

REFERENCE: R-2577A

PROJECT: 37405

SEE SHEET 3 FOR PLAN SHEET LAYOUT  
AT TIME OF INVESTIGATION

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

STATE <b>N.C.</b>	STATE PROJECT REFERENCE NO. <b>R-2577A</b>	SHEET NO. <b>1</b>	TOTAL SHEETS <b>215</b>
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# ROADWAY SUBSURFACE INVESTIGATION

COUNTY FORSYTH  
PROJECT DESCRIPTION US 158 (REIDSVILLE RD.) FROM  
NORTH OF US 421 / I 40 BUS. TO SR 1965 (BELEWS  
CREEK RD)

## INVENTORY

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-Y1C-	10+00 - 11+44	5
-Y1D-	12+00 - 13+97	6
-Y1E-	12+17 - 16+27	5
-Y2-	12+00 - 14+12	6
-Y3-	10+36 - 12+97	7
-Y4-	10+36 - 14+00	8
-Y5-	10+16 - 23+69	10, 29
-Y5A-	10+00 - 16+32	29
-Y6-	12+09 - 14+00	9
-Y7-	10+36 - 12+00	10
-Y8-	10+36 - 12+50	11
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-Y10-	10+40 - 12+78	13
-Y11-	12+00 - 14+92	13
-Y12-	22+00 - 24+35	14
-Y13-	10+39 - 13+00	15
-Y14-	10+16 - 14+24	14 - 15
-Y15-	11+25 - 15+36	19
-Y16-	18+00 - 20+88	20
-Y17-	12+00 - 16+03	20 - 21
-Y17A-	10+00 - 11+55	20
-Y18-	10+39 - 11+15	23
-Y19-	10+39 - 11+15	23
-Y20-	96+40 - 100+21	24
-Y21-	10+39 - 11+35	24
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-Y24-	13+09 - 23+94	27
-Y25-	10+36 - 13+00	11

<u>LINE</u>	<u>STATION</u>	<u>CROSS SECTION</u>
-L-	0+00 - 305+00	31 - 155
-Y1A-	10+00 - 16+61	156 - 160
-Y1B-	10+41 - 18+00	161 - 166
-Y1C-	10+00 - 11+44	167
-Y1D-	12+00 - 13+97	168 - 169
-Y1E-	12+17 - 16+27	170
-Y2-	12+00 - 14+12	171
-Y3-	10+36 - 12+97	172
-Y4-	10+36 - 14+00	173
-Y5-	10+16 - 23+69	174 - 181
-Y5A-	10+00 - 16+32	182 - 186
-Y6-	12+09 - 14+00	187
-Y7-	10+36 - 12+00	188
-Y8-	10+36 - 12+50	189
-Y9-	10+36 - 15+64	190 - 192
-Y10-	10+40 - 12+78	193
-Y11-	12+00 - 14+92	194
-Y12-	22+00 - 24+35	195
-Y13-	10+39 - 13+00	196
-Y14-	10+16 - 14+24	197
-Y15-	11+25 - 15+36	198
-Y16-	18+00 - 20+88	199
-Y17-	12+00 - 16+03	200
-Y23-	10+42 - 17+03	201
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-Y25-	10+36 - 13+00	210 - 211

**APPENDICES**

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A-1	BRIDGE BORING LOGS	213
A-2	SOIL TEST RESLUTS	214 - 215

**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:
1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
  2. 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

J. MIZE

A. BOZORGI

M. SNYDER

T. WILLIAMS

INVESTIGATED BY RK&K, LLP

DRAWN BY J. MIZE

CHECKED BY \_\_\_\_\_

SUBMITTED BY RK&K, LLP

DATE JUNE 2019

**RK&K**  
P: (919) 878-9560  
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Engineers | Construction Managers | Planners | Scientists  
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Signed by:  
Gary R. Taylor  
194B32768927485

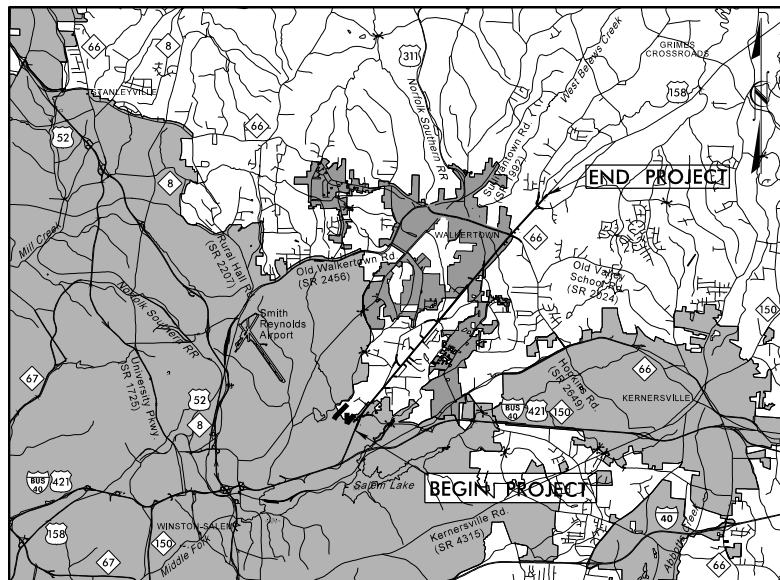
SIGNATURE DATE

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



09/28/19

See Sheet 1-B For Conventional Symbols



VICINITY MAP (NTS)

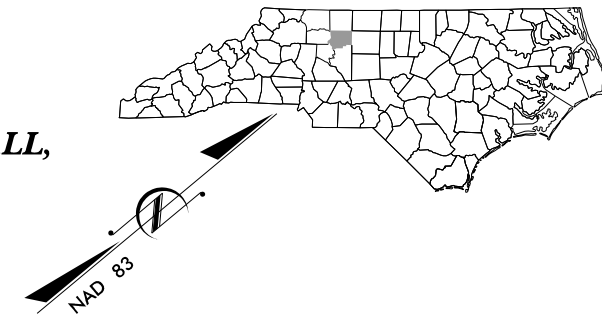
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**FORSYTH COUNTY**

**LOCATION: US 158 (REIDSVILLE RD.) FROM NORTH OF  
US 421 / I-40 BUS. TO SR 1965 (BELEWS CREEK RD.)**

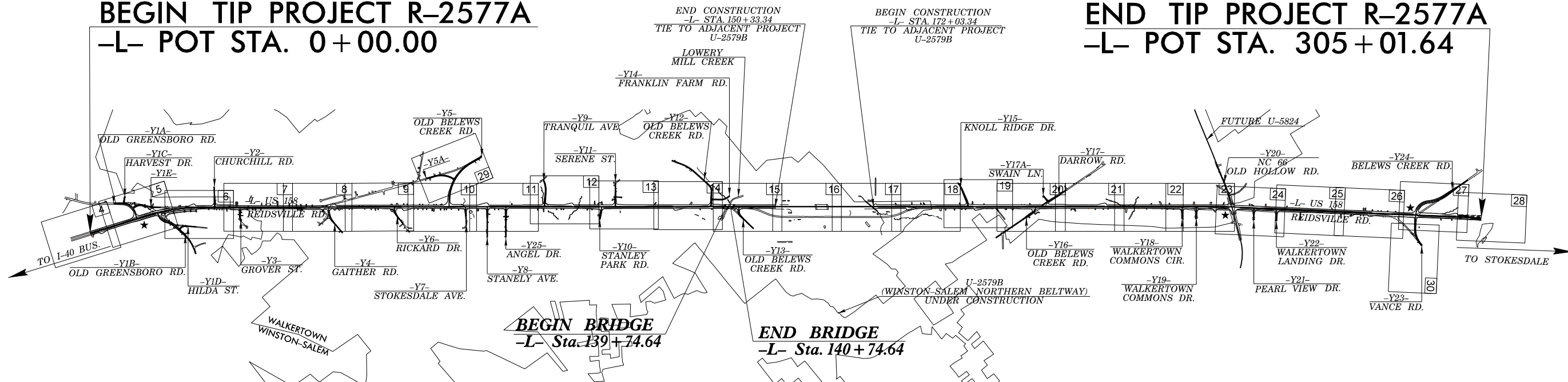
**TYPE OF WORK: GRADING, PAVING, WIDENING, DRAINAGE,  
CULVERTS, SIGNING, STRUCTURES, RETAINING WALL,  
SIGNALS, & UTILITIES**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2577A	3	215
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
37405.1.2	N/A	PE	



**TIP PROJECT: R-2577A**

**BEGIN TIP PROJECT R-2577A**  
**-L- POT STA. 0 + 00.00**



**END TIP PROJECT R-2577A**  
**-L- POT STA. 305 + 01.64**

- NOTES:
1. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF WINSTON-SALEM AND WALKERTOWN.
  2. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD
  3. THIS PROJECT HAS PARTIAL CONTROL OF ACCESS WITH FULL CONTROL OF ACCESS AT POINTS AS SHOWN ON PLANS.

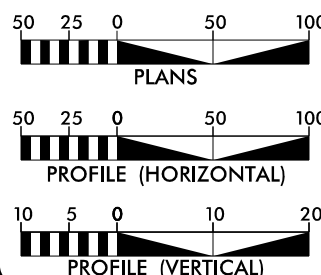
★ PROPOSED TRAFFIC SIGNAL

**25% ROADWAY PLANS**  
**DATE: 10-29-2018**

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

**CONTRACT:**

**GRAPHIC SCALES**



**DESIGN DATA**

ADT 2017 = 23,600  
ADT 2040 = 35,000  
V = 50 MPH  
K = 8%  
D = 60%  
T = 14%  
\* TTST = 8% DUAL = 6%  
FUNC CLASS = ARTERIAL  
STATEWIDE TIER

**PROJECT LENGTH**

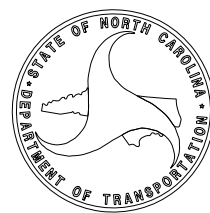
LENGTH ROADWAY TIP PROJECT R-2577A..... 5.758 miles  
LENGTH STRUCTURE TIP PROJECT R-2577A..... 0.019 miles  
TOTAL LENGTH OF PROJECT R-2577A..... 5.777 miles

PLANS PREPARED BY:  
**RK&K**  
RUMMEL, KLEPPER & KAHL, LLP  
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RALEIGH, NORTH CAROLINA 27609  
NC LICENSE NO. F-0112  
1-888-521-4455 OR 919-878-9560  
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS  
**RIGHT OF WAY DATE:** Anthony A. Houser, PE  
PROJECT ENGINEER  
October 21, 2019  
**LETTING DATE:** Cathy S. Houser, PE  
PROJECT DESIGN ENGINEER  
October 19, 2021  
**NCDOT CONTACT:** Connie James, PE  
DIVISION 9

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.  
**ROADWAY DESIGN ENGINEER**  
SIGNATURE: \_\_\_\_\_ P.E.



8/24/2019 R:\CADD\GEO\TECH\PlanProf\Roadway\Inventory\R-2577A\_GEO\_inv\_003.dgn abozorgi



August 27, 2019

-Y25-

10+36 – 13+00

**WBS Number:** 37405.1.1  
**TIP Number:** R-2577A  
**County:** Forsyth  
**Description:** US 158 (Reidsville Rd.) from North of US 421 / I-40 Bus. to SR 1965 (Belews Creek Rd.)

**Subject: Roadway Subsurface Inventory Report**

**PROJECT DESCRIPTION**

The following alignments were investigated. Selected cross sections of these alignments are included in this report.

<u>Line</u>	<u>Stations (±)</u>
-L-	0+00 – 305+00
-Y1A-	10+00 – 16+61
-Y1B-	10+41 – 18+00
-Y1C-	10+00 – 11+44
-Y1D-	12+00 – 13+97
-Y1E-	12+17 – 16+27
-Y2-	12+00 – 14+12
-Y3-	10+36 – 12+97
-Y4-	10+36 – 14+00
-Y5-	10+16 – 23+69
-Y5A-	10+00 – 16+32
-Y6-	12+09 – 14+00
-Y7-	10+36 – 12+00
-Y8-	10+36 – 12+50
-Y9-	10+36 – 15+64
-Y10-	10+40 – 12+78
-Y11-	12+00 – 14+92
-Y12-	22+00 – 24+35
-Y13-	10+39 – 13+00
-Y14-	10+16 – 14+24
-Y15-	11+25 – 15+36
-Y16-	18+00 – 20+88
-Y17-	12+00 – 16+03
-Y17A-	10+00 – 11+55
-Y18-	10+39 – 11+15
-Y19-	10+39 – 11+15
-Y20-	96+40 – 100+21
-Y21-	10+39 – 11+35
-Y22-	10+39 – 11+20
-Y23-	10+42 – 17+03
-Y24-	13+09 – 23+94

**PHYSIOGRAPHY AND GEOLOGY**

The proposed project is located in the Piedmont Physiographic province. The Piedmont is characterized by a wide range of soil types atop crystalline and non-crystalline rock. The proposed project is located in an area that contains suburban residential, rural residential, and rural farming terrain. Typical natural land in the area is characterized by wooded rolling hills separated by small streams and creeks. This terrain has been flattened and the woods removed in the lower station part of the proposed project (i.e. -L- 1+00 to 100+00), and appears variably in the remainder of the project area.

The bedrock encountered within the proposed project is composed of biotite gneiss and granite. These rocks typically weather first to micaceous, saprolitic sands, then further to silts and clays. No differences were apparent in residual soils above these two types of rock, so they are assumed to both be pervasive and interfingered throughout the proposed project.

**SOIL PROPERTIES**

Soils encountered during the geotechnical investigation are split into four categories based on their origin. The origins consist of roadway embankment, artificial fill, alluvial soils, and residual soils.

**Roadway Embankment:**

Roadway Embankment throughout this project consists of brown-red, soft to stiff clayey sandy SILT and silty sandy moderately plastic CLAY; loose to medium dense, silty clayey gravelly SAND and sandy GRAVEL; with trace to some mica, and some gravel.

**Artificial Fill:**

Artificial Fills encountered in this project consist of brown-red to gray, loose to very dense, clayey to silty SAND with trace mica and trace to some gravel.

**Alluvial Soils:**

Alluvial soils encountered in the proposed project consist of gray to brown, very loose to loose, gravelly to silty clayey SAND; dark gray to red-brown, very soft to medium stiff, sandy to clayey SILT and sandy to silty slightly to highly plastic CLAY; with trace to some mica and trace to some organics.

**Residual Soils:**

Residual soils encountered in the proposed project covered the full range of soil types and consistencies. A typical residual soil profile includes a surface layer of sandy clay with less than 3 inches of topsoil, underlain by silts and sands. The upper clay layer is typically 3 feet thick, and the underlying silts and sands range in thickness from 0 feet to more than 30 feet. These silts and sands gradually become saprolitic with depth and are underlain by weathered and crystalline rock. Most residual soils contain mica, though the mica content of the soils varies from sample to sample.



**GROUNDWATER**

**Springs:** A potential spring head was observed in a proposed fill section at the following location:

<u>Line</u>	<u>Stations (±)</u>	<u>Offset</u>
-L-	81+83	LT

**AREAS OF SPECIAL GEOTECHNICAL INTEREST**

**Alluvial Soils:** The following areas contain alluvial soils:

<u>Line</u>	<u>Stations (±)</u>	<u>Offset</u>
-L-	81+10 – 82+90	LT
-L-	101+60 – 101+20	LT & RT
-L-	106+60 – 107+20	RT
-L-	107+30 – 108+10	LT
-L-	225+10 – 229+60	LT
-L-	228+60 – 229+30	RT
-L-	295+80 – 299+40	LT
-Y9-	14+25 – 15+25	RT

**Highly Plastic Soils:** The following areas contain soils with plasticity indices (PI) greater than 25 within proposed cut sections or greater than 35 within 3-ft of subgrade:

<u>Line</u>	<u>Stations (±)</u>	<u>Offset</u>
-L-	48+75 – 52+75	LT & RT
-L-	58+75 – 62+75	RT
-L-	62+75 – 70+75	LT & RT
-L-	72+75 – 79+25	LT & RT
-L-	89+60 – 94+75	LT & RT
-L-	110+75 – 112+50	RT
-L-	112+50 – 115+25	LT & RT
-L-	123+25 – 129+50	LT
-L-	184+75 – 190+75	LT & RT
-L-	190+75 – 193+25	LT
-L-	198+75 – 205+25	LT & RT
-L-	210+75 – 215+25	LT & RT
-L-	218+75 – 224+25	LT & RT
-L-	224+25 – 225+25	RT
-L-	234+75 – 235+17	RT
-L-	235+17 – 237+25	LT & RT
-L-	246+75 – 247+75	LT & RT
-L-	274+75 – 278+75	RT
-L-	278+75 – 281+25	LT & RT
-L-	282+75 – 290+25	LT & RT
-Y1A-	12+75 – 16+25	LT & RT

-Y1B-	12+75 – 14+75	LT & RT
-Y1B-	14+75 – 16+75	LT
-Y1D-	12+00 – 13+97	LT & RT
-Y5-	10+16 – 18+25	LT & RT
-Y5A-	10+00 – 15+25	LT & RT
-Y24-	13+08 – 17+25	LT & RT
-Y24-	17+60 – 19+75	RT
-Y24-	19+75 – 23+80	LT & RT
-Y25-	10+40 – 13+00	LT & RT

**Weathered Rock:** The following areas contain weathered rock above or within six (6) feet of proposed grade:

<u>Line</u>	<u>Stations (±)</u>	<u>Offset</u>
-L-	85+75 – 87+00	LT
-L-	89+25 – 90+75	LT
-L-	103+00 – 105+00	LT
-Y5-	16+25 – 20+00	LT & RT

**Crystalline Rock:** The following areas contain crystalline rock above or within six (6) feet of proposed grade:

<u>Line</u>	<u>Stations (±)</u>	<u>Offset</u>
-L-	135+00 – 137+00	LT
-Y5-	18+25 – 19+75	LT & RT
-Y12-	22+00 – 24+00	RT
-Y23-	11+25 – 12+75	LT & RT

**Groundwater:** The following areas contain groundwater within six (6) feet of the proposed grade:

<u>Line</u>	<u>Stations (±)</u>	<u>Offset</u>
-L-	58+75 – 61+25	LT & RT
-L-	78+50 – 81+25	LT & RT
-L-	82+75 – 87+25	LT & RT
-L-	182+75 – 185+25	LT & RT
-Y5-	17+75 – 23+68	LT
-Y9-	10+30 – 12+25	RT

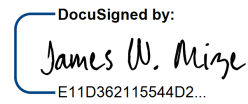
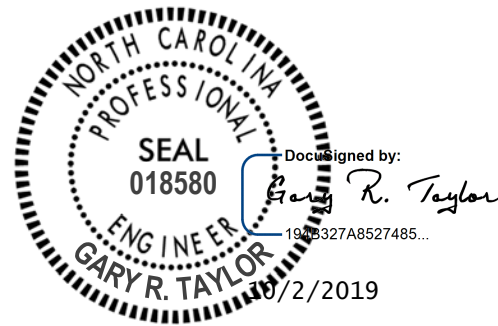
The following areas contain groundwater within three (3) feet of the existing grade:

<u>Line</u>	<u>Stations (±)</u>	<u>Offset</u>
-L-	81+50 – 82+75	LT
-L-	106+25 – 106+75	RT
-L-	225+25 – 229+25	LT & RT
-Y9-	13+75 – 15+00	LT

Prepared by,

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 Registered, North Carolina 018580

James Mize, G.I.T.  
 Geologist, Geotechnical



**Appendix A**

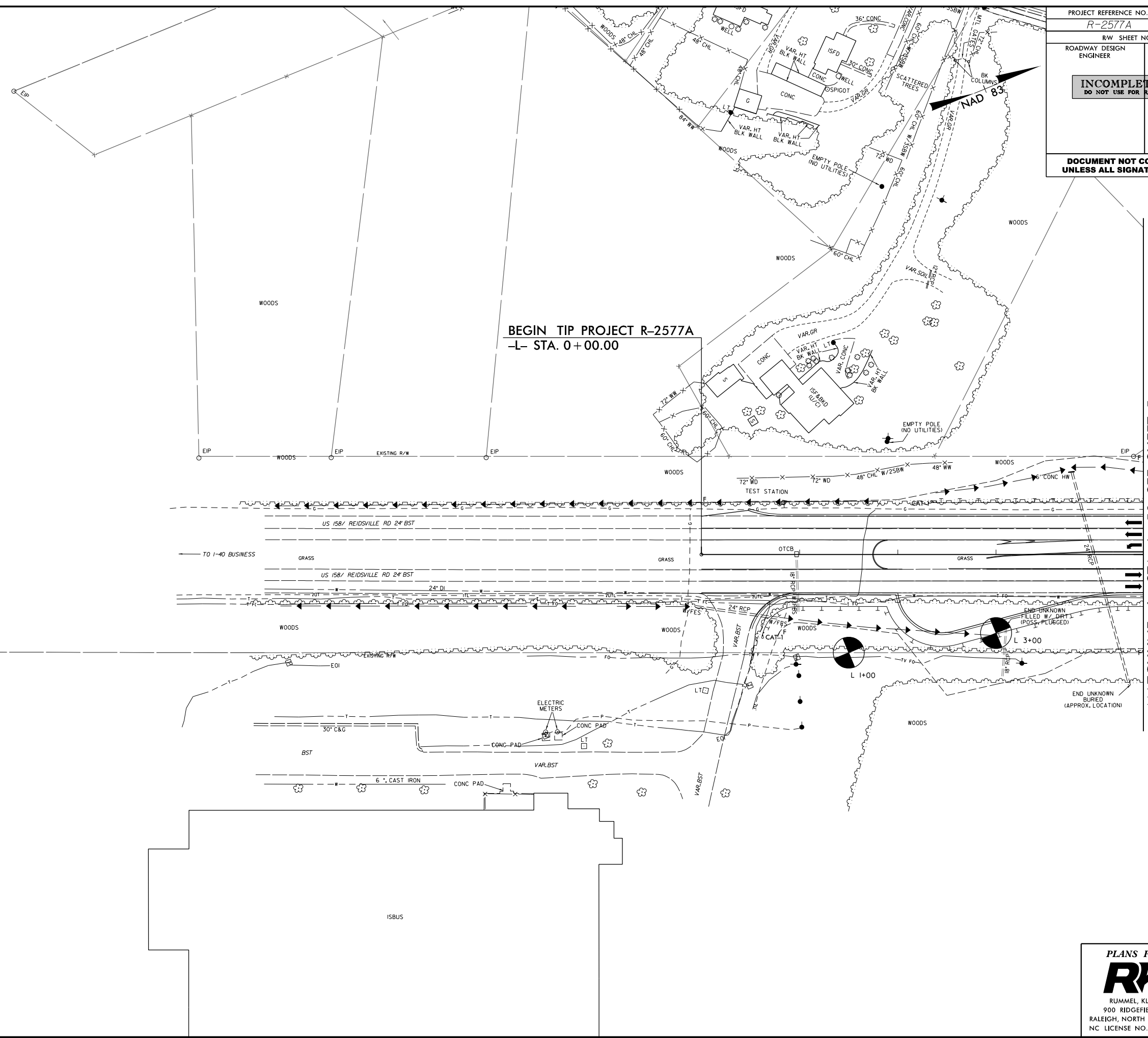
**Bulk Samples**

The following bulk samples were collected from cut sections for laboratory testing:

Sample No.	Line	Station	Offset	Depth (ft)	Test(s) Performed
CBR-1	-L-	96+00	35 ft LT	1.0 – 10.0	
CBR-2	-L-	234+00	30 ft LT	0.0 – 8.5	

8/17/99

PROJECT REFERENCE NO. R-2577A		SHEET NO. 4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			



BEGIN TIP PROJECT R-2577A  
-L- STA. 0+00.00

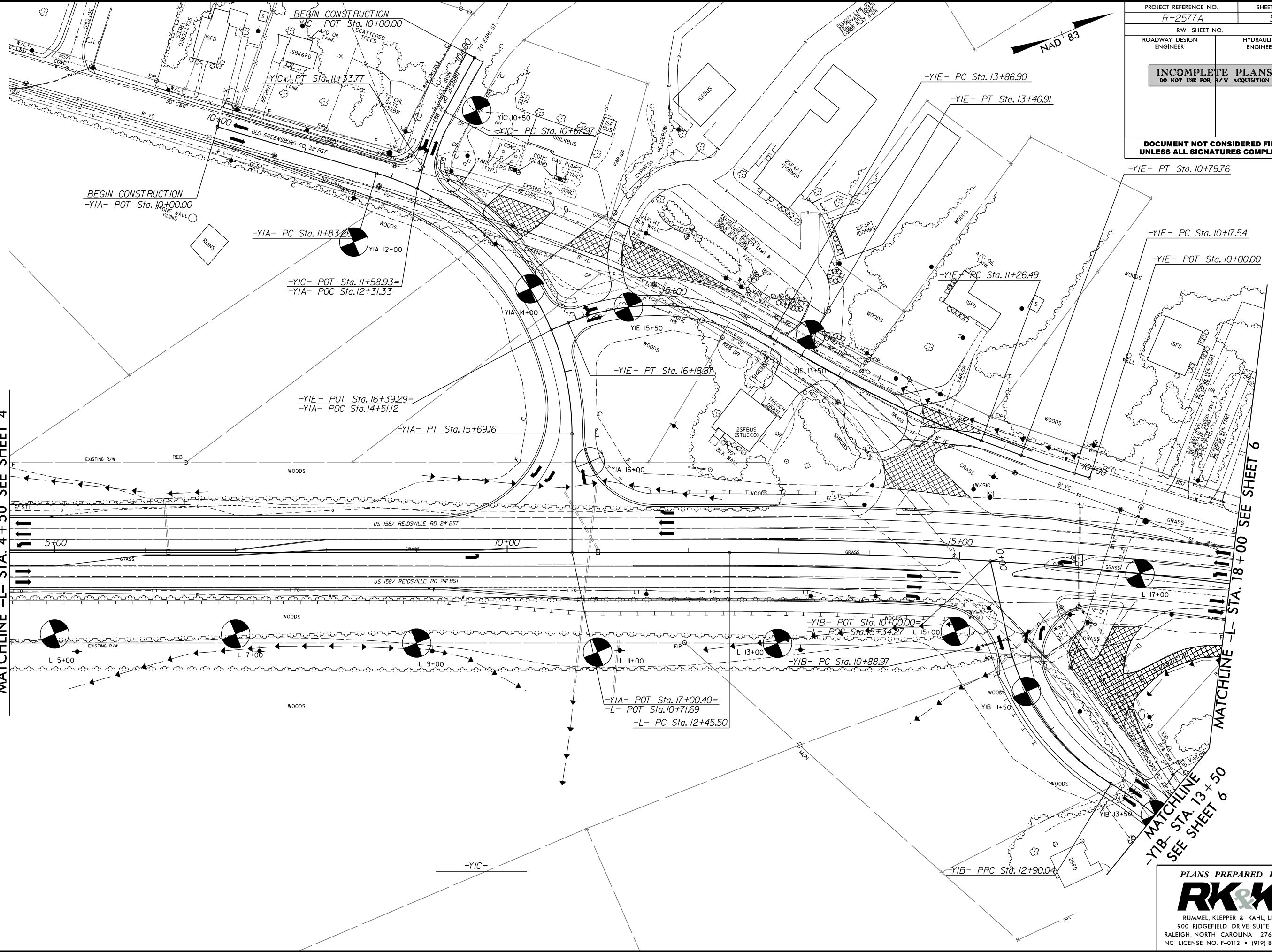
MATCHLINE -L- STA. 4+50 SEE SHEET 5

6/6/2019 R:\CADD\_GEO\TECH\Plan\Prof\R-2577A\_GEO\_psh04.dgn

PLANS PREPARED BY :  
**RK&K**  
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NC LICENSE NO. F-0112 • (919) 878-9560

8/17/99

PROJECT REFERENCE NO. <b>R-2577A</b>		SHEET NO. <b>5</b>	
RW SHEET NO. ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			



MATCHLINE -L- STA. 4 + 50 SEE SHEET 4

MATCHLINE -L- STA. 18 + 00 SEE SHEET 6

MATCHLINE -YIB- STA. 13 + 50 SEE SHEET 6

6/6/2019 R:\CADD\GEO\TECH\Plan\Prof\R-2577A\_GEO\_psh05.dgn

PLANS PREPARED BY :

**RK&K**

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 RALEIGH, NORTH CAROLINA 27609-3960  
 NC LICENSE NO. F-0112 • (919) 878-9560

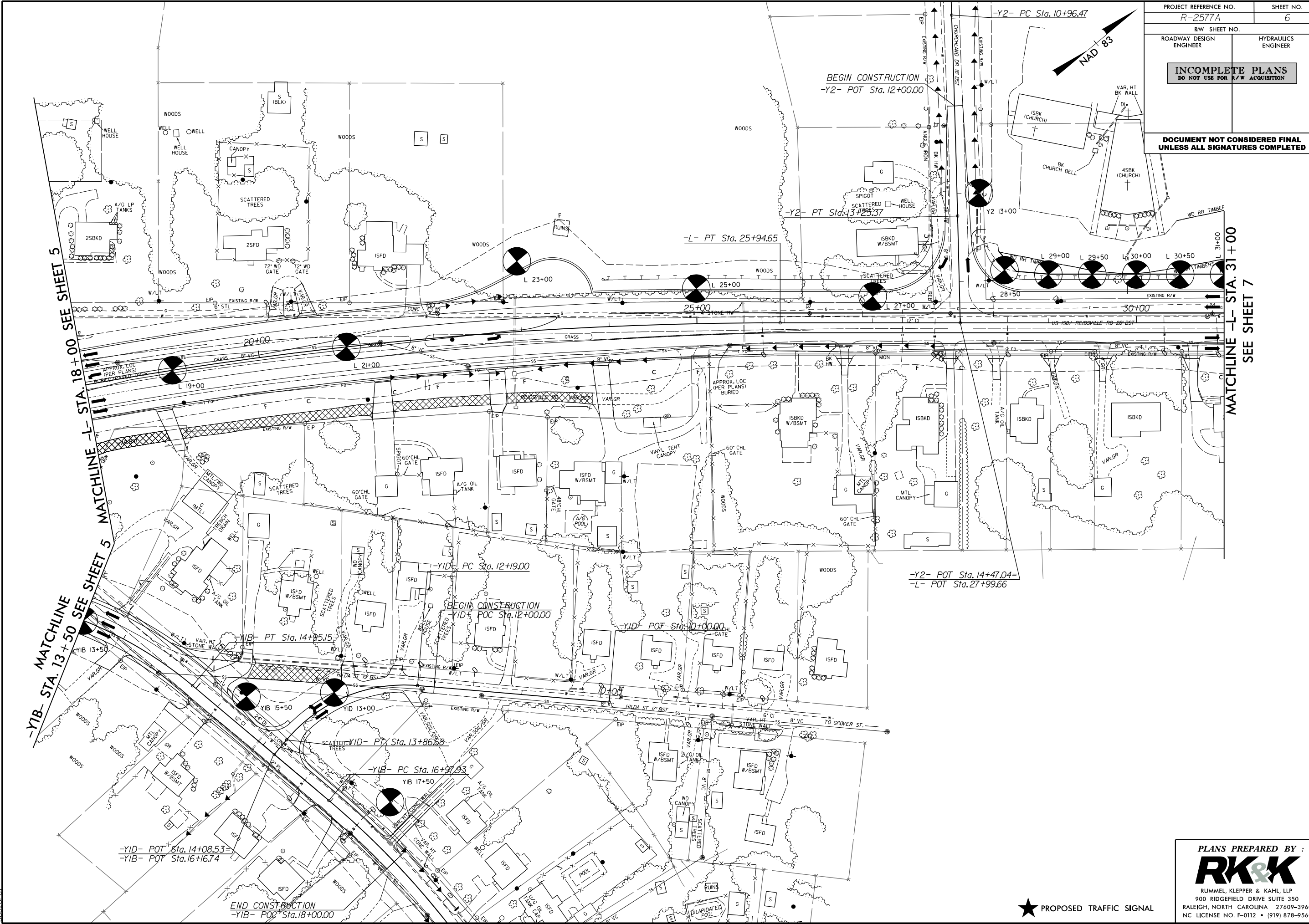


8/17/99

PROJECT REFERENCE NO. R-2577A	SHEET NO. 6
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION

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



MATCHLINE -L- STA. 18+00 SEE SHEET 5  
MATCHLINE -L- STA. 13+50 SEE SHEET 5

MATCHLINE -L- STA. 31+00 SEE SHEET 7

-YID- POT Sta. 14+08.53  
-YIB- POT Sta. 16+16.74

END CONSTRUCTION  
-YIB- POT Sta. 18+00.00

-YIB- PC Sta. 16+97.93  
YIB 17+50

-YID- PT Sta. 13+86.68  
YID 13+00

-YIB- PT Sta. 14+95.15  
YIB 15+50

BEGIN CONSTRUCTION  
YID- POC Sta. 12+00.00

-YID- PC Sta. 12+19.00

-YID- POT Sta. 10+00.00

-Y2- POT Sta. 14+47.04=  
-L- POT Sta. 27+99.66

BEGIN CONSTRUCTION  
-Y2- POT Sta. 12+00.00

-L- PT Sta. 25+94.65  
25+00

-Y2- PT Sta. 13+25.37

-Y2- PC Sta. 10+96.47

8/6/2009  
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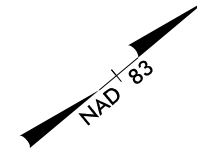
PLANS PREPARED BY :  
**RK&K**  
 RUMMEL, KLEPPER & KAHL, LLP  
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★ PROPOSED TRAFFIC SIGNAL

8/17/99

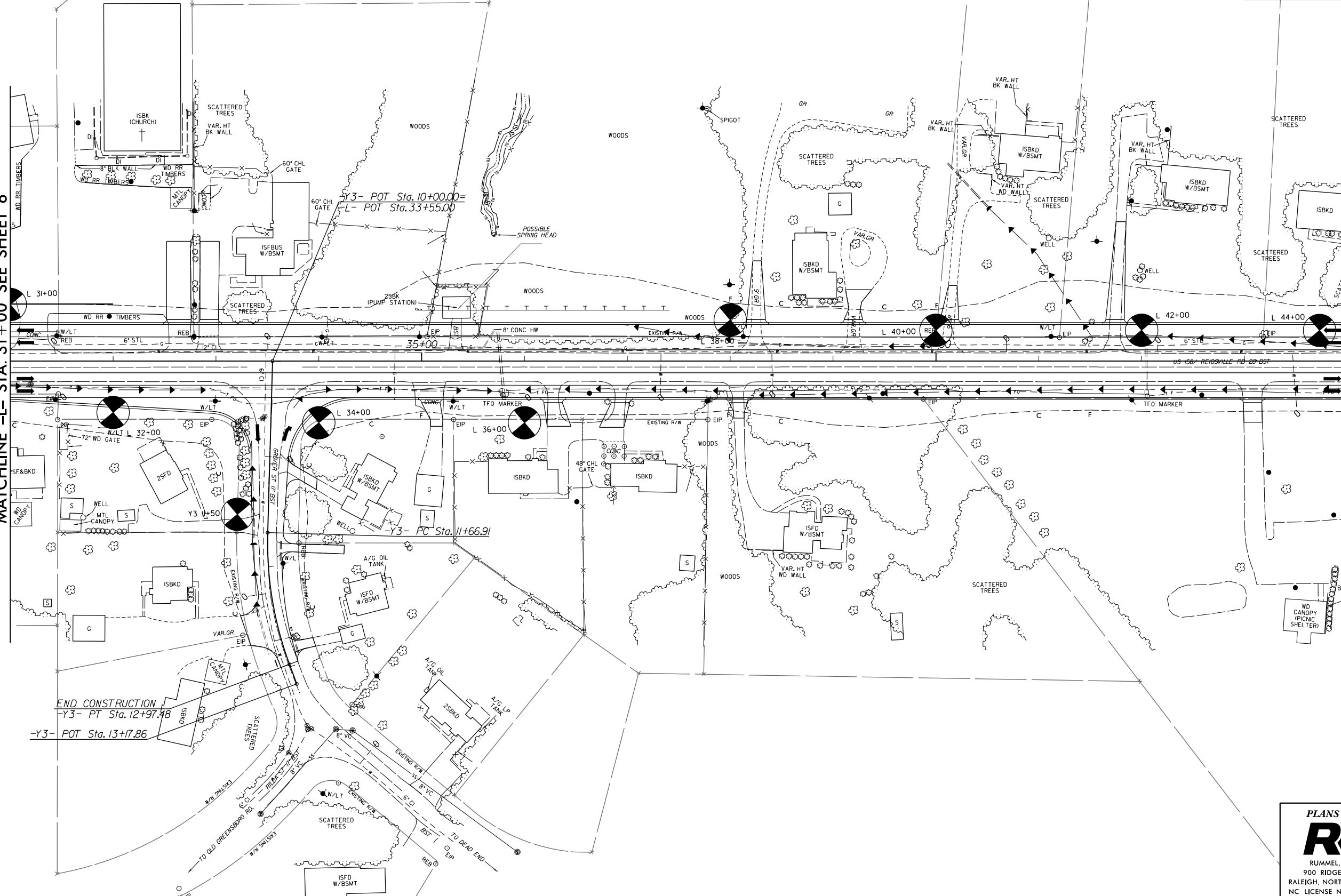
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PROJECT REFERENCE NO. R-2577A		SHEET NO. 7	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			



MATCHLINE -L- STA. 31+00 SEE SHEET 6

MATCHLINE -L- STA. 44+00 SEE SHEET 8



END CONSTRUCTION  
 -Y3- PT Sta. 12+97.48  
 -Y3- POT Sta. 13+17.86

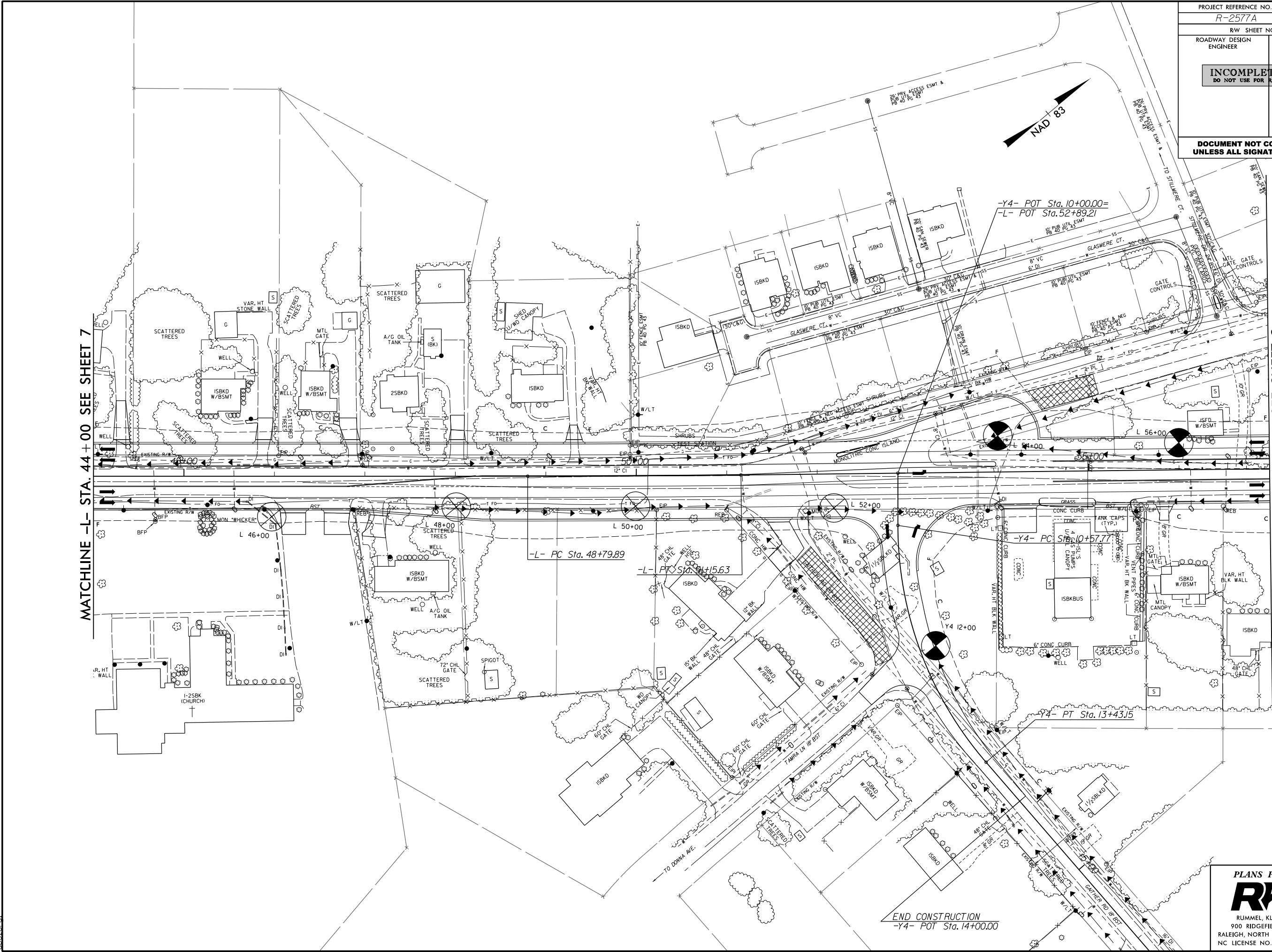
PLANS PREPARED BY :  
**RK&K**  
 RUMMEL, KLEPPER & KAHL, LLP  
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PROJECT REFERENCE NO. R-2577A		SHEET NO. 8	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			

MATCHLINE -L- STA. 44 + 00 SEE SHEET 7

MATCHLINE -L- STA. 57 + 00 SEE SHEET 9



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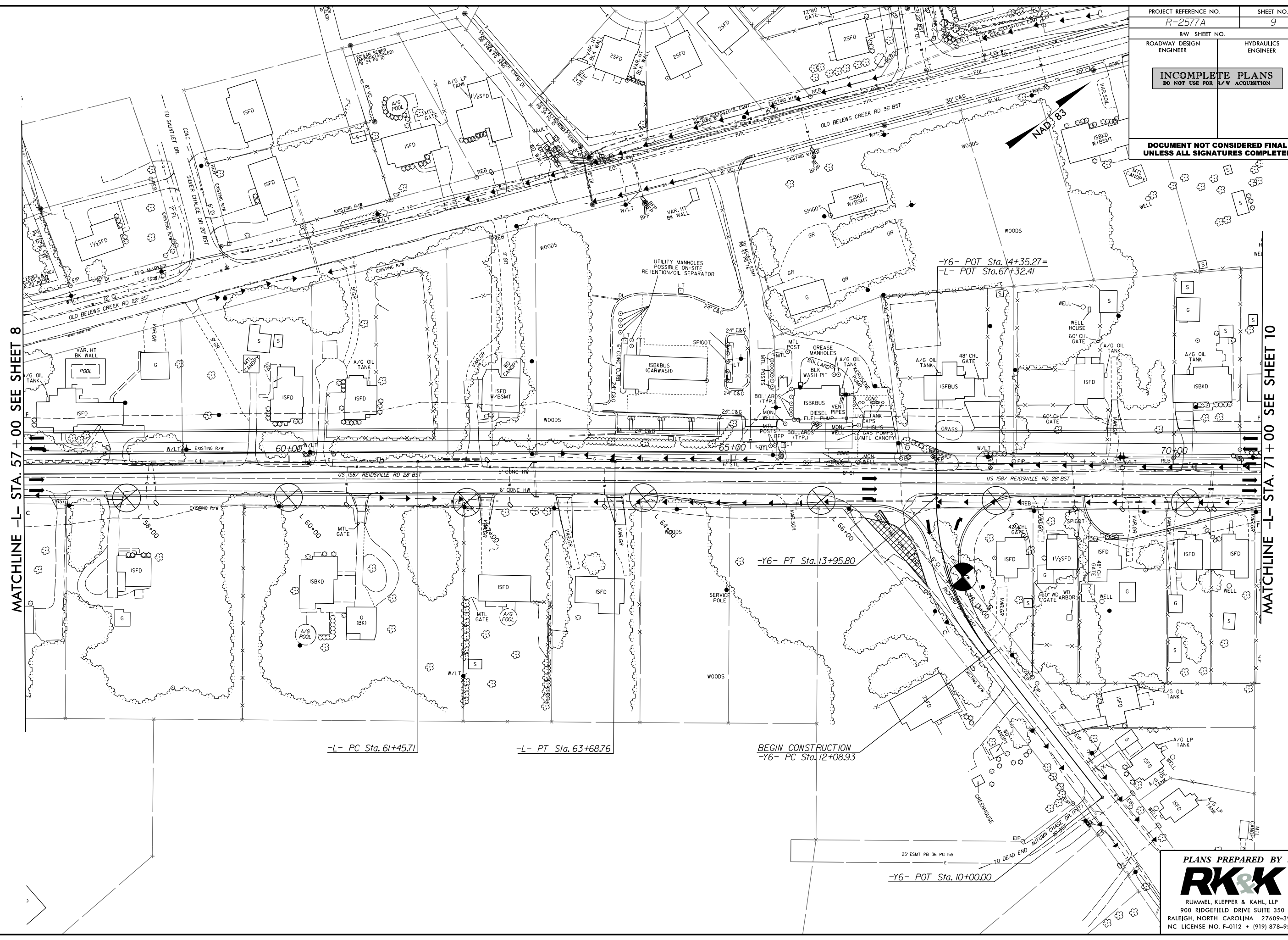
END CONSTRUCTION  
-Y4- POT Sta. 14+00.00

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PROJECT REFERENCE NO. <b>R-2577A</b>		SHEET NO. <b>9</b>	
RW SHEET NO. ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			



MATCHLINE -L- STA. 57 + 00 SEE SHEET 8

MATCHLINE -L- STA. 71 + 00 SEE SHEET 10

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PLANS PREPARED BY :

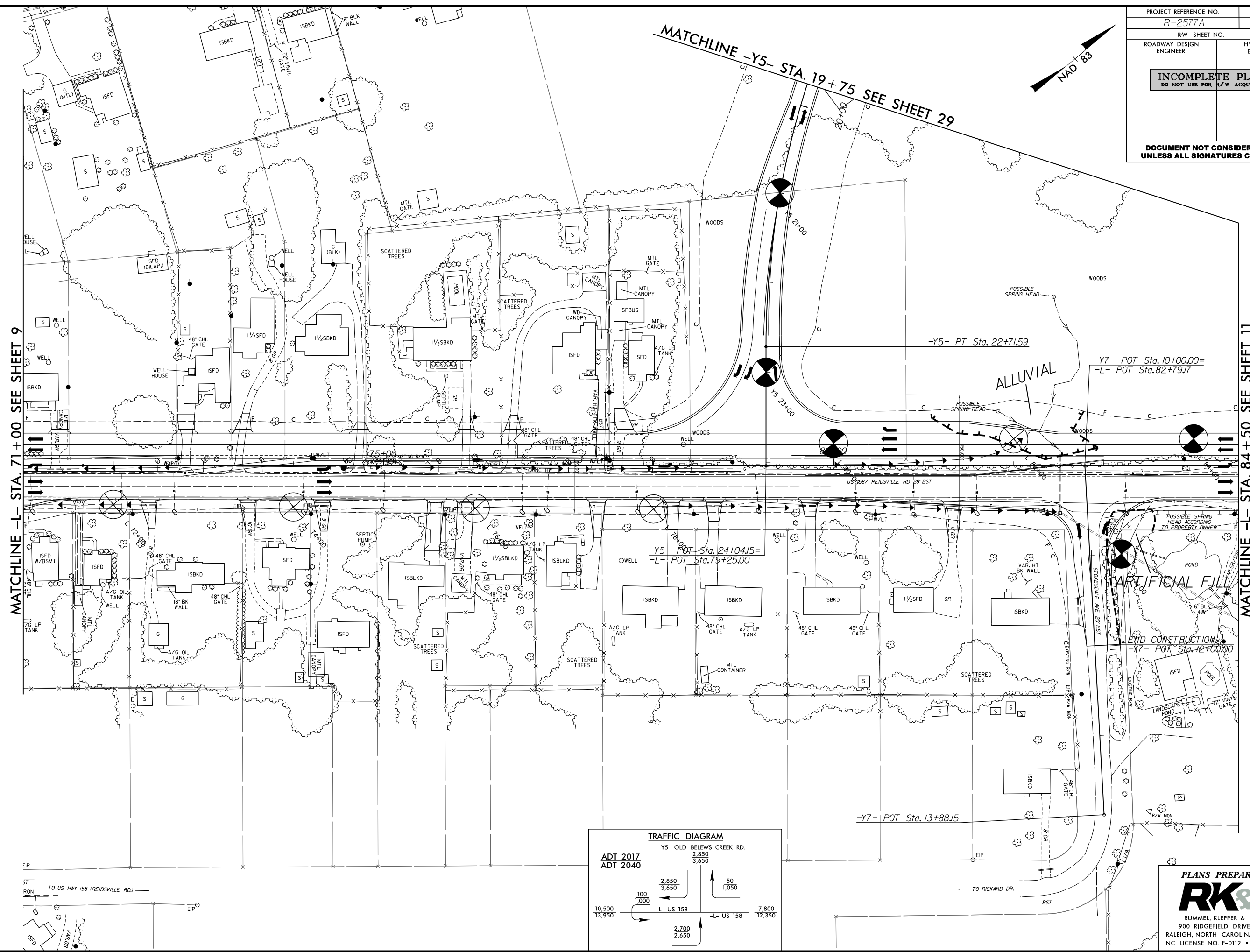
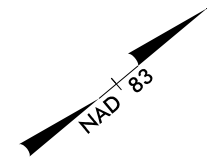
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PROJECT REFERENCE NO. R-2577A		SHEET NO. 10	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			



MATCHLINE -Y5- STA. 19+75 SEE SHEET 29

MATCHLINE -L- STA. 71+00 SEE SHEET 9

MATCHLINE -L- STA. 84+50 SEE SHEET 11

-Y5- PT Sta. 22+71.59

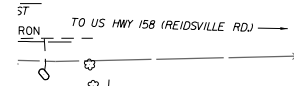
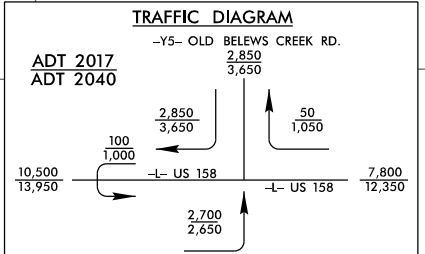
-Y7- POT Sta. 10+00.00=  
-L- POT Sta. 82+79.77

ALLUVIAL

-Y5- POT Sta. 24+04.15=  
-L- POT Sta. 79+25.00

-Y7- POT Sta. 12+00.00

-Y7- POT Sta. 13+88.15

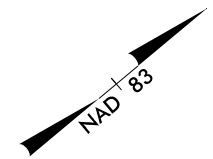


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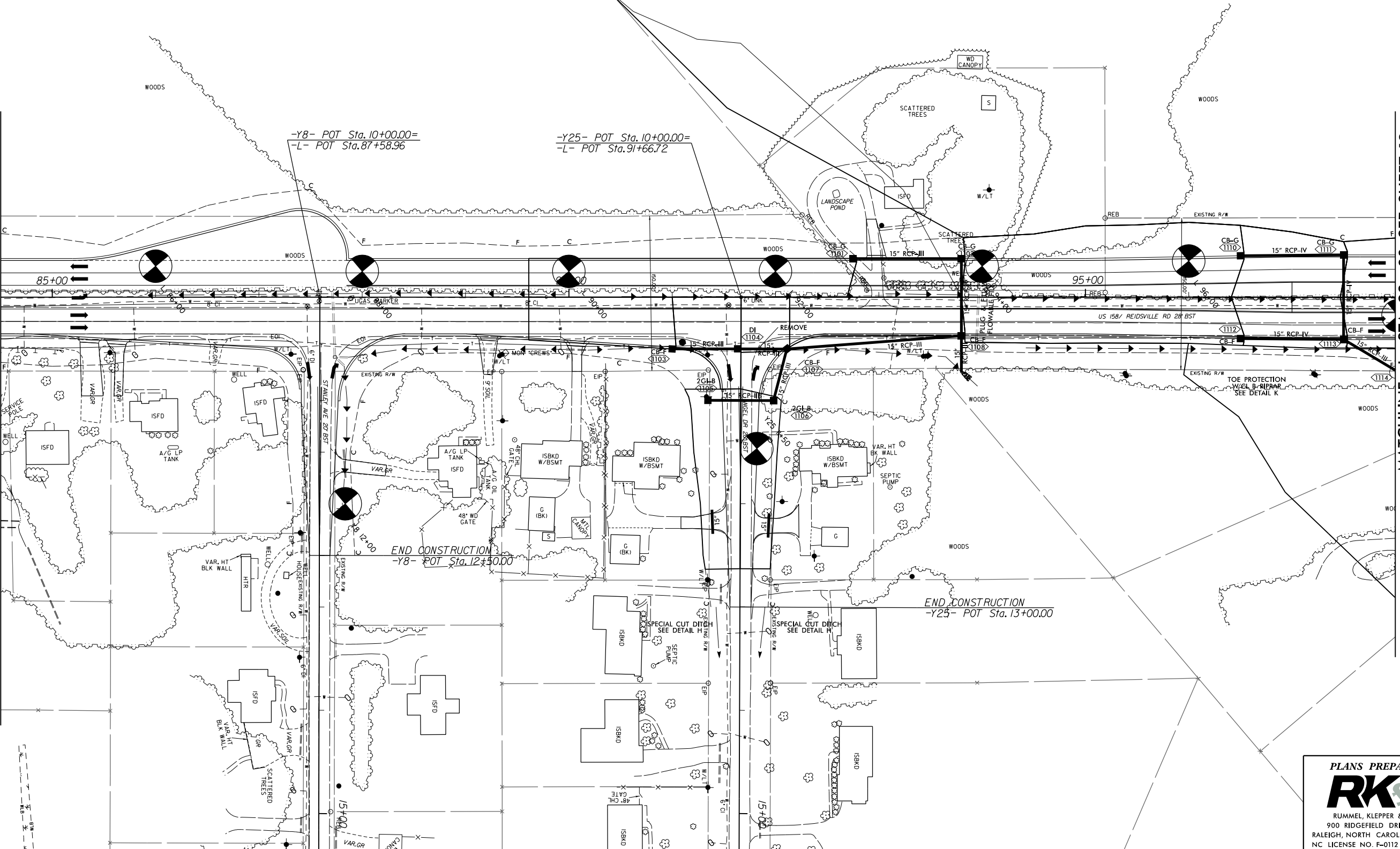
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PROJECT REFERENCE NO. R-2577A		SHEET NO. II	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			



MATCHLINE -L- STA. 84 + 50 SEE SHEET 10

MATCHLINE -L- STA. 98 + 00 SEE SHEET 12



-Y8- POT Sta. 10+00.00=  
-L- POT Sta. 87+58.96

-Y25- POT Sta. 10+00.00=  
-L- POT Sta. 91+66.72

END CONSTRUCTION  
-Y8- POT Sta. 12+50.00

END CONSTRUCTION  
-Y25- POT Sta. 13+00.00

PLANS PREPARED BY :

**RK&K**

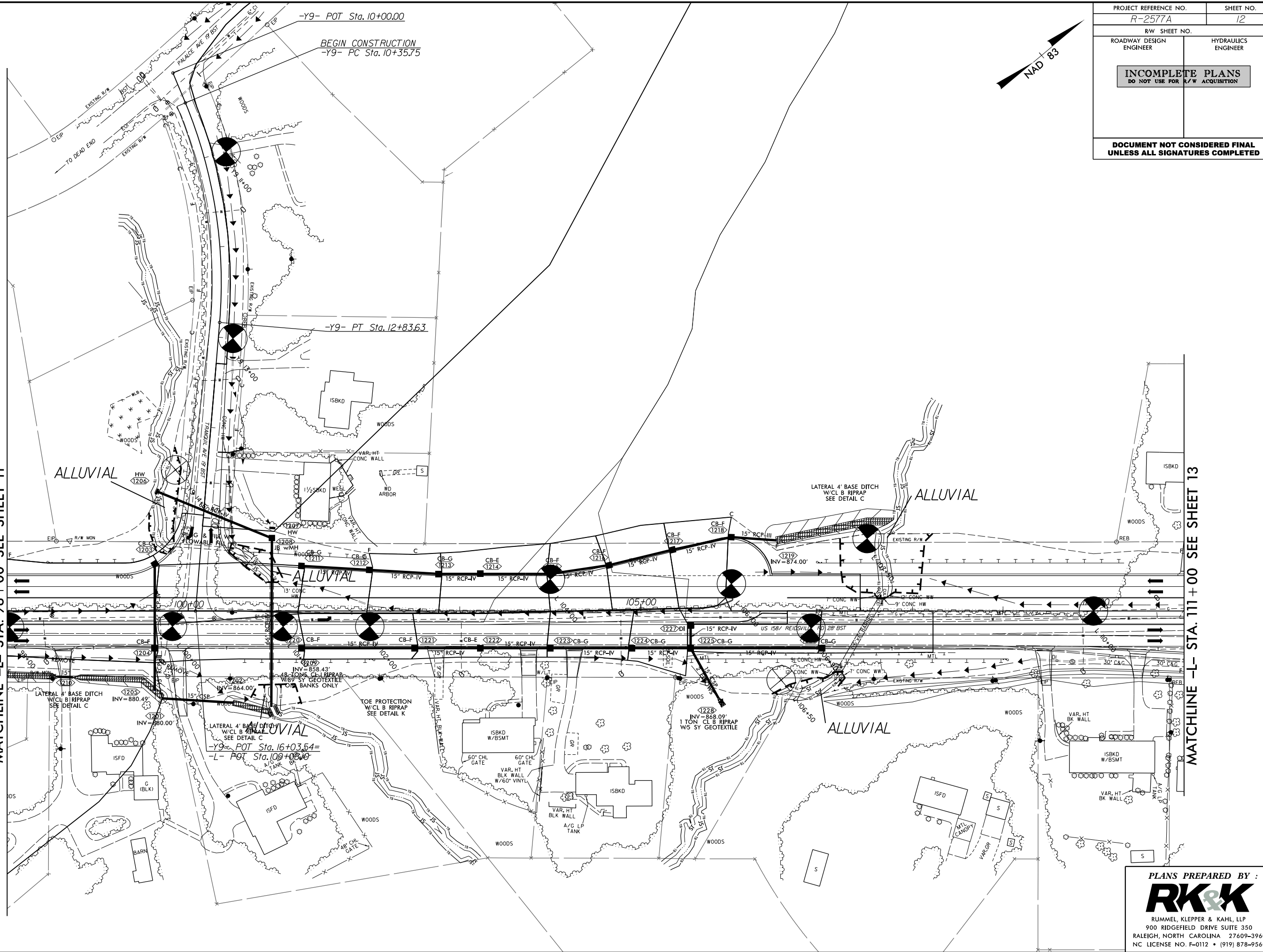
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MATCHLINE -L- STA. 98+00 SEE SHEET 11

MATCHLINE -L- STA. 111+00 SEE SHEET 13



PROJECT REFERENCE NO. R-2577A	SHEET NO. 12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	

PLANS PREPARED BY :

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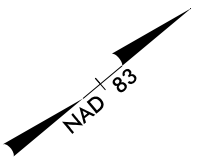
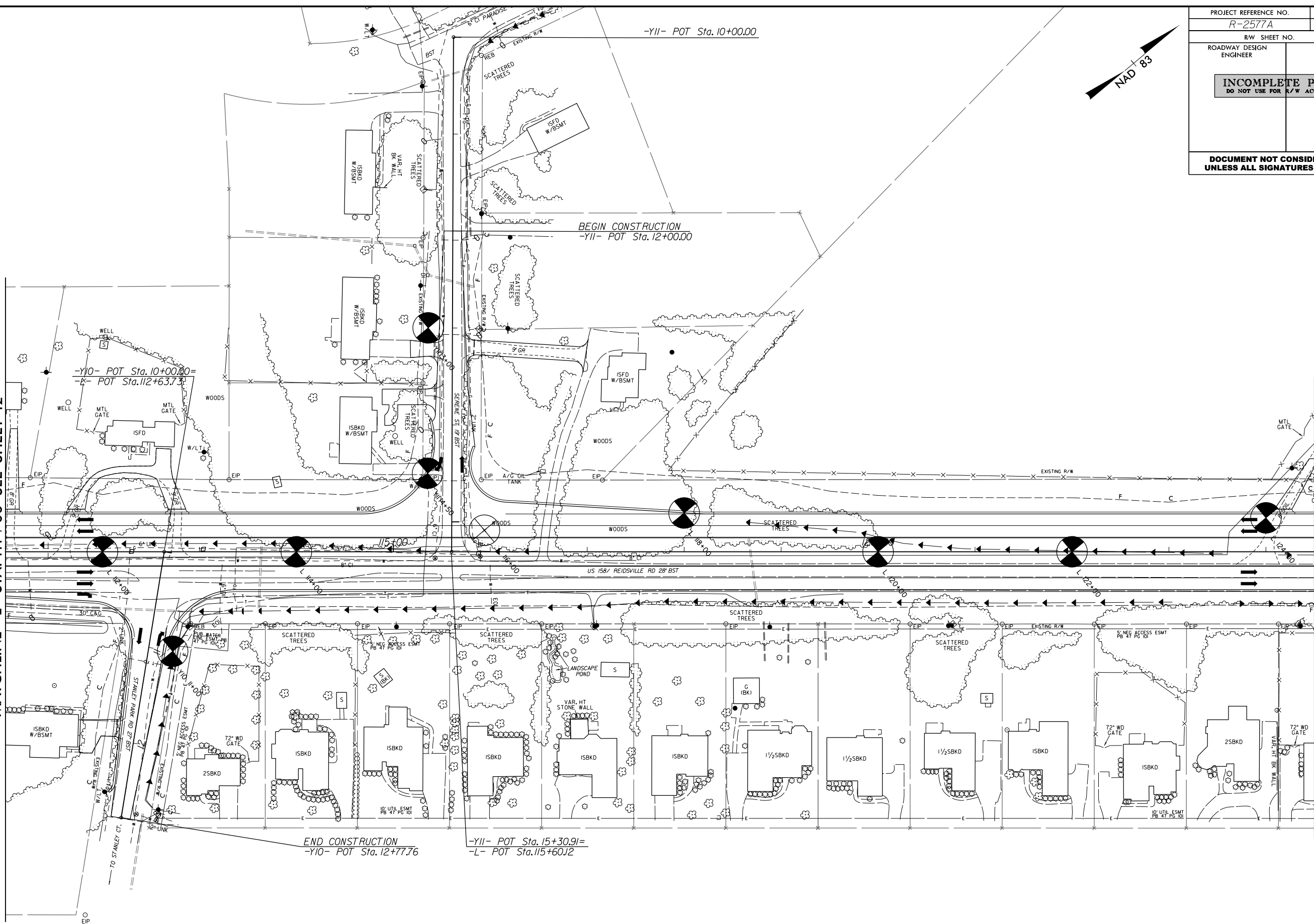
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PROJECT REFERENCE NO. <i>R-2577A</i>		SHEET NO. <i>13</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			

MATCHLINE -L- STA. 111+00 SEE SHEET 12

MATCHLINE -L- STA. 124+50 SEE SHEET 14



END CONSTRUCTION  
-Y10- POT Sta. 12+77.76  
-Y11- POT Sta. 15+30.91=  
-L- POT Sta. 115+60.12

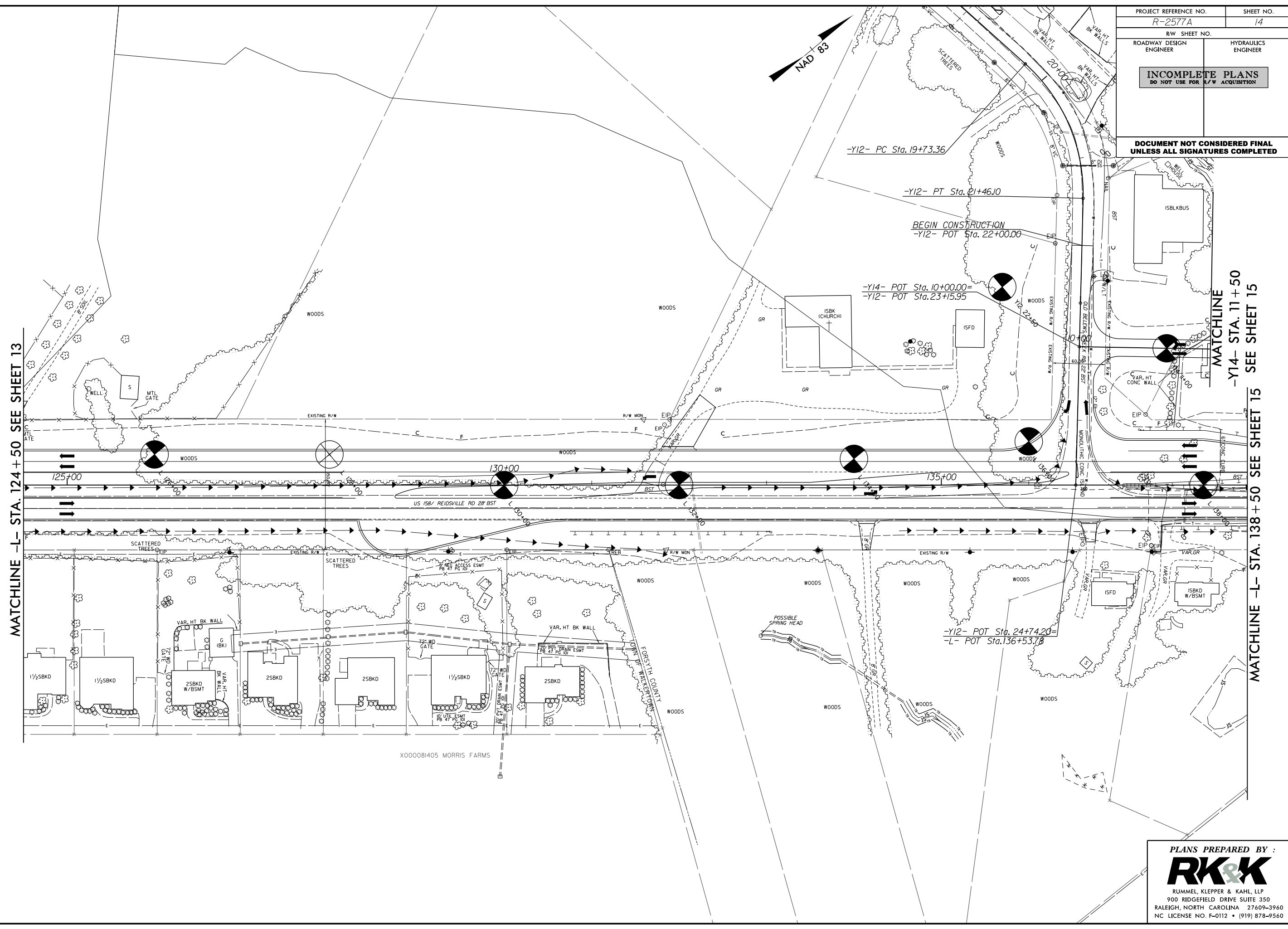
PLANS PREPARED BY :  
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PROJECT REFERENCE NO. R-2577A		SHEET NO. 14	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			

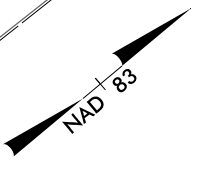
MATCHLINE -L- STA. 124 + 50 SEE SHEET 13

MATCHLINE -Y14- STA. 11 + 50 SEE SHEET 15



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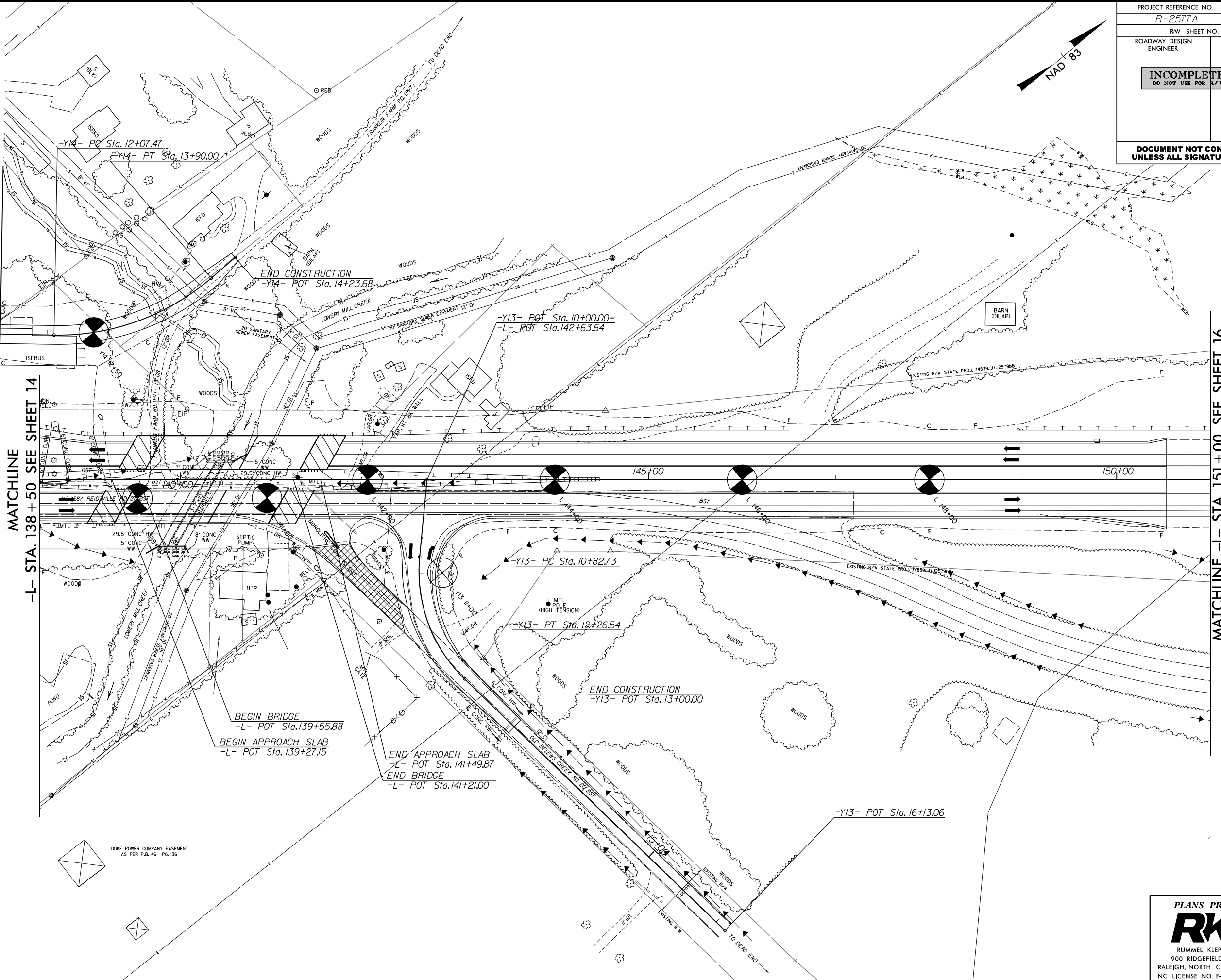
PROJECT REFERENCE NO. R-2577A	SHEET NO. 15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	



MATCHLINE  
-Y14- STA. 11+50  
SEE SHEET 14

MATCHLINE  
-L- STA. 138+50 SEE SHEET 14

MATCHLINE -L- STA. 151+00 SEE SHEET 16



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abozar

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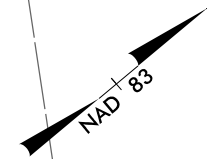
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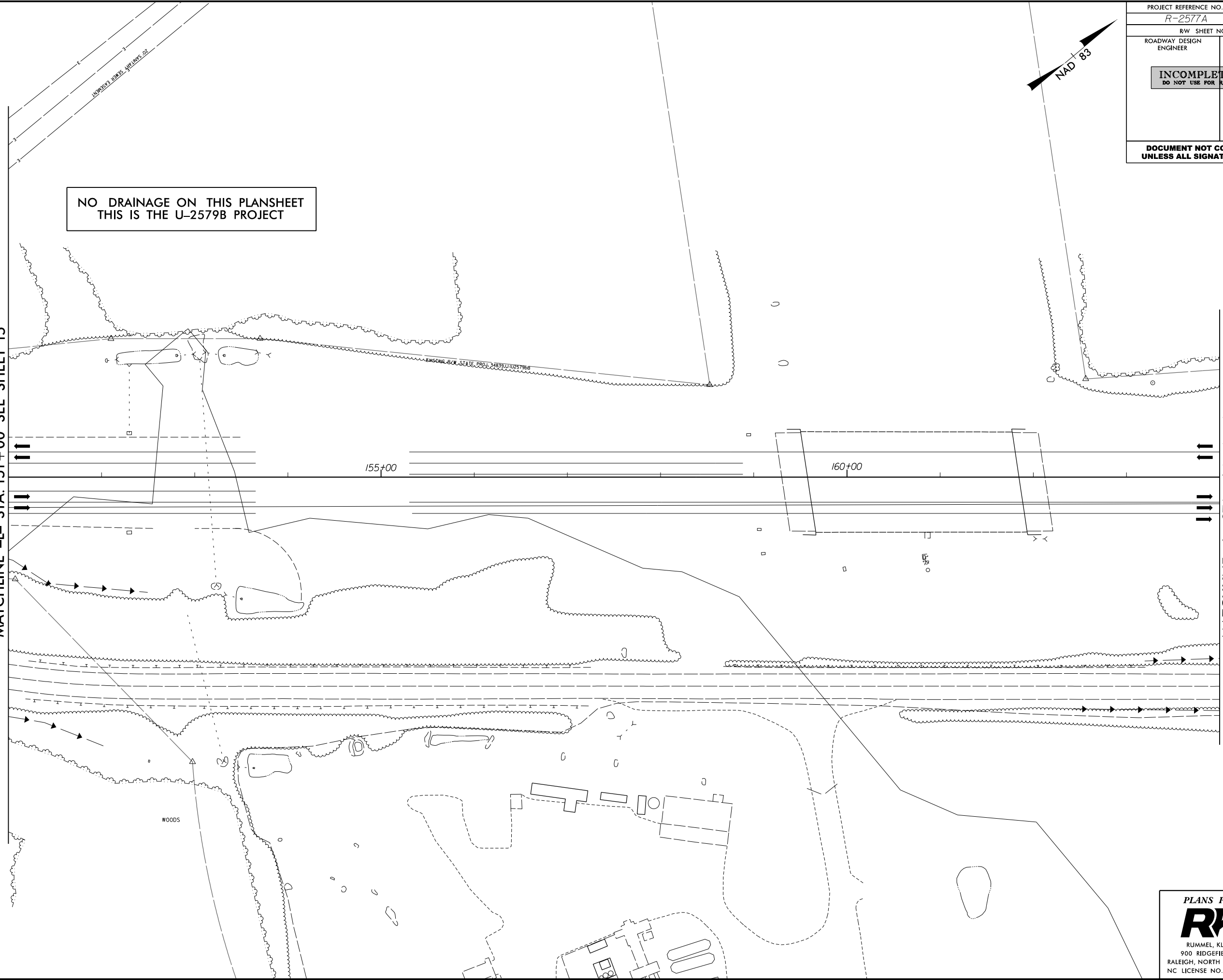
MATCHLINE -L- STA. 151+00 SEE SHEET 15

MATCHLINE -L- STA. 164+00 SEE SHEET 17

NO DRAINAGE ON THIS PLANSHEET  
THIS IS THE U-2579B PROJECT



PROJECT REFERENCE NO. <i>R-2577A</i>		SHEET NO. <i>16</i>	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			



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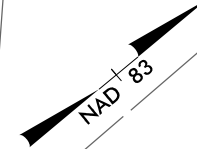
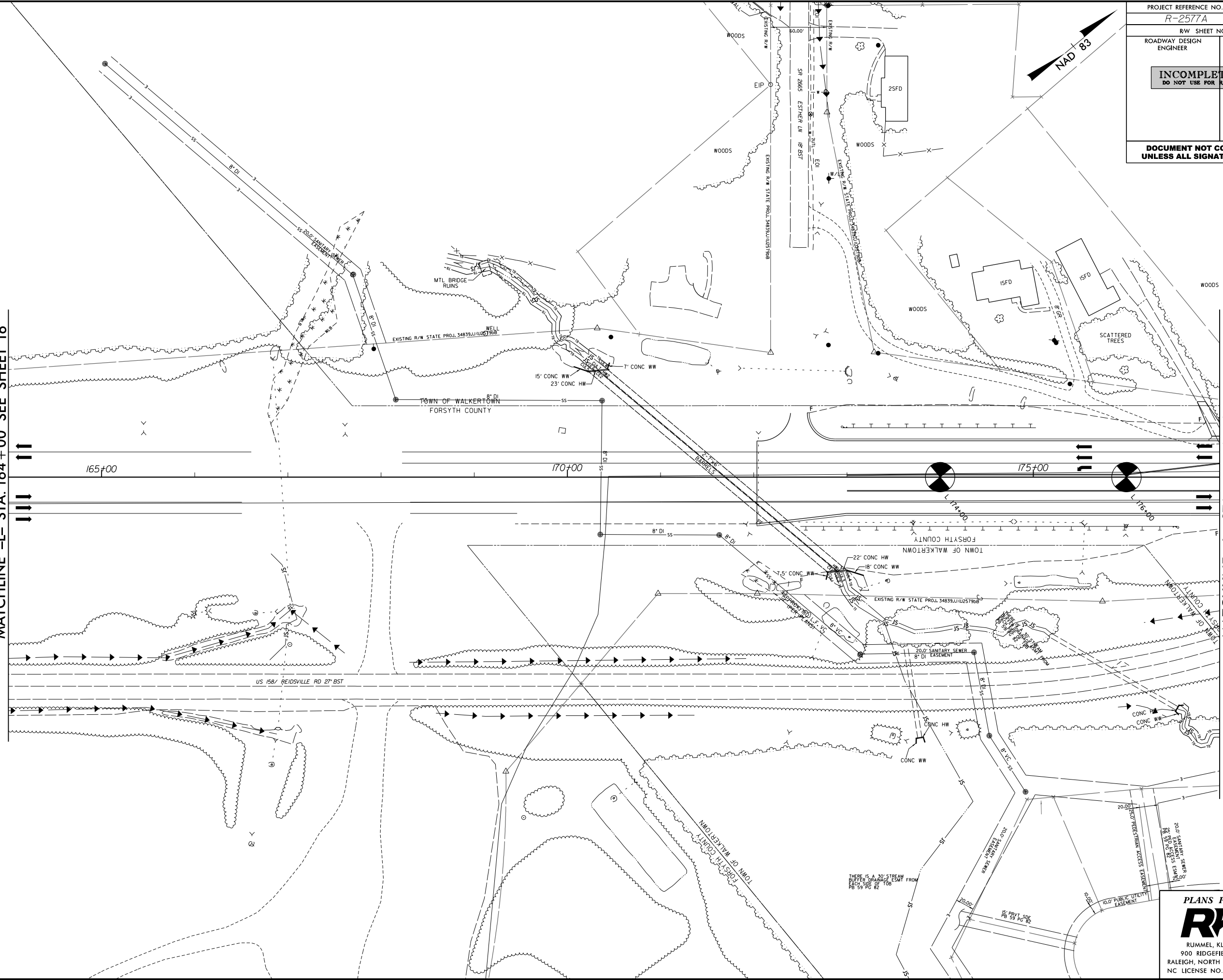
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PROJECT REFERENCE NO. R-2577A		SHEET NO. 17	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			

MATCHLINE -L- STA. 164+00 SEE SHEET 16

MATCHLINE -L- STA. 177+00 SEE SHEET 18



THERE IS A 30' STREAM  
BUFFER ZONING 25FT FROM  
EACH SIDE OF  
PB 59 PG 82

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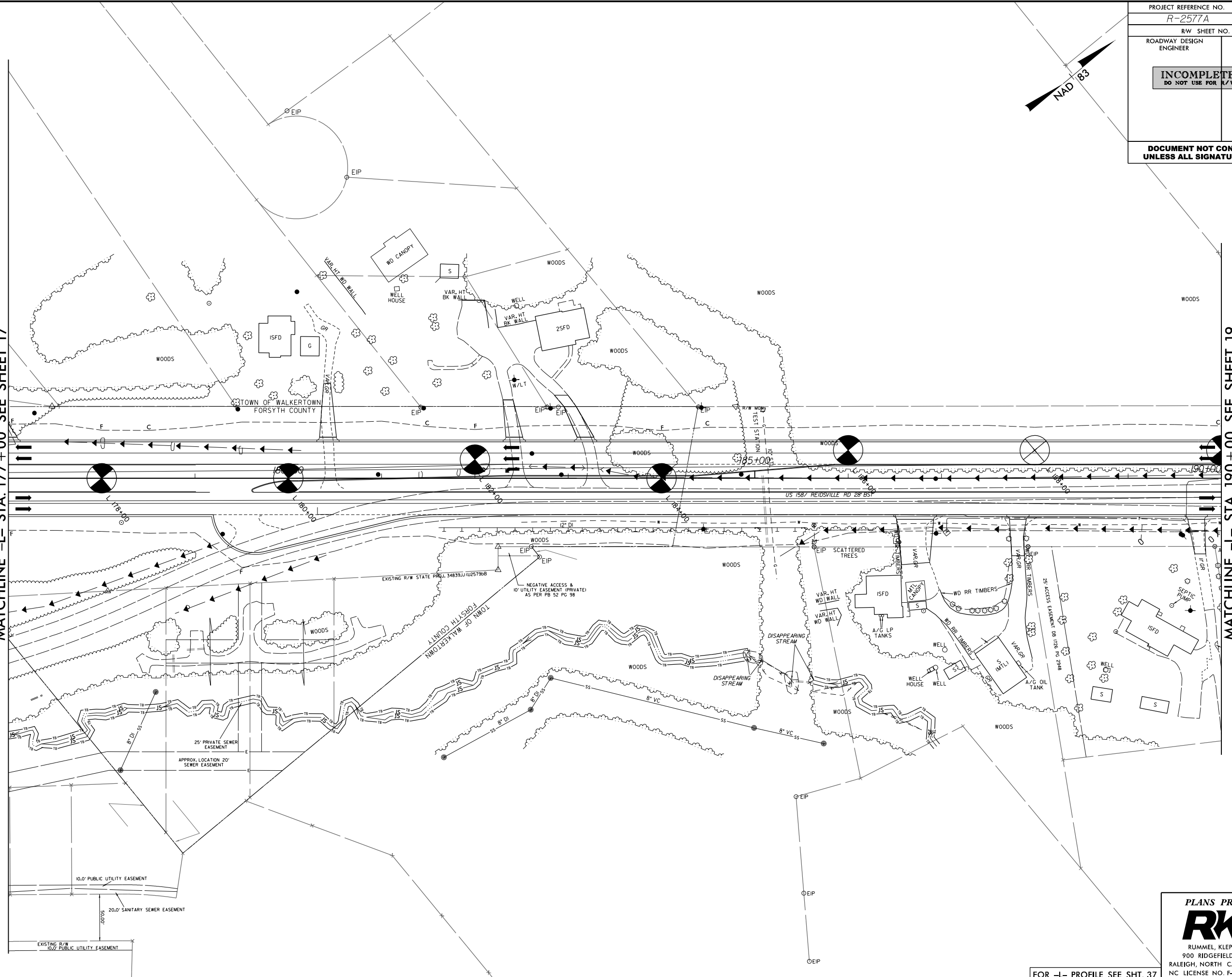
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PROJECT REFERENCE NO. <i>R-2577A</i>		SHEET NO. <i>18</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			



MATCHLINE -L- STA. 177 + 00 SEE SHEET 17

MATCHLINE -L- STA. 190 + 00 SEE SHEET 19



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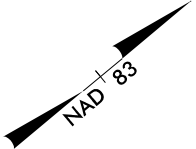
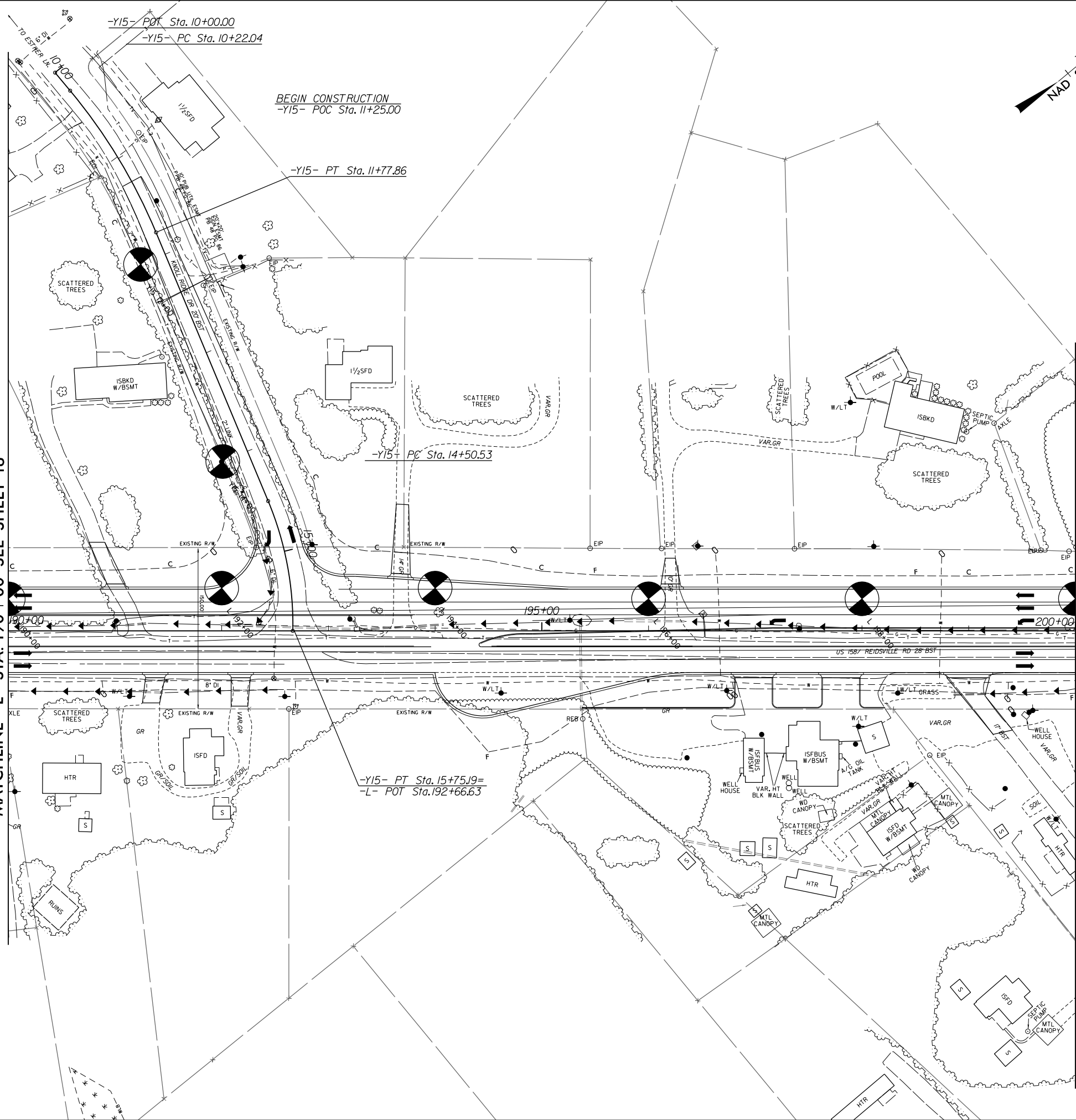
FOR -L- PROFILE SEE SHT. 37

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MATCHLINE -L- STA. 190+00 SEE SHEET 18

MATCHLINE -L- STA. 200+00 SEE SHEET 20



PROJECT REFERENCE NO. R-2577A	SHEET NO. 19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	

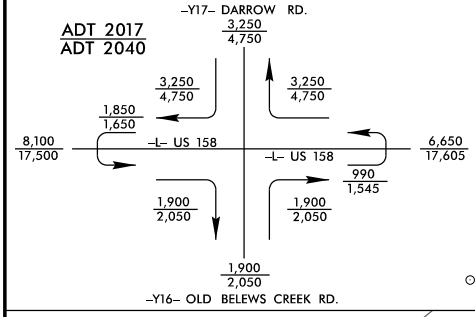
PLANS PREPARED BY :

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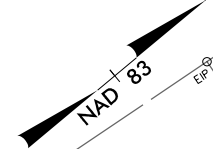
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 RALEIGH, NORTH CAROLINA 27609-3960  
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### TRAFFIC DIAGRAM

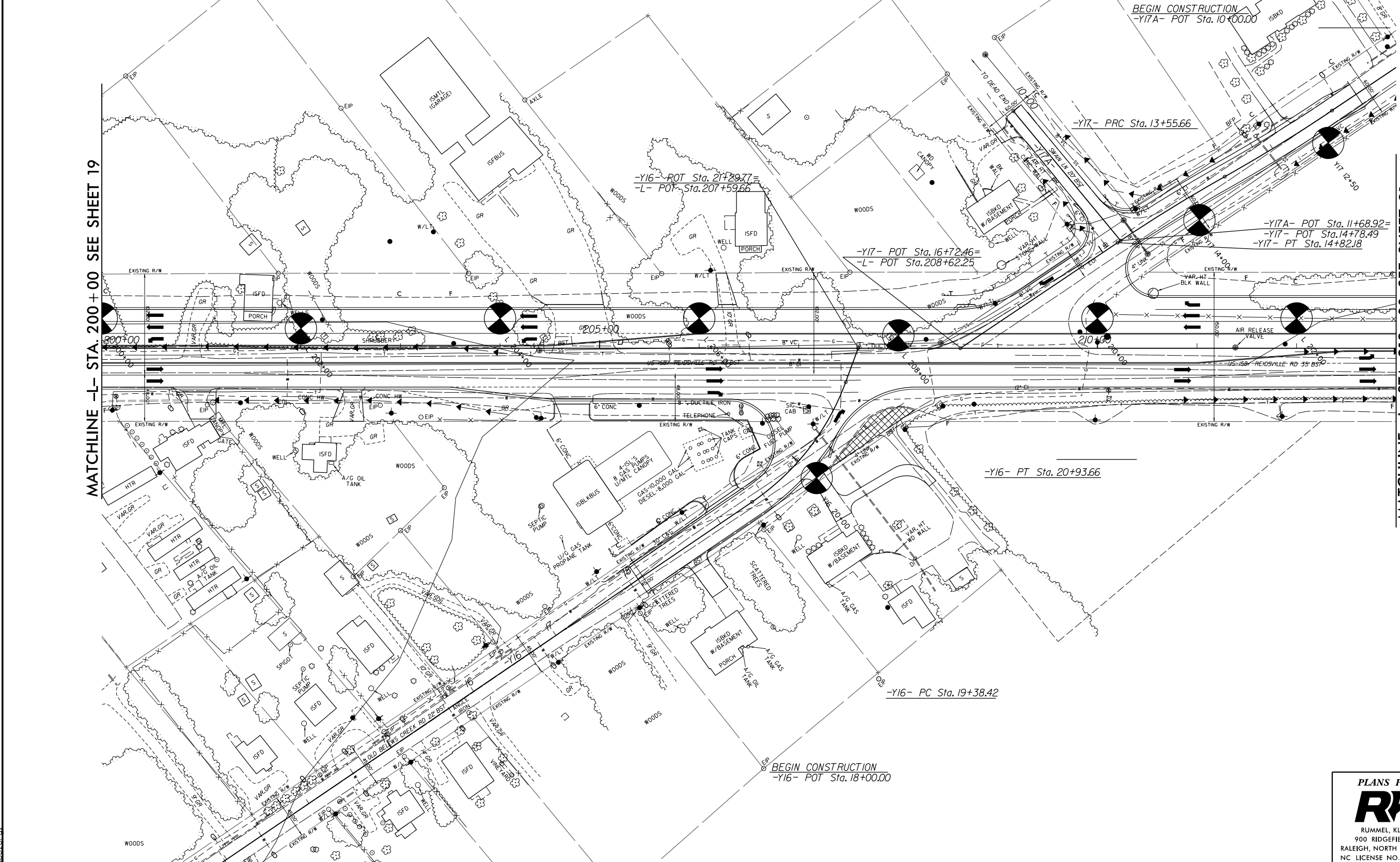


PROJECT REFERENCE NO. <i>R-2577A</i>		SHEET NO. <i>20</i>	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			



MATCHLINE -L- STA. 200+00 SEE SHEET 19

MATCHLINE -L- STA. 213+00 SEE SHEET 21



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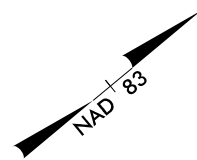
PLANS PREPARED BY :

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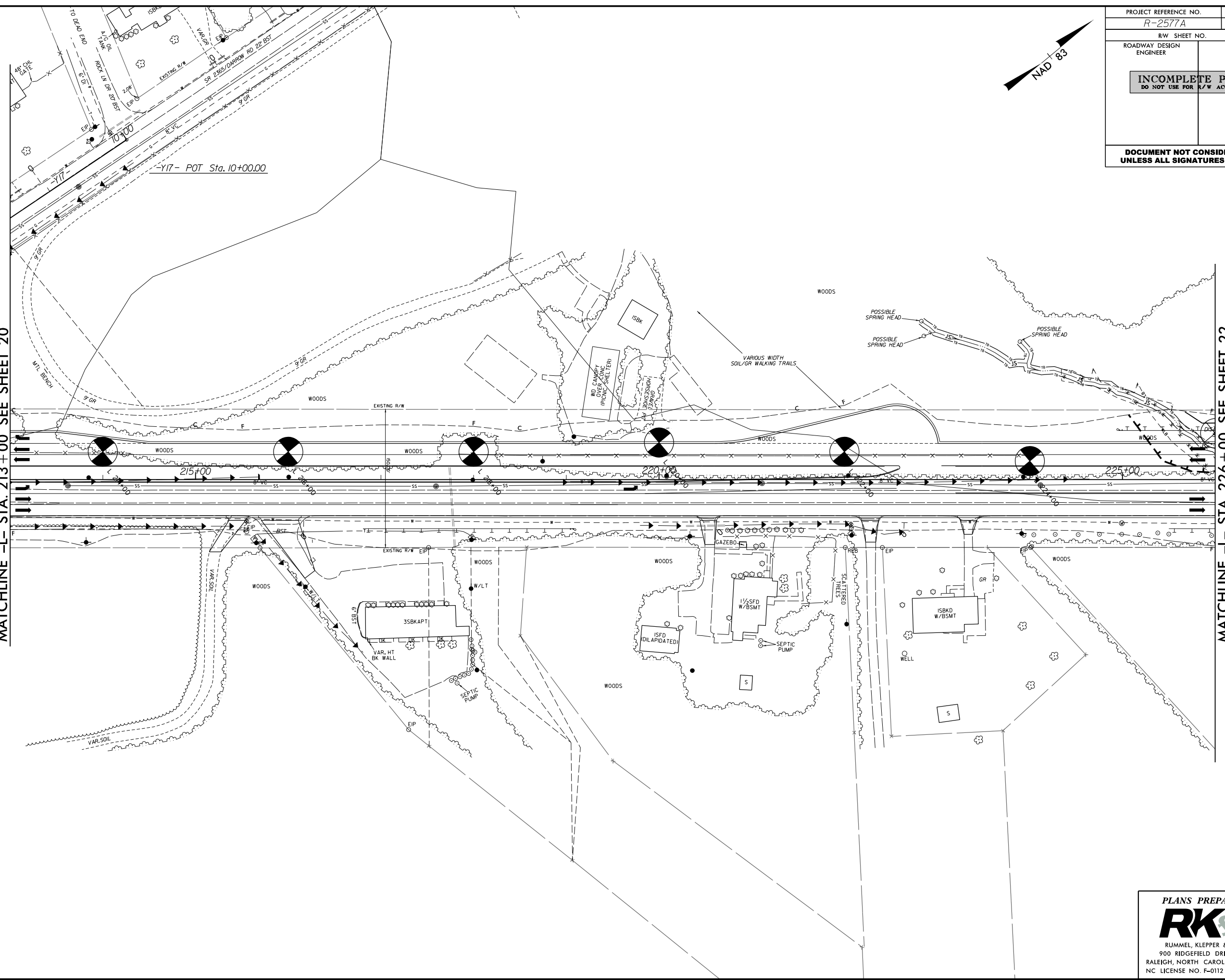
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PROJECT REFERENCE NO. <i>R-2577A</i>		SHEET NO. <i>21</i>	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			



MATCHLINE -L- STA. 213 + 00 SEE SHEET 20

MATCHLINE -L- STA. 226 + 00 SEE SHEET 22



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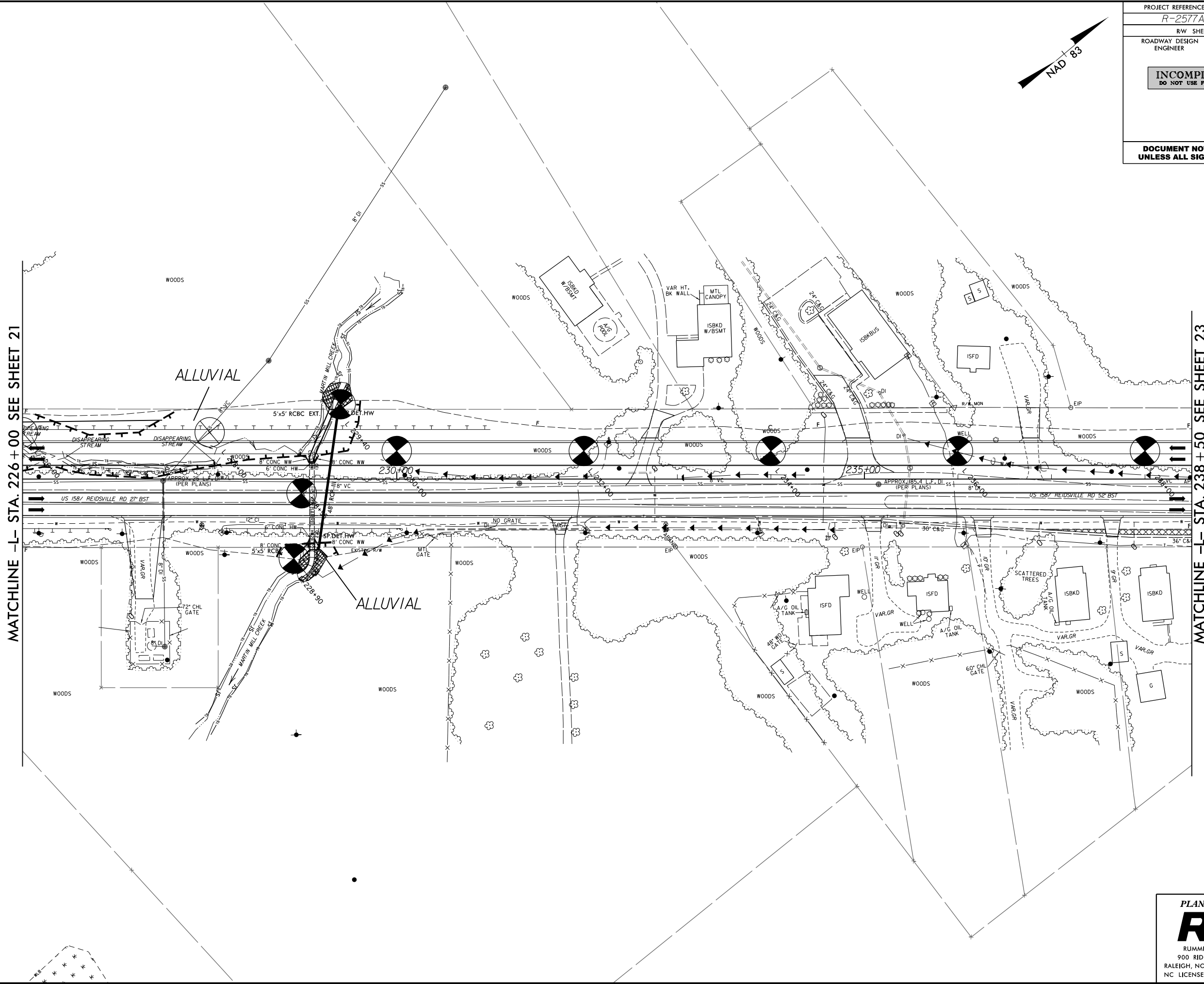
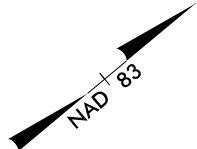
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PROJECT REFERENCE NO. R-2577A		SHEET NO. 22	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			



MATCHLINE -L- STA. 226+00 SEE SHEET 21

MATCHLINE -L- STA. 238+50 SEE SHEET 23

PLANS PREPARED BY :

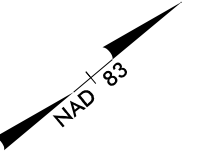
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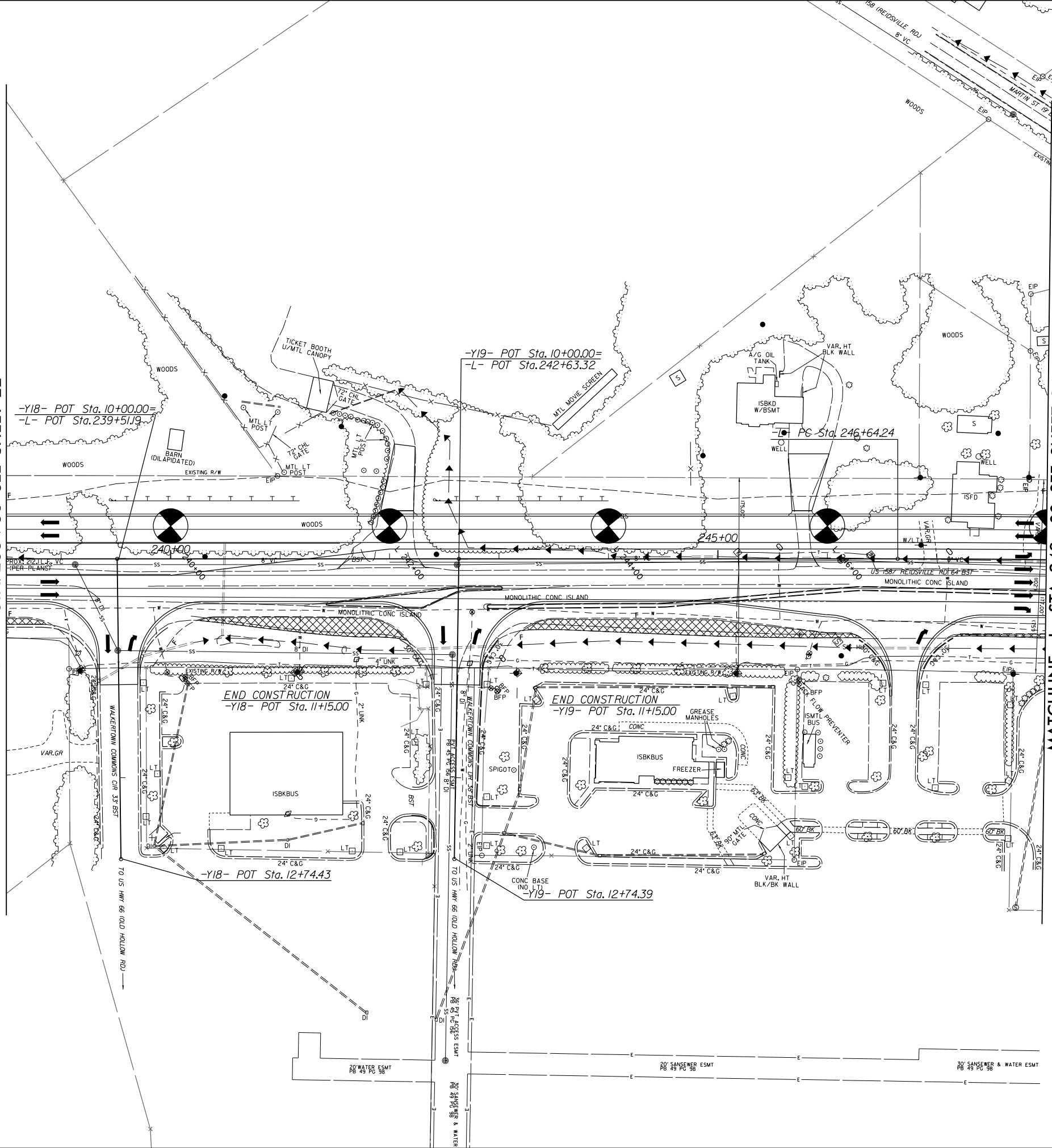
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PROJECT REFERENCE NO. R-2577A		SHEET NO. 23	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			



MATCHLINE -L- STA. 238 + 50 SEE SHEET 22

MATCHLINE -L- STA. 248 + 00 SEE SHEET 24



PLANS PREPARED BY :

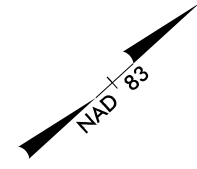
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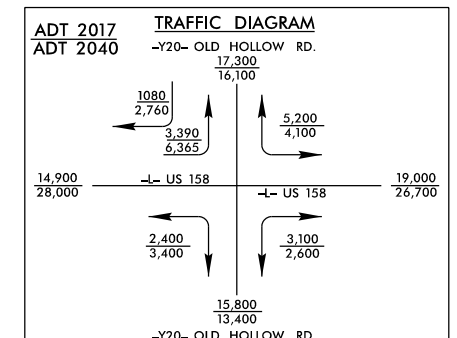
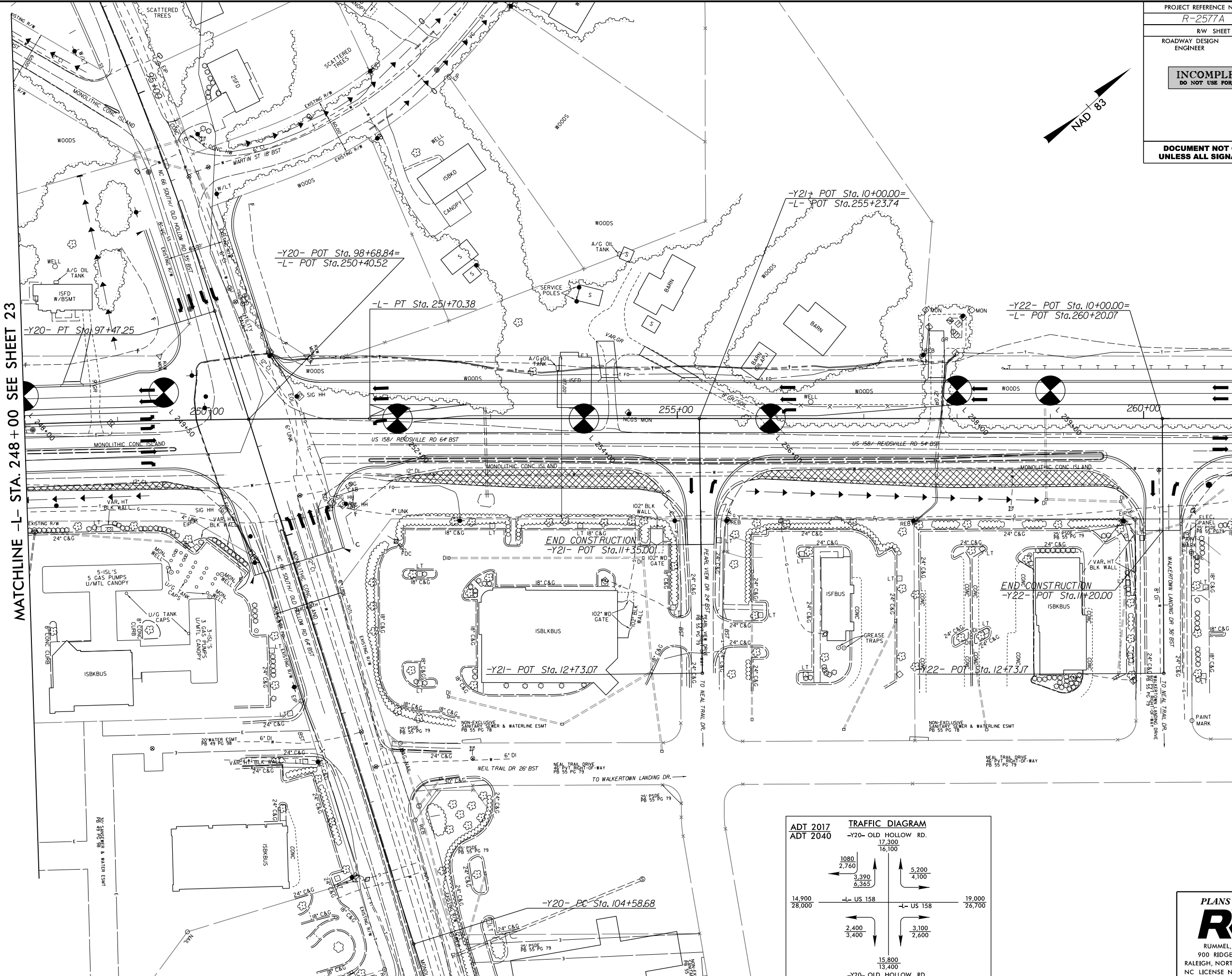
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PROJECT REFERENCE NO. R-2577A		SHEET NO. 24	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER			
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			



MATCHLINE -L- STA. 248 + 00 SEE SHEET 23

MATCHLINE -L- STA. 261 + 00 SEE SHEET 25



PLANS PREPARED BY :

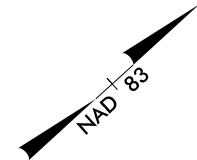
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8/17/99

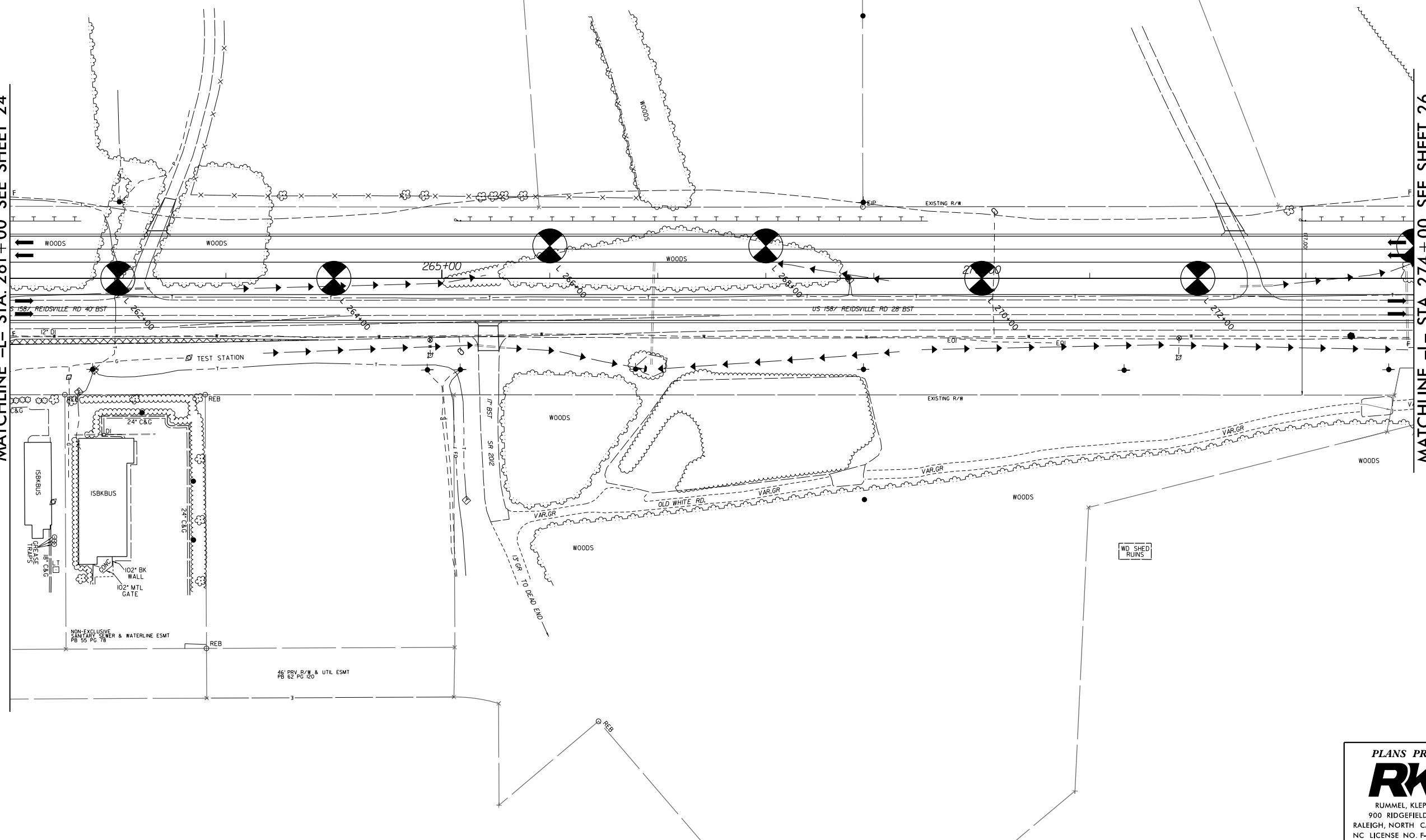
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PROJECT REFERENCE NO. <i>R-2577A</i>		SHEET NO. 25	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			



MATCHLINE -L- STA. 261+00 SEE SHEET 24

MATCHLINE -L- STA. 274+00 SEE SHEET 26



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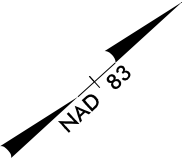
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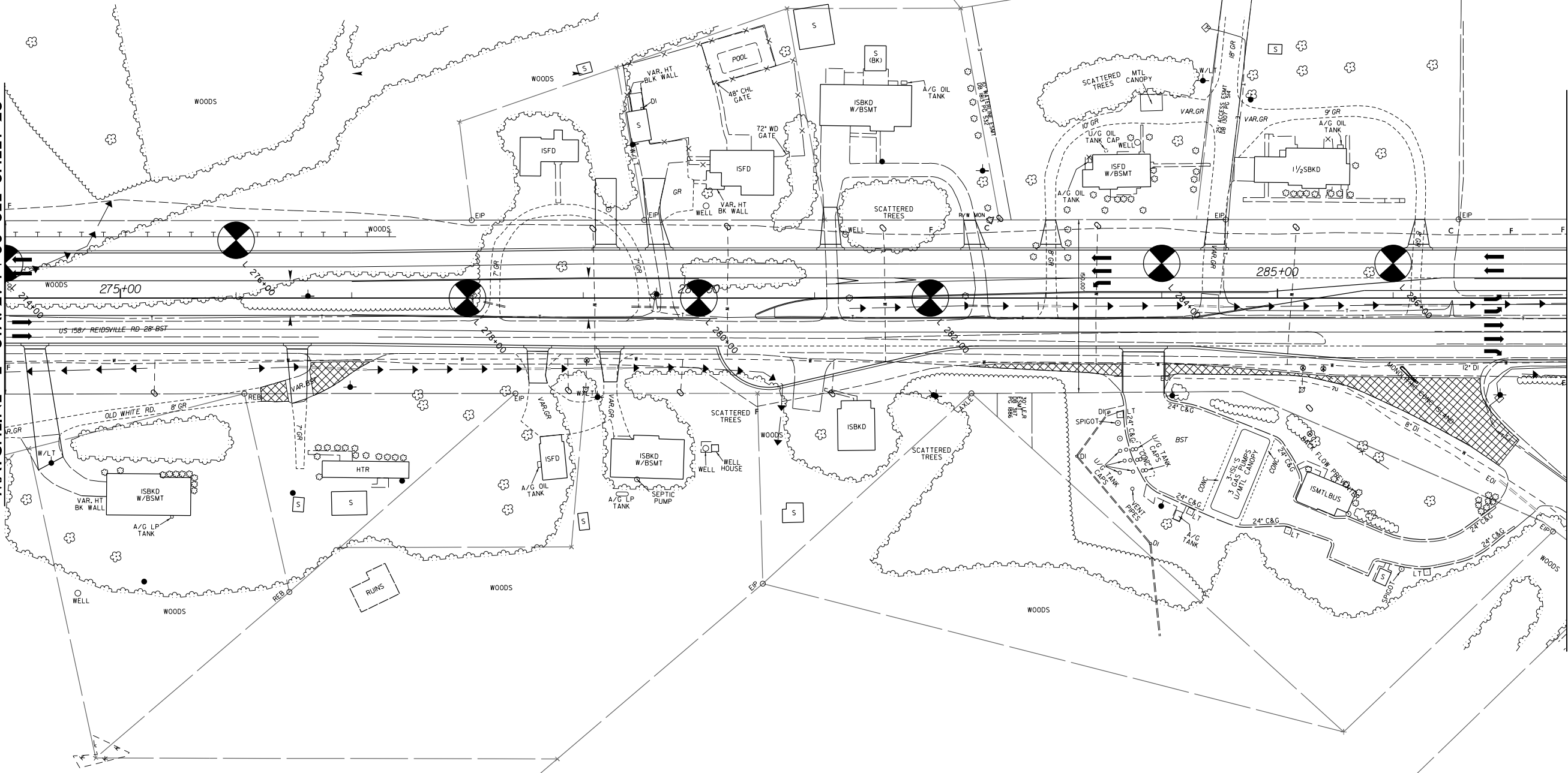
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PROJECT REFERENCE NO. <i>R-2577A</i>		SHEET NO. 26	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
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MATCHLINE -L- STA. 274+00 SEE SHEET 25



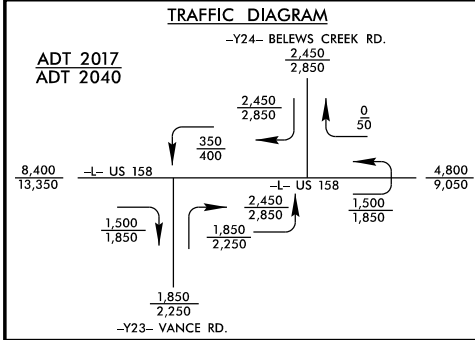
MATCHLINE -L- STA. 287+50 SEE SHEET 27

PLANS PREPARED BY :

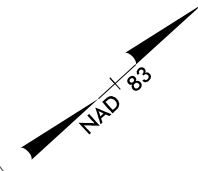
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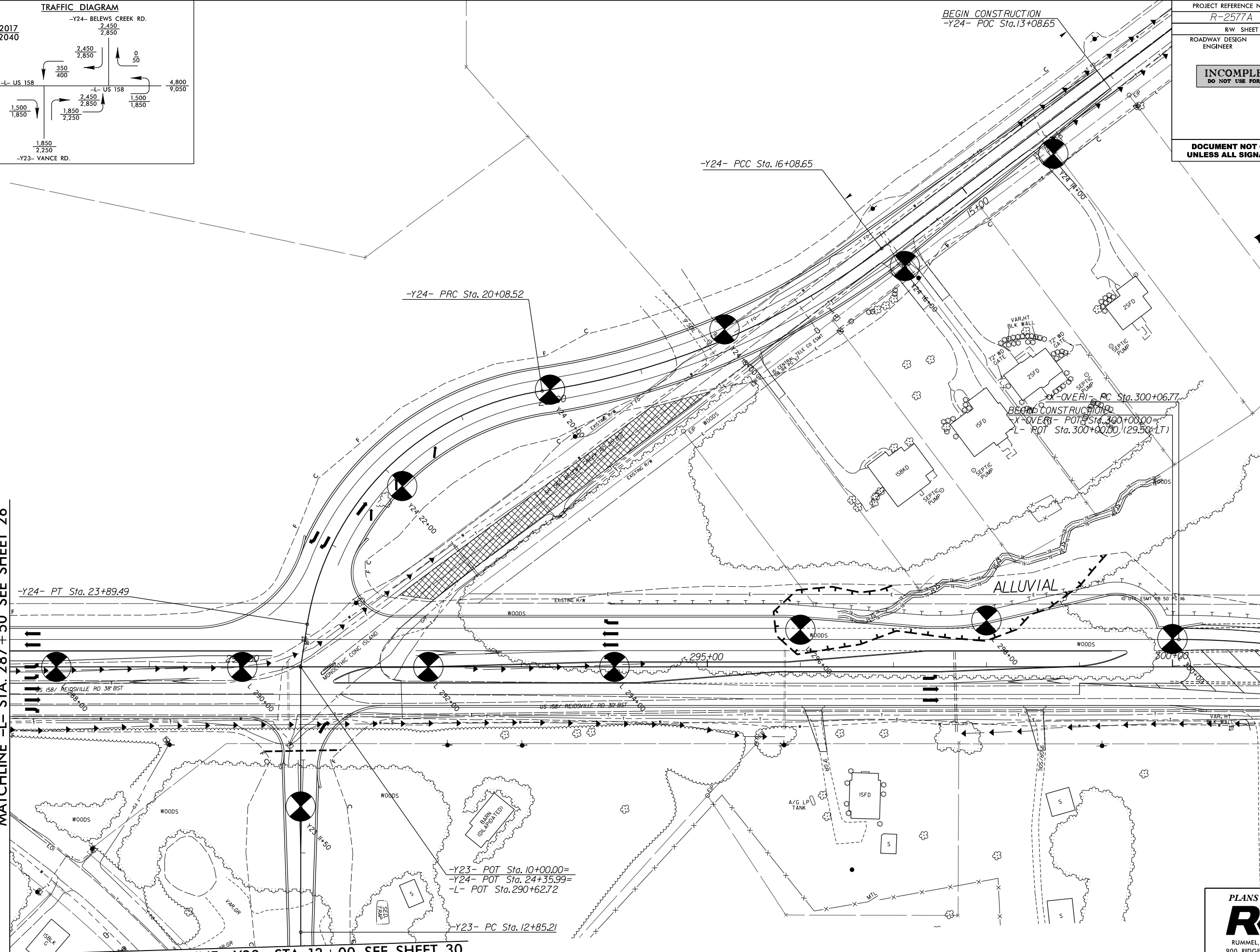


PROJECT REFERENCE NO. R-2577A	SHEET NO. 27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	



MATCHLINE -L- STA. 287 + 50 SEE SHEET 26

MATCHLINE -L- STA. 301 + 00 SEE SHEET 28



MATCHLINE -Y23- STA. 13 + 00 SEE SHEET 30

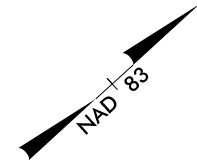
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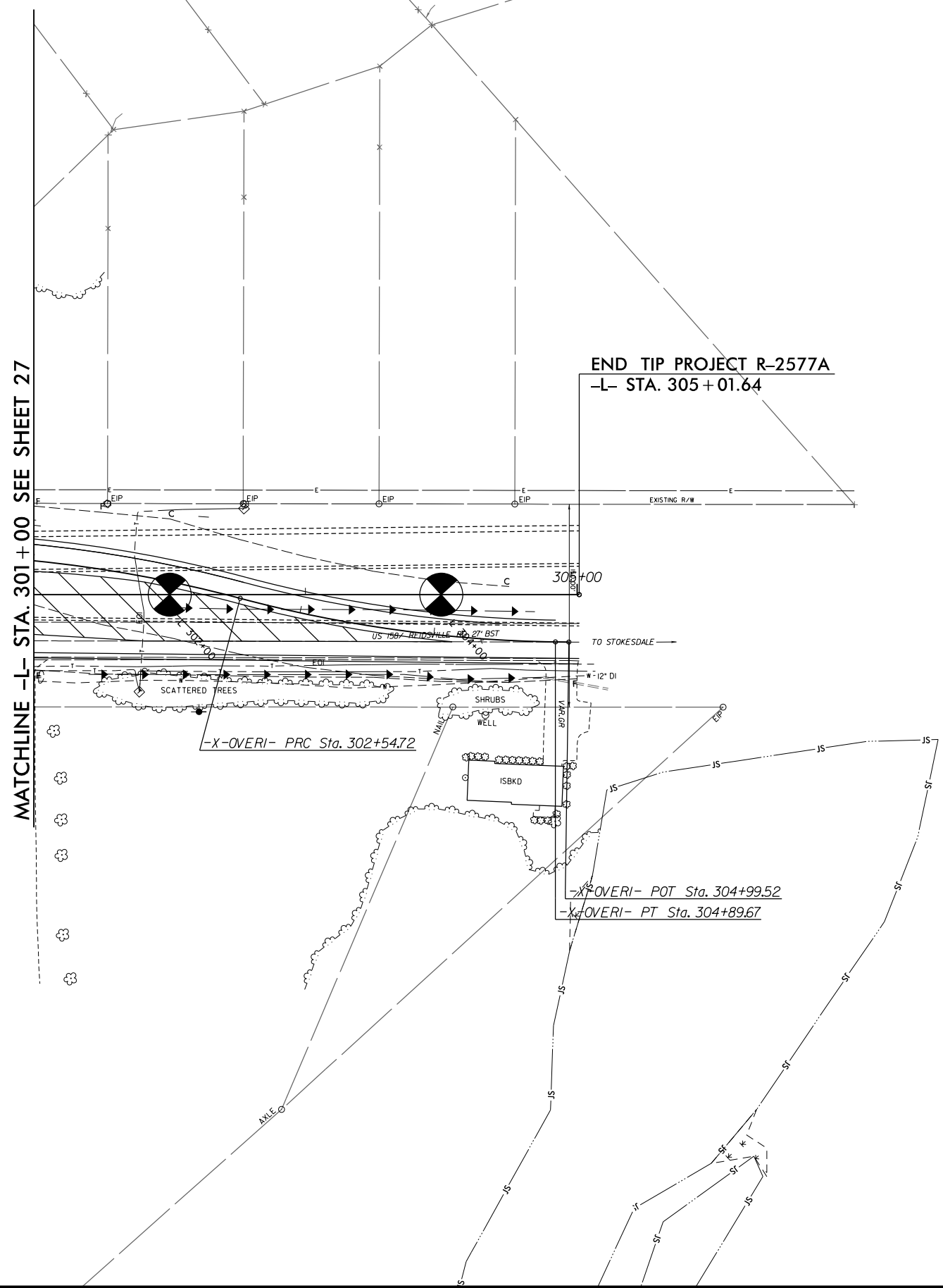
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PROJECT REFERENCE NO. <i>R-2577A</i>	SHEET NO. <i>28</i>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	

MATCHLINE -L- STA. 301+00 SEE SHEET 27

END TIP PROJECT R-2577A  
-L- STA. 305+01.64



-X-OVERI- PRC Sta. 302+54.72

-X-OVERI- POT Sta. 304+99.52

-X-OVERI- PT Sta. 304+89.67

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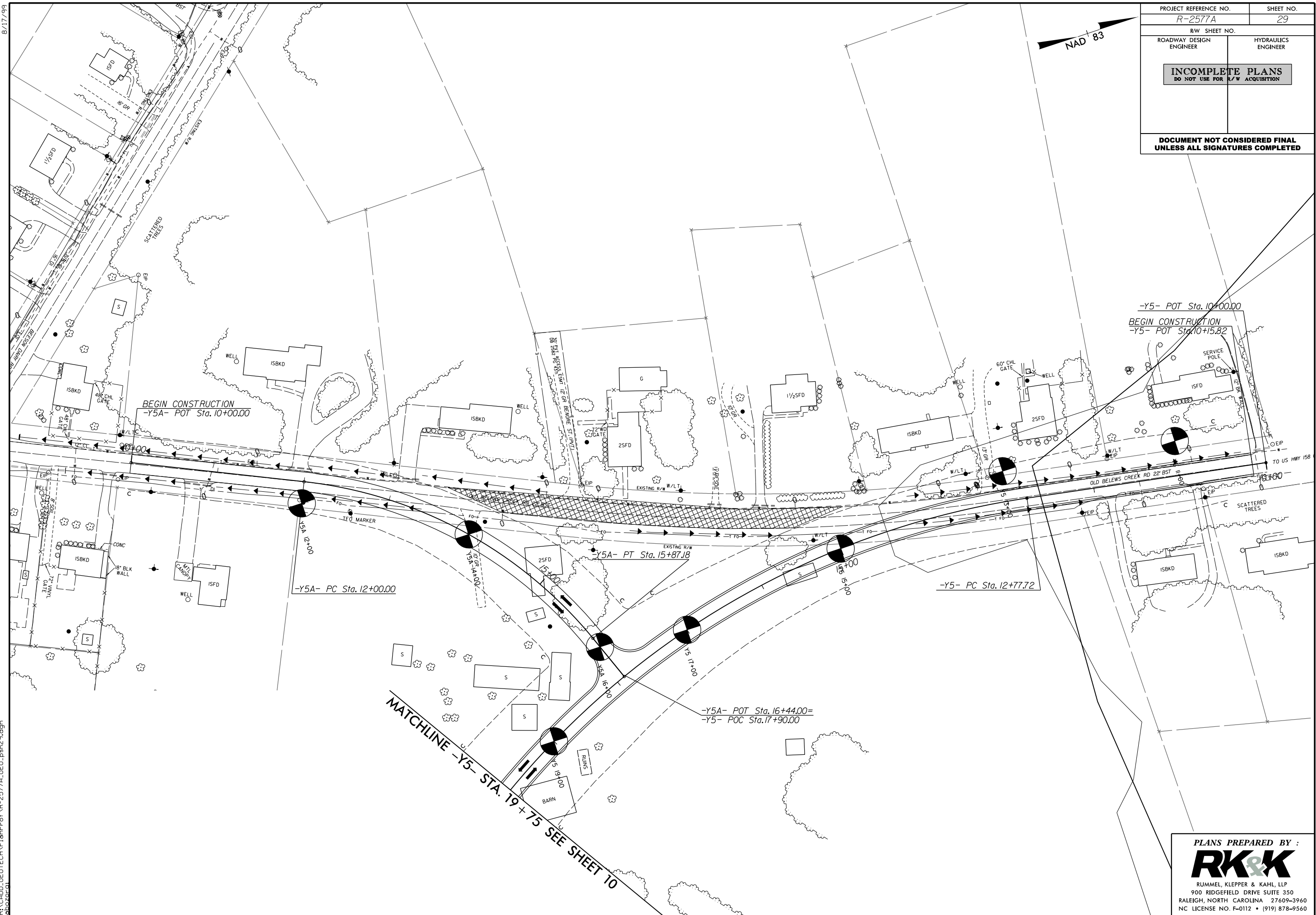
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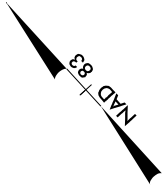
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PROJECT REFERENCE NO. <i>R-2577A</i>		SHEET NO. <i>29</i>	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
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<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			

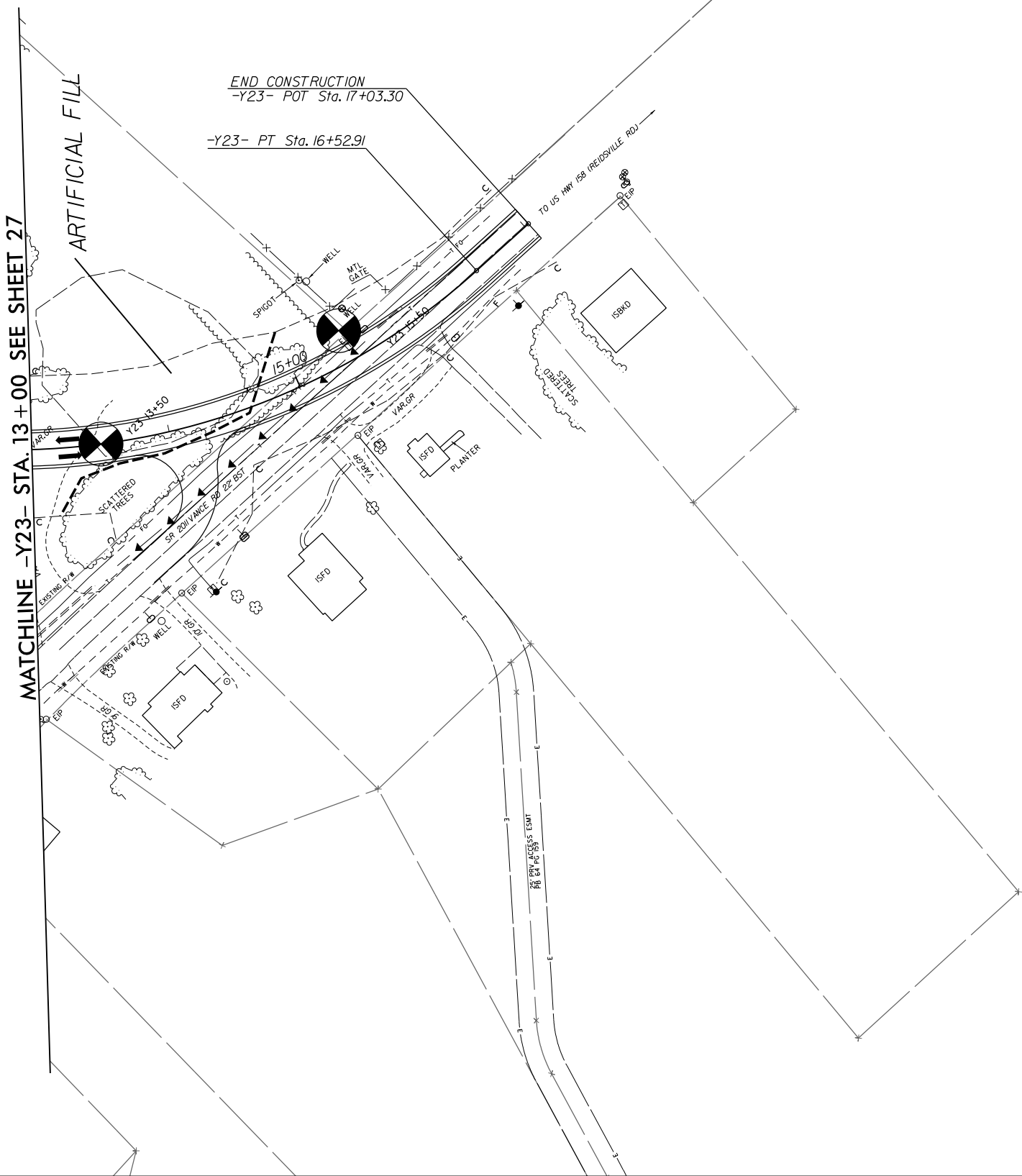


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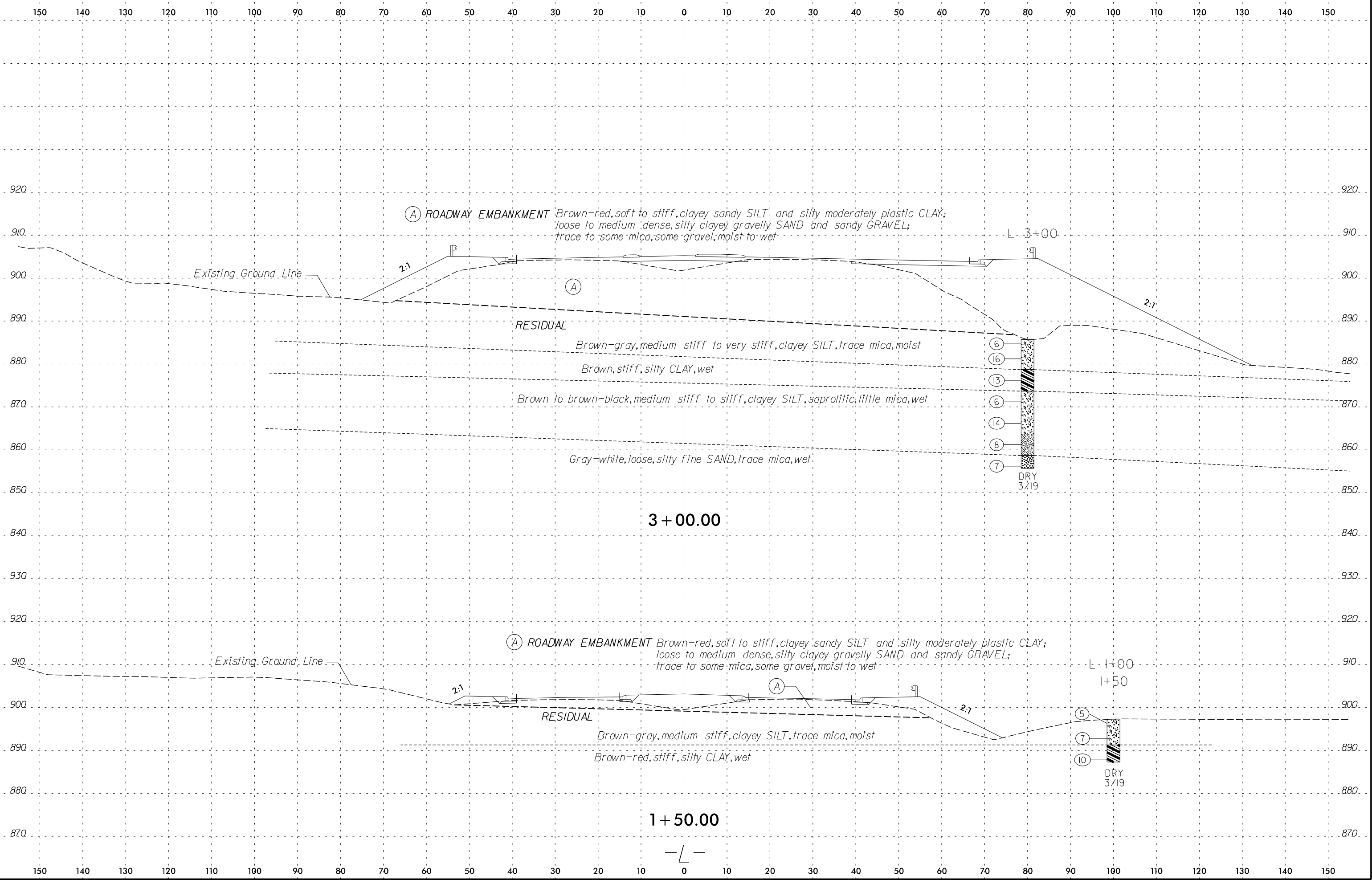
PROJECT REFERENCE NO. R-2577A	SHEET NO. 30
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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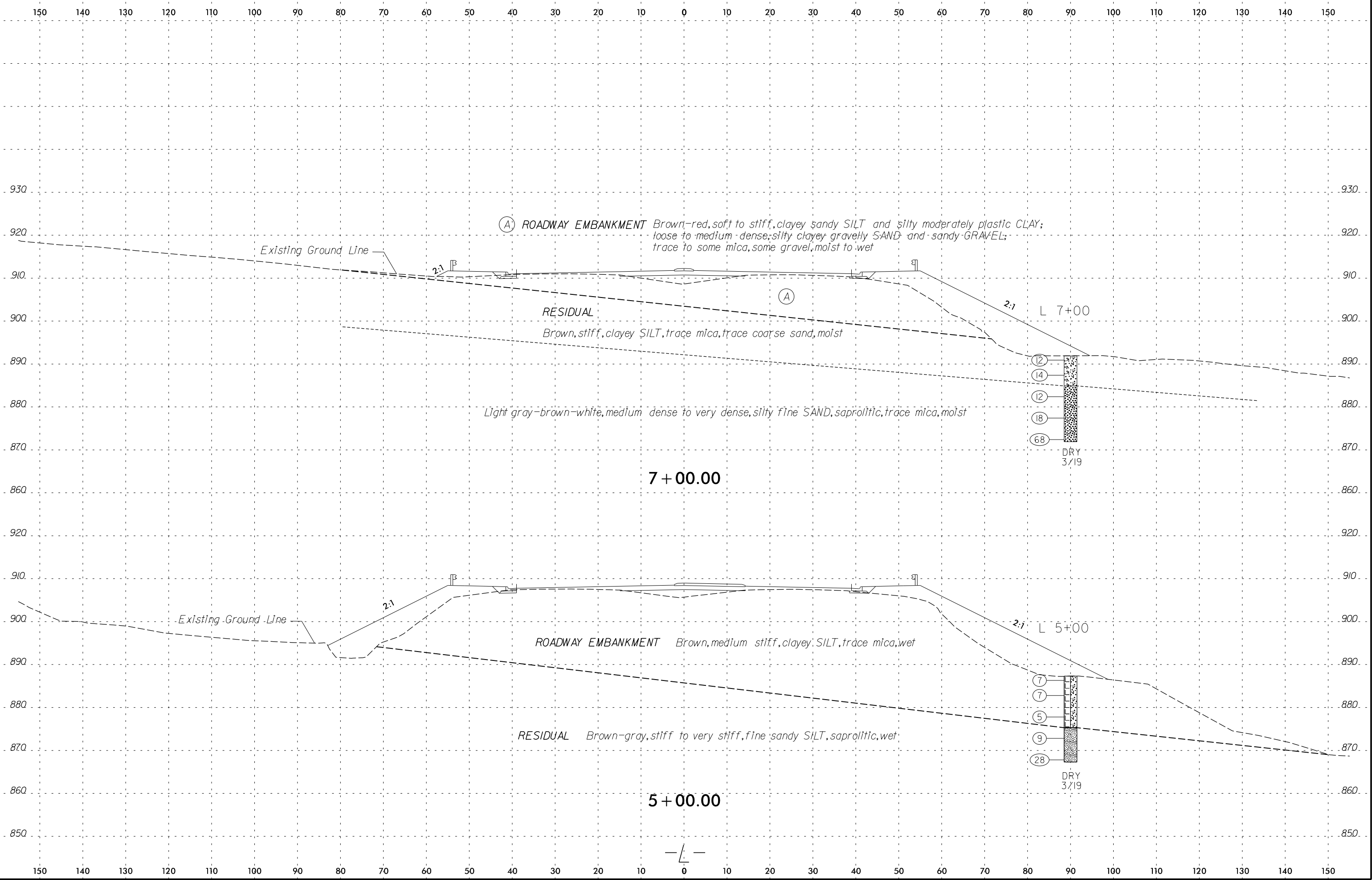


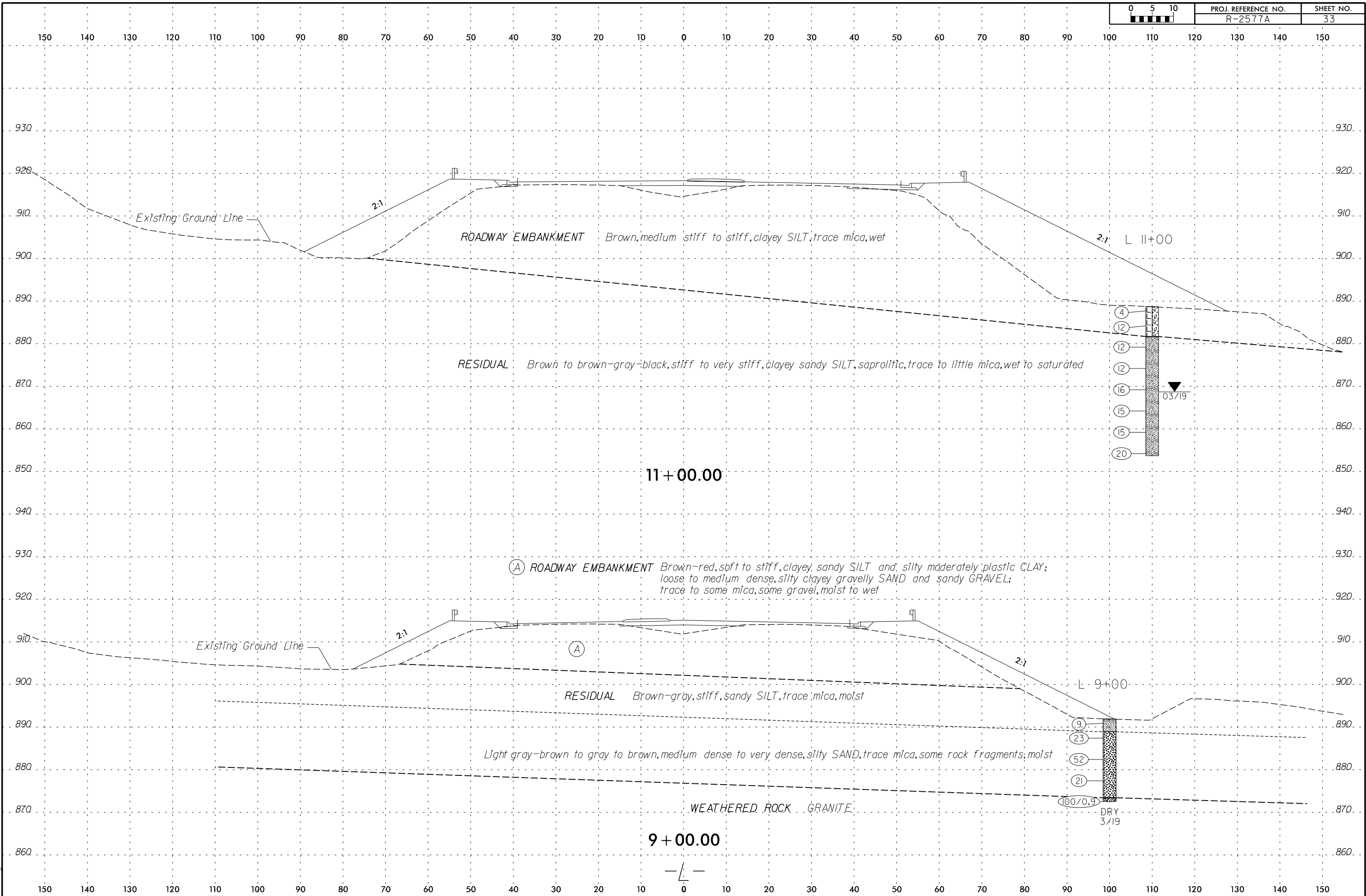
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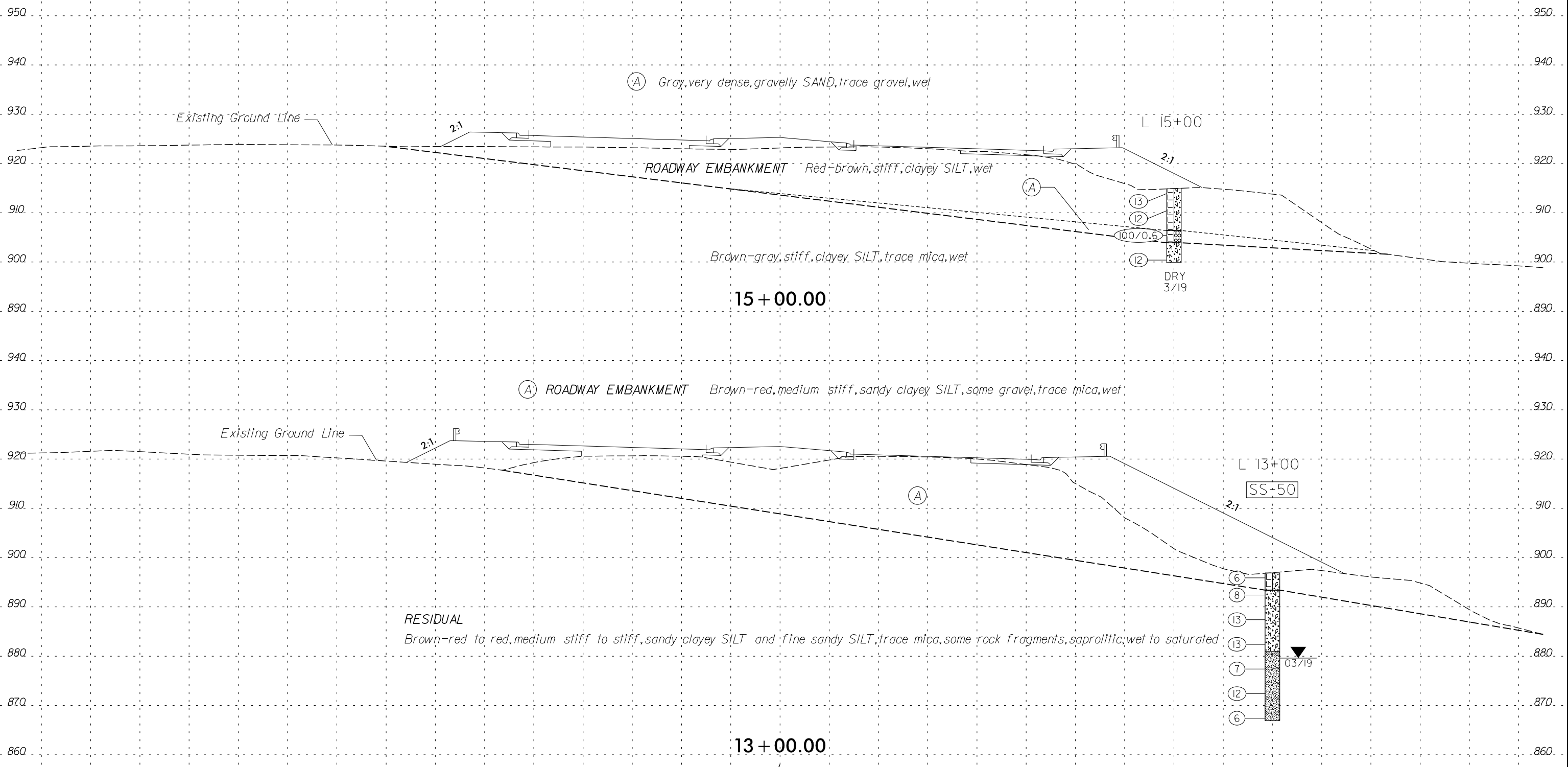
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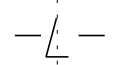


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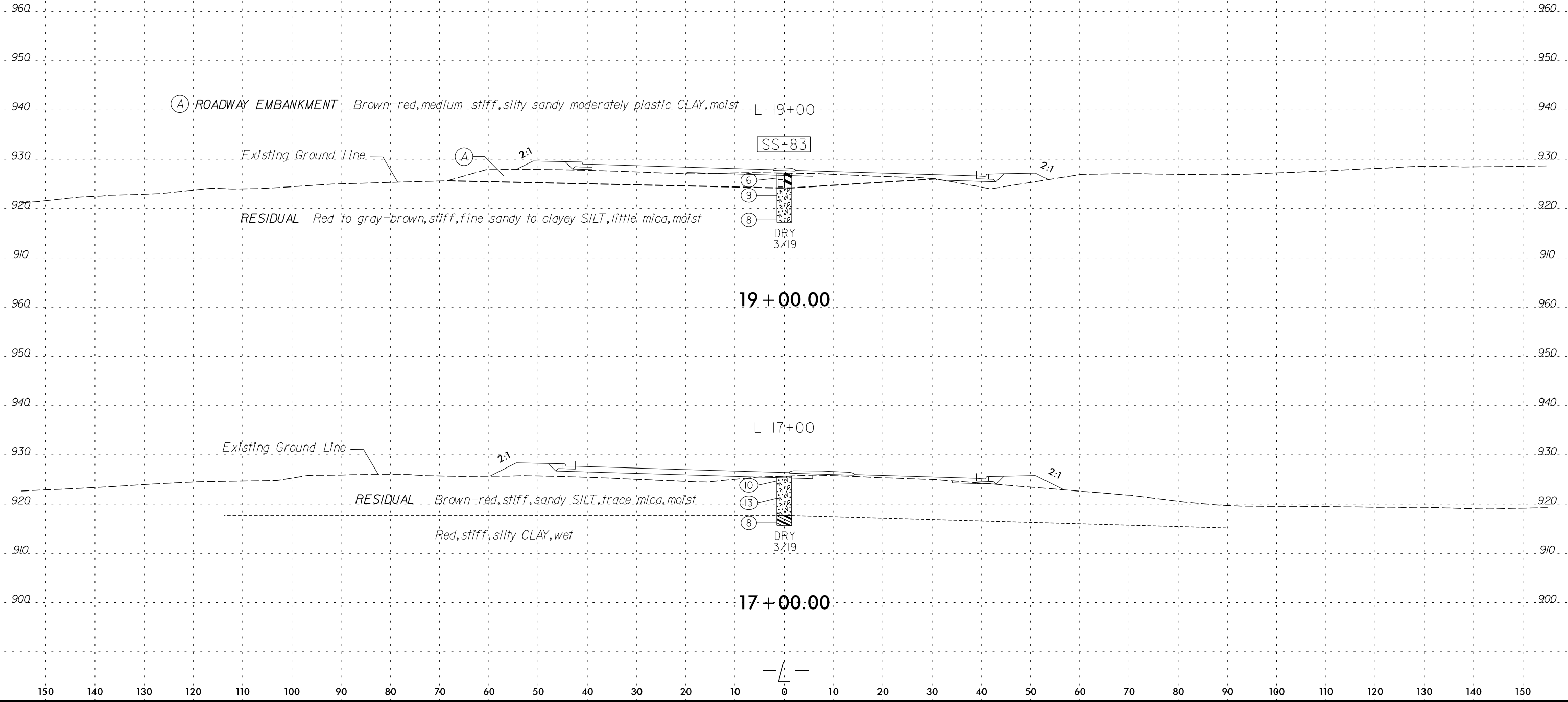


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13 + 00.00

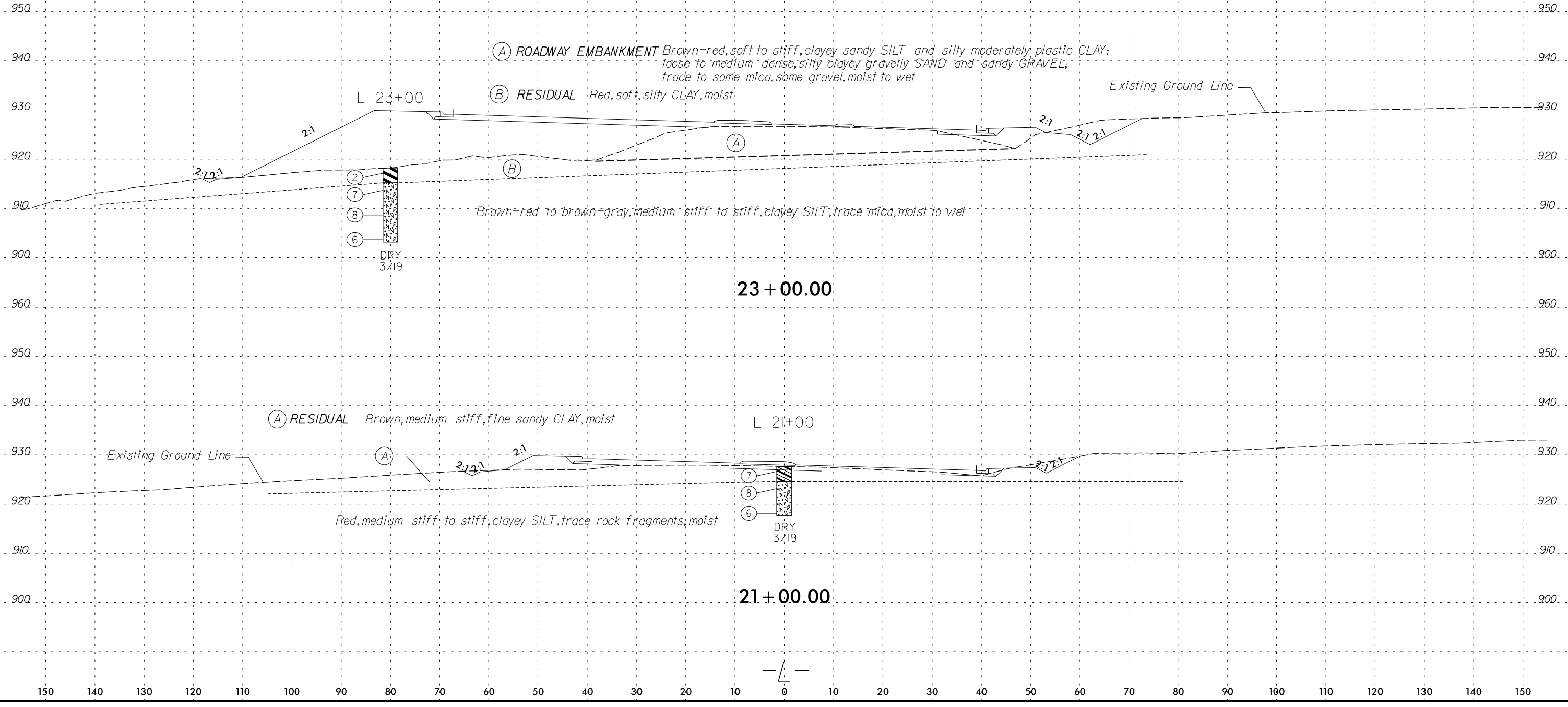


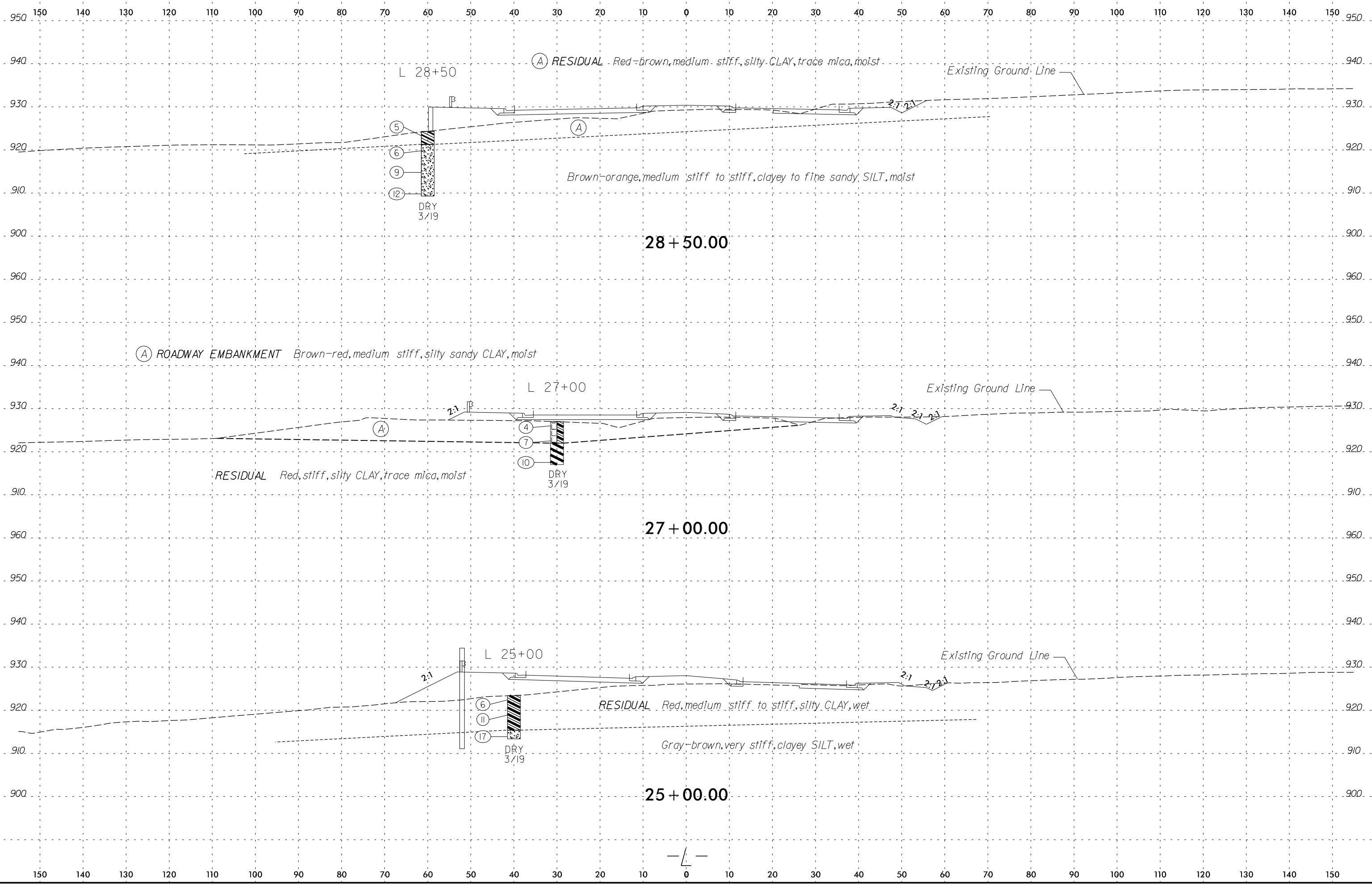
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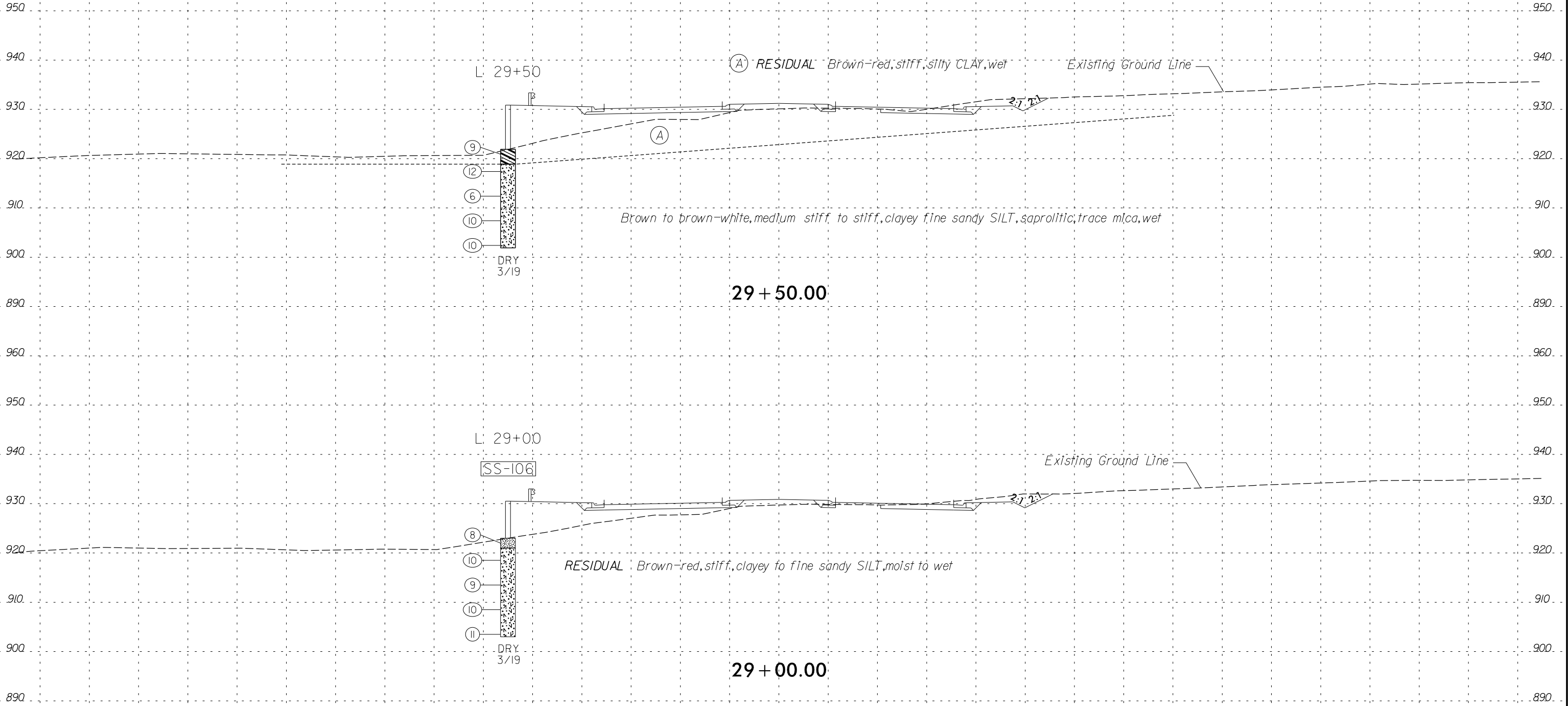
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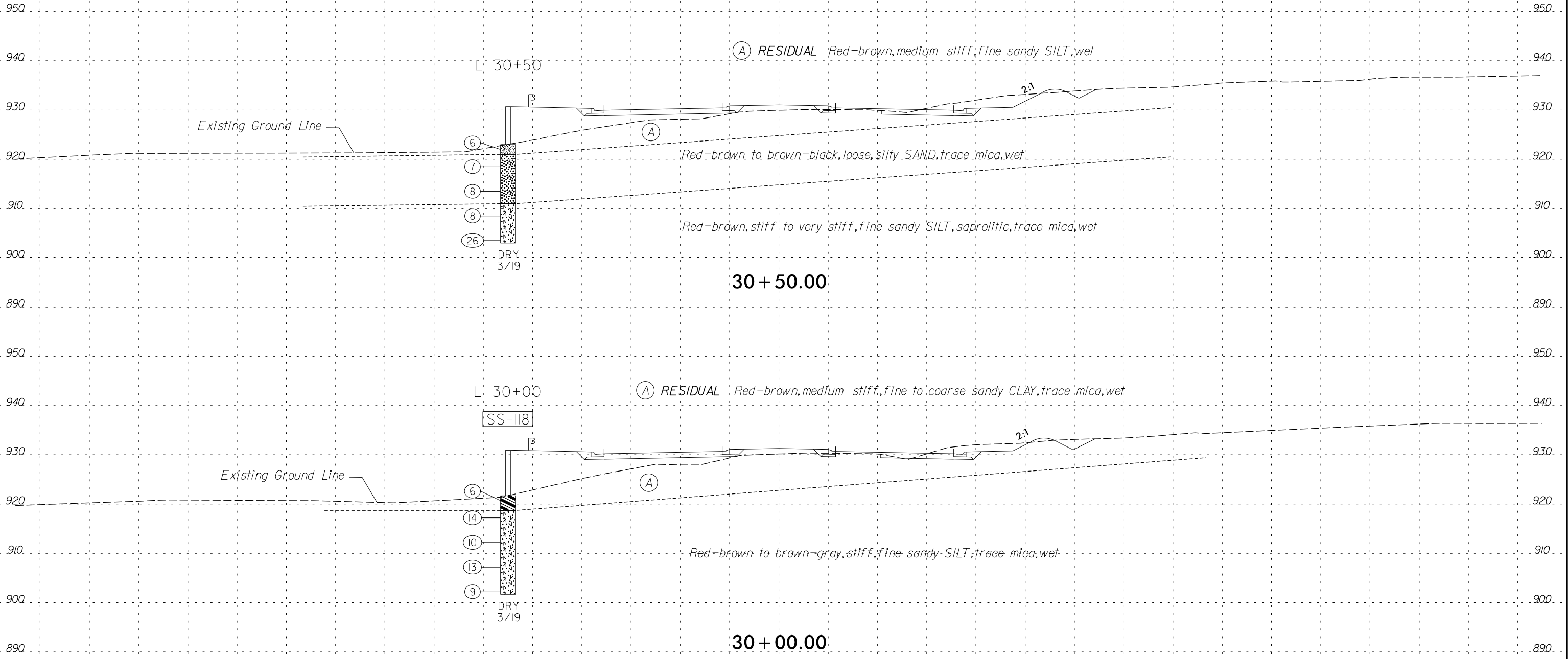




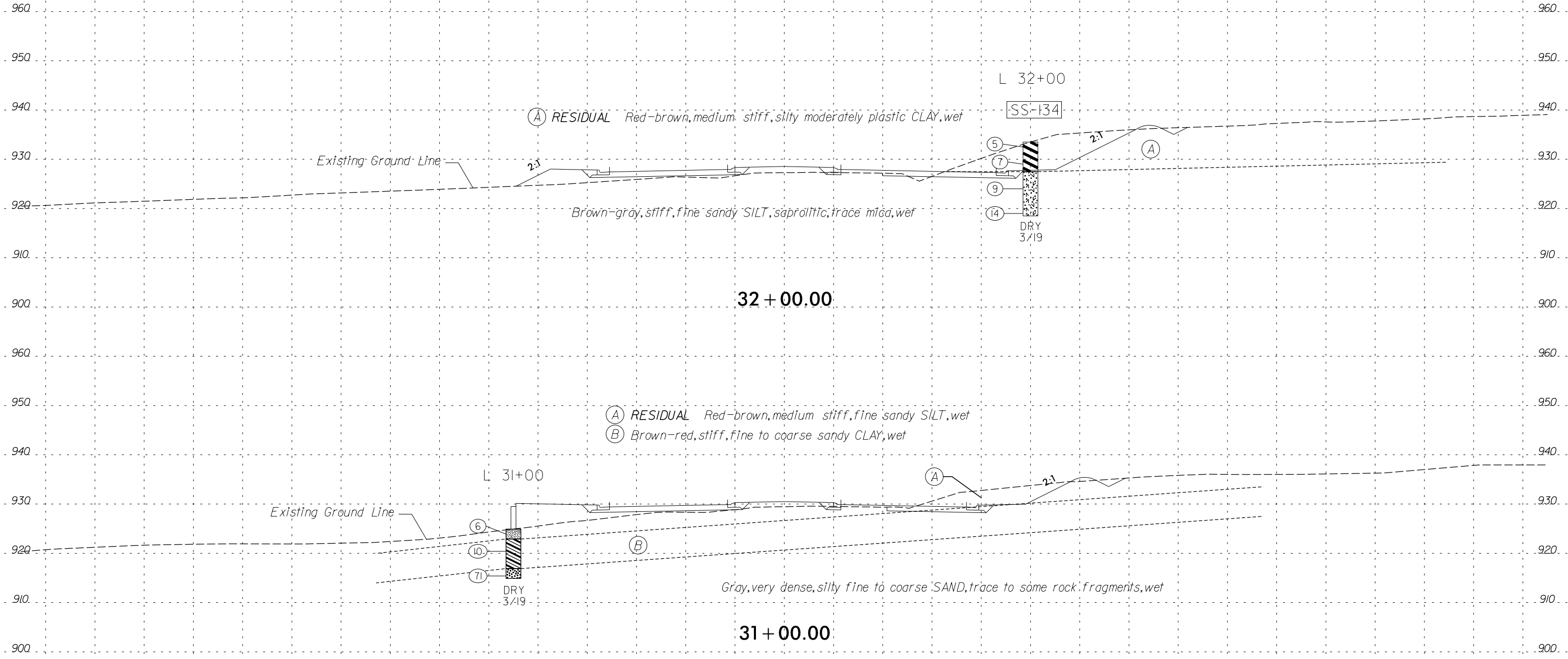
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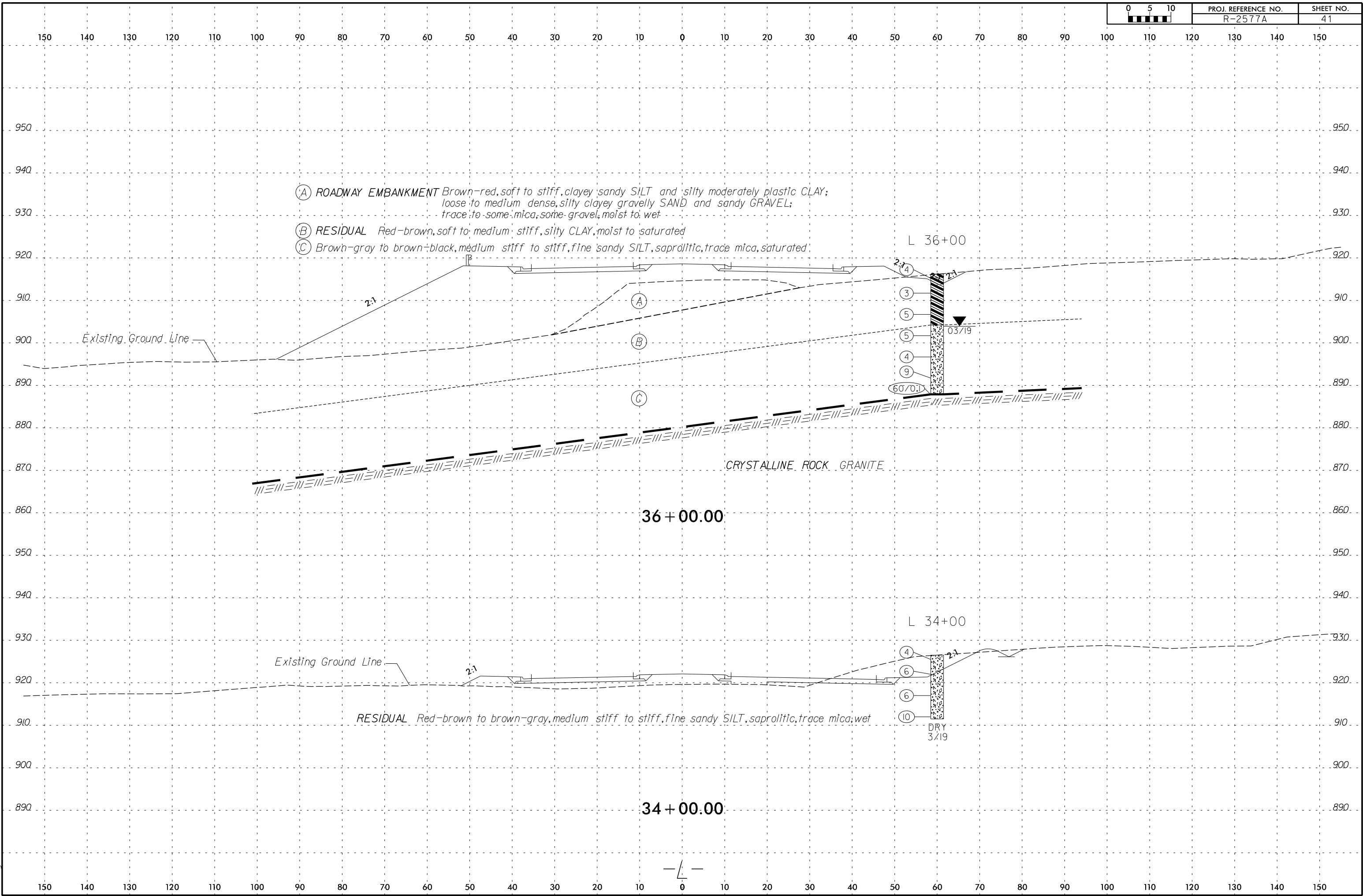
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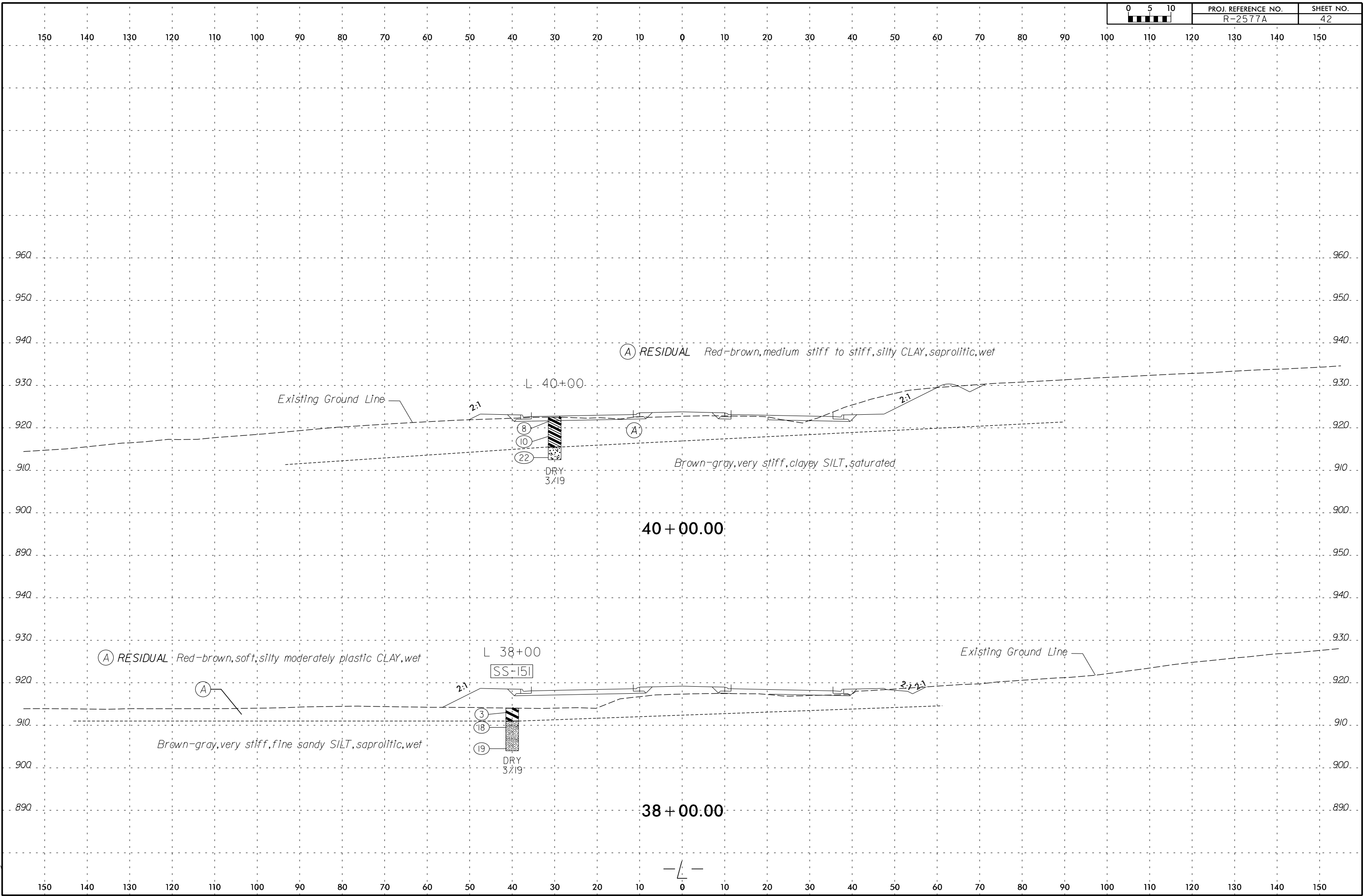


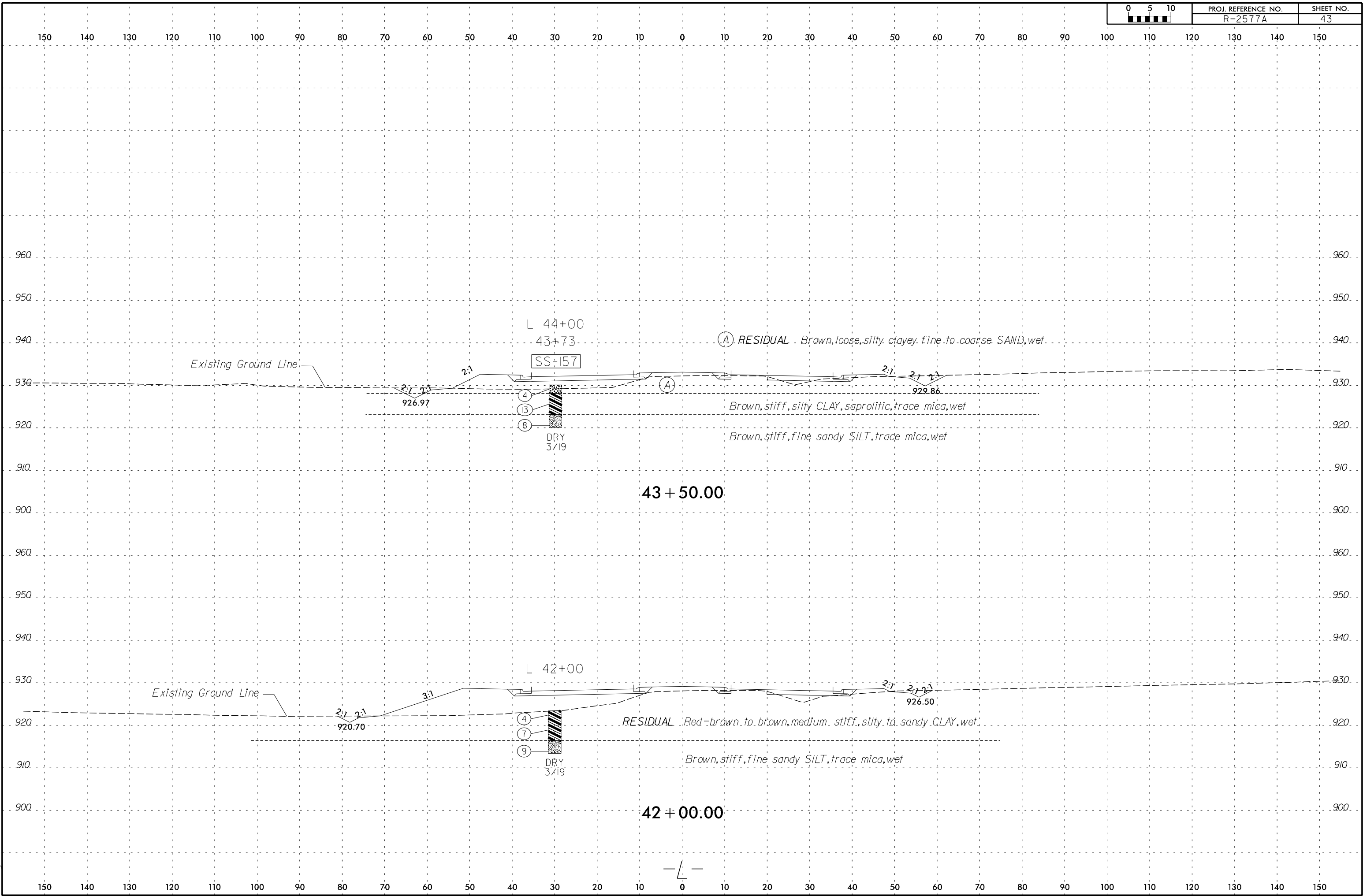
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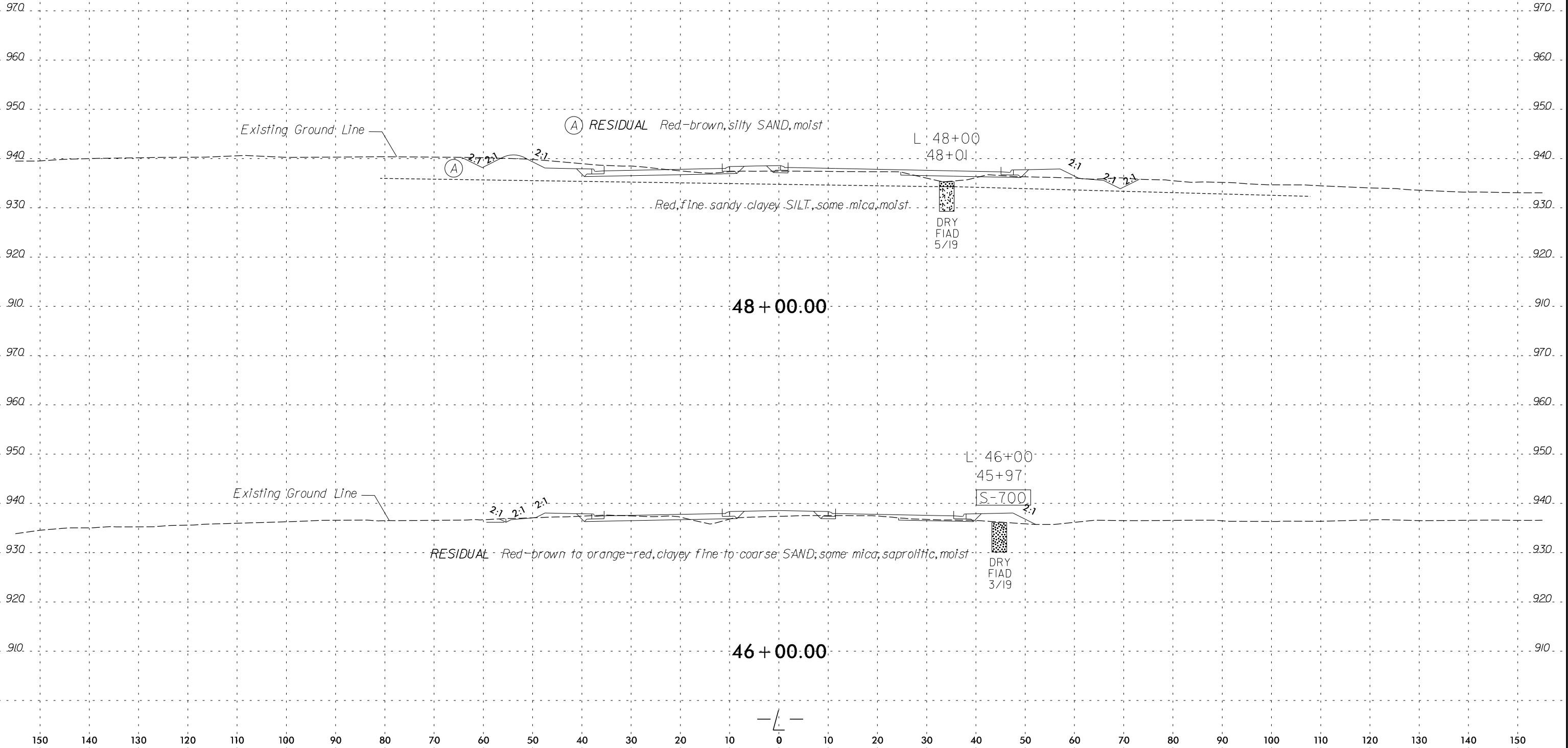
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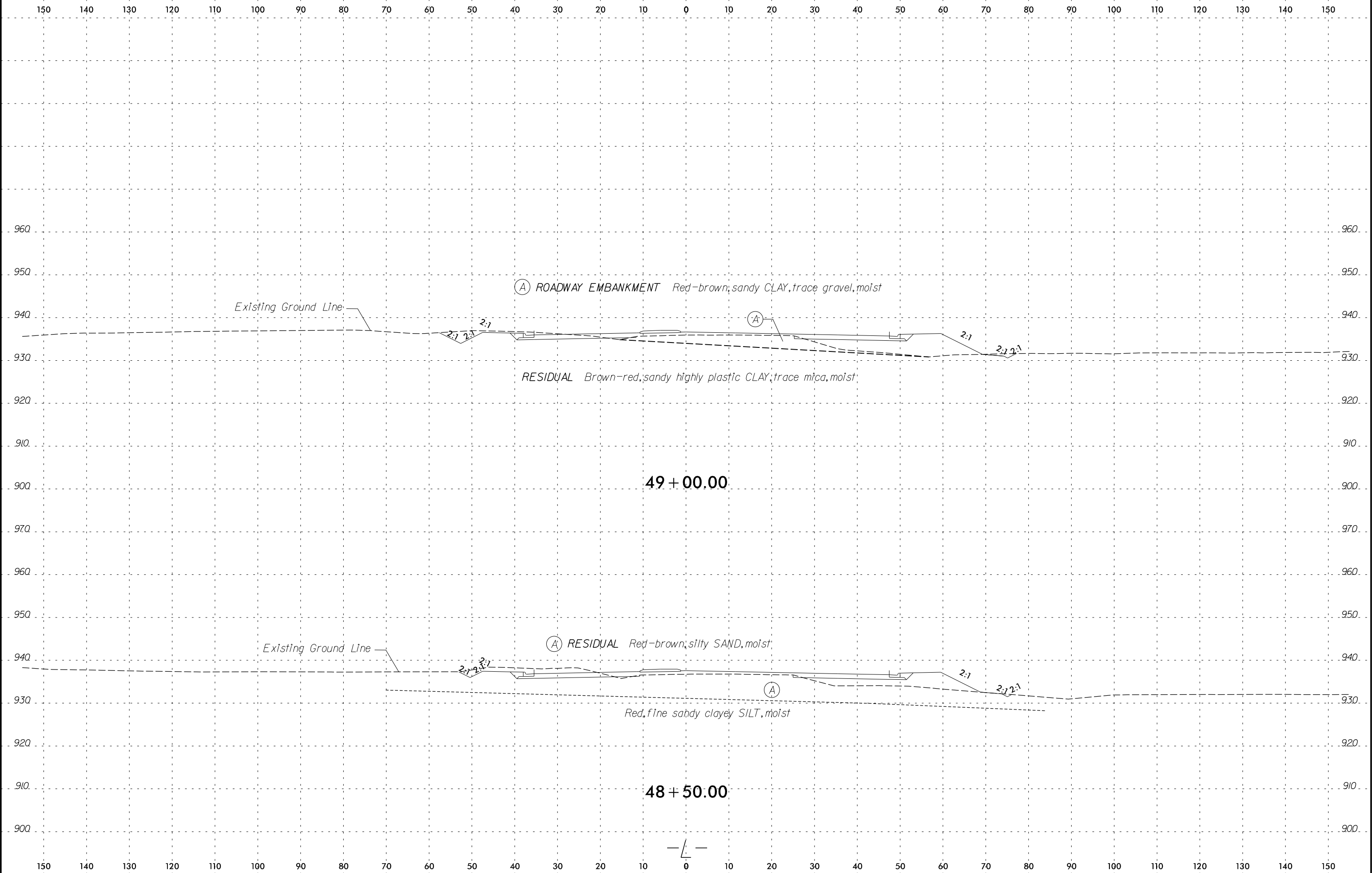




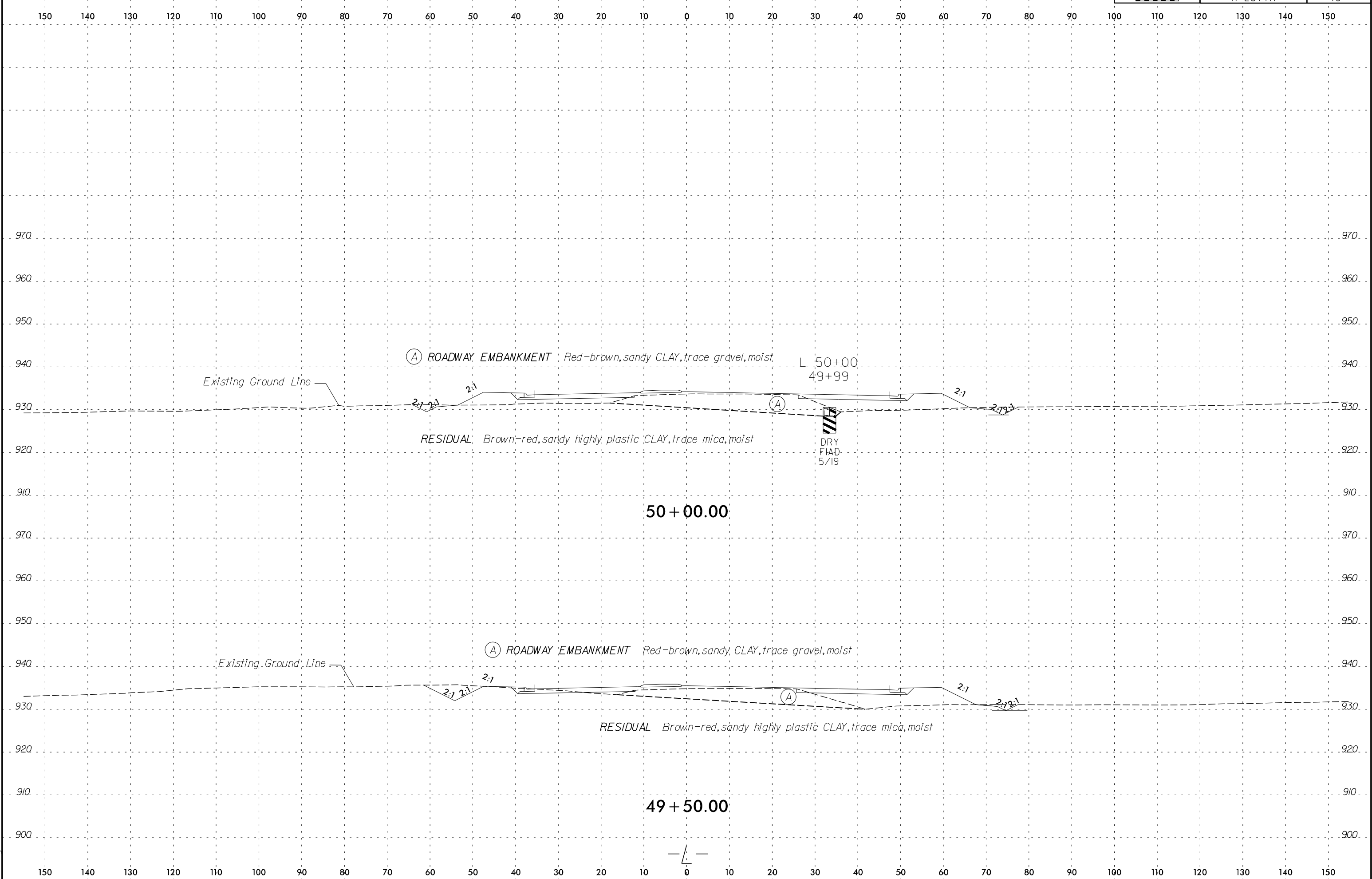
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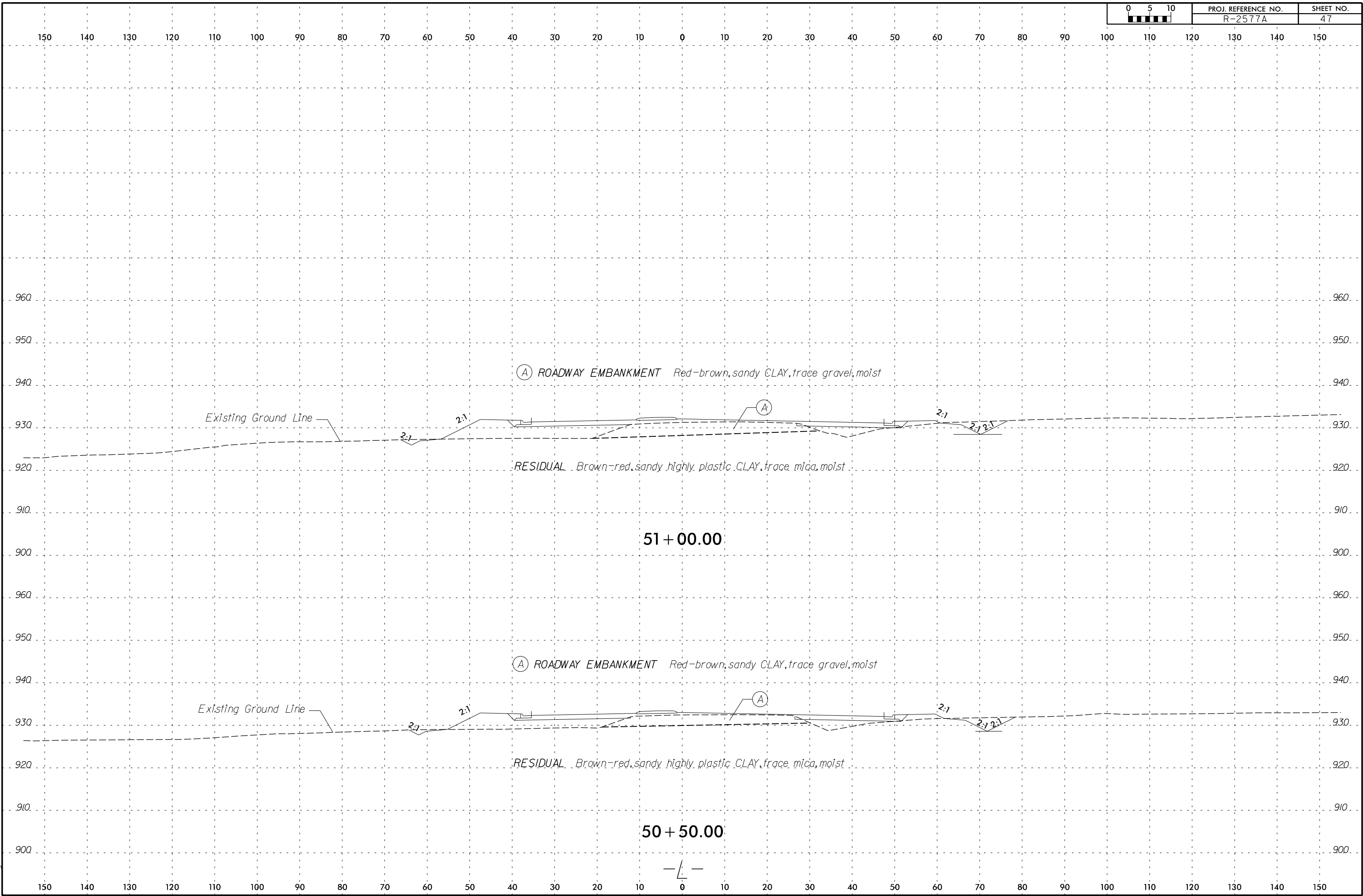


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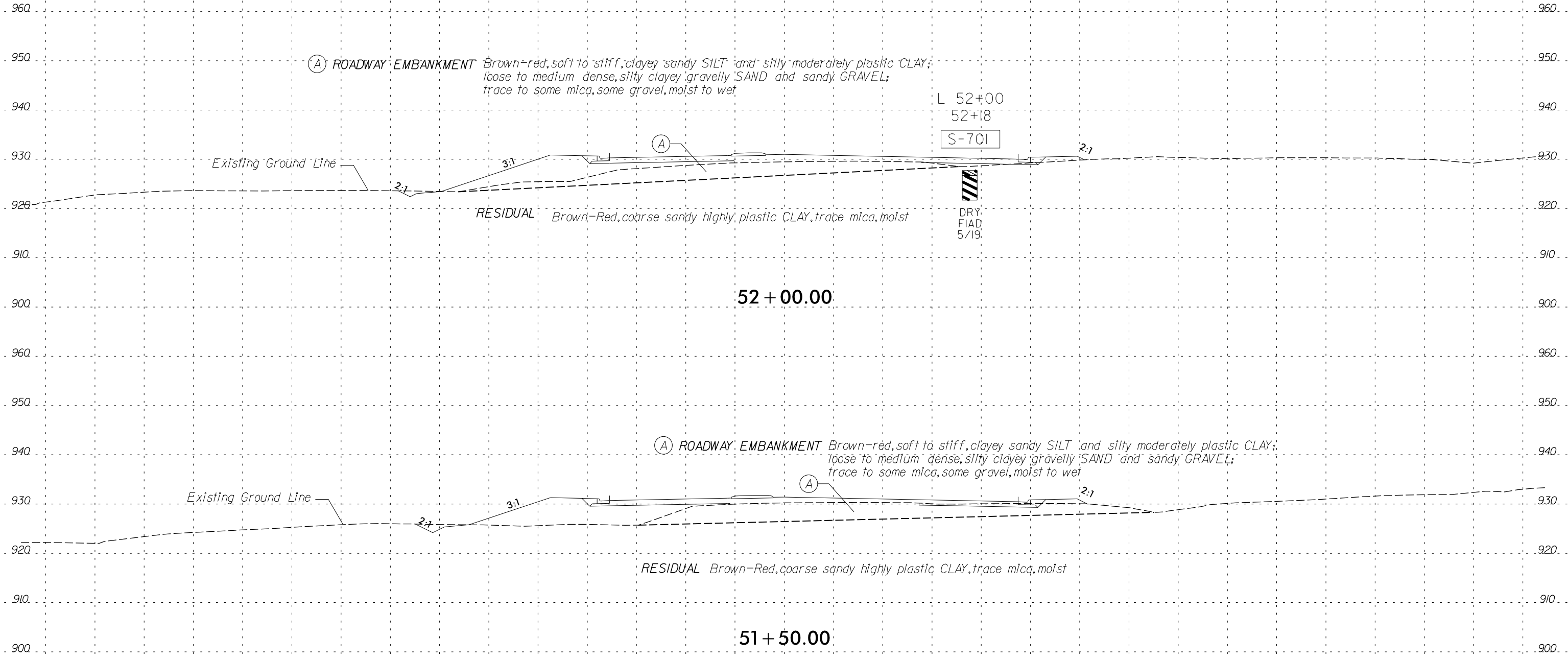






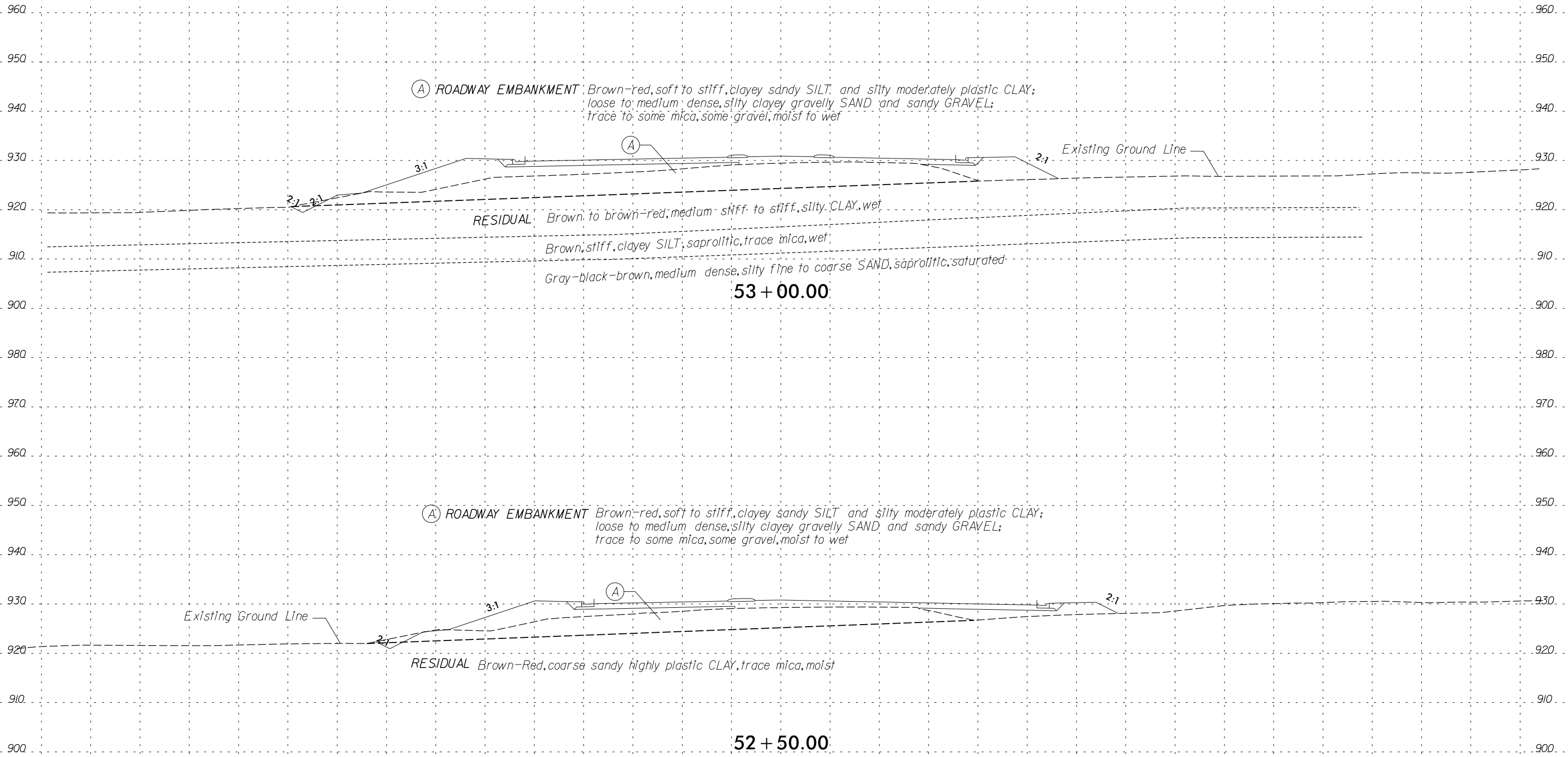


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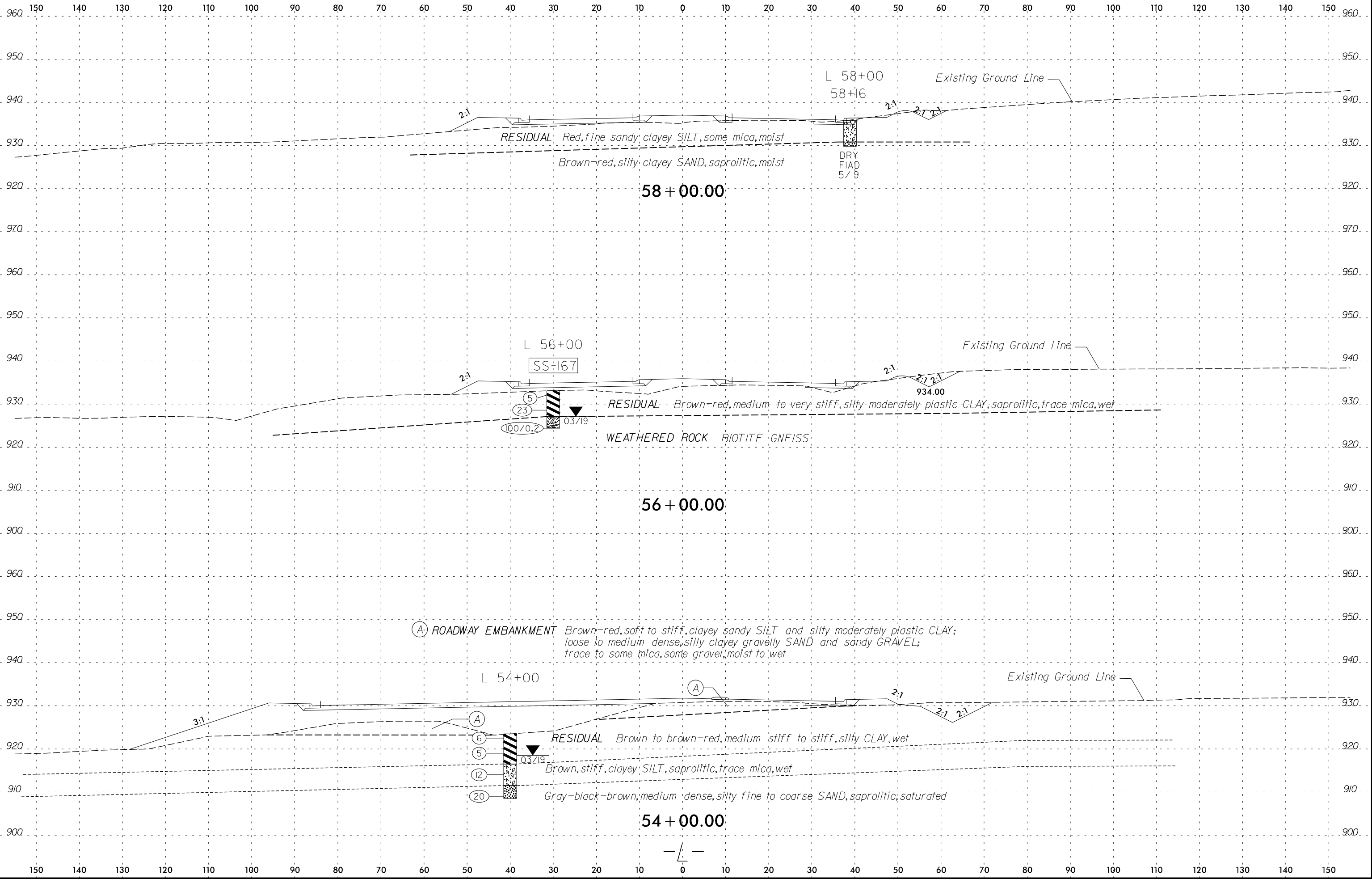
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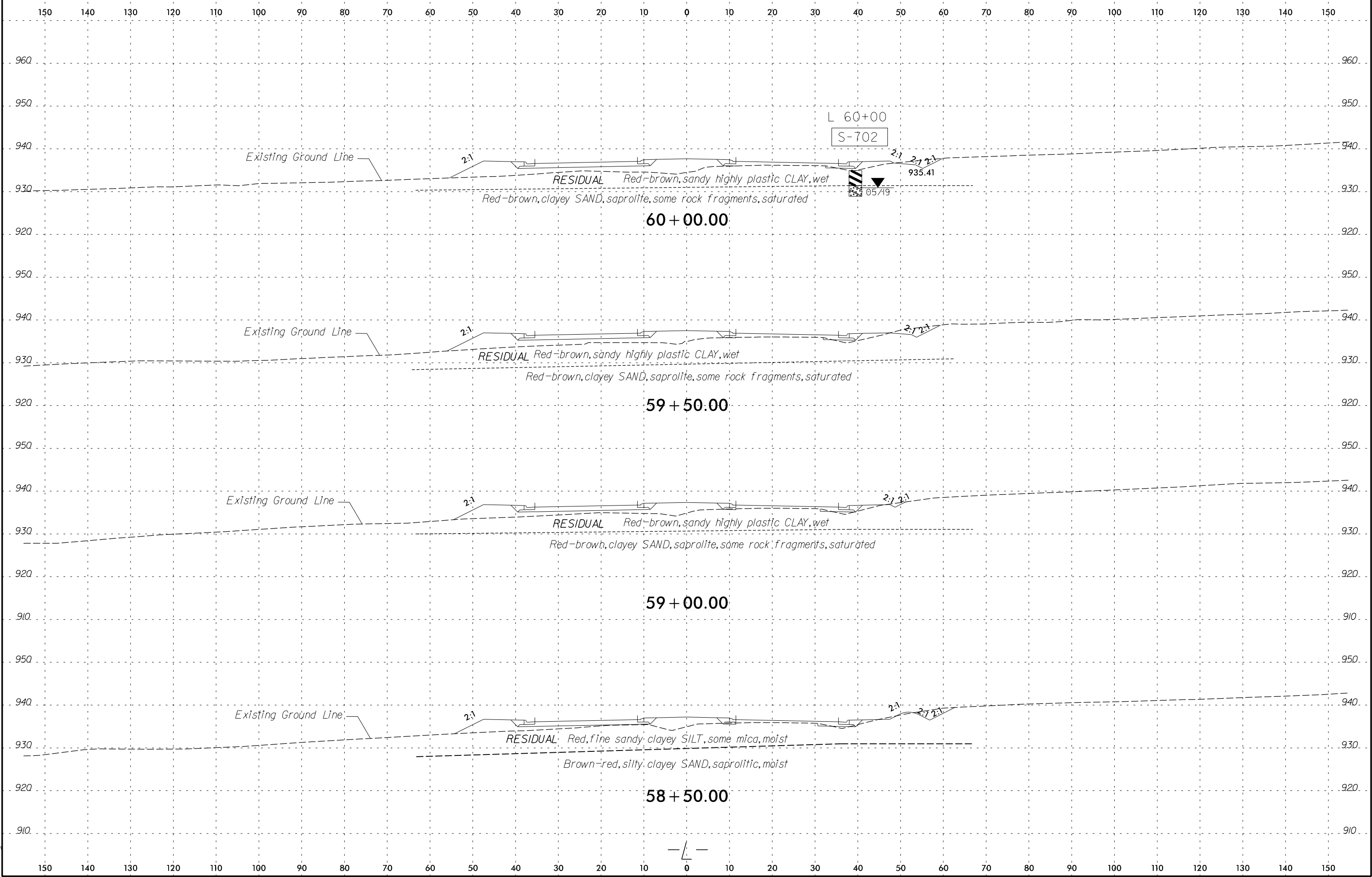
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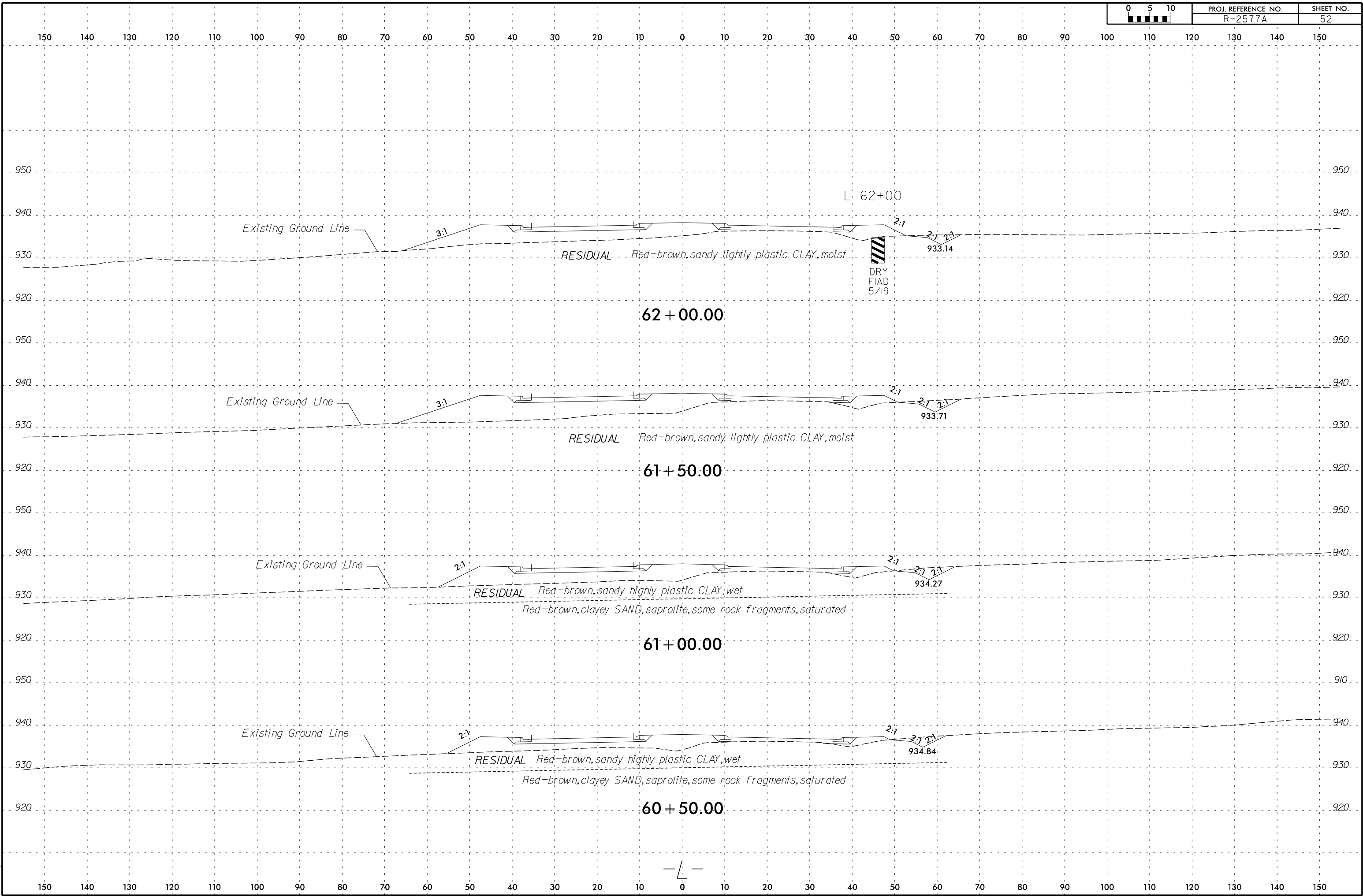


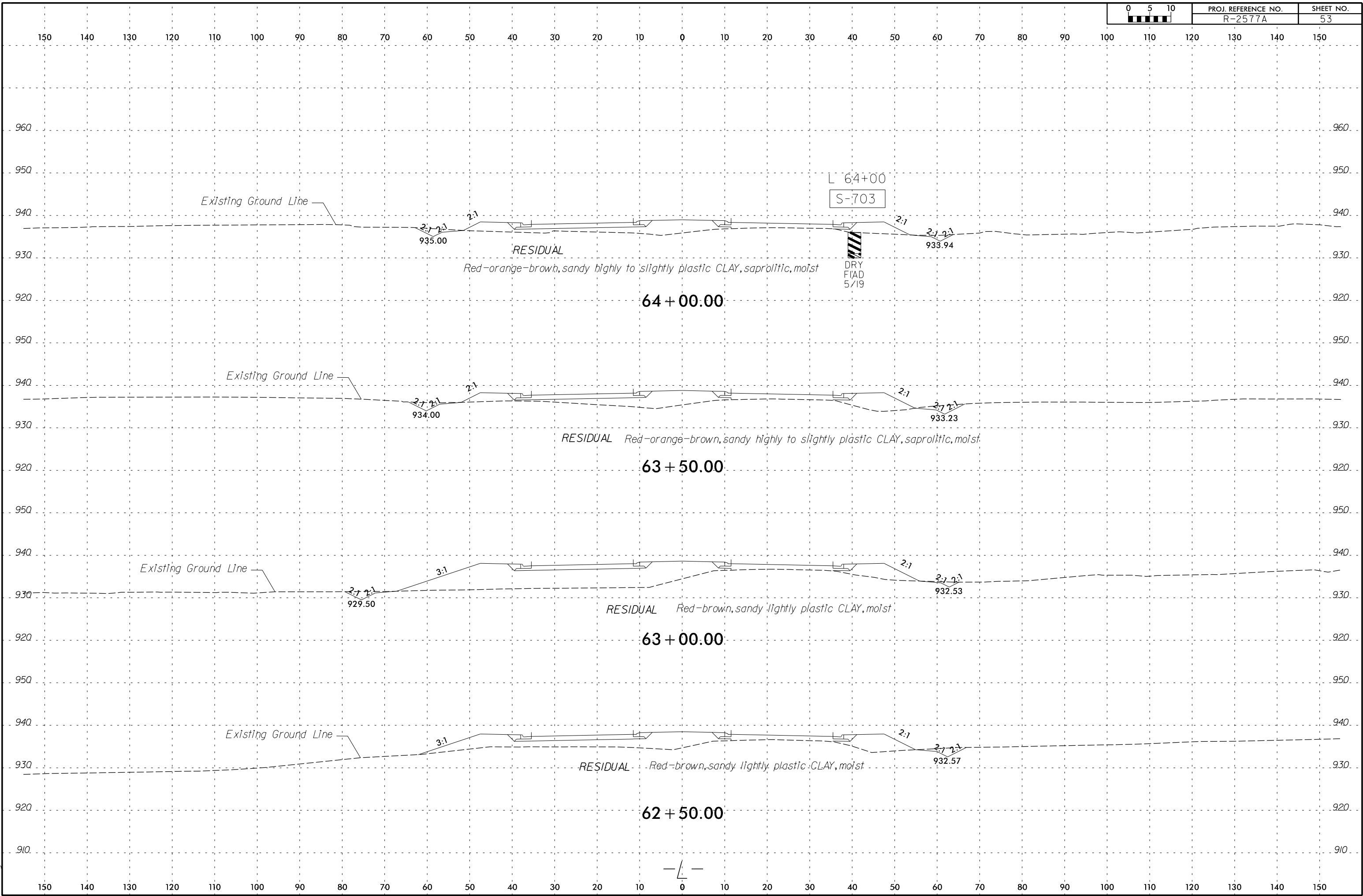
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52 + 50.00

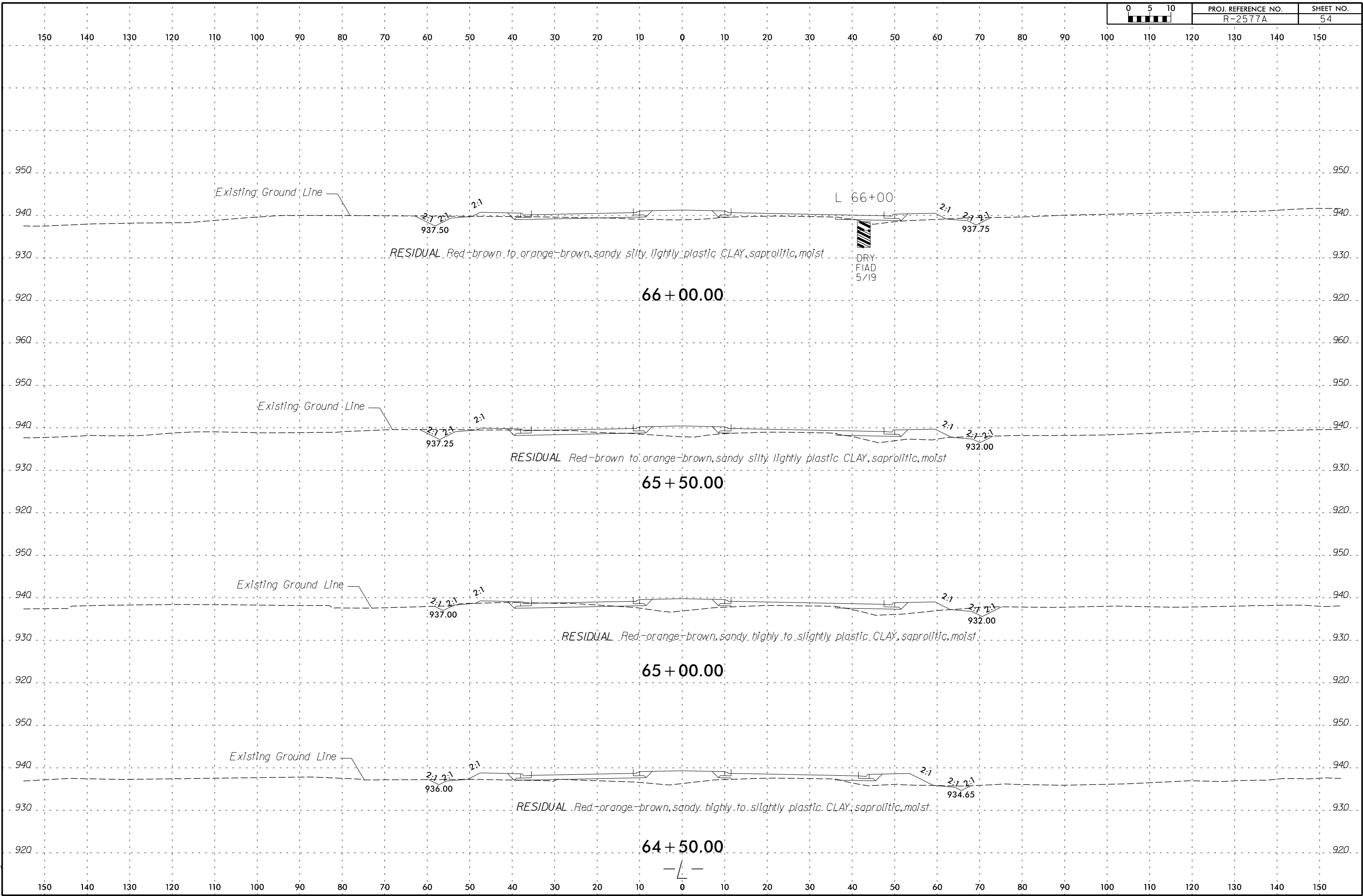


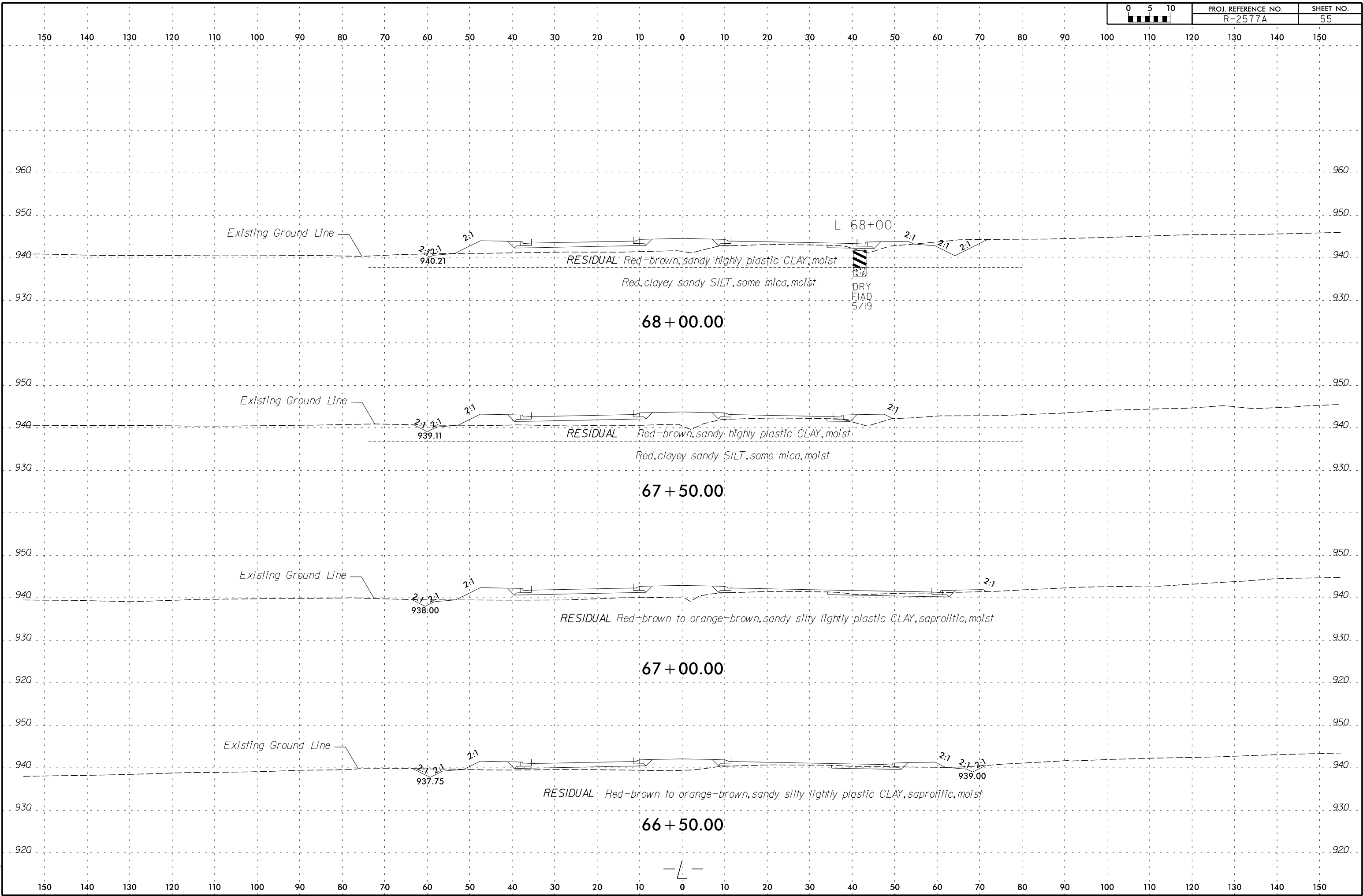


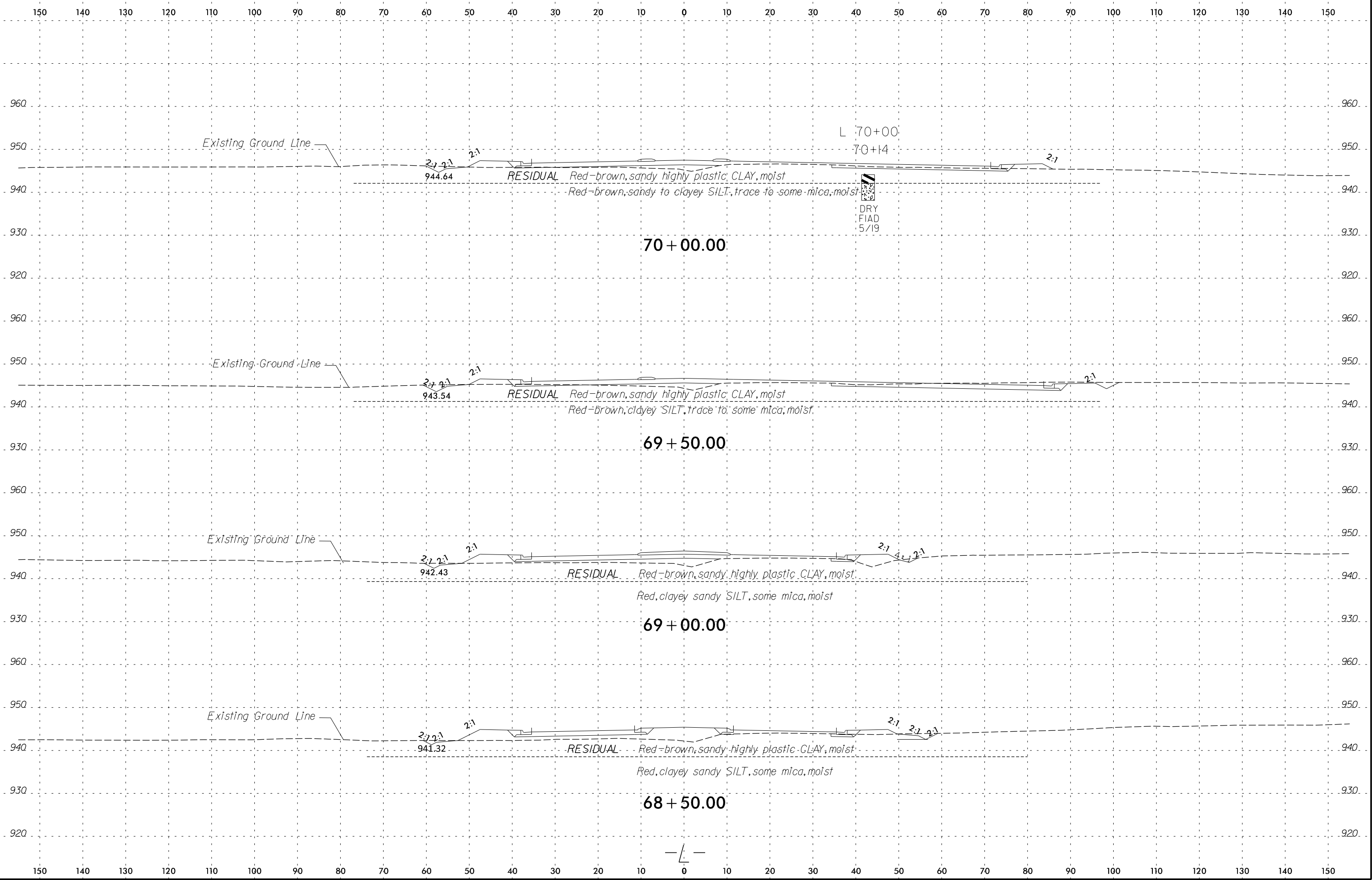


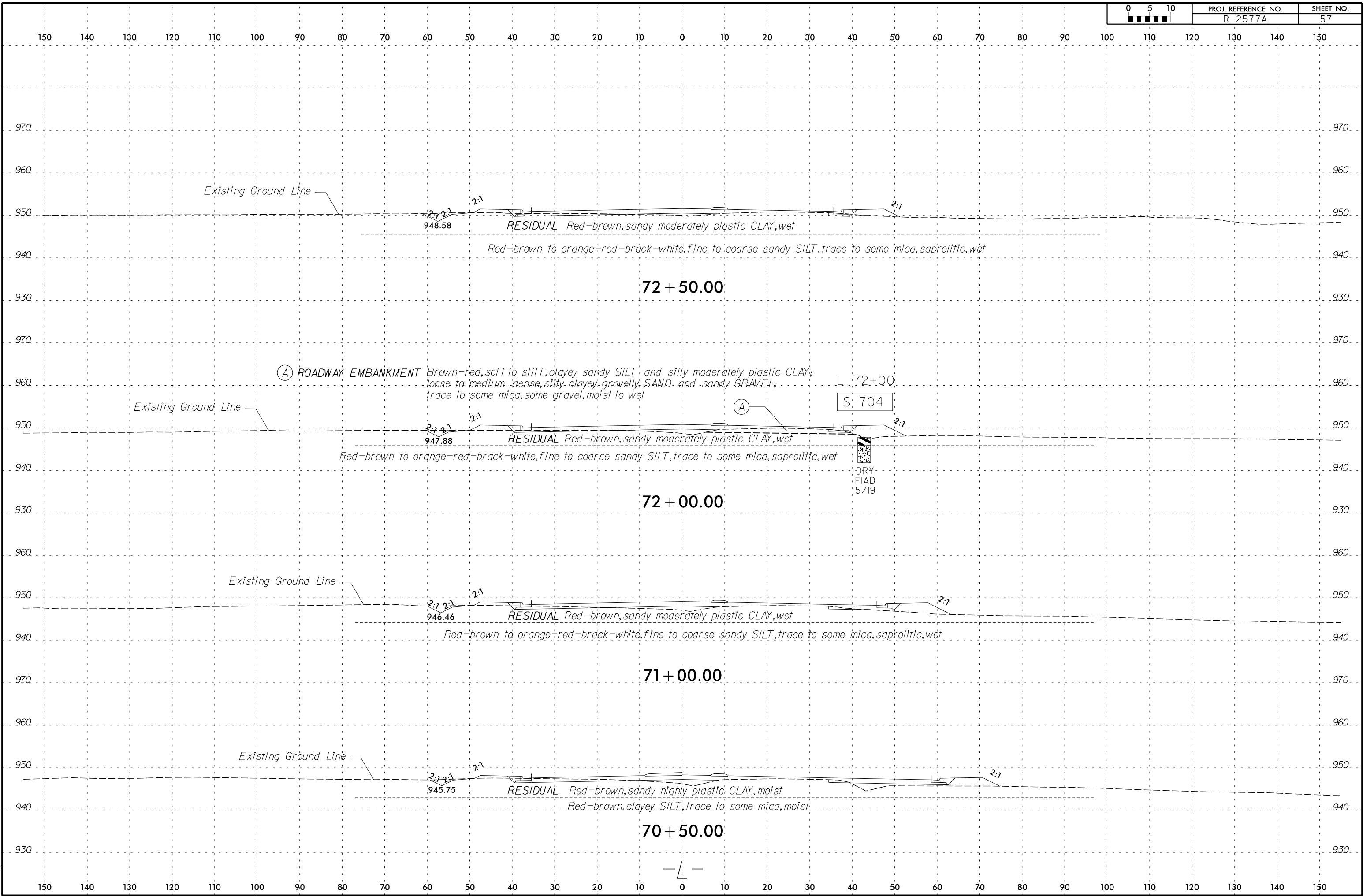


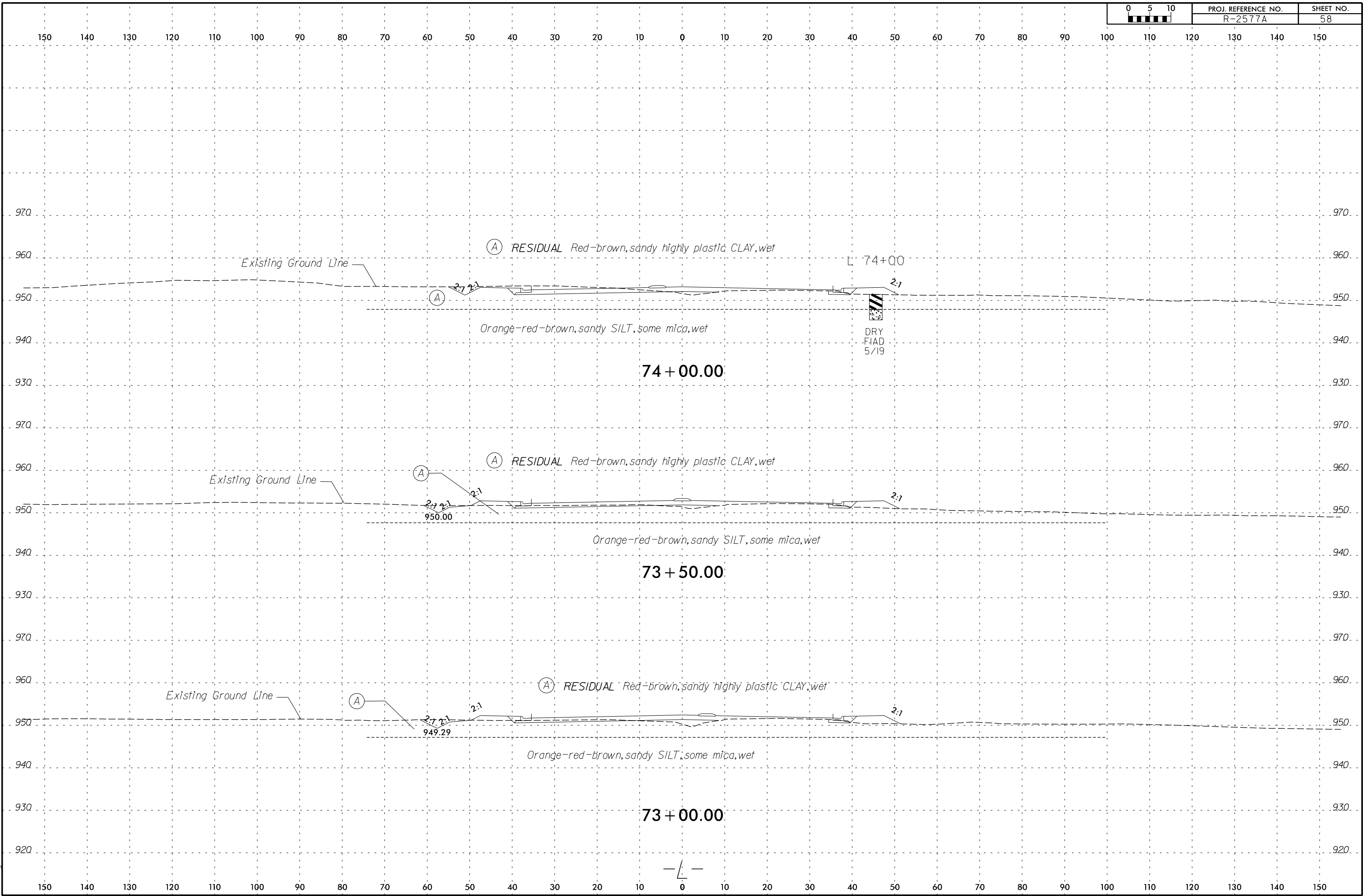




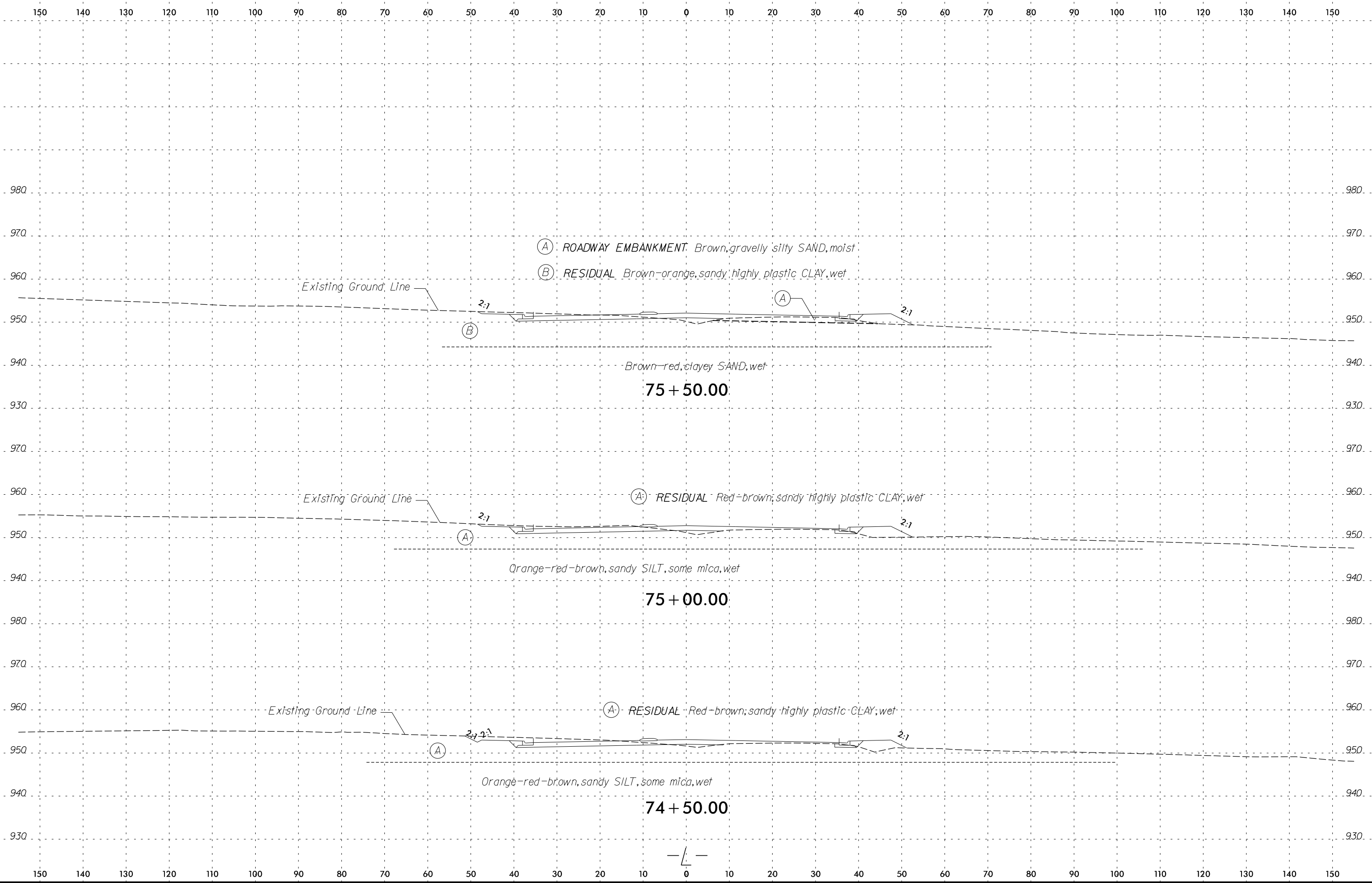




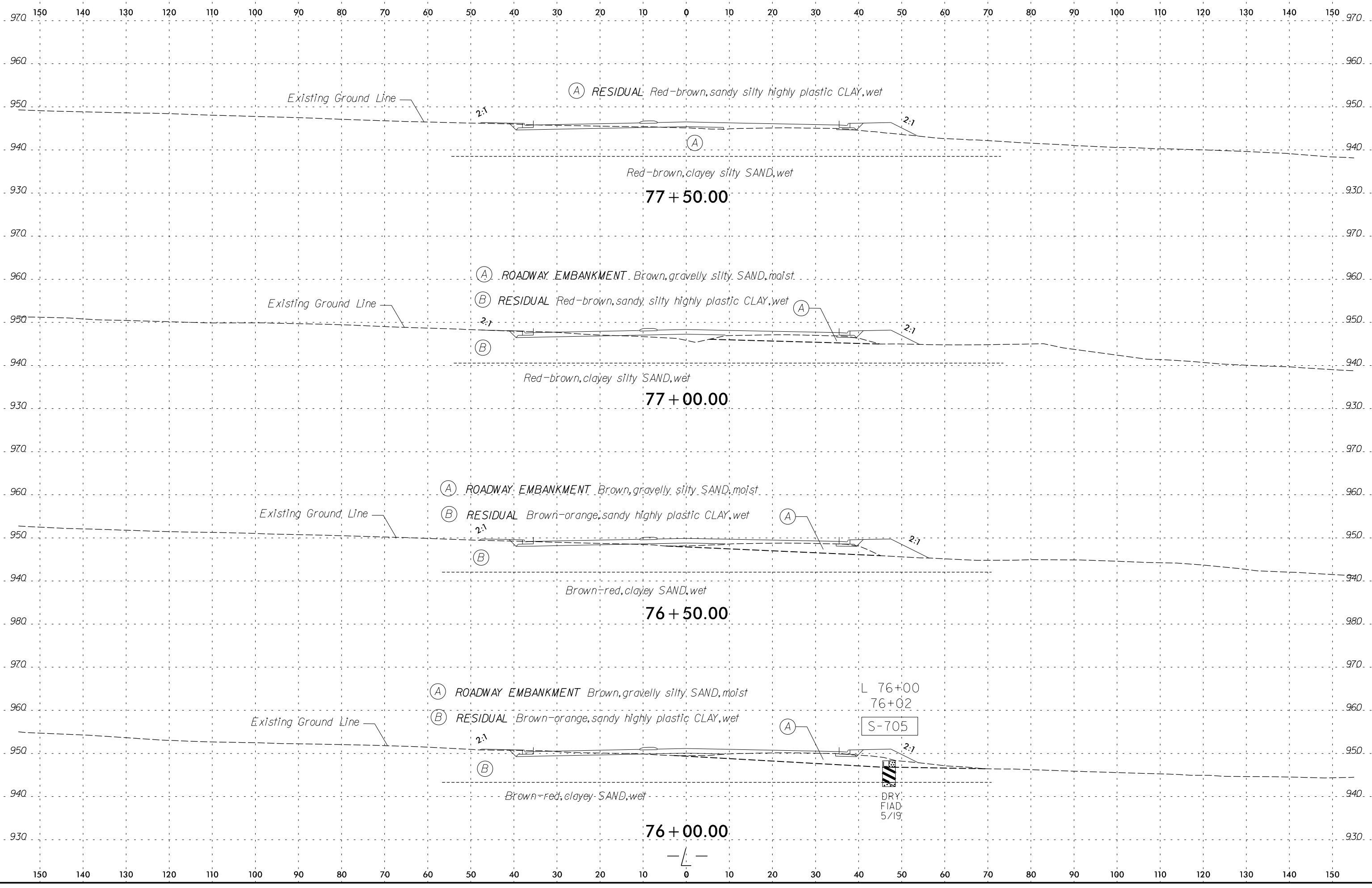




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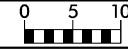


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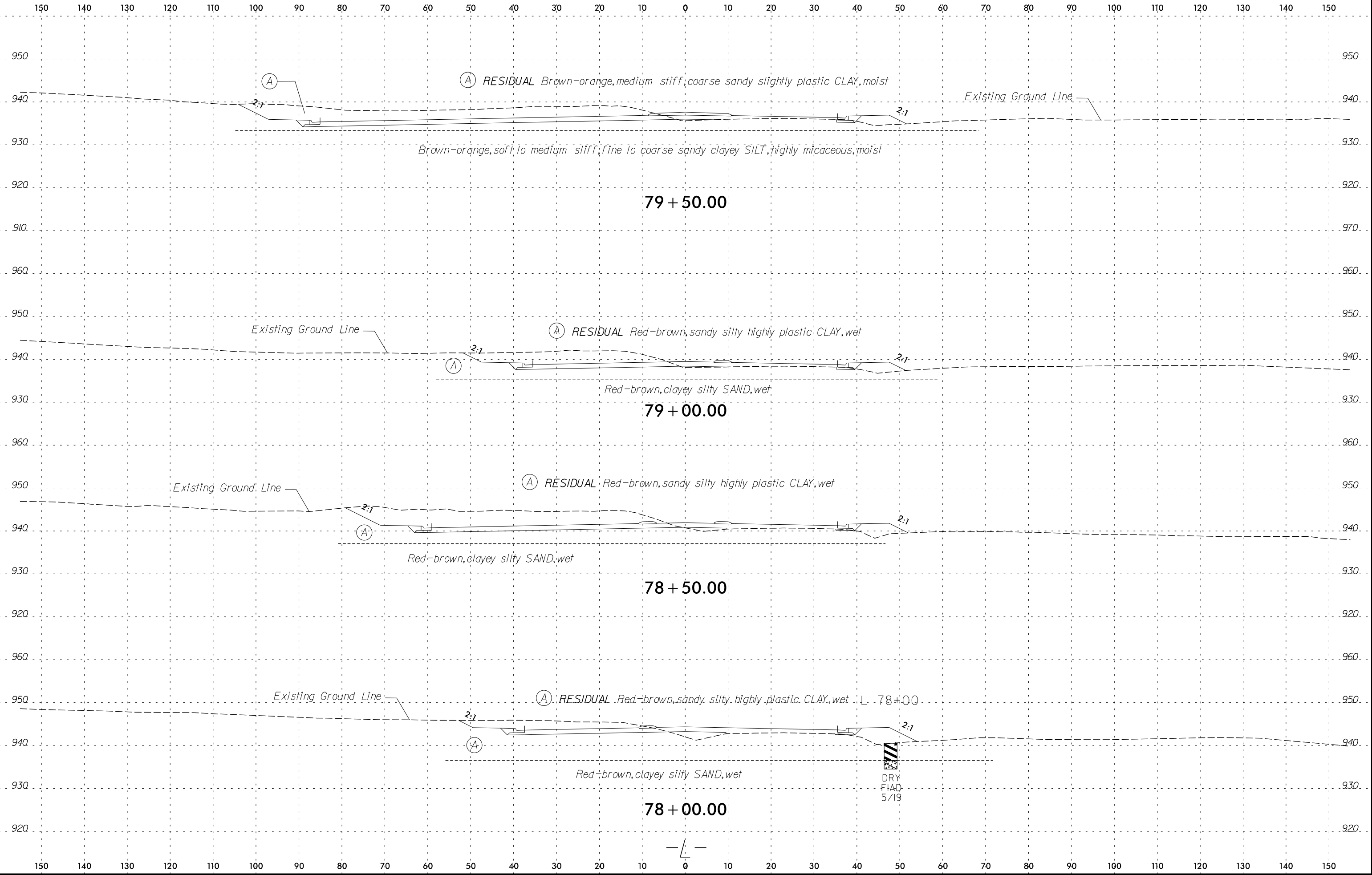
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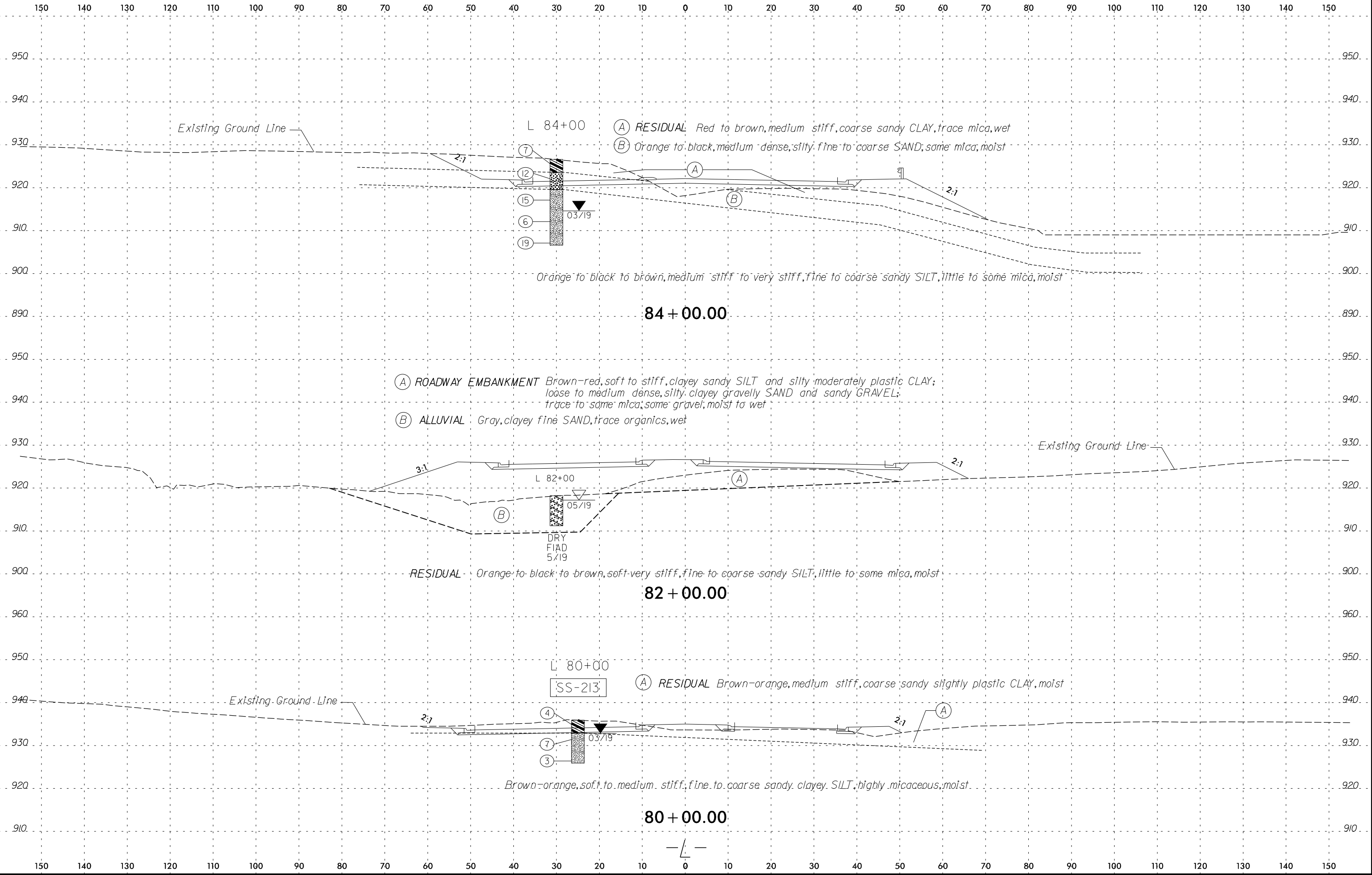
PROJ. REFERENCE NO.  
R-2577A

SHEET NO.  
61

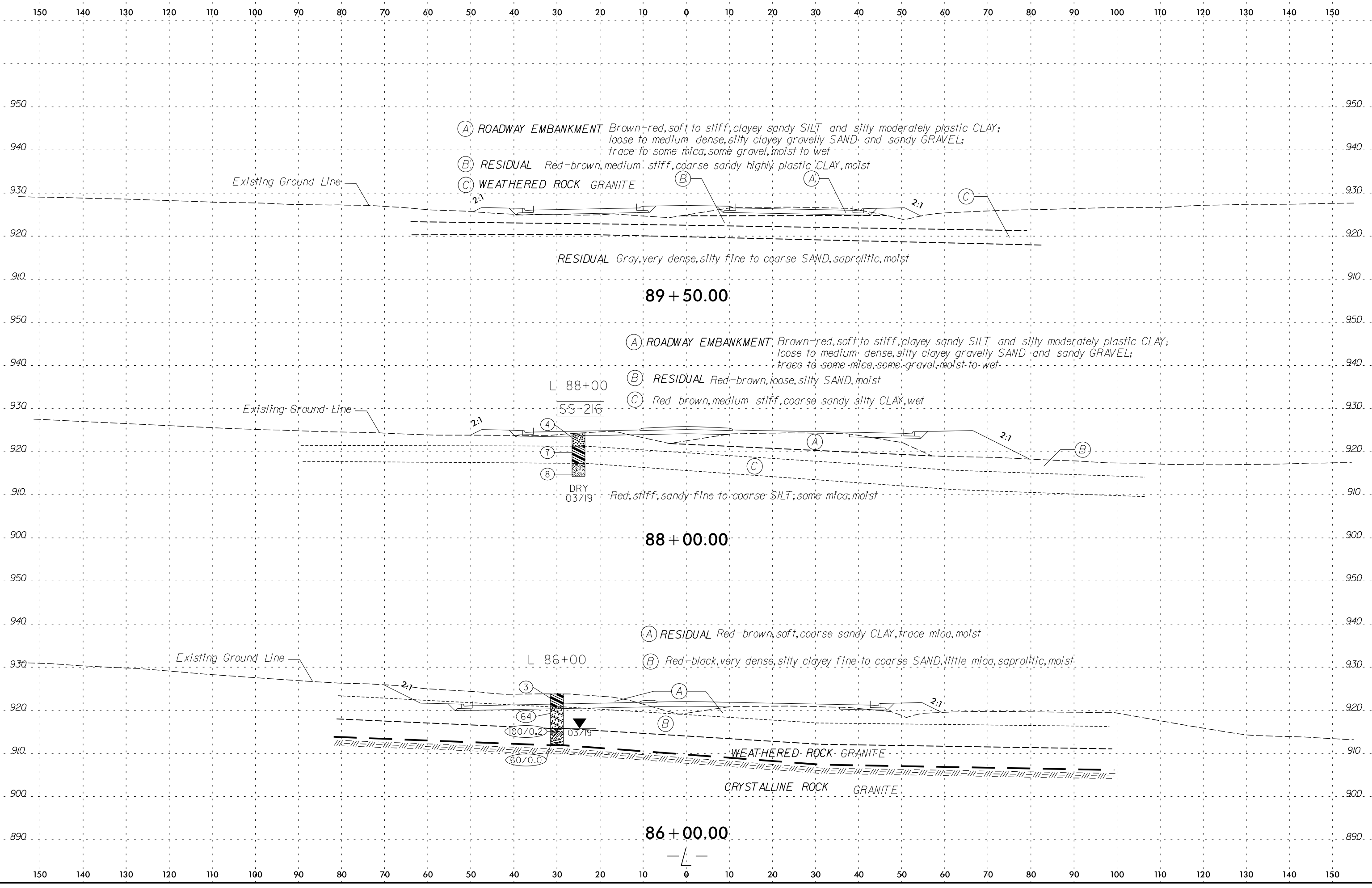


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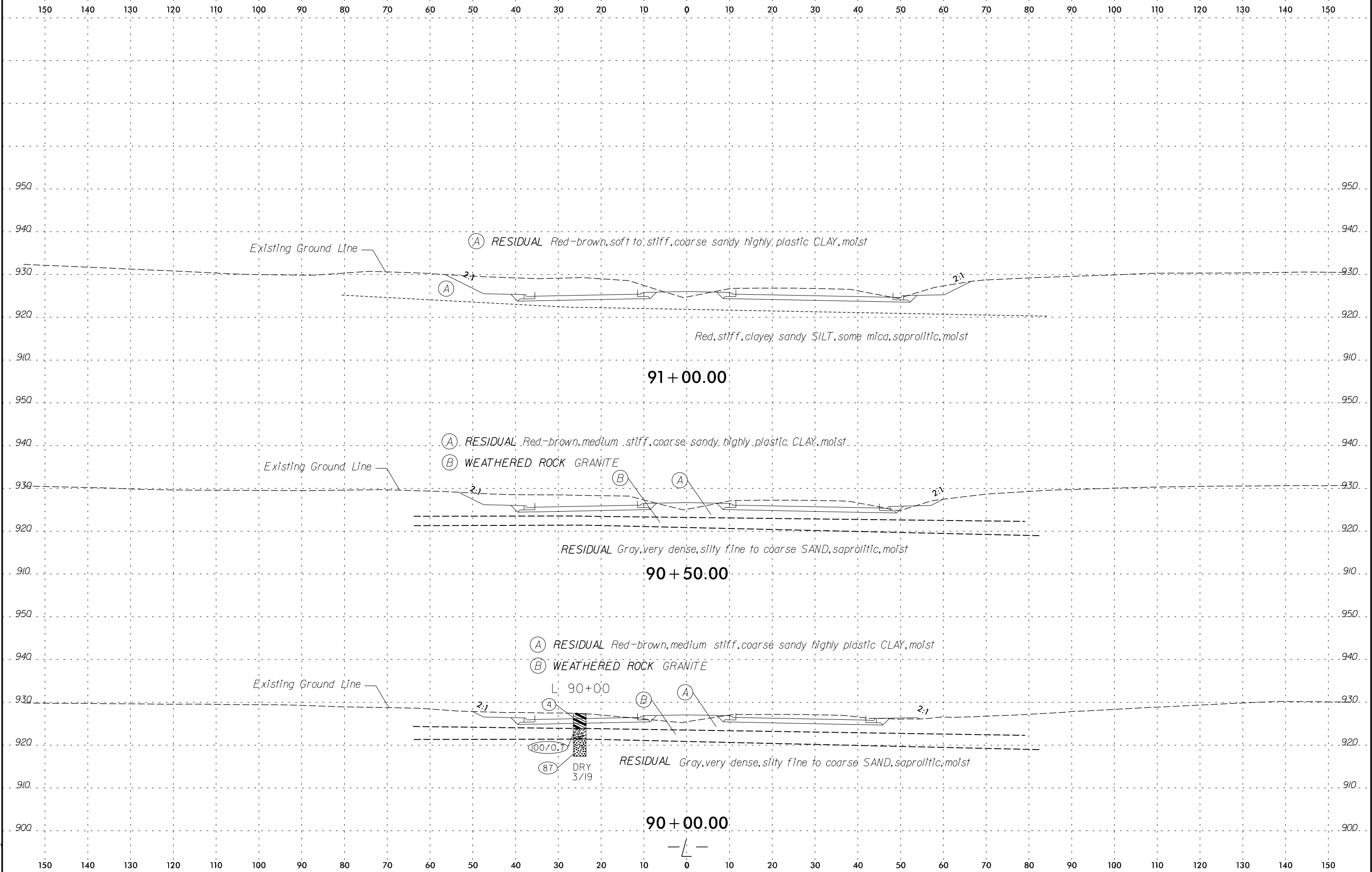


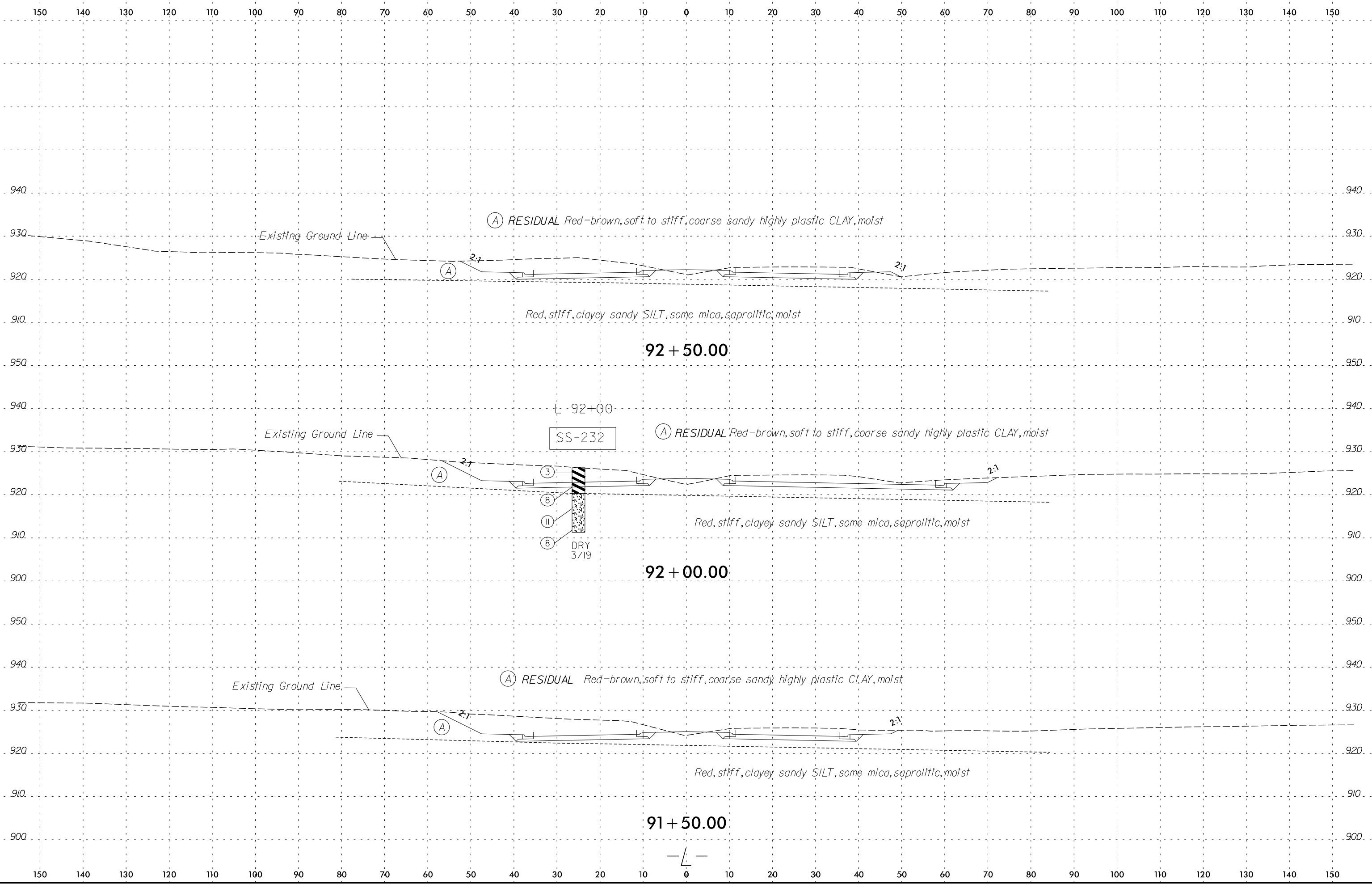


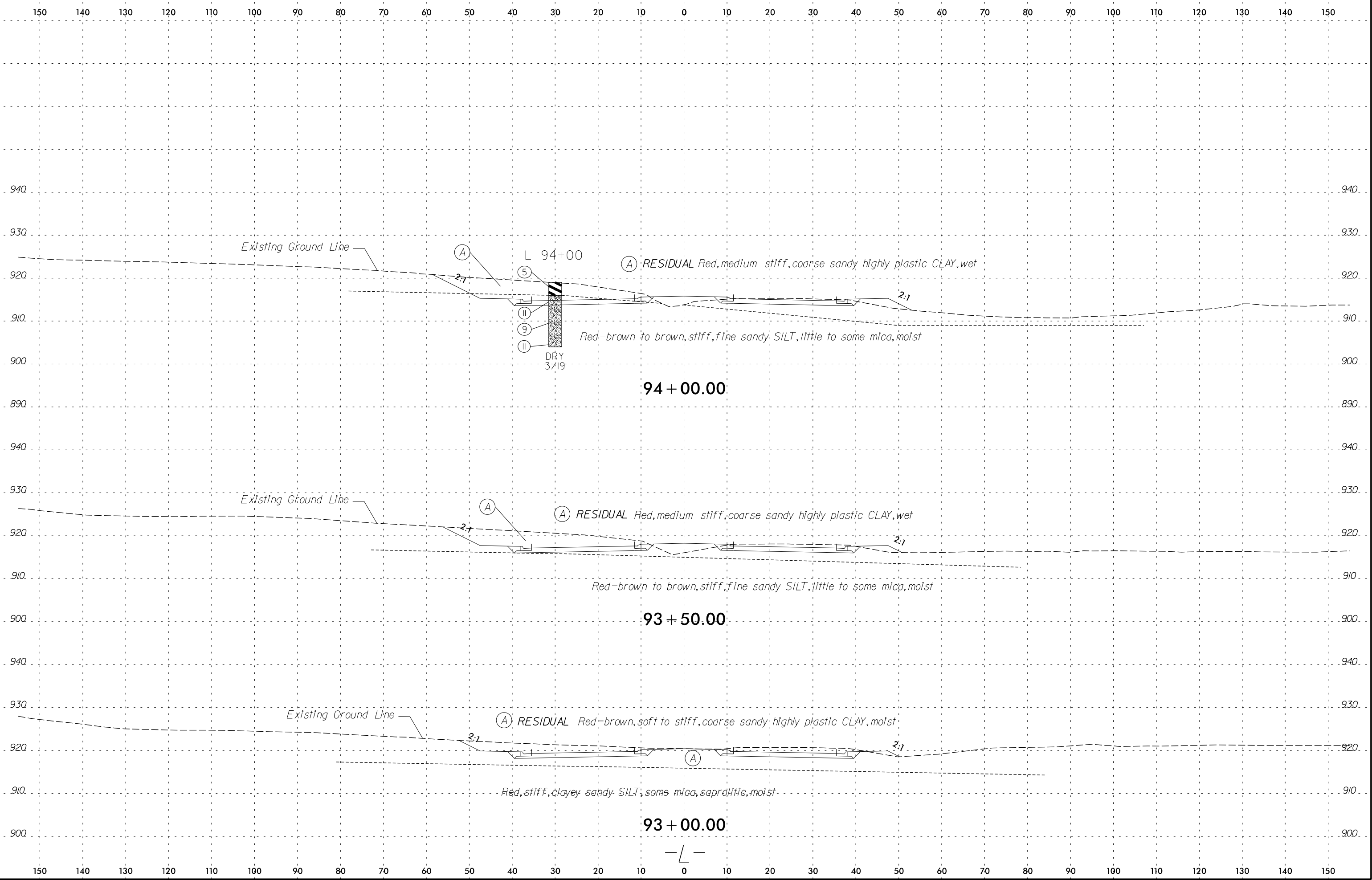
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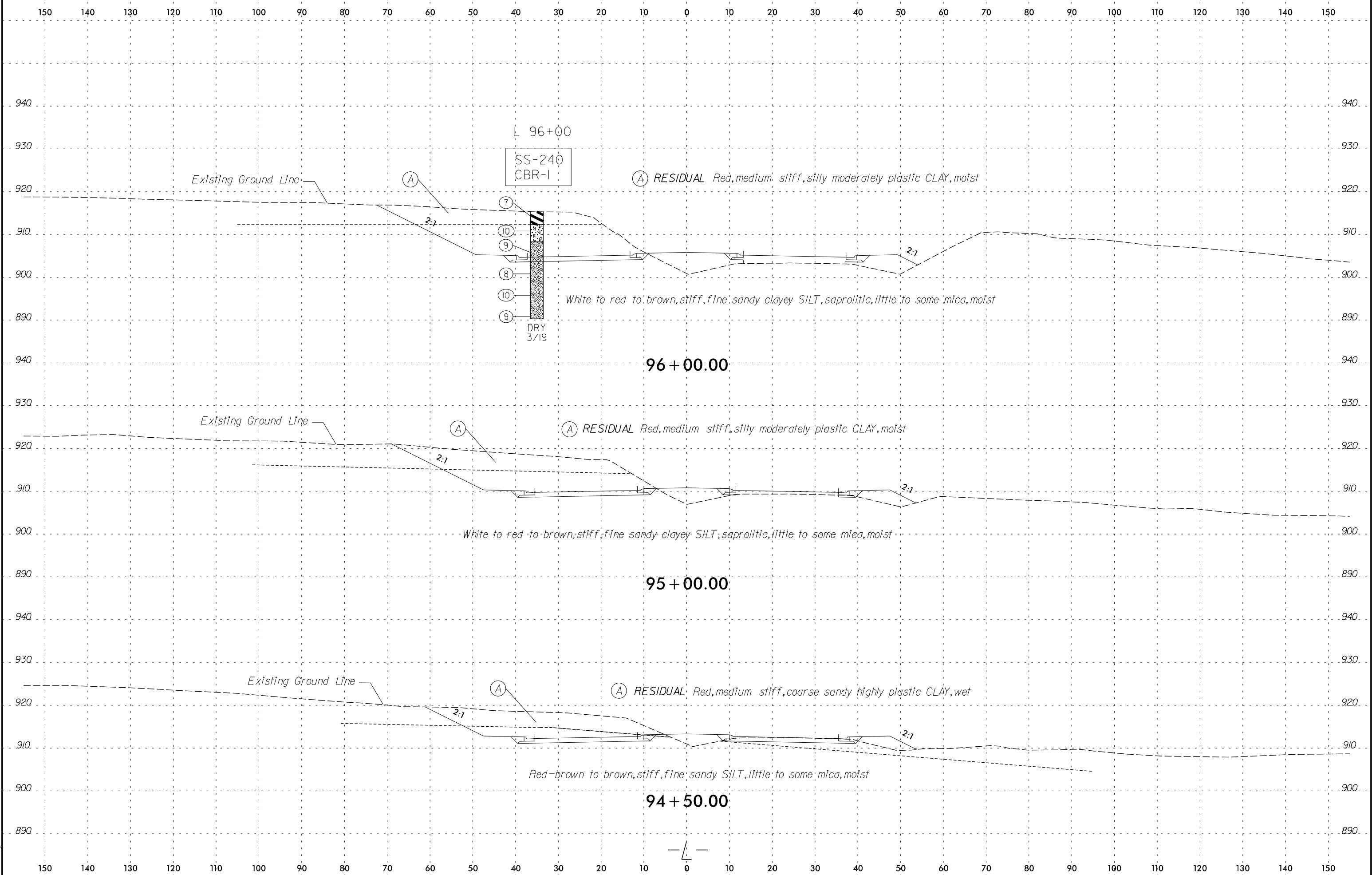


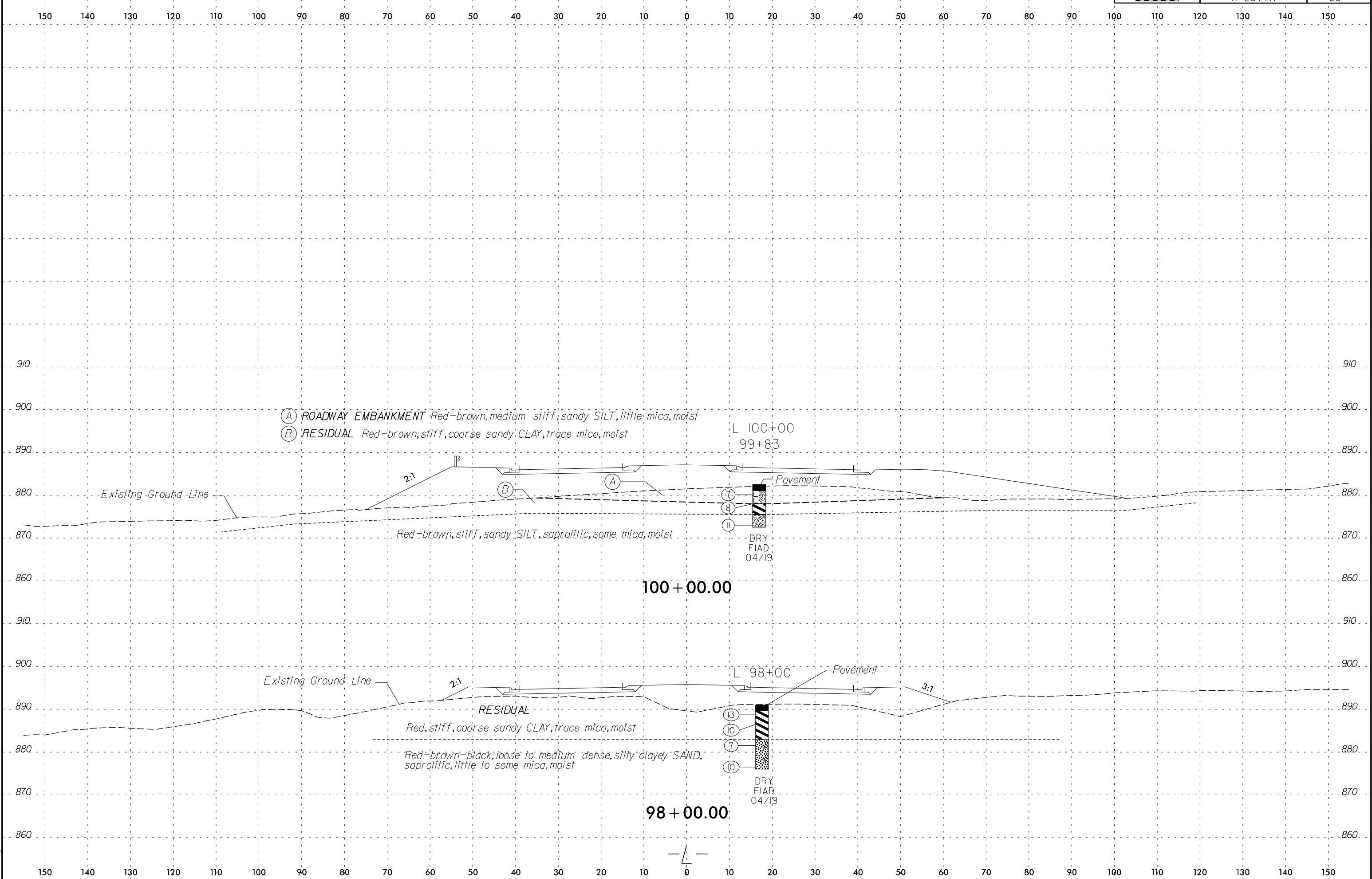
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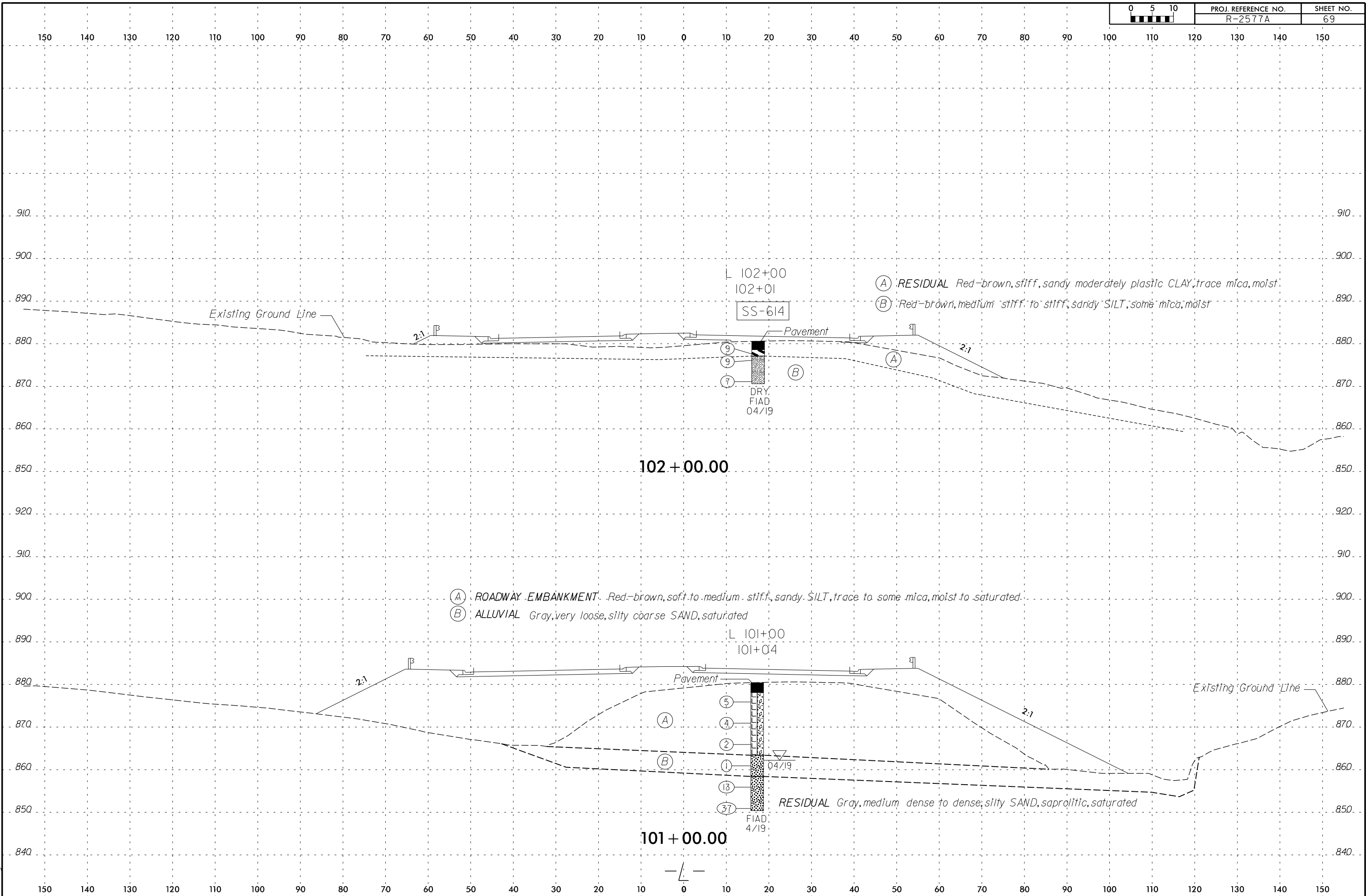




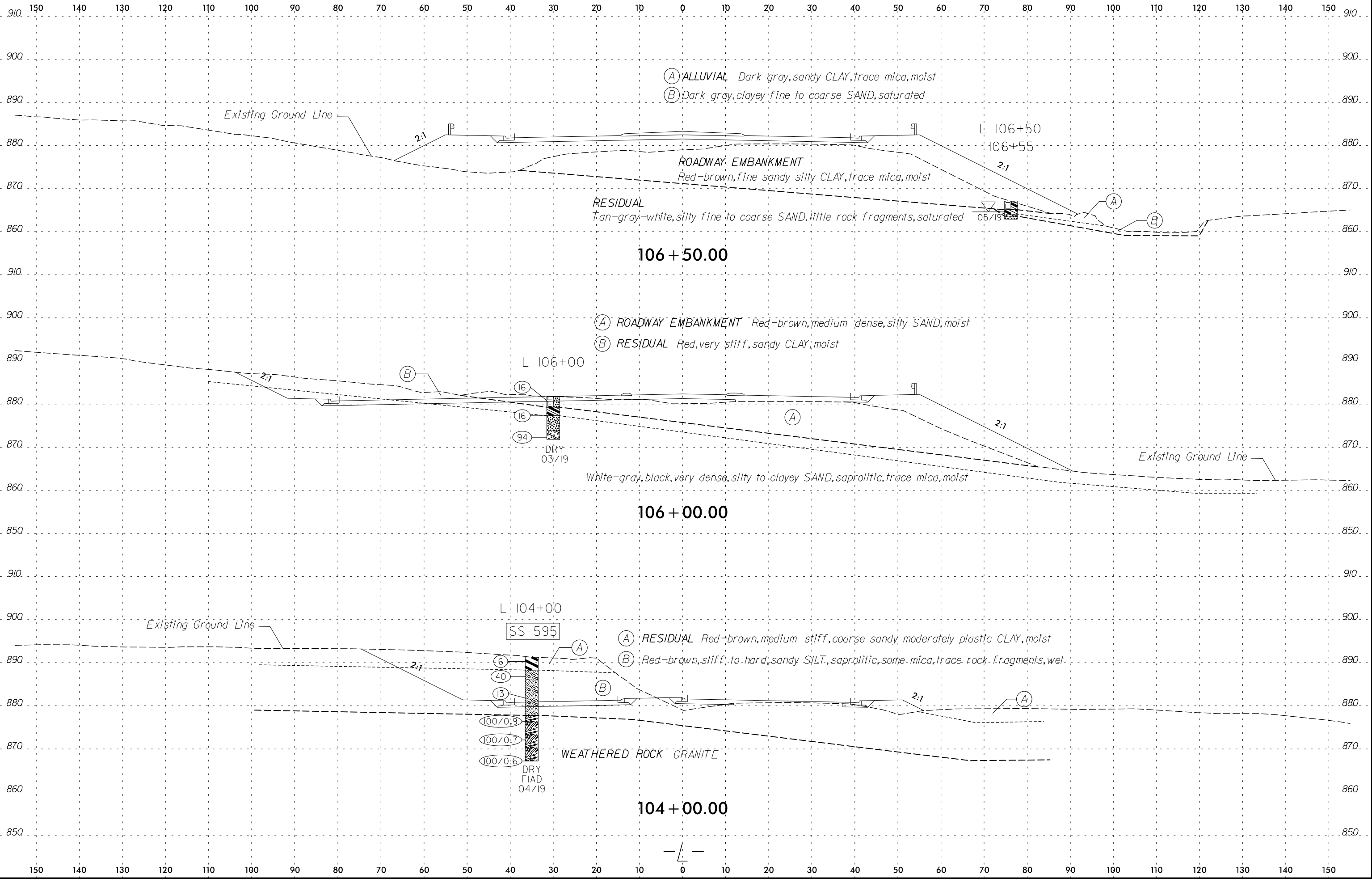


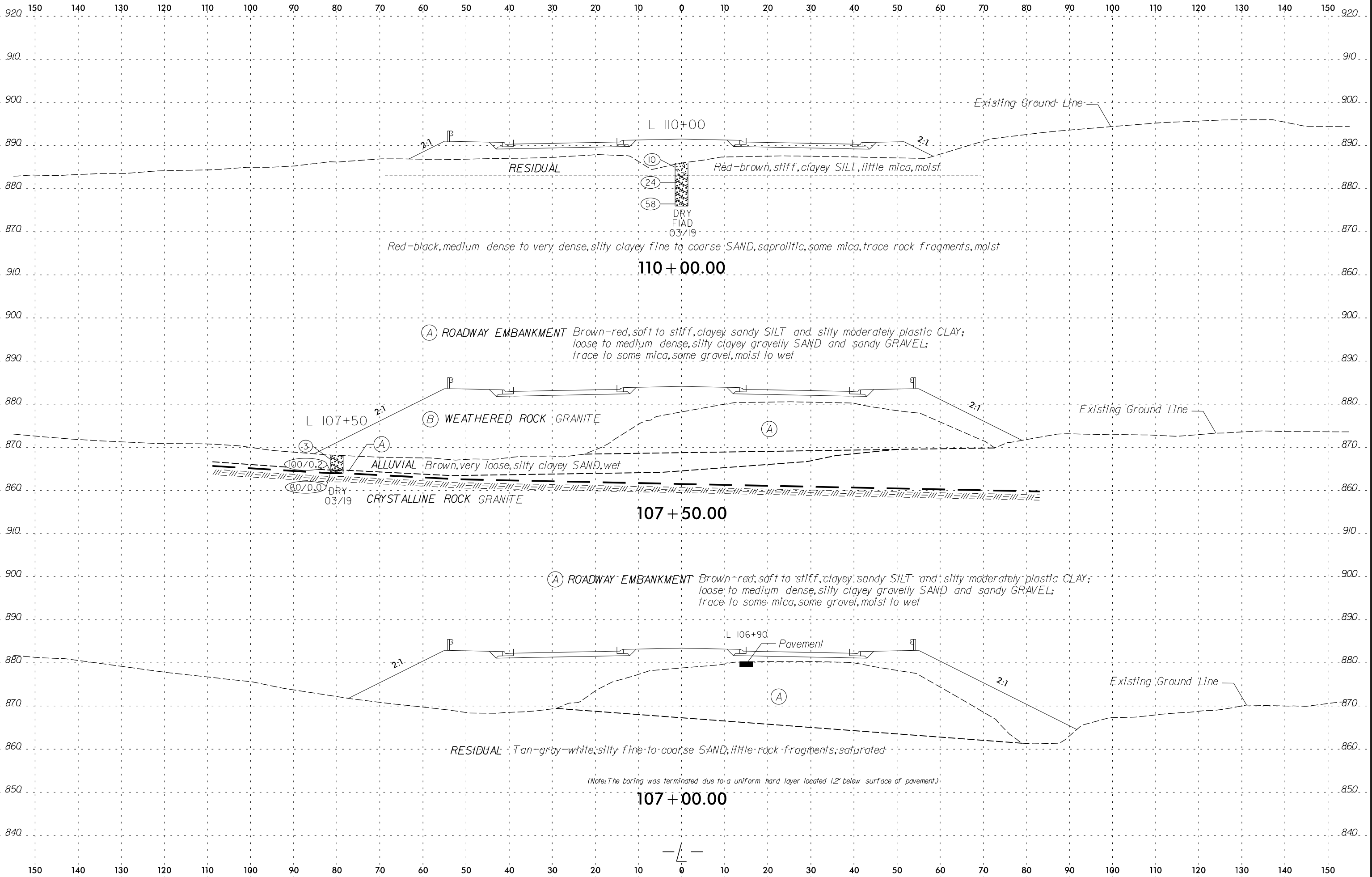


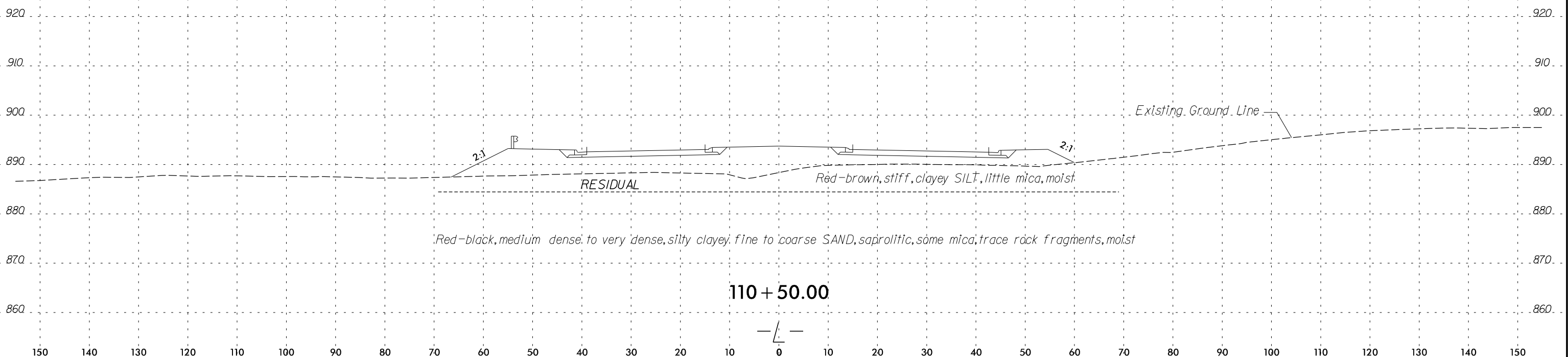
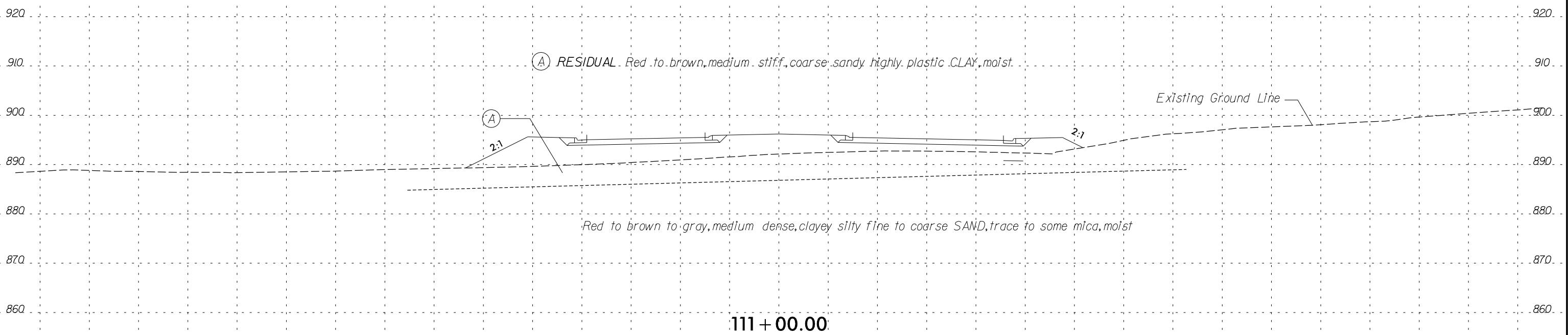
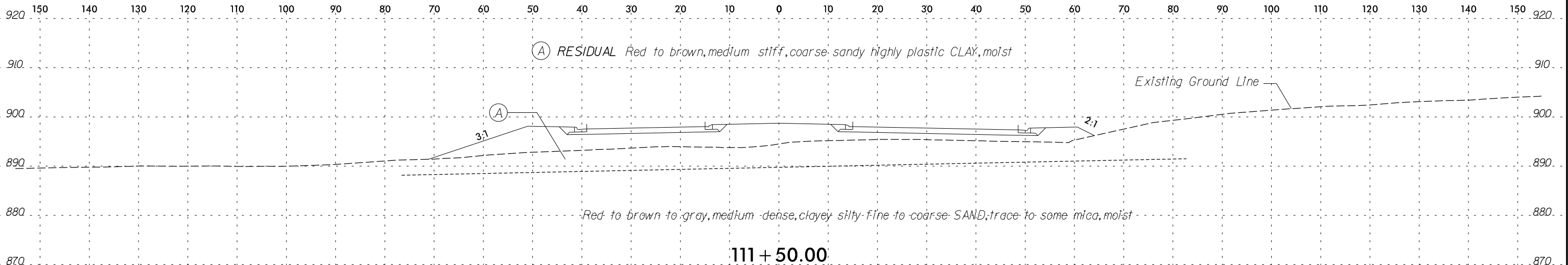


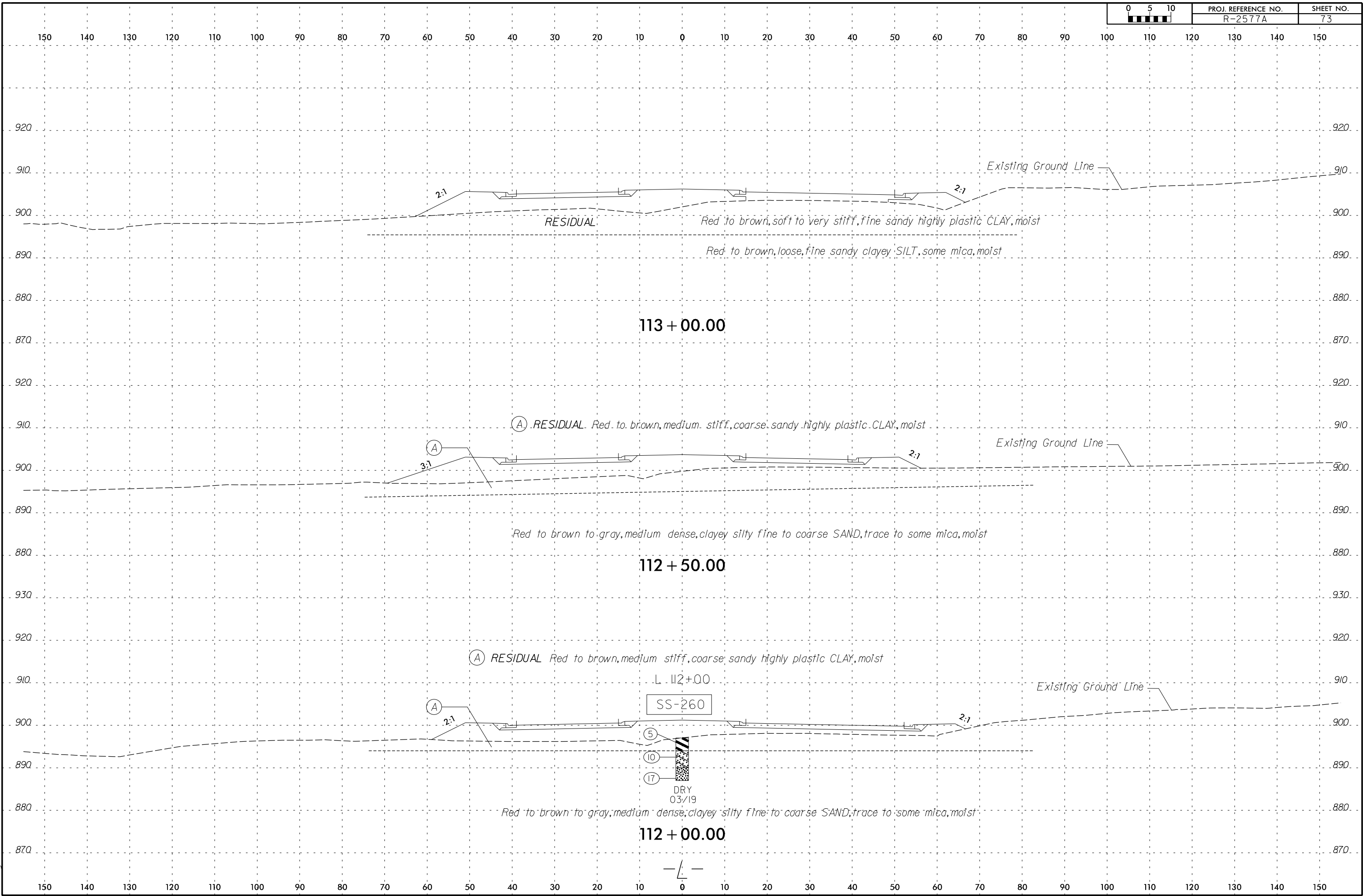


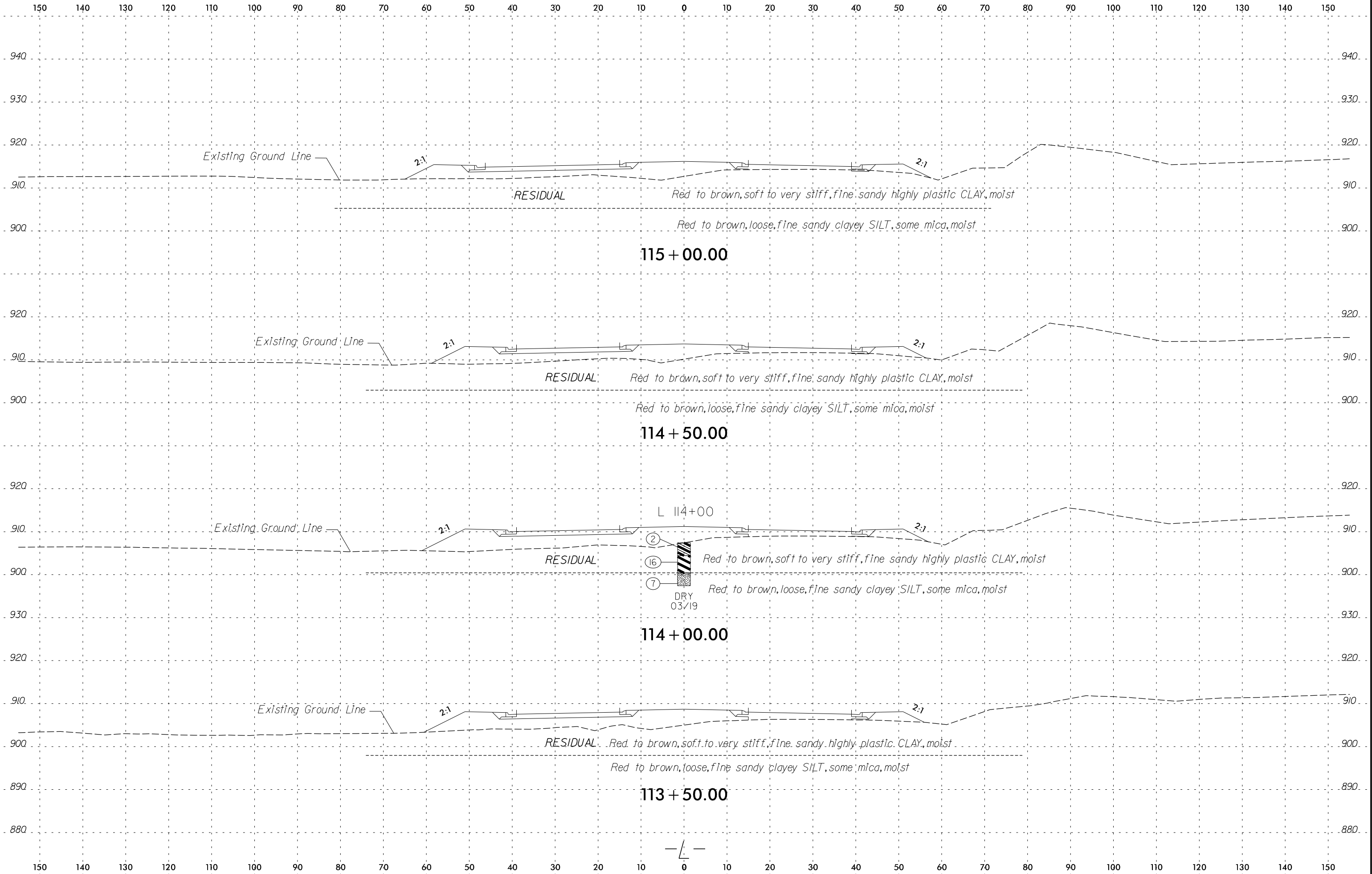


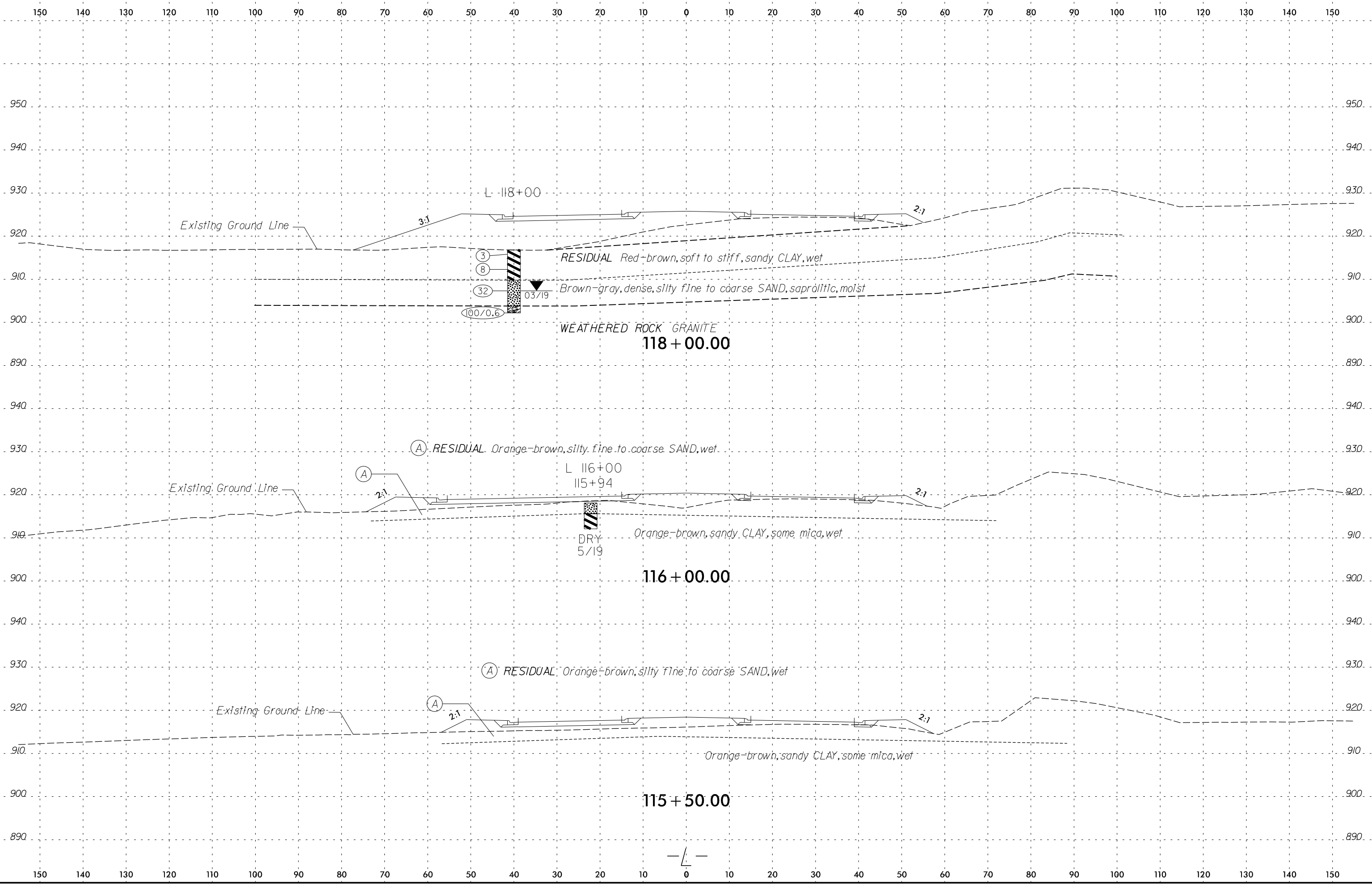


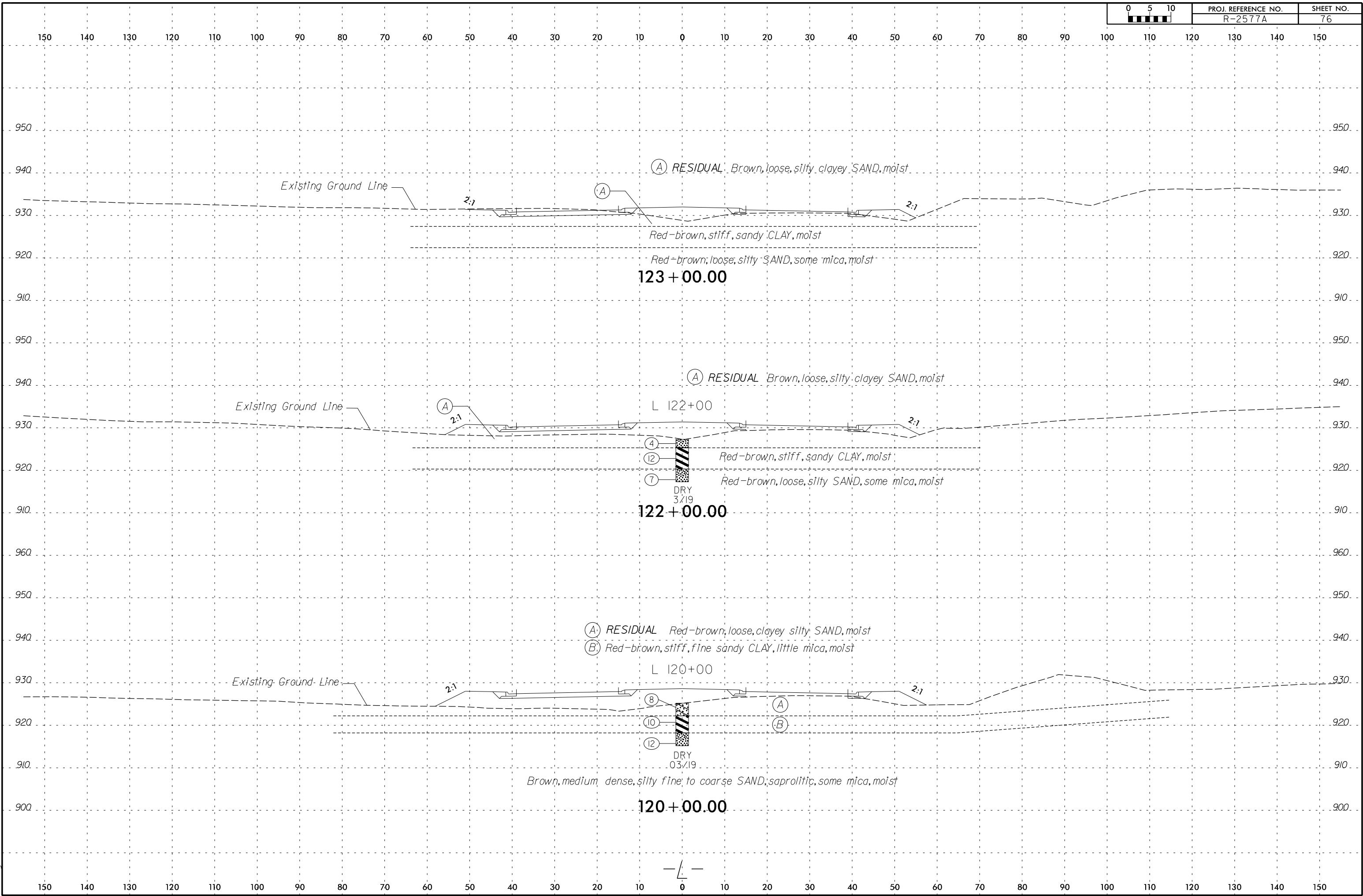


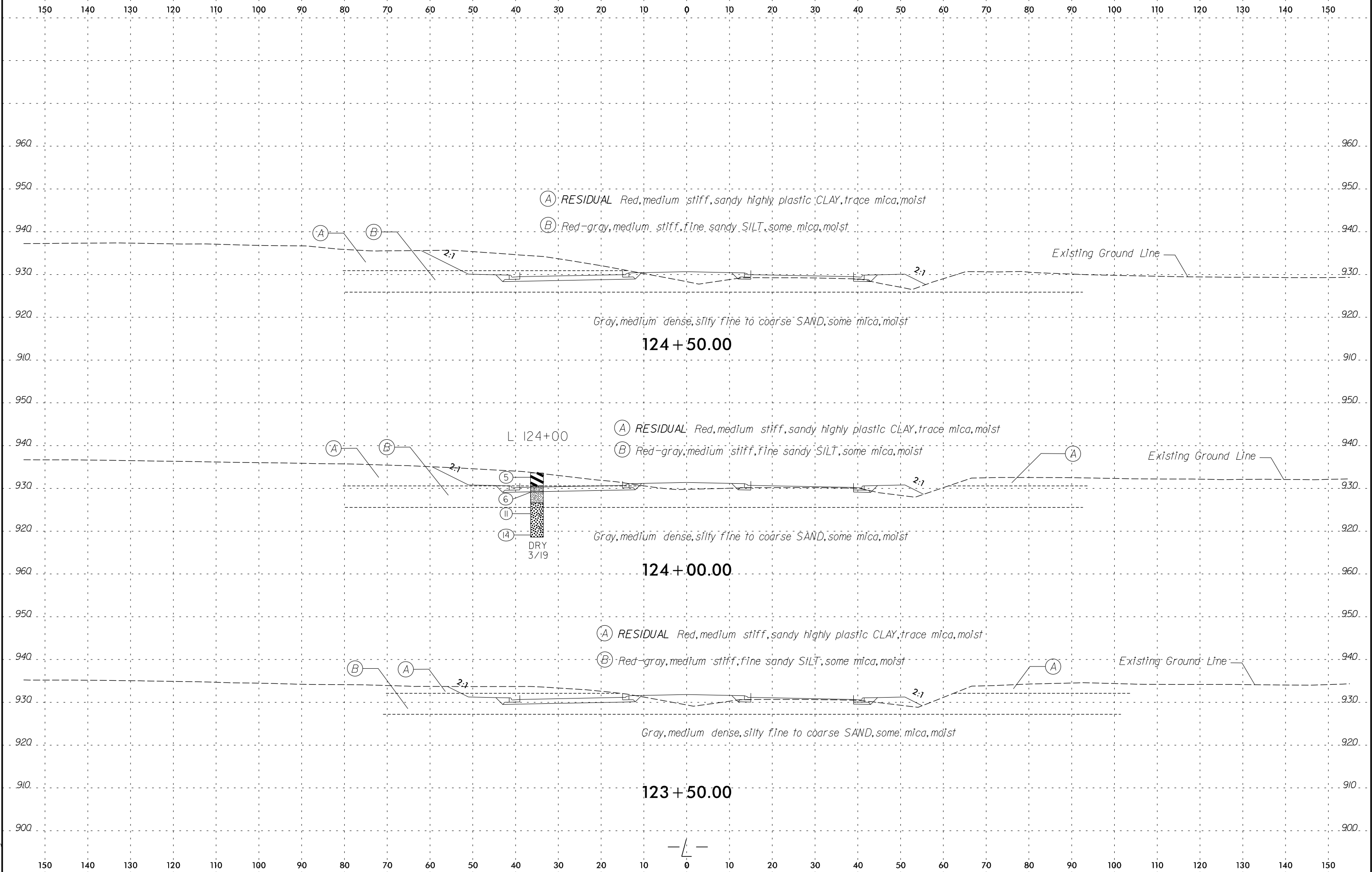




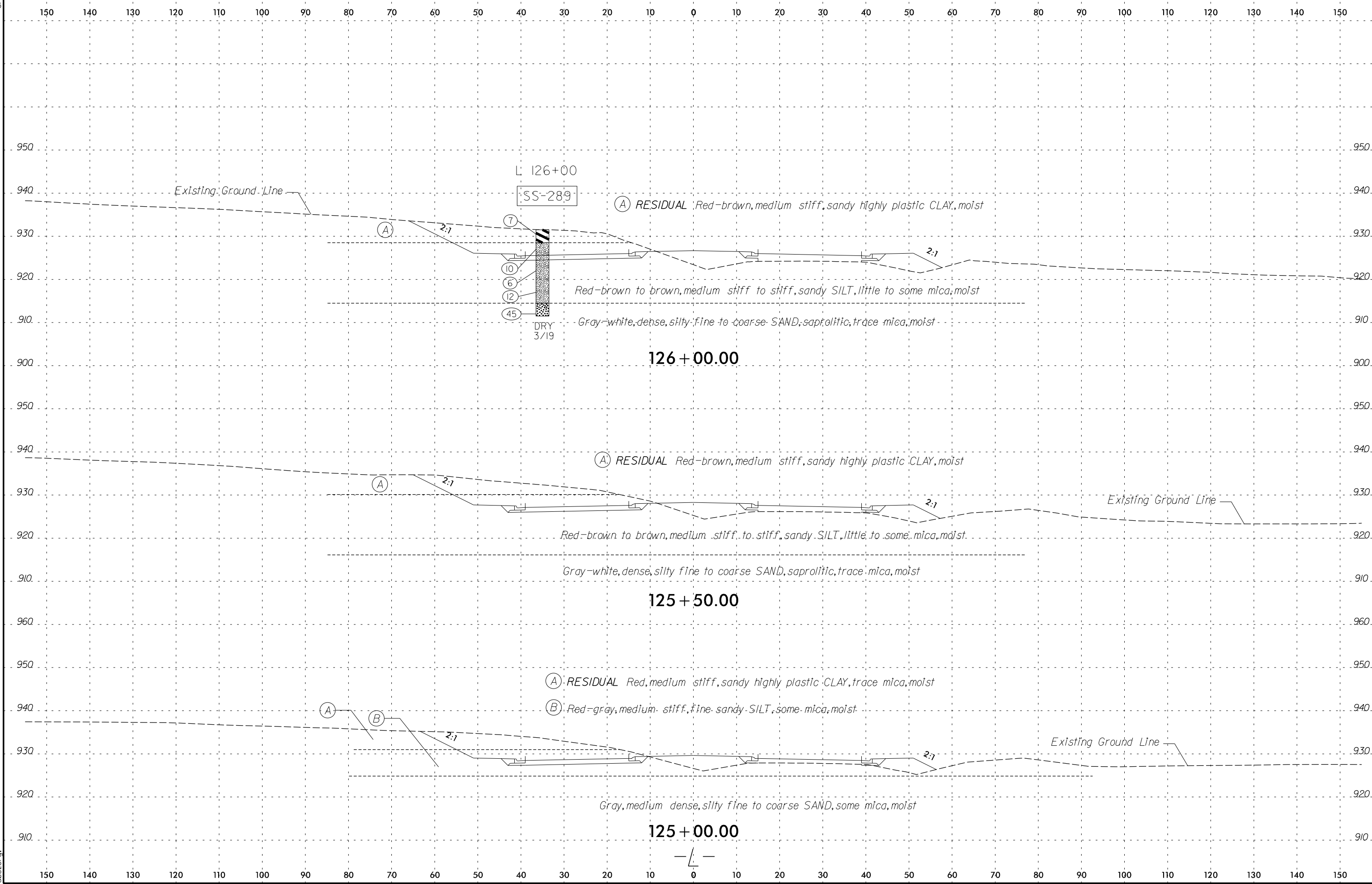


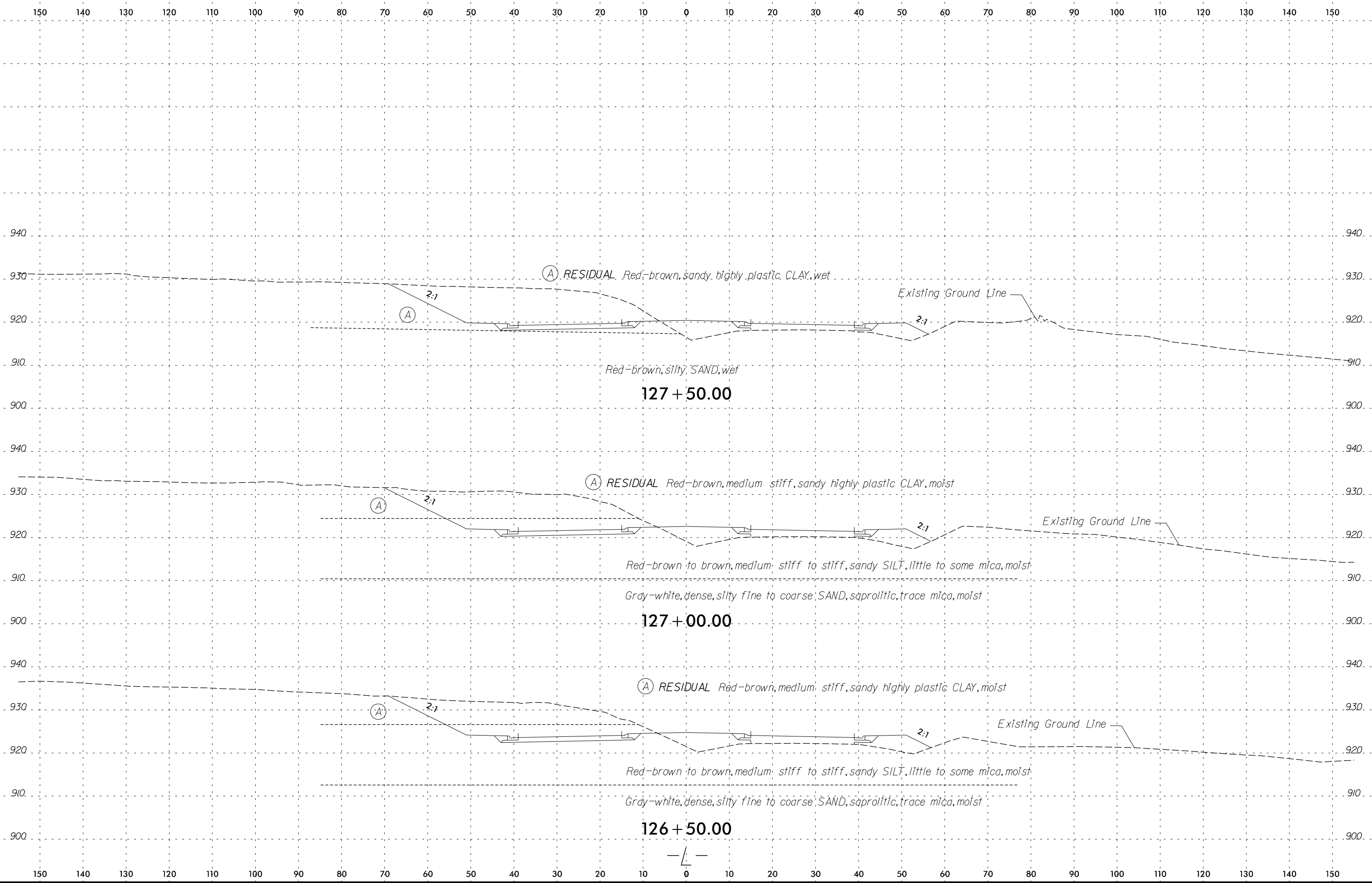


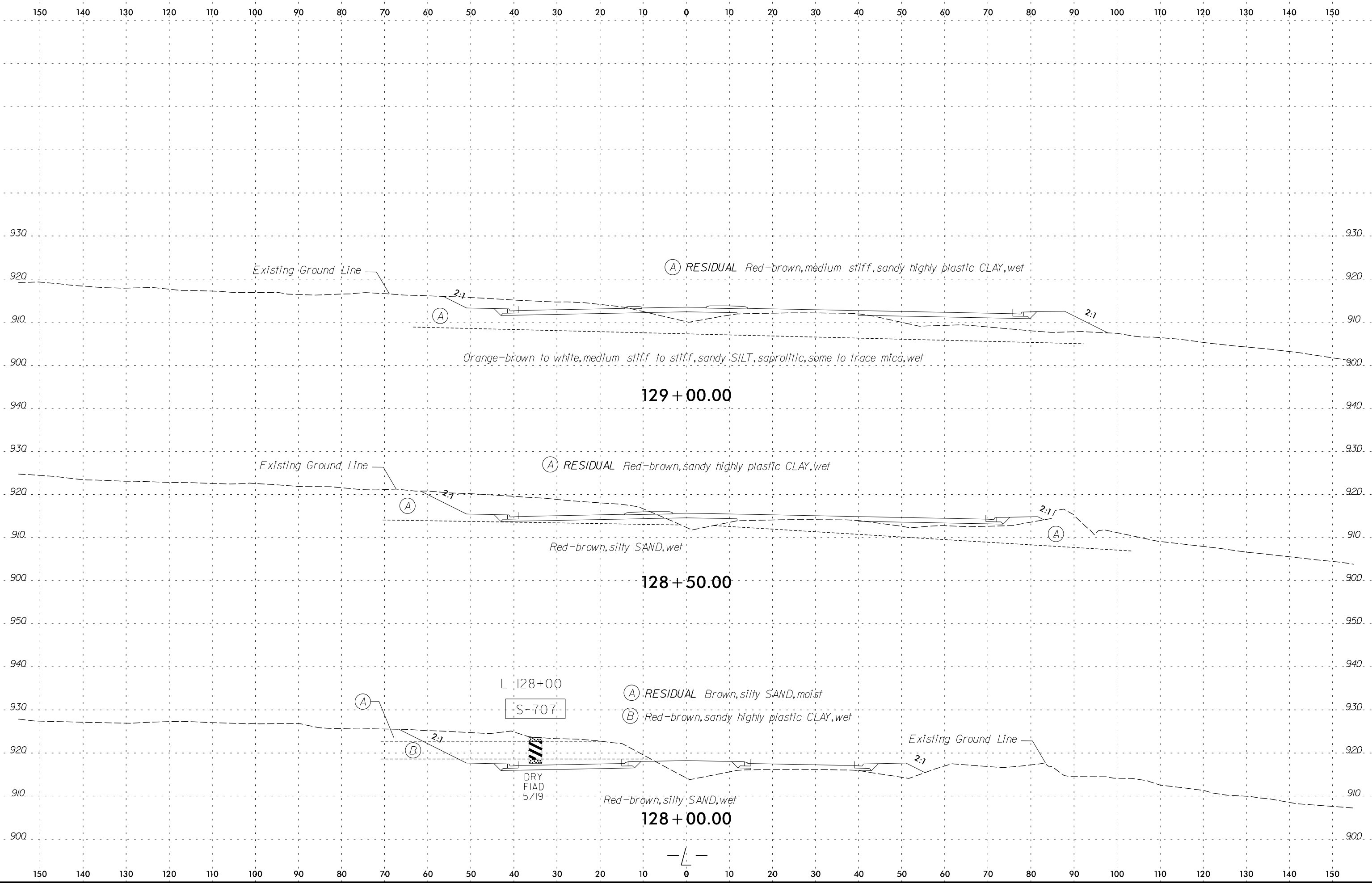


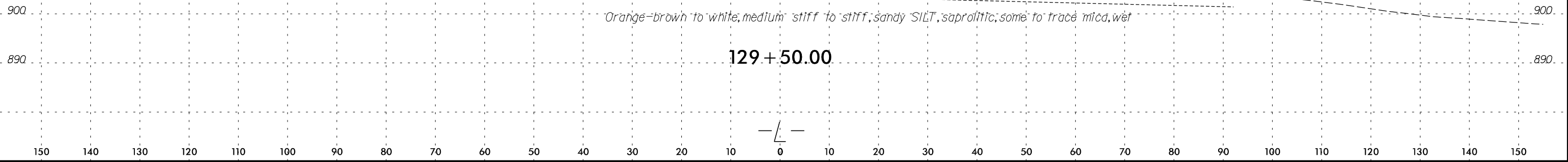
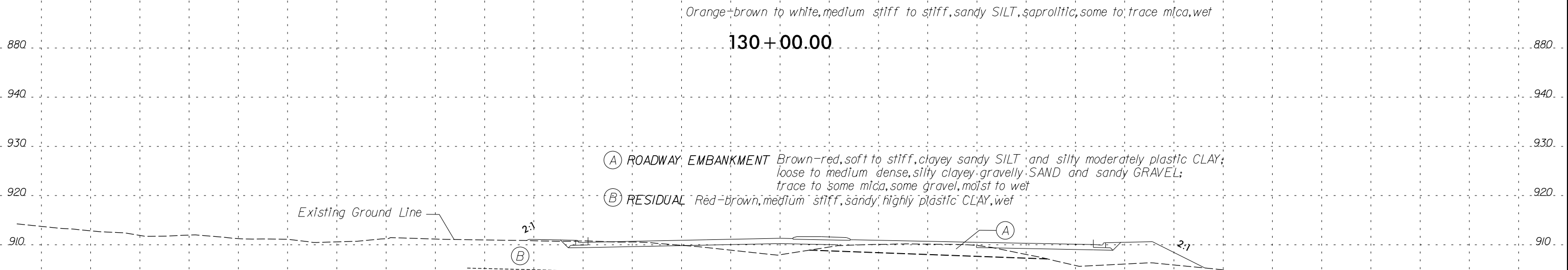
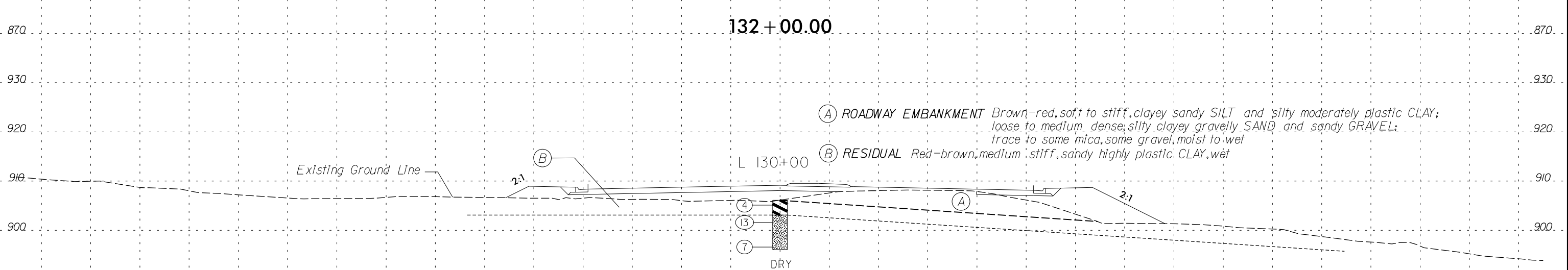
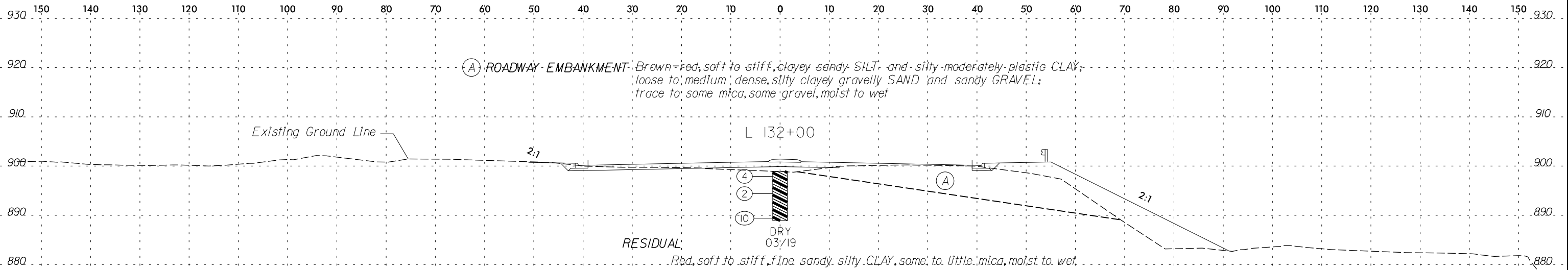


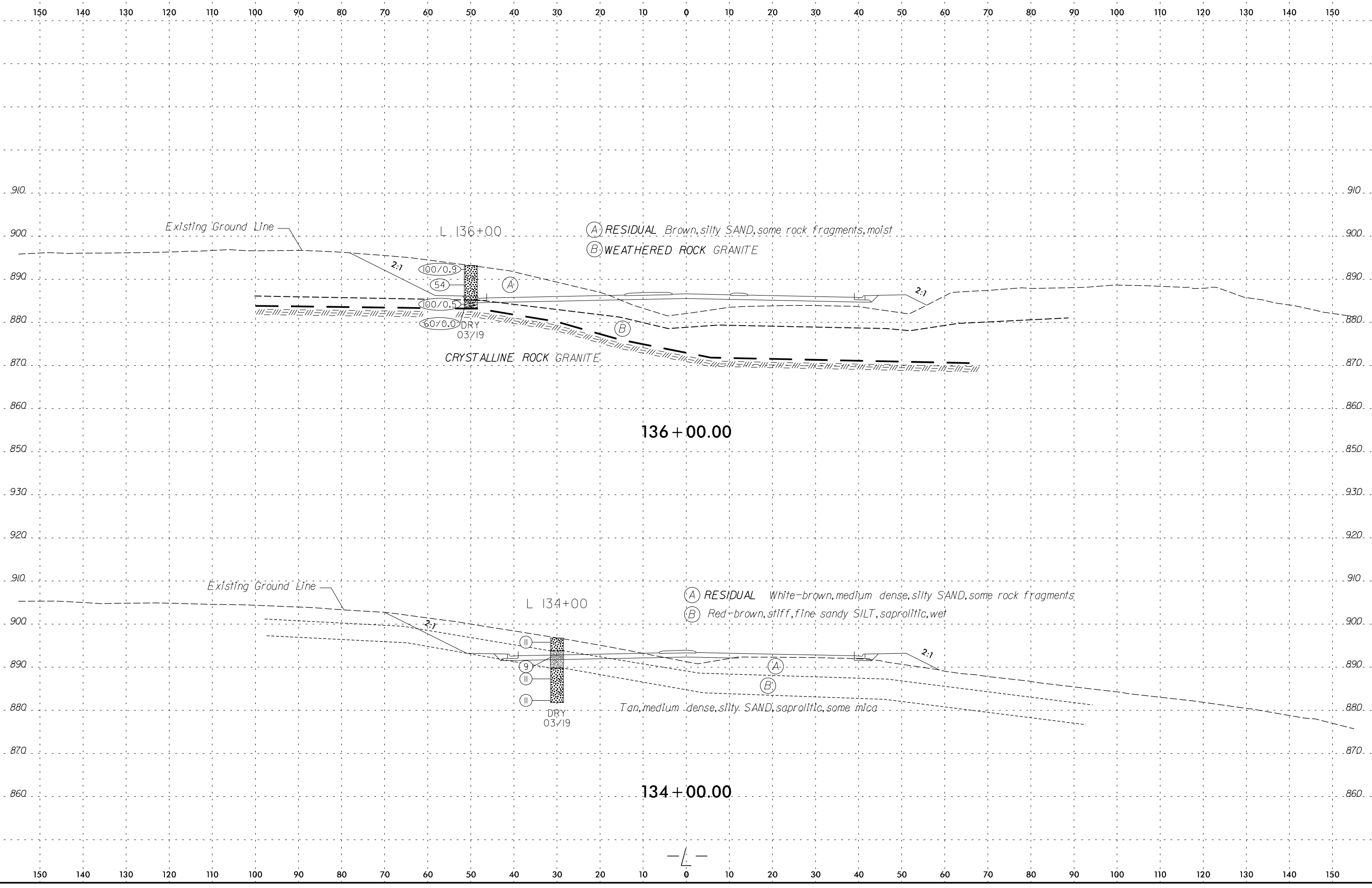


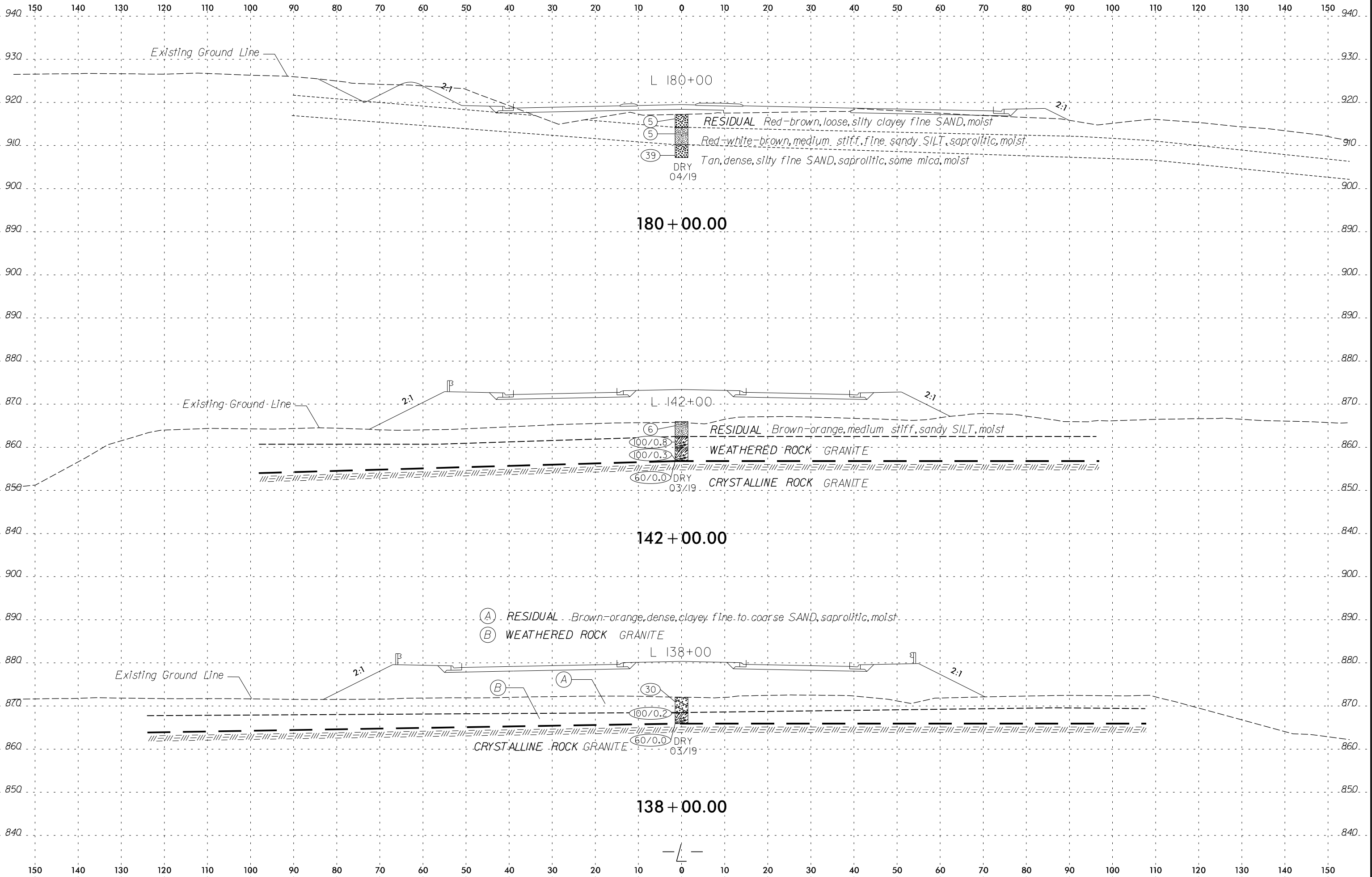


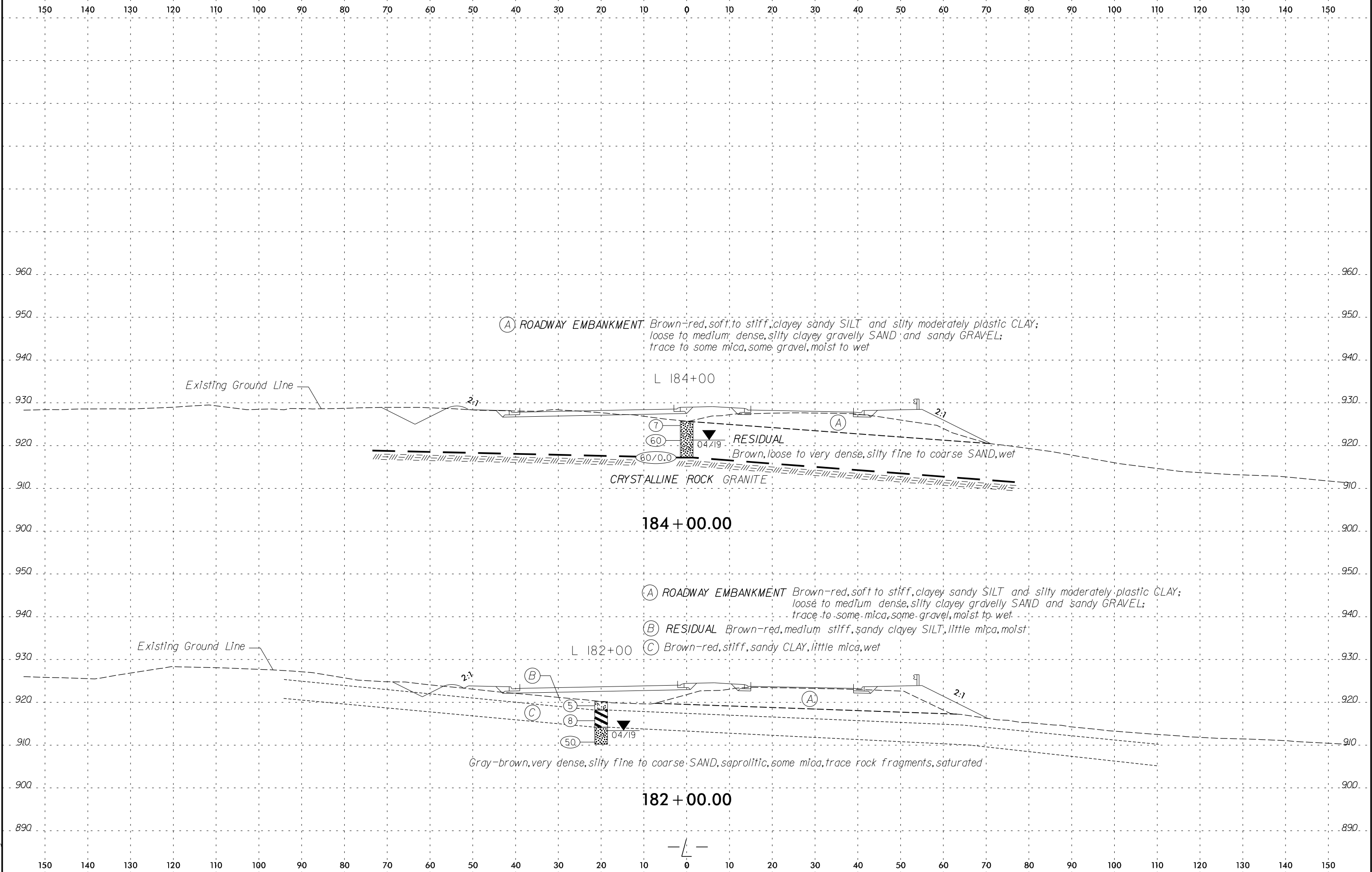




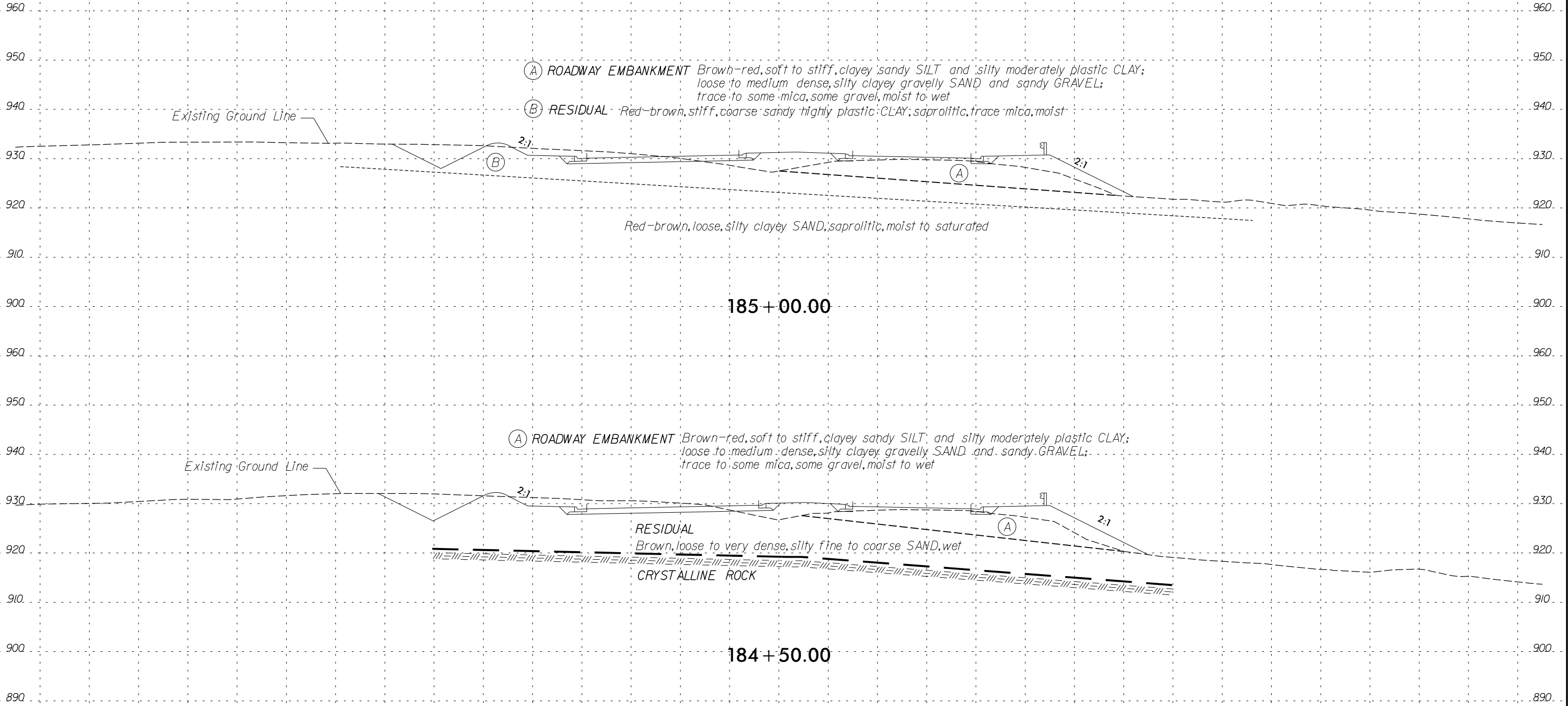






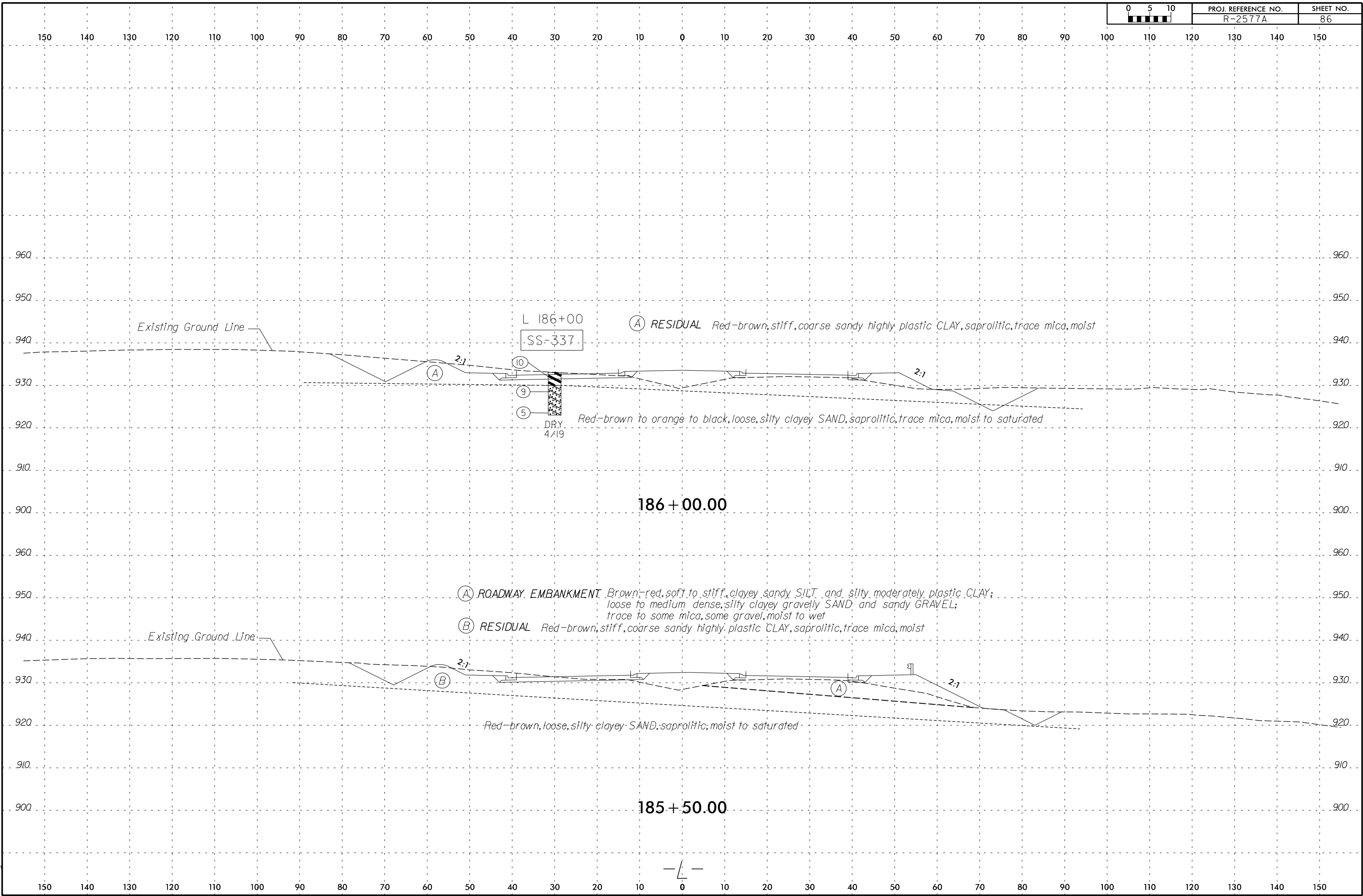


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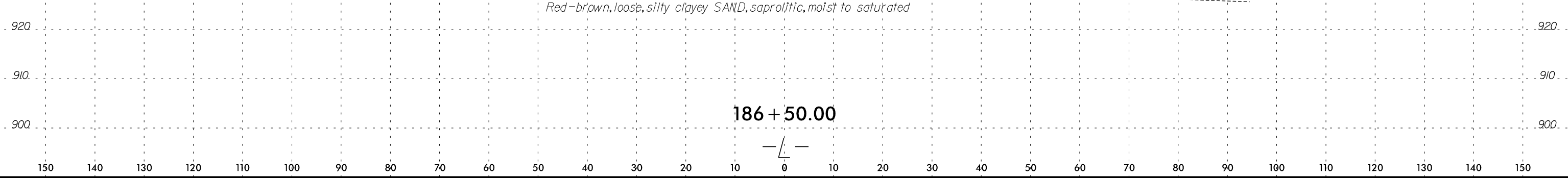
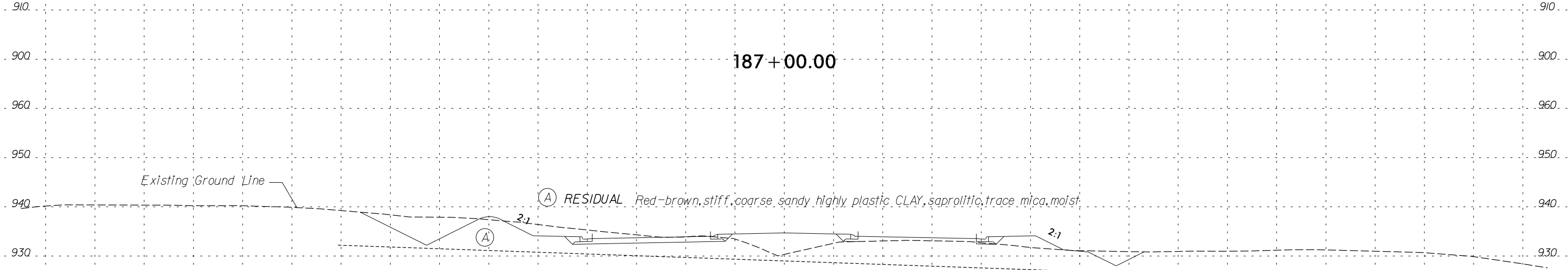
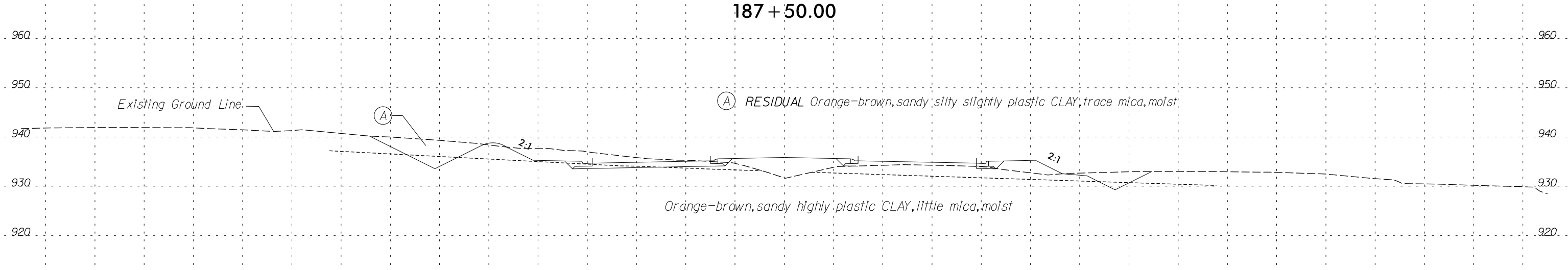
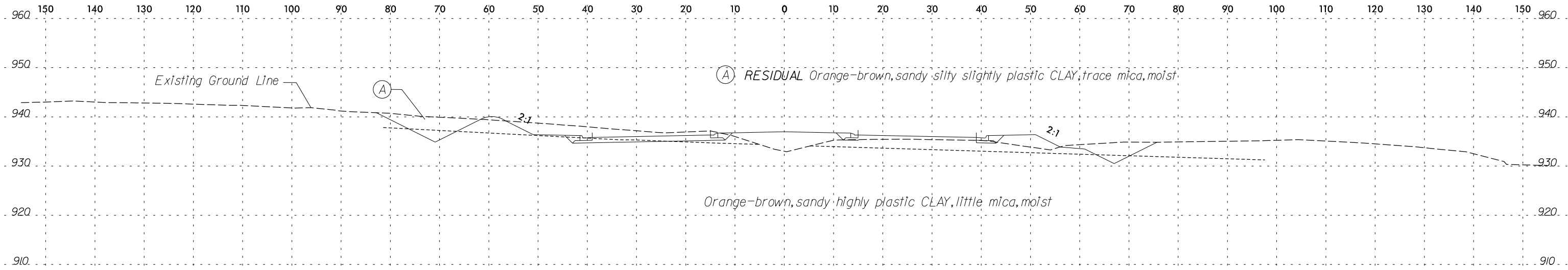


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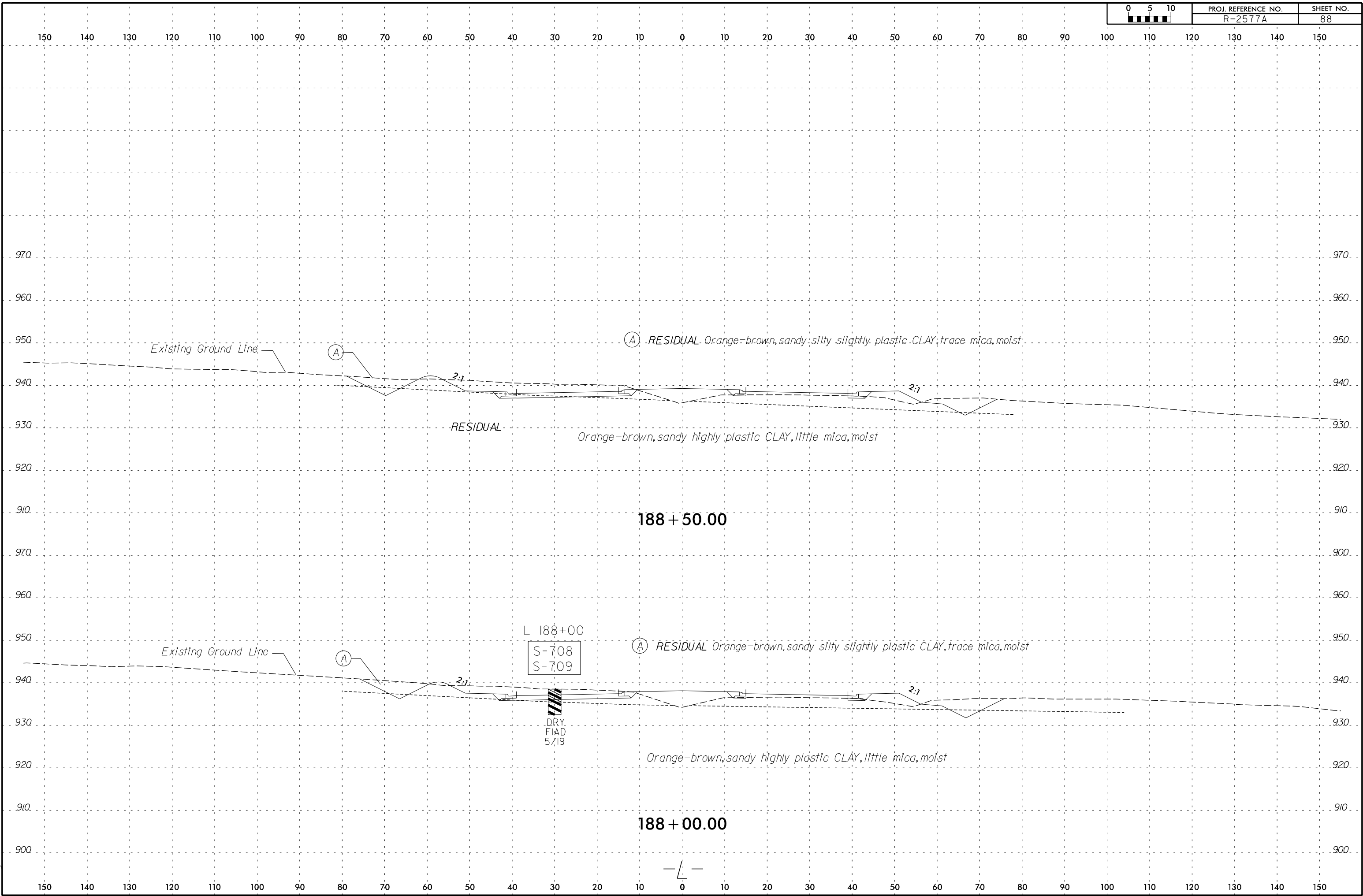


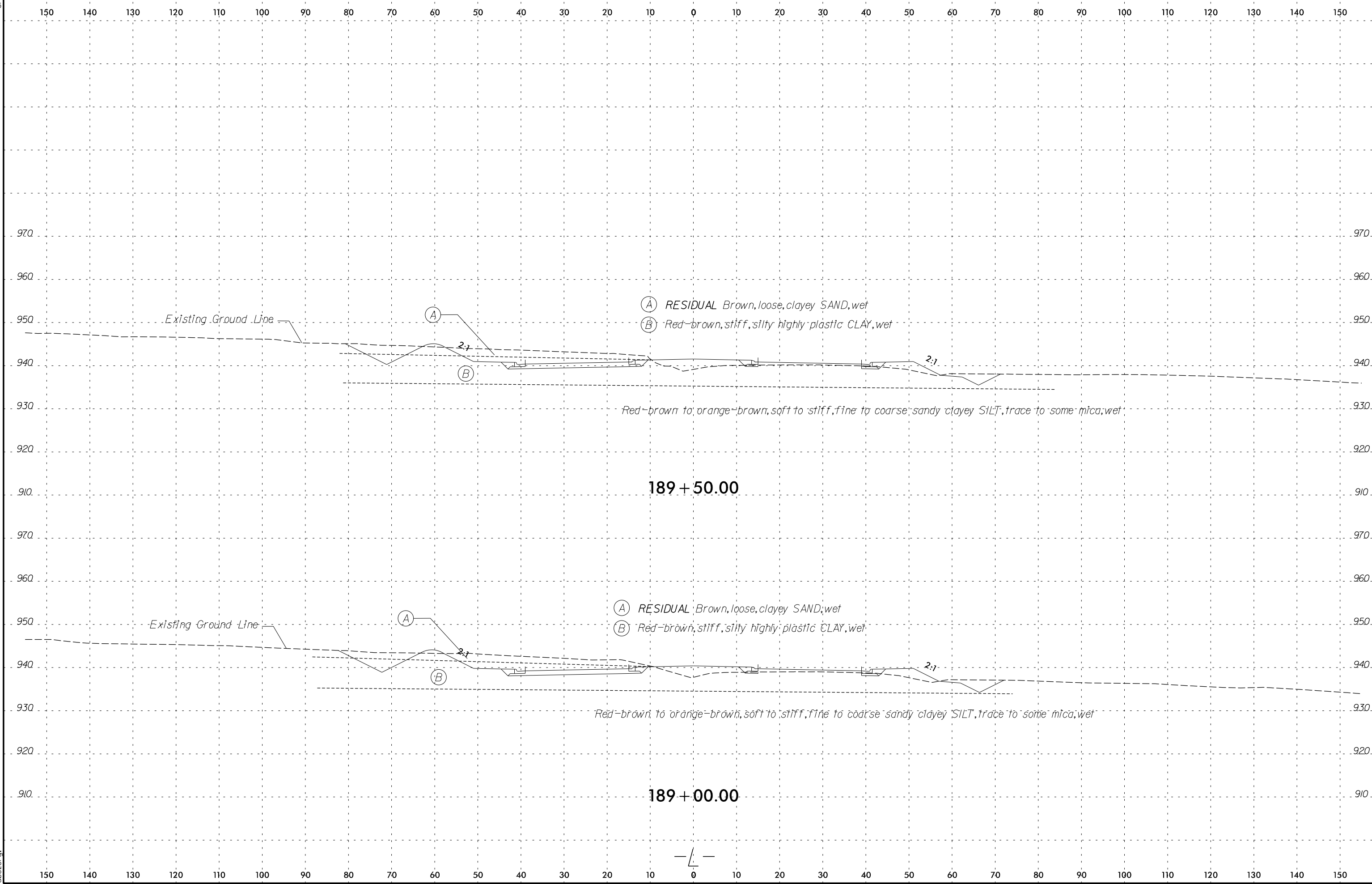


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970 960 950 940 930 920 910 970 960 950 940 930 920 910

Existing Ground Line

(A) RESIDUAL Brown, loose, clayey SAND, wet  
(B) Red-brown, stiff, silty highly plastic CLAY, wet

2:1

Red-brown to orange-brown, soft to stiff, fine to coarse sandy clayey SILT, trace to some mica, wet

189 + 50.00

Existing Ground Line

(A) RESIDUAL Brown, loose, clayey SAND, wet  
(B) Red-brown, stiff, silty highly plastic CLAY, wet

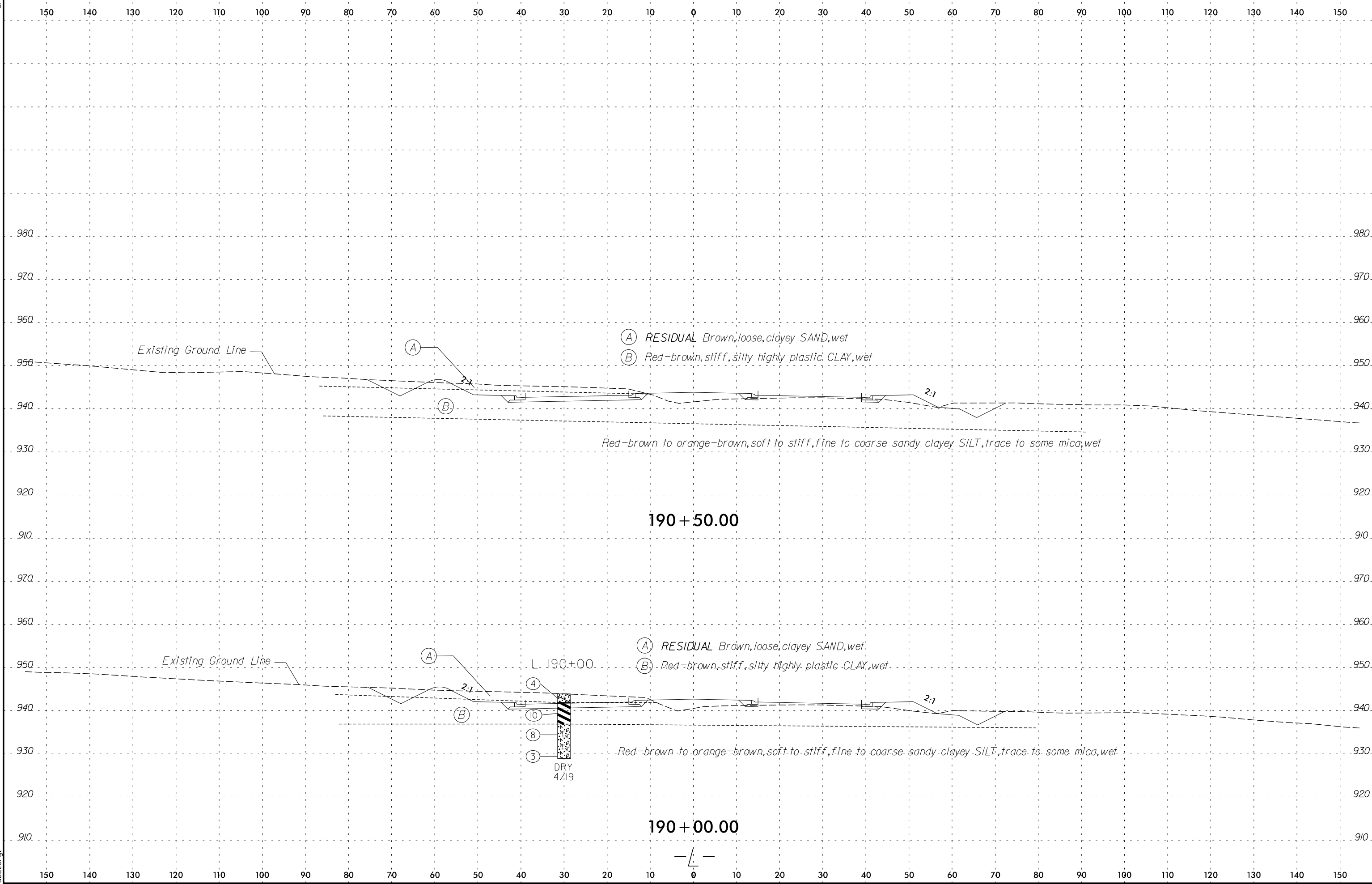
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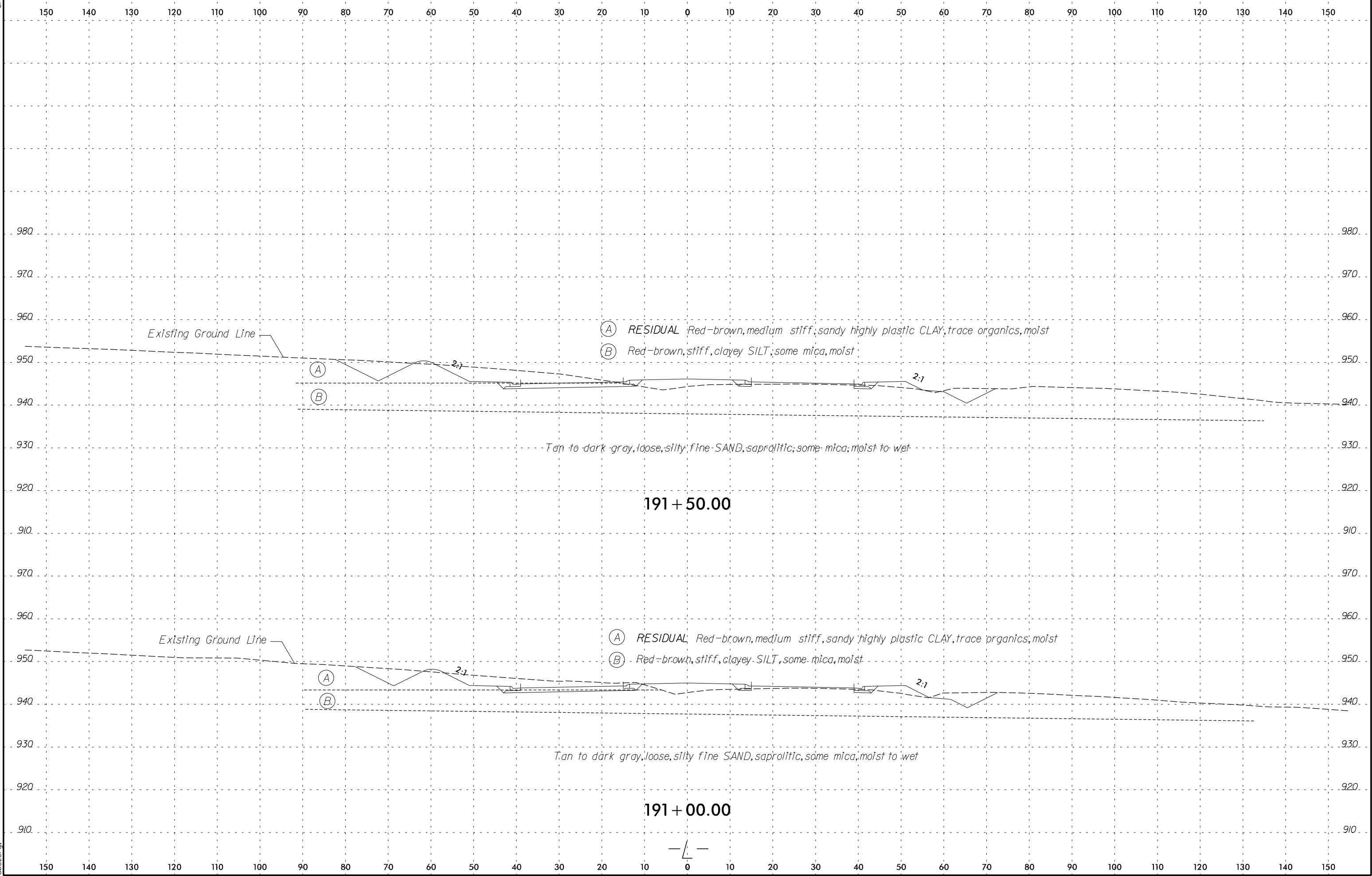
Red-brown to orange-brown, soft to stiff, fine to coarse sandy clayey SILT, trace to some mica, wet

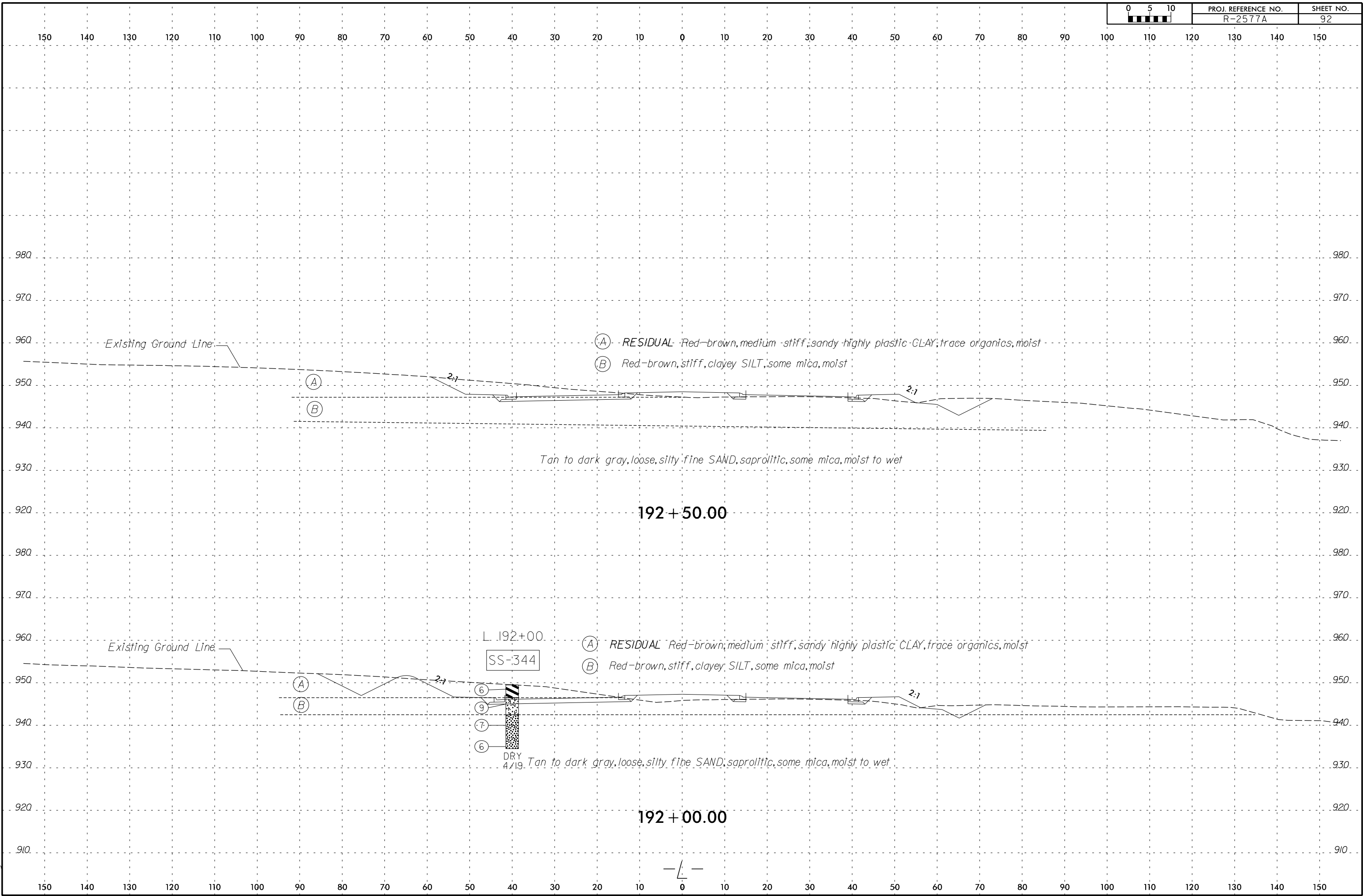
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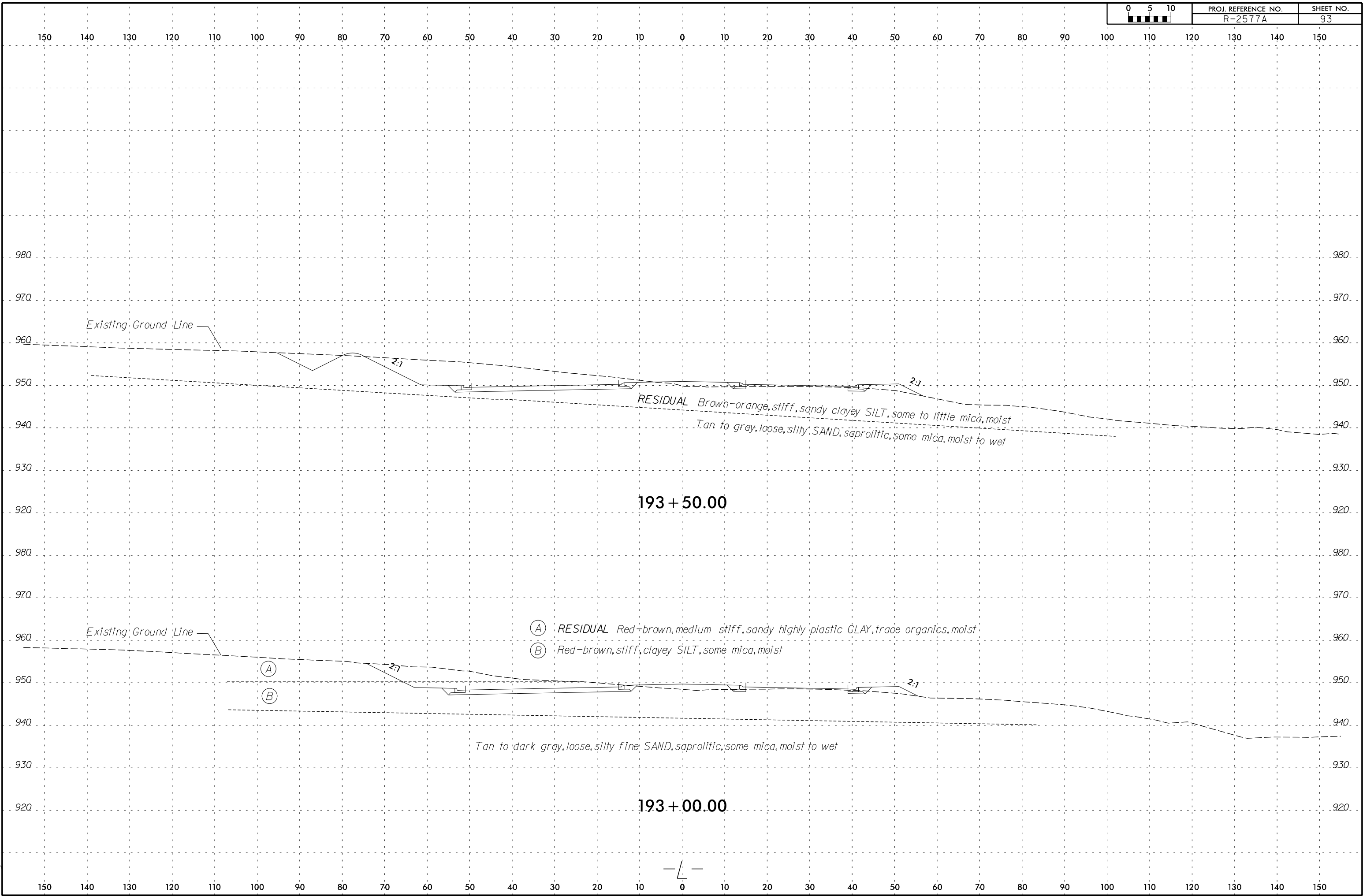
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1" = 10'

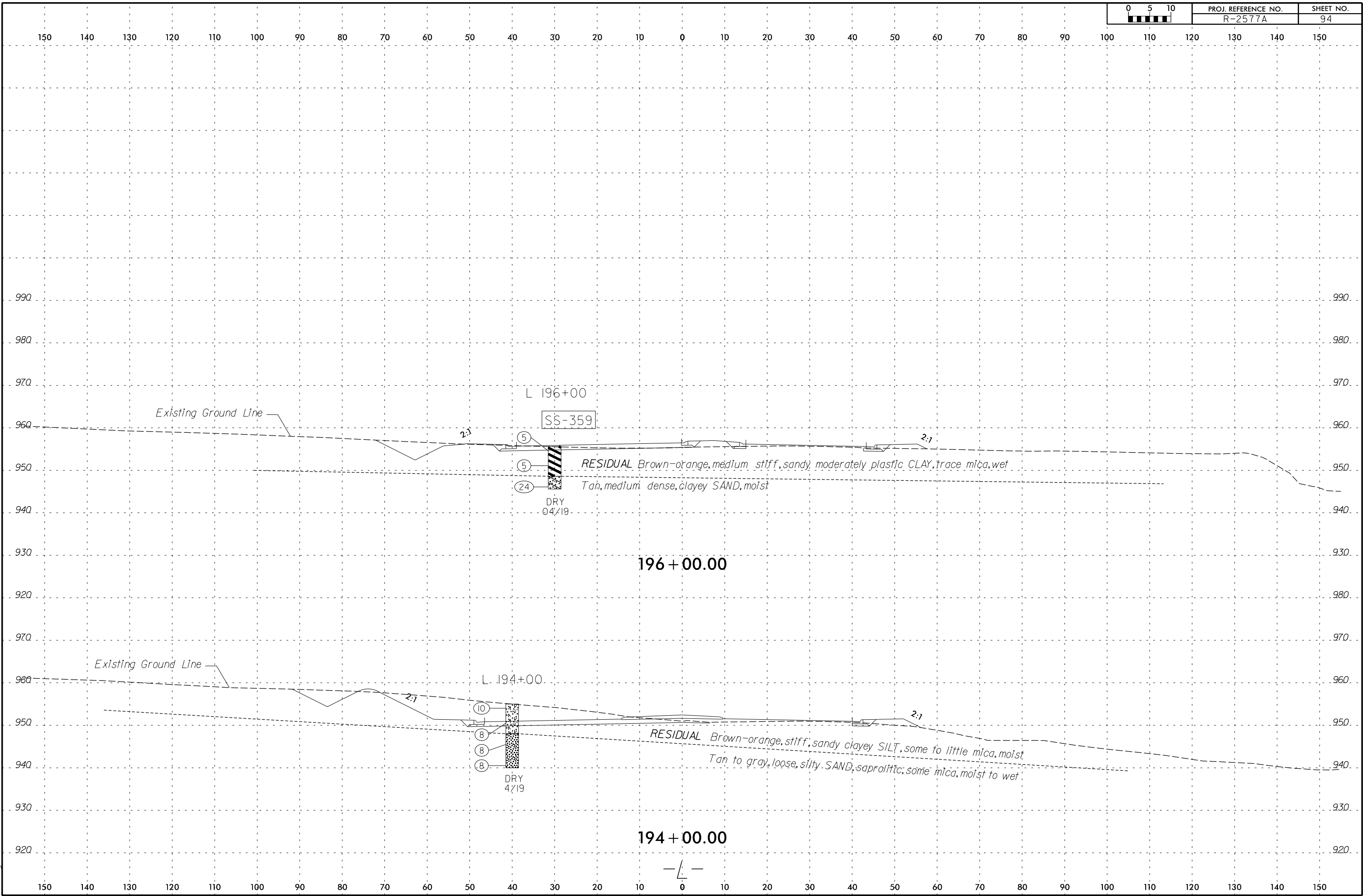




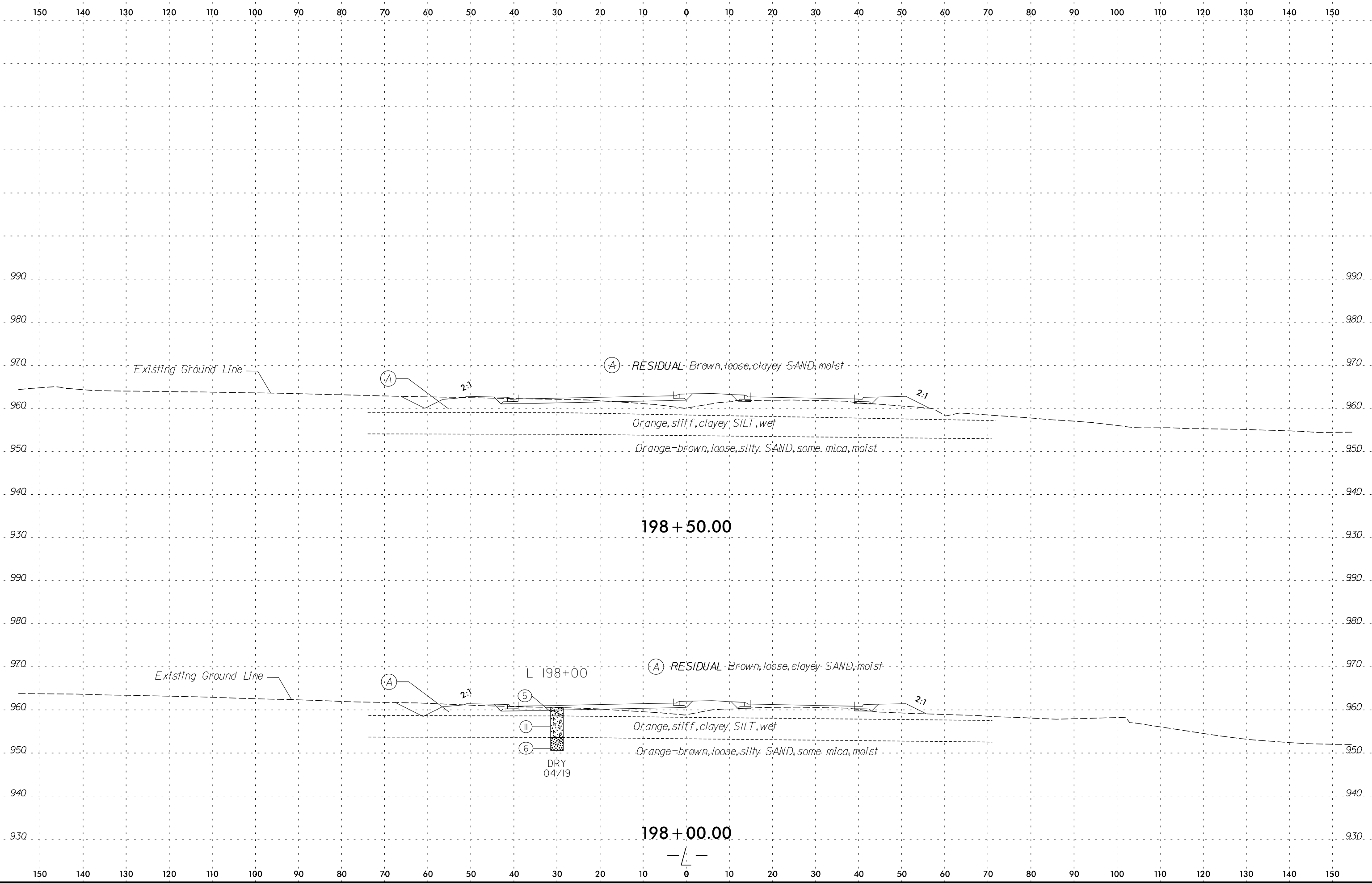






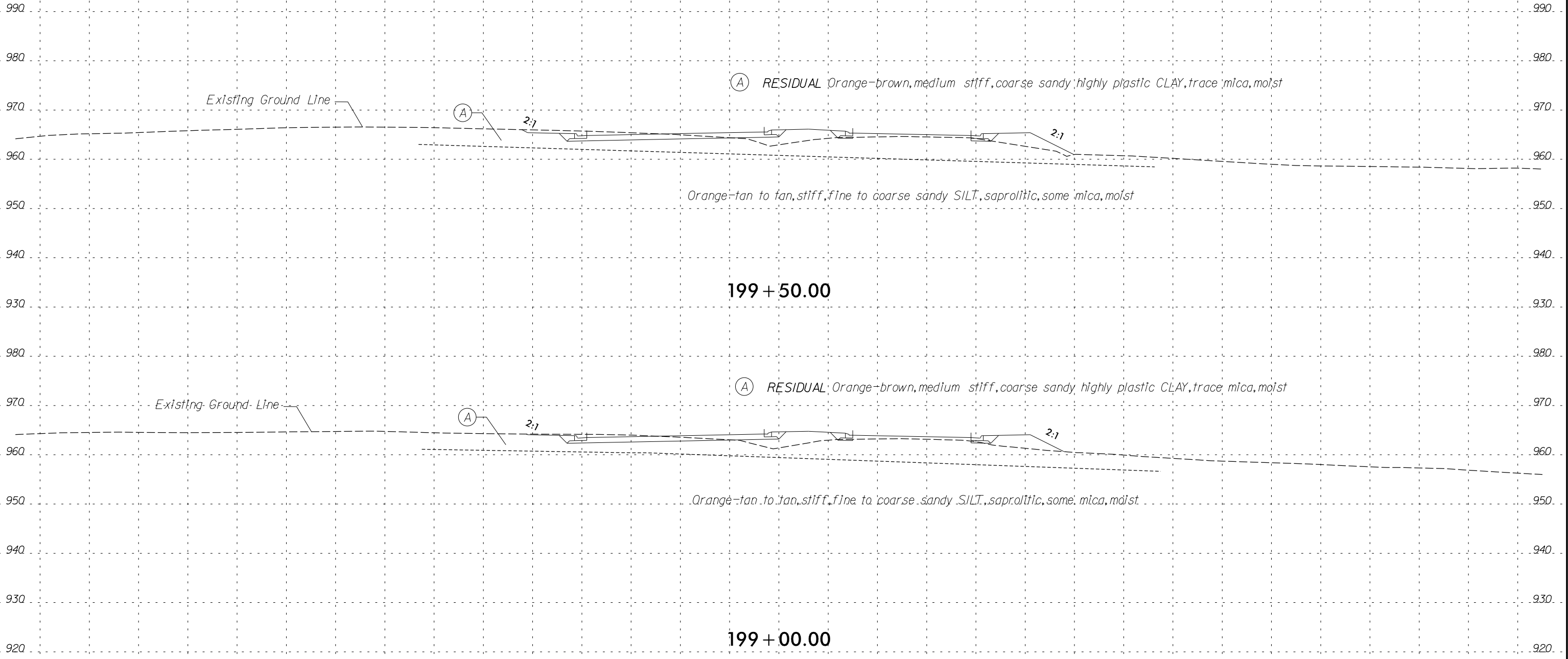


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150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



(A) RESIDUAL Orange-brown, medium stiff, coarse sandy, highly plastic CLAY, trace mica, moist

Orange-tan to tan, stiff, fine to coarse sandy SILT, saprolitic, some mica, moist

199 + 50.00

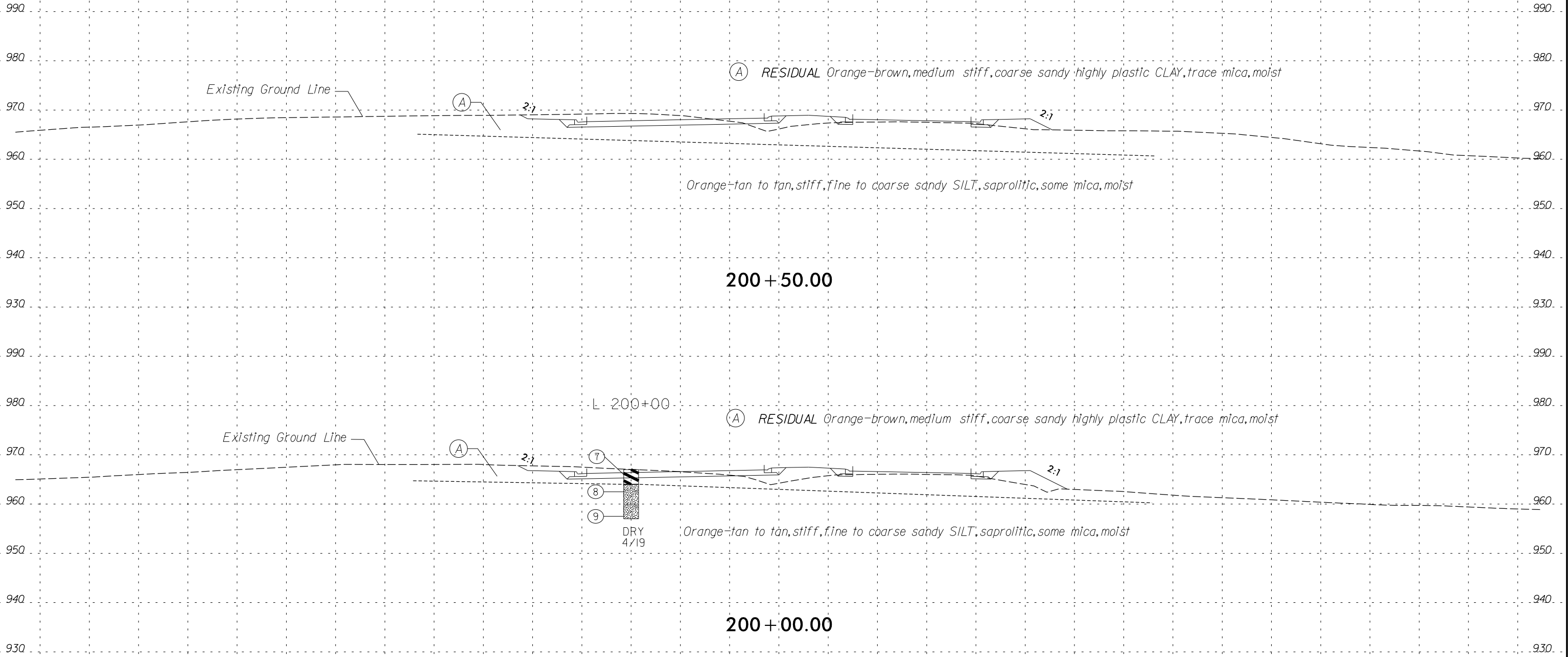
(A) RESIDUAL Orange-brown, medium stiff, coarse sandy, highly plastic CLAY, trace mica, moist

Orange-tan to tan, stiff, fine to coarse sandy SILT, saprolitic, some mica, moist

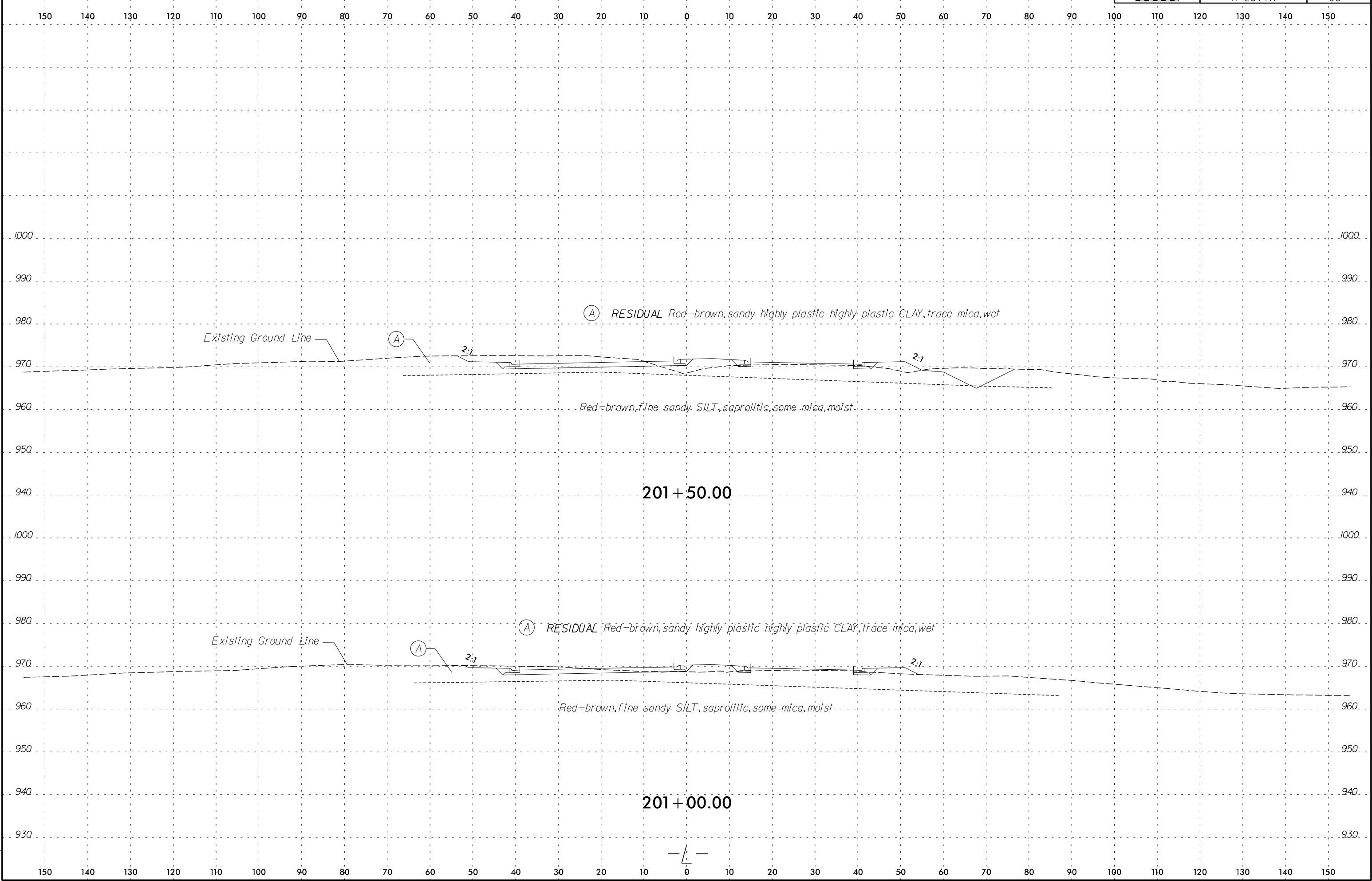
199 + 00.00

1/1

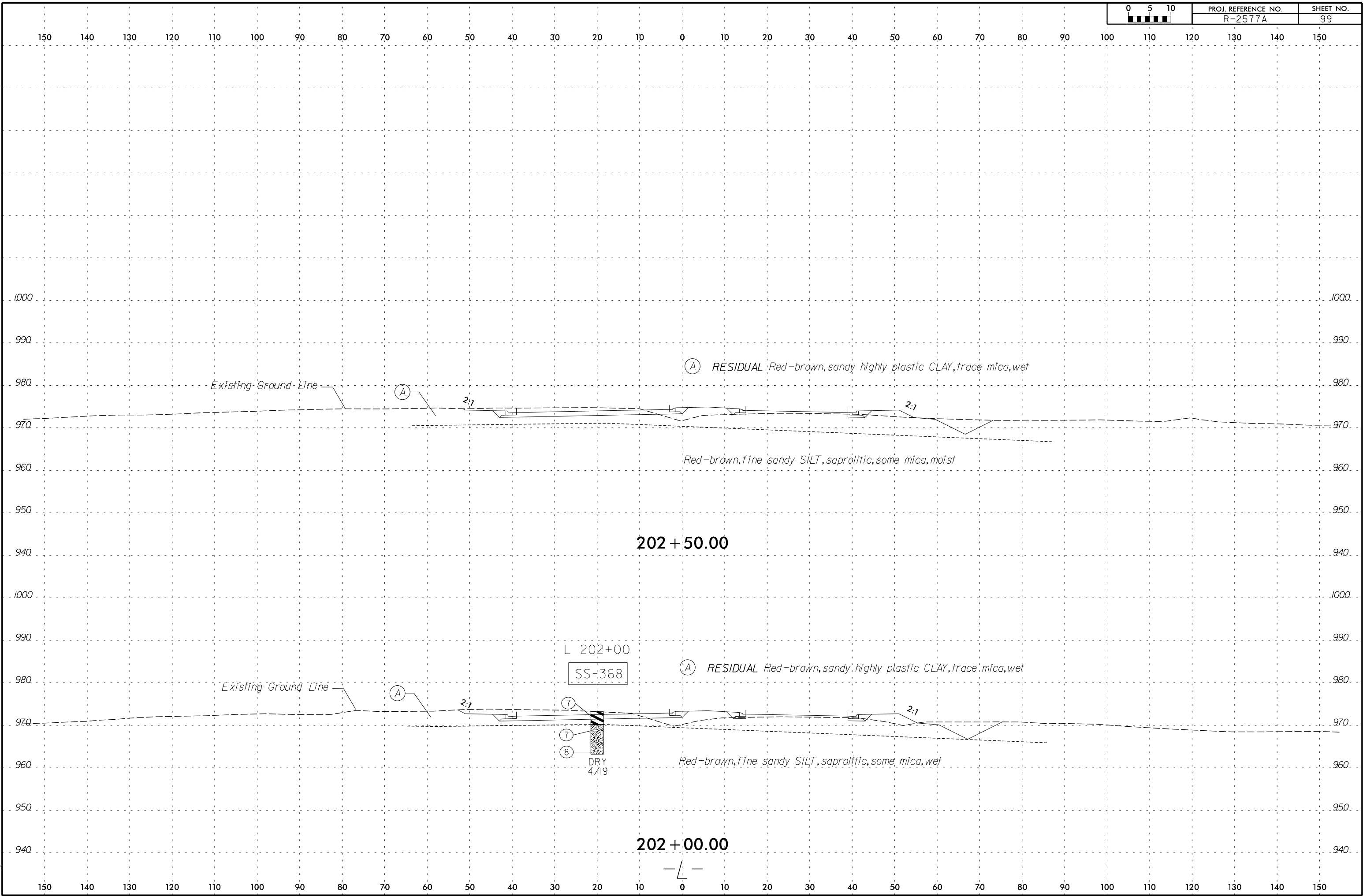
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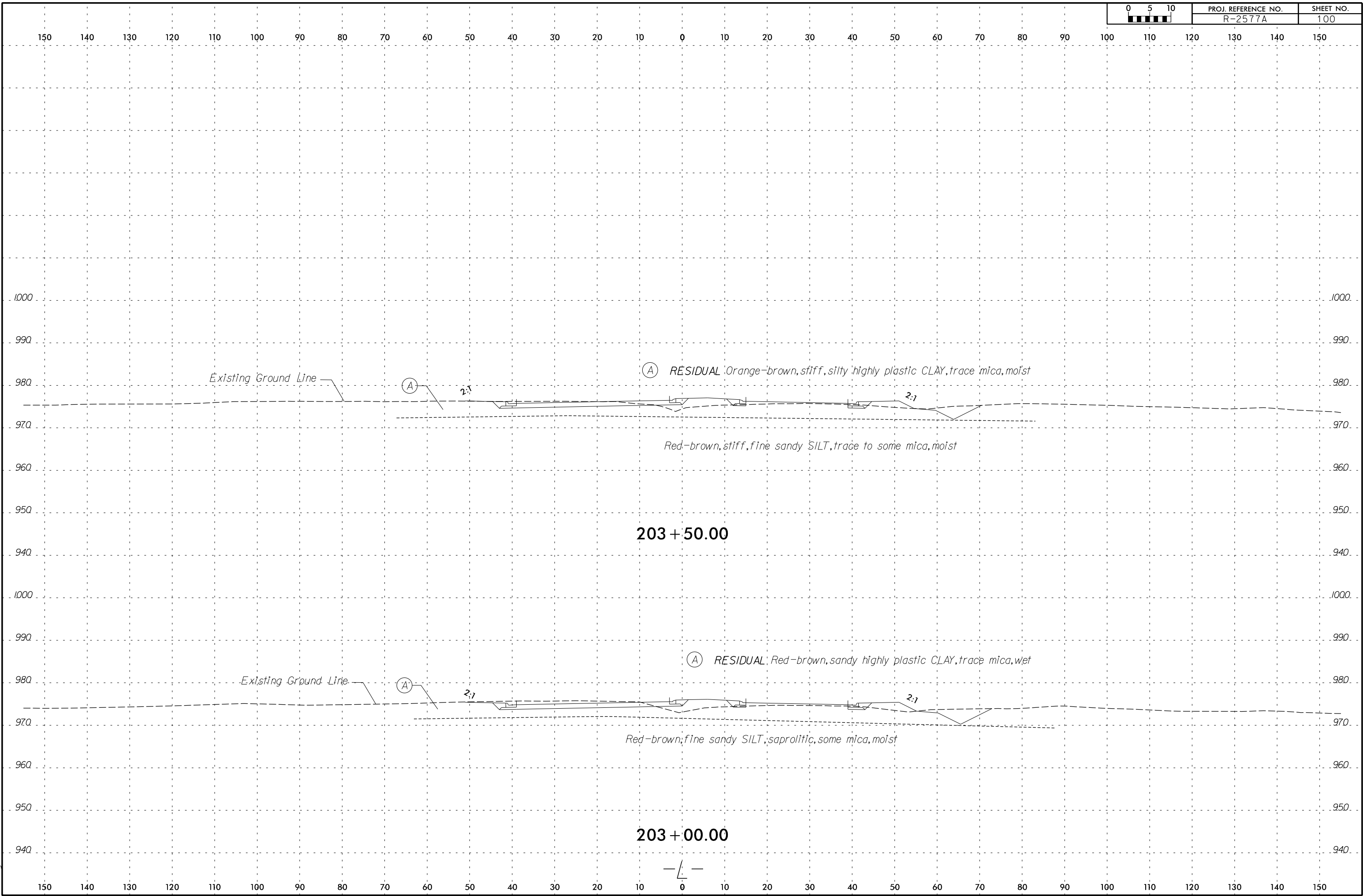
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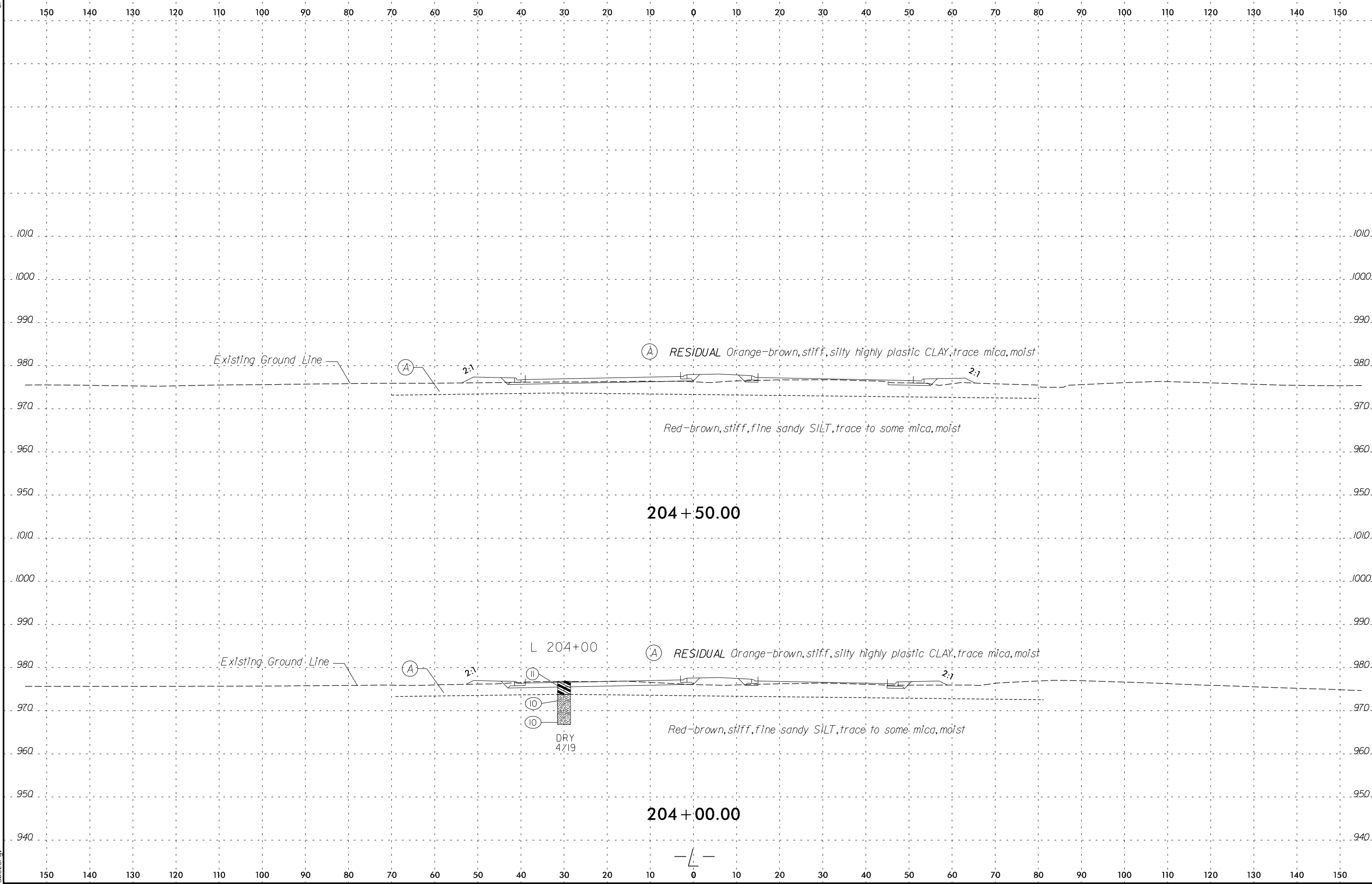


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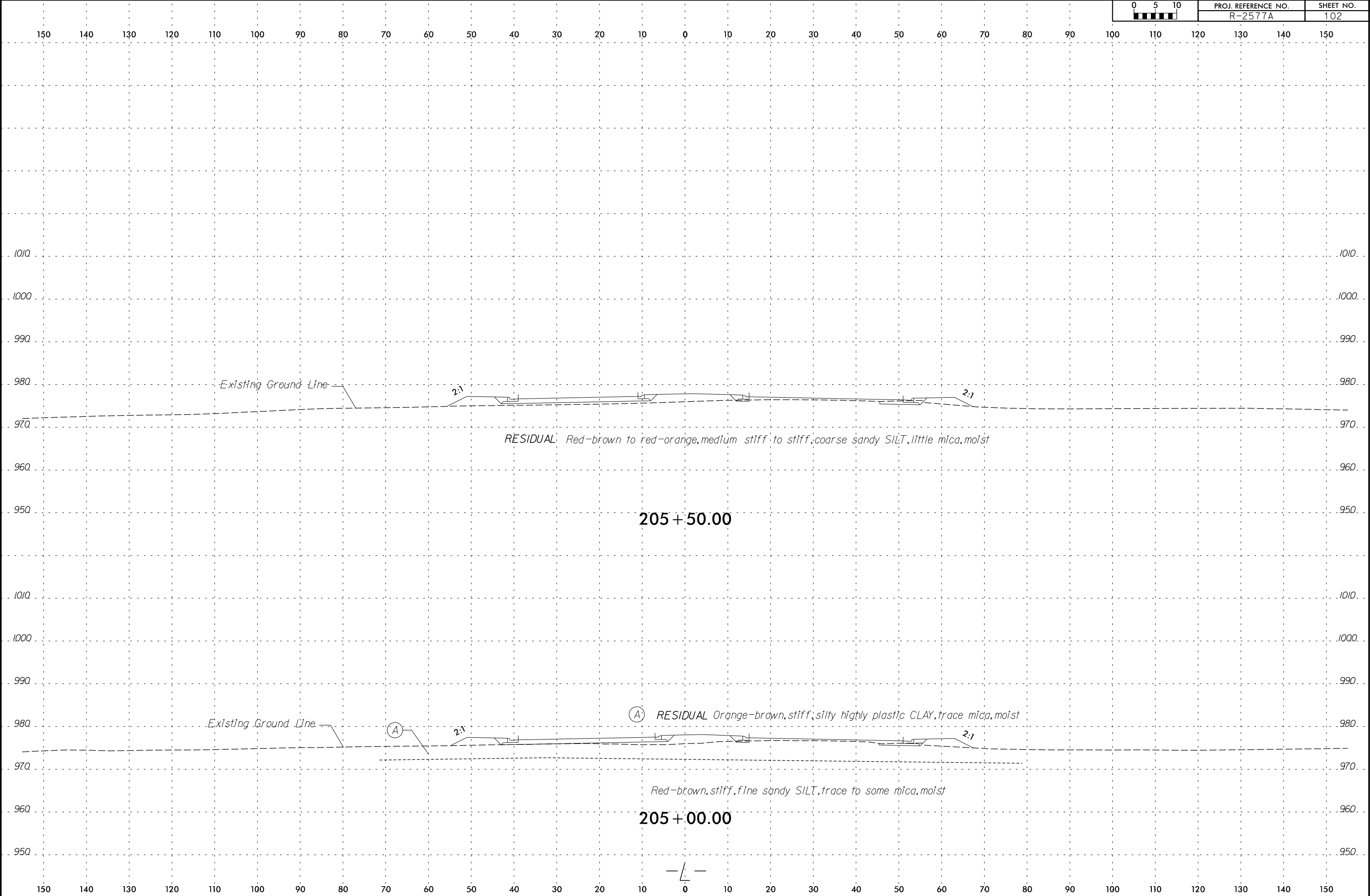


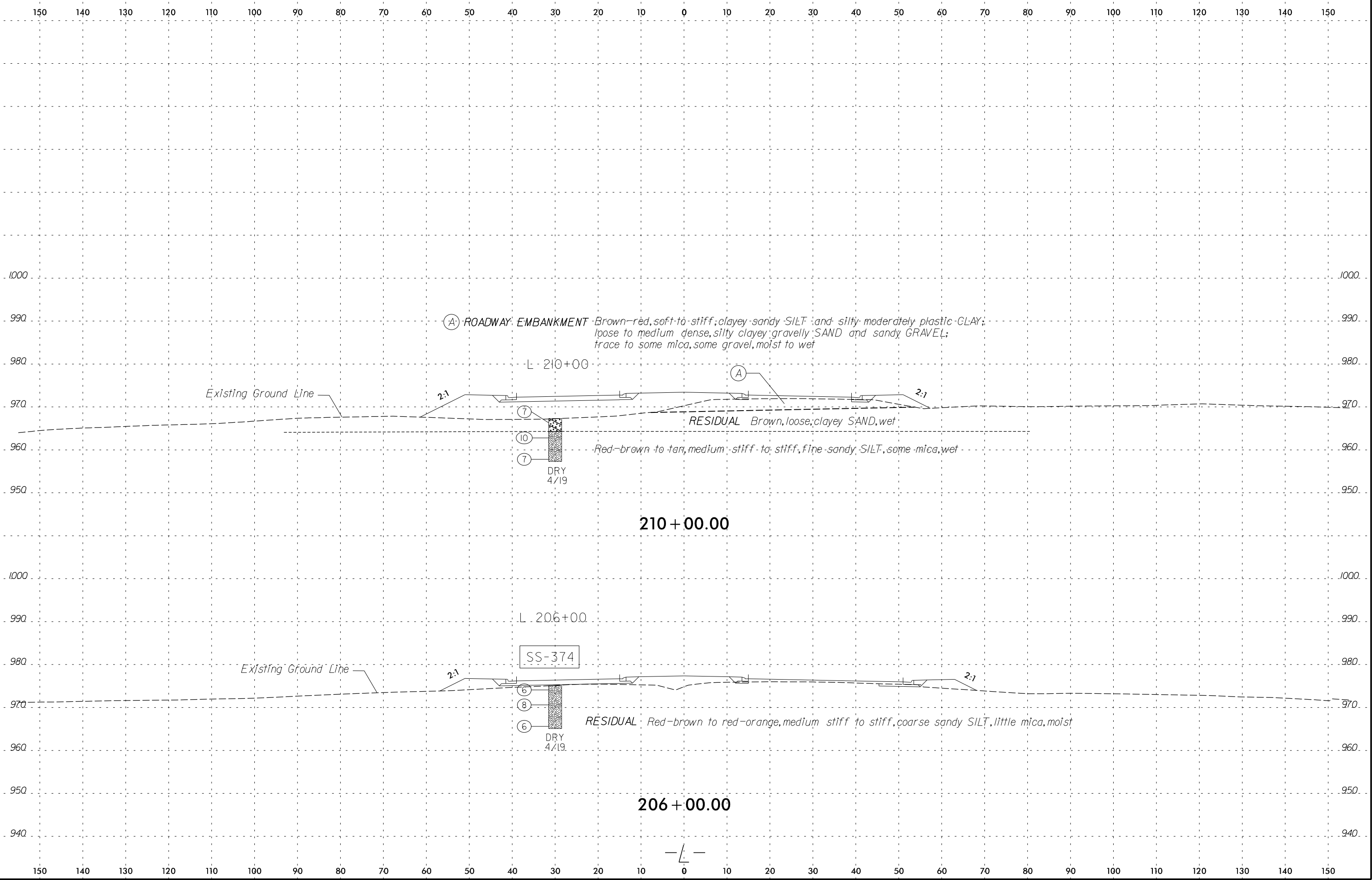
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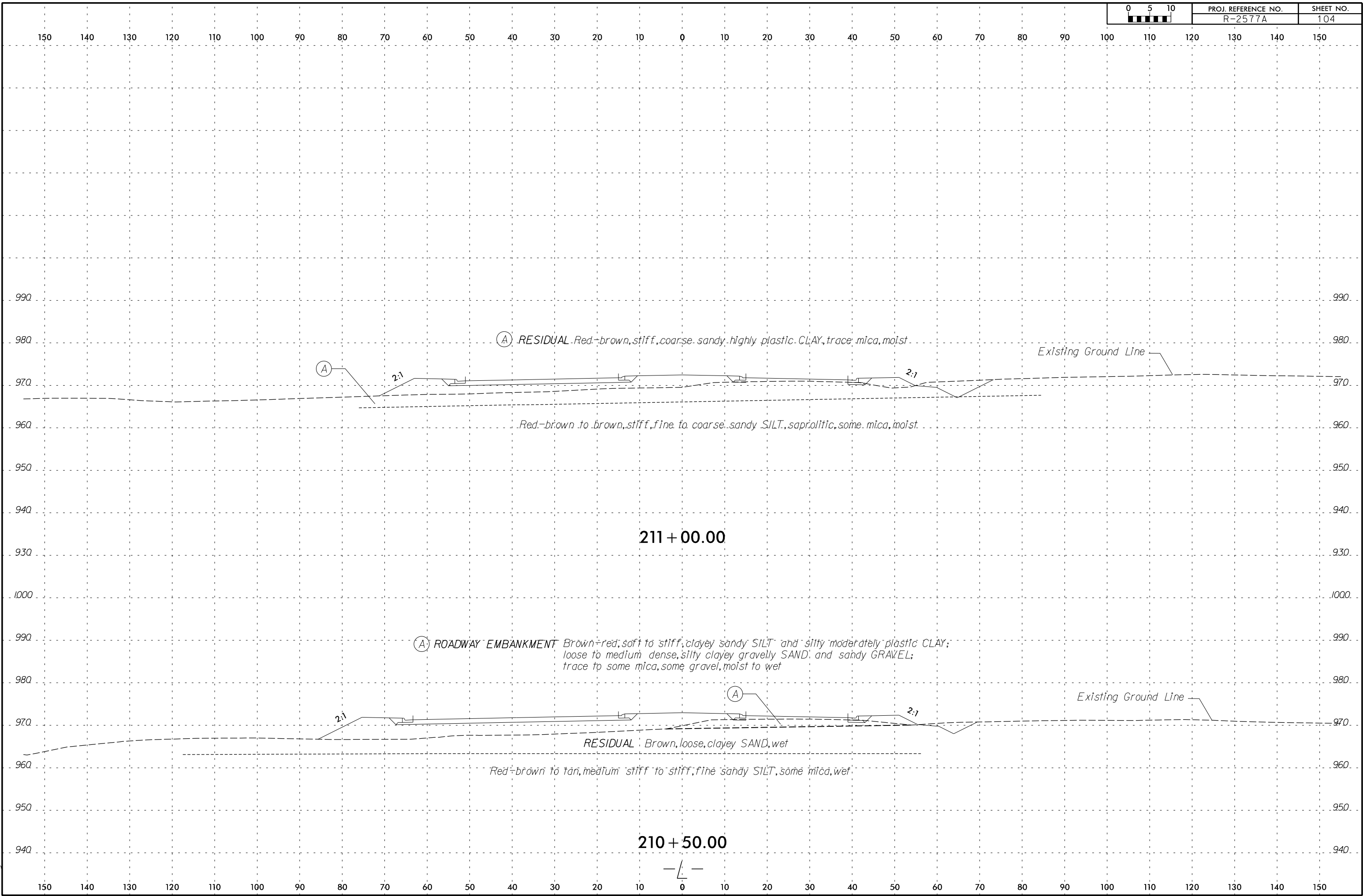


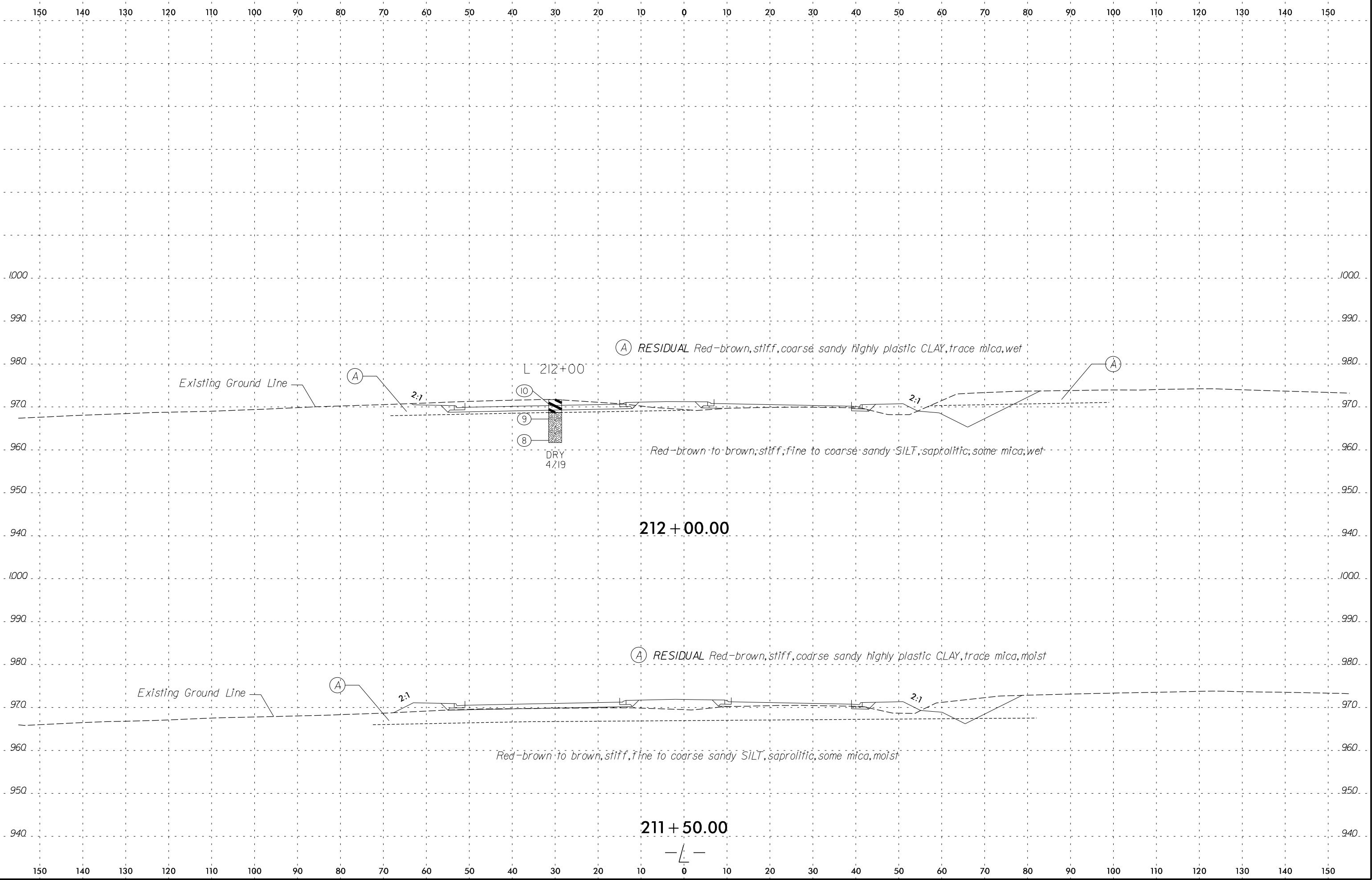






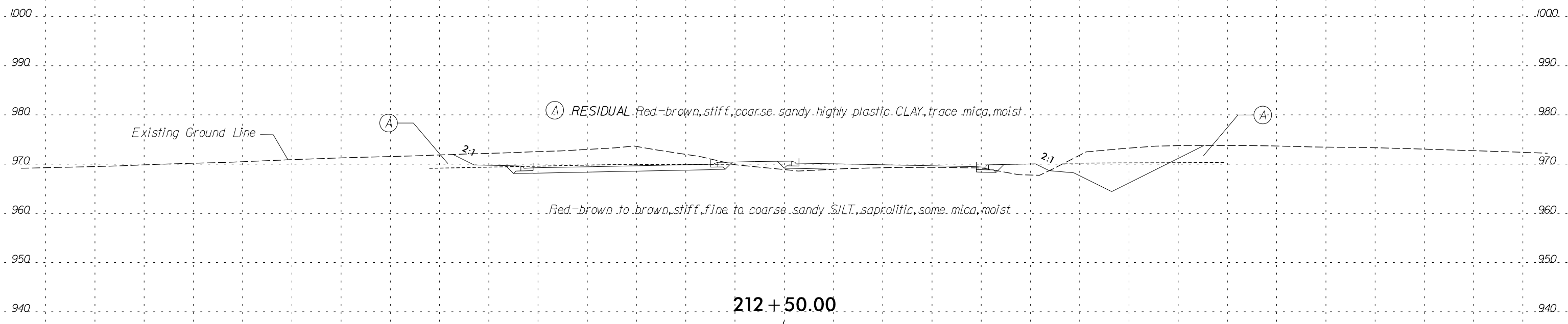
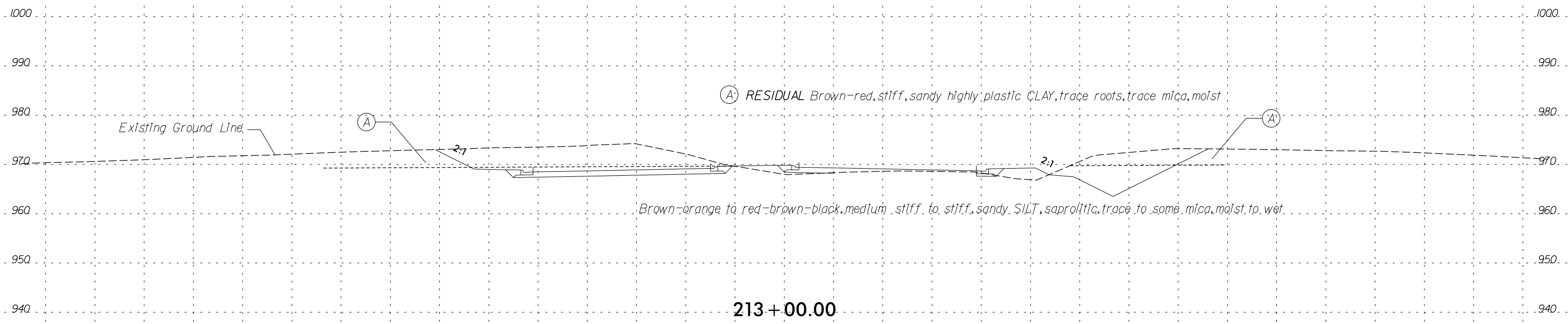






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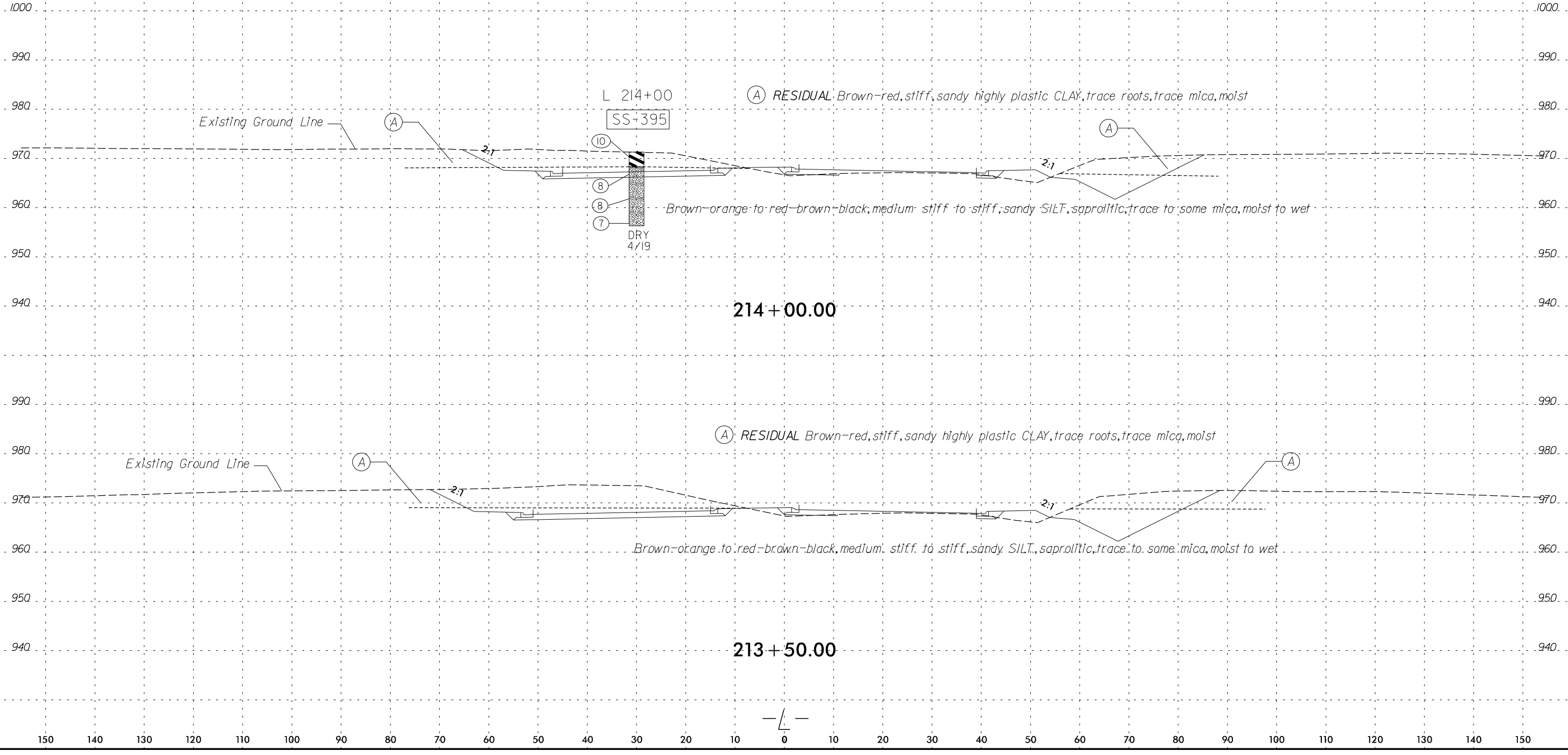
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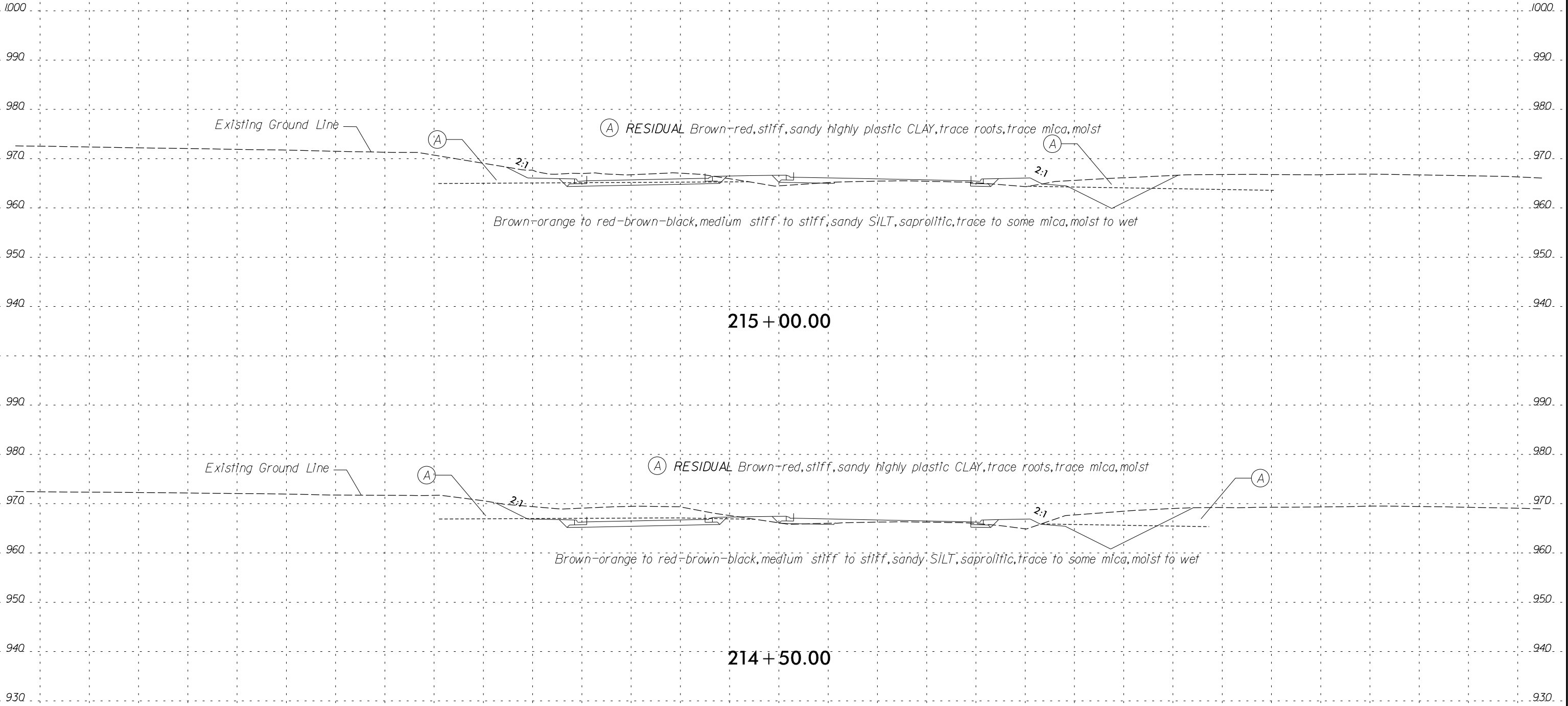
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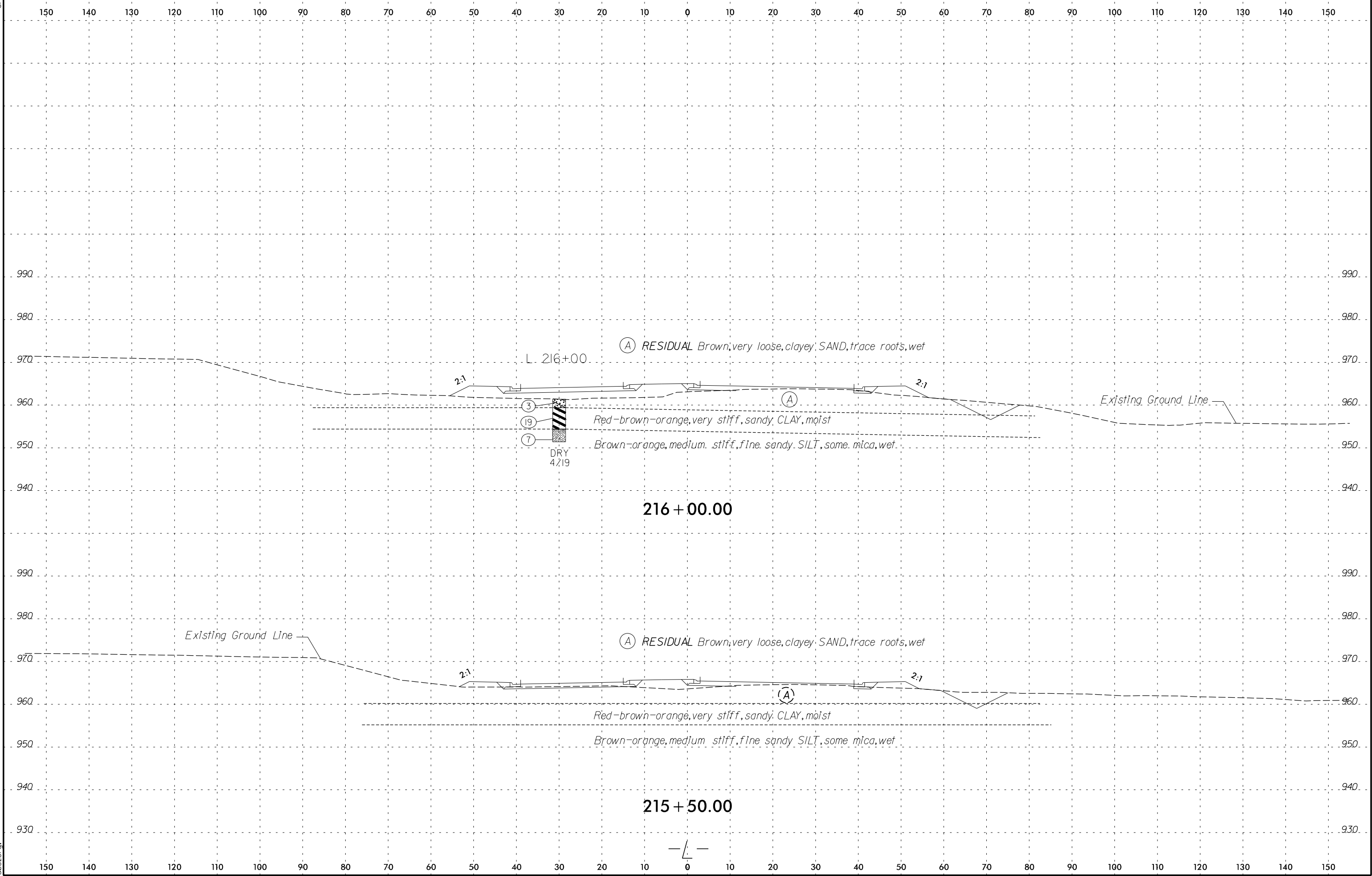
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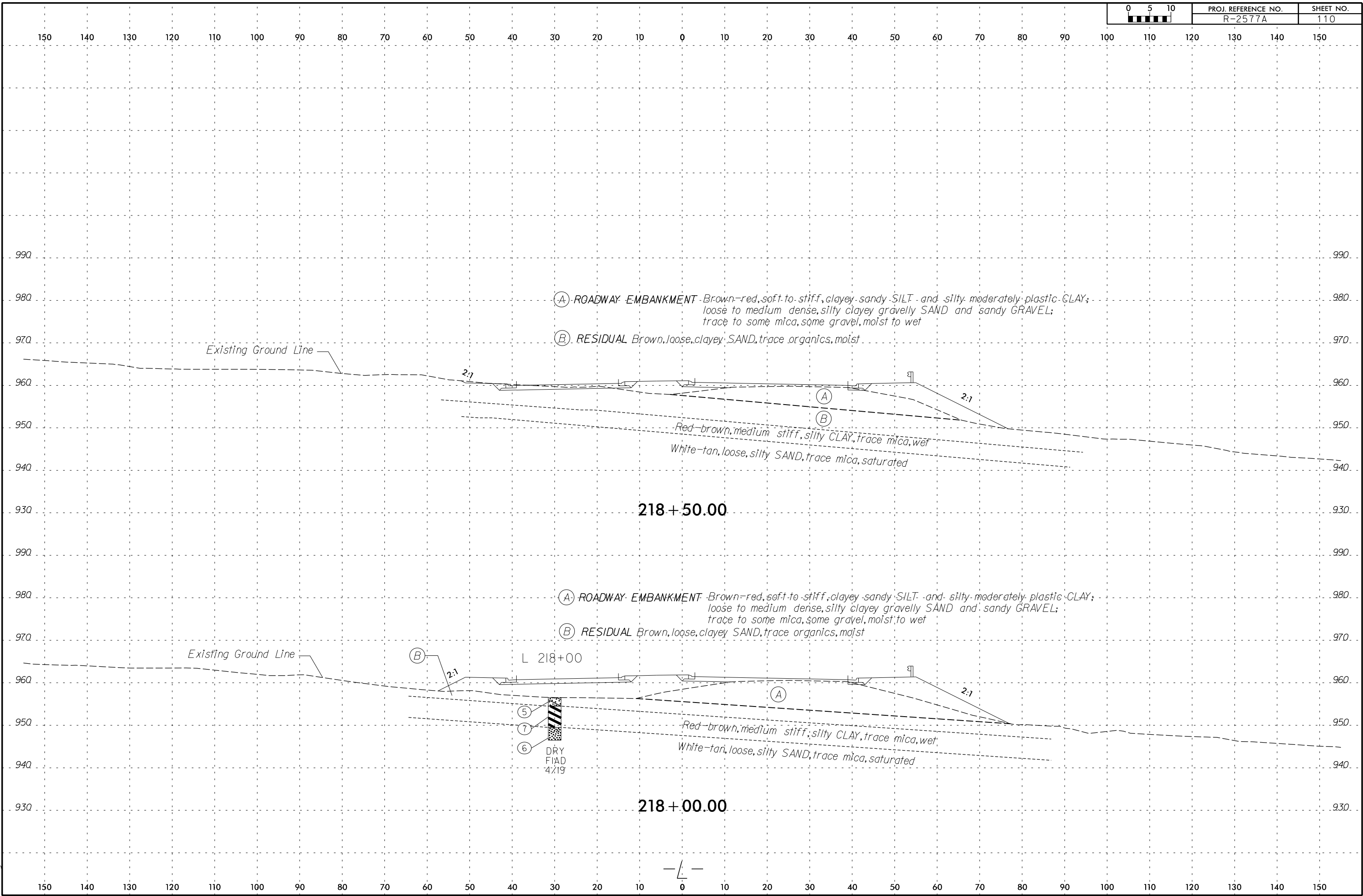
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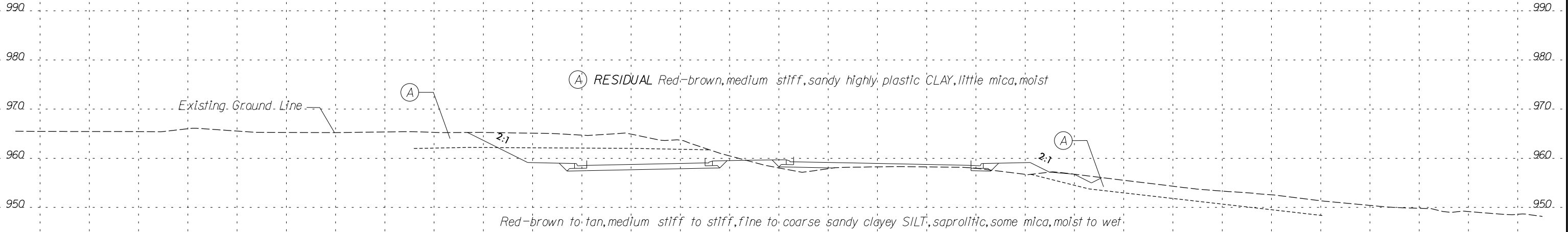
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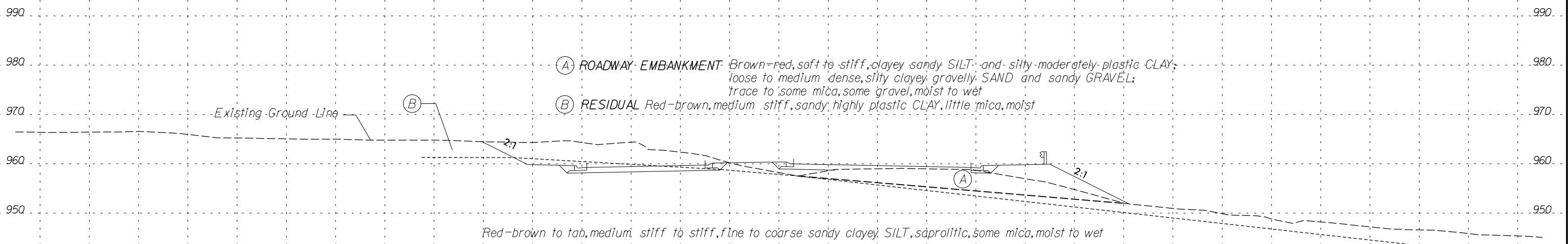




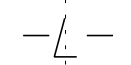
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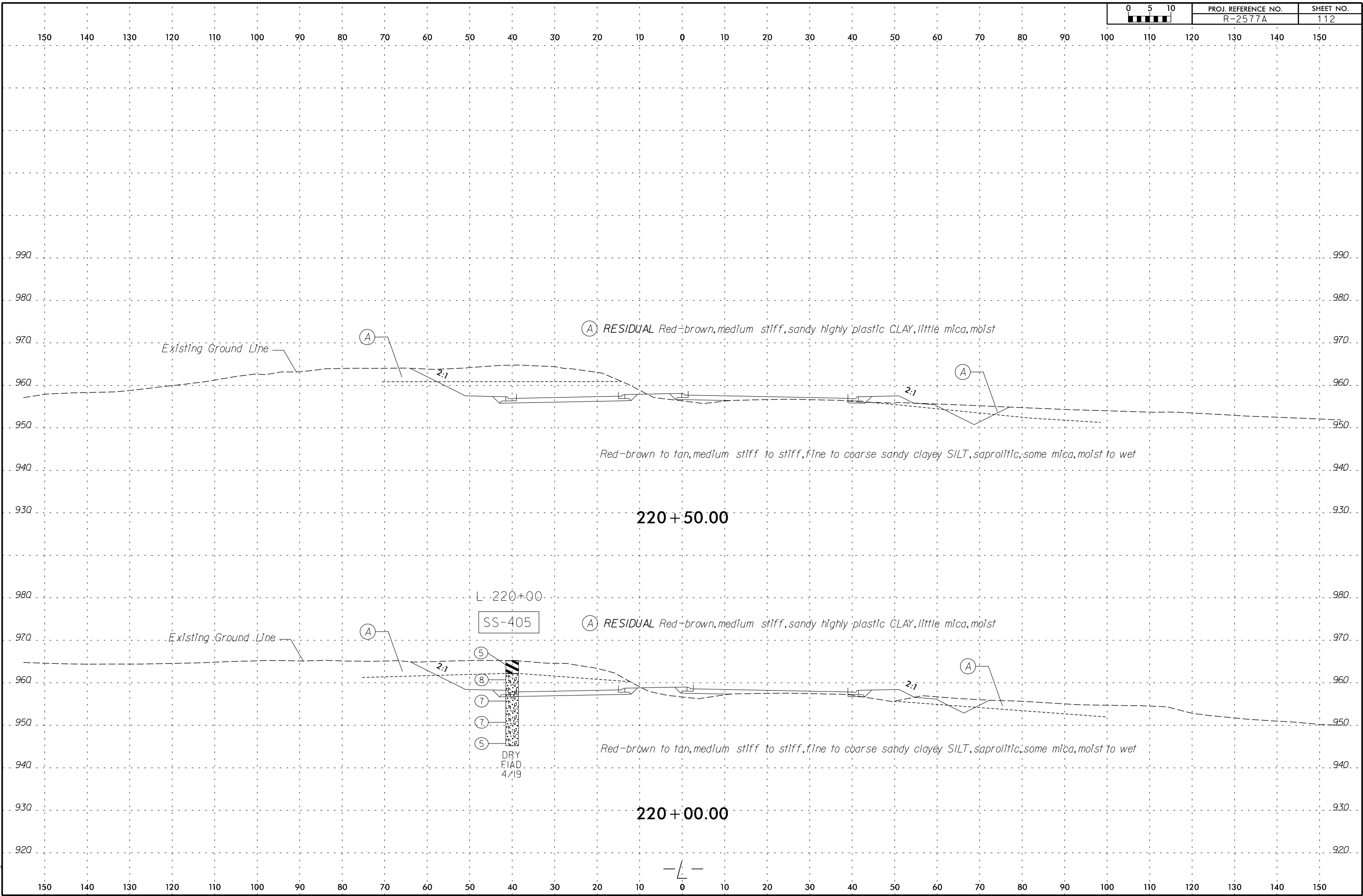
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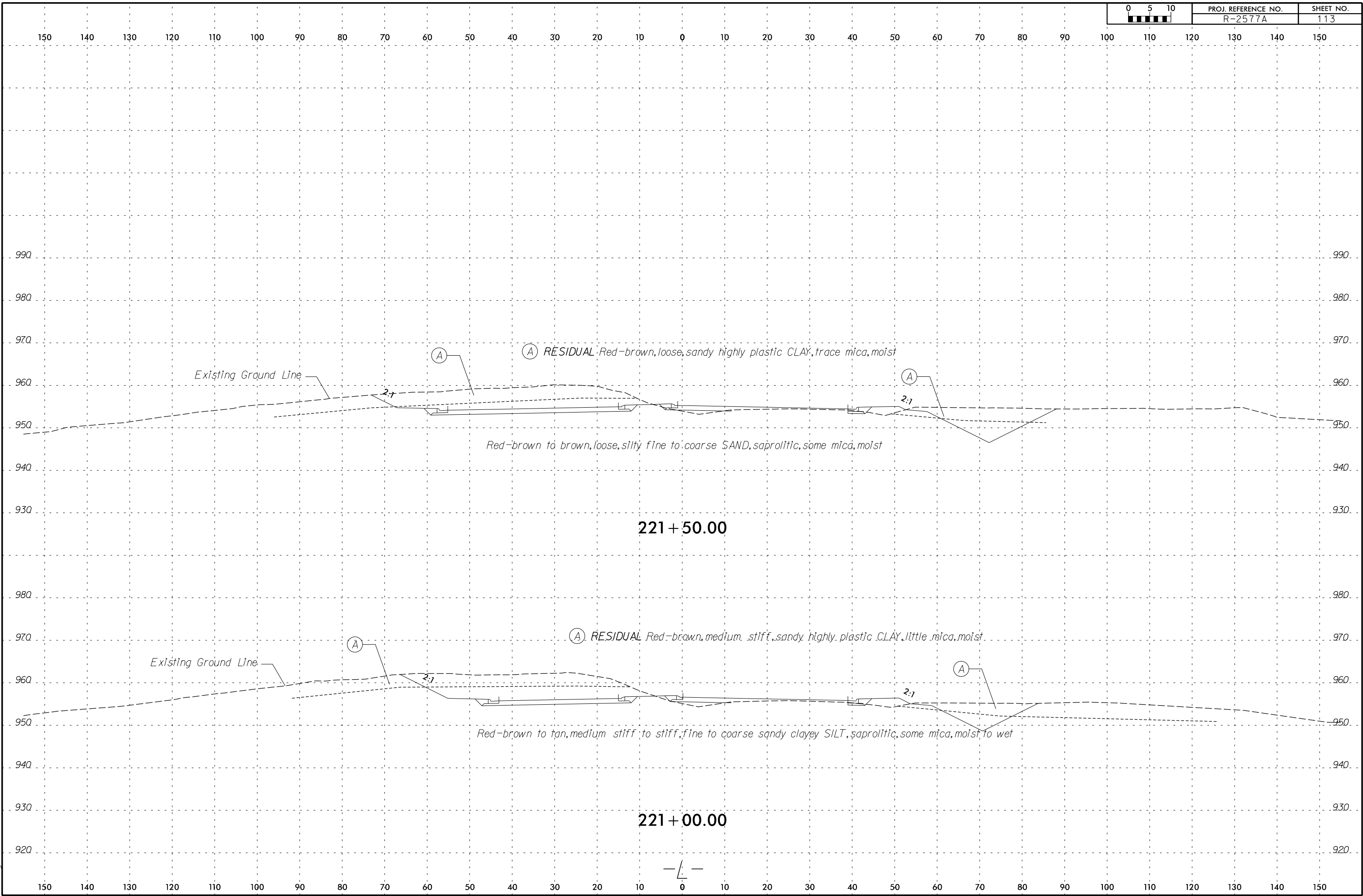


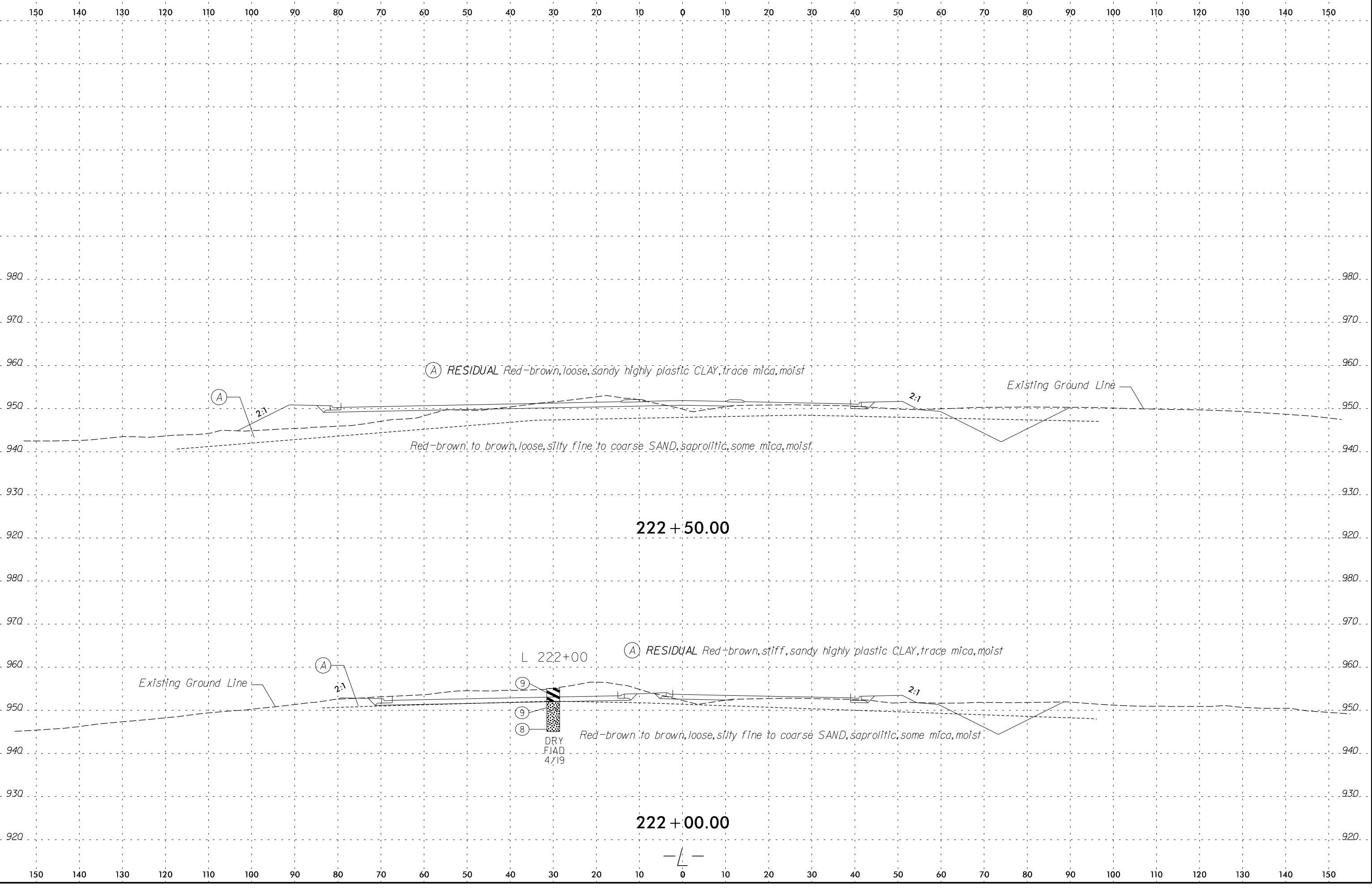
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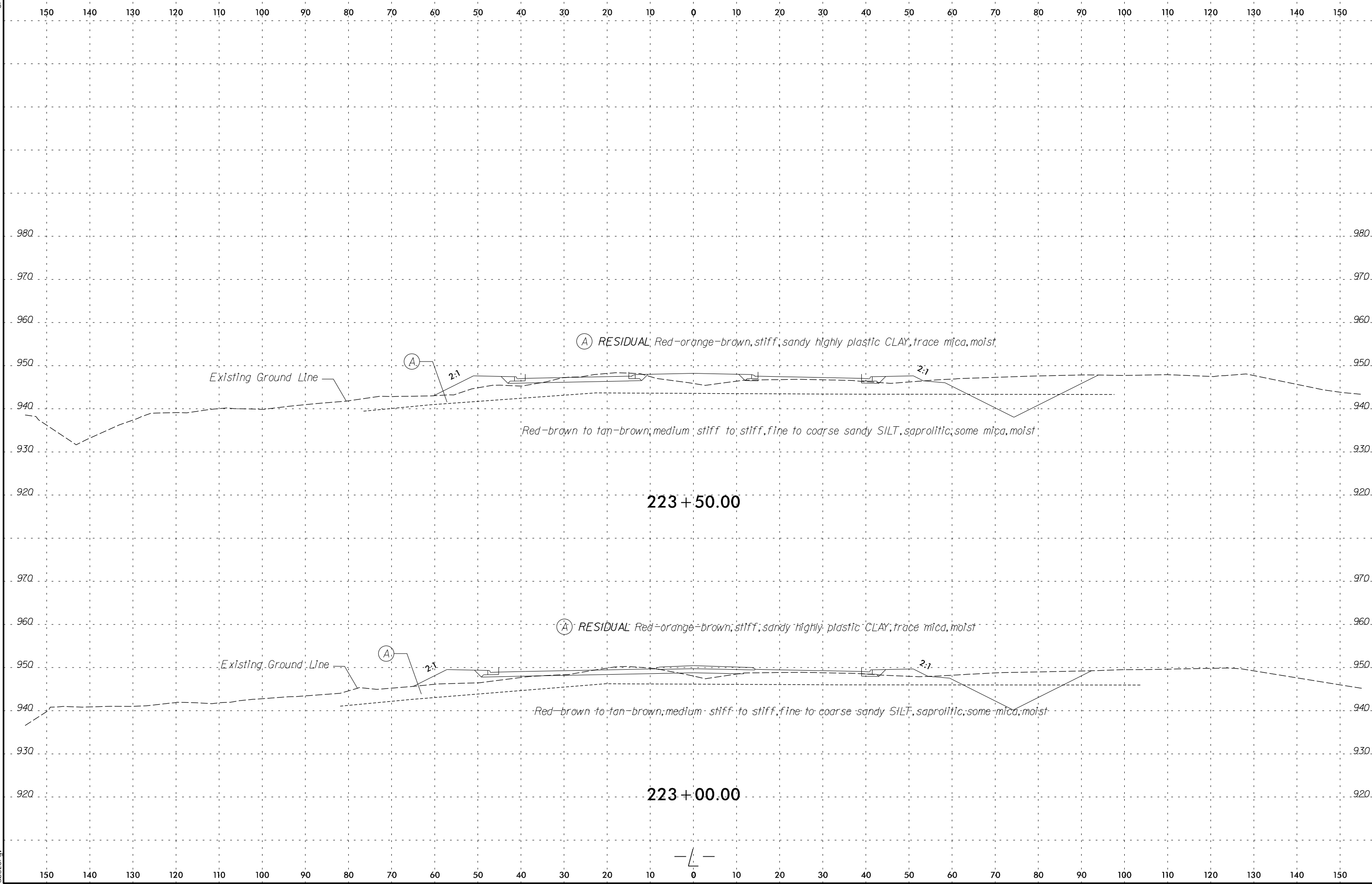


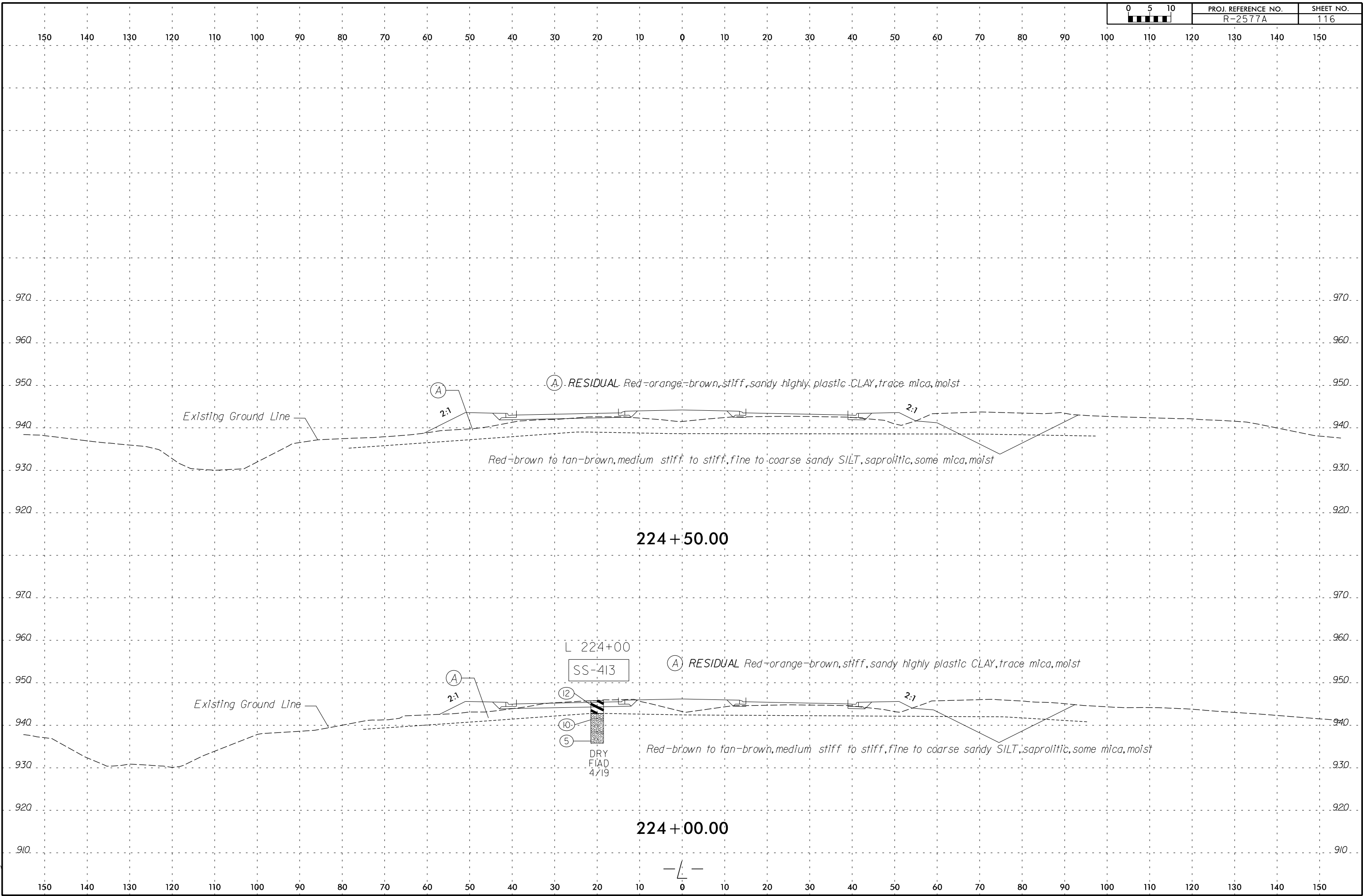
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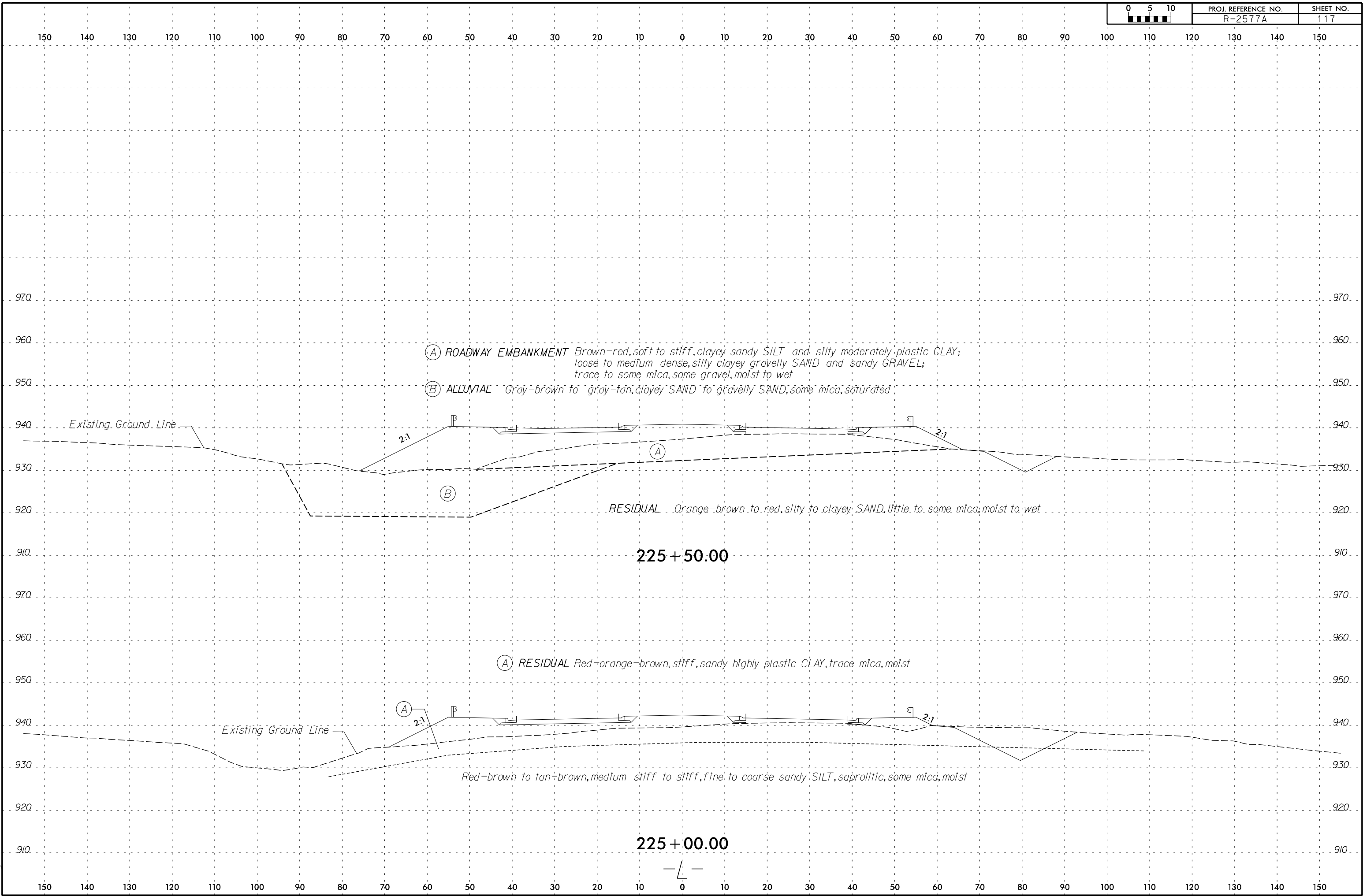




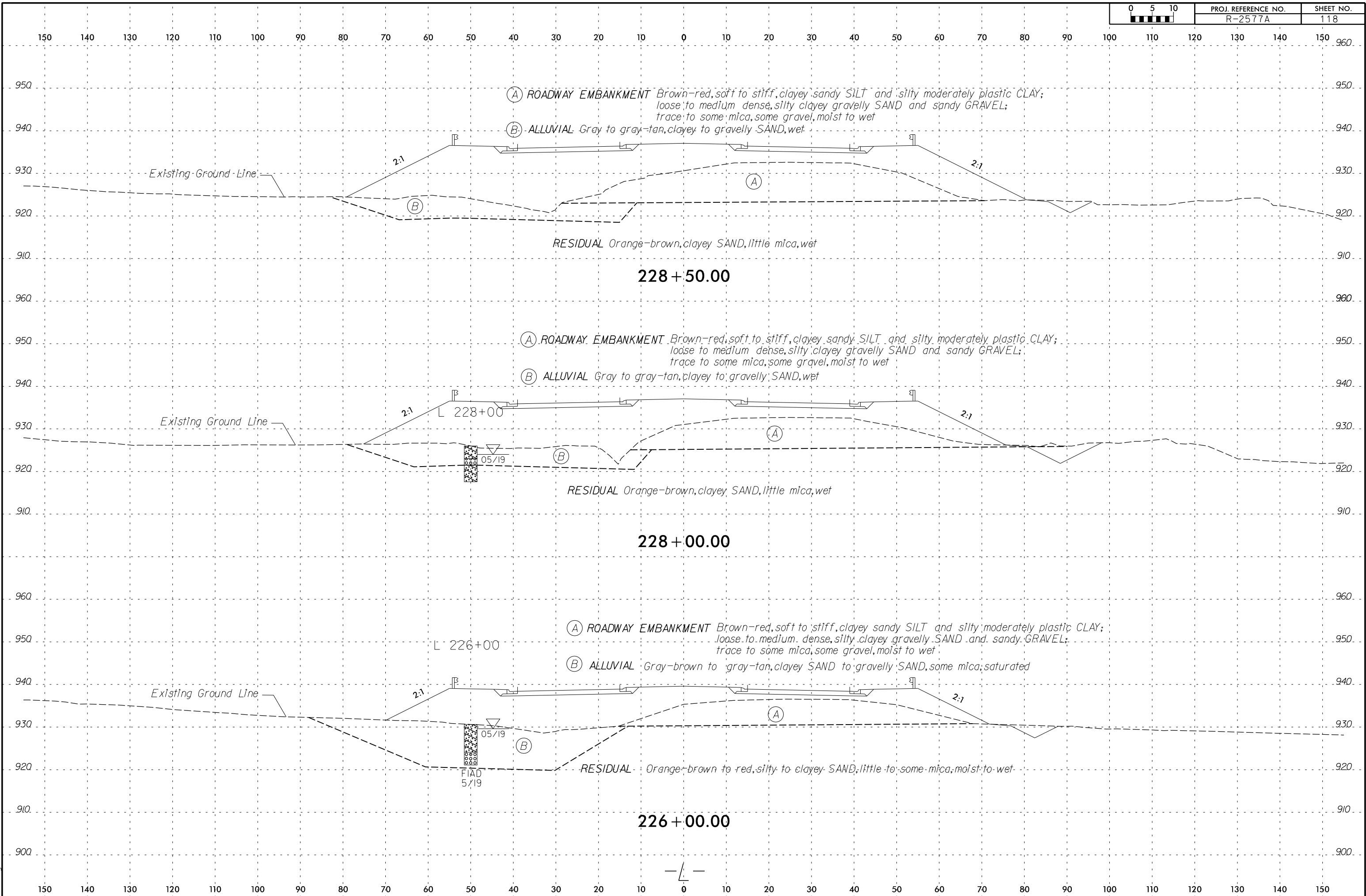


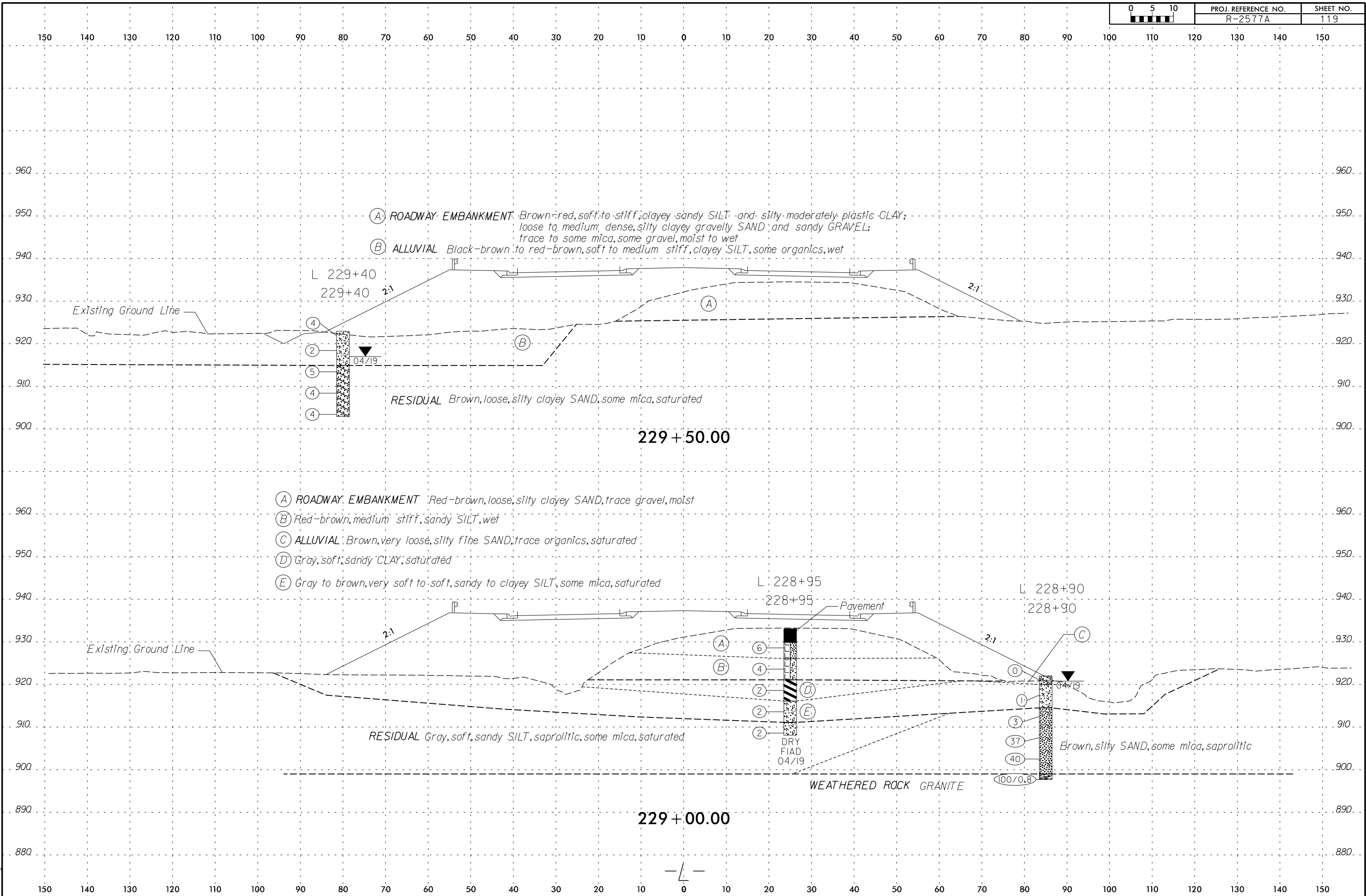


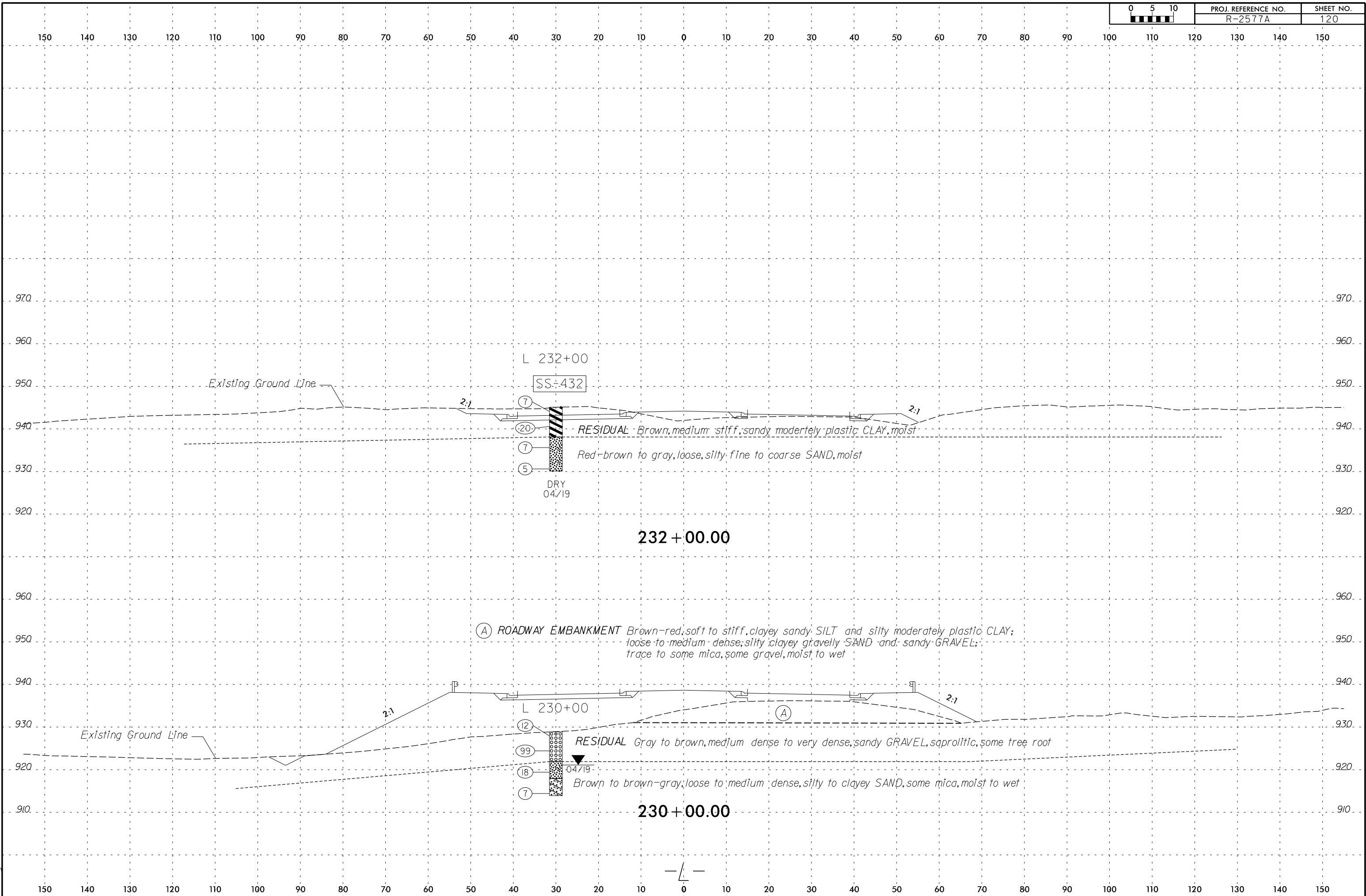


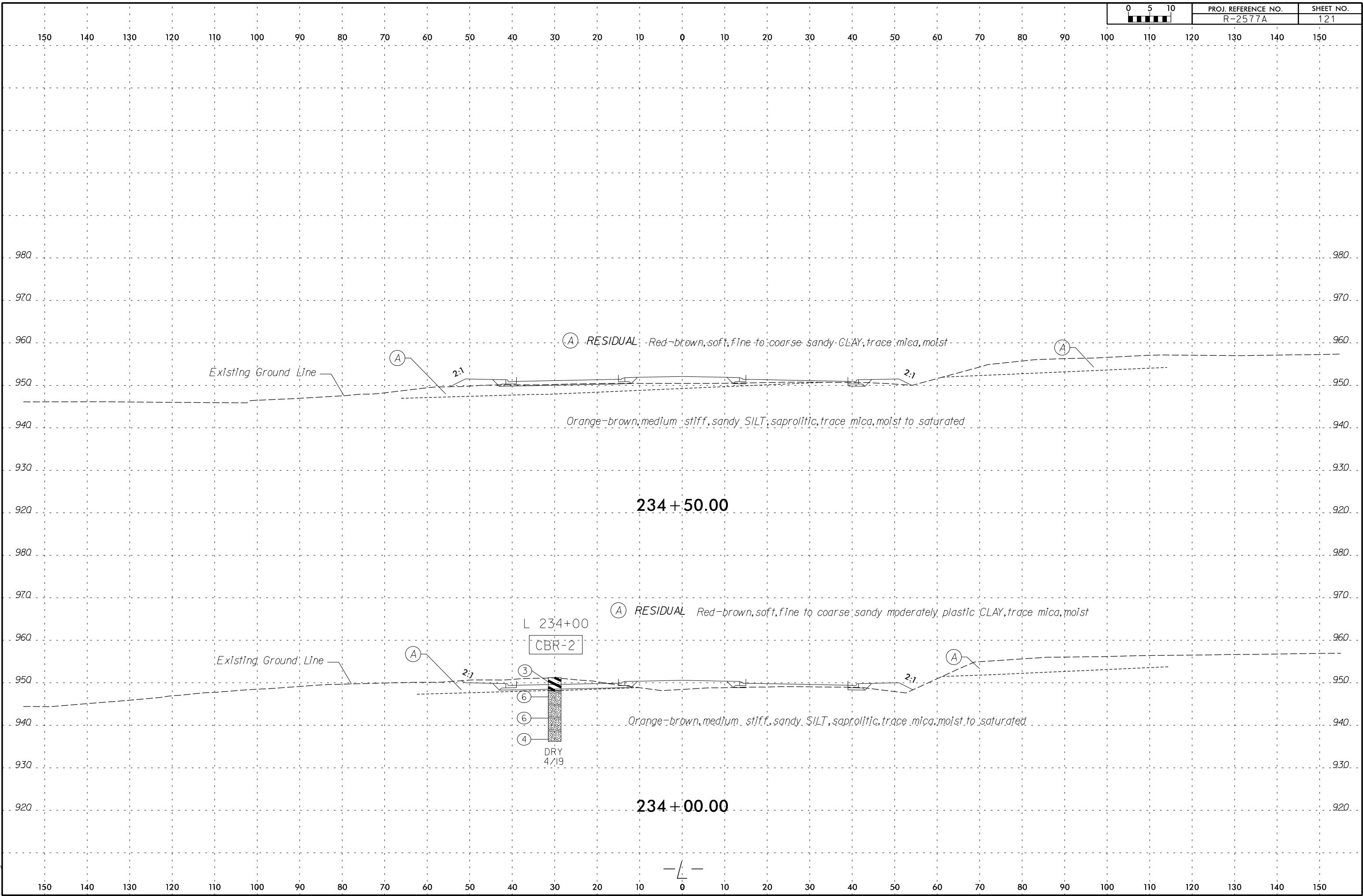


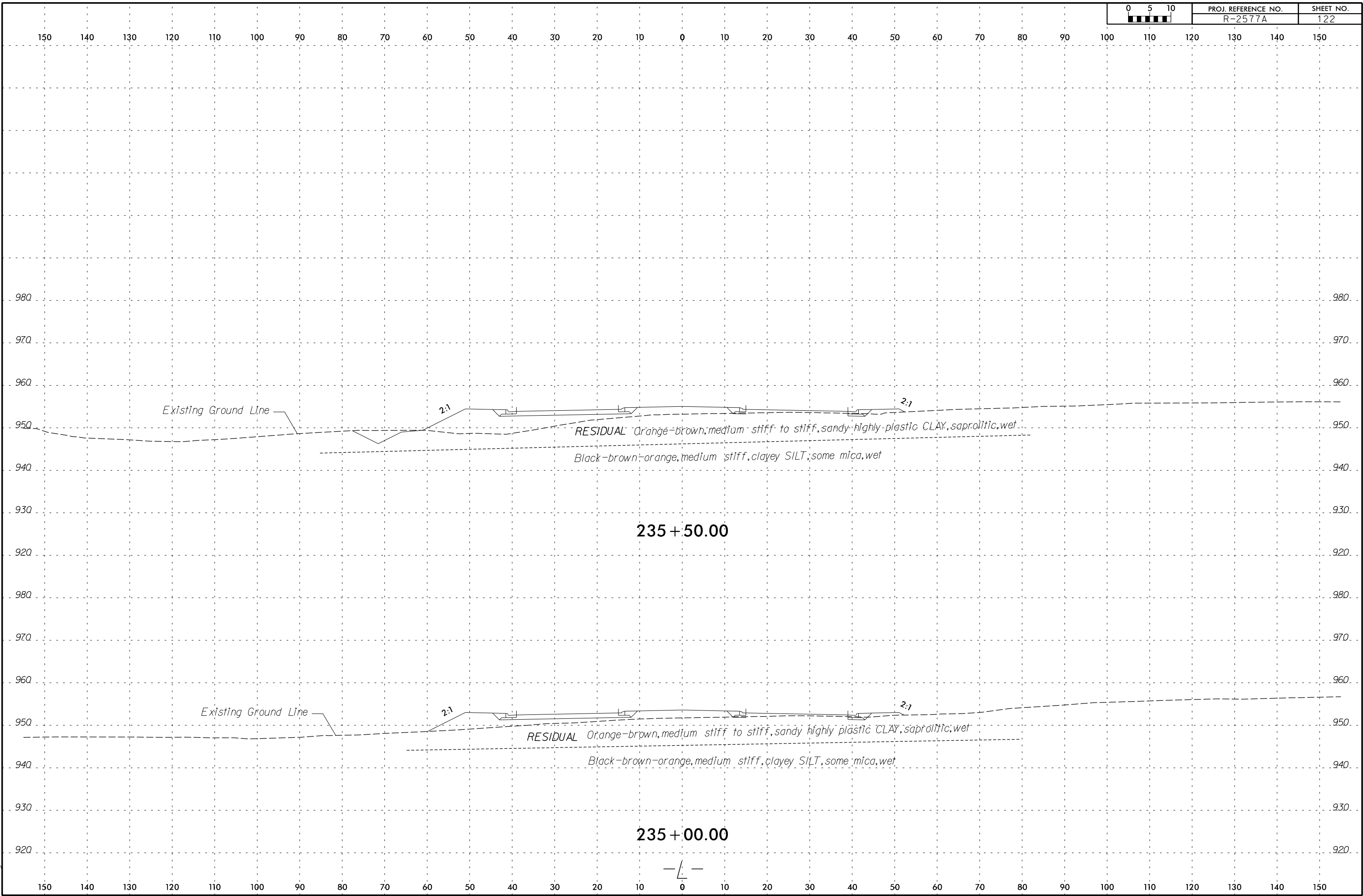


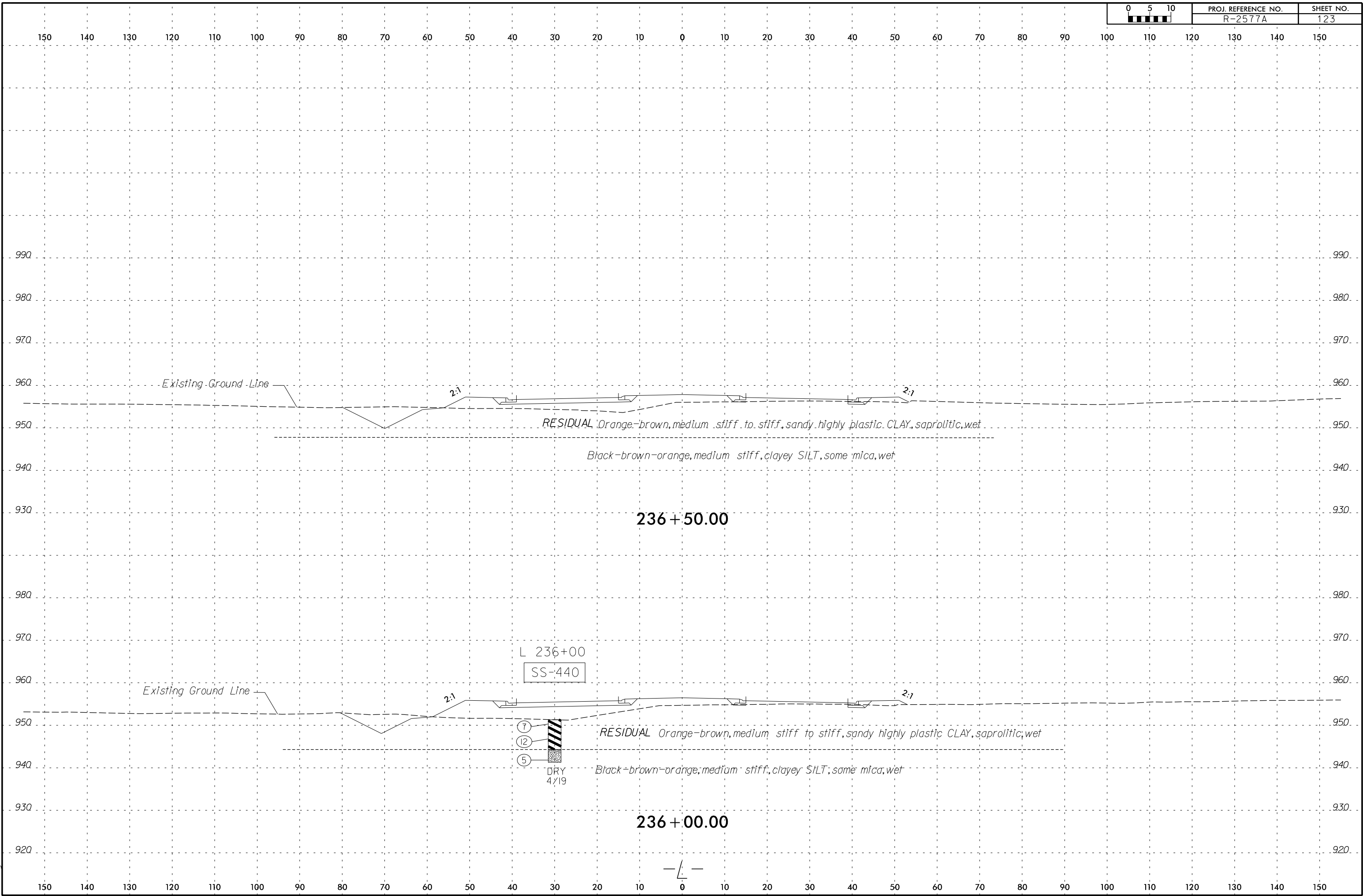




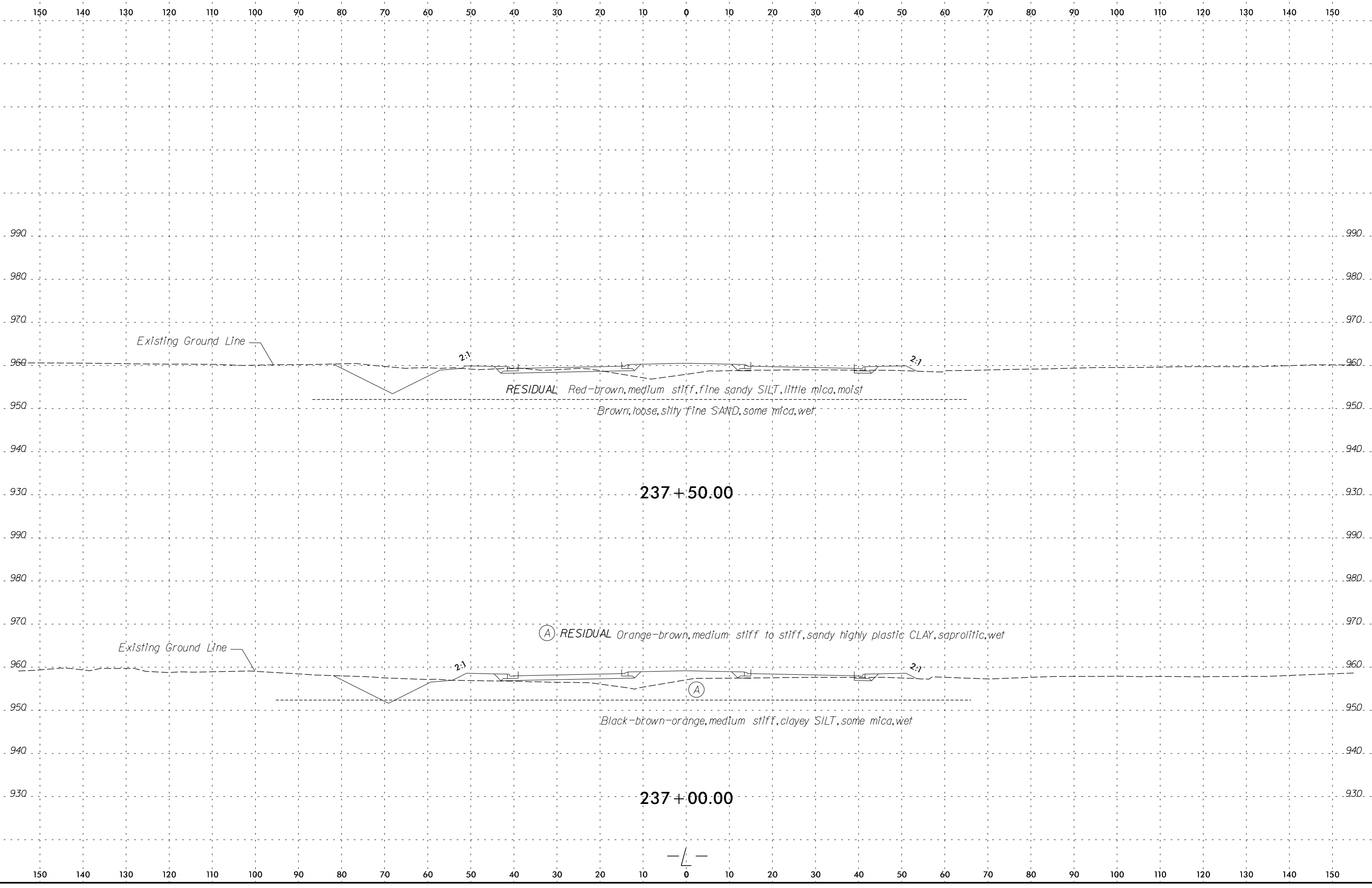






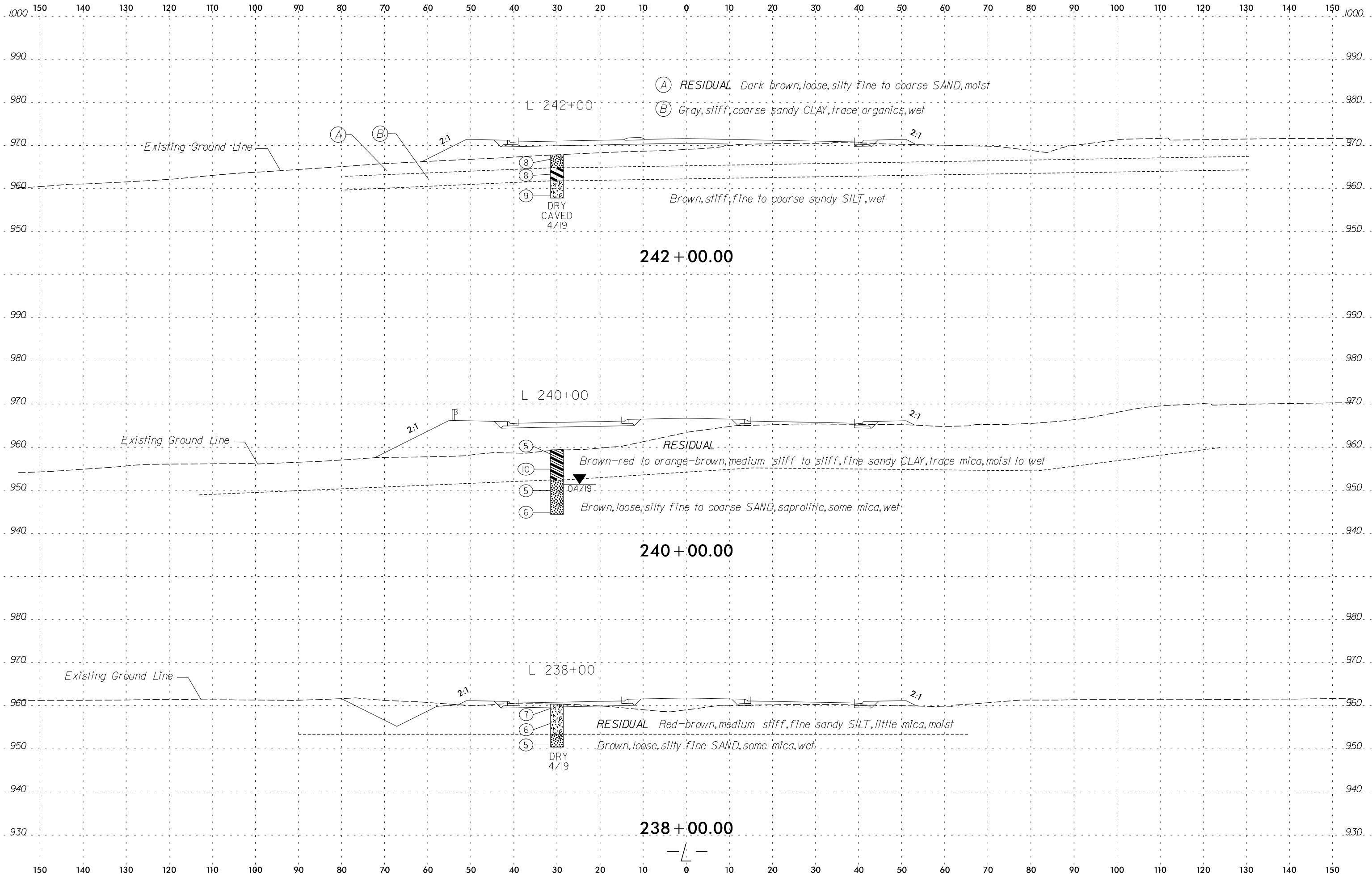


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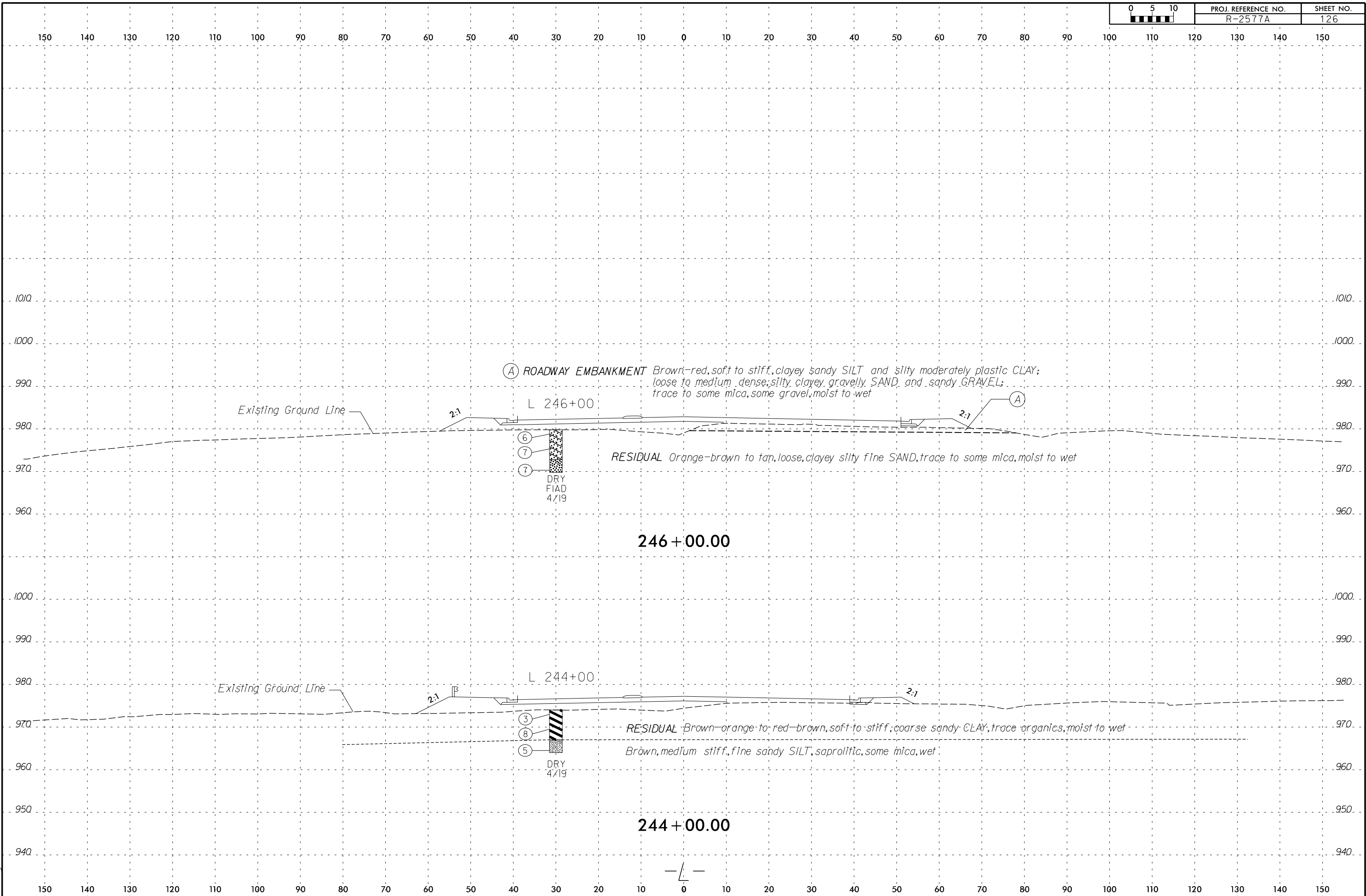


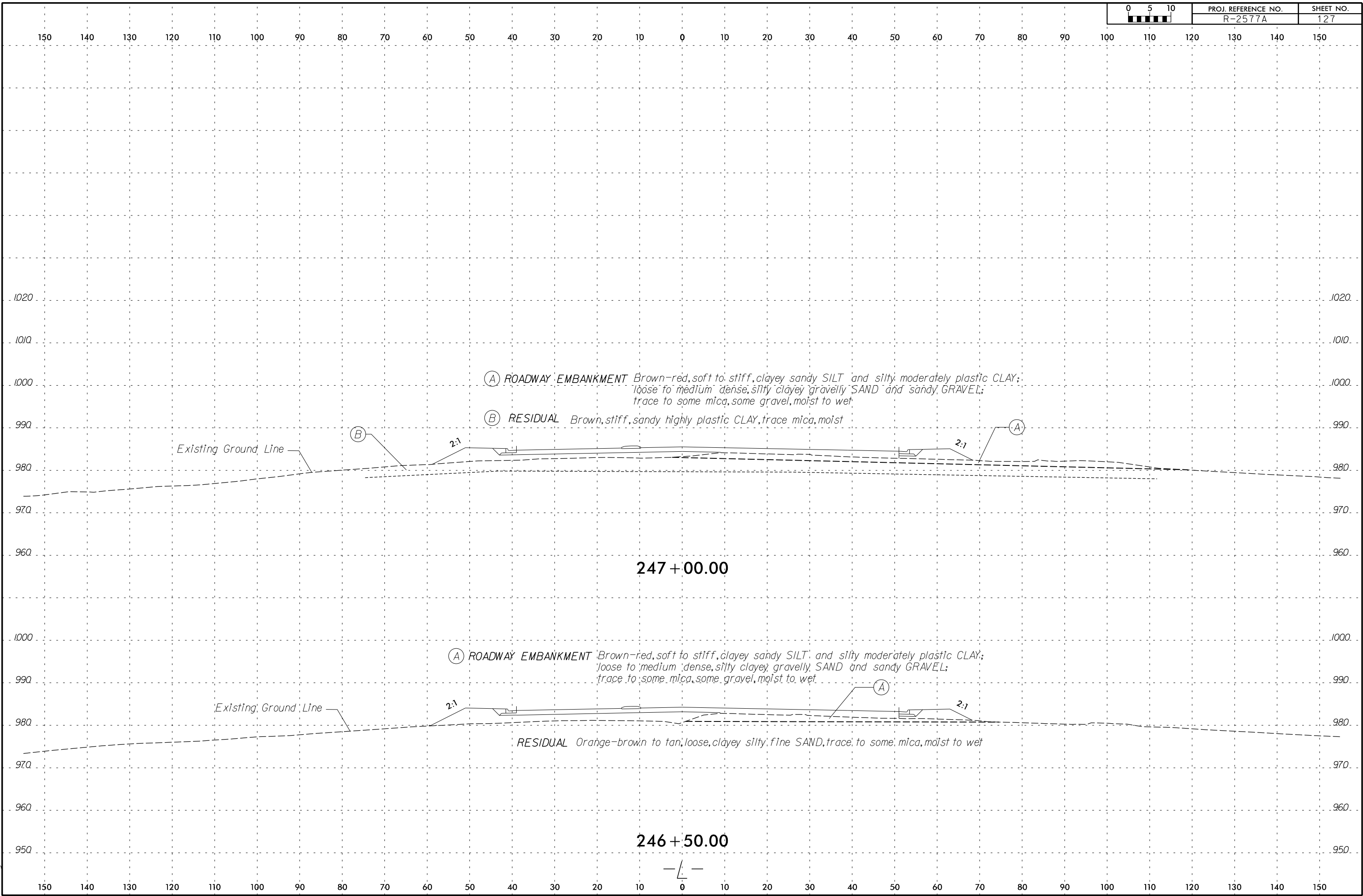
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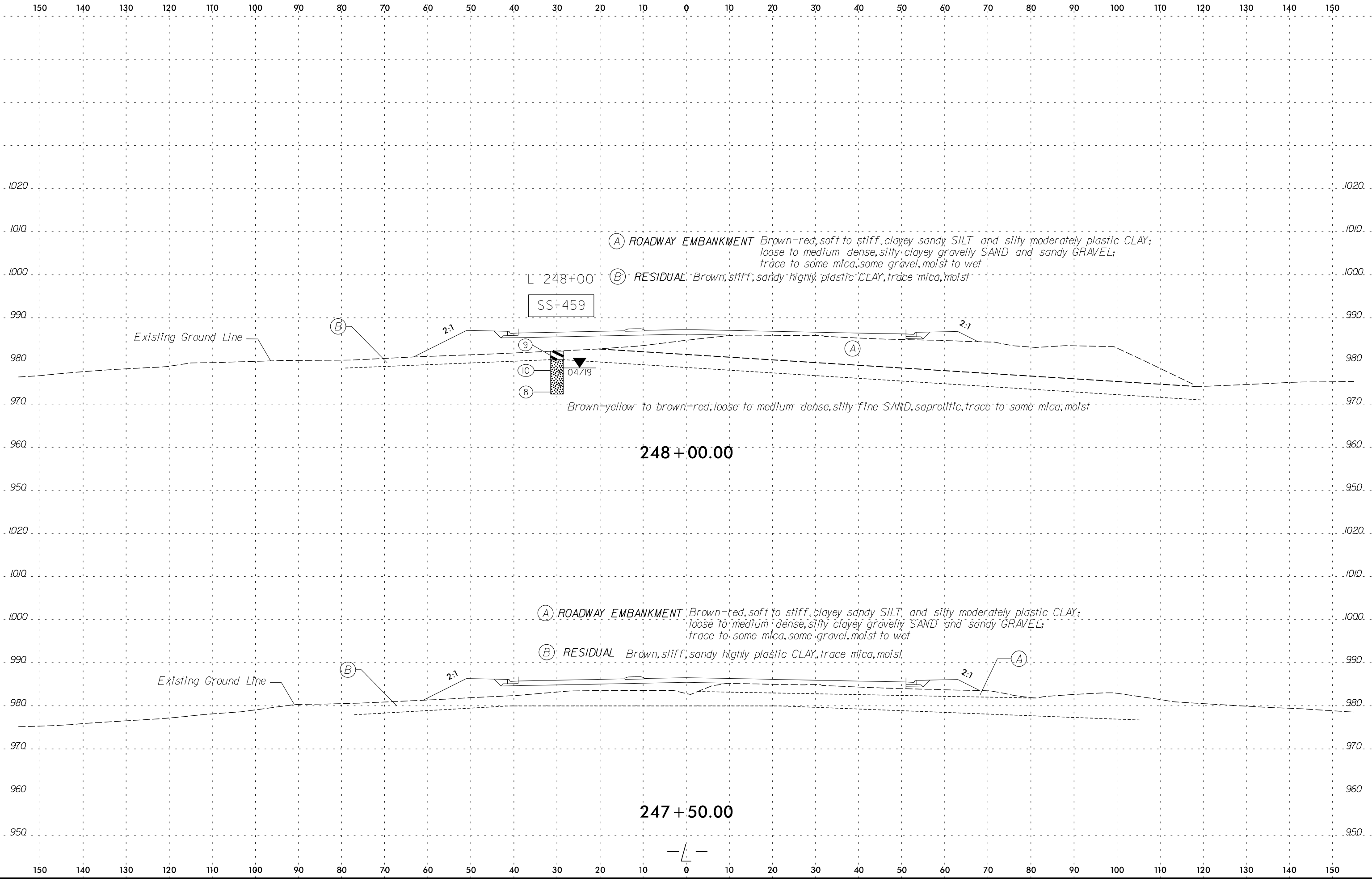


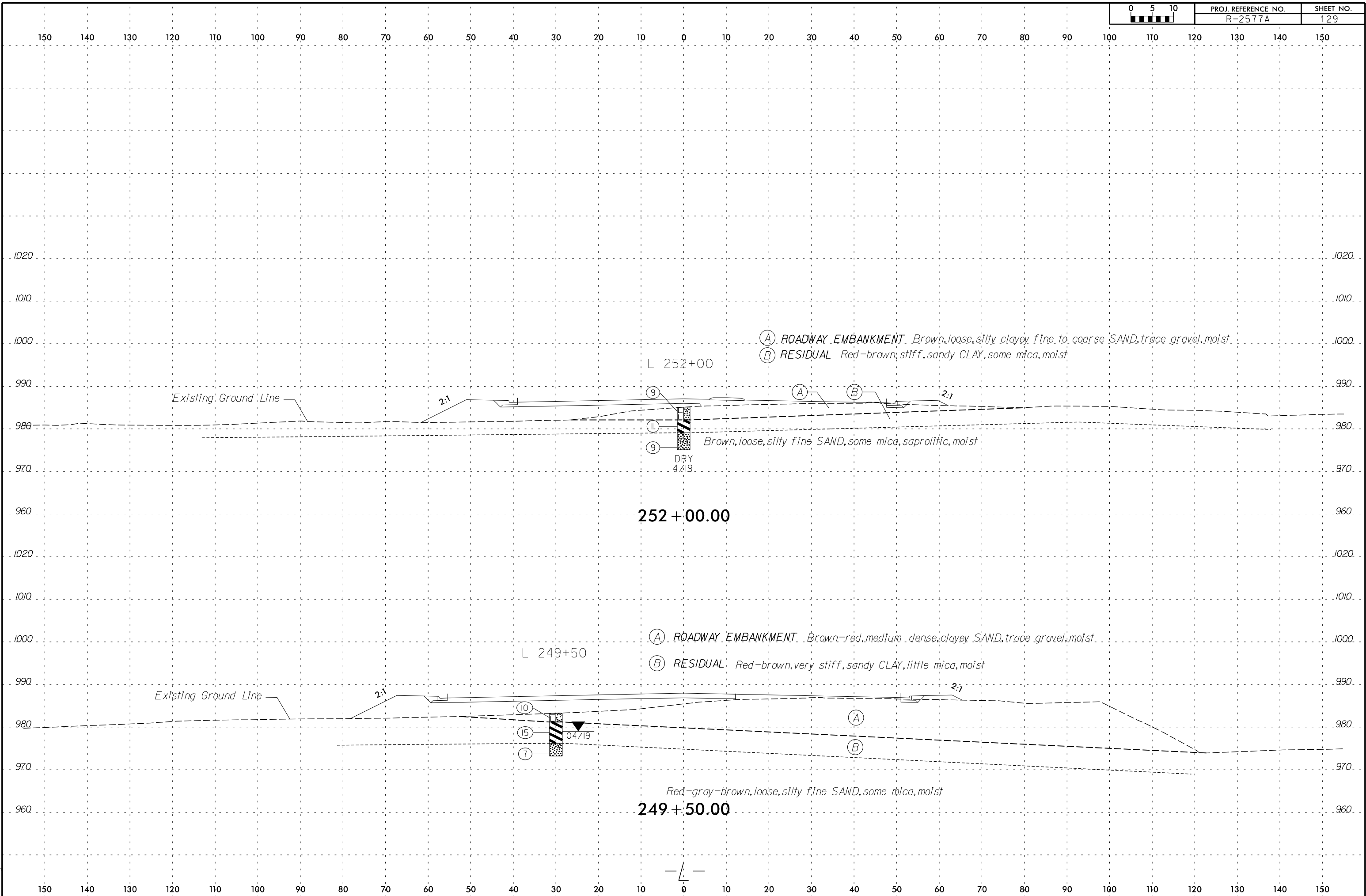


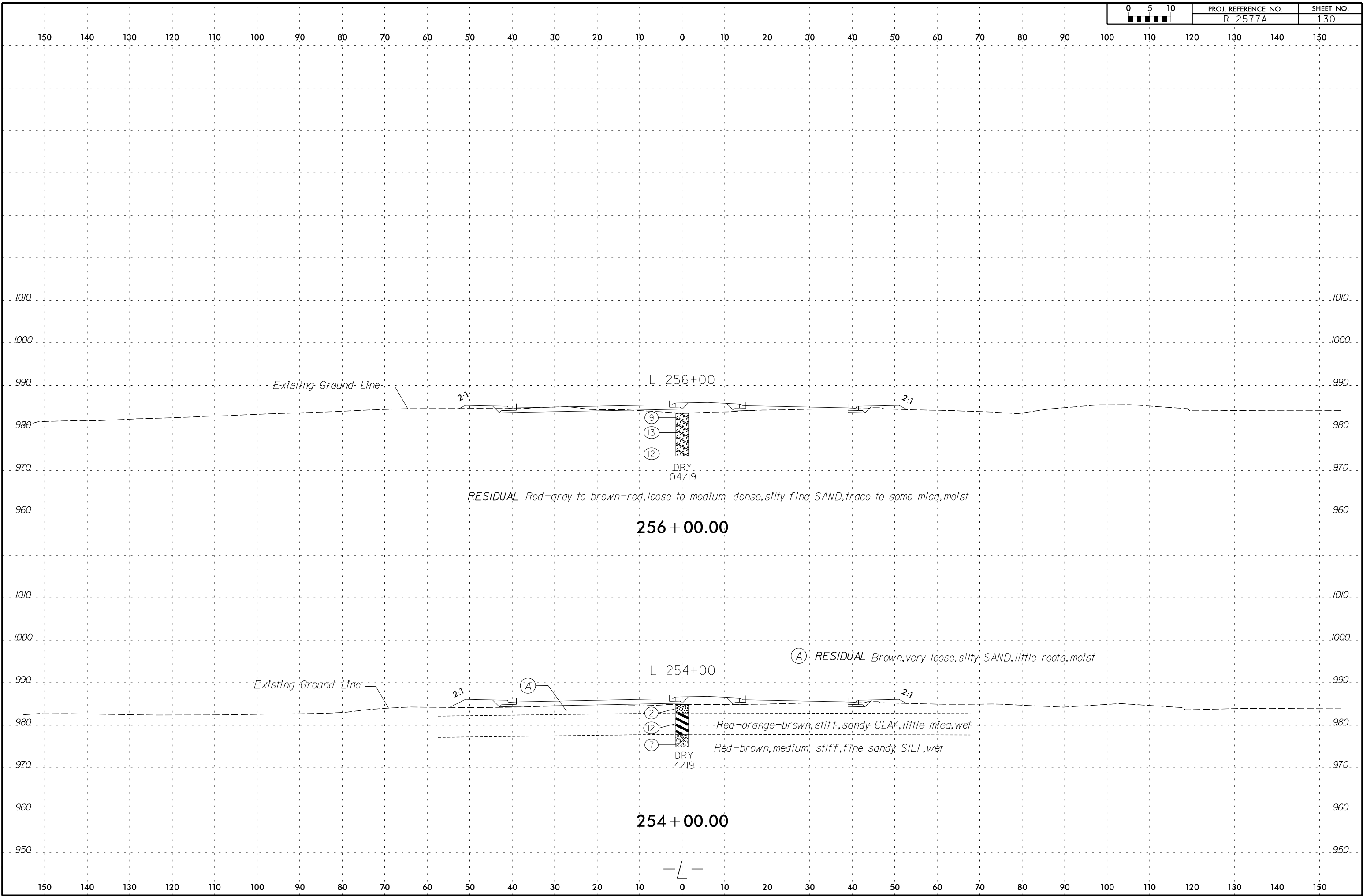




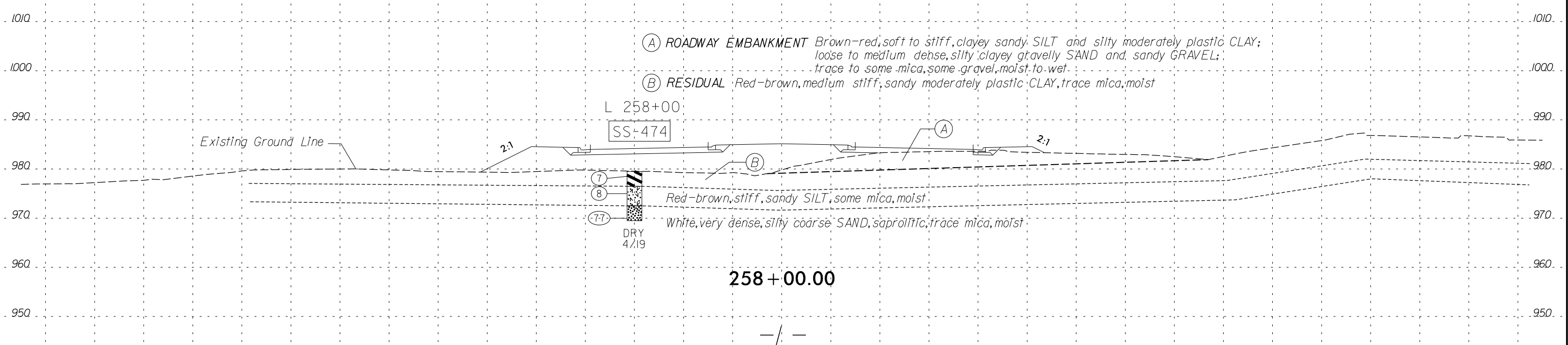
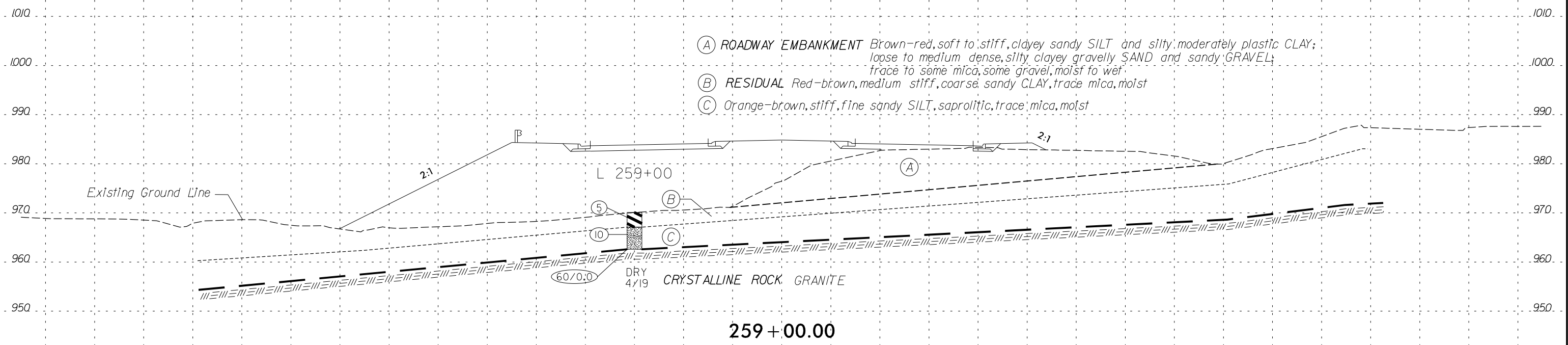






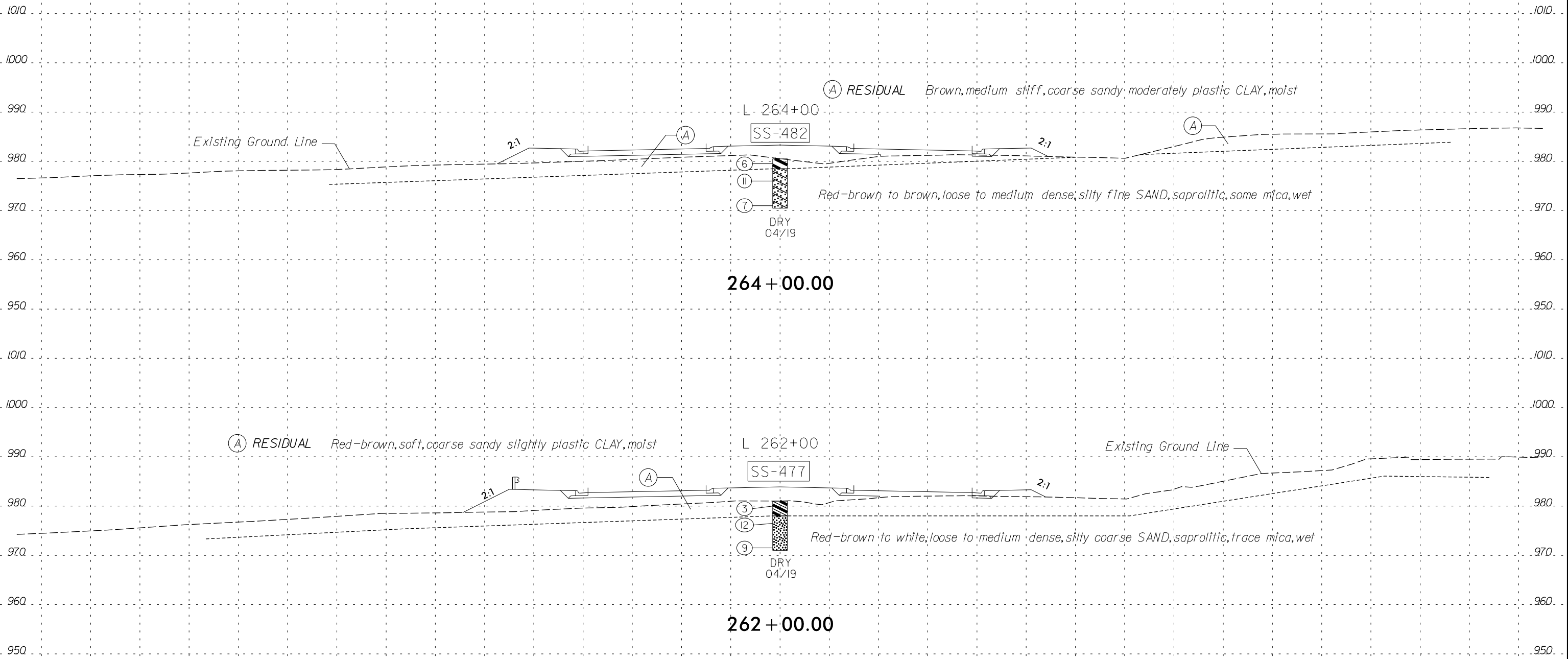


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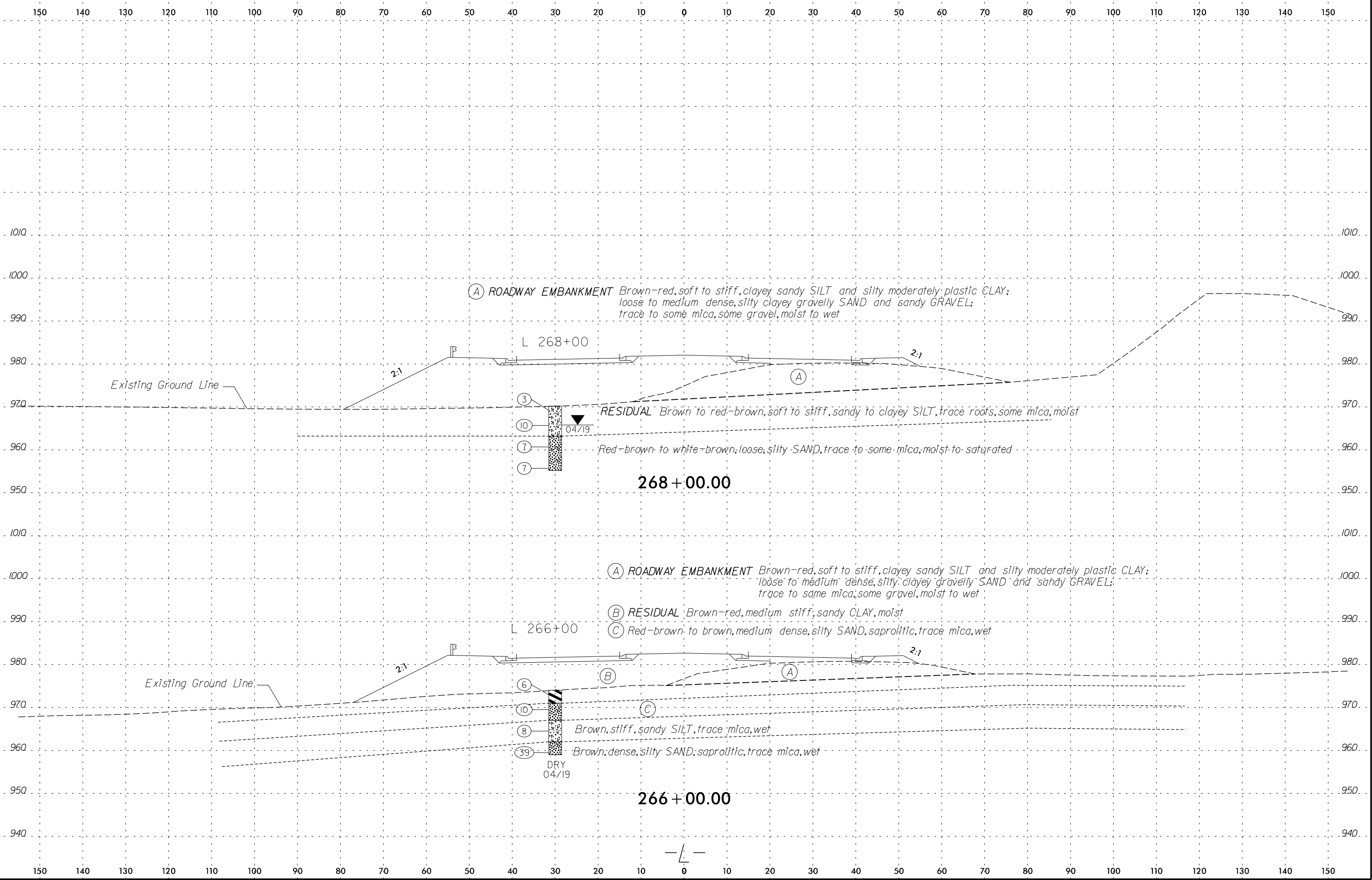


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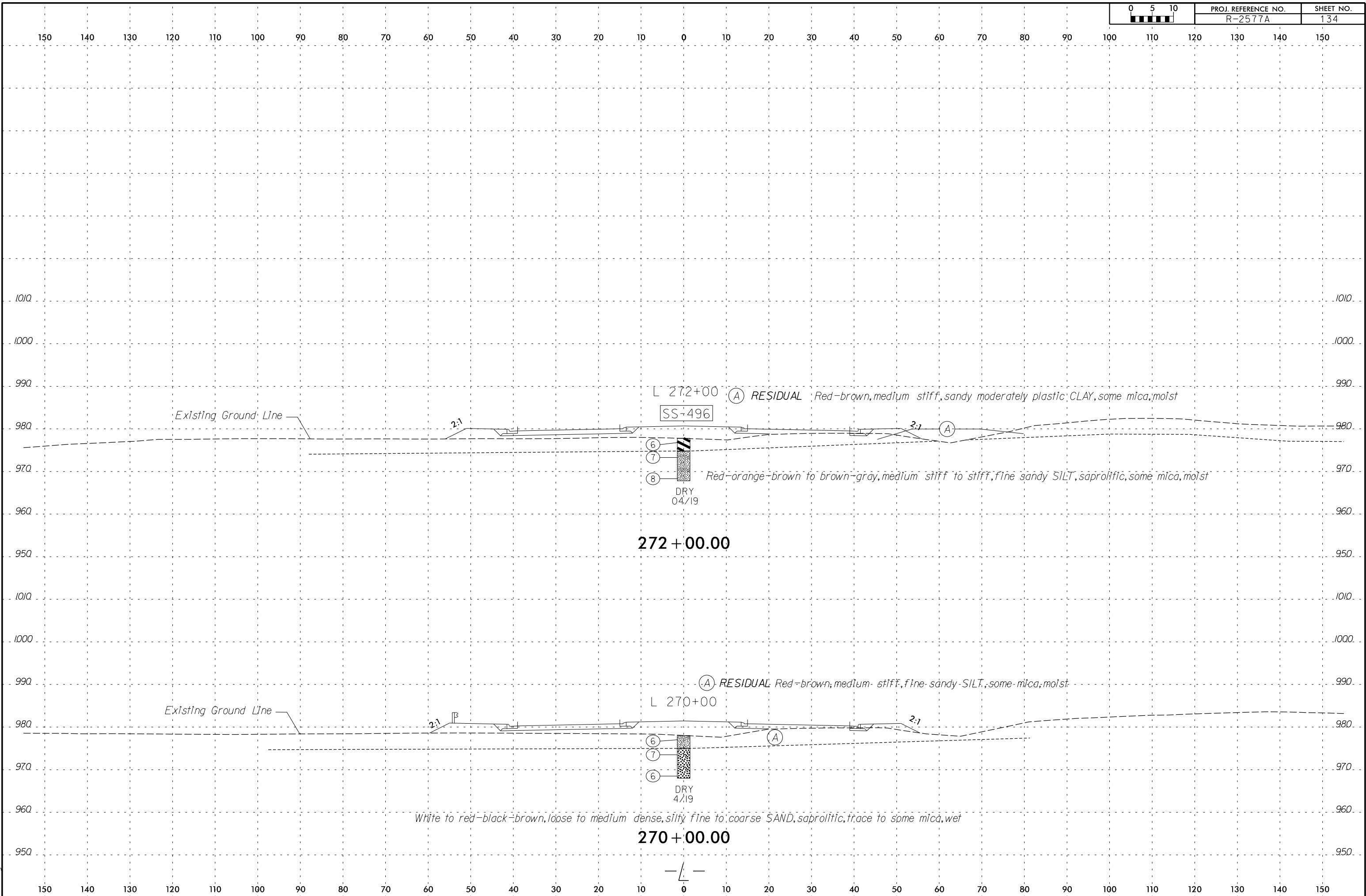
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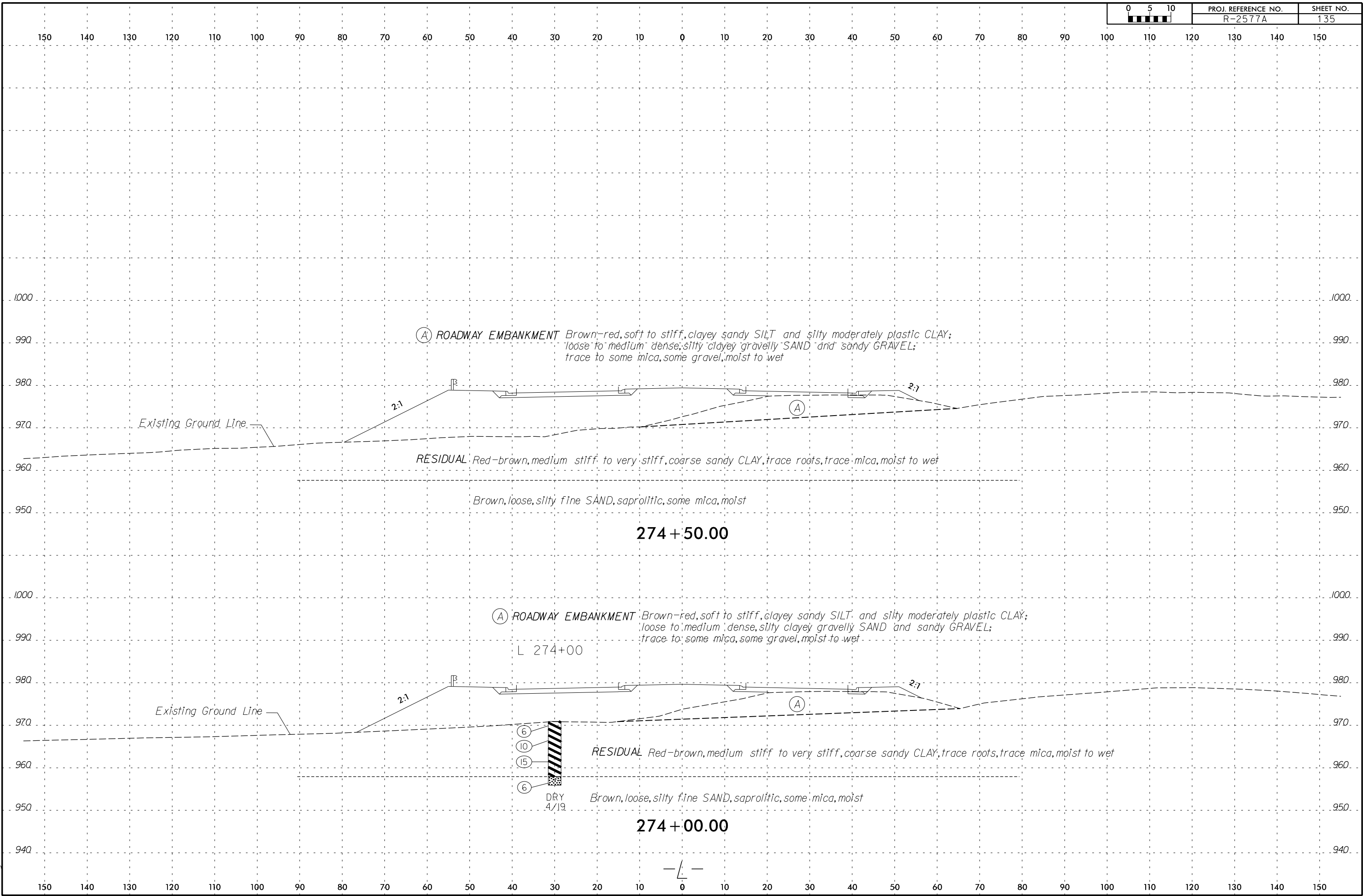


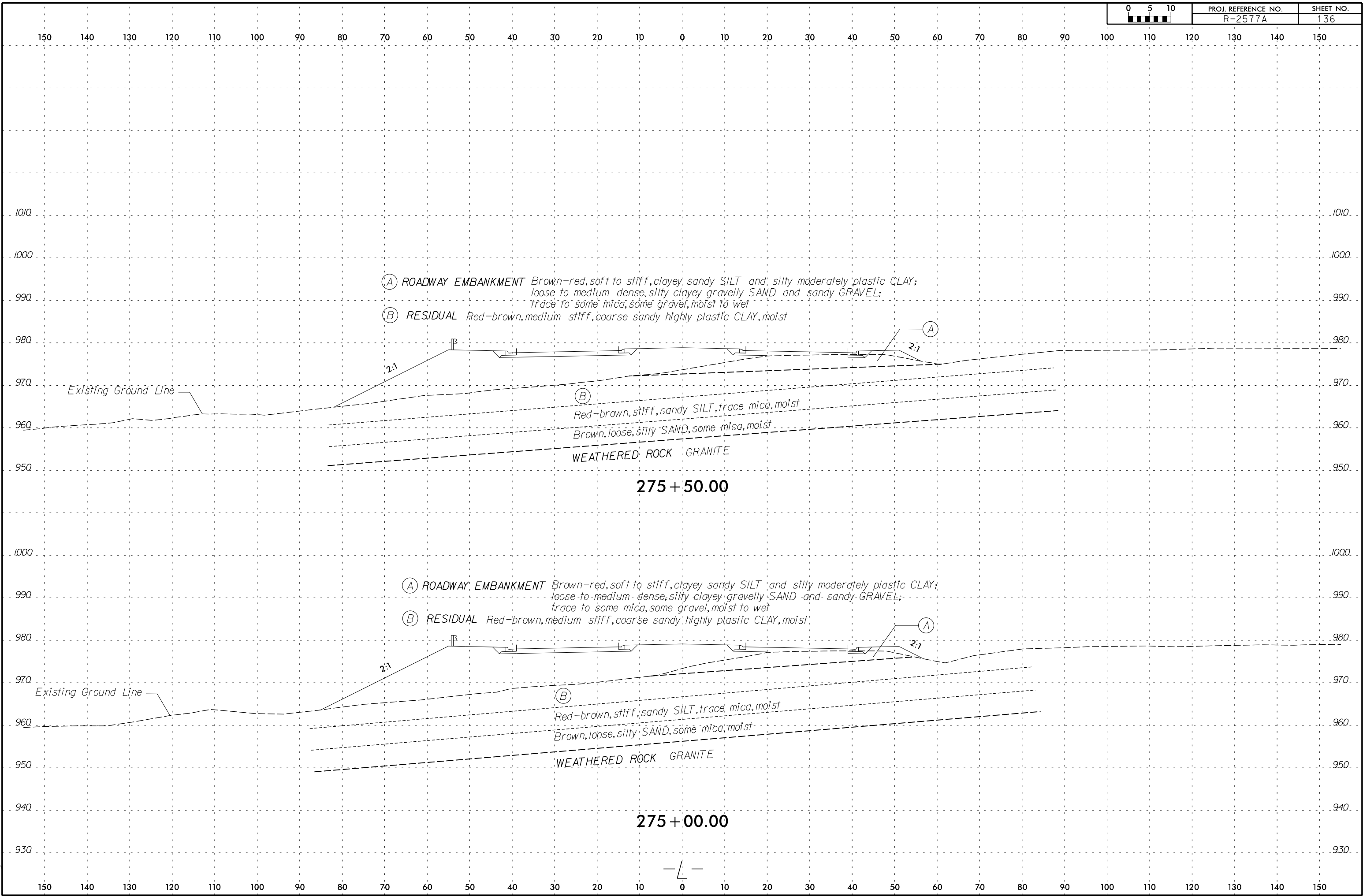
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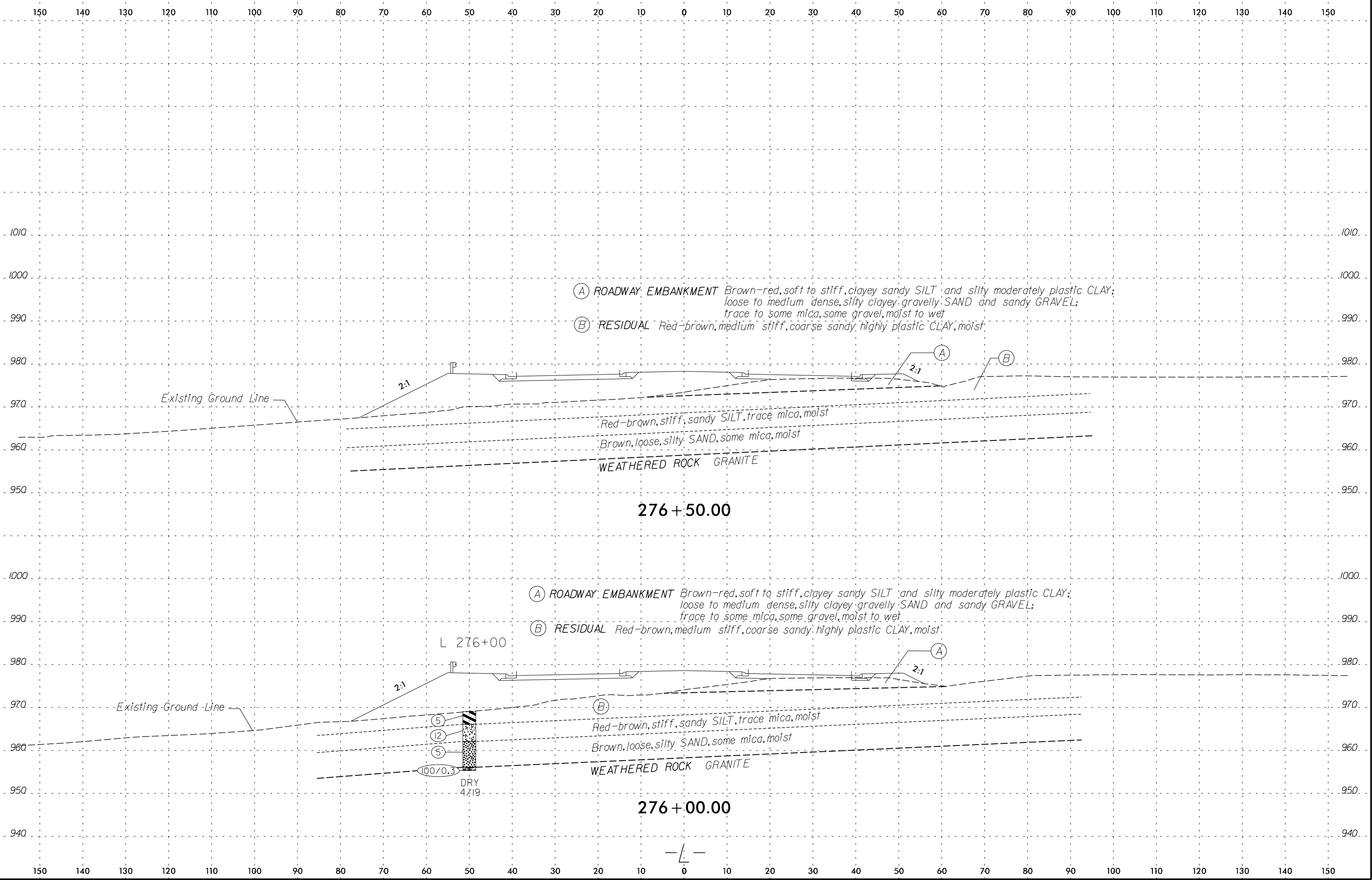


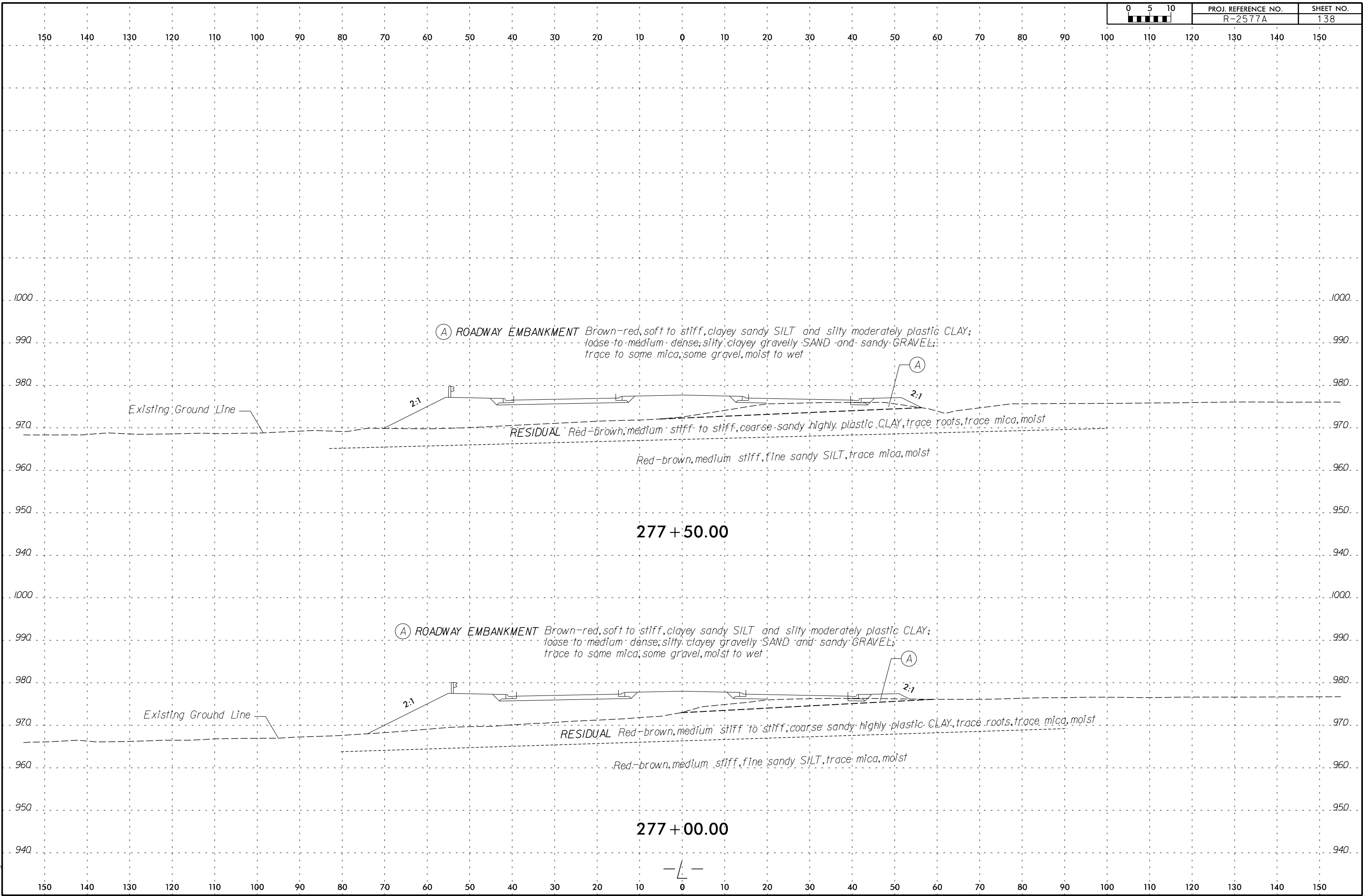






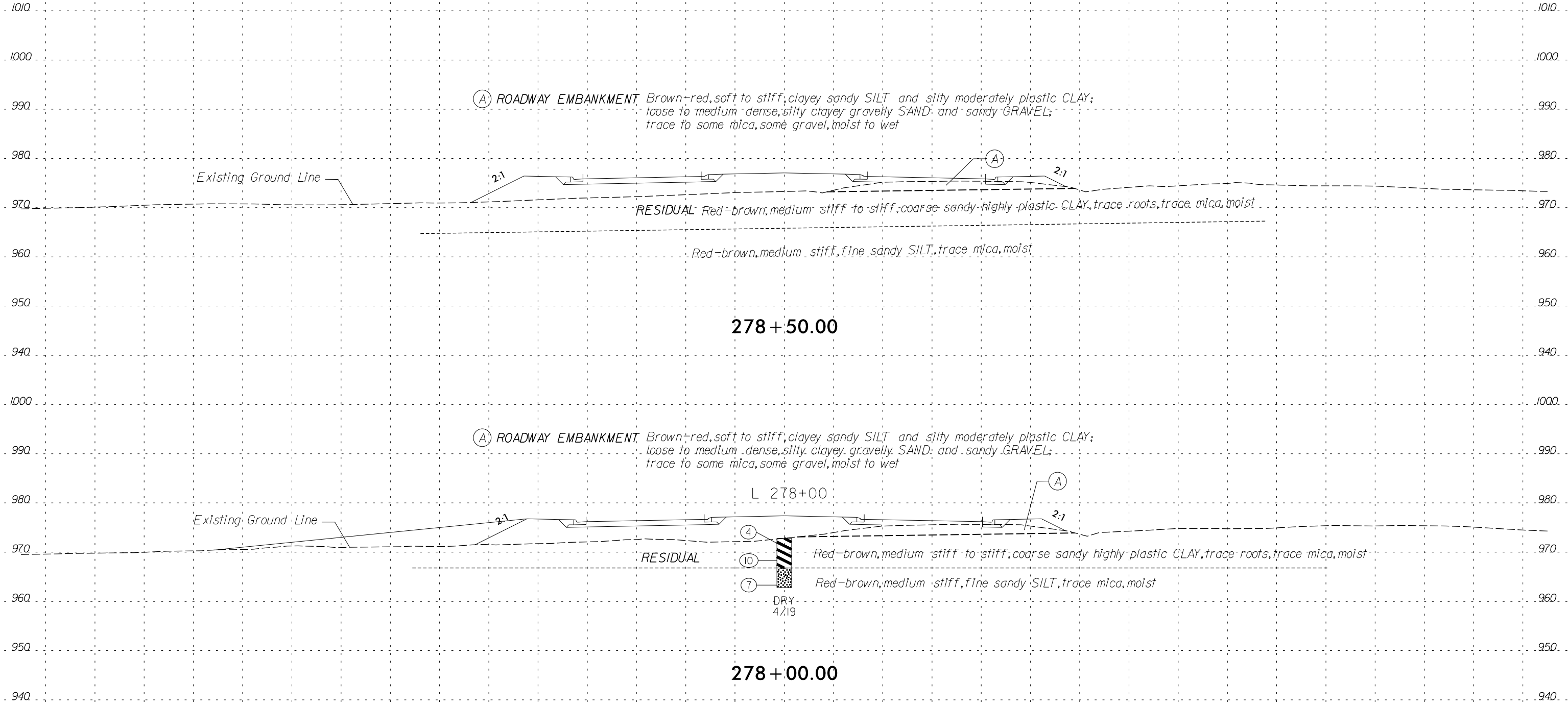








150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



(A) ROADWAY EMBANKMENT *Brown-red, soft to stiff, clayey sandy SILT and silty moderately plastic CLAY;  
loose to medium dense, silty clayey gravelly SAND and sandy GRAVEL;  
trace to some mica, some gravel, moist to wet*

RESIDUAL *Red-brown, medium stiff to stiff, coarse sandy highly plastic CLAY, trace roots, trace mica, moist*

*Red-brown, medium stiff, fine sandy SILT, trace mica, moist*

278+50.00

(A) ROADWAY EMBANKMENT *Brown-red, soft to stiff, clayey sandy SILT and silty moderately plastic CLAY;  
loose to medium dense, silty clayey gravelly SAND and sandy GRAVEL;  
trace to some mica, some gravel, moist to wet*

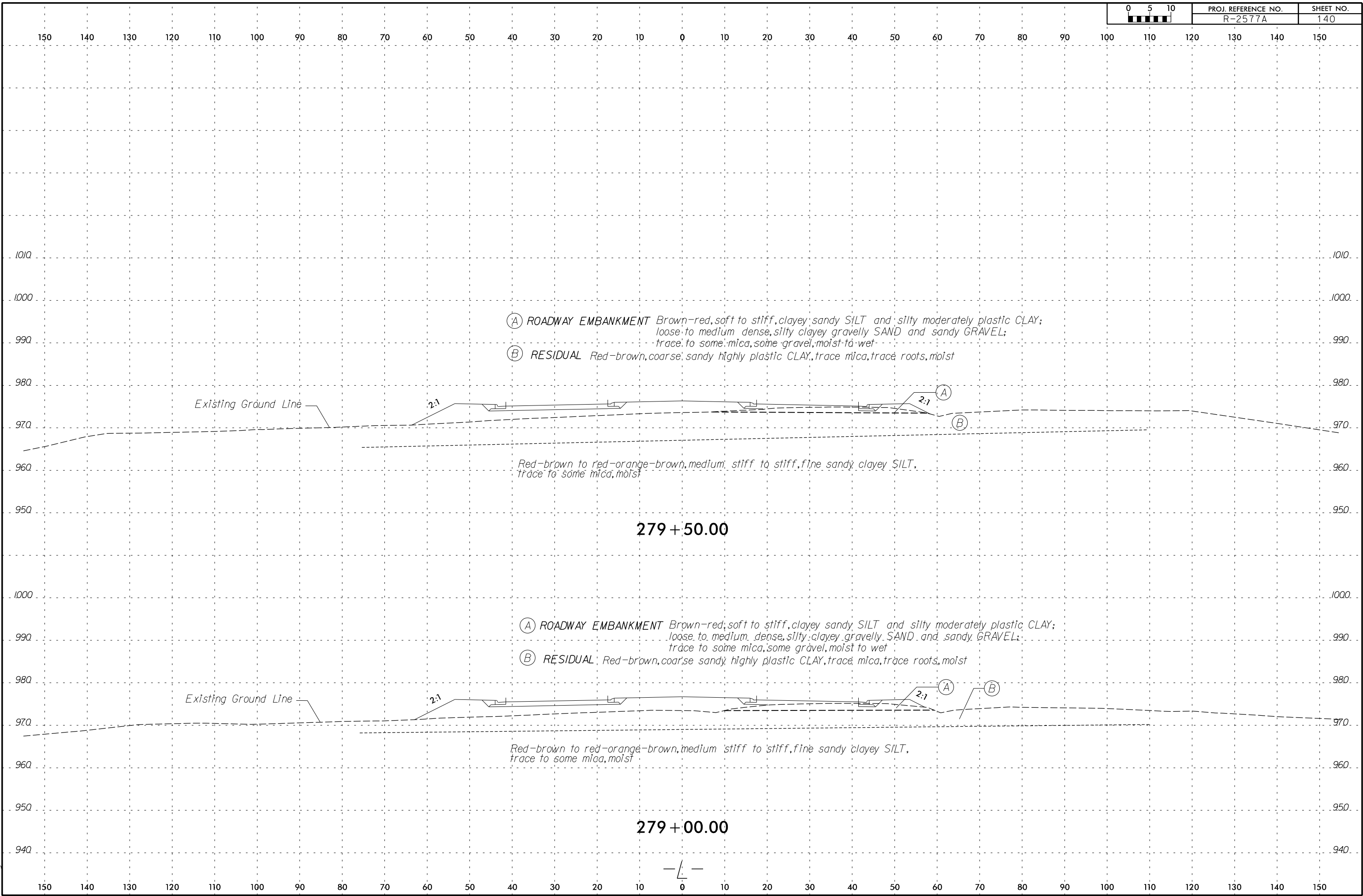
RESIDUAL *Red-brown, medium stiff to stiff, coarse sandy highly plastic CLAY, trace roots, trace mica, moist*

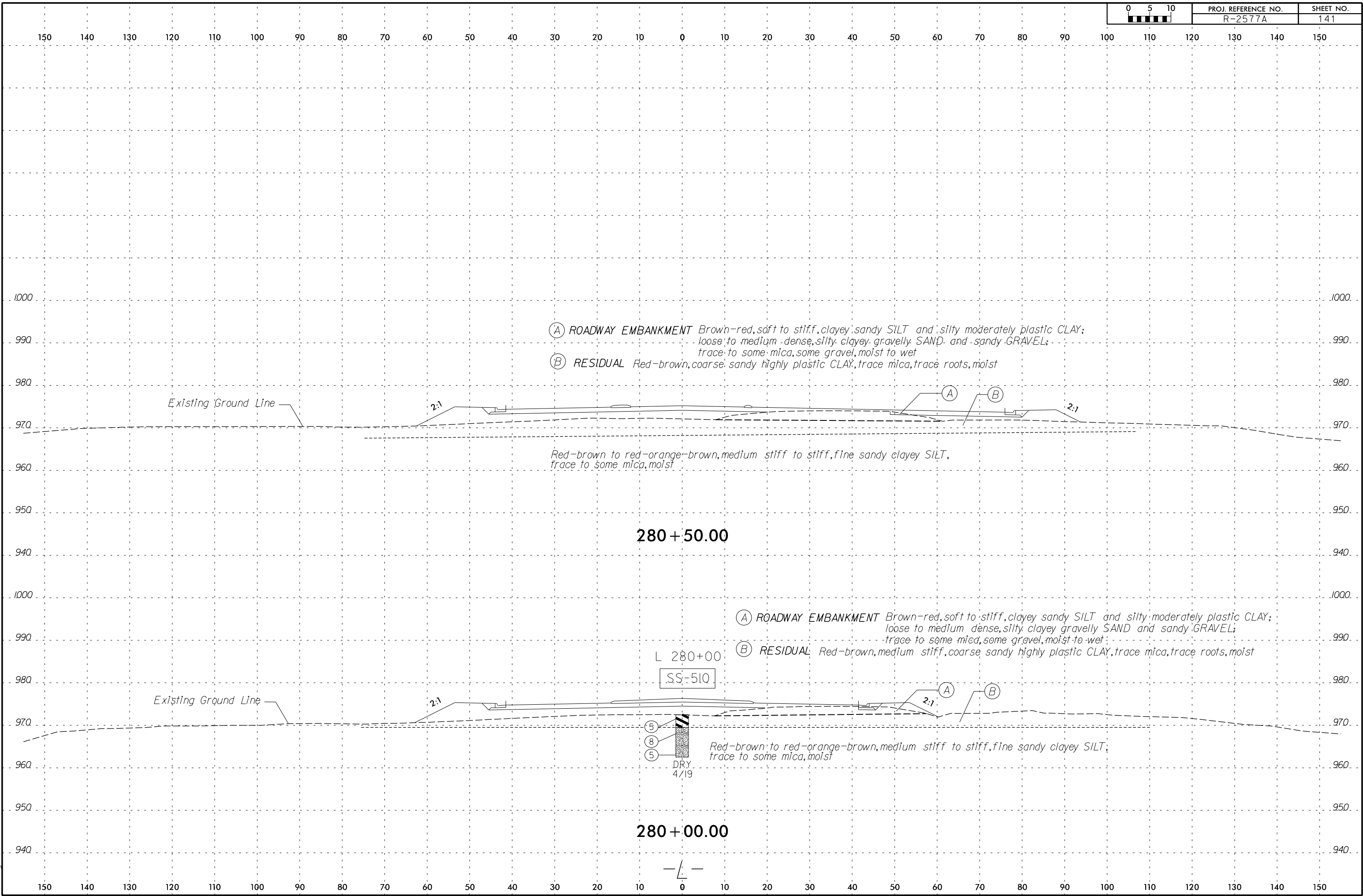
*Red-brown, medium stiff, fine sandy SILT, trace mica, moist*

DRY  
4/19

278+00.00

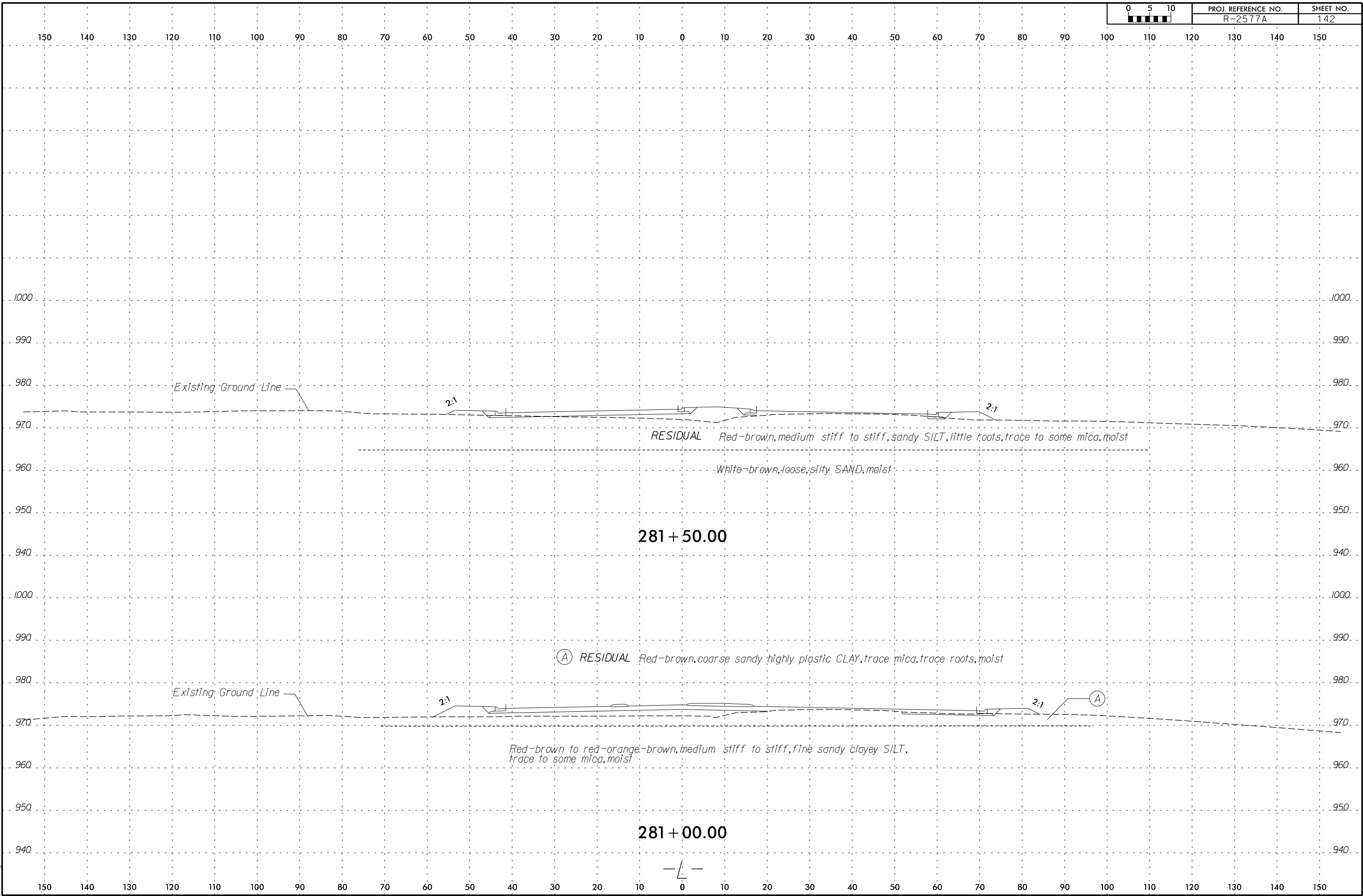
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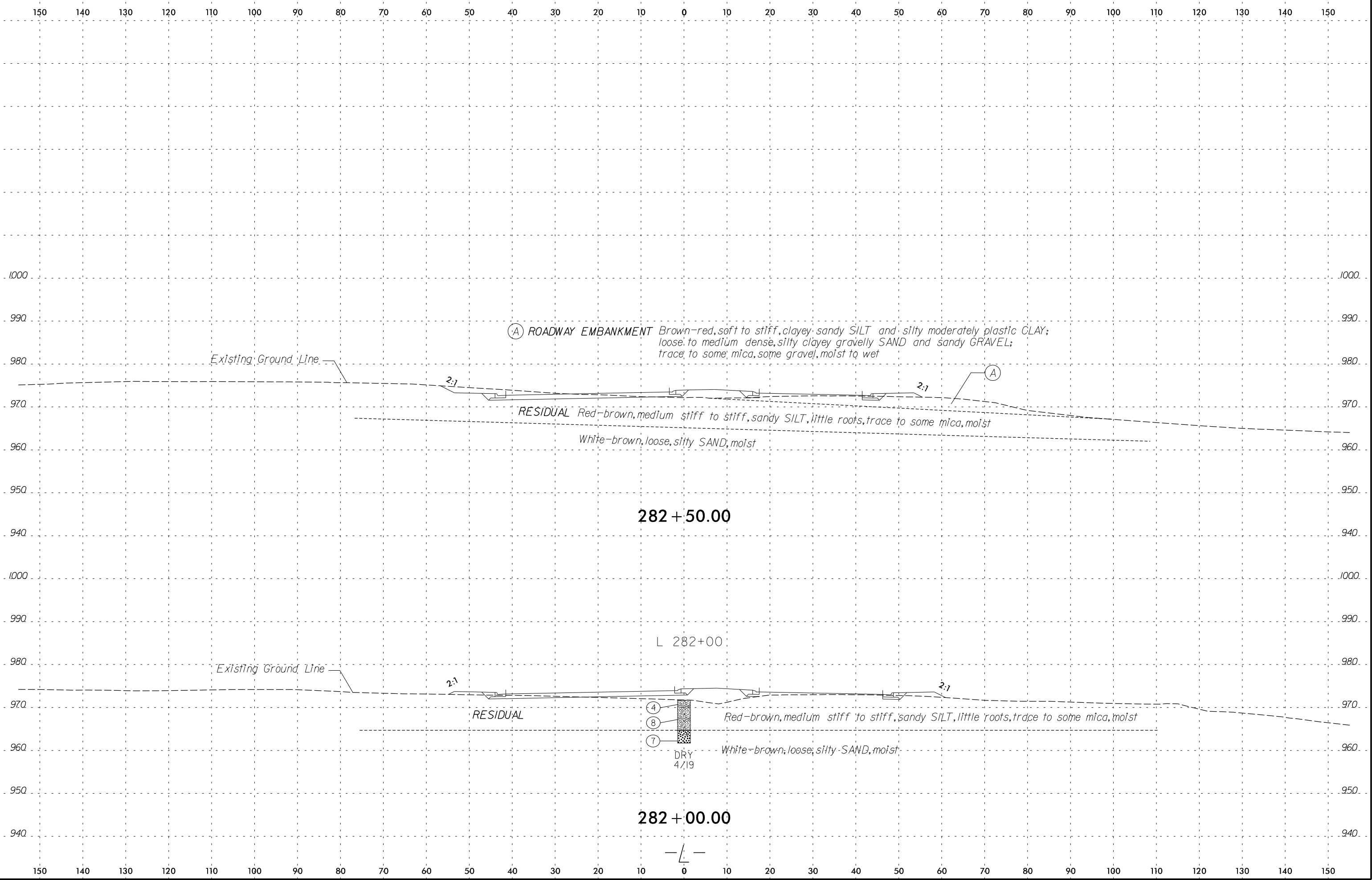


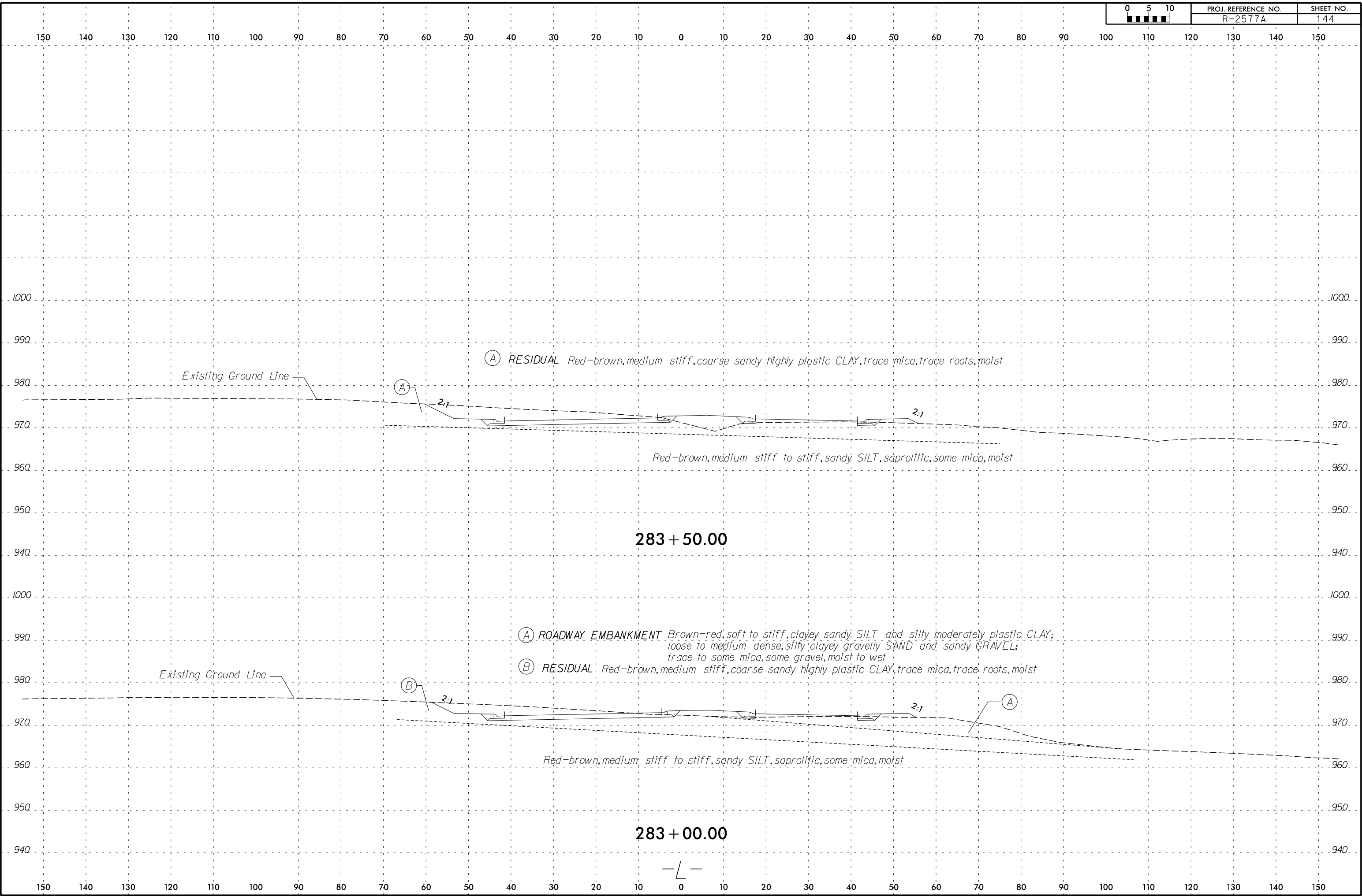
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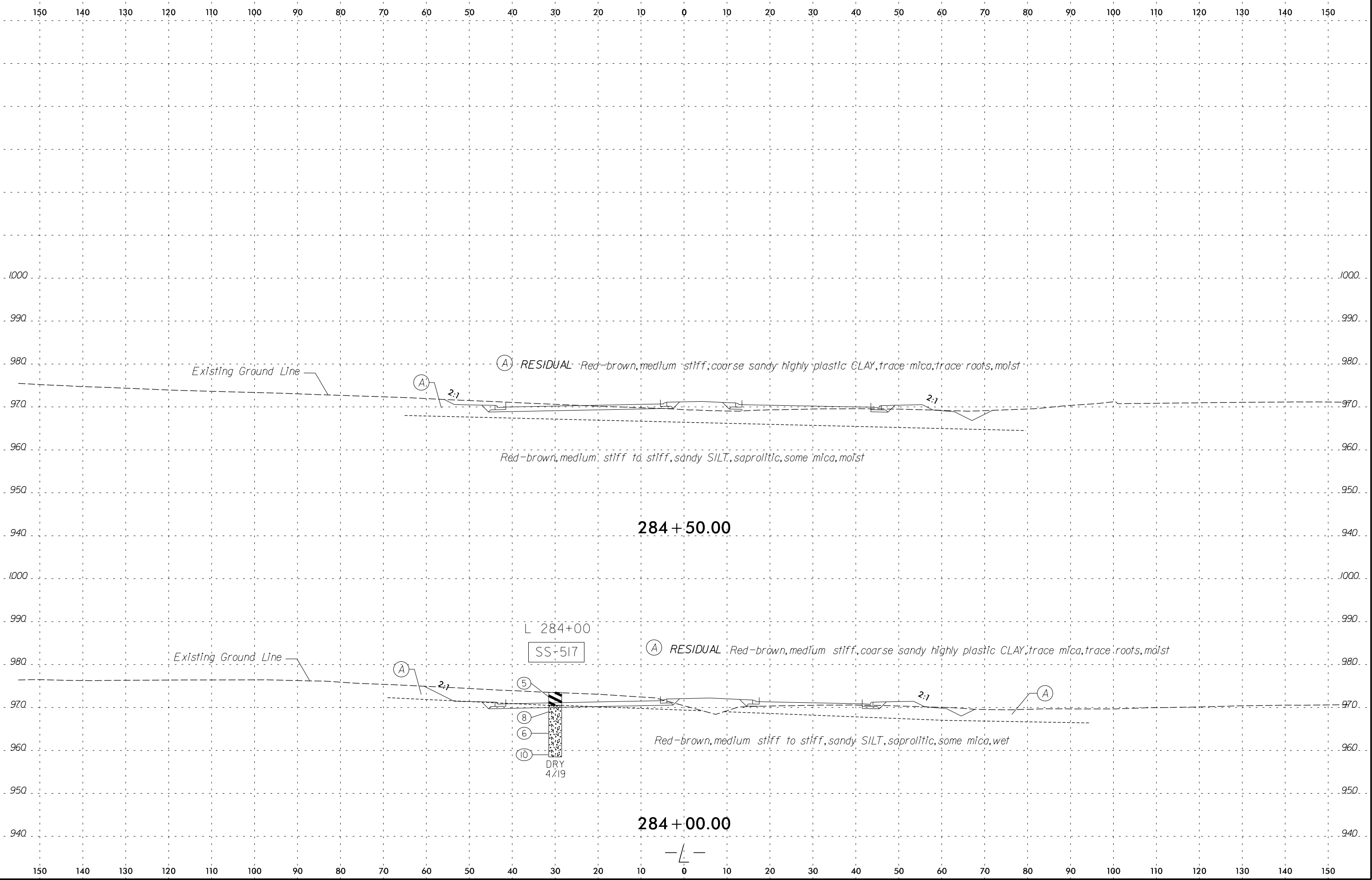


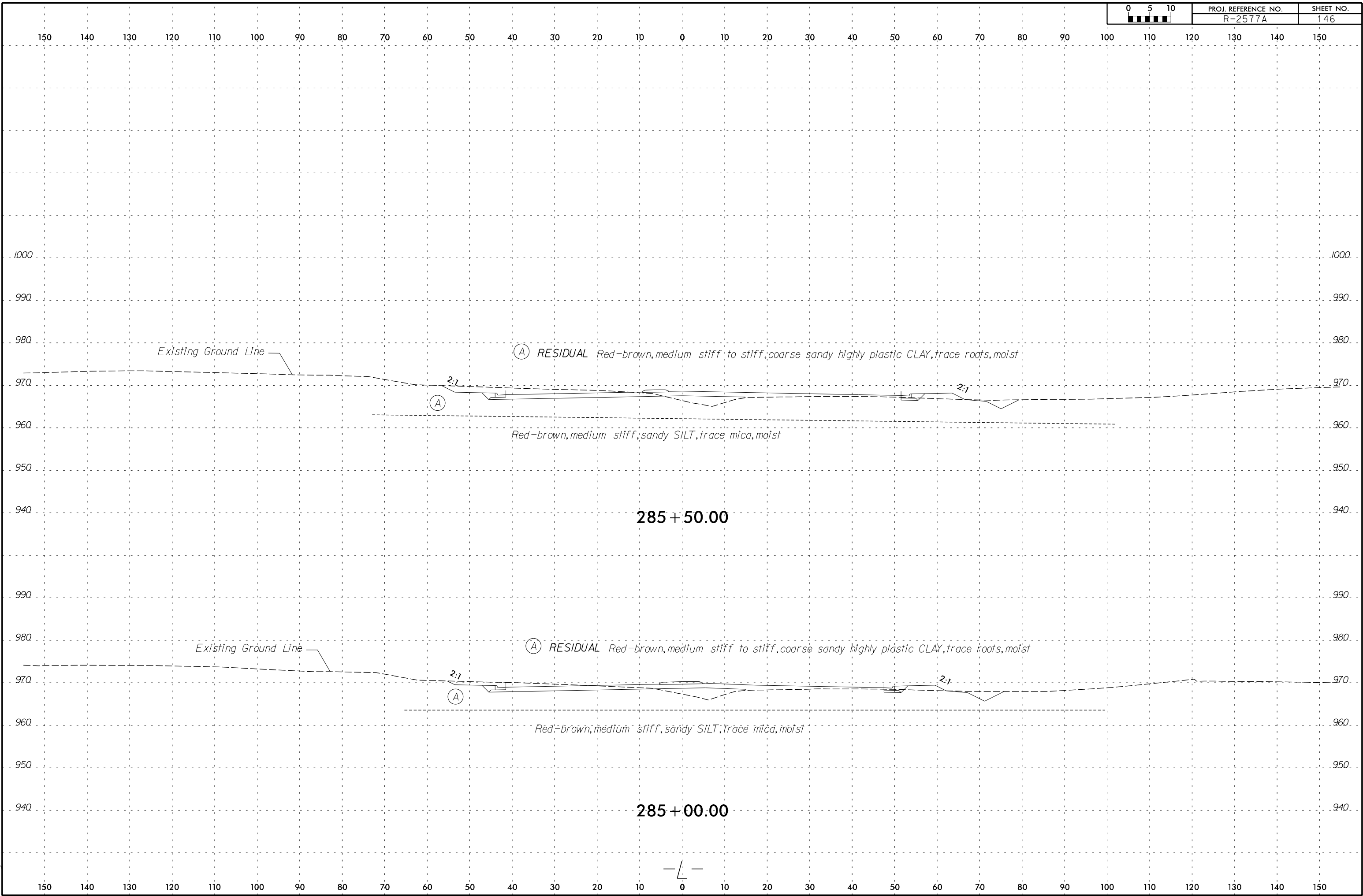
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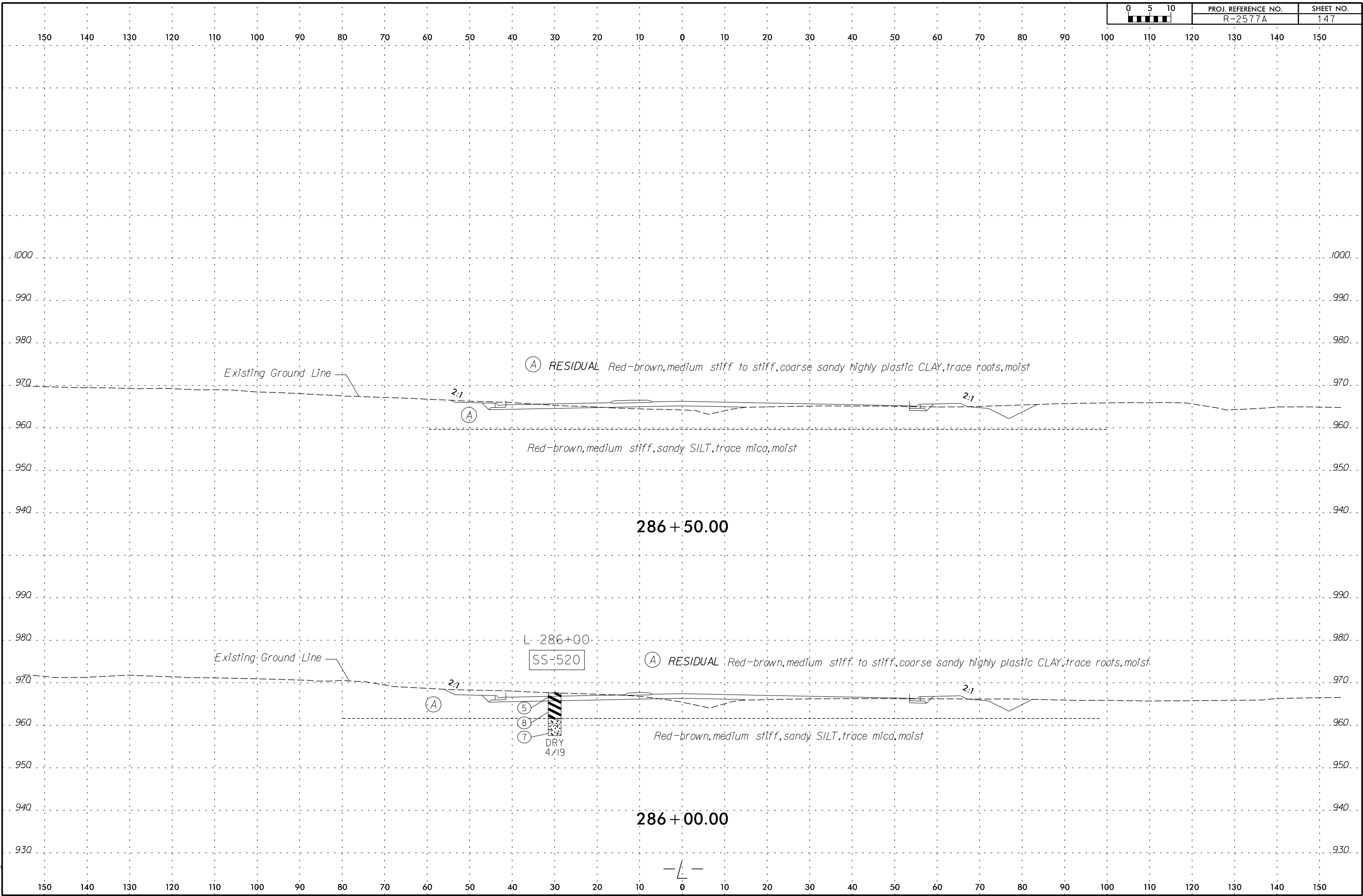
8/24/2016



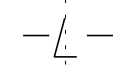
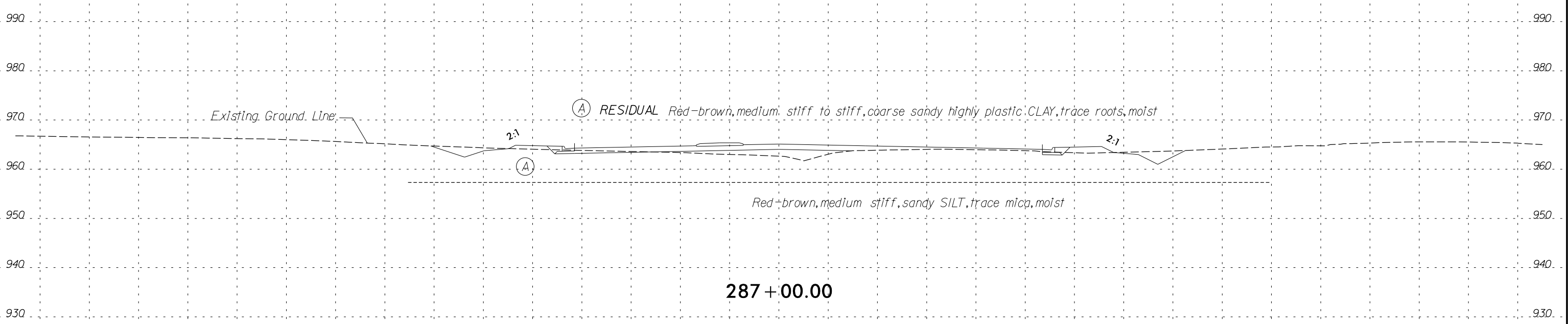
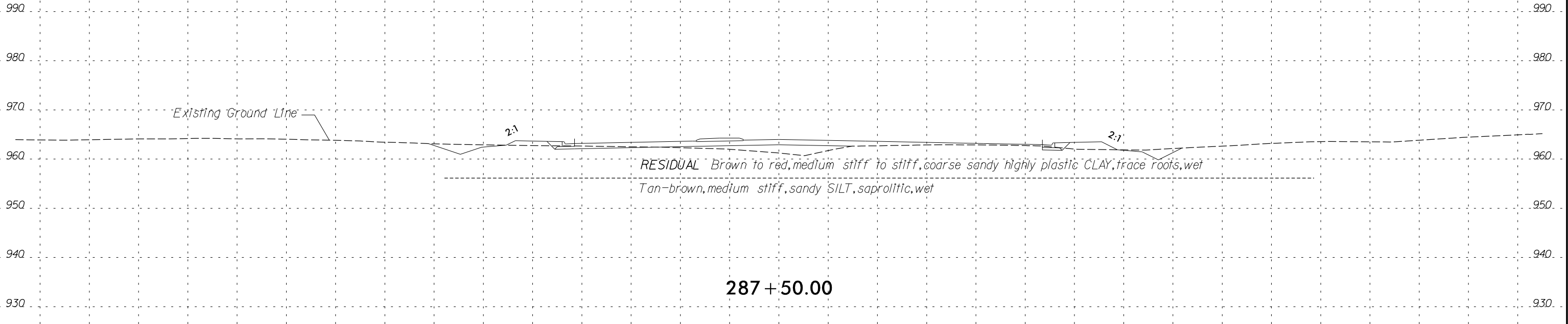






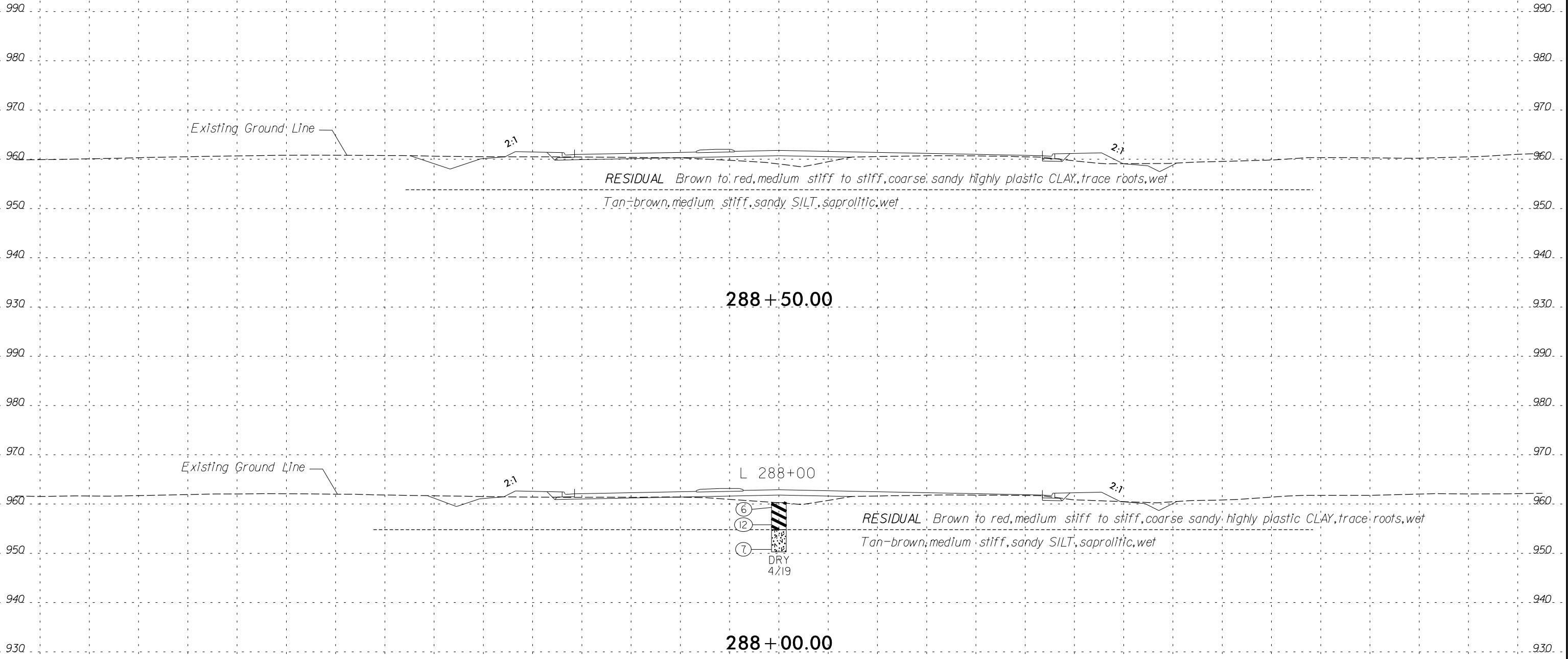


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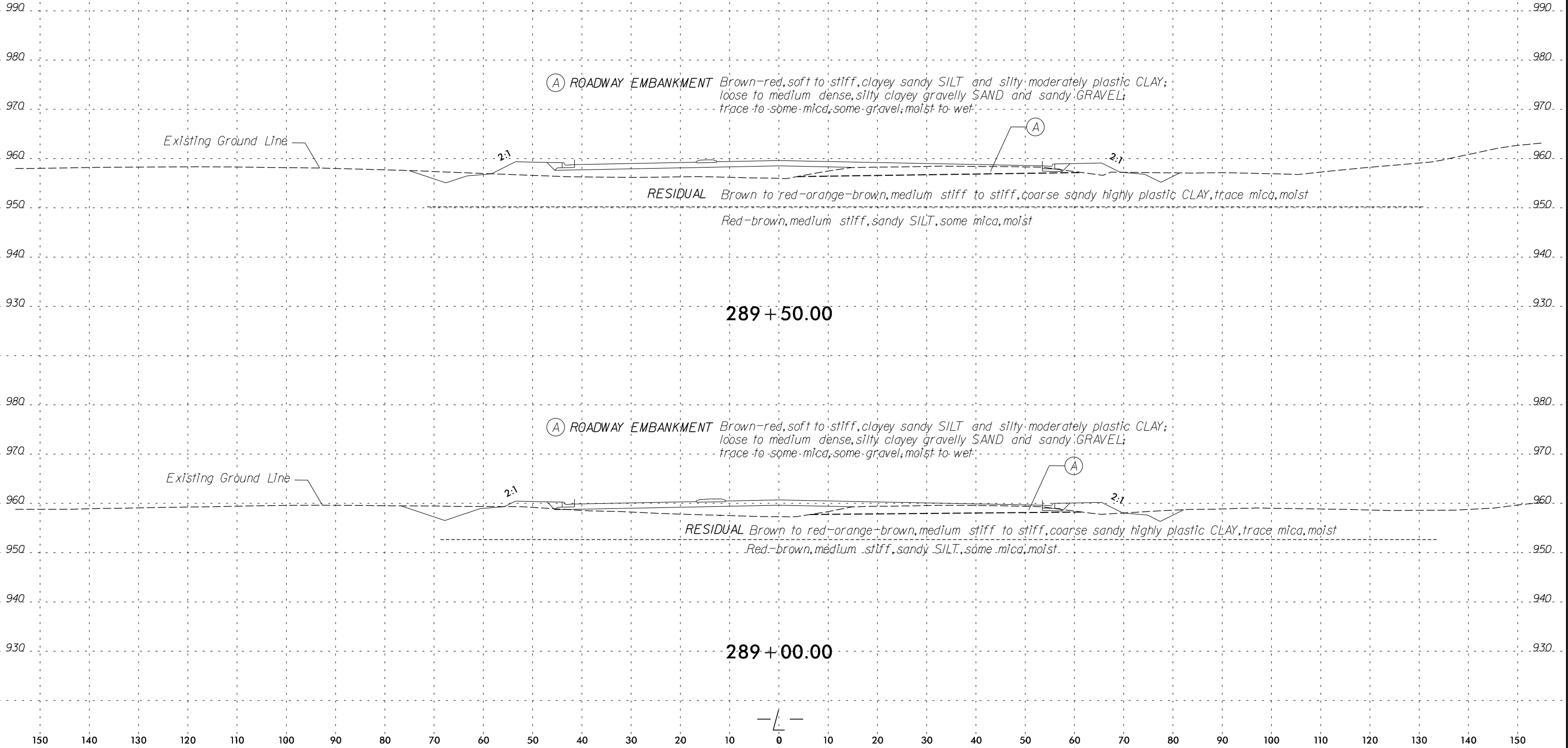
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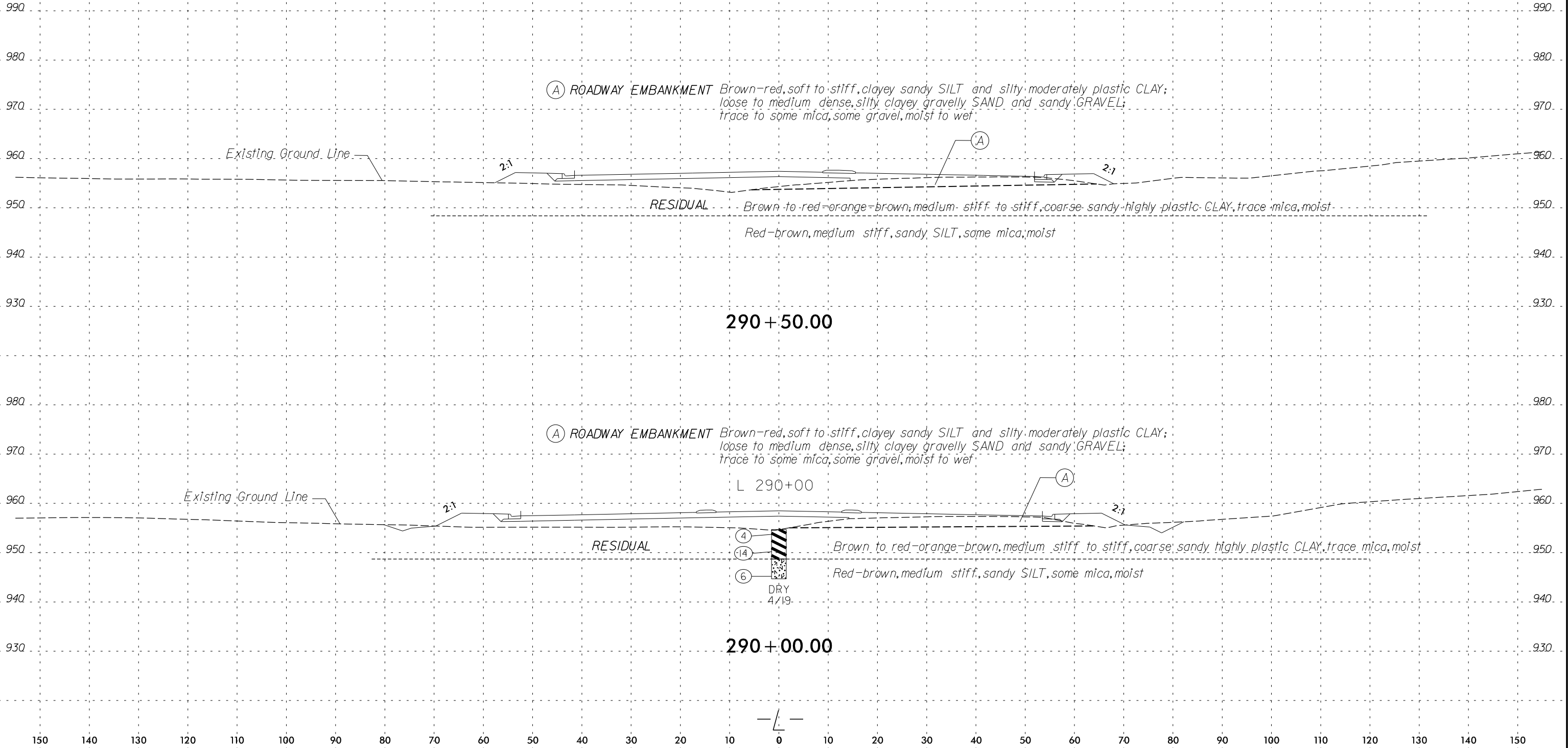


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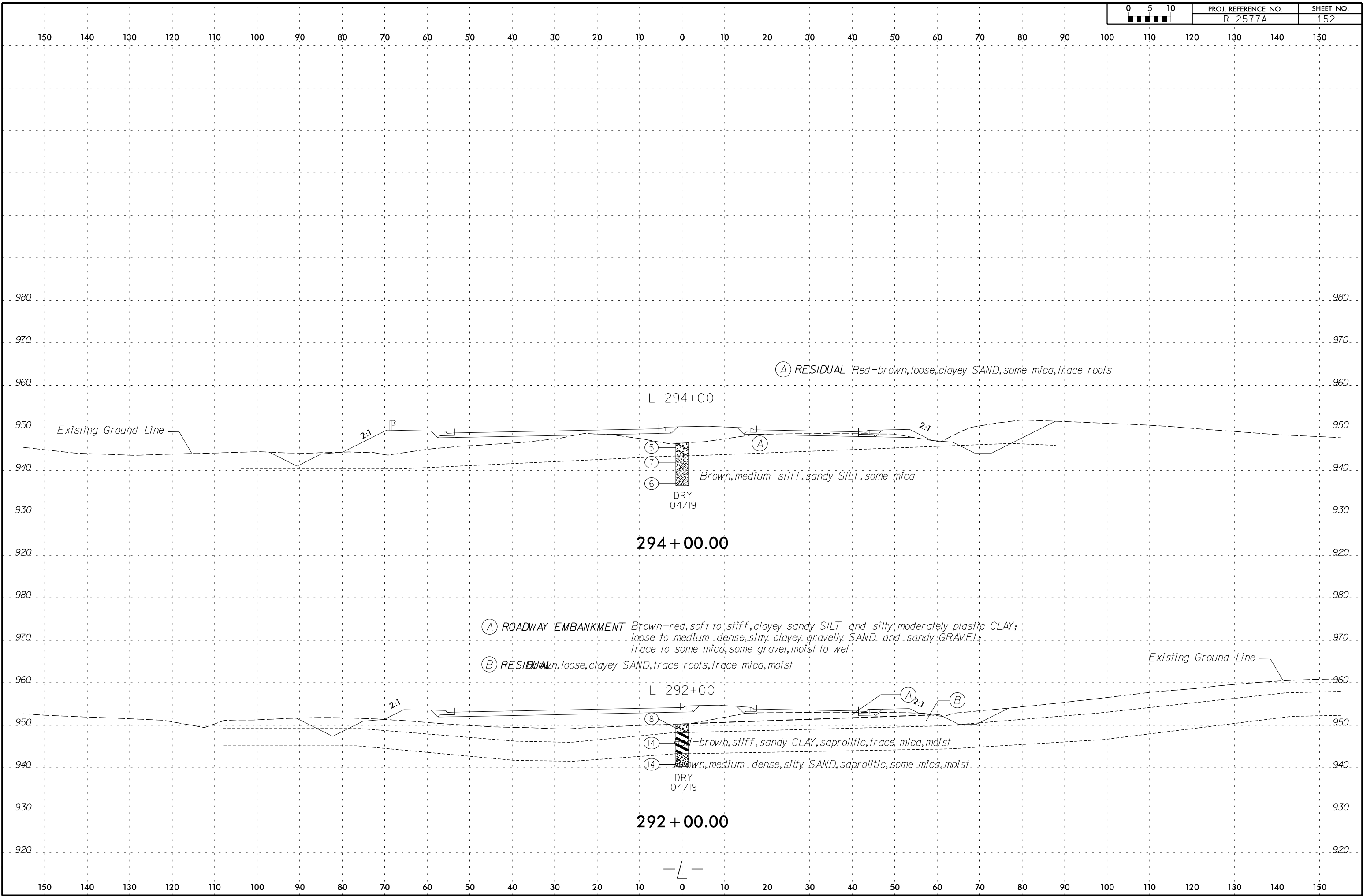


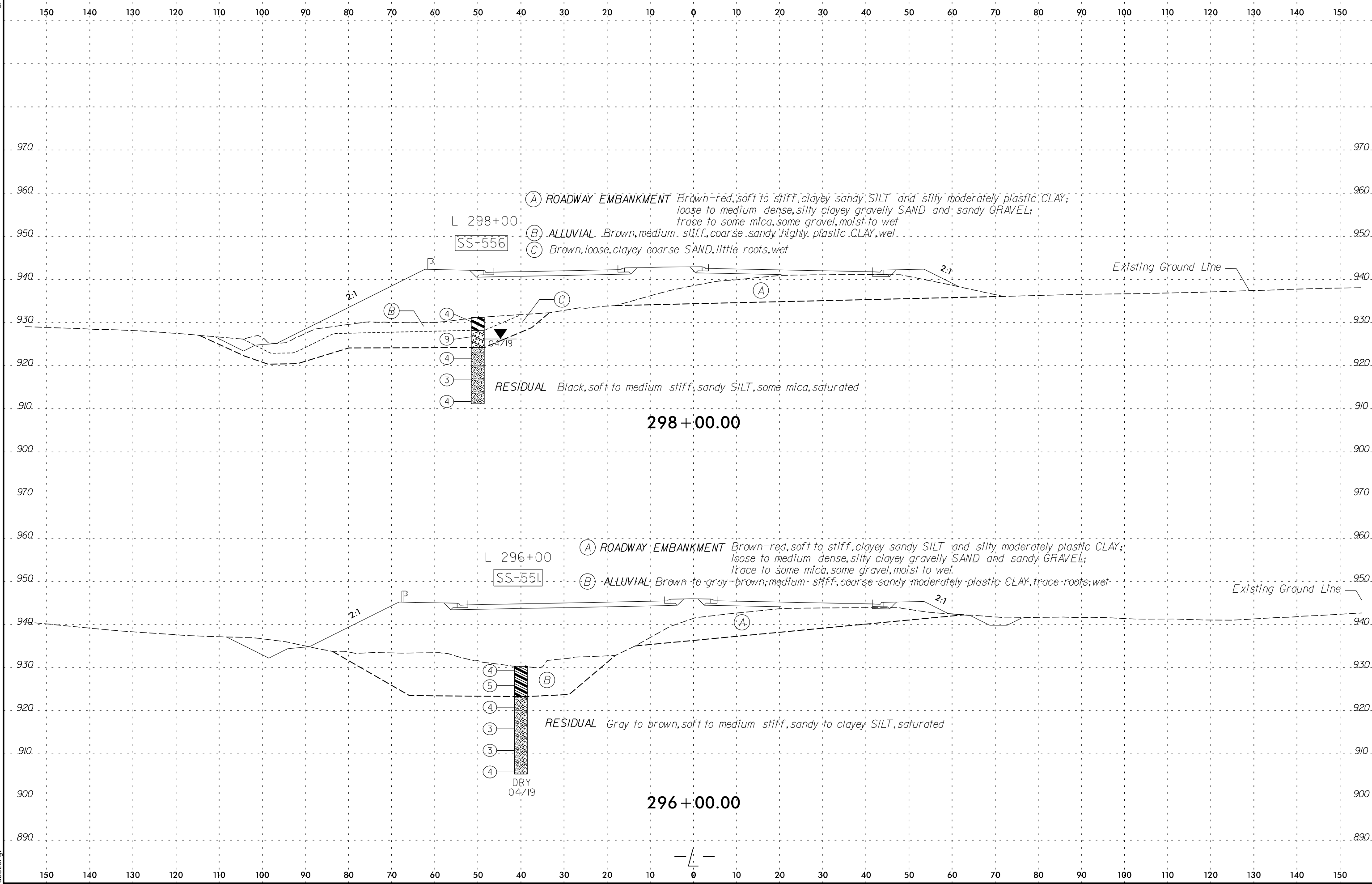
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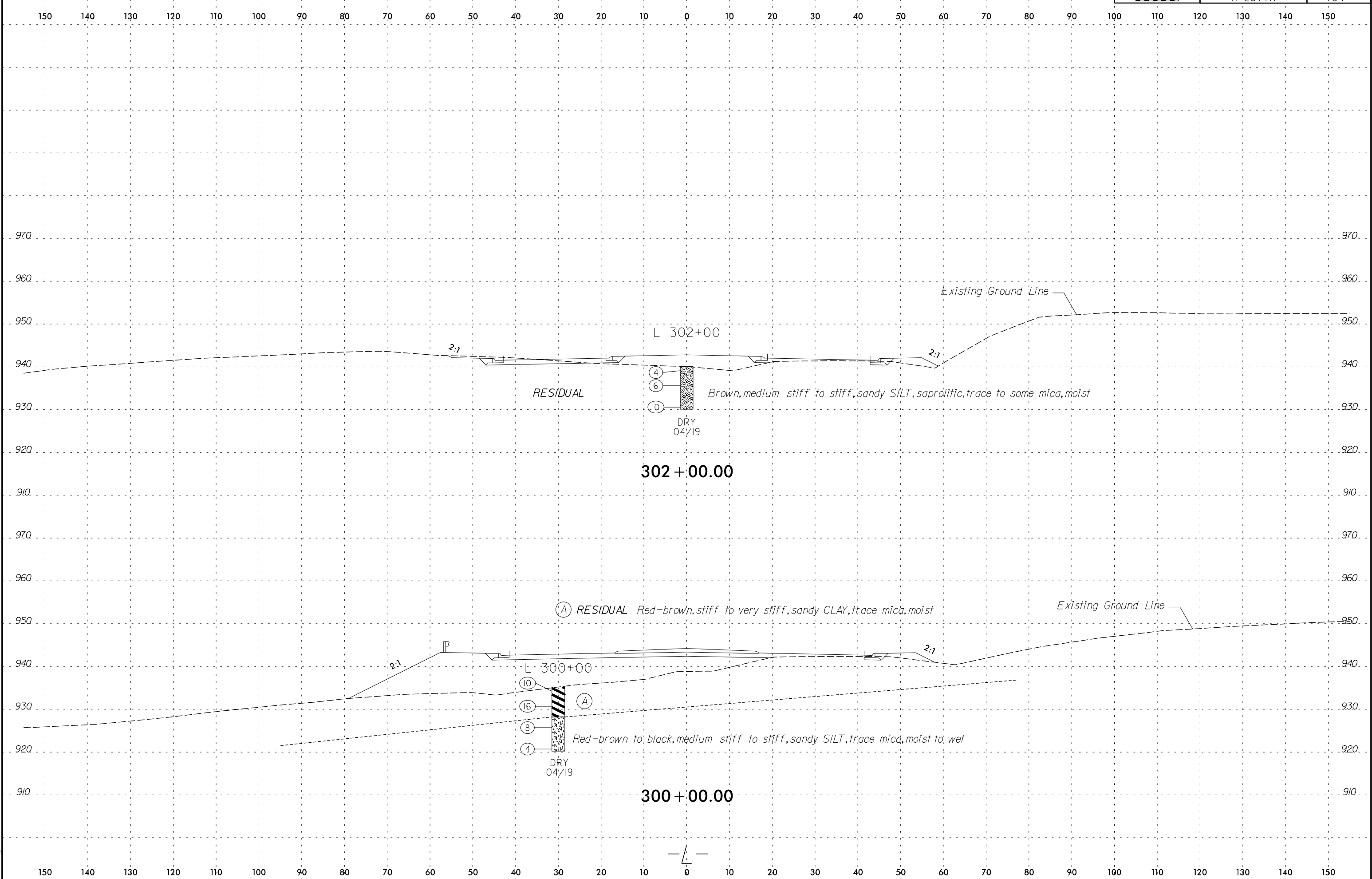
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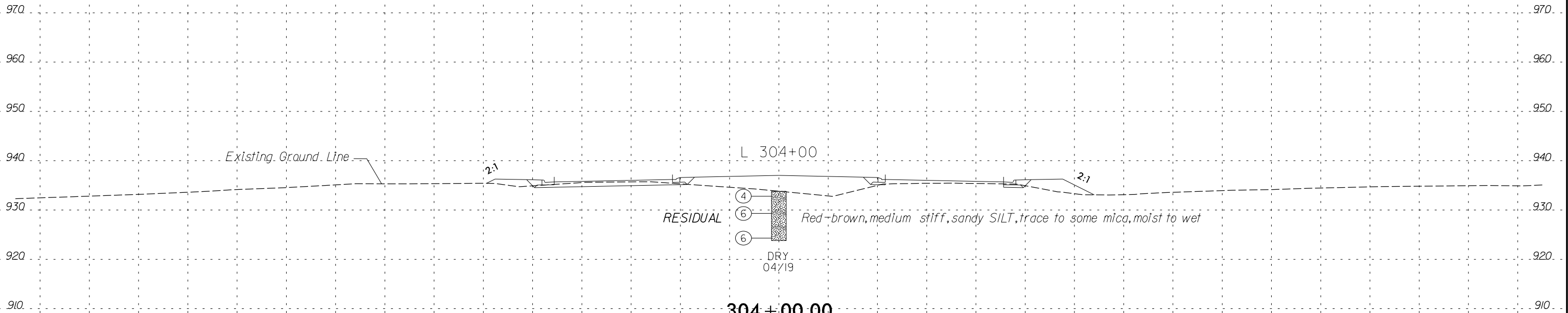
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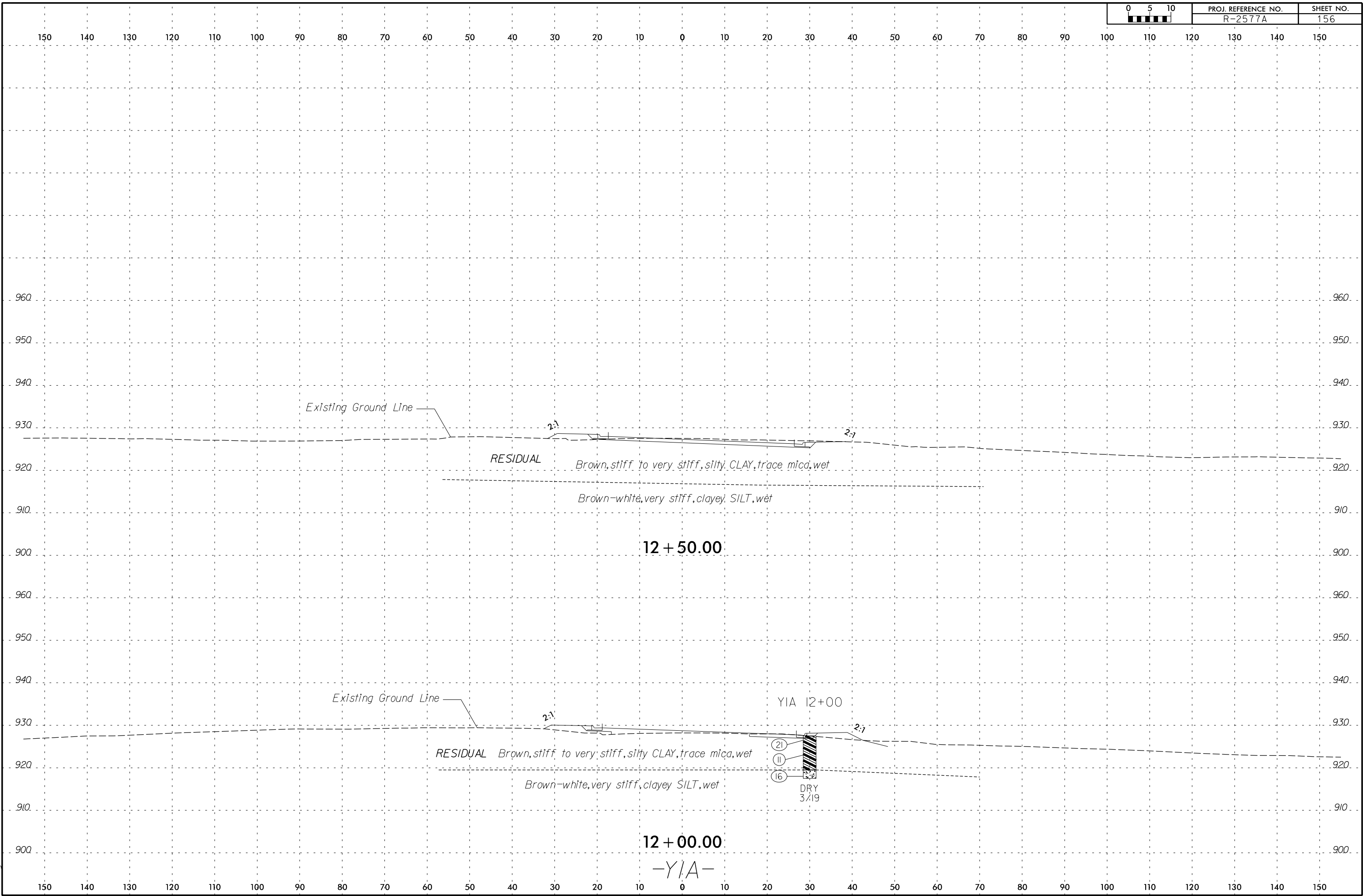




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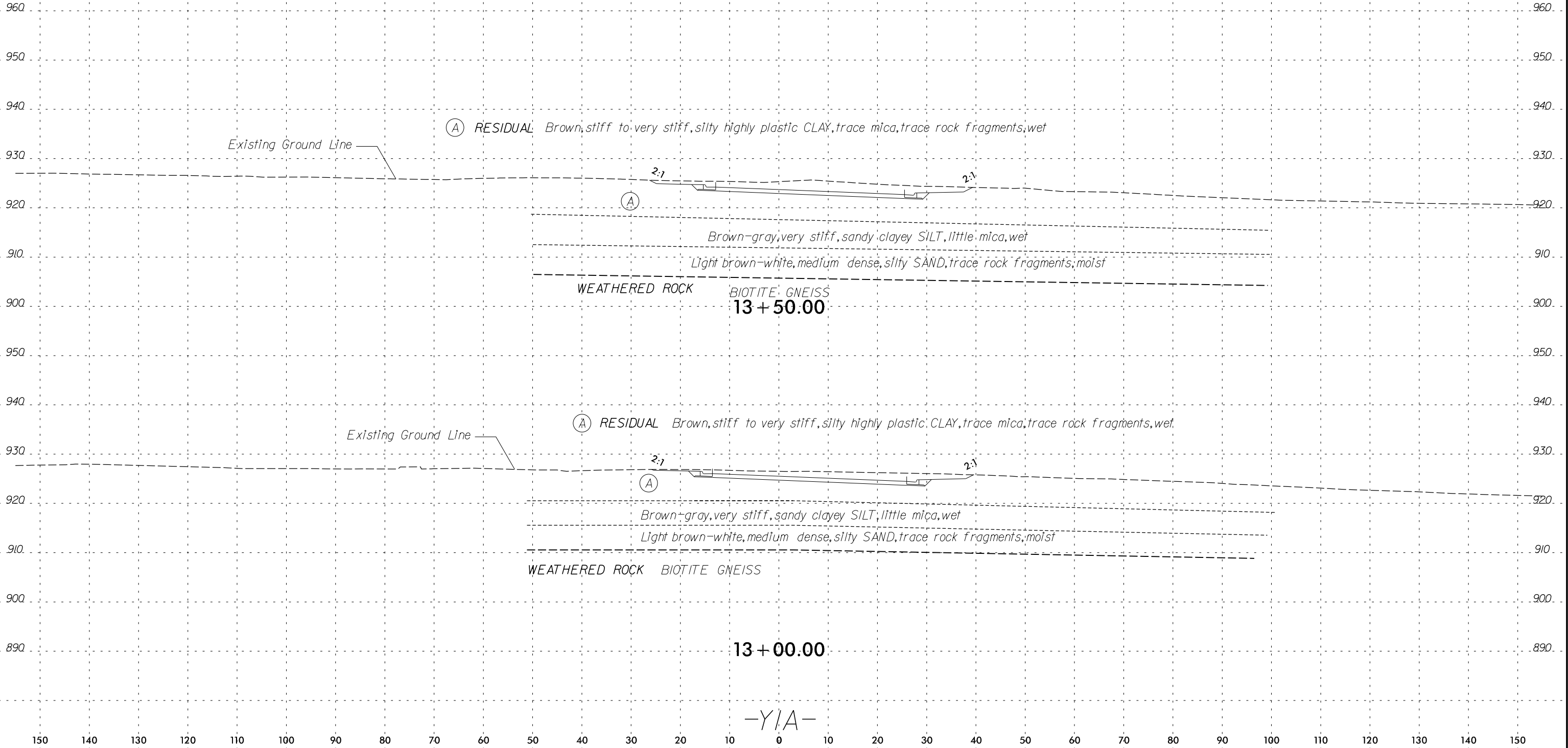


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6/23/16

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

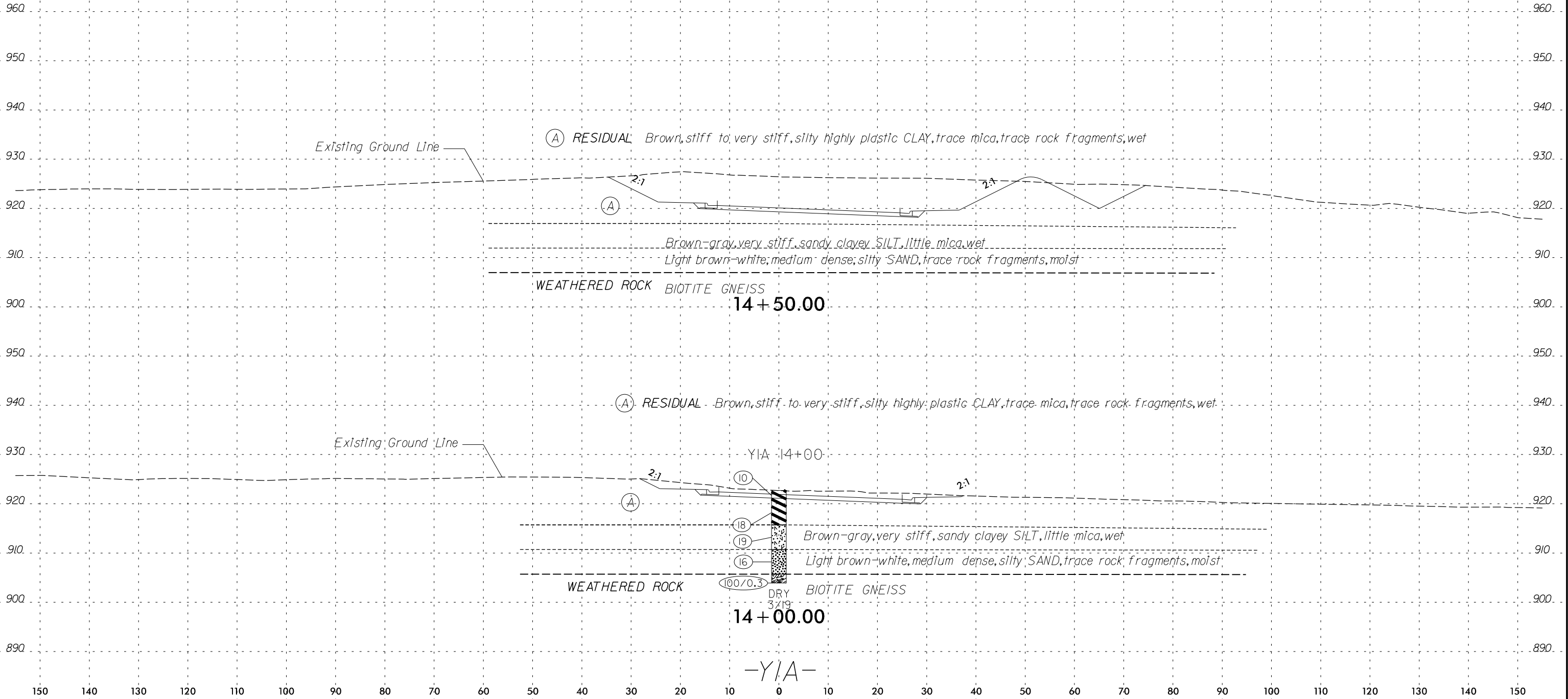


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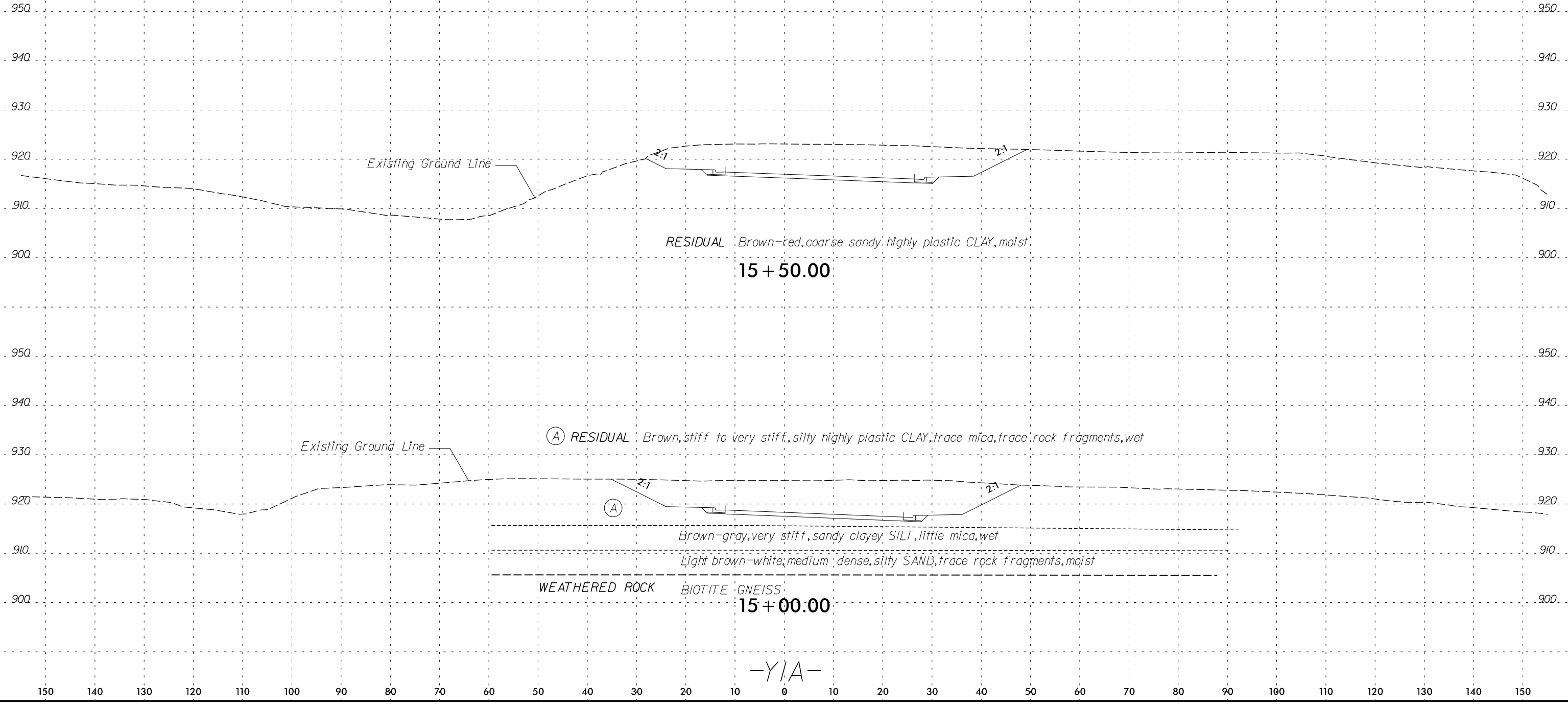
-Y/A-



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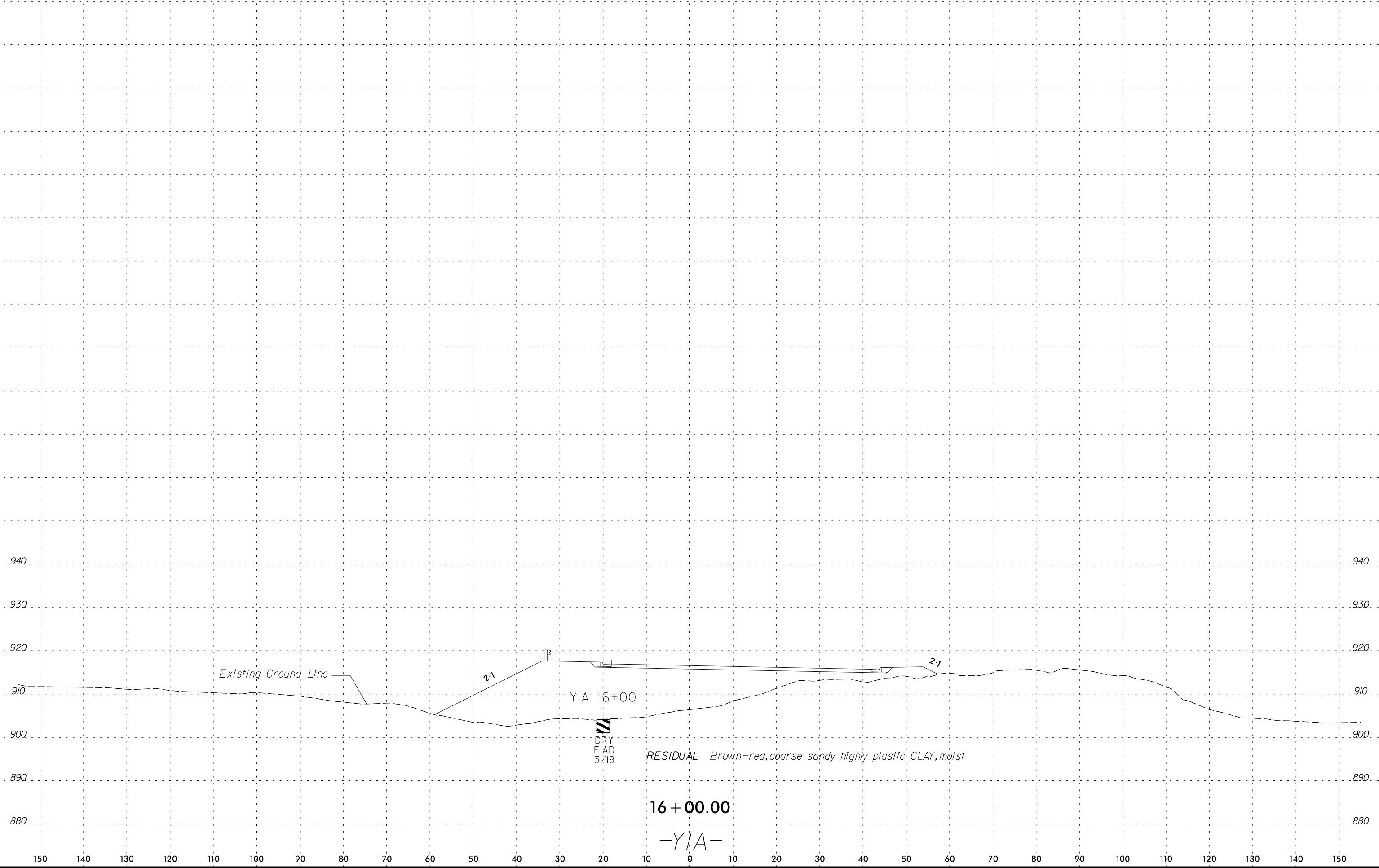
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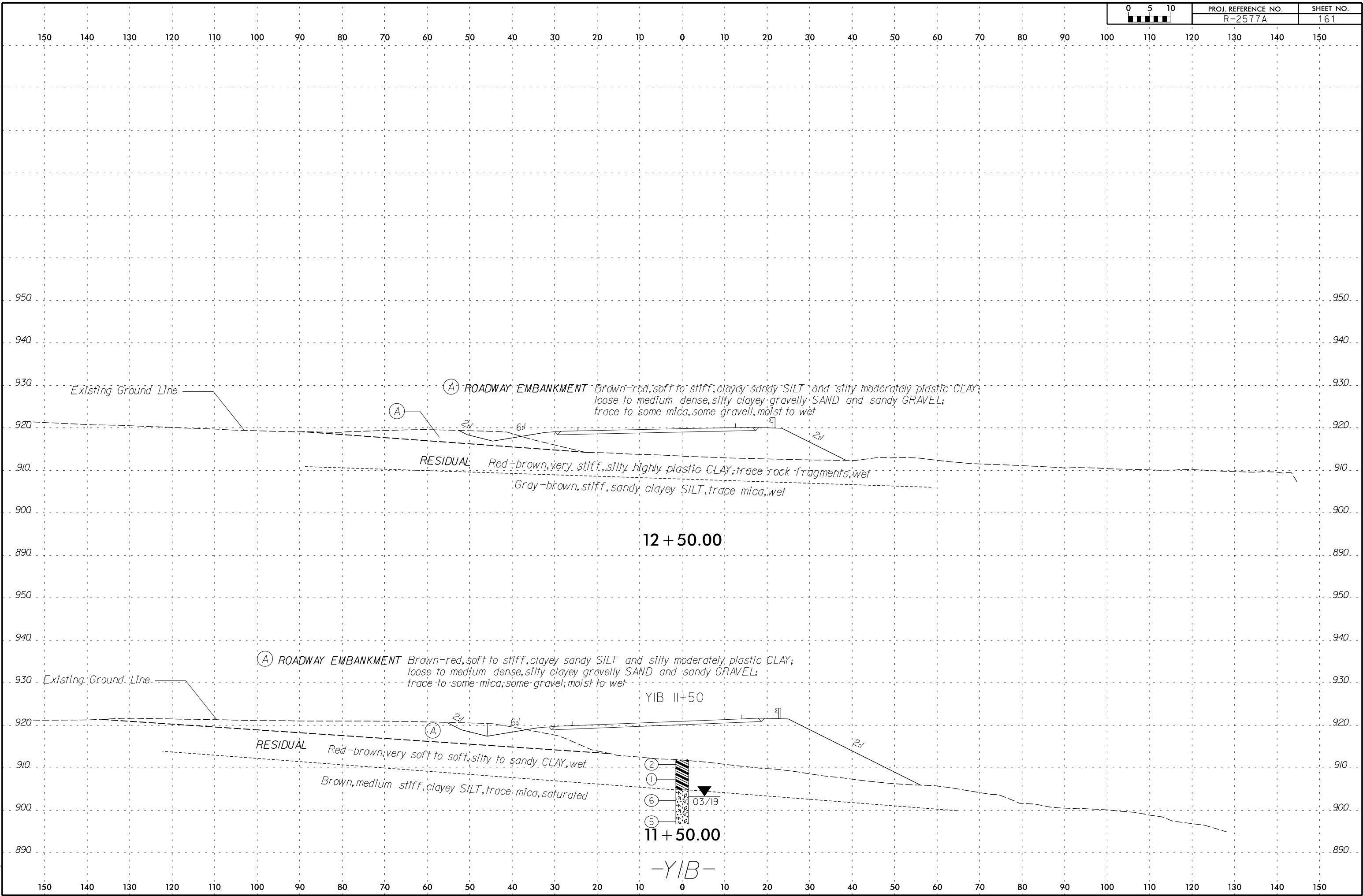
6/23/16

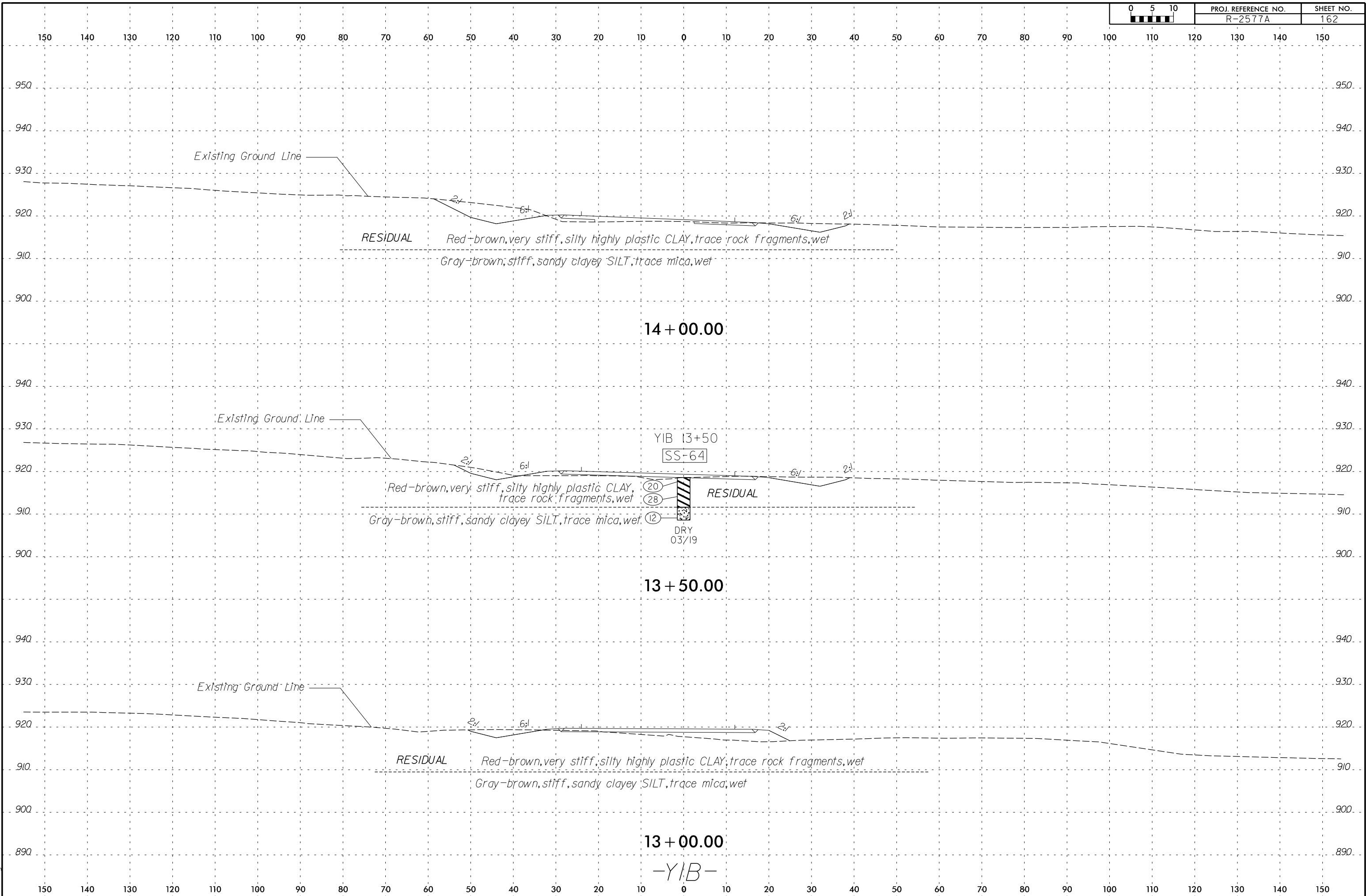
0 5 10	PROJ. REFERENCE NO. R-2577A	SHEET NO. 160
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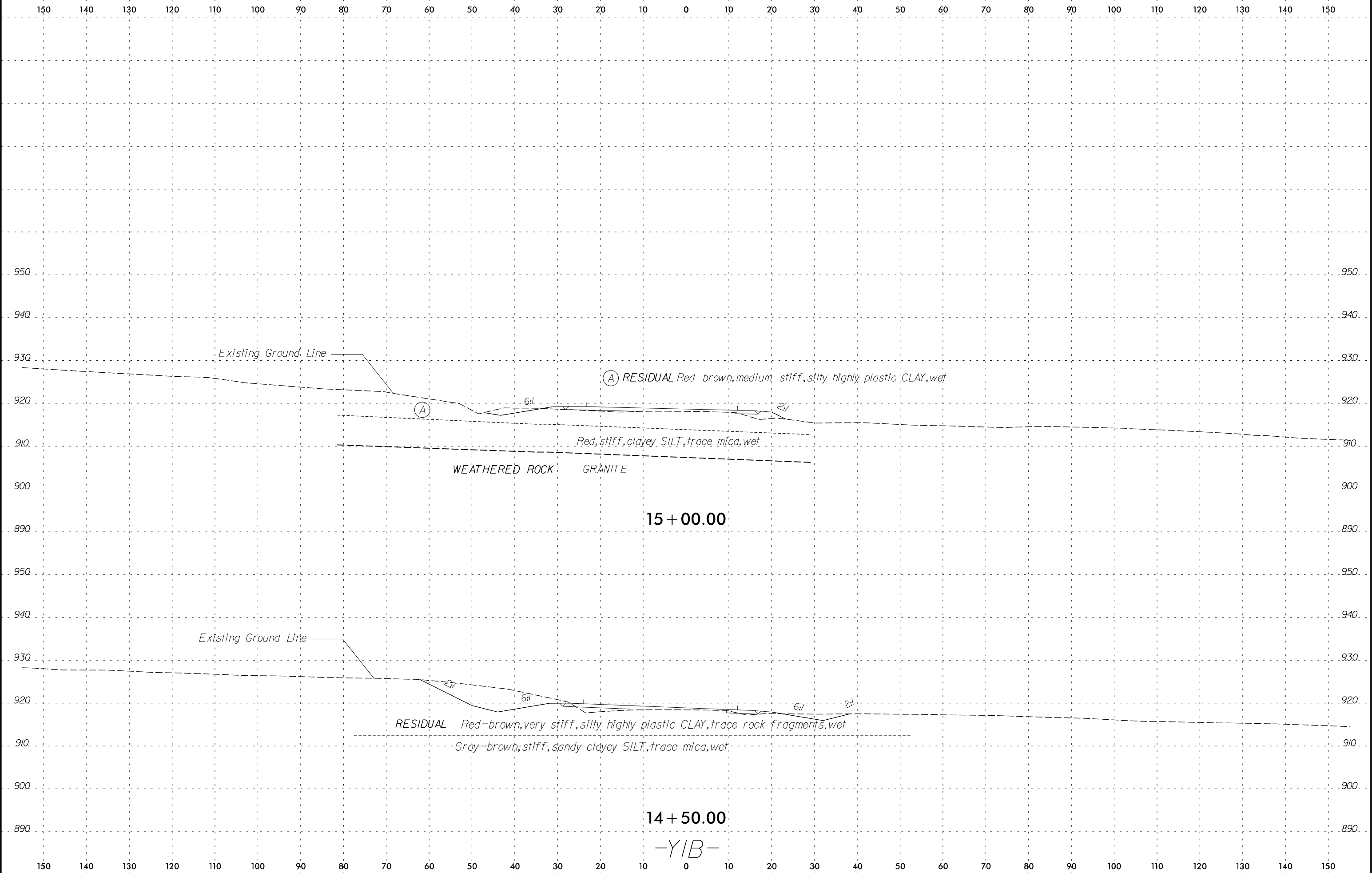
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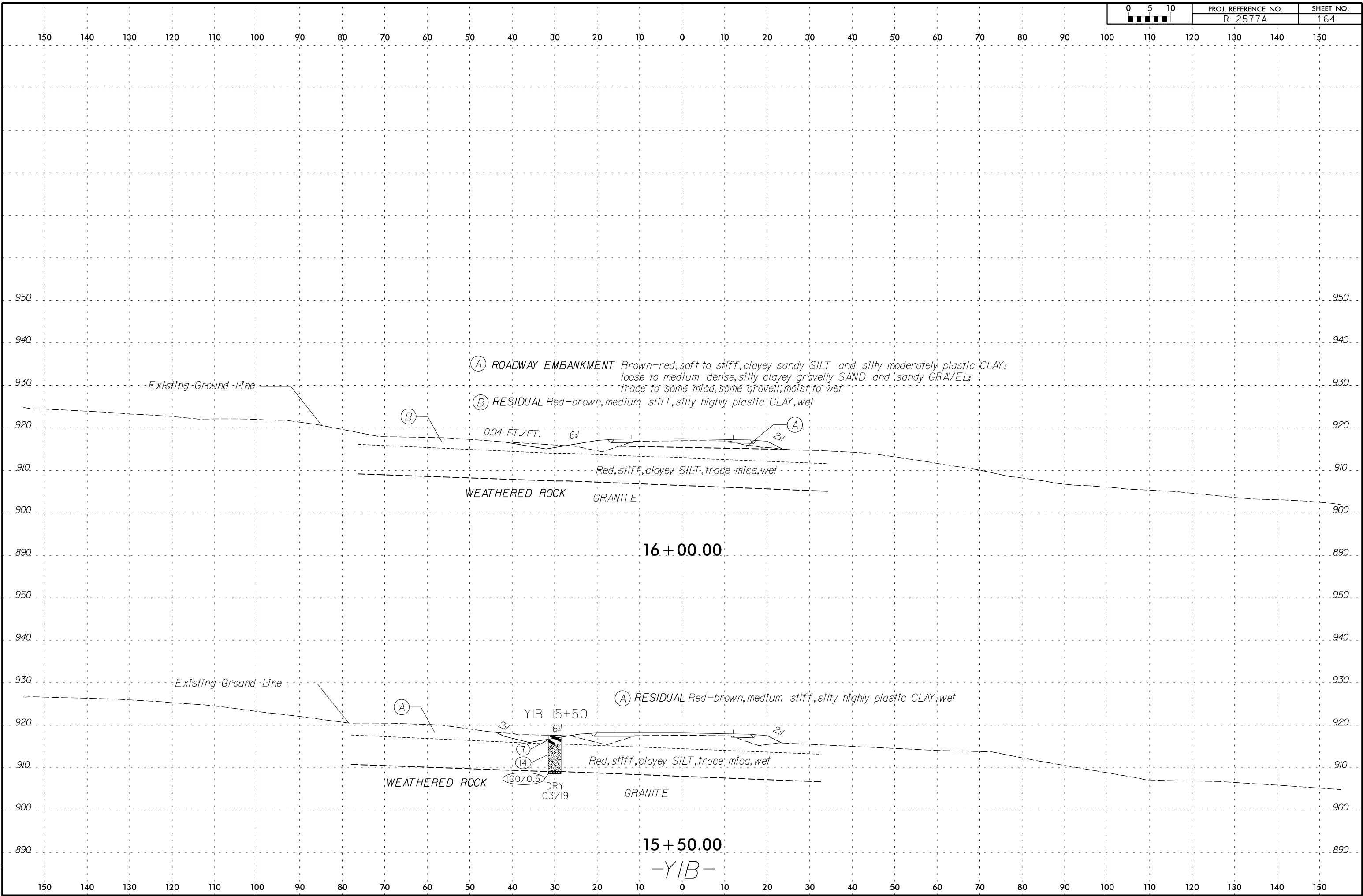


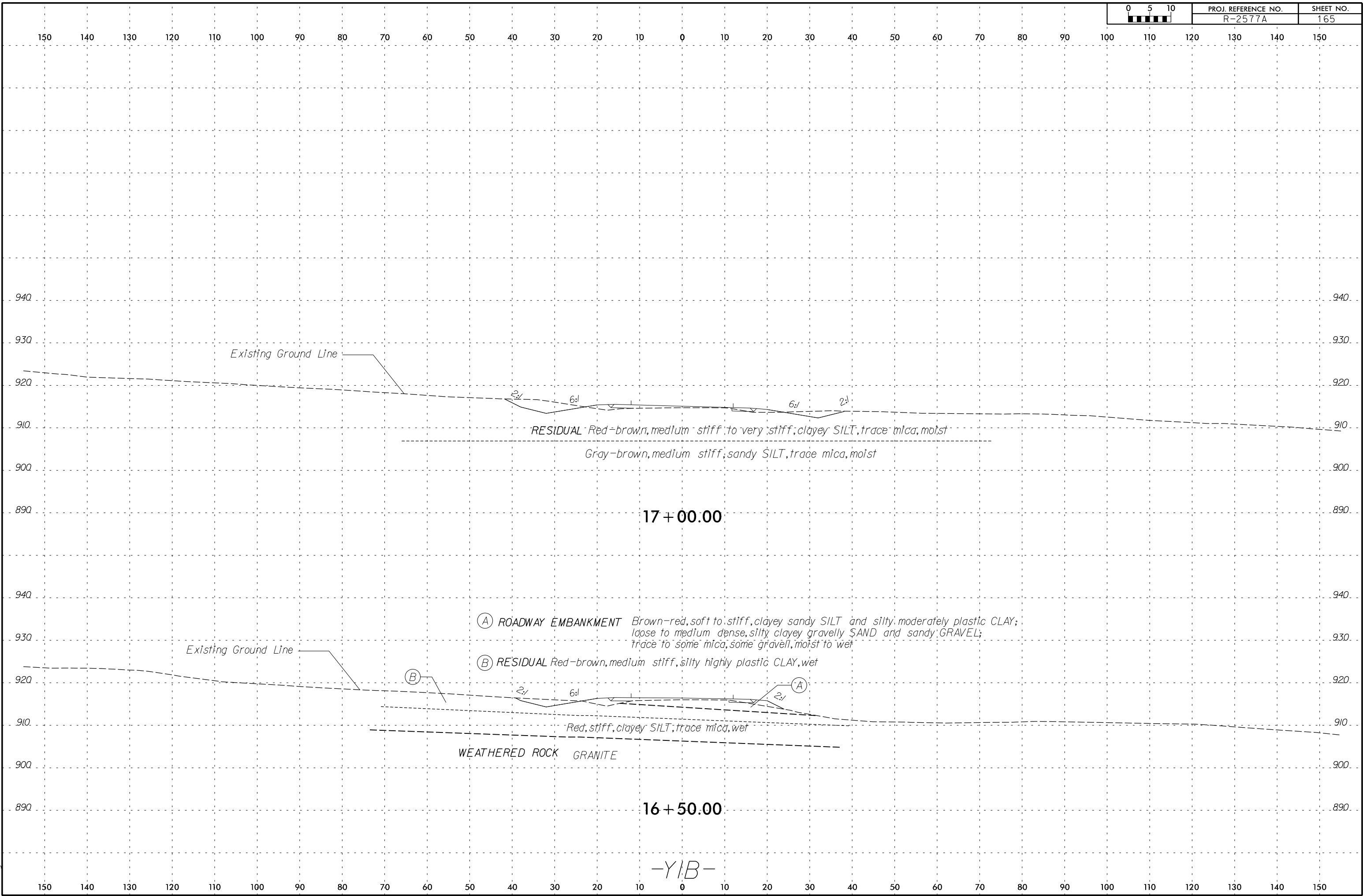
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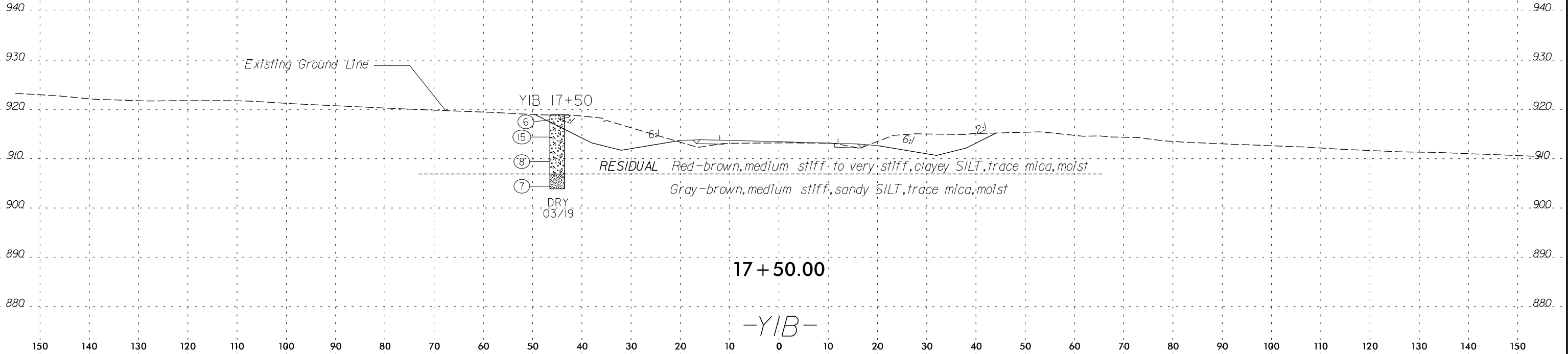






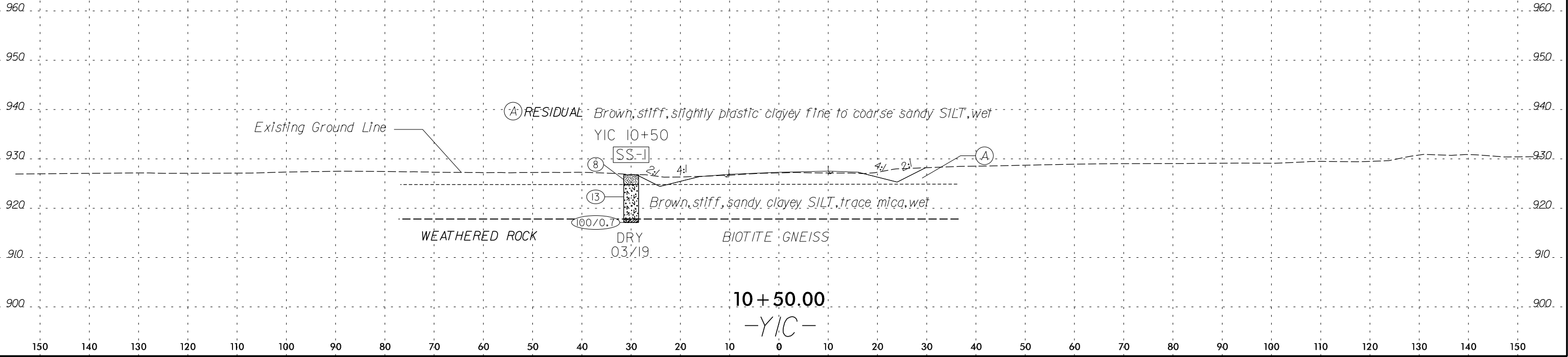


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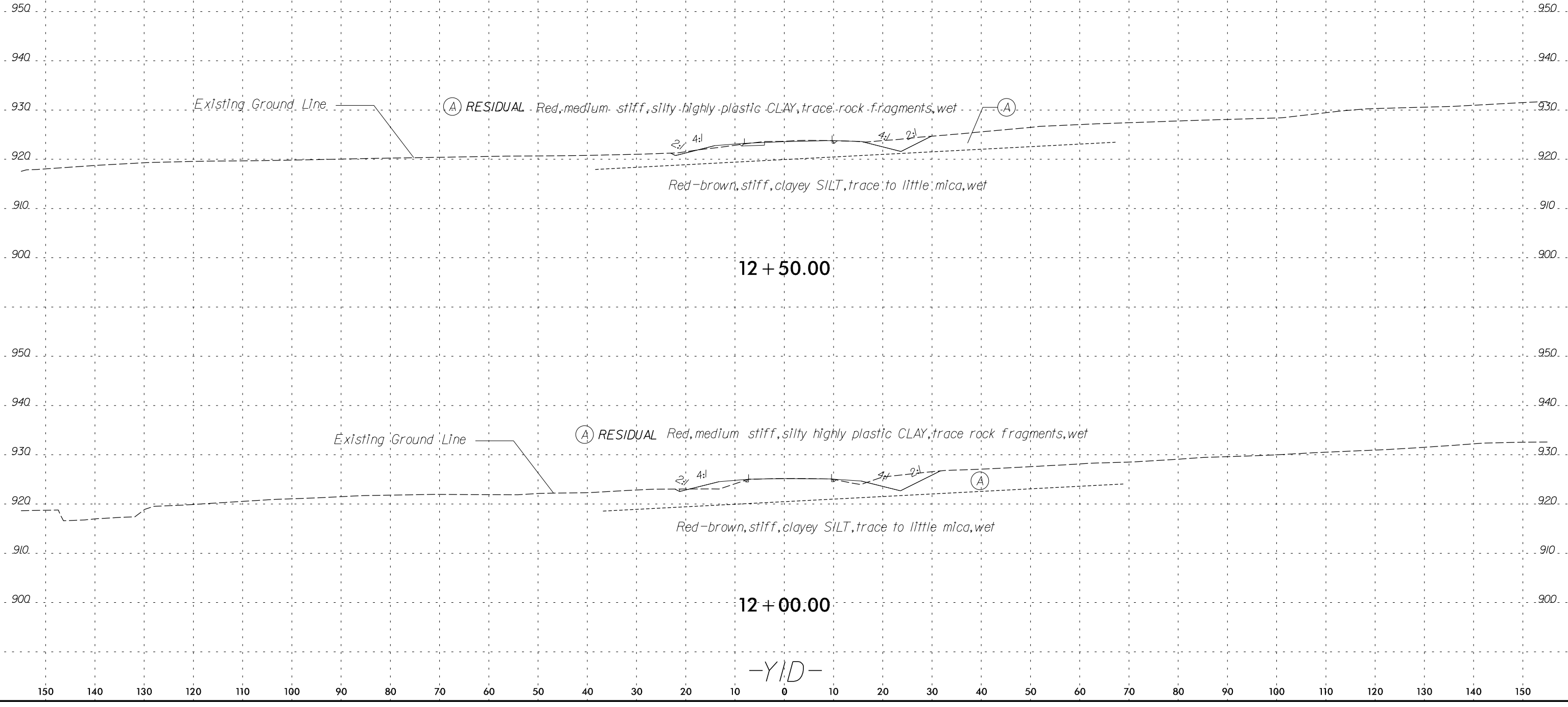
6/23/16

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



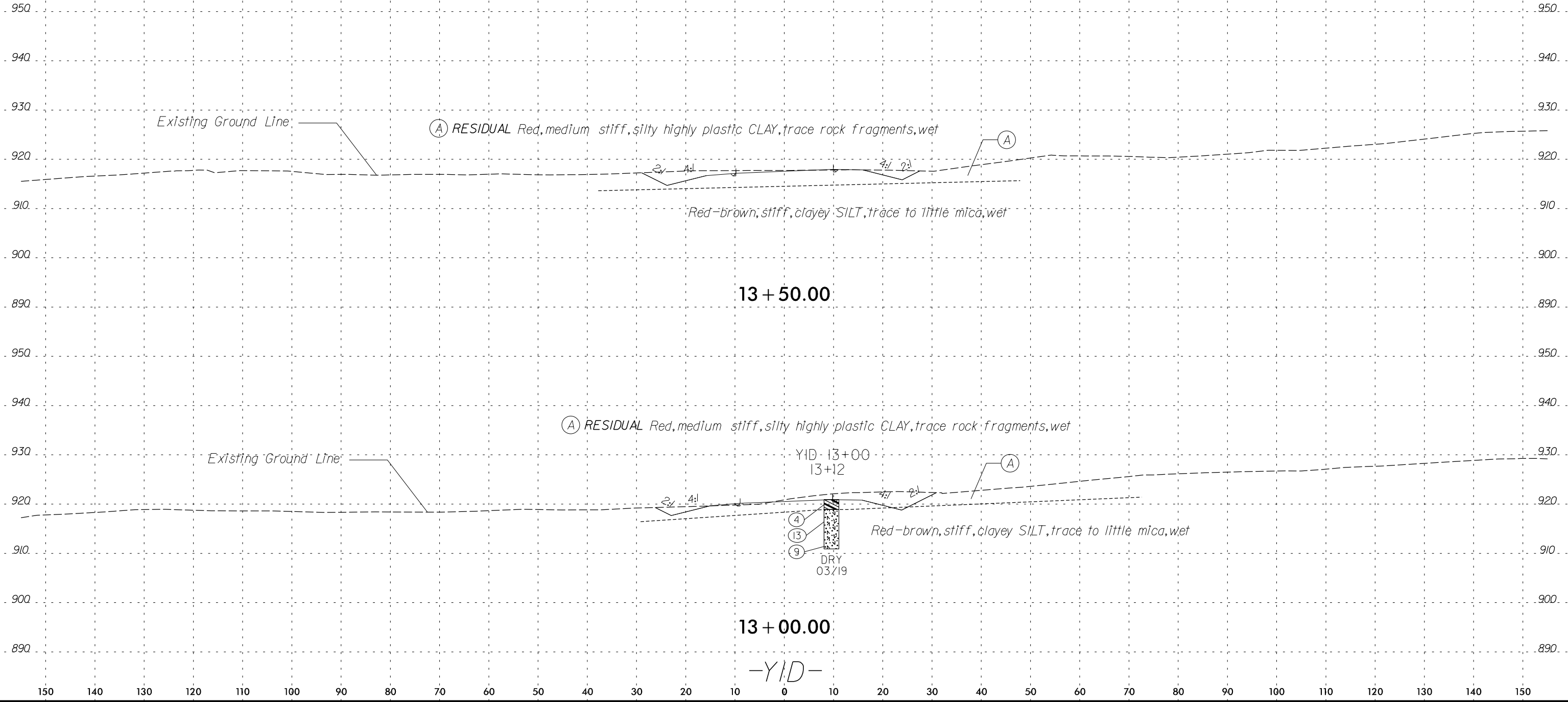
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150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



-YIELD-

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



Ⓐ RESIDUAL Red, medium stiff, silty highly plastic CLAY, trace rock fragments, wet

Red-brown, stiff, clayey SILT, trace to little mica, wet

13 + 50.00

Ⓐ RESIDUAL Red, medium stiff, silty highly plastic CLAY, trace rock fragments, wet

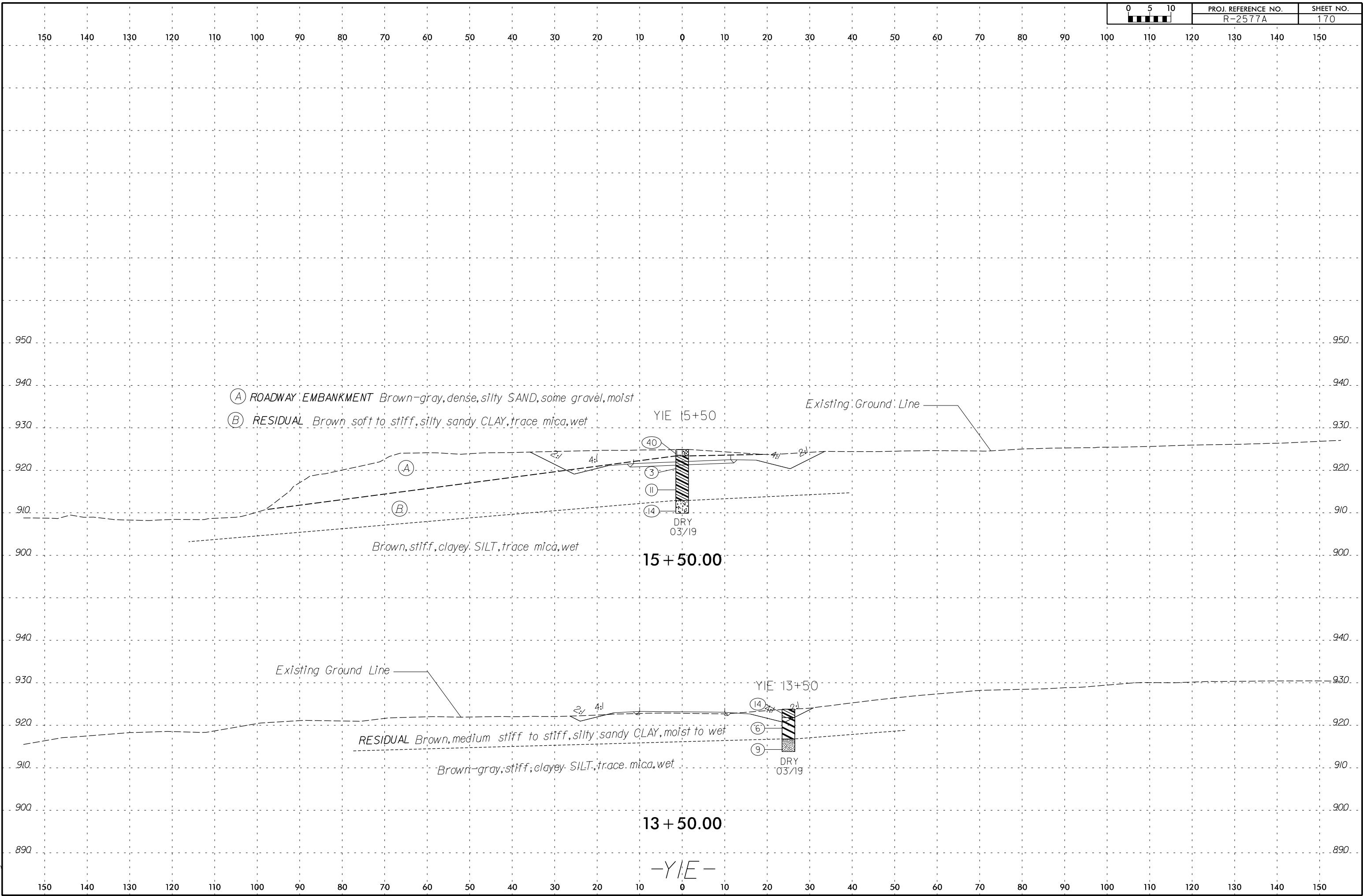
Red-brown, stiff, clayey SILT, trace to little mica, wet

YID-13+00  
13+12

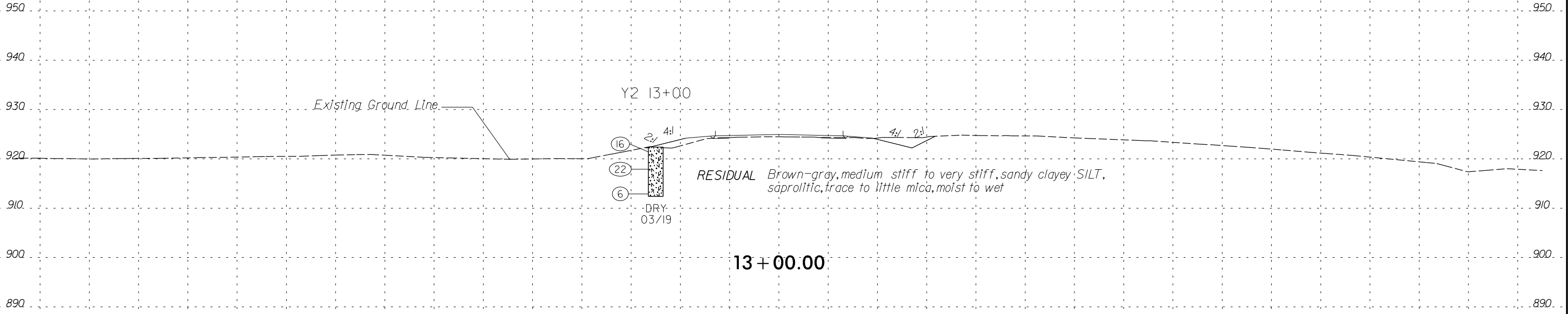
4  
13  
9  
DRY  
03/19

13 + 00.00

-YID-



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



Existing Ground Line

Y2 13+00

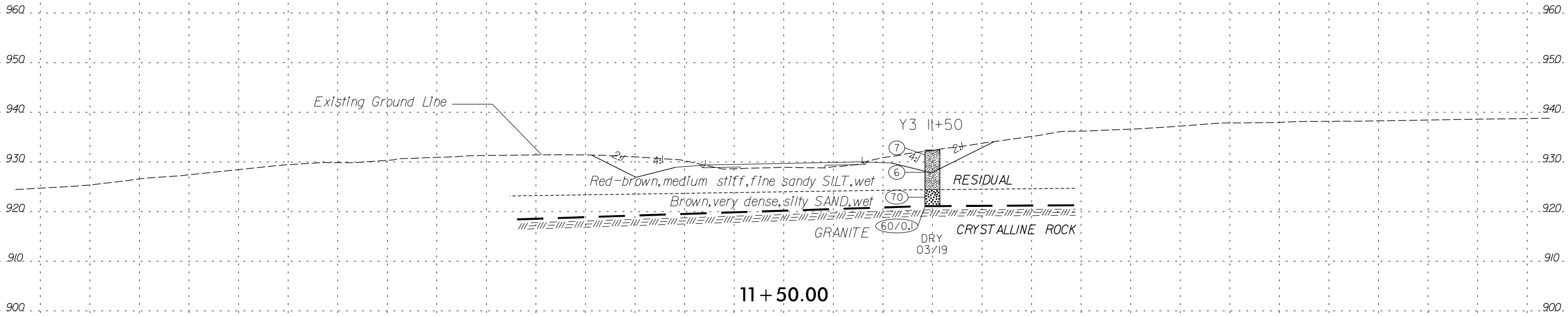
16  
22  
6  
DRY  
03/19

RESIDUAL Brown-gray, medium stiff to very stiff, sandy clayey SILT, saprolitic, trace to little mica, moist to wet

13+00.00

-Y2-

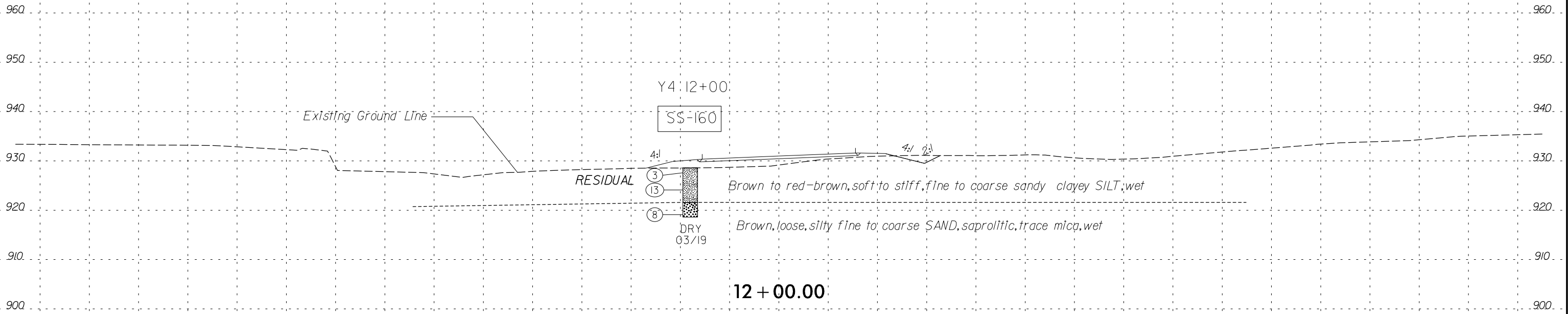
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11 + 50.00

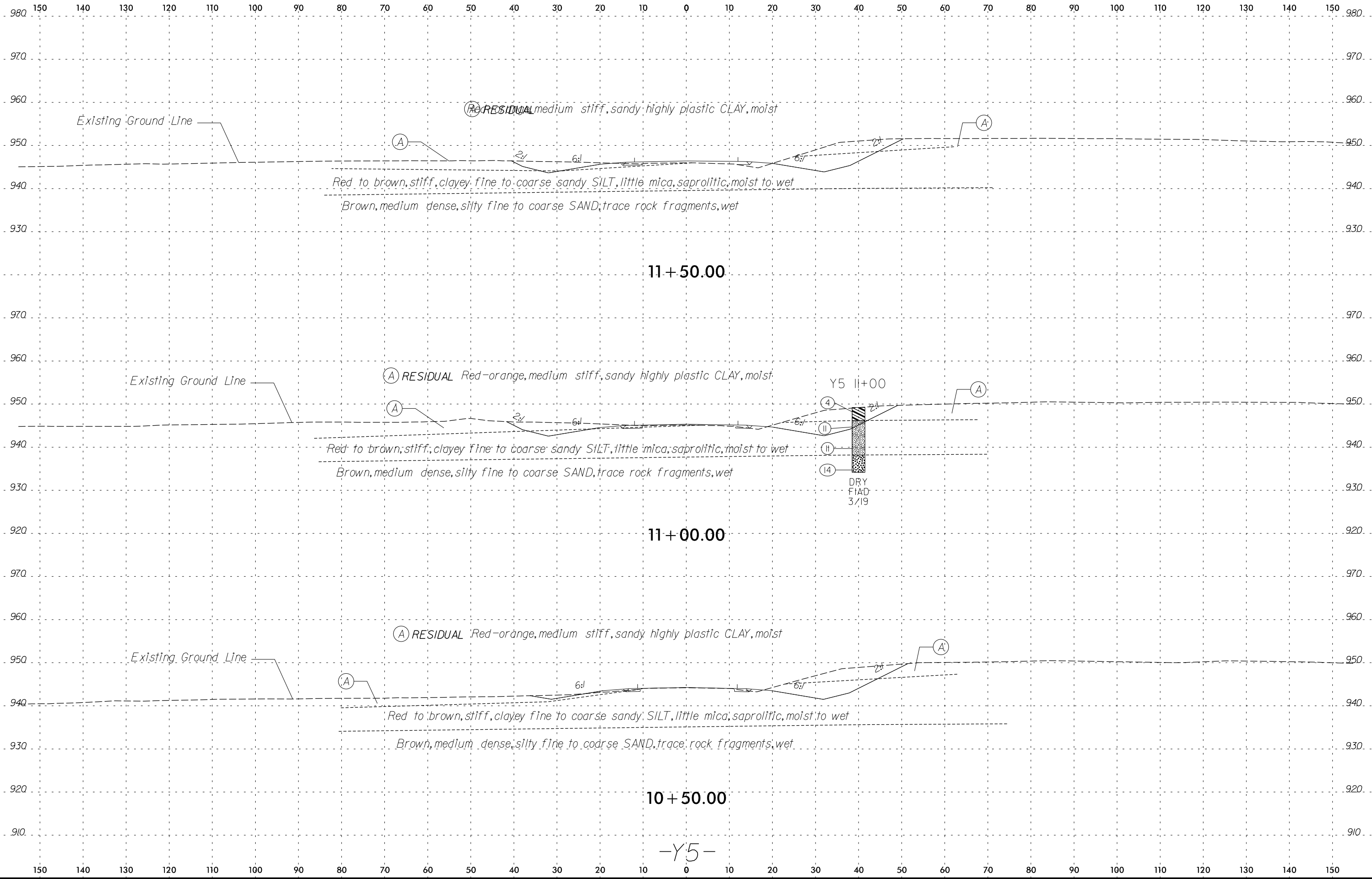
-Y3-

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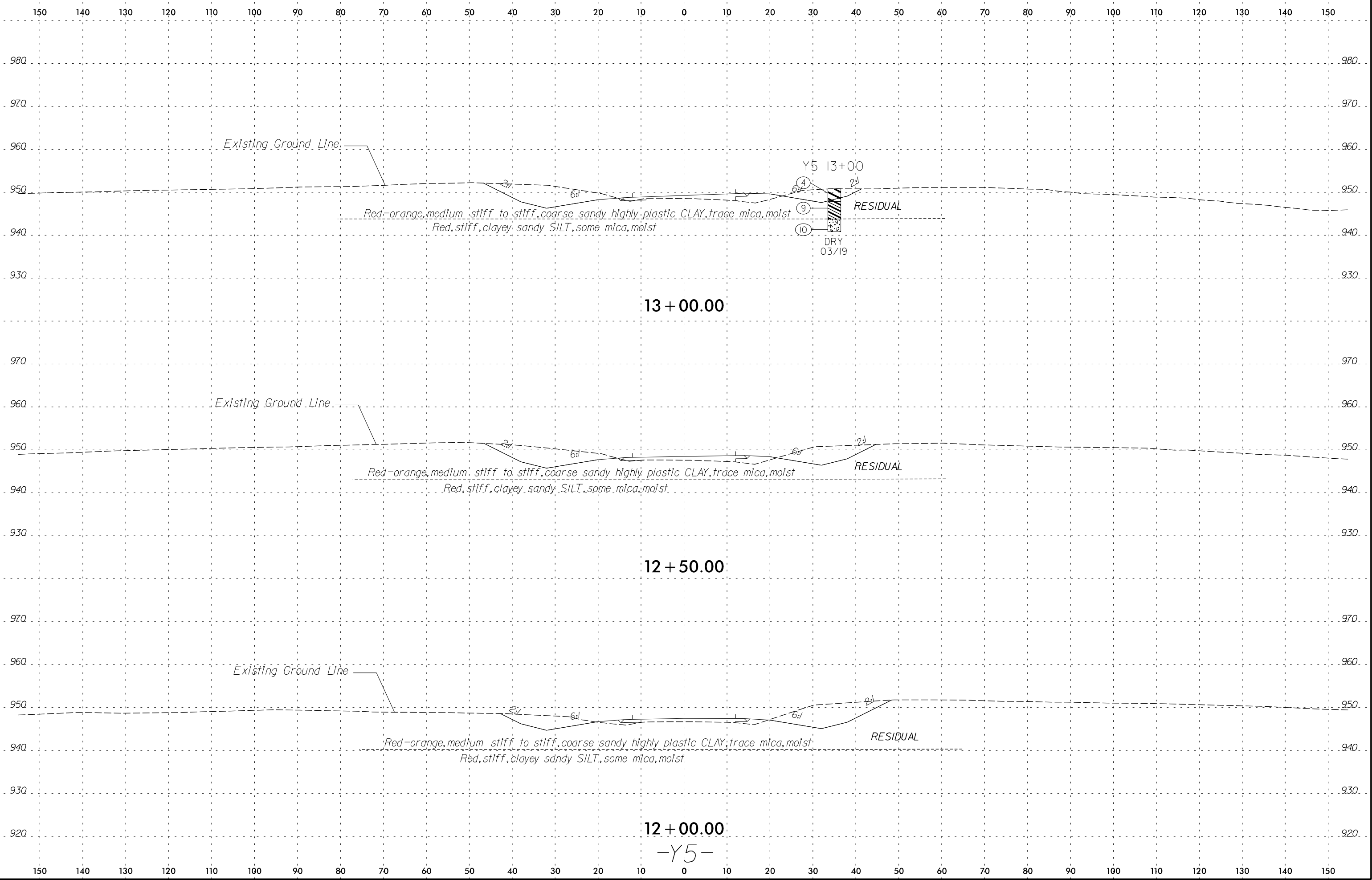


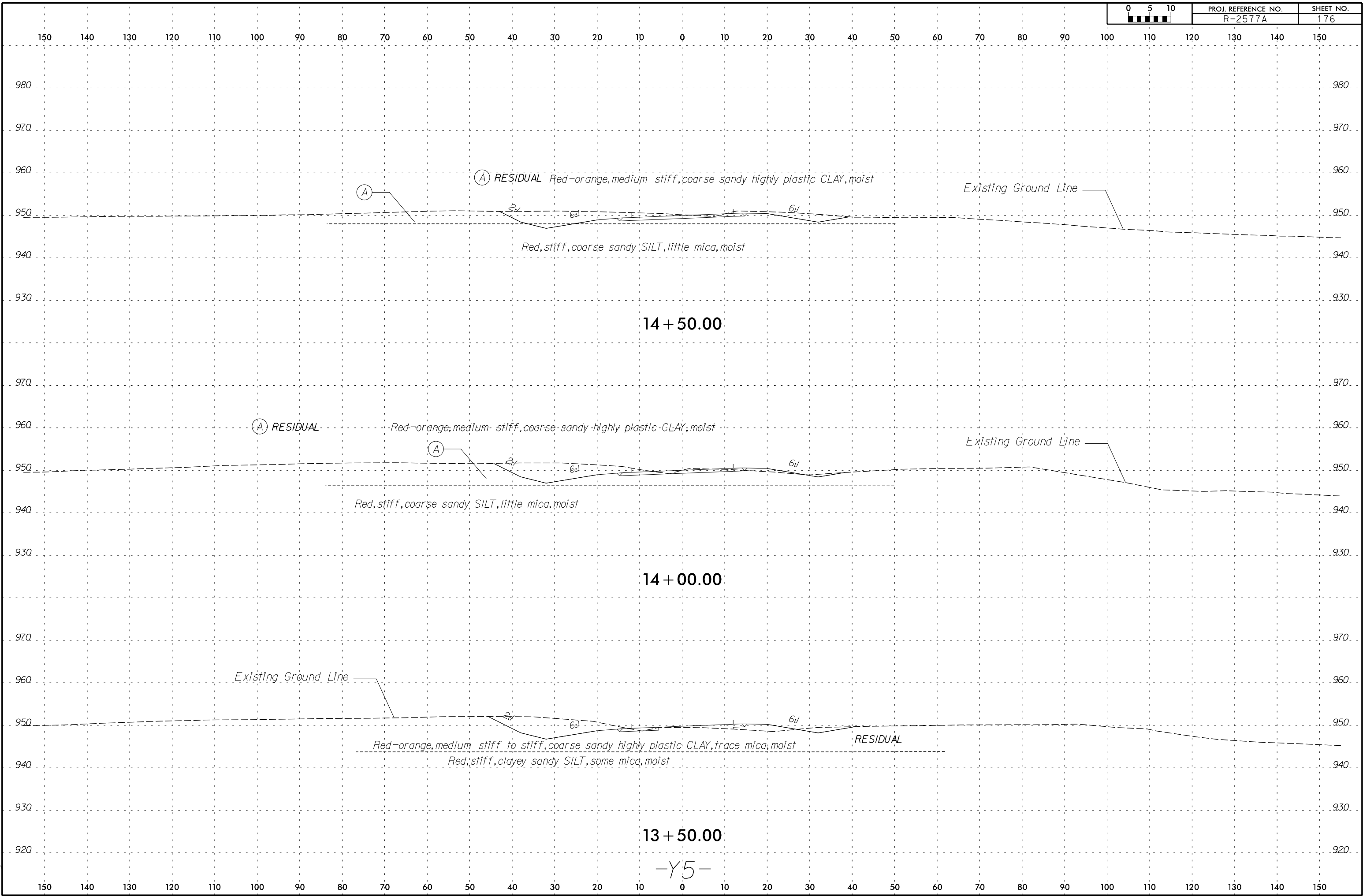
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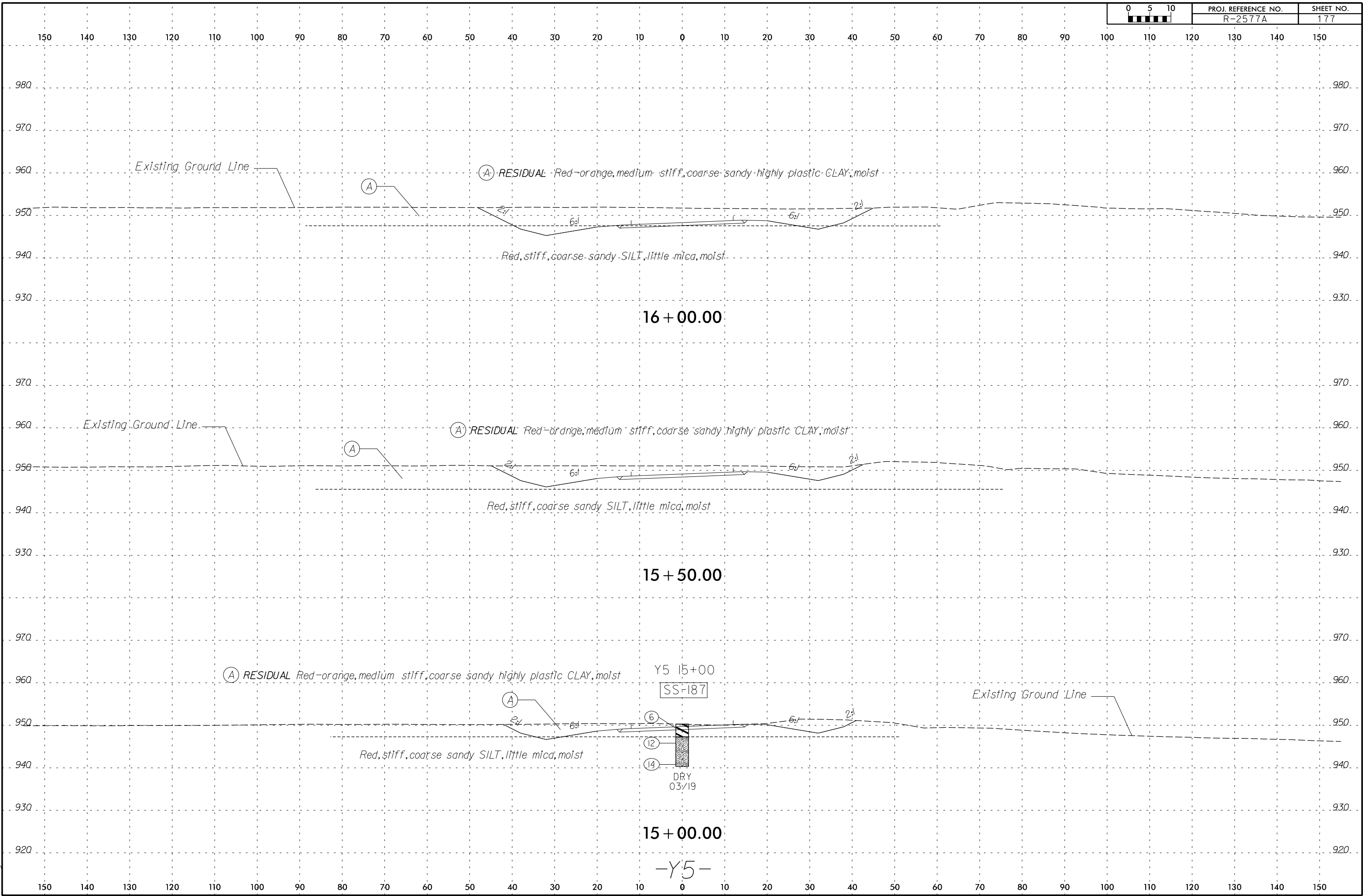


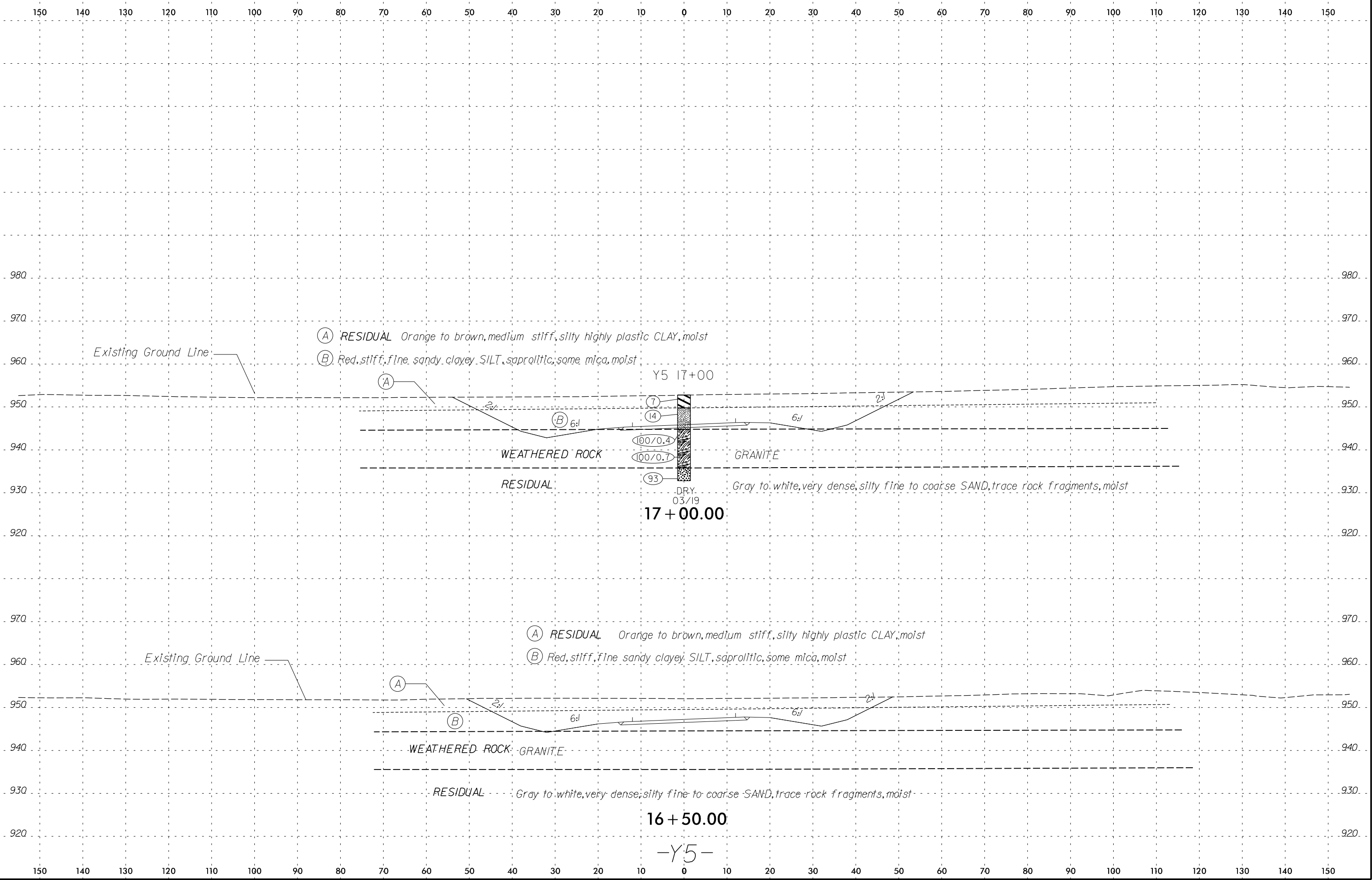


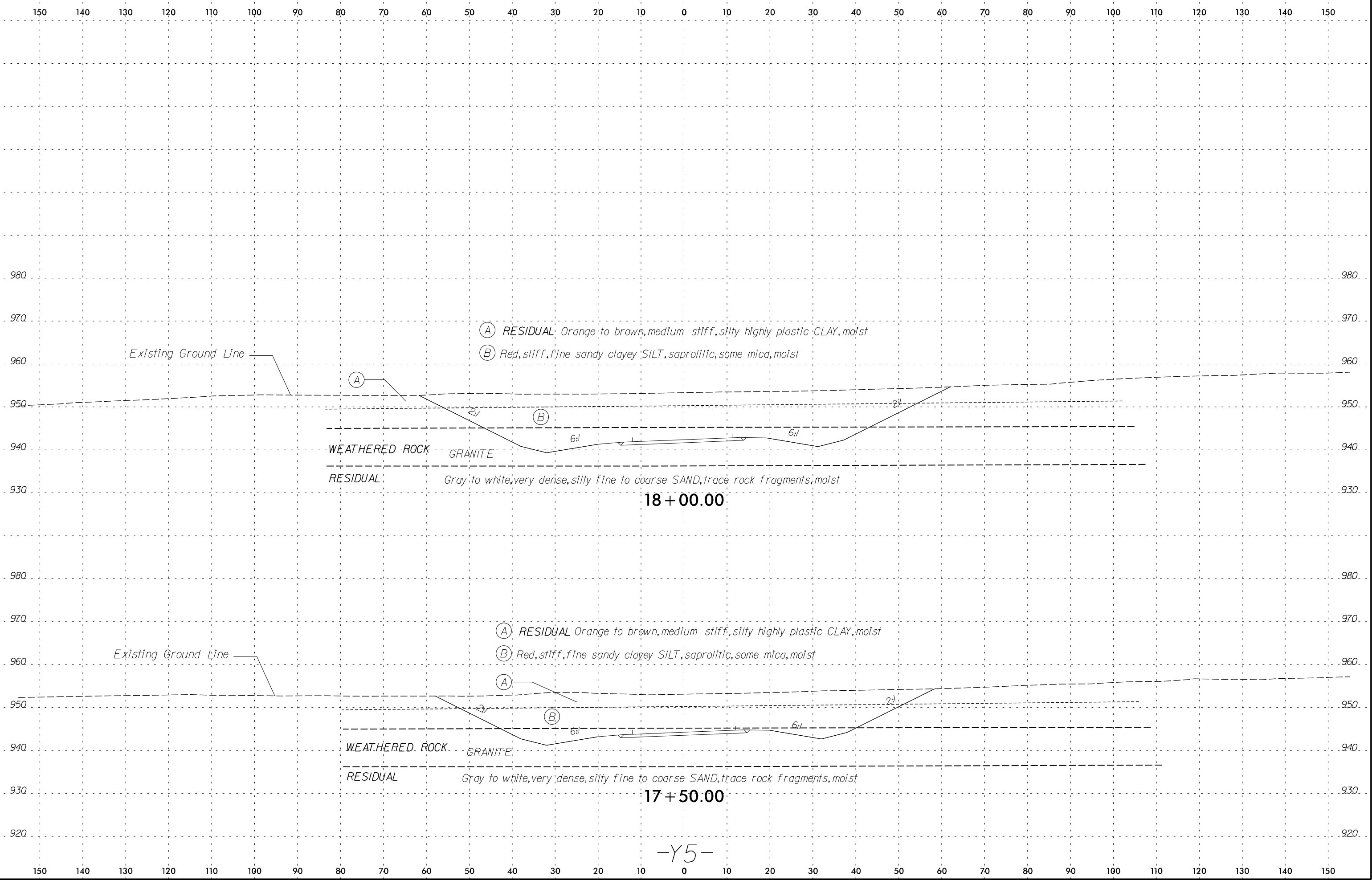
-Y5-





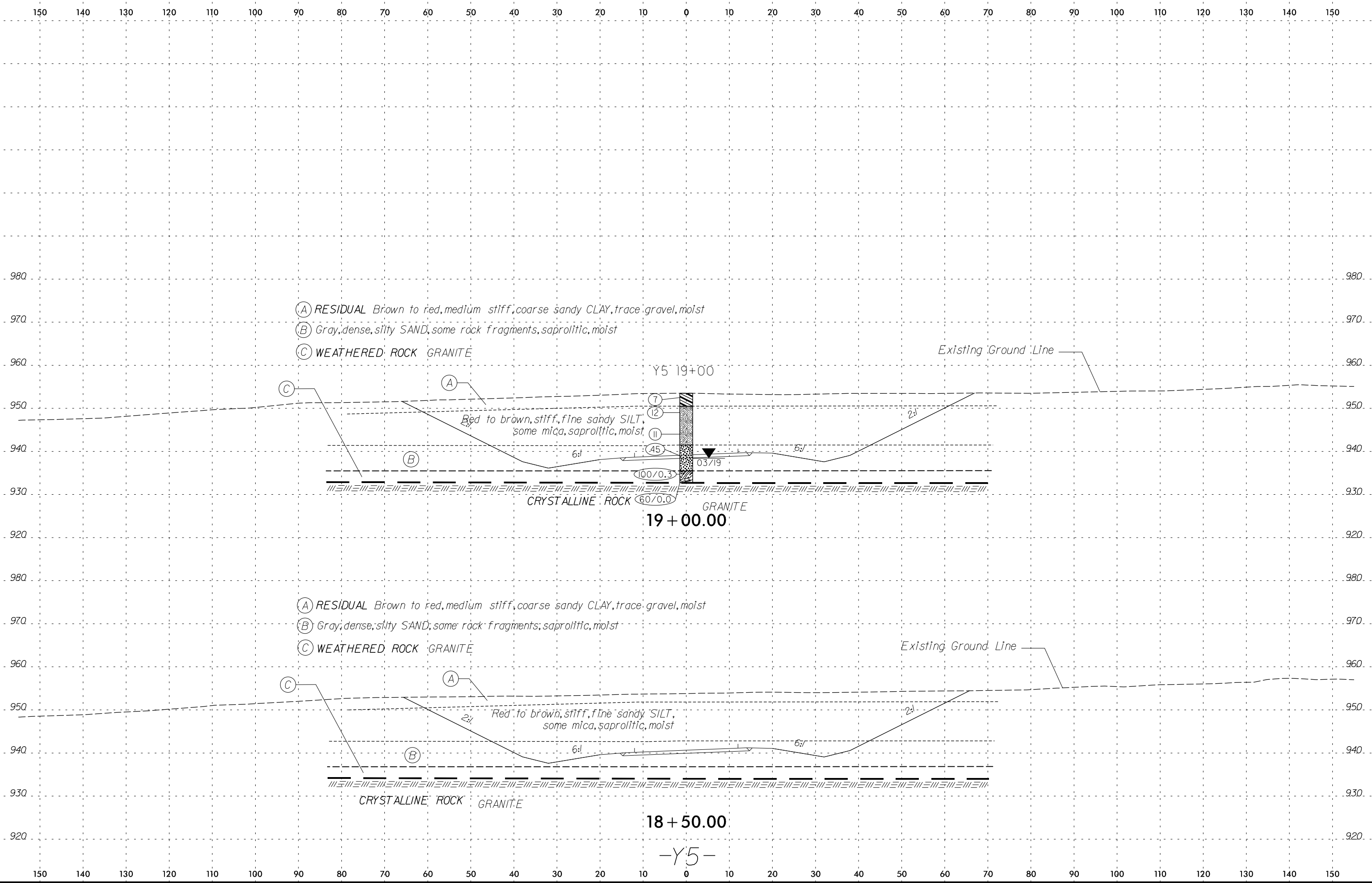






-Y5-

6/23/16

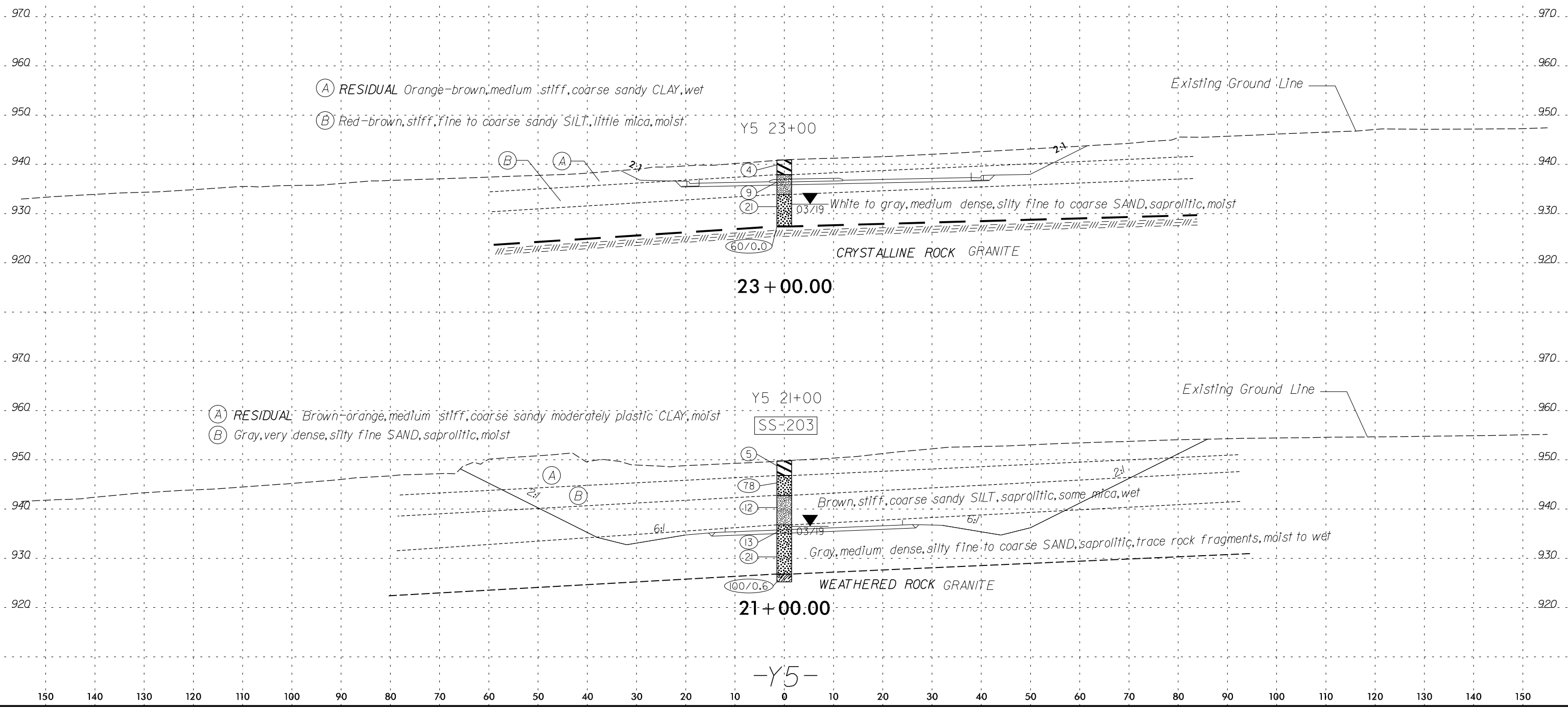


- (A) RESIDUAL Brown to red, medium stiff, coarse sandy CLAY, trace gravel, moist
- (B) Gray, dense, silty SAND, some rock fragments, saprolitic, moist
- (C) WEATHERED ROCK GRANITE

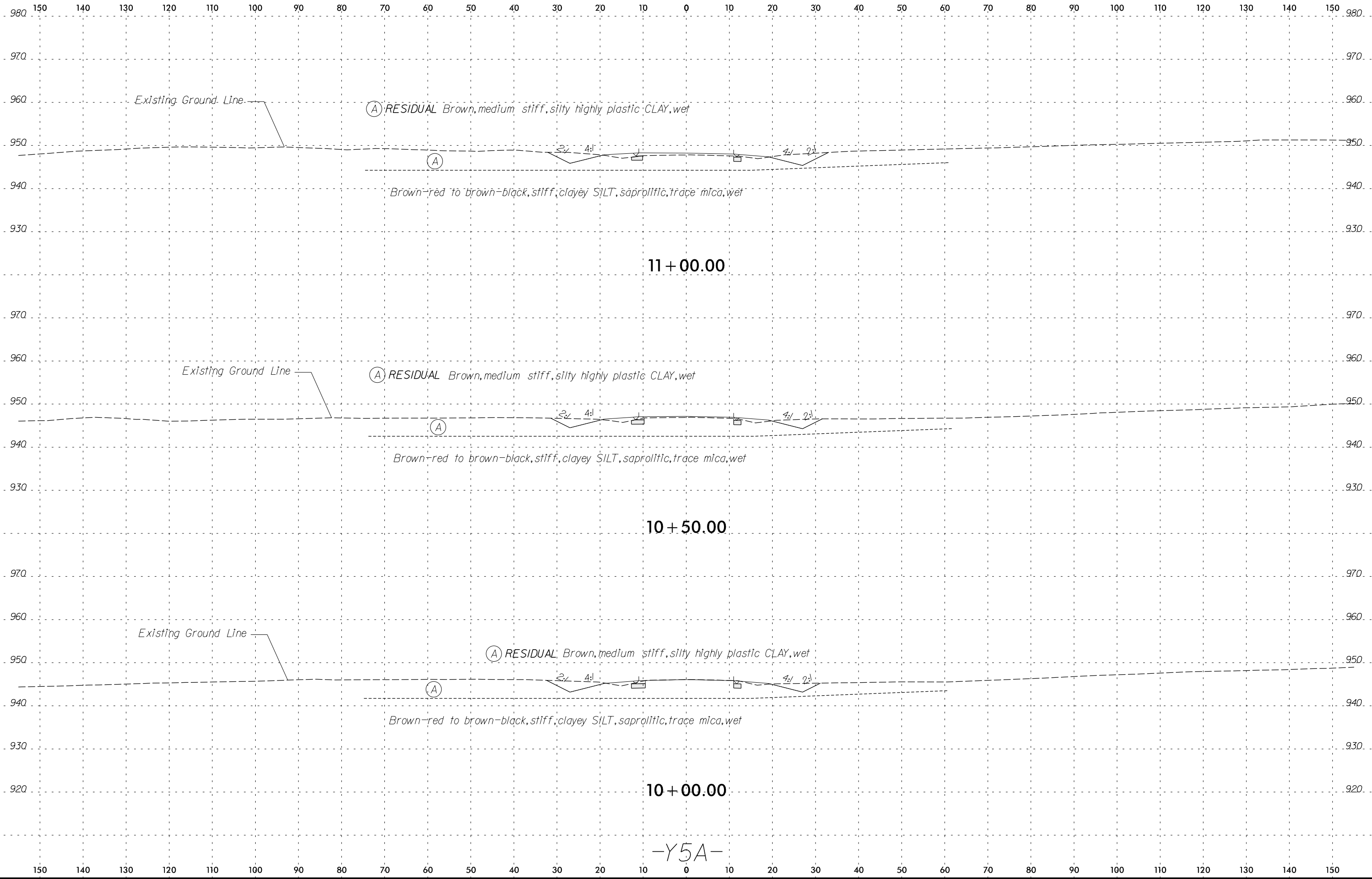
- (A) RESIDUAL Brown to red, medium stiff, coarse sandy CLAY, trace gravel, moist
- (B) Gray, dense, silty SAND, some rock fragments, saprolitic, moist
- (C) WEATHERED ROCK GRANITE

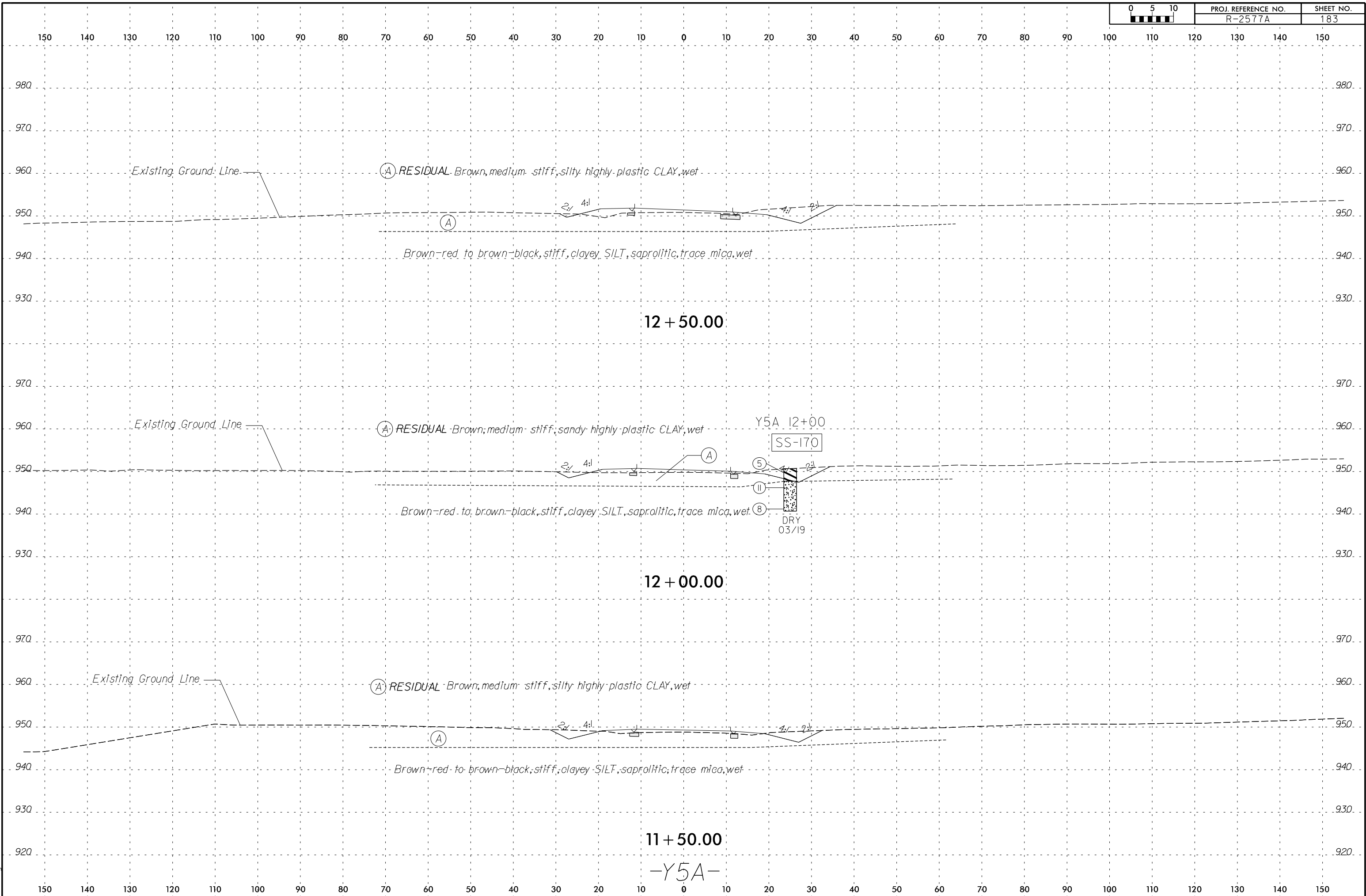
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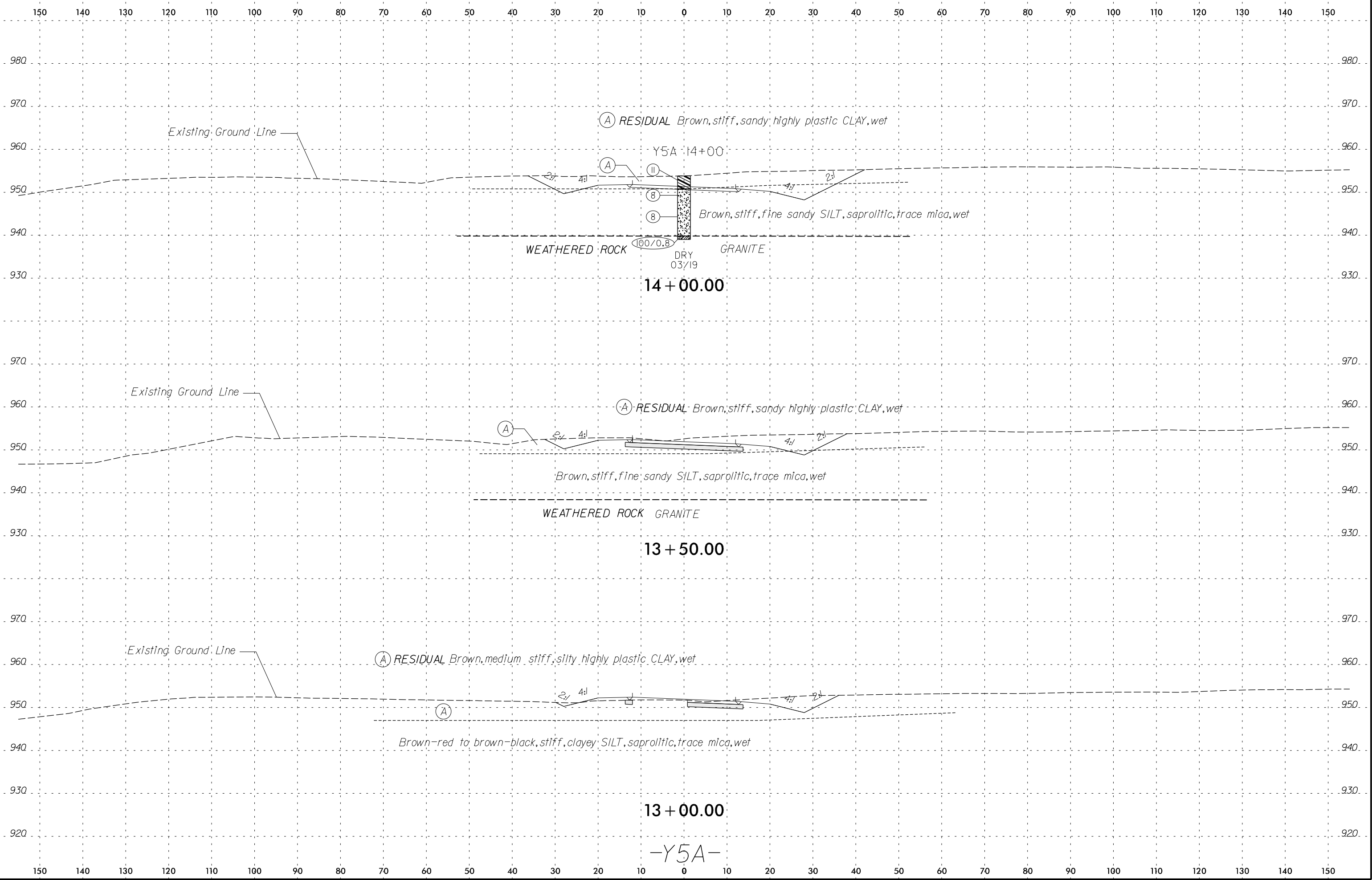
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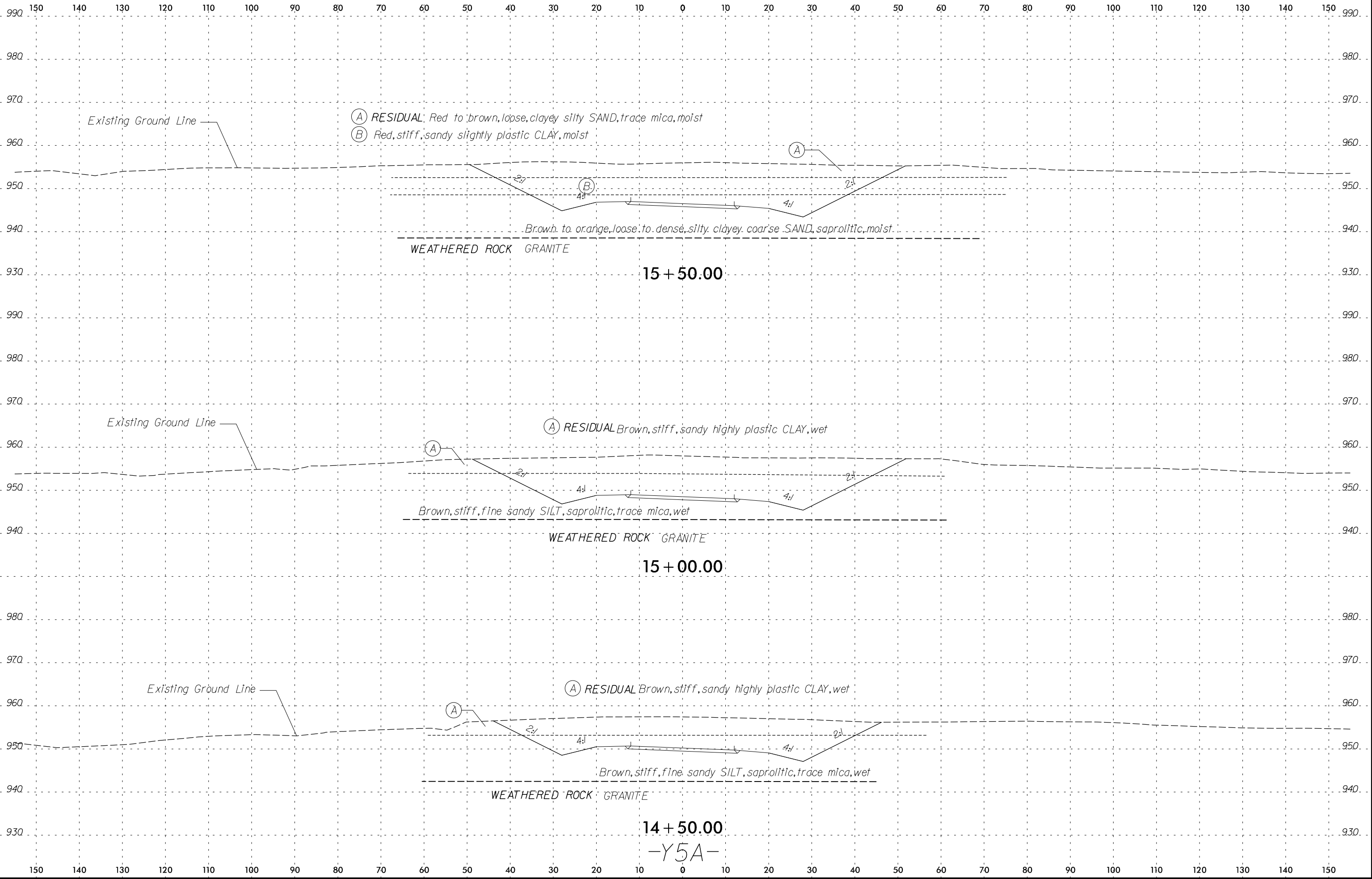




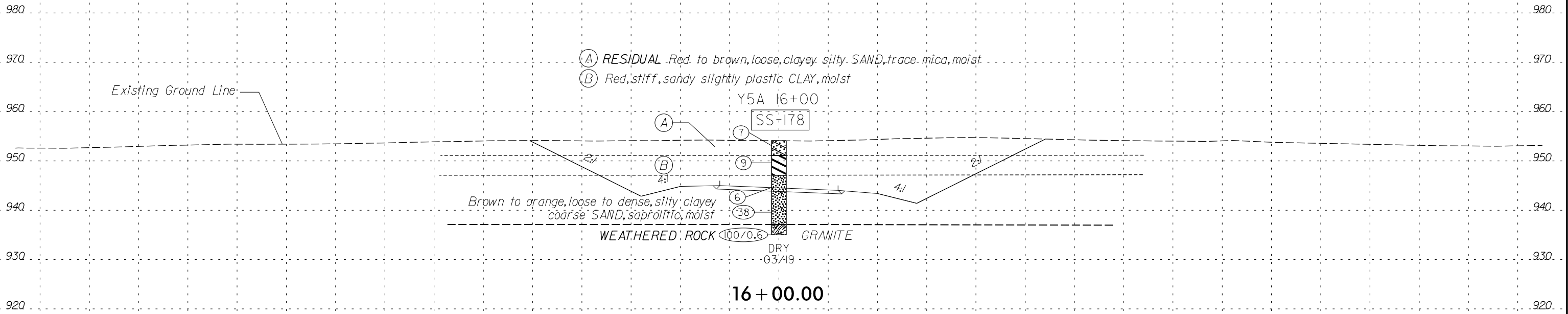






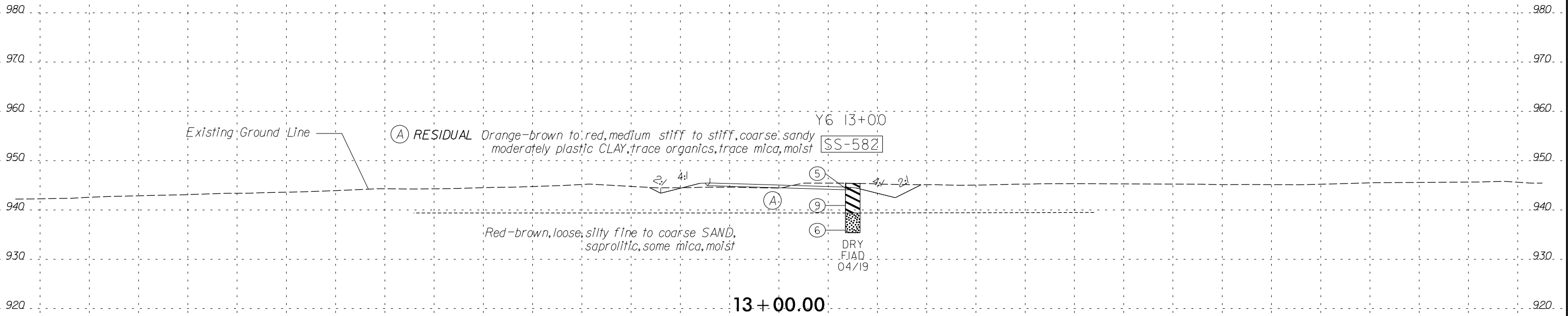


150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



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

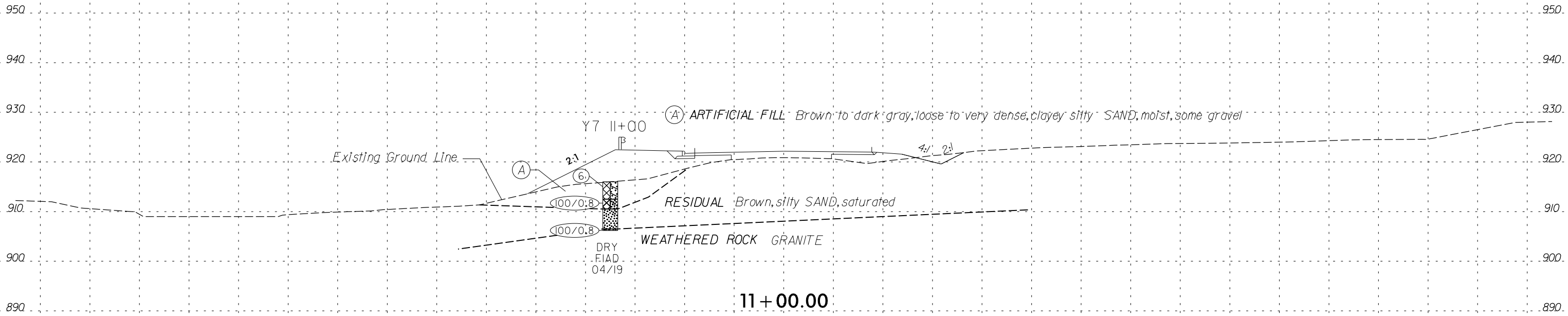
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



-Y6-

6/23/16

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



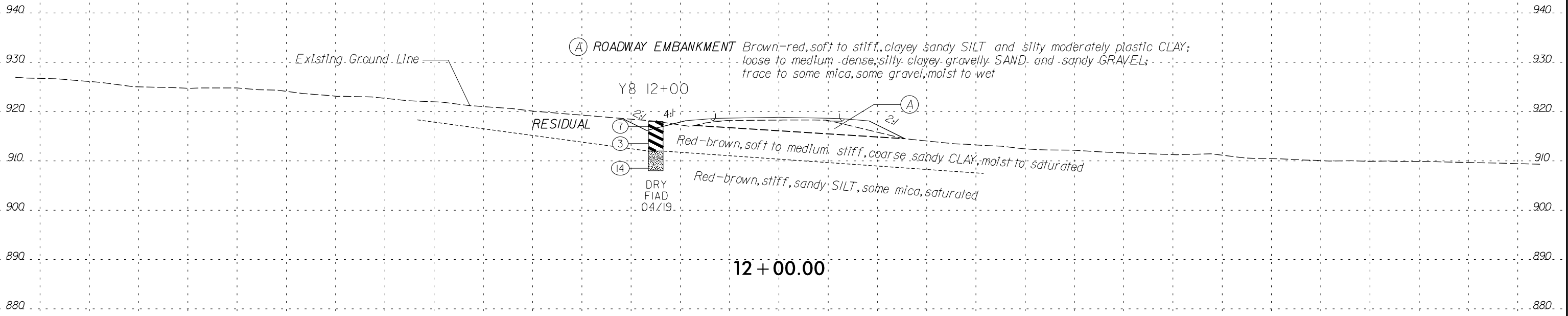
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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11+00.00  
 -Y7-

6/23/16

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

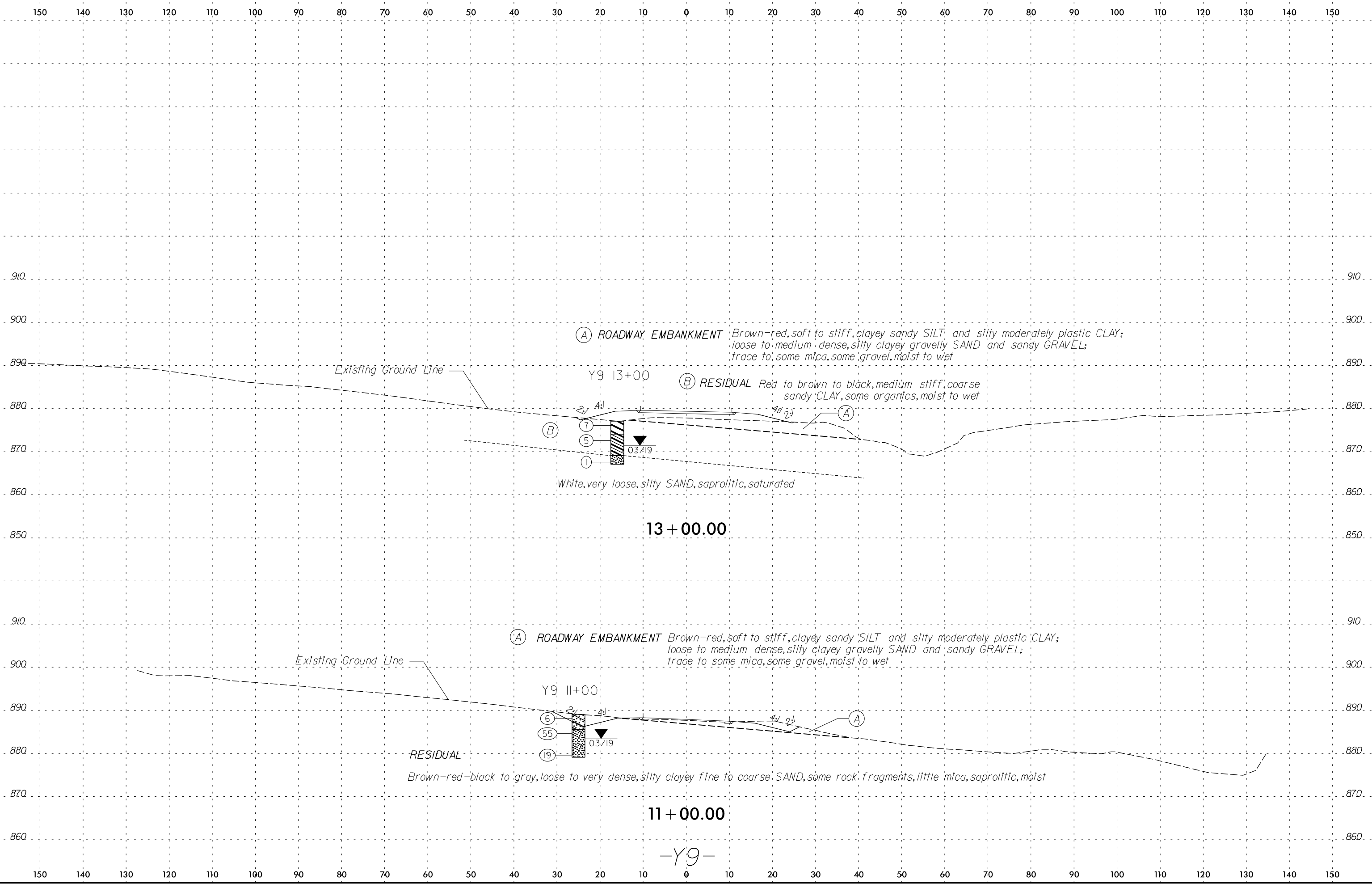


12 + 00.00

-Y8-

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(A) ROADWAY EMBANKMENT *Brown-red, soft to stiff, clayey sandy SILT and silty moderately plastic CLAY; loose to medium dense, silty clayey gravelly SAND and sandy GRAVEL; trace to some mica, some gravel, moist to wet*

(B) RESIDUAL *Red to brown to black, medium stiff, coarse sandy CLAY, some organics, moist to wet*

*White, very loose, silty SAND, saprolitic, saturated*

13 + 00.00

(A) ROADWAY EMBANKMENT *Brown-red, soft to stiff, clayey sandy SILT and silty moderately plastic CLAY; loose to medium dense, silty clayey gravelly SAND and sandy GRAVEL; trace to some mica, some gravel, moist to wet*

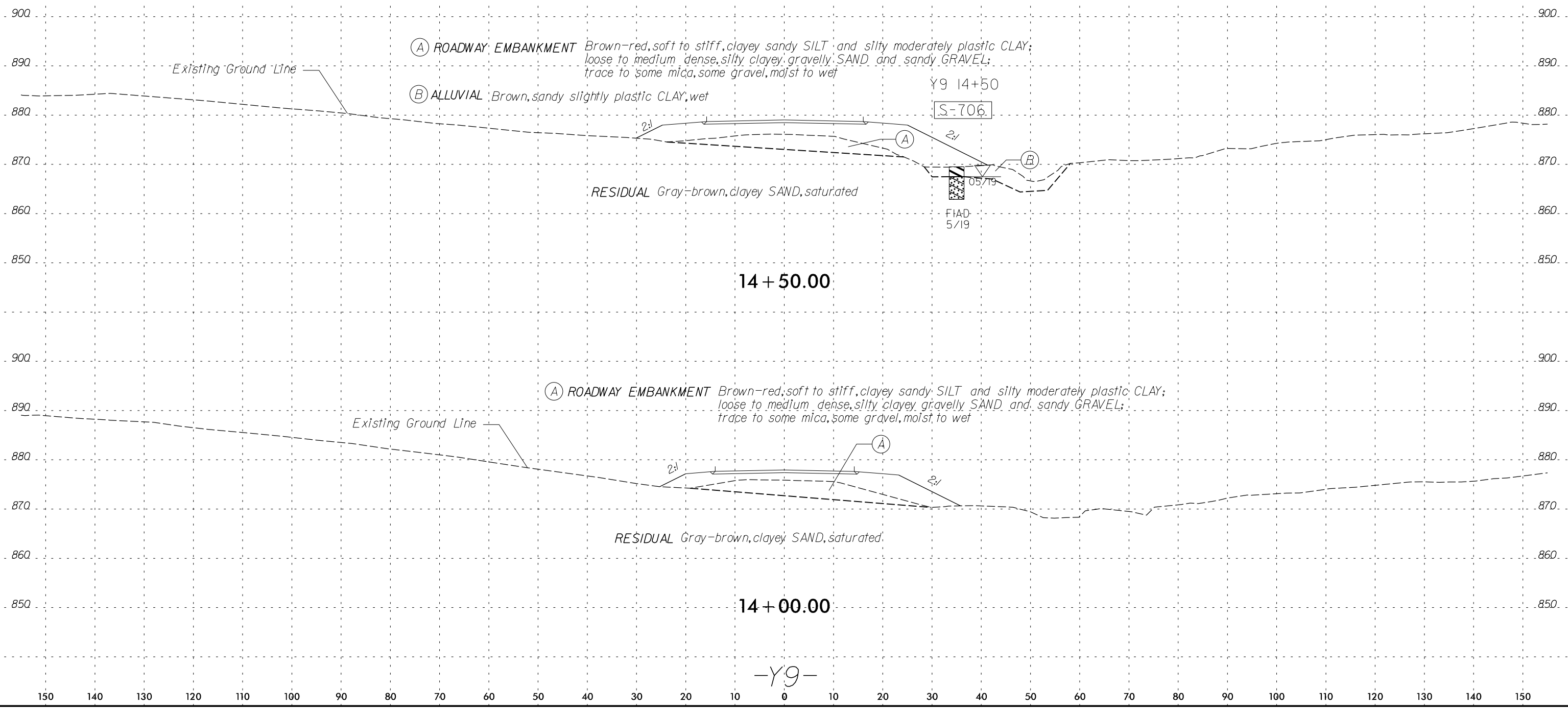
RESIDUAL *Brown-red-black to gray, loose to very dense, silty clayey fine to coarse SAND, some rock fragments, little mica, saprolitic, moist*

11 + 00.00

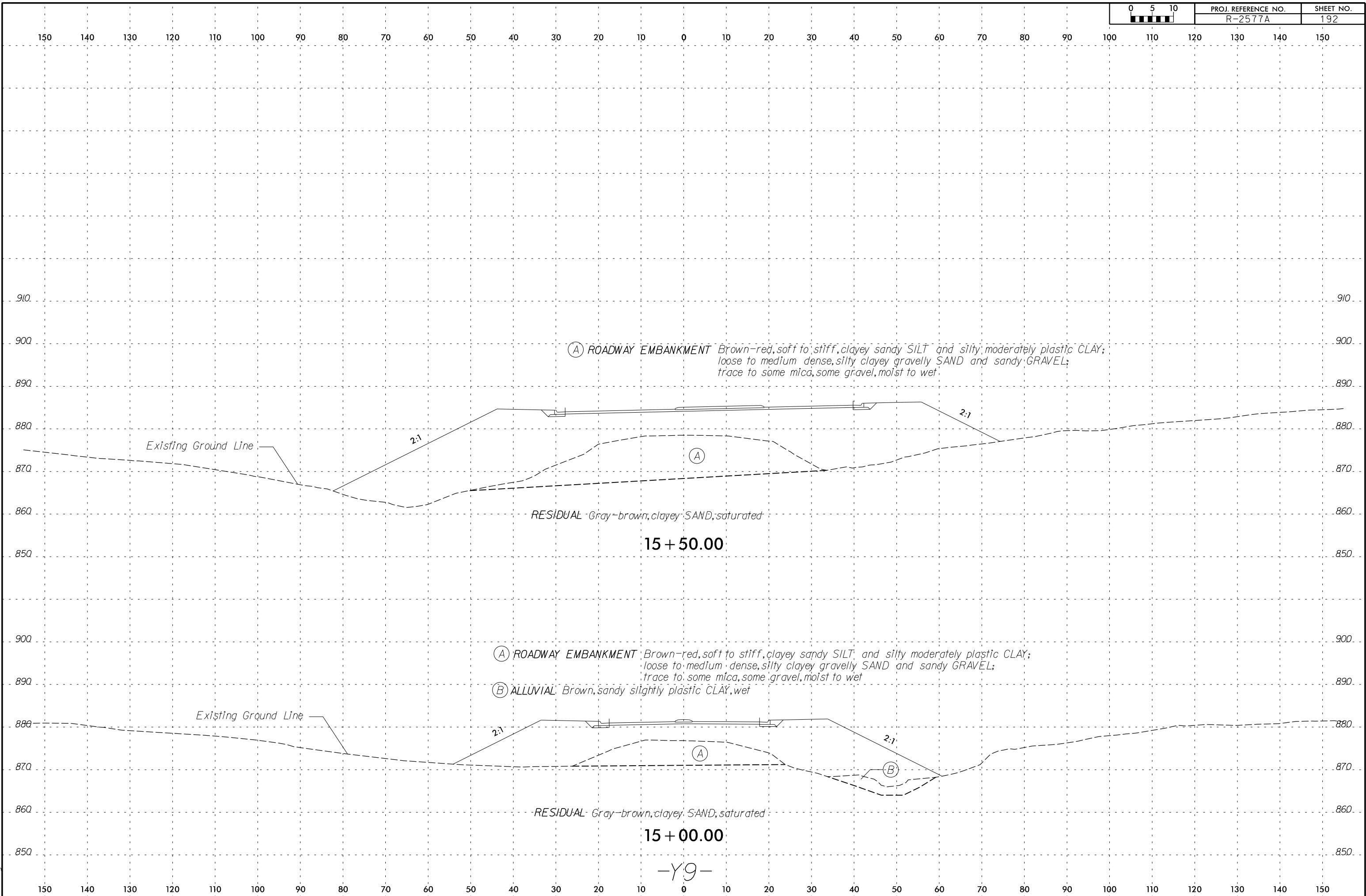
-Y9-

6/23/16

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



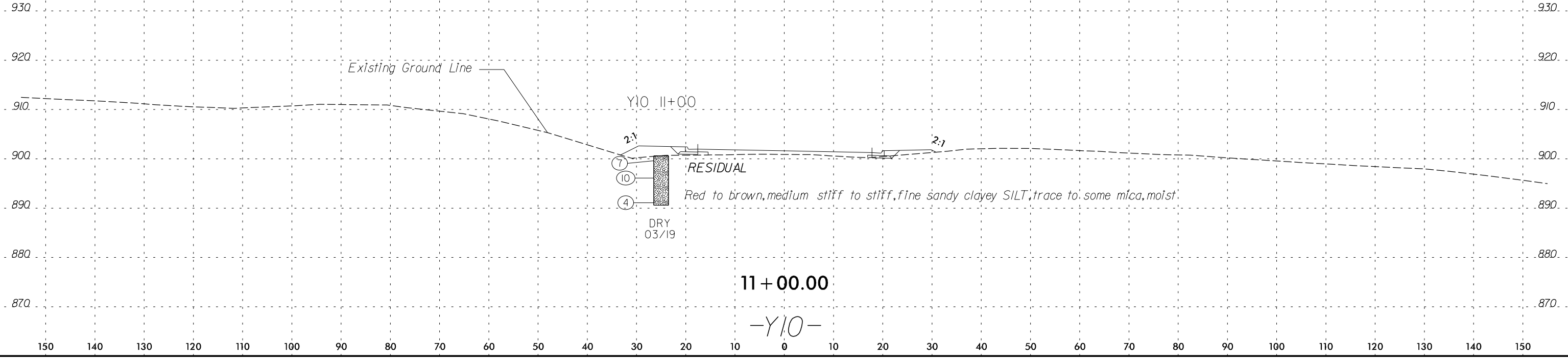
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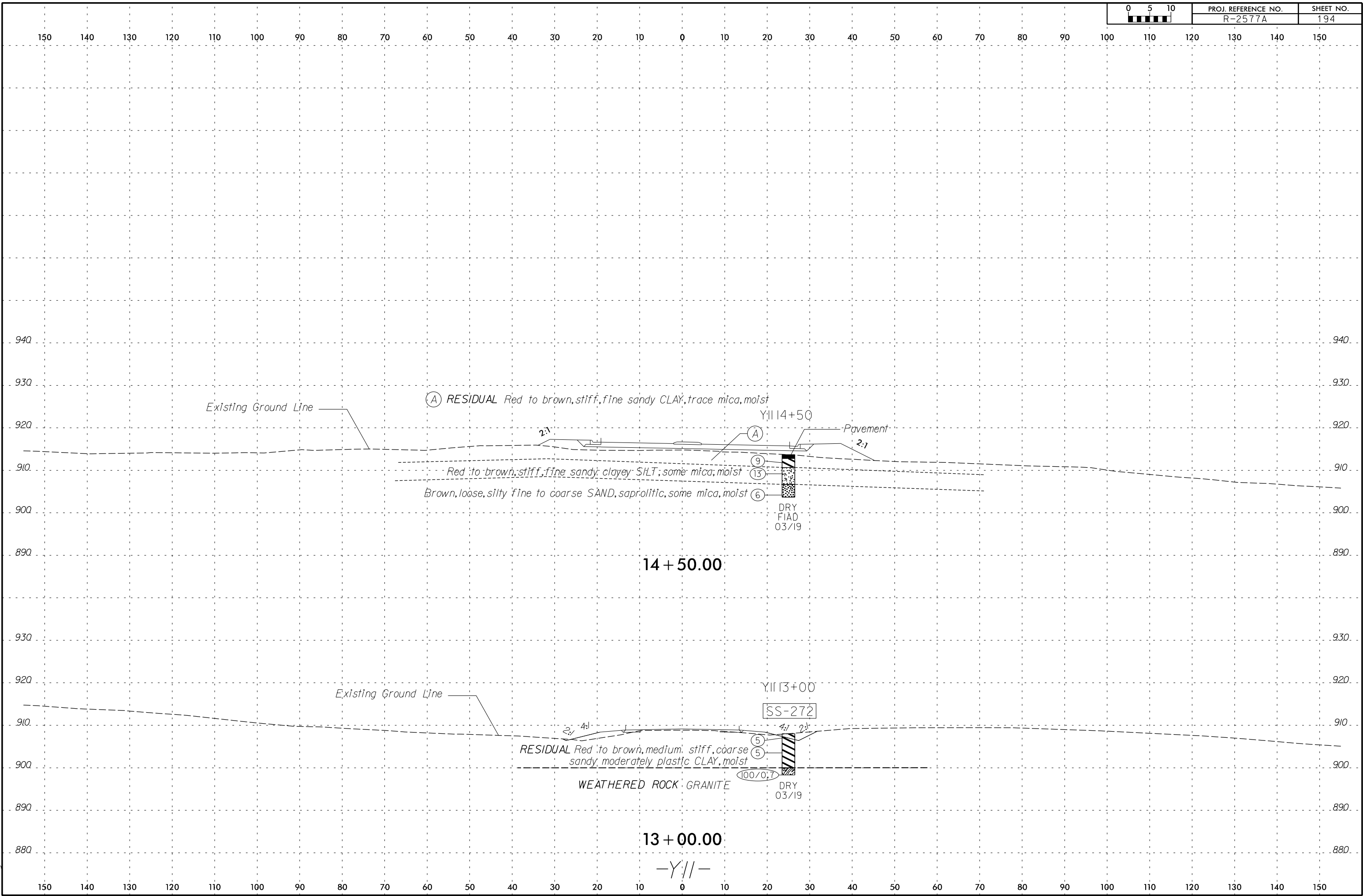
-Y9-

6/23/16

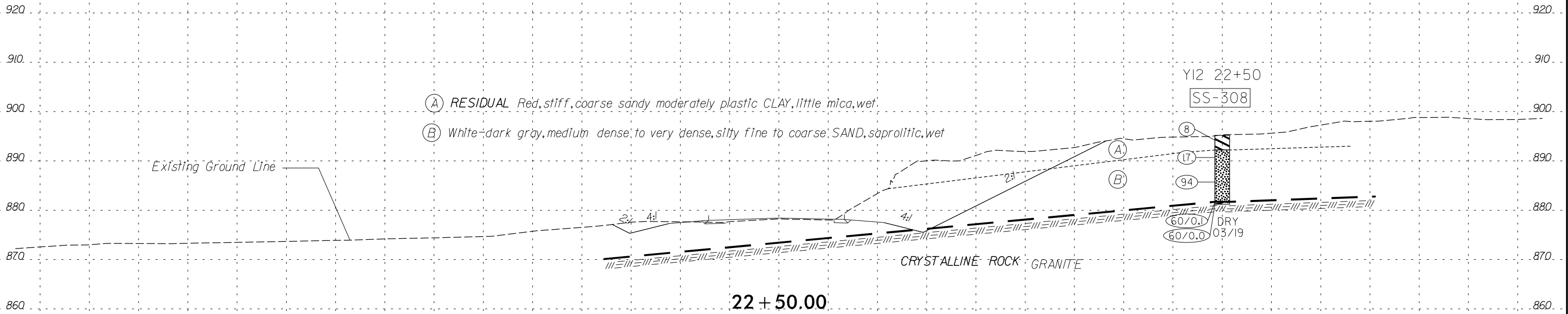
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150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



- (A) RESIDUAL Red, stiff, coarse sandy moderately plastic CLAY, little mica, wet.
- (B) White-dark gray, medium dense to very dense, silty fine to coarse SAND, saprolitic, wet

Existing Ground Line

22 + 50.00  
-Y12-

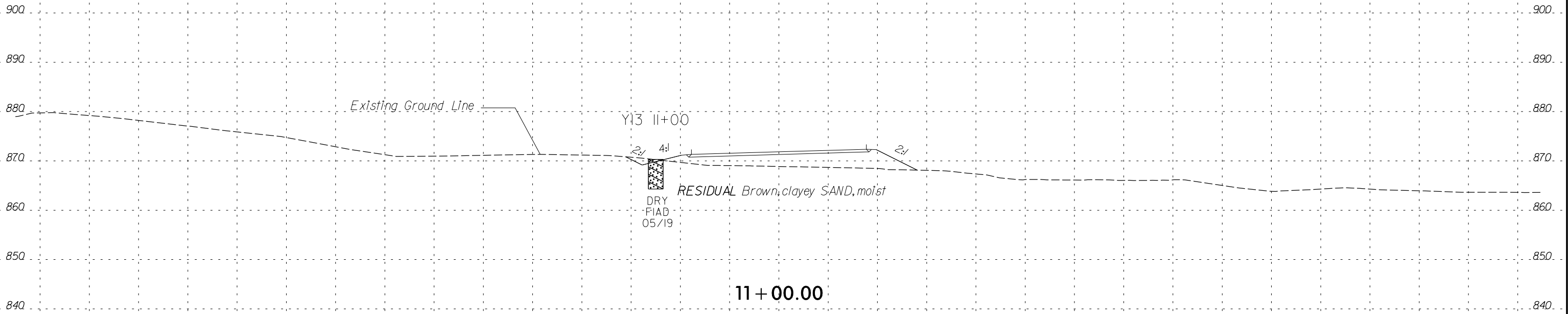
CRYSTALLINE ROCK GRANITE

Y12 22+50  
SS-308

8  
17  
94  
60/0.0 DRY  
60/0.0 03/19

6/23/16

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



Y13 11+00

DRY  
FIAD  
05/19

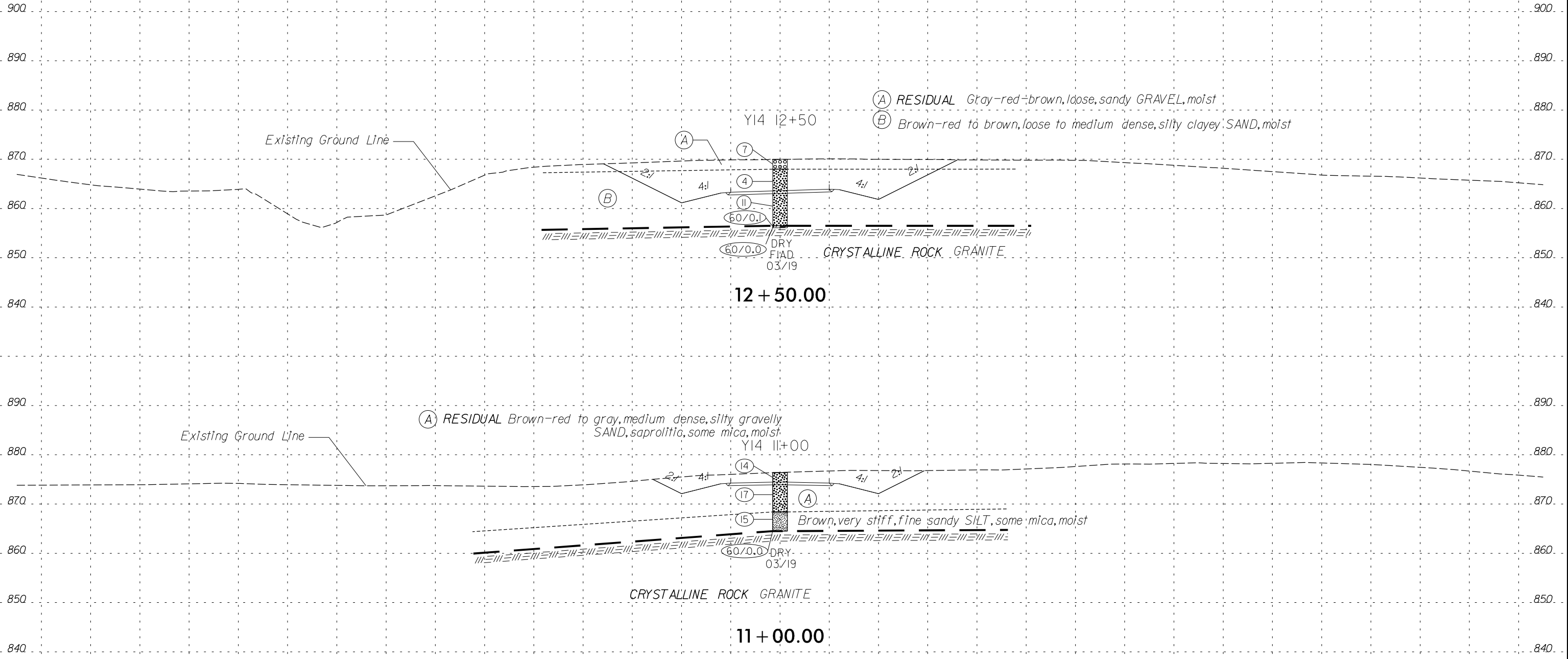
RESIDUAL Brown, clayey SAND, moist

11 + 00.00

-Y13-

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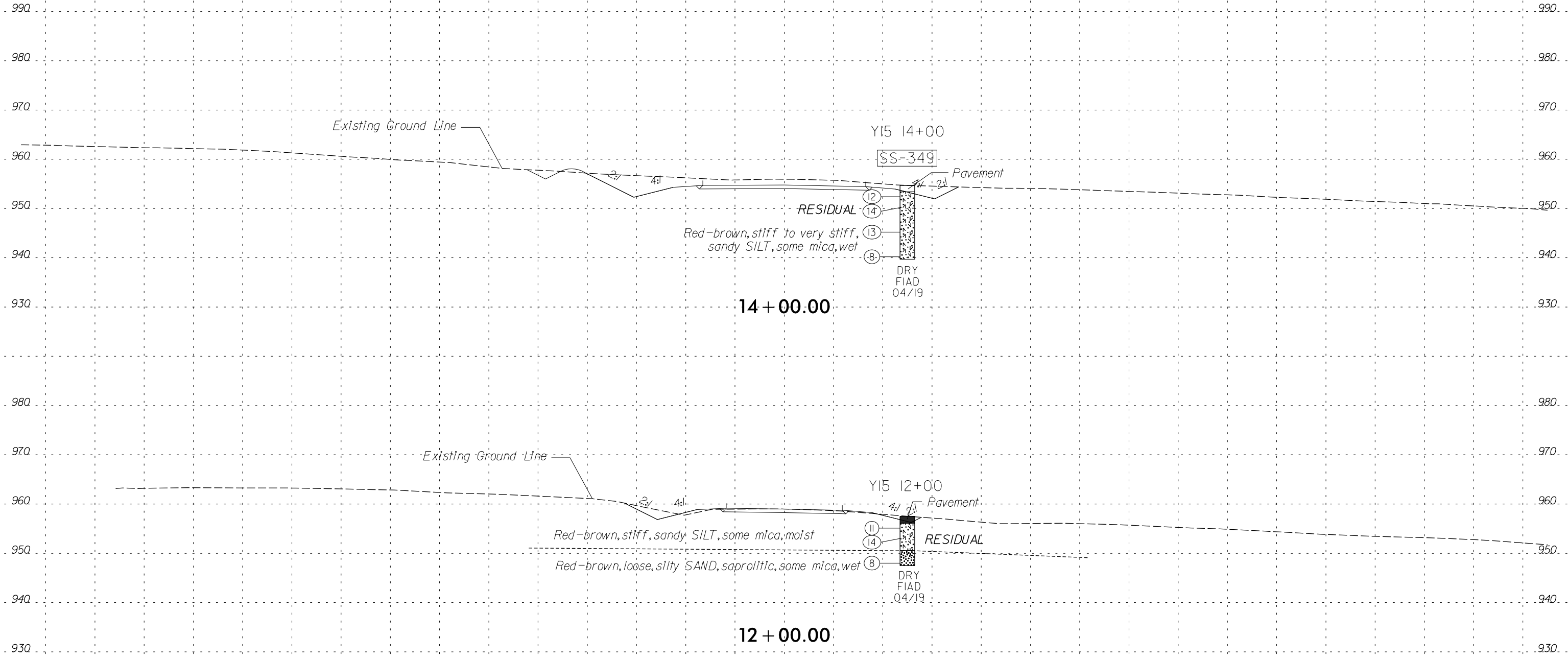
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150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



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



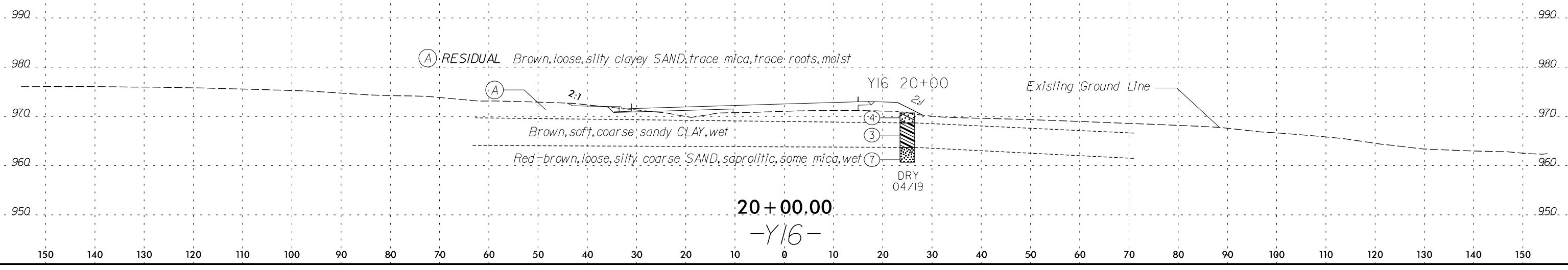
14 + 00.00

12 + 00.00

-Y15-

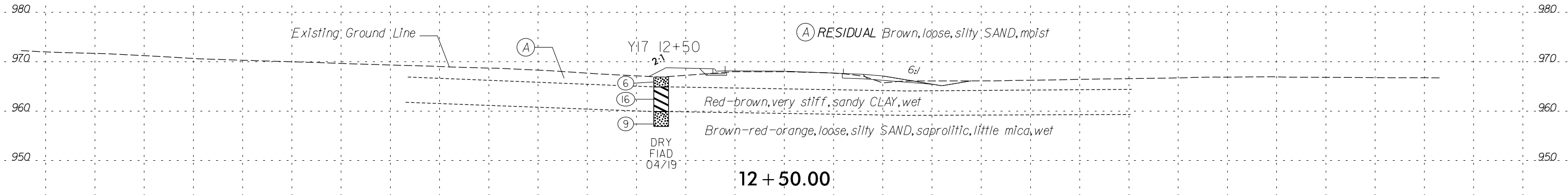
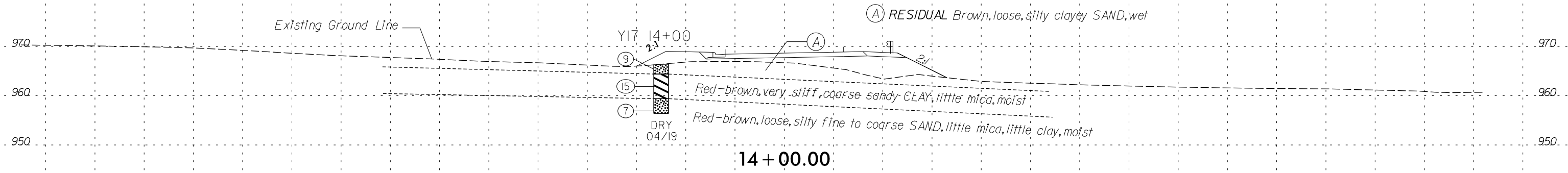
6/23/16

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



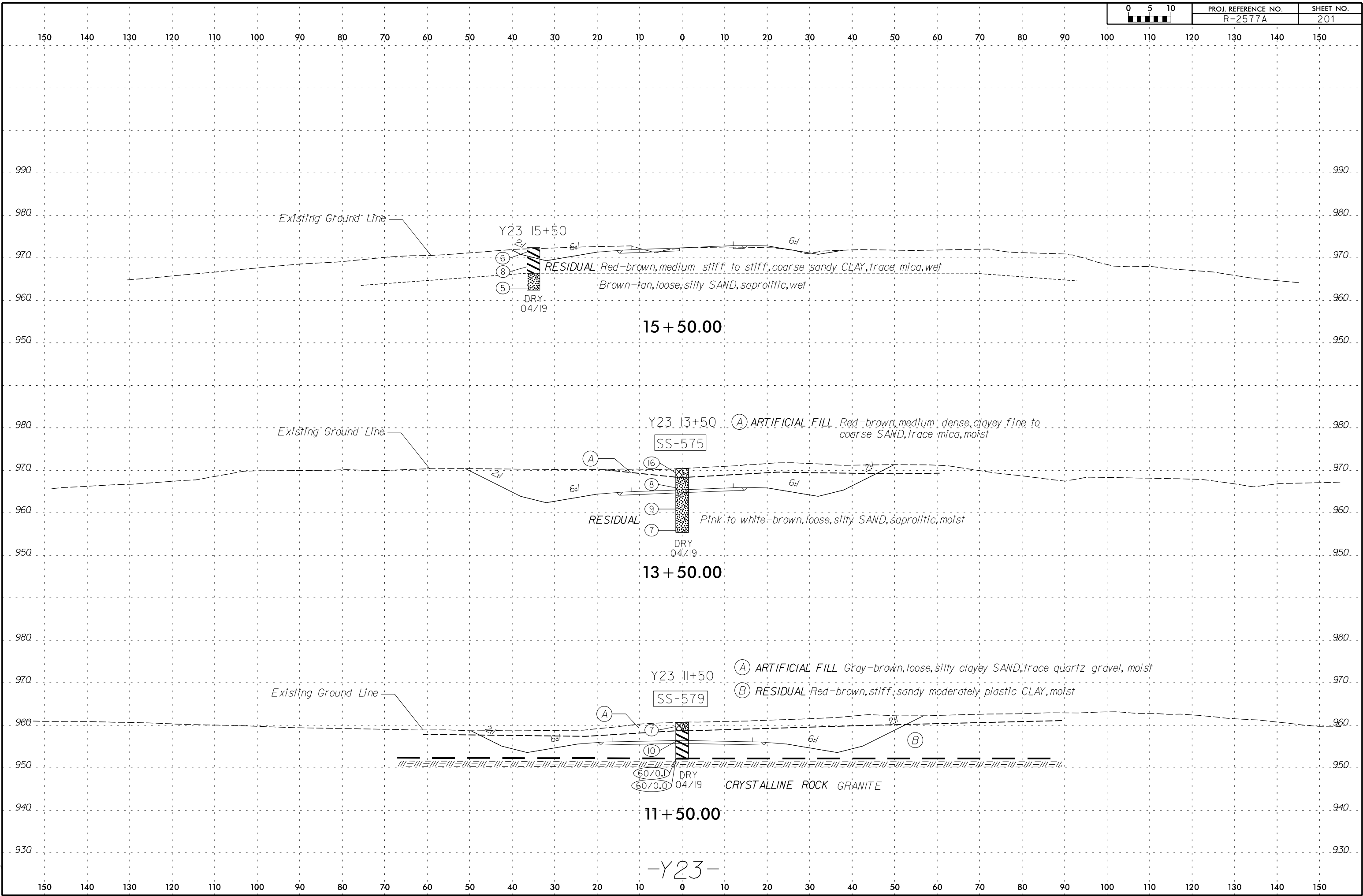
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150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



-Y17-

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



Existing Ground Line

Y23 15+50

⑥  
⑧  
⑤  
DRY  
04/19

RESIDUAL Red-brown, medium stiff to stiff, coarse sandy CLAY, trace mica, wet  
Brown-tan, loose, silty SAND, saprolitic, wet

15 + 50.00

Existing Ground Line

Y23 13+50

SS-575

⑩  
⑧  
⑨  
⑦  
DRY  
04/19

(A) ARTIFICIAL FILL Red-brown, medium dense, clayey fine to coarse SAND, trace mica, moist  
RESIDUAL Pink to white-brown, loose, silty SAND, saprolitic, moist

13 + 50.00

Existing Ground Line

Y23 11+50

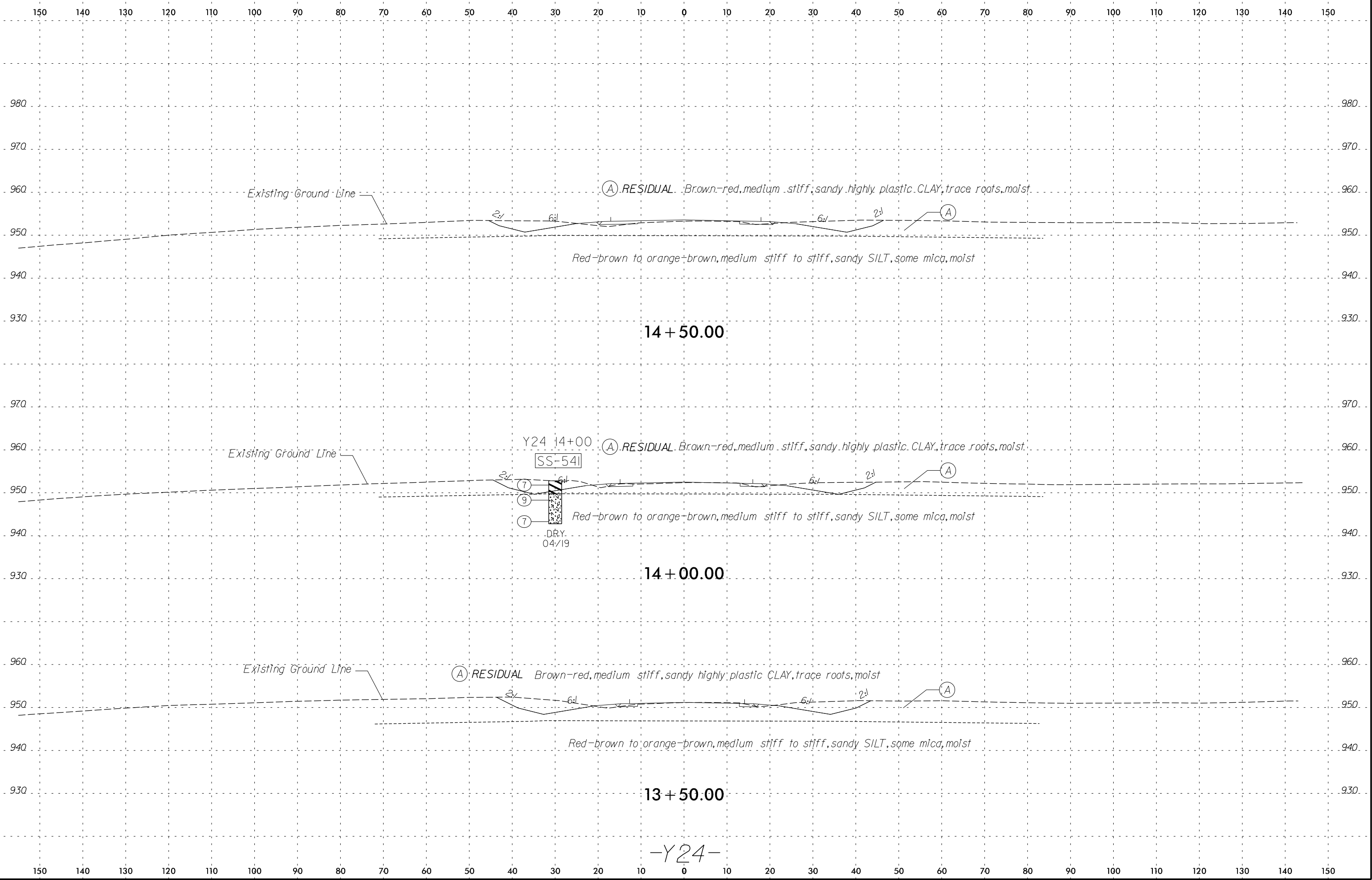
SS-579

⑩  
⑦  
⑥0/0.1  
⑥0/0.0  
DRY  
04/19

(A) ARTIFICIAL FILL Gray-brown, loose, silty clayey SAND, trace quartz gravel, moist  
(B) RESIDUAL Red-brown, stiff, sandy moderately plastic CLAY, moist  
CRYSTALLINE ROCK GRANITE

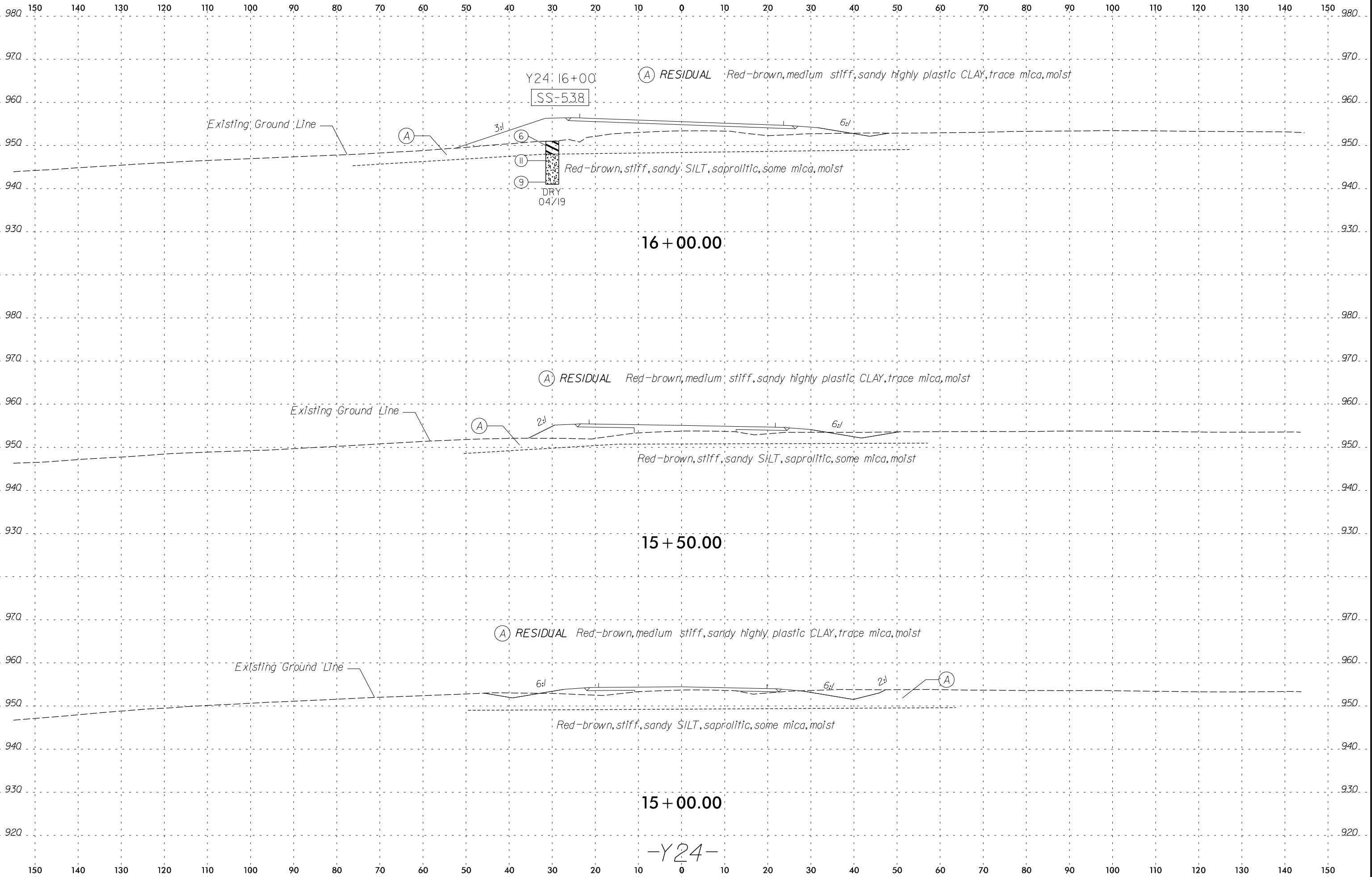
11 + 50.00

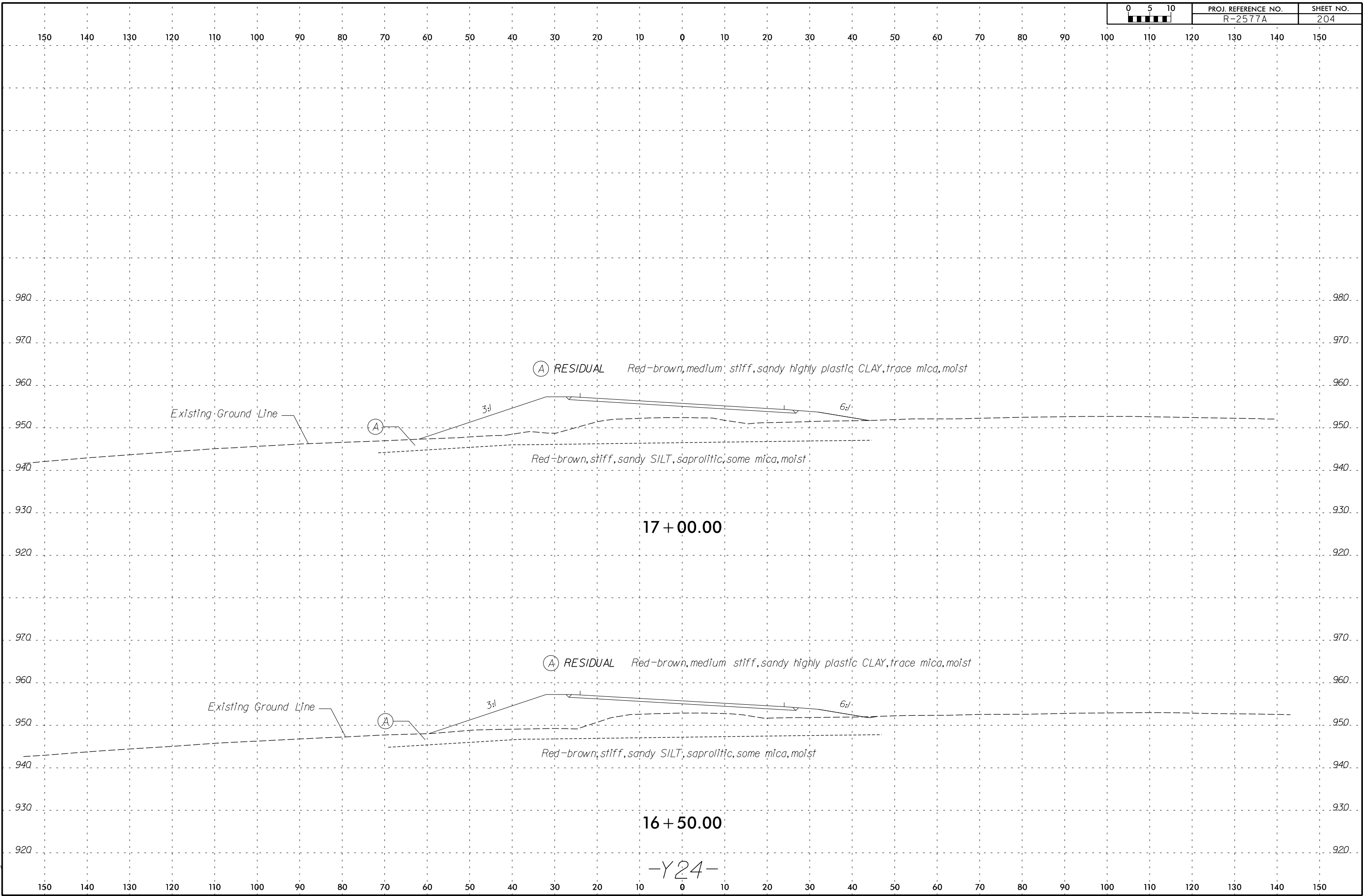
-Y23-

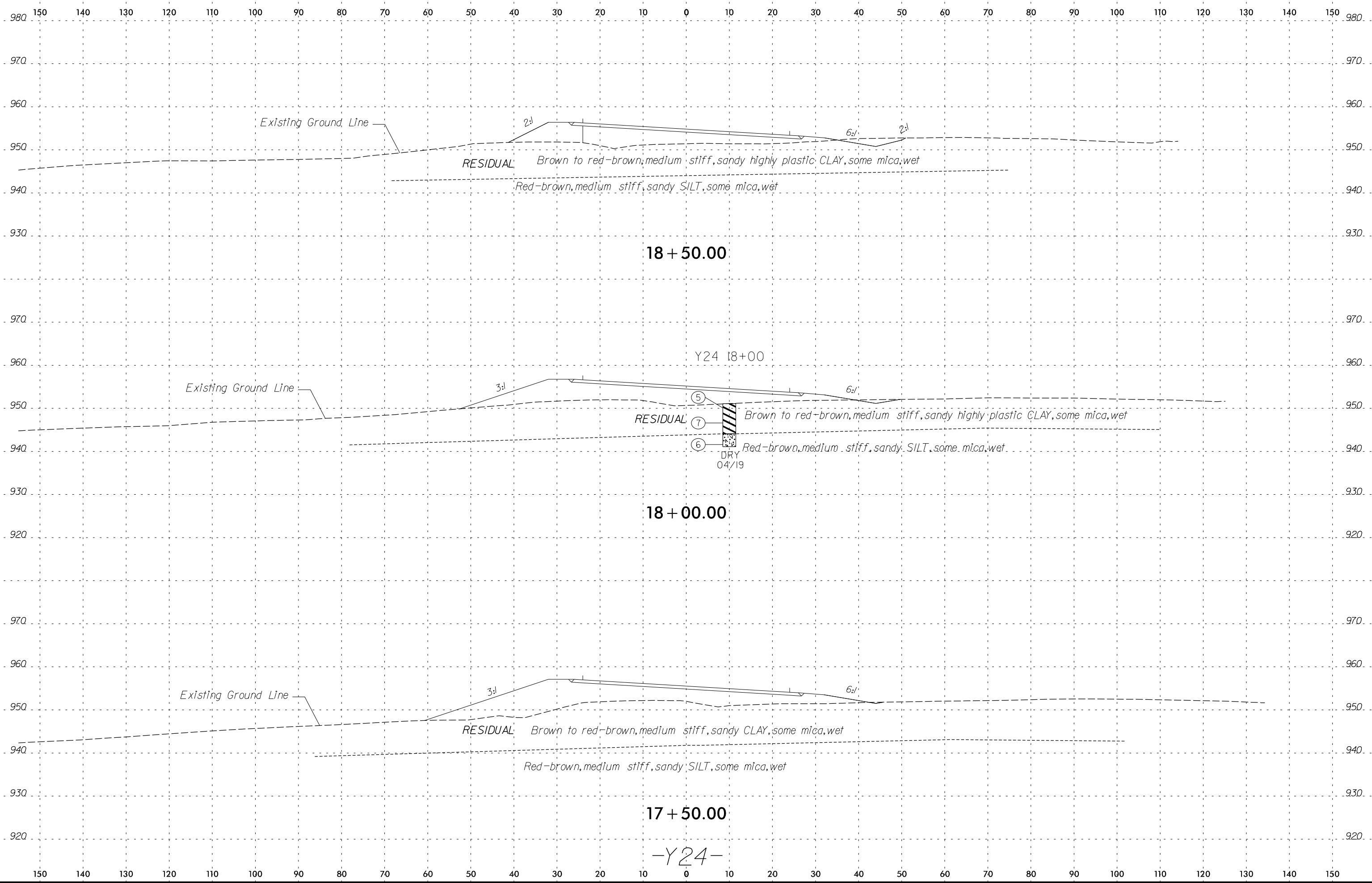


8/24/2016  
 R:\CADD\GEO\TECH\ssc\ss1\R-2577A\_GEO.XSI.Y24.DGN  
 abezor.gi

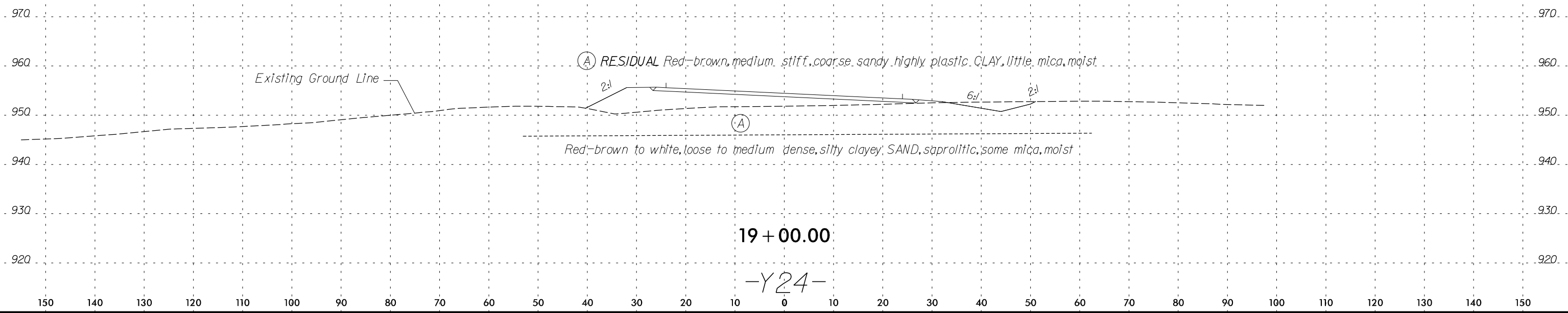
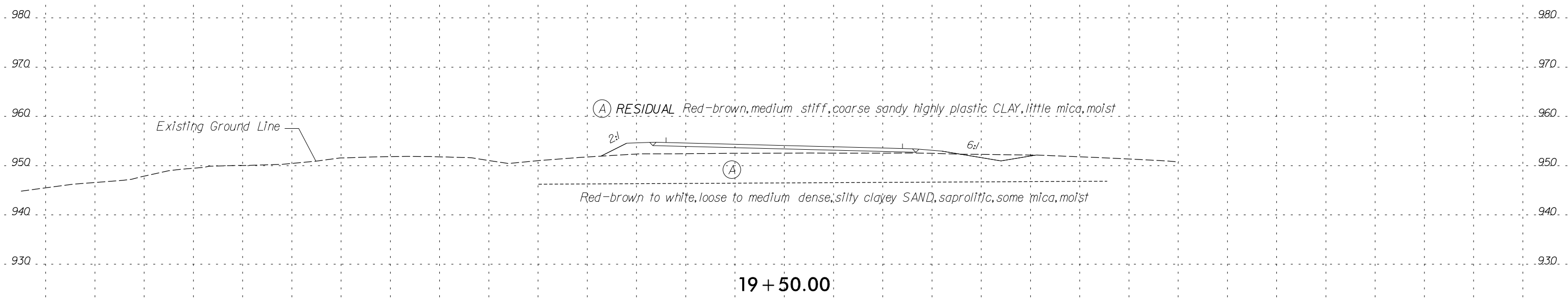
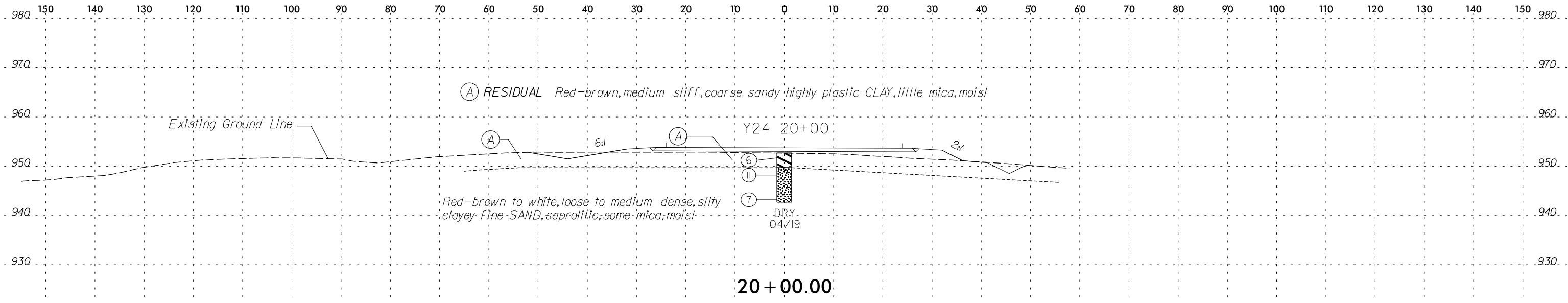
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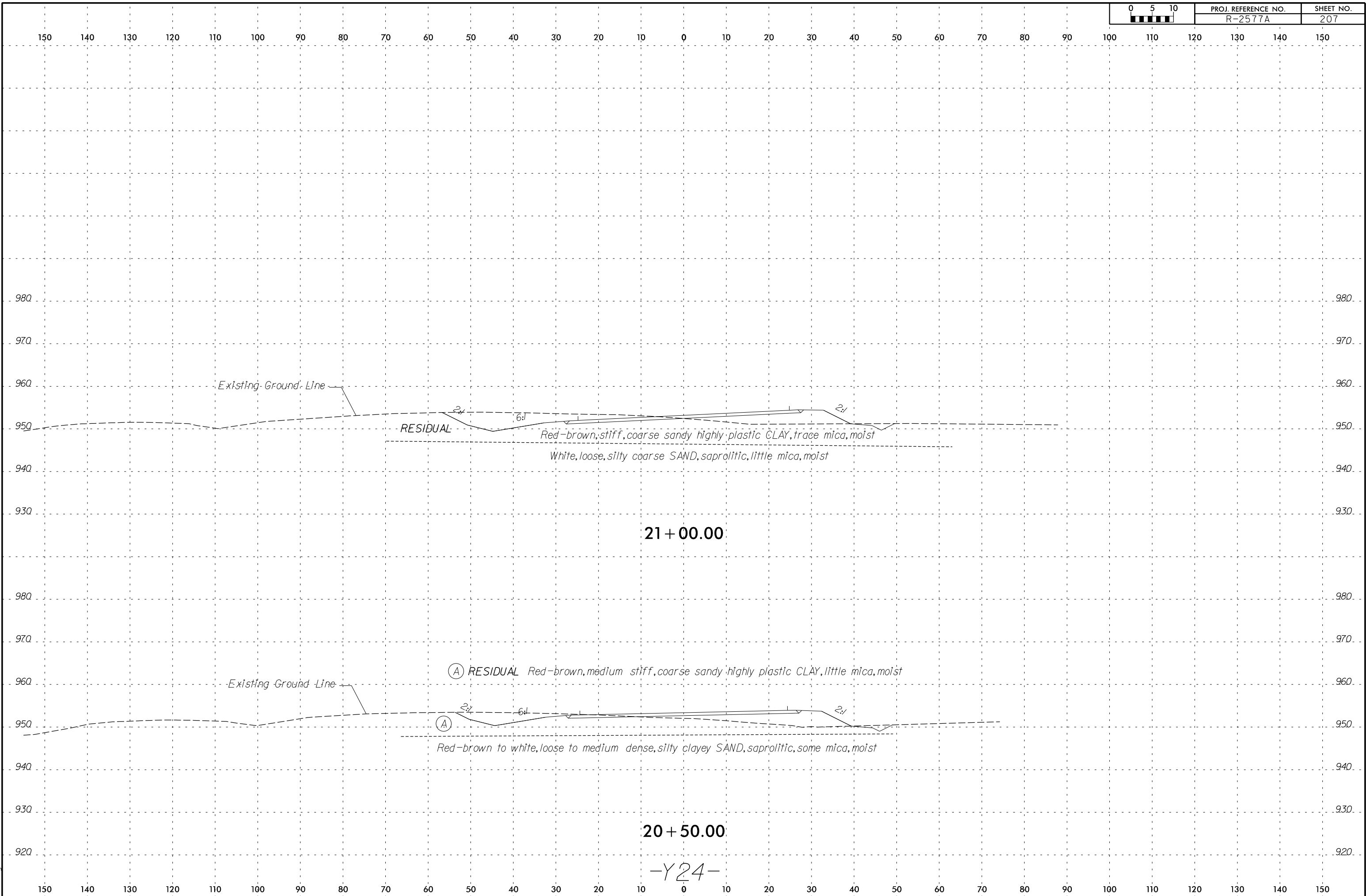








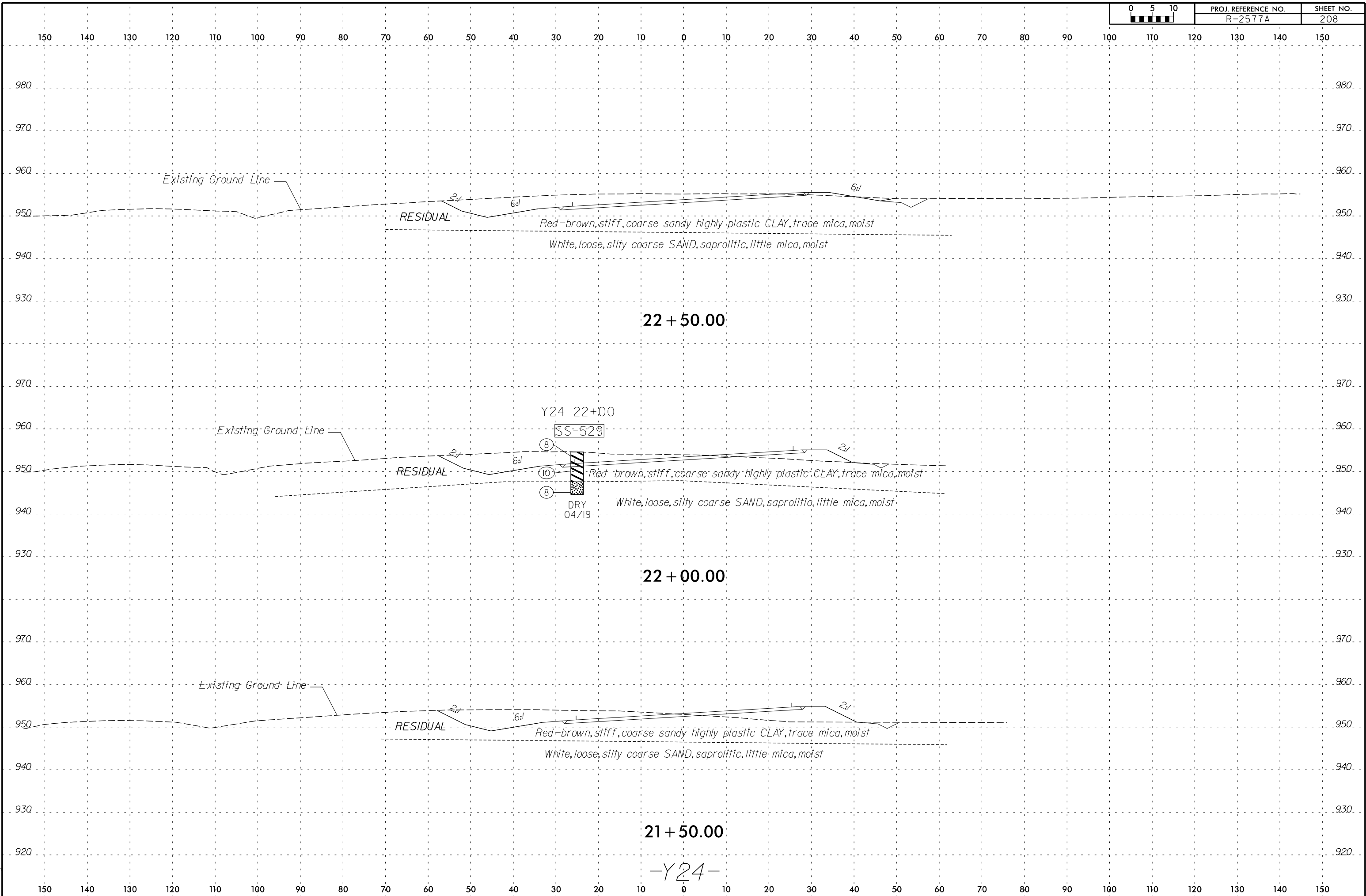


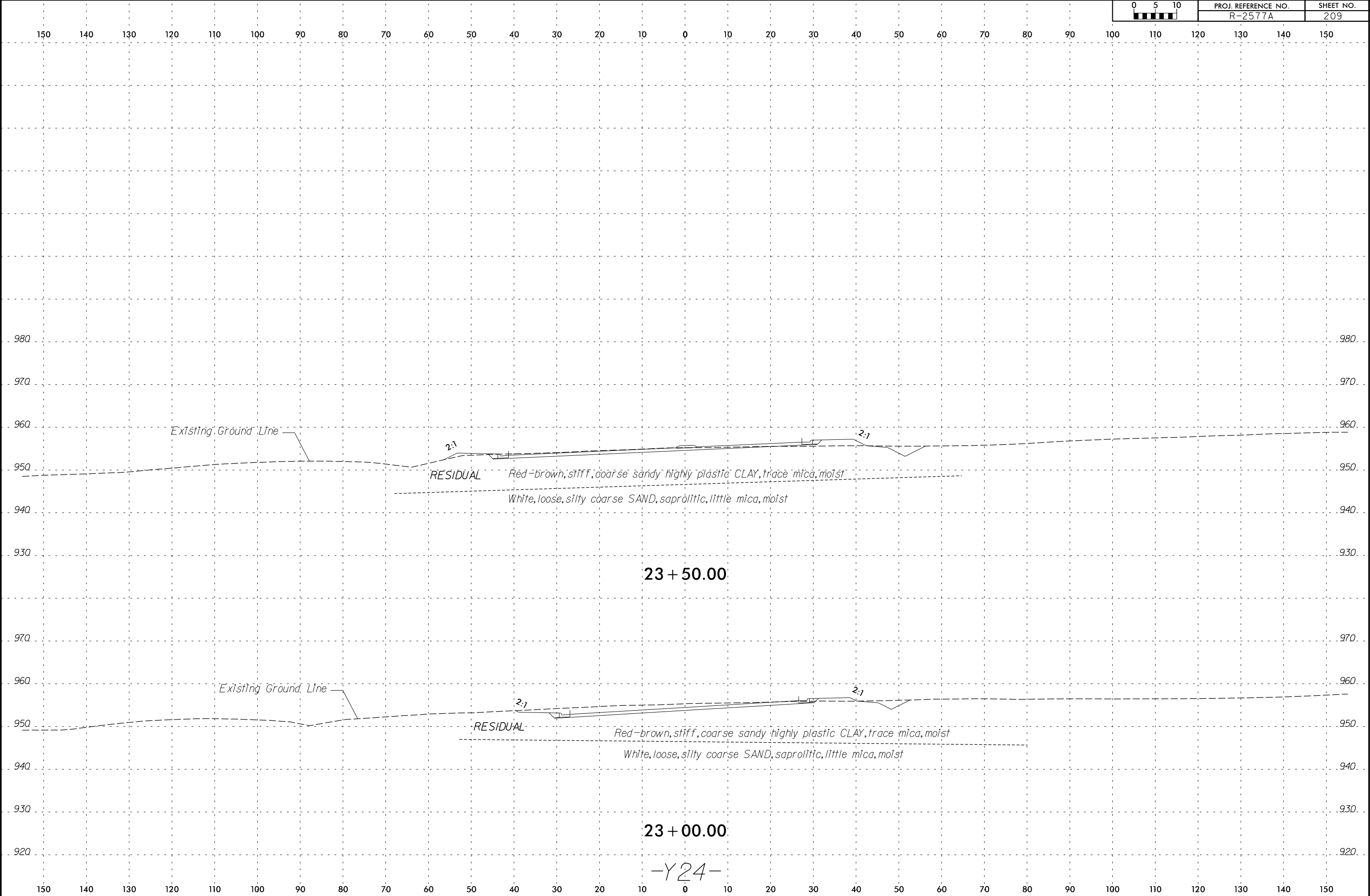


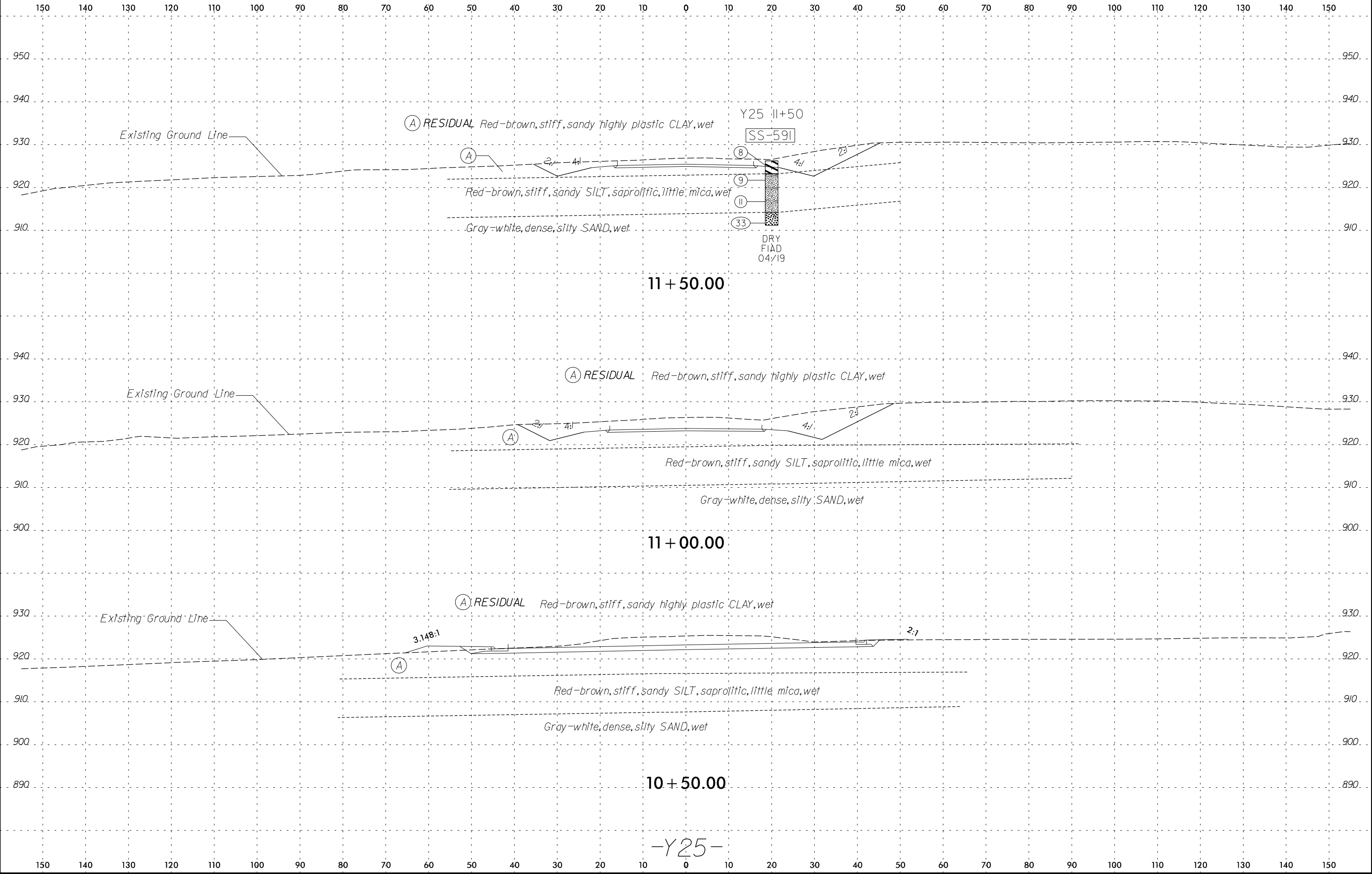
21 + 00.00

20 + 50.00

-Y24-





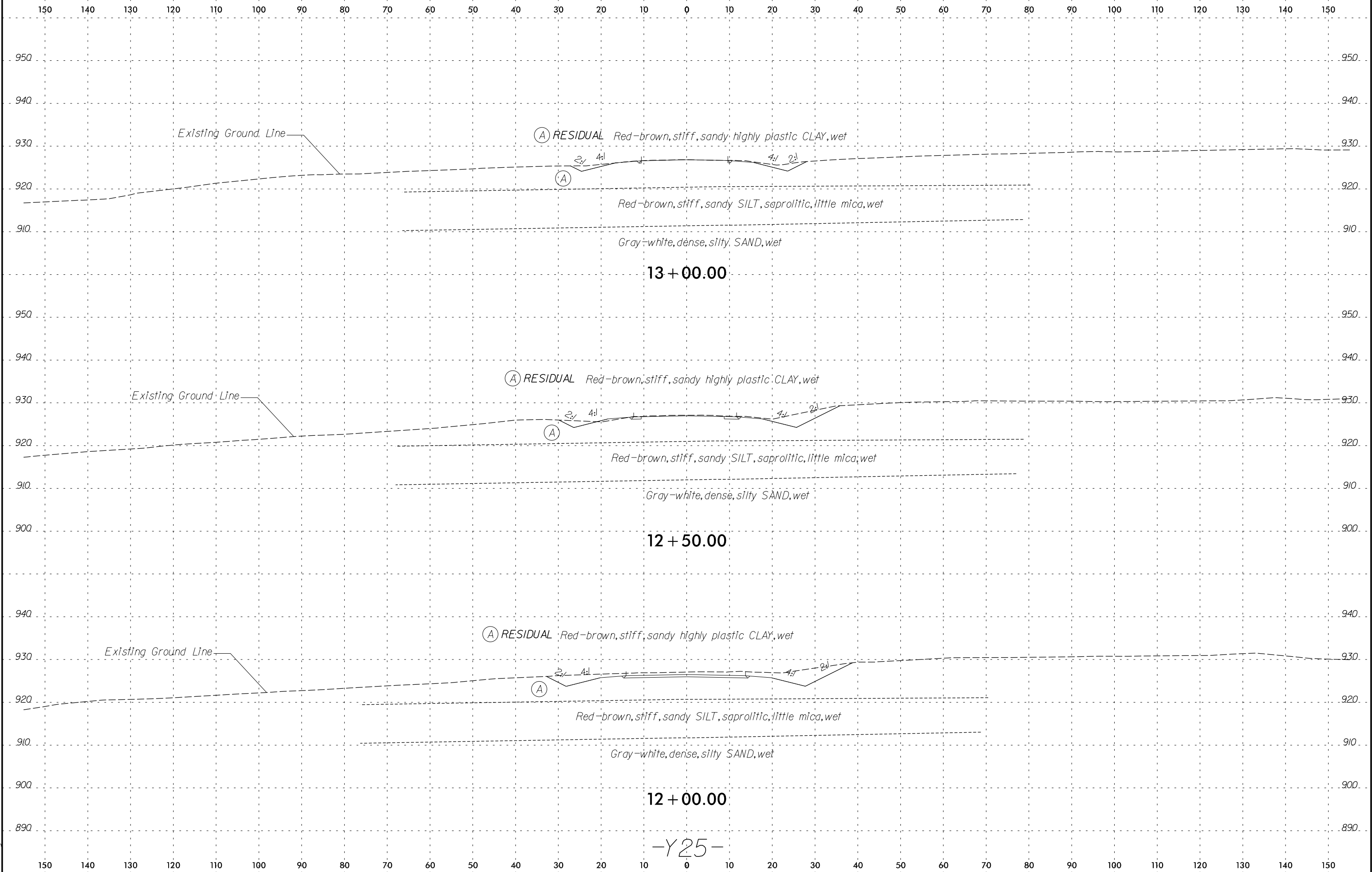


11 + 50.00

11 + 00.00

10 + 50.00

-Y25-



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
GEOTECHNICAL ENGINEERING UNIT  
**SUBSURFACE INVESTIGATION**  
APPENDICES

PROJECT: 37405 REFERENCE: R-2577A

PROJECT: 37405



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# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 37405.1.1		TIP R-2577A		COUNTY FORSYTH		GEOLOGIST J Mize									
SITE DESCRIPTION US 158 From North of US 421/I-40 Bus. To SR 1965 (Belews Creek Rd.)							GROUND WTR (ft)								
BORING NO. L 139+50		STATION 139+52		OFFSET 17 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 865.1 ft		TOTAL DEPTH 19.0 ft		NORTHING 872,382		EASTING 1,657,182									
DRILL RIG/HAMMER EFF./DATE SME275 DIEDRICH D-50 90% 11/08/2018			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER T Williams		START DATE 04/23/19		COMP. DATE 04/23/19		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					
870															
865															
	863.3	1.8	12	8	7										
	861.6	3.5	5	4	4										
860															
	856.6	8.5	8	5	6										
855															
	851.6	13.5	2	3	2										
850															
	846.6	18.5													
	846.1	19.0	60/0.1												
			60/0.0												

WBS 37405.1.1		TIP R-2577A		COUNTY FORSYTH		GEOLOGIST J Mize									
SITE DESCRIPTION US 158 From North of US 421/I-40 Bus. To SR 1965 (Belews Creek Rd.)							GROUND WTR (ft)								
BORING NO. L 141+00		STATION 140+84		OFFSET 18 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 863.4 ft		TOTAL DEPTH 19.4 ft		NORTHING 872,483		EASTING 1,657,267									
DRILL RIG/HAMMER EFF./DATE SME275 DIEDRICH D-50 90% 11/08/2018			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER T Williams		START DATE 04/23/19		COMP. DATE 04/23/19		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					
865															
	863.4														0.0
	860.7	2.7													2.7
860	859.9	3.5	4	5	5										
855	854.9	8.5	6	3	4										
850	849.9	13.5	2	2	1										
845	844.9	18.5													
	844.0	19.4	100/0.2												
			60/0.0												

NCDOT BORE DOUBLE R-2577A\_GEO\_RDWY.GPJ NC\_DOT.GDT 8/24/19



SOIL TEST RESULTS																	
SAMPLE NO.	LINE	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING SIEVE				% MOISTURE	% ORGANIC
								C. SAND	F. SAND	SILT	CLAY	10	40	60	200		
SS-1	-Y1C-	10+50	30' LT	0.0 - 1.5	A-4 (1)	30	9	32	25	13	30	96	76	66	42.1	21.3	N/A
SS-106	-L-	29+00	55' LT	0.0 - 1.5	A-4 (0)	40	4	21	40	18	21	89	78	70	42.3	26.2	N/A
SS-118	-L-	30+00	55' LT	8.5 - 10	A-5 (1)	52	4	7	59	18	16	100	98	93	43.5	30.5	N/A
SS-134	-L-	32+00	50' RT	3.5 - 5	A-7-5 (25)	66	20	1	18	30	51	100	100	99	87.5	41.3	N/A
SS-151	-L-	38+00	40' LT	0.0 - 1.5	A-7-6 (9)	45	18	19	24	13	44	98	89	80	59.2	31.7	N/A
SS-157	-L-	43+73	30' LT	0.0 - 1.5	A-2-4 (0)	21	6	40	26	10	24	97	71	58	35	13.2	N/A
SS-160	-Y4-	12+00	18' LT	0.0 - 1.5	A-4 (0)	26	7	33	25	12	30	100	80	67	43.9	17.4	N/A
SS-167	-L-	56+00	30' LT	0.0 - 1.5	A-7-6 (12)	46	22	25	16	9	50	100	84	75	61.5	20.2	N/A
SS-170	-Y5A-	12+00	25' RT	0.0 - 1.5	A-7-5 (22)	65	35	24	12	6	58	99	83	76	64.7	16.4	N/A
SS-178	-Y5A-	16+00	CL	3.5 - 5	A-7-5 (8)	54	15	23	26	19	32	100	85	77	56.6	30.7	N/A
SS-187	-Y5-	15+00	CL	0.0 - 1.5	A-7-5 (24)	64	33	21	11	8	60	99	84	79	69.5	25.8	N/A
SS-203	-Y5-	21+00	CL	0.0 - 1.5	A-7-6 (11)	45	22	24	17	9	50	100	84	76	60.7	15.7	N/A
SS-213	-L-	80+00	25' LT	0.0 - 1.5	A-6 (6)	38	15	29	18	11	42	98	79	70	54.1	18	N/A
SS-216	-L-	88+00	25' LT	0.0 - 1.5	A-2-4 (0)	21	6	45	22	12	21	99	67	54	35.3	10.6	N/A
SS-232	-L-	92+00	25' LT	3.5 - 5	A-7-5 (20)	65	31	23	16	10	51	100	84	77	63.9	32.1	N/A
SS-240	-L-	96+00	35' LT	0.0 - 1.5	A-7-5 (26)	80	22	12	10	6	72	100	92	88	80.1	36.4	N/A
SS-260	-L-	112+00	CL	0.0 - 1.5	A-7-6 (14)	68	47	36	21	5	38	98	74	63	44.8	20.6	N/A
SS-272	-Y11-	13+00	25' RT	0.0 - 1.5	A-7-6 (9)	48	24	29	20	7	44	95	77	68	51.1	31.2	N/A
SS-289	-L-	126+00	35' LT	0.0 - 1.5	A-7-5 (24)	63	29	14	13	8	65	99	91	86	74.2	31.1	N/A
SS-308	-Y12-	22+50	90' RT	0.0 - 1.5	A-7-5 (3)	51	21	44	20	6	30	99	71	55	37.1	29.6	N/A
SS-337	-L-	186+00	30' LT	0.0 - 1.5	A-7-5 (24)	72	34	22	13	3	62	100	83	78	67.6	41.5	N/A
SS-344	-L-	192+00	40' LT	0.0 - 1.5	A-7-5 (23)	66	35	20	16	5	59	99	86	79	65.8	21	N/A
SS-349	-Y15-	14+00	25' RT	3.5 - 5	A-5 (1)	62	3	26	34	21	19	100	86	74	43.8	29.9	N/A
SS-359	-L-	196+00	30' LT	0.0 - 1.5	A-7-6 (5)	45	16	33	17	13	37	93	72	63	48.5	20.9	N/A
SS-368	-L-	202+00	20' LT	0.0 - 1.5	A-7-5 (34)	78	40	17	9	7	67	100	88	83	76.1	34.1	N/A
SS-374	-L-	206+00	30' LT	0.0 - 1.5	A-4 (2)	26	9	33	17	9	41	100	78	67	51.7	26.4	N/A
SS-395	-L-	214+00	30' LT	0.0 - 1.5	A-7-5 (22)	71	38	24	15	8	53	97	80	74	61.6	28.8	N/A
SS-405	-L-	220+00	40' LT	0.0 - 1.5	A-7-5 (26)	74	41	24	13	7	56	99	83	76	64.4	36.1	N/A
SS-413	-L-	224+00	20' LT	0.0 - 1.5	A-7-5 (21)	75	34	23	21	15	41	100	84	77	61.6	42.1	N/A
SS-432	-L-	232+00	30' LT	3.5 - 5	A-7-5 (19)	78	21	18	15	10	57	100	88	82	69.4	37.6	N/A
SS-440	-L-	236+00	30' LT	0.0-1.5	A-7-6 (13)	54	30	28	17	4	51	97	78	70	55	25.2	N/A
SS-459	-L-	248+00	30' LT	0.0-1.5	A-7-5 (35)	86	43	16	14	5	65	100	90	85	72.7	34.2	N/A
SS-474	-L-	258+00	30' LT	0.0-1.5	A-7-6 (7)	44	20	28	22	5	45	98	82	71	52	16.4	N/A
SS-477	-L-	262+00	CL	0.0-1.5	A-6 (3)	34	12	36	18	9	37	98	74	63	47	25.5	N/A
SS-482	-L-	264+00	CL	0.0-1.5	A-7-6 (11)	51	24	28	16	6	50	99	81	71	56.9	27.7	N/A
SS-496	-L-	272+00	CL	0.0-1.5	A-7-6 (2)	44	19	34	34	7	25	99	83	66	36.9	25.4	N/A
SS-50	-L-	13+00	100' RT	3.5 - 5	A-5 (3)	50	6	17	35	23	25	99	91	82	53.4	33.8	N/A
SS-510	-L-	280+00	CL	0.0-1.5	A-7-5 (35)	81	41	16	10	7	67	98	86	83	75	36.5	N/A
SS-517	-L-	284+00	30' LT	3.5-5	A-5 (3)	57	5	31	22	24	23	100	80	69	52	28.2	N/A
SS-520	-L-	286+00	30' LT	0.0-1.5	A-7-6 (10)	56	32	36	19	13	32	98	74	63	46.6	22.6	N/A
SS-529	-Y24-	22+00	25' LT	0.0-1.5	A-7-6 (11)	58	33	36	18	7	39	98	73	63	47.4	17.9	N/A
SS-538	-Y24-	16+00	30' LT	0.0-1.5	A-7-5 (29)	73	34	17	9	10	64	100	87	83	75.6	36.2	N/A
SS-541	-Y24-	14+00	30' LT	0.0-1.5	A-7-5 (23)	64	33	19	14	11	56	99	86	80	67.9	28	N/A
SS-551	-L-	296+00	40' LT	3.5-5	A-6 (3)	37	16	43	16	8	33	98	66	55	41.6	16.8	N/A
SS-556	-L-	298+00	50' LT	0.0-1.5	A-7-6 (9)	46	25	36	13	9	42	99	71	63	51.8	18.3	N/A
SS-575	-Y23-	13+50	CL	3.5-5	A-2-5 (0)	52	2	35	38	16	11	99	77	64	34.7	13.2	N/A
SS-579	-Y23-	11+50	CL	3.5-5	A-7-6 (7)	50	23	32	24	4	40	95	74	65	45.8	23.4	N/A

SOIL TEST RESULTS																	
SAMPLE NO.	LINE	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING SIEVE				% MOISTURE	% ORGANIC
								C. SAND	F. SAND	SILT	CLAY	10	40	60	200		
SS-582	-Y6-	13+00	15' RT	0.0-1.5	A-7-6 (12)	47	24	23	17	9	51	98	83	75	60.5	26.9	N/A
SS-591	-Y25-	11+50	20' RT	0.0-1.5	A-7-6 (26)	62	34	14	14	1	71	100	92	86	74.1	33.3	N/A
SS-595	-L-	104+00	35' LT	0.0-1.5	A-7-6 (7)	42	19	30	18	6	46	94	75	66	50.7	19.6	N/A
SS-614	-L-	102+00	16' RT	0.0-1.5	A-7-5 (2)	46	16	31	33	1	35	93	79	64	37.1	23.6	N/A
SS-64	-Y1B-	13+50	CL	0.0 - 1.5	A-7-6 (15)	56	30	27	19	6	48	100	81	73	56.9	33.1	N/A
SS-83	-L-	19+00	CL	0.0 - 1.5	A-7-5 (13)	53	18	14	22	21	43	99	90	85	67.6	28.6	N/A
S-700	-L-	45+97	45' RT	2 - 3	A-2-5 (0)	52	5	46	32	5	17	95	71	52	24.9	22	N/A
S-701	-L-	52+18	38' RT	1 - 3	A-7-5 (25)	75	38	17	20	10	53	98	89	81	64.1	28.9	N/A
S-702	-L-	60+00	39' RT	1 - 2	A-7-5 (19)	59	27	17	15	10	58	97	86	81	67.7	28.1	N/A
S-703	-L-	64+00	41' RT	1 - 3	A-7-6 (20)	60	32	22	14	8	56	98	85	77	64.4	25.8	N/A
S-704	-L-	72+00	43' RT	1 - 2	A-7-5 (16)	53	22	17	14	7	62	99	87	83	71	31.7	N/A
S-705	-L-	76+02	47' RT	3 - 4	A-7-5 (34)	76	41	17	8	8	67	98	87	82	74.7	29.1	N/A
S-706	-Y9-	14+50	35' RT	1 - 3	A-7-6 (8)	43	15	22	19	19	40	99	85	78	61	34.4	N/A
S-707	-L-	128+00	35' LT	1 - 2	A-7-6 (15)	51	26	21	16	10	53	99	86	78	64.4	26	N/A
S-708	-L-	188+00	30' LT	1 - 2	A-6 (2)	35	14	38	21	10	31	98	73	60	41.8	13.2	N/A
S-709	-L-	188+00	30' LT	3 - 4	A-7-5 (28)	81	38	22	12	7	59	99	84	78	67.4	30.7	N/A
CBR-1	-L-	96+00	35' LT	1 - 10	A-7-5 (6)	55	11	26	24	14	36	99	82	73	53.6	22.8	N/A
CBR-2	-L-	234+00	30' LT	0.0 - 8.5	A-7-5 (9)	56	19	25	25	21	29	98	82	74	55.5	32	N/A