STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

August 31, 2004

U.S. Army Corps of Engineers
Raleigh Regulatory Field Office
6508 Falls of the Neuse Rd.
Raleigh, NC 27615

Attention: Mr. Eric Alsmeyer
NCDOT Coordinator

Subject: **Nationwide Permit 12 and 14 Application.** Proposed Widening of US 70 west of SR 1001 (Main Street) to west of SR 1953 (Kepley Road). Rowan County. Federal Project No. STP-70 (70). State Project No. 8.1631801. Division 9. TIP No. R-2911C & D.

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to widen 7.02 mi of US 70 and construct associated roadway improvements in Rowan County. The project for which authorization is being sought under this permit application (referred to as the "US 70 Widening") extends from a point west of SR 1001 (Main Street) to a point west of SR 1953 (Kepley Road) in Rowan County. Upon completion, the facility will be a four-lane divided roadway.

Purpose and Need: The completed project will increase the traffic carrying capacity of the roadway and improve safety along the US 70 corridor.

Summary of Impacts: There are a total of 2,906 ft of jurisdictional streams and 0.93 ac of jurisdictional wetland impacts (0.07 ac non-riverine, 0.86 ac riverine) located within the project area. The U.S. Army Corps of Engineers (USACE) has jurisdiction over 0.87 ac of the wetlands being impacted and the N.C. Division of Water Quality (NCDWQ) has additional jurisdiction over 0.06 ac of an isolated wetland being impacted. The stream and wetland impacts consist of 0.92 ac of permanent surface water fill; 455 ft of temporary stream impacts, 0.82 ac of permanent wetland fill, and 0.11 ac of wetland-mechanized clearing (Method III).

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

TELEPHONE: 919-733-3141
FAX: 919-733-9794
WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Summary of Mitigation: The project has been designed to avoid and minimize impacts to jurisdictional areas throughout the NEPA and design processes. Detailed descriptions of these actions are presented elsewhere in this application. Compensatory mitigation for the remaining impacts for unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act will be provided by the Ecosystem Enhancement Program (EEP) per the request dated August 11, 2003. A copy of the confirmation is attached.

INDEPENDENT UTILITY

The subject project is in compliance with 23 CFR Part 771.111(f) which lists the Federal Highway Administration's (FHWA) characteristics of an independent utility of a project:

- The project connects logical termini and is of sufficient length to address environmental matters on a broad scope.
- The project is useable and constitutes a reasonable expenditure, even if no additional transportation improvements are made in the area.
- The project does not restrict consideration of alternatives for other reasonable foreseeable transportation improvements.

PROJECT SCHEDULE

Table 1 reflects the breakdown, section termini, and let dates for the entire US 70 Widening Project. A figure depicting the sections associated with TIP Project No. R-2911 is provided in Appendix A. There have been no previous environmental permits obtained for the proposed project. Permits have been received for Sections A and E.

Table 1. Construction schedule for TIP No. R-2911 in Iredell and Rowan Counties.

Section	Description	Let Date
A	SR 2318 in Statesville to Rowan County line.	August 2004
B	Iredell County line to SR 1001 (Main Street).	October 2008
C	SR 1001 (Main Street) to SR 1739 (Hildebrand Road).	November 2004
D	SR 1739 (Hildebrand Road) to SR 1953 (Kepley Road)	December 2004
E	SR 1953 (Kepley Road) to US 601 in Salisbury	Under Construction

NEPA DOCUMENT STATUS

The FHWA approved an Environmental Assessment (EA) for the proposed project on May 7, 1999. The EA explains the purpose and need for the project, and provides a description and characterization of the social, economic, and environmental effects of the project. The Finding of No Significant Impact (FONSI) was approved on December 21, 2000. Copies of the EA and FONSI have been provided to the regulatory review agencies involved in the approval process. Additional copies will be provided upon request.

RESOURCE STATUS

All wetland delineations were performed by NCDOT biologists according to methods prescribed in the *1987 Corps of Engineers Wetlands Delineation Manual.* Mr. Eric Alsmeyer of the USACE Raleigh Regulatory Field Office verified the wetland and stream delineations for Section C on August 12, 2003 and Section D on June 3, 2003. Mr. Brian Wrenn of the NCDWQ deferred to the calls that Mr. Alsmeyer made on June 30, 2004. The attached permit application package contains drawings depicting impacts based on the USACE jurisdictional determination. The description, location, impact acreages, and mitigation requirements for each stream and wetland site are provided in Tables 2 and 3, and the wetland permit impact summaries of the attached permit drawings (Appendix B).

Table 2. Stream Impacts for TIP Project No. R-2911C & D.

Site No.	Station No.	Stream Name	DWQ Index No.	DWQ Class	USACE Stream Type	Streams Impacts (ft)	Impacts Requiring Mitigation
Section C							
1	-L-62+25 LT/RT	UT1 to Beaverdam Creek	12-108-21-3-3	C	P	188	188
2	-L-69+90 LT/RT	UT2 to Beaverdam Creek	12-108-21-3-3	C	I	106*	0
3	-L-81+50 LT/RT	UT3 to Beaverdam Creek	12-108-21-3-3	C	I	125*	0
4	-L-99+50 LT/RT	UT1 to Withrow Creek	12-108-21-3	C	P	136	136
5	-L-149+80 LT/RT	UT2 to Withrow Creek	12-108-21-3	C	I	165*	0
6	-L-151+60 to 154+60	UT3 to Withrow Creek	12-108-21-3	C	P	285	285
7	-L-162+90 to 164+50	UT4 to Withrow Creek	12-108-21-3	C	I	204*	0
10	-L-193+55	UT5 to Withrow Creek	12-108-21-3	C	P	265	265
12	-L-204+50 to 211+40	UT6 to Withrow Creek	12-108-21-3	C	I	660*	0
Section D							
2	-L-254+45 to 255+33 RT	UT7 to Withrow Creek	12-108-21-3	C	P	92	92
4	-L-274+60 RT	UT8 to Withrow Creek	12-108-21-3	C	I	122*	0
7A	-L-301+50 to 303+00 RT	UT to Second Creek	12-108-21	C	I	164*	0
7B	-L-302+10 to 304+00 RT	UT to Second Creek	12-108-21	C	I	95*	0
					P	121	121
9	-L-355+00 LT	UT1 to Walnut Branch	12-108-21-4	C	P	78	78
10	-L-359+66 LT/RT	Walnut Branch	12-108-21-4	C	P	100	100
	TOTAL					**2,906 ft**	**1,265 ft**

*Intermittent stream impacts not requiring mitigation, per USACE and NCDWQ.
Sites 5 and 8 on Section D were determined to be non-jurisdictional streams.
These sites correspond to sites designated as UT 8-UT 16 and UT 25-UT 34 in the EA document.

Table 3. Wetland Impacts for TIP Project No. R-2911C & D.

Site	Station	Cowardin Classification Riverine/Non-Riverine	Wetland Impacts (ac)	
			Non-Isolated	Isolated
Section C				
3	-L-81+50 LT/RT	PF01C/riverine	0.02	
4	-L-99+50 LT/RT	PFO1C/riverine	0.03	
6	-L-151+60 to 154+60	PFO1C/riverine	0.03	
8	-L-186+55 to 187+10	PFO1C/non-riverine	0.01	
9	-L-188+00 LT	PFO1C/riverine	0.01	
11	-L-202+80 RT	PFO1C/riverine	0.01	
Section D				
1	-L-227+12 to 228+13 (RT)	PFO1C/non-riverine		0.06
3	-L-259+72 to 261+79 RT	PEM2/PFO1C/riverine	0.30	
6A	-L-296+82 to 299+65 RT	PEM1/2C/riverine	0.39	
6C	-L-298+40 to 300+50 LT	PFO1C/riverine	0.07	
9	-L-355+00 LT	PEM2/PFO1C/riverine	0.01	
	TOTAL		**0.88**	**0.06**

"PEM2" - Palustrine, emergent, non-persistent wetland

"PFO1C" - Palustrine, forested, broad-leaved deciduous, seasonally flooded wetland.

Isolated Wetland Impacts: The USACE has determined that the wetland occurring at Site 1 (Section D) is isolated and not subject to Section 404 of the Clean Water Act (CWA); consequently, North Carolina state regulations pertaining to the Discharges to Isolated Wetlands and Isolated Waters Rules will apply to this wetland impact.

Temporary Impacts: There will be 455 ft (Section C and D) of temporary impacts to surface waters to allow for culvert construction and dewatering. Construction of the new bridge over Second Creek could potentially result in temporary fill during bridge demolition. A summary of the bridge demolition plan is provided in the following paragraph.

Bridge Demolition Plan: Bridge No. 85 over Second Creek is 220 ft long. The bridge superstructure consists of concrete piles and concrete columns on footings supporting concrete caps. The superstructure consists of six approach spans of concrete girders and a concrete deck, and one middle span of steel beams and a concrete deck. The deck for Bridge No. 85 will be removed without

dropping any components into Waters of the United States. The maximum resulting temporary fill associated with the removal of Bridge No. 85 is approximately 55 yd^3. All guidelines for bridge demolition and removal will be followed in addition to Best Management Practices for the Protection of Surface Waters.

STREAM STATUS (STATE 303(D) LIST)

There are no streams located within the project area that are listed on the state of North Carolina's 2002 Integrated 305 (b) and 303(d) list.

PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act. As of January 29, 2003, a total of two federally-protected species are listed for Rowan County (Table 4).

Table 4. Federally-protected species for Rowan County.

SCIENTIFIC NAME	COMMON NAME	STATUS	BIOLOGICAL CONCLUSION
Haliaeetus leucocephalus	Bald Eagle	Threatened	No effect
Helianthus schweinitzii	Schweinitz's Sunflower	Endangered	May Affect-Not likely to adversely affect

A Biological Conclusion of "No Effect" for the bald eagle was issued in several documents including the Environmental Assessment. This conclusion was based on the fact that there is no suitable habitat present for bald eagle in the project area. The last survey for Schweinitz's sunflower was done in October 2002. No specimens of the species were found at that time. Therefore, the biological conclusion of "May Affect-Not Likely to Adversely Affect" was given for Schweinitz's sunflower. The USFWS concurred with this finding in their letter dated October 16, 2003 (Appendix C).

CULTURAL RESOURCES

Archaeology: On December 21, 2000 the SHPO concurred that all sites are described as lacking integrity and not eligible for listing in the National Register of Historic Places (Appendix D).

Historic Architecture: On February 4, 2004 NCDOT and the N.C. State Historic Preservation Office (SHPO) reviewed the project and agreed that there is an adverse effect on a National Register-eligible property (Barber Farm) located within the project's area of potential effect. A Memorandum of Agreement (MOA) between NCDOT, SHPO, and the Federal Highway Administration is required and is being completed by NCDOT's Office of Human Environment. Once this MOA is completed, a copy will be sent to the U.S. Army Corps of Engineers.

FEMA COMPLIANCE

North Second Creek has regulated floodways on this project. Since NCDOT will be bridging this creek and the riparian areas near the creek a CLOMR (Conditional Letter of Map Revision) will not be needed. Thus NCDOT will be in compliance with FEMA regulations.

WILD AND SCENIC RIVER SYSTEM

The project will not impact any Designated Wild and Scenic Rivers or any rivers included in the list of study rivers (Public Law 90-542, as amended).

INDIRECT AND CUMULATIVE IMPACTS

An Indirect and Cumulative Effects report was completed by HNTB on February 6, 2004. A copy of this report is attached. This report concludes the following:

- No adverse environmental impacts are anticipated as a result of the TIP R-2911A-D.
- The quality of the streams that intersect the widening of the existing roadway will be protected by the NCDOT applying BMPs during construction of the project and by local jurisdictions regulating stormwater runoff on a development-by-development basis.
- In terms of water quality impacts, since there is a low likelihood of induced growth and thus a minimal increase in impervious surface coverage anticipated, TIP R-2911A-D does not seem likely to cause any deterioration that would not already occur from non-project related growth.

UTILITIES

On Section C there will be no impacts to wetlands or streams from water or sewer line relocations. On Section D a channel will be cut to relocate a water line at Station 290+00 L (Site 5, Sheet 10 of 20). This may impact approximately 0.005 ac of a wetland outside of the fill slopes.

On Section C mechanized clearing will occur to relocate aerial utilities between Station 98+50 and 100+50 L (Site 4, Sheet 8 of 25). This will impact approximately 0.008 ac of a wetland outside of the fill slopes. On Section D there will be no impacts to wetlands or streams from aerial utility relocations.

MITIGATION OPTIONS

The USACE has adopted, through the Council on Environmental Quality (CEQ), a wetland mitigation policy that embraces the concept of "no net loss of wetlands" and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of the waters of the United States. Mitigation of wetland and surface water impacts has been defined by the CEQ to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time and compensating for impacts (40 CFR 1508.20). Executive Order 11990 (Protection of Wetlands) and Department of Transportation Order 5660.1A (Preservation of the Nations Wetlands), emphasize protection of the functions and values provided by wetlands. These directives require that new construction in wetlands be

avoided as much as possible and that all practicable measures are taken to minimize or mitigate impacts to wetlands.

AVOIDANCE AND MINIMIZATION: The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning and NEPA compliance stages; minimization measures were incorporated as part of the project design.

Avoidance: All wetland areas not affected by the project will be protected from unnecessary encroachment. No staging of construction equipment or storage of construction supplies will be allowed in wetlands or near surface waters.

Minimization: Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts. Minimization techniques were implemented as follows:

- Slopes: Fill slopes in wetlands and streams are at a 2:1 ratio.
- Pipe Culvert Design: For all box culverts and for pipes greater than 48 inches in diameter, the bottom of the culvert or pipe will be buried at least one foot below the bed of the stream. For pipes 48 inches in diameter or smaller, the bottom of the pipe will be buried below the bed of the stream to a depth equal to or greater than 20 percent of the diameter of the pipe. All pipe culverts and box culverts will maintain the normal stream flow and channel characteristics. This design will allow unimpeded passage by fish and other aquatic organisms.
- BMP's: In order to minimize potential impacts, NCDOT's Best Management Practices for the Protection of Surface Waters will be enforced during the construction phase of the project. This will include:

1. installation of temporary silt fences, dikes, and earth berms to control runoff during construction
2. placement of temporary ground cover or re-seeding of disturbed sites to reduce runoff and decrease sediment loadings
3. reduction of clearing along streams

To minimize impacts to the water quality and aquatic life, the design has incorporated preformed scour holes at the following sites:

- Station 98+15 L (Section C, plan sheet 11)
- Station 235+35 L (Section D, plan sheet 6)
- Station 261+25 L (Section D, plan sheet 8)
- Station 300+00 (Section D, plan sheet 11)
- Station 305+84 (Section D, plan sheet 12)

- Station 360+28 (Section D, plan sheet 16)

- Station 304+00 L (Section D): NCDOT will replace the original 220 ft existing bridge with two 260 ft structures. All bridge piers are located outside of the channel of Second Creek.

- Station 359+66 L (Section D): A concrete sill will be provided at the inlet of one barrel of the culvert to retain natural low flow channel width. This sill will also accommodate passage for fish and other aquatic organisms.

Compensation:

Based upon the agreements stipulated in the "Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District" (MOA), it is understood that the North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP), will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the EEP transition period which ends on June 30, 2005. Mitigation is proposed for wetland impacts that equal or exceed 0.1 ac per site. Mitigation is proposed for all mitigable stream impacts. The unavoidable impacts to 0.69 ac of jurisdictional wetlands and to 1,265 ft of jurisdictional streams will be offset by compensatory mitigation provided by the EEP program at a mitigation ration of 2:1. The offsetting mitigation will derive from an inventory of assets already in existence within the same 8-digit cataloguing unit (HU 03040102). A copy of the EEP confirmation letter is attached.

REGULATORY APPROVALS

Applications are hereby made for the Department of the Army Section 404 Nationwide Permit 14 as required by the above-described activities. NCDOT also hereby requests the corresponding 401 Water Quality Certification and a Discharge to Isolated Wetlands and Isolated Waters Certificate of Coverage from the Division of Water Quality. In compliance with Section 143-215.3D(e) of the NCAC we will provide $475.00 to act as payment for processing the Section 401 WQC permit application previously noted in this application (see Subject line). We are providing seven copies of this application to North Carolina Department of the Environment and Natural Resources, Division of Water Quality, for their review.

If you have any questions or require any additional information, please call Mr. Matt Haney at (919) 715-1428.

Sincerely,

Gregory J. Thorpe, Ph.D., Environmental Management Director
Project Development & Environmental Analysis Branch

CC list: w/attachment

Mr. John Hennessy, Division of Water Quality
Ms. Marla Chambers, NCWRC
Ms. Marella Buncick, USFWS
Mr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. S.P. Ivey, P.E., Division 9 Engineer
Ms. Diane Hampton, P.E., Division 9 Environmental Officer
Mr. Robert Memory, Utilities Coordination Unit

W/o attachment

Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Mark Staley, Roadside Environmental
Mr. David Franklin, USACE, Wilmington
Ms. Beverly Robinson, Project Planning Engineer
Ms. Beth Harmon, EEP

NCDENR
North Carolina Department of Environment and Natural Resources
Michael F. Easley, Governor
William G. Ross Jr., Secretary

August 30, 2004

Mr. Gregory J. Thorpe, Ph.D., Manager,
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Dr. Thorpe:

Subject: US 70 Relocation, R-2911C/D, Rowan County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide compensation for the subject project. Based on the information supplied by you in a letter dated August 11, 2004, the impacts are located in CU 3040102 of the Yadkin River Basin in the Central Piedmont Eco-Region, and are as follows:

Riverine Wetland Impacts: 0.69 acre; Stream Impacts: 1,265 feet

As stated in your letter, the subject project is listed in Exhibit 2 of the Memorandum of Agreement among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, Wilmington District dated July 22, 2003. The mitigation for the subject project will be provided in accordance with this agreement.

If you have any questions or need additional information, please contact Ms. Beth Harmon at (919) 715-1929.

Sincerely,

William D. Gilmore, P.E.
Transition Manager

cc: Eric Alsmeyer, USACE-Raleigh
John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: R-2911C/D

NC DENR Ecosystem Enhancement Program
1652 Mail Service Center, Raleigh, North Carolina 27699-1652
Phone: 919-715-1413 \ FAX: 919-715-2219 \ Internet: h2o.enr.state.nc.us/wrp/

APPENDIX A

R-2911PROJECT BREAKDOWN FIGURE

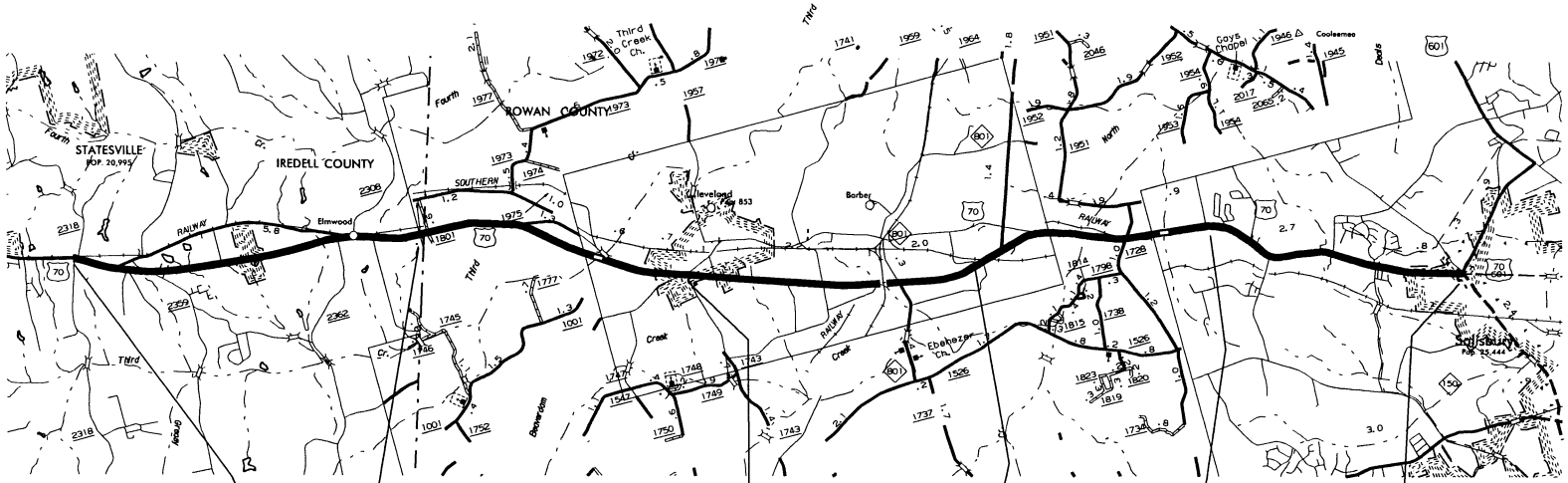
R–2911 IREDELL & ROWAN COUNTIES

US 70

PROJECT BREAKDOWN MAP

PROJECT SCHEDULES AND COSTS ARE ACCURATE AS OF DATE SHOWN

R–2911

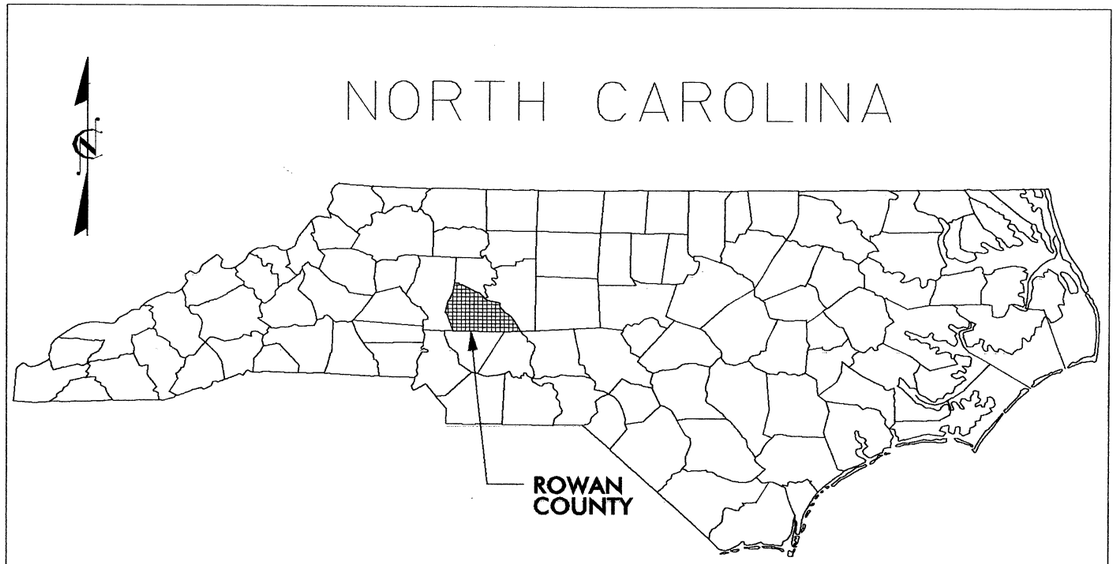


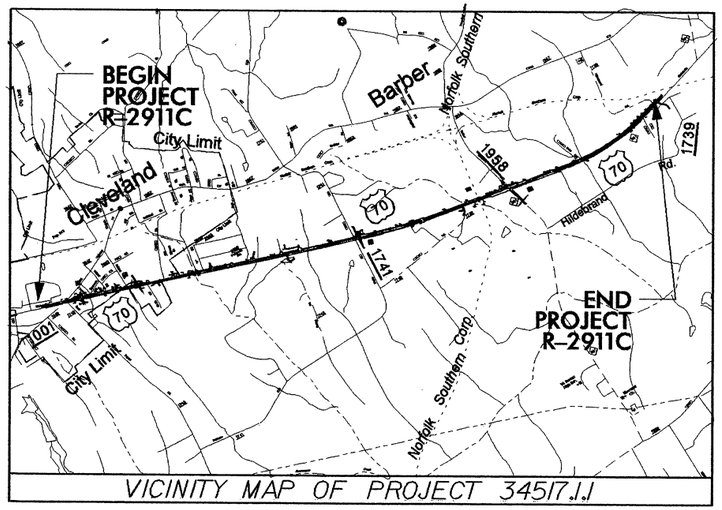
					LET
I.D. NO. / D.S.R. NO.	R-2911 A	R-2911 B	R-2911 C	R-2911 D	R-2911 E
STATE PROJECT NO. (P.E.)	8.163180 I	8.163180 I	8.163180 I	8.163180 I	8.163180 I
PROJECT ENGINEER	C. HOUSER	C. HOUSER	C. HOUSER	C. HOUSER	C. HOUSER
PROJECT DESCRIPTION	SR 2318 IN STATESVILLE TO THE ROWAN COUNTY LINE	IREDELL COUNTY LINE TO SR 1001	SR 1001 TO SR 1739	SR 1739 TO SR 1953	SR 1953 TO US 601 IN SALISBURY
COUNTY / DIVISION	IREDELL / DIV 12	ROWAN / DIV. 9	ROWAN / DIV. 9	ROWAN / DIV. 9	ROWAN / DIV. 9
LENGTH	5.1 MI	3.57 MI	3.83 MI	3.19 MI	6.17 MI
TYPE OF CONTRACT					
REMARKS					
BEGIN R/W ACQUISITION (T.I.P.)	8-01	FY-06	5-03	9-02	1-4-01
BEGIN R/W ACQUISITION (PRODUCTION)					
PROPOSED LETTING (T.I.P.)	FY-04	FY-09	FY-05	FY-05	12-03
PROPOSED LETTING (PRODUCTION)					
EST. COMP. DATE (T.I.P.)					12-06
ESTIMATED R/W COST	$ 4,600,000	$ 4,600,000	$ 2,000,000	$ 2,000,000	$ 3,000,000
ESTIMATED CONSTRUCTION COST	$ 26,300,000	$ 13,900,000	$ 14,100,000	$ 15,000,000	$ 13,600,000

UPDATED - 3/2/04

APPENDIX B

R-2911 C & D PERMIT DRAWINGS AND PCN FORM





VICINITY MAP OF PROJECT 34517.1.1

VICINITY MAPS

NCDOT

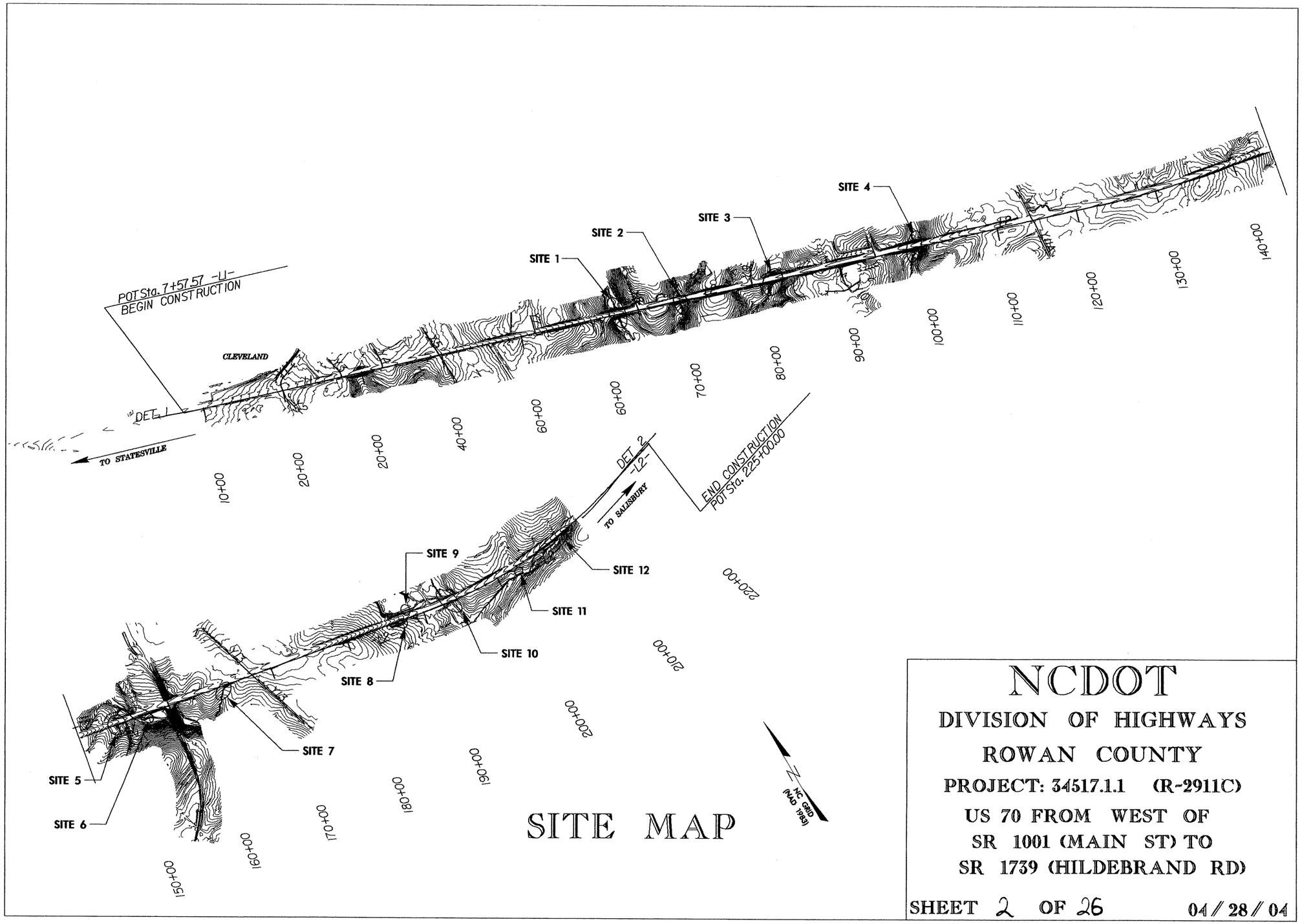
DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 34517.1.1 (R-2911C)

US 70 FROM WEST OF SR 1001 (MAIN ST) TO SR 1739 (HILDEBRAND RD)

SHEET 1 OF 26 04/28/04



SITE MAP

NCDOT

DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 34517.1.1 (R-2911C)

US 70 FROM WEST OF SR 1001 (MAIN ST) TO SR 1739 (HILDEBRAND RD)

SHEET 2 OF 26 04/28/04

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

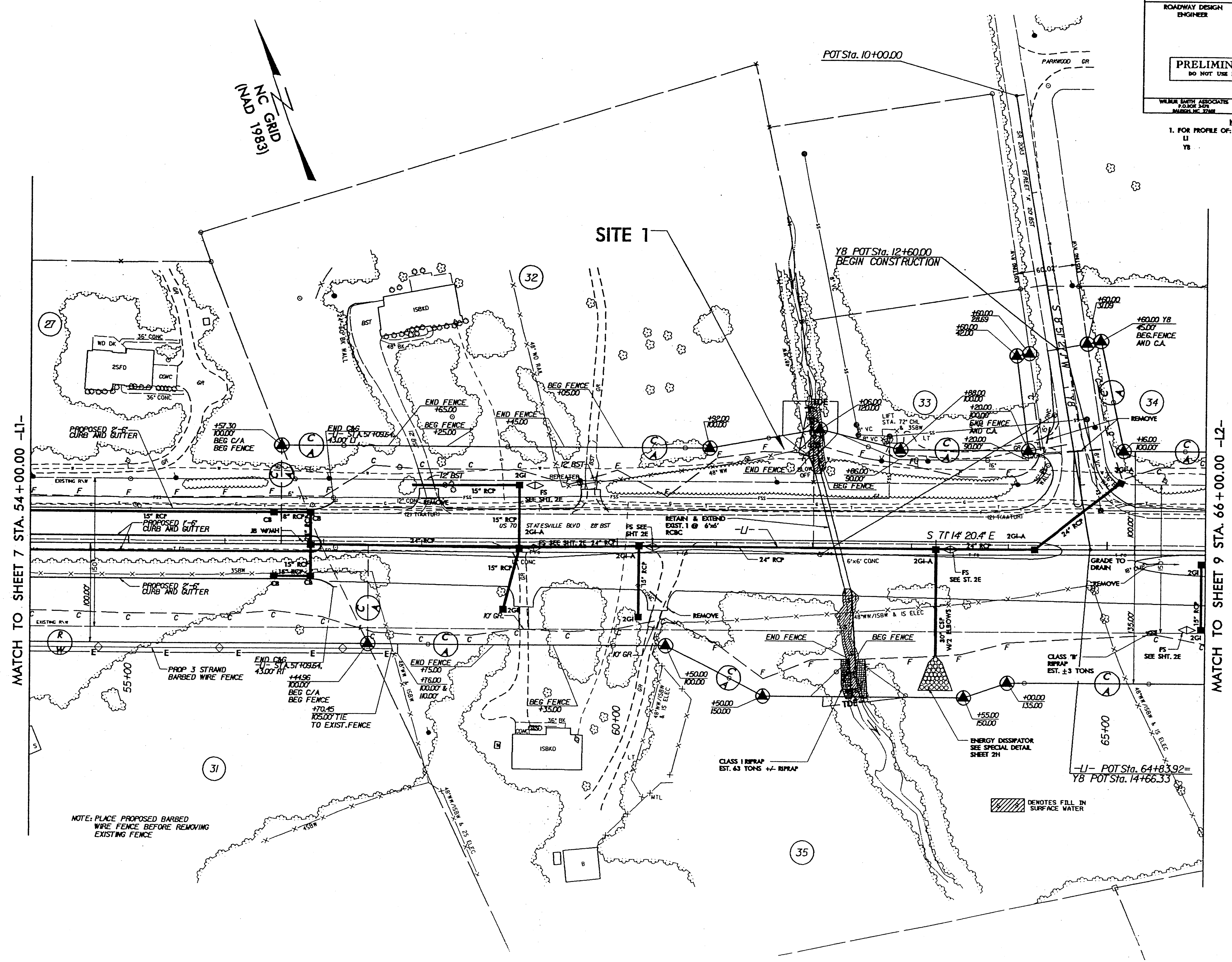
ENGLISH

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTES

1. FOR PROFILE OF: L1, Y8 — SEE SHEET NO: 26, 27; 41

REVISIONS



NC GRID (NAD 1983)
SITE 1
POT Sta. 10+00.00
Y8 POT Sta. 12+60.00 BEGIN CONSTRUCTION
-L1- POT Sta. 64+83.92= Y8 POT Sta. 14+66.33
MATCH TO SHEET 7 STA. 54+00.00 -L1-
MATCH TO SHEET 9 STA. 66+00.00 -L2-
S 71° 14' 20.4" E
ENERGY DISSIPATOR SEE SPECIAL DETAIL SHEET 2H
CLASS I RIPRAP EST. 63 TONS +/- RIPRAP
CLASS "B" RIPRAP EST. ±3 TONS
DENOTES FILL IN SURFACE WATER
NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE
PROP 3 STRAND BARBED WIRE FENCE
PROPOSED 2'-6" CURB AND GUTTER
RETAIN & EXTEND EXIST. 1 @ 6'x6' RCBC
55+00
60+00
65+00

Sheet 3 of 26

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

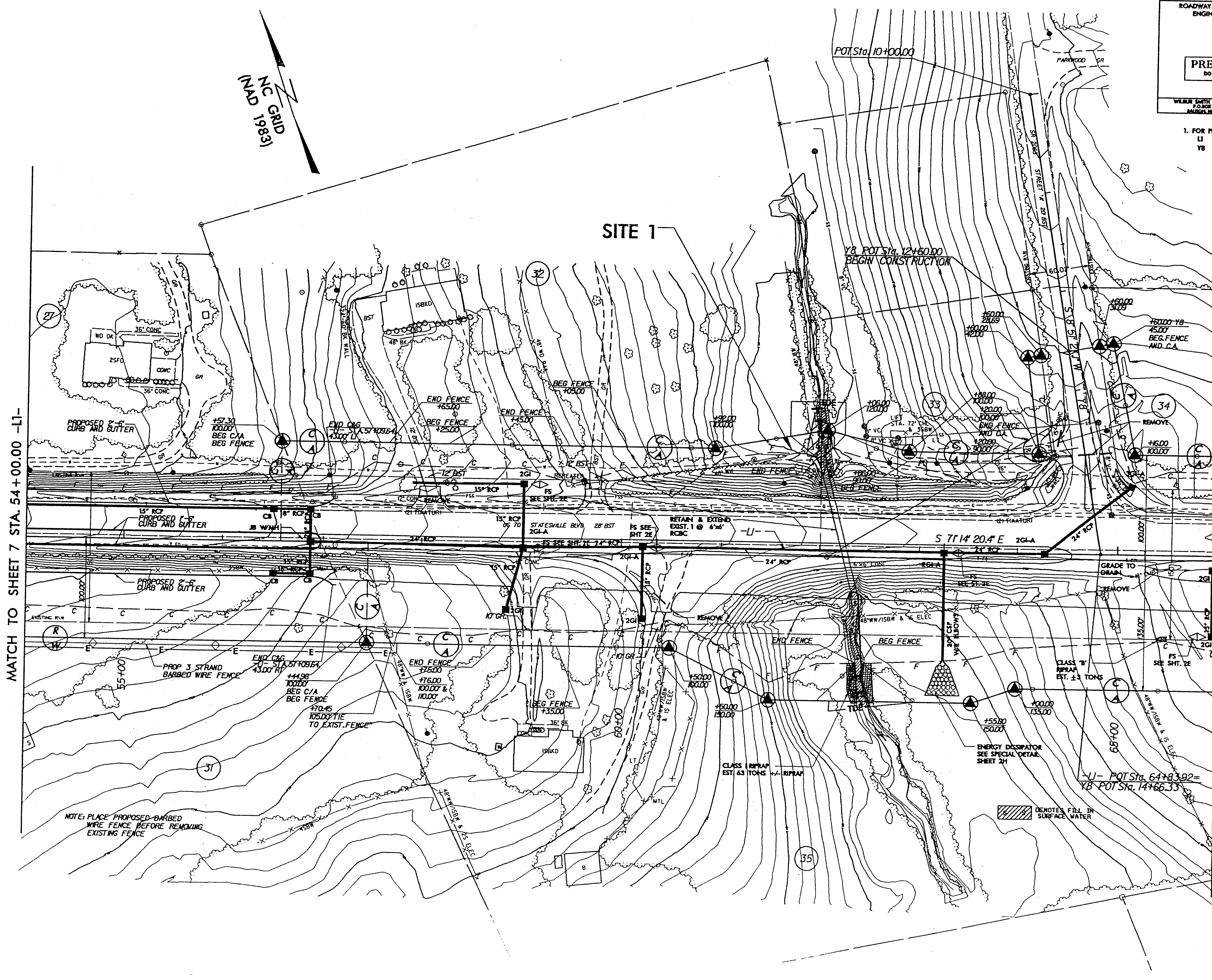
WILBUR SMITH ASSOCIATES P.O.BOX 2479 RALEIGH, NC 27601

SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

NOTES

1. FOR PROFILE OF: SEE SHEET NO:
   - L1: 26, 27
   - YB: 41

REVISIONS



Sheet 4 of 26

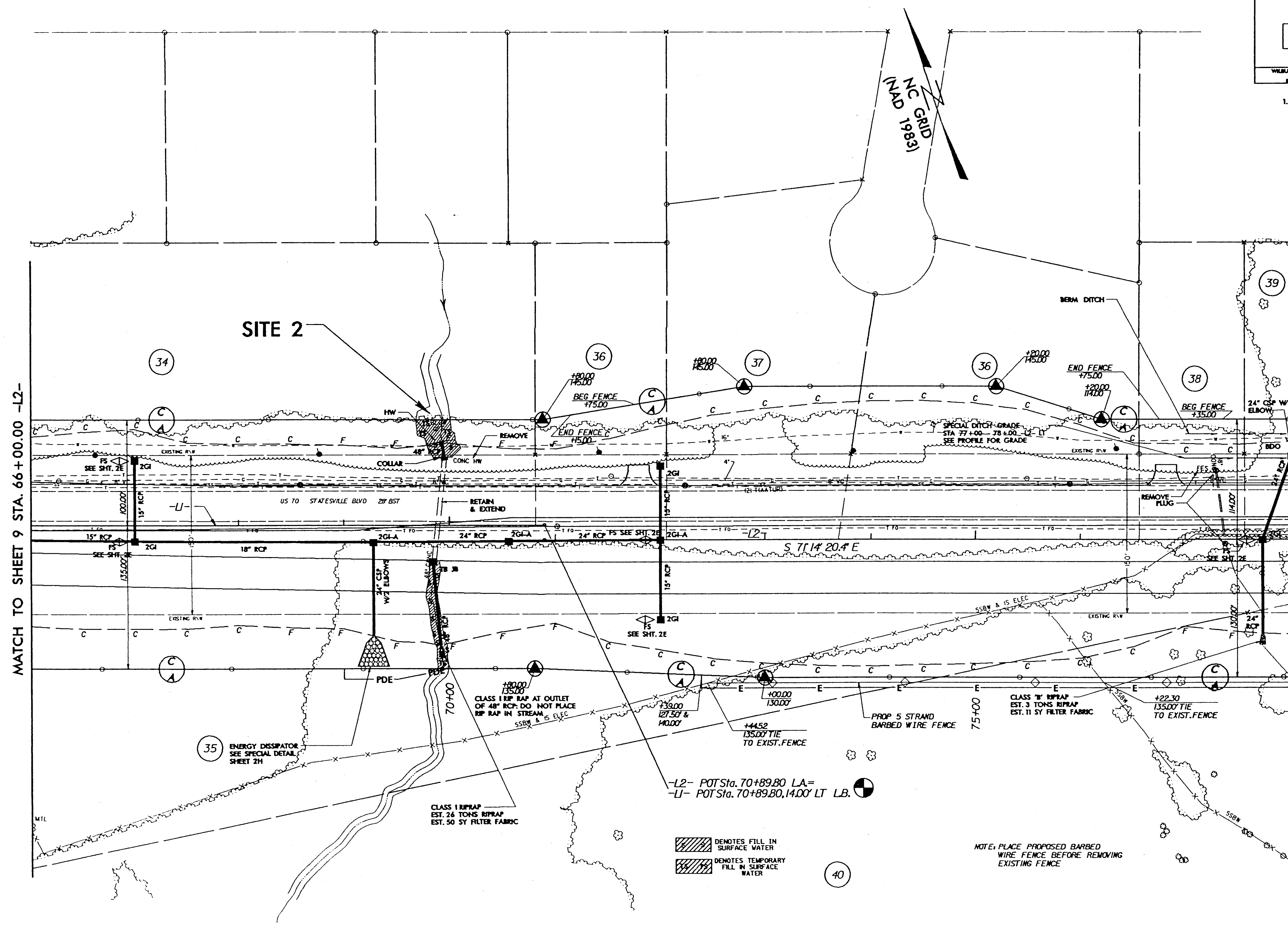
ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
WILBUR SMITH ASSOCIATES P.O.BOX 2478 RALEIGH, NC 27601	SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTES

1. FOR PROFILE OF: SEE SHEET NO:
   - L1 27
   - L2 27, 28



REVISIONS

Sheet 5 of 26

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
WILBUR SMITH ASSOCIATES P.O.BOX 2478 RALEIGH, NC 27601	SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

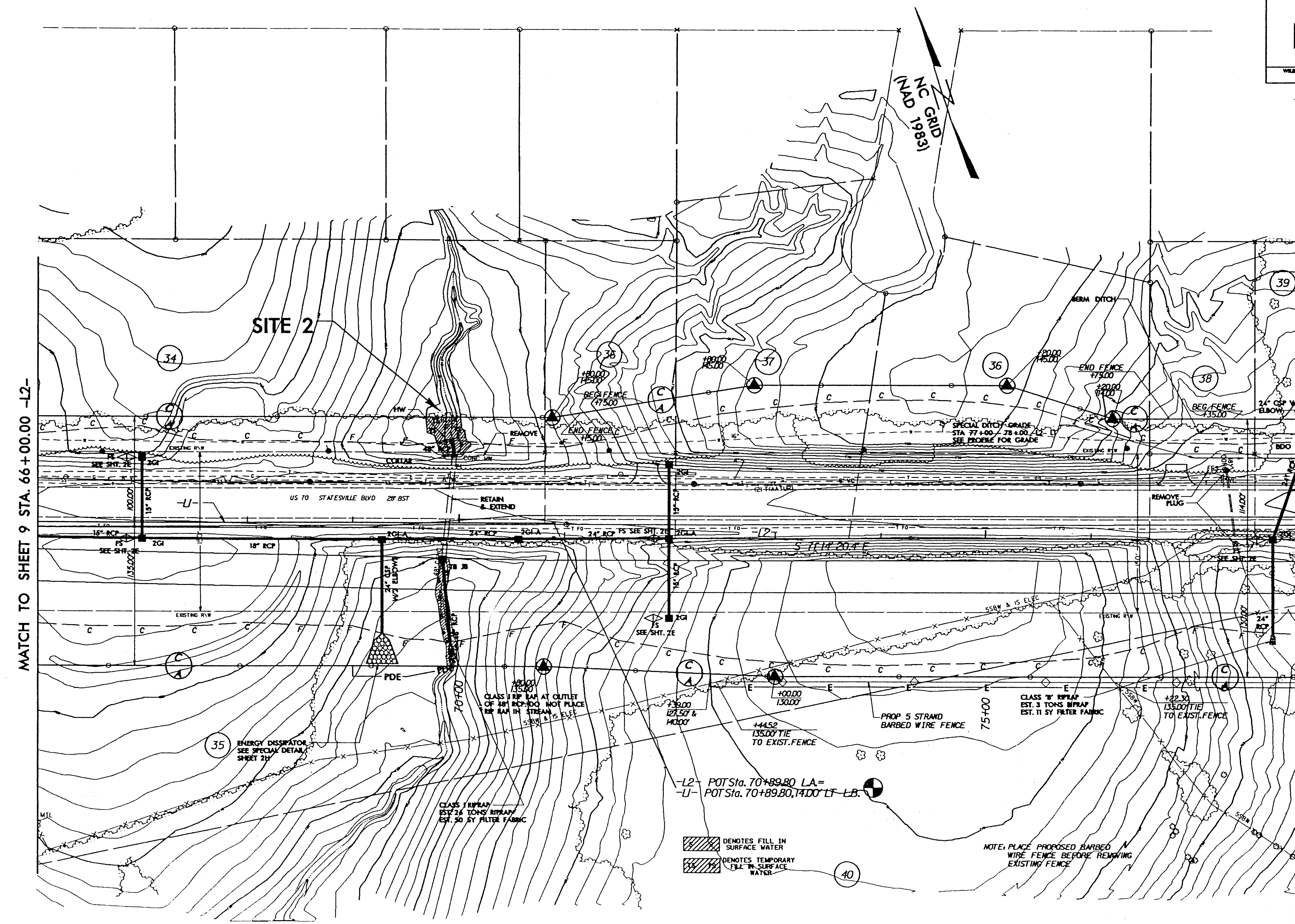
NOTES

1. FOR PROFILE OF: SEE SHEET NO:

L1	27
L2	27, 28

REVISIONS

8/17/99



Sheet 6 of 26

8/17/99

REVISIONS

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

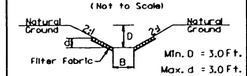
WILBUR SMITH ASSOCIATES P.O. BOX 2479 RALEIGH, NC 27602 | SUNGATE DESIGN GROUP P.O.B. 12965 TRIANGLE RD. RALEIGH, NC 27606

NOTES

1. FOR PROFILE OF: SEE SHEET NO:
   - L2: 28, 29
   - Y9, Y10: 41

Y9	DRIVE 3
PI Sta 11+40.09	PI Sta 11+67.34
Δ = 32° 17' 20.7" (LT)	Δ = 89° 31' 51.6" (LT)
D = 16° 22' 12.8"	D = 57° 17' 44.8"
L = 197.24'	L = 156.26'
T = 101.32'	T = 99.18'
R = 350.00'	R = 100.00'
SE = NC	

DETAIL 9
(Not to Scale)



EST. DDE = 30 CY
Type of Liner = CLASS 'B' RIPRAP

TAIL DITCH
-LI- Sta. 80+95.00 RT

DRIVE 1
PI Sta 11+67.34
Δ = 89° 31' 52.7" (LT)
D = 57° 17' 44.8"
L = 156.26'
T = 99.19'
R = 100.00'
SE = NC

NC GRID (NAD 1983)

SITE 3

MATCH TO SHEET 9 STA. 78+00.00 -L2-

MATCH TO SHEET 11 STA. 91+00.00 -L2-

STA. 12+50.00 DRIVE 3

STA. 10+80.00 DRIVE 2

-L2- POT Sta. 79+03.03= Y9 POT Sta. 12+89.50

-L2- POT Sta. 91+15.68= Y10 POT Sta. 10+00.00

Y9 POT Sta. 10+00.00 BEGIN CONSTRUCTION

PC Sta. 10+38.78

PC Sta. 10+68.15

PT Sta. 12+36.02

PT Sta. 12+24.42

DRIVE 3

DRIVE 1 POT Sta. 10+00.00

PC Sta. 11+85.44

PT Sta. 12+35.79

POT Y10 Sta 13+07.95= DRIVE 1 POT Sta. 12+97.18= DRIVE 2 POT Sta. 10+00.00

PC Sta. 12+11.88

PT Sta. 12+70.99

Y10 POT Sta 13+52.00 END CONSTRUCTION

BERM DITCH STA. 77+00 - 78+35 -L2- LT

CLASS 'B' RIPRAP EST. 1 TONS RIPRAP EST 5 SY FILTER FABRIC

INVERT OF PROPOSED 54" STEEL PIPE TO BE PLACED 0.5' ABOVE THE INVERT OF THE EXTENDED 54" RCP

REMOVE HW

COLLAR

RETAIN & EXTEND

US 70 STATESVILLE BLVD 28' BST
TRENCHLESS CONSTRUCTION
54" STEEL PIPE

PLUG

REMOVE

REPEATER

TAIL DITCH SEE DETAIL #9

CLASS I RIPRAP EST. +14 TONS

ENERGY DISSIPATOR SEE SPECIAL DETAIL SHEET 2H

TRANSITION PVMT. WIDTH

END FENCE +00.00

BEG FENCE +60.00

DRIVE 1

DRIVE 1
PI Sta 12+42.33
Δ = 33° 51' 53.8" (LT)
D = 57° 17' 44.8"
L = 59.11'
T = 30.44'
R = 100.00'
SE = NC

Y10
PI Sta 12+11.16
Δ = 28° 50' 49.6" (LT)
D = 57° 17' 44.8"
L = 50.35'
T = 25.72'
R = 100.00'
SE = NC

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

NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE

8-17-99

REVISIONS

DATE: $DATE$
TIME: $TIME$
$FILE$

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O. BOX 3476
RALEIGH, NC 27601

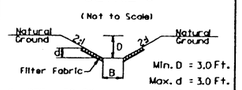
SUNGATE DESIGN GROUP
715-A JONES FRANKLIN RD.
RALEIGH, NC 27606

NOTES

1. FOR PROFILE OF:	SEE SHEET NO:
L2	28, 29
Y9, Y10	41

Y9	DRIVE 3
PI Sta 11+40.09	PI Sta 11+67.34
Δ = 32° 17' 20.7" (LT)	Δ = 89° 31' 51.6" (LT)
D = 16° 22' 12.8"	D = 57° 17' 44.8"
L = 197.24'	L = 156.26'
T = 101.32'	T = 99.18'
R = 350.00'	R = 100.00'
SE = NC	

DETAIL 9
(Not to Scale)



Min. D = 3.0 Ft.
Max. d = 3.0 Ft.
B = Varies Ft.
EST. DDE = 30 CY
Type of Liner = CLASS 'B' RIPRAP

TAIL DITCH
-LI- Sta. 80+95.00 RT

DRIVE 1
PI Sta 11+67.34
Δ = 89° 31' 52.7" (LT)
D = 57° 17' 44.8"
L = 156.26'
T = 99.19'
R = 100.00'
SE = NC

NC GRID (NAD 1983)

SITE 3

Y9 POT Sta. 10+00.00
BEGIN CONSTRUCTION

POT Sta. 10+00.00

PC Sta. 10+63.15

DRIVE 3

PT Sta. 12+24.42

STA. 12+50.00 DRIVE 3

PC Sta. 10+38.78

PT Sta. 12+36.02

CLASS 'B' RIPRAP
EST. 1 TONS RIPRAP
EST 5 SY FILTER FABRIC

INVERT OF PROPOSED 54" STEEL PIPE TO BE PLACED 0.5' ABOVE THE INVERT OF THE EXTENDED 54" RCP

PDE

REMOVE HW

COLLAR

RETAIN & EXTEND

US 70 STATESVILLE BLVD 28' BST
TRENCHLESS CONSTRUCTION
54" STEEL PIPE

PLUG

REMOVE

END FENCE +00.00

BEG FENCE +60.00

TRANSITION PVMT. WIDTH

MATCH TO SHEET 9 STA. 78+00.00 -L2-

-L2- POT Sta. 79+03.03=
Y9 POT Sta. 12+89.50

CLASS 1 RIPRAP
EST. +14 TONS

TAIL DITCH
SEE DETAIL #9

ENERGY DISSIPATOR
SEE SPECIAL DETAIL
SHEET 2H

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

NOTE: PLACE PROPOSED FENCE OR WIRE FENCE BEFORE REMOVING EXISTING FENCE

-L2- POT Sta. 91+15.68=
Y10 POT Sta. 10+00.00

DRIVE 1 POT Sta. 10+00.00

PC Sta. 11+85.44

PT Sta. 12+35.79

POT Y10 Sta 13+07.95=
DRIVE 1 POT Sta. 12+97.18=
DRIVE 2 POT Sta. 10+00.00

DRIVE 1

PC Sta. 12+11.88

PT Sta. 12+70.99

Y10 POT Sta 13+52.00
END CONSTRUCTION

DRIVE 2

STA. 10+80.00 DRIVE 2

MATCH TO SHEET 11 STA. 91+00.00 -L2-

DRIVE 1
PI Sta 12+42.33
Δ = 33° 51' 53.8" (LT)
D = 57° 17' 44.8"
L = 59.11'
T = 30.44'
R = 100.00'
SE = NC

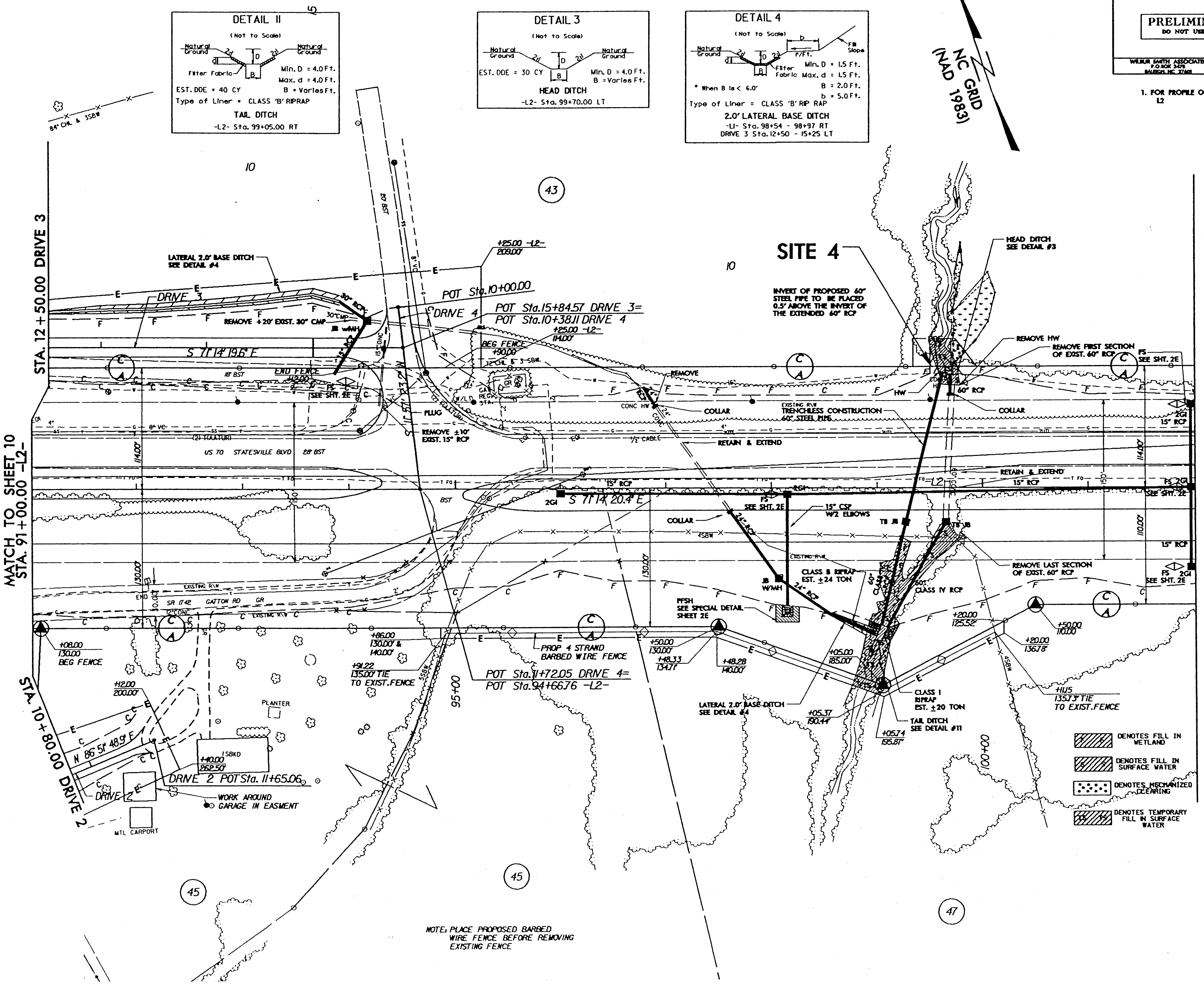
Y10
PI Sta 12+11.06
Δ = 28° 50' 49.6" (LT)
D = 57° 17' 44.8"
L = 50.35'
T = 25.72'
R = 100.00'
SE = NC

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTES
1. FOR PROFILE OF: L2 SEE SHEET NO: 29, 30



DETAIL II
(Not to Scale)
Natural Ground
Filter Fabric
Min. D = 4.0 Ft.
Max. d = 4.0 Ft.
EST. DDE = 40 CY
B = Varies Ft.
Type of Liner = CLASS 'B' RIPRAP
TAIL DITCH
-L2- Sta. 99+05.00 RT
DETAIL 3
(Not to Scale)
EST. DDE = 30 CY
Min. D = 4.0 Ft.
B = Varies Ft.
HEAD DITCH
-L2- Sta. 99+70.00 LT
DETAIL 4
(Not to Scale)
Fill Slope
Filter Fabric
Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
* When B is < 6.0'
Type of Liner = CLASS 'B' RIP RAP
2.0' LATERAL BASE DITCH
-L1- Sta. 98+54 - 98+97 RT
DRIVE 3 Sta. 12+50 - 15+25 LT
NC GRID (NAD 1983)
SITE 4
INVERT OF PROPOSED 60" STEEL PIPE TO BE PLACED 0.5' ABOVE THE INVERT OF THE EXTENDED 60" RCP
HEAD DITCH SEE DETAIL #3
REMOVE HW
REMOVE FIRST SECTION OF EXIST. 60" RCP
SEE SHT. 2E
LATERAL 2.0' BASE DITCH SEE DETAIL #4
DRIVE 3
DRIVE 4
POT Sta.10+00.00
POT Sta.15+84.57 DRIVE 3 =
POT Sta.10+38.11 DRIVE 4
REMOVE ±20' EXIST. 30" CMP
S 71°14'19.6" E
BEG FENCE
END FENCE
PLUG
REMOVE ±10' EXIST. 15" RCP
TRENCHLESS CONSTRUCTION 60" STEEL PIPE
COLLAR
RETAIN & EXTEND
US 70 STATESVILLE BLVD
S 71°14'20.4" E
15" CSP W/2 ELBOWS
CLASS B RIPRAP EST. ±24 TON
CLASS IV RCP
REMOVE LAST SECTION OF EXIST. 60" RCP
PFSH SEE SPECIAL DETAIL SHEET 2E
SR 1142 GATTON RD
PROP 4 STRAND BARBED WIRE FENCE
POT Sta.11+72.05 DRIVE 4 =
POT Sta.94+66.76 -L2-
TIE TO EXIST. FENCE
CLASS I RIPRAP EST. ±20 TON
TAIL DITCH SEE DETAIL #11
N 86°51'48.9" E
DRIVE 2 POT Sta. 11+65.06
WORK AROUND GARAGE IN EASEMENT
PLANTER
MTL CARPORT
MATCH TO SHEET 10 STA. 91+00.00 -L2-
STA. 12+50.00 DRIVE 3
STA. 10+80.00 DRIVE 2
MATCH TO SHEET 12 STA. 102+00.00 -L2-
DENOTES FILL IN WETLAND
DENOTES FILL IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY FILL IN SURFACE WATER

NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE

REVISIONS

8/17/99

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8/17/99

REVISIONS

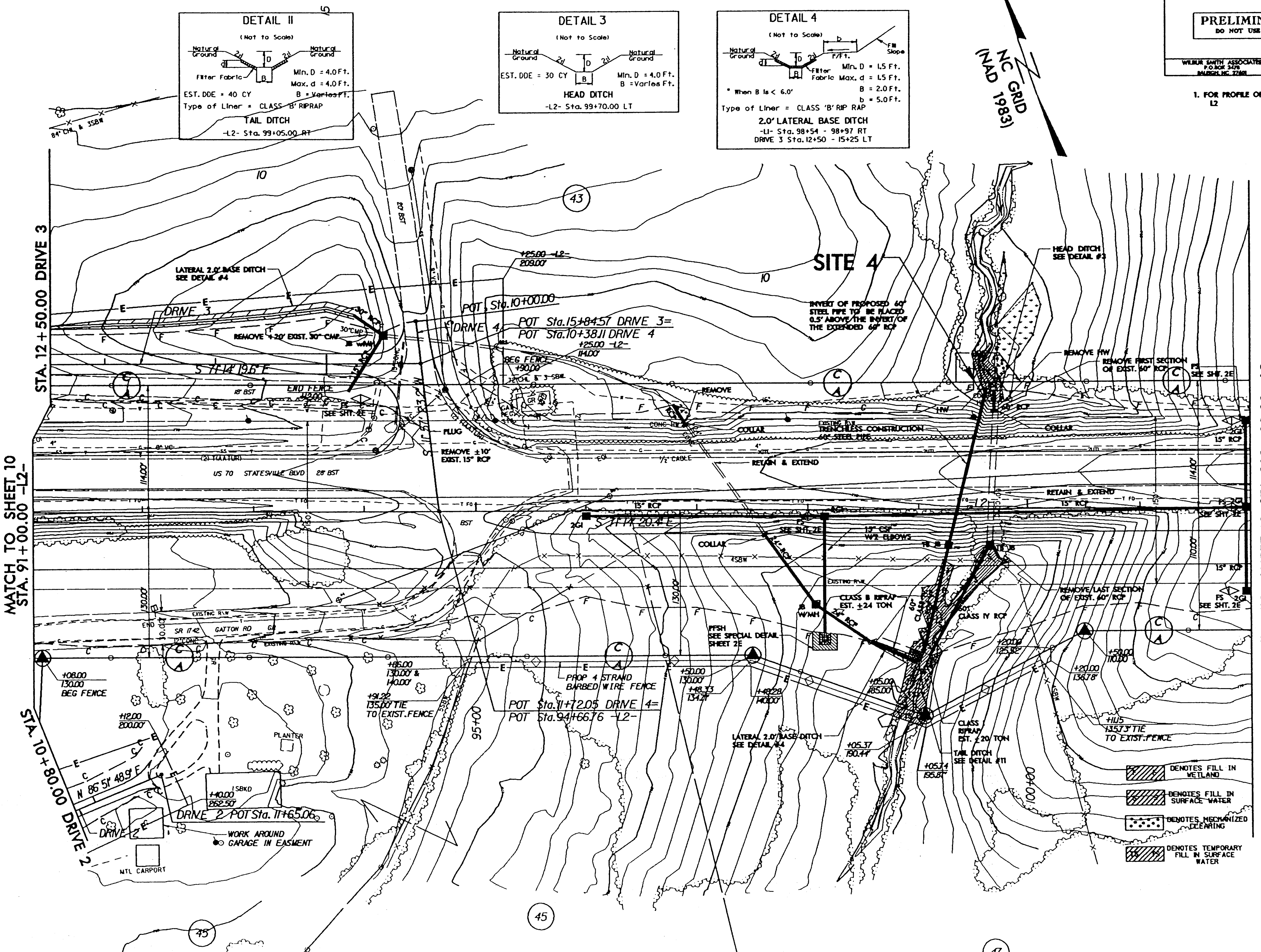
ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES — BUNGATE DESIGN GROUP

NOTES
1. FOR PROFILE OF: L2 — SEE SHEET NO: 29, 30



DETAIL 11
(Not to Scale)
Natural Ground
Filter Fabric
Min. D = 4.0 Ft.
Max. d = 4.0 Ft.
EST. DDE = 40 CY
B = Varies Ft.
Type of Liner = CLASS 'B' RIPRAP
TAIL DITCH
-L2- Sta. 99+05.00 RT
DETAIL 3
(Not to Scale)
EST. DDE = 30 CY
Min. D = 4.0 Ft.
B = Varies Ft.
HEAD DITCH
-L2- Sta. 99+70.00 LT
DETAIL 4
(Not to Scale)
Fill Slope
Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
* When B is < 6.0'
Type of Liner = CLASS 'B' RIP RAP
2.0' LATERAL BASE DITCH
-L- Sta. 98+54 - 98+97 RT
DRIVE 3 Sta. 12+50 - 15+25 LT
NC GRID (NAD 1983)
SITE 4
STA. 12+50.00 DRIVE 3
MATCH TO SHEET 10 STA. 91+00.00 -L2-
MATCH TO SHEET 12 STA. 102+00.00 -L2-
STA. 10+80.00 DRIVE 2
LATERAL 2.0' BASE DITCH SEE DETAIL #4
REMOVE ±20' EXIST. 30" CMP
POT Sta. 10+00.00
POT Sta. 15+84.57 DRIVE 3 = POT Sta. 10+38.11 DRIVE 4
HEAD DITCH SEE DETAIL #3
INVERT OF PROPOSED 60" STEEL PIPE TO BE PLACED 0.5' ABOVE THE INVERT OF THE EXTENDED 60" RCP
REMOVE HW
REMOVE FIRST SECTION OF EXIST. 60" RCP
TRENCHLESS CONSTRUCTION 60" STEEL PIPE
RETAIN & EXTEND
REMOVE ±10' EXIST. 15" RCP
US 70 STATESVILLE BLVD 28' BST
SR 1742 GATTON RD
REMOVE LAST SECTION OF EXIST. 60" RCP
CLASS B RIPRAP EST. ±24 TON
PFSH SEE SPECIAL DETAIL SHEET 2E
CLASS IV RCP
PROP 4 STRAND BARBED WIRE FENCE
POT Sta. 11+72.05 DRIVE 4 = POT Sta. 94+66.76 -L2-
BEG FENCE
TO EXIST. FENCE
CLASS RIPRAP EST. ±20 TON
TAIL DITCH SEE DETAIL #11
DRIVE 2 POT Sta. 11+65.06
WORK AROUND GARAGE IN EASEMENT
MTL CARPORT
PLANTER
DENOTES FILL IN WETLAND
DENOTES FILL IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY FILL IN SURFACE WATER

NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE

Sheet 10 of 26

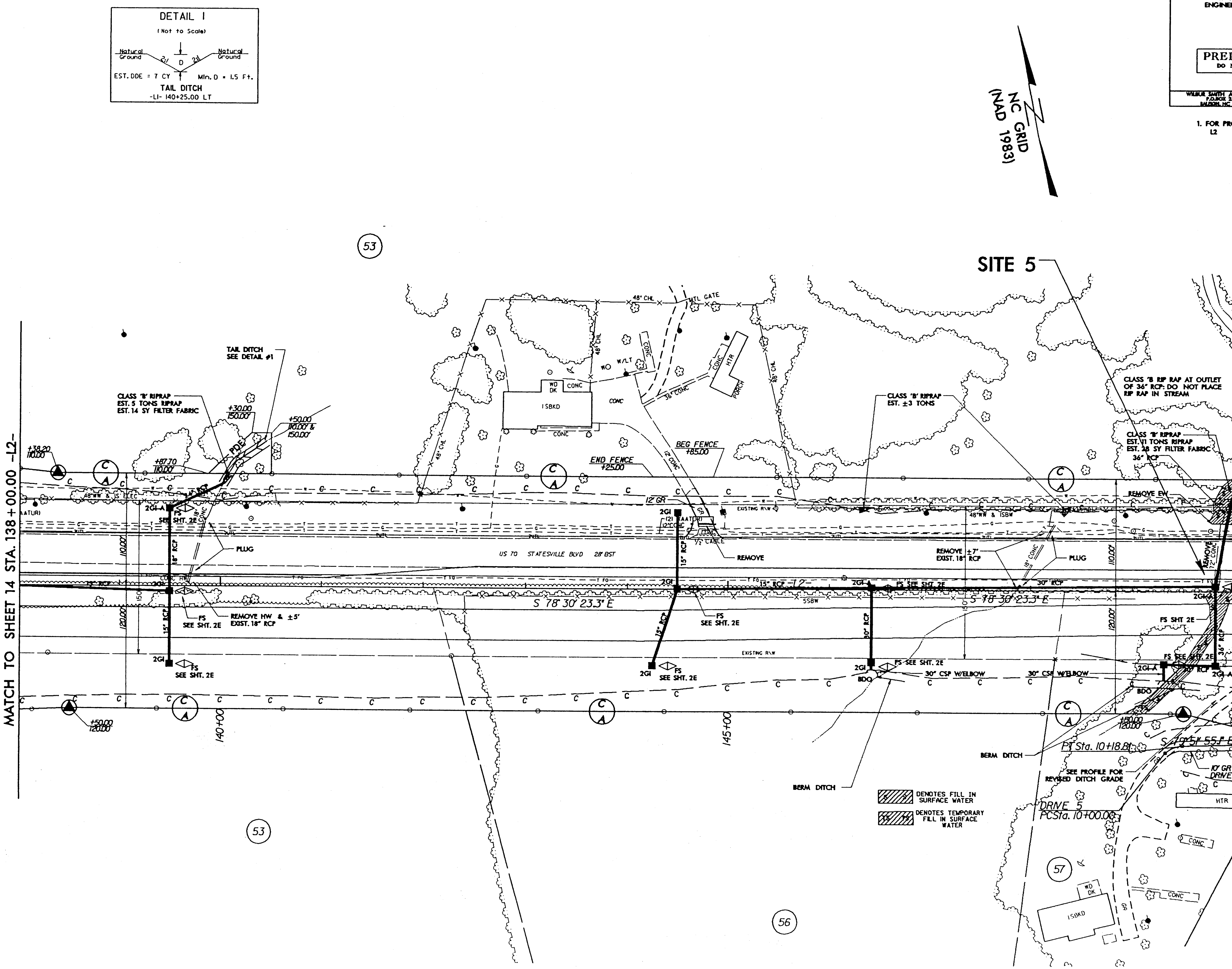
ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES P.O. BOX 2479 RALEIGH, NC 27601 — SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

NOTES
1. FOR PROFILE OF: L2 — SEE SHEET NO: 33



DETAIL 1
(Not to Scale)
Natural Ground
Natural Ground
EST. DDE = 7 CY
Min. D = 1.5 Ft.
TAIL DITCH
-L1- 140+25.00 LT
NC GRID (NAD 1983)
SITE 5
53
56
57
MATCH TO SHEET 14 STA. 138+00.00 -L2-
MATCH TO SHEET 16 STA. 150+00.00 -L2-
TAIL DITCH SEE DETAIL #1
CLASS 'B' RIPRAP EST. 5 TONS RIPRAP EST. 14 SY FILTER FABRIC
CLASS 'B' RIPRAP EST. ±3 TONS
CLASS 'B' RIP RAP AT OUTLET OF 36" RCP: DO NOT PLACE RIP RAP IN STREAM
CLASS 'B' RIPRAP EST. 11 TONS RIPRAP EST. 28 SY FILTER FABRIC
US 70 STATESVILLE BLVD 28' BST
S 78°30'23.3" E
END FENCE +25.00
BEG FENCE +85.00
REMOVE HW & ±5' EXIST. 18" RCP
REMOVE ±7' EXIST. 18" RCP
REMOVE
PLUG
FS SEE SHT. 2E
30" CSP W/ELBOW
BERM DITCH
SEE PROFILE FOR REVISED DITCH GRADE
PI Sta. 10+18.81
DRIVE 5
PC Sta. 10+00.00
140+00
145+00
DENOTES FILL IN SURFACE WATER
DENOTES TEMPORARY FILL IN SURFACE WATER

REVISIONS

8/17/99

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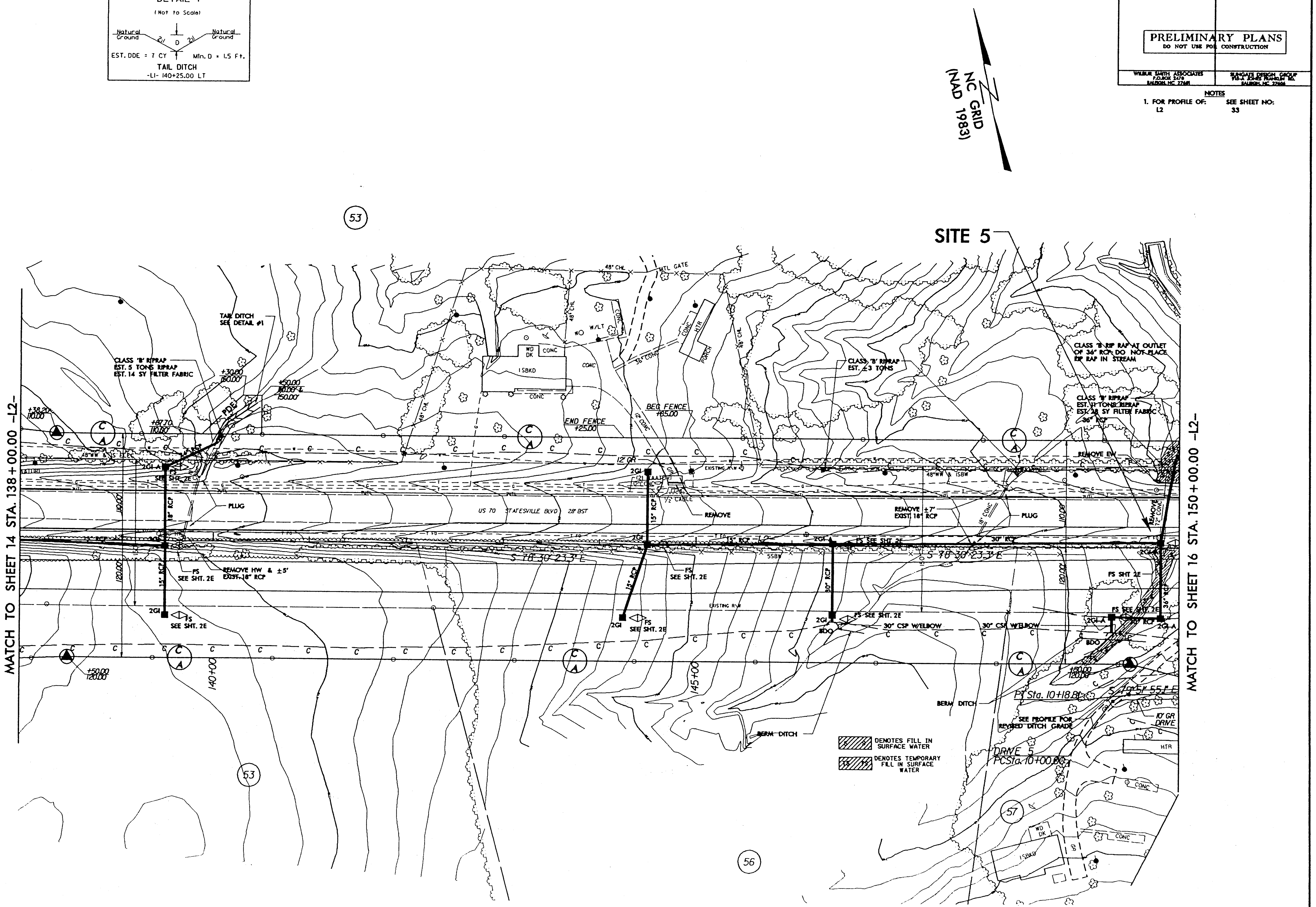
ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTES
1. FOR PROFILE OF: L2 SEE SHEET NO: 33

DETAIL I
(Not to Scale)
EST. DDE = 7 CY Min. D = 1.5 Ft.
TAIL DITCH
-L1- 140+25.00 LT



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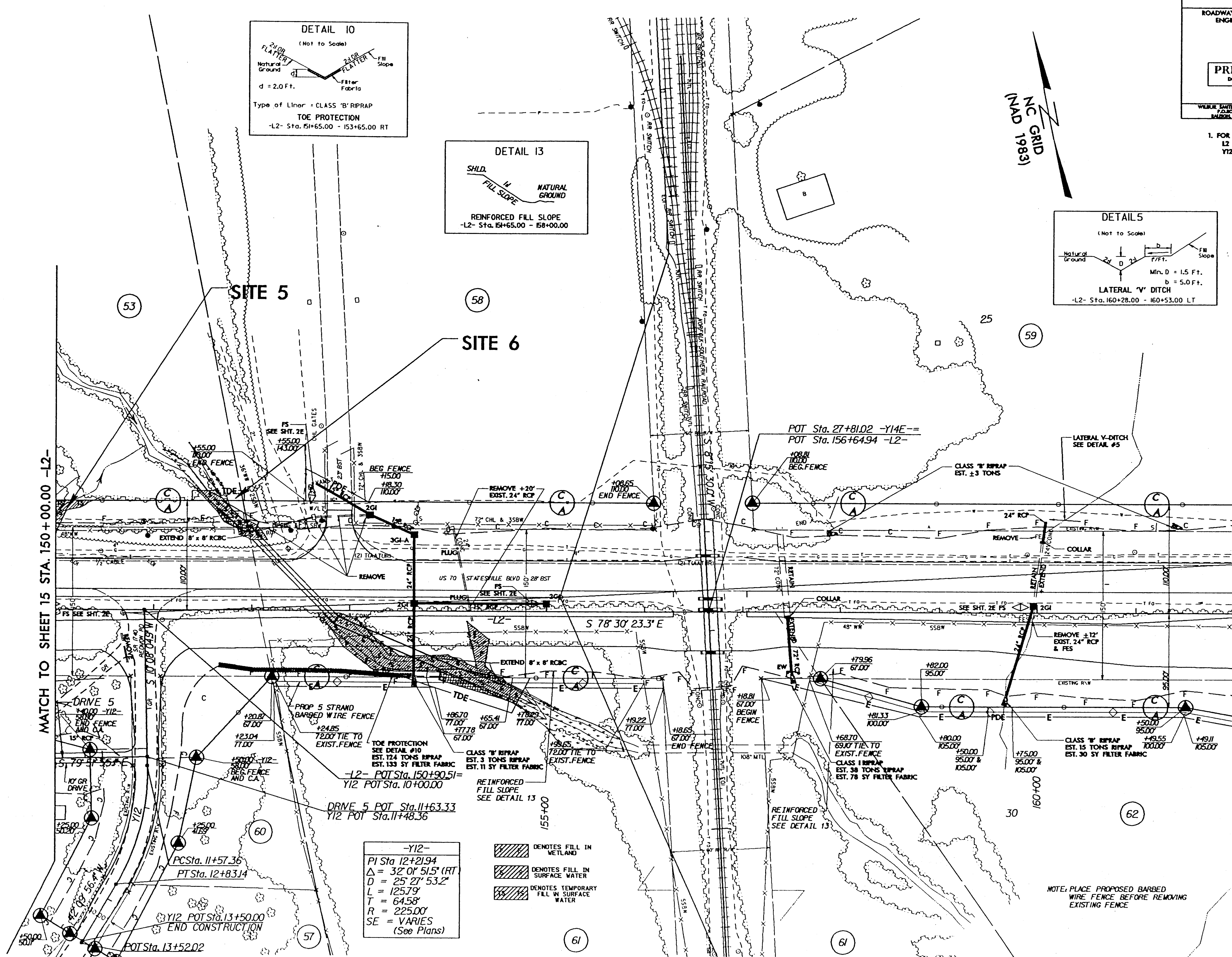
ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES — SUNGATE DESIGN GROUP

NOTES
1. FOR PROFILE OF: SEE SHEET NO:
L2 — 34
Y12 — 42



DETAIL 10
(Not to Scale)
Type of Liner = CLASS 'B' RIPRAP
TOE PROTECTION
-L2- Sta. 151+65.00 - 153+65.00 RT
DETAIL 13
REINFORCED FILL SLOPE
-L2- Sta. 151+65.00 - 158+00.00
DETAIL 5
(Not to Scale)
LATERAL 'V' DITCH
-L2- Sta. 160+28.00 - 160+53.00 LT
NC GRID (NAD 1983)
SITE 5
SITE 6
MATCH TO SHEET 15 STA. 150+00.00 -L2-
MATCH TO SHEET 17 STA. 162+00.00 -L2-
US 70 STATESVILLE BLVD
S 78°30' 23.3" E
POT Sta. 27+81.02 -Y14E-=
POT Sta. 156+64.94 -L2-
-L2- POT Sta. 150+90.51=
Y12 POT Sta. 10+00.00
DRIVE 5 POT Sta. 11+63.33
Y12 POT Sta. 11+48.36
PC Sta. 11+57.36
PT Sta. 12+83.14
Y12 POT Sta. 13+50.00
END CONSTRUCTION
POT Sta. 13+52.02
-Y12-
PI Sta 12+21.94
Δ = 32° 01' 51.5" (RT)
D = 25° 27' 53.2"
L = 125.79'
T = 64.58'
R = 225.00'
SE = VARIES (See Plans)
DENOTES FILL IN WETLAND
DENOTES FILL IN SURFACE WATER
DENOTES TEMPORARY FILL IN SURFACE WATER
NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE

Sheet 13 of 26

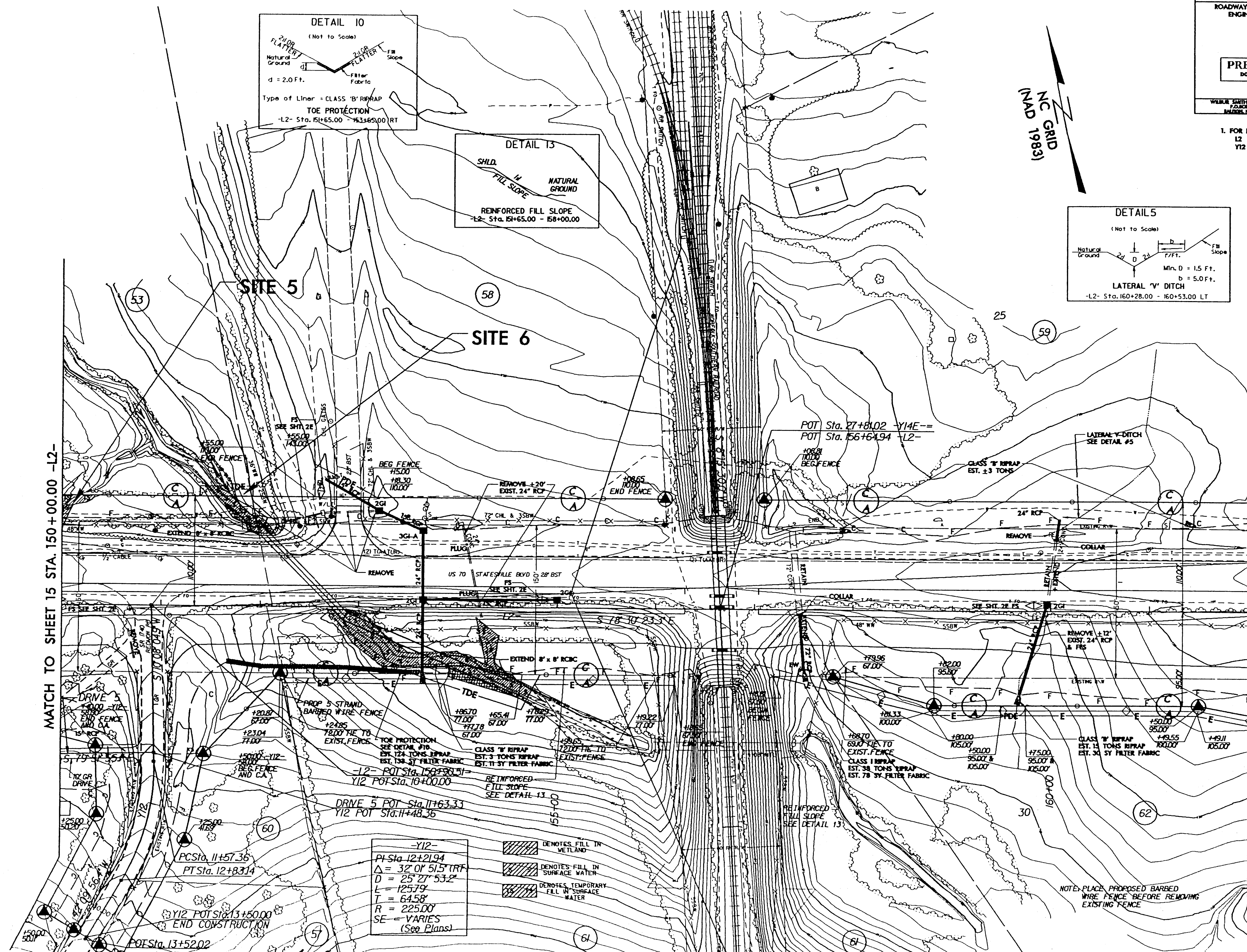
ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES — SUNGATE DESIGN GROUP

NOTES
1. FOR PROFILE OF: SEE SHEET NO:
L2 34
Y12 42



DETAIL 10
(Not to Scale)
2:1 OR FLATTER
Natural Ground
Fill Slope
Filter Fabric
d = 2.0 Ft.
Type of Liner = CLASS 'B' RIPRAP
TOE PROTECTION
-L2- Sta. 151+65.00 - 153+65.00 RT
DETAIL 13
SHLD.
FILL SLOPE
NATURAL GROUND
REINFORCED FILL SLOPE
-L2- Sta. 151+65.00 - 158+00.00
NC GRID (NAD 1983)
DETAIL 5
(Not to Scale)
Natural Ground
Fill Slope
Min. D = 1.5 Ft.
b = 5.0 Ft.
LATERAL 'V' DITCH
-L2- Sta. 160+28.00 - 160+53.00 LT
SITE 5
SITE 6
POT Sta. 27+81.02 -Y14E-=
POT Sta. 156+64.94 -L2-
LATERAL V-DITCH SEE DETAIL #5
CLASS 'B' RIPRAP EST. ±3 TONS
REMOVE ±20' EXIST. 24" RCP
END FENCE
BEG FENCE
US 70 STATESVILLE BLVD
EXTEND 8' x 8' RCBC
PROP 5 STRAND BARBED WIRE FENCE
TOE PROTECTION SEE DETAIL #10
REMOVE ±12' EXIST. 24" RCP & FES
-L2- POT Sta. 150+90.51=
Y12 POT Sta. 10+00.00
REINFORCED FILL SLOPE SEE DETAIL 13
DRIVE 5 POT Sta. 11+63.33
Y12 POT Sta. 11+48.36
-Y12-
PI Sta. 12+21.94
Δ = 32° 01' 51.5" (RT)
D = 25° 27' 53.2"
L = 125.79'
T = 64.58'
R = 225.00'
SE = VARIES (See Plans)
PC Sta. 11+57.36
PT Sta. 12+83.14
Y12 POT Sta. 13+50.00 END CONSTRUCTION
POT Sta. 13+52.02
DENOTES FILL IN WETLAND
DENOTES FILL IN SURFACE WATER
DENOTES TEMPORARY FILL IN SURFACE WATER
NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE
MATCH TO SHEET 15 STA. 150+00.00 -L2-
MATCH TO SHEET 17 STA. 162+00.00 -L2-

REVISIONS

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8/17/99

REVISIONS

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

SUNGATE DESIGN GROUP
715-A JONES FRANKLIN RD.
RALEIGH, NC 27609

NOTES

1. FOR PROFILE OF: SEE SHEET NO:
   L2 34, 35
   Y13 42

SITE 7

MATCH TO SHEET 16 STA. 162+00.00 -L2-

MATCH TO SHEET 18 STA. 175+00.00 -L2-

-L2- POT Sta. 167+50.22= Y13 POT Sta. 18+29.35

Y13 POT Sta.14+50.00 BEGIN CONSTRUCTION

Y13 POT Sta. 26+00.00 END CONSTRUCTION

-L2- S 78° 30' 23.3" E

S 15° 41' 53.6" E

NC GRID (NAD 1983)

NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE

DENOTES FILL IN SURFACE WATER

CLASS 'B' RIPRAP
EST. 5 TONS RIPRAP
EST. 14 SY FILTER FABRIC

CLASS 'B' RIP RAP AT OUTLET OF 24" RCP: DO NOT PLACE RIP RAP IN STREAM

REMOVE

RETAIN

RETAIN & EXTEND

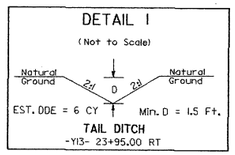
MODIFY EXISTING TRAFFIC SIGNAL

REMOVE +15' EXIST. 18" RCP

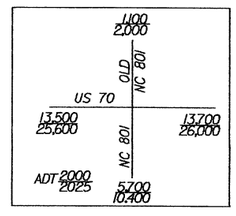
TIE TO EXIST. DITCH

TAIL DITCH SEE DETAIL #1

DETAIL 1
(Not to Scale)



EST. DDE = 6 CY Min. D = 1.5 Ft.
TAIL DITCH
-Y13- 23+95.00 RT



DATE: $DATE$
TIME: $TIME$
$FILE$

8/17/99

REVISIONS

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	17
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27602

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606

NOTES

1. FOR PROFILE OF: — SEE SHEET NO:
   - L2 — 34, 35
   - Y13 — 42

SITE 7

MATCH TO SHEET 16 STA. 162+00.00 -L2-

MATCH TO SHEET 18 STA. 175+00.00 -L2-

-L2- S 78° 30' 23.3" E

-L2- POT Sta. 167+50.22 = Y13 POT Sta. 18+29.35

S 15° 41' 55.6" E

-Y13- POT Sta. 14+50.00 BEGIN CONSTRUCTION

-Y13- POT Sta. 26+00.00 END CONSTRUCTION

MODIFY EXISTING TRAFFIC SIGNAL

REMOVE +15" EXIST. 18" RCP

CLASS 'B' RIPRAP
EST. 5 TONS RIPRAP
EST. 14 SY FILTER FABRIC

CLASS 'B' RIP RAP AT OUTLET OF 24" RCP; DO NOT PLACE RIP RAP IN STREAM

DENOTES FILL IN SURFACE WATER

NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE

NC GRID (NAD 1983)

MATCH TO STA. 24+50.00 -Y13- THIS SHEET

MATCH TO STA. 24+50.00 -Y13- THIS SHEET

TAIL DITCH SEE DETAIL #1

DETAIL 1
(Not to Scale)
Natural Ground — 2:1 — D — 2:1 — Natural Ground
EST. DDE = 6 CY — Min. D = 1.5 Ft.
TAIL DITCH
-Y13- 23+95.00 RT

1,100 2,000 OLD NC 801
US 70
13,500 25,600
13,700 26,000
ADT 2000 2025
NC 801 5,700 10,400

DATE: &DATES
TIME: &TIMES
FILES: &FILES

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

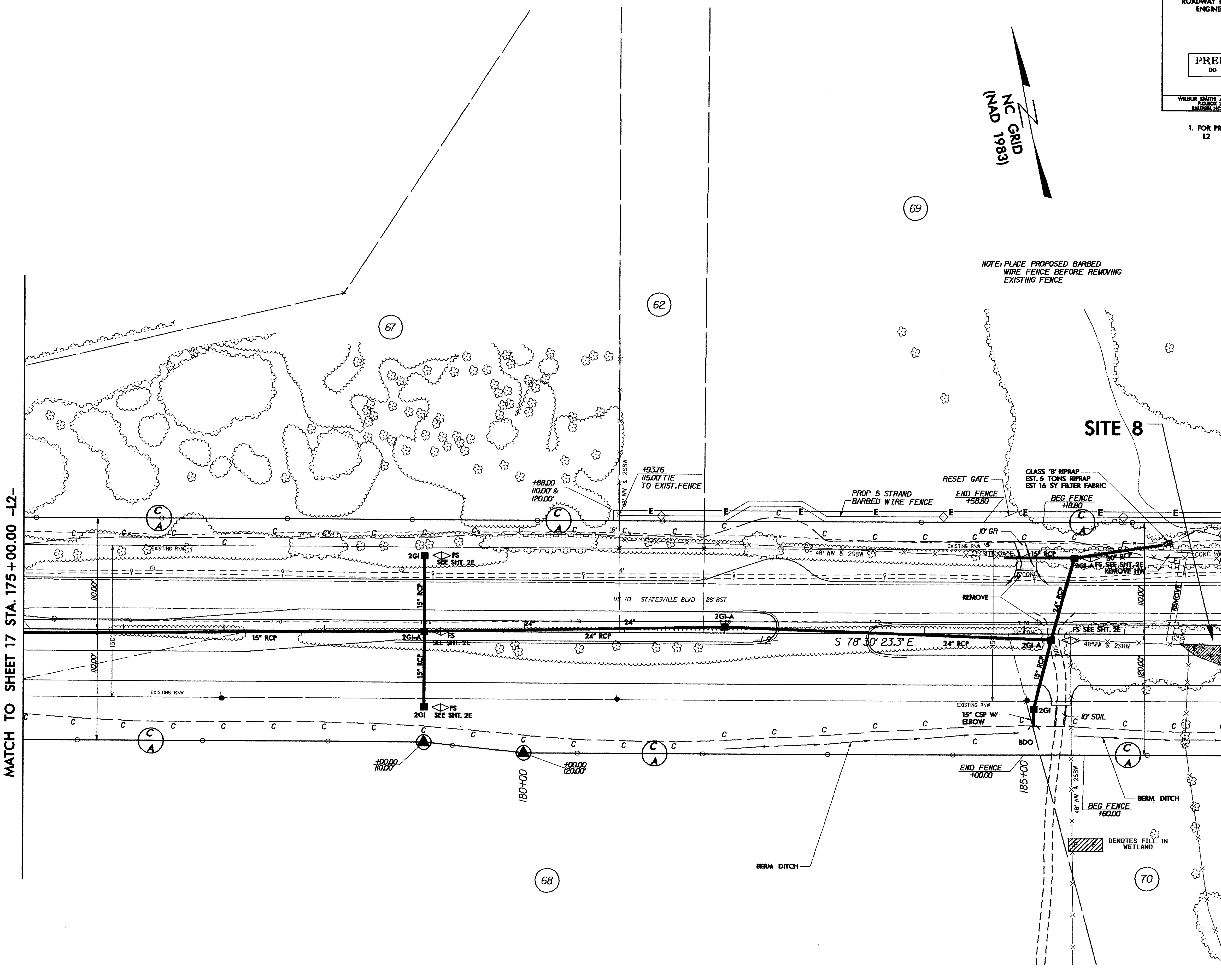
ENGLISH

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES P.O.BOX 2478 RALEIGH, NC 27601

SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

NOTES
1. FOR PROFILE OF: L2 — SEE SHEET NO: 35, 36



NC GRID (NAD 1983)
NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE
SITE 8
MATCH TO SHEET 17 STA. 175+00.00 -L2-
MATCH TO SHEET 19 STA. 187+00.00 -L2-
US 70 STATESVILLE BLVD 28' BST
S 78° 30' 23.3" E
PROP 5 STRAND BARBED WIRE FENCE
CLASS 'B' RIPRAP EST. 5 TONS RIPRAP EST 16 SY FILTER FABRIC
RESET GATE
END FENCE +58.80
BEG FENCE +18.80
REMOVE
BERM DITCH
DENOTES FILL IN WETLAND
180+00
185+00

REVISIONS

8/17/99

8/17/99

REVISIONS

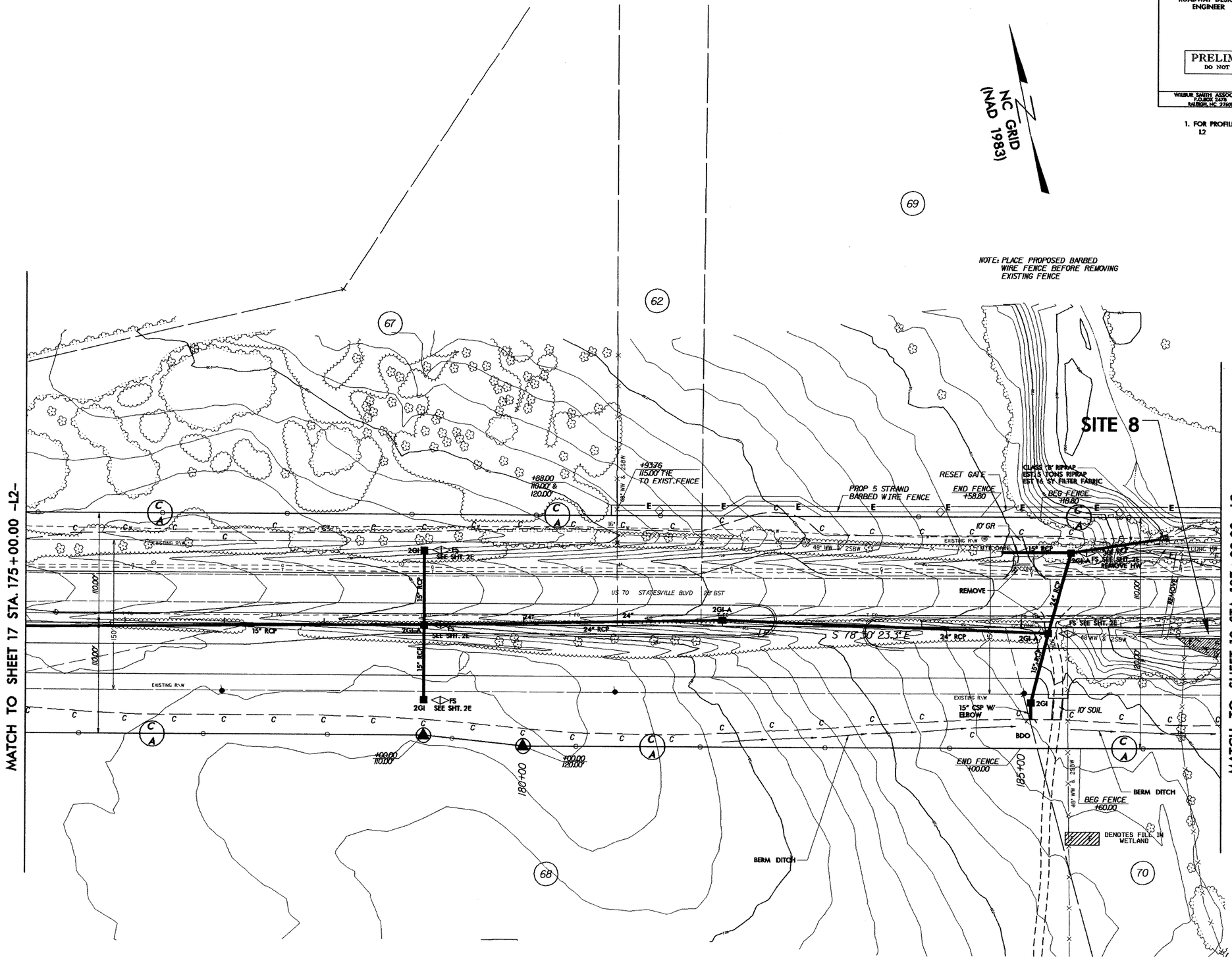
DATE: $DATE$
TIME: $TIME$
FILE: $FILE$

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
WILBUR SMITH ASSOCIATES P.O.BOX 2479 RALEIGH, NC 27601	SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

NOTES
1. FOR PROFILE OF: L2 — SEE SHEET NO: 35, 36

NC GRID (NAD 1983)



PROJECT REFERENCE NO.	SHEET NO.
R-2911C	19
R/W SHEET NO.	

ENGLISH

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

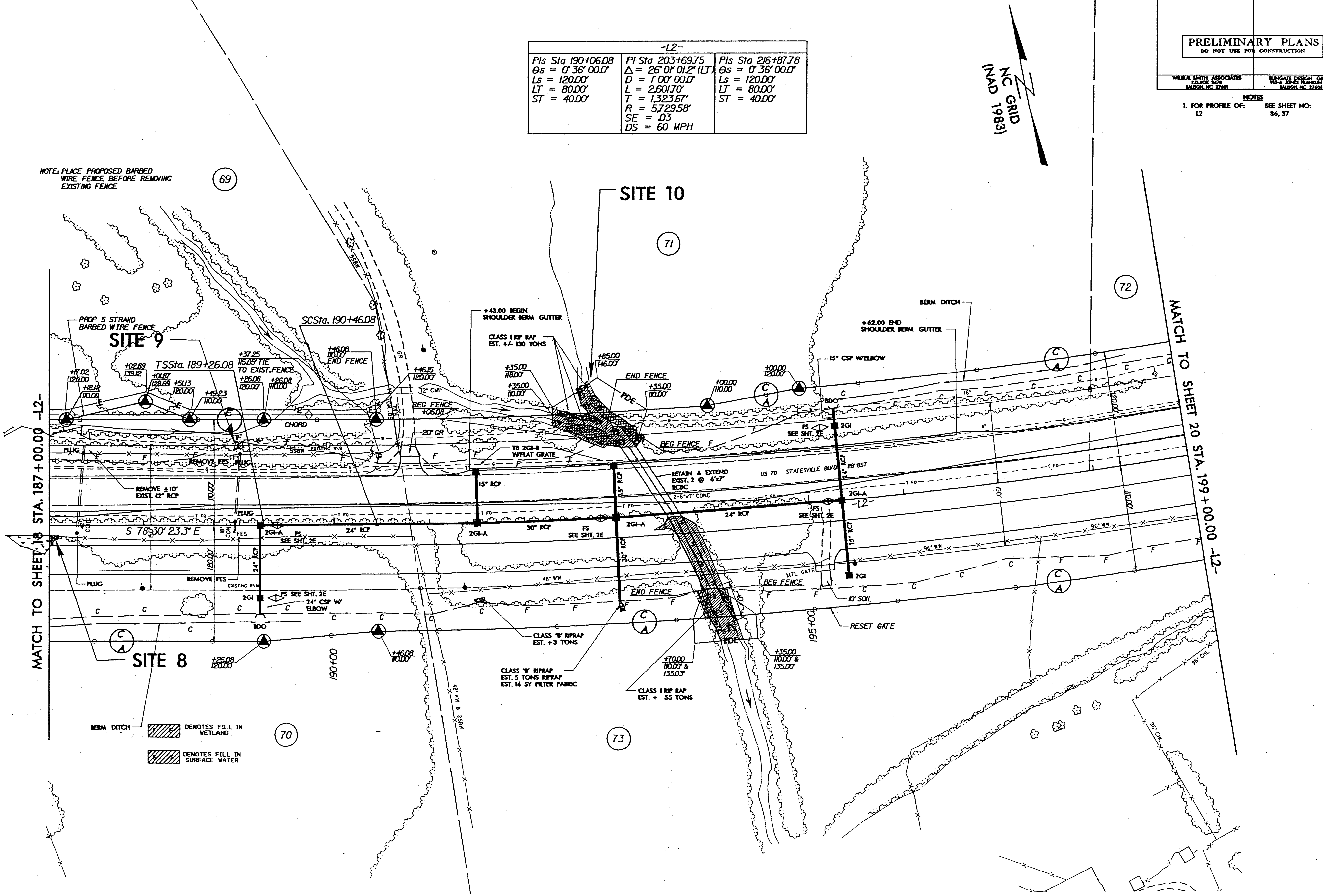
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES — SUNGATE DESIGN GROUP

NOTES

1. FOR PROFILE OF: L2 SEE SHEET NO: 36, 37

-L2-		
PIs Sta 190+06.08	PI Sta 203+69.75	PIs Sta 216+87.78
θs = 0°36' 00.0"	Δ = 26°01' 01.2" (LT)	θs = 0°36' 00.0"
Ls = 120.00'	D = 1°00' 00.0"	Ls = 120.00'
LT = 80.00'	L = 2,601.70'	LT = 80.00'
ST = 40.00'	T = 1,323.67'	ST = 40.00'
	R = 5,729.58'	
	SE = .03	
	DS = 60 MPH	



8/17/99

REVISIONS

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES — SUNGATE DESIGN GROUP

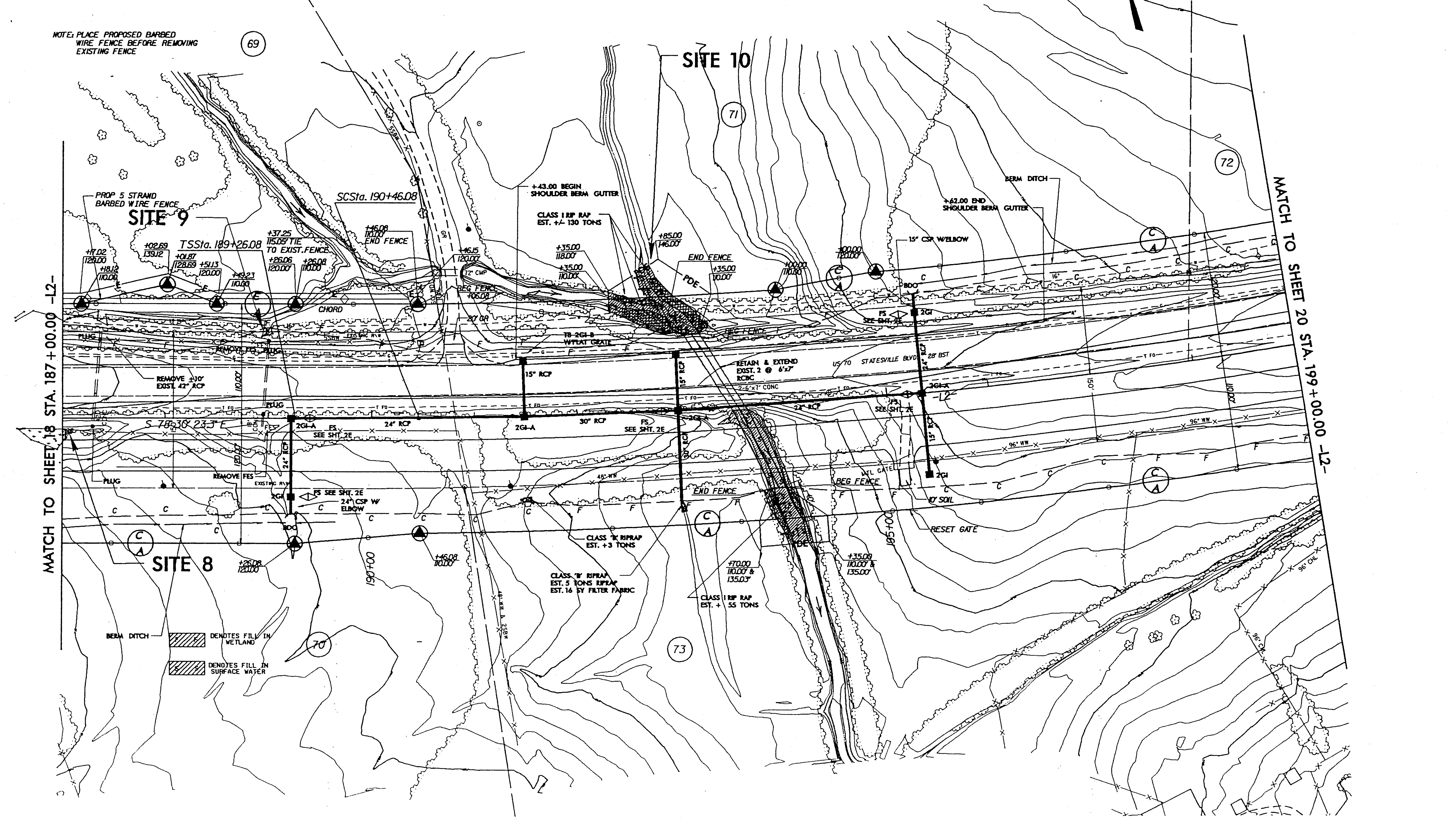
NOTES

1. FOR PROFILE OF: L2 — SEE SHEET NO: 36, 37

-L2-

Pls Sta 190+06.08	PI Sta 203+69.75	Pls Sta 216+87.78
Θs = 0° 36' 00.0"	Δ = 26° 01' 01.2" (LT)	Θs = 0° 36' 00.0"
Ls = 120.00'	D = 1° 00' 00.0"	Ls = 120.00'
LT = 80.00'	L = 2,601.70'	LT = 80.00'
ST = 40.00'	T = 1,323.67'	ST = 40.00'
	R = 5,729.58'	
	SE = .03	
	DS = 60 MPH	

NC GRID (NAD 1983)



NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE
SITE 9
SITE 10
SITE 8
PROP 5 STRAND BARBED WIRE FENCE
TSSta. 189+26.08
SCSta. 190+46.08
+37.25 115.09' TIE TO EXIST. FENCE
+43.00 BEGIN SHOULDER BERM GUTTER
CLASS I RIP RAP EST. +/- 130 TONS
+62.00 END SHOULDER BERM GUTTER
BERM DITCH
15" CSP W/ELBOW
RETAIN & EXTEND EXIST. 2 @ 6'x7' RCBC
US 70 STATESVILLE BLVD
REMOVE +-30' EXIST. 42" RCP
S 78°30' 23.3" E
REMOVE FES
24" CSP W/ ELBOW
CLASS 'B' RIPRAP EST. +3 TONS
CLASS 'B' RIPRAP EST. 5 TONS RIPRAP EST. 16 SY FILTER FABRIC
CLASS I RIP RAP EST. + 55 TONS
RESET GATE
END FENCE
BEG FENCE
190+00
195+00
DENOTES FILL IN WETLAND
DENOTES FILL IN SURFACE WATER
MATCH TO SHEET 18 STA. 187+00.00 -L2-
MATCH TO SHEET 20 STA. 199+00.00 -L2-

8/17/99

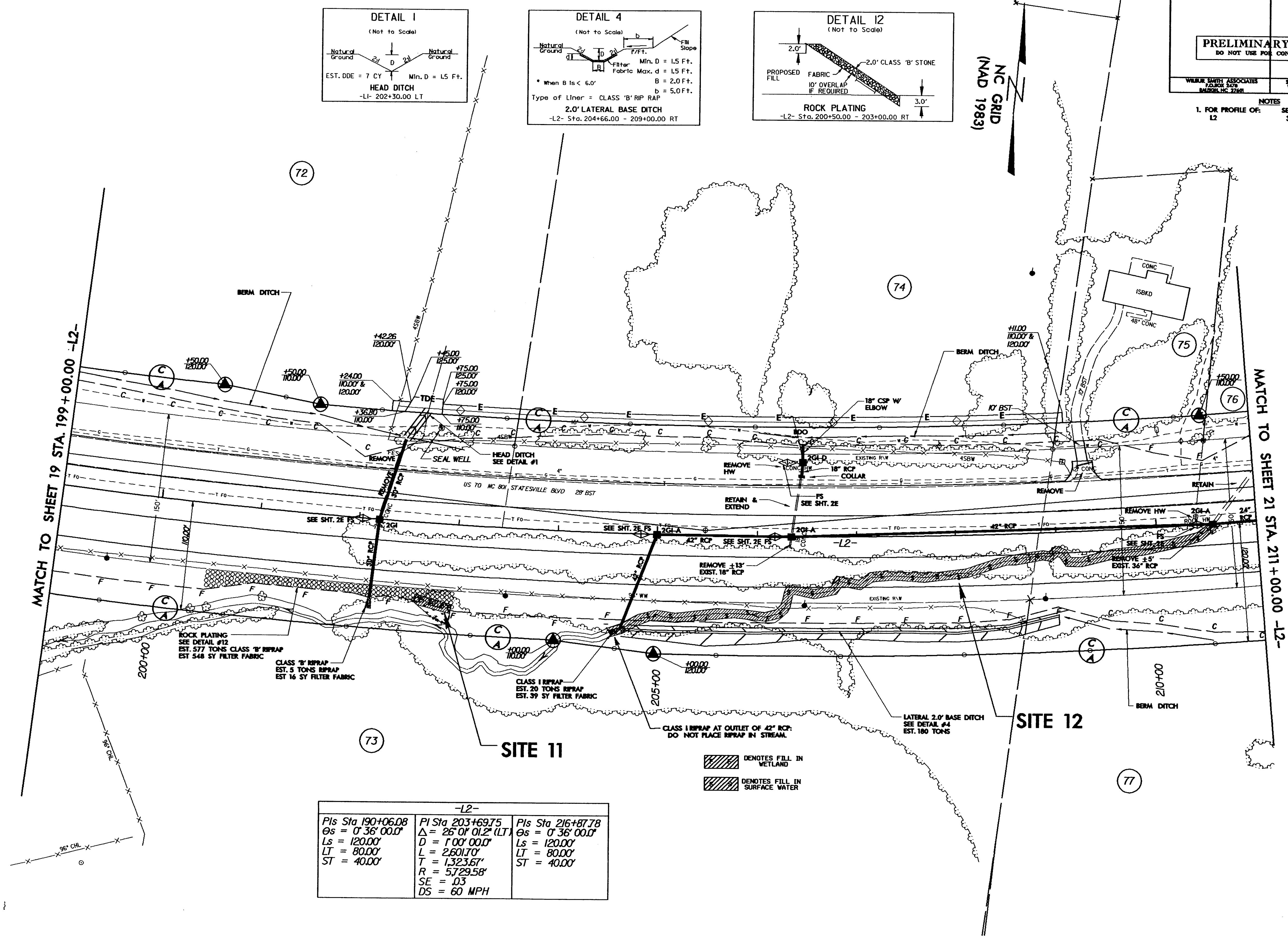
REVISIONS

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
WILBUR SMITH ASSOCIATES P.O.BOX 2478 RALEIGH, NC 27601	SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTES
1. FOR PROFILE OF: L2 — SEE SHEET NO: 37, 38



-L2-		
PIs Sta 190+06.08	PI Sta 203+69.75	PIs Sta 216+87.78
Θs = 0° 36' 00.0"	Δ = 26° 01' 01.2" (LT)	Θs = 0° 36' 00.0"
Ls = 120.00'	D = 1° 00' 00.0"	Ls = 120.00'
LT = 80.00'	L = 2,601.70'	LT = 80.00'
ST = 40.00'	T = 1,323.67'	ST = 40.00'
	R = 5,729.58'	
	SE = .03	
	DS = 60 MPH	

DATE: $DATE$
TIME: $TIME$
$FILE$

Sheet 21 of 26

8/17/99

REVISIONS

DATE: (DATES TIME: (TIMES FILES

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

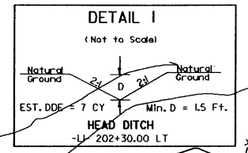
WILBUR SMITH ASSOCIATES P.O.BOX 3478 RALEIGH, NC 27611

KLEINFELDER DESIGN GROUP 915-E JONES FRANKLIN RD. RALEIGH, NC 27606

NOTES

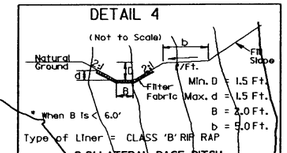
1. FOR PROFILE OF: L2 — SEE SHEET NO: 37, 38

DETAIL 1
(Not to Scale)



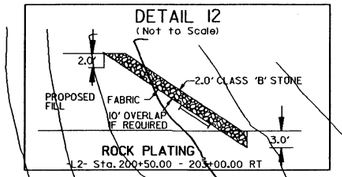
HEAD DITCH
-L2- 202+30.00 LT

DETAIL 4
(Not to Scale)



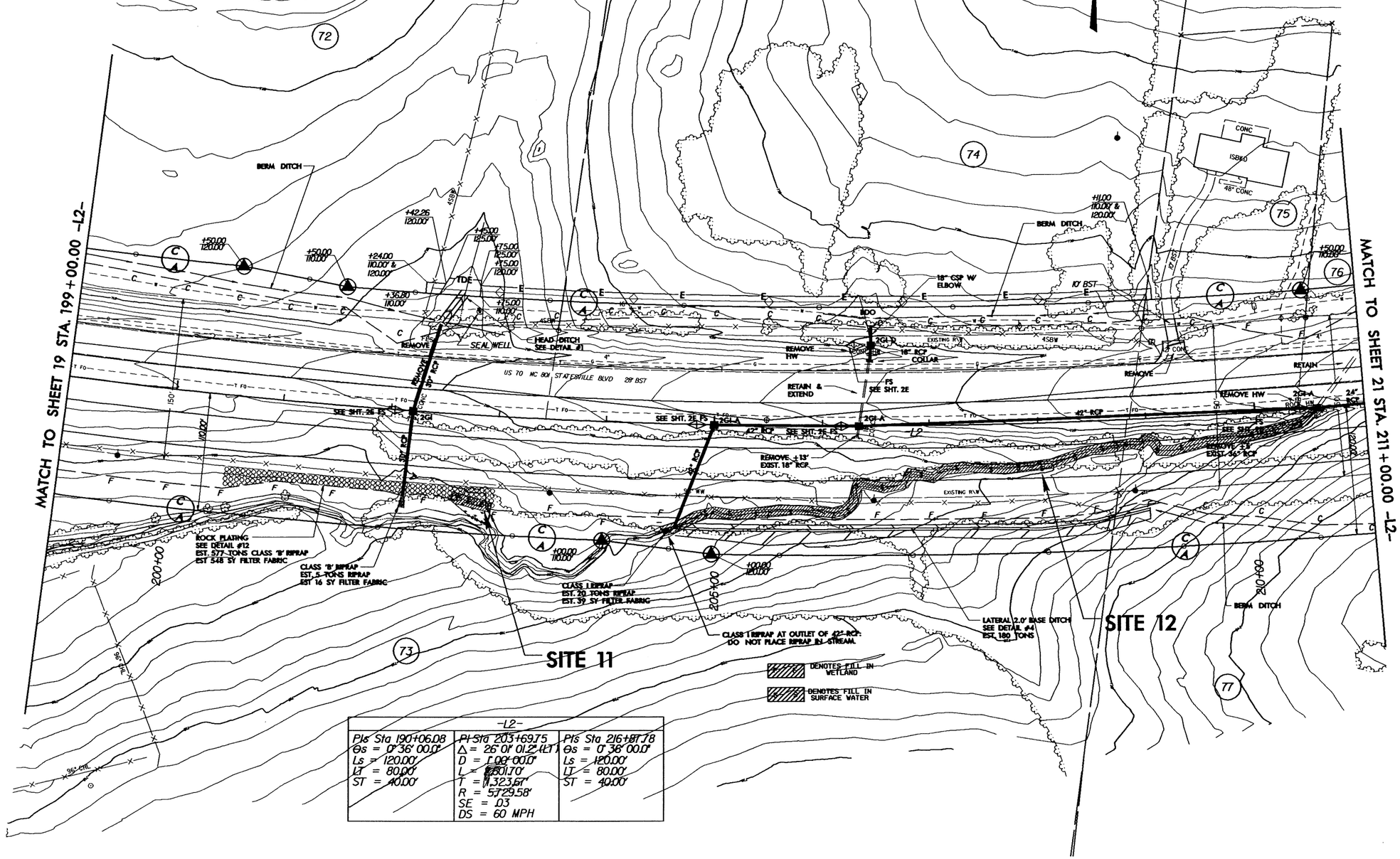
2.0' LATERAL BASE DITCH
-L2- Sta. 204+66.00 - 209+00.00 RT

DETAIL 12
(Not to Scale)



ROCK PLATING
-L2- Sta. 200+50.00 - 203+00.00 RT

NC GRID (NAD 1983)



-L2-		
Pls Sta 190+06.08	PI Sta 203+69.75	Pts Sta 216+81.78
Θs = 0° 36' 00.0"	Δ = 26° 01' 01.2" (LT)	Θs = 0° 36' 00.0"
Ls = 120.00'	D = 1° 00' 00.0"	Ls = 120.00'
LT = 80.00'	L = 2601.70'	LT = 80.00'
ST = 40.00'	T = 1323.61'	ST = 40.00'
	R = 5729.58'	
	SE = .03	
	DS = 60 MPH	

ENGLISH

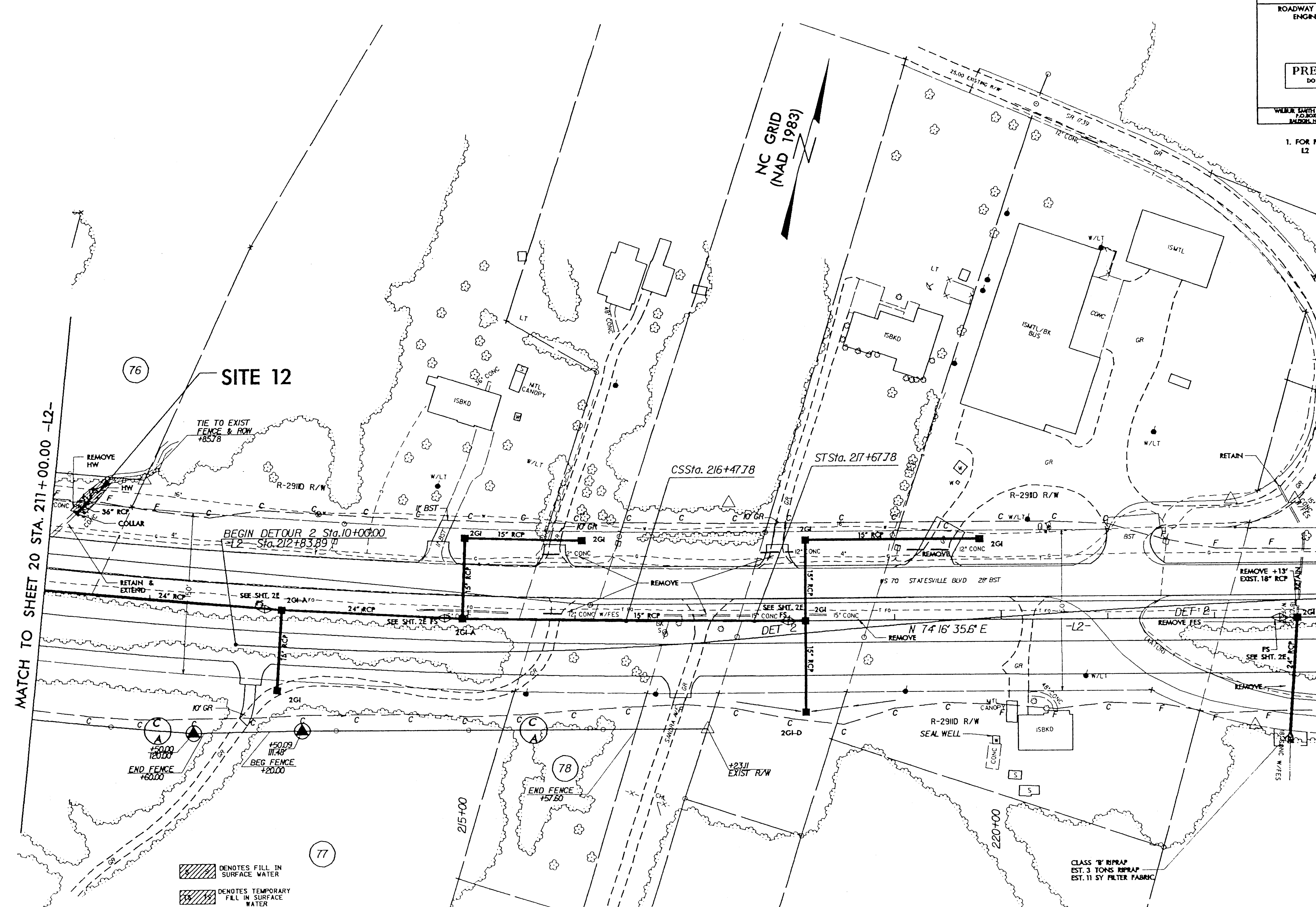
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES P.O. BOX 2476 RALEIGH, NC 27601 — SUNGATE DESIGN GROUP 918-A JONES FRANKLIN RD. RALEIGH, NC 27606

NOTES

1. FOR PROFILE OF: L2 — SEE SHEET NO: 38, 39



SITE 12
NC GRID (NAD 1983)
MATCH TO SHEET 20 STA. 211+00.00 -L2-
MATCH TO SHEET 22 STA. 223+00.00 -L2-
BEGIN DETOUR 2 Sta.10+00.00
-L2- Sta.212+83.89
CS Sta. 216+47.78
ST Sta. 217+67.78
N 74°16' 35.6" E
US 70 STATESVILLE BLVD 28' BST
TIE TO EXIST FENCE & ROW +85.78
REMOVE HW
36" RCP
COLLAR
RETAIN & EXTEND
24" RCP
15" RCP
REMOVE
R-2911D R/W
END FENCE +60.00
BEG FENCE +20.00
END FENCE +57.60
+23.11 EXIST R/W
SEAL WELL
REMOVE +13' EXIST. 18" RCP
CLASS 'B' RIPRAP EST. 3 TONS RIPRAP EST. 11 SY FILTER FABRIC
215+00
220+00
76
77
78
DENOTES FILL IN SURFACE WATER
DENOTES TEMPORARY FILL IN SURFACE WATER

-L2-		
PIs Sta 190+06.08 Θs = 0°36' 00.0" Ls = 120.00' LT = 80.00' ST = 40.00'	PI Sta 203+69.75 Δ = 26°01' 01.2" (LT) D = 1°00' 00.0" L = 2,601.70' T = 1,323.67' R = 5,729.58' SE = .03 DS = 60 MPH	PIs Sta 216+87.78 Θs = 0°36' 00.0" Ls = 120.00' LT = 80.00' ST = 40.00'

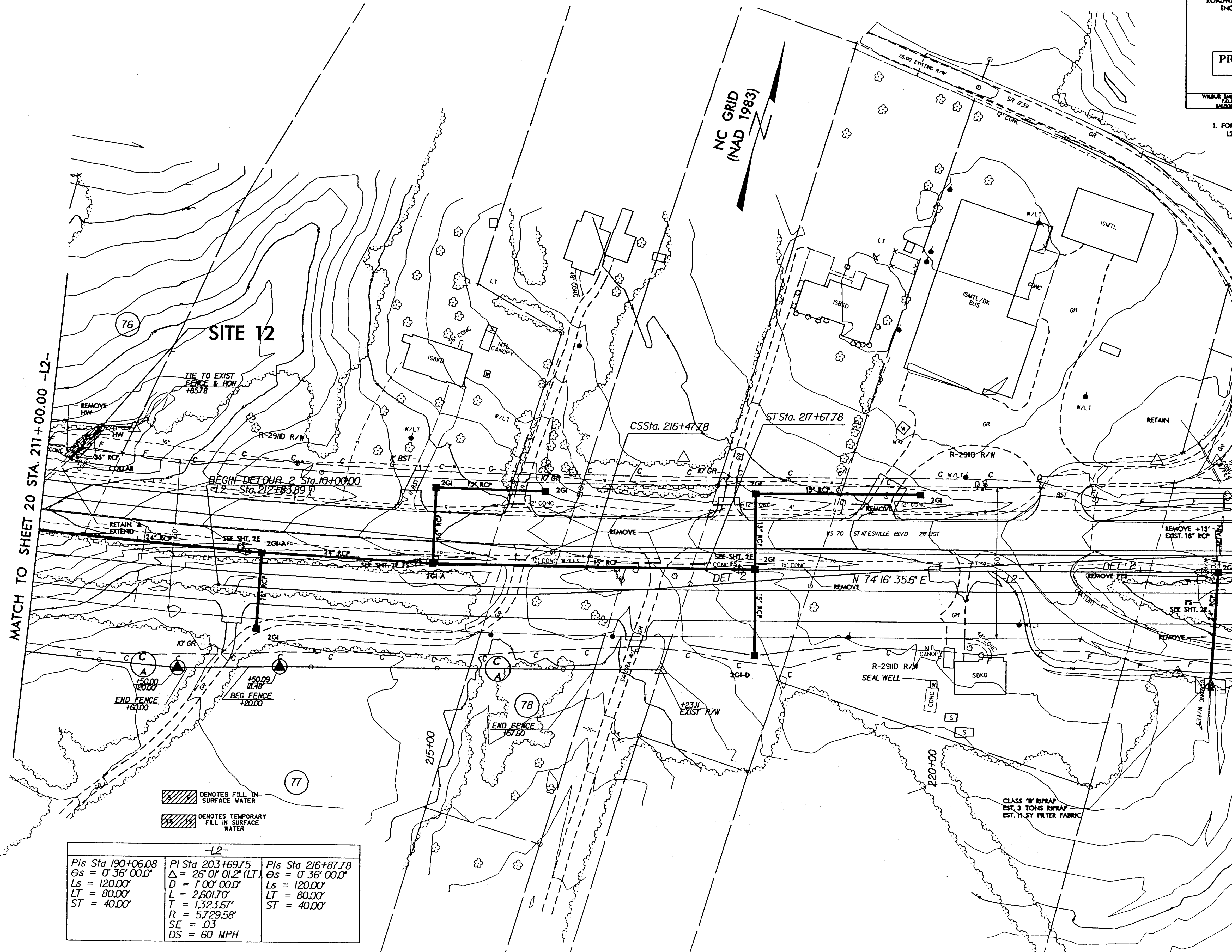
Sheet 23 of 26

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTES
1. FOR PROFILE OF: L2 — SEE SHEET NO: 38, 39



-L2-		
PIs Sta 190+06.08 θs = 0° 36' 00.0" Ls = 120.00' LT = 80.00' ST = 40.00'	PI Sta 203+69.75 Δ = 26° 01' 01.2" (LT) D = 1° 00' 00.0" L = 2,601.70' T = 1,323.67' R = 5,729.58' SE = .03 DS = 60 MPH	PIs Sta 216+87.78 θs = 0° 36' 00.0" Ls = 120.00' LT = 80.00' ST = 40.00'

List of Property Owners:

Combs, Betty S.
80 Alexander Rd.
Stony Point, NC 28678

Floyd, Charles F.
3180 Barnett Shoals Rd.
Athens, GA 30605

Graham, Clyde F. & Lavanche
7185 NC HWY 801
Salisbury, NC 28147

Hersey Meters Co.
500 W. Eldorado St.
Decatur, IL 62525

Keziah, Howard L. & Faye G.
740 Hildebrand Rd.
Salisbury, NC 28147

Kluttz, Irene G.
10575 Statesville Blvd.
Cleveland, NC 27013

Martin, Pamela F.
175 Brandon Cole Dr.
Salisbury, NC 28147

McNeely, Joe F. & Wanda
10610 Statesville Blvd.
Cleveland, NC 27013

NCDOT Division 9
2125 Cloverdale Ave.
Winston-Salem, NC 27103

Redman, Judy M.
375 Gatton Rd.
Cleveland, NC 27013

Southern States Cooperative
P.O. Box 26234
Richmond, VA 23260

Waller, Jr. Clyde S.
9330 Statesville Blvd.
Cleveland, NC 27013

Wasson, Ruby G.
233 W. Gleneagles Rd.
Statesville, NC 28677

Whitman, Evelyn W.
Route 1, Box 77A
Cleveland, NC 27013

Willaims, Earl J. & Virginia G.
4300 S. Park Bluff Dr.
Anchorage, AK 99516

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation In Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing (Method II) (ac)	SURFACE WATER IMPACTS: Fill In SW (Natural) (ac)	SURFACE WATER IMPACTS: Fill In SW (Pond) (ac)	SURFACE WATER IMPACTS: Temp. Existing Channel Impacted (ft)	SURFACE WATER IMPACTS: Existing Channel Impacted (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
1	62+25 -L- Lt & Rt	1 @ 6' x 6' RCBC					0.06			188	
2	69+90 -L- Lt & Rt	1 @ 48" RCP					0.03		30	106	
3	81+50 -L- Lt & Rt	2 @ 54" RCP	0.01			0.01	0.05		50	125	
4	99+50 -L- Lt & Rt	2 @ 60" RCP	0.02			0.01	0.05		99	136	
5	149+80 -L- Lt & Rt	1 @ 36" RCP					0.06		38	165	
6	151+60 - 154+60 -L-	1 @ 8' x 8' RCBC	0.03				0.11			285	
7	162+90 - 164+50 -L-	1 @ 24" RCP					0.05			204	
8	186+55 - 187+10 -L-	none	0.01								
9	188+00 -L- Lt	none	0.01								
10	193+55 -L- Lt & Rt	2 @ 6' x 7' RCBC					0.13			265	
11	202 + 80 -L- Rt	none	0.01								
12	204+50 - 211+40 -L-	1 @ 36" RCP					0.14		32	660	
TOTALS:			0.09	0	0	0.02	0.68	0	249	2134	0

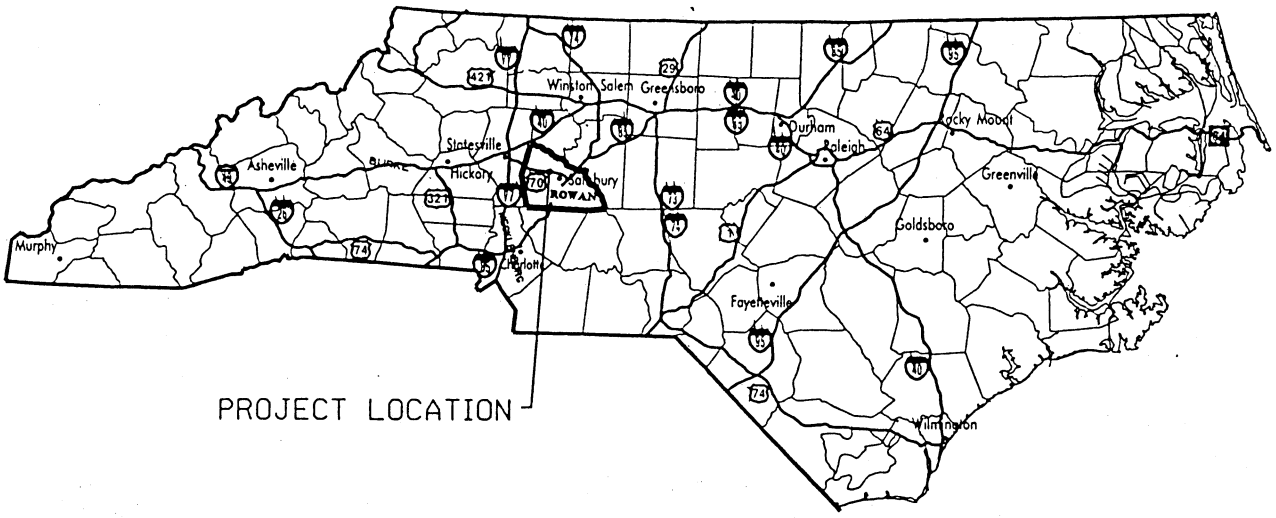
Form Revised 3/22/01

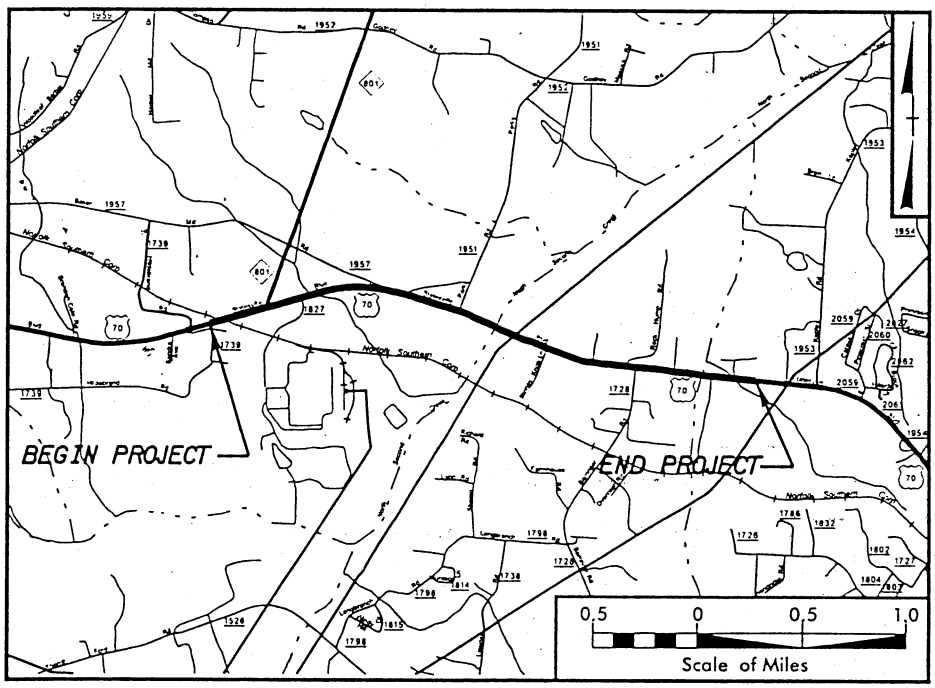
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ROWAN COUNTY
PROJECT 34517.1.1 R-2911C

SHEET 26 OF 26 7/26/2004

ROWAN COUNTY, N.C.





VICINITY MAP

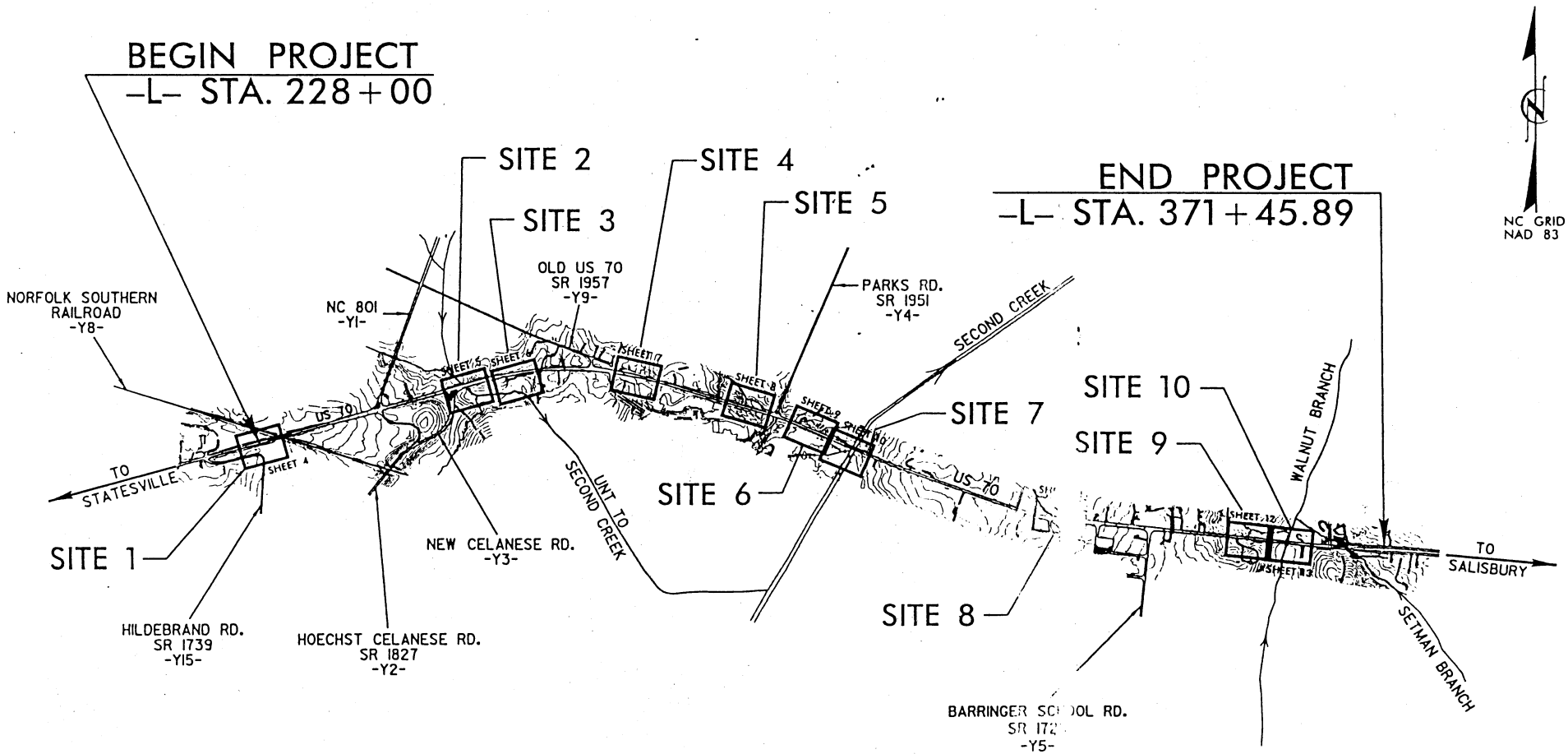
N. C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM
SR 1739 TO JUST WEST OF
SR 1953 (KEPLEY RD.)

SHEET / OF 20 September 2, 2003



SITE MAP

5.0' CONTOUR INTERVALS

1000 0 1000 2000

N. C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM
SR 1739 TO JUST WEST OF
SR 1953 (KEPLEY RD.)

SHEET 1 OF 20 September 2, 2003

LEGEND

- WLB — EXISTING QUALITY WETLAND BOUNDARY
- HQ WLB — HIGH QUALITY WETLAND BOUNDARY
- MQ WLB — MEDIUM QUALITY WETLAND BOUNDARY
- LQ WLB — LOW QUALITY WETLAND BOUNDARY
- WETLAND
- DENOTES FILL IN WETLAND
- DENOTES FILL IN SURFACE WATER
- DENOTES FILL IN SURFACE WATER (POND)
- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND
- DENOTES TEMPORARY FILL IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FLOW DIRECTION
- TOP OF BANK
- EDGE OF WATER
- PROP. LIMIT OF CUT
- PROP. LIMIT OF FILL
- PROP. RIGHT OF WAY
- EX. RIGHT OF WAY
- PROPERTY LINE
- PROP. R/W FENCE
- PROPERTY CORNER
- EXISTING IRON PIN
- TDE — TEMP. DRAINAGE EASEMENT
- PDE — PERMANENT DRAINAGE EASEMENT
- EAB — EXIST. ENDANGERED ANIMAL BOUNDARY
- EPB — EXIST. ENDANGERED PLANT BOUNDARY

- 5 — ADJACENT PROPERTY OWNER OR PARCEL NUMBER
- PROPOSED BRIDGE
- PROPOSED BOX CULVERT
- PROPOSED PIPE CULVERT
- PROPOSED DRAINAGE STRUCTURE

(DASHED LINES DENOTE EXISTNG STRUCTURES)

- RIP RAP OUTLET PROTECTION
- RIP RAP LINING
- RIP RAP ENERGY DISSIPATOR BASIN
- PREFORMED SCOUR HOLE
- FALSE SUMP
- SINGLE TREE
- WOODS LINE

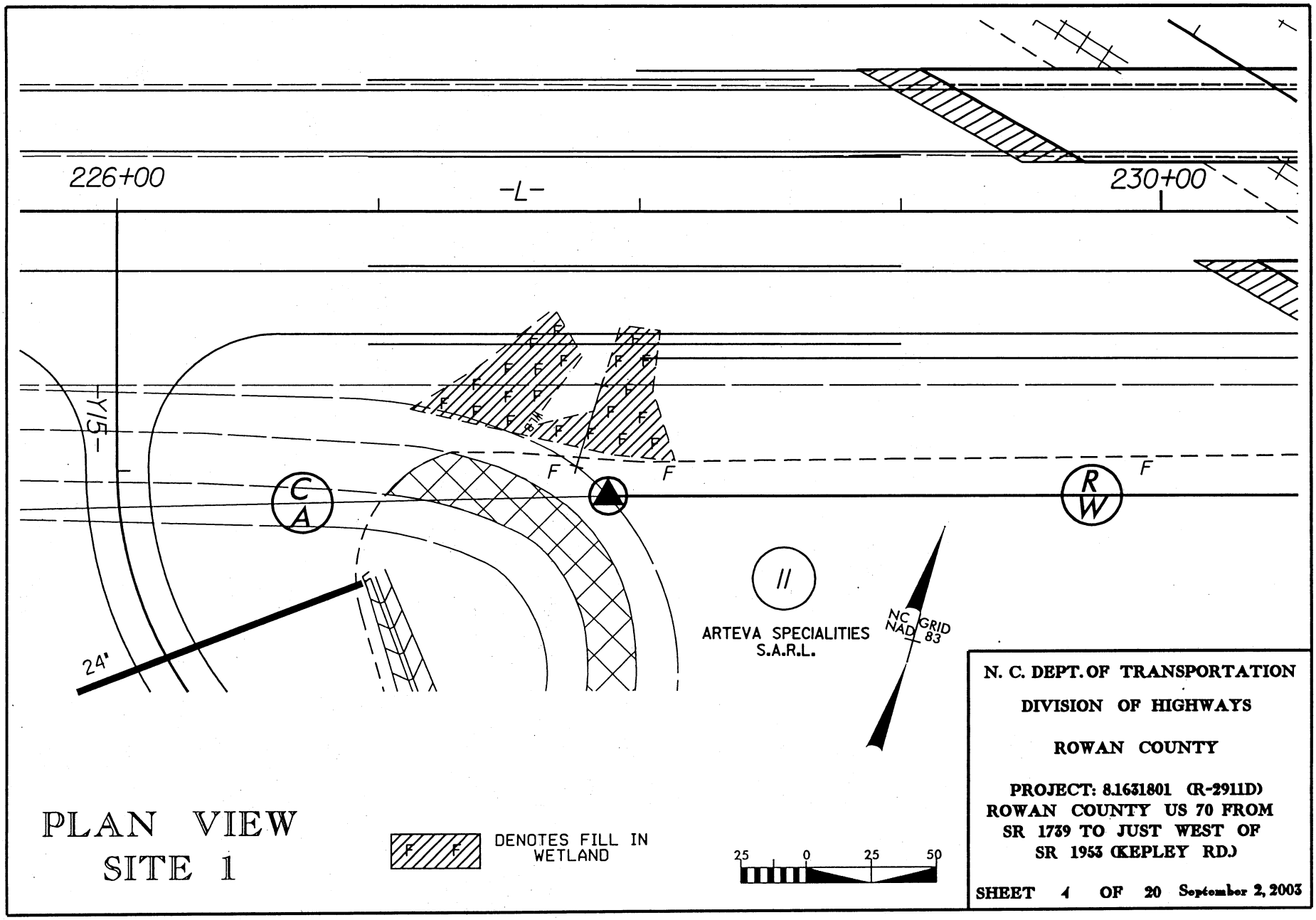
N. C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM SR 1739 TO JUST WEST OF SR 1953 (KEPLEY RD.)

SHEET 3 **OF** 20 **September 2, 2003**



PLAN VIEW
SITE 1

F F DENOTES FILL IN WETLAND

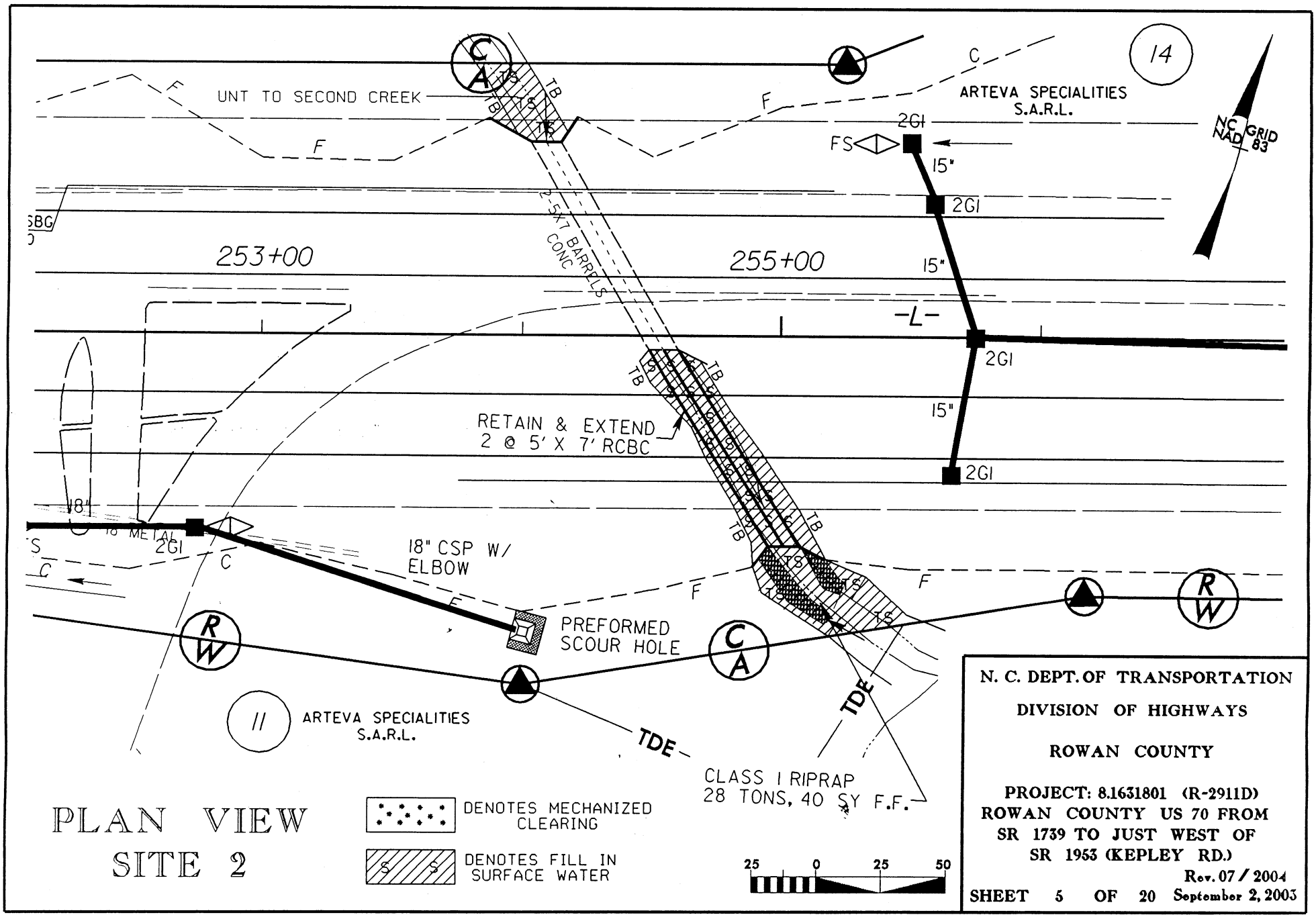
N. C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM
SR 1739 TO JUST WEST OF
SR 1953 (KEPLEY RD.)

SHEET 1 OF 20 September 2, 2003



PLAN VIEW
SITE 2

N. C. DEPT. OF TRANSPORTATION

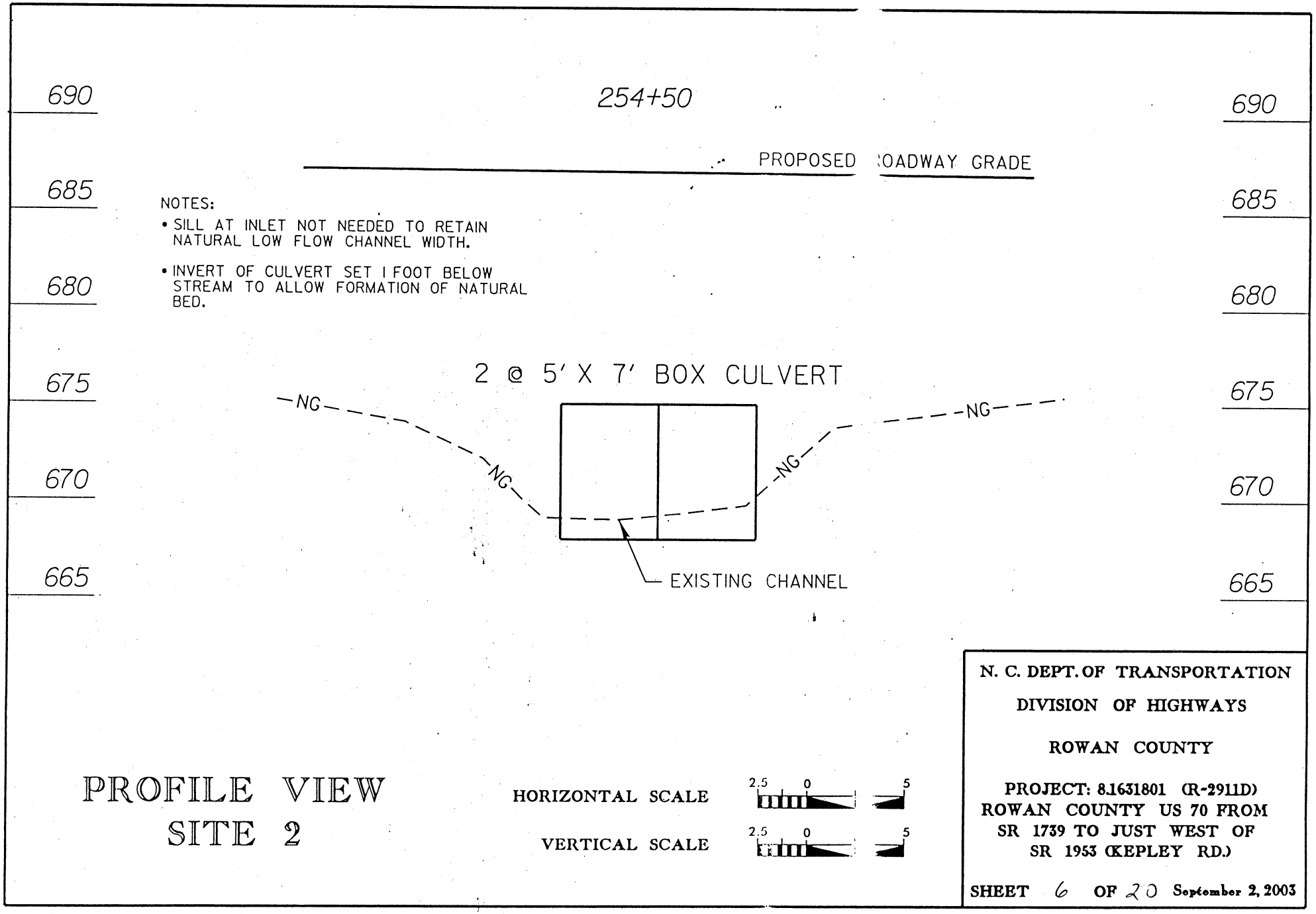
DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM SR 1739 TO JUST WEST OF SR 1953 (KEPLEY RD.)

Rev. 07 / 2004

SHEET 5 OF 20 September 2, 2003



PROFILE VIEW
SITE 2

HORIZONTAL SCALE 2.5 0 5

VERTICAL SCALE 2.5 0 5

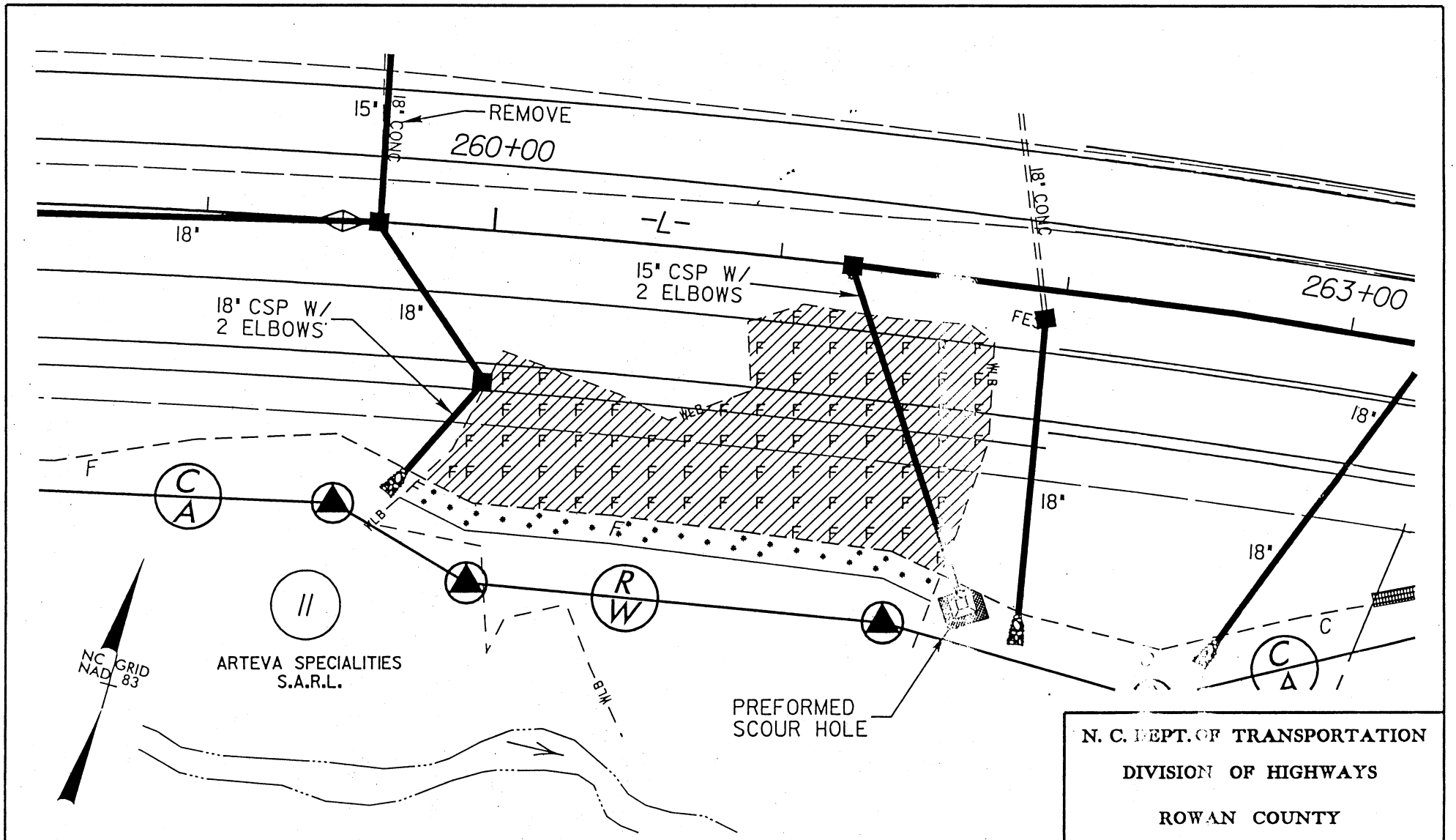
N. C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM
SR 1739 TO JUST WEST OF
SR 1953 (KEPLEY RD.)

SHEET 6 OF 20 September 2, 2003



PLAN VIEW
SITE 3

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

25 0 50

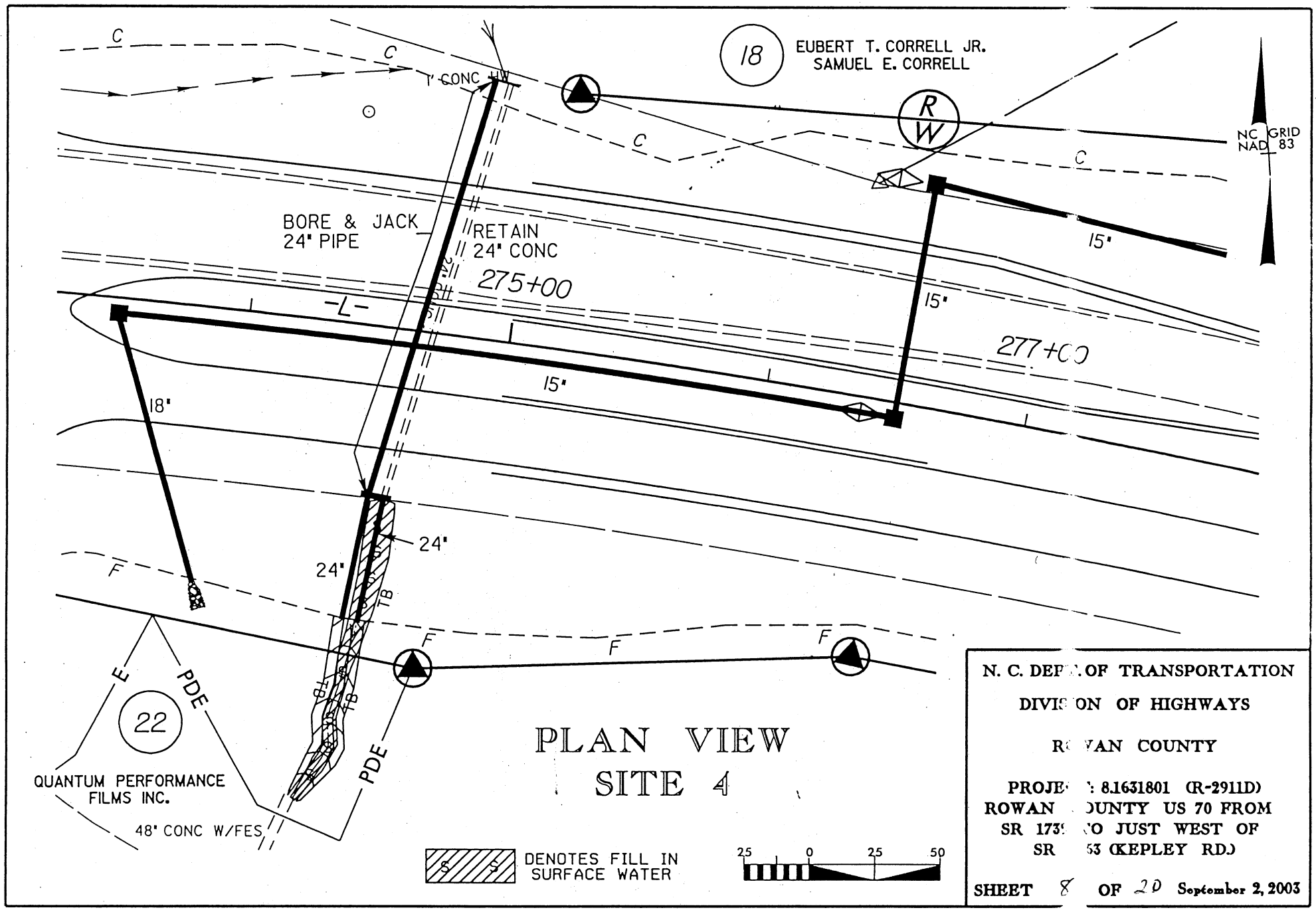
N. C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM
SR 1739 TO JUST WEST OF
SR 1953 (KEPLEY RD.)

SHEET 7 OF 20 September 2, 2003



PLAN VIEW
SITE 4

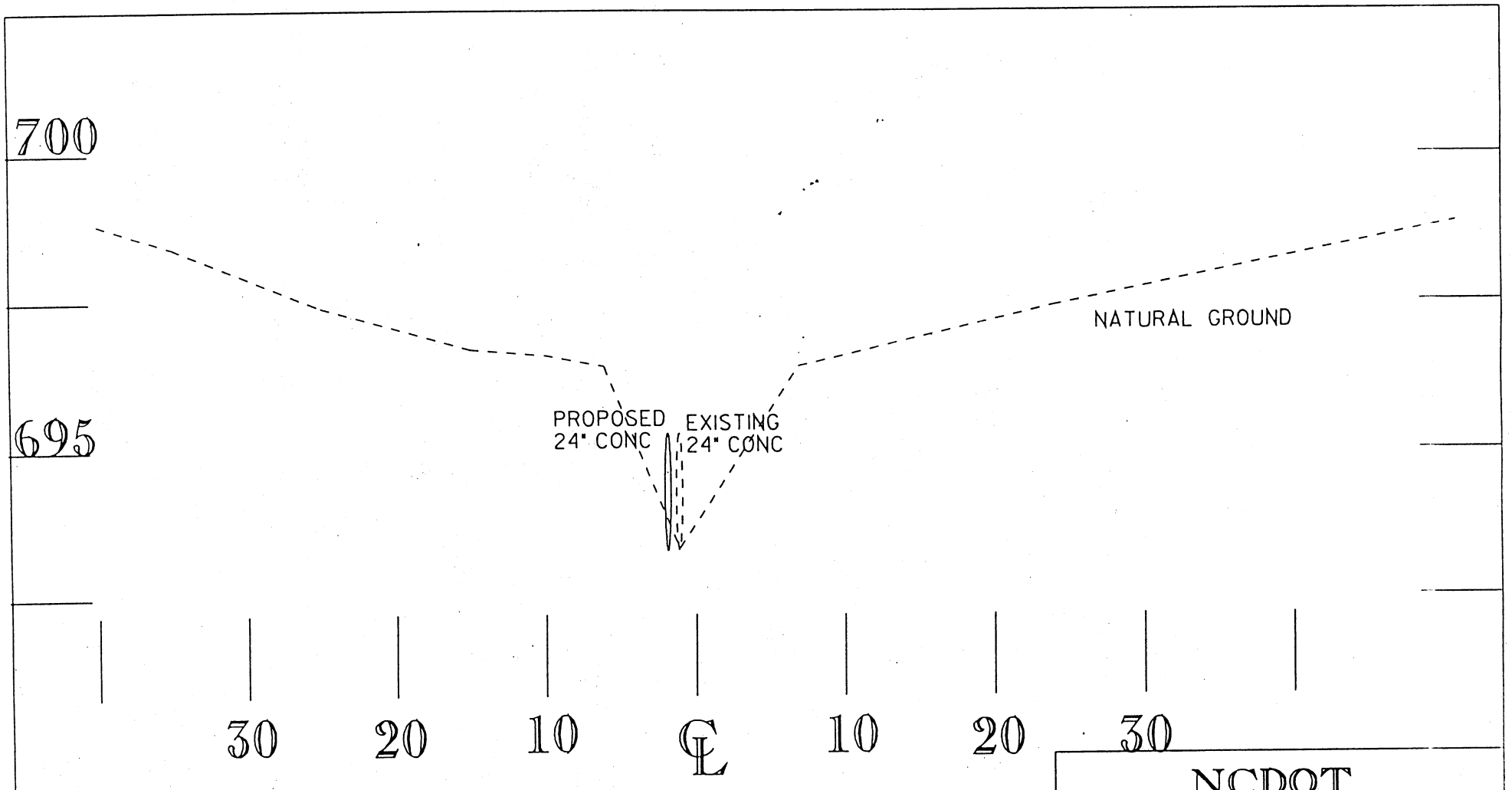
N. C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM
SR 1739 TO JUST WEST OF
SR 1753 (KEPLEY RD.)

SHEET 8 OF 20 September 2, 2003



PROFILE
SITE 4

HORIZONTAL SCALE

VERTICAL SCALE

NCDOT

DIVISION OF HIGHWAYS

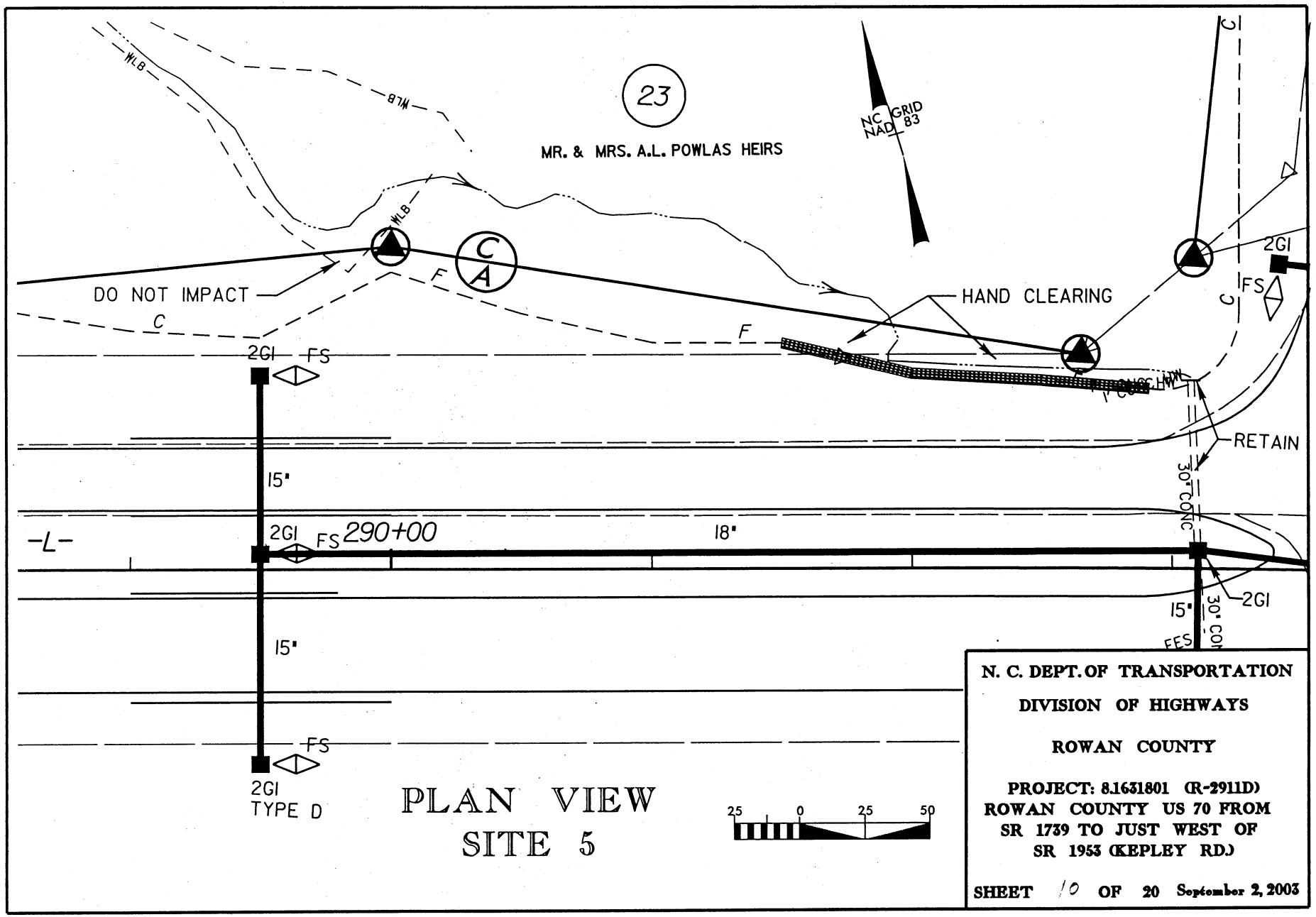
ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D) WBS 34517.1.1

ROWAN COUNTY US 70 FROM
SR 1739 TO JUST WEST OF
SR 1963 (KEPLEY RD)

SHEET 9 OF 20

Revised December 2003
September 2, 2003



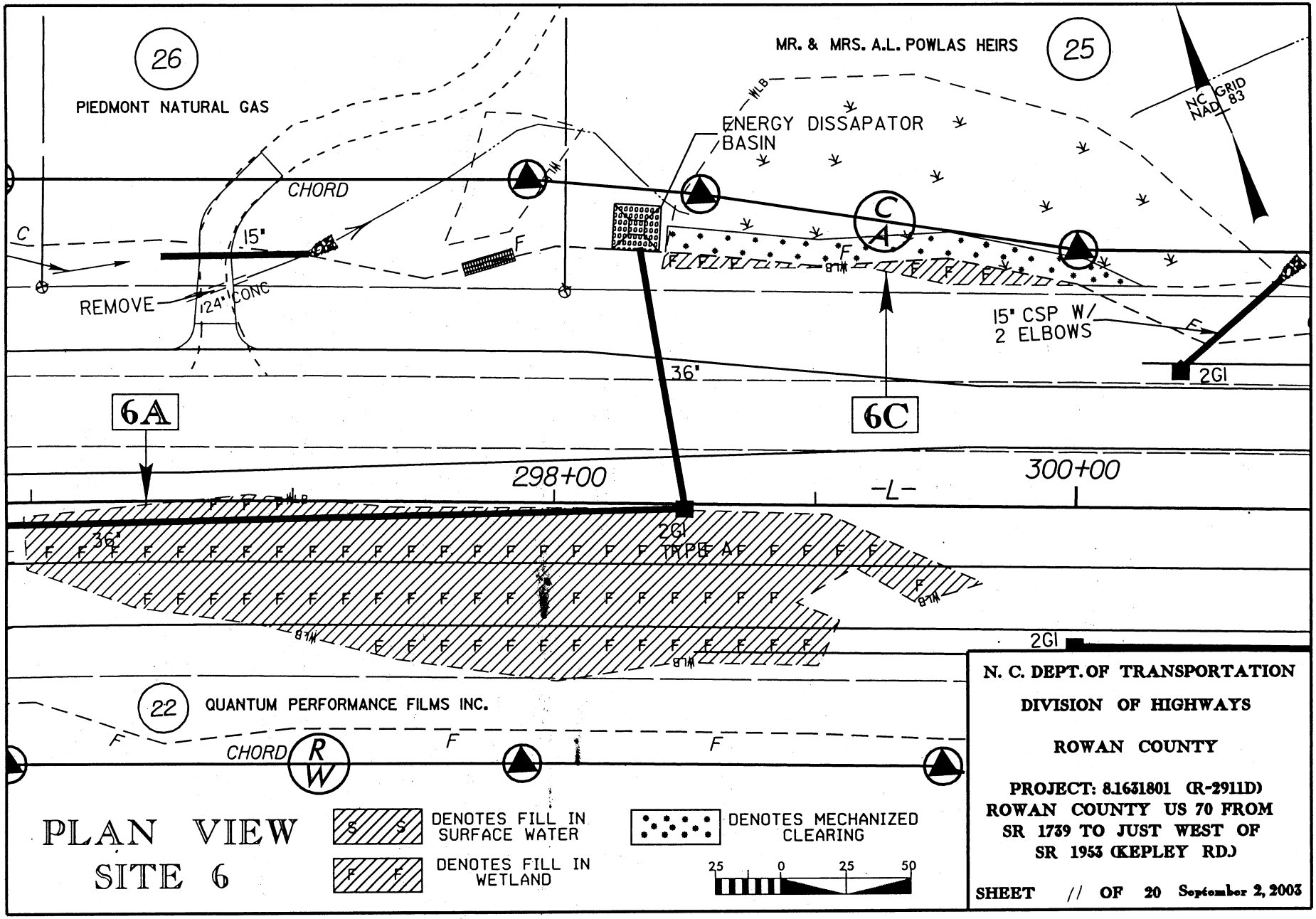
N. C. DEPT. OF TRANSPORTATION

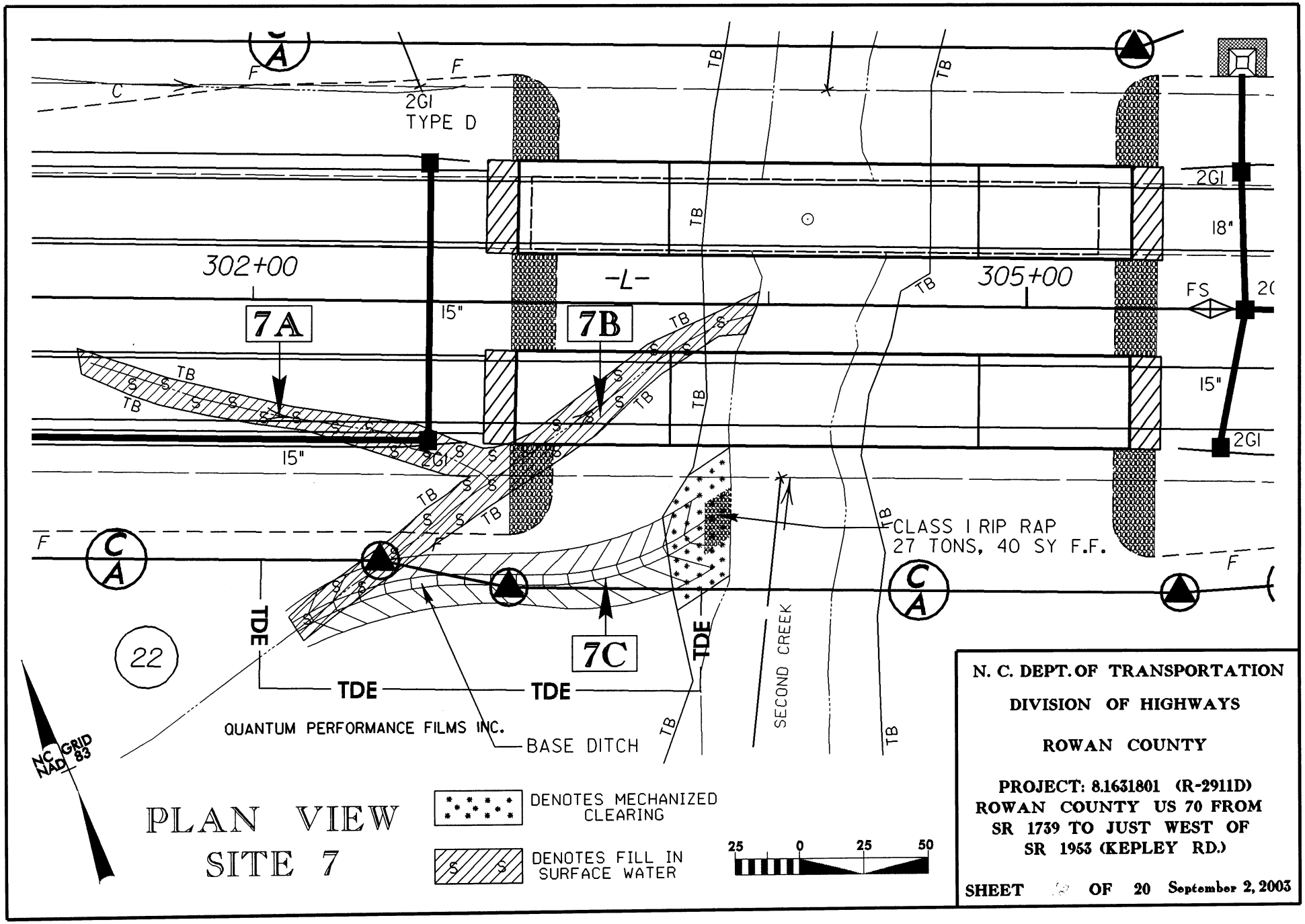
DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM
SR 1739 TO JUST WEST OF
SR 1953 (KEPLEY RD.)

SHEET 10 OF 20 September 2, 2003


26
PIEDMONT NATURAL GAS
MR. & MRS. A.L. POWLAS HEIRS
25
ENERGY DISSAPATOR
BASIN
NC GRID
NAD 83
CHORD
C
15"
REMOVE
124' CONC
15" CSP W/
2 ELBOWS
36"
2GI
6A
6C
298+00
300+00
-L-
2GI TAPE
22
QUANTUM PERFORMANCE FILMS INC.
CHORD
RW
PLAN VIEW
SITE 6
DENOTES FILL IN SURFACE WATER
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
25 0 25 50
N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
ROWAN COUNTY
PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM
SR 1739 TO JUST WEST OF
SR 1953 (KEPLEY RD.)
SHEET // OF 20 September 2, 2003



PLAN VIEW
SITE 7

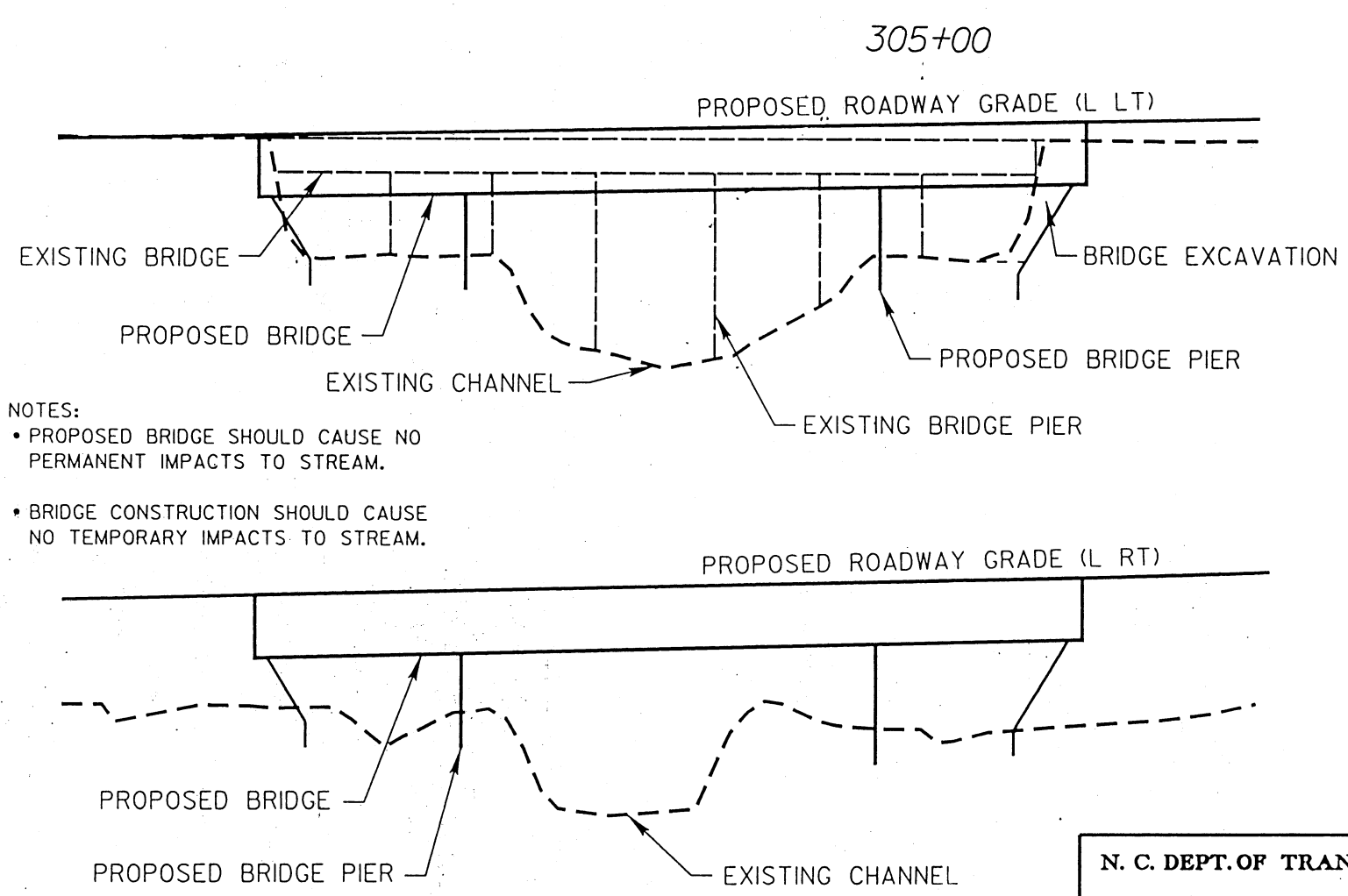
N. C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM
SR 1739 TO JUST WEST OF
SR 1953 (KEPLEY RD.)

SHEET 19 OF 20 September 2, 2003



PROFILE VIEW
SITE 7

HORIZONTAL SCALE 25 0 25 50

VERTICAL SCALE 10 0 10 20

N. C. DEPT. OF TRANSPORTATION

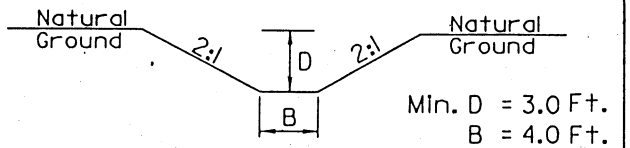
DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM
SR 1739 TO JUST WEST OF
SR 1953 (KEPLEY RD.)

SHEET 13 OF 20 September 2, 2003

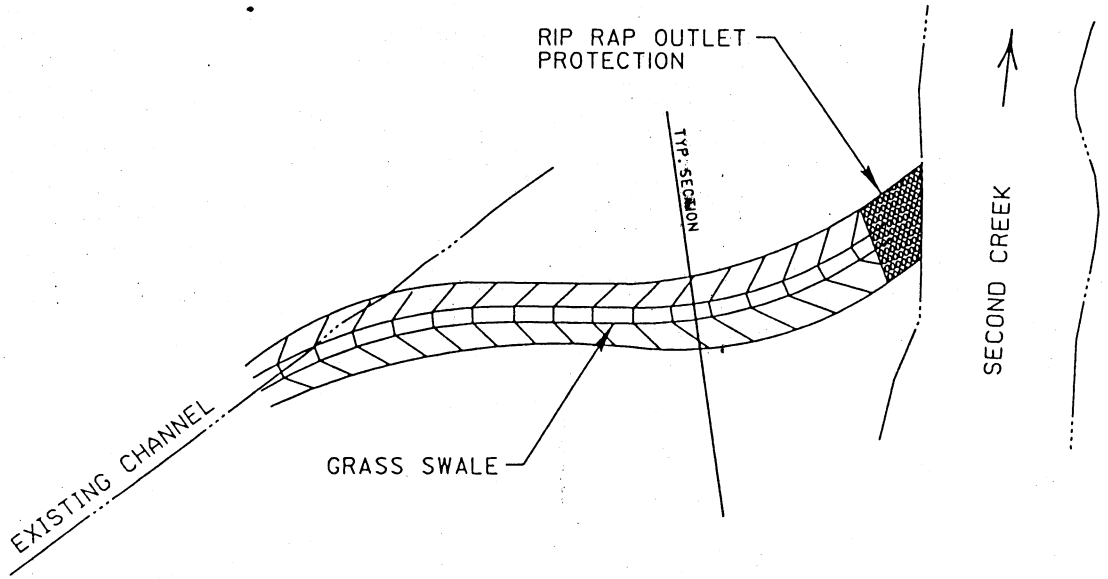
CHANNEL DETAIL
PROPOSED TYPICAL SECTION
(Not to Scale)



Min. D = 3.0 Ft.
B = 4.0 Ft.

DA = 33 ac
C = 0.29 (Weighted Value)
Tc = 25 min
I10 = 4.13 in/hr
Q10 = 40 cfs

So = 0.005 ft/ft
V10 = 3.7 ft/s
d = 1.52 ft



CHANNEL PLAN VIEW
SITE 7

NOTES

Grass lining is sufficient.

Rip Rap should be placed along bank of Second Creek at channel outlet.

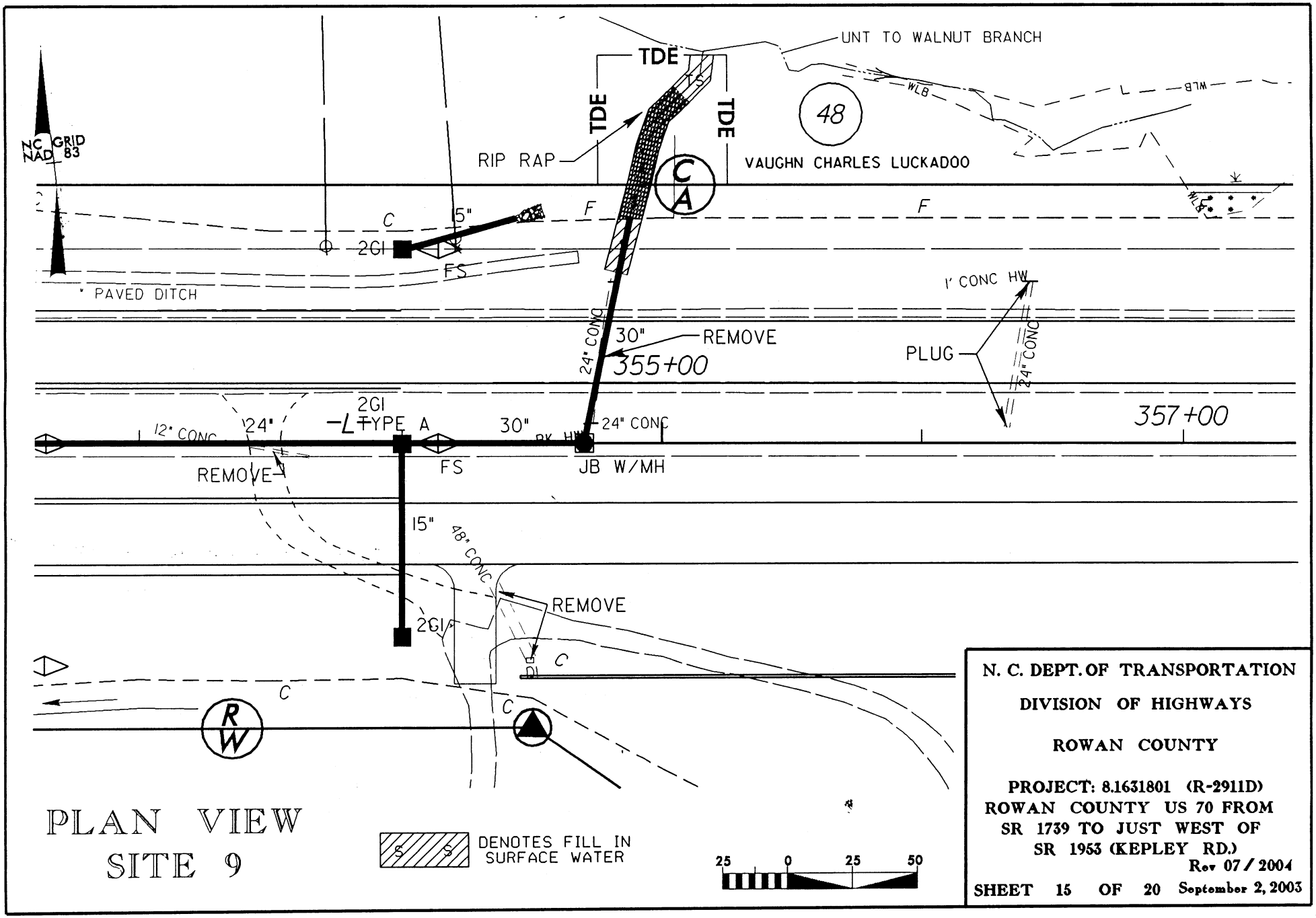
N. C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM SR 1739 TO JUST WEST OF SR 1953 (KEPLEY RD.)

SHEET 14 **OF** 20 **September 2, 2003**



PLAN VIEW
SITE 9

N. C. DEPT. OF TRANSPORTATION

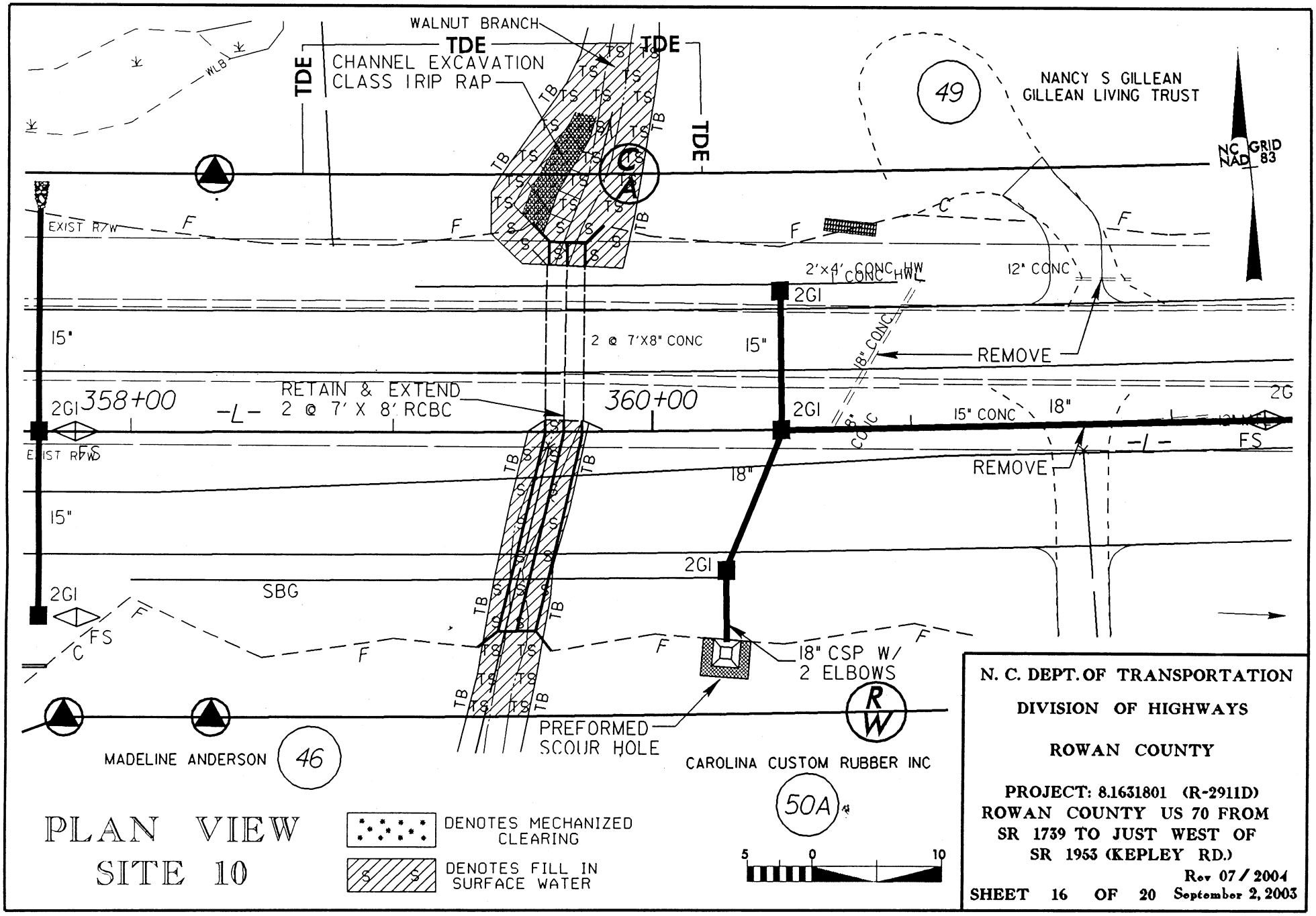
DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM SR 1739 TO JUST WEST OF SR 1953 (KEPLEY RD.)

Rev 07 / 2004

SHEET 15 OF 20 September 2, 2003



N. C. DEPT. OF TRANSPORTATION

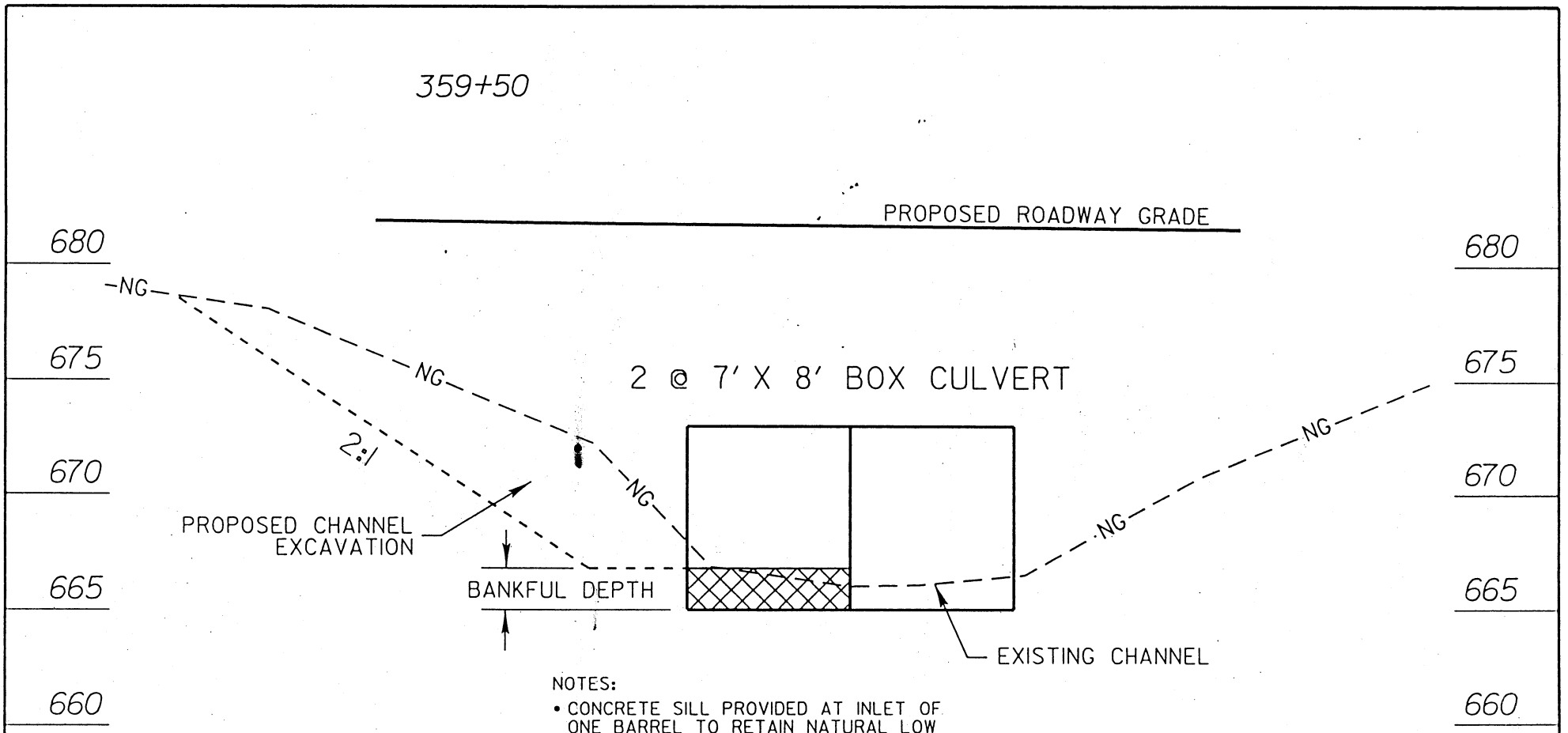
DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM
SR 1739 TO JUST WEST OF
SR 1953 (KEPLEY RD.)

Rev 07 / 2004

SHEET 16 OF 20 September 2, 2003



NOTES:

- CONCRETE SILL PROVIDED AT INLET OF ONE BARREL TO RETAIN NATURAL LOW FLOW CHANNEL WIDTH.
- INVERT OF CULVERT SET 1 FOOT BELOW STREAM TO ALLOW FORMATION OF NATURAL BED.
- VEGETATIVE STABILIZATION AND PLANTINGS SHOULD BE PROVIDED ON EXCAVATED FLOOD PLAIN AND BANKS.

CONCRETE SILL

PROFILE VIEW
SITE 10

HORIZONTAL SCALE 2.5 0 5

VERTICAL SCALE 2.5 0 5

N. C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM SR 1739 TO JUST WEST OF SR 1953 (KEPLEY RD.)

SHEET 17 **OF** 20 **September 2, 2003**

PROPERTY OWNER

NAME AND ADDRESS

PARCEL NO.	OWNER'S NAME & ADDRESS
(11)	Arteva Specialties, S.A.R.L. (Kosa Plant) P.O. Box 32414 Charlotte, N.C. 28232
(14)	Arteva Specialties, S.A.R.L. (Kosa Plant) P.O. Box 32414 Charlotte, N.C. 28232
(18)	Eubert T., Jr. & Samuel E. Correll 1185 Woodleaf-Barber Road Cleveland, N.C. 27013
(22)	Quantum Performance Films, Inc. 3340 Peachtree Road Atlanta, GA. 30326
(23)	A. L. Powlas Heirs 3433 Londonberry Court Roanoke, VA. 24018
(25)	A. L. Powlas Heirs 3433 Londonberry Court Roanoke, VA. 24018
(26)	Piedmont Natural Gas Co., Inc. P.O. Box 609 Salisbury, N.C. 28145
(28)	Charles J. and wf. Linda Walker 1775 Barringer Road Salisbury, N.C. 28144
(32)	Rowan-Salisbury Board of Education P.O. Box 2349 Salisbury, N.C. 28144
(33)	Louise H. and Johnny Madures 6040 Statesville Blvd. Salisbury, N.C. 28144
(46)	Madiline Anderson 5575 Statesville Blvd. Salisbury, N.C. 28147

N. C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM
SR 1739 TO JUST WEST OF
SR 1953 (KEPLEY RD.)

PROPERTY OWNER

NAME AND ADDRESS

PARCEL NO.	OWNER'S NAME & ADDRESS
(48)	Vaughn C. Luckadoo 7903 Carmel Oaks Court Charlotte, N.C. 28226
(49)	Nancy S. Gillean Gillean Living Trust (No contact information)
(50A)	Carolina Custom Rubber (No contact information)

N. C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 8.1631801 (R-2911D)
ROWAN COUNTY US 70 FROM
SR 1739 TO JUST WEST OF
SR 1953 (KEPLEY RD.)

SHEET 19 OF 20 September 2, 2003

IMPACT SUMMARY

			WETLAND IMPACTS				SURFACE WATER IMPACTS							BUFFER IMPACTS	
Site No.	Station (From/To)	Structure Size	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Channel Impacted (ft)	Existing Channel Impacted (ft)	Mechanized Clearing (Method III) (ac)	Relocated Channel (ft)	Enclosed Channel (ft)	Zone 1 (ac)	Zone 2 (ac)
1	227+12 to 228+13 (RT)		0.06												
	-L-														
2	254+45 to 255+33 (RT)	2 @ 5' x 7' RCBC (EXT.)					0.04		83	92	0.01		90		
	-L-														
3	259+72 to 261+79 (RT)	15" CSP, 18" CSP	0.26			0.04									
	-L-														
4	274+60 (RT)	2 @ 24" RCP					0.02			122			48		
	-L-														
5	289+84 (RT)														
	-L-														
6A	296+82 to 299+65 (RT)		0.39												
	-L-														
6B	297+00 (LT)	Non-jurisditional													
	-L-														
6C	298+40 to 300+50 (LT)	36" RCP, 15" CSP	0.02			0.05									
	-L-														
7A *	301+50 to 303+00 (RT)						0.04			164					
	-L-														
7B *	302+10 to 304+00 (RT)						0.06			216					
	-L-														
7C	302+10 TO 303+90 (RT)										0.03	178			
	-L-														
8	330+00 (LT)	Non-jurisditional													
	-L-														
9	355+00 (LT)	30" RCP				< 0.01	0.02		18	78			24		
	-L-														
10	359+66 (LT/RT)	2 @ 7' X 8' RCBC					0.06		105	100			94		
	-L-														
			0.73			0.09	0.24		206	772	0.04	178	256		

* NOTE: The length of the channel after stream 7A and 7B converge is approximately 121'.

N.C. DEPT . OF TRANSPORTATION
DIVISION OF HIGHW AYS

ROWAN COUNTY

PROJECT : 8.1631801 (R-2911D)
US 70 FROM SR 1739 (HILDEBRAND RD.) TO
SR 1953 (KEPLEY RD.)

SHEET 20 OF 20

REV 07/2004
REV 06/2004
REV. 05/2004
September 2, 2002

Office Use Only: Form Version May 2002

USACE Action ID No. _____ **DWQ No.** _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

1. Check all of the approval(s) requested for this project:
   - ☒ Section 404 Permit
   - ☐ Section 10 Permit
   - ☒ 401 Water Quality Certification
   - ☐ Riparian or Watershed Buffer Rules
   - ☒ Isolated Wetland Permit from DWQ

2. Nationwide, Regional or General Permit Number(s) Requested: NWP 12 & 14

3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here: ☐

4. If payment into the North Carolina Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), complete section VIII and check here: ☒

5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here: ☐

II. Applicant Information

1. Owner/Applicant Information
   Name: NC Department of Transportation
   Mailing Address: 1548 Mail Service Center
   Raleigh, NC 27699-1548
   Telephone Number: 919-733-3141 Fax Number: 919-715-1501
   E-mail Address:

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)
   Name: N/A
   Company Affiliation:
   Mailing Address:
   Telephone Number: Fax Number:
   E-mail Address:

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: U.S. 70 Widening Project

2. T.I.P. Project Number or State Project Number (NCDOT Only): R-2911C & D

3. Property Identification Number (Tax PIN): N/A

4. Location
   County: Rowan Nearest Town: Cleveland
   Subdivision name (include phase/lot number):
   Directions to site (include road numbers, landmarks, etc.): Highway U.S. 70 between from SR 1001 (Main St.) in Cleveland to west of SR 1953 (Kepley Road).

5. Site coordinates, if available (UTM or Lat/Long): See Attached Form
   (Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)

6. Property size (acres): N/A

7. Nearest body of water (stream/river/sound/ocean/lake): See Permit Cover Letter.

8. River Basin: Yadkin-Pee Dee
   (Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at http://h2o.enr.state.nc.us/admin/maps/.)

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: Agriculture, Rural residential, & Industrial

10. Describe the overall project in detail, including the type of equipment to be used:
Heavy duty equipment, cranes, etc.

11. Explain the purpose of the proposed work: Increase traffic carrying capacity and improve safety along the U.S. 70 corridor.

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules.

Section R-2911A applied for on February 25, 2004, WQ Certification issued May 11, 2004 (DWQ Project No. 040289). Section R-2911E Permit Issued (USACE Action I.D. #200271536, issued December 4, 2003; DWQ Project No. 030908, issued September 25, 2003)

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.

R-2911A & B. Continued widening of U.S. 70 from SR 2318 in Statesville to SR 1001 in Town of Cleveland. The proposed project meets independent utility requirements.

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream

mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: Wetland fill, mechanized clearing, & stream piping.

2. Individually list wetland impacts below:

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***
See letter/drawings					

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

** 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at http://www.fema.gov.

*** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property: N/A
Total area of wetland impact proposed: 0.88 ac non-isolated, 0.06 ac isolated

3. Individually list all intermittent and perennial stream impacts below:

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
See letter/drawings					

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included.

** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

Cumulative impacts (linear distance in feet) to all streams on site: 2,906

4. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.) below:

Open Water Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Name of Waterbody (if applicable)	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)
N/A				

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: fill, excavation, dredging, flooding, drainage, bulkheads, etc.

5. Pond Creation
   If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.
   Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands
   Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): N/A

   Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): N/A

   Size of watershed draining to pond: N/A Expected pond surface area: N/A

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts.

See attached cover letter.

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on March 9, 2000, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCWRP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at http://h2o.enr.state.nc.us/ncwetlands/strmgide.html.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.
   All stream and wetland impacts will mitigated for by the North Carolina Ecological Enhancement Program (EEP) as listed in Exhibit 1 of the subject MOA during the EEP transition period which ends on June 30, 2005

2. Mitigation may also be made by payment into the North Carolina Wetlands Restoration Program (NCWRP). Please note it is the applicant's responsibility to contact the NCWRP at (919) 733-5208 to determine availability and to request written approval of mitigation prior to submittal of a PCN. For additional information regarding the application process for the NCWRP, check the NCWRP website at http://h2o.enr.state.nc.us/wrp/index.htm. If use of the NCWRP is proposed, please check the appropriate box on page three and provide the following information:

   Amount of stream mitigation requested (linear feet): N/A
   Amount of buffer mitigation requested (square feet): N/A
   Amount of Riparian wetland mitigation requested (acres): N/A
   Amount of Non-riparian wetland mitigation requested (acres): N/A
   Amount of Coastal wetland mitigation requested (acres): N/A

IX. Environmental Documentation (required by DWQ)

Does the project involve an expenditure of public (federal/state) funds or the use of public (federal/state) land?

Yes ☒ No ☐

If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)? Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.

Yes ☒ No ☐

If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter.

Yes ☒ No ☐

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify_____)?

Yes ☐ No ☒ If you answered "yes", provide the following information:

Identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1		3	
2		1.5	
Total			

* Zone 1 extends out 30 feet perpendicular from near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Conservation Easement, Riparian Buffer Restoration / Enhancement, Preservation or

Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0260.

N/A

XI. Stormwater (required by DWQ)

Describe impervious acreage (both existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property.

N/A

XII. Sewage Disposal (required by DWQ)

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.

N/A

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?

Yes ☐ No ☒

Is this an after-the-fact permit application?

Yes ☐ No ☒

XIV. Other Circumstances (Optional):

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).

N/A

8/13/04

Applicant/Agent's Signature **Date**

(Agent's signature is valid only if an authorization letter from the applicant is provided.)

R-2911C AND D STREAM LOCATIONS (LAT./LONG.)

R-2911 C & D Stream Locations

Section C

Stream No	Lat.	Long.
1	35°43'31.01"	80°40'29.12"
2	35°43'28.53"	80°40'20.47"
3	35°43'24.80"	80°40'6.35"
4	35°43'19.59"	80°39'46.17"
5	35°43'6.82"	80°38'45.96"
6	35°43'6.70"	80°38'44.44"
7	35°43'4.22"	80°38'30.04"
8	35°43'0.37"	80°38'1.04"
9	35°42'59.99"	80°37'59.07"
10	35°42'59.37"	80°37'55.58"
11	35°42'58.75"	80°37'40.25"
12	35°42'58.13"	80°37'37.97"

Section D

Stream No	Lat.	Long.
1	35°43'3.84"	80°37'13.99"
2	35°43'11.53"	80°36'43.64"
3	35°43'12.53"	80°36'36.96"
4	35°43'12.66"	80°36'15.42"
5	35°43'8.93"	80°35'58.87"
6	35°43'7.82"	80°35'54.77"
7	35°43'4.96"	80°35'46.42"
8	35°42'56.27"	80°35'14.54"
9	35°42'54.28"	80°34'42.20"
10	35°42'53.66"	80°34'39.78"

APPENDIX C

PROTECTED SPECIES

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801

October 16, 2003

Mr. Matt Haney
Environmental Specialist
North Carolina Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Haney:

Subject: Endangered Species Concurrence for the Proposed Widening of US 70 from the Rowan/Iredell County Line to US 601, Rowan County, North Carolina; TIP No. R-2911B, C, D, and E; State Project No. 8.1631801

As requested by the North Carolina Department of Transportation, we have reviewed the natural resources information and biological conclusion for federally protected species for the subject project. We provide the following comments in accordance with the provisions of section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act).

We have reviewed the survey information provided for the federally endangered Schweinitz's sunflower (*Helianthus schweinitzii*). Based on that information, we concur with your conclusion of "not likely to adversely affect" for the subject project. We believe the requirements under section 7(c) of the Act are fulfilled regarding listed species for the project. However, obligations under section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner that was not considered in this review, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

If you have questions about these comments, please contact Ms. Marella Buncick of our staff at 828/258-3939, Ext. 237. In any future correspondence concerning this project, please reference our Log No. 4-2-03-474.

Sincerely,

Brian P. Cole

Brian P. Cole
Field Supervisor

cc:

Mr. Eric Alsmeyer, U.S. Army Corps of Engineers, Raleigh Regulatory Field Office, 6508 Falls of the Neuse Road, Suite 120, Raleigh, NC 27615

Ms. Marla J. Chambers, Highway Projects Coordinator, North Carolina Wildlife Resources Commission, 12275 Swift Road, Oakboro, NC 28129

Ms. Cynthia Van Der Wiele, North Carolina Department of Environment and Natural Resources, Division of Water Quality, Wetlands Section, 1621 Mail Service Center, Raleigh, NC 27699-1621

APPENDIX D

CULTURAL RESOURCES

North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

December 21, 2000

MEMORANDUM

To: William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch

From: David Brook [signature]
Deputy State Historic Preservation Officer

Re: Archeological Testing and Evaluation of Five Sites, (31RW172, 31RW173, 31RW174, 31RW175, 31RW47), Rowan County Sept. 2000, Rowan County, R-2911, ER 97-7230

The report evaluates four archaeological sites (31RW172-175) discovered by Mintz et al. in 1998 and 31RW47 discovered by Laurie Adams in 1975. This work is an addendum to the Mintz report. It includes geomorphological analyses of the sites as an appendix (E) by Daniel R. Hayes. The report includes good maps, illustrations, and appendices.

All sites are described as lacking integrity and not eligible for listing in the National Register of Historic Places. We concur with your determination of ineligibility.

The archeological investigation within the proposed right-of-way completes the Section 106 process for the archeological component of the project area as proposed currently.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919/733-4763.

DB:kgc

cc: FHwA
Tom Padgett, NCDOT

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount St., Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919) 733-4763 • 733-8653
ARCHAEOLOGY	421 N. Blount St., Raleigh NC	4619 Mail Service Center, Raleigh NC 27699-4619	(919) 733-7342 • 715-2671
RESTORATION	515 N. Blount St., Raleigh NC	4613 Mail Service Center, Raleigh NC 27699-4613	(919) 733-6547 • 715-4801
		4618 Mail Service Center, Raleigh NC 27699-4618	(919) 733-6545 • 715-4801

TIP PROJECT: R-2911C

CONTRACT:

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

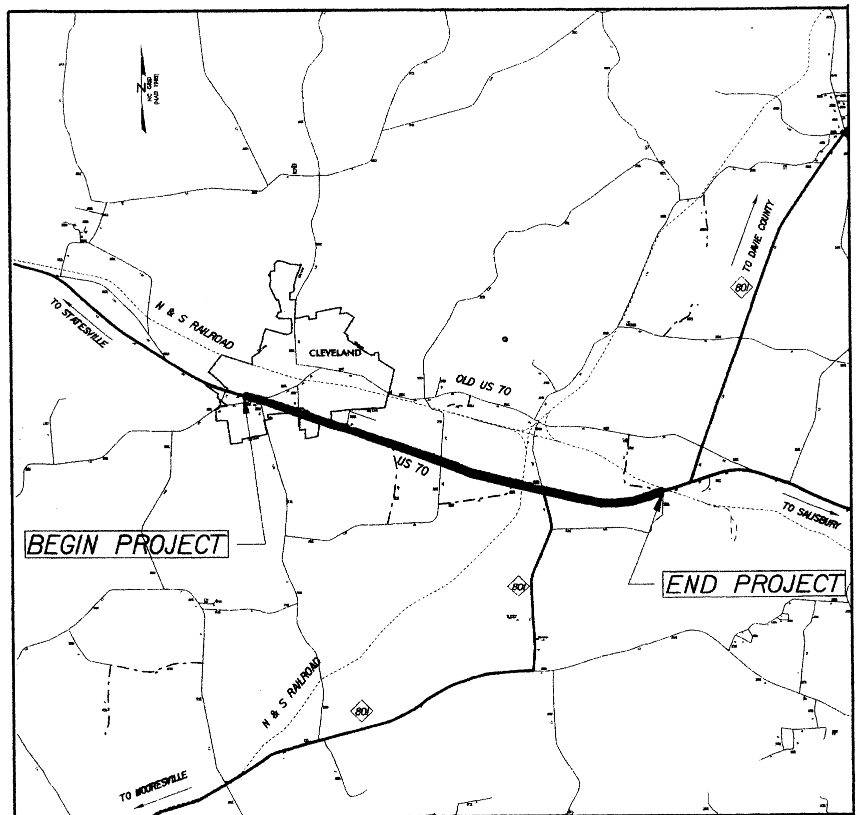
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2911C	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
8.1631801	STP-70 (39)	P.E.
34517.2.6	STP-70 (71)	R / W, UTILITIES

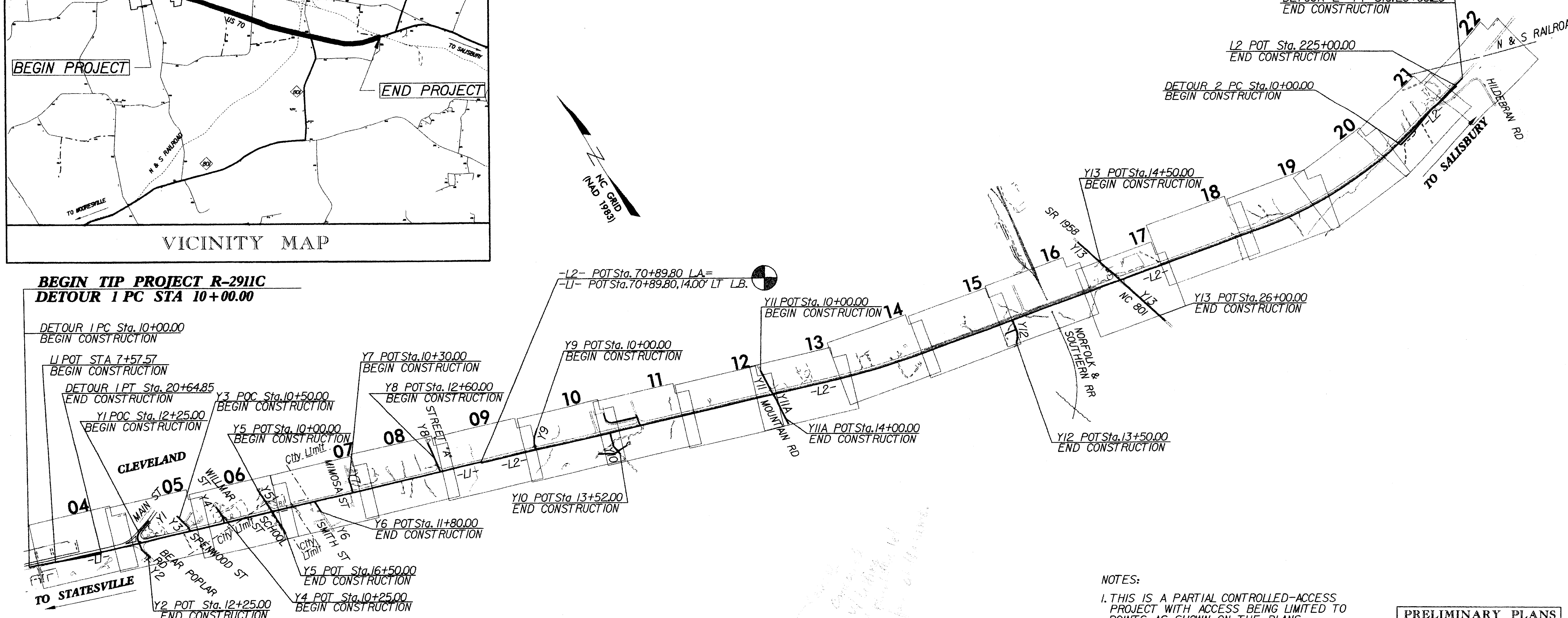
ROWAN COUNTY

LOCATION: US 70 FROM WEST OF SR 1001 (MAIN ST) TO SR 1739 (HILDEBRAND RD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, CULVERTS, AND SIGNALS



VICINITY MAP



NOTES:

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NCDOT CONTACT: CATHY HOUSER, P.E. - PROJECT ENGINEER

GRAPHIC SCALES

0 50 100 — PLANS

0 50 100 — PROFILE (HORIZONTAL)

0 5 10 — PROFILE (VERTICAL)

DESIGN DATA

ADT 2005 = 14390
ADT 2025 = 26200
DHV = 11 %
D = 51 %
T = 8 % *
V = 60 MPH
* TTST 5% DUAL 3%
FUNCTIONAL CLASS = PRINCIPLE ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY F.A. PROJECT STP-70 (39) = 4.118 MILES

TOTAL ROADWAY LENGTH STATE PROJECT 34517.2.6 = 4.118 MILES

Prepared In the Office of:
WILBUR SMITH ASSOCIATES
P.O. BOX 2478 RALEIGH, NC 27602-2478 PHONE (919) 755-0583

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY , 2003

LETTING DATE: MAY 17, 2005

DAVID L. WILVER, P.E.
PROJECT ENGINEER

MERRICK A. DUGAL, III, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	1B

5/28/99

*S.U.E = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

Edge of Pavement
Curb
Prop. Slope Stakes Cut
Prop. Slope Stakes Fill
Prop. Woven Wire Fence
Prop. Chain Link Fence
Prop. Barbed Wire Fence
Prop. Wheelchair Ramp (WCR)
Curb Cut for Future Wheelchair Ramp (CCFR)
Exist. Guardrail
Prop. Guardrail
Equality Symbol
Pavement Removal

RIGHT OF WAY

Baseline Control Point
Existing Right of Way Marker
Exist. Right of Way Line w/Marker
Prop. Right of Way Line with Proposed R/W Marker (Iron Pin & Cap)
Prop. Right of Way Line with Proposed (Concrete or Granite) R/W Marker
Exist. Control of Access Line
Prop. Control of Access Line
Exist. Easement Line
Prop. Temp. Construction Easement Line
Prop. Temp. Drainage Easement Line (TDE)
Prop. Perm. Drainage Easement Line (PDE)

HYDROLOGY

Stream or Body of Water
River Basin Buffer (RBB)
Flow Arrow
Disappearing Stream
Spring
Swamp Marsh
Shoreline
Falls, Rapids
Prop Lateral, Tail, Head Ditches (FLOW)

STRUCTURES

MAJOR
Bridge, Tunnel, or Box Culvert (CONC)
Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR
Head & End Wall (CONC HW)
Pipe Culvert
Footbridge
Drainage Boxes (CB)
Paved Ditch Gutter

UTILITIES

Exist. Pole
Exist. Power Pole
Prop. Power Pole
Exist. Telephone Pole
Prop. Telephone Pole
Exist. Joint Use Pole
Prop. Joint Use Pole
Telephone Pedestal
U/G Telephone Cable Hand Hold
Cable TV Pedestal
U/G TV Cable Hand Hold
U/G Power Cable Hand Hold
Hydrant
Satellite Dish
Exist. Water Valve
Sewer Clean Out
Power Manhole
Telephone Booth
Cellular Telephone Tower
Water Manhole
Light Pole
H-Frame Pole
Power Line Tower
Pole with Base
Gas Valve
Gas Meter
Telephone Manhole
Power Transformer
Sanitary Sewer Manhole
Storm Sewer Manhole
Tank; Water, Gas, Oil
Water Tank With Legs
Traffic Signal Junction Box
Fiber Optic Splice Box
Television or Radio Tower
Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement (TS)

Recorded Water Line (W)
Designated Water Line (S.U.E.*) (W)
Sanitary Sewer (SS)
Recorded Sanitary Sewer Force Main (FSS)
Designated Sanitary Sewer Force Main(S.U.E.*) (FSS)
Recorded Gas Line (G)
Designated Gas Line (S.U.E.*) (G)
Storm Sewer (S)
Recorded Power Line (P)
Designated Power Line (S.U.E.*) (P)
Recorded Telephone Cable (T)
Designated Telephone Cable (S.U.E.*) (T)
Recorded U/G Telephone Conduit (TC)
Designated U/G Telephone Conduit (S.U.E.*) (TC)
Unknown Utility (S.U.E.*) (?UTL)
Recorded Television Cable (TV)
Designated Television Cable (S.U.E.*) (TV)
Recorded Fiber Optics Cable (FO)
Designated Fiber Optics Cable (S.U.E.*) (FO)
Exist. Water Meter
U/G Test Hole (S.U.E.*)
Abandoned According to U/G Record (AATUR)
End of Information (E.O.I.)

BOUNDARIES & PROPERTIES

State Line
County Line
Township Line
City Line
Reservation Line
Property Line
Property Line Symbol
Exist. Iron Pin (EIP)
Property Corner
Property Monument (ECM)
Property Number (123)
Parcel Number (6)
Fence Line (WW & ISBW)
Existing Wetland Boundaries (WLB)
High Quality Wetland Boundary (HQ WLB)
Medium Quality Wetland Boundaries (MQ WLB)
Low Quality Wetland Boundaries (LQ WLB)
Proposed Wetland Boundaries (WLB)
Existing Endangered Animal Boundaries (EAB)
Existing Endangered Plant Boundaries (EPB)

BUILDINGS & OTHER CULTURE

Buildings
Foundations
Area Outline
Gate
Gas Pump Vent or U/G Tank Cap
Church
School
Park
Cemetery
Dam
Sign
Well
Small Mine
Swimming Pool

TOPOGRAPHY

Loose Surface
Hard Surface
Change in Road Surface
Curb
Right of Way Symbol (R/W)
Guard Post (GP)
Paved Walk
Bridge
Box Culvert or Tunnel
Ferry
Culvert
Footbridge
Trail, Footpath
Light House

VEGETATION

Single Tree
Single Shrub
Hedge
Woods Line
Orchard
Vineyard (VINEYARD)

RAILROADS

Standard Gauge (CSX TRANSPORTATION)
RR Signal Milepost (MILEPOST 35)
Switch (SWITCH)

revised 02/02/00

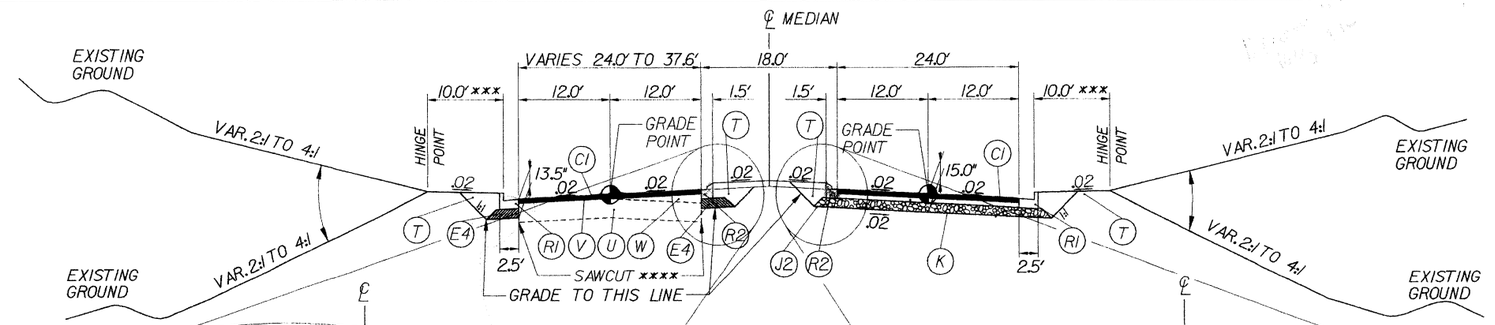
DATE: 1/22/2004
TIME: 2:12:33 PM
r:\roadway\proj\r2911c_rdy_psh_01b.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

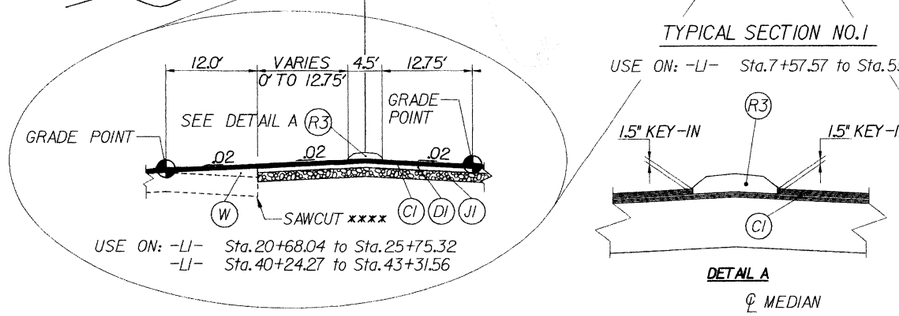
WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27602

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606



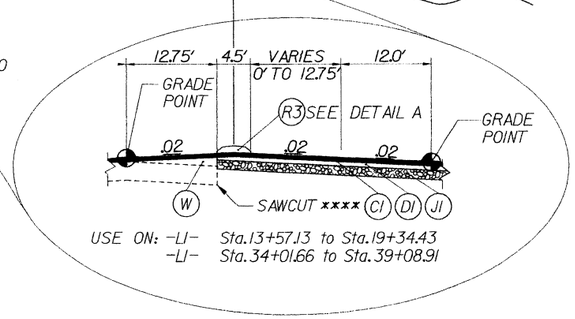
TYPICAL SECTION NO.1

USE ON: -L1- Sta.7+57.57 to Sta.55+00.00



USE ON: -L1- Sta.20+68.04 to Sta.25+75.32
-L1- Sta.40+24.27 to Sta.43+31.56

DETAIL A



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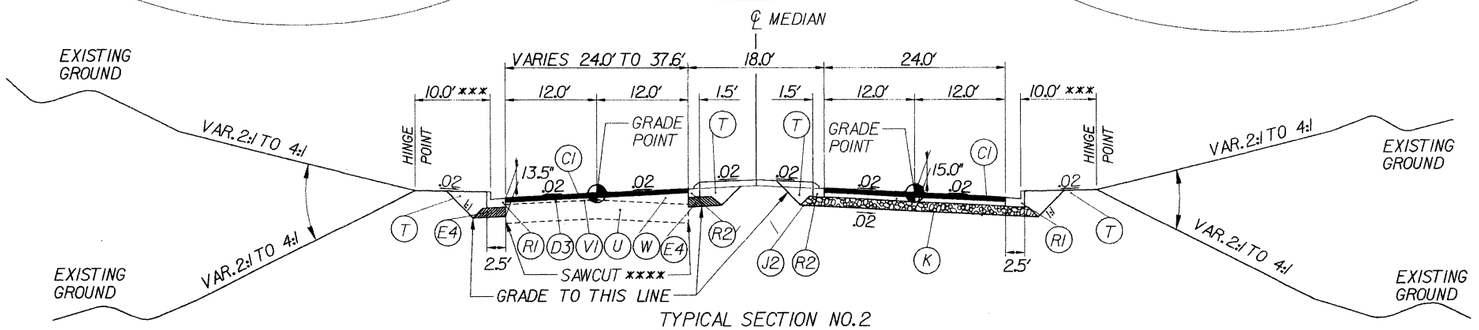
-L1- Sta.34+01.66 to Sta.39+08.91



TYPICAL SECTION NO.2

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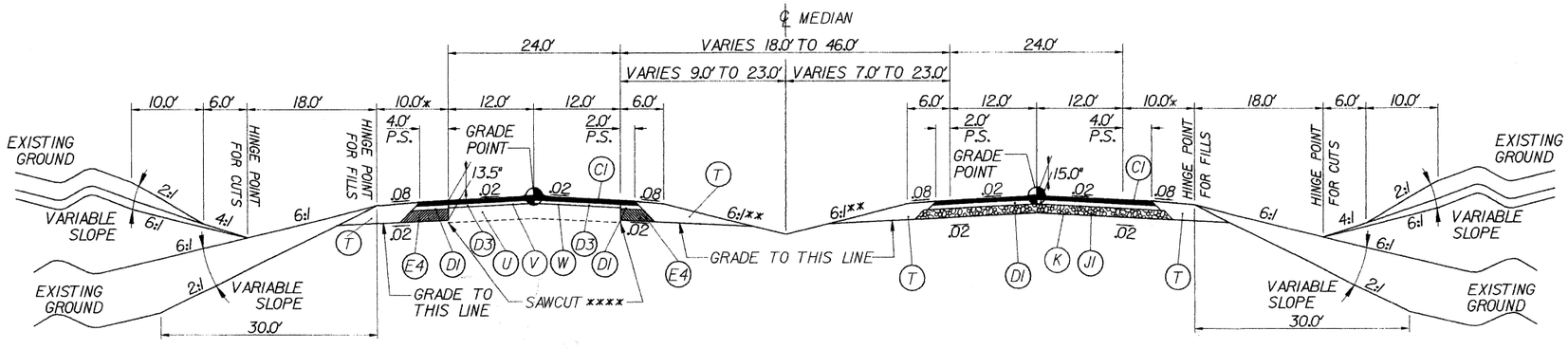

TYPICAL SECTION NO.3

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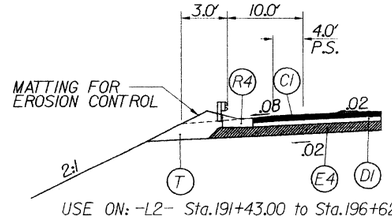
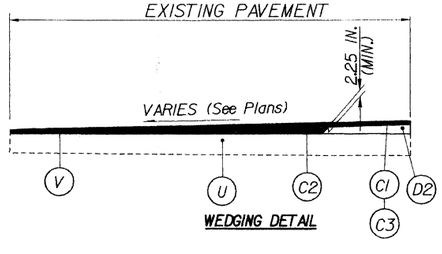
-L2- Sta.70+89.80 to Sta.225+00.00



USE ON: -L2- Sta.191+43.00 to Sta.196+62.00 LT.



WEDGING DETAIL

Notes :

* SHOULDER WIDTH TO BE INCREASED 3' WHERE GUARDRAIL IS USED.

** 4:1 MAXIMUM TO PROVIDE POSITIVE DRAINAGE.

*** SHOULDER WIDTH TO BE INCREASED 4' WHERE GUARDRAIL IS USED.

**** SAWCUT EXISTING EDGE OF PAVEMENT FOR WIDENING WIDTH TO BE DETERMINED BY ENGINEER.

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PAVEMENT SCHEDULE

C1	PROP. APPROX. 3 IN. ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS/SY IN EACH OF TWO LAYERS
C2	PROP. VAR. DEPTH ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS/SY/INCH IN LAYERS NOT LESS THAN 1.25 IN. NOR GREATER THAN 1.5 IN.
C3	PROP. APPROX. 3 IN. ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS/SY IN EACH OF TWO LAYERS
D1	PROP. APPROX. 4 IN. ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19C, AT AN AVERAGE RATE OF 456 LBS/SY.
D2	PROP. VAR. DEPTH. ASPH. CONC. INTERMEDIATE COURSE, TYPE I19C, AT AN AVERAGE RATE OF 114 LBS/SY/INCH IN LAYERS NOT LESS THAN 2.25 IN. NOR GREATER THAN 4.0 IN.
D3	PROP. APPROX. 3 IN. ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19C, AT AN AVERAGE RATE OF 342 LBS/SY.
E1	PROP. APPROX. 5.0 IN. ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS/SY.
E2	PROP. APPROX. 5.5 IN. ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS/SY.
E3	PROP. APPROX. 4.0 IN. ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS/SY.
E4	PROP. APPROX. 6.5 IN. ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 370.5 LBS/SY IN EACH OF TWO LAYERS.
J1	PROP. 8 IN. AGGREGATE BASE COURSE
J2	PROP. VAR. DEPTH. AGGREGATE BASE COURSE
K	BASE TO BE TREATED WITH LIME TO A DEPTH OF 8", AT A RATE OF 20 LBS/SY AS DIRECTED BY THE ENGINEER or BASE TO BE TREATED WITH CEMENT TO A DEPTH OF 7", AT A RATE OF 55 LBS/SY AS DIRECTED BY THE ENGINEER
R1	2'6" CURB AND GUTTER
R2	1'6" CURB AND GUTTER
R3	MONOLITHIC CONCRETE ISLAND (SEE DETAIL A)
R4	EXPRESSWAY GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING
V1	MILLING - 3" DEPTH
W	WEDGING

REVISIONS

8/17/99

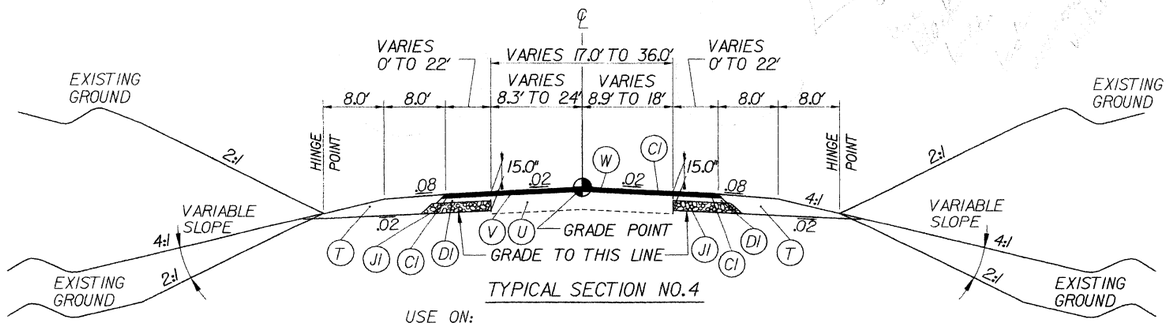
DATE: 3/2/2004
TIME: 9:16:53 PM
c:\ncdot\2911c\roadway\proj\2911c_rdy_typ_02.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O. BOX 2478
RALEIGH, NC 27601

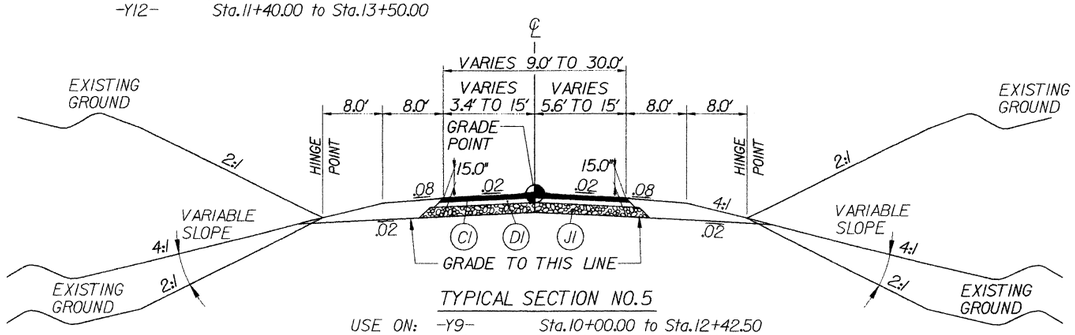
SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606



TYPICAL SECTION NO.4

USE ON:

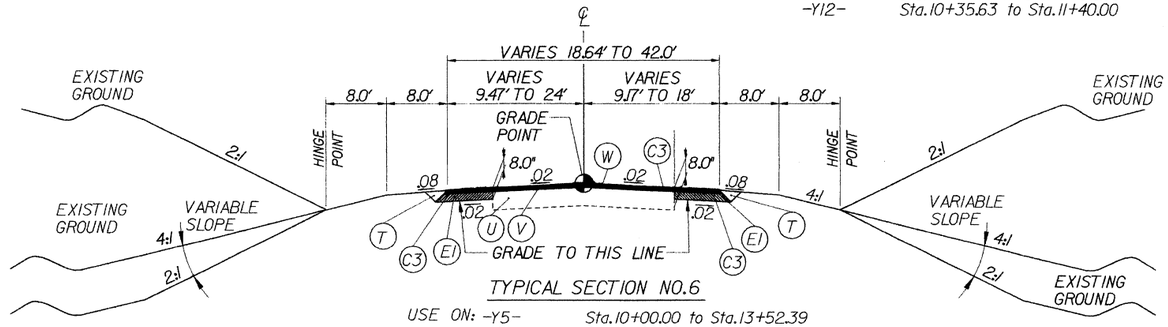
-Y1-	Sta.12+25.00 to Sta.13+52.39
-Y2-	Sta.10+33.48 to Sta.12+25.00
-Y3-	Sta.10+50.00 to Sta.12+58.99
-Y4-	Sta.10+25.00 to Sta.12+25.93
-Y6-	Sta.10+34.94 to Sta.11+80.00
-Y7-	Sta.10+30.00 to Sta.11+84.68
-Y8-	Sta.12+60.00 to Sta.14+32.83
-Y12-	Sta.11+40.00 to Sta.13+50.00



TYPICAL SECTION NO.5

USE ON:

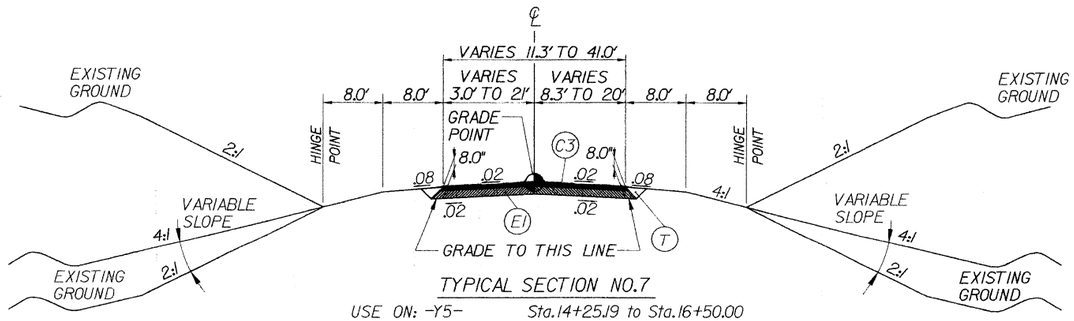
-Y9-	Sta.10+00.00 to Sta.12+42.50
-Y10-	Sta.10+47.00 to Sta.13+52.00
-Y12-	Sta.10+35.63 to Sta.11+40.00



TYPICAL SECTION NO.6

USE ON:

-Y5-	Sta.10+00.00 to Sta.13+52.39
-YII-	Sta.10+00.00 to Sta.13+40.44
-YIIA-	Sta.10+48.35 to Sta.14+00.00



TYPICAL SECTION NO.7

USE ON: -Y5- Sta.14+25.19 to Sta.16+50.00

Notes :

* SHOULDER WIDTH TO BE INCREASED 3' WHERE GUARDRAIL IS USED.
** 4:1 MAXIMUM TO PROVIDE POSITIVE DRAINAGE.
*** SHOULDER WIDTH TO BE INCREASED 4' WHERE GUARDRAIL IS USED.
**** SAWCUT EXISTING EDGE OF PAVEMENT FOR WIDENING WIDTH TO BE DETERMINED BY ENGINEER.

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PAVEMENT SCHEDULE

C1	3.0" S9.5C
C2	VAR. DEPTH S9.5C
C3	3.0" S9.5B
D1	4.0" I19.0C
D2	VAR. DEPTH I19.0C
D3	3.0" I19.0C
E1	5.0" B25.0B
E2	5.5" B25.0C
E3	4.0" B25.0B
E4	6.5" B25.0C
J1	8" ABC
J2	VAR. DEPTH. ABC
K	BASE TO BE TREATED WITH LIME TO A DEPTH OF 8" AT A RATE OF 20 LBS/SY AS DIRECTED BY THE ENGINEER or BASE TO BE TREATED WITH CEMENT TO A DEPTH OF 7", AT A RATE OF 55 LBS/SY AS DIRECTED BY THE ENGINEER
R1	2'6" CURB AND GUTTER
R2	1'6" CURB AND GUTTER
R3	MONOLITHIC CONCRETE ISLAND (SEE DETAIL A)
R4	EXPRESSWAY GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING
V	MILLING - 3" DEPTH
W	WEDGING

REVISIONS

8/17/99

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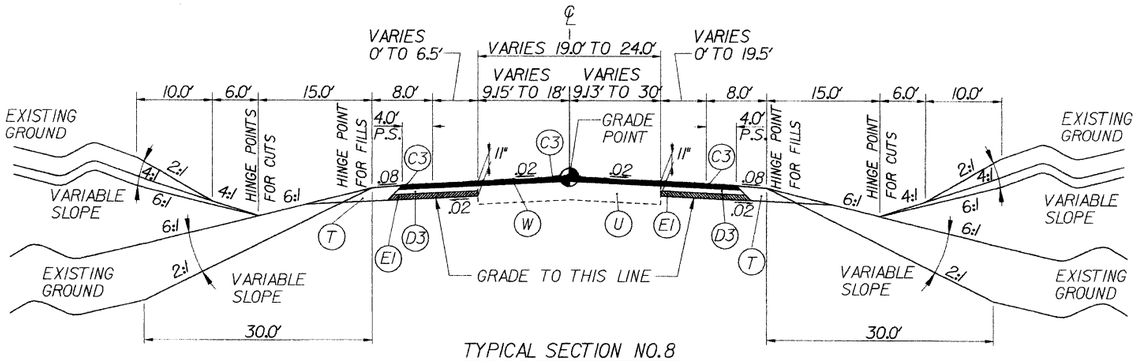
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

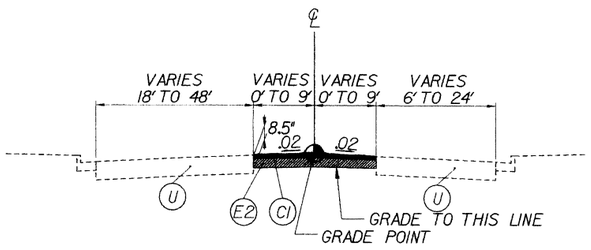
WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

SLINGATE DESIGN GROUP
913-A JONES FRANKLIN RD.
RALEIGH, NC 27606



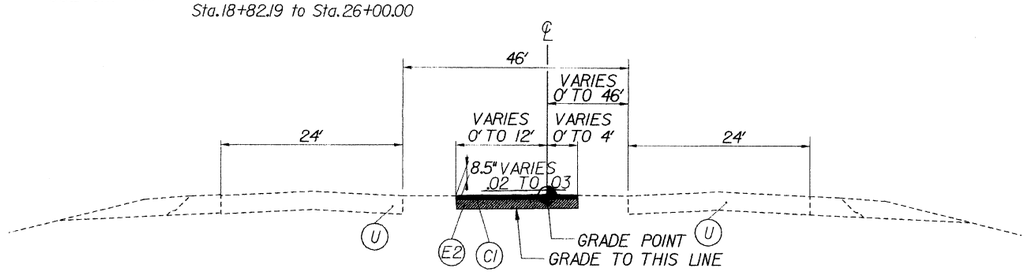
TYPICAL SECTION NO.8

USE ON: -Y13- Sta.14+50.00 to Sta.17+76.51
Sta.18+82.19 to Sta.26+00.00



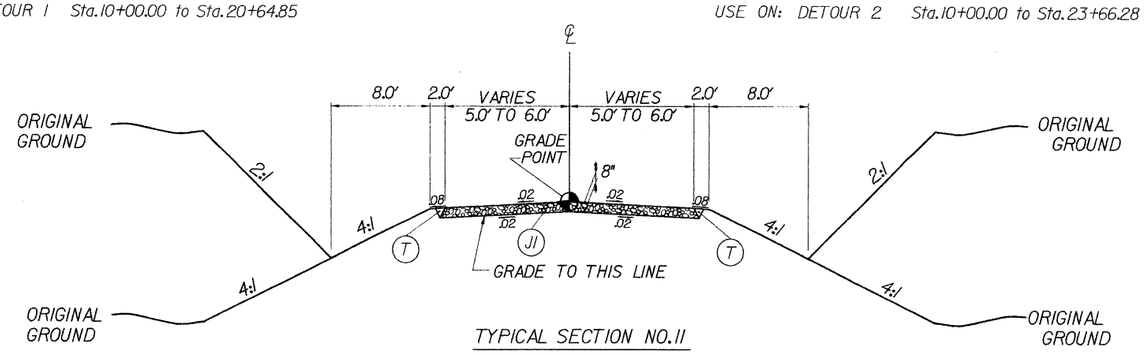
TYPICAL SECTION NO.9

USE ON: DETOUR 1 Sta.10+00.00 to Sta.20+64.85



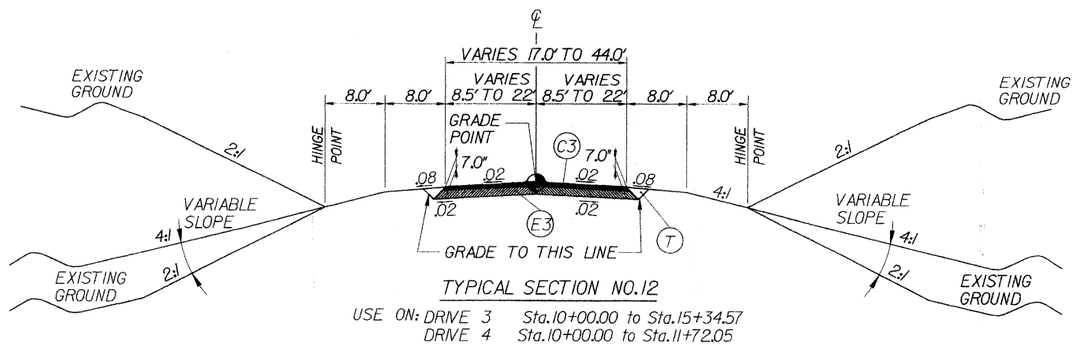
TYPICAL SECTION NO.10

USE ON: DETOUR 2 Sta.10+00.00 to Sta.23+66.28



TYPICAL SECTION NO.11

USE ON: DRIVE 1 Sta.10+00.00 to Sta.12+97.18
DRIVE 2 Sta.10+00.00 to Sta.11+65.06
DRIVE 5 Sta.10+00.00 to Sta.11+63.33



TYPICAL SECTION NO.12

USE ON: DRIVE 3 Sta.10+00.00 to Sta.15+34.57
DRIVE 4 Sta.10+00.00 to Sta.11+72.05

Notes :

* SHOULDER WIDTH TO BE INCREASED 3' WHERE GUARDRAIL IS USED.

** 4:1 MAXIMUM TO PROVIDE POSITIVE DRAINAGE.

*** SHOULDER WIDTH TO BE INCREASED 4' WHERE GUARDRAIL IS USED.

**** SAWCUT EXISTING EDGE OF PAVEMENT FOR WIDENING WIDTH TO BE DETERMINED BY ENGINEER.

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PAVEMENT SCHEDULE	
C1	3.0" S9.5C
C2	VAR. DEPTH S9.5C
C3	3.0" S9.5B
D1	4.0" I19.0C
D2	VAR. DEPTH I19.0C
D3	3.0" I19.0C
E1	5.0" B25.0B
E2	5.5" B25.0C
E3	4.0" B25.0B
E4	6.5" B25.0C
J1	8" ABC
J2	VAR. DEPTH. ABC
K	BASE TO BE TREATED WITH LIME TO A DEPTH OF 8", AT A RATE OF 20 LBS/SY AS DIRECTED BY THE ENGINEER OR BASE TO BE TREATED WITH CEMENT TO A DEPTH OF 7", AT A RATE OF 55 LBS/SY AS DIRECTED BY THE ENGINEER
R1	2'6" CURB AND GUTTER
R2	1'6" CURB AND GUTTER
R3	MONOLITHIC CONCRETE ISLAND (SEE DETAIL A)
R4	EXPRESSWAY GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING
V	MILLING - 3" DEPTH
W	WEDGING

REVISIONS

8/17/99

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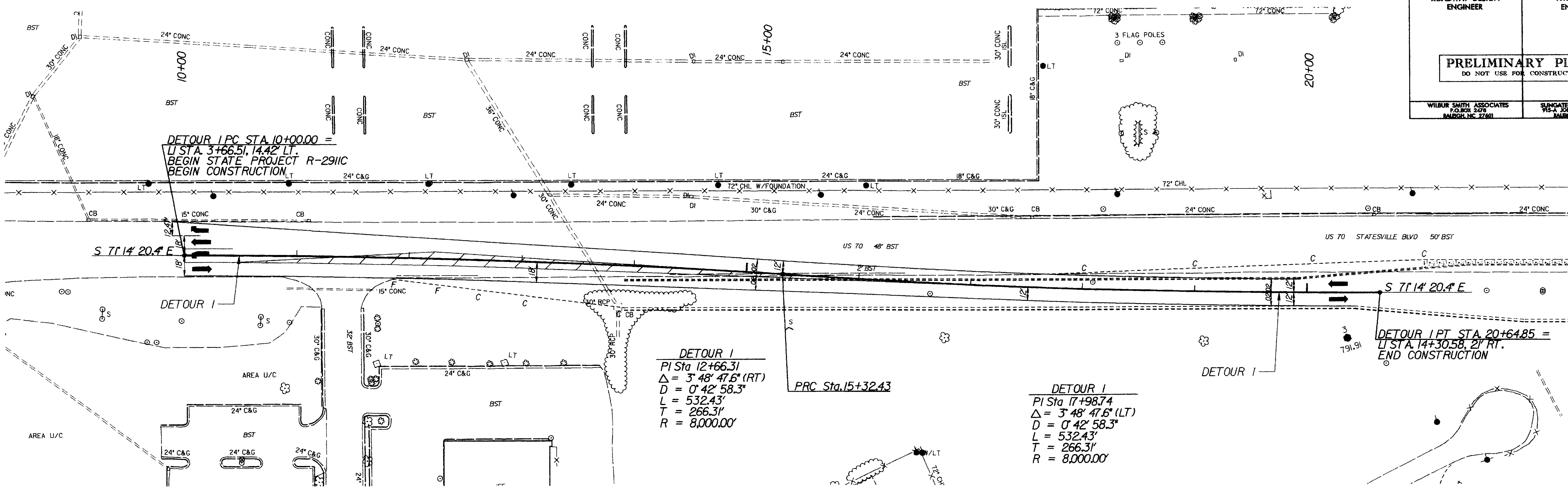
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	2C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

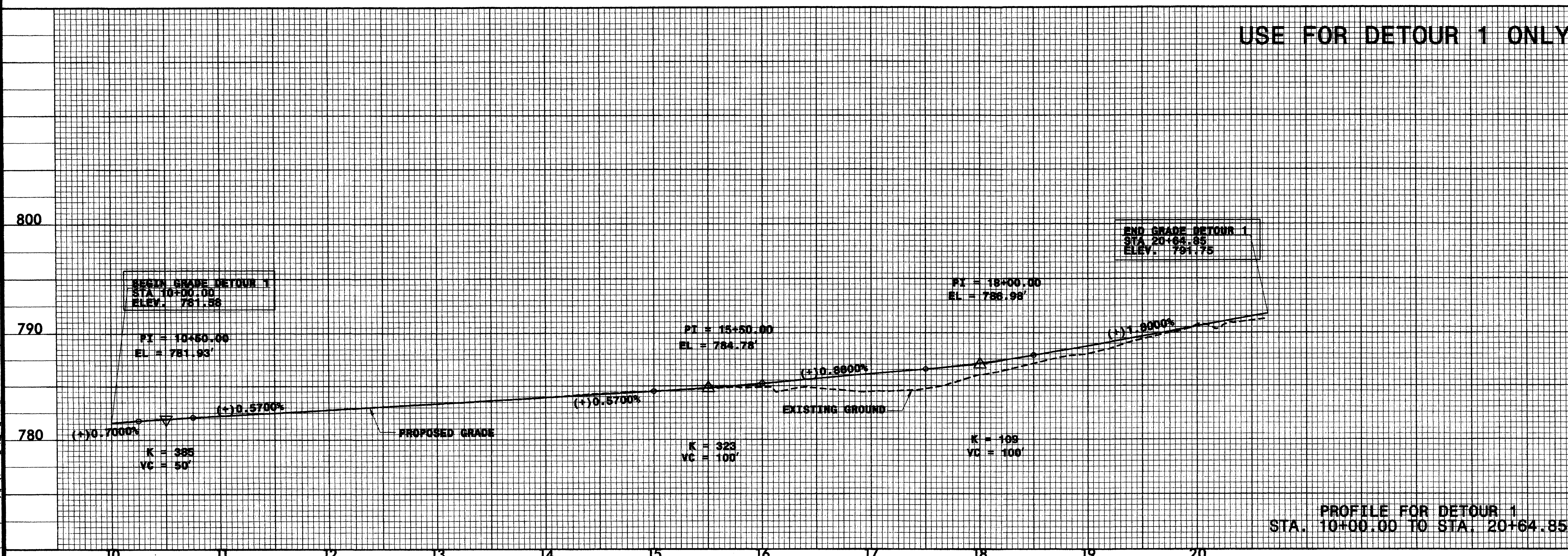
WILBUR SMITH ASSOCIATES P.O. BOX 2478 RALEIGH, NC 27601 | SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

8/17/99

REVISIONS



DETOUR 1 PC STA. 10+00.00 =
L1 STA. 3+66.51, 14.42' LT.
BEGIN STATE PROJECT R-2911C
BEGIN CONSTRUCTION
S 71° 14' 20.4" E
DETOUR 1
US 70 48' BST
US 70 STATESVILLE BLVD 50' BST
3 FLAG POLES
10+00
15+00
20+00
DETOUR 1
PI Sta 12+66.31
Δ = 3° 48' 47.6" (RT)
D = 0° 42' 58.3"
L = 532.43'
T = 266.31'
R = 8,000.00'
PRC Sta. 15+32.43
DETOUR 1
PI Sta 17+98.74
Δ = 3° 48' 47.6" (LT)
D = 0° 42' 58.3"
L = 532.43'
T = 266.31'
R = 8,000.00'
DETOUR 1 PT STA. 20+64.85 =
L1 STA. 14+30.58, 21' RT.
END CONSTRUCTION
AREA U/C



USE FOR DETOUR 1 ONLY
800
790
780
BEGIN GRADE DETOUR 1
STA. 10+00.00
ELEV. 781.36
PI = 10+50.00
EL = 781.93'
(+)0.7000%
(+)0.5700%
PROPOSED GRADE
K = 385
VC = 50'
PI = 15+50.00
EL = 784.78'
(+)0.5700%
(+)0.8600%
EXISTING GROUND
K = 323
VC = 100'
PI = 18+00.00
EL = 786.98'
(+)1.9000%
K = 109
VC = 100'
END GRADE DETOUR 1
STA. 20+64.85
ELEV. 791.75
PROFILE FOR DETOUR 1
STA. 10+00.00 TO STA. 20+64.85
10
11
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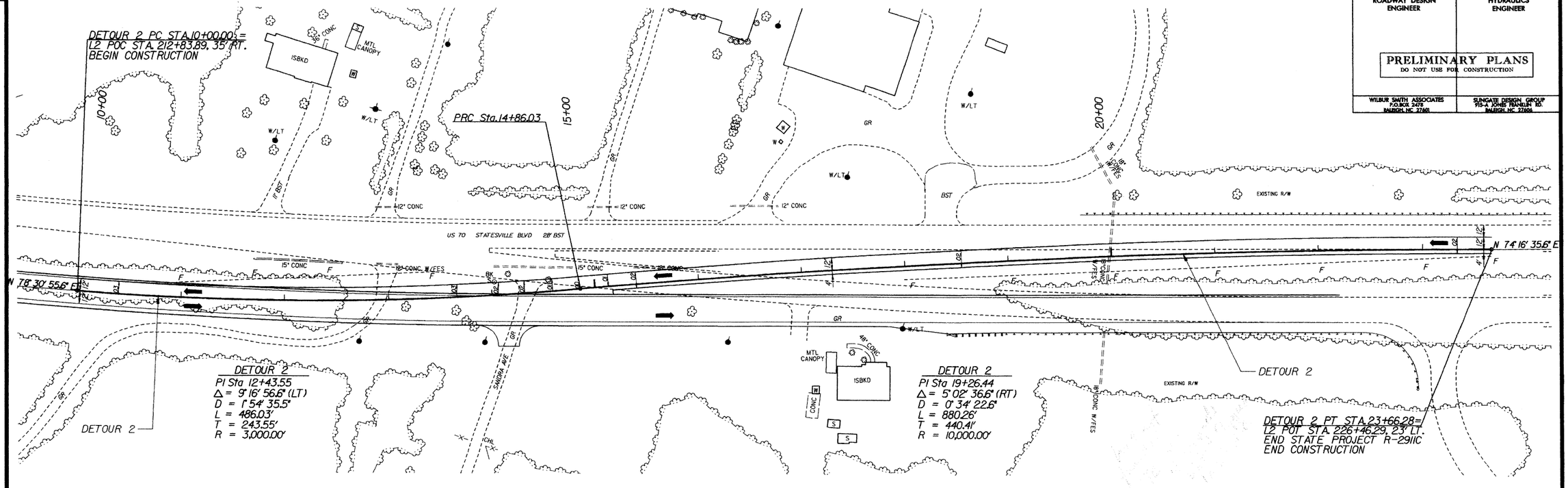
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	2D
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

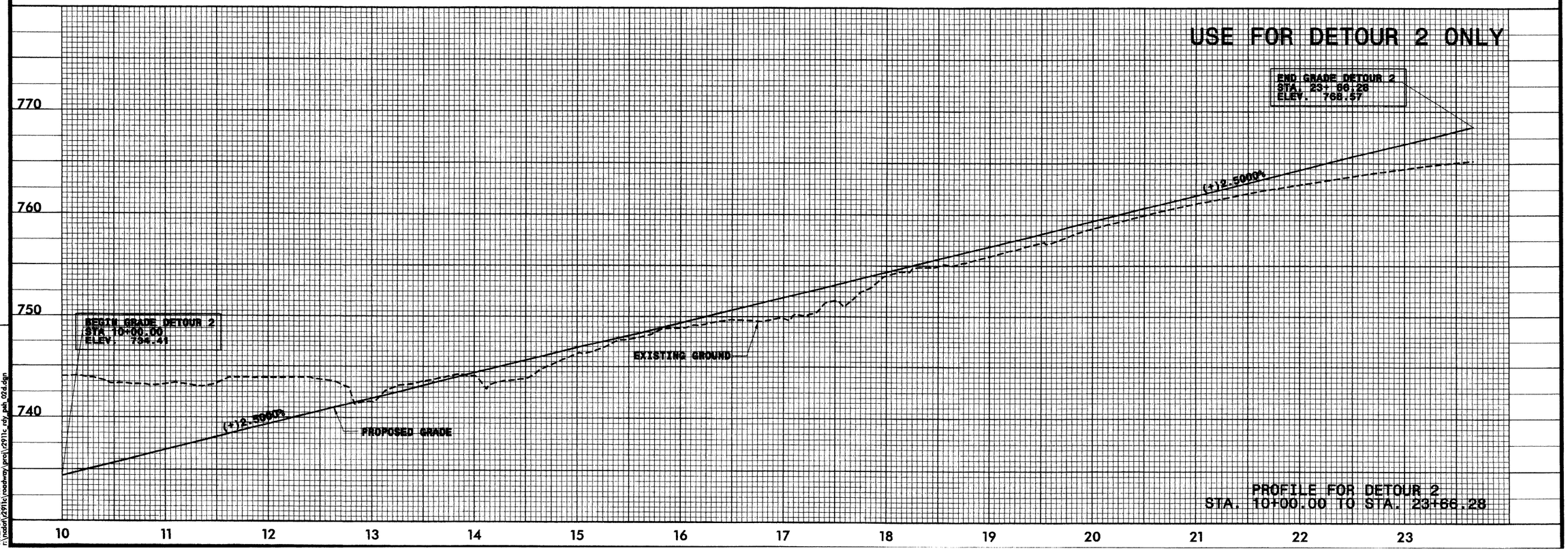
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES	SUNGATE DESIGN GROUP
P.O.BOX 2479 RALEIGH, NC 27601	715-A JONES FRANKLIN RD. RALEIGH, NC 27604

REVISIONS

8/17/99





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10/26/98

COMPUTED BY: B. CRAWFORD DATE: 05-22-2003
CHECKED BY: D. WILYER DATE: 05-22-2003

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	3A

RIGHT OF WAY AREA DATA SHEET

PARCEL NO.	PROPERTY OWNERS NAME	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTR. EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT
1	FREIGHTLINER CORPORATION	114.56	0.10		114.46	0.40		281.90 sf
2	THIRD CREEK INVESTORS LIMITED PARTNERSHIP	3.83	0.23	3.60				
3	DUKE POWER	1.62	2375.46 sf	1.57				
4	JAMES C. AND HANNAH H. PADGETT	0.48	0.00		0.48	985.61 sf		
5	ROBERT D. CLINE	0.97	0.00		0.97	166.71 sf		
6	CLYDE C. AND JOYCE G. FESPERMAN	1.72	1628.44 sf		1.68			
7	GRAHAM ENTERPRISES	2050.64 sf	2050.94 sf		0.00			
8	ROBERT L. ALDRIDGE, JR. AND GREGORY S. HARTSELL	1.39	1210.76 sf		1.36			
9	RDP PARTNERSHIP	1.04	3860.81 sf		0.95	2272.66 sf	455.20 sf	
10	FREIGHTLINER CORPORATION	4.53	3368.78 sf	4.45		1800.36 sf		
11	CLEVELAND METHODIST CHURCH	8.09	0.28	7.81				
12	WILLIAM O. AND MARY R. MILLER	11.63	0.34	11.29				
13	NORTH CAROLINA STATE HIGHWAY AND PUBLIC WORKS COMMISSION	0.71	0.12		0.59	871.86 sf		
14	MONTE F. AND CARRIE K. ALLEY	0.58	1273.49 sf		0.55			
15	CLYDE H. HARKEY	0.87	1630.68 sf		0.83			
16	DONALD L. AND PATRICIA G. FEAMSTER	0.32	2149.49 sf		0.27	315.36 sf		
17	JOHN H. BURDICK, V AND HEATHER ANN GERRITRY	0.58	1690.64 sf		0.54			
18	LONNIE M. AND LOTTIE MARY BRIGHT	0.78	918.56 sf		0.76			
19	ROWAN COUNTY BOARD OF EDUCATION	1.72	3036.96 sf		1.65			
20	CLEVELAND COUNTY VOLUNTEER FIRE DEPARTMENT	3.86	982.56 sf		3.84	1251.74 sf		
21	LOWELL FRANK AND KATIE TURMAN	1.81	0.29	1.52				
22	CLETUS KNOX AND EVA TURNER KNOX	2.21	260.33 sf	2.20				
23	THELMA G. LITTLE	3.55	0.12	3.43				
24	JOE A. CORRIHER AND SHARON K. SACKETT	7.95	0.00		7.95	0.22	1919.16 sf	
25	LORENE O. LENTZ	0.92	2896.43 sf		0.85	1550.62 sf		
26	CRAIG C. MYERS AND ELIZABETH L. LEFLER	0.48	180.06 sf		0.48			
27	GILBERT RAY AND GERALDINE C. MEYERS	1.69	2427.55 sf		1.63			
28	CLINTON J. AND MAJORIE C. LEFEVERS	0.85	3065.78 sf	0.78				
29	RONALD W. AND GAIL H. MCCLAIN	0.42	2502.94 sf	0.36				
30	FANNIE MAXWELL	1.22	0.12	1.10		15.58 sf	1179.95 sf	
31	R. L. GRAHAM	9.82	0.28	9.54		0.14		
32	JOE F. AND WANDA O. MCNEELY	4.46	0.44		4.02			995.85 sf
33	BETTY S. COMBS	0.96	0.23		0.73			738.31 sf
34	BETTY S. COMBS	2.74	0.49		2.25			
35	IRENE G. AND EDGAR NELSON KLUTZ	8.80	2.10	6.70		2581.10 sf	750.00 sf	
36	BEN B. AND ELEANOR E. WHITE	1.65	0.46		1.19			
37	RUSSEL C. AND EDNA H. EMMERSON	1.01	0.26		.75			
38	A-1 MOBILE HOME SALES AND SERVICE OF STATESVILLE, INC.	0.46	3309.35 sf		0.38			
39	CLYDE L. WILHELM	0.67	0.19		0.48			
40	RUBY GATTON WASSON	55.08	1.79	53.29		0.29	2392.51 sf	
41	BETTY S. COMBS	0.40	0.18		0.22		250.37 sf	
42	BEN B. WHITE AND WIFE, ELEANOR E. WHITE	1.29	50.7 sf		1.29		707.58 sf	
43	HERSEY METERS COMPANY	100.86	1.67		99.19		1562.05 sf	
44	VICKY LYNN HOWARD	15.26	0.43	14.83				
45	GEORGE G. AND TERESA GAIL REDMAN	2.59	0.34	2.25		84.43 sf		
46	DAVID Y. REDMAN	12.41	0.18	12.43		1770.33 sf		
47	JUDY M. REDMAN	14.95	1.07	13.88		3724.95 sf		
48	ROWAN COUNTY, NORTH CAROLINA	1.10	0.17		0.93			
49	MAMIE I. KESLER	23.17	1.73	8.34	13.10			1697.50 sf
50	EZZIE D. GRAHAM	0.97	0.15	0.82				
51	W. B. KESLER	1.45	0.13	1.32				
52	ALLISON BROTHERS RACE CARS, INC.	1.65	0.12	1.53				
53	CLYDE S. WALLER	97.60	4.34	51.96	41.30		1755.64 sf	628.21 sf
54	W. B. KESLER	7.26	0.51	6.75				
55	JOHN I. AND DOROTHY H. NAILE	41.96	0.24		41.72		39.08 sf	634.49 sf
56	JEFFERY N. AUSTIN	5.72	0.71	5.01				
57	EVELYN H. CATES	2.87	0.57	2.30				
58	SOUTHERN STATES COOPERATIVE, INC.	26.56	0.26		26.30		1044.45 sf	21.87 sf
59	JAMES ALLEN AND ETHEL EDMISTON, JR.	9.68	0.40		9.28			
60	CATHERINE JEAN HARRISON	0.62	0.22	0.40		40.11 sf		
61	CHARLES F. FLOYD	199.69	0.00	199.69		2874.36 sf		2263.12 sf
62	CLYDE FLEMING GRAHAM FARM EQUIPMENT	30.29	1.20	27.46	1.63	0.36	670.08 sf	1400.00 sf
63	GEORGE P. AND CAROL T. SYNDER	1.44	0.27		1.17			
64	BILLY JOE AND SUE G. HARTSELL	0.76	3392.51 sf		0.68	392.61 SF		
65	CONSTANTINE AND DIMITRIOS KALOGERMITROS	3.32	2969.78 SF		3.25	3854.35 SF		
66	HALL STEELE	1.49	0.69	0.58	0.22	174.39 sf		
67	ADA WILHELM FLEMING ETAL.	4.94	0.41		4.53	62.06 sf		
68	MINNIE PAULINE GRAHAM	28.14	1.53	26.61		0.12		

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COMPUTED BY: B. CRAWFORD DATE: 05-22-2003
CHECKED BY: D. WILYER DATE: 05-22-2003

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	3B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RIGHT OF WAY AREA DATA SHEET

PARCEL NO.	PROPERTY OWNERS NAME	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTR. EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT		PARCEL NO.	PROPERTY OWNERS NAME	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTR. EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	
69	CLYDE FLEMING GRAHAM AND W. F. LAVANCHE	14.86	0.58		14.28	0.20													
70	CLYDE F. GRAHAM	9.61	0.70	8.91															
71	PAMELA F. MARTIN	19.25	0.51		18.74		1963.82 sf												
72	LEONA F. AND ERIC LEE DIXON, JR.	11.48	0.38		11.10	934.34 sf		501.47											
73	HOWARD LEE AND FAYE G. KEZIAH	41.19	1.91	39.28			1656.52 sf												
74	PENNY F. SIGMON	10.60	0.33		10.27	0.12													
75	RONNIE E. AMD NOBLEDEAN A. SARVER	0.89	3861.85 sf		0.80	49.67 sf													
76	EARL J. AND VIRGINIA G. WILLIAMS	4.13	3212.59 sf		4.06														
77	KENNY ALLISON	15.56	0.78	14.78															
78	J. H. RENNICK	0.54	0.10	0.44															

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8/17/99

COMPUTED BY: R. E. STATON DATE: 3-04
CHECKED BY: D. L. WILYER DATE: 3-04

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	3-C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 5129
RALEIGH, NC 27601

SUNGATE DESIGN GROUP
915-A GOLDEN RAIN ROAD
RALEIGH, NC 27606

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT +%	BORROW	WASTE
SUMMARY #1					
-L1- 7+57.57 TO -L1- 21+00.00	2,274		2,608	334	
-Y1- 12+25.00 TO -Y1- 13+52.39	7		119	112	
-Y2- 10+33.48 TO -Y2- 12+25.00	34		211	177	
SUBTOTAL: SUMMARY #1	2,315		2,938	623	
SUMMARY #2					
-L1- 21+00.00 TO -L1- 51+00.00	1,086		36,085	34,999	
-Y3- 10+50.00 TO -Y3- 12+58.99	121		14		107
-Y4- 10+25.00 TO -Y4- 12+25.93	136				136
-Y5- 10+25.00 TO -Y5- 13+54.98	535		76		459
-Y5- 13+90.09 TO -Y5- 16+50.00	345		1		344
-Y6- 10+34.94 TO -Y6- 11+80.00	30		70	40	
SUBTOTAL: SUMMARY #2	2,253		36,246	35,039	1,046
SUMMARY #3					
-L1- 51+00.00 TO -L1- 70+89.80	18,144		32,200	14,056	
-L2- 70+89.80 TO -L2- 81+00.00	37,609		15,649		21,960
-Y7- 10+30.00 TO -Y7- 11+84.68	160		12		148
-Y8- 12+60.00 TO -Y8- 14+32.83	198		2		196
-Y9- 10+00.00 TO -Y9- 12+42.50	577				577
SUBTOTAL: SUMMARY #3	56,688		47,863	14,056	22,881
SUMMARY #4					
-L2- 81+00.00 TO -L2- 111+00.00	62,841		45,263		17,578
-Y10- 10+47.00 TO -Y10- 13+52.00	6,736				6,736
-DR1- 10+00.00 TO -DR1- 12+87.33	93		174	81	
-DR2- 10+08.87 TO -DR2- 11+65.06	285				285
-DR3- 10+00.00 TO -DR3- 15+74.00	1,262		755		507
-DR4- 10+05.00 TO 11+20.69	263		82		181
SUBTOTAL: SUMMARY #4	71,480		46,274	81	25,287
SUMMARY #5					
-L2- 111+00.00 TO -L2- 115+50.00	4,327		575		3,752
-Y11- 10+00.00 TO -Y11- 13+40.44	575		212		363
-Y11A- 10+48.35 TO -Y11A- 14+00.00	300		44		256
SUBTOTAL: SUMMARY #5	5,202		831		4,371
SUMMARY #6					
-L2- 115+50.00 TO -L2- 141+00.00	41,652		13,016		28,636
SUBTOTAL: SUMMARY #6	41,652		13,016		28,636

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT +%	BORROW	WASTE
SUMMARY #7					
-L2- 141+00.00 TO -L2- 169+00.00	25,036		30,648	5,612	
-Y12- 10+35.63 TO -Y12- 13+50.00	1,016		83		933
-DR5- 10+00.00 TO -DR5- 11+51.33	1,073		5		1,068
-Y13- 14+50.00 TO -Y13- 17+76.51	226		68		158
-Y13- 18+82.19 TO -Y13- 26+00.00	890		898	8	
SUBTOTAL: SUMMARY #7	28,241		31,702	5,620	2,159
SUMMARY #8					
-L2- 169+00.00 TO -L2- 198+00.00	36,693		10,758		25,935
SUBTOTAL: SUMMARY #8	36,693		10,758		25,935
SUMMARY #9					
-L2- 198+00.00 TO -L2- 225+00.00	24,685		31,274	6,589	
SUBTOTAL: SUMMARY #9	24,685		31,274	6,589	
SUMMARY #10					
-DET1- 10+00.00 TO -DET1- 20+64.85	36				36
-DET2- 10+00.00 TO -DET2- 23+66.28	219		962	743	
SUBTOTAL: SUMMARY #10	255		962	743	36
SUMMARY #11					
-DET1- BACKFILL AND REMOVAL			43	43	
-DET2- BACKFILL AND REMOVAL	802		263		539
SUBTOTAL: SUMMARY #11	802		306	43	539
			0		
SUBTOTAL (SUMMARIES 1-11)	270,266		222,170	62,794	110,890
LOSS DUE CLEARING & GRUBBING				13,513	
DEDUCTION FOR ROCK SWELL					
ROCK TO REPLACE BORROW					
DEDUCTION FOR EARTH SHRINKAGE					
WASTE TO BE USED IN LIEU OF BORROW					
STOCKPILE					
PROJECT TOTAL	256,753		222,170		
GRAND TOTAL	256,753		222,170		
SAY	256,800				
SHOULDER BORROW					
DRAINAGE DITCH EXCAVATION:	1,100				
UNDERCUT EXCAVATION	5,500				
SELECT GRANULAR MATERIAL	2,000				

DATE: 3/3/2004
TIME: 9:50:30 PM
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PROJECT REFERENCE NO.	SHEET NO.
R-2911C	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606

NOTES

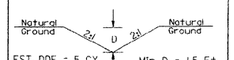
1. FOR PROFILE OF: L1 — SEE SHEET NO: 23
2. FOR DETOUR: — SEE SHEET NO: 2C

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "384 JAS" WITH STATE PLANE GRID COORDINATES OF NORTHING: 724643.8657(ft) EASTING: 1507152.2547(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999873400 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "384 JAS" TO -L1 - STATION 7+57.57 IS N88°46'02.3" W, 9,394.16 FEET.

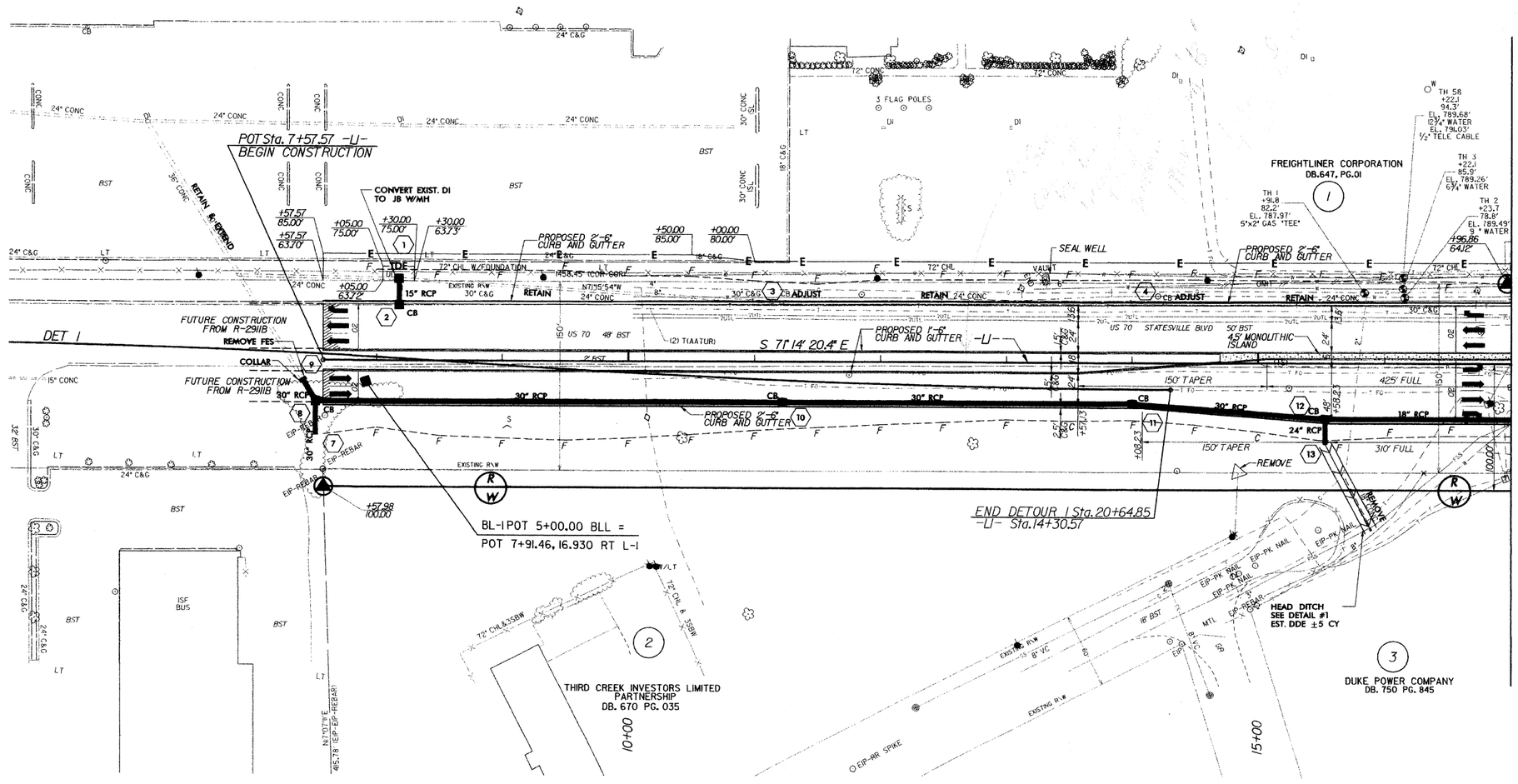
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

DETAIL 1
(Not to Scale)



EST. DDE = 5 CY Min. D = 1.5 Ft.
HEAD DITCH
-L1- 15+75.00 RT

NC GRID (NAD 1983)



MATCH TO SHEET 5 STA. 17+00.00 -L1-

REVISIONS

8/17/99

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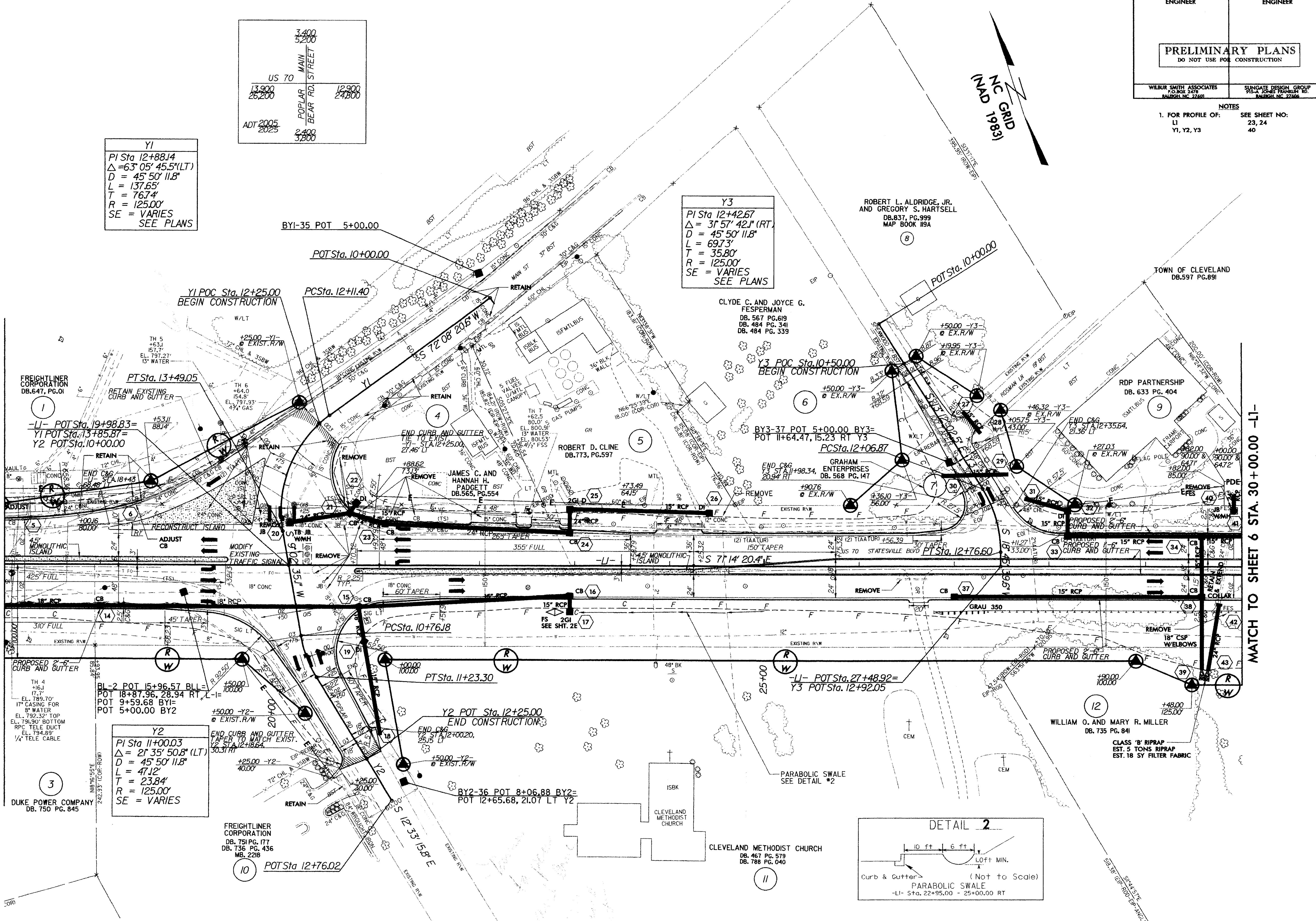
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES P.O.BOX 2478 RALEIGH, NC 27601 — SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

NOTES

1. FOR PROFILE OF: L1 — SEE SHEET NO: 23, 24
Y1, Y2, Y3 — 40



NC GRID (NAD 1983)
US 70
MAIN STREET
POPLAR BEAR RD. STREET
3,400 5,200
13,900 26,200
12,900 24,800
ADT 2005 2025
2,400 3,800
Y1
PI Sta 12+88.14
△ =63° 05' 45.5"(LT)
D = 45° 50' 11.8"
L = 137.65'
T = 76.74'
R = 125.00'
SE = VARIES SEE PLANS
Y2
PI Sta 11+00.03
△= 21° 35' 50.8" (LT)
D = 45° 50' 11.8"
L = 47.12'
T = 23.84'
R = 125.00'
SE = VARIES
Y3
PI Sta 12+42.67
△= 31° 57' 42.1" (RT)
D = 45° 50' 11.8"
L = 69.73'
T = 35.80'
R = 125.00'
SE = VARIES SEE PLANS
BY1-35 POT 5+00.00
POT Sta. 10+00.00
Y1 POC Sta. 12+25.00 BEGIN CONSTRUCTION
PC Sta. 12+11.40
PT Sta. 13+49.05
-L1- POT Sta. 19+98.83= Y1 POT Sta. 13+85.87= Y2 POT Sta. 10+00.00
S 72° 08' 20.6" W
S 71° 14' 20.4" E
S 12° 33' 15.8" E
Y3 POC Sta. 10+50.00 BEGIN CONSTRUCTION
BY3-37 POT 5+00.00 BY3= POT 11+64.47, 15.23 RT Y3
PC Sta. 12+06.87
PT Sta. 12+76.60
POT Sta. 10+00.00
-L1- POT Sta. 27+48.92= Y3 POT Sta. 12+92.05
PC Sta. 10+76.18
PT Sta. 11+23.30
Y2 POT Sta. 12+25.00 END CONSTRUCTION
BY2-36 POT 8+06.88 BY2= POT 12+65.68, 21.07 LT Y2
BL-2 POT 15+96.57 BLL= POT 18+87.96, 28.94 RT -L1-= POT 9+59.68 BY1= POT 5+00.00 BY2
POT Sta 12+76.02
MATCH TO SHEET 4 STA. 17+00.00 -L1-
MATCH TO SHEET 6 STA. 30+00.00 -L1-
FREIGHTLINER CORPORATION DB.647, PG.01
DUKE POWER COMPANY DB. 750 PG. 845
FREIGHTLINER CORPORATION DB. 751 PG. 177 DB. 736 PG. 436 MB. 2218
JAMES C. AND HANNAH H. PADGETT DB.565, PG.554
ROBERT D. CLINE DB.773, PG.597
CLYDE C. AND JOYCE G. FESPERMAN DB. 567 PG.619 DB. 484 PG. 341 DB. 484 PG. 339
ROBERT L. ALDRIDGE, JR. AND GREGORY S. HARTSELL DB.837, PG.999 MAP BOOK 119A
GRAHAM ENTERPRISES DB. 568 PG. 147
TOWN OF CLEVELAND DB.597 PG.891
RDP PARTNERSHIP DB. 633 PG. 404
WILLIAM O. AND MARY R. MILLER DB. 735 PG. 841
CLEVELAND METHODIST CHURCH DB. 467 PG. 579 DB. 788 PG. 040
CLASS 'B' RIPRAP EST. 5 TONS RIPRAP EST. 18 SY FILTER FABRIC
PARABOLIC SWALE SEE DETAIL #2
PROPOSED 2'-6" CURB AND GUTTER
RECONSTRUCT ISLAND
MODIFY EXISTING TRAFFIC SIGNAL
STATESVILLE BLVD
DETAIL 2
10 ft 6 ft
1.0 ft MIN.
Curb & Gutter
(Not to Scale)
PARABOLIC SWALE
-L1- Sta. 22+95.00 - 25+00.00 RT

REVISIONS

DATE: 3/3/2004
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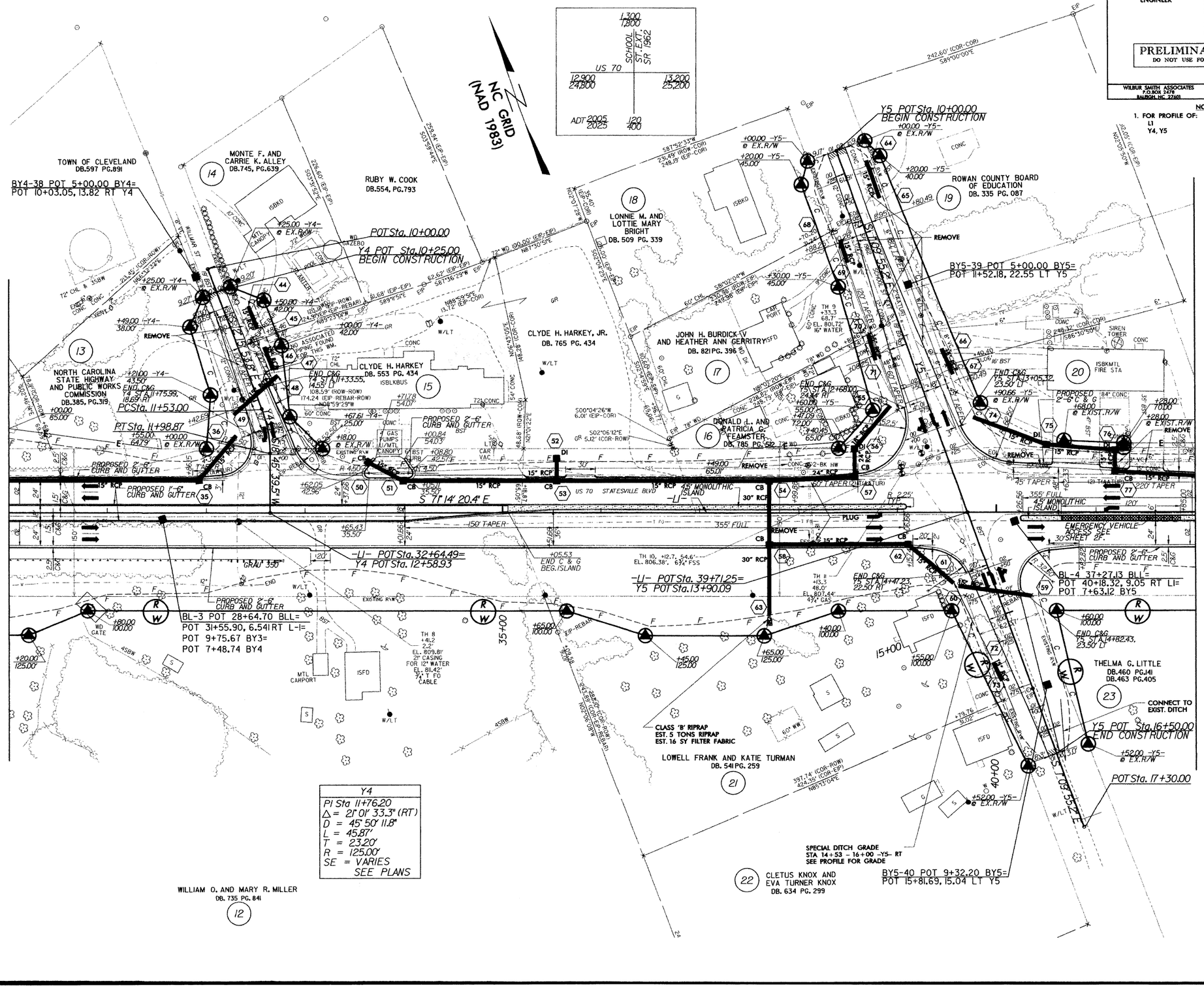
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
WILBUR SMITH ASSOCIATES P.O.BOX 2479 RALEIGH, NC. 27601	SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC. 27606

NOTES

1. FOR PROFILE OF:	SEE SHEET NO:
L1	24, 25
Y4, Y5	40

REVISIONS

8/17/99



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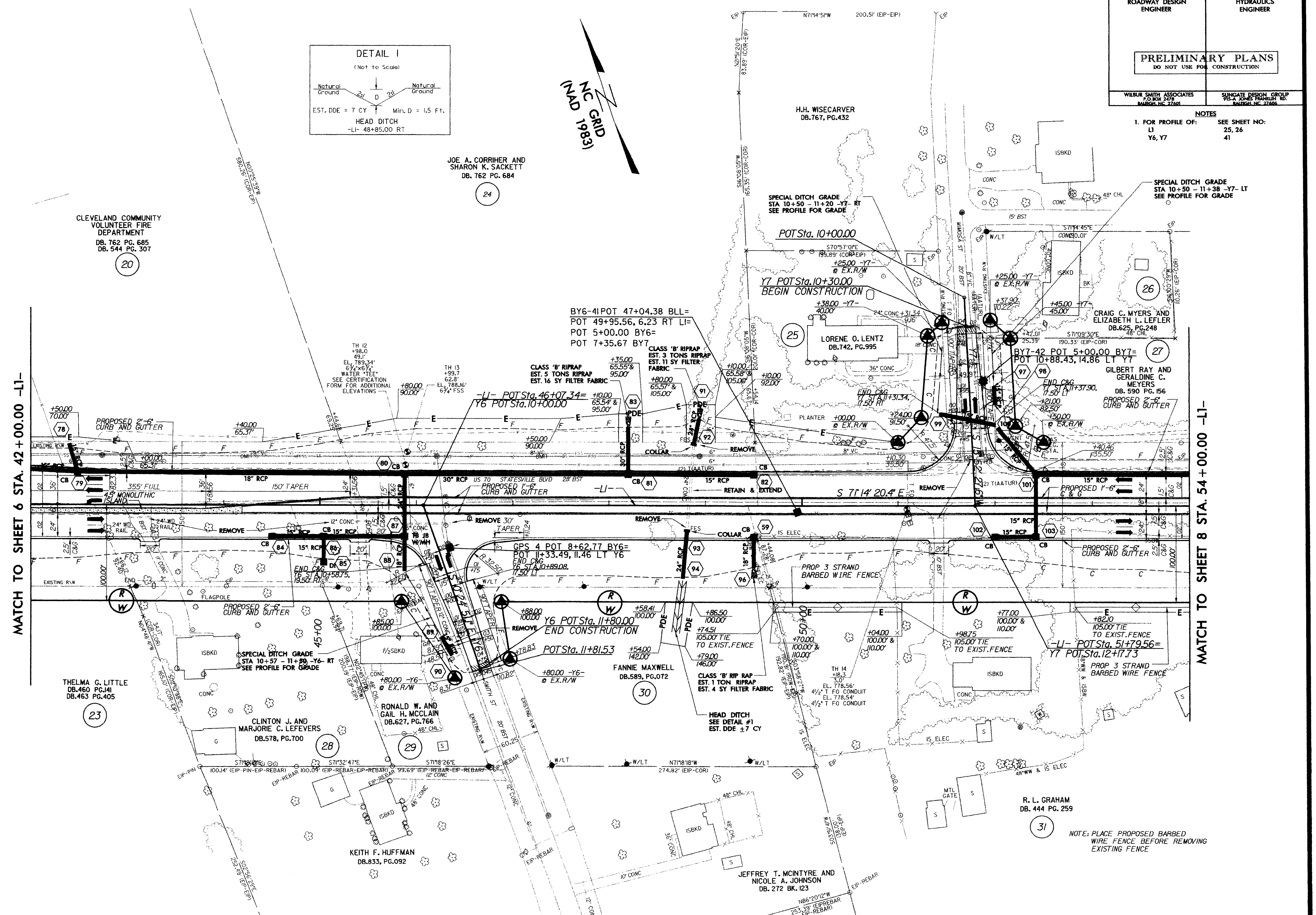
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES, P.O. BOX 2478, RALEIGH, NC 27601 — SUNGATE DESIGN GROUP, 915-A JONES FRANKLIN RD., RALEIGH, NC 27606

NOTES

1. FOR PROFILE OF: L1 — SEE SHEET NO: 25, 26; Y6, Y7 — 41



DETAIL I
(Not to Scale)
HEAD DITCH
-L1- 48+85.00 RT
EST. DDE = 7 CY
Min. D = 1.5 Ft.
NC GRID (NAD 1983)
CLEVELAND COMMUNITY VOLUNTEER FIRE DEPARTMENT
DB. 762 PG. 685
DB. 544 PG. 307
JOE A. CORRIHER AND SHARON K. SACKETT
DB. 762 PG. 684
H.H. WISECARVER
DB.767, PG.432
LORENE O. LENTZ
DB.742, PG.995
CRAIG C. MYERS AND ELIZABETH L. LEFLER
DB.625, PG.248
GILBERT RAY AND GERALDINE C. MEYERS
DB. 590 PG. 156
THELMA G. LITTLE
DB.460 PG.141
DB.463 PG.405
CLINTON J. AND MARJORIE C. LEFEVERS
DB.578, PG.700
RONALD W. AND GAIL H. MCCLAIN
DB.627, PG.766
KEITH F. HUFFMAN
DB.833, PG.092
FANNIE MAXWELL
DB.589, PG.072
JEFFREY T. MCINTYRE AND NICOLE A. JOHNSON
DB. 272 BK. 123
R. L. GRAHAM
DB. 444 PG. 259
MATCH TO SHEET 6 STA. 42+00.00 -L1-
MATCH TO SHEET 8 STA. 54+00.00 -L1-
S 71°14' 20.4" E
US 70 TO STATESVILLE BLVD
Y7 POT Sta. 10+30.00 BEGIN CONSTRUCTION
Y6 POT Sta. 11+80.00 END CONSTRUCTION
-L1- POT Sta. 46+07.34= Y6 POT Sta. 10+00.00
-L1- POT Sta. 51+79.56= Y7 POT Sta. 12+17.73
SPECIAL DITCH GRADE STA 10+50 - 11+20 -Y7- RT SEE PROFILE FOR GRADE
SPECIAL DITCH GRADE STA 10+50 - 11+38 -Y7- LT SEE PROFILE FOR GRADE
SPECIAL DITCH GRADE STA 10+57 - 11+50 -Y6- RT SEE PROFILE FOR GRADE
PROPOSED 2'-6" CURB AND GUTTER
PROP 3 STRAND BARBED WIRE FENCE
CLASS 'B' RIPRAP EST. 5 TONS RIPRAP EST. 16 SY FILTER FABRIC
CLASS 'B' RIPRAP EST. 3 TONS RIPRAP EST. 11 SY FILTER FABRIC
CLASS 'B' RIP RAP EST. 1 TON RIPRAP EST. 4 SY FILTER FABRIC
HEAD DITCH SEE DETAIL #1 EST. DDE ±7 CY
NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
R-2911C	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

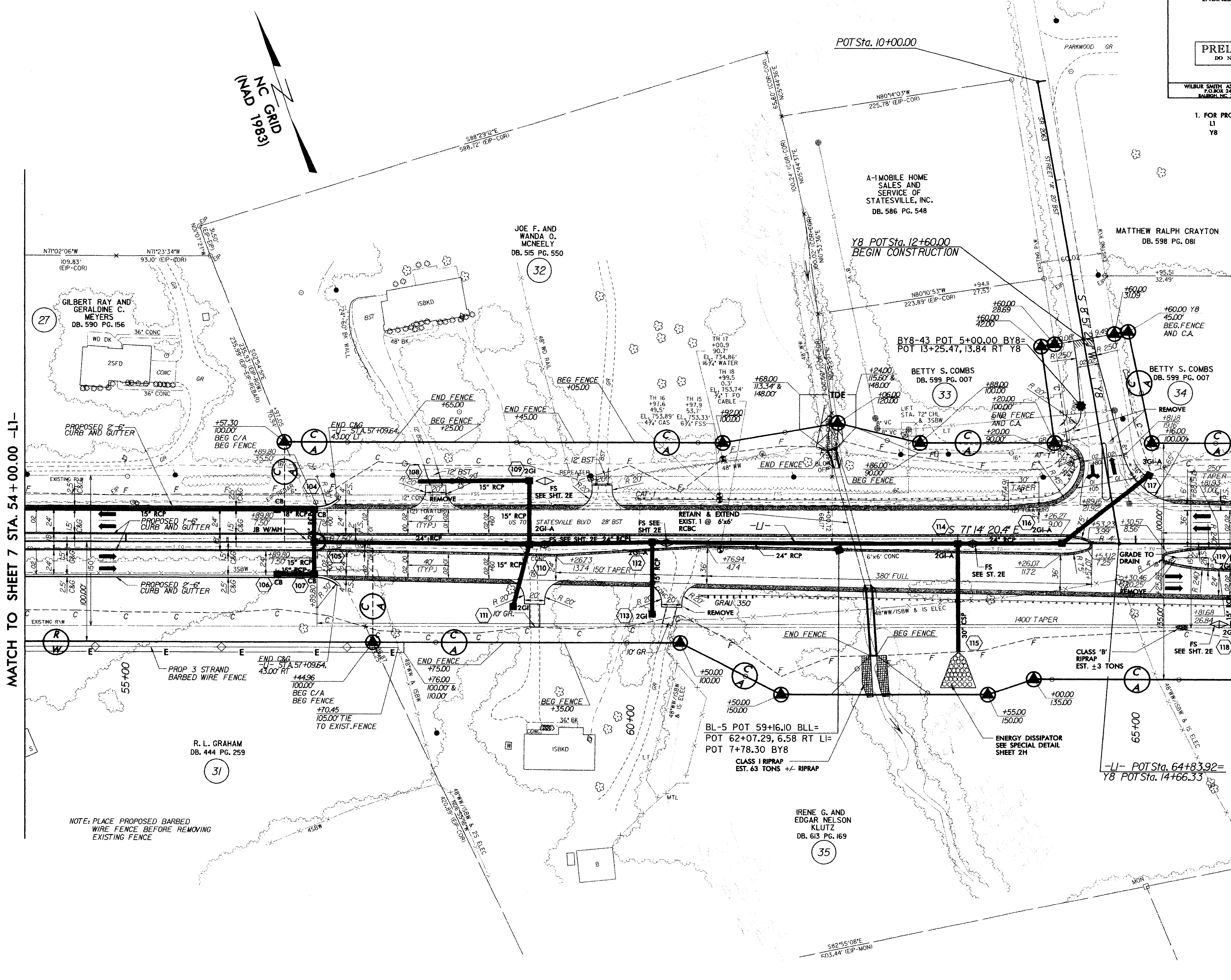
WILBUR SMITH ASSOCIATES P.O.BOX 2476 RALEIGH, NC 27601

SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

NOTES

1. FOR PROFILE OF: L1 SEE SHEET NO: 26, 27
Y8 41

REVISIONS



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PROJECT REFERENCE NO.	SHEET NO.
R-2911C	9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606

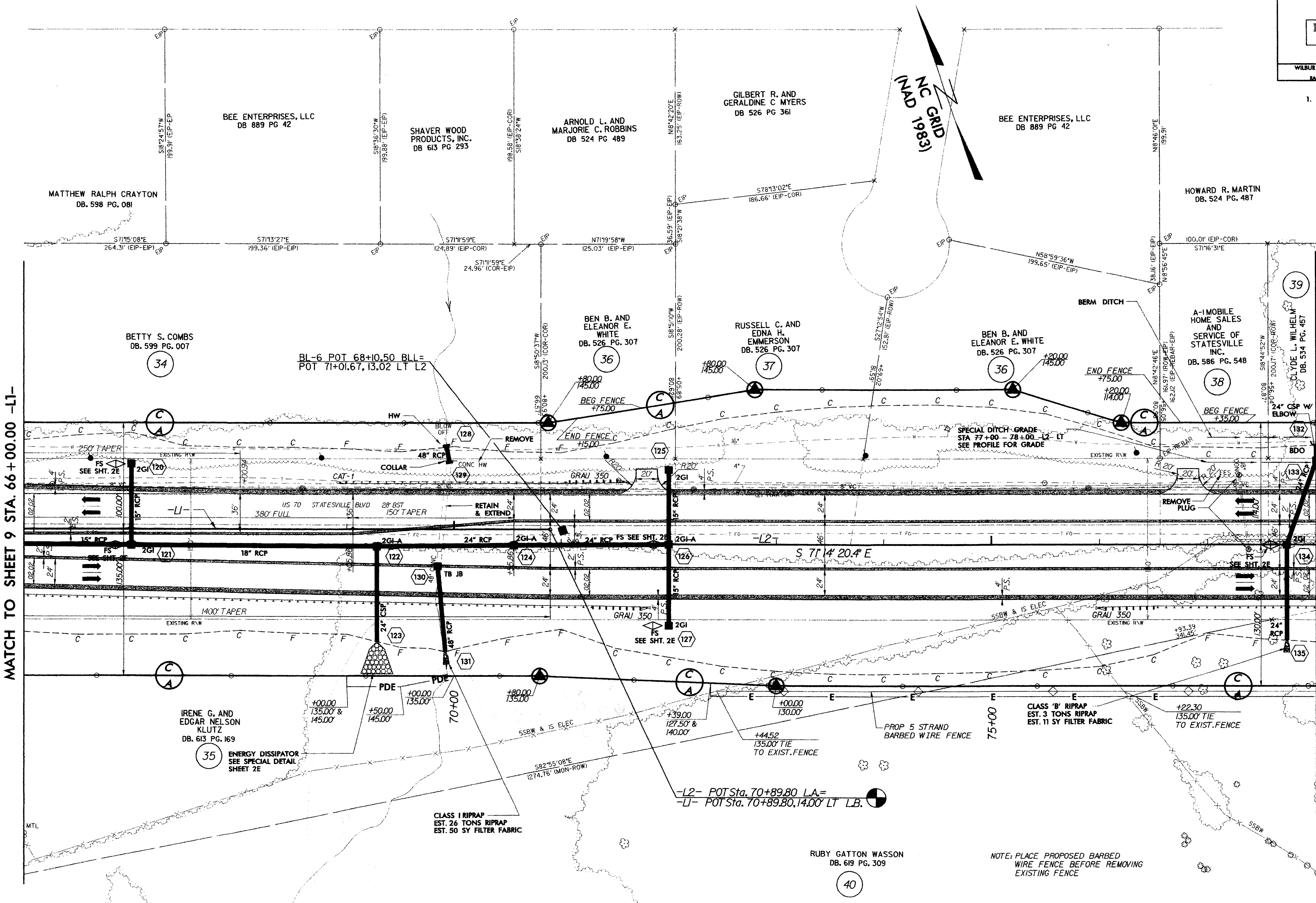
NOTES

1. FOR PROFILE OF: SEE SHEET NO:

L1	27
L2	27, 28

REVISIONS

8/17/99



NC GRID (NAD 1983)
MATCH TO SHEET 9 STA. 66+00.00 -L1-
MATCH TO SHEET 10 STA. 78+00.00 -L2-
MATTHEW RALPH CRAYTON DB. 598 PG. 081
BEE ENTERPRISES, LLC DB 889 PG 42
SHAVER WOOD PRODUCTS, INC. DB 613 PG 293
ARNOLD L. AND MARJORIE C. ROBBINS DB 524 PG 489
GILBERT R. AND GERALDINE C MYERS DB 526 PG 361
HOWARD R. MARTIN DB. 524 PG. 487
BETTY S. COMBS DB. 599 PG. 007
BEN B. AND ELEANOR E. WHITE DB. 526 PG. 307
RUSSELL C. AND EDNA H. EMMERSON DB. 526 PG. 307
A-1 MOBILE HOME SALES AND SERVICE OF STATESVILLE INC. DB. 586 PG. 548
CLYDE L. WILHELM DB. 534 PG. 457
IRENE G. AND EDGAR NELSON KLUTZ DB. 613 PG. 169
RUBY GATTON WASSON DB. 619 PG. 309
BL-6 POT 68+10.50 BLL= POT 71+01.67, 13.02 LT L2
US 70 STATESVILLE BLVD
S 71° 4' 20.4" E
-L2- POT Sta. 70+89.80 L.A.=
-L1- POT Sta. 70+89.80, 14.00' LT L.B.
SPECIAL DITCH GRADE STA 77+00 - 78+00 -L2- LT SEE PROFILE FOR GRADE
ENERGY DISSIPATOR SEE SPECIAL DETAIL SHEET 2E
CLASS I RIPRAP EST. 26 TONS RIPRAP EST. 50 SY FILTER FABRIC
CLASS 'B' RIPRAP EST. 3 TONS RIPRAP EST. 11 SY FILTER FABRIC
PROP 5 STRAND BARBED WIRE FENCE
NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE
70+00
75+00

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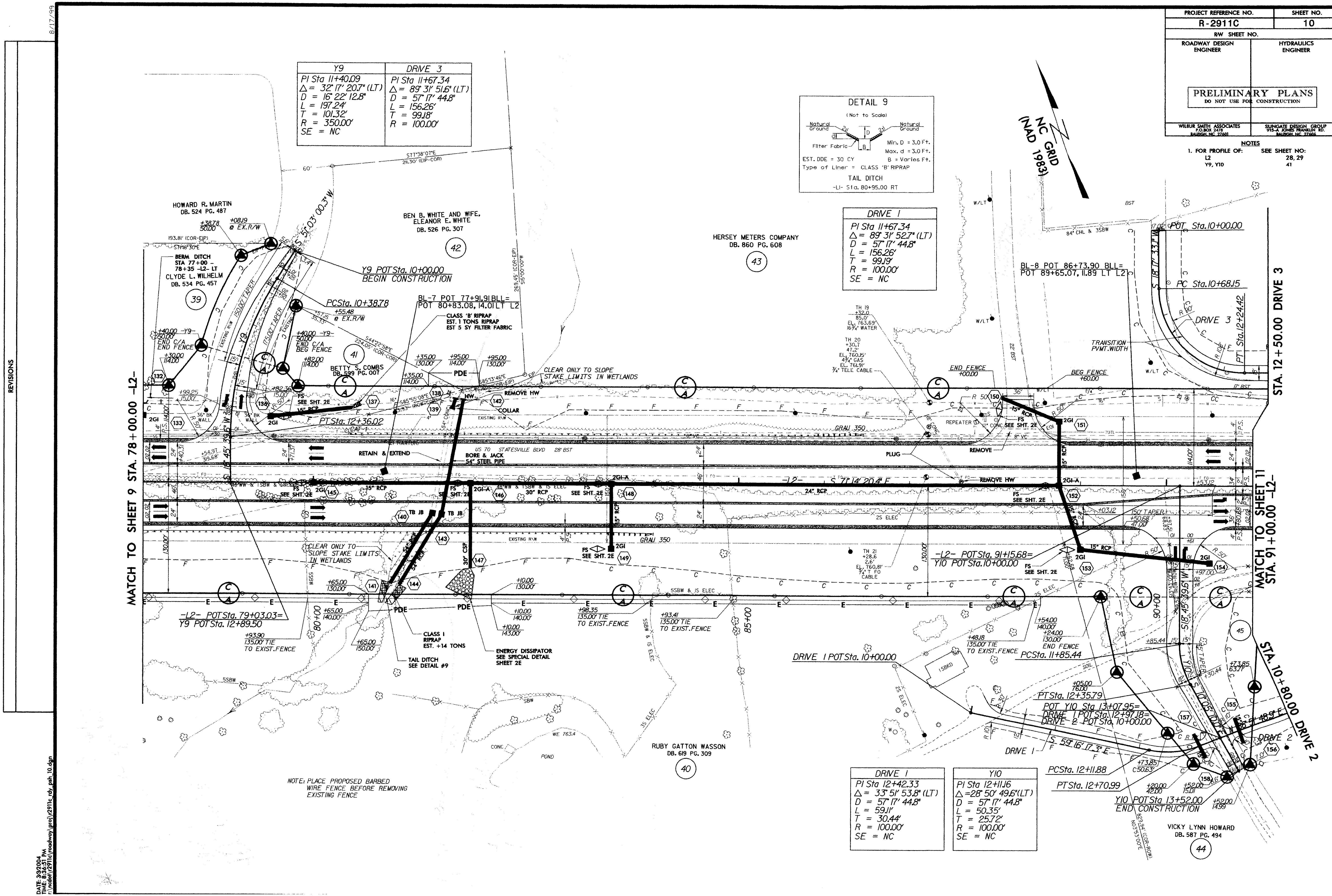


PROJECT REFERENCE NO.
R-2911C
SHEET NO.
10
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
WILBUR SMITH ASSOCIATES
SUNGATE DESIGN GROUP
NOTES
1. FOR PROFILE OF: SEE SHEET NO:
L2 28, 29
Y9, Y10 41
NC GRID (NAD 1983)
REVISIONS
Y9
PI Sta 11+40.09
Δ = 32° 17' 20.7" (LT)
D = 16° 22' 12.8"
L = 197.24'
T = 101.32'
R = 350.00'
SE = NC
DRIVE 3
PI Sta 11+67.34
Δ = 89° 31' 51.6" (LT)
D = 57° 17' 44.8"
L = 156.26'
T = 99.18'
R = 100.00'
SE = NC
DETAIL 9
(Not to Scale)
Natural Ground
Filter Fabric
Min. D = 3.0 Ft.
Max. d = 3.0 Ft.
B = Varies Ft.
EST. DDE = 30 CY
Type of Liner = CLASS 'B' RIPRAP
TAIL DITCH
-L- Sta. 80+95.00 RT
DRIVE 1
PI Sta 11+67.34
Δ = 89° 31' 52.7" (LT)
D = 57° 17' 44.8"
L = 156.26'
T = 99.19'
R = 100.00'
SE = NC
HOWARD R. MARTIN
DB. 524 PG. 487
BEN B. WHITE AND WIFE, ELEANOR E. WHITE
DB. 526 PG. 307
HERSEY METERS COMPANY
DB. 860 PG. 608
CLYDE L. WILHELM
DB. 534 PG. 457
BETTY S. COMBS
DB. 599 PG. 007
RUBY GATTON WASSON
DB. 619 PG. 309
VICKY LYNN HOWARD
DB. 587 PG. 494
Y9 POT Sta. 10+00.00
BEGIN CONSTRUCTION
BL-7 POT 77+91.91 BLL=
POT 80+83.08, 14.01 LT L2
BL-8 POT 86+73.90 BLL=
POT 89+65.07, 11.89 LT L2
CLASS 'B' RIPRAP
EST. 1 TONS RIPRAP
EST 5 SY FILTER FABRIC
CLEAR ONLY TO SLOPE STAKE LIMITS IN WETLANDS
RETAIN & EXTEND
BORE & JACK
54" STEEL PIPE
US 70 STATESVILLE BLVD
MATCH TO SHEET 9 STA. 78+00.00 -L2-
MATCH TO SHEET 11 STA. 91+00.00 -L2-
STA. 12+50.00 DRIVE 3
STA. 10+80.00 DRIVE 2
-L2- POT Sta. 79+03.03=
Y9 POT Sta. 12+89.50
-L2- POT Sta. 91+15.68=
Y10 POT Sta. 10+00.00
DRIVE 1 POT Sta. 10+00.00
POT Sta. 10+00.00
PC Sta. 10+68.15
PT Sta. 12+24.42
PC Sta. 11+85.44
PT Sta. 12+35.79
POT Y10 Sta 13+07.95=
DRIVE 1 POT Sta. 12+97.18=
DRIVE 2 POT Sta. 10+00.00
PC Sta. 12+11.88
PT Sta. 12+70.99
Y10 POT Sta 13+52.00
END CONSTRUCTION
CLASS I RIPRAP
EST. +14 TONS
TAIL DITCH SEE DETAIL #9
ENERGY DISSIPATOR SEE SPECIAL DETAIL SHEET 2E
NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE
DRIVE 1
PI Sta 12+42.33
Δ = 33° 51' 53.8" (LT)
D = 57° 17' 44.8"
L = 59.11'
T = 30.44'
R = 100.00'
SE = NC
Y10
PI Sta 12+11.16
Δ = 28° 50' 49.6" (LT)
D = 57° 17' 44.8"
L = 50.35'
T = 25.72'
R = 100.00'
SE = NC

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

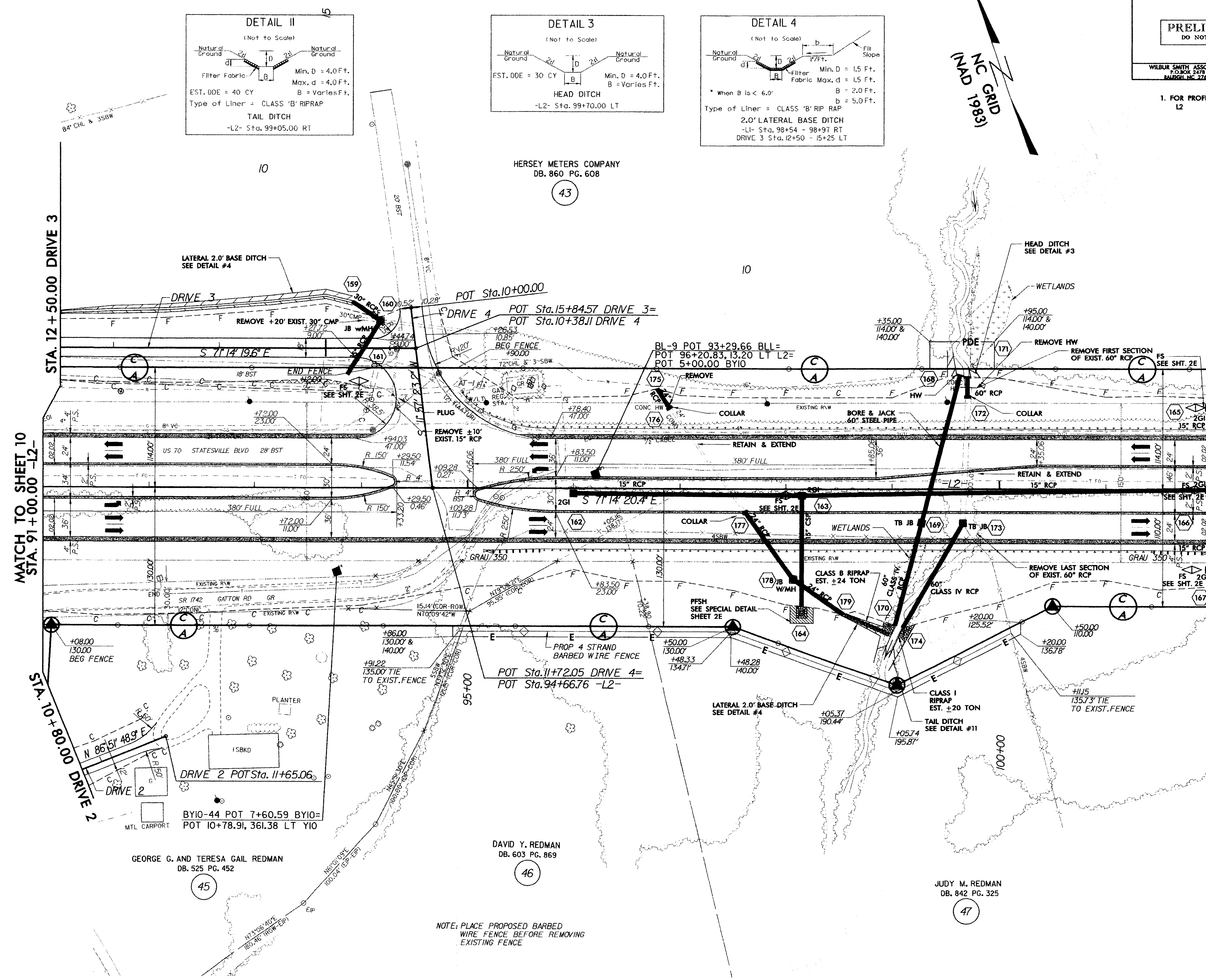
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES P.O.BOX 2478 RALEIGH, NC 27601

SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

NOTES

1. FOR PROFILE OF: L2 — SEE SHEET NO: 29, 30



DETAIL 11
(Not to Scale)
Natural Ground
Filter Fabric
Min. D = 4.0 Ft.
Max. d = 4.0 Ft.
EST. DDE = 40 CY
B = Varies Ft.
Type of Liner = CLASS 'B' RIPRAP
TAIL DITCH
-L2- Sta. 99+05.00 RT
DETAIL 3
(Not to Scale)
EST. DDE = 30 CY
Min. D = 4.0 Ft.
B = Varies Ft.
HEAD DITCH
-L2- Sta. 99+70.00 LT
DETAIL 4
(Not to Scale)
Fill Slope
Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
* When B is < 6.0'
Type of Liner = CLASS 'B' RIP RAP
2.0' LATERAL BASE DITCH
-L1- Sta. 98+54 - 98+97 RT
DRIVE 3 Sta. 12+50 - 15+25 LT
NC GRID (NAD 1983)
HERSEY METERS COMPANY
DB. 860 PG. 608
43
LATERAL 2.0' BASE DITCH SEE DETAIL #4
DRIVE 3
DRIVE 4
POT Sta. 10+00.00
POT Sta. 15+84.57 DRIVE 3=
POT Sta. 10+38.11 DRIVE 4
REMOVE +20' EXIST. 30" CMP
BEG FENCE
END FENCE
S 71°14' 19.6" E
BL-9 POT 93+29.66 BLL=
POT 96+20.83, 13.20 LT L2=
POT 5+00.00 BY10
REMOVE
COLLAR
PLUG
REMOVE ±10' EXIST. 15" RCP
US 70 STATESVILLE BLVD 28' BST
380' FULL
S 71°14' 20.4" E
HEAD DITCH SEE DETAIL #3
WETLANDS
REMOVE HW
REMOVE FIRST SECTION OF EXIST. 60" RCP
PDE
60" RCP
BORE & JACK 60" STEEL PIPE
RETAIN & EXTEND
15" RCP
CLASS B RIPRAP EST. ±24 TON
60" CLASS IV RCP
REMOVE LAST SECTION OF EXIST. 60" RCP
PFSH SEE SPECIAL DETAIL SHEET 2E
SR 1742 GATTON RD
PROP 4 STRAND BARBED WIRE FENCE
POT Sta. 11+72.05 DRIVE 4=
POT Sta. 94+66.76 -L2-
LATERAL 2.0' BASE DITCH SEE DETAIL #4
CLASS I RIPRAP EST. ±20 TON
TAIL DITCH SEE DETAIL #11
TO EXIST. FENCE
PLANTER
DRIVE 2 POT Sta. 11+65.06
DRIVE 2
N 86°51' 48.9" E
BY10-44 POT 7+60.59 BY10=
POT 10+78.91, 361.38 LT Y10
MTL CARPORT
GEORGE G. AND TERESA GAIL REDMAN
DB. 525 PG. 452
45
DAVID Y. REDMAN
DB. 603 PG. 869
46
JUDY M. REDMAN
DB. 842 PG. 325
47
NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE
STA. 12+50.00 DRIVE 3
MATCH TO SHEET 10 STA. 91+00.00 -L2-
STA. 10+80.00 DRIVE 2
MATCH TO SHEET 12 STA. 102+00.00 -L2-

REVISIONS

8/17/99

DATE: 3/2/2004
TIME: 8:36:54 PM
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PROJECT REFERENCE NO.	SHEET NO.
R-2911C	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

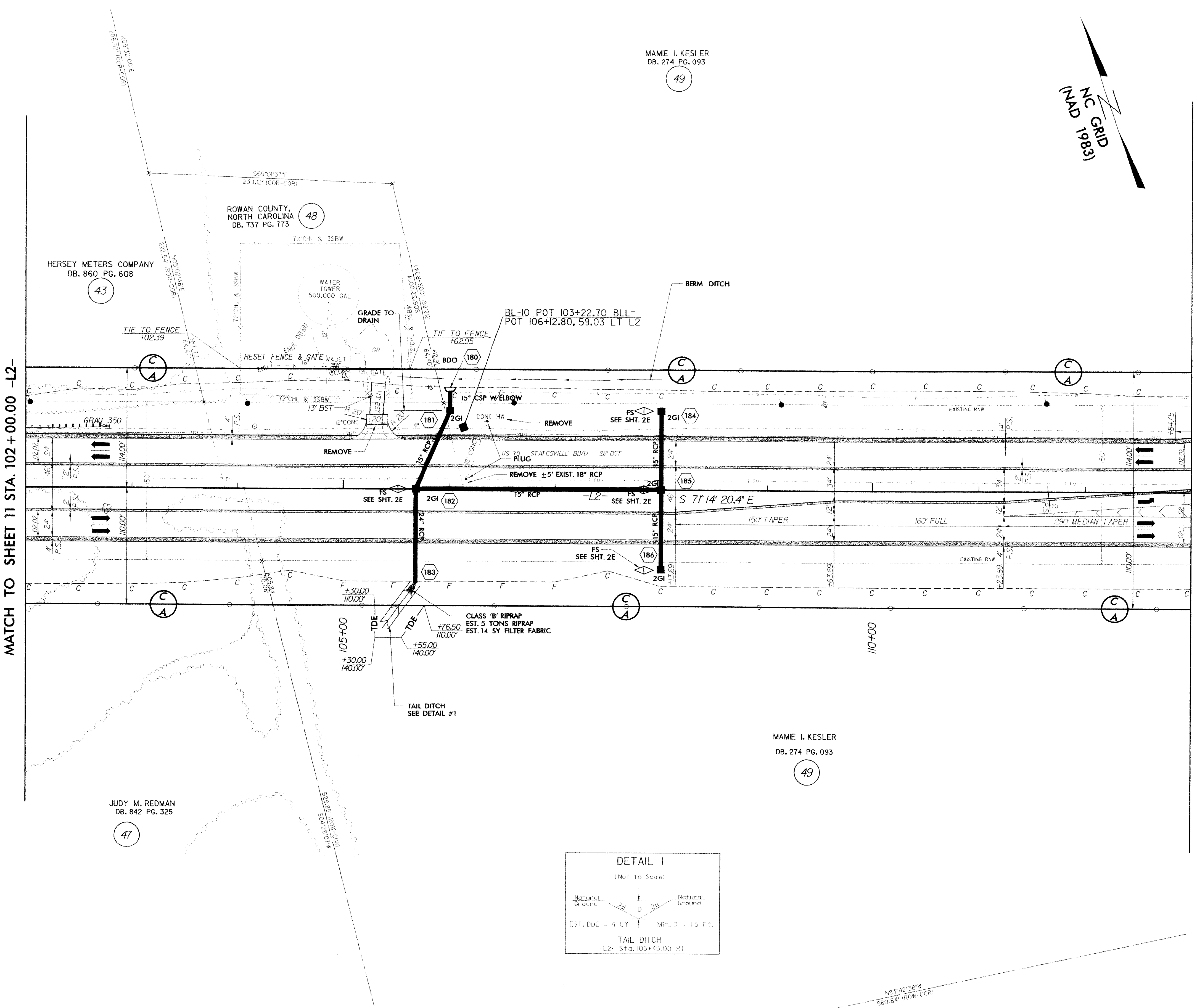
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD
RALEIGH, NC 27606

NOTES
1. FOR PROFILE OF: L2 SEE SHEET NO: 30, 31

REVISIONS



NC GRID (NAD 1983)
MAMIE I. KESLER DB. 274 PG. 093
ROWAN COUNTY, NORTH CAROLINA DB. 737 PG. 773
HERSEY METERS COMPANY DB. 860 PG. 608
JUDY M. REDMAN DB. 842 PG. 325
BERM DITCH
BL-10 POT 103+22.70 BLL= POT 106+12.80, 59.03 LT L2
TIE TO FENCE +02.39
TIE TO FENCE +62.05
GRADE TO DRAIN
RESET FENCE & GATE
15" CSP W/ELBOW
REMOVE
REMOVE ±5' EXIST. 18" RCP
PLUG
US 70 STATESVILLE BLVD
S 71° 14' 20.4" E
150' TAPER
160' FULL
290' MEDIAN TAPER
FS SEE SHT. 2E
CLASS 'B' RIPRAP
EST. 5 TONS RIPRAP
EST. 14 SY FILTER FABRIC
TAIL DITCH SEE DETAIL #1
MATCH TO SHEET 11 STA. 102+00.00 -L2-
MATCH TO SHEET 13 STA. 113+00.00 -L2-
DETAIL 1
(Not to Scale)
TAIL DITCH
L2- Sta. 105+45.00 RT

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PROJECT REFERENCE NO.	SHEET NO.
R-2911C	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES	SUNGATE DESIGN GROUP
P.O.BOX 2478	915-A JONES FRANKLIN RD.
RALEIGH, NC 27601	RALEIGH, NC 27606

NOTES

1. FOR PROFILE OF: SEE SHEET NO:

L2	31, 32
Y11	41
Y11A	42

8/17/99

REVISIONS

-L2-
PI Sta 130+12.43
Δ = 7° 16' 02.8" (LT)
D = 0° 30' 00.0"
L = 1,453.49'
T = 727.72'
R = 11,459.16'
SE = NC
DS = 60 MPH

NC GRID (NAD 1983)

MATCH TO SHEET 12 STA. 113+00.00 -L2-

MATCH TO SHEET 14 STA. 125+00.00 -L2-

POT Sta. 10+00.00 BEGIN CONSTRUCTION

BYII-45 POT 5+00.00 BYII= POT II+40.82, 13.15 RT YII

CLYDE S. WALLER DB. 874 PG. 087 (53)

ALLISON BROTHERS RACE CARS, INC. DB.738, PG.804 (52)

W.B. KESLER DB. 184 PG. 116 (51)

EZZIE D. GRAHAM DB. 548 PG. 762 (50)

MAMIE I. KESLER DB. 274 PG. 093 (49)

-L2- POT Sta. 114+47.30= YII POT Sta. 13+88.93

-L2- POT Sta. 114+53.34= YIIA POT Sta. 10+00.00

GPS 6 POT III+91.89 BLL= POT 114+79.99, 0.10 RT L2= POT 7+60.14 BYII

BYII-46 POT 9+16.39 BYII= POT II+62.15, 14.01 LT YIIA

YIIA POT Sta. 14+00.00 END CONSTRUCTION

POT Sta. 14+79.48

PCSta. 122+84.71

SPECIAL DITCH GRADE STA 122+00 – 123+50 -L- LT SEE PROFILE FOR GRADE

SPECIAL DITCH SEE DETAIL #6

LATERAL V-DITCH SEE DETAIL #5

TAIL DITCH SEE DETAIL #1

LATERAL 2.0' BASE DITCH SEE DETAIL #7

CLEAN OUT EXIST. 15" RCP EST. +50'

RETAIN & EXTEND

COLLAR

160' FULL

150' TAPER

290' MEDIAN TAPER

45' TAPER

60' TAPER

US 70 STATESVILLE BLVD 28' BST

MOUNTAIN ROAD

S 71°12'45"E 199.98' (EIP-I BEAM-EIP-PIN)

S 80°06'34"W 207.35' (EIP-I BEAM-COR)

S 4°30'47"W 124.41' TAPER

S 5°11'46.8"W

S 7°14' 20.4" E

DETAIL 1
(Not to Scale)
Natural Ground, 2:1, D, 2:1, Natural Ground
EST. DDE = 3 CY Min. D = 1.5 Ft.
TAIL DITCH
EST. DDE = 3 CY

DETAIL 5
(Not to Scale)
Natural Ground, 2:1, D, 2:1, b, 1':1Ft.
Min. D = 1.5 Ft.
b = 5.0 Ft.
LATERAL 'V' DITCH
-YIIA- Sta. 11+50.00 – 13+26.00 RT

DETAIL 6
(Not to Scale)
Natural Ground, 2:1, D, 4:1 or Flatter, Front Ditch Slope
Min. D = 0.5 Ft.
SPECIAL CUT DITCH
-L2- Sta. 116+50.00 – 118+00.00 RT

DETAIL 7
(Not to Scale)
Natural Ground, 2:1, D, 2:1, b, 1':1Ft., Fill Slope, B
Min. D = 1.5 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
LATERAL BASE DITCH
-L2- Sta. 122+00.00 – 126+50.00 RT

ADT	US 70	MOUNTAIN ROAD	MOUNTAIN ROAD
2005	13,200	440	12,500
2025	25,200	800	25,600
		660	
		1,200	

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PROJECT REFERENCE NO.	SHEET NO.
R-2911C	14

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

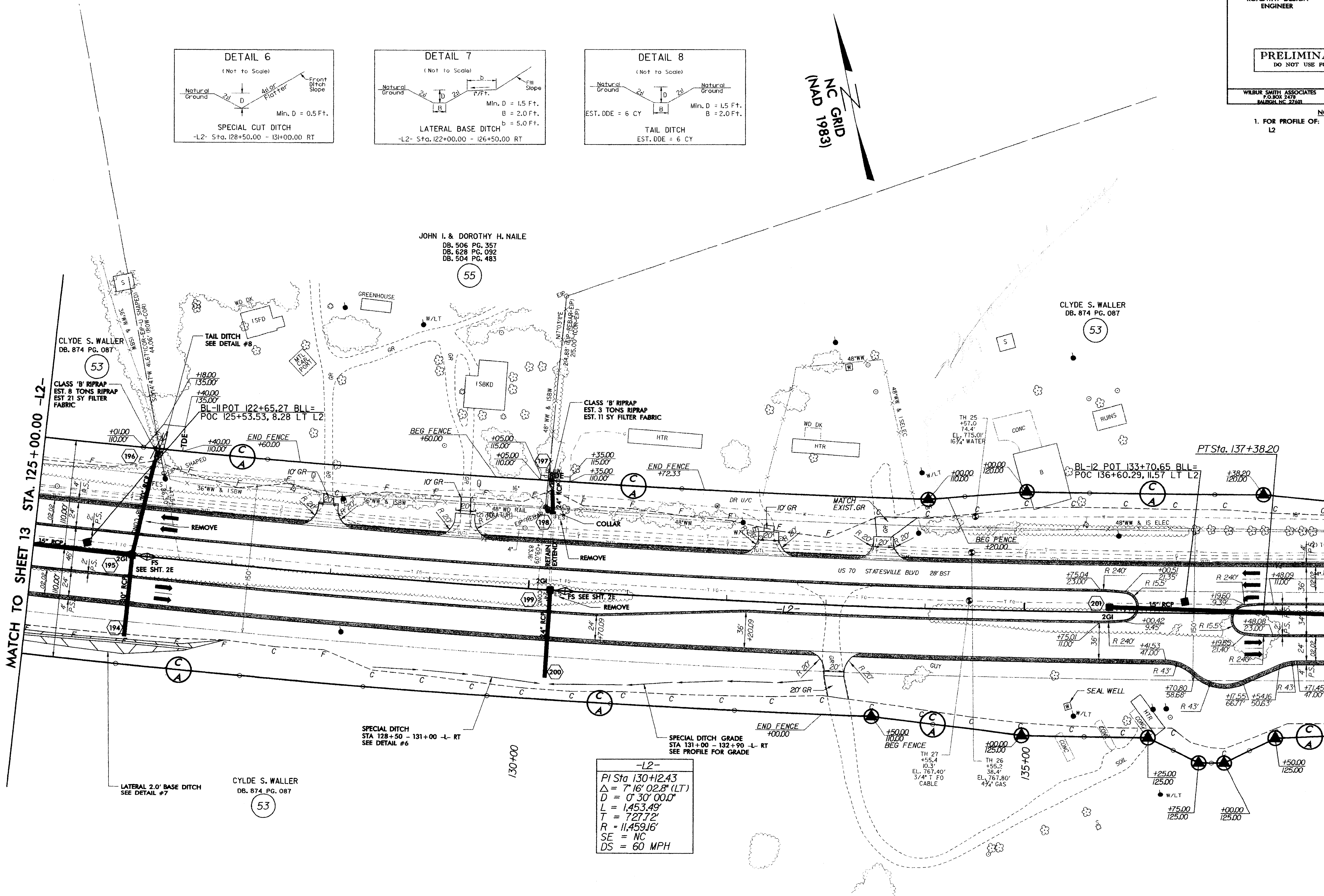
WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606

NOTES

1. FOR PROFILE OF: L2 SEE SHEET NO: 32, 33

REVISIONS



DETAIL 6
(Not to Scale)
Natural Ground
2d:1
D
4d:1 or Flatter
Front Ditch Slope
Min. D = 0.5 Ft.
SPECIAL CUT DITCH
-L2- Sta. 128+50.00 - 131+00.00 RT
DETAIL 7
(Not to Scale)
Natural Ground
D
B
Fill Slope
Min. D = 1.5 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
LATERAL BASE DITCH
-L2- Sta. 122+00.00 - 126+50.00 RT
DETAIL 8
(Not to Scale)
Natural Ground
Min. D = 1.5 Ft.
B = 2.0 Ft.
EST. DDE = 6 CY
TAIL DITCH
EST. DDE = 6 CY
NC GRID (NAD 1983)
JOHN I. & DOROTHY H. NAILE
DB. 506 PG. 357
DB. 628 PG. 092
DB. 504 PG. 483
55
CLYDE S. WALLER
DB. 874 PG. 087
53
GREENHOUSE
TAIL DITCH SEE DETAIL #8
CLASS 'B' RIPRAP EST. 8 TONS RIPRAP EST 21 SY FILTER FABRIC
BL-11 POT 122+65.27 BLL= POC 125+53.53, 8.28 LT L2
CLASS 'B' RIPRAP EST. 3 TONS RIPRAP EST. 11 SY FILTER FABRIC
BL-12 POT 133+70.65 BLL= POC 136+60.29, 11.57 LT L2
PT Sta. 137+38.20
END FENCE
BEG FENCE
REMOVE
COLLAR
MATCH EXIST. GR
US 70 STATESVILLE BLVD 28' BST
-L2-
SEAL WELL
MATCH TO SHEET 13 STA. 125+00.00 -L2-
MATCH TO SHEET 15 STA. 138+00.00 -L2-
SPECIAL DITCH STA 128+50 - 131+00 -L- RT SEE DETAIL #6
SPECIAL DITCH GRADE STA 131+00 - 132+90 -L- RT SEE PROFILE FOR GRADE
LATERAL 2.0' BASE DITCH SEE DETAIL #7
CYLDE S. WALLER
DB. 874 PG. 087
53
130+00
135+00
-L2-
PI Sta 130+12.43
Δ = 7° 16' 02.8" (LT)
D = 0° 30' 00.0"
L = 1,453.49'
T = 727.72'
R = 11,459.16'
SE = NC
DS = 60 MPH

DATE: 3/2/2004
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PROJECT REFERENCE NO.	SHEET NO.
R-2911C	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

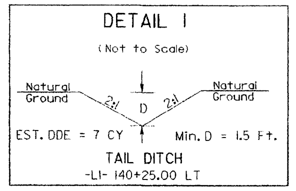
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

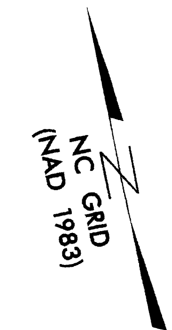
WILBUR SMITH ASSOCIATES P.O.BOX 2478 RALEIGH, NC 27601

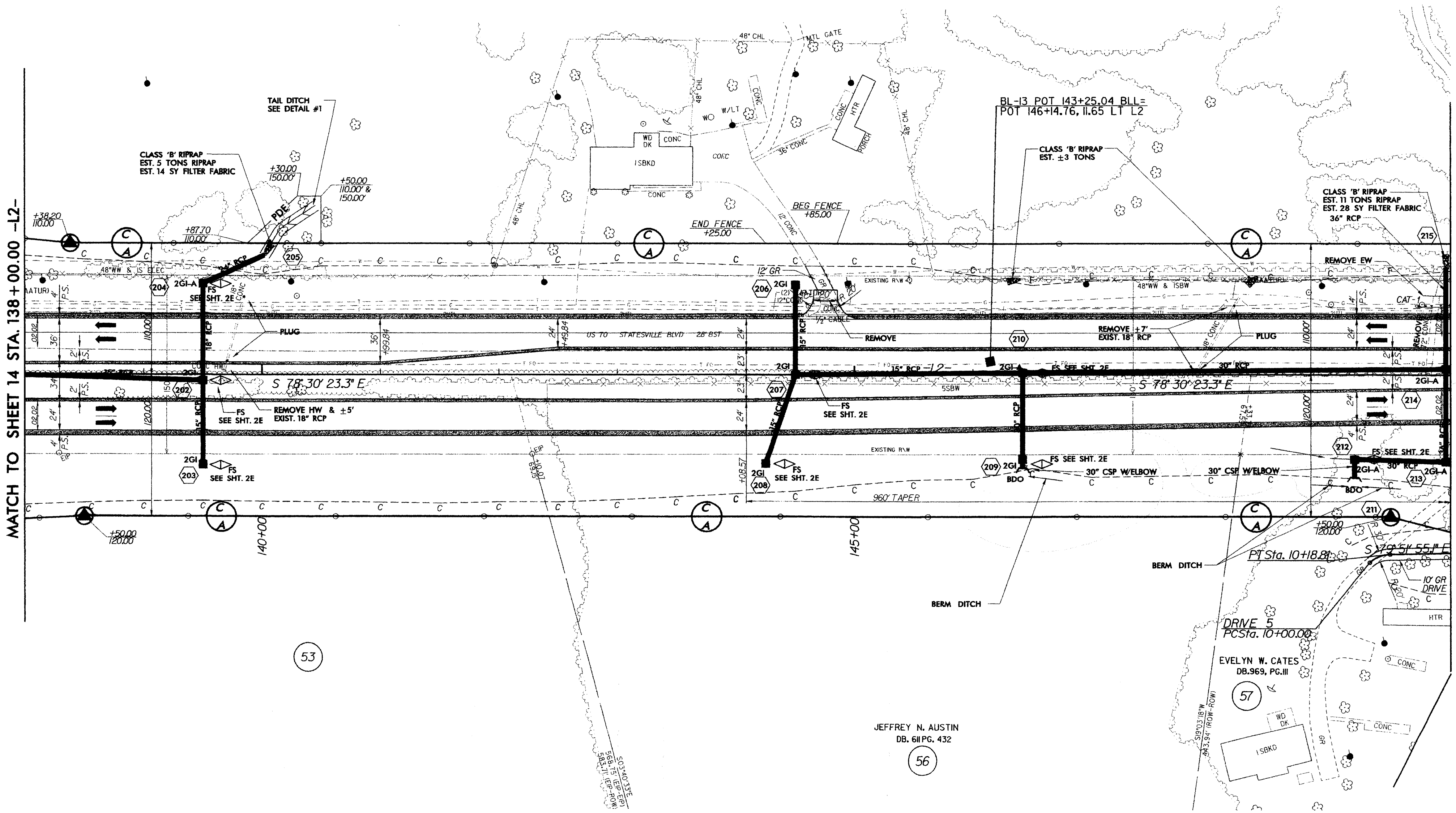
SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

NOTES

1. FOR PROFILE OF: L2 SEE SHEET NO: 33







CLYDE S. WALLER
DB. 874 PG. 087
53
TAIL DITCH SEE DETAIL #1
CLASS 'B' RIPRAP
EST. 5 TONS RIPRAP
EST. 14 SY FILTER FABRIC
BL-13 POT 143+25.04 BLL=
POT 146+14.76, 11.65 LT L2
CLASS 'B' RIPRAP
EST. ±3 TONS
CLASS 'B' RIPRAP
EST. 11 TONS RIPRAP
EST. 28 SY FILTER FABRIC
36" RCP
BEG FENCE +85.00
END FENCE +25.00
REMOVE EW
PLUG
REMOVE
REMOVE ±7'
EXIST. 18" RCP
REMOVE HW & ±5'
EXIST. 18" RCP
S 78°30'23.3" E
30" CSP W/ELBOW
960' TAPER
BERM DITCH
BERM DITCH
PT Sta. 10+18.81
DRIVE 5
PCSta. 10+00.00
EVELYN W. CATES
DB.969, PG.111
57
JEFFREY N. AUSTIN
DB. 611 PG. 432
56
53
MATCH TO SHEET 14 STA. 138+00.00 -L2-
MATCH TO SHEET 16 STA. 150+00.00 -L2-

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
R-2911C	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

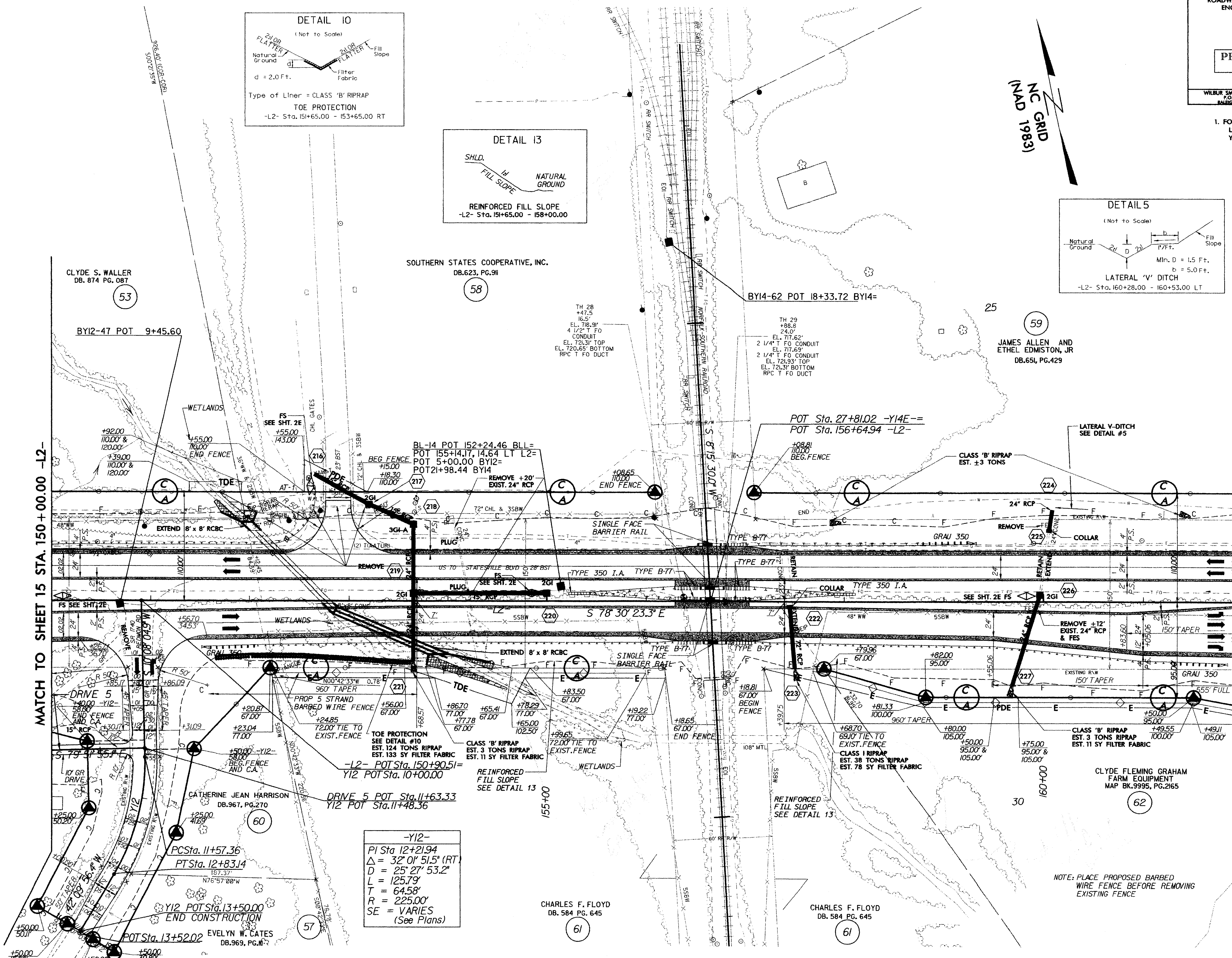
WILBUR SMITH ASSOCIATES P.O.BOX 2478 RALEIGH, NC 27601 | SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

NOTES

1. FOR PROFILE OF: SEE SHEET NO:
   L2 34
   Y12 42

REVISIONS

8/17/99



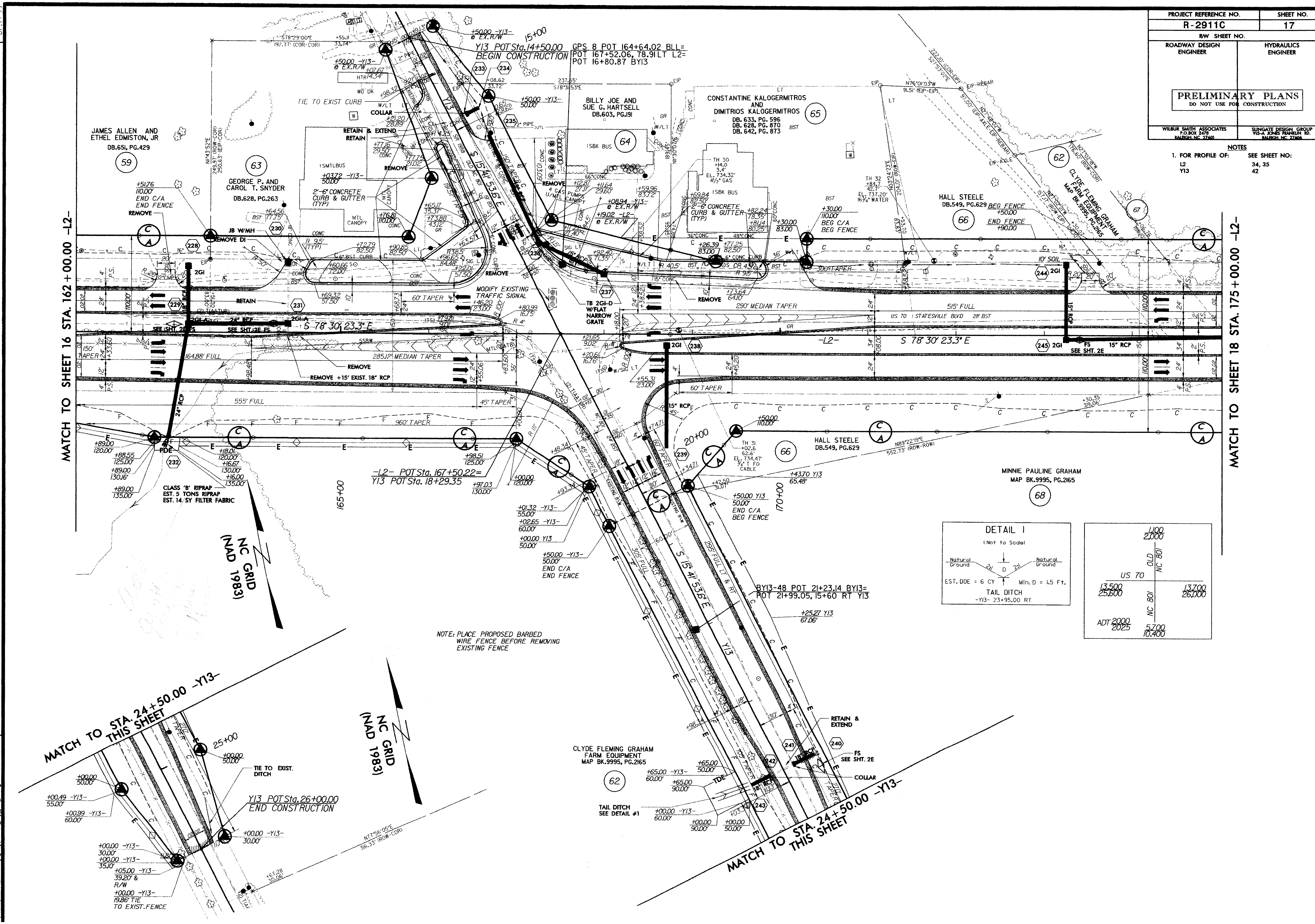
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES, P.O. BOX 2478, RALEIGH, NC 27601 — SUNGATE DESIGN GROUP, 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

NOTES

1. FOR PROFILE OF: L2 — SEE SHEET NO: 34, 35; Y13 — 42



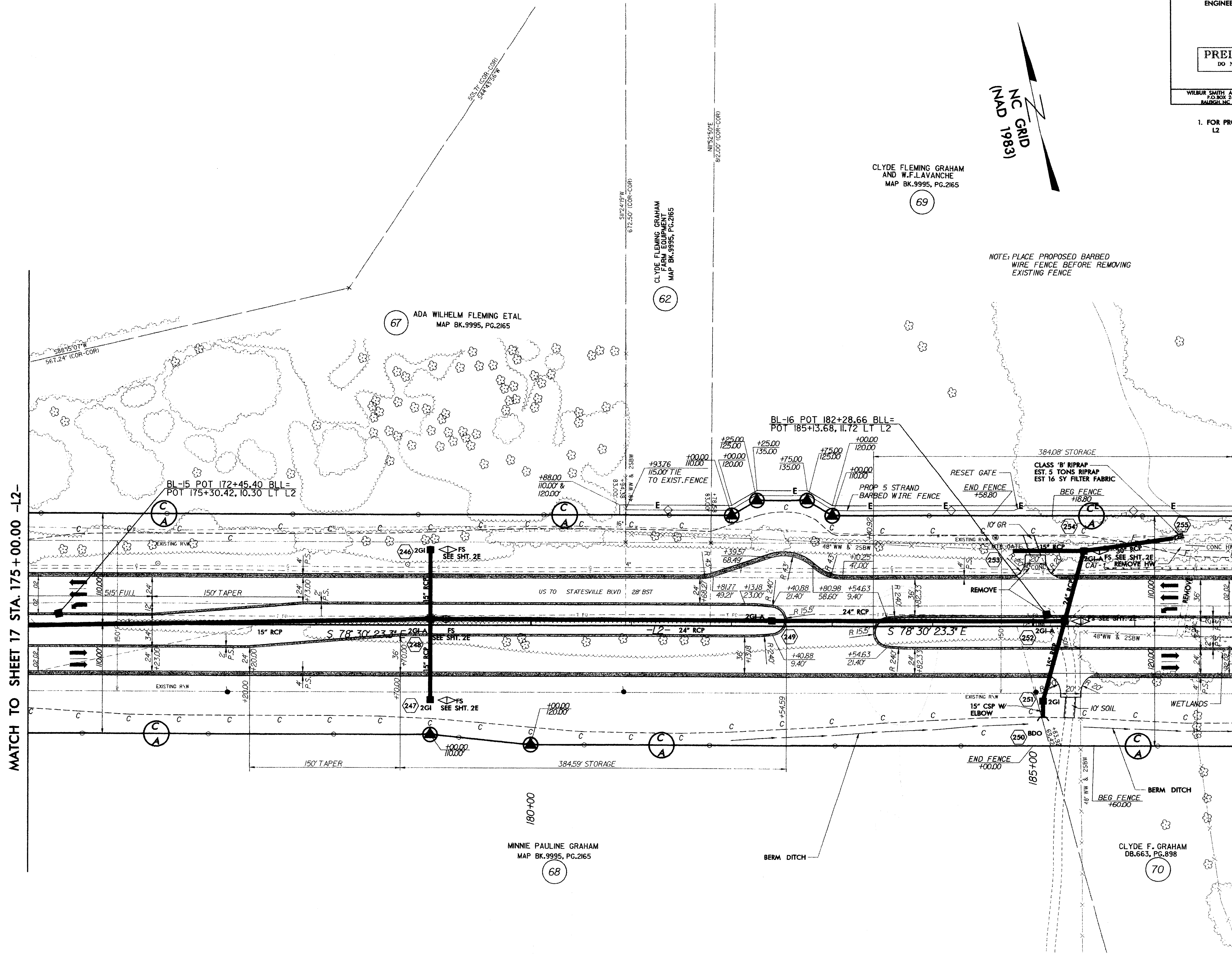
MATCH TO SHEET 16 STA. 162+00.00 -L2-
MATCH TO SHEET 18 STA. 175+00.00 -L2-
Y13 POT Sta. 14+50.00 BEGIN CONSTRUCTION
GPS 8 POT 164+64.02 BLL= POT 167+52.06, 78.91 LT L2= POT 16+80.87 BY13
JAMES ALLEN AND ETHEL EDMISTON, JR DB.651, PG.429
GEORGE P. AND CAROL T. SNYDER DB.628, PG.263
BILLY JOE AND SUE G. HARTSELL DB.603, PG.191
CONSTANTINE KALOGERMITROS AND DIMITRIOS KALOGERMITROS DB. 633, PG. 596 DB. 628, PG. 870 DB. 642, PG. 873
HALL STEELE DB.549, PG.629
CLYDE FLEMING GRAHAM FARM EQUIPMENT MAP BK.9995, PG.2165
MINNIE PAULINE GRAHAM MAP BK.9995, PG.2165
US 70 STATESVILLE BLVD 28' BST
S 78°30' 23.3" E
S 15°41' 53.6" E
MODIFY EXISTING TRAFFIC SIGNAL
TB 2GI-D W/FLAT NARROW GRATE
-L2- POT Sta. 167+50.22= Y13 POT Sta. 18+29.35
CLASS 'B' RIPRAP EST. 5 TONS RIPRAP EST. 14 SY FILTER FABRIC
NC GRID (NAD 1983)
BY13-48 POT 21+23.14 BY13= POT 21+99.05, 15+60 RT Y13
NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE
MATCH TO STA. 24+50.00 -Y13- THIS SHEET
Y13 POT Sta. 26+00.00 END CONSTRUCTION
TAIL DITCH SEE DETAIL #1
DETAIL I (Not to Scale)
Natural Ground
EST. DDE = 6 CY
Min. D = 1.5 Ft.
TAIL DITCH -Y13- 23+95.00 RT
US 70
OLD NC 801
NC 801
ADT 2000 2025
1,100 2,000
13,500 25,500
13,700 26,000
5,700 10,400
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
WILBUR SMITH ASSOCIATES P.O.BOX 2478 RALEIGH, NC 27601	SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTES

1. FOR PROFILE OF: L2 — SEE SHEET NO: 35, 36



NC GRID (NAD 1983)
CLYDE FLEMING GRAHAM AND W.F.LAVANCHE MAP BK.9995, PG.2165
69
NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE
CLYDE FLEMING GRAHAM FARM EQUIPMENT MAP BK.9995, PG.2165
62
ADA WILHELM FLEMING ETAL MAP BK.9995, PG.2165
67
BL-15 POT 172+45.40 BLL= POT 175+30.42, 10.30 LT L2
BL-16 POT 182+28.66 BLL= POT 185+13.68, 11.72 LT L2
PROP 5 STRAND BARBED WIRE FENCE
RESET GATE
END FENCE +58.80
BEG FENCE +18.80
384.08' STORAGE
CLASS 'B' RIPRAP EST. 5 TONS RIPRAP EST 16 SY FILTER FABRIC
REMOVE
US 70 STATESVILLE BLVD 28' BST
S 78° 30' 23.3" E
-L2-
15" RCP
24" RCP
150' TAPER
515' FULL
384.59' STORAGE
EXISTING R/W
15" CSP W/ ELBOW
WETLANDS
10' SOIL
END FENCE +00.00
BEG FENCE +60.00
BERM DITCH
MATCH TO SHEET 17 STA. 175+00.00 -L2-
MATCH TO SHEET 19 STA. 187+00.00 -L2-
180+00
185+00
MINNIE PAULINE GRAHAM MAP BK.9995, PG.2165
68
CLYDE F. GRAHAM DB.663, PG.898
70

REVISIONS

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8/17/99

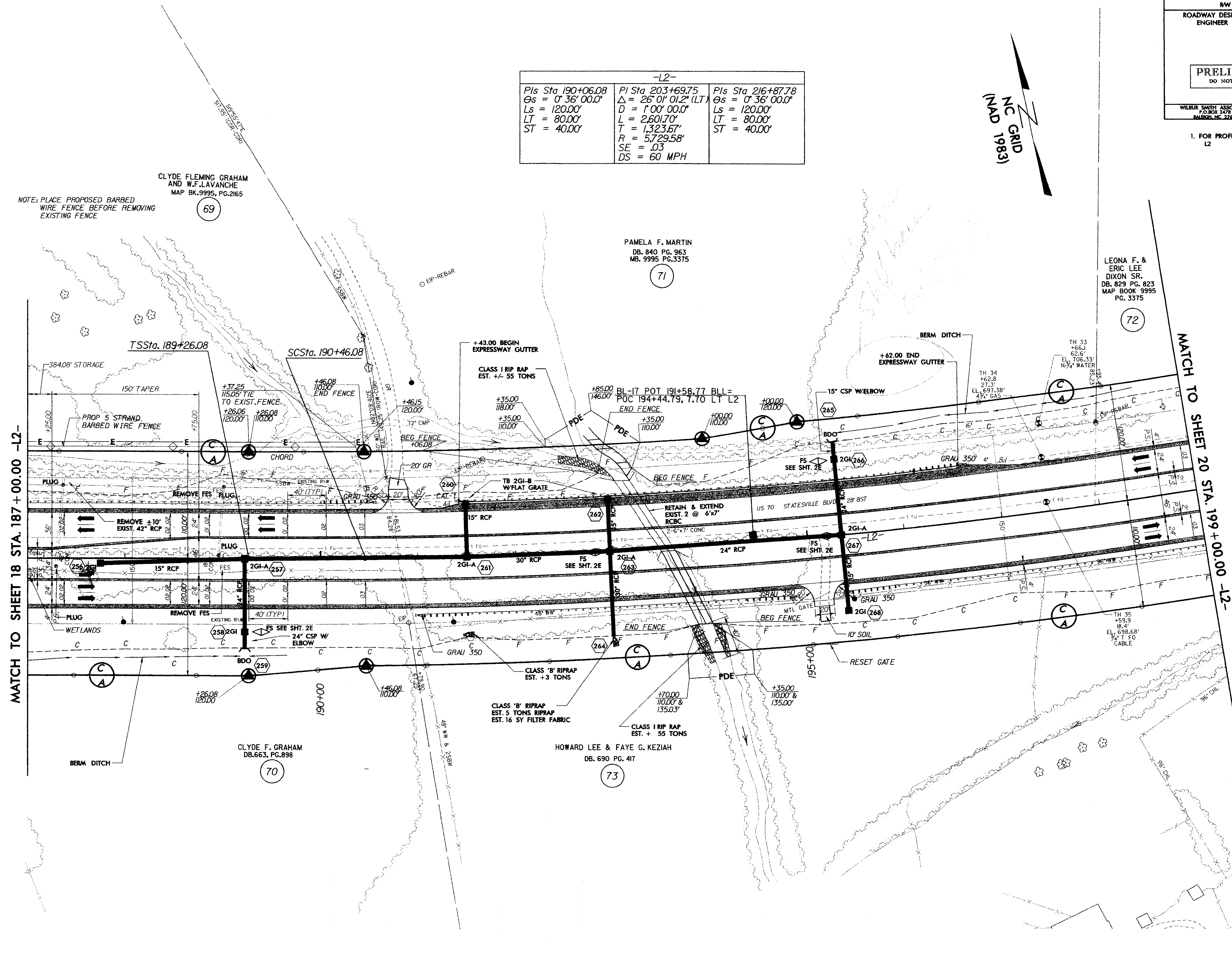
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
WILBUR SMITH ASSOCIATES P.O.BOX 2478 RALEIGH, NC 27601	SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTES

1. FOR PROFILE OF: L2 — SEE SHEET NO: 36, 37

-L2-		
PIs Sta 190+06.08 Θs = 0° 36′ 00.0″ Ls = 120.00′ LT = 80.00′ ST = 40.00′	PI Sta 203+69.75 Δ = 26° 01′ 01.2″ (LT) D = 1° 00′ 00.0″ L = 2,601.70′ T = 1,323.67′ R = 5,729.58′ SE = .03 DS = 60 MPH	PIs Sta 216+87.78 Θs = 0° 36′ 00.0″ Ls = 120.00′ LT = 80.00′ ST = 40.00′



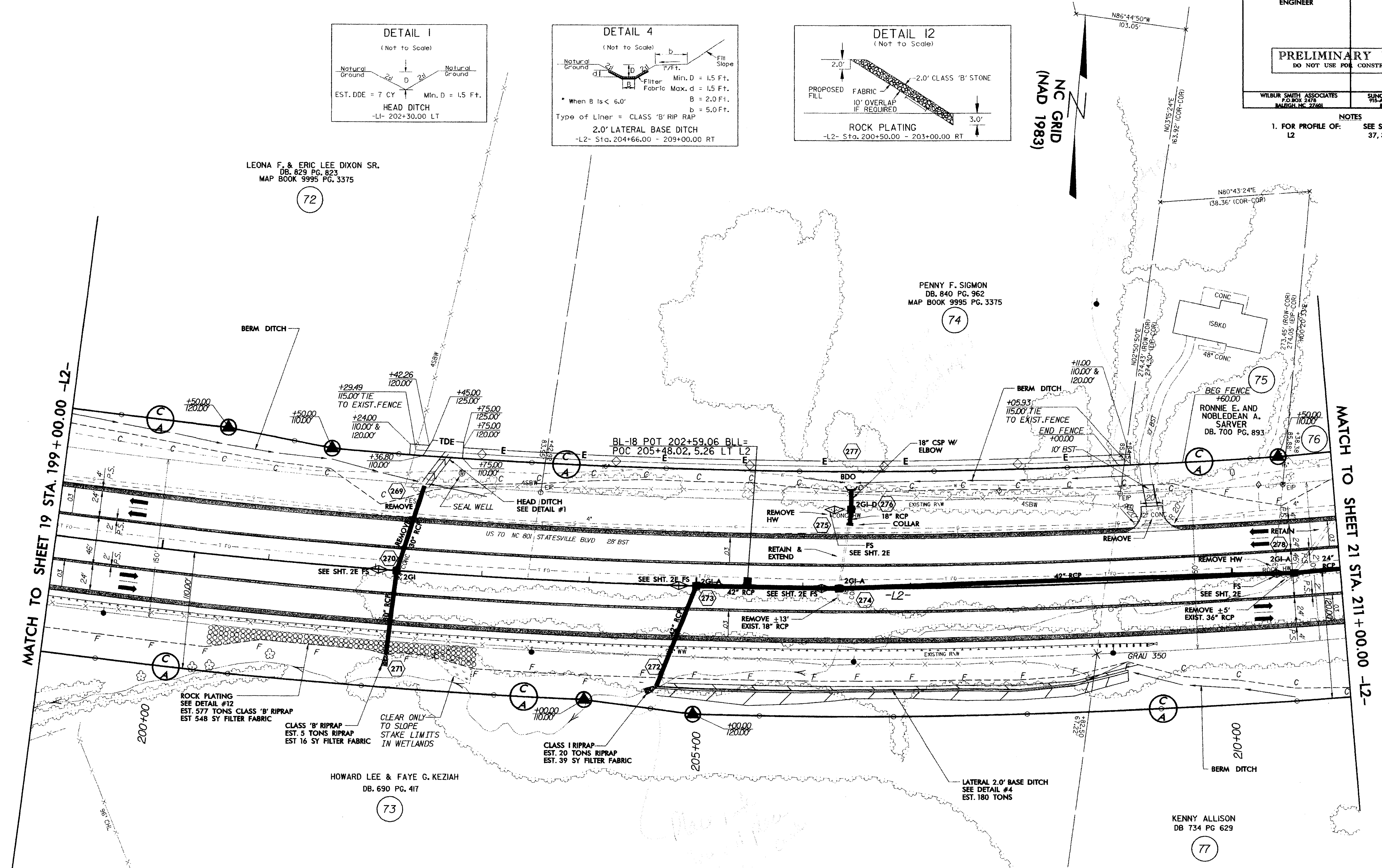
NC GRID (NAD 1983)
CLYDE FLEMING GRAHAM AND W.F.LAVANCHE MAP BK.9995, PG.2165
69
NOTE: PLACE PROPOSED BARBED WIRE FENCE BEFORE REMOVING EXISTING FENCE
PAMELA F. MARTIN DB. 840 PG. 963 MB. 9995 PG.3375
71
LEONA F. & ERIC LEE DIXON SR. DB. 829 PG. 823 MAP BOOK 9995 PG. 3375
72
MATCH TO SHEET 18 STA. 187+00.00 -L2-
MATCH TO SHEET 20 STA. 199+00.00 -L2-
TSSta. 189+26.08
SCSta. 190+46.08
BL-17 POT 191+58.77 BLL= POC 194+44.79, 7.70 LT L2
+43.00 BEGIN EXPRESSWAY GUTTER
CLASS I RIP RAP EST. +/- 55 TONS
+62.00 END EXPRESSWAY GUTTER
BERM DITCH
15" CSP W/ELBOW
RETAIN & EXTEND EXIST. 2 @ 6'x7' RCBC
US 70 STATESVILLE BLVD
TB 2GI-B W/FLAT GRATE
REMOVE ±10' EXIST. 42" RCP
PROP 5 STRAND BARBED WIRE FENCE
384.08' STORAGE
150' TAPER
WETLANDS
24" CSP W/ ELBOW
CLASS 'B' RIPRAP EST. +3 TONS
CLASS 'B' RIPRAP EST. 5 TONS RIPRAP EST. 16 SY FILTER FABRIC
CLASS I RIP RAP EST. + 55 TONS
RESET GATE
10' SOIL
BERM DITCH
CLYDE F. GRAHAM DB.663, PG.898
70
HOWARD LEE & FAYE G. KEZIAH DB. 690 PG. 417
73

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES P.O. BOX 2478 RALEIGH, NC 27601 — SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

NOTES
1. FOR PROFILE OF: L2 — SEE SHEET NO: 37, 38



DETAIL 1
(Not to Scale)
HEAD DITCH
-L1- 202+30.00 LT
DETAIL 4
(Not to Scale)
2.0' LATERAL BASE DITCH
-L2- Sta. 204+66.00 - 209+00.00 RT
DETAIL 12
(Not to Scale)
ROCK PLATING
-L2- Sta. 200+50.00 - 203+00.00 RT
NC GRID (NAD 1983)
LEONA F. & ERIC LEE DIXON SR.
DB. 829 PG. 823
MAP BOOK 9995 PG. 3375
PENNY F. SIGMON
DB. 840 PG. 962
MAP BOOK 9995 PG. 3375
RONNIE E. AND NOBLEDEAN A. SARVER
DB. 700 PG. 893
HOWARD LEE & FAYE G. KEZIAH
DB. 690 PG. 417
KENNY ALLISON
DB 734 PG 629
MATCH TO SHEET 19 STA. 199+00.00 -L2-
MATCH TO SHEET 21 STA. 211+00.00 -L2-
US 70 NC 801 STATESVILLE BLVD 28' BST
BL-18 POT 202+59.06 BLL= POC 205+48.02, 5.26 LT L2
ROCK PLATING SEE DETAIL #12 EST. 577 TONS CLASS 'B' RIPRAP EST 548 SY FILTER FABRIC
CLASS 'B' RIPRAP EST. 5 TONS RIPRAP EST 16 SY FILTER FABRIC
CLEAR ONLY TO SLOPE STAKE LIMITS IN WETLANDS
CLASS I RIPRAP EST. 20 TONS RIPRAP EST. 39 SY FILTER FABRIC
LATERAL 2.0' BASE DITCH SEE DETAIL #4 EST. 180 TONS
BERM DITCH

-L2-		
PIs Sta 190+06.08 θs = 0° 36' 00.0" Ls = 120.00' LT = 80.00' ST = 40.00'	PI Sta 203+69.75 △ = 26° 01' 01.2" (LT) D = 1° 00' 00.0" L = 2,601.70' T = 1,323.67' R = 5,729.58' SE = .03 DS = 60 MPH	PIs Sta 216+87.78 θs = 0° 36' 00.0" Ls = 120.00' LT = 80.00' ST = 40.00'

REVISIONS

8/17/99

DATE: 3/3/2004
TIME: 8:37:21 PM
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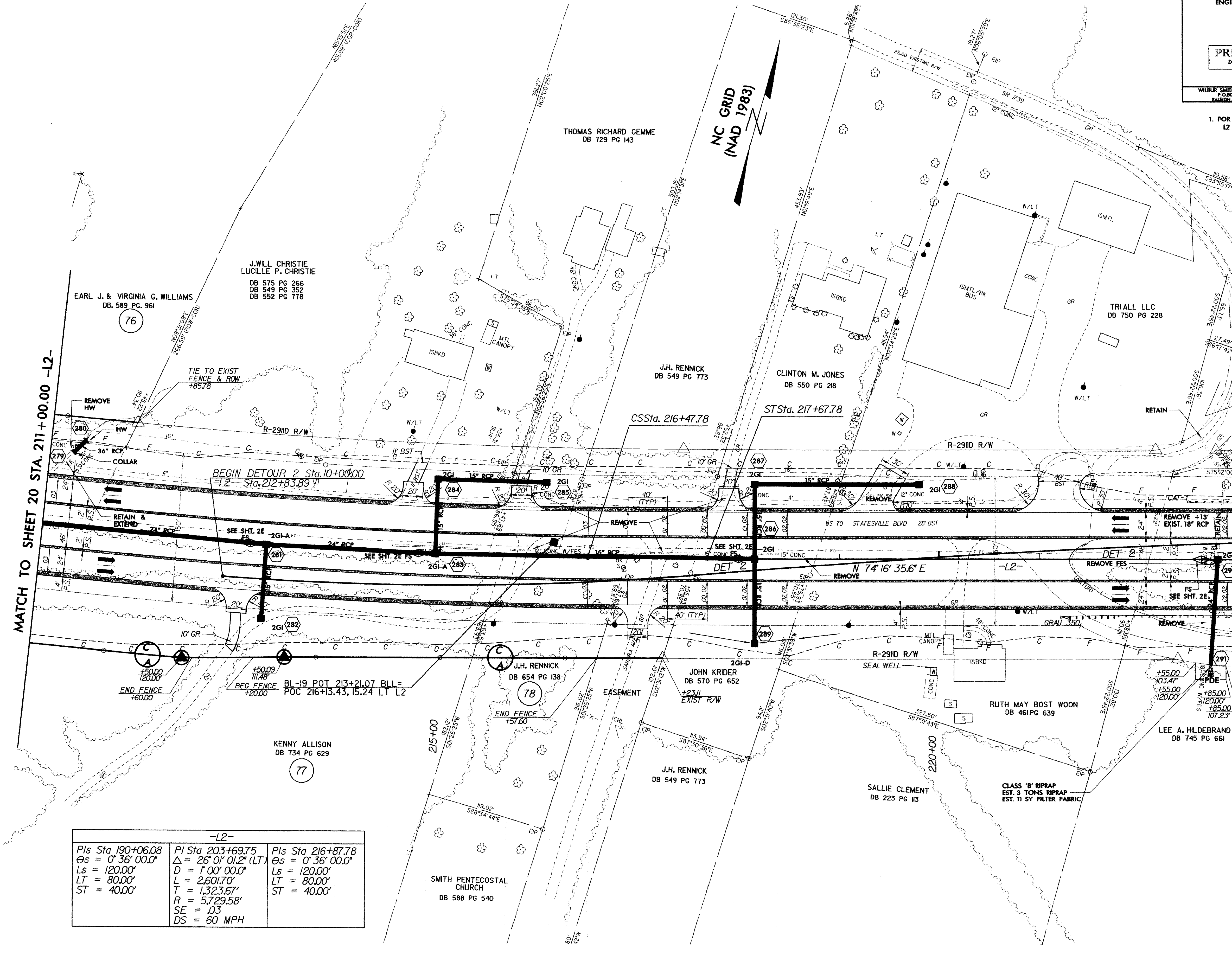
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	21
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
WILBUR SMITH ASSOCIATES P.O.BOX 2478 RALEIGH, NC 27601	SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTES
1. FOR PROFILE OF: L2 — SEE SHEET NO: 38, 39



MATCH TO SHEET 20 STA. 211+00.00 -L2-
MATCH TO SHEET 22 STA. 223+00.00 -L2-
NC GRID (NAD 1983)
THOMAS RICHARD GEMME
DB 729 PG 143
J.WILL CHRISTIE
LUCILLE P. CHRISTIE
DB 575 PG 266
DB 549 PG 352
DB 552 PG 778
EARL J. & VIRGINIA G. WILLIAMS
DB. 589 PG. 961
76
J.H. RENNICK
DB 549 PG 773
CLINTON M. JONES
DB 550 PG 218
TRIALL LLC
DB 750 PG 228
TIE TO EXIST FENCE & ROW +85.78
REMOVE HW
RETAIN & EXTEND
BEGIN DETOUR 2 Sta.10+00.00
-L2- Sta.212+83.89
CSSta. 216+47.78
STSta. 217+67.78
R-2911D R/W
US 70 STATESVILLE BLVD 28' BST
N 74° 16' 35.6" E
DET 2
-L2-
REMOVE +13' EXIST. 18" RCP
REMOVE FES
SEE SHT. 2E
RETAIN
REMOVE
BL-19 POT 213+21.07 BLL=
POC 216+13.43, 15.24 LT L2
END FENCE +60.00
BEG FENCE +20.00
END FENCE +57.60
J.H. RENNICK
DB 654 PG 138
78
EASEMENT
JOHN KRIDER
DB 570 PG 652
EXIST R/W
SEAL WELL
RUTH MAY BOST WOON
DB 461 PG 639
LEE A. HILDEBRAND
DB 745 PG 661
KENNY ALLISON
DB 734 PG 629
77
J.H. RENNICK
DB 549 PG 773
SALLIE CLEMENT
DB 223 PG 113
CLASS 'B' RIPRAP
EST. 3 TONS RIPRAP
EST. 11 SY FILTER FABRIC
SMITH PENTECOSTAL CHURCH
DB 588 PG 540
215+00
220+00

-L2-		
PIs Sta 190+06.08	PI Sta 203+69.75	PIs Sta 216+87.78
Θs = 0° 36' 00.0"	Δ = 26° 01' 01.2" (LT)	Θs = 0° 36' 00.0"
Ls = 120.00'	D = 1° 00' 00.0"	Ls = 120.00'
LT = 80.00'	L = 2,601.70'	LT = 80.00'
ST = 40.00'	T = 1,323.67'	ST = 40.00'
	R = 5,729.58'	
	SE = .03	
	DS = 60 MPH	

REVISIONS

8/17/99

DATE: 3/2/2004
TIME: 8:37:26 PM
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PROJECT REFERENCE NO.	SHEET NO.
R-2911C	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

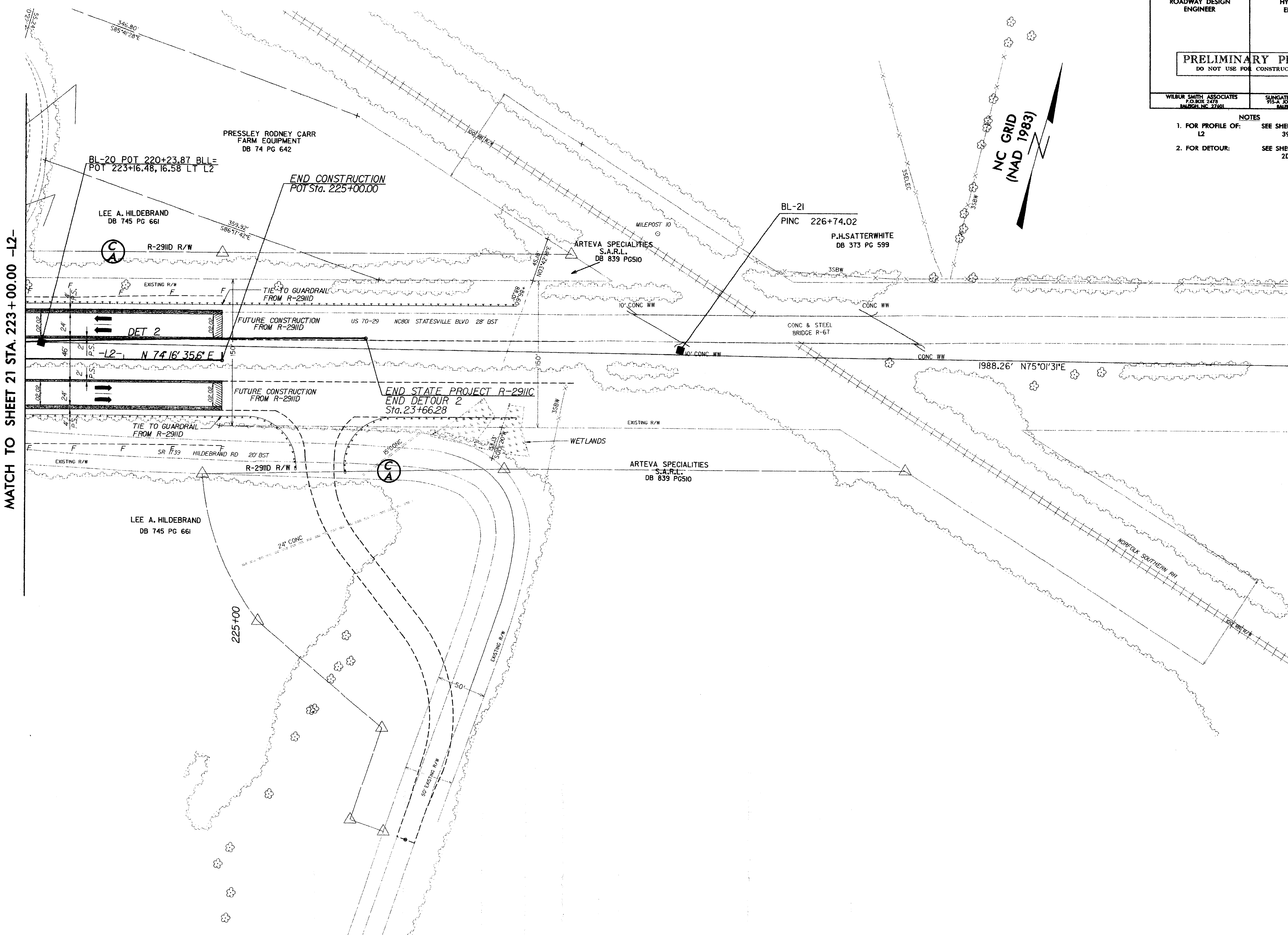
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606

NOTES

1. FOR PROFILE OF: L2 — SEE SHEET NO: 39
2. FOR DETOUR: — SEE SHEET NO: 2D



MATCH TO SHEET 21 STA. 223+00.00 -L2-
PRESSLEY RODNEY CARR
FARM EQUIPMENT
DB 74 PG 642
BL-20 POT 220+23.87 BLL=
POT 223+16.48, 16.58 LT L2
END CONSTRUCTION
POT Sta. 225+00.00
LEE A. HILDEBRAND
DB 745 PG 661
R-2911D R/W
ARTEVA SPECIALITIES
S.A.R.L.
DB 839 PG510
BL-21
PINC 226+74.02
P.H.SATTERWHITE
DB 373 PG 599
NC GRID
(NAD 1983)
MILEPOST 10
EXISTING R/W
TIE TO GUARDRAIL
FROM R-2911D
FUTURE CONSTRUCTION
FROM R-2911D
US 70-29 NC801 STATESVILLE BLVD 28' BST
DET 2
-L2-
N 74°16' 35.6" E
CONC & STEEL
BRIDGE R-67
10' CONC WW
CONC WW
1988.26' N75°01'31"E
END STATE PROJECT R-2911C
END DETOUR 2
Sta. 23+66.28
WETLANDS
SR 1739 HILDEBRAND RD 20' BST
NORFOLK SOUTHERN RR
225+00
24' CONC

5/28/99

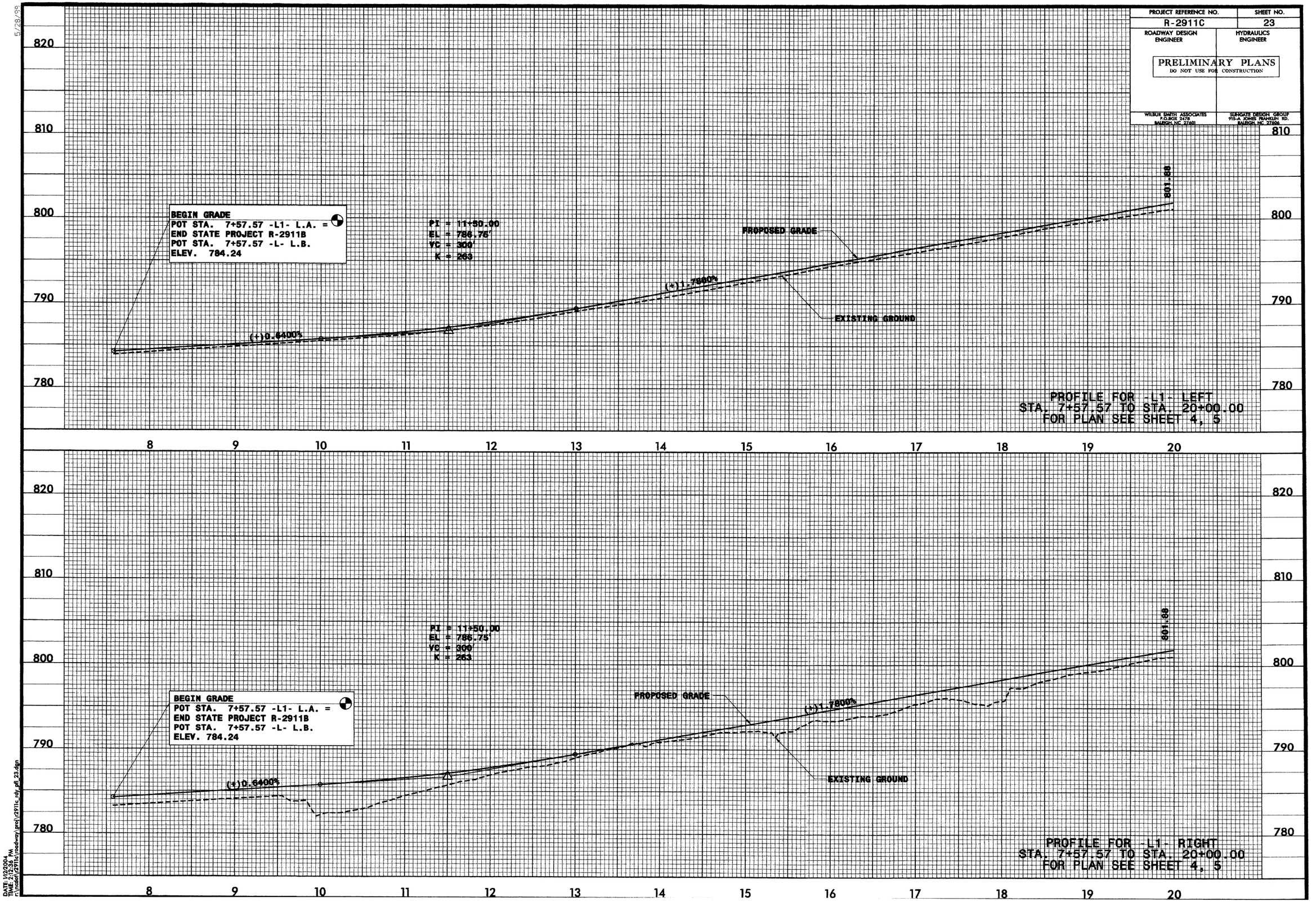
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	23

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27604



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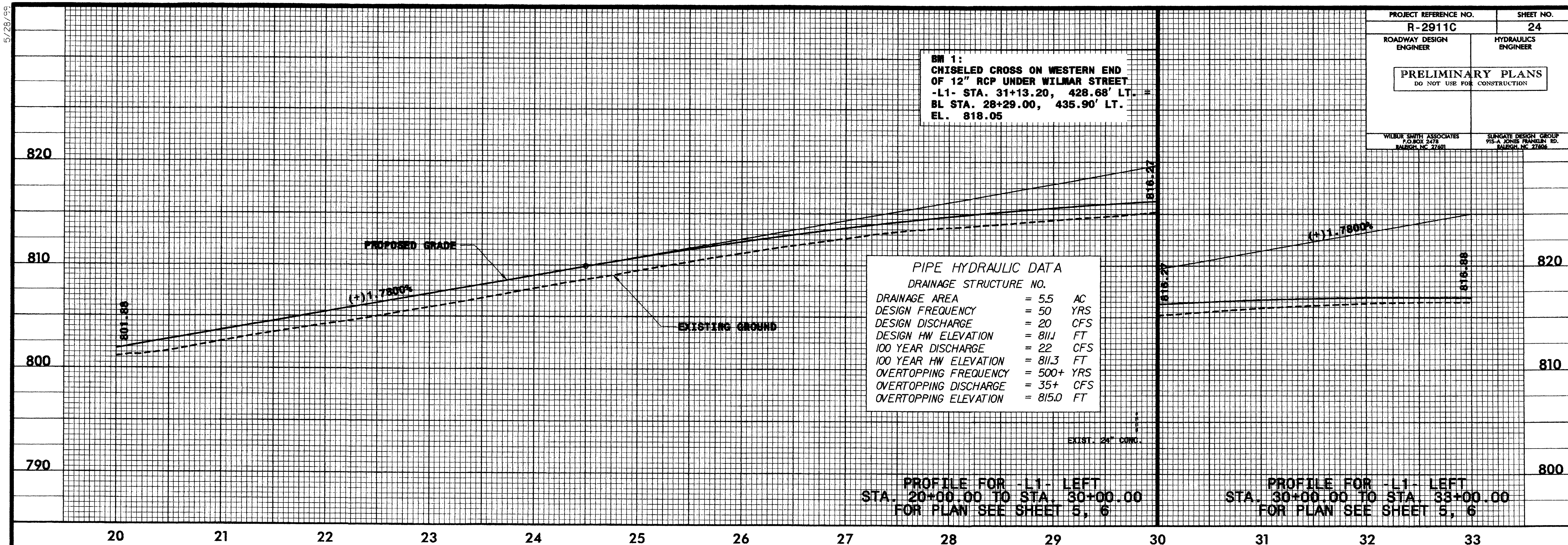
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606

BM 1:
CHISELED CROSS ON WESTERN END OF 12" RCP UNDER WILMAR STREET
-L1- STA. 31+13.20, 428.68' LT. =
BL STA. 28+29.00, 435.90' LT.
EL. 818.05



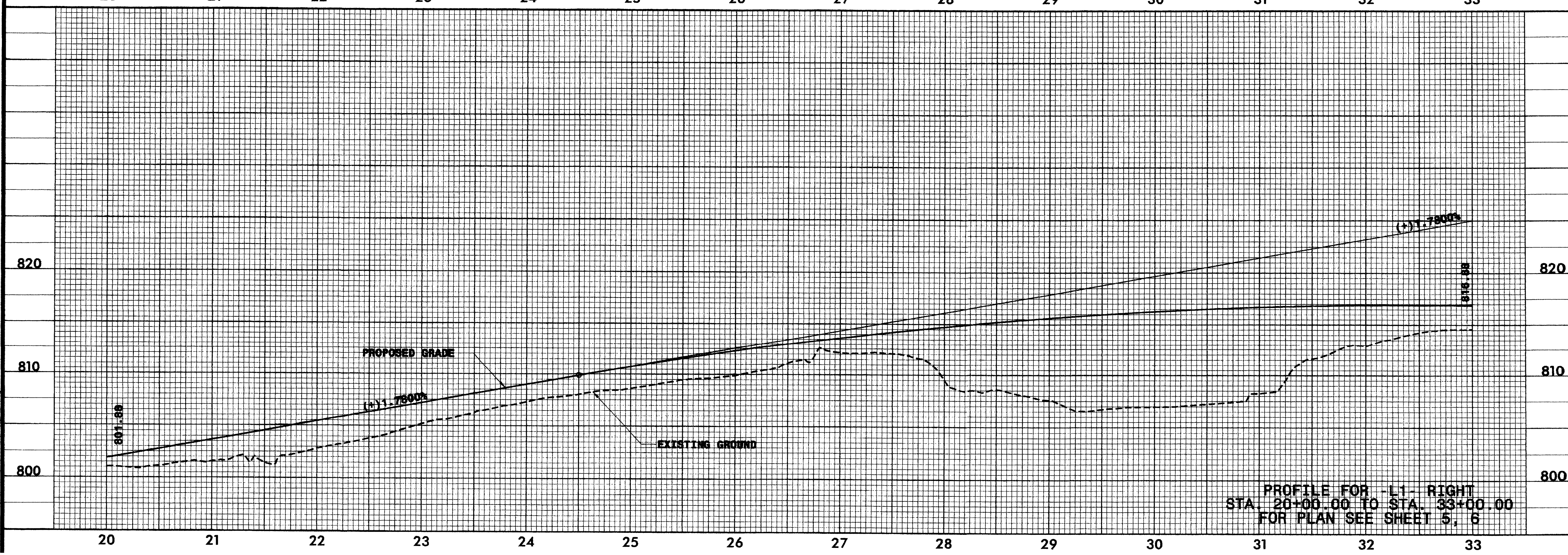
PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 5.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 20	CFS
DESIGN HW ELEVATION	= 811.1	FT
100 YEAR DISCHARGE	= 22	CFS
100 YEAR HW ELEVATION	= 811.3	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 35+	CFS
OVERTOPPING ELEVATION	= 815.0	FT

PROFILE FOR -L1- LEFT
STA. 20+00.00 TO STA. 30+00.00
FOR PLAN SEE SHEET 5, 6

PROFILE FOR -L1- LEFT
STA. 30+00.00 TO STA. 33+00.00
FOR PLAN SEE SHEET 5, 6



PROFILE FOR -L1- RIGHT
STA. 20+00.00 TO STA. 33+00.00
FOR PLAN SEE SHEET 5, 6

5/28/99

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TIME: 2:12:37 PM
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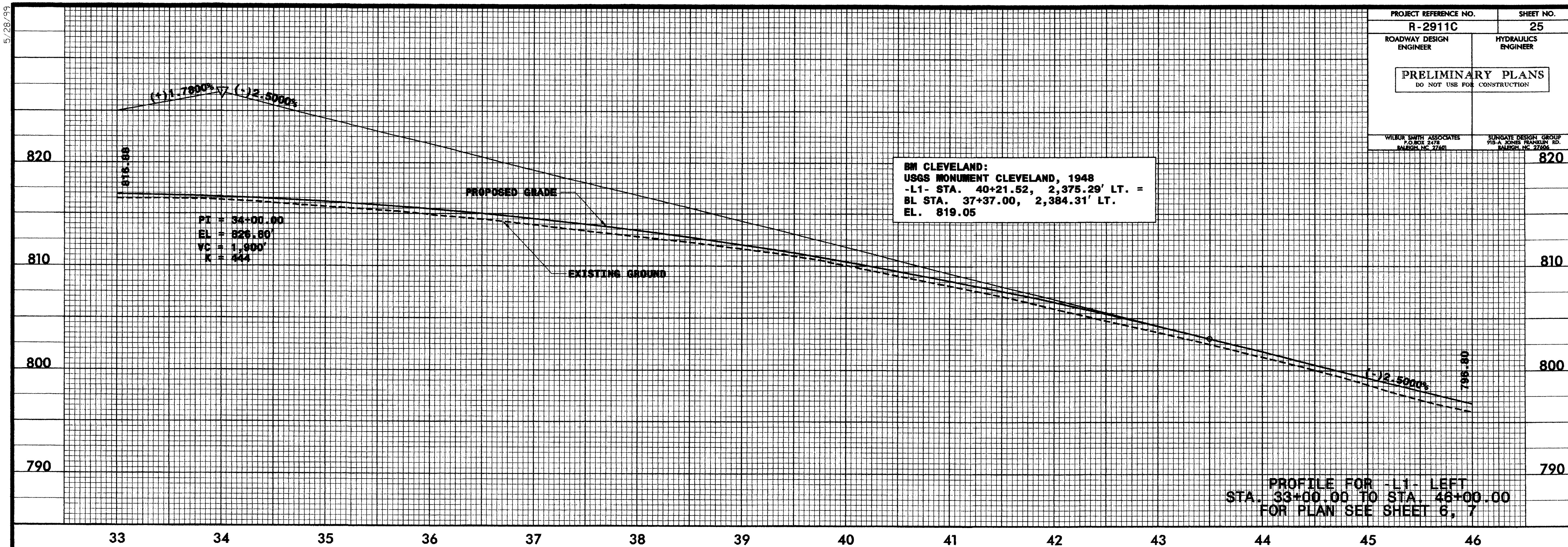
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	25

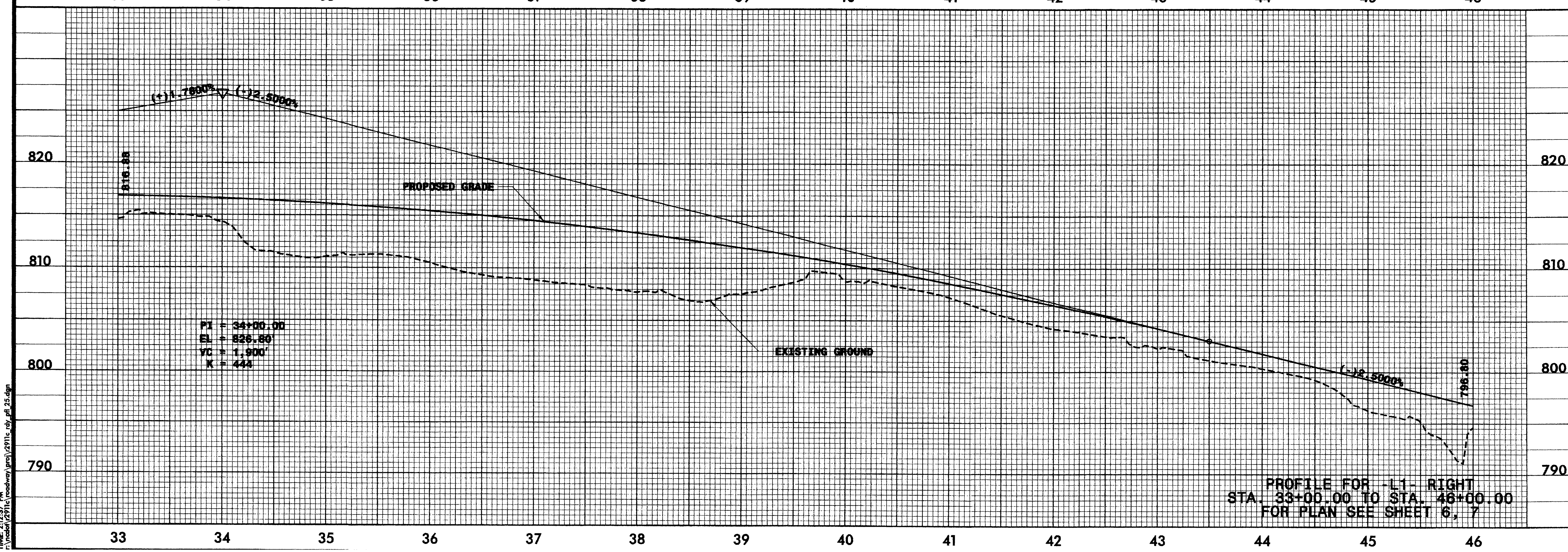
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
WILBUR SMITH ASSOCIATES P.O.BOX 2478 RALEIGH, NC 27601	SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/28/99



PROFILE FOR -L1- LEFT
STA. 33+00.00 TO STA. 46+00.00
FOR PLAN SEE SHEET 6, 7



PROFILE FOR -L1- RIGHT
STA. 33+00.00 TO STA. 46+00.00
FOR PLAN SEE SHEET 6, 7

DATE: 1/12/2004
TIME: 2:12:37 PM
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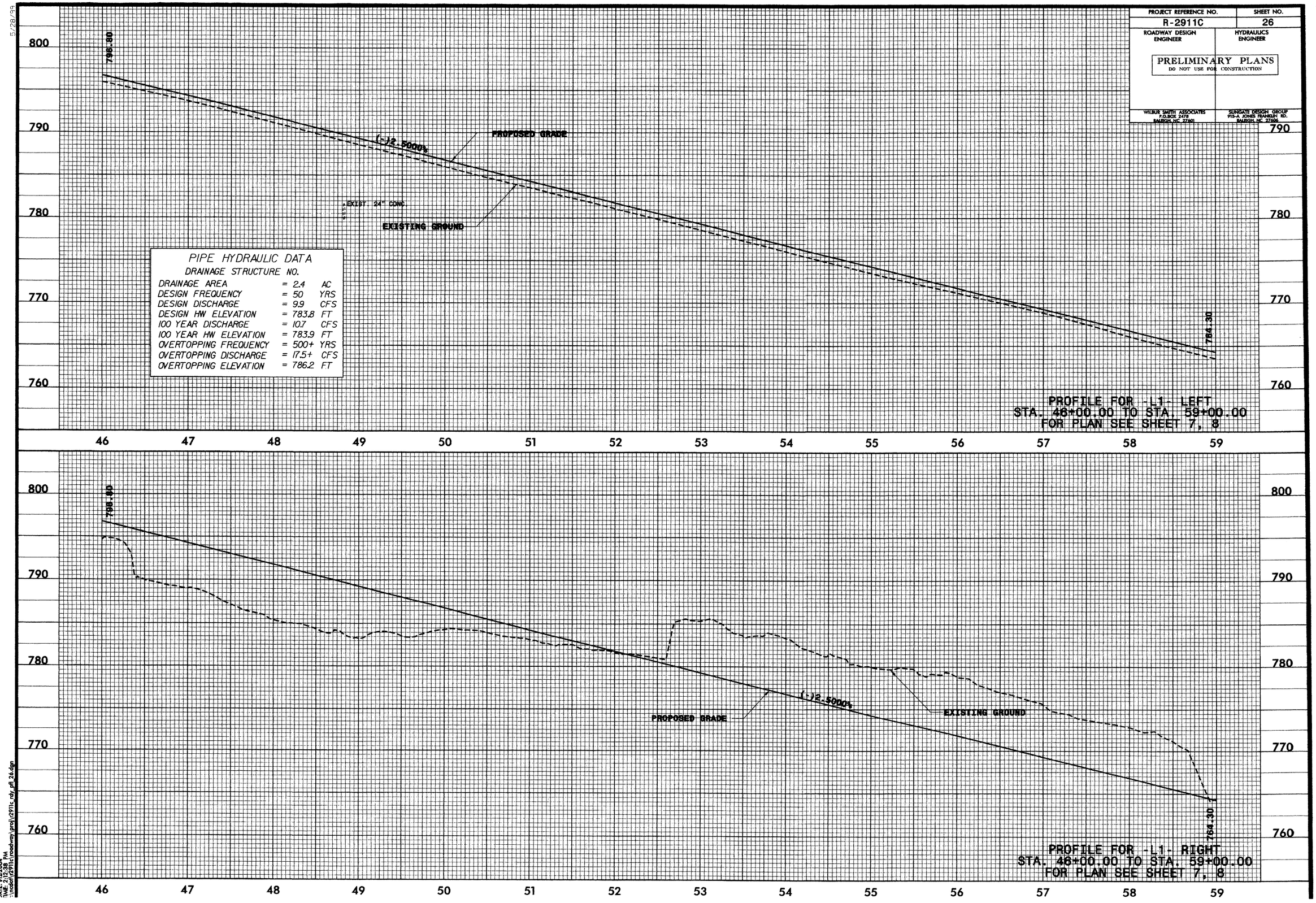
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC. 27601

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC. 27606



PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 2.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 9.9	CFS
DESIGN HW ELEVATION	= 783.8	FT
100 YEAR DISCHARGE	= 10.7	CFS
100 YEAR HW ELEVATION	= 783.9	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 17.5+	CFS
OVERTOPPING ELEVATION	= 786.2	FT

PROFILE FOR -L1- LEFT
STA. 46+00.00 TO STA. 59+00.00
FOR PLAN SEE SHEET 7, 8

PROFILE FOR -L1- RIGHT
STA. 46+00.00 TO STA. 59+00.00
FOR PLAN SEE SHEET 7, 8

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PROJECT REFERENCE NO.	SHEET NO.
R-2911C	27

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

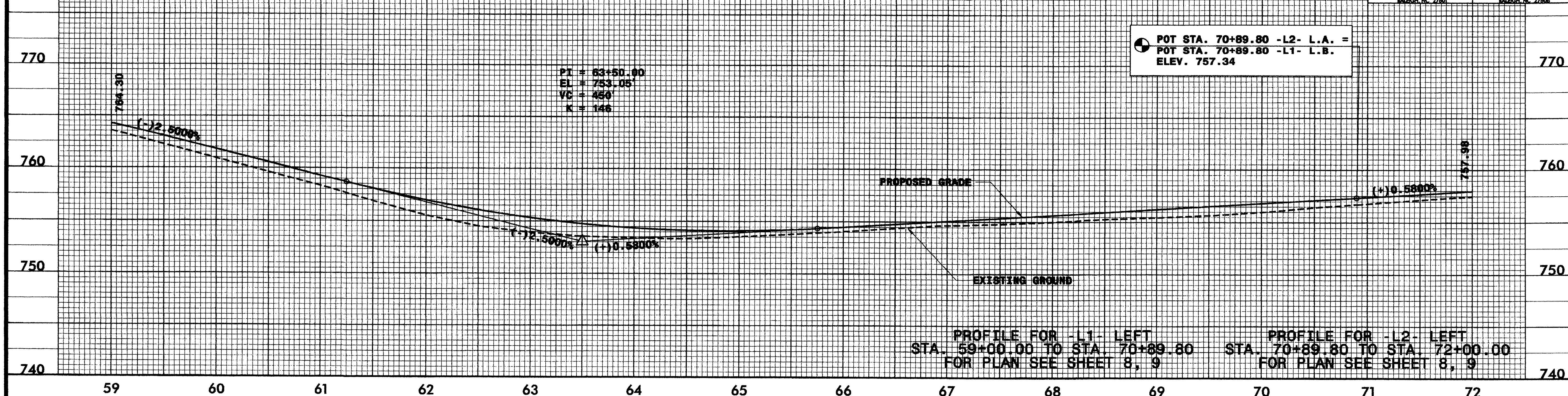
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

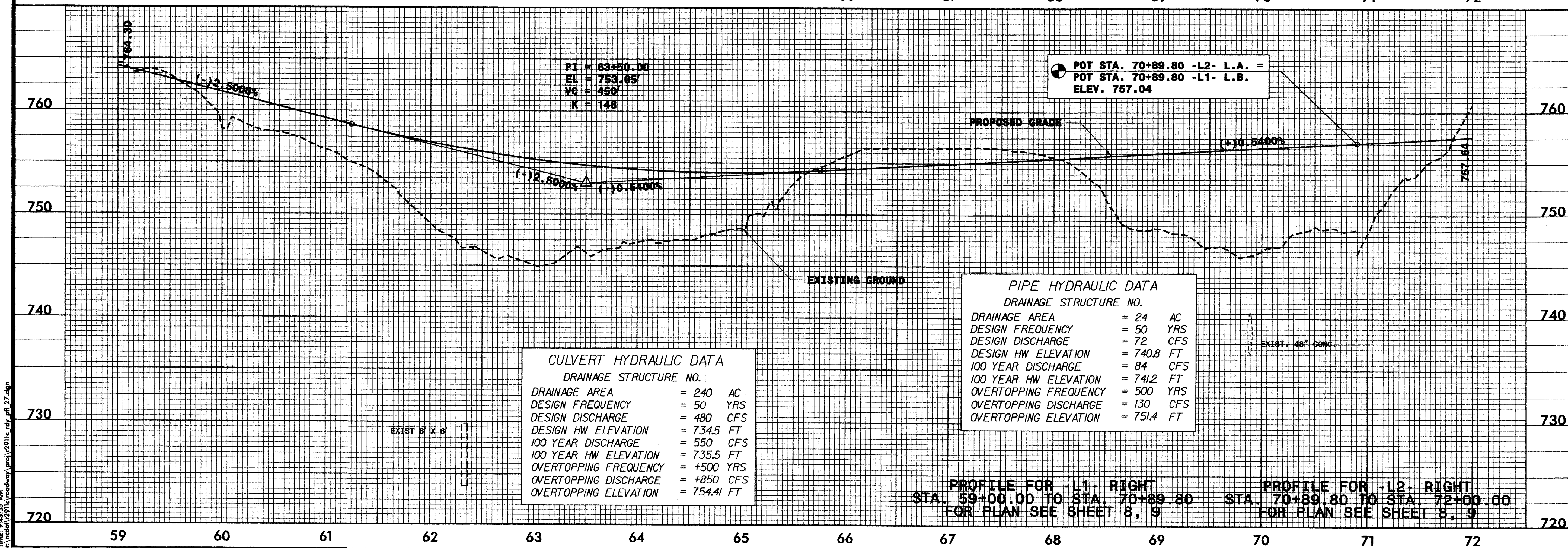
WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606

5/28/99

BM 2:
RR SPIKE IN ROOT OF 12" OAK
-L1- STA. 64+48.05, 536.98' LT. =
BL STA. 61+60.26, 542.04' LT.
EL. 774.09





CULVERT HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 240	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 480	CFS
DESIGN HW ELEVATION	= 734.5	FT
100 YEAR DISCHARGE	= 550	CFS
100 YEAR HW ELEVATION	= 735.5	FT
OVERTOPPING FREQUENCY	= +500	YRS
OVERTOPPING DISCHARGE	= +850	CFS
OVERTOPPING ELEVATION	= 754.41	FT

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 24	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 72	CFS
DESIGN HW ELEVATION	= 740.8	FT
100 YEAR DISCHARGE	= 84	CFS
100 YEAR HW ELEVATION	= 741.2	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 130	CFS
OVERTOPPING ELEVATION	= 751.4	FT

5/26/99

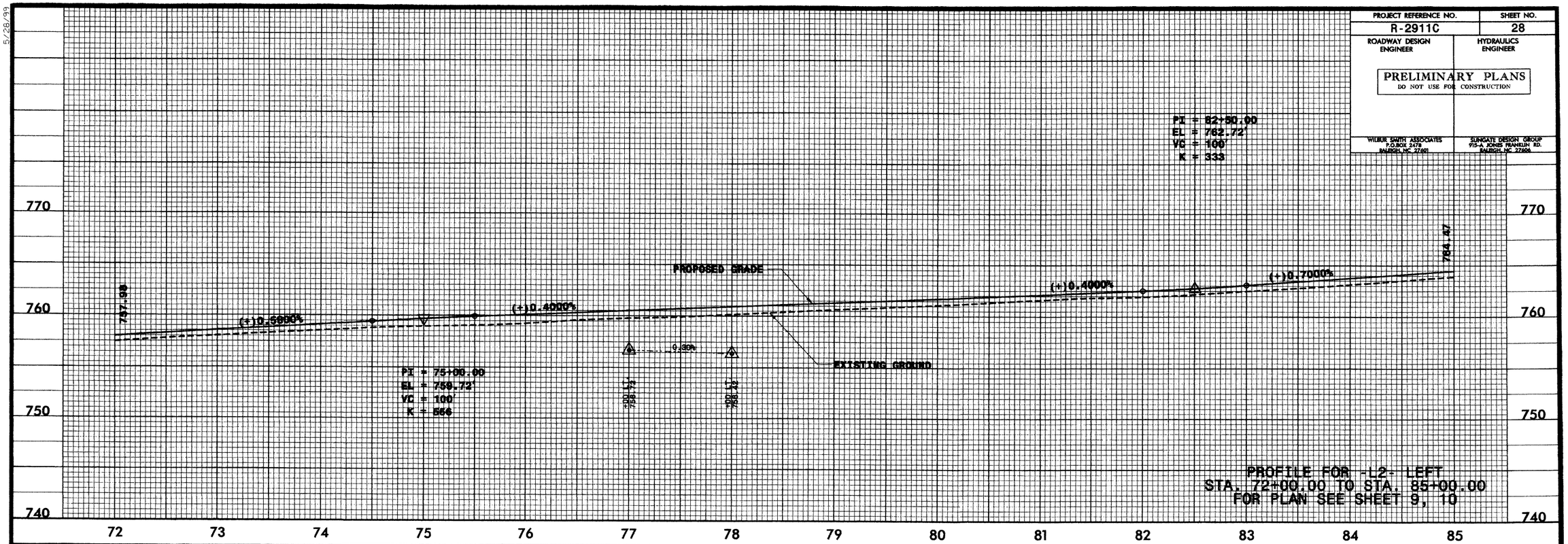
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	28

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27602

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606

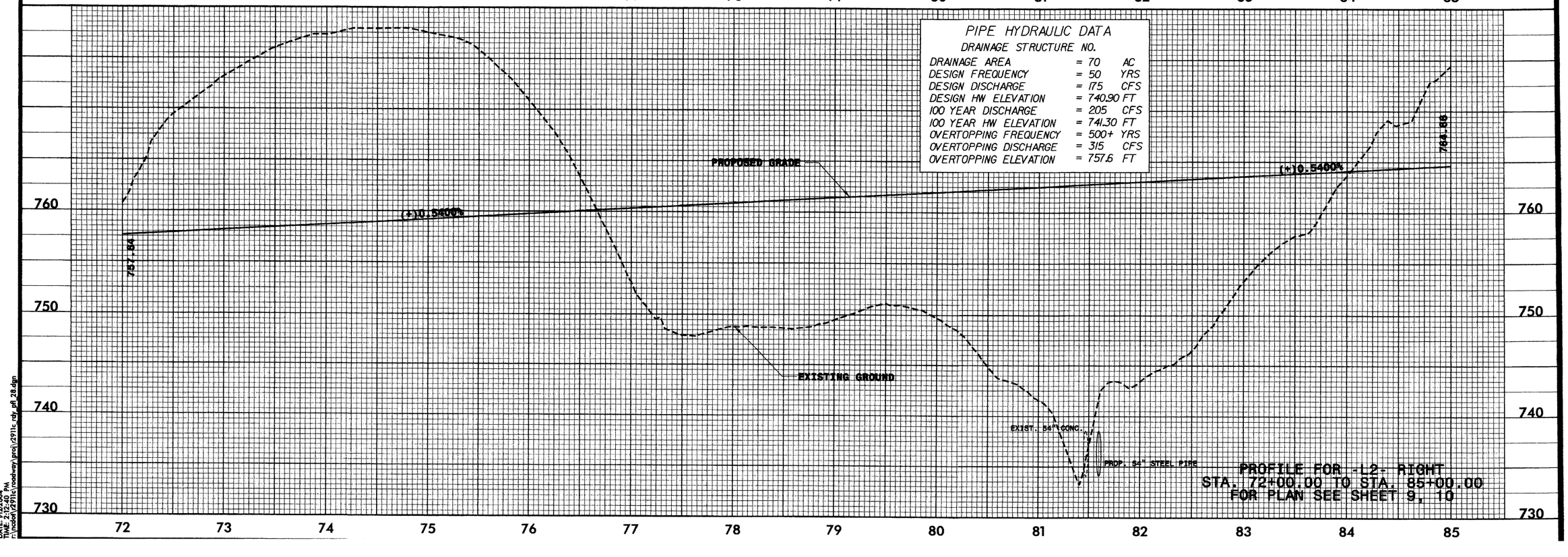


PROFILE FOR -L2- LEFT
STA. 72+00.00 TO STA. 85+00.00
FOR PLAN SEE SHEET 9, 10

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 70	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 175	CFS
DESIGN HW ELEVATION	= 740.90	FT
100 YEAR DISCHARGE	= 205	CFS
100 YEAR HW ELEVATION	= 741.30	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 315	CFS
OVERTOPPING ELEVATION	= 757.6	FT



PROFILE FOR -L2- RIGHT
STA. 72+00.00 TO STA. 85+00.00
FOR PLAN SEE SHEET 9, 10

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	29

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

SURROGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606

BM 384 JAS:
USGS MONUMENT 384 JAS, 1965
-L2- STA. 97+15.54, 2,843.30' LT. =
BL STA. 95+54.90, 2,822.72' LT.
EL. 802.19

PI = 98+00.00
EL = 770.57'
VC = 200'
K = 761

770.98

PROPOSED GRADE

(+)0.4000%

764.47

(+)0.7000%

(+)0.9000%

EXISTING GROUND

PI = 86+00.00
EL = 766.57'
VC = 200'
K = 867

PROFILE FOR -L2- LEFT
STA. 85+00.00 TO STA. 98+00.00
FOR PLAN SEE SHEET 10, 11

770
760
750

85 86 87 88 89 90 91 92 93 94 95 96 97 98

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 7.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 23	CFS
DESIGN HW ELEVATION	= 754.6	FT
100 YEAR DISCHARGE	= 25	CFS
100 YEAR HW ELEVATION	= 754.9	FT
OVERTOPPING FREQUENCY	= 500-	YRS
OVERTOPPING DISCHARGE	= 41-	CFS
OVERTOPPING ELEVATION	= 757.0	FT

EXISTING GROUND

771.68

PROPOSED GRADE

(+)0.5400%

764.66

EXIST. 24" CONC.

PROFILE FOR -L2- RIGHT
STA. 85+00.00 TO STA. 98+00.00
FOR PLAN SEE SHEET 10, 11

780
770
760
750
740

85 86 87 88 89 90 91 92 93 94 95 96 97 98

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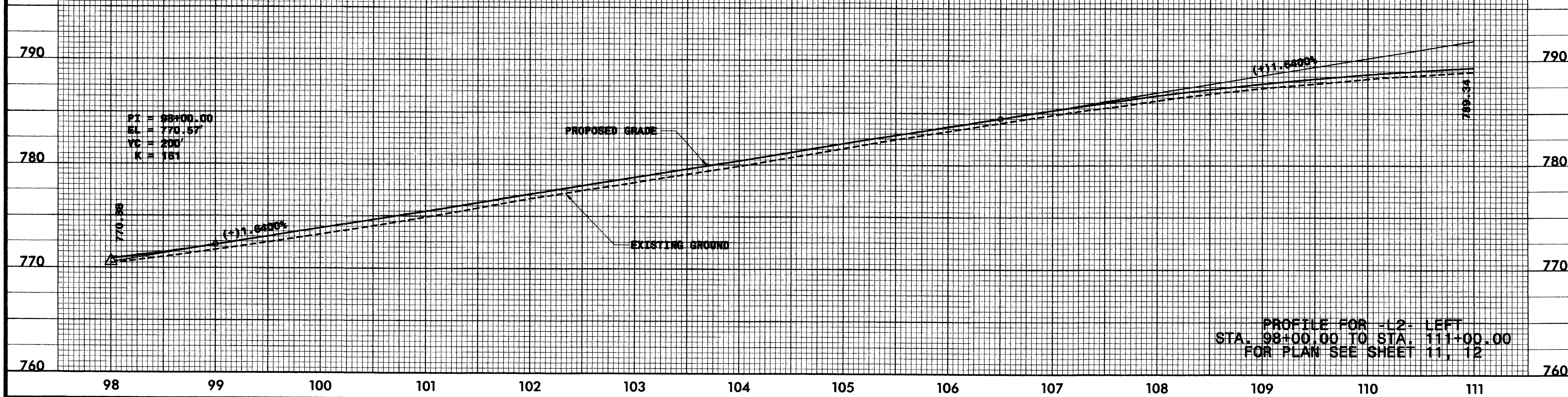
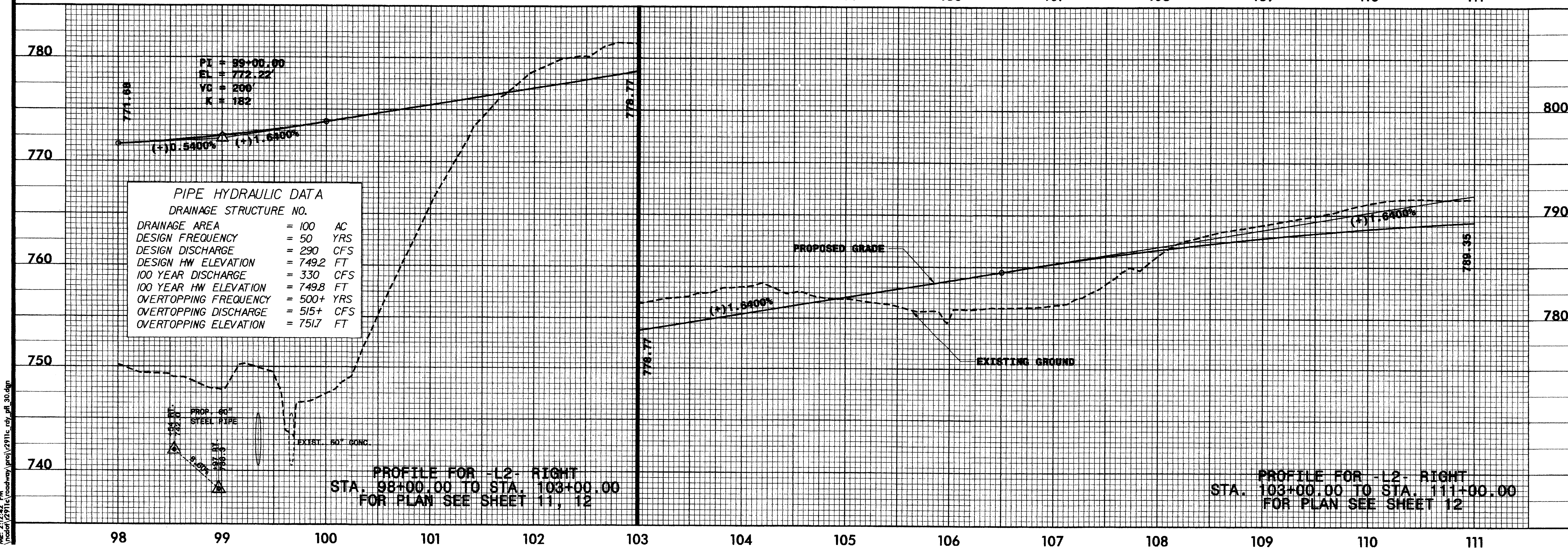
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
WILBUR SMITH ASSOCIATES P.O.BOX 2478 RALEIGH, NC 27601	SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 100	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 290	CFS
DESIGN HW ELEVATION	= 749.2	FT
100 YEAR DISCHARGE	= 330	CFS
100 YEAR HW ELEVATION	= 749.8	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 515+	CFS
OVERTOPPING ELEVATION	= 751.7	FT

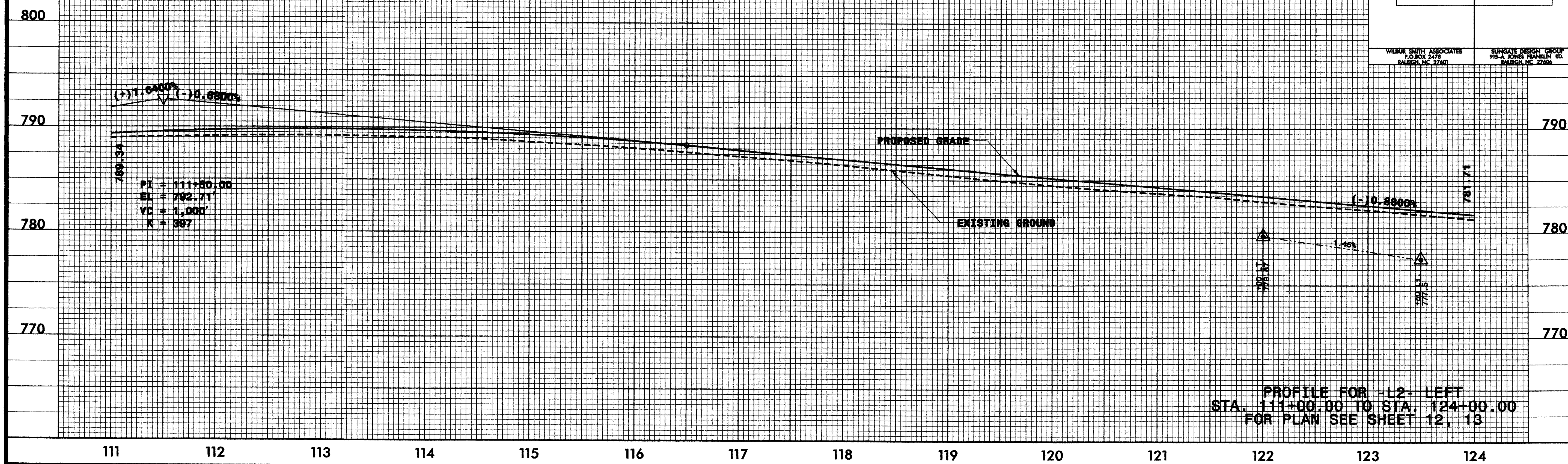
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606

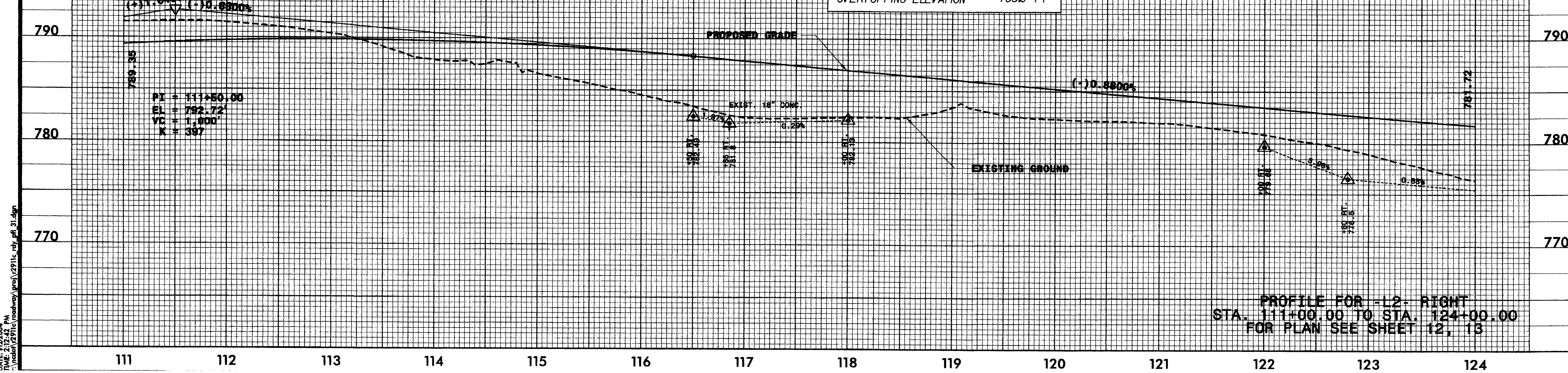
BM 3:
RR SPIKE IN ROOT OF TRIPLE FORKED TREE
-L2- STA. 117+82.49, 442.64' LT. =
BL STA. 114+99.14, 439.47' LT.
EL. 774.08



PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 1.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 5.5	CFS
DESIGN HW ELEVATION	= 783.1	FT
100 YEAR DISCHARGE	= 6.0	CFS
100 YEAR HW ELEVATION	= 783.2	FT
OVERTOPPING FREQUENCY	= 500-	YRS
OVERTOPPING DISCHARGE	= 9.7-	CFS
OVERTOPPING ELEVATION	= 783.6	FT



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DATE: 3/12/2004
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PROJECT REFERENCE NO.	SHEET NO.
R-2911C	32

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606

5/28/99

PIPE HYDRAULIC DATA

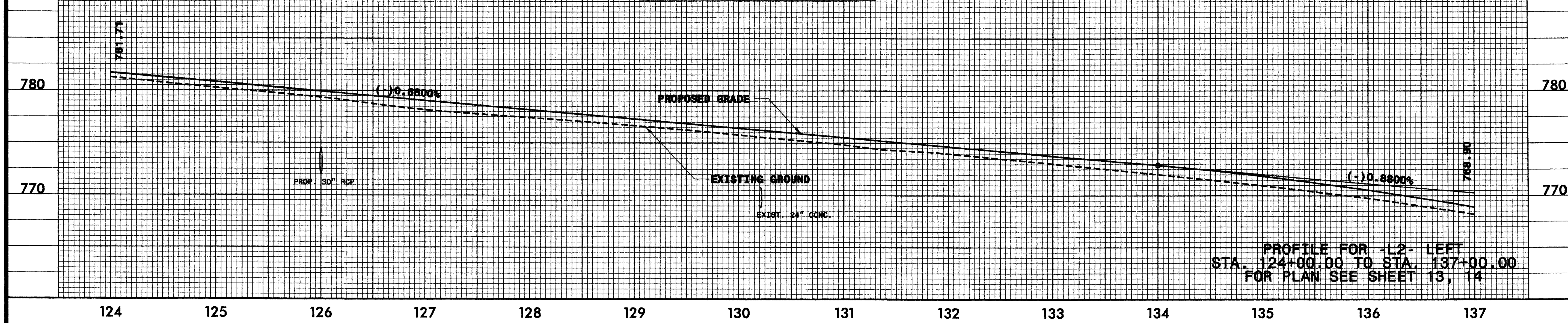
DRAINAGE STRUCTURE NO.

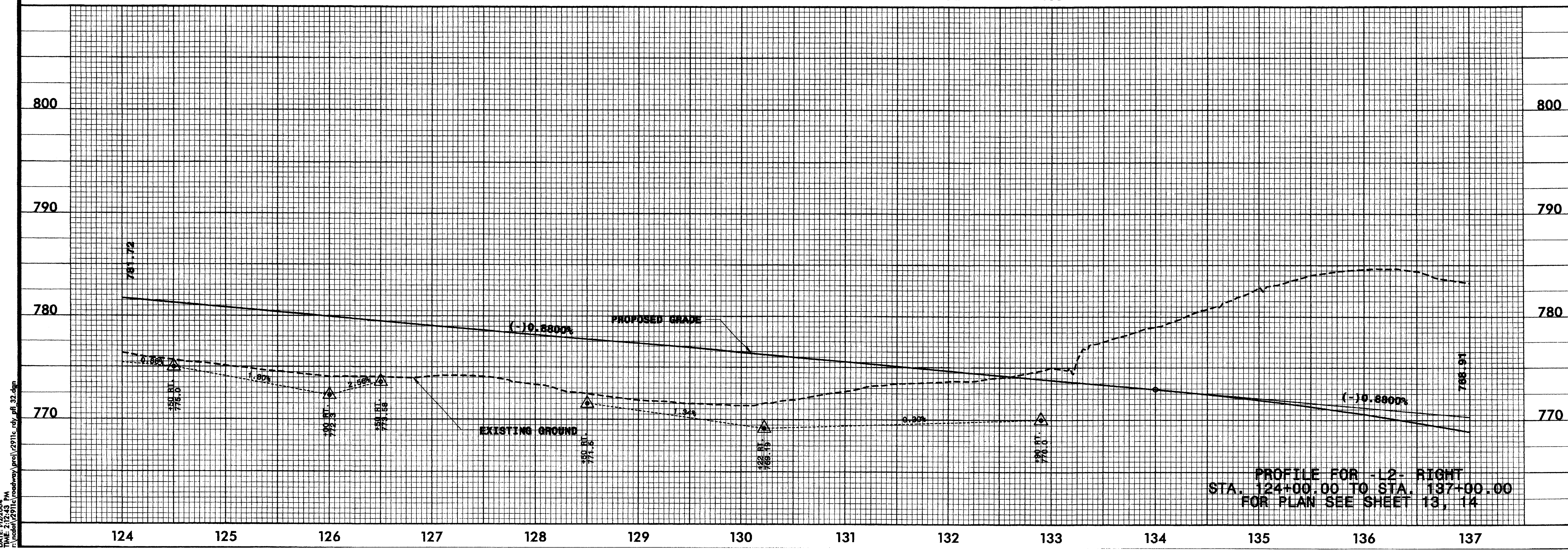
DRAINAGE AREA	= 10.3 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 26.7 CFS
DESIGN HW ELEVATION	= 775.0 FT
100 YEAR DISCHARGE	= 31.1 CFS
100 YEAR HW ELEVATION	= 775.3 FT
OVERTOPPING FREQUENCY	= +100 YRS
OVERTOPPING DISCHARGE	= +31.1 CFS
OVERTOPPING ELEVATION	= *775.38FT

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 6.2 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 15.6 CFS
DESIGN HW ELEVATION	= 771.39-FT
100 YEAR DISCHARGE	= 19.25 CFS
100 YEAR HW ELEVATION	= 772.39 FT
OVERTOPPING FREQUENCY	= +100 YRS
OVERTOPPING DISCHARGE	= +24.2 CFS
OVERTOPPING ELEVATION	= *773.0 FT





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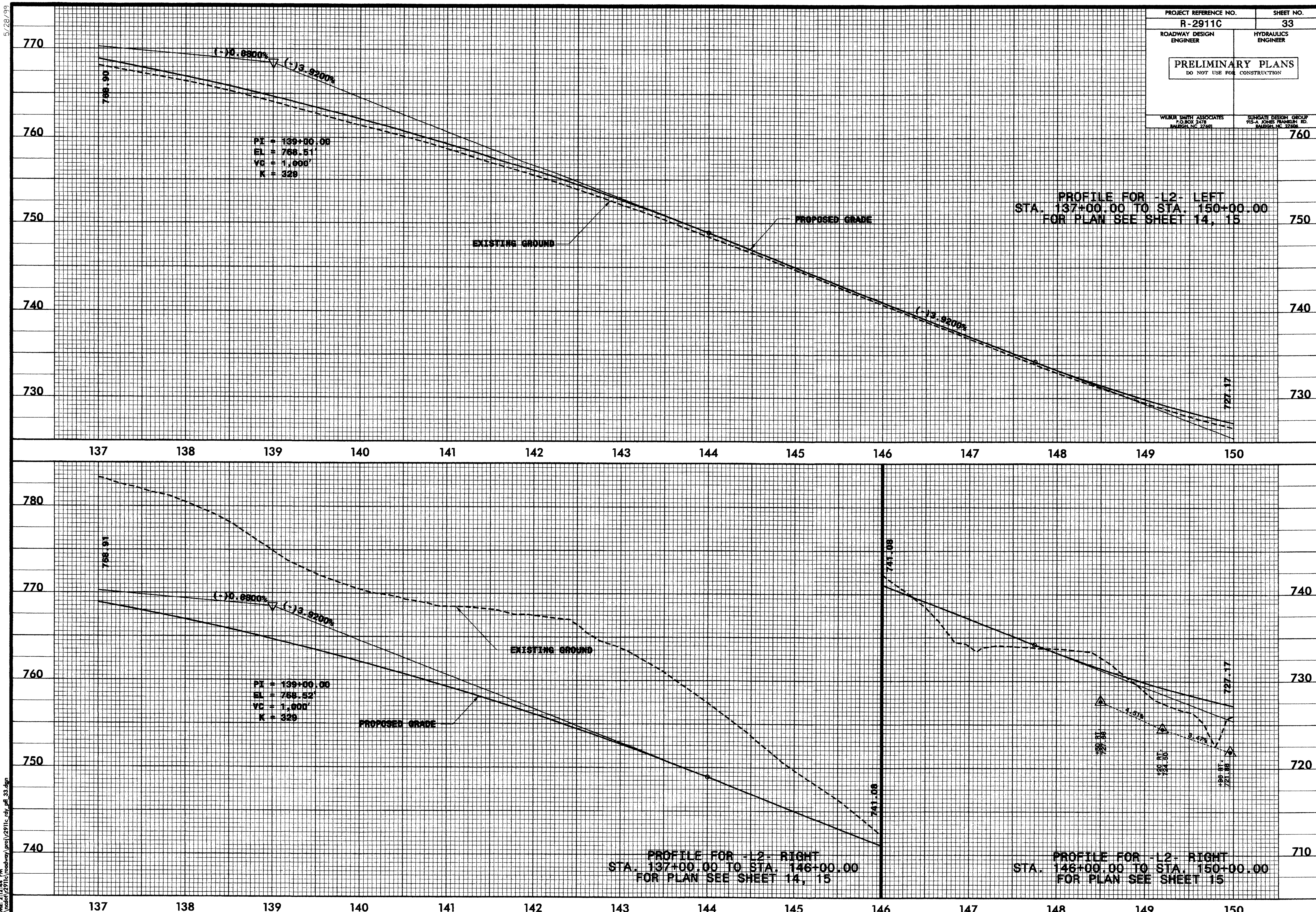

PROJECT REFERENCE NO.
R-2911C
SHEET NO.
33
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601
SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606
PROFILE FOR -L2- LEFT
STA. 137+00.00 TO STA. 150+00.00
FOR PLAN SEE SHEET 14, 15
(-)0.6800%
(-)3.9200%
768.90
PI = 139+00.00
EL = 768.51'
VC = 1,000'
K = 329
EXISTING GROUND
PROPOSED GRADE
(-)3.9200%
727.17
770
760
750
740
730
137
138
139
140
141
142
143
144
145
146
147
148
149
150
768.91
(-)0.6800%
(-)3.9200%
EXISTING GROUND
PI = 139+00.00
EL = 768.52'
VC = 1,000'
K = 329
PROPOSED GRADE
741.08
PROFILE FOR -L2- RIGHT
STA. 137+00.00 TO STA. 146+00.00
FOR PLAN SEE SHEET 14, 15
741.08
727.17
4.51%
3.47%
+50 RT.
727.88
+20 RT.
724.50
+96 RT.
721.88
PROFILE FOR -L2- RIGHT
STA. 146+00.00 TO STA. 150+00.00
FOR PLAN SEE SHEET 15
780
770
760
750
740
740
730
720
710

DATE: 1/12/2004
TIME: 2:12:44 PM
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PROJECT REFERENCE NO.	SHEET NO.
R-2911C	34

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606

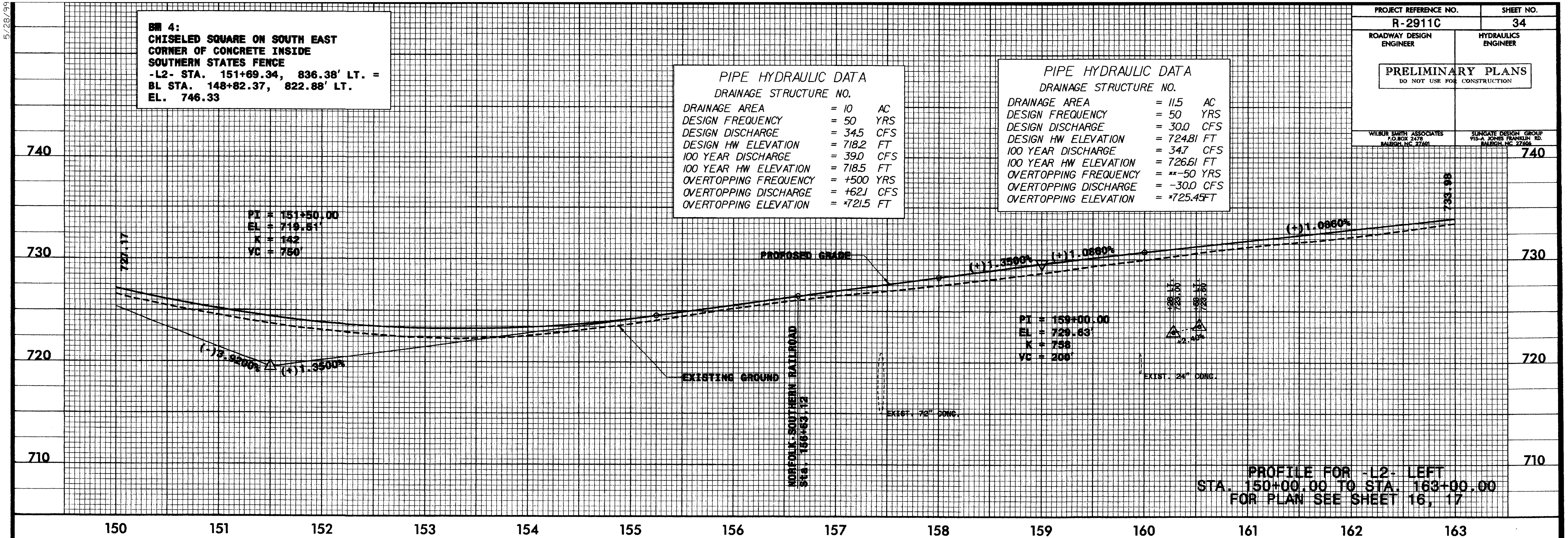
BM 4:
CHISELED SQUARE ON SOUTH EAST CORNER OF CONCRETE INSIDE SOUTHERN STATES FENCE
-L2- STA. 151+69.34, 836.38' LT. = BL STA. 148+82.37, 822.88' LT.
EL. 746.33

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

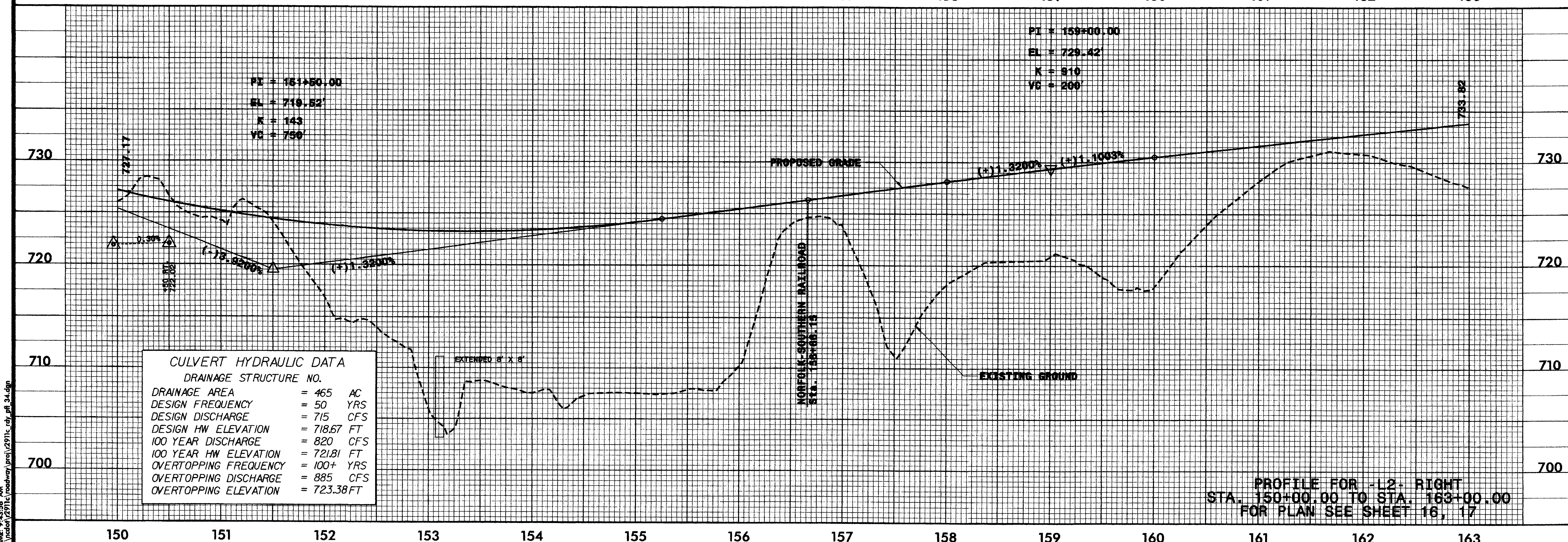
DRAINAGE AREA	= 10	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 34.5	CFS
DESIGN HW ELEVATION	= 718.2	FT
100 YEAR DISCHARGE	= 39.0	CFS
100 YEAR HW ELEVATION	= 718.5	FT
OVERTOPPING FREQUENCY	= +500	YRS
OVERTOPPING DISCHARGE	= +62.1	CFS
OVERTOPPING ELEVATION	= *721.5	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 11.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 30.0	CFS
DESIGN HW ELEVATION	= 724.81	FT
100 YEAR DISCHARGE	= 34.7	CFS
100 YEAR HW ELEVATION	= 726.61	FT
OVERTOPPING FREQUENCY	= **-50	YRS
OVERTOPPING DISCHARGE	= -30.0	CFS
OVERTOPPING ELEVATION	= *725.45	FT



PROFILE FOR -L2- LEFT
STA. 150+00.00 TO STA. 163+00.00
FOR PLAN SEE SHEET 16, 17



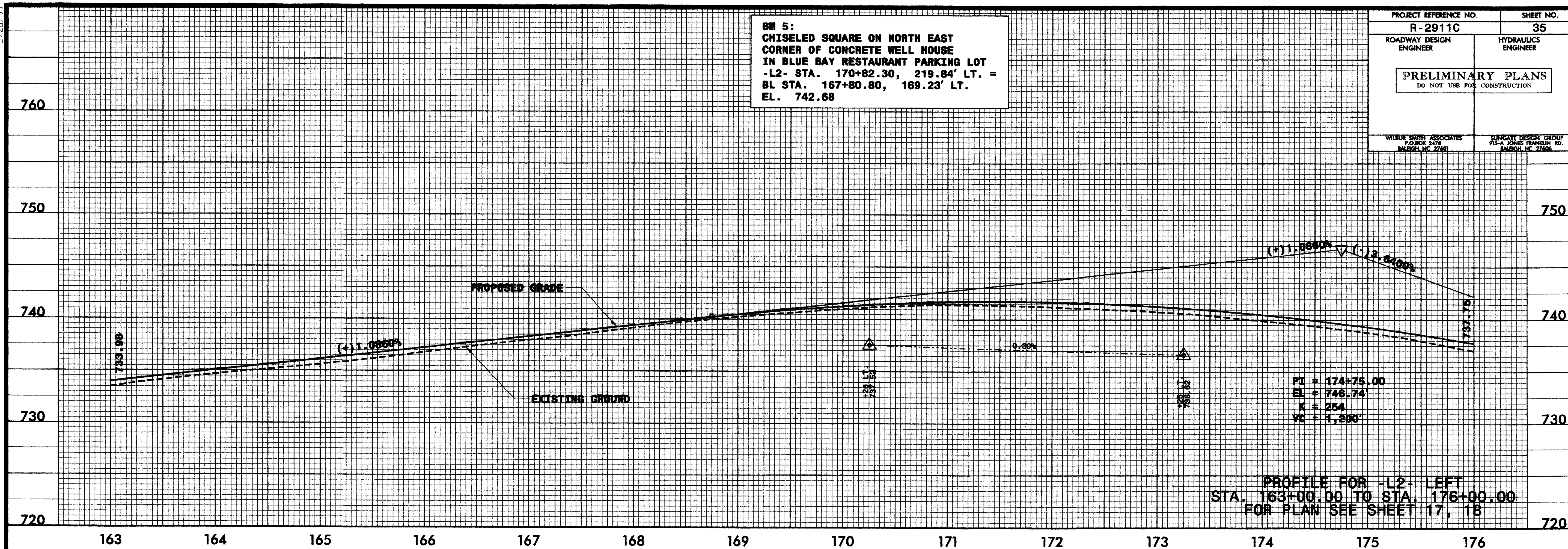
CULVERT HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

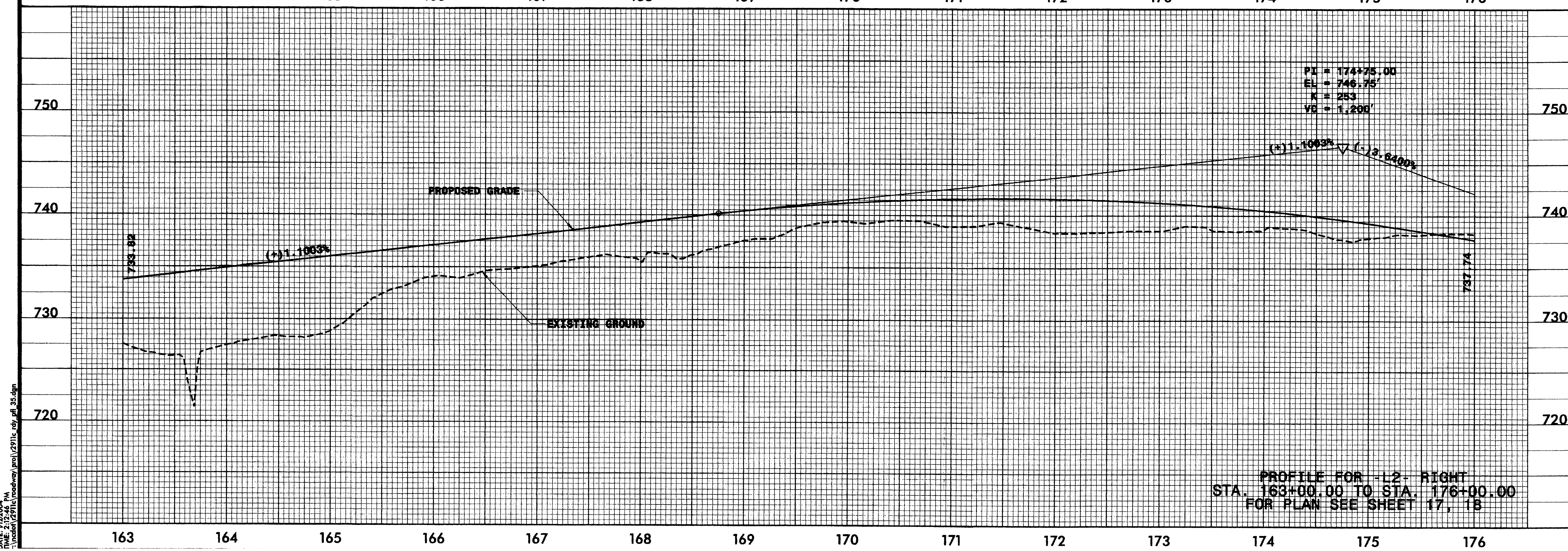
DRAINAGE AREA	= 465	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 715	CFS
DESIGN HW ELEVATION	= 718.67	FT
100 YEAR DISCHARGE	= 820	CFS
100 YEAR HW ELEVATION	= 721.81	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 885	CFS
OVERTOPPING ELEVATION	= 723.38	FT

PROFILE FOR -L2- RIGHT
STA. 150+00.00 TO STA. 163+00.00
FOR PLAN SEE SHEET 16, 17

DATE: 1/13/2004
TIME: 9:43:56 AM

5/28/99


PROJECT REFERENCE NO.
R-2911C
SHEET NO.
35
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601
SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606
BM 5:
CHISELED SQUARE ON NORTH EAST
CORNER OF CONCRETE WELL HOUSE
IN BLUE BAY RESTAURANT PARKING LOT
-L2- STA. 170+82.30, 219.84' LT. =
BL STA. 167+80.80, 169.23' LT.
EL. 742.68
760
750
740
730
720
PROPOSED GRADE
EXISTING GROUND
(+)1.0860%
(-)3.6400%
0.30%
733.98
737.75
+25 LT.
737.53
+25 LT.
736.62
PI = 174+75.00
EL = 746.74'
K = 254
VC = 1,200'
PROFILE FOR -L2- LEFT
STA. 163+00.00 TO STA. 176+00.00
FOR PLAN SEE SHEET 17, 18
163
164
165
166
167
168
169
170
171
172
173
174
175
176



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TIME: 2:12:46 PM
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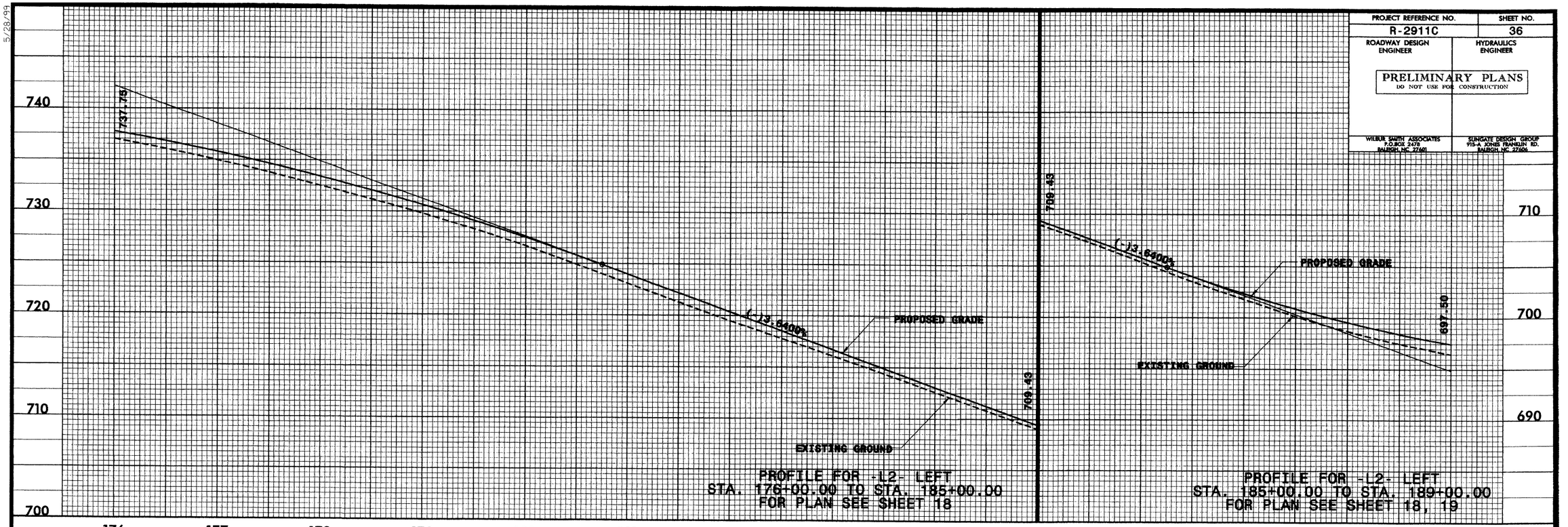
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	36
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

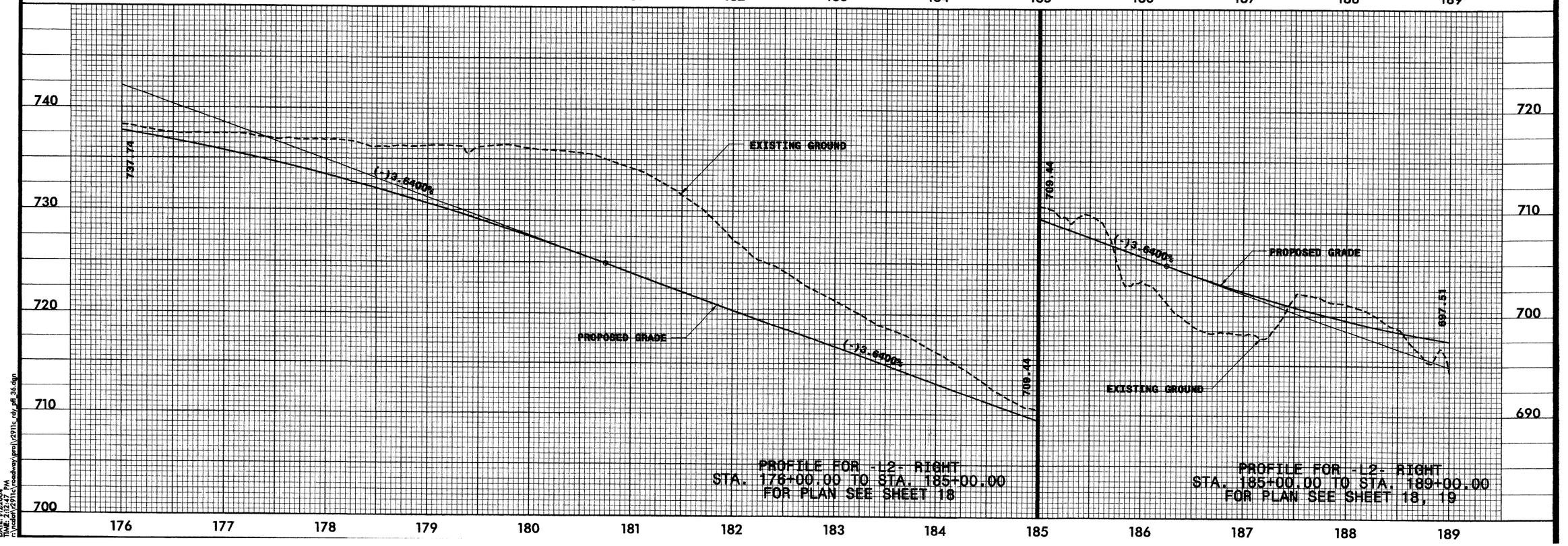
WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC. 27601

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC. 27606



PROFILE FOR -L2- LEFT
STA. 176+00.00 TO STA. 185+00.00
FOR PLAN SEE SHEET 18

PROFILE FOR -L2- LEFT
STA. 185+00.00 TO STA. 189+00.00
FOR PLAN SEE SHEET 18, 19



PROFILE FOR -L2- RIGHT
STA. 176+00.00 TO STA. 185+00.00
FOR PLAN SEE SHEET 18

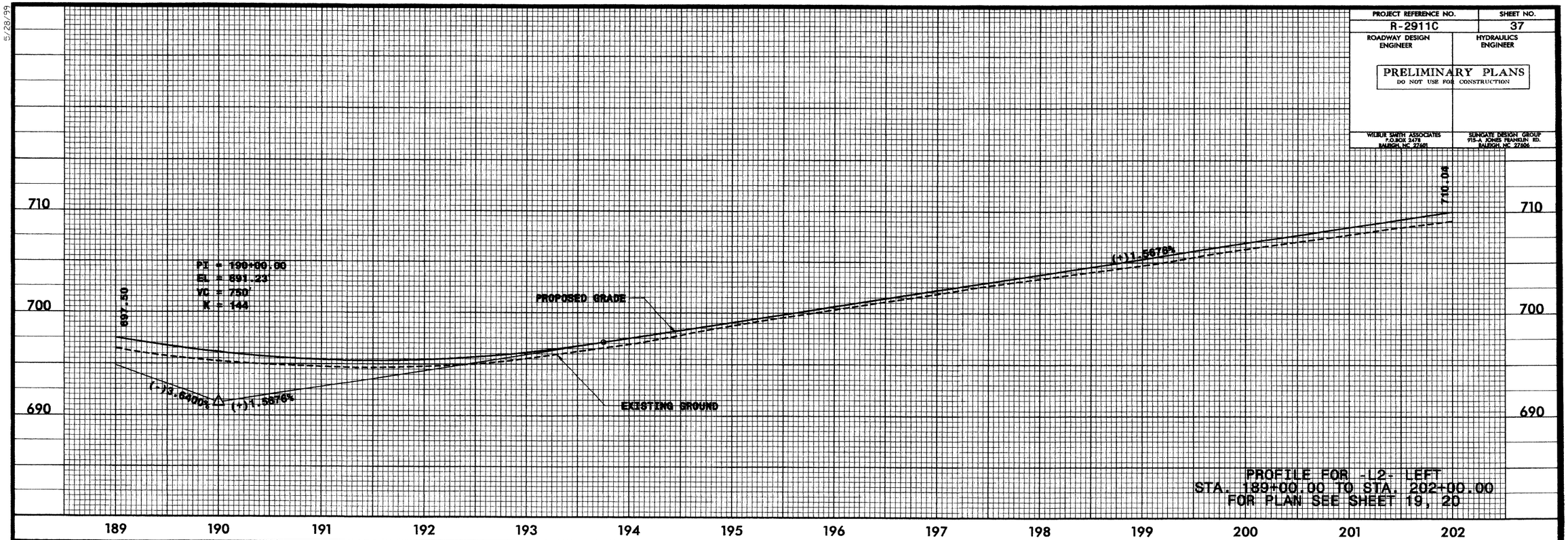
PROFILE FOR -L2- RIGHT
STA. 185+00.00 TO STA. 189+00.00
FOR PLAN SEE SHEET 18, 19

DATE: 1/22/2004
TIME: 2:12:47 PM
c:\roadfl\2911c\roadway\prof\2911c_rdy_pf_36.dgn

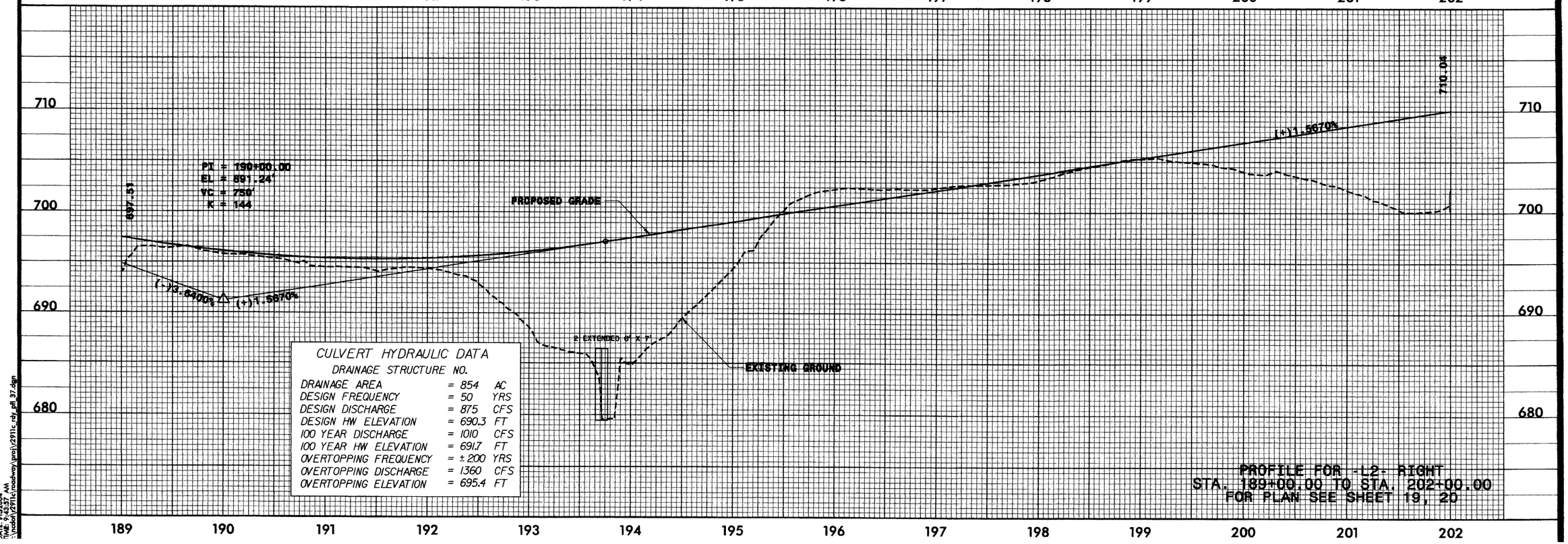
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	37

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
WILBUR SMITH ASSOCIATES P.O.BOX 2478 RALEIGH, NC 27601	GUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606



PROFILE FOR -L2- LEFT
STA. 189+00.00 TO STA. 202+00.00
FOR PLAN SEE SHEET 19, 20



CULVERT HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 854	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 875	CFS
DESIGN HW ELEVATION	= 690.3	FT
100 YEAR DISCHARGE	= 1010	CFS
100 YEAR HW ELEVATION	= 691.7	FT
OVERTOPPING FREQUENCY	= ± 200	YRS
OVERTOPPING DISCHARGE	= 1360	CFS
OVERTOPPING ELEVATION	= 695.4	FT

PROFILE FOR -L2- RIGHT
STA. 189+00.00 TO STA. 202+00.00
FOR PLAN SEE SHEET 19, 20

DATE: 1/13/2004
TIME: 9:43:37 AM
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PROJECT REFERENCE NO.	SHEET NO.
R-2911C	38

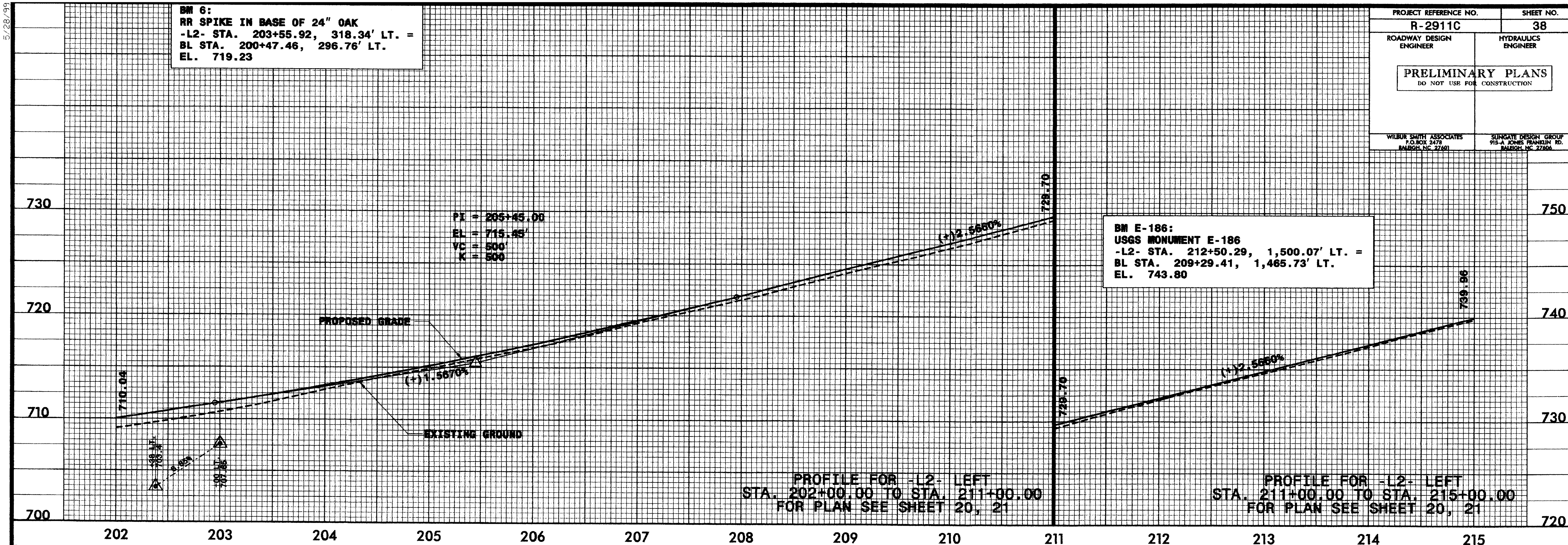
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

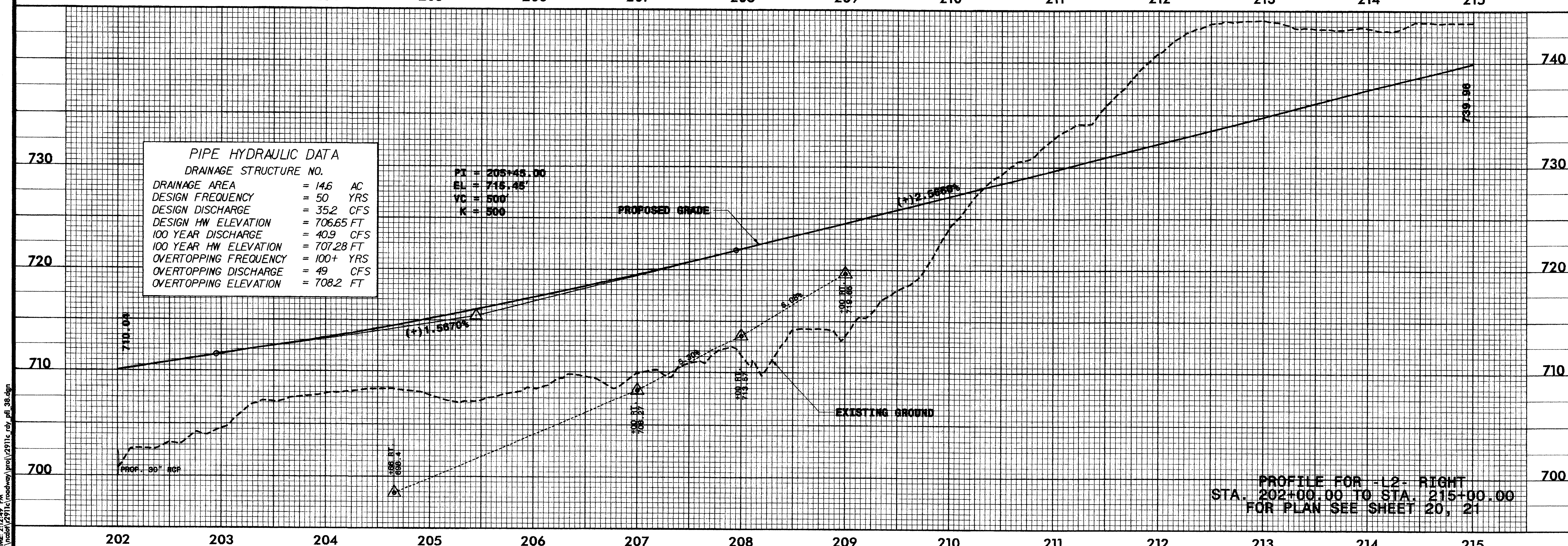
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606



BM 6:
RR SPIKE IN BASE OF 24" OAK
-L2- STA. 203+55.92, 318.34' LT. =
BL STA. 200+47.46, 296.76' LT.
EL. 719.23
PI = 205+45.00
EL = 715.45'
VC = 500'
K = 500
PROPOSED GRADE
EXISTING GROUND
(+)1.5670%
(+)2.5660%
710.04
729.70
739.96
BM E-186:
USGS MONUMENT E-186
-L2- STA. 212+50.29, 1,500.07' LT. =
BL STA. 209+29.41, 1,465.73' LT.
EL. 743.80
PROFILE FOR -L2- LEFT
STA. 202+00.00 TO STA. 211+00.00
FOR PLAN SEE SHEET 20, 21
PROFILE FOR -L2- LEFT
STA. 211+00.00 TO STA. 215+00.00
FOR PLAN SEE SHEET 20, 21



PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	=	14.6 AC
DESIGN FREQUENCY	=	50 YRS
DESIGN DISCHARGE	=	35.2 CFS
DESIGN HW ELEVATION	=	706.65 FT
100 YEAR DISCHARGE	=	40.9 CFS
100 YEAR HW ELEVATION	=	707.28 FT
OVERTOPPING FREQUENCY	=	100+ YRS
OVERTOPPING DISCHARGE	=	49 CFS
OVERTOPPING ELEVATION	=	708.2 FT

5/28/99

DATE: 1/12/2004
TIME: 2:12:49 PM
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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	39
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

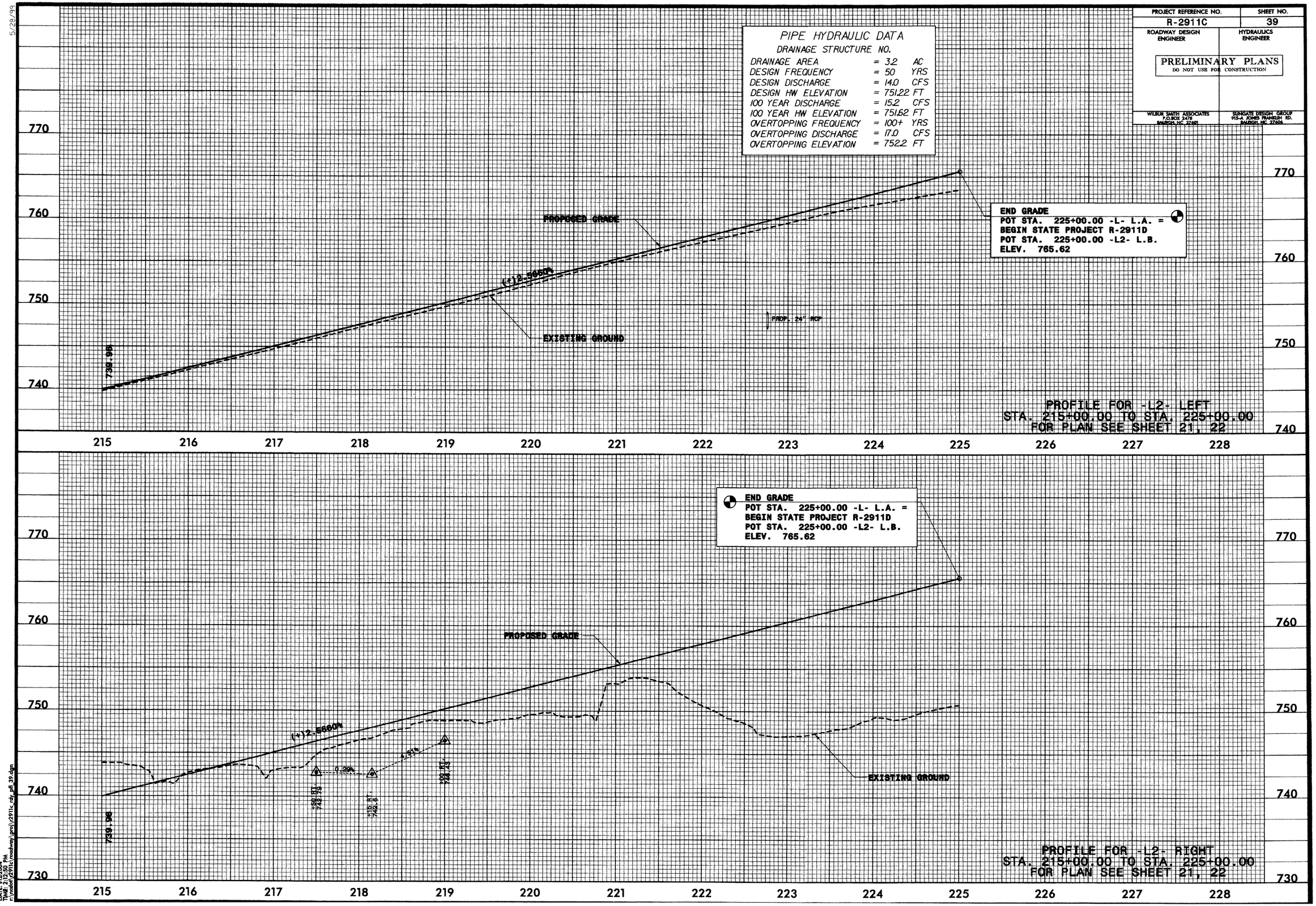
WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 3.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 14.0	CFS
DESIGN HW ELEVATION	= 751.22	FT
100 YEAR DISCHARGE	= 15.2	CFS
100 YEAR HW ELEVATION	= 751.62	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 17.0	CFS
OVERTOPPING ELEVATION	= 752.2	FT



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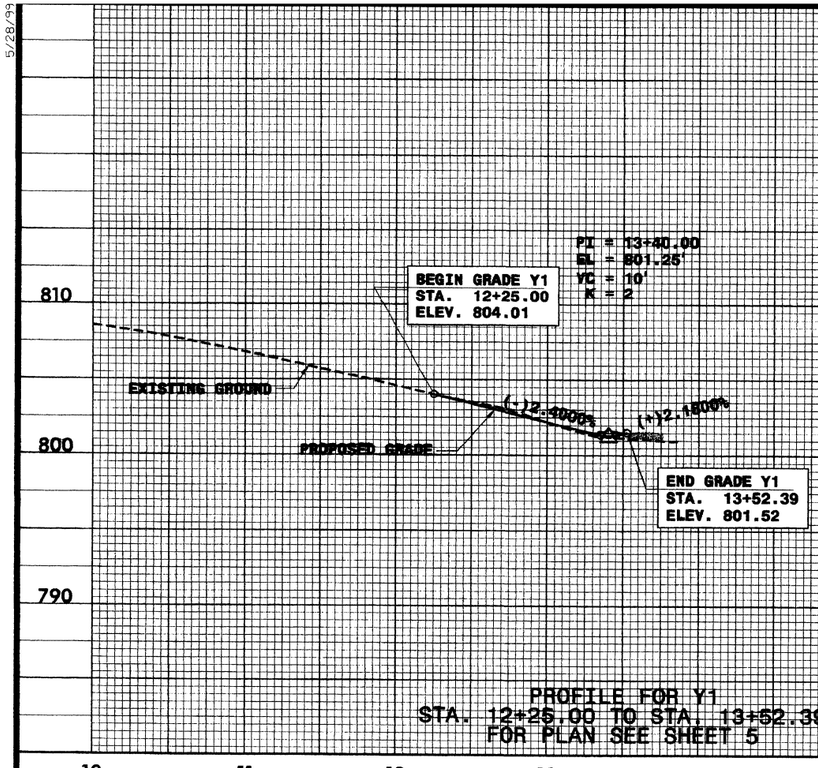
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	40

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

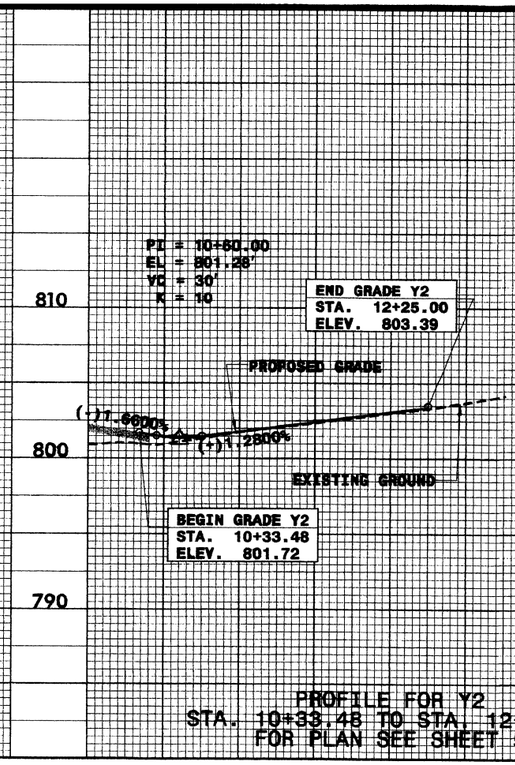
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 2478
RALEIGH, NC 27601

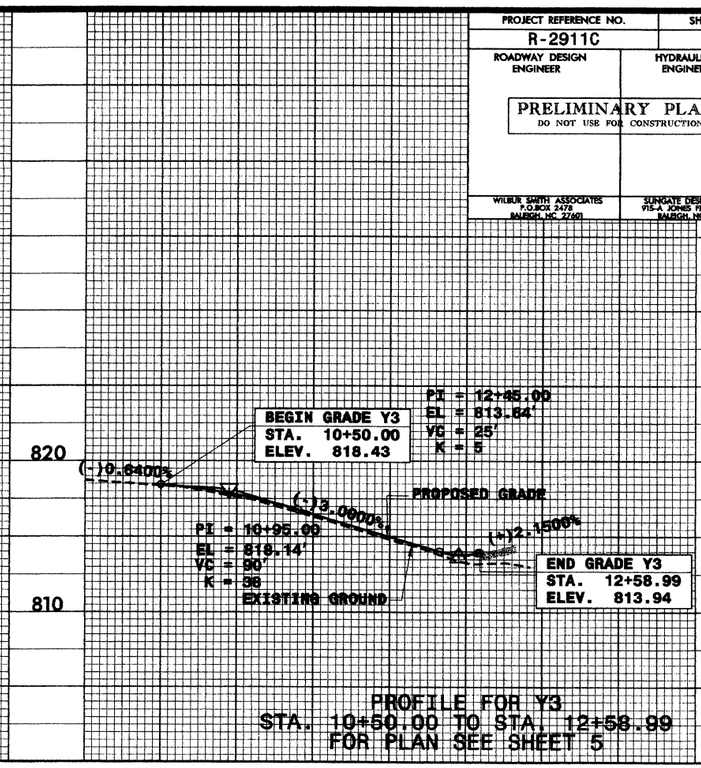
SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606



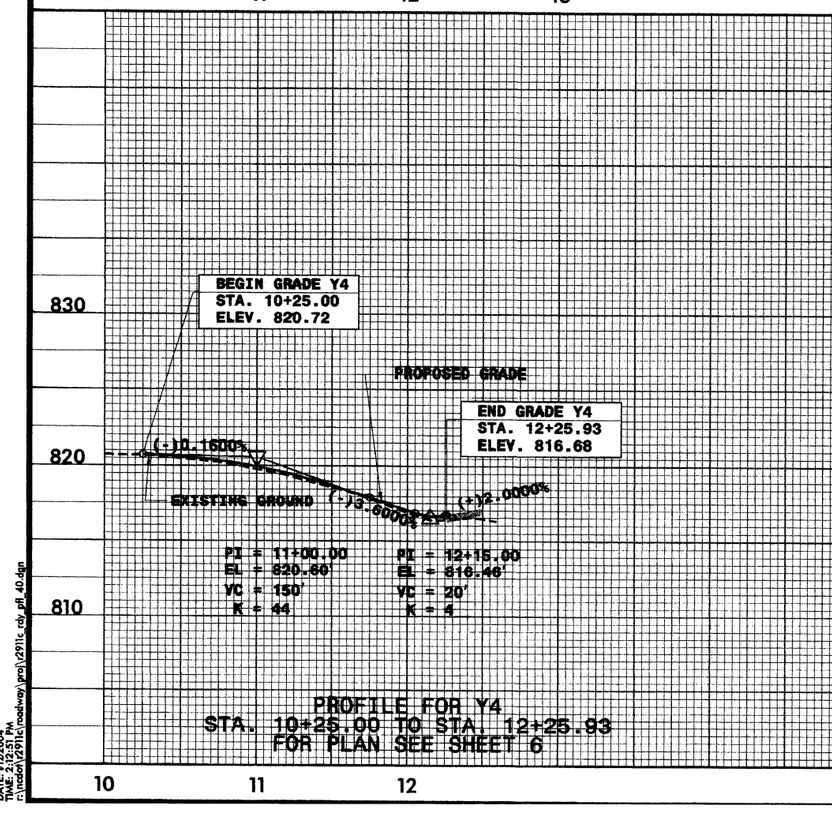
PROFILE FOR Y1
STA. 12+25.00 TO STA. 13+52.39
FOR PLAN SEE SHEET 5



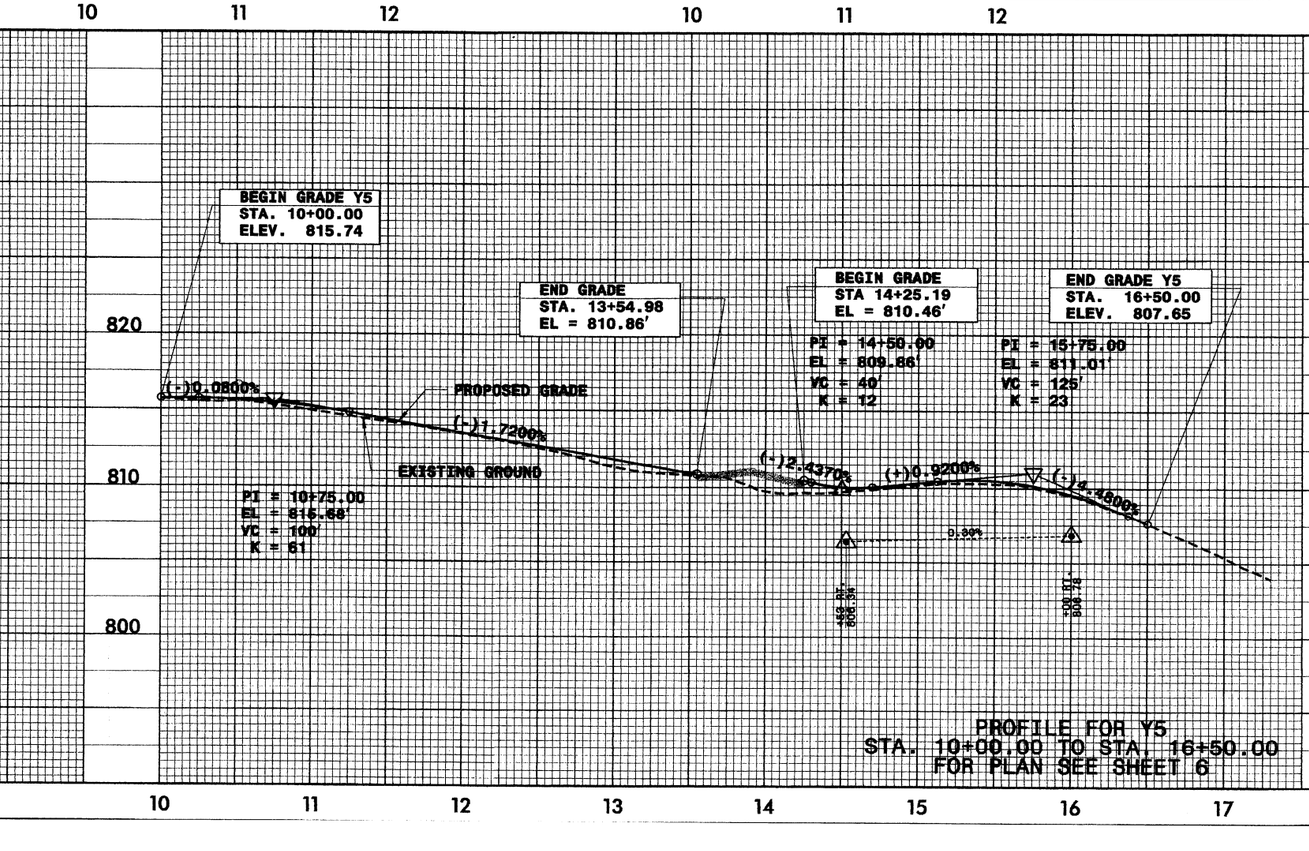
PROFILE FOR Y2
STA. 10+33.48 TO STA. 12+25.00
FOR PLAN SEE SHEET 5



PROFILE FOR Y3
STA. 10+50.00 TO STA. 12+58.99
FOR PLAN SEE SHEET 5



PROFILE FOR Y4
STA. 10+25.00 TO STA. 12+25.93
FOR PLAN SEE SHEET 6



PROFILE FOR Y5
STA. 10+00.00 TO STA. 16+50.00
FOR PLAN SEE SHEET 6

5/28/99

DATE: 1/12/2004
TIME: 2:12:51 PM
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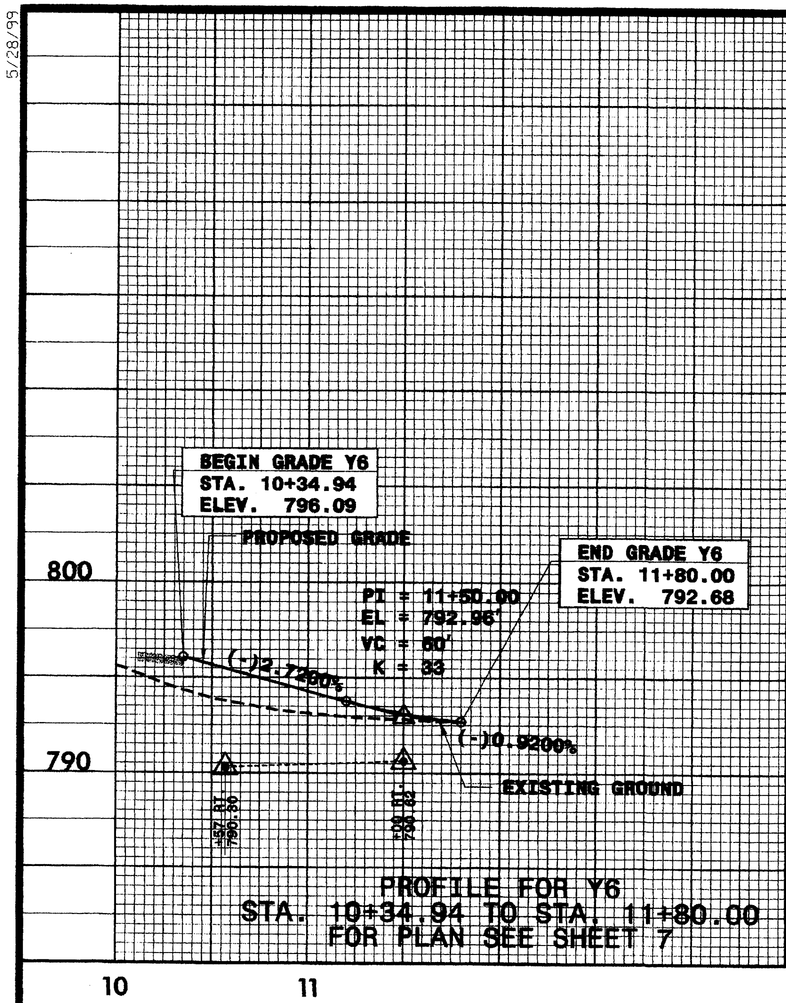
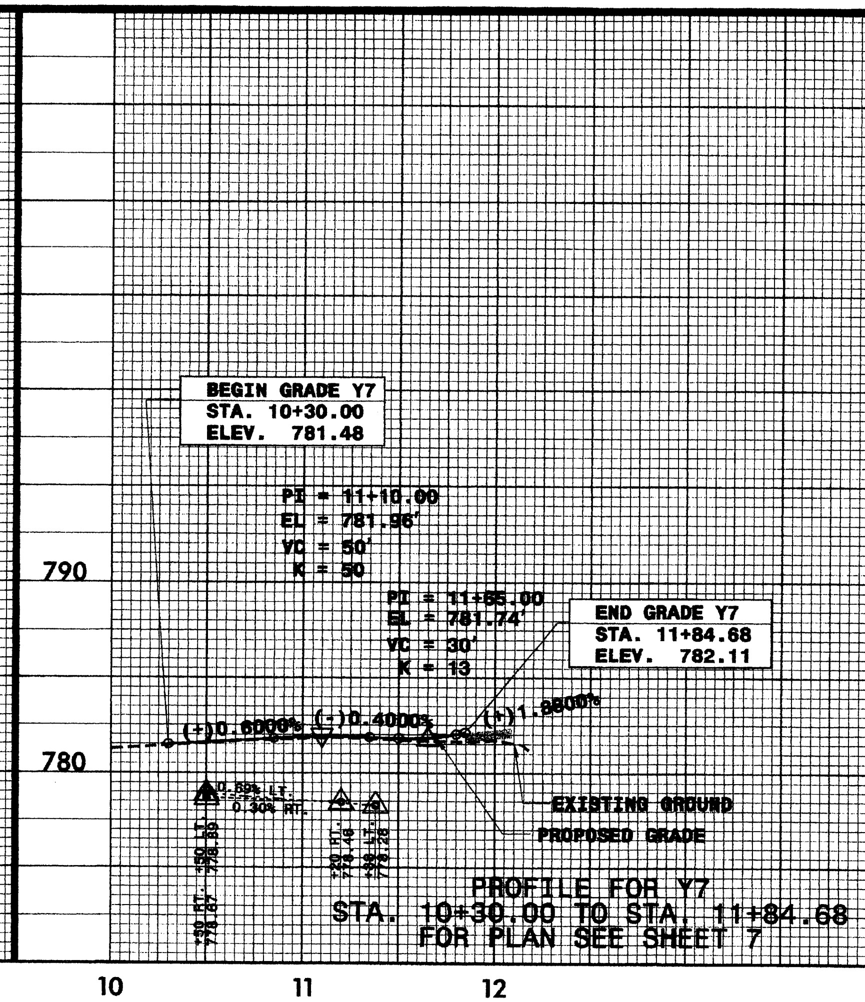
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	41

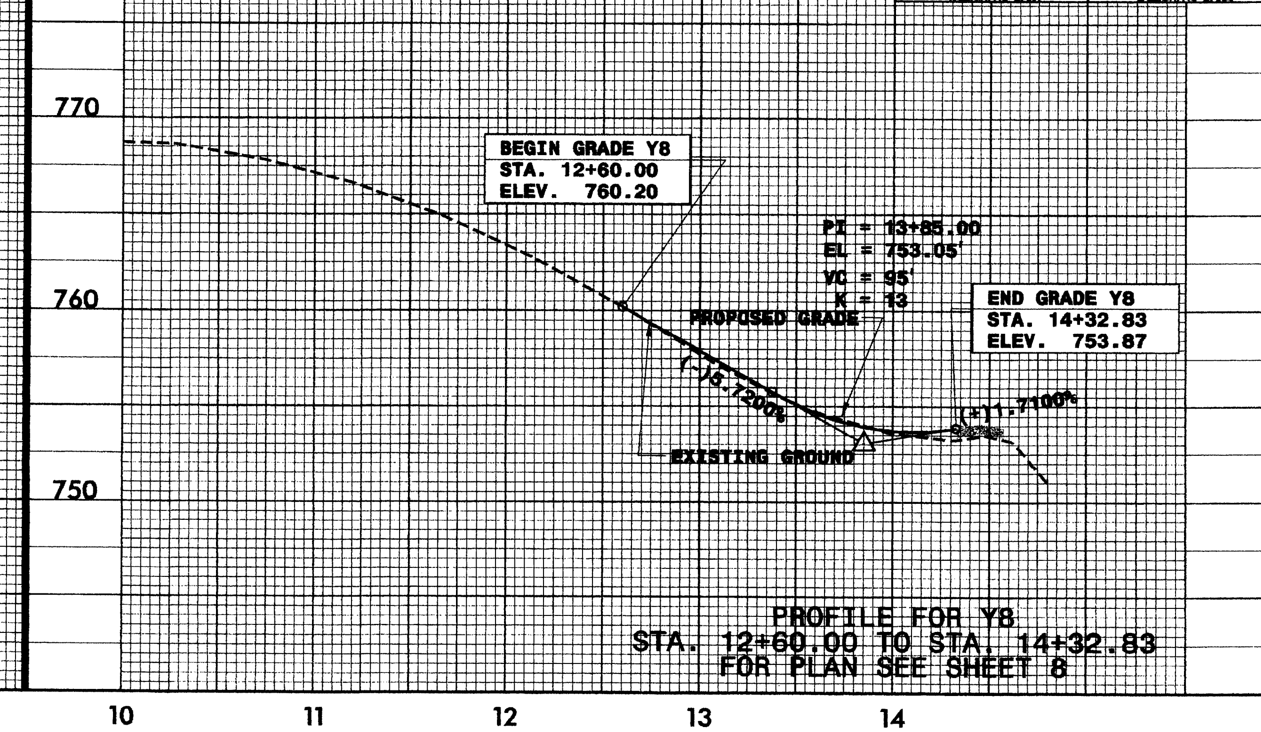
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

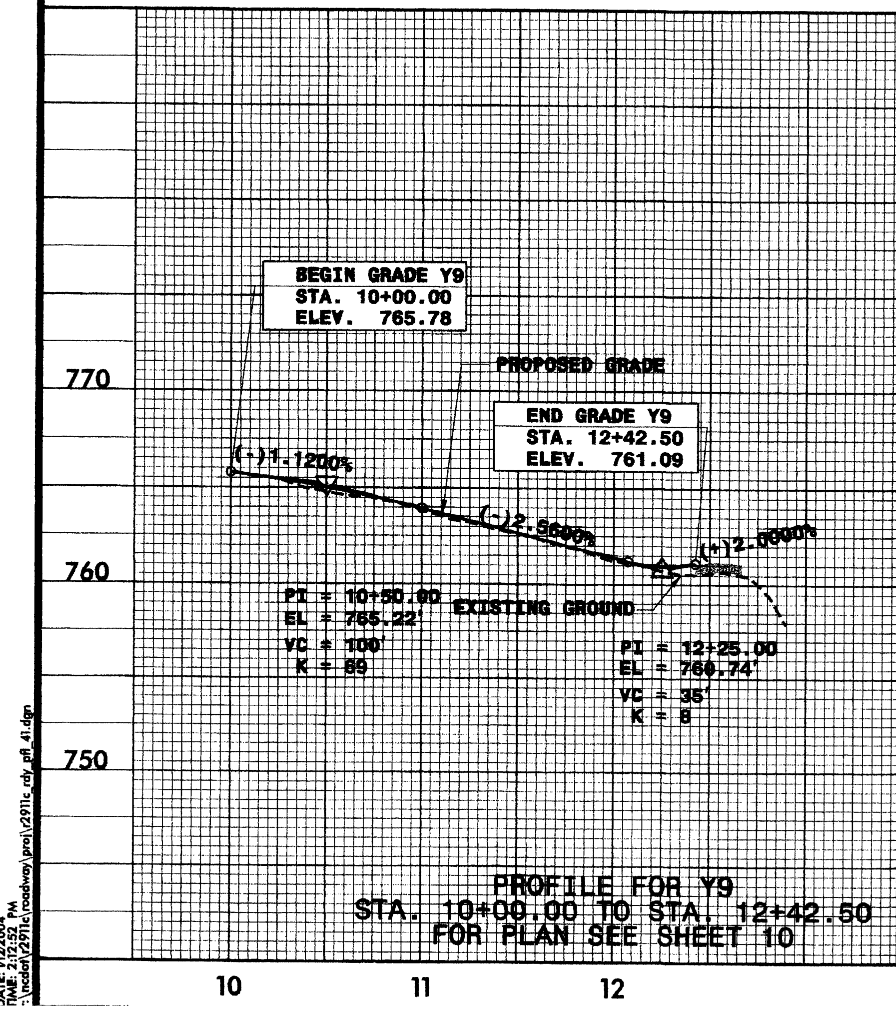
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

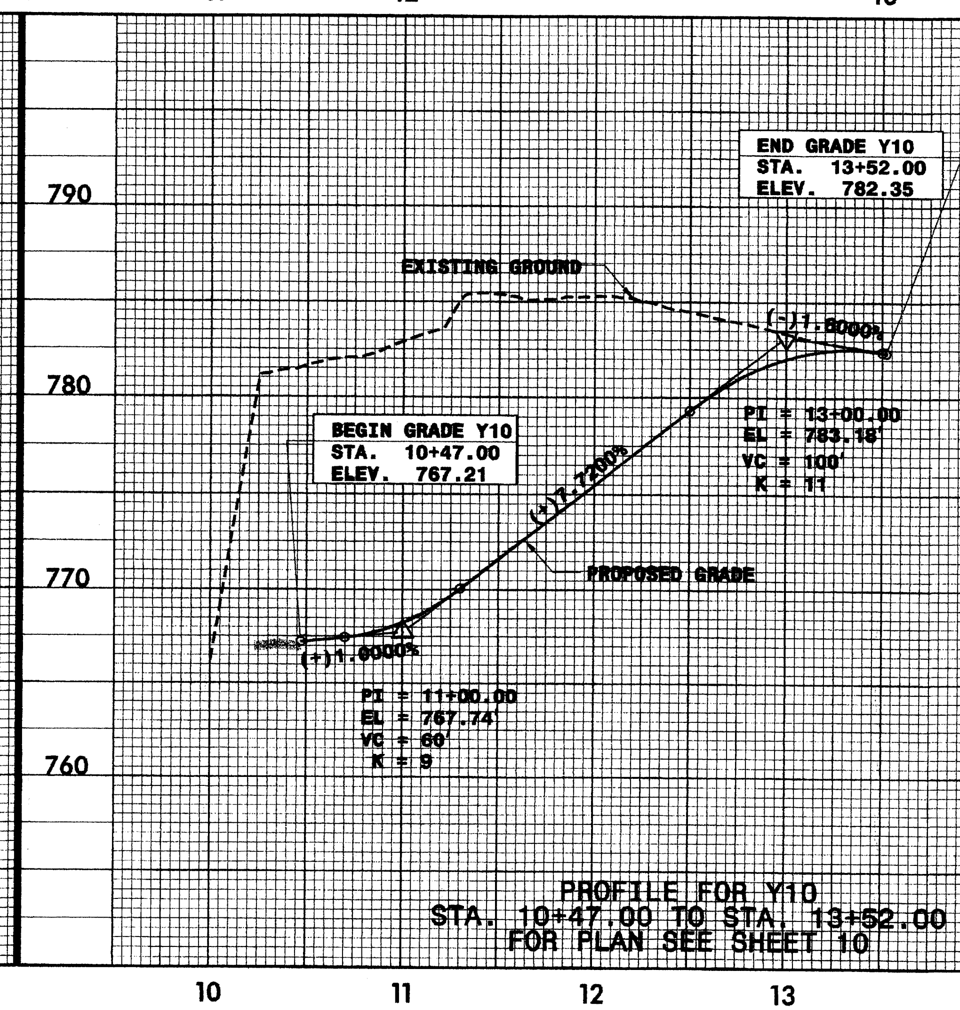
WILBUR SMITH ASSOCIATES P.O.BOX 2478 RALEIGH, NC 27601	SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

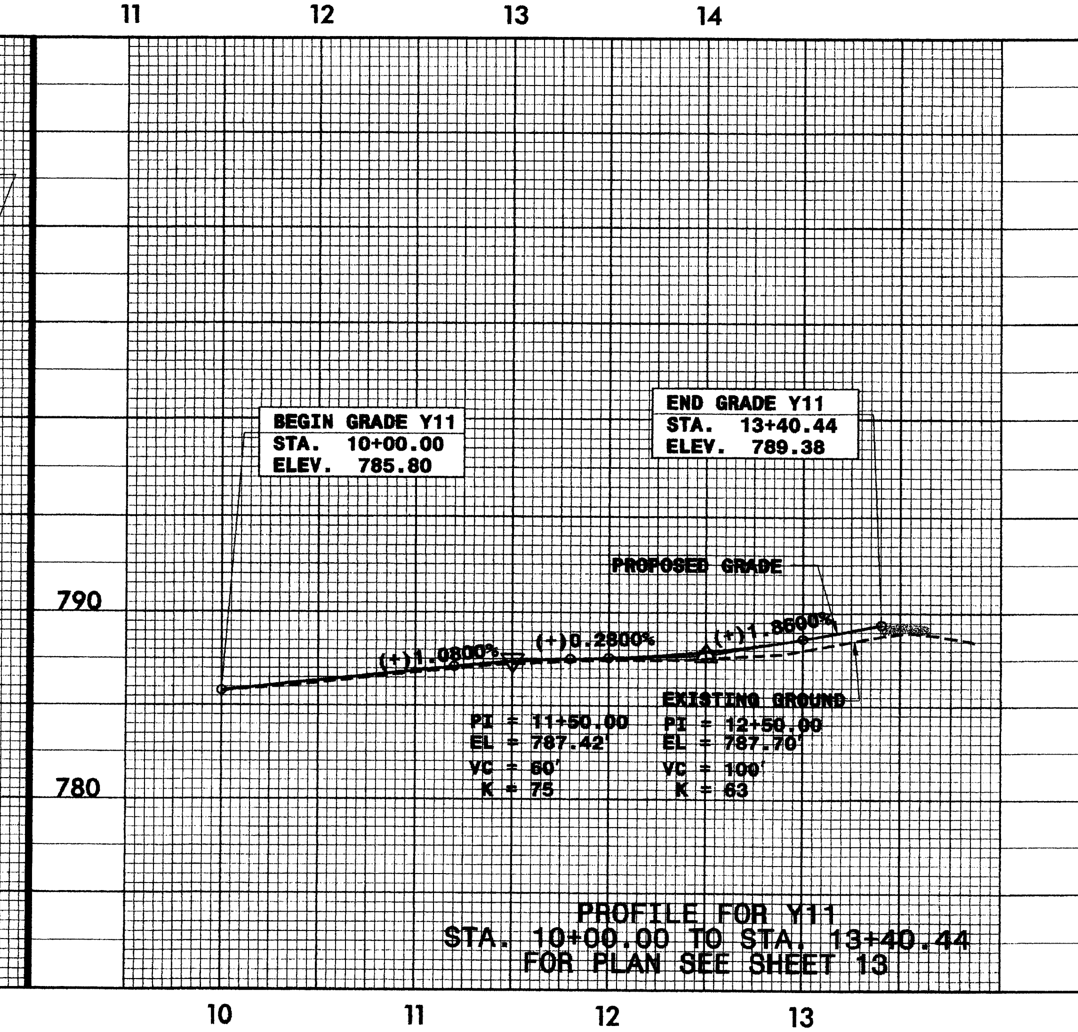












5/28/99

DATE: 1/12/2004
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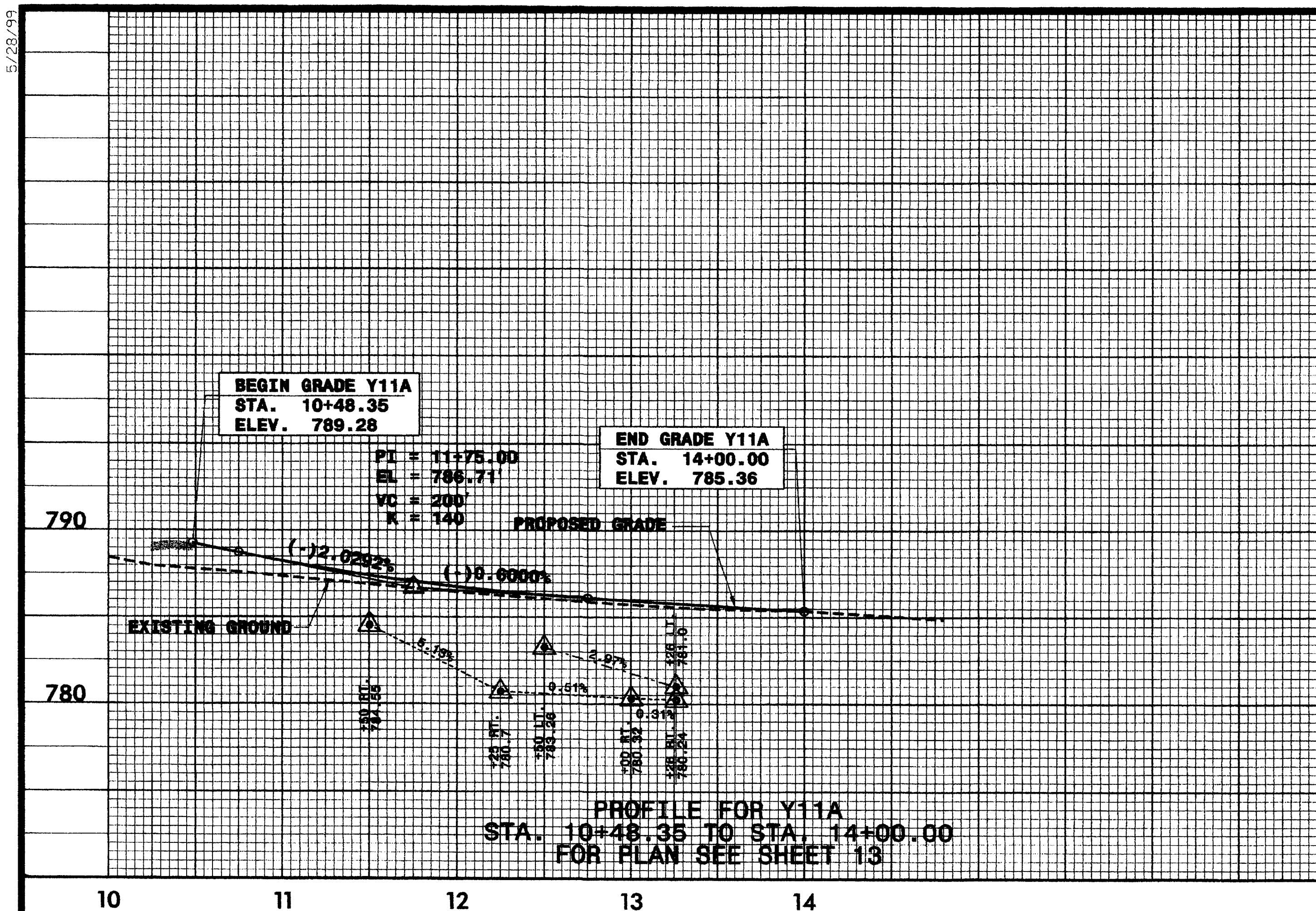
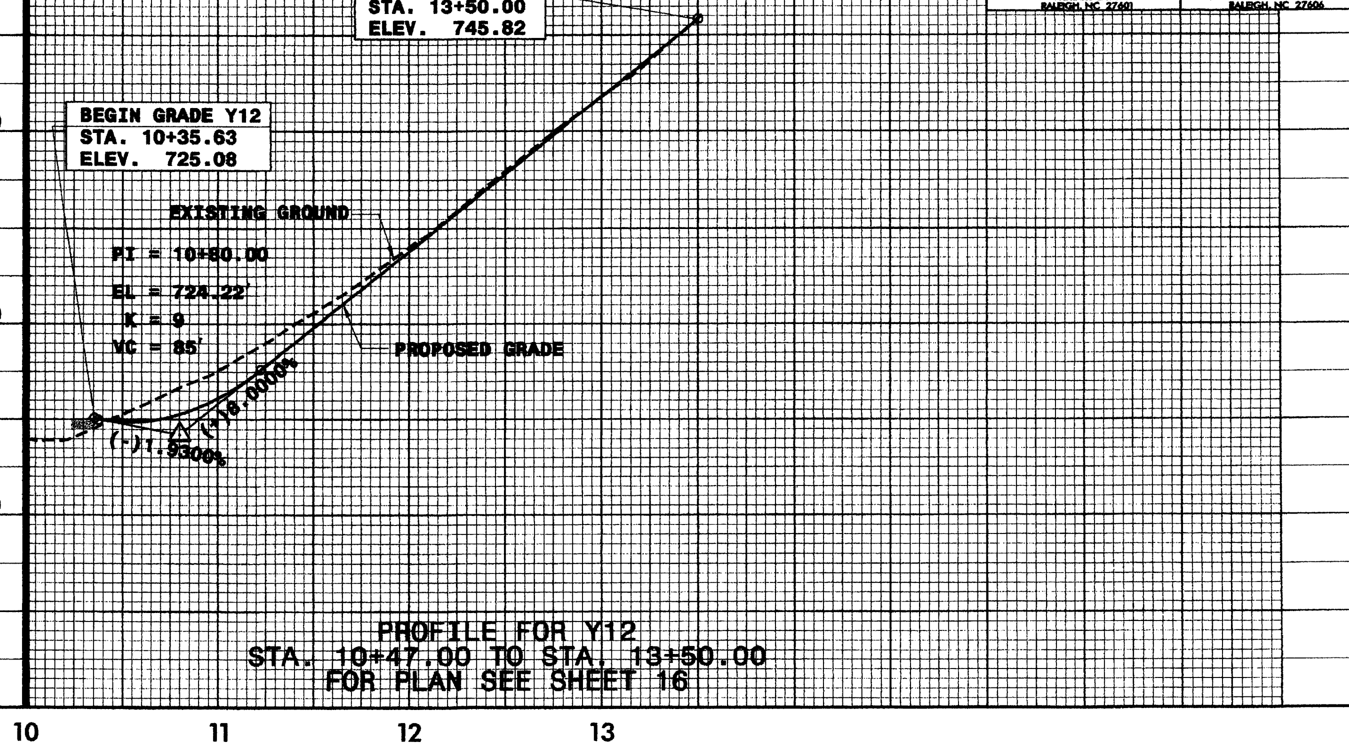
PROJECT REFERENCE NO.	SHEET NO.
R-2911C	42

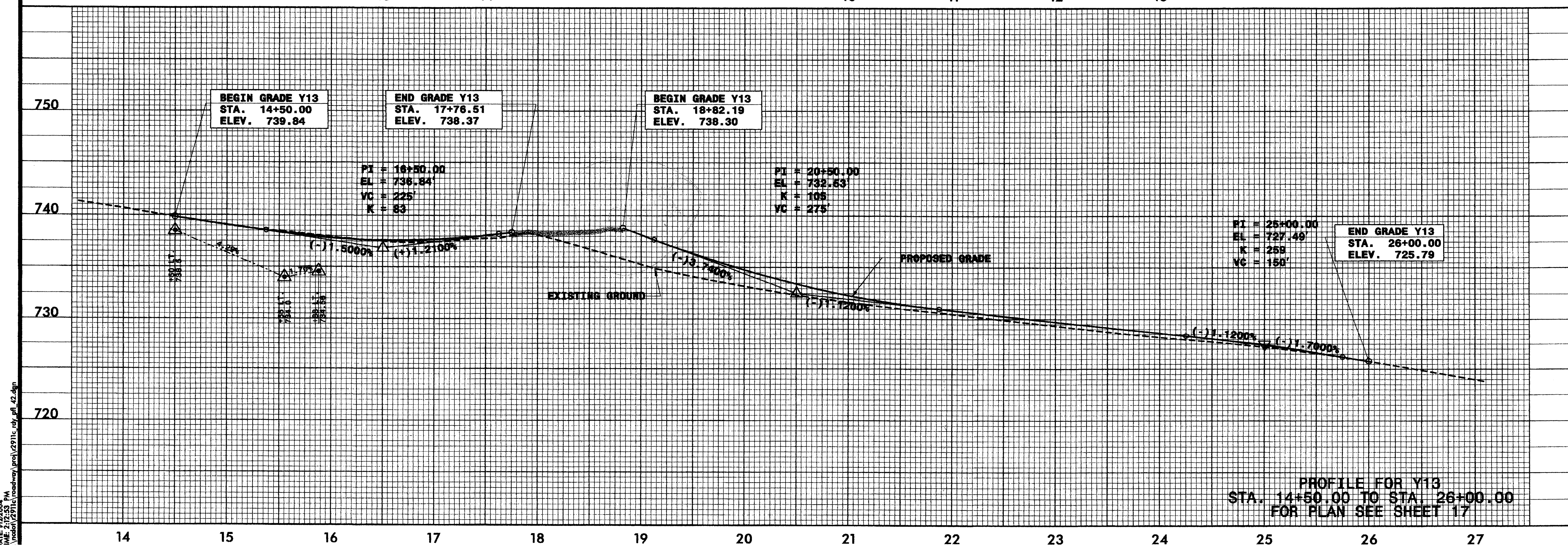
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
WILBUR SMITH ASSOCIATES P.O.BOX 2478 RALEIGH, NC 27601	SUNGATE DESIGN GROUP 915-A JONES FRANKLIN RD. RALEIGH, NC 27606

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/28/93







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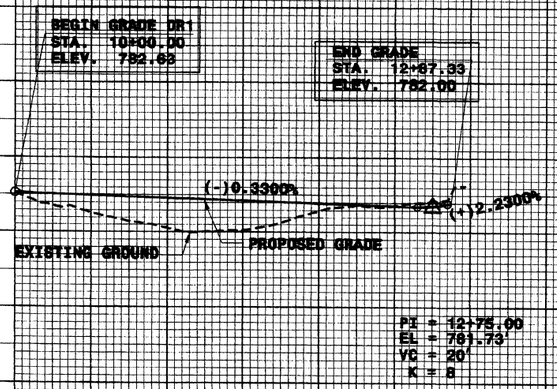
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2911C	43
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

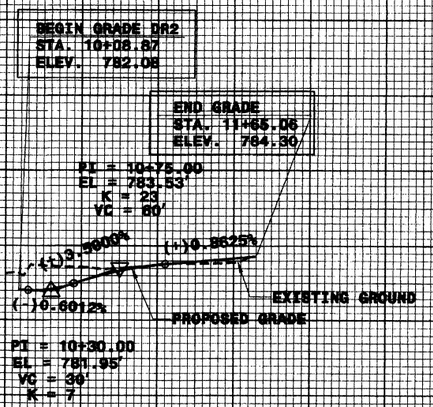
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WILBUR SMITH ASSOCIATES
P.O.BOX 3478
RALEIGH, NC 27601

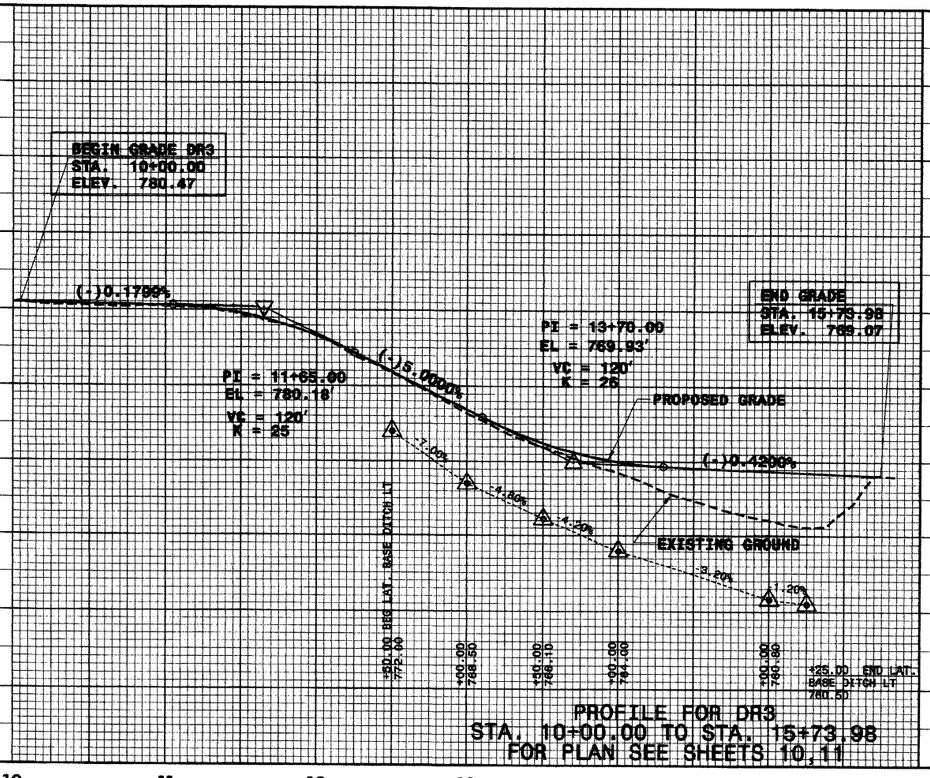
SUNGATE DESIGN GROUP
915-A JONES FRANKLIN RD.
RALEIGH, NC 27606



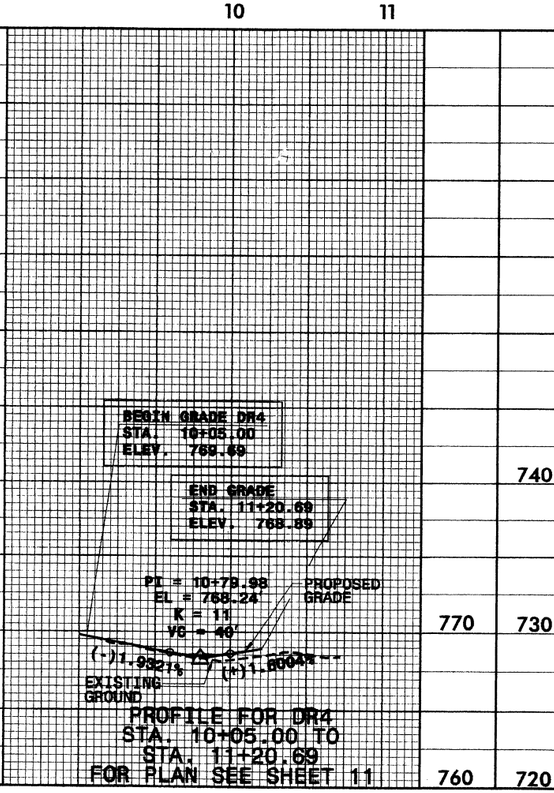
PROFILE FOR DR1
STA. 10+00.00 TO STA. 12+87.33
FOR PLAN SEE SHEET 10



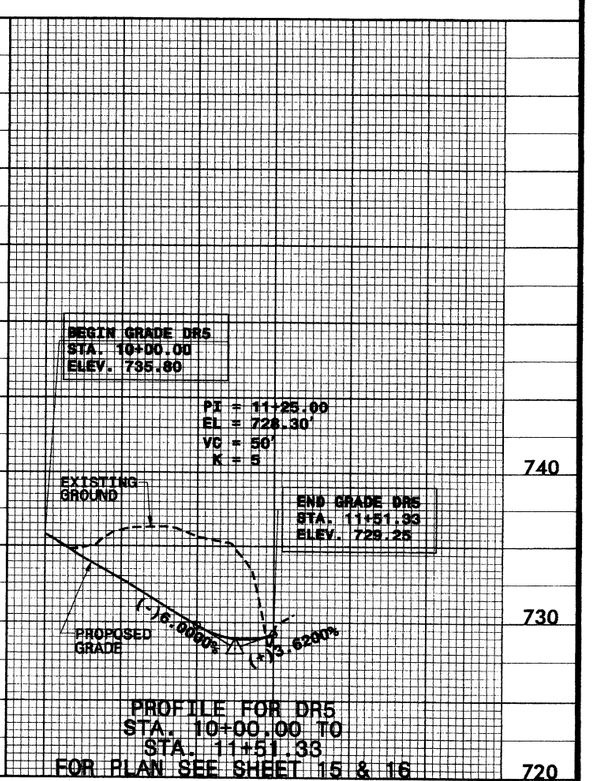
PROFILE FOR DR2
STA. 10+08.87 TO STA. 11+65.06
FOR PLAN SEE SHEETS 10, 11



PROFILE FOR DR3
STA. 10+00.00 TO STA. 15+73.98
FOR PLAN SEE SHEETS 10,11



PROFILE FOR DR4
STA. 10+05.00 TO
STA. 11+20.69
FOR PLAN SEE SHEET 11



PROFILE FOR DR5
STA. 10+00.00 TO
STA. 11+51.33
FOR PLAN SEE SHEET 15 & 16

DATE: 1/12/2004
TIME: 2:12:54 PM
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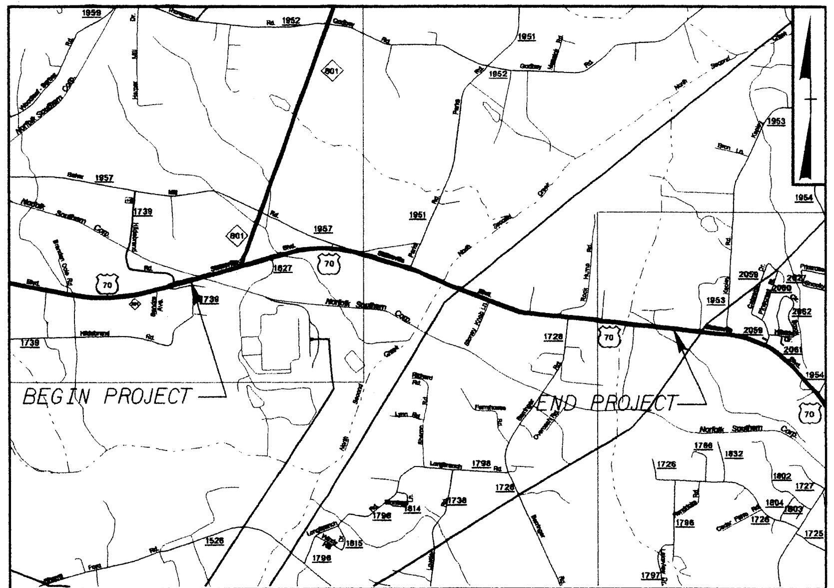
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROWAN COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2911D	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
8.1631801	STP-70(39)	PE
8.1631805	STP-70(70)	R/W, UTIL



VICINITY MAP

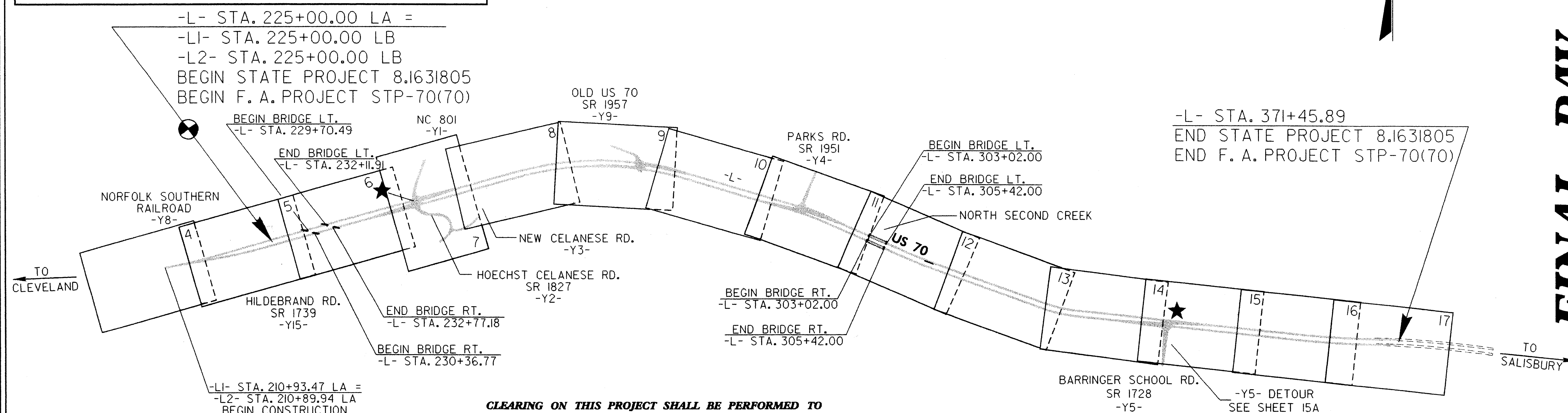
LOCATION: US 70 FROM WEST OF SR 1739 (HILDEBRAND ROAD) TO WEST OF SR 1953 (KEPLEY ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, WIDENING, RESURFACING, STRUCTURES, SIGNING, SIGNALS, AND GUARDRAIL

NC GRID NAD 83

R-2911D

FINAL R/W PLANS



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

★ **PROPOSED SIGNAL**

THIS PROJECT IS NOT WITHIN THE CITY LIMITS OF SALISBURY

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

NCDOT CONTACT: CATHY S. HOUSER, P.E.
PROJECT ENGINEER
DESIGN SERVICES

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT: 8.1631805

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 2004 =	15,100
ADT 2024 =	24,000
DHV =	10 %
D =	60 %
T =	8 % *
V =	60 MPH**

* TTST 6 % DUAL 2 %

PROJECT LENGTH

LENGTH ROADWAY F. A. PROJECT STP-70(70) = 2.591 MILES
LENGTH STRUCTURES F. A. PROJECT STP-70(70) = 0.091 MILES
TOTAL LENGTH STATE PROJECT 8.1631805 = 2.683 MILES

** DESIGN EXCEPTION REQUIRED

Prepared in the Office of:
PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616
For the North Carolina Department of Transportation
2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: November 15, 2002

LETTING DATE: October 19, 2004

Steve Drum, PE — PBS&J PROJECT ENGINEER

Rhonda B. Early, PE — PBS&J PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

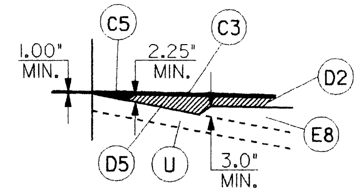
09/08/99

08-DEC-2003 08:51
r2911d_rdy_tsh.dgn

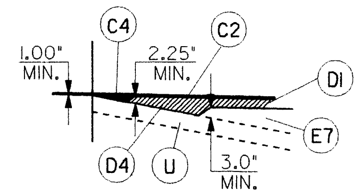
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

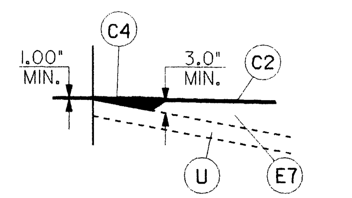
PBSJ 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 PHONE: (919) 876-6888



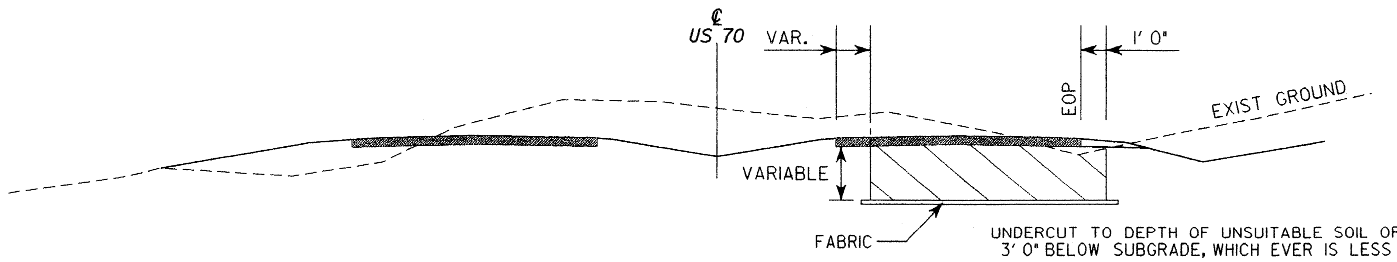
WEDGING DETAIL (W1) FOR -L- LINE



WEDGING DETAIL (W2) FOR -Y- LINES



WEDGING DETAIL (W3) FOR -Y- LINES



UNDERCUT DETAIL

UNDERCUT EXCAVATION AND FABRIC TO BE USED AT LOCATIONS AS DIRECTED BY THE ENGINEER

PAVEMENT SCHEDULE

A1	6" JOINTED CONCRETE DRIVEWAY, REINFORCED WITH WIRE MESH.
C1	PROP. APPROX. 2.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 3.0" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. APPROX. 3.0" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS PER SQ. YD. IN EACH OF TWO LAYERS.
C4	PROP. VAR. DEPTH ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS PER SQ. YD. PER 1.0" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.0" OR GREATER THAN 1.5" IN DEPTH.
C5	PROP. VAR. DEPTH ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS PER SQ. YD. PER 1.0" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.0" OR GREATER THAN 1.5" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS PER SQ. YD.
D2	PROP. APPROX. 3.0" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS PER SQ. YD. PER INCH.
D3	PROP. APPROX. 3.5" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 399 LBS PER SQ. YD. PER INCH.
D4	PROP. VAR. DEPTH ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS PER SQ. YD. PER INCH DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.25" OR GREATER THAN 4.0" IN DEPTH.
D5	PROP. VAR. DEPTH ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS PER SQ. YD. PER INCH DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.25" OR GREATER THAN 4.0" IN DEPTH.
E1	PROP. APPROX. 4.0" ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS PER SQ. YD.
E2	PROP. APPROX. 5.0" ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS PER SQ. YD.
E6	PROP. APPROX. 7.5" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 427.5 LBS PER SQ. YD. IN EACH OF TWO LAYERS.
E7	PROP. VAR. DEPTH ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS PER SQ. YD. PER INCH DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3.0" OR GREATER THAN 5.5" IN DEPTH.
E8	PROP. VAR. DEPTH ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS PER SQ. YD. PER INCH DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3.0" OR GREATER THAN 5.5" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE
J2	PROP. 6" AGGREGATE BASE COURSE
J3	VARIABLE DEPTH AGGREGATE BASE COURSE
K	SUBBASE TO BE TREATED WITH LIME TO A DEPTH OF 8 IN., AT A RATE OF 20 LBS. PER SQ. YARD, AS DIRECTED BY THE ENGINEER OR SUBBASE TO BE TREATED WITH CEMENT TO A DEPTH OF 7 IN., AT A RATE OF 55 LBS. PER SQ. YARD, AS DIRECTED BY THE ENGINEER OR SUBBASE TO BE TREATED WITH AGGREGATE AT A RATE OF 250 LBS. PER SQ. YARD AND CEMENT AT A RATE OF 55 LBS. PER SQ. YARD, TO A DEPTH OF 7 IN. AS DIRECTED BY THE ENGINEER
P	PRIME COAT
R1	CONCRETE EXPRESSWAY GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	VARIABLE DEPTH BITUMINOUS PAVEMENT (SEE WEDGING DETAIL FOR -L- LINE)
W2	VARIABLE DEPTH BITUMINOUS PAVEMENT (SEE WEDGING DETAIL FOR -Y- LINES)
W3	VARIABLE DEPTH BITUMINOUS PAVEMENT (SEE WEDGING DETAIL FOR -Y- LINES)

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

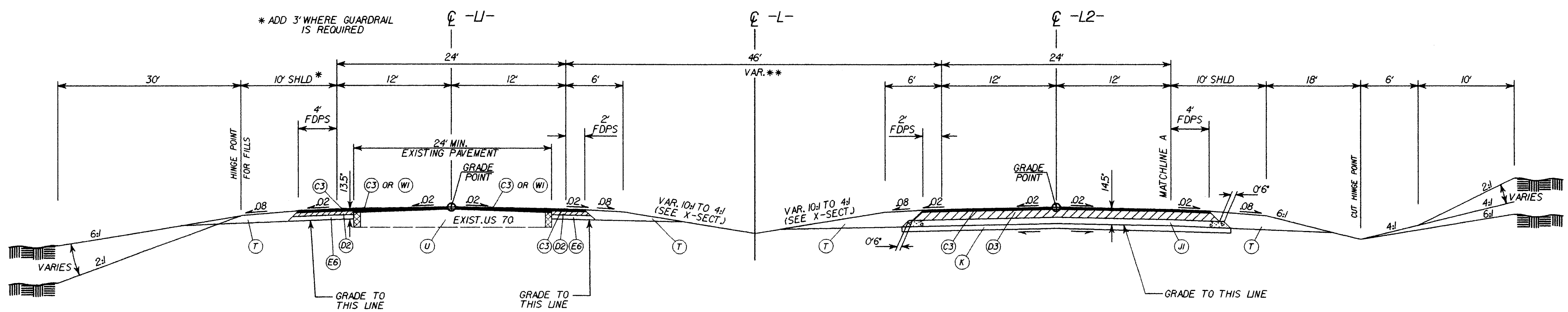
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	2A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 PHONE: (919) 876-6888

PAVEMENT SCHEDULE

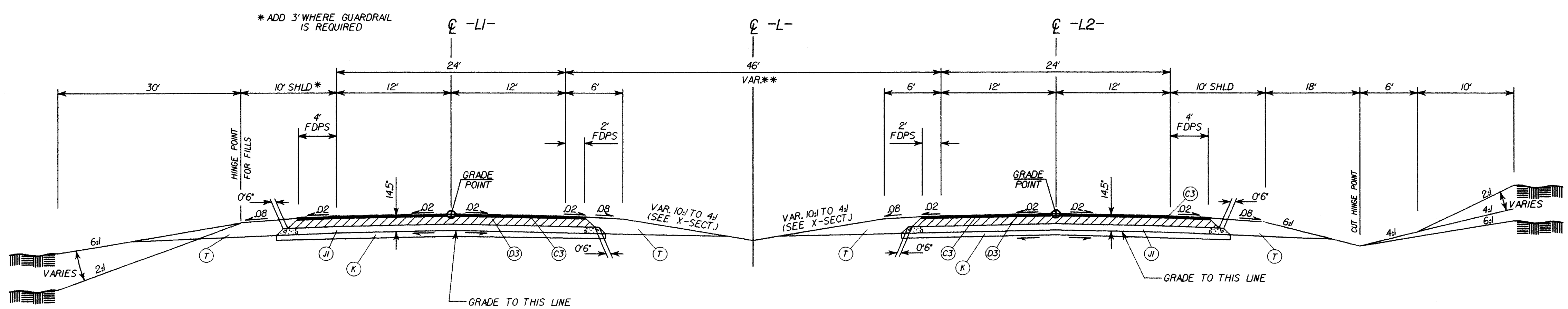
C3	3.0" S9.5C (TWO LAYERS)
D2	3.0" I19.0C
D3	3.5" I19.0C
E6	7.5" B25.0C (TWO LAYERS)
E8	VAR. DEPTH B25.0C
J1	8" ABC
K	LIME OR CEMENT TREATED SUBBASE
R1	EXPRESSWAY GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING (-L- LINE)



NOTE: REMOVE THE OUTSIDE 1' OF THE EXISTING PAVEMENT BEFORE WIDENING.

TYPICAL SECTION NO.1

USE TYPICAL SECTION NO. 1:
** -L1- STA 210+93.47 TO STA 223+50.00
** -L2- STA 210+89.94 TO STA 223+50.00
-L- STA 238+00.00 TO STA 252+00.00
-L- STA 254+50.00 TO STA 275+00.00
-L- STA 291+00.00 TO STA 295+50.00
-L- STA 308+50.00 TO STA 317+50.00
-L- STA 323+50.00 TO STA 329+00.00
-L- STA 331+50.00 TO STA 338+00.00
-L- STA 350+00.00 TO STA 352+00.00
-L- STA 360+50.00 TO STA 371+45.89



TYPICAL SECTION NO.2

USE TYPICAL SECTION NO. 2:
** -L1- STA 223+50.00 TO STA 225+00.00 LB
** -L2- STA 223+50.00 TO STA 225+00.00 LB
-L- STA 225+00.00 LA TO STA 229+70.49 (BRIDGE)
-L- STA 232+11.91 (BRIDGE) TO STA 238+00.00
-L- STA 252+00.00 TO STA 254+50.00
-L- STA 275+00.00 TO STA 291+00.00
-L- STA 295+50.00 TO STA 303+02.00 (BRIDGE)
-L- STA 305+42.00 (BRIDGE) TO STA 308+50.00
-L- STA 317+50.00 TO STA 323+50.00
-L- STA 329+00.00 TO STA 331+50.00
-L- STA 338+00.00 TO STA 350+00.00
-L- STA 352+00.00 TO STA 360+50.00

6/2/99

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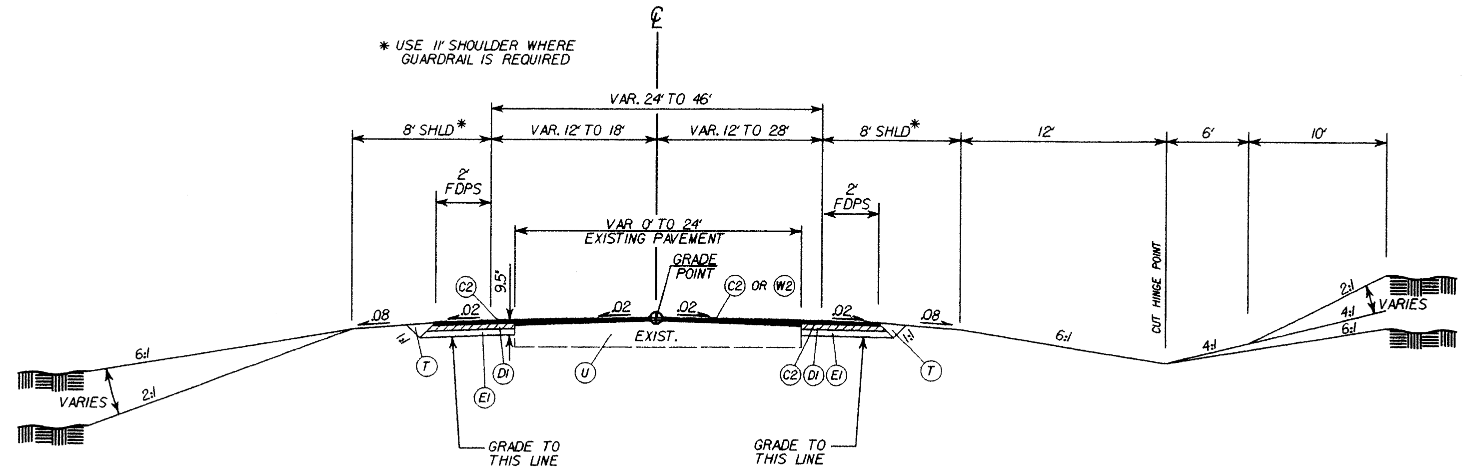
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	2B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

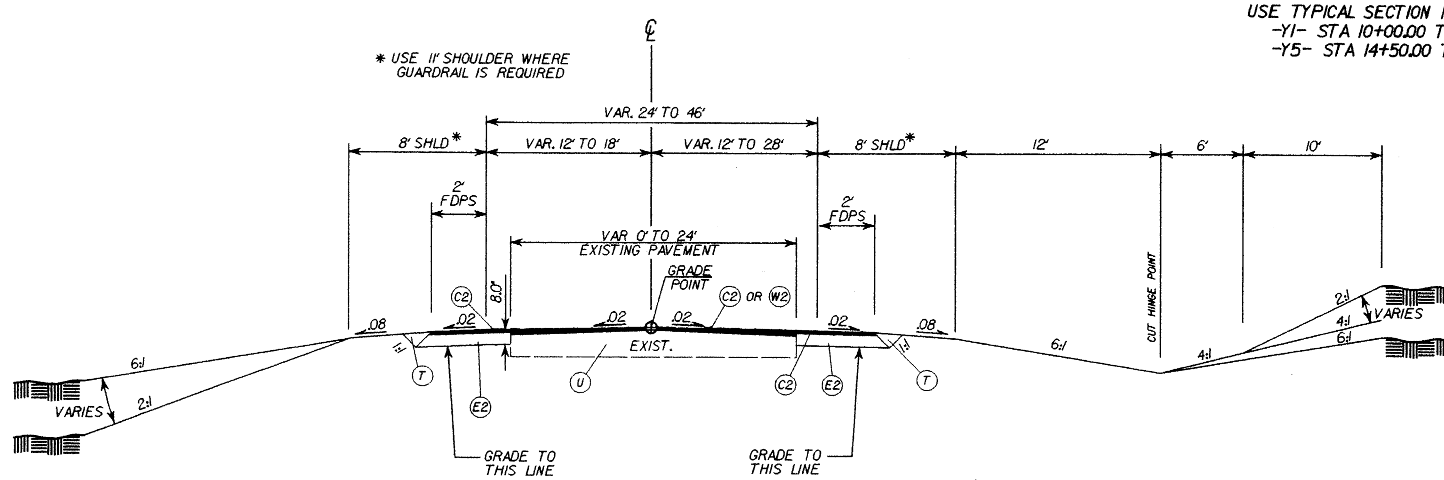
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ 1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
PHONE: (919) 876-6888



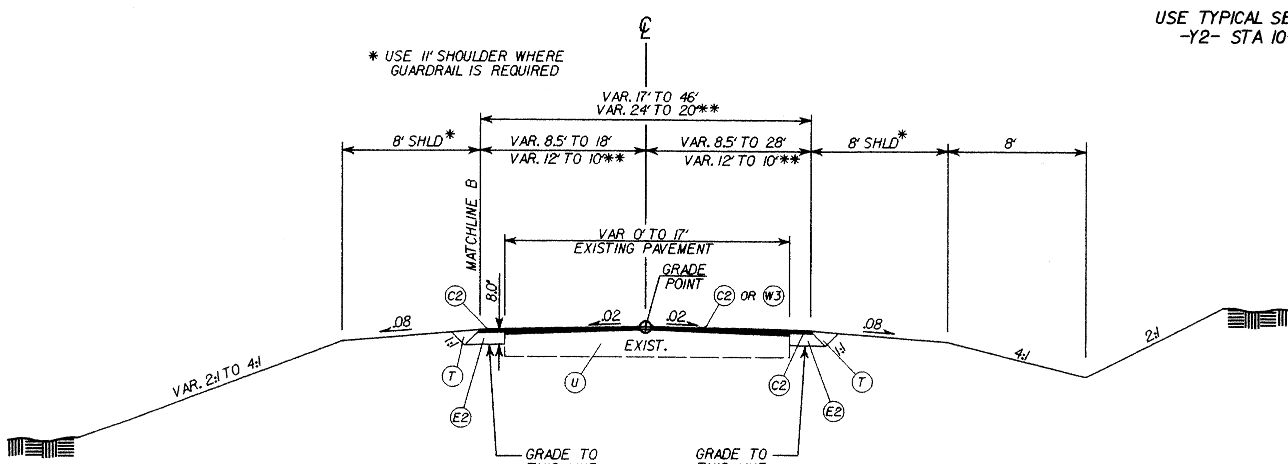
TYPICAL SECTION NO.3

USE TYPICAL SECTION NO. 3:
-Y1- STA 10+00.00 TO STA 15+26.50
-Y5- STA 14+50.00 TO STA 15+45.75



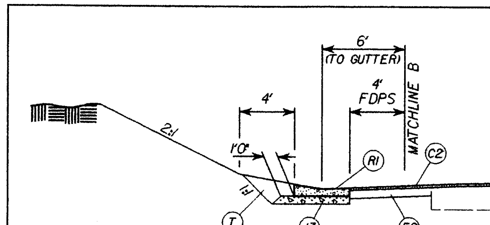
TYPICAL SECTION NO.4

USE TYPICAL SECTION NO. 4:
-Y2- STA 10+48.69 TO STA 18+69.09



TYPICAL SECTION NO.5

USE TYPICAL SECTION NO. 5:
-Y9- STA 14+83.72 TO STA 19+24.30
** -Y15- STA 13+70.00 TO STA 15+31.42



PROP. 4' CONCRETE EXPRESSWAY CURB & GUTTER

DETAIL TO BE USED IN CONJUNCTION WITH TYPICAL SECTION NO. 4:
-Y9- STA 15+00.00 TO STA 18+43.64 (LEFT)

PAVEMENT SCHEDULE

C2	3.0" S9.5B (TWO LAYERS)
D1	2.5" I19.0B
E1	4.0" B25.0B
E2	5.0" B25.0B
J3	VAR. DEPTH ABC
R1	EXPRESSWAY GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W2	WEDGING (-Y- LINES)
W3	WEDGING (-Y- LINES)

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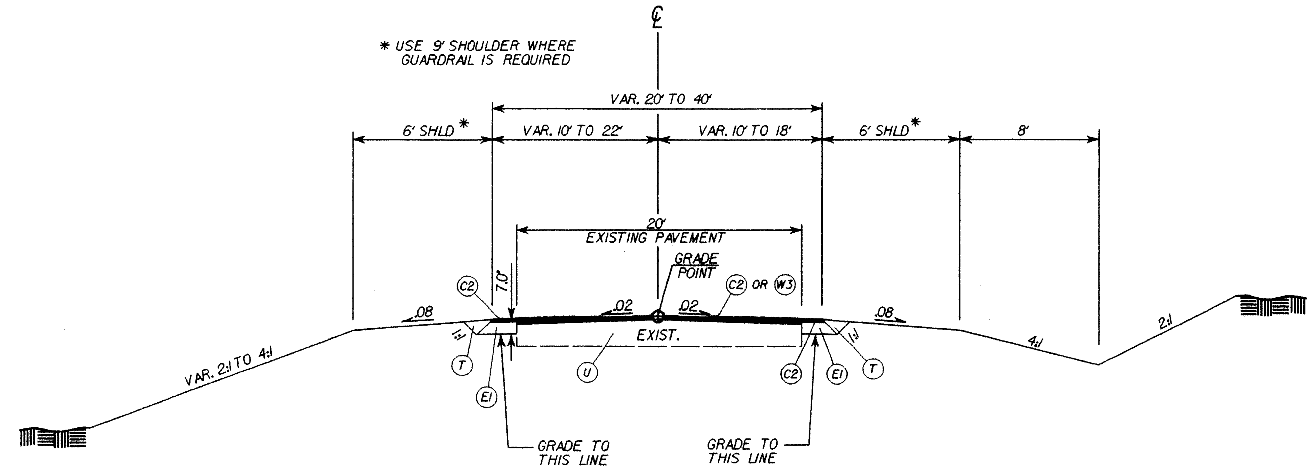
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	2C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

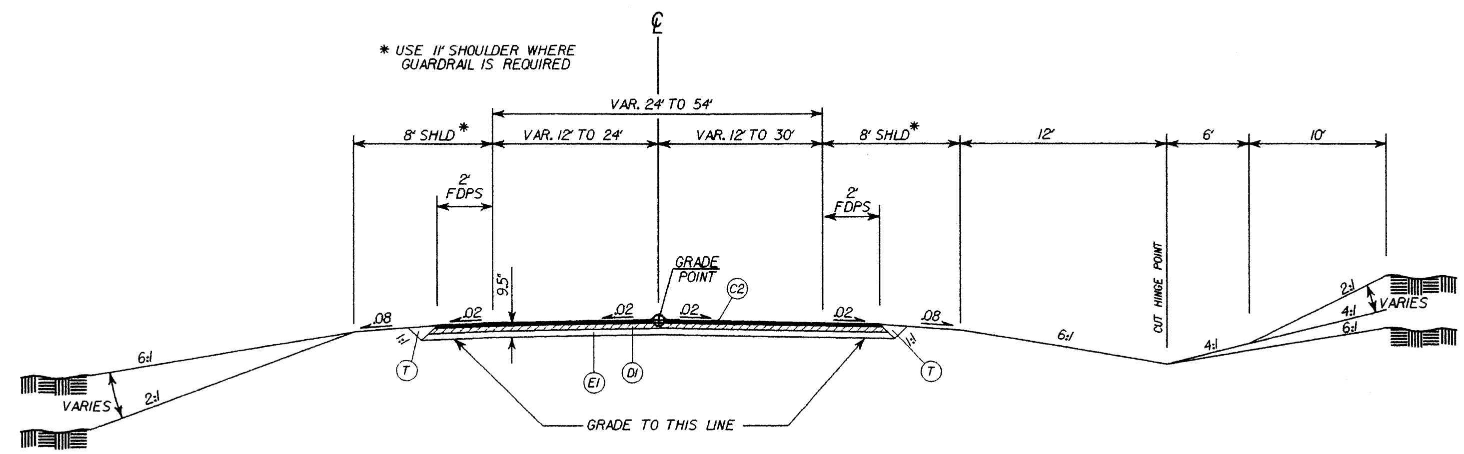
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ 1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
PHONE: (919) 876-6888



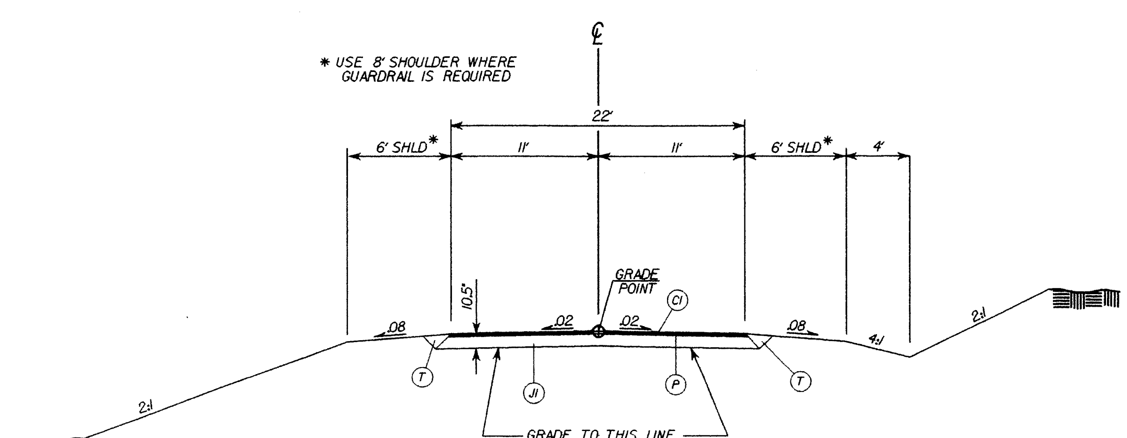
TYPICAL SECTION NO.6

USE TYPICAL SECTION NO. 6:
-Y4- STA 10+00.00 TO STA 14+69.22



TYPICAL SECTION NO.7

USE TYPICAL SECTION NO. 7:
-Y5- STA 10+47.00 TO STA 14+50.00



TYPICAL SECTION NO.8

USE TYPICAL SECTION NO. 8:
-Y5DET- STA 9+83.74 TO STA 16+53.89

PAVEMENT SCHEDULE

C1	2.5" S9.5B
C2	3.0" S9.5B
D1	2.5" I19.0B
E1	4.0" B25.0B
E2	5.0" B25.0B
J1	8" ABC
P	PRIME COAT
T	EARTH MATERIAL
W3	WEDGING (-Y- LINES)

6/2/9

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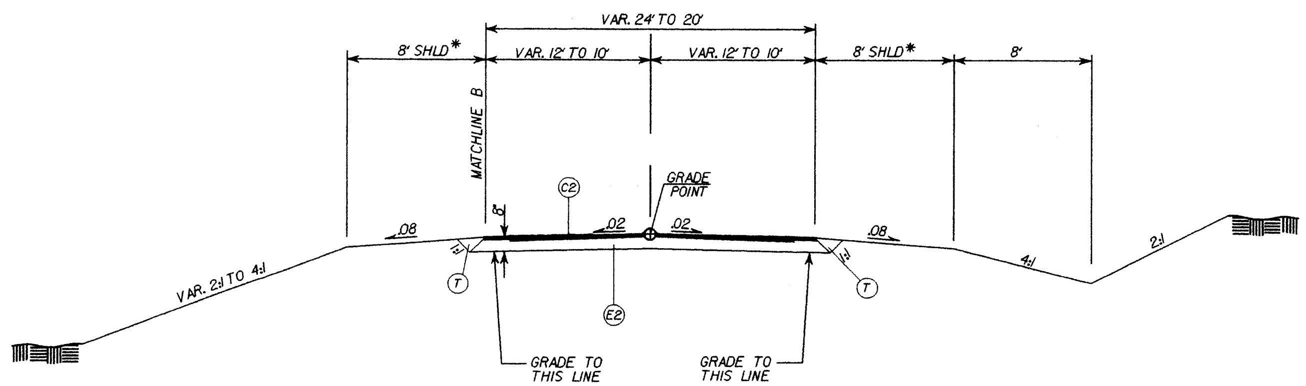
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	2D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 PHONE: (919) 876-6888

* USE 9' SHOULDER WHERE GUARDRAIL IS REQUIRED

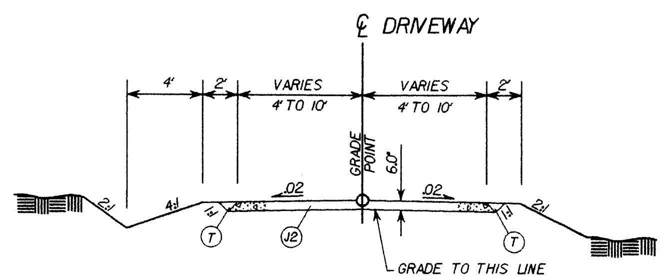


TYPICAL SECTION NO.9

USE TYPICAL SECTION NO. 9:
-Y15- STA 10+47.00 TO STA 13+70.00

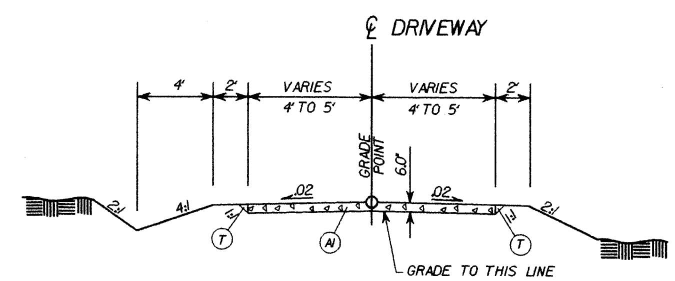
PAVEMENT SCHEDULE

A1	6" JOINTED CONC.
C1	2.5" S9.5B
J2	6" ABC
P	PRIME COAT
T	EARTH MATERIAL



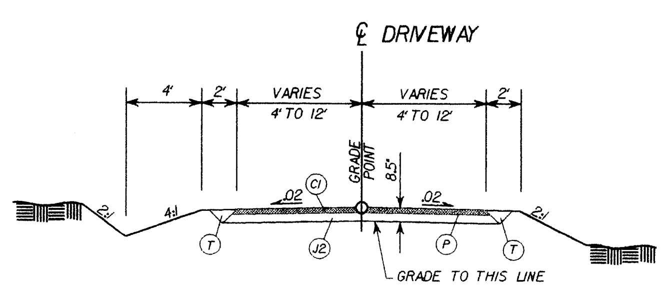
TYPICAL SECTION NO.10

USE TYPICAL SECTION NO. 10:
UNPAVED DRIVEWAYS



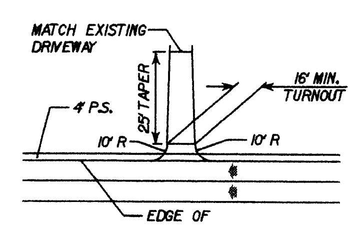
TYPICAL SECTION NO.11

USE TYPICAL SECTION NO. 11:
CONCRETE PAVED DRIVEWAYS



TYPICAL SECTION NO.12

USE TYPICAL SECTION NO. 12:
BST DRIVEWAYS



TYPICAL FOR DRIVEWAY TURNOUTS

PROJ. REFERENCE NO.	SHEET NO.
R-2911D	3-Z

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RIGHT OF WAY AREA DATA SHEET

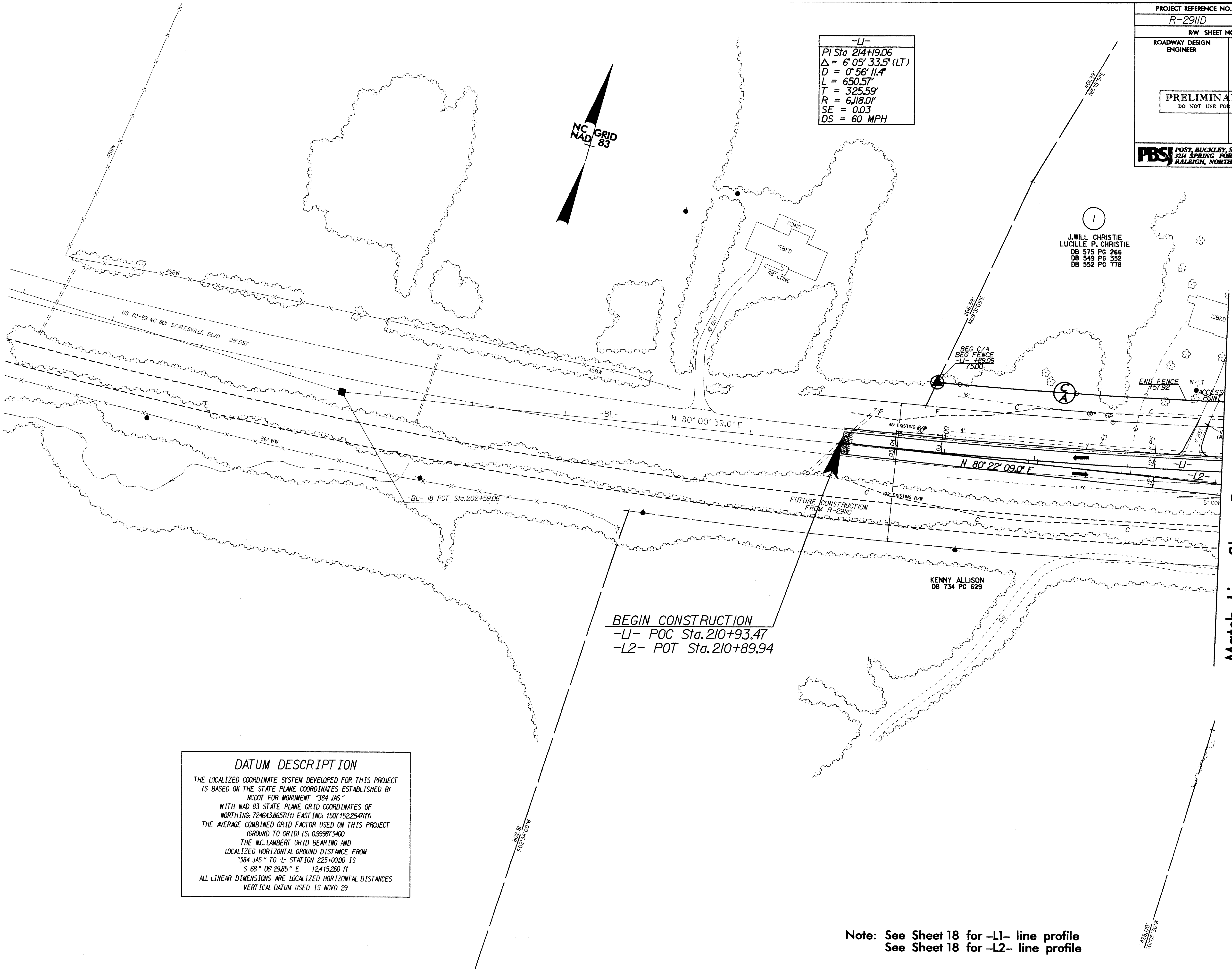
PARCEL No.	PROPERTY OWNERS NAME	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTR. EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT
1	J. Will and Lucille P. Christie	3.55 AC	0.24 AC		3.31 AC			
1A	Thomas Richard Gemme	1.57 AC	1,875.71 SF		1.53 AC			
2	Mark Greene	1.38 AC	3,646.08 SF		1.30 AC			
3	Clinton M. Jones	1.22 AC	3,393.03 SF		1.14 AC			
4	John Krider	13,939.26 SF	3,959.70 SF	9,979.56 SF				
5	Triall LLC	2.22 AC	0.13 AC		2.09 AC			
6	Ruth May Bost Wood	31,798.93 SF	0.24 AC	21,344.49 SF				
7	Pressley Rodney Carr Farm Equipment	1.67 AC	5,393.01 SF		1.55 AC			
8	Lee A. Hildebrand	23,522.49 SF	0.23 AC		13,543.14 SF			
9	Lee A. Hildebrand	16.96 AC	1.24 AC	15.72 AC				
10	Arteva Specialities S.A.R.L.	1,727.32 SF	1,495.55 SF		231.77 SF			
11	Arteva Specialities S.A.R.L.	231.37 AC	4.32 AC	227.05 AC		0.51 AC		0.11 AC
12	Thomas Satterwhite	155.28 AC	0.87 AC		154.41 AC			
13	City of Salisbury	16,131.65 SF	4,509.96 SF		11,621.69 SF			
14	Arteva Specialities	17.73 AC	1.10 AC		16.63 AC			0.40 AC
15	Zelda R. Wrights	2.38 AC	0.36 AC		2.02 AC			
16	David B. McSwain	29,955.25 SF	0.15 AC	23,432.33 SF				
17	William G. Graham	16.11 AC	0.25 AC	15.86 AC				
18A	Entergy Power Desoto	116.19 AC	None		116.19			
19	Dorothy D. Lyerly	2.80 AC			2.80 AC	2,213.50 SF		
20	Mary Helen Douglas	14,547.29 SF			14,547.29 SF	1,115.17 SF		
21	Pauline B. Basinger	1.93 AC			1.93 AC	1,381.21 SF		
22	MERI, LLC	97.05 AC	3.39 AC	93.66 AC		0.36 AC	4,502.96 SF	0.17 AC
23	Mr. & Mrs. A.L. Powlas Heirs	31.31 AC	2.14 AC		29.17 AC			
24	Rowan County	14,873.73 SF	2,984.72 SF	11,889.01 SF				
26	Piedmont Natural Gas	39,813.97 SF	0.19 AC		31,537.54 SF			
27	Larry L. Burns	68.36 AC	0.06 AC		68.30 AC			
28	James C. Walker and Wife Linda Walker	45.66 AC	1.24 AC		44.42 AC			3,102.81 SF
29	Rowan -Salisbury Board of Education	2,556.21 SF	1,639.44 SF	916.77 SF				
30	Edward Shank	30.82 AC	0.81 AC	30.01 AC				
31	Eloise A. Mclean, Alice Jean Albright, Nellie A. Clontz, Harry T. Albright, Betty A. James	8.59 AC	0.33 AC	8.26 AC				
32	The Rowan-Salisbury Board of Education	46.76 AC	5.36 AC	41.40 AC		0.17 AC	3,374.52 SF	
33	John Madures and Wife Louise Madures	54.69 AC	0.09 AC		54.60 AC			
34	James Ray Barger, and Wife Patricia Harper Barger	2.05 AC	0.10 AC		1.95 AC			
35	David M. Hilton, Jr., and Wife Betty G. Hilton	1.02 AC	0.05 AC		0.97 AC			
36	Toni S. Wyatt	1.02 AC	2,104.27 SF		0.97 AC			
37	Michael L. Wyatt and Wife Toni S. Wyatt	2.05 AC	0.10 AC		1.95 AC			
38	Kathleen Primavera	1.02 AC	0.05 AC		0.97 AC			
39	Jerry Nesbitt et al	1.02 AC	0.04 AC		0.98 AC			
40	Timothy Hamilton	1.02 AC	0.05 AC		0.97 AC			
41	Robert Thomas Correll and Wife Lois H. Correll	15,911.44 SF	2,534.13 SF		13,377.31 SF			
42	Dwayne Heglar and Wife Annie W. Heglar	0.65 AC	0.11 AC		0.54 AC			
43	Henry Donald Heglar and Wife Juanita Massey Heglar	4.269 AC	0.45 AC		3.819 AC			
44	Myra Barbee Trexler	25.47 AC	1.69 AC	23.78 AC		0.34 AC		
45	Shawna Leigh Heglar Shuler	1.42 AC	0.11 AC		1.31 AC			
46	Madeline Anderson	7.31 AC	2.98 AC	4.33 AC				
47	Christopher Y. Cohen	10.96 AC	0.23 AC		10.73 AC			
48	Vaughn C. Luckadoo	4.64 AC	0.26 AC		4.38 AC			3,699.91 SF
48A	Vaughn C. Luckadoo	6.47 AC	0.03 AC		6.44 AC			
49	Gillean Properties, LLC	6.24 AC	0.34 AC		5.90 AC			0.17 AC
50	Carolina Custom Rubber, Inc.	25.18 AC	1.06 AC	24.12 AC				

PARCEL No.	PROPERTY OWNERS NAME	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTR. EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT

PROJECT REFERENCE NO.	SHEET NO.
R-2911D	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT "384 JAS"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 724643.8657(ft) EASTING: 1507152.2547(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.999873400
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"384 JAS" TO -L- STATION 225+00.00 IS
S 68° 06' 29.85" E 12,415.260 ft
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

Note: See Sheet 18 for -L1- line profile
See Sheet 18 for -L2- line profile

REVISIONS

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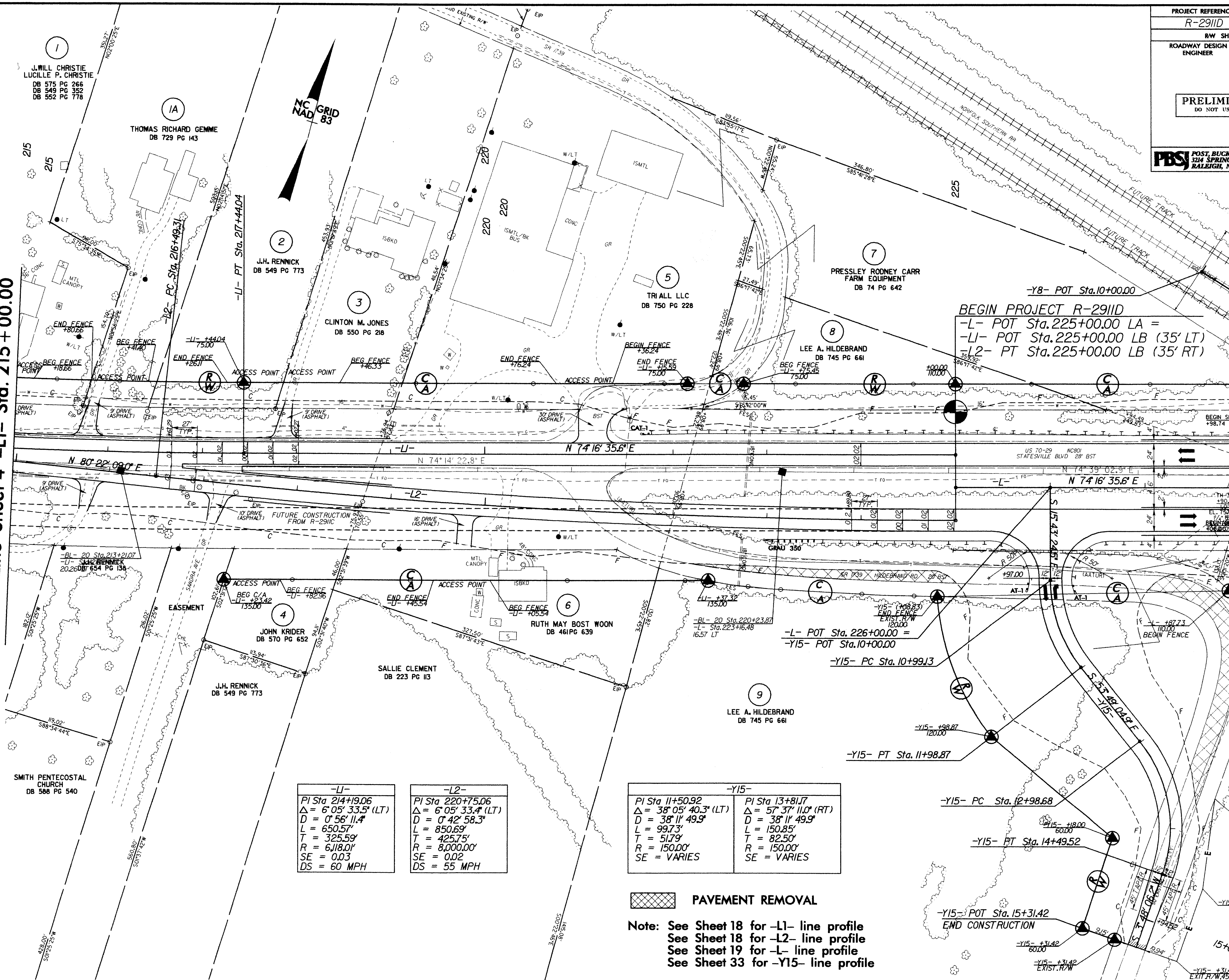
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

REVISIONS



Match Line Sheet 4 -L1- Sta. 215+00.00
Match Line Sheet 6 -L- Sta. 228+00.00
NC GRID NAD 83
1 J.WILL CHRISTIE LUCILLE P. CHRISTIE DB 575 PG 266 DB 549 PG 352 DB 552 PG 778
1A THOMAS RICHARD GEMME DB 729 PG 143
2 J.H. RENNICK DB 549 PG 773
3 CLINTON M. JONES DB 550 PG 218
4 JOHN KRIDER DB 570 PG 652
5 TRI ALL LLC DB 750 PG 228
6 RUTH MAY BOST WOON DB 461PG 639
7 PRESSLEY RODNEY CARR FARM EQUIPMENT DB 74 PG 642
8 LEE A. HILDEBRAND DB 745 PG 661
9 LEE A. HILDEBRAND DB 745 PG 661
11 ARTEVA SPECIALITIES S.A.R.L. DB 839 PG510
SALLIE CLEMENT DB 223 PG 113
J.H. RENNICK DB 549 PG 773
SMITH PENTECOSTAL CHURCH DB 588 PG 540
EASEMENT
BEGIN PROJECT R-2911D
-L- POT Sta.225+00.00 LA =
-L1- POT Sta.225+00.00 LB (35' LT)
-L2- PT Sta.225+00.00 LB (35' RT)
-Y8- POT Sta.10+00.00
-L- POT Sta. 226+00.00 =
-Y15- POT Sta.10+00.00
-Y15- PC Sta. 10+99.13
-Y15- PT Sta. 11+98.87
-Y15- PC Sta. 12+98.68
-Y15- PT Sta. 14+49.52
-Y15- POT Sta. 15+31.42
END CONSTRUCTION
-L1- PT Sta. 217+44.04
-L2- PC Sta. 216+49.31
N 74° 16' 35.6" E
N 80° 22' 09.0" E
N 74° 14' 22.8" E
N 74° 39' 02.9" E
US 70-29 NC801 STATESVILLE BLVD 28' BST
FUTURE CONSTRUCTION FROM R-2911C
FUTURE TRACK
NORFOLK SOUTHERN RR
SR 1739
ACCESS POINT
BEG FENCE
END FENCE
BEGIN FENCE

-L1-
PI Sta 214+19.06
Δ = 6° 05' 33.5" (LT)
D = 0° 56' 11.4"
L = 650.57'
T = 325.59'
R = 6,118.01'
SE = 0.03
DS = 60 MPH

-L2-
PI Sta 220+75.06
Δ = 6° 05' 33.4" (LT)
D = 0° 42' 58.3"
L = 850.69'
T = 425.75'
R = 8,000.00'
SE = 0.02
DS = 55 MPH

-Y15-	
PI Sta 11+50.92	PI Sta 13+81.17
Δ = 38° 05' 40.3" (LT)	Δ = 57° 37' 11.0" (RT)
D = 38° 11' 49.9"	D = 38° 11' 49.9"
L = 99.73'	L = 150.85'
T = 51.79'	T = 82.50'
R = 150.00'	R = 150.00'
SE = VARIES	SE = VARIES

PAVEMENT REMOVAL

Note: See Sheet 18 for -L1- line profile
See Sheet 18 for -L2- line profile
See Sheet 19 for -L- line profile
See Sheet 33 for -Y15- line profile

8/17/99

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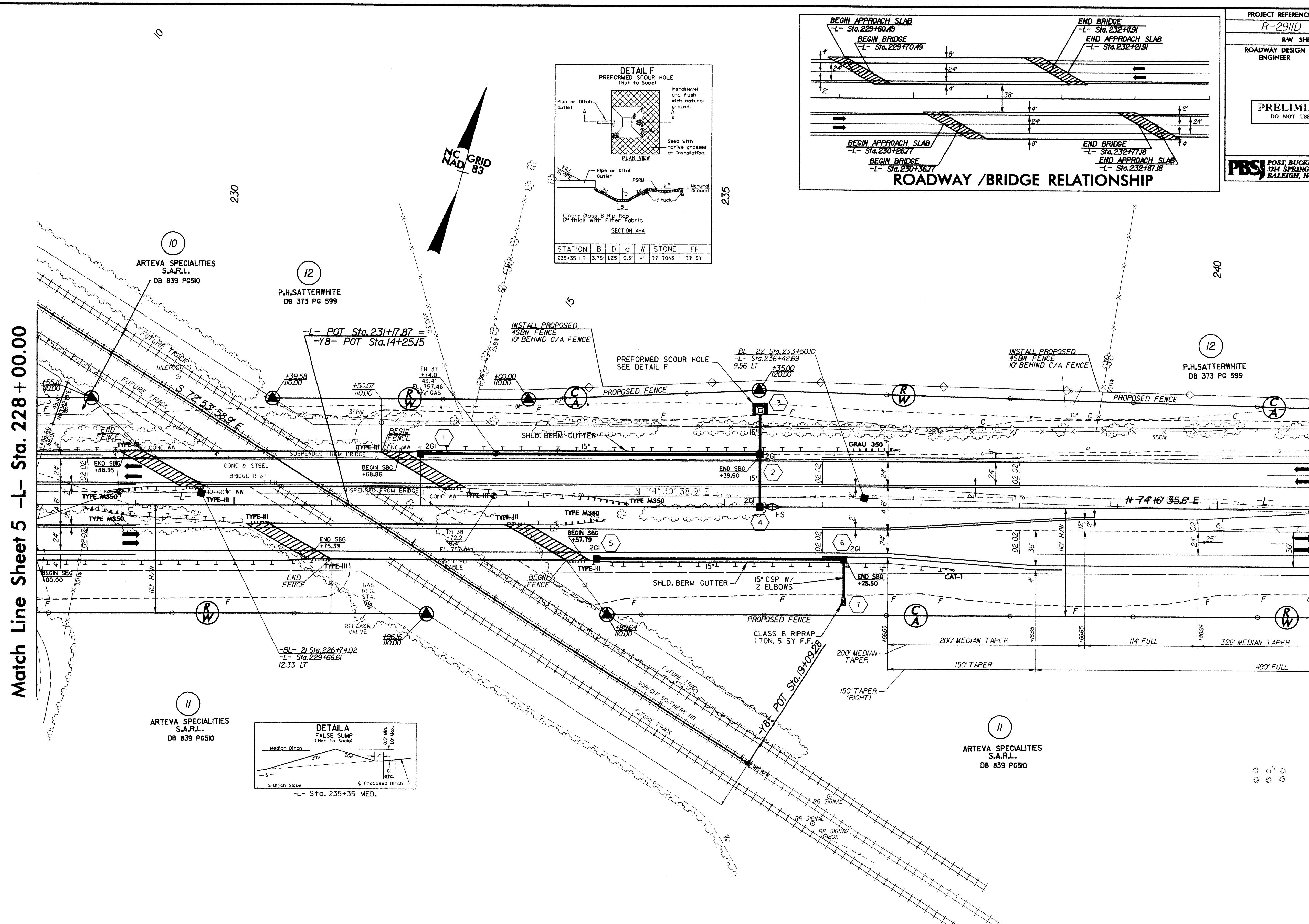

PROJECT REFERENCE NO.	SHEET NO.
R-2911D	6

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

REVISIONS

8/17/99

SBG – Shoulder Berm Gutter

Note: See Sheet 19 & 20 for -L- line profile

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PROJECT REFERENCE NO.	SHEET NO.
R-2911D	7

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

Match Line Sheet 6 -L- Sta. 241+00.00

-Y2-

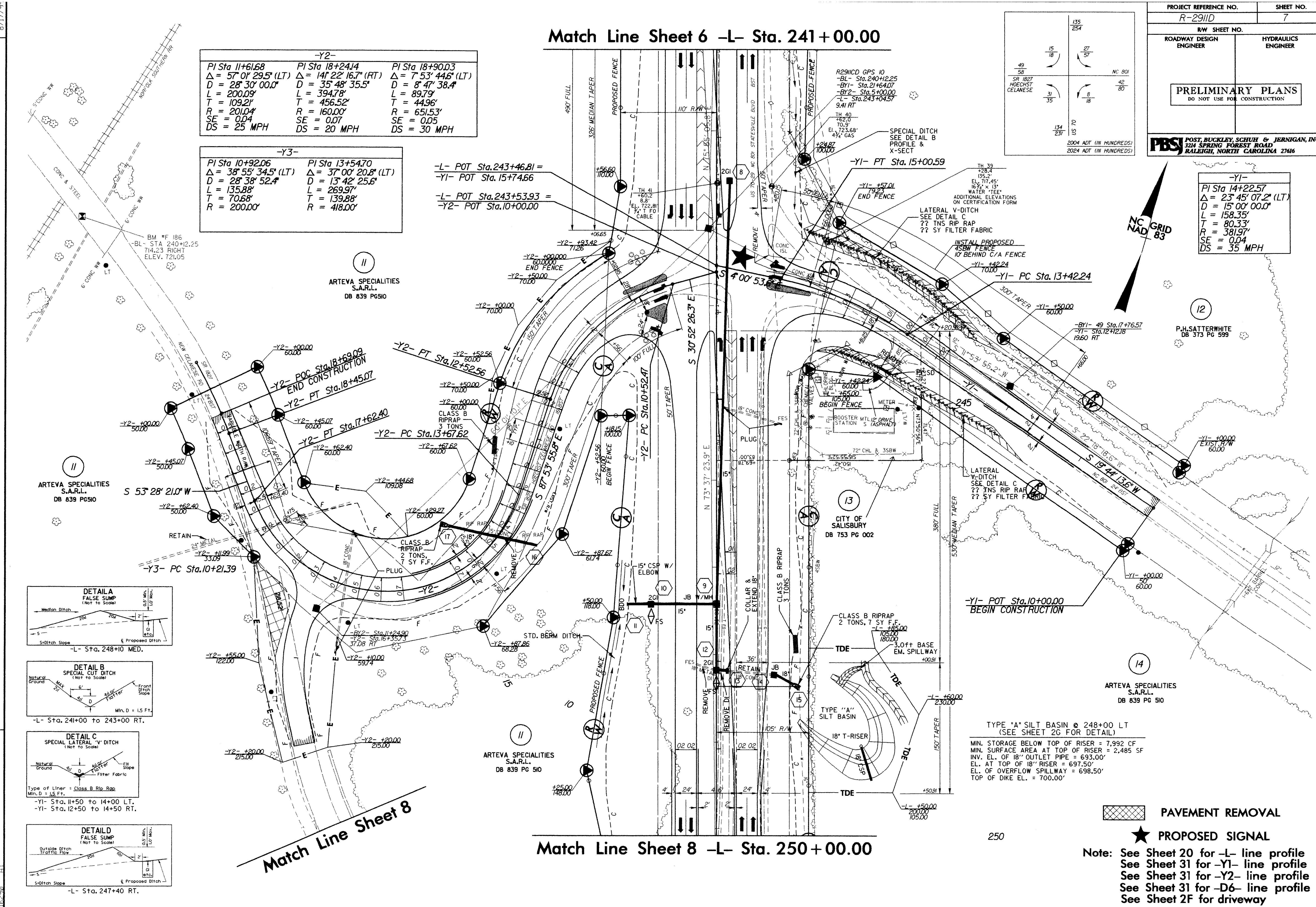
PI Sta 11+61.68	PI Sta 18+24.14	PI Sta 18+90.03
Δ = 57° 01' 29.5" (LT)	Δ = 14° 22' 16.7" (RT)	Δ = 7° 53' 44.6" (LT)
D = 28° 30' 00.0"	D = 35° 48' 35.5"	D = 8° 47' 38.4"
L = 200.09'	L = 394.78'	L = 89.79'
T = 109.21'	T = 456.52'	T = 44.96'
R = 201.04'	R = 160.00'	R = 651.53'
SE = 0.04	SE = 0.07	SE = 0.05
DS = 25 MPH	DS = 20 MPH	DS = 30 MPH

-Y3-

PI Sta 10+92.06	PI Sta 13+54.70
Δ = 38° 55' 34.5" (LT)	Δ = 37° 00' 20.8" (LT)
D = 28° 38' 52.4"	D = 13° 42' 25.6"
L = 135.88'	L = 269.97'
T = 70.68'	T = 139.88'
R = 200.00'	R = 418.00'

-Y1-

PI Sta 14+22.57
Δ = 23° 45' 07.2" (LT)
D = 15° 00' 00.0"
L = 158.35'
T = 80.33'
R = 381.97'
SE = 0.04
DS = 35 MPH



-L- POT Sta.243+46.81 = -Y1- POT Sta. 15+74.66
-L- POT Sta.243+53.93 = -Y2- POT Sta.10+00.00
-Y1- PT Sta. 15+00.59
-Y1- PC Sta. 13+42.24
-Y1- POT Sta.10+00.00 BEGIN CONSTRUCTION
-Y2- POC Sta.18+69.09 END CONSTRUCTION
-Y2- PT Sta.18+45.07
-Y2- PT Sta.17+62.40
-Y2- PT Sta.12+52.56
-Y2- PC Sta.13+67.62
-Y2- PC Sta.10+52.47
-Y3- PC Sta.10+21.39
S 53° 28' 21.0" W
S 87° 53' 55.8" E
S 30° 52' 26.3" E
S 4° 00' 53"
N 73° 37' 23.9" E
S 19° 44' 13.6" W
S 71° 53' 55.2" W
R2911CD GPS 10 -BL- Sta.240+12.25 -BY1- Sta.21+64.07 -BY2- Sta.5+00.00 -L- Sta.243+04.57 9.41 RT
BM #F 186 -BL- STA 240+12.25 714.23 RIGHT ELEV. 721.05
SPECIAL DITCH SEE DETAIL B PROFILE & X-SECT
LATERAL V-DITCH SEE DETAIL C ?? TNS RIP RAP ?? SY FILTER FABRIC
INSTALL PROPOSED 4SBW FENCE 10' BEHIND C/A FENCE
ARTEVA SPECIALITIES S.A.R.L. DB 839 PG510
P.H.SATTERWHITE DB 373 PG 599
CITY OF SALISBURY DB 753 PG 002
ARTEVA SPECIALITIES S.A.R.L. DB 839 PG 510
CLASS B RIPRAP 3 TONS
CLASS B RIPRAP 2 TONS, 7 SY F.F.
3.0ft BASE EM. SPILLWAY
TYPE "A" SILT BASIN
18" T-RISER
STD. BERM DITCH
PROPOSED FENCE
NC GRID NAD 83
2004 ADT (IN HUNDREDS)
2024 ADT (IN HUNDREDS)
DETAIL A FALSE SUMP (Not to Scale) -L- Sta. 248+10 MED.
DETAIL B SPECIAL CUT DITCH (Not to Scale) -L- Sta. 241+00 to 243+00 RT.
DETAIL C SPECIAL LATERAL 'V' DITCH (Not to Scale) Type of Liner = Class B Rip Rap Min. D = 1.5 Ft. -Y1- Sta. 11+50 to 14+00 LT. -Y1- Sta. 12+50 to 14+50 RT.
DETAIL D FALSE SUMP (Not to Scale) -L- Sta. 247+40 RT.

Match Line Sheet 8

Match Line Sheet 8 -L- Sta. 250+00.00

TYPE "A" SILT BASIN @ 248+00 LT
(SEE SHEET 2G FOR DETAIL)

MIN. STORAGE BELOW TOP OF RISER = 7,992 CF
MIN. SURFACE AREA AT TOP OF RISER = 2,485 SF
INV. EL. OF 18" OUTLET PIPE = 693.00'
EL. AT TOP OF 18" RISER = 697.50'
EL. OF OVERFLOW SPILLWAY = 698.50'
TOP OF DIKE EL. = 700.00'

PAVEMENT REMOVAL

★ PROPOSED SIGNAL

Note: See Sheet 20 for -L- line profile
See Sheet 31 for -Y1- line profile
See Sheet 31 for -Y2- line profile
See Sheet 31 for -D6- line profile
See Sheet 2F for driveway

REVISIONS

12/4/03 - REVISED ROW MONUMENT FLAG ON PARCEL 14 ON -Y1- STA.10+00.

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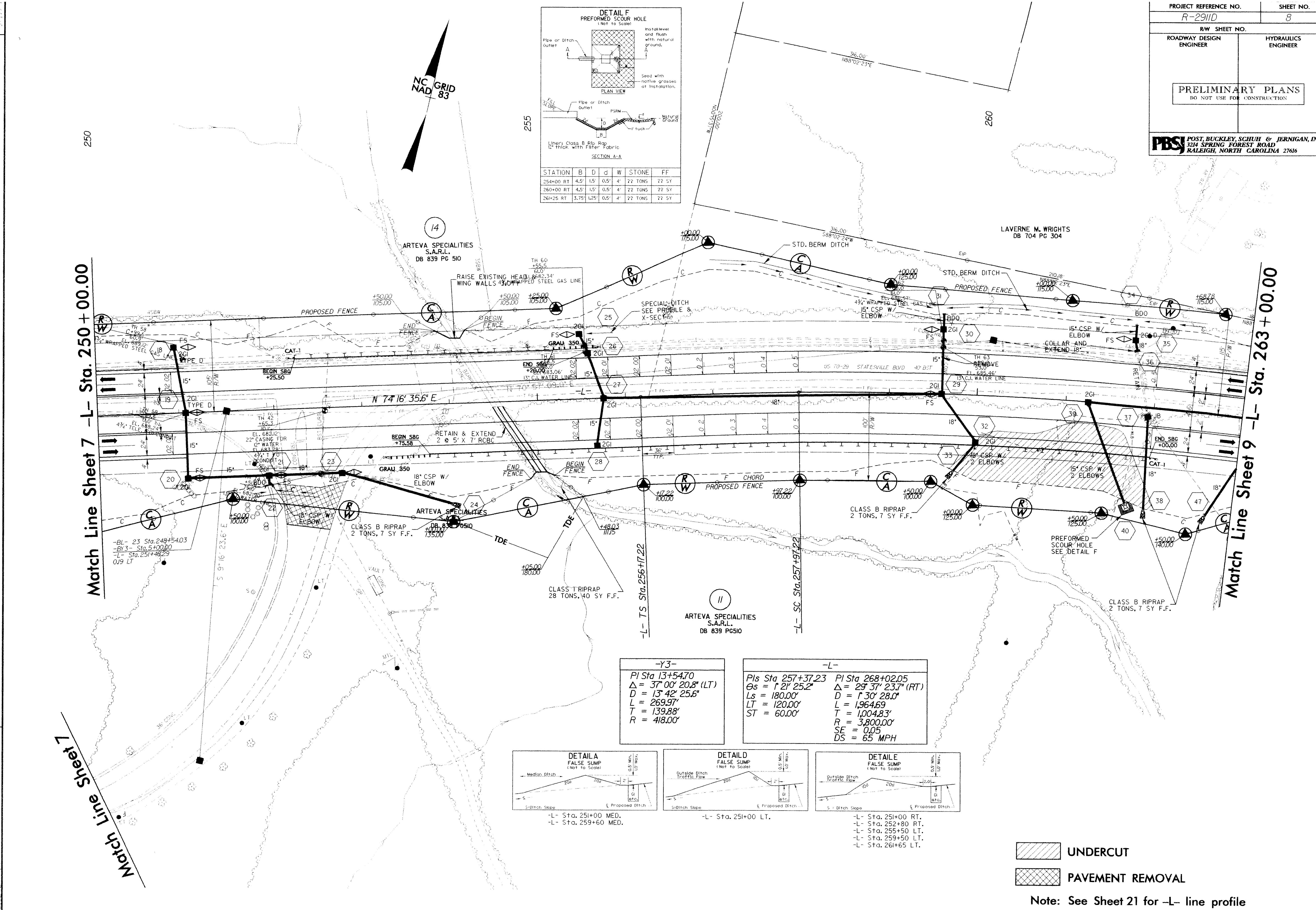
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

REVISIONS



DETAIL F
PREFORMED SCOUR HOLE
(Not to Scale)
PLAN VIEW
SECTION A-A
Liner: Class B Rip Rap 12" thick with Filter Fabric
NC GRID NAD 83
250
255
260
Match Line Sheet 7 -L- Sta. 250+00.00
Match Line Sheet 9 -L- Sta. 263+00.00
Match Line Sheet 7
ARTEVA SPECIALITIES S.A.R.L. DB 839 PG 510
LAVERNE M. WRIGHTS DB 704 PG 304
N 74° 16' 35.6" E
PROPOSED FENCE
STD. BERM DITCH
SPECIAL DITCH SEE PROFILE & X-SECTION
RAISE EXISTING HEADWALL & WING WALLS
RETAIN & EXTEND 2 @ 5' X 7' RCBC
BEGIN SBG +25.50
BEGIN SBG +75.58
END SBG +00.00
CLASS B RIPRAP 2 TONS, 7 SY F.F.
CLASS I RIPRAP 28 TONS, 40 SY F.F.
PREFORMED SCOUR HOLE SEE DETAIL F
COLLAR AND EXTEND 18"
-L- TS Sta. 256+17.22
-L- SC Sta. 257+97.22
-BL- 23 Sta. 248+54.03
-BY3- Sta. 5+00.00
-L- Sta. 251+46.29

STATION	B	D	d	W	STONE	FF
254+00 RT	4.5'	1.5'	0.5'	4'	22 TONS	22 SY
260+00 RT	4.5'	1.5'	0.5'	4'	22 TONS	22 SY
261+25 RT	3.75'	1.25'	0.5'	4'	22 TONS	22 SY

-Y3-
PI Sta 13+54.70
Δ = 37° 00' 20.8" (LT)
D = 13° 42' 25.6"
L = 269.97'
T = 139.88'
R = 418.00'

-L-	
PIs Sta 257+37.23	PI Sta 268+02.05
Θs = 1° 21' 25.2"	Δ = 29° 37' 23.7" (RT)
Ls = 180.00'	D = 1° 30' 28.0"
LT = 120.00'	L = 1,964.69
ST = 60.00'	T = 1,004.83'
	R = 3,800.00'
	SE = 0.05
	DS = 65 MPH

DETAIL A
FALSE SUMP
(Not to Scale)
-L- Sta. 251+00 MED.
-L- Sta. 259+60 MED.

DETAIL D
FALSE SUMP
(Not to Scale)
-L- Sta. 251+00 LT.

DETAIL E
FALSE SUMP
(Not to Scale)
-L- Sta. 251+00 RT.
-L- Sta. 252+80 RT.
-L- Sta. 255+50 LT.
-L- Sta. 259+50 LT.
-L- Sta. 261+65 LT.

UNDERCUT

PAVEMENT REMOVAL

Note: See Sheet 21 for -L- line profile

PROJECT REFERENCE NO.	SHEET NO.
R-2911D	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

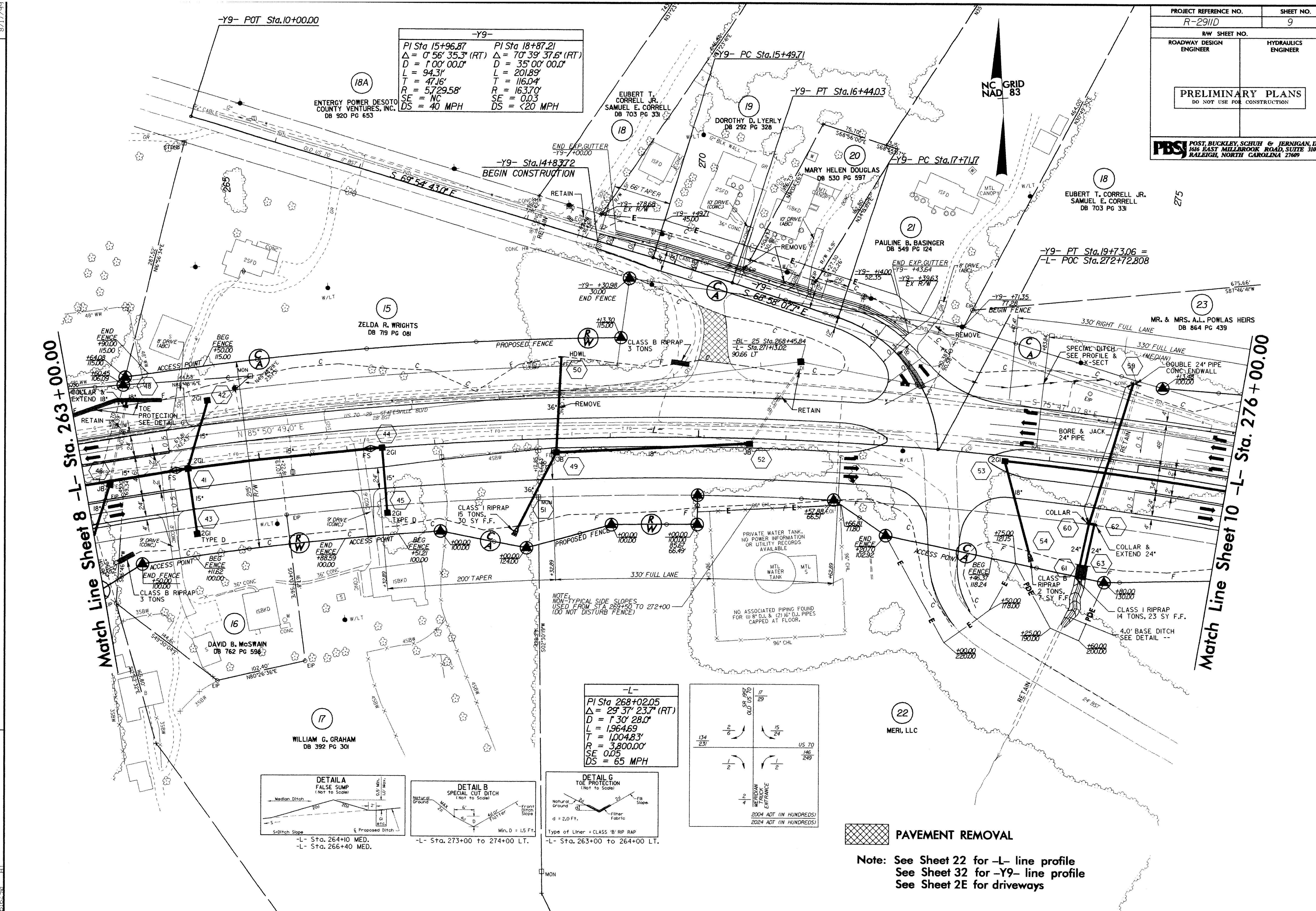
PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609

REVISIONS

8/15/03 - SPLIT PARCEL 18 INTO PARCELS 18 & 18A.CHANGED NAME ON PARCEL 18A.
10/15/03 - REVISED PROPERTY LINES ON PARCELS 18 & 23.CHANGED OWNER NAME ON PARCEL 22.
12/4/03 - REVISED ROW MONUMENT FLAG ON PARCEL 22 ON -L- STA.270+00.

-Y9-	
PI Sta 15+96.87	PI Sta 18+87.21
Δ = 0° 56' 35.3" (RT)	Δ = 70° 39' 37.6" (RT)
D = 1° 00' 00.0"	D = 35° 00' 00.0"
L = 94.31'	L = 201.89'
T = 47.16'	T = 116.04'
R = 5,729.58'	R = 163.70'
SE = NC	SE = 0.03
DS = 40 MPH	DS = <20 MPH

-L-
PI Sta 268+02.05
Δ = 29° 37' 23.7" (RT)
D = 1° 30' 28.0"
L = 1,964.69
T = 1,004.83'
R = 3,800.00'
SE 0.05
DS = 65 MPH



DETAIL A
FALSE SUMP
(Not to Scale)
-L- Sta. 264+10 MED.
-L- Sta. 266+40 MED.

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.5 Ft.
-L- Sta. 273+00 to 274+00 LT.

DETAIL G
TOE PROTECTION
(Not to Scale)
d = 2.0 Ft.
Type of Liner = CLASS 'B' RIP RAP
-L- Sta. 263+00 to 264+00 LT.

PAVEMENT REMOVAL

Note: See Sheet 22 for -L- line profile
See Sheet 32 for -Y9- line profile
See Sheet 2E for driveways

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PROJECT REFERENCE NO.	SHEET NO.
R-2911D	10

R/W SHEET NO.

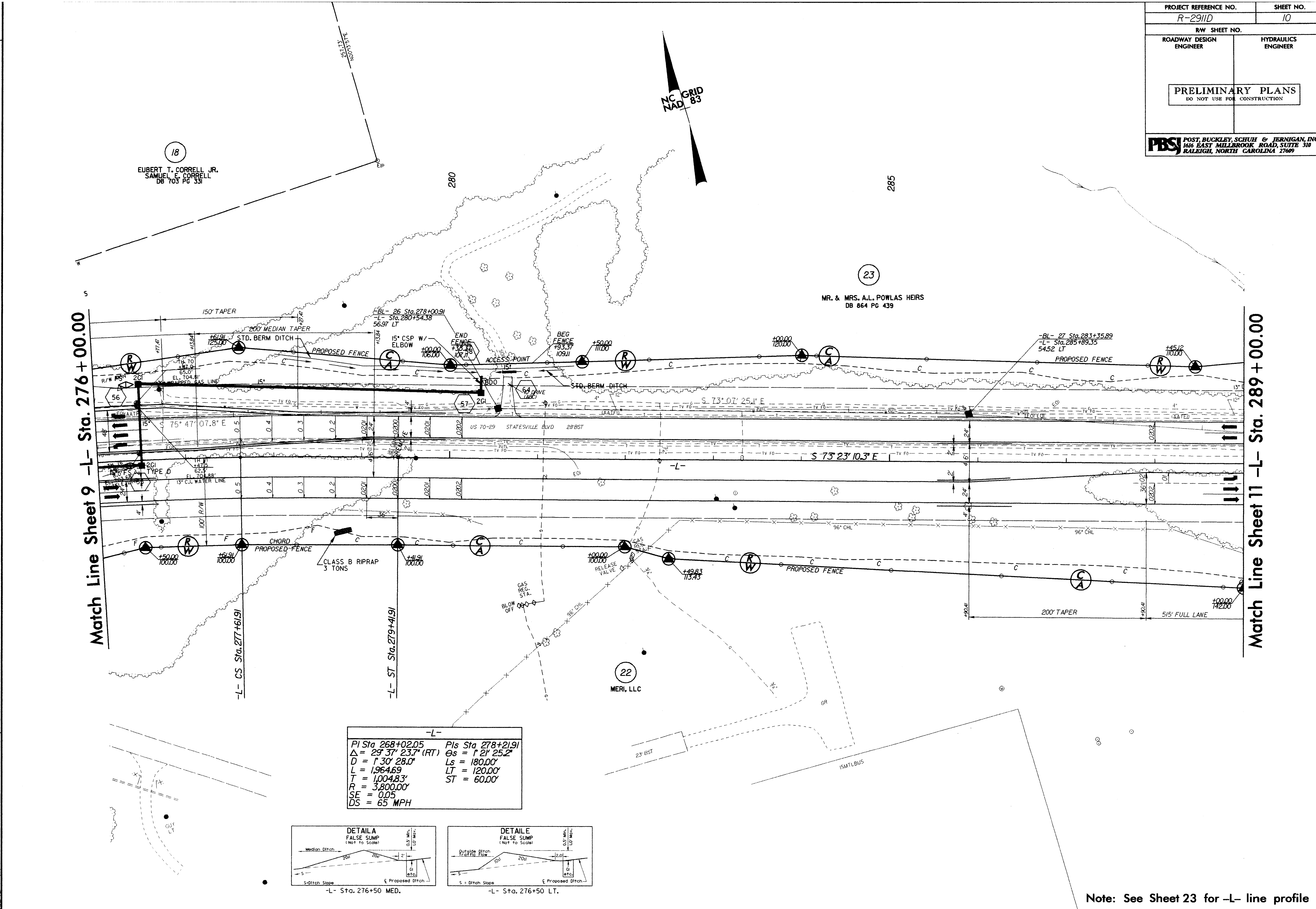
ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609

REVISIONS

10/15/03 - REVISED PROPERTY LINES ON PARCELS 18 & 23. CHANGED NAME ON PARCEL 22.



-L-	
PI Sta 268+02.05	PIs Sta 278+21.91
Δ = 29° 37' 23.7" (RT)	Θs = 1° 21' 25.2"
D = 1° 30' 28.0"	Ls = 180.00'
L = 1,964.69	LT = 120.00'
T = 1,004.83'	ST = 60.00'
R = 3,800.00'	
SE = 0.05	
DS = 65 MPH	

DETAIL A — FALSE SUMP (Not to Scale) — -L- Sta. 276+50 MED.

DETAIL E — FALSE SUMP (Not to Scale) — -L- Sta. 276+50 LT.

Note: See Sheet 23 for -L- line profile

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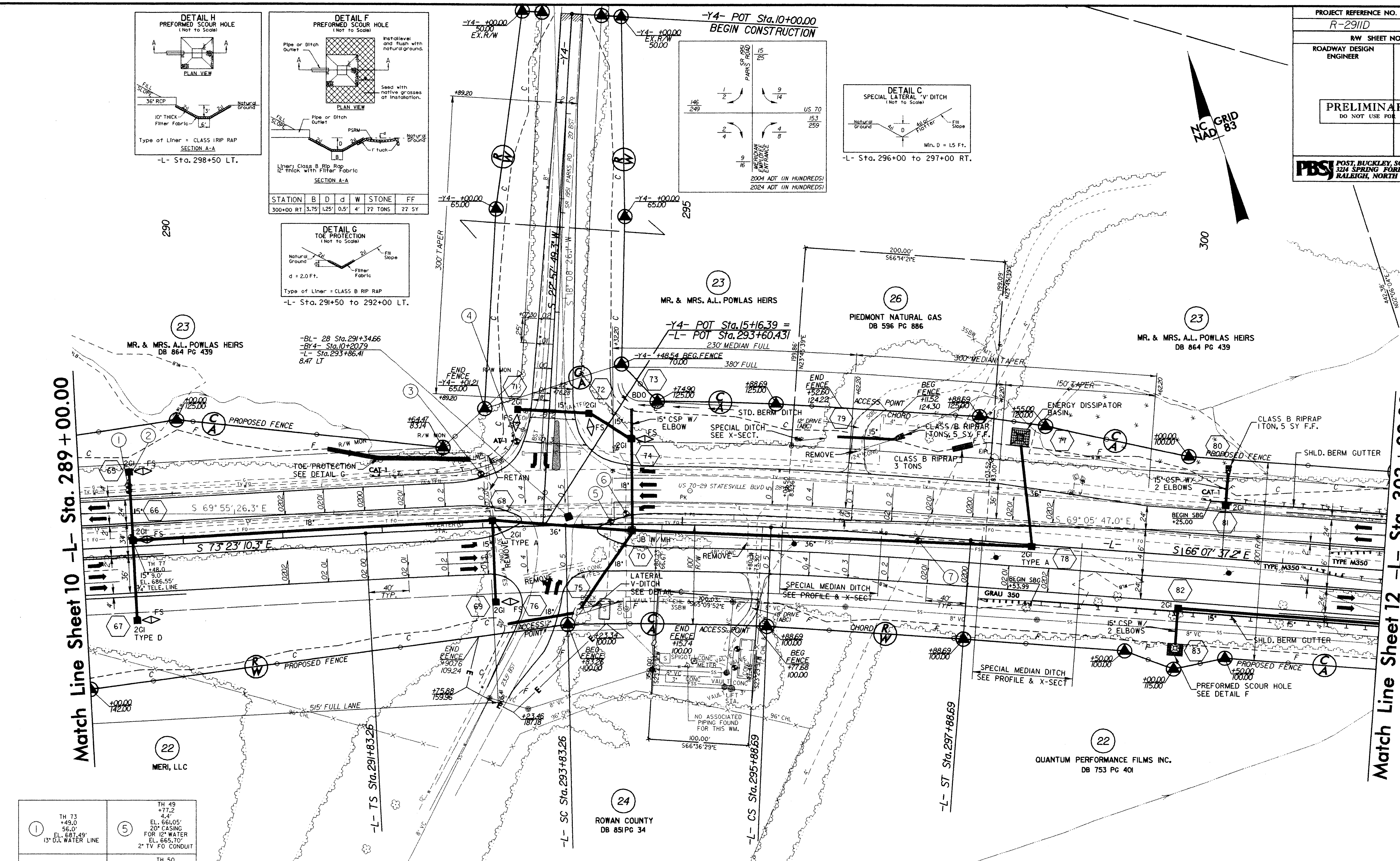
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

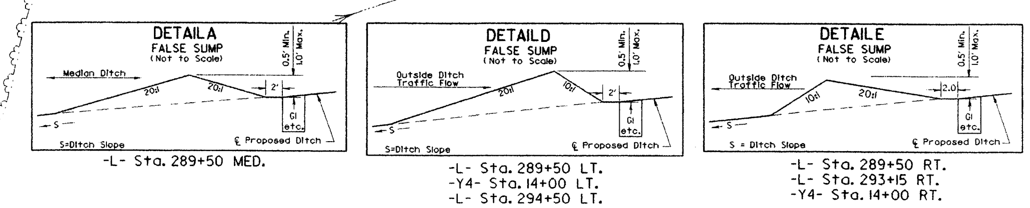
REVISIONS

12/4/03 - DELETED PARCEL NUMBER 25 AND COMBINED WITH PARCEL 23.



-L-		
PIs Sta 293+16.60	PI Sta 294+86.01	PIs Sta 296+55.36
θs = 1° 47' 25.8"	Δ = 3° 40' 41.5" (RT)	θs = 1° 47' 25.8"
Ls = 200.00'	D = 1° 47' 25.8"	Ls = 200.00'
LT = 133.34'	L = 205.43	LT = 133.34'
ST = 66.67'	T = 102.75'	ST = 66.67'
	R = 3,200.00'	
	SE = 0.05	
	DS = 60 MPH	

(1) TH 73 +49.0 56.0' EL. 687.49' 13" D.I. WATER LINE	(5) TH 49 +77.2 4.4' EL. 661.05' 20" CASING FOR 12" WATER EL. 665.70' 2" TV FO CONDUIT
(2) TH 72 +49.0 61.0' EL. 687.26' 4¾" WRAPPED GAS LINE	(6) TH 50 +92.6 4.4' EL. 661.39' 13" CASING FOR 6" WATER EL. 663.21' ¾" TV FO CABLE
(3) TH 47 +46.4 42.6' EL. 667.77' 2" TV FO CONDUIT EL. 669.21' 13" WATER	(7) TH 51 +85.4 16.3' EL. 654.21' 8¾" CASING FOR 4" GAS EL. 656.06' 6¼" BELL JOINT ON 5" FSS
(4) TH 48 +82.2 76.2' EL. 668.55' 8¾" WATER EL. 669.16' 4¾" GAS	



SBG – Shoulder Berm Gutter

Note: See Sheet 24 for -L- line profile
See Sheet 32 for -Y4- line profile
See Sheet 2E for driveways

PROJECT REFERENCE NO.	SHEET NO.
R-2911D	12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

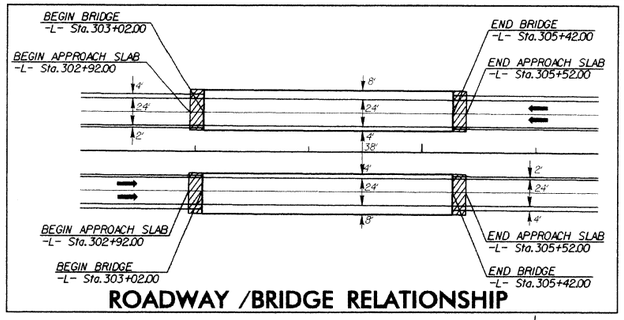
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBS 1616 E. MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
PHONE: (919) 876-6888

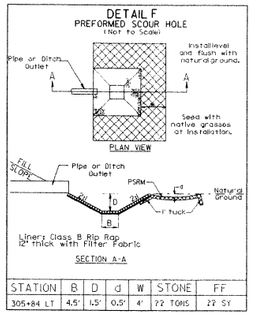
8/17/99

REVISIONS

RW REV 4903 – CHANGED PROPERTY OWNER'S NAME TO "EDWARD J. & CAROLYN SHANK", ADDED 12' GRAVEL DRIVEWAY, AND 15" SIDE PIPE (314+30 RT) ON PARCEL 30.
RW REV 32404 – MODIFIED DRIVEWAY ACCESS TO PARCEL 28.



ROADWAY /BRIDGE RELATIONSHIP

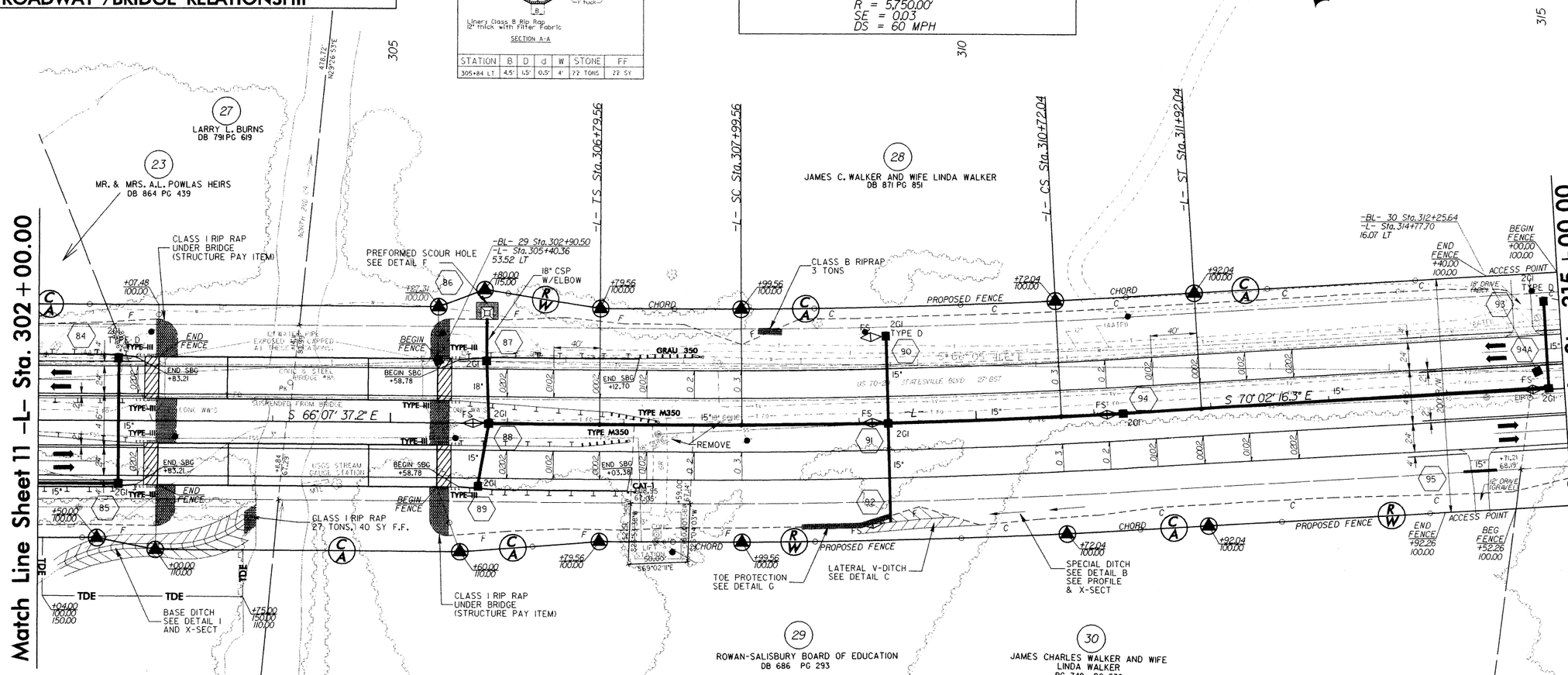


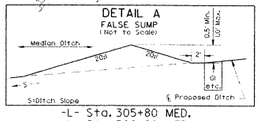
STATION	B	D	d	W	STONE	FF
305+84 LT	4.5'	1.5'	0.5'	4'	72 TONS	72 SY

-L-

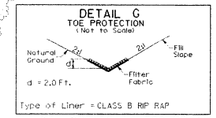
PIs Sta 307+59.56	PI Sta 309+35.83	PIs Sta 311+12.04
θs = 0° 35' 52.3"	Δ = 2° 42' 54.4" (LT)	θs = 0° 35' 52.3"
Ls = 120.00'	D = 0° 59' 47.2"	Ls = 120.00'
LT = 80.00'	L = 272.48	LT = 80.00'
ST = 40.00'	T = 136.26'	ST = 40.00'
	R = 5,750.00'	
	SE = 0.03	
	DS = 60 MPH	

NC GRID NAD 83

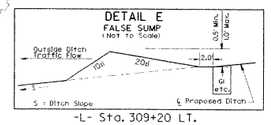




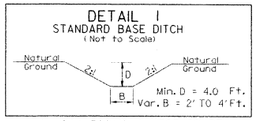
-L- Sta. 305+80 MED.
-L- Sta. 309+20 MED.
-L- Sta. 311+20 MED.



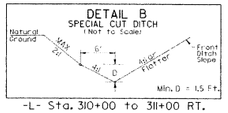
-L- Sta. 308+50 to 309+25 RT.



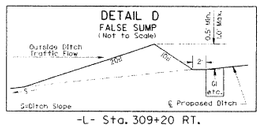
-L- Sta. 309+20 LT.



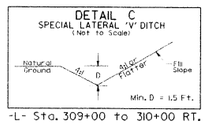
-L- Sta. 302+10 to 303+80 RT.



-L- Sta. 310+00 to 311+00 RT.



-L- Sta. 309+20 RT.



-L- Sta. 309+00 to 310+00 RT.

SBG – Shoulder Berm Gutter

Note: See Sheet 25 for -L- line profile

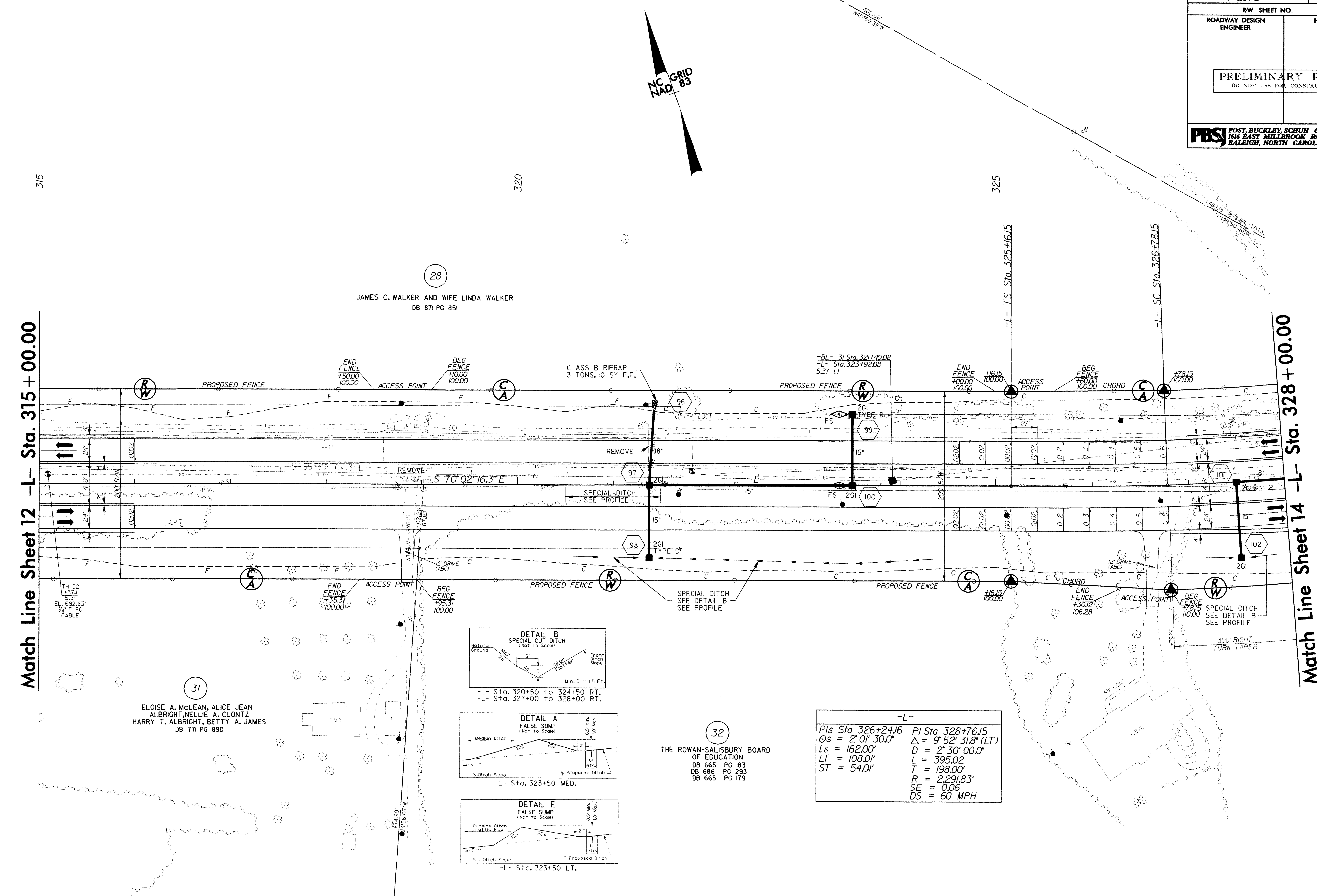
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27616

REVISIONS

R/W REV 9/26/03 - ADDED TWO ACCESS POINTS TO PARCEL.
R/W REV 3/25/04 - MODIFIED DRIVEWAY ACCESS ON PARCEL 28.



NC GRID NAD 83
315
320
325
Match Line Sheet 12 -L- Sta. 315+00.00
Match Line Sheet 14 -L- Sta. 328+00.00
28
JAMES C. WALKER AND WIFE LINDA WALKER
DB 871 PG 851
31
ELOISE A. McLEAN, ALICE JEAN ALBRIGHT, NELLIE A. CLONTZ
HARRY T. ALBRIGHT, BETTY A. JAMES
DB 771 PG 890
32
THE ROWAN-SALISBURY BOARD OF EDUCATION
DB 665 PG 183
DB 686 PG 293
DB 665 PG 179
PROPOSED FENCE
ACCESS POINT
END FENCE +50.00 100.00
BEG FENCE +10.00 100.00
CLASS B RIPRAP 3 TONS, 10 SY F.F.
-BL- 31 Sta. 321+40.08
-L- Sta. 323+92.08
5.37 LT
-L- TS Sta. 325+16.15
-L- SC Sta. 326+78.15
S 70°02' 16.3" E
REMOVE
SPECIAL DITCH SEE PROFILE
SPECIAL DITCH SEE DETAIL B SEE PROFILE
2GI TYPE D
FS
CHORD
12' DRIVE (ABC)
300' RIGHT TURN TAPER
TH 52 +57.1 5.3' EL. 692.83' 3/4" T FO CABLE
DETAIL B
SPECIAL CUT DITCH (Not to Scale)
-L- Sta. 320+50 to 324+50 RT.
-L- Sta. 327+00 to 328+00 RT.
DETAIL A
FALSE SUMP (Not to Scale)
-L- Sta. 323+50 MED.
DETAIL E
FALSE SUMP (Not to Scale)
-L- Sta. 323+50 LT.

-L-	
PIs Sta 326+24.16	PI Sta 328+76.15
θs = 2° 01' 30.0"	Δ = 9° 52' 31.8" (LT)
Ls = 162.00'	D = 2° 30' 00.0"
LT = 108.01'	L = 395.02
ST = 54.01'	T = 198.00'
	R = 2,291.83'
	SE = 0.06
	DS = 60 MPH

Note: See Sheet 26 for -L- line profile

PROJECT REFERENCE NO.	SHEET NO.
R-2911D	14

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

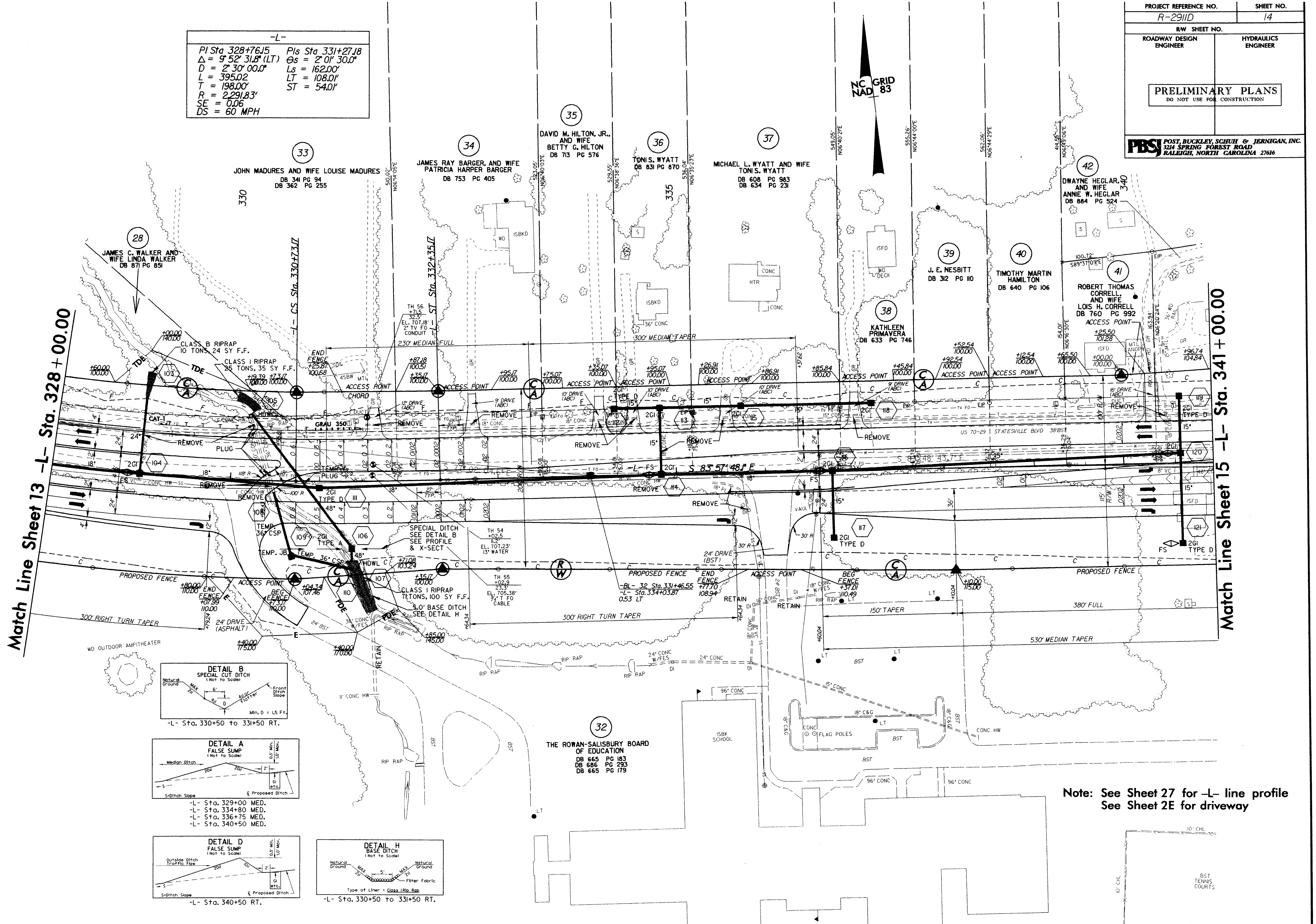
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

REVISIONS

8/15/03 - REVISED PROPERTY LINES ON PARCEL 41.
10/28/03 - REVISED ACCESS POINT ON PARCEL 42.

-L-	
PI Sta 328+76.15	PIs Sta 331+27.18
Δ = 9° 52' 31.8" (LT)	Θs = 2° 01' 30.0"
D = 2° 30' 00.0"	Ls = 162.00'
L = 395.02	LT = 108.01'
T = 198.00'	ST = 54.01'
R = 2,291.83'	
SE = 0.06	
DS = 60 MPH	



NC GRID NAD 83
Match Line Sheet 13 -L- Sta. 328+00.00
Match Line Sheet 15 -L- Sta. 341+00.00
JOHN MADURES AND WIFE LOUISE MADURES DB 341 PG 94 DB 362 PG 255
JAMES RAY BARGER, AND WIFE PATRICIA HARPER BARGER DB 753 PG 405
DAVID M. HILTON, JR., AND WIFE BETTY G. HILTON DB 713 PG 576
TONI S. WYATT DB 831 PG 870
MICHAEL L. WYATT AND WIFE TONI S. WYATT DB 608 PG 983 DB 634 PG 231
DWAYNE HEGLAR, AND WIFE ANNIE W. HEGLAR DB 884 PG 524
JAMES C. WALKER AND WIFE LINDA WALKER DB 871 PG 851
J. E. NESBITT DB 312 PG 110
TIMOTHY MARTIN HAMILTON DB 640 PG 106
KATHLEEN PRIMAVERA DB 633 PG 746
ROBERT THOMAS CORRELL, AND WIFE LOIS H. CORRELL DB 760 PG 992
THE ROWAN-SALISBURY BOARD OF EDUCATION DB 665 PG 183 DB 686 PG 293 DB 665 PG 179
US 70-29 STATESVILLE BLVD
300' RIGHT TURN TAPER
300' MEDIAN TAPER
530' MEDIAN TAPER
PROPOSED FENCE
DETAIL B SPECIAL CUT DITCH (Not to Scale)
-L- Sta. 330+50 to 331+50 RT.
DETAIL A FALSE SUMP (Not to Scale)
-L- Sta. 329+00 MED.
-L- Sta. 334+80 MED.
-L- Sta. 336+75 MED.
-L- Sta. 340+50 MED.
DETAIL D FALSE SUMP (Not to Scale)
-L- Sta. 340+50 RT.
DETAIL H BASE DITCH (Not to Scale)
-L- Sta. 330+50 to 331+50 RT.

Note: See Sheet 27 for -L- line profile
See Sheet 2E for driveway

PROJECT REFERENCE NO.	SHEET NO.
R-2911D	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

REVISIONS

10/28/03 - REVISED PROPERTY OWNER AND ACCESS POINT ON PARCEL 45.

8/17/99

Match Line Sheet 14 -L- Sta. 341+00.00

Match Line Sheet 16 -L- Sta. 353+00.00

NC GRID NAD 83

42 DWAYNE HEGLAR, AND WIFE ANNIE W. HEGLAR DB 884 PG 524

43 HENRY DONALD HEGLAR, AND WIFE JUANITA MASSEY HEGLAR DB 733 PG 760

44 MYRA BARBEE TREXLER DB 847 PG 952

45 SHAWNA LEIGH HEGLAR DB 890 PG 292

46 MADELINE ANDERSON DB 814 PAGE 729

47 CHRISTOPHER Y. COHEN DB 624 PG 348

32 THE ROWAN-SALISBURY BOARD OF EDUCATION DB 665 PG 183, DB 686 PG 293, DB 665 PG 179

R291IICD GPS II
-BL- Sta.339+08.27
-BR5- Sta.5+00.00
-L- Sta.341+65.59
1.49 RT

-Y5- POT Sta.10+00.00 = -L- POT Sta.342+49.76

-Y5- POT Sta.15+45.75 END CONSTRUCTION

-Y5- POT Sta.16+45.28

INSTALL PROPOSED 45BW FENCE 10' BEHIND R/W

530' MEDIAN TAPER

75' TAPER

50' TAPER

380' FULL

150' FULL

300' TAPER

372' TAPER

PROPOSED FENCE

STD. BERM DITCH

SPECIAL DITCH SEE DETAIL B SEE PROFILE & X-SECT

18" CSP W/ ELBOW

2GI TYPE D

2GI TYPE A

JB W/MH

PLUG

REMOVE

BEGIN FENCE

END FENCE

BEG FENCE

ACCESS POINT

S 89° 55' 48.2" E

S 83° 57' 48" E

S 1° 23' 31.9" E

S 5° 50' 18.3" W

US 70-89 STATESVILLE BLVD 25' BST

SR 1728 BARRINGER SCHOOL ROAD

153/269 US 70 145/234 29/57 21/31 50/88

2004 ADT (IN HUNDREDS)
2024 ADT (IN HUNDREDS)

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)

Min. D = 1.5 Ft.

-L- Sta. 351+50 to 352+50 RT.

DETAIL A
FALSE SUMP
(Not to Scale)

-L- Sta. 346+20 MED.
-L- Sta. 349+20 MED.
-L- Sta. 352+50 MED.

DETAIL E
FALSE SUMP
(Not to Scale)

-L- Sta. 346+20 RT.
-L- Sta. 348+80 RT.
-L- Sta. 352+50 RT.

★ PROPOSED SIGNAL

Note: See Sheet 28 for -L- line profile
See Sheet 32 for -Y5- line profile

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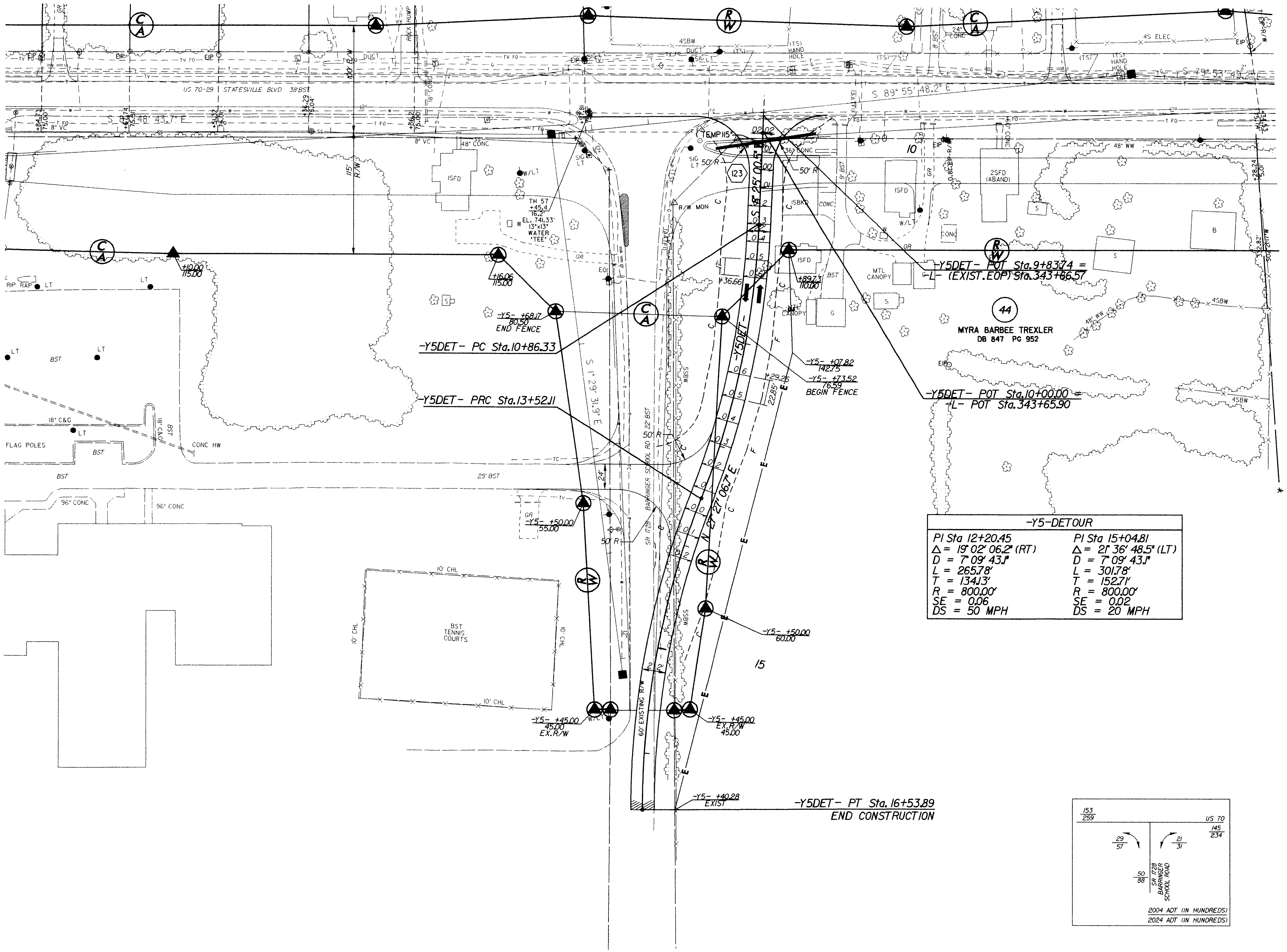
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	15A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

REVISIONS



-Y5-DETOUR	
PI Sta 12+20.45	PI Sta 15+04.81
Δ = 19° 02' 06.2" (RT)	Δ = 21° 36' 48.5" (LT)
D = 7° 09' 43.1"	D = 7° 09' 43.1"
L = 265.78'	L = 301.78'
T = 134.13'	T = 152.71'
R = 800.00'	R = 800.00'
SE = 0.06	SE = 0.02
DS = 50 MPH	DS = 20 MPH

DETOUR (-Y5DET-) FOR BARRINGER SCHOOL ROAD SR 1728

Note: See Sheet 33 for -Y5DET- line profile

PROJECT REFERENCE NO.	SHEET NO.
R-2911D	16

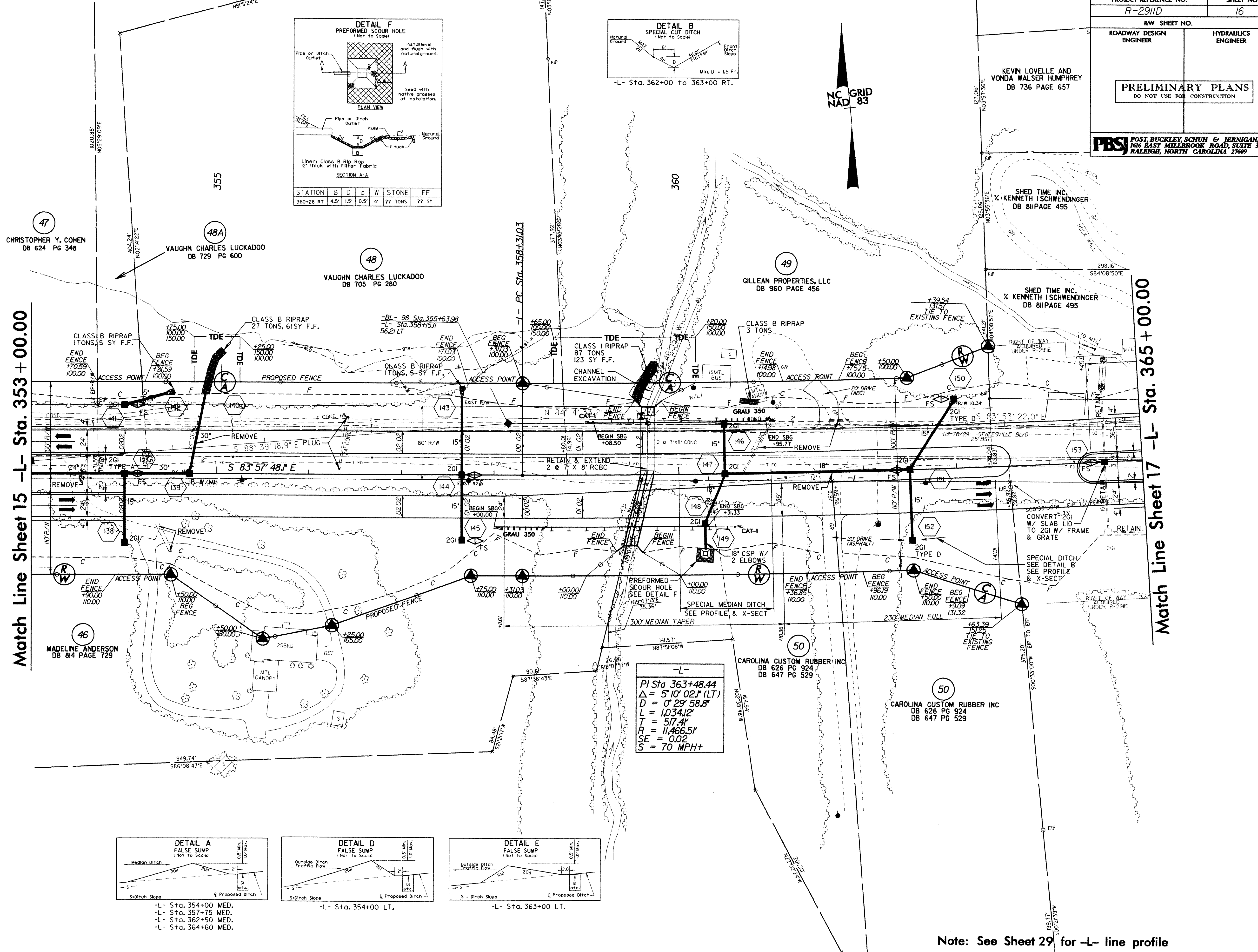
R/W SHEET NO.

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609

REVISIONS
2/11/03 - REMOVED RETAINING WALL, ADJUST SLOPES, DRAINAGE, AND RIGHT OF WAY ON PARCEL 46.
4/9/03 - ADJUSTED RIGHT OF WAY MONUMENT AT -L- STA. 355+50 BACK 15' TO AN OFFSET OF 180' (PARCEL 46).
8/15/03 - SPLIT PARCEL 50 INTO TWO PARCELS 50 & 50A. SPLIT PARCEL 48 INTO TWO PARCELS 48 & 48A. CHANGED NAME ON PARCEL 48.
10/13/03 - CHANGED PARCEL 50A TO 50.
12/4/03 - REVISED PROPERTY OWNER NAME FOR PARCEL 49. REVISED ROW MONUMENT AT -L- STA. 363+63.39.



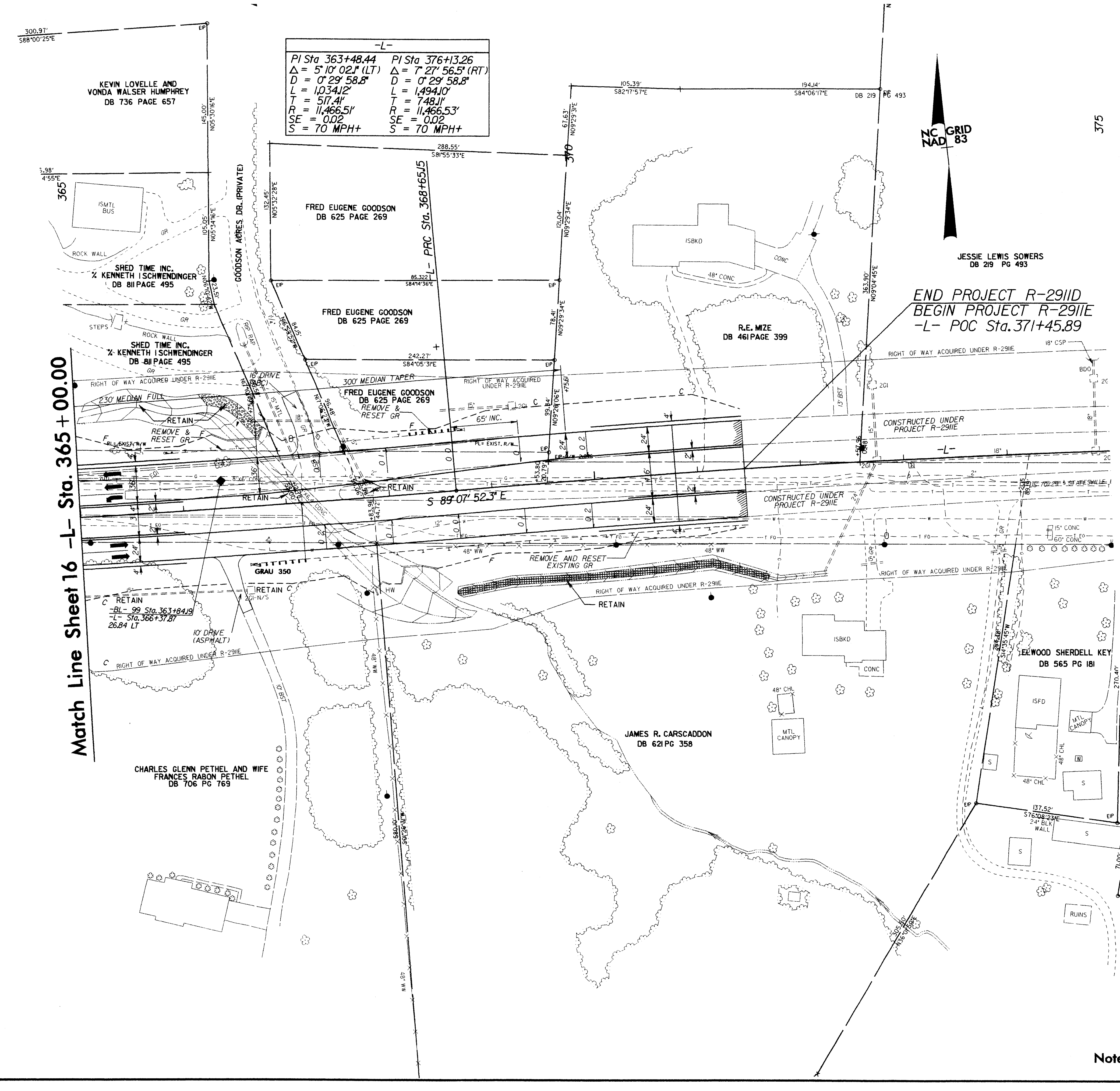
Note: See Sheet 29 for -L- line profile

PROJECT REFERENCE NO.	SHEET NO.
R-2911D	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

REVISIONS


-L-
PI Sta 363+48.44
Δ = 5° 10' 02.1" (LT)
D = 0° 29' 58.8"
L = 1,034.12'
T = 517.41'
R = 11,466.51'
SE = 0.02
S = 70 MPH+
PI Sta 376+13.26
Δ = 7° 27' 56.5" (RT)
D = 0° 29' 58.8"
L = 1,494.10'
T = 748.11'
R = 11,466.53'
SE = 0.02
S = 70 MPH+
NC GRID NAD 83
KEVIN LOVELLE AND VONDA WALSER HUMPHREY DB 736 PAGE 657
FRED EUGENE GOODSON DB 625 PAGE 269
SHED TIME INC. % KENNETH I SCHWENDINGER DB 811 PAGE 495
GOODSON ACRES DR. (PRIVATE)
-L- PRC Sta. 368+65.15
JESSIE LEWIS SOWERS DB 219 PG 493
R.E. MIZE DB 461 PAGE 399
END PROJECT R-2911D
BEGIN PROJECT R-2911E
-L- POC Sta. 371+45.89
RIGHT OF WAY ACQUIRED UNDER R-2911E
CONSTRUCTED UNDER PROJECT R-2911E
300' MEDIAN TAPER
230' MEDIAN FULL
REMOVE & RESET GR
RETAIN
S 89° 07' 52.3" E
REMOVE AND RESET EXISTING GR
GRAU 350
-BL- 99 Sta. 363+84.19
-L- Sta. 366+37.87
26.84 LT
10' DRIVE (ASPHALT)
Match Line Sheet 16 -L- Sta. 365+00.00
CHARLES GLENN PETHEL AND WIFE FRANCES RABON PETHEL DB 706 PG 769
JAMES R. CARSCADDON DB 621 PG 358
ELWOOD SHERDELL KEY DB 565 PG 181
375
370
365

Note: See Sheet 30 for -L- line profile

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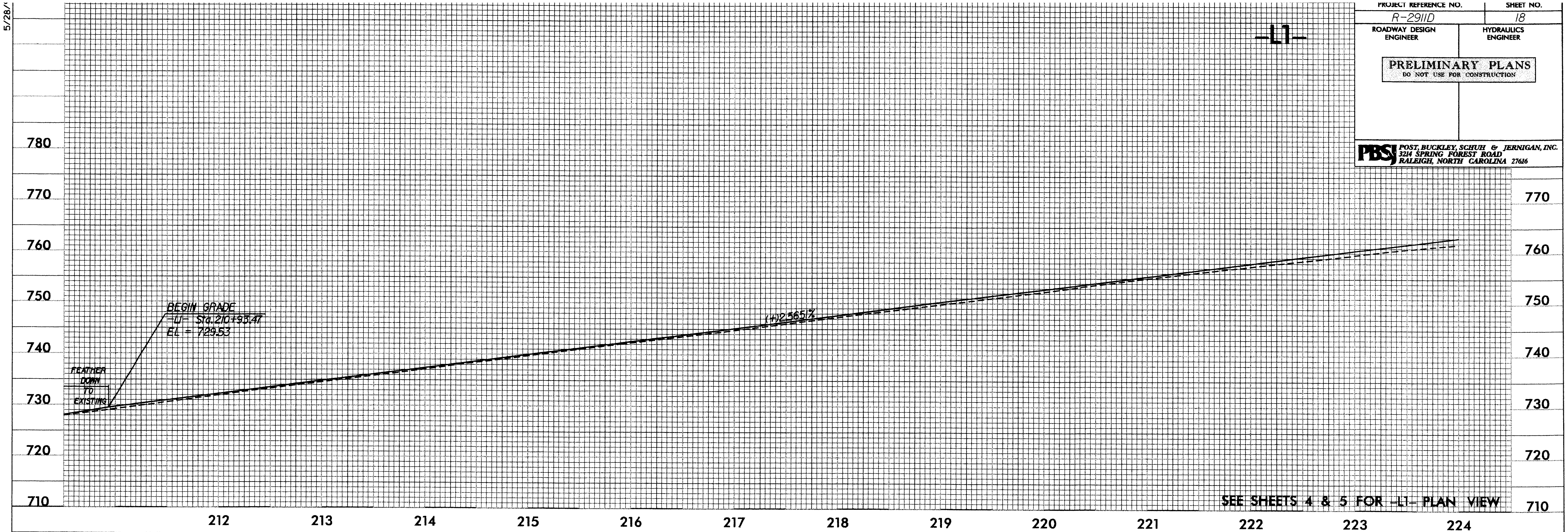
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	18

ROADWAY DESIGN ENGINEER

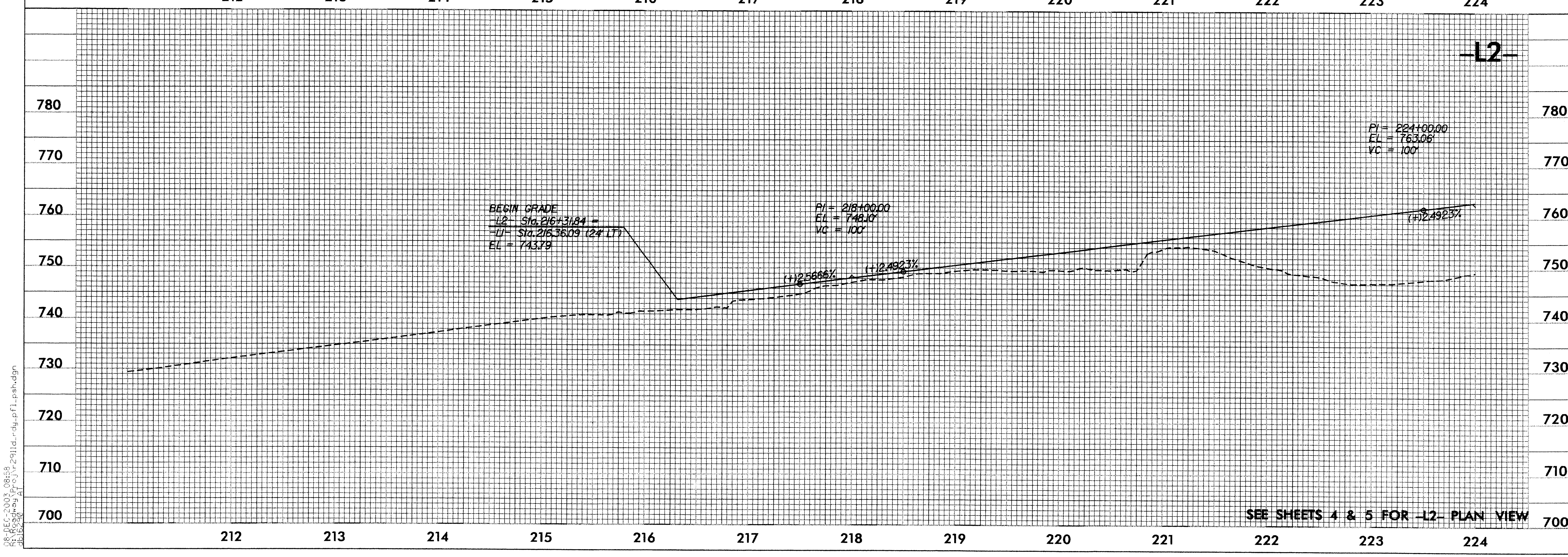
HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616



SEE SHEETS 4 & 5 FOR -L1- PLAN VIEW



SEE SHEETS 4 & 5 FOR -L2- PLAN VIEW

5/28/

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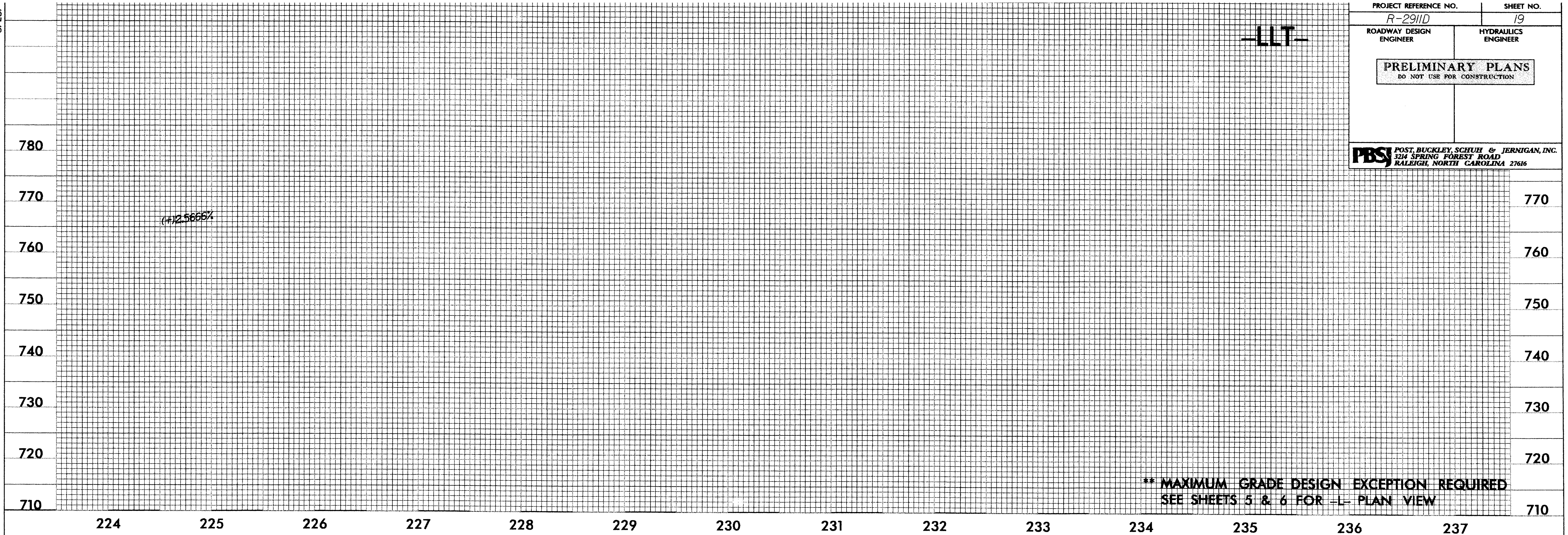
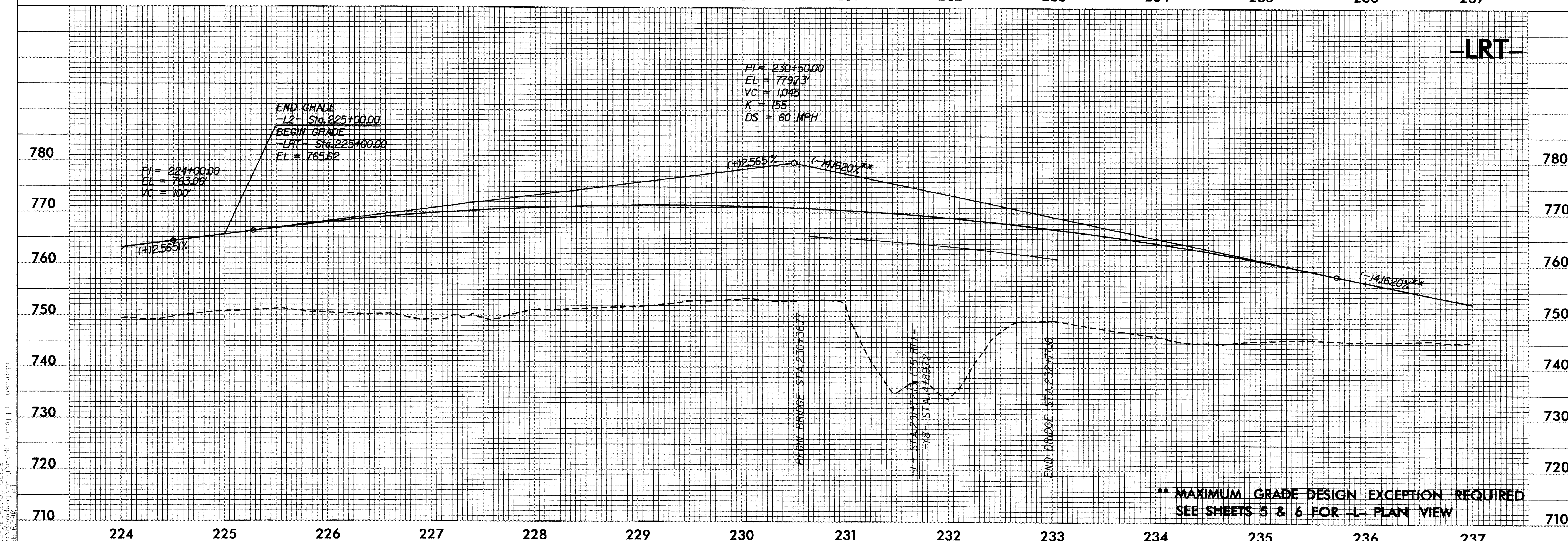
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	19

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616





-LRT-
PI = 224+00.00
EL = 763.06'
VC = 100'
END GRADE
-L2- Sta.225+00.00
BEGIN GRADE
-LRT- Sta.225+00.00
EL = 765.62
PI = 230+50.00
EL = 779.73'
VC = 1,045
K = 155
DS = 60 MPH
(+)2.5651%
(+)2.565%
(-)4.1620%**
BEGIN BRIDGE STA.230+36.77
-L- STA.231+72.13 (35' RT) =
-Y8- STA.14+69.72
END BRIDGE STA.232+77.38
780
770
760
750
740
730
720
710
224
225
226
227
228
229
230
231
232
233
234
235
236
237
** MAXIMUM GRADE DESIGN EXCEPTION REQUIRED
SEE SHEETS 5 & 6 FOR -L- PLAN VIEW

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db16290 AT

PROJECT REFERENCE NO. R-2911D | SHEET NO. 20

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

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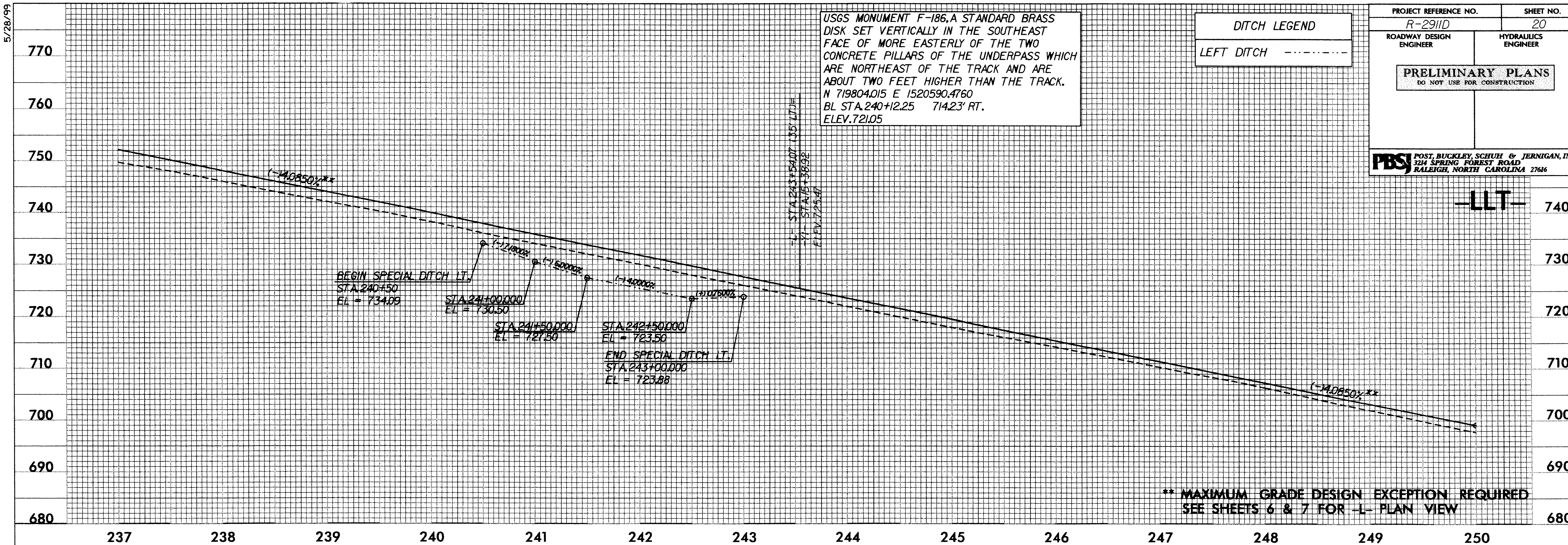
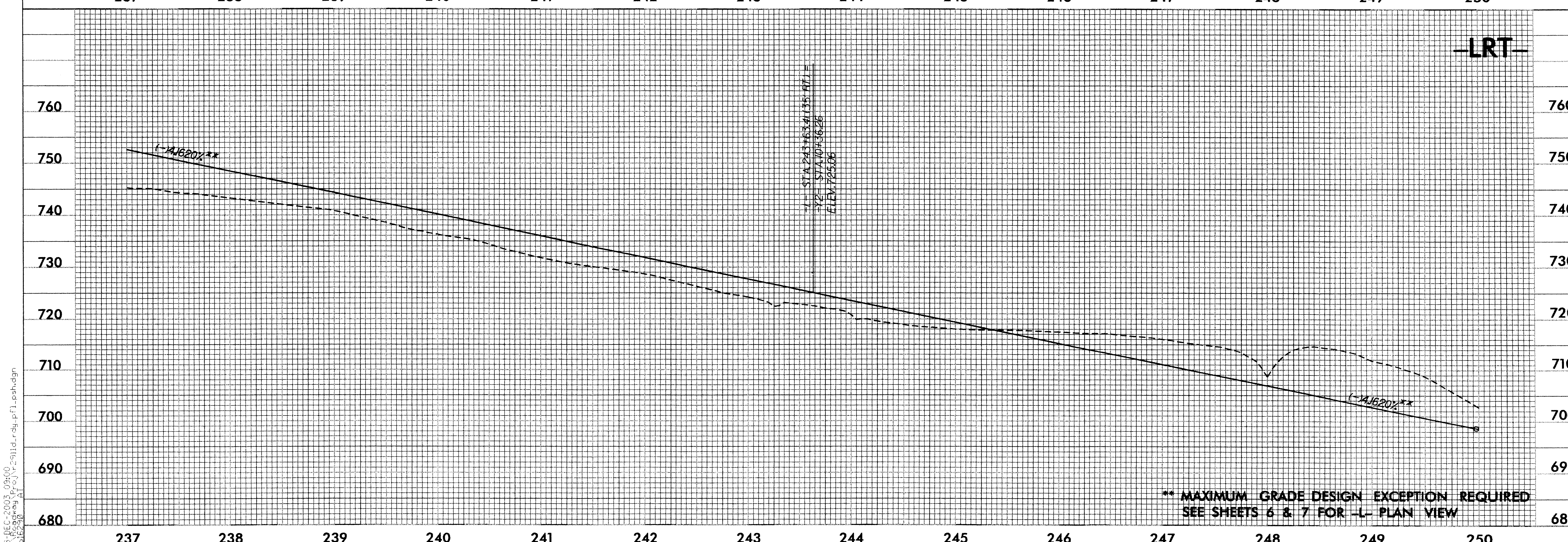


-LLT-
USGS MONUMENT F-186, A STANDARD BRASS DISK SET VERTICALLY IN THE SOUTHEAST FACE OF MORE EASTERLY OF THE TWO CONCRETE PILLARS OF THE UNDERPASS WHICH ARE NORTHEAST OF THE TRACK AND ARE ABOUT TWO FEET HIGHER THAN THE TRACK.
N 719804.015 E 1520590.4760
BL STA.240+12.25 714.23' RT.
ELEV.721.05
DITCH LEGEND
LEFT DITCH
-L- STA.243+54.07 (35' LT.)=
-Y1- STA.15+38.92
ELEV.725.41
(-)4.0650%**
BEGIN SPECIAL DITCH LT.
STA.240+50
EL = 734.09
STA.241+00.000
EL = 730.50
STA.241+50.000
EL = 727.50
STA.242+50.000
EL = 723.50
END SPECIAL DITCH LT.
STA.243+00.000
EL = 723.88
** MAXIMUM GRADE DESIGN EXCEPTION REQUIRED
SEE SHEETS 6 & 7 FOR -L- PLAN VIEW
770
760
750
740
730
720
710
700
690
680
237
238
239
240
241
242
243
244
245
246
247
248
249
250



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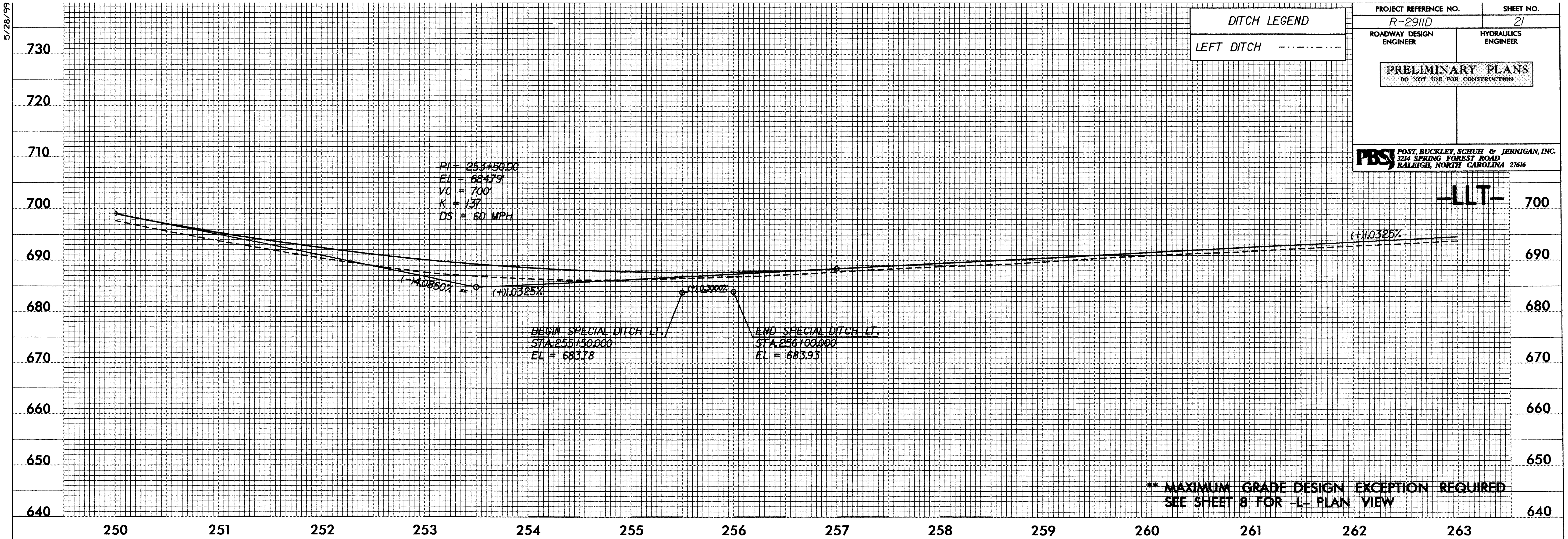
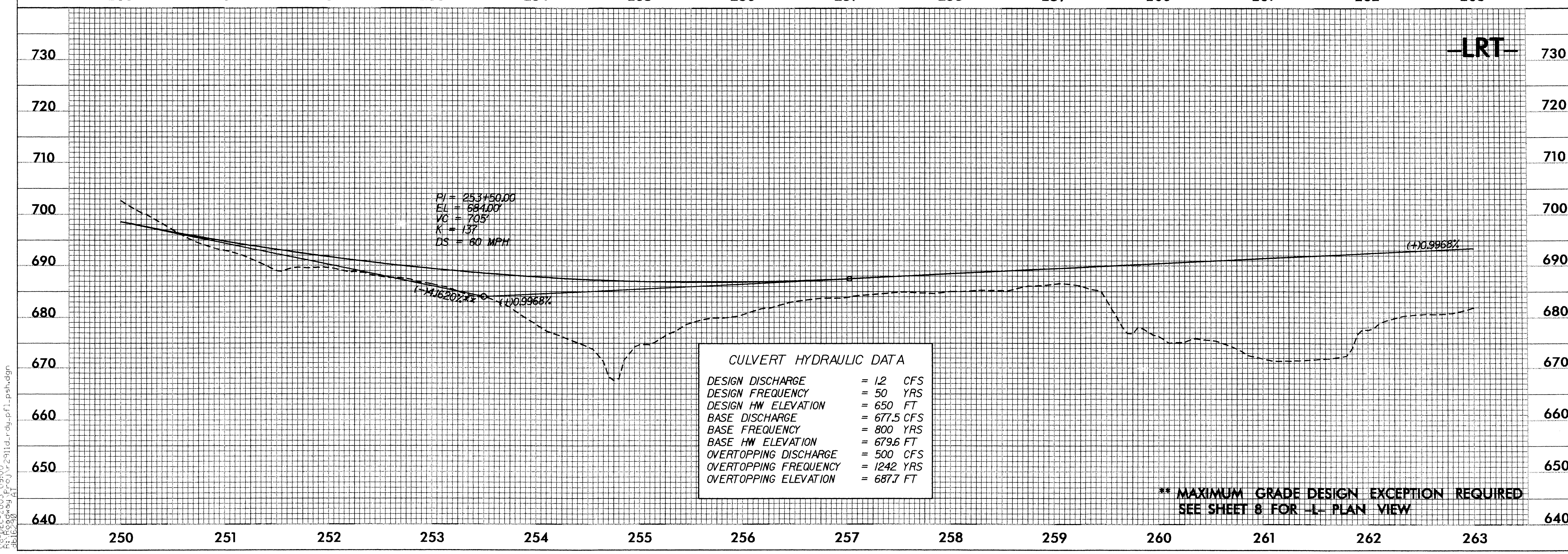
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616





CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1.2	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 650	FT
BASE DISCHARGE	= 677.5	CFS
BASE FREQUENCY	= 800	YRS
BASE HW ELEVATION	= 679.6	FT
OVERTOPPING DISCHARGE	= 500	CFS
OVERTOPPING FREQUENCY	= 1242	YRS
OVERTOPPING ELEVATION	= 687.7	FT

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PROJECT REFERENCE NO.	SHEET NO.
R-2911D	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

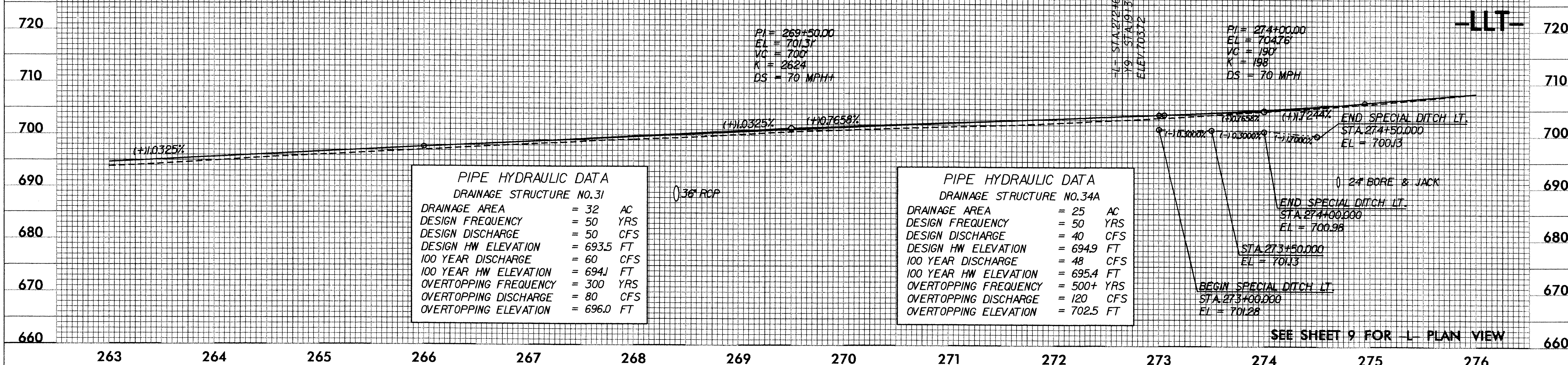
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

BM-1, STEEL NAIL SET IN A STONE ALONG A FIELD ROAD, NORTH OF OLD US 70.
N 721,641.1645 E 1,523,207.8728
BL STA. 268+45.84 544.53' LT.
ELEV. 731.14

DITCH LEGEND
LEFT DITCH -··-··-··-

-LLT-



SEE SHEET 9 FOR -L- PLAN VIEW

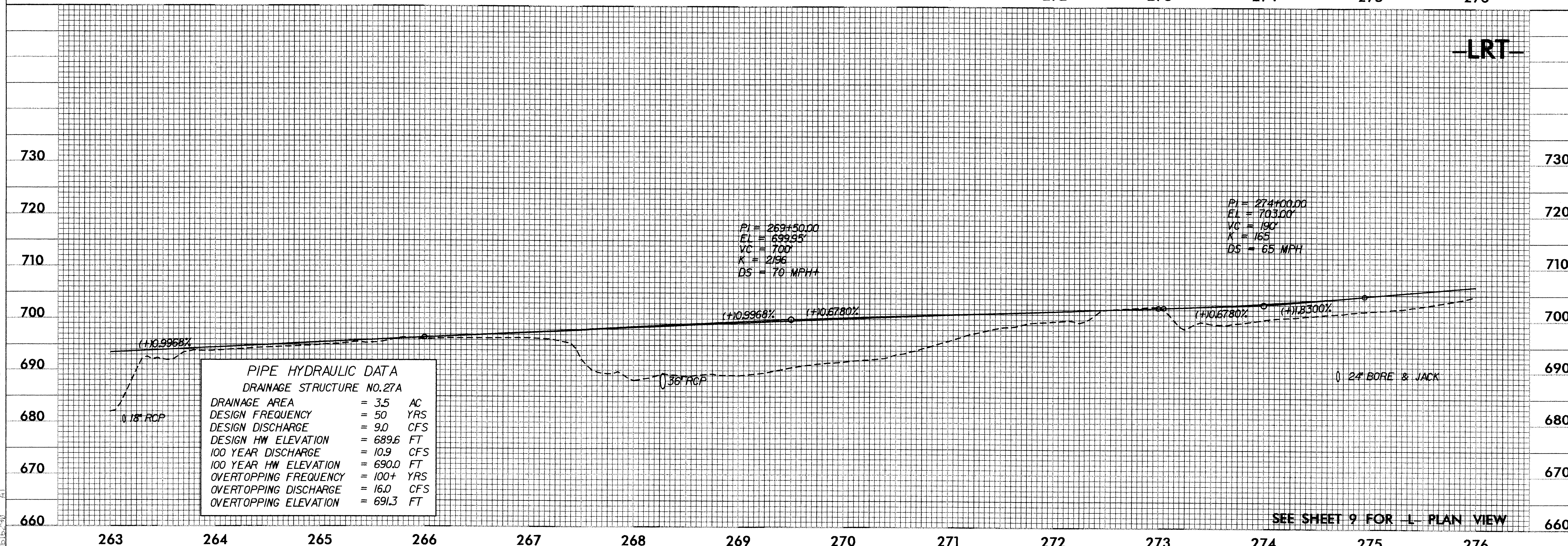
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 31

DRAINAGE AREA	= 32	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 50	CFS
DESIGN HW ELEVATION	= 693.5	FT
100 YEAR DISCHARGE	= 60	CFS
100 YEAR HW ELEVATION	= 694.1	FT
OVERTOPPING FREQUENCY	= 300	YRS
OVERTOPPING DISCHARGE	= 80	CFS
OVERTOPPING ELEVATION	= 696.0	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 34A

DRAINAGE AREA	= 25	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 40	CFS
DESIGN HW ELEVATION	= 694.9	FT
100 YEAR DISCHARGE	= 48	CFS
100 YEAR HW ELEVATION	= 695.4	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 120	CFS
OVERTOPPING ELEVATION	= 702.5	FT

-LRT-



SEE SHEET 9 FOR -L- PLAN VIEW

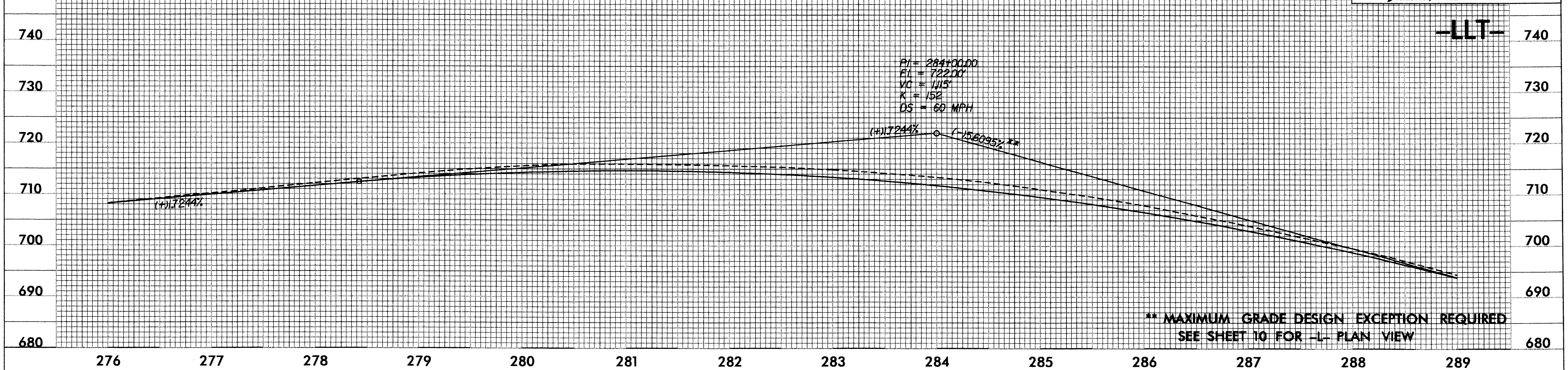
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 27A

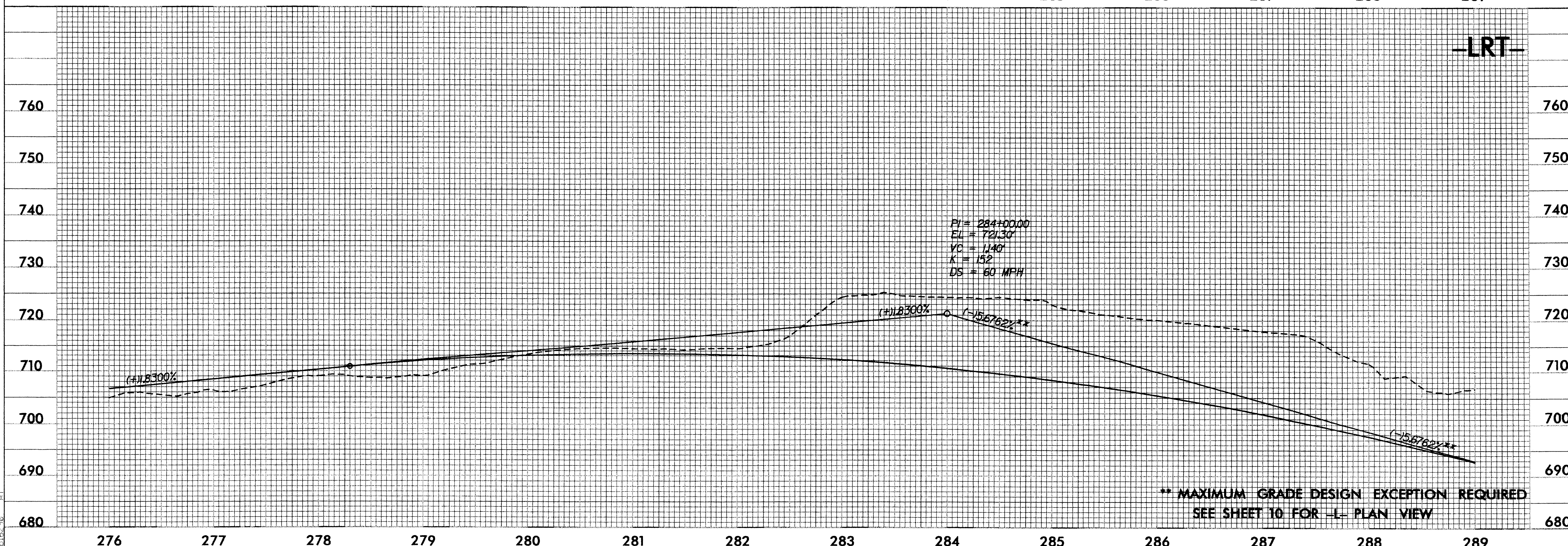
DRAINAGE AREA	= 3.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 9.0	CFS
DESIGN HW ELEVATION	= 689.6	FT
100 YEAR DISCHARGE	= 10.9	CFS
100 YEAR HW ELEVATION	= 690.0	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 16.0	CFS
OVERTOPPING ELEVATION	= 691.3	FT

PROJECT REFERENCE NO.	SHEET NO.
R-2911D	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616





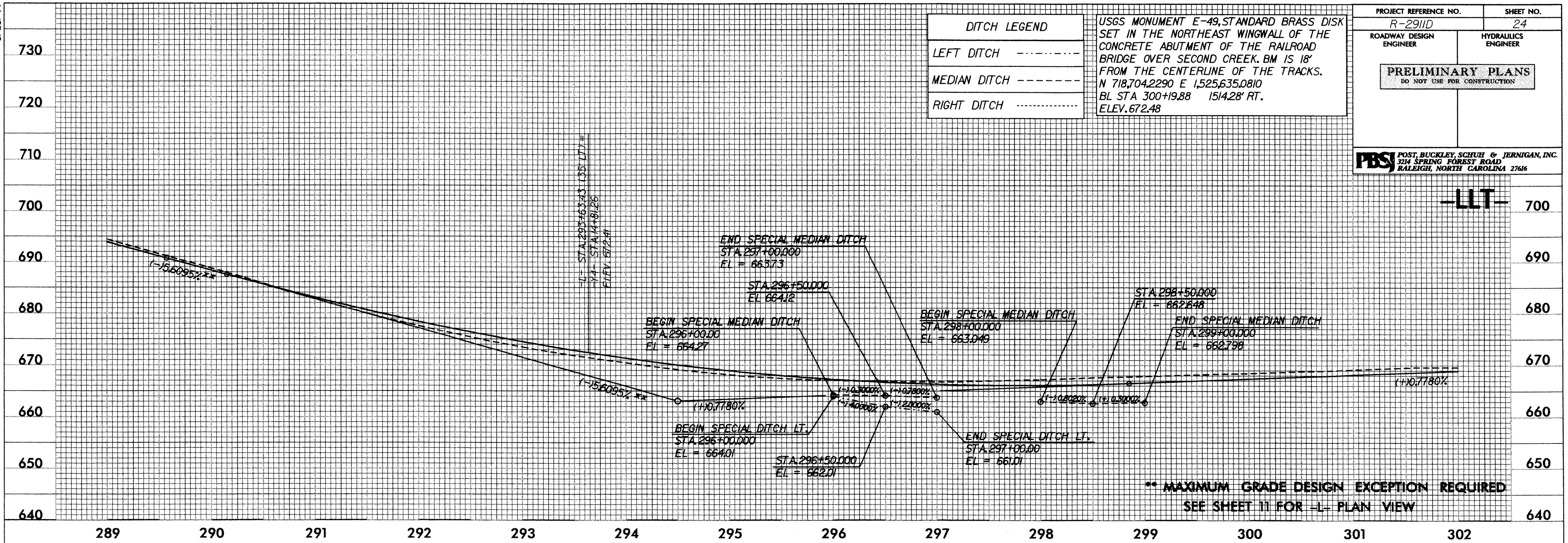
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

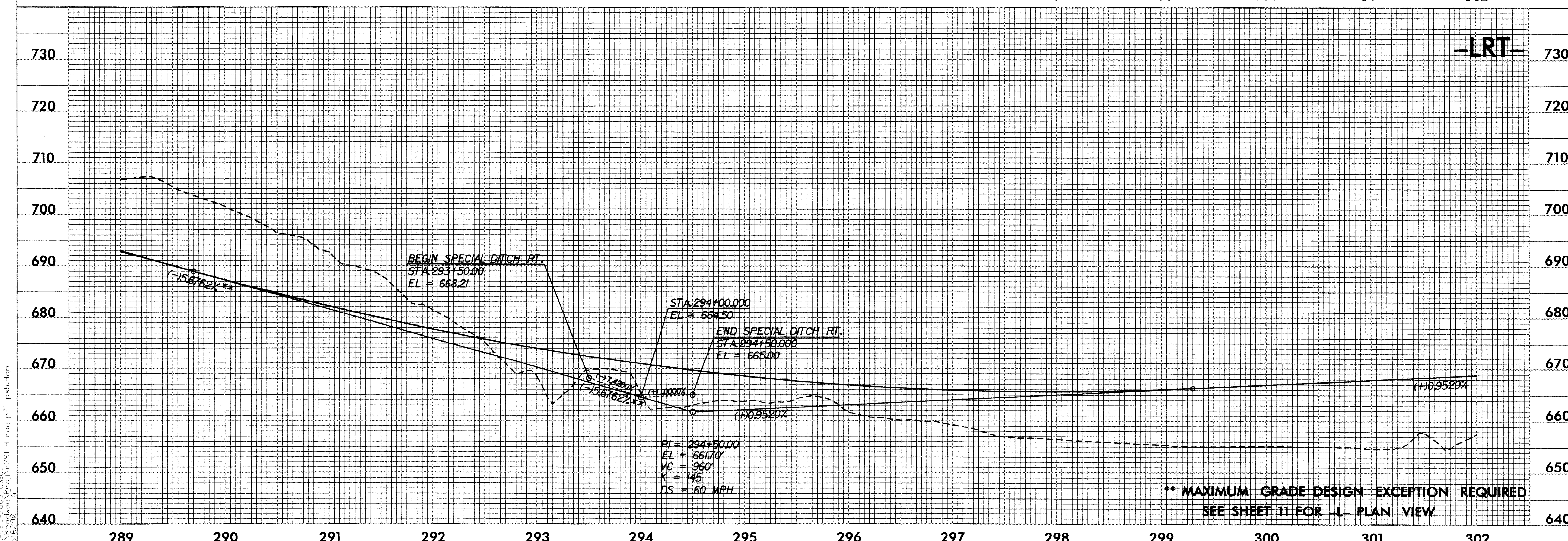
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBS&J POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

DITCH LEGEND	
LEFT DITCH	-·-·-·-·-
MEDIAN DITCH	- - - - - -
RIGHT DITCH	···········

USGS MONUMENT E-49, STANDARD BRASS DISK SET IN THE NORTHEAST WINGWALL OF THE CONCRETE ABUTMENT OF THE RAILROAD BRIDGE OVER SECOND CREEK. BM IS 18' FROM THE CENTERLINE OF THE TRACKS.
N 718,704.2290 E 1,525,635.0810
BL STA 300+19.88 1514.28' RT.
ELEV. 672.48





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PROJECT REFERENCE NO.	SHEET NO.
R-2911D	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

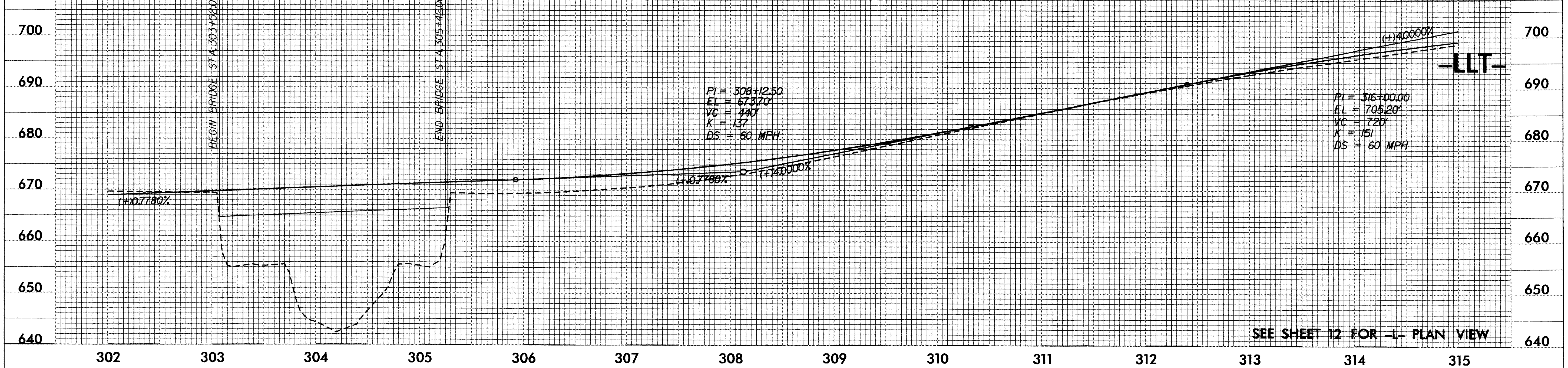
PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

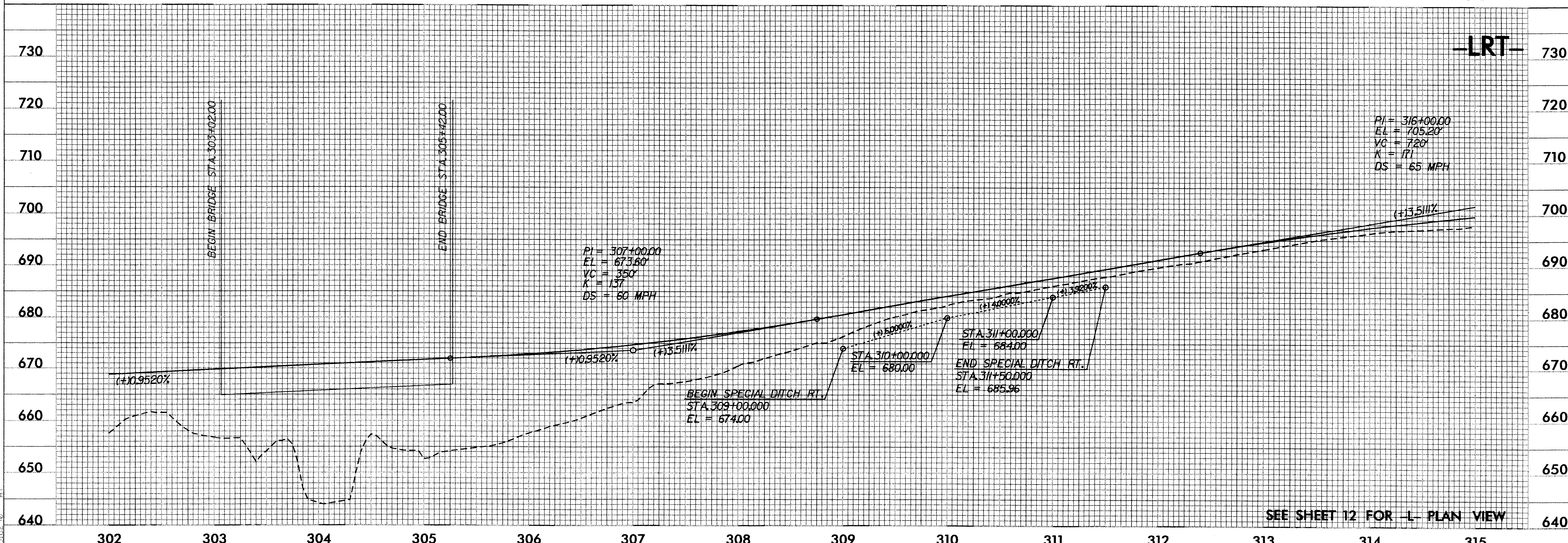
DITCH LEGEND

RIGHT DITCH ---------------

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 118 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 7800 FT
BASE DISCHARGE	= 9600 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 659.1 FT
OVERTOPPING DISCHARGE	= 19400 CFS
OVERTOPPING FREQUENCY	= >500 YRS
OVERTOPPING ELEVATION	= 666.1 FT





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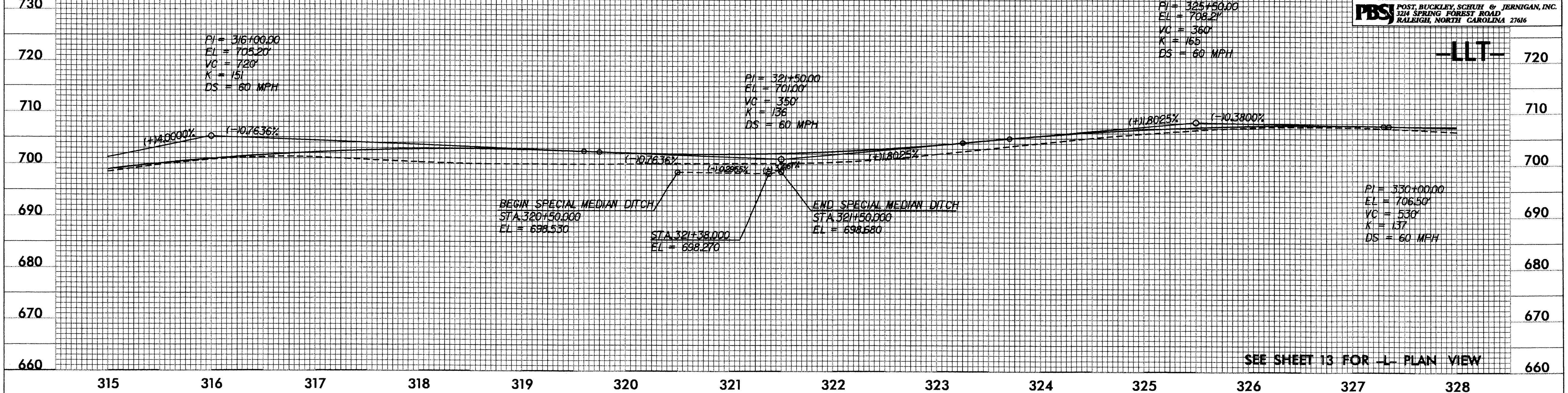
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

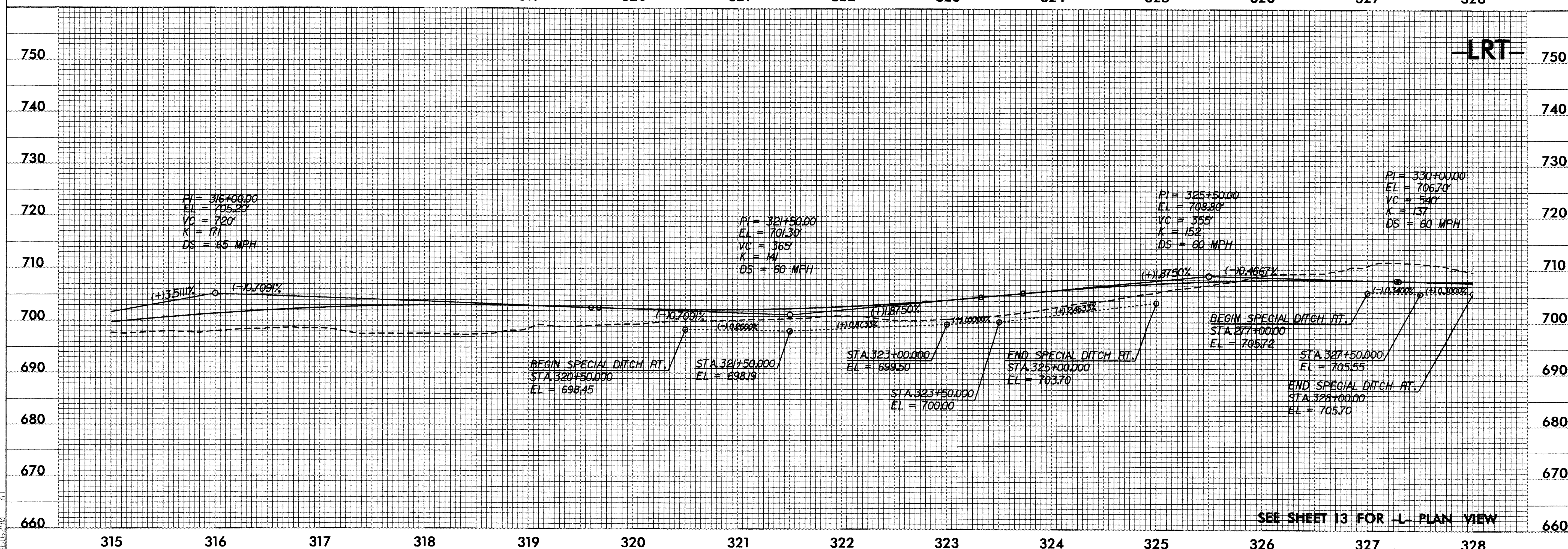
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

DITCH LEGEND
MEDIAN DITCH - - - - - -
RIGHT DITCH ··············

5/28/99


-LLT-
PI = 316+00.00
EL = 705.20'
VC = 720'
K = 151
DS = 60 MPH
PI = 321+50.00
EL = 701.00'
VC = 350'
K = 136
DS = 60 MPH
PI = 325+50.00
EL = 708.21'
VC = 360'
K = 165
DS = 60 MPH
PI = 330+00.00
EL = 706.50'
VC = 530'
K = 137
DS = 60 MPH
(+)4.0000%
(-)0.7636%
(-)0.7636%
(+)1.8025%
(+)1.8025%
(-)0.3800%
BEGIN SPECIAL MEDIAN DITCH
STA.320+50.000
EL = 698.530
STA.321+38.000
EL = 698.270
END SPECIAL MEDIAN DITCH
STA.321+50.000
EL = 698.680
SEE SHEET 13 FOR -L- PLAN VIEW
750
740
730
720
710
700
690
680
670
660
315
316
317
318
319
320
321
322
323
324
325
326
327
328


-LRT-
PI = 316+00.00
EL = 705.20'
VC = 720'
K = 171
DS = 65 MPH
PI = 321+50.00
EL = 701.30'
VC = 365'
K = 141
DS = 60 MPH
PI = 325+50.00
EL = 708.80'
VC = 355'
K = 152
DS = 60 MPH
PI = 330+00.00
EL = 706.70'
VC = 540'
K = 137
DS = 60 MPH
(+)3.5111%
(-)0.7091%
(-)0.7091%
(+)1.8750%
(+)1.8750%
(-)0.4667%
BEGIN SPECIAL DITCH RT.
STA.320+50.000
EL = 698.45
STA.321+50.000
EL = 698.19
STA.323+00.000
EL = 699.50
STA.323+50.000
EL = 700.00
END SPECIAL DITCH RT.
STA.325+00.000
EL = 703.70
BEGIN SPECIAL DITCH RT.
STA.277+00.00
EL = 705.72
STA.327+50.000
EL = 705.55
END SPECIAL DITCH RT.
STA.328+00.00
EL = 705.70
SEE SHEET 13 FOR -L- PLAN VIEW
750
740
730
720
710
700
690
680
670
660
315
316
317
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321
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327
328

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2911D	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

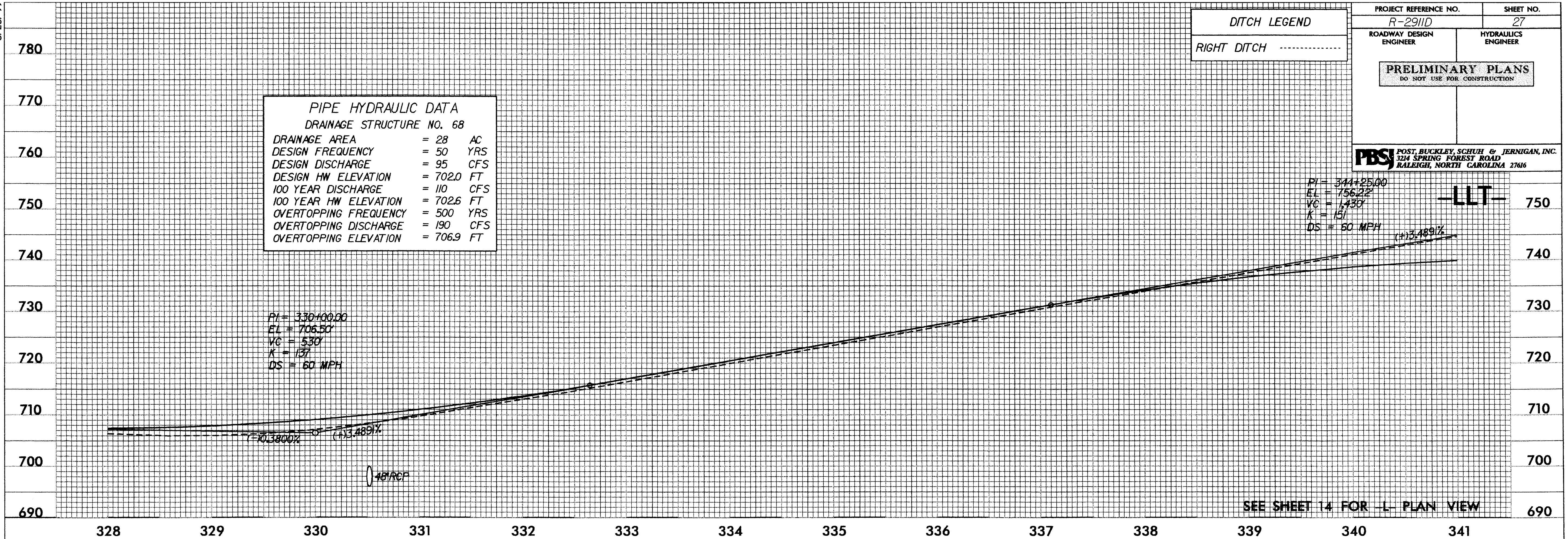
DITCH LEGEND

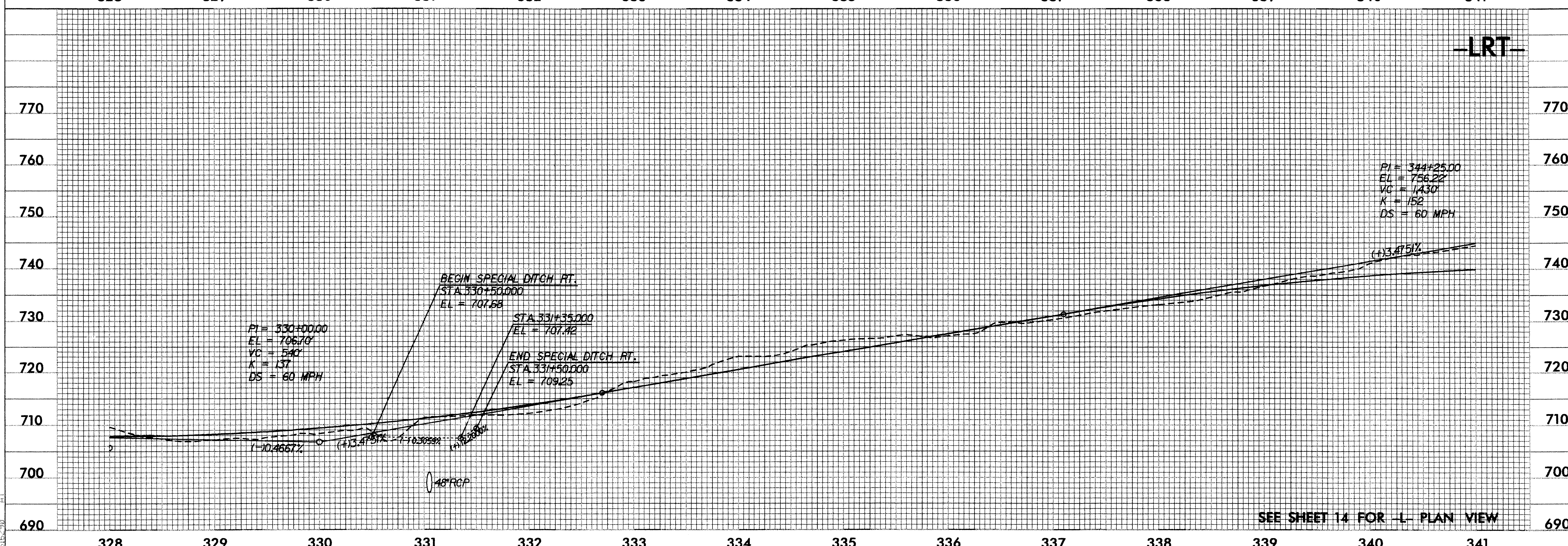
RIGHT DITCH ---------------

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO. 68

DRAINAGE AREA	= 28	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 95	CFS
DESIGN HW ELEVATION	= 702.0	FT
100 YEAR DISCHARGE	= 110	CFS
100 YEAR HW ELEVATION	= 702.6	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 190	CFS
OVERTOPPING ELEVATION	= 706.9	FT



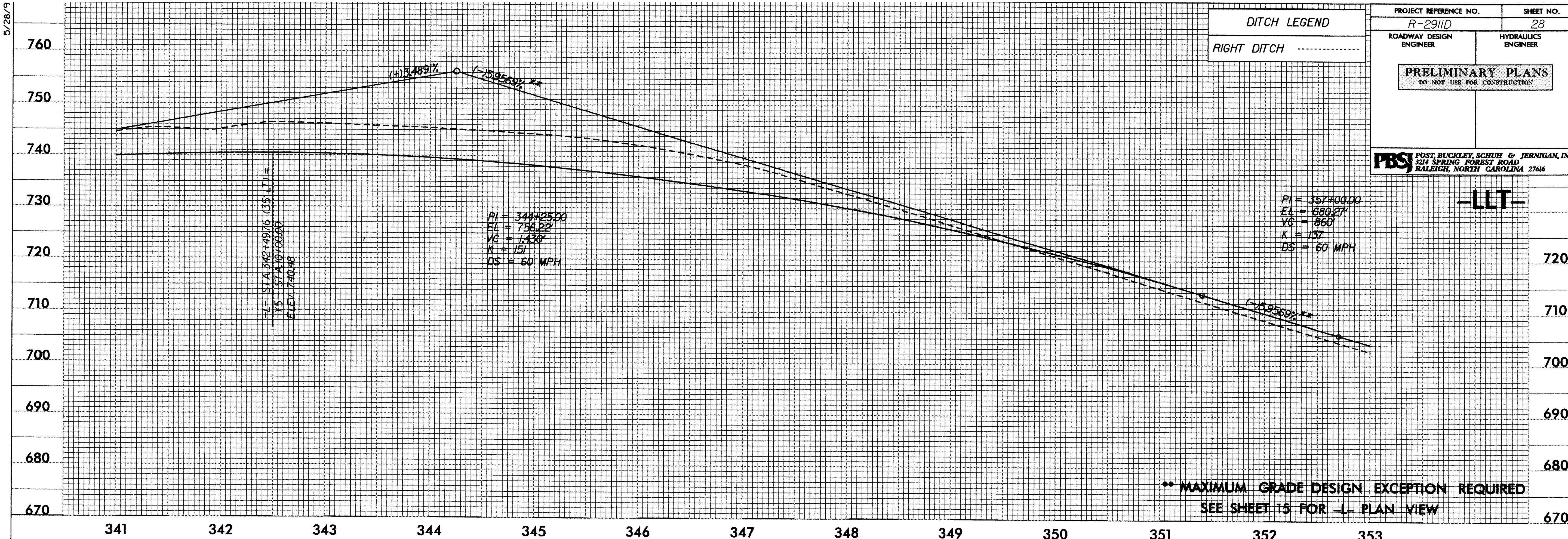


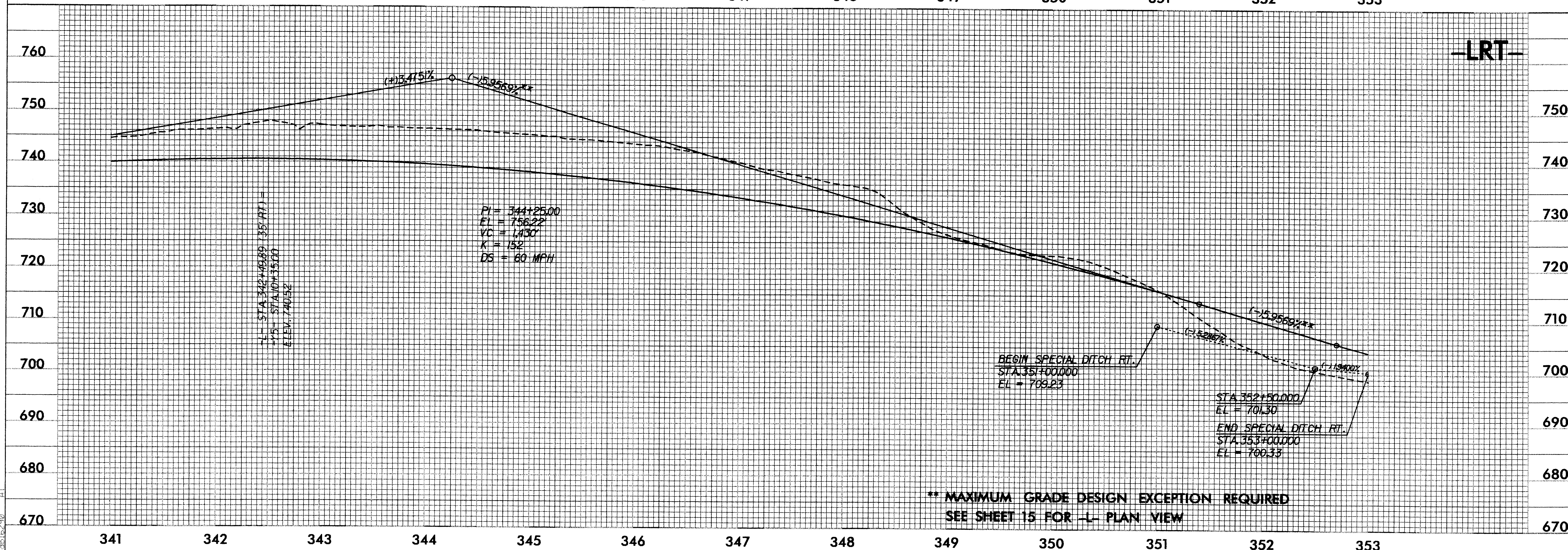
5/28/9

PROJECT REFERENCE NO.	SHEET NO.
R-2911D	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616





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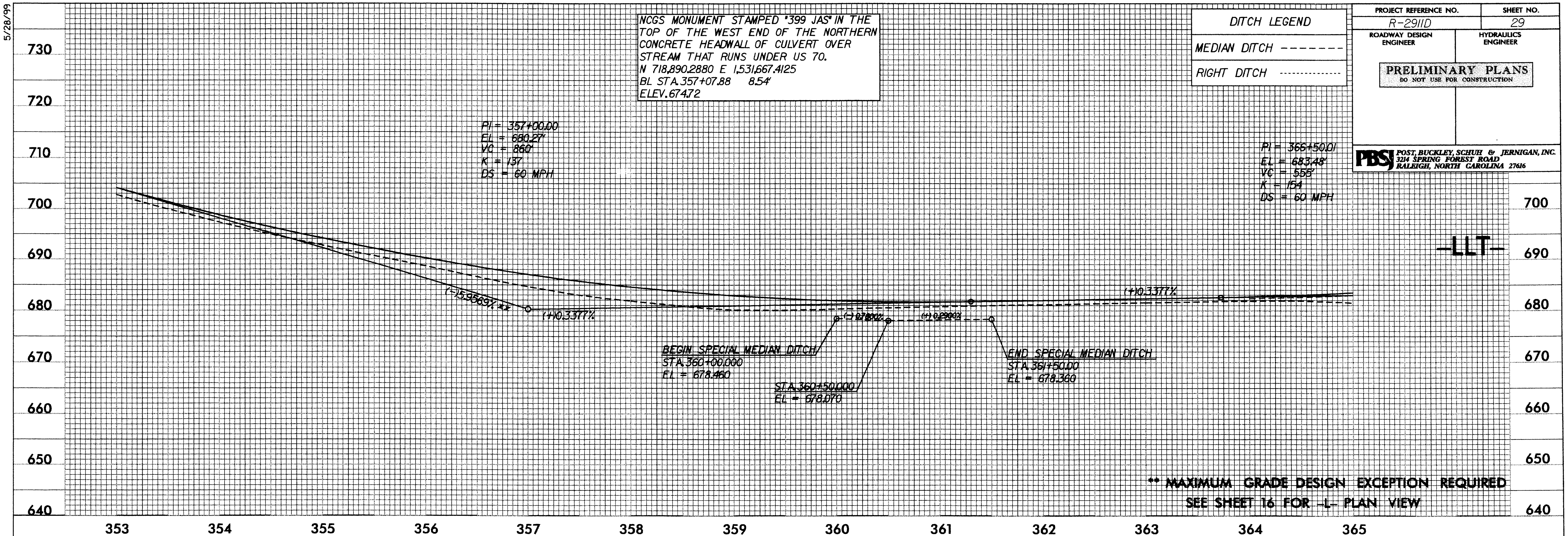
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

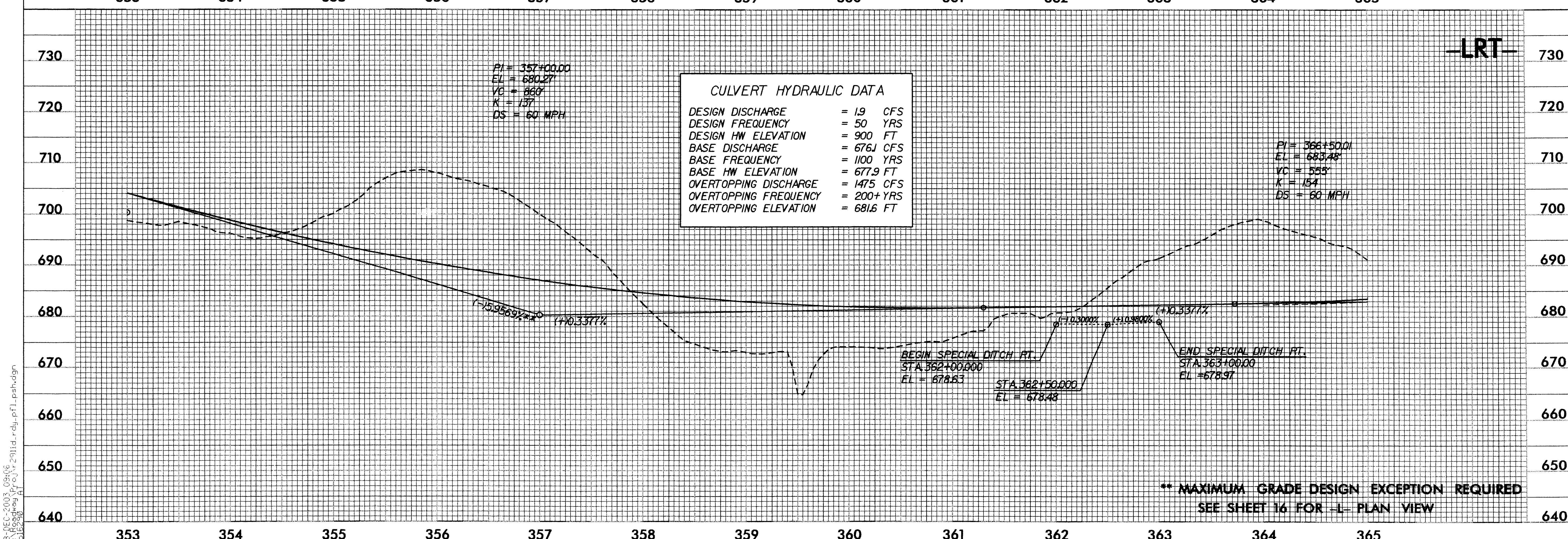
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

5/28/99



NCGS MONUMENT STAMPED "399 JAS" IN THE TOP OF THE WEST END OF THE NORTHERN CONCRETE HEADWALL OF CULVERT OVER STREAM THAT RUNS UNDER US 70.
N 718,890.2880 E 1,531,667.4125
BL STA.357+07.88 8.54'
ELEV. 674.72
DITCH LEGEND
MEDIAN DITCH
RIGHT DITCH
PI = 357+00.00
EL = 680.27'
VC = 860'
K = 137
DS = 60 MPH
PI = 366+50.01
EL = 683.48'
VC = 555'
K = 154
DS = 60 MPH
-LLT-
(-)5.9569% **
(+)0.3377%
(-) 0.7800%
(+) 0.2900%
(+)0.3377%
BEGIN SPECIAL MEDIAN DITCH
STA.360+00.000
EL = 678.460
STA.360+50.000
EL = 678.070
END SPECIAL MEDIAN DITCH
STA.361+50.00
EL = 678.360
** MAXIMUM GRADE DESIGN EXCEPTION REQUIRED
SEE SHEET 16 FOR -L- PLAN VIEW
730
720
710
700
690
680
670
660
650
640
353
354
355
356
357
358
359
360
361
362
363
364
365



-LRT-
PI = 357+00.00
EL = 680.27'
VC = 860'
K = 137
DS = 60 MPH
PI = 366+50.01
EL = 683.48'
VC = 555'
K = 154
DS = 60 MPH
(-)5.9569% **
(+)0.3377%
(-)0.3000%
(+)0.9800%
(+)0.3377%
BEGIN SPECIAL DITCH RT.
STA.362+00.000
EL = 678.63
STA.362+50.000
EL = 678.48
END SPECIAL DITCH RT.
STA.363+00.00
EL =678.97
** MAXIMUM GRADE DESIGN EXCEPTION REQUIRED
SEE SHEET 16 FOR -L- PLAN VIEW
730
720
710
700
690
680
670
660
650
640
353
354
355
356
357
358
359
360
361
362
363
364
365

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1.9	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 900	FT
BASE DISCHARGE	= 676.1	CFS
BASE FREQUENCY	= 1100	YRS
BASE HW ELEVATION	= 677.9	FT
OVERTOPPING DISCHARGE	= 1475	CFS
OVERTOPPING FREQUENCY	= 200+	YRS
OVERTOPPING ELEVATION	= 681.6	FT

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PROJECT REFERENCE NO.	SHEET NO.
R-2911D	30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

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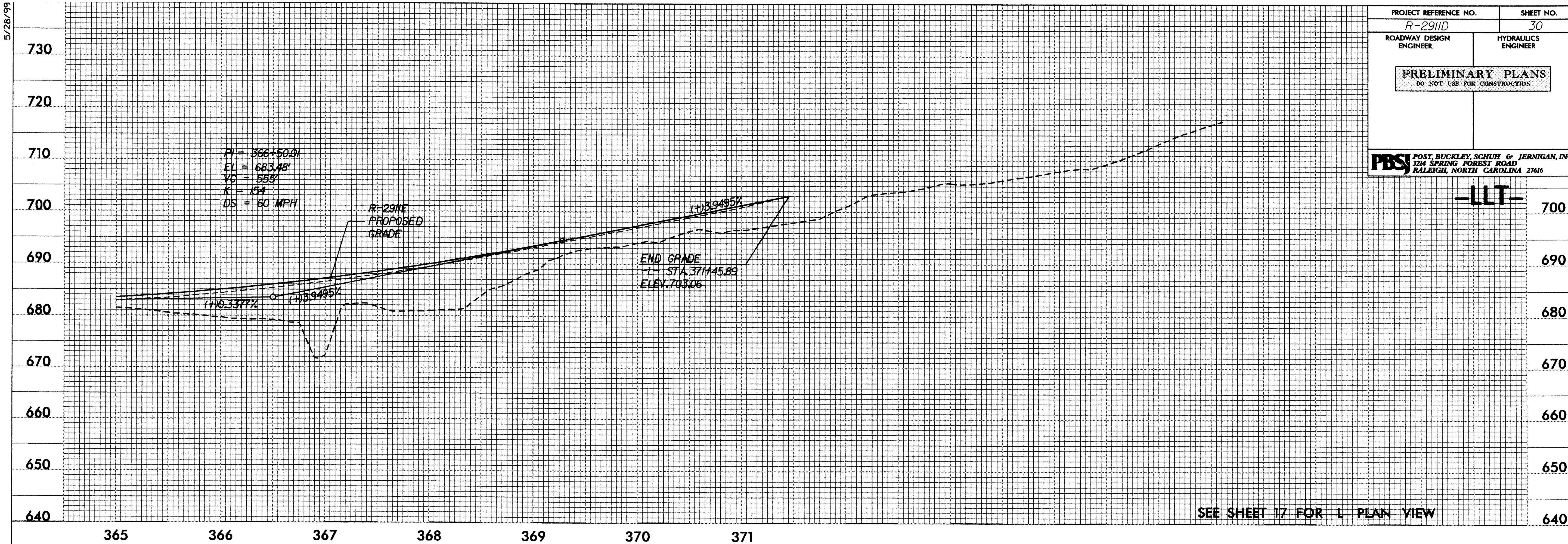

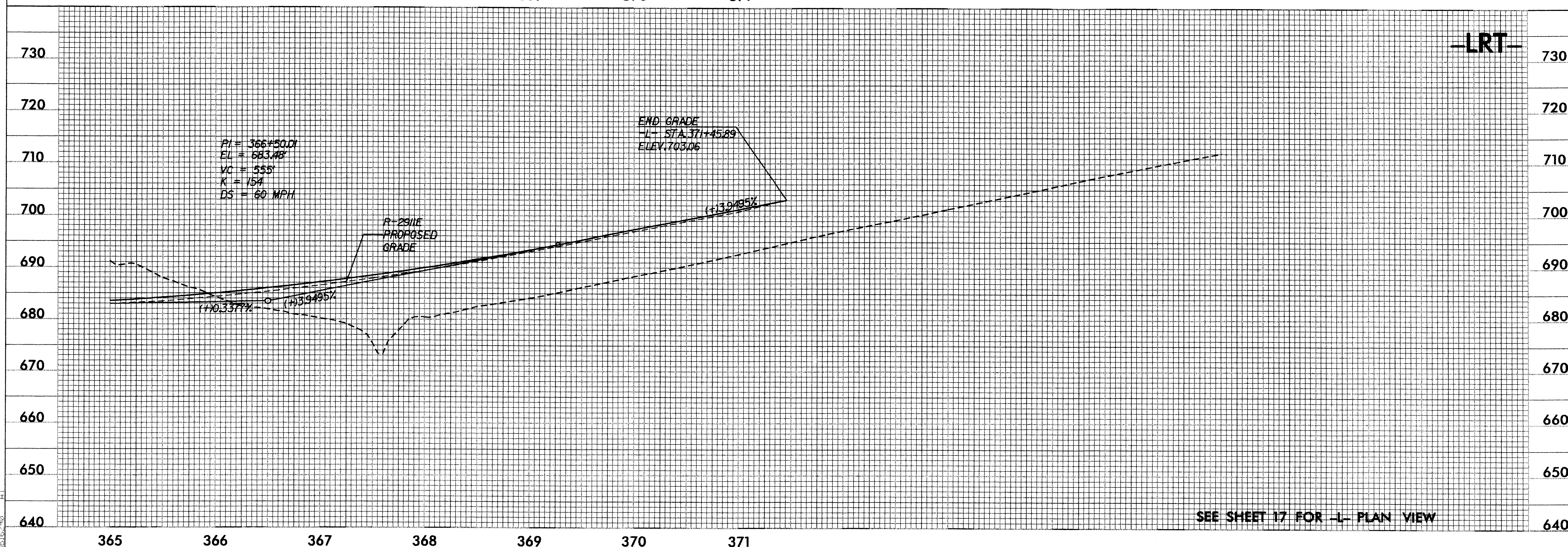

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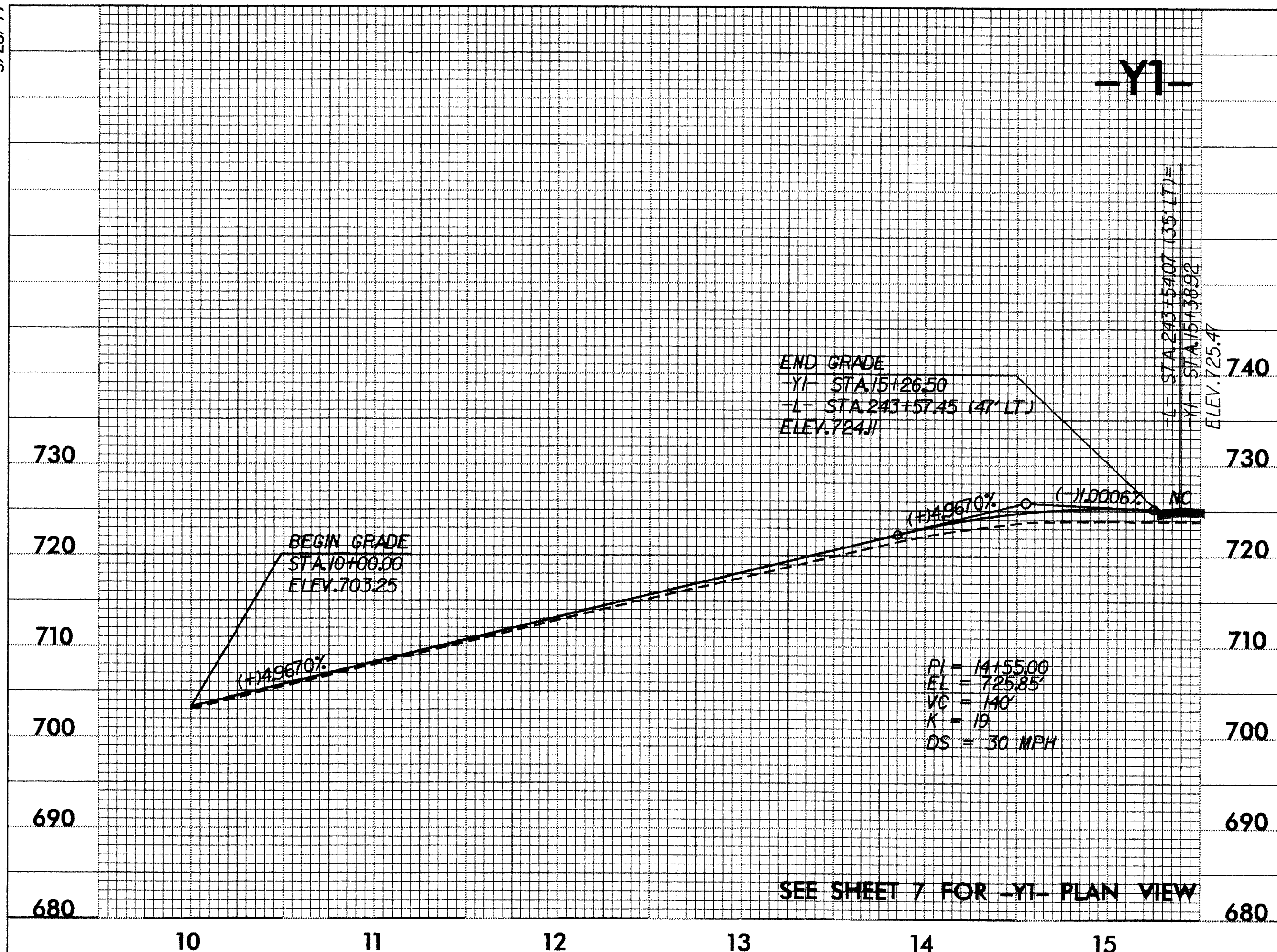
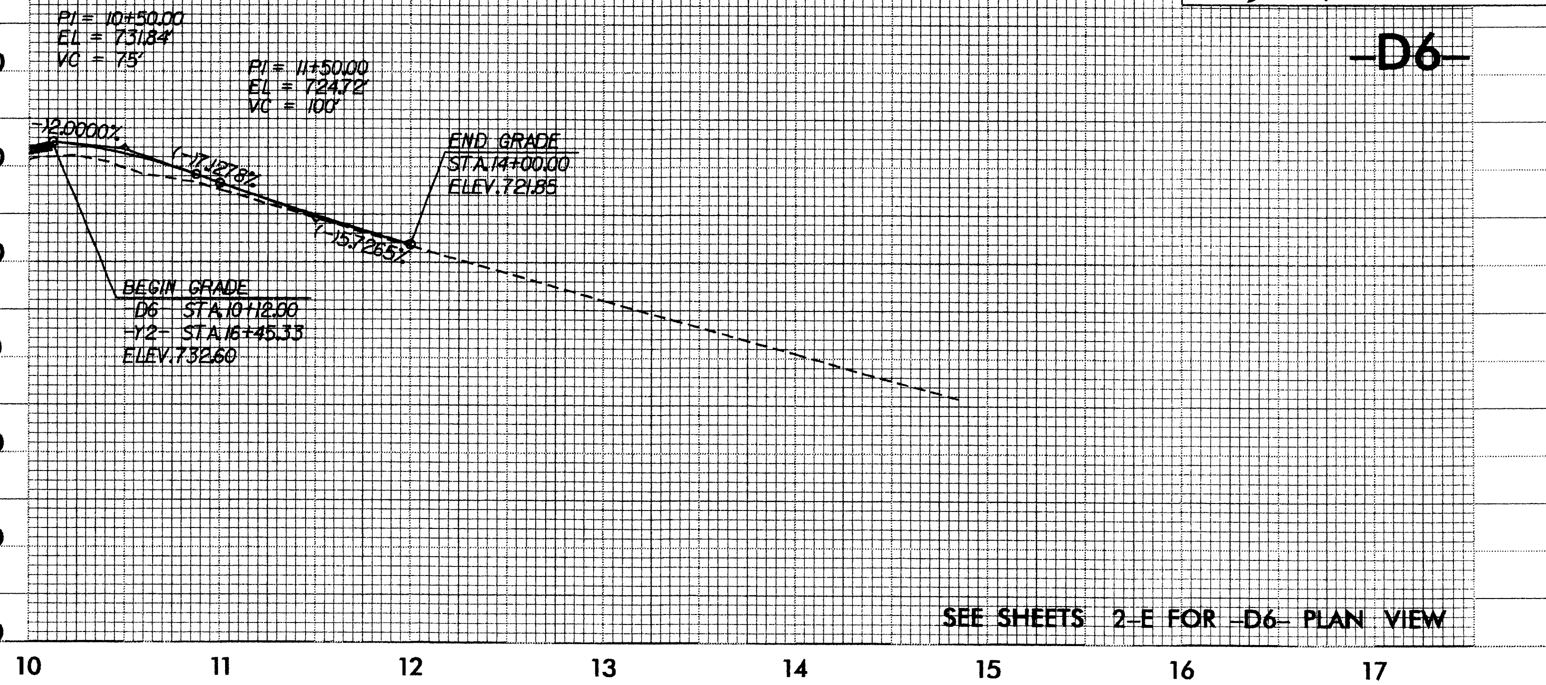
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

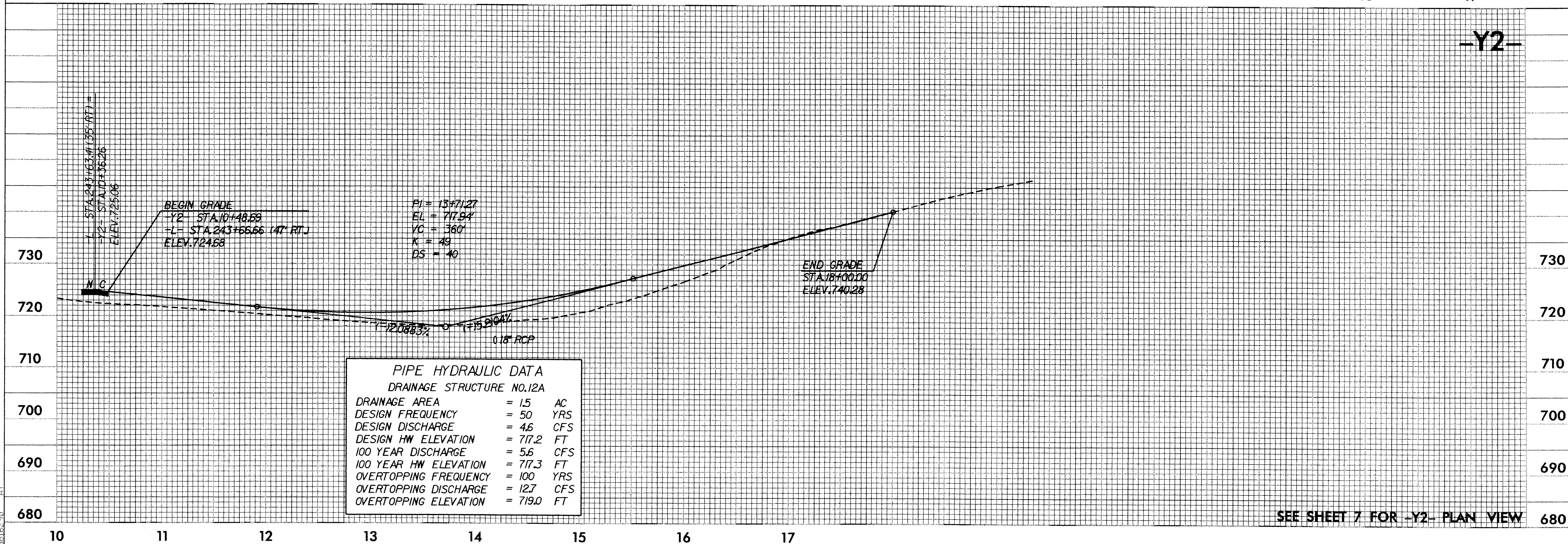
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

5/28/99







PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.12A

DRAINAGE AREA	= 1.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 4.6	CFS
DESIGN HW ELEVATION	= 717.2	FT
100 YEAR DISCHARGE	= 5.6	CFS
100 YEAR HW ELEVATION	= 717.3	FT
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING DISCHARGE	= 12.7	CFS
OVERTOPPING ELEVATION	= 719.0	FT

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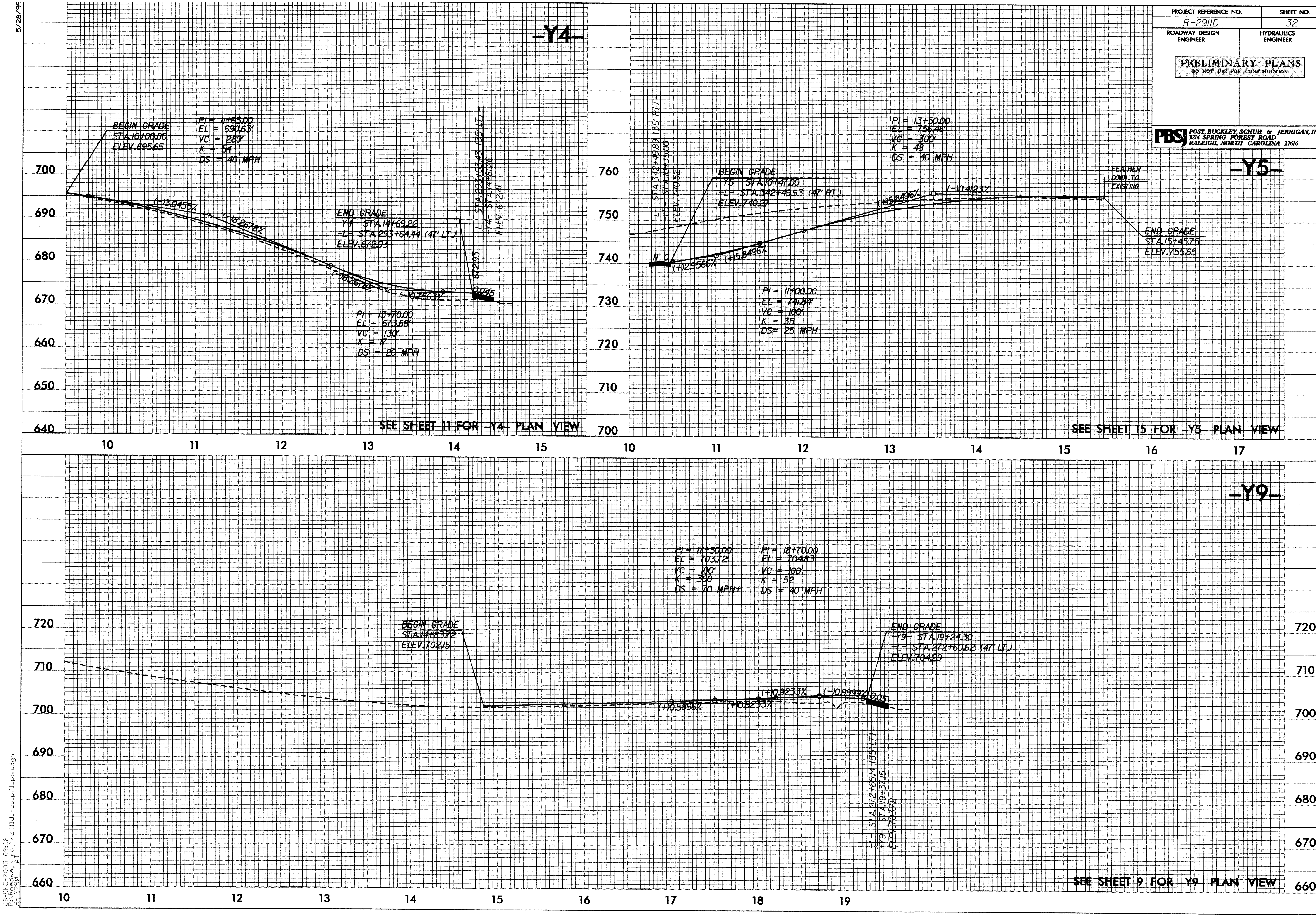
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC. 3214 SPRING FOREST ROAD RALEIGH, NORTH CAROLINA 27616



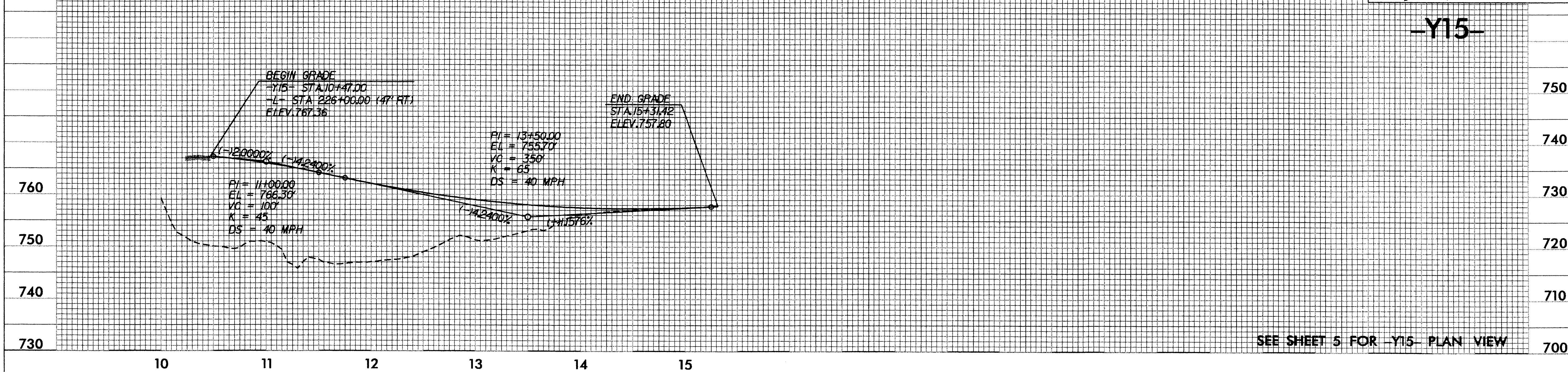
5/28/99
-Y4-
BEGIN GRADE
STA.10+00.00
ELEV.695.65
PI = 11+65.00
EL = 690.63'
VC = 280'
K = 54
DS = 40 MPH
(-)3.0455%
(-)8.9678%
(-)6.2678%
(-)0.7563%
END GRADE
-Y4- STA.14+69.22
-L- STA.293+64.44 (47' LT.)
ELEV.672.93
PI = 13+70.00
EL = 673.68'
VC = 130'
K = 17
DS = 20 MPH
672.93
-L- STA.293+63.43 (35' LT.) =
-Y4- STA.14+81.26
ELEV.672.41
0.045
SEE SHEET 11 FOR -Y4- PLAN VIEW
-Y5-
-L- STA.342+49.89 (35' RT.) =
-Y5- STA.10+35.00
ELEV.740.52
BEGIN GRADE
-Y5- STA.10+47.00
-L- STA.342+49.93 (47' RT.)
ELEV.740.27
PI = 13+50.00
EL = 756.46'
VC = 300'
K = 48
DS = 40 MPH
(+)5.8496%
(-)0.4123%
(+)2.9566%
(+)5.8496%
FEATHER DOWN TO EXISTING
END GRADE
STA.15+45.75
ELEV.755.65
PI = 11+00.00
EL = 741.84'
VC = 100'
K = 35
DS = 25 MPH
SEE SHEET 15 FOR -Y5- PLAN VIEW
-Y9-
PI = 17+50.00
EL = 703.72'
VC = 100'
K = 300
DS = 70 MPH+
PI = 18+70.00
EL = 704.83'
VC = 100'
K = 52
DS = 40 MPH
BEGIN GRADE
STA.14+83.72
ELEV.702.15
END GRADE
-Y9- STA.19+24.30
-L- STA.272+60.62 (47' LT.)
ELEV.704.29
(+)0.5896%
(+)0.9233%
(+)0.9233%
(-)0.9999%
0.05
-L- STA.272+65.14 (35' LT.) =
-Y9- STA.19+37.15
ELEV.703.72
SEE SHEET 9 FOR -Y9- PLAN VIEW

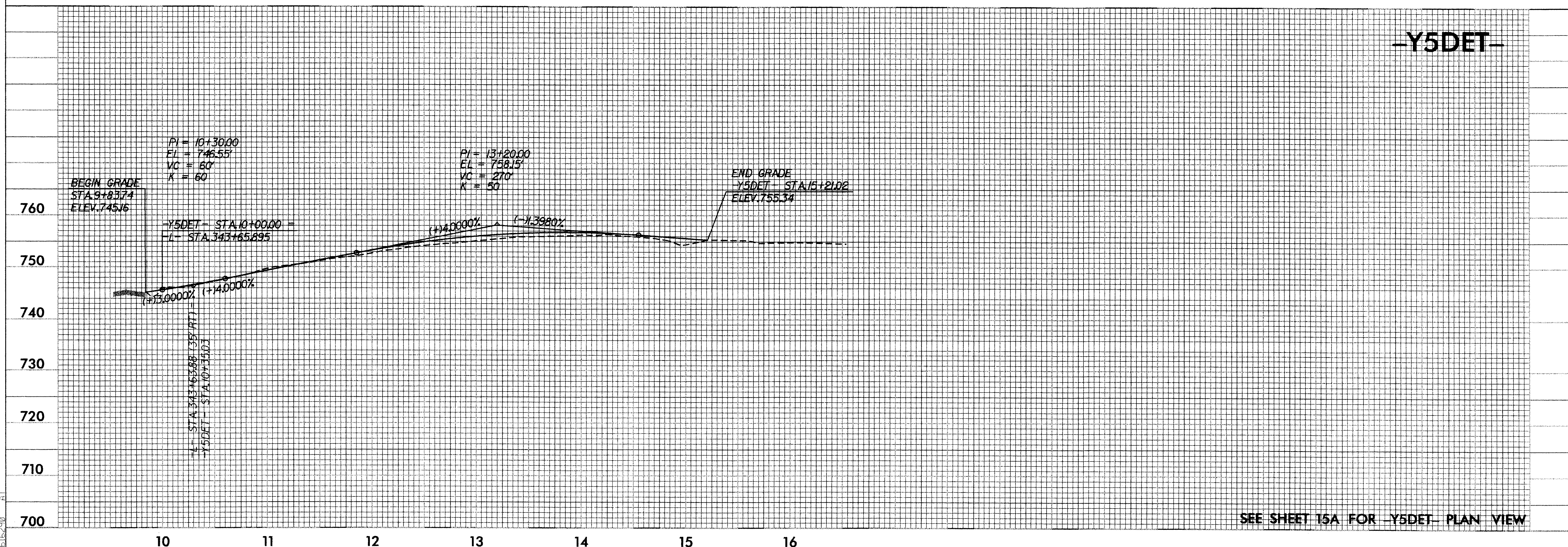
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	33

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616





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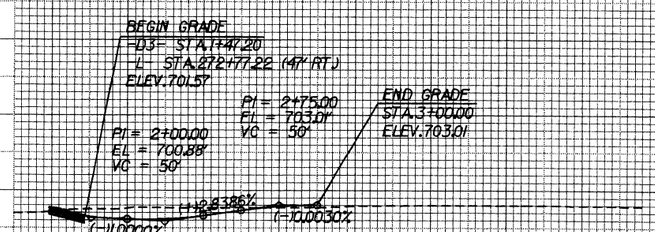
PROJECT REFERENCE NO.	SHEET NO.
R-2911D	34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

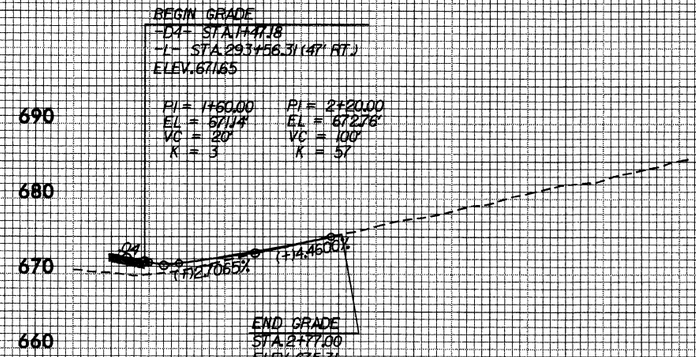
PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.
3214 SPRING FOREST ROAD
RALEIGH, NORTH CAROLINA 27616

-D3-



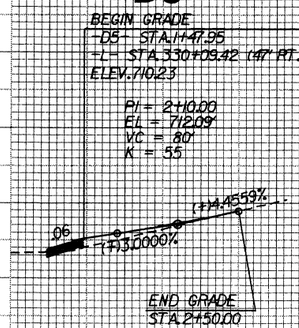
SEE SHEET 9 FOR PLAN VIEW

-D4-



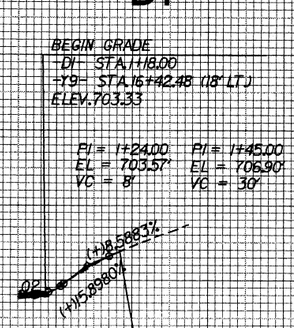
SEE SHEET 11 FOR PLAN VIEW

-D5-



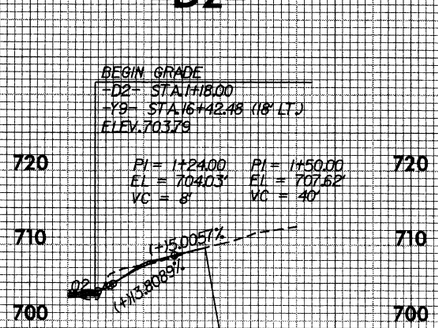
SEE SHEET 14 FOR PLAN VIEW

-D1-



SEE SHEET 9 FOR PLAN VIEW

-D2-



SEE SHEET 9 FOR PLAN VIEW

QUALITATIVE INDIRECT AND CUMULATIVE EFFECTS ASSESSMENT

US 70

TIP R-2911A-D

Rowan and Iredell Counties, North Carolina

Prepared for

North Carolina Department of Transportation

Office of Human Environment

Prepared by:

HNTB North Carolina, PC

2108 South Boulevard

Suite 108

Charlotte, North Carolina 28203

February 6, 2004

HNTB

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North Carolina Department of Transportation
Office of Human Environment

Qualitative Indirect and Cumulative Effects (ICE) Assessment
TIP R-2911A-D, Rowan and Iredell Counties

I. EXECUTIVE SUMMARY

TIP R-2911A-D is a proposed widening and/or partial relocation of US 70 from Fanjoy Road (SR 2318) east of Statesville in Iredell County to about 0.4 miles west of Kepley Road (SR 1953) west of Salisbury in Rowan County. The total length of the project is 15.7 miles. According to the May 1999 Environmental Assessment, the purpose and need of TIP R-2911A-D is to increase the traffic carrying capacity of US 70 and to improve safety along the entire corridor.

Identify the Study Area Direction and Goals

- Population growth along the US 70 corridor is strong, with the demographic area increasing by 32.1% from 1990 to 2000.
- Over a third of the jobs added to Iredell County and nearly half of the jobs added to Rowan County between 1990 and 2000 were in the services sector.
- US 70 between Salisbury and Statesville is predominantly rural, with a small number of large, campus-style industrial plants and scattered, large lot single family uses.
- A major traffic generator along the TIP R-2911A-D project length is the Freightliner plant in the Town of Cleveland, which employs a total of 3,100 people.
- Proximity to Charlotte and the Triad (Winston-Salem, Greensboro, High Point), access to three major interstates (I-40, I-77, I-85), and convenient railroad access make this section of US 70 desirable for light manufacturing/distribution-related development.

Inventory of Notable Features

- According to the 1999 Environmental Assessment conducted for this project, no federally endangered or threatened species were found to be located within the project impact area as defined by that document.
- Two properties eligible for the National Register of Historic Sites are located along the US 70 corridor:
    1. Cameron Presbyterian Church (US 70 just east of SR 2488)
    2. Wood-Fleming House (US 70 & SR 1801)
- Fourth Creek, which flows from west of Statesville near the Iredell County border with Alexander County to the Yadkin River (which forms the border between Davie and Rowan Counties), is listed on the federal 303(d) impaired creeks list. It should be minimally impacted because of the requirement for storm water drainage controls (BMPs) with respect to new development.

Identify Activities That Cause Effects

- According to the Environmental Assessment, a total of 3.3 acres of wetlands will be impacted as a result of the construction of TIP R-2911A-D.
- The project is consistent with the land use plan and existing zoning for Iredell County as well as existing zoning for Rowan County, which is only designated in developed or developing areas.
- Rowan County does not have a land use plan.
- Based on the conclusions of the Environmental Assessment and comments received from federal, state, and local agencies, the Finding of No Significant Impact indicates that TIP R-2911A-D will not have a significant impact upon the quality of the human or natural environment.

Identify Potential Indirect and Cumulative Effects For Analysis

- According to the purpose and need as stated by the NCDOT, as well as our field observations and discussions with local planners, TIP R-2911A-D is not intended to serve a specific development, nor is it being built for economic development purposes.
- Because of the lack of heavy traffic volumes on intersecting roadways, limited water/sewer service, no frontage roads, and the rural environment, highway-related development as a result of TIP R-2911A-D should be minimal.

Analyze Indirect and Cumulative Effects

- Travel time savings should approach the ten minute level from one terminus of TIP R-2911A-D to the other.
- Residential growth as a result of the project will be limited by the lack of water/sewer services, which is basically limited to the City of Statesville and the Town of Cleveland.
- Both counties view US 70 as a developing industrial corridor, and TIP R-2911A-D should assist in that effort by providing improved access and mobility.
- When combined with Section E of TIP R-2911, Sections A-D will create a more efficient connection between I-77 in Iredell County and I-85 in Rowan County, making the corridor a more desirable location for industry.

Evaluate Analysis Results

- No adverse environmental impacts are anticipated as a result of the TIP R-2911A-D.
- The alignment of Section A, which is on new location, provides ideal access to the Statesville Business Park, making it more attractive for industrial development.
- The quality of the streams that intersect both the new location portion of the project and the widening of the existing roadway will be protected by the NCDOT applying BMPs during construction of the project and by local jurisdictions regulating storm water runoff on a development-by-development basis.

- By relocating the Iredell County portion of US 70, there is more potential for induced growth along this section since the railroad no longer creates a deterrent to development along the north side of the roadway.
- In terms of water quality impacts, since there is a low likelihood of induced growth and thus a minimal increase in impervious surface coverage anticipated, TIP R-2911A-D does not seem likely to cause any deterioration that would not already occur from non-project related growth.

II. PROJECT DOCUMENTATION AND BACKGROUND

As part of TIP R-2911A-D, the North Carolina Department of Transportation (NCDOT) proposes to widen and/or partially relocate US 70 from Fanjoy Road (SR 2318) east of Statesville to about 0.4 miles west of Kepley Road (SR 1953). The total length of the project is 15.7 miles. According to the May 1999 Environmental Assessment, the purpose and need of TIP R-2911A-D is to increase the traffic carrying capacity of US 70 and to improve safety along the entire corridor.

TIP R-2911A-D is divided into four sections. Section A begins at Fanjoy Road (SR 2318) and ends at the Iredell/Rowan County line. For clarification purposes, SR 2318 is called Fanjoy Road north of US 70 and Shiloh Road south of US 70. This section is being designed as a four-lane facility with a 30-foot raised median. As is indicated in Figure 1, Section B will begin at the Iredell/Rowan County line along existing US 70 and end at Main Street (SR 1743). It is proposed as a four-lane facility with a 30-foot raised grass median and grass shoulders. Section C will begin at Main Street (SR 1743) and end at Hilderbrand Road (SR 1739). Section C is proposed as a four-lane facility with an 18-foot median and curb and gutter through the Town of Cleveland, transitioning to a four-lane, 46-foot median section from the east side of Cleveland to Hilderbrand Road (SR 1739). Section D will begin at Hilderbrand Road (SR 1739) and end 0.4 miles west of Kepley Road (SR 1953). It is proposed as a four-lane facility with a 46-foot raised grass median.

The median construction as part of TIP R-2911A-D creates partial control of access along the entire length of the project since left-turning movements will only be provided at median break locations.

Construction of TIP R-2911A-D is scheduled to begin in FY 2003, with Section A being the first to be improved. The last section to start construction is Section B, which is slated to begin after FY 2007. Section C is scheduled for construction in FY 2005, while Section D is scheduled for construction in FY 2004.

III. STUDY AREA BOUNDARIES

Identification of Demographic Area

A demographic area was delineated in order to analyze the population growth trends encompassing the project (see Figure 1). This area is generally bounded by I-77 to the west, Oswalt Amity Road and NC 150 to the south, the western edge of Salisbury to the

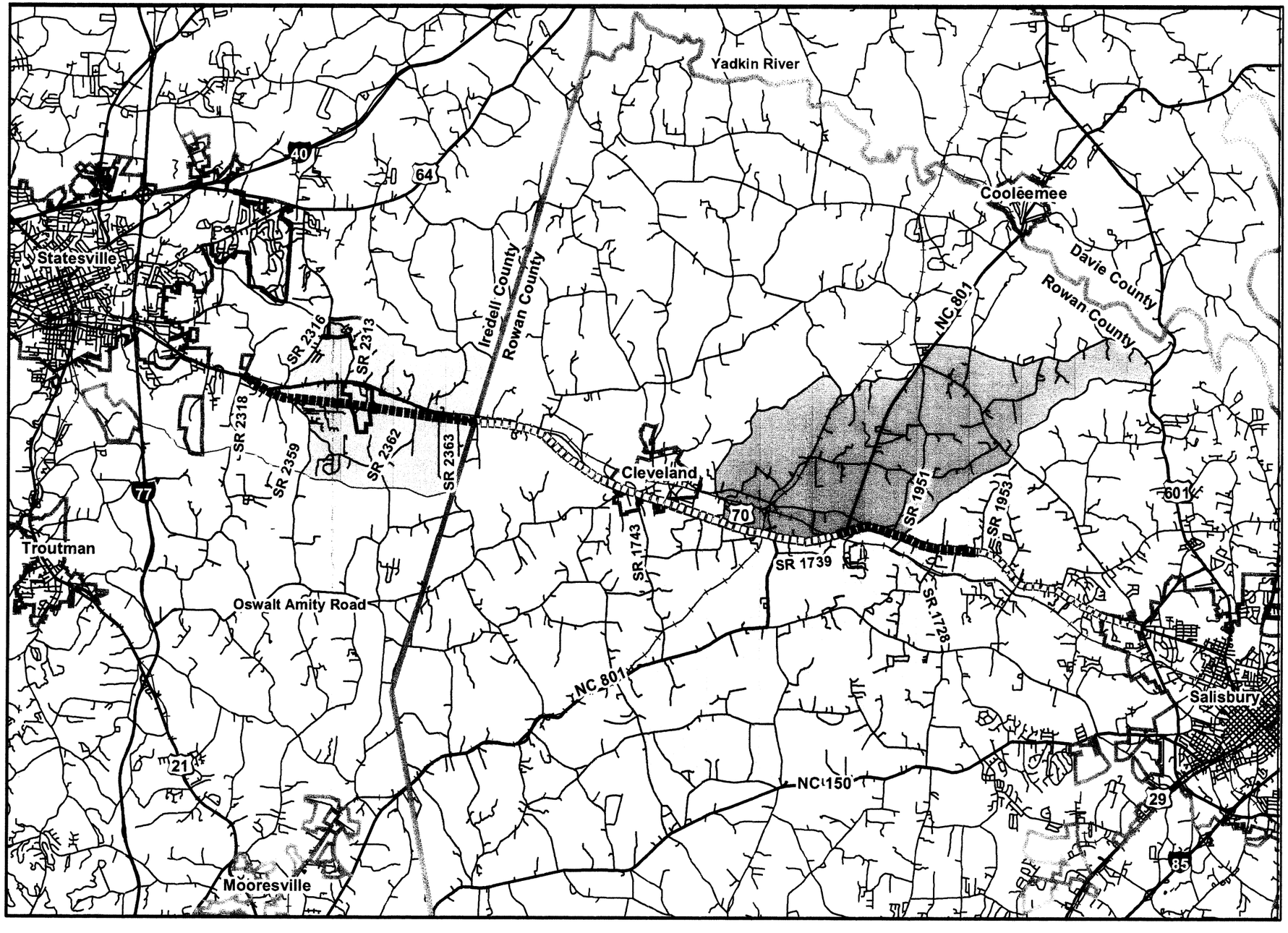

FIGURE 1 - TIP R-2911A-E & DEMOGRAPHIC AREA

- SECTION A
- SECTION B
- SECTION C
- SECTION D
- SECTION E
- HIGHWAY
- ROAD
- RAIL
- CITY LIMITS
- CT 606, BG 2
- CT 606, BG 3
- CT 606, BG 4
- CT 607, BG 5
- CT 607, BG 6
- CT 613, BG 3
- CT 512.02, BG 2
- CT 513.04, BG 2
- CT 519.01, BG 1
- CT 519.01, BG 3
- CT 519.01, BG 4
- CT 519.02, BG 1
- CT 519.02, BG 2

2.5 1.25 0 2.5 Miles

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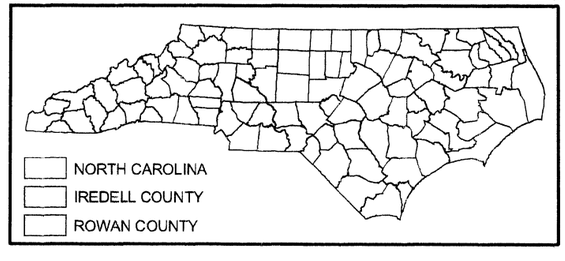
MAP SOURCES:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI)
US CENSUS
IREDELL COUNTY
ROWAN COUNTY



- NORTH CAROLINA
- IREDELL COUNTY
- ROWAN COUNTY

east, and the Yadkin River to the north. The following US Census Bureau Block Groups from 2000 are included in the demographic area for TIP R-2911A-D:

- Census Tract 512.02, Block Group 2
- Census Tract 513.04, Block Group 2
- Census Tract 519.01, Block Group 1, 3, 4
- Census Tract 519.02, Block Group 1, 2
- Census Tract 606, Block Group 2,3,4
- Census Tract 607, Block Group 5, 6
- Census Tract 613, Block Group 3

Identification of the Potential Growth Impact Area

The North Carolina DOT's and North Carolina DENR's *Guidance for Assessing Indirect and Cumulative Impacts of Transportation Projects in North Carolina* indicate that the development effects of a new roadway facility are most often found up to one mile around an interchange, and up to two to five miles along major feeder roadways to the interchange. Based on this research, an initial review of project area conditions, and our own professional judgment, it was determined that the potential for growth impact as a result of TIP R-2911A-D would mostly be within a three-mile radius of the project alignment (see Figure 2). This three-mile radius, referred to as the Potential Growth Impact Area (PGIA), is the area within which the project has the potential to induce land use changes, and will determine the data collection and analysis area, but will not necessarily be the extent of the growth impact that is expected to occur.

IV. IDENTIFY THE STUDY AREA DIRECTION AND GOALS

Regional Influences

The interstate system (I-40, I-75, I-85), Charlotte, Winston-Salem, and Lake Norman have and will continue to influence development decisions within the region surrounding TIP R-2911A-D. According to local planners, it seems likely that existing industries along the US 70 corridor located their facilities where they did because of at least one of these regional influences. The Norfolk Southern railroads, which intersect at NC 801 South and US 70, also have influenced distribution-related industries to locate in this area.

It also should be noted that development historically began to locate along the Yadkin River to take advantage of its transportation benefits. The river meanders its way southeastward, eventually is renamed the Pee Dee River, and reaches the Atlantic Ocean near Georgetown, South Carolina.

Population and Employment

Land use along the US 70 project corridor is predominantly rural with scattered single family residences (mainly large lot and farm houses) and some industrial clusters. Most of the major industrial plants along the corridor are in Rowan County and include Freightliner, located in Cleveland, KoSa, located at the intersection of US 70 and NC 801 N, Meridian, located just west of Second Creek, and Tyco, also located in the Town of

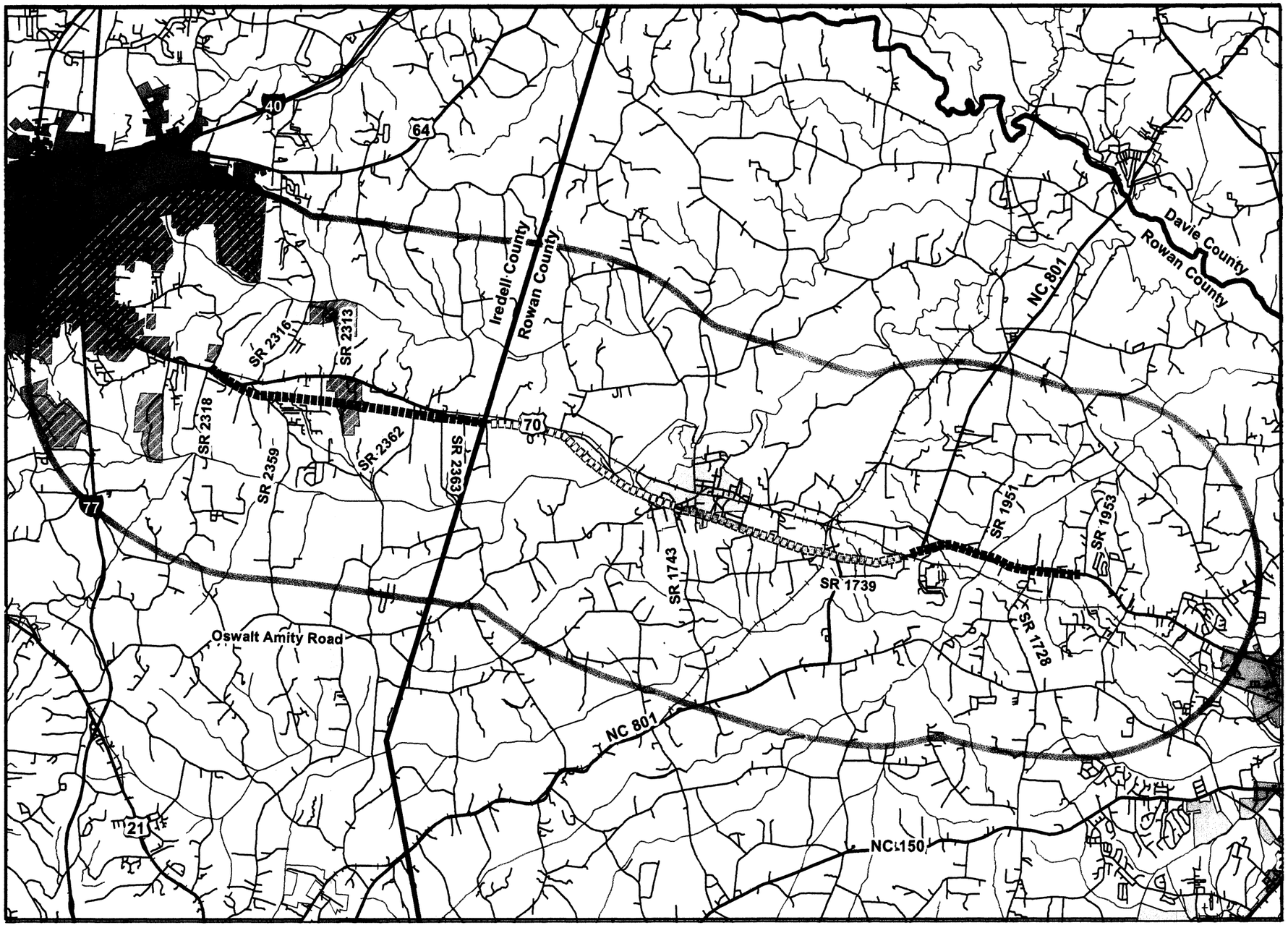


FIGURE 2 - POTENTIAL GROWTH IMPACT AREA

- SECTION A
- SECTION B
- SECTION C
- SECTION D
- HIGHWAY
- ROAD
- RAIL
- RIVER/CREEK
- PGIA
- CLEVELAND
- COOLEEMEE
- MOORESVILLE
- SALISBURY
- STATESVILLE
- TROUTMAN

2.5 1.25 0 2.5 Miles

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MAP SOURCES:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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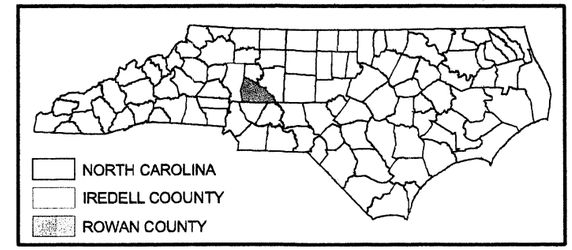
IREDELL COUNTY
ROWAN COUNTY



- NORTH CAROLINA
- IREDELL COOUNTY
- ROWAN COUNTY

Cleveland. Industrial development in Iredell County, mainly in the form of warehousing and distribution facilities, is located along US 70 and the railroad between Triplett Road (SR 2362) and Fanjoy Road (SR 2318), at the western terminus of the project corridor.

US 70 Looking West Near The Intersection Of US 801 North

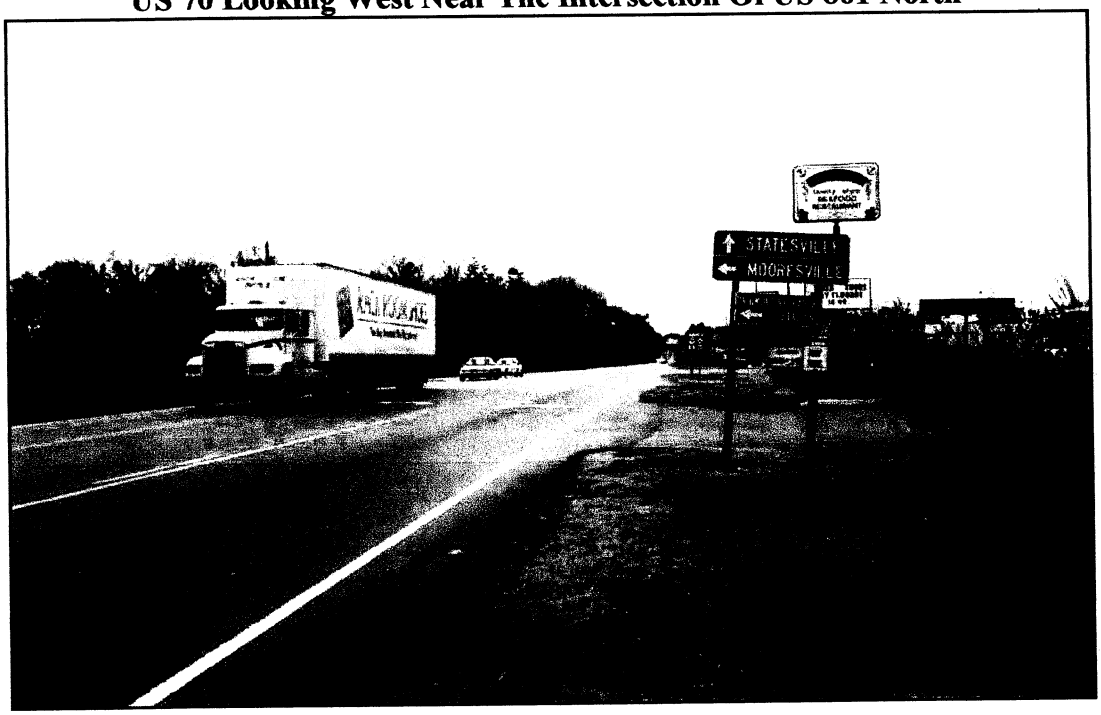


Table 1 indicates population growth trends for the demographic area, Rowan County, Iredell County, and North Carolina. During the 1990s, the demographic area grew more rapidly than both counties and the State. Close proximity to the City of Charlotte, Lake Norman, and the I-77 corridor has spurred much of the growth within Iredell County, while I-85 is the major growth generator in Rowan County. Population growth within the demographic area has mostly been a result of the close proximity to three major interstates (I-77, I-85, I-40), Charlotte, and the Triad, as well as comparably low property taxes. According to local planners, employment growth has also triggered residential development in the area, as workers prefer to be close to their jobs.

Table 1. Population Growth, 1990-2000

	Population		Growth	
Area	1990	2000	#	%
Demographic Area	16,732	22,103	5,371	32.1%
Rowan County	110,605	130,340	19,735	17.8%
Iredell County	92,931	122,600	29,669	31.9%
North Carolina	6,628,637	8,049,313	1,420,676	21.4%

Source: US Census Bureau 1990, 2000

According to data from the North Carolina Employment Security Commission presented in Table 2, Iredell County added 11,933 jobs between 1990 and 2002, resulting in a

29.1% increase. The manufacturing sector lost nearly 3,000 jobs during the 12-year span, while the health care and social assistance sector added over 3,800 jobs. In addition, as a result of the substantial residential growth taking place near Lake Norman, the retail trade sector added the second highest number of jobs (2,720) of all industry sectors in Iredell County, growing by 56.2%.

Table 2. Employment By Sector
Iredell County, 1990-2002

	Employment		Change	
Sector	1990	2002	#	%
Agriculture	258	427	169	65.5%
Mining	N/A	N/A	N/A	N/A
Utilities	152	130	-22	-14.5%
Construction	2,416	3,557	1,141	47.2%
Manufacturing	16,400	13,454	-2,946	-18.0%
Wholesale Trade	1,359	2,127	768	56.5%
Retail Trade	4,838	7,558	2,720	56.2%
Transportation/Warehousing/ Information	1,337	2,259	922	69.0%
FIRE	1,069	1,341	272	25.4%
Professional and Technical Services	444	1,043	599	134.9%
Management of Companies and Enterprises	163	218	55	33.7%
Administrative and Waste Services	1,394	2,495	1,101	79.0%
Educational Services	2,463	3,751	1,288	52.3%
Health Care and Social Assistance	3,292	7,093	3,801	115.5%
Arts, Entertainment, & Recreation	N/A	N/A	N/A	N/A
Accommodation & Food Services	3,009	3,944	935	31.1%
Other Services	899	1,536	637	70.9%
Public Administration	1,574	2,067	493	31.3%
Unclassified	N/A	N/A	N/A	N/A
Total:	**41,067**	**53,000**	**11,933**	**29.1%**

Source: North Carolina Employment Security Commission

Overall, Rowan County employment (14.2%) did not grow as rapidly as Iredell County employment (29.1%) between 1990 and 2002, particularly because of less growth in the construction, retail trade, and public administration sectors (See Table 3). In fact, retail trade actually lost 1,405 jobs during that time period. However, manufacturing

employment did not decrease nearly as much in Rowan County as it did in Iredell County. Among other large industrial facilities located in Rowan County along the US 70 corridor, Freightliner, which employs approximately 3,000 people in the Town of Cleveland, is a likely reason why these sectors are strong compared to Iredell County and the State.

Table 3. Employment By Sector
Rowan County, 1990-2002

	Employment		Change	
Sector	1990	2002	#	%
Agriculture	310	250	-60	-19.4%
Mining	155	203	48	31.0%
Utilities	N/A	N/A	N/A	N/A
Construction	2,050	2,098	48	2.3%
Manufacturing	12,695	11,696	-999	-7.9%
Wholesale Trade	1,293	1,623	330	25.5%
Retail Trade	6,158	4,753	-1,405	-22.8%
Transportation/Warehousing/ Information	1,021	3,133	2,112	206.9%
FIRE	1,038	1,034	-4	-0.4%
Professional and Technical Services	354	882	528	149.2%
Management of Companies and Enterprises	N/A	N/A	N/A	N/A
Administrative and Waste Services	831	1,333	502	60.4%
Educational Services	3,279	4,000	721	22.0%
Health Care and Social Assistance	4,622	6,359	1,737	37.6%
Arts, Entertainment, & Recreation	274	476	202	73.7%
Accommodation & Food Services	2,334	3,157	823	35.3%
Other Services	813	1,415	602	74.0%
Public Administration	2,031	2,419	388	19.1%
Unclassified	N/A	N/A	N/A	N/A
Total:	**39,258**	**44,831**	**5,573**	**14.2%**

Source: North Carolina Employment Security Commission

Employment as a whole in North Carolina grew by 21.7% between 1990 and 2002, led by the addition of 178,394 jobs in the health care and social assistance industry sector. North Carolina's manufacturing sector lost nearly a quarter (21.5%) of its work force during the same timeframe, compared to the counties which encompass TIP R-2911A-D losing only 7.9% (Rowan County) and 18% (Iredell County). Fueled by overall

employment growth at Freightliner, Rowan County's transportation sector grew by 206.9% (2,112 employees), and the manufacturing sector only lost 7.9% of its workforce, compared to a 21.1% decrease within the State.

Freightliner Plant Along US 70 in Cleveland

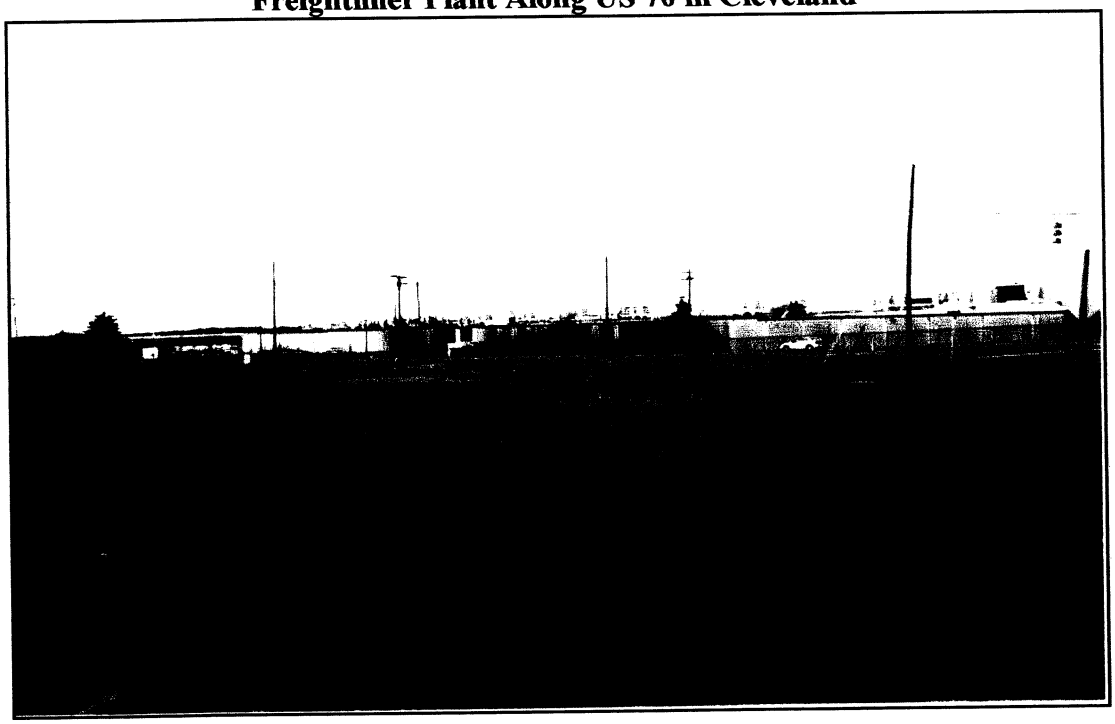


Table 4. Employment By Sector
North Carolina, 1990-2002

Sector	Employment		Change	
	1990	2002	#	%
Agriculture	21,827	31,376	9,549	43.7%
Mining	3,993	4,203	210	5.3%
Utilities	27,287	15,447	-11,840	-43.4%
Construction	166,733	219,036	52,303	31.4%
Manufacturing	820,249	643,978	-176,271	-21.5%
Wholesale Trade	139,697	162,233	22,536	16.1%
Retail Trade	381,041	442,878	61,837	16.2%
Transportation/Warehousing/ Information	161,308	213,393	52,085	32.3%
FIRE	135,534	184,990	49,456	36.5%
Professional and Technical Services	91,327	148,043	56,716	62.1%
Management of Companies and Enterprises	35,104	63,565	28,461	81.1%

Administrative and Waste Services	110,979	209,753	98,774	89.0%
Educational Services	233,161	317,043	83,882	36.0%
Health Care and Social Assistance	261,592	439,986	178,394	68.2%
Arts, Entertainment, & Recreation	31,090	50,554	19,464	62.6%
Accommodation & Food Services	206,014	288,201	82,187	39.9%
Other Services	80,279	98,844	18,565	23.1%
Public Administration	171,716	214,079	42,363	24.7%
Unclassified	N/A	N/A	N/A	N/A
Total:	**3,078,931**	**3,747,602**	**668,671**	**21.7%**

Source: North Carolina Employment Security Commission

Land Use

Iredell County

The dominant land use along the US 70 corridor in Iredell County is industrial. There are basically four industrial clusters: an area along the north side of US 70 between Fanjoy Road (SR 2318) and Bell Farm Road (SR 2316), an area along the south side of US 70 (includes Statesville Business Park), a mixed-use site on the north side of US 70 directly across from the Statesville Business Park, and a smaller area on the north side of US 70 at Knox Farm Road (SR 2363) and at the county line.

Existing residential clusters along this stretch of US 70 in Iredell County are predominantly located south of the corridor along Bethesda Road (SR 2359), Triplett Road (SR 2362), and Knox Farm Road (SR 2363), with the exception being the Oakcreek community located along Bell Farm Road (SR 2316) north of US 70.

Iredell County recently completed the US 70 East Corridor Future Land Use Report 2002-2003. There are five core elements within the report that are expected to guide development along the corridor which are as follows:

1. A primary industrial area anchored by the Statesville Business Park that is oriented to the proposed relocated US 70 south of existing US 70
2. A proposed shopping center in the triangle formed by the convergence of the existing and proposed US 70
3. A proposed secondary convenience shopping center located east of Triplett Road (SR 2362) between the existing and proposed US 70
4. A "transitional" area just east of Bell Farm Road (SR 2316), including 267 acres along John Long Road (SR 2313) proposed for Planned Unit Development use (purple area indicated in Figure 3)
5. Two conditional use sites: the former Wayside School and the southeast quadrant of existing US 70 and Shiloh Road (SR 2318)

FIGURE 3 - EXISTING ZONING

SECTION A
SECTION B
SECTION C
SECTION D
HIGHWAY
ROAD
RAIL
RIVER/CREEK
PGIA
MUNICIPALITIES

STATESVILLE
AIRPORT
COMM
MF
IND/OFFICE
SF

IREDELL CO
TOWN/CITY
IND
MIXED-USE
MF
COMM
SF

ROWAN CO
IND
MF
COMM
SF

2.5 1.25 0 2.5 Miles

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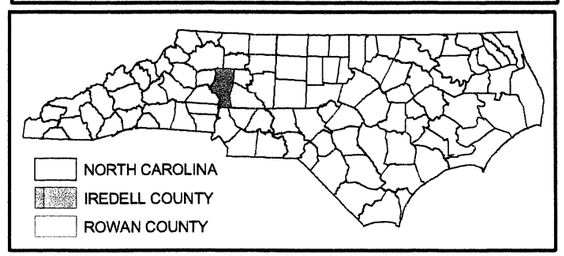
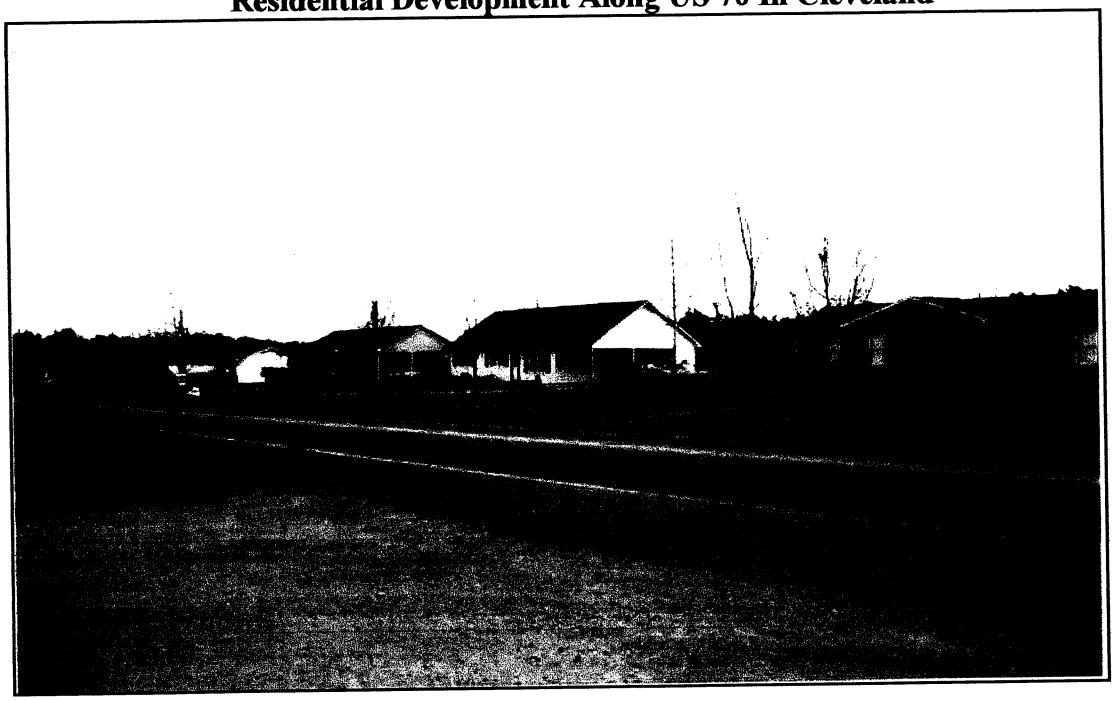
MAP SOURCES:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI)
CITY OF STATESVILLE
ROWAN COUNTY
IREDELL COUNTY



Rowan County
Unlike Iredell County, Rowan County does not have a land use plan. Existing land use along the US 70 project corridor is characterized by scattered single family and large, campus-style industrial plants. Along the US 70 corridor within the Town of Cleveland, land uses include a mix of industrial, single family, limited commercial, and institutional uses (schools and churches).

Neither Statesville nor Cleveland have land use plans indicating future land use in specific locations.

Residential Development Along US 70 In Cleveland



Zoning

City of Statesville
Zoning along both sides of US 70 west of TIP R-2911A-D to I-77 in Statesville is predominantly office/industrial (light blue area indicated in Figure 3). There are a number of existing distribution and warehouse facilities that are able to take advantage of the close proximity to the railroad, which runs parallel to US 70 and I-77 and is less than a mile to the west. In addition, the Statesville Waste Water Treatment Plant is located at the intersection of Bell Farm Road (SR 2316) and John Long Road (SR 2313) to the north of existing US 70. The Statesville Business Park at US 70 and Business Park Road (see Figure 3) which is currently under construction, is bisected by the proposed new location portion of TIP R-2911A-D.

Iredell County
As it relates to Section A of TIP R-2911A-D, single family residential is the most common zoning designation in the Iredell County portion of the PGIA (see Figure 3). Along the project length, zoning is comprised of a mixture of single family residential,

manufacturing, and office/industrial. There is a 267-acre tract of land located to the north of existing US 70, bisected by John Long Road (SR 2313) that is zoned for Planned Unit Development (mixed-use), which would include residential, shopping, and public uses. In addition, the new location portion of TIP R-2911A-D bisects an existing industrial area that includes the Poly One and Purina Mills plants located just west of the previously mentioned Statesville Business Park at US 70 and Business Park Road.

Rowan County

As it relates to Sections B-D of TIP R-2911A-D, zoning in unincorporated Rowan County is only focused in existing and future growth areas, with the remainder of the county unzoned (basically designated as rural/agricultural; see white area throughout most of county in Figure 3). There is a very low growth area west of the Town of Cleveland along US 70 that does not have any zoning designations, other than a small pocket of industrial and residential near the Rowan/Iredell County border. Land immediately fronting US 70 east of Cleveland, predominantly along the NC 801 North and South corridors, is a mix of single family residential and industrial zoning, with a number of large, campus-like manufacturing plants located among scattered, large-lot single family homes. Further east, approaching the Town of Salisbury, land is mostly zoned for commercial uses with some pockets of single family residential.

Transportation Plans

TIP R-2911A-D is identified in the 2004-2010 North Carolina Transportation Improvement Program as being in the design phase. R-2911E, the section closest to Salisbury, is actually in the right-of-way acquisition phase since it is the first segment of the entire R-2911 project to be built. This section extends from 0.4 miles west of Kepley Road (SR 1953) to US 601 in Salisbury. Cumulatively, TIP R-2911A-E should make the US 70 corridor between Salisbury and Statesville even more attractive for new development, particularly commercial. Traffic along US 70 coming from either I-77 or I-85 will never need to drive on a two-lane section of roadway, making travel faster and safer.

The 1997-2007 Iredell County Land Use Plan provides recommendations from the Iredell County Thoroughfare Plan, adopted in 1993, for the Iredell County portion of US 70. According to the document, US 70 from the eastern boundary of Statesville to Rowan County "is quickly reaching capacity and is scheduled for a feasibility study and/or right-of-way protection for a multi-lane cross section between I-77 in Statesville and US 601 in Salisbury...". Because of growth and capacity issues, the Iredell County Thoroughfare Plan recommends a "four-lane divided cross section with a grass median" for this section of US 70.

The March 2000 Rowan County Thoroughfare Plan and Report, which also provides recommendations for the Town of Cleveland along US 70, identifies US 70 from the western edge of the Salisbury Planning Area Boundary (just east of Parks Road (SR 1951)) to Iredell County as a principal arterial. The section east of Parks Road (SR 1951) is designated as a major thoroughfare. The plan recognizes TIP R-2911 as a system need, stating "There are numerous driveways along the facility, and a projected truck

percentage as high as ten percent. The widening will help with the driveway turn movements and increase safety along the facility."

Environmental Regulations

In addition to local land use and zoning policies, there are some State-related environmental regulations that will also affect the amount and location of growth along the US 70 corridor with or without TIP R-2911A-D. As shown in Figure 4, a small portion of the WS-II Back/Sloans Creek Water Supply Watershed (WSW) is located within the PGIA. Development regulations within this class of water supply watershed include the following:

Critical Area:
- A maximum of one dwelling unit per two acres, or 6% built-upon area for the low density option;
- A maximum of 6%-24% built-upon area for the high density option, with requirements to control for the 1" storm;
- 10/70 provision is not allowed;
- No new landfills; and
- Agriculture Best Management Practices (BMPs) are required.

Protected Area:
- A maximum of one dwelling unit per acre, or 12% built-upon area for the low density option;
- A maximum of 12%-30% built-upon area for the high density option, with requirements to control for the 1" storm;
- 10/70 provision is allowed;
- New landfills are allowed; and
- Agriculture BMPs are not required.

As is indicated in Figure 4, the boundaries for the WS-IV Lake Norman WSW, the WS-IV South Yadkin River WSW, and the WS-IV Yadkin River WSW are all outside of the PGIA and should have no influence over development potential.

In addition to the water supply watersheds, there is one 303(d) listed impaired creek located within the PGIA. Fourth Creek, which flows from west of Statesville near the Iredell County border with Alexander County to the Yadkin River (which forms the border between Davie and Rowan Counties), is listed on the federal 303(d) impaired creeks list. However, only the 9 ½-mile section of the creek from the Iredell County line to the Yadkin River is considered impaired (see Figure 4). The cause of impairment is defined as "fecal coliform", with the potential source listed as agriculture. Mitigation efforts to remove this creek from the 303(d) list are considered a low priority. Any development that may occur as a result of TIP R-2911A-D will be required to include adequate storm water drainage controls (BMPs) to minimize the further degradation of this creek.

FIGURE 4 - WATER SUPPLY WATERSHEDS & 303(d) IMPAIRED WATER BODIES

- SECTION A
- SECTION B
- SECTION C
- SECTION D
- HIGHWAY
- ROAD
- RAIL
- RIVER/CREEK
- PGIA
- IMPAIRED CREEK/STREAM
- WS-II BACK/SLOANS CREEK
- WS-IV LAKE NORMAN
- WS-IV SOUTH YADKIN RIVER
- WS-IV YADKIN RIVER

2.5 1.25 0 2.5 Miles

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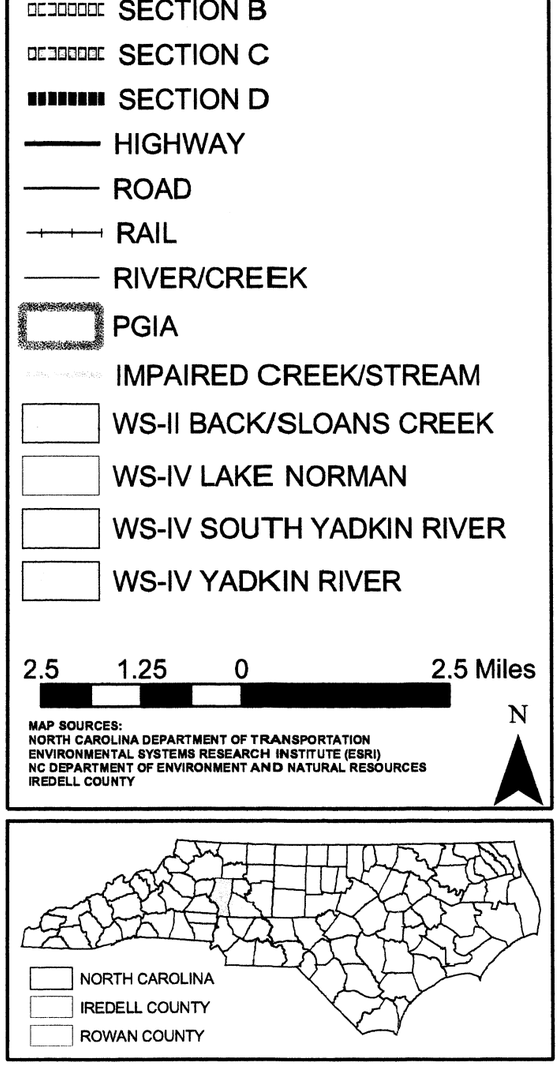
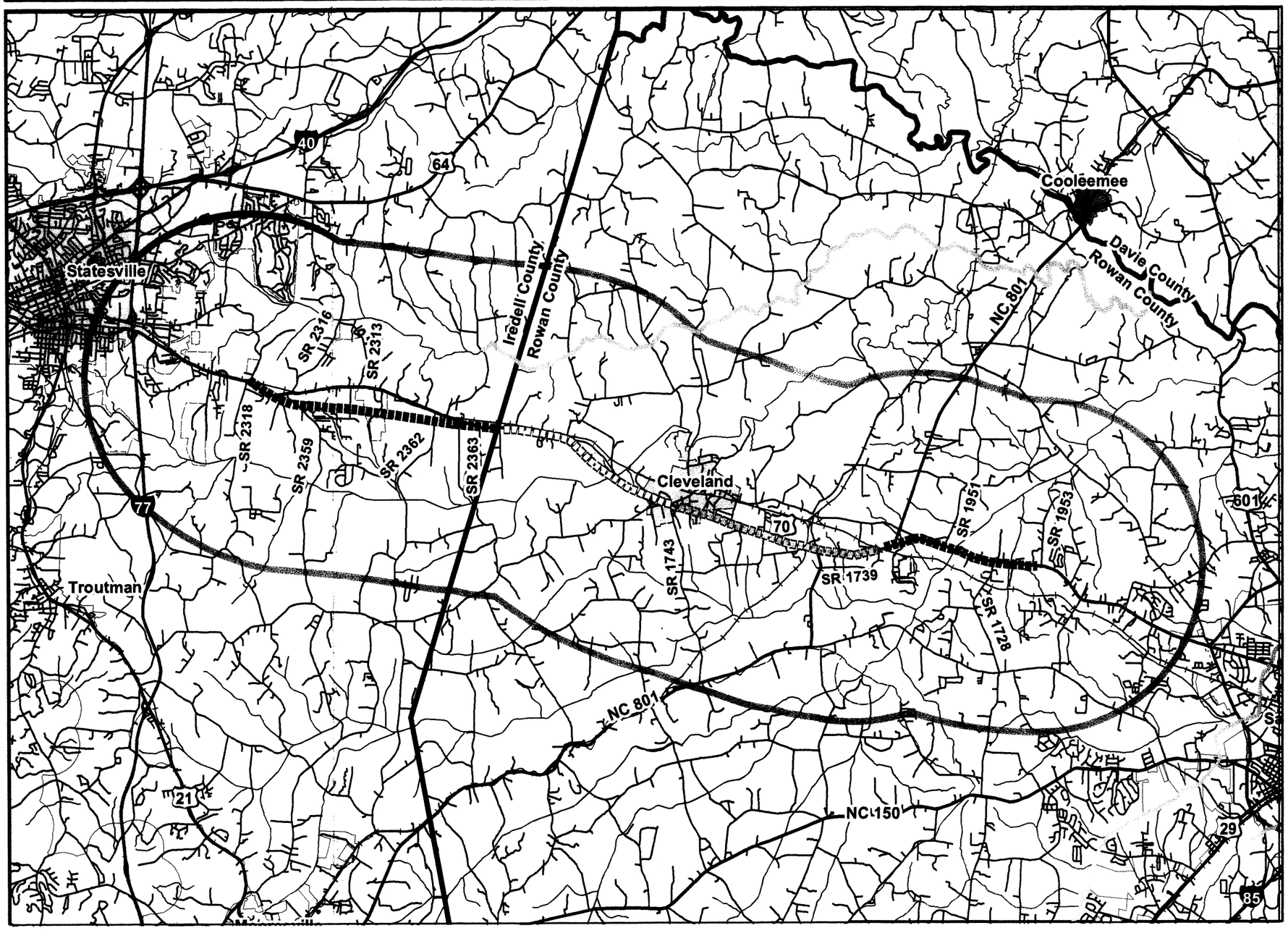
MAP SOURCES:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI)
NC DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
IREDELL COUNTY





V. INVENTORY OF NOTABLE FEATURES

The following tables list the notable features that are, or potentially could be, located within the PGIA. Some of the sources are not as specific as others in terms of location; therefore, it is not certain whether or not the feature could be impacted by TIP R-2911A-D.

Table 5. Federally-Listed Species, US 70 Corridor

Group	Scientific Name	Common Name	Federal Status	State Status	Quad(s)
Animal	Glyptemys Muhlenbergii	Bog Turtle	Either very rare and local throughout its range, or found locally in a restricted area	Threatened	Statesville East, Cleveland, Shepherds, Cool Springs
Animal	Pseudiron Centralis	White Sand-River Mayfly	Demonstrably secure globally, although it may be quite rare in parts of its range	Significantly Rare	Statesville East
Animal	Dibusa Angata	Caddisfly	Unranked or rank uncertain	Unranked or rank uncertain	Cool Springs
Animal	Homoeoneuria Cahabensis	Sand-Filtering Mayfly	Imperiled globally because of rarity or otherwise vulnerable to extinction in its range	Significantly Rare	Cool Springs
Animal	*Haliaeetus Leucocephalus	Bald Eagle	Threatened	N/A	N/A
Plant	Gnaphalium Hellerivar Helleri	Heller's Rabbit Tobacco	Secure globally, although it may be quite rare within its range	Significantly Rare-Peripheral	Cool Springs
Plant	Magnolia Macrophylla	Bigleaf Magnolia	Demonstrably secure globally, although it may be quite rare in parts of its range	Significantly Rare-Peripheral	Statesville East, Shepherds
Plant	*Helianthus Schweinitzii	Schweinitz's Sunflower	Endangered	N/A	N/A

Source: North Carolina Natural Heritage Program
* Listed in Environmental Assessment, 1999

Table 6. Natural Communities, US 70 Corridor

Group	Name	Federal Status	Quad(s)
Natural Community	Mesic Mixed Hardwood Forest	Demonstrably secure globally, although it may be quite rare in parts of its range	Statesville East, Shepherds, Cool Springs
Natural Community	Basic Oak - Hickory Forest	Secure globally, although it may be quite rare in parts of its range	Statesville East, Rowan Mills, Cleveland
Natural Community	Dry Oak - Hickory Forest	Demonstrably secure globally, although it may be quite rare in parts of its range	Cleveland, Rowan Mills
Natural Community	Piedmont Monadnock Forest	Demonstrably secure globally, although it may be quite rare in parts of its range	Cleveland, Rowan Mills
Natural Community	Upland Depression Swamp Forest	Either very rare and local throughout its range, or found locally in a restricted area	Cleveland, Rowan Mills
Natural Community	Xeric Hardpan Forest	Either very rare and local throughout its range, or found locally in a restricted area	Cleveland
Natural Community	Dry Mesic Oak - Hickory Forest	Demonstrably secure globally, although it may be quite rare in parts of its range	Cool Springs
Natural Community	Low Elevation Seep	Secure globally, although it may be quite rare in parts of its range	Cool Springs
Natural Community	Piedmont Coastal Plain Heath Bluff	Secure globally, although it may be quite rare in parts of its range	Cool Springs

Source: North Carolina Natural Heritage Program

Table 7. Architectural Features and Historic Sites
Potential Growth Impact Area

Name	Address	Status
*Wood Fleming House	US 70 and SR 1801	Eligible for National Register of Historic Places
*Cameron Presbyterian Church	US 70	Eligible for National Register of Historic Places
Bethesda Presbyterian Church	SR 2359, Houstonville	National Register of Historic Places
Farmville Plantation	SR 2362, Elmwood	National Register of Historic Places
Hall Family House	NC 801, Bear Poplar	National Register of Historic Places
John Phifer Farm	Phifer Road and SR 1978, Cleveland	National Register of Historic Places
Knox Farm Historic District	Knox and Amity Rds, Cleveland	National Register of Historic Places
Knox-Johnstone House	100 Beaumont Farm Rd, Cleveland	National Register of Historic Places
Third Creek Presbyterian	SR 1973, Cleveland	National Register of Historic Places
Waddle-Click Farm	SR 2309, Statesville	National Register of Historic Places
Wood Grove	SR 1743, Bear Poplar	National Register of Historic Places

Source: North Carolina Department of Transportation – Statewide Planning Division (June 2003)
* Listed in Environmental Assessment, 1999

Table 8. Solid Waste Facilities

Facility Name	Location	Type	Lined
Iredell County C&D Unit	SR 2319, Iredell County	Construction and Demolition Landfill	No

Source: NC Department of Environment and Natural Resources

Table 9. Underground Storage Tanks, TIP R-2911A-D

UST Facility ID	Section of TIP R-2911	Name/Location
0-032884	A	Roton's BP/106 Nabor's Road
0-023056	A	Wayside Markit/2353 Salisbury Road
0-034242	A	Stop-A-Lot #1, 3062 Salisbury Road
0-010424	A	Elmwood Grocery & Service, Hwy. 70 Rt. 1
Unknown	A	Abandoned Gas Station/Rt. 1
0-031675	B	B & D Superette/1821 Statesville Blvd.
0-019421	C	Padgett's BP Service/11498 Statesville Blvd.
0-019429	C	Knight Oil Co./P.O. BOX 98
0-022023	C	Community Grocery/11260 Statesville Blvd.
0-021873	C	The Quick Sack/9850 Statesville Blvd.
Unknown	C	Abandoned Auto Repair Shop/Hwy. 70, Rt. 1
0-024468	C	West Rowan Automotive/US 70-US 801
0-019428	C	W. Rowan Restaurant & Grocery/Hwy. 70, Rt. 1

Source: Environmental Assessment, 1999

Based on the review of a GIS shapefile acquired from the NCDOT Statewide Planning Branch, there are no superfund sites located within the Potential Growth Impact Area of TIP R-2911A-D.

VI. IDENTIFY ACTIVITIES THAT CAUSE EFFECTS

Previous Conclusions

Environmental Assessment (EA)

According to the May 1999 Environmental Assessment (EA), the preferred alternative for TIP R-2911A-D will not adversely affect two eligible historic properties: the Wood Fleming House, located on the south side of US 70 at SR 1801 west of Cleveland, and Cameron Presbyterian Church, with property located on both sides of US 70 about one half mile west of Elmwood Road (SR 2362).

Furthermore, the EA concluded that construction of TIP R-2911A-D will result in impacts to water resources. These impacts will be restricted to the project construction phase only, with BMP's to be strictly enforced during the entire life of the project. In addition, the document states that no adverse effect on any federally endangered or threatened species is anticipated as a result of TIP R-2911A-D.

Finding of No Significant Impact (FONSI)
A Finding of No Significant Impact (FONSI) report was completed in December 2000. The document (which includes findings for Sections A-E of TIP R-2911) concludes that anticipated impacts will affect a total of 6,537 feet of surface water and 2.92 acres of wetlands within the right-of-way. All other findings are consistent with those that are found within the 1999 Environmental Assessment.

VII. IDENTIFY POTENTIAL INDIRECT AND CUMULATIVE EFFECTS FOR ANALYSIS

In the April 2001 handbook titled *"Guidance for Assessing Indirect and Cumulative Impacts of Transportation Projects in North Carolina"*, the North Carolina DOT outlines a set of factors that need to be evaluated to determine whether or not any further analysis regarding indirect and cumulative impacts is needed.

The following is an assessment of those factors as they relate to TIP R-2911A-D:

Conflict with local plan:
As was mentioned earlier in this report, TIP R-2911A-D is consistent with the thoroughfare plans for both Iredell and Rowan counties. It is also consistent with the land use plan and zoning for Iredell County. Rowan County planners see the US 70 corridor as a commercial/employment corridor, which would seem to encourage transportation projects such as TIP R-2911A-D.

Explicit economic development purpose:
Based on our findings and discussions with local planners, there does not appear to be any explicit economic development purpose for TIP R-2911A-D. Any economic development that takes place as a result of the project would be beneficial to both counties, yet the project itself is not being built as an incentive for business/industry to locate along the US 70 corridor. Commercial development has already occurred, and continues to occur, despite the roadway predominantly being only two lanes.

Planned to serve specific development:
Based on our findings, TIP R-2911A-D is not being built to serve a specific development. The current facility is used by local residents, through-traffic, and a number of different industries located along the corridor. Because of this, the project would not benefit or adversely affect any specific development, but rather the community as a whole. It would, however, allow for more efficient travel to and from I-85 and I-77 for the abundance of truck traffic originating from the Freightliner plant in the Town of Cleveland. It would also improve travel time for vehicles that currently have to travel behind slow-moving trucks, and provide for safer passing movements.

Likely to stimulate land development having complementary (to highway-related travel) functions:
The assessment of this factor partially involves an evaluation of a subset of factors commonly used to determine the potential for induced growth surrounding rural intersections including:

- Distance to a major urban center
- Traffic volumes on intersecting roadways
- Presence of frontage roads/Access control
- Availability of water/sewer

TIP R-2911A-D is located approximately halfway between Charlotte to the south and Winston-Salem to the north, with about 42 miles separating both cities from the project area. Based on discussions with local planning agencies, most of the growth related to Charlotte extends to southern Rowan County, and most of the growth related to Winston-Salem extends to southern Davie County. In addition, US 70 is an east-west route in this area, while both Charlotte and Winston-Salem are located to the south and north. This situation makes it less likely that development would occur along US 70 solely as a result of the proximity to these two urban centers.

According to the NCDOT Office of Statewide Planning, the following are the Year 2001 traffic volumes on major intersecting roadways from east to west:

1. **SR 1953** – 430 ADT
2. **SR 1951** – 1,300 ADT
3. **NC 801 N** – 3,300 ADT
4. **NC 801 S** – 4,300 ADT
5. **SR 1743** – 1,900 ADT
6. **SR 2362** – 1,400 ADT
7. **SR 2316** – 3,200 ADT
8. **SR 2359** – 3,300 ADT
9. **SR 2318 N** – 1,300 ADT
10. **SR 2318 S** – 1,700 ADT

Generalized ADT LOS calculations produced by the Florida Department of Transportation's (FDOT) software QLOS, and based on HCM methodologies, show that daily traffic capacity for this type of roadway is approximately 10,500 vehicles.

No frontage roads are proposed for TIP R-2911A-D, and access is basically going to be dictated by the proposed medians, which will limit left-turning movements to major intersections and destinations along the corridor.

Water and sewer service is only available in the extreme western portion of the PGIA within the City of Statesville, and within the Town of Cleveland which is located in the middle of the PGIA.

Likely to influence intraregional land development location decisions:
Typically, if the conditions are favorable for development and/or a region is currently undergoing urbanization, an improvement in the transportation infrastructure is likely to influence where development will occur. In this circumstance, conditions within the majority of the PGIA are not favorable for development (moderate growth, lack of water/sewer service, limited destinations), and this portion of Rowan and Iredell Counties is not undergoing urbanization.

Notable feature present in PGIA:
According to the EA, there are no federally endangered or threatened species within the project's impact area as defined by that document, nor are there any federally designated historic properties or districts (although there are two *eligible* historic properties listed in

the EA), located within the PGIA. Furthermore, there are no notable water resources (other than a small portion of the 303(d) impaired Third Creek), within the PGIA.

VIII. ANALYZE INDIRECT AND CUMULATIVE EFFECTS

Potential for Land Use Change

To further justify the determination that indirect and cumulative impacts would not be likely as a result of TIP R-2911A-D, an analysis of a set of quantitative factors was completed. This analysis helps to determine the likelihood of anticipated indirect and cumulative impacts related to the project. Table 10 below indicates the results of this rating analysis:

Table 10. Potential For Land Use Change, 2000-2020

Rating	Change in Accessibility	Change in Property Values	Forecasted Growth	Land Supply vs. Land Demand	Water/ Sewer Availability	Market For Development	Public Policy
Strong	Travel Time Savings > 10 min.	> 50% Increase	> 3% Annual Pop. Growth	< 10-Year Supply of Land	Current Services Exist	Extremely High Potential	Pro-Growth
^							
"	X		X				X
"							
"		X			X	X	
"				X			
Weak	Travel Time Savings < 10 min.	No Change	< 1% Annual Pop. Growth	> 20-Year Supply of Land	No Plans For Future Service	Extremely Low Potential	Anti-Growth

Because of the addition of a grass median ranging from 18 to 46 feet along most of the project length, accessibility to much of the land along the US 70 corridor would be limited to right turn movements only. Full access is granted at certain intersections where median breaks are proposed, including but not limited to the following signalized intersections:

- SR 1728
- NC 801 North
- NC 801 South
- SR 1001 (Amity Hill Road)
- SR 1743 (Main Street)

In addition to the partial control of access proposed for R-2911A-D, two more lanes in each direction throughout the project length will improve travel time savings. With a higher speed limit, slow-moving truck traffic becoming more easily passable, and left

turns being limited to median break intersections, travel time savings should approach the ten minute level.

Section A of TIP R-2911A-D is on new location, which improves access to land that was previously limited in terms of its access to major thoroughfares. Because of this situation, property values should increase for the parcels along this section of the project. However, land along the remaining sections B-D already have access to existing US 70, which is proposed to be widened to four lanes. Parcels along these portions of TIP R-2911A-D should experience some property value escalation because of the improved mobility the additional lanes provide. However, these parcels will also be limited in terms of access to the facility as a result of the proposed median, which should limit the increase of property values. Any property value escalation along the US 70 corridor is probably more a function of increased development activity in the area, rather than the potential widening of US 70.

Demographic area growth is healthy, with population growing at a rate of 32.1% from 1990 to 2000, equating to approximately 3% a year. Iredell County as a whole grew similarly, while Rowan County only grew by 17.8% during the 1990s. A population growth forecast was not conducted for the demographic area, although the North Carolina Office of State Budget and Management forecasts a growth rate of 25.5% for Iredell County between 2000 and 2010, and a growth rate of 15.8% for Rowan County during the same timeframe.

With respect to land supply along the TIP R-2911A-D project corridor, most of the land within the PGIA is currently undeveloped and available for new development. Because of the substantial amount of available land and current lack of market activity, the build-out within this area should extend well beyond the next 20 years, as urbanization pressures from Statesville and Salisbury, as well as Charlotte, Winston Salem, and High Point begin to take hold.

Water and sewer service within the PGIA is limited to the City of Statesville and the Town of Cleveland. In addition, there is a sewer line that extends along US 70 to the Statesville Business Park, and a sewer line that extends to the Wastewater Treatment Plant north of US 70 along Bell Farm Road.

There has been very little development activity along the rural-natured US 70 corridor within recent years. Local public policy does not discourage development from occurring as long as it abides by the land use and zoning plans for the area. According to local planners, there is no new development under construction or proposed along TIP R-2911A-D, although the Statesville Business Park is actively marketing sites within its boundaries for distribution/light manufacturing facilities.

When combined with Section E of TIP R-2911, TIP R-2911A-D will create a more efficient connection between I-77 in Iredell County and I-85 in Rowan County, making the corridor a more desirable location for industry. In addition, the entire TIP R-2911 project encourages the cities of Statesville and Salisbury to grow eastward and westward,

respectively, while the Town of Cleveland also becomes more accessible from both directions.

Identification of the Impact Area

The potential location of induced growth for TIP R-2911A-D was identified by eliminating undevelopable lands within the PGIA, such as already built-up areas, floodplains, and steep topography. Areas were then determined where travel time savings are most likely to occur as a result of the project. The availability of water/sewer, the existing transportation network (growth corridors), existing zoning, and proposed land use also influenced the determination of the where this growth may occur.

Figure 5 indicates the general boundaries of where induced growth resulting from TIP R-2911A-D should occur. Already built-up light industrial areas along the US 70 corridor in Statesville were not included within this area. Land along Twin Oaks Road and S. Greenbriar Road to the north of US 70, and also along Shiloh Church Road (SR 2318) and Third Creek Road (SR 2522) to the south of US 70 was included because of the direct access provided as well as the presence of existing sewer and/or water lines. In addition, the boundaries were extended along Bell Farm Road (SR 2316), an intersecting roadway that carries traffic to and from US 64. US 64 also provides the only railroad grade separation crossing along this section of US 70.

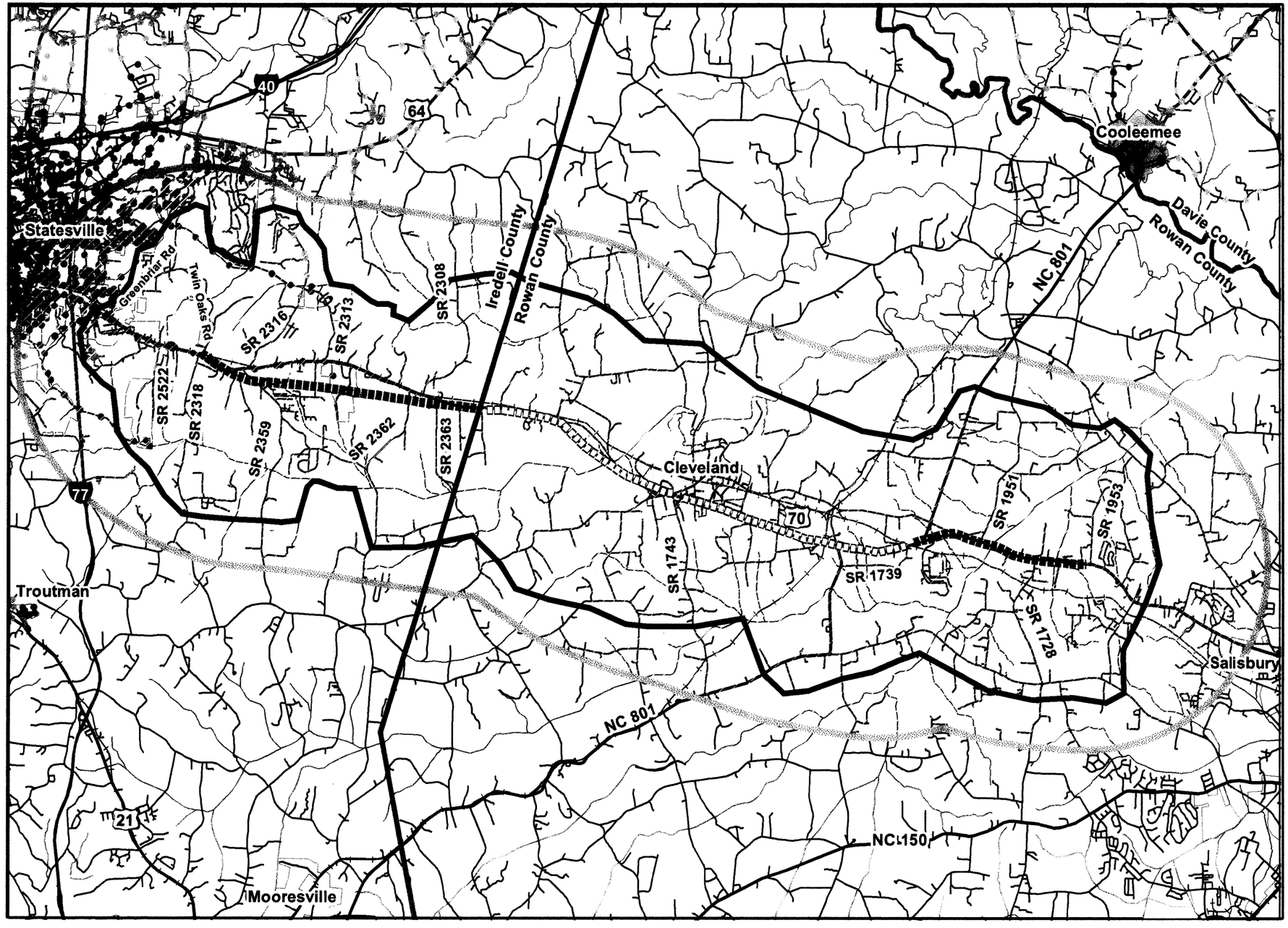
Induced growth is likely to occur approximately two miles along Bethesda Road (SR 2359), Triplett Road (SR 2362), and Knox Farm Road (SR 2363) to the south of TIP R-2911A-D, while only a mile or so along Elmwood Road (SR 2308) to the north of US 70. This is due to the fact that most of the impact of the new location section of TIP R-2911A-D is more likely to take place south of the project because land to the north would still be more directly accessible by existing US 70. Also, this land is closer to the high growth areas of both counties.

In Rowan County, the same philosophy holds true, as land along major feeder roadways is more likely to be impacted because of the direct access they provide. In particular, NC 801, which provides north-south access from the Winston-Salem area to the Lake Norman area, should become more attractive to new development with the completion of TIP R-2911A-D. Potential induced growth areas to the east of the project terminus in Rowan County at SR 1953 extend approximately two miles along the US 70 corridor, before most of the land becomes built-up near Salisbury.

IX. EVALUATE ANALYSIS RESULTS

TIP R-2911A-D is located along a predominantly rural corridor connecting two relatively large towns and interstate highways. According to NCDOT, the main purpose of the project is to improve the mobility of automobiles and trucks traveling to and from these destinations. For sections B-D, adding two lanes in each direction should not drastically impact the amount of growth, both residential and commercial, that will occur along US 70 and its intersecting roadways. The lack of public infrastructure (water/sewer), partial

FIGURE 5 - IMPACT AREA

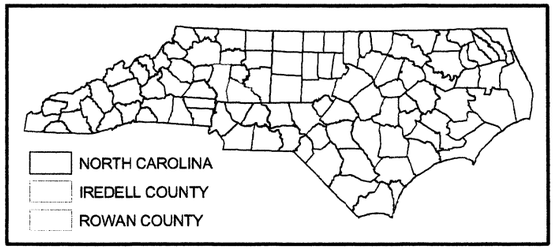


- SECTION A
- SECTION B
- SECTION C
- SECTION D
- HIGHWAY
- ROAD
- RAIL
- RIVER/CREEK
- SEWER LINES
- WATER LINES
- PGIA
- IMPACT AREA

2.5 1.25 0 2.5 Miles

N

MAP SOURCES:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI)
NC DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
IREDELL COUNTY
ROWAN COUNTY

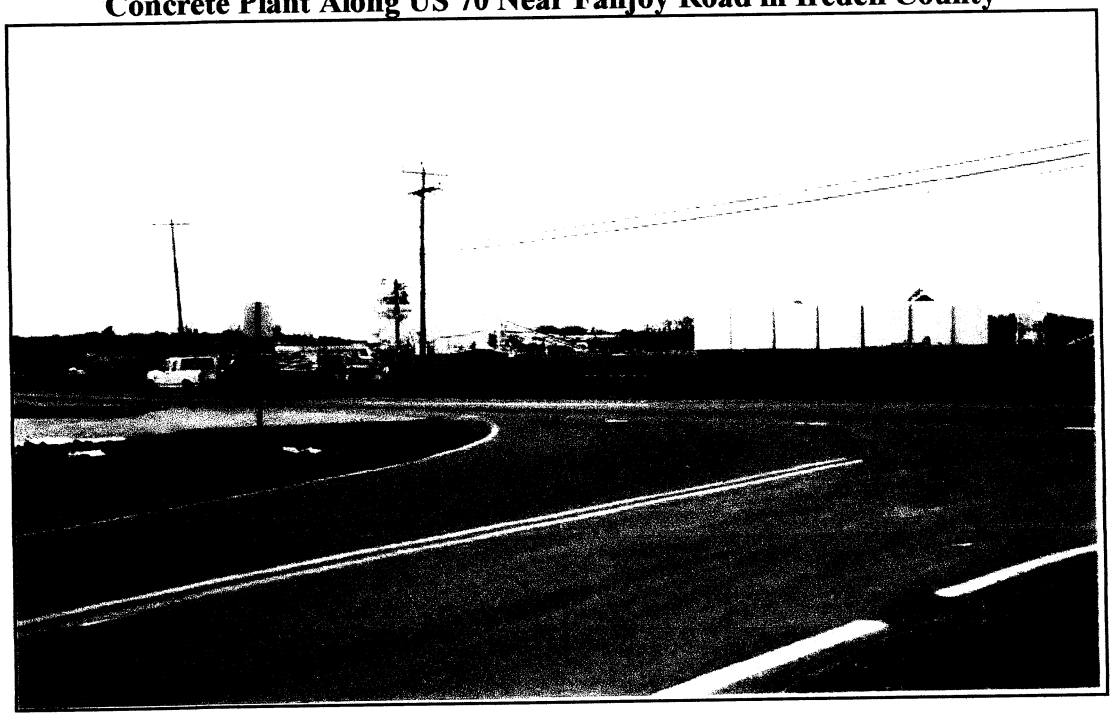


control of access, large supply of land, and limited market for development all contribute to a low likelihood of induced growth as a result of TIP R-2911A-D.

Section A, however, is on new location, creating new intersections and providing access to previously inaccessible land, particularly to the south of the new alignment. In addition, it bisects the Statesville Business Park property, making land for sale within the park much more attractive to prospective buyers/tenants. Relocating US 70 also provides ideal access along both sides of US 70, whereas the railroad currently serves as a deterrent to development along the north side of existing US 70. This situation will allow for the industrial expansion of the entire corridor. Finally, land use recommendations within the US 70 East Corridor Future Land Use Report, conducted by Iredell County in 2002-2003, hinge upon Section A of TIP R-2911A-D being built. These recommendations include:

- A primary industrial area anchored by the Statesville Business Park
- A proposed shopping center in the triangle formed by the convergence of the old US 70, the proposed new US 70, and Bethesda Road
- A proposed convenience shopping area located east of Triplett Road between old US 70 and new US 70

Concrete Plant Along US 70 Near Fanjoy Road in Iredell County



Most of the induced growth along the entire corridor should be industrial and single family residential in nature, along with the occasional retail cluster at major intersections. In terms of indirect and cumulative environmental issues, any induced development that takes place as a result of TIP R-2911A-D may impact existing wetlands in the area. According to the Environmental Assessment, there are two wetland sites along the new alignment of Section A, one along Section B, three along Section C, and four along

Section D. Some of these wetlands will unavoidably be disturbed by the construction of TIP R-2911A-D, while others may be impacted by the growth that occurs as a result of the project.

The quality of the streams that intersect both the new location portion of the project and the widening of the existing roadway will be protected by the NCDOT applying BMPs during construction of the project and by local jurisdictions regulating storm water runoff on a development-by-development basis. In addition, there is a 303(d) list impaired creek (Fourth Creek) located within the PGIA to the north of existing US 70 (see Figure 4). Because of the drainage pattern, induced growth along Elmwood Road (SR 2308) in Iredell County, and Phifer Road (SR 1977), Third Creek Church Road (SR 1973), and Chenault Road (SR 1972) in Rowan County, could affect the quality of the discharge into the impaired portion of Fourth Creek. However, induced growth in these areas would not necessarily affect the WS-IV South Yadkin River water supply watershed, which is located well to the north of where Fourth Creek unites with the south flowing Yadkin River.

Eligible for the National Register, Cameron Presbyterian Church historic property, which is located along both sides of existing US 70 just east of SR 2488, would more than likely indirectly benefit from the reduction in traffic along what will be the old US 70. The new location Section A would not tie into existing US 70 until Phifer Lane, well east of the church. The Wood Fleming House, which is also eligible for the National Register, is located on a portion of existing US 70, which will be widened from two lanes to four lanes with a median divided facility. No adverse direct impacts are expected for this property either, assuming a median break is provided for full access to the site. However, indirect impacts as it relates to induced growth may or may not adversely affect the site.

In terms of water quality impacts, since there is a low likelihood of induced growth and thus a minimal increase in impervious surface coverage anticipated, TIP R-2911A-D does not seem likely to cause any deterioration that would not already occur from non-project related growth. Of course, temporary impacts due to construction are likely, such as increased sedimentation due to soil erosion. Furthermore, the 303(d) impaired Fourth Creek should be minimally impacted because of the requirement for storm water drainage controls (BMPs) with respect to new development.