

REFERENCE: U-2581BA

PROJECT: 34840

SEE SHEET 3 FOR PLAN SHEET LAYOUT  
AT TIME OF INVESTIGATION

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2581BA	1	62

**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) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT 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 THE 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.

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

PERSONNEL

- M. HAYES
- A. BHUIYAN
- J. WINGO
- R. NORWOOD
- E. ARGABRIGHT

INVESTIGATED BY S&ME, INC.  
 DRAWN BY C. CHANDLER  
 CHECKED BY K. HILL  
 SUBMITTED BY S. MITCHELL  
 DATE FEBRUARY 2019



9751 SOUTHERN PINE BLVD  
CHARLOTTE, NC 28273  
(704) 523-4726

**CONTENTS**

LINE	STATION	PLAN	PROFILE
-L-	10+00 - 91+80	4 - 9	11 - 13
-Y1-	13+45 - 23+00	4	14
-Y2-	10+00 - 18+14	4, 10	14
-Y3-	10+00 - 14+50	6	15
-Y4-	10+00 - 12+43	6	15
-Y5-	10+00 - 11+85	6	15
-Y6-	12+90 - 18+09.82	9	16
-Y7-	12+76.74	9	16

**CROSS SECTIONS**

LINE	STATION	SHEETS
-L-	23+50 - 27+00	17 - 19
-L-	30+50 - 37+50	20 - 24
-L-	53+00 - 55+50	25 - 26
-L-	63+50 - 70+00	27 - 31
-L-	71+50	31
-L-	73+50 - 79+00	31 - 35
-L-	81+00 - 83+50	35 - 36
-L-	85+00	37
-L-	88+00 - 89+50	37 - 38
-Y1-	13+45 - 17+00	39 - 42
-Y1-	18+50 - 19+50	42 - 43
-Y2-	12+00 - 18+50	44 - 49
-Y3-	10+50 - 14+40	50 - 53
-Y5-	10+50 - 11+85	54 - 55
-Y6-	16+00 - 17+50	56 - 57

**APPENDICES**

APPENDIX	STATION	SHEETS
A	LAB RESULTS	58 - 60

**ROADWAY**  
**SUBSURFACE INVESTIGATION**

COUNTY GUILFORD  
 PROJECT DESCRIPTION IMPROVE US 70 (BURLINGTON RD)  
FROM WEST OF SR 3045/SR 2819 (MT HOPE CHURCH  
RD) TO JUST EAST OF SR 3175 (BIRCH CREEK RD)

**INVENTORY**



DocuSigned by:  
Stacie E. Mitchell, PE / 2/26/2019

BBC611B611055 SIGNATURE DATE

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

Table containing various geotechnical sections: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, TERMS AND DEFINITIONS, SOIL LEGEND AND AASHTO CLASSIFICATION, MINERALOGICAL COMPOSITION, COMPRESSIBILITY, PERCENTAGE OF MATERIAL, GROUND WATER, MISCELLANEOUS SYMBOLS, RECOMMENDATION SYMBOLS, ABBREVIATIONS, EQUIPMENT USED ON SUBJECT PROJECT, TEXTURE OR GRAIN SIZE, SOIL MOISTURE - CORRELATION OF TERMS, PLASTICITY, COLOR, FRACTURE SPACING, BEDDING, INDURATION, and ELEVATION. Includes symbols for soil types, rock types, and various test results.



February 20, 2019

STATE PROJECT: 34840 (U-2581BA)  
 FEDERAL PROJECT: N/A  
 COUNTY: Guilford  
 DESCRIPTION: 70 (Burlington Road) West of SR 3045/SR 2819 (Mt. Hope Church Road) to Just East of SR 3175 (Birch Creek Road)  
 SUBJECT: Geotechnical Report – Inventory

S&ME, Inc. has completed a reconnaissance and subsurface investigation for the above roadway project and presents the following revised inventory. Plans, profiles and cross-sections are included in this revised report.

**Project Description**

The project consists of widening US 70 (Burlington Road), from west of SR 3045/SR 2819 (Mt. Hope Church Road) to just east of SR 3175 (Birch Creek Road), in Guilford County, North Carolina. The length of the project is approximately 1.5 miles. Embankment fill heights and cut sections of up to approximately 10 feet are proposed along the widening. In addition, one culvert was investigated near station 55+50 along US 70 (-L-) that has a proposed extension.

The geotechnical field investigation was conducted during the period of October through November 2018. Two drill crews were used to drill, sample, and log the borings in this report. The drill rigs used for the drilling include two ATV mounted rigs: a CME 750, and a CME 550. All rigs were equipped with automatic hammers. Standard Penetration Tests were performed at selected locations and additional borings were advanced using continuous flight augers and hand augers. Representative soil samples were collected for visual classification in the field and selected samples were submitted for laboratory analysis by the S&ME soils lab.

The following alignments, totaling 1.5 miles, were investigated. Subsurface profiles and/or cross-sections of these alignments are included in this report.

<u>Line</u>	<u>Station</u>
-L-	11+85 to 91+80
-Y1-	13+45 to 20+24
-Y2-	10+00 to 18+14
-Y3-	10+00 to 14+50
-Y4-	10+00 to 12+43
-Y5-	10+00 to 11+85
-Y6-	12+90 to 18+10
-Y7-	11+00 to 12+77

**Physiography and Geology**

The project corridor is located in north-central North Carolina in the Piedmont Physiographic Province of North Carolina between the city limits of Greensboro and Burlington. The project corridor is mixed with single family homes and business developments. Topography along the project is flat to steeply

sloping with rolling hills and long low ridges. Elevations along the project range from approximately 695± to 745± feet above sea level.

Geologically the project area is located within the Carolina Slate Belt and consists of intrusive granitic rock, which is common in this area, with varying degrees of metamorphism, and also intrusive metavolcanic rocks in this region. These are igneous plutonic bodies of rock that were formed around the Late Proterozoic to Permian periods. The residual soils derived from these rocks can contain a high mica content in some locations. Weathered and crystalline rock underlay these residual soils at depth.

**Soil Properties**

Soils encountered during this investigation are separated into 4 categories: Artificial Fill, Roadway Embankment, Alluvial and Residual soils.

Artificial Fill soils consist of gray, black very loose to loose clayey sand (A-2-6) and tan and gray very soft to medium stiff silty clay (A-7-6) and sandy silt, with trace asphalt and stone. PI of these soils range between 7 and 22.

Roadway Embankment soils are similar in nature to Residual soils and may be derived from nearby sources. These soils consist of gray, tan, brown, red and orange, soft to med. stiff, sandy silt (A-4), clayey silt (A-5), sandy clay (A-6) and silty clay (A-7-6) and loose to dense, clayey sand (A-2-6) and silty sand (A-2-4). PI of these soils range between 1 and 37.

Alluvial soils are found in the floodplains from the nearby streams, brooks and creeks in the area. These soils consist of gray, black, tan, and brown, soft to med. stiff, sandy clay (A-6), silty clay (A-7-6), sandy silt (A-4), and very loose to dense, silty sand (A-2-4), sand (A-3). PI of these soils range between 5 and 15.

Residual soils are derived from the weathering of underlying rock in the area. These soils consist of gray, tan, brown, pink, red, black, white and orange, soft to hard, saprolitic, micaceous, sandy silt (A-4), clayey silt (A-5), sandy clay (A-6), silty clay (A-7-5/A-7-6) and loose to dense, saprolitic, micaceous, silty sand (A-2-4), clayey sand (A-2-6) and sand (A-3). PI of these soils range between 4 and 65.

**Rock Properties**

Weathered rock and crystalline rock were encountered across some areas of the project. The weathered rock is derived from the underlying Meta-Granite bedrock and ranges from inches to 10 feet or more in thickness. The crystalline rock was found as shallow as 5.5 feet. Discontinuous lenses of weathered rock at depth were seen in some locations and may occur in other areas that were not investigated.

**Ground Water**

Ground water measurements were taken in October through November 2018. Ground water is typically between 1’ and 13’ below the ground surface. Elevation of ground water levels range between 664.5’ and 711’. Groundwater was found within 6 feet of the proposed embankment or subgrade on the mainline L at: 49+50 40 feet right, 59+00 35 feet right, 62+00 25 feet right, 65+00 30 feet right, and 91+00 35 feet right. There is also groundwater within 6 feet on Y3, station 14+00 26 feet right.

**Areas of Special Geotechnical Interest**

- 1) **Soft Soils:** The following locations encountered soft, cohesive soils which have the potential to cause embankment stability and/or long term settlement problems:

<u>Line</u>	<u>Stations</u>	<u>Offset</u>
-L-	28+00 to 30+00	LT
-L-	53+25 to 55+25	RT
-Y3-	10+70 to 13+25	LT

- 2) **Highly Plastic Clays:** (PI > 35) were encountered on the project at the following locations:

<u>Line</u>	<u>Stations</u>	<u>Offset</u>
-L-	24+00 to 27+00	LT and RT
-L-	30+75 to 33+75	LT and RT
-L-	35+75 to 37+25	LT and RT
-L-	66+75 to 70+00	LT and RT
-L-	74+00 to 75+50	LT and RT
-L-	82+50 to 83+25	LT and RT
-L-	88+25 to 89+25	LT and RT
-Y1-	14+25 to 17+00	LT and RT
-Y1-	19+00 to 20+00	LT and RT
-Y2-	12+00 to 15+25	LT and RT
-Y2-	16+75 to 18+25	LT and RT
-Y3-	10+00 to 13+50	LT and RT

- 3) **Moisture Sensitive Clays/ Silts:** Clays and Silts with a moderate PI and a Moisture Content above the Plastic Limit were encountered on the project at the following locations:

<u>Line</u>	<u>Stations</u>	<u>Offset</u>
-L-	75+25 to 79+25	LT and RT
-Y1-	13+50 to 15+00	LT and RT
-Y2-	12+00 to 17+00	LT and RT
-Y3-	13+50 to 14+50	LT and RT
-Y5-	10+75 to 12+00	LT and RT
-Y6-	16+50 to 17+75	LT and RT

- 4) **Artificial Fill:** Three areas of artificial fill occurs at the following locations:

<u>Line</u>	<u>Stations</u>	<u>Offset (ft)</u>
-L-	13+75 to 17+75	LT
-L-	86+75 to 87+75	RT
-Y3-	10+50 to 14+40	LT

- 5) **Ponds:** Four ponds occur on or within close proximity of the right of way on this project. They are noted at the following locations:

<u>Line</u>	<u>Stations</u>	<u>Offset (ft)</u>
-Y4-	11+00 to 11+75	30 RT
-L-	68+75 to 73+25	550 RT

-L-	81+00 to 84+50	575 LT
-L-	85+25 to 89+00	625 LT

- 6) **Culvert:** A box culvert was noted at the following location:

<u>Line</u>	<u>Station</u>
-L-	55+85

- 7) **Water wells:** Nineteen water wells were located with close proximity to the project. These wells were noted at the following locations:

<u>Line</u>	<u>Stations</u>	<u>Offset (ft)</u>
-L-	10+17	108 LT
-L-	30+26	95 RT
-L-	30+99	113 RT
-L-	40+49	105 RT
-L-	45+73	77 RT
-L-	46+57	86 RT
-L-	48+69	114 LT
-L-	53+80	62 LT
-L-	68+28	64 RT
-Y1-	12+81	59 LT
-Y3-	11+22	44 RT
-Y3-	11+71	35 LT
-Y3-	13+00	36 RT
-Y3-	15+82	53 RT
-Y4-	14+90	38 LT
-Y5-	12+05	39 LT
-Y5-	14+91	33 RT
-Y7-	10+00	45 LT
-Y7-	10+65	36 LT

**Bulk Samples**

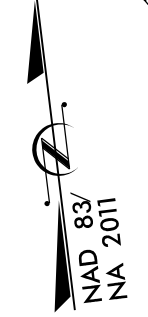
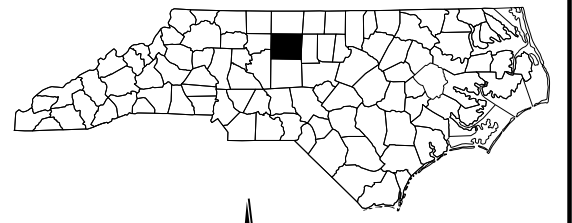
Two bulk samples were collected for Standard Proctor and CBR testing at the following locations:

<u>Sample No.</u>	<u>Line</u>	<u>Station &amp; Offset</u>	<u>Depth</u>	<u>Test</u>
S-01	-L-	36+40, 40 LT	1.0-6.0	CBR
S-02	-Y1-	14+00, 40 RT	1.0-6.0	CBR

Prepared by,

*Stacie E Mitchell*  
 Stacie E Mitchell, PE  
 Project Engineer

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2581BA	3	62
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34840.1.1		PE	
		RW, UTIL.	
		CONST.	

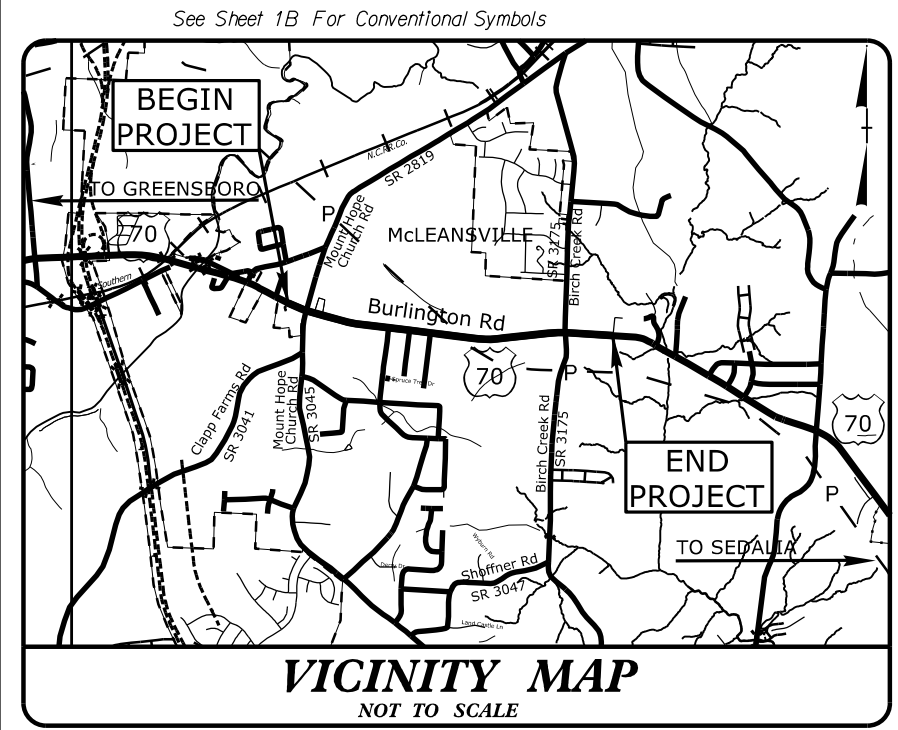


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**GUILFORD COUNTY**

LOCATION: US 70 (BURLINGTON ROAD) FROM WEST OF SR 3045/SR 2819 (MT. HOPE CHURCH ROAD) TO JUST EAST OF SR 3175 (BIRCH CREEK ROAD)

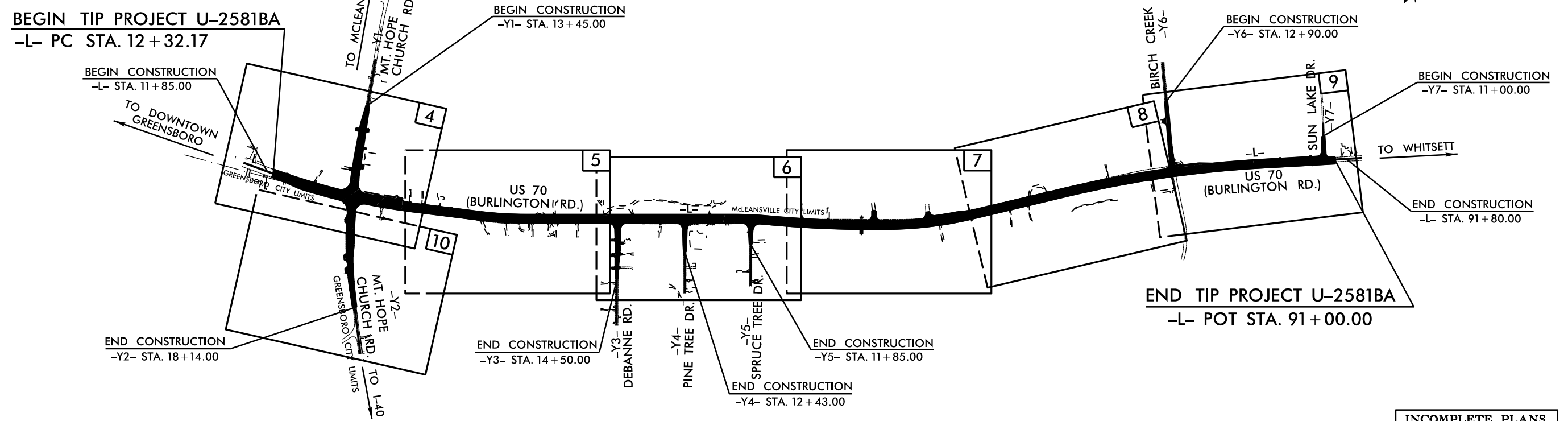
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND SIGNALS



VICINITY MAP  
NOT TO SCALE

★ EXISTING SIGNAL TO BE MODIFIED

65% PLANS



BEGIN TIP PROJECT U-2581BA  
-L- PC STA. 12 + 32.17

BEGIN CONSTRUCTION  
-L- STA. 11 + 85.00

BEGIN CONSTRUCTION  
-Y1- STA. 13 + 45.00

BEGIN CONSTRUCTION  
-Y6- STA. 12 + 90.00

BEGIN CONSTRUCTION  
-Y7- STA. 11 + 00.00

END CONSTRUCTION  
-Y2- STA. 18 + 14.00

END CONSTRUCTION  
-Y3- STA. 14 + 50.00

END CONSTRUCTION  
-Y4- STA. 12 + 43.00

END CONSTRUCTION  
-Y5- STA. 11 + 85.00

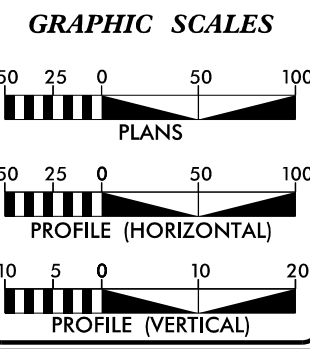
END CONSTRUCTION  
-L- STA. 91 + 80.00

END TIP PROJECT U-2581BA  
-L- POT STA. 91 + 00.00

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF GREENSBORO AND McLEANSVILLE. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ??.

INCOMPLETE PLANS  
DO NOT USE FOR R/W ACQUISITION  
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

CONTRACT:



DESIGN DATA

ADT 2019	=	15,430
ADT 2039	=	25,890
K	=	12 %
D	=	60 %
T	=	6 % *
V	=	50 MPH
* (TTST 1 + DUAL 5)		
FUNC CLASS	=	PRINCIPAL ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-2581BA	=	1.490 MI.
TOTAL LENGTH OF TIP PROJECT U-2581BA	=	1.490 MI.

Prepared for the North Carolina Department of Transportation  
In the Office of:

**vhb**  
VHB Engineering NC, P.C. (C-3705)  
940 Main Campus Drive, Suite 500  
Raleigh, NC 27606

**ECOLOGICAL ENGINEERING**  
1514 US Hwy 101  
Suite 101  
Cary, NC 27513  
(919) 557-4929

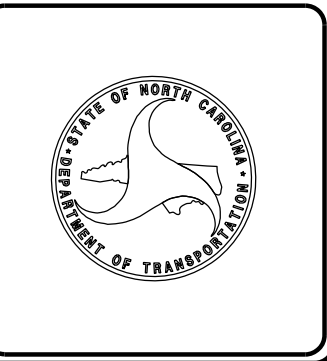
2018 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	JIMMY GOODNIGHT, PE PROJECT ENGINEER
OCTOBER 30, 2018	
LETTING DATE:	JERRY JAVELLANA, PE PROJECT DESIGN ENGINEER
OCTOBER 15, 2019	
NCDOT CONTACT	LAURA SUTTON, PE

HYDRAULICS ENGINEER

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

ROADWAY DESIGN ENGINEER

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



SYSTEM: \$\$\$\$\$\$  
 USER: \$\$\$\$\$\$  
 DATE: \$\$\$\$\$\$  
 TIME: \$\$\$\$\$\$  
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PROJECT REFERENCE NO.	SHEET NO.
<b>U-2581BA</b>	<b>5</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
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NAD 83/2011

RESIDUAL

-L- PC Sta. 27+84.53

-L- PT Sta. 31+21.70

30+00

35+00

MATCHLINE -L- STA. 23+00.00 (SEE SHEET 4)

MATCHLINE -L- STA. 37+00.00 (SEE SHEET 6)

City of Greensboro, 16", DIP  
Charter Communication, 2", CONDUIT  
Level 3 Communications LLC, 2", CONDUIT  
AT&T Corp., F.O., DIRECT BURIED

AT&T Corp., 400 PAIR, COPPER (RIP)  
City of Greensboro, 16", DIP  
AT&T Corp., 900 PAIR, COPPER  
AT&T Corp., 2", CONDUIT

ROADWAY EMBANKMENT

US 70/BURLINGTON RD 34' BS

US 70/BURLINGTON RD 32' BS

RESIDUAL

RESIDUAL

REVISIONS

8/17/99

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$L&L\$\$\$\$\$  
\$\$\$\$\$CADD\$\$\$\$\$  
\$\$\$\$\$PLANS\$\$\$\$\$  
\$\$\$\$\$CONTRACT\$\$\$\$\$  
\$\$\$\$\$PERMITS\$\$\$\$\$  
\$\$\$\$\$AS-BUILT\$\$\$\$\$  
\$\$\$\$\$CLOSURE\$\$\$\$\$  
\$\$\$\$\$RECONSTRUCTION\$\$\$\$\$  
\$\$\$\$\$CLOSURE\$\$\$\$\$  
\$\$\$\$\$PERMITS\$\$\$\$\$  
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\$\$\$\$\$L&L\$\$\$\$\$  
\$\$\$\$\$SYTIME\$\$\$\$\$

EXISTING

EXISTING

PROJECT REFERENCE NO. <b>U-2581BA</b>	SHEET NO. <b>6</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	

NAD 83/2011

RESIDUAL

RESIDUAL

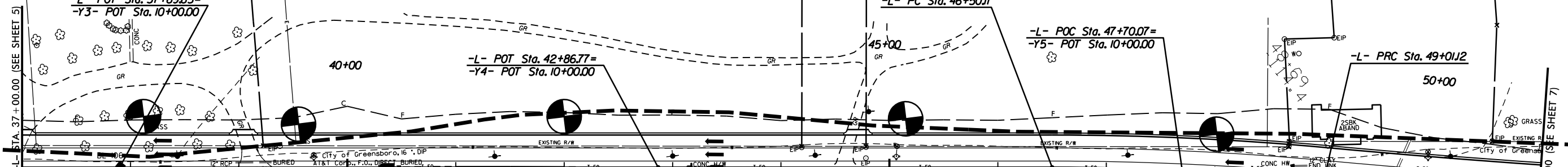
-L- POT Sta. 37+89.85=  
-Y3- POT Sta. 10+00.00

-L- POT Sta. 42+86.77=  
-Y4- POT Sta. 10+00.00

-L- PC Sta. 46+50.11

-L- POC Sta. 47+70.07=  
-Y5- POT Sta. 10+00.00

-L- PRC Sta. 49+01.2



ROADWAY EMBANKMENT

ROADWAY EMBANKMENT

ARTIFICIAL FILL

RESIDUAL

RESIDUAL

END CONSTRUCTION  
-Y4- POT Sta. 12+43.00

END CONSTRUCTION  
-Y5- POT Sta. 11+85.00

END GRADE  
-Y3- POT Sta. 14+40.00

END CONSTRUCTION  
-Y3- POT Sta. 14+50.00

-Y4- POT Sta. 15+46.72

-Y5- POT Sta. 14+91.06

REVISIONS

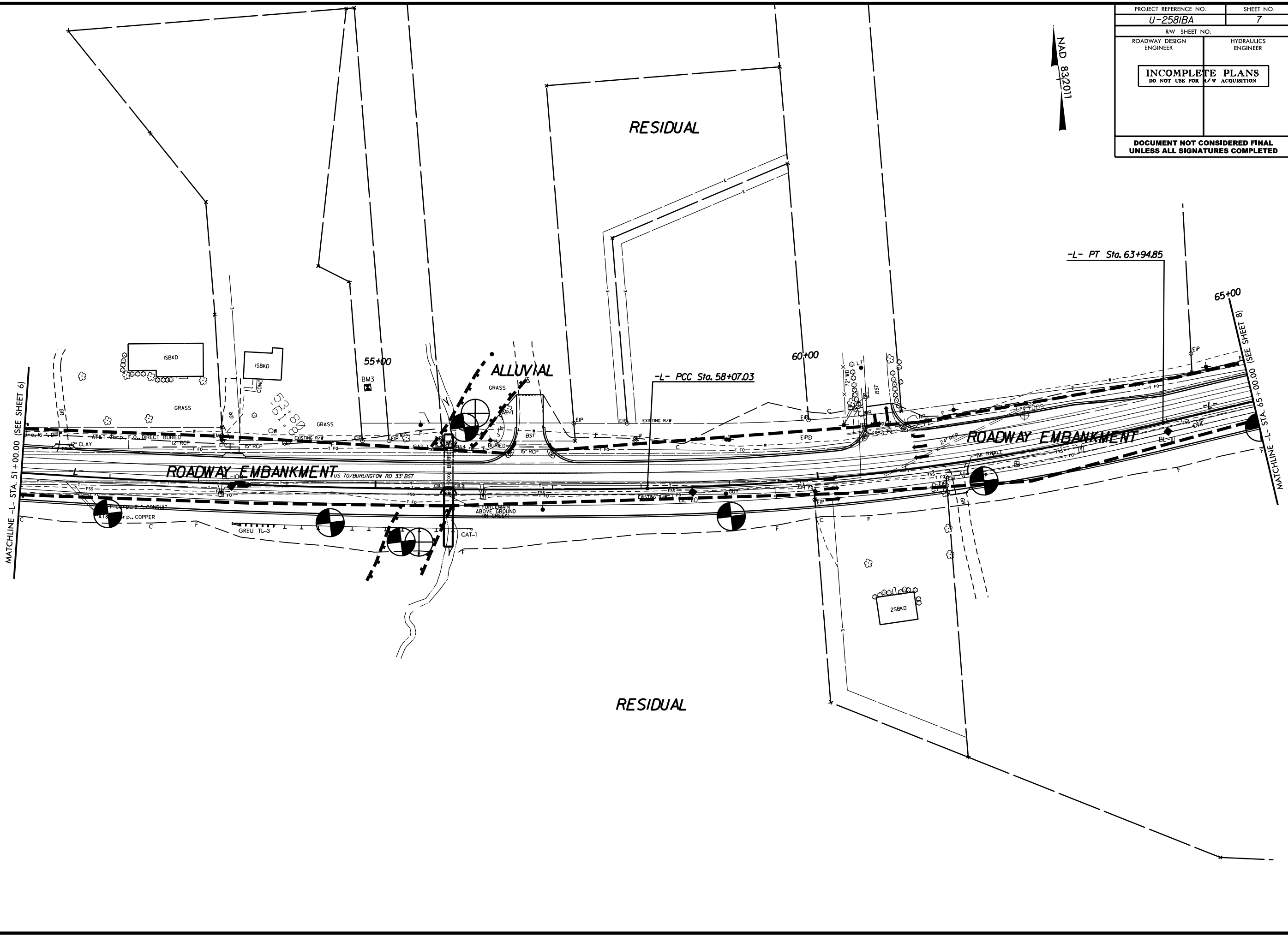
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PROJECT REFERENCE NO. <b>U-2581BA</b>	SHEET NO. <b>7</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
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NAD 83/2011



REVISIONS

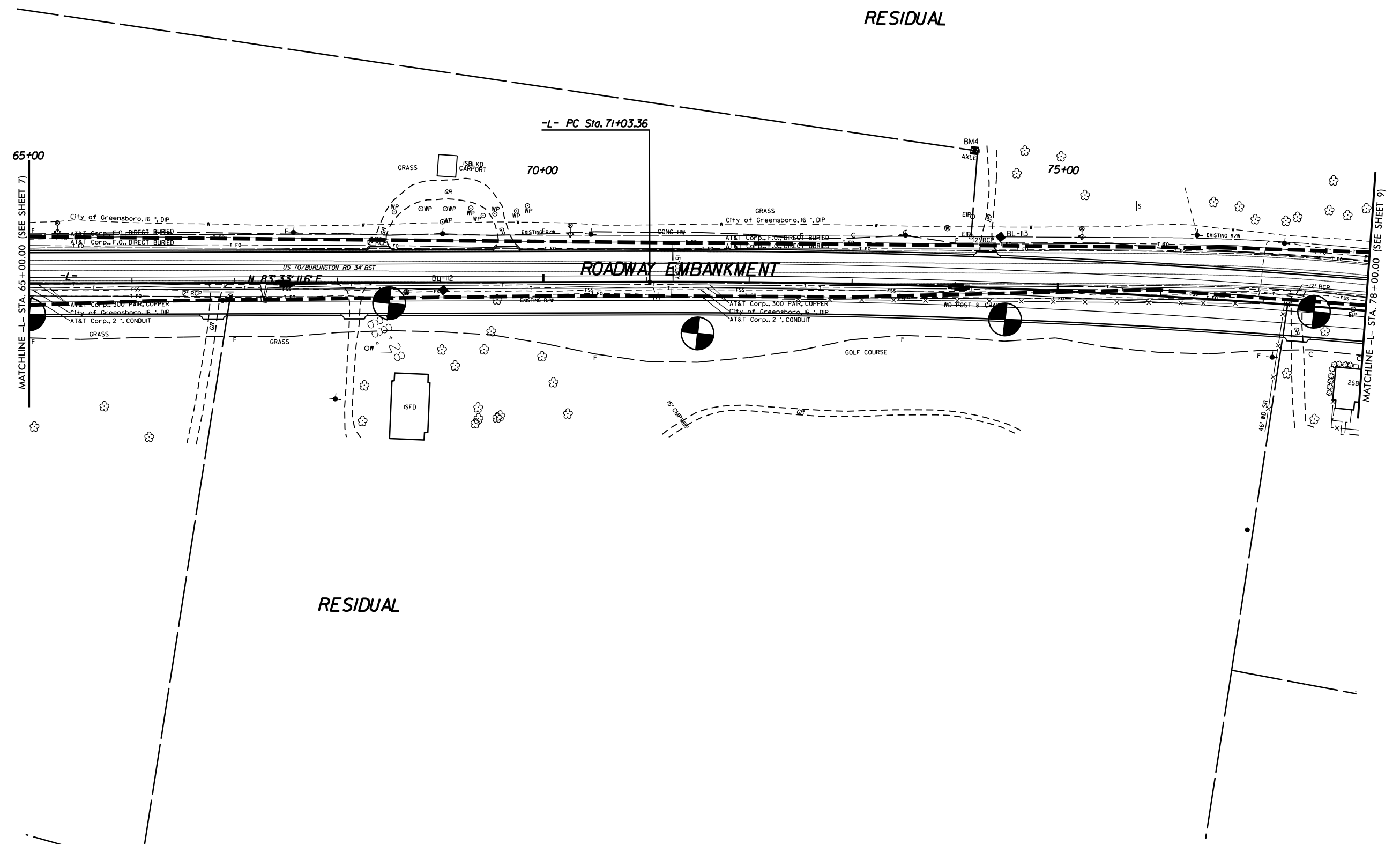
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8/17/99

REVISIONS

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PROJECT REFERENCE NO. <b>U-2581BA</b>	SHEET NO. <b>8</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
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RESIDUAL

-L- PC Sta. 71+03.36

65+00

70+00

75+00

MATCHLINE -L- STA. 65+00.00 (SEE SHEET 7)

MATCHLINE -L- STA. 78+00.00 (SEE SHEET 9)

ROADWAY EMBANKMENT

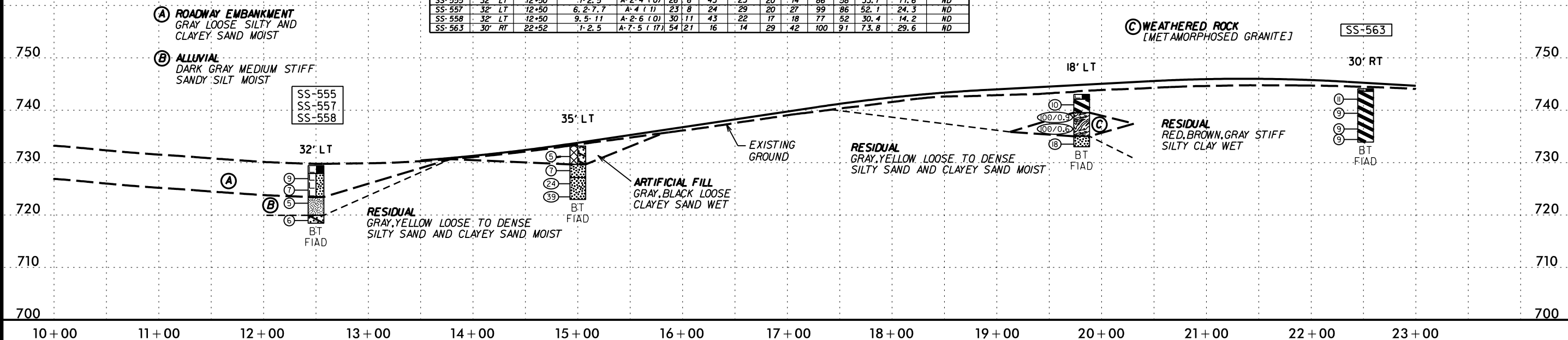
RESIDUAL



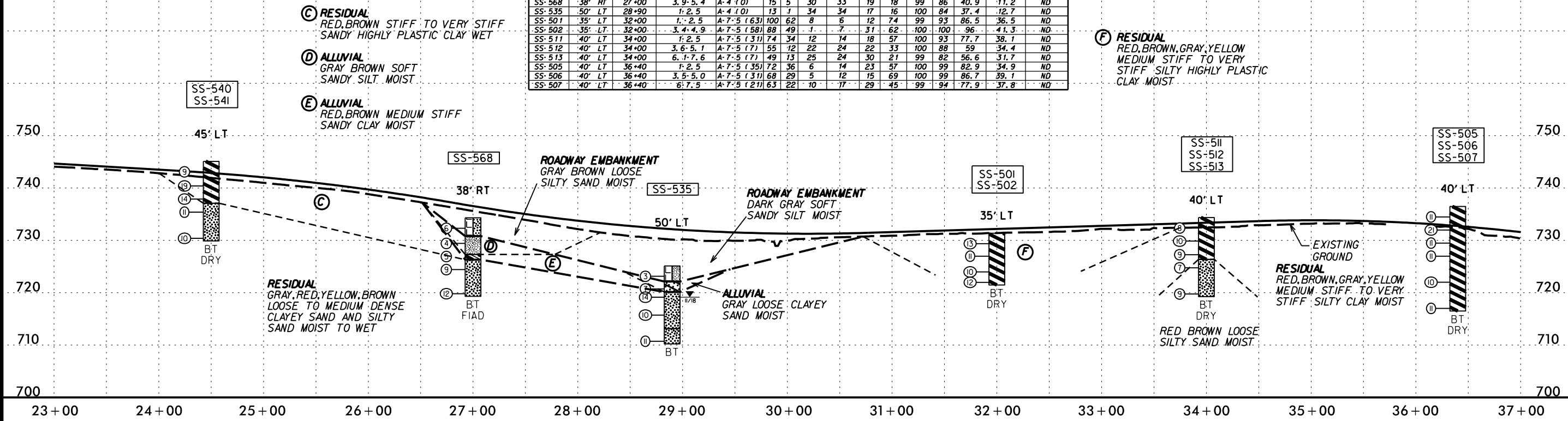


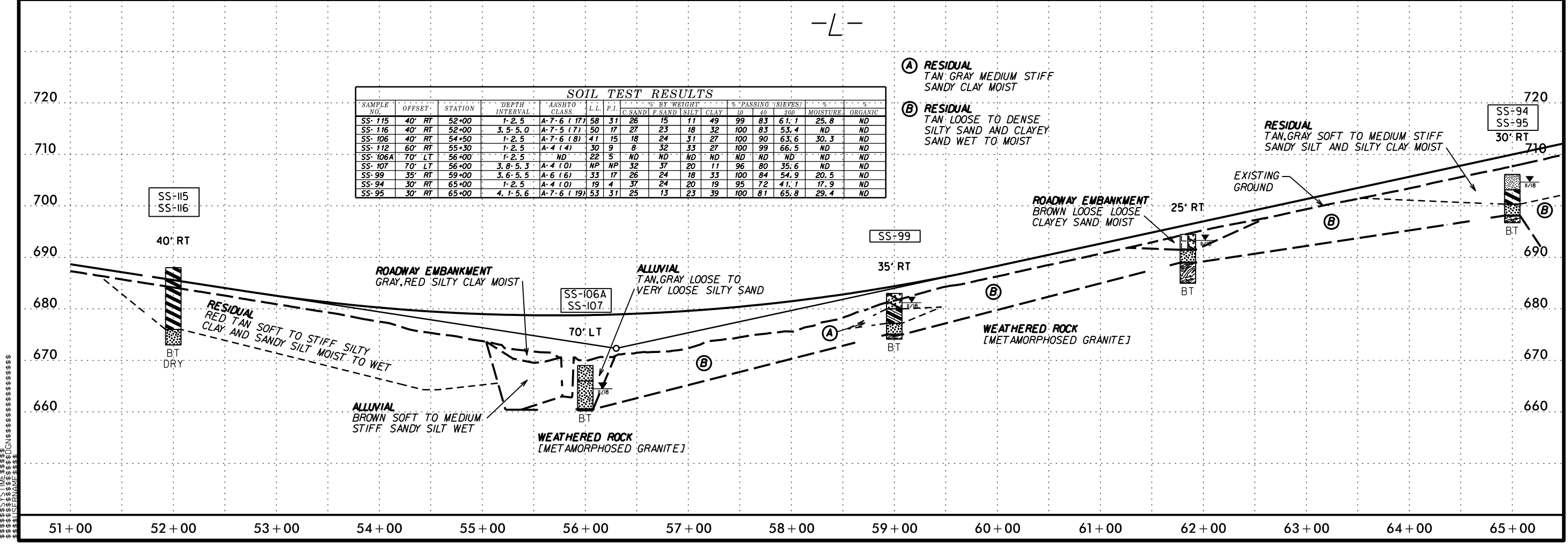
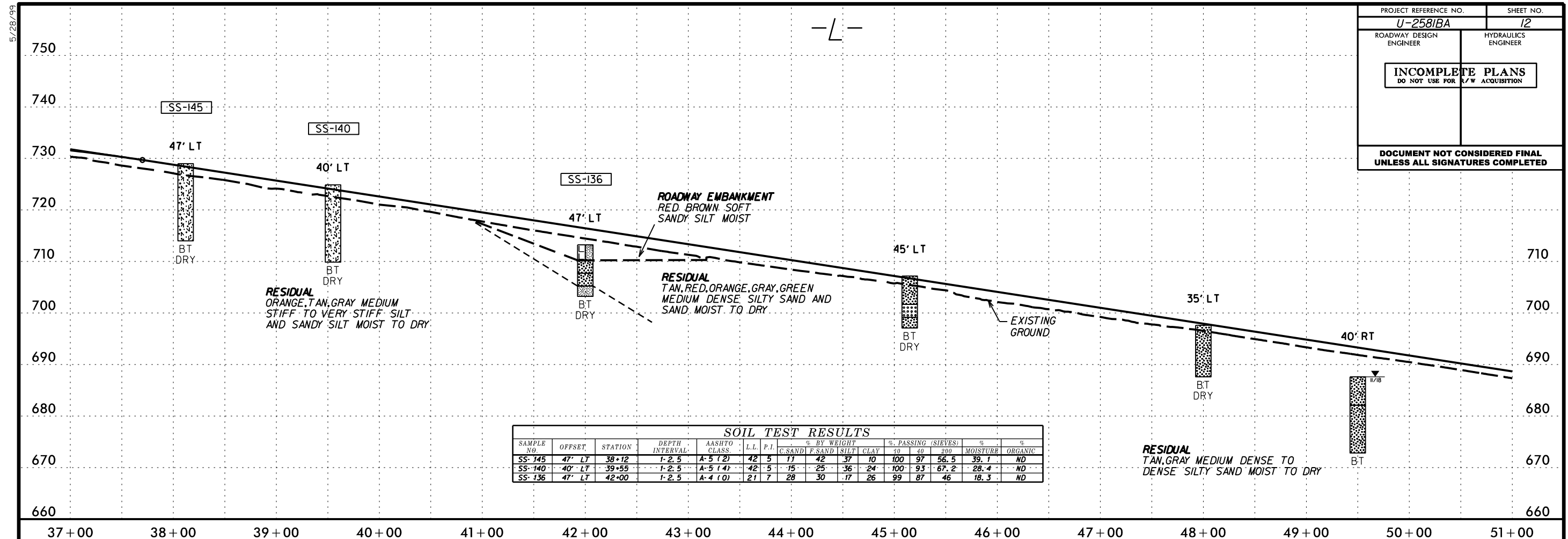
5/28/99

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		
SS-555	32' LT	12+50	1-2.5	A-2-4 (1)	26	6	43	23	20	14	86	58	33.7	11.6	ND
SS-557	32' LT	12+50	6.2-7.7	A-4 (1)	23	8	24	29	20	27	99	86	52.1	24.3	ND
SS-558	32' LT	12+50	9.5-11	A-2-6 (1)	30	11	43	22	17	18	77	52	30.4	14.2	ND
SS-563	30' RT	22+52	1-2.5	A-7-5 (17)	54	21	16	14	29	42	100	91	73.8	29.6	ND



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		
SS-540	45' LT	24+50	1-2.5	A-7-6 (36)	76	47	8	20	16	55	100	99	73.4	31.8	ND
SS-541	45' LT	24+50	3.7-5.2	A-7-5 (37)	80	45	17	9	15	58	100	88	75.1	27.1	ND
SS-568	38' RT	27+00	3.9-5.4	A-4 (1)	15	5	30	33	19	18	99	86	40.9	11.2	ND
SS-535	50' LT	28+90	1-2.5	A-4 (1)	13	1	34	34	17	16	100	84	37.4	12.7	ND
SS-501	35' LT	32+00	1-2.5	A-7-5 (63)	100	62	8	6	12	74	99	93	86.5	36.5	ND
SS-502	35' LT	32+00	3.4-4.9	A-7-5 (58)	88	49	1	7	31	62	100	100	96	41.3	ND
SS-511	40' LT	34+00	1-2.5	A-7-5 (31)	74	34	12	14	18	57	100	93	77.7	38.1	ND
SS-512	40' LT	34+00	3.6-5.1	A-7-5 (7)	55	12	22	24	22	33	100	88	59	34.4	ND
SS-513	40' LT	34+00	6.1-7.6	A-7-5 (7)	49	13	25	24	30	21	99	82	56.6	31.7	ND
SS-505	40' LT	36+40	1-2.5	A-7-5 (35)	72	36	6	14	23	37	100	99	82.9	34.9	ND
SS-506	40' LT	36+40	3.5-5.0	A-7-5 (31)	68	29	5	12	15	69	100	99	86.7	39.1	ND
SS-507	40' LT	36+40	6.7-9	A-7-5 (21)	63	22	10	17	29	45	99	94	77.9	37.8	ND





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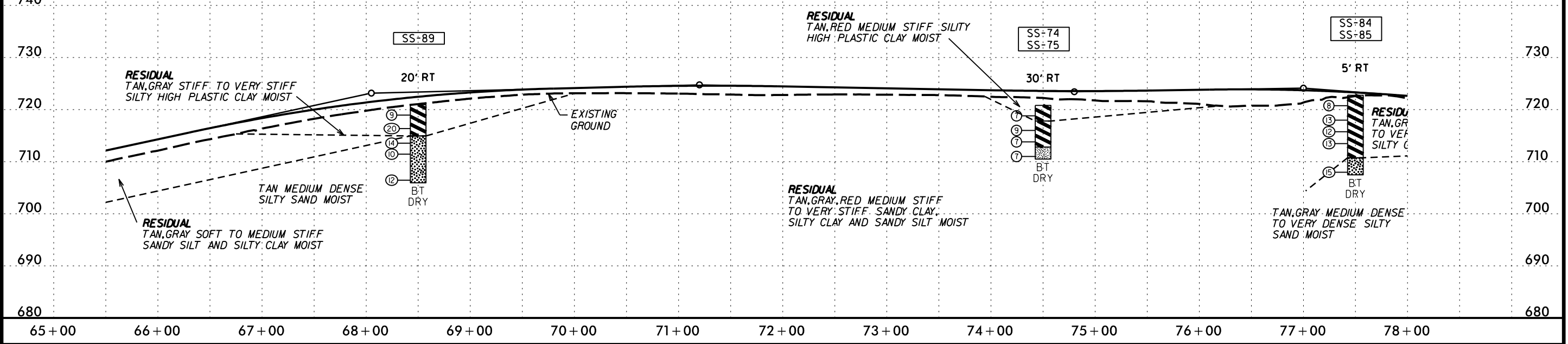
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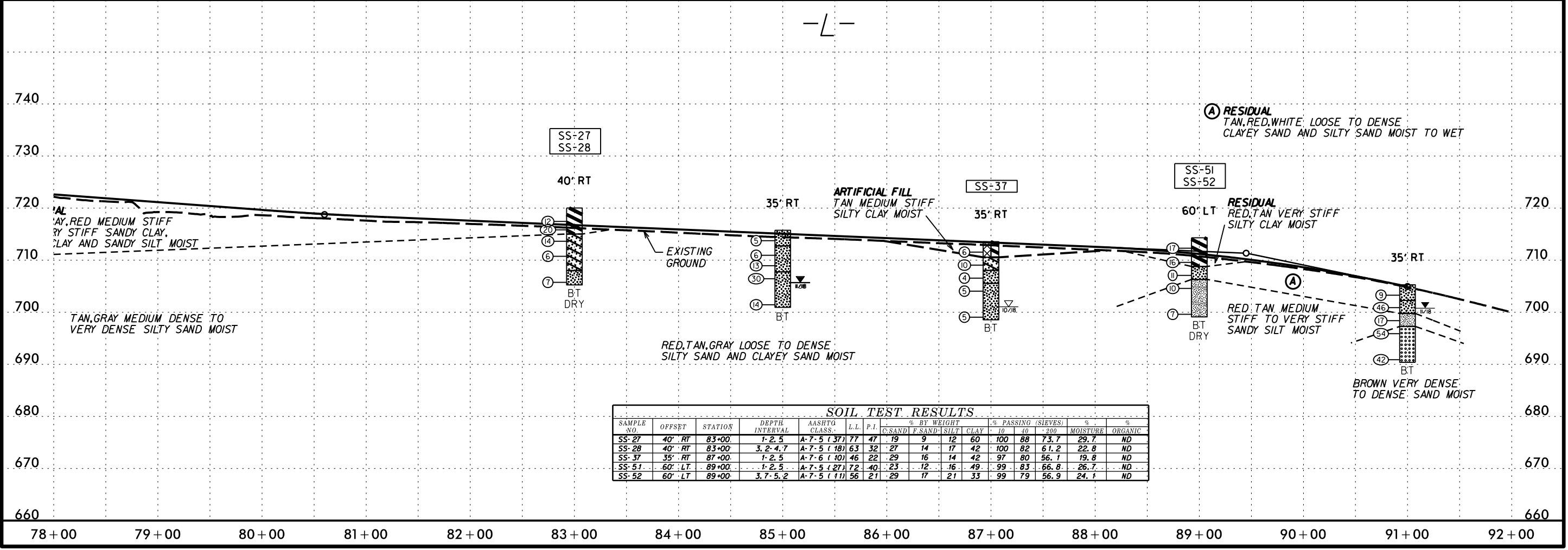
5/28/99

PROJECT REFERENCE NO.		SHEET NO.	
U-2581BA		13	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			

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		
SS-89	20' RT	68+50	1-2.5	A-7-6 (152)	80	51	4	10	25	61	100	98	88.7	ND	ND
SS-74	30' RT	74+50	1-2.5	A-7-6 (162)	94	65	7	10	10	73	100	96	84.8	38.1	ND
SS-75	30' RT	74+50	3.0-5.3	A-7-5 (13)	53	11	4	19	41	36	100	99	83.2	45.2	ND
SS-84	5' RT	77+50	1-2.5	A-7-6 (125)	61	35	16	15	14	55	99	90	70.8	29.4	ND
SS-85	5' RT	77+50	3.0-5.3	A-7-6 (122)	53	29	13	18	24	45	100	91	73.9	27.3	ND



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		
SS-27	40' RT	83+00	1-2.5	A-7-5 (37)	77	47	19	9	12	60	100	88	73.7	29.7	ND
SS-28	40' RT	83+00	3.2-4.7	A-7-5 (18)	63	32	27	14	17	42	100	82	61.2	22.8	ND
SS-37	35' RT	87+00	1-2.5	A-7-6 (10)	46	22	29	16	14	42	97	80	56.1	19.8	ND
SS-51	60' LT	89+00	1-2.5	A-7-5 (27)	72	40	23	12	16	49	99	83	66.8	26.7	ND
SS-52	60' LT	89+00	3.7-5.2	A-7-5 (11)	56	21	29	17	21	33	99	79	56.9	24.1	ND



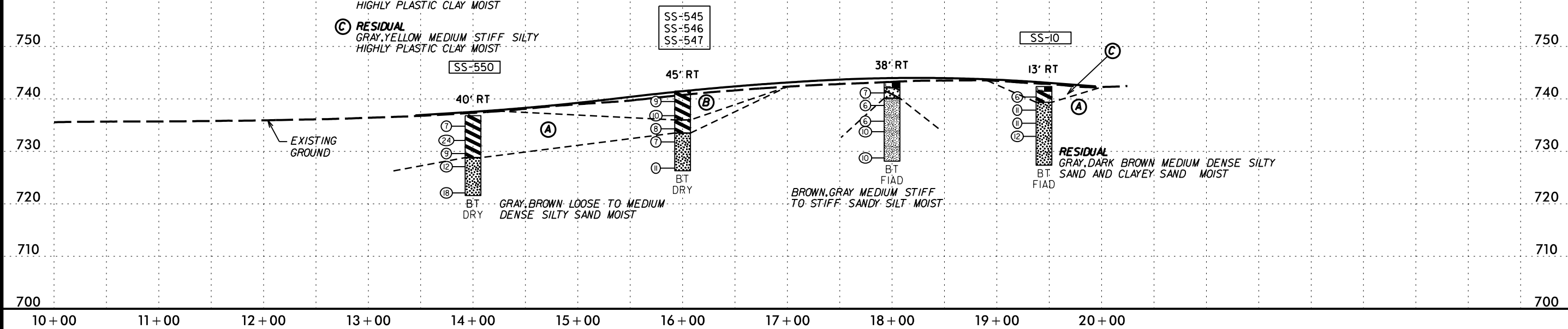
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 \$\$\$\$\$\$ DRAWING \$\$\$\$\$\$

5/28/99

-Y1-

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			
SS-550	40' RT	14+00	1-2.5	A-7-6 (24)	54	31	10	19	22	49	100	96	75.7	26.8	ND
SS-545	45' RT	16+00	1-2.5	A-7-5 (65)	94	61	1	10	22	66	100	100	91.3	41.5	ND
SS-546	45' RT	16+00	3.7-5.2	A-7-5 (52)	81	44	1	4	28	66	100	100	96.3	40.2	ND
SS-547	45' RT	16+00	6.2-7.7	A-7-5 (18)	49	18	2	18	51	29	100	99	85	38.2	ND
SS-10	13' RT	19+45	1-2.5	A-7-5 (51)	82	43	2	5	34	60	100	99	95.2	48.5	ND

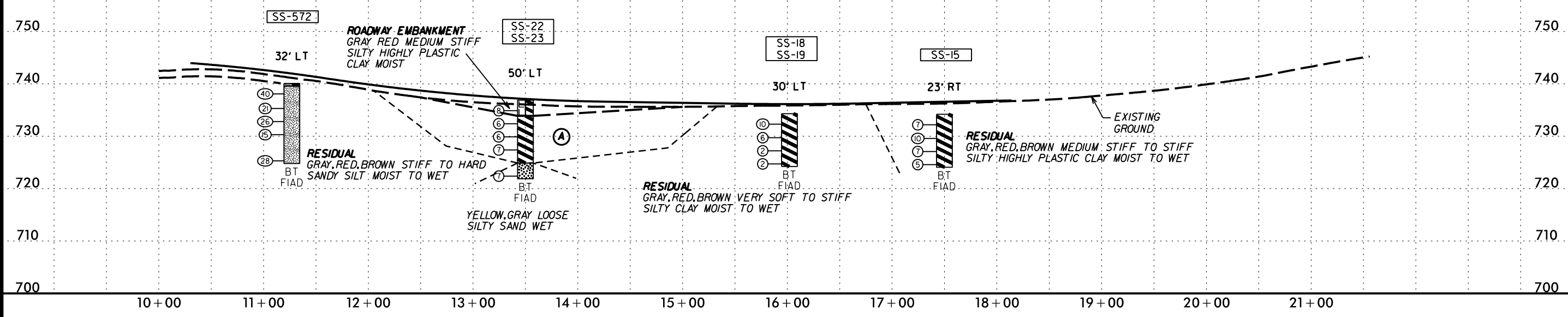
- (A) RESIDUAL GRAY, BROWN MEDIUM STIFF TO VERY STIFF SILTY CLAY MOIST
- (B) RESIDUAL GRAY, BROWN STIFF SILTY HIGHLY PLASTIC CLAY MOIST
- (C) RESIDUAL GRAY, YELLOW MEDIUM STIFF SILTY HIGHLY PLASTIC CLAY MOIST



-Y2-

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			
SS-572	32' LT	11+27	1-2.5	A-4 (10)	NP	NP	36	28	23	13	94	71	39.4	6.8	ND
SS-22	50' LT	13+50	1-2.5	A-7-5 (31)	67	37	12	12	16	59	100	94	77.6	30.4	ND
SS-23	50' LT	13+50	3.5-5	A-7-5 (51)	80	46	4	4	29	62	100	97	92.8	44.1	ND
SS-18	30' LT	16+02	1-2.5	A-7-5 (40)	75	30	1	3	33	63	100	99	96.8	45.0	ND
SS-19	30' LT	16+02	3.6-5.1	A-7-5 (35)	71	26	1	4	47	49	100	100	97.0	56.7	ND
SS-15	23' RT	17+50	3.5-5	A-7-5 (31)	80	47	20	12	11	57	94	83	65.0	32.8	ND

- (A) RESIDUAL GRAY, RED, BROWN MEDIUM STIFF SILTY HIGHLY PLASTIC CLAY MOIST TO WET

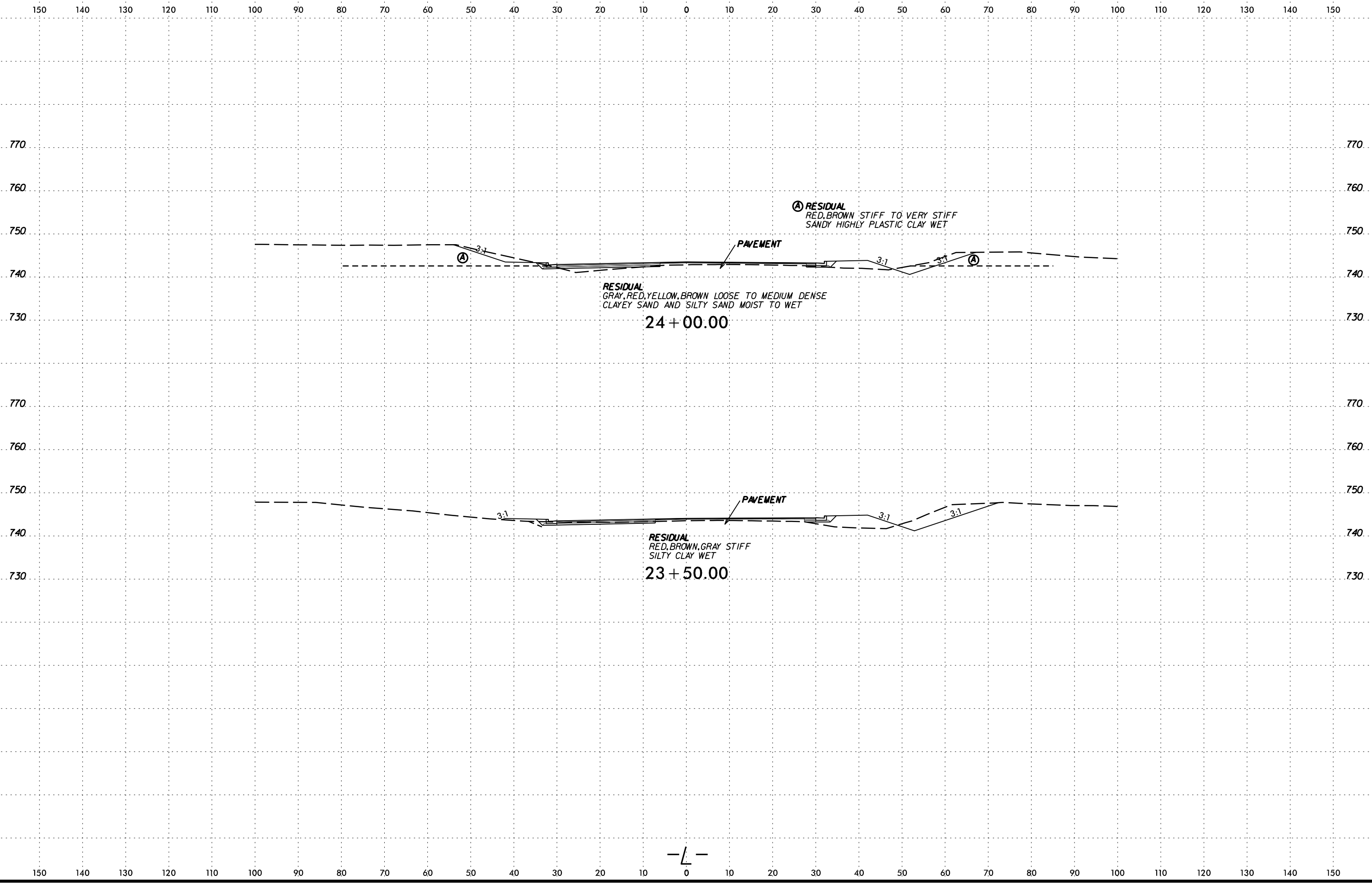


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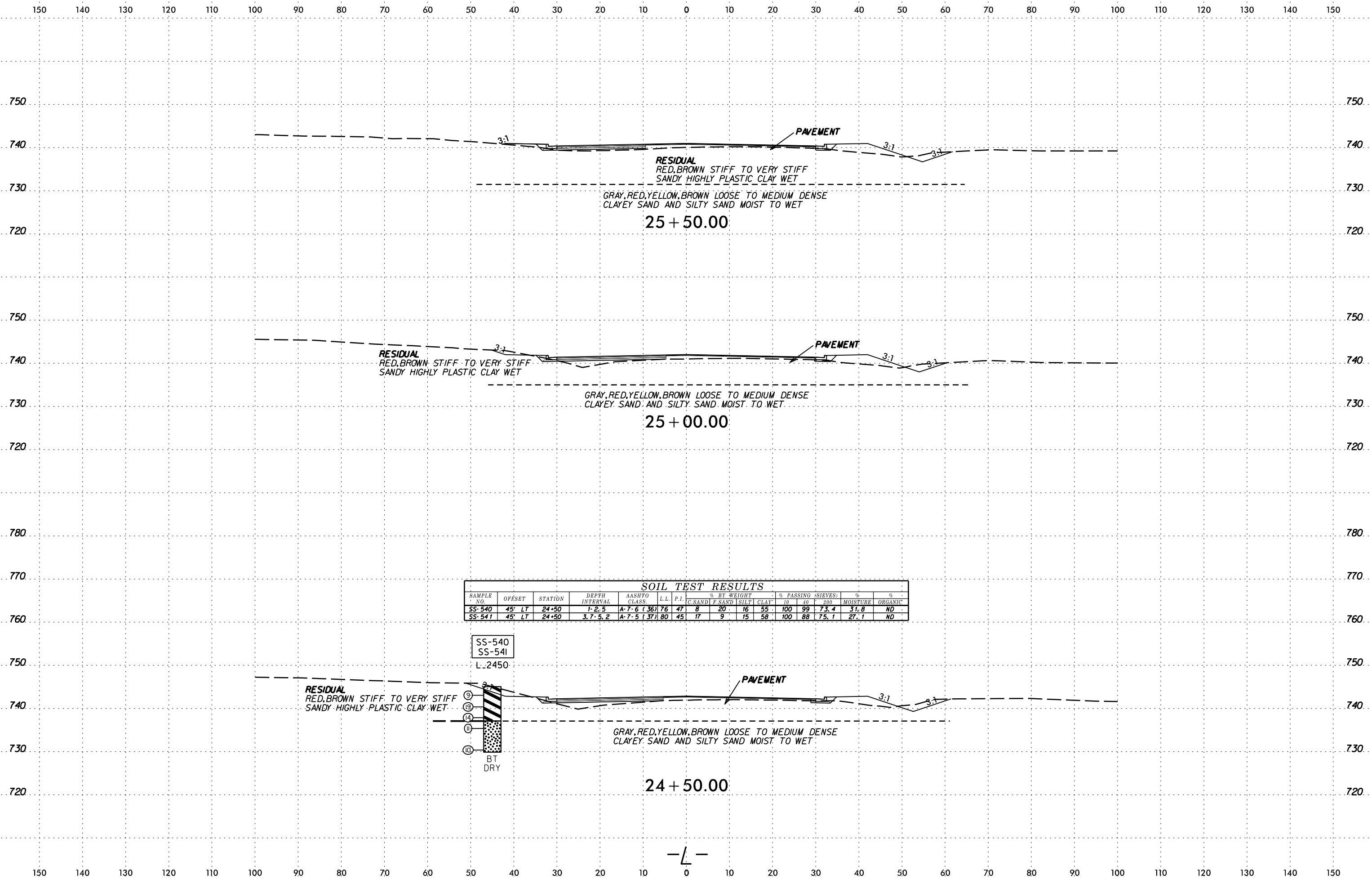








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SCALE: AS SHOWN



**RESIDUAL**  
 RED, BROWN STIFF TO VERY STIFF  
 SANDY HIGHLY PLASTIC CLAY WET

GRAY, RED, YELLOW, BROWN LOOSE TO MEDIUM DENSE  
 CLAYEY SAND AND SILTY SAND MOIST TO WET

**25 + 50.00**

**RESIDUAL**  
 RED, BROWN STIFF TO VERY STIFF  
 SANDY HIGHLY PLASTIC CLAY WET

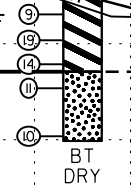
GRAY, RED, YELLOW, BROWN LOOSE TO MEDIUM DENSE  
 CLAYEY SAND AND SILTY SAND MOIST TO WET

**25 + 00.00**

SOIL TEST RESULTS															
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	#200			
SS-540	45' LT	24+50	1'-2.5'	A-7-6 (36)	76	47	8	20	16	55	100	99	73.4	31.8	ND
SS-541	45' LT	24+50	3.7'-5.2'	A-7-5 (37)	80	45	17	9	15	58	100	88	75.1	27.1	ND

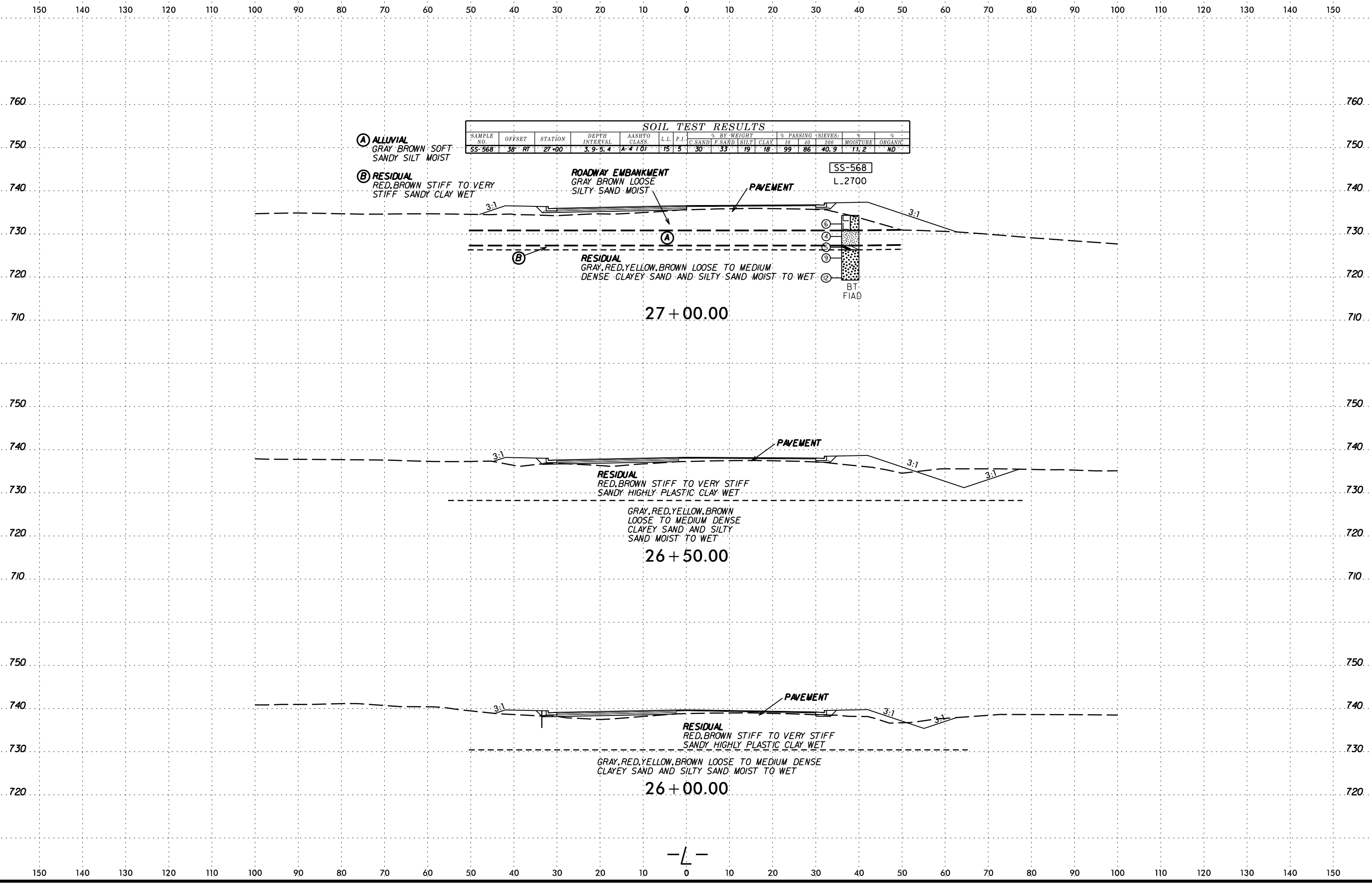
SS-540  
 SS-541

L-2450



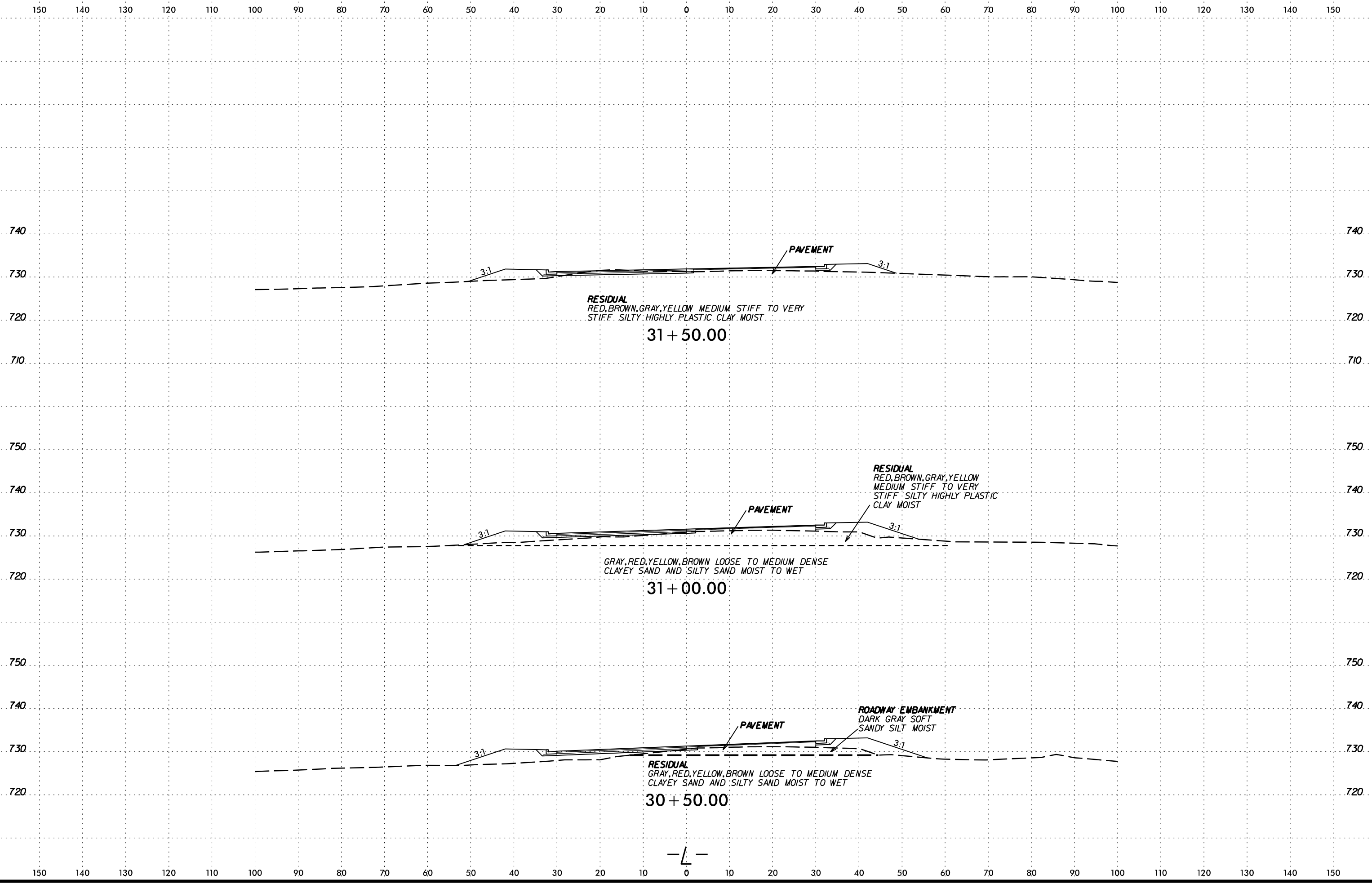
GRAY, RED, YELLOW, BROWN LOOSE TO MEDIUM DENSE  
 CLAYEY SAND AND SILTY SAND MOIST TO WET

**24 + 50.00**

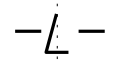


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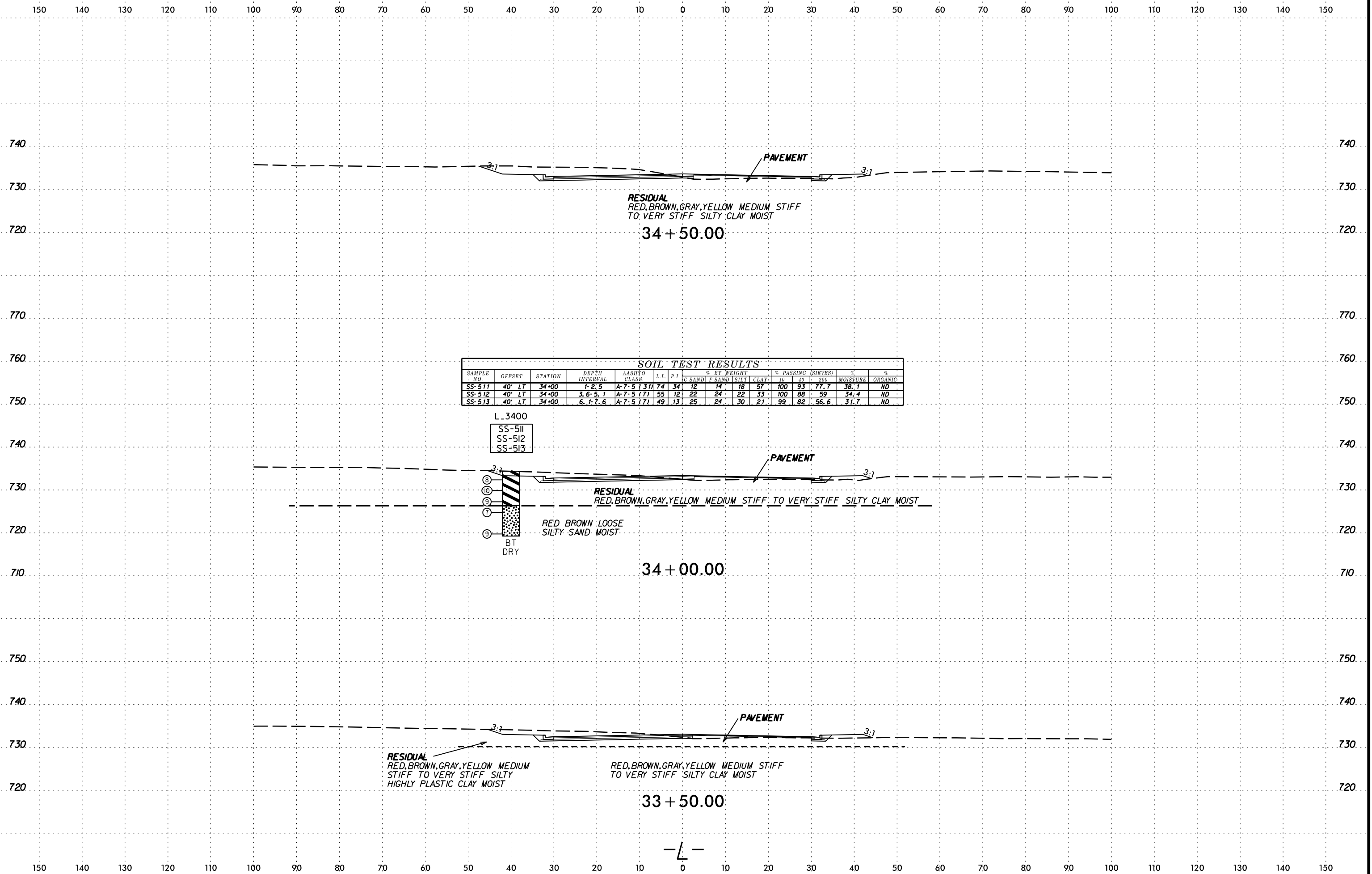
6/23/16



SYTIME CONSTRUCTION SERVICES







RESIDUAL  
RED, BROWN, GRAY, YELLOW MEDIUM STIFF  
TO VERY STIFF SILTY CLAY MOIST

34 + 50.00

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			300
SS-511	40' LT	34+00	1-2.5	A-7-5 (3.7)	74	34	12	14	18	57	100	93	77.7	38.1	ND
SS-512	40' LT	34+00	3.6-5.1	A-7-5 (7)	55	12	22	24	22	33	100	88	59	34.4	ND
SS-513	40' LT	34+00	6.1-7.6	A-7-5 (7.1)	49	13	25	24	30	21	99	82	56.6	31.7	ND

L\_3400  
SS-511  
SS-512  
SS-513

RESIDUAL  
RED, BROWN, GRAY, YELLOW MEDIUM STIFF TO VERY STIFF SILTY CLAY MOIST

34 + 00.00

RED BROWN LOOSE  
SILTY SAND MOIST

BT  
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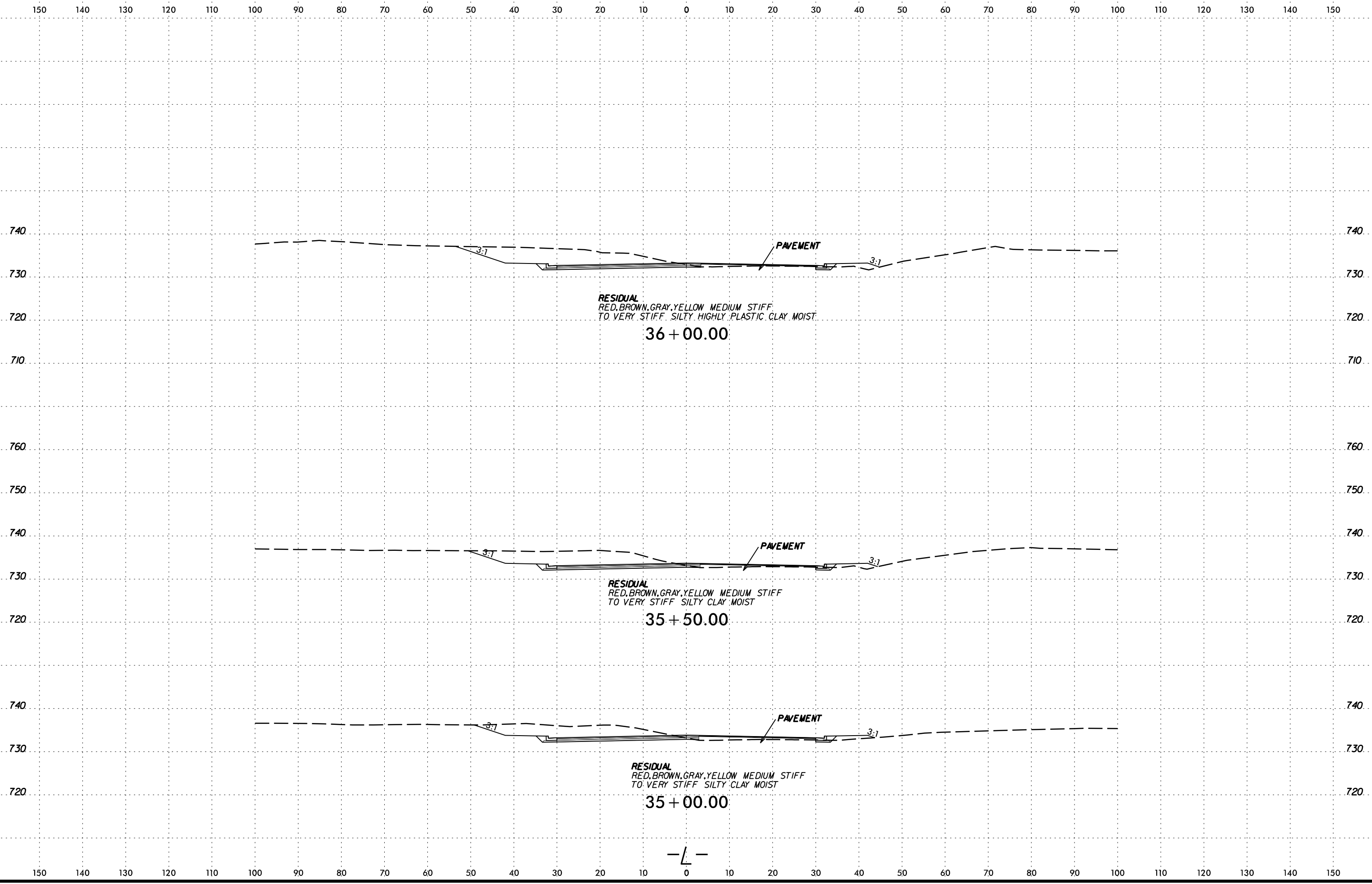
RESIDUAL  
RED, BROWN, GRAY, YELLOW MEDIUM STIFF TO VERY STIFF SILTY  
HIGHLY PLASTIC CLAY MOIST

RED, BROWN, GRAY, YELLOW MEDIUM STIFF  
TO VERY STIFF SILTY CLAY MOIST

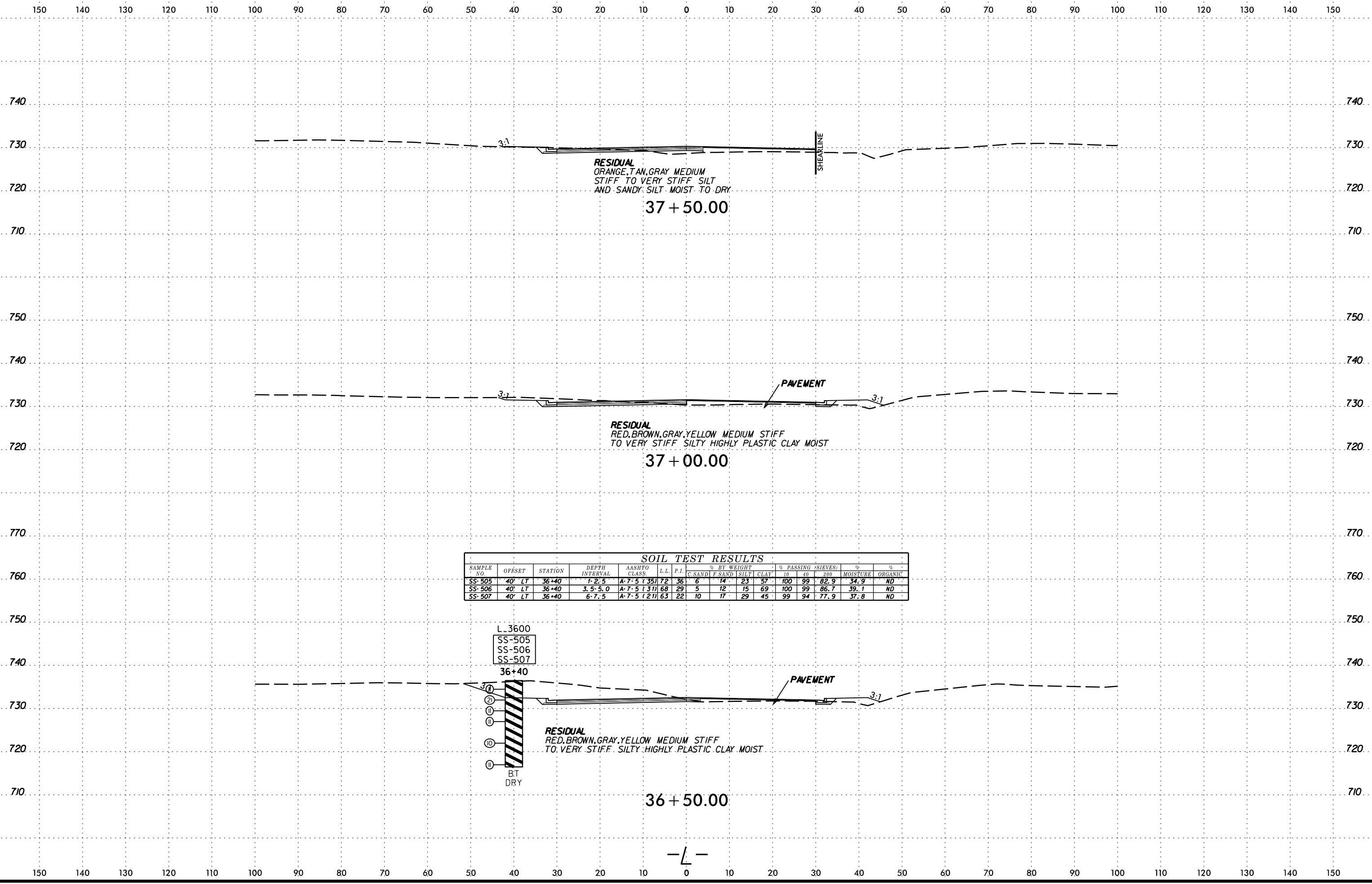
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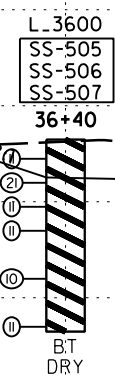


**RESIDUAL**  
 ORANGE, TAN, GRAY MEDIUM  
 STIFF TO VERY STIFF SILT  
 AND SANDY SILT MOIST TO DRY  
 37 + 50.00

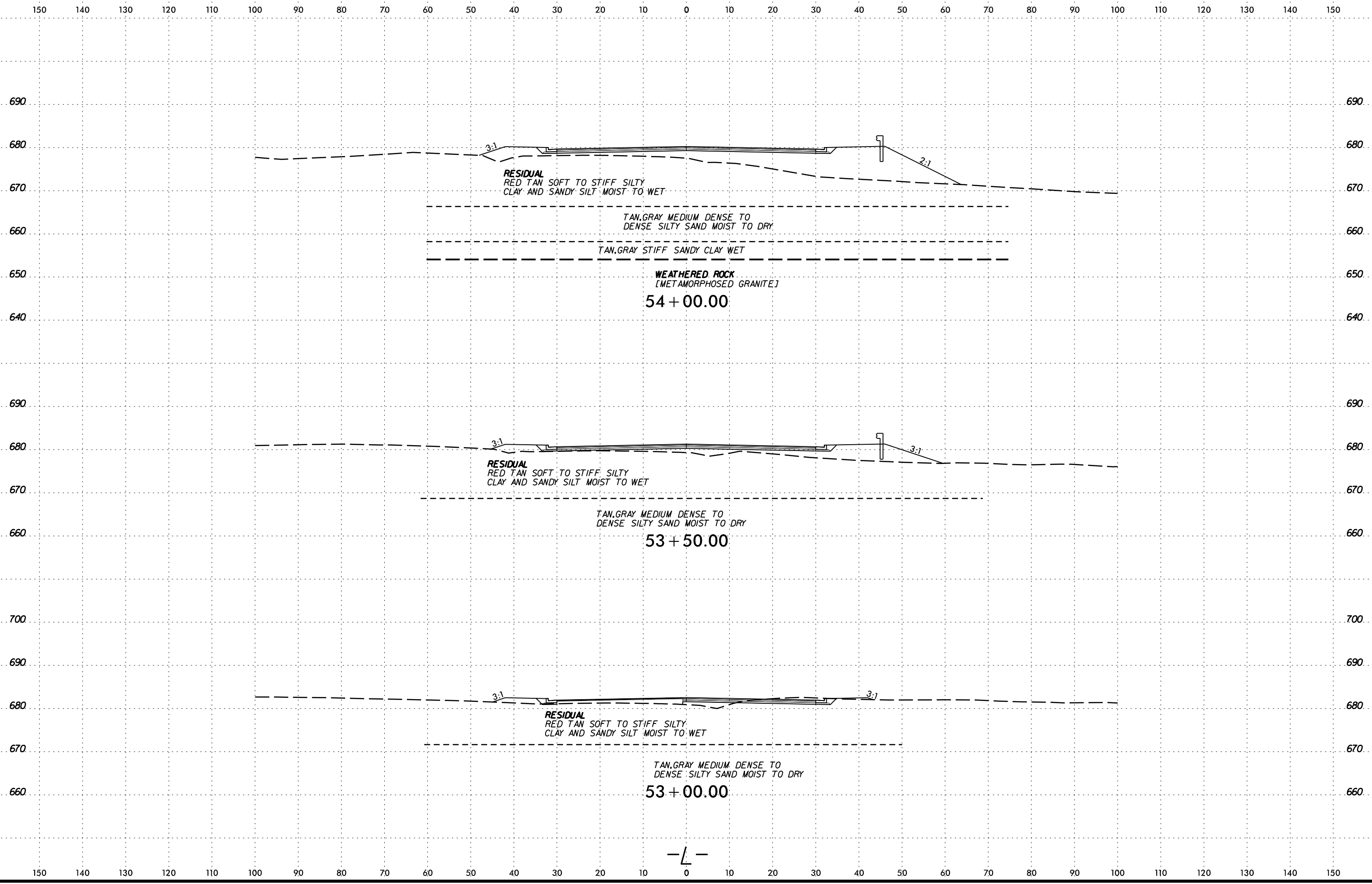
**RESIDUAL**  
 RED, BROWN, GRAY, YELLOW MEDIUM STIFF  
 TO VERY STIFF SILTY HIGHLY PLASTIC CLAY MOIST  
 37 + 00.00

**RESIDUAL**  
 RED, BROWN, GRAY, YELLOW MEDIUM STIFF  
 TO VERY STIFF SILTY HIGHLY PLASTIC CLAY MOIST  
 36 + 50.00

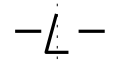
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							G. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-505	40' LT	36+40	1-2.5	A-7-5 (35)	72	36	6	14	23	57	100	99	82.9	34.9	ND
SS-506	40' LT	36+40	3.5-5.0	A-7-5 (31)	68	29	5	12	15	69	100	99	86.7	39.1	ND
SS-507	40' LT	36+40	6-7.5	A-7-5 (21)	63	22	10	17	29	45	99	94	77.9	37.8	ND



SCHEMATIC CROSS SECTION OF ROADWAY  
 U-2581BA  
 SHEET 24 OF 24

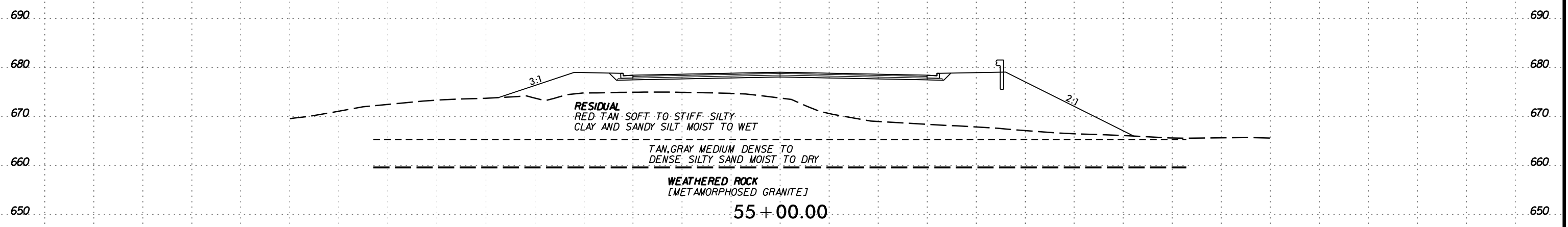
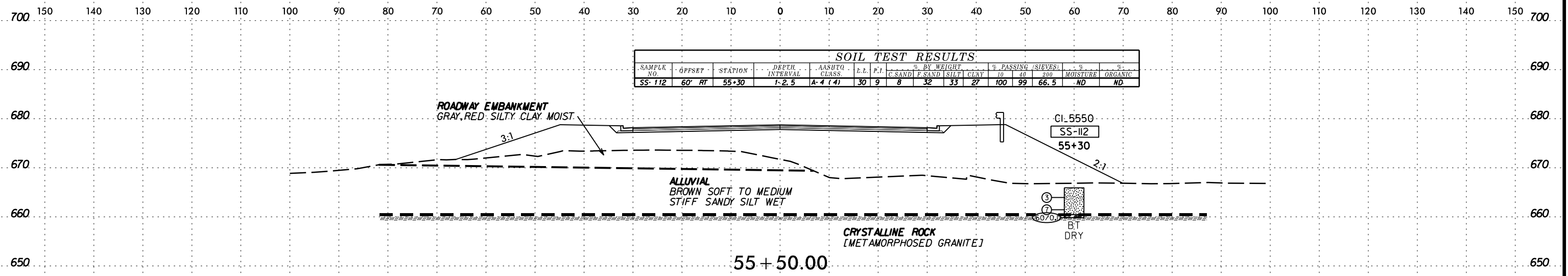


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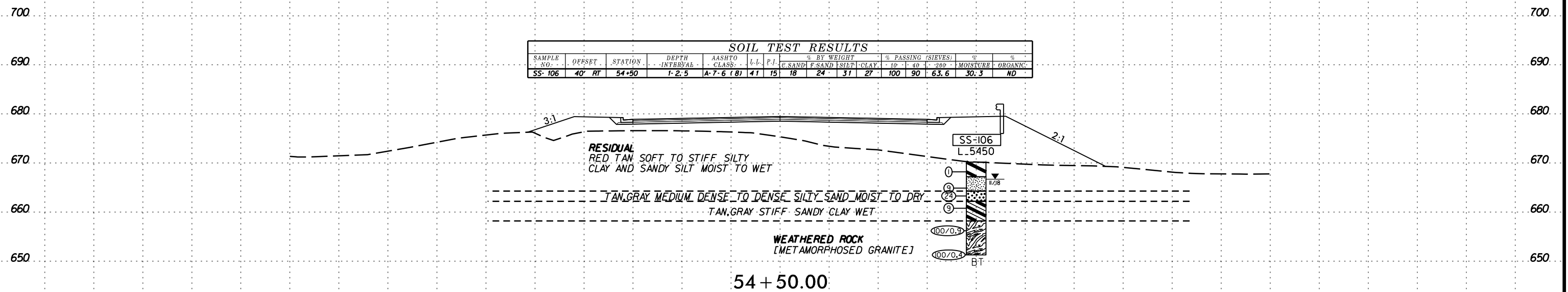
**SOIL TEST RESULTS**

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		
SS-112	60' RT	55+30	1-2.5	A-4 (4)	30	9	8	32	33	27	100	99	66.5	ND



**SOIL TEST RESULTS**

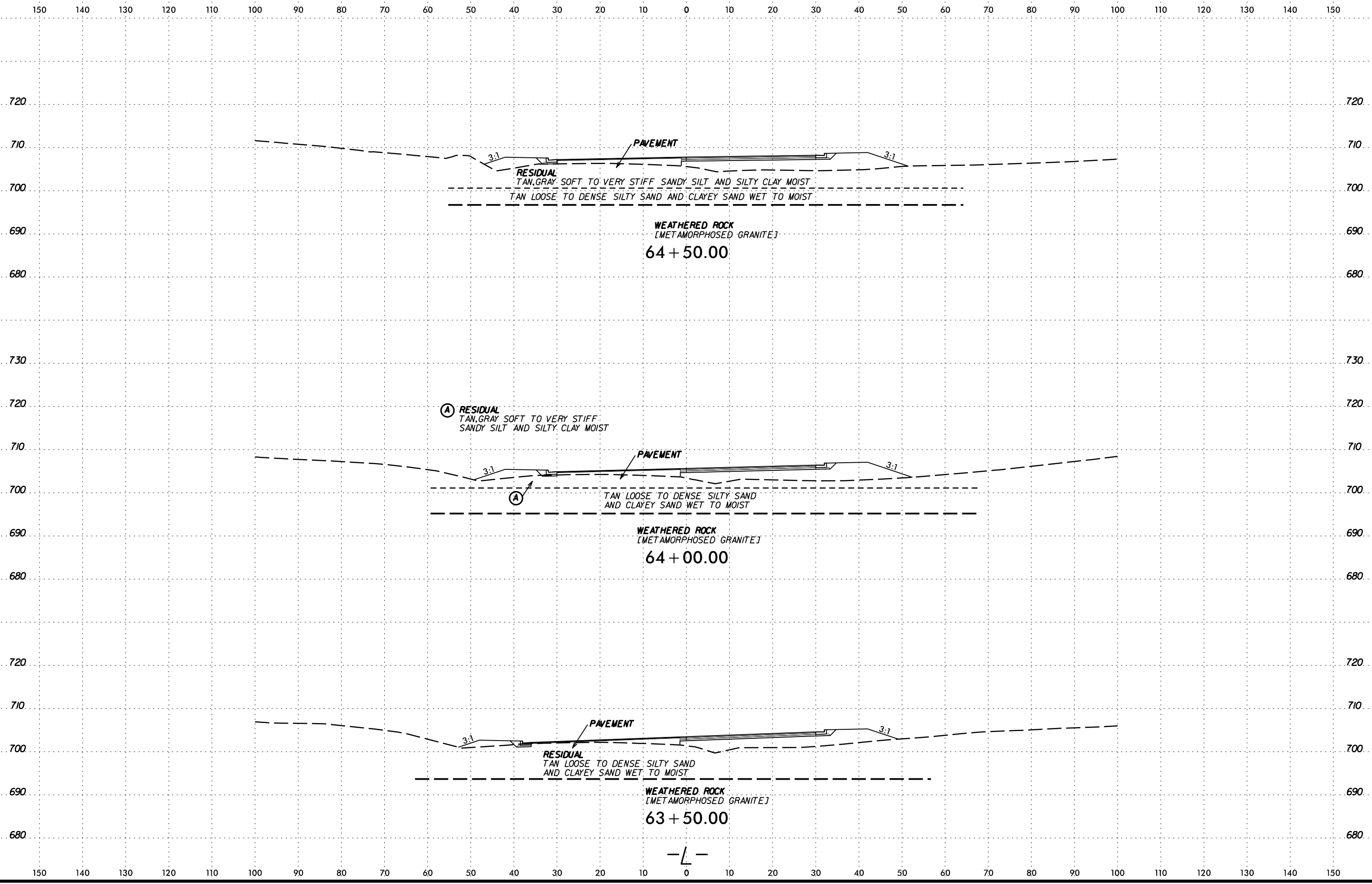
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)		% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40		
SS-106	40' RT	54+50	1-2.5	A-7-6 (8)	41	15	18	24	31	27	100	90	63.6	30.3



SCHEMATIC SECTION  
DATE: 06/23/16  
DRAWN BY: J. BRYAN

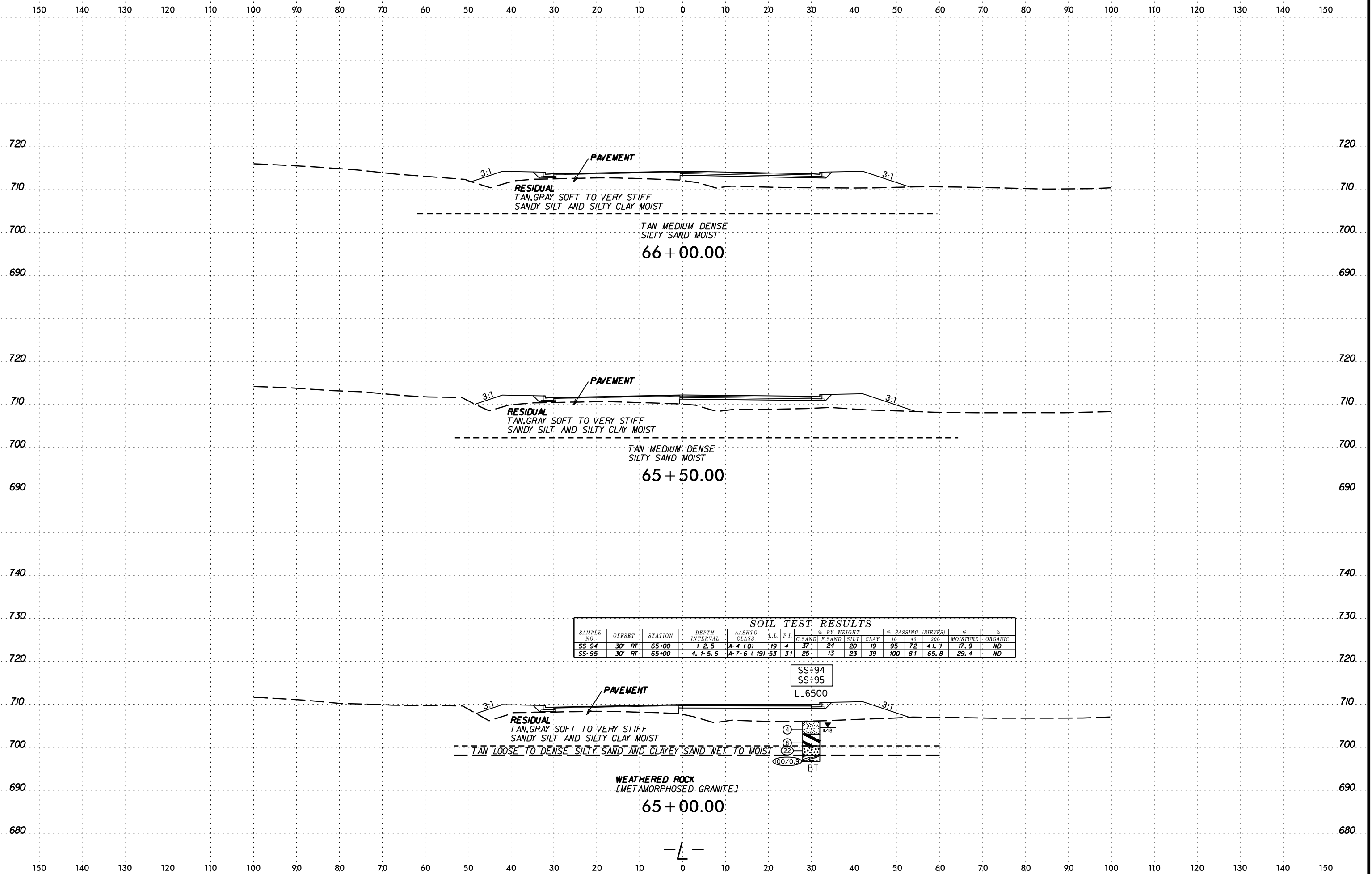
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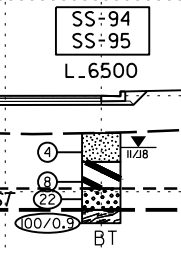
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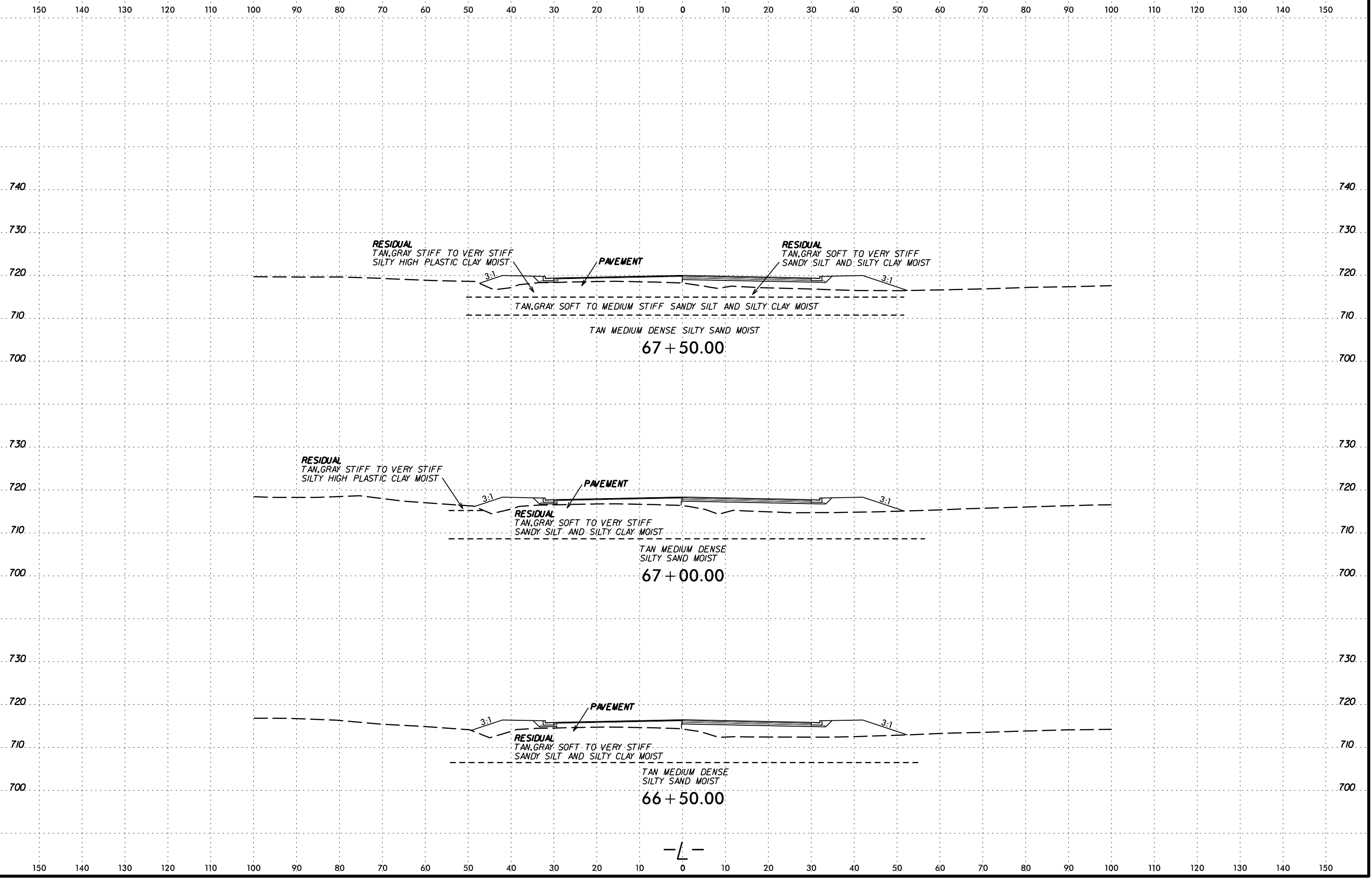


**SOIL TEST RESULTS**

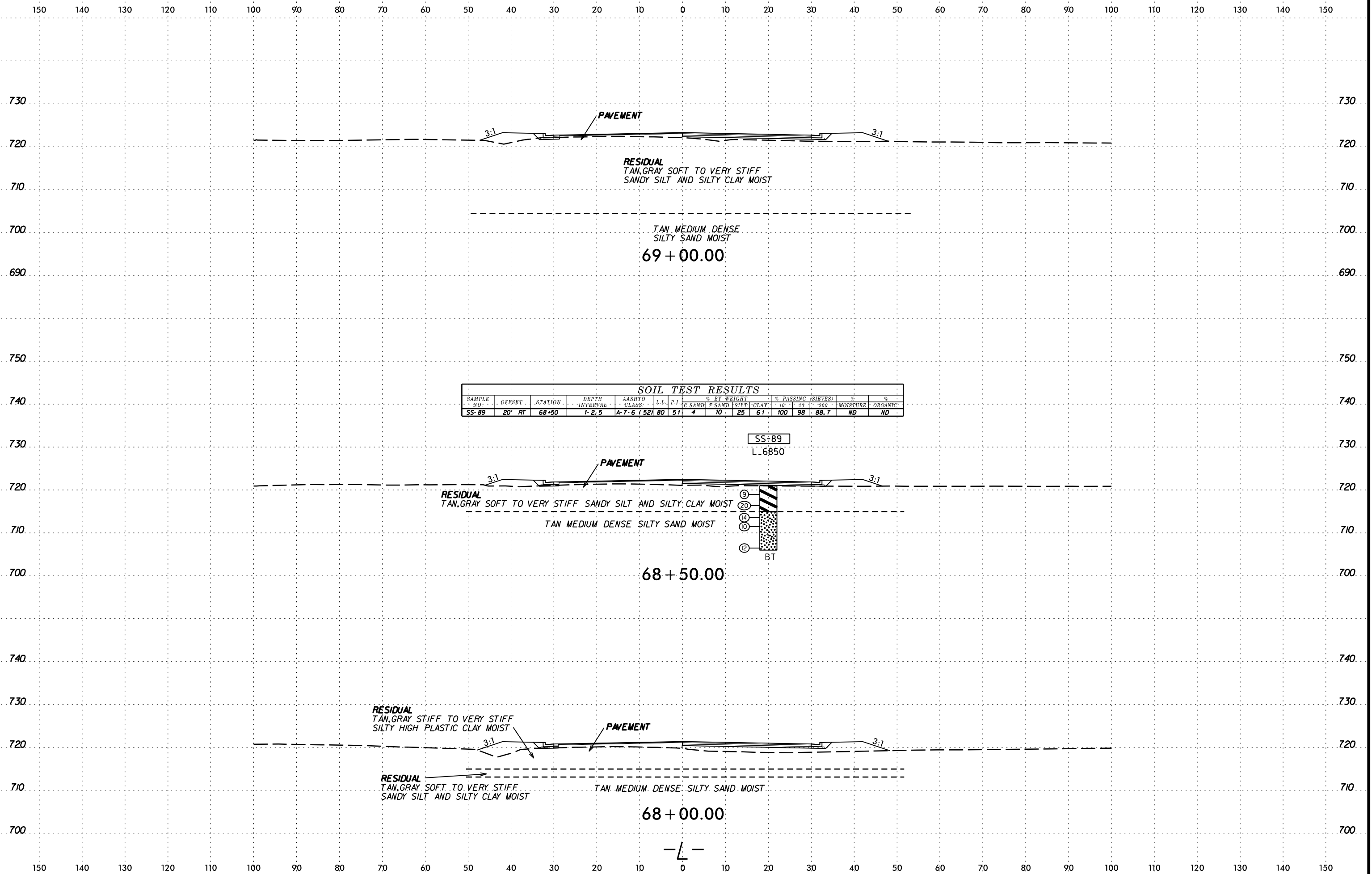
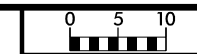
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							G. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-94	30' RT	65+00	1-2.5	A-4 (0)	19	4	37	24	20	19	95	72	41.7	17.9	ND
SS-95	30' RT	65+00	4.1-5.6	A-7-6 (19)	53	31	25	13	23	39	100	81	65.8	29.4	ND



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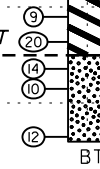


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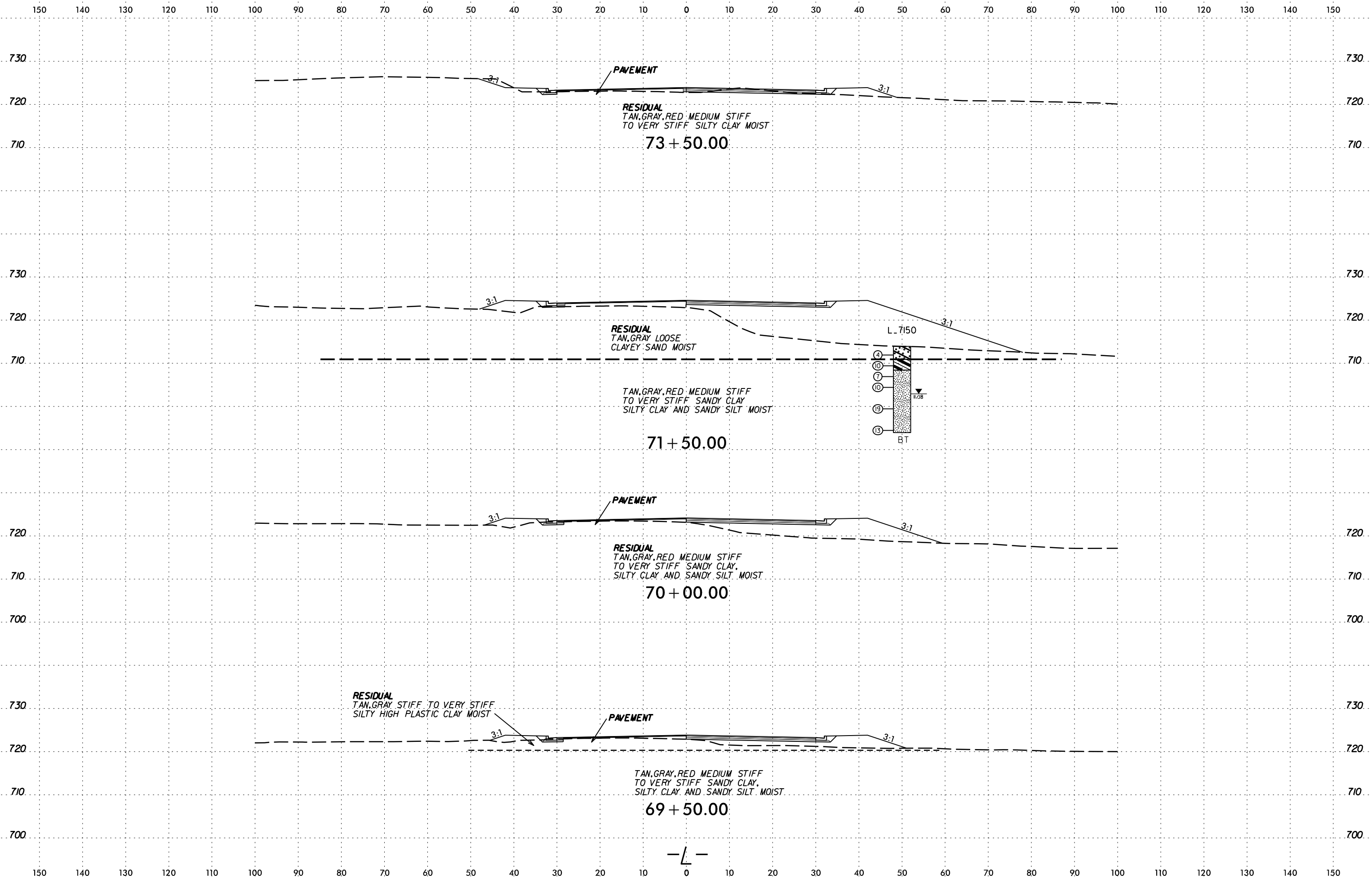
SOIL TEST RESULTS																
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT			% PASSING (SIEVES)			% MOISTURE	% ORGANIC		
							C SAND	F SAND	SILT	CLAY	10"	30"	200"			
SS-89	20'	RT	68+50	1-2, 5	A-7-6 (52)	80	5	4	10	25	61	100	98	88.7	ND	ND

SS-89  
L-6850



SYTIME  
CON  
LE  
JUL  
ARR  
NAME

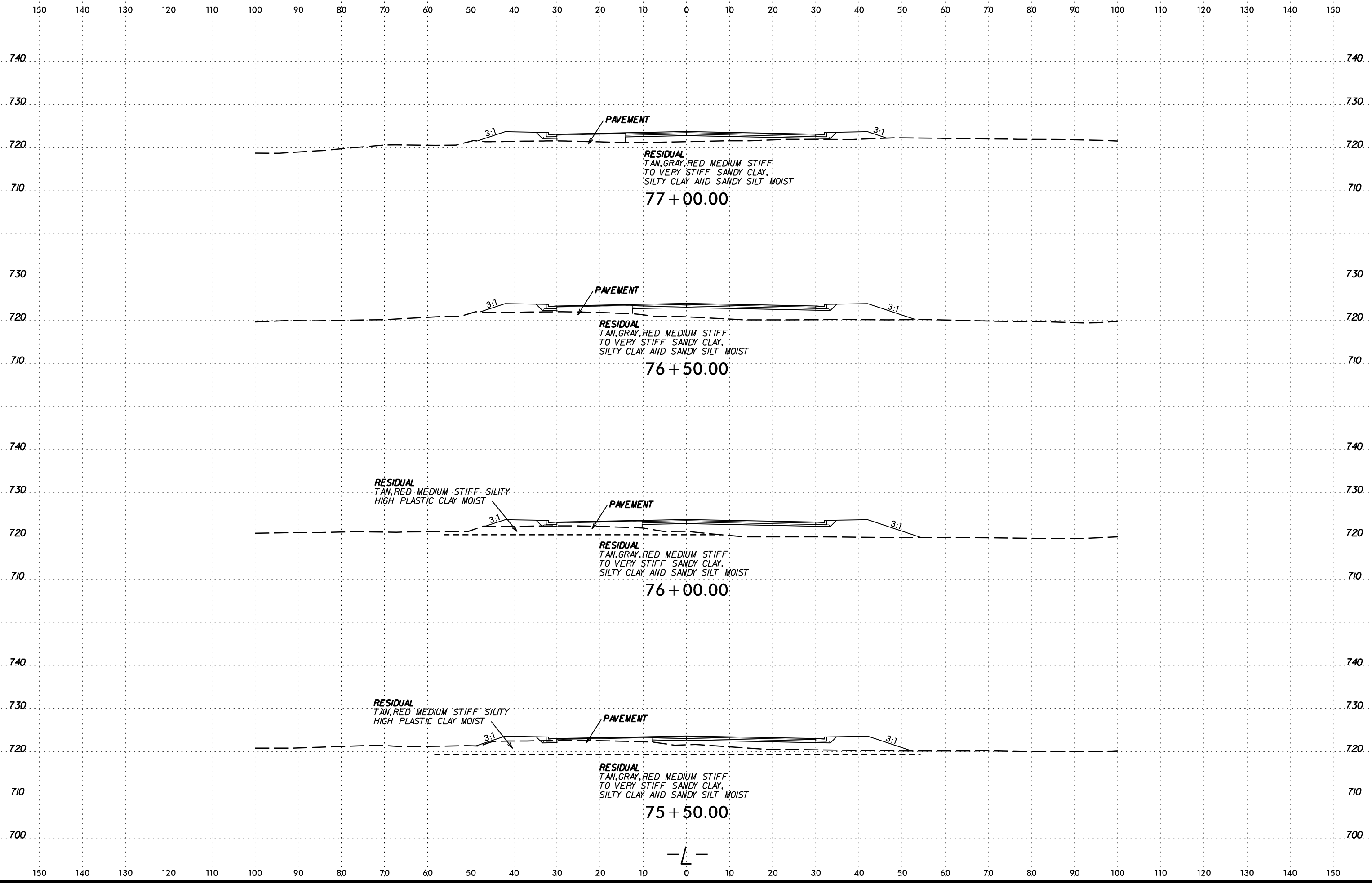




SCHEMATIC CROSS SECTION  
 6/23/16  
 U-2581BA

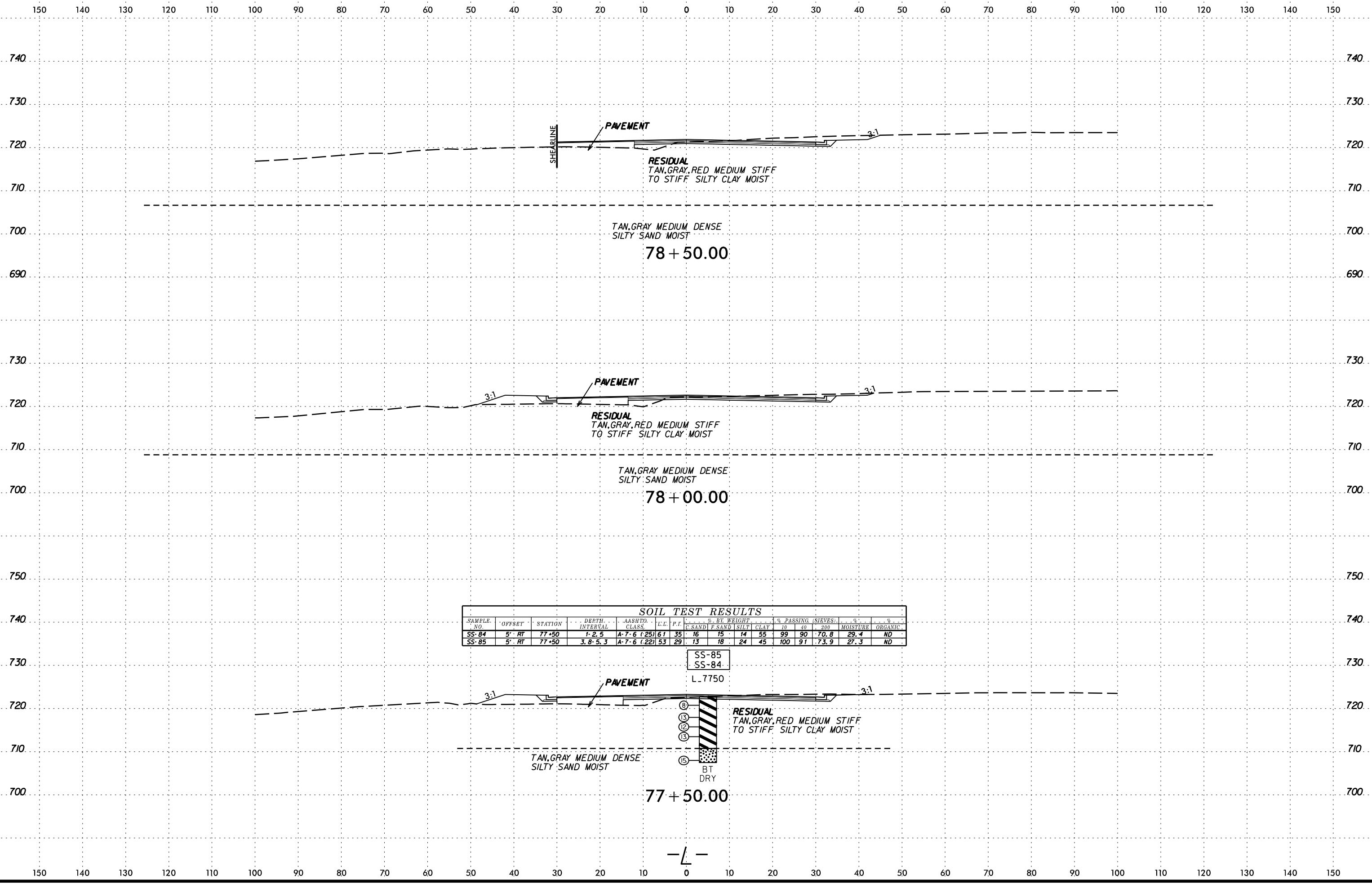


6/23/16



SYTIME  
CON  
ARRIVE

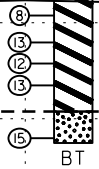
-L-



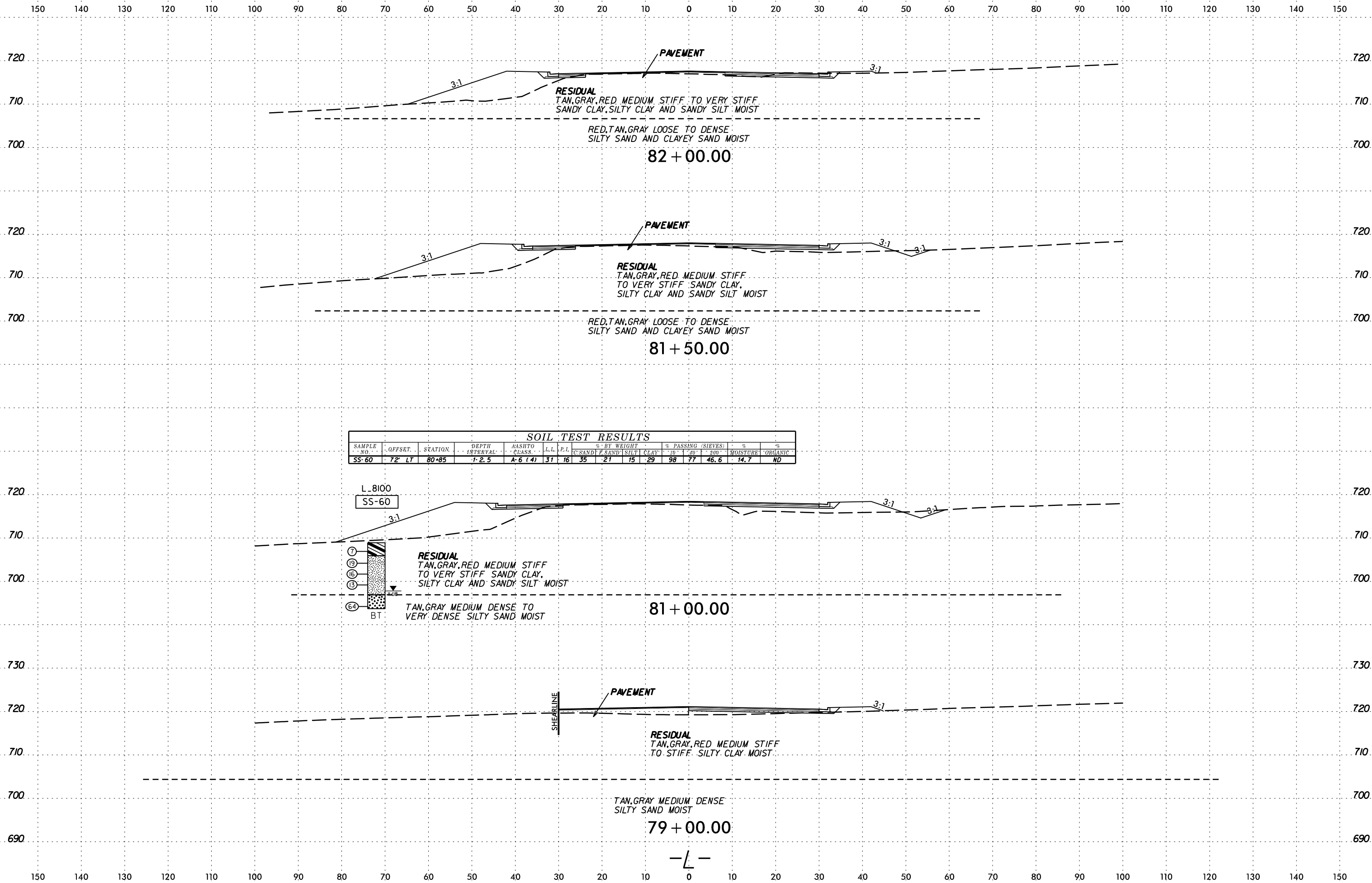
**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING (SIEVES)			MOISTURE %	ORGANIC %
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-84	5' RT	77+50	1-2.5	A-7.6 (25)	61	35	16	15	14	55	99	90	70.8	29.4	ND
SS-85	5' RT	77+50	3.8-5.3	A-7.6 (22)	53	29	13	18	24	45	100	91	73.9	27.3	ND

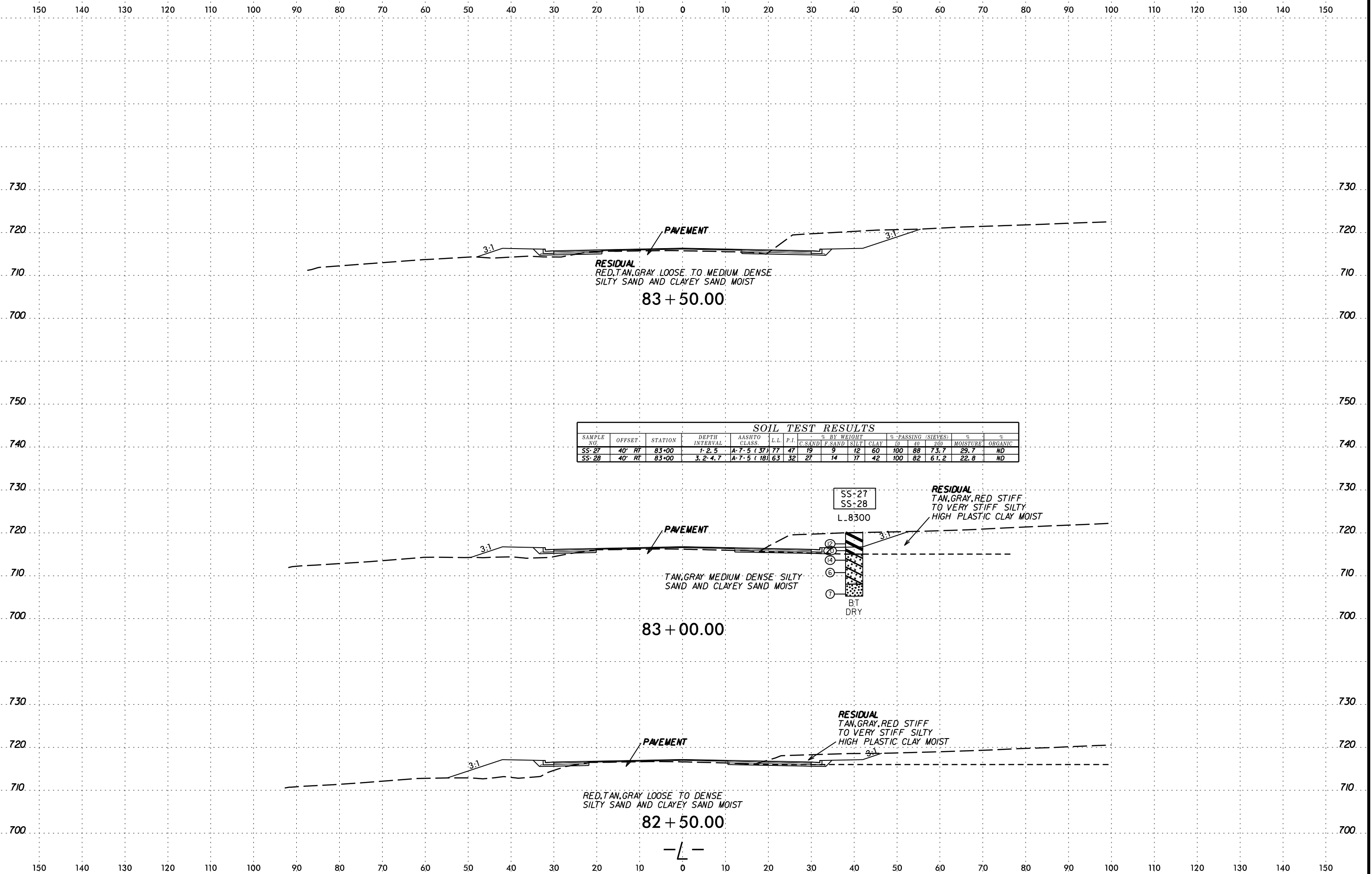
SS-85  
SS-84  
L-7750



-L-



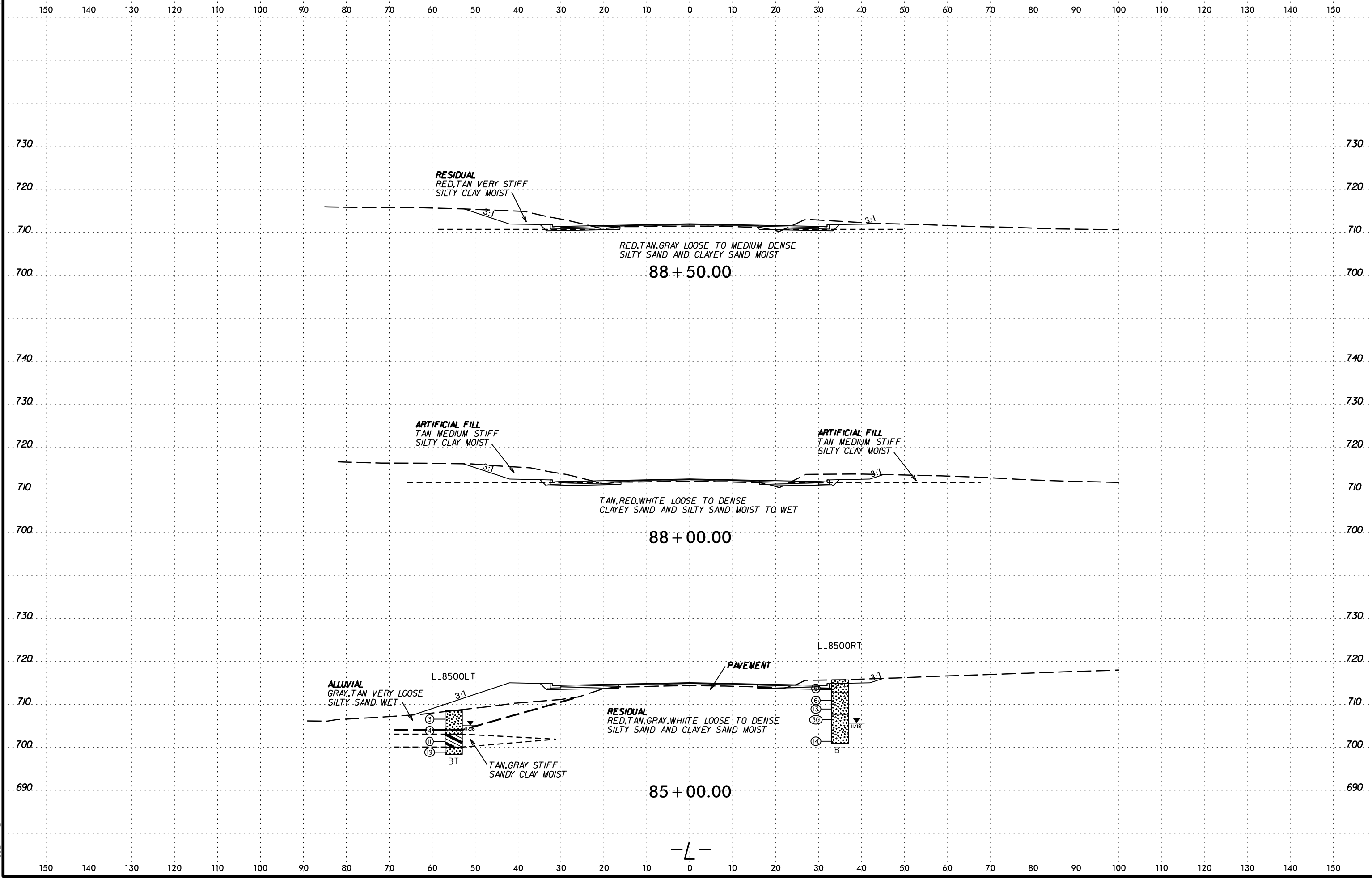
SYTIME  
CON  
ARRIVE  
JULY  
ARRIVE



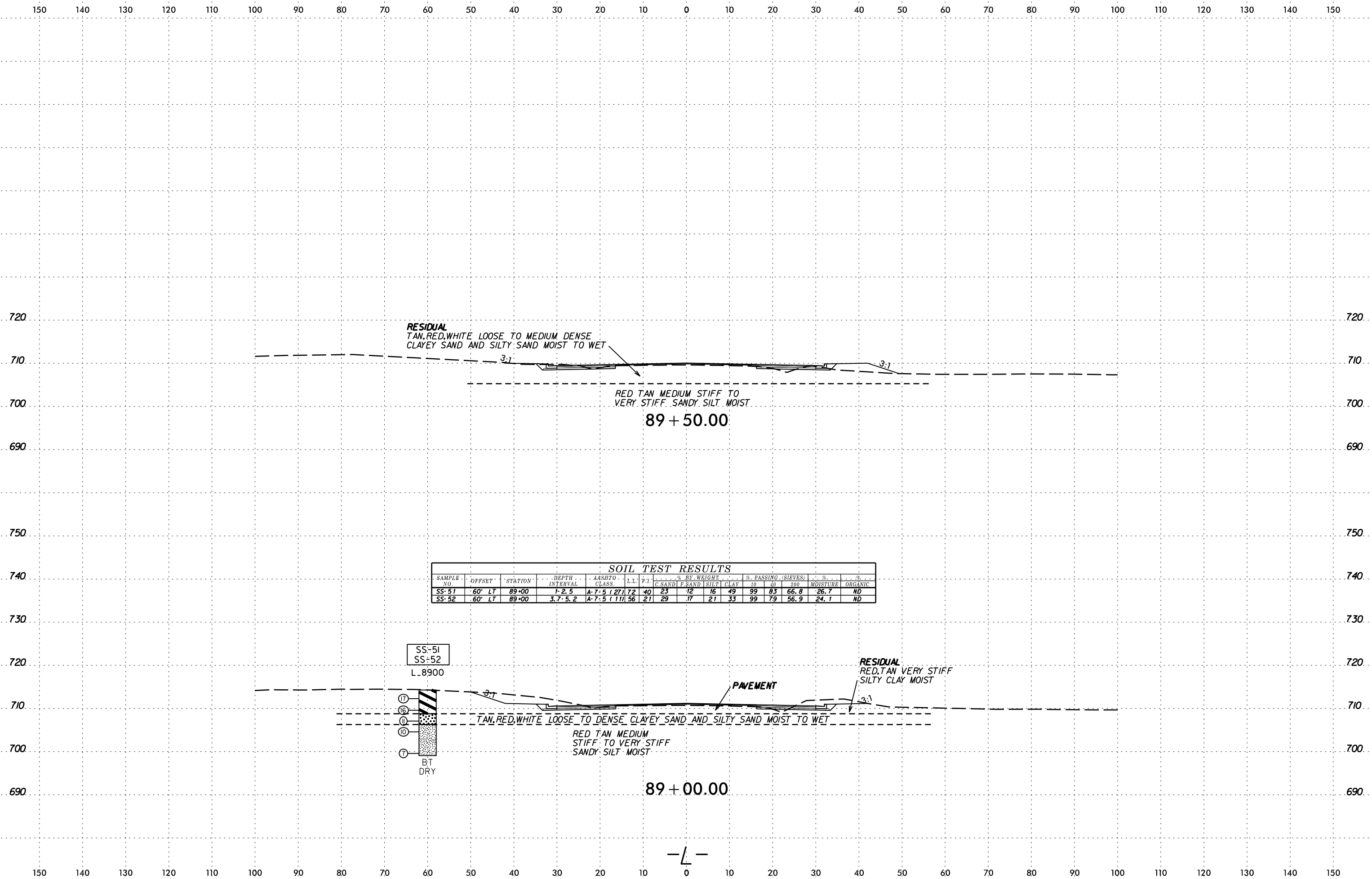
**SOIL TEST RESULTS**

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		
SS-27	40' RT	83+00	1-2.5	A-7-5 (37)	77	47	19	9	12	60	100	88	73.7	29.7	ND
SS-28	40' RT	83+00	3.2-4.7	A-7-5 (18)	63	32	27	14	17	42	100	82	61.2	22.8	ND

SCHEMATIC CONSTRUCTION DRAWING  
 11/15/15  
 J. W. HARRIS  
 11/15/15



SYTIME  
CON  
ARRAINE



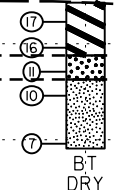
**RESIDUAL**  
 TAN, RED, WHITE LOOSE TO MEDIUM DENSE  
 CLAYEY SAND AND SILTY SAND MOIST TO WET

RED TAN MEDIUM STIFF TO  
 VERY STIFF SANDY SILT MOIST  
**89 + 50.00**

**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASHOTO CLASS	L.L.	P.L.	% BY WEIGHT				% PASSING (SIEVES)		% MOISTURE	% ORGANIC	
							C. SAND	F. SAND	SILT	CLAY	10	40			
SS-51	.60' LT	89+00	1-2.5	A-7.5 (27)	72	40	23	12	16	49	99	83	66.8	26.7	ND
SS-52	.60' LT	89+00	3.7-5.2	A-7.5 (11)	56	21	29	17	21	33	99	79	56.9	24.1	ND

SS-51  
 SS-52  
 L. 8900



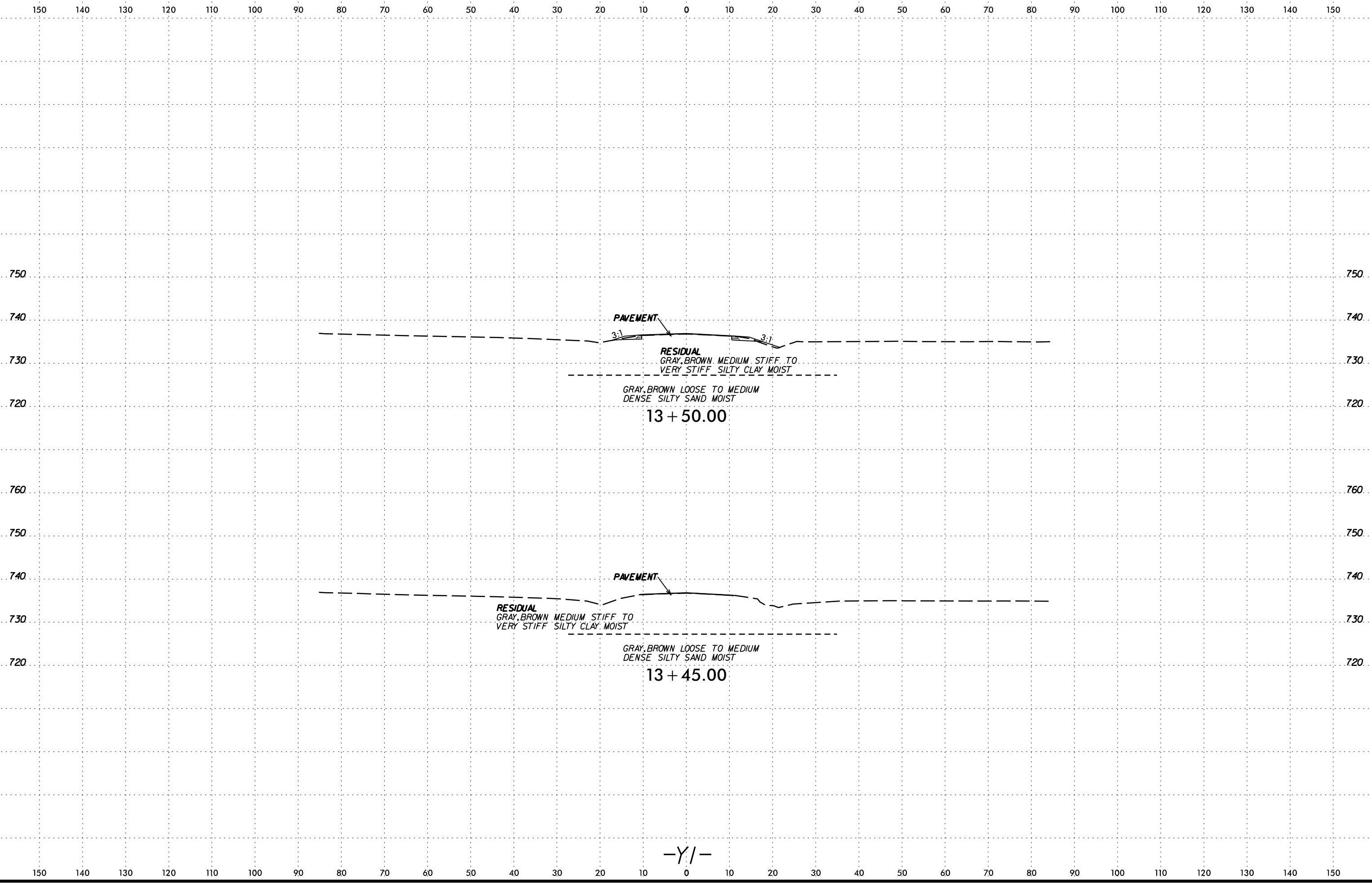
TAN, RED, WHITE LOOSE TO DENSE CLAYEY SAND AND SILTY SAND MOIST TO WET

RED TAN MEDIUM STIFF TO VERY STIFF SANDY SILT MOIST

**RESIDUAL**  
 RED, TAN VERY STIFF  
 SILTY CLAY MOIST

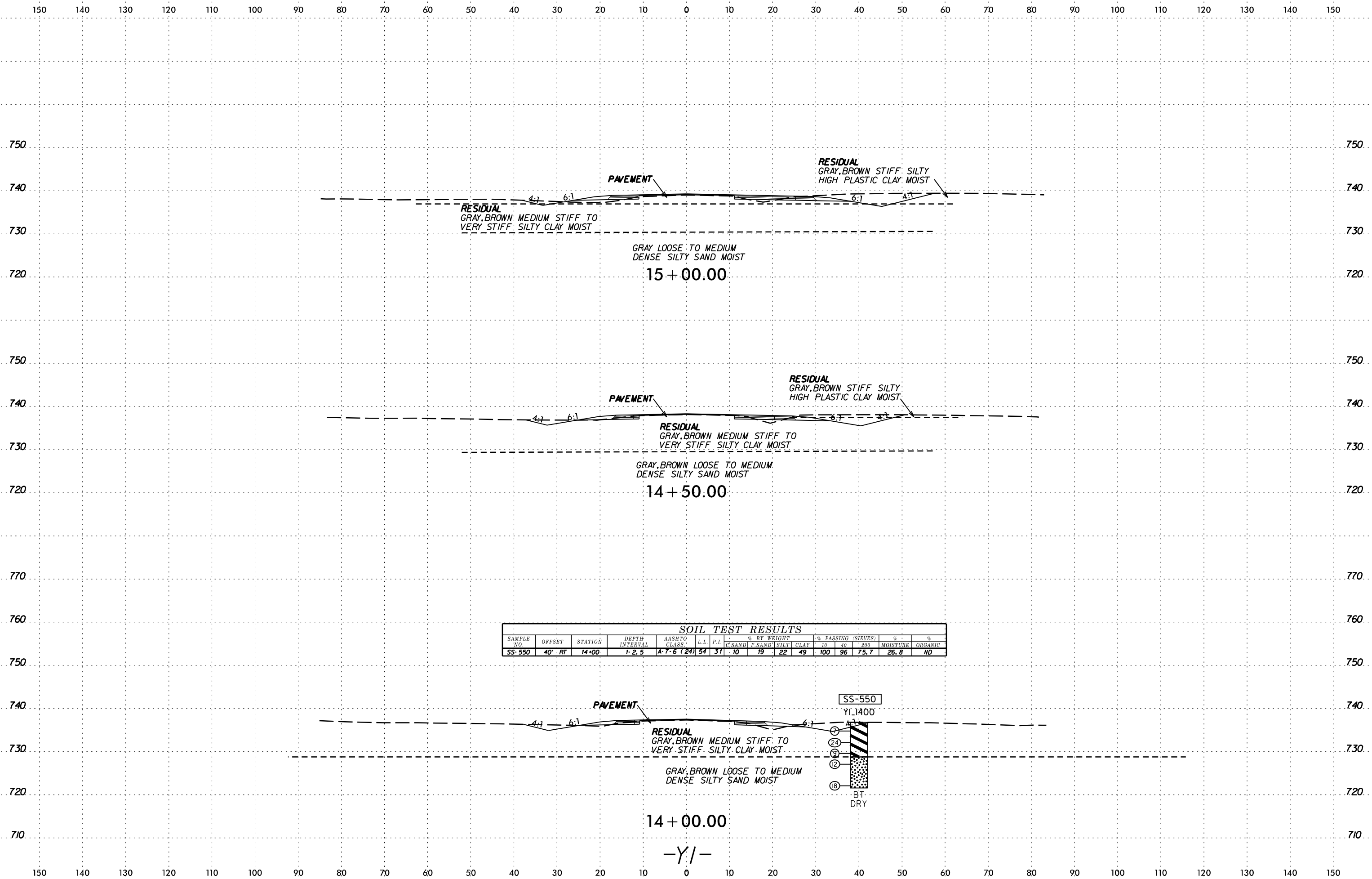
**89 + 00.00**





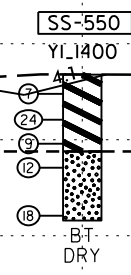
-Y/-

DATE: 6/23/16  
DRAWN BY: [illegible]  
CHECKED BY: [illegible]  
SCALE: AS SHOWN



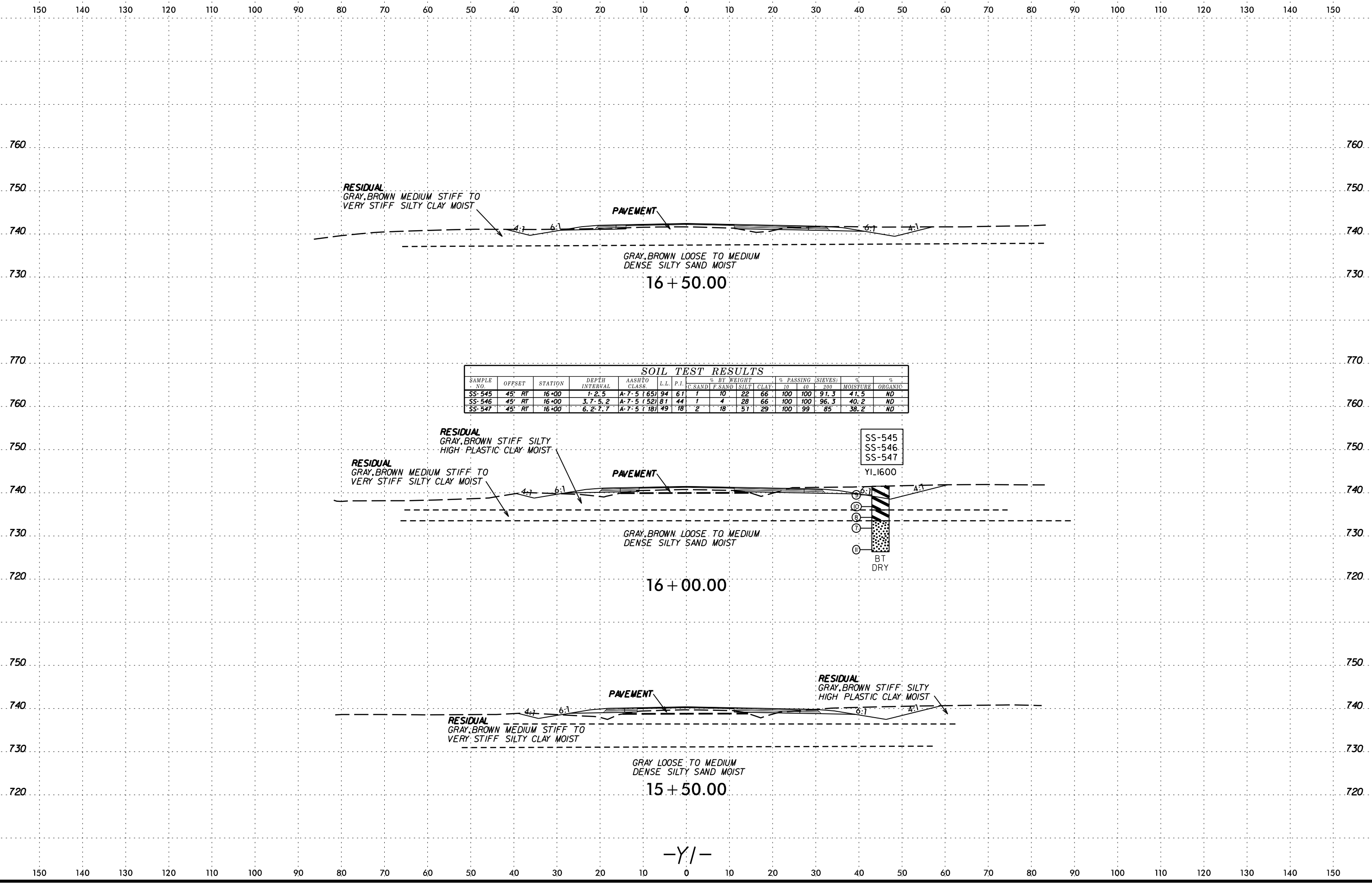
**SOIL TEST RESULTS**

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
SS-550	40' RT	14+00	1-2.5	A-7-6 (24)	54	31	10	19	22	49	100	96	75.7	26.8	ND



SCHEMATIC CONSTRUCTION DETAILS

6/23/16

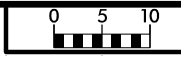


**SOIL TEST RESULTS**

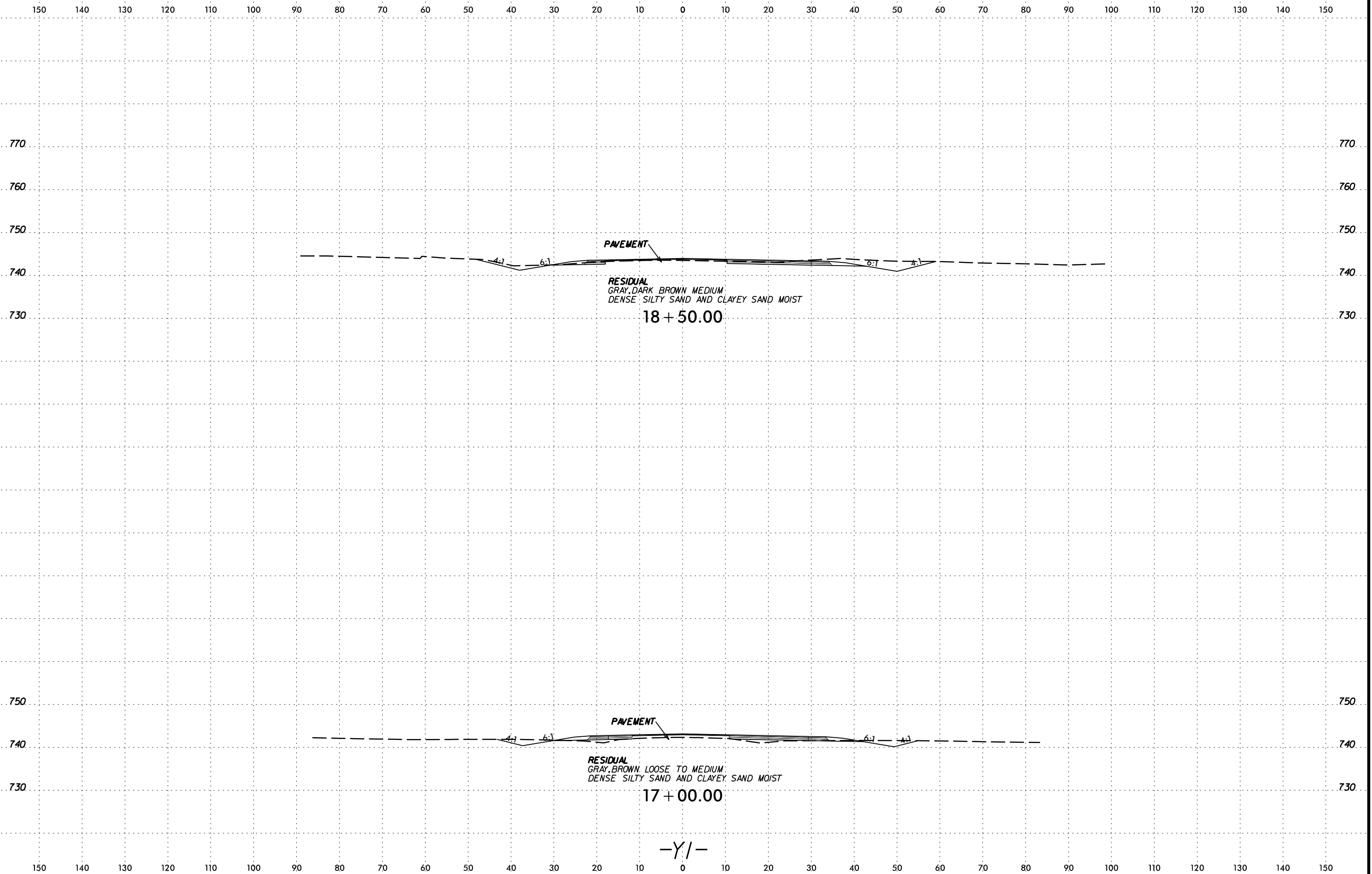
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-545	45' RT	16+00	1-2.5	A-7-5 (65)	94	61	1	10	22	66	100	100	91.3	41.5	ND
SS-546	45' RT	16+00	3.7-5.2	A-7-5 (52)	81	44	1	4	28	66	100	100	96.3	40.2	ND
SS-547	45' RT	16+00	6.2-7.7	A-7-5 (18)	49	18	2	18	51	29	100	99	85	38.2	ND

SCHEMATIC CROSS SECTION OF ROADWAY

6/23/16



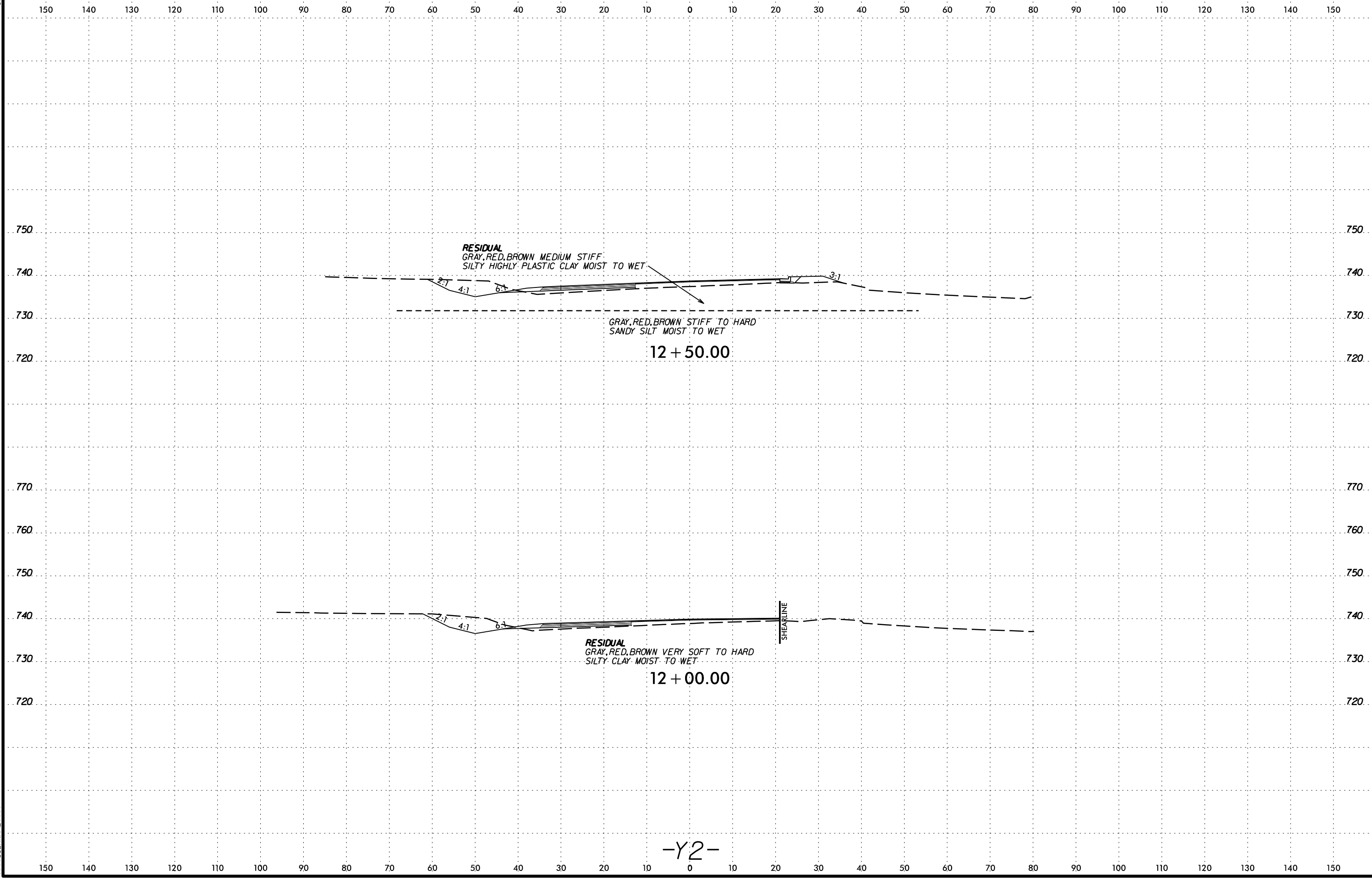
PROJ. REFERENCE NO.	SHEET NO.
U-2581BA	42



DATE: 6/23/16  
DRAWN BY: [illegible]  
CHECKED BY: [illegible]  
SCALE: AS SHOWN



6/23/16



**RESIDUAL**  
 GRAY, RED, BROWN MEDIUM STIFF  
 SILTY HIGHLY PLASTIC CLAY MOIST TO WET

GRAY, RED, BROWN STIFF TO HARD  
 SANDY SILT MOIST TO WET

12 + 50.00

**RESIDUAL**  
 GRAY, RED, BROWN VERY SOFT TO HARD  
 SILTY CLAY MOIST TO WET

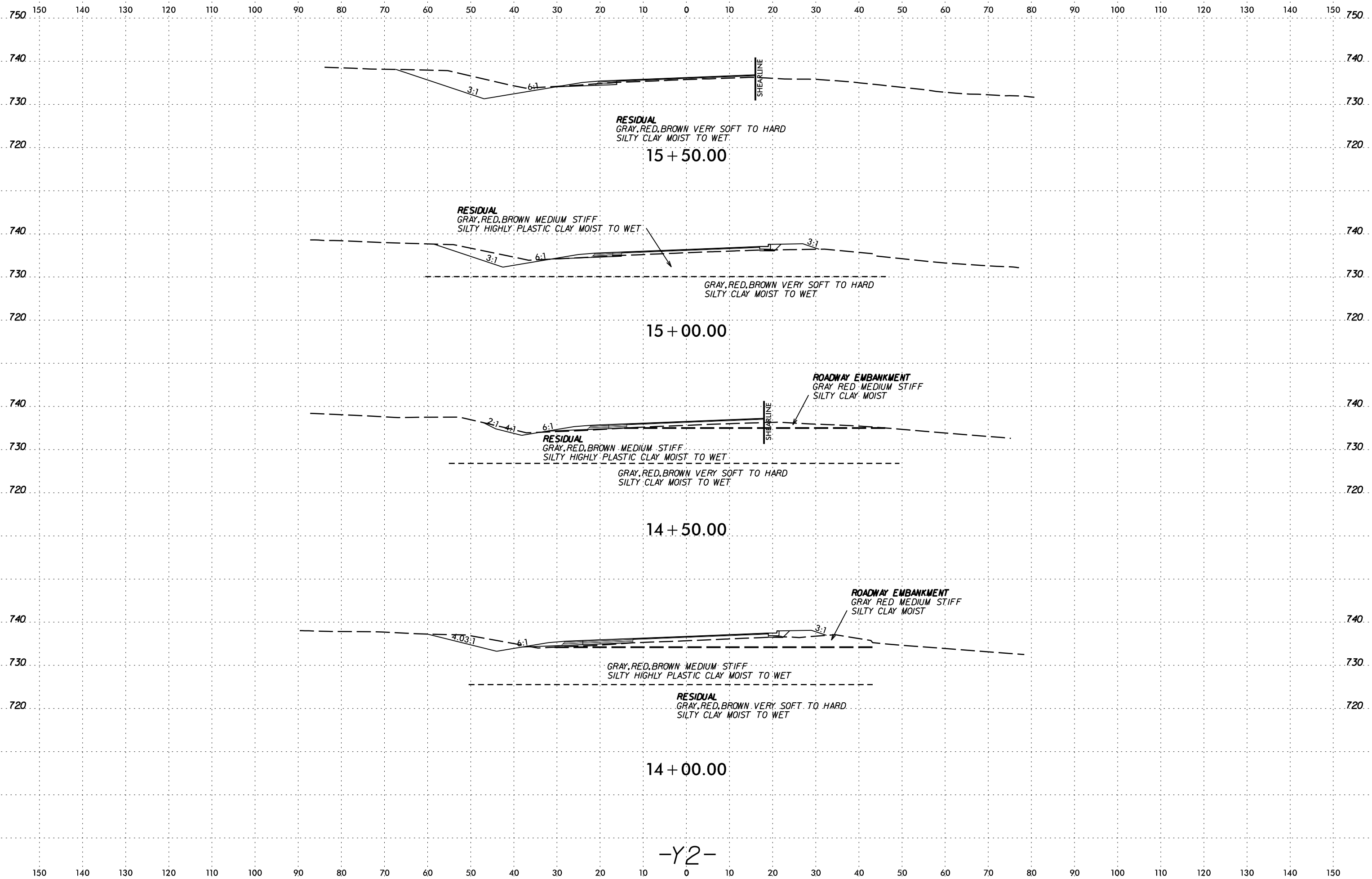
12 + 00.00

SHEARLINE

-Y2-

DATE: 6/23/16  
 TIME: 10:00 AM  
 DRAWN BY: J. B. BROWN  
 CHECKED BY: J. B. BROWN  
 APPROVED BY: J. B. BROWN



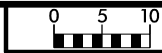


SYTIME  
CON  
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JUL  
ARRIVE









150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

740  
730  
720  
710

740  
730  
720  
710

**RESIDUAL**  
GRAY, RED, BROWN VERY SOFT TO HARD  
SANDY SILT, SANDY CLAY AND SILTY CLAY  
MOIST TO WET

18 + 50.00

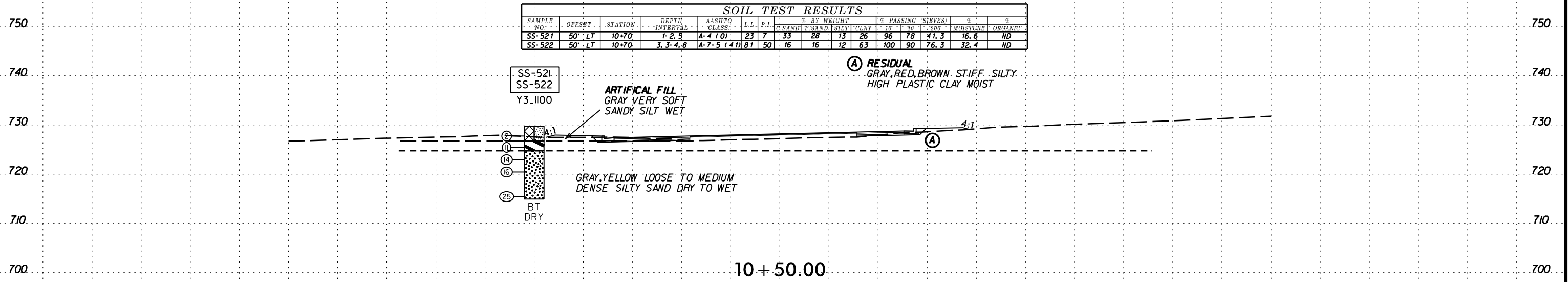
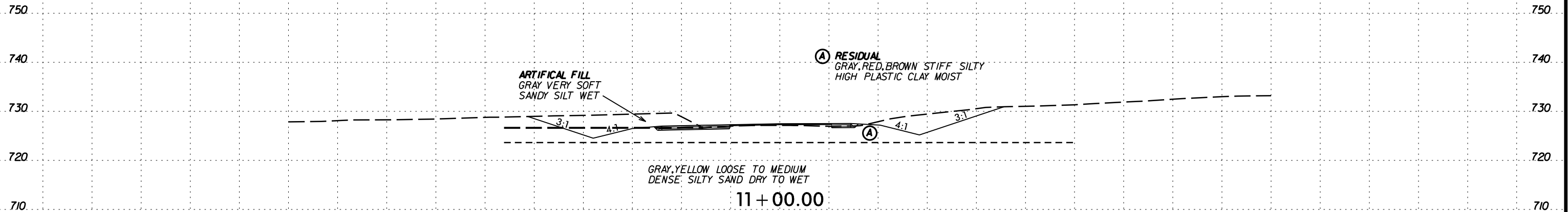
-Y2-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SYNOPSIS  
CUTLINE  
SECTION  
PLAN  
ELEVATION  
GENERAL  
NOTES



150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



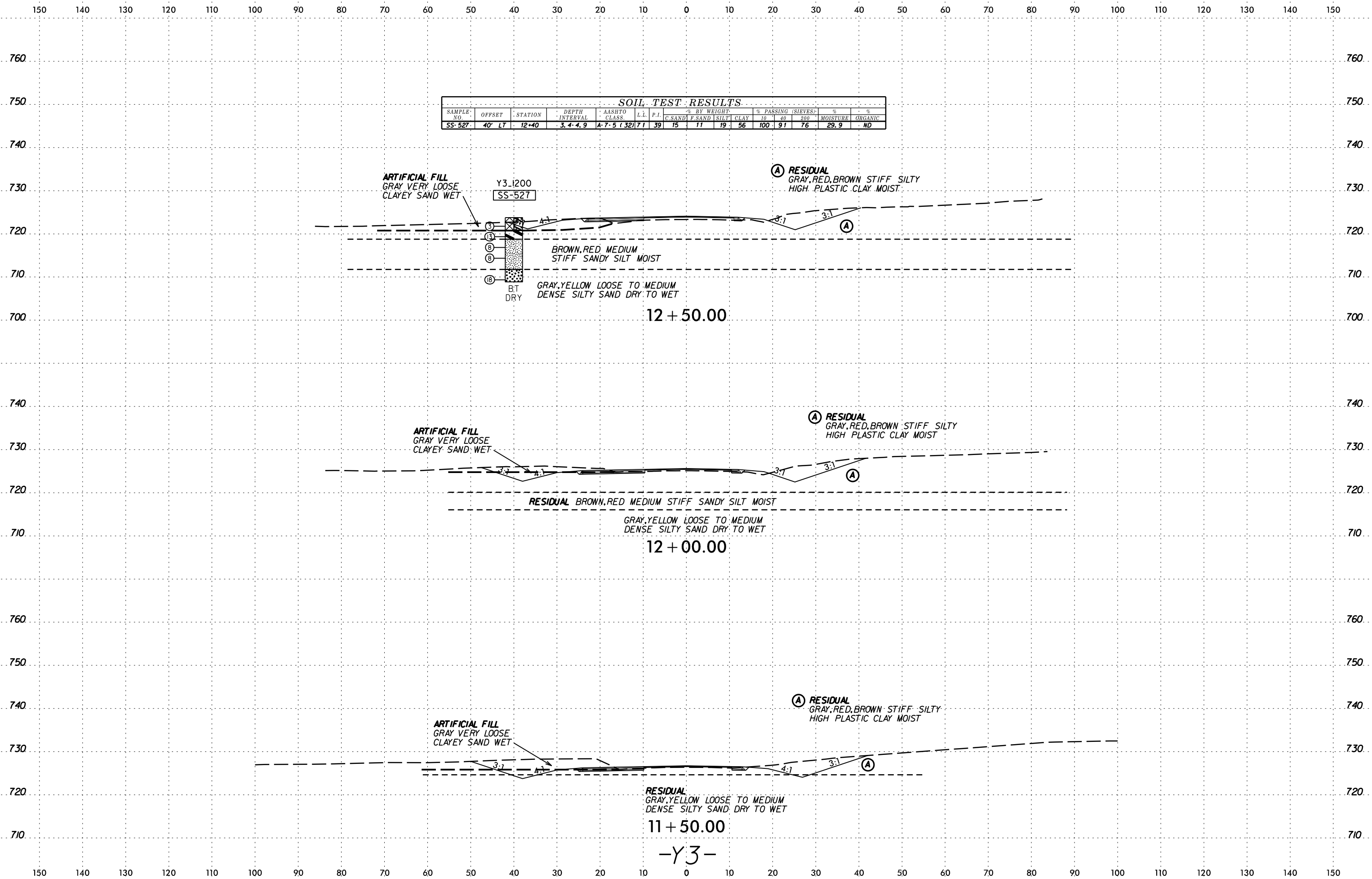
**SOIL TEST RESULTS**

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"		
SS-521	50' LT	10+70	1-2, 5	A-4 (O)	23	7	33	28	13	26	96	78	41.3	16.6	ND
SS-522	50' LT	10+70	3, 3-4, 8	A-7-5 (4) (1)	81	50	16	16	12	63	100	90	76.3	32.4	ND

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

-Y3-

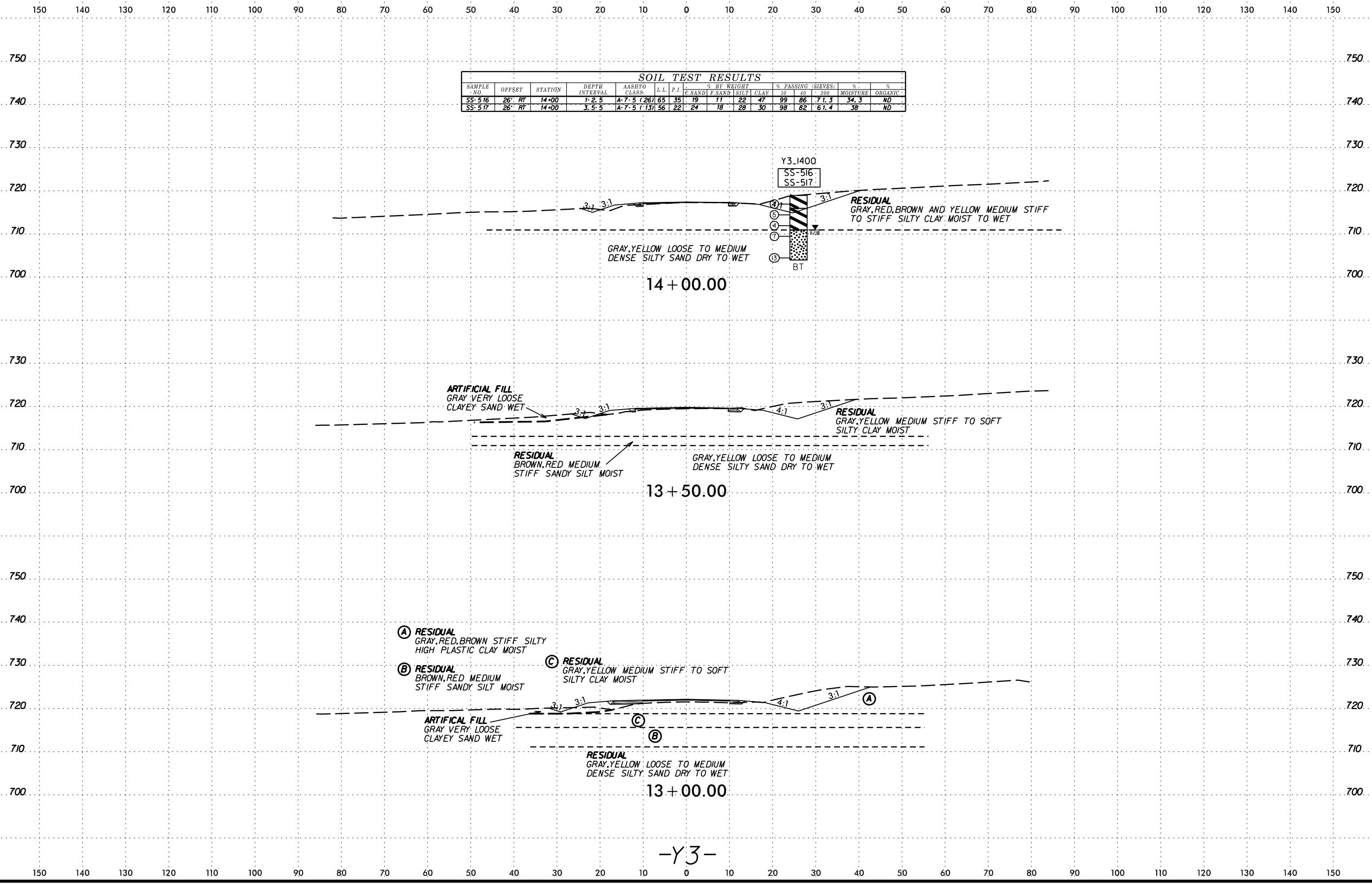
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)		% MOISTURE	% ORGANIC	
							SAND	F. SAND	SILT	CLAY	#10	#40			#200
SS-527	40' LT	12+40	3.4-4.9	A-7.5 (32)	71	39	15	11	19	56	100	91	76	29.9	ND



SCHEMATIC  
 CONSTRUCTION  
 DRAWING  
 SHEET NO. 51  
 PROJECT U-2581BA

6/23/16

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			
SS-516	26' RT	14+00	1-2.5	A-7.5 (26)	65	35	19	11	22	47	99	86	71.3	34.3	ND
SS-517	26' RT	14+00	3.5-5	A-7.5 (13)	56	22	24	18	28	30	98	82	61.4	38	ND



SYTIME  
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ARRIVE  
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-Y3-



150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

740

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710

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700

700

SECTION  
CUTLINE  
SYMBOLS

RESIDUAL  
GRAY, YELLOW MEDIUM STIFF TO SOFT SILTY CLAY MOIST

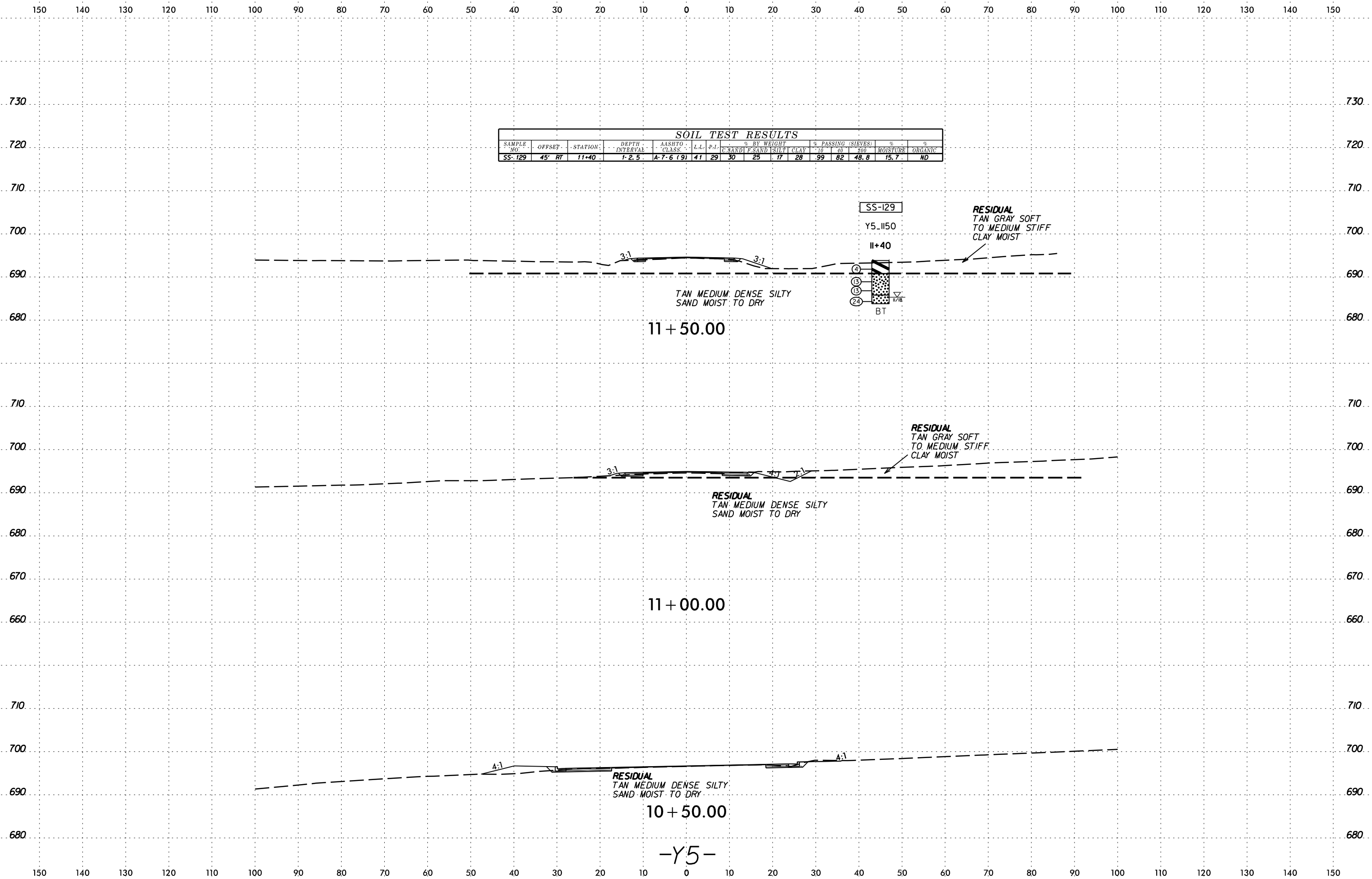
GRAY, YELLOW LOOSE TO MEDIUM  
DENSE SILTY SAND DRY TO WET

14 + 40.00

-Y3-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	LL	PL	% BY WEIGHT				% PASSING (SIEVES)		% MOISTURE	% ORGANIC	
							C SAND	F SAND	SILT	CLAY	#10	#40			#200
SS-129	45' RT	11+40	1-2.5	A-7-6 (9)	41	29	30	25	17	28	99	82	48.8	15.7	ND



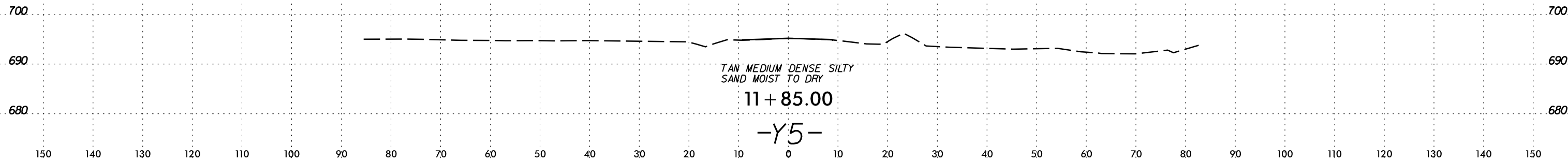
SCHEMATIC CROSS SECTION

-Y5-





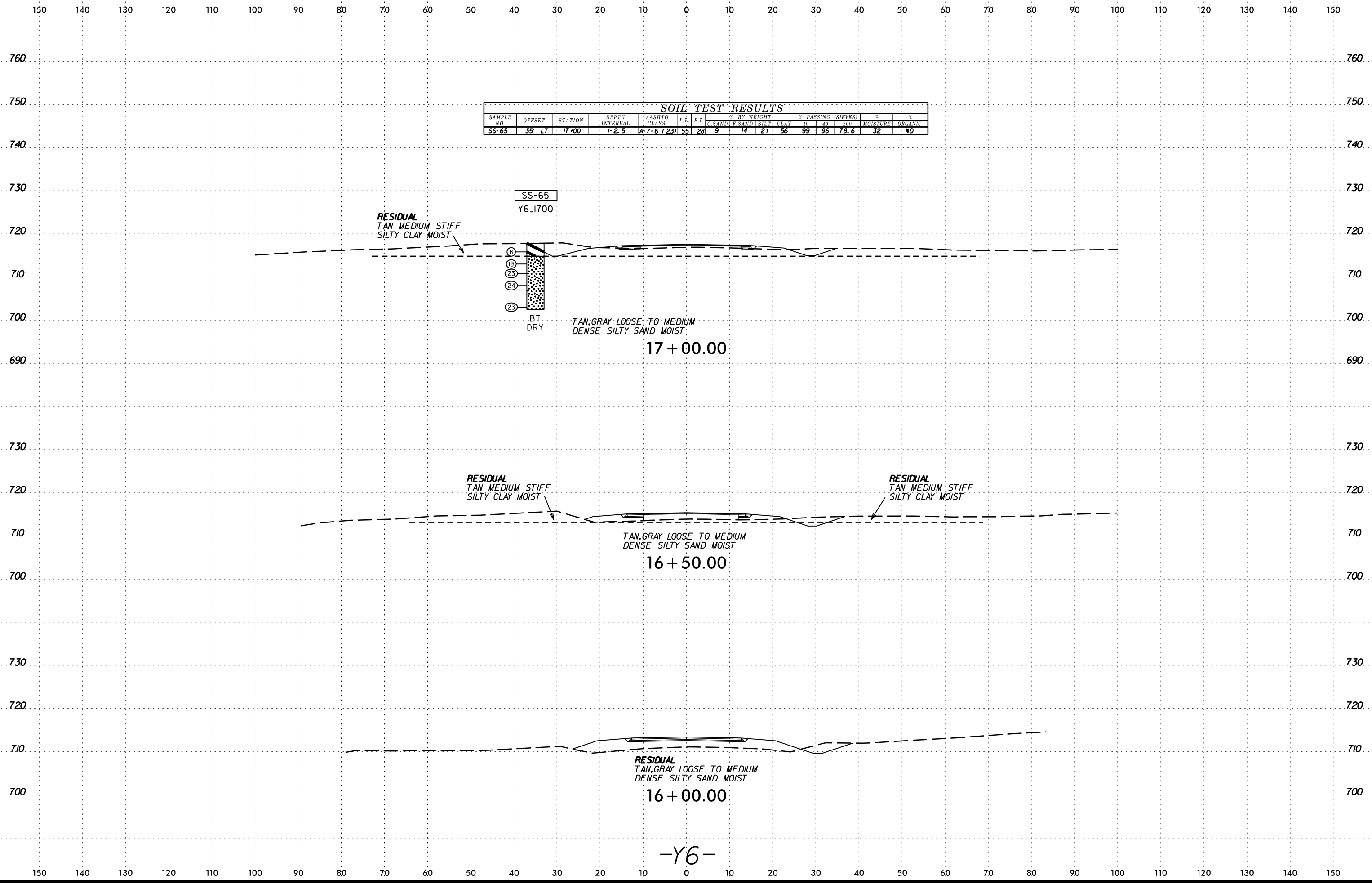
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



SYMBOLS FOR SOILS AND ROCKS

**SOIL TEST RESULTS**

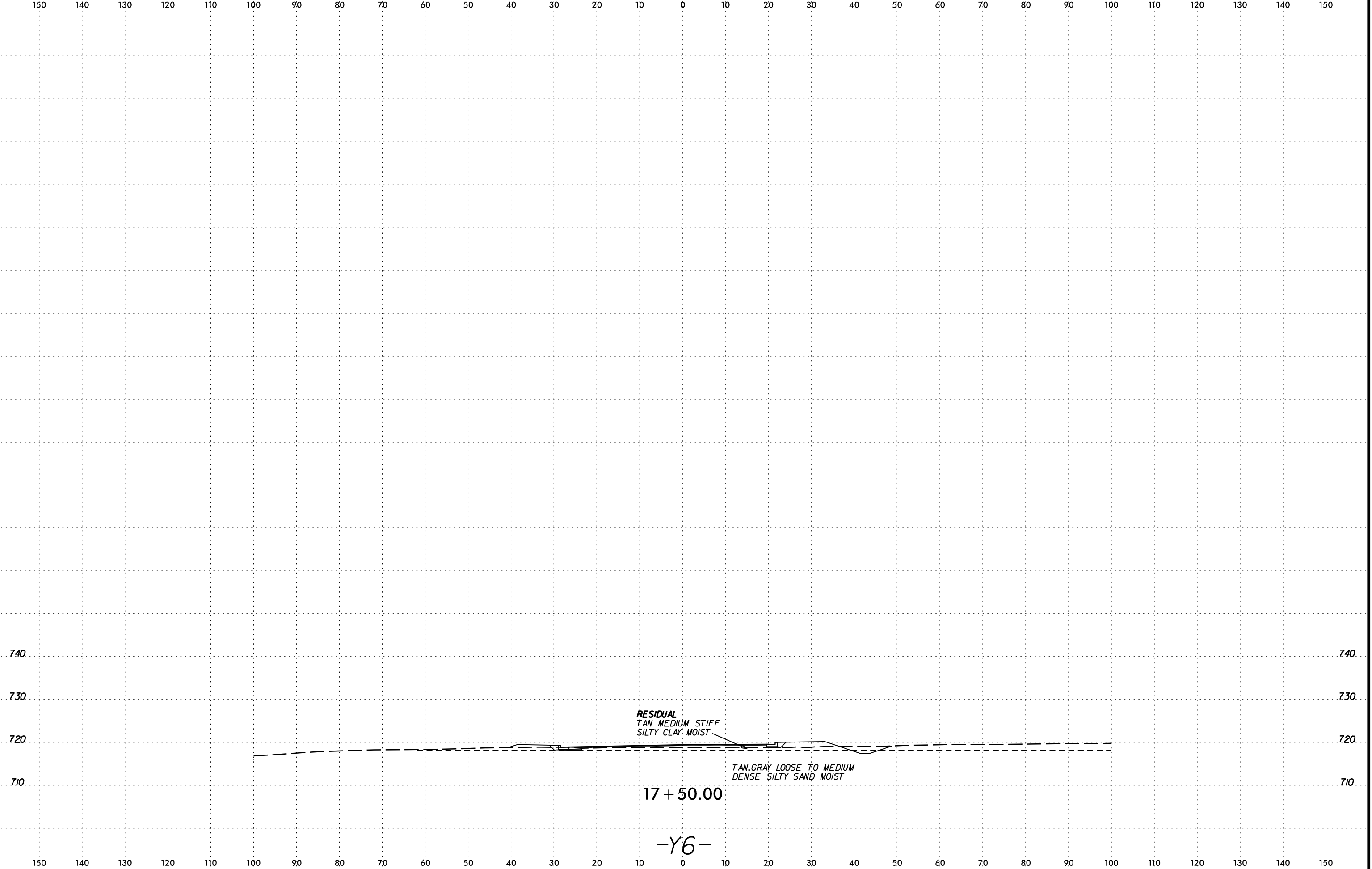
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)		MOISTURE	ORGANIC	
							C.SAND	F.SAND	SILT	CLAY	10	40			
SS-65	35' LT	17+00	1-2.5	A-7-6 (23)	55	28	9	14	21	56	99	96	78.6	32	ND



DATE PLOTTED: 6/23/16

-Y6-

6/23/16  
C:\TEMP\CONTR\17+50.00\17+50.00.DWG



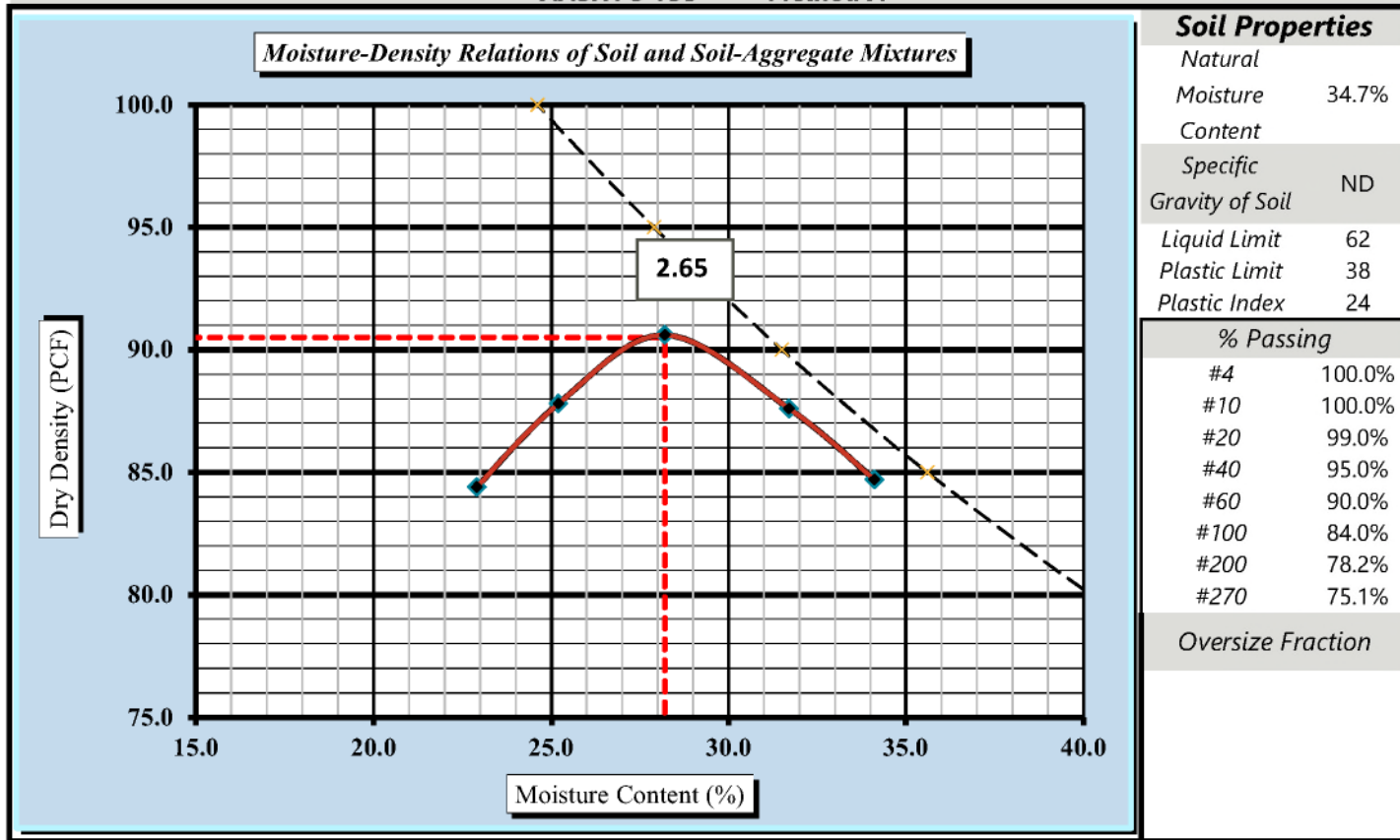
# MOISTURE - DENSITY REPORT



Quality Assurance

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273			
S&ME Project #:	6235-18-024 Phase 01	Report Date:	11/30/18
Project Name:	US 70, Burlington Rd., from SR 3045/SR 2819 to just	Test Date(s):	11/12-28/18
Client Name:	NCDOT GEU		
Client Address:	NI		
Boring #:	L-3602	Sample #:	Bulk 01
		Sample Date:	10/31-11/7/18
Location:	NI	Offset:	NI
		Depth:	1.0-6.0'
Sample Description:	A-7-5		

**Maximum Dry Density 90.5 PCF. Optimum Moisture Content 28.2%**  
**AASHTO T99 - - Method A**



Moisture-Density Curve Displayed: Fine Fraction  Corrected for Oversize Fraction (ASTM D 4718)   
 Sieve Size used to separate the Oversize Fraction: #4 Sieve  3/8 inch Sieve  3/4 inch Sieve   
 Mechanical Rammer  Manual Rammer  Moist Preparation  Dry Preparation   
 References / Comments / Deviations: ND: Not Determined NI: No Information Provided

AASHTO T 99: Moisture-Density Relations of Soil Using a 5.5 Lb. Rammer and a 12" Drop

Stacie Mitchell, P.E. Project Manager  
 Technical Responsibility Signature Position Date

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# CBR (CALIFORNIA BEARING RATIO) OF LABORATORY COMPACTED SOIL

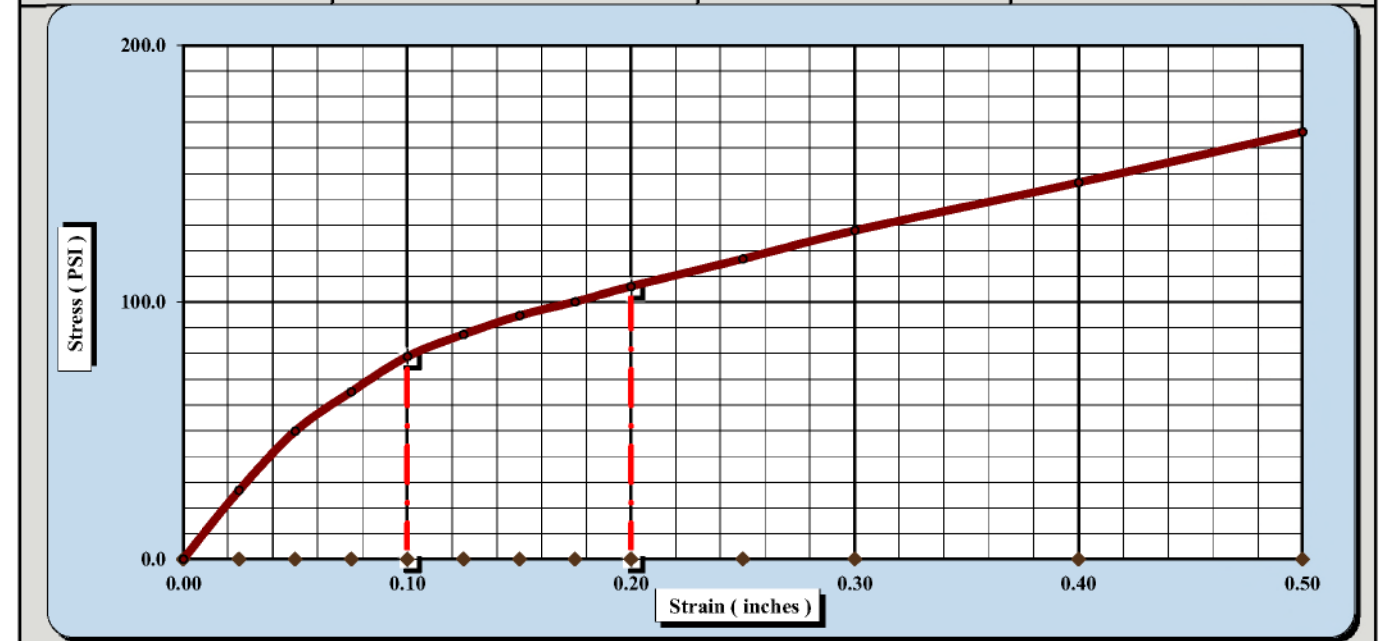


AASHTO T 193

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273			
Project #:	6235-18-024 Phase 01	Report Date:	12/6/18
Project Name:	US 70, Burlington Rd., from S 3045/SR 2819 to just East of SR 3175	Test Date(s)	11/12-20/18
Client Name:	NCDOT GEU		
Client Address:	NI		
Boring #:	L-3602	Sample #: <b>Bulk 01 (A)</b>	Sample Date: 10/31-11/7/18
Location:	NI	Offset: NI	Elevation: 1.0-6.0'
Sample Description:	A-7-5 (22)		

AASHTO T99 Method A Maximum Dry Density: 90.5 PCF Optimum Moisture Content: 28.2%  
 Line 20: Use an alternate description here if applicable % Retained on the 3/4" sieve: 0.0%

Uncorrected CBR Values		Corrected CBR Values	
CBR at 0.1 in.	7.9	CBR at 0.2 in.	7.1
CBR at 0.1 in.	7.9	CBR at 0.2 in.	7.1



CBR Sample Preparation:  
 Grading was in accordance with the above method and compacted using the 6" diameter CBR mold.

Before Soaking		After Soaking	
Compactive Effort (Blows per Layer)	56	Final Dry Density (PCF)	89.7
Initial Dry Density (PCF)	90.9	Moisture Content (top 1" after soaking)	34.9%
Moisture Content of the Compacted Specimen	28.1%	Percent Swell	1.4%
Percent Compaction	100.4%		

Soak Time: 96 Hours Surcharge Weight 10.0 Surcharge Wt. per sq. Ft. 50.8  
 Liquid Limit 62 Plastic Index 24 Apparent Relative Density ND

Notes/Deviations/References: Test Performed as Modified by NCDOT

Stacie Mitchell, P.E. Project Manager  
 Technical Responsibility Signature Position Date

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**CBR (CALIFORNIA BEARING RATIO)  
OF LABORATORY COMPACTED SOIL**

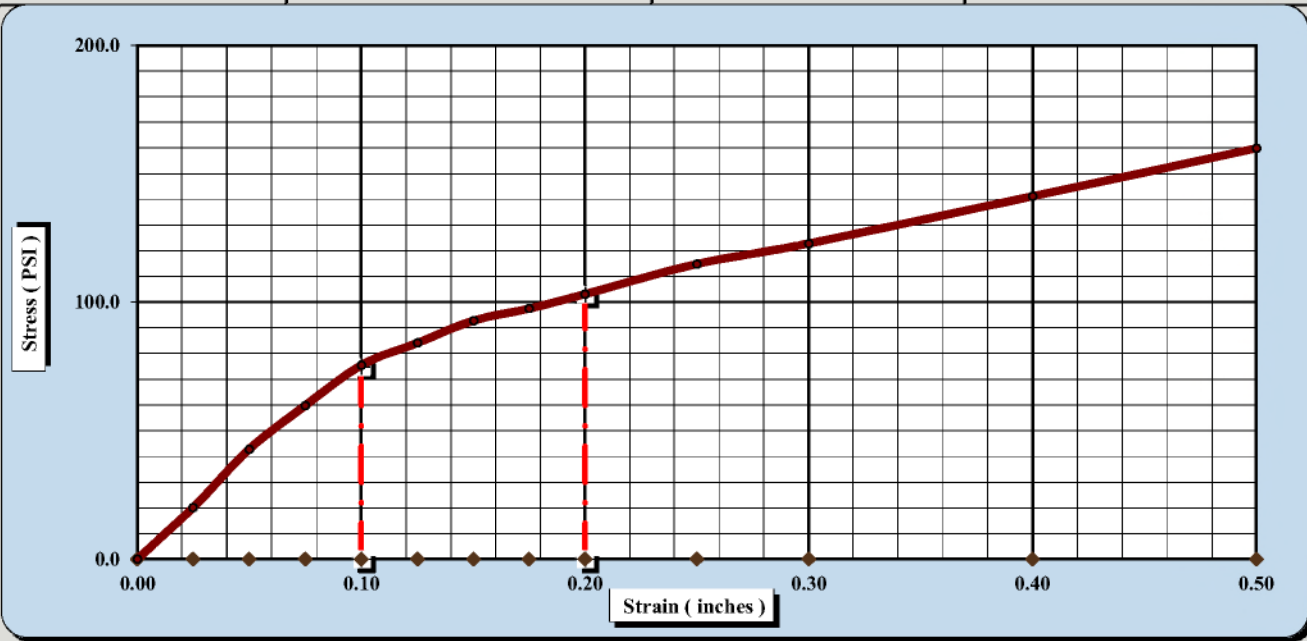


AASHTO T 193

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273			
Project #:	6235-18-024 Phase 01	Report Date:	12/6/18
Project Name:	US 70, Burlington Road. from SR 3045/SR 2819 to just East of SR 3175	Test Date(s)	11/12-20/18
Client Name:	NCDOT GEU		
Client Address:	NI		
Boring #:	L-3602	Sample #: <b>Bulk 01 (B)</b>	Sample Date: 10/31-11/7/18
Location:	NI	Offset: NI	Elevation: 1.0-6.0'
Sample Description: A-7-5 (22)			

AASHTO T99 Method A	Maximum Dry Density:	90.5 PCF	Optimum Moisture Content:	28.2%
	Line 20: Use an alternate description here if applicable		% Retained on the 3/4" sieve:	0.0%

Uncorrected CBR Values		Corrected CBR Values	
CBR at 0.1 in.	7.5	CBR at 0.1 in.	7.5
CBR at 0.2 in.	6.9	CBR at 0.2 in.	6.9



CBR Sample Preparation:

Grading was in accordance with the above method and compacted using the 6" diameter CBR mold.

Before Soaking		After Soaking	
Compactive Effort (Blows per Layer)	56	Final Dry Density (PCF)	89.1
Initial Dry Density (PCF)	90.6	Moisture Content (top 1" after soaking)	35.3%
Moisture Content of the Compacted Specimen	28.1%	Percent Swell	1.3%
Percent Compaction	100.1%		

Soak Time:	96 Hrs.	Surcharge Weight	10.0	Surcharge Wt. per sq. Ft.	50.8
Liquid Limit	62	Plastic Index	24	Apparent Relative Density	ND

Notes/Deviations/References: Test Performed As Modified by NCDOT

Stacie Mitchell, P.E.

Technical Responsibility

Signature

Project Manager

Position

Date

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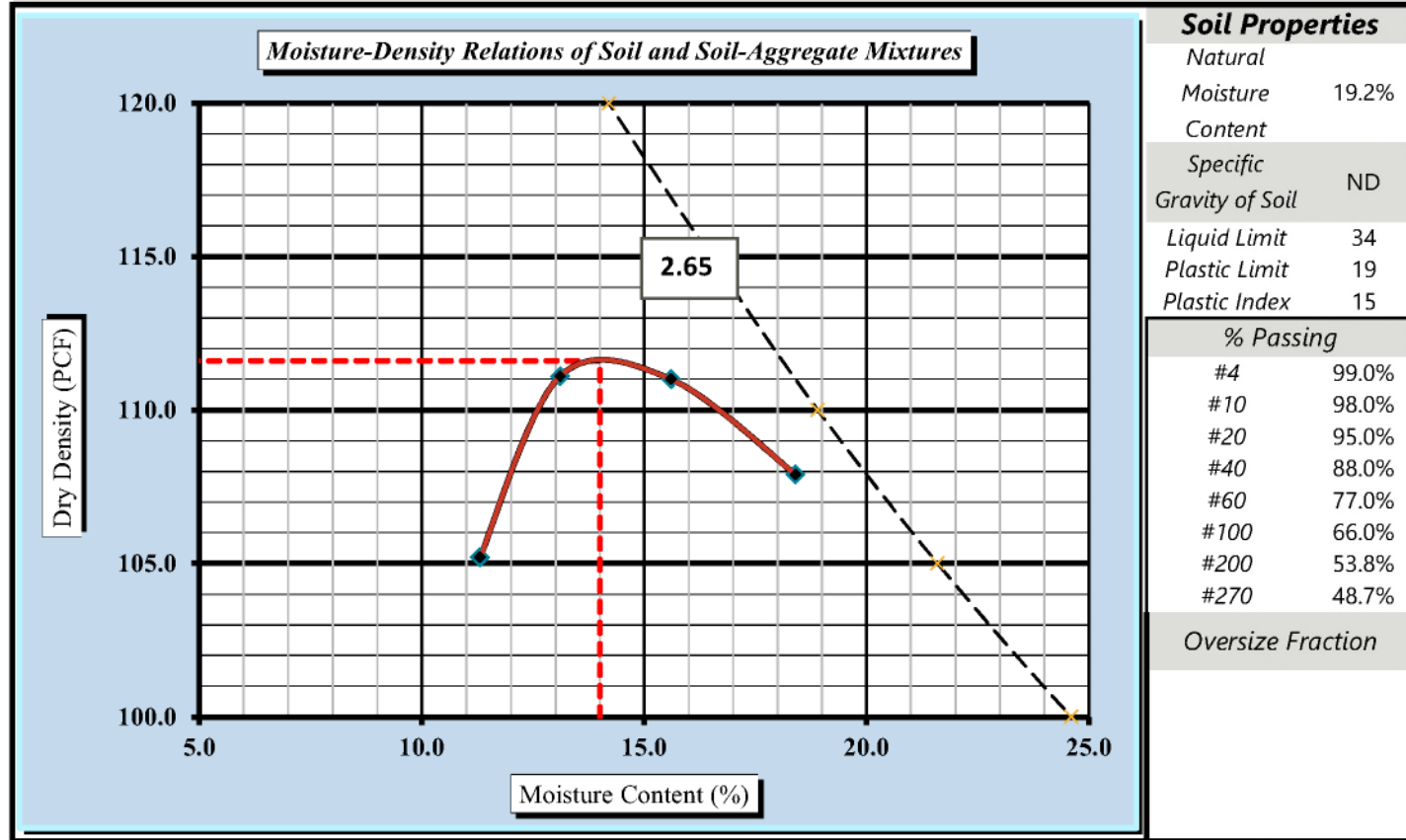
**MOISTURE - DENSITY REPORT**



Quality Assurance

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273			
S&ME Project #:	6235-18-024 Phase 01	Report Date:	11/30/18
Project Name:	US 70, Burlington Road from SR 3045/SR 2819 to just	Test Date(s):	11/12-28/18
Client Name:	NCDOT GEU		
Client Address:	NI		
Boring #:	Y1-1400	Sample #: Bulk 02	Sample Date: 10/31-11/7/18
Location:	NI	Offset: NI	Depth: 1.0-6.0
Sample Description: A-6			

Maximum Dry Density	111.6 PCF.	Optimum Moisture Content	14.0%
AASHTO T99 - - Method A			



**Soil Properties**

Natural Moisture Content	19.2%
Specific Gravity of Soil	ND
Liquid Limit	34
Plastic Limit	19
Plastic Index	15

% Passing	
#4	99.0%
#10	98.0%
#20	95.0%
#40	88.0%
#60	77.0%
#100	66.0%
#200	53.8%
#270	48.7%

**Oversize Fraction**

Moisture-Density Curve Displayed:	Fine Fraction <input checked="" type="checkbox"/>	Corrected for Oversize Fraction (ASTM D 4718)	<input type="checkbox"/>
Sieve Size used to separate the Oversize Fraction:	#4 Sieve <input checked="" type="checkbox"/>	3/8 inch Sieve <input type="checkbox"/>	3/4 inch Sieve <input checked="" type="checkbox"/>
Mechanical Rammer	<input checked="" type="checkbox"/>	Manual Rammer <input type="checkbox"/>	Moist Preparation <input type="checkbox"/>
			Dry Preparation <input checked="" type="checkbox"/>

References / Comments / Deviations: ND: Not Determined NI: No Information Provided

AASHTO T 99: Moisture-Density Relations of Soil Using a 5.5 Lb. Rammer and a 12" Drop

Stacie Mitchel, P.E.

Technical Responsibility

Signature

Project Manager

Position

Date

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**CBR (CALIFORNIA BEARING RATIO)  
 OF LABORATORY COMPACTED SOIL**

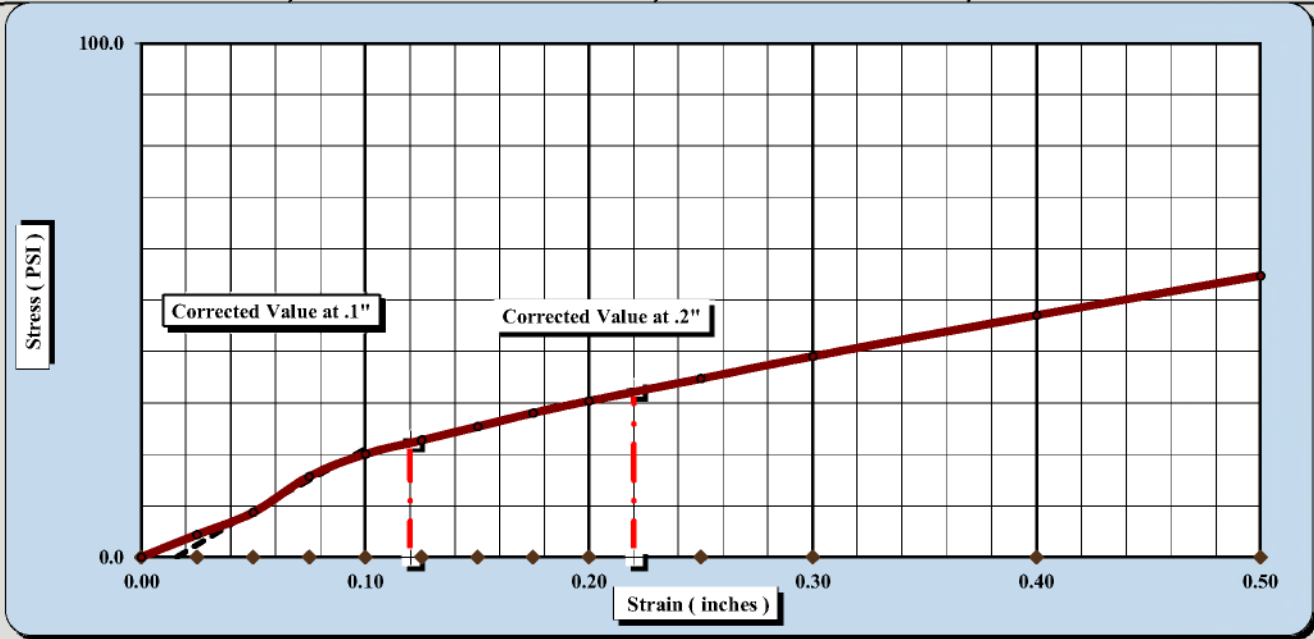


AASHTO T 193

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273			
Project #:	6235-18-024 Phase 01	Report Date:	12/6/18
Project Name:	US 70, Burlington Rd., from SR 3045/SR 2819 to just East of SR 3175	Test Date(s)	11/12-20/18
Client Name:	NCDOT GEU		
Client Address:	NI		
Boring #:	Y1-1400	Sample #: <b>Bulk 02 (A)</b>	Sample Date: 10/31-11/7/18
Location:	NI	Offset: NI	Elevation: 1.0-6.0'

Sample Description:	A-6 (5)		
AASHTO T99 Method A	Maximum Dry Density: 111.6 PCF	Optimum Moisture Content: 14.0%	% Retained on the 3/4" sieve: 0.0%

Uncorrected CBR Values		Corrected CBR Values	
CBR at 0.1 in.	2.0	CBR at 0.1 in.	2.3
CBR at 0.2 in.	2.0	CBR at 0.2 in.	2.2



CBR Sample Preparation:  
 Grading was in accordance with the above method and compacted using the 6" diameter CBR mold.

Before Soaking		After Soaking	
Compactive Effort (Blows per Layer)	56	Final Dry Density (PCF)	109.0
Initial Dry Density (PCF)	113.0	Moisture Content (top 1" after soaking)	23.9%
Moisture Content of the Compacted Specimen	13.9%	Percent Swell	3.5%
Percent Compaction	101.2%		

Soak Time:	96 Hours	Surcharge Weight	10.0	Surcharge Wt. per sq. Ft.	50.9
Liquid Limit	34	Plastic Index	15	Apparent Relative Density	ND

Notes/Deviations/References: Test Performed as Modified by NCDOT

Karen Warner \_\_\_\_\_ Stacie Mitchell, P.E. \_\_\_\_\_  
 Technical Responsibility Signature Position Date

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**CBR (CALIFORNIA BEARING RATIO)  
 OF LABORATORY COMPACTED SOIL**

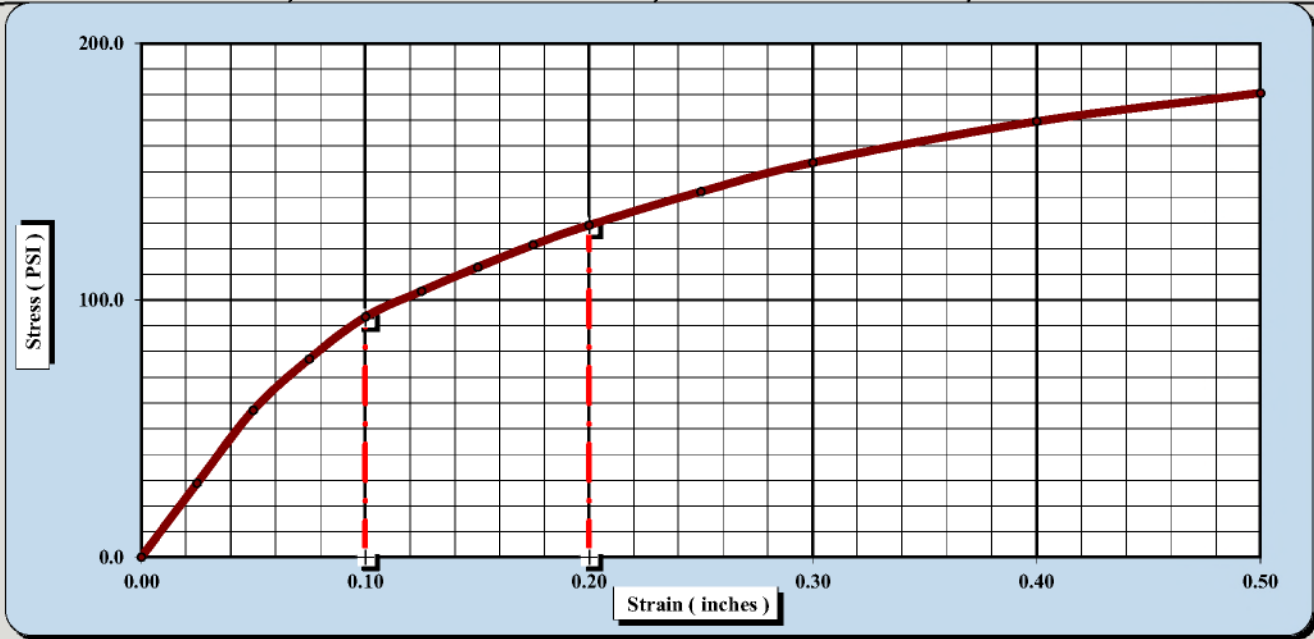


AASHTO T 193

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273			
Project #:	6235-18-024 Phase 01	Report Date:	12/6/18
Project Name:	US 70, Burlington Road from SR 3045/SR 2819 to just East of SR3175	Test Date(s)	11/12-12/3/18
Client Name:	NCDOT GEU		
Client Address:	NI		
Boring #:	Y1-1400	Sample #: <b>Bulk 02 (B)</b>	Sample Date: 10/31-11/7/18
Location:	NI	Offset: NI	Elevation: 1-6'

Sample Description:	A-6 (5)		
AASHTO T99 Method A	Maximum Dry Density: 111.6 PCF	Optimum Moisture Content: 14.0%	% Retained on the 3/4" sieve: 0.0%

Uncorrected CBR Values		Corrected CBR Values	
CBR at 0.1 in.	9.3	CBR at 0.1 in.	9.3
CBR at 0.2 in.	8.6	CBR at 0.2 in.	8.6



CBR Sample Preparation:  
 Grading was in accordance with the above method and compacted using the 6" diameter CBR mold.

Before Soaking		After Soaking	
Compactive Effort (Blows per Layer)	56	Final Dry Density (PCF)	108.8
Initial Dry Density (PCF)	112.2	Moisture Content (top 1" after soaking)	22.9%
Moisture Content of the Compacted Specimen	14.3%	Percent Swell	3.0%
Percent Compaction	100.5%		

Soak Time:	96 Hours	Surcharge Weight	10.0	Surcharge Wt. per sq. Ft.	50.8
Liquid Limit	34	Plastic Index	15	Apparent Relative Density	ND

Notes/Deviations/References: Test Performed as Modified By NCDOT

Stacie Mitchell, P.E. \_\_\_\_\_ Project Manager \_\_\_\_\_  
 Technical Responsibility Signature Position Date

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