

REFERENCE: R-5799

PROJECT: 44984

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.	R-5799	1	68

ROADWAY
SUBSURFACE INVESTIGATION

COUNTY TRANSYLVANIA
PROJECT DESCRIPTION US 64 AT NC 280 /US 64
INTERSECTION IMPROVEMENTS

INVENTORY

CONTENTS

<u>LINE</u>	<u>STATION</u>	<u>PLAN</u>
-L-	7+00 - 32+95	4 - 6
-Y2-	15+50 - 27+10	7
-Y3-	13+50 - 17+20	8

CROSS SECTIONS

<u>LINE</u>	<u>STATION</u>	<u>SHEETS</u>
-L-	9+00 - 31+00	9 - 23
-RA1-	10+00 - 13+00	24 - 26
-RA2-	10+00 - 13+00	27 - 30
-Y1-	10+37 - 16+00	31 - 36
-Y2-	11+50 - 27+00	37 - 49
-Y3-	11+50 - 17+00	50 - 53
-Y4-	10+84 - 12+85	54 - 56
-Y5-	10+84 - 12+75	57 - 59

APPENDICES

<u>APPENDIX</u>	<u>TITLE</u>	<u>SHEETS</u>
A	LABORATORY TESTING SUMMARY	61 - 62
A	PROCTOR / CBR RESULTS	63 - 64
A	CPT LOGS	65 - 68

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 1919 T07-6850. 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.

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- 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

G. F. THILL
R. TOOTHMAN
W. ALLEN

INVESTIGATED BY G. F. THILL
DRAWN BY G. F. THILL, J. P. MANKE
CHECKED BY M. J. ALEXANDER
SUBMITTED BY J. P. MANKE
DATE OCTOBER 2019

Prepared in the Office of:
Terracon
Consulting Engineers and Scientists
2701 WESTPORT ROAD
CHARLOTTE, NORTH CAROLINA 28208
NC REGISTERED ENGINEERING FIRM: P-0869
NC REGISTERED GEOLOGIC FIRM: C-367



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 with multiple columns: 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, FRACTURE SPACING, BEDDING, INDURATION, PLASTICITY, COLOR.

09, 02B/99

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

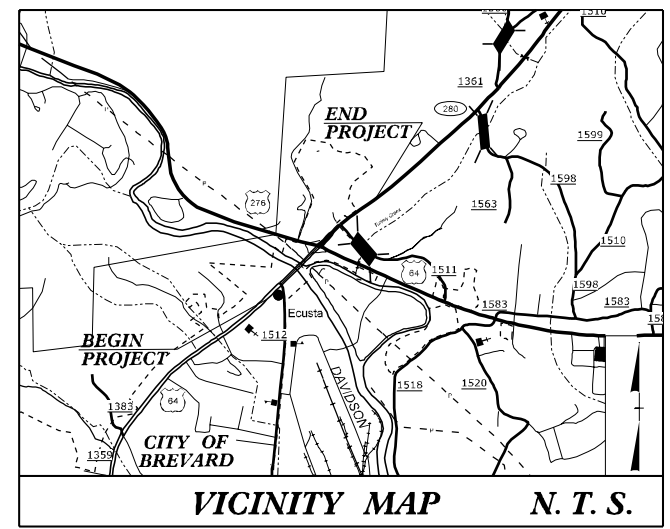
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSYLVANIA COUNTY

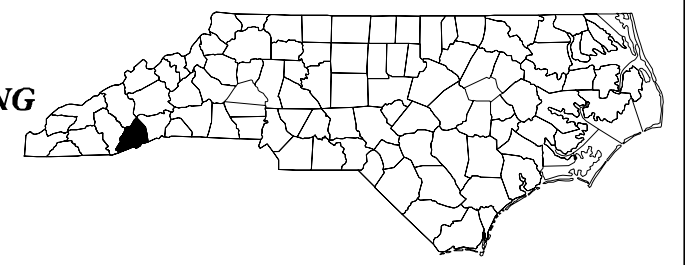
LOCATION: US 64 AT NC 280 /US 64
INTERSECTION IMPROVEMENTS

TYPE OF WORK: GRADING, PAVING, DRAINAGE, CULVERT, RETAINING
WALLS, SIGNALS, AND SIGNING

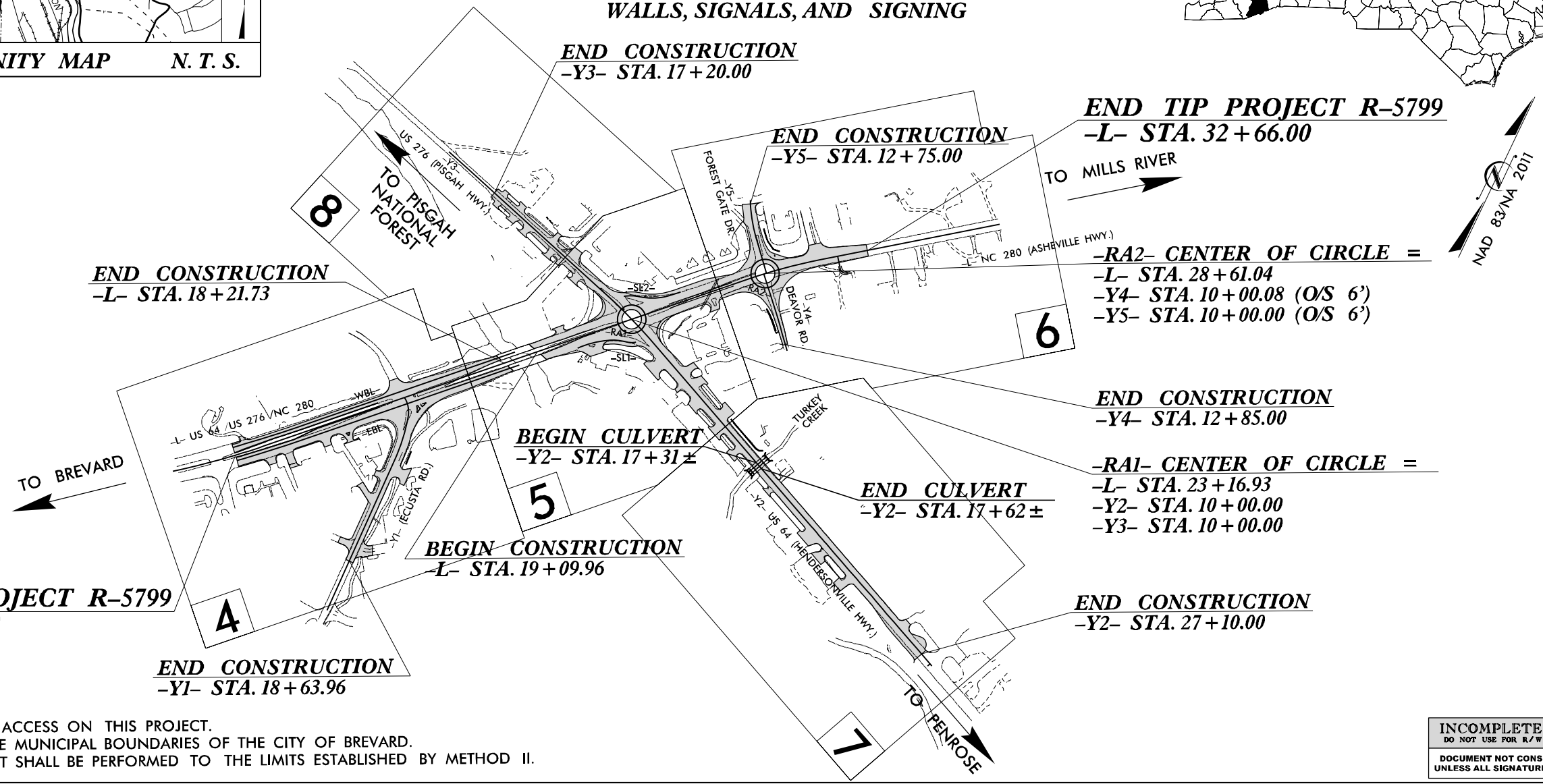
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5799	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
44984.1.1	N/A	P.E.	
44984.2.1	N/A	ROW, UTIL	



ROW PLANS



TIP PROJECT: R-5799



BEGIN TIP PROJECT R-5799
-L- STA. 7+00.00

END CONSTRUCTION
-L- STA. 18+21.73

END CONSTRUCTION
-Y1- STA. 18+63.96

BEGIN CONSTRUCTION
-L- STA. 19+09.96

BEGIN CULVERT
-Y2- STA. 17+31±

END CONSTRUCTION
-Y5- STA. 12+75.00

END CONSTRUCTION
-Y3- STA. 17+20.00

END TIP PROJECT R-5799
-L- STA. 32+66.00

-RA2- CENTER OF CIRCLE =
-L- STA. 28+61.04
-Y4- STA. 10+00.08 (O/S 6')
-Y5- STA. 10+00.00 (O/S 6')

END CONSTRUCTION
-Y4- STA. 12+85.00

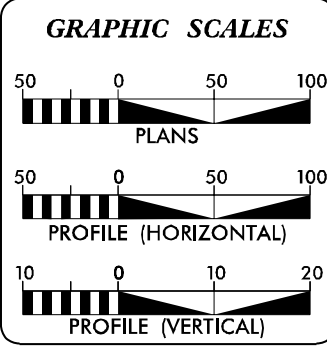
-RA1- CENTER OF CIRCLE =
-L- STA. 23+16.93
-Y2- STA. 10+00.00
-Y3- STA. 10+00.00

END CONSTRUCTION
-Y2- STA. 27+10.00

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF BREVARD.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

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

CONTRACT:



DESIGN DATA

ADT 2021 =	24,900
ADT 2041 =	29,800
K =	9 %
D =	55 %
T =	6 % *
V =	45 MPH
* TTST =	2% + DUAL 4%
FUNC CLASS =	PRINCIPAL ARTERIAL REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5799 =	0.486 MILES
TOTAL LENGTH TIP PROJECT R-5799 =	0.486 MILES
-L- USED TO CALCULATE PROJECT LENGTH	

PREPARED IN THE OFFICE OF:

RS&H 1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 27, 2020

LETTING DATE:
AUGUST 17, 2021

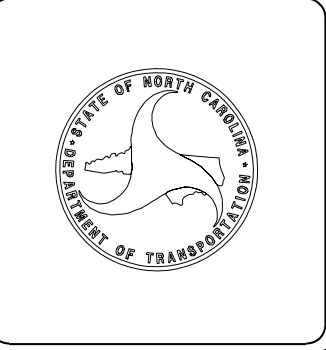
ALLISON DRAKE, PE PROJECT ENGINEER
DREW MORROW, PE PROJECT DESIGN ENGINEER
JOSHUA DEYTON, PE NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



08-JAN-2020 08:21
R:\Roadway\Proj\NCR5799-Rdy.-tsh.dgn
\$\$\$\$\$SERNAME\$\$\$\$\$

Date: February 13, 2020
 WBS Number: 44984.1.1
 TIP Number: R-5799
 County: Transylvania
 Description: US 64 at NC 280 / US 64 Intersection Improvements

-Y4- 10+00 to 13+10
 -Y5- 10+00 to 12+90

Subject: Roadway Geotechnical Report - Inventory

Project Description

The project is located in the City of Brevard and unincorporated community of Pisgah Forest in Transylvania County, North Carolina and consists of the addition of two roundabouts, raised medians, and supporting lane additions and widenings. The first roundabout is proposed at the intersection where northeast-bound US 64 / US 276 (aka. Asheville Highway, -L-) splits apart into US 276 to the northwest (aka. Pisgah Highway, -Y3-), and US 64 to the southeast (aka. Hendersonville Highway, -Y2-) and continues to the northeast as NC 280 (aka. Asheville Highway, -L-). A second roundabout is planned to the northeast of the first where NC 280 intersects with Deaver Road (-Y4-) to the southeast and Forest Gate Drive (-Y5-) to the northwest. Additional turn lanes are proposed on US 64 / US 276 at the intersection with Ecusta Road (-Y1-), which is southwest of the first roundabout.

The length of the project is about 0.49 miles along -L- with two roundabouts (-RA1-, -RA2-), about 0.14 miles along -Y1- and -Y3- each, 0.32 miles along -Y2-, and about 0.056 miles along -Y4- and -Y5- each. The project corridor is in an urban setting with mostly commercial development along each alignment.

The geotechnical subsurface investigation was performed in January 2019. The site was investigated with 45 standard penetration test (SPT) borings that were advanced using a CME 55 ATV mounted rotary drill rig equipped with a calibrated automatic hammer. The SPT borings were advanced with hollow stem augers to depths of 6 to 45 feet beneath the ground surface. Representative soil samples were collected in the field for visual classification and selected samples were submitted for laboratory analysis by Terracon's soil testing laboratory. Laboratory testing was performed in accordance with the AASHTO Soil Classification System.

In order to evaluate very soft soil conditions and to provide subsurface information for a retaining wall added after the initial subsurface investigation, cone penetration test (CPT) soundings were performed on August 2019 at three locations to depths of about 10 to 46 feet.

The following alignments were investigated by soil testing and visual reconnaissance:

Alignment	Stations (±)
-L-	7+00 to 32+95
-RA1-	10+00 to 13+00
-RA2-	10+00 to 13+00
-Y1-	10+00 to 17+00
-Y2-	10+00 to 27+10
-Y3-	10+00 to 17+20

Physiography and Geography

The site is located near the post-metamorphic thrust fault between the Blue Ridge Belt and Chauga Belt and is underlain by muscovite-biotite-gneiss of the Ashe Metamorphic Suite and metamorphic schist and phyllonite of the Rocks of Brevard Fault Zone. The existing elevations along the investigated corridor range from approximately 2,220 feet to 2,110 feet. Due to the presence of several rivers and creeks and the surrounding undulating terrain with flat to steep slopes, the site appears to be located in an alluvial valley with significant alluvial deposits and pockets of highly weathered residual soils.

Soil Properties

Soils encountered during this investigation are separated into four categories based on their origin. The soils encountered consist of roadway embankment, artificial fill, alluvial deposits, and residual soils. The rivers and creeks likely deposited most of the alluvial soils over the residual soils during flood events and meandered across the valley over time. We anticipate that roadway embankments were constructed to provide access through the alluvial valley and then development followed along the roadway corridors, resulting in artificial fill soils placed to level sites for commercial development. Some areas with single family home development appear to have been developed without significant or any artificial fill placement and surficial alluvial soils remain.

In general, the artificial fill soils consist of soft to stiff sandy clay and silty clay (A-7-5, A-7-6, A-6), very soft to stiff sandy silt and clayey silt (A-5, A-4), loose to dense silty sand (A-2-4), and medium dense to dense sand (A-3). The roadway embankment soils generally consist of soft to very stiff sandy clay and clay (A-7-5, A-7-6), soft to very stiff clayey silt and sandy silt (A-4, A-5), and very loose to medium dense silty sand (A-2-4). Alluvial soils consisted of very soft to stiff sandy clay and silty clay (A-7-5, A-7-6, A-6), very soft to stiff sandy silt and clayey silt (A-4, A-5), loose to medium dense sand with silt (A-3, A-1), and loose to medium dense clayey sand and silty sand (A-2-5, A-2-6, A-2-4). Residual soils encountered consisted of very soft to hard sandy clay (A-7-5, A-6), very loose to very dense silty sand (A-2-4), medium stiff to hard sandy silt (A-4), and very dense sand (A-1b, A-2, A-3).

Groundwater Properties

The Davidson River traverses the site from west to east, running approximately parallel to -Y3- and -Y2-. Two tributary creeks run north to south, one crossing -L- and then -Y2-, and another crossing -Y2-. Both tie into the Davidson River. Groundwater was encountered during drilling and sampling along the alignments investigated at depths as shallow as 2 feet to greater than 8 feet beneath the ground surface. Surface water was not observed in ditches at the time of our investigation.

The depth of groundwater, beneath the ground surface, will fluctuate with seasonal precipitation and may occur at higher levels at other times of the year above less permeable clayey soils.



Areas of Special Geotechnical Interest

1) Very soft residual soils were encountered at the following approximate location:

<u>Alignment</u>	<u>Stations (±)</u>
-RA2-	10+00 to 11+50

2) Organic-laden alluvial soils were encountered at the following approximate location:

<u>Alignment</u>	<u>Stations (±)</u>
-Y5-	10+84 to 12+25

3) Groundwater was encountered at the following approximate locations within 6 feet of proposed grades:

<u>Alignment</u>	<u>Stations (±)</u>
-L-	7+00 to 12+00
-L-	25+00 to 32+66
-Y1-	12+00 to 15+00
-Y4-	12+00 to 13+10
-Y5-	10+00 to 12+90

4) Artificial Fill was encountered at the following approximate locations:

<u>Alignment</u>	<u>Stations (±)</u>
-L-	20+25 to 31+00
-RA1-	12+00 to 13+00
-RA2-	10+00 to 13+00
-Y2-	12+00 to 20+00
-Y3-	11+50 to 17+00
-Y4-	10+85 to 12+50
-Y5-	10+85 to 12+75

BULK SAMPLES

The following bulk samples were taken for tests to determine the engineering properties of the soil.

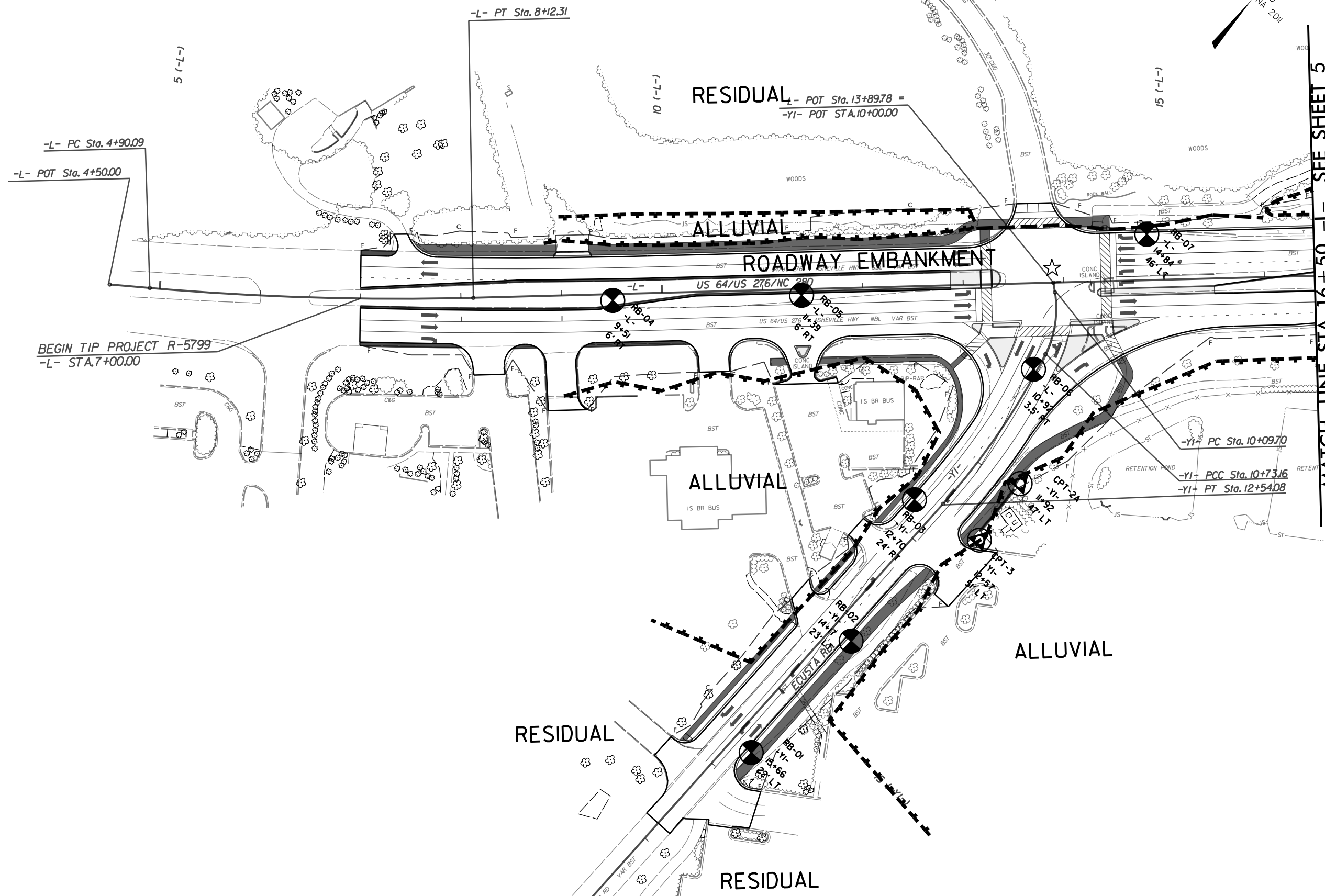
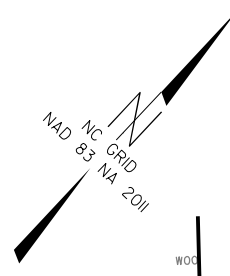
<u>Sample No.</u>	<u>Location</u>	<u>Depth (ft.)</u>	<u>Test</u>
CBR-1	22+12 -L- 99' LT	0.5 – 2.0	Proctor and CBR
CBR-2	24+29 -Y2- 25' RT	0.5 – 2.0	Proctor and CBR

Closing

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us at your convenience.

Sincerely,
Terracon Consultants, Inc.

Jonathan P. Manke, PE
Senior Geotechnical Engineer



BEGIN TIP PROJECT R-5799
-L- STA.7+00.00

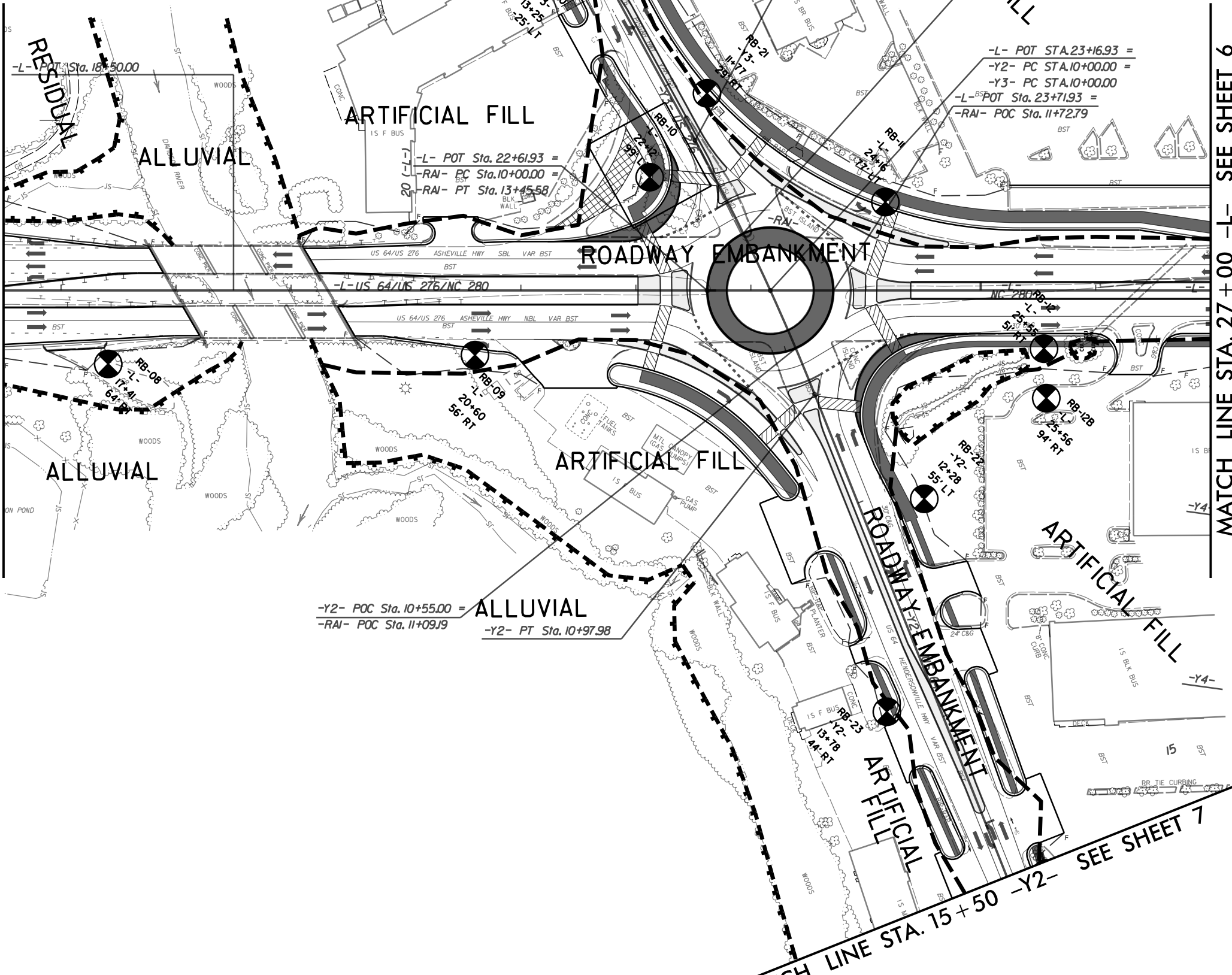
MATCH LINE STA. 16+50 -L- SEE SHEET 5

MATCH LINE STA. 16+50 -L- SEE SHEET 4

MATCH LINE STA. 13+50 -Y3- SEE SHEET 8

MATCH LINE STA. 27+00 -L- SEE SHEET 6

MATCH LINE STA. 15+50 -Y2- SEE SHEET 7



-L- POT Sta. 22+61.93 =
 -RAI- PC Sta. 10+00.00 =
 -RAI- PT Sta. 13+45.58 =

-L- POT STA. 23+16.93 =
 -Y2- PC STA. 10+00.00 =
 -Y3- PC STA. 10+00.00 =
 -L- POT STA. 23+71.93 =
 -RAI- PC Sta. 11+72.79 =

-Y2- POC Sta. 10+55.00 = ALLUVIAL
 -RAI- POC Sta. 11+09.19
 -Y2- PT Sta. 10+97.98

POC Sta. 28+06.04 =
- PC Sta. 10+00.00
- PT Sta. 13+45.576

PC Sta. 27+81.65

SEE SHEET 5

MATCH LINE STA. 27+00 -L-

- PT Sta. 12+38.31

FOREST GATE DR.

30 (-L-)

35 (-L-)

ARTIFICIAL FILL

ROADWAY EMBANKMENT

ALLUVIAL

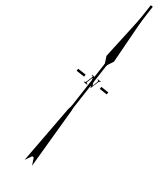
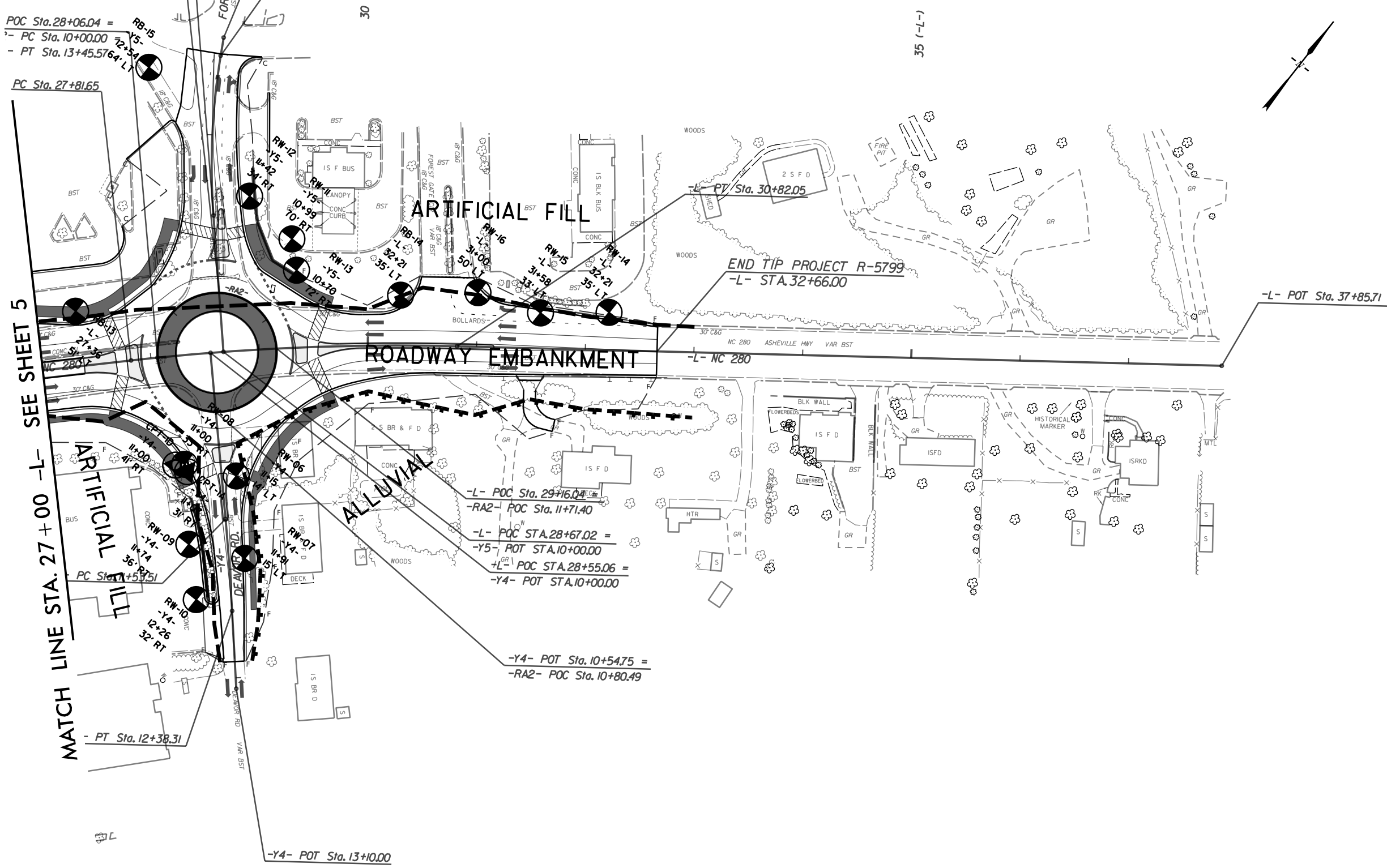
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-L- STA. 32+66.00

-L- POT Sta. 37+85.71

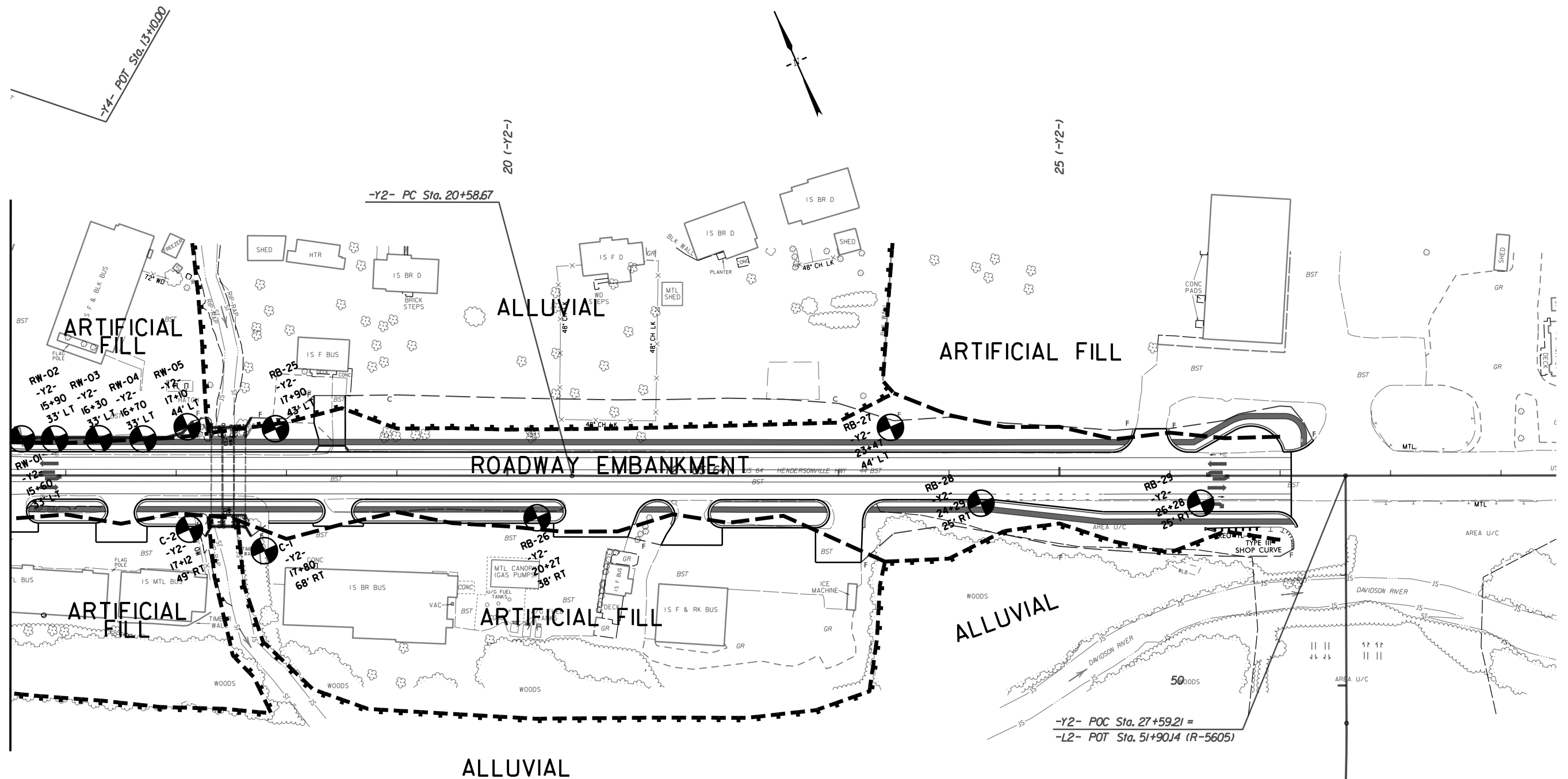
-L- POC Sta. 29+16.04 =
-RA2- POC Sta. 11+71.40
-L- POC STA. 28+67.02 =
-Y5- POT STA. 10+00.00
+L- POC STA. 28+55.06 =
-Y4- POT STA. 10+00.00

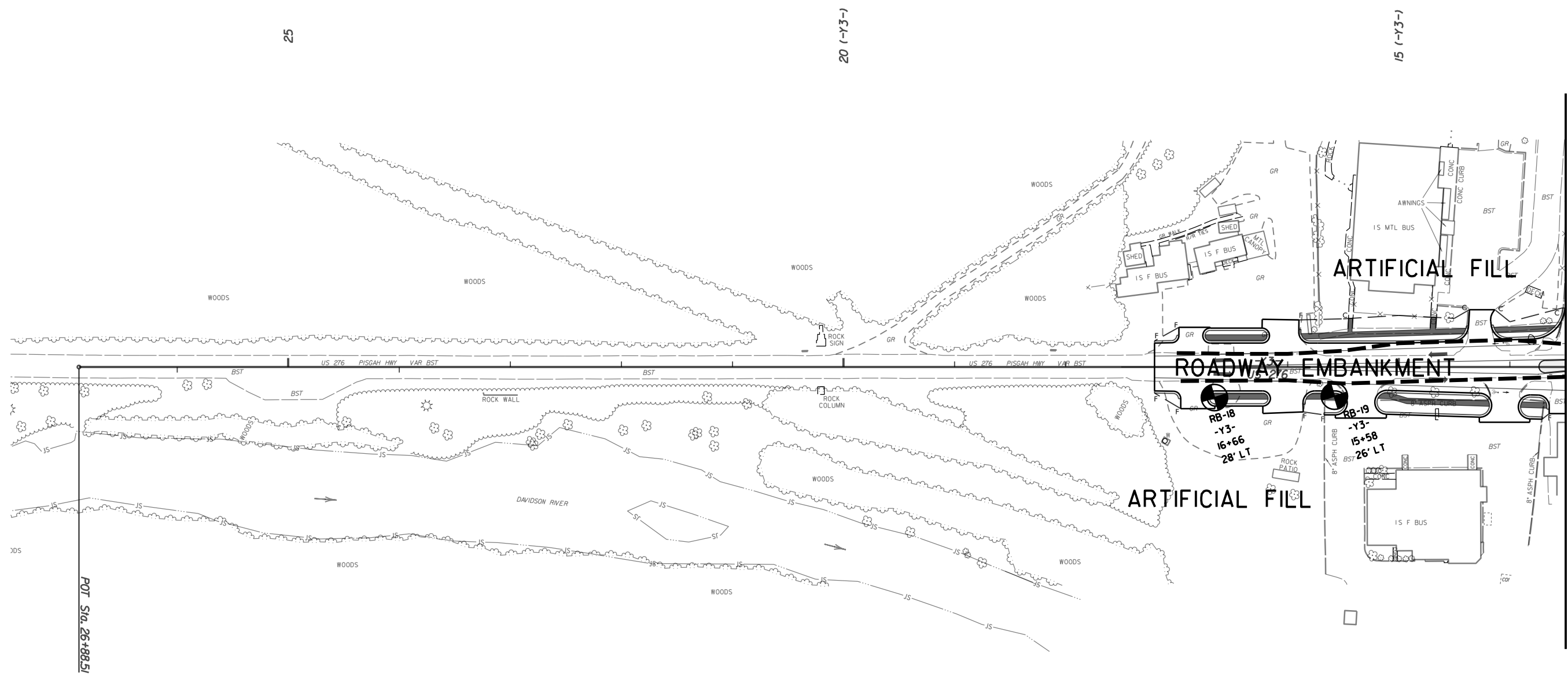
-Y4- POT Sta. 10+54.75 =
-RA2- POC Sta. 10+80.49

-Y4- POT Sta. 13+10.00

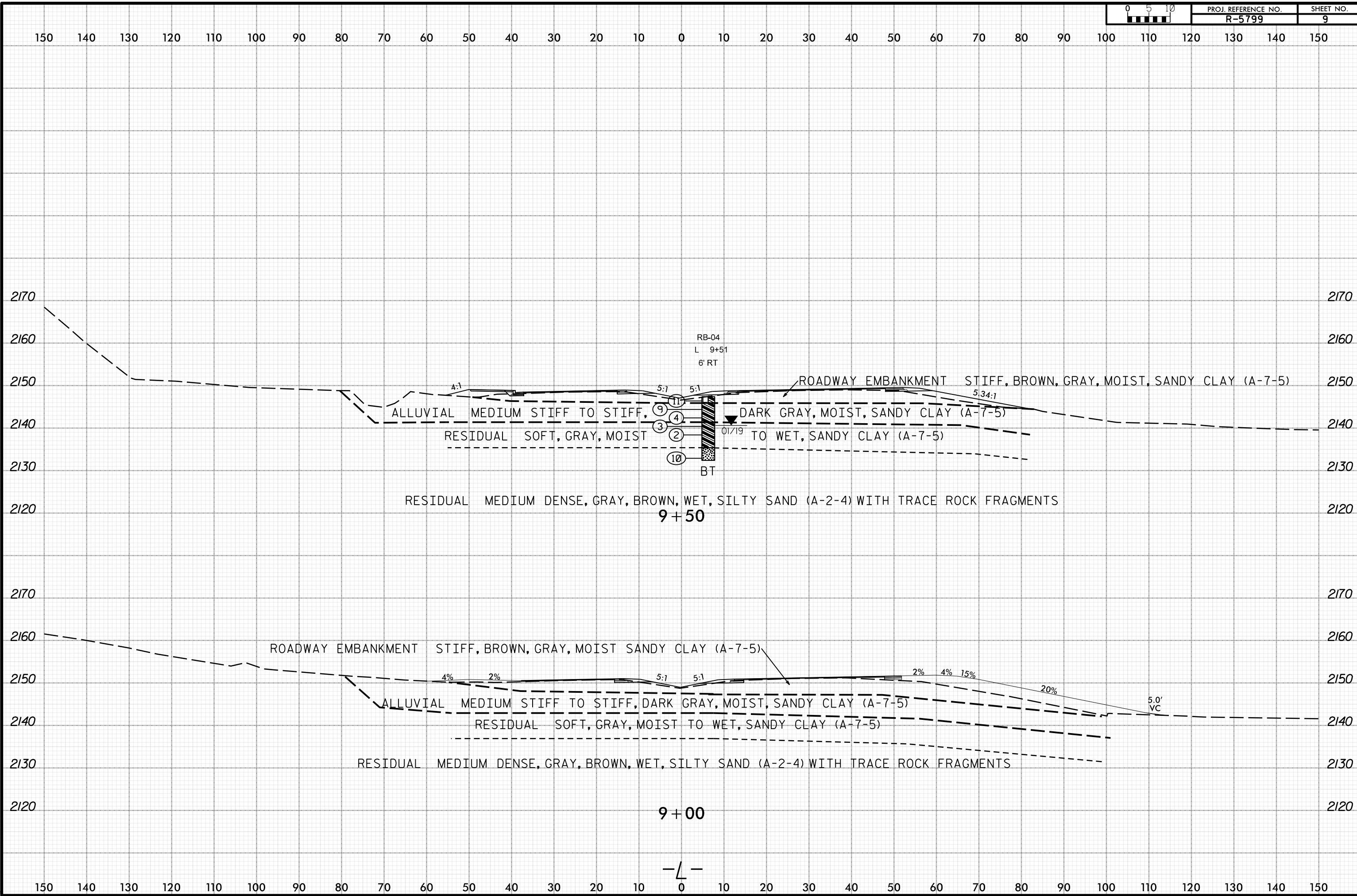


MATCH LINE STA. 15 + 50 -Y2- SEE SHEET 5

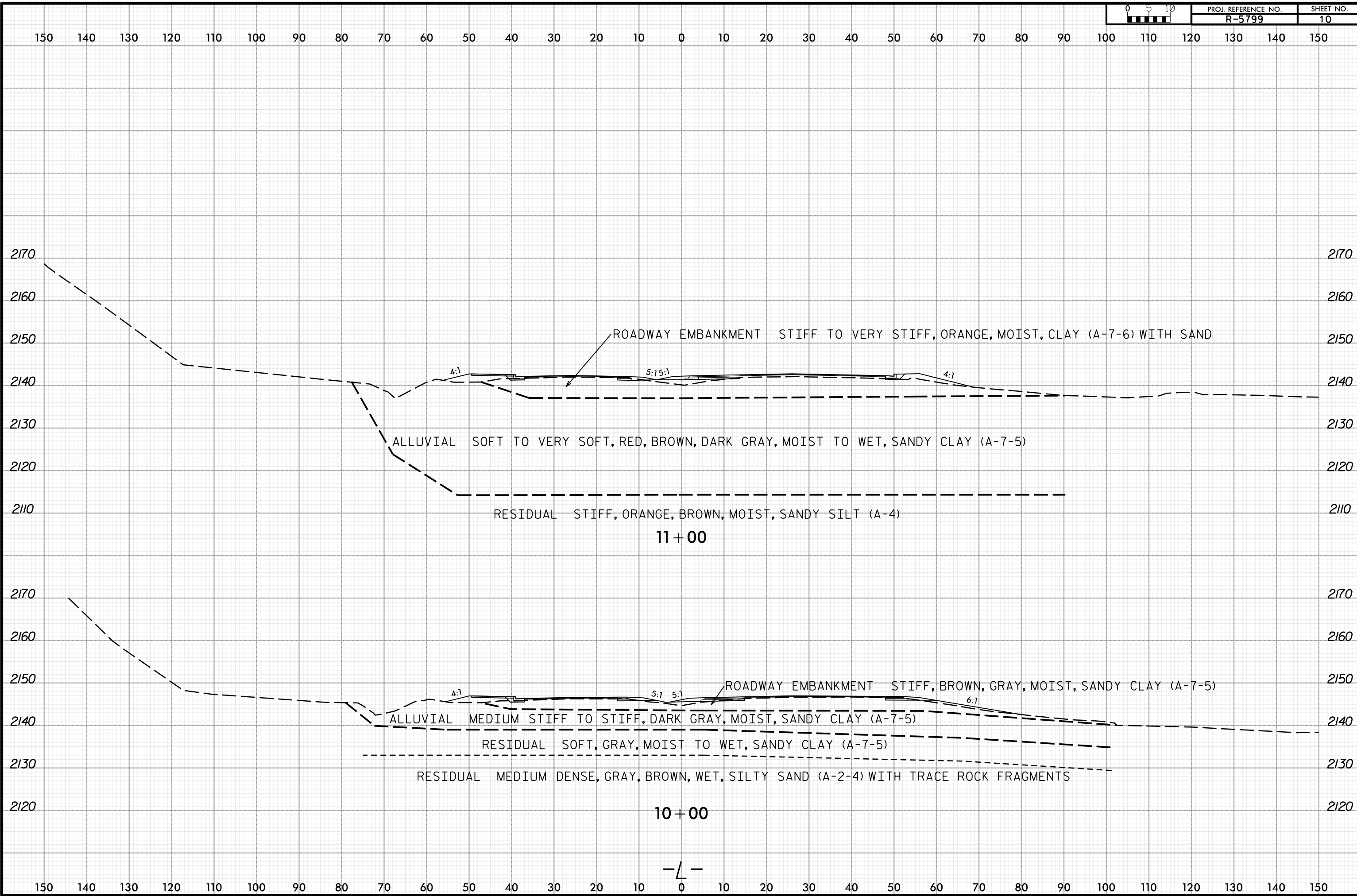


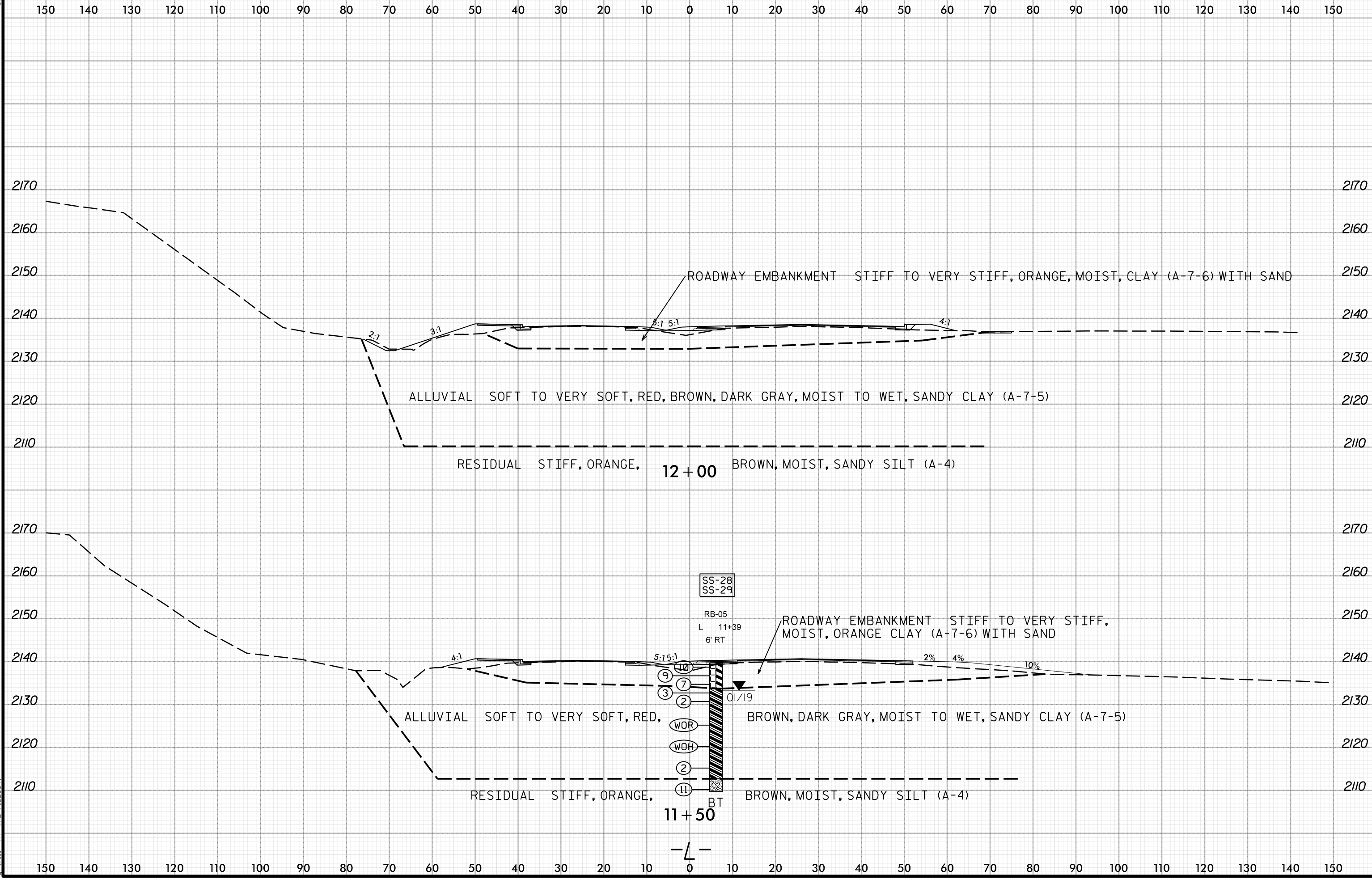


MATCH LINE STA. 13 + 50 -Y3- SEE SHEET 2

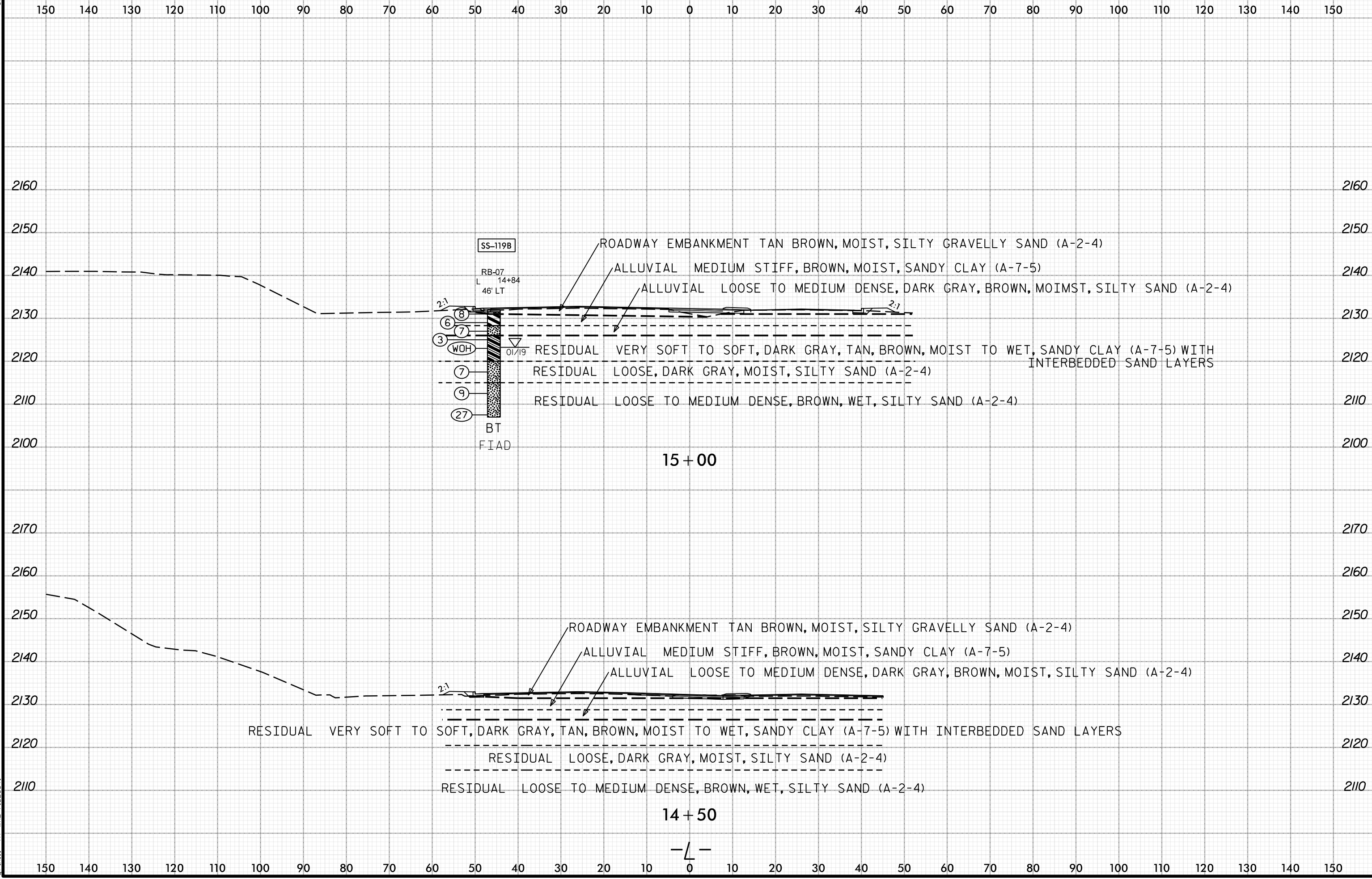


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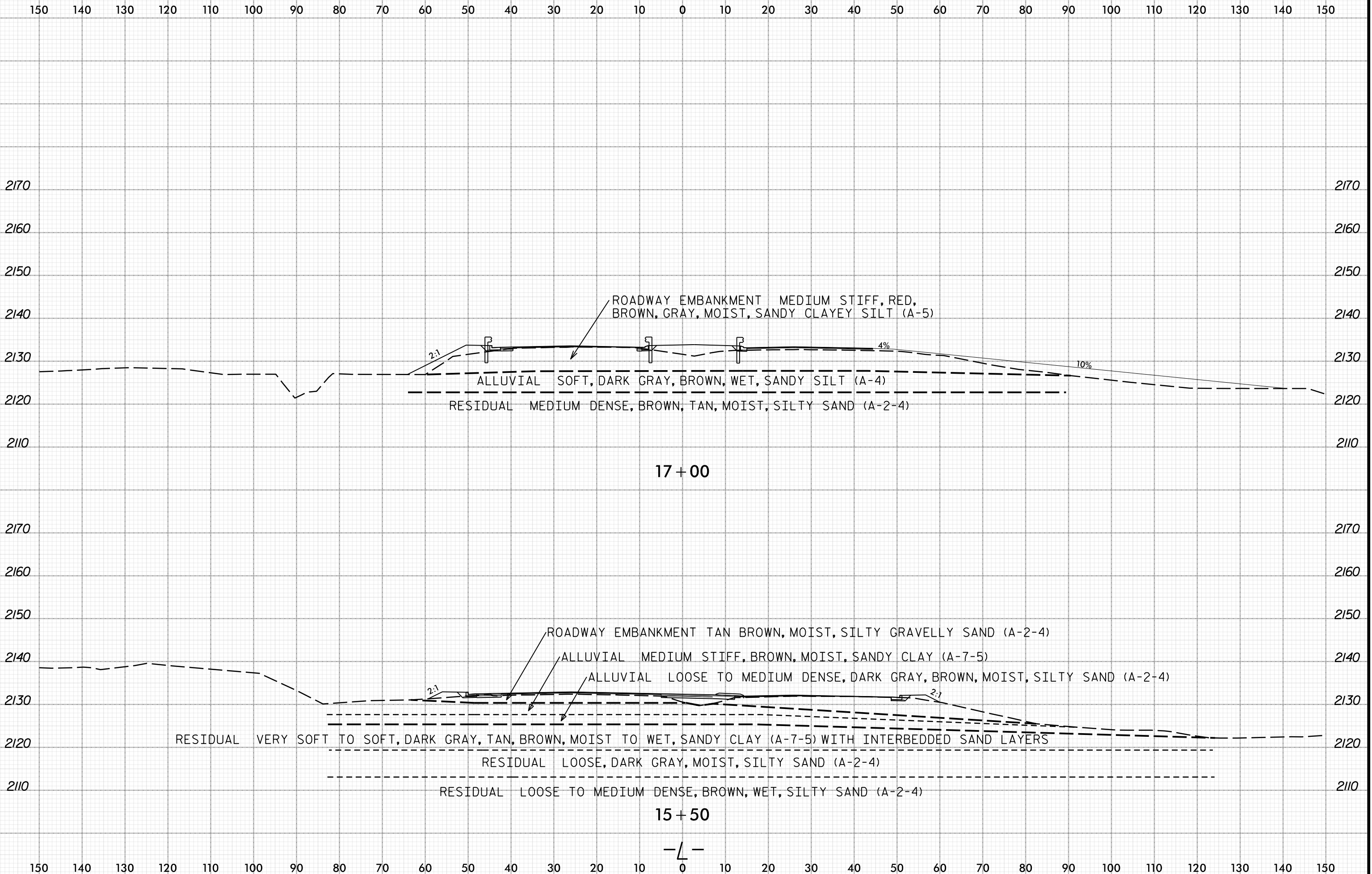




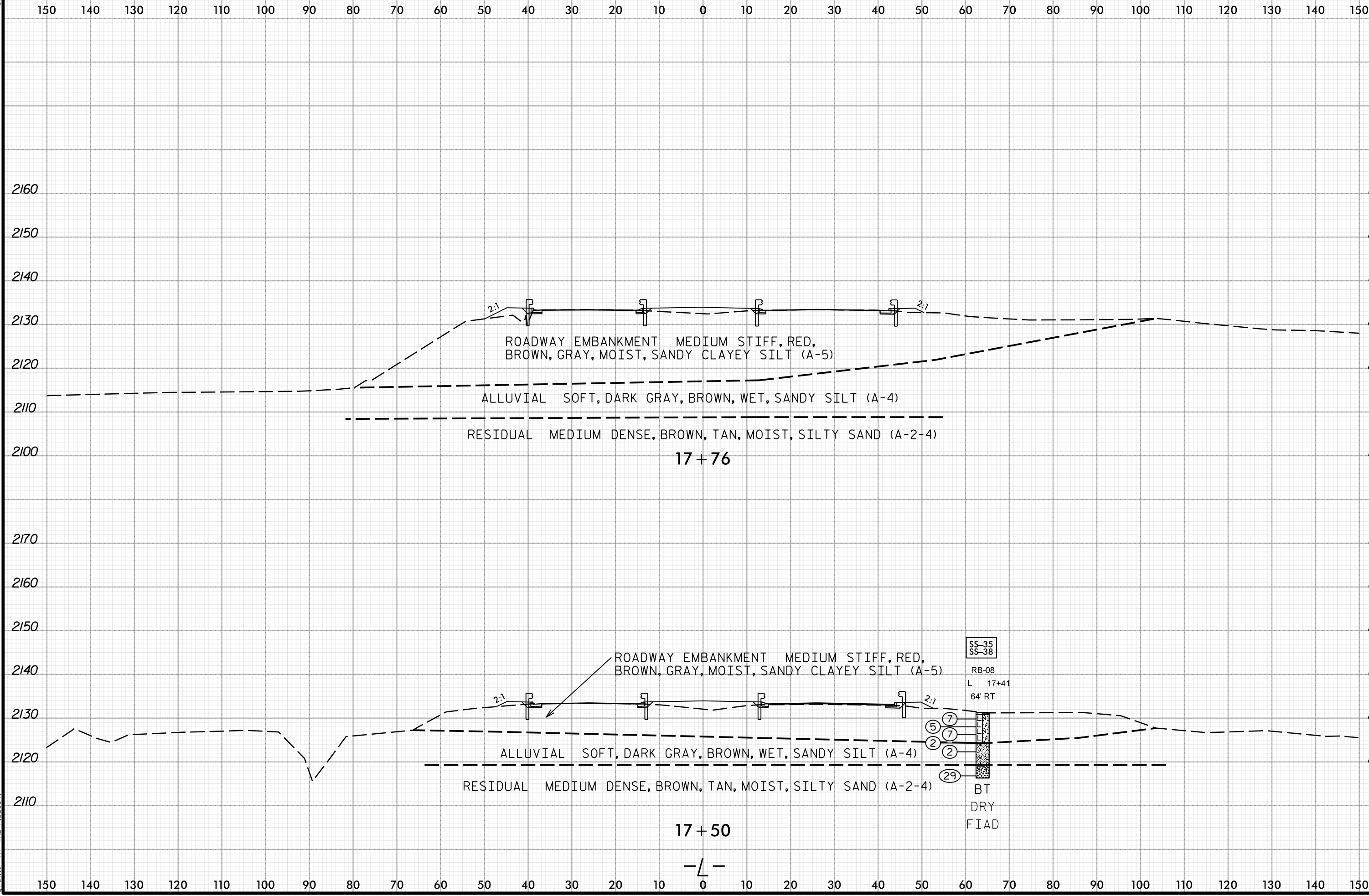
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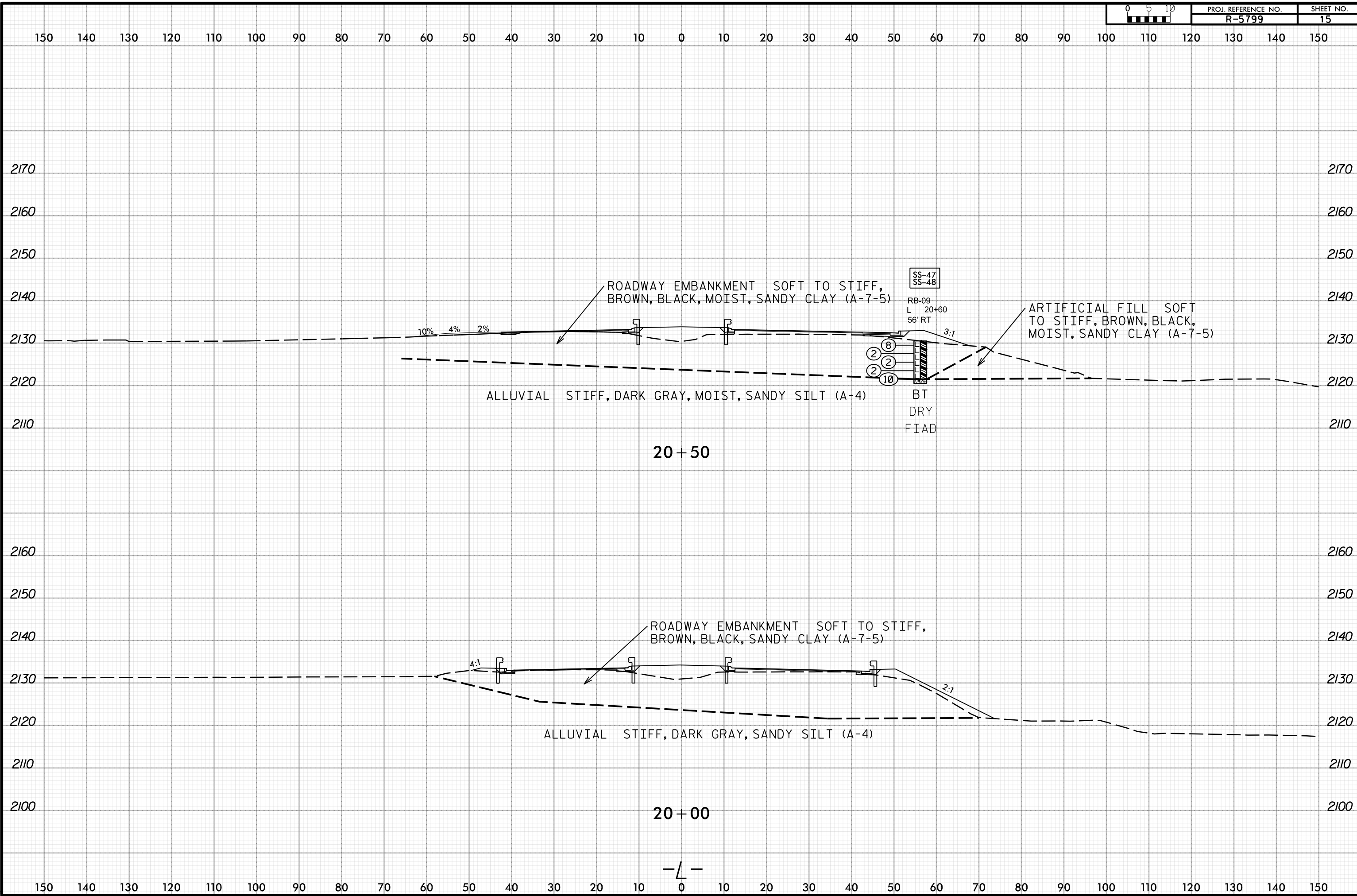


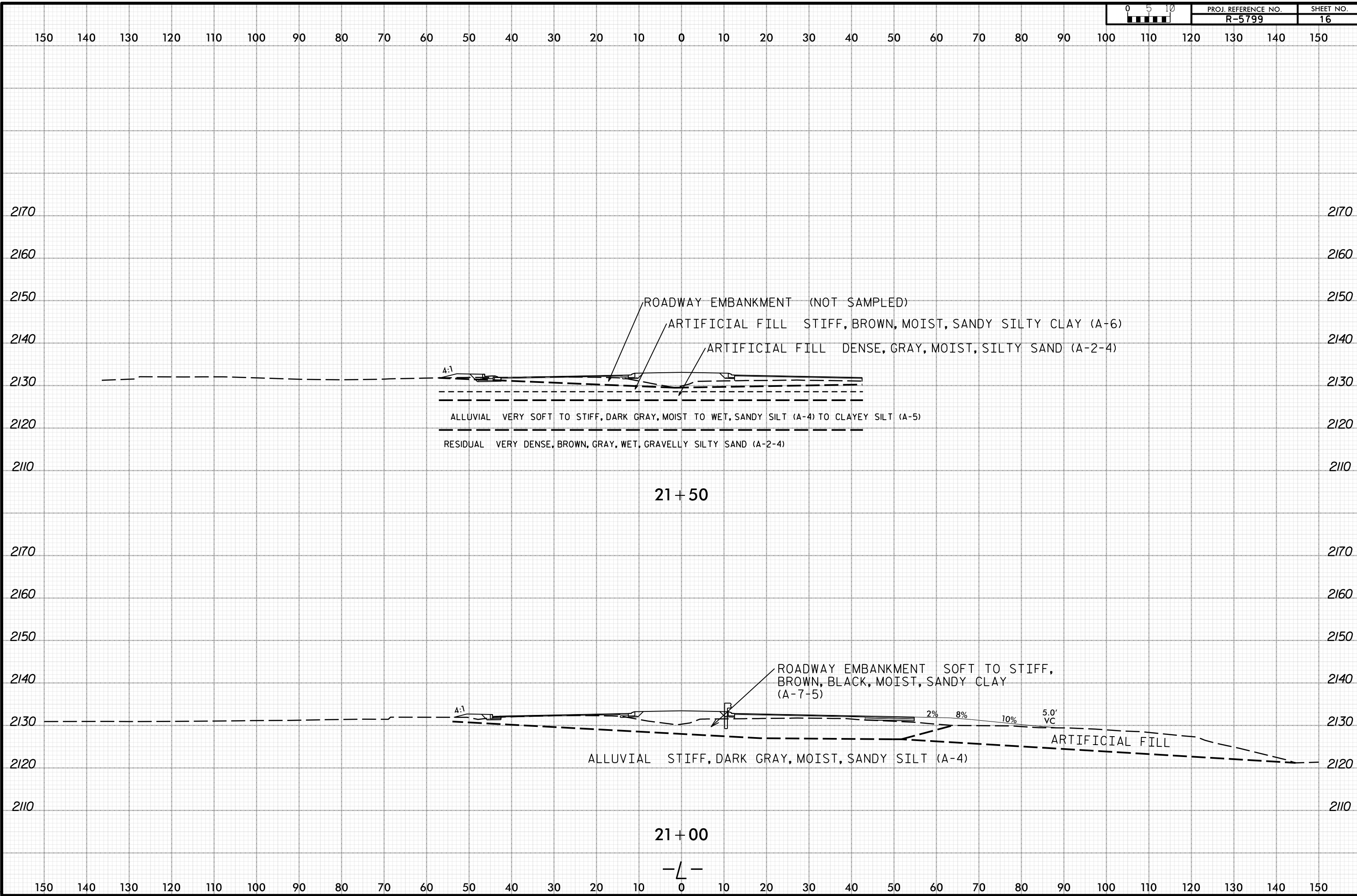
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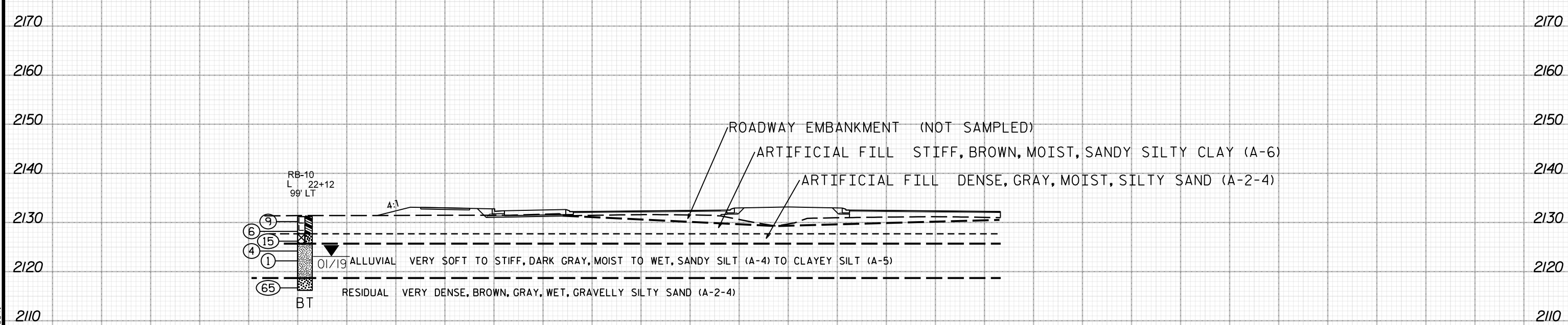
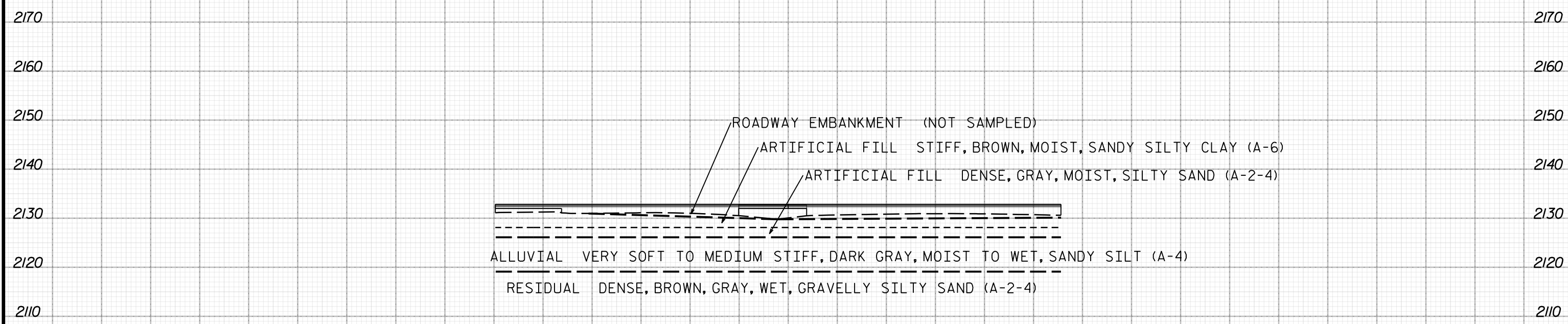






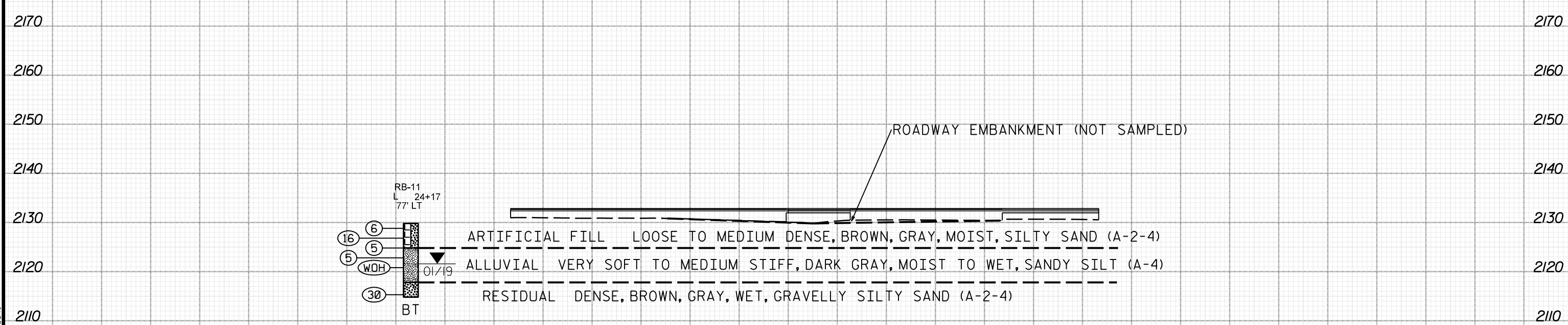
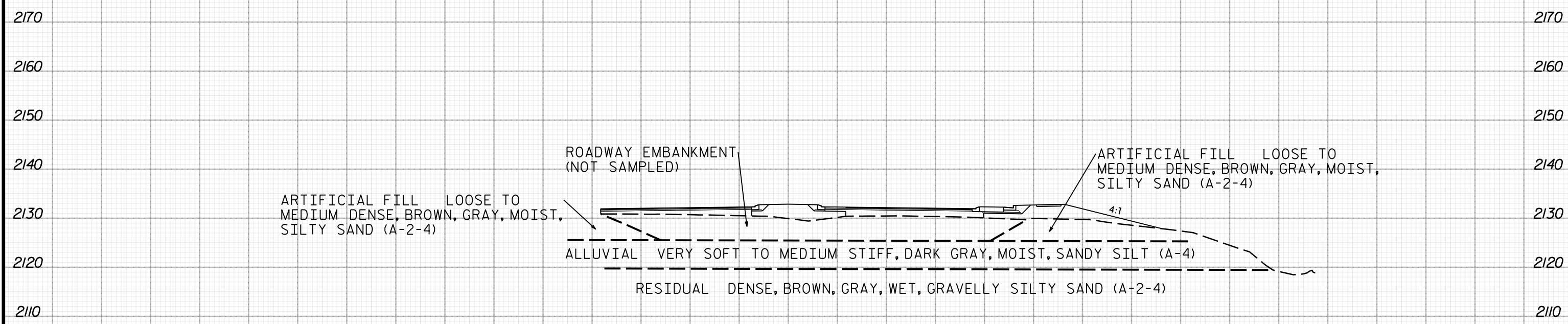
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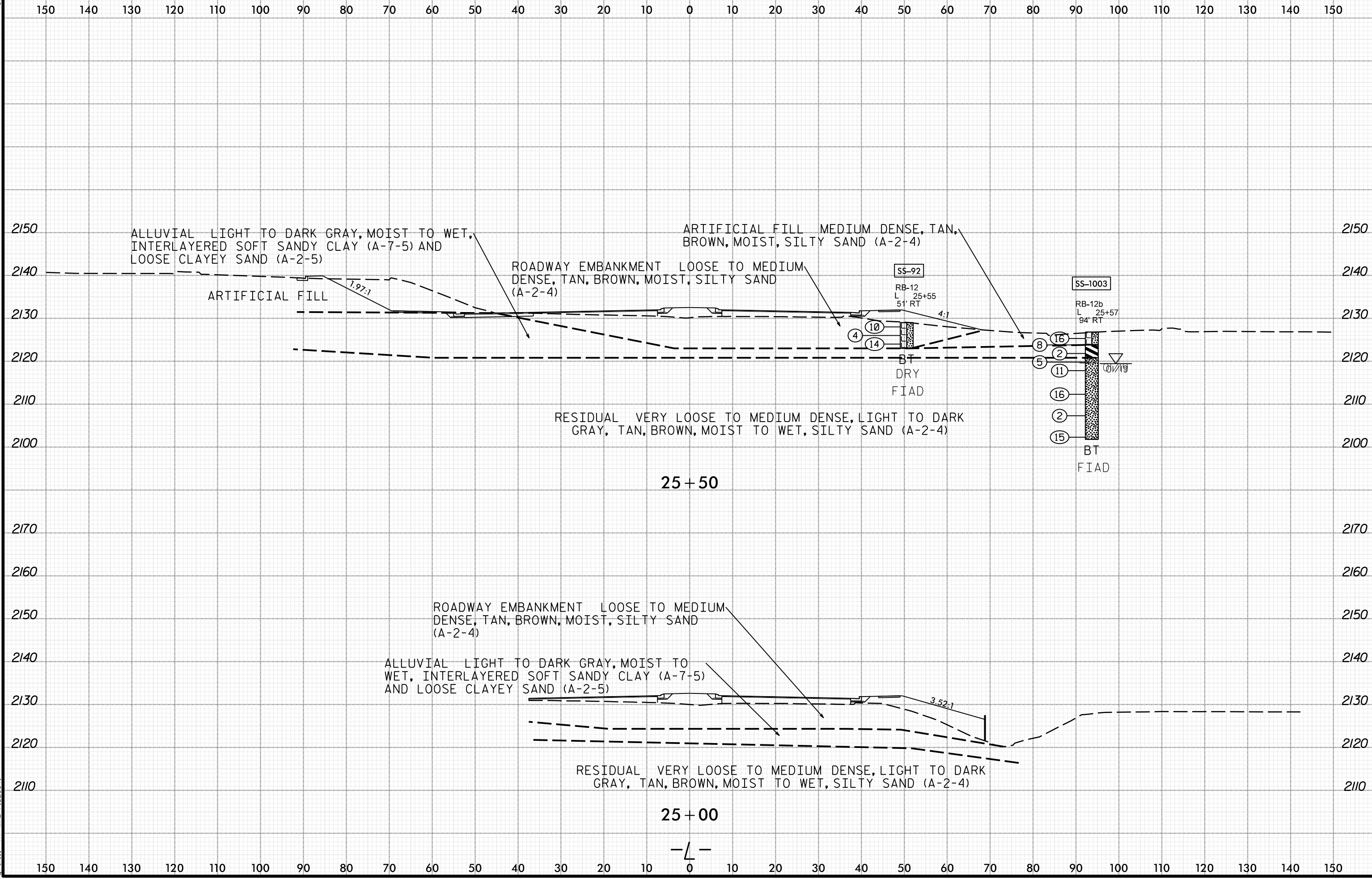


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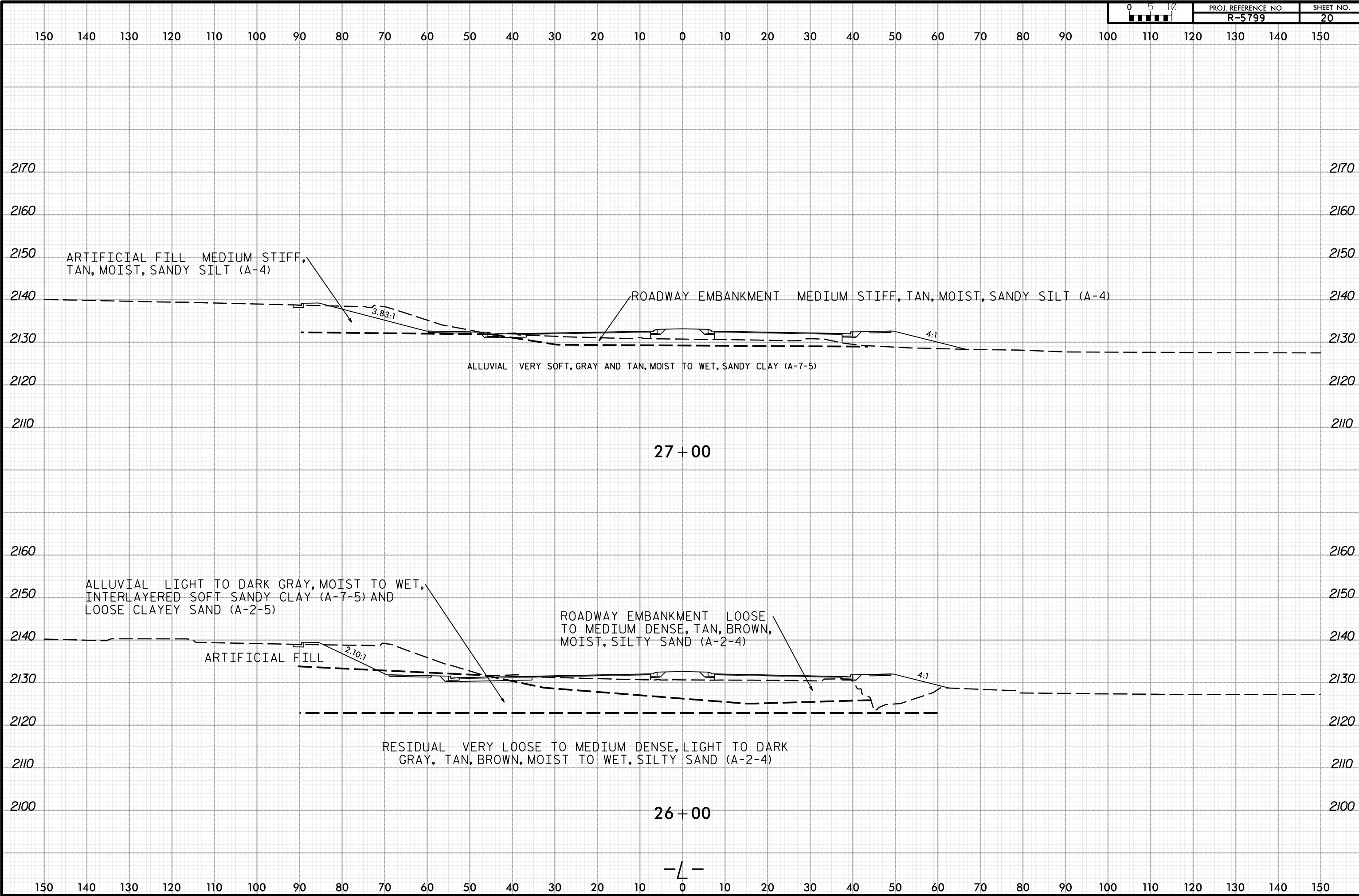
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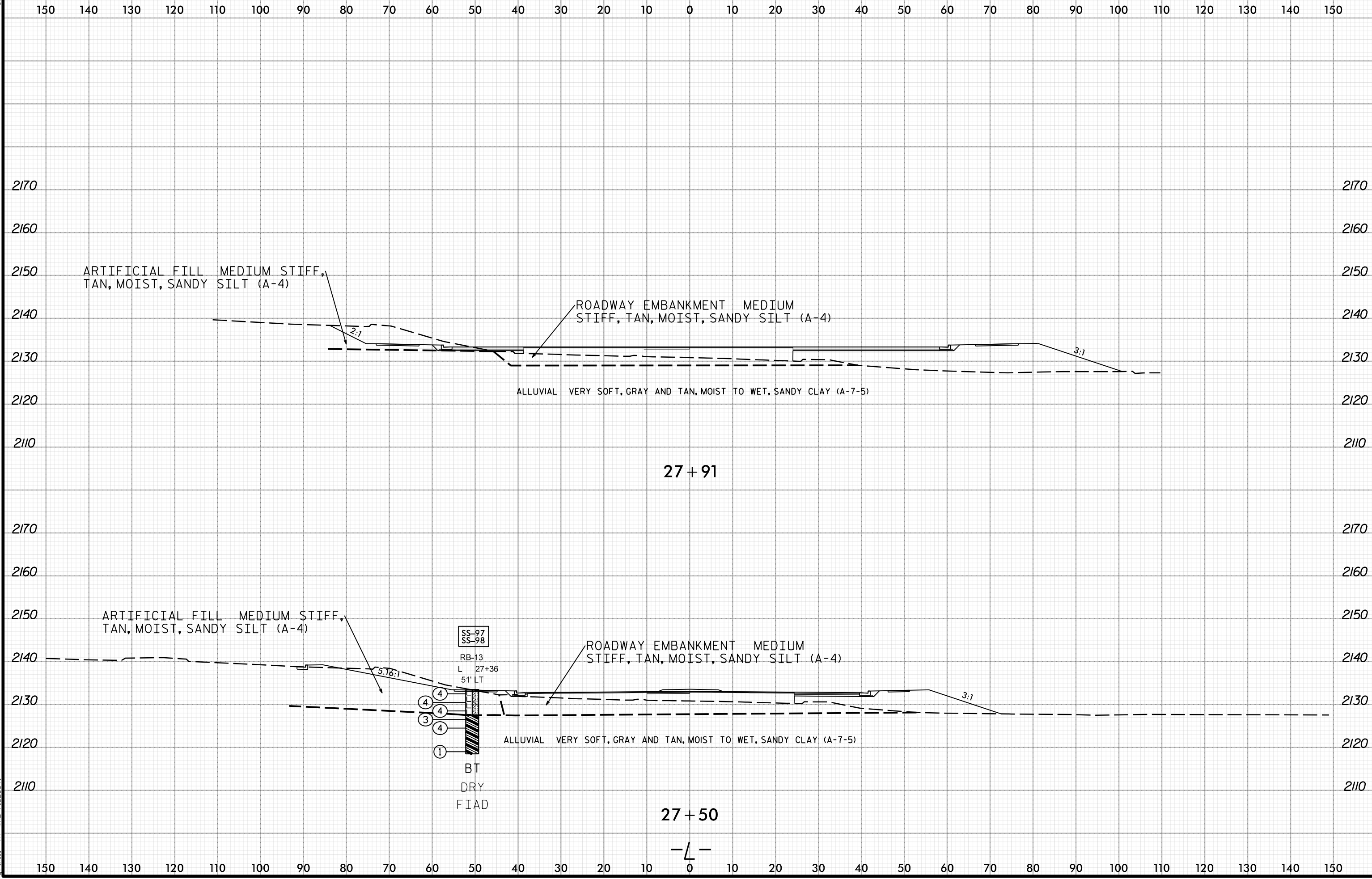
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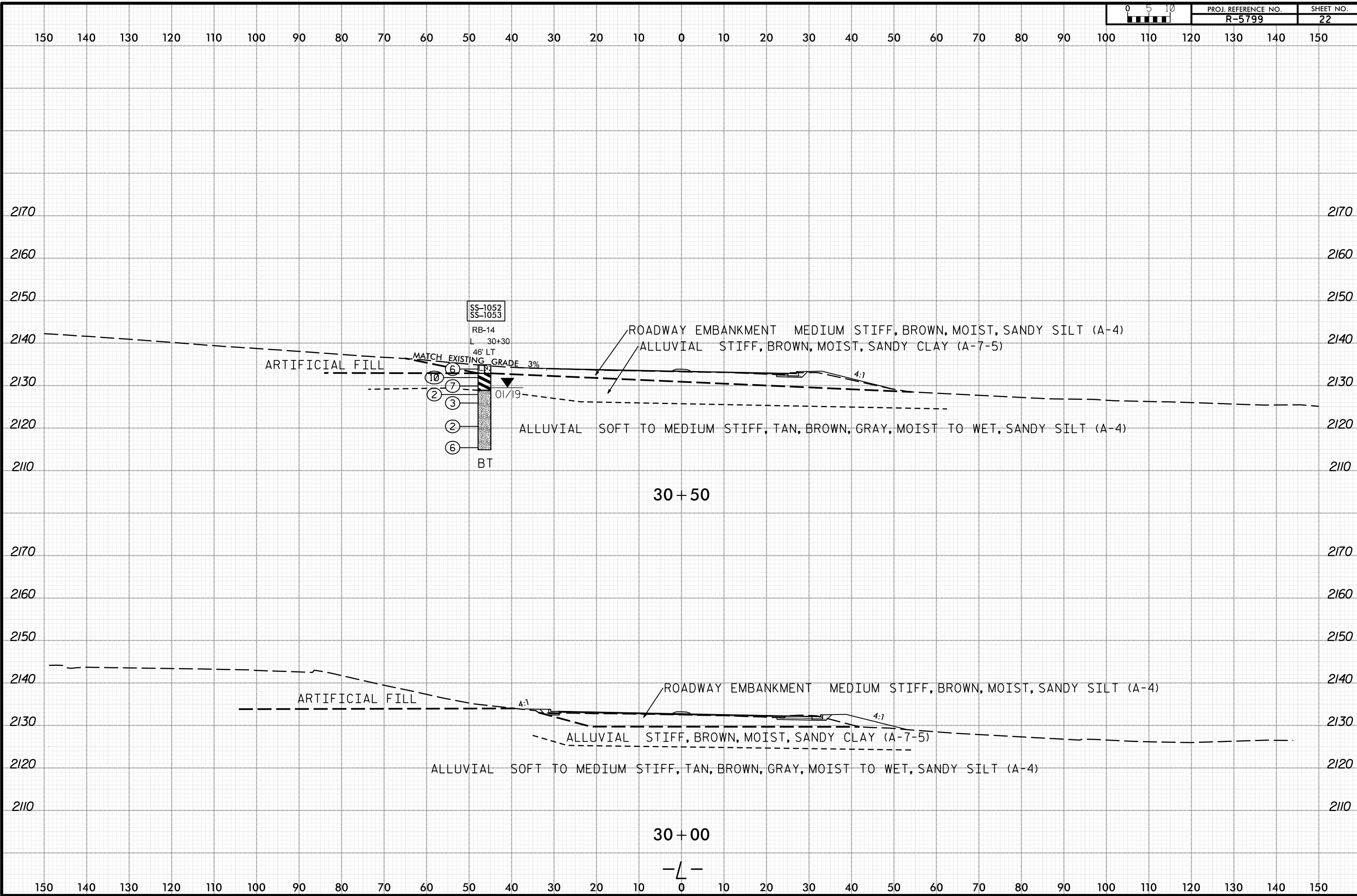
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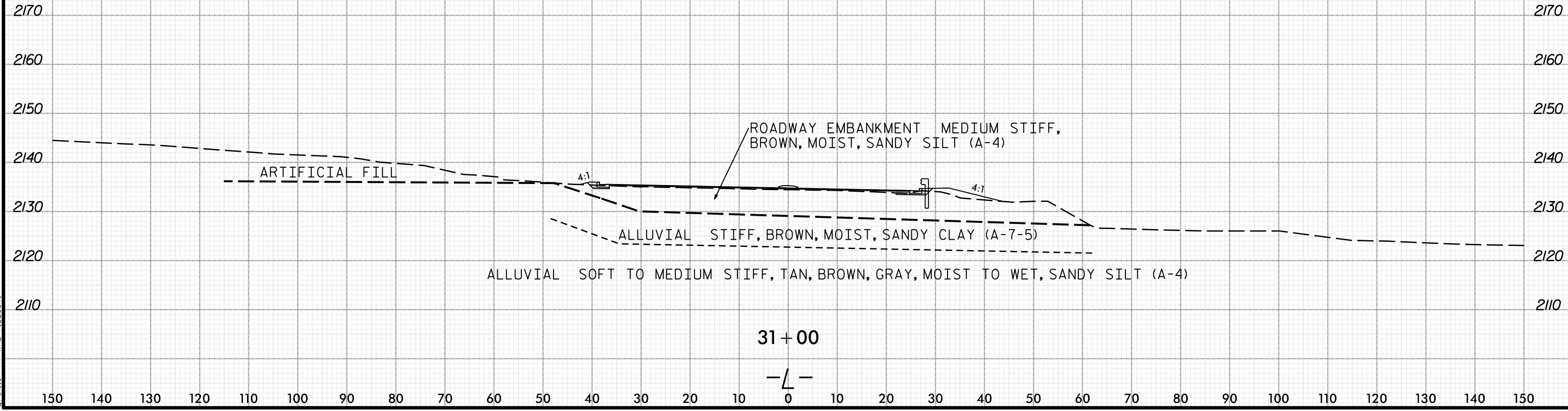
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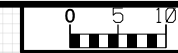
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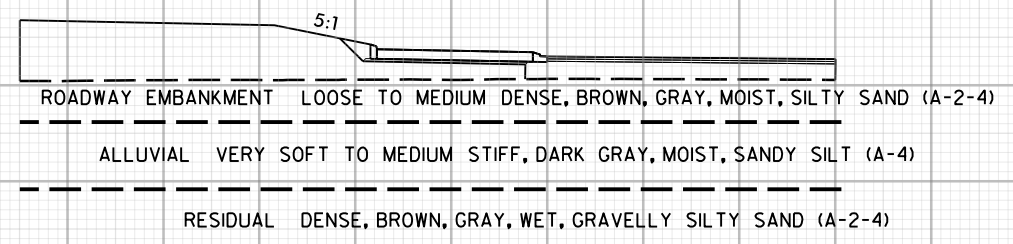
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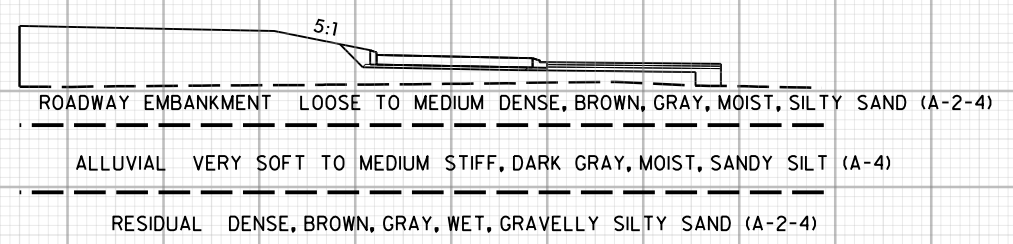
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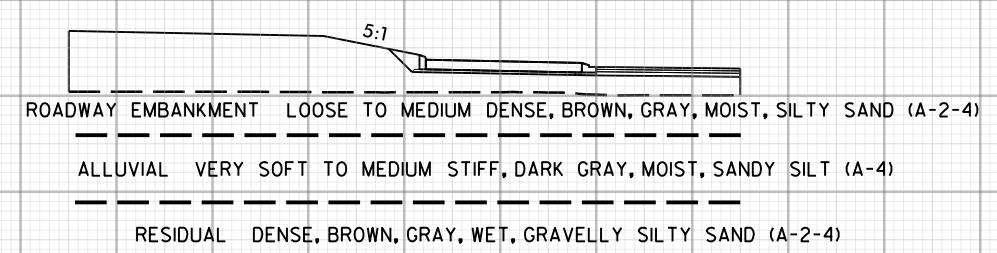
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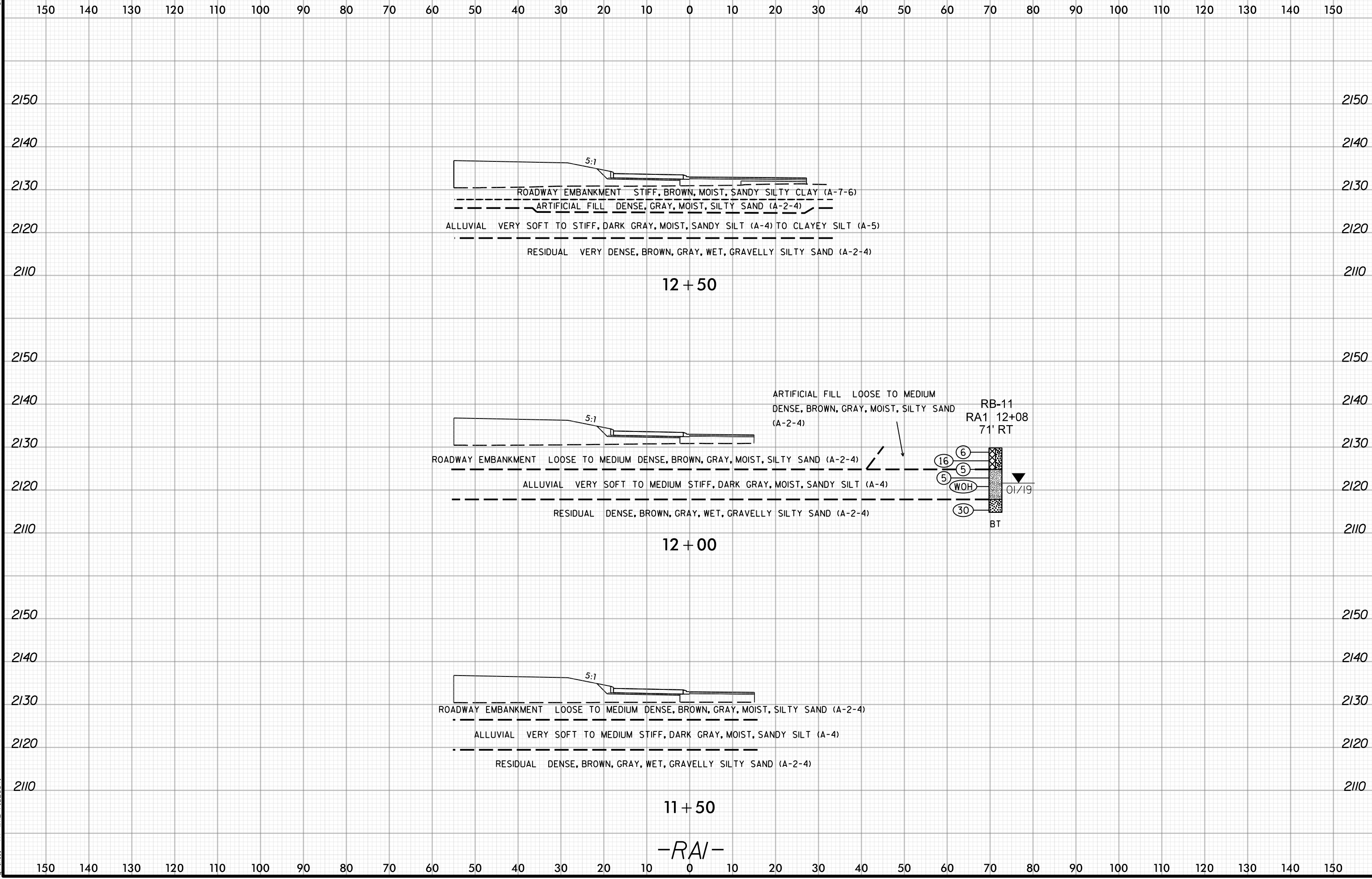
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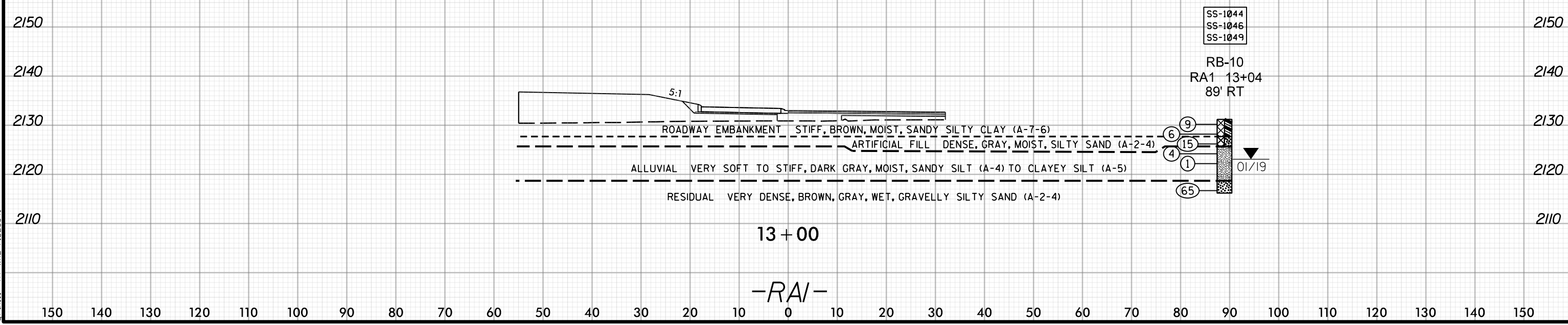
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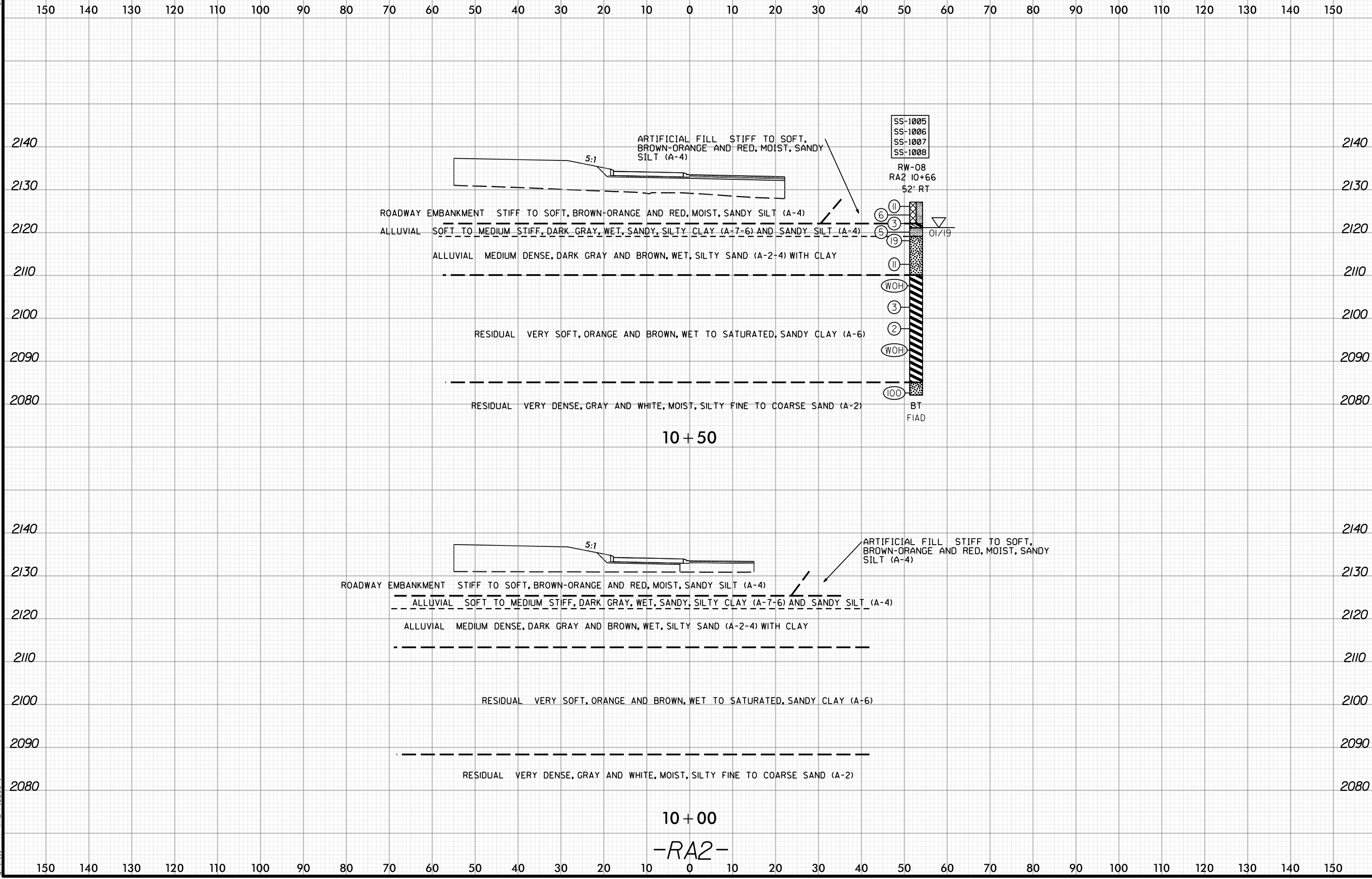


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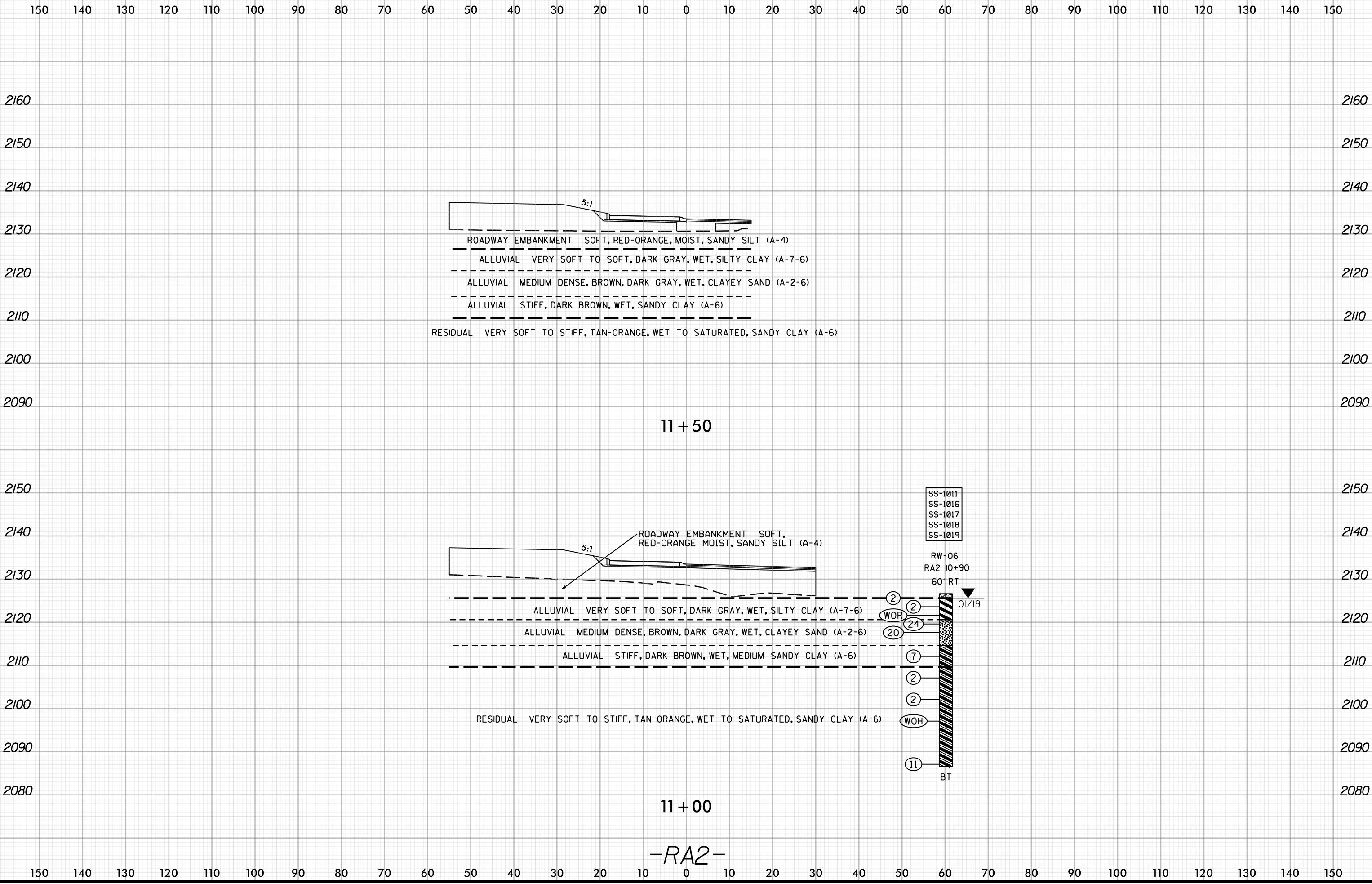
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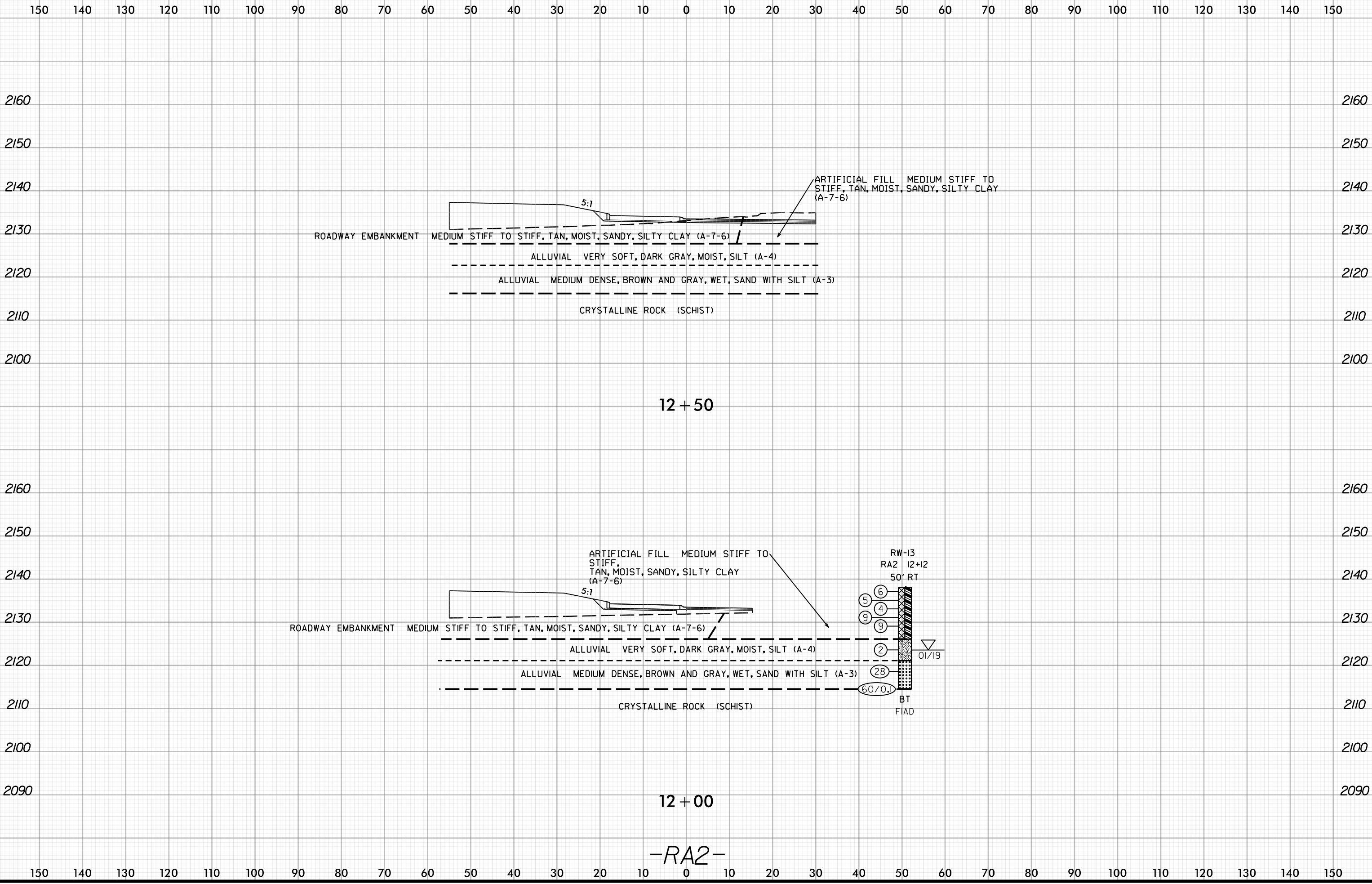
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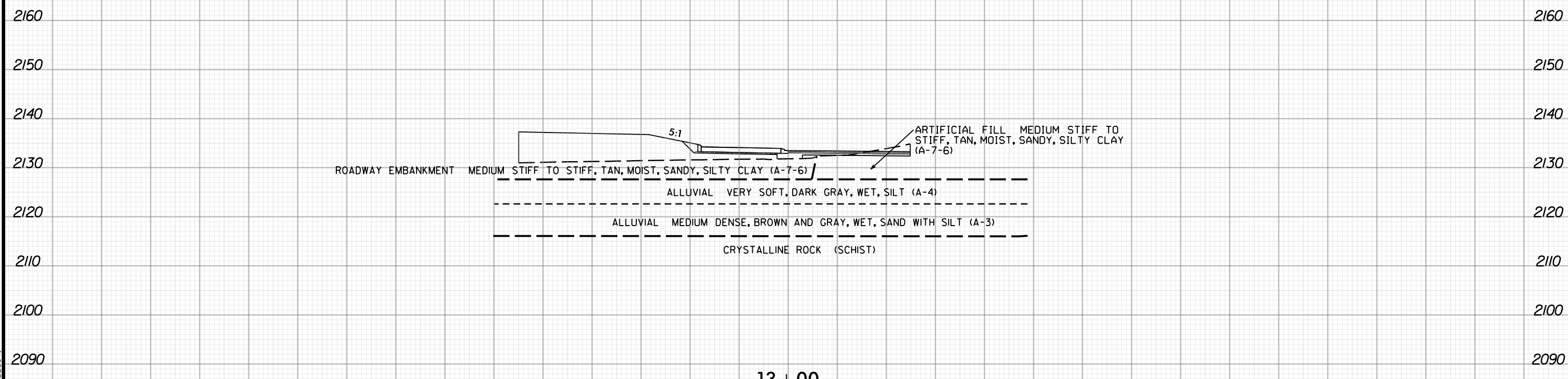


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150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



ROADWAY EMBANKMENT

5:1

ARTIFICIAL FILL MEDIUM STIFF TO STIFF, TAN, MOIST, SANDY, SILTY CLAY (A-7-6)

MEDIUM STIFF TO STIFF, TAN, MOIST, SANDY, SILTY CLAY (A-7-6)

ALLUVIAL VERY SOFT, DARK GRAY, WET, SILT (A-4)

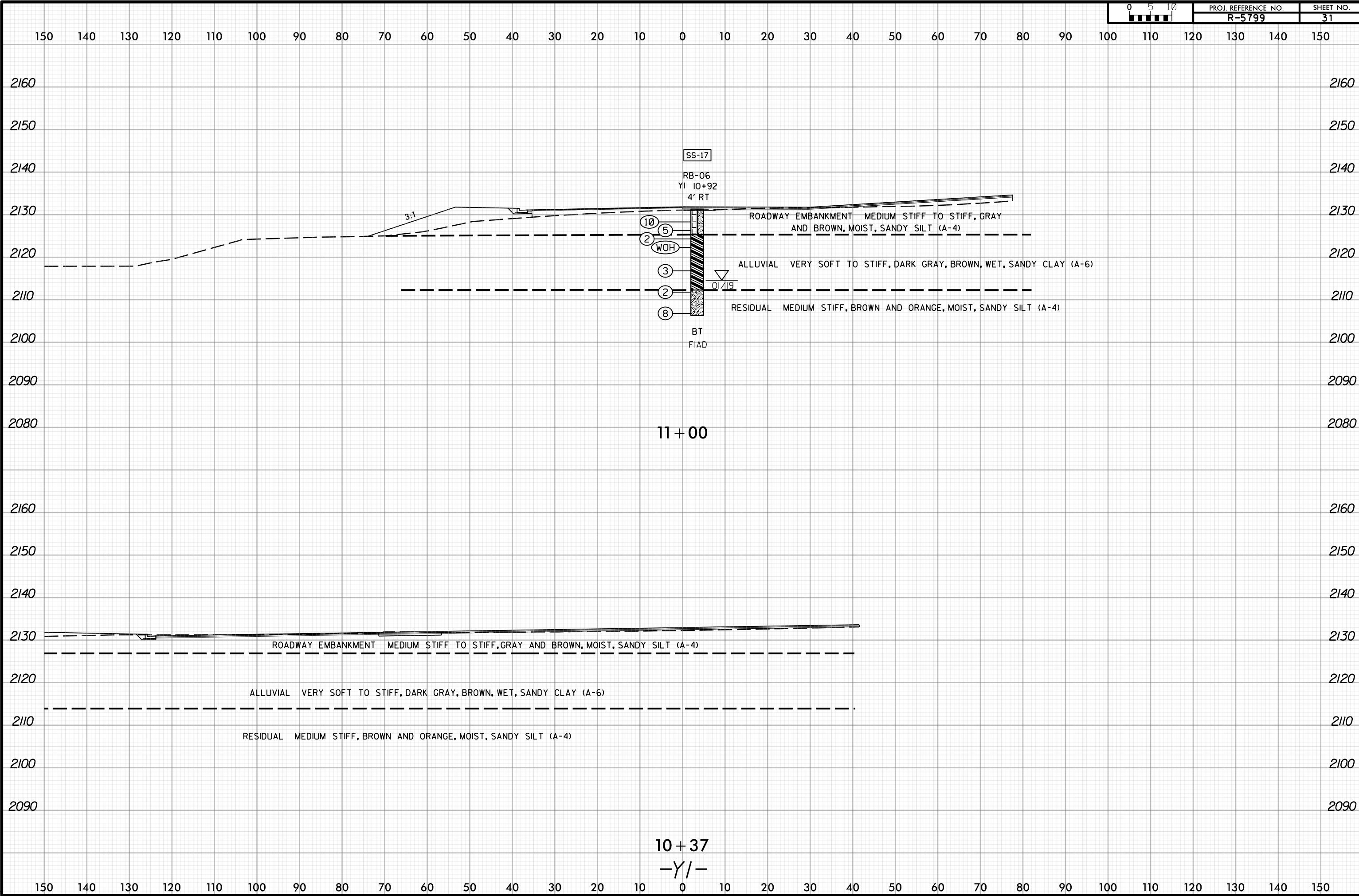
ALLUVIAL MEDIUM DENSE, BROWN AND GRAY, WET, SAND WITH SILT (A-3)

CRYSTALLINE ROCK (SCHIST)

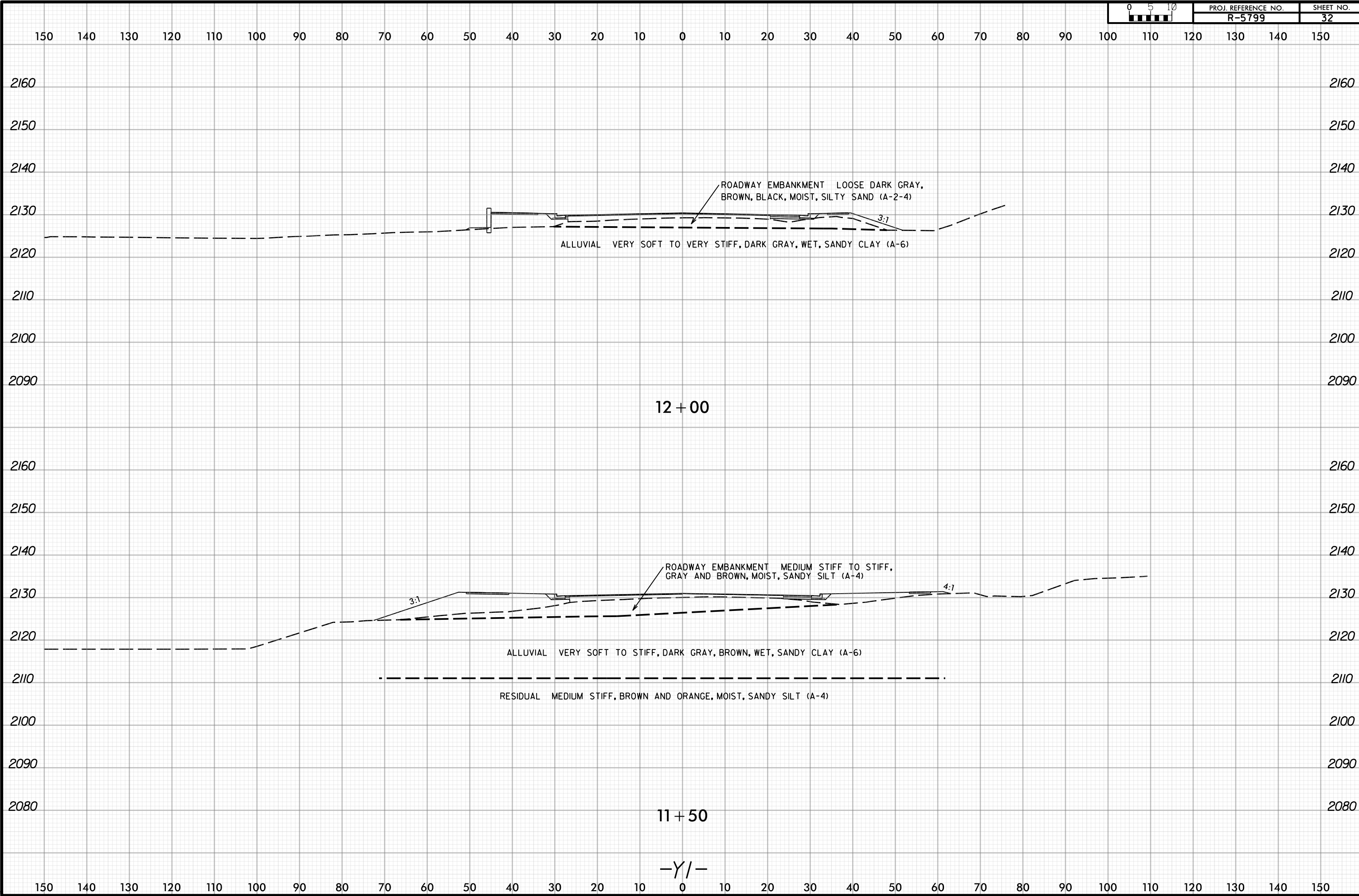
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-RA2-

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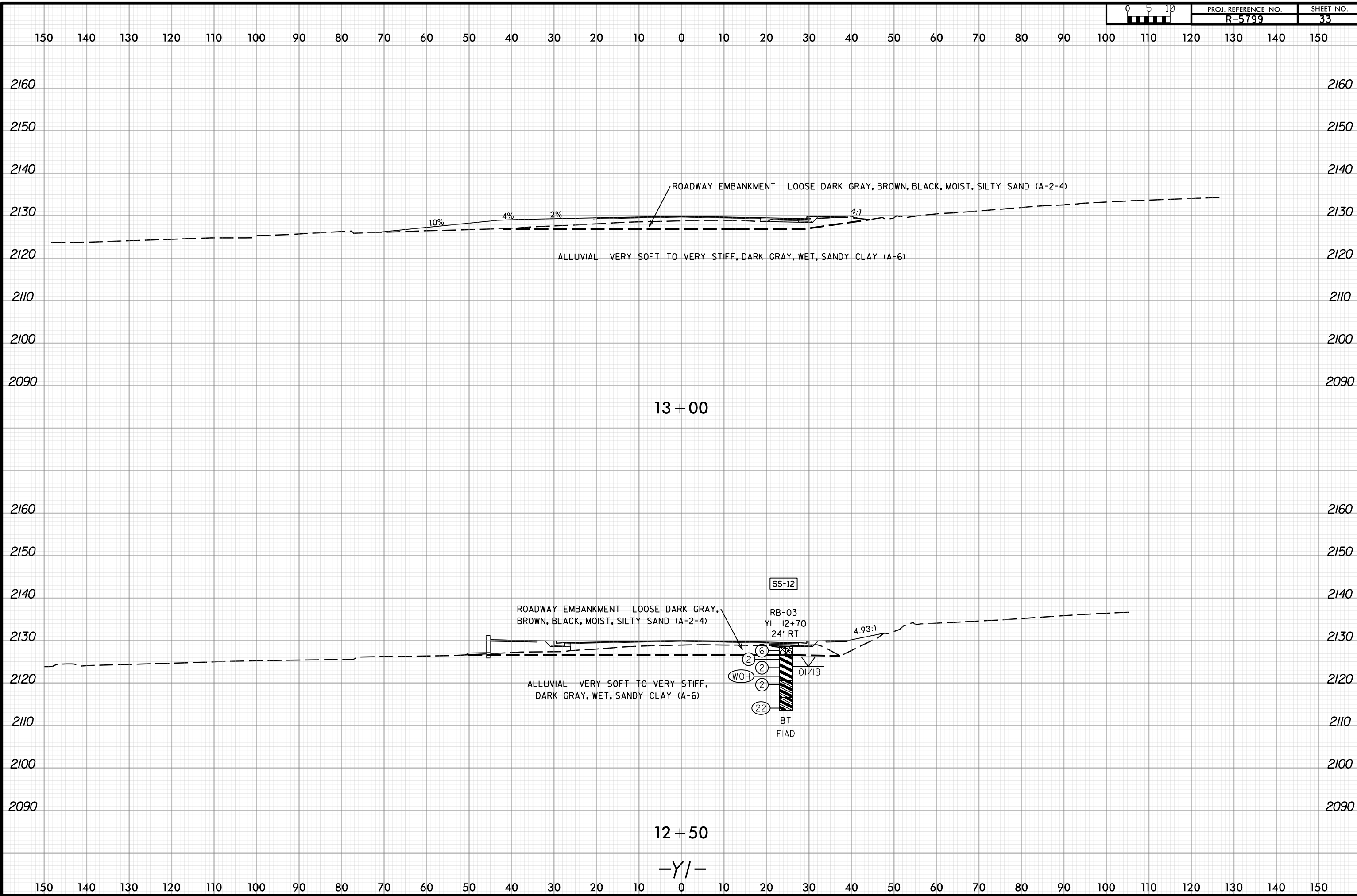


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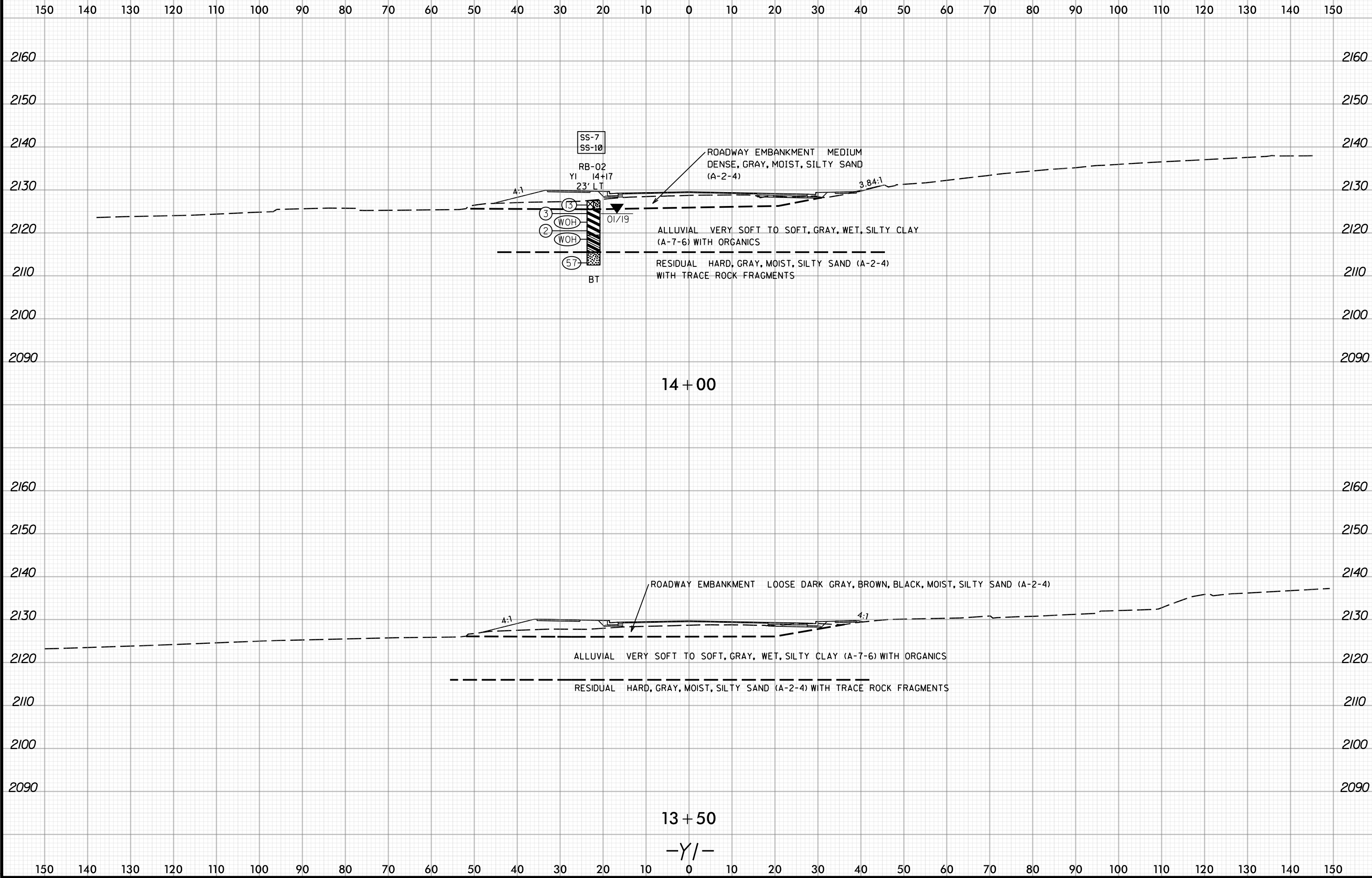


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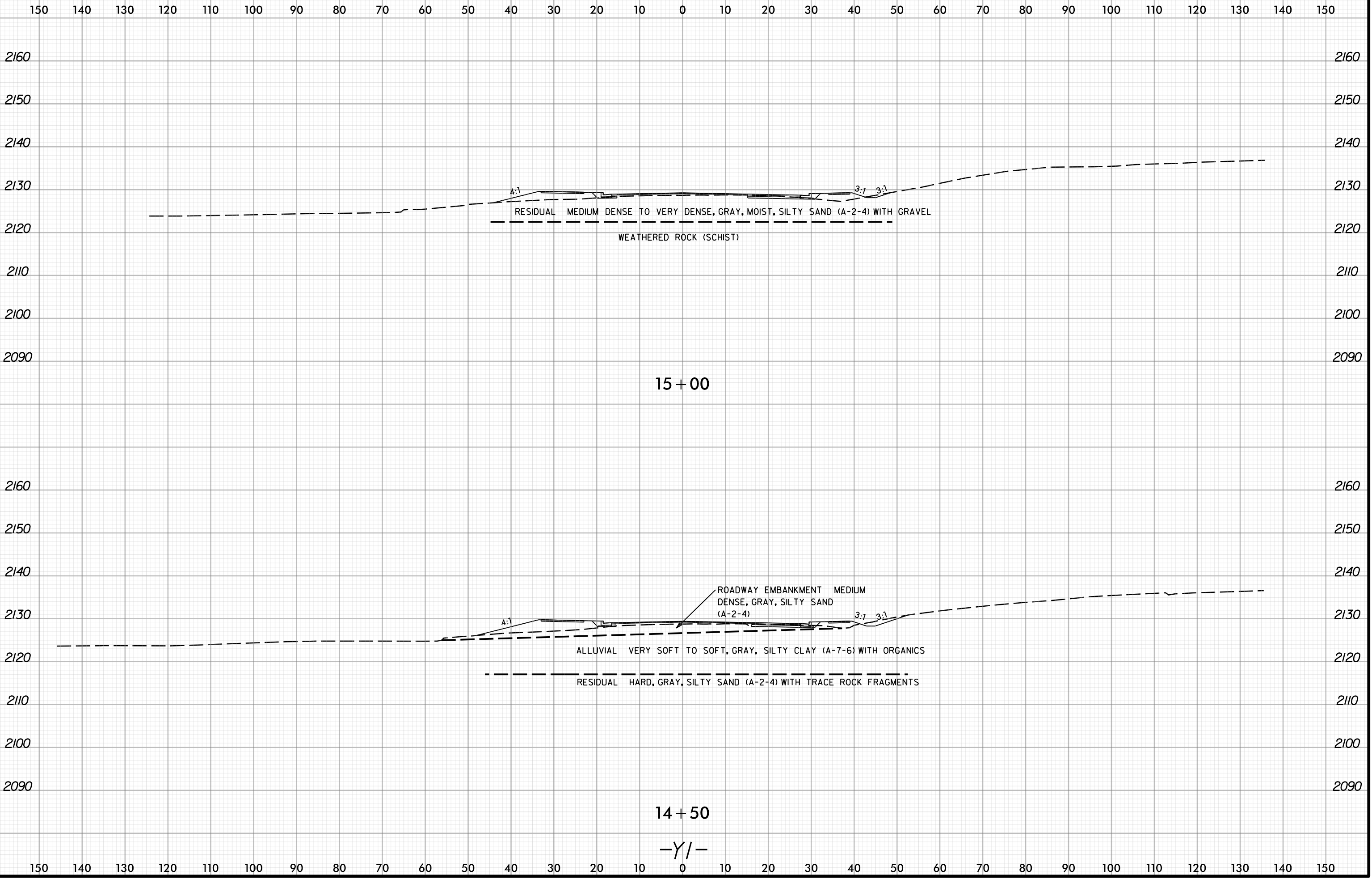
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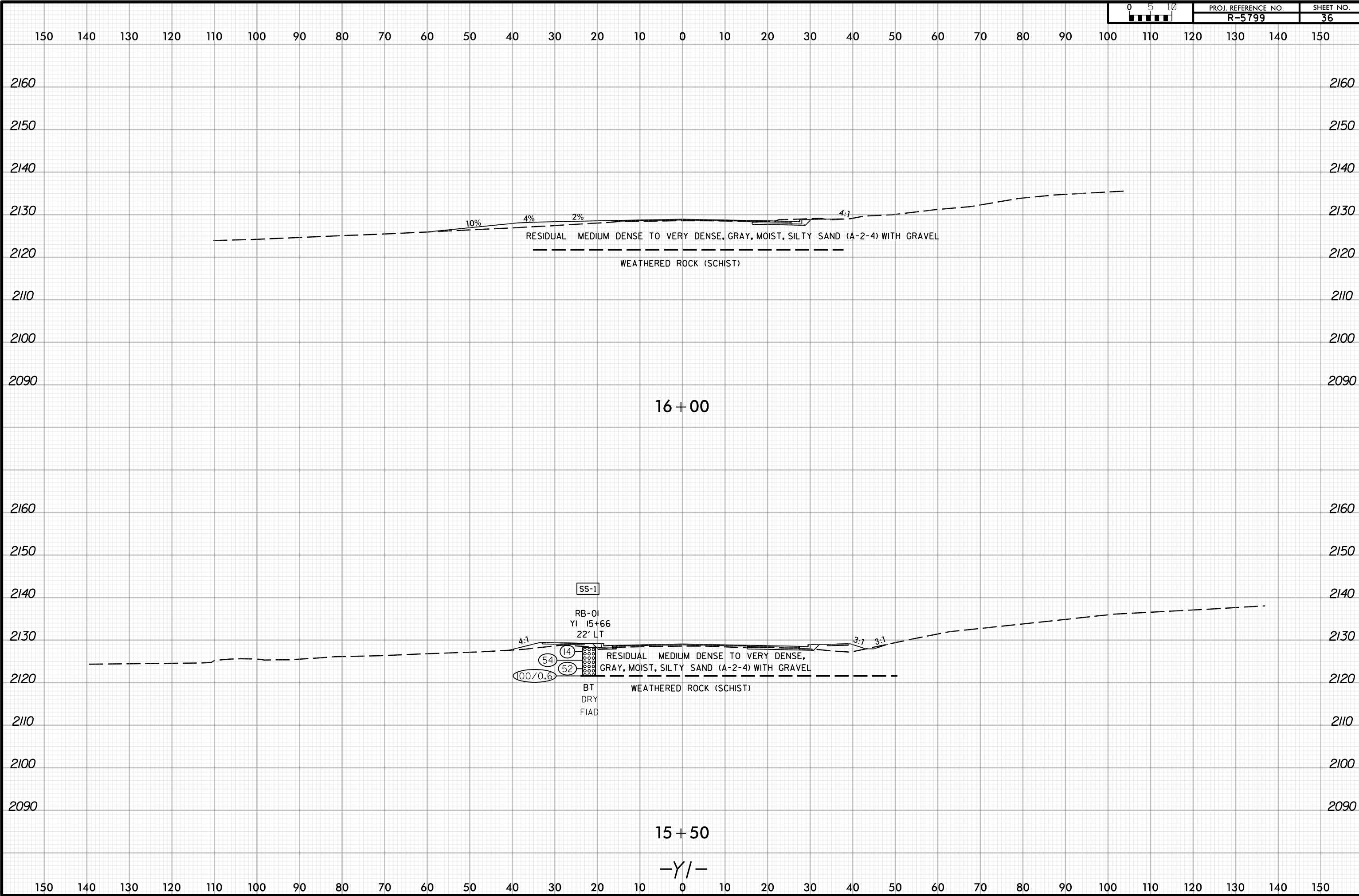
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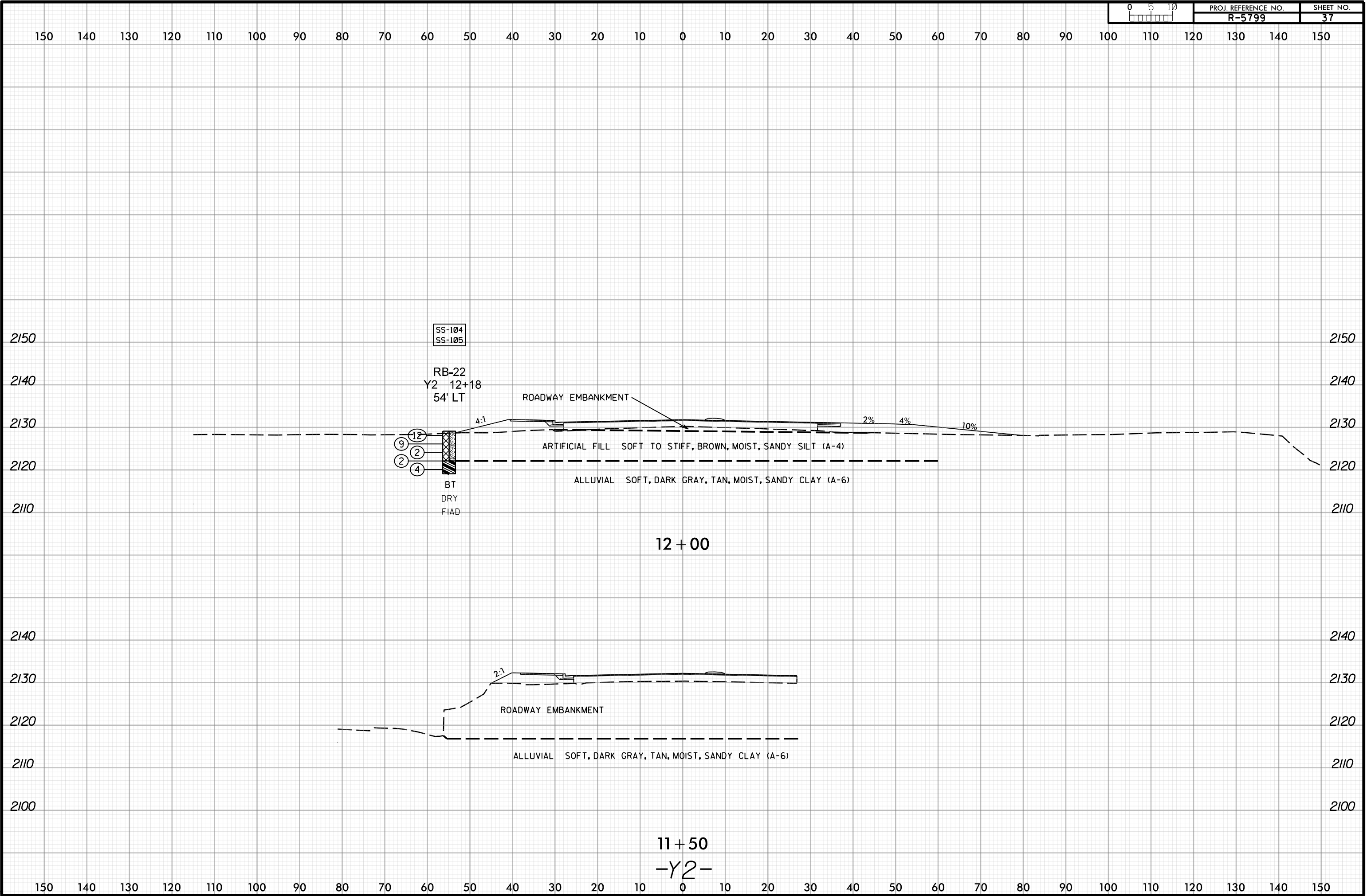


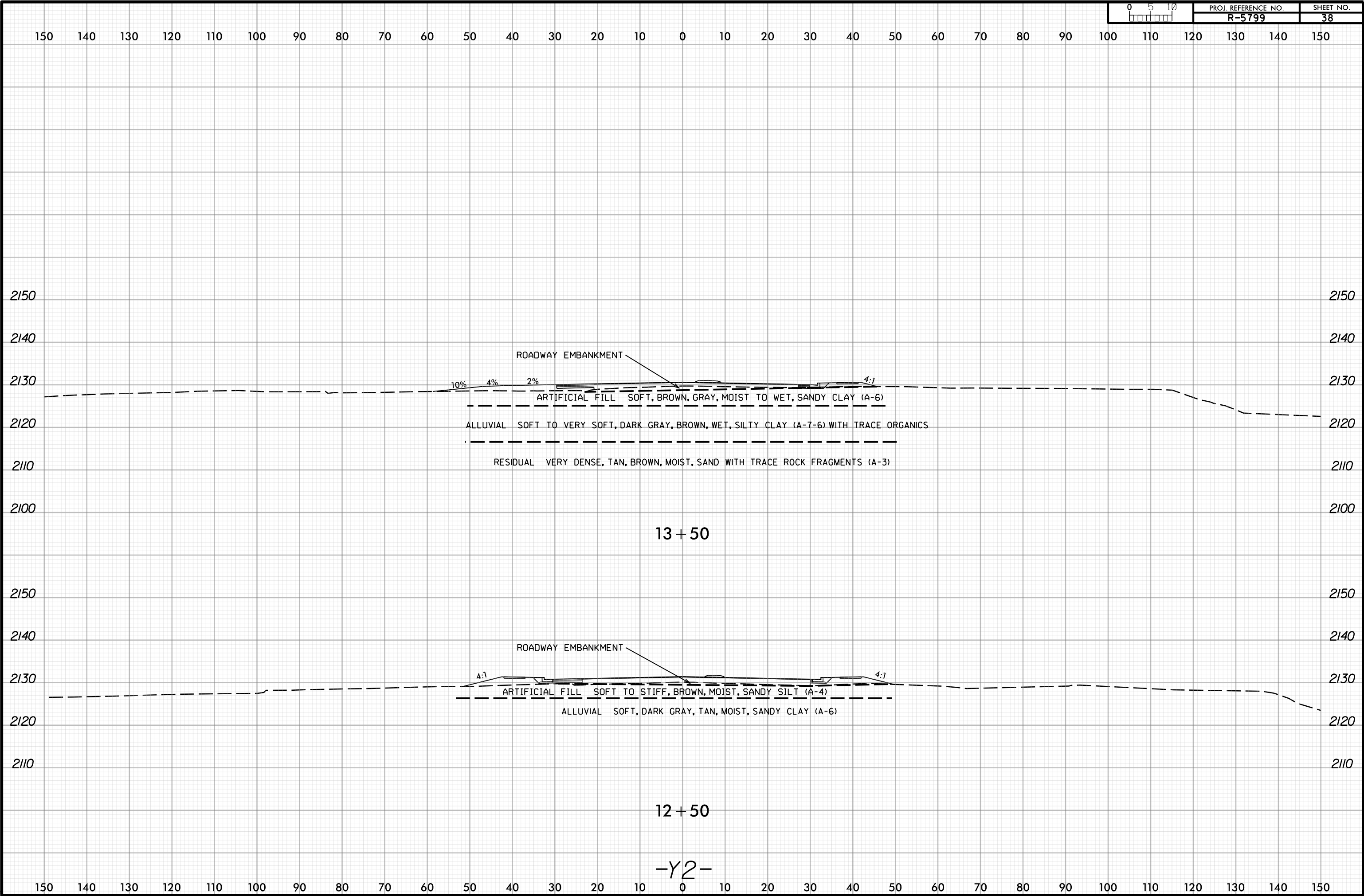
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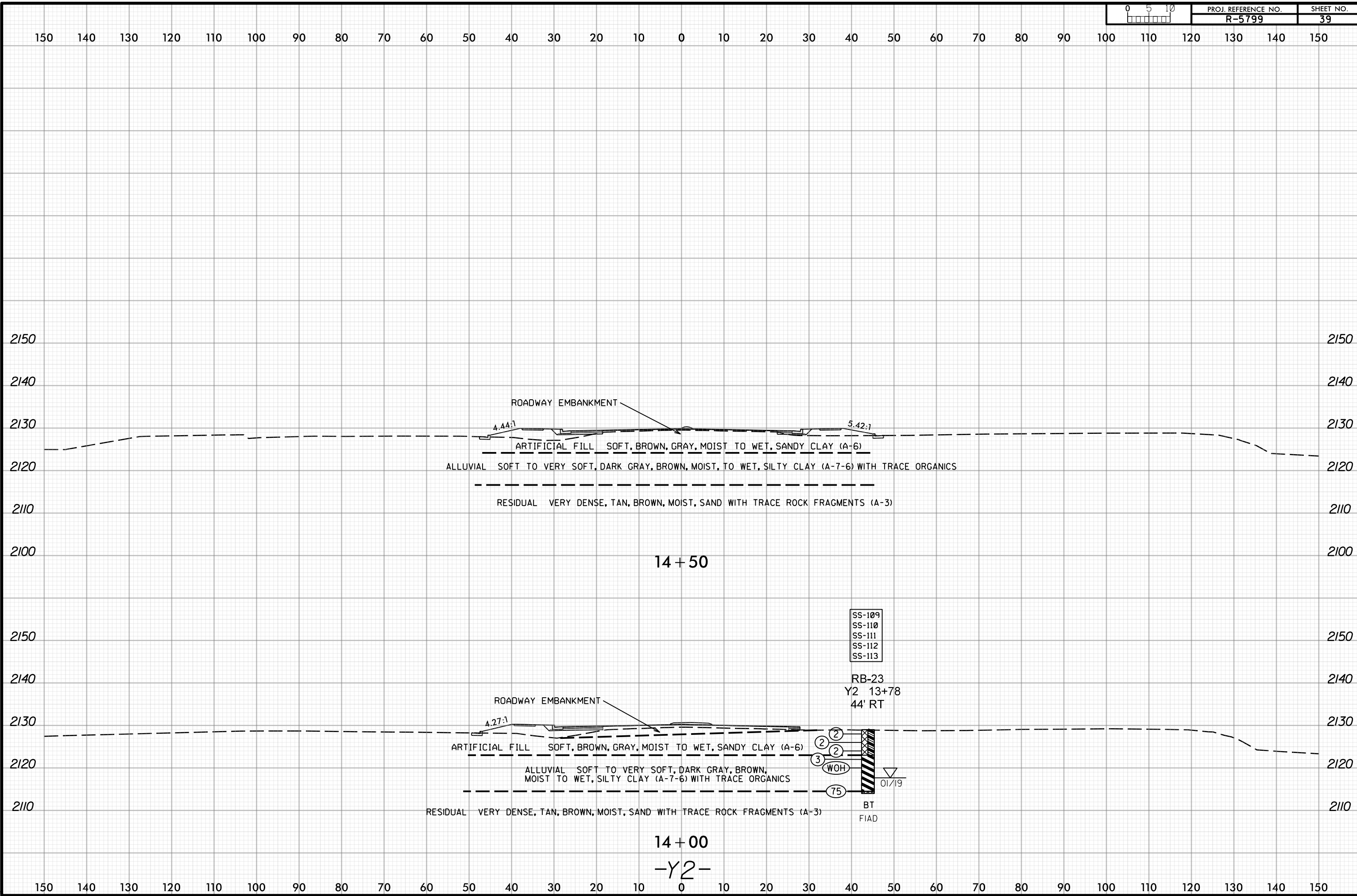


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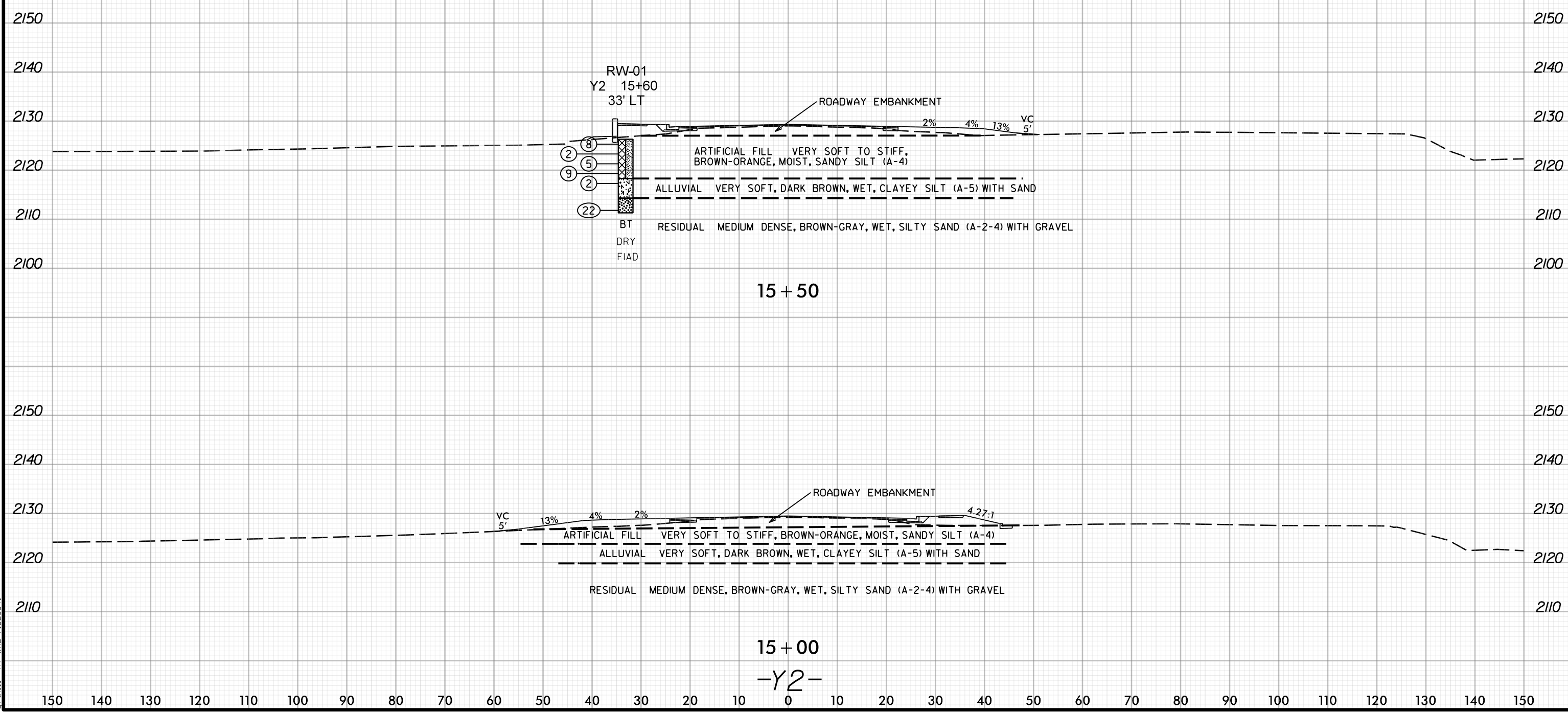


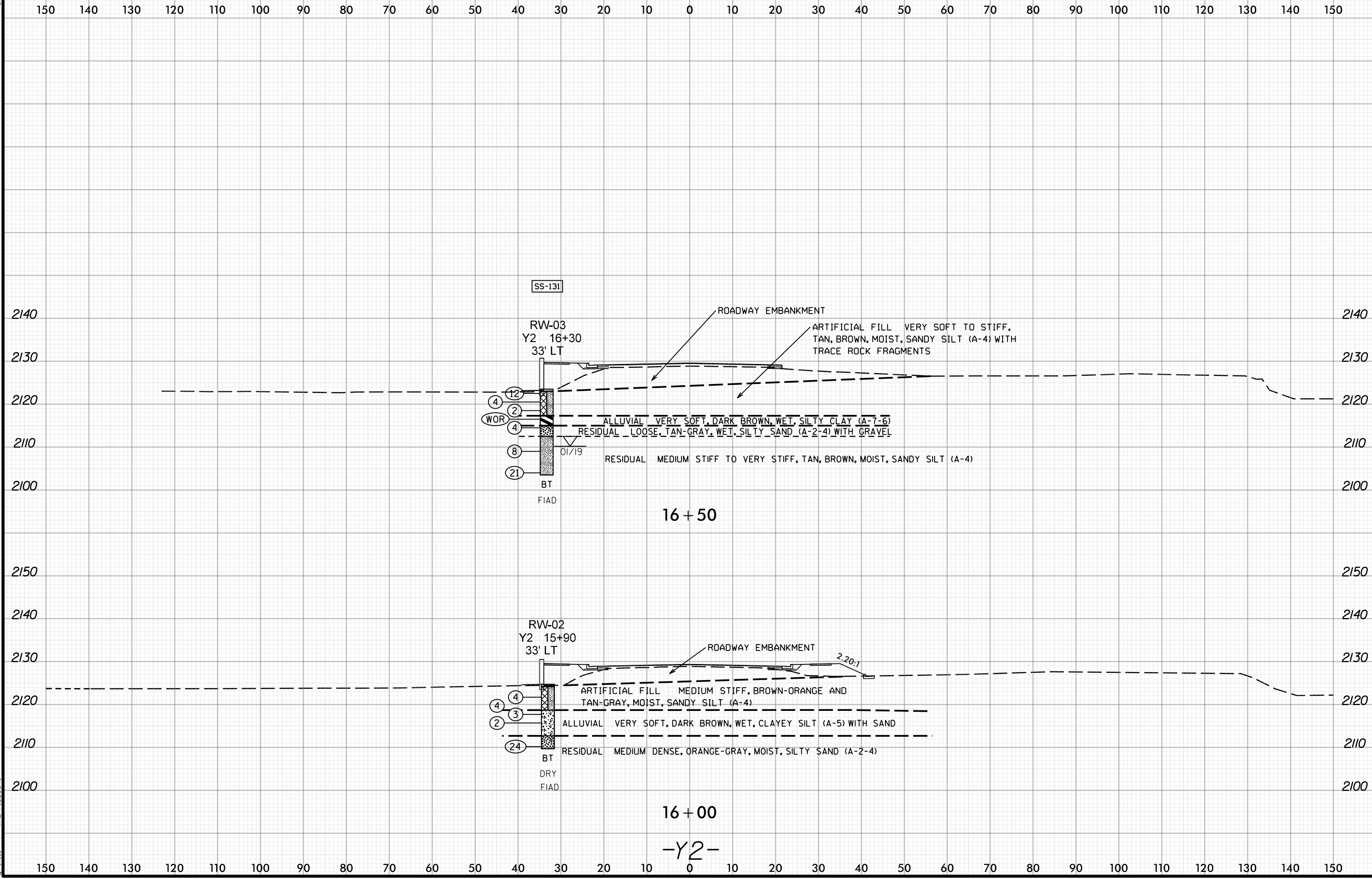




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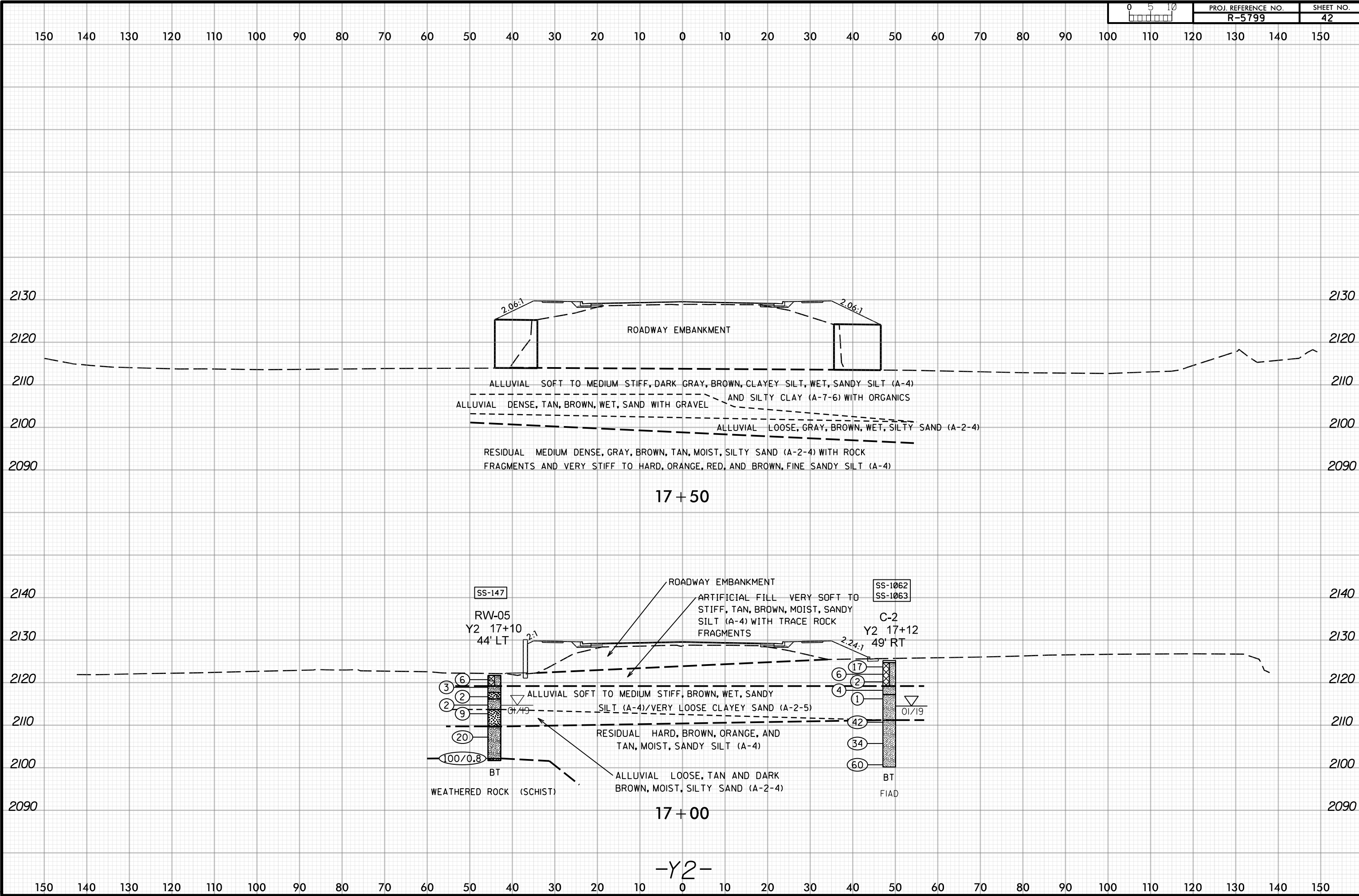


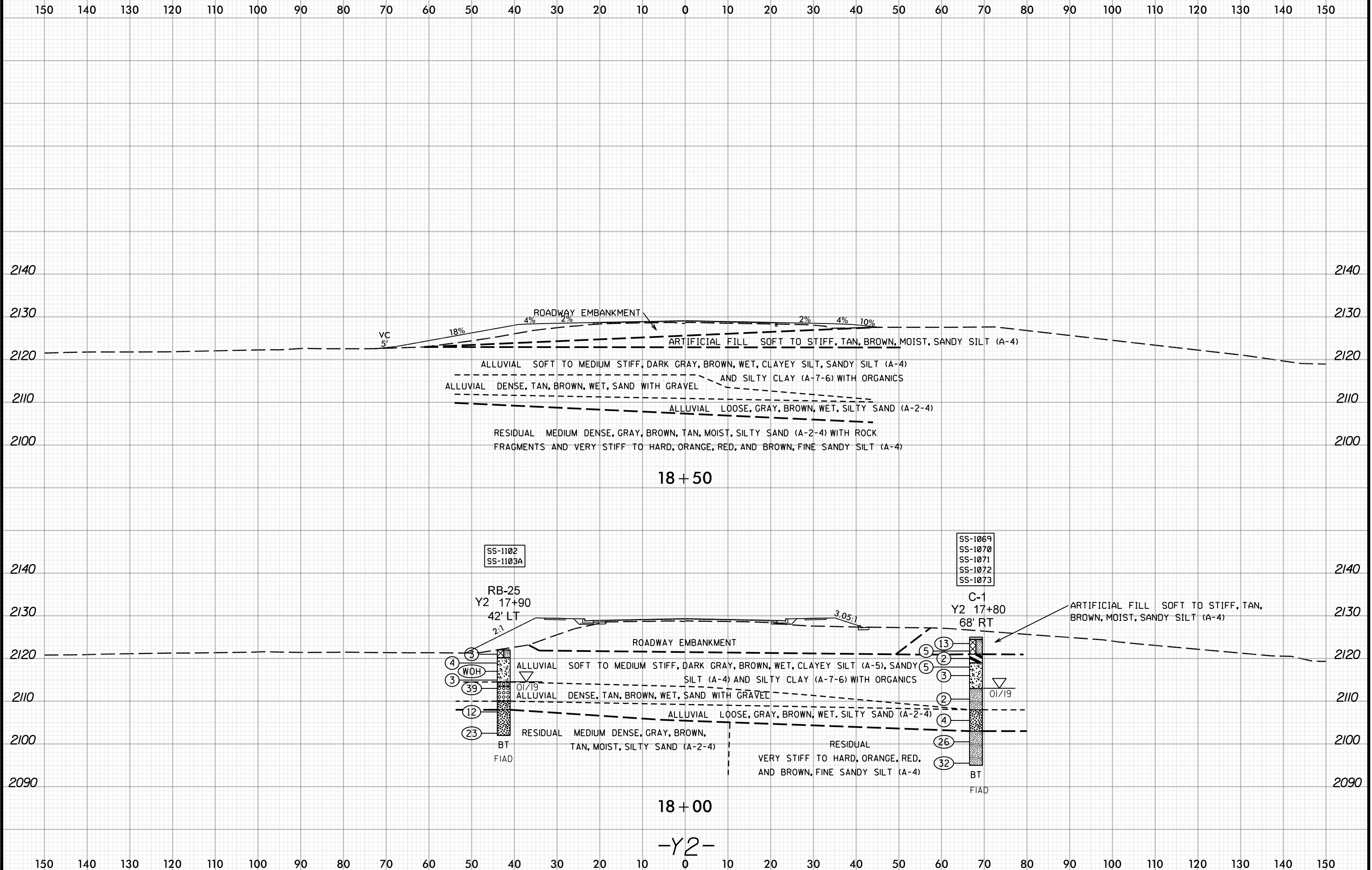
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16 + 50

16 + 00

-Y2-



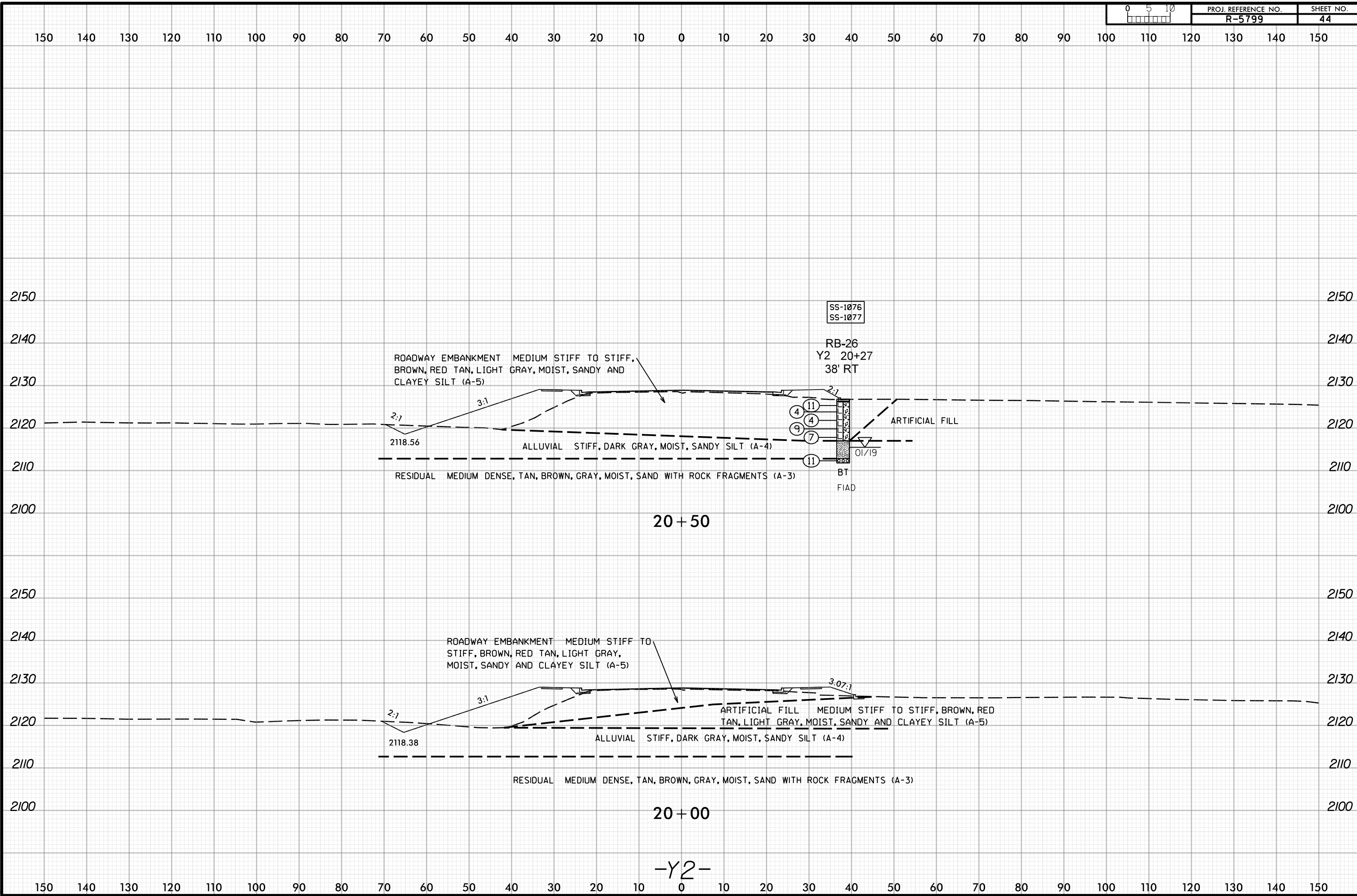


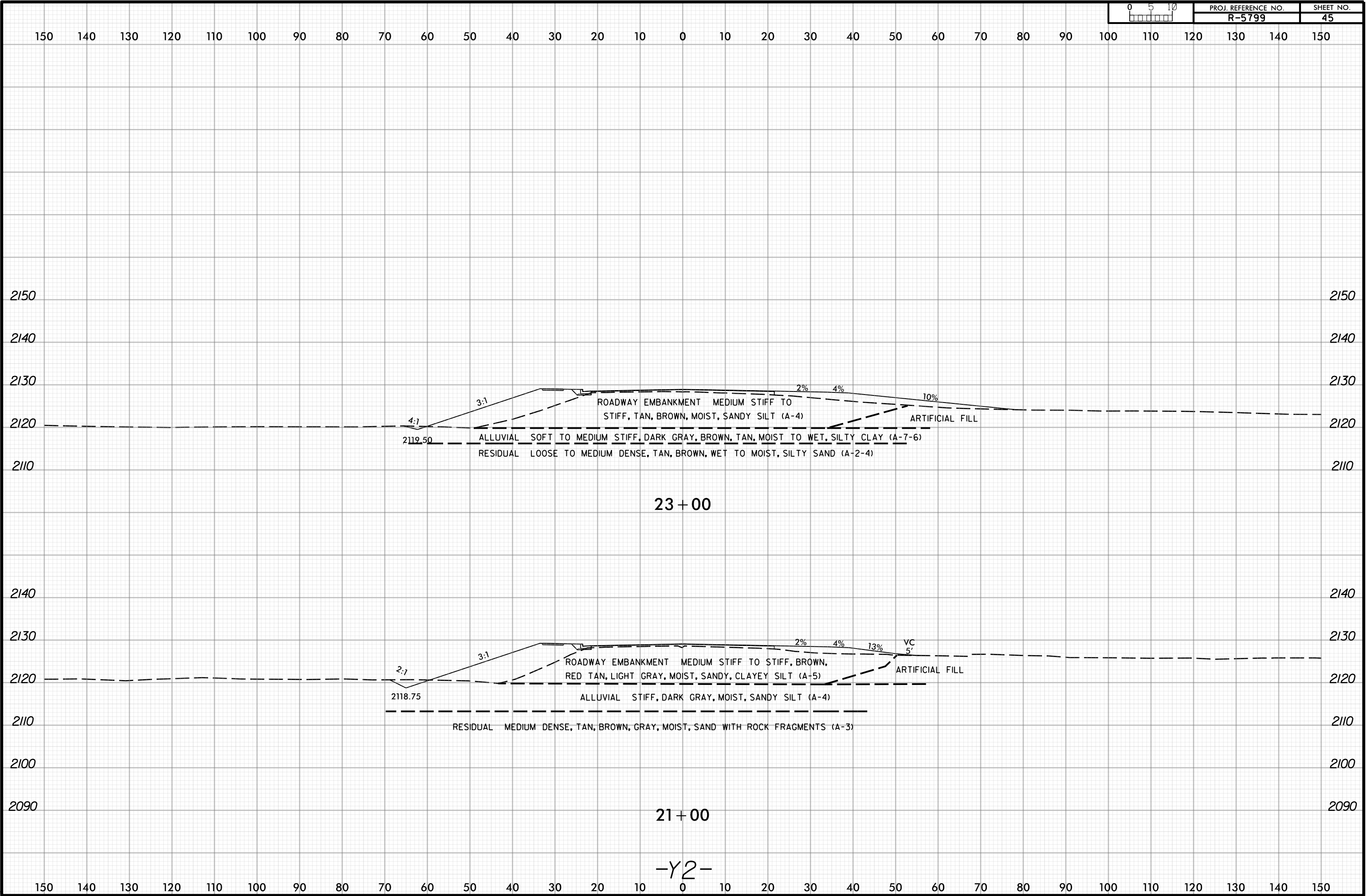
18 + 50

18 + 00

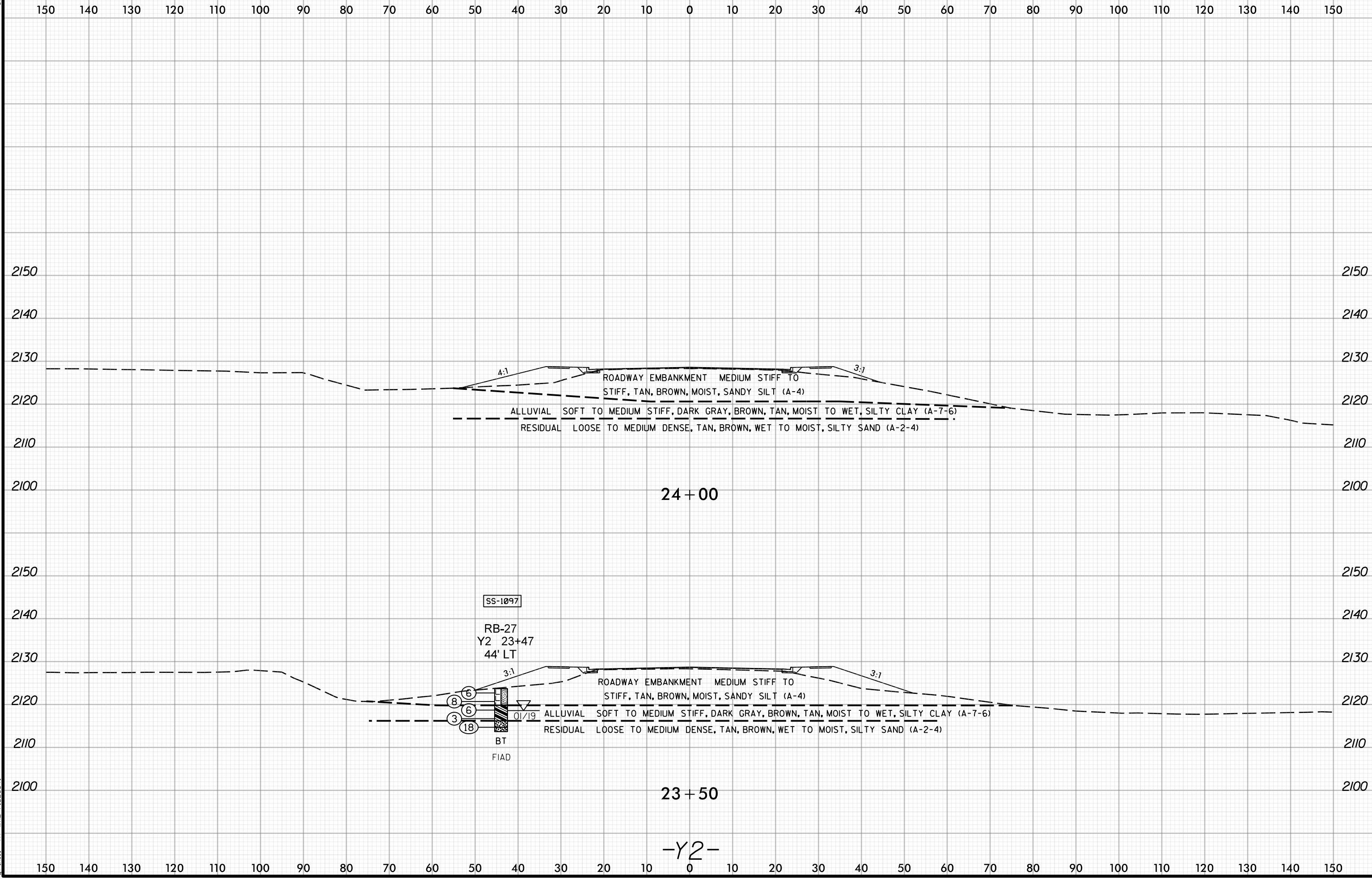
-Y2-

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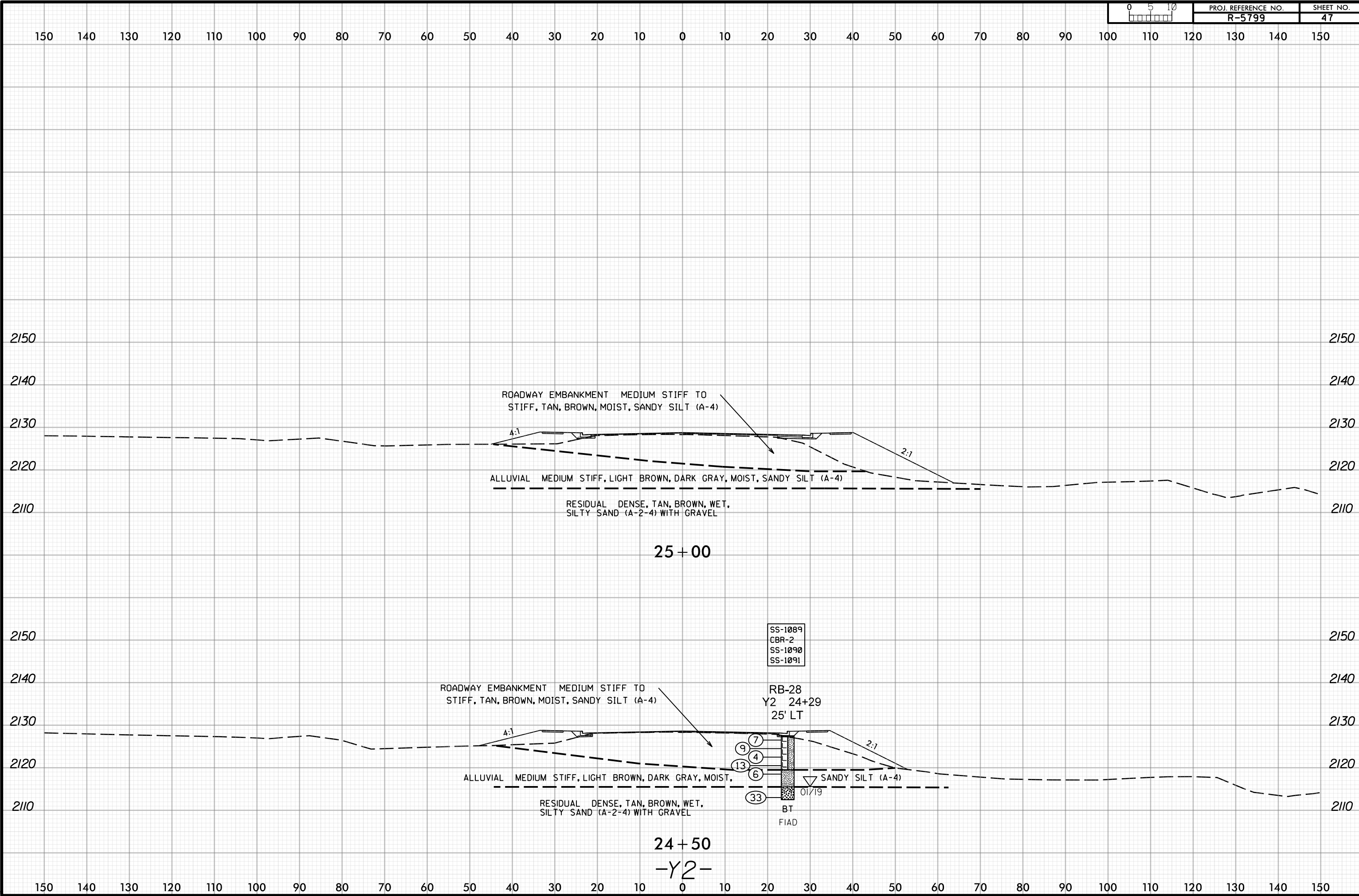


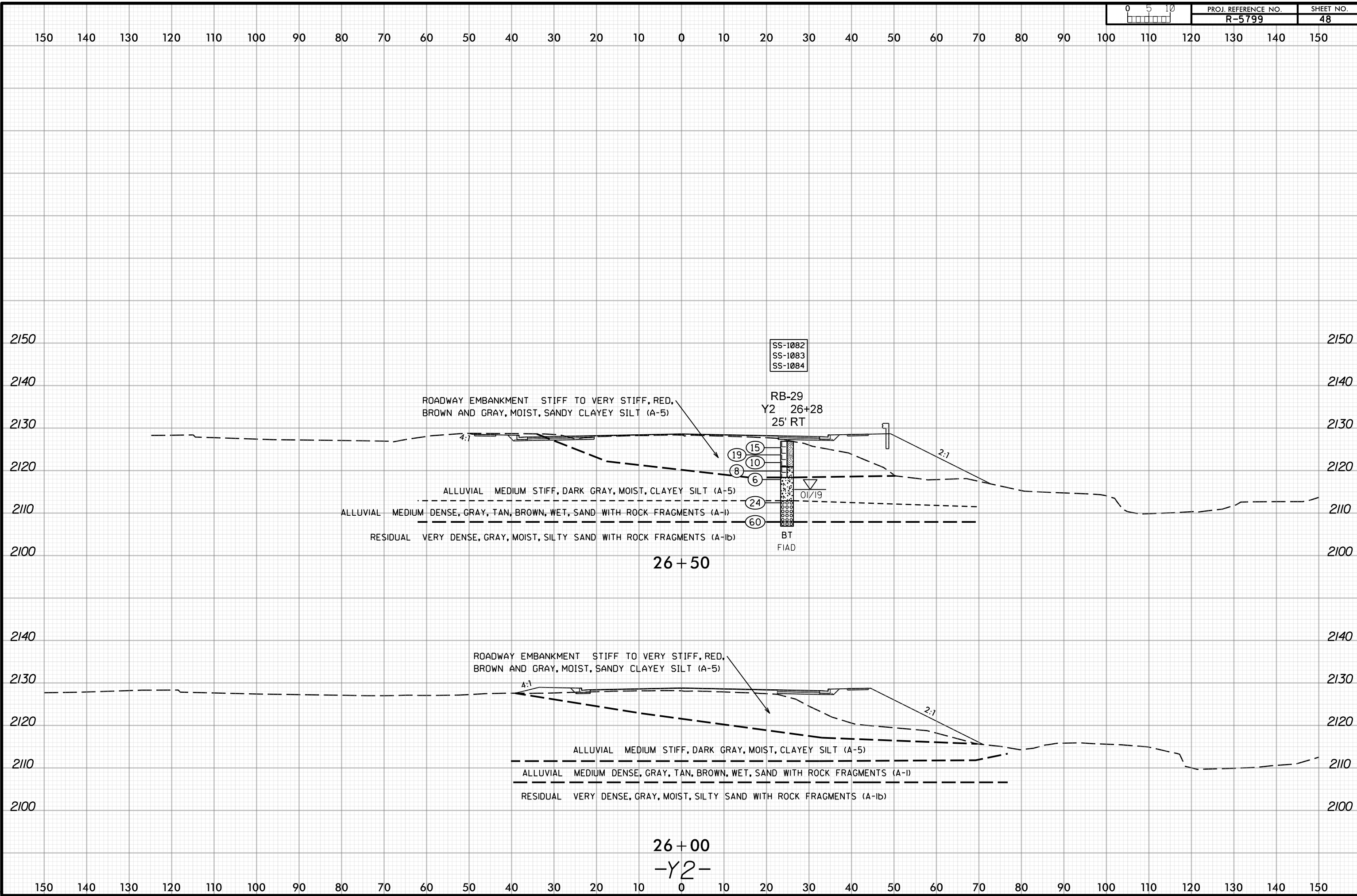
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24+00

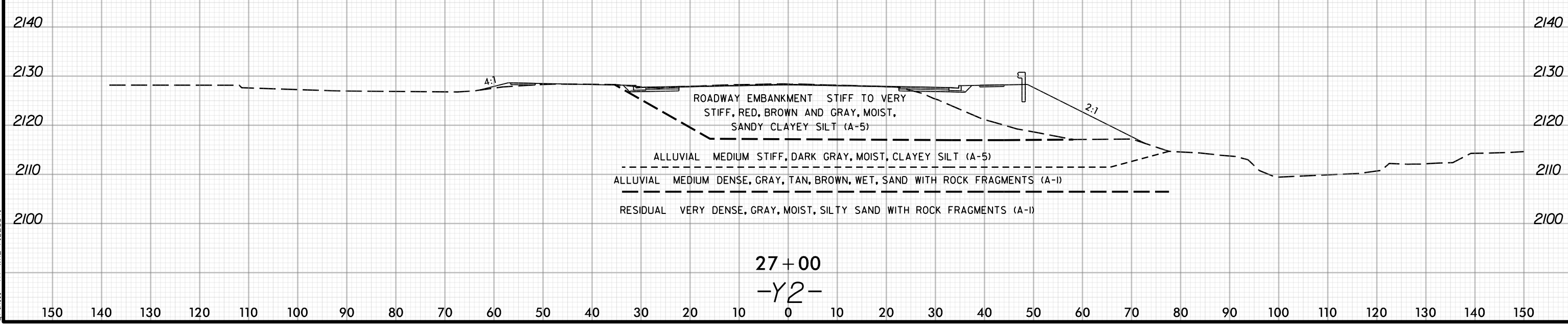
23+50

-Y2-



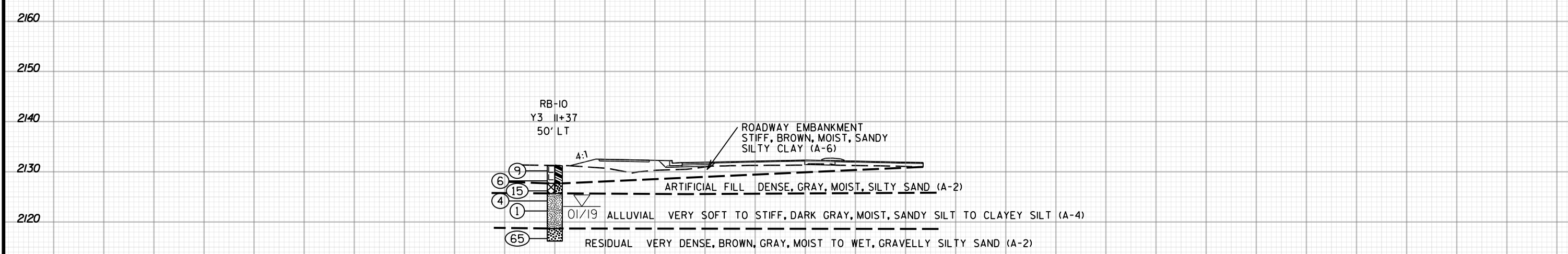
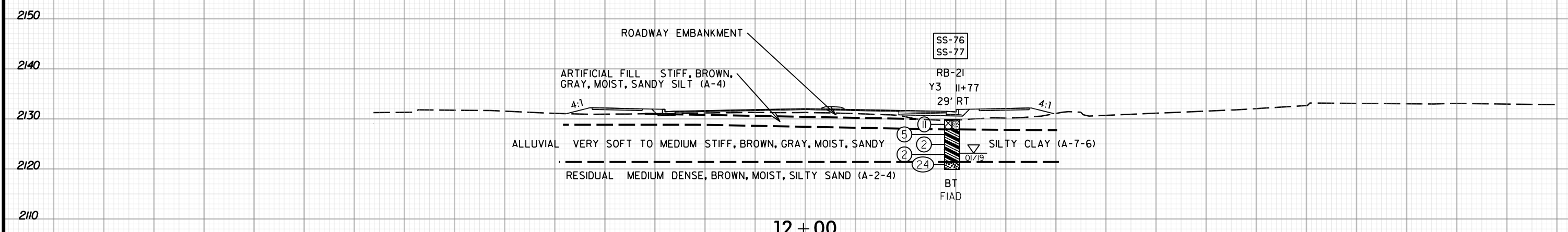


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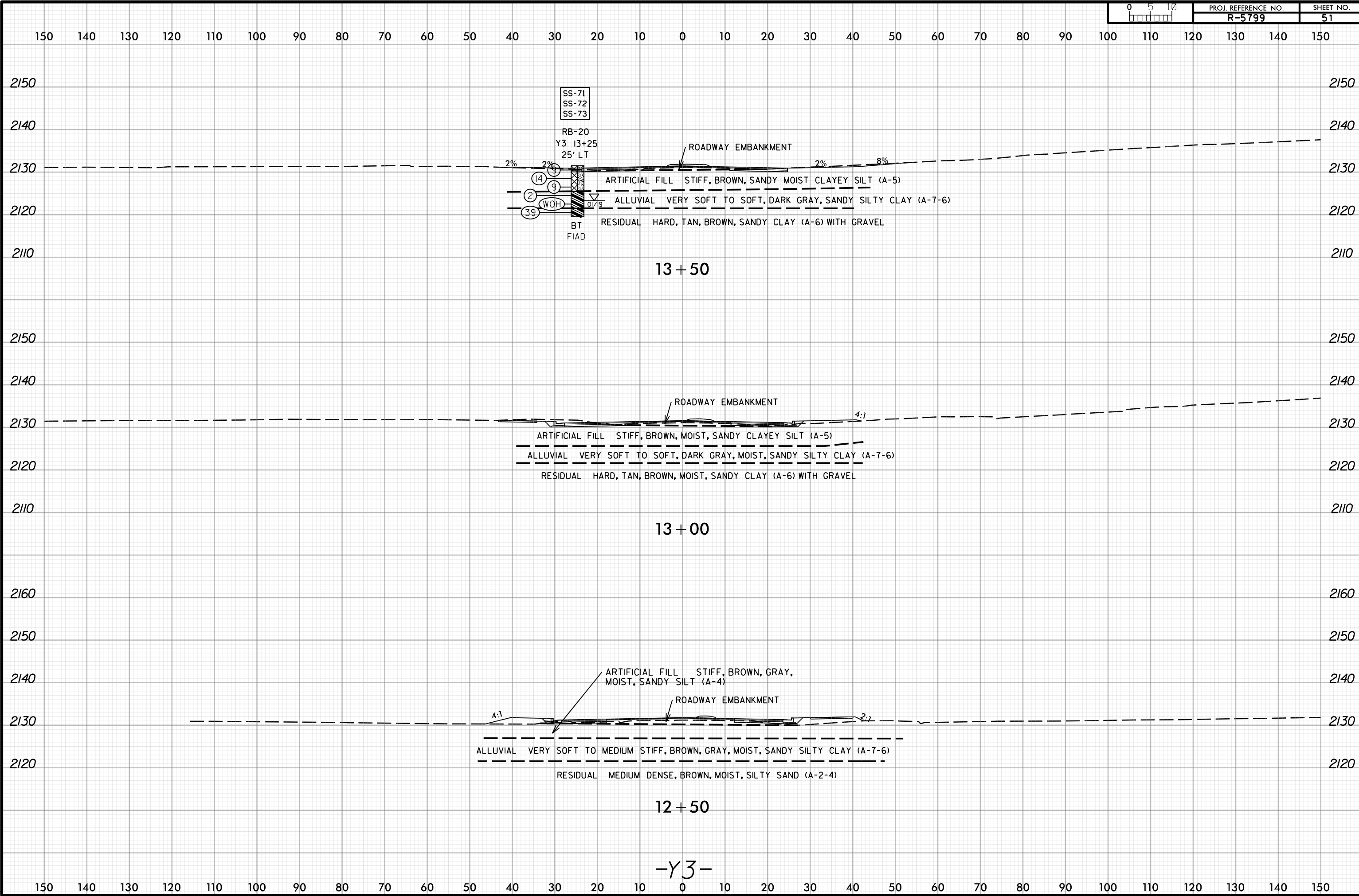
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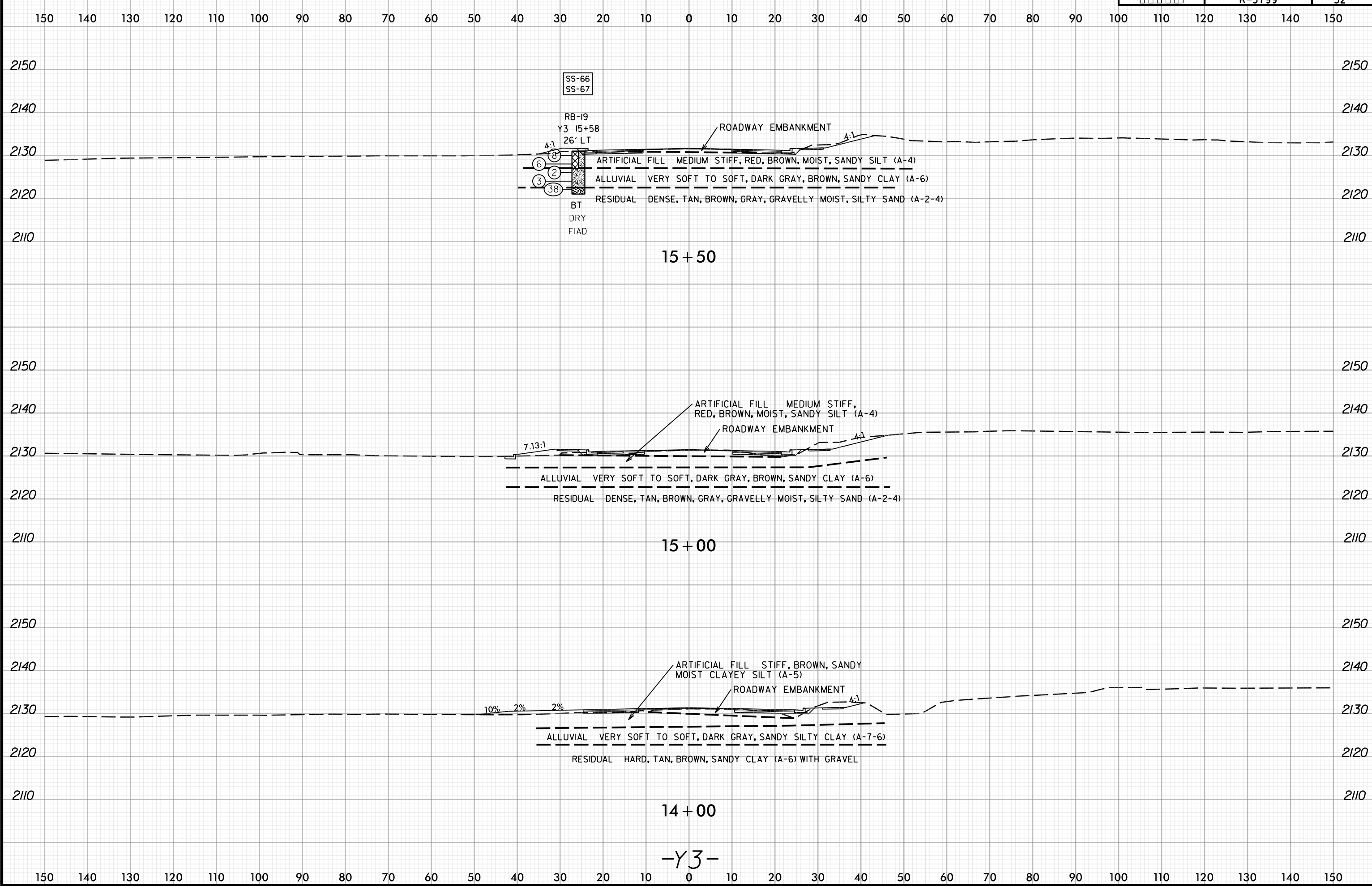


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SS-66
SS-67

RB-19
Y3 15+58
26' LT

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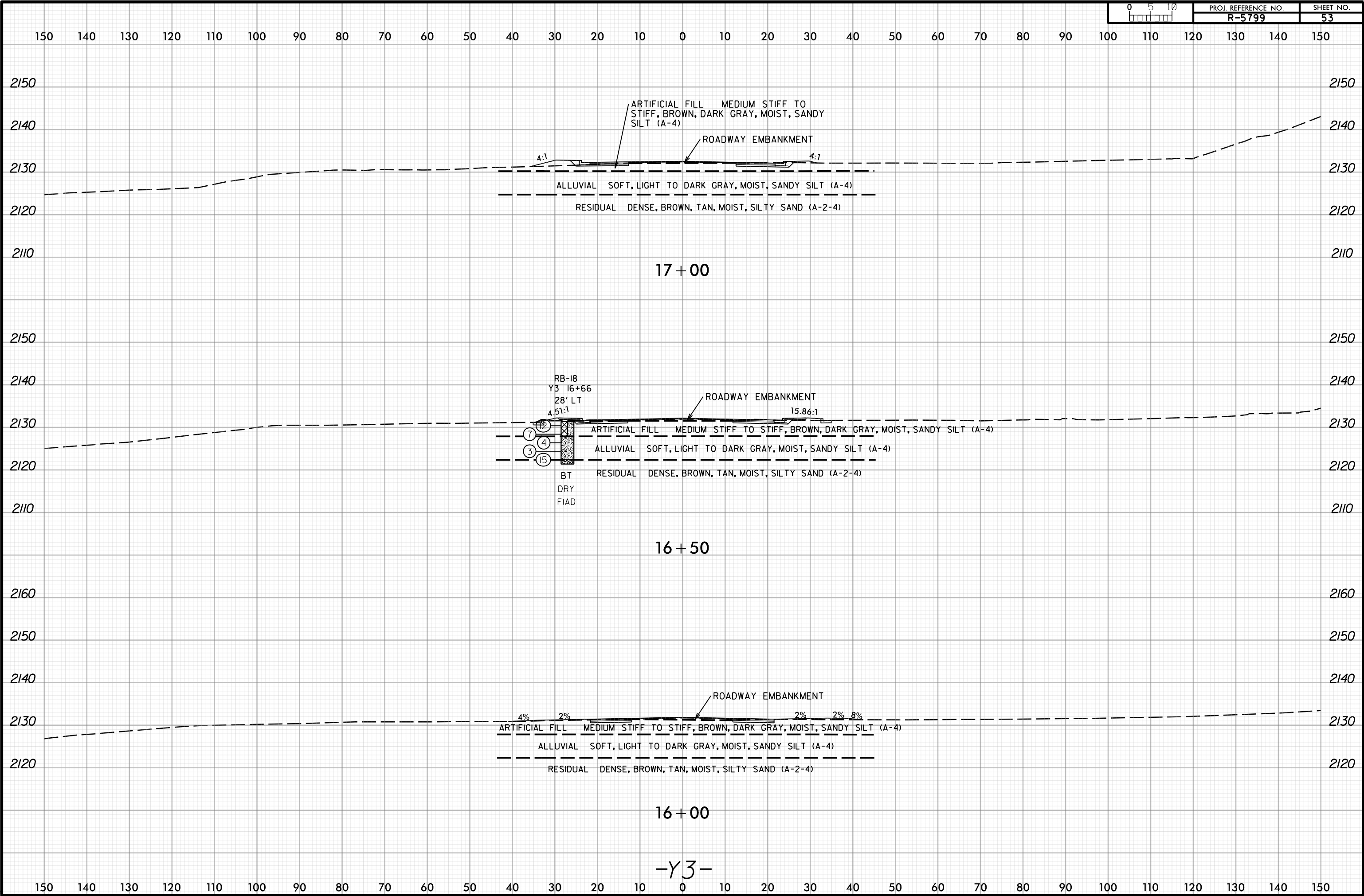
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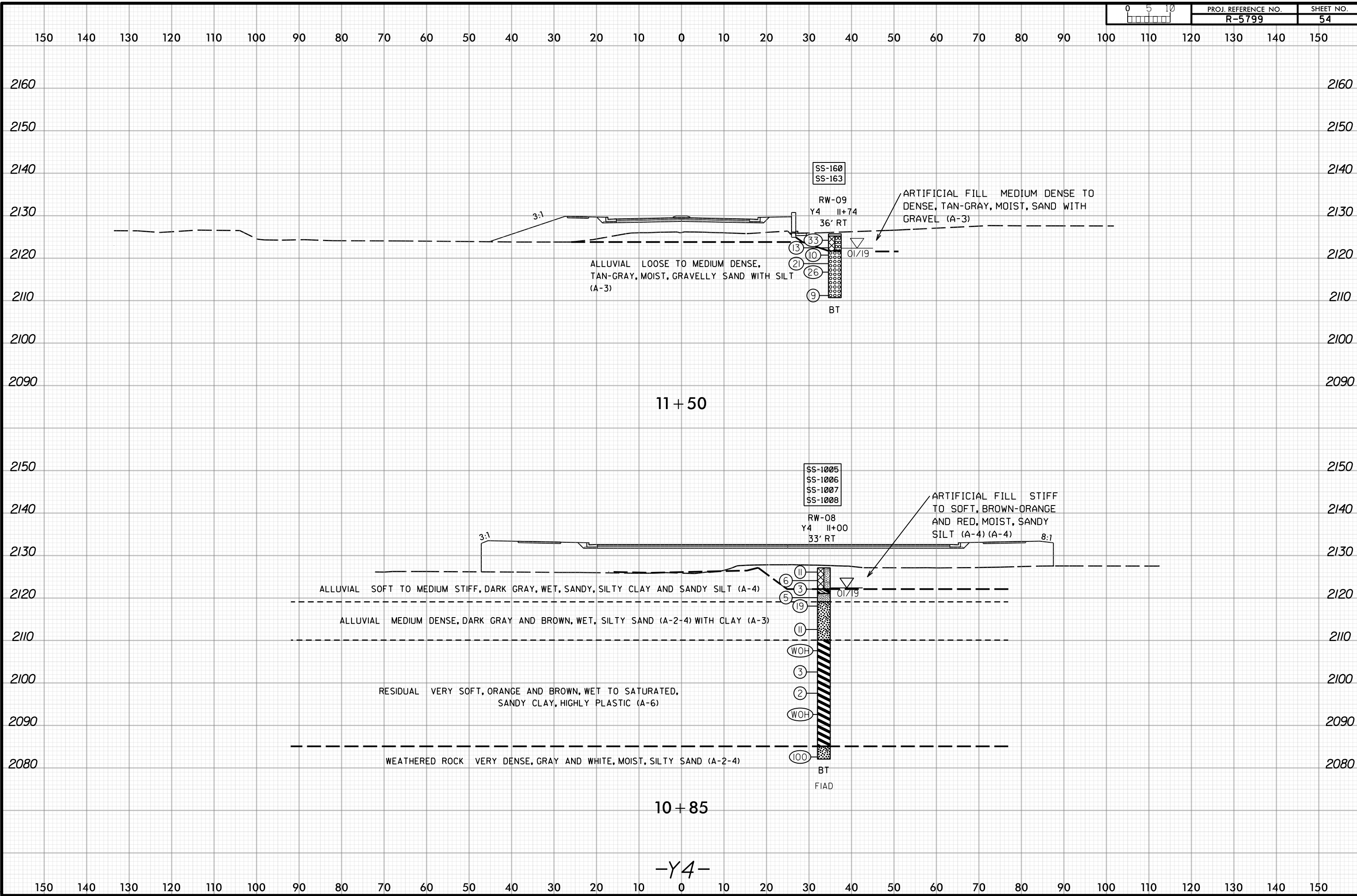
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15 + 00

14 + 00

-Y3-



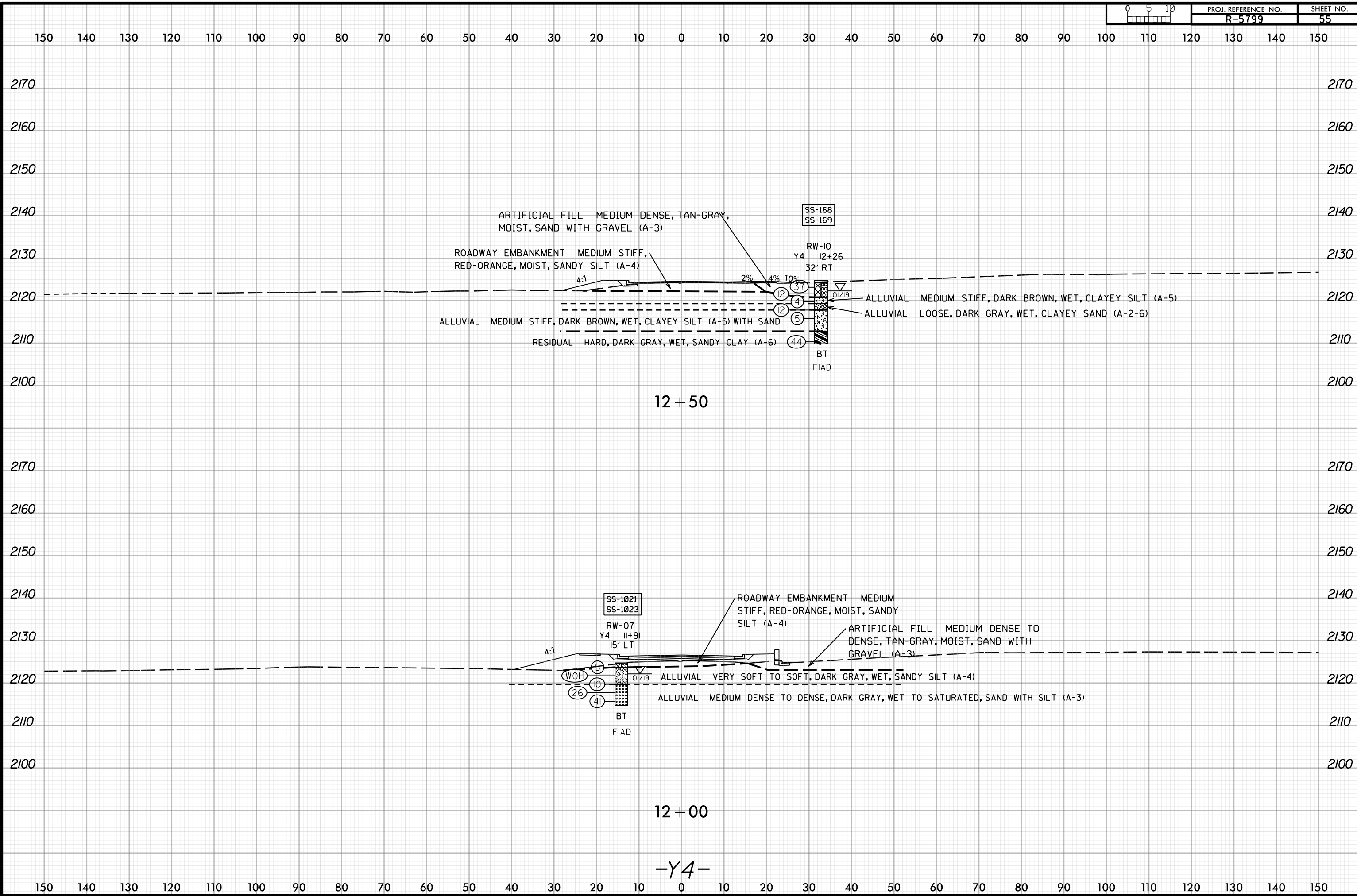


11 + 50

10 + 85

-Y4-

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ALLUVIAL LOOSE, DARK GRAY, WET, CLAYEY SAND (A-2-6)

ROADWAY EMBANKMENT

4:1

ALLUVIAL MEDIUM STIFF, DARK BROWN, WET, CLAYEY SILT (A-5)

ALLUVIAL MEDIUM STIFF, DARK BROWN, WET, CLAYEY SILT (A-5) WITH SAND

RESIDUAL HARD, DARK GRAY, WET, SANDY CLAY (A-6)

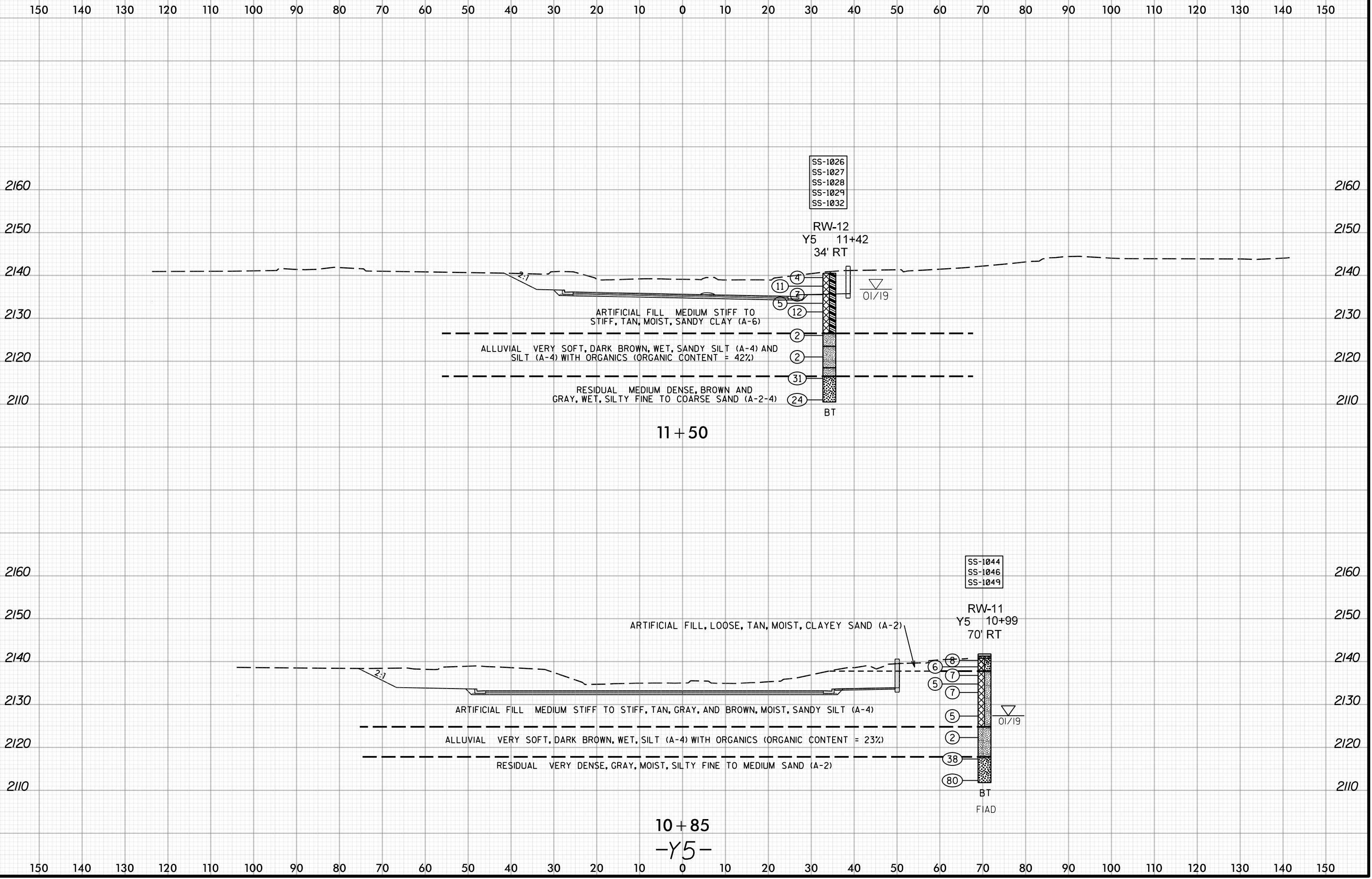
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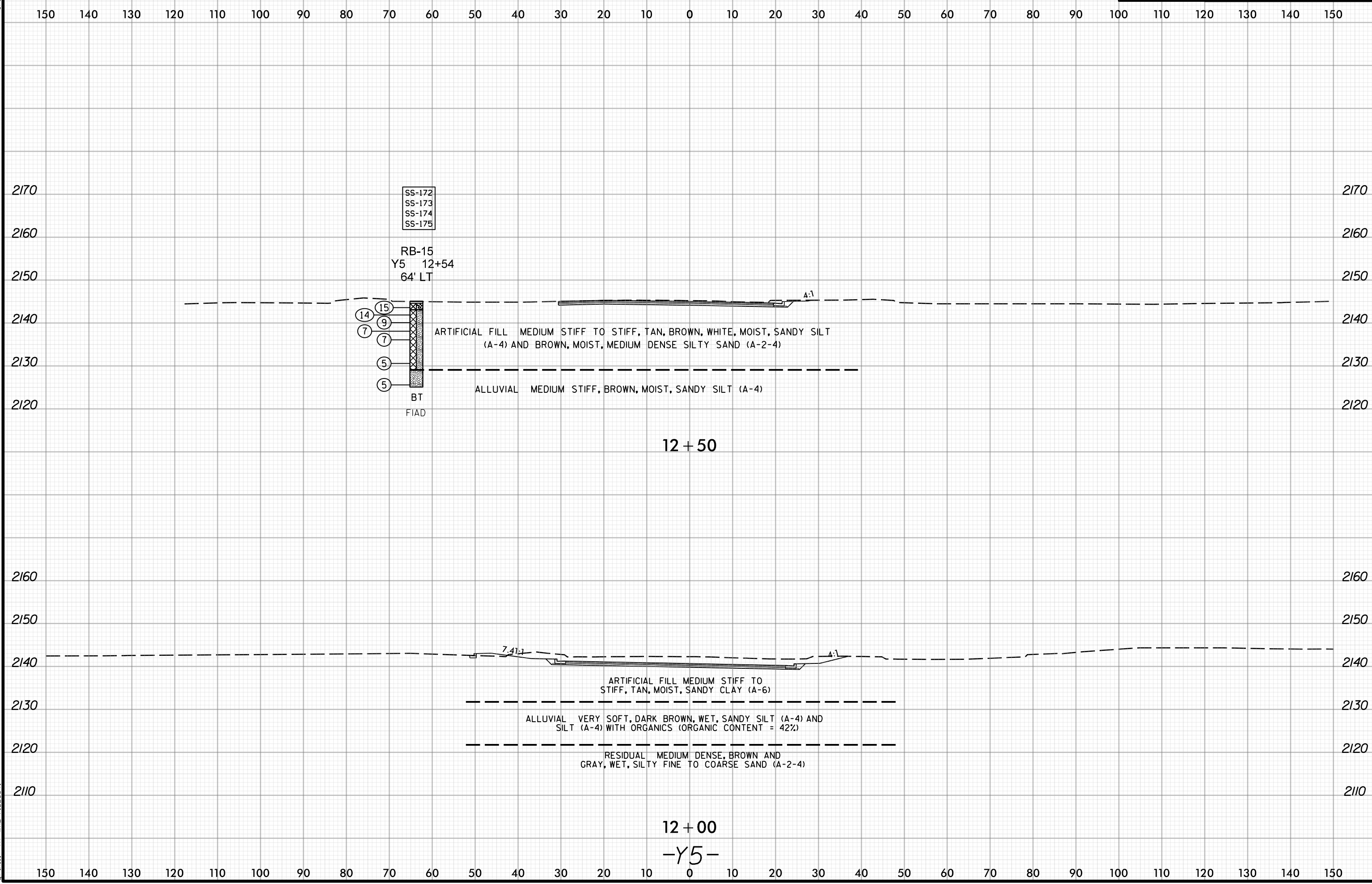
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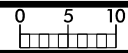
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ARTIFICIAL FILL MEDIUM STIFF TO STIFF, TAN, BROWN, WHITE, MOIST, SANDY SILT (A-4) AND BROWN, MOIST, MEDIUM DENSE SILTY SAND (A-2-4)

ALLUVIAL MEDIUM STIFF, BROWN, MOIST, SANDY SILT (A-4)

4:1

12+75
-Y5-

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
APPENDIX A
SUMMARY OF LABORATORY TESTING

REFERENCE: R-5799

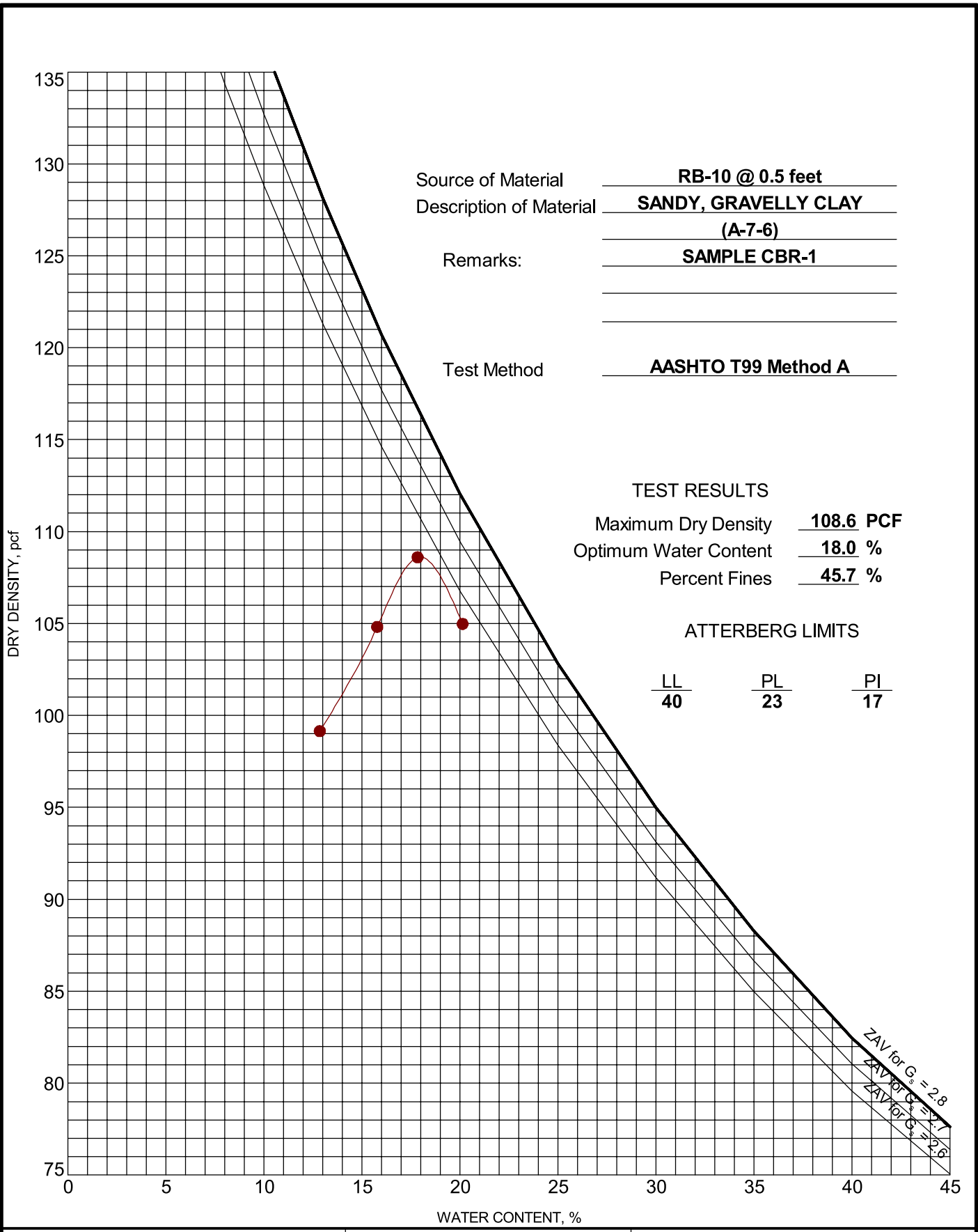
PROJECT: 44984

Prepared in the Office of:

Terracon
Consulting Engineers and Scientists

2701 WESTPORT ROAD
CHARLOTTE, NORTH CAROLINA 28208
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTATION - V2, 71195003 R-5799 - CBR AND PROCTOR.GPJ TERRACON_DATATEMPLATE.GDT, 3/22/19

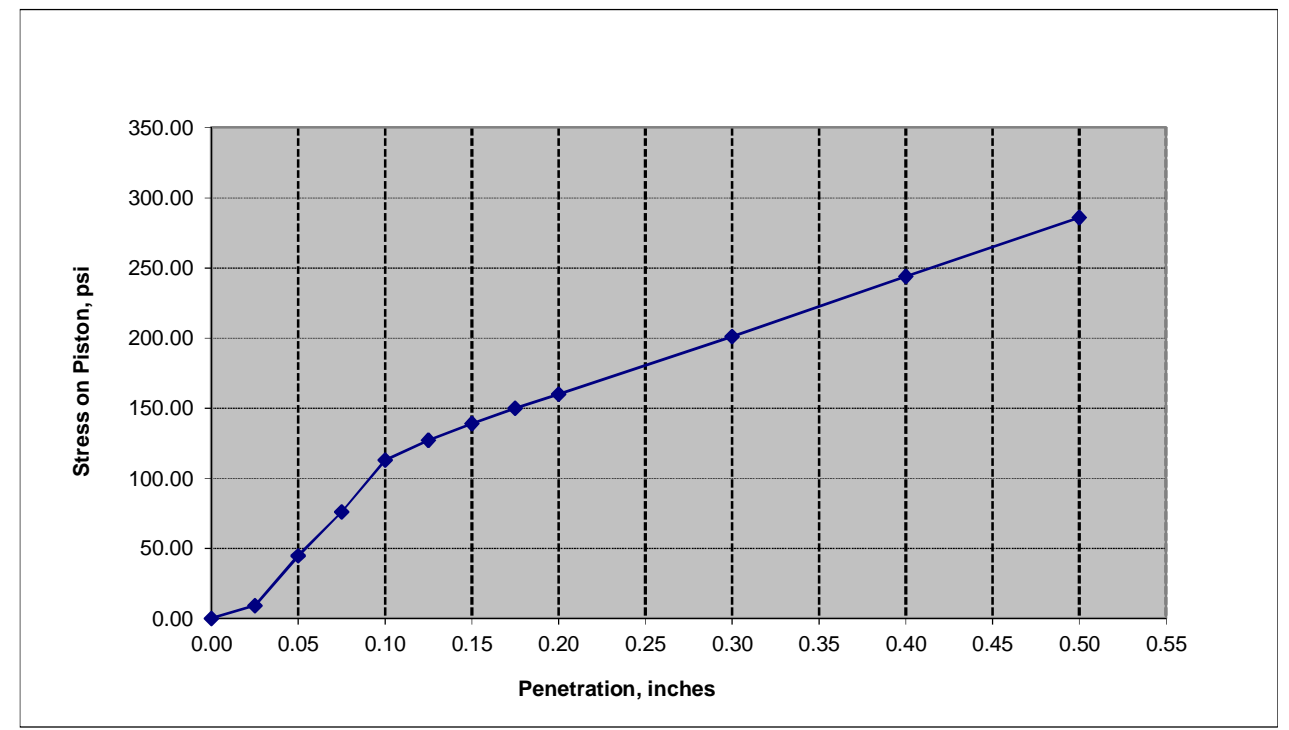


Source of Material: RB-10 @ 0.5 feet
 Description of Material: SANDY, GRAVELLY CLAY (A-7-6)
 Remarks: SAMPLE CBR-1
 Test Method: AASHTO T99 Method A

California Bearing Ratio (CBR) Test

Project: R-5799 (US64 at NC280 Intersection Design) Project No.: 71195003
 Sample: RB-10 (-L- STA. 22+12, 99' LT) Date: 3/21/2019
 Client: RS&H Engineer: J. Manke
 Sample Description: Sandy, Gravelly Clay (A-7-6) Soaked

LAB ID#: CBR-1 (0.5 to 2 feet)

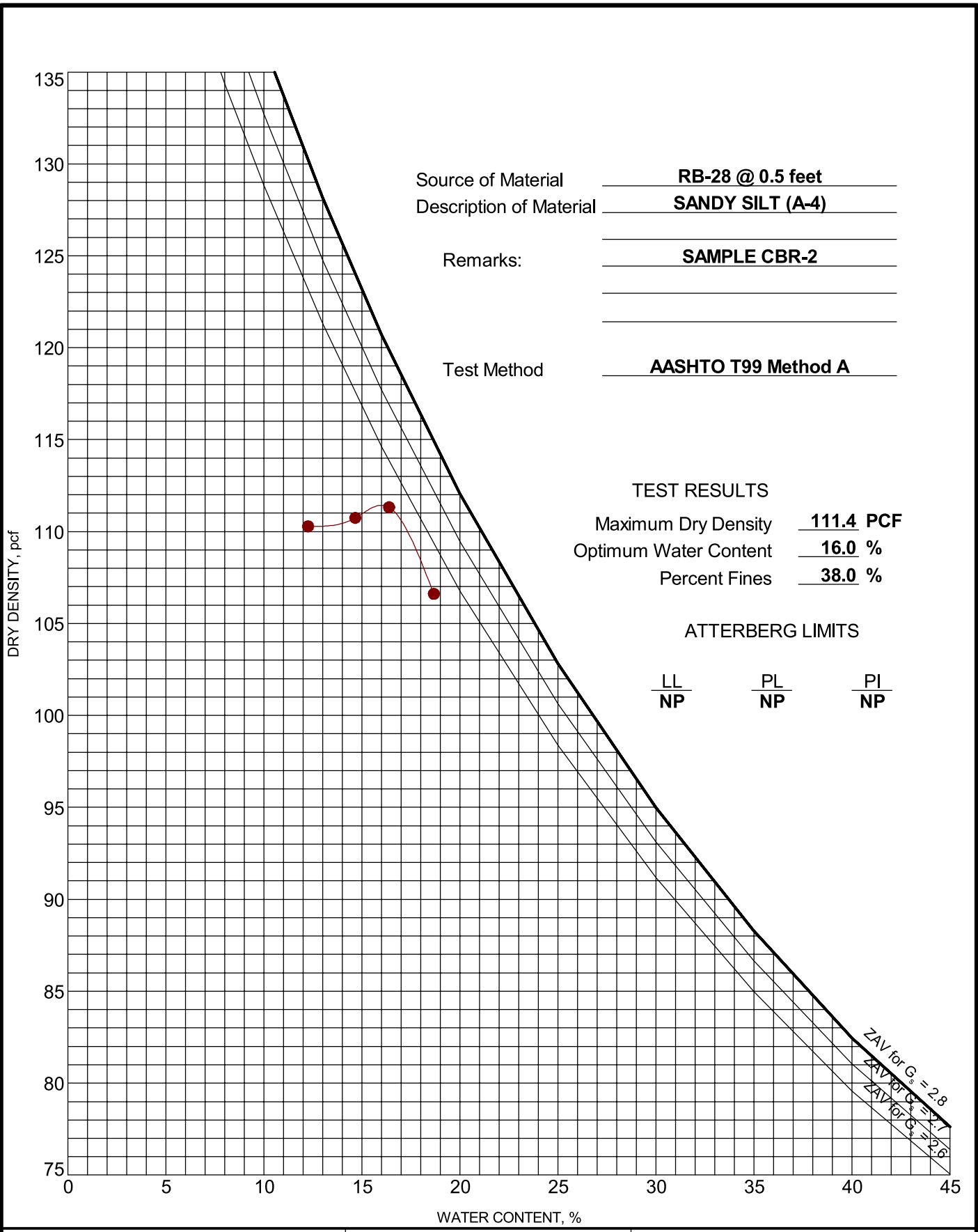


Sample No.	1
Maximum Dry Density, (pcf)	108.6
Optimum Moisture Content, (%)	18.0
Dry Density before Soaking, (pcf)	106.8
Degree of Compaction, (%)	98.3
Dry Density after Soaking, (pcf)	102.4
Moisture Content, (%)	
Before Compaction	17.5
After Compaction	17.7
Top 1" After Soaking	25.5
Average After Soaking	-
Surcharge, (lbs)	10
Swell, (%)	0.49
Bearing Ratio (%)	11.3
Corrected Bearing Ratio, (%)	12.9

PROJECT: R-5799	 2701 Westport Rd Charlotte, NC	PROJECT NUMBER: 71195003
SITE: US64 NC280 Intersection Design PISGAH FOREST, NC		CLIENT: RS&H ARCHITECTS-ENGINEERS-PLANNERS, INC. CHARLOTTE, NC
		EXHIBIT: B-1

EXHIBIT B-2

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2, 71195003 R-5799 - CBR AND PROCTOR.GPJ TERRACON_DATATEMPLATE.GDT, 3/22/19

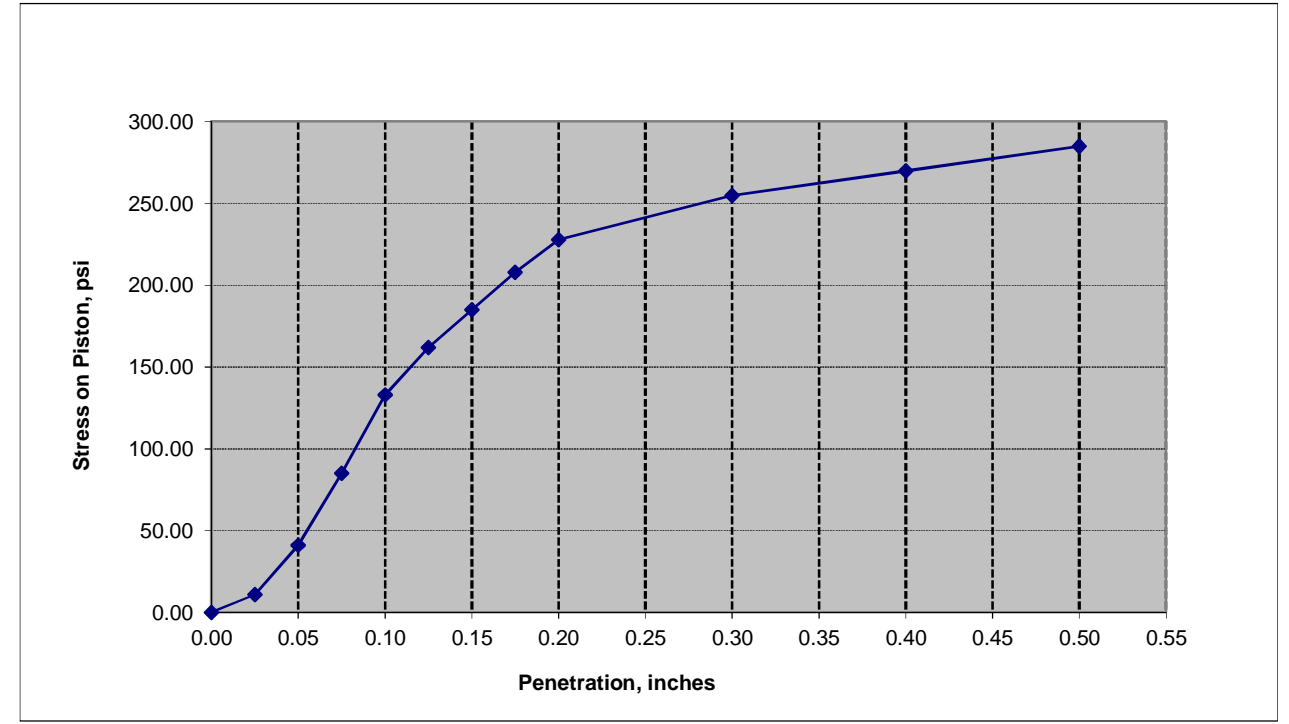


PROJECT: R-5799	 2701 Westport Rd Charlotte, NC	PROJECT NUMBER: 71195003
SITE: US64 NC280 Intersection Design PISGAH FOREST, NC		CLIENT: RS&H ARCHITECTS-ENGINEERS-PLANNERS, INC. CHARLOTTE, NC
		EXHIBIT: B-3

California Bearing Ratio (CBR) Test

Project:	<u>R-5799 (US64 at NC280 Intersection Design)</u>	Project No.:	<u>71195003</u>
Sample:	<u>RB-28 (-Y2- STA. 24+29, 25' RT)</u>	Date:	<u>3/21/2019</u>
Client:	<u>RS&H</u>	Engineer:	<u>J. Manke</u>
Sample Description:	<u>Sandy Silt (A-4)</u>		<u>Soaked</u>

LAB ID#: CBR-2 (0.5 to 2 feet)



Sample No.	CBR-2
Maximum Dry Density, (pcf)	111.4
Optimum Moisture Content, (%)	16.0
Dry Density before Soaking, (pcf)	111.9
Degree of Compaction, (%)	100.4
Dry Density after Soaking, (pcf)	118.0
Moisture Content, (%)	
Before Compaction	16.0
After Compaction	15.1
Top 1" After Soaking	17.5
Average After Soaking	-
Surcharge, (lbs)	10
Swell, (%)	0.04
Bearing Ratio (%)	13.3
Corrected Bearing Ratio, (%)	16.5

EXHIBIT B-4

