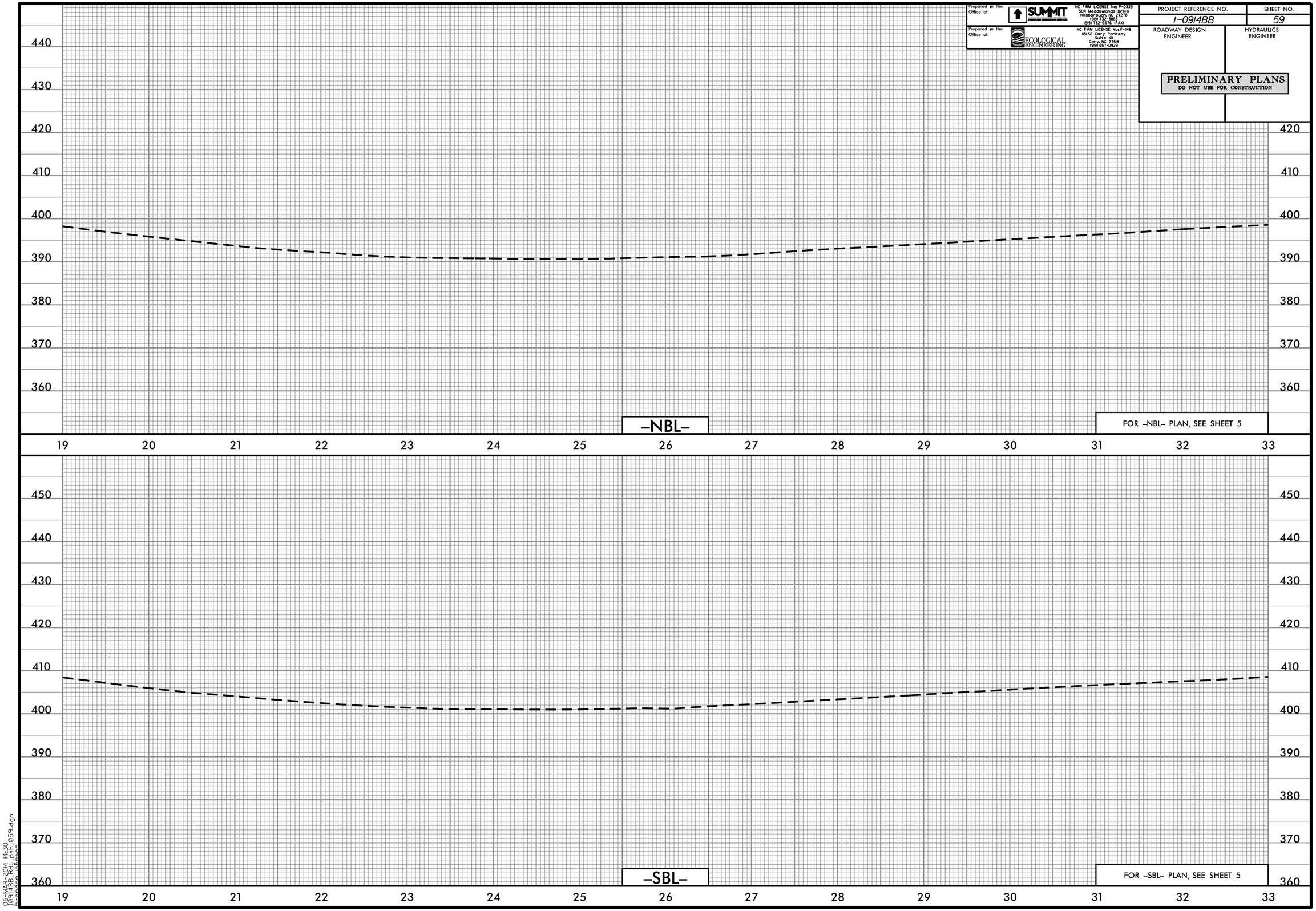
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	59
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



05-MAR-2014 14:30
I0914BB_Hdy_psh_059.dgn
bpeden (jpeson)

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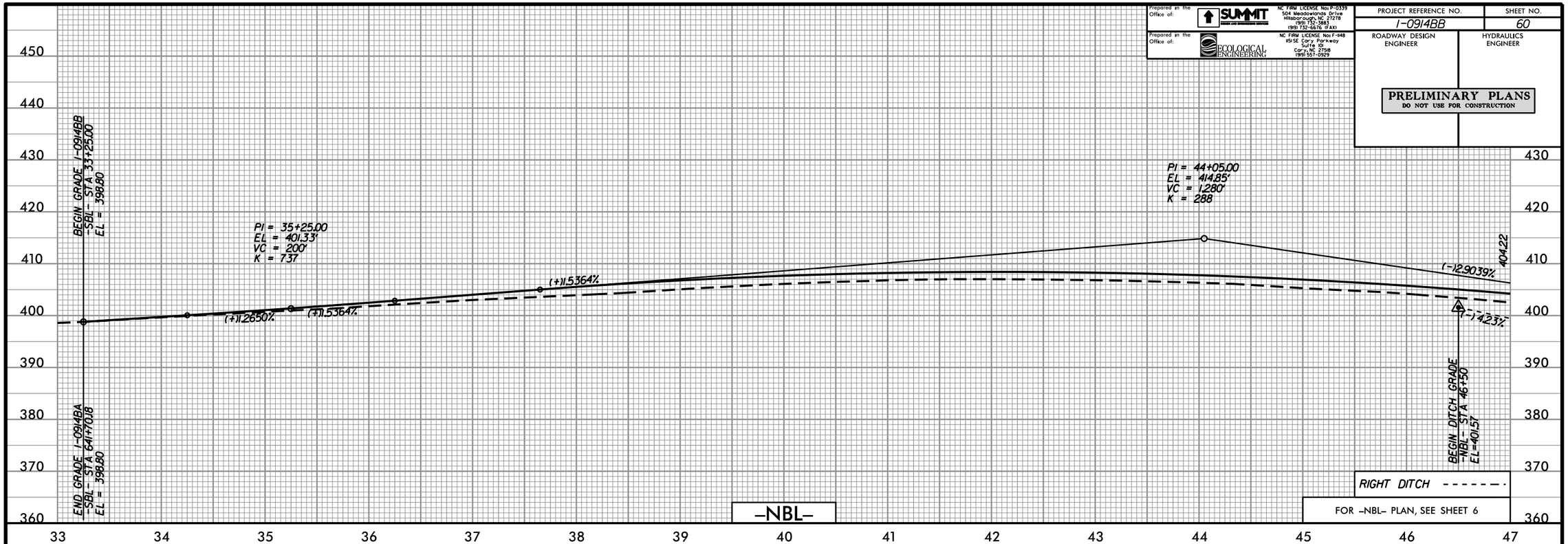
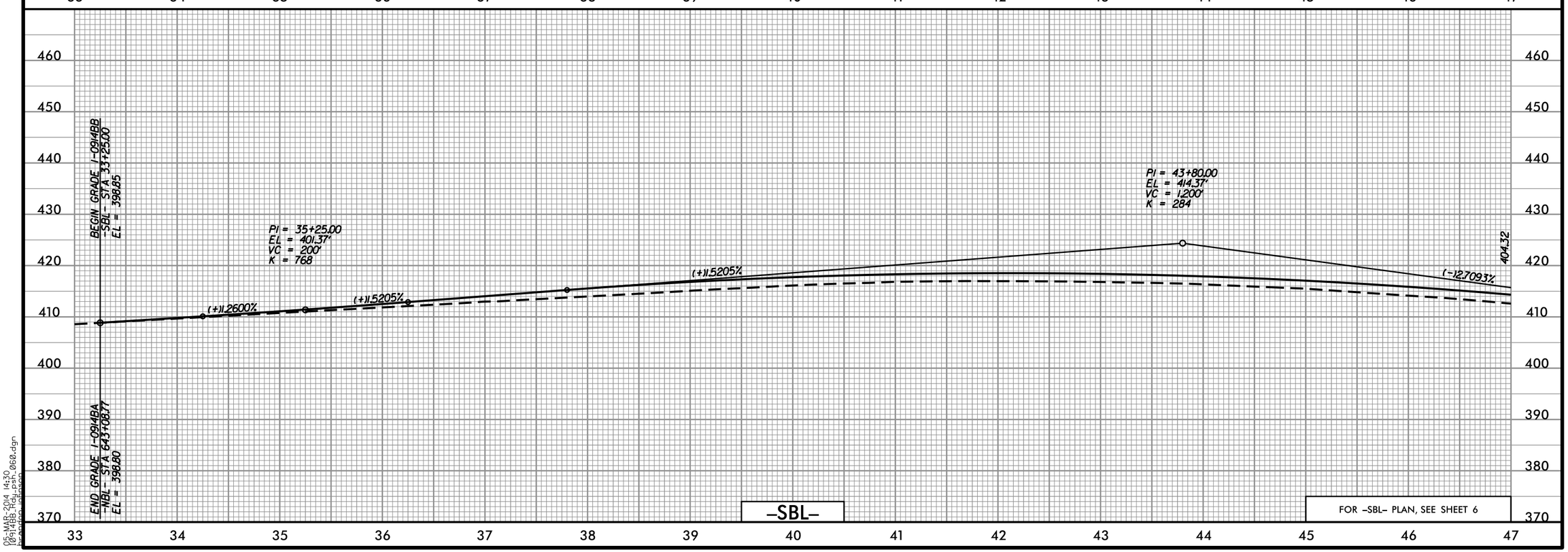
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	60
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy.psh
bpadgen (jbason)

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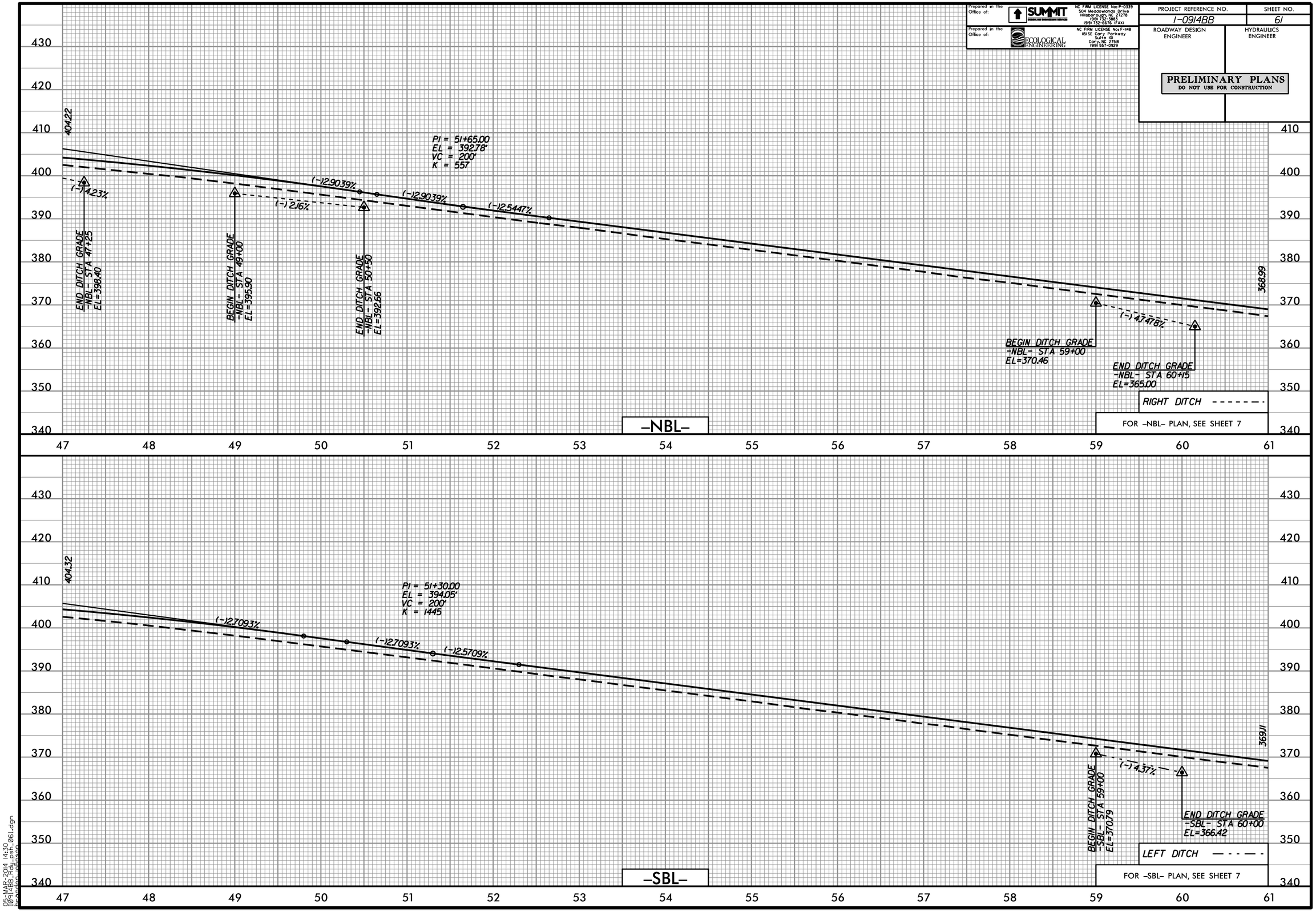
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	61
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



05-MAR-2014 14:30
I0914BB_Hdy_psh_061.dgn
bpeden (jbeden)

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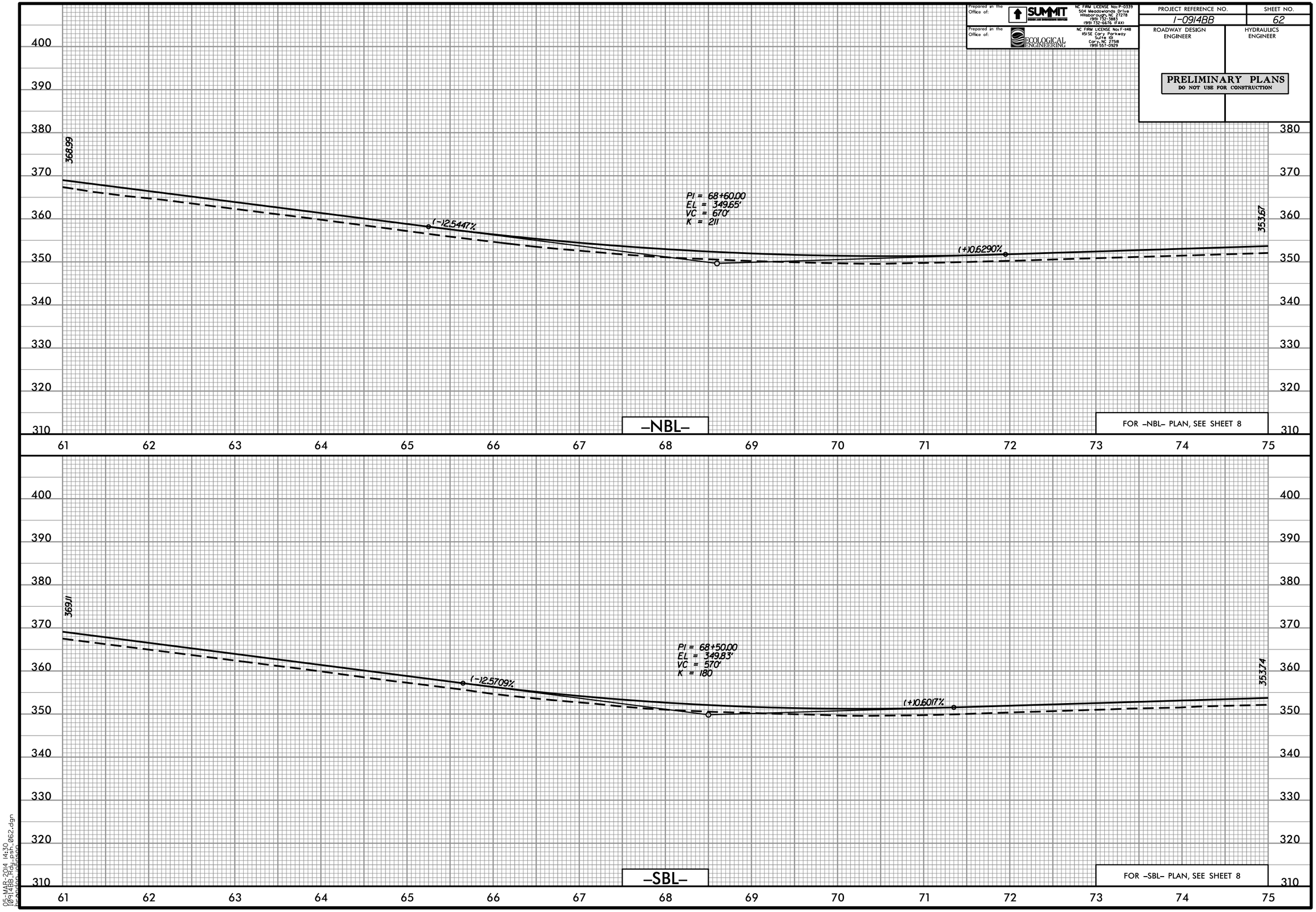
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	62
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



05-MAR-2014 14:30
I0914BB_Hdy_psh_062.dgn
hpardon (jpason)

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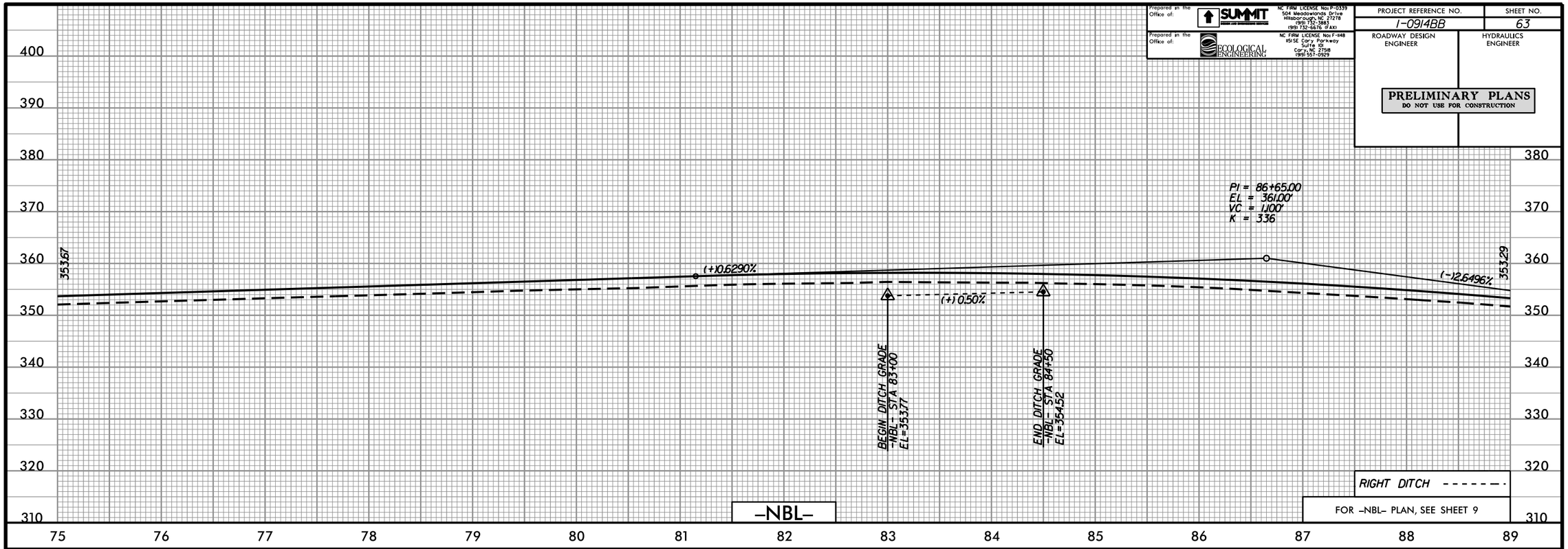
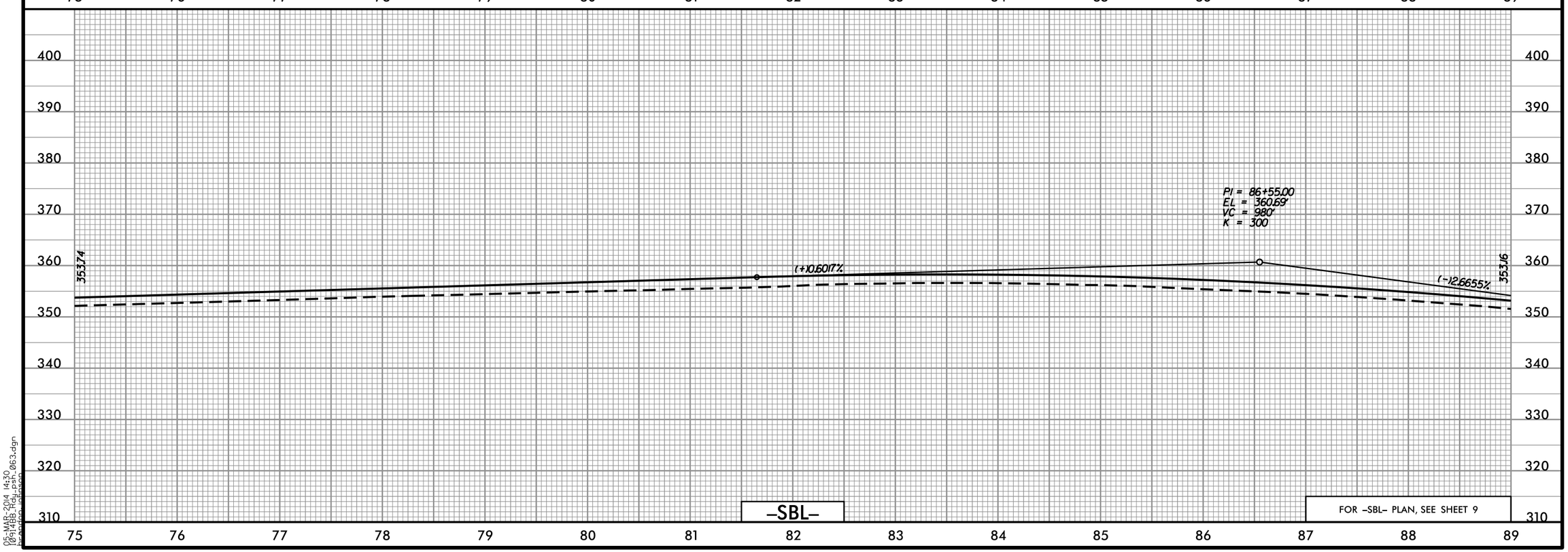
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	63
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy_psh_063.dgn
hpanson japason

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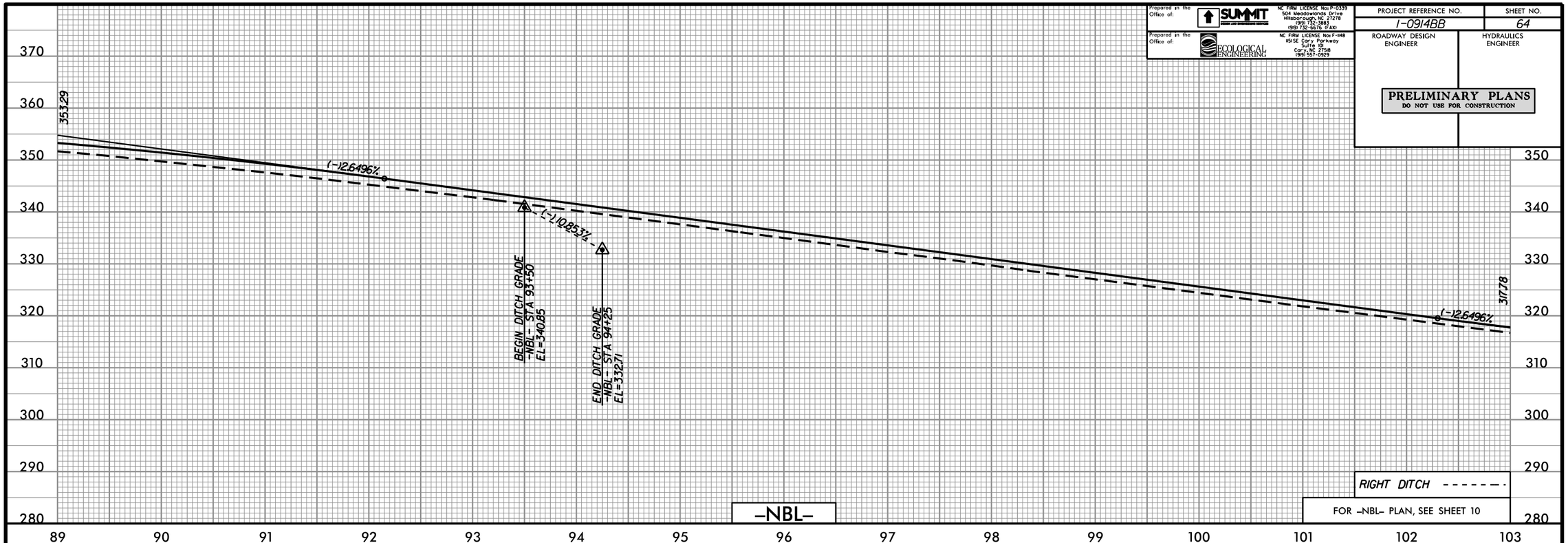
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	64
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



05-MAR-2014 14:30
I0914BB_Hdy_psh_064.dgn
bpeden jpason

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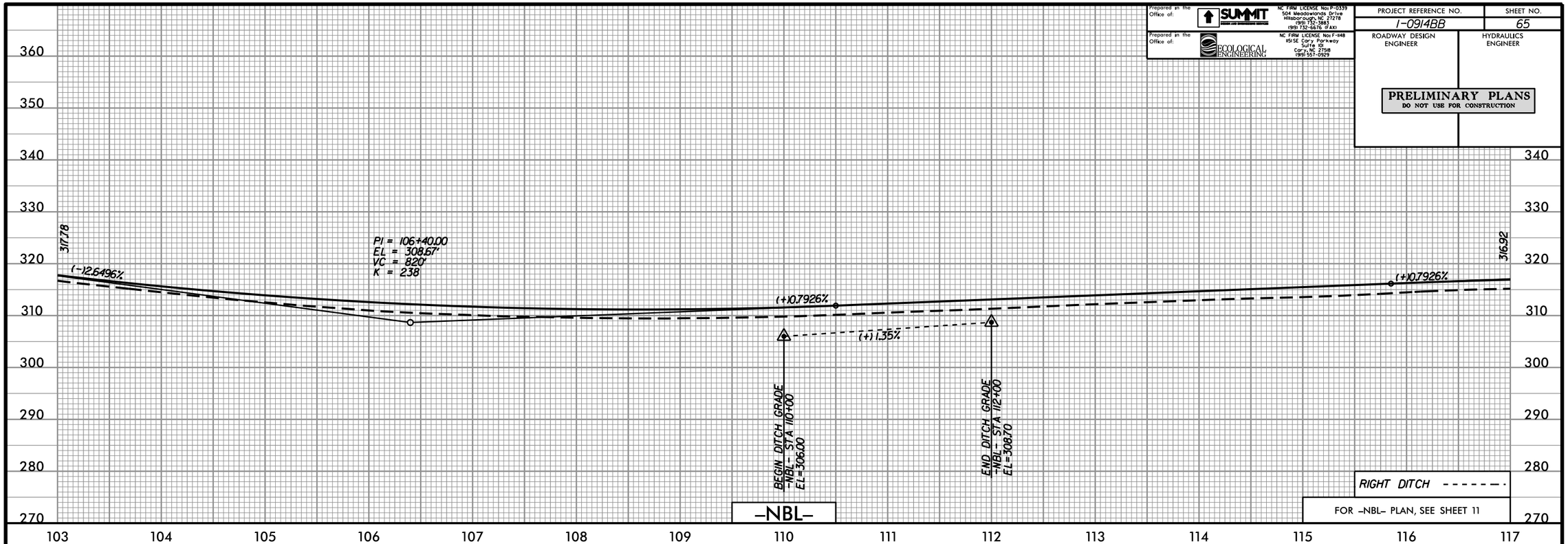
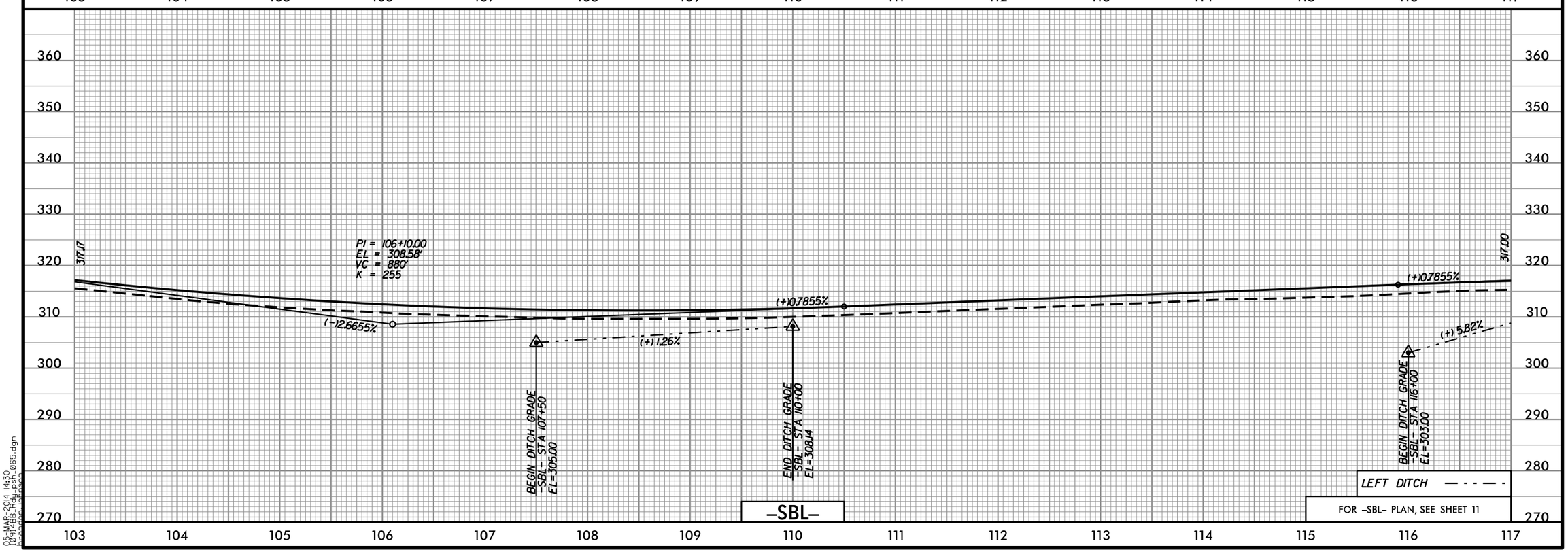
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	65

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy_psh_065.dgn
bpeden (bpeden)

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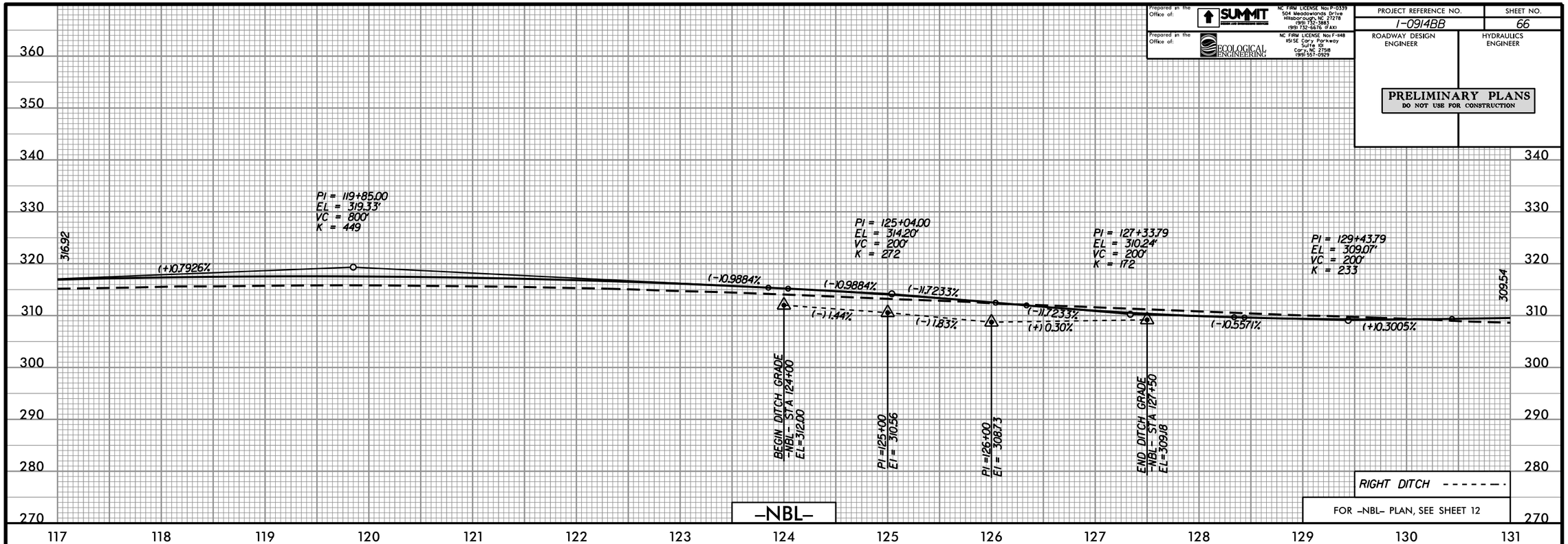
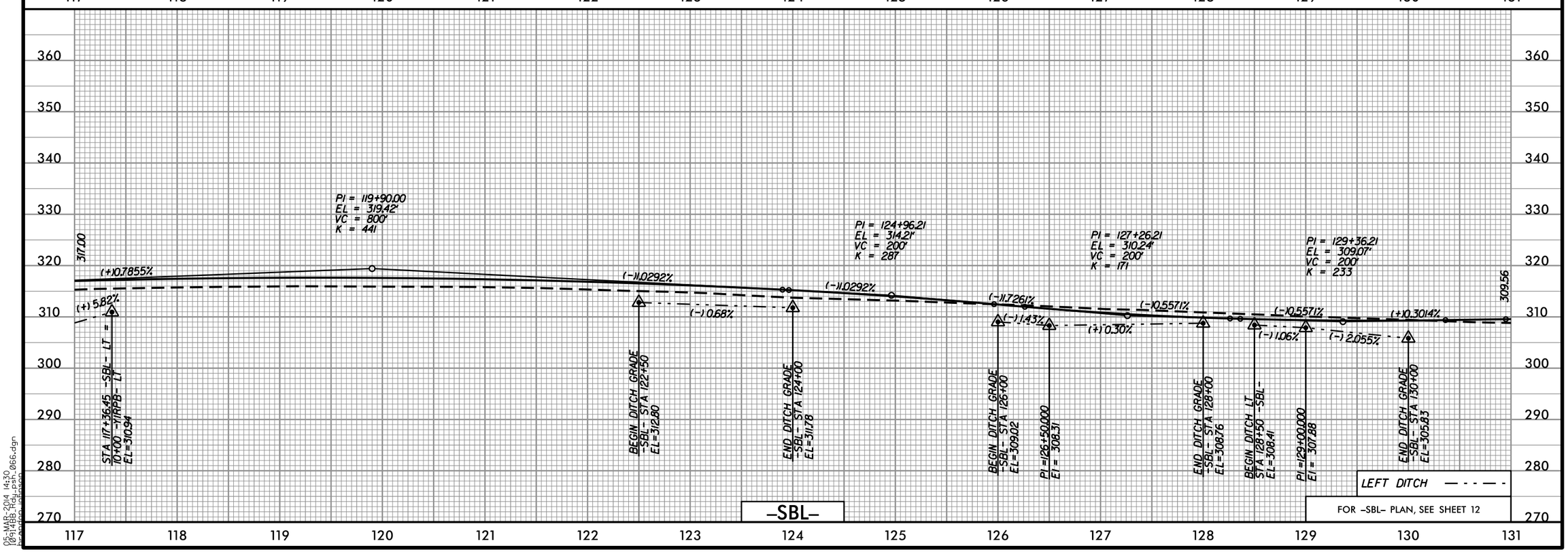
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	66
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy_psh_066.dgn
hpeden (PEDEN)

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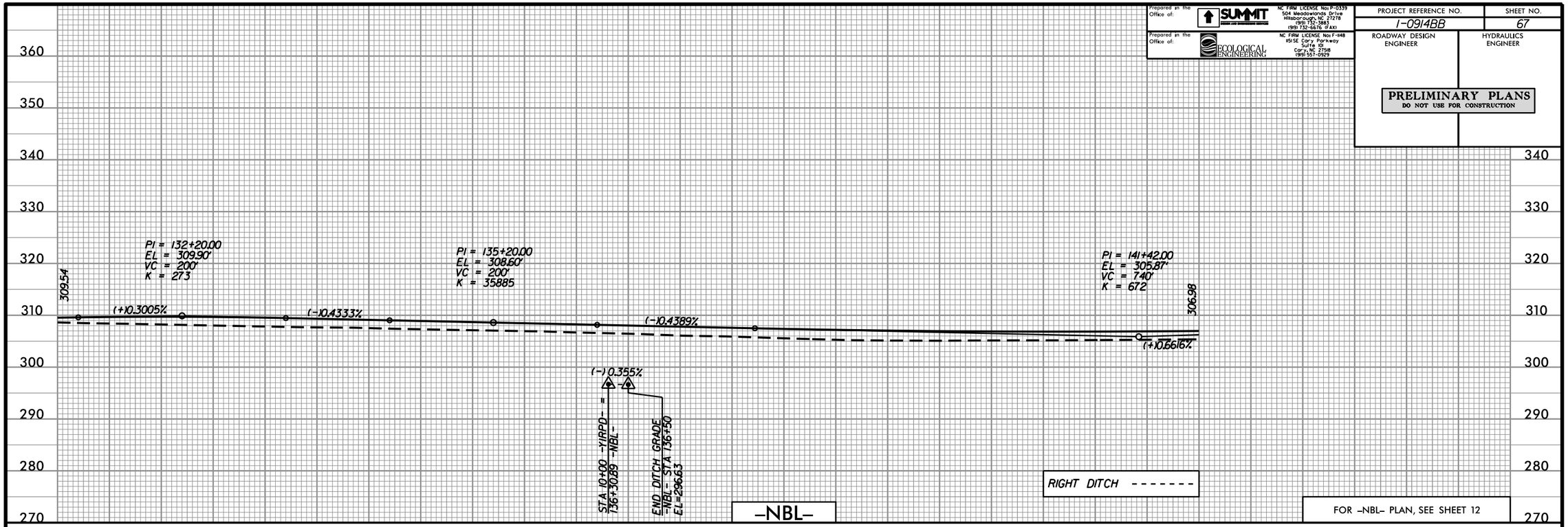
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	67
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



05-MAR-2014 14:30
I0914BB_Hdy_psh_067.dgn
bpeden (jbason)

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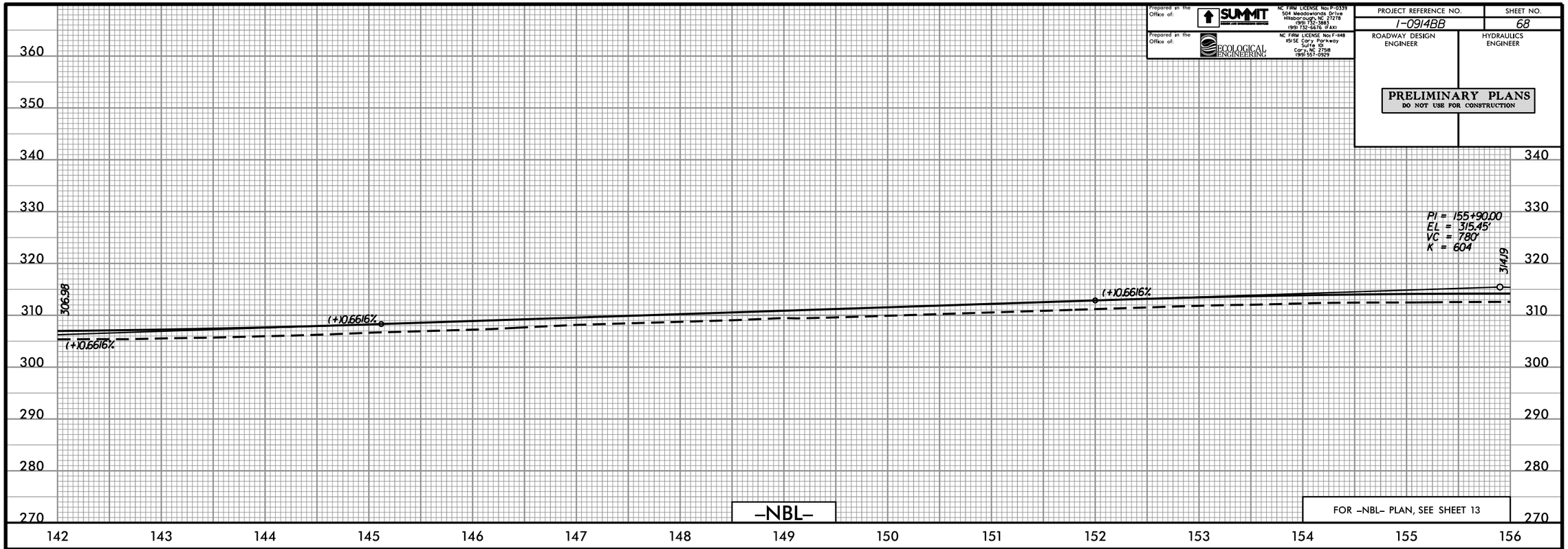
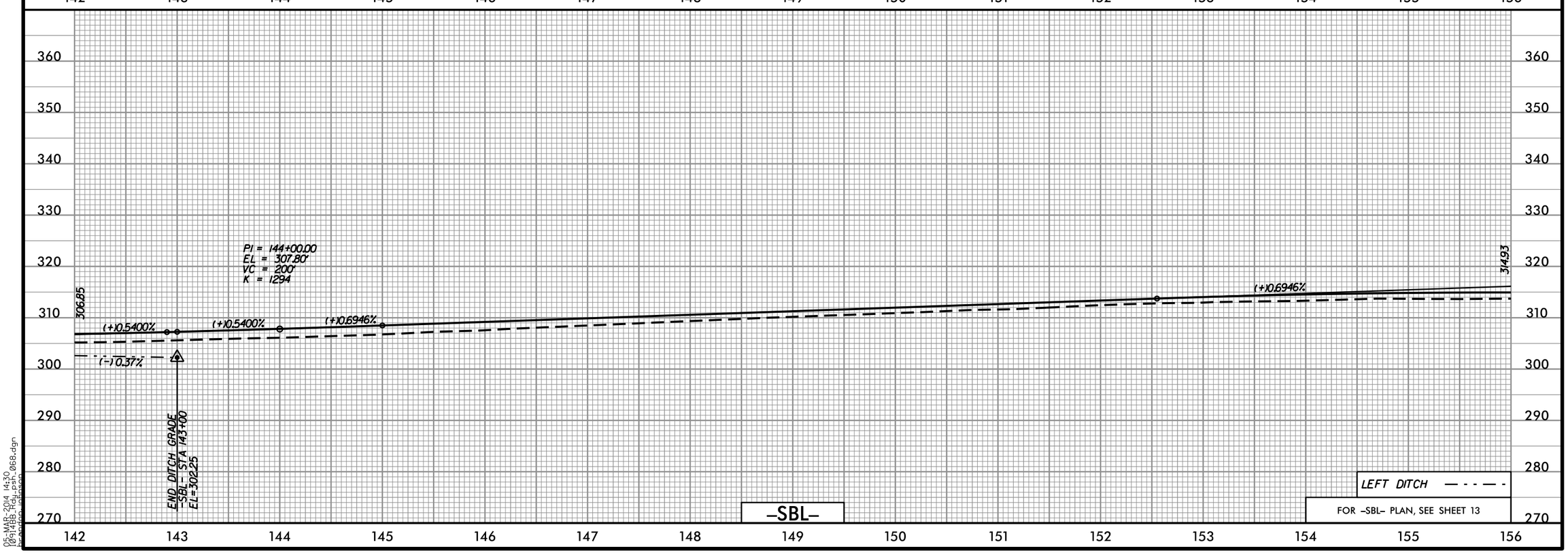
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	68
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy_psh_068.dgn
hpardon (jpason)

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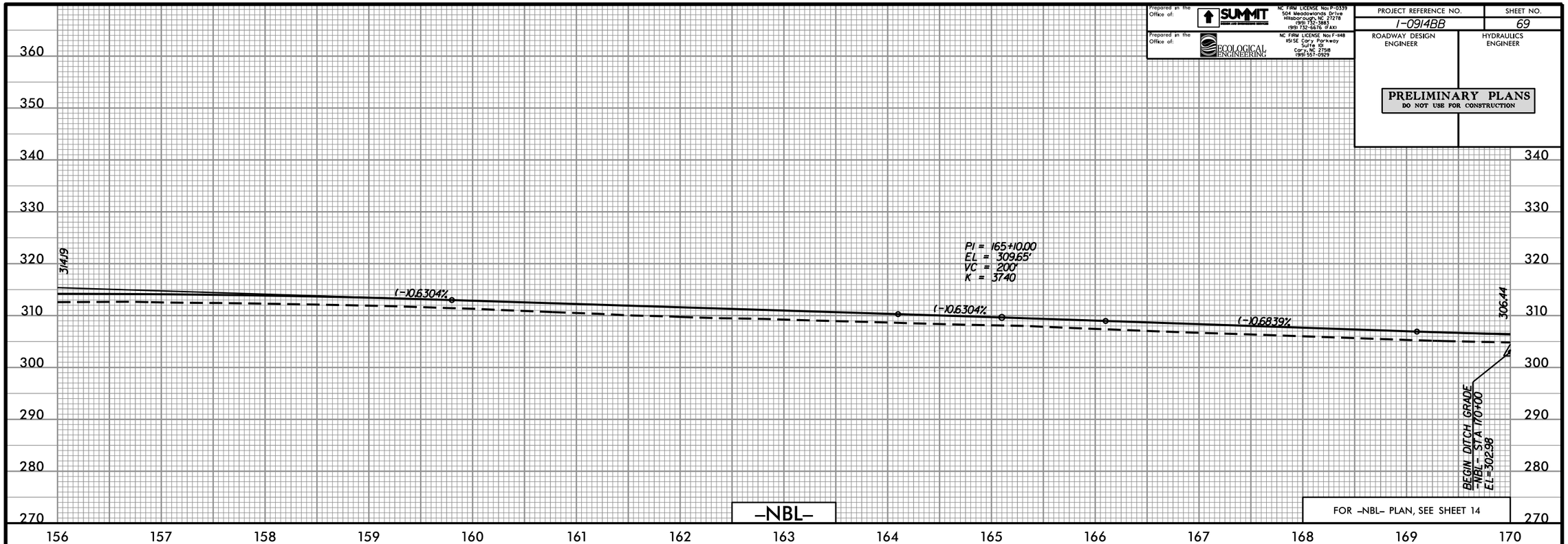
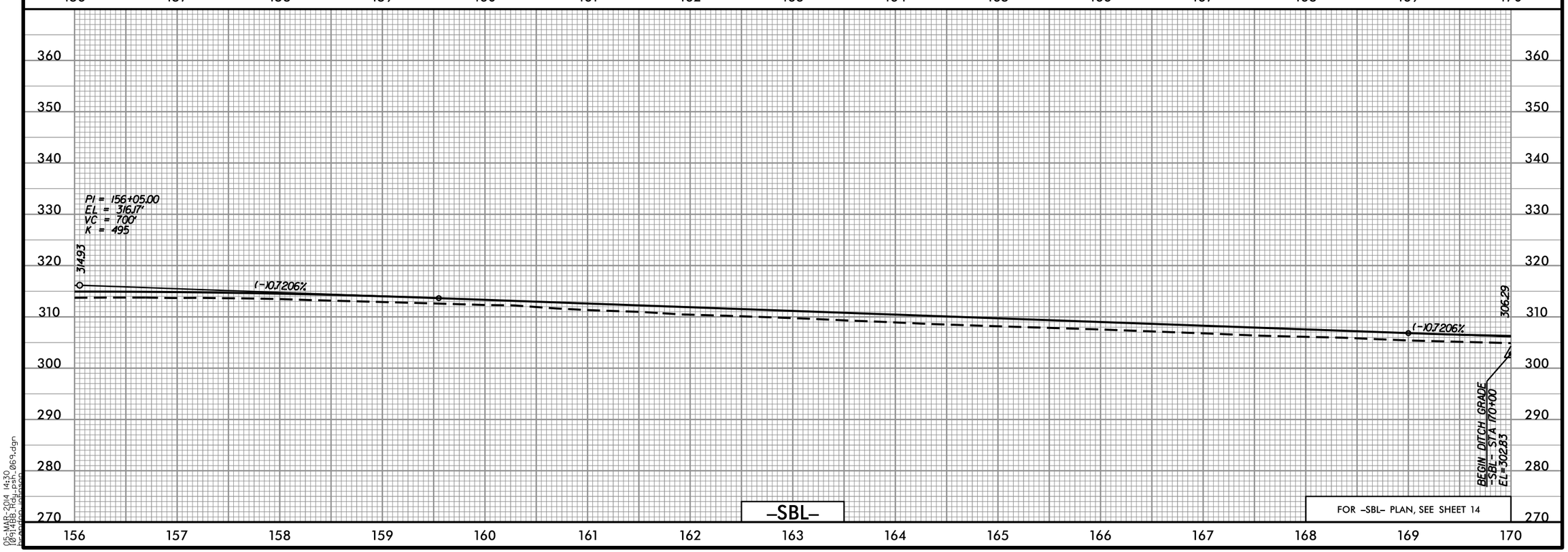
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	69
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy_psh_069.dgn
bgordon (gbason)

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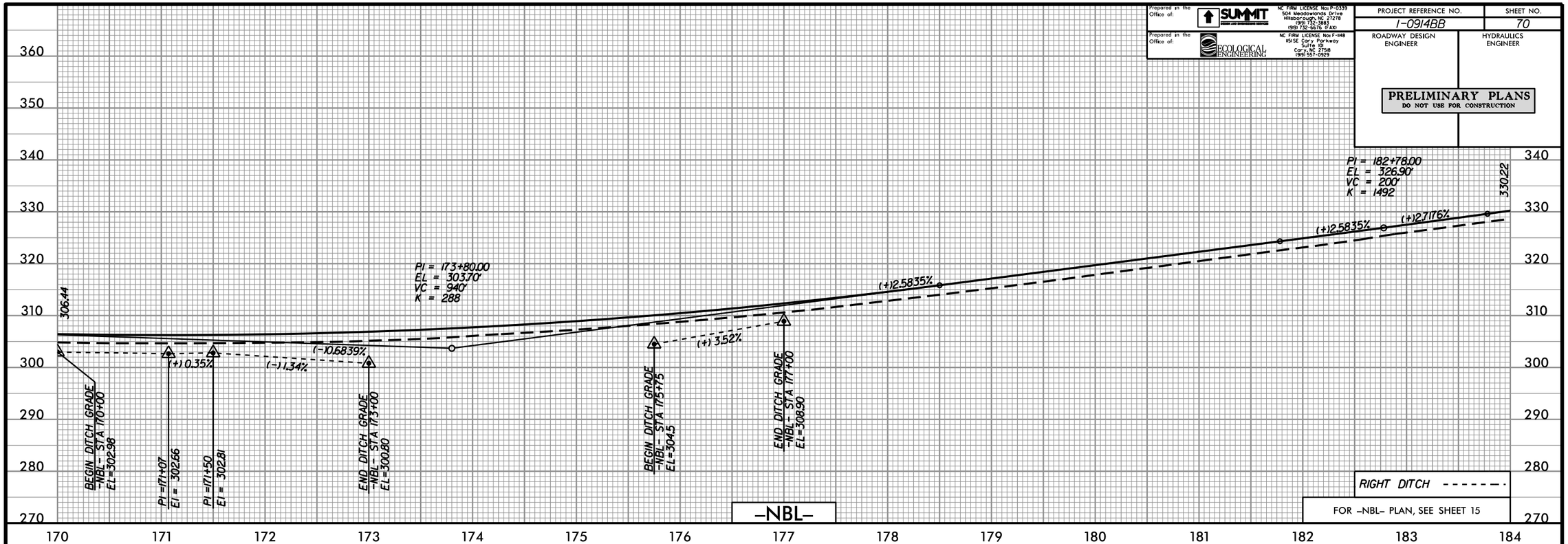
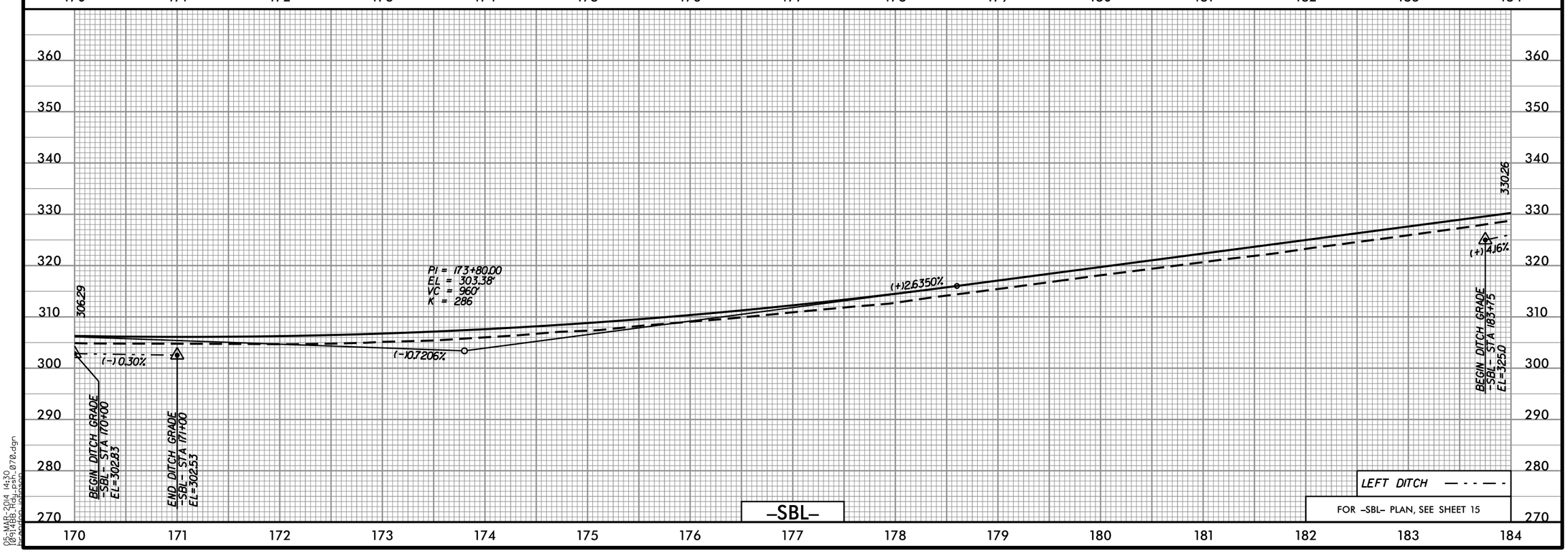
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	70
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy_psh_070.dgn
hpadgen (gpason)

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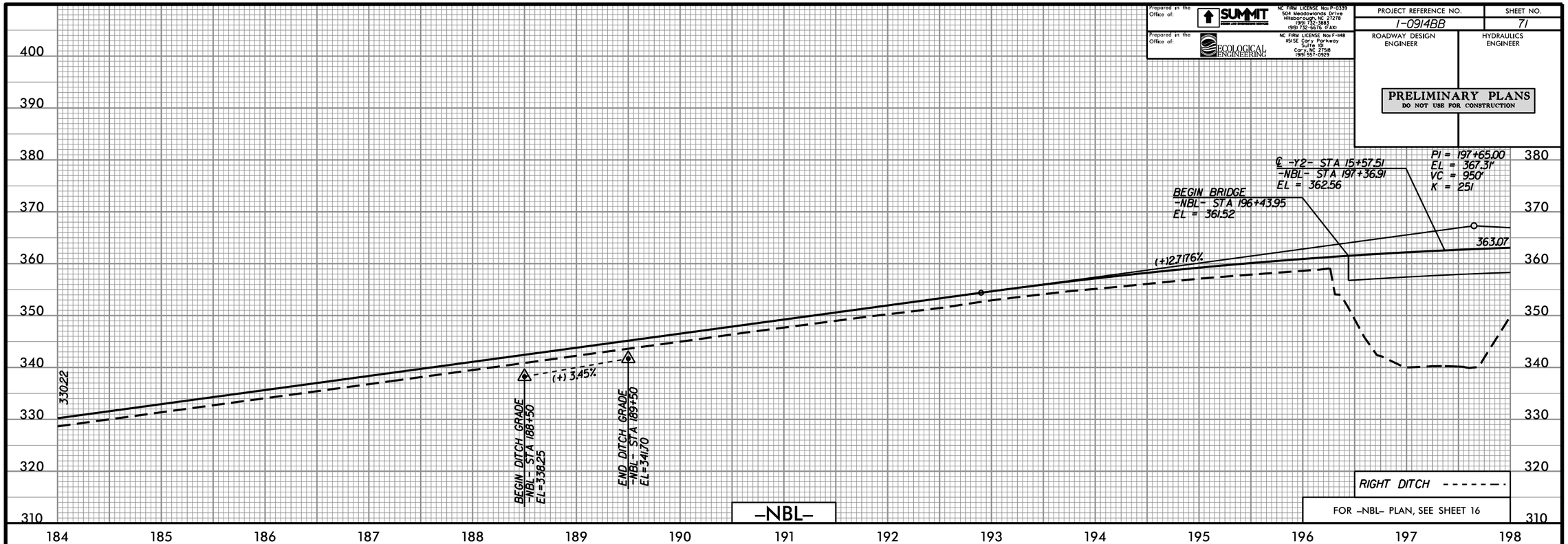
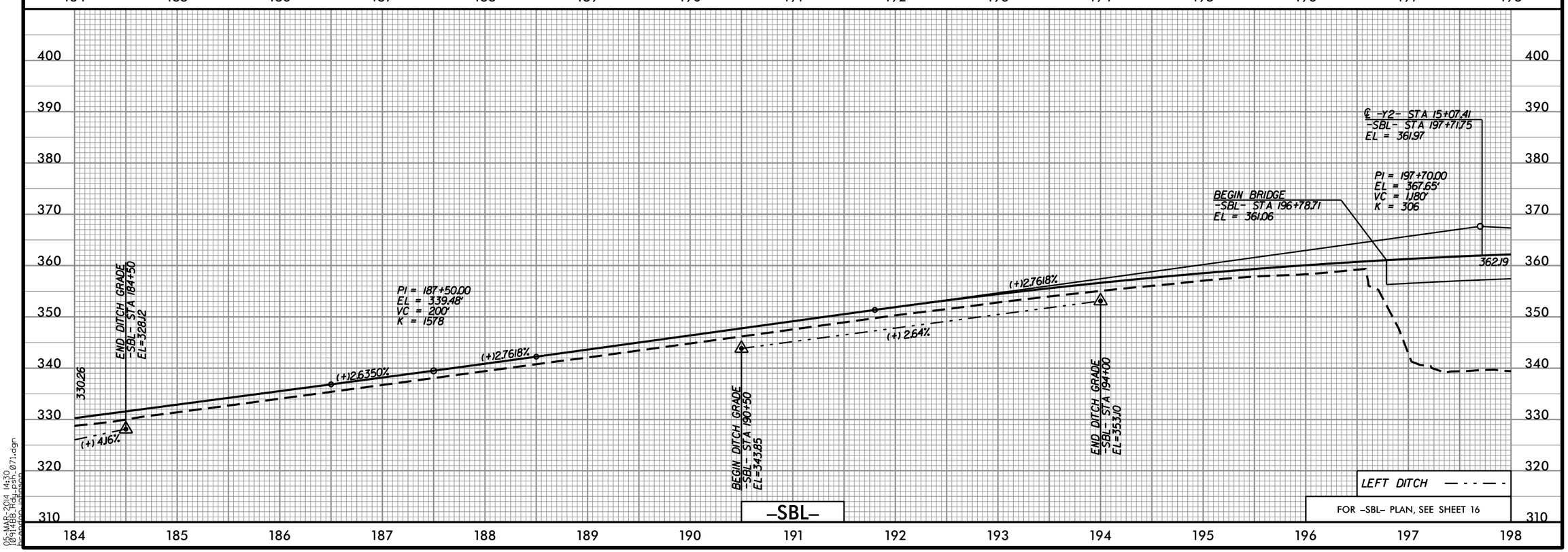
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	71

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy_psh_071.dgn
bpeden (jbeden)

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(919) 732-6676 (FAX)

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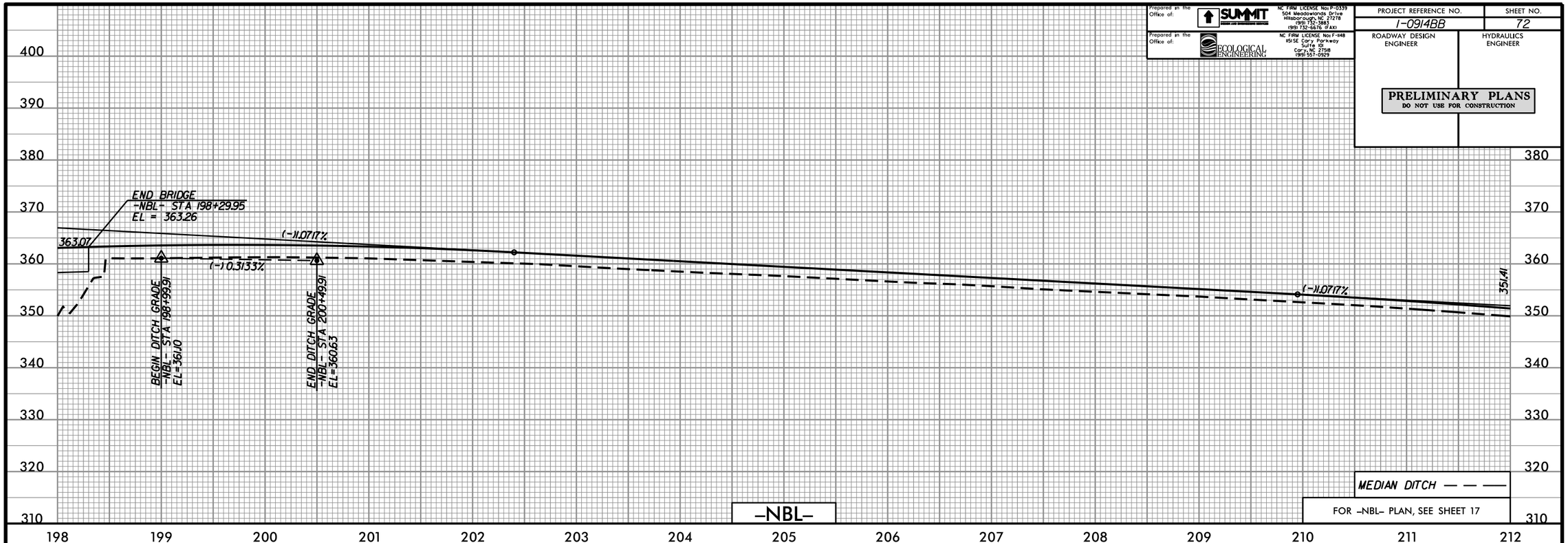
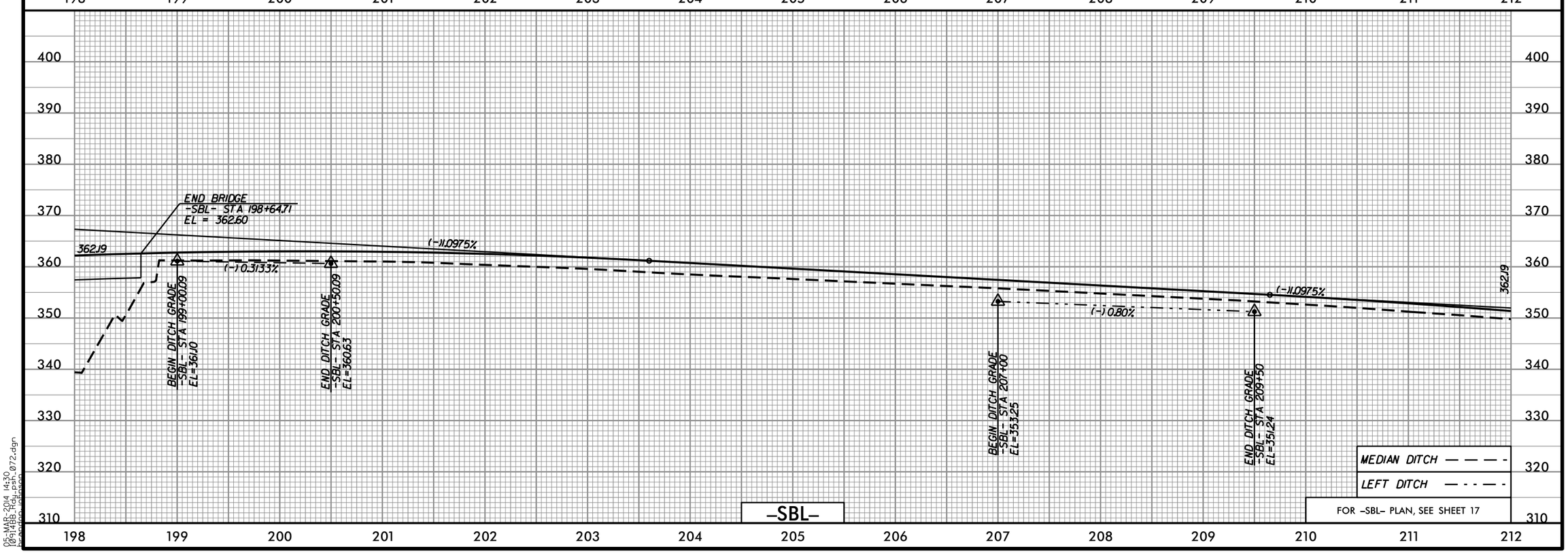
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	72
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy_psh_072.dgn
hcordon (jbrason)

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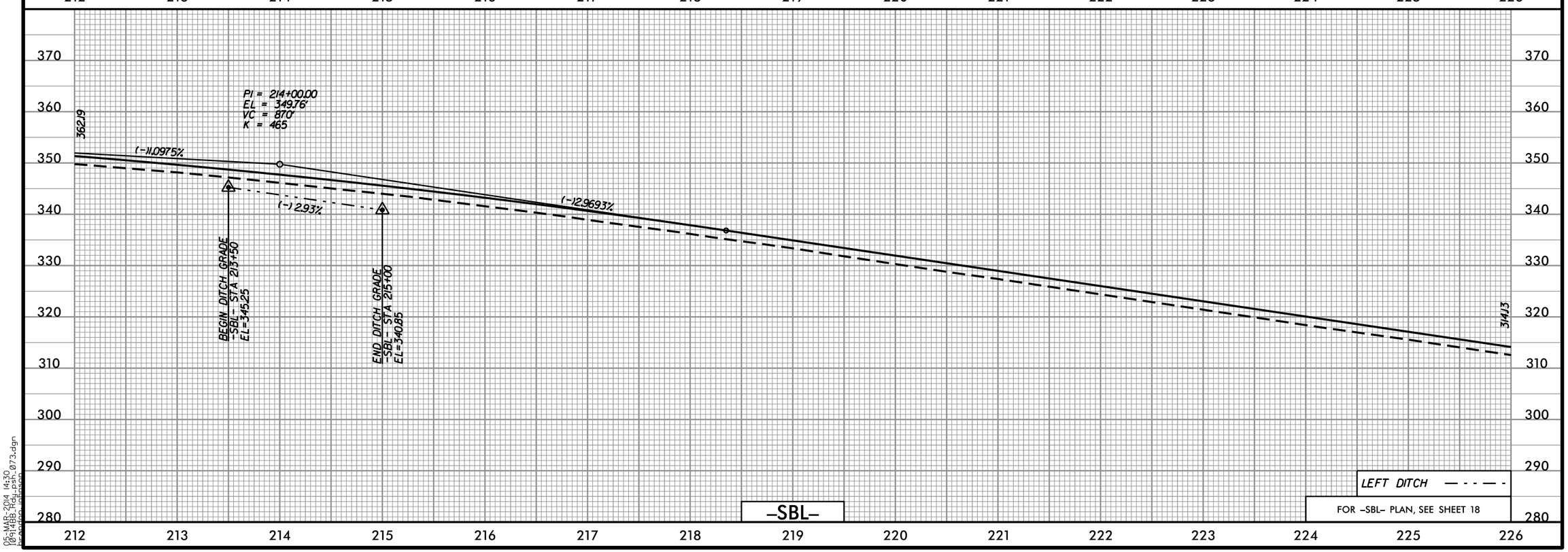
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	73
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -NBL- PLAN, SEE SHEET 18



FOR -SBL- PLAN, SEE SHEET 18

05-MAR-2014 14:30
I0914BB_Hdy_psh_073.dgn
bpeden (jpeson)

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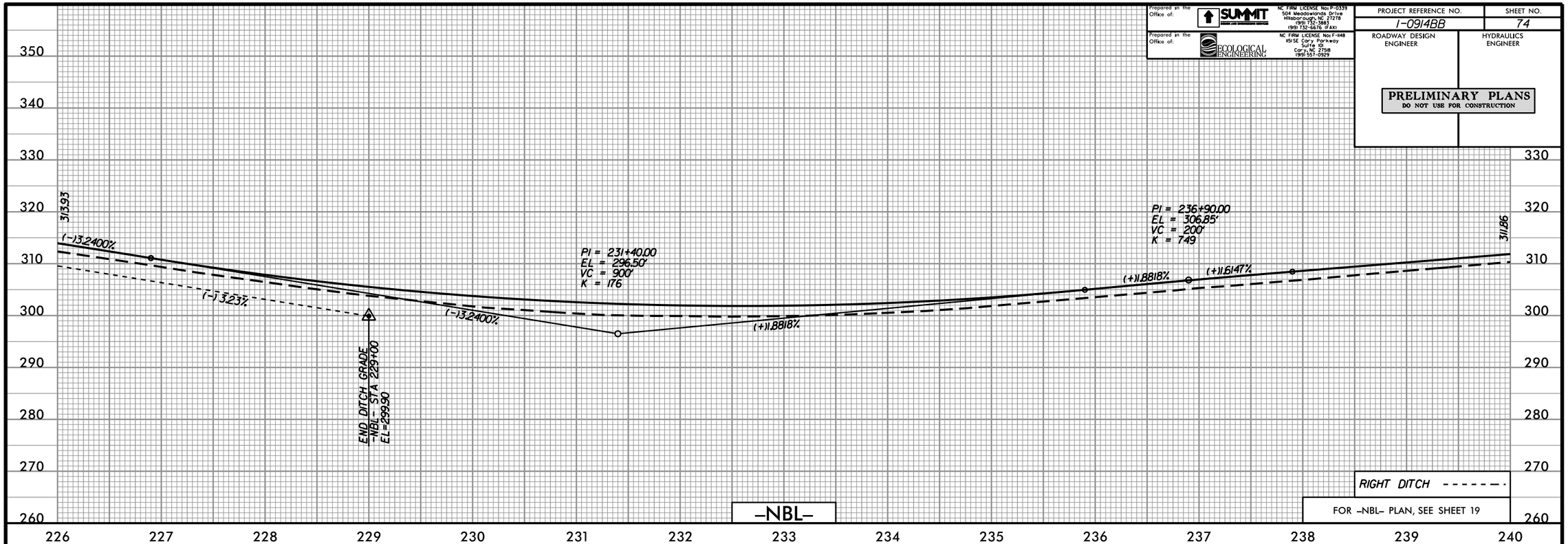
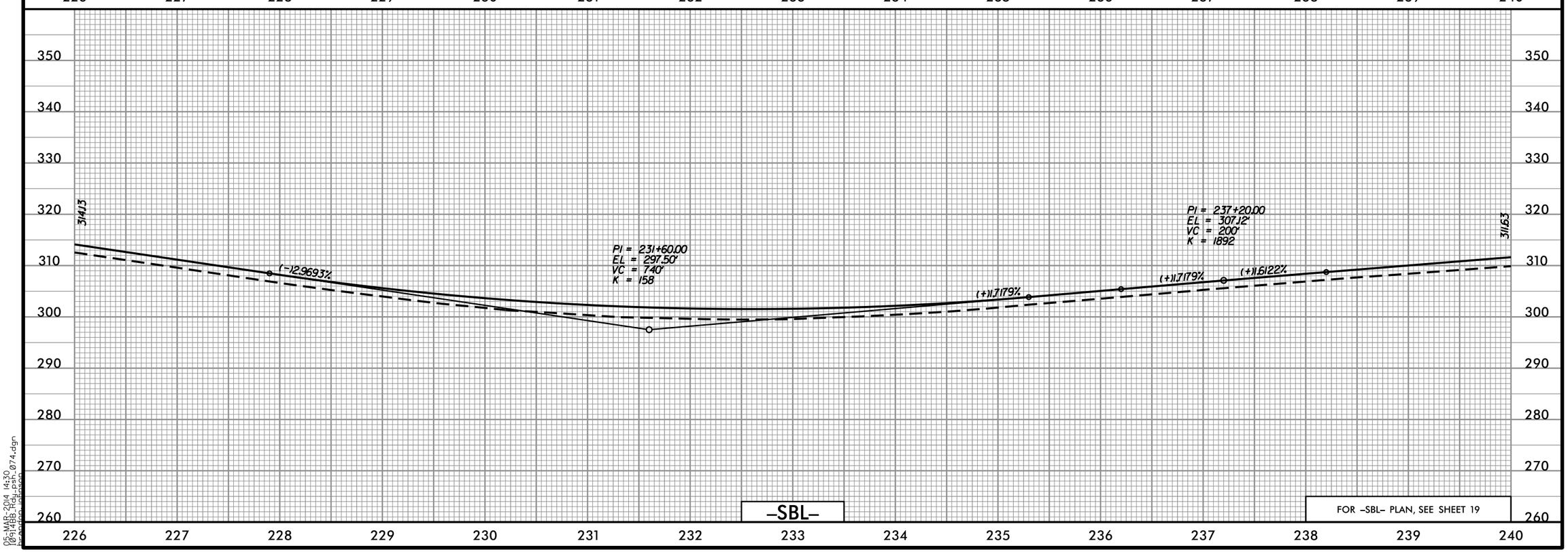
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	74
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy_psh_074.dgn
bpadgen (gpason)

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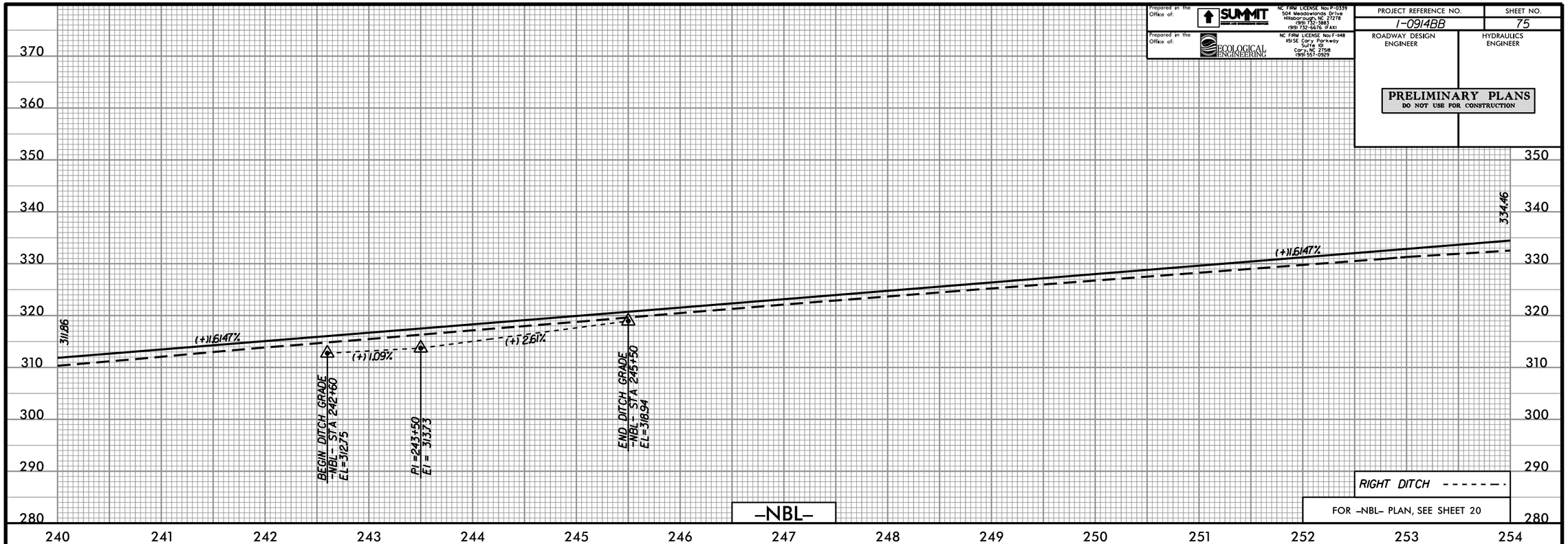
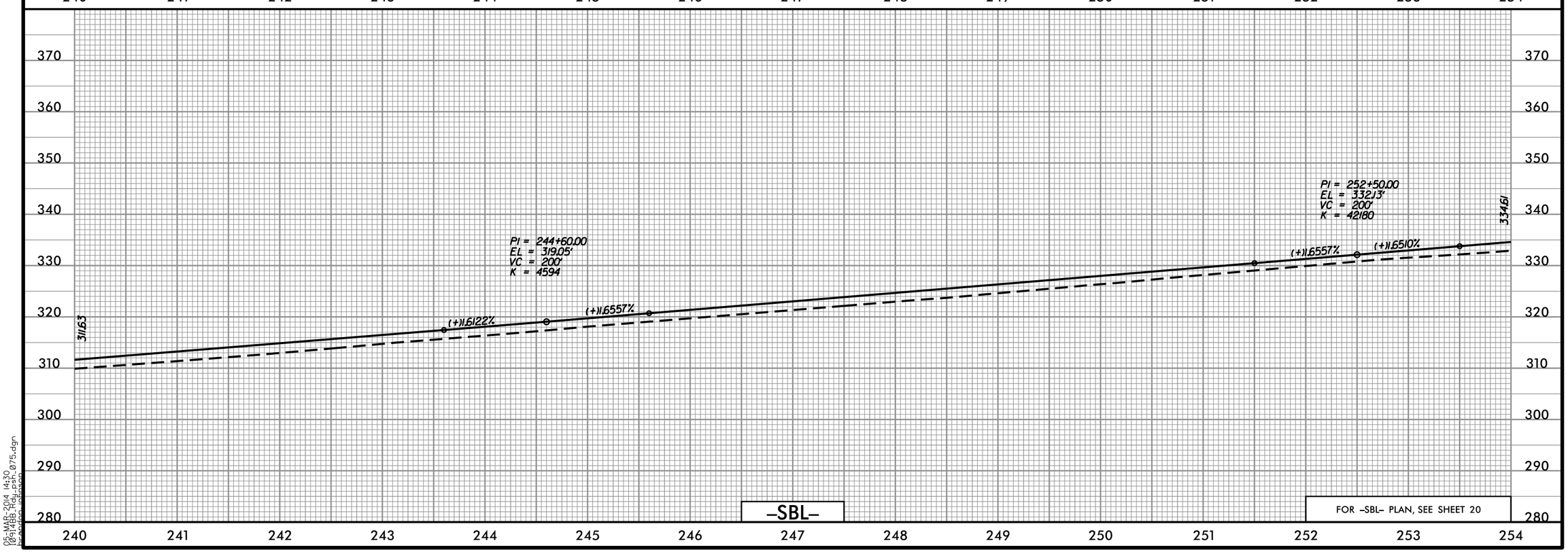
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	75
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy_psh_075.dgn
bgordon (gbason)

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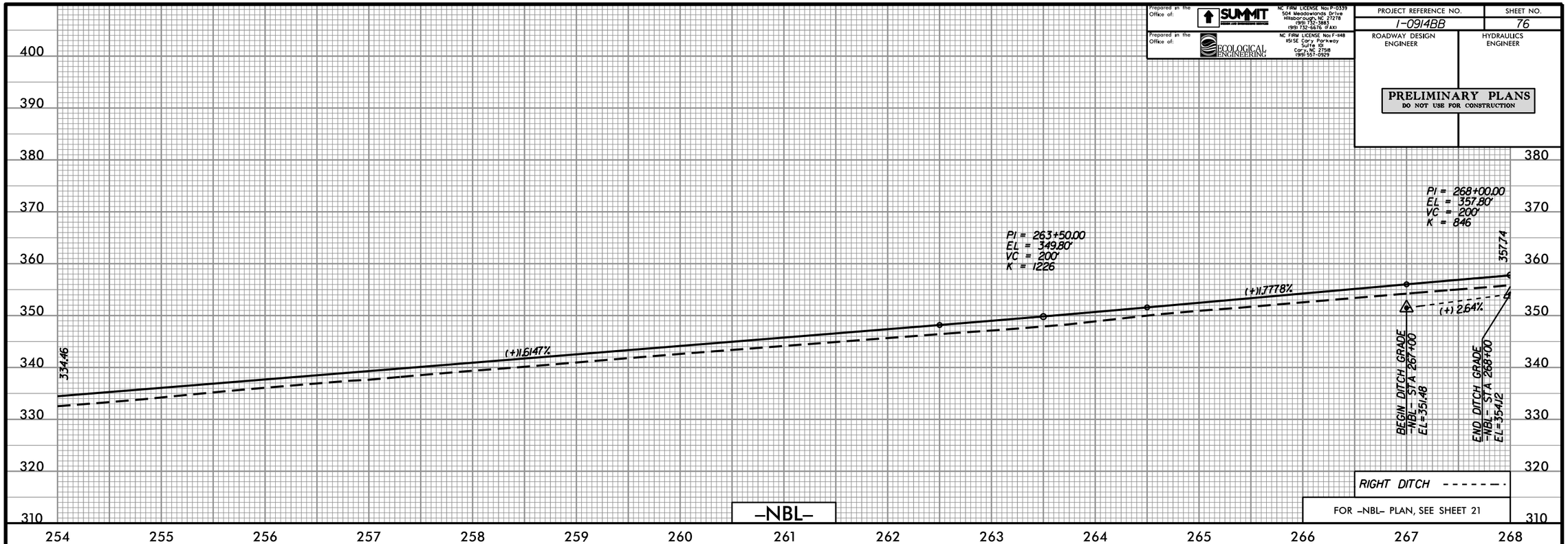
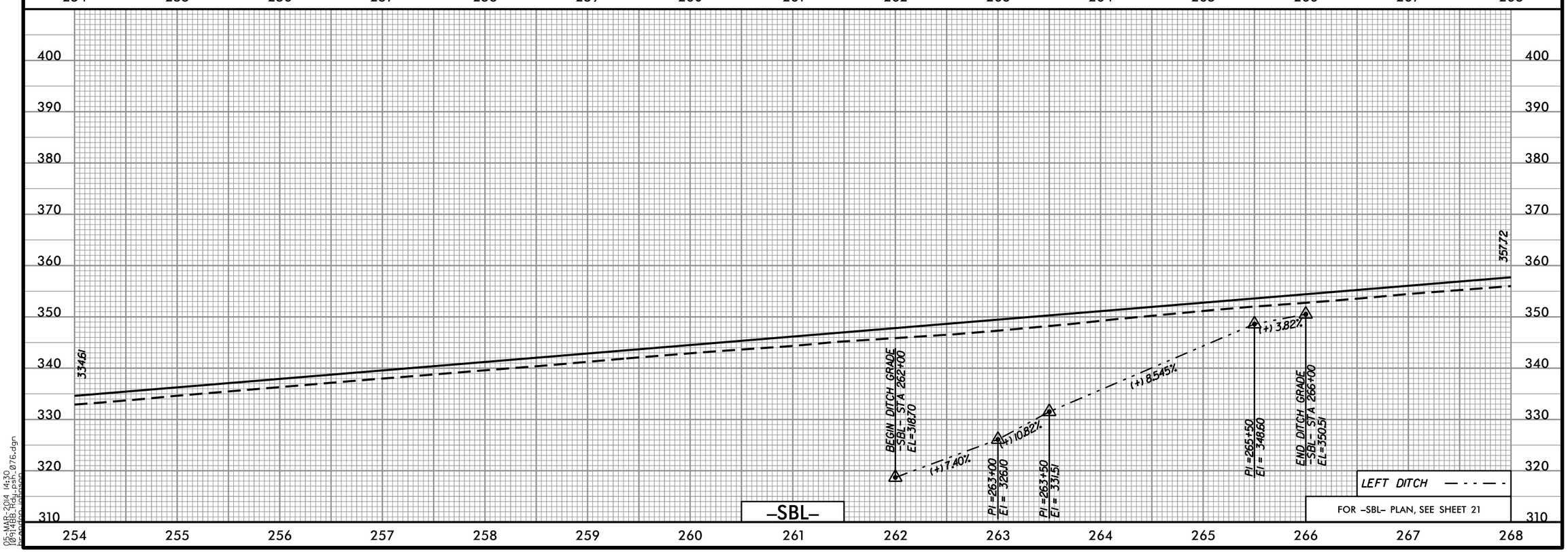
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	76
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy_psh_076.dgn
bpeden (jbpeden)

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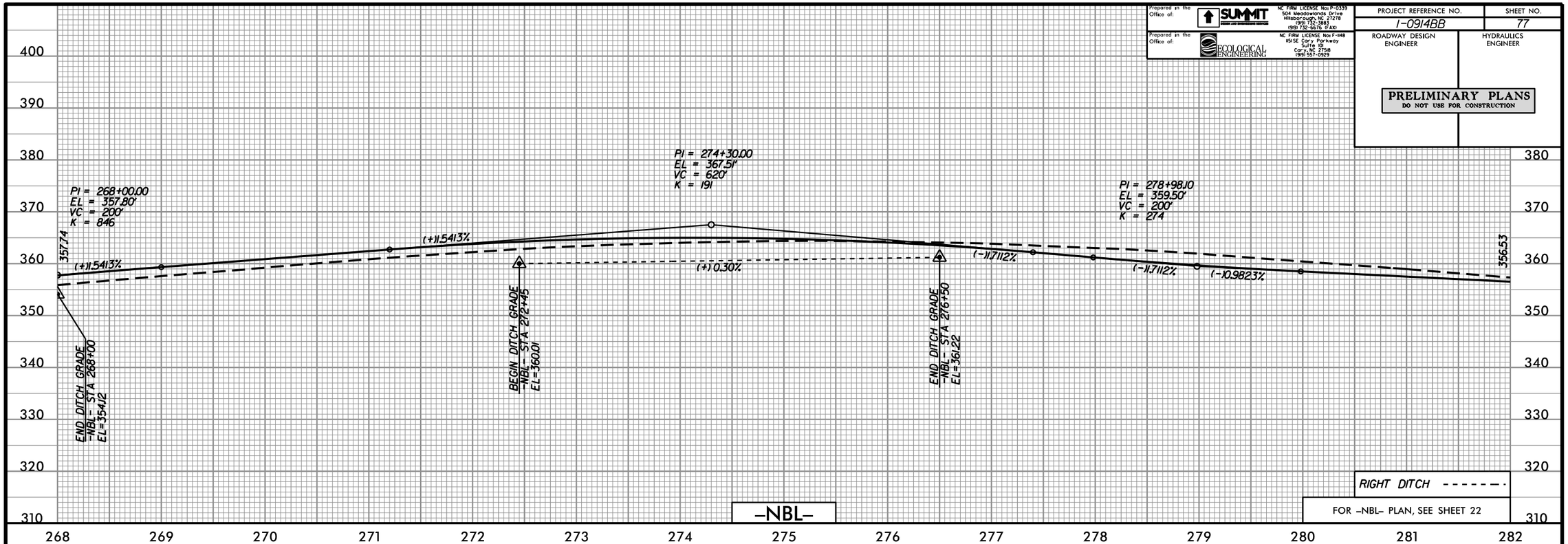
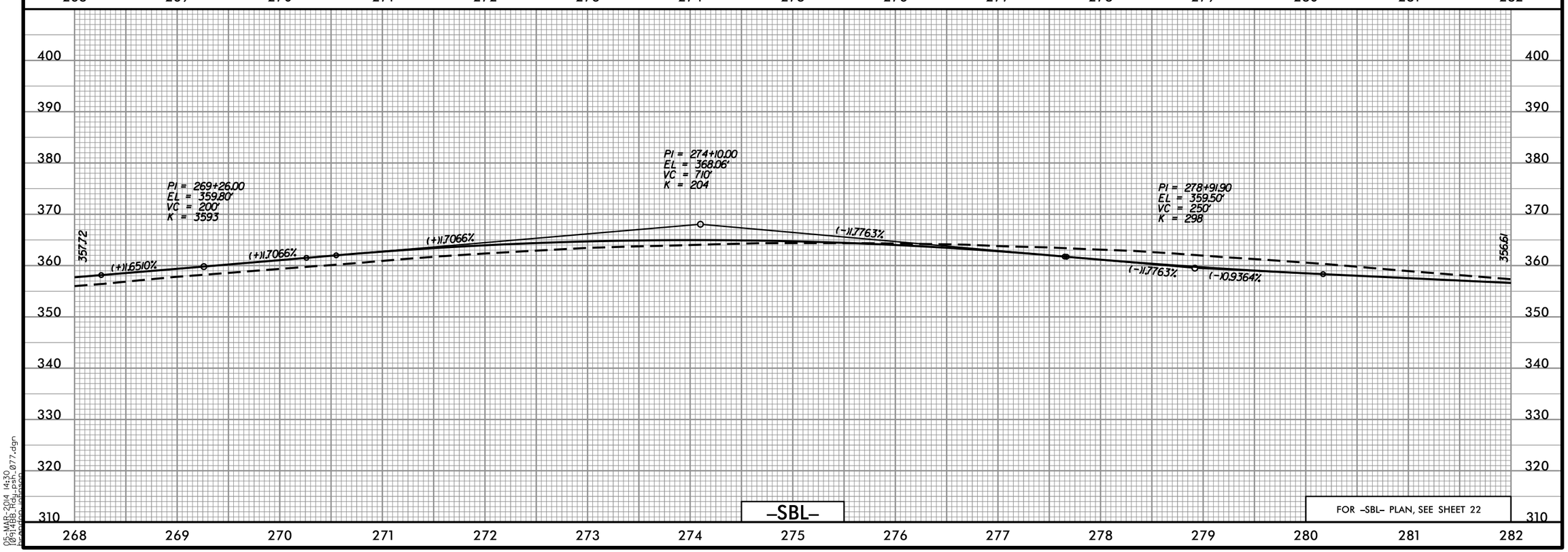
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	77
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy_psh_077.dgn
hpardon (jpason)

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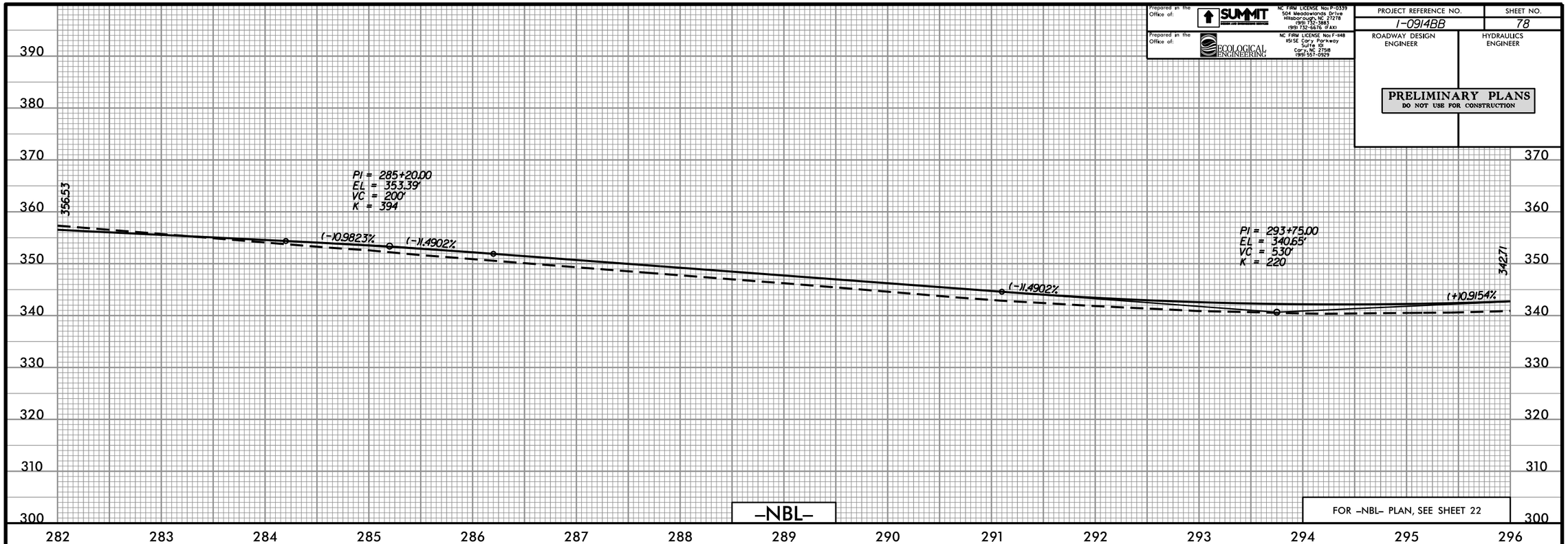
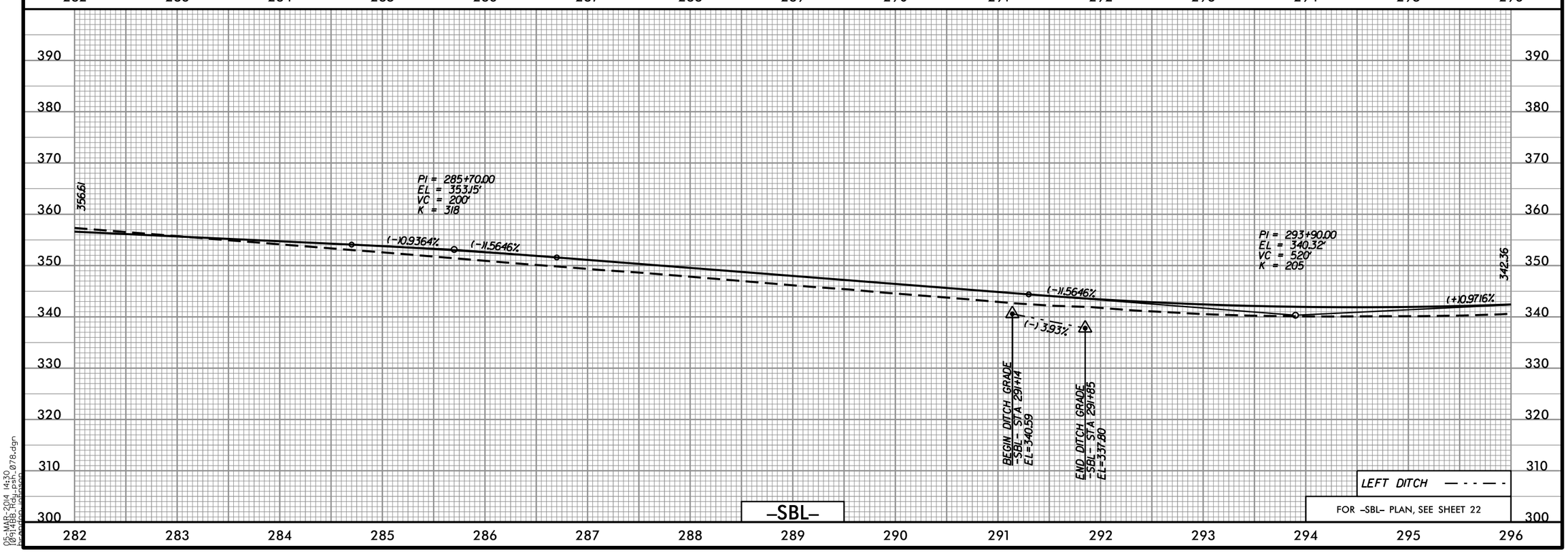
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	78
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy_psh_078.dgn
bpeden (jpeson)

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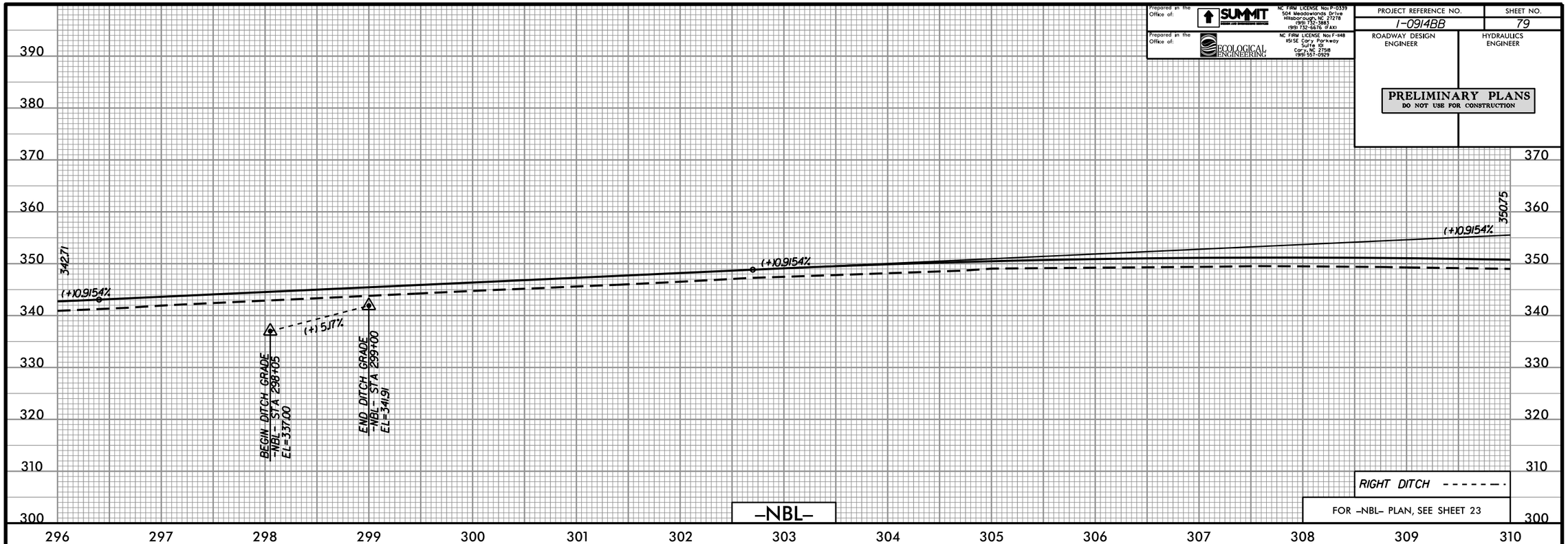
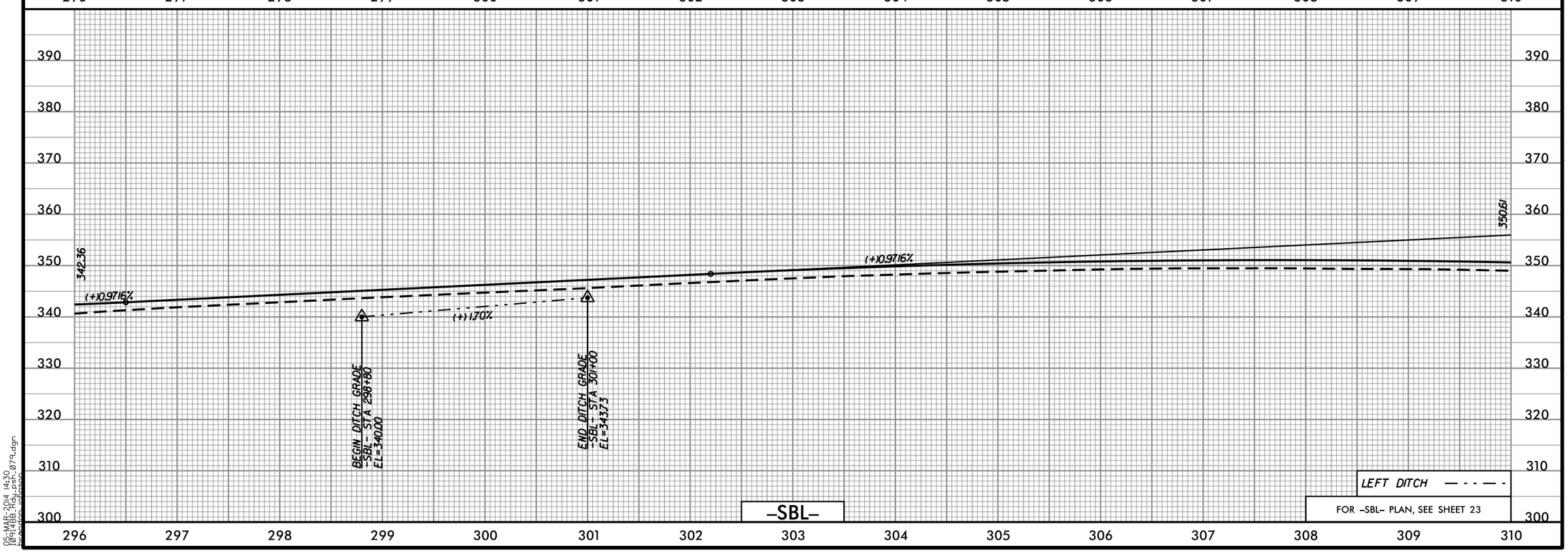
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	79
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy_psh_079.dgn
hpardon (jpason)

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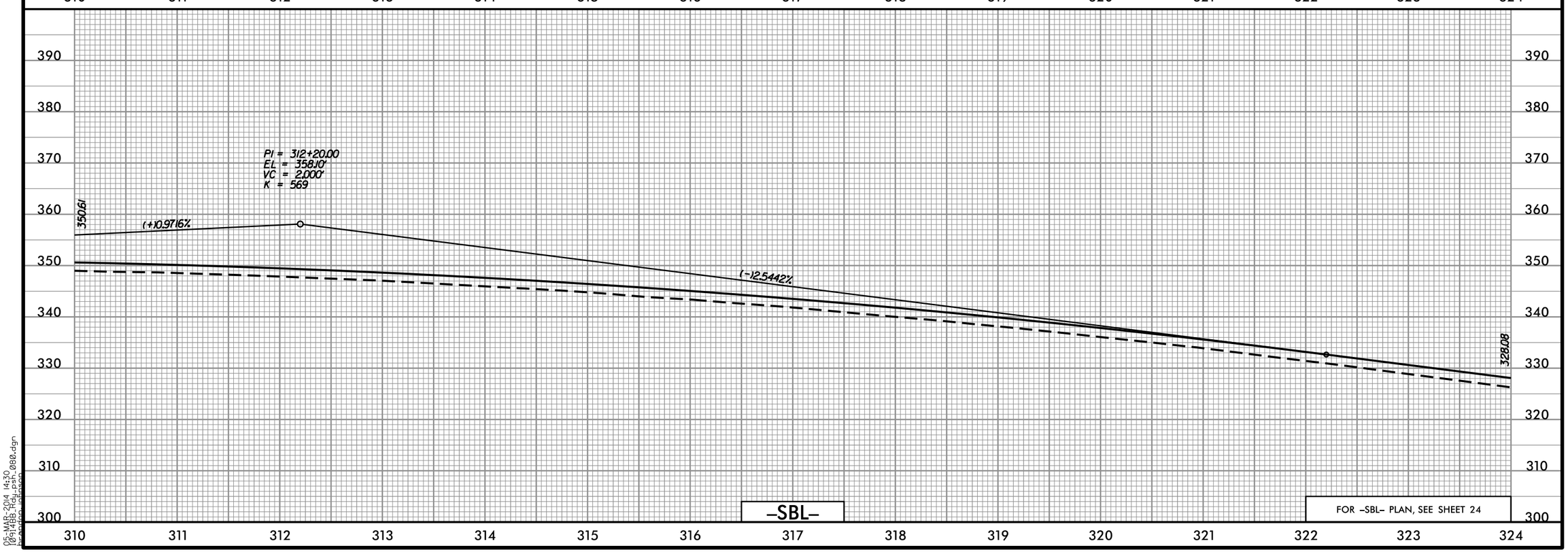
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	80
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



05-MAR-2014 14:30
I0914BB_Hdy_psh_080.dgn
bgordon (gbason)

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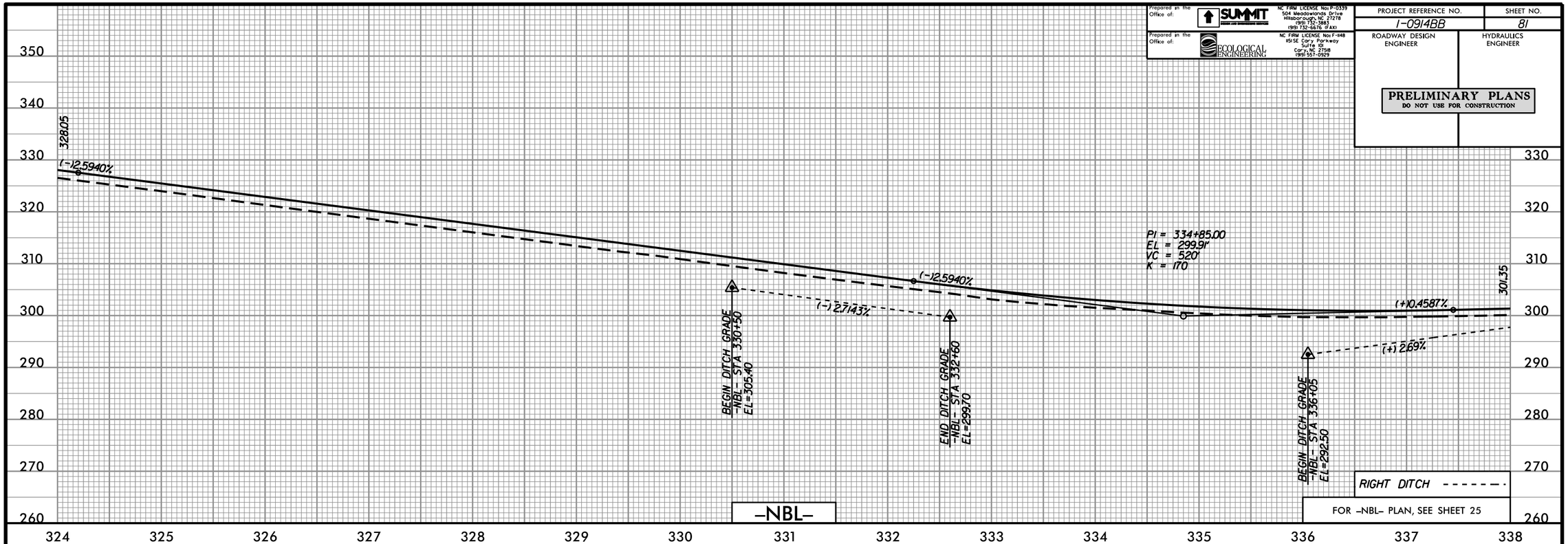
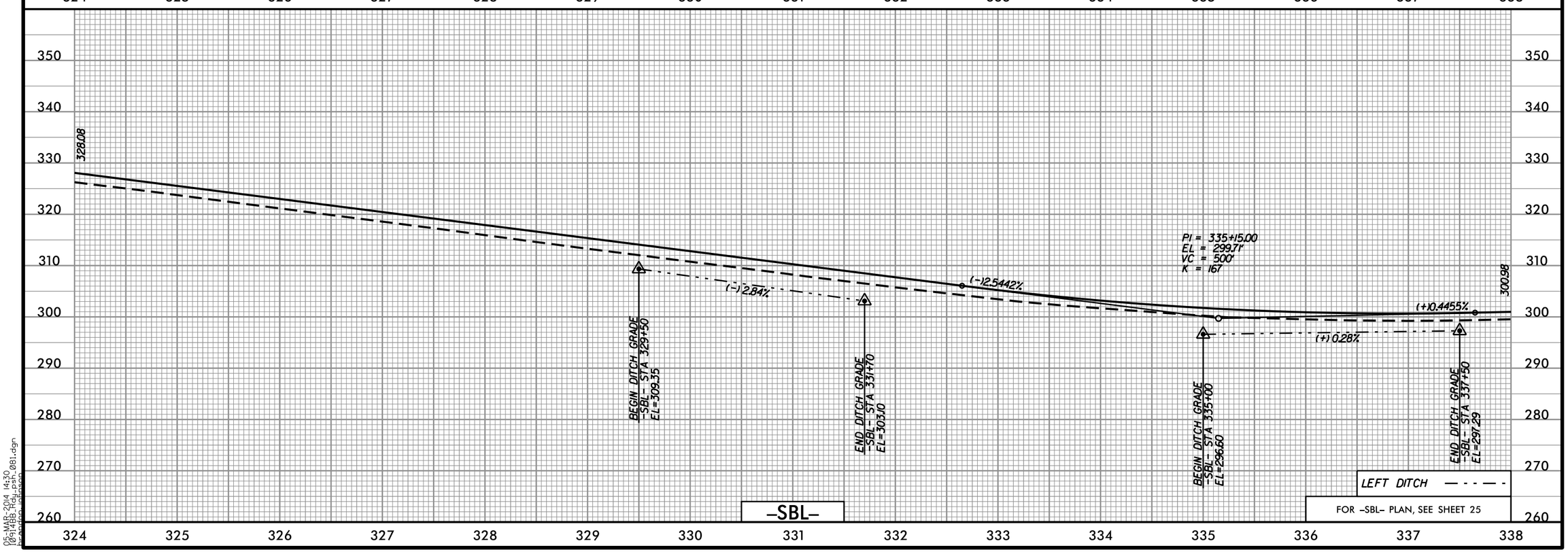
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	81
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -NBL- PLAN, SEE SHEET 25



FOR -SBL- PLAN, SEE SHEET 25

05-MAR-2014 14:30
I0914BB_Hdy_psh_081.dgn
bpeden (jbpeden)

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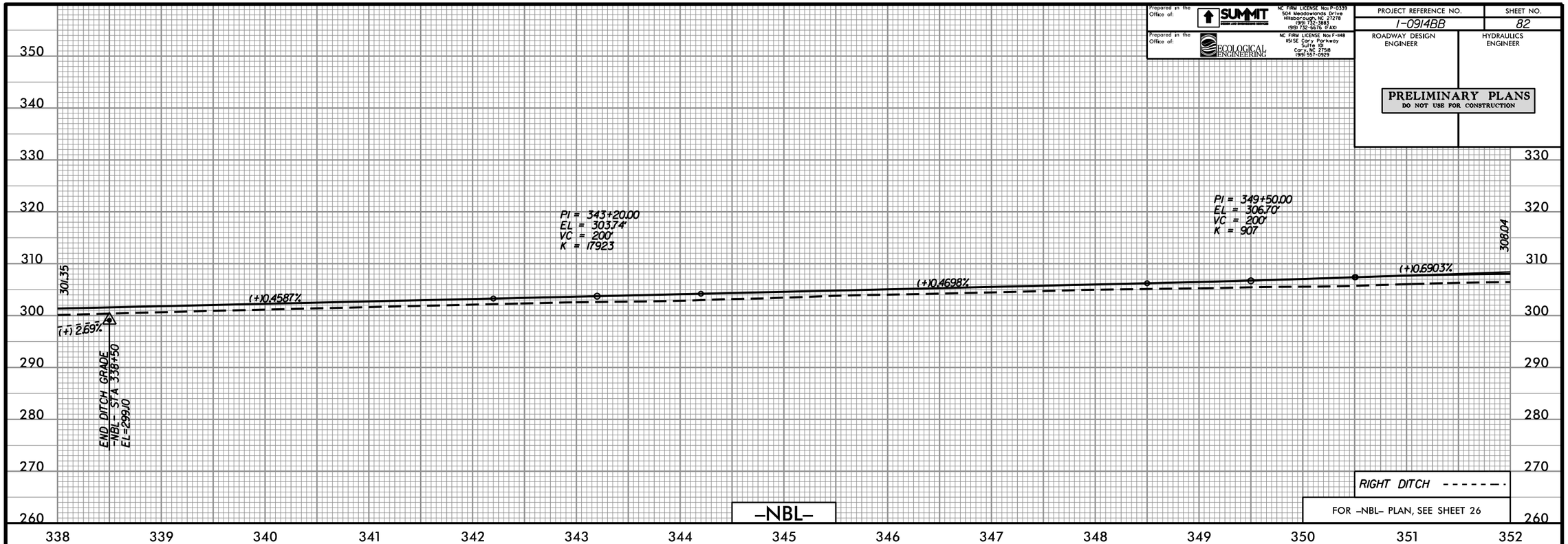
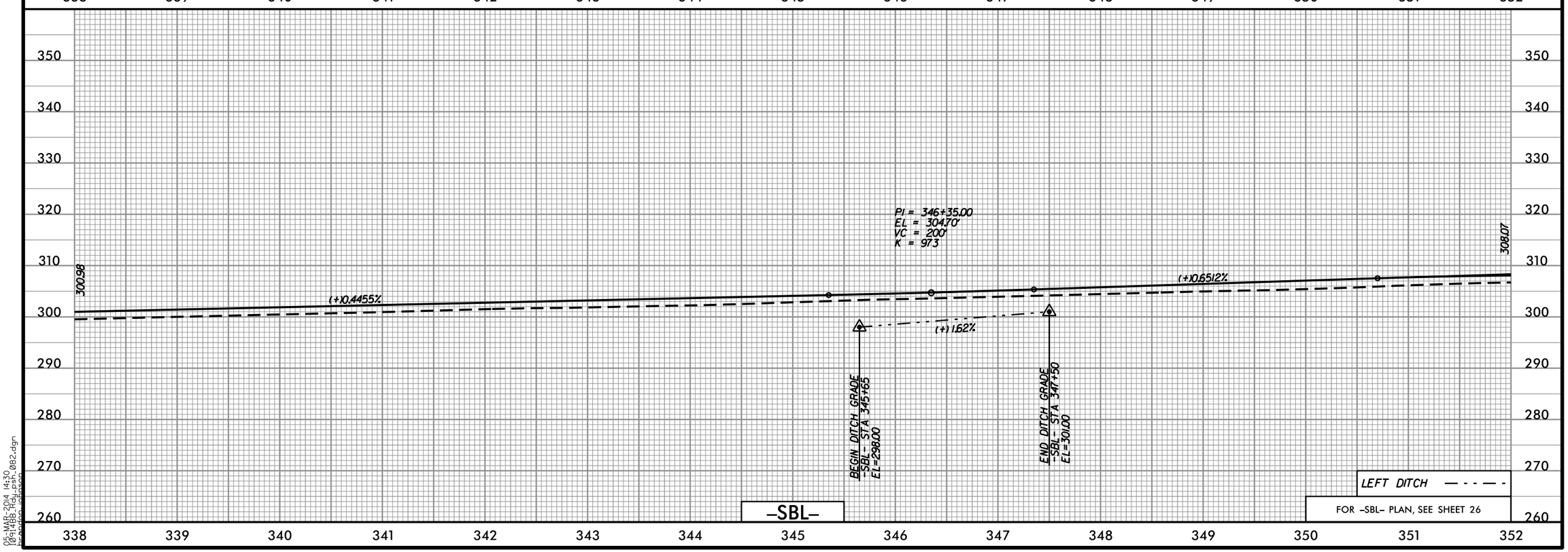
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	82
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy_psh_082.dgn
bpeden (BPEDEN)

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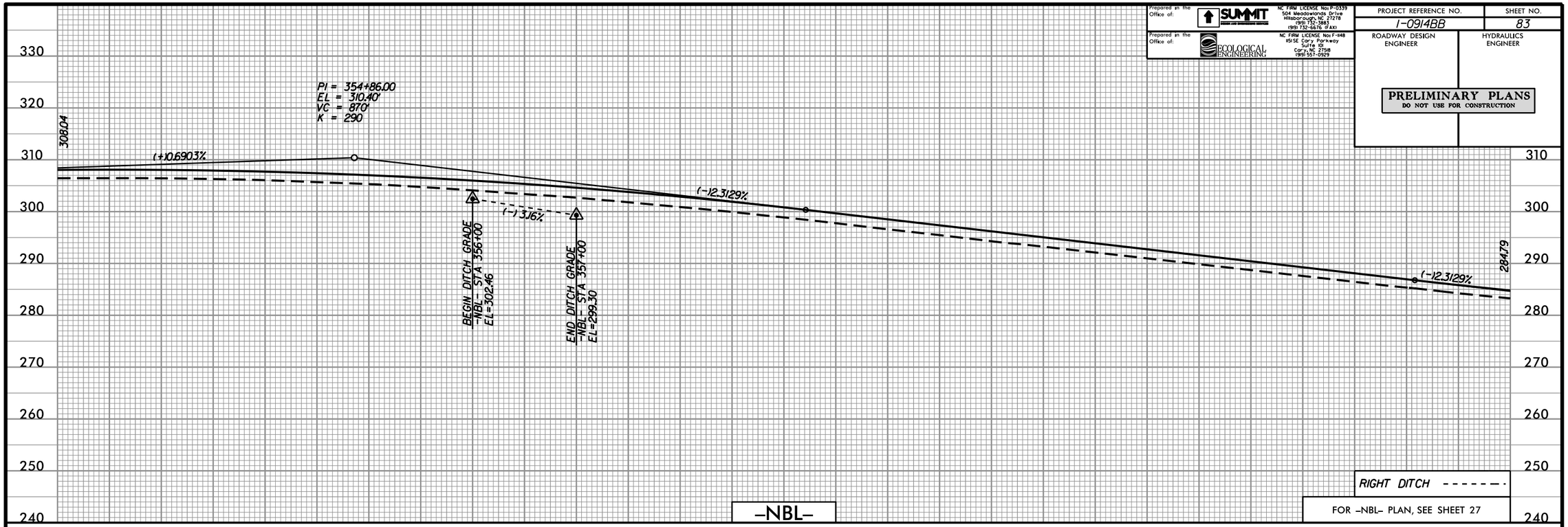
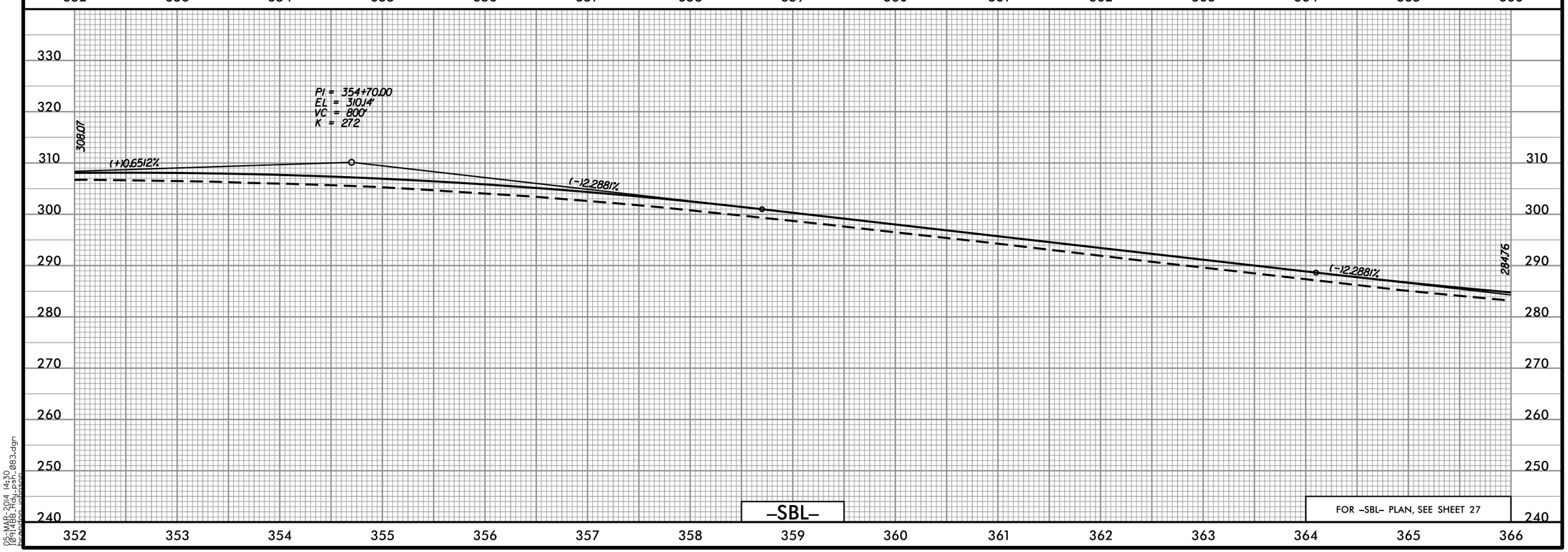
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	83
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:30
I0914BB_Hdy_psh_083.dgn
hpardon (jpason)

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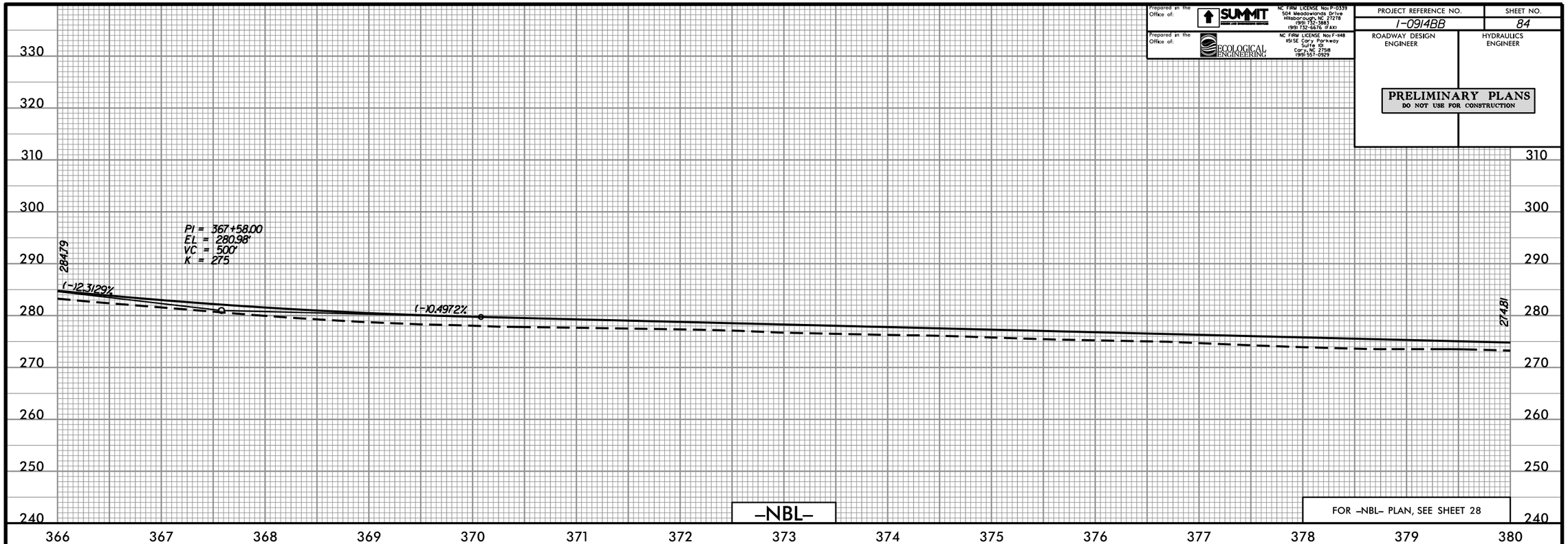
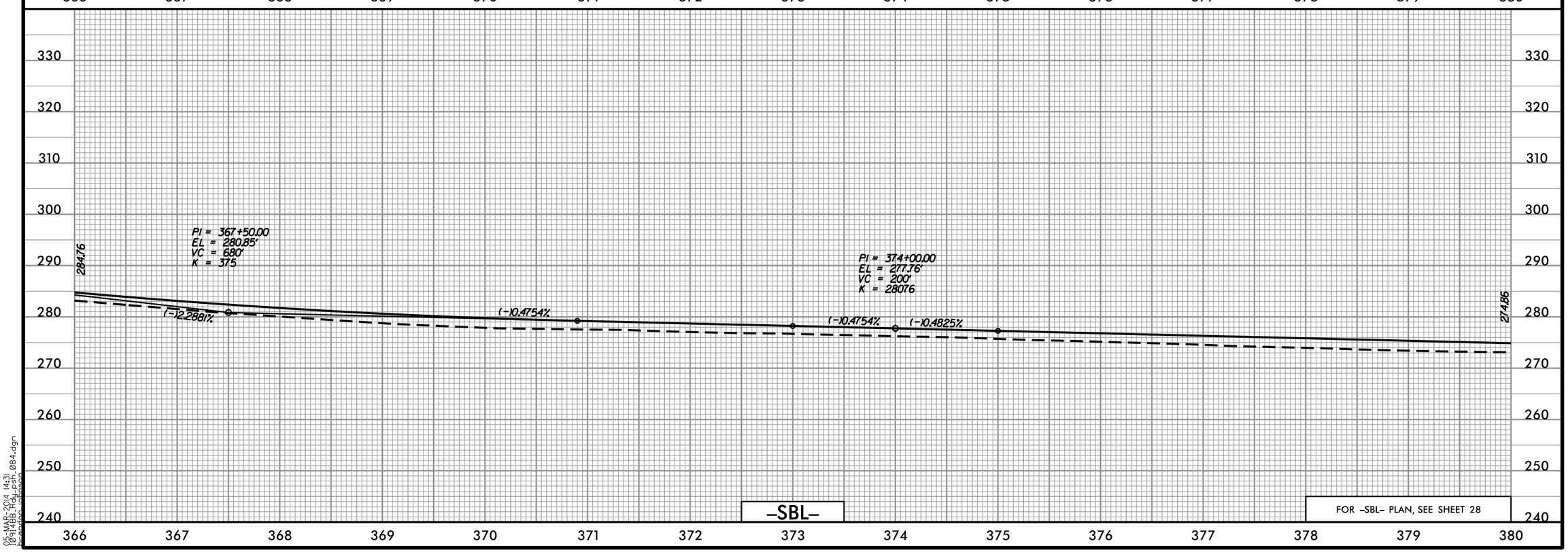
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	84
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:31
I0914BB_Hdy_psh_084.dgn
hpardon (jpason)

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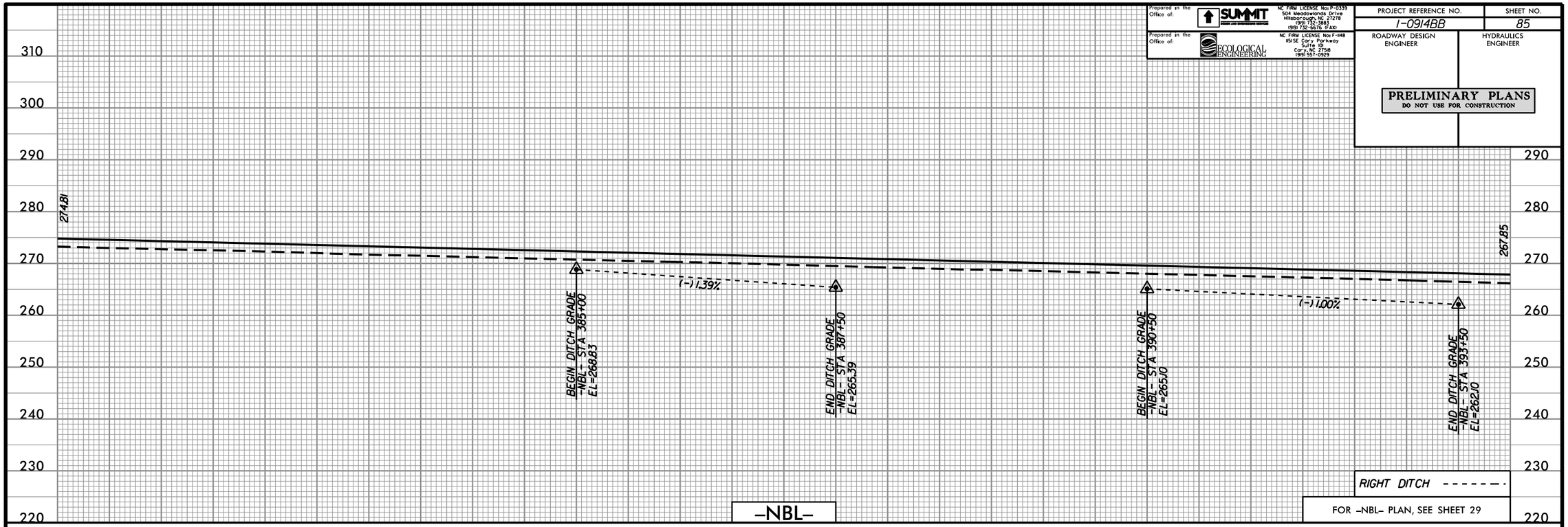
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	85
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



05-MAR-2014 14:31
I0914BB_Hdy_psh_085.dgn
hpardon (jpason)

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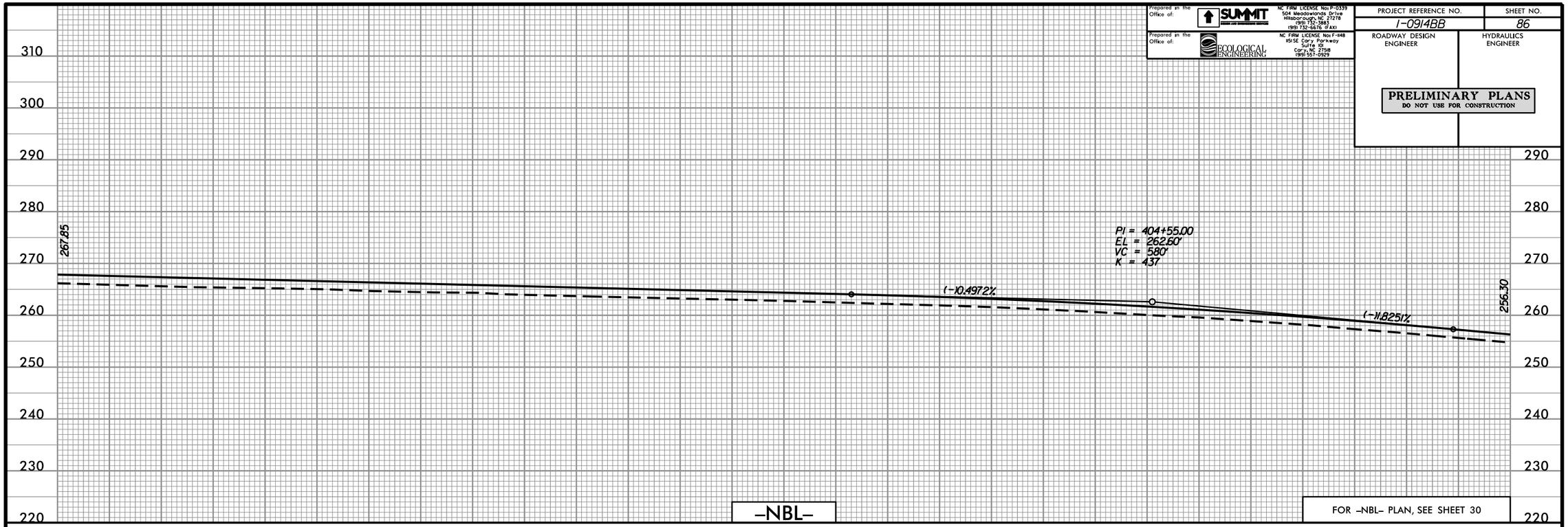
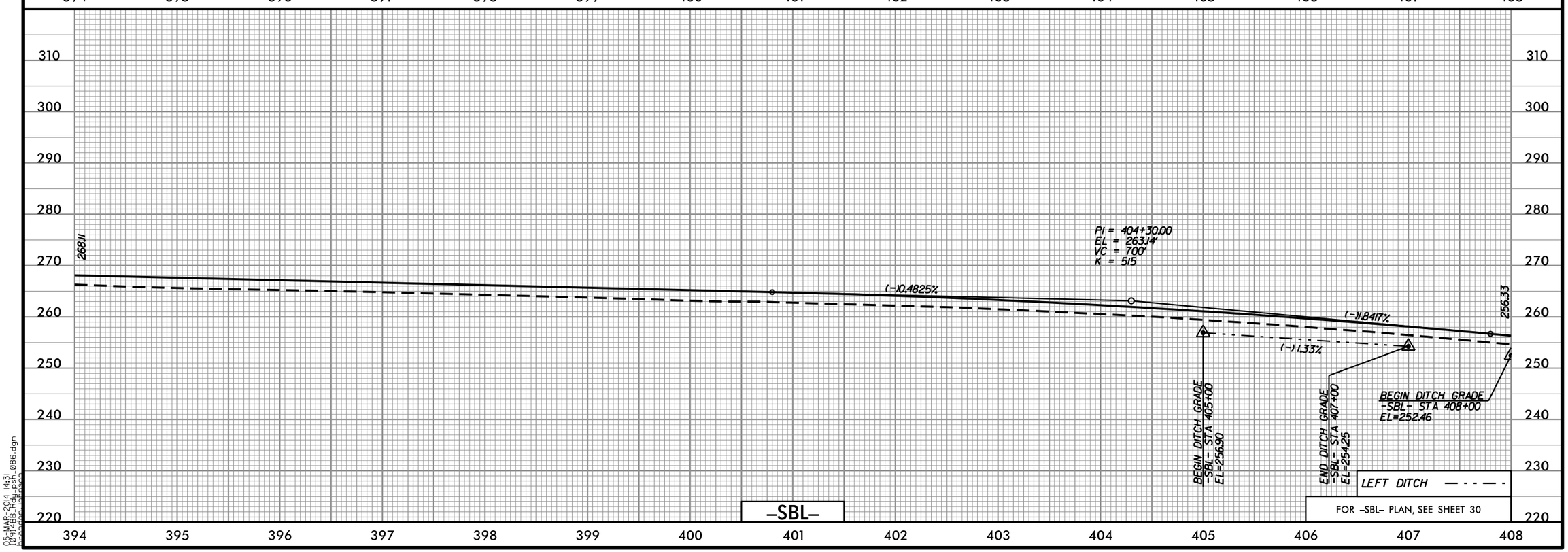
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	86
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -NBL- PLAN, SEE SHEET 30



FOR -SBL- PLAN, SEE SHEET 30

05-MAR-2014 14:31
I0914BB_Hdy_psh_086.dgn
bpeden (jbeden)

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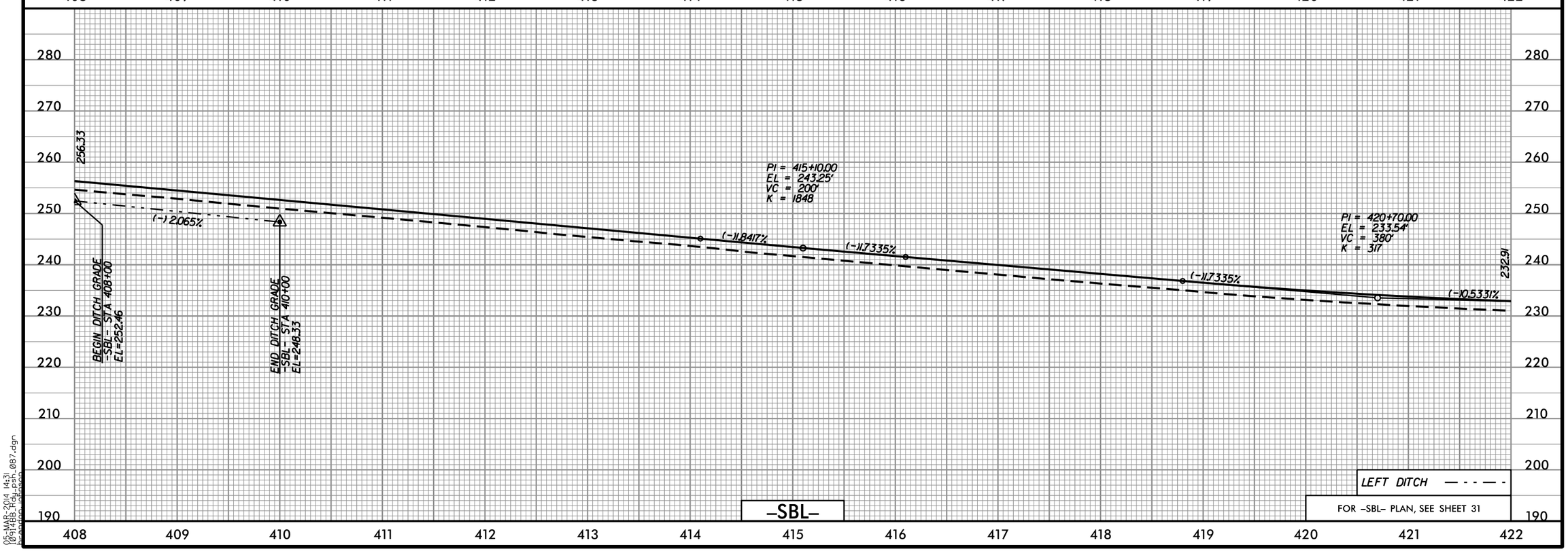
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	87
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



05-MAR-2014 14:31
I0914BB_Hdy_psh_087.dgn
hpardon (jpason)

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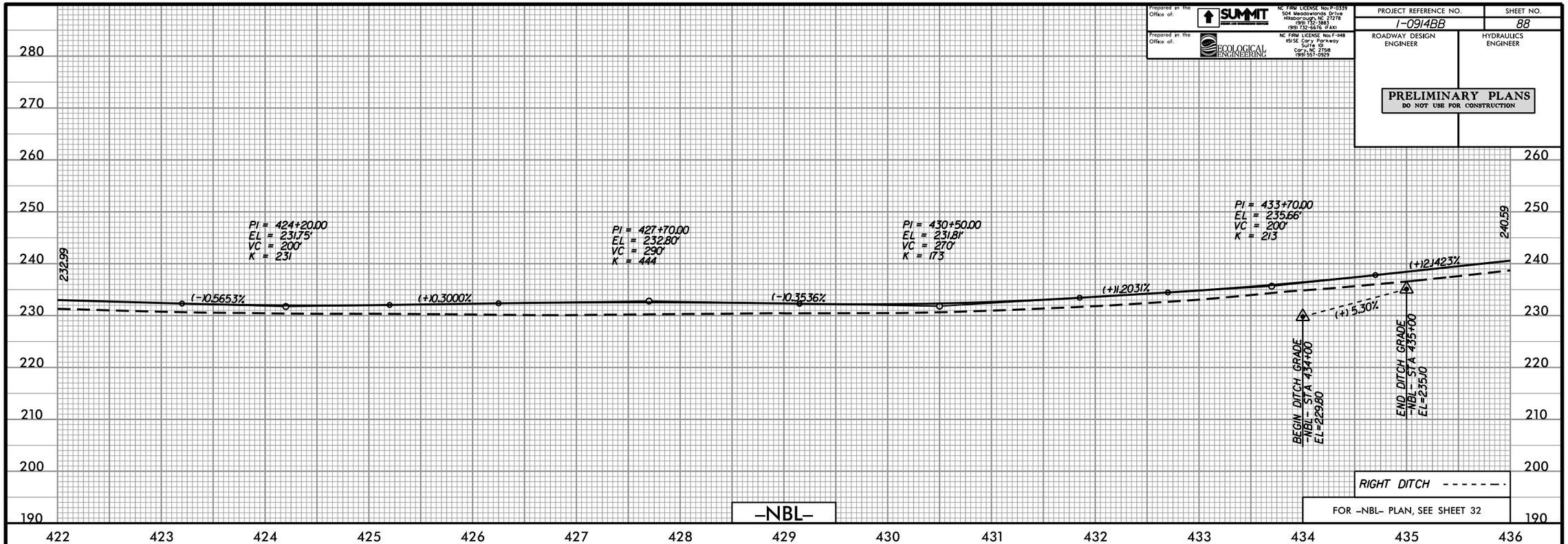
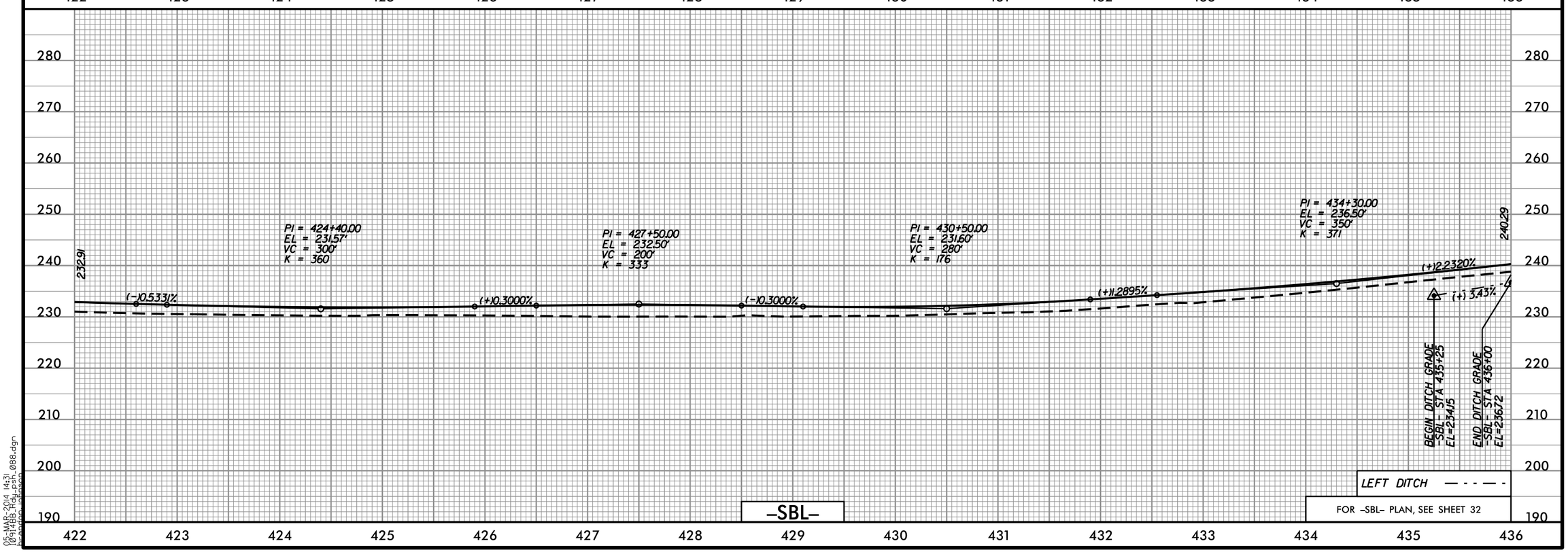
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	88
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:31
I0914BB_Hdy_psh_088.dgn
bpeden (jpeson)

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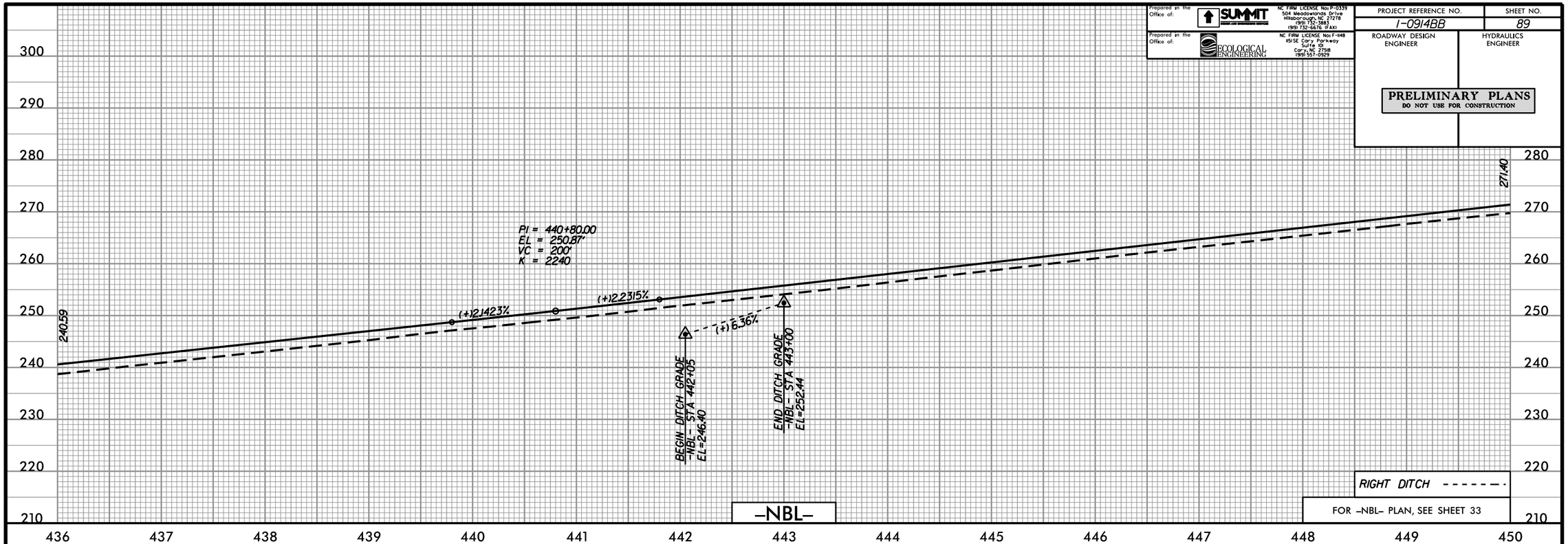
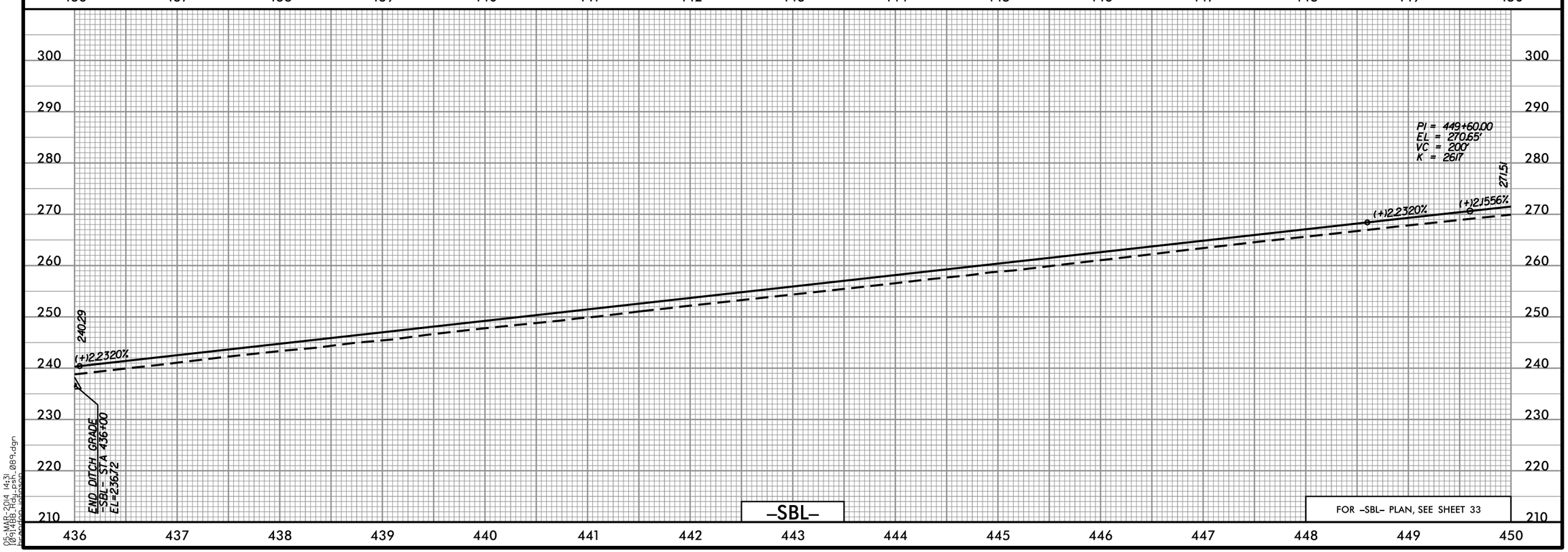
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	89

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:31
I0914BB_Hdy_psh_089.dgn
hpardon (jpason)

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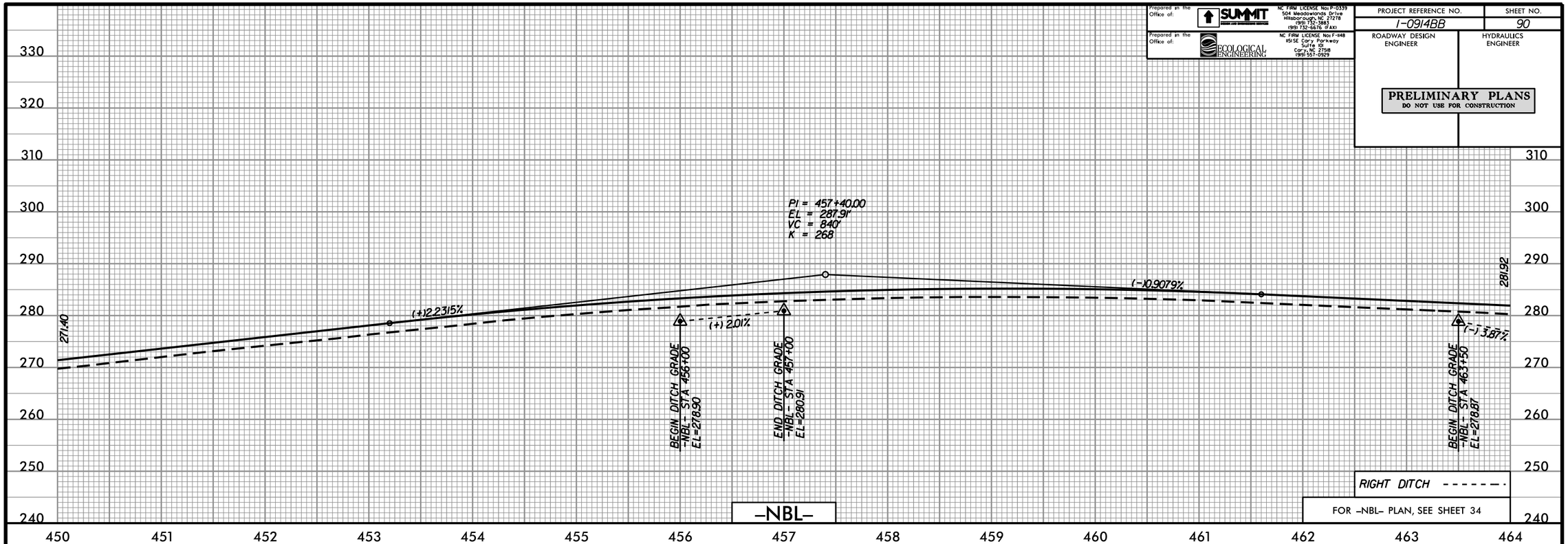
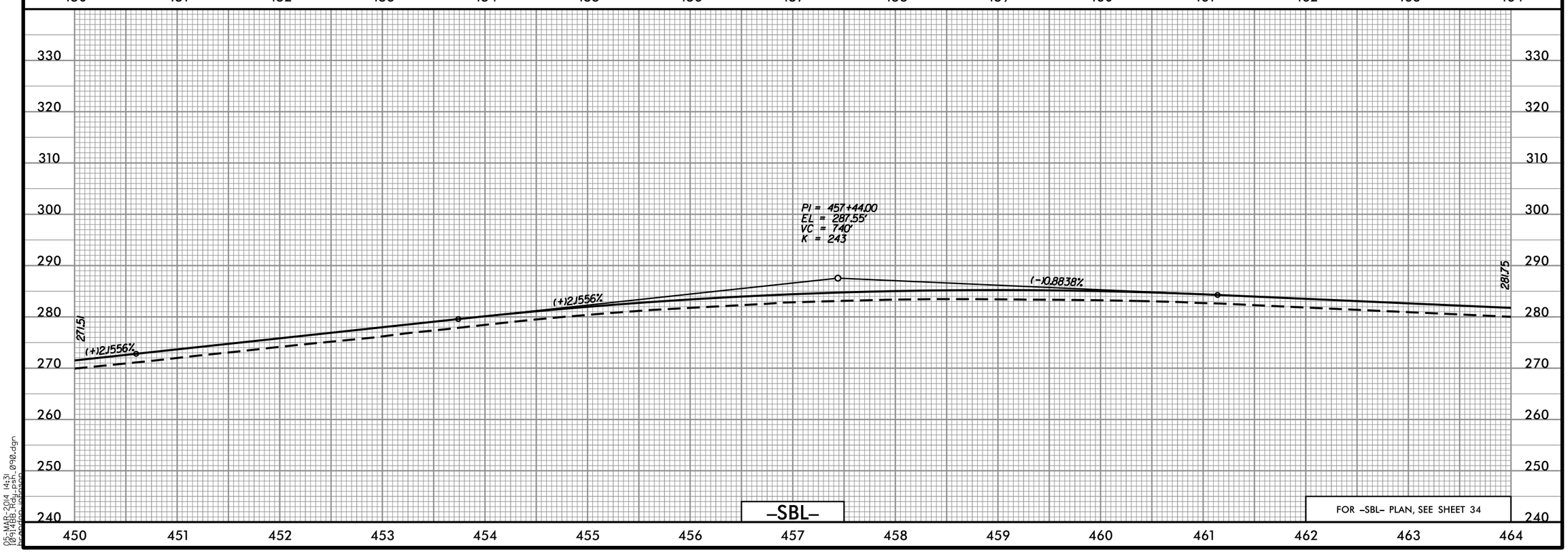
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	90

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:31
I0914BB_Rdy.psh, 090.dgn
hpardon, jpason

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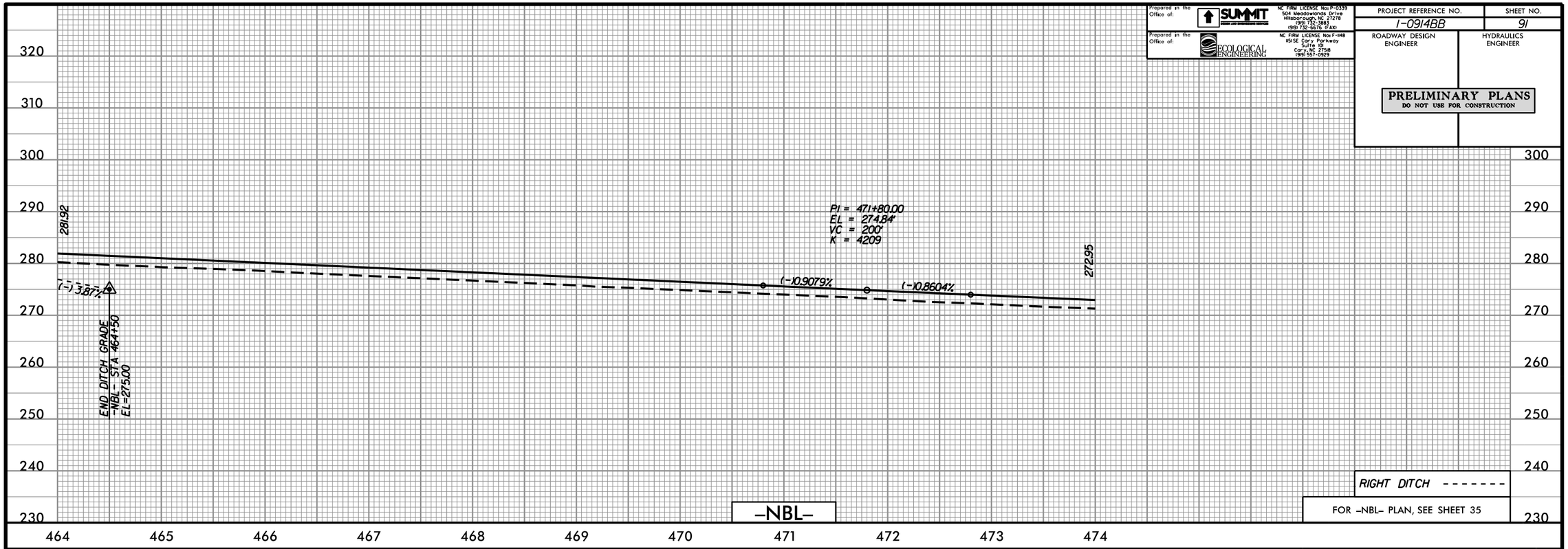
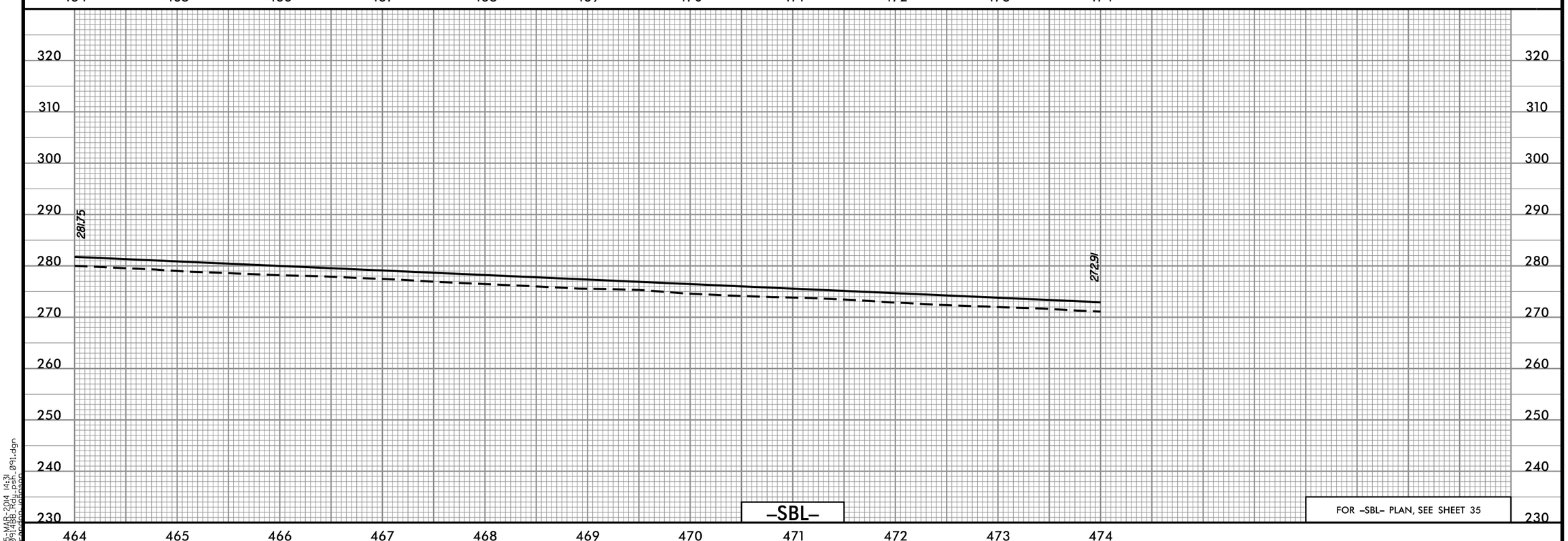
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	91
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:31
I0914BB_Hdy_psh_091.dgn
bgordon (gbrson)

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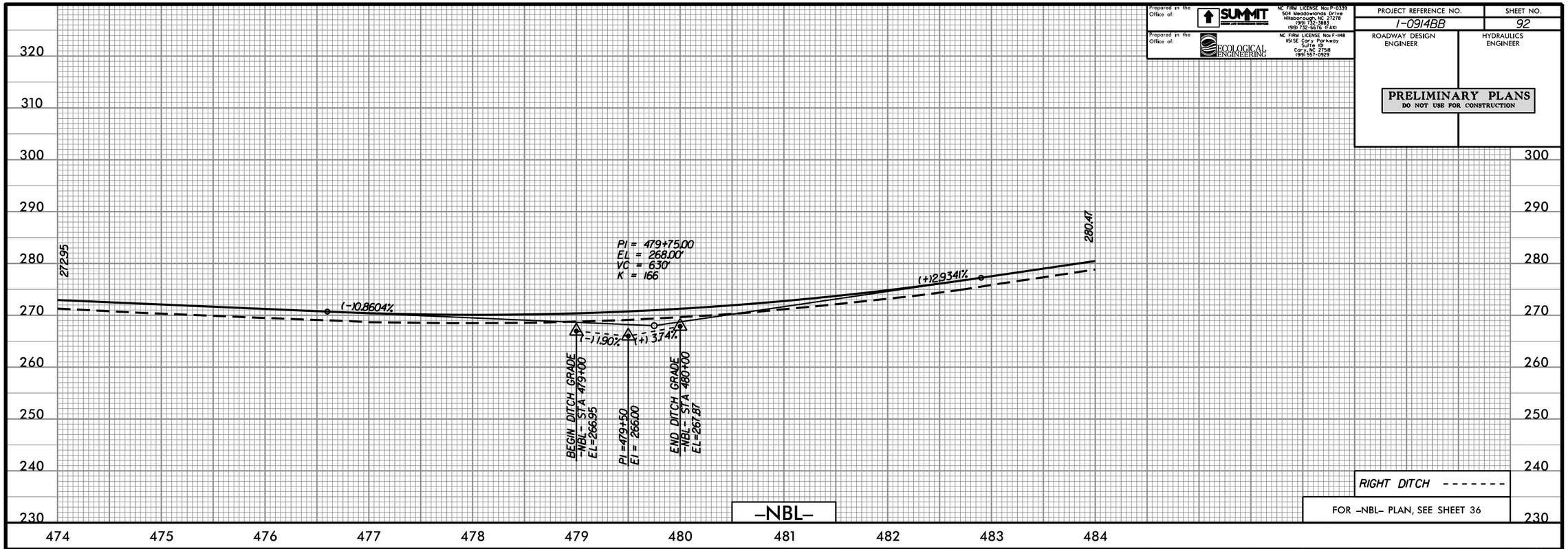
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	92
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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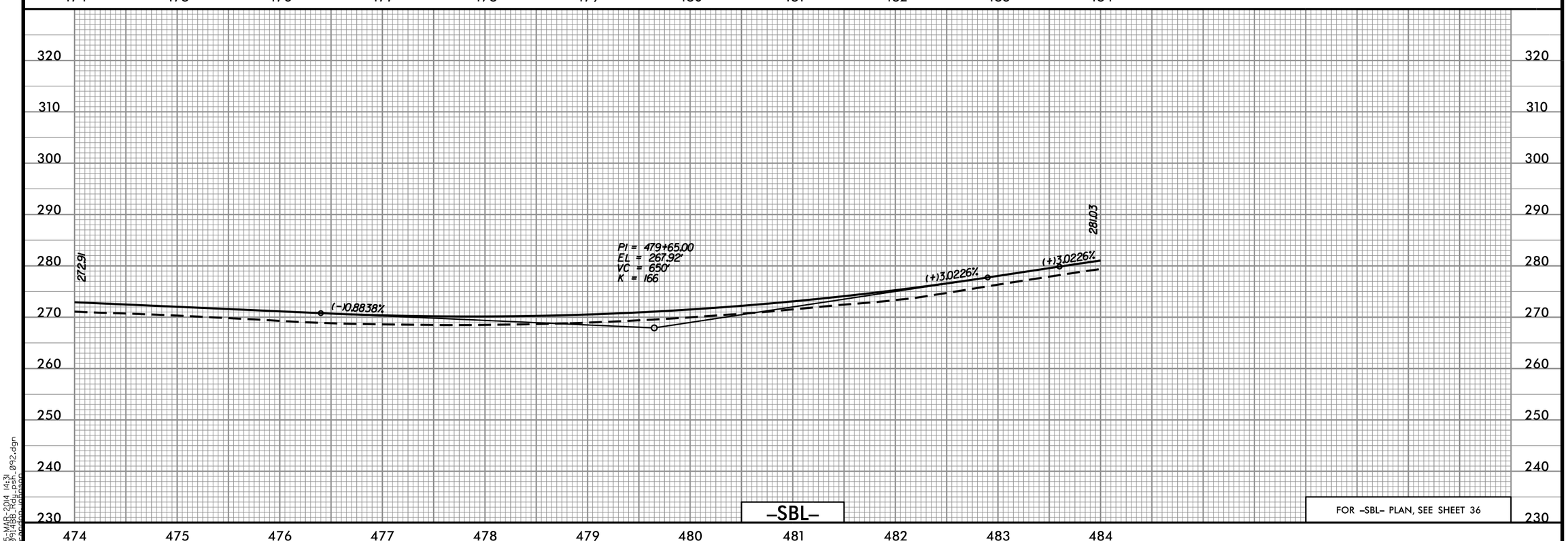
FOR -NBL- PLAN, SEE SHEET 36



FOR -SBL- PLAN, SEE SHEET 36

05-MAR-2014 14:31
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hpardon (jpason)

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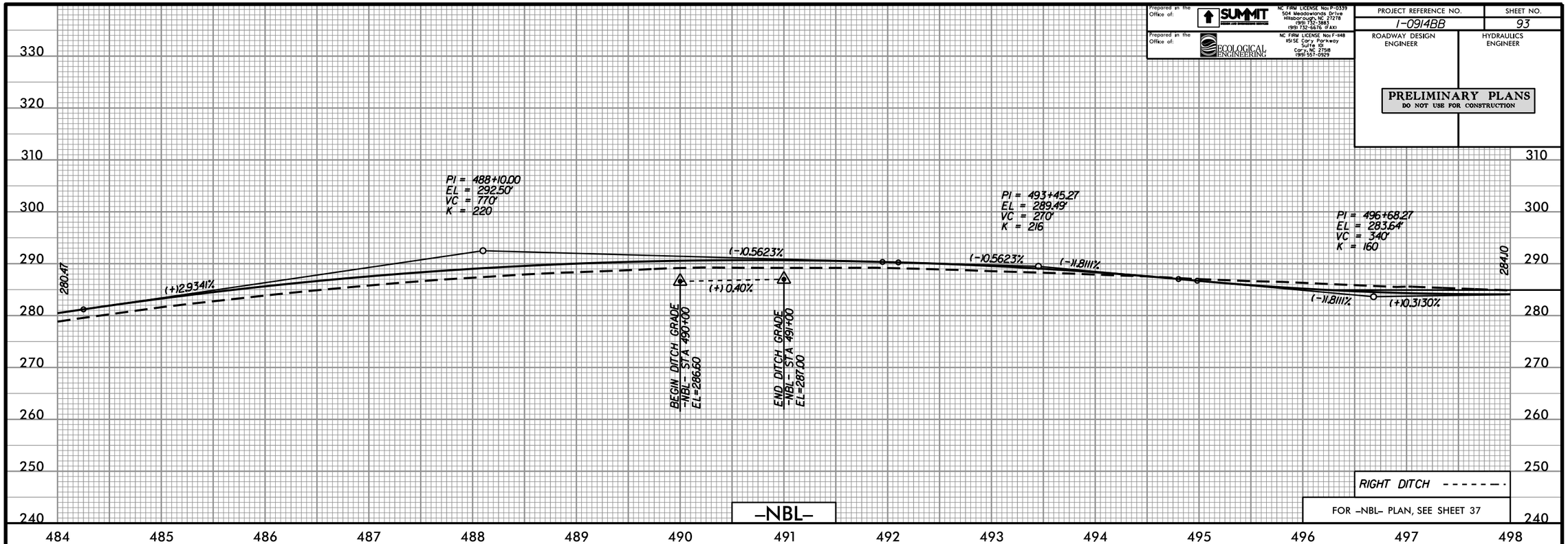
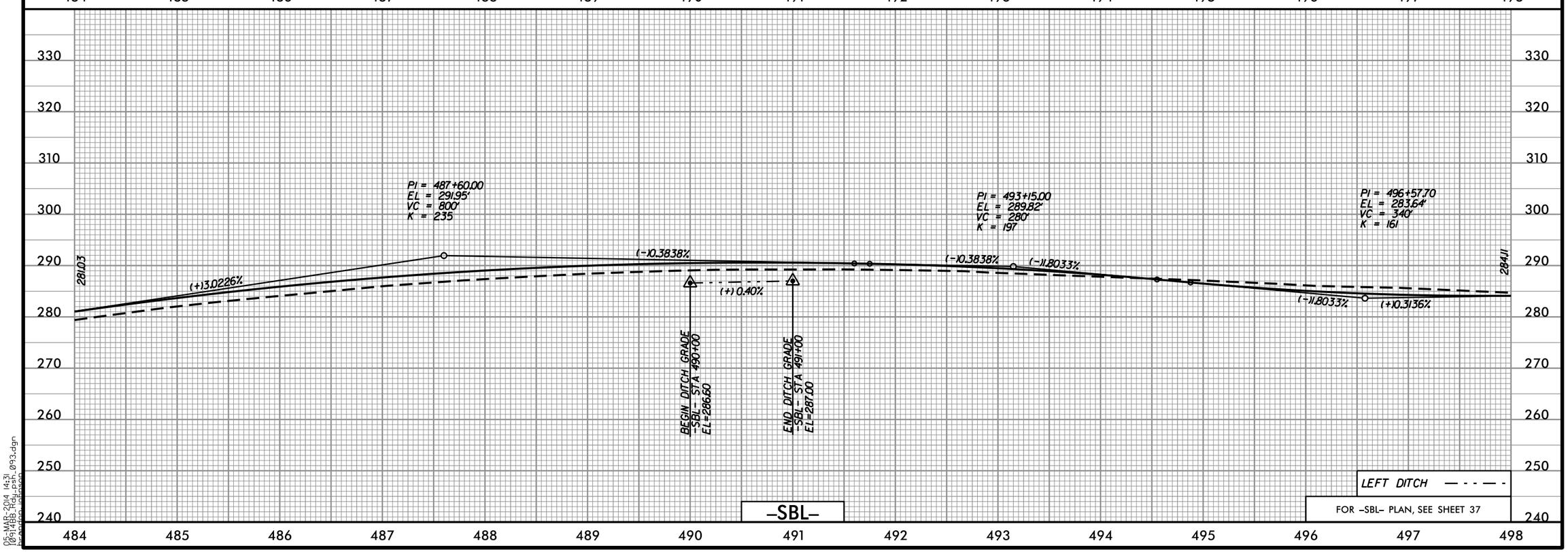
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	93
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:31
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hpeden (jpeson)

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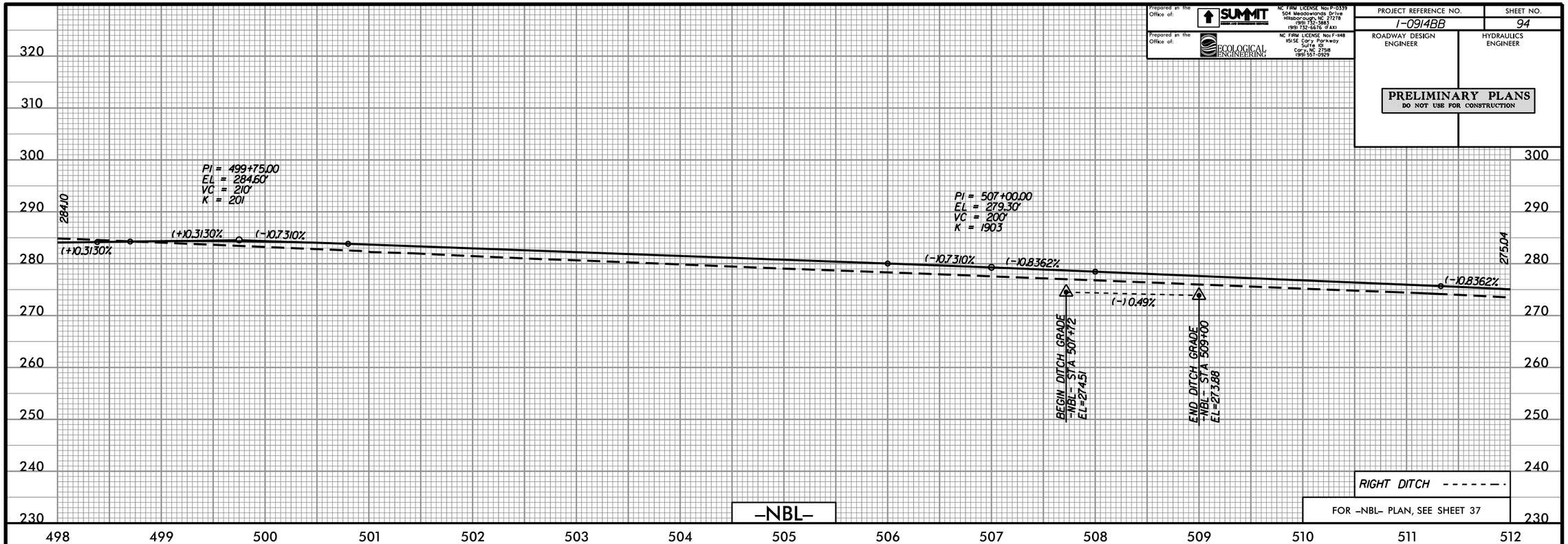
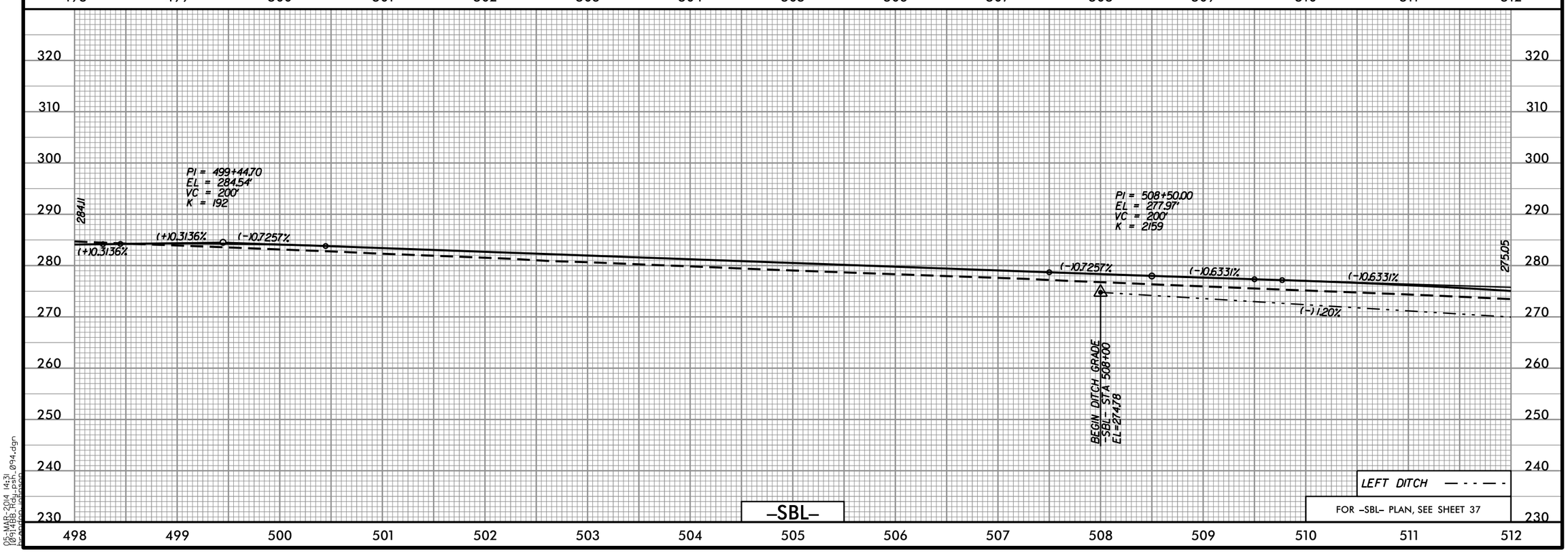
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	94
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:31
I0914BB_Hdy_psh_094.dgn
bpeden (jpeson)

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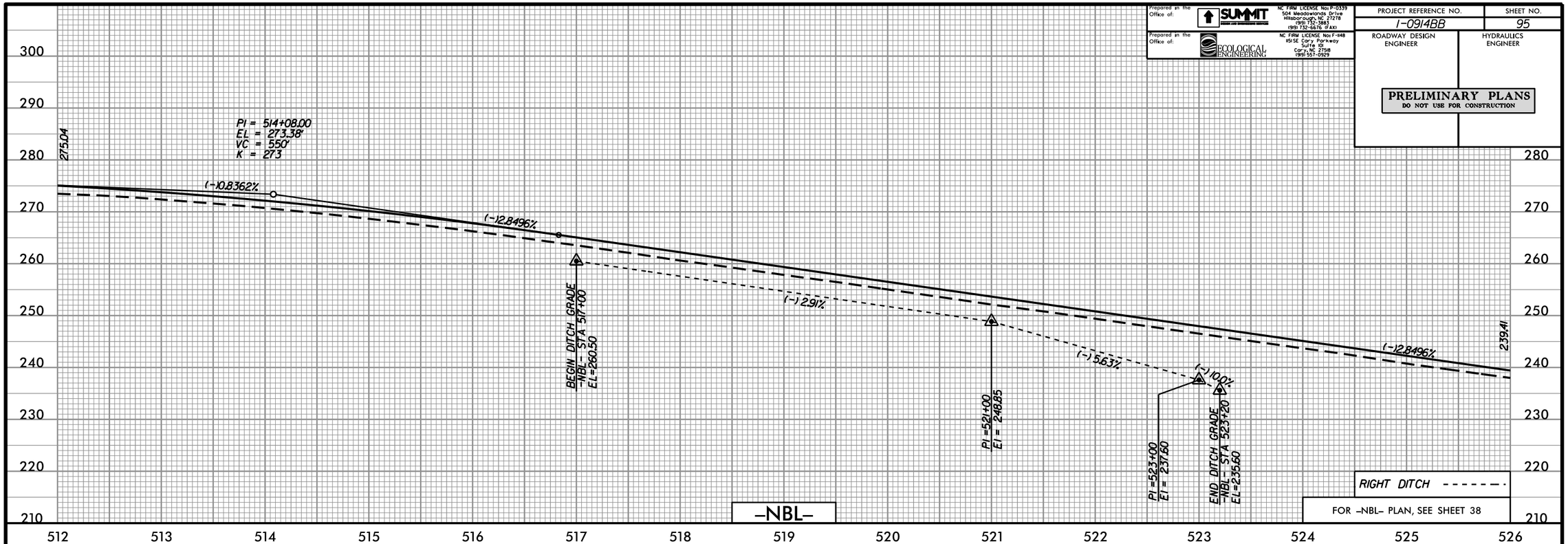
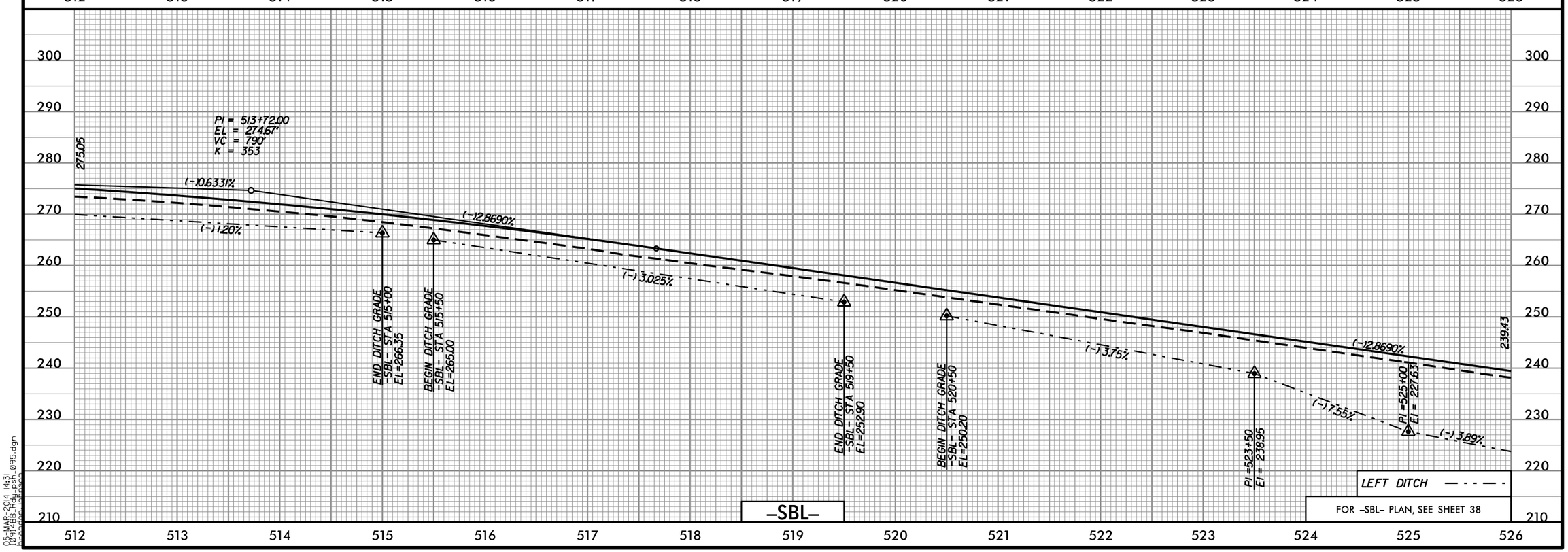
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	95

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:31
I0914BB_Rdy.psh
bgordon (jbrason)
095.dgn

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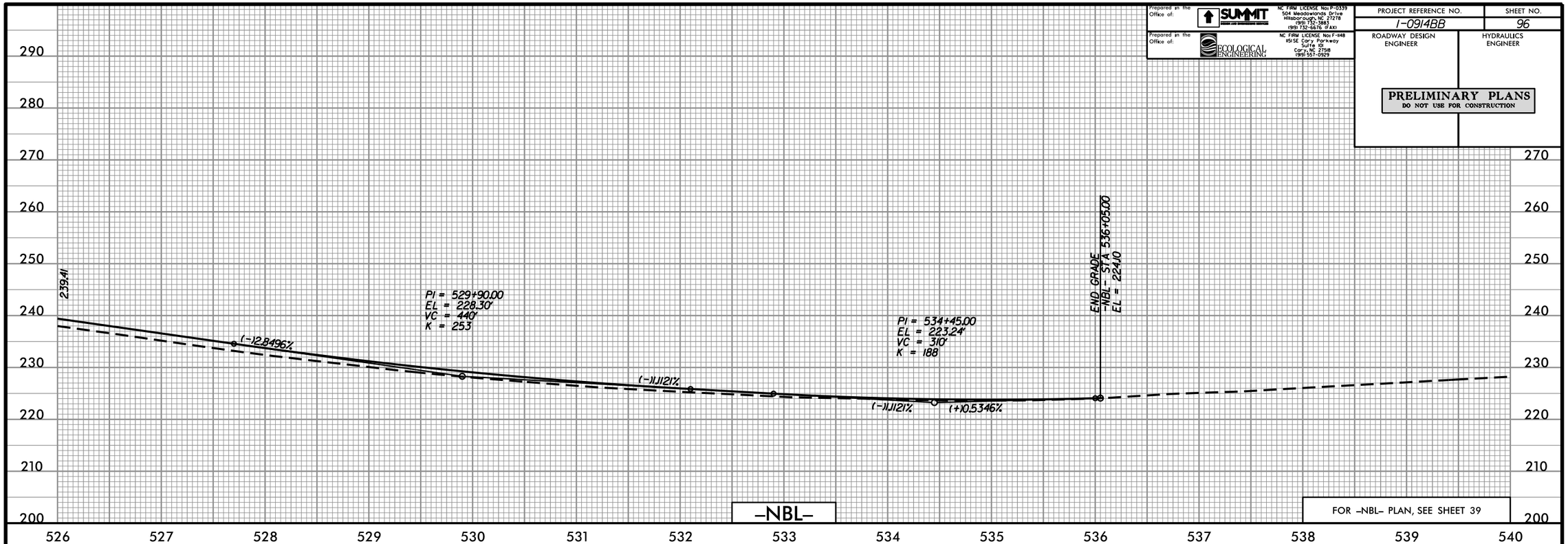
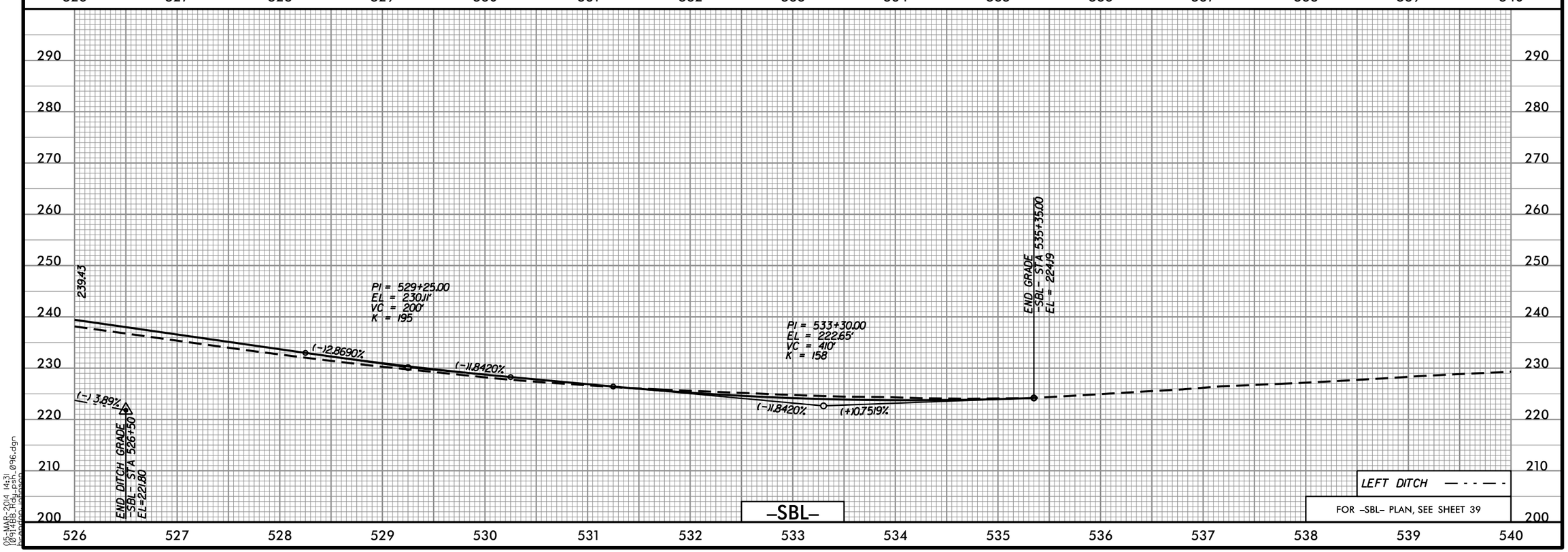
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	96
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





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hpardon (jpason)

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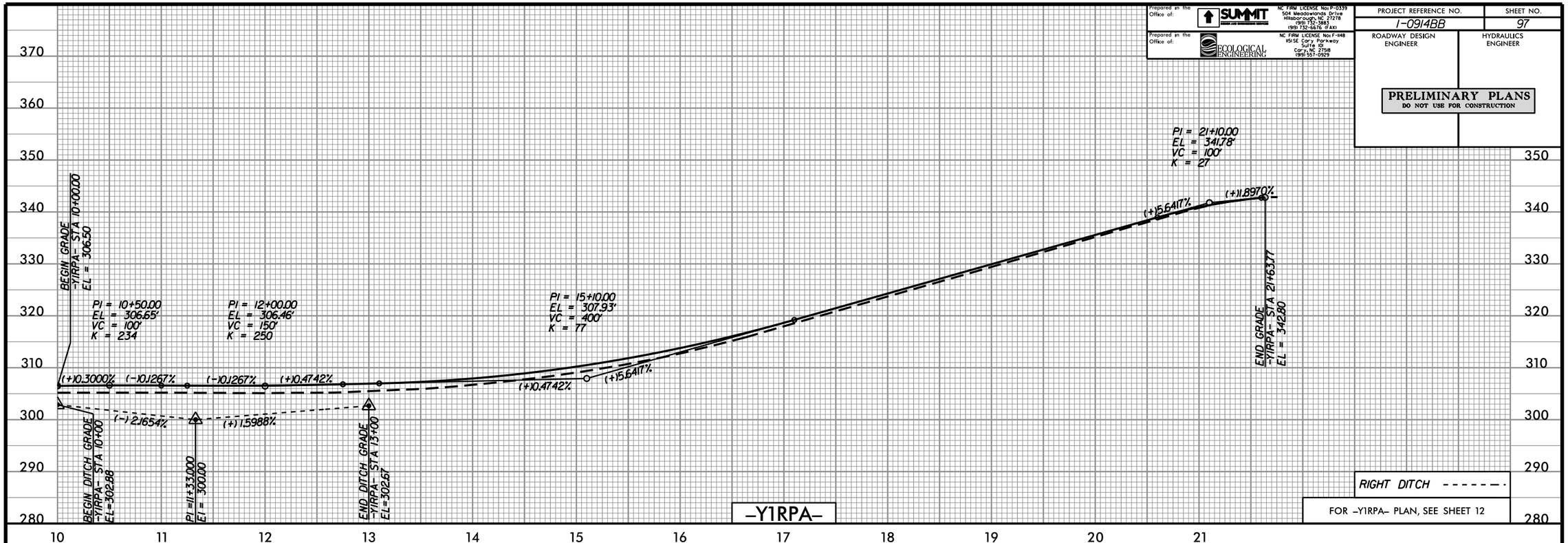
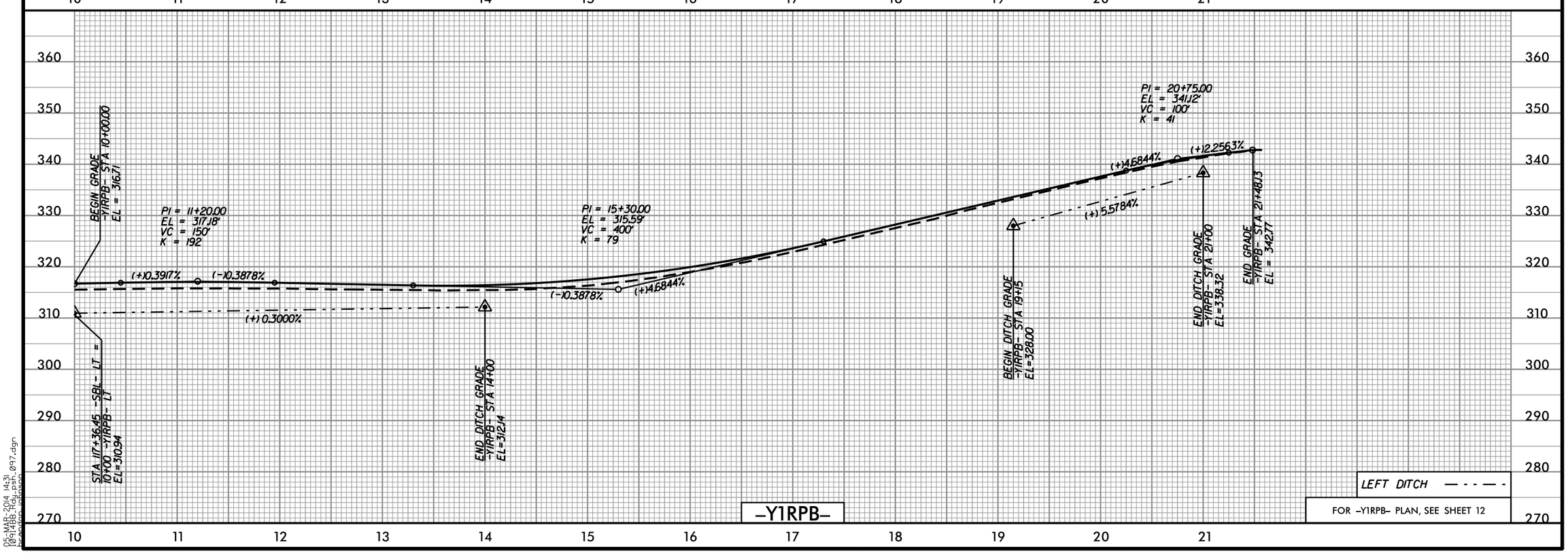
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	97
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





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I0914BB_Rdy.psh
hcordon (jbason)

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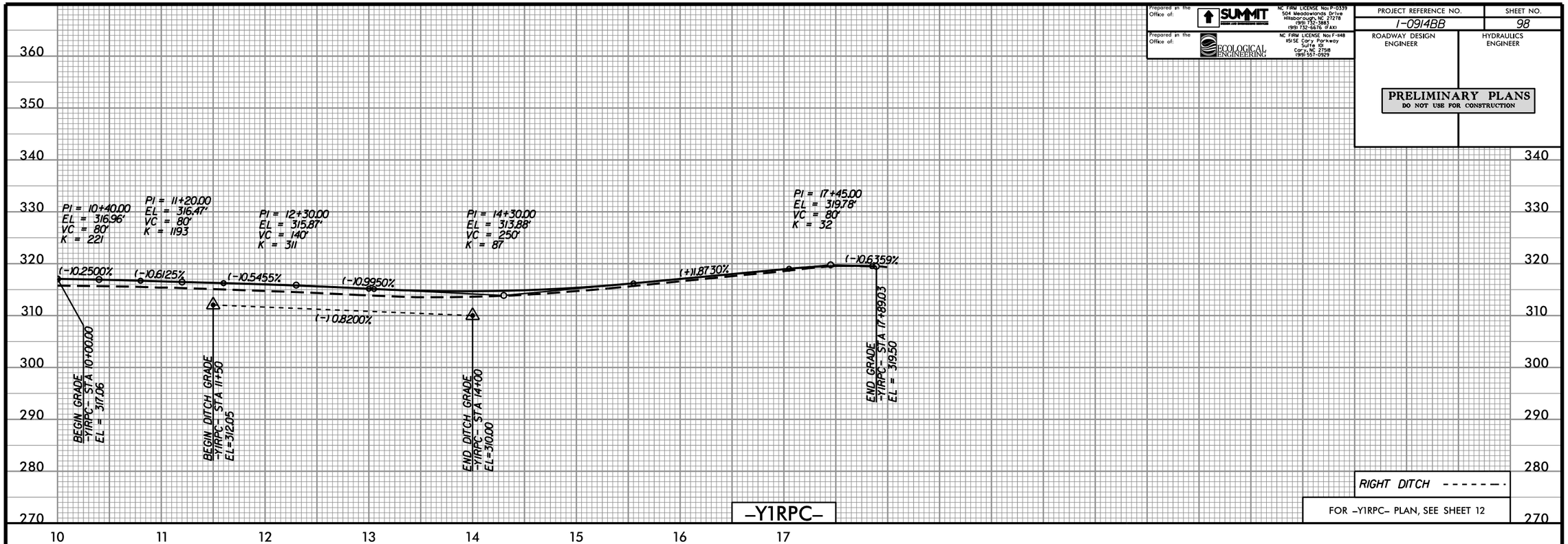
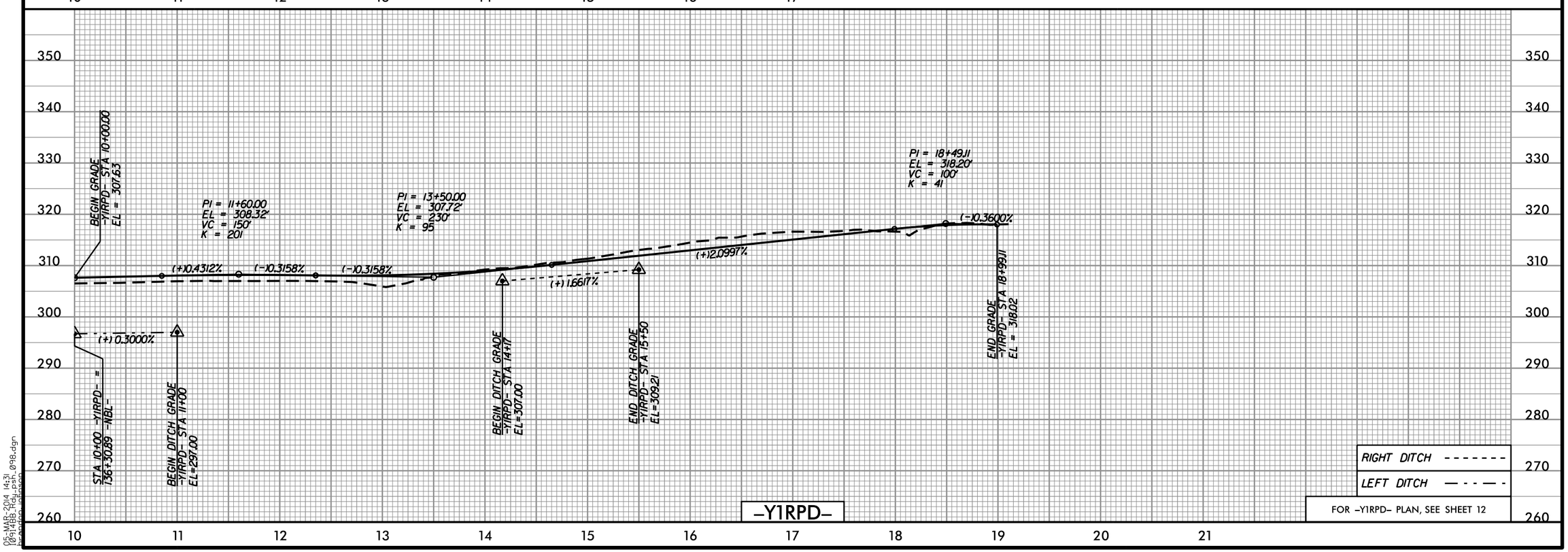
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	98
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:31
I0914BB_Hdy_psh_098.dgn
bpeden (jbpeden)

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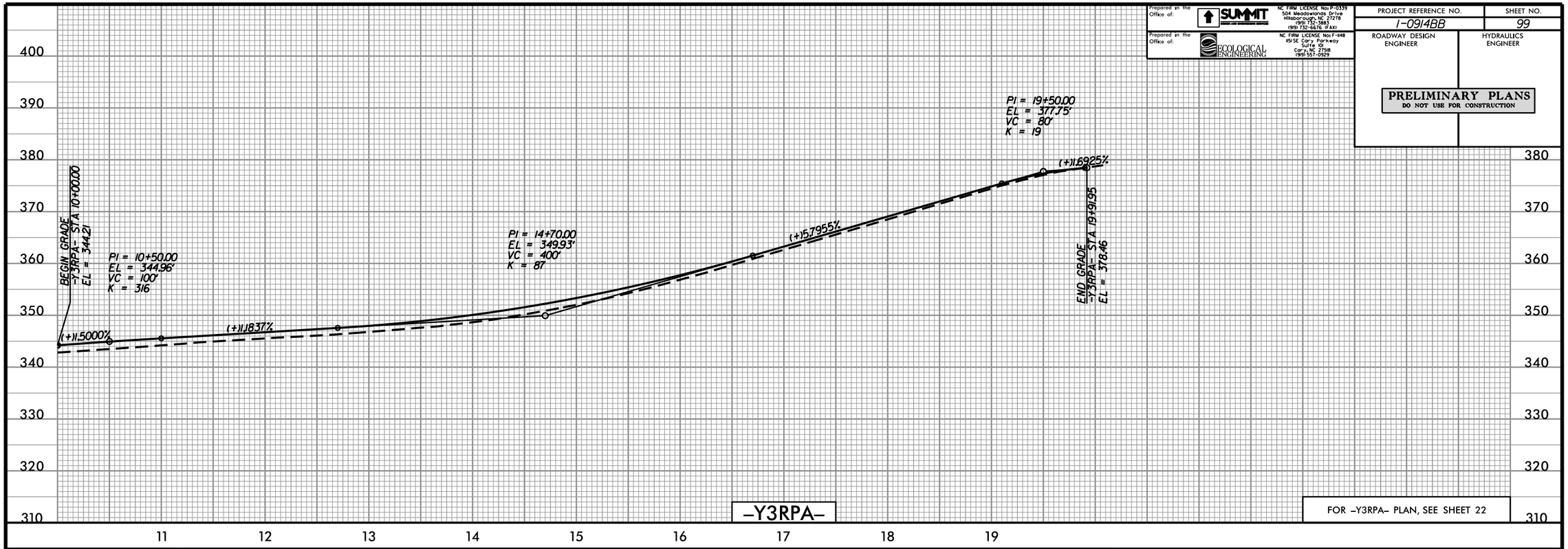
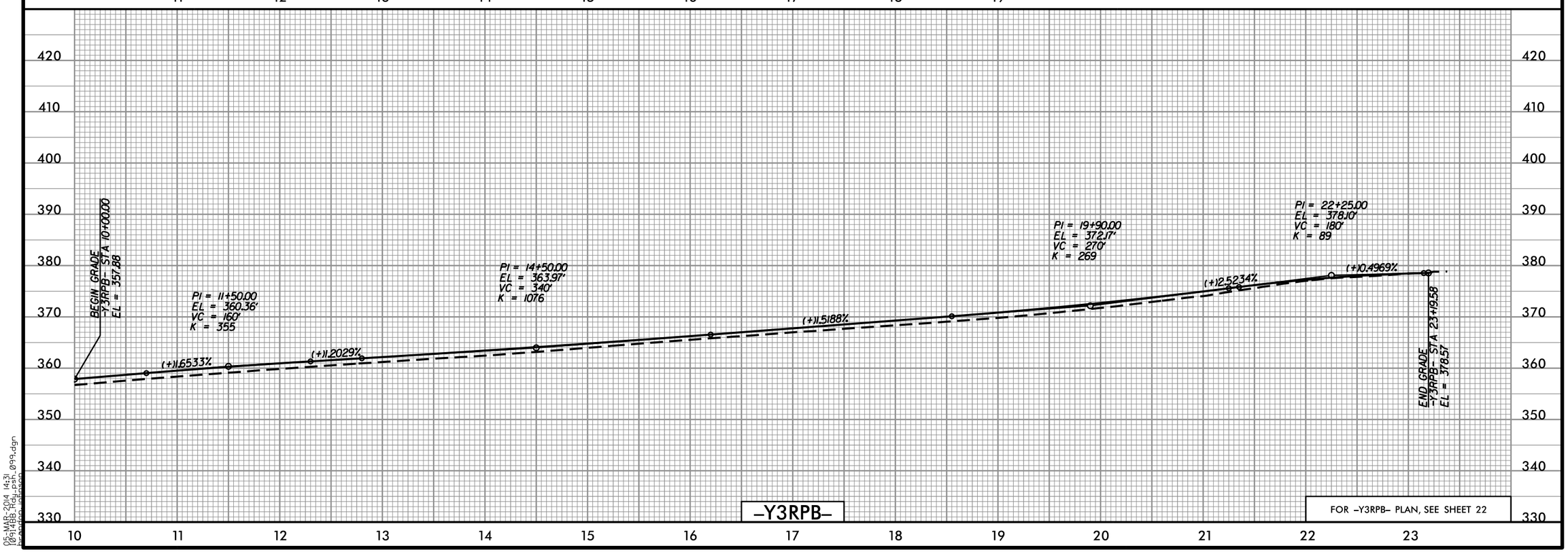
PROJECT REFERENCE NO.	SHEET NO.
1-0914BB	99
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:31
1-0914BB_Hydr_psh_099.dgn
bpadgen (gpason)

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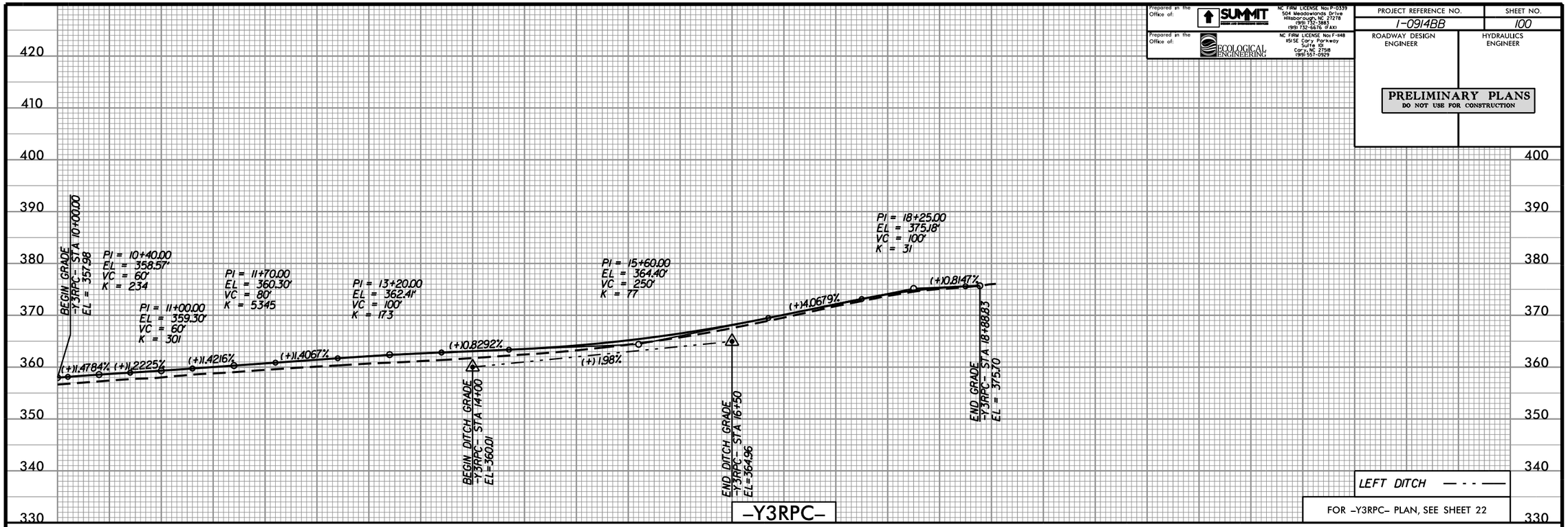
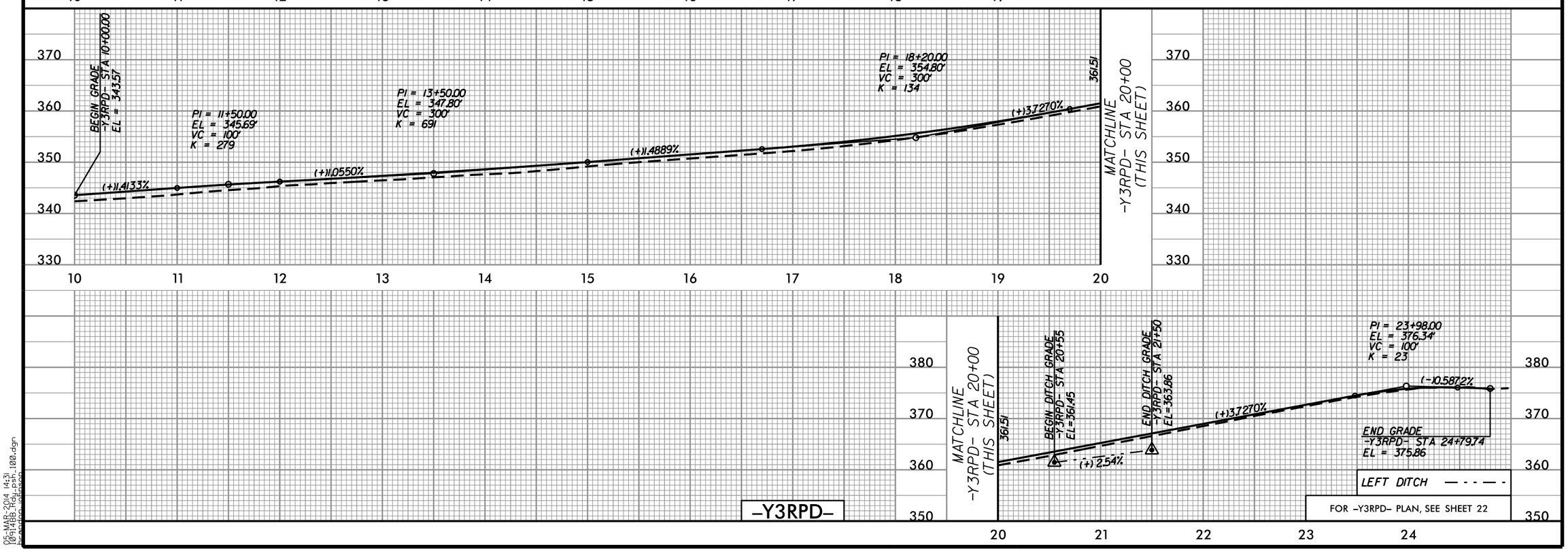
1-0914BB	100
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:31
1-0914BB_Hdy_psh_100.dgn
bgordon (gbason)

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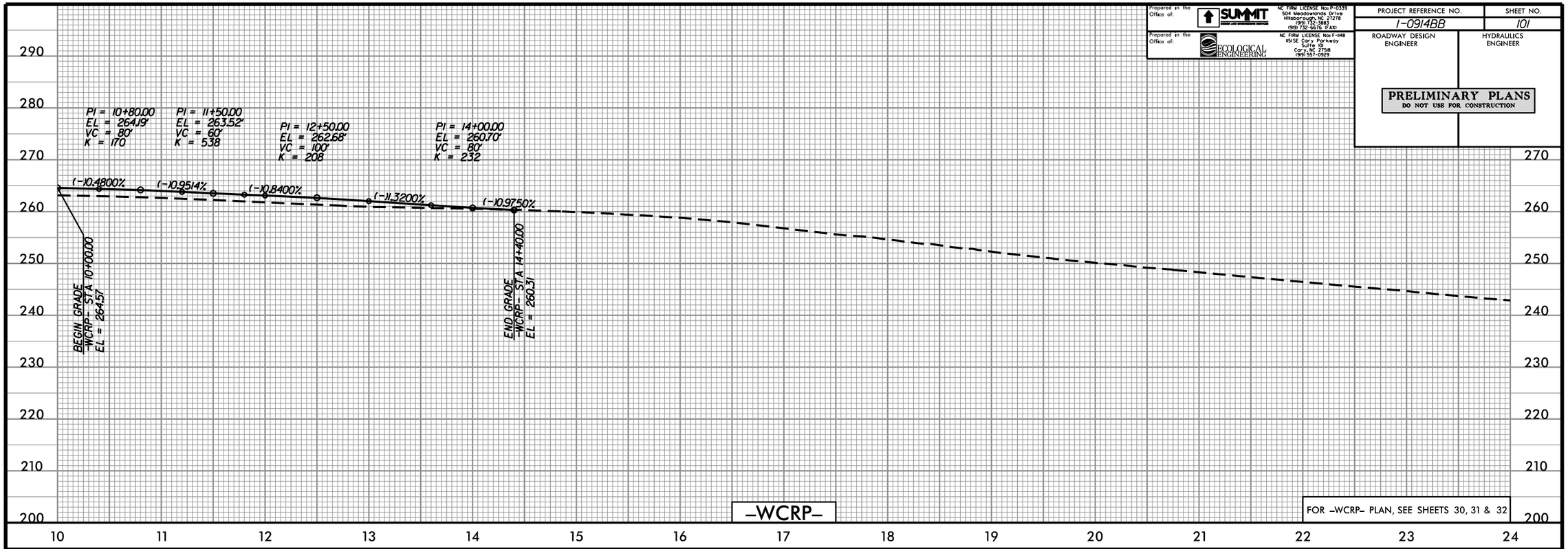
PROJECT REFERENCE NO.	SHEET NO.
1-0914BB	101
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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1-0914BB_Hdy_psh_101.dgn
bgordon (jbrason)

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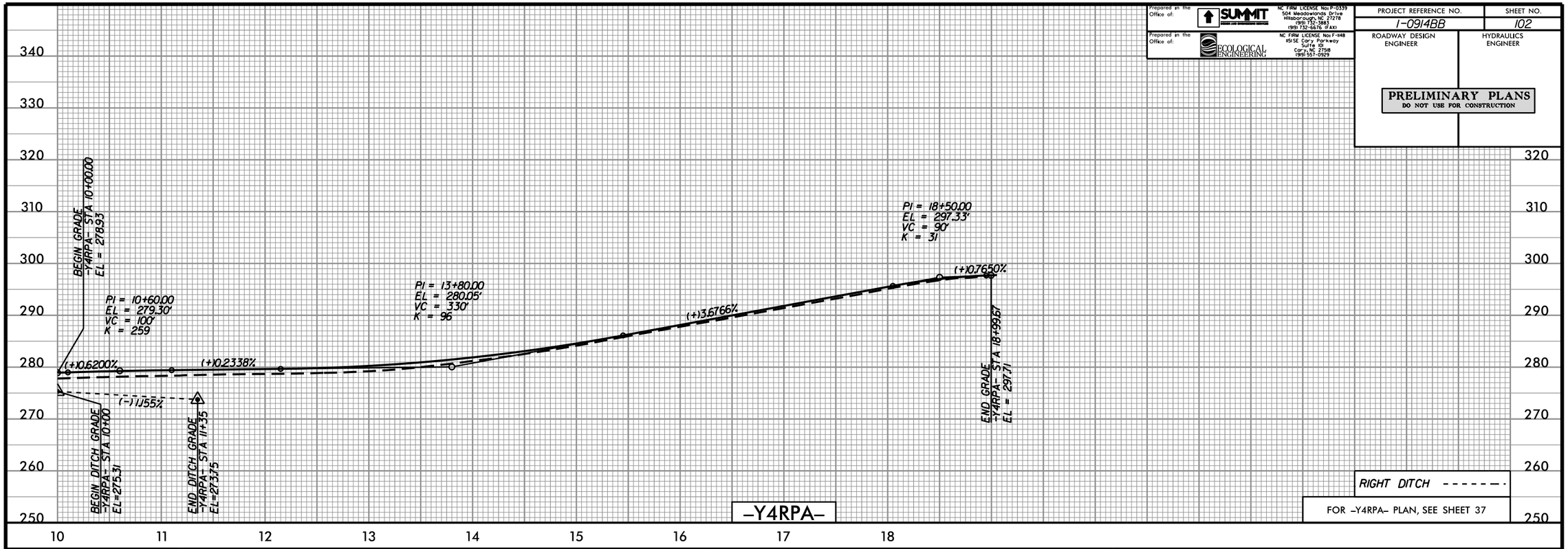
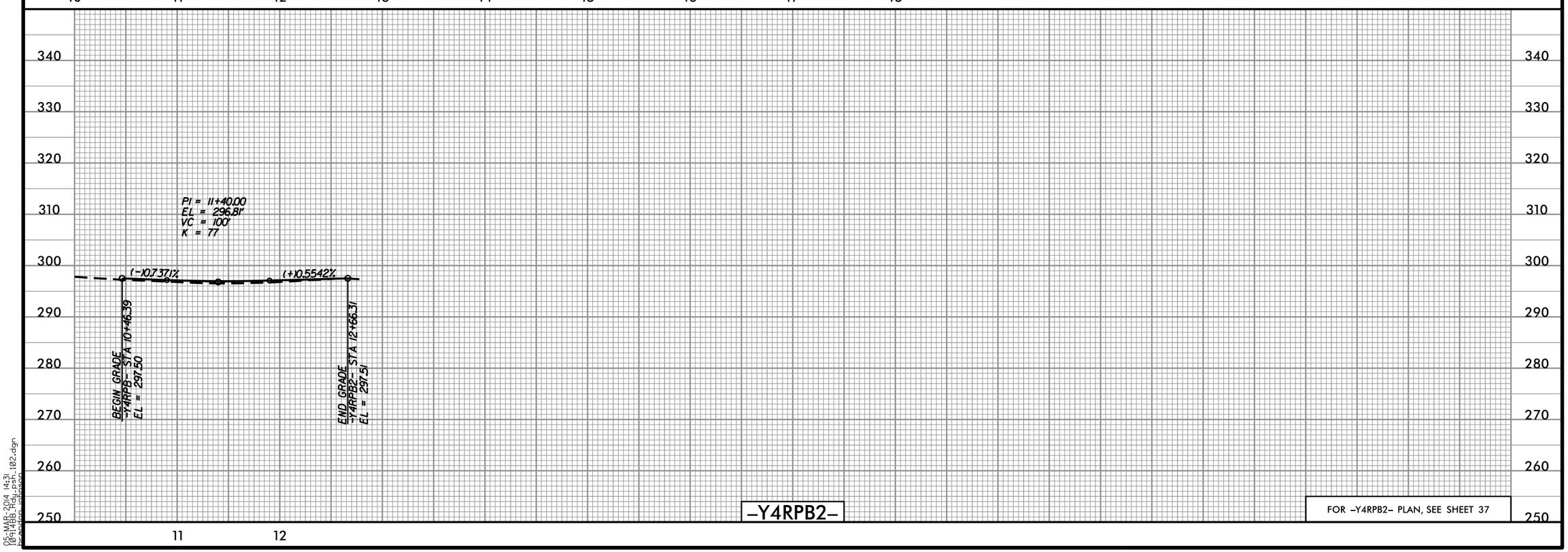
PROJECT REFERENCE NO.	SHEET NO.
1-0914BB	102
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:31
1-0914BB_Hdy_psh_102.dgn
bpeden (jpeden)

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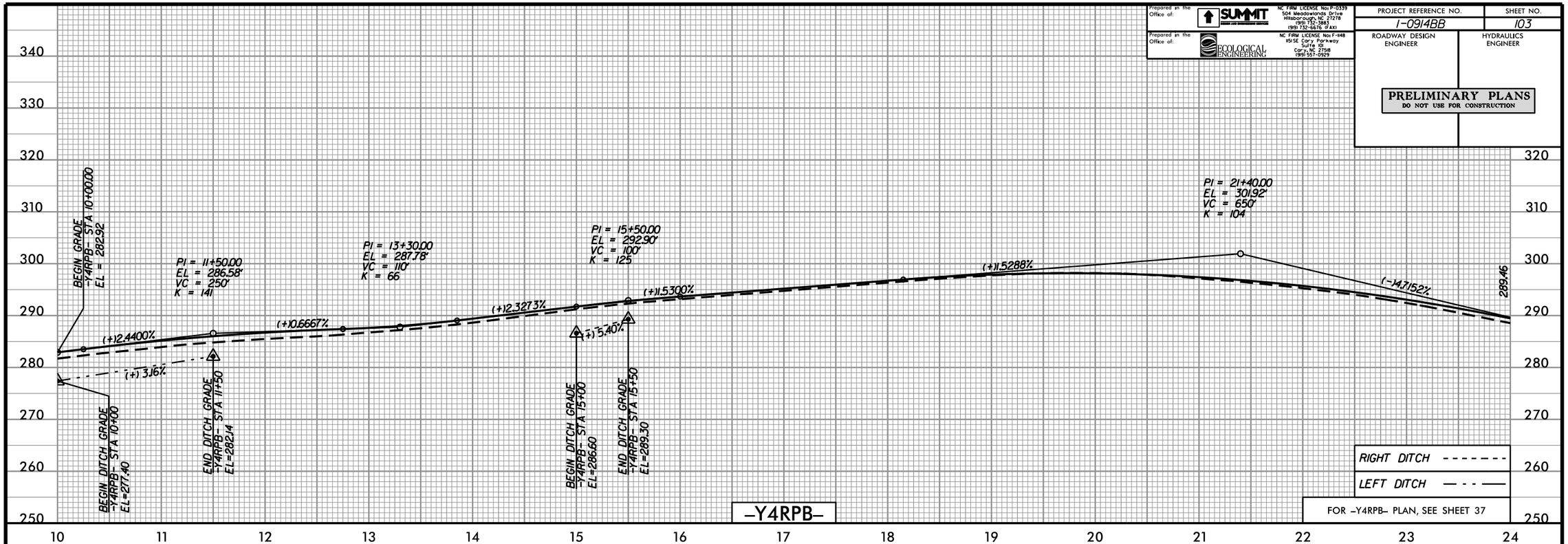
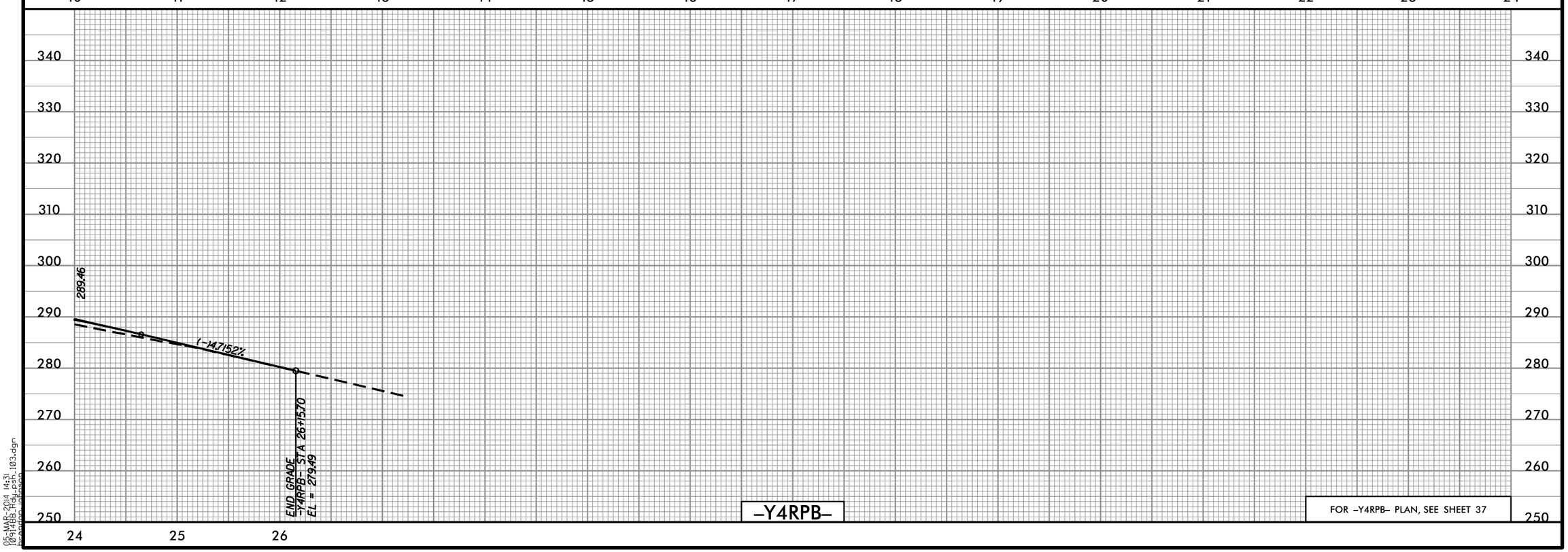
PROJECT REFERENCE NO.	SHEET NO.
1-0914BB	103
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:31
1-0914BB_Hydr_psh_103.dgn
hpardon (jpason)

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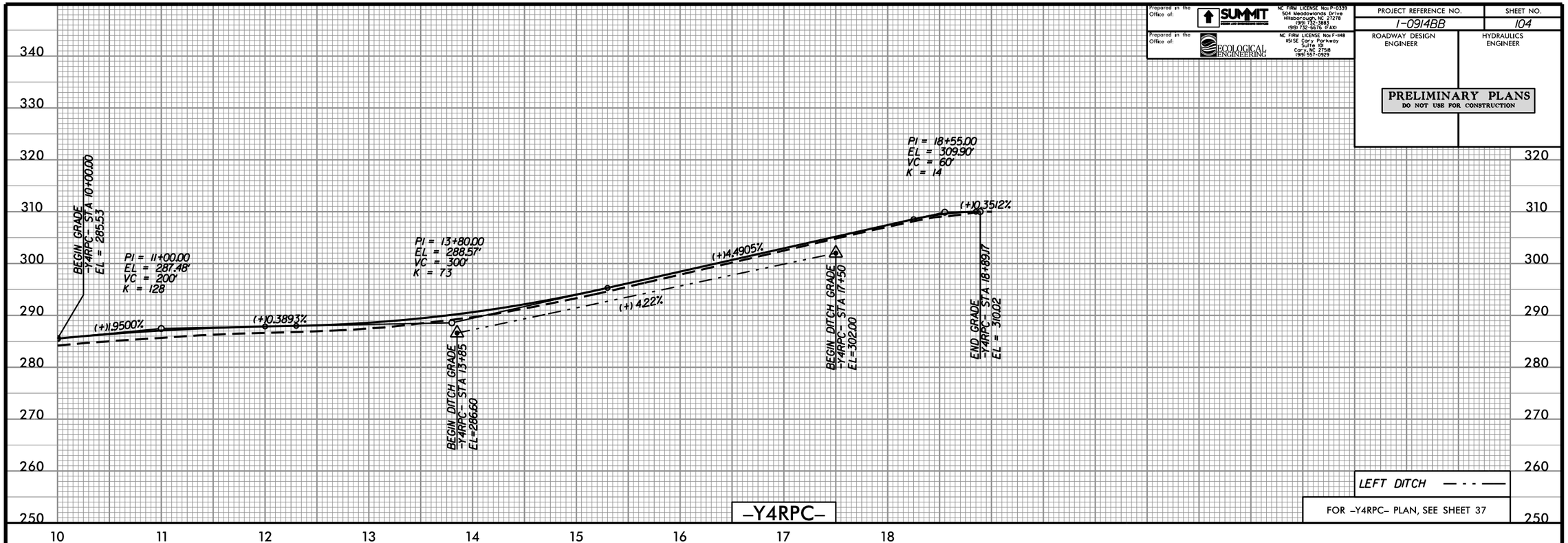
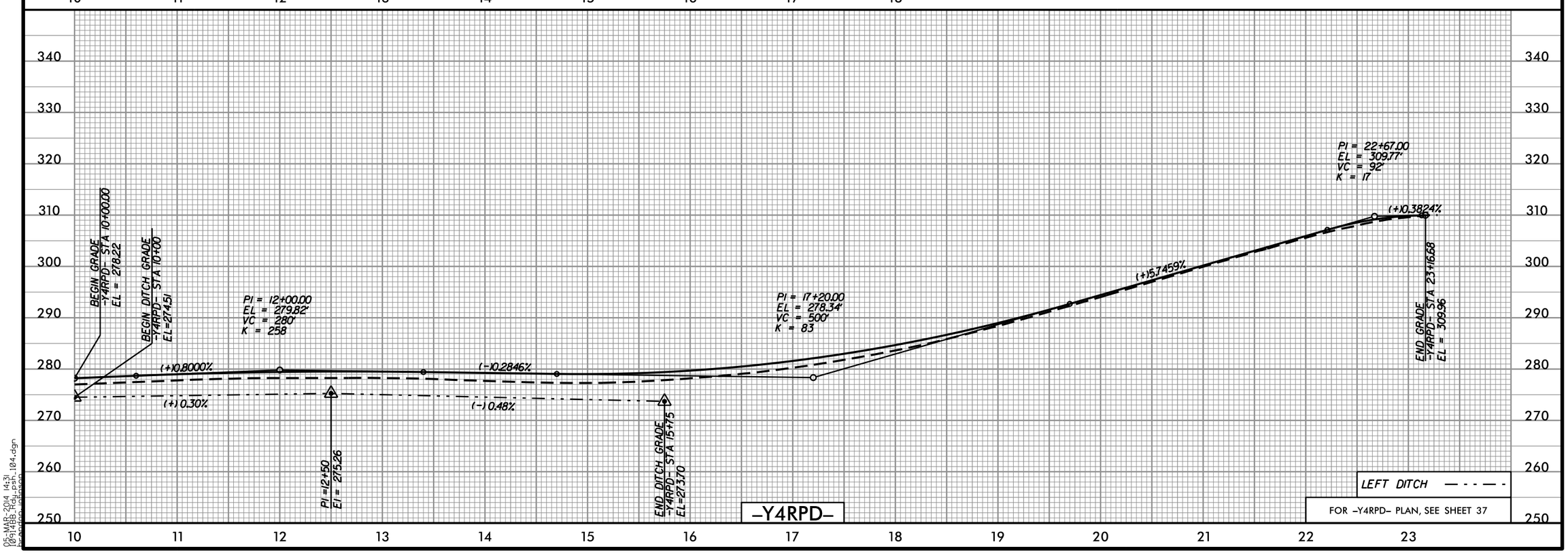
PROJECT REFERENCE NO.	SHEET NO.
1-0914BB	104

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





05-MAR-2014 14:31
1-0914BB_Hdy.psh
bgordon (jbason)
104.dgn

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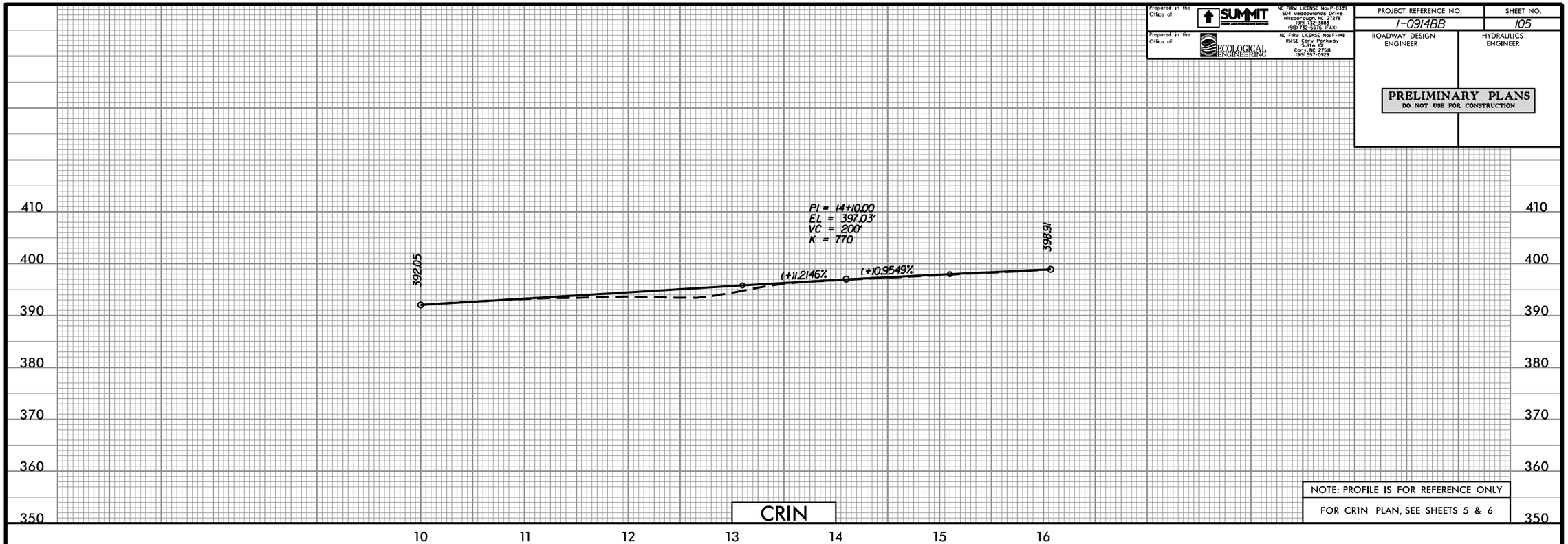
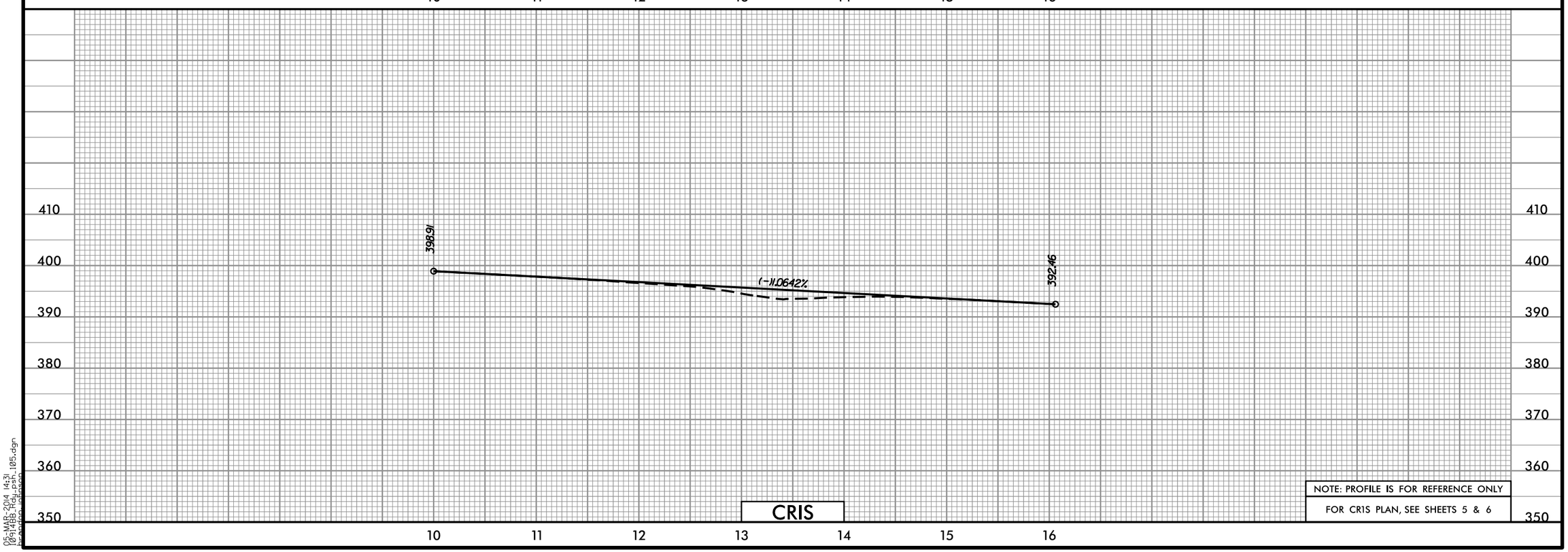
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	105
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NOTE: PROFILE IS FOR REFERENCE ONLY

FOR CR1N PLAN, SEE SHEETS 5 & 6



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FOR CR1S PLAN, SEE SHEETS 5 & 6

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bgordon (gbrson)

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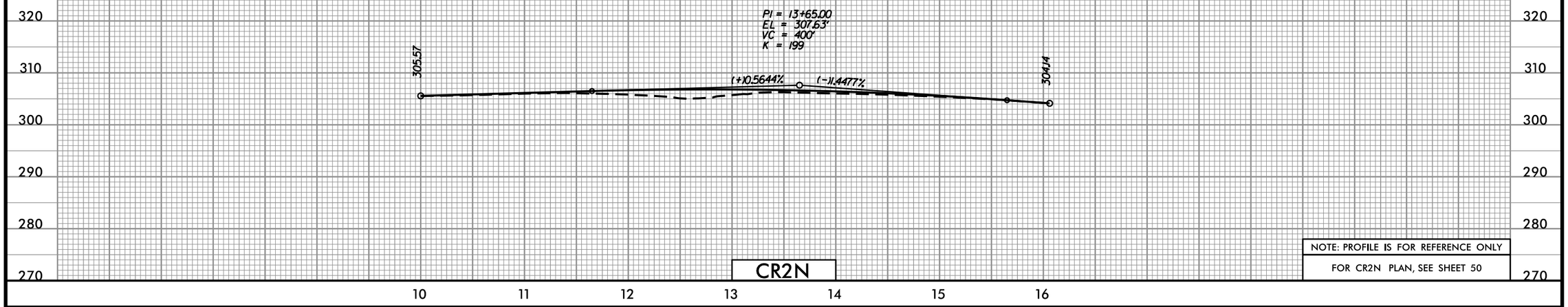
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	106
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

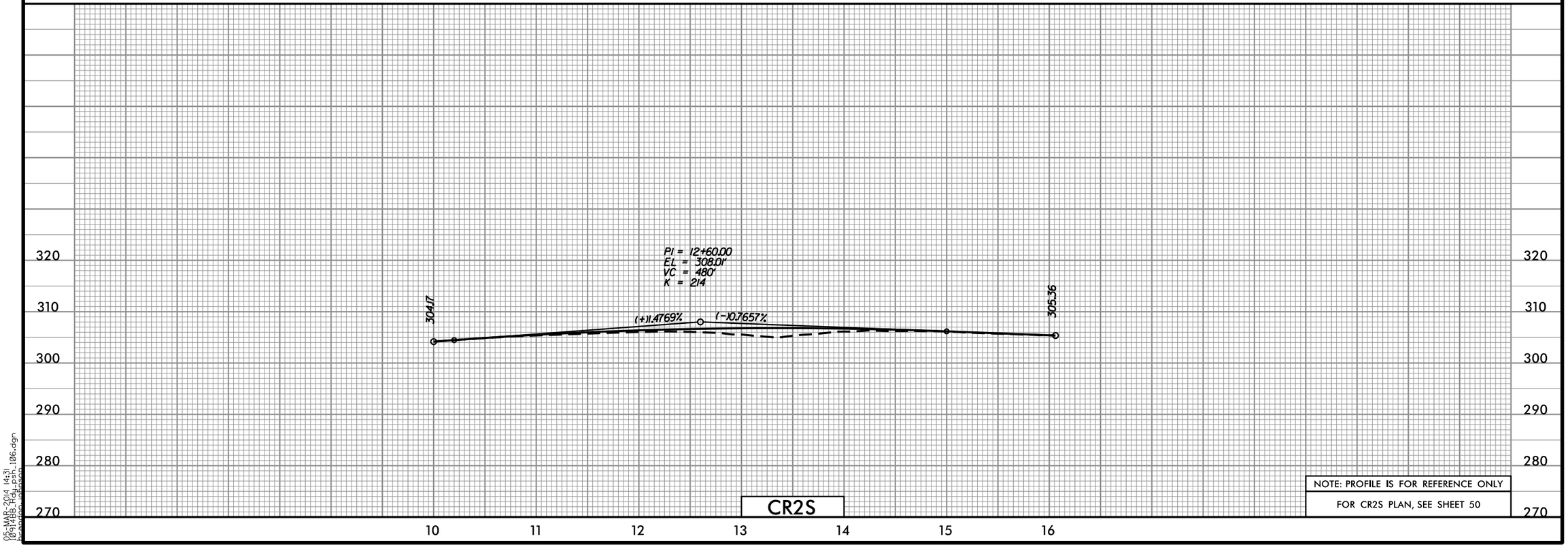
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



CR2N

NOTE: PROFILE IS FOR REFERENCE ONLY

FOR CR2N PLAN, SEE SHEET 50



CR2S

NOTE: PROFILE IS FOR REFERENCE ONLY

FOR CR2S PLAN, SEE SHEET 50

05-MAR-2014 14:31
I0914BB_Hyd_psh_106.dgn
bpeden (jpeson)

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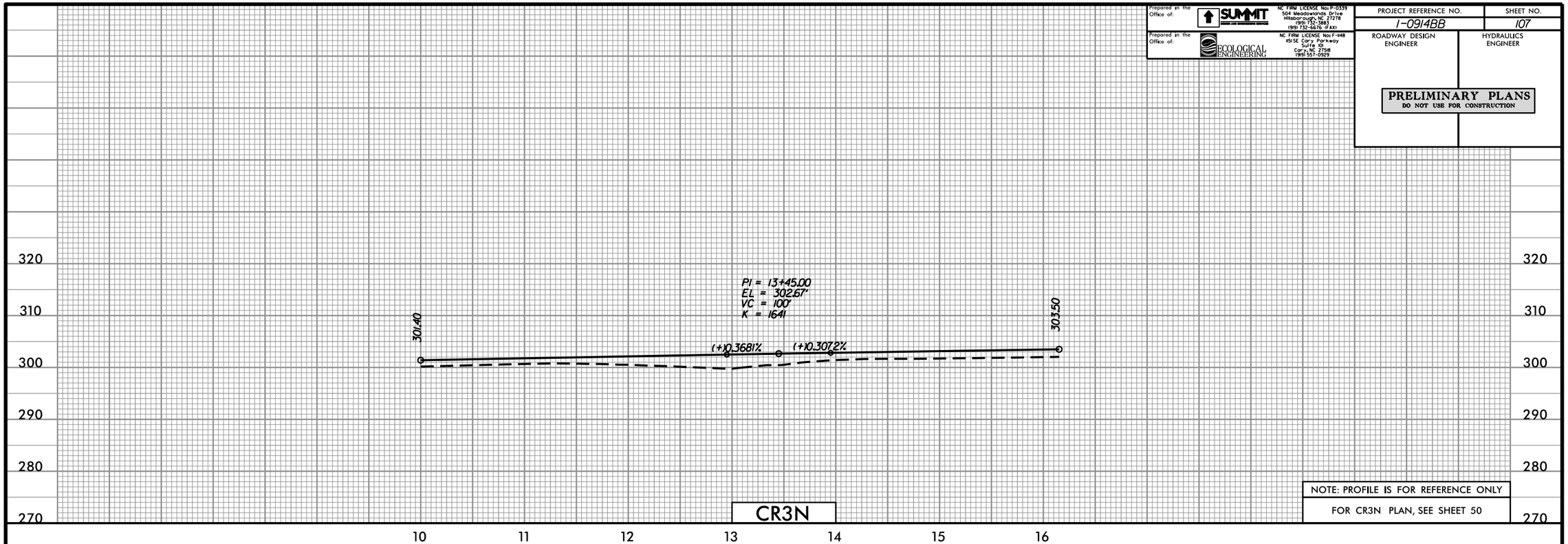
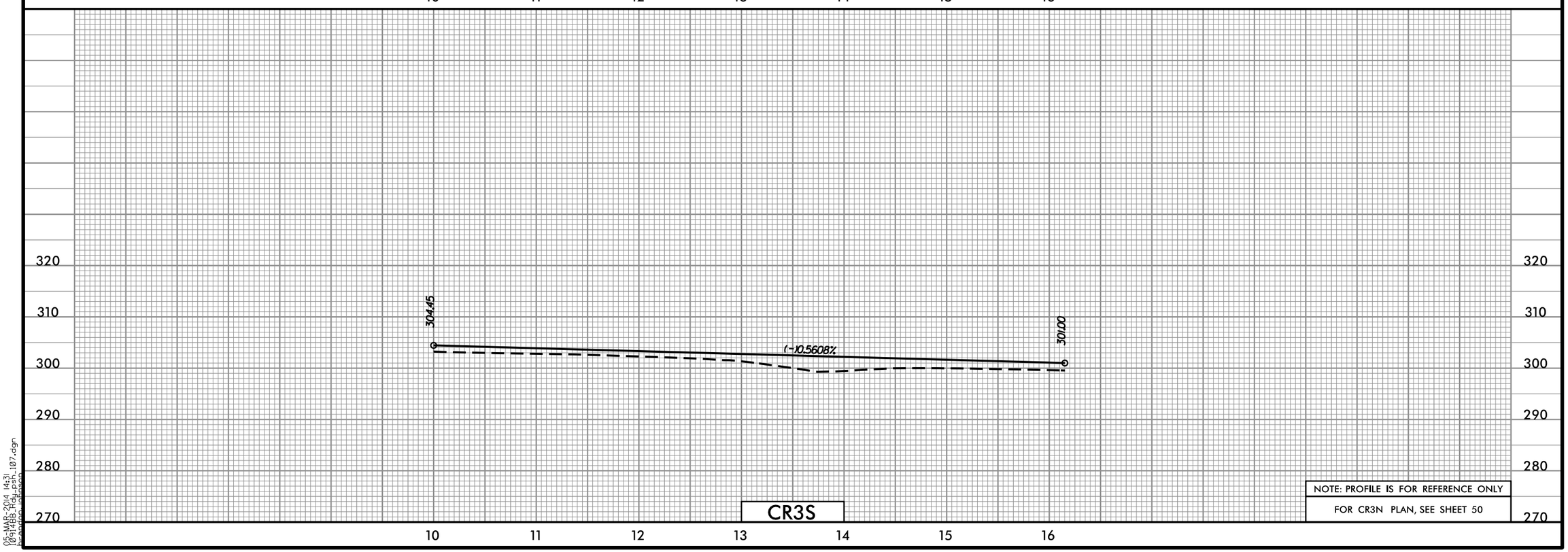
PROJECT REFERENCE NO.	SHEET NO.
1-0914BB	107
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NOTE: PROFILE IS FOR REFERENCE ONLY

FOR CR3N PLAN, SEE SHEET 50



NOTE: PROFILE IS FOR REFERENCE ONLY

FOR CR3N PLAN, SEE SHEET 50

05-MAR-2014 14:31
1-0914BB_Hydr_psh_107.dgn
bgordon (gbrson)

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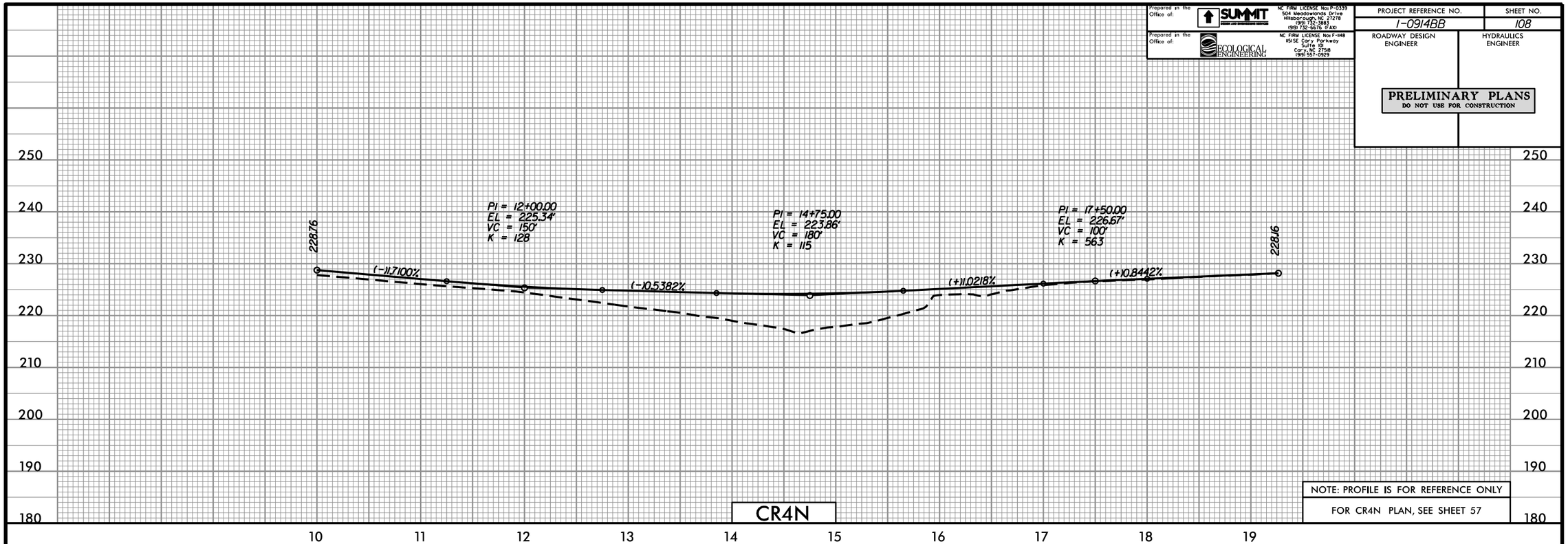
PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	108
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

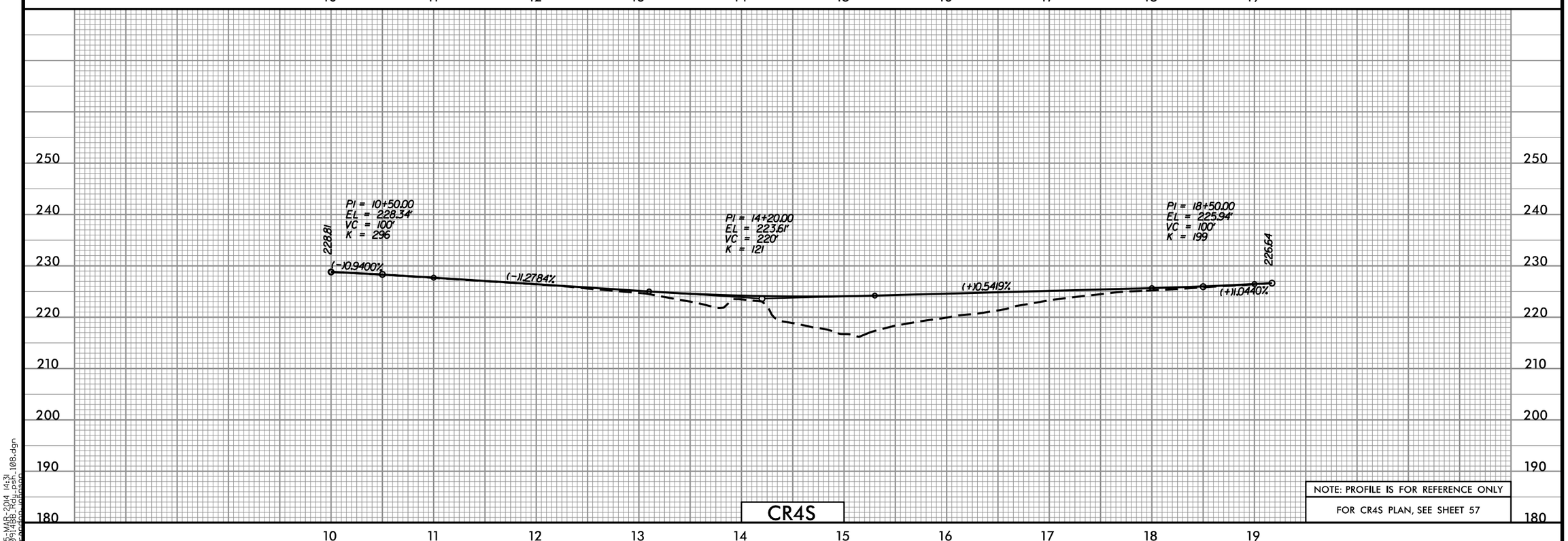
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



CR4N

NOTE: PROFILE IS FOR REFERENCE ONLY

FOR CR4N PLAN, SEE SHEET 57



CR4S

NOTE: PROFILE IS FOR REFERENCE ONLY

FOR CR4S PLAN, SEE SHEET 57

05-MAR-2014 14:31
I-0914BB_Hydr_psh_108.dgn
bpardon (jbason)

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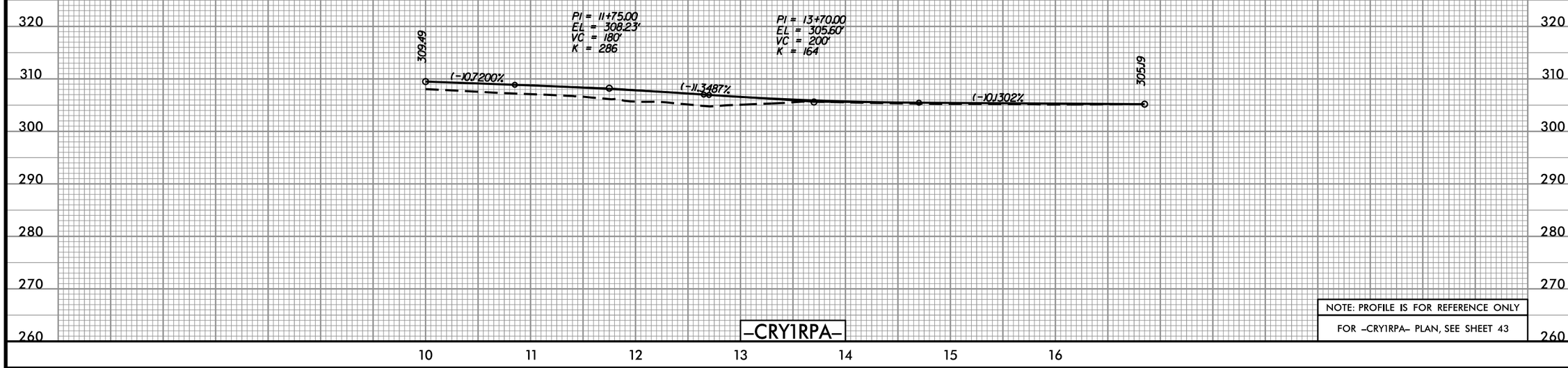
PROJECT REFERENCE NO.	SHEET NO.
1-0914BB	109
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

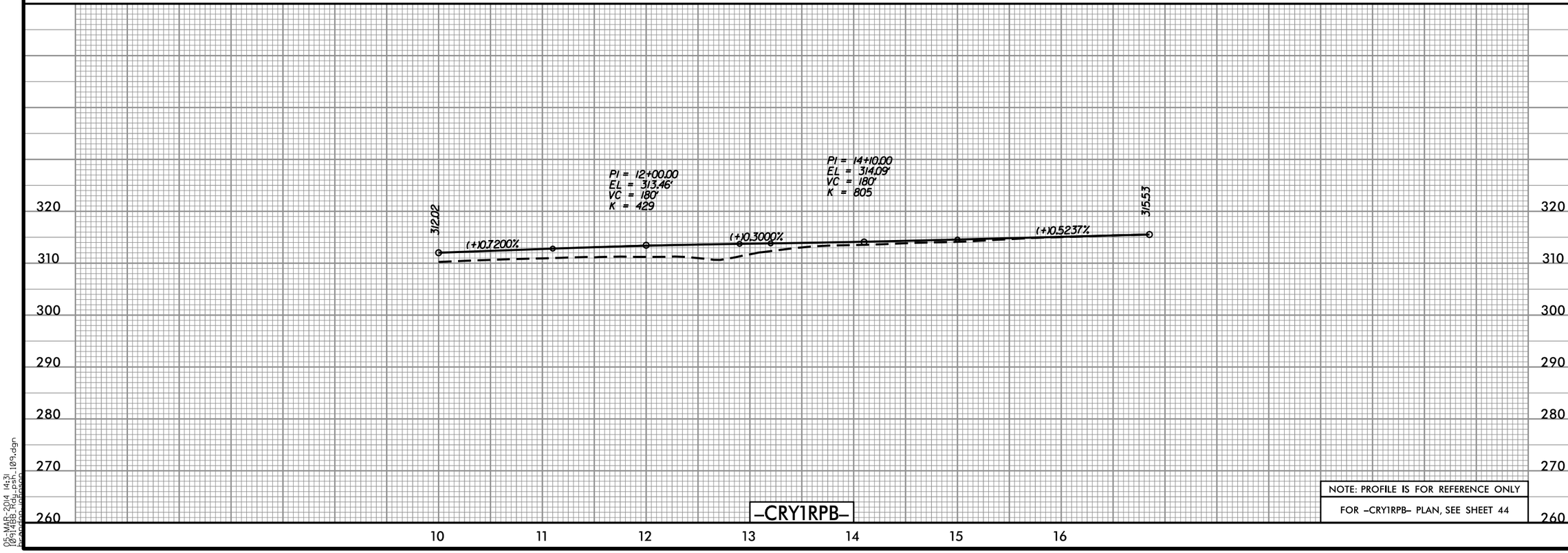
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



–CRY1RPA–

NOTE: PROFILE IS FOR REFERENCE ONLY

FOR –CRY1RPA– PLAN, SEE SHEET 43



–CRY1RPB–

NOTE: PROFILE IS FOR REFERENCE ONLY

FOR –CRY1RPB– PLAN, SEE SHEET 44

05-MAR-2014 14:31
1-0914BB_Hydr_psh_109.dgn
bgordon (gbrson)

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1-0914BB	110
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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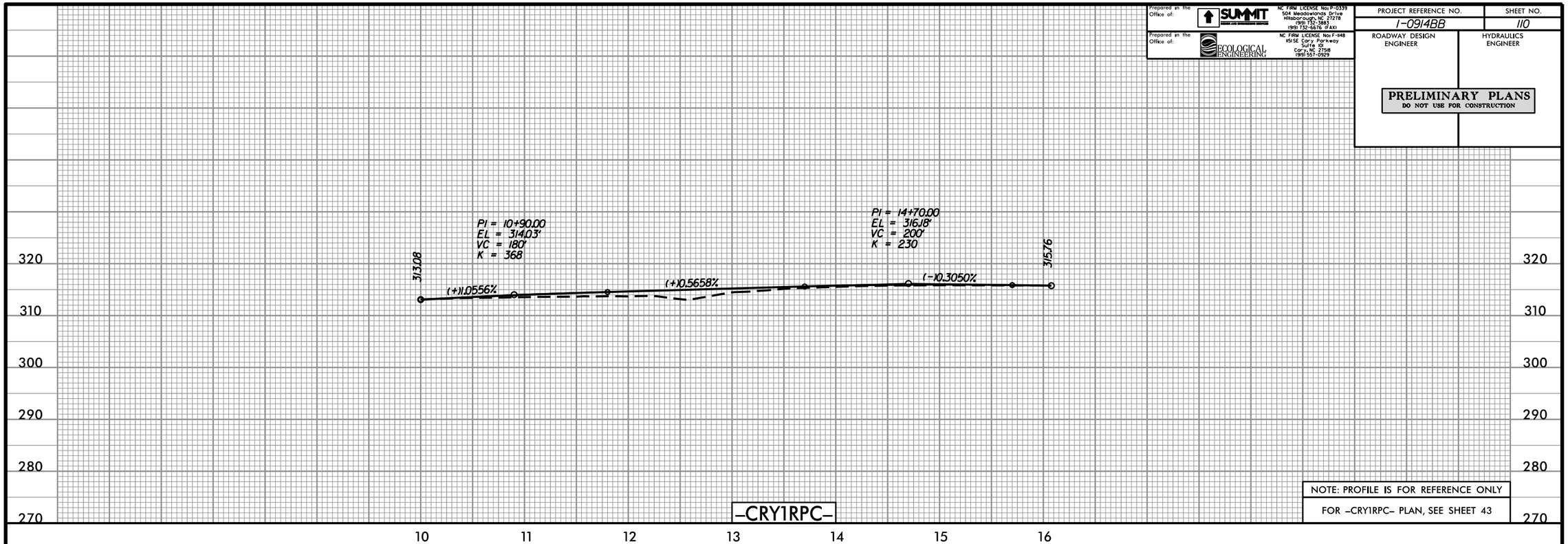
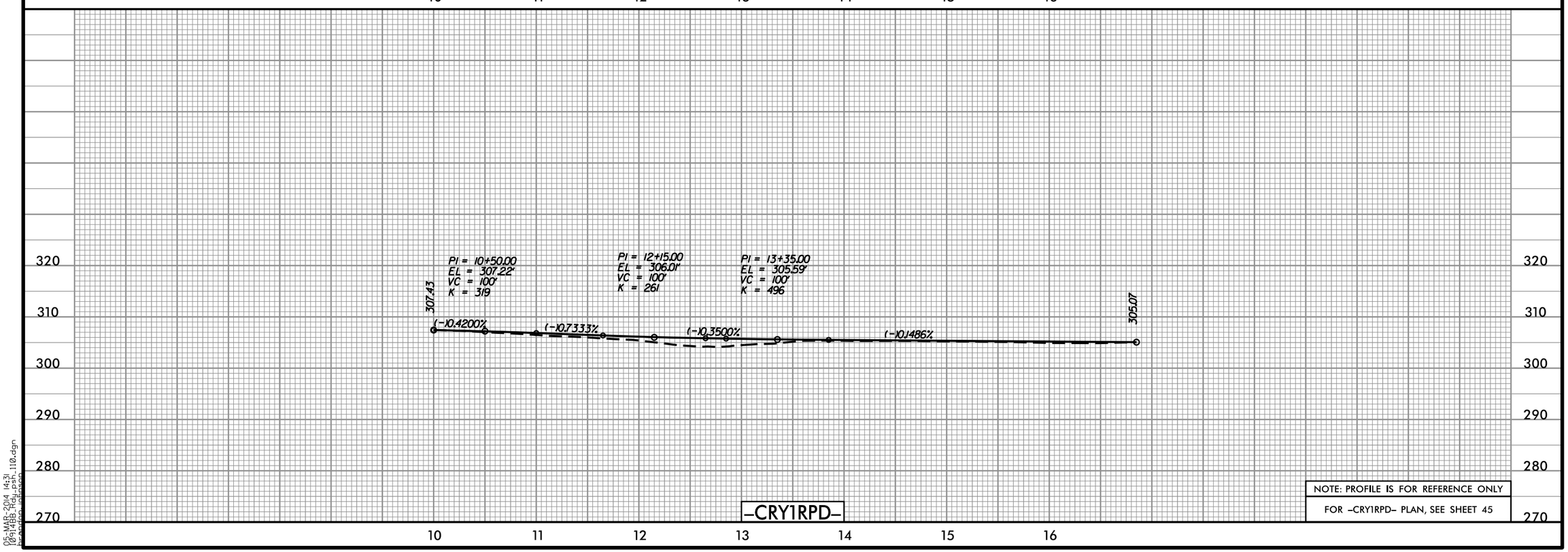


NOTE: PROFILE IS FOR REFERENCE ONLY

FOR -CRY1RPC- PLAN, SEE SHEET 43



NOTE: PROFILE IS FOR REFERENCE ONLY

FOR -CRY1RPD- PLAN, SEE SHEET 45

05-MAR-2014 14:31
1-0914BB_Hydr_psh_110.dgn
hpardon (jpason)

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	111
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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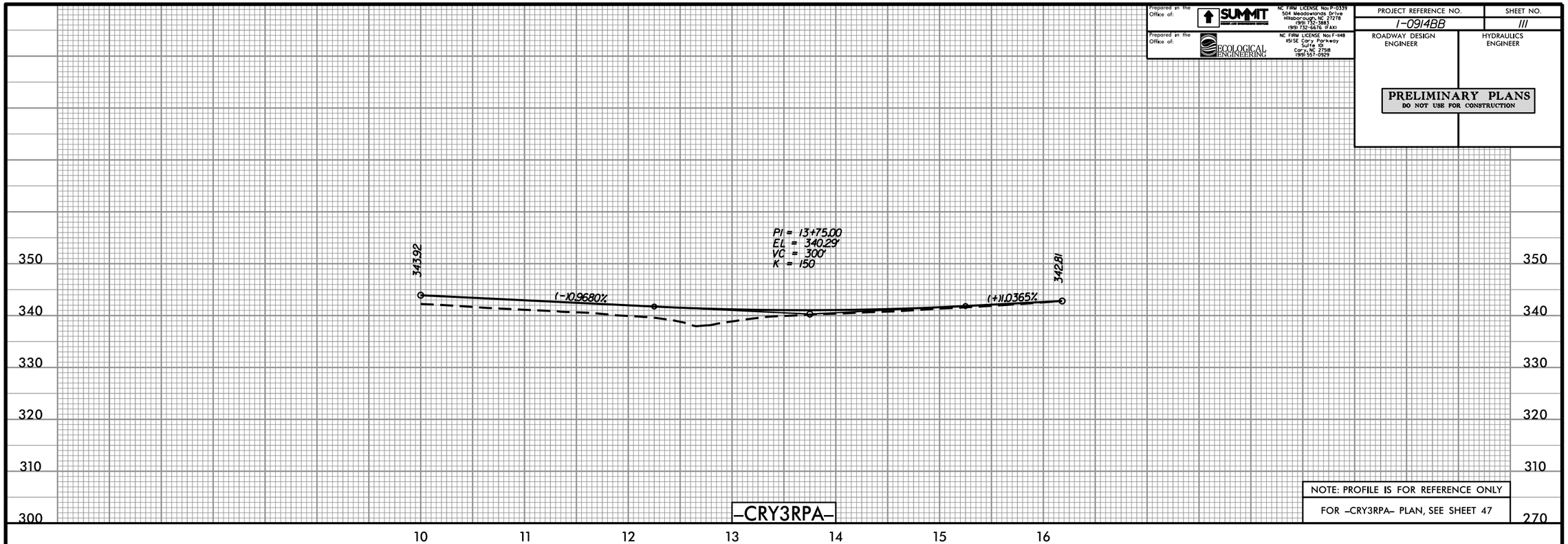
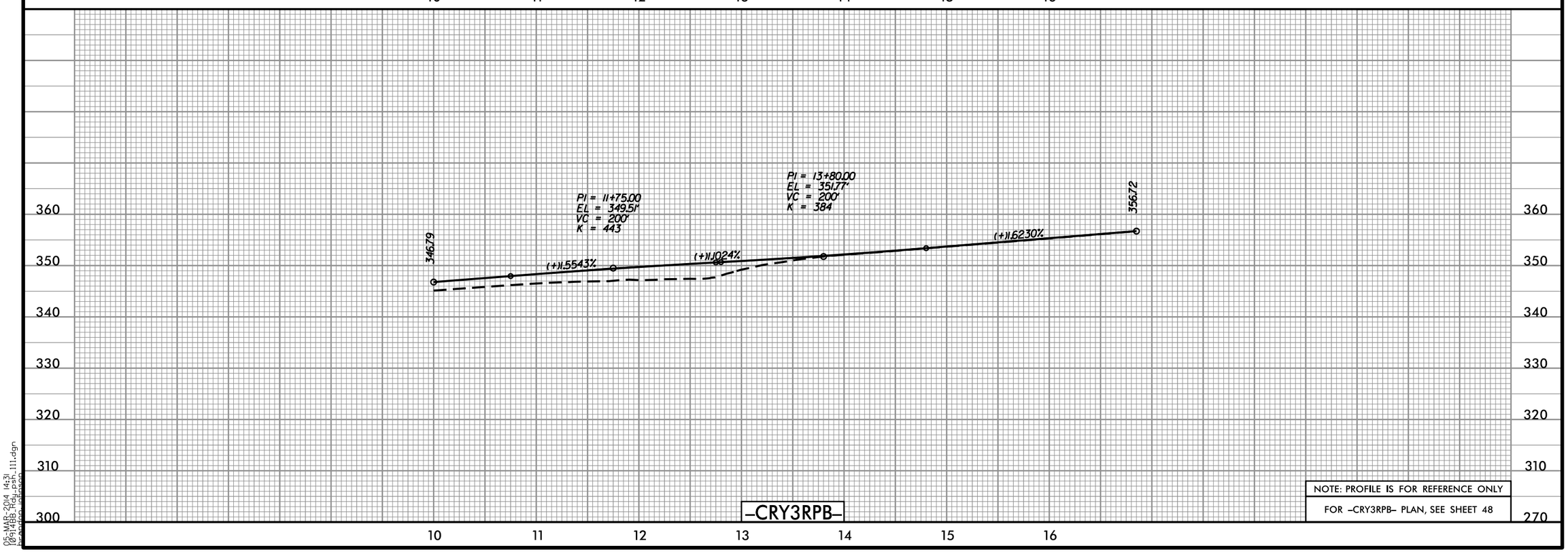


–CRY3RPA–

NOTE: PROFILE IS FOR REFERENCE ONLY

FOR –CRY3RPA– PLAN, SEE SHEET 47



–CRY3RPB–

NOTE: PROFILE IS FOR REFERENCE ONLY

FOR –CRY3RPB– PLAN, SEE SHEET 48

05-MAR-2014 14:31
I0914BB_Hyd_psh_
hpardon (jpason) 111.dgn

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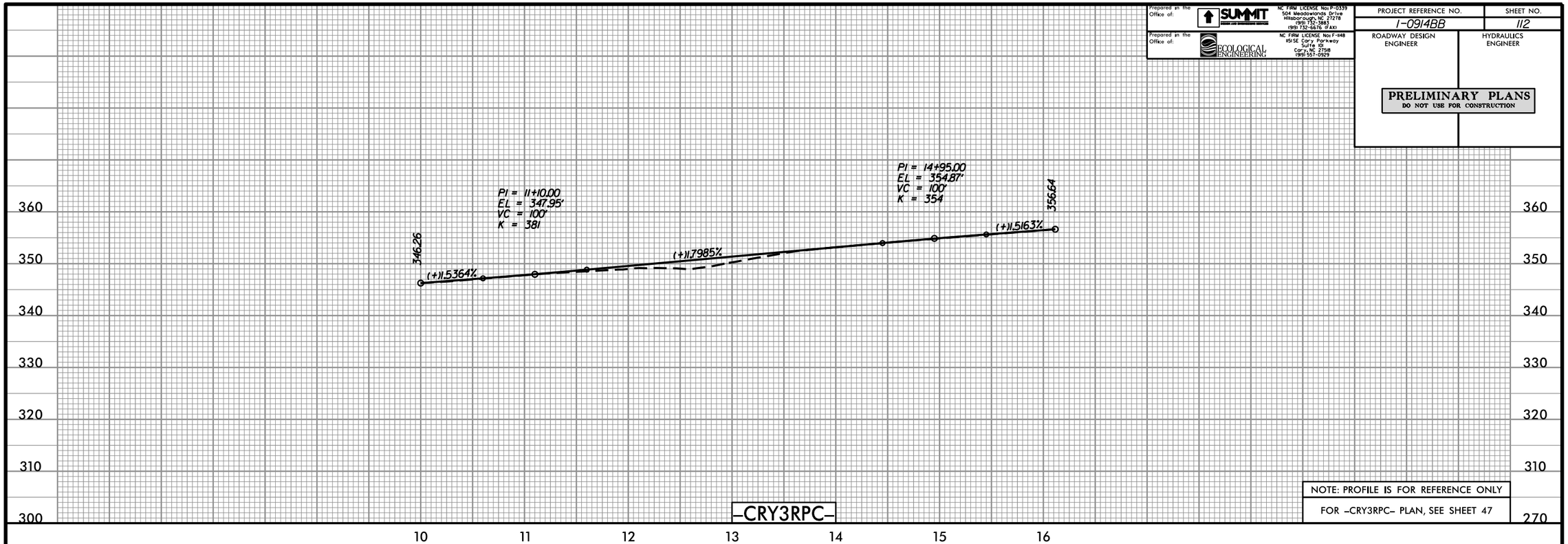
PROJECT REFERENCE NO.	SHEET NO.
1-0914BB	112
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

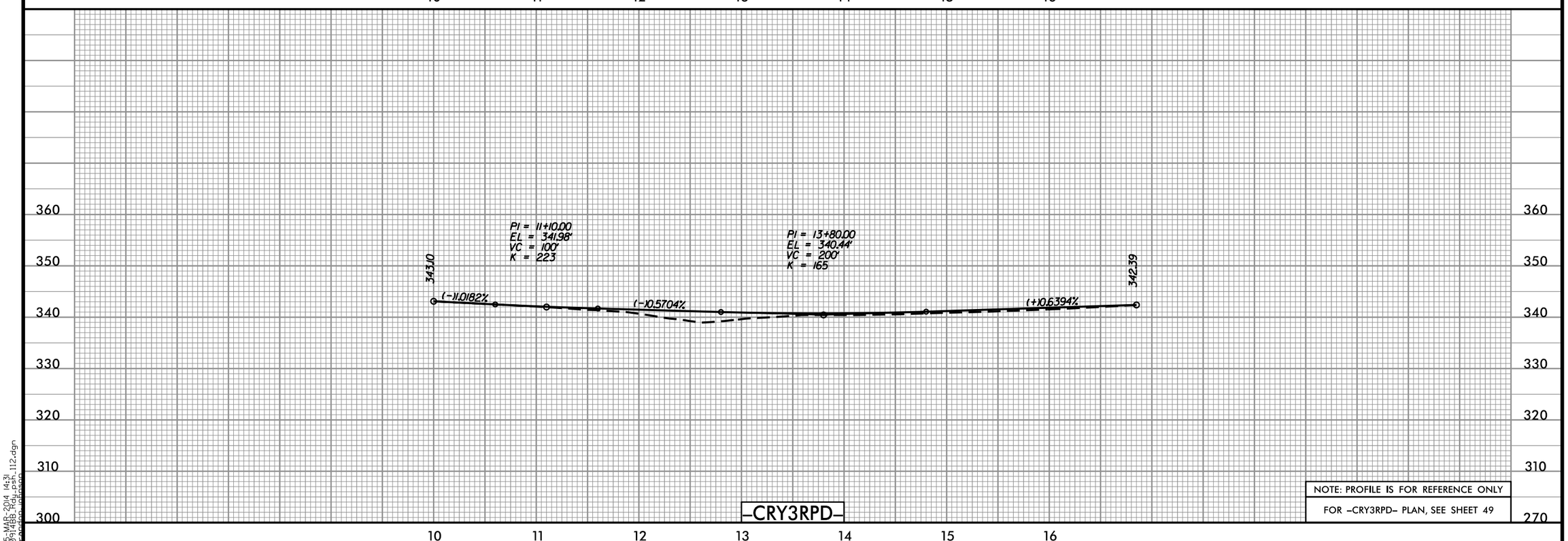
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



–CRY3RPC–

NOTE: PROFILE IS FOR REFERENCE ONLY

FOR –CRY3RPC– PLAN, SEE SHEET 47



–CRY3RPD–

NOTE: PROFILE IS FOR REFERENCE ONLY

FOR –CRY3RPD– PLAN, SEE SHEET 49

05-MAR-2014 14:31
1-0914BB_Hydr_psh_112.dgn
bpeden (jpeson)

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PROJECT REFERENCE NO.	SHEET NO.
1-0914BB	113
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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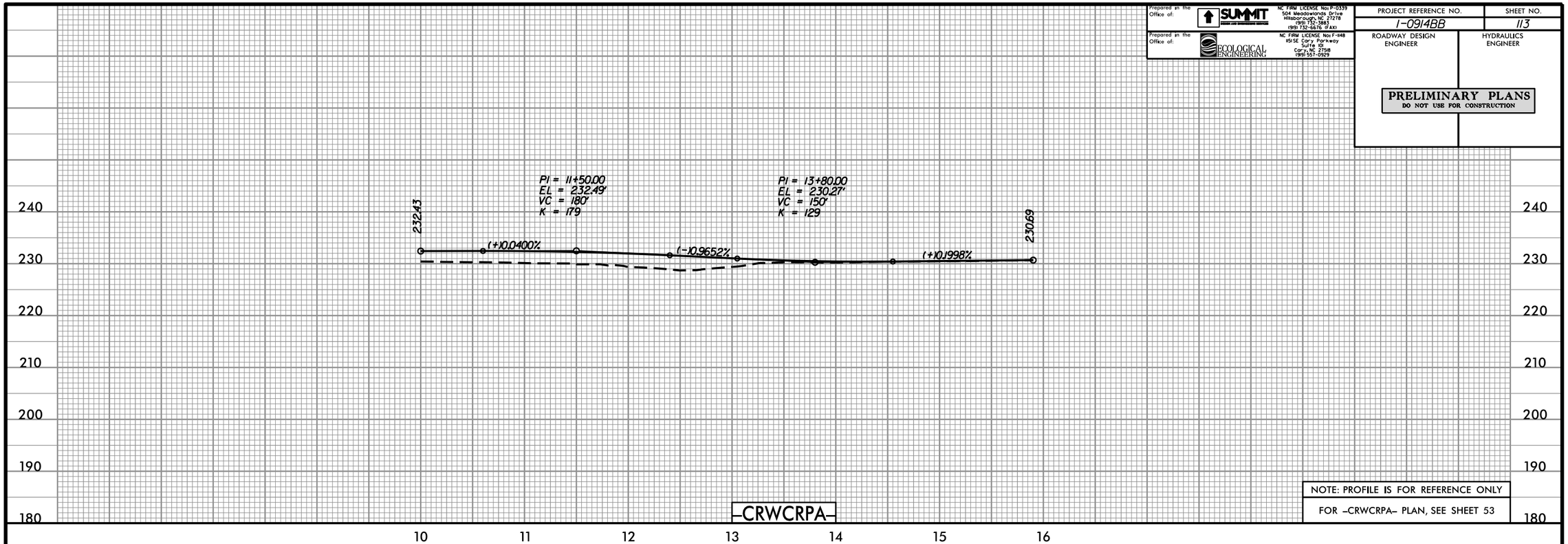
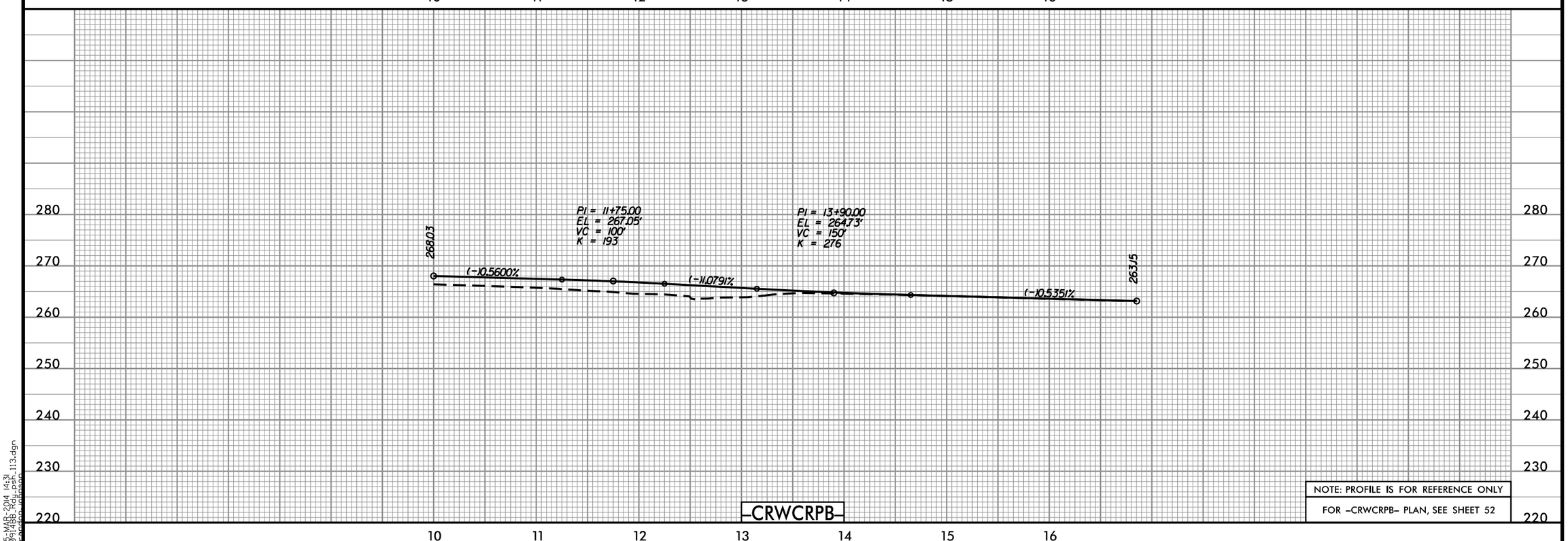


NOTE: PROFILE IS FOR REFERENCE ONLY

FOR -CRWCRPA- PLAN, SEE SHEET 53



NOTE: PROFILE IS FOR REFERENCE ONLY

FOR -CRWCRPB- PLAN, SEE SHEET 52

05-MAR-2014 14:31
1-0914BB_Hydr_psh_113.dgn
bpeden (jpeson)

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PROJECT REFERENCE NO.	SHEET NO.
I-0914BB	114
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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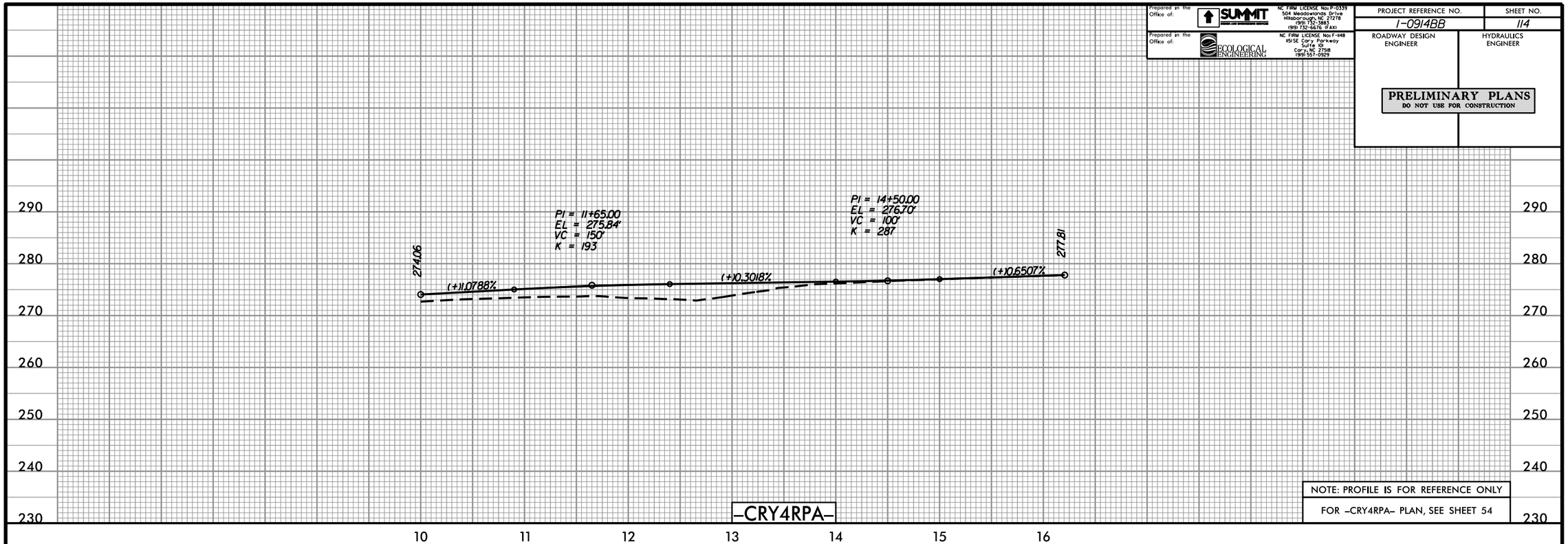
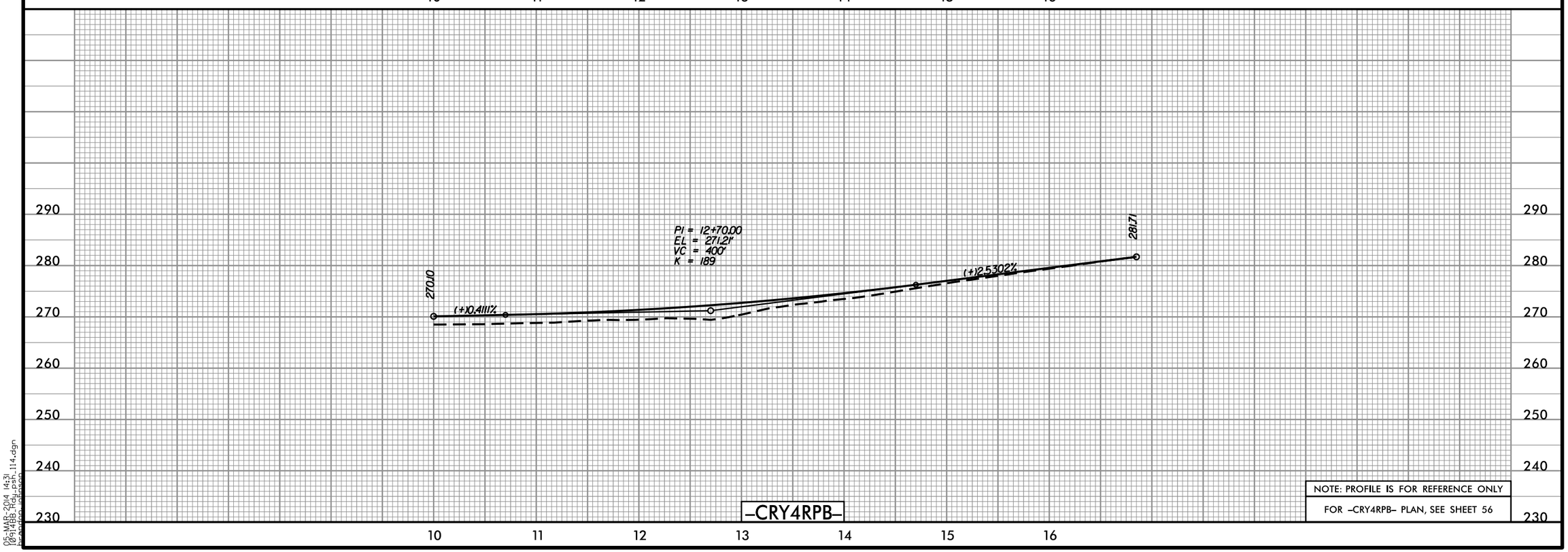


–CRY4RPA–

NOTE: PROFILE IS FOR REFERENCE ONLY

FOR –CRY4RPA– PLAN, SEE SHEET 54



–CRY4RPB–

NOTE: PROFILE IS FOR REFERENCE ONLY

FOR –CRY4RPB– PLAN, SEE SHEET 56

05-MAR-2014 14:31
I0914BB_Hdy_psh_114.dgn
bpeden (jpeson)

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PROJECT REFERENCE NO.	SHEET NO.
1-0914BB	115
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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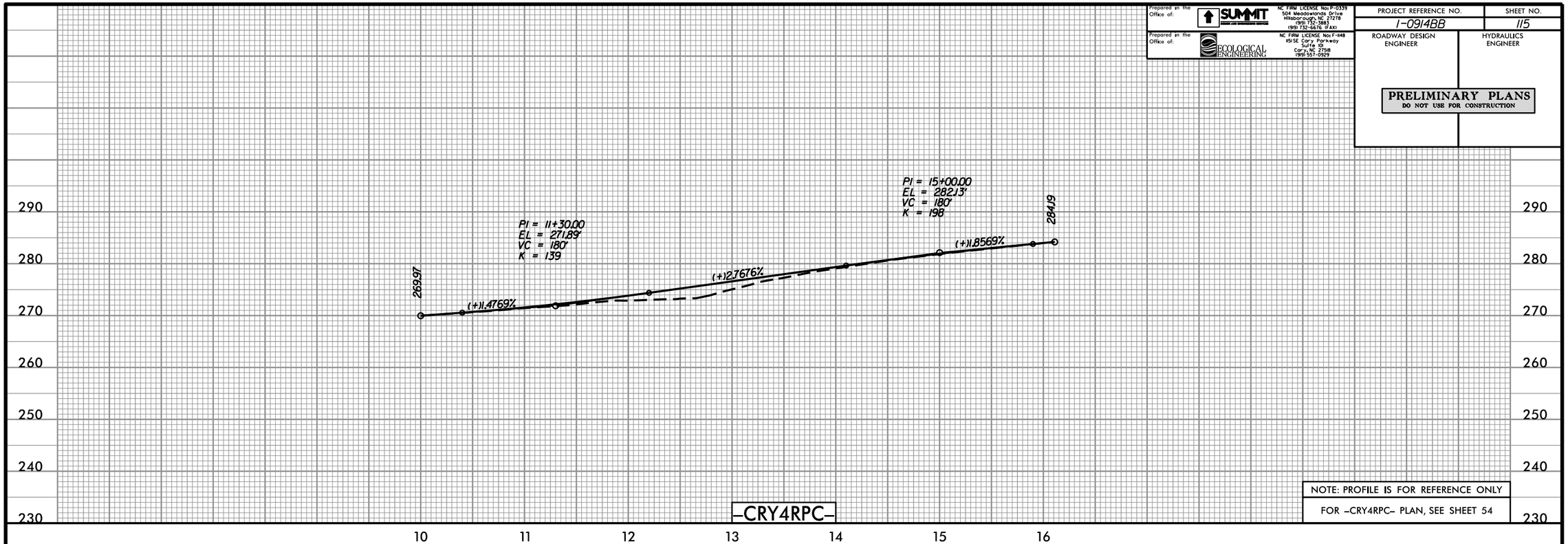
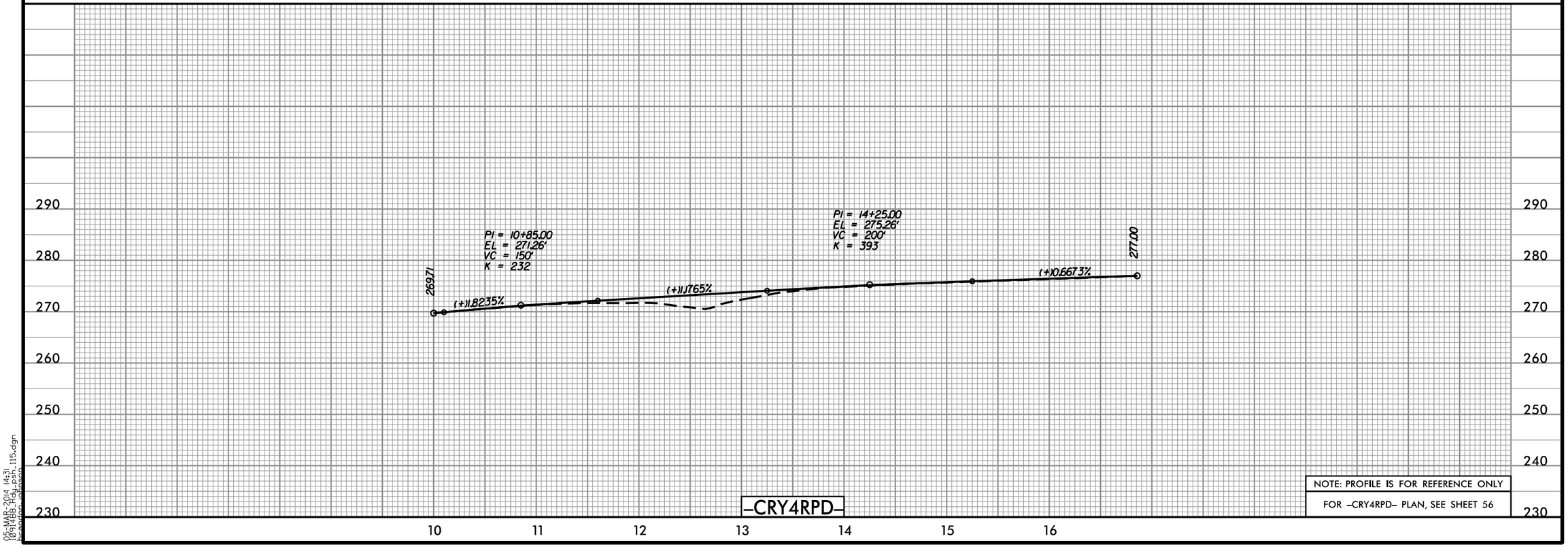


NOTE: PROFILE IS FOR REFERENCE ONLY

FOR -CRY4RPC- PLAN, SEE SHEET 54



NOTE: PROFILE IS FOR REFERENCE ONLY

FOR -CRY4RPD- PLAN, SEE SHEET 56

05-MAR-2014 14:31
1-0914BB_Hydr_psh_115.dgn
bpardon (jpason)