

REFERENCE: BR-0086

PROJECT: 67086

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY JOHNSTON PROJECT DESCRIPTION APPROACHES TO BR. NO. 70 ON US 301 (BRIGHTLEAF BLVD.) OVER NEUSE RIVER

INVENTORY

CONTENTS

Table with columns: LINE, STATION, PLAN, PROFILE. Row 1: -L-, 12+50 TO 26+00, 4, 5

CROSS SECTIONS

Table with columns: LINE, STATION, SHEETS. Row 1: -L-, 12+75 TO 25+75, 6-33

Table with columns: STATE, STATE PROJECT REFERENCE NO., SHEET NO., TOTAL SHEETS. Values: N.C., BR-0086, 1, 33

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL...

SOIL AND ROCK BOUNDARIES WITHIN A BOREHOLE ARE BASED ON GEOTECHNICAL INTERPRETATION UNLESS ENCOUNTERED IN A SAMPLE. INTERPRETED BOUNDARIES MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS...

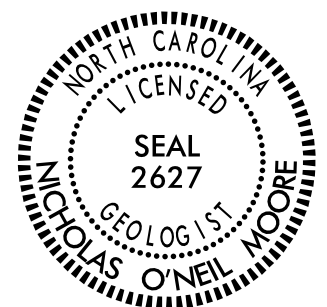
THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT...

NOTES: 1. 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.

PERSONNEL

- N.O. MOORE
A.N. JONES
C.M. WALKER
R.E. SMITH

INVESTIGATED BY N.O. MOORE
DRAWN BY N.O. MOORE
CHECKED BY N.T. ROBERSON
SUBMITTED BY N.O. MOORE
DATE MAY 2024



DocuSigned by: Nick Moore 06/06/2024
8636AEA78511411... 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

SOIL DESCRIPTION GRADATION ROCK DESCRIPTION TERMS AND DEFINITIONS. SOIL LEGEND AND AASHTO CLASSIFICATION. CONSISTENCY OR DENSENESS. TEXTURE OR GRAIN SIZE. SOIL MOISTURE - CORRELATION OF TERMS. PLASTICITY. COLOR. MISCELLANEOUS SYMBOLS. RECOMMENDATION SYMBOLS. ABBREVIATIONS. EQUIPMENT USED ON SUBJECT PROJECT. FRACTURE SPACING. BEDDING. INDURATION.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0086	3	33
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
67086.1.1	N/A	PE	

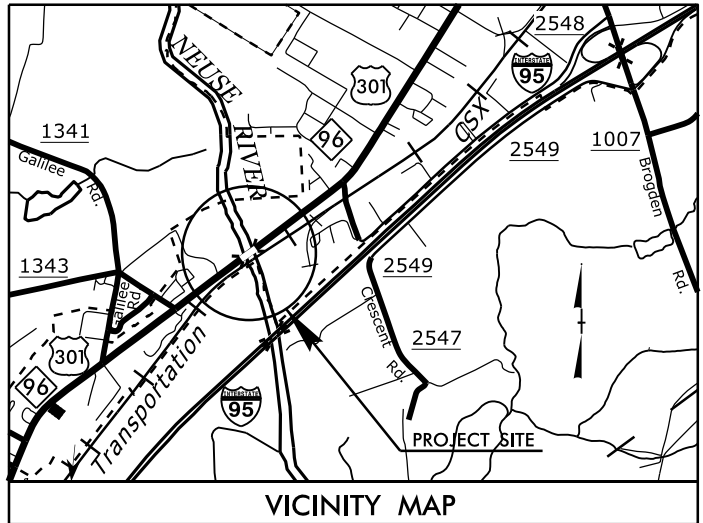
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**JOHNSTON COUNTY**

LOCATION: REPLACE BRIDGE No. 500070 ON US 301  
OVER NEUSE RIVER

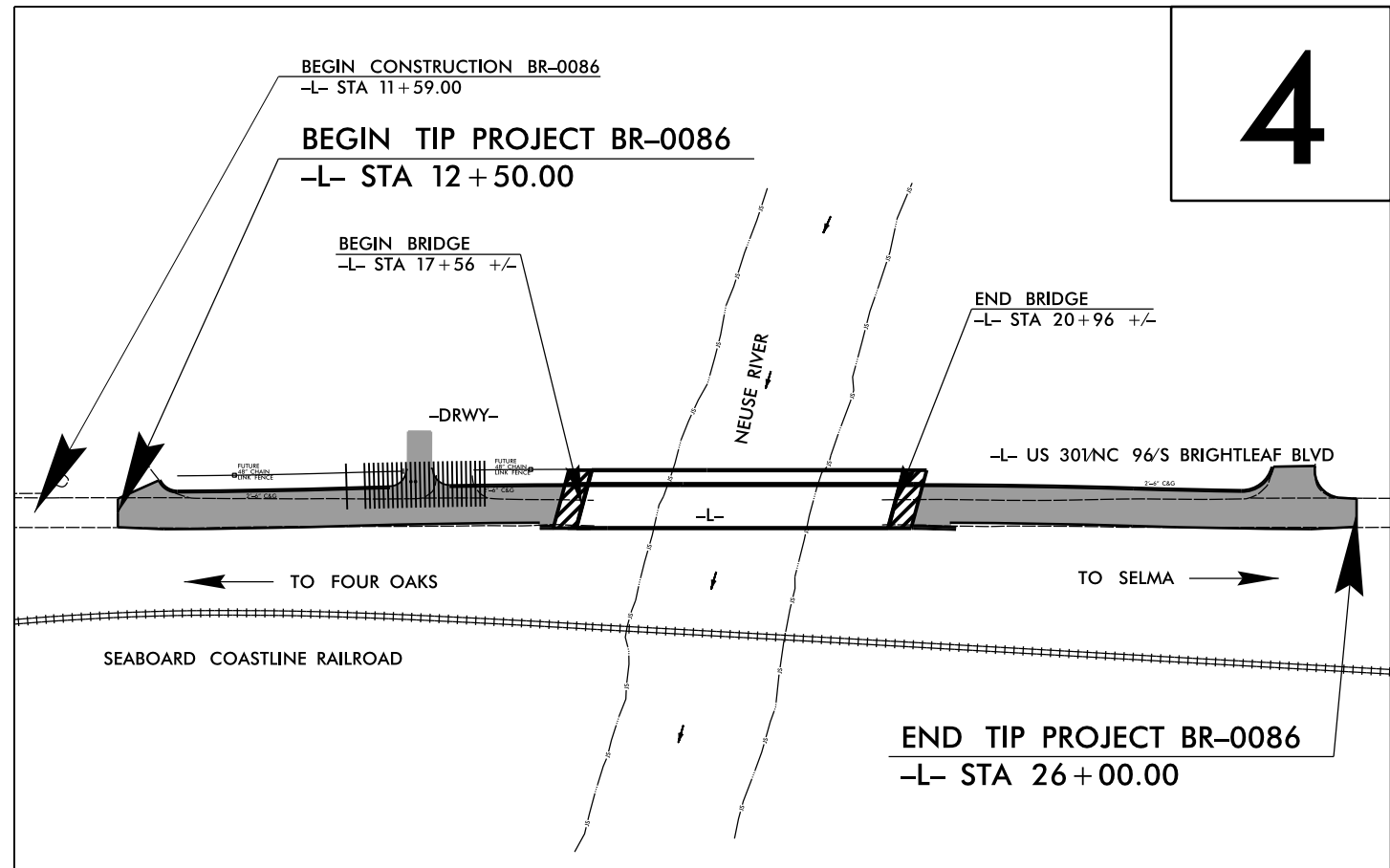
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

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

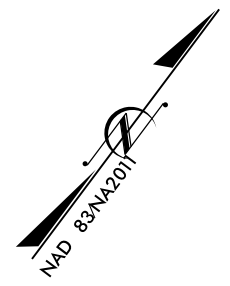


COMBINED FIELD  
INSPECTION PLAN SET

CONTRACT: TIP PROJECT: BR-0086

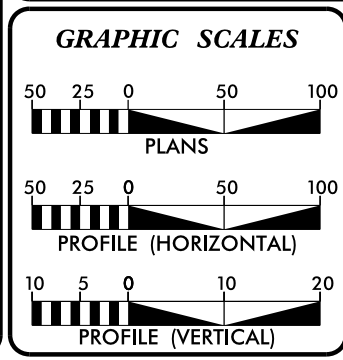


4



THIS PROJECT HAS NO CONTROLLED ACCESS  
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE TOWN OF SMITHFIELD  
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



**DESIGN DATA**

ADT 2023 =	12540
ADT 2043 =	15240
K =	9 %
D =	65 %
T =	4 % *
V =	50 MPH
* TTST =	2% DUAL = 2%
FUNC CLASS =	MINOR ARTERIAL
	REGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT BR-0086 =	0.192 MI.
LENGTH STRUCTURE TIP PROJECT BR-0086 =	0.064 MI.
TOTAL LENGTH TIP PROJECT BR-0086 =	0.256 MI.

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

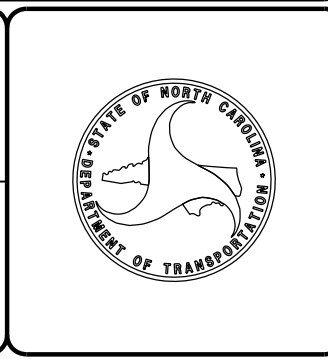
2018 STANDARD SPECIFICATIONS	RUSSELL BROADWELL, PE PROJECT MANAGER
RIGHT OF WAY DATE: June 19, 2023	JORDAN A. WOODARD, PE PROJECT ENGINEER
LETTING DATE: July 16, 2024	DOUGLAS KRETCHMAN, PE PROJECT TEAM LEAD

**HYDRAULICS ENGINEER**

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

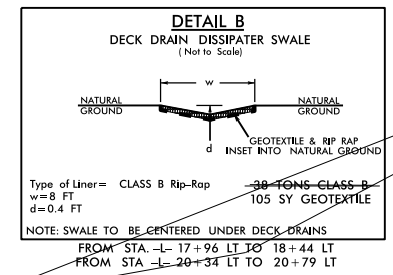
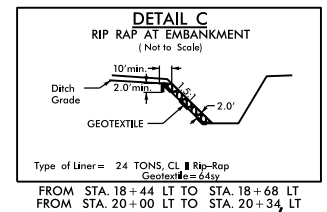
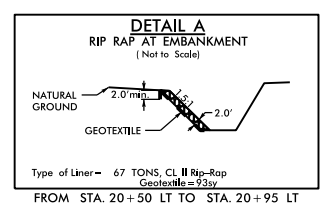
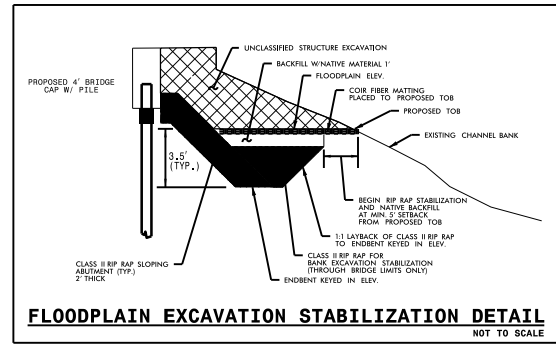
**ROADWAY DESIGN ENGINEER**

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



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PROJECT REFERENCE NO.	SHEET NO.
BR-0086	4
R/W 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	

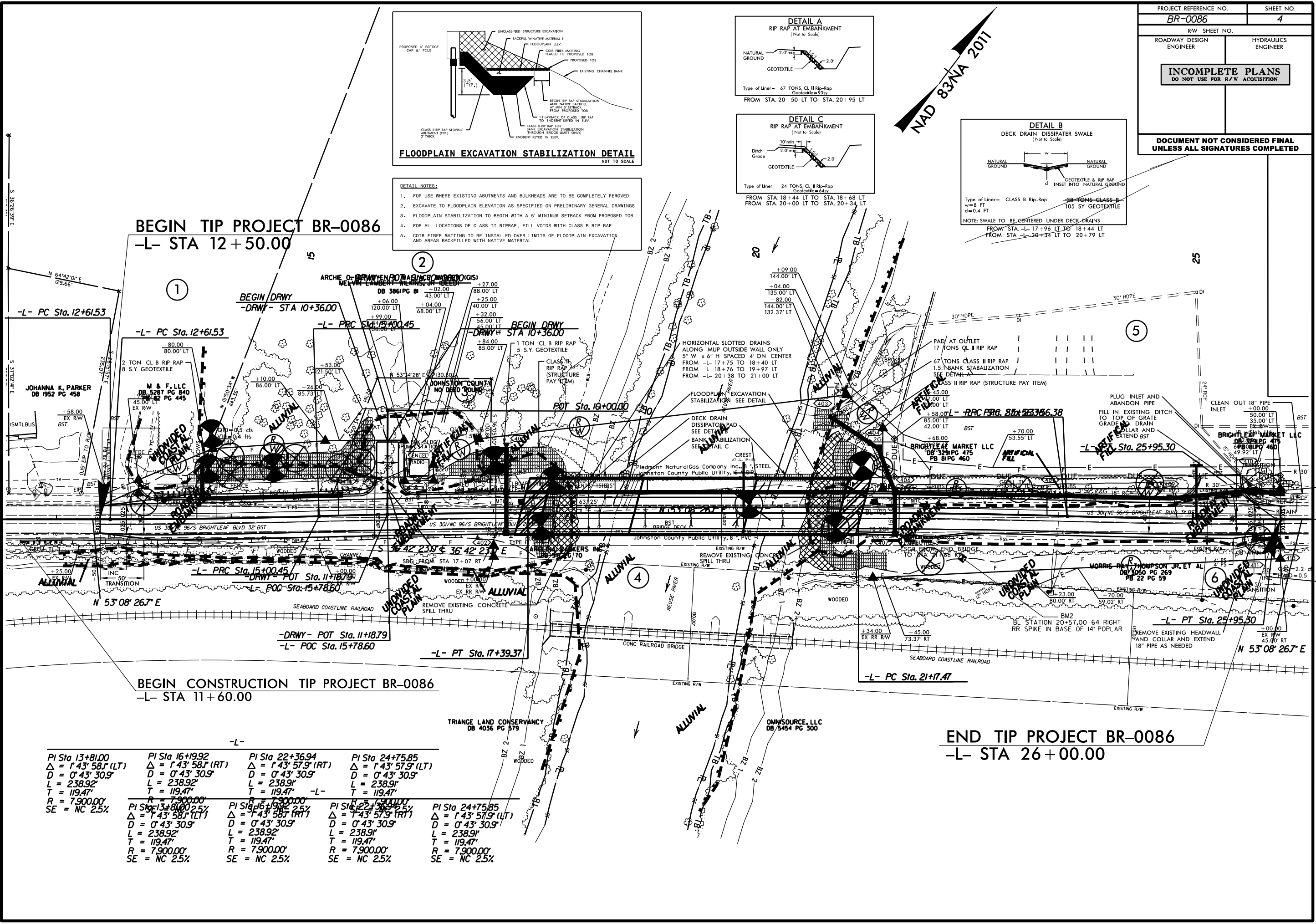


- DETAIL NOTES:**
- FOR USE WHERE EXISTING ABUTMENTS AND BULKHEADS ARE TO BE COMPLETELY REMOVED
  - EXCAVATE TO FLOODPLAIN ELEVATION AS SPECIFIED ON PRELIMINARY GENERAL DRAWINGS
  - FLOODPLAIN STABILIZATION TO BEGIN WITH A 5' MINIMUM SETBACK FROM PROPOSED TOB
  - FOR ALL LOCATIONS OF CLASS II RIPRAP, FILL VOIDS WITH CLASS B RIP RAP
  - CORR FIBER MATTING TO BE INSTALLED OVER LIMITS OF FLOODPLAIN EXCAVATION AND AREAS BACKFILLED WITH NATIVE MATERIAL

**BEGIN TIP PROJECT BR-0086**  
-L- STA 12+50.00

**BEGIN CONSTRUCTION TIP PROJECT BR-0086**  
-L- STA 11+60.00

**END TIP PROJECT BR-0086**  
-L- STA 26+00.00



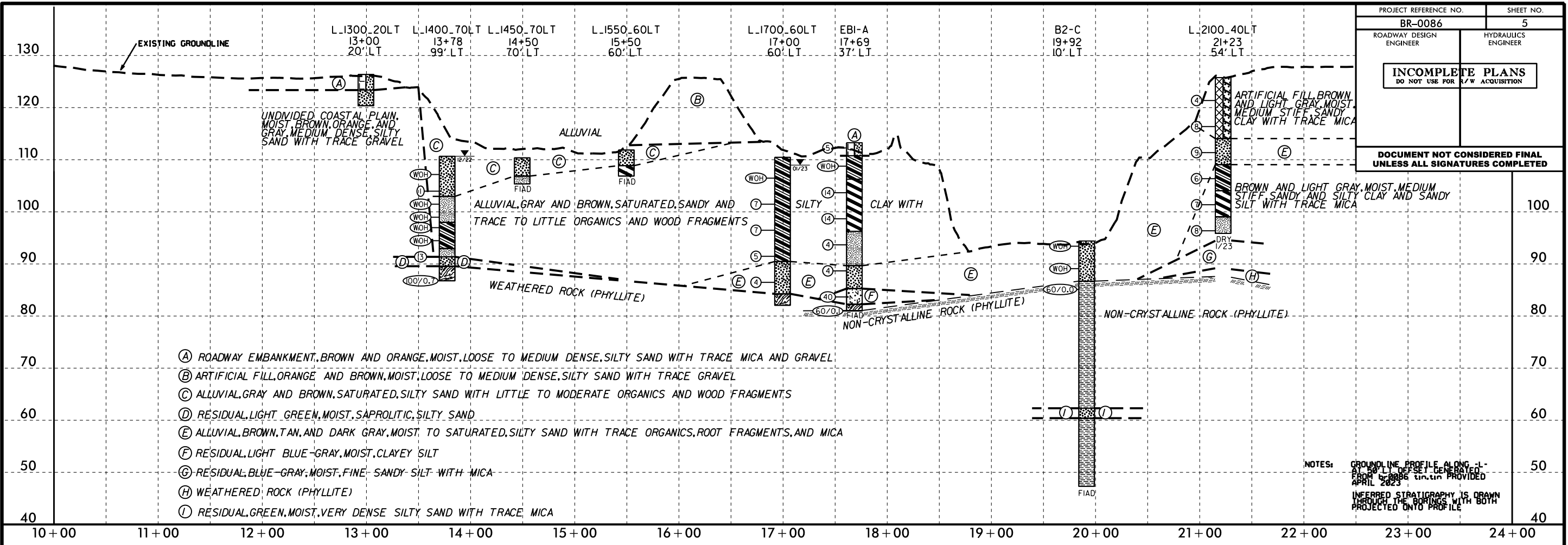
PI Sta 13+81.00 Δ = 1°43' 58.1 (LT) D = 0°43' 30.9" L = 238.92' T = 119.47' R = 7,900.00' SE = NC 2.5%	PI Sta 16+19.92 Δ = 1°43' 58.1 (RT) D = 0°43' 30.9" L = 238.92' T = 119.47' R = 7,900.00' SE = NC 2.5%	PI Sta 22+36.94 Δ = 1°43' 57.9 (RT) D = 0°43' 30.9" L = 238.91' T = 119.47' R = 7,900.00' SE = NC 2.5%	PI Sta 24+75.85 Δ = 1°43' 57.9 (LT) D = 0°43' 30.9" L = 238.91' T = 119.47' R = 7,900.00' SE = NC 2.5%
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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
BR-0086	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

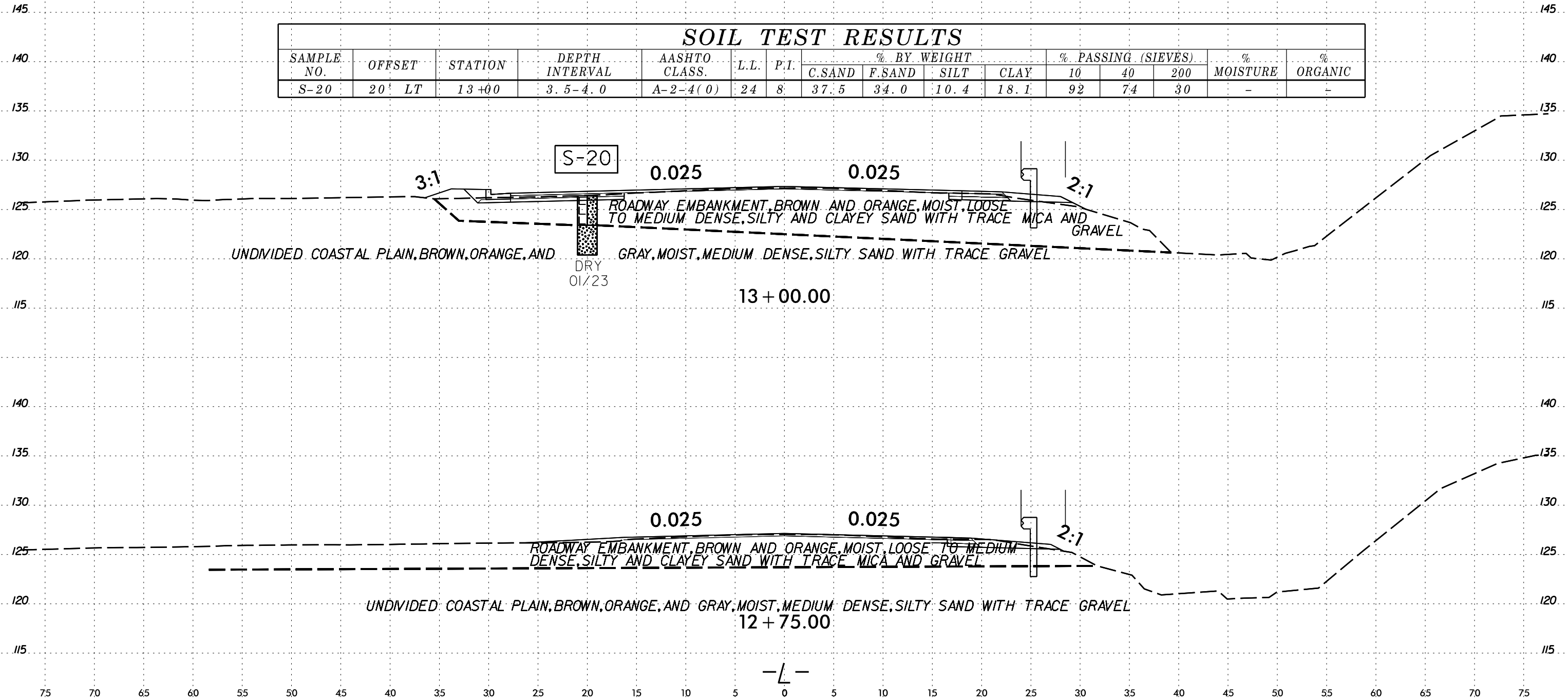
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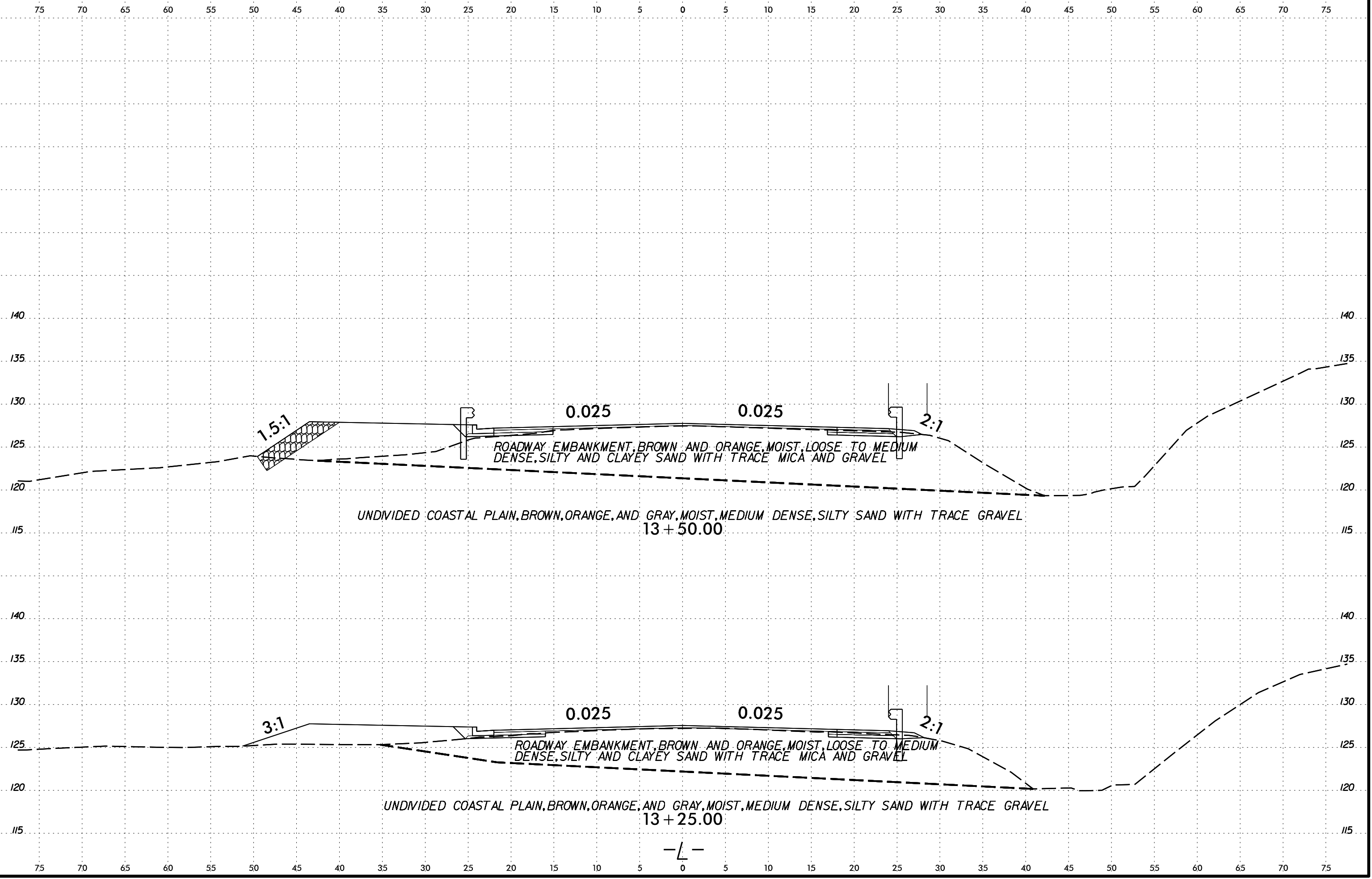
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SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-20	20' LT	13+00	3.5-4.0	A-2-4(0)	24	8	37.5	34.0	10.4	18.1	92	74	30	-	-



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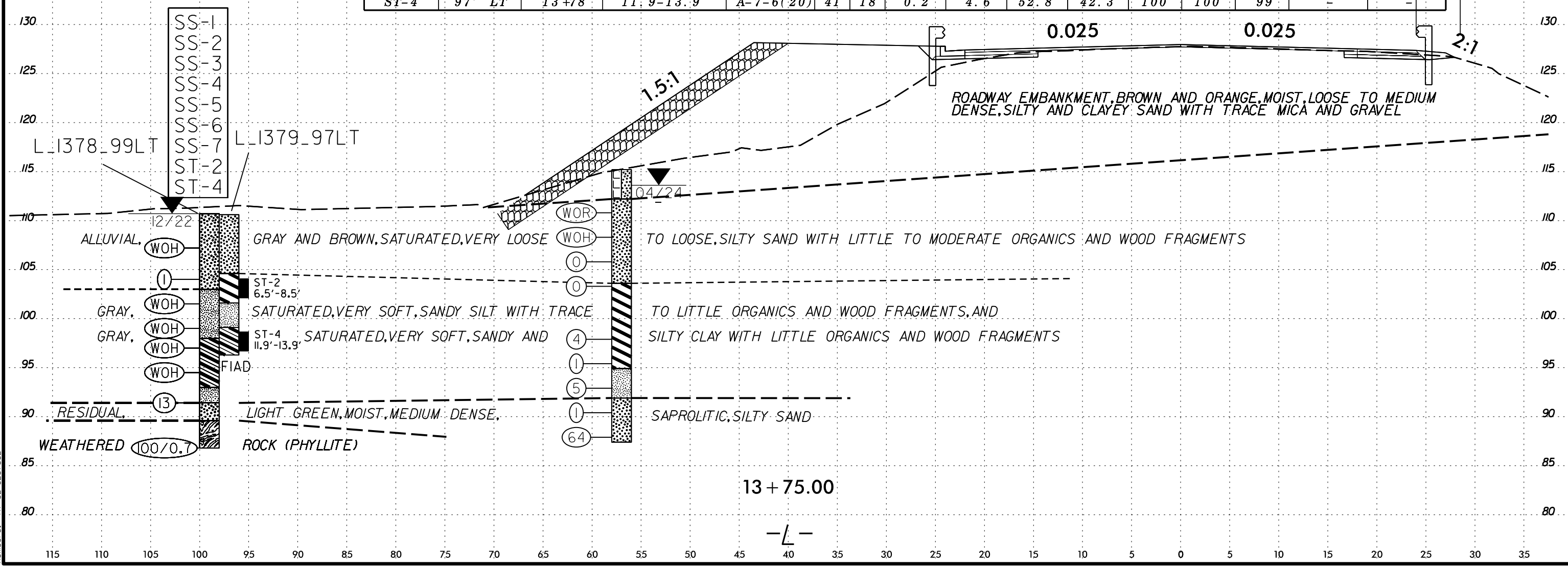
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### SOIL TEST RESULTS

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	40	200		
SS-1	99' LT	13+79	3.2-3.5	A-2-4(0)		NP	44.6	34.3	15.0	6.1	96	73	23	-	5
SS-2	99' LT	13+79	5.7-6.7	A-2-4(0)		NP	41.8	27.9	20.3	10.1	97	74	32	53	6
SS-3	99' LT	13+79	8.2-9.2		-	-	32.1	22.2	23.5	22.2	99	81	48	60	1
SS-4	99' LT	13+79	10.7-11.2		-	-	21.6	14.5	41.7	22.2	100	88	66	-	11
SS-5	99' LT	13+79	13.2-13.7		-	-	10.3	9.7	41.7	38.3	99	93	83	-	9
SS-6	99' LT	13+79	15.7-16.2		-	-	11.7	9.7	40.3	38.3	98	91	80	-	9
SS-7	99' LT	13+79	18.2-19.3	A-4(0)		NP	24.8	38.5	24.5	12.1	99	87	42	-	8
ST-2	97' LT	13+78	6.5-8.5	A-7-5(19)	74	19	18.2	11.7	37.8	32.3	100	90	72	-	22.6
ST-4	97' LT	13+78	11.9-13.9	A-7-6(20)	41	18	0.2	4.6	52.8	42.3	100	100	99	-	-

### VANE SHEAR TESTS

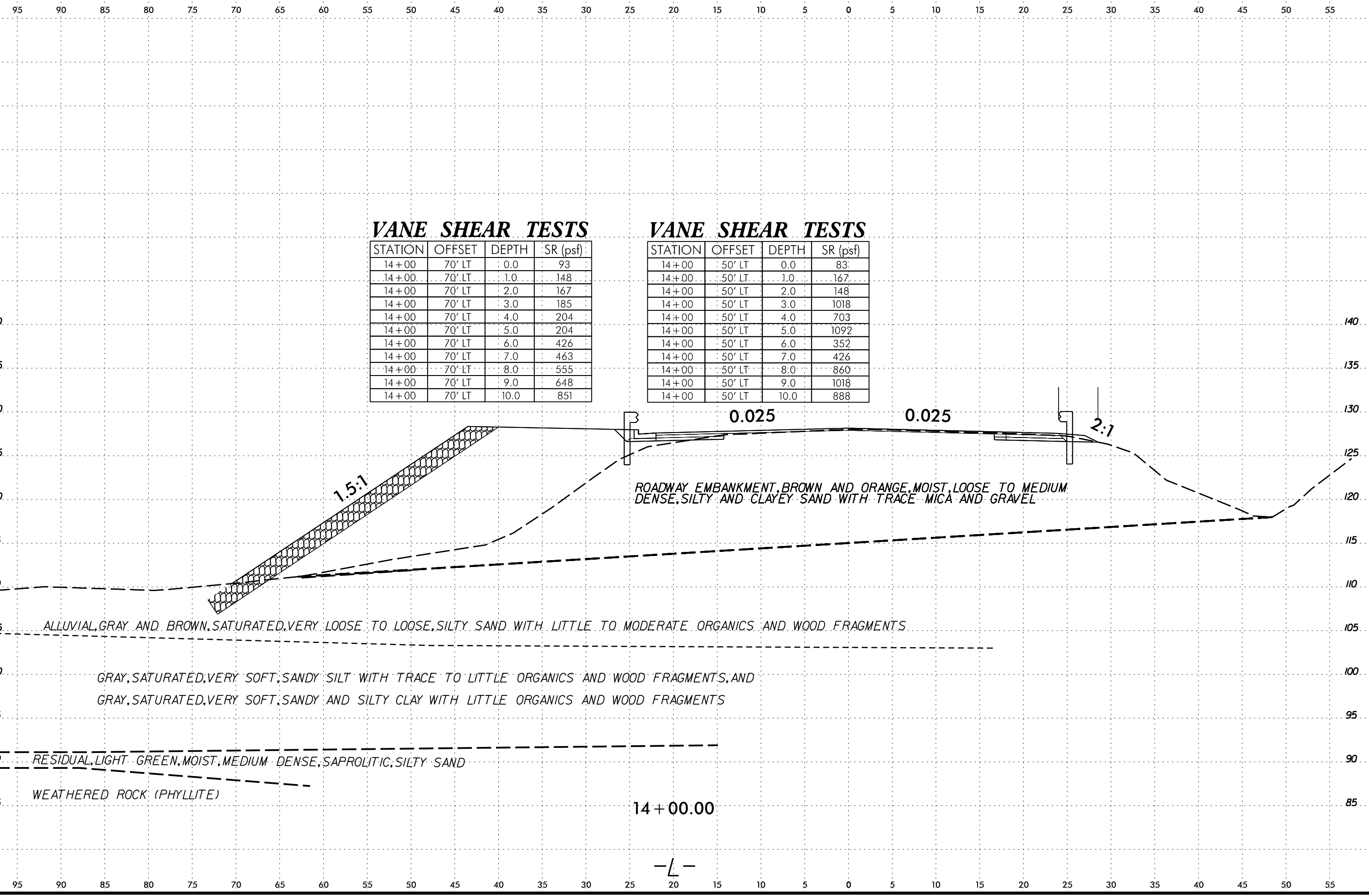
STATION	OFFSET	DEPTH	SR (psf)
13+78	99' LT	0.0	278
13+78	99' LT	3.0	74
13+78	99' LT	5.0	833



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**VANE SHEAR TESTS**

STATION	OFFSET	DEPTH	SR (psf)
14+00	70' LT	0.0	93
14+00	70' LT	1.0	148
14+00	70' LT	2.0	167
14+00	70' LT	3.0	185
14+00	70' LT	4.0	204
14+00	70' LT	5.0	204
14+00	70' LT	6.0	426
14+00	70' LT	7.0	463
14+00	70' LT	8.0	555
14+00	70' LT	9.0	648
14+00	70' LT	10.0	851

**VANE SHEAR TESTS**

STATION	OFFSET	DEPTH	SR (psf)
14+00	50' LT	0.0	83
14+00	50' LT	1.0	167
14+00	50' LT	2.0	148
14+00	50' LT	3.0	1018
14+00	50' LT	4.0	703
14+00	50' LT	5.0	1092
14+00	50' LT	6.0	352
14+00	50' LT	7.0	426
14+00	50' LT	8.0	860
14+00	50' LT	9.0	1018
14+00	50' LT	10.0	888

0.025      0.025      2:1

ROADWAY EMBANKMENT, BROWN AND ORANGE, MOIST, LOOSE TO MEDIUM DENSE, SILTY AND CLAYEY SAND WITH TRACE MICA AND GRAVEL

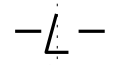
ALLUVIAL, GRAY AND BROWN, SATURATED, VERY LOOSE TO LOOSE, SILTY SAND WITH LITTLE TO MODERATE ORGANICS AND WOOD FRAGMENTS

GRAY, SATURATED, VERY SOFT, SANDY SILT WITH TRACE TO LITTLE ORGANICS AND WOOD FRAGMENTS, AND  
 GRAY, SATURATED, VERY SOFT, SANDY AND SILTY CLAY WITH LITTLE ORGANICS AND WOOD FRAGMENTS

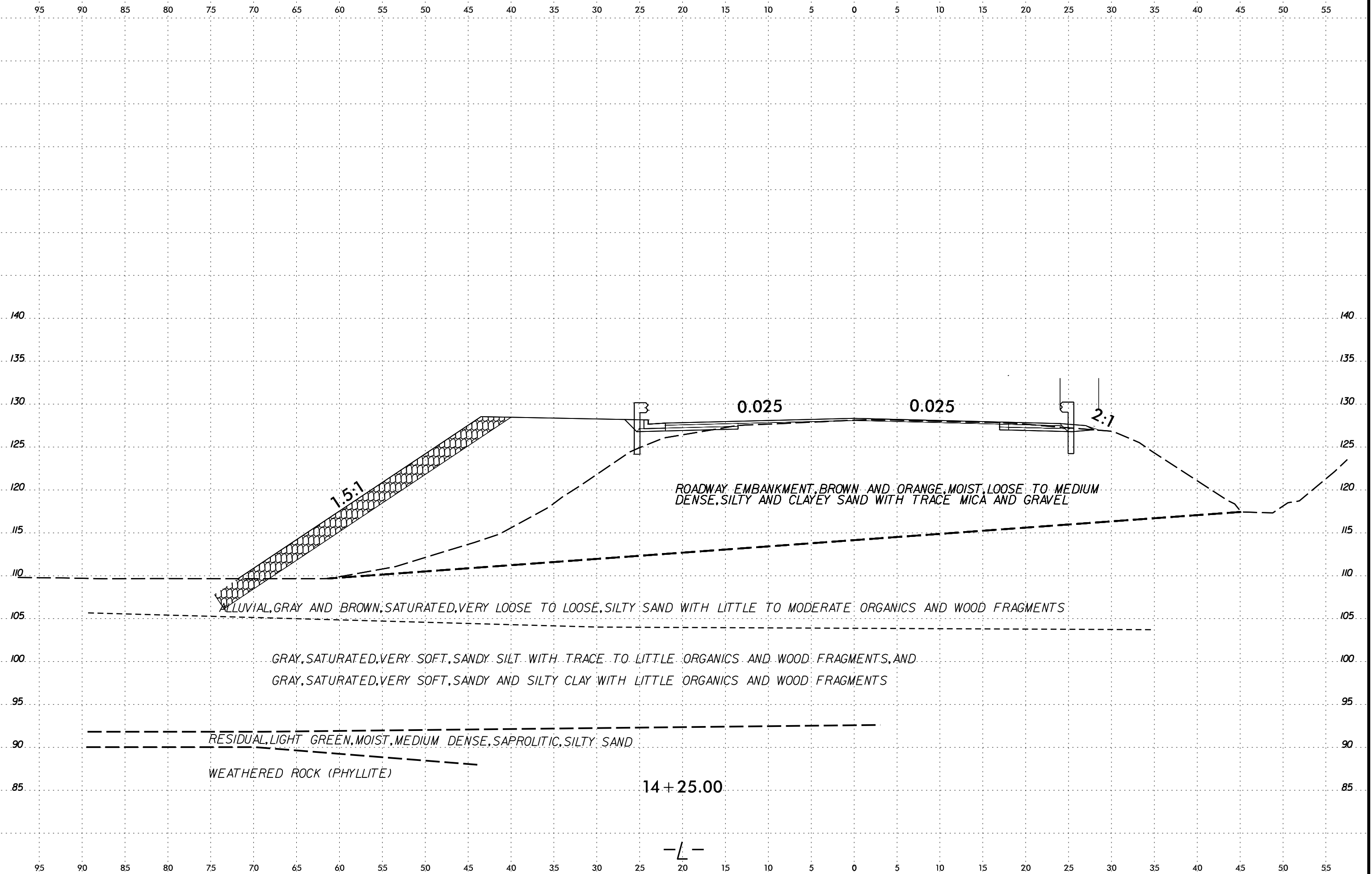
RESIDUAL, LIGHT GREEN, MOIST, MEDIUM DENSE, SAPROLITIC, SILTY SAND

WEATHERED ROCK (PHYLLITE)

14+00.00



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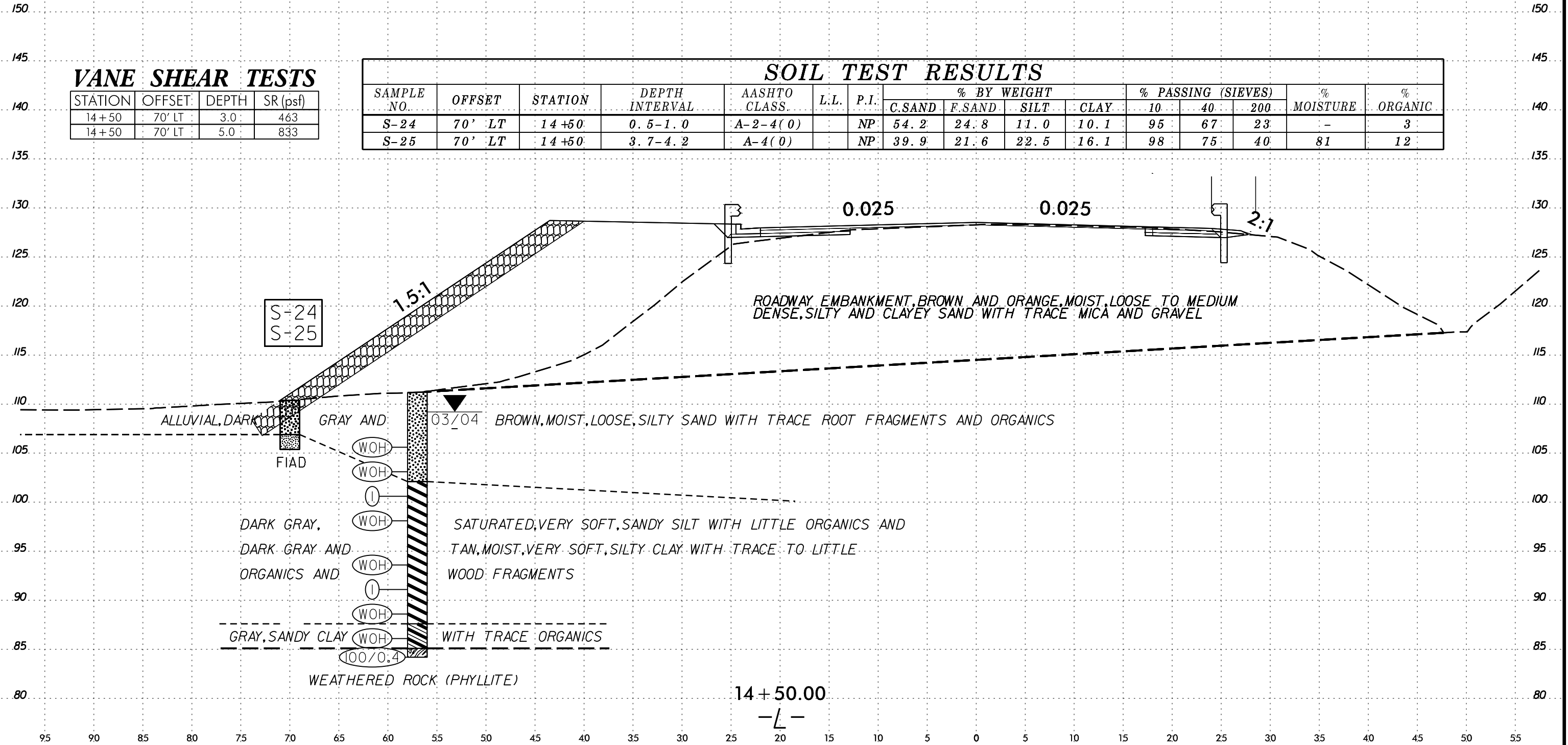
95 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55

**VANE SHEAR TESTS**

STATION	OFFSET	DEPTH	SR (psf)
14+50	70' LT	3.0	463
14+50	70' LT	5.0	833

**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-24	70' LT	14+50	0.5-1.0	A-2-4(0)		NP	54.2	24.8	11.0	10.1	95	67	23	-	3
S-25	70' LT	14+50	3.7-4.2	A-4(0)		NP	39.9	21.6	22.5	16.1	98	75	40	81	12

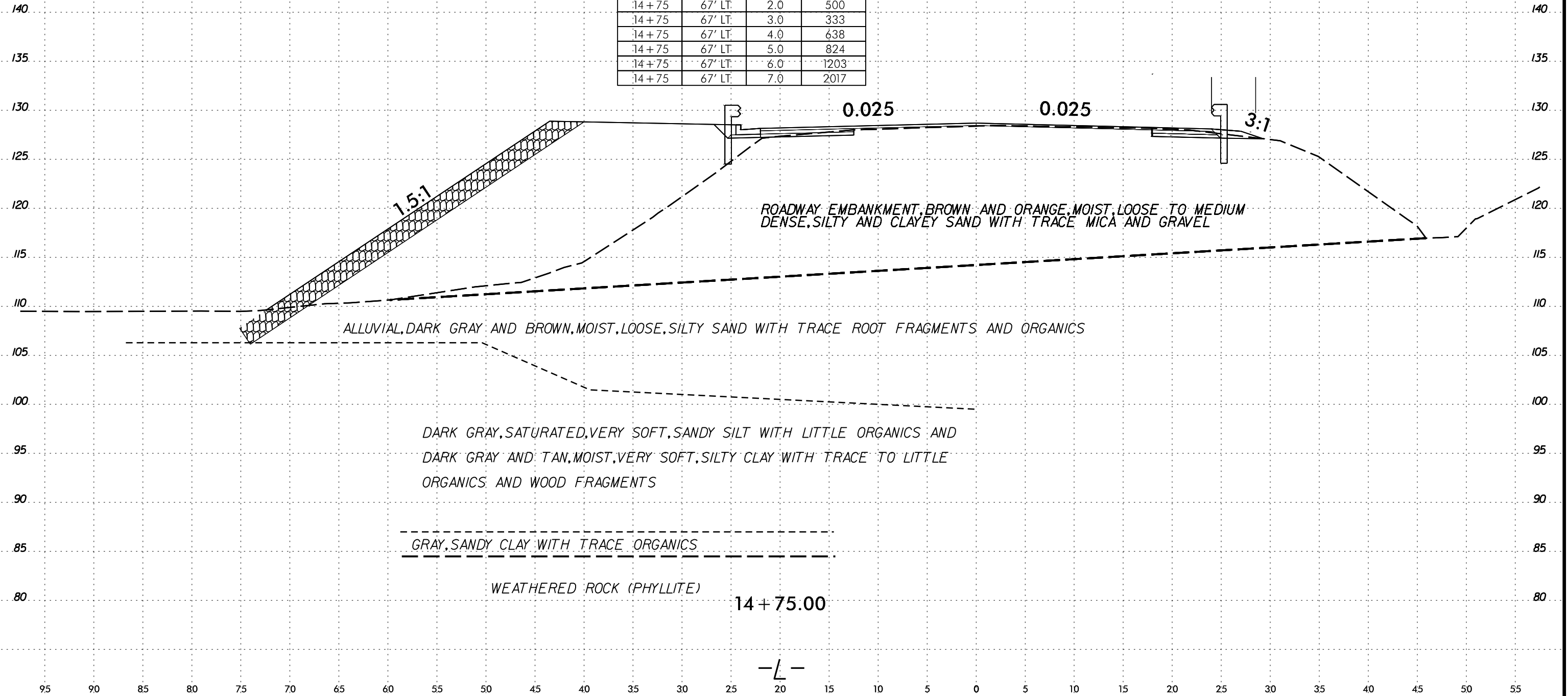


14+50.00  
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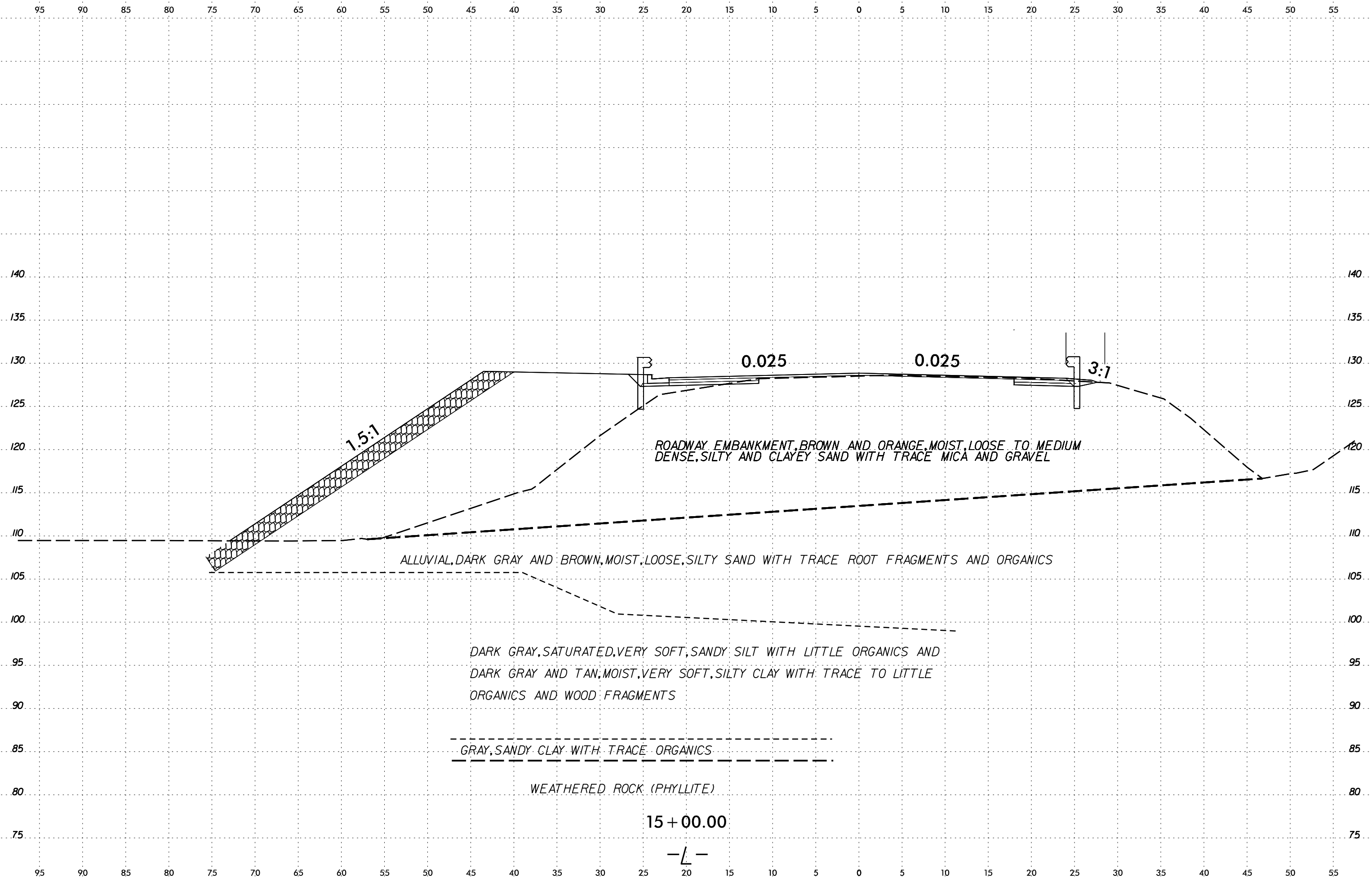
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### VANE SHEAR TESTS

STATION	OFFSET	DEPTH	SR (psf)
14+75	67' LT.	0.0	426
14+75	67' LT.	1.0	426
14+75	67' LT.	2.0	500
14+75	67' LT.	3.0	333
14+75	67' LT.	4.0	638
14+75	67' LT.	5.0	824
14+75	67' LT.	6.0	1203
14+75	67' LT.	7.0	2017

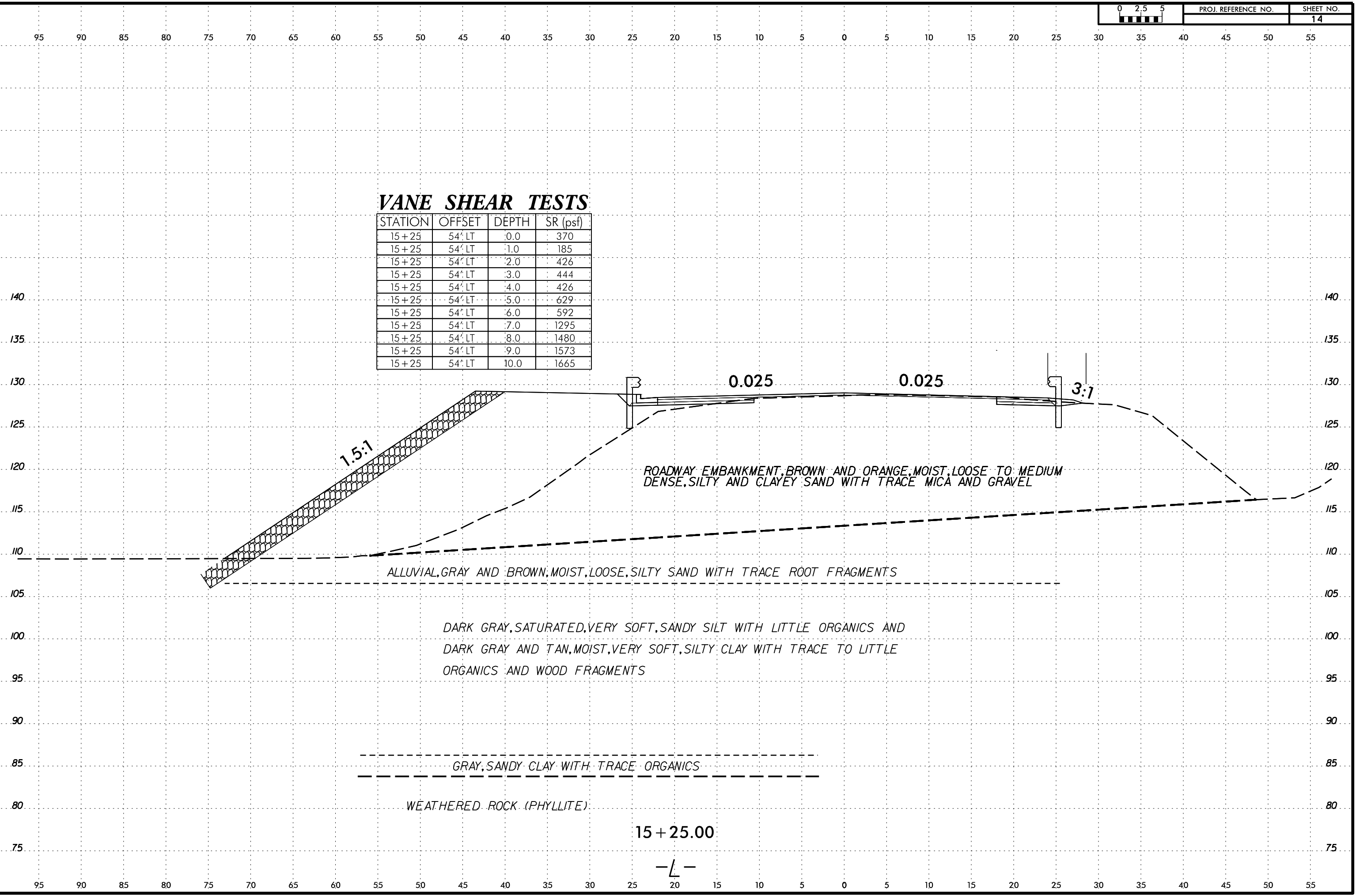


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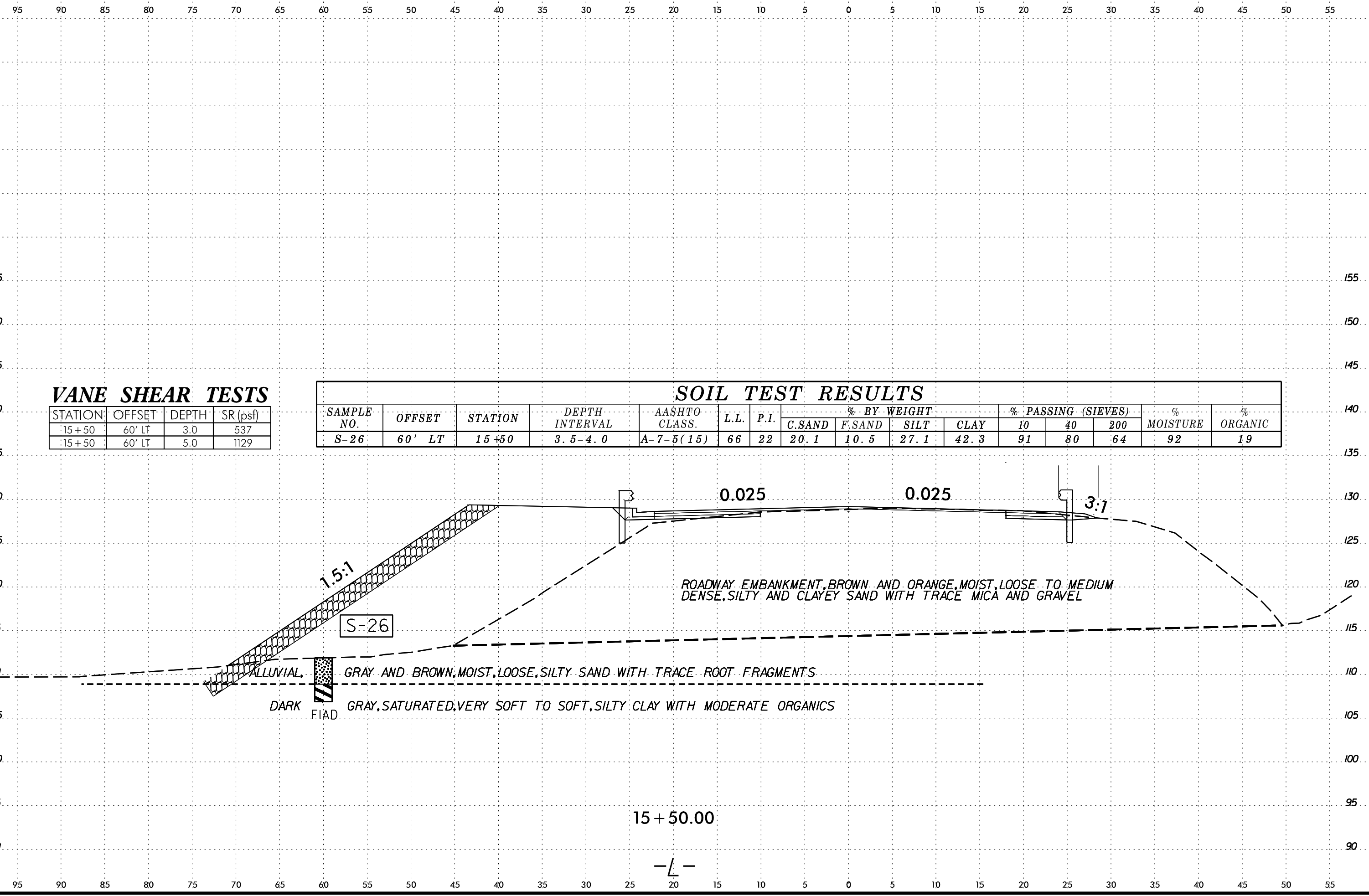


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**VANE SHEAR TESTS**

STATION	OFFSET	DEPTH	SR.(psf)
15+50	60' LT	3.0	537
15+50	60' LT	5.0	1129

**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-26	60' LT	15+50	3.5-4.0	A-7-5(15)	66	22	20.1	10.5	27.1	42.3	91	80	64	92	19

1.5:1

S-26

0.025

0.025

3:1

ROADWAY EMBANKMENT, BROWN AND ORANGE, MOIST, LOOSE TO MEDIUM DENSE, SILTY AND CLAYEY SAND WITH TRACE MICA AND GRAVEL

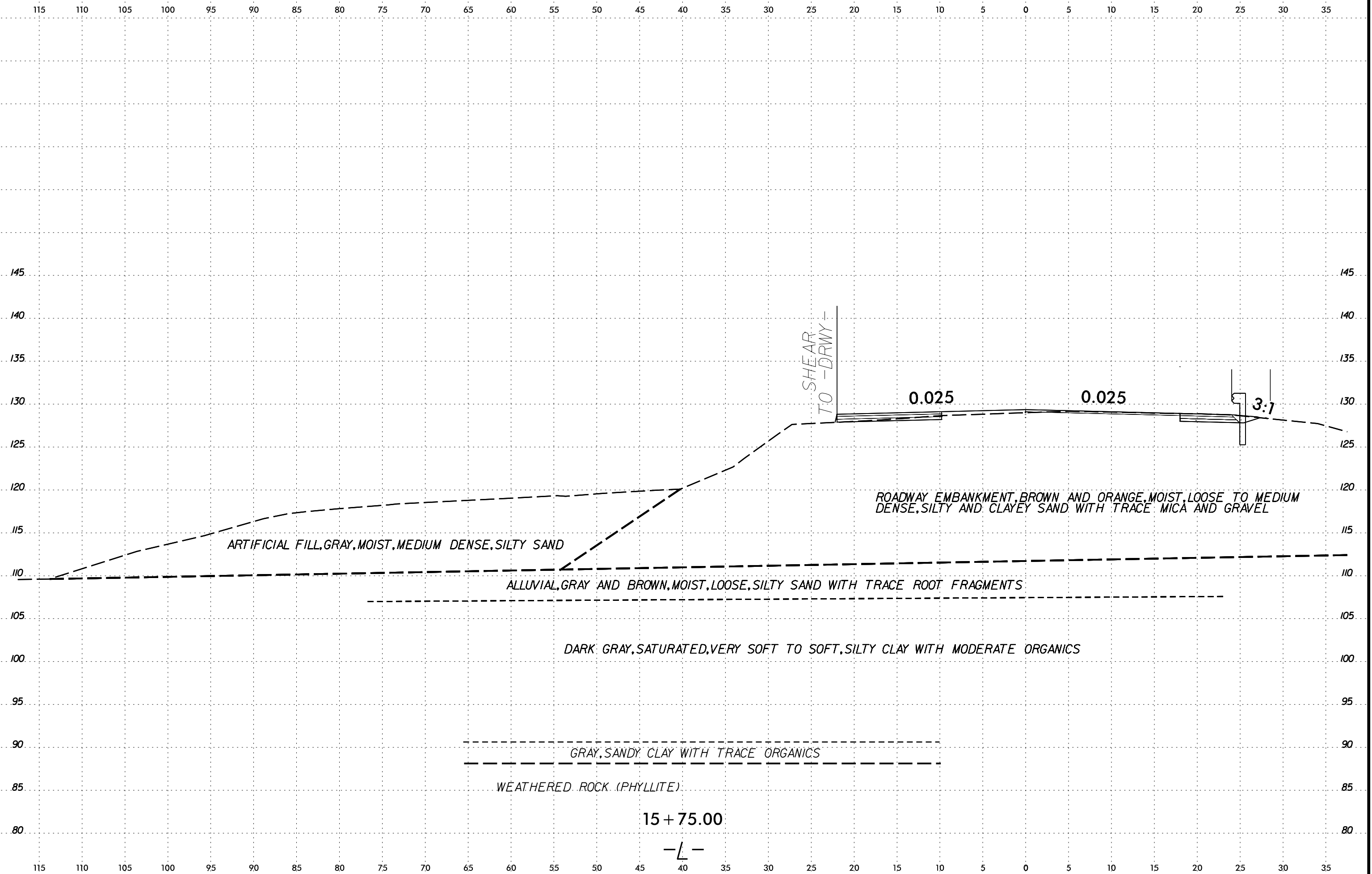
ALLUVIAL, GRAY AND BROWN, MOIST, LOOSE, SILTY SAND WITH TRACE ROOT FRAGMENTS

DARK FIAD, GRAY, SATURATED, VERY SOFT TO SOFT, SILTY CLAY WITH MODERATE ORGANICS

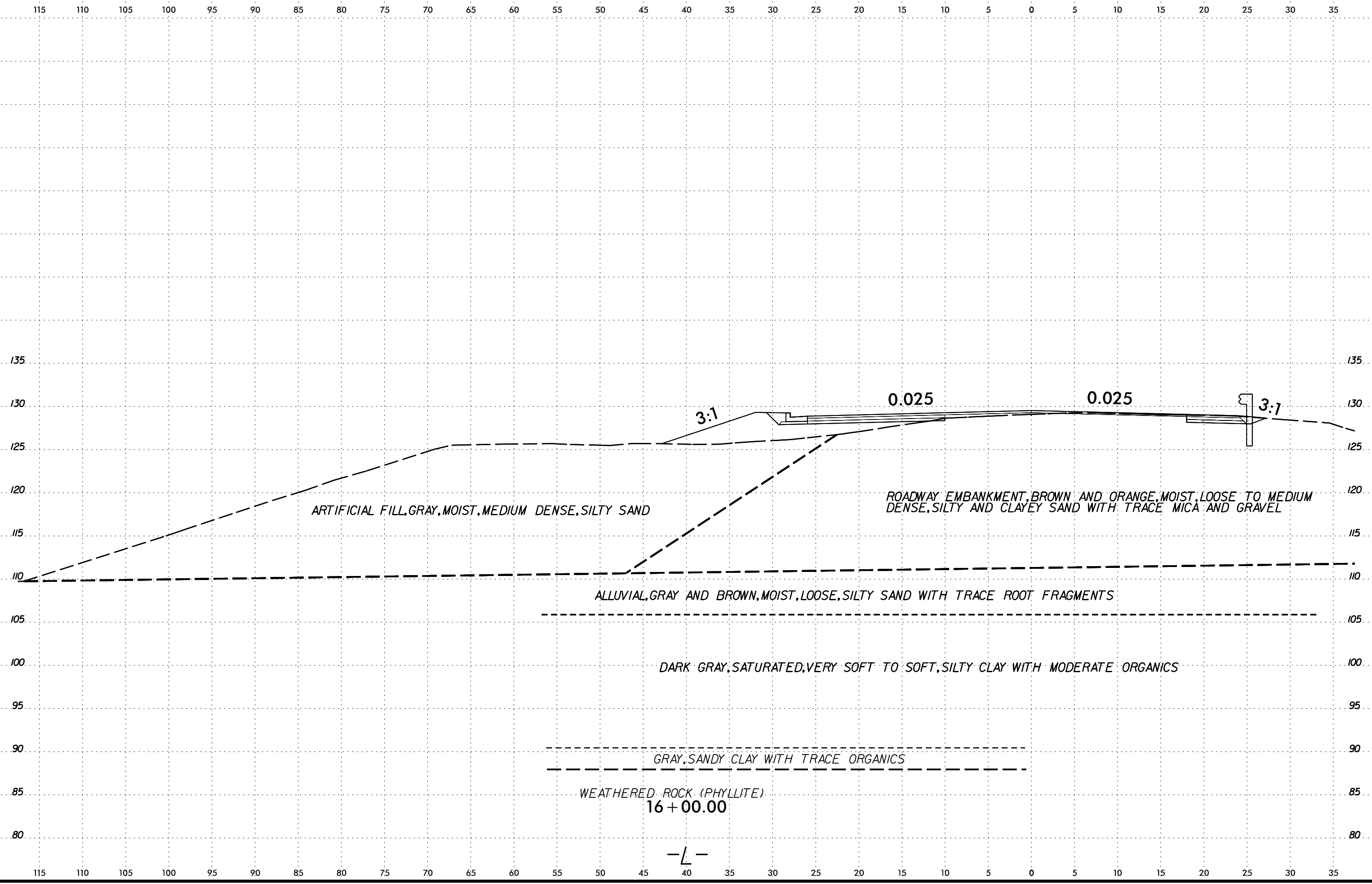
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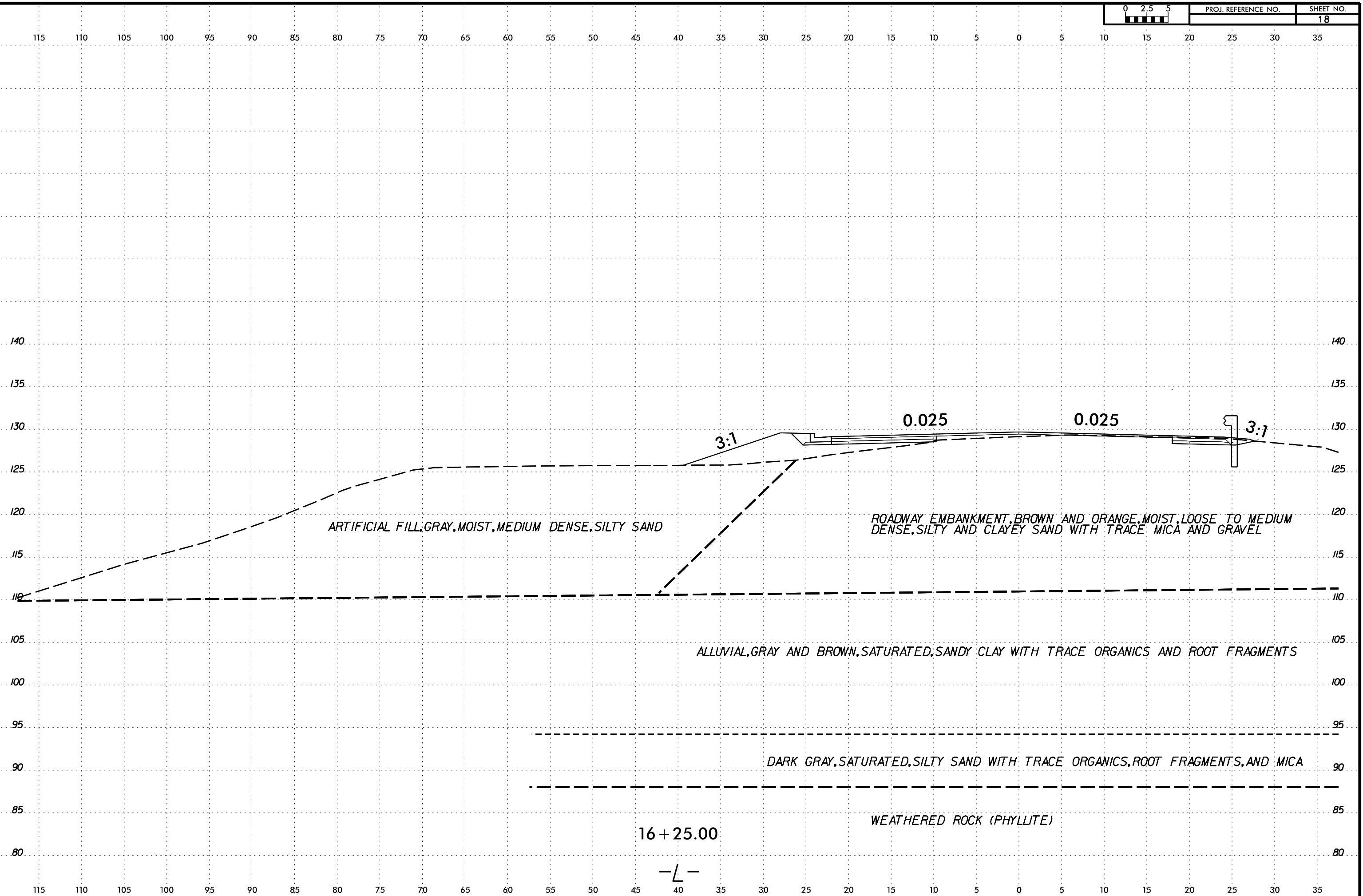
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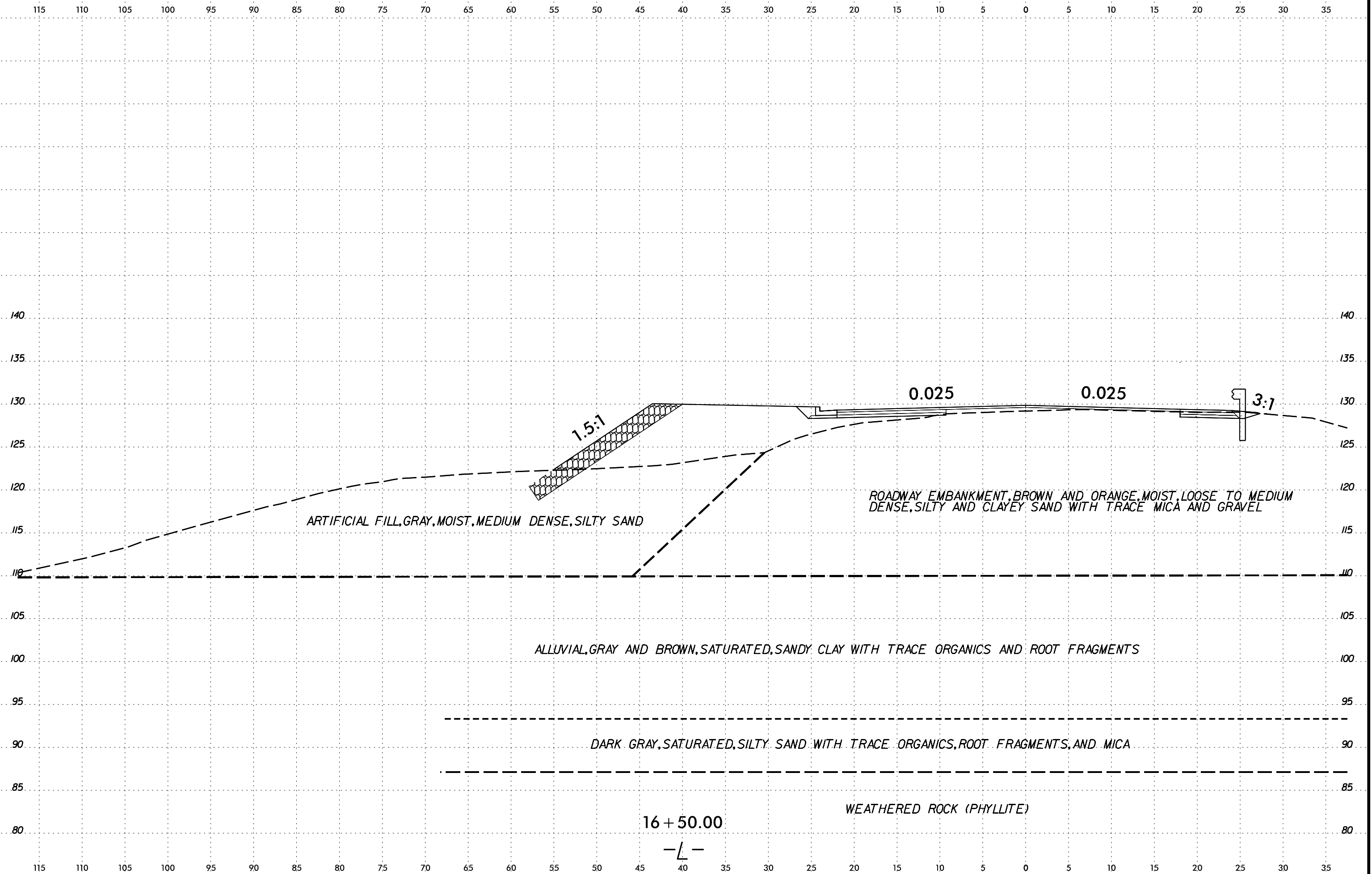




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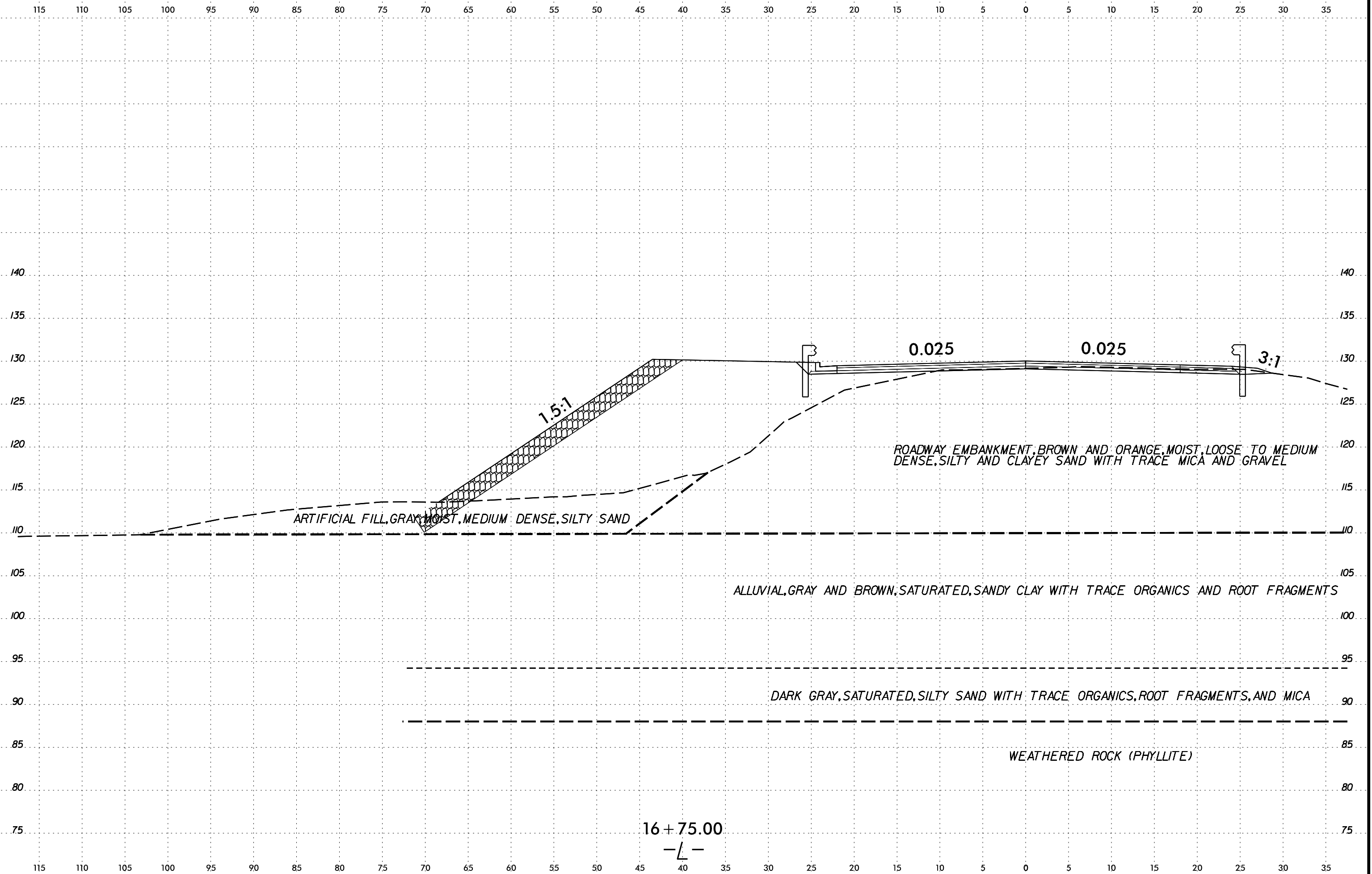


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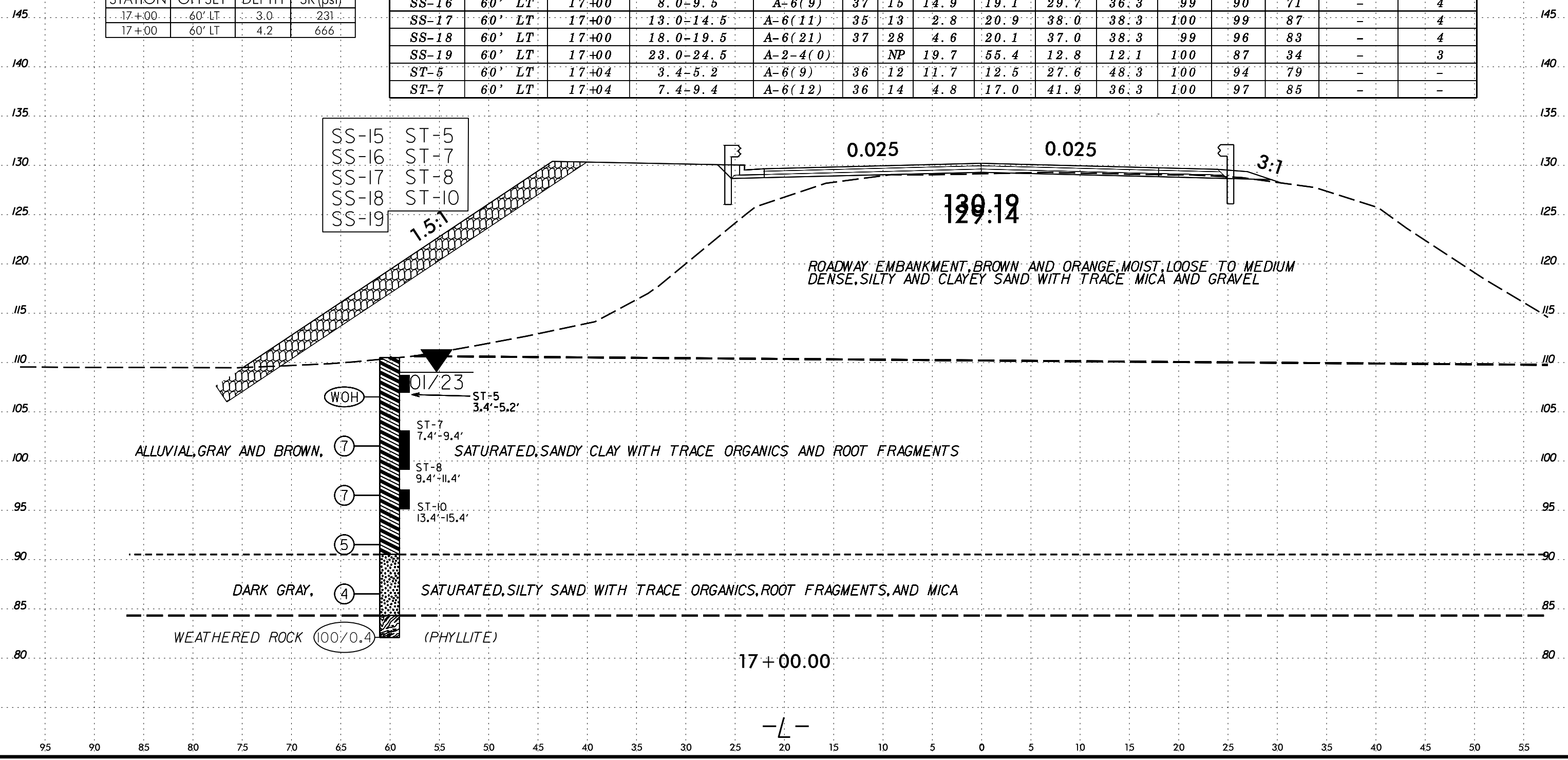
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### VANE SHEAR TESTS

STATION	OFFSET	DEPTH	SR (psf)
17+00	60' LT	3.0	231
17+00	60' LT	4.2	666

### 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-15	60' LT	17+00	3.0-4.5	A-6(5)	32	12	26.0	15.5	20.2	38.3	95	79	58	-	4
SS-16	60' LT	17+00	8.0-9.5	A-6(9)	37	15	14.9	19.1	29.7	36.3	99	90	71	-	4
SS-17	60' LT	17+00	13.0-14.5	A-6(11)	35	13	2.8	20.9	38.0	38.3	100	99	87	-	4
SS-18	60' LT	17+00	18.0-19.5	A-6(21)	37	28	4.6	20.1	37.0	38.3	99	96	83	-	4
SS-19	60' LT	17+00	23.0-24.5	A-2-4(0)		NP	19.7	55.4	12.8	12.1	100	87	34	-	3
ST-5	60' LT	17+04	3.4-5.2	A-6(9)	36	12	11.7	12.5	27.6	48.3	100	94	79	-	-
ST-7	60' LT	17+04	7.4-9.4	A-6(12)	36	14	4.8	17.0	41.9	36.3	100	97	85	-	-



SS-15 ST-5  
SS-16 ST-7  
SS-17 ST-8  
SS-18 ST-10  
SS-19

0.025 0.025 3:1

129.14

ROADWAY EMBANKMENT, BROWN AND ORANGE, MOIST, LOOSE TO MEDIUM DENSE, SILTY AND CLAYEY SAND WITH TRACE MICA AND GRAVEL

WOH  
01/23  
ST-5  
3.4'-5.2'

ALLUVIAL, GRAY AND BROWN, SATURATED, SANDY CLAY WITH TRACE ORGANICS AND ROOT FRAGMENTS

ST-7  
7.4'-9.4'

ST-8  
9.4'-11.4'

ST-10  
13.4'-15.4'

DARK GRAY, SATURATED, SILTY SAND WITH TRACE ORGANICS, ROOT FRAGMENTS, AND MICA

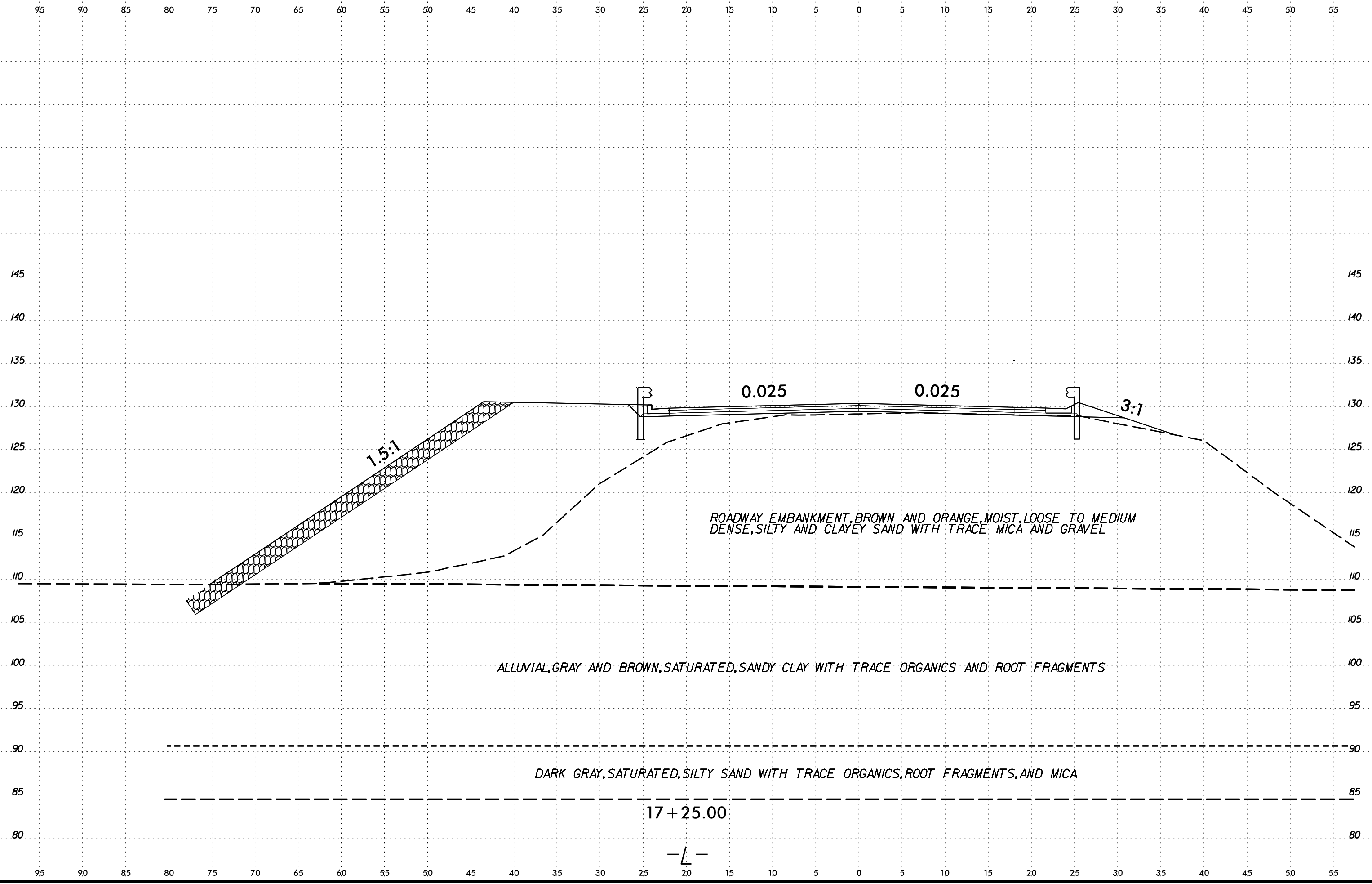
WEATHERED ROCK (100/0.4) (PHYLLITE)

17+00.00

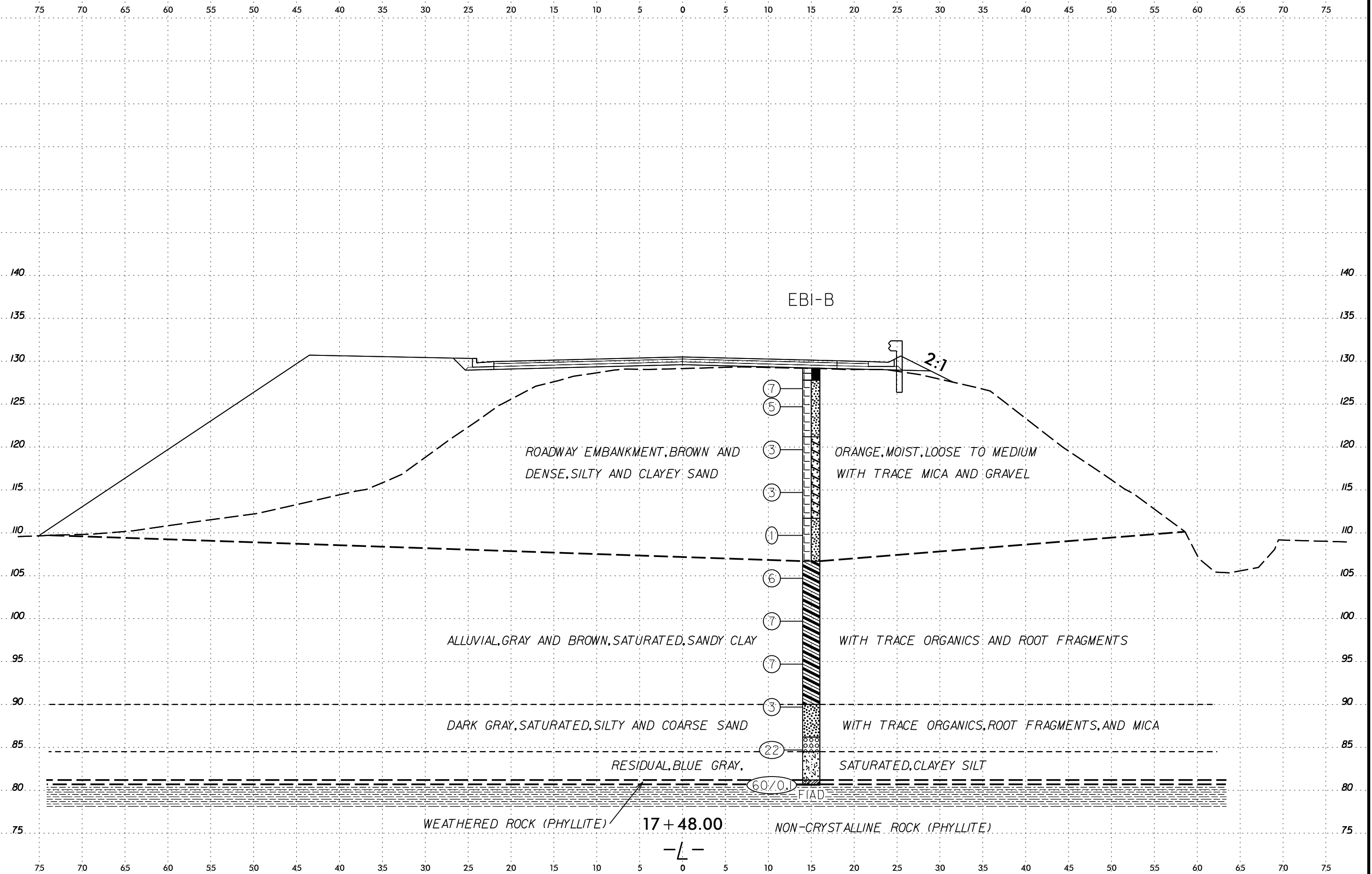
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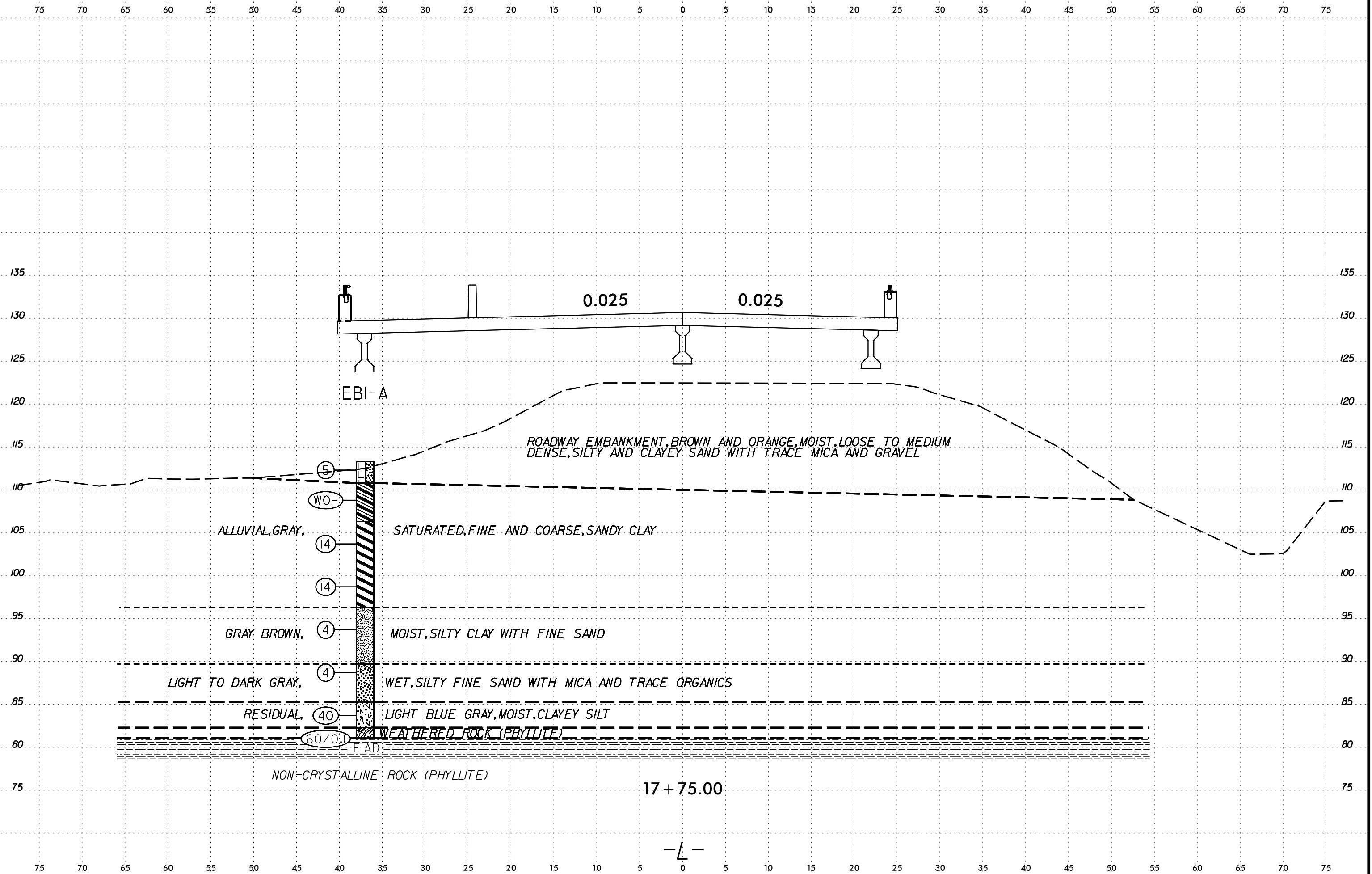
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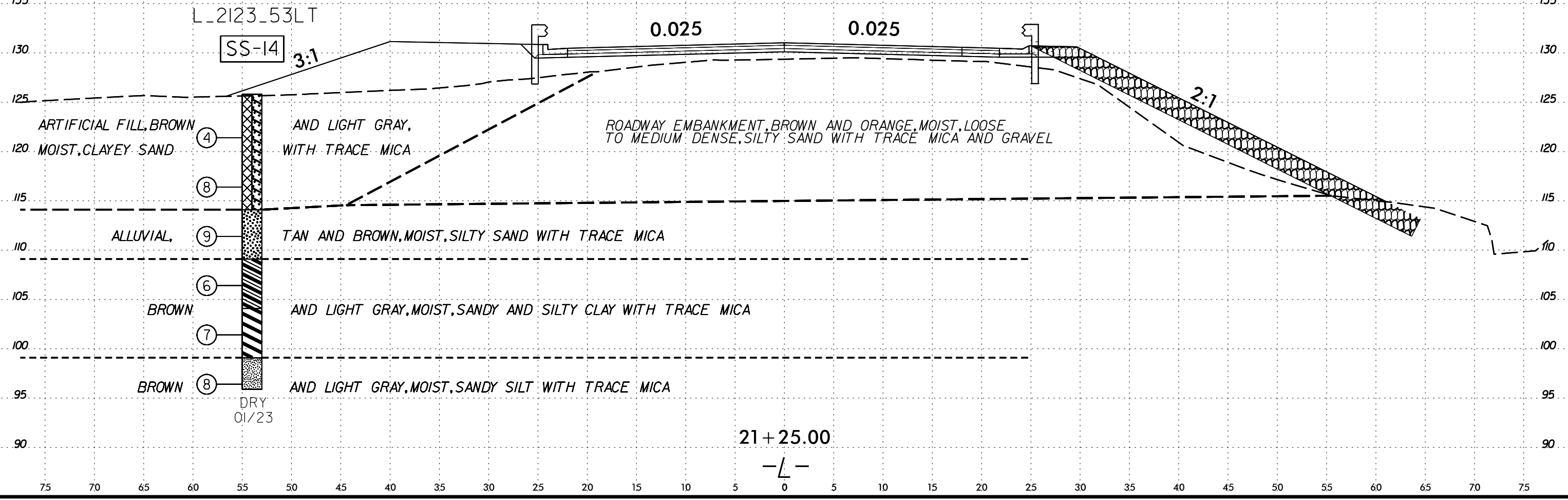




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75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

<b>SOIL TEST RESULTS</b>															
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-14	54' LT	21+23	28.4-29.9	A-4(0)		NP	12.9	49.1	21.9	16.1	100	97	48	-	-



L\_2123\_53LT

SS-14

3:1

0.025

0.025

2:1

ARTIFICIAL FILL, BROWN AND LIGHT GRAY, MOIST, CLAYEY SAND WITH TRACE MICA

ROADWAY EMBANKMENT, BROWN AND ORANGE, MOIST, LOOSE TO MEDIUM DENSE, SILTY SAND WITH TRACE MICA AND GRAVEL

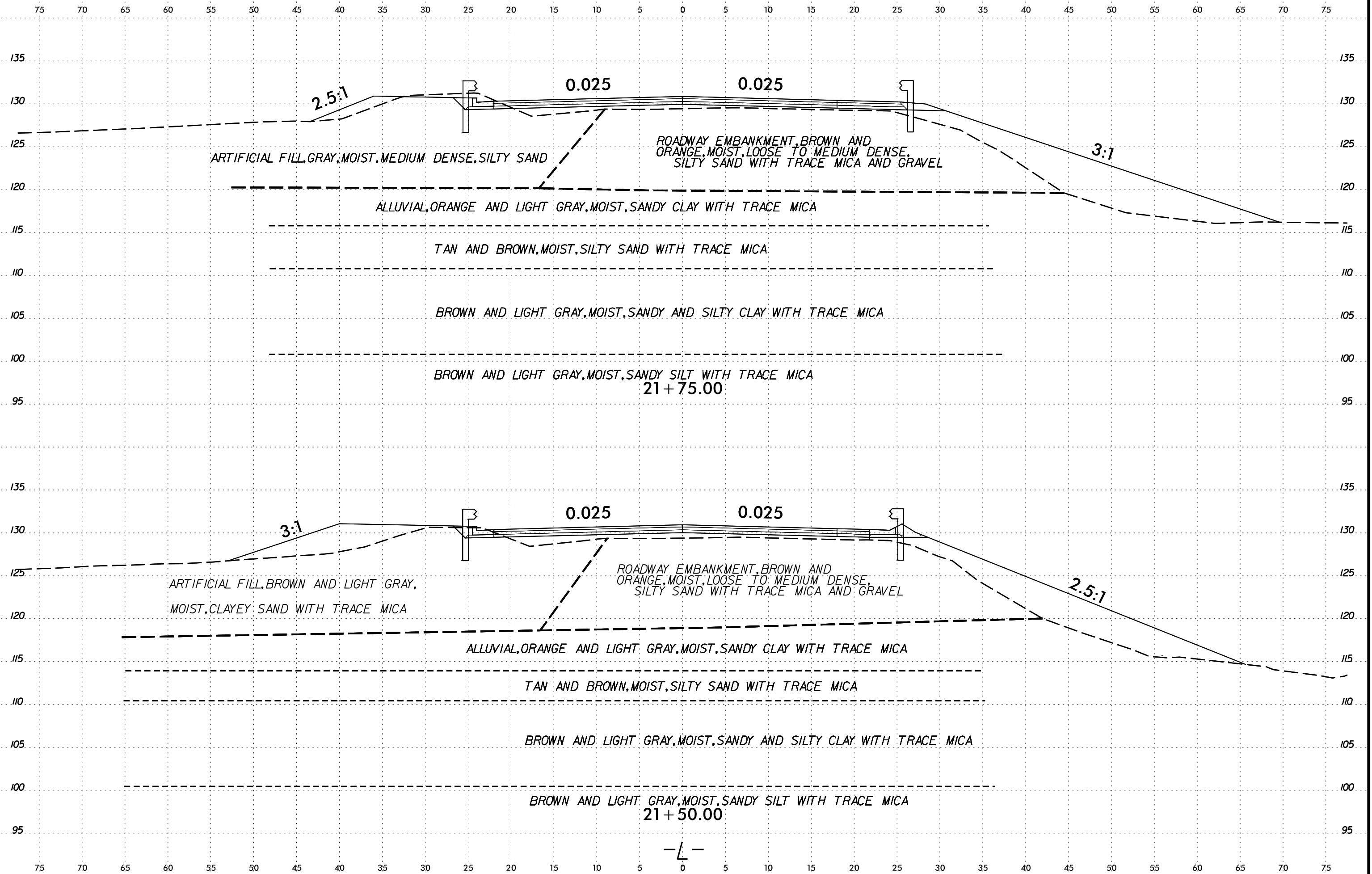
ALLUVIAL, TAN AND BROWN, MOIST, SILTY SAND WITH TRACE MICA

BROWN AND LIGHT GRAY, MOIST, SANDY AND SILTY CLAY WITH TRACE MICA

BROWN AND LIGHT GRAY, MOIST, SANDY SILT WITH TRACE MICA

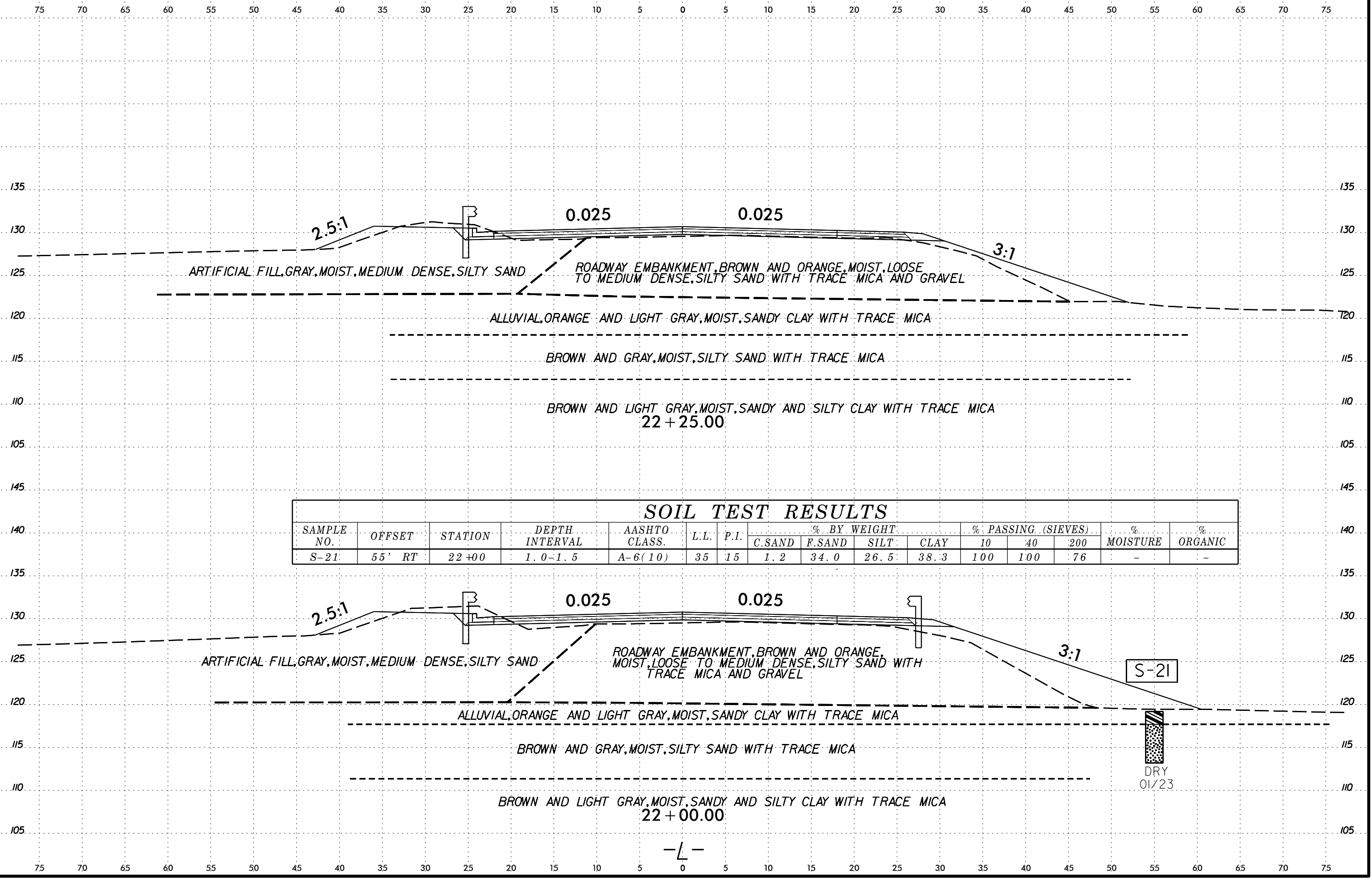
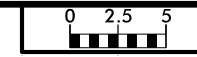
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ARTIFICIAL FILL, GRAY, MOIST, MEDIUM DENSE, SILTY SAND

ROADWAY EMBANKMENT, BROWN AND ORANGE, MOIST, LOOSE TO MEDIUM DENSE, SILTY SAND WITH TRACE MICA AND GRAVEL

ALLUVIAL, ORANGE AND LIGHT GRAY, MOIST, SANDY CLAY WITH TRACE MICA

BROWN AND GRAY, MOIST, SILTY SAND WITH TRACE MICA

BROWN AND LIGHT GRAY, MOIST, SANDY AND SILTY CLAY WITH TRACE MICA  
22 + 25.00

### 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	200		
S-21	55' RT	22 + 00	1.0 - 1.5	A-6(10)	35	15	1.2	34.0	26.5	38.3	100	100	76	-	-

ARTIFICIAL FILL, GRAY, MOIST, MEDIUM DENSE, SILTY SAND

ROADWAY EMBANKMENT, BROWN AND ORANGE, MOIST, LOOSE TO MEDIUM DENSE, SILTY SAND WITH TRACE MICA AND GRAVEL

ALLUVIAL, ORANGE AND LIGHT GRAY, MOIST, SANDY CLAY WITH TRACE MICA

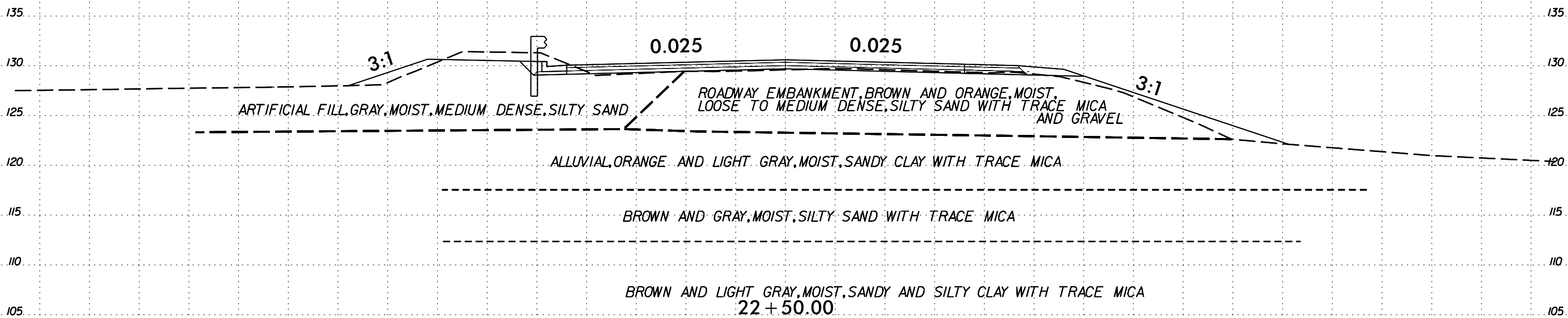
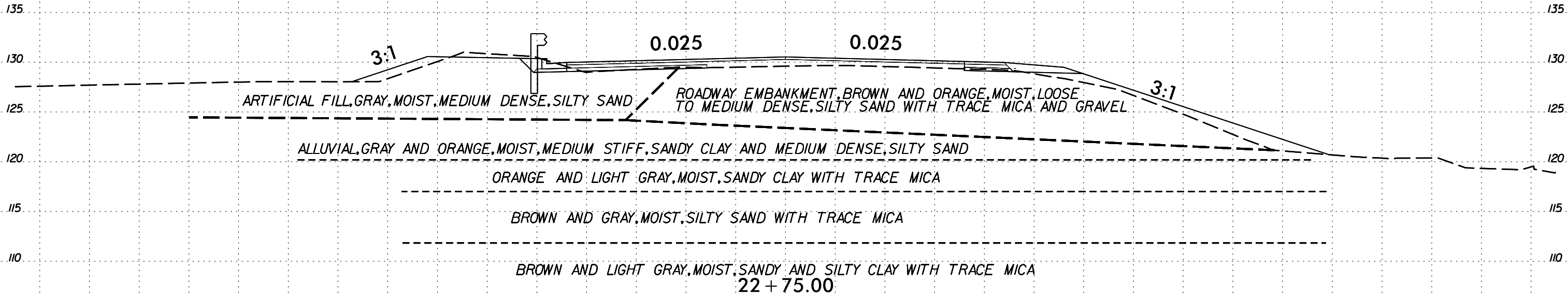
BROWN AND GRAY, MOIST, SILTY SAND WITH TRACE MICA

BROWN AND LIGHT GRAY, MOIST, SANDY AND SILTY CLAY WITH TRACE MICA  
22 + 00.00

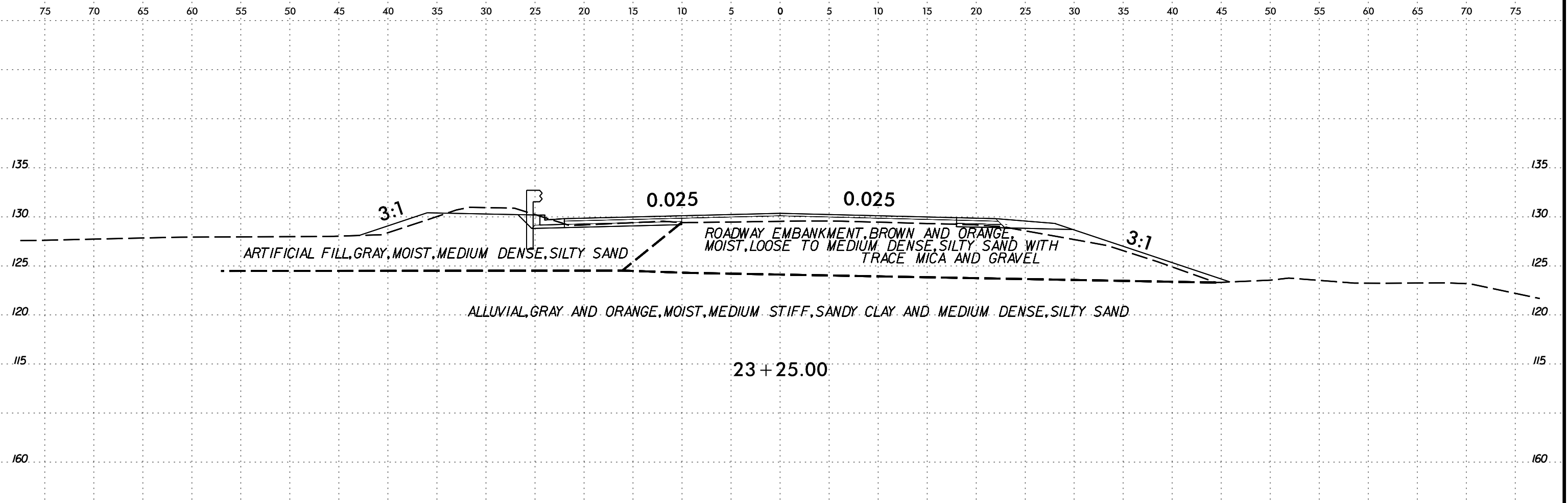
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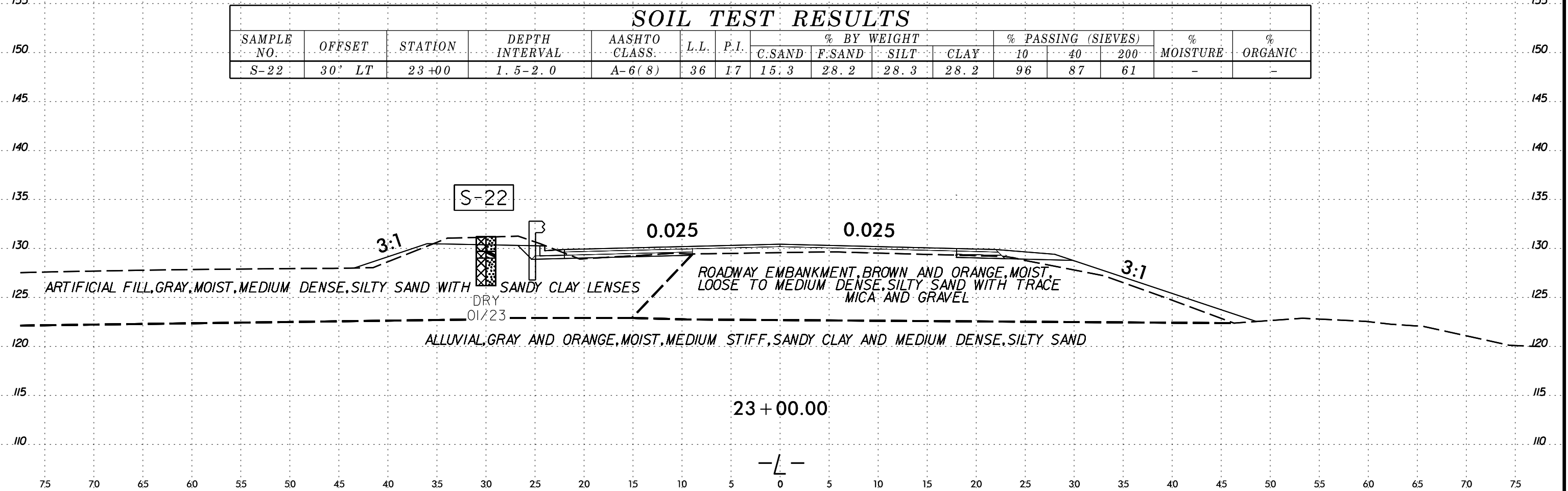


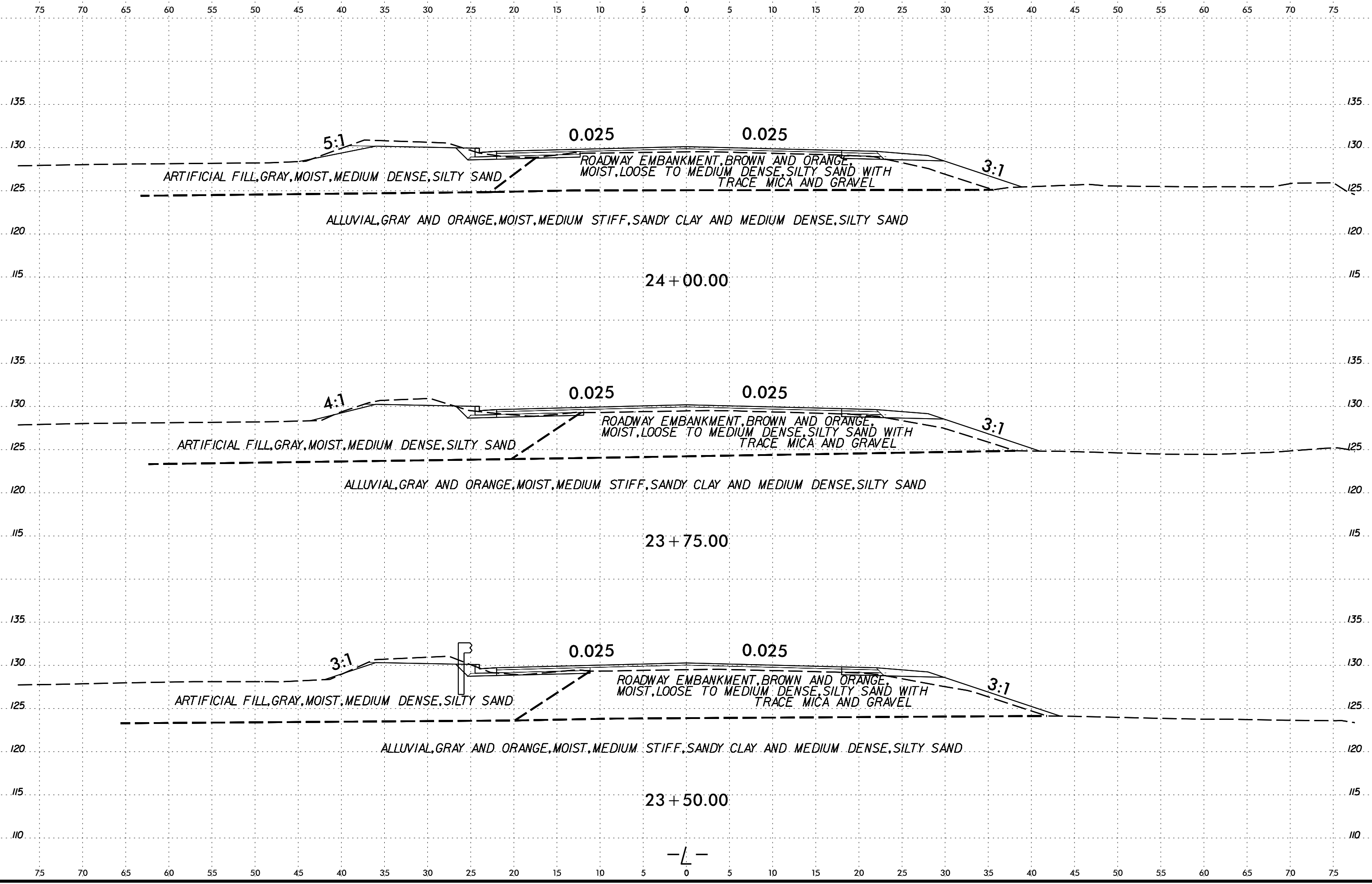
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**SOIL TEST RESULTS**

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	40	200		
S-22	30' LT	23+00	1.5-2.0	A-6(8)	36	17	15.3	28.2	28.3	28.2	96	87	61	-	-





75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

160 160

155 155

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-23	40' LT	24+50	2.0-2.5	A-4(2)	25	7	7.3	34.6	33.9	24.2	100	98	66	-	-

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145 145

140 140

135 135

130 130

125 125

120 120

115 115

135 135

130 130

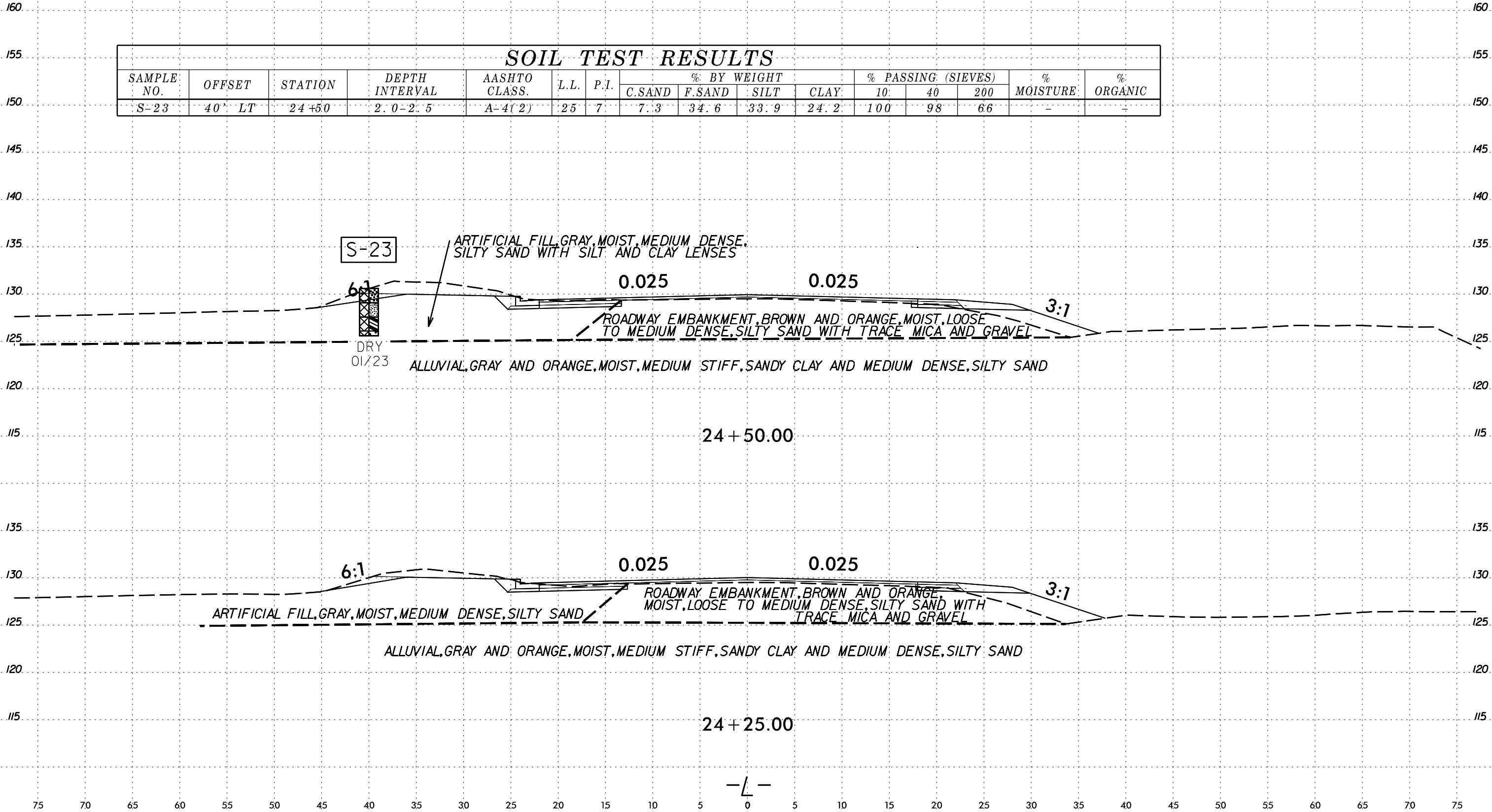
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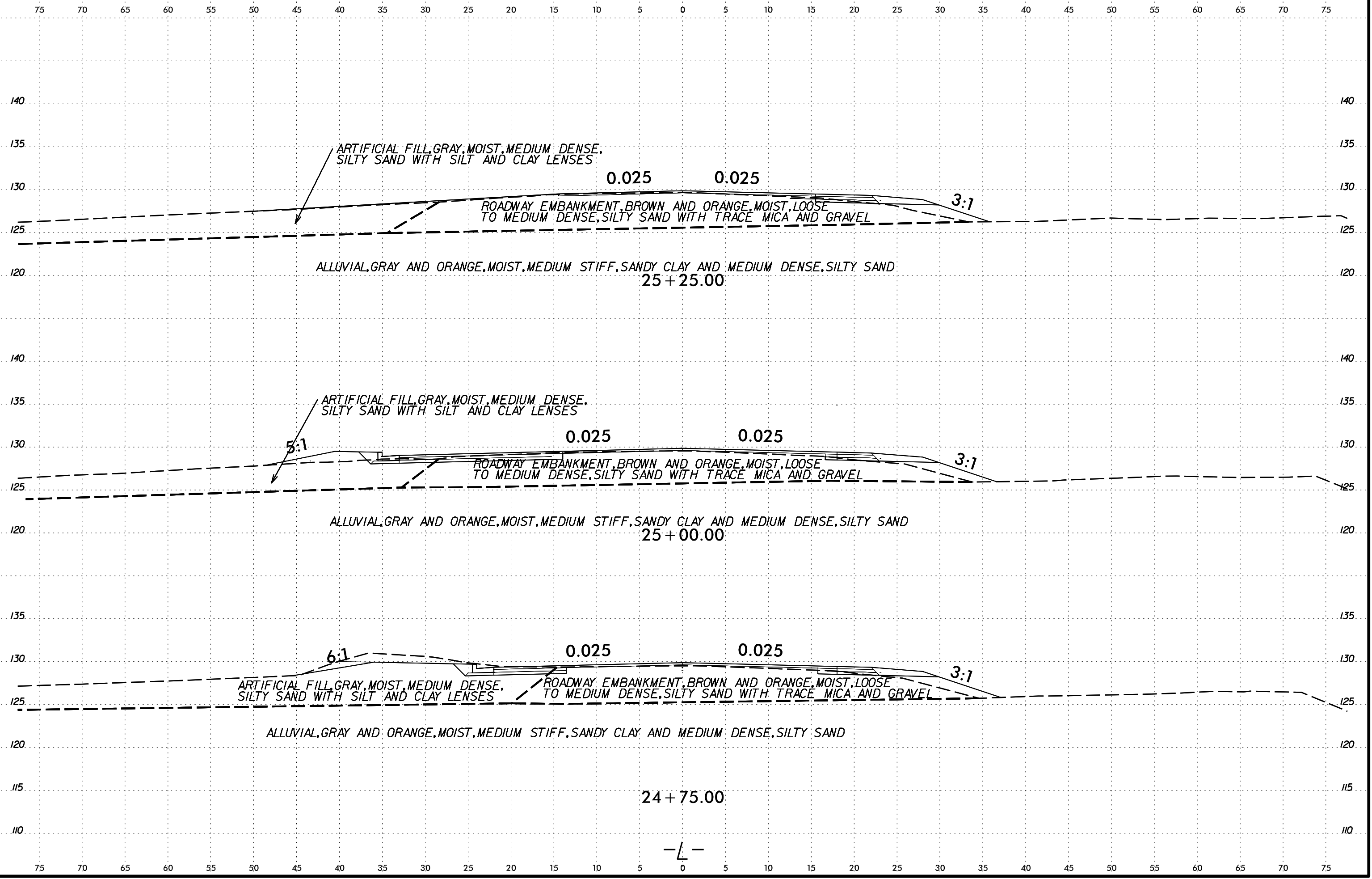
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