

NOTE: SEE SHEET 2A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

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# STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
GEOTECHNICAL ENGINEERING UNIT

## ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 35024.1.1 (U-4422) F.A. PROJ. STP-1592(2)  
COUNTY CUMBERLAND  
PROJECT DESCRIPTION FAYETTEVILLE - GLENSFORD DR. (SR 1596)  
FROM US 401 (RAEFORD RD.) TO SR 1400 (CLIFFDALE RD.)

STATE	STATE PROJECT REFERENCE NO.	SHEET	TOTAL SHEETS
N.C.	35024.1.1 (U-4422)	1	16
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
	STP-1592(2)	P.E. RW & UTIL.	

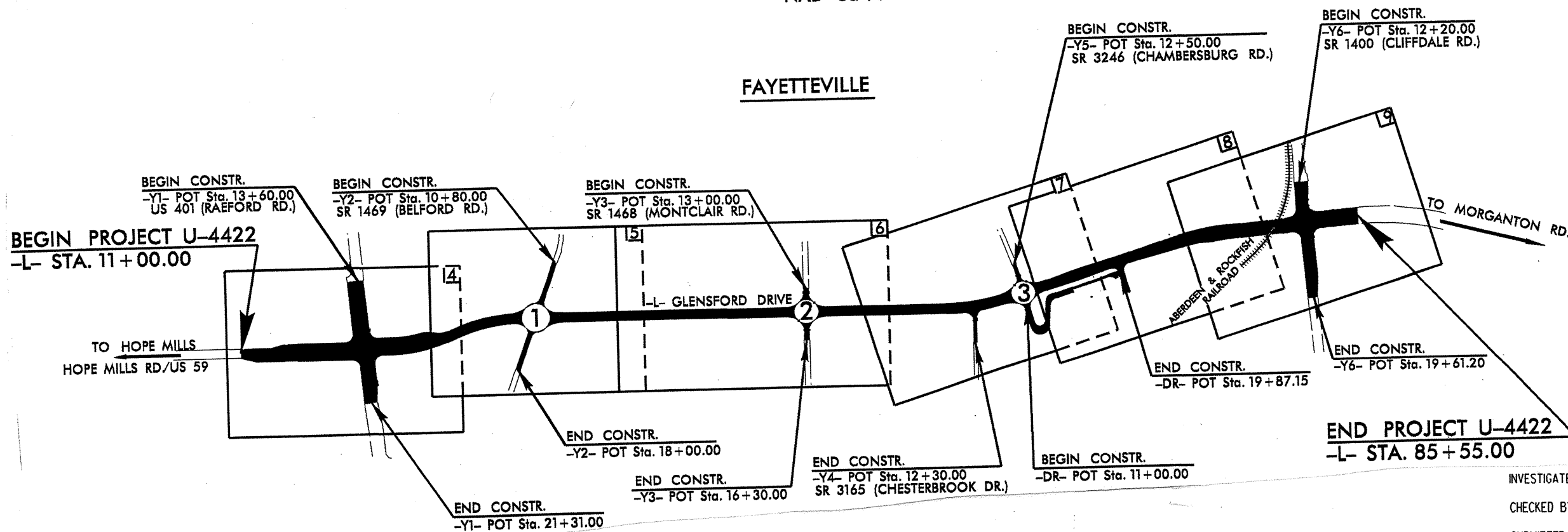
### CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

# INVENTORY



PERSONNEL

J. L. PEDRO

J. I. MILKOVITS

R. E. BEARD

H. R. CONLEY

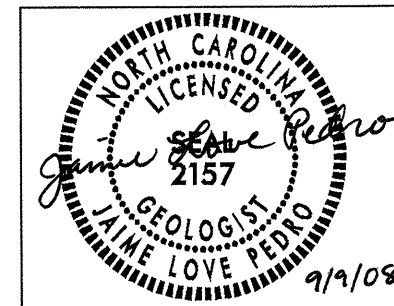
D. W. DIXON

INVESTIGATED BY J. L. PEDRO

CHECKED BY N. T. ROBERSON

SUBMITTED BY J. L. PEDRO

DATE SEPTEMBER 2008



DRAWN BY: J. L. PEDRO, W. D. FIELDS

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IS IT CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

ID: U-4422

CONTRACT: C202825

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**  
**GEOTECHNICAL ENGINEERING UNIT**

**SUBSURFACE INVESTIGATION**

**SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS**

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS																																																																																																																																																																																				
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRAY-SILT CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HEAVY PLASTIC, A-7-5</i>	<b>WELL GRADED</b> - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. <b>UNIFORM</b> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) <b>GAP-GRADED</b> - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.  THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: <b>ANGULAR</b> , <b>SUBANGULAR</b> , <b>SUBROUNDED</b> , OR <b>ROUNDED</b> .	<b>HARD ROCK</b> IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:  <b>WEATHERED ROCK (WR)</b> <b>CRYSTALLINE ROCK (CR)</b> <b>NON-CRYSTALLINE ROCK (NCR)</b> <b>COASTAL PLAIN SEDIMENTARY ROCK (CP)</b>	<b>ALLUVIUM (ALLUV.)</b> - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. <b>AQUIFER</b> - A WATER BEARING FORMATION OR STRATA. <b>ARENACEOUS</b> - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. <b>ARGILLACEOUS</b> - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. <b>ARTESIAN</b> - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. <b>CALCAREOUS (CALC.)</b> - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. <b>COLLUVIUM</b> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. <b>CORE RECOVERY (REC.)</b> - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. <b>DIKE</b> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. <b>DIP</b> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. <b>DIP DIRECTION (DIP AZIMUTH)</b> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. <b>FAULT</b> - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. <b>FISSILE</b> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. <b>FLOAT</b> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. <b>FLOOD PLAIN (FP)</b> - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. <b>FORMATION (FM)</b> - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. <b>JOINT</b> - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. <b>LEDGE</b> - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. <b>LENS</b> - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. <b>MOTTLED (MOT.)</b> - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. <b>PERCHED WATER</b> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. <b>RESIDUAL (RES.) SOIL</b> - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. <b>ROCK QUALITY DESIGNATION (ROD)</b> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.																																																																																																																																																																																				
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**CONTRACT: U-4422**

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

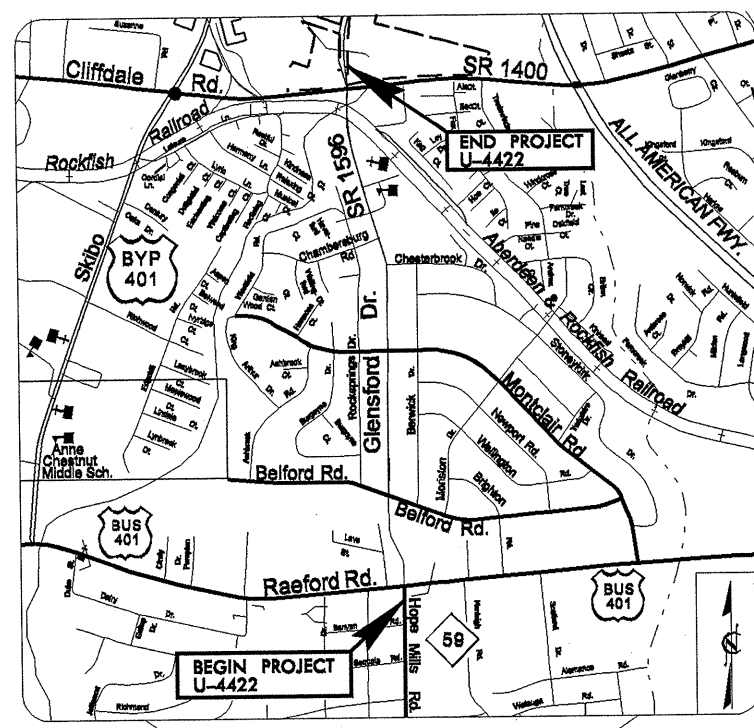
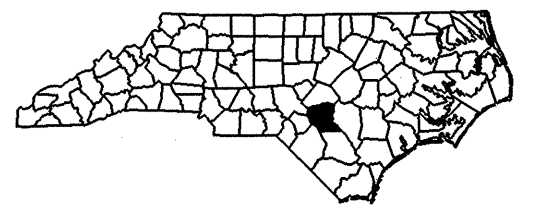
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**CUMBERLAND COUNTY**

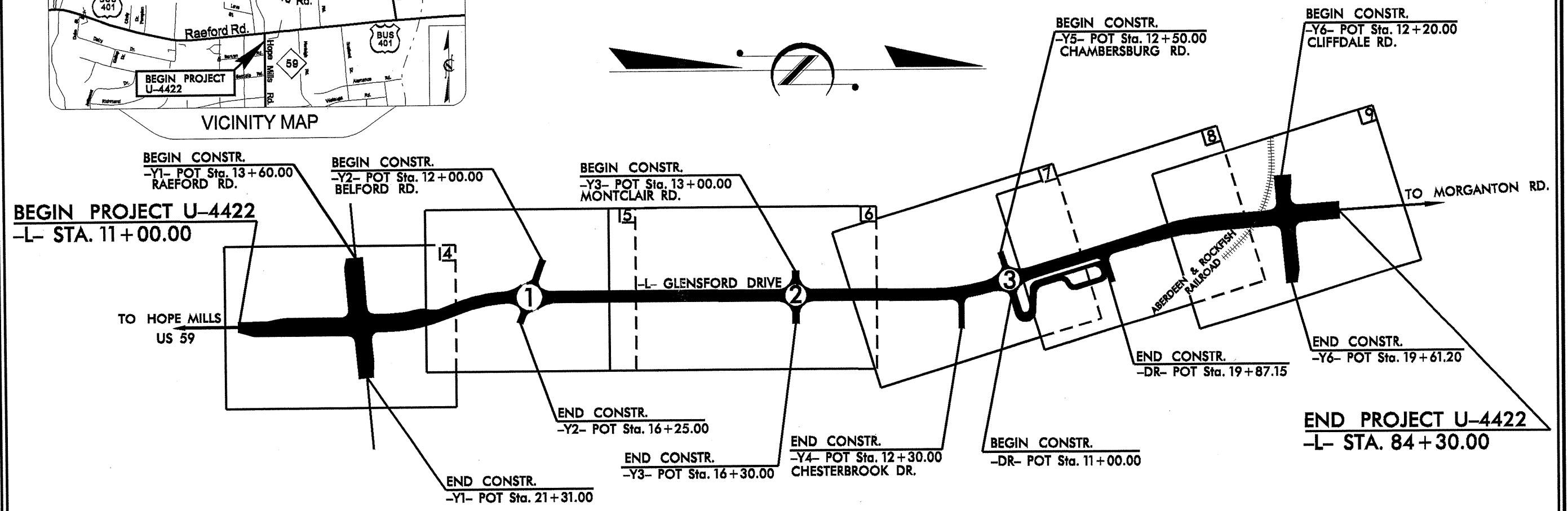
**LOCATION: GLENSFORD DRIVE (SR 1596) FROM RAEFORD ROAD (US 401) TO CLIFFDALE ROAD (SR 1400)**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, SIGNING AND ROUNDABOUTS**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4422	2A	16
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
35024.1.1	STP-1592(2)	PE	



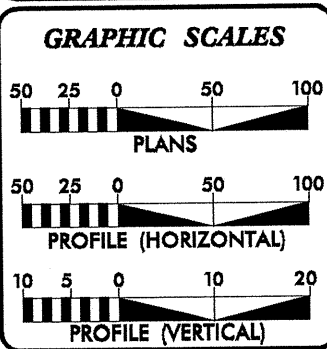
VICINITY MAP



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

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF FAYETTEVILLE

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



**DESIGN DATA**

ADT 2006 =	19,200
ADT 2030 =	31,400
DHV =	10 %
D =	60 %
T =	3 % *
V =	40 MPH
* TTST	2% DUAL 1%

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT U-4422 =	1.388 MILES
TOTAL LENGTH TIP PROJECT U-4422 =	1.388 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MARCH 2009

LETTING DATE: SEPTEMBER 21, 2010

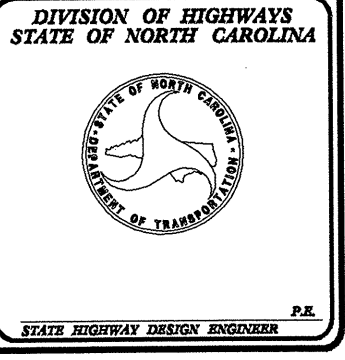
ROGER D. THOMAS, PE  
PROJECT ENGINEER

BRIAN P. ROBINSON  
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

STATE HIGHWAY DESIGN ENGINEER





STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

Michael F. Easley  
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

Lyndo Tippet  
SECRETARY

September 9, 2008

STATE PROJECT: 35024.1.1 (U-4422)  
FEDERAL PROJECT: STP-1592(2)  
COUNTY: Cumberland  
DESCRIPTION: Fayetteville - Glensford Drive (SR 1596) from US 401 (Raeford Road) to SR 1400 (Cliffdale Road)  
SUBJECT: Geotechnical Report – Inventory

**Project Description**

This project consists of widening the existing Glensford Drive (-L-) from two lanes to four lanes with medians and turn lanes. Also, one thousand feet of new location will connect Hope Mills Road (NC 59) with the existing Glensford Drive. The project begins just south of the intersection of Raeford Road (US 401) and Hope Mills Road, and ends just north of the Cliffdale Road (-Y6-) intersection. The widening occurs along both sides of the existing roadway. Three roundabouts are proposed at the intersections with Belford Road (-Y2-), Montclair Road (-Y3-), and Chambersburg Road (-Y5-).

The geotechnical field investigation was conducted during August, 2008. An ATV-mounted CME-550 drill machine with an automatic hammer was used during the investigation. Standard Penetration Tests were performed in selected borings and additional borings were advanced using a hand auger. Representative soil samples were collected for visual classification in the field and for laboratory analysis by the Materials and Tests Unit.

The following alignments, totaling 1.9 miles, were investigated. Subsurface soil profiles of these alignments are included in this report.

<u>Line</u>	<u>Station</u>
-L-	11+00 to 84+30
-Y1-	13+52 to 21+31
-Y2-	12+00 to 16+30
-Y3-	13+00 to 16+30
-DR-	10+00 to 19+87

**Areas of Special Geotechnical Interest**

1) Water Wells: Two monitoring wells were noted within the construction limits at the following locations:

<u>Alignment</u>	<u>Station</u>	<u>Offset</u>
-L-	20+69	30' RT
-Y1-	19+11	55' LT

**Physiography and Geology**

The project is located in west central Fayetteville and due north of the town of Hope Mills, within the Coastal Plain Province. The area is underlain by Cretaceous-age sands and clays of the Middendorf and Black Creek Formations. Topography in this area is gently rolling to flat. Numerous homes, churches, and businesses occur along Glensford Drive and at the intersection of Hope Mills and Raeford Road.

**Soil Properties**

Soils encountered along the project corridor are primarily derived from Upper Cretaceous age Coastal Plain sediments and minor amounts of artificial fill.

Artificial fill soil occurs at the beginning of the project, right of -L- Sta. 17+00 and left of -L- Sta. 22+00. The fill soils consist of brown, loose, dry, sand and smooth gravel (A-1-b) and brown and gray, very soft, moist, silty clay (A-7-6). The area right of Sta. 17+00 is associated with a sidewalk in a curb and gutter section. The area left of Sta. 22+00 is related to a parking lot for a used car dealership.

Coastal Plain soils are derived from the Middendorf and Black Creek formations which consist of interbedded sands and clays that vary in thickness. These soils are tan, orange, gray, and brown, loose to medium dense, sand and silty sand (A-1-b, A-3, and A-2-4). Medium dense, clayey sand (A-2-6) is also present in minor amounts. Also present are orange, brown, tan, red, and gray, very soft to very stiff, moist to wet, sandy and silty clay (A-6 and A-7-6). Plastic indices for these soils are generally less than 24. Lessor amounts of gray-brown, stiff to very stiff, moist, sandy silt (A-4) are also present on the project.

**Groundwater**

Groundwater was not encountered in any of the borings except at -L- 22+00, 80 LT. Groundwater at this location was encountered 11.7 feet below the ground surface. Seasonal fluctuations in groundwater can be expected.

Prepared by,  
*Jaime Love Pedro*  
Jaime Love Pedro, LG  
Project Geologist



3A / 16

**EARTHWORK BALANCE SHEET**  
Volumes in Cubic Yards

PROJECT U-4422

COUNTY: Cumberland

DATE: 2-20-12

COMPILED BY: SKR

SHEET 1 OF 2 SHEETS

STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE					
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +25%		ROCK	SUITABLE	UNSUIT.	TOTAL		
-L- LT.																	
11+00.00	19+50.00	824				824	345		345	432				392			392
-Y1-																	
13+52.00	17+00.00	574				574								574			574
	<b>SUBTOTAL</b>	1,398				1,398	345		345	432				966			966
-L- RT.																	
13+64.00	19+50.00	950				950	28		28	35				915			915
-Y1-																	
18+50.00	21+53.00	326				326	18		18	23				303			303
	<b>SUBTOTAL</b>	1,276				1,276	46		46	58				1,218			1,218
-L-																	
20+50.00	32+02.08	31,834				31,834	319		319	399				31,435			31,435
-Y2-																	
12+00.00	13+60.00	77				77	56		56	70				7			7
15+40.00	18+00.00	2,894				2,894	4		4	5				2,889			2,889
	<b>SUBTOTAL</b>	34,805				34,805	379		379	474				34,331			34,331
-L- LT.																	
32+02.08	62+00.00	2,428				2,428	1,038		1,038	1,298				1,130			1,130
-Y3-																	
11+45.00	13+75.00	107				107	4		4	5				102			102
	<b>SUBTOTAL</b>	2,535				2,535	1,042		1,042	1,303				1,232			1,232
-L- RT.																	
32+02.08	62+00.00	2,740				2,740	1,461		1,461	1,827				913			913
-Y3-																	
15+25.00	16+80.00	44				44	6		6	8				36			36
-Y4-																	
10+33.04	12+30.00	9				9	235		235	294	285						
	<b>SUBTOTAL</b>	2,793				2,793	1,702		1,702	2,129	285			949			949
-L- LT																	
62+00.00	80+50.00	556				556	1,269		1,269	1,587	1,031						
-Y5-																	
12+50.00	13+58.57	39				39	4		4	5				34			34
-Y6-																	
13+50.00	14+20.00	9				9	79		79	99	90						
	<b>SUBTOTAL</b>	604				604	1,352		1,352	1,691	1,121			34			34
-L- RT.																	
62+00.00	80+50.00	2,164				2,164	1,417		1,417	1,772				392			392
-DR-																	
10+75.00	19+87.15	2,873				2,873	256		256	320				2,553			2,553
-DR1-																	
10+00.00	11+18.79	98				98	12		12	15				83			83
-Y6-																	
15+80.00	19+61.20	180				180	65		65	82				98			98
	<b>SUBTOTAL</b>	5,315				5,315	1,750		1,750	2,189				3,126			3,126

**EARTHWORK BALANCE SHEET**  
Volumes in Cubic Yards

3B / 16

PROJECT: U-4422

COUNTY: Cumberland

DATE: 2-20-12

COMPILED BY: SKR

SHEET 2 OF 2 SHEETS

STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE					
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +25%		ROCK	SUITABLE	UNSUIT.	TOTAL		
<b>TOTAL</b>		48,726				48,726	6,616		6,616	8,276	1,406			41,856			41,856
LOSS DUE TO CLEARING & GRUBBING		-1,500				-1,500								-1,500			-1,500
WASTE IN LIEU OF BORROW											-1,406			-1,406			-1,406
<b>PROJECT TOTAL</b>		47,226				47,226	6,616		6,616	8,276				38,950			38,950
<b>GRAND TOTAL</b>		47,226				47,226	6,616		6,616	8,276				38,950			38,950
<b>SAY</b>		48,000															39,500

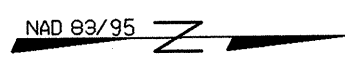
NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

EST. UNDERCUT EXCAVATION = 1600 CY  
 EST. SHALLOW UNDERCUT = 1500 CY  
 CLASS IV SUBGRADE STABILIZATION = 3000 TONS  
 -L-, -Y2-, & -DR- PAVEMENT STRUCTURE VOLUME = 13500 CY

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
U-4422	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



**BEGIN PROJECT U-4422**  
-L- Sta. 11+00.00

15+00

**BEGIN CONSTR.**  
-YI- Sta. 13+52.00

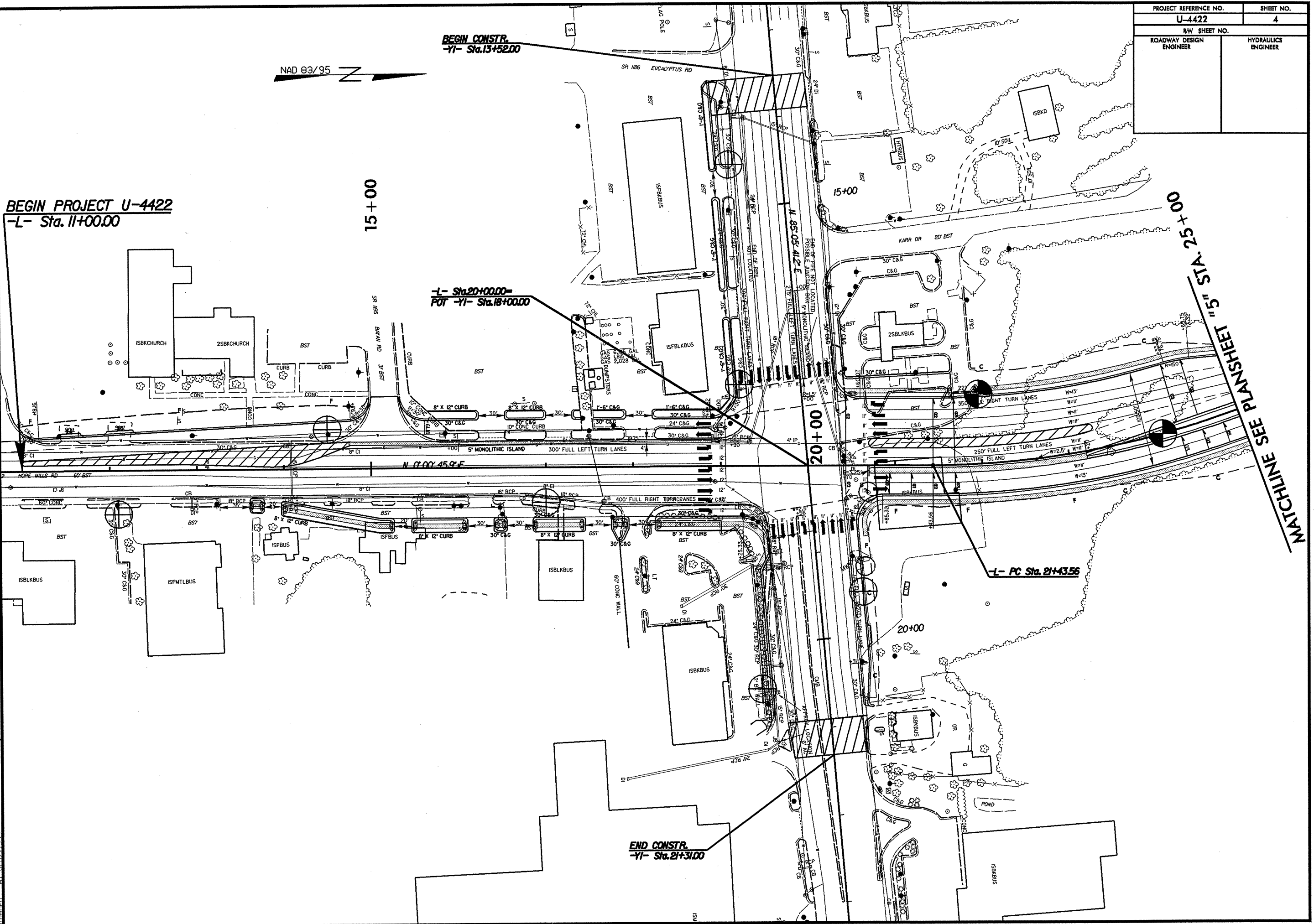
-L- Sta. 20+00.00-  
POT -YI- Sta. 18+00.00

20+00

-L- PC Sta. 21+43.56

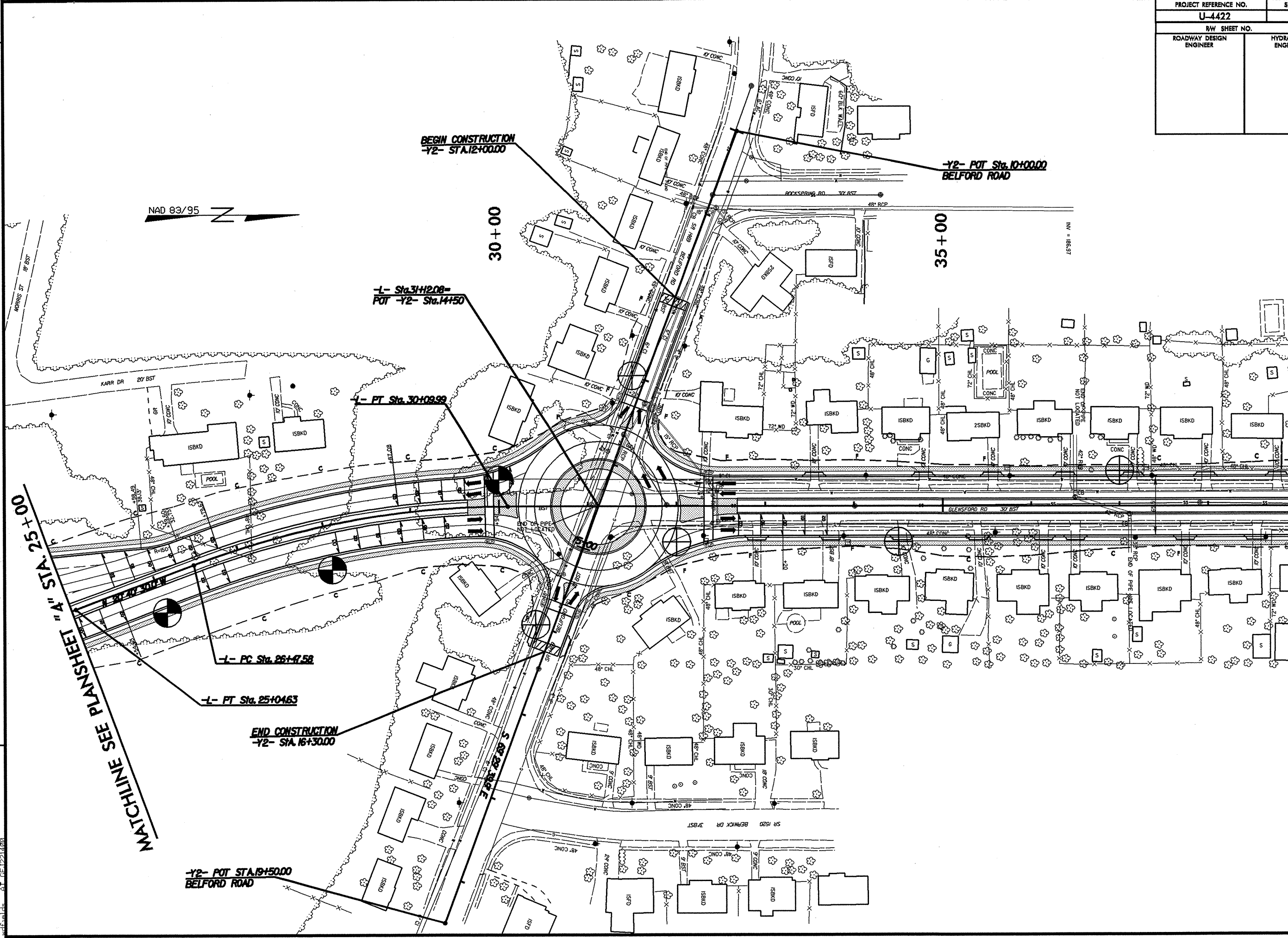
**END CONSTR.**  
-YI- Sta. 21+31.00

MATCHING PLAN SHEET "5" STA. 25+00



PROJECT REFERENCE NO.	SHEET NO.
U-4422	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83/95

BEGIN CONSTRUCTION  
-Y2- STA.12+00.00

-Y2- POT STA.10+00.00  
BELFORD ROAD

-L- Sta.31+208-  
POT -Y2- Sta.14+150

-L- PT Sta.30+09.99

-L- PC Sta.26+47.58

-L- PT Sta.25+04.63

END CONSTRUCTION  
-Y2- STA.16+30.00

-Y2- POT STA.19+50.00  
BELFORD ROAD

MATCHLINE SEE PLANSHEET "A" STA. 25+00

MATCHLINE SEE PLANSHEET "6" STA. 39+00



PROJECT REFERENCE NO. U-4422	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

8/17/99

NAD 83/95

MONTCLAIR ROAD  
-Y3- POT Sta. 10+00.00

-Y3- BEGIN CONSTR.  
Sta. 13+00.00

-L- Sta. 48+3978-  
POT -Y3- Sta. 14+50

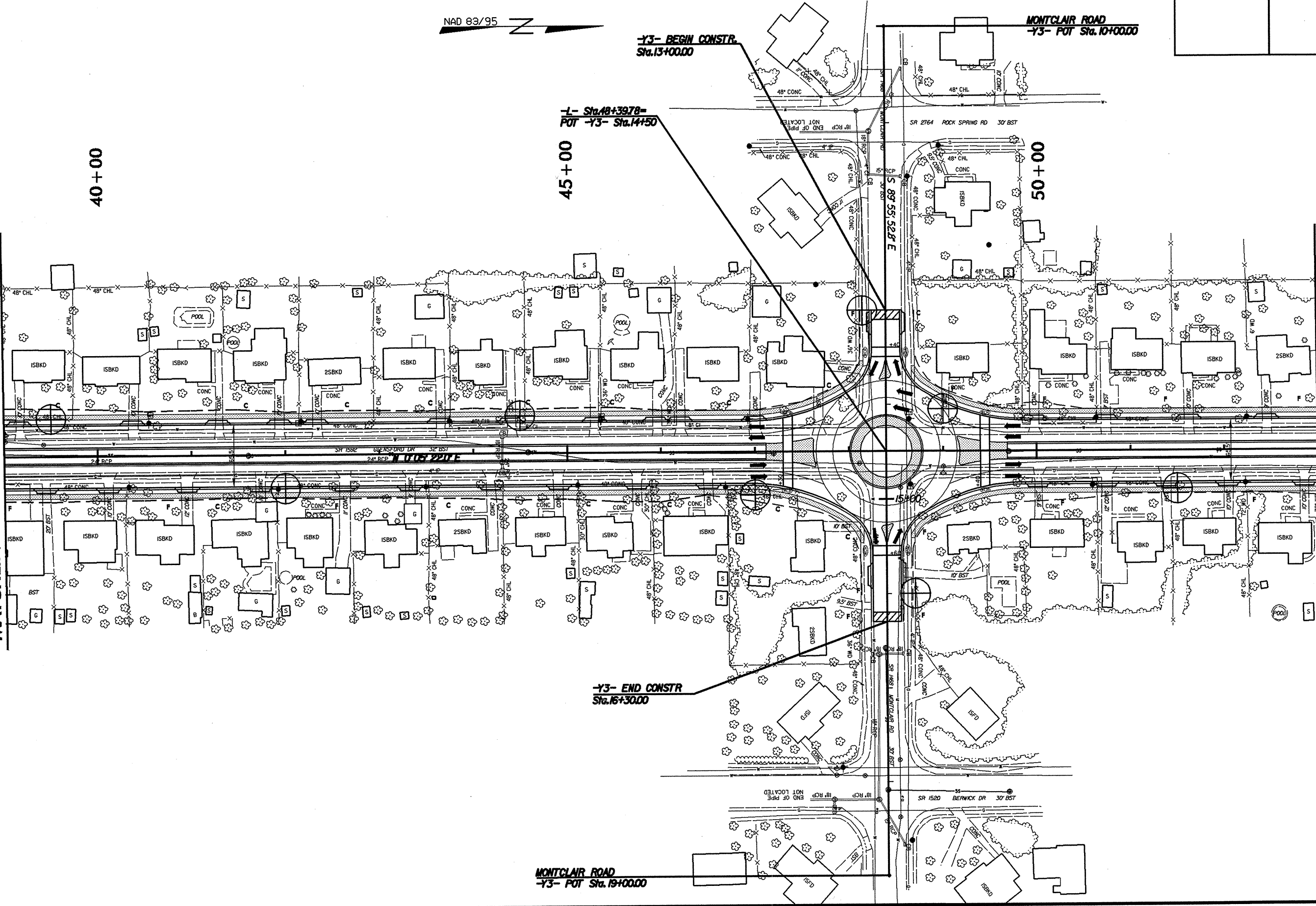
40+00

45+00

50+00

MATCHLINE SEE PLANSHEET "5" STA. 39+00

MATCHLINE SEE PLANSHEET "7" STA. 53+00



-Y3- END CONSTR.  
Sta. 16+30.00

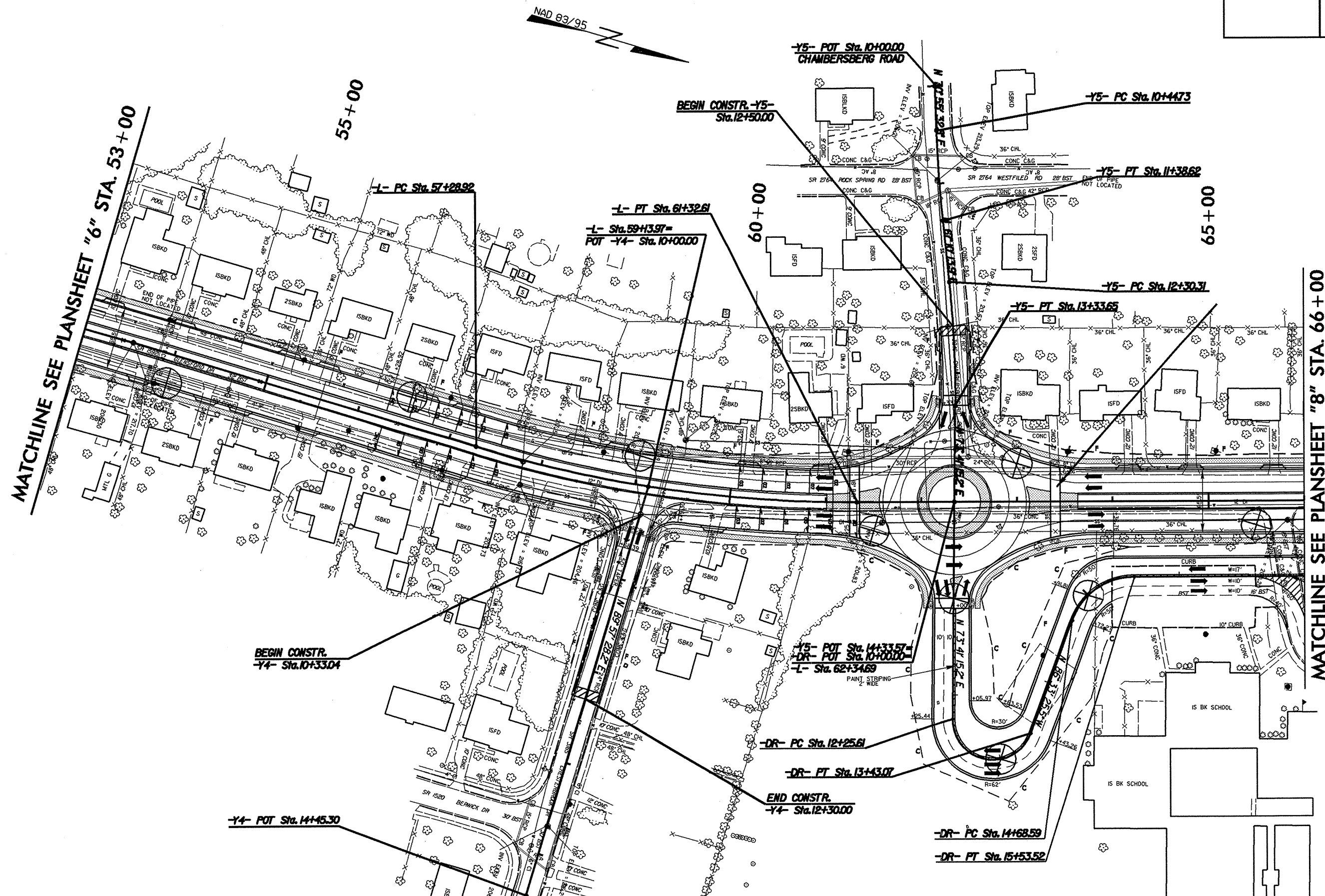
MONTCLAIR ROAD  
-Y3- POT Sta. 19+00.00

REVISIONS

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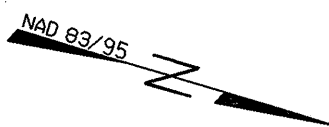
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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MATCHLINE SEE PLANSHEET "6" STA. 53+00

MATCHLINE SEE PLANSHEET "8" STA. 66+00



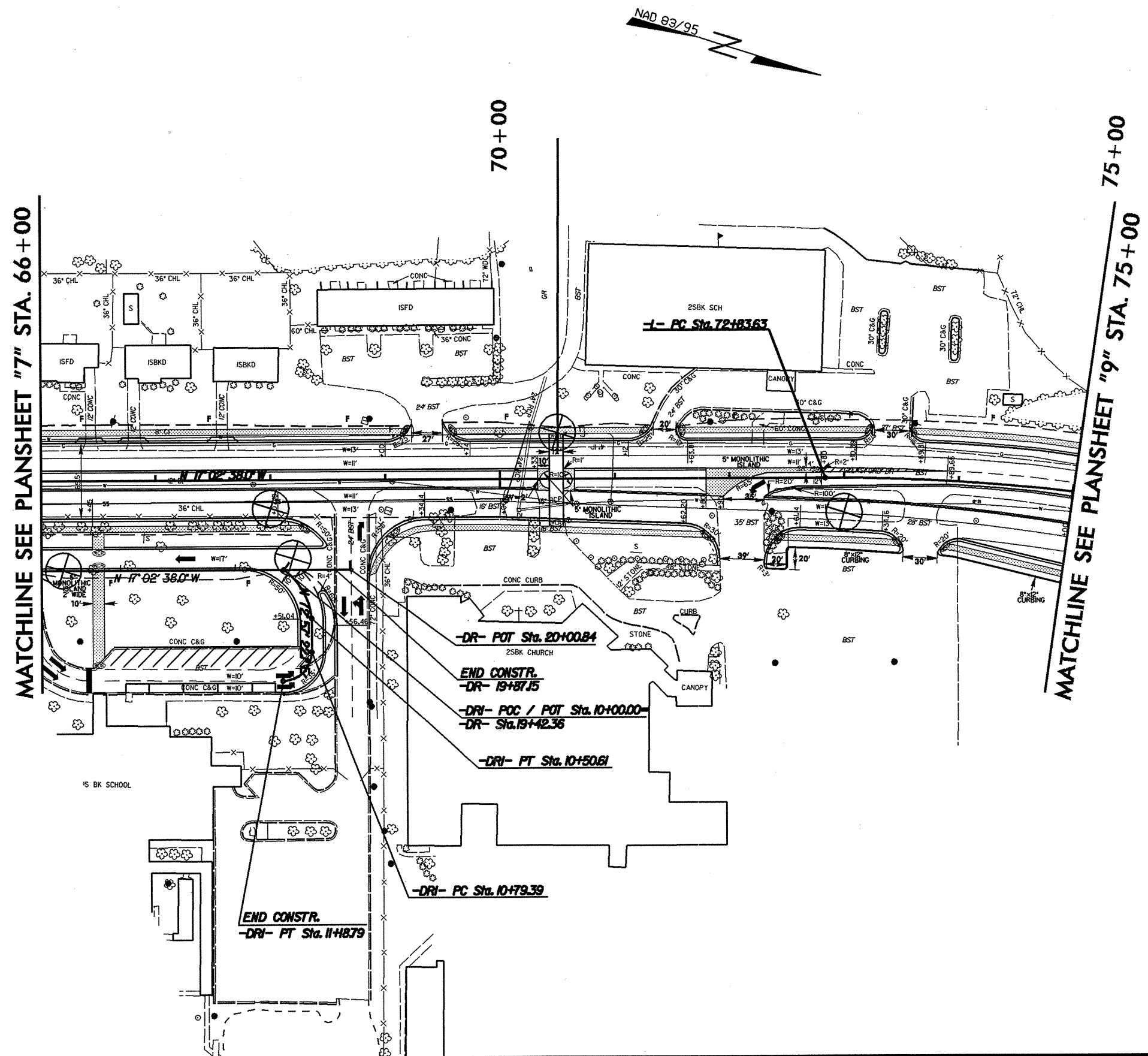
REVISIONS

PROJECT REFERENCE NO. <b>U-4422</b>	SHEET NO. <b>8</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

REVISIONS

8/17/99

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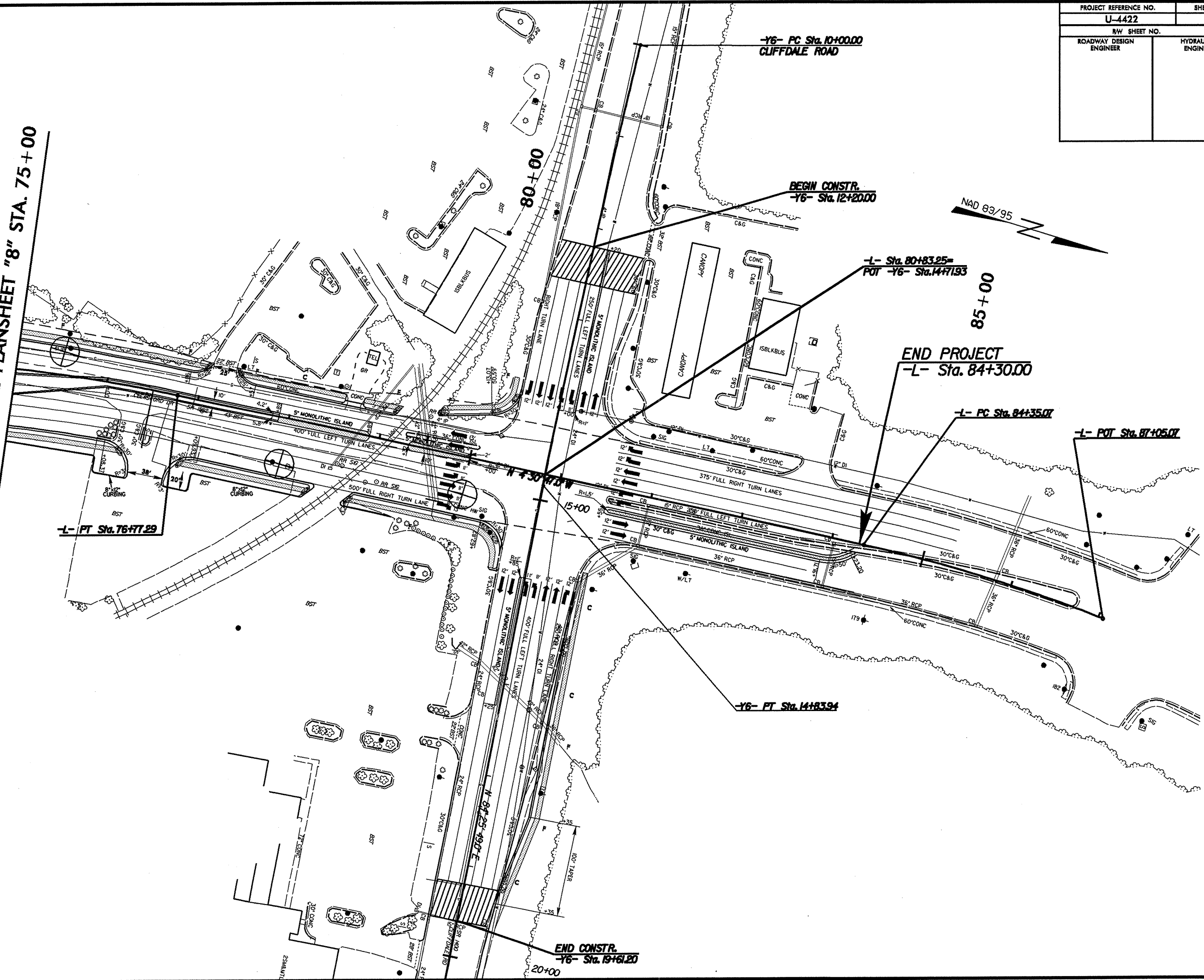


MATCHLINE SEE PLANSHEET "7" STA. 66+00

MATCHLINE SEE PLANSHEET "9" STA. 75+00

PROJECT REFERENCE NO. <b>U-4422</b>	SHEET NO. <b>9</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATCHLINE SEE PLANSHEET "8" STA. 75+00



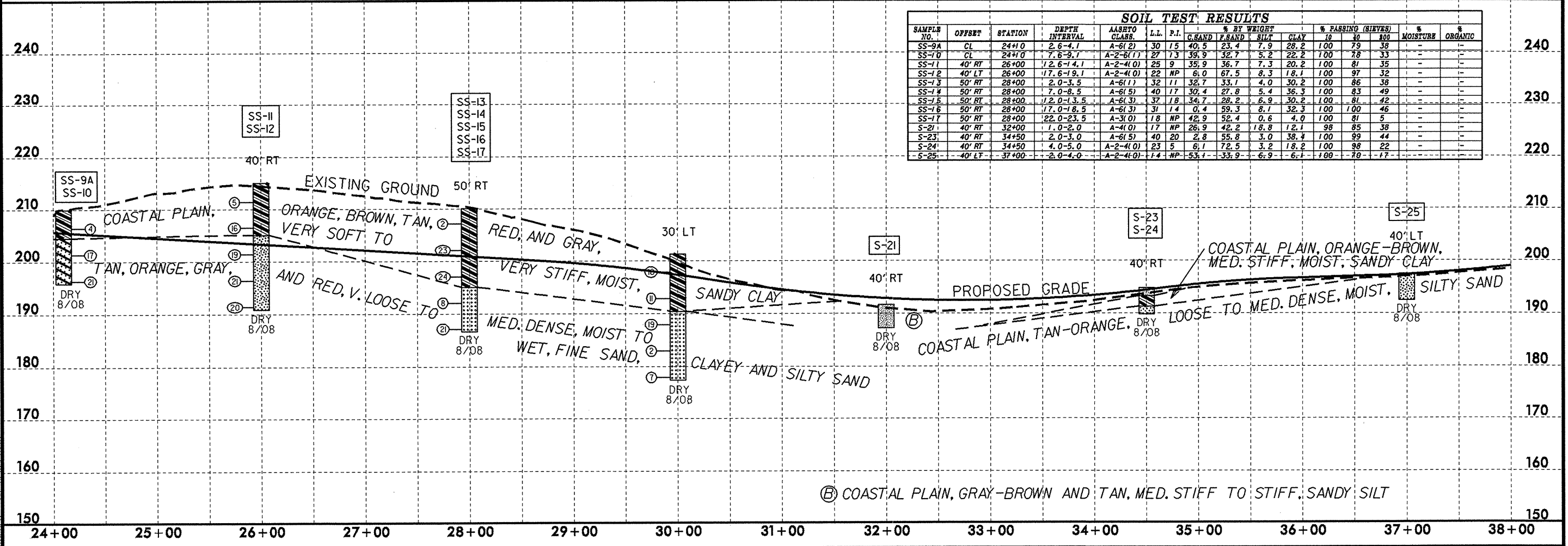
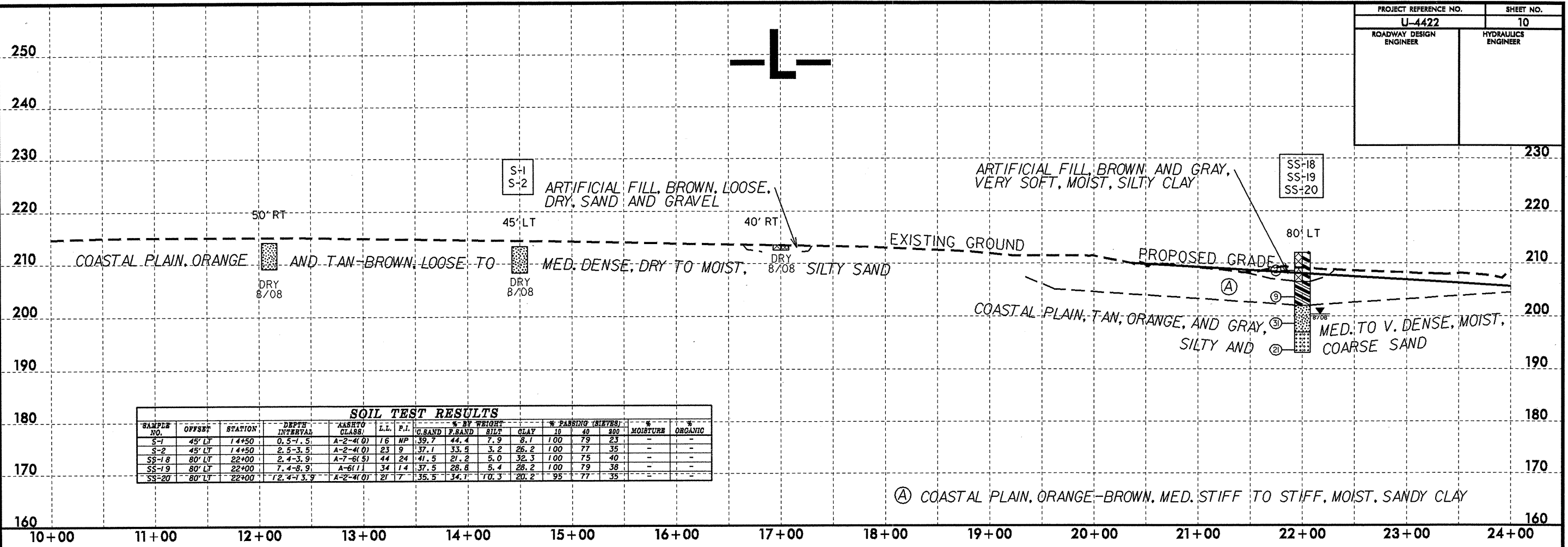
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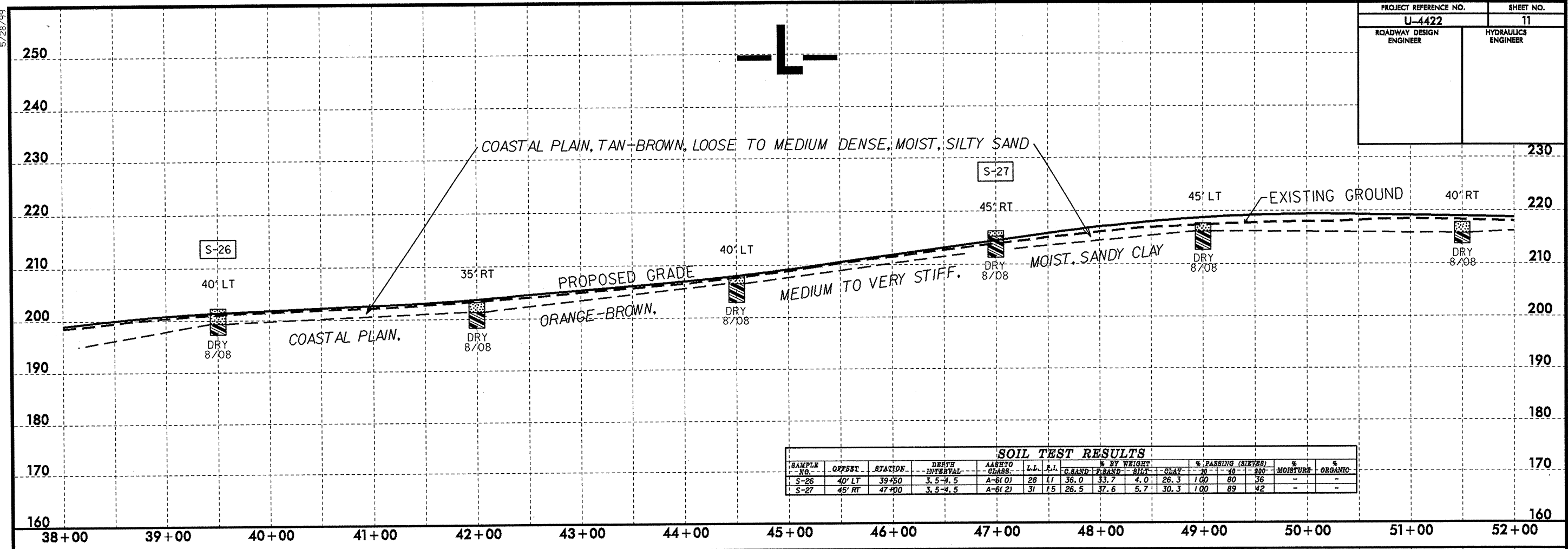
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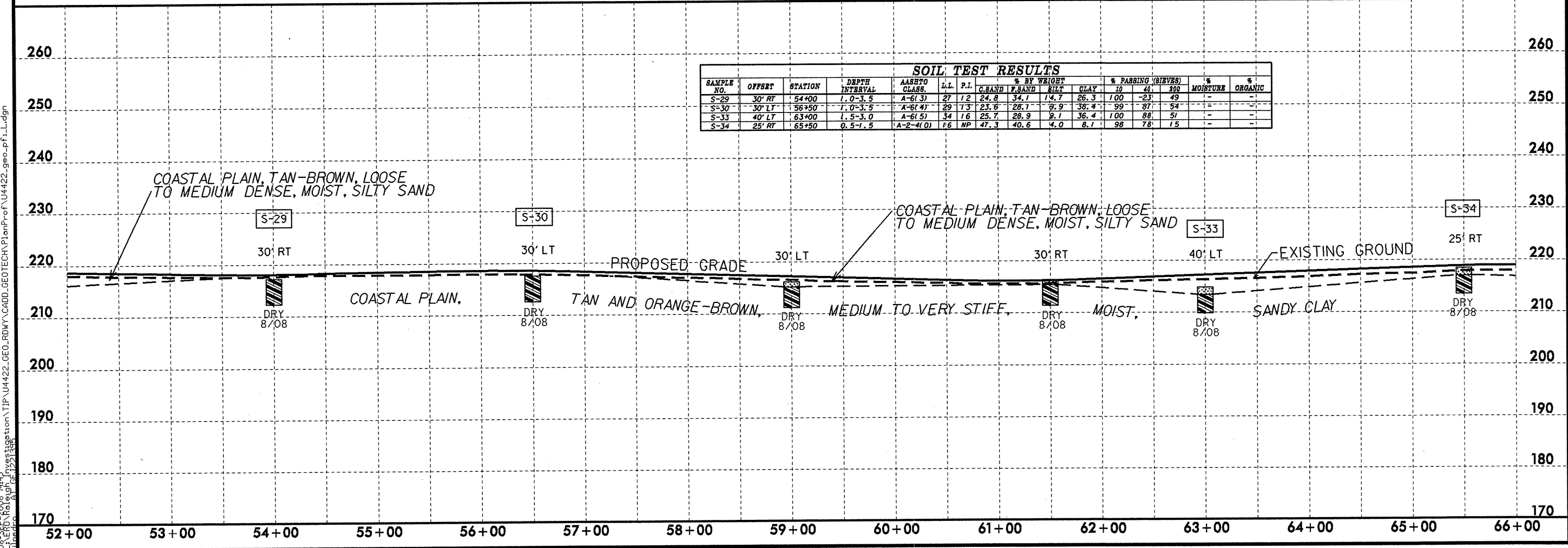
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U-4422		10	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	





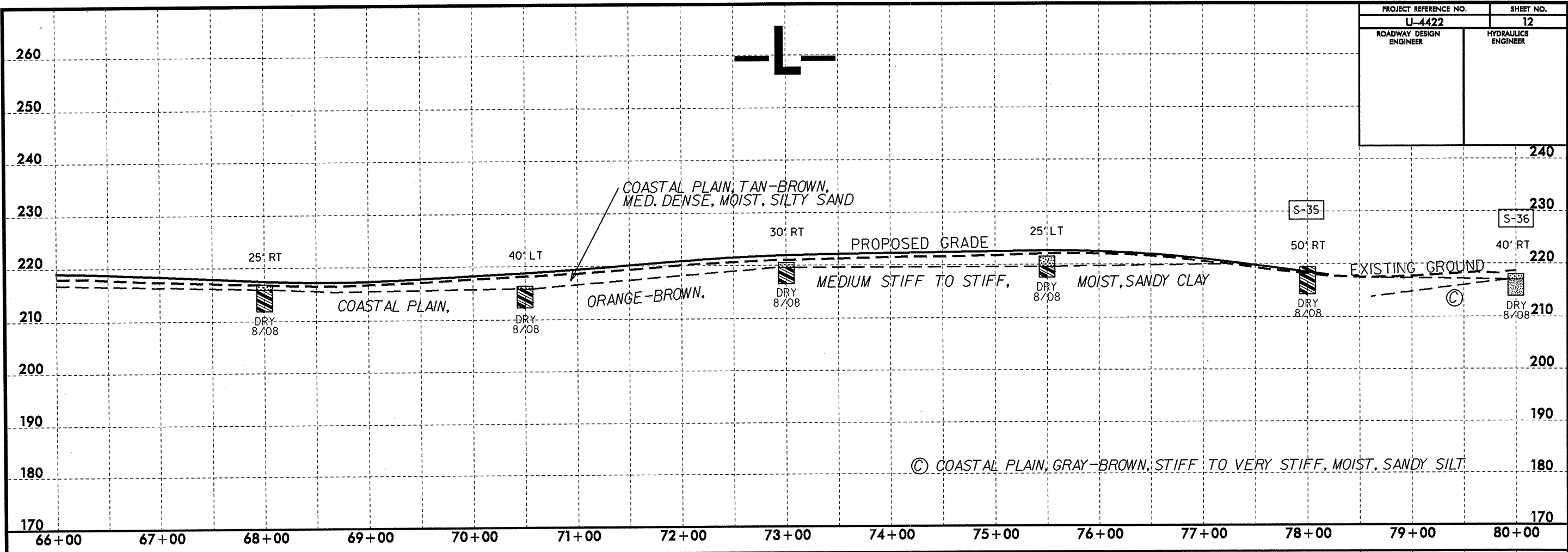


SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT			% PASSING (SIEVES)			% MOISTURE	% ORGANIC	
							G.SAND	F.SAND	CLAY	10	40	200			
S-26	40' LT	39+50	3.5-4.5	A-6(1)	28	11	36.0	33.7	4.0	26.3	100	80	36	-	-
S-27	45' RT	47+00	3.5-4.5	A-6(2)	31	15	26.5	37.6	5.7	30.3	100	89	42	-	-

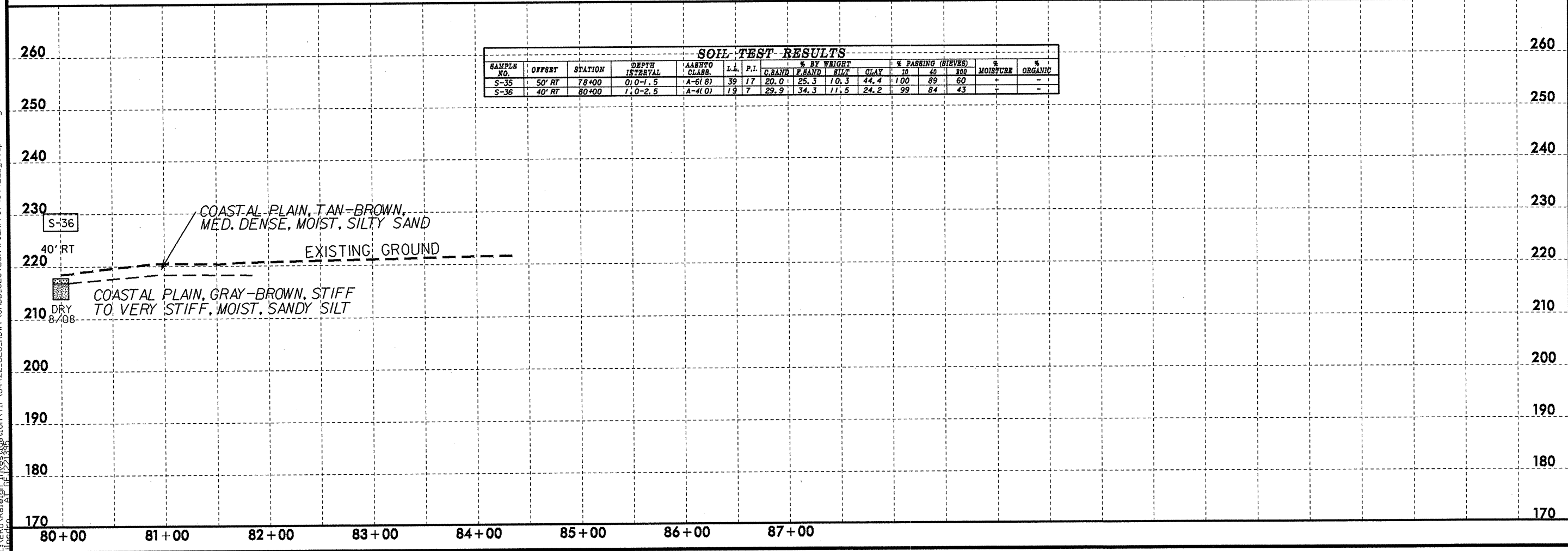


SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT			% PASSING (SIEVES)			% MOISTURE	% ORGANIC	
							G.SAND	F.SAND	CLAY	10	40	200			
S-29	30' RT	54+00	1.0-3.5	A-6(3)	27	12	24.8	34.1	14.7	26.3	100	23	49	-	-
S-30	30' LT	56+50	1.0-3.5	A-6(4)	29	13	23.6	28.7	9.9	38.4	99	87	54	-	-
S-33	40' LT	63+00	1.5-3.0	A-6(5)	34	16	25.7	28.9	9.1	36.4	100	88	51	-	-
S-34	25' RT	65+50	0.5-1.5	A-2(4(0))	16	NP	47.3	40.6	4.0	8.1	98	78	15	-	-

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SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							G.SAND	F.SAND	SILT	CLAY	10	40	200		
S-35	50' RT	78+00	0, 0-1.5	A-6(8)	39	17	20.0	25.3	10.3	44.4	100	89	60	-	-
S-36	40' RT	80+00	1, 0-2.5	A-4(0)	19	7	29.9	34.3	11.5	24.2	99	84	43	-	-



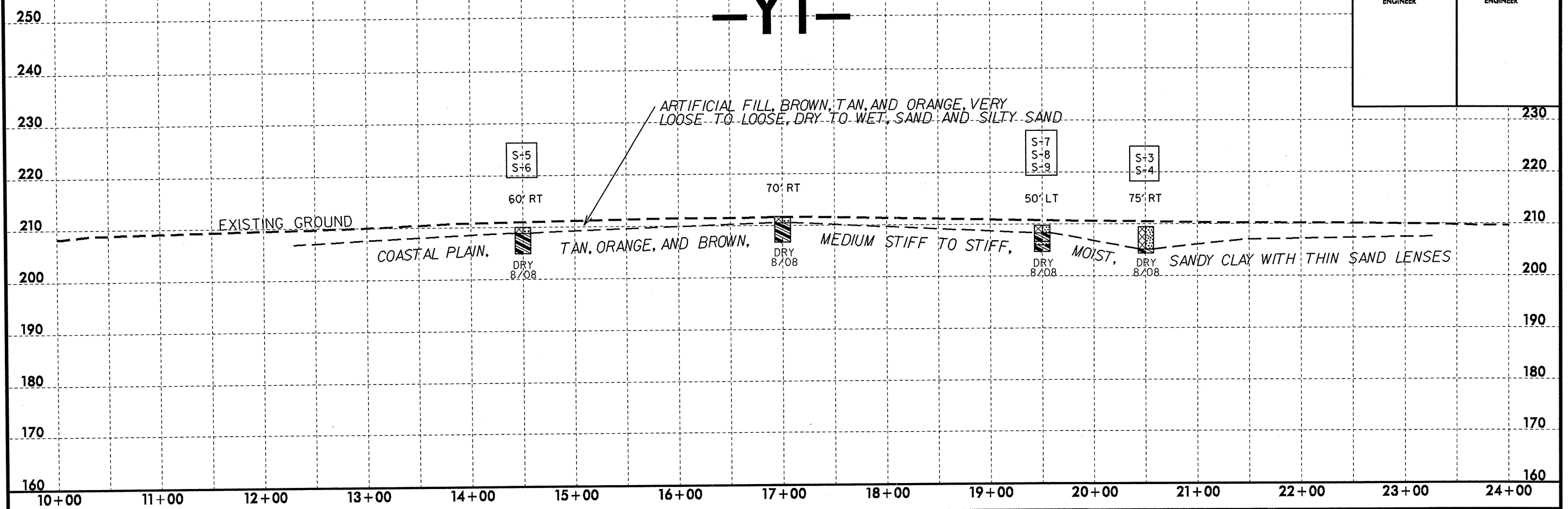
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PROJECT REFERENCE NO.		SHEET NO.	
U-4422		13	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

# -Y1-



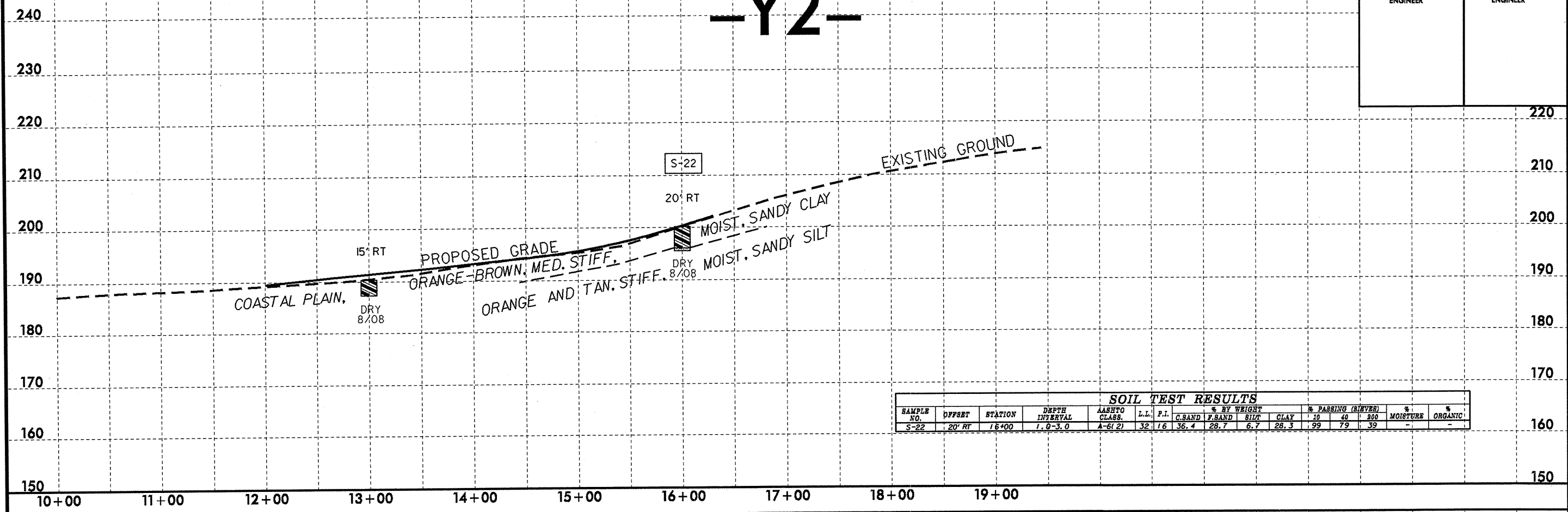
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							C. SAND	F. SAND	SILT	CLAY	10	40			200
S-5	60' RT	14+50	1.5-2.5	A-6(2)	32	16	33.5	33.3	3.0	30.2	100	80	38	-	-
S-6	60' RT	14+50	4.0-5.0	A-6(2)	35	15	30.6	34.3	2.8	32.3	99	82	40	-	-
S-7	50' LT	19+50	0.0-1.0	A-2-4(0)	22	8	42.3	32.5	5.0	20.2	98	72	29	-	-
S-8	50' LT	19+50	3.1-3.8	A-2-4(0)	15	NP	38.7	36.9	12.3	12.1	100	78	31	-	-
S-9	50' LT	19+50	0.0-0.0	A-6(3)	33	16	33.3	35.9	0.6	30.2	100	80	44	-	-
S-3	75' RT	20+50	1.0-2.0	A-2-4(0)	17	3	48.6	28.8	4.4	18.1	86	60	24	-	-
S-4	75' RT	20+50	4.3-5.0	A-6(3)	32	16	30.4	30.8	4.4	34.3	100	84	44	-	-

24+00      25+00      26+00

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# -Y2-

PROJECT REFERENCE NO.		SHEET NO.	
U-4422		14	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	



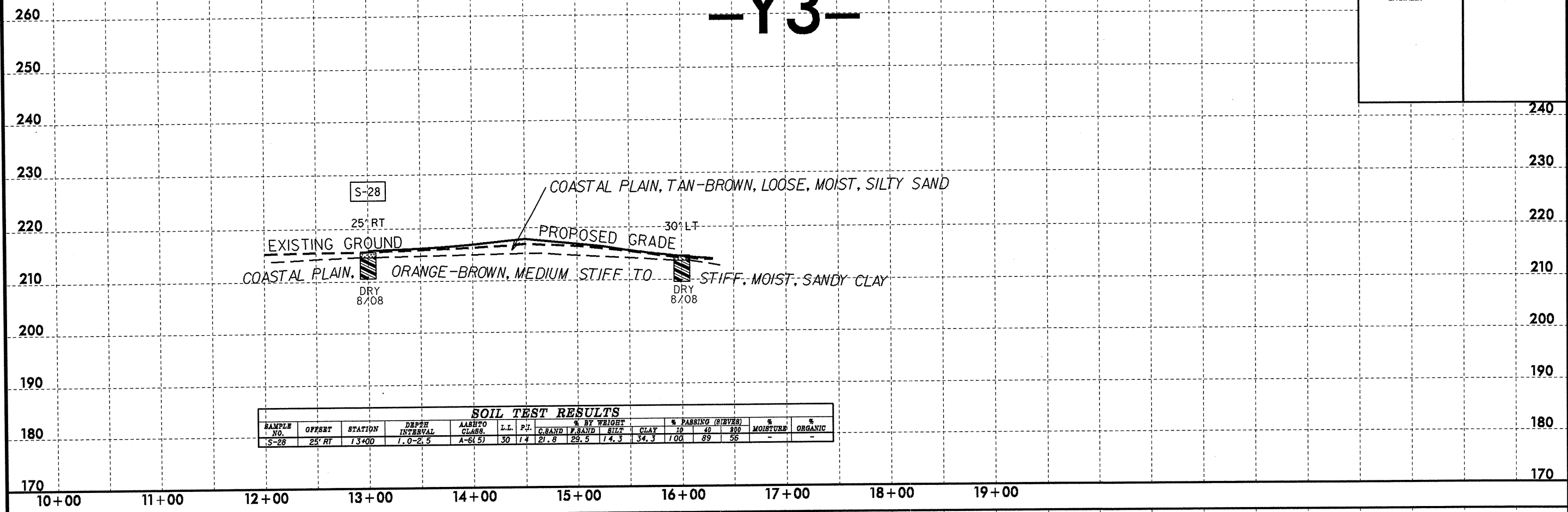
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	#10	#40	#200		
S-22	20' RT	16+00	1.0-3.0	A-6(2)	32	16	36.4	28.7	6.7	28.3	99	79	39	-	-

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PROJECT REFERENCE NO. <b>U-4422</b>	SHEET NO. <b>15</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	LAB/TO CLASS	L.L.	P.L.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-28	25' RT	13+00	1.0-2.5	A-6(5)	30	14	21.8	29.5	14.3	34.3	100	89	56	-	-

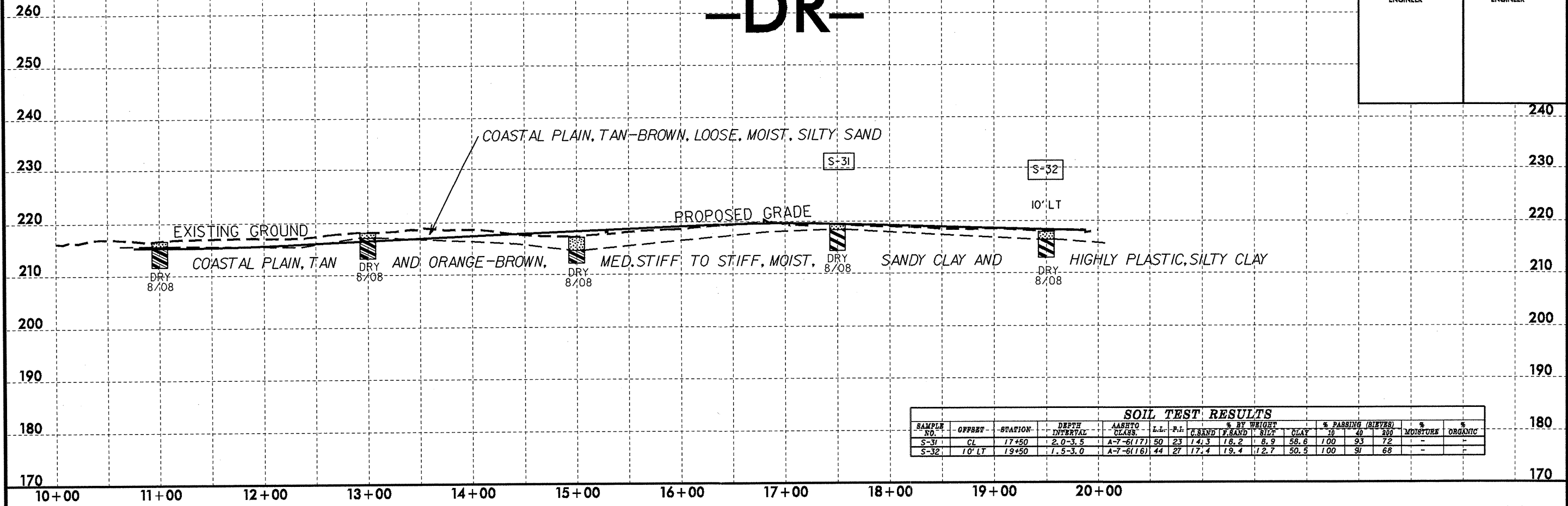
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**-DR-**

PROJECT REFERENCE NO. <b>U-4422</b>	SHEET NO. <b>16</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	16	40	200		
S-31	CL	17+50	2.0-3.5	A-7-6(17)	50	23	14.3	18.2	8.9	58.6	100	93	72	-	-
S-32	10' LT	19+50	1.5-3.0	A-7-6(16)	44	27	17.4	19.4	12.7	50.5	100	91	68	-	-

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