

REFERENCE: I-2513AA/AB

PROJECT: 34165

SEE SHEET 2A 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 BUNCOMBE
PROJECT DESCRIPTION I-40 FROM EAST OF SR 1224
(MONTE VISTA RD) TO PAVEMENT JOINT WEST OF
SR 3412 (SAND HILL RD). I-26 FROM POND ROAD
BRIDGE TO I-26/I-40/I-240 INTERCHANGE. INCLUDES
INITIAL IMPROVEMENTS AT I-40EB TO I-26EB
RAMP AND US19 /23 (SMOKEY PARK HIGHWAY)

INVENTORY

CONTENTS

<u>LINE</u>	<u>STATION</u>	<u>PLAN</u>	<u>PROFILE</u>
-L1.WB-	37+50 TO 67+00	11-13	N/A
-L1.EB-	37+00 TO 66+50	11-13	N/A
-Y.LT-	18+76 TO 92+44	4-9	N/A
-Y.RT-	18+76 TO 92+44	4-9	N/A
-Y.WB-	10+44 TO 19+00	9-10	N/A
-Y.EB-	10+44 TO 15+50	9-10	N/A
-Y5RPA-	25+00 TO 27+50	6-7	N/A
-RPC-	10+00 TO 39+50	10-12	N/A

CROSS SECTIONS

<u>LINE</u>	<u>STATION</u>	<u>SHEETS</u>
-L1.EB-	38+00 TO 66+00	16-30
-Y.LT-	39+50 TO 92+00	31-53
-Y.RT-	50+00 TO 92+00	54-70
-Y.WB-	10+50 TO 18+00	71-77
-Y.EB-	10+50 TO 13+50	78-81
-Y5RPA-	25+00 TO 27+00	82-84
-RPC-	22+00 TO 39+50	85-98

APPENDICES

<u>APPENDIX</u>	<u>TITLE</u>	<u>SHEETS</u>
A	BORE LOGS	99-114
B	LABORATORY TEST RESULTS	115-120

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2513AA/AB	1	123

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

A. BLACKMORE

A. SUTTLE, P.G.

M&W DRILLING

INVESTIGATED BY ECS SOUTHEAST, LLP

DRAWN BY K. DE MONTBRUN, P.E.

CHECKED BY M. WALKO, P.E.

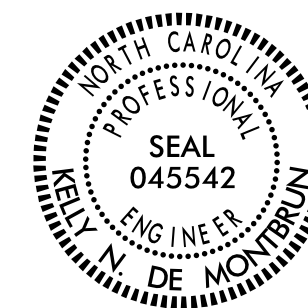
SUBMITTED BY ECS SOUTHEAST, LLP

DATE AUGUST 2022

Prepared in the Office of:



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1812 CENTER PARK DRIVE, SUITE D
CHARLOTTE, NC 28217
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NC REGISTERED
ENGINEERING
FIRM # F-1078



DocuSigned by:

Kelly de Montbrun 8/26/2022

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SIGNATURE

DATE

**DOCUMENT NOT CONSIDERED FINAL
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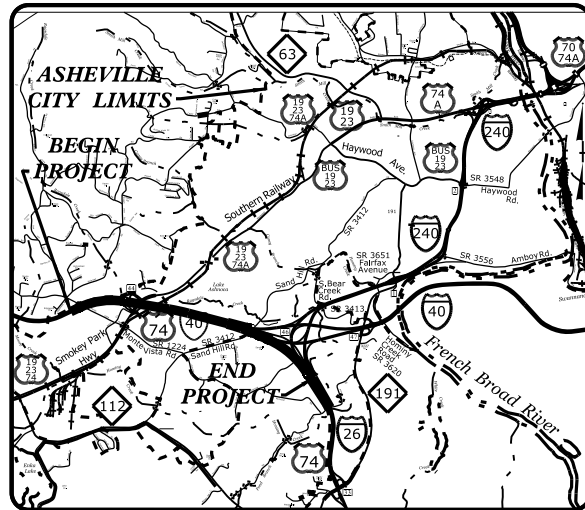
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

Table with 4 main columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, and TERMS AND DEFINITIONS. Includes sub-sections like 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, and INDURATION.

26-AUG-2022 10:34
 C:\Users\jbrun\OneDrive - ECS Corporate Services\31\Projects 3000 - 4999\31-4100-31-4137 I-253A I-26, Pursuit\CADD_GEO\TECH\Plan\Prof\I-253AA_rdy_geo_tsh_inv.dgn
 09/08/2022
CONTRACT:

TIP PROJECT: I-2513AA/AB

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



VICINITY MAP

25% REVISED ROADWAY PLANS
JANUARY 13, 2022

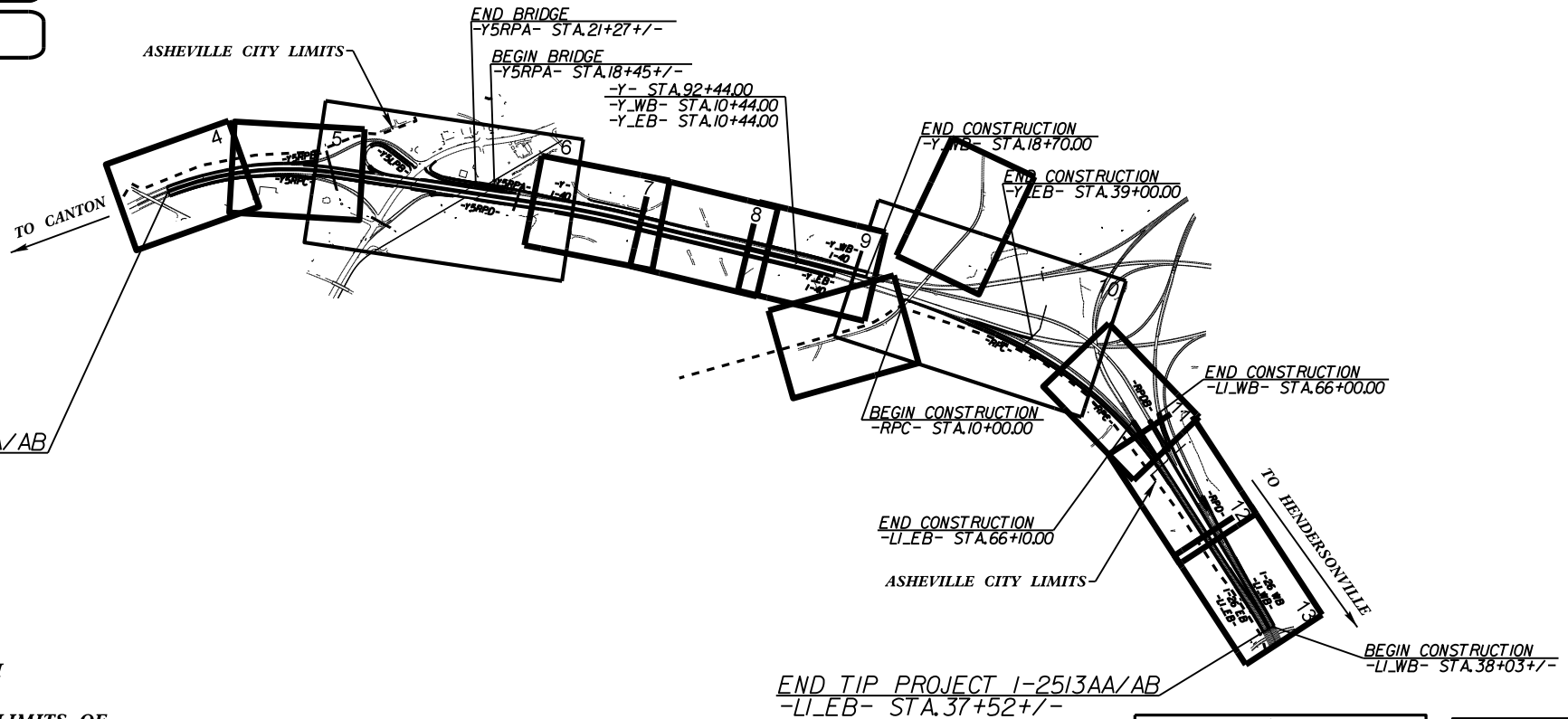
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

**LOCATION: I-40 FROM MONTE VISTA ROAD TO WEST OF SAND HILL RD.
I-26 FROM POND ROAD BRIDGE TO I-26/I-40/I-240 INTERCHANGE.
INCLUDES INITIAL IMPROVEMENTS AT I-40EB TO I-26EB RAMP
AND US 1923 (SMOKEY PARK HIGHWAY)**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING,
STRUCTURES, CULVERTS, RETAINING WALLS,
SOUND WALLS, SIGNALS, AND SIGNING**

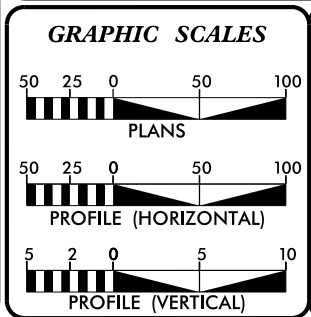
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2513AA/AB	2A	123
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34165.1.6		P.E., RW, UTIL	



THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES
THIS PROJECT IS LOCATED WITHIN THE CITY LIMITS OF THE CITY OF ASHEVILLE
CLEARING ON THIS PROJECT WILL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD

ETHERILL ENGINEERING
 1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 License No. P-0377
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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



DESIGN DATA

ADT 2024 =	95,100
ADT 2040 =	118,800
K =	9 %
D =	55 %
T =	11 % *
V =	60 MPH
* TTST =	8% DUAL 3%
FUNC CLASS =	INTERSTATE
STATEWIDE TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-2513AA/AB =	2.661 MI
TOTAL LENGTH TIP PROJECT I-2513AA/AB =	2.661 MI

KCI Associates of N.C., P.A.
 4505 Falls of Neuse Road, Suite 400
 Raleigh, NC 27609
 Phone (919) 783-9214
 Fax (919) 783-9266
2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 17, 2022

LETTING DATE:
FEBRUARY 20, 2024

CHARLES L. FLOWE, P.E.
PROJECT ENGINEER

BARRY C. SMITH, P.E.
PROJECT DESIGN ENGINEER

KEVIN E. MOORE, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.





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August 26, 2022

WBS NO:
TIP NO: I-2513AA/AB
F.A. NUMBER: N/A
COUNTY: Buncombe
DESCRIPTION: I-40 from East of SR 1224 (Monte Vista Rd.) to West of SR 3412 (Sand Hill Rd.) and I-26 from the Pond Road Bridge to the I-26/I-40/I-240 Interchange

SUBJECT: Geotechnical Report – Inventory

Project Description

The approximately 2.66-mile long project consists of realigning and widening portions of I-40 (-Y_LT-, -Y_RT-, -Y_EB-, -Y_WB-) from east of SR 1224 (Monte Vista Road) to west of SR 3412 (Sand Hill Road) and portions of I-26 (-L1_EB-, -L1_WB-) from the Pond Road Bridge to the I-26/I-40/I-240 interchange. Reconfiguration of the ramps within the existing I-26/I-40/I240 interchange will also be performed as part of the interchange improvements. Several ramps and loops (-Y5RPA-, -Y5RPB-, -Y5RPC-, -Y5RPD-, -RPC-, -RPDB-, and -RPD-) will also be widened/constructed within the project corridor.

The typical section along the I-26 (-L1-) alignments will include 4 travel lanes in each direction separated by either a median or a concrete barrier. The typical section along the I-40 (-Y-) alignments will include 5 travel lanes in each direction separated by a concrete barrier. Work within the project corridor will generally consist of retaining a majority of the existing pavement section and will include the addition of travel lanes and full depth paved shoulders.

The western portion of the project corridor, in the vicinity of the Smokey Park Highway (US 19/23) interchange, is developed and consists of a mixture of residential and commercial properties. Heading east along I-40 towards Sandhill Road, a few residential areas are located south of I-40 and the area north of I-40 is primarily wooded. The property within the existing I-26/I-40/I-240 interchange consists mainly of grassed/wooded areas. Hominy Creek parallels the east side of I-26 just south of the interchange.

A geotechnical field investigation was performed by ECS between April and May 2022. During this time period, a total of fifty-nine (59) standard penetration test (SPT) borings were advanced using a 7822DT Geoprobe drill rig equipped with an automatic hammer. Representative soil samples were collected for visual classification in the field and for analysis by ECS's testing laboratory. Representative soil samples were collected for visual classification in the field and for analysis by ECS's testing laboratory. Additionally,

bulk samples were collected from the various cut areas and were used for standard Proctor and California Bearing Ratio (CBR) testing.

Between November 2003 and January 2004, NCDOT conducted a field investigation at the site. During that time period, a total of thirty-two (32) standard penetration test (SPT) borings and two (2) hand auger borings performed. Field logs were provided to ECS for use in the preparation of this report.

The following alignments were investigated. Subsurface plans, profiles and cross sections of these alignments are included in this report.

<u>Line</u>	<u>Station (±)</u>
-Y_LT-	18+80 to 92+44
-Y_RT-	18+76 to 92+44
-Y_WB-	10+44 to 19+00
-Y_EB-	10+44 to 15+00
-Y5RPA-	25+00 to 27+50
-RPC-	10+00 to 39+50
-L1_EB-	37+00 to 66+50
-L1_WB-	37+50 to 67+00

Note that field investigations for structures and retaining walls were not part of the scope of work for this exploration.

Physiography and Geology

The project site is located in the Blue Ridge Physiographic Province of North Carolina. In accordance with the Geologic Map of North Carolina, 1985, the predominant rock types in this area are mapped as muscovite-biotite gneiss. Weathered rock samples recovered from the borings typically exhibited characteristic of biotite gneiss. The virgin soils are the residual product of in-place chemical weathering of rock that was similar to the rock presently underlying the site.

Soil Properties

Soils within the area of this project have been divided into five categories: artificial fill, roadway embankment, alluvial, colluvial, and residual soils.

Artificial Fill: Materials identified as Artificial Fill (A.F.) were encountered at several locations along the project corridor. The artificial fill generally consists of very loose to loose sandy gravel (A-1-a) and very loose to loose clayey sand (A-2-7) and extend to depths of approximately 6.5 feet below existing grades.

Laboratory testing of the Artificial Fill soils indicated a Plasticity Index (PI) of Non-Plastic (NP) for the gravels (A-1-a) and a PI of 11 for the sandy soils (A-2-7).

Roadway Embankment: Roadway Embankment (R.E.) soils extend to depths up to approximately 33.6 feet below existing grades and generally consist of very loose to medium dense silty/clayey sands (A-2-4, A-2-6, A-2-7), very soft to hard sandy/clayey silt (A-4, A-5), and very soft to medium stiff sandy/silty clay (A-6, A-7-5) with various amounts of organics, mica and rock fragments throughout. Laboratory testing of the Roadway Embankment soils indicated PI's ranging from NP to 12 for the sandy soils (A-2-4, A-2-7) and PI's ranging from NP to 10 for the silty soils (A-4, A-5).

Alluvial Soils: Alluvial soils were encountered along several creeks and drainage features within the project corridor and extend to depths ranging from approximately 7.0 to 28.0 feet below existing grades. The alluvial soils generally consist of very loose to medium dense sandy gravel (A-1-a, A-1-b), very loose to medium dense silty/clayey sand (A-2-4, A-2-6), very soft to medium stiff sandy/clayey silt (A-4, A-5), and very soft to stiff sandy/silty clay (A-6, A-7-5, A-7-6) with trace organics and mica throughout. Laboratory testing of the Alluvial soils indicated a PI of NP for the silty soils (A-5) and PI's ranging from 11 to 19 for the clayey soils (A-6, A-7-6).

Colluvial Soils: Colluvial soils were encountered at several locations along the project corridor and extend to depths ranging from approximately 7.0 to 22.1 feet below existing grades. The colluvial soils generally consisted of very soft to medium stiff silty clay (A-7-5) with trace mica and rock fragments throughout.

Residual Soils: Residual soils were encountered throughout the project corridor are derived from the weathering of the underlying parent bedrock. A majority of the residual soils encountered generally consist of medium dense sandy gravel (A-1-b), very loose to very dense silty sand (A-2-4, A-2-5), very soft to hard sandy/clayey silt (A-4, A-5), and soft to very stiff sandy/silty clay (A-6, A-7-5, A-7-6) with trace to some mica and rock fragments throughout. Laboratory testing of the Residual soils indicated a PI of NP for the gravels (A-1-b), a PI of NP for the sandy soils (A-2-4, A-2-5), PI's ranging from NP to 6 for the silty soils (A-4, A-5), and PI's ranging from 11 to 30 for the clayey soils (A-6, A-7-5, A-7-6).

Rock Properties

Weathered Rock: The top of the weathered rock varied significantly along the corridor and was encountered at depths ranging from approximately 6.0 to 58.6 feet below the existing ground surface; corresponding to elevations ranging from approximately 2,107.3 feet to 2,041.7 feet. At several locations, lenses of weathered rock were encountered within the residual soil zone. The weathered rock encountered generally consists of Gneiss.

Crystalline Rock: The top of the crystalline rock varied significantly along the corridor and was encountered at depths ranging from approximately 6.0 to 68.5 feet below the existing ground surface, corresponding to elevations ranging from approximately 2,074.8 feet to 2,035.5 feet. The crystalline rock encountered consists of Gneiss.

Groundwater Properties

At the time of drilling, groundwater was encountered in six (6) of the borings drilled by ECS at depths ranging from approximately 8.3 to 11.2 feet below the existing ground surface, corresponding to elevations ranging from approximately 2,061.4 feet to 2,010.6 feet. After a stabilization period of at least 24 hours, groundwater was encountered in three (3) of the borings drilled by ECS at depths ranging from approximately 5.8 to 7.2 feet below the existing ground surface, corresponding to elevations ranging from approximately 2,019.1 feet to 2,013.5 feet. The recovered soil samples were generally described as moist above the groundwater level and moist to wet below the groundwater level.

For historical reference, thirteen (13) of the borings drilled by NCDOT in 2003-2004 encountered groundwater at depths ranging from approximately 0.4 to 30.1 feet below the existing ground surface, at the time of drilling. This corresponds to elevations ranging from 2,084.8 feet to 2,060.3 feet. After a stabilization period, groundwater was encountered in seven (7) of the NCDOT borings at depths ranging from approximately 0.0 feet to 25.2 feet, corresponding to elevations ranging from 2,088.3 feet to 2,060.8 feet.

Areas of Special Geotechnical Interest

- 1) Artificial Fill: The following areas encountered artificial fill that may impact construction. Artificial Fill Soils were encountered at the following locations:

<u>Line</u>	<u>Station (±)</u>	<u>Offsets</u>
-Y-	50+75 to 52+75	LT
-Y5RPA-	25+00 to 27+19	LT to RT

- 2) Soft/Very Loose Soils: The following areas contain relatively soft or very loose and/or Alluvial soils that have the potential for subgrade instability, embankment stability or long-term settlement problems during construction:

<u>Line</u>	<u>Station (±)</u>	<u>Offsets</u>
-L1EB-	58+75 to 59+75	LT
-L1EB-	61+75 to 63+75	LT
-Y-	57+75 to 62+25	LT
-Y-	69+75 to 74+75	RT
-Y-	90+75 to 92+44	LT to RT
-Y_WB-	10+75 to 11+75	LT
-Y_EB-	10+44 to 13+25	RT
-RPC-	22+25 to 31+25	LT to RT
-Y5RPA-	26+75 to 27+19	LT to RT

- 3) High Plasticity Soils: The following areas contain high plasticity soils with plasticity indices (PI's) in excess of 25. High plasticity soils have the potential to cause subgrade instability during construction, embankment stability or long-term settlement problems.

<u>Line</u>	<u>Station (±)</u>	<u>Offsets</u>
-L1EB-	64+75 to 65+75	LT
-Y_WB-	15+25 to 17+25	LT
-RPC-	38+75 to 39+50	RT

- 4) High Organic Content: Based on laboratory testing results, the following areas possess an organic content greater than 4% and are therefore unsuitable borrow sources.

<u>Line</u>	<u>Station (±)</u>	<u>Offsets</u>
-Y-	74+75 to 77+75	LT to RT
-RPC-	23+75 to 25+25	RT

- 5) High Groundwater: Groundwater was encountered within six feet of the proposed subgrade at the following locations. This has the potential to cause subgrade instability and/or constructability issues.

<u>Line</u>	<u>Station (±)</u>	<u>Offsets</u>
-Y-	55+00 to 72+00	LT to RT
-Y_WB-	10+44 to 11+75	LT
-Y_EB-	10+44 to 13+25	RT
-RPC-	22+25 to 29+00	LT to RT

Bulk Samples

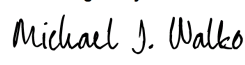
Bulk soil samples of auger cuttings were obtained at the following locations and were used for standard Proctor and/or California Bearing Ratio (CBR) testing. At the time of this report, the laboratory testing of the bulk samples is on-going.



<u>Sample</u>	<u>Line</u>	<u>Station (±)</u>	<u>Offset</u>	<u>Depth (ft.)</u>
BULK 1	-Y6-	N/A	N/A	1.0-6.0
BULK 2	-RPDB-	44+00	80' RT	1.0-6.0
BULK 3	-RPC-	38+00	90' RT	1.0-6.0

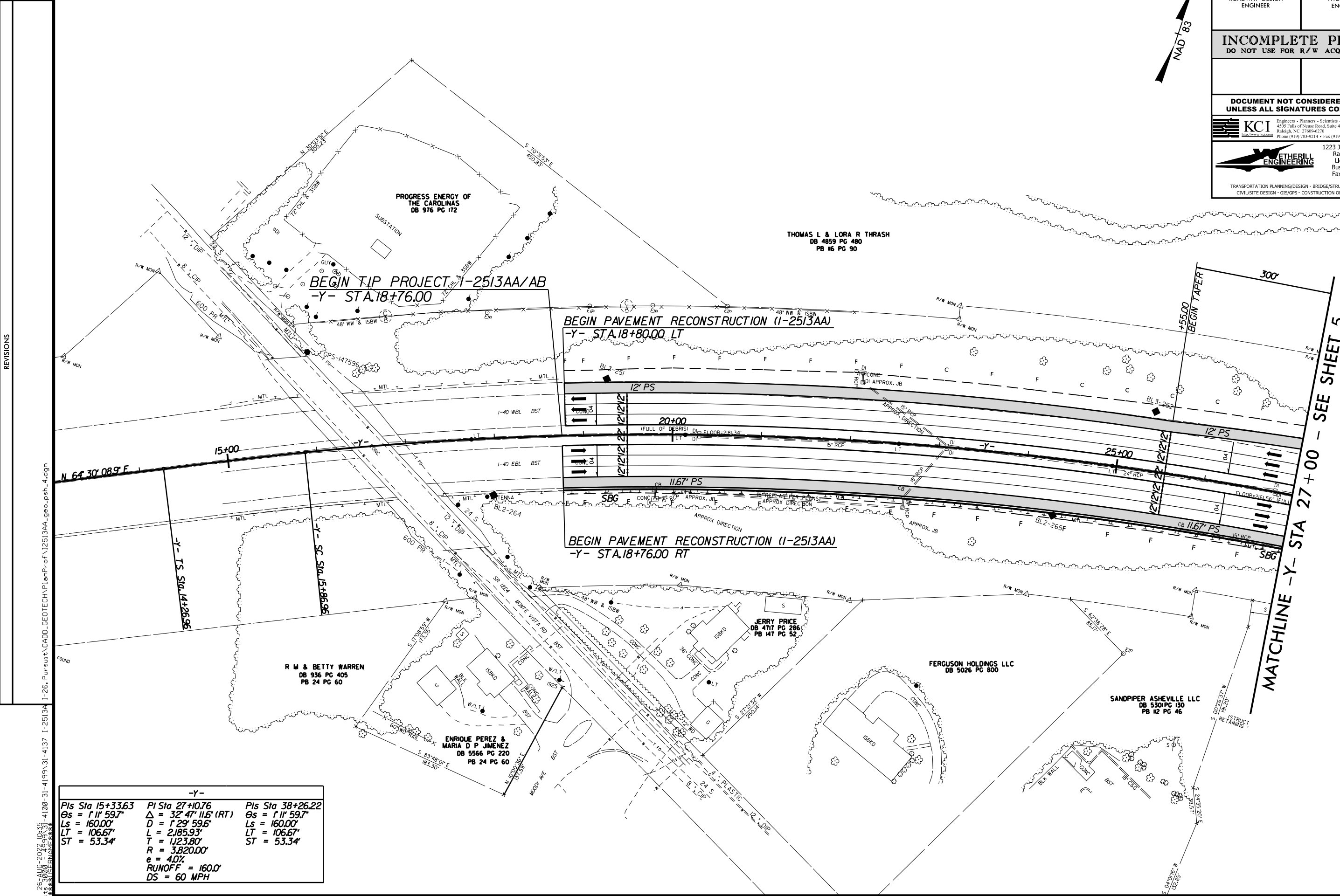
Respectively Submitted,

DocuSigned by:

 7BDD9975E22C480...
 Kelly N. de Montbrun, P.E.
 Senior Project Engineer

DocuSigned by:

 78222AC7F82F4D7...
 Michael J. Walko, P.E.
 Principal Engineer

PROJECT REFERENCE NO. 1-2513A	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 KCI Engineers • Planners • Scientists • Construction Managers 4505 Falls of Neuse Road, Suite 400 Raleigh, NC 27609-4270 Phone (919) 783-9214 • Fax (919) 783-9266	
 FETHERILL ENGINEERING 1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	



REVISIONS



26-AUG-2022 10:35
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 1-2513A
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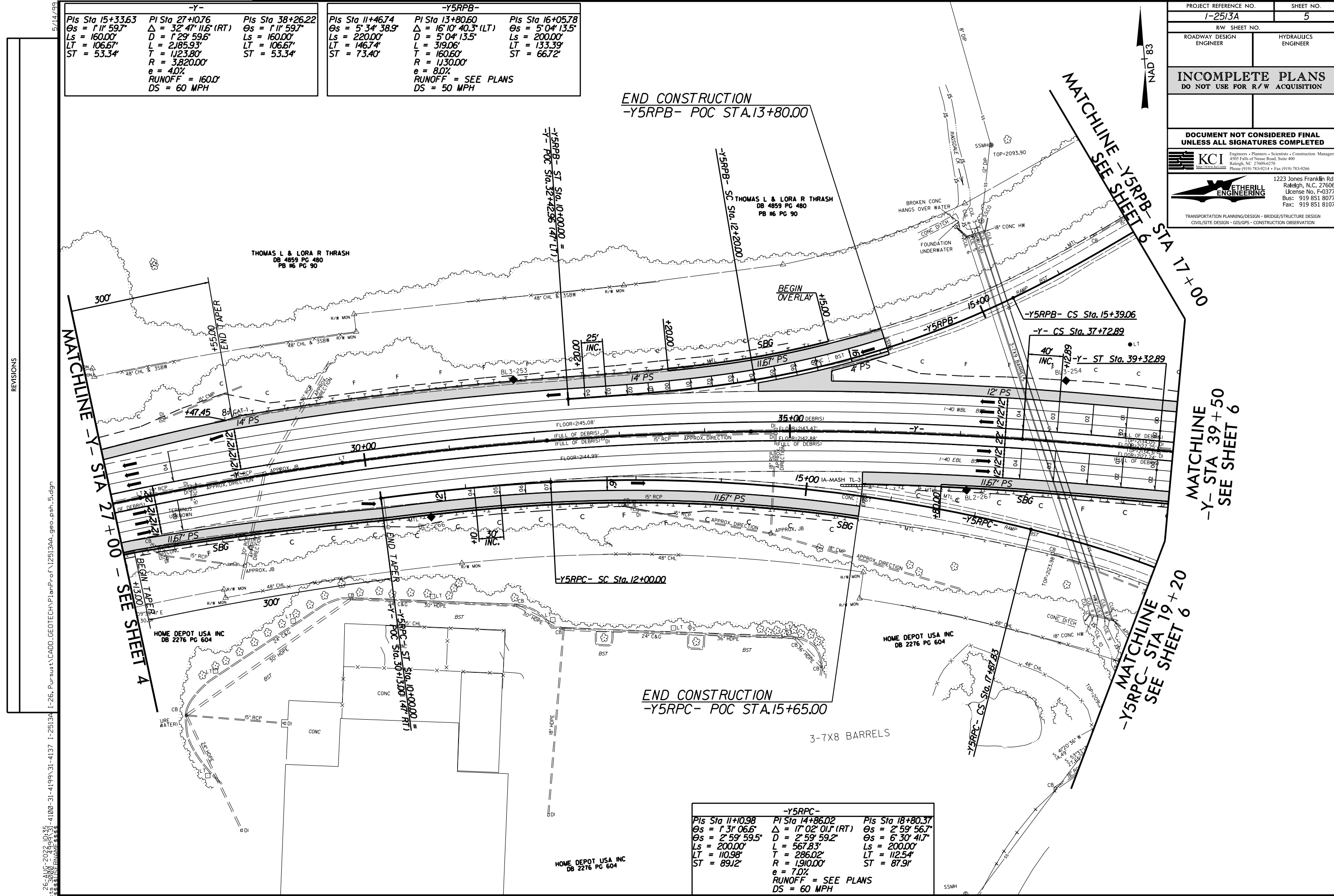
-Y-		
PIs Sta 15+33.63	PI Sta 27+10.76	PIs Sta 38+26.22
Os = 1' 11" 59.7"	Δ = 32' 47" 11.6" (RT)	Os = 1' 11" 59.7"
Ls = 160.00'	D = 1' 29" 59.6"	Ls = 160.00'
LT = 106.67'	L = 2,185.93'	LT = 106.67'
ST = 53.34'	T = 1,123.80'	ST = 53.34'
	R = 3,820.00'	
	e = 4.0%	
	RUNOFF = 160.0'	
	DS = 60 MPH	

MATCHLINE -Y- STA 27+00 - SEE SHEET 5

5/14/99

-Y-			-Y5RPB-		
Pis Sta 15+33.63	PI Sta 27+10.76	Pis Sta 38+26.22	Pis Sta 11+46.74	PI Sta 13+80.60	Pis Sta 16+05.78
Os = 1' 11" 59.7"	Δ = 32' 47" 11.6" (RT)	Os = 1' 11" 59.7"	Os = 5' 34' 38.9"	Δ = 16' 10' 40.3" (LT)	Os = 5' 04' 13.5"
Ls = 160.00'	D = 1' 29' 59.6"	Ls = 160.00'	Ls = 220.00'	D = 5' 04' 13.5"	Ls = 200.00'
LT = 106.67'	L = 2,185.93'	LT = 106.67'	LT = 146.74'	L = 319.06'	LT = 133.39'
ST = 53.34'	T = 1,123.80'	ST = 53.34'	T = 160.60'	T = 160.60'	ST = 66.72'
	R = 3,820.00'		R = 1,130.00'	R = 1,130.00'	
	e = 4.0%		e = 8.0%	e = 8.0%	
	RUNOFF = 160.0'		RUNOFF = SEE PLANS	RUNOFF = SEE PLANS	
	DS = 60 MPH		DS = 50 MPH	DS = 50 MPH	

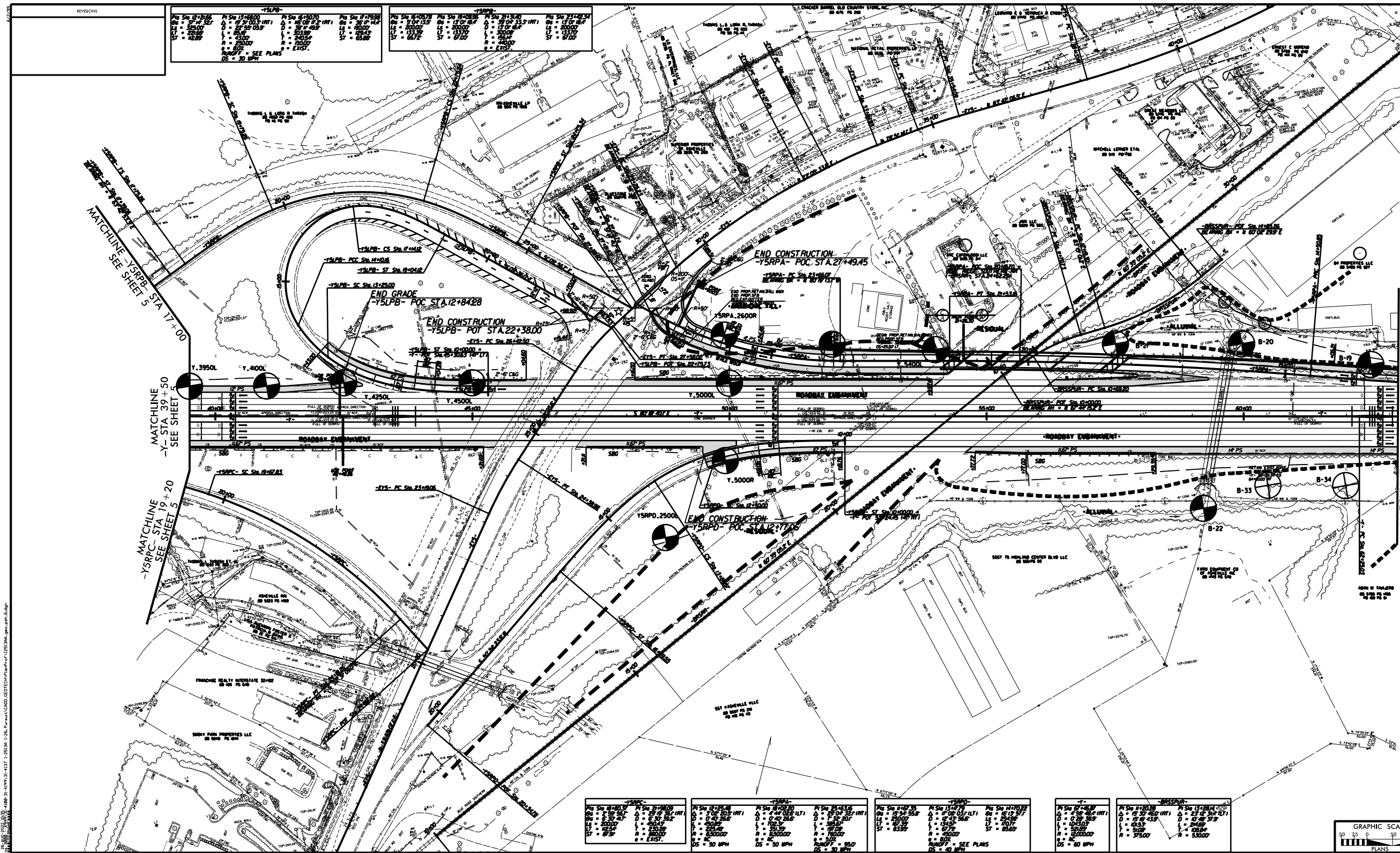
PROJECT REFERENCE NO. 1-2513A	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
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 STERRETT ENGINEERING 1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
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-Y5RPC-		
Pis Sta 11+10.98	PI Sta 14+86.02	Pis Sta 18+80.37
Os = 1' 31' 06.6"	Δ = 17' 02' 01.1" (RT)	Os = 2' 59' 56.7"
Os = 2' 59' 59.5"	D = 2' 59' 59.2"	Os = 6' 30' 41.7"
Ls = 200.00'	L = 567.83'	Ls = 200.00'
LT = 110.98'	T = 286.02'	LT = 112.54'
ST = 89.12'	R = 1,910.00'	ST = 87.91'
	e = 7.0%	
	RUNOFF = SEE PLANS	
	DS = 60 MPH	

REVISIONS

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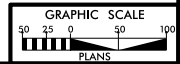


-Y5LPB-		-Y5RPA-		-Y5RPA-		-Y5RPA-	
PI STA 12+8428	PI STA 12+8428	PI STA 21+49.45	PI STA 21+49.45	PI STA 21+49.45	PI STA 21+49.45	PI STA 21+49.45	PI STA 21+49.45
Δ = 27° 59' 05.9"	Δ = 27° 59' 05.9"	Δ = 7° 09' 25.7"	Δ = 7° 09' 25.7"	Δ = 7° 09' 25.7"	Δ = 7° 09' 25.7"	Δ = 7° 09' 25.7"	Δ = 7° 09' 25.7"
LI = 250.00	LI = 250.00	LI = 250.00	LI = 250.00	LI = 250.00	LI = 250.00	LI = 250.00	LI = 250.00
LS = 250.00	LS = 250.00	LS = 250.00	LS = 250.00	LS = 250.00	LS = 250.00	LS = 250.00	LS = 250.00
ST = 25.00	ST = 25.00	ST = 25.00	ST = 25.00	ST = 25.00	ST = 25.00	ST = 25.00	ST = 25.00
R = 25000	R = 25000	R = 25000	R = 25000	R = 25000	R = 25000	R = 25000	R = 25000
DS = 50 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH

-Y5RPC-		-Y5RPA-		-Y5RPA-		-Y5RPA-		-Y5RPA-		-Y5RPA-	
PI STA 19+20	PI STA 19+20	PI STA 21+49.45	PI STA 21+49.45	PI STA 21+49.45	PI STA 21+49.45	PI STA 21+49.45	PI STA 21+49.45	PI STA 21+49.45	PI STA 21+49.45	PI STA 21+49.45	PI STA 21+49.45
Δ = 27° 59' 05.9"	Δ = 27° 59' 05.9"	Δ = 7° 09' 25.7"	Δ = 7° 09' 25.7"	Δ = 7° 09' 25.7"	Δ = 7° 09' 25.7"	Δ = 7° 09' 25.7"	Δ = 7° 09' 25.7"	Δ = 7° 09' 25.7"	Δ = 7° 09' 25.7"	Δ = 7° 09' 25.7"	Δ = 7° 09' 25.7"
LI = 250.00	LI = 250.00	LI = 250.00	LI = 250.00	LI = 250.00	LI = 250.00	LI = 250.00	LI = 250.00	LI = 250.00	LI = 250.00	LI = 250.00	LI = 250.00
LS = 250.00	LS = 250.00	LS = 250.00	LS = 250.00	LS = 250.00	LS = 250.00	LS = 250.00	LS = 250.00	LS = 250.00	LS = 250.00	LS = 250.00	LS = 250.00
ST = 25.00	ST = 25.00	ST = 25.00	ST = 25.00	ST = 25.00	ST = 25.00	ST = 25.00	ST = 25.00	ST = 25.00	ST = 25.00	ST = 25.00	ST = 25.00
R = 25000	R = 25000	R = 25000	R = 25000	R = 25000	R = 25000	R = 25000	R = 25000	R = 25000	R = 25000	R = 25000	R = 25000
DS = 50 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH

PROJECT NUMBER: 100000000	SHEET NO: 6
ROADWAY DESIGN ENGINEER: [Signature]	HYDRAULIC ENGINEER: [Signature]
INCOMPLETE PLANS	
DO NOT USE FOR R/W ACQUISITION	
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1223 South Peachtree Atlanta, GA 30309 Phone: 404.524.8800 Fax: 404.524.8801	

★ REVISED SIGNAL



LOCATION: _____

TP NO: _____ COUNTY: _____

DESIGNED BY: _____

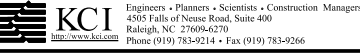

CHECKED BY: _____ DATE: _____

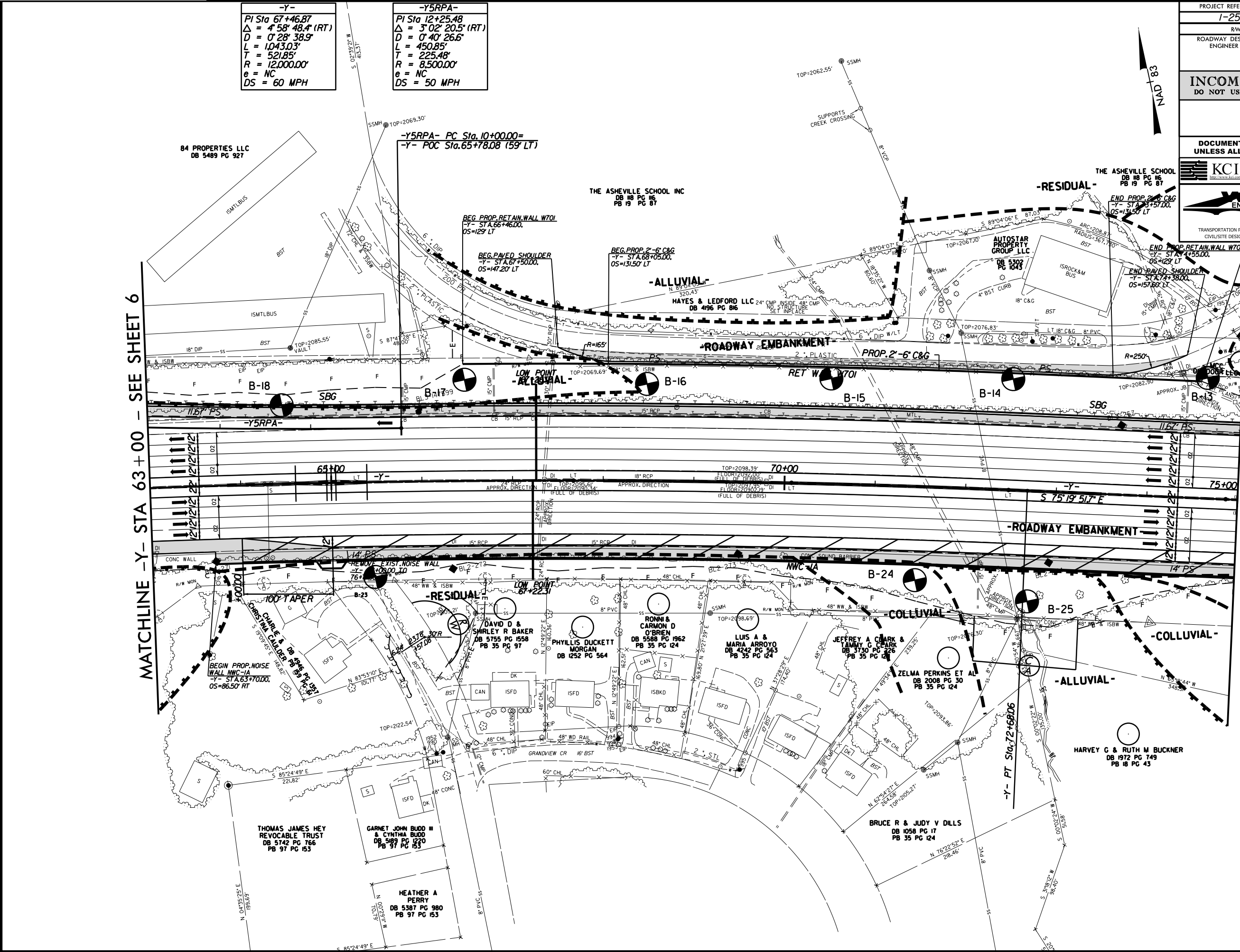
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I-2513A-4100-31-4199-31-4137 I-2513A

MATCHLINE -Y- STA 63+00 - SEE SHEET 6



MATCHLINE -Y- STA 75+00 - SEE SHEET 8

-Y-	-Y5RPA-
PI Sta 67+46.87	PI Sta 12+25.48
$\Delta = 4' 58'' 48.4''$ (RT)	$\Delta = 3' 02'' 20.5''$ (RT)
D = 0' 28'' 38.9'	D = 0' 40'' 26.6'
L = 1043.03'	L = 450.85'
T = 521.85'	T = 225.48'
R = 12,000.00'	R = 8,500.00'
e = NC	e = NC
DS = 60 MPH	DS = 50 MPH

PROJECT REFERENCE NO. I-2513A		SHEET NO. 7
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		
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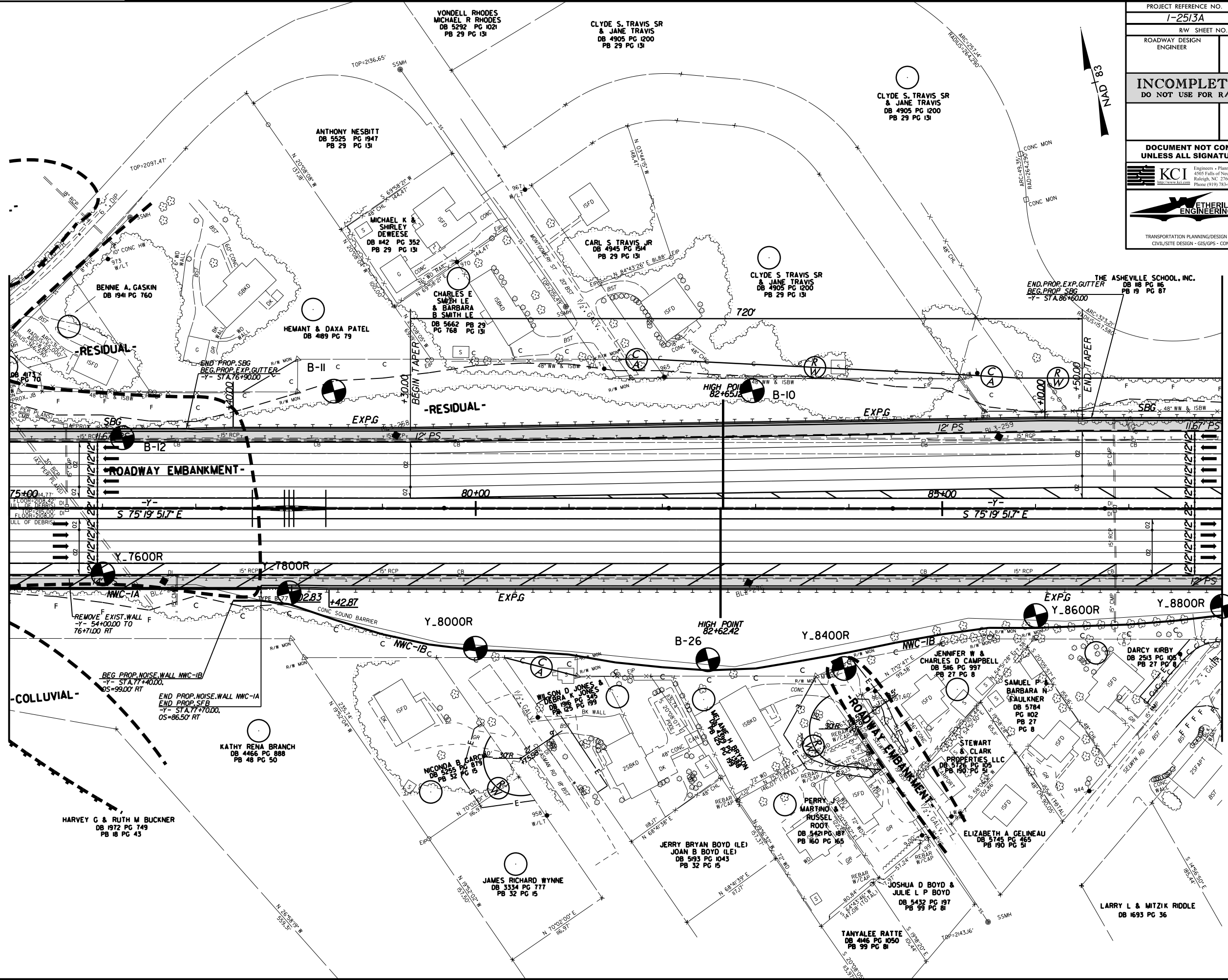
PROJECT REFERENCE NO. 1-2513A		SHEET NO. 8	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
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<small>TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION</small>			

MATCHLINE -Y- STA 75+00 - SEE SHEET 7



MATCHLINE -Y- STA 88+00 - SEE SHEET 9

REVISIONS

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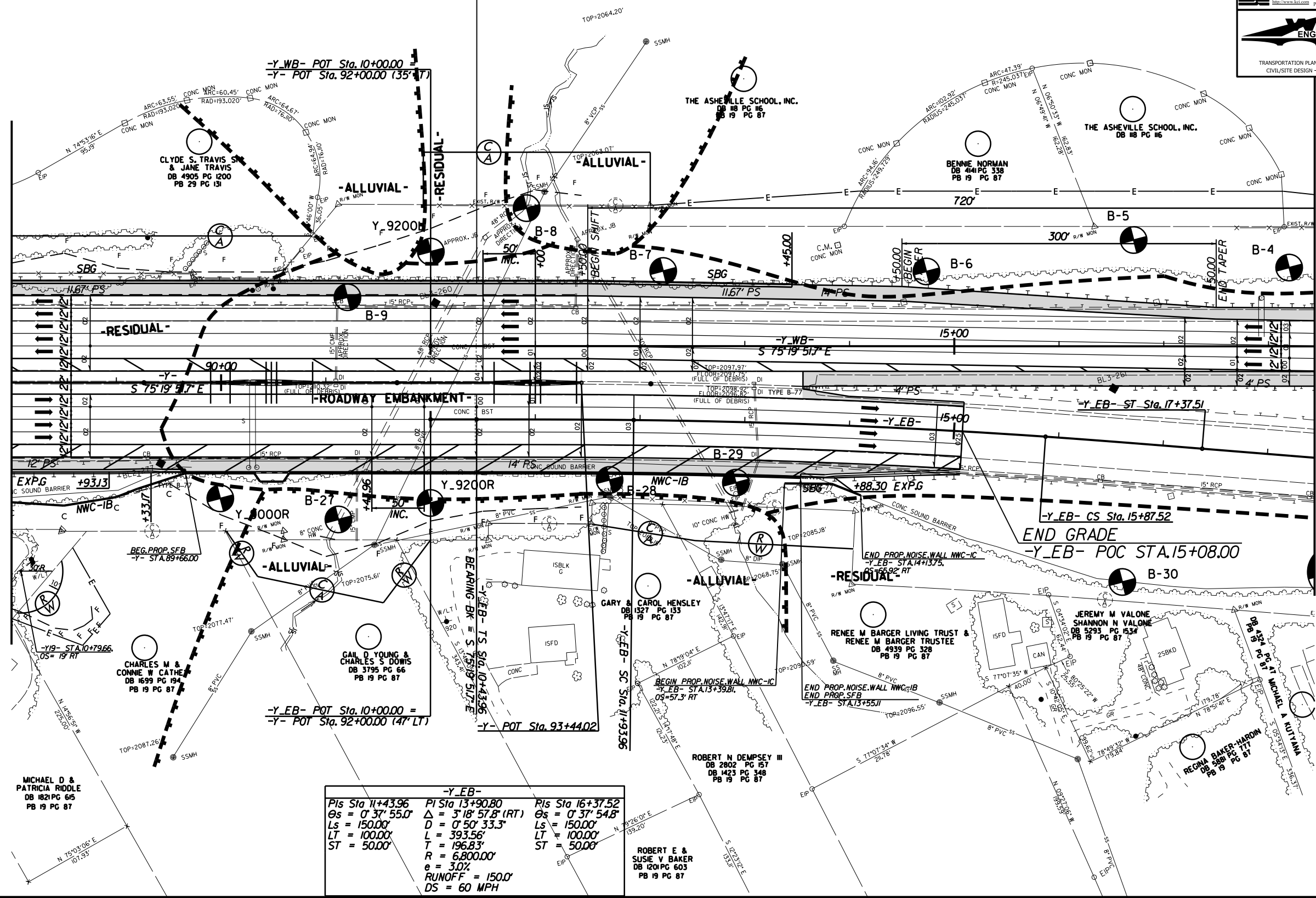
5/14/99

PROJECT REFERENCE NO. 1-2513A	SHEET NO. 9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
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END PAVEMENT RECONSTRUCTION (1-2513AA)
-Y- STA.92+44.00 LT & RT

MATCHLINE -Y- STA 88+00 - SEE SHEET 8

MATCHLINE -Y_WB- STA 17+00 - SEE SHEET 10




-Y_EB-		
PIs Sta 11+43.96	PI Sta 13+90.80	PIs Sta 16+37.52
Os = 0' 37' 55.0"	Δ = 3' 18' 57.8" (RT)	Os = 0' 37' 54.8"
Ls = 150.00'	D = 0' 50' 33.3"	Ls = 150.00'
LT = 100.00'	T = 393.56'	LT = 100.00'
ST = 50.00'	T = 196.83'	ST = 50.00'
	R = 6,800.00'	
	e = 3.0%	
	RUNOFF = 150.0'	
	DS = 60 MPH	

REVISIONS

5/14/99

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PROJECT REFERENCE NO. I-2513A	SHEET NO. 11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	

-Y.EB-
 PI Sta 50+80.91
 $\Delta = 19^{\circ} 00' 54.7" (LT)$
 $D = 1^{\circ} 29' 59.3"$
 $L = 267.85'$
 $T = 139.81'$
 $e = 1820.22'$
 e = EXIST.

-RPDB- PI Sta 21+60.54 $\Delta = 0^{\circ} 39' 41.8" (LT)$ $D = 0^{\circ} 22' 55.1"$ $L = 173.21'$ $T = 86.60'$ $R = 15,000.00'$ e = EXIST.	-RPDB- PI Sta 23+33.75 $\Delta = 0^{\circ} 39' 41.8" (RT)$ $D = 0^{\circ} 22' 55.1"$ $L = 173.21'$ $T = 86.60'$ $R = 15,000.00'$ e = EXIST.	-RPDB- PI Sta 26+03.71 $\Delta = 3^{\circ} 30' 00.0"$ $Ls = 200.00'$ $LT = 133.36'$ $ST = 66.69'$	-RPDB- PI Sta 32+50.35 $\Delta = 3^{\circ} 30' 06.9" (LT)$ $D = 3^{\circ} 30' 00.0"$ $L = 1114.82'$ $T = 580.00'$ $R = 1,637.02'$ e = EXIST.
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-RPD- PI Sta 27+18.55 $\Delta = 15^{\circ} 23' 09.1" (RT)$ $D = 4^{\circ} 00' 15.1"$ $L = 384.24'$ $T = 193.28'$ $R = 1,430.89'$ e = EXIST.	-RPD- PI Sta 34+27.30 $\Delta = 7^{\circ} 50' 29.6" (RT)$ $D = 8^{\circ} 00' 58.6"$ $L = 896.20'$ $T = 517.78'$ $R = 714.74'$ e = EXIST.
---	--

-LI.WB- PI Sta 66+38.87 $\Delta = 18^{\circ} 15' 03.5" (RT)$ $D = 2^{\circ} 56' 17.7"$ $L = 621.15'$ $T = 313.23'$ $R = 1,950.00'$ e = 7.0% RUNOFF = SEE PLANS DS = 60 MPH	-LI.WB- PI Sta 74+20.37 $\Delta = 18^{\circ} 46' 24.9" (RT)$ $D = 2^{\circ} 00' 00.0"$ $L = 938.68'$ $T = 473.58'$ $R = 2,864.79'$ e = EXIST.
--	---

-LI.WB- PCC
 Sta. 69+46.79

END CONSTRUCTION
-LI.WB- POC
 STA. 66+00.00

-RPDB- PT Sta. 24+20.35

-RPDB- POC Sta. 22+47.14

-RPDB- PC Sta. 20+73.94

END CONSTRUCTION
-RPDB- POT STA. 20+70.00

END CONSTRUCTION
-LI.EB- POT STA. 66+10.00

-RPDB- TS Sta. 24+70.35

-LI.EB- TS Sta. 69+13.48

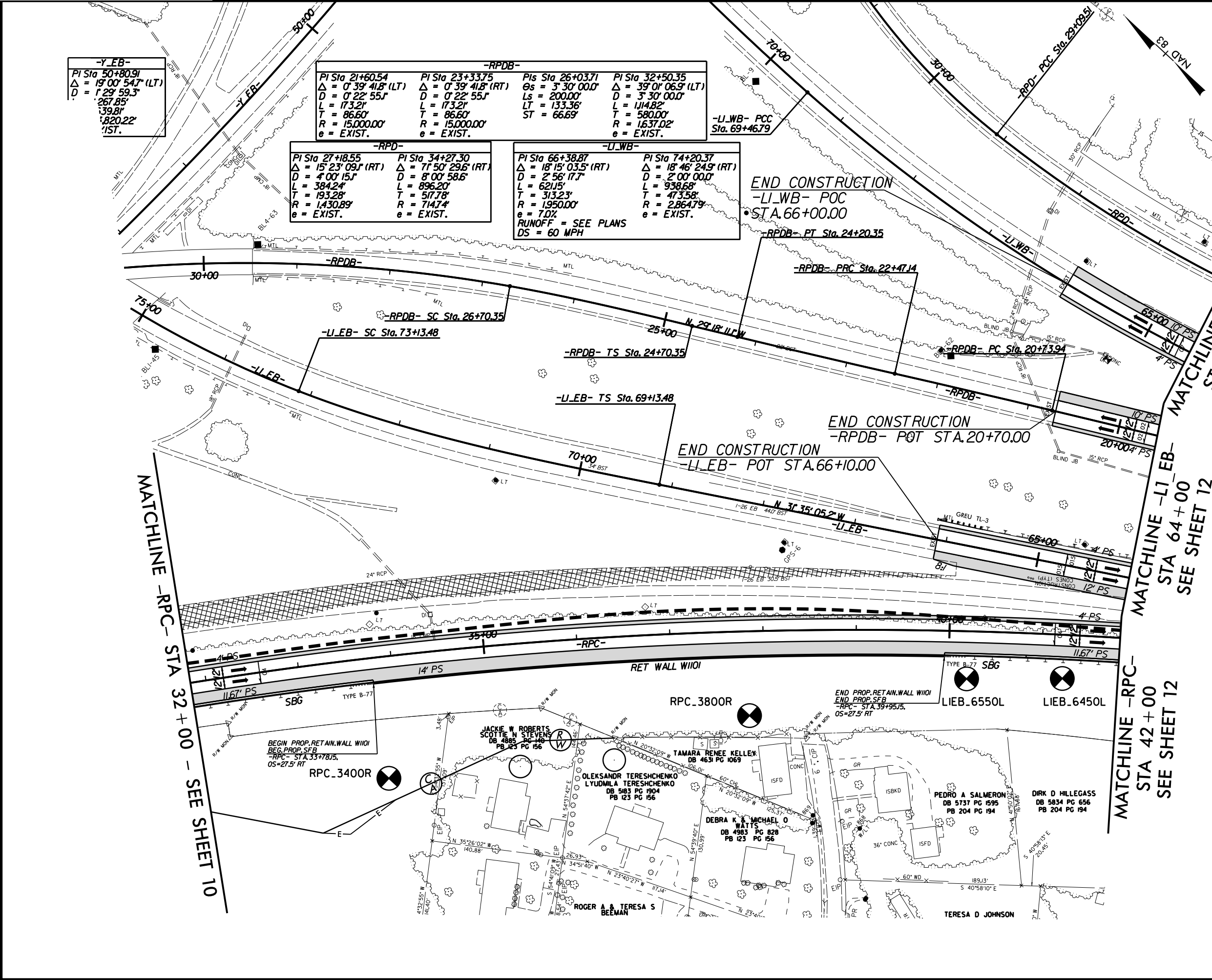
-RPDB- SC Sta. 26+70.35



-LI.EB- SC Sta. 73+13.48

MATCHLINE -RPC- STA 32+00 - SEE SHEET 10

MATCHLINE -LI.WB- STA 64+50 SEE SHEET 12
MATCHLINE -LI.EB- STA 64+00 SEE SHEET 12
MATCHLINE -RPC- STA 42+00 SEE SHEET 12

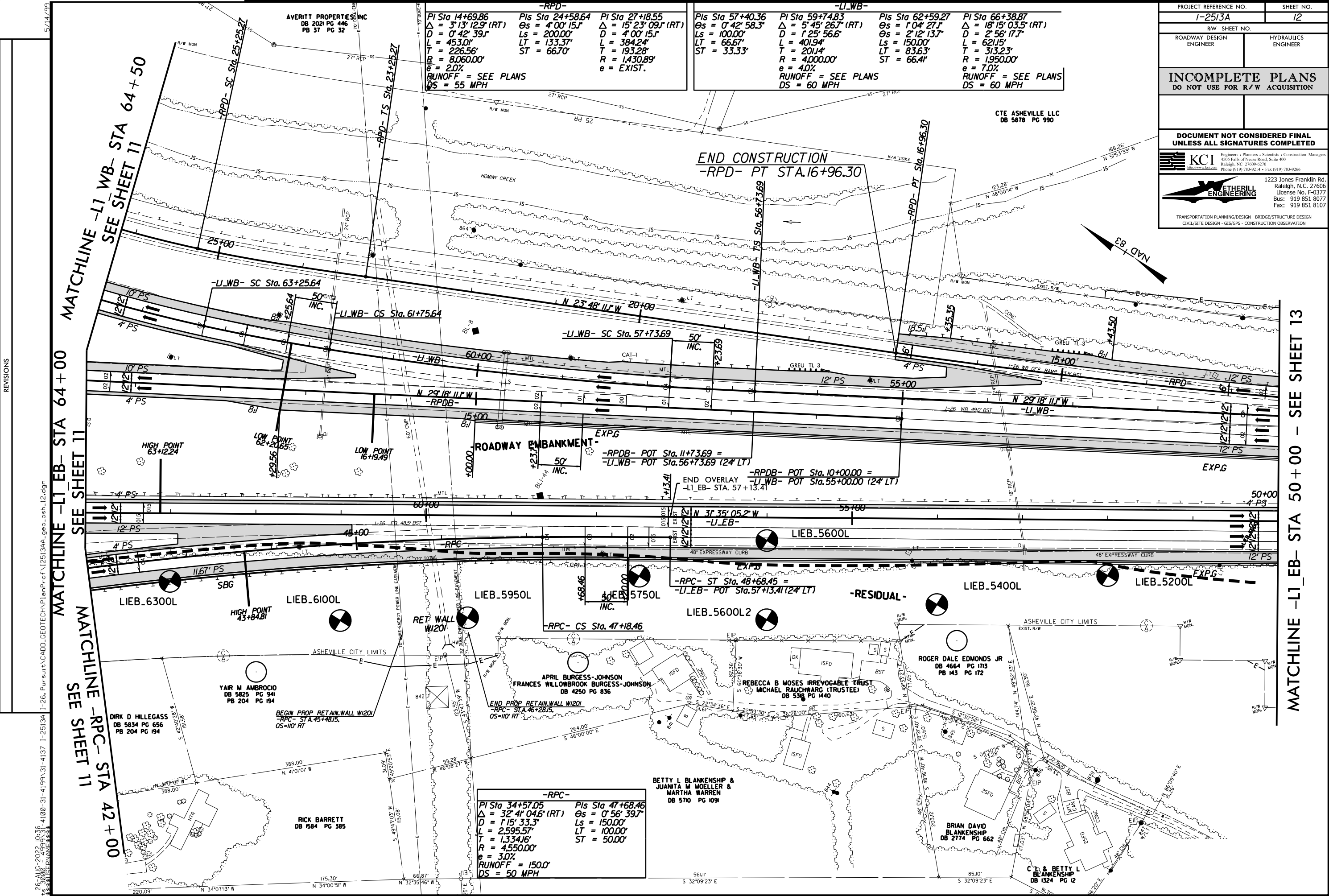
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PROJECT REFERENCE NO.	SHEET NO.
1-2513A	12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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-RPD-		-LI.WB-	
PI Sta 14+69.86	PIs Sta 24+58.64	PI Sta 27+18.55	PIs Sta 57+40.36
$\Delta = 3^\circ 13' 12.9" (RT)$	$\Theta s = 4^\circ 00' 15.1"$	$\Delta = 15^\circ 23' 09.1" (RT)$	$\Theta s = 0^\circ 42' 58.3"$
$D = 0^\circ 42' 39.1"$	$Ls = 200.00'$	$D = 4^\circ 00' 15.1"$	$\Delta = 5^\circ 45' 26.7" (RT)$
$L = 453.01'$	$LT = 133.37'$	$L = 384.24'$	$D = 1^\circ 25' 56.6"$
$T = 226.56'$	$ST = 66.70'$	$L = 401.94'$	$\Theta s = 2^\circ 12' 13.7"$
$R = 8,060.00'$		$T = 201.14'$	$Ls = 150.00'$
$e = 2.0\%$		$R = 4,000.00'$	$LT = 83.63'$
RUNOFF = SEE PLANS		$ST = 66.41'$	$R = 1,950.00'$
DS = 55 MPH		$e = 4.0\%$	RUNOFF = SEE PLANS
		DS = 60 MPH	DS = 60 MPH

-RPC-	
PI Sta 34+57.05	PIs Sta 47+68.46
$\Delta = 32^\circ 41' 04.6" (RT)$	$\Theta s = 0^\circ 56' 39.7"$
$D = 1^\circ 15' 33.3"$	$Ls = 150.00'$
$L = 2,595.57'$	$LT = 100.00'$
$T = 1,334.16'$	$ST = 50.00'$
$R = 4,550.00'$	
$e = 3.0\%$	
RUNOFF = 150.0'	
DS = 50 MPH	

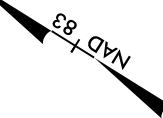


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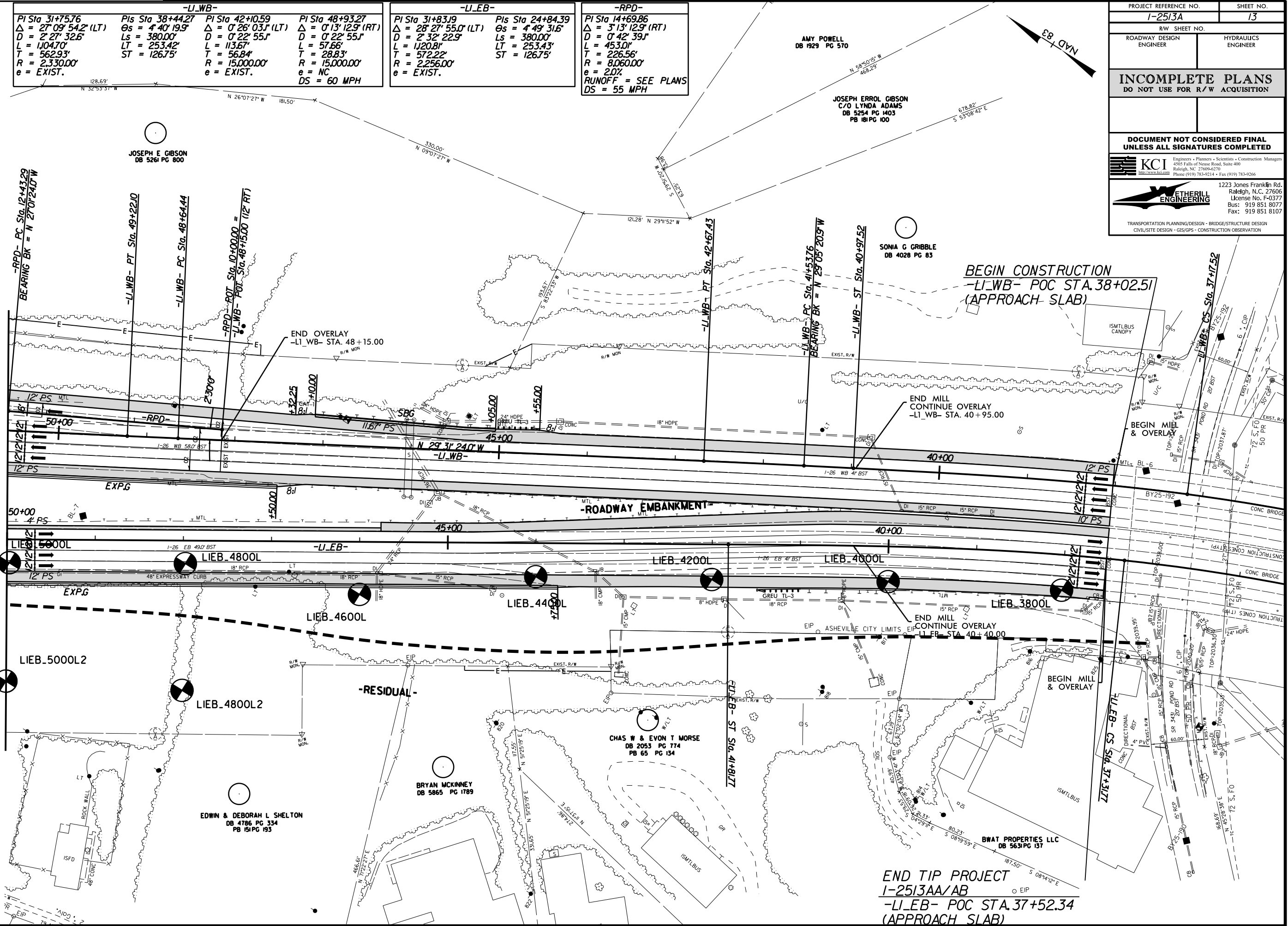
MATCHLINE -LI_EB- STA 64+00
 MATCHLINE -LI_WB- STA 64+50
 MATCHLINE -RPC- STA 42+00
 MATCHLINE -RPC- STA 64+50

MATCHLINE -LI_EB- STA 50+00 - SEE SHEET 13



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REVISIONS
MATCHLINE -L1_EB- STA 50+00 - SEE SHEET 12



-L1_WB-		-L1_EB-		-RPD-	
PI Sta 31+75.76	PIs Sta 38+44.27	PI Sta 42+10.59	PI Sta 48+93.27	PI Sta 31+83.19	PIs Sta 24+84.39
$\Delta = 27^{\circ} 09' 54.2''$ (LT)	$\Theta_s = 4^{\circ} 40' 19.5''$	$\Delta = 0^{\circ} 26' 03.1''$ (LT)	$\Delta = 0^{\circ} 13' 12.9''$ (RT)	$\Delta = 28^{\circ} 27' 55.0''$ (LT)	$\Theta_s = 4^{\circ} 49' 31.6''$
$D = 2^{\circ} 27' 32.6''$	$Ls = 380.00'$	$D = 0^{\circ} 22' 55.1''$	$D = 0^{\circ} 22' 55.1''$	$D = 2^{\circ} 32' 22.9''$	$Ls = 380.00'$
$L = 110.470'$	$LT = 253.42'$	$L = 113.67'$	$L = 57.66'$	$L = 1120.81'$	$LT = 253.43'$
$T = 562.93'$	$ST = 126.75'$	$T = 56.84'$	$T = 28.83'$	$T = 572.22'$	$R = 2,256.00'$
$R = 2,330.00'$		$R = 15,000.00'$	$R = 15,000.00'$	$R = 2,256.00'$	$e = EXIST.$
$e = EXIST.$		$e = EXIST.$	$e = NC$	$e = EXIST.$	$DS = 60$ MPH
				$e = EXIST.$	$DS = 55$ MPH

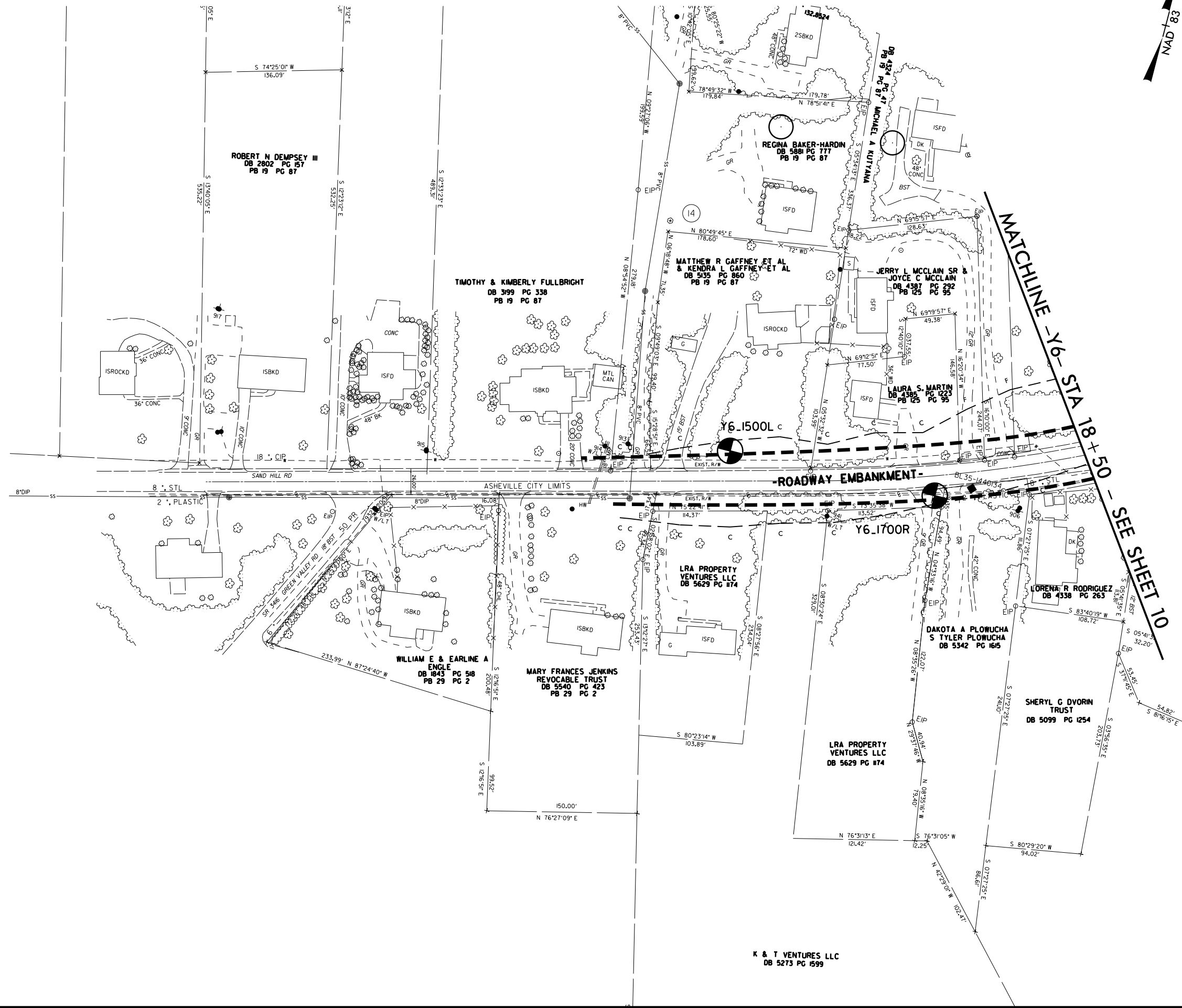
PROJECT REFERENCE NO. I-2513A	SHEET NO. 13
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
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END TIP PROJECT
I-2513AA/AB
-L1_EB- POC STA. 37+52.34
(APPROACH SLAB)

5/14/99

REVISIONS

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PROJECT REFERENCE NO. 1-2513A		SHEET NO. 14	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
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		1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
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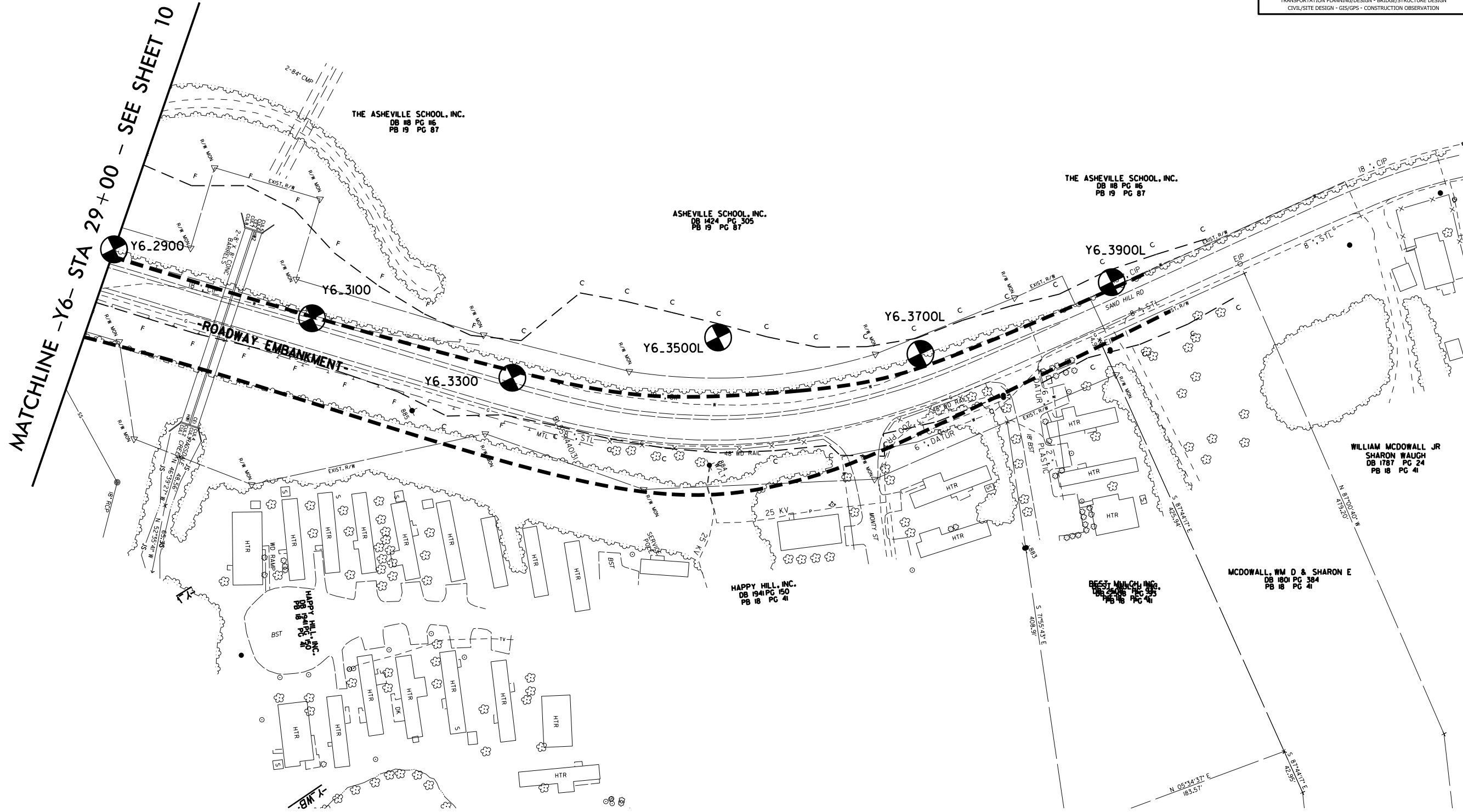
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MATCHLINE -Y6- STA 29+00 - SEE SHEET 10



PROJECT REFERENCE NO. 1-2513A		SHEET NO. 15	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
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<small>TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN</small> <small>CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION</small>			



THE ASHEVILLE SCHOOL, INC.
DB 18 PG 16
PB 19 PG 17

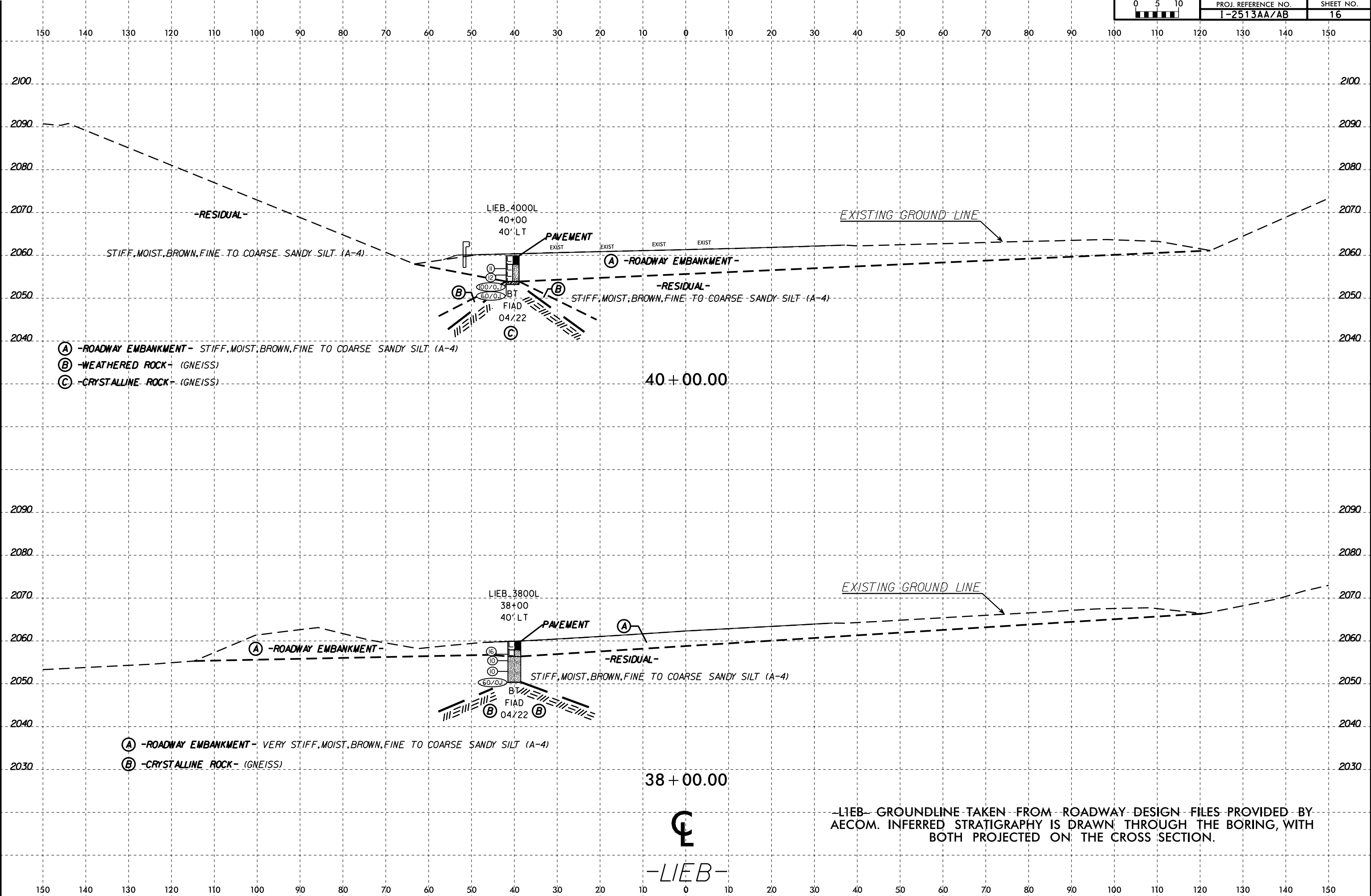
ASHEVILLE SCHOOL, INC.
DB 1424 PG 305
PB 19 PG 17

THE ASHEVILLE SCHOOL, INC.
DB 18 PG 16
PB 19 PG 17

WILLIAM MCDOWALL JR
SHARON WAUGH
DB 1787 PG 24
PB 18 PG 41

HAPPY HILL, INC.
DB 1941 PG 150
PB 18 PG 41

MCDOWALL, WM D & SHARON E
DB 1801 PG 384
PB 18 PG 41



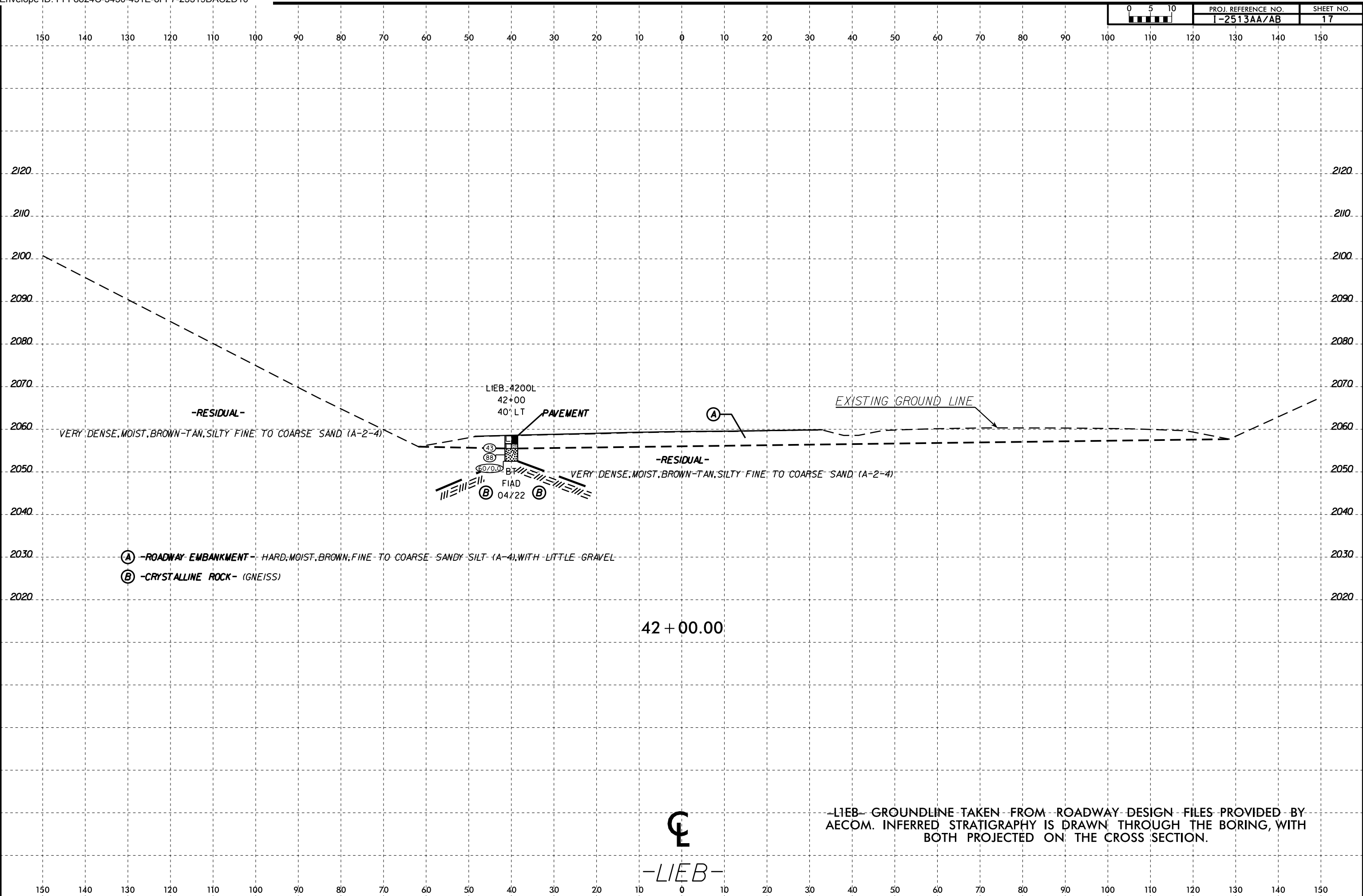
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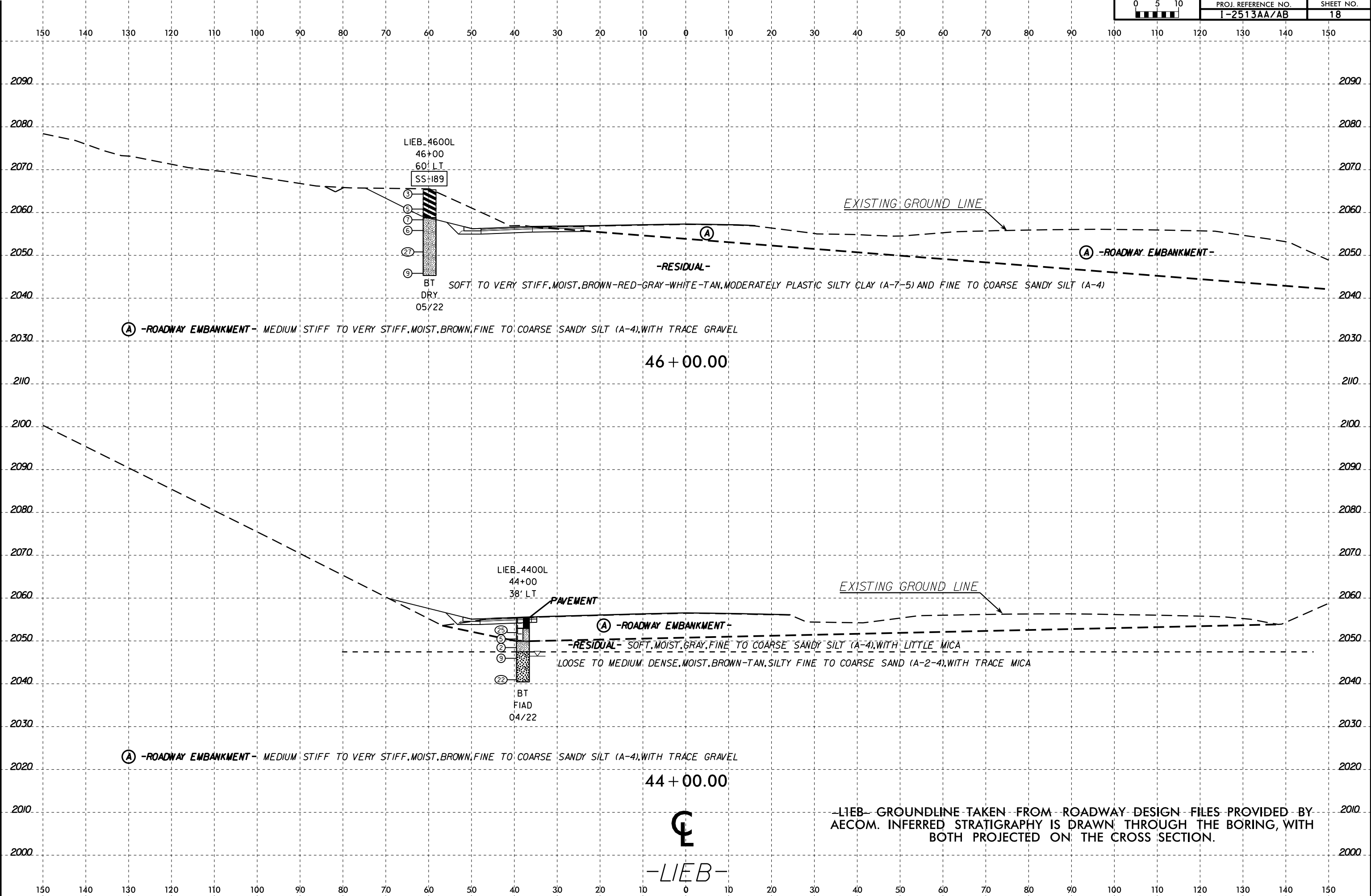
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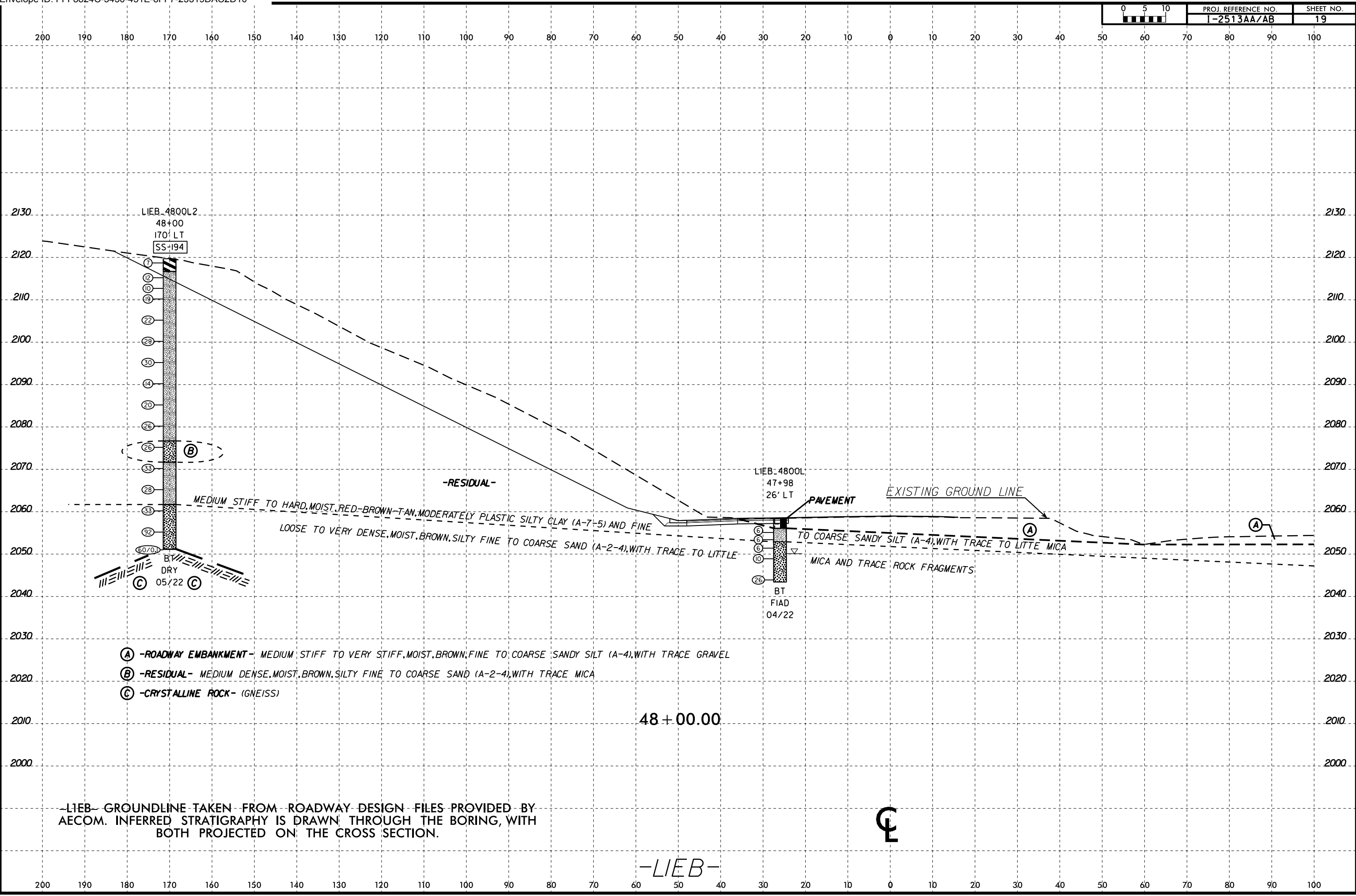
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	I-2513AA/AB	17





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6/23/16



LIEB. 4800L2
48+00
170' LT
SS+194

LIEB. 4800L
47+98
26' LT

- (A) -ROADWAY EMBANKMENT- MEDIUM STIFF TO VERY STIFF, MOIST, BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE GRAVEL
- (B) -RESIDUAL- MEDIUM DENSE, MOIST, BROWN, SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE MICA
- (C) -CRYSTALLINE ROCK- (GNEISS)

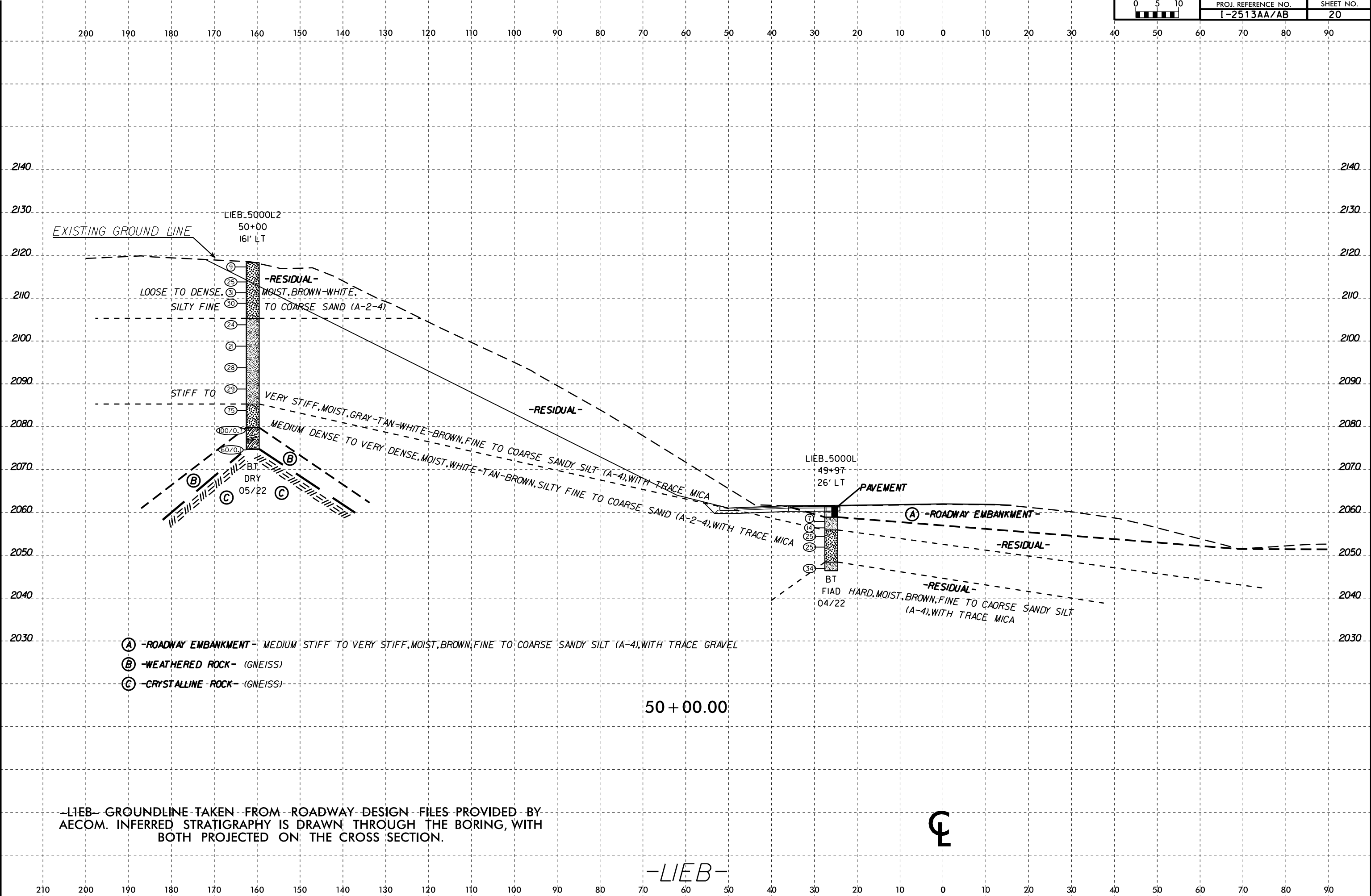
-LIEB- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

48 + 00.00

-LIEB-

26-AUG-2022 08:55
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6/23/16



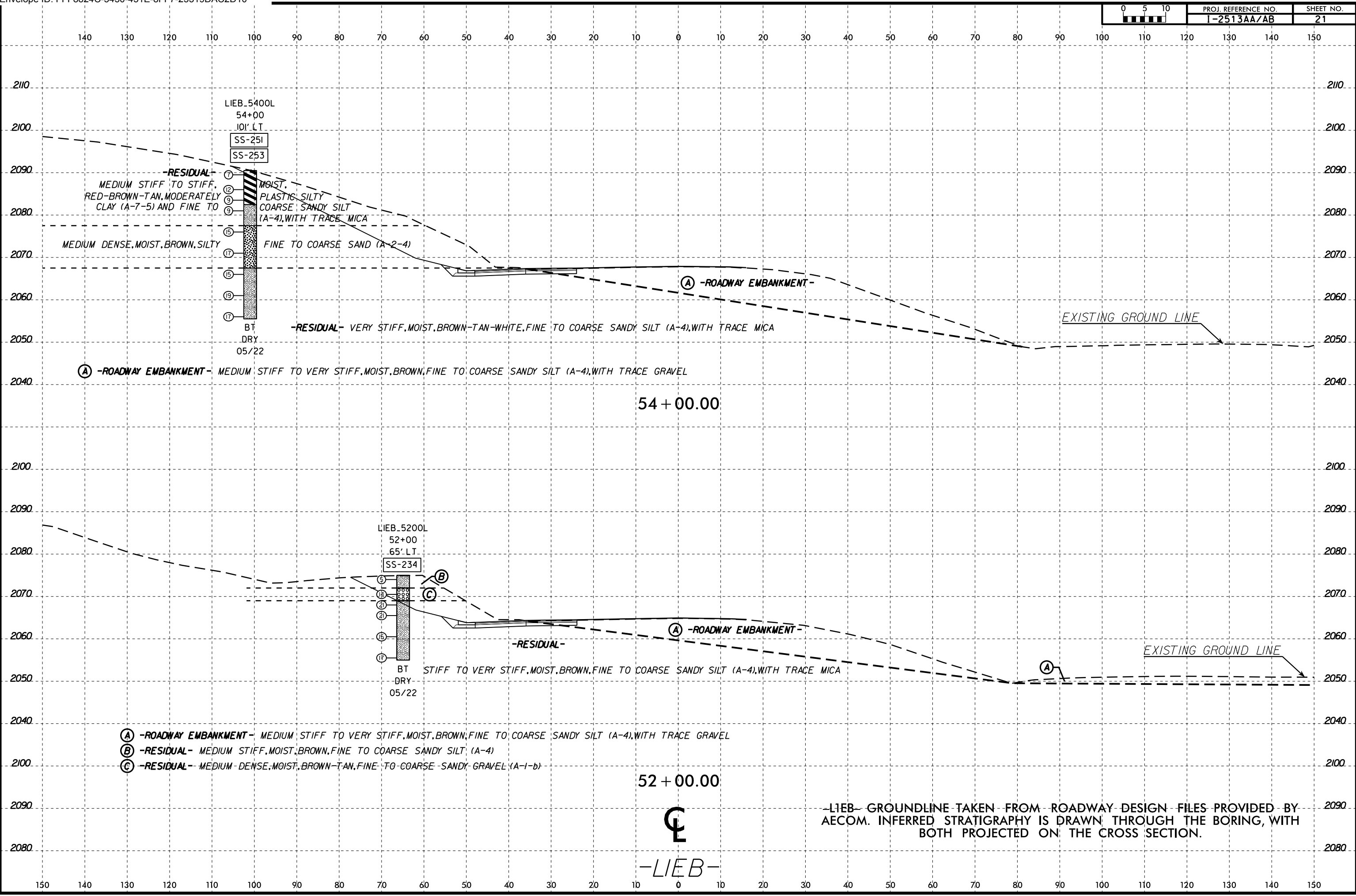
- (A) -ROADWAY EMBANKMENT- MEDIUM STIFF TO VERY STIFF, MOIST, BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE GRAVEL
- (B) -WEATHERED ROCK- (GNEISS)
- (C) -CRYSTALLINE ROCK- (GNEISS)

-LIEB- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

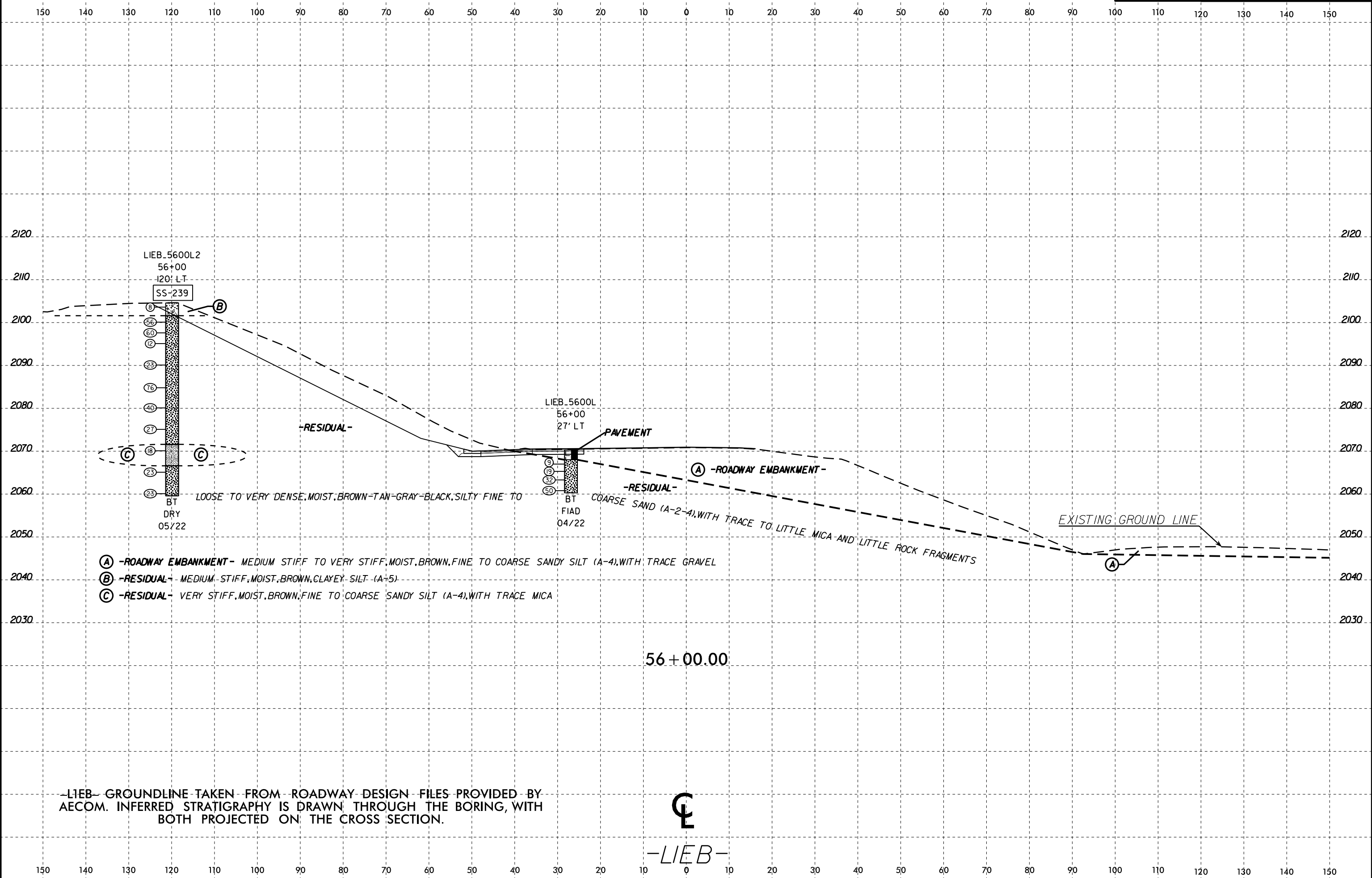
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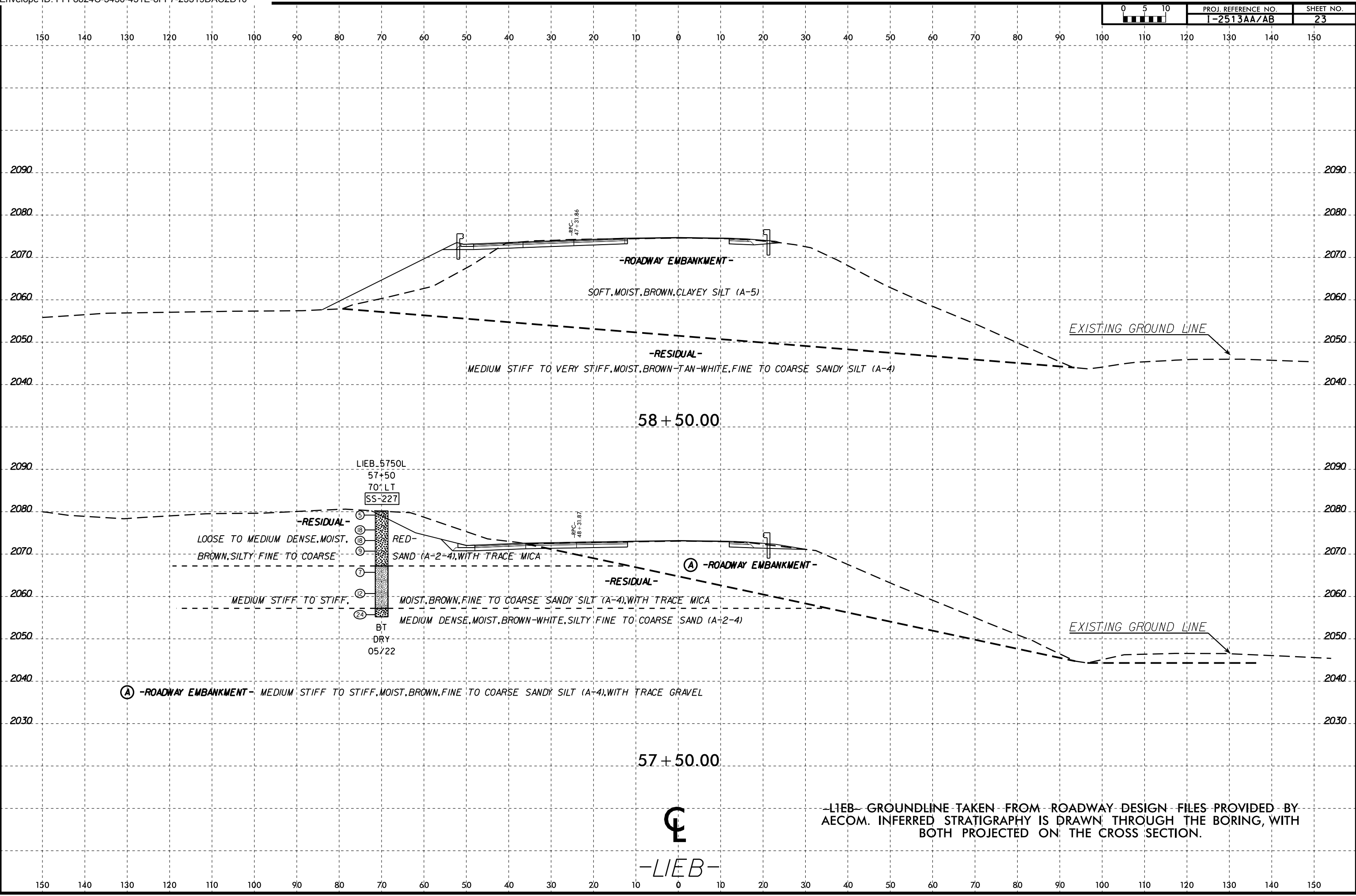


- (A) -ROADWAY EMBANKMENT- MEDIUM STIFF TO VERY STIFF, MOIST, BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE GRAVEL
- (B) -RESIDUAL- MEDIUM STIFF, MOIST, BROWN, CLAYEY SILT (A-5)
- (C) -RESIDUAL- VERY STIFF, MOIST, BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA

-LIEB- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.


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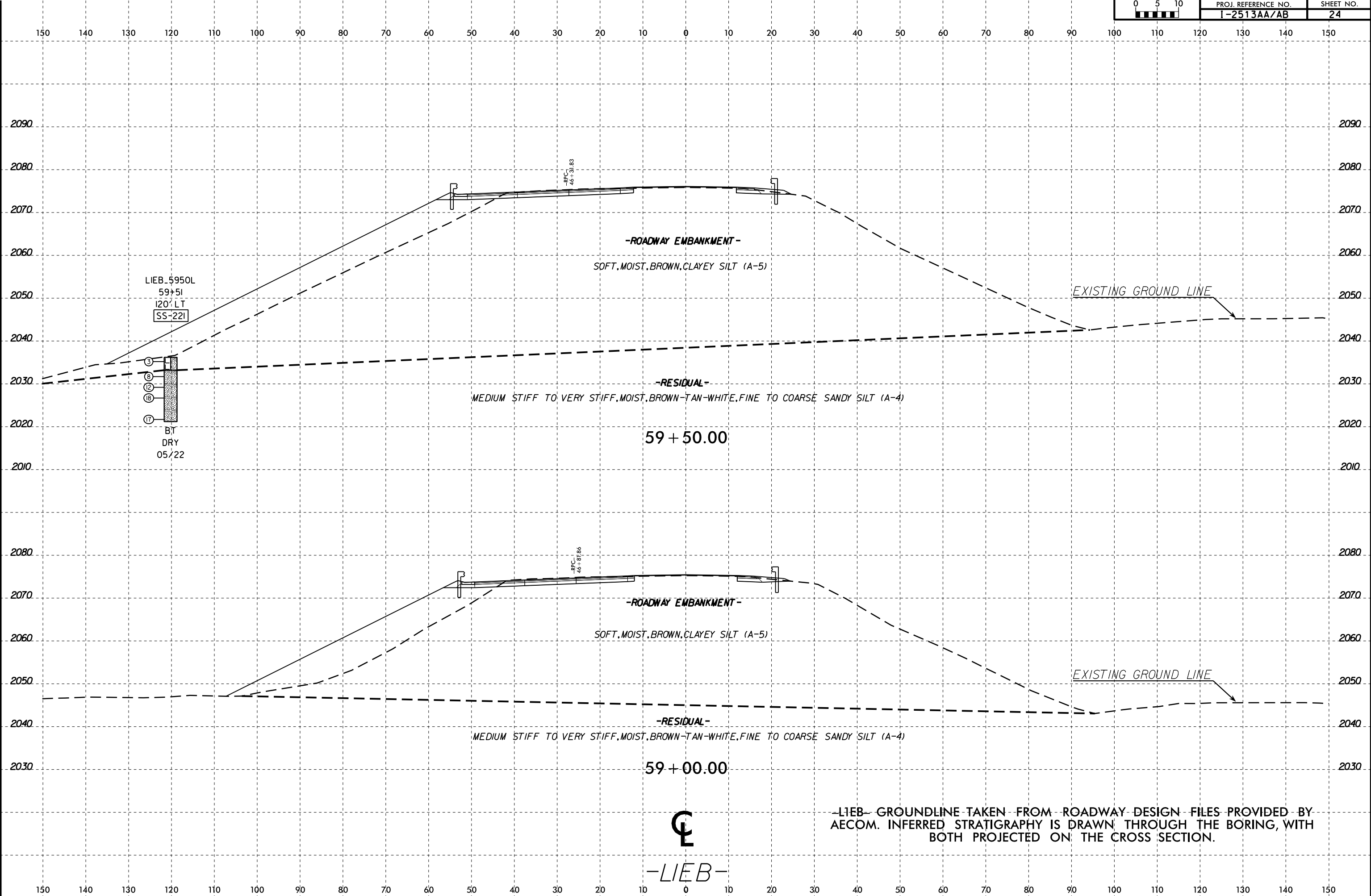
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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
I-2513AA/AB	24



59 + 50.00

59 + 00.00

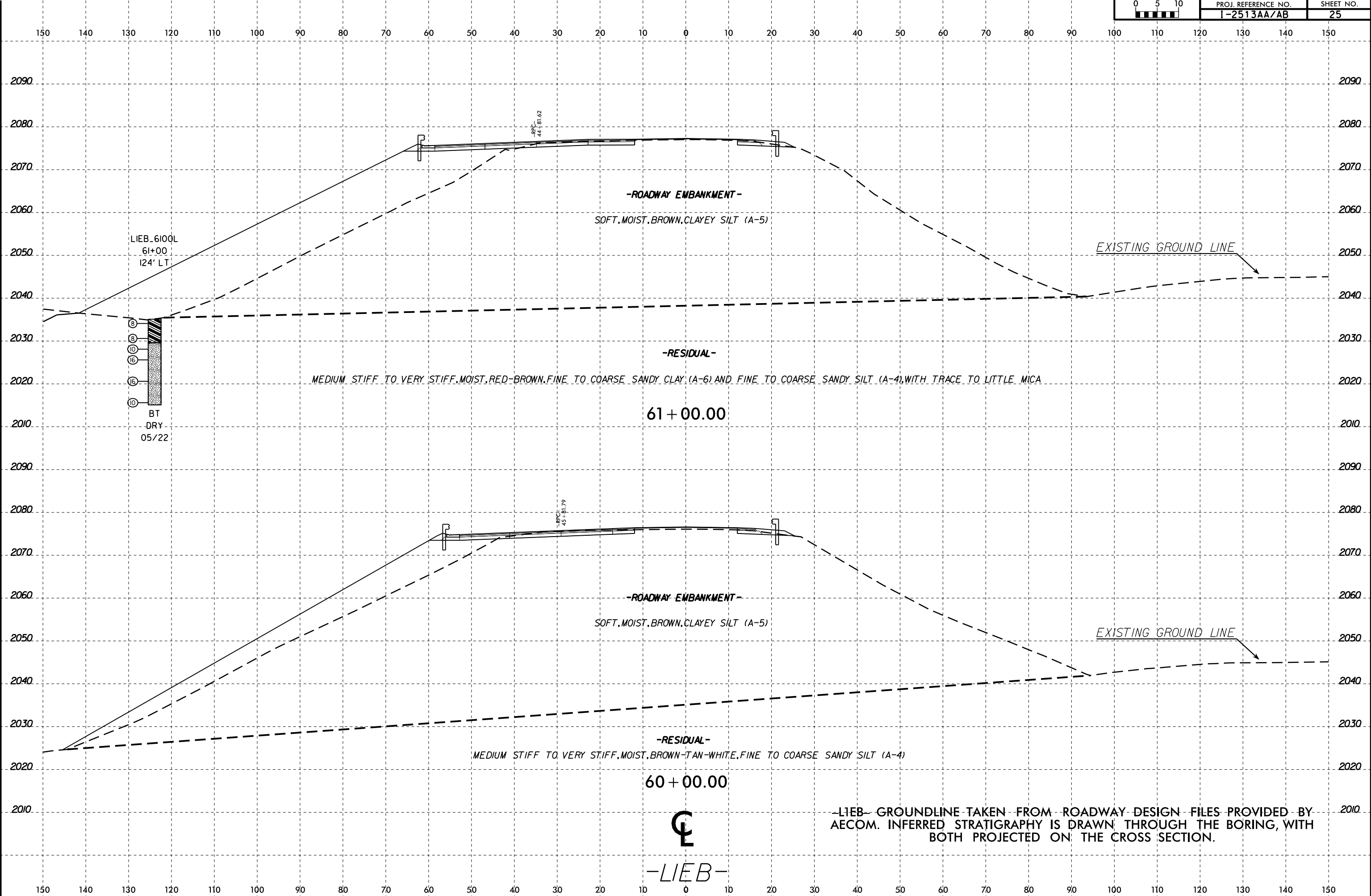
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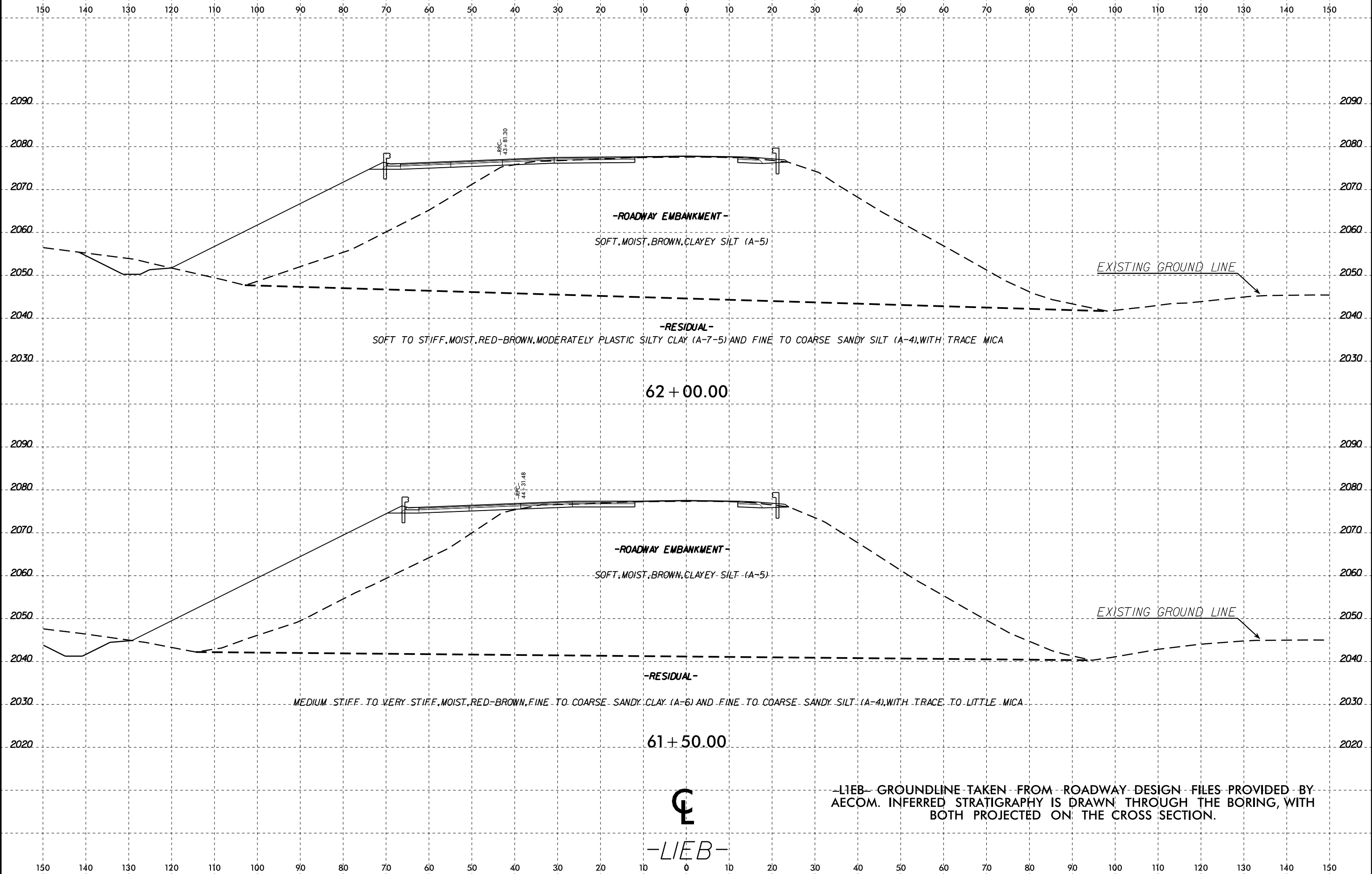
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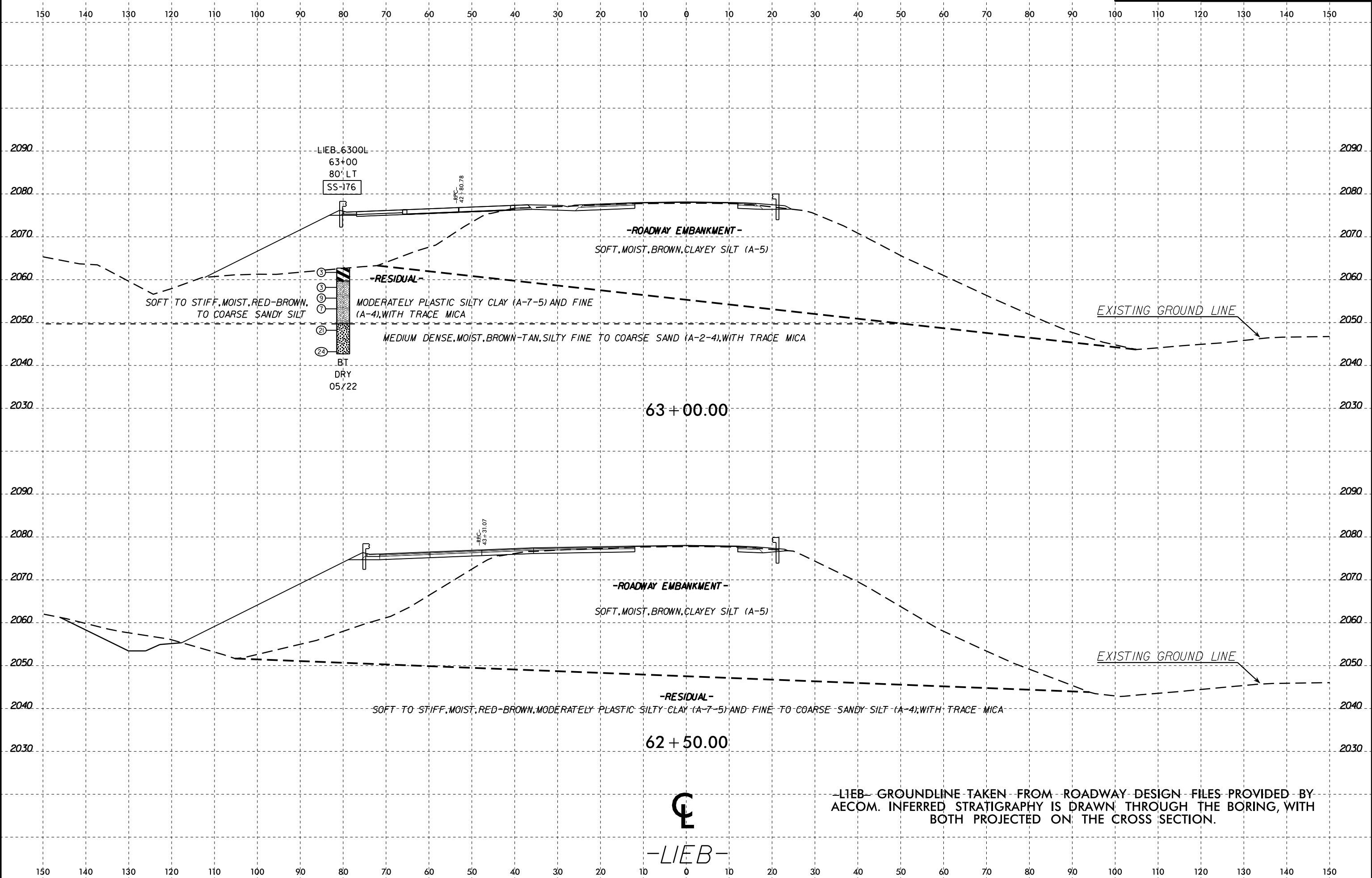
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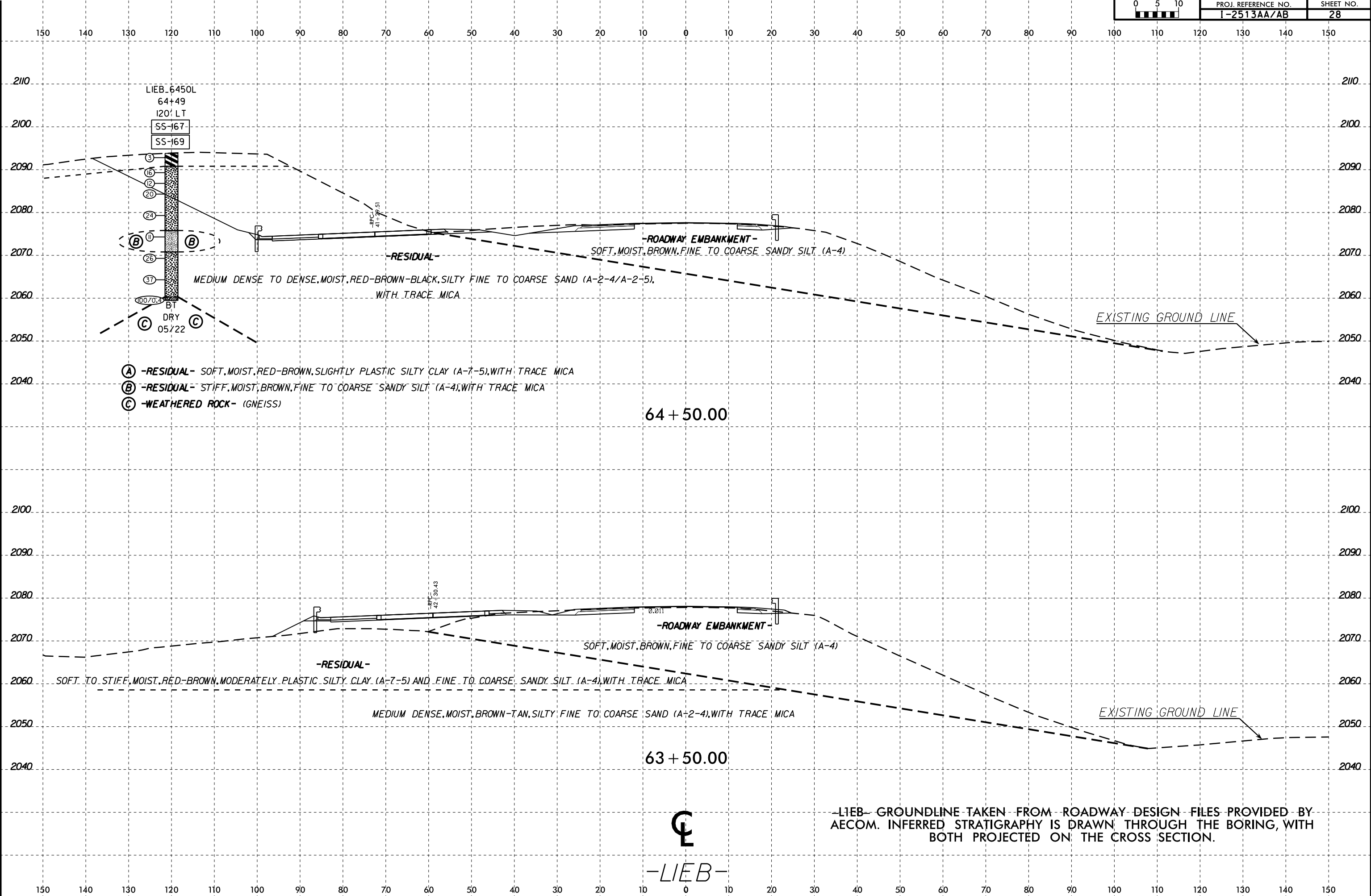
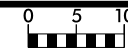
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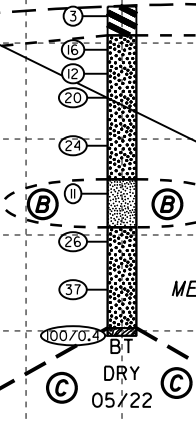
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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-2513AA/AB	27





LIEB_6450L
64+49
120' LT
SS-167
SS-169



- (A) -RESIDUAL- SOFT, MOIST, RED-BROWN, SLIGHTLY PLASTIC SILTY CLAY (A-7-5), WITH TRACE MICA
- (B) -RESIDUAL- STIFF, MOIST, BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA
- (C) -WEATHERED ROCK- (GNEISS)

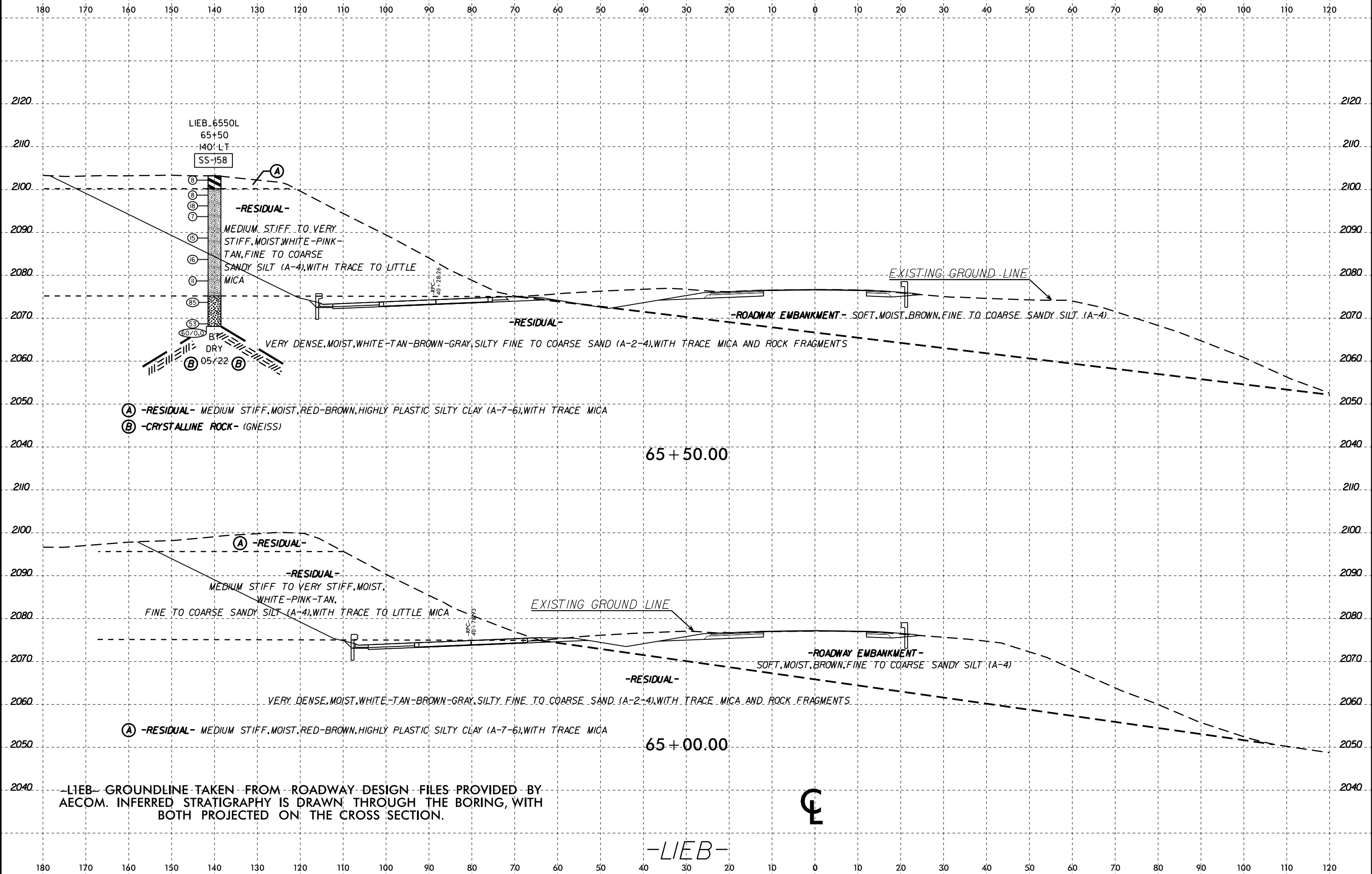
64 + 50.00

63 + 50.00

LIEB

-LIEB- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

6/23/16
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\$\$\$\$SERIALNAME\$\$\$\$



LIEB_6550L
65+50
140' LT
SS-158

- (A) -RESIDUAL- MEDIUM STIFF, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-6), WITH TRACE MICA
- (B) -CRYSTALLINE ROCK- (GNEISS)

65 + 50.00

65 + 00.00

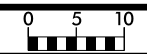
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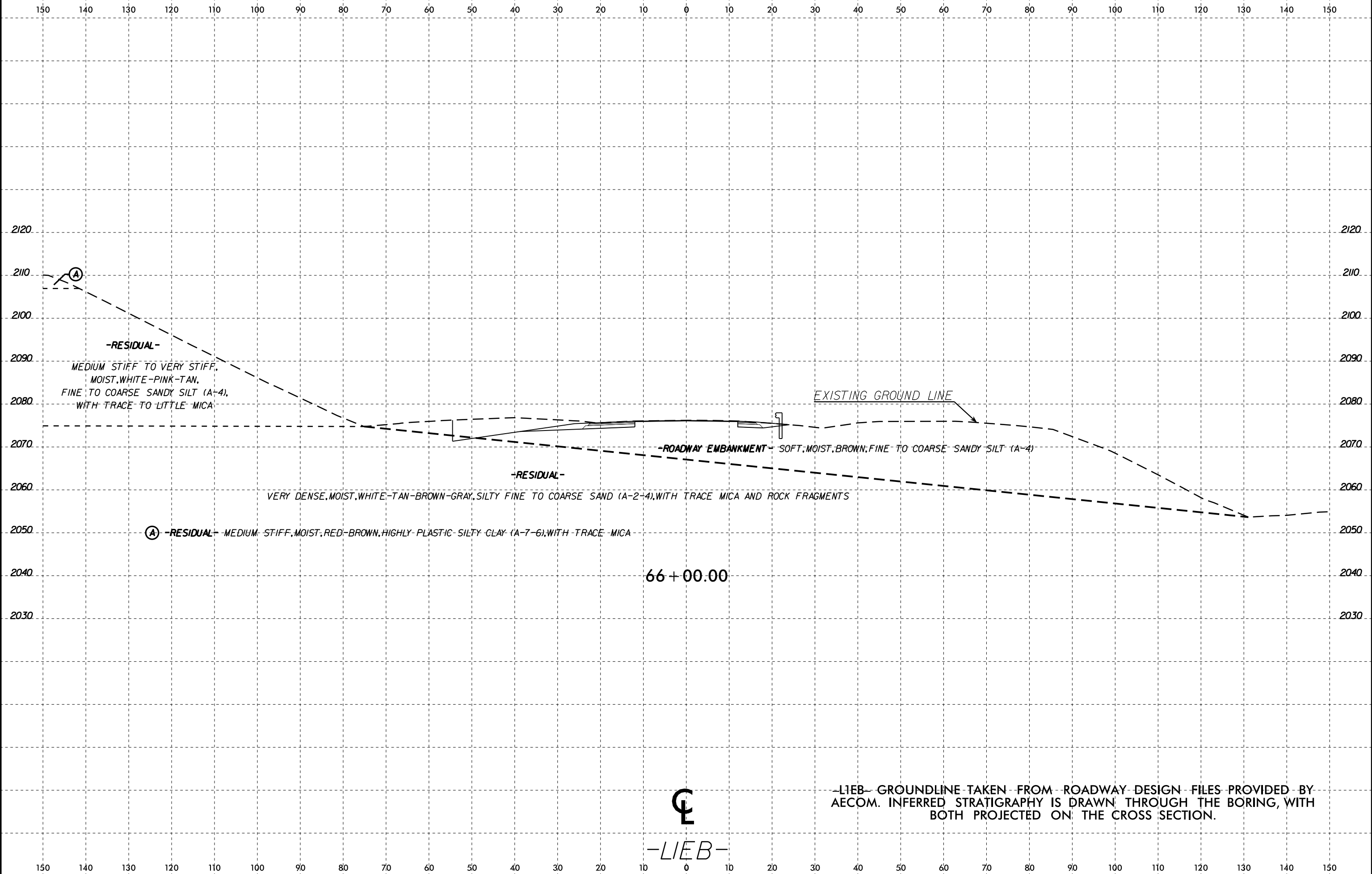


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6/23/16



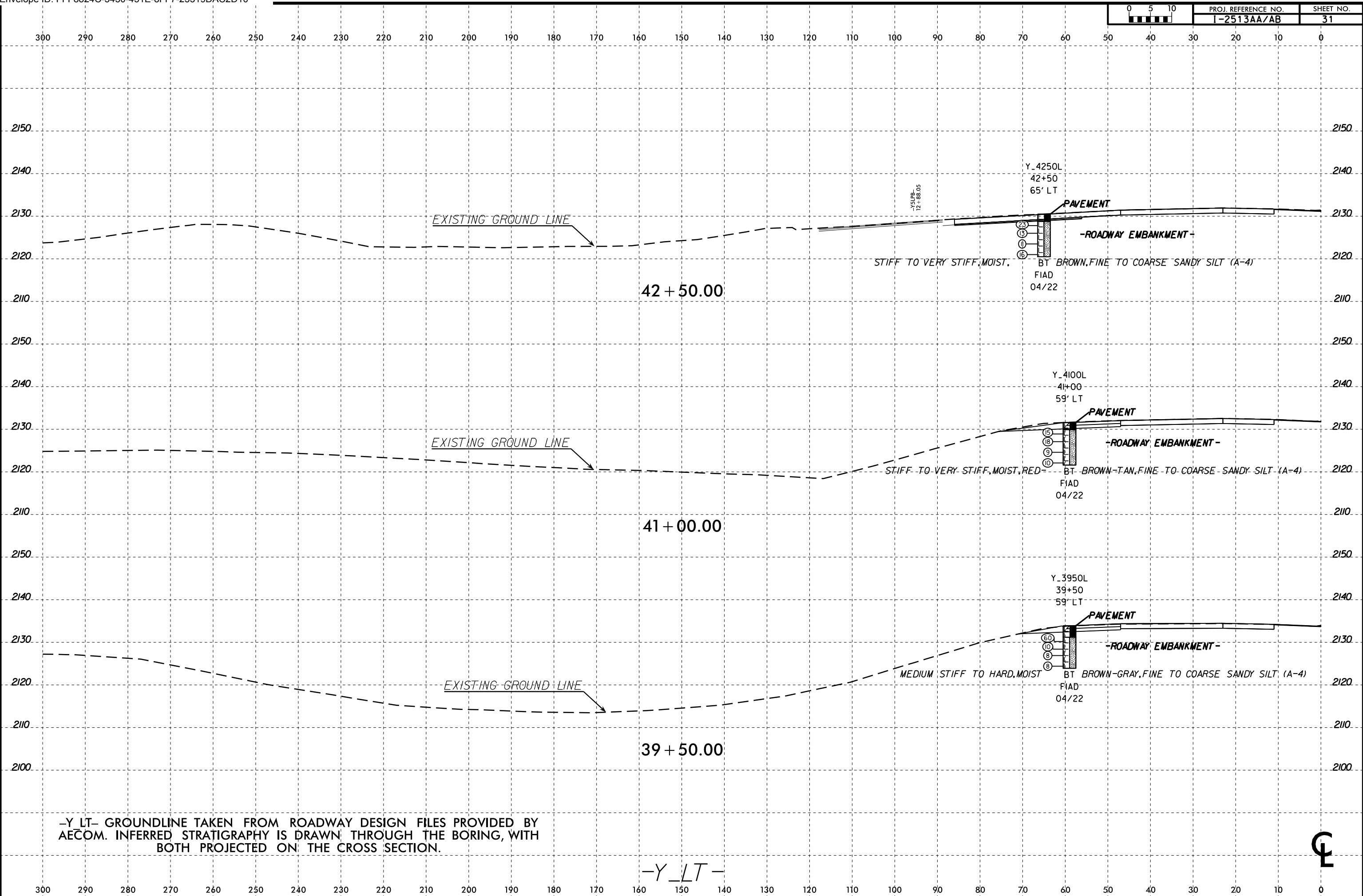
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LIEB

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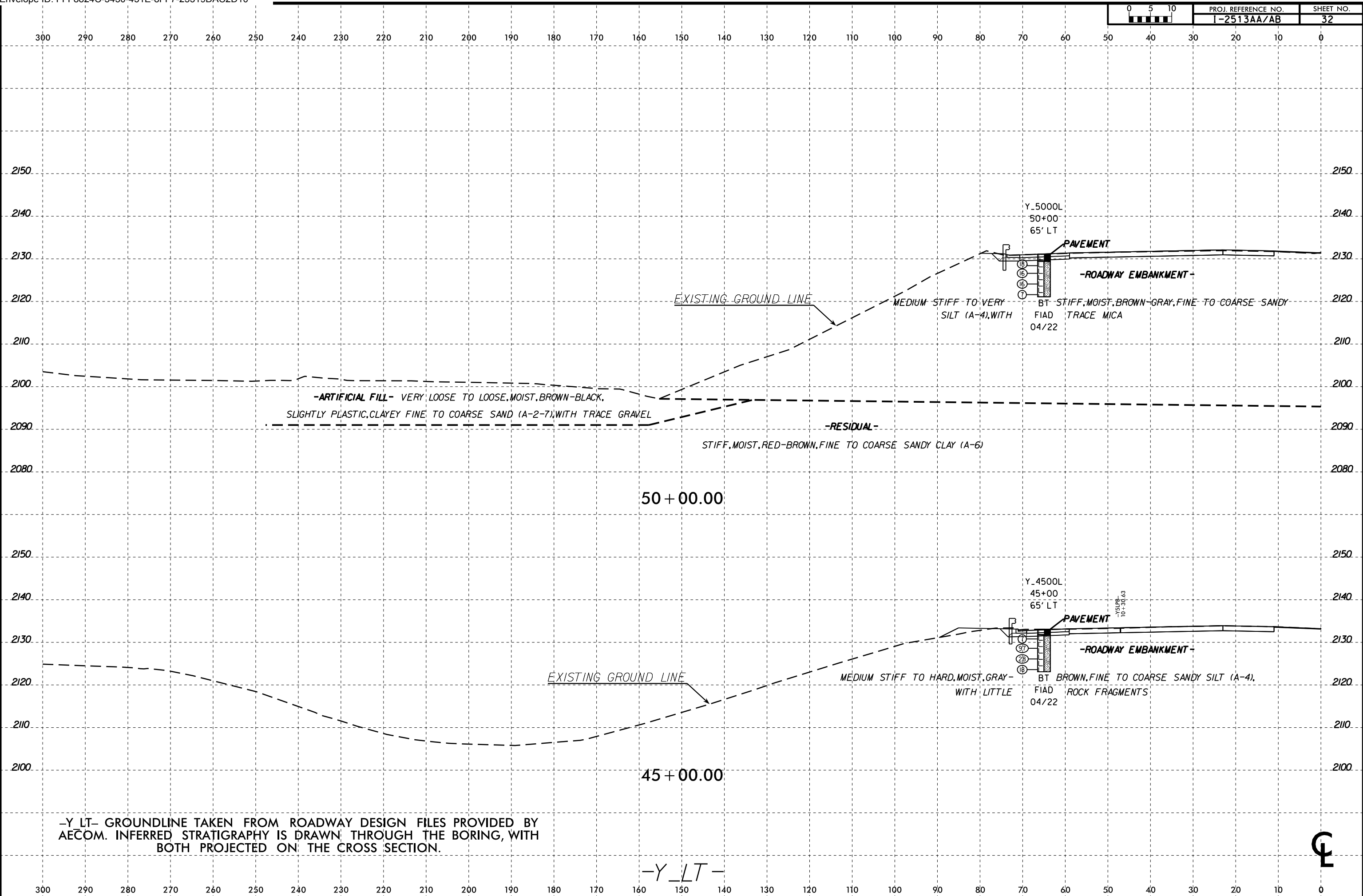


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-Y LT-



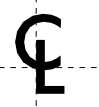
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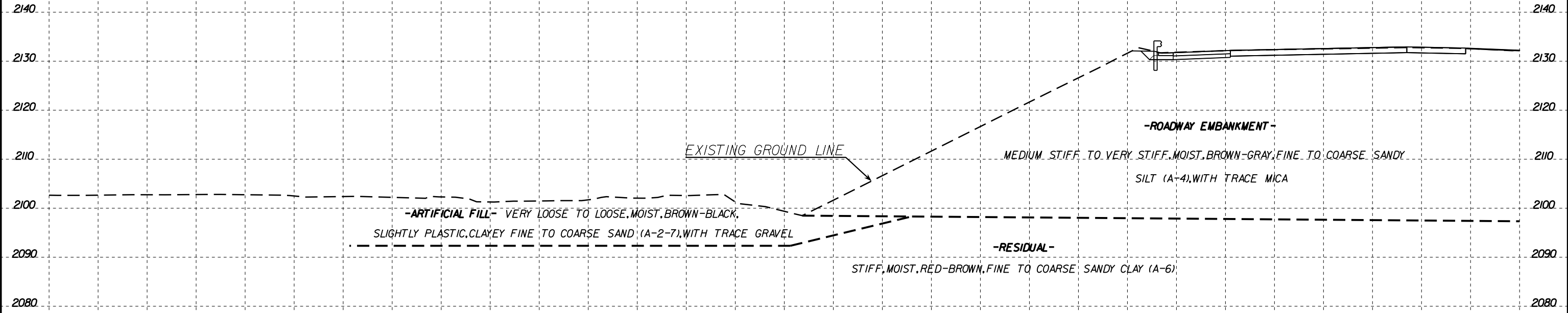
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-Y_LT-





300 290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0



-ARTIFICIAL FILL- VERY LOOSE TO LOOSE, MOIST, BROWN-BLACK,
SLIGHTLY PLASTIC, CLAYEY FINE TO COARSE SAND (A-2-7), WITH TRACE GRAVEL

EXISTING GROUND LINE

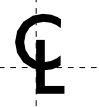
-ROADWAY EMBANKMENT-
MEDIUM STIFF TO VERY STIFF, MOIST, BROWN-GRAY, FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA

-RESIDUAL-
STIFF, MOIST, RED-BROWN, FINE TO COARSE SANDY CLAY (A-6)

50 + 50.00

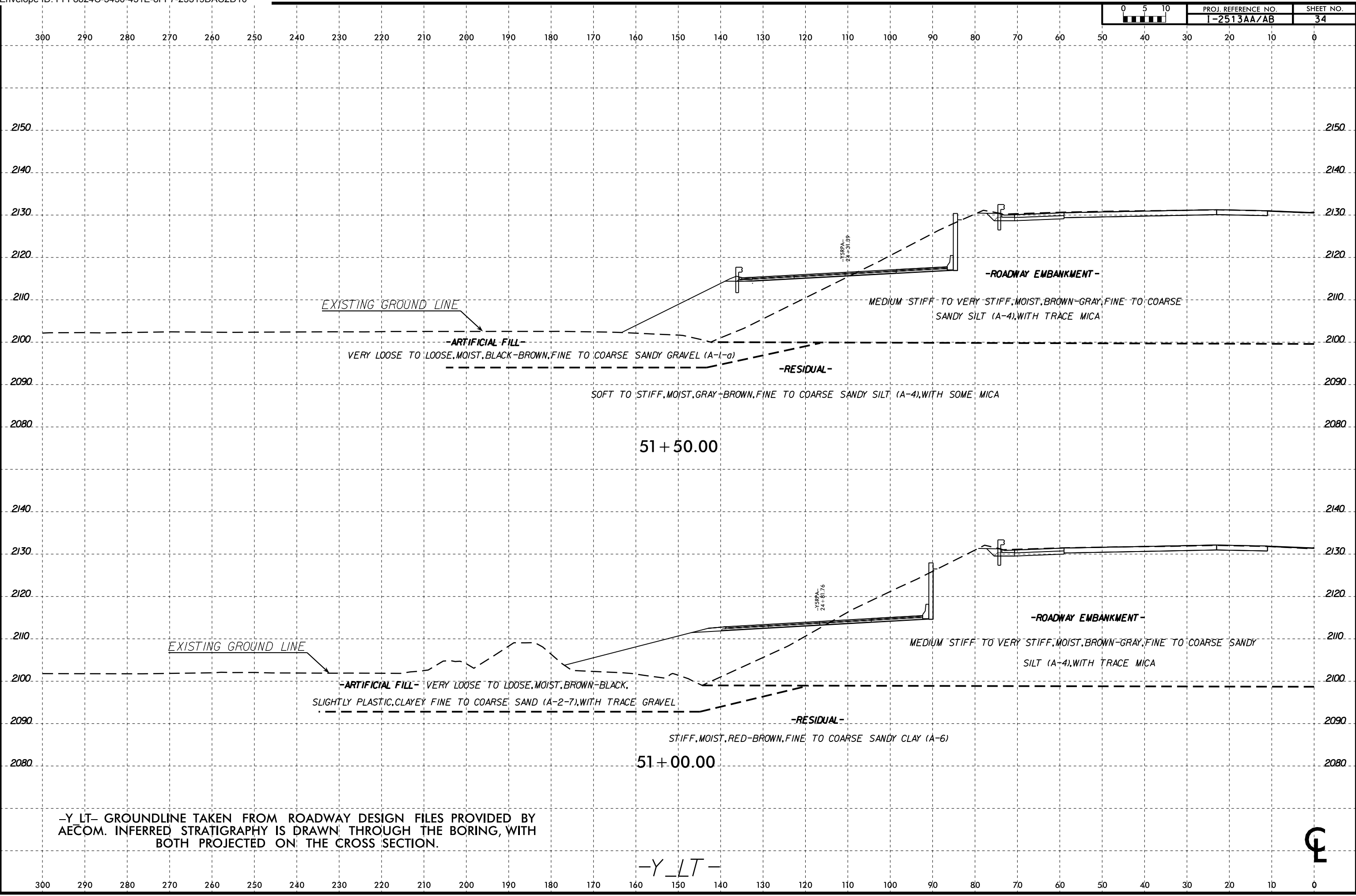
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-Y LT-



300 290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0

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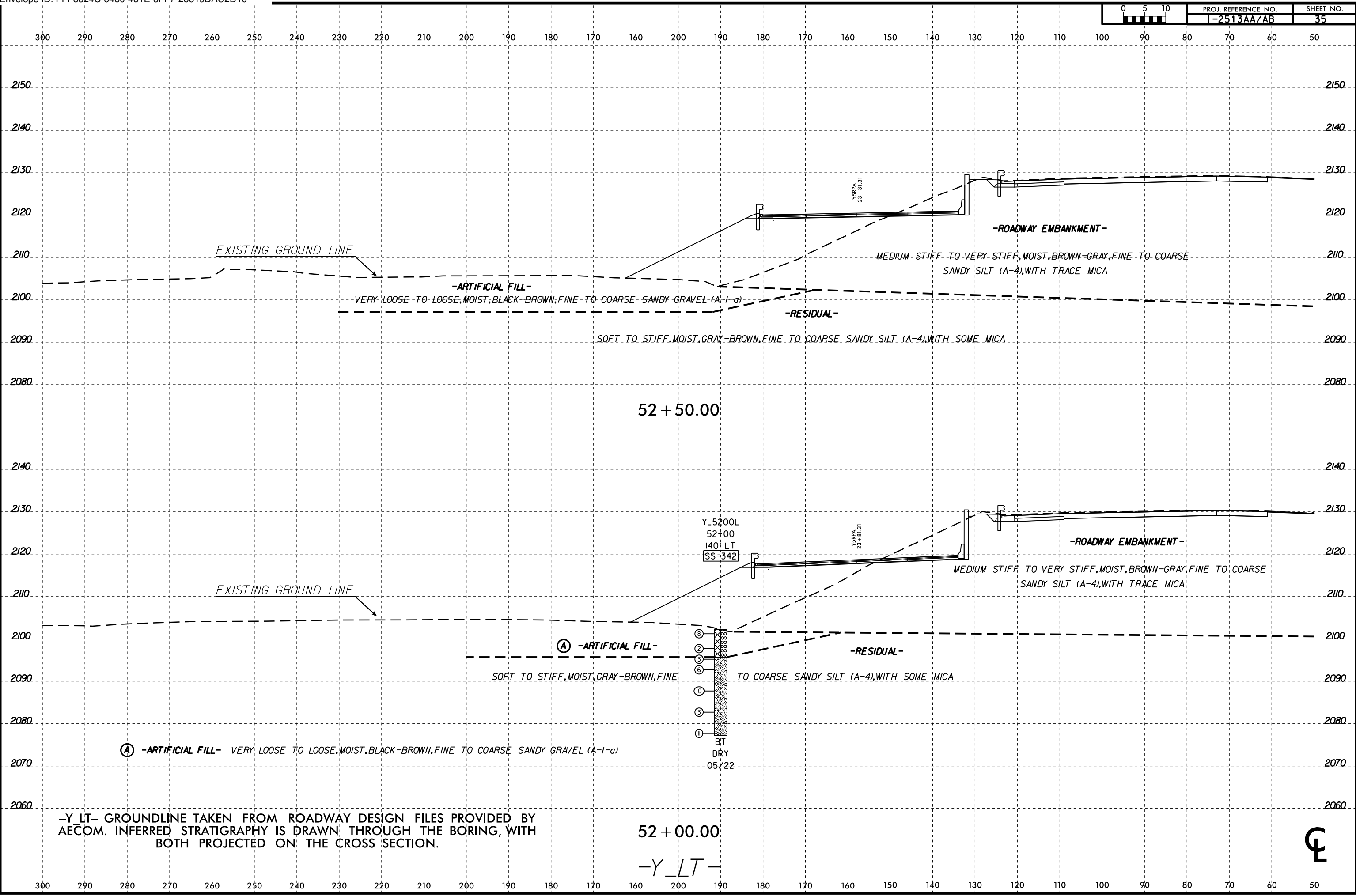


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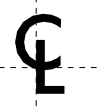


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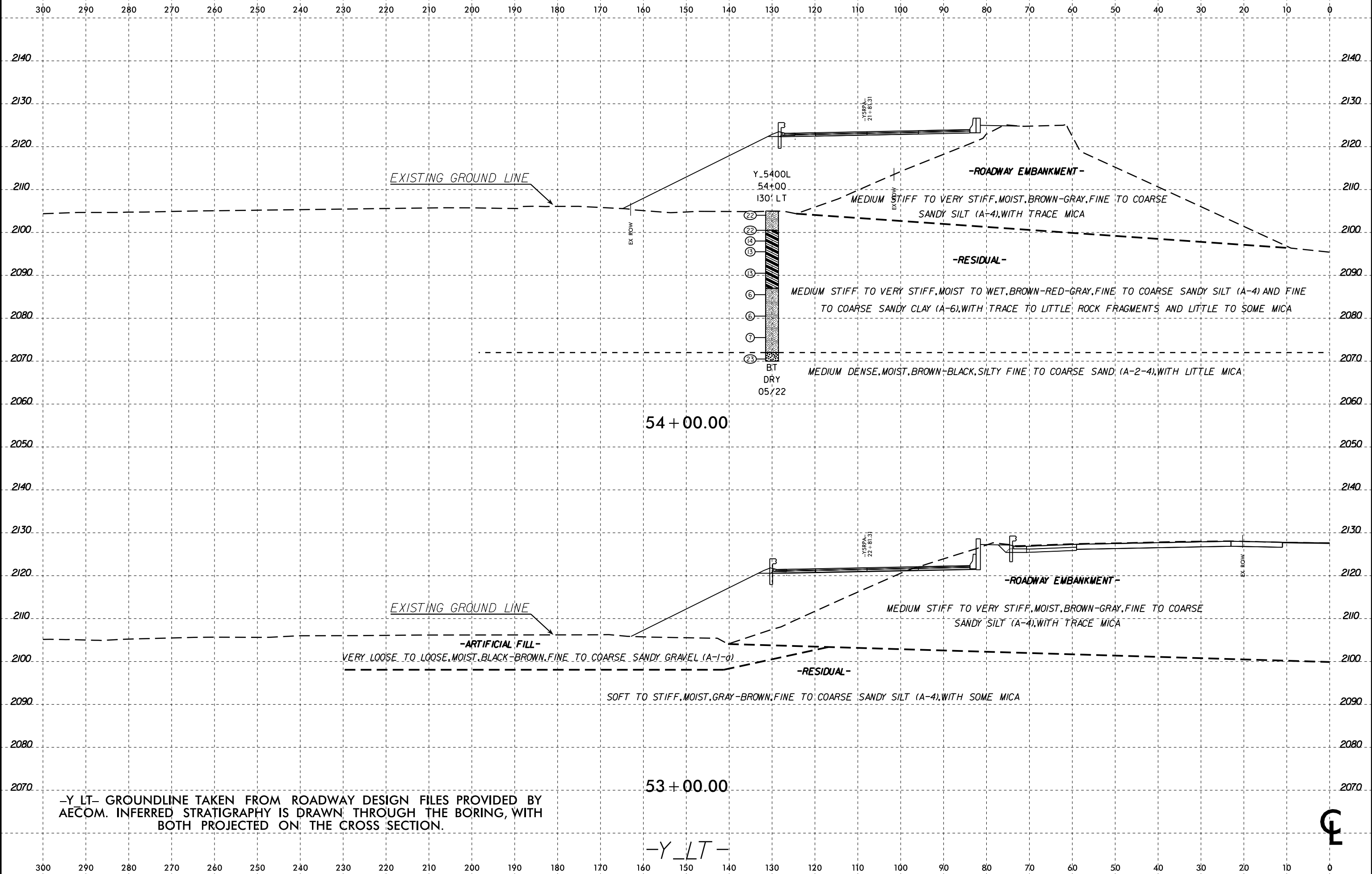


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52 + 00.00
-Y_LT-



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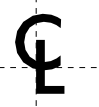


54 + 00.00

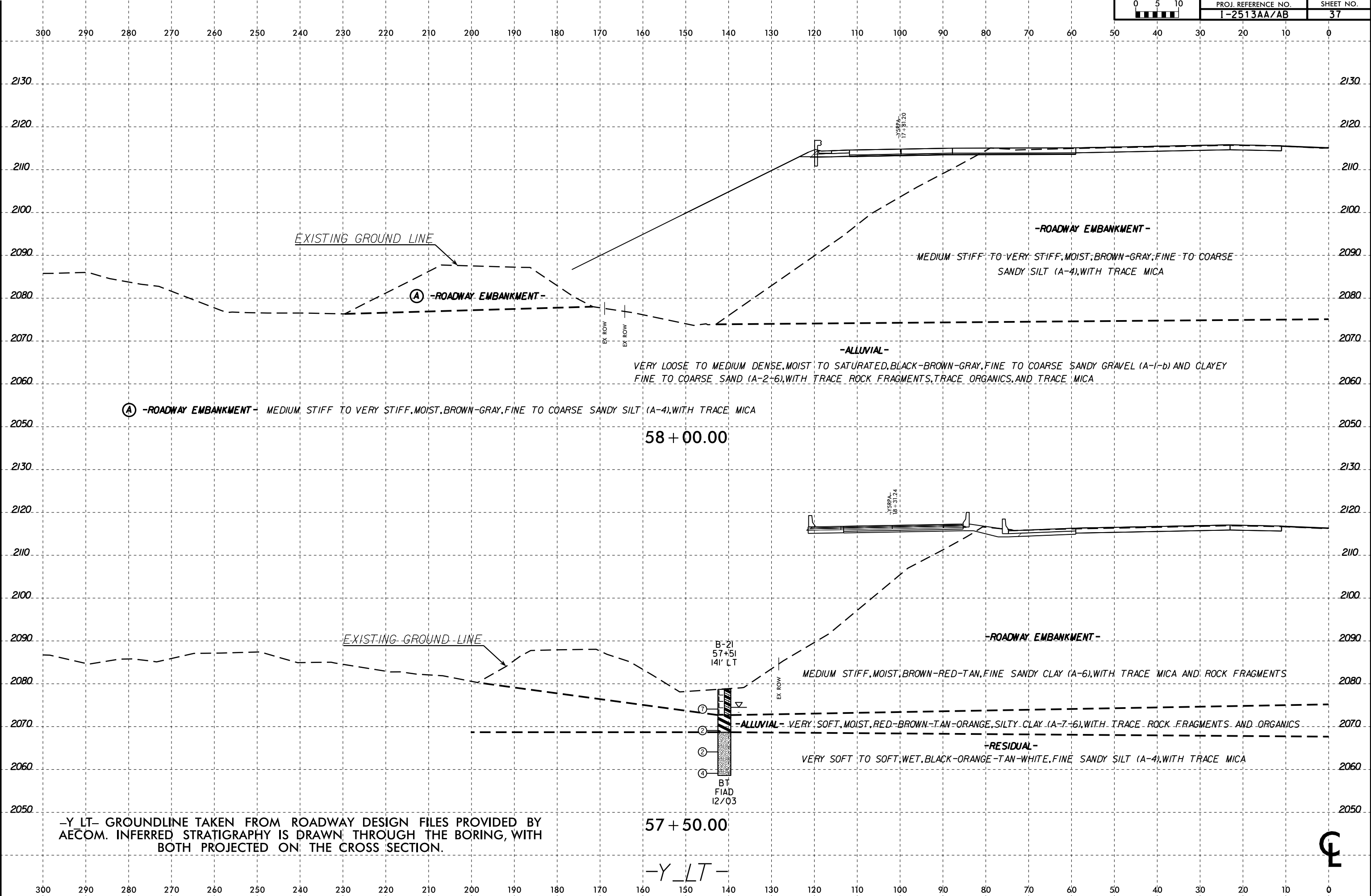
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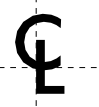
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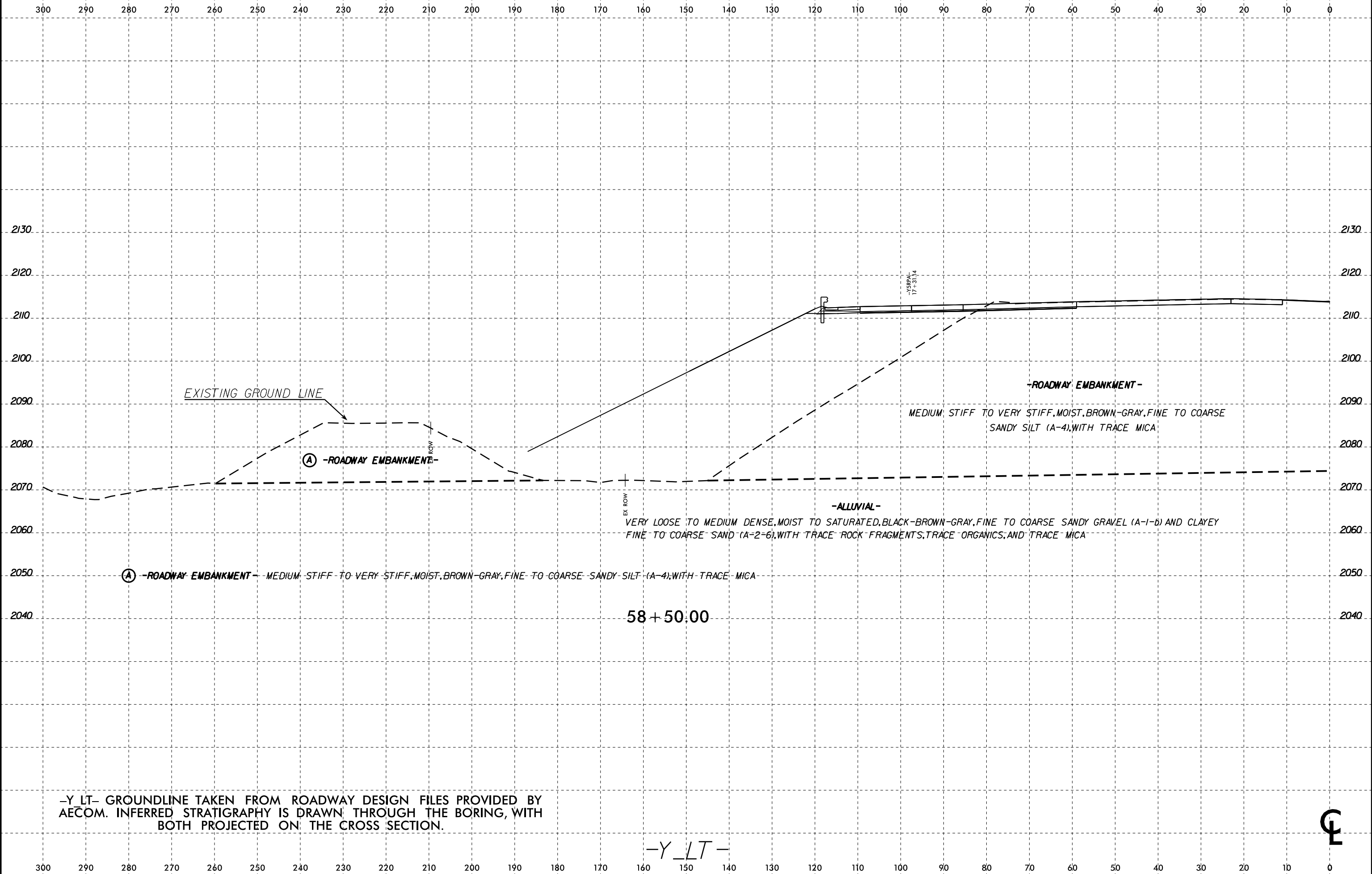


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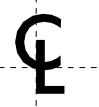


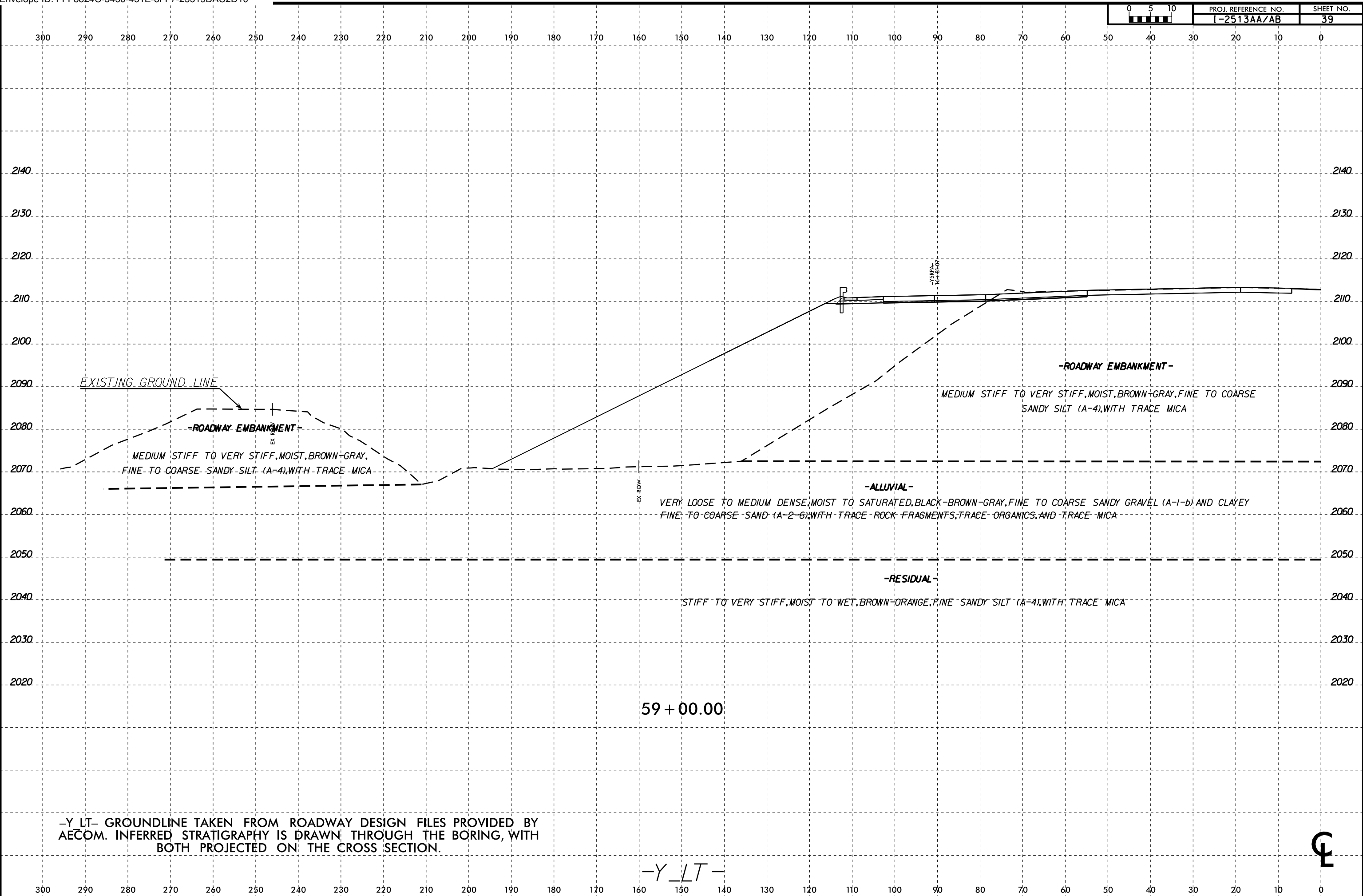
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-Y LT- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.





-Y LT- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

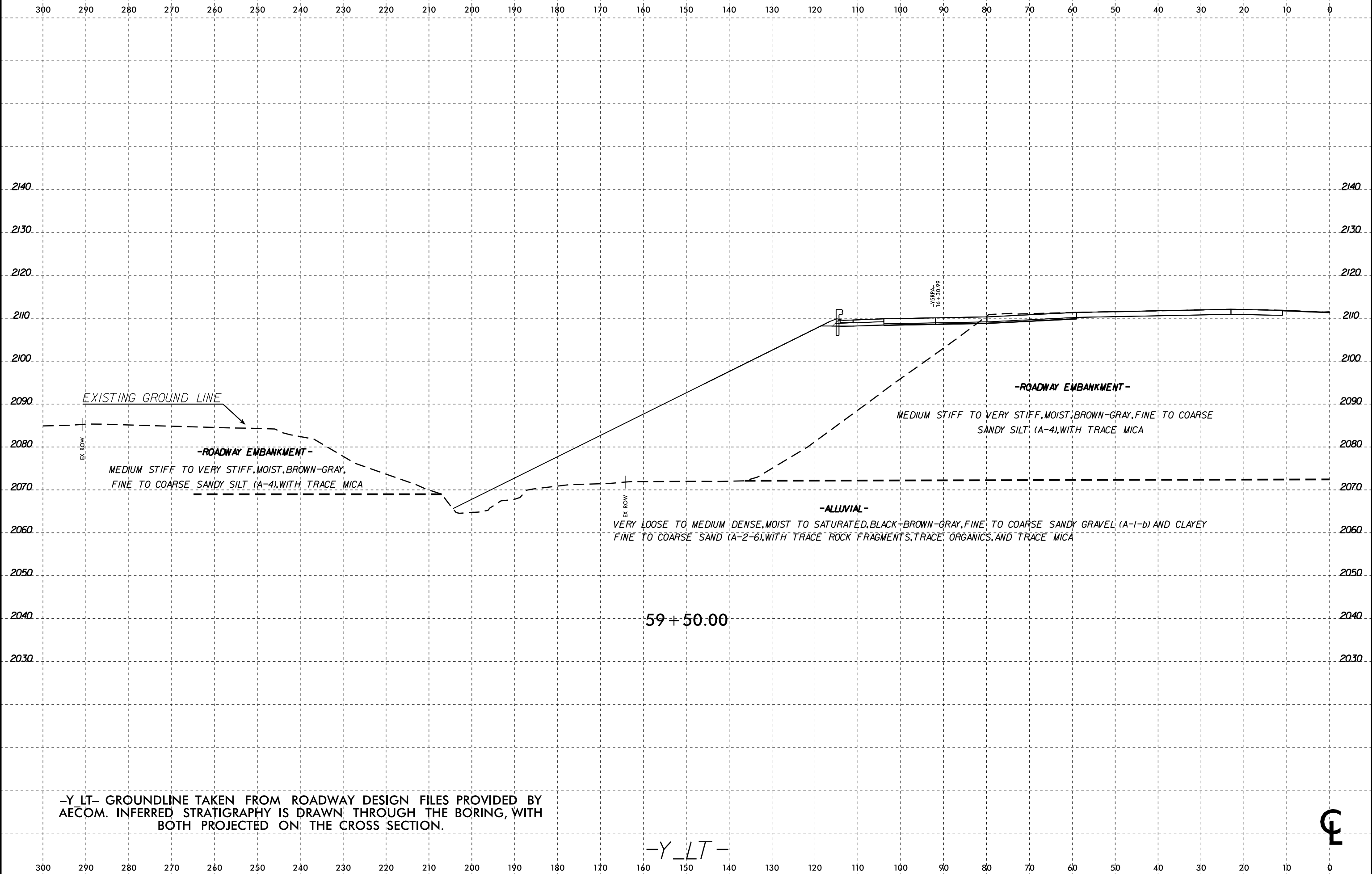
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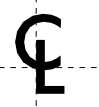
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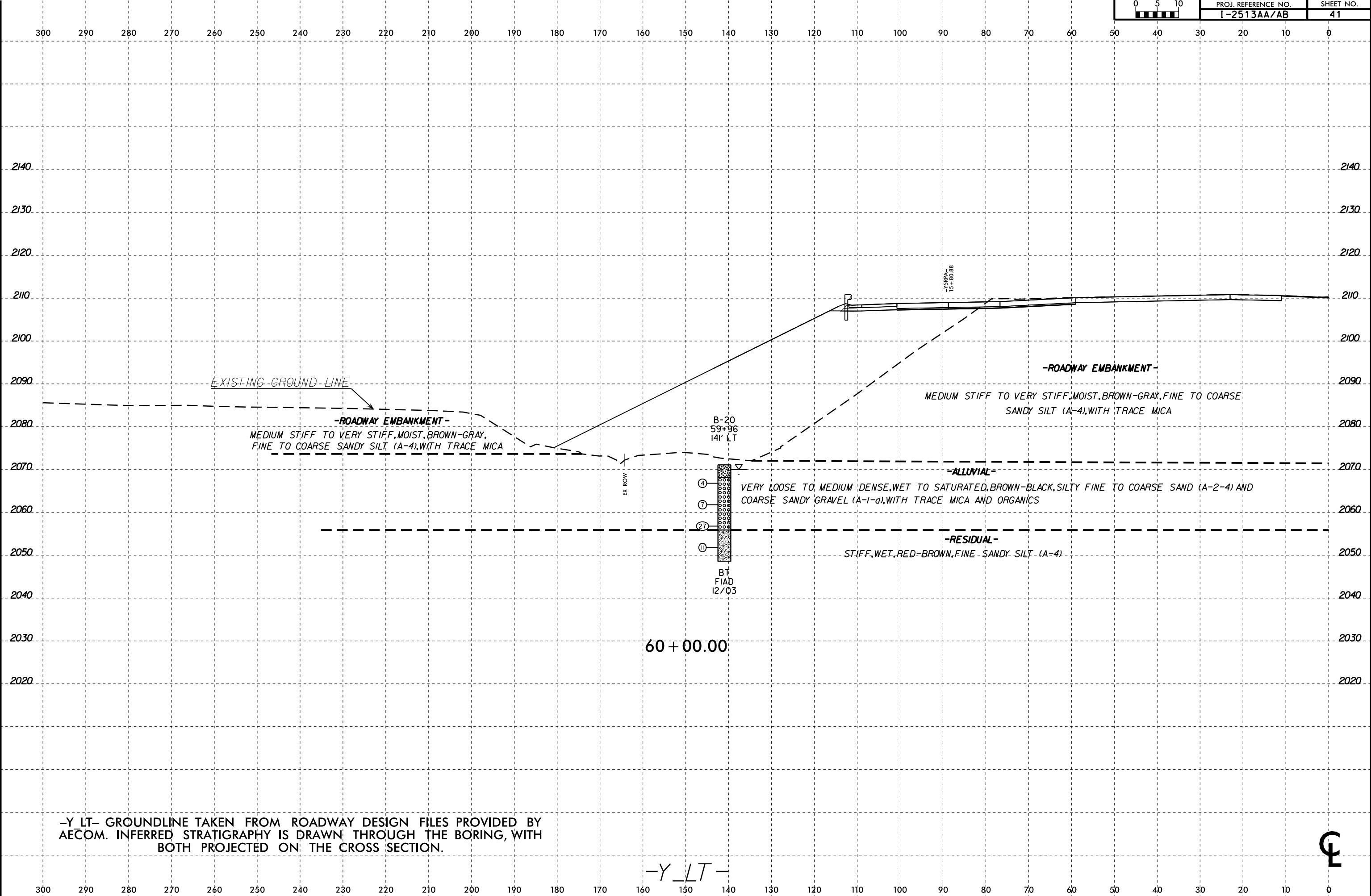
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	I-2513AA/AB	40



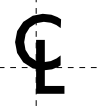
-Y LT- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY
AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH
BOTH PROJECTED ON THE CROSS SECTION.

-Y_LT-

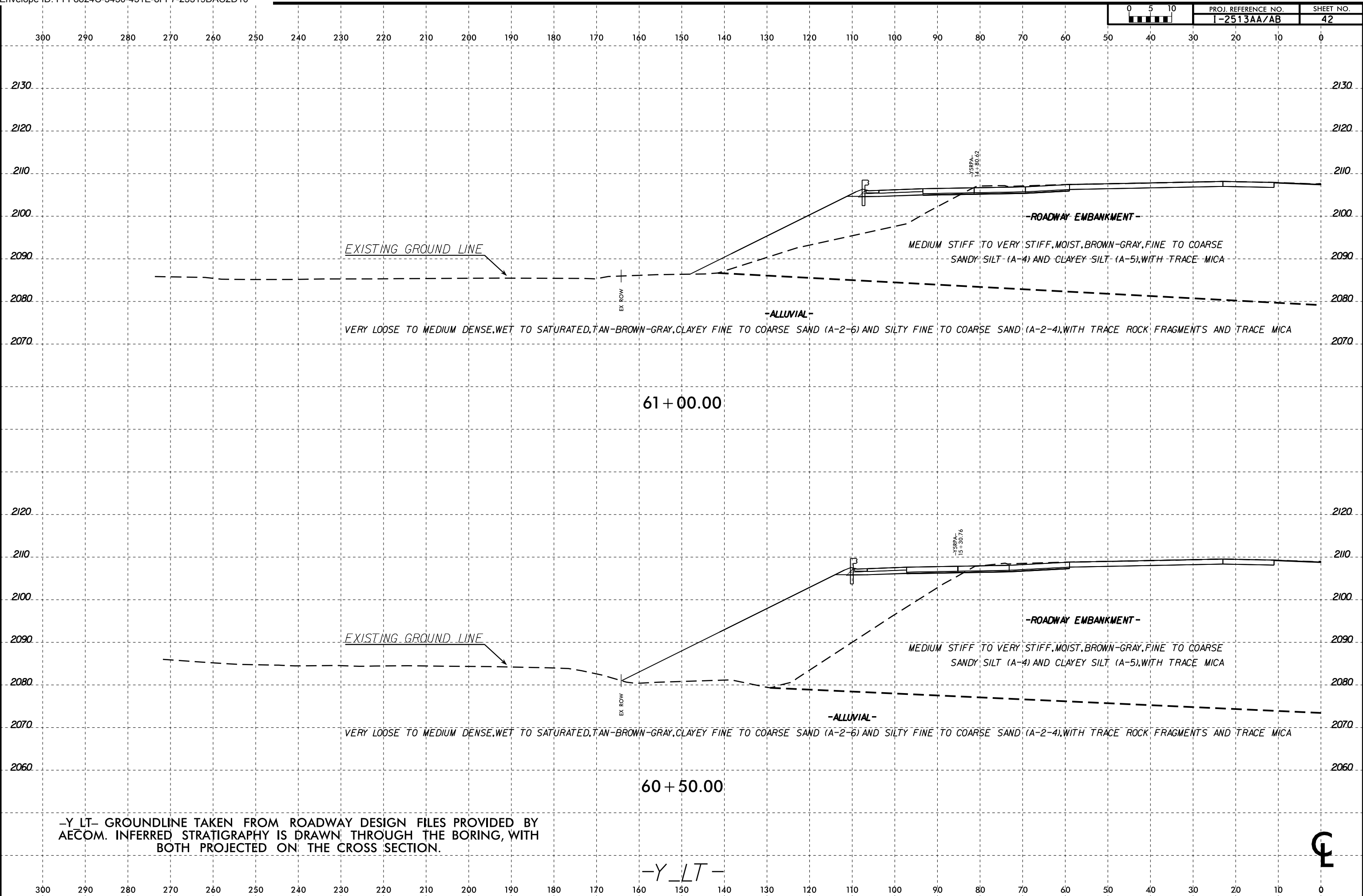




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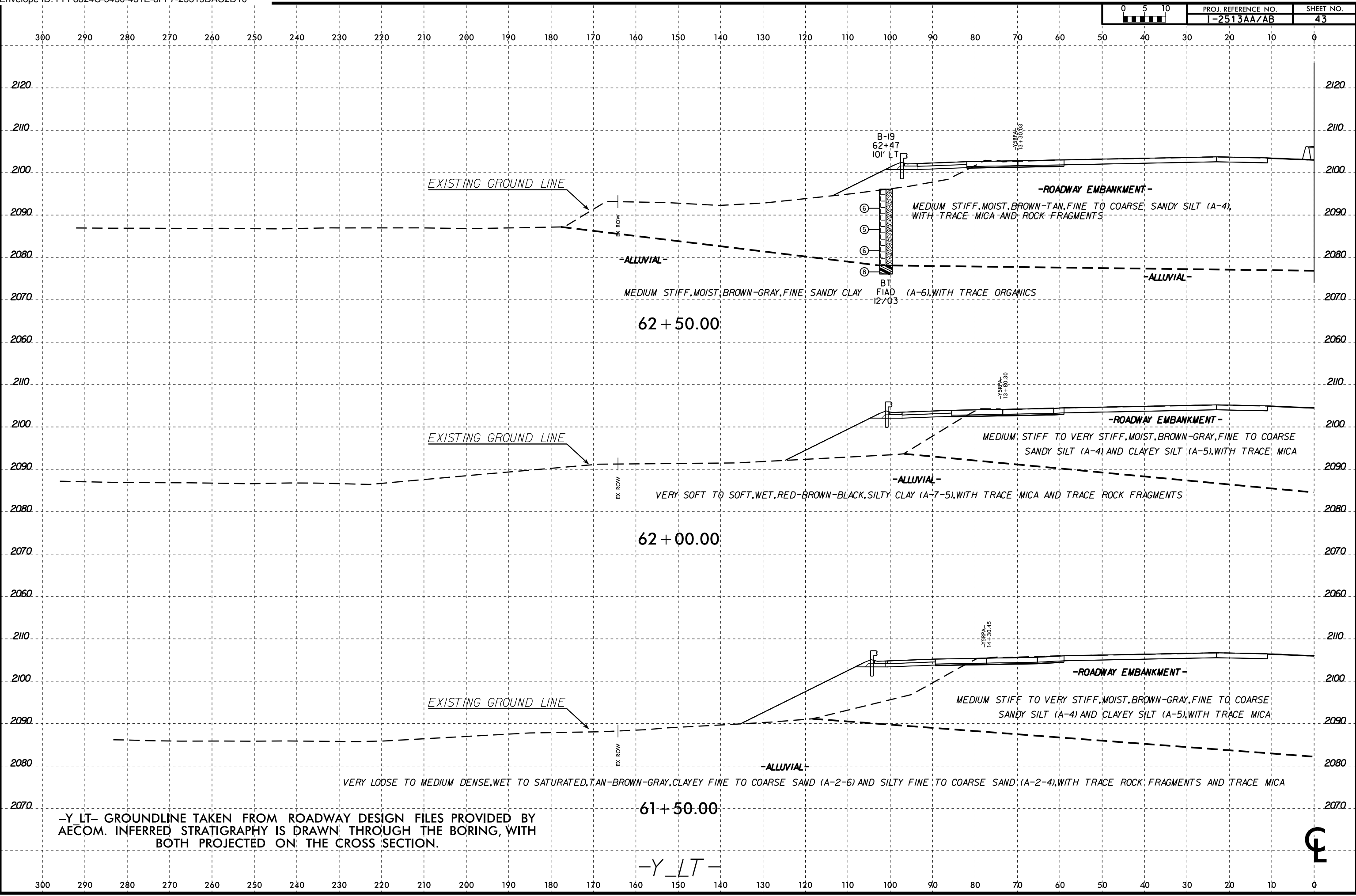


-Y LT- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

-Y LT-

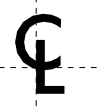


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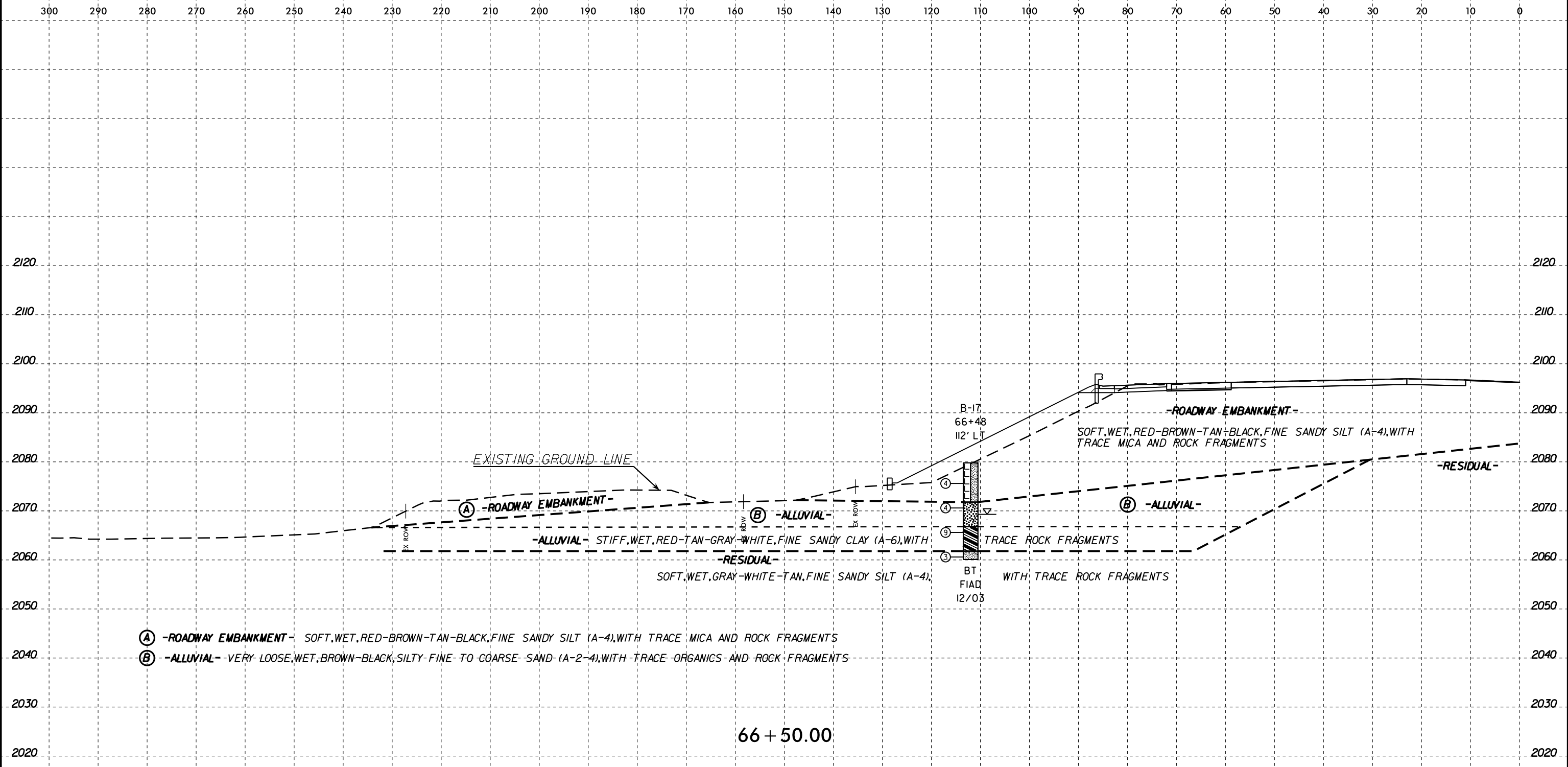
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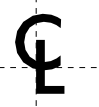
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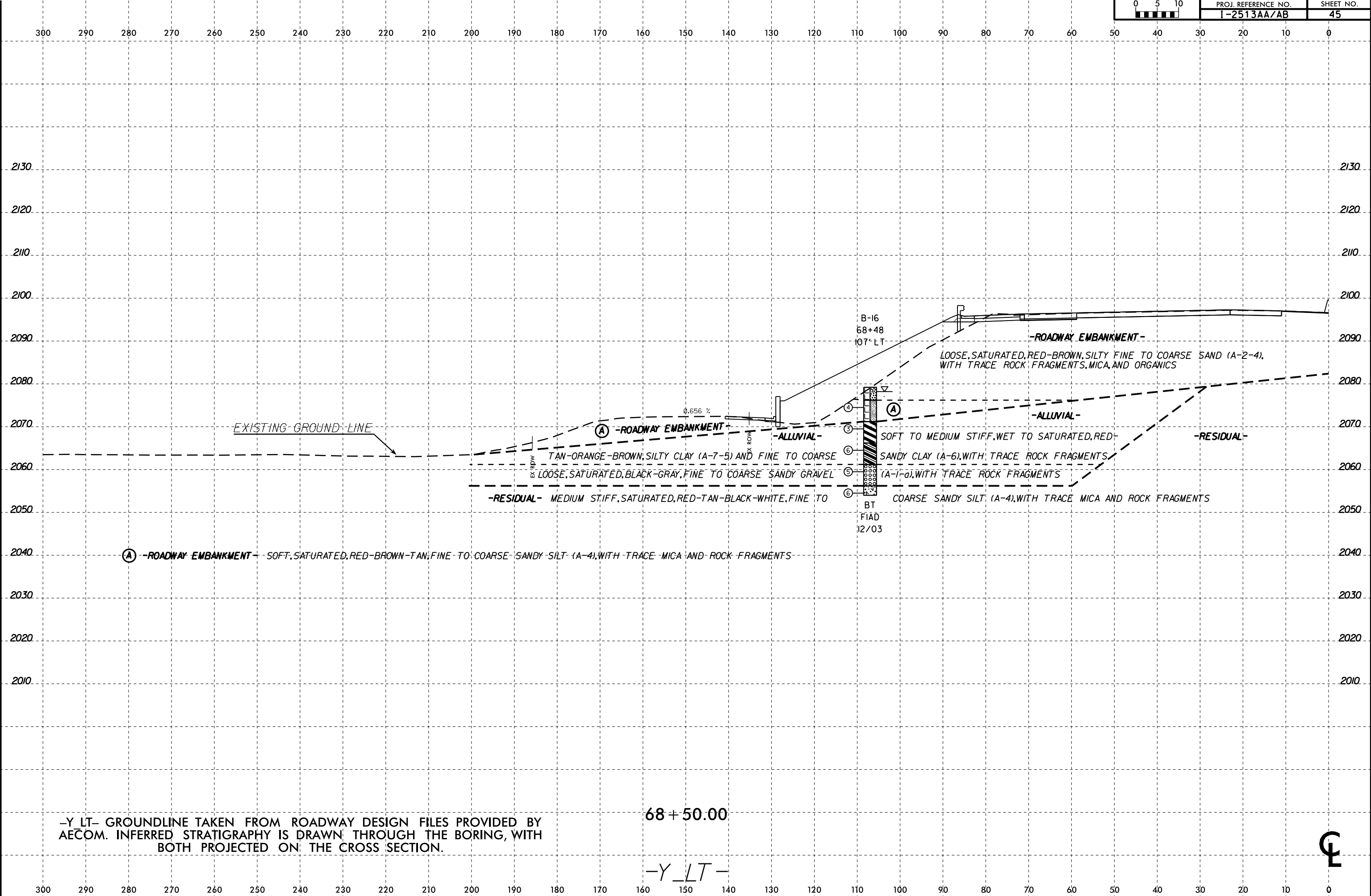


- (A) -ROADWAY EMBANKMENT- SOFT, WET, RED-BROWN-TAN-BLACK, FINE SANDY SILT (A-4), WITH TRACE MICA AND ROCK FRAGMENTS
- (B) -ALLUVIAL- VERY LOOSE, WET, BROWN-BLACK, SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE ORGANICS AND ROCK FRAGMENTS

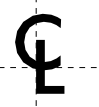
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-Y_LT-

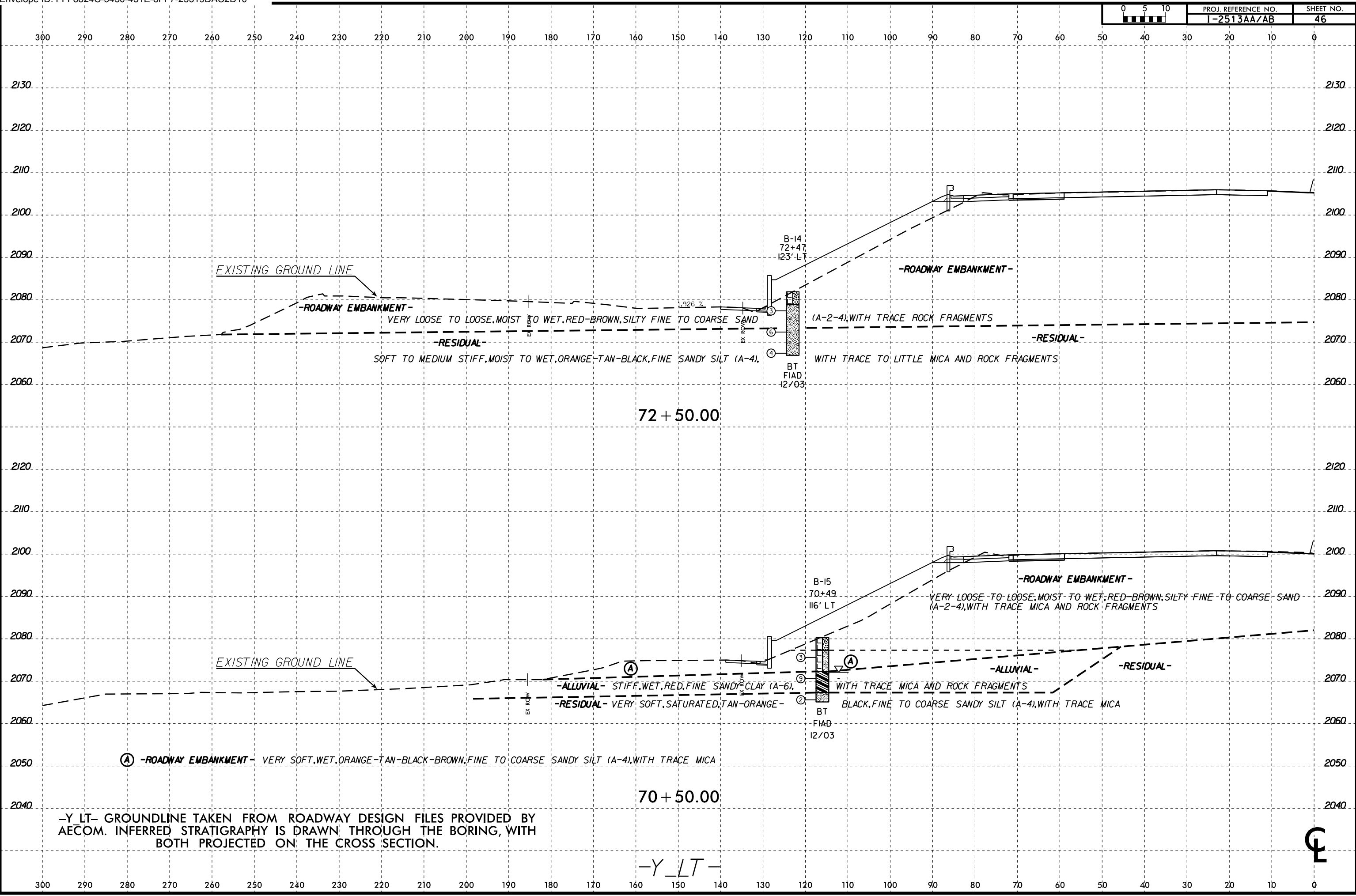




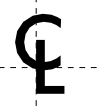
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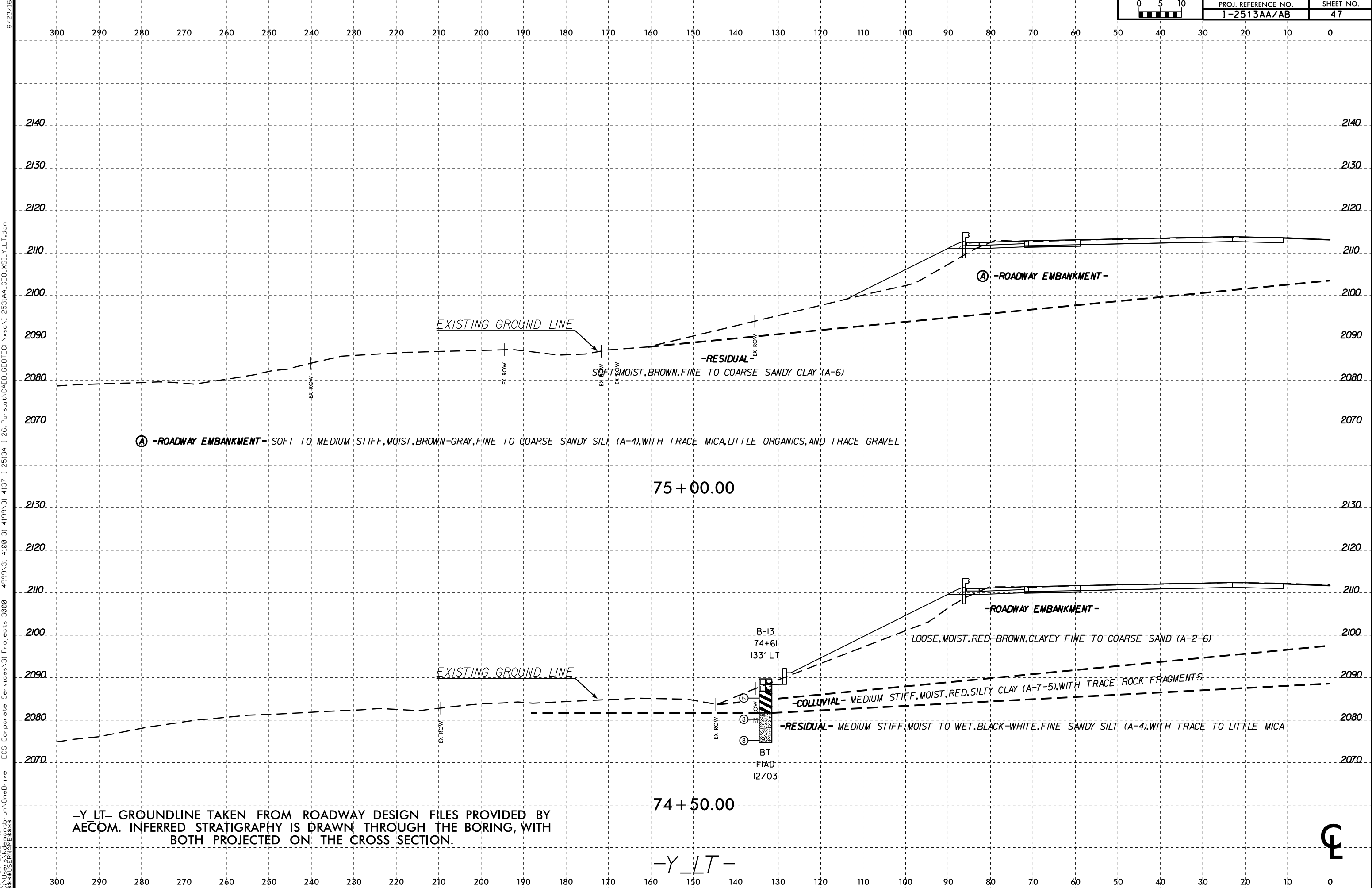
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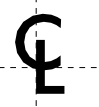
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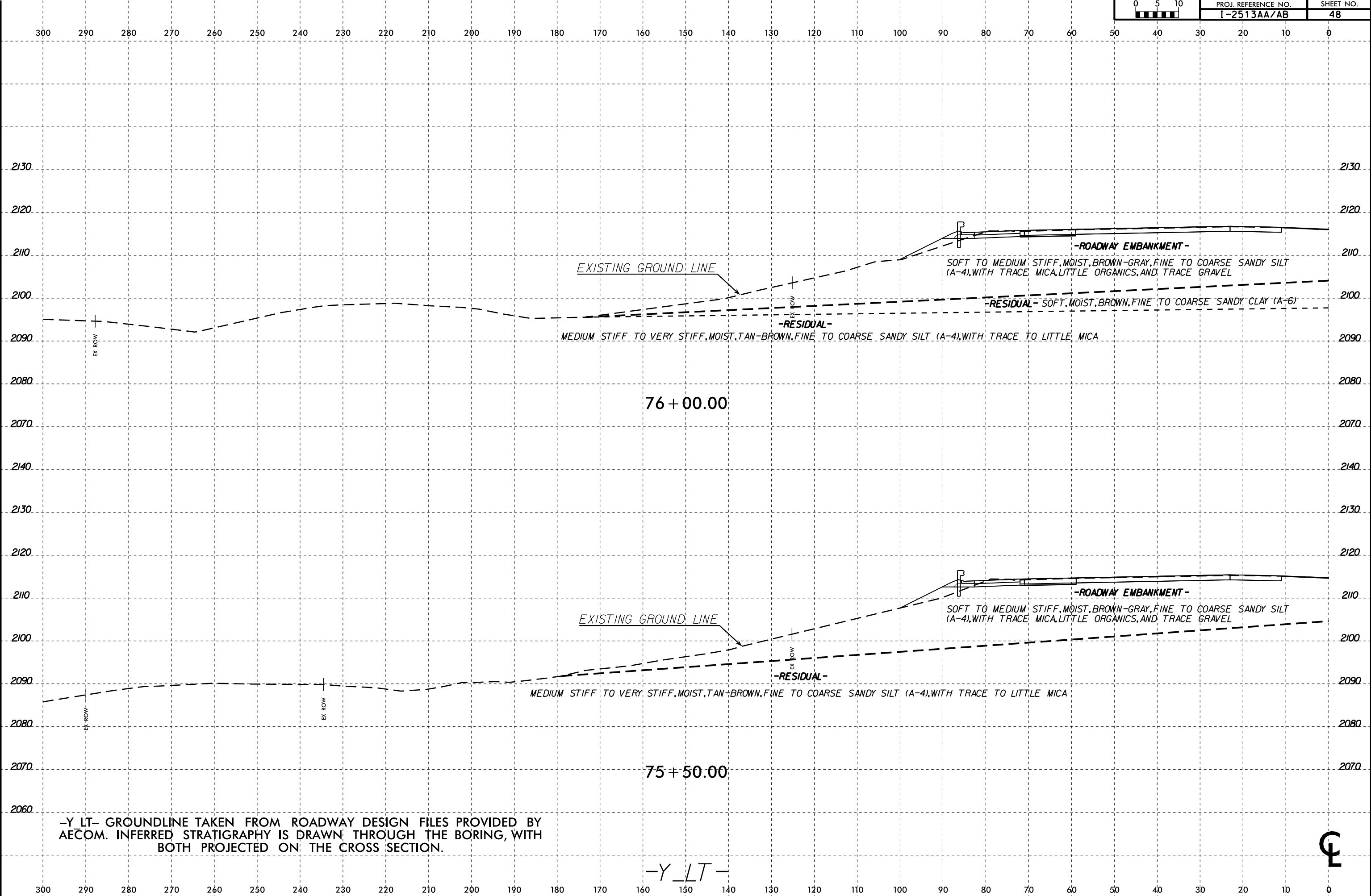


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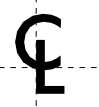


PROJ. REFERENCE NO.	SHEET NO.
I-2513AA/AB	48



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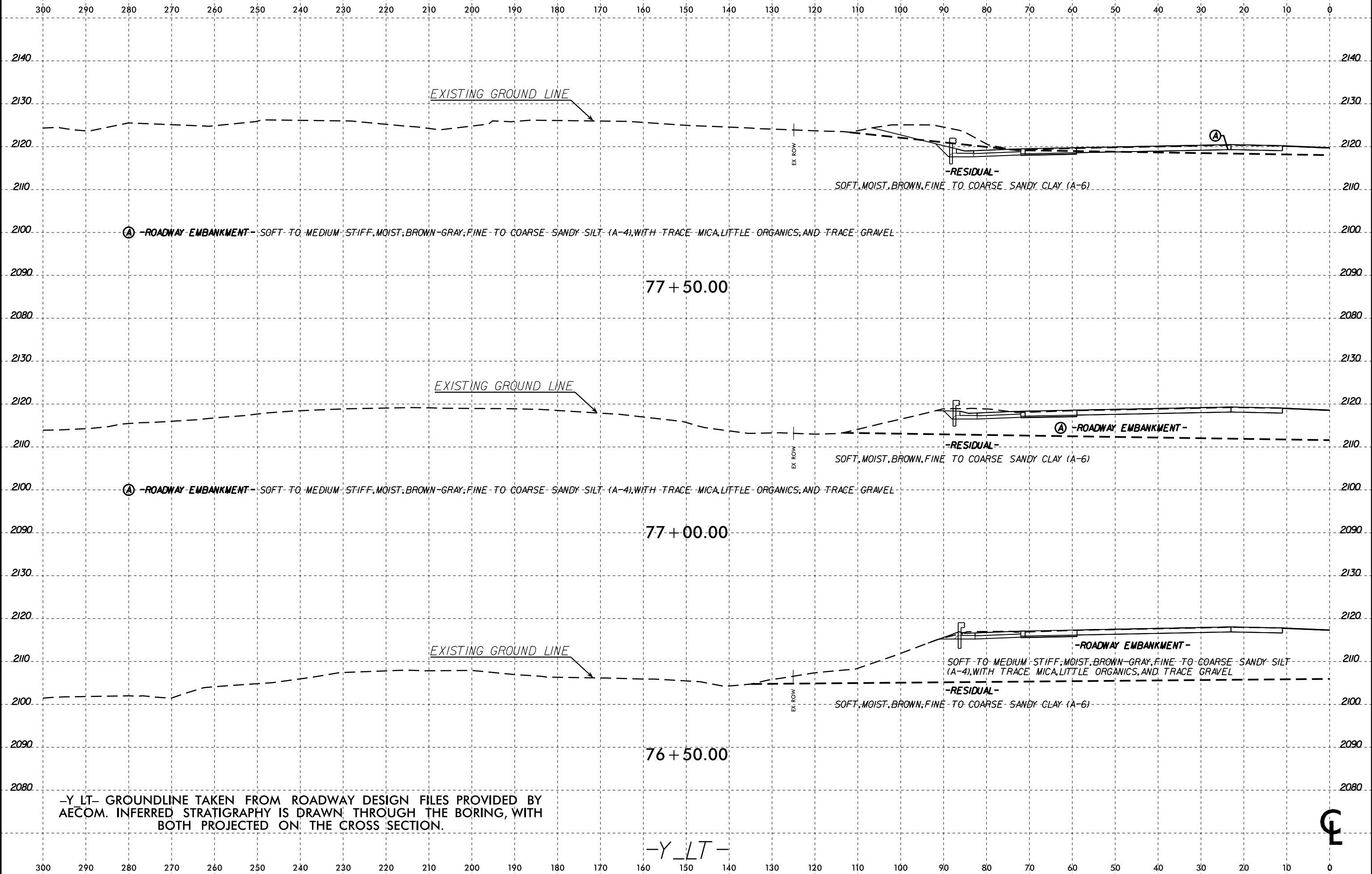
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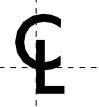
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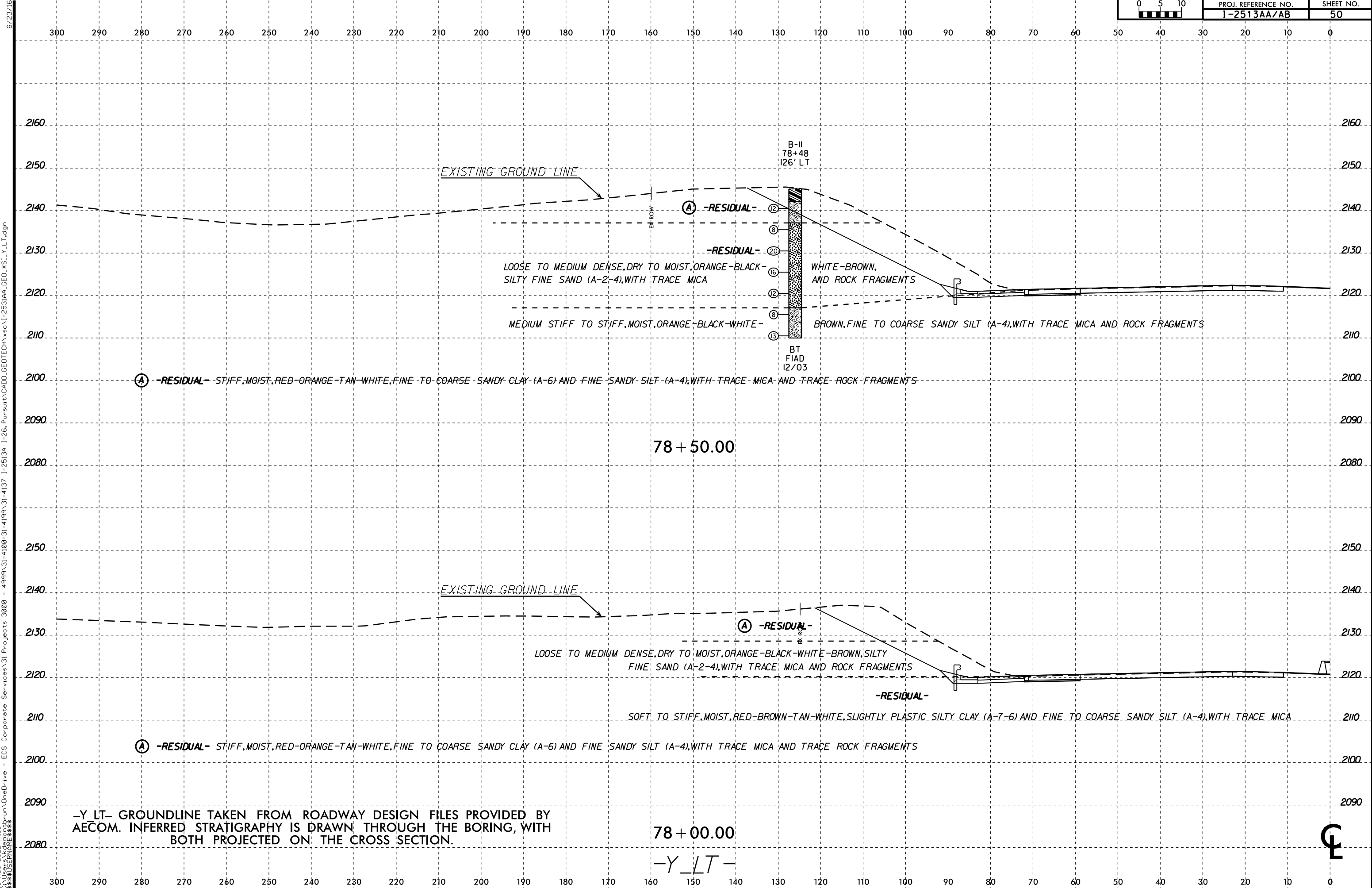
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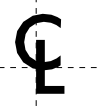
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-Y LT-

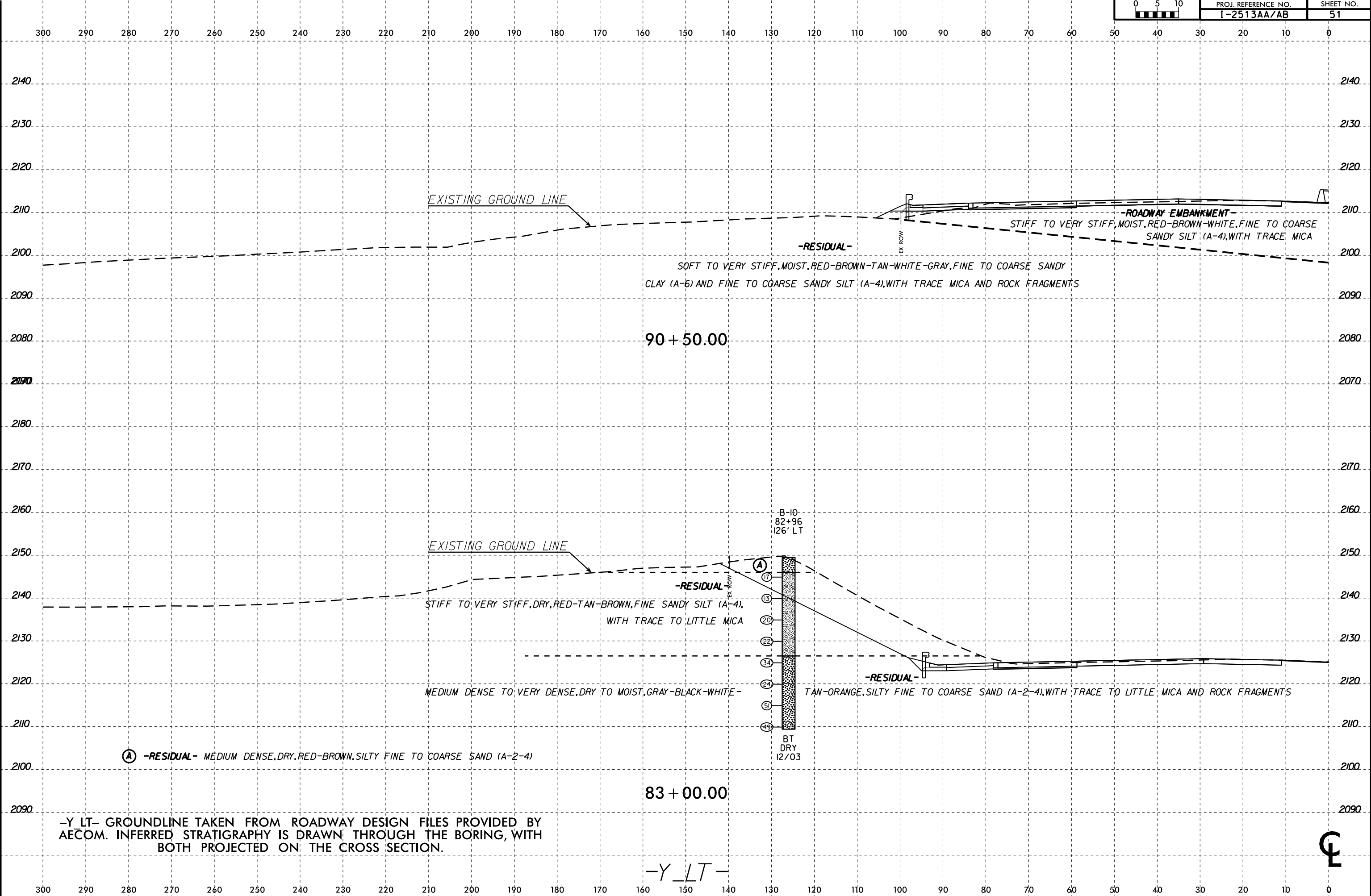




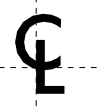
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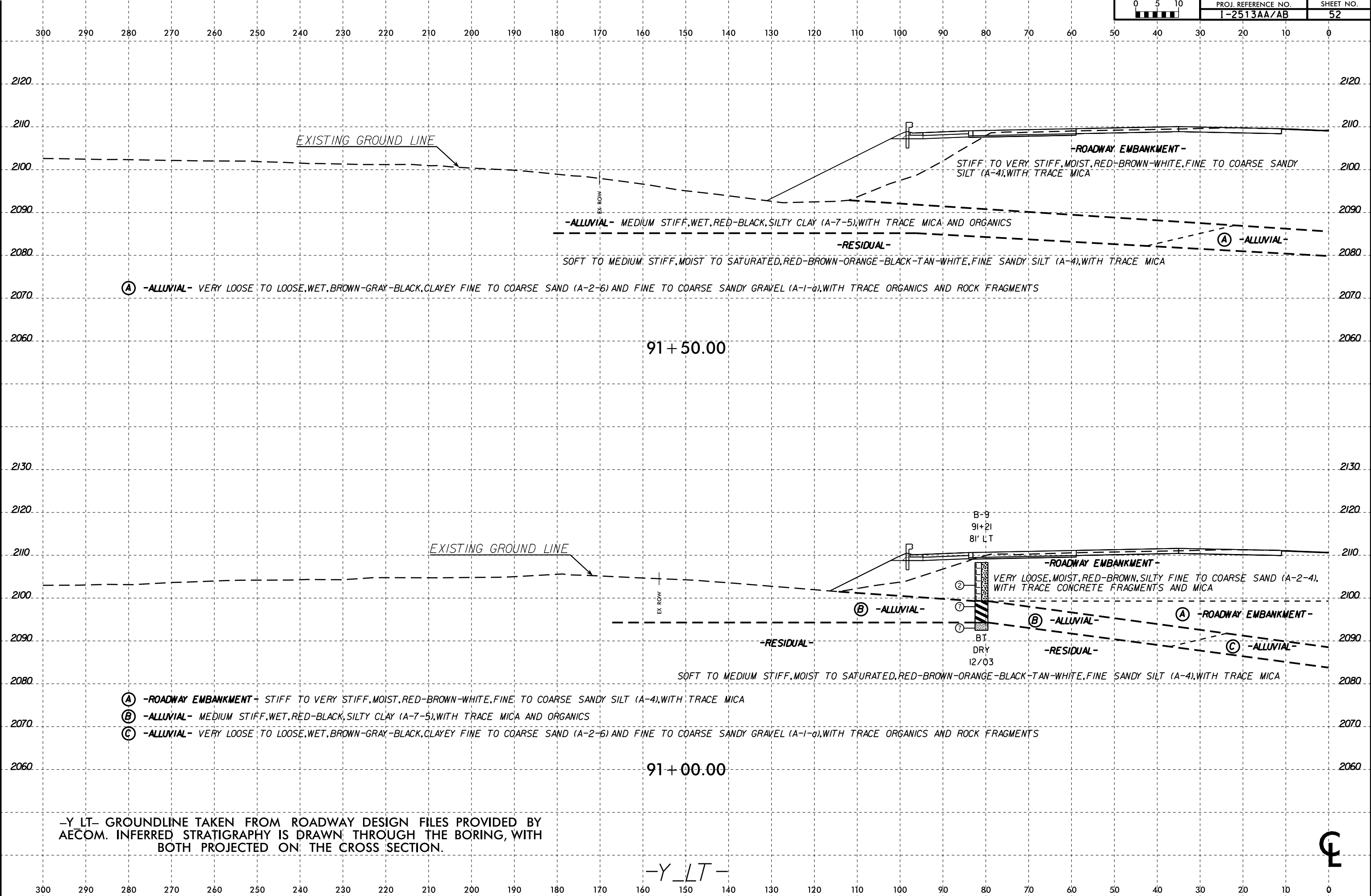


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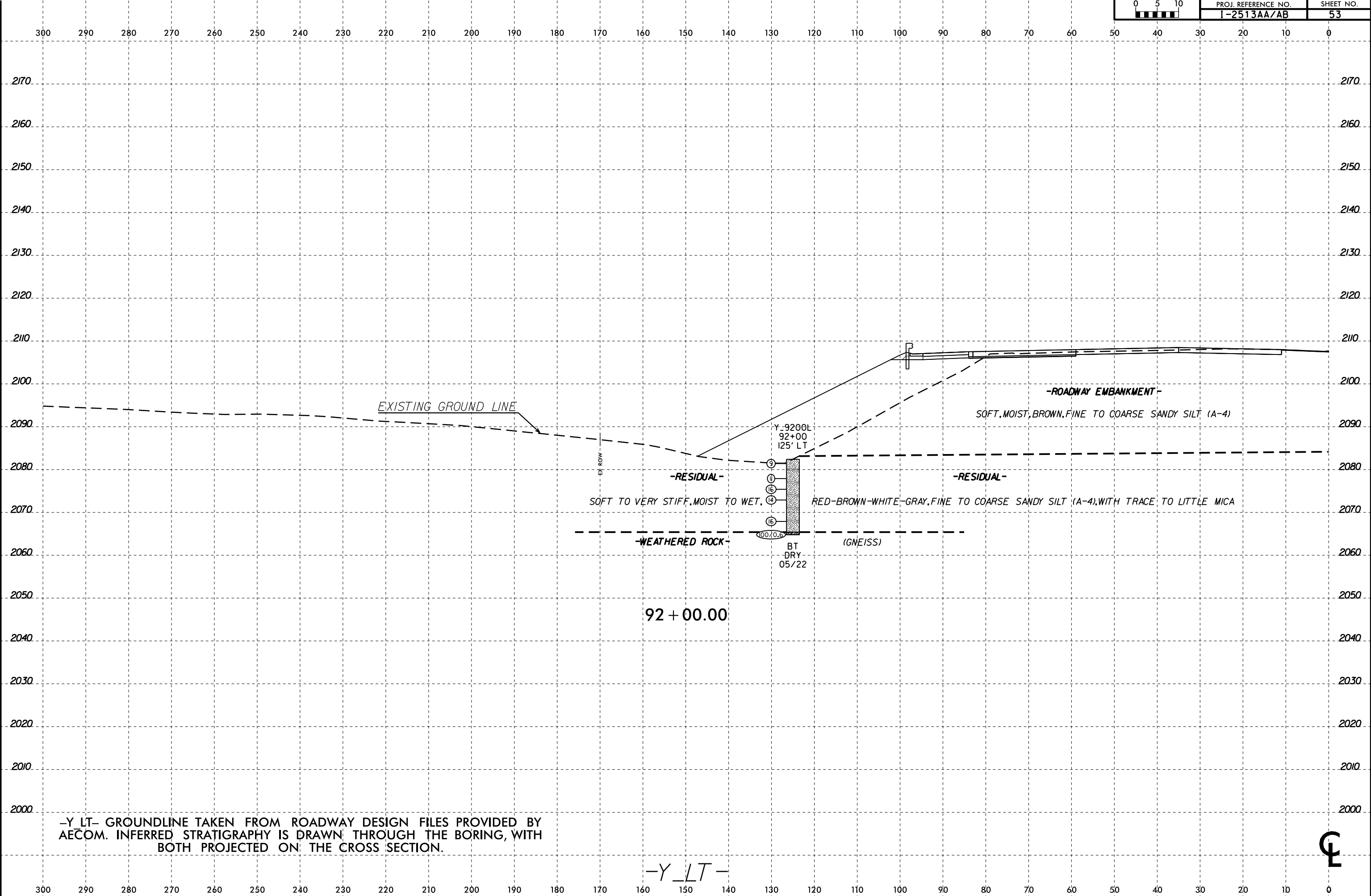


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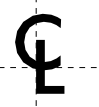
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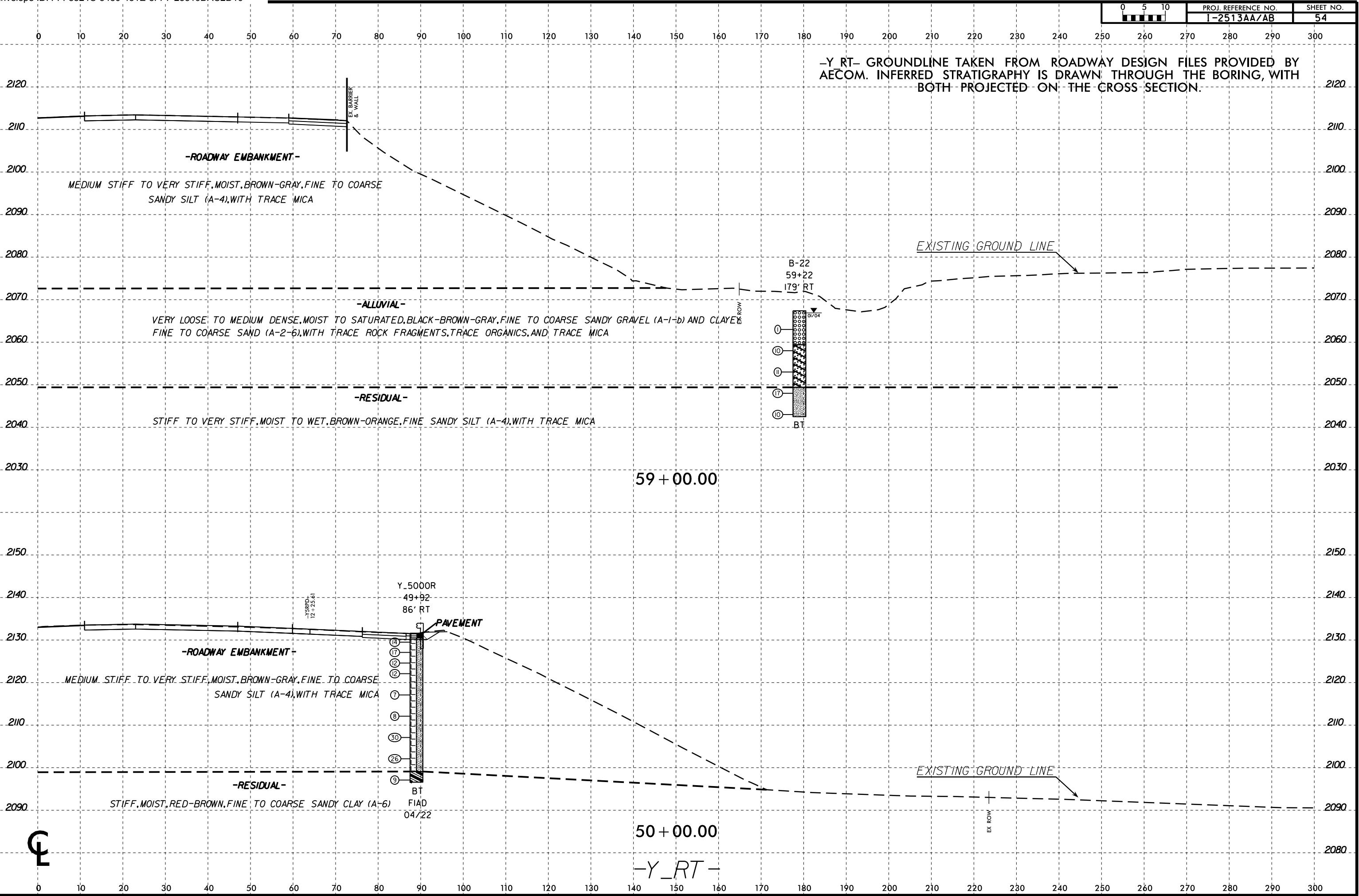


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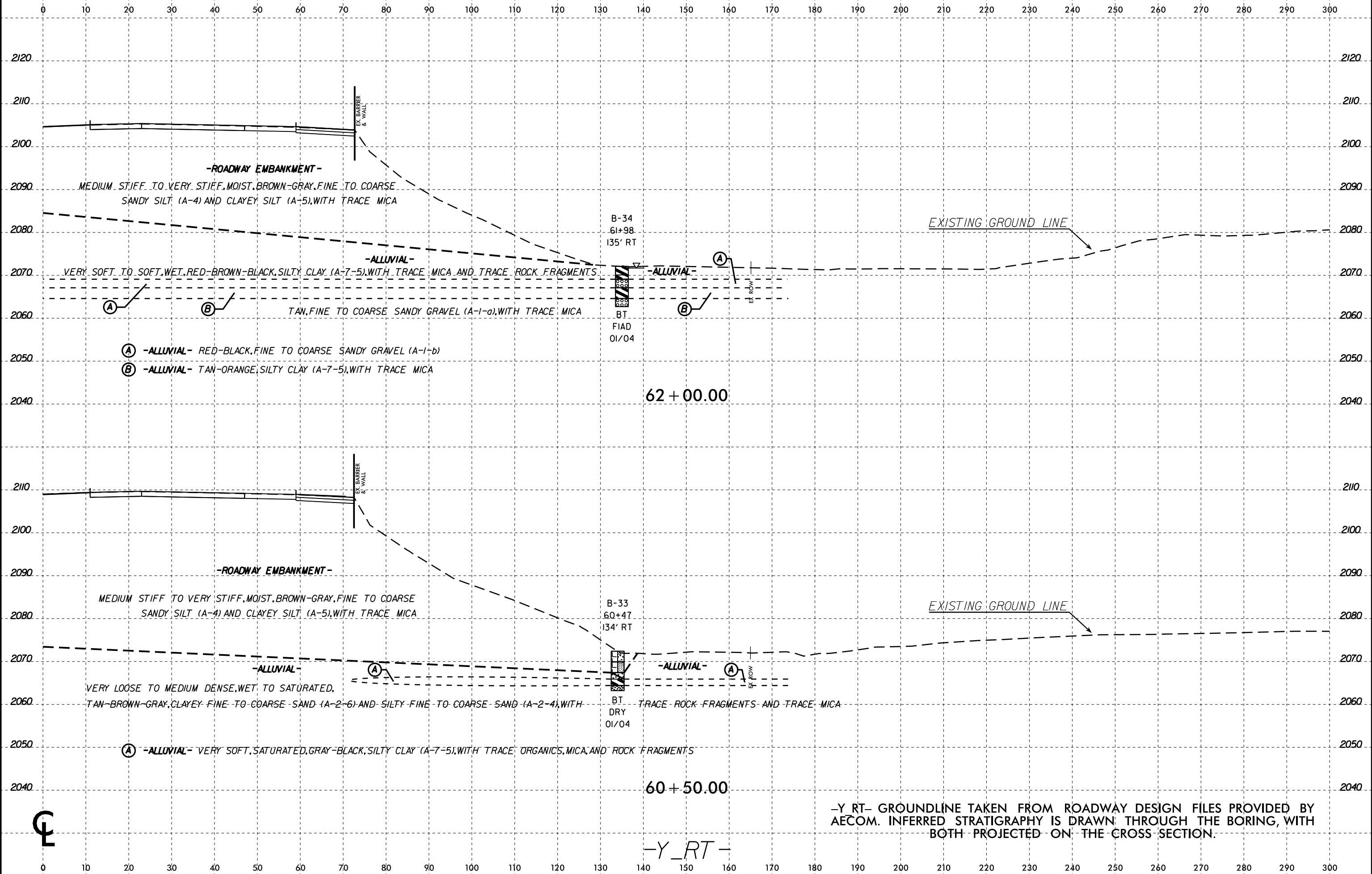


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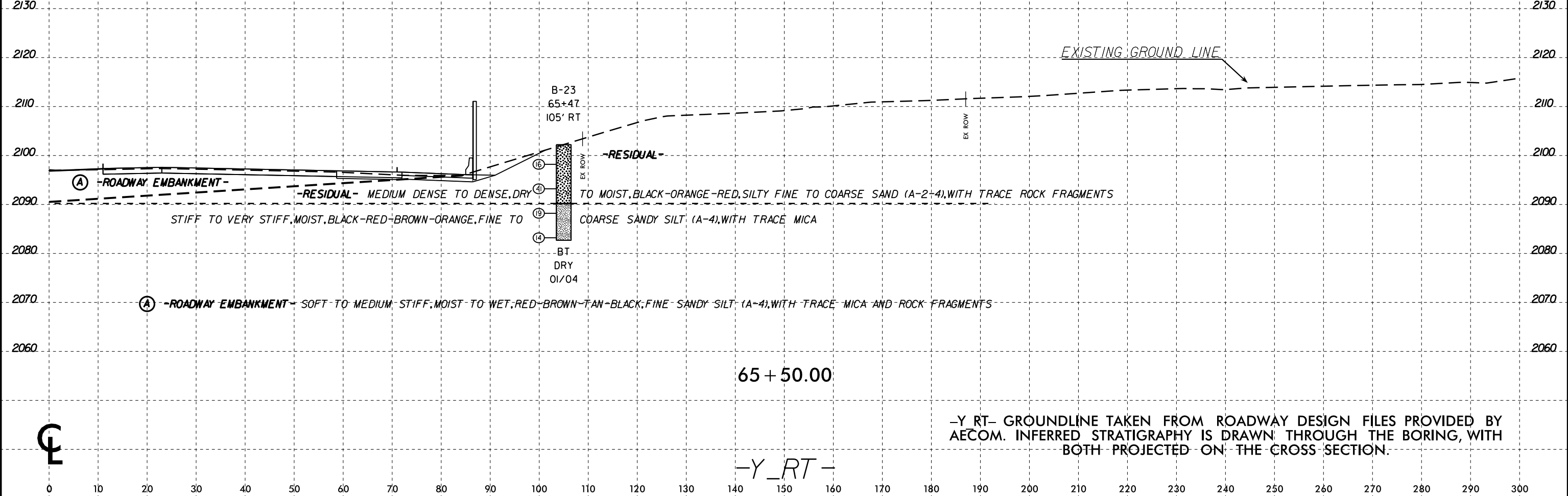
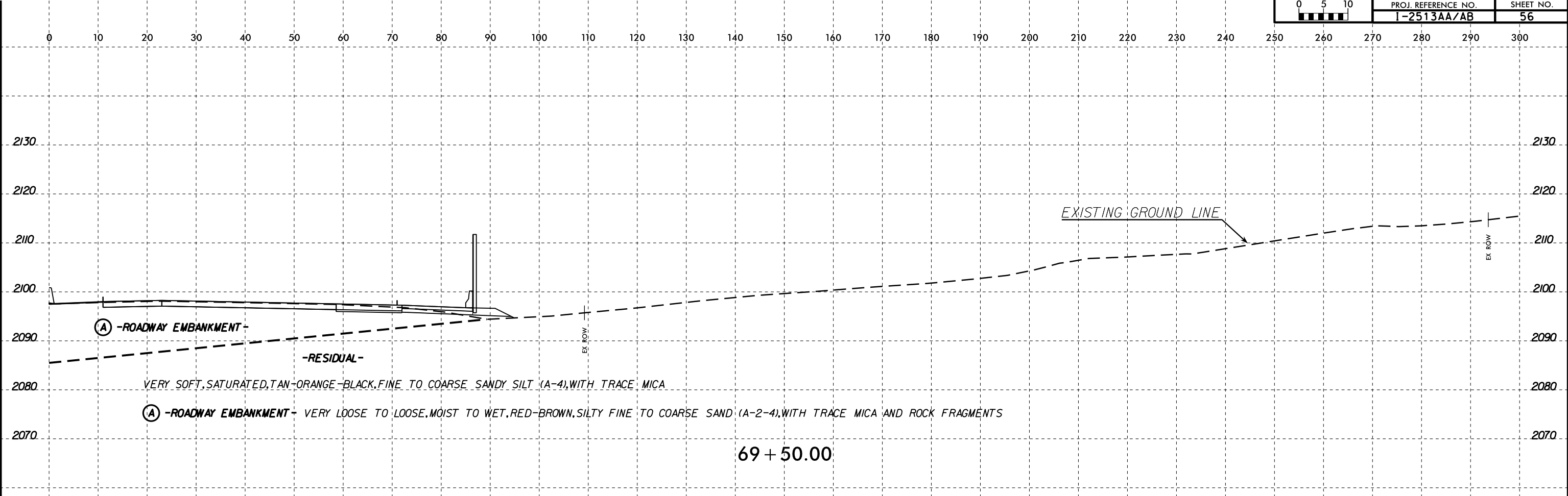
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-Y_RT-





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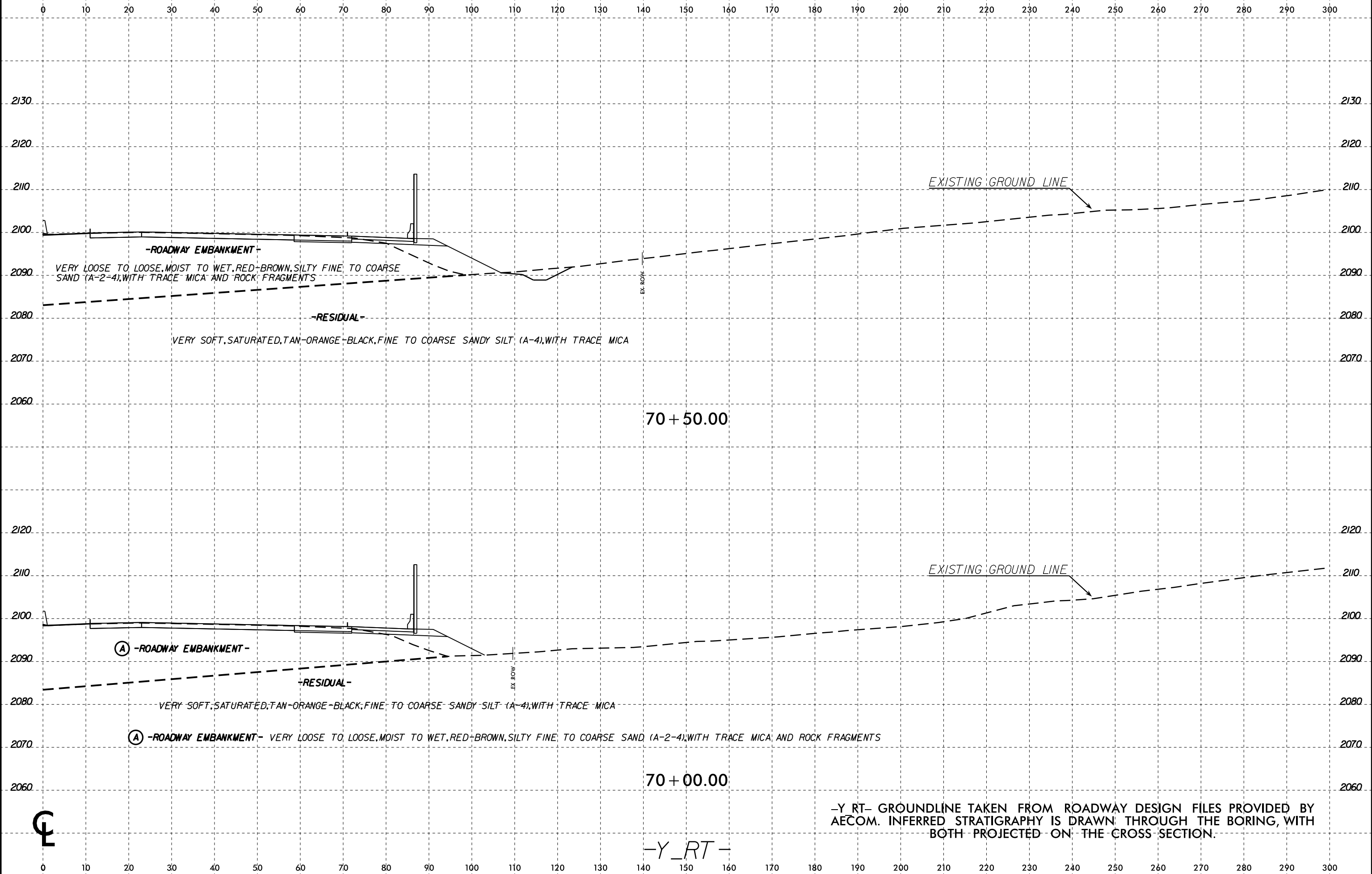


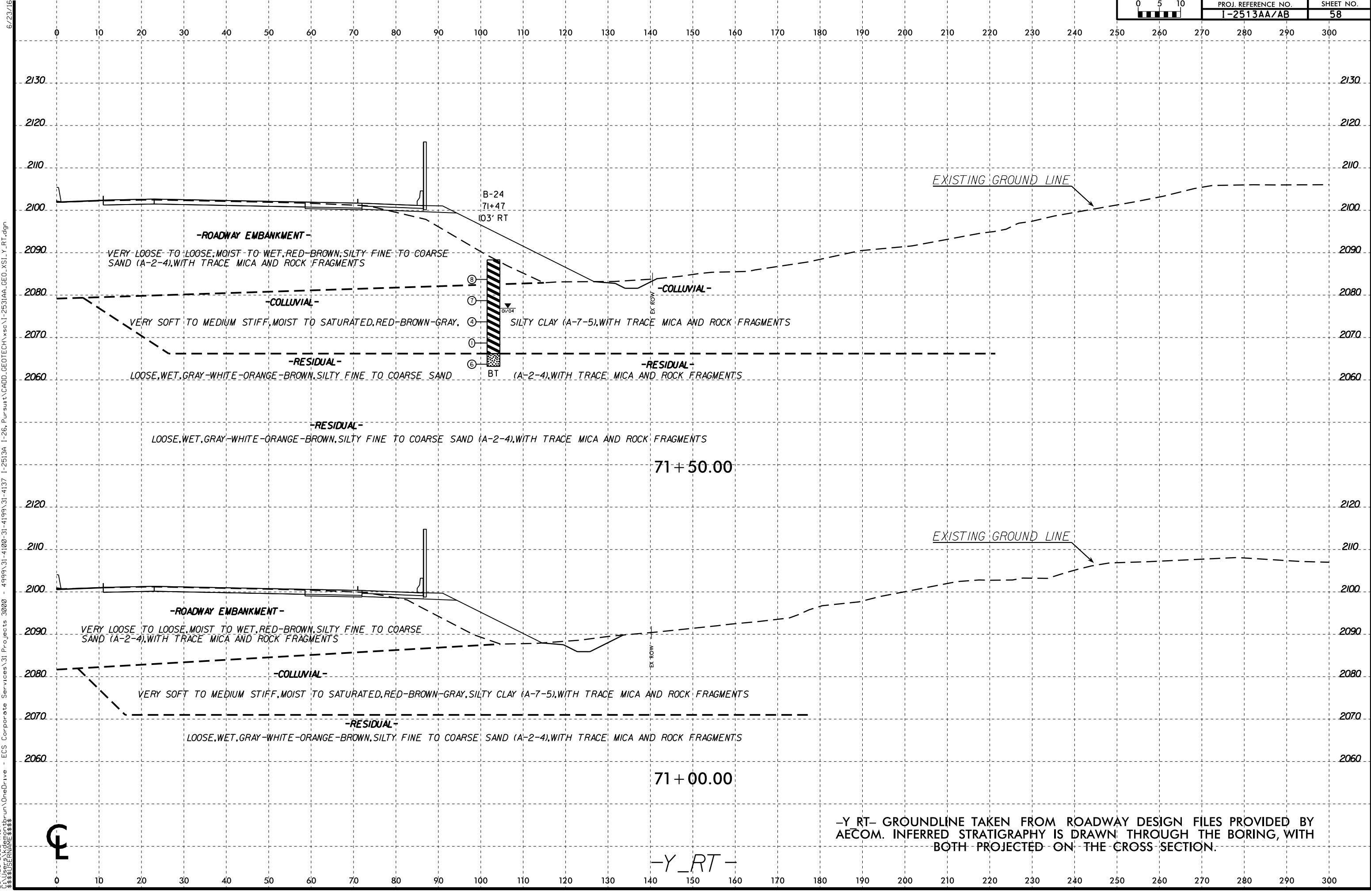
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-Y_RT-

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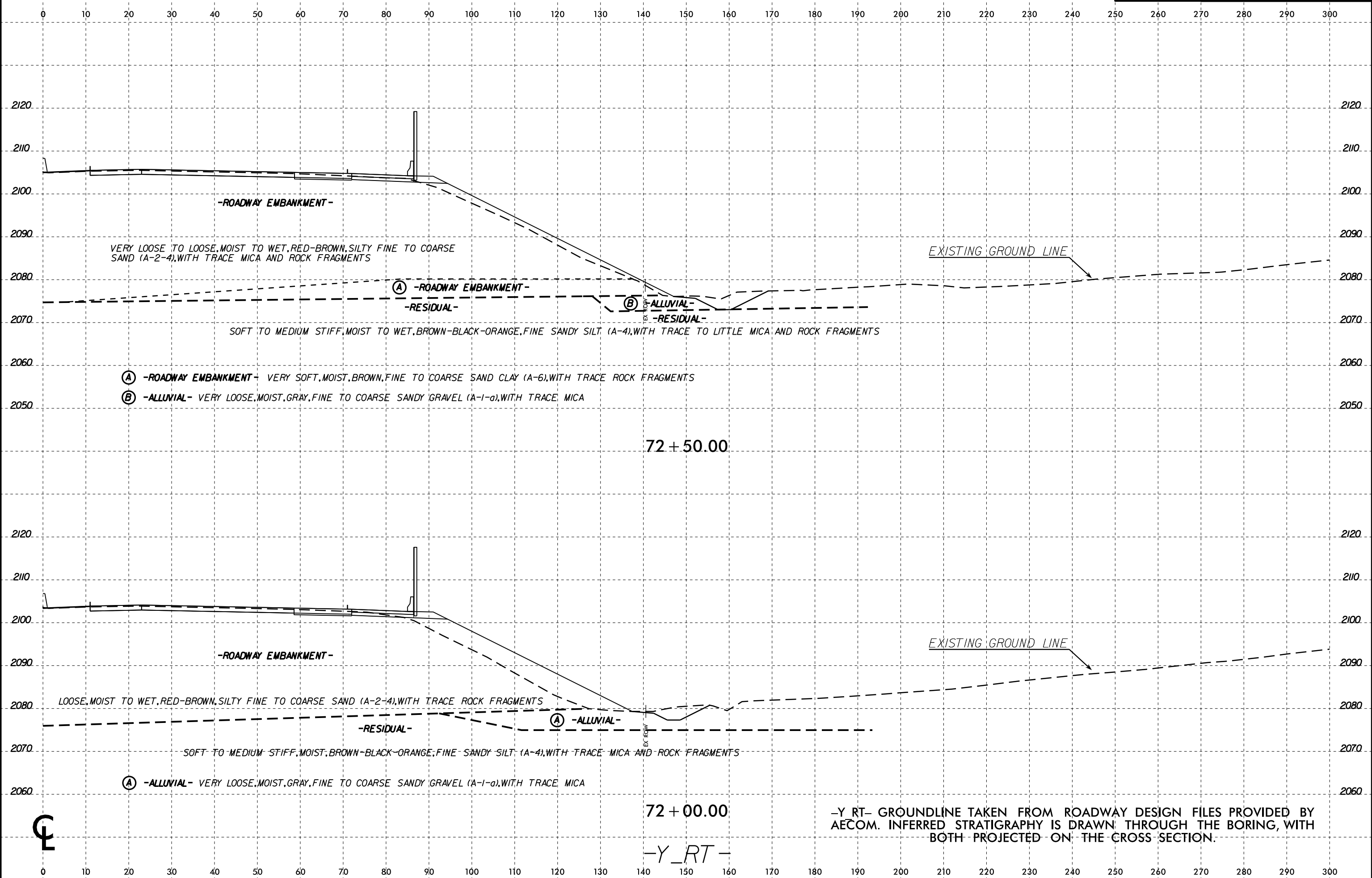
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-Y_RT-

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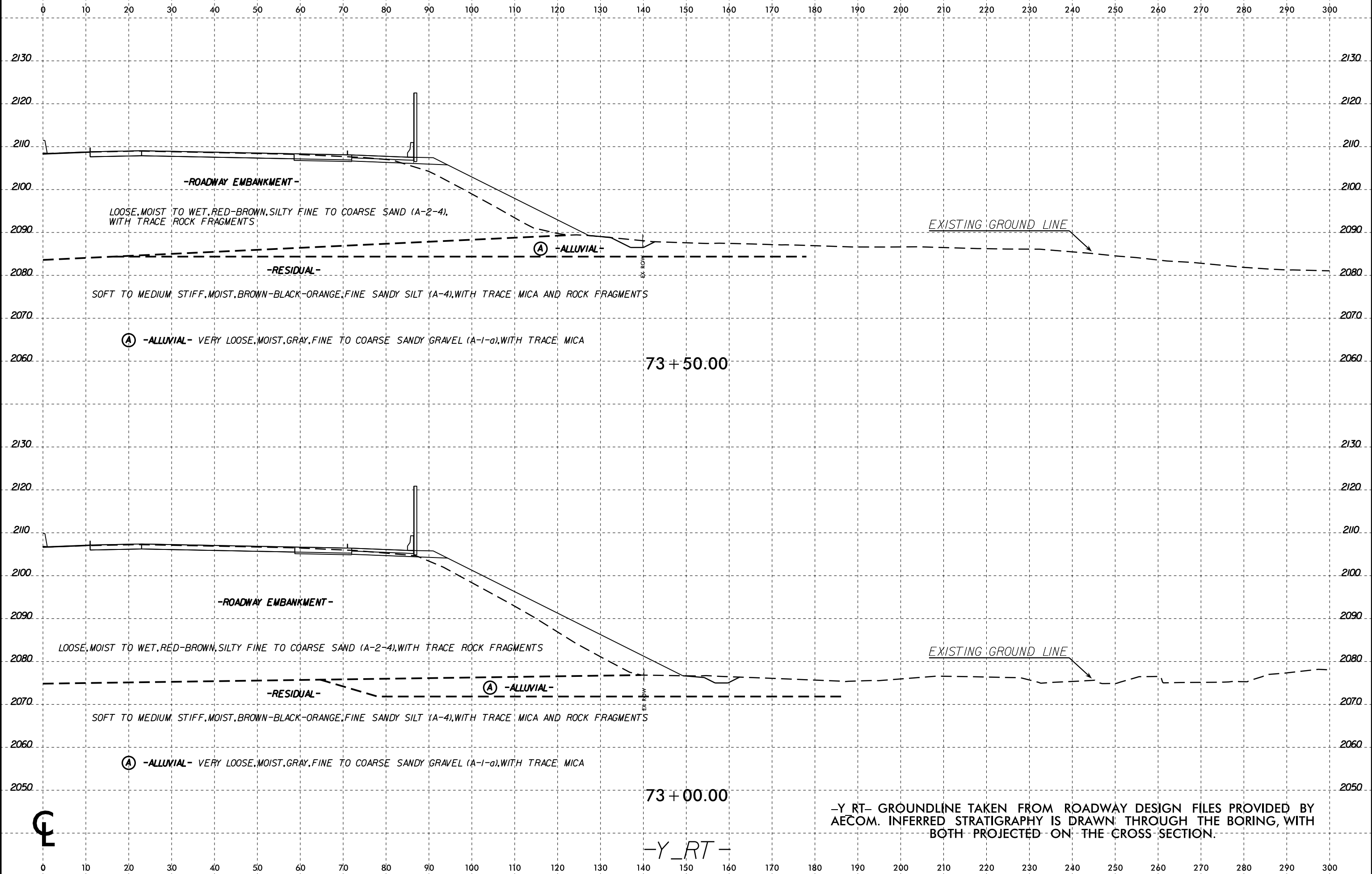
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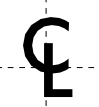
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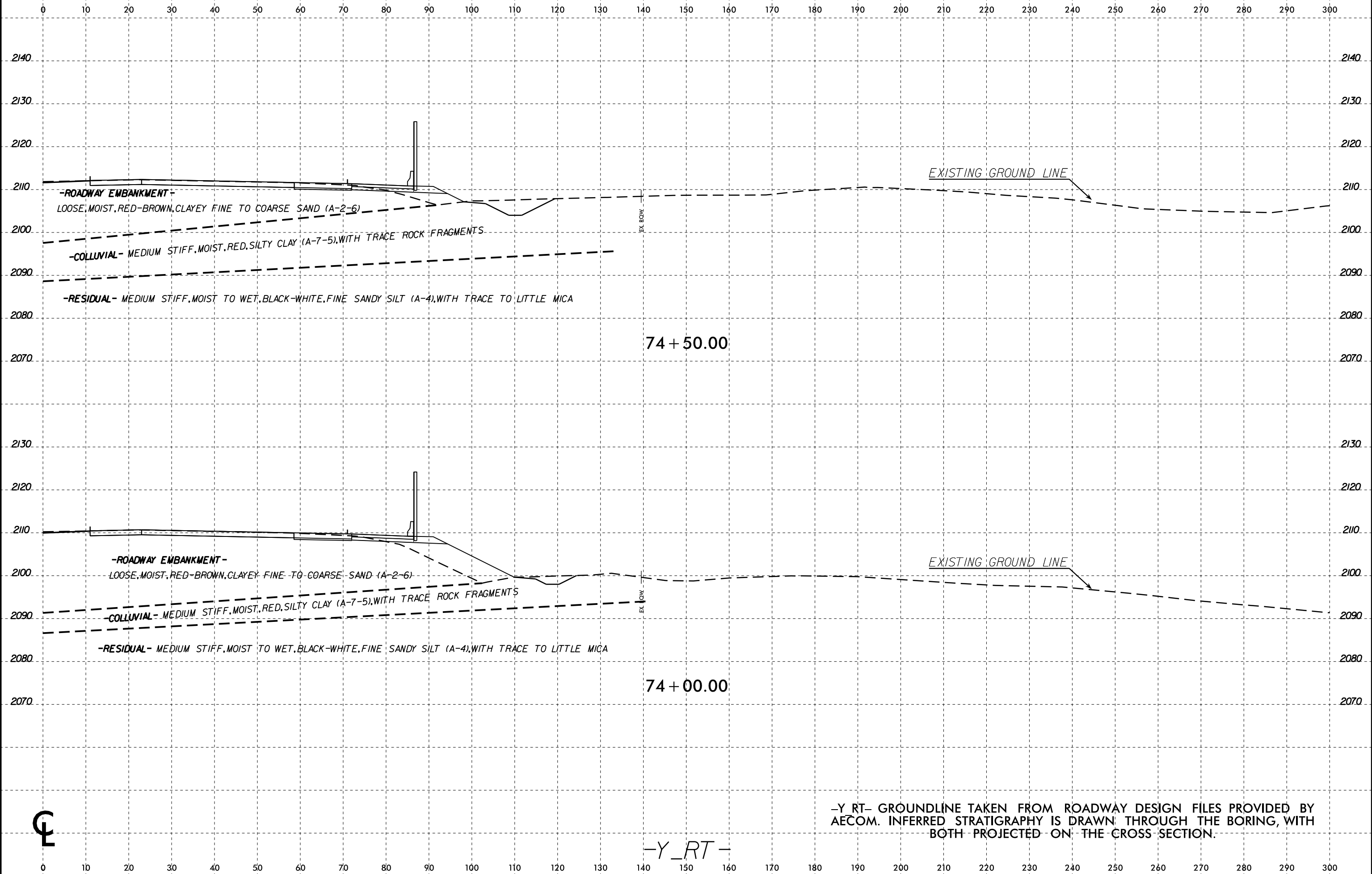


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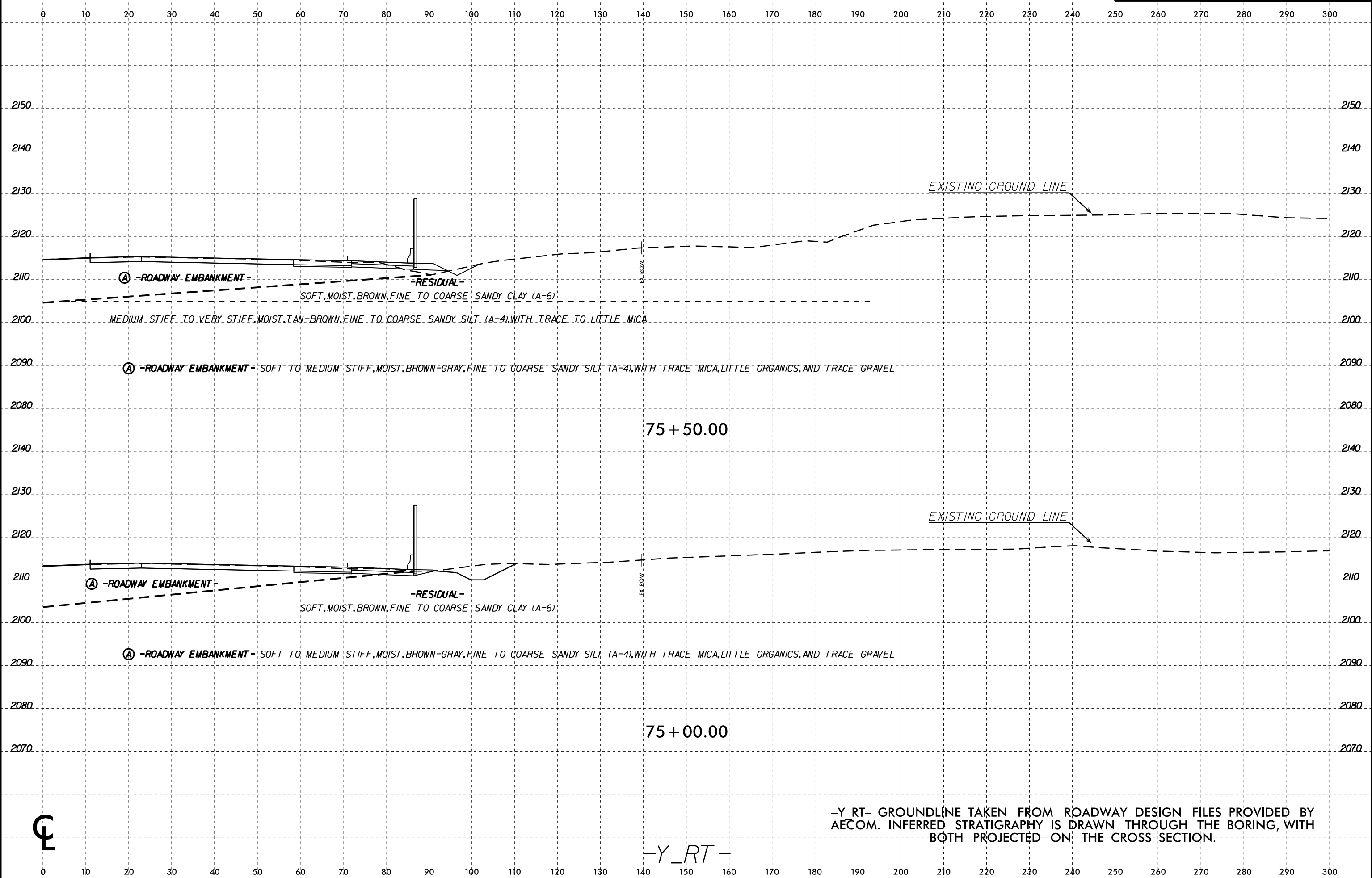


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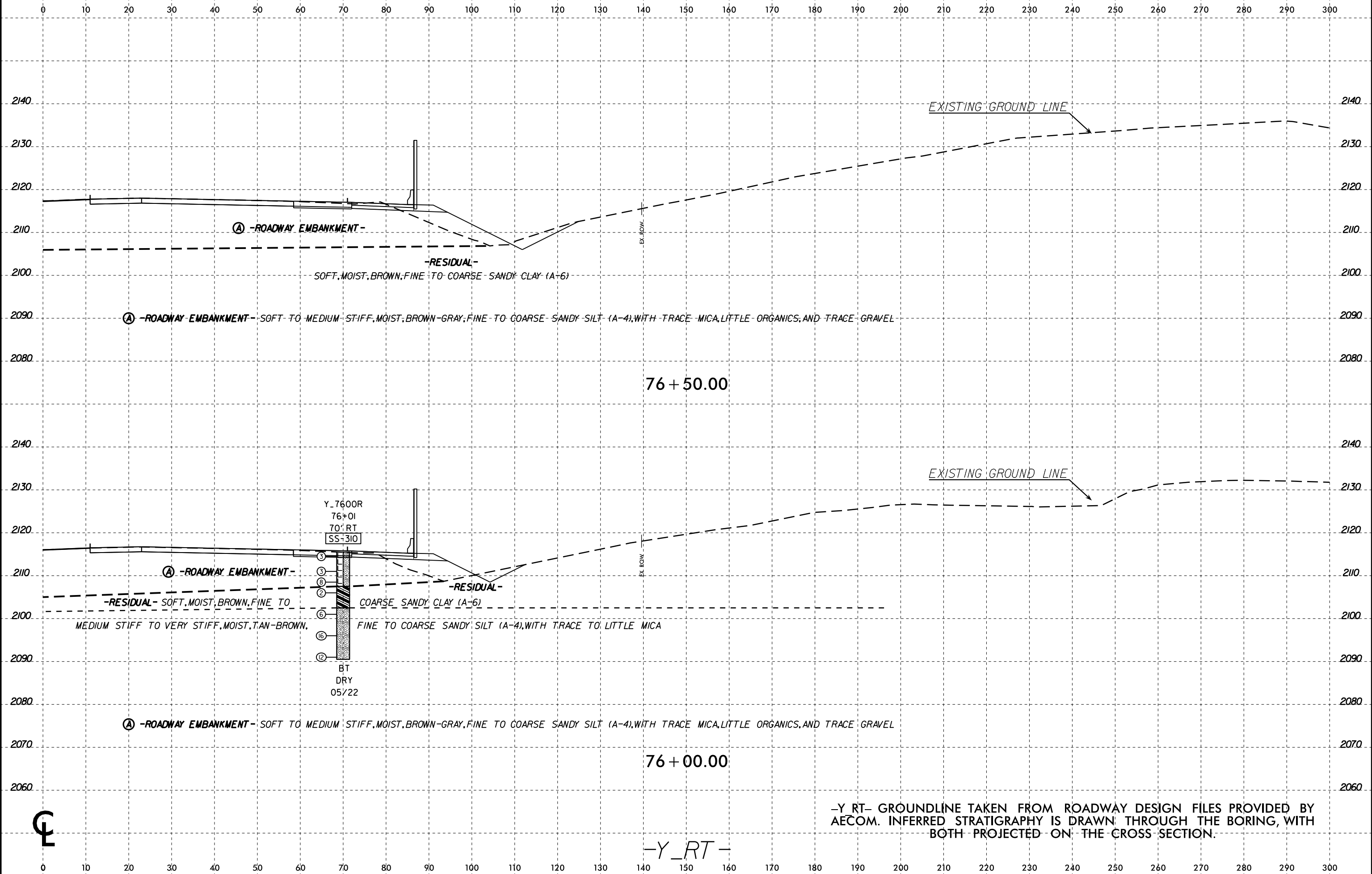
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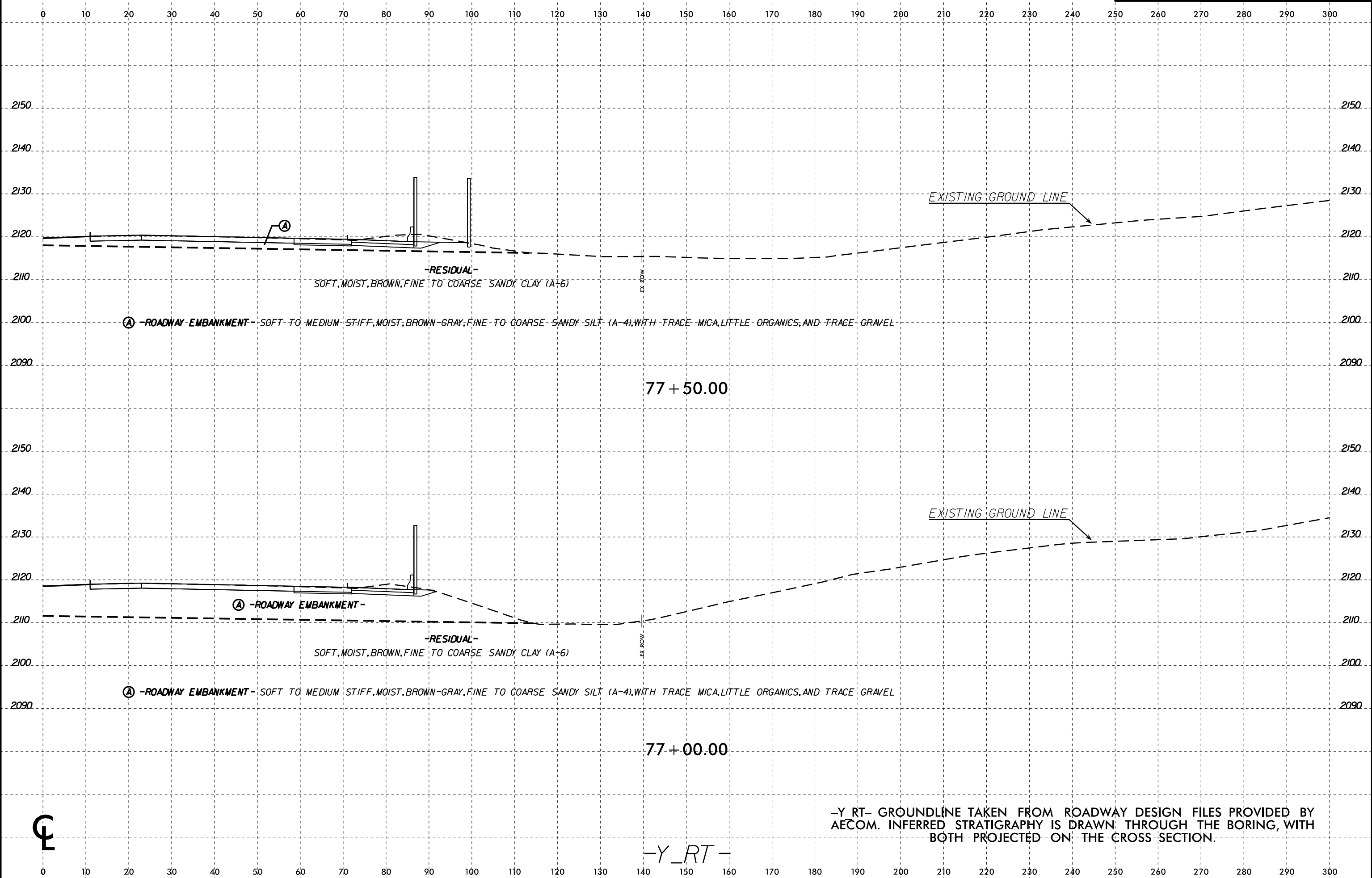
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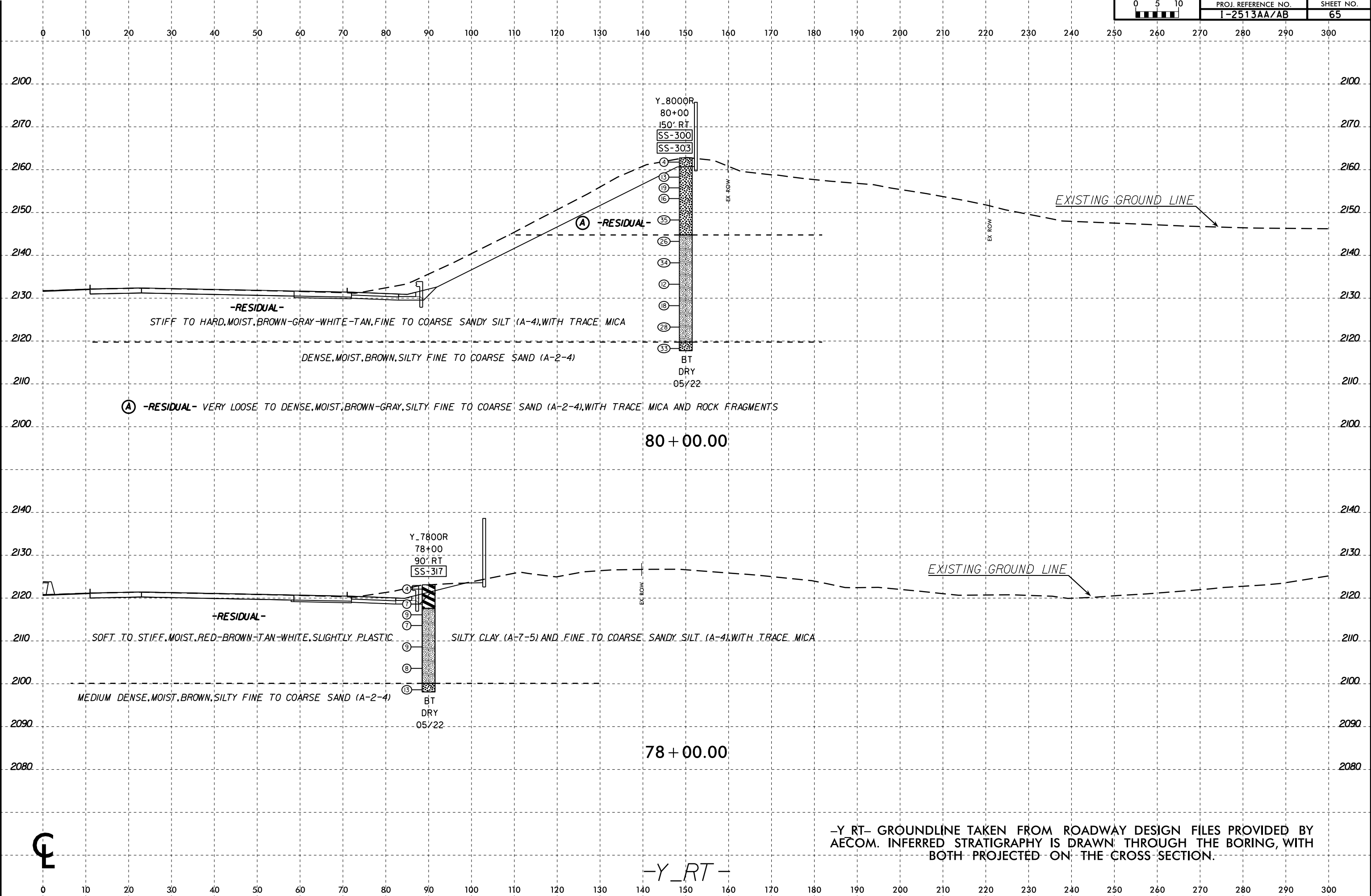
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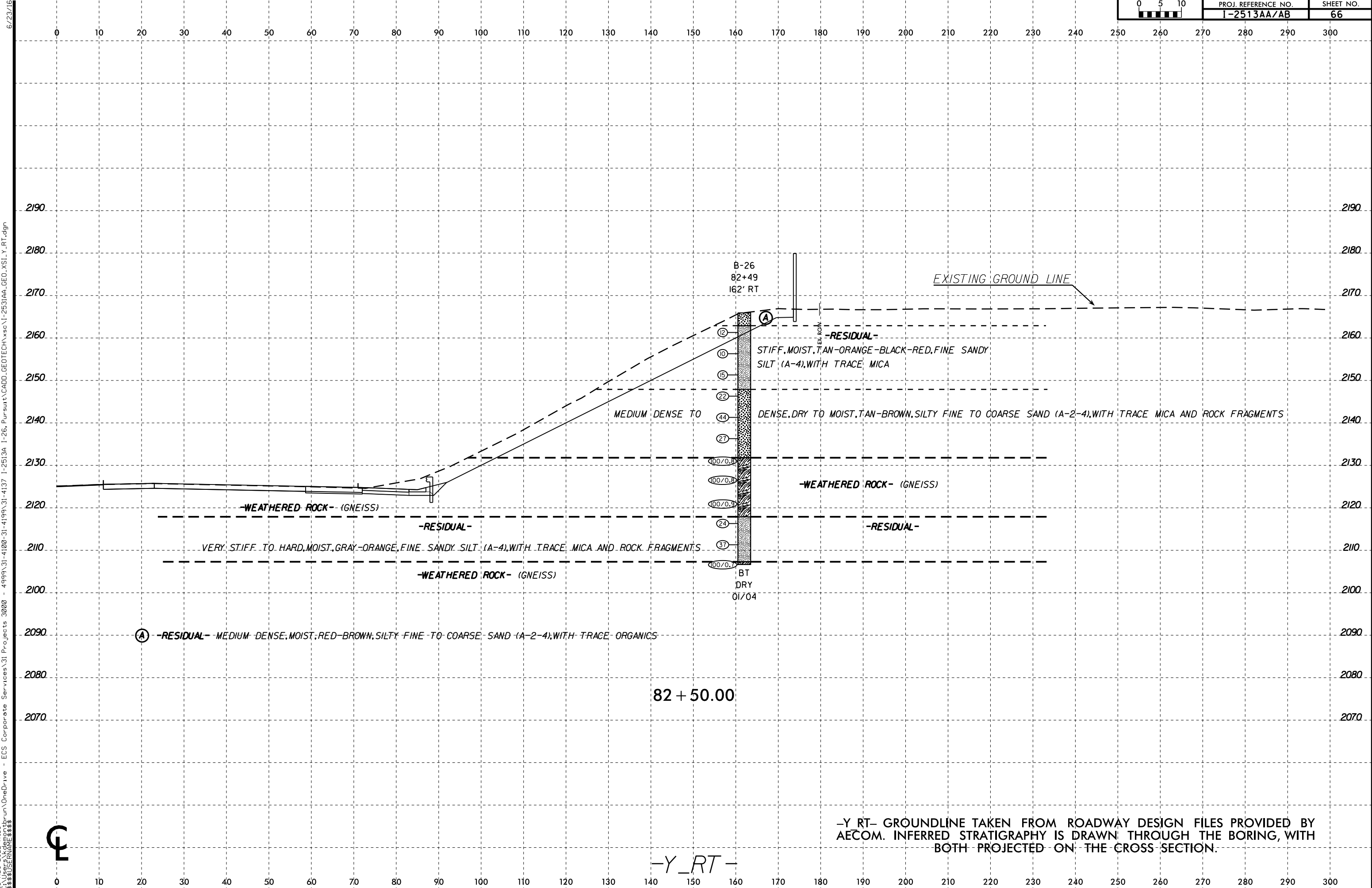
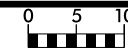




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B-26
82+49
162' RT

EXISTING GROUND LINE

-RESIDUAL-

STIFF, MOIST, TAN-ORANGE-BLACK-RED, FINE SANDY SILT (A-4), WITH TRACE MICA

MEDIUM DENSE TO

DENSE, DRY TO MOIST, TAN-BROWN, SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE MICA AND ROCK FRAGMENTS

-WEATHERED ROCK- (GNEISS)

-RESIDUAL-

VERY STIFF TO HARD, MOIST, GRAY-ORANGE, FINE SANDY SILT (A-4), WITH TRACE MICA AND ROCK FRAGMENTS

-WEATHERED ROCK- (GNEISS)

BT

DRY

01/04

-RESIDUAL- MEDIUM DENSE, MOIST, RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE ORGANICS

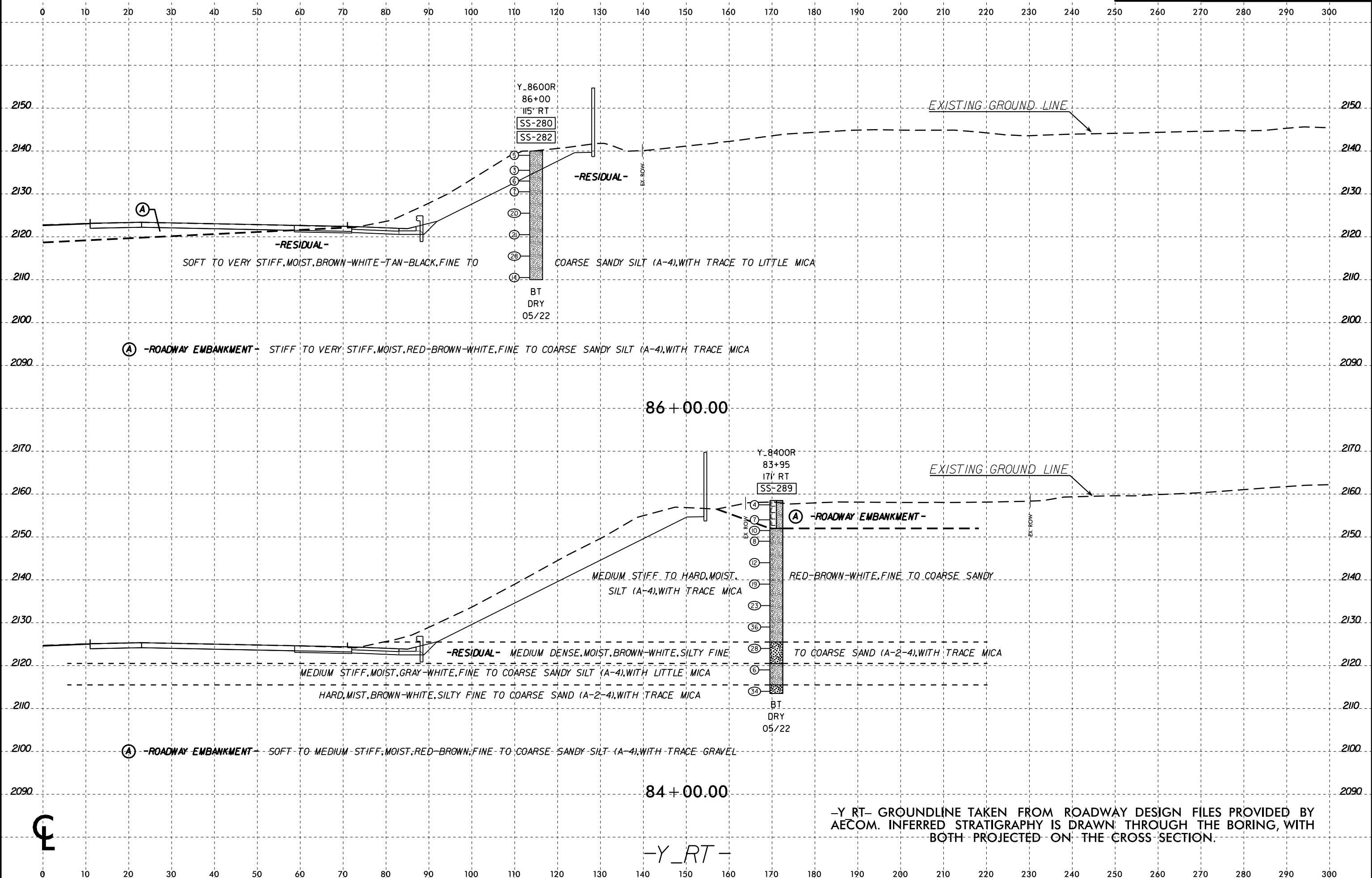
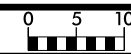
82 + 50.00

-Y RT- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

-Y_RT-



6/23/16
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Y_8600R
86+00
115' RT
SS-280
SS-282
BT
DRY
05/22

Y_8400R
83+95
171' RT
SS-289
BT
DRY
05/22

(A) -ROADWAY EMBANKMENT- STIFF TO VERY STIFF, MOIST, RED-BROWN-WHITE, FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA

(A) -ROADWAY EMBANKMENT-

(A) -ROADWAY EMBANKMENT- SOFT TO MEDIUM-STIFF, MOIST, RED-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE GRAVEL

-Y RT- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

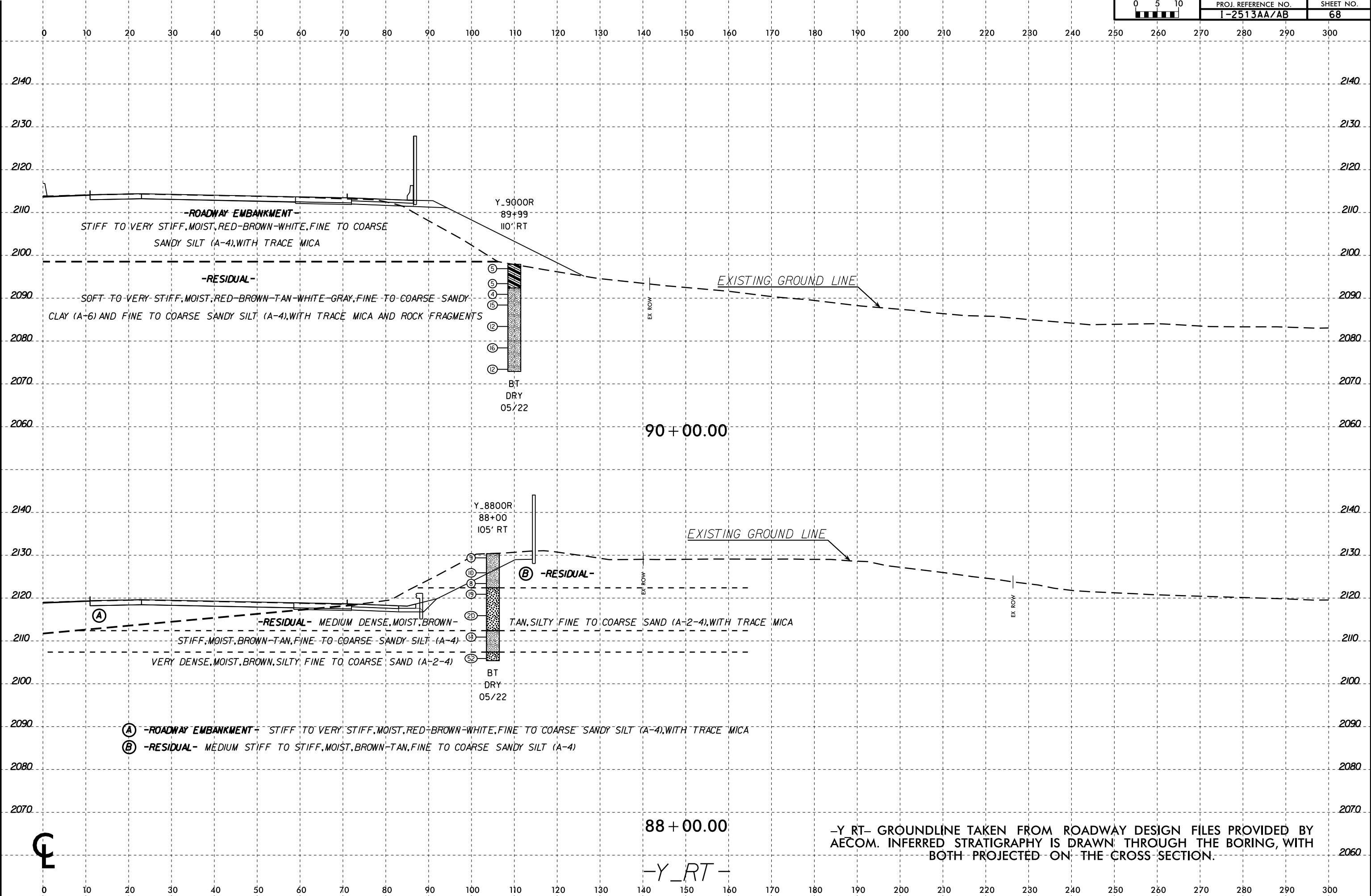
86 + 00.00

84 + 00.00

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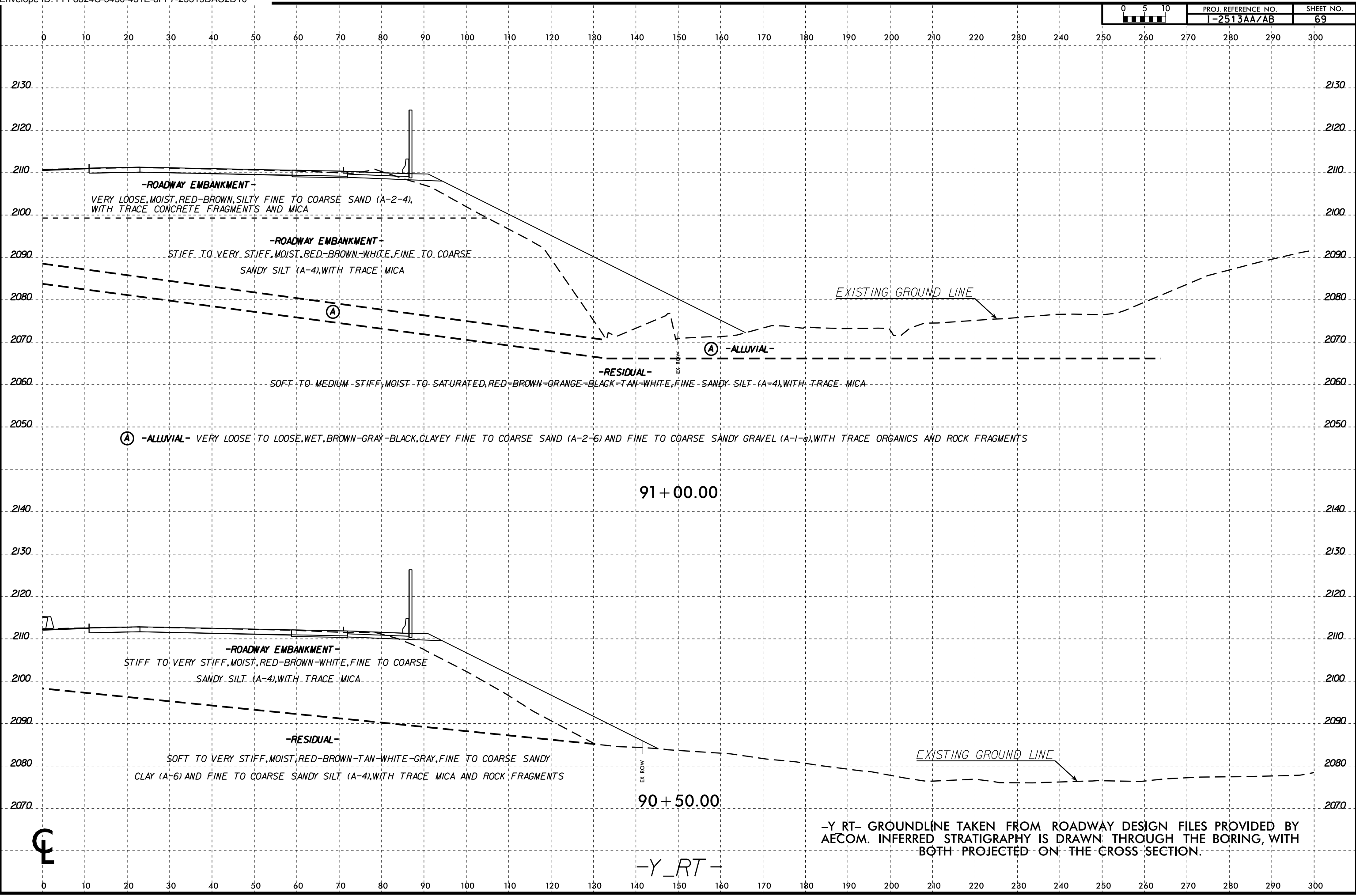
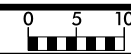


-Y RT- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

-Y_RT-

6/23/16
 25-AUG-2022 17:38
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-ROADWAY EMBANKMENT-
 VERY LOOSE, MOIST, RED-BROWN, SILTY FINE TO COARSE SAND (A-2-4),
 WITH TRACE CONCRETE FRAGMENTS AND MICA

-ROADWAY EMBANKMENT-
 STIFF TO VERY STIFF, MOIST, RED-BROWN-WHITE, FINE TO COARSE
 SANDY SILT (A-4), WITH TRACE MICA

Ⓐ **-ALLUVIAL-** VERY LOOSE TO LOOSE, WET, BROWN-GRAY-BLACK, CLAYEY FINE TO COARSE SAND (A-2-6) AND FINE TO COARSE SANDY GRAVEL (A-1-6), WITH TRACE ORGANICS AND ROCK FRAGMENTS

-RESIDUAL-
 SOFT TO MEDIUM STIFF, MOIST TO SATURATED, RED-BROWN-ORANGE-BLACK-TAN-WHITE, FINE SANDY SILT (A-4), WITH TRACE MICA

-ROADWAY EMBANKMENT-
 STIFF TO VERY STIFF, MOIST, RED-BROWN-WHITE, FINE TO COARSE
 SANDY SILT (A-4), WITH TRACE MICA

-RESIDUAL-
 SOFT TO VERY STIFF, MOIST, RED-BROWN-TAN-WHITE-GRAY, FINE TO COARSE SANDY
 CLAY (A-6) AND FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA AND ROCK FRAGMENTS

EXISTING GROUND LINE

EXISTING GROUND LINE

91 + 00.00

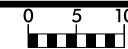
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-Y_RT-

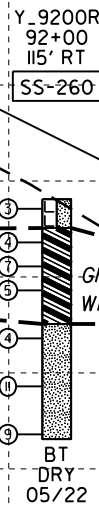
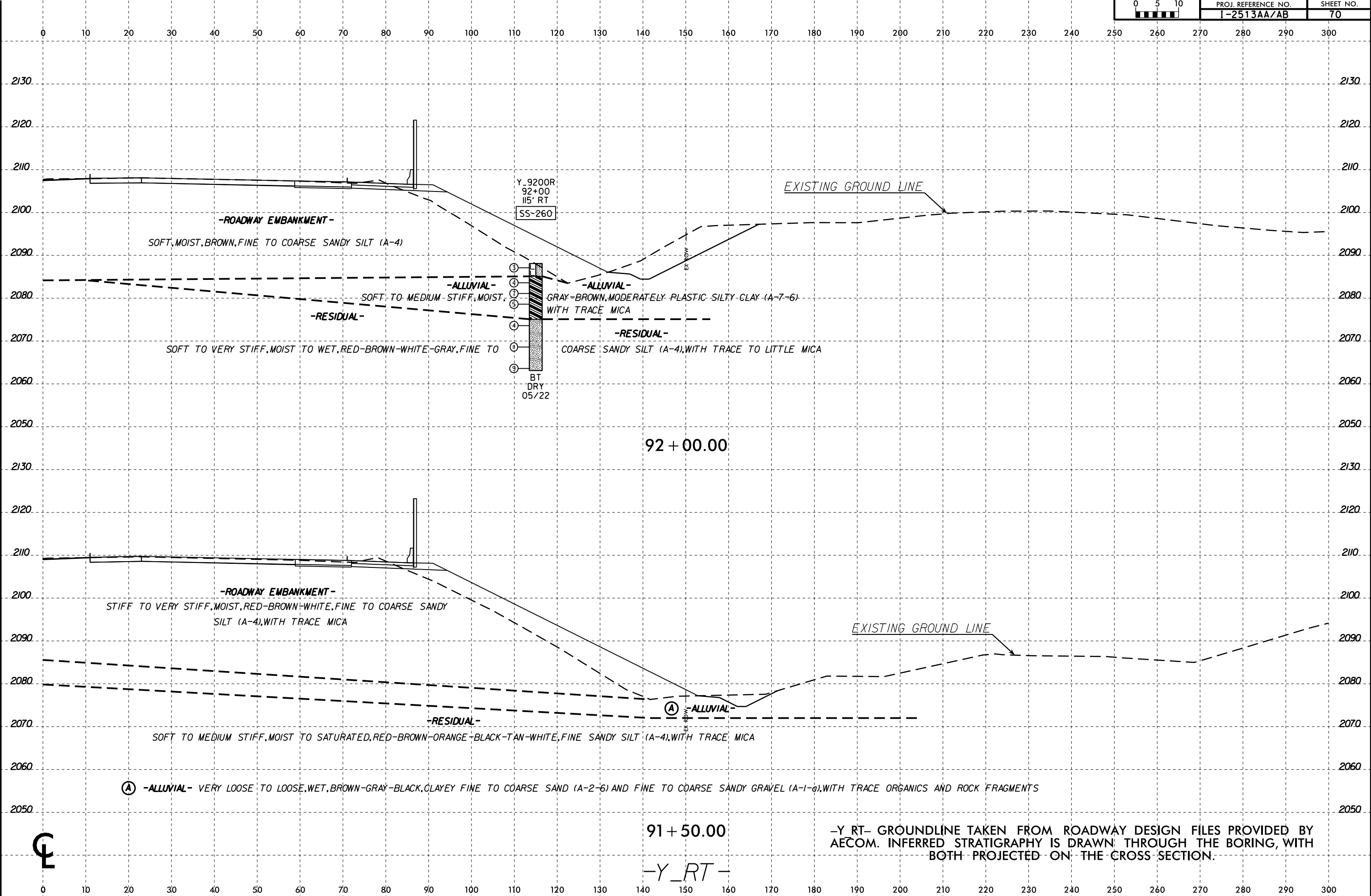
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92 + 00.00

91 + 50.00

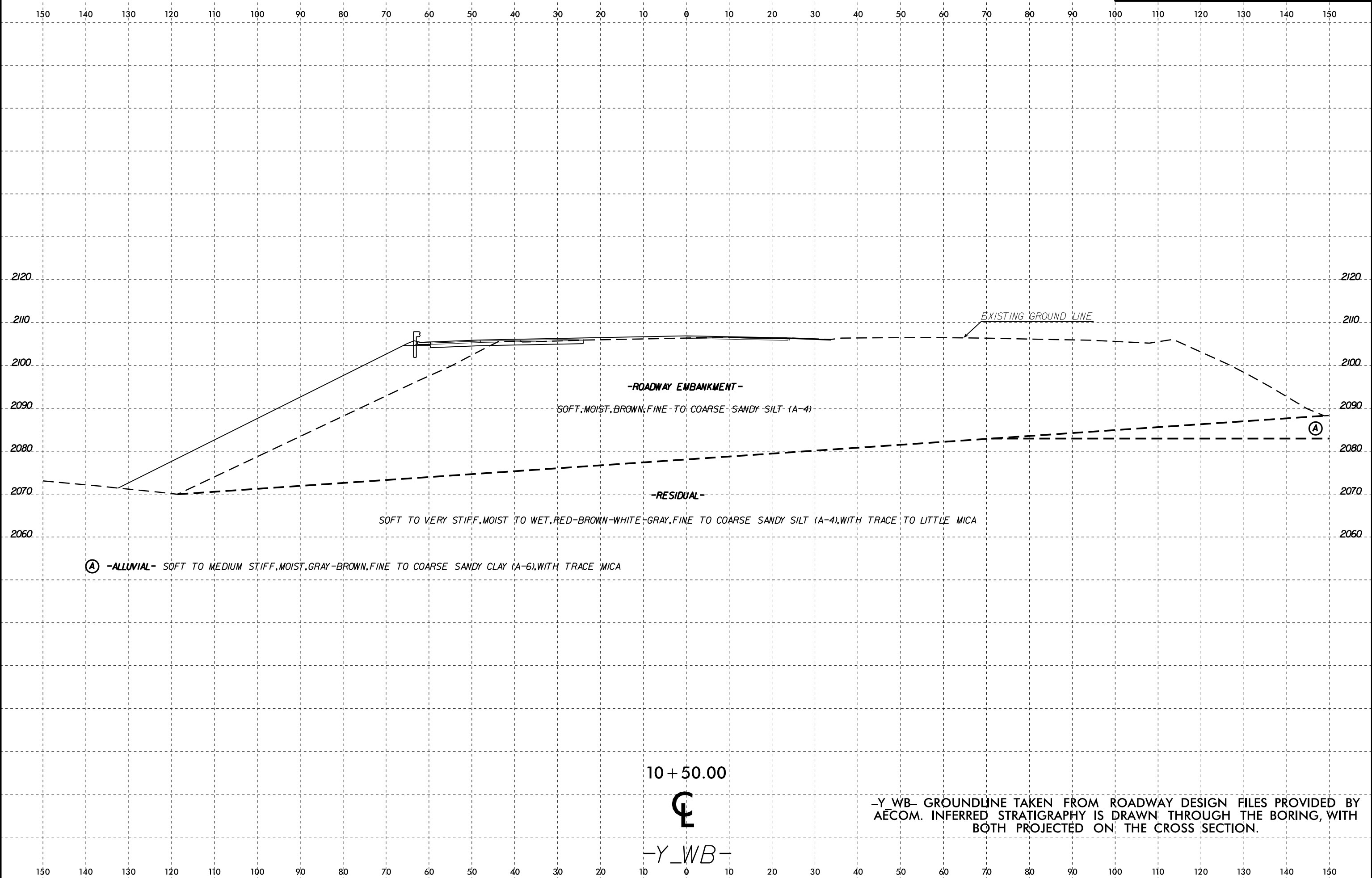
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-Y RT- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.



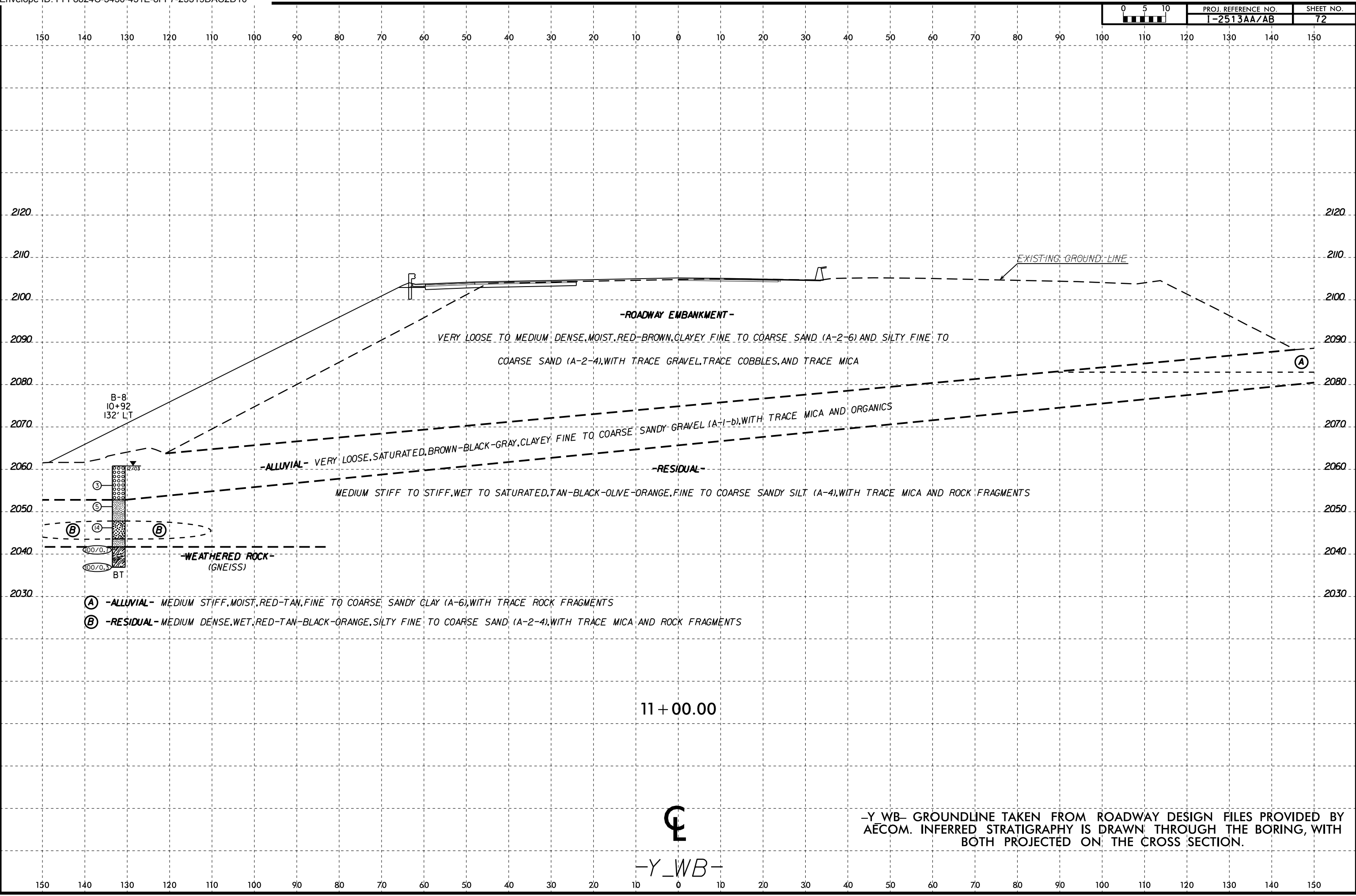
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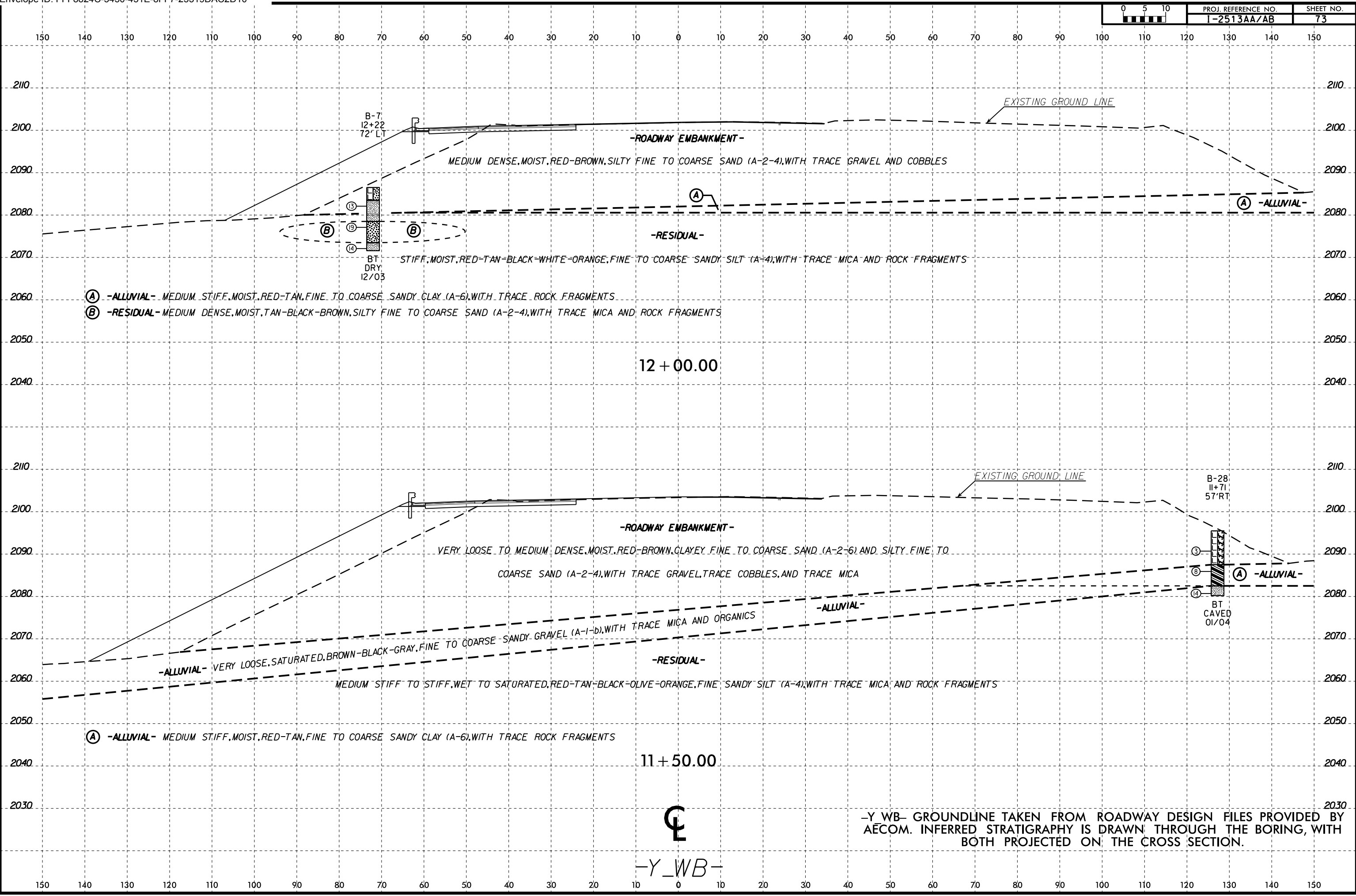


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-Y_WB- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.



CL

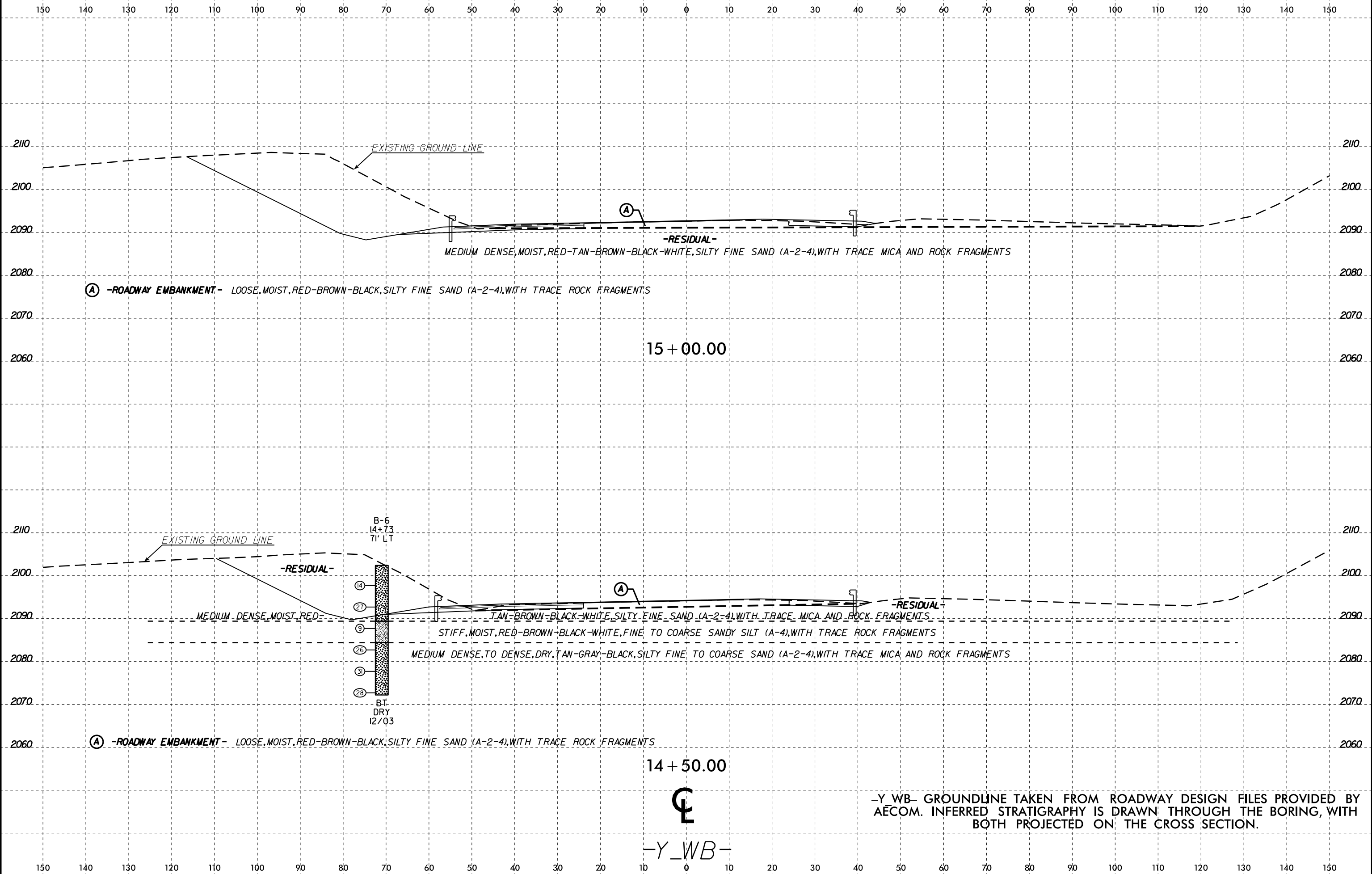
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-Y WB- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

25-AUG-2022 17:41
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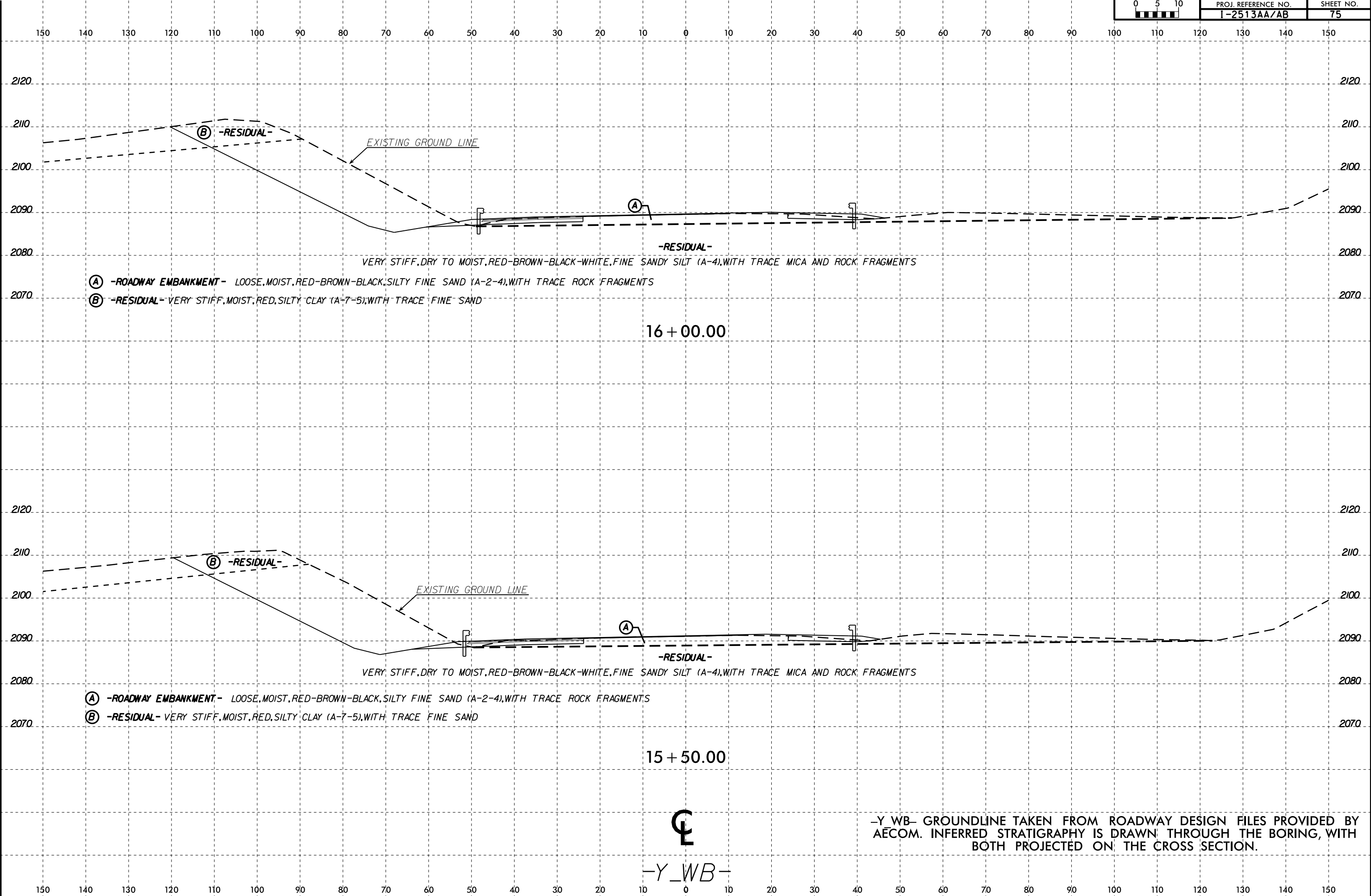
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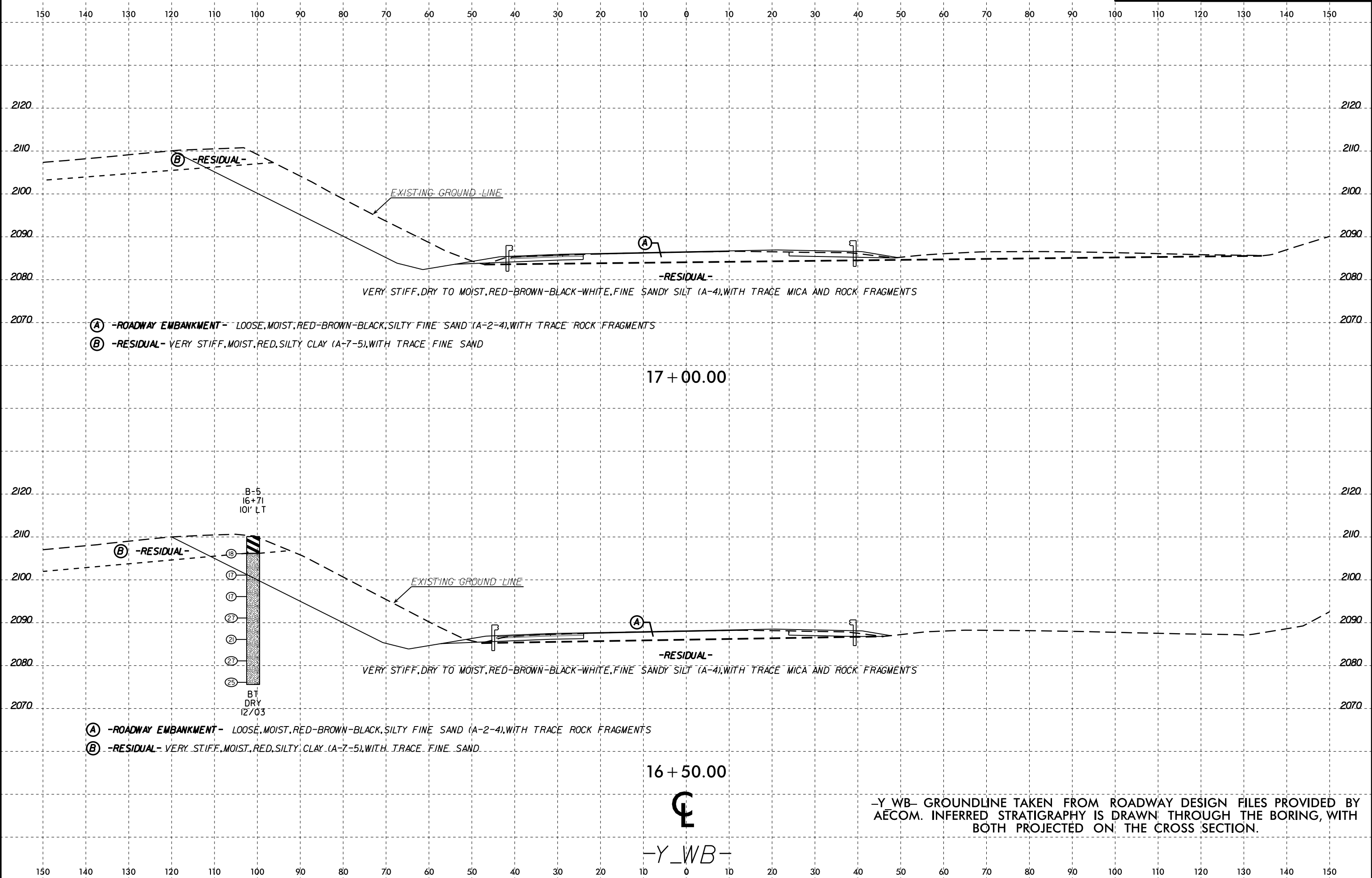


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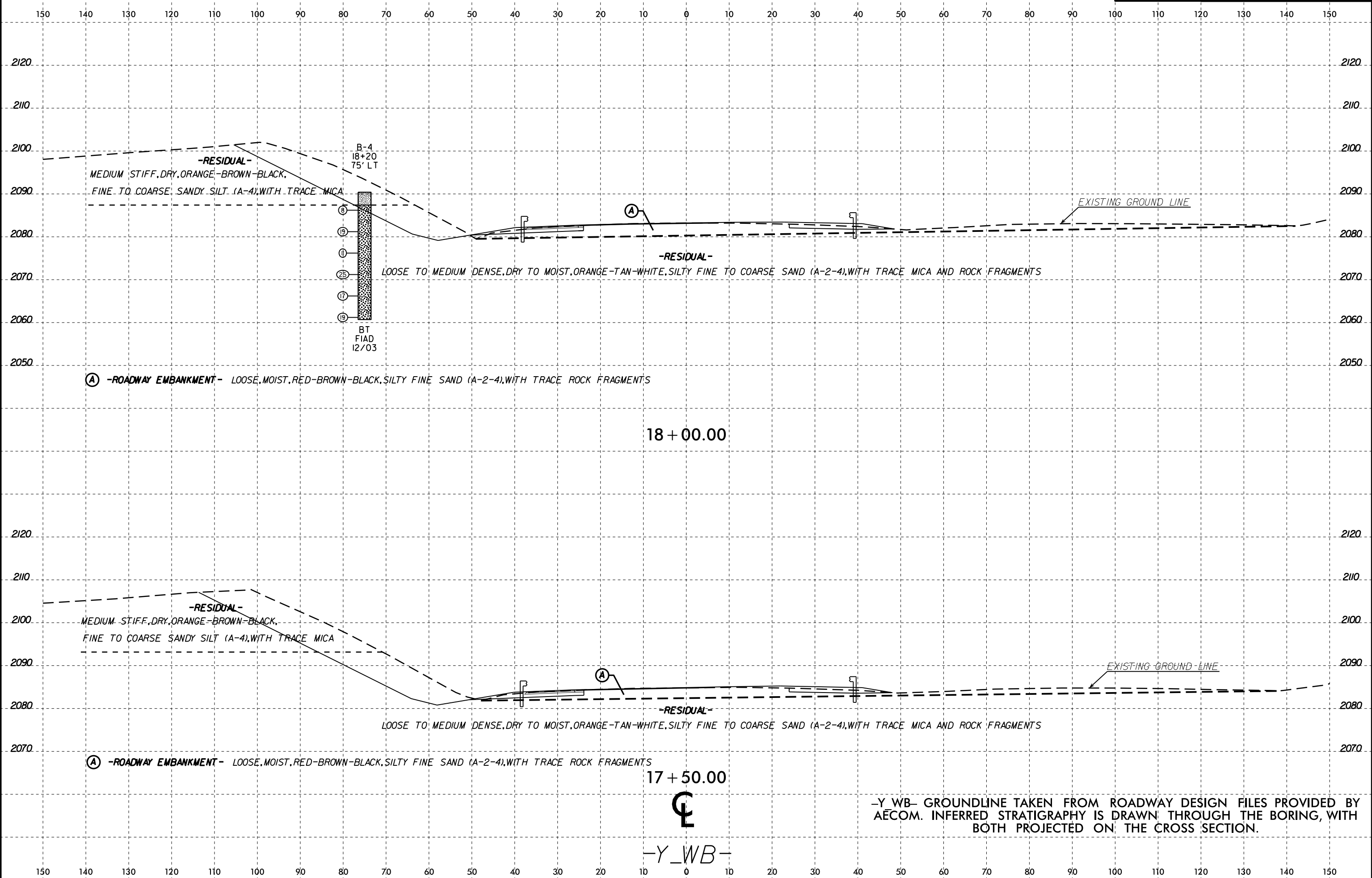
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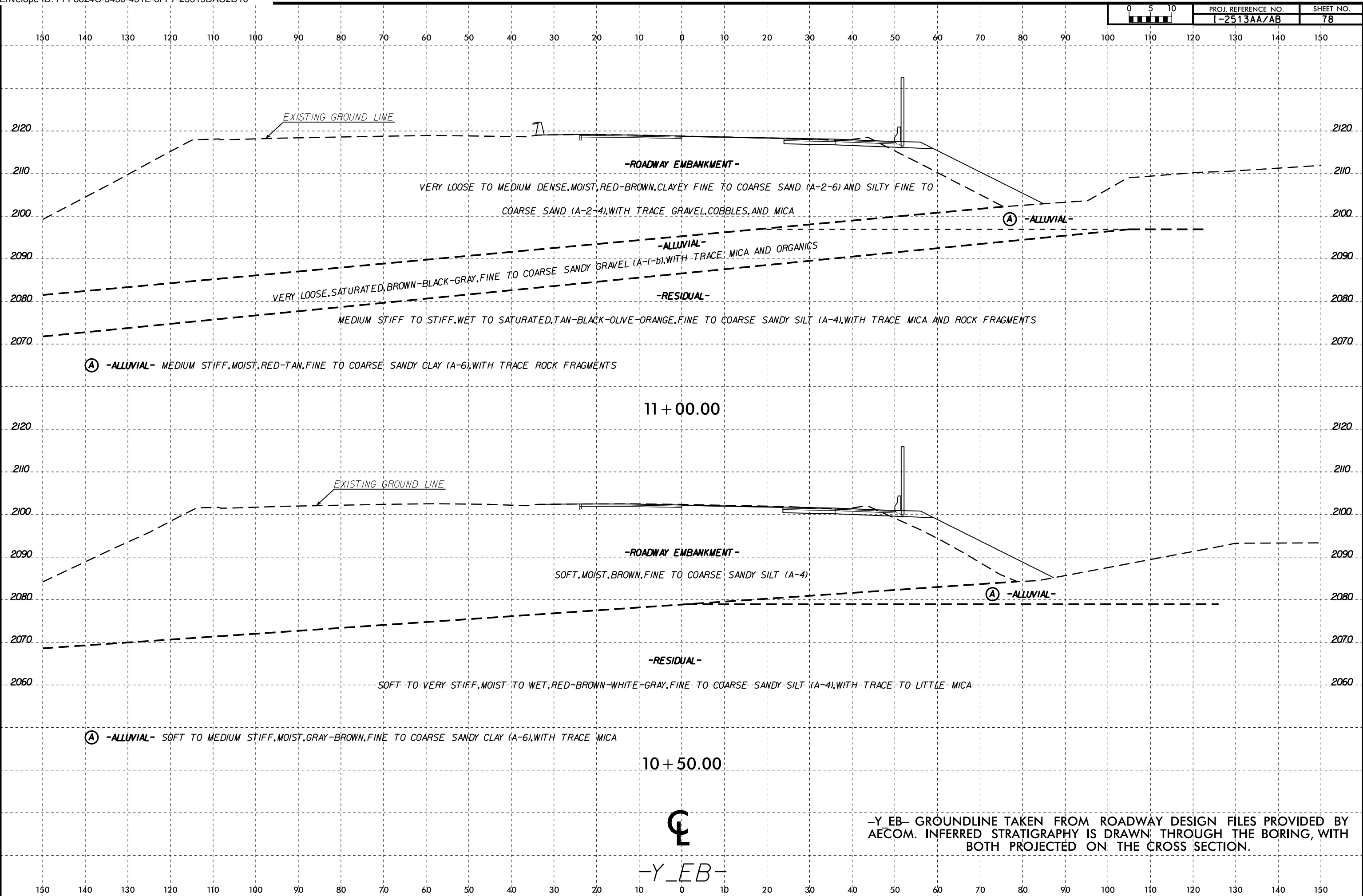
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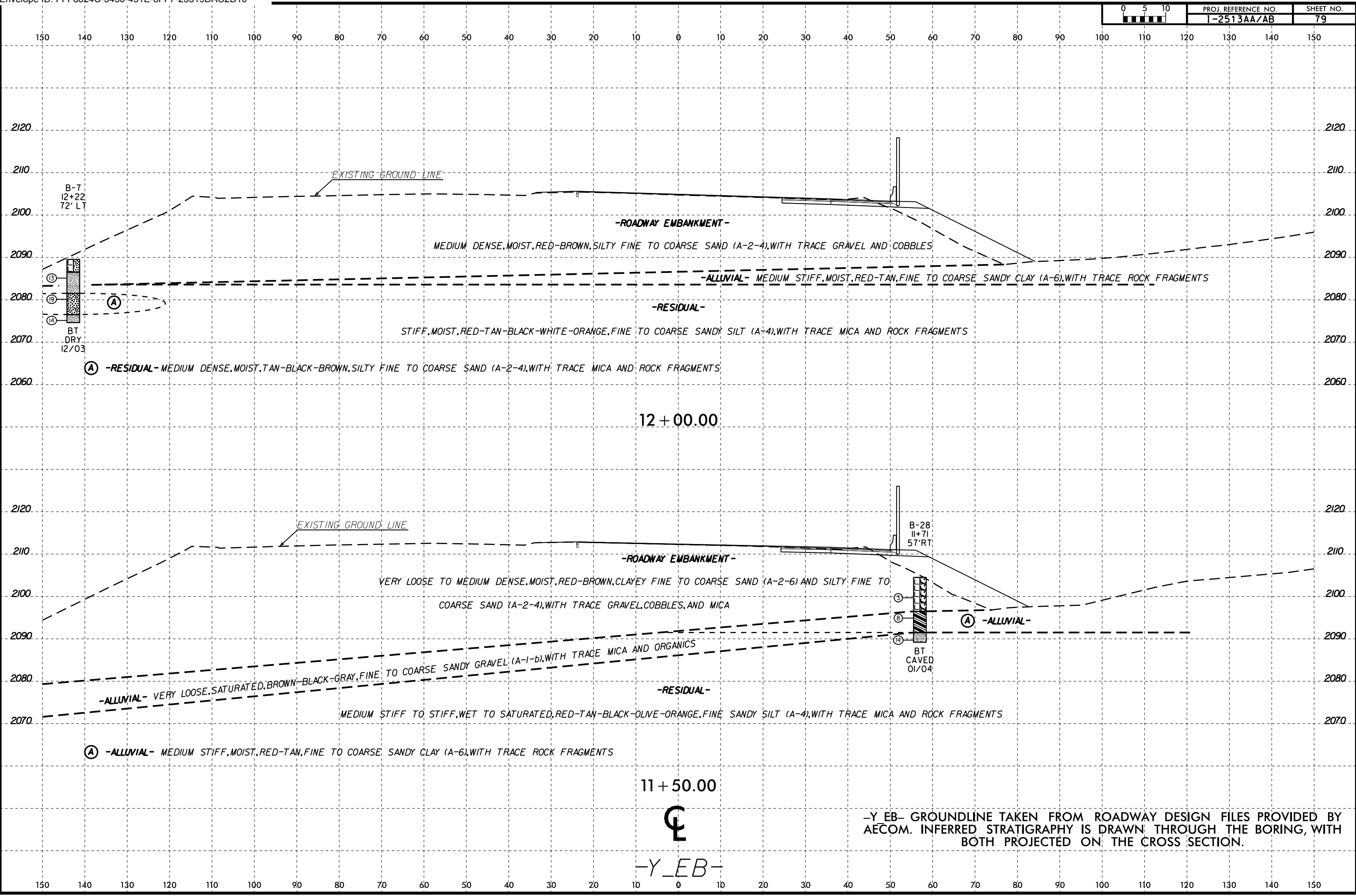
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-Y_EB- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

6/23/16
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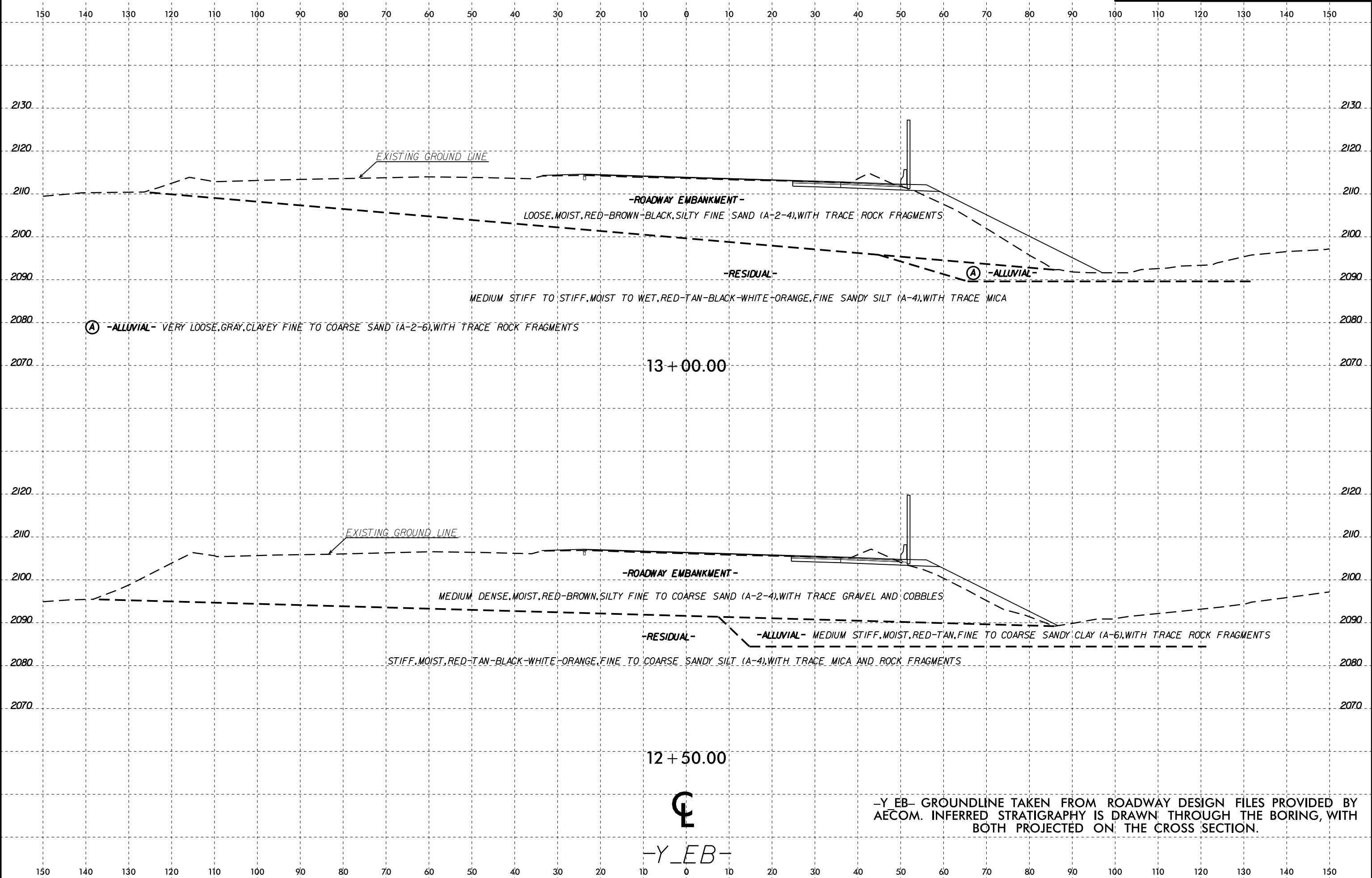


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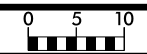
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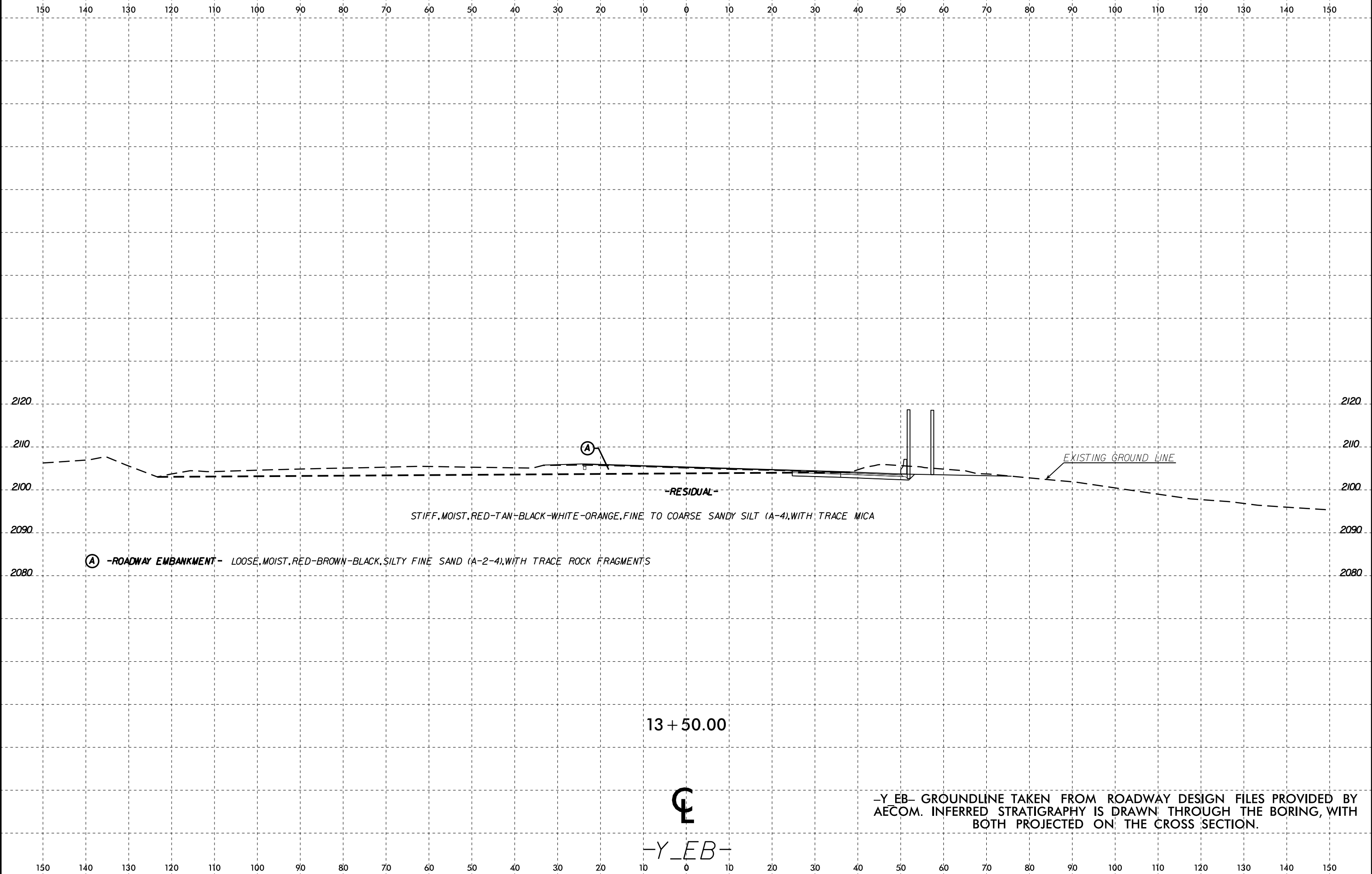
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6/23/16



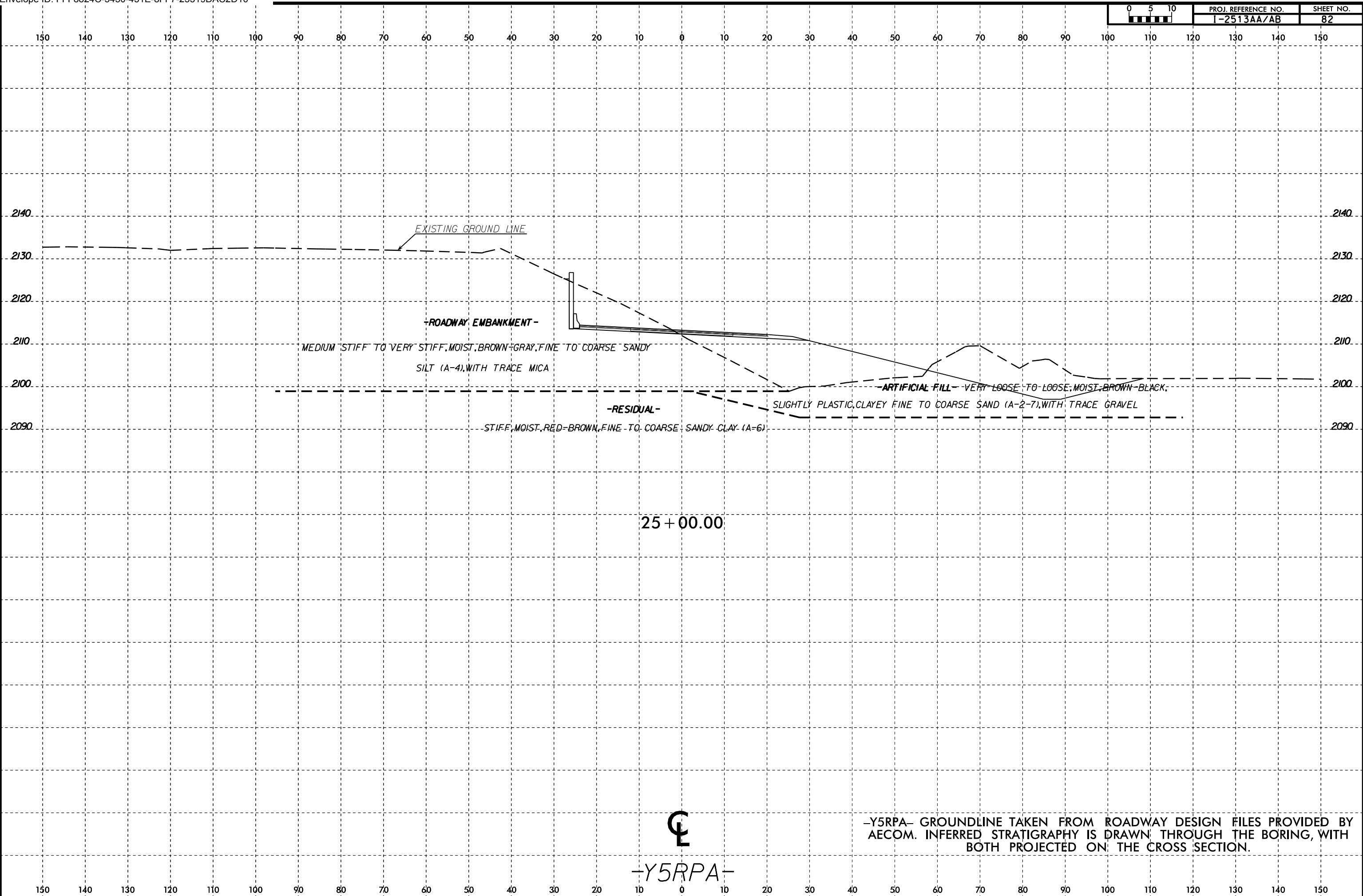
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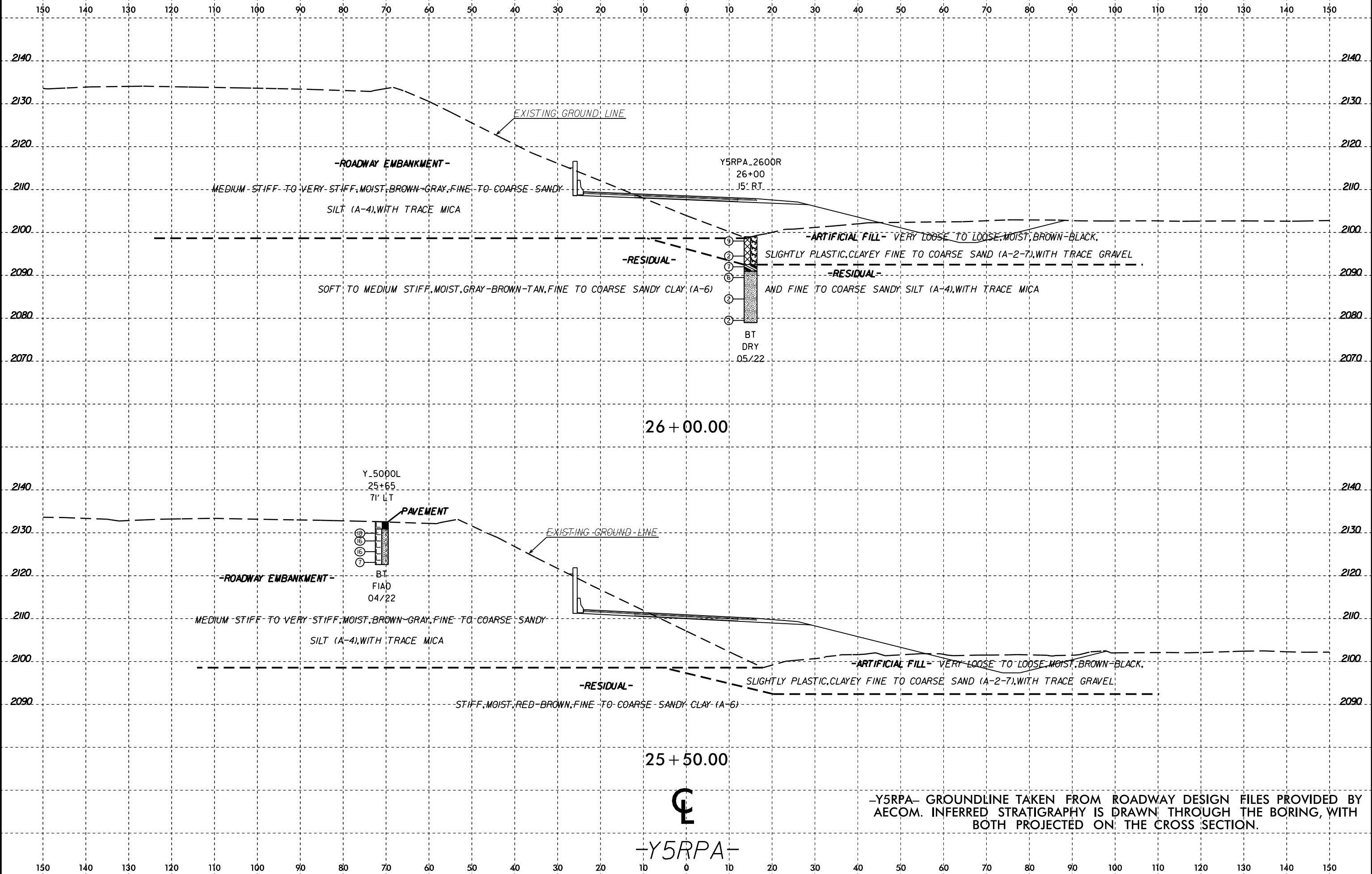


-Y5RPA-

-Y5RPA- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

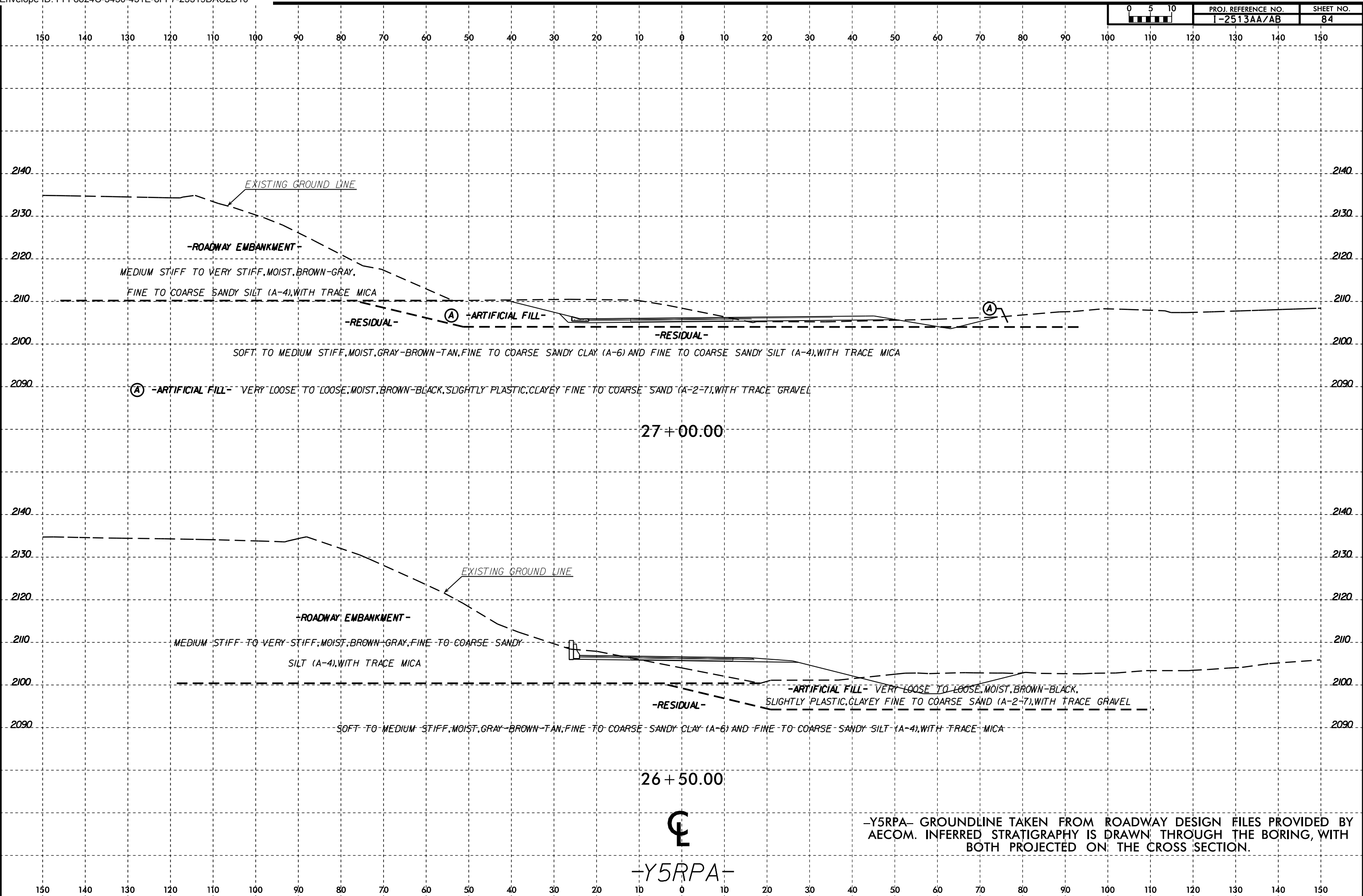
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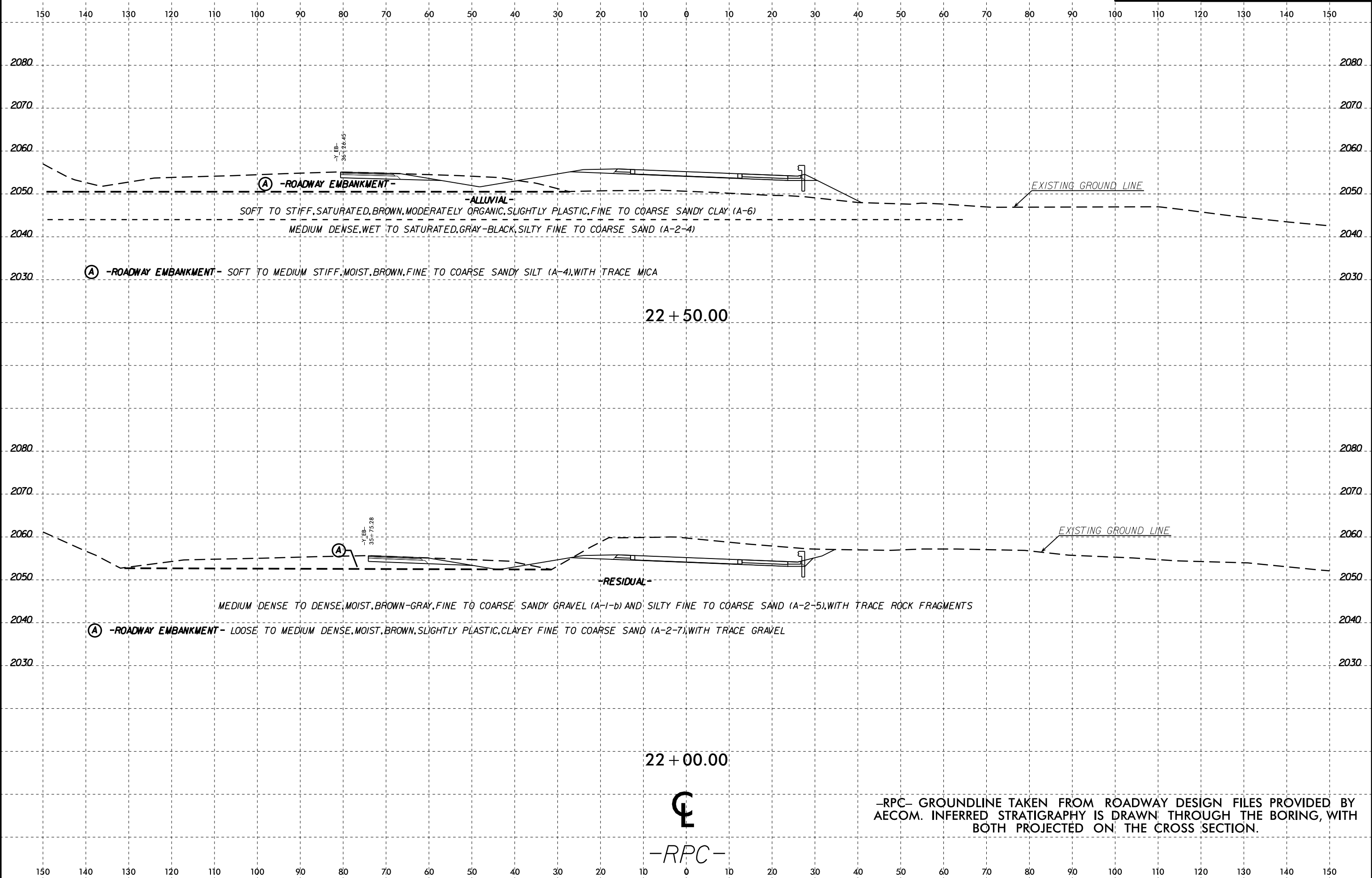


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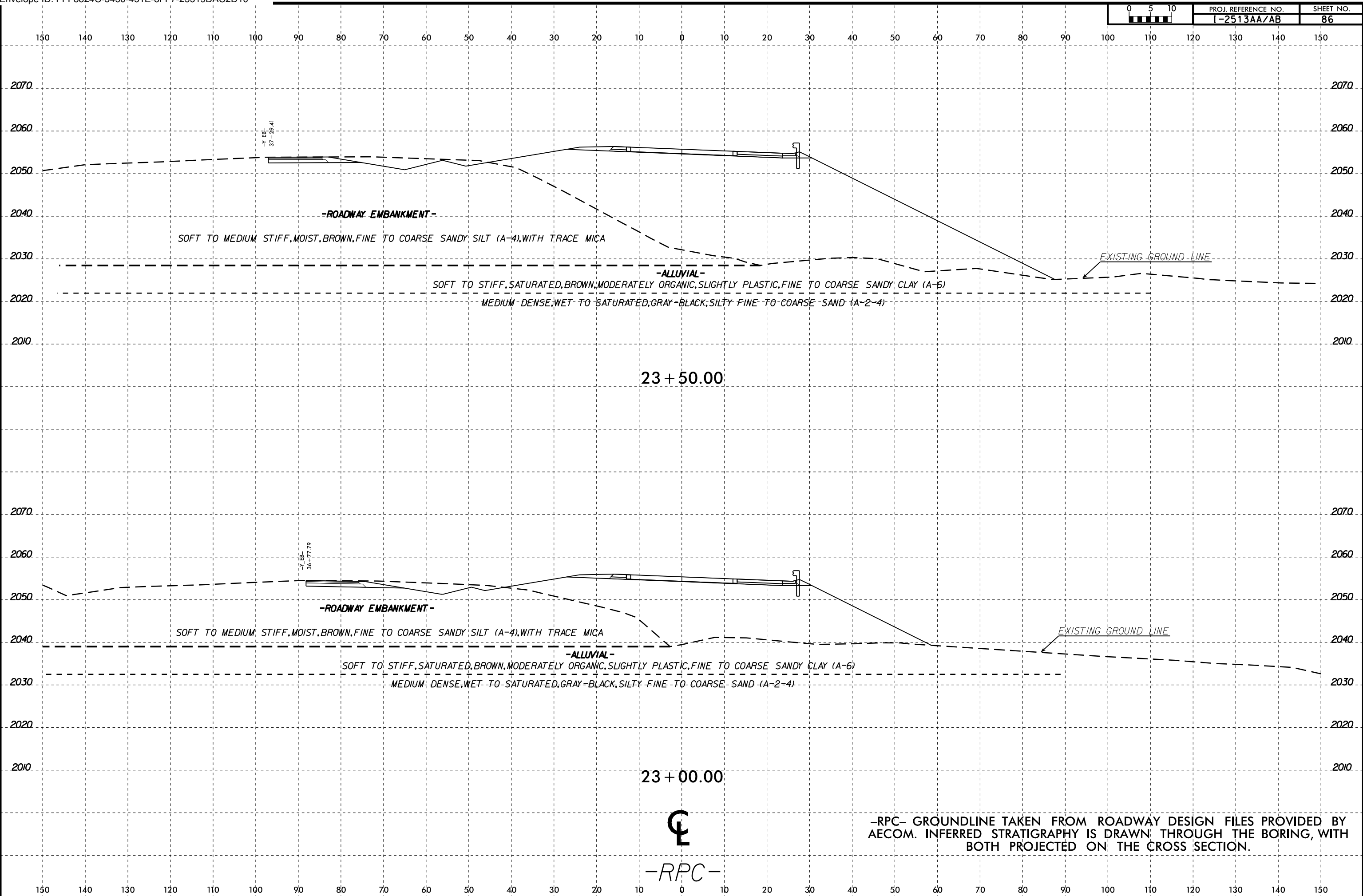
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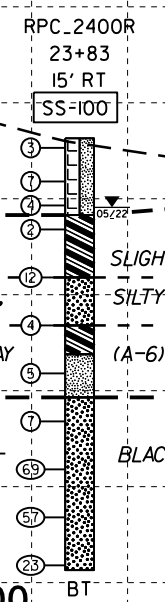
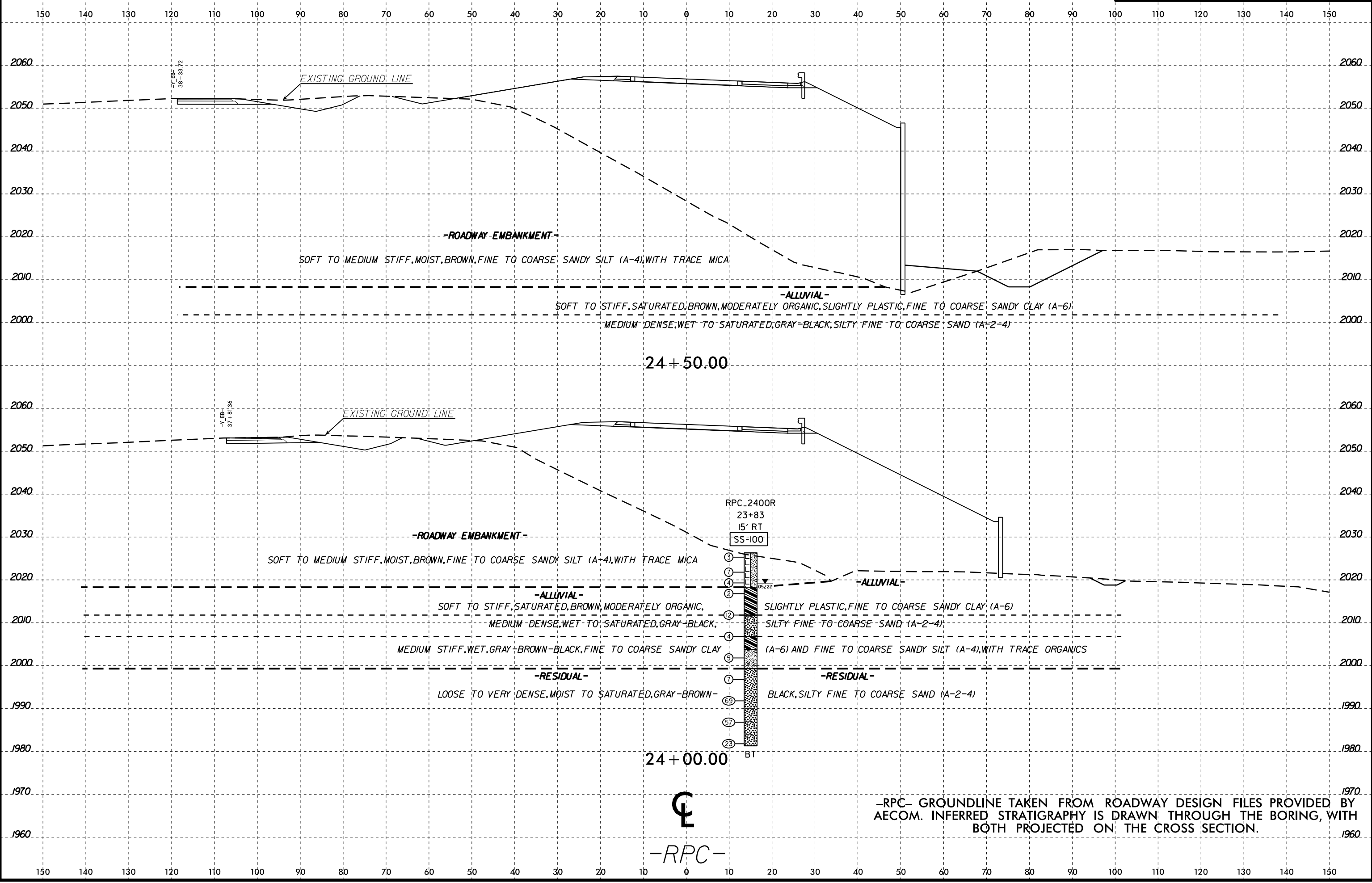
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23 + 00.00

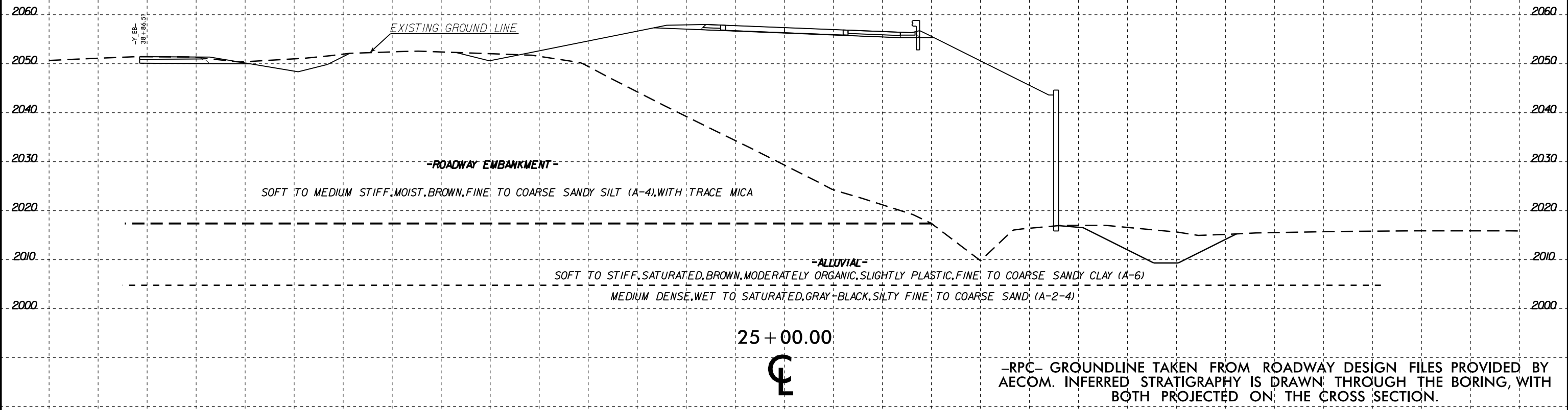
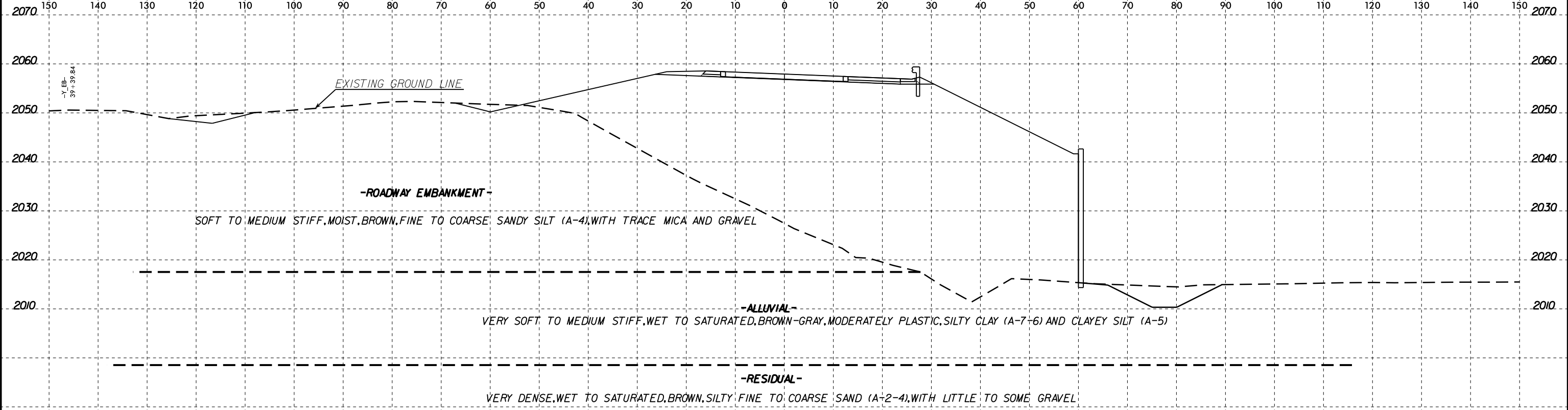
CL
-RPC-

-RPC- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

6/23/16
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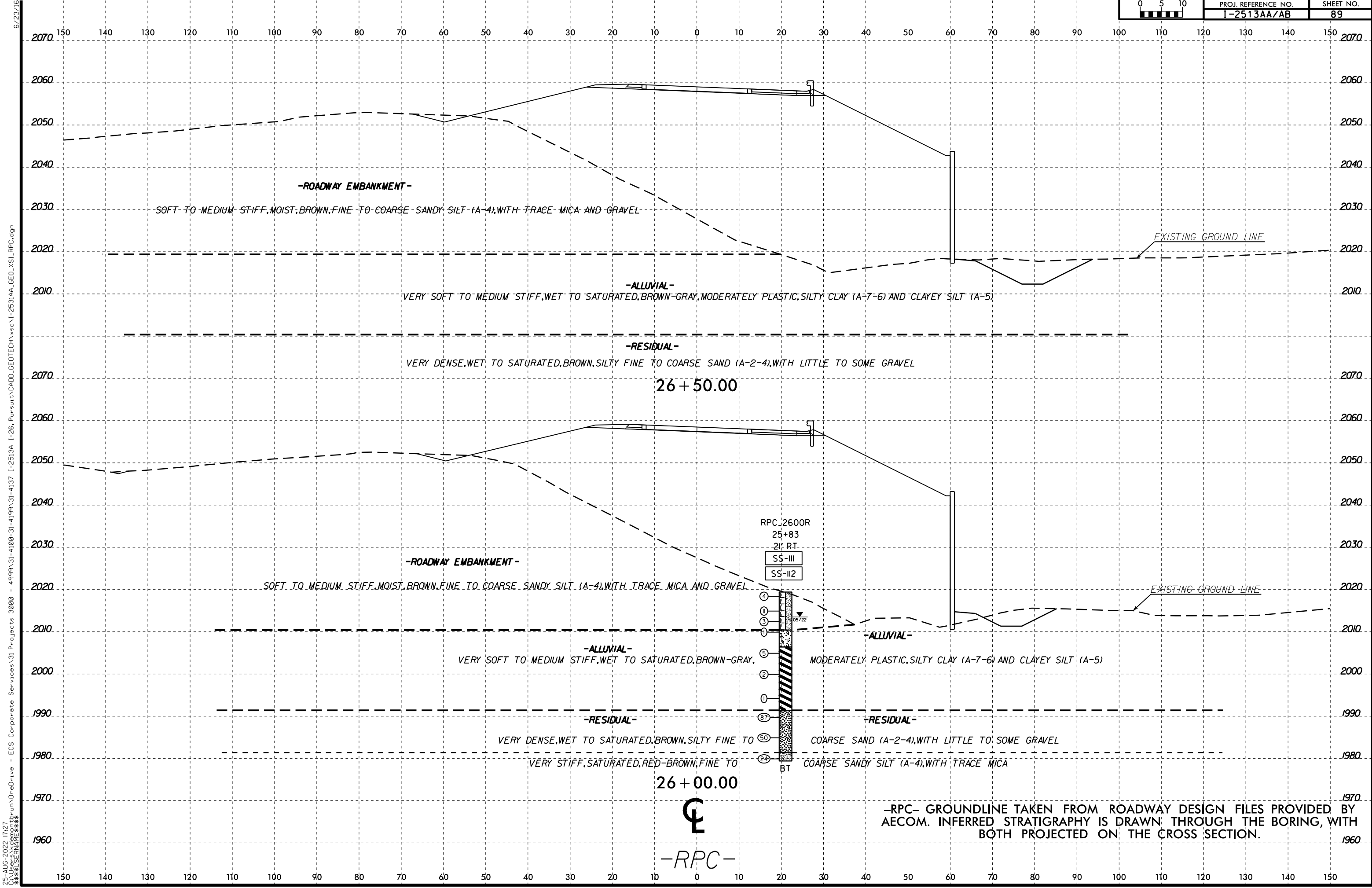
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-RPC-

-RPC- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

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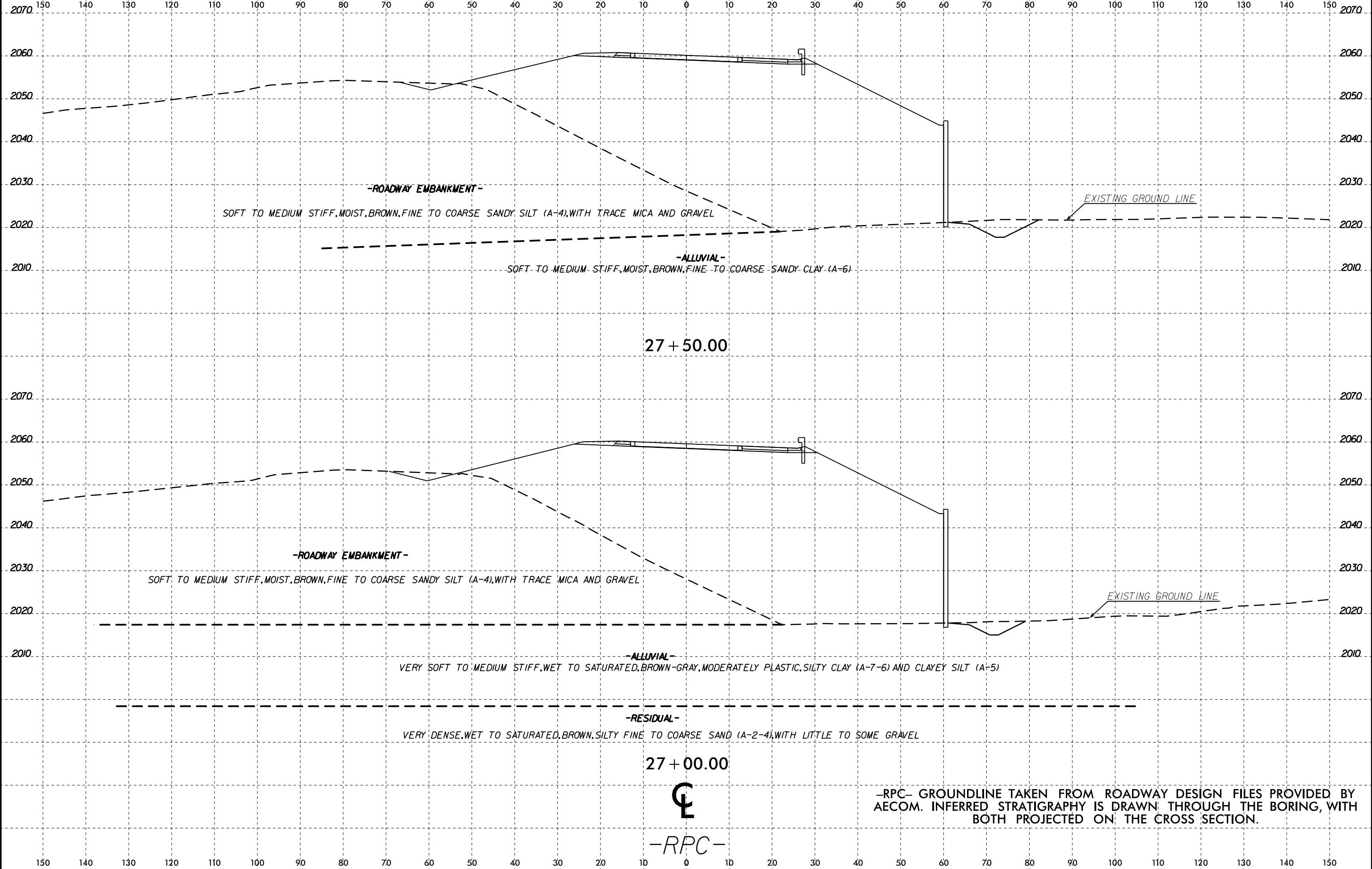
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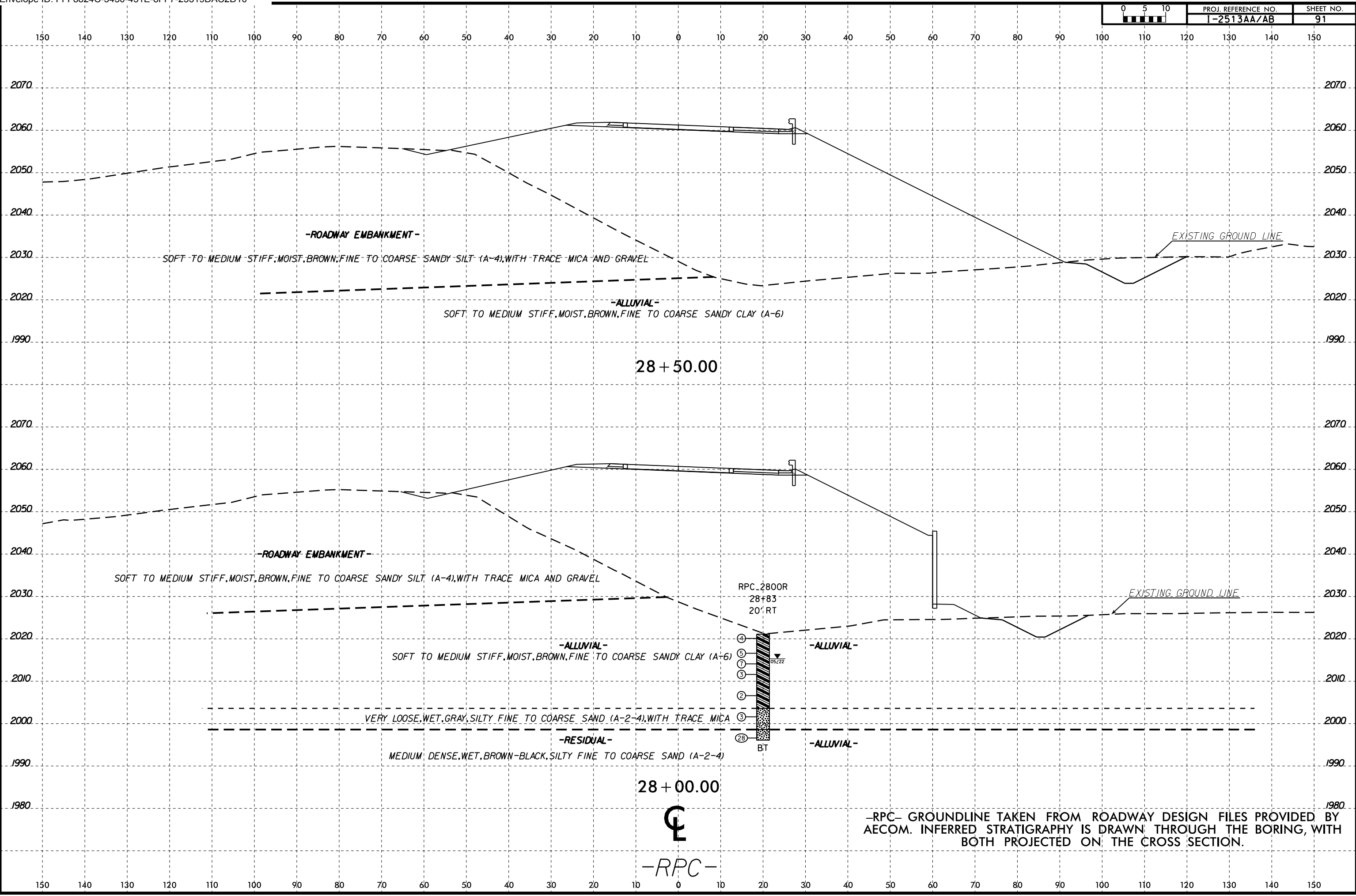


—RPC— GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

—RPC—

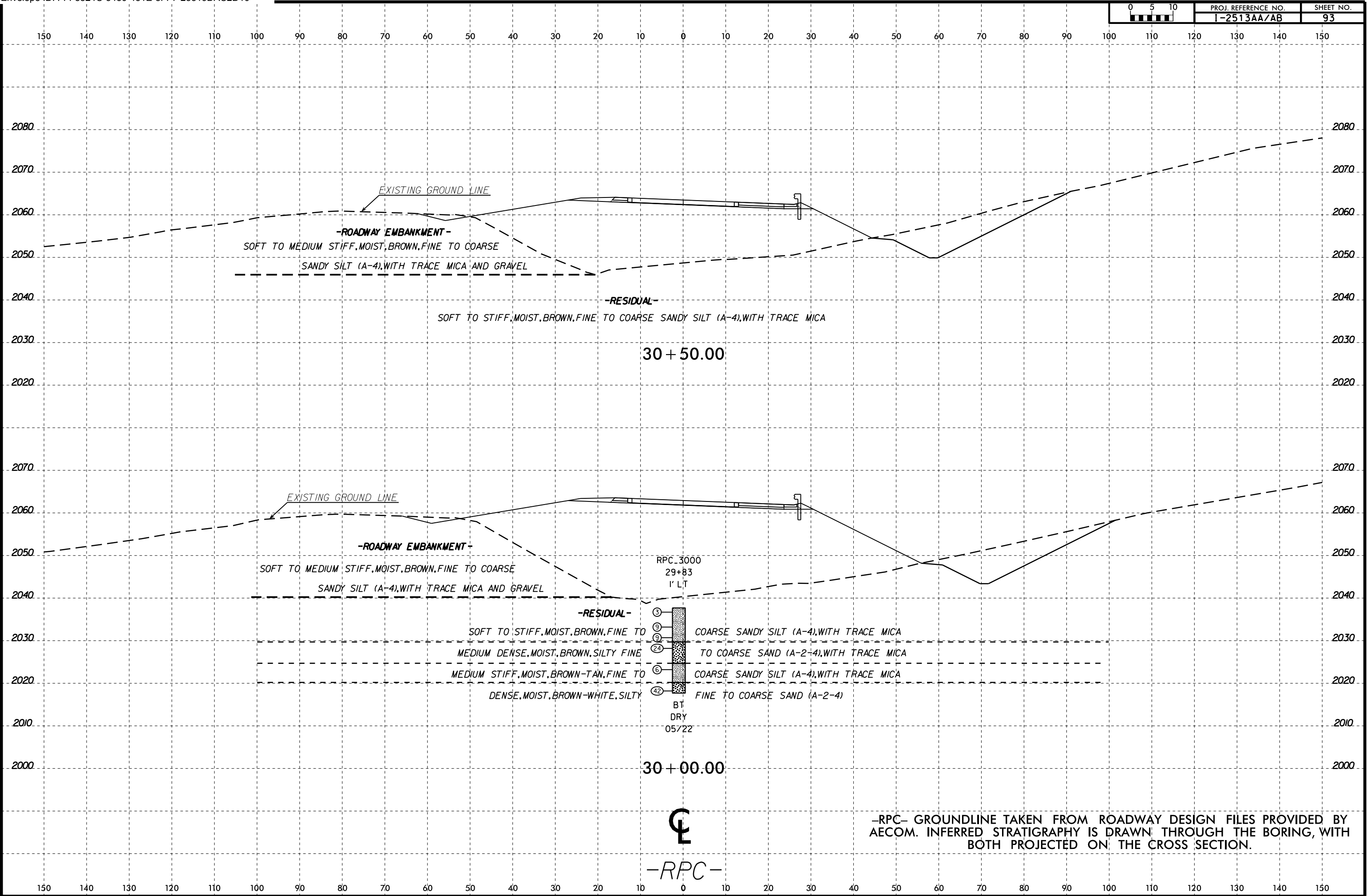
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	I-2513AA/AB	91



-RPC- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

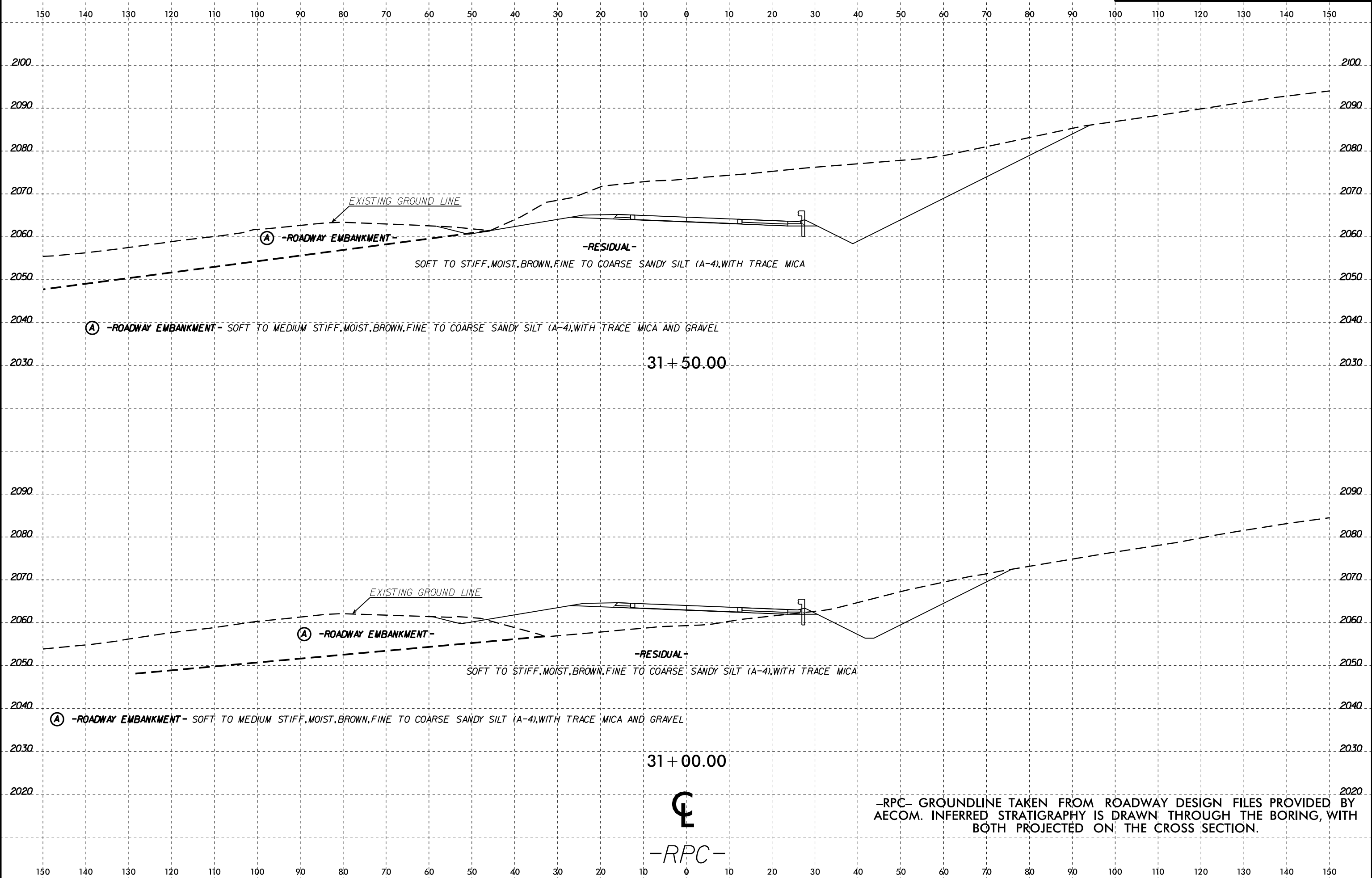
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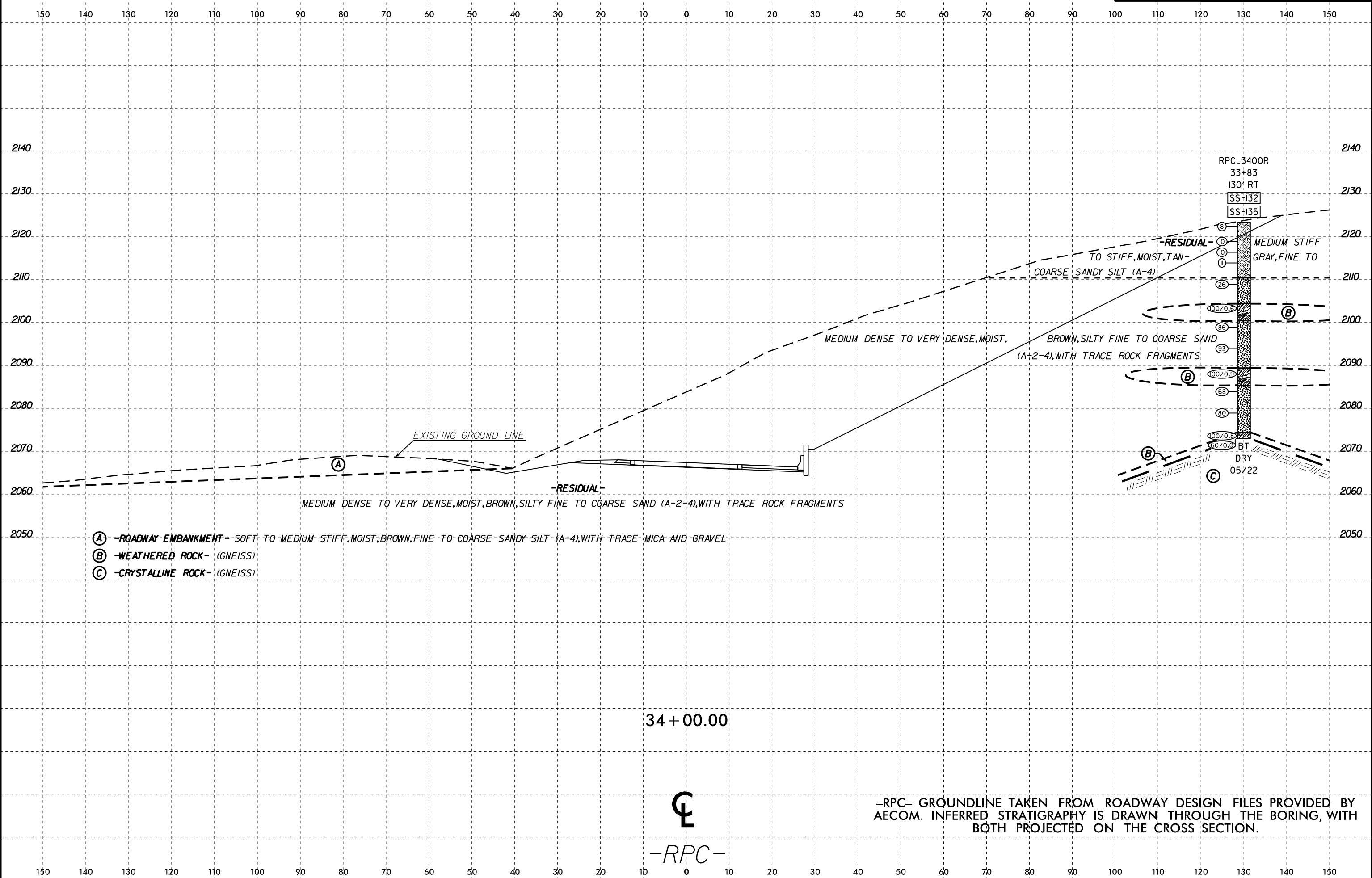
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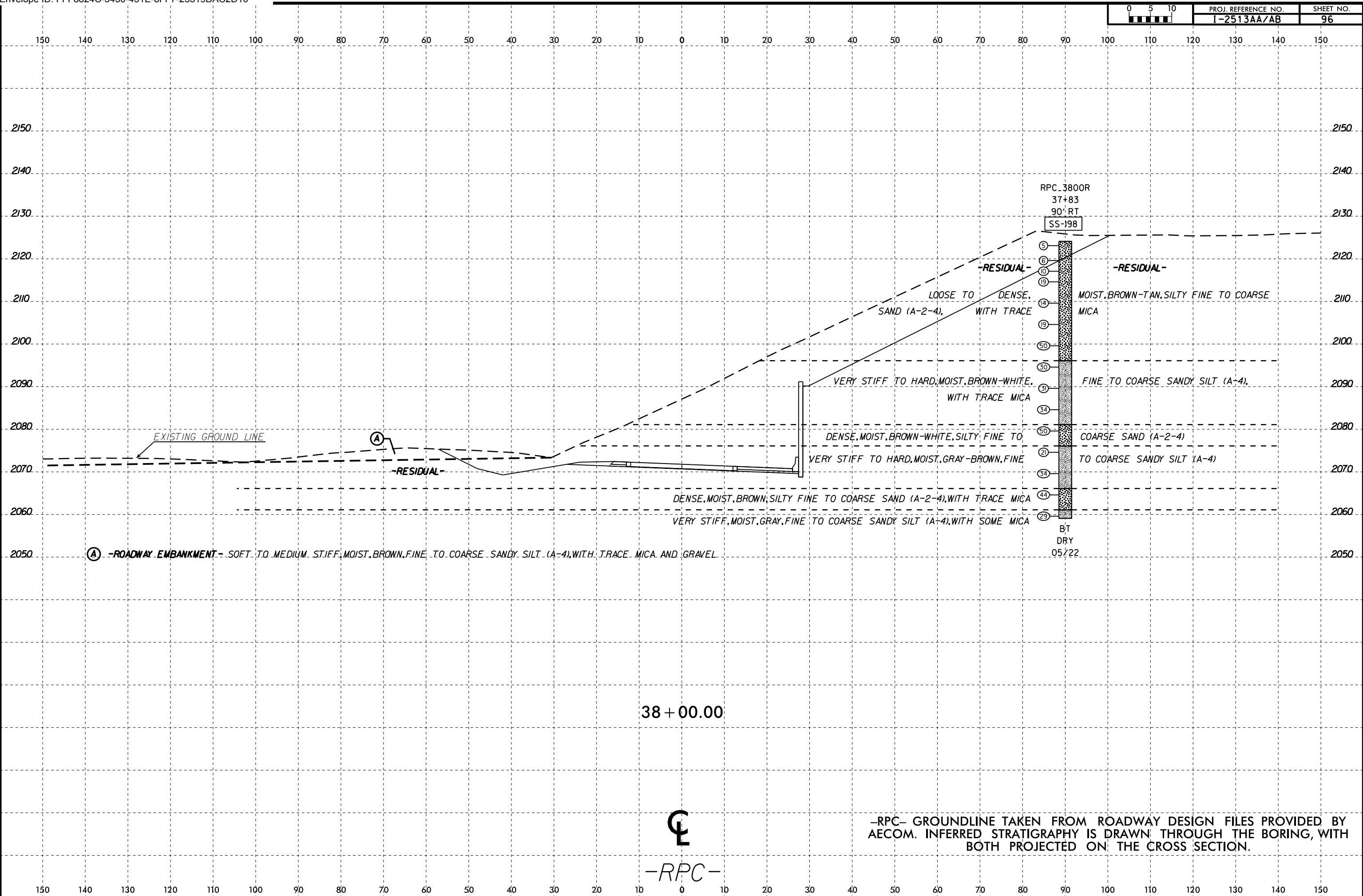
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-RPC- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY AECOM. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.



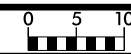
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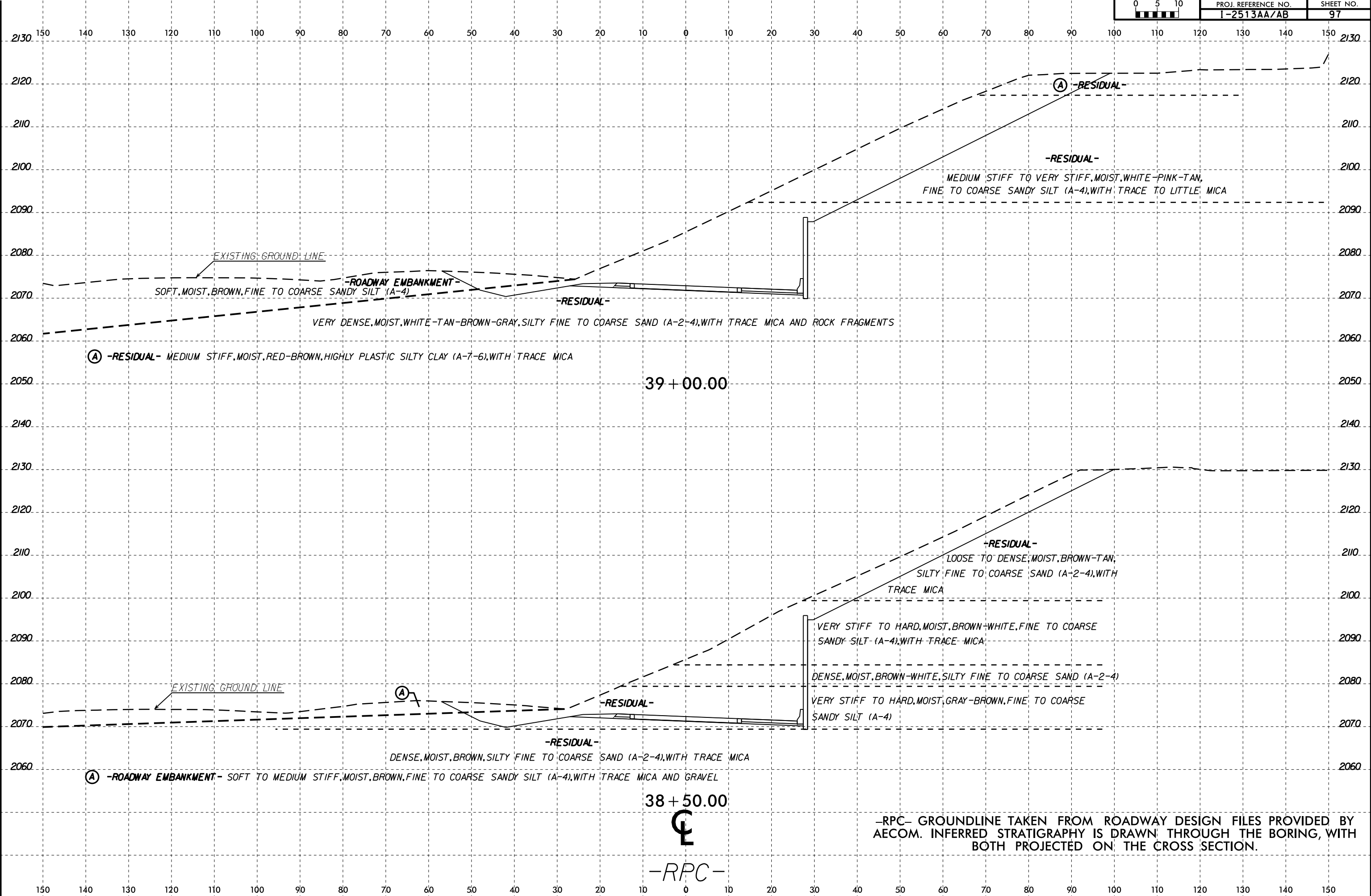
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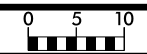
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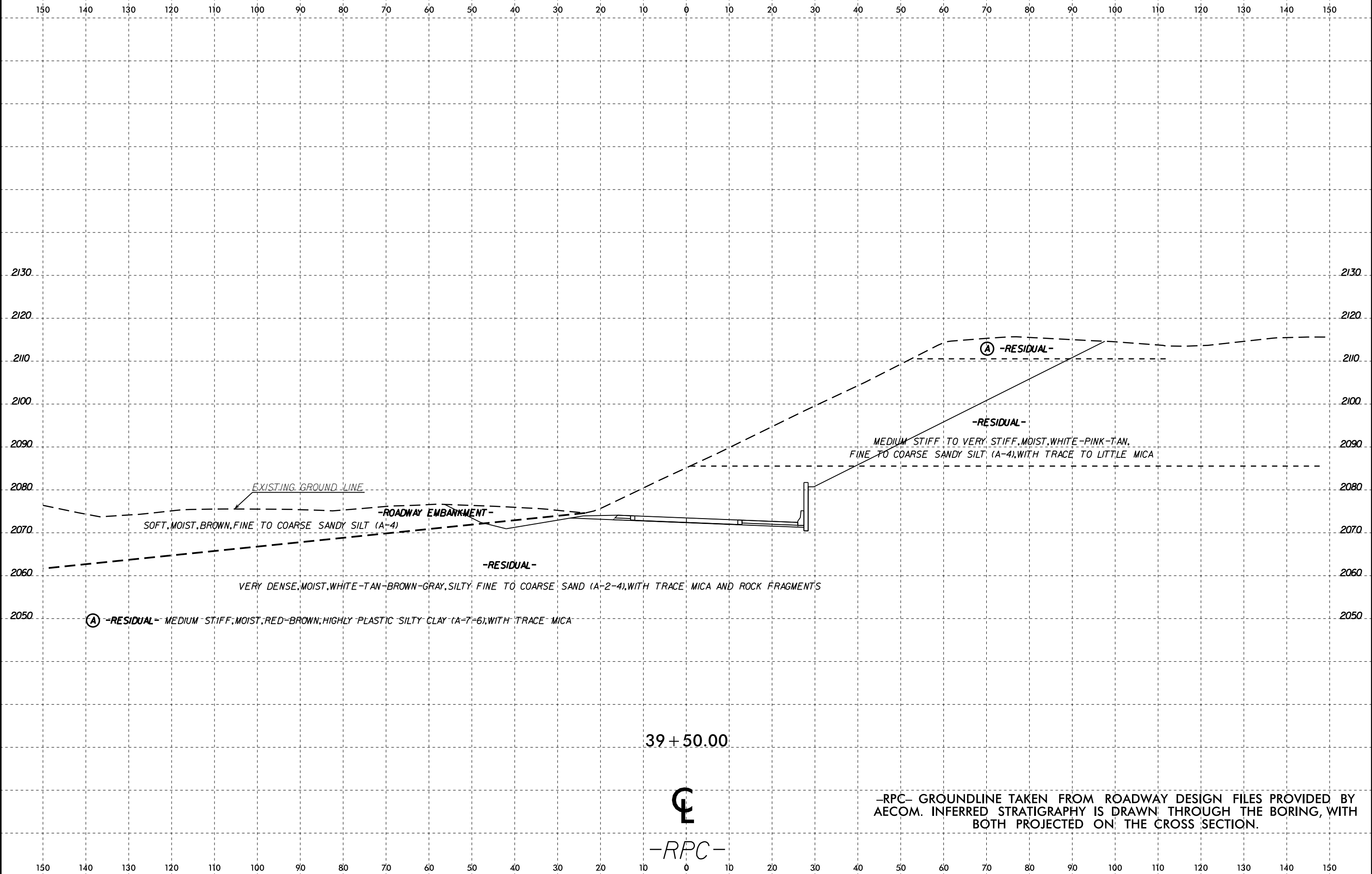
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PROJECT REFERENCE NO.	SHEET NO.
I-2513AA/AB	99

REFERENCE: I-2513AA/AB

PROJECT: 34165

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

SUBSURFACE INVESTIGATION

**APPENDIX A
BORE LOGS**

Prepared in the Office of:



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1812 CENTER PARK DRIVE, SUITE D
CHARLOTTE, NC 28217
(704) 525-5152 [PHONE]
(704) 357-0023 [FAX]
NC REGISTERED
ENGINEERING
FIRM # F-1078

GEOTECHNICAL BORING REPORT

BORE LOG

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST D. Cheek										
SITE DESCRIPTION I-40 From US-19 To I-240							GROUND WTR (ft)									
BORING NO. B-12		STATION 76+21		OFFSET 76 ft LT		ALIGNMENT -Y-										
COLLAR ELEV. 2,116.4 ft		TOTAL DEPTH 14.9 ft		NORTHING 677,799		EASTING 921,048										
DRILL RIG/HAMMER EFF./DATE N/A			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER N/A		START DATE 12/16/03		COMP. DATE 12/16/03		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2120																
2115	2,113.0	3.4	3	5	7								M		2,116.4	GROUND SURFACE 0.0
2110	2,108.0	8.4	4	5	6								M	2,113.4	RESIDUAL Stiff, Red-Brown, Silty CLAY (A-7-5) Stiff, Orange-Black-Tan-White, Fine Sandy SILT (A-4), with trace mica and rock fragments	
2105	2,103.0	13.4	4	5	5								M	2,101.5	Boring Terminated at Elevation 2,101.5 ft In Residual Sandy SILT (A-4)	

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST D. Cheek										
SITE DESCRIPTION I-40 From US-19 To I-240							GROUND WTR (ft)									
BORING NO. B-25		STATION 72+73		OFFSET 122 ft RT		ALIGNMENT -Y-										
COLLAR ELEV. 2,087.5 ft		TOTAL DEPTH 19.3 ft		NORTHING 677,696		EASTING 920,661										
DRILL RIG/HAMMER EFF./DATE N/A			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER N/A		START DATE 01/12/04		COMP. DATE 01/12/04		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2090																
2085	2,084.7	2.8	WOH	1	1								M	2,087.5	GROUND SURFACE 0.0	
2080	2,079.7	7.8	WOH	1	2								M	2,085.5	ROADWAY EMBANKMENT Very Soft, Brown, Fine to Coarse Sandy CLAY (A-6), with trace rock fragments	
2075	2,074.7	12.8	1	1	2								M	2,080.5	ALLUVIAL Very Loose, Gray, Clayey, Fine to Coarse Sandy Gravel (A-1-a), with trace mica	
2070	2,069.7	17.8	1	3	4								M	2,080.5	RESIDUAL Soft to Medium Stiff, Brown-Black-Orange, Fine Sandy SILT (A-4), with trace mica and rock fragments	
													M	2,068.2	Boring Terminated at Elevation 2,068.2 ft In Residual Sandy SILT (A-4)	

NCDOT BORE DOUBLE I2513A_RDY_GEO_GTM.GPJ NC_DOT.GDT 8/24/22

GEOTECHNICAL BORING REPORT

BORE LOG

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST D. Cheek										
SITE DESCRIPTION I-40 From US-19 To I-240							GROUND WTR (ft)									
BORING NO. B-27		STATION 91+12		OFFSET 131 ft RT		ALIGNMENT -Y-										
COLLAR ELEV. 2,084.6 ft		TOTAL DEPTH 20.1 ft		NORTHING 677,222		EASTING 922,438										
DRILL RIG/HAMMER EFF./DATE N/A				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER N/A		START DATE 01/13/04		COMP. DATE 01/13/04		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2085														2,084.6	0.0	GROUND SURFACE
2080	2,081.0	3.6		WOH	1	1							W			ALLUVIAL Very Loose, Brown-Gray-Black, Clayey Fine to Coarse SAND (A-2-6), with trace organics and rock fragments
2075	2,076.0	8.6			1	5	4						W			Loose, Brown-Gray-Black, Fine to Coarse Sandy Gravel (A-1-a)
2070	2,071.0	13.6			2	2	2						Sat.			RESIDUAL Soft to Medium Stiff, Red-Brown-Orange-Black, Fine Sandy SILT (A-4), with trace mica
2065	2,066.0	18.6			1	2	3						Sat.			Boring Terminated at Elevation 2,064.5 ft In Residual Sandy SILT (A-4)

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST D. Cheek										
SITE DESCRIPTION I-40 From US-19 To I-240							GROUND WTR (ft)									
BORING NO. B-3		STATION 21+69		OFFSET 93 ft LT		ALIGNMENT -Y_WB-										
COLLAR ELEV. 2,090.8 ft		TOTAL DEPTH 39.8 ft		NORTHING 677,154		EASTING 923,719										
DRILL RIG/HAMMER EFF./DATE N/A				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER N/A		START DATE 11/25/03		COMP. DATE 11/25/03		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2095														2,090.8	0.0	GROUND SURFACE
2090																RESIDUAL Stiff, Red, Silty CLAY (A-7-5), with trace fine sand
2085	2,087.5	3.3			5	6	9						M	2,086.5	4.3	Medium Dense, Brown-Red-Tan-Black, Silty Fine SAND (A-2-4), with trace mica
2080	2,082.5	8.3			5	6	9						D			
2075	2,077.5	13.3			3	7	8						M			
2070	2,072.5	18.3			3	5	8						M	2,072.8	18.0	Stiff, Red-Brown-Tan-Black, Clayey SILT (A-5), with trace mica
2065	2,067.5	23.3			3	4	7						W			
2060	2,062.5	28.3			3	3	5						W	2,062.8	28.0	Loose to Medium Dense, Brown-Tan-Black, Silty Fine to Coarse SAND (A-2-4), with some mica
2055	2,057.5	33.3			4	6	12						W			
	2,052.5	38.3			5	7	11						W	2,051.0	39.8	Boring Terminated at Elevation 2,051.0 ft In Residual Silty SAND (A-2-4)

NCDOT BORE DOUBLE I2513A_RDY_GTM.GPJ NC_DOT.GDT 8/24/22

GEOTECHNICAL BORING REPORT

BORE LOG

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST D. Cheek									
SITE DESCRIPTION I-40 From US-19 To I-240							GROUND WTR (ft)								
BORING NO. B-2		STATION 23+71		OFFSET 128 ft LT		ALIGNMENT -Y_WB-									
COLLAR ELEV. 2,099.2 ft		TOTAL DEPTH 44.0 ft		NORTHING 677,143		EASTING 923,919									
DRILL RIG/HAMMER EFF./DATE N/A				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER N/A		START DATE 11/20/03		COMP. DATE 11/20/03		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2100														2,099.2 GROUND SURFACE	0.0
2095	2,095.6	3.6	7	7	8								D	2,096.2 RESIDUAL Stiff, Red, Fine Sandy CLAY (A-6)	3.9
2090	2,090.6	8.6	9	15	12								M	Medium Dense to Very Dense, Tan-White-Black-Brown, Silty Fine to Coarse SAND (A-2-4), with trace mica and rock fragments	
2085	2,085.6	13.6	6	16	40								M		
2080	2,080.6	18.6	9	13	18								M		
2075	2,075.6	23.6	7	13	12								M		
2070	2,070.6	28.6	23	66	34/0.4									2,070.1 WEATHERED ROCK Black-Orange-Tan-Gray (GNEISS)	29.1
2065	2,065.6	33.6	45	55/0.2											
2060	2,060.6	38.6	24	20	24								M	2,061.2 RESIDUAL Dense, Black-Gray-White-Orange, Silty Fine to Coarse SAND (A-2-4), with trace mica and rock fragments	38.9
	2,055.6	43.6												2,055.6 WEATHERED ROCK Black-Orange-Tan-Gray (GNEISS)	43.6
														Boring Terminated at Elevation 2,055.3 ft In Weathered Rock (GNEISS)	44.0

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST D. Cheek									
SITE DESCRIPTION I-40 From US-19 To I-240							GROUND WTR (ft)								
BORING NO. B-1		STATION 25+22		OFFSET 117 ft LT		ALIGNMENT -Y_WB-									
COLLAR ELEV. 2,082.4 ft		TOTAL DEPTH 33.3 ft		NORTHING 677,105		EASTING 924,059									
DRILL RIG/HAMMER EFF./DATE N/A				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER N/A		START DATE 11/20/03		COMP. DATE 11/20/03		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2085														2,082.4 GROUND SURFACE	0.0
2080	2,080.6	1.8	4	6	10								D	2,076.4 RESIDUAL Very Stiff, Red, Fine to Coarse Sandy Clay (A-6), with trace mica and rock fragments	6.0
2075	2,075.6	6.8	4	6	7								D	Loose to Dense, Brown-Tan-White-Black, Silty Fine to Coarse SAND (A-2-4), with trace rock fragments	
2070	2,070.6	11.8	4	4	6								D		
2065	2,065.6	16.8	3	4	6								M		
2060	2,060.6	21.8	7	8	8								M		
2055	2,055.6	26.8	11	18	23								D		
2050	2,050.6	31.8	27	13	14								D		
														Boring Terminated at Elevation 2,049.1 ft In Residual Silty SAND (A-2-4)	33.3

NCDOT BORE DOUBLE I2513A_RDY_GTM.GPJ_NC_DOT.GDT 8/24/22

GEOTECHNICAL BORING REPORT

BORE LOG

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST D. Cheek										
SITE DESCRIPTION I-40 From US-19 To I-240							GROUND WTR (ft)									
BORING NO. B-29		STATION 12+93		OFFSET 58 ft RT		ALIGNMENT -Y_EB-										
COLLAR ELEV. 2,093.6 ft		TOTAL DEPTH 14.5 ft		NORTHING 677,160		EASTING 922,814										
DRILL RIG/HAMMER EFF./DATE N/A		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER N/A		START DATE 01/13/03		COMP. DATE 01/13/03		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2095														2,093.6	0.0	GROUND SURFACE
2090	2,090.6	3.0	2	3	4									2,090.6	3.0	ROADWAY EMBANKMENT Loose, Brown-Black, Silty Fine SAND (A-2-4), with trace rock fragments
2085	2,085.6	8.0	2	1	3									2,085.6	8.0	Medium Stiff, Red, Silty CLAY (A-7-5), with trace rock fragments
2080	2,080.6	13.0	2	3	2									2,081.6	12.0	ALLUVIAL Very Loose, Gray, Clayey Fine to Coarse SAND (A-2-6), with trace rock fragments
														2,079.1	14.5	RESIDUAL Medium Stiff, Tan-Brown-Orange-Black, Fine Sandy SILT (A-4), with trace mica
																Boring Terminated at Elevation 2,079.1 ft In Residual Sandy SILT (A-4)

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST D. Cheek										
SITE DESCRIPTION I-40 From US-19 To I-240							GROUND WTR (ft)									
BORING NO. B-30		STATION 16+71		OFFSET 133 ft RT		ALIGNMENT -Y_EB-										
COLLAR ELEV. 2,128.9 ft		TOTAL DEPTH 55.0 ft		NORTHING 676,975		EASTING 923,147										
DRILL RIG/HAMMER EFF./DATE N/A		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER N/A		START DATE 01/13/04		COMP. DATE 01/13/04		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2130														2,128.9	0.0	GROUND SURFACE
2125	2,125.4	3.5	6	8	10											RESIDUAL Stiff to Very Stiff, Red-Brown-Black-White, Fine Sandy SILT (A-4), with trace mica
2120	2,120.4	8.5	6	7	11											
2115	2,115.4	13.5	5	6	9											
2110	2,110.4	18.5	5	5	8											
2105	2,105.4	23.5	2	4	5											
2100	2,100.4	28.5	4	8	9											
2095	2,095.4	33.5	3	5	6											
2090	2,090.4	38.5	3	4	6											
2085	2,085.4	43.5	3	7	10											
2080	2,080.4	48.5	3	5	11											
2075	2,075.4	53.5	9	10	13											
																Boring Terminated at Elevation 2,073.9 ft In Residual Sandy SILT (A-4)

GEOTECHNICAL BORING REPORT

BORE LOG

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST D. Cheek											
SITE DESCRIPTION I-40 From US-19 To I-240							GROUND WTR (ft)										
BORING NO. B-31		STATION 18+72		OFFSET 107 ft RT		ALIGNMENT -Y_EB-											
COLLAR ELEV. 2,111.4 ft		TOTAL DEPTH 45.3 ft		NORTHING 676,933		EASTING 923,345											
DRILL RIG/HAMMER EFF./DATE N/A			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER N/A		START DATE 01/14/03		COMP. DATE 01/14/03		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION				
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				DEPTH (ft)			
2115																	
2110																	
2105	2,107.6	3.8		4	4	8							M				
2100	2,102.6	8.8		3	6	6							M				
2095	2,097.6	13.8		3	4	7							M				
2090	2,092.6	18.8		5	7	7							M				
2085	2,087.6	23.8		4	7	10							M				
2080	2,082.6	28.8		4	5	10							M				
2075	2,077.6	33.8		6	9	10							M				
2070	2,072.6	38.8		4	6	10							M				
	2,067.6	43.8		6	18	18							M				

2,111.4 GROUND SURFACE 0.0
 2,108.4 RESIDUAL Stiff, Red-Brown, Fine Silty Clay (A-7-5), with trace mica and rock fragments 3.0
 Stiff to Very Stiff, Red-Brown-Tan-Black-Orange, Fine Sandy SILT (A-4), with trace mica and rock fragments
 2,068.4 Dense, Red-Brown-Black-Orange, Silty Fine to Coarse SAND (A-2-4), with trace mica and rock fragments 43.0
 2,066.1 Boring Terminated at Elevation 2,066.1 ft In Residual Silty SAND (A-2-4) 45.3

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST D. Cheek											
SITE DESCRIPTION I-40 From US-19 To I-240							GROUND WTR (ft)										
BORING NO. B-32		STATION 20+72		OFFSET 74 ft RT		ALIGNMENT -Y_EB-											
COLLAR ELEV. 2,088.6 ft		TOTAL DEPTH 24.0 ft		NORTHING 676,899		EASTING 923,544											
DRILL RIG/HAMMER EFF./DATE N/A			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER N/A		START DATE 01/14/04		COMP. DATE 01/14/04		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION				
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				DEPTH (ft)			
2090																	
2085	2,086.1	2.5		3	4	4							M				
2080	2,081.1	7.5		3	3	5							M				
2075	2,076.1	12.5		3	3	7							M				
2070	2,071.1	17.5		5	6	8							M				
2065	2,066.1	22.5		2	2	2							W				

2,088.6 GROUND SURFACE 0.0
 COLLUVIAL Medium Stiff, Red-Brown, Silty CLAY (A-7-5)
 2,081.6 RESIDUAL Loose, Red-Brown-Tan, Silty Fine SAND (A-2-4), with trace rock fragments 7.0
 2,076.6 Soft to Stiff, Red-Brown-Tan-Orange-Black, Fine Sandy SILT (A-4), with trace mica 12.0
 Boring Terminated at Elevation 2,064.6 ft In Residual Sandy SILT (A-4) 24.0

NCDOT BORE DOUBLE I2513A_RDY_GEO_GTM.GPJ NC_DOT.GDT 8/24/22

GEOTECHNICAL BORING REPORT

BORE LOG

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST A. Blackmore									
SITE DESCRIPTION I-2513A							GROUND WTR (ft)								
BORING NO. YEB_2200R		STATION 23+44		OFFSET 33 ft RT		ALIGNMENT -Y_EB-									
COLLAR ELEV. 2,072.6 ft		TOTAL DEPTH 33.7 ft		NORTHING 676,848		EASTING 923,815									
DRILL RIG/HAMMER EFF./DATE M&W1032 GeoProbe 7822 DT 88% 04/18/2022			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER B. Snow		START DATE 04/20/22		COMP. DATE 04/20/22		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2075															
2070	2,071.3	1.3	5	4	5								M	2,072.6 GROUND SURFACE 0.0	
	2,069.1	3.5	5	5	6								M	2,071.3 ROADWAY EMBANKMENT Asphalt (0.8'), Stone (0.5') 1.3	
2065	2,066.6	6.0	7	6	9								M	2,069.6 Stiff, Brown-Tan, Fine to Coarse Sandy SILT (A-4) 3.0	
	2,064.1	8.5	2	2	6								M	RESIDUAL Medium Stiff to Hard, Brown-Tan-White, Fine to Coarse Sandy SILT (A-4), with trace to little mica	
2060	2,059.1	13.5	3	4	8								M		
2055	2,054.1	18.5	4	18	31								M		
2050	2,049.1	23.5	8	34	66								M		
2045	2,044.1	28.5	50	50/0.2										2,048.6 WEATHERED ROCK Brown-Tan (GNEISS) 24.0	
2040	2,039.1	33.5	100/0.2											2,038.9 Boring Terminated at Elevation 2,038.9 ft In Weathered Rock (GNEISS) 33.7	

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST D. Cheek									
SITE DESCRIPTION I-40 From US-19 To I-240							GROUND WTR (ft)								
BORING NO. B-18		STATION 11+32		OFFSET 26 ft RT		ALIGNMENT -Y5RPA-									
COLLAR ELEV. 2,094.8 ft		TOTAL DEPTH 14.9 ft		NORTHING 678,081		EASTING 919,903									
DRILL RIG/HAMMER EFF./DATE N/A			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER N/A		START DATE 12/17/03		COMP. DATE 12/17/03		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2095														2,094.8 GROUND SURFACE 0.0	
2090	2,091.4	3.4	WOH	WOH	1								M	2,091.8 ROADWAY EMBANKMENT Very Loose, Red-Brown, Silty Fine to Coarse SAND (A-2-4), with trace mica and rock fragments 3.0	
2085	2,086.4	8.4	1	3	6								M	2,086.8 RESIDUAL Very Soft, Red-Brown-Black, Clayey SILT (A-5), with trace fine sand 8.0	
2080	2,081.4	13.4	2	3	5								M	2,086.8 Stiff, Red, Silty Clay (A-7-5), with trace mica and rock fragments 8.0	
														2,081.8 Medium Stiff, Tan-Black-Gray, Fine Sandy SILT (A-4), with trace mica and rock fragments 13.0	
														2,079.9 Boring Terminated at Elevation 2,079.9 ft In Residual Sandy SILT (A-4) 14.9	

NCDOT BORE DOUBLE I2513A_RDY_GTM.GPJ NC_DOT.GDT 8/24/22

GEOTECHNICAL BORING REPORT BORE LOG

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST D. Cheek									
SITE DESCRIPTION I-40 From US-19 To I-240						GROUND WTR (ft)									
BORING NO. B-19		STATION 13+35		OFFSET 31 ft RT		ALIGNMENT -Y5RPA-									
COLLAR ELEV. 2,096.1 ft		TOTAL DEPTH 20.0 ft		NORTHING 678,131		EASTING 919,707									
DRILL RIG/HAMMER EFF./DATE N/A			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER N/A		START DATE 12/17/03		COMP. DATE 12/17/03		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2100															
2095	2,092.6	3.5	1	3	3								M	2,096.1	GROUND SURFACE 0.0
2090	2,087.6	8.5	1	3	2								M		ROADWAY EMBANKMENT Medium Stiff, Brown-Tan, Fine to Coarse Sandy SILT (A-4), with trace mica and rock fragments
2085	2,082.6	13.5	1	2	4								M		
2080	2,077.6	18.5	1	4	4								M	2,078.1	ALLUVIAL Medium Stiff, Brown-Grey, Fine Sandy CLAY (A-6), with trace organics Boring Terminated at Elevation 2,076.1 ft In Alluvial Sandy CLAY (A-6)

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST D. Cheek									
SITE DESCRIPTION I-40 From US-19 To I-240						GROUND WTR (ft)									
BORING NO. B-20		STATION 15+88		OFFSET 52 ft RT		ALIGNMENT -Y5RPA-									
COLLAR ELEV. 2,071.1 ft		TOTAL DEPTH 22.5 ft		NORTHING 678,213		EASTING 919,466									
DRILL RIG/HAMMER EFF./DATE N/A			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER N/A		START DATE 12/18/03		COMP. DATE 12/18/03		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2075															
2070	2,067.8	3.3	1	2	2								W	2,071.1	GROUND SURFACE 0.0
2065	2,062.8	8.3	3	3	4								Sat.	2,068.1	ALLUVIAL Very Loose, Brown-Black, Silty Fine to Coarse SAND (A-2-4), with trace mica and organics Very Loose to Medium Dense, Brown-Black, Coarse Sandy Gravel (A-1-a)
2060	2,057.8	13.3	8	12	15								Sat.		
2055	2,052.8	18.3	2	3	8								W	2,055.9	RESIDUAL Stiff, Red-Brown, Fine Sandy SILT (A-4)
2050														2,048.6	Boring Terminated at Elevation 2,048.6 ft In Residual Sandy SILT (A-4)

NCDOT BORE DOUBLE I2513A_RDY_GTM.GPJ_NC_DOT.GDT 8/24/22

GEOTECHNICAL BORING REPORT

BORE LOG

WBS		TIP	COUNTY	GEOLOGIST												
N/A		I-2513A	BUNCOMBE	D. Cheek												
SITE DESCRIPTION						GROUND WTR (ft)										
I-40 From US-19 To I-240																
BORING NO.	STATION	OFFSET	ALIGNMENT	GROUND WTR (ft)												
B-21	18+32	39 ft RT	-Y5RPA-	0 HR.	4.2											
COLLAR ELEV.	TOTAL DEPTH	NORTHING	EASTING	GROUND WTR (ft)												
2,078.7 ft	20.1 ft	678,254	919,224	24 HR.	FIAD											
DRILL RIG/HAMMER EFF./DATE			DRILL METHOD	HAMMER TYPE												
N/A			H.S. Augers	Automatic												
DRILLER	START DATE	COMP. DATE	SURFACE WATER DEPTH													
N/A	12/18/03	12/18/03	N/A													
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)		
2080														2,078.7	0.0	GROUND SURFACE
														2,078.7		ROADWAY EMBANKMENT Medium Stiff, Brown-Red-Tan, Fine Sandy CLAY (A-6), with trace mica and rock fragments
2075	2,075.1	3.6	1	1	6									2,072.7	6.0	ALLUVIAL Very Soft, Red-Brown-Tan-Orange, Silty CLAY (A-7-6), with trace rock fragments and organics
2070	2,070.1	8.6	1	1	1									2,068.7	10.0	RESIDUAL Very Soft to Soft, Black-Orange-Tan-White, Fine Sandy SILT (A-4), with trace mica
2065	2,065.1	13.6	WOH	1	1											
2060	2,060.1	18.6	WOH	2	2											
														2,058.6	20.1	Boring Terminated at Elevation 2,058.6 ft In Residual Sandy SILT (A-4)

WBS		TIP	COUNTY	GEOLOGIST												
N/A		I-2513A	BUNCOMBE	A. Blackmore												
SITE DESCRIPTION						GROUND WTR (ft)										
I-2513A																
BORING NO.	STATION	OFFSET	ALIGNMENT	GROUND WTR (ft)												
RPDB_4400R	44+00	80 ft RT	-RPDB-	0 HR.	Dry											
COLLAR ELEV.	TOTAL DEPTH	NORTHING	EASTING	GROUND WTR (ft)												
2,083.6 ft	21.0 ft	676,819	924,891	24 HR.	Dry											
DRILL RIG/HAMMER EFF./DATE			DRILL METHOD	HAMMER TYPE												
M&W1032 GeoProbe 7822 DT 88% 04/18/2022			H.S. Augers	Automatic												
DRILLER	START DATE	COMP. DATE	SURFACE WATER DEPTH													
B. Lumpkin	05/18/22	05/18/22	N/A													
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)		
2085	2,083.6	0.0												2,083.6	0.0	GROUND SURFACE
	2,083.6	0.0	9	14	14									2,080.6	3.0	RESIDUAL Medium Dense, Brown-Gray, Fine to Coarse Sandy GRAVEL (A-1-b)
2080	2,080.1	3.5	20	13	20									2,077.1	6.5	Dense, Brown, Silty Fine to Coarse SAND (A-2-5(0)), with trace rock fragments
	2,077.6	6.0	18	48	52/0.4									2,070.6	13.0	WEATHERED ROCK Gray (GNEISS)
2075	2,075.1	8.5	25	40	60/0.2									2,070.6	13.0	RESIDUAL Very Dense, Brown-Gray, Silty Fine to Coarse SAND (A-2-4)
2070	2,070.1	13.5	14	30	50									2,064.6	19.0	WEATHERED ROCK Brown-Tan (GNEISS)
2065	2,065.1	18.5	13	33	67/0.3									2,062.6	21.0	Boring Terminated with Standard Penetration Test Refusal at Elevation 2,062.6 ft On Crystalline Rock (GNEISS)
	2,062.6	21.0	60/0.0													Surficial Organic Soil from 0.0 - 0.3 feet

NCDOT BORE DOUBLE I2513A_RDY_GTM.GPJ_NC_DOT.GDT 8/24/22

GEOTECHNICAL BORING REPORT

BORE LOG

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST A. Blackmore										
SITE DESCRIPTION I-2513A							GROUND WTR (ft)									
BORING NO. RPDB_4600L		STATION 46+00		OFFSET 40 ft LT		ALIGNMENT -RPDB-										
COLLAR ELEV. 2,054.8 ft		TOTAL DEPTH 15.0 ft		NORTHING 676,755		EASTING 924,667										
DRILL RIG/HAMMER EFF./DATE M&W1032 GeoProbe 7822 DT 88% 04/18/2022			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER B. Lumpkin		START DATE 05/19/22		COMP. DATE 05/19/22		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2055	2,054.8	0.0	4	4	6										2,054.8	0.0
2050	2,051.3	3.5	20	7	5										2,049.3	5.5
	2,048.8	6.0	12	8	11										2,046.8	8.0
2045	2,046.3	8.5	15	24	40										2,039.8	15.0
	2,041.3	13.5	11	21	40											

Boring Terminated at Elevation 2,039.8 ft In Residual Silty SAND (A-2-4)

Surficial Organic Soil from 0.0 - 0.2 feet

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST A. Blackmore										
SITE DESCRIPTION I-2513A							GROUND WTR (ft)									
BORING NO. RPDB_4800L		STATION 48+00		OFFSET 35 ft LT		ALIGNMENT -RPDB-										
COLLAR ELEV. 2,054.3 ft		TOTAL DEPTH 15.0 ft		NORTHING 676,811		EASTING 924,475										
DRILL RIG/HAMMER EFF./DATE M&W1032 GeoProbe 7822 DT 88% 04/18/2022			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER B. Lumpkin		START DATE 05/19/22		COMP. DATE 05/19/22		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2055	2,054.3	0.0	4	2	2										2,054.3	0.0
2050	2,050.8	3.5	5	4	5										2,047.3	7.0
	2,048.3	6.0	7	7	8											
2045	2,045.8	8.5	7	5	6											
	2,040.8	13.5	7	10	13											

Boring Terminated at Elevation 2,039.3 ft In Residual Sandy SILT (A-4)

Surficial Organic Soil from 0.0 - 0.2 feet

NCDOT BORE DOUBLE I2513A_RDY_GTM.GPJ NC_DOT.GDT 8/24/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS N/A	TIP I-2513A	COUNTY BUNCOMBE	GEOLOGIST A. Blackmore
SITE DESCRIPTION I-2513A I-26			GROUND WTR (ft)
BORING NO. Y5RPD_2500L	STATION 14+38	OFFSET 101 ft LT	ALIGNMENT -Y5RPD-
COLLAR ELEV. 2,092.7 ft	TOTAL DEPTH 33.6 ft	NORTHING 678,030	EASTING 918,298
DRILL RIG/HAMMER EFF./DATE M&W1032 GeoProbe 7822 DT 88% 04/18/2022		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER B. Snow	START DATE 04/19/22	COMP. DATE 04/19/22	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2095														
														GROUND SURFACE 0.0
														2,092.7 ROADWAY EMBANKMENT 1.8
2090	2,090.9	1.8												
	2,089.2	3.5	7	7	14									
	2,089.2	3.5												
	2,086.7	6.0	10	4	10									
2085	2,086.7	6.0												
	2,084.2	8.5	10	8	9									
	2,084.2	8.5												
			3	6	5									
2080														
	2,079.2	13.5	6	29	13									
	2,079.2	13.5												
2075														
	2,074.2	18.5	3	4	6									
	2,074.2	18.5												
2070														
	2,069.2	23.5	4	3	8									
	2,069.2	23.5												
2065														
	2,064.2	28.5	9	8	17									
	2,064.2	28.5												
2060														
	2,059.2	33.5												
	2,059.2	33.5	60/0.1											

WBS N/A	TIP I-2513A	COUNTY BUNCOMBE	GEOLOGIST A. Blackmore
SITE DESCRIPTION I-2513A			GROUND WTR (ft)
BORING NO. Y6_1500L	STATION N/A	OFFSET N/A	ALIGNMENT -Y6-
COLLAR ELEV. N/A	TOTAL DEPTH 15.0 ft	NORTHING 676,480	EASTING 923,204
DRILL RIG/HAMMER EFF./DATE M&W1032 GeoProbe 7822 DT 88% 04/18/2022		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER B. Lumpkin	START DATE 05/16/22	COMP. DATE 05/16/22	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
														GROUND SURFACE 0.0
		0.0	2	2	3									RESIDUAL
		3.5	8	5	6									Medium Stiff to Very Stiff, Pink-Tan-White-Brown, Fine to Coarse Sandy SILT (A-4(0)), with trace mica
		6.0	7	5	5									
		8.5	3	3	5									
		13.5	6	8	10									
														Boring Terminated at Depth 15.0 ft In Residual Sandy SILT (A-4)
														Surficial Organic Soil from 0.0 - 0.2 feet

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GEOTECHNICAL BORING REPORT

BORE LOG

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST A. Blackmore									
SITE DESCRIPTION I-2513A							GROUND WTR (ft)								
BORING NO. Y6_1700R		STATION N/A		OFFSET N/A		ALIGNMENT -Y6-									
COLLAR ELEV. N/A		TOTAL DEPTH 15.0 ft		NORTHING 676,488		EASTING 923,413									
DRILL RIG/HAMMER EFF./DATE M&W1032 GeoProbe 7822 DT 88% 04/18/2022			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER B. Lumpkin		START DATE 05/16/22		COMP. DATE 05/16/22		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
		0.0	1	1	1										0.0
		3.5	4	1	2										3.0
		6.0	4	2	4										8.0
		8.5	4	5	10										8.0
		13.5	6	9	10										15.0
Boring Terminated at Depth 15.0 ft In Residual Sandy SILT (A-4) Surficial Organic Soil from 0.0 - 0.3 feet															

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST A. Blackmore									
SITE DESCRIPTION I-2513A							GROUND WTR (ft)								
BORING NO. Y6_1900		STATION N/A		OFFSET N/A		ALIGNMENT -Y6-									
COLLAR ELEV. N/A		TOTAL DEPTH 15.0 ft		NORTHING 676,621		EASTING 923,570									
DRILL RIG/HAMMER EFF./DATE M&W1032 GeoProbe 7822 DT 88% 04/18/2022			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER B. Lumpkin		START DATE 05/16/22		COMP. DATE 05/16/22		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
		0.0	3	3	2										0.0
		3.5	3	3	3										3.0
		6.0	4	5	5										8.0
		8.5	5	6	9										8.0
		13.5	5	7	10										15.0
Boring Terminated at Depth 15.0 ft In Residual Sandy SILT (A-4) Surficial Organic Soil from 0.0 - 0.2 feet															

NCDOT BORE DOUBLE I2513A_RDY_GEO_GTM.GPJ NC_DOT.GDT 8/24/22

GEOTECHNICAL BORING REPORT

BORE LOG

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST A. Blackmore										
SITE DESCRIPTION I-2513A							GROUND WTR (ft)									
BORING NO. Y6_2100L		STATION N/A		OFFSET N/A		ALIGNMENT -Y6-										
COLLAR ELEV. N/A		TOTAL DEPTH 20.0 ft		NORTHING 676,775		EASTING 923,698										
DRILL RIG/HAMMER EFF./DATE M&W1032 GeoProbe 7822 DT 88% 04/18/2022			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER B. Lumpkin		START DATE 05/16/22		COMP. DATE 05/16/22		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
		0.0	3	3	4											0.0
		3.5	11	5	7											
		6.0	5	5	8											
		8.5	6	6	7											
		13.5	1	4	5											
		18.5	4	5	6											
																20.0
Boring Terminated at Depth 20.0 ft In Residual Sandy SILT (A-4) Surficial Organic Soil from 0.0 - 0.2 feet																

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST A. Blackmore										
SITE DESCRIPTION I-2513A							GROUND WTR (ft)									
BORING NO. Y6_2550		STATION N/A		OFFSET N/A		ALIGNMENT -Y6-										
COLLAR ELEV. N/A		TOTAL DEPTH 38.5 ft		NORTHING 677,073		EASTING 924,036										
DRILL RIG/HAMMER EFF./DATE M&W1032 GeoProbe 7822 DT 88% 04/18/2022			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER B. Lumpkin		START DATE 05/17/22		COMP. DATE 05/17/22		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
		0.0	3	2	3											0.0
		3.5	9	5	3											
		6.0	4	4	3											
		8.5	7	7	8											
		13.5	5	7	10											
		18.5	11	11	10											
		23.5	19	20	18											
		28.5	32	38	34											
		33.5	9	18	22											
		38.5	60	0	0											38.5
Boring Terminated with Standard Penetration Test Refusal at Depth 38.5 ft On Crystalline Rock (GNEISS) Surficial Organic Soil from 0.0 - 0.1 feet																

NCDOT BORE DOUBLE I2513A_RDY_GTM.GPJ NC_DOT.GDT 8/24/22

GEOTECHNICAL BORING REPORT

BORE LOG

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST A. Blackmore									
SITE DESCRIPTION I-2513A I-26							GROUND WTR (ft)								
BORING NO. Y6_2900		STATION N/A		OFFSET N/A		ALIGNMENT -Y6-									
COLLAR ELEV. N/A		TOTAL DEPTH 20.0 ft		NORTHING 677,319		EASTING 924,285									
DRILL RIG/HAMMER EFF./DATE M&W1032 GeoProbe 7822 DT 88% 04/18/2022			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER B. Snow		START DATE 04/18/22		COMP. DATE 04/18/22		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
		2.1	6	4	3										0.0
		4.0	1	3	5										2.1
		6.0	3	2	6										
		8.5	2	2	6										
		13.5	6	3	7										
		18.5	10	8	10										18.0
															20.0
ROADWAY EMBANKMENT Asphalt (0.6'), Stone Base (1.5') Medium Stiff to Stiff, Tan-Brown-Gray, Fine to Coarse Sandy SILT (A-4), with trace mica															
RESIDUAL Medium Dense, Brown, Silty Fine to Coarse SAND (A-2-4) Boring Terminated at Depth 20.0 ft In Residual Silty SAND (A-2-4)															

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST A. Blackmore									
SITE DESCRIPTION I-2513A I-26							GROUND WTR (ft)								
BORING NO. Y6_3100		STATION N/A		OFFSET N/A		ALIGNMENT -Y6-									
COLLAR ELEV. N/A		TOTAL DEPTH 30.0 ft		NORTHING 677,459		EASTING 924,428									
DRILL RIG/HAMMER EFF./DATE M&W1032 GeoProbe 7822 DT 88% 04/18/2022			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER B. Snow		START DATE 04/18/22		COMP. DATE 04/18/22		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
		1.4	4	4	5										0.0
		3.5	4	4	5										1.4
		8.5	3	5	5										
		13.5	3	5	20										12.0
		18.5	2	3	3										18.0
		23.5	1	3	2										28.0
		28.5	6	11	23										30.0
ROADWAY EMBANKMENT Asphalt (0.6'), Stone Base (0.8') Stiff, Brown-Tan, Fine to Coarse Sandy SILT (A-4), with trace mica															
RESIDUAL Dense, Tan-Brown, Silty Fine to Coarse SAND (A-2-4) Boring Terminated at Depth 30.0 ft In Residual Silty SAND (A-2-4) Boring refused on debris encountered within roadway embankment at 7.0 ft. Boring offset 5 ft and continued.															

NCDOT BORE DOUBLE I2513A_RDY_GEO_GTM.GPJ NC_DOT.GDT 8/24/22

GEOTECHNICAL BORING REPORT

BORE LOG

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST A. Blackmore									
SITE DESCRIPTION I-2513A I-26							GROUND WTR (ft)								
BORING NO. Y6_3300L		STATION N/A		OFFSET N/A		ALIGNMENT -Y6-									
COLLAR ELEV. N/A		TOTAL DEPTH 10.0 ft		NORTHING 677,605		EASTING 924,564									
DRILL RIG/HAMMER EFF./DATE M&W1032 GeoProbe 7822 DT 88% 04/18/2022			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER B. Snow		START DATE 04/18/22		COMP. DATE 04/18/22		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
		2.1													0.0
		4.0	5	5	6										2.1
		6.0	4	4	6										
		8.5	3	6	7										
			11	19	28										10.0
ROADWAY EMBANKMENT Asphalt (0.6'), Stone Base (1.5')															
RESIDUAL Medium Dense to Dense, Brown, Silty Fine to Coarse SAND (A-2-4), with trace mica															
Boring Terminated at Depth 10.0 ft In Residual Silty SAND (A-2-4)															

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST A. Blackmore									
SITE DESCRIPTION I-2513A							GROUND WTR (ft)								
BORING NO. Y6_3500L		STATION N/A		OFFSET N/A		ALIGNMENT -Y6-									
COLLAR ELEV. N/A		TOTAL DEPTH 30.0 ft		NORTHING 677,798		EASTING 924,617									
DRILL RIG/HAMMER EFF./DATE M&W1032 GeoProbe 7822 DT 88% 04/18/2022			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER B. Lumpkin		START DATE 05/17/22		COMP. DATE 05/17/22		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
		0.0	2	3	4										0.0
		3.5	6	7	7										
		6.0	10	5	6										
		8.5	3	3	7										
		13.5	8	10	12										
		18.5	6	5	6										
		23.5	6	7	10										
		28.5	14	13	19										
Dense, Brown, Silty, Fine to Coarse SAND (A-2-4), with trace mica															
Boring Terminated at Depth 30.0 ft In Residual Silty SAND (A-2-4)															
Surficial Organic Soil from 0.0 - 0.3 feet															

NCDOT BORE DOUBLE I2513A_RDY_GEO_GTM.GPJ NC_DOT.GDT 8/24/22

GEOTECHNICAL BORING REPORT

BORE LOG

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST A. Blackmore										
SITE DESCRIPTION I-2513A							GROUND WTR (ft)									
BORING NO. Y6_3700L		STATION N/A		OFFSET N/A		ALIGNMENT -Y6-										
COLLAR ELEV. N/A		TOTAL DEPTH 15.0 ft		NORTHING 677,964		EASTING 924,717										
DRILL RIG/HAMMER EFF./DATE M&W1032 GeoProbe 7822 DT 88% 04/18/2022			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER B. Lumpkin		START DATE 05/17/22		COMP. DATE 05/17/22		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
		0.0	3	4	4											0.0
		3.5	9	5	5											
		6.0	3	5	6											
		8.5	5	4	6											
		13.5	3	7	11											
																15.0
Boring Terminated at Depth 15.0 ft In Residual Sandy SILT (A-4) Surficial Organic Soil from 0.0 - 0.3 feet																

WBS N/A		TIP I-2513A		COUNTY BUNCOMBE		GEOLOGIST A. Blackmore										
SITE DESCRIPTION I-2513A I-26							GROUND WTR (ft)									
BORING NO. Y6_3900L		STATION N/A		OFFSET N/A		ALIGNMENT -Y6-										
COLLAR ELEV. N/A		TOTAL DEPTH 13.9 ft		NORTHING 678,158		EASTING 924,737										
DRILL RIG/HAMMER EFF./DATE M&W1032 GeoProbe 7822 DT 88% 04/18/2022			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER B. Snow		START DATE 04/18/22		COMP. DATE 04/18/22		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
		0.0														0.0
		2.0	18	7	6											
		3.5	2	7	29											
		6.0	20	72	28/0.3											
		8.5	100/0.4													
		13.5	100/0.4													
																13.9
Boring Terminated at Depth 13.9 ft In Weathered Rock (GNEISS)																

NCDOT BORE DOUBLE I2513A_RDY_GEO_GTM.GPJ NC_DOT.GDT 8/24/22

PROJECT REFERENCE NO.	SHEET NO.
I-2513AA/AB	115

REFERENCE: I-2513AA/AB

PROJECT: 34165

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

SUBSURFACE INVESTIGATION

APPENDIX B

LABORATORY TEST RESULTS

SOIL TESTS FOR QUALITY

Prepared in the Office of:



ECS SOUTHEAST, LLP
1812 CENTER PARK DRIVE, SUITE D
CHARLOTTE, NC 28217
(704) 525-5152 [PHONE]
(704) 357-0023 [FAX]
NC REGISTERED
ENGINEERING
FIRM # F-1078

SOIL TEST RESULTS

BORING NO.	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		
L1EB 4600L	SS-189	60' LT	46+00 -L1 EB-	3.5-5.0'	A-7-5(6)	49	18	29.4	23.3	43.5	3.8	92.0	72.0	48.1	20.6	-
L1EB 4800L2	SS-194	170' LT	48+00 -L1 EB-	0.0-1.5'	A-7-5(13)	52	22	21.7	19.5	18.6	40.2	98.0	85.6	62.2	24.0	-
L1EB 5200L	SS-234	65' LT	52+00 -L1 EB-	3.5-5.0'	A-1-b	41	NP	54.2	25.1	16.7	4.0	64.0	37.7	16.1	9.1	-
L1EB 5400L	SS-251	101' LT	54+00 -L1 EB-	3.5-5.0'	A-7-5(19)	58	24	13.7	16.2	25.9	44.2	97.2	88.1	72.0	22.7	-
L1EB 5400L	SS-253	101' LT	54+00 -L1 EB-	8.5-10.0'	A-4(0)	34	4	42.7	23.9	25.6	7.8	97.8	67.9	37.6	16.5	-
L1EB 5600L2	SS-239	120' LT	56+00 -L1 EB-	0.0-1.5'	A-5(0)	43	NP	43.1	19.3	25.7	11.9	97.3	65.0	40.1	15.3	-
L1EB 5750L	SS-227	70' LT	57+50 -L1 EB-	3.5-5.0'	A-2-4(0)	37	NP	42.0	28.7	23.3	6.0	97.2	65.8	34.9	12.9	-
L1EB 5950L	SS-221	120' LT	59+51 -L1 EB-	0.0-1.5'	A-5(0)	44	NP	28.6	21.1	33.5	16.7	83.3	66.7	45.6	19.1	-
L1EB 6300L	SS-176	80' LT	63+00 -L1 EB-	0.0-1.5'	A-7-5(6)	46	16	21.2	24.2	30.5	24.0	87.8	74.5	52.5	22.4	-
L1EB 6450L	SS-167	120' LT	64+49 -L1 EB-	0.0-1.5'	A-7-5(3)	46	12	39.9	20.4	27.7	12.0	98.5	65.9	44.2	20.7	-
L1EB 6450L	SS-169	120' LT	64+49 -L1 EB-	6.0-7.5'	A-2-5(0)	51	NP	43.2	30.8	18.0	8.0	91.6	63.6	29.9	14.8	-
L1EB 6550L	SS-158	140' LT	65+50 -L1 EB-	0.0-1.5'	A-7-6(16)	57	30	17.5	18.9	17.2	46.3	89.7	79.0	60.4	23.0	-
Y 5200L	SS-342	140' LT	52+00 -Y-	0.0-1.5'	A-1-a	33	NP	51.9	27.1	19.0	2.0	43.5	26.4	11.5	10.9	-
Y 7600R	SS-310	70' RT	76+01 -Y-	0.0-1.5'	A-4(2)	33	10	28.2	26.0	22.5	23.3	99.1	82.9	50.1	22.4	4.5
Y 7800R	SS-317	90' RT	78+00 -Y-	0.0-1.5'	A-7-5(4)	44	11	23.2	26.6	20.0	30.2	96.5	82.9	52.9	23.8	-
Y 8000R	SS-300	150' RT	80+00 -Y-	3.5-5.0'	A-2-4(0)	37	NP	31.7	36.7	25.5	6.0	93.4	75.1	33.6	11.5	-
Y 8000R	SS-303	150' RT	80+00 -Y-	13.5-15.0'	A-2-4(0)	32	NP	37.1	29.5	19.4	14.0	93.7	78.8	33.7	13.9	-
Y 8400R	SS-289	171' RT	83+95 -Y-	3.5-5.0'	A-2-4(0)	39	7	31.7	31.5	24.7	12.1	60.5	48.8	26.0	14.8	-
Y 8600R	SS-280	115' RT	86+00 -Y-	0.0-1.5'	A-4(0)	40	NP	32.2	40.2	23.6	4.0	97.9	77.5	37.3	19.1	-
Y 8600R	SS-282	115' RT	86+00 -Y-	6.0-7.5'	A-4(0)	33	6	28.1	31.1	26.9	13.9	95.2	78.2	45.1	19.7	-
Y 9200R	SS-260	115' RT	92+00 -Y-	3.5-5.0'	A-7-6(9)	46	19	21.7	22.9	25.2	30.2	98.1	85.2	58.8	22.3	-
Y5RPA 2600R	SS-349	15' RT	26+00 -Y5RPA-	0.0-1.5'	A-2-7(0)	47	11	40.5	25.0	26.6	7.9	66.4	47.3	26.0	25.0	-
RPC 2400R	SS-100	15' RT	23+83 -RPC-	8.5-10.0'	A-6(5)	33	11	14.2	30.6	28.4	26.8	99.8	92.8	63.0	29.9	6.2
RPC 2600R	SS-111	21' RT	25+83 -RPC-	8.5-10.0'	A-5(0)	27	NP	17.8	44.7	21.6	15.8	97.5	90.0	44.3	26.4	-
RPC 2600R	SS-112	21' RT	25+83 -RPC-	13.5-15.0'	A-7-6(6)	43	16	23.3	25.5	21.2	29.9	94.4	79.8	53.4	22.7	-
RPC 3400R	SS-132	130' RT	33+83 -RPC-	3.5-5.0'	A-4(0)	33	NP	40.0	22.7	19.2	18.1	96.5	70.0	40.7	16.8	-
RPC 3400R	SS-135	130' RT	33+83 -RPC-	13.5-15.0'	A-2-4(0)	35	NP	37.3	36.7	23.9	2.0	81.6	60.5	27.9	10.4	-
RPC 3800R	SS-198	90' RT	37+83 -RPC-	18.5-20.0'	A-2-4(0)	35	NP	48.3	34.5	8.2	9.0	95.3	60.1	22.1	6.6	-
RPC 3800R	BULK 1	90' RT	37+83 -RPC-	1.0-6.0'	A-4(1)	35	4	23.4	29.4	28.9	18.3	95.4	81.0	52.0	17.5	-

LAB TECHNICIAN: AMANDA SUTTLE, P.G.
LAB TECHNICIAN: DILLON KESTNER

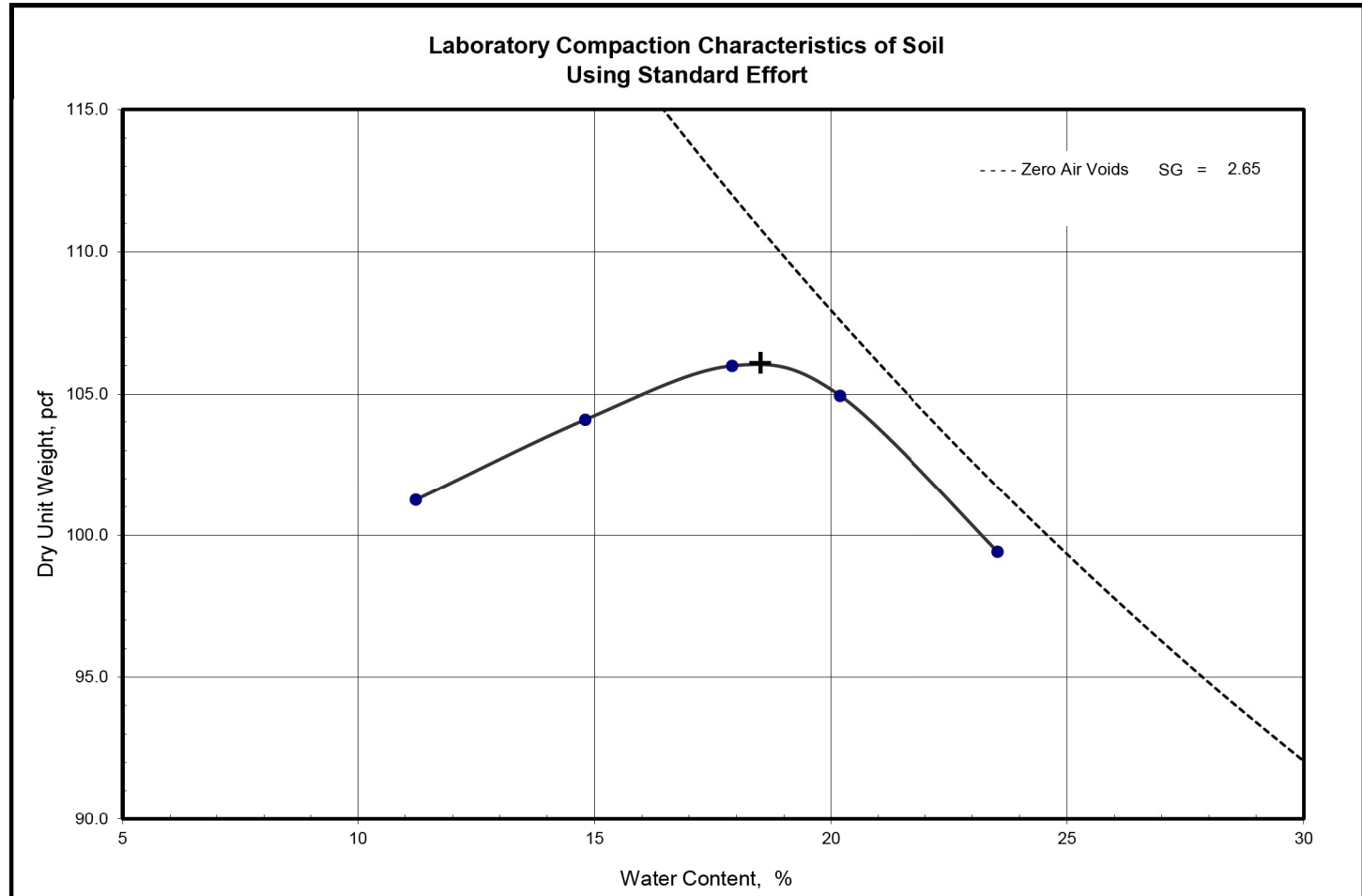
NCDOT CERTIFICATION NO. 112-09-1003
NCDOT CERTIFICATION NO. 135-01-0816

SOIL TEST RESULTS

BORING NO.	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		
RPDB 4400R	SS-355	80' RT	44+00 -RPDB-	0.0-1.5'	A-1-b	40	NP	41.2	34.7	22.3	1.8	44.9	32.1	14.2	8.6	-
RPDB 4400R	SS-356	80' RT	44+00 -RPDB-	3.5-5.0'	A-2-5(0)	37	NP	40.1	32.9	25.2	1.8	73.1	52.3	24.4	9.7	-
RPDB 4400R	BULK 2	80' RT	44+00 -RPDB-	1.0-6.0'	A-4(0)	34	2	20.5	44.2	25.0	10.3	96.8	86.0	44.4	16.3	-
RPDB 4600L	SS-366	40' LT	46+00 -RPDB-	0.0-1.5'	A-2-7(0)	42	12	33.8	31.6	22.5	12.1	62.4	48.5	25.8	9.3	-
RPDB 4800L	SS-361	35' LT	48+00 -RPDB-	0.0-1.5'	A-2-4(0)	41	NP	34.1	33.7	24.2	8.1	85.4	66.6	33.4	14.0	-
Y6 1500L	SS-324	NA	NA	0.0-1.5'	A-4(0)	40	NP	33.6	24.1	28.4	13.9	95.3	78.2	43.7	14.7	-
Y6 2100L	SS-340	NA	NA	3.5-5.0'	A-5(0)	46	NP	27.5	36.6	26.1	9.8	94.1	77.7	41.8	18.0	-
Y6 3500L	SS-360	NA	NA	3.5-5.0'	A-4(0)	39	NP	27.5	42.6	23.8	6.0	98.1	82.6	37.2	13.0	-
Y6 3500L	BULK 3	NA	NA	1.0-6.0'	A-5(0)	41	3	27.5	32.8	27.4	12.2	93.8	77.6	44.4	22.2	-
Y6 3700L	SS-354	NA	NA	0.0-1.5'	A-6(7)	39	12	9.0	34.7	26.3	29.9	97.6	93.2	64.5	24.3	-

LAB TECHNICIAN: AMANDA SUTTLE, P.G.
LAB TECHNICIAN: DILLON KESTNER


NCDOT CERTIFICATION NO. 112-09-1003
NCDOT CERTIFICATION NO. 135-01-0816

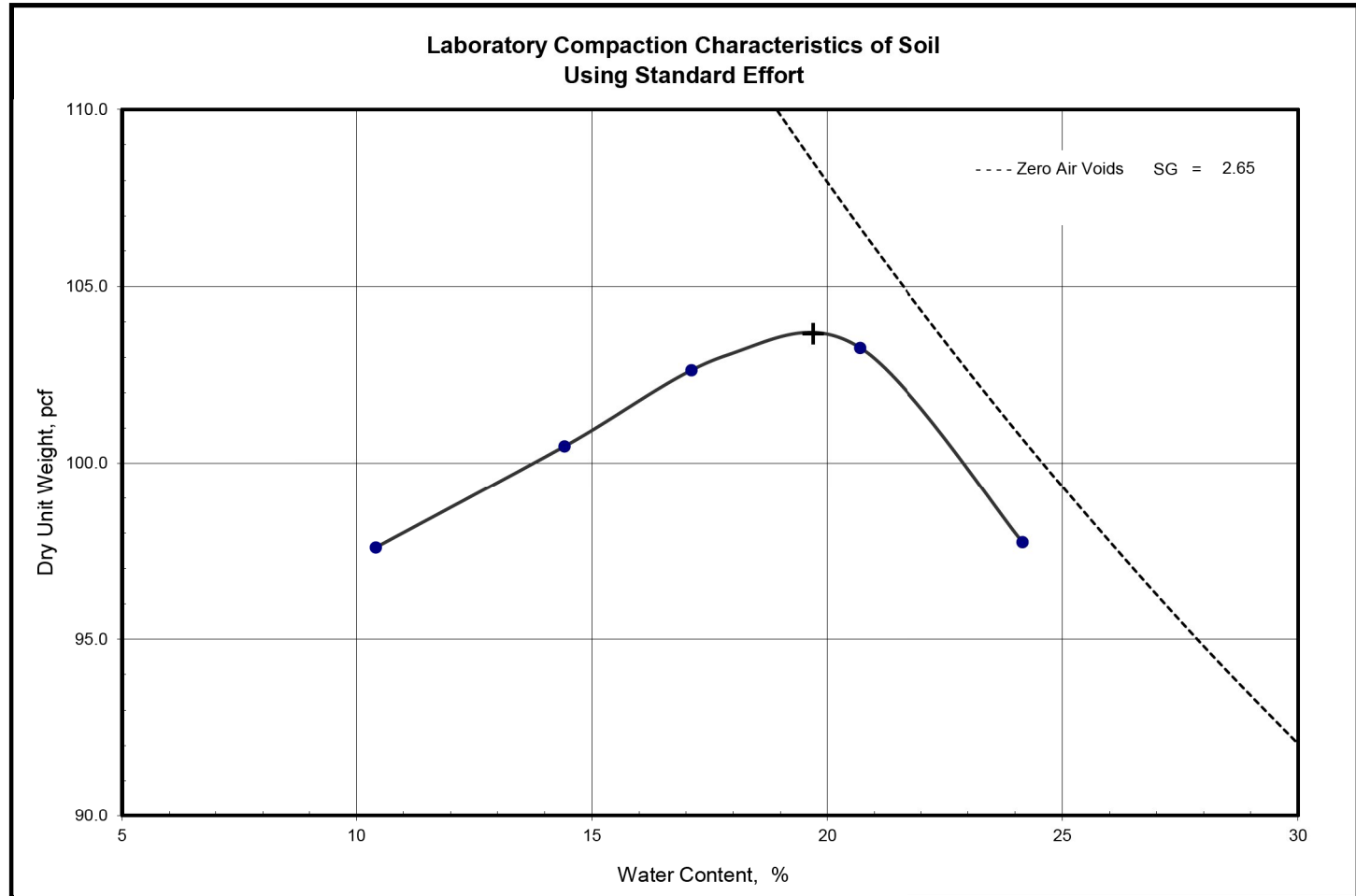


Optimum Moisture Content	18.5	%	Preparation	ASTM moist preparation
Maximum Dry Unit Weight	106.1	pcf	Type of rammer	Manual - 5.5lbf (24.5N)
			Test Specification / Method	ASTM D698-12e2-method A
			Specific gravity - D854 water pycnometer	2.65 Historical
Cumulative material retained on:	3/4 in. sieve	%	Coarse Aggregate Specific Gravity -	
	3/8 in. sieve	%		
	#4 sieve	%		

Soil Description	Nat. Moist. %	Liquid Limit	Plasticity Index	% < #200	USCS	AASHTO
Brown Fine to Coarse Sandy SILT (A-4(1))	17.5	35	4	52.0		A-4(1)

Project: I-2513A - I-26/I-40/I-240 Interchange to SR 3548 (Haywood Road)	Project No.: 31:4137
Client: AECOM	Depth (ft.): 1 - 6
Sample / Source RPC_3800R	Sample No.: BULK 1
Test Reference/No.:	Date Reported: 8/26/2022


Office / Lab	Address	Office Number / Fax
 ECS Southeast LLP - Charlotte	1812 Center Park Drive	(704)525-5152
	Suite D Charlotte, NC 28217	(704)357-0023

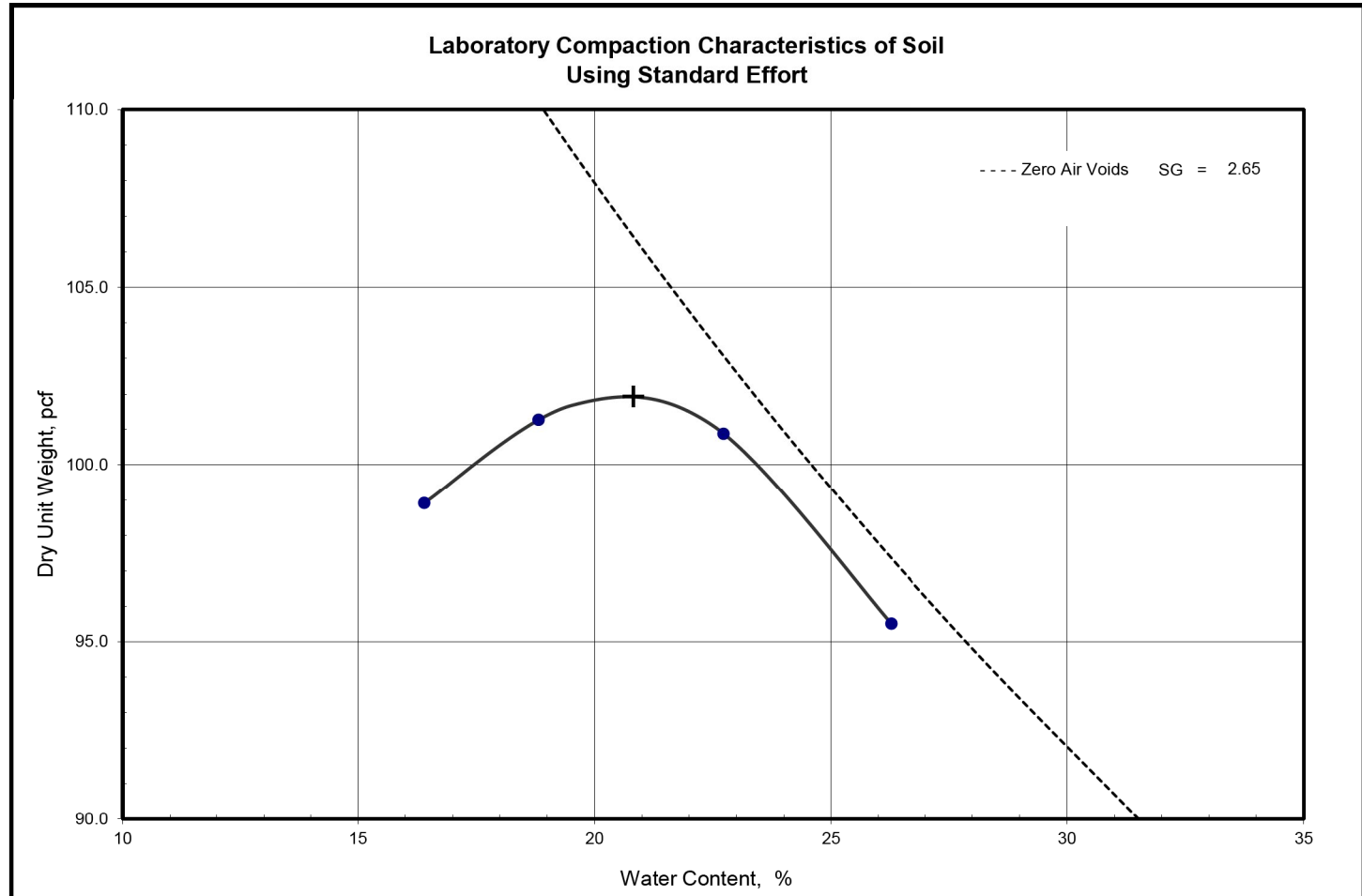


Optimum Moisture Content	19.7	%	Preparation	ASTM moist preparation
Maximum Dry Unit Weight	103.7	pcf	Type of rammer	Manual - 5.5lbf (24.5N)
			Test Specification / Method	AASHTO T 99-19-method A
			Specific gravity - D854 water pycnometer	2.65 Historical
Cumulative material retained on:	3/4 in. sieve	%	Coarse Aggregate Specific Gravity -	2.65 Historical
	3/8 in. sieve	%		
	#4 sieve	%		

Soil Description	Nat. Moist. %	Liquid Limit	Plasticity Index	% < #200	USCS	AASHTO
Brown Fine to Coarse Sandy SILT (A-4(0))	16.3	34	2	44.4		A-4(0)

Project: I-2513A - I-26/I-40/I-240 Interchange to SR 3548 (Haywood Road)	Project No.: 31:4137
Client: AECOM	Depth (ft.): 1 - 6
Sample / Source RPDB_4400R	Sample No.: BULK 2
Test Reference/No.:	Date Reported: 8/26/2022


Office / Lab	Address	Office Number / Fax
 ECS Southeast LLP - Charlotte	1812 Center Park Drive	(704)525-5152
	Suite D Charlotte, NC 28217	(704)357-0023



Optimum Moisture Content	20.8	%	Preparation	ASTM moist preparation
Maximum Dry Unit Weight	101.9	pcf	Type of rammer	Manual - 5.5lbf (24.5N)
			Test Specification / Method	AASHTO T 99-19-method A
			Specific gravity - D854 water pycnometer	2.65 Historical
Cumulative material retained on:	3/4 in. sieve	%	Coarse Aggregate Specific Gravity -	
	3/8 in. sieve	%		
	#4 sieve	%		

Soil Description	Nat. Moist. %	Liquid Limit	Plasticity Index	% < #200	USCS	AASHTO
Brown Clayey SILT (A-5(0))	22.2	41	3	44.4		A-5(0)

Project: I-2513A - I-26/I-40/I-240 Interchange to SR 3548 (Haywood Road)	Project No.: 31:4137
Client: AECOM	Depth (ft.): 1 - 6
Sample / Source Y6_3500L	Sample No.: BULK 3
Test Reference/No.:	Date Reported: 8/26/2022

Office / Lab	Address	Office Number / Fax
 ECS Southeast LLP - Charlotte	1812 Center Park Drive Suite D Charlotte, NC 28217	(704)525-5152 (704)357-0023