

**PLYMOUTH CO.**  
**UNKNOWN PAVEMENT - GRADE AND REPLACE**  
**NHSX-075-2(92)--3H-75**

LETTING DATE  
 01/18/2017



**Highway Division**

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM  
**PLYMOUTH COUNTY**  
 UNKNOWN PAVEMENT - GRADE AND REPLACE

Jackson St in Merrill to Co. Rd. C-38

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



REVISIONS

TOTAL

PROJECT IDENTIFICATION NUMBER

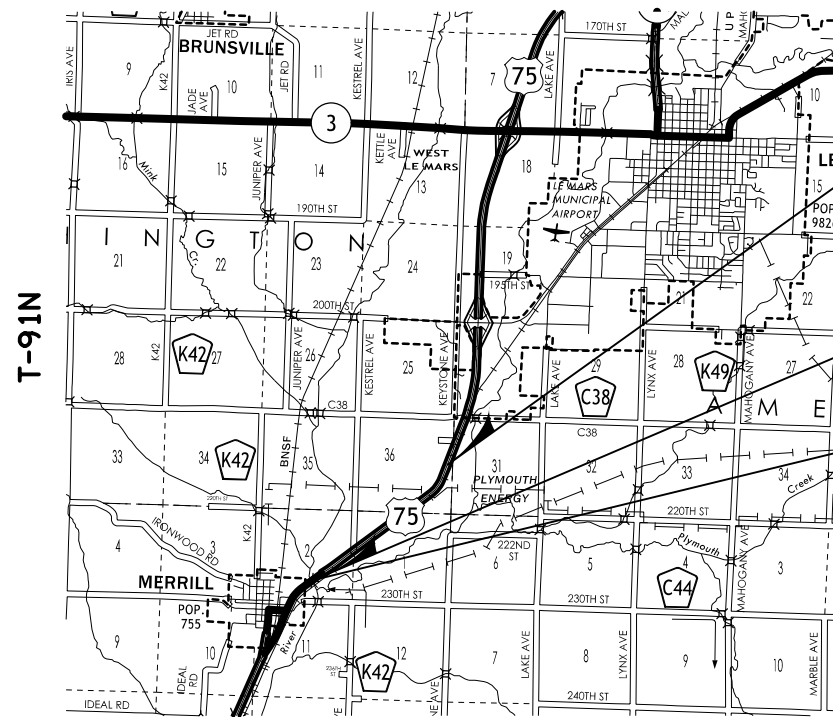
16-75-075-010

PROJECT NUMBER

NHSX-075-2(92)--3H-75

R.O.W. PROJECT NUMBER

NHSN-075-2(93)--2R-75



STA. 763+00.00 (SBL)  
 STA. 2756+20.00 (NBL)  
 END PROJECT  
 M.P. 114.60

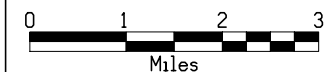
STA. 657+12.79 (SBL)  
 STA. 2657+11.50 (NBL)  
 BEGIN PROJECT  
 M.P. 112.65

Bridge Over  
 W. Fork Floyd River  
 FHWA# 39600

R-47W

R-46W

LOCATION MAP SCALE



**DESIGN DATA RURAL**

2019 AADT	14,500	V.P.D.
2039 AADT	19,500	V.P.D.
2039 DHV	1,887	V.P.H.
TRUCKS	16	%
Total		
Design ESALs	--	

**INDEX OF SEALS**

SHEET NO.	NAME	TYPE
A.1	X	Primary Signature Block
X	X	X

**PRELIMINARY PLANS**

Subject to change by final design.

D5 PLAN - Date: 6-17-2016

FILE NO.

ENGLISH

DESIGN TEAM **Holst \ Strum \ Janus**

PLYMOUTH COUNTY

PROJECT NUMBER

**NHSX-075-2(92)--3H-75**

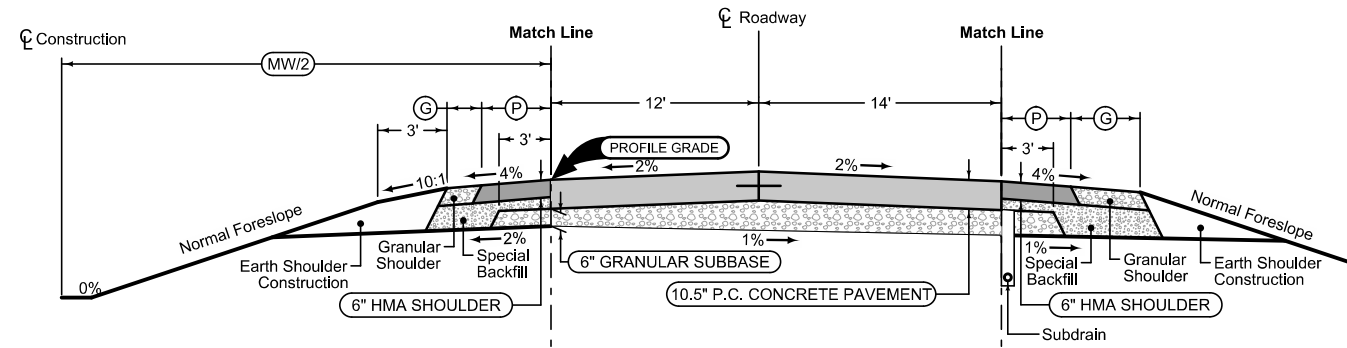
SHEET NUMBER

**A.1**

### Combination Shoulder

Shoulder Jointing:  
Longitudinal joint: B

Direction of Travel	BEGIN STATION	END STATION	4_C_ 10-15-13	
			(P) Feet	(G) Feet
NB	2659+83.75	2663+68.57	-	-
NB	2663+68.57	2756+20.00	4	2
SB	657+12.79	663+70.00	-	-
SB	663+70.00	763+00.00	4	2



Section shown in the direction of traffic.

Mainline Jointing:  
Transverse joints: CD at 20' spacing  
Longitudinal joint: L-2

Direction of Travel	BEGIN STATION	END STATION	4DP_ 10-19-10	
			(MW) Feet	
NB/SB	1645+55.00	1646+09.49		
NB	2657+11.50	2663+68.57	0	
NB	2663+68.57	2756+20.00	54-64	
SB	657+12.79	663+70.00	0	
SB	663+70.00	763+00.00	54-64	

### Combination Shoulder

Shoulder Jointing:  
Longitudinal joint: B

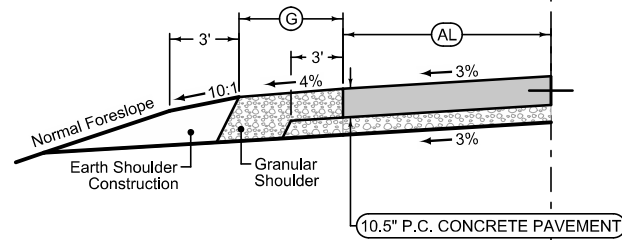
Direction of Travel	BEGIN STATION	END STATION	4_C_ 10-15-13	
			(P) Feet	(G) Feet
NB	2659+93.22	2756+20.00	4	4
SB	659+34.34	763+00.00	4	4

### Auxiliary Lane

Longitudinal joint: L or KT  
Transverse joint: Match Mainline

Direction of Travel	BEGIN STATION	END STATION	4_AuxLane_PCC_ 10-19-10	
			(AL) Feet	(G) Feet
NB	2680+10.96	2681+30.96	0-12	6
NB	2681+30.96	2683+30.96	12	6

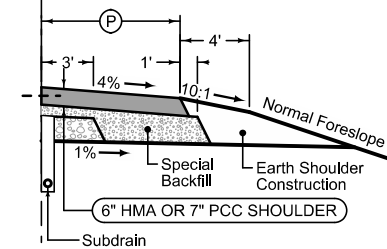
### Auxiliary Lane Granular Shoulder



### Paved Shoulder at Guardrail

PCC Shoulder Jointing:  
Longitudinal joint: BT-1 or BT-5  
Transverse joints: C at 20' spacing  
HMA Shoulder Jointing:  
Longitudinal joint: B

Direction of Travel	BEGIN STATION	END STATION	4_P_Guard_ 10-21-14	
			(P) Feet	
NB	1643+28.14	1646+74.98	Vari (0-6)	
SB	1643+53.16	1646+74.98	Vari (0-7.3)	
NB	2657+11.50	2659+93.22	Vari (0-14.5)	
SB	657+12.79	659+34.34	Vari (0-15.6)	

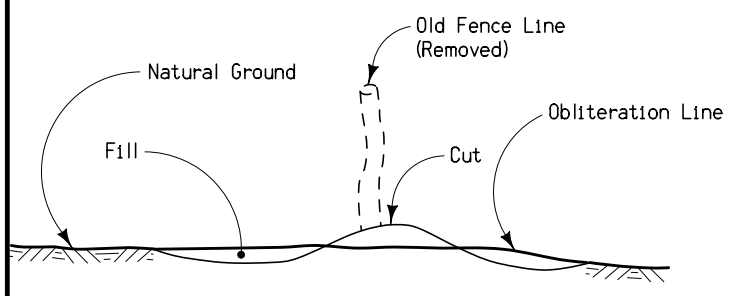


Refer to Tab 100-24 or 100-25 for pavement quantities.  
Refer to Tab 112-9 for shoulder quantities.

U.S 75



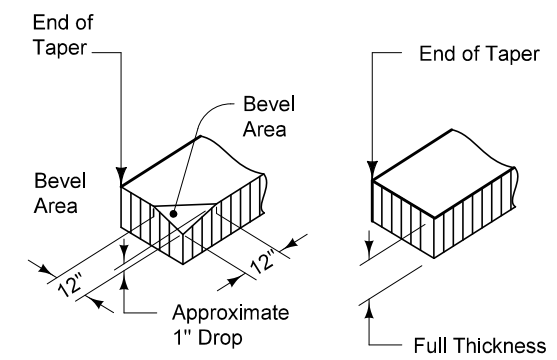
4301  
08-20-96



**TYPICAL DETAILS FOR  
OBLITERATION OF OLD FENCE RIDGE**

Notes:  
The work of obliterating or reshaping old fence ridges shall be done at the direction of the Engineer.

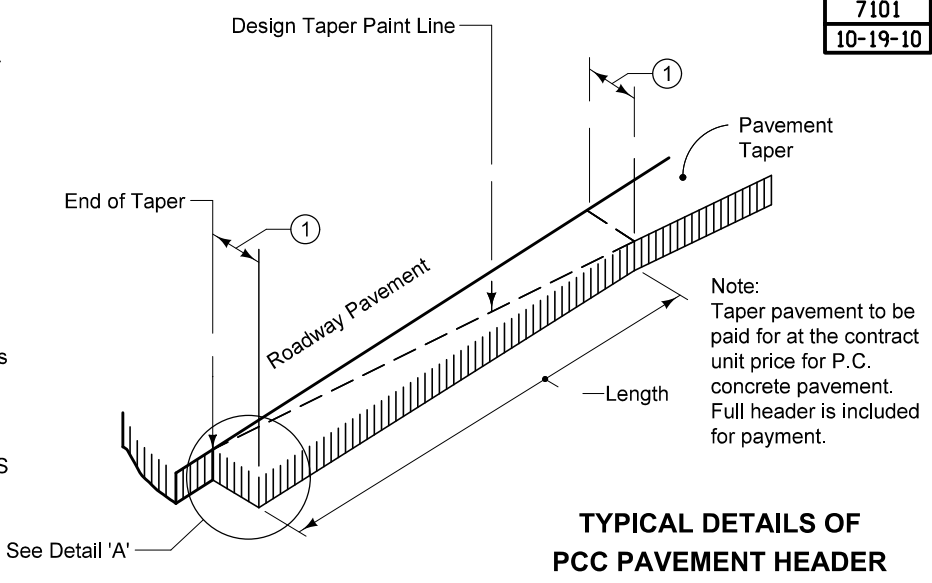
7101  
10-19-10



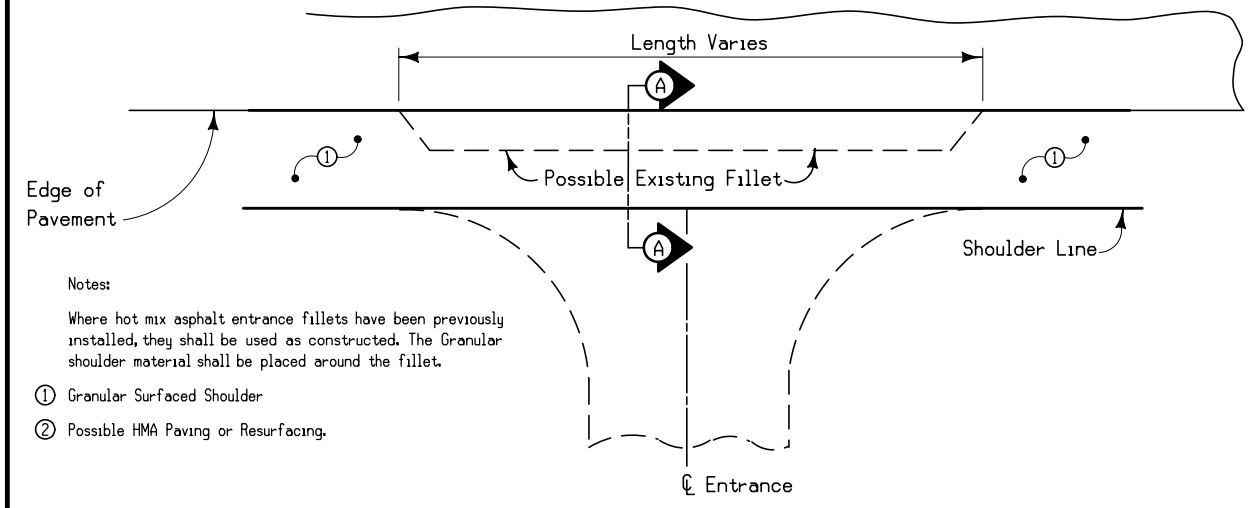
**DETAIL 'A'**  
FOR GRANULAR SHOULDERS

**DETAIL 'A'**  
FOR PAVED SHOULDERS

① Normal width is 2'-0". Construct 4'-0" width when butting into 4' wide HMA shoulders (See Typical 7154A).



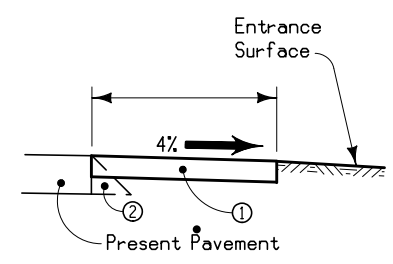
**TYPICAL DETAILS OF  
PCC PAVEMENT HEADER**



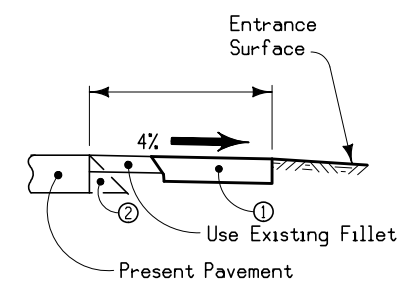
Notes:  
Where hot mix asphalt entrance fillets have been previously installed, they shall be used as constructed. The Granular shoulder material shall be placed around the fillet.

① Granular Surfaced Shoulder  
② Possible HMA Paving or Resurfacing.

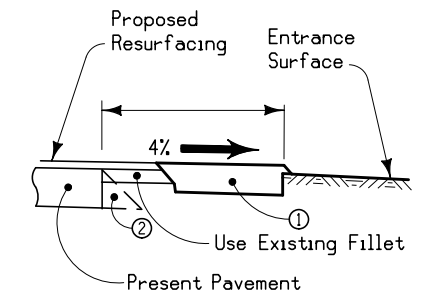
Plan



Section A-A  
Without Fillet



Section A-A  
With Previous Fillet

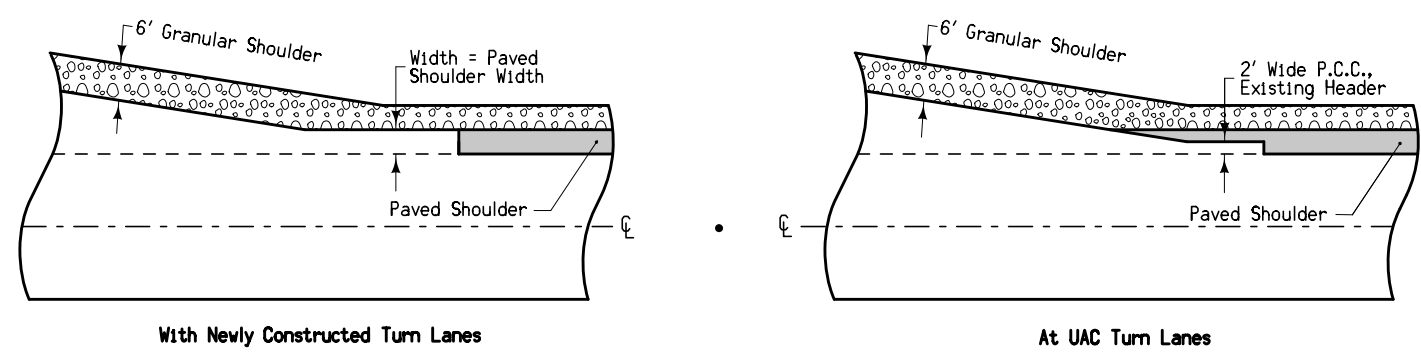


Section A-A  
With Previous Fillet  
And Resurfacing Less than 1/2"

**GRANULAR SHOULDER CONSTRUCTION THRU ENTRANCES**

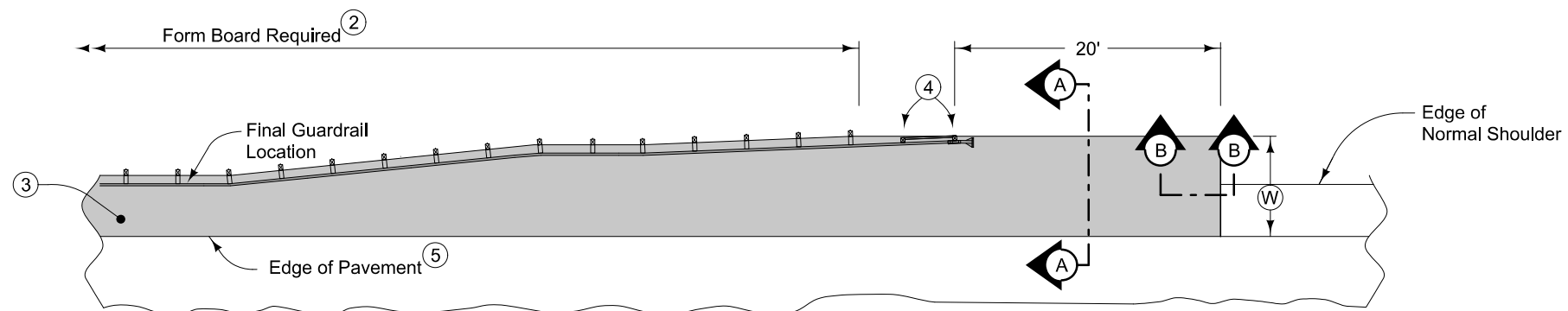
7117  
10-02-01

7154A  
10-20-09



**PAVED SHOULDER  
DETAIL AT  
TURN LANES**

7156  
04-16-13

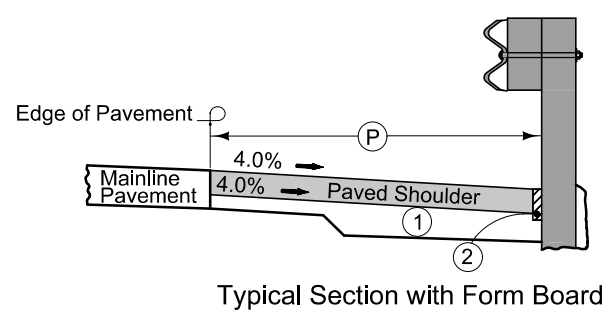


6" HMA Paved Shoulder at guardrail. 7" PCC may be substituted with the following jointing layout:

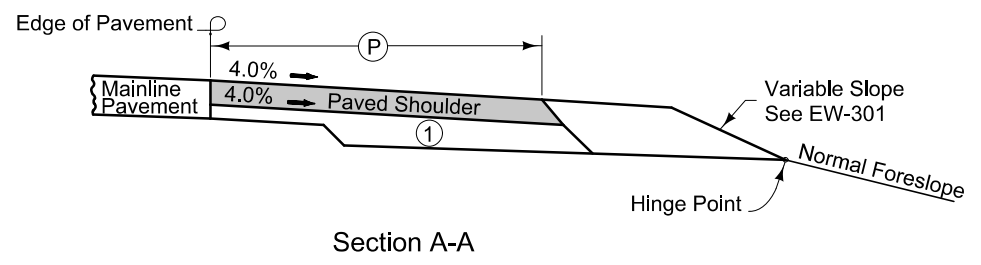
Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at W/2 from edge of mainline pavement when W is greater than 10' wide. Terminate longitudinal joint at transverse joint less than 10' in length.

Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal & reinstallation of guardrail will be allowed with no additional payment.

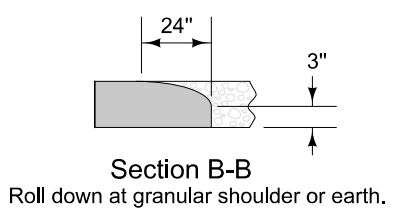
Refer to Shoulder tabulation (112-9) for quantities.



Typical Section with Form Board



Section A-A

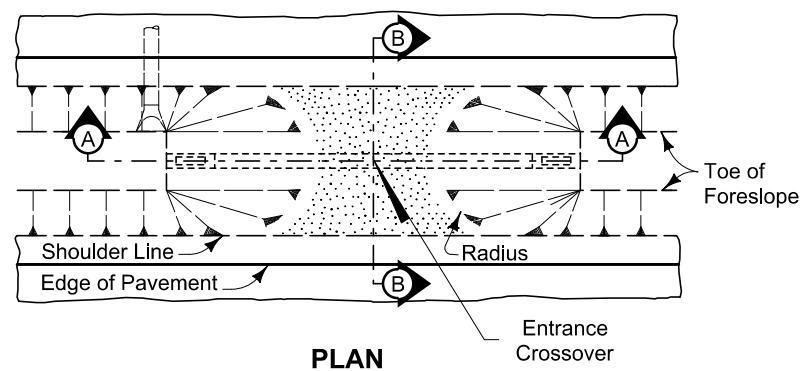


Section B-B  
Roll down at granular shoulder or earth.

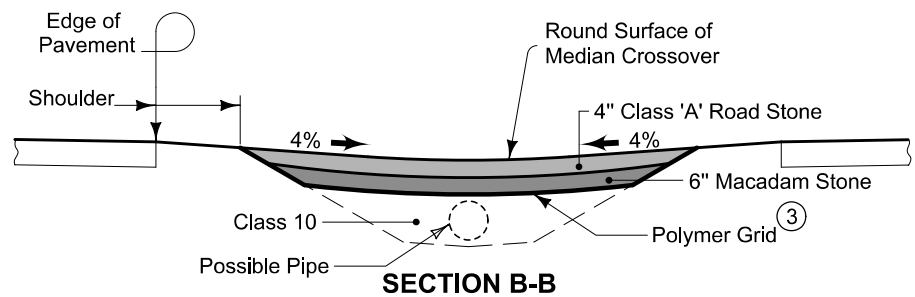
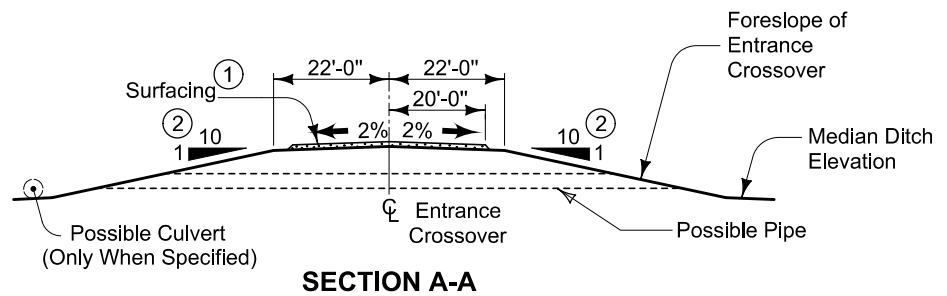
- ① 6" subgrade treatment.
- ② When guardrail posts are installed prior to construction of paved shoulder, nail 1" x 6" untreated form boards along the face of guardrail posts for the length shown. This board is to prevent shoulder material from contacting the sides of the posts and altering the function of the guardrail. Form board not required for final 2 posts.
- ③ Continue paved shoulder to existing paved shoulder or 20' beyond the end of guardrail.
- ④ Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement.
- ⑤ 'KT-1' joint for PCC shoulder.  
'B' joint for HMA shoulder.

**PAVED SHOULDER AT GUARDRAIL**

8101  
MODIFIED

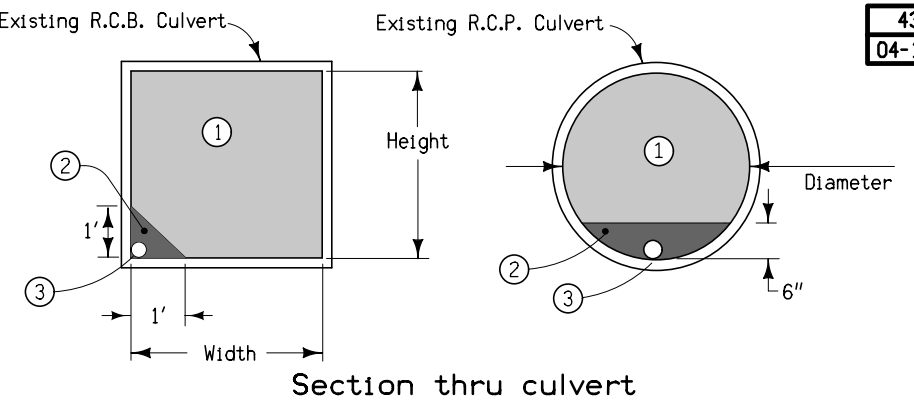
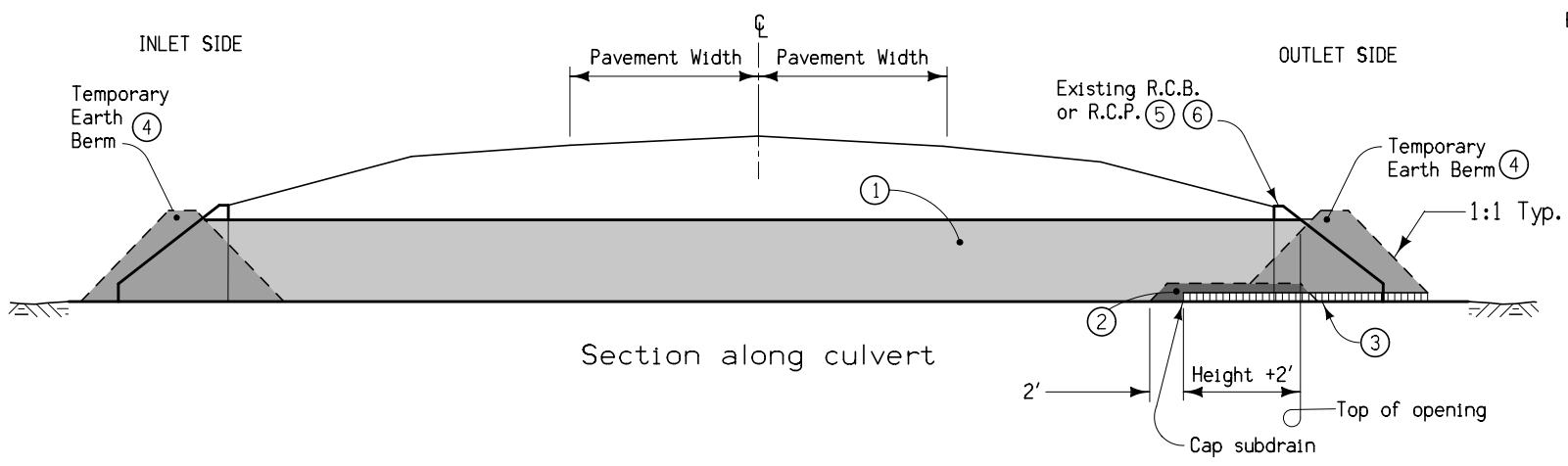
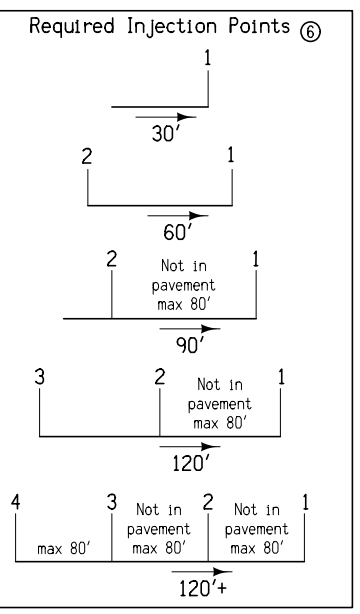


- ① Surfacing quantities based on a 6 inch layer of Macadam Stone base and a 4 inch layer of Class 'A' Road Stone. Apply surfacing as directed by the Engineer.
- ② Construct 8:1 foreslope when drainage pipe is incorporated into the maintenance turnaround.
- ③ Install Polymer Grid between Class 10 and stone material.
- ④ See Standard Road Plan DR-212.



**MEDIAN ENTRANCE CROSSOVER**

Location		Class 'A' Road Stone	Macadam Stone	Polymer Grid	Class 10	Pipe Length	Beveled Pipe & Guard ④	Radius	Remarks
Road Identification	Station	TONS	TONS	SY	CY	LF	EACH	FT	
U.S. 75 (SBL)	708+50.00	48.4	67.4	230.3		-	-	21.0	
U.S. 75 (SBL)	719+50.00	40.1	55.8	190.8		-	-	18.0	
U.S. 75 (SBL)	732+85.00	40.1	55.8	190.9		-	-	18.0	



- ① Flowable Mortar.
- ② Granular Backfill.
- ③ 4" subdrain at flowline elevation of culvert shall be extended into the culvert a distance of 2' plus the height of the culvert. Granular Backfill covers subdrain and extends an additional 2'. Subdrain and granular backfill are incidental to flowable mortar.
- ④ Ends of culvert shall be plugged sufficiently to retain flowable mortar. Temporary earth berms are incidental to flowable mortar.
- ⑤ Removal of headwalls may be required.
- ⑥ Outlet shall be filled first. See injection point detail for additional information.

**DETAILS OF CULVERT ABANDONMENT WITH FLOWABLE MORTAR**  
**(Rectangular structures less than 8' in either height or width.**  
**Circular structures less than 10' Dia.)**

### SURVEY SYMBOLS

- EP Edge of Paved Roads (ML or SR)
- SNP Unpaved Shoulder
- EG Edge of Gravel Road
- RR Centerline of Railroad Tracks
- DU Centerline Draw or Stream (Up)
- D Centerline Draw or Stream (Down)
- PPA Power Pole Co. 1
- SI Sign
- TDC Tree Deciduous
- RIP Rip-Rap
- DIK Centerline of Dike or Dam
- STP Stump
- ENU Edge Unpaved Entrance & Parking
- RET Retaining Walls
- TEV Evergreen Tree
- LP L.P. Tank
- RRS Railroad Signal
- RRB Railroad Signal Box
- GDL Guard Rail Steel
- LUM Luminaire
- OUT Tile Outlet
- TIL Tile Line
- IN Storm Sewer Intake
- WL1D Water Line Co. 1 - Quality D
- F02D Fiber Optic Co. 2 - Quality D
- GL1D Gas Line Co. 1 - Quality D
- F01D Fiber Optic Co. 1 - Quality D
- EL1D Electric Line Co. 1 - Quality D
- TPD Telephone Pedestal
- EB Electrical Box
- WV Water Valve
- F02D Fiber Optic Co. 3

### UTILITY LEGEND

- Neutral Path Communications  
Kayla Powers  
3 Civic Center Plaza, Ste 204  
Mankato MN, 56001  
612-877-6500  
kpowers@neutralpath.net
- MCI / Verizon Business  
Long Distance Fiber Optic  
Stephen Bonczkowski  
501 63rd Street  
Downers Grove, IL 60516  
630-395-6701  
stephen.bonczkowski@verizon.com
- North West Rural Electric Cooperative  
Electric  
Derrick Haak  
1505 Albany Place SE  
Orange City, IA 51041-9678  
712-707-4935  
dhaak@nwrec.coop
- Southern Sioux County Rural Water System  
Water  
Russ Coons  
1002 Main Street  
Ireton, IA 51027  
712-278-2212
- MidAmerican Energy Company  
Tom Albertson  
106 East Second Street  
Davenport IA, 52801  
563-333-8155  
ktalbertson@midamerican.com
- GL1D Gas Line Plymouth Energy - Quality D
- Neutral Path Communications  
Kayla Powers  
3 Civic Center Plaza, Ste 204  
Mankato MN, 56001  
612-877-6500  
kpowers@neutralpath.net
- CenturyLink Telephone  
Carroll Wheaton  
7404 N 78th Street  
Omaha, NE, 68122  
402-572-5887  
Carroll.Wheaton@centurylink.com

### PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING	Design Color No.	
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading

### PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

**Reference Point**

Station Survey Line

Section Corner

Ground Line Intercept

Saw Cut

Guardrail

Trench Drain

HighTension Cable Guardrail

Sheet Pile

Pavement Removal    Clearing & Grubbing Area

### RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- Access Control
- Property Line

# PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

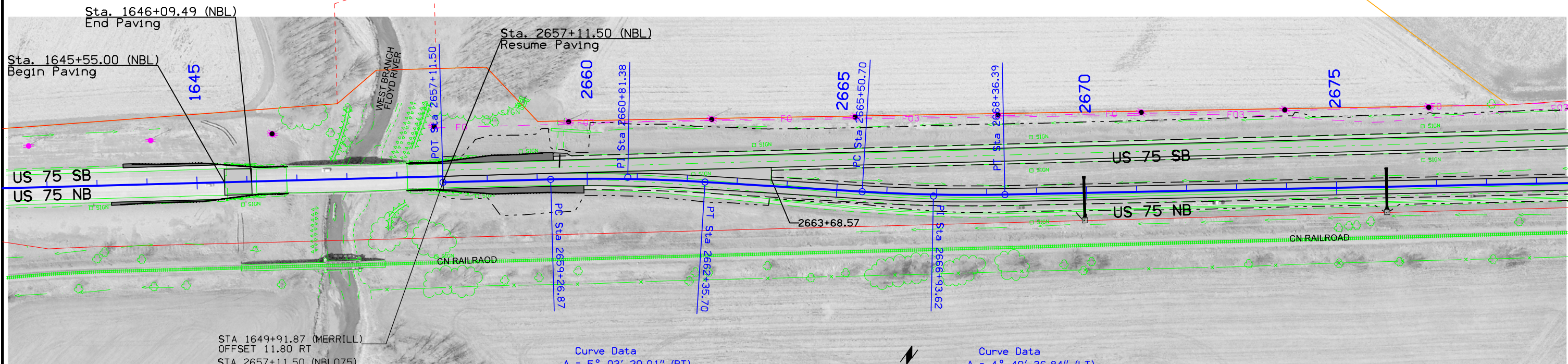
(COVERS SHEET SERIES D, E, F, & K)



30"  
C.M.P.  
(U.A.C)

Liberty TWP.  
T-91-N R-46W  
SEC. 2

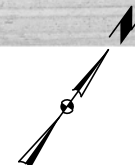
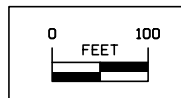
Sta. 2676+00  
Install 24" RCP  
F.L. = Lt. 1171.52  
Rt. 1168.81  
Other 1169.53



STA 1649+91.87 (MERRILL)  
OFFSET 11.80 RT  
STA 2657+11.50 (NBL075)  
OFFSET 0.00 LT

Sta. 665+20.0 (SBL)  
240' x 52'  
I Beam Bridge  
DA = 280 Sq. Miles  
(U.A.C)

Curve Data  
 $\Delta = 5^\circ 03' 20.01''$  (RT)  
T = 154.51  
L = 308.83  
E = 3,500.00  
P = 3.41  
R = 5.0%  
L = 225'  
X = 90'

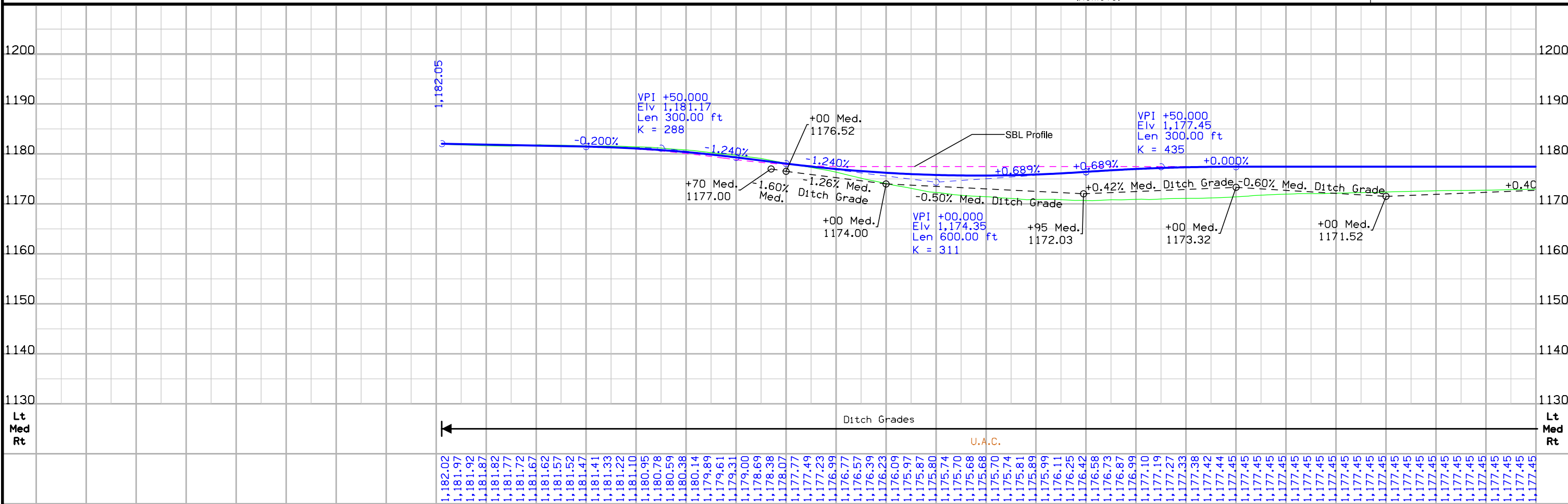


Curve Data  
 $\Delta = 4^\circ 40' 36.84''$  (LT)  
T = 142.93  
L = 285.70  
E = 3,500.00  
P = 2.92  
R = 5.0%  
L = 225'  
X = 90'

Sta. 2669+97.0 (NBL)  
4 X 2' X 52.8 RCB  
D.A. = Ac 1.5 Ac (Per Plans)  
(Remove)

Sta. 2669+95.00  
Install 24" RCP  
F.L. = Lt. 1172.03  
Rt. 1165.99  
Other 1169.47

**NORTHBOUND  
U.S. 75**

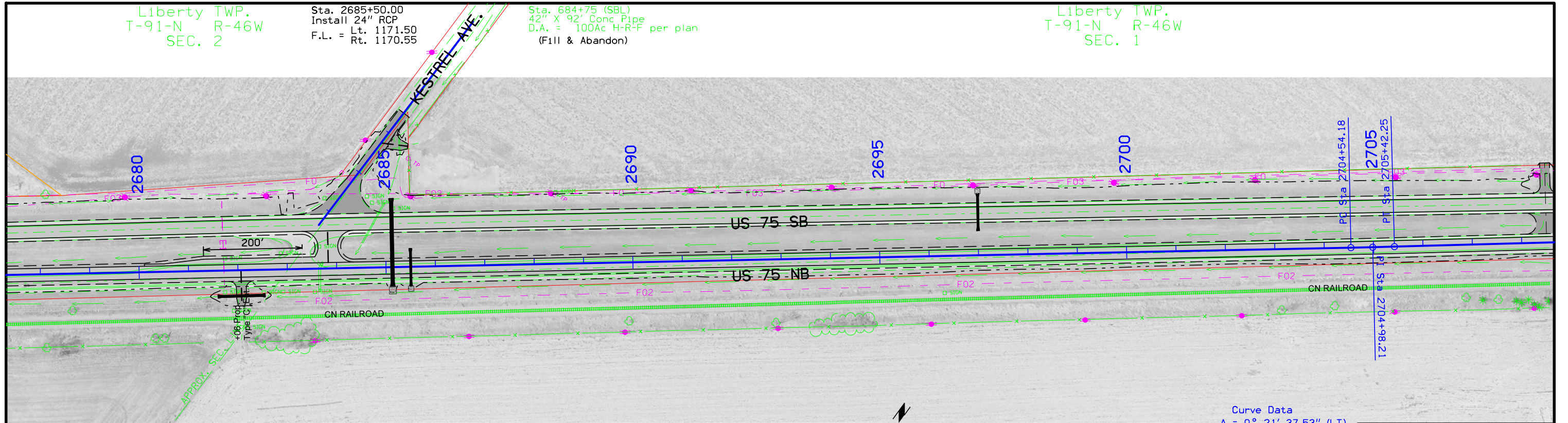


Liberty TWP.  
T-91-N R-46W  
SEC. 2

Sta. 2685+50.00  
Install 24" RCP  
Lt. 1171.50  
Rt. 1170.55

Sta. 684+75 (SBL)  
42" X 92" Conc Pipe  
D.A. = 100Ac H-R-F per plan  
(Fill & Abandon)

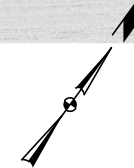
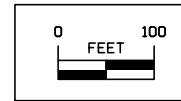
Liberty TWP.  
T-91-N R-46W  
SEC. 1



30" C.M.P.  
(Remove)  
Prop. 30"  
Uncl. Ent. Pipe

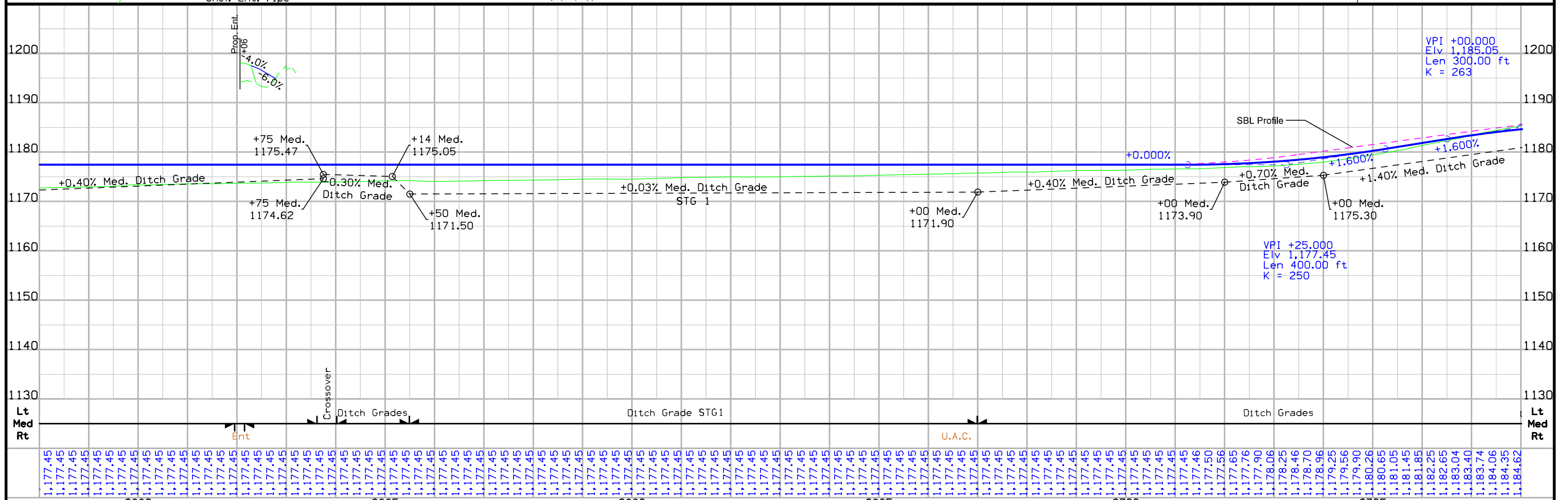
Sta. 2685+13.00  
Install 54" RCP  
Lt. 1169.10  
Rt. 1169.10

Sta. 2683+66.7 (NBL)  
4' X 2' X 67.3 RCB  
Including bend in barrel Lt  
D.A. = 89 H-R-F per Plan  
(Remove)



Curve Data  
Δ = 0° 21' 37.53" (LT)  
T = 44.03  
L = 88.07  
PR = 14,000.00  
E = 0.07  
e = NC

**NORTHBOUND  
U.S. 75**



FILE NO.	ENGLISH	DESIGN TEAM	<b>Holst \ Strum \ Janus</b>	PLYMOUTH COUNTY	PROJECT NUMBER	<b>NHSX-075-2(92)--3H-75</b>	SHEET NUMBER	<b>D.3</b>
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Washington TWP.  
T-92-N R-46W  
SEC. 36

Sta. 747+09.7 (SBL)  
54" X 97' RCP to Median Well  
D.A. = 50 Ac H-R (Per Plan)  
(Fill & Abandon)

Sta. 752+58 (SBL)  
60" X 85' Conc Pipe to Median RCB  
D.A. = Part of 27' Ac H - R (Per Plan)  
(Fill & Abandon)

Sta. 2752+75.00  
Install 48" RCP  
F.L. = Lt. 1185.71  
Rt. 1179.53  
Other 1183.55

Sta. 2753+11.2 - 31' Lt. (North Bound Lane)  
4" X 6" Intake slot in top RCB  
D.A. = Median  
(Remove)

Sta. 2753+03  
60" X 60' Conc Pipe from Median RCB  
D.A. = Part of 27' Ac H - R (Per Plan)  
(Remove)

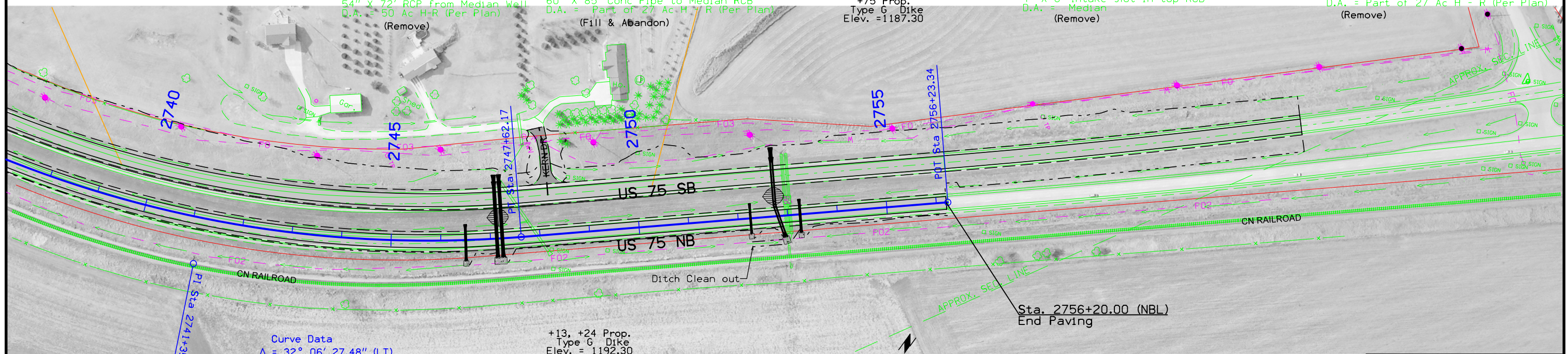
Sta. 2748+01.5 (NBL)  
54" X 72' RCP from Median Well  
D.A. = 50 Ac H-R (Per Plan)  
(Remove)

Sta. 752+67 (SBL)  
60" X 85' Conc Pipe to Median RCB  
D.A. = Part of 27' Ac H - R (Per Plan)  
(Fill & Abandon)

+75 Prop.  
Type G Dike  
Elev. = 1187.30

Sta. 2753+03.8 - 31' Lt. (North Bound Lane)  
4" X 6" Intake slot in top RCB  
D.A. = Median  
(Remove)

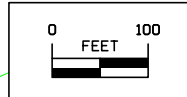
Sta. 2703+11  
60" X 60' Conc Pipe from Median RCB  
D.A. = Part of 27' Ac H - R (Per Plan)  
(Remove)



Curve Data  
 $\Delta = 32^\circ 06' 27.48''$  (LT)  
 T = 661.85  
 L = 1,288.88  
 R = 2,300.00  
 E = 93.33  
 e = 6%  
 L = 270'  
 X = 90'

+13, +24 Prop.  
Type G Dike  
Elev. = 1192.30

Sta. 2747+13.00 and 2747+24.00  
Install 42" Twin RCP  
F.L. = Lt. 1191.43  
Rt. 1187.27  
Other 1187.64  
Other 1188.68

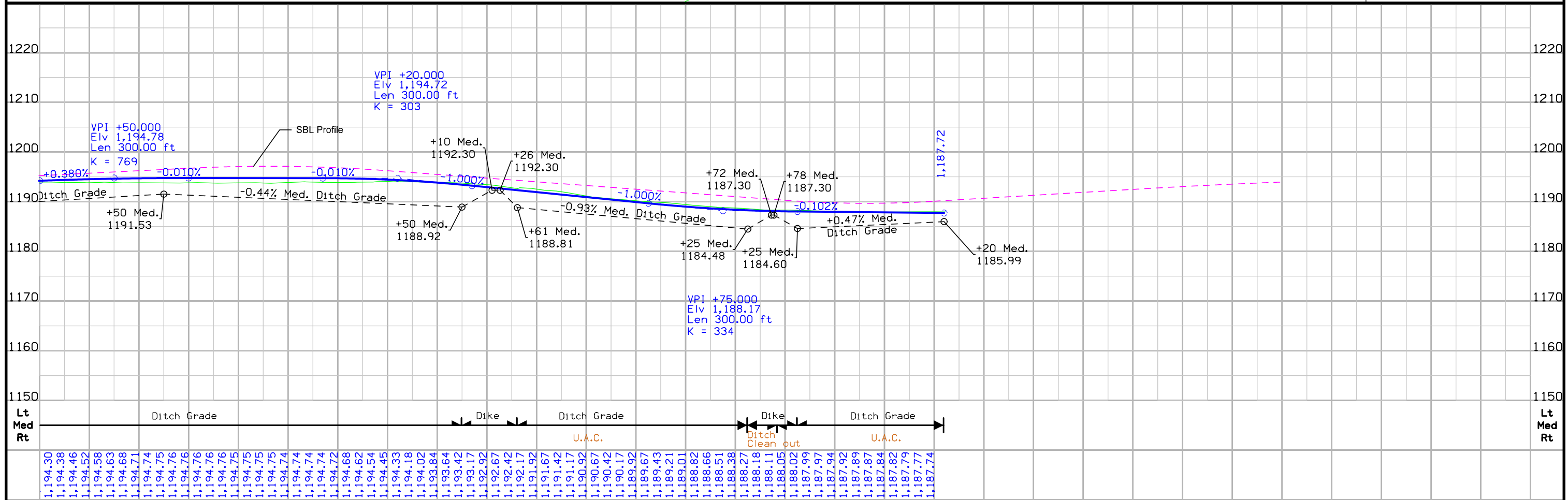


Sta. 2752+25.00  
Install 18" RCP  
F.L. = Lt. 1184.45  
Rt. 1184.24

Sta. 2753+25.00  
Install 24" RCP  
F.L. = Lt. 1183.81  
Rt. 1182.14

America TWP.  
T-92-N R-45W  
SEC. 31

NORTHBOUND  
U.S. 75



FILE NO.	ENGLISH	DESIGN TEAM	Holst \ Strum \ Janus	PLYMOUTH COUNTY	PROJECT NUMBER	NHSX-075-2(92)--3H-75	SHEET NUMBER	D.5
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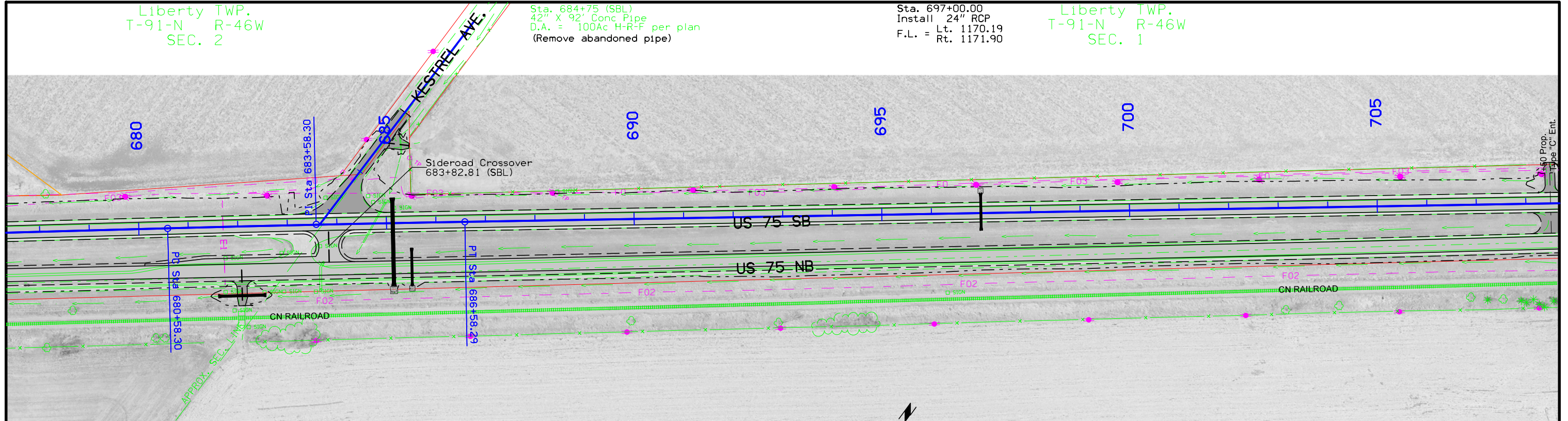


Liberty TWP.  
T-91-N R-46W  
SEC. 2

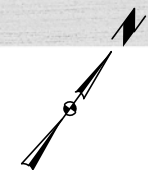
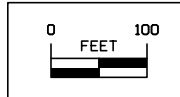
Sta. 684+75 (SBL)  
42" X 92" Conc Pipe  
D.A. = 100Ac H-R-F per plan  
(Remove abandoned pipe)

Sta. 697+00.00  
Install 24" RCP  
F.L. = Lt. 1170.19  
Rt. 1171.90

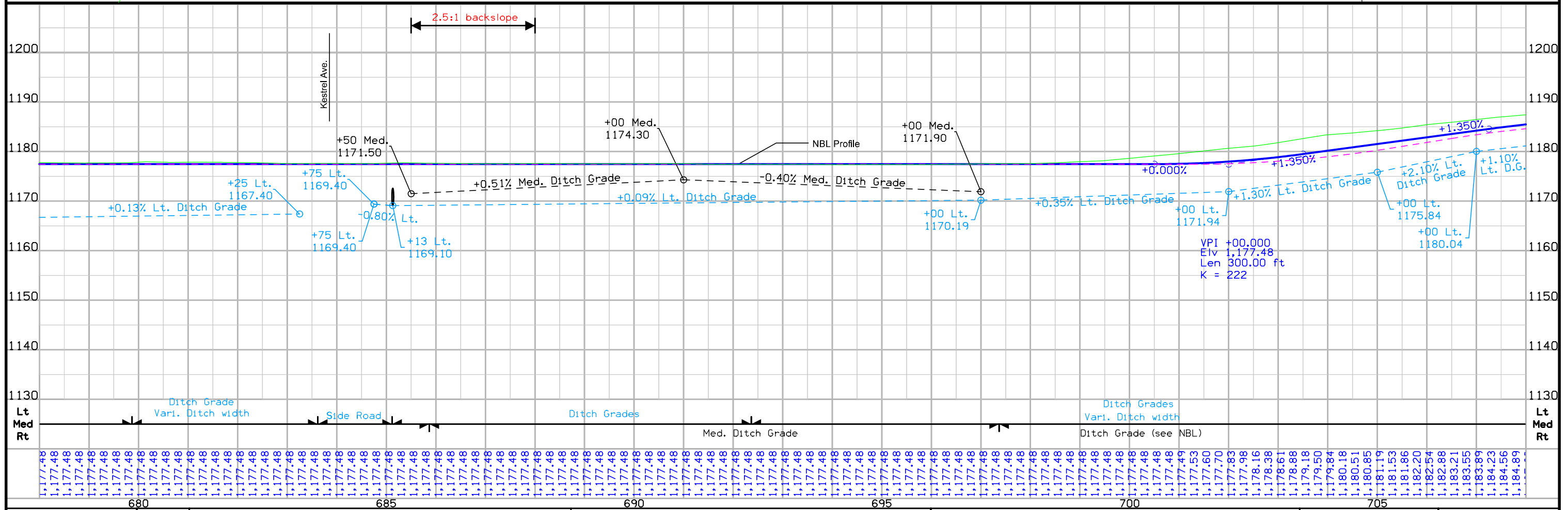
Liberty TWP.  
T-91-N R-46W  
SEC. 1



Curve Data  
 $\Delta = 0^\circ 34' 27.74''$  (RT)  
 $T = 300.00$   
 $L = 599.99$   
 $E = 59,851.78$   
 $e = 0.75$   
 $e = NC$



**SOUTHBOUND  
U.S. 75**



FILE NO.	ENGLISH	DESIGN TEAM	<b>Holst \ Strum \ Janus</b>	PLYMOUTH COUNTY	PROJECT NUMBER	<b>NHSX-075-2(92)--3H-75</b>	SHEET NUMBER	<b>D.7</b>
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Liberty TWP.  
T-91-N R-46W  
SEC. 1

18" C.M.P.  
(Remove)  
Prop. 18"  
Uncl. Ent. Pipe

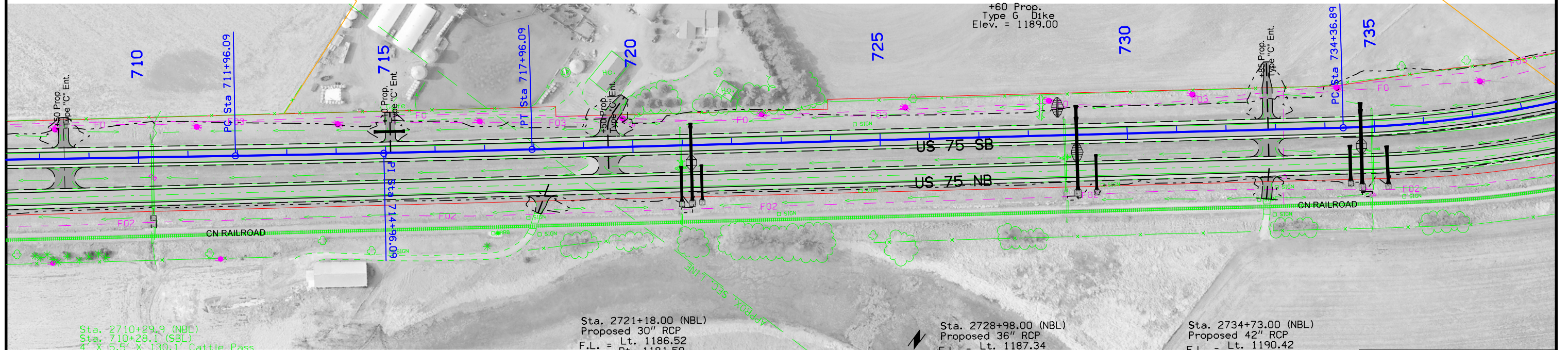
Curve Data  
 $\Delta = 0^\circ 33' 24.27''$  (LT)  
T = 300.00  
L = 600.00  
R = 61,747.08  
E = 0.73

Sta. 2720+99 (NBL)  
Sta. 720+97 (SBL)  
2' X 2' X 36.0" RCB  
30" RCP EXT & APR SECTION RT & LT  
D.A. = 13' Ac - H-R (Per Plan)  
(Remove abandoned pipe)

Sta. 2728+76.3 (NBL)  
Sta. 728+73.5 (SBL)  
3' X 2' X 32.6" RCB  
with 36" RCP extensions Rt & Lt.  
D.A. = 21' Ac - H (Per Plan)  
(Remove abandoned pipe)

Washington TWP.  
T-92-N R-46W  
SEC. 36

Sta. 2734+97.3 (NBL)  
Sta. 734+95 (SBL)  
3' X 2' X 32.5" RCB  
With 36" RCP extensions Rt & Lt.  
D.A. = 25' Ac - H (Per Plan)  
(Remove abandoned pipe)

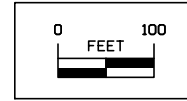


Sta. 2710+29.9 (NBL)  
Sta. 710+28.1 (SBL)  
4' X 5.5' X 130.1' Cattle Pass  
D.A. = 132' Ac - H-R (per plan)

U.A.C.  
Sta. 2710+30 - 36' Lt. (North Bound Lane)  
4" X 6" Intake slot in top cattle pass  
D.A. = Median  
U.A.C.

Sta. 2721+18.00 (NBL)  
Proposed 30" RCP  
F.L. = Lt. 1186.52  
Rt. 1181.59  
Other 1184.20

REMOVE 6' LT  
Remove and Relay Apron  
F.L. = Lt. 1184.31  
Rt. U.A.C.



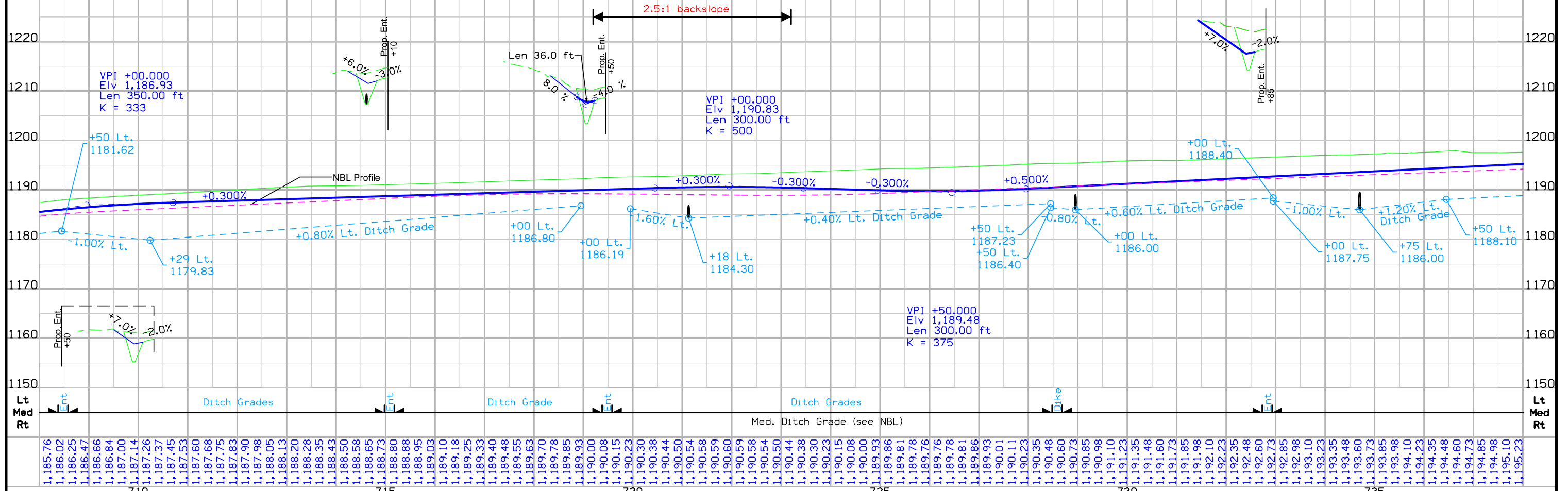
Sta. 2728+98.00 (NBL)  
Proposed 36" RCP  
F.L. = Lt. 1187.34  
Rt. 1183.90  
Other 1184.83

REMOVE 24' LT  
Remove and Relay Apron  
F.L. = Lt. 1184.77  
Rt. U.A.C.

Sta. 2734+73.00 (NBL)  
Proposed 42" RCP  
F.L. = Lt. 1190.42  
Rt. 1185.40  
Other 1186.11

REMOVE 14' LT  
Remove and Relay Apron  
F.L. = Lt. 1186.10  
Rt. U.A.C.

**SOUTHBOUND  
U.S. 75**



FILE NO.	ENGLISH	DESIGN TEAM	<b>Holst \ Strum \ Janus</b>	PLYMOUTH COUNTY	PROJECT NUMBER	<b>NHSX-075-2(92)--3H-75</b>	SHEET NUMBER	<b>D.8</b>
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Washington TWP.  
T-92-N R-46W  
SEC. 36

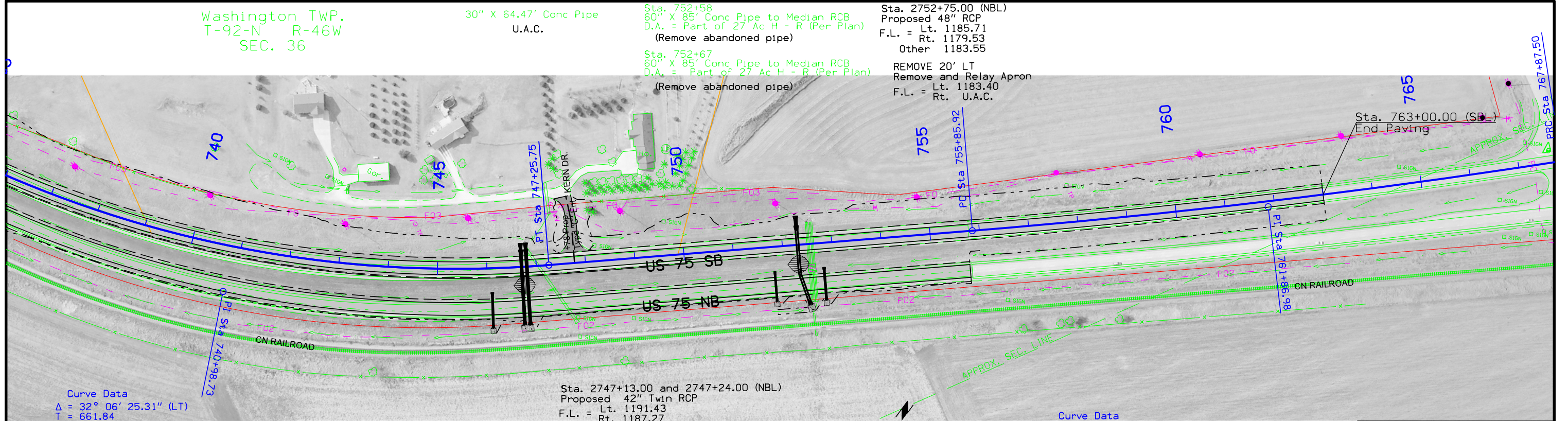
30" X 64.47' Conc Pipe  
U.A.C.

Sta. 752+58  
60" X 85' Conc Pipe to Median RCB  
D.A. = Part of 27 Ac H - R (Per Plan)  
(Remove abandoned pipe)

Sta. 752+67  
60" X 85' Conc Pipe to Median RCB  
D.A. = Part of 27 Ac H - R (Per Plan)  
(Remove abandoned pipe)

Sta. 2752+75.00 (NBL)  
Proposed 48" RCP  
F.L. = Lt. 1185.71  
Rt. 1179.53  
Other 1183.55

REMOVE 20' LT  
Remove and Relay Apron  
F.L. = Lt. 1183.40  
Rt. U.A.C.



Curve Data  
Δ = 32° 06' 25.31" (LT)  
T = 661.84  
L = 1,288.86  
R = 2,300.00  
E = 93.33  
e = 6%  
L = 270'  
x = 90'

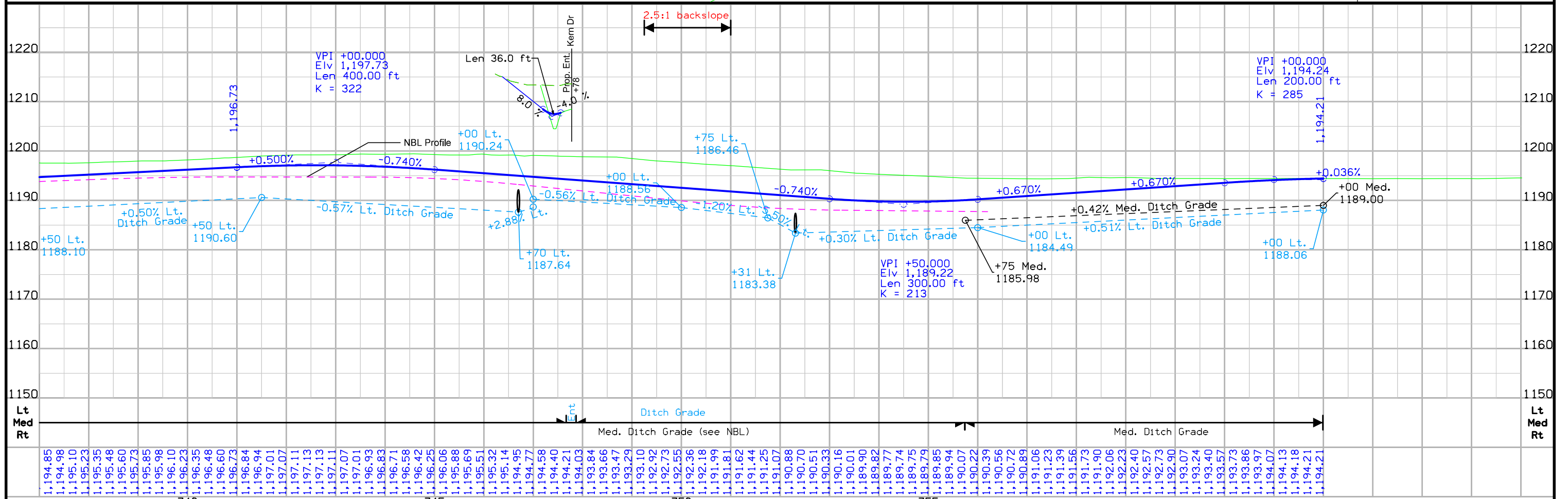
Sta. 2747+13.00 and 2747+24.00 (NBL)  
Proposed 42" Twin RCP  
F.L. = Lt. 1191.43  
Rt. 1187.27  
Other 1187.64  
Other 1188.68

REMOVE 6' LT  
Remove and Relay Apron  
F.L. = Lt. 1187.64  
Rt. U.A.C.

Curve Data  
Δ = 4° 11' 36.40" (LT)  
T = 601.06  
L = 1,201.58  
R = 16,417.45  
E = 11.00  
e = NC

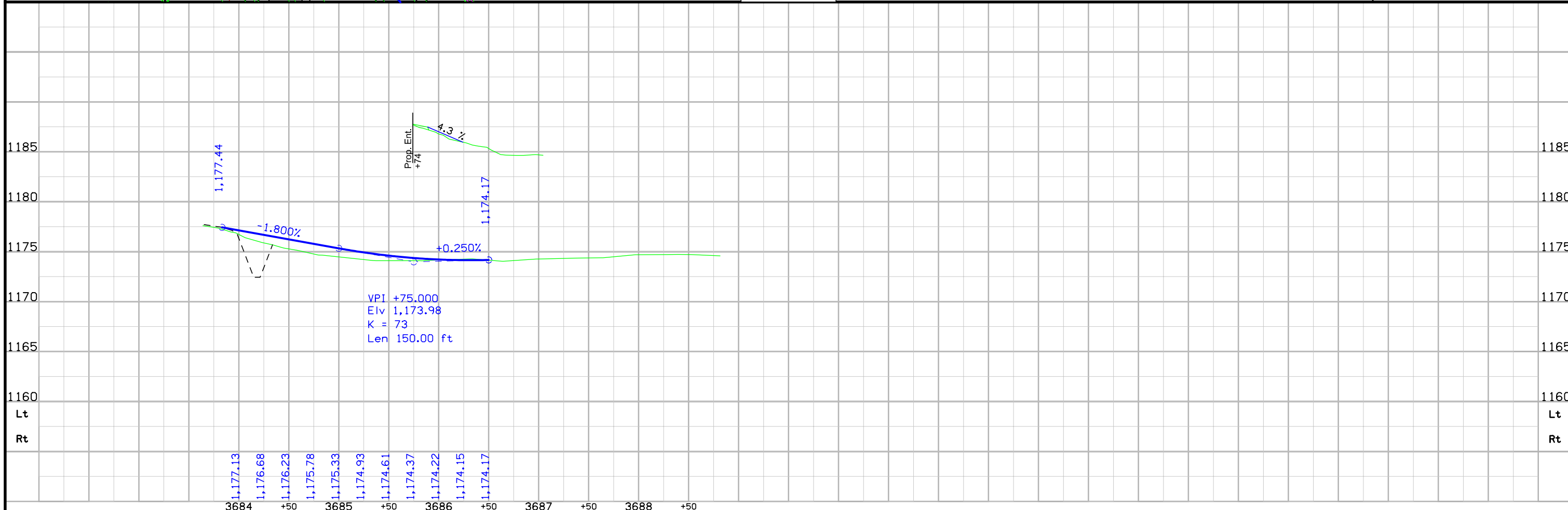
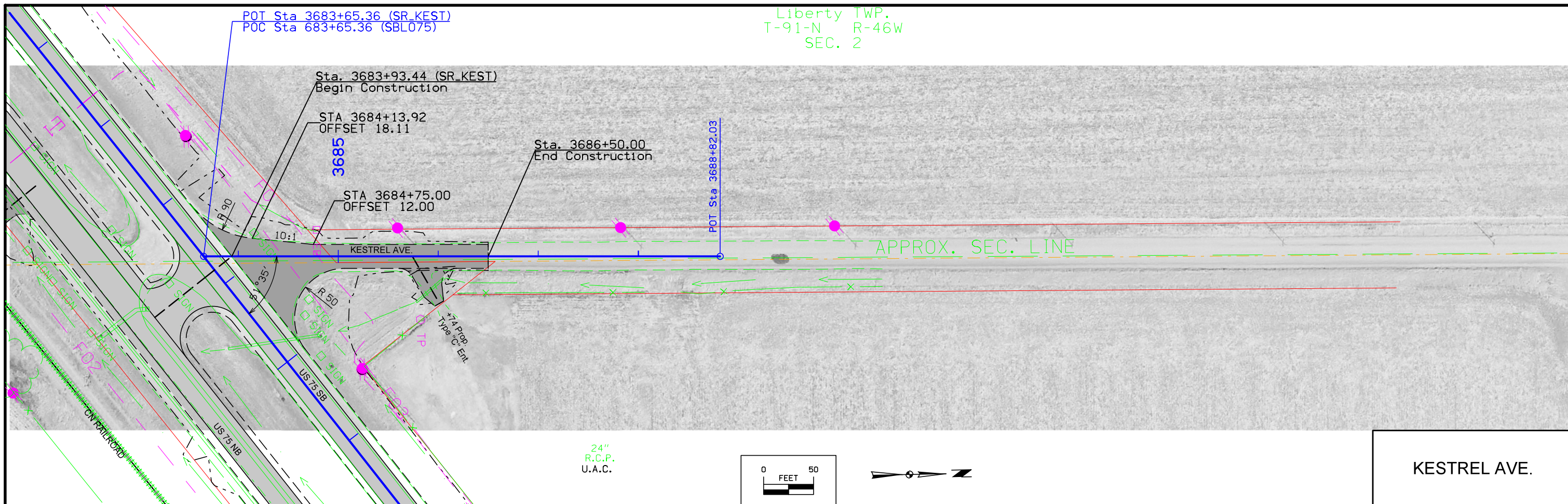
America TWP.  
T-92-N R-45W  
SEC. 31

SOUTHBOUND  
U.S. 75



FILE NO.	ENGLISH	DESIGN TEAM	PLYMOUTH COUNTY	PROJECT NUMBER	SHEET NUMBER
		Holst \ Strum \ Janus		NHSX-075-2(92)--3H-75	D.9





## Survey Information

**County: Plymouth**  
**PIN: 16-75-075-010**  
**Project Number: NHSX-075-2(91)--3H-75**  
**Location: Jackson St in Merrill to Co Rd C38**  
**Type of Work: Preliminary Engineering**  
**Project Directory: 7507501016**  
**SAP 666.1**

### Survey Personnel

Field personnel:  
 Clayton Henningsen- lead survey technician  
 Jason Arn- survey technician  
 Jeffrey Duncan- survey technician  
Office personnel:  
 Eric Diedrich- survey mapping  
 Norman Miller- survey manager

### Date(s) of Survey

Begin Date            02/18/2016  
 End Date                03/21/2016

### General Information

Measurement units for this survey are US survey feet. This survey is for preliminary engineering of US 75 between Merrill and the Le Mars by-pass. This project is a combination of field survey and aerial survey. The existing pavement was only field surveyed at the tie in locations at each end of the project. The rest was surveyed using aerial photography.

### Vertical Control

Vertical Control was established on 3 monuments on the project designated as points 13, 67 and 126. These monuments are stable and are expected to hold vertical reasonably well. The vertical datum is NAVD88. Datum was transferred from the Iowa RTN reference station at LeMars to the projects monuments mentioned above by using concurrent 6 hour static measurements and post processing connecting vectors. Geoid 12 A was used in processing. The LeMars reference station orthometric height used is 1287.25 US Survey Ft.

This survey observed 2 Plymouth Control Monuments with published NAVD88 heights to validate the reference station height used in computation of project heights. The County control has a stated vertical accuracy of + or 0.10 ft. The survey heights determined at the two county monuments validate the NAVD 88 height used at the LeMars reference station and the positions of the project control monuments within acceptable tolerance.

County Control mark designated 067 has a published height. Of 1189.29  
 Survey height. = 1189.45.

County Control mark designated 126 has a published height. Of 1218.54  
 Survey height. = 1218.55

### Horizontal Control

Horizontal Control was established on 3 monuments on the project designated as points 13, 67 and 126. These monuments are stable and are expected to hold vertical reasonably well. The horizontal datum is NAD83(2011) (EPOCH 2010.00). Datum was transferred from the Iowa RTN reference station at LeMars to the projects monuments mentioned above by using concurrent 6 hour static measurements and post processing connecting vectors. Iowa Regional Coordinate System Zone 4 is used. The Zone 4 coordinates used at the LeMars reference station are: N= 8699224.17, E= 14146951.66. See [http://www.iowadot.gov/rtn/pdfs/IaRCS/IaRCS\\_04\\_SiouxCity\\_IowaFalls.pdf](http://www.iowadot.gov/rtn/pdfs/IaRCS/IaRCS_04_SiouxCity_IowaFalls.pdf) for information regarding Iowa Regional Coordinate System Zone 4.

### Survey Alignment Information

The horizontal alignment for this survey is prepared by the District 3 ROW office.

### Utility Information

District 3 Office utility coordinator will provide required utility information for this project.

## HORIZONTAL AND VERTICAL CONTROL BENCHMARK COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

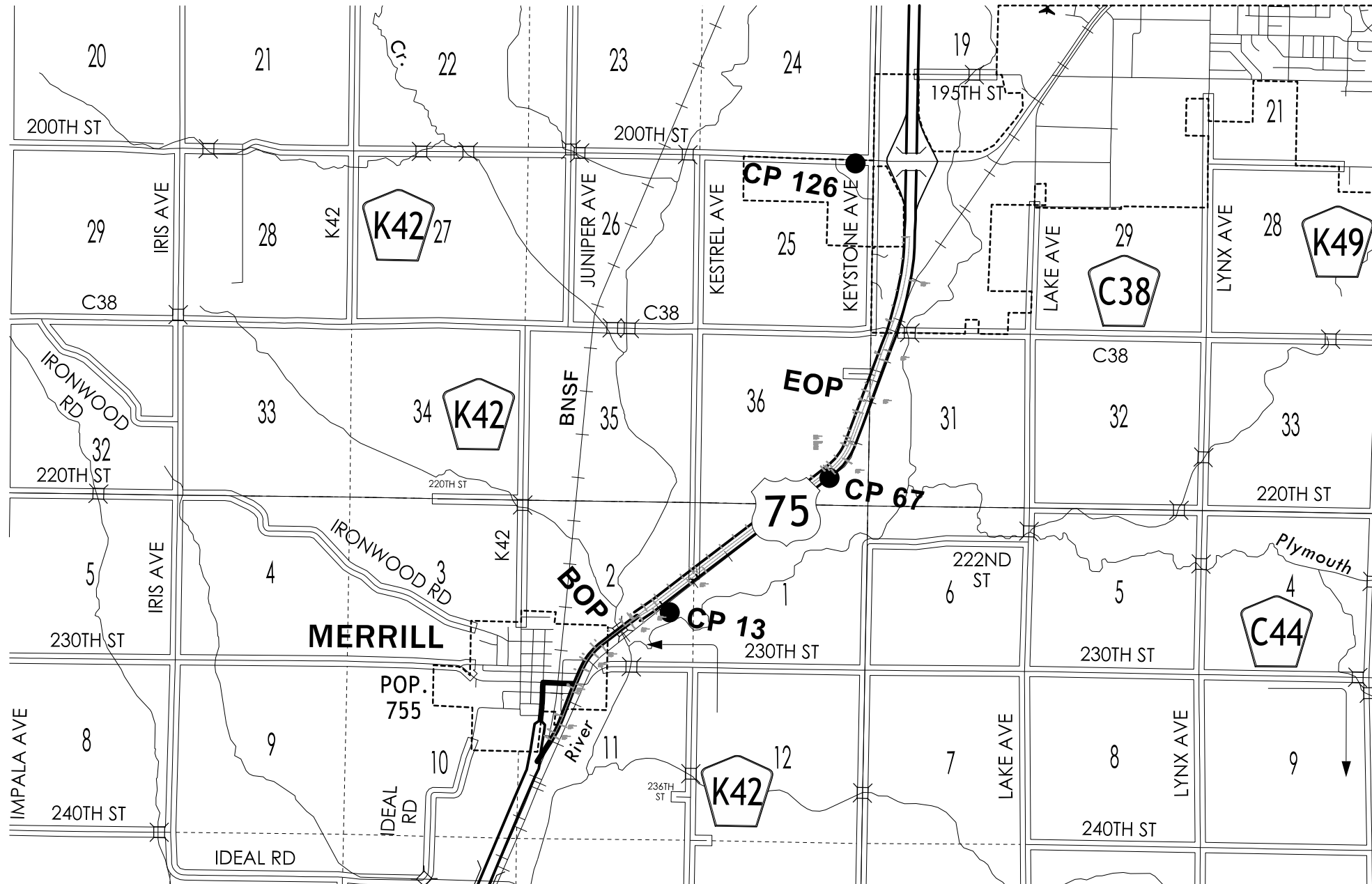
VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 4

Point	North	East	Elevation	Description	Station - North Bound Lane	Offset
13	8673332.3050	14122460.3940	1175.3250	T BAR	665+09.33	22.7203
67	8677436.5020	14127875.8860	1189.4460	PLYMOUTH COUNTY MONUMENT	733+02.35	44.4010
126	8687066.9080	14129254.5360	1218.5510	PLYMOUTH COUNTY MONUMENT	Off Chain	Off Chain

### CONTROL POINT VICINITY MAP

This map is a guide to the vicinity of the primary project control points  
 Primary control is for use with RTK base stations and for RTN validation.  
 Future surveys will use primary project control to establish temporary control as needed for construction or other surveying applications.



HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 4

Coordinate listing from previous sheet will be used with 1aRTN for monument recovery. No other reference ties are given.

ALIGNMENT COORDINATES

101-16  
10-20-09

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
Existing US75	SB																		
7055	SBL	657+12.79	8,672,930.69	14,121,770.04															
SBL1							680+58.30	8,674,360.04	14,123,629.71	683+58.30	8,674,542.86	14,123,867.57	686+58.29	8,674,723.29	14,124,107.25				
SBL2							711+96.09	8,676,249.58	14,126,134.78	714+96.09	8,676,430.00	14,126,374.46	717+96.09	8,676,612.75	14,126,612.37				
SBLB					734+23.82	8,677,604.29	14,127,903.24			735+90.52	8,677,705.84	14,128,035.45				736+73.82	8,677,760.83	14,128,098.10	
SBL							736+73.82	8,677,760.83	14,128,098.10	740+90.32	8,678,035.61	14,128,411.11	744+93.98	8,678,415.77	14,128,581.28				
SBLA					744+93.98	8,678,415.77	14,128,581.28			745+77.35	8,678,491.86	14,128,615.34				747+43.98	8,678,648.15	14,128,673.35	
LBBSBL1							755+91.07	8,679,442.29	14,128,968.13	761+92.13	8,680,005.78	14,129,177.29	767+92.66	8,680,583.06	14,129,344.69				
LBBSBL2							767+92.66	8,680,583.06	14,129,344.69	773+93.72	8,681,160.34	14,129,512.09	779+94.24	8,681,723.83	14,129,721.25				
Existing US75	NB	NBL																	
JS126			2657+11.50	8,672,911.66	14,121,784.67														
NBL1							2658+76.87	8,673,012.44	14,121,915.78	2660+52.07	8,673,119.20	14,122,054.69	2662+26.83	8,673,208.27	14,122,205.57				
NBL2							2665+16.30	8,673,355.41	14,122,454.84	2666+91.50	8,673,444.47	14,122,605.72	2668+66.26	8,673,551.19	14,122,744.66				
NBL3							2735+61.82	8,677,629.78	14,128,054.62	2741+36.92	8,677,980.10	14,128,510.71	2746+81.77	8,678,519.25	14,128,710.84				
JS130			2756+23.34	8,679,407.93	14,129,040.71														
Existing US75																			
MERRILL1	MERRILL						1607+38.48	8,669,436.49	14,119,517.05	1608+61.45	8,669,539.81	14,119,583.74	1609+84.27	8,669,648.48	14,119,641.30				
MERRILL2							1609+84.27	8,669,648.48	14,119,641.30	1612+63.62	8,669,895.34	14,119,772.05	1615+42.33	8,670,155.80	14,119,873.02				
MERRILL3							1623+38.71	8,670,898.34	14,120,160.86	1624+72.42	8,671,023.01	14,120,209.19	1626+06.07	8,671,145.19	14,120,263.52				
MERRILL4							1631+03.57	8,671,599.77	14,120,465.65	1633+92.21	8,671,863.51	14,120,582.93	1636+77.57	8,672,088.05	14,120,764.30				
MERRILL5							1636+77.57	8,672,088.05	14,120,764.30	1638+61.03	8,672,230.77	14,120,879.58	1640+42.79	8,672,342.58	14,121,025.03				
JS113			1652+84.41	8,673,099.31	14,122,009.40														
Existing US75																			
JS112	LBB		755+90.39	8,679,421.85	14,129,003.20														
LBBS3							759+63.12	8,679,771.29	14,129,132.90	761+23.29	8,679,921.45	14,129,188.63	762+83.40	8,680,074.15	14,129,236.96				
LBBS2							773+07.86	8,681,050.87	14,129,546.08	774+68.02	8,681,203.56	14,129,594.41	776+28.12	8,681,353.72	14,129,650.13				
LBBS1							785+42.72	8,682,211.19	14,129,968.33	798+78.83	8,683,463.82	14,130,433.17	811+89.72	8,684,799.68	14,130,458.76				
Proposed US75	SB																		
7055	SBL075	657+12.79	8,672,930.69	14,121,770.04															
SBL1							680+58.30	8,674,360.04	14,123,629.71	683+58.30	8,674,542.86	14,123,867.57	686+58.29	8,674,723.29	14,124,107.25				
SBL2							711+96.09	8,676,249.58	14,126,134.78	714+96.09	8,676,430.00	14,126,374.46	717+96.09	8,676,612.75	14,126,612.37				
7201							734+36.89	8,677,612.25	14,127,913.61	740+98.73	8,678,015.41	14,128,438.48	747+25.75	8,678,635.89	14,128,668.80				
LBBSBL1							755+91.07	8,679,442.29	14,128,968.13	761+92.13	8,680,005.78	14,129,177.29	767+92.66	8,680,583.06	14,129,344.69				
LBBSBL2							767+92.66	8,680,583.06	14,129,344.69	773+93.72	8,681,160.34	14,129,512.09	779+94.24	8,681,723.83	14,129,721.25				
Proposed US75	NB																		
20001	NBL075	2657+11.50	8,672,911.66	14,121,784.67															
20004							2659+26.87	8,673,042.91	14,121,955.43	2660+81.38	8,673,137.07	14,122,077.93	2662+35.70	8,673,220.07	14,122,208.26				
20005							2665+50.70	8,673,389.27	14,122,473.96	2666+93.62	8,673,466.05	14,122,594.52	2668+36.39	8,673,552.40	14,122,708.41				
20012							2704+54.18	8,675,738.07	14,125,591.33	2704+98.21	8,675,764.67	14,125,626.42	2705+42.25	8,675,791.50	14,125,661.34				
7202							2734+73.29	8,677,576.93	14,127,985.82	2741+35.14	8,677,980.10	14,128,510.71	2747+62.17	8,678,600.58	14,128,741.03				
JS130			2756+23.34	8,679,407.93	14,129,040.71														
Kestrel Ave																			
31000	SR_KEST	3683+65.36	8,674,546.54	14,123,873.65															
31001		3688+82.03	8,675,063.10	14,123,884.31															
Kestrel Ave Return																			
RET_1-1	RET_1						0+00.00	8,674,646.29	14,123,968.72	1+03.21	8,674,584.00	14,123,886.42	1+11.97	8,674,687.19	14,123,888.55				
Kestrel Ave Return																			
31300	RET_2	0+00.00	8,674,656.40	14,123,863.91															
RET_2-1							0+61.38	8,674,595.47	14,123,856.54	0+99.41	8,674,557.72	14,123,851.98	1+33.34	8,674,534.68	14,123,821.73				
Entrance LT																			
32000	ENT656	0+00.00	8,673,072.97	14,121,955.16															
32001		1+69.20	8,673,213.98	14,121,861.64															
Entrance LT																			
32010	ENT708	0+00.00	8,676,041.32	14,125,858.14															
32011		1+53.75	8,676,163.25	14,125,764.48															
Entrance LT																			
32020	ENT715	0+00.00	8,676,439.00	14,126,385.09															
32021		1+11.60	8,676,527.93	14,126,317.67															
Entrance LT																			
32030	ENT719	0+00.00	8,676,706.50	14,126,734.43															
ENT719-1							0+37.53	8,676,736.27	14,126,711.57	0+54.51	8,676,749.74	14,126,701.22	0+70.28	8,676,766.72	14,126,701.22				
32031		2+06.38	8,676,902.82	14,126,701.22															
Entrance LT																			
32040	ENT732	0+00.00	8,677,519.73	14,127,793.16															
32041		1+76.10	8,677,659.39	14,127,685.88															
Entrance LT																			
30050	ENT747	0+00.00	8,678,684.72	14,128,686.93															
ENT747-1							0+78.01	8,678,711.87	14,128,613.79	0+86.24	8,678,714.73	14,128,606.08	0+94.44	8,678,716.52	14,128,598.05				
30051		1+67.44	8,678,732.35	14,128,526.78															
Entrance RT																			
32060	ENT2682	0+00.00	8,674,379.94	14,															

ALIGNMENT COORDINATES

101-16  
10-20-09

Name	Location	Point on Tangent		Begin Spiral		Begin Curve		Simple Curve PI or Master PI of SCS		End Curve		End Spiral	
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
Entrance RT													
32070	ENT2718	0+00.00	8,676,574.84	14,126,681.19									
32071		1+01.20	8,676,477.36	14,126,708.38									
Entrance RT													
32080	ENT2732	0+00.00	8,677,462.98	14,127,837.46									
32081		1+27.78	8,677,353.67	14,127,903.63									
Entrance Kestrel Ave													
31100	ENT3685	0+00.00	8,674,755.20	14,123,877.96									
31101		0+93.53	8,674,800.28	14,123,959.90									

SPIRAL OR CIRCULAR CURVE DATA

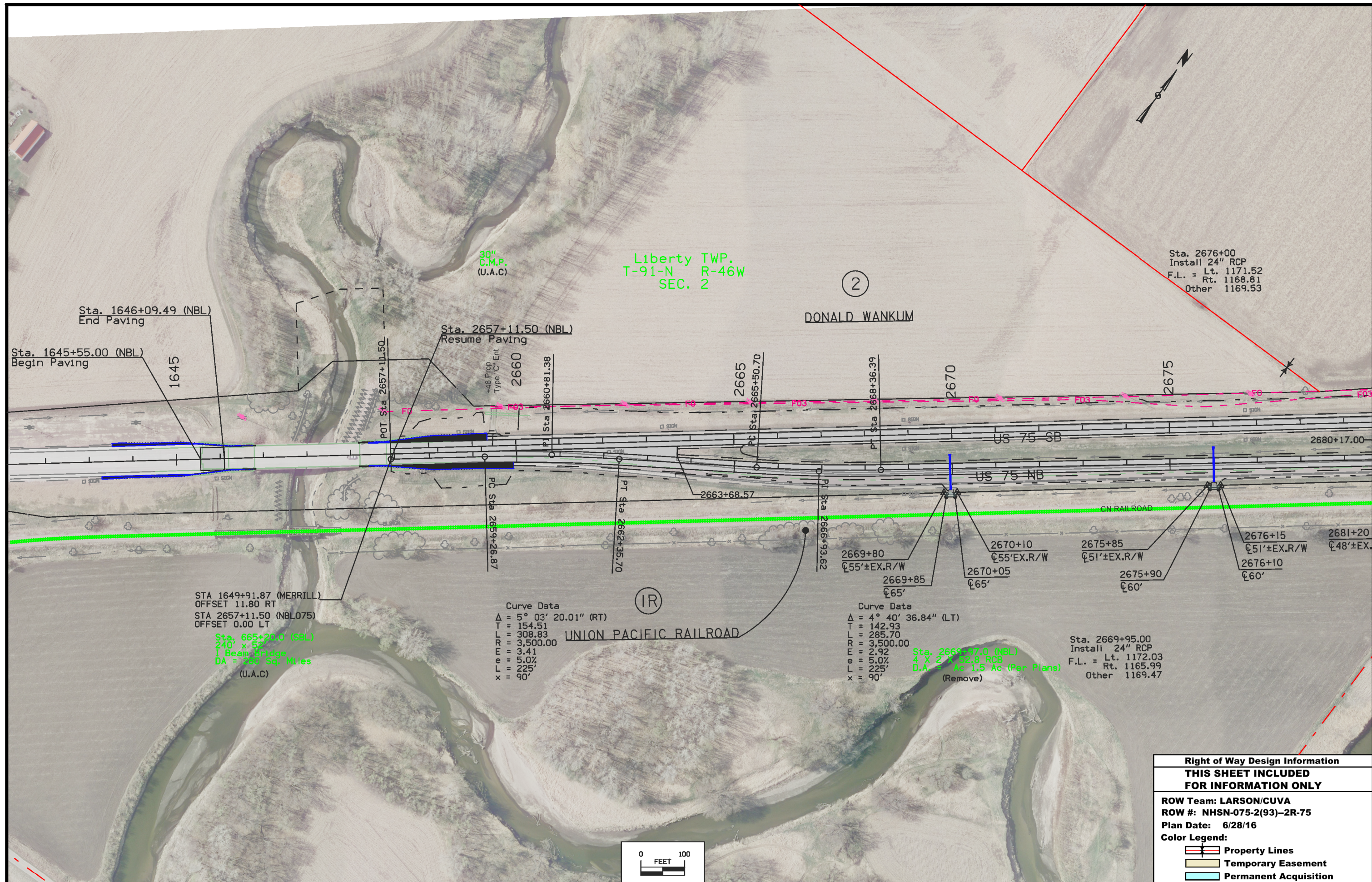
101-17  
04-19-11

Name	Location	Δ <sub>scs</sub>	Horizontal Alignment Data											Remarks	
			Spiral Data				Curve Data				Curve Data				
			θ <sub>s</sub>	L <sub>s</sub>	T <sub>s</sub>	E <sub>s</sub>	X <sub>c</sub>	Y <sub>c</sub>	L.T.	S.T.	Δ <sub>c</sub>	T	L	R	E
SBL1	SBL										0° 34' 27.74" RT	300.00'	599.99'	59,851.78'	0.75'
SBL2											0° 33' 24.27" LT	300.00'	600.00'	61,747.08'	0.73'
SBL											24° 36' 23.62" LT	416.51'	820.17'	1,909.74'	44.89'
LBBSBL1											4° 11' 36.40" LT	601.06'	1,201.58'	16,417.45'	11.00'
LBBSBL2											4° 11' 36.40" RT	601.06'	1,201.58'	16,417.45'	11.00'
NBL1	NBL										6° 59' 34.75" RT	175.20'	349.96'	2,867.38'	5.35'
NBL2											6° 58' 29.11" LT	175.20'	349.97'	2,874.89'	5.33'
NBL3											32° 06' 27.48" LT	575.10'	1,119.94'	1,998.53'	81.10'
MERRILL1	MERRILL										4° 56' 03.77" LT	122.97'	245.79'	2,854.00'	2.65'
MERRILL2											6° 43' 10.17" LT	279.35'	558.06'	4,758.46'	8.19'
MERRILL3											2° 47' 02.27" RT	133.71'	267.37'	5,502.59'	1.62'
MERRILL4											14° 57' 24.61" RT	288.64'	574.00'	2,198.84'	18.86'
MERRILL5											13° 31' 09.42" RT	183.46'	365.22'	1,547.83'	10.83'
LBB3	LBB										2° 47' 58.55" LT	160.17'	320.28'	6,554.69'	1.96'
LBB2											2° 47' 50.90" RT	160.16'	320.26'	6,559.26'	1.96'
LBB1											19° 15' 43.71" LT	1,336.11'	2,646.99'	7,873.56'	112.56'
SBL1	SBL075										0° 34' 27.74" RT	300.00'	599.99'	59,851.78'	0.75'
SBL2											0° 33' 24.27" LT	300.00'	600.00'	61,747.08'	0.73'
7201											32° 06' 25.31" LT	661.84'	1,288.86'	2,300.00'	93.33'
LBBSBL1											4° 11' 36.40" LT	601.06'	1,201.58'	16,417.45'	11.00'
LBBSBL2											4° 11' 36.40" RT	601.06'	1,201.58'	16,417.45'	11.00'
20004	NBL075										5° 03' 20.01" RT	154.51'	308.83'	3,500.00'	3.41'
20005											4° 40' 36.84" LT	142.93'	285.70'	3,500.00'	2.92'
20012											0° 21' 37.53" LT	44.03'	88.07'	14,000.00'	0.07'
7202											32° 06' 27.48" LT	661.85'	1,288.88'	2,300.00'	93.33'
RET_1-1	RET_1										128° 18' 18.36" RT	103.21'	111.97'	50.00'	64.69'
RET_2-1	RET_2										45° 48' 27.70" RT	38.02'	71.95'	90.00'	7.70'

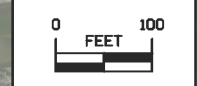
Plymouth ROW: NHSN-075-2(93)--2R-75  
 Jackson St in Merrill to Co Rd C38

PIN 16-75-075-010

PARCEL NO.	OWNER NAME	STATE		COUNTY		CITY		EXCESS	BORROW				TOTAL ACQ.	
		FEE	EASE	FEE	EASE	FEE	EASE		FEE	T.E.	MITIGATION	OTHER HOUSE		BUILDING(S)
1R	Union Pacific Railroad - Fee		0.28 AC											
2	Ahlers Family Farms LLC - Fee		0.03 AC											
3	David A. Pick - Fee		0.15 AC											
4	Jacqueline Montagne - Fee		0.08 AC											
5	Robert W Williams Jr - Fee													
6	Jay D Bloyer - Fee													
7	Northwest Iowa Power Co-op - Fee													
8	Jay D. Bloyer - Fee													
9	Eunice Lehner - Fee													
10	Northwest Iowa Power Co-op - Fee													
11	Capital Management, LLC. - Fee													
11A	Smith Co. - Fee													
12 Parcels	"TOTALS	0 AC	0.54 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC		
		0 SF		0 SF	0 SF	0 SF	0 SF	0 SF	0 SF					



<b>Right of Way Design Information</b>	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: LARSON/CUVA	
ROW #: NHSN-075-2(93)--2R-75	
Plan Date: 6/28/16	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition



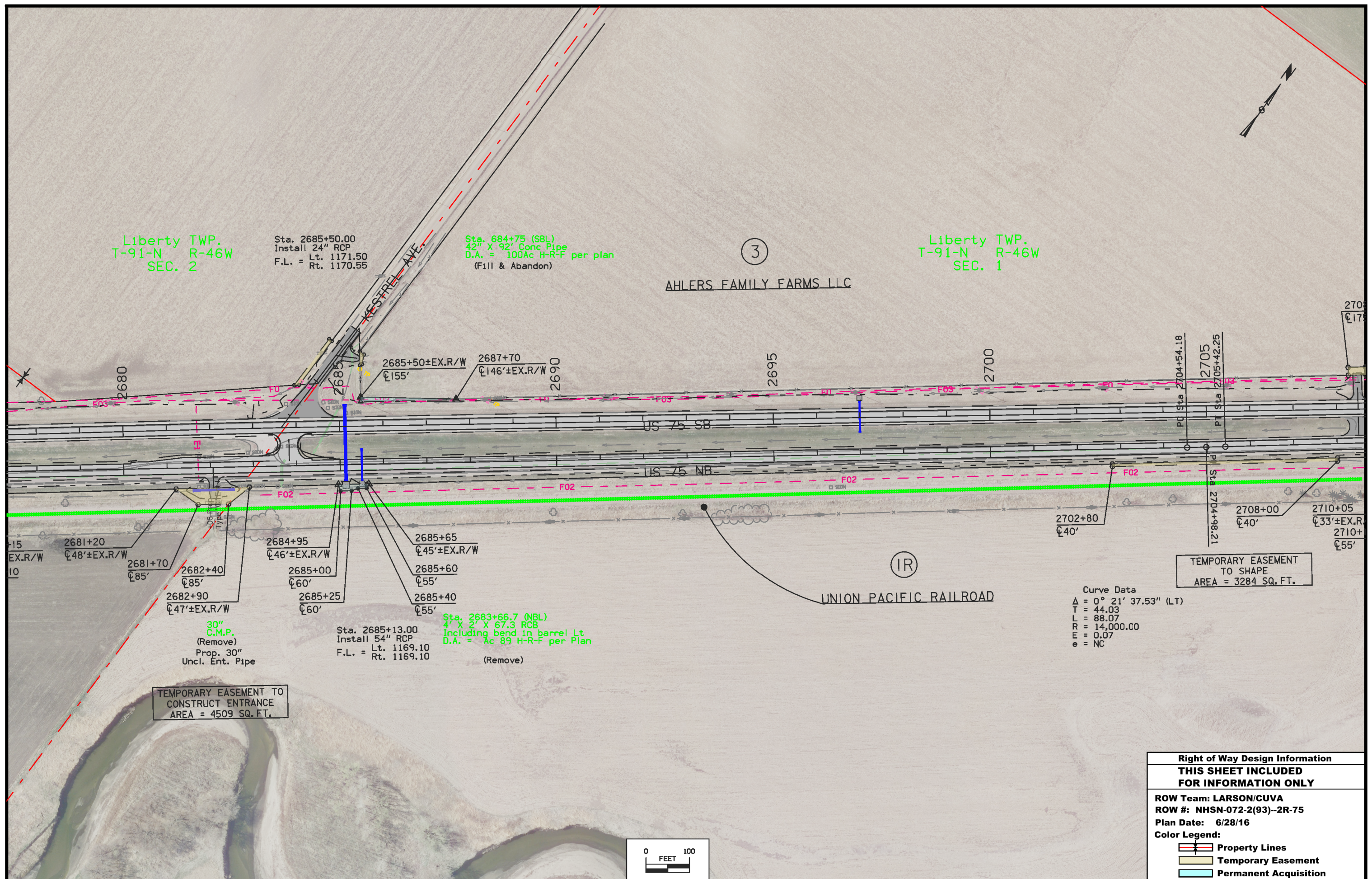
Liberty TWP.  
T-91-N R-46W  
SEC. 2

Sta. 2685+50.00  
Install 24" RCP  
Lt. 1171.50  
F.L. = Rt. 1170.55

Sta. 684+75 (SBL)  
42" X 92' Conc Pipe  
D.A. = 100Ac H-R-F per plan  
(Fill & Abandon)

Liberty TWP.  
T-91-N R-46W  
SEC. 1

3  
AHLERS FAMILY FARMS LLC



TEMPORARY EASEMENT TO SHAPE  
AREA = 3284 SQ. FT.

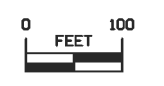
TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE  
AREA = 4509 SQ. FT.

Curve Data  
Δ = 0° 21' 37.53" (LT)  
T = 44.03  
L = 88.07  
R = 14,000.00  
E = 0.07  
e = NC

Sta. 2683+66.7 (NBL)  
4" X 2" X 67.3 RCB  
Including bend in barrel Lt  
D.A. = 1 Ac 89 H-R-F per Plan  
(Remove)

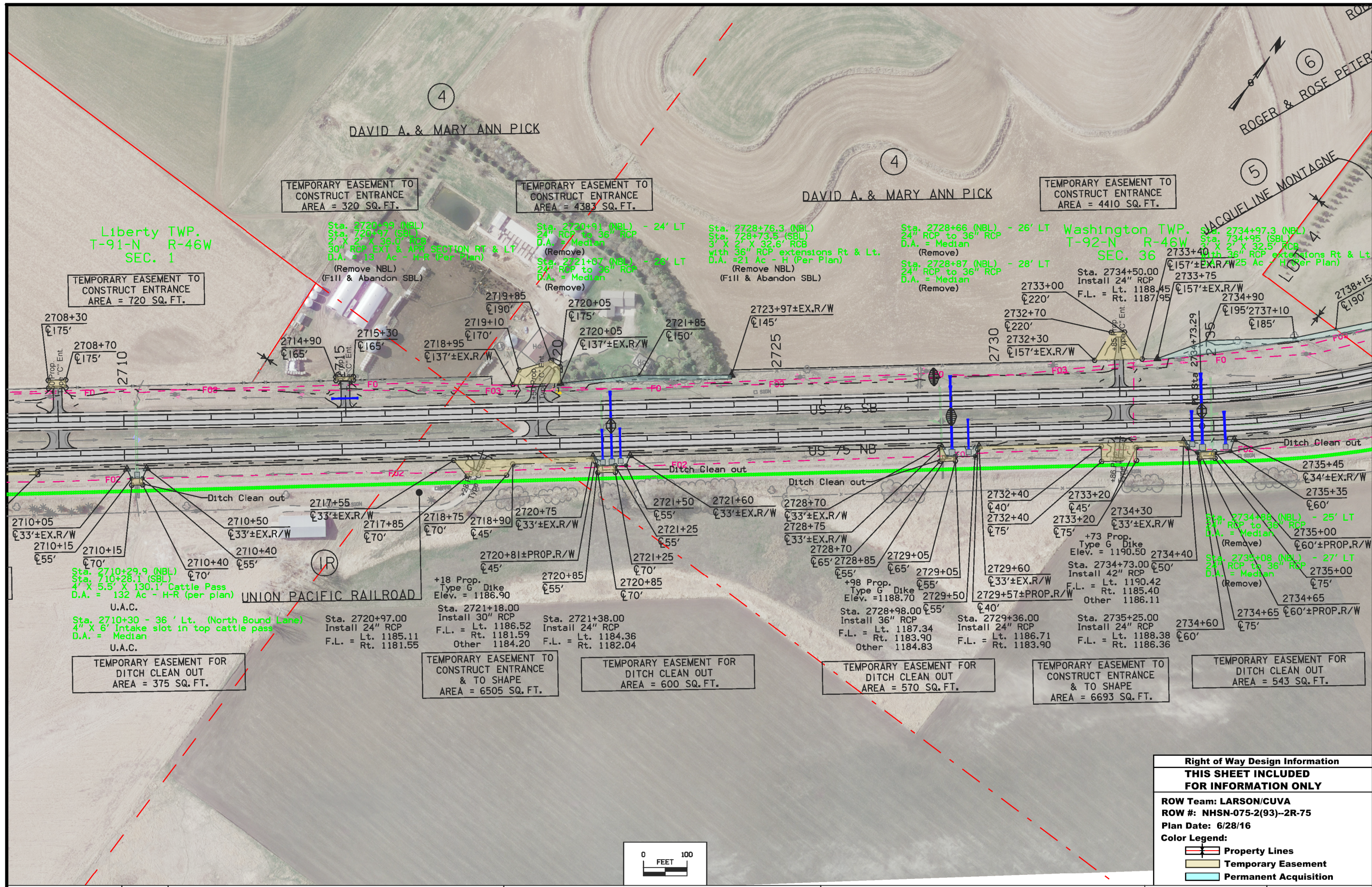
Sta. 2685+13.00  
Install 54" RCP  
Lt. 1169.10  
F.L. = Rt. 1169.10

30" C.M.P.  
(Remove)  
Prop. 30"  
Uncl. Ent. Pipe

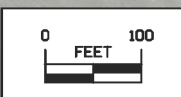


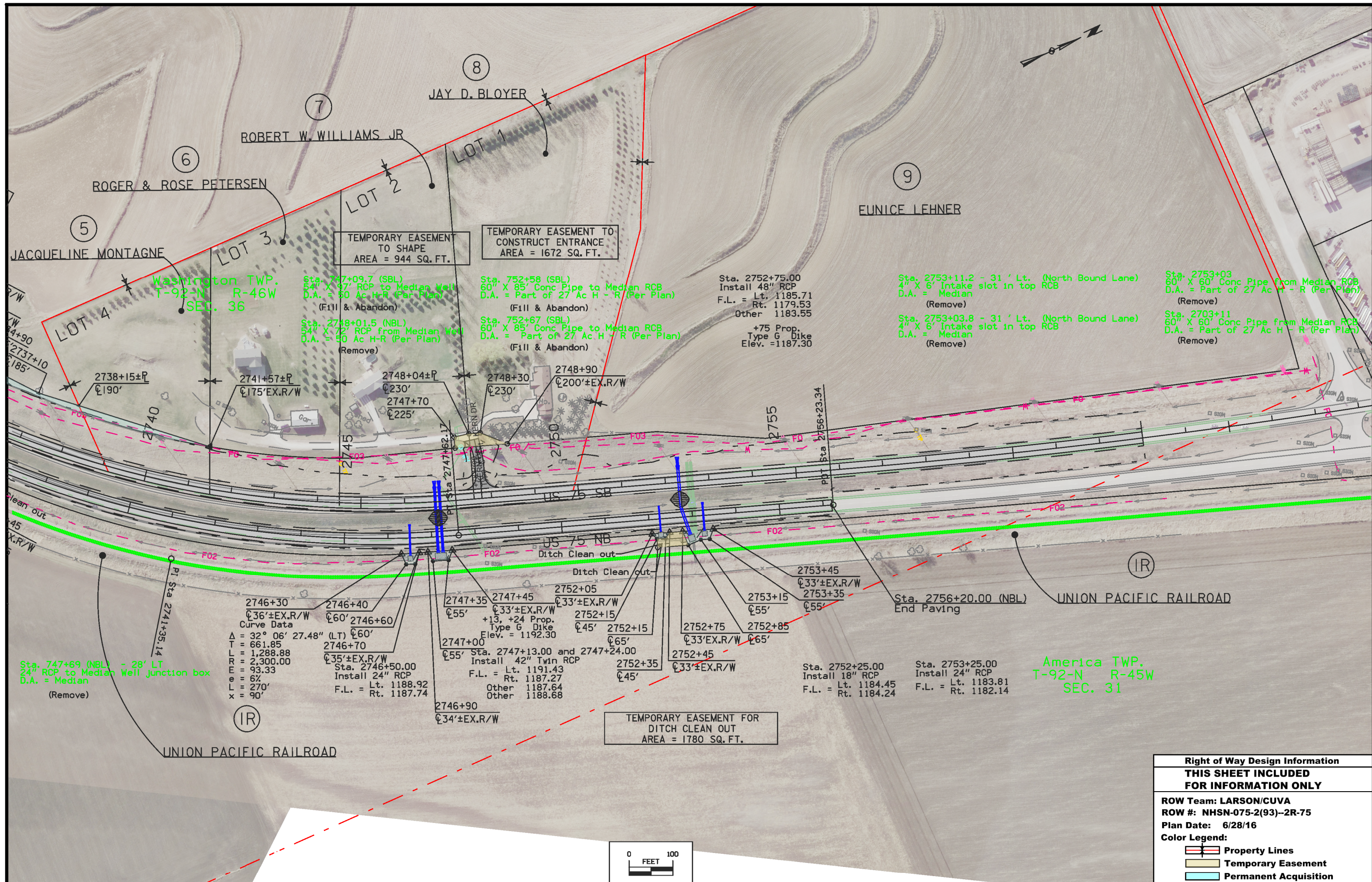
Right of Way Design Information	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: LARSON/CUVA	
ROW #: NHSN-072-2(93)--2R-75	
Plan Date: 6/28/16	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition





<b>Right of Way Design Information</b>	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: LARSON/CUVA	
ROW #: NHSN-075-2(93)--2R-75	
Plan Date: 6/28/16	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition





Washington TWP. T-92-N R-46W SEC. 36

Washington TWP. T-92-N R-45W SEC. 31

Sta. 747+09.7 (SBL) 54" X 97' RCP to Median Well D.A. = 50 Ac H-R (Per Plan) (Fill & Abandon)

Sta. 2748+01.5 (NBL) 54" X 72' RCP from Median Well D.A. = 50 Ac H-R (Per Plan) (Remove)

Sta. 752+58 (SBL) 60" X 85' Conc Pipe to Median RCB D.A. = Part of 27 Ac H-R (Per Plan) (Fill & Abandon)

Sta. 752+67 (SBL) 60" X 85' Conc Pipe to Median RCB D.A. = Part of 27 Ac H-R (Per Plan) (Fill & Abandon)

Sta. 2752+75.00 Install 48" RCP F.L. = Lt. 1185.71 Rt. 1179.53 Other 1183.55 +75 Prop. Type G Dike Elev. = 1187.30

Sta. 2753+11.2 - 31' Lt. (North Bound Lane) 4" X 6" Intake slot in top RCB D.A. = Median (Remove)

Sta. 2753+03 60" X 60' Conc Pipe from Median RCB D.A. = Part of 27 Ac H-R (Per Plan) (Remove)

Sta. 2703+11 60" X 60' Conc Pipe from Median RCB D.A. = Part of 27 Ac H-R (Per Plan) (Remove)

Sta. 747+69 (NBL) - 28' LT 24" RCP to Median Well junction box D.A. = Median (Remove)

Curve Data  
 $\Delta = 32^\circ 06' 27.48''$  (LT)  $\phi 60'$   
 $T = 661.85$   
 $L = 1,288.88$   
 $R = 2,300.00$   
 $E = 93.33$   
 $e = 6\%$   
 $L = 270'$   
 $x = 90'$

Sta. 2746+30  $\phi 36'$  EX.R/W  
 Sta. 2746+40  $\phi 60'$  EX.R/W  
 Sta. 2746+70  $\phi 35'$  EX.R/W  
 Sta. 2746+50.00 Install 24" RCP F.L. = Lt. 1188.92 Rt. 1187.74

Sta. 2747+00  $\phi 55'$  EX.R/W  
 Sta. 2747+13.00 and 2747+24.00 Install 42" Twin RCP F.L. = Lt. 1191.43 Rt. 1187.27 Other 1187.64 Other 1188.68

Sta. 2752+05  $\phi 33'$  EX.R/W  
 Sta. 2752+15  $\phi 45'$  EX.R/W  
 Sta. 2752+15  $\phi 65'$  EX.R/W  
 Sta. 2752+45  $\phi 33'$  EX.R/W  
 Sta. 2752+25.00 Install 18" RCP F.L. = Lt. 1184.45 Rt. 1184.24

Sta. 2753+15  $\phi 55'$  EX.R/W  
 Sta. 2753+35  $\phi 55'$  EX.R/W  
 Sta. 2753+25.00 Install 24" RCP F.L. = Lt. 1183.81 Rt. 1182.14

Sta. 2756+20.00 (NBL) End Paving

2746+30  $\phi 36'$  EX.R/W  
 2746+40  $\phi 60'$  EX.R/W  
 2746+70  $\phi 35'$  EX.R/W  
 2746+50.00  
 2747+00  $\phi 55'$  EX.R/W

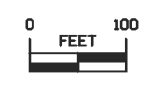
2747+35  $\phi 55'$  EX.R/W  
 2747+45  $\phi 33'$  EX.R/W  
 2752+05  $\phi 33'$  EX.R/W  
 2752+15  $\phi 45'$  EX.R/W  
 2752+15  $\phi 65'$  EX.R/W  
 2752+45  $\phi 33'$  EX.R/W

2753+45  $\phi 33'$  EX.R/W  
 2753+15  $\phi 55'$  EX.R/W  
 2753+35  $\phi 55'$  EX.R/W  
 2752+25.00  
 2753+25.00

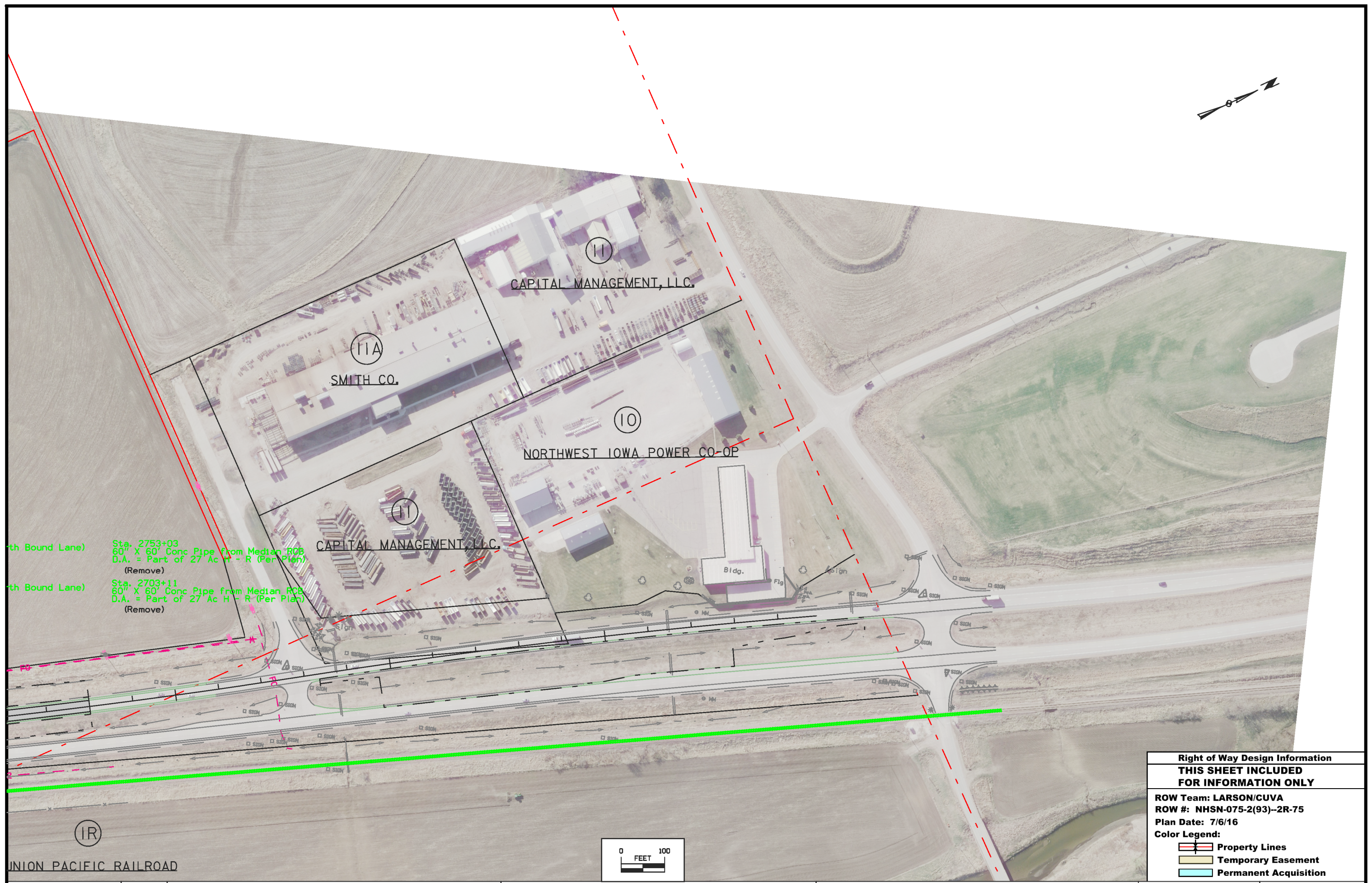
TEMPORARY EASEMENT FOR DITCH CLEAN OUT AREA = 1780 SQ. FT.

UNION PACIFIC RAILROAD

UNION PACIFIC RAILROAD



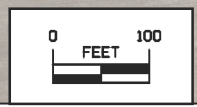
<b>Right of Way Design Information</b>	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: LARSON/CUVA	
ROW #: NHSN-075-2(93)--2R-75	
Plan Date: 6/28/16	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

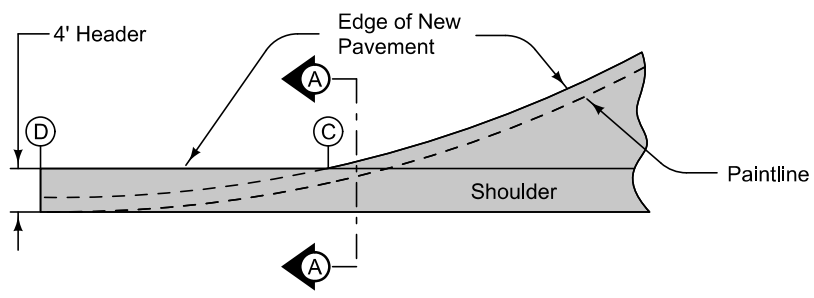


th Bound Lane) Sta. 2753+03  
 60" X 60" Conc Pipe from Median RCB  
 D.A. = Part of 27 Ac H - R (Per Plan)  
 (Remove)

th Bound Lane) Sta. 2703+11  
 60" X 60" Conc Pipe from Median RCB  
 D.A. = Part of 27 Ac H - R (Per Plan)  
 (Remove)

<b>Right of Way Design Information</b>	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: LARSON/CUVA	
ROW #: NHSN-075-2(93)--2R-75	
Plan Date: 7/6/16	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition





Detour Pavement

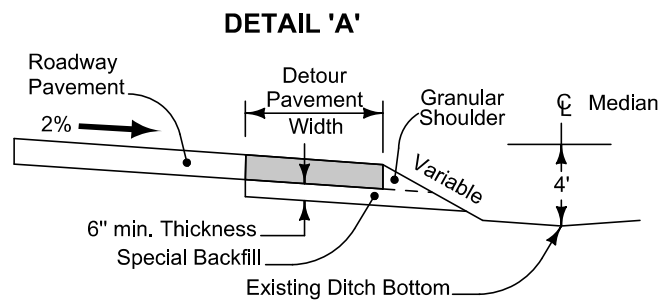
DESIGN QUANTITY TABLE		
Detour Pavement Sq. Yds.	Special Backfill Tons	Granular Shoulder Tons
5,220.7	1,990.6	235.4

Detour Pavement options: 9" PCC or 12" HMA  
For joint details, see PV-101.

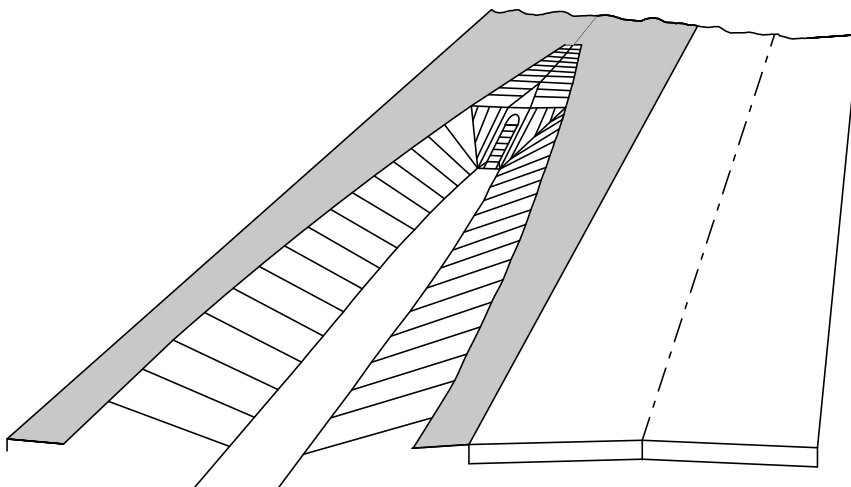
Contract Items:  
Granular Shoulders, Type A  
Detour Pavement  
Embankment In Place  
Excavation, Class 10, Roadway and Borrow  
Excavation, Class 13, Roadway and Borrow  
Removal of Pavement  
Special Backfill

Tabulation:  
112-8

- ① Beveled pipe and guard. See DR-212.
- ② Slotted drain for median crossover. See Detail Sheet U.2
- ③ 'BT-3' joint.  
'B' joint if Detour Pavement is HMA.
- ④ For PCC Detour Pavement, 'KT-2' or 'L-2' spaced at one-quarter median width.
- ⑤ For PCC Detour Pavement, match existing roadway joints. 'CD' joints are required.
- ⑥ For PCC Detour Pavement, 2 foot 'C' Joint.



DETAIL 'A'



PERSPECTIVE VIEW  
DITCH SLOPE AND BEVELED PIPE

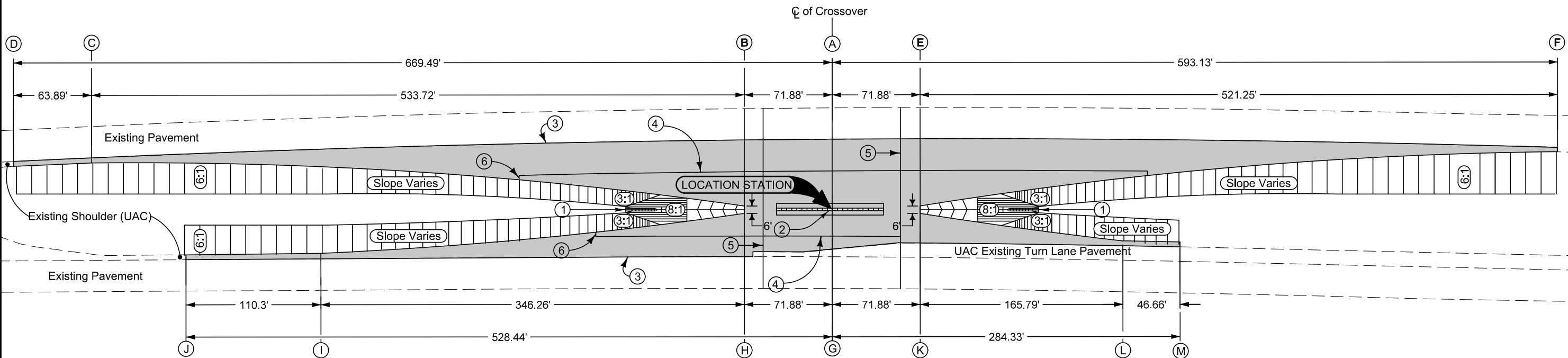
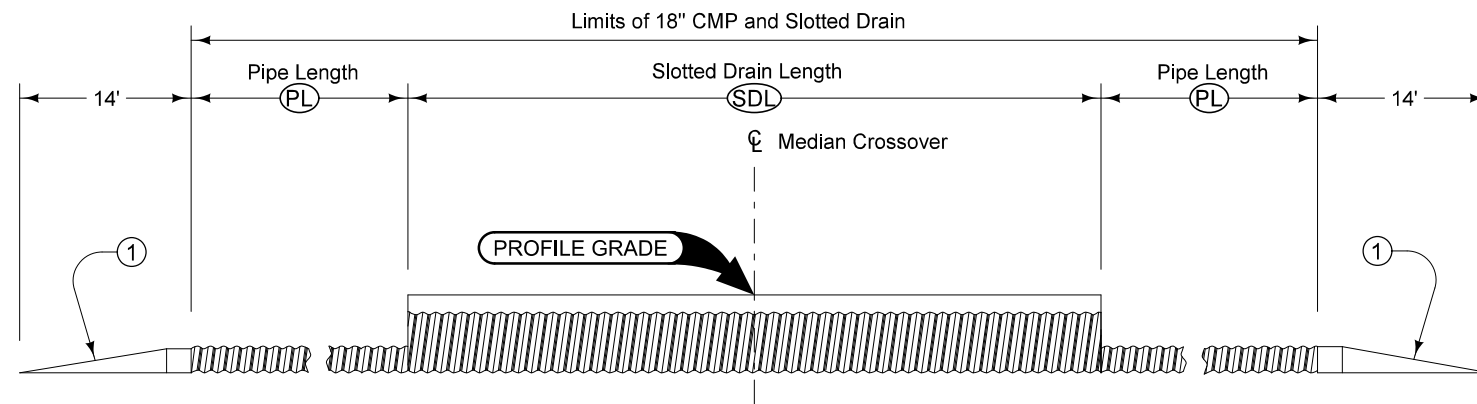


TABLE OF OFFSETS AND DROPS (PAVED SHOULDERS)

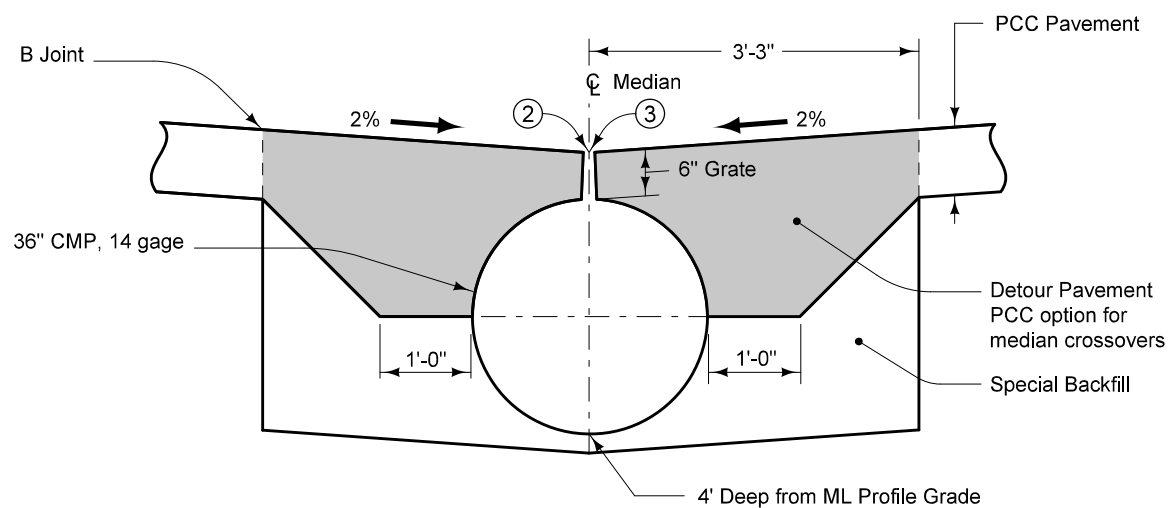
Distance from Location Station (Feet)	669.49	625.0	605.6	575	550	500	450	400	350	300	250	200	150	125	100	71.88	50	0	50	71.88	100	125	150	175	200	250	300	350	450	500	550	575	593.13	
Offset from inside edge of Pavement (Feet)	4.00	4.00	4.00	5.30	6.39	8.95	12.06	15.67	19.99	24.69	30.08	36.15	42.58	46.04	49.68	57	57.16	57.55	57.77	57.83	50.50	46.82	43.29	39.80	36.51	30.37	24.78	19.77	15.34	11.47	8.16	6.73	4.00	
Cross-Slope from inside edge of Pavement	4.00%	3.05%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	1.50%	1.50%	1.50%	1.50%	1.50%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	4.00%	
Drop from inside edge of Pavement (Feet)	0.24	0.18	0.08	0.11	0.13	0.12	0.24	0.31	0.40	0.49	0.60	0.72	0.85	0.92	0.99	0.86	0.86	0.86	0.87	0.87	1.01	0.94	0.87	0.80	0.73	0.61	0.5	0.4	0.31	0.23	0.16	0.13	0.16	
POINT LOCATION	(D)	(C)														(B)	(A)		(E)														(D)	
Distance from Location Station (Feet)			528.44	500	475	450	418.14	400	350	300	250	200	150	125	100	71.88	50	0	50	54	71.88	100	125	150	175	200	225	237.67	250.00	284.33				
Offset from inside edge of Pavement (Feet)			4.00	4.00	4.00	4.00	4.00	5.26	7.78	11.01	14.97	19.67	20.07	28.18	31.48	41.44	34.34	32.48	27.93	27.52	27.43	20.23	16.72	13.47	10.53	7.78	5.23	4.00	4.00	4.00				
Cross-Slope from inside edge of Pavement			4.00%	2.39%	2.09%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	1.93%	1.93%	2.11%	2.33%	2.34%	2.29%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.33%	2.77%	4.00%				
Drop from inside edge of Pavement (Feet)			0.24	0.10	0.08	0.08	0.11	0.16	0.22	0.3	0.39	0.40	0.56	0.63	0.63	0.80	0.66	0.69	0.65	0.64	0.63	0.40	0.33	0.27	0.21	0.16	0.10	0.09	0.11	0.16				
POINT LOCATION			(J)				(I)									(H)	(G)			(K)							(L)	(M)						

**MEDIAN CROSSOVER  
(VARIBLE MEDIAN)**

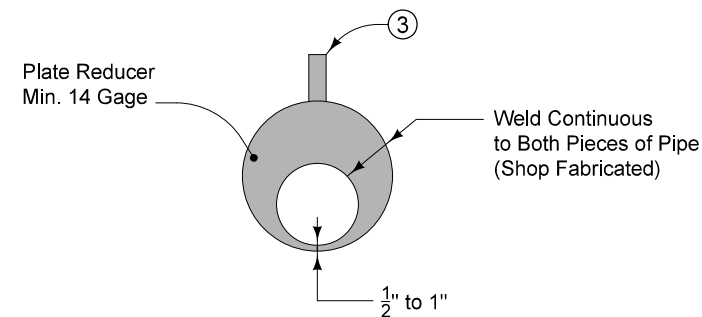


LONGITUDINAL SECTION THROUGH CMP SLOTTED DRAIN ASSEMBLY

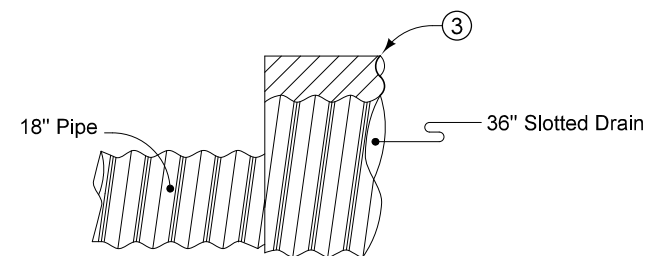
- ① Beveled pipe and guard. See DR-212.
- ② During construction of crossover pavement, cover slotted drain with duct tape or wood block.
- ③ Slotted grate 6 inches high x 1 3/4 inches opening width. Use 3/16 inch material for spacers and bearing bars (sides).



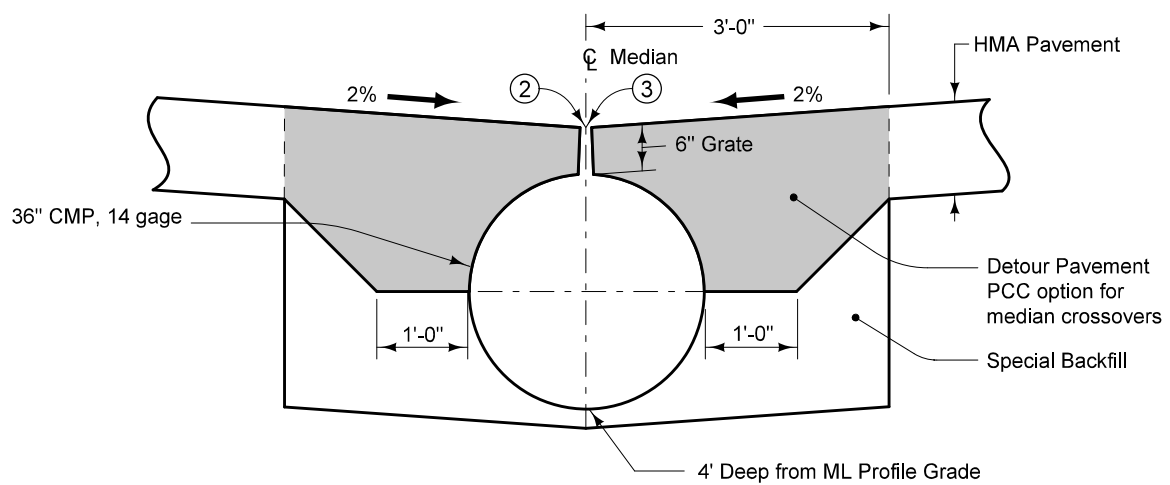
PCC PAVEMENT SITUATION



END VIEW OF PIPE REDUCER



SIDE VIEW OF PIPE REDUCER



HMA PAVEMENT SITUATION

Contract Items:  
 Beveled Pipe and Guard  
 Culvert, Unclassified Roadway Pipe, 18" Dia.  
 Detour Pavement  
 Drain, Corrugated Metal Pipe Slotted, 36", w/6" Grate  
 Special Backfill

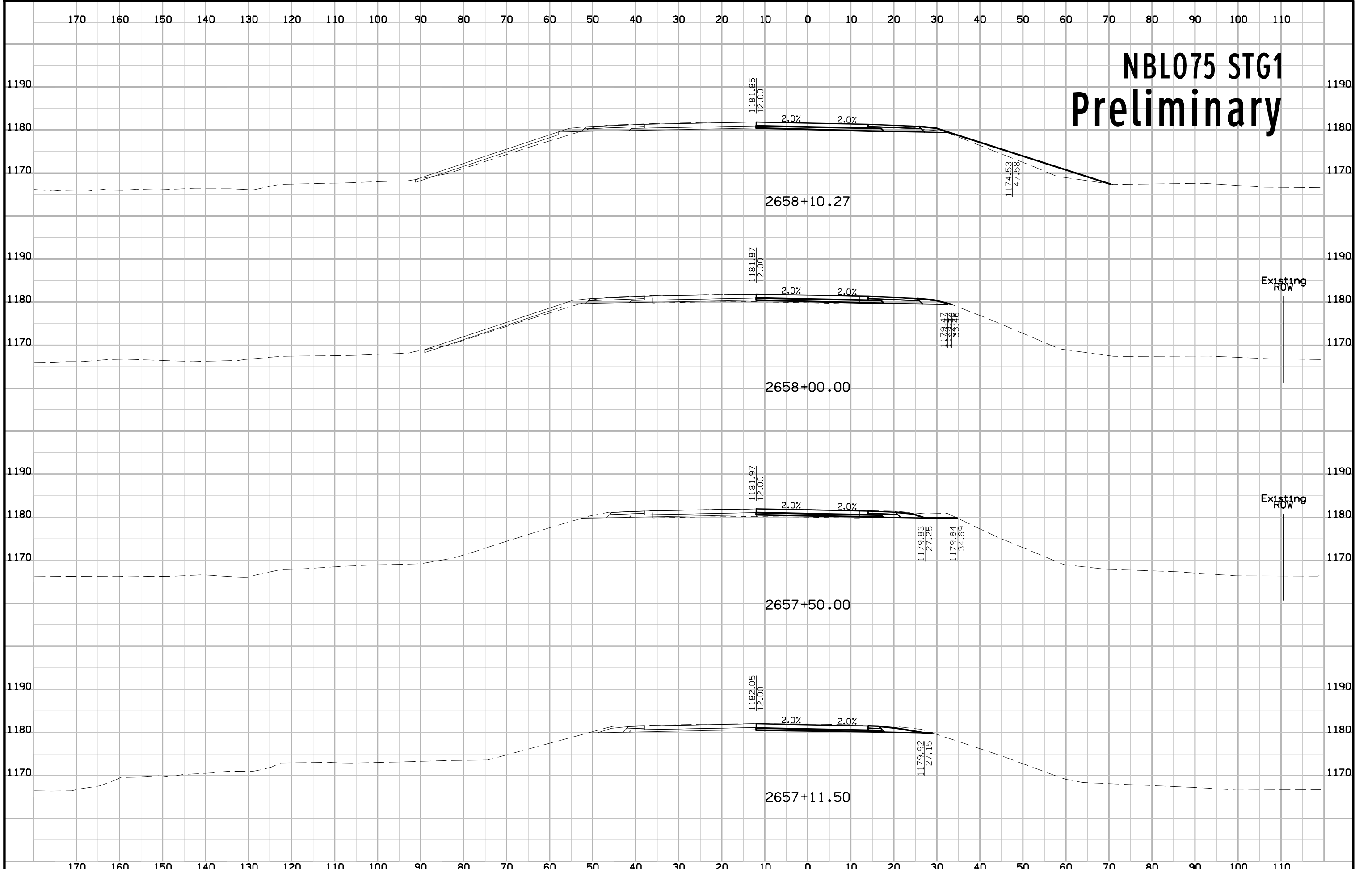
Tabulation:  
 112-8

TABLE OF QUANTITIES	
Median Width	Vari. (U.1)
③ Slotted Drain Length	100'
① Pipe Length	80'
<b>Bid Items</b>	
36" Corrugated Metal Slotted Pipe Drain w/6" Grate	100'
18" dia. Corrugated Metal Roadway Pipe Culvert	160'

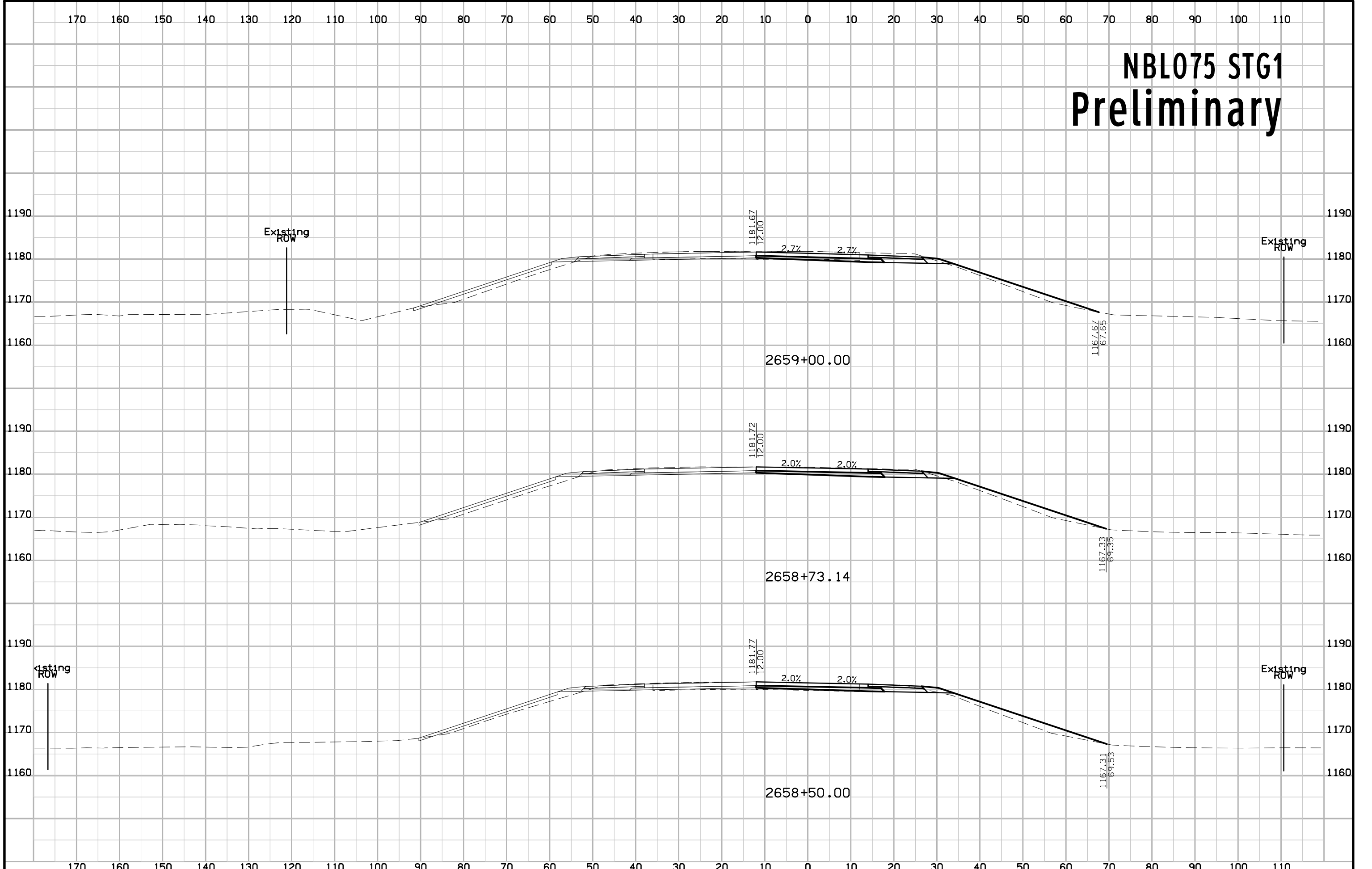
<b>MODIFIED</b>	REVISION	
	1	10-18-16
<b>STANDARD ROAD PLAN</b>	<b>DR-502</b>	
SHEET 1 of 1		
MODIFICATIONS: Changed Table of Quantities for variable width median crossover on sheet U.1		

**SLOTTED DRAIN FOR  
 MEDIAN CROSSOVERS**

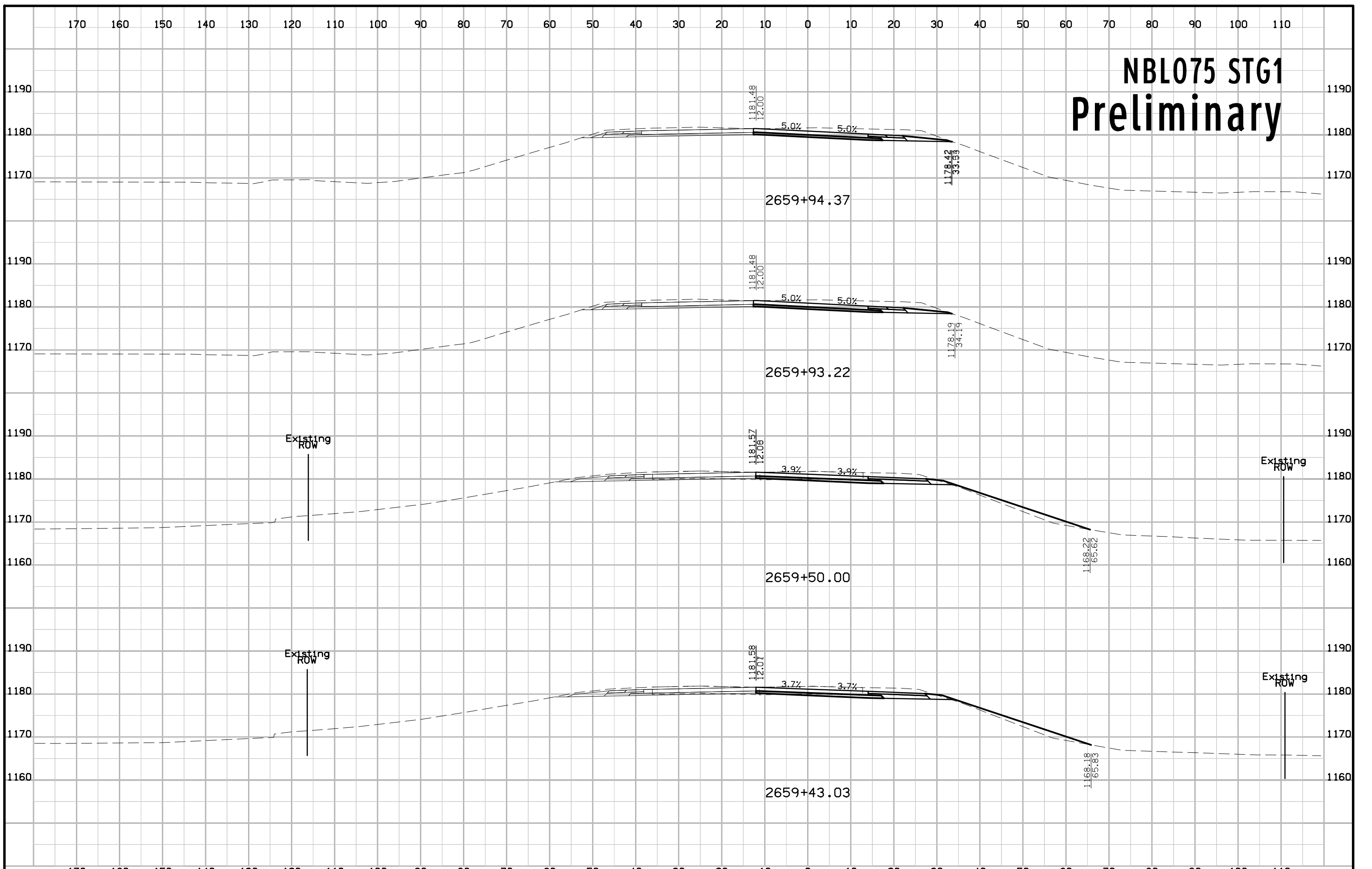
# NBL075 STG1 Preliminary



# NBL075 STG1 Preliminary



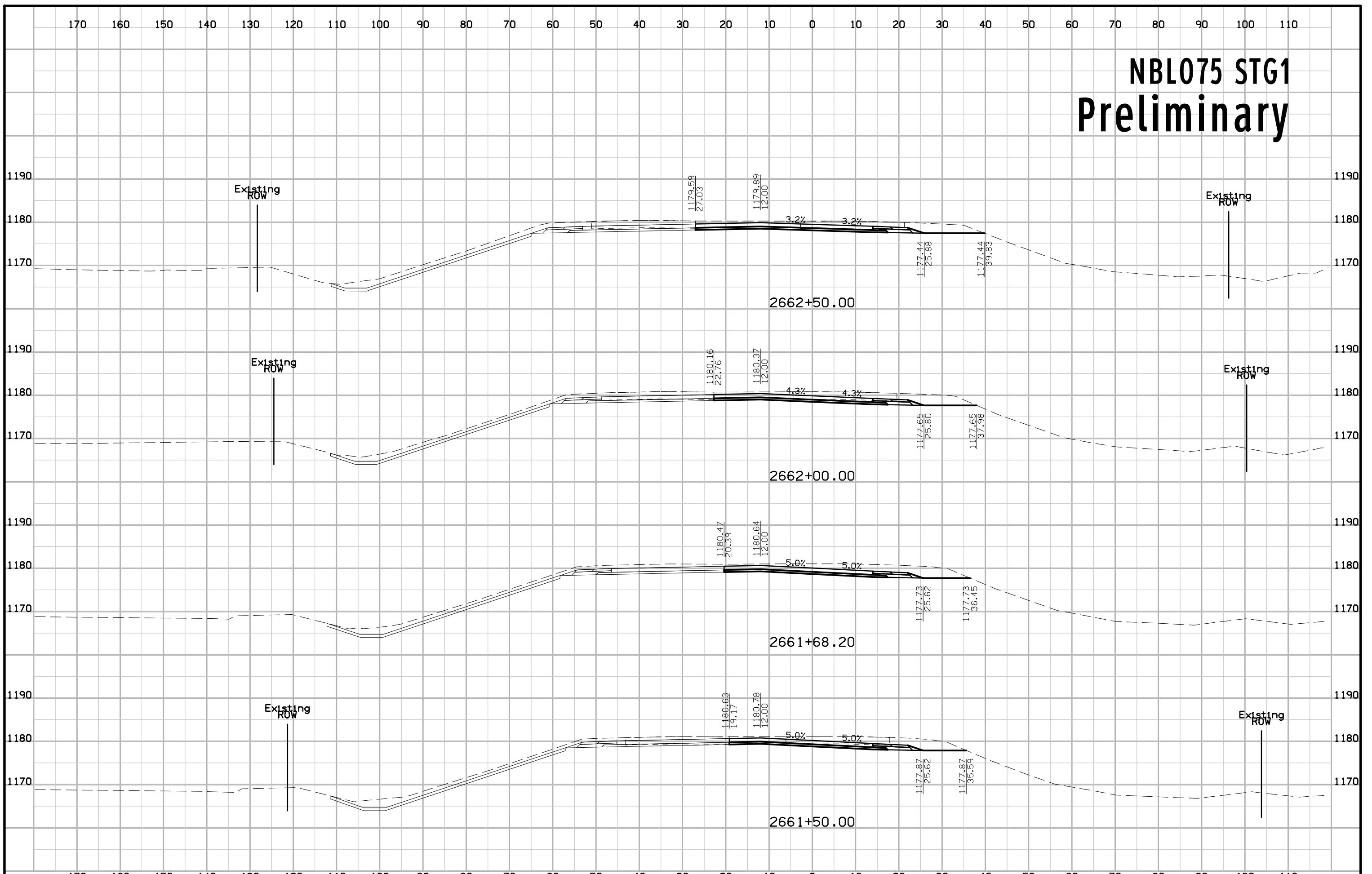
# NBL075 STG1 Preliminary



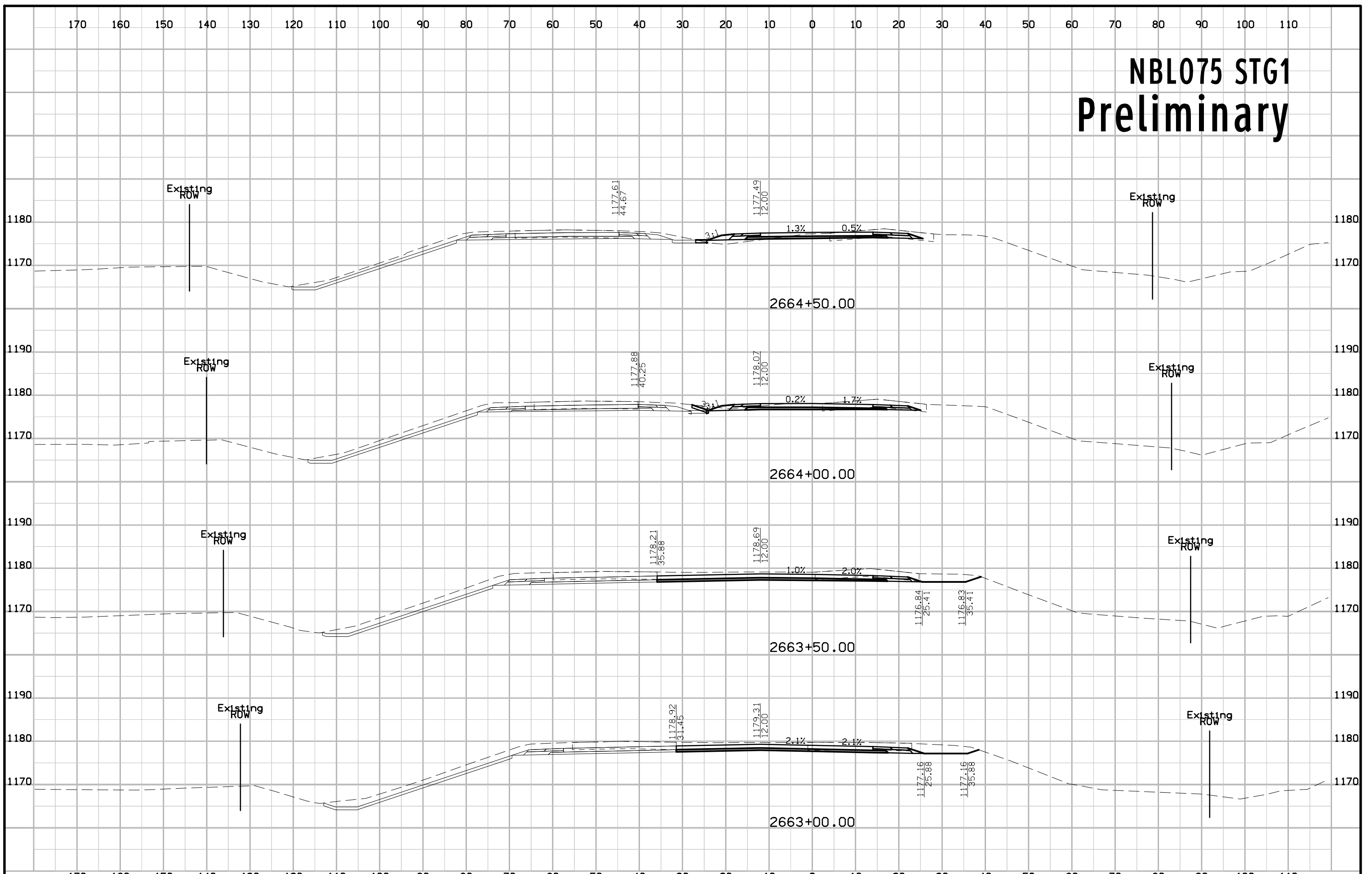




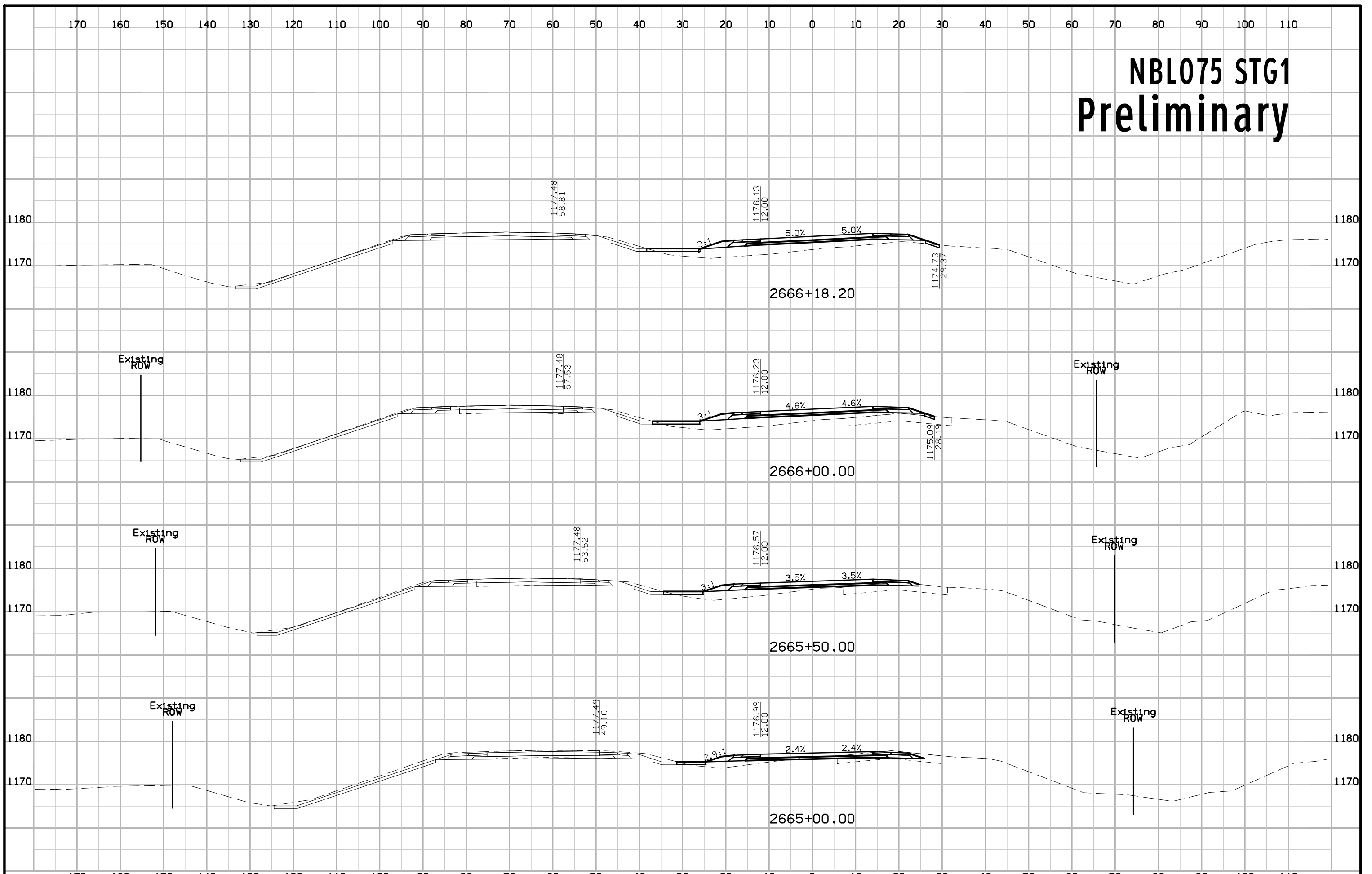
# NBL075 STG1 Preliminary



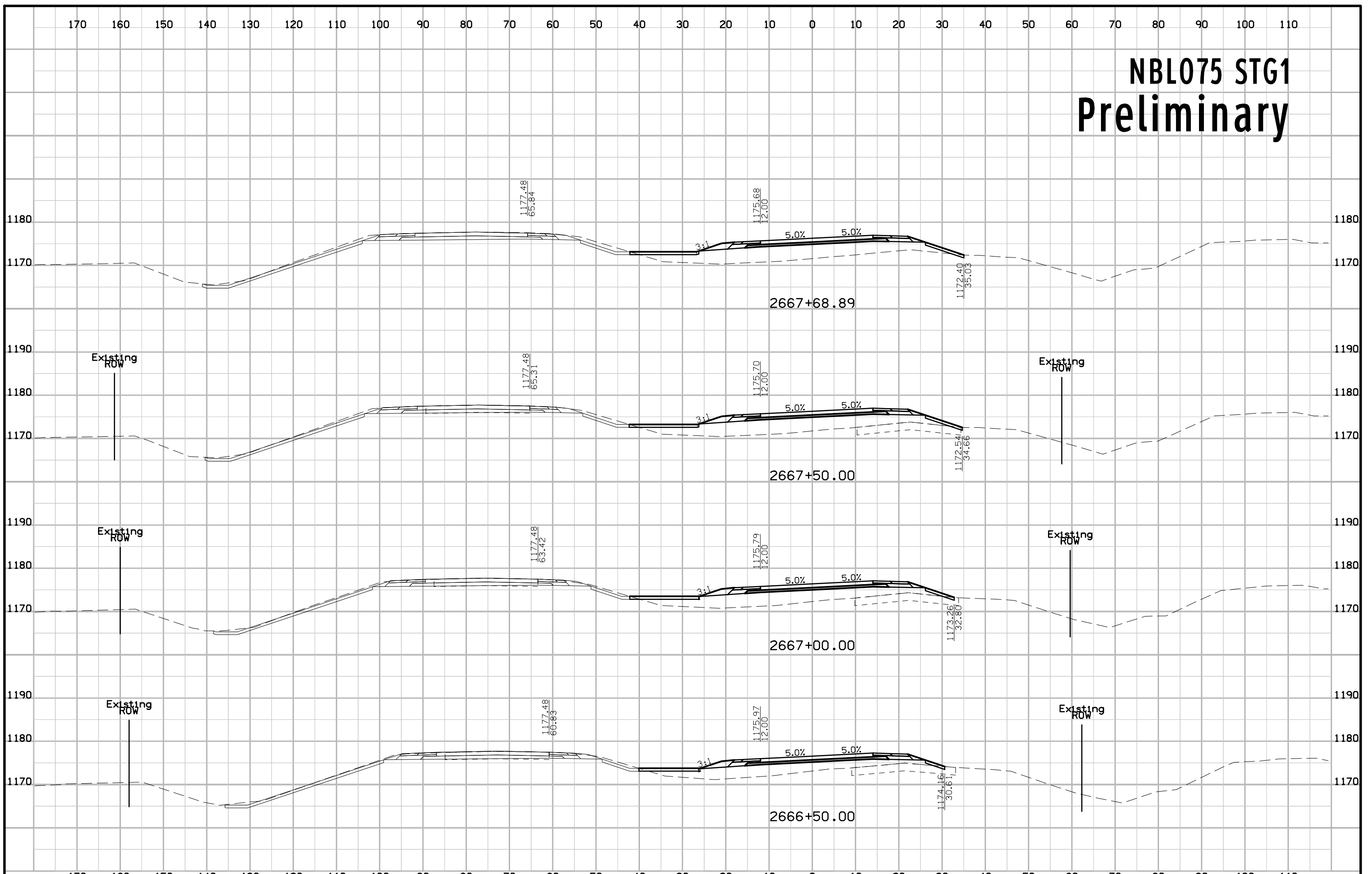
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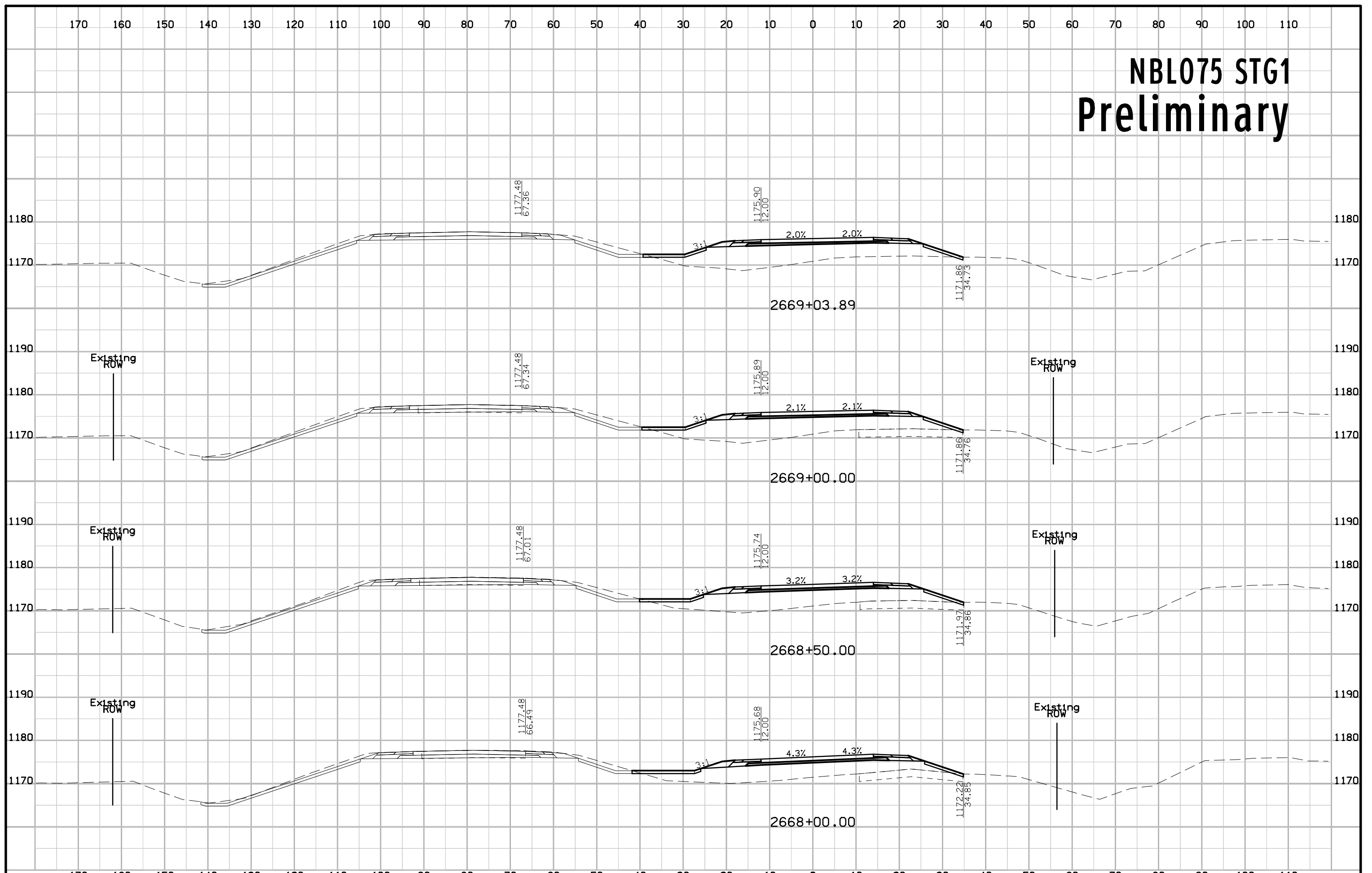
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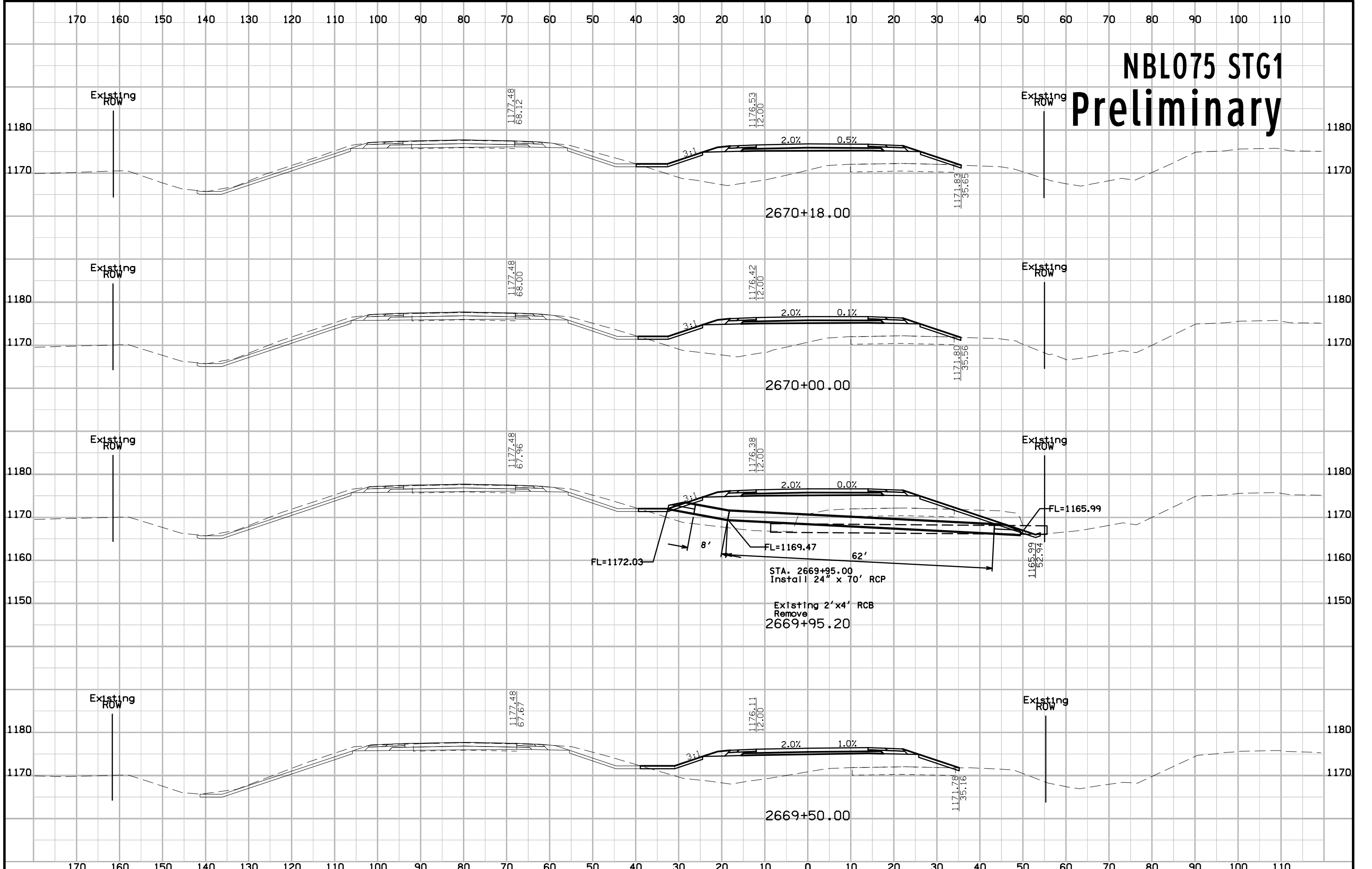
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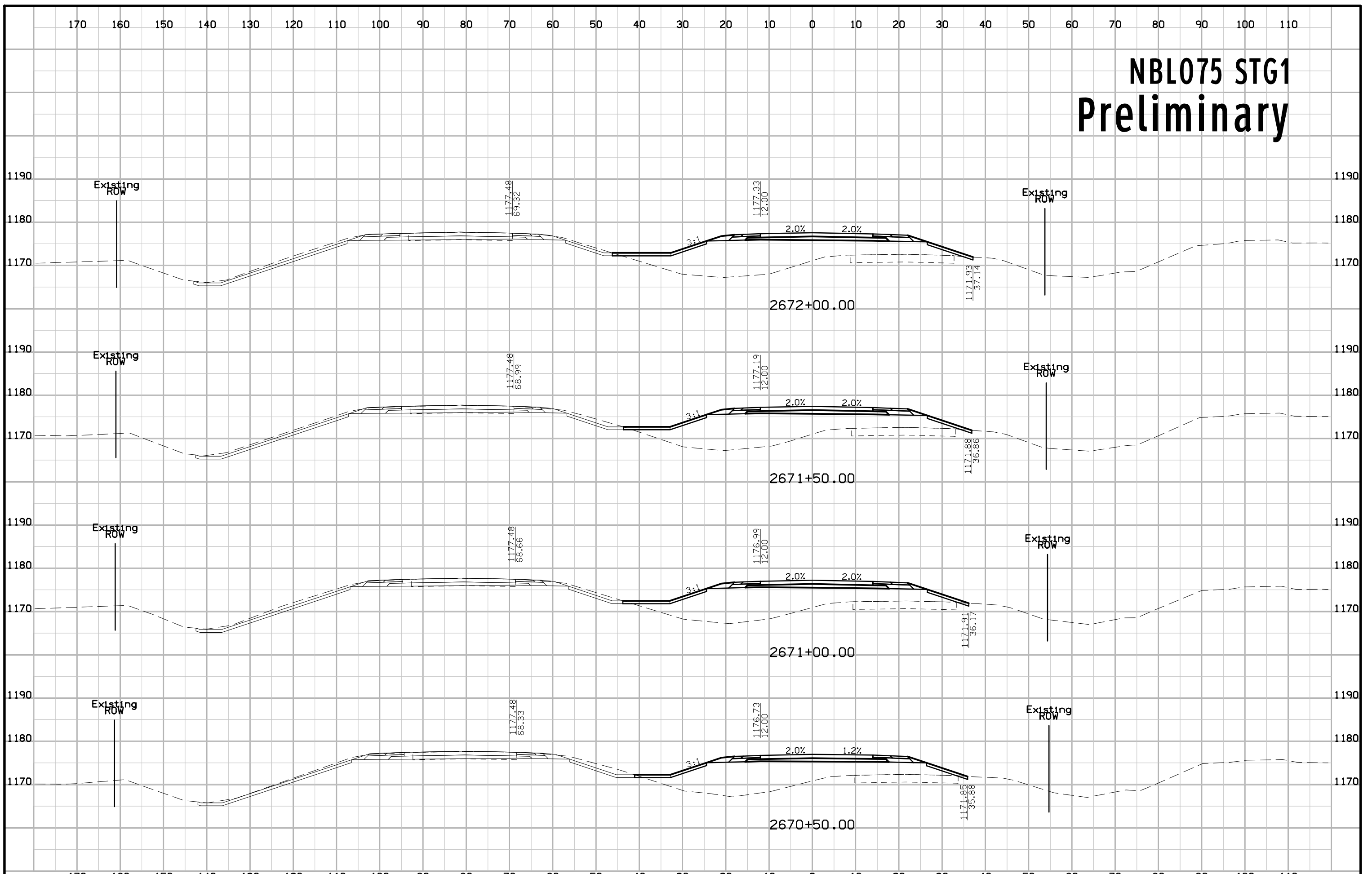
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# NBL075 STG1 Preliminary

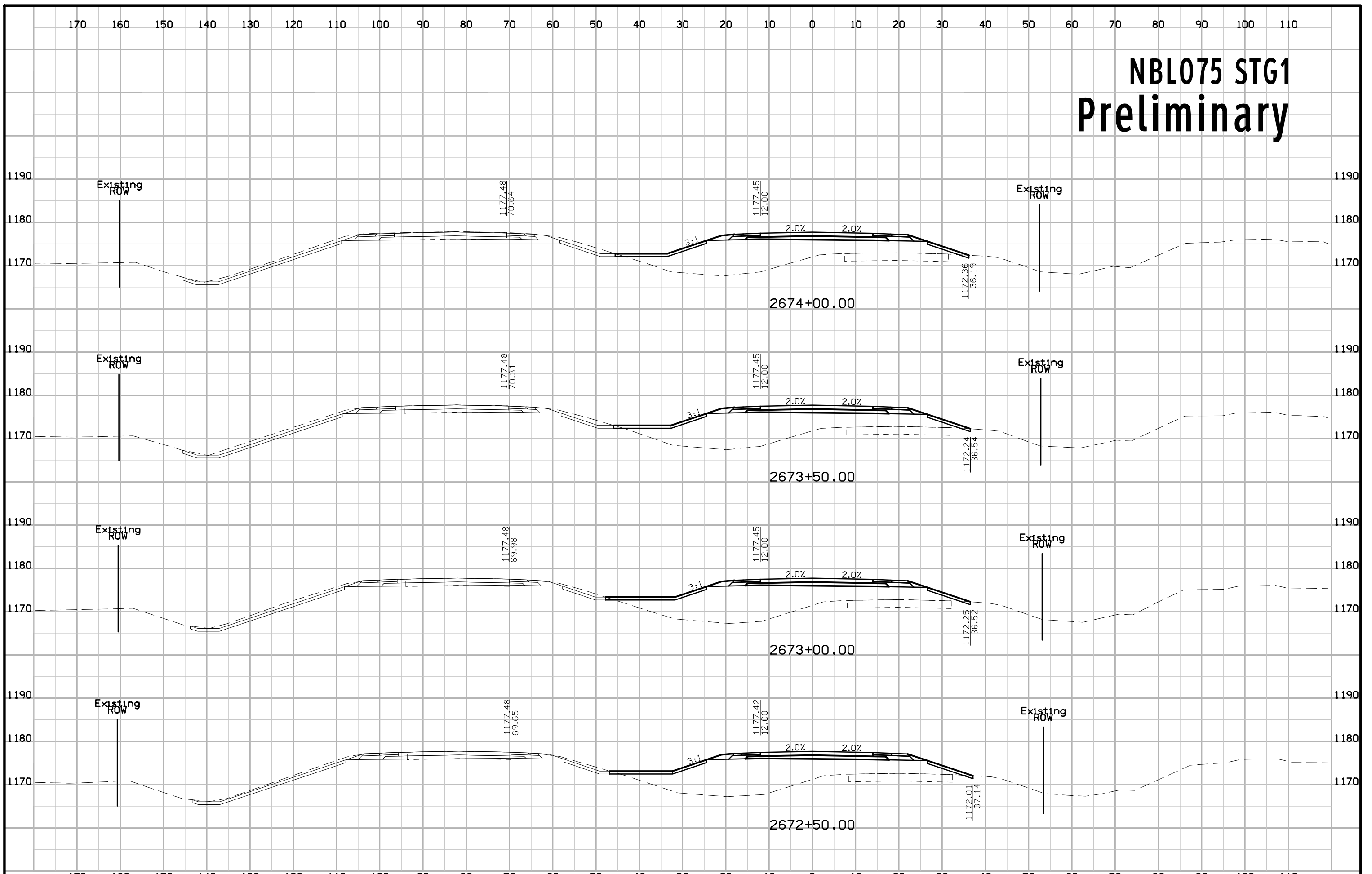


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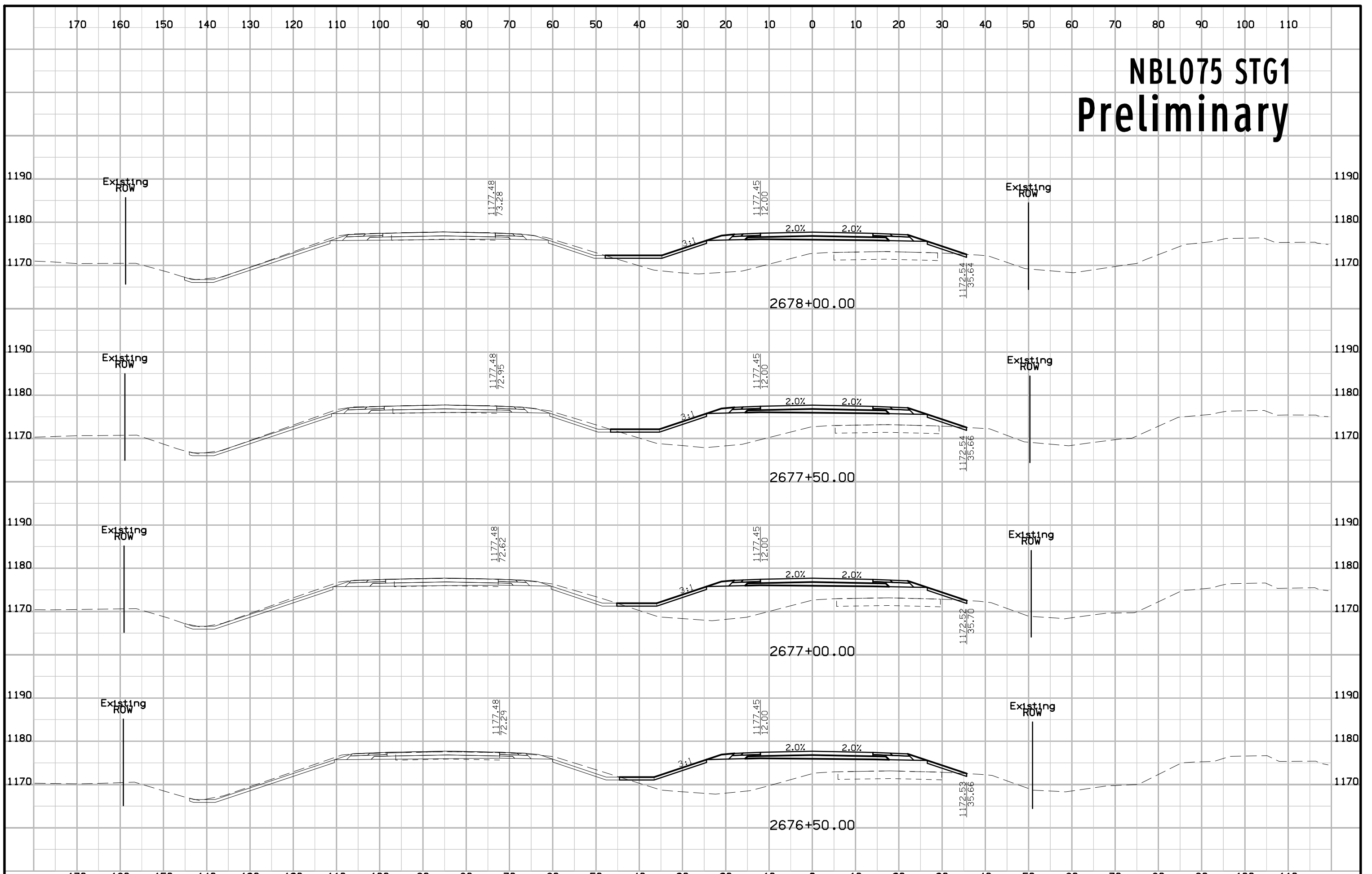


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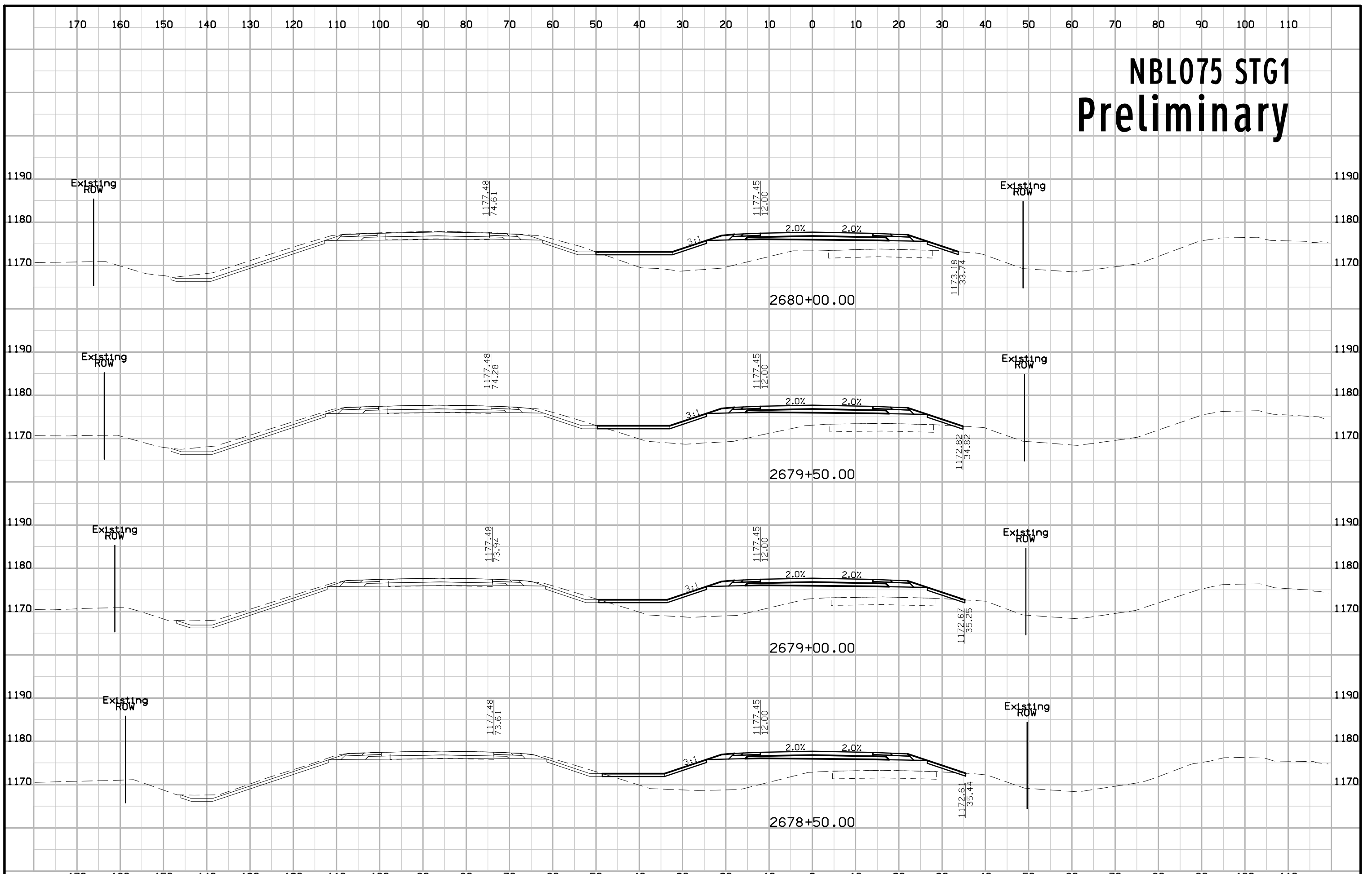




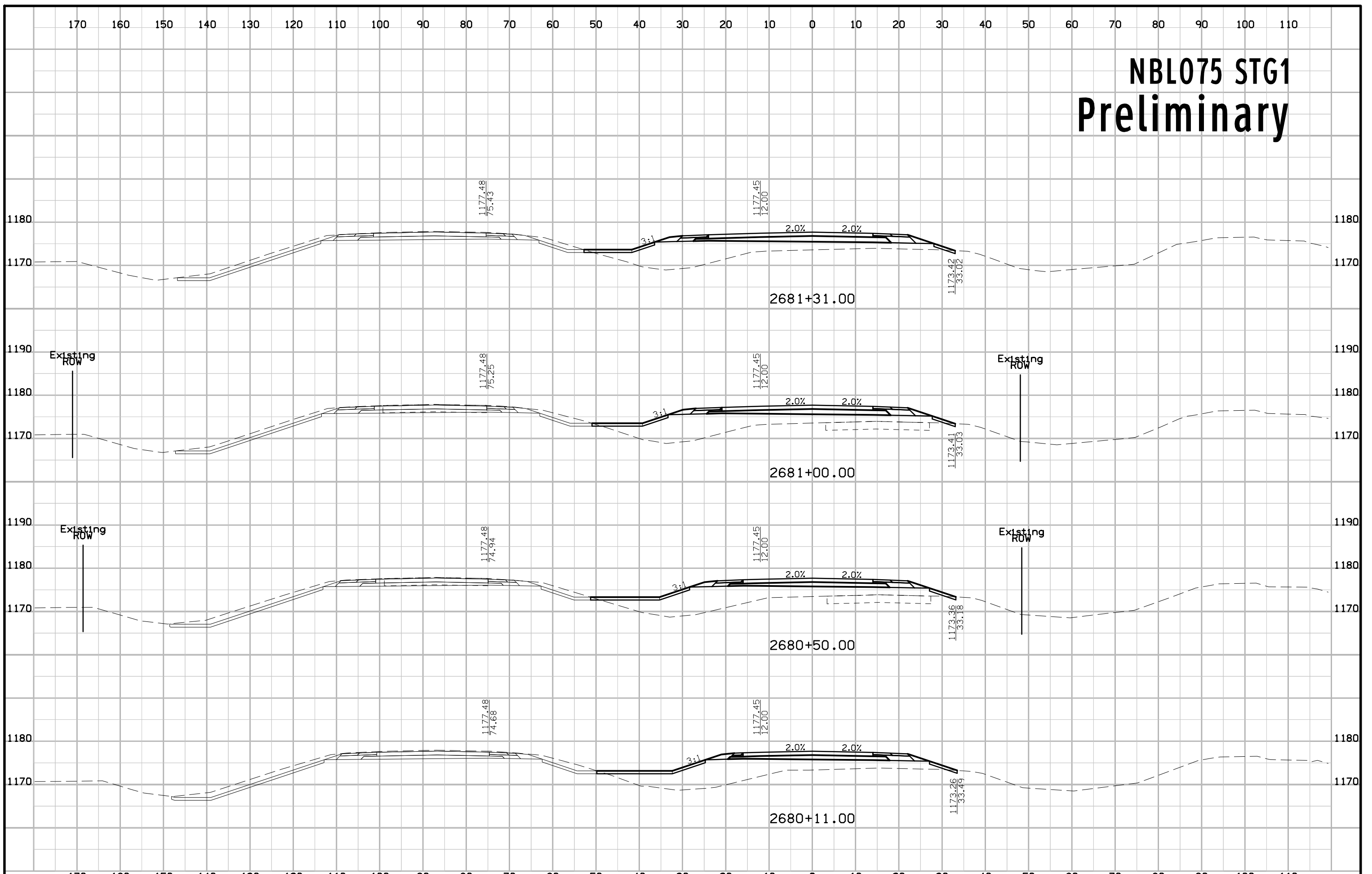
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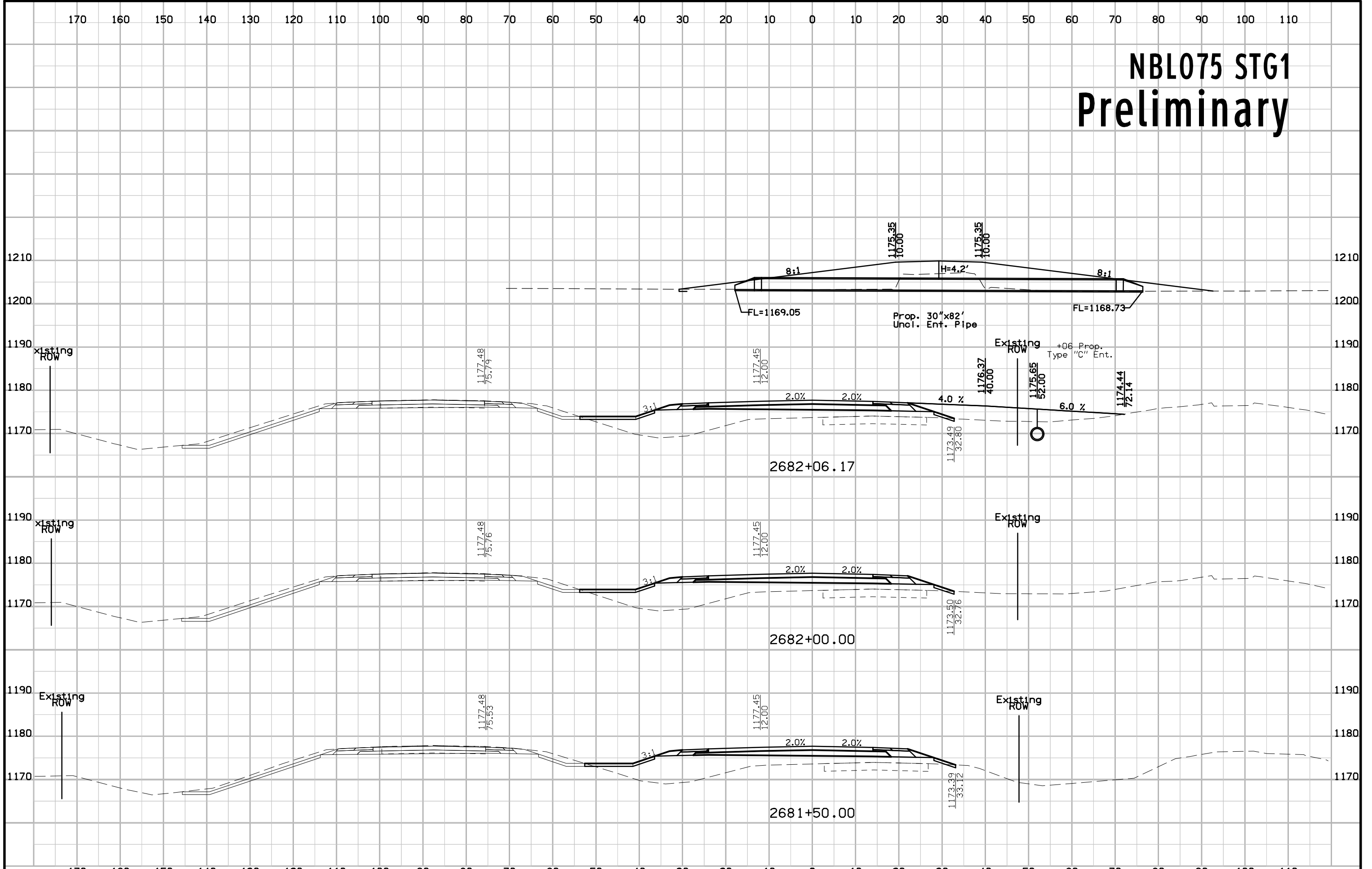
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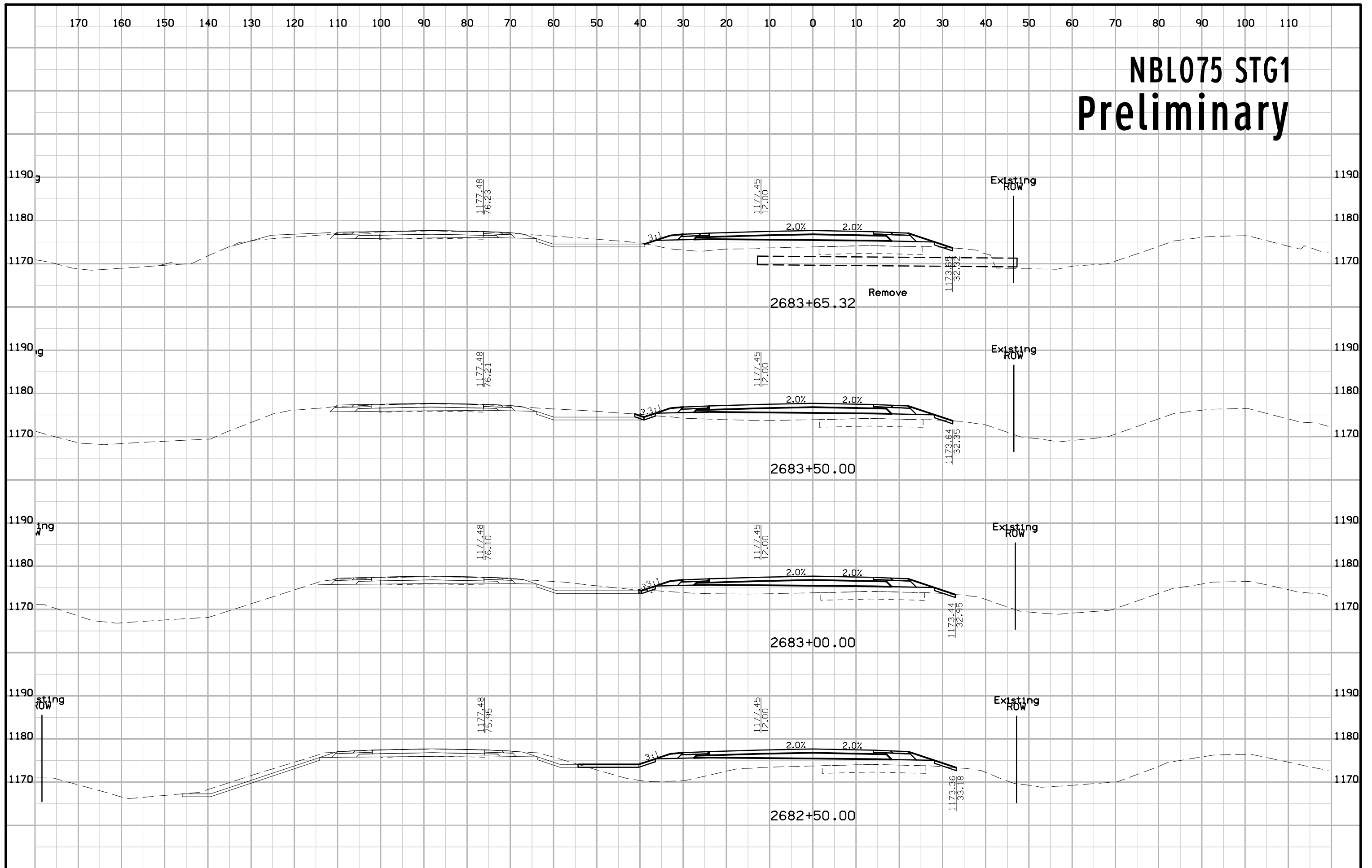
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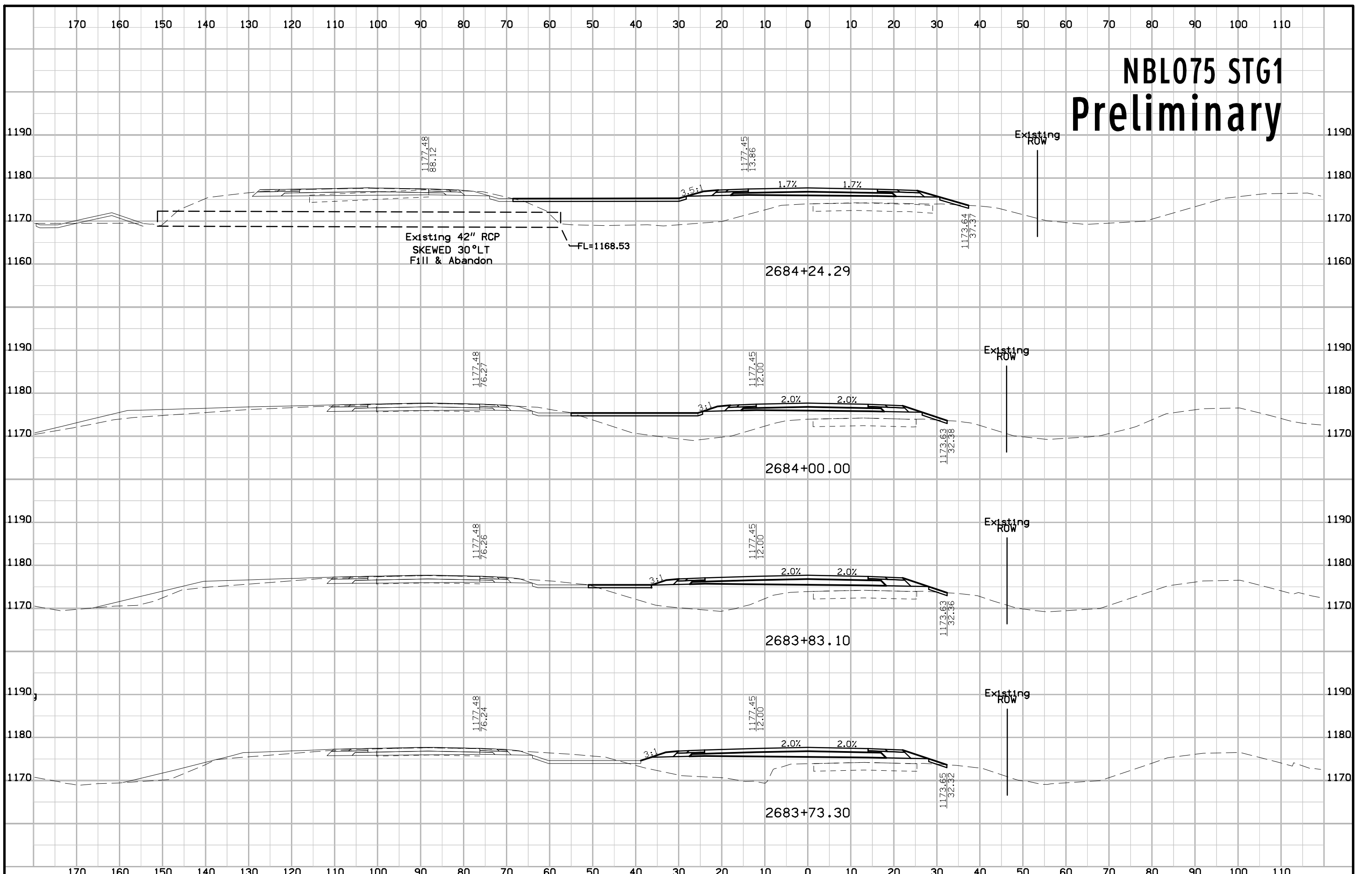
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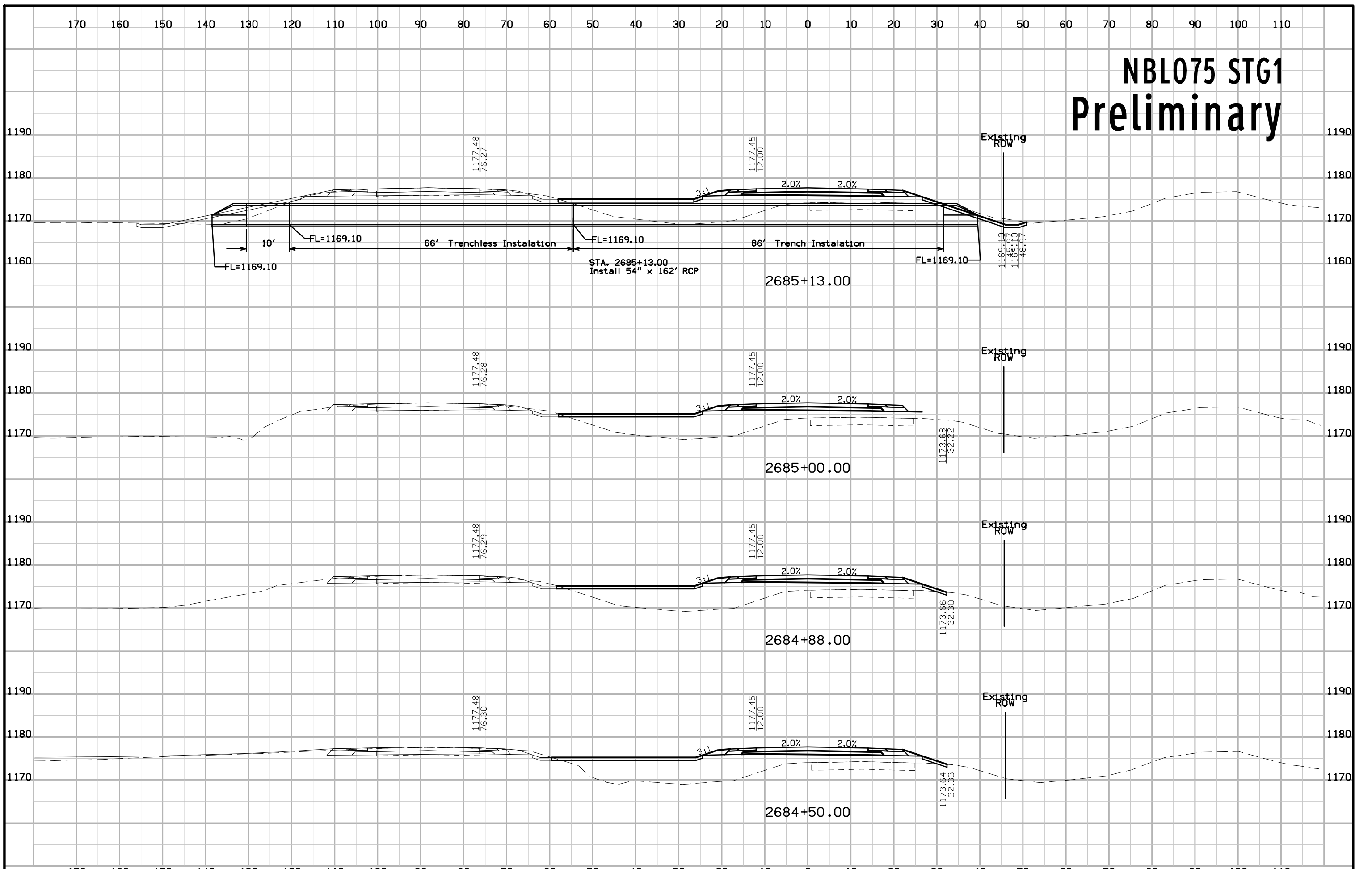


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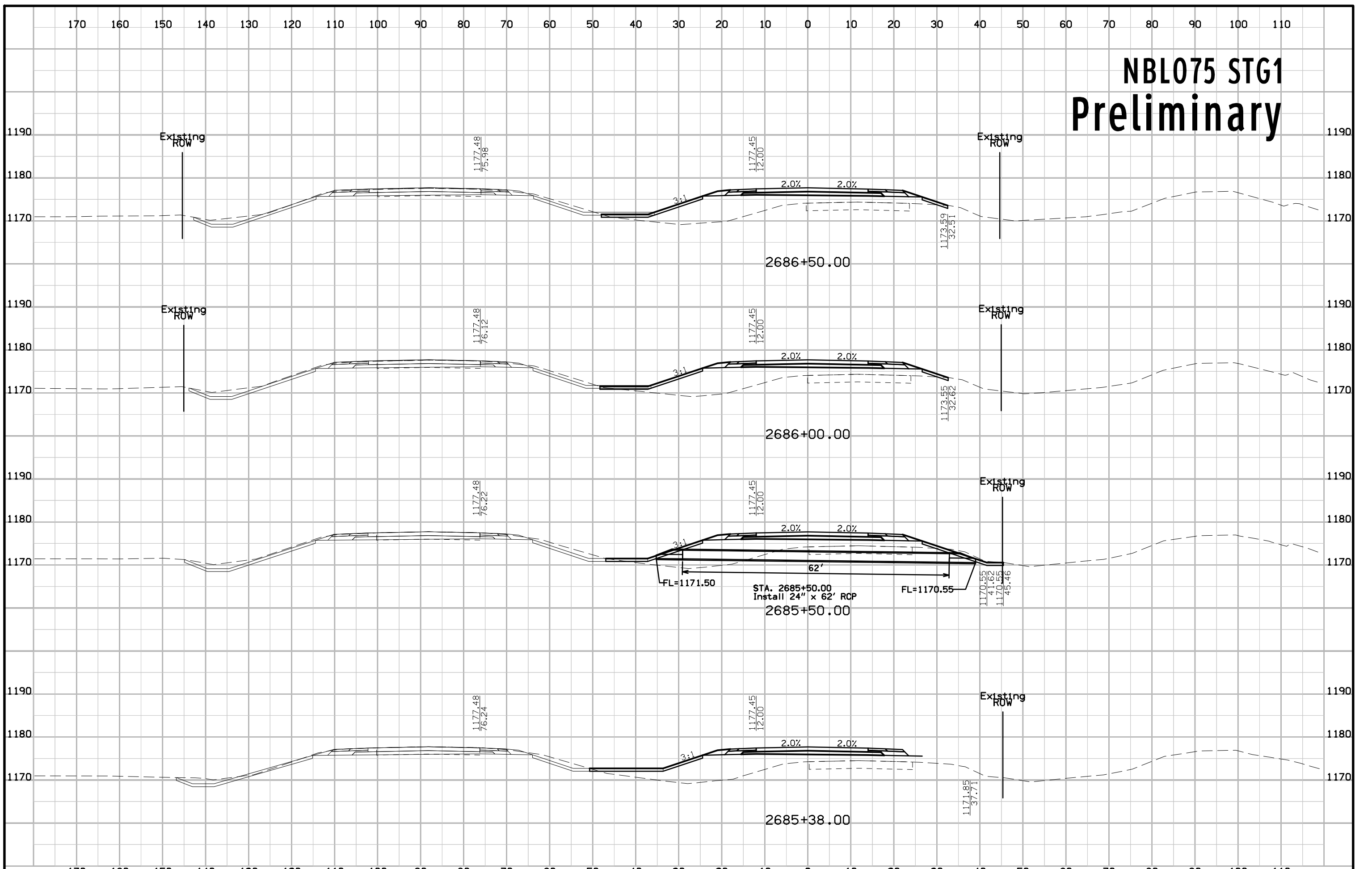




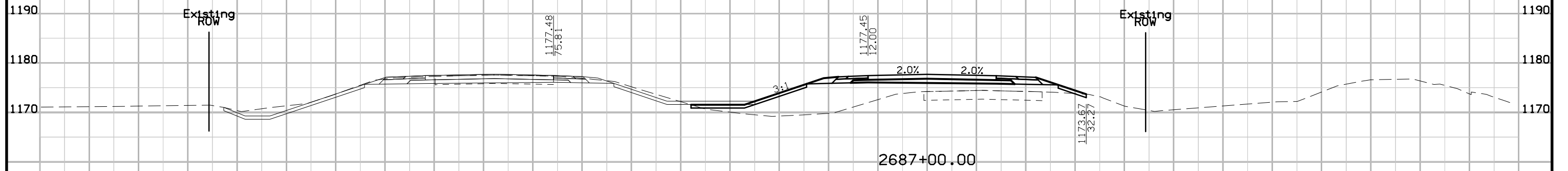
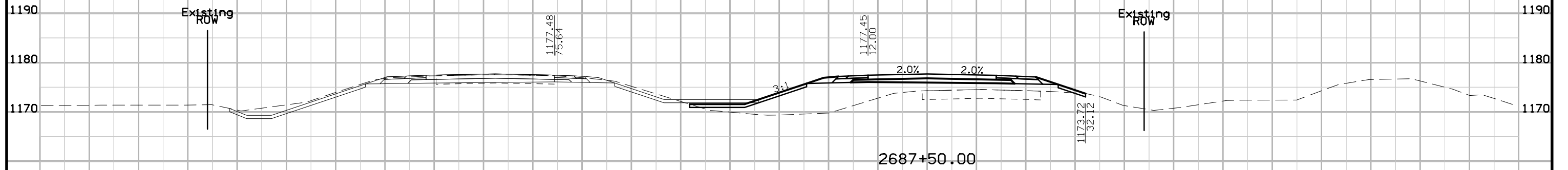
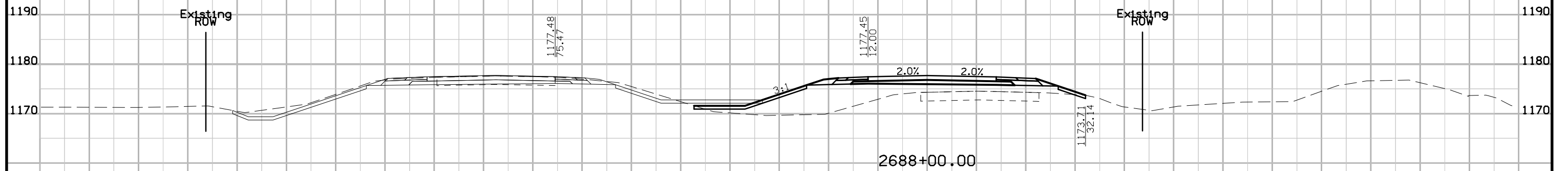
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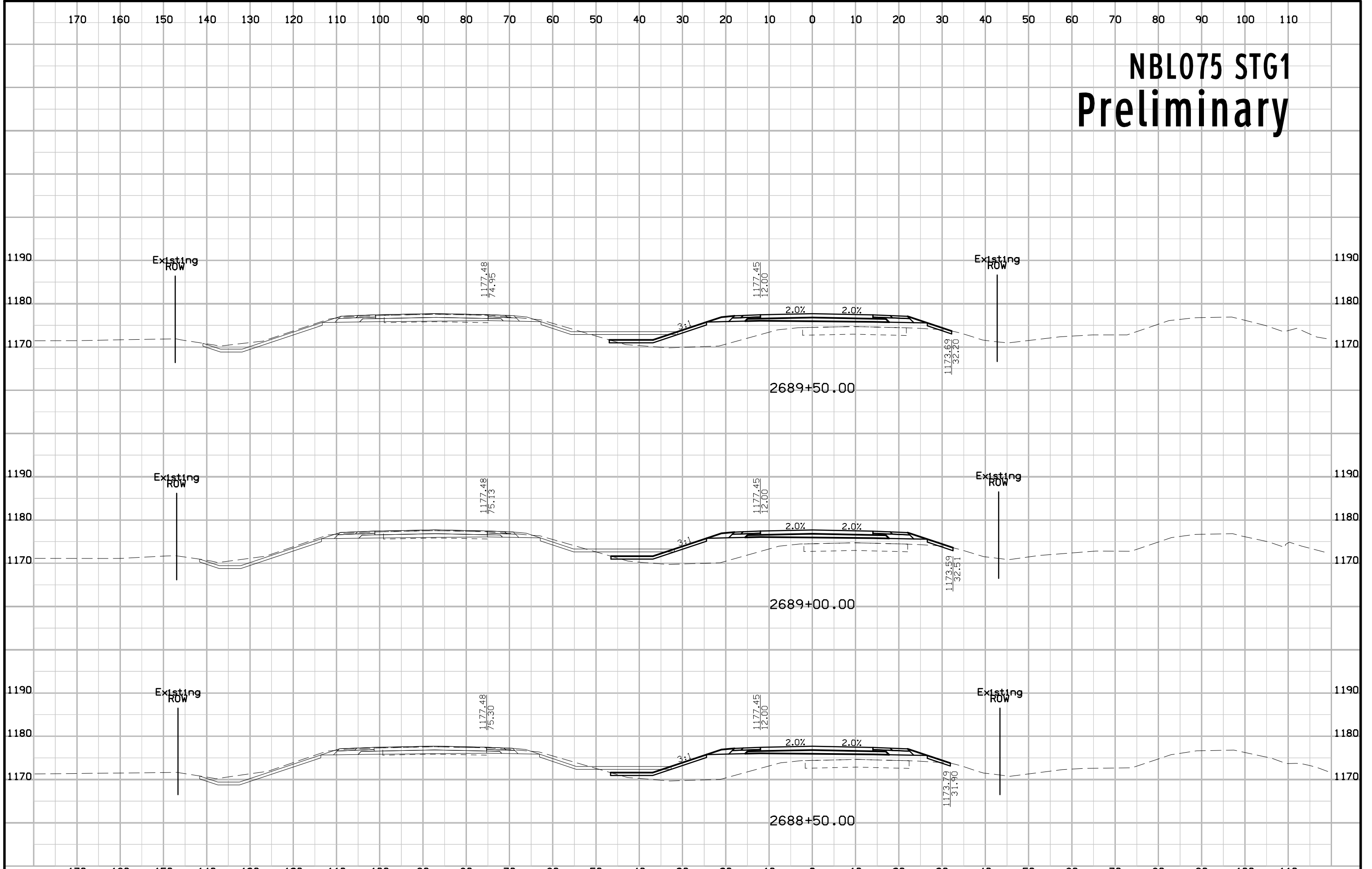
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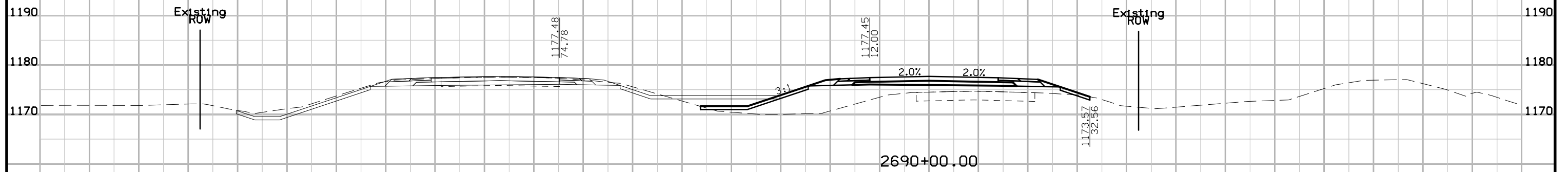
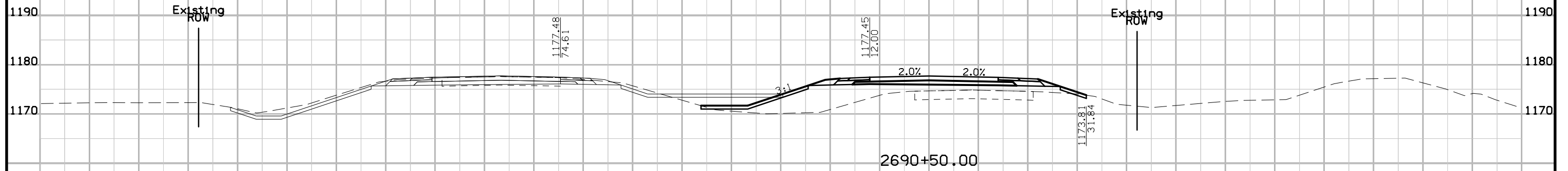
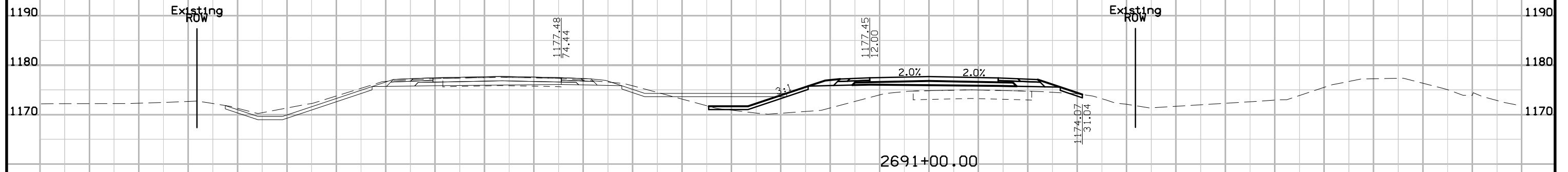
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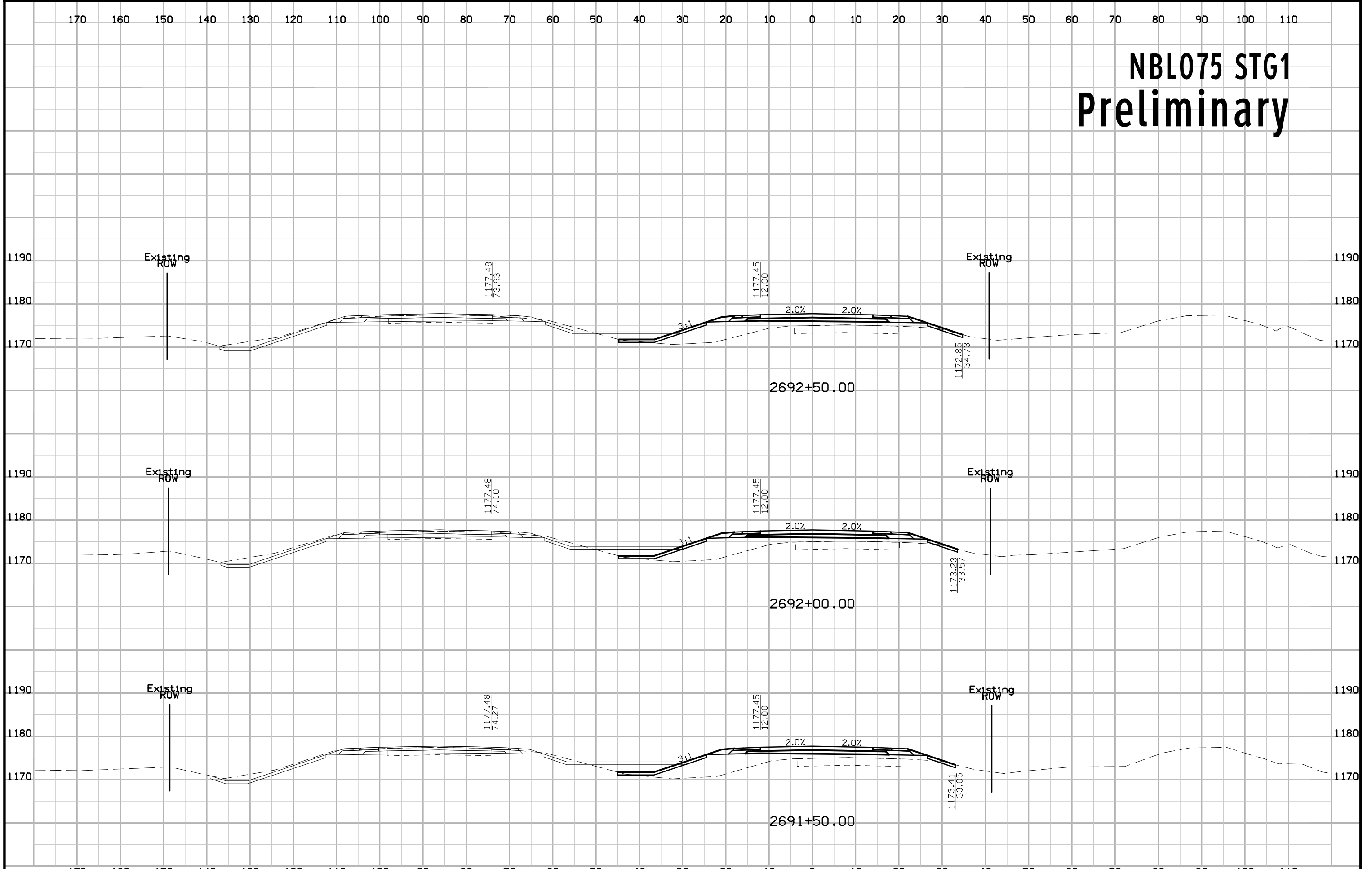
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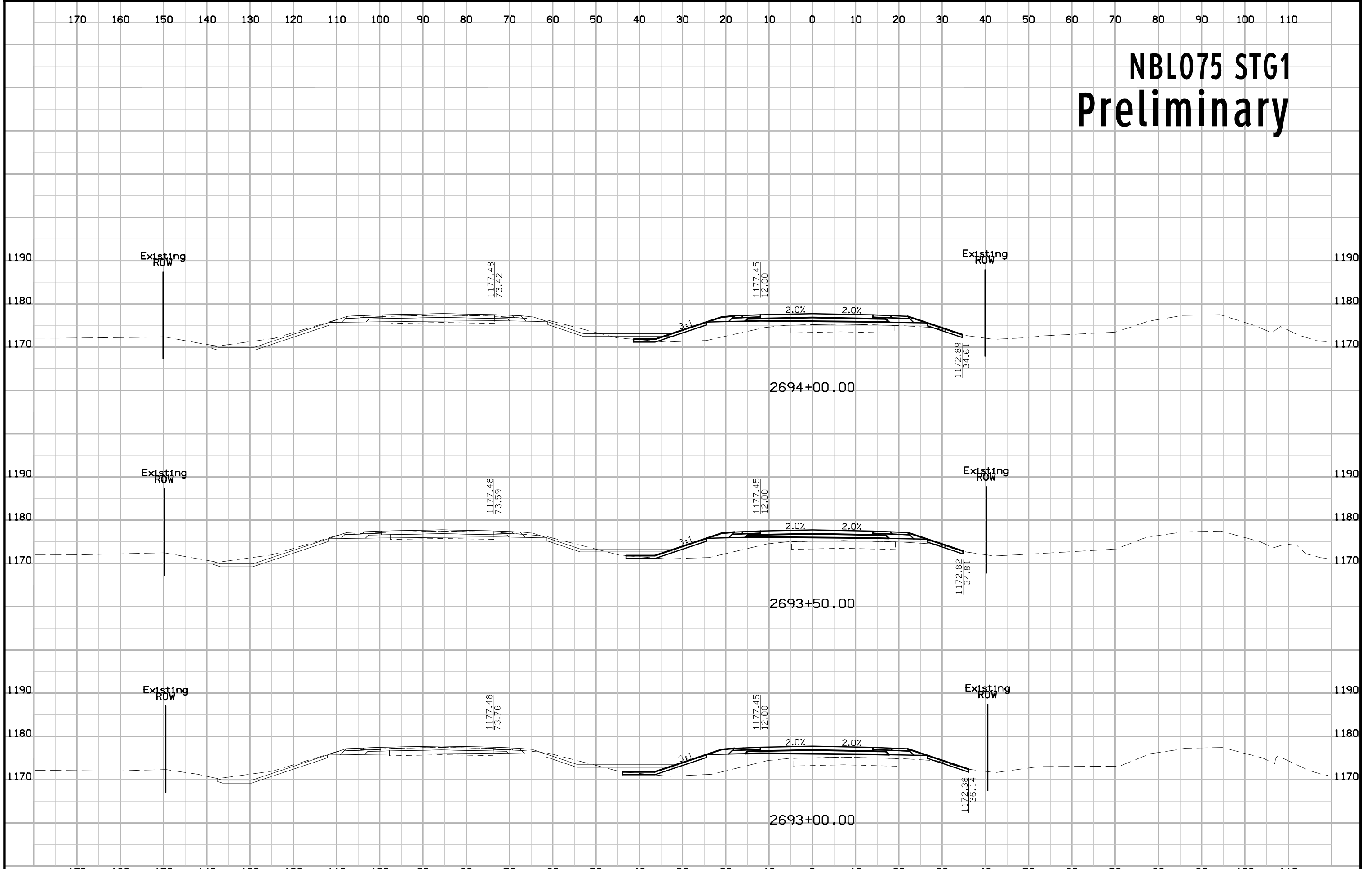
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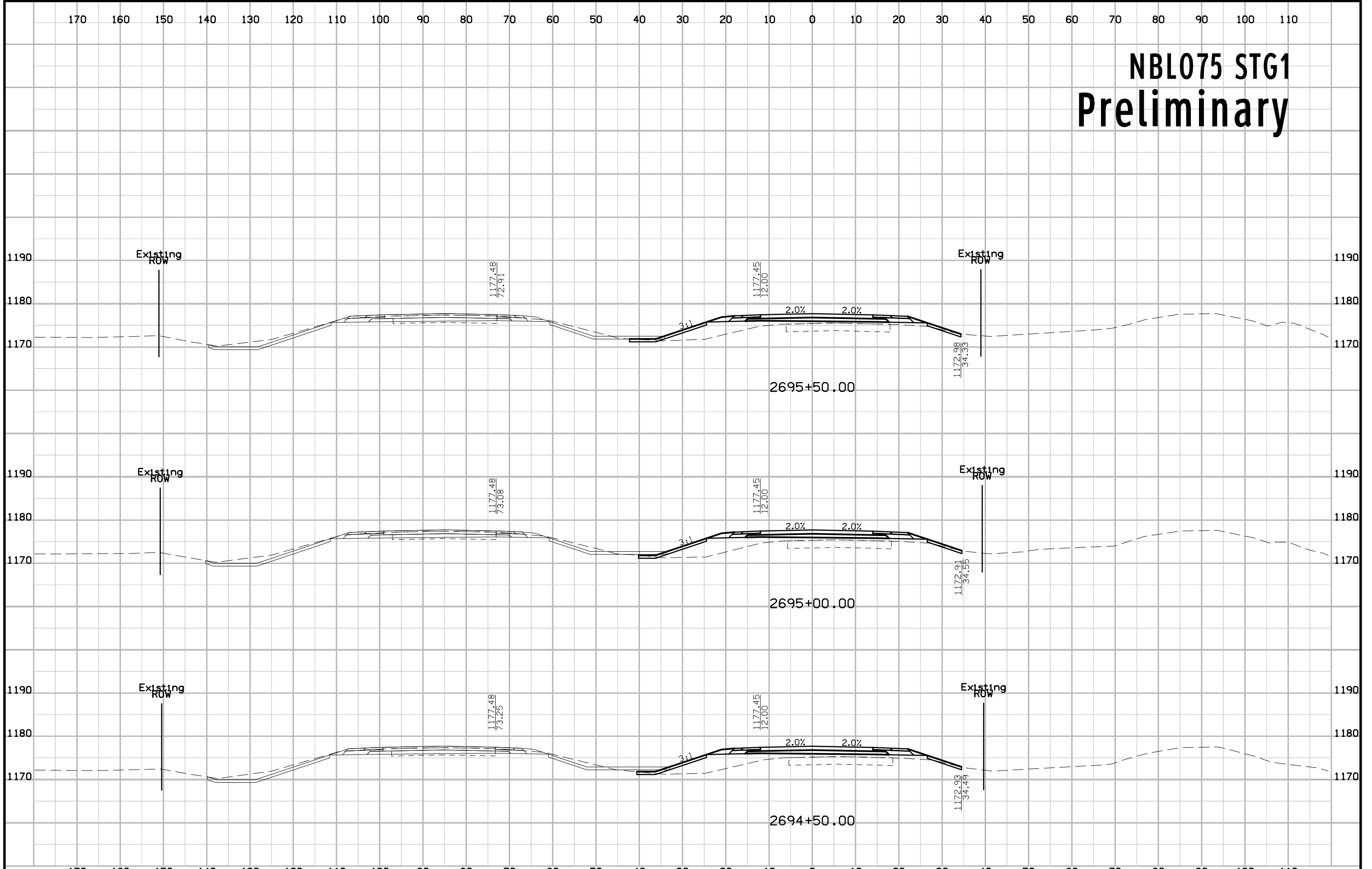
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# NBL075 STG1 Preliminary

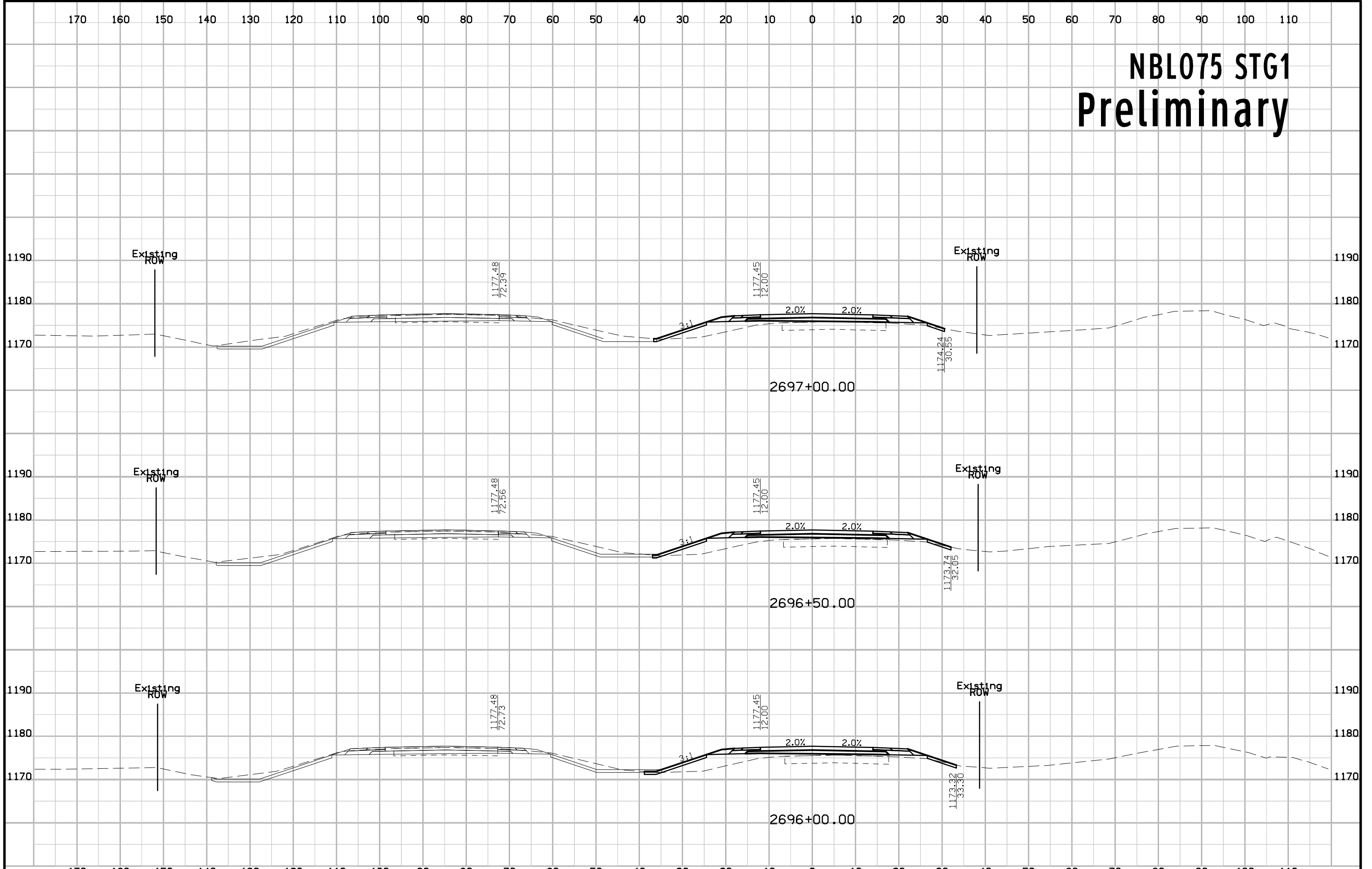


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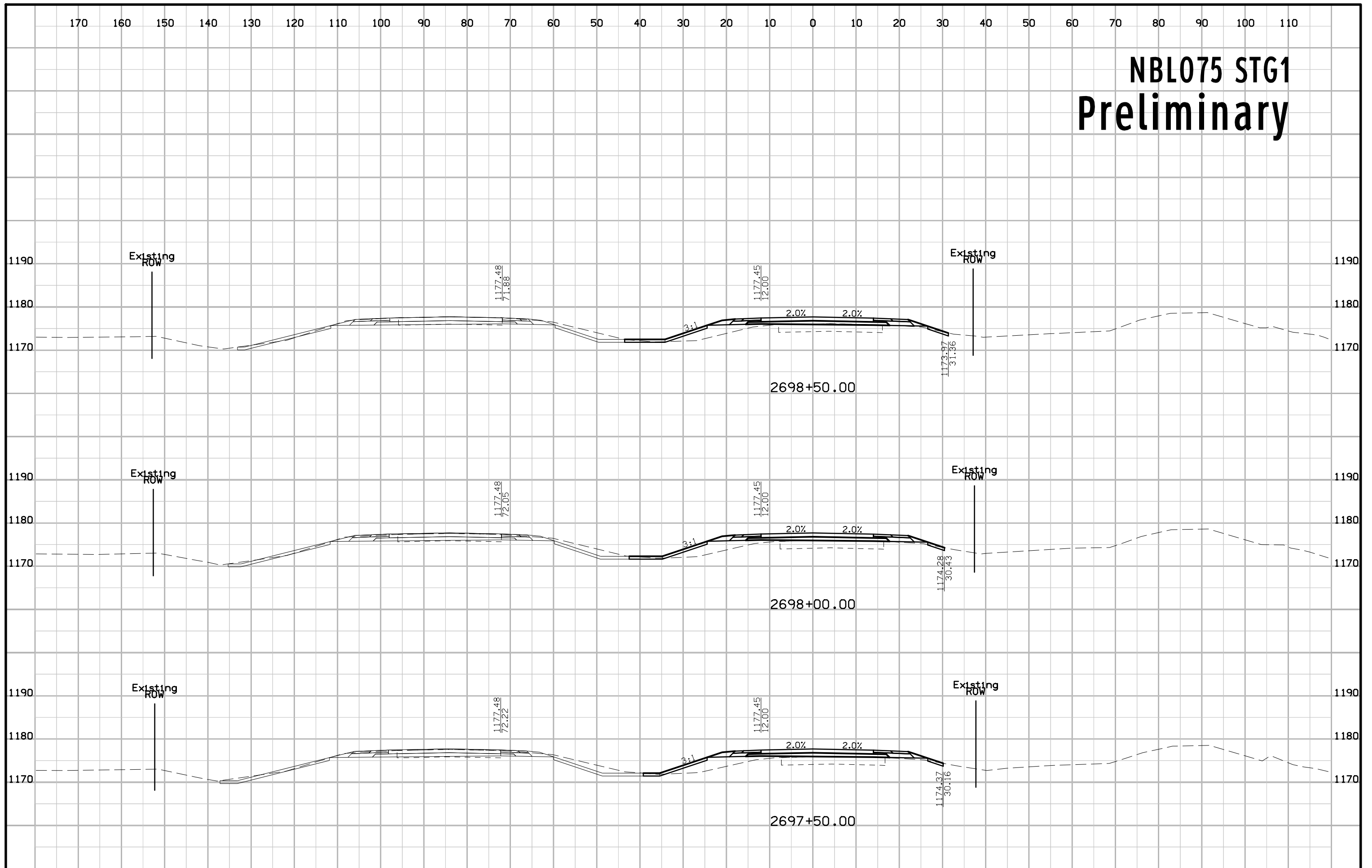




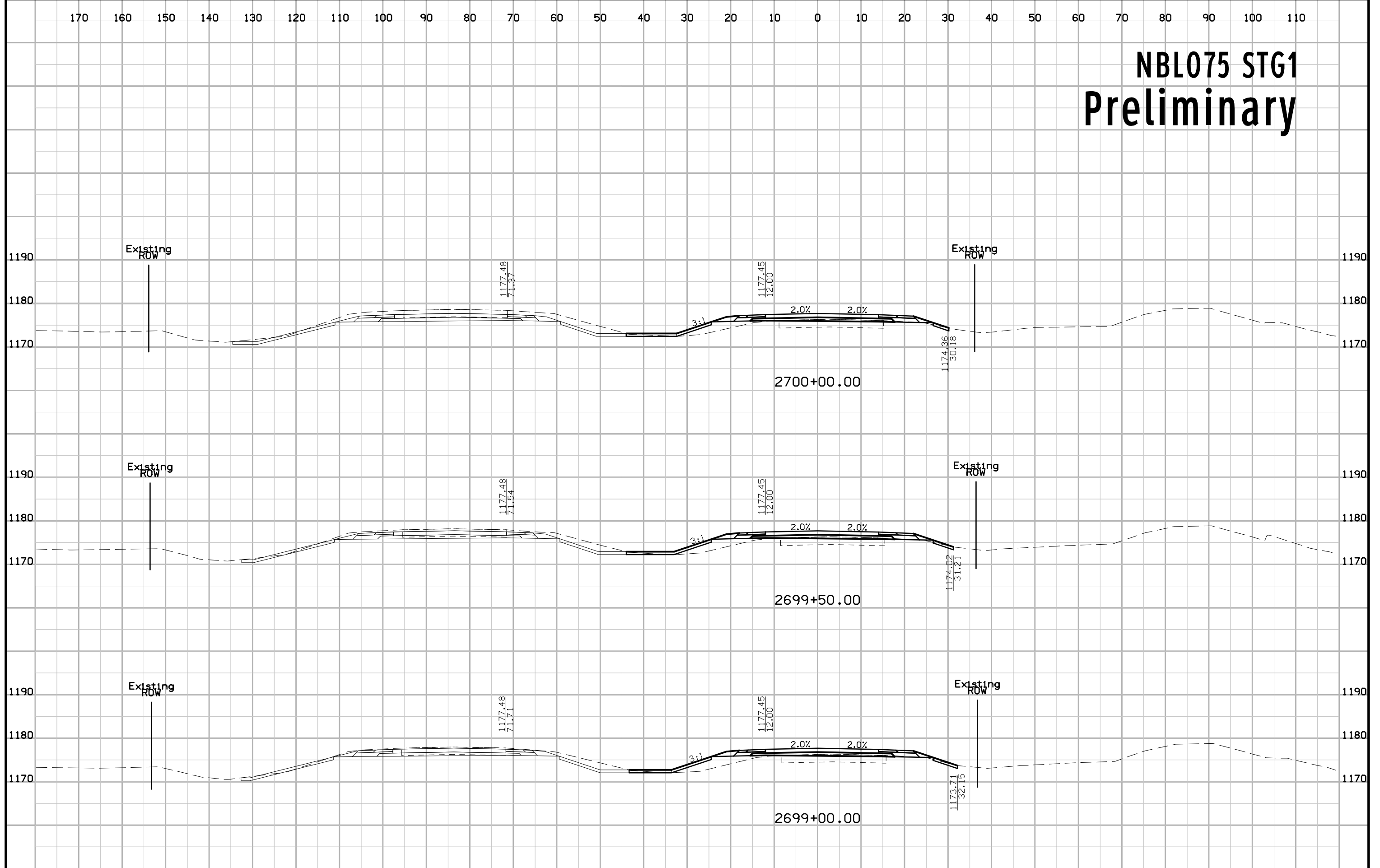
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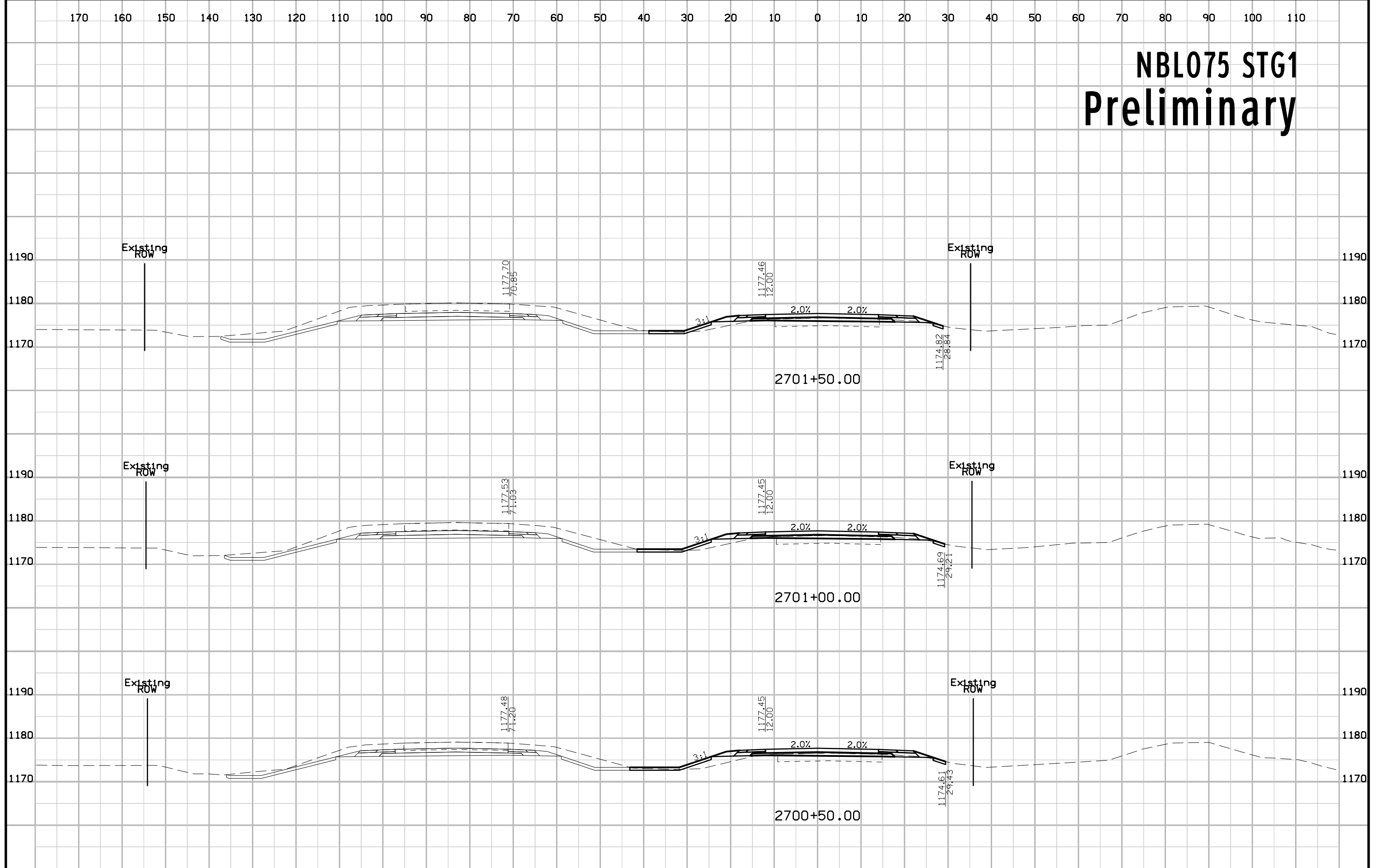
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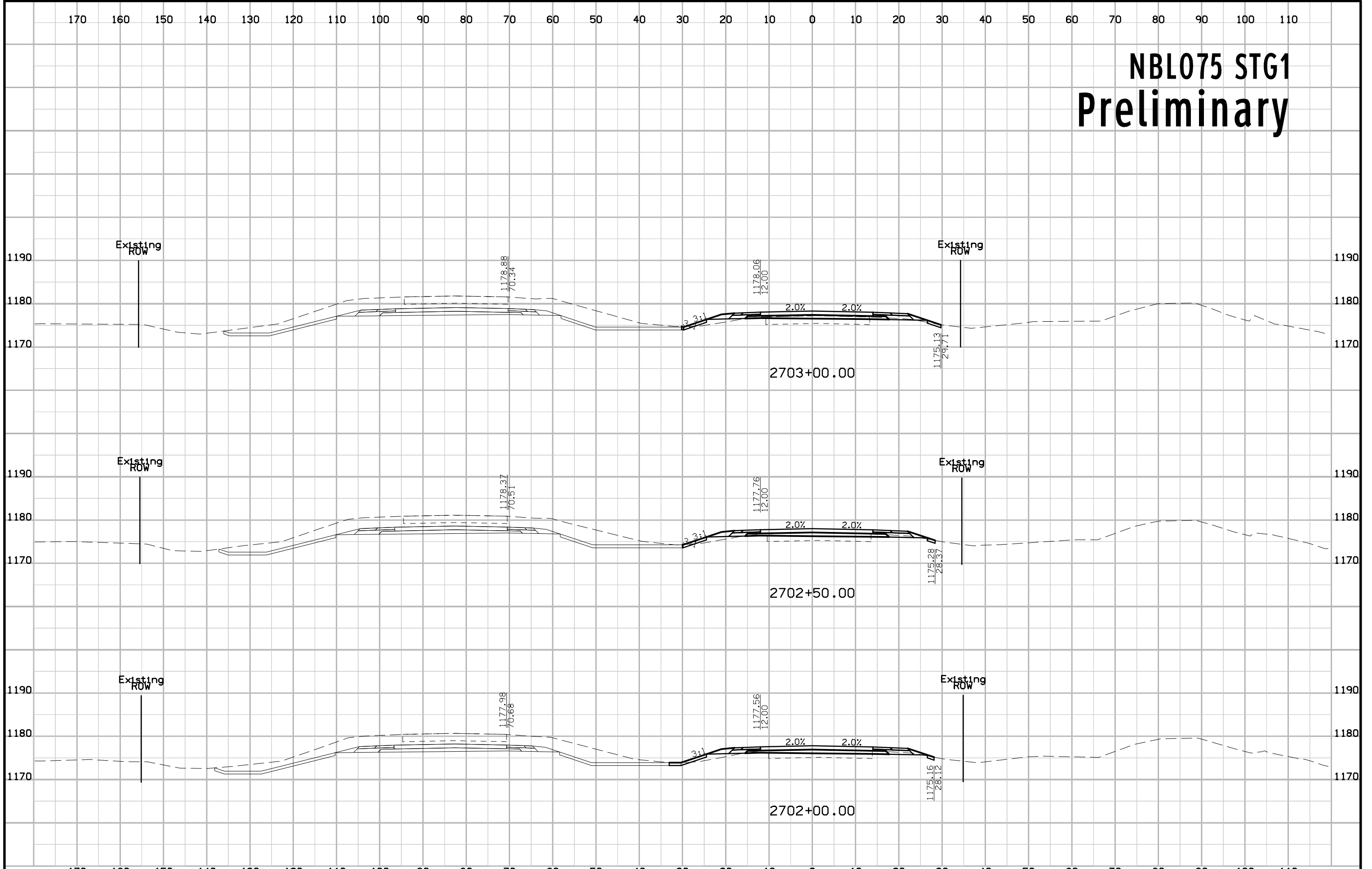
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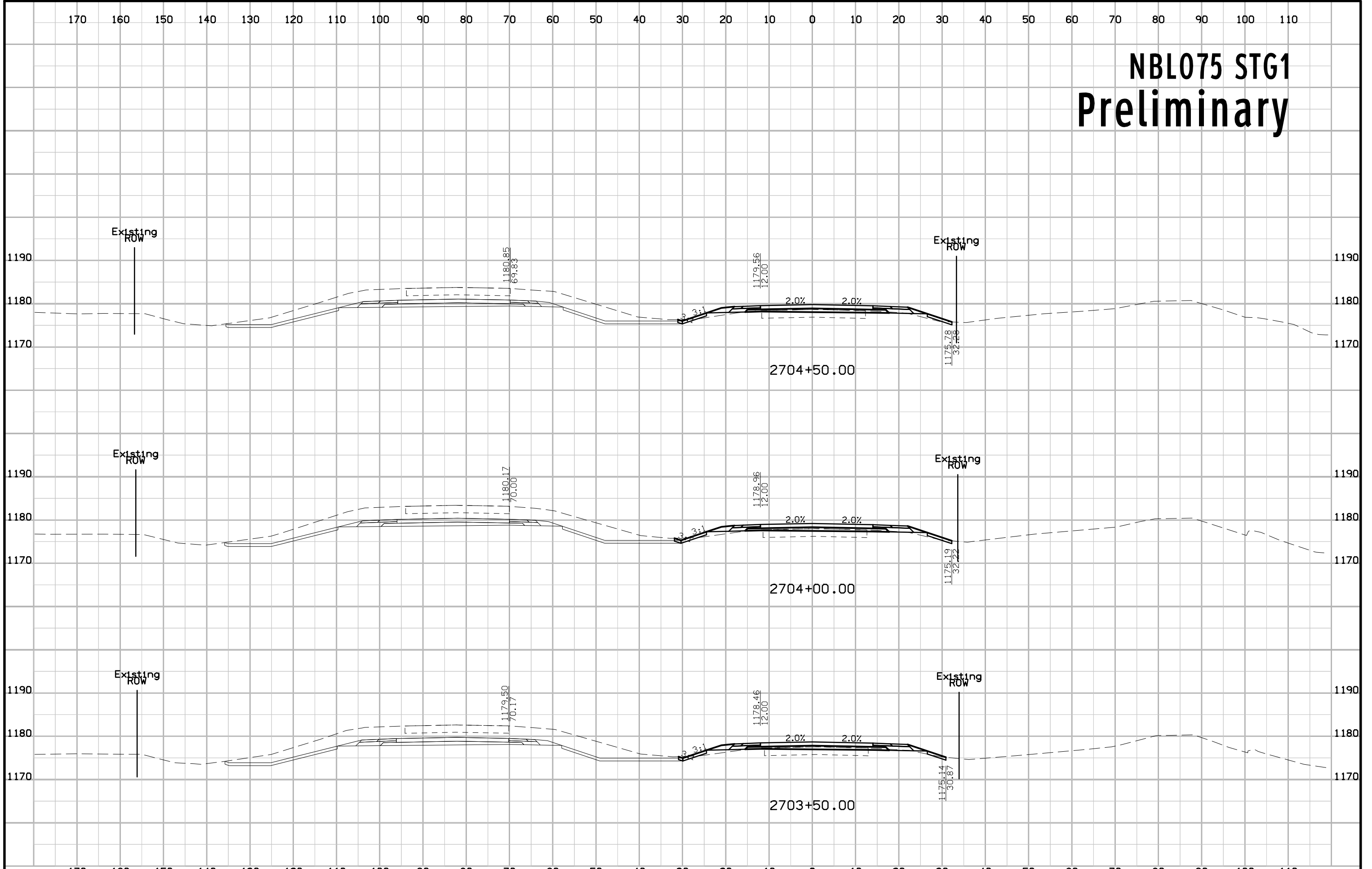
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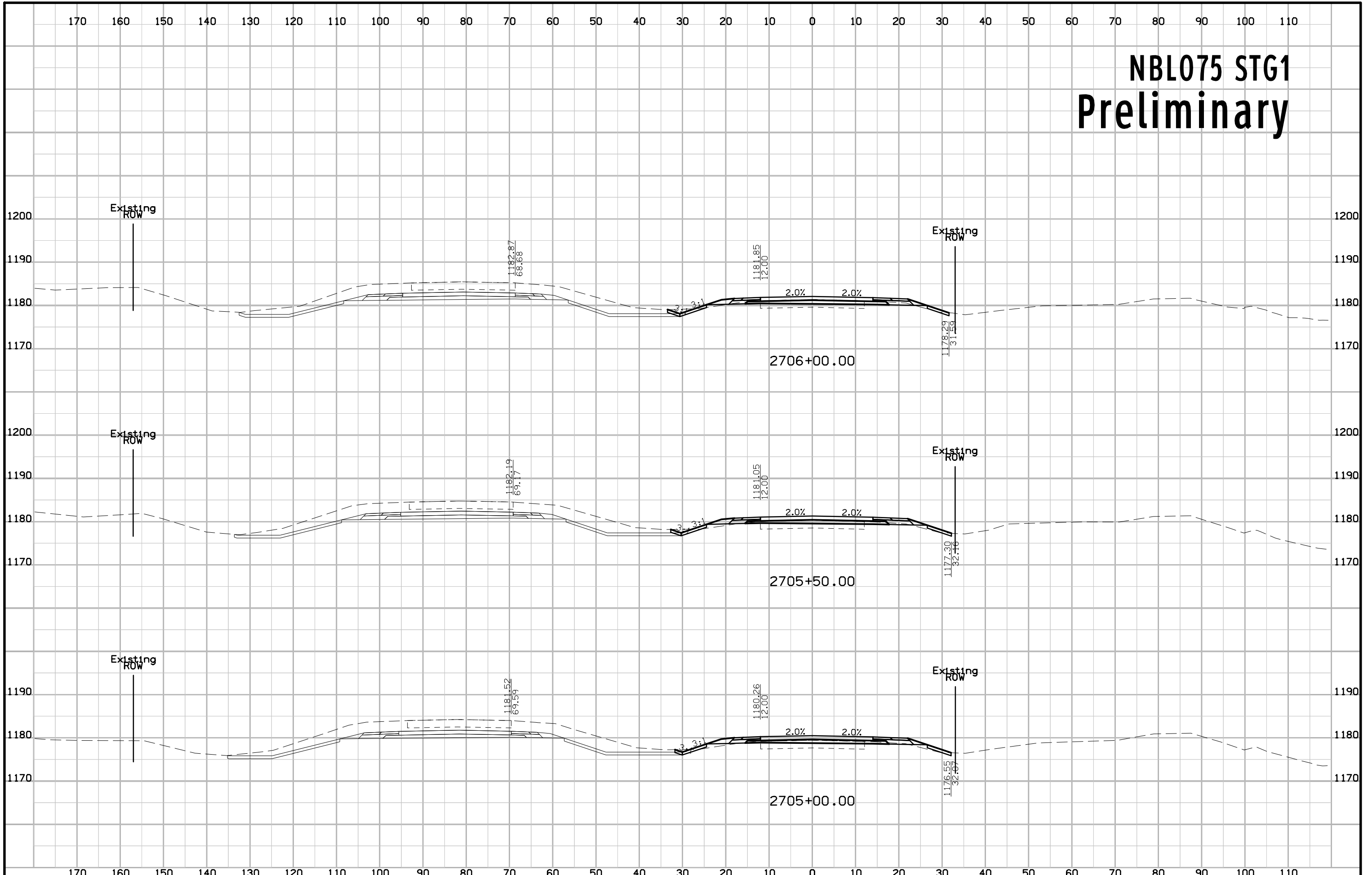
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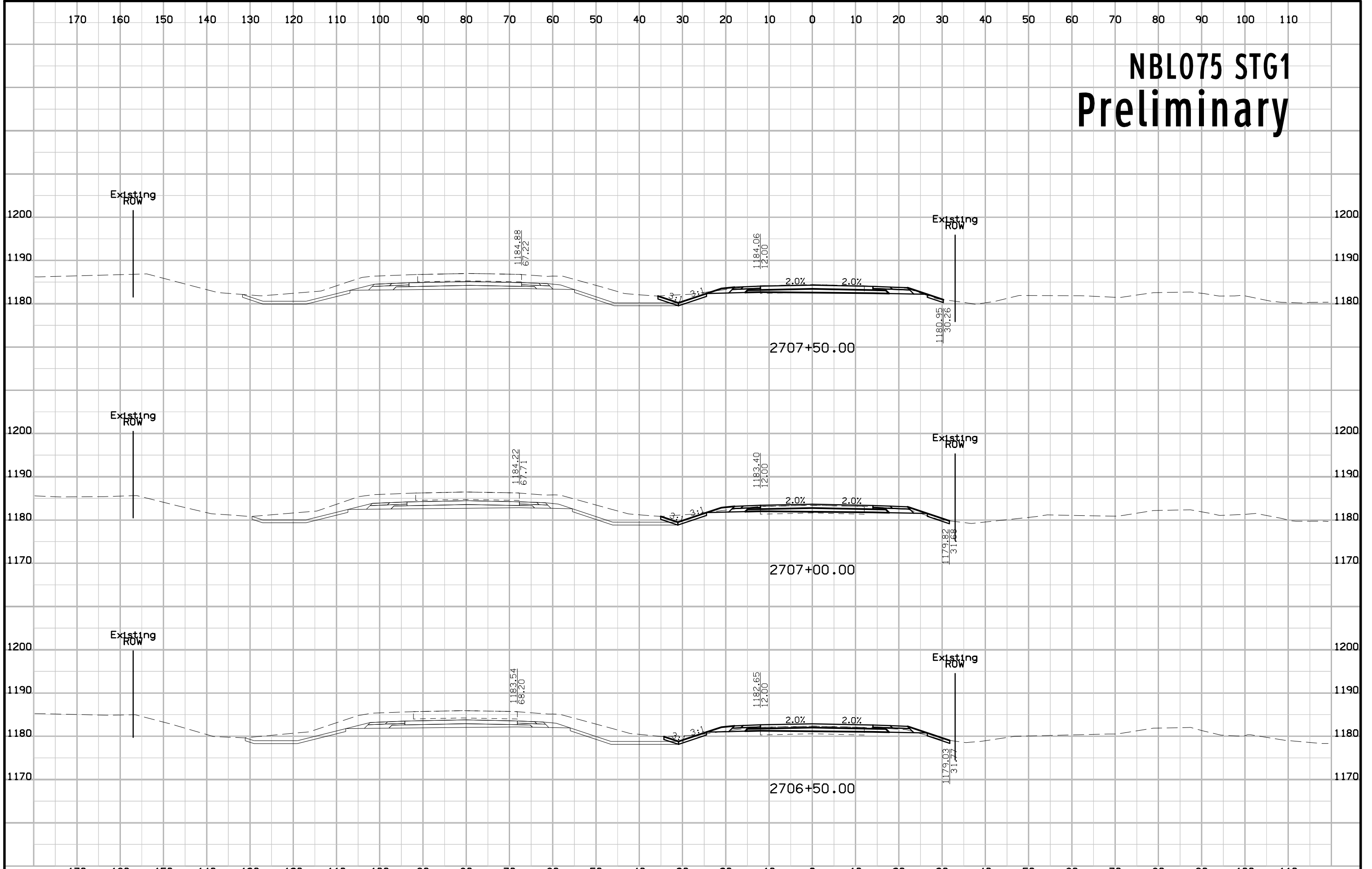
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# NBL075 STG1 Preliminary

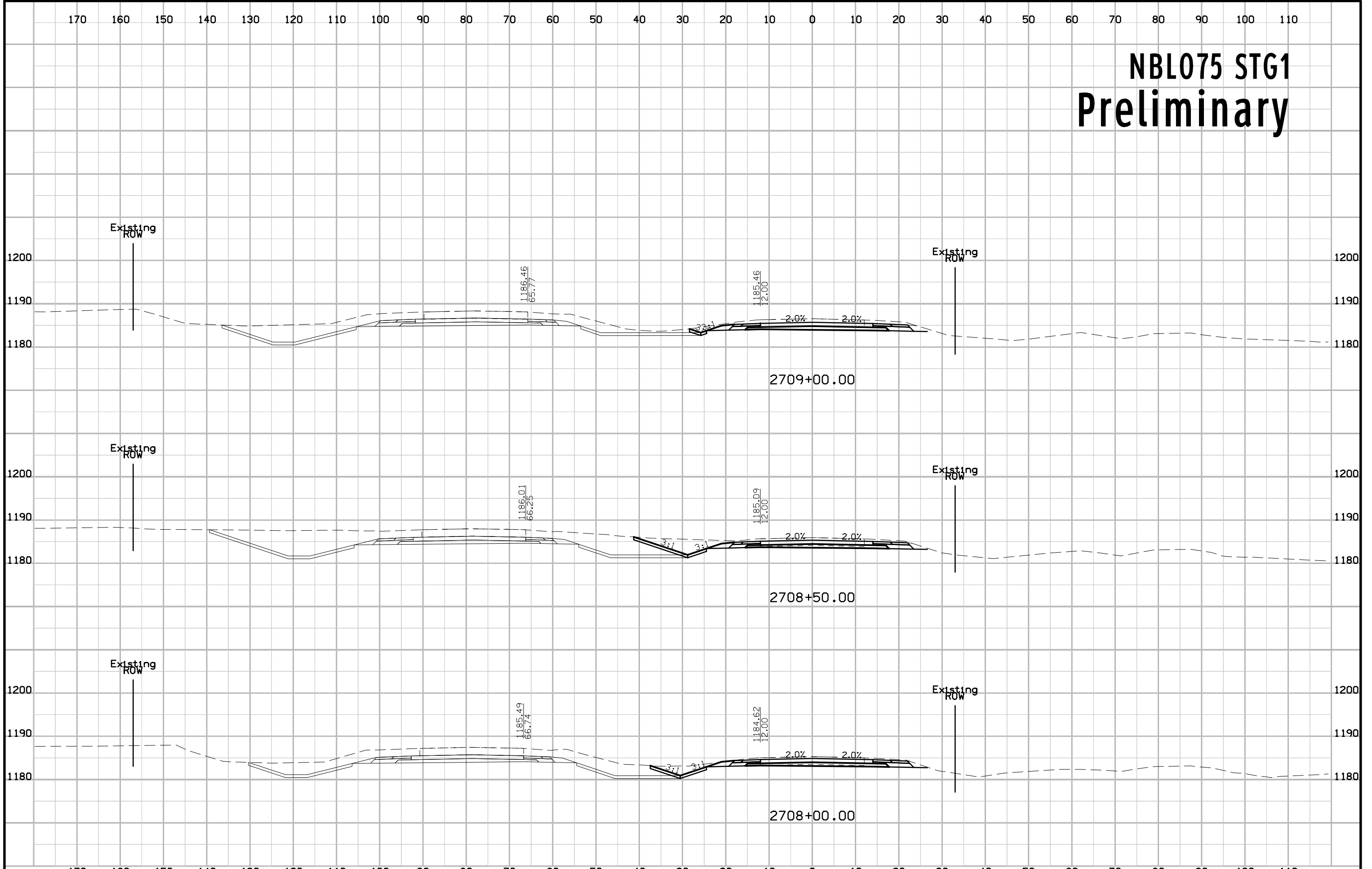


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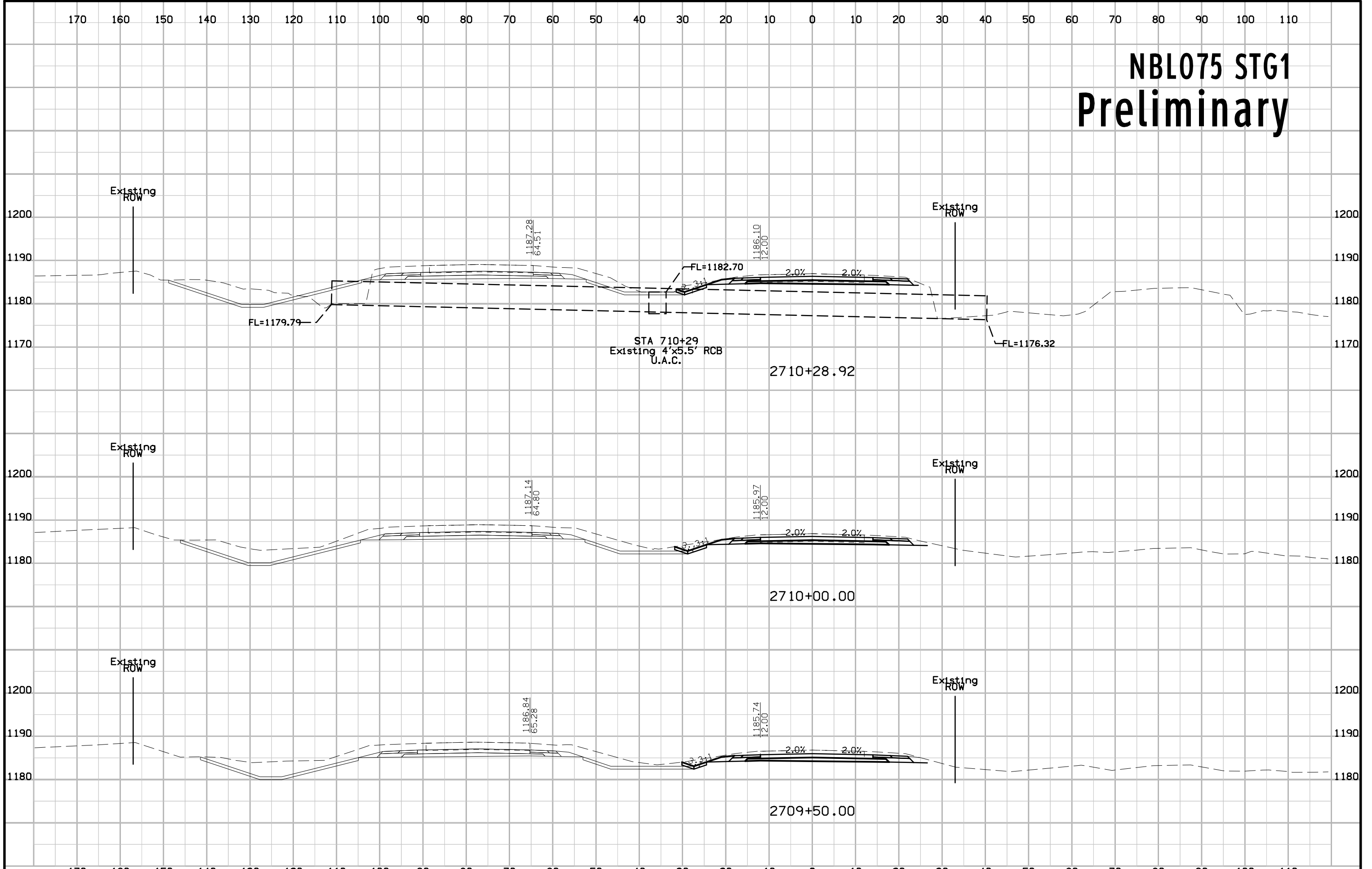




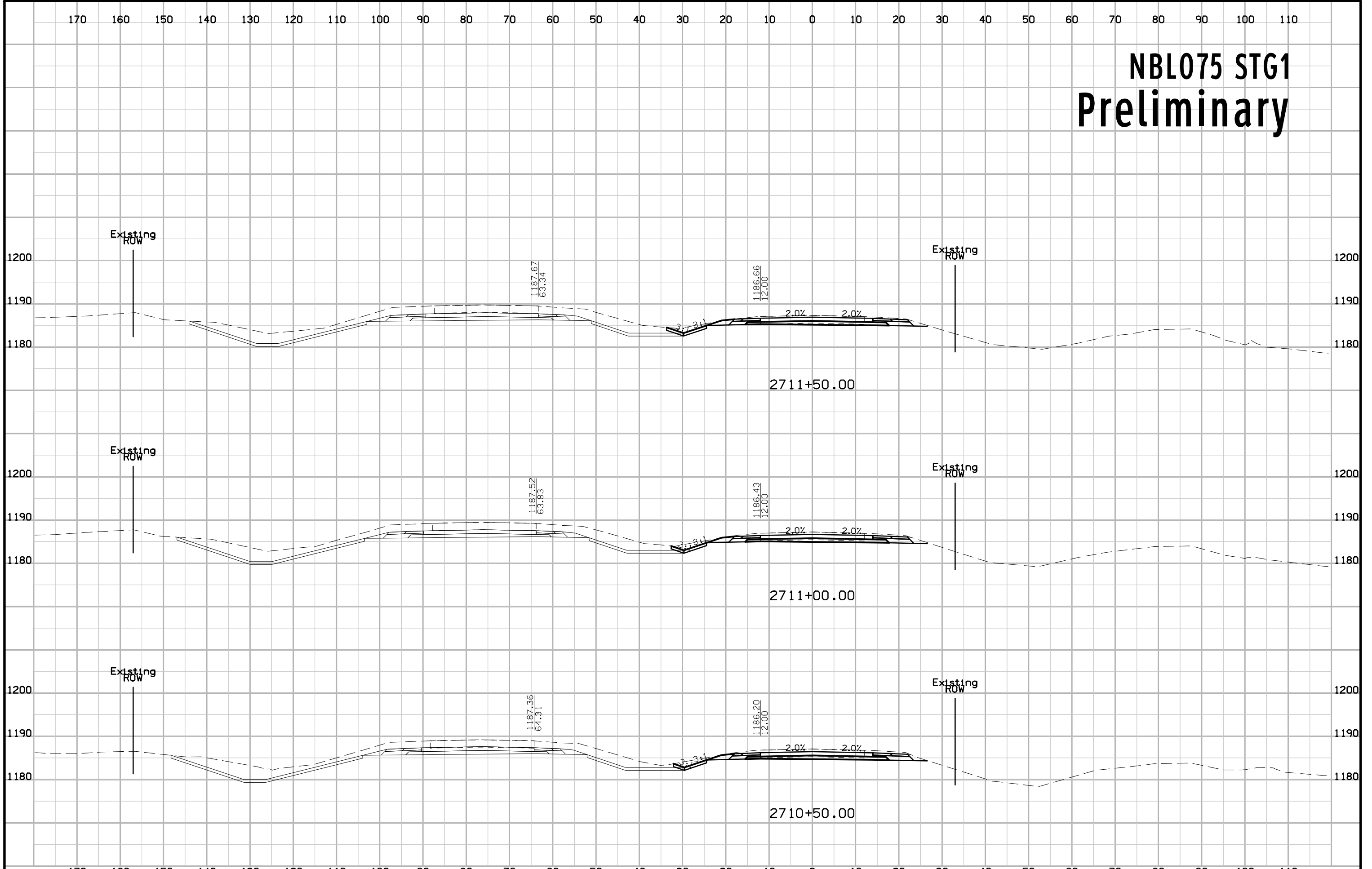
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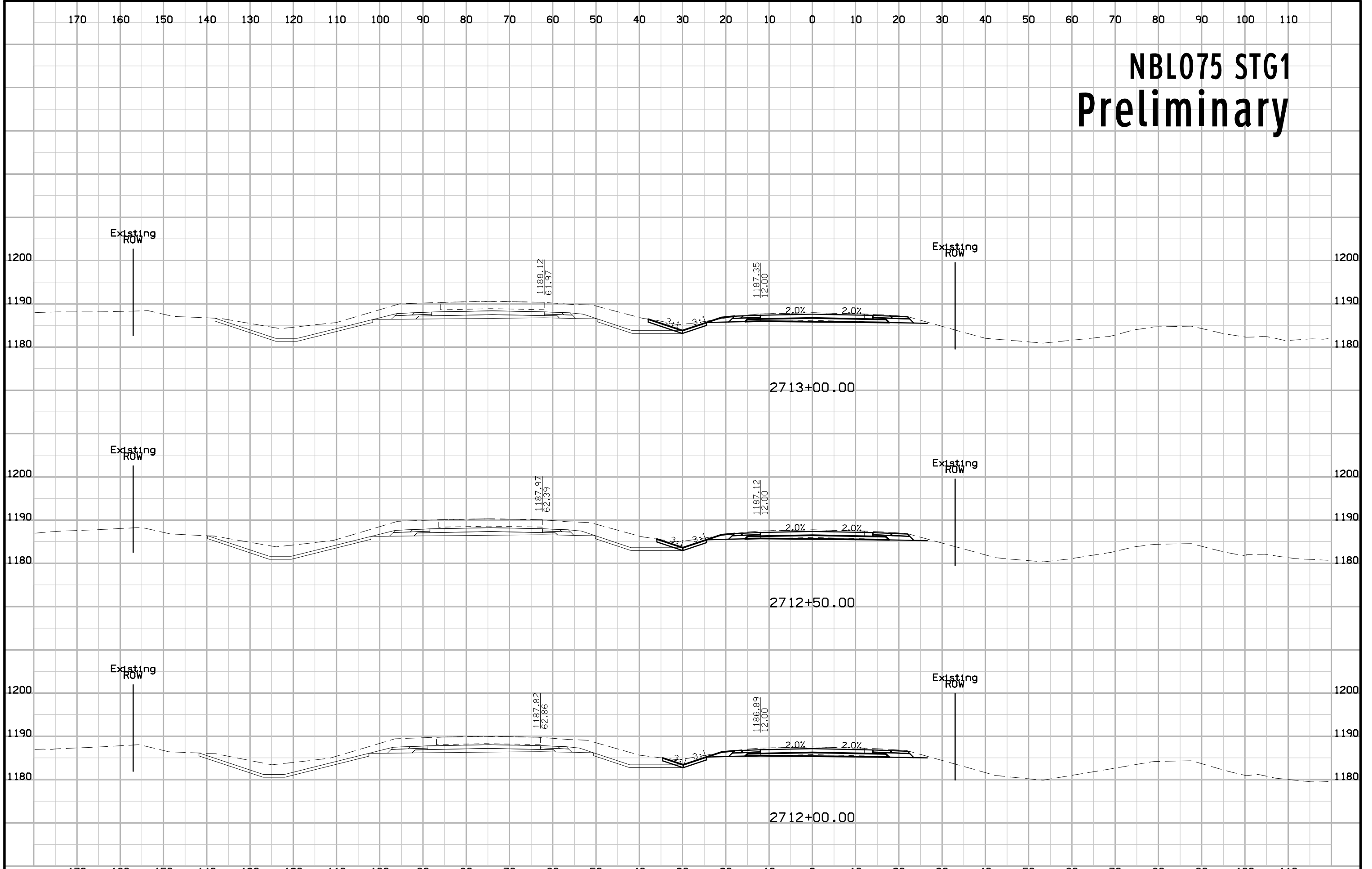
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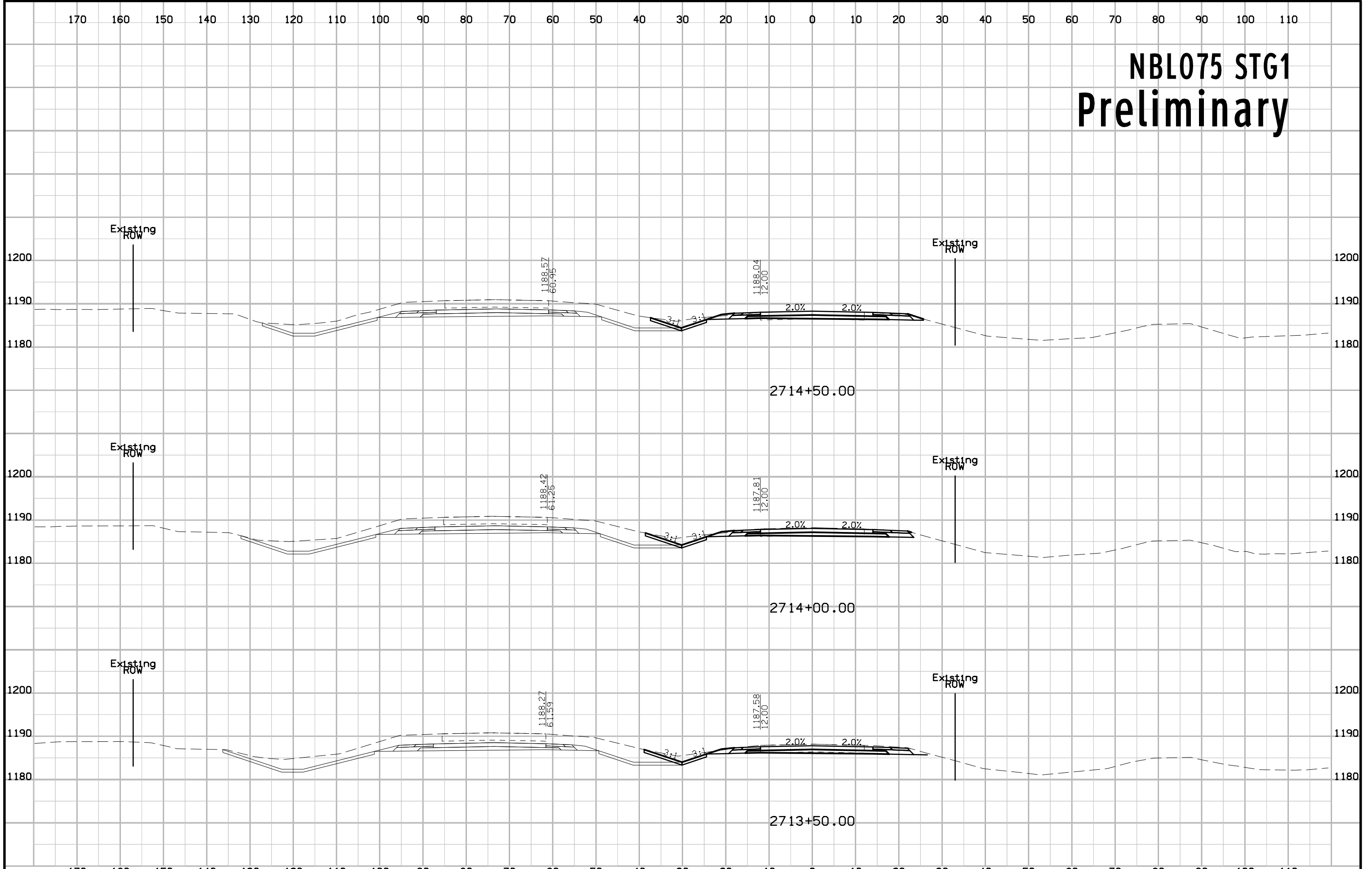
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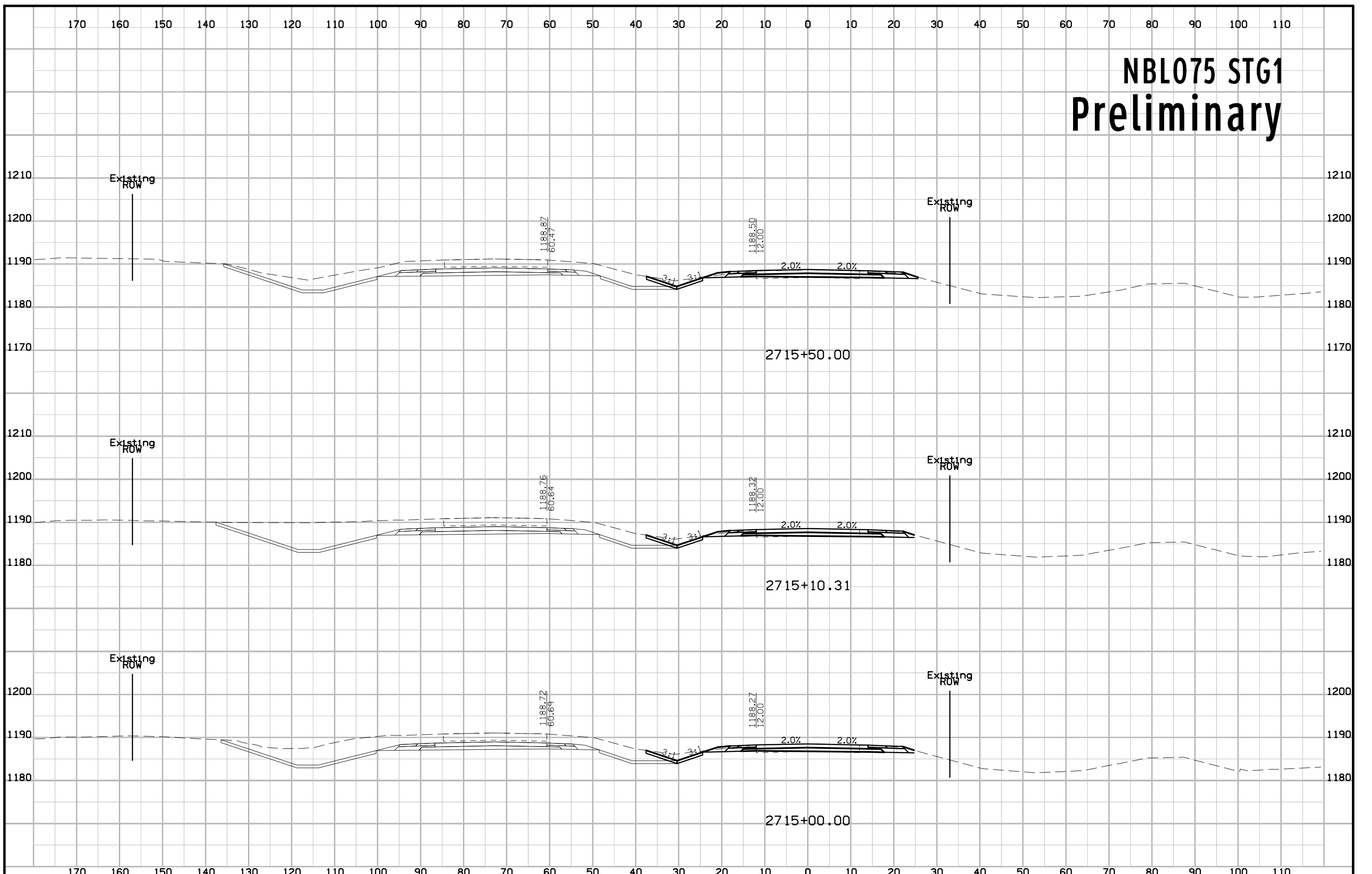
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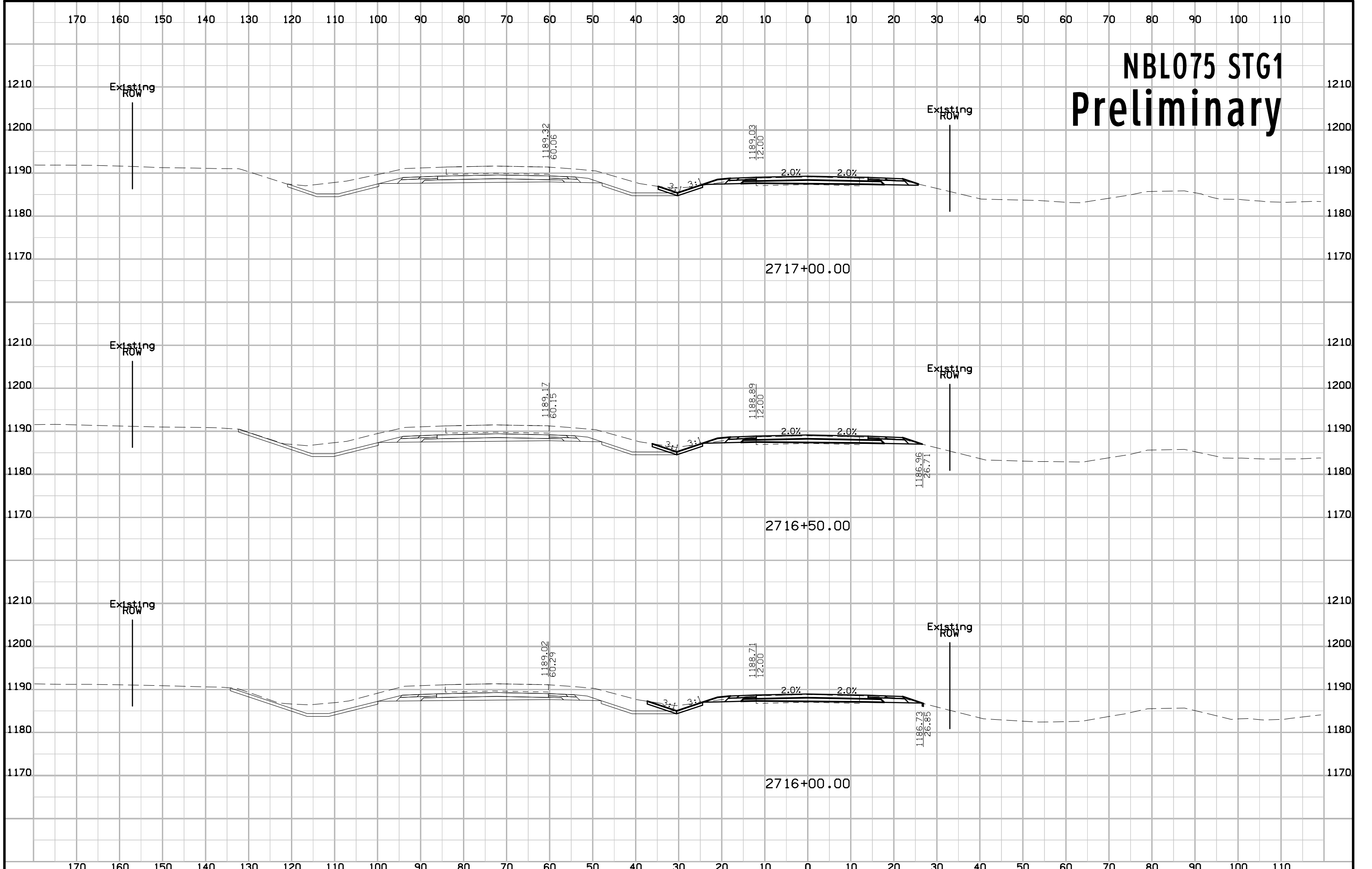
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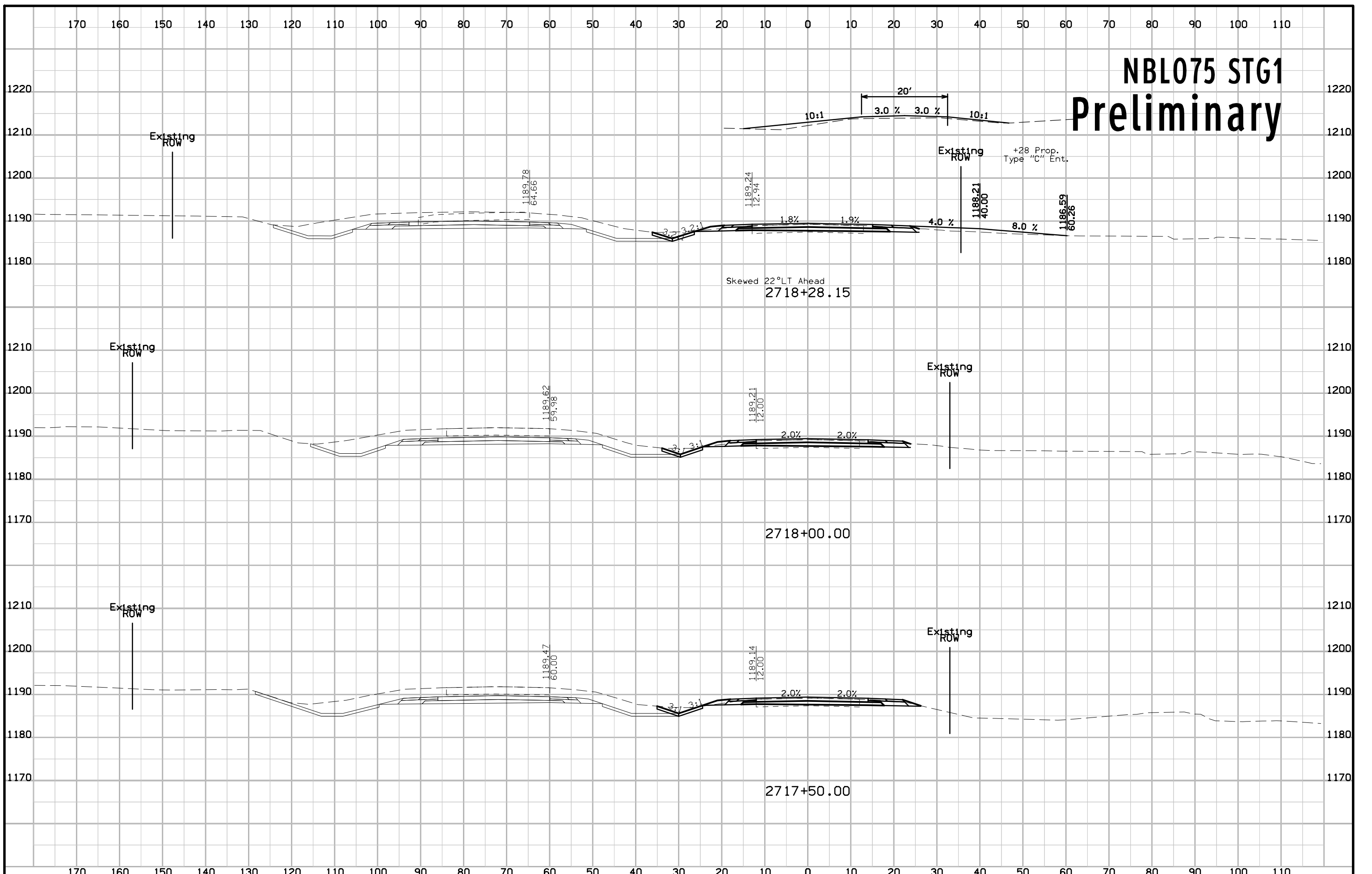
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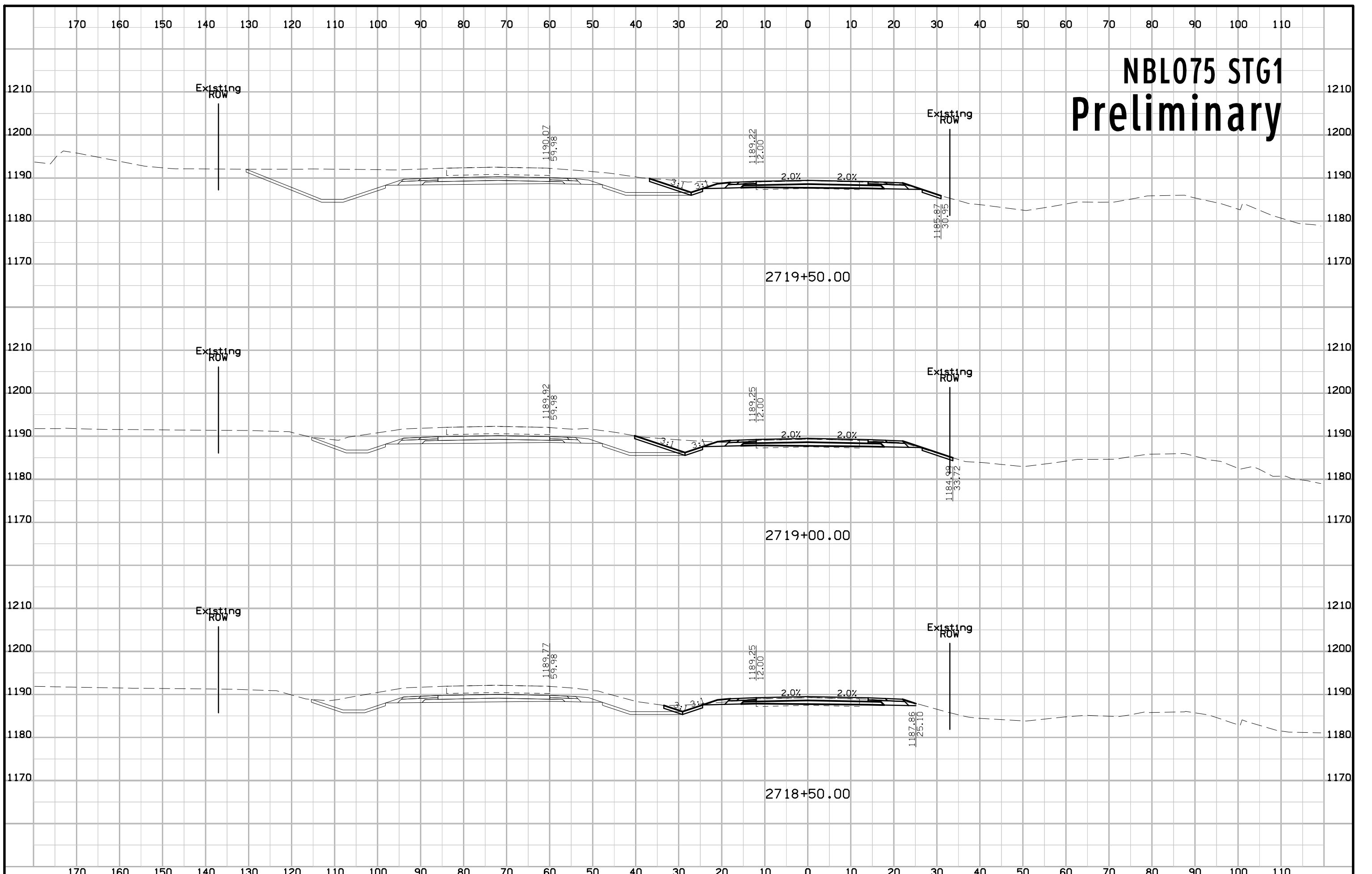


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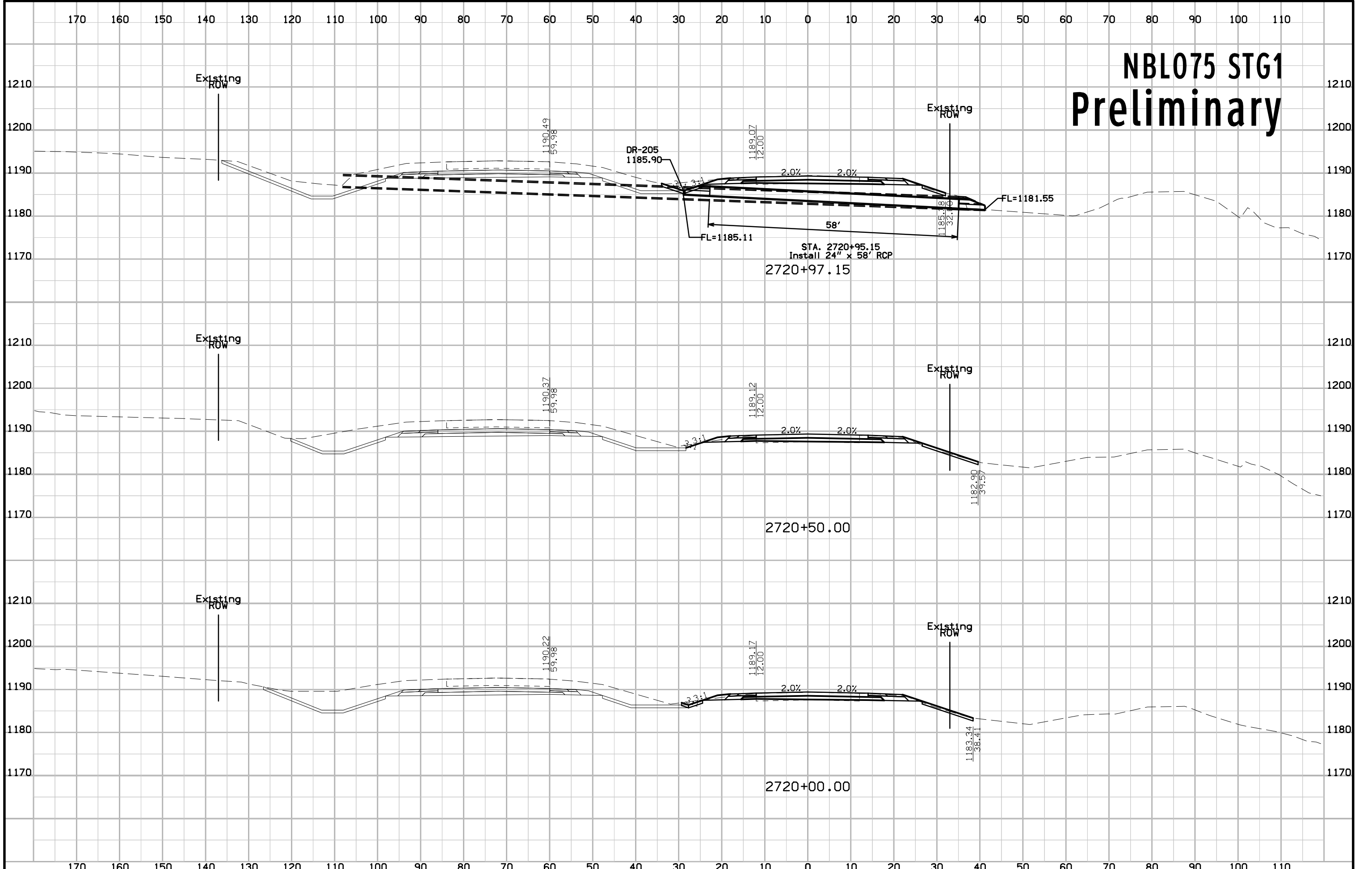




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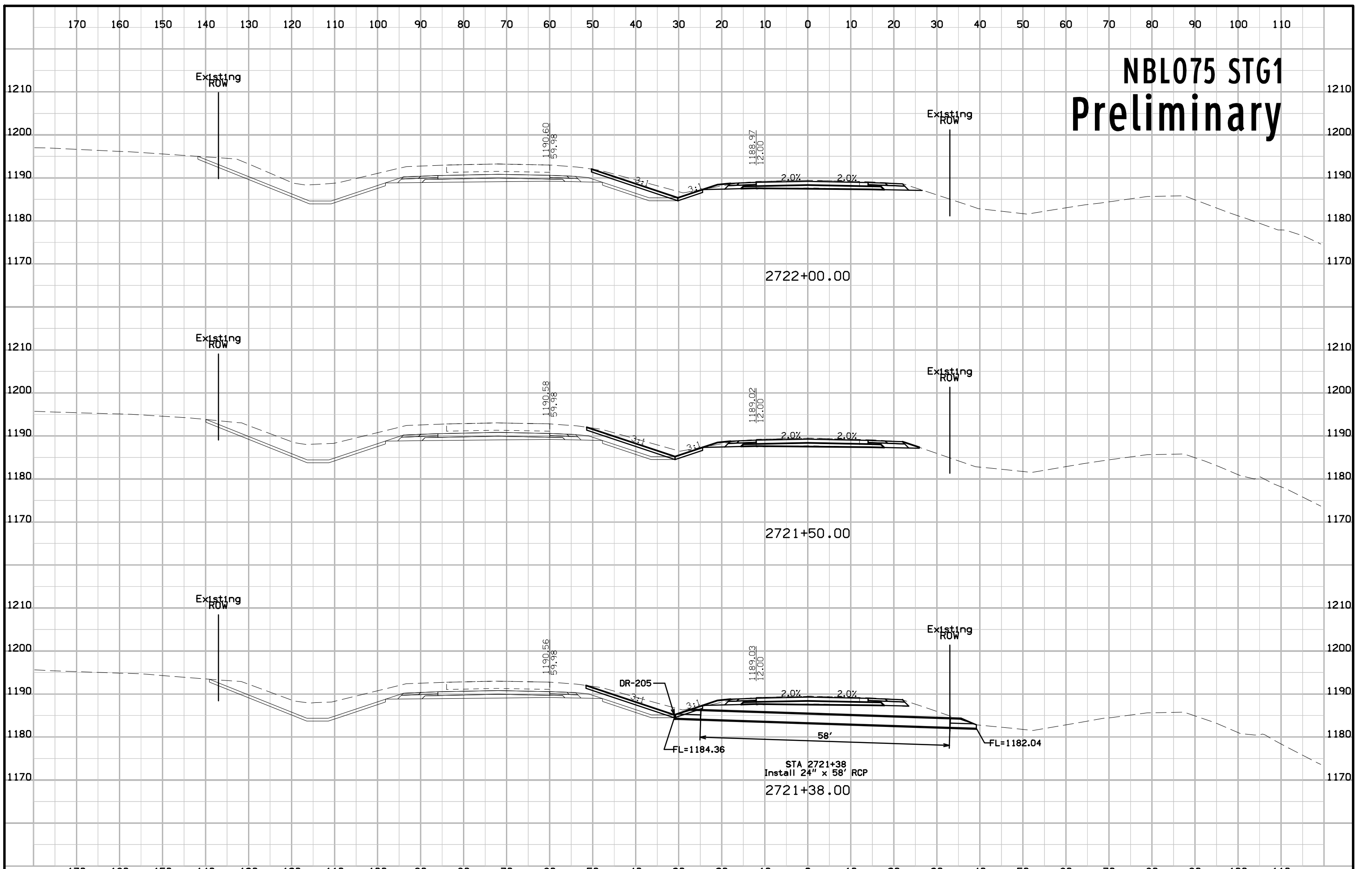


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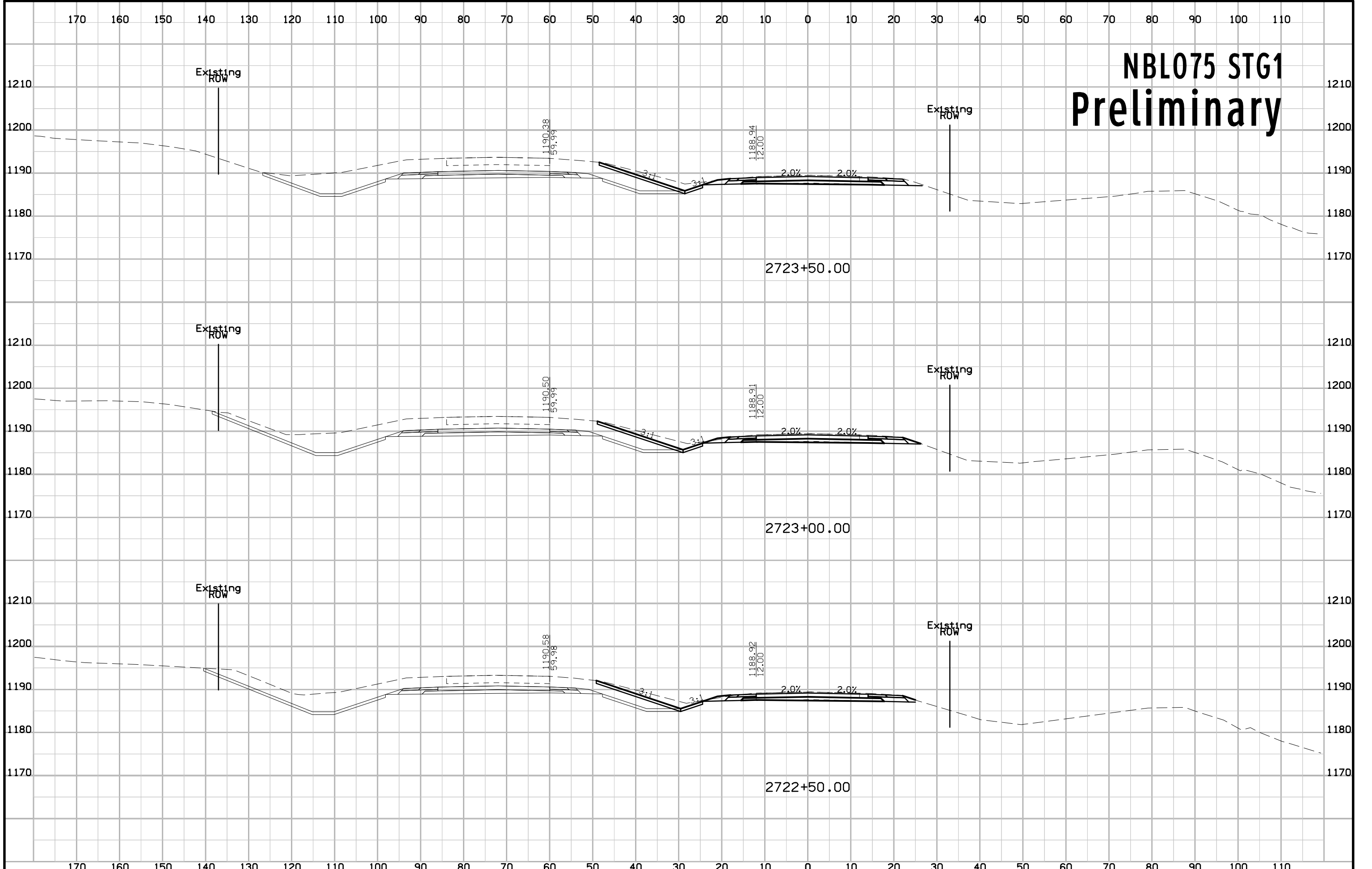




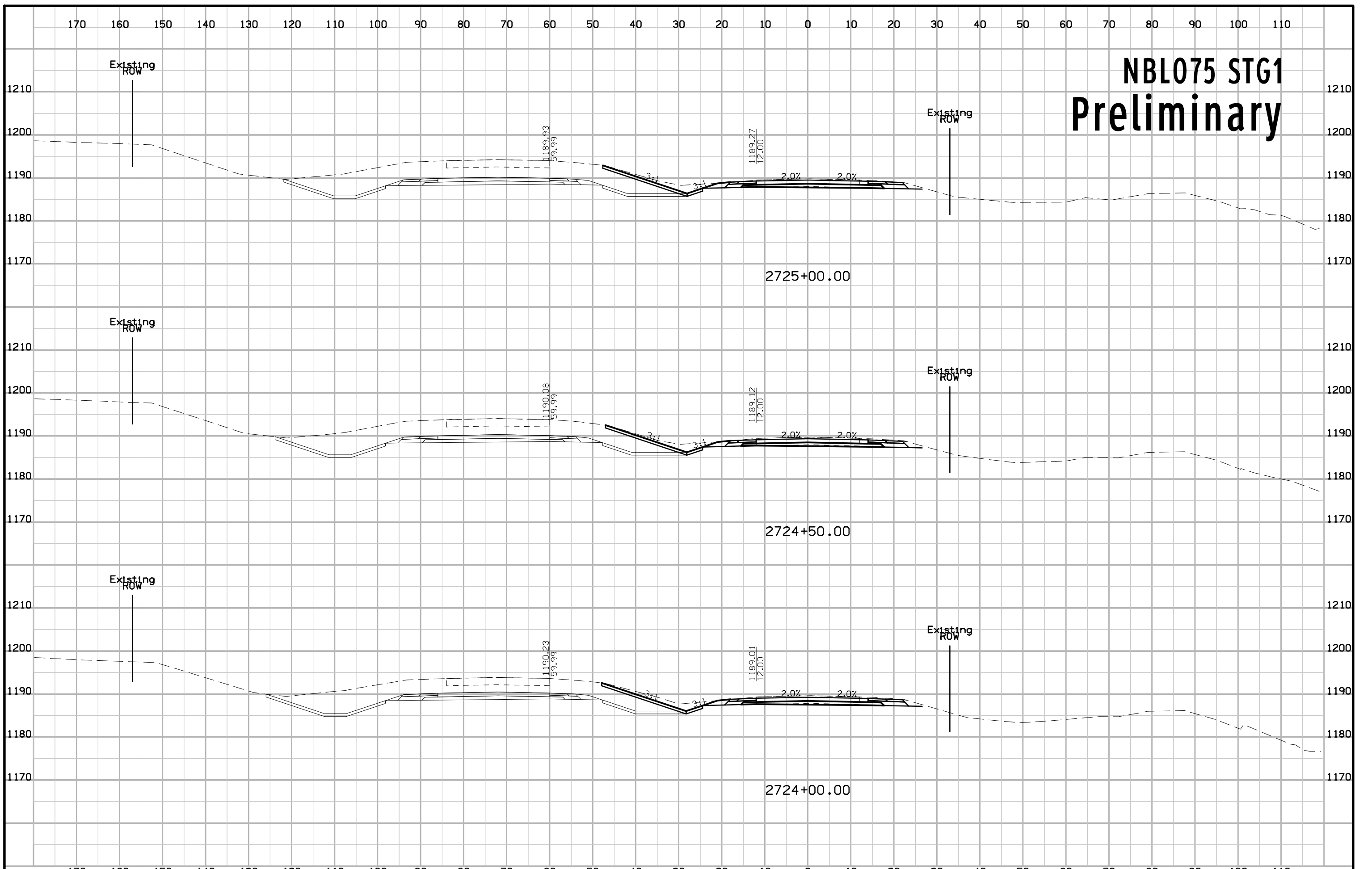
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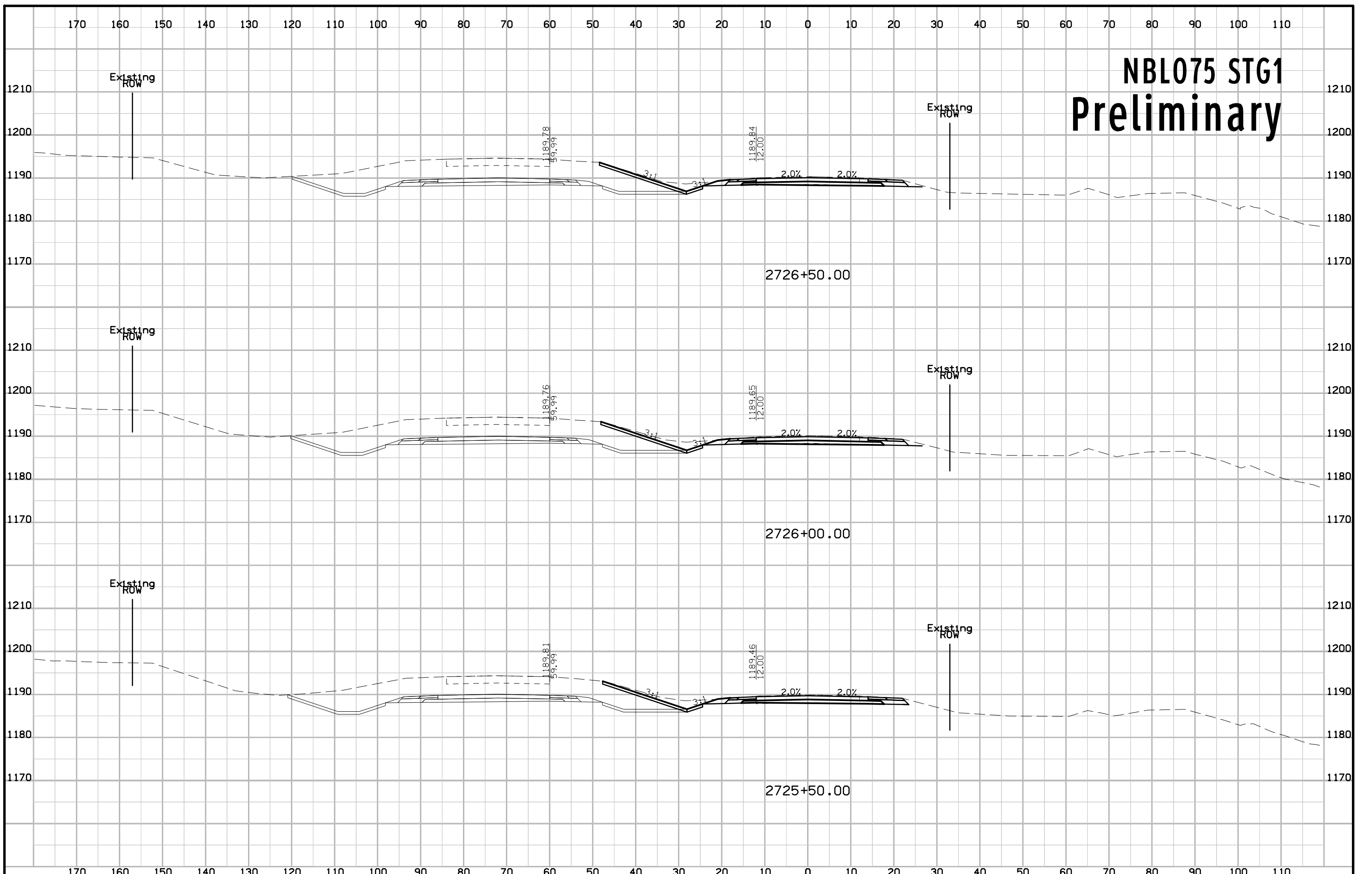
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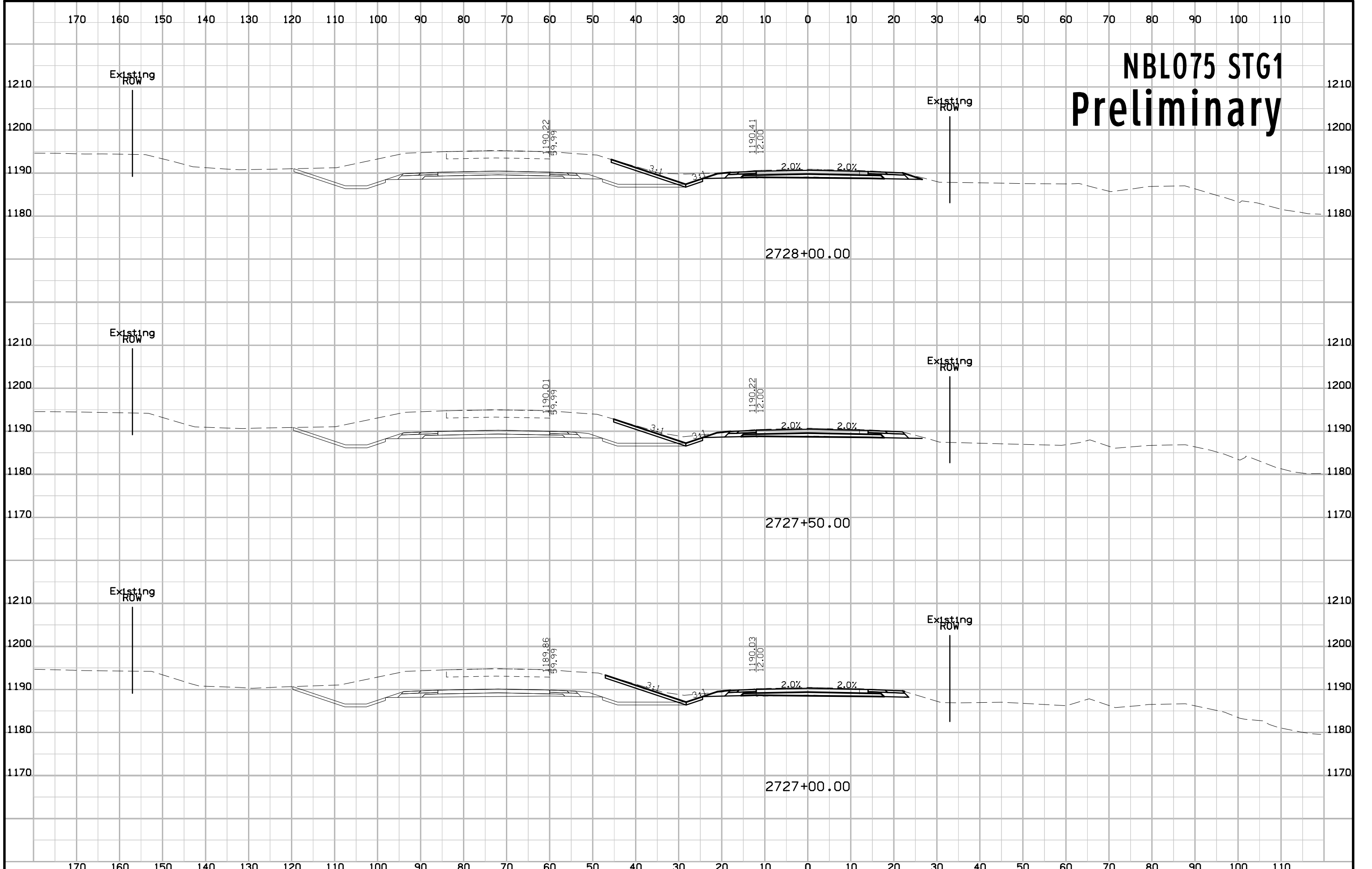
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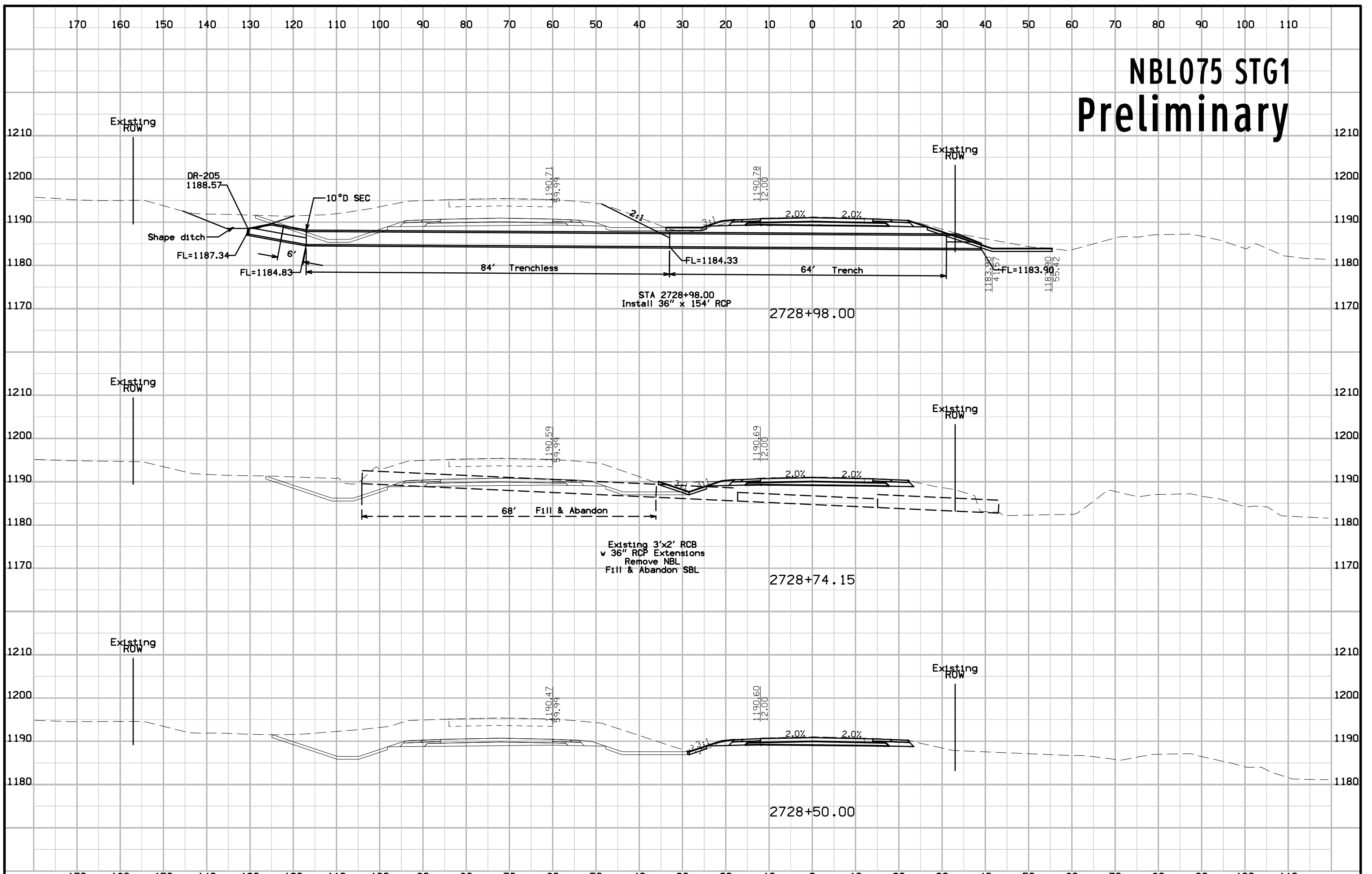


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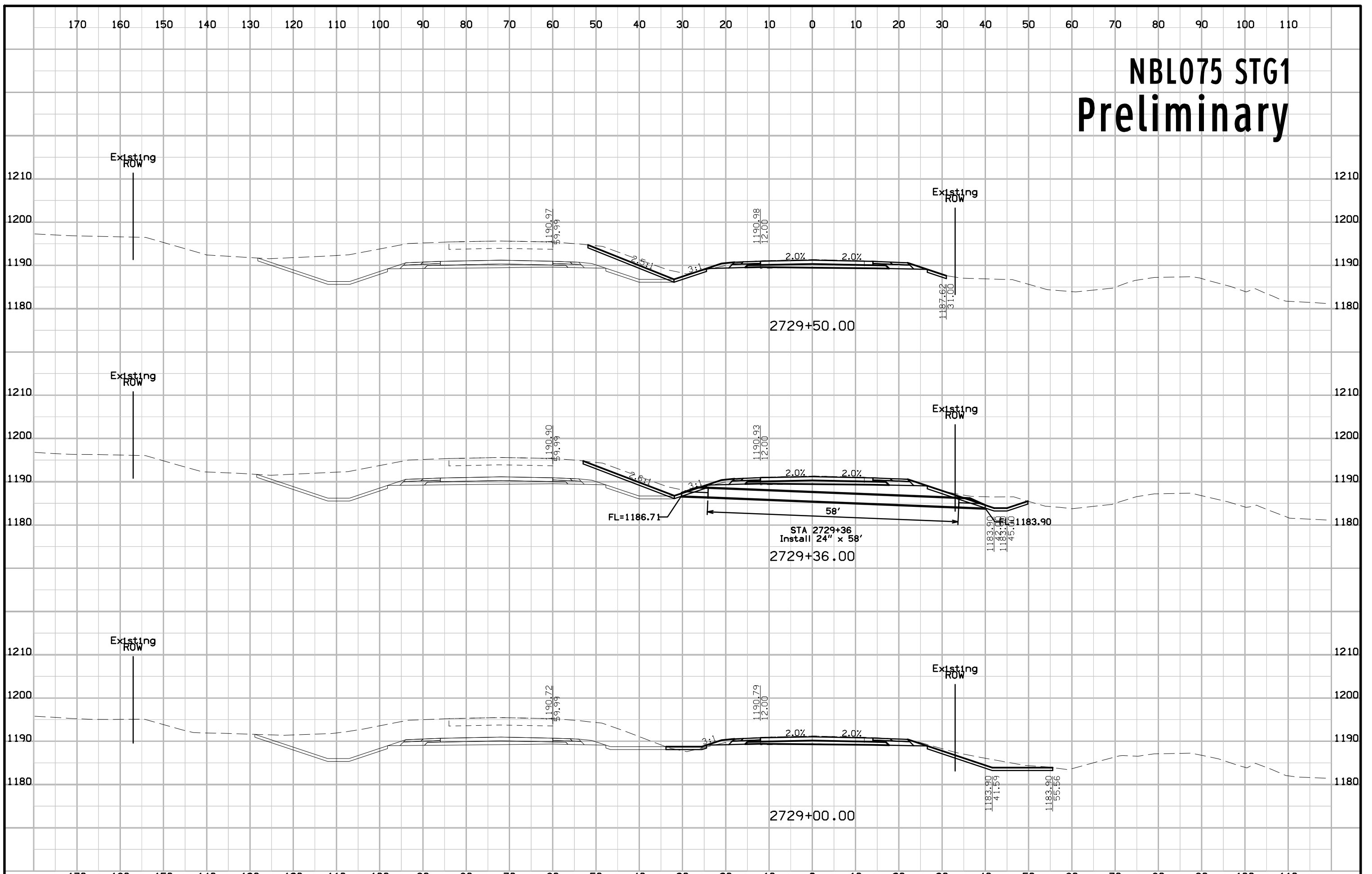




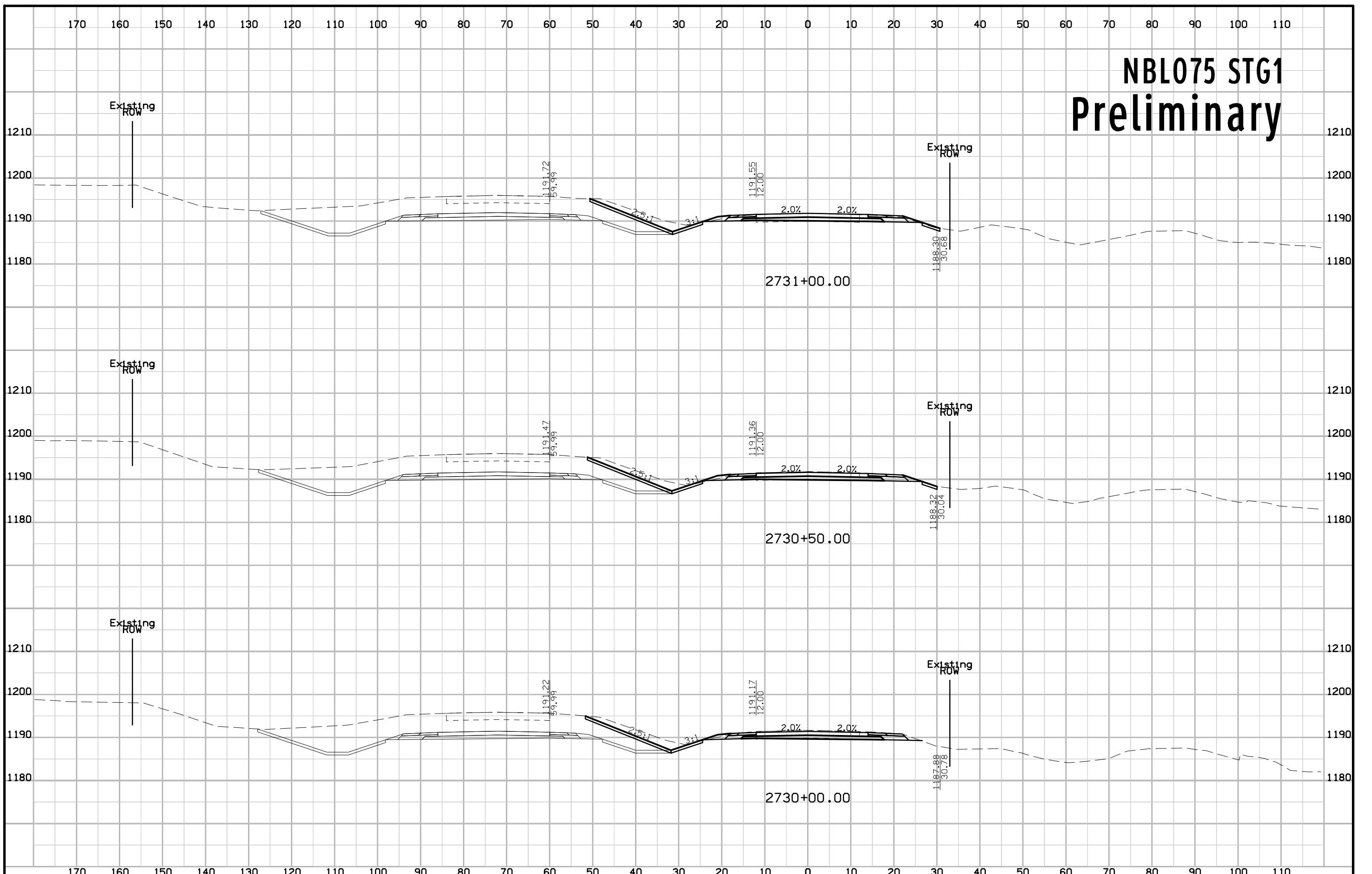
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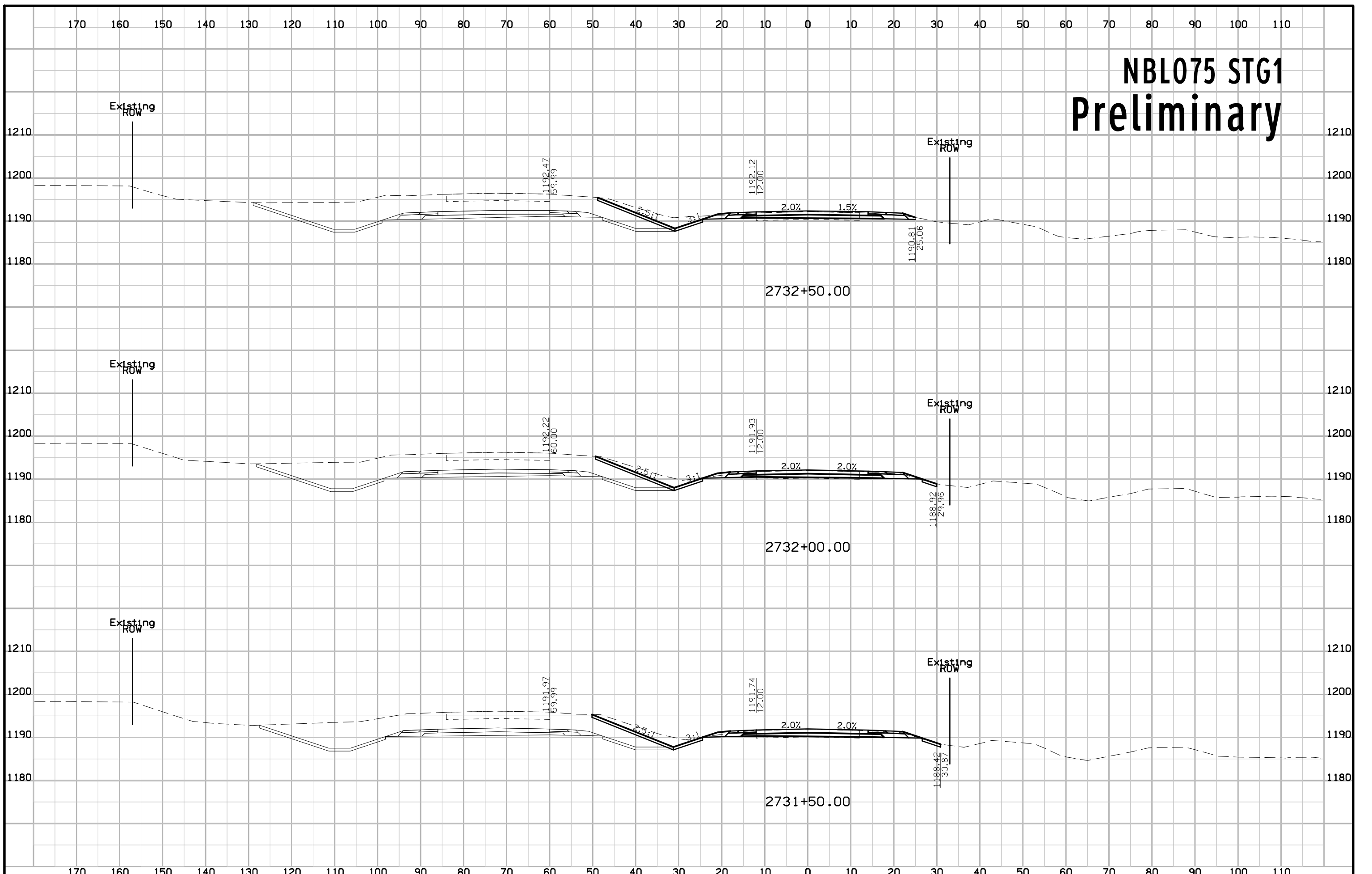
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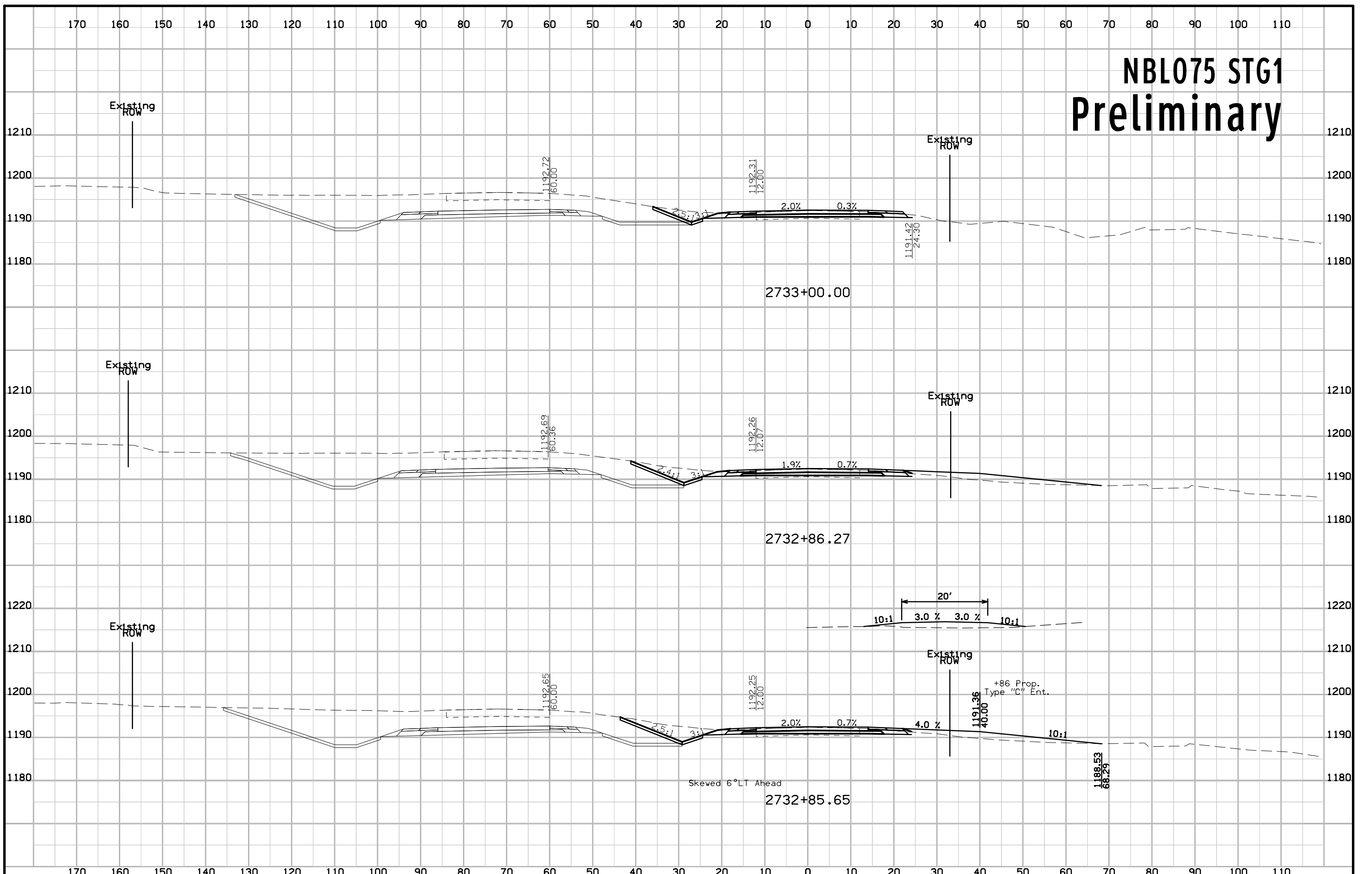
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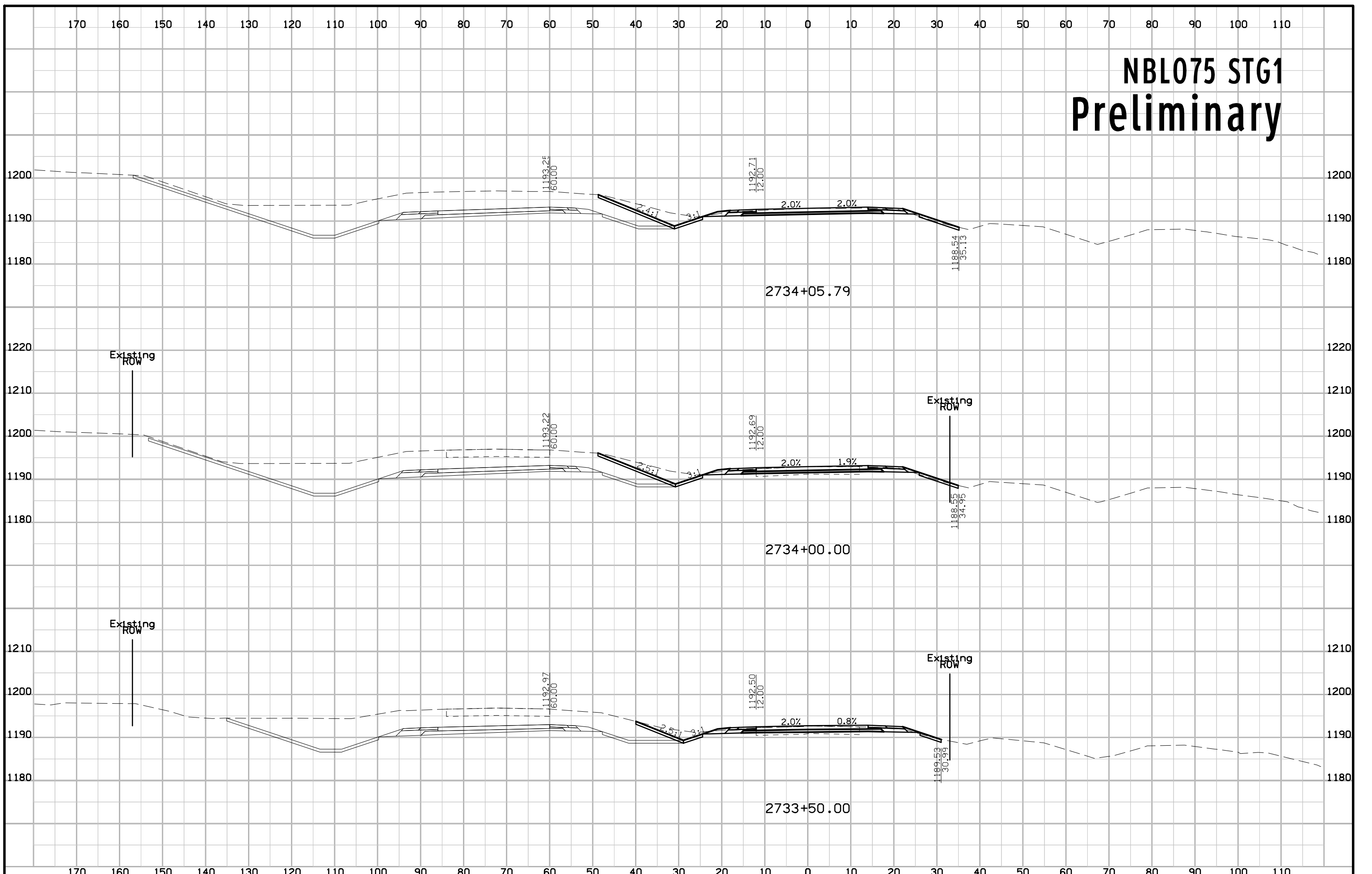
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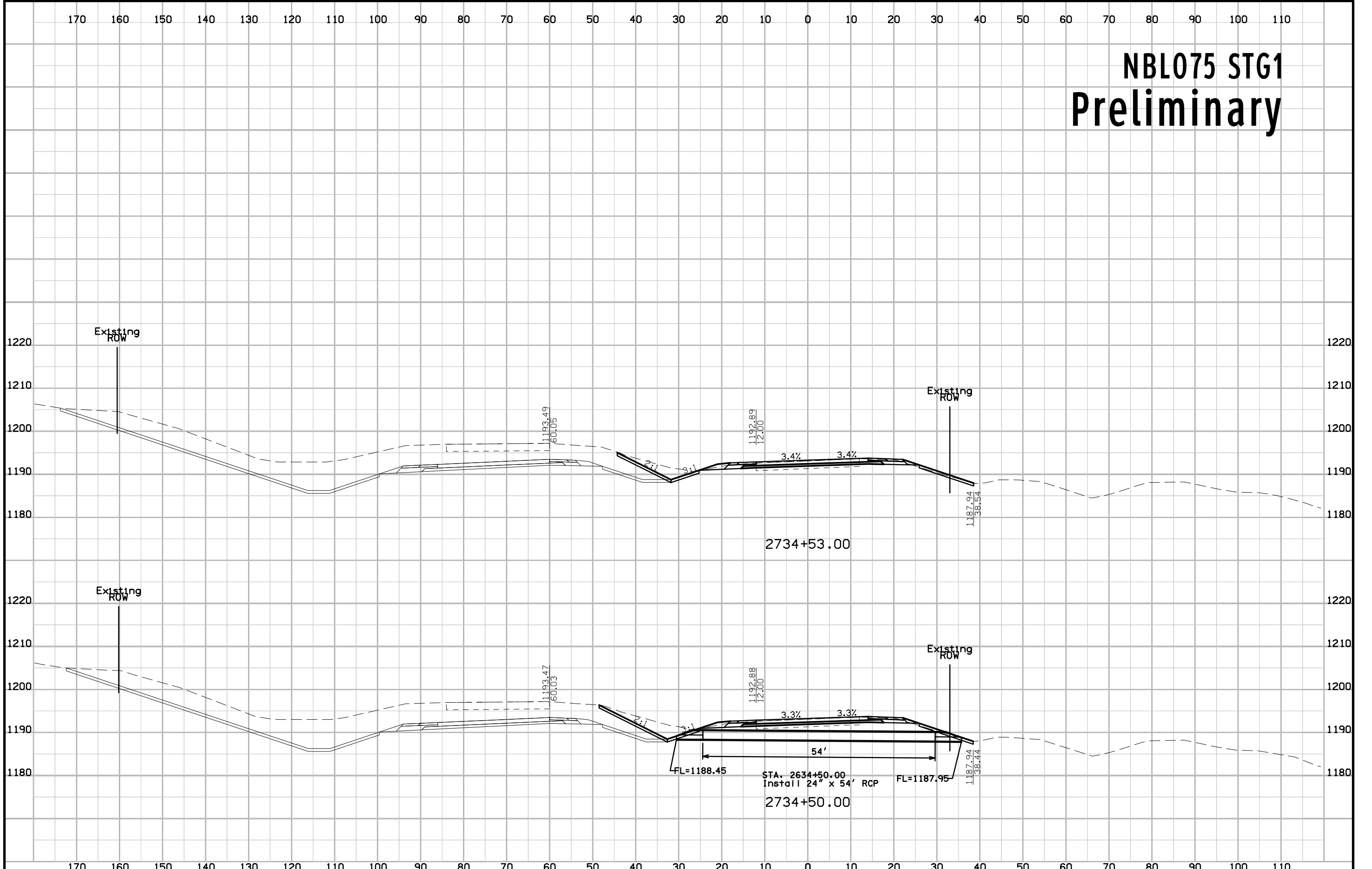
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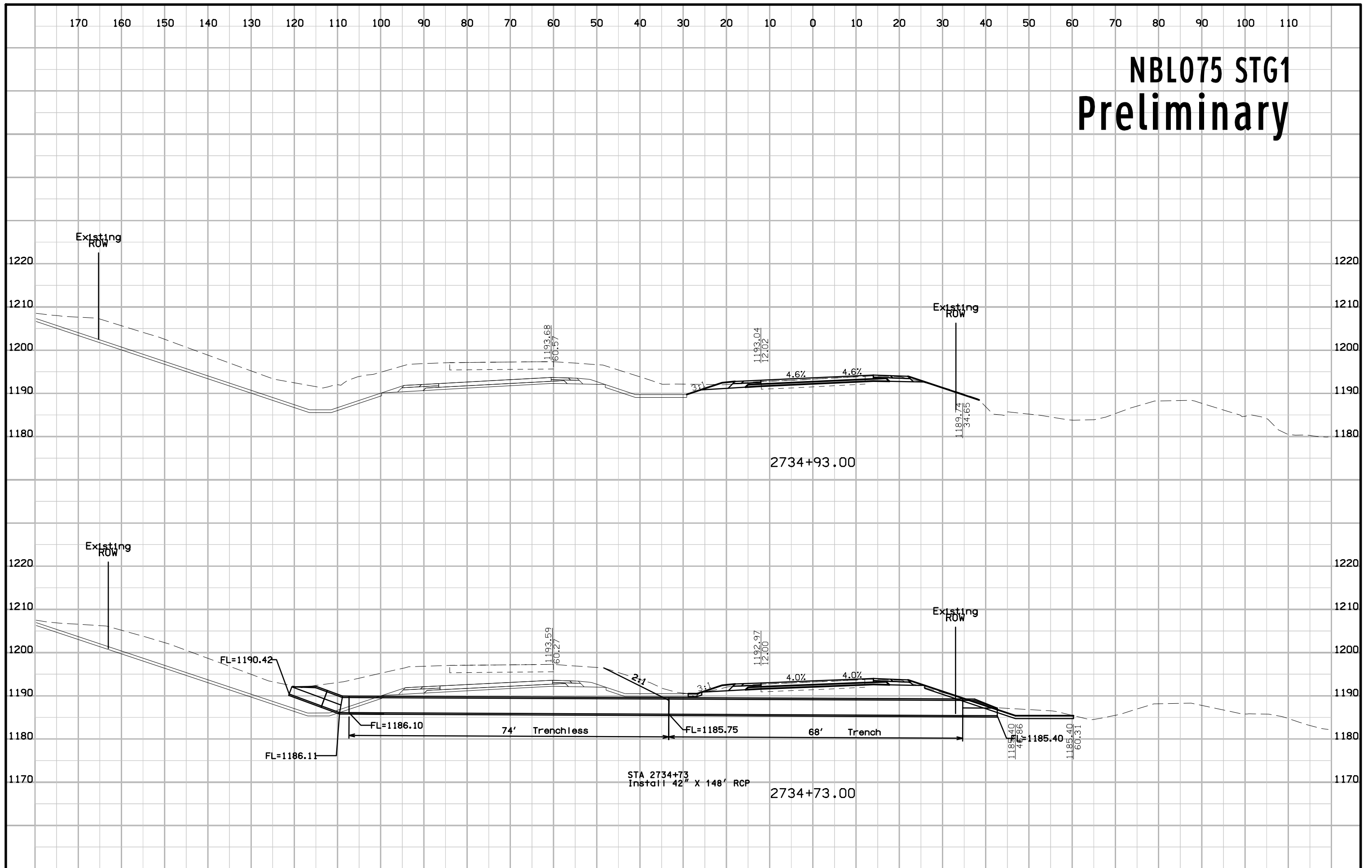
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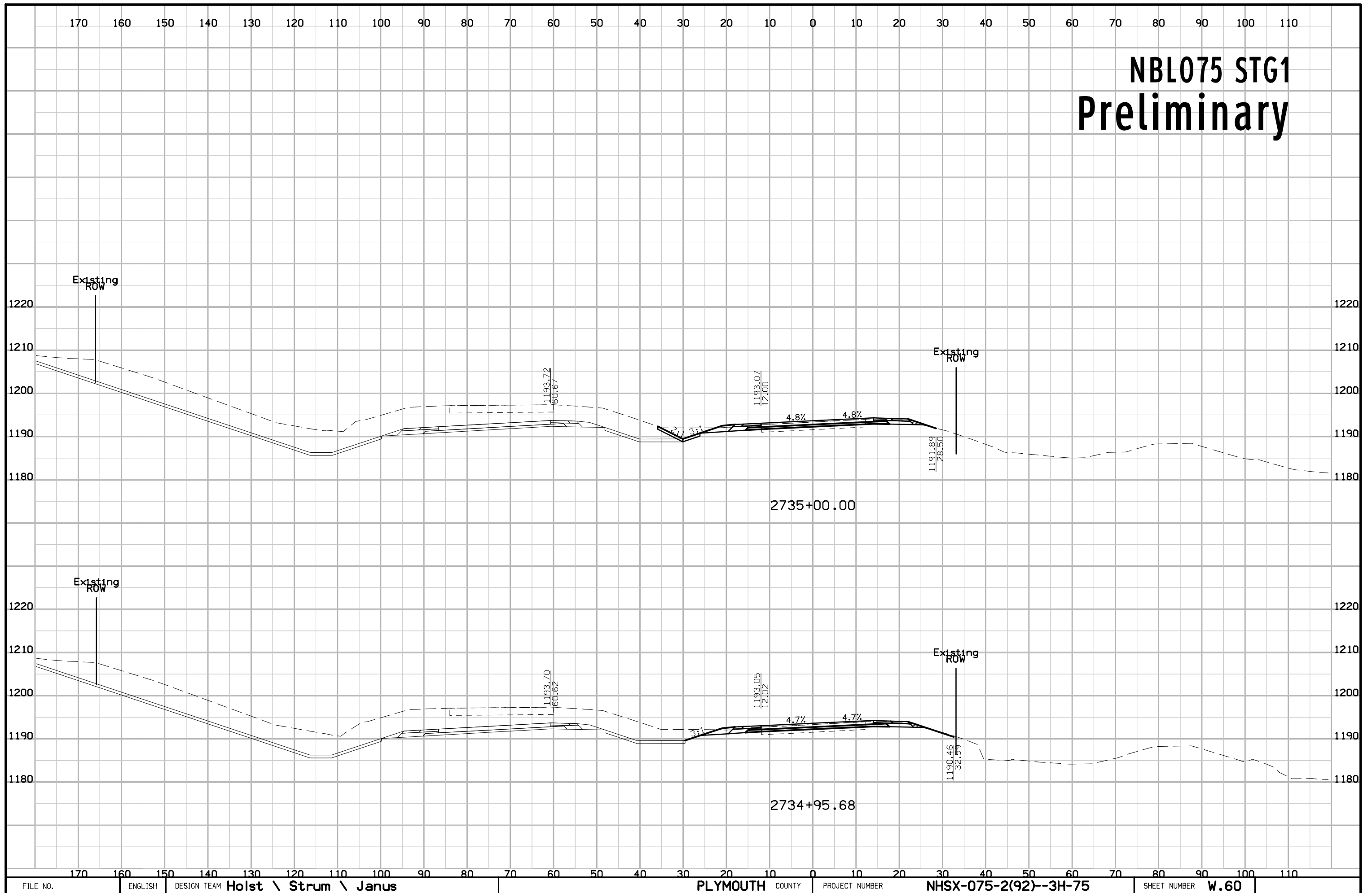


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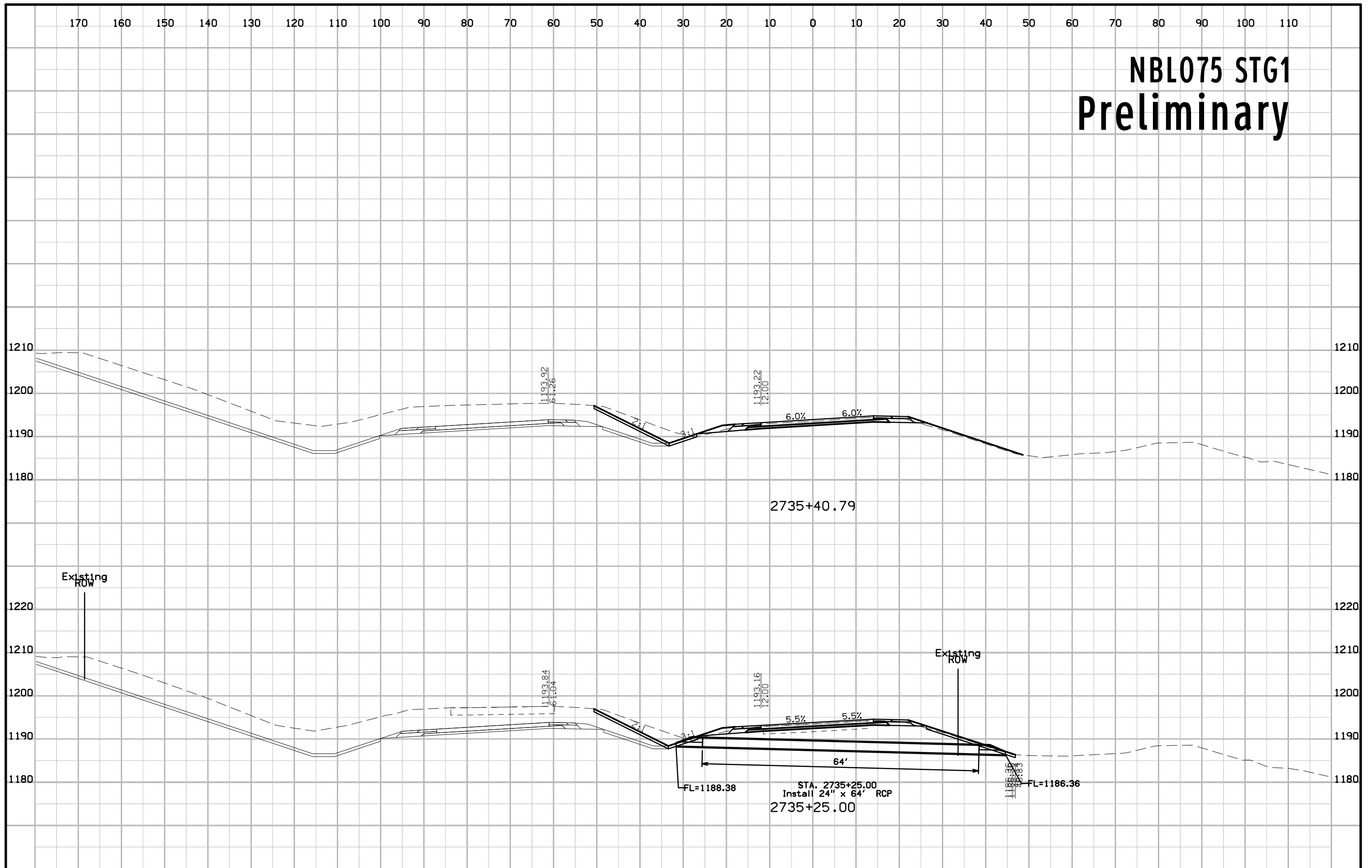




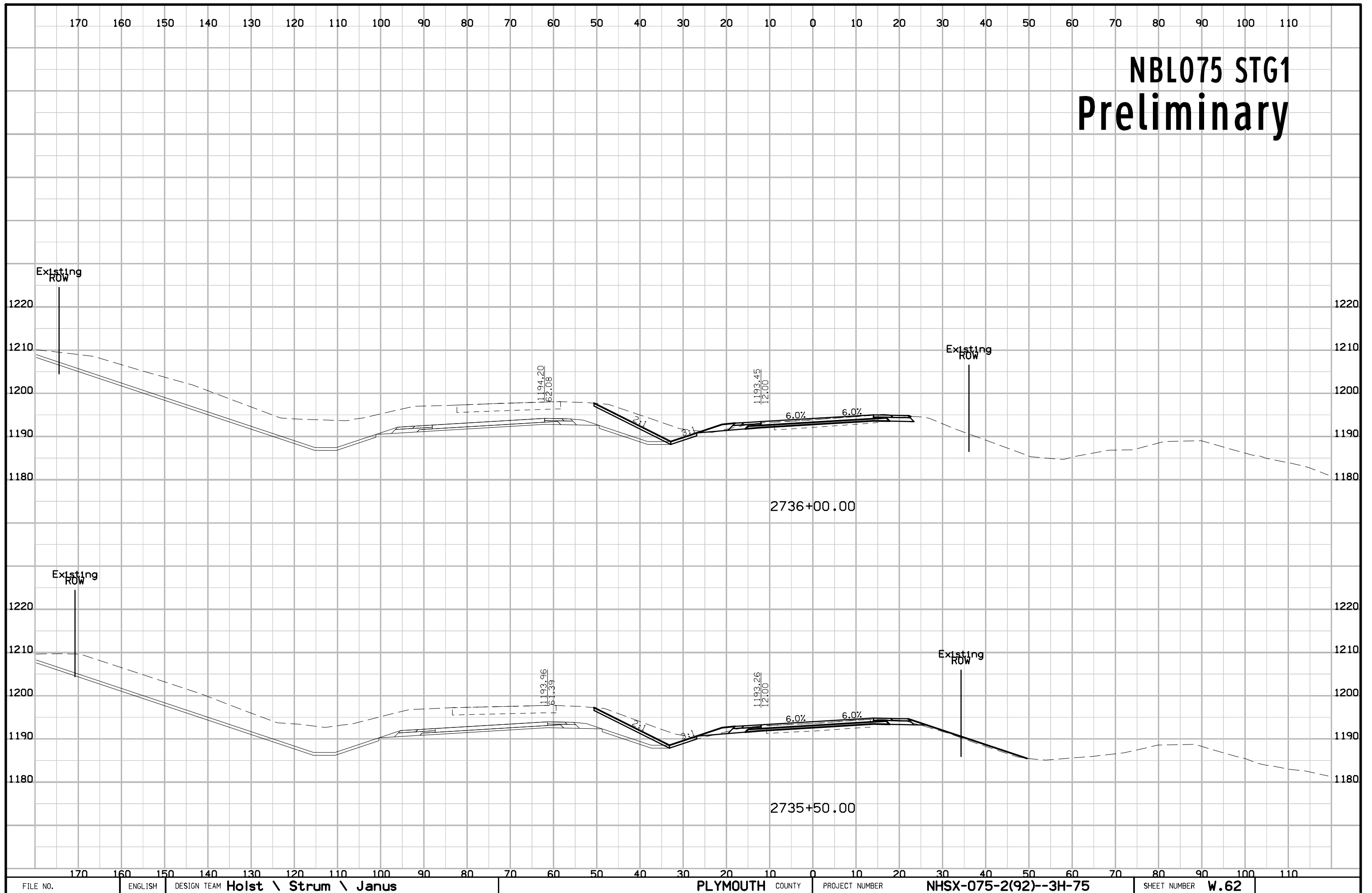
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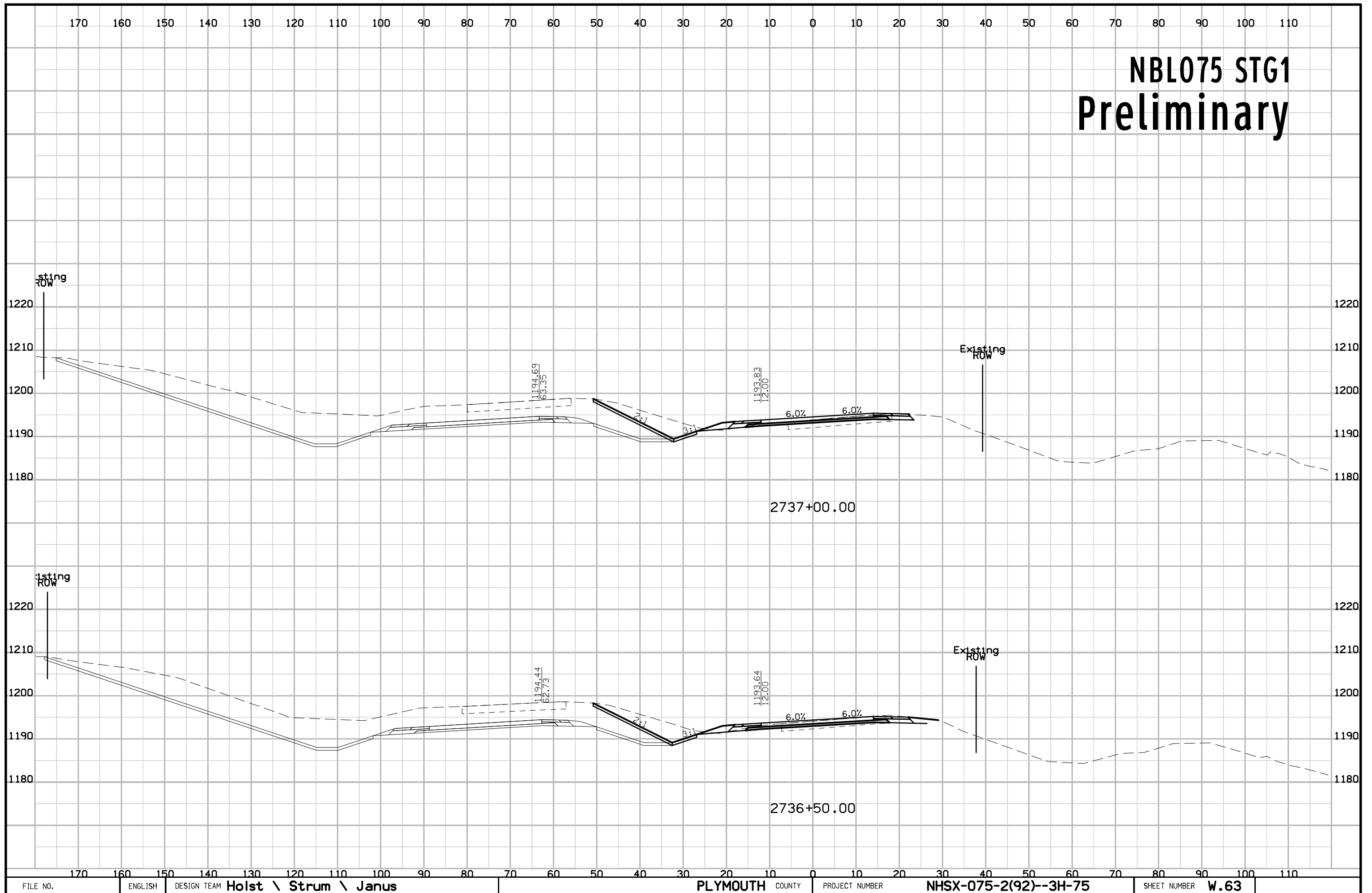
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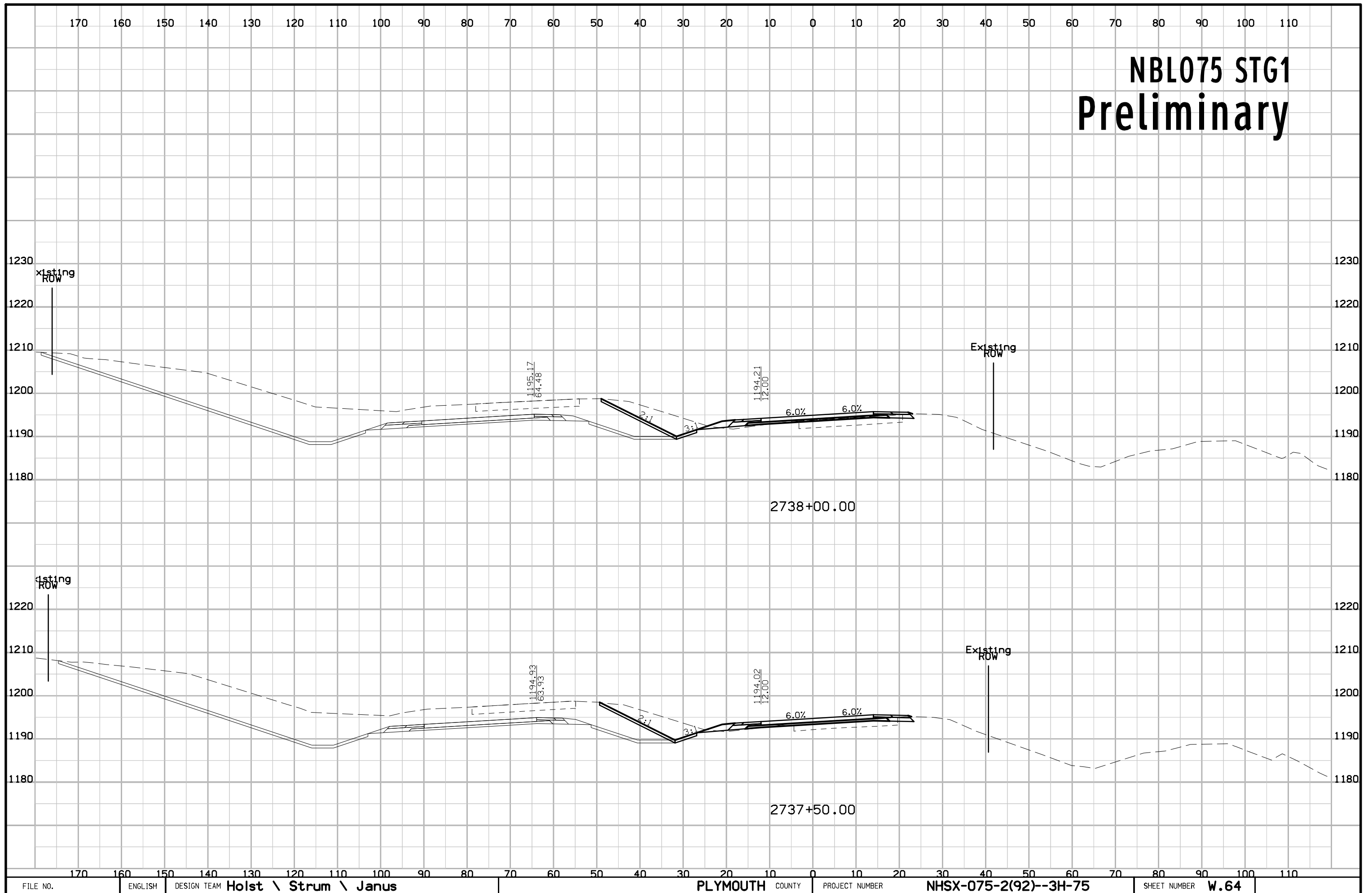
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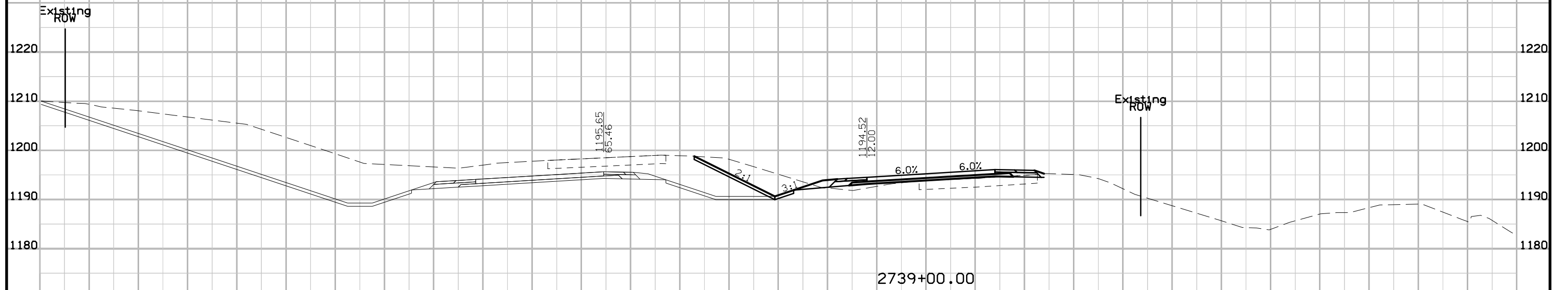
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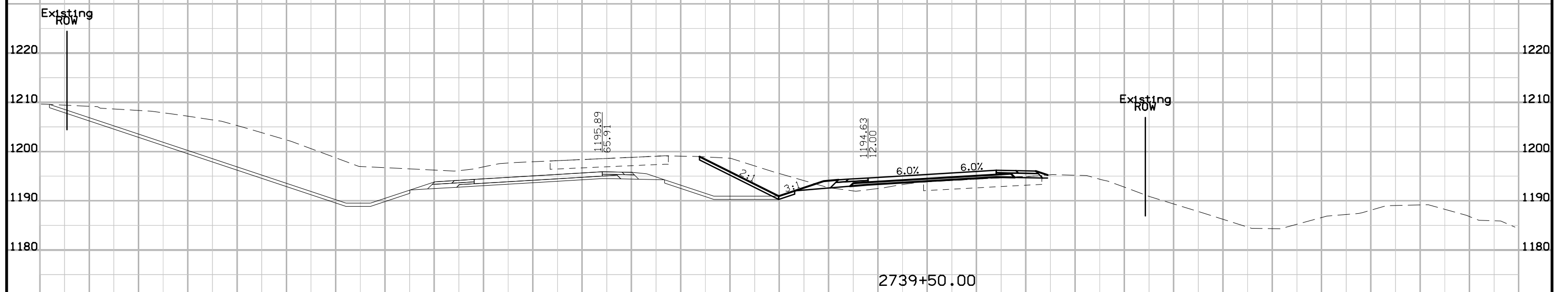
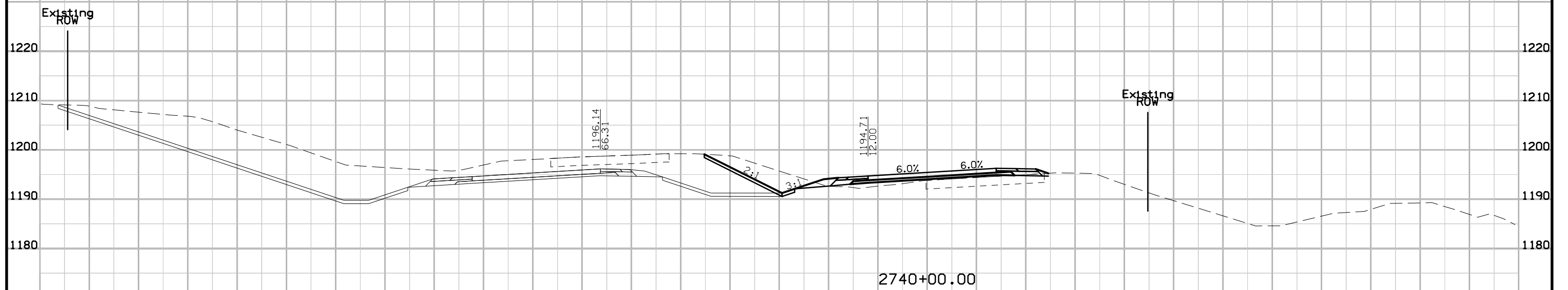
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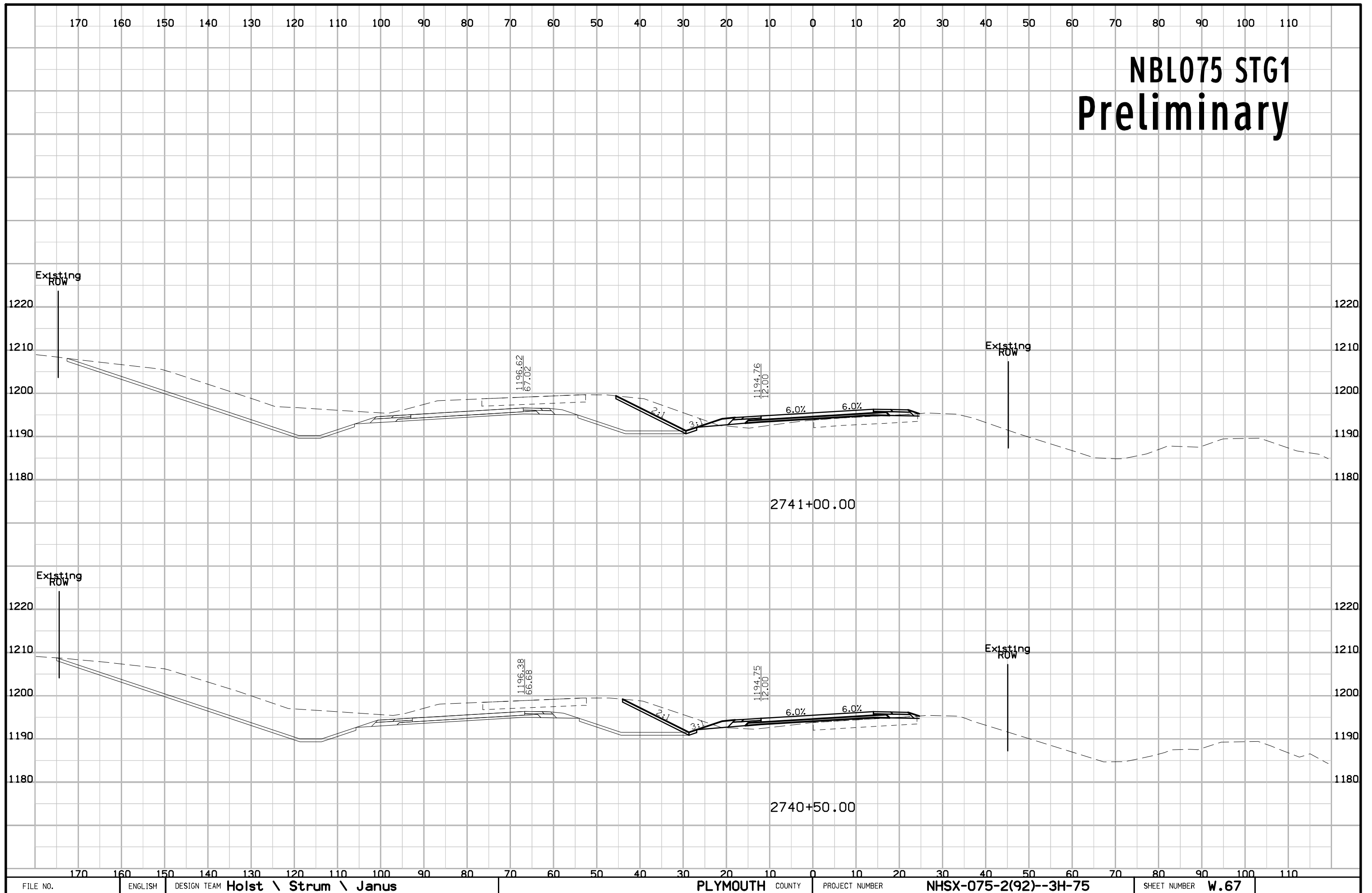
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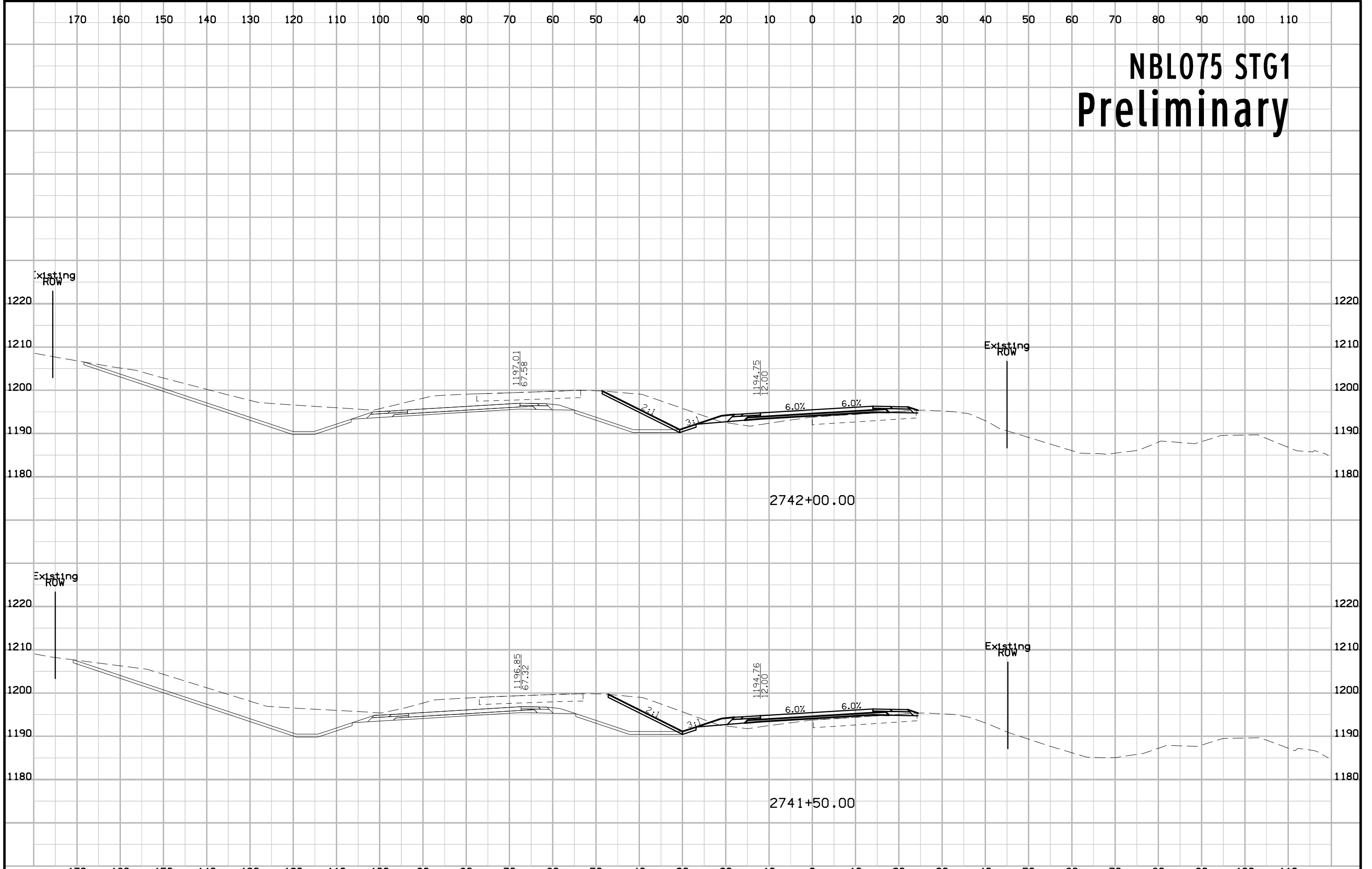


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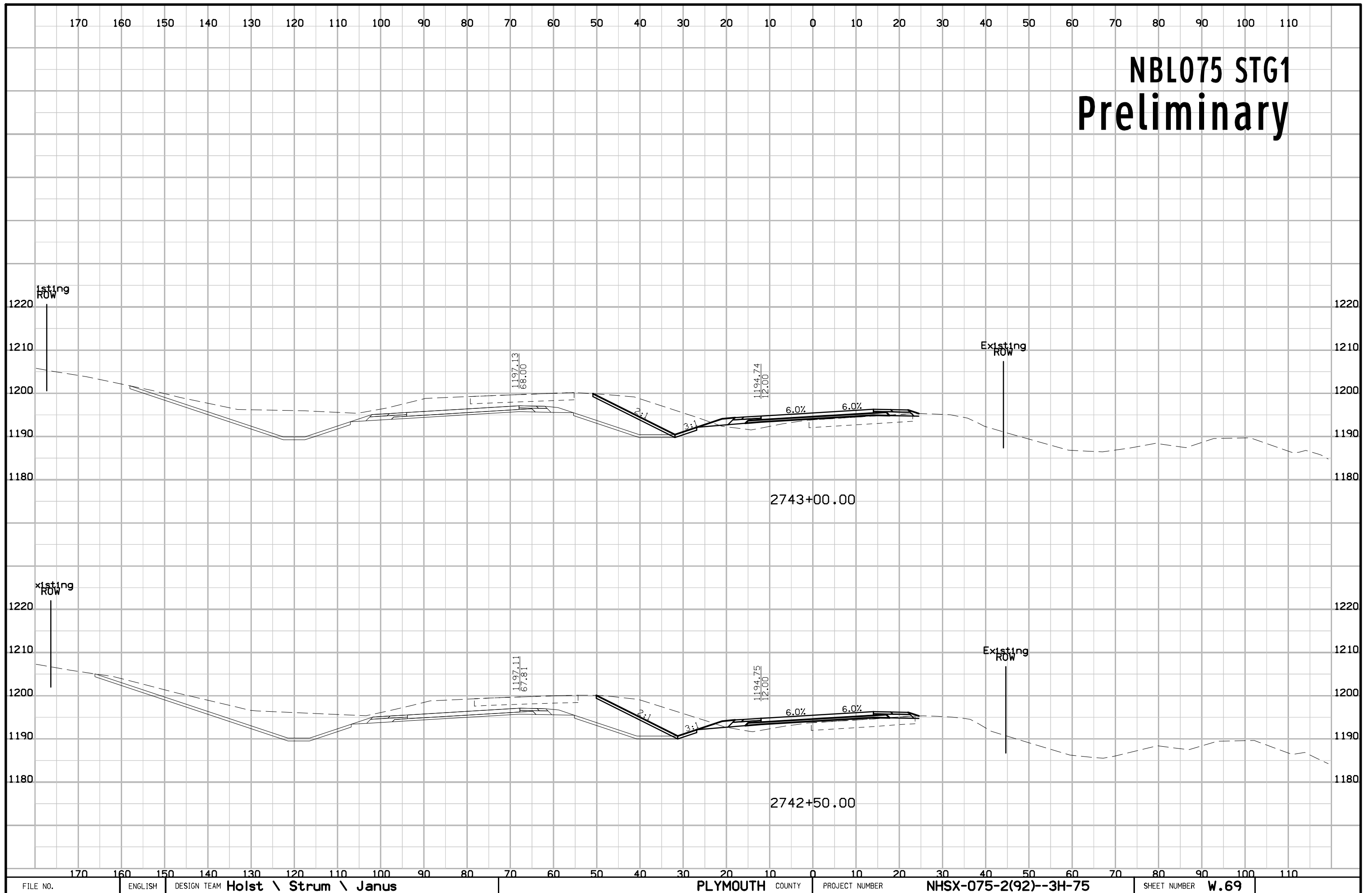




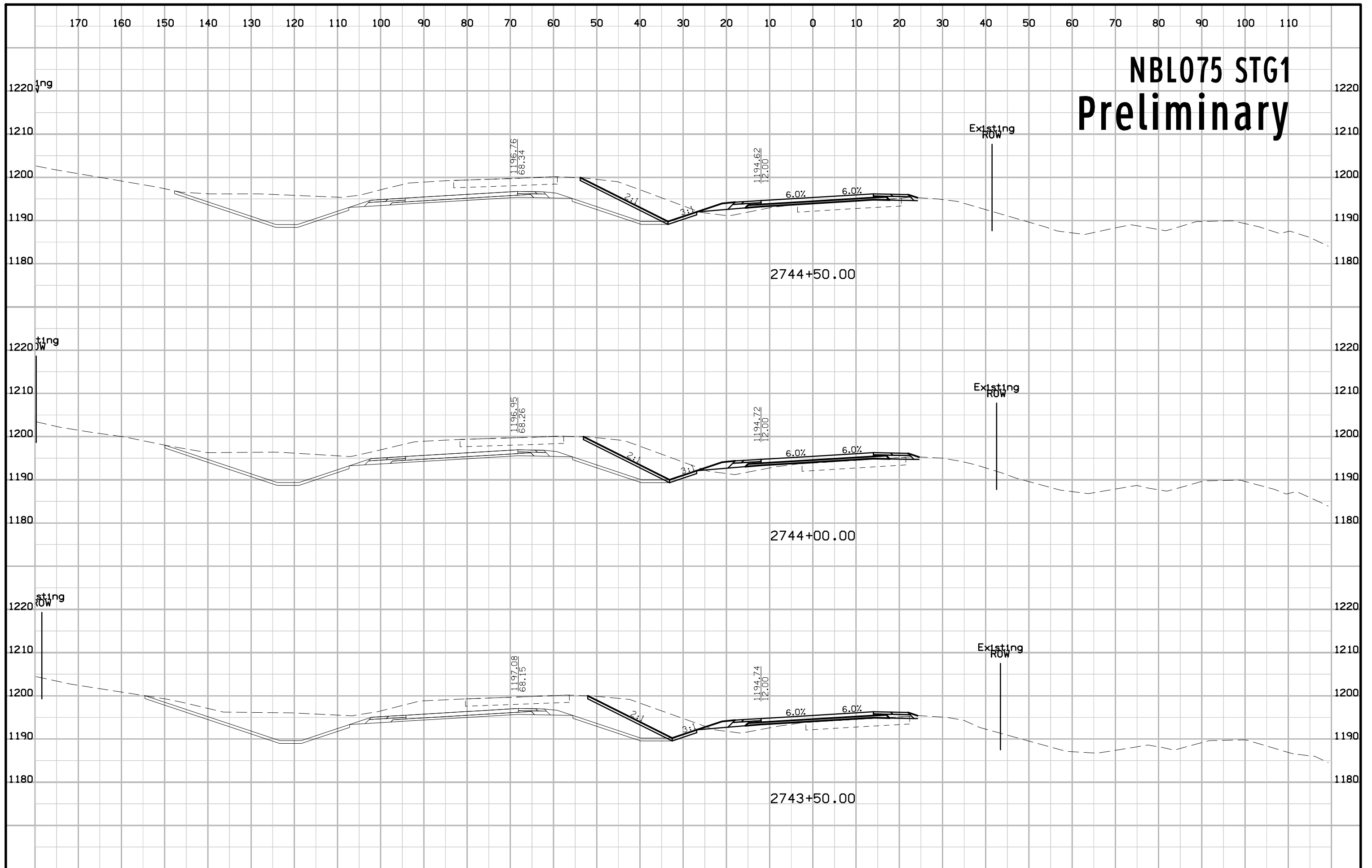
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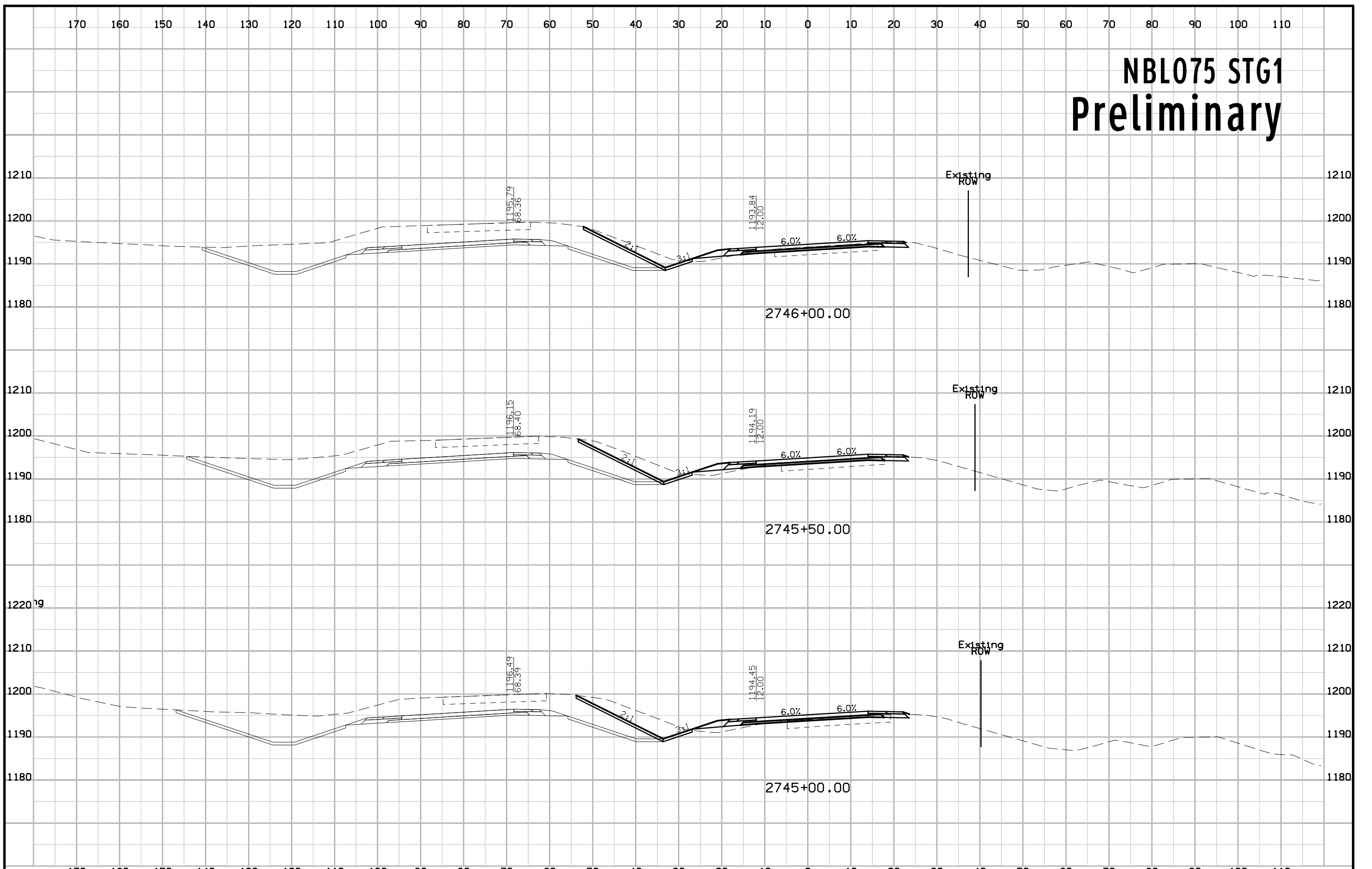
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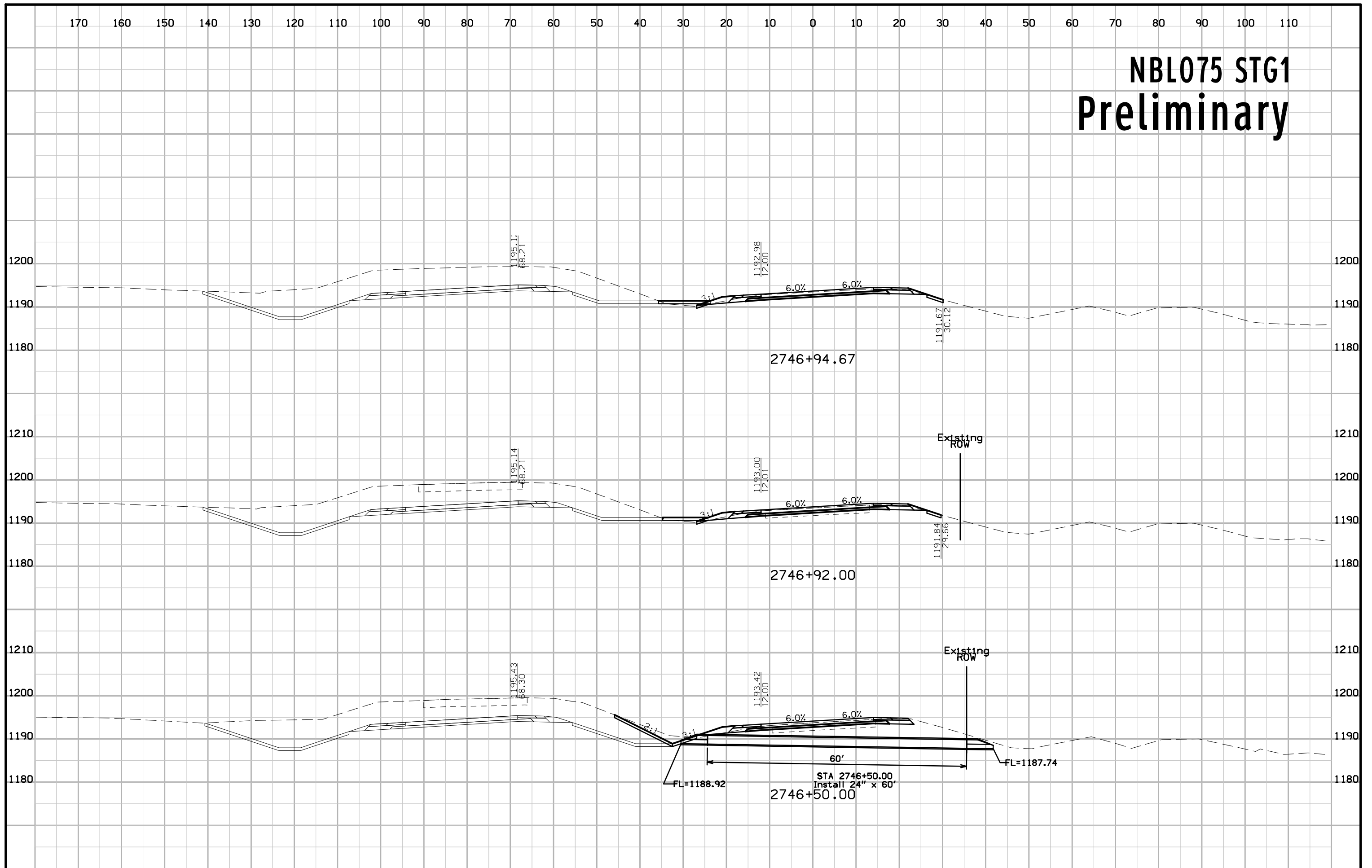
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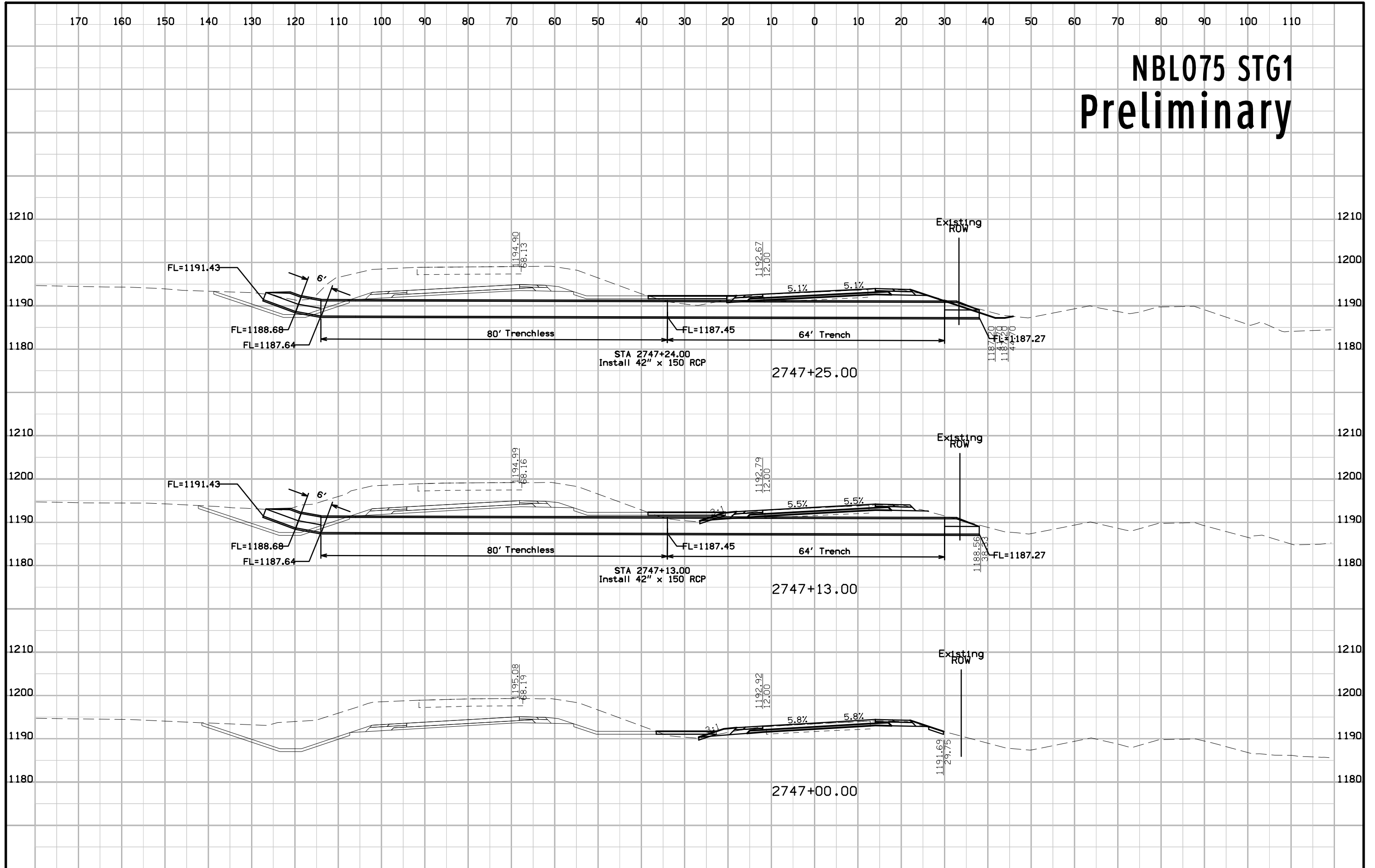
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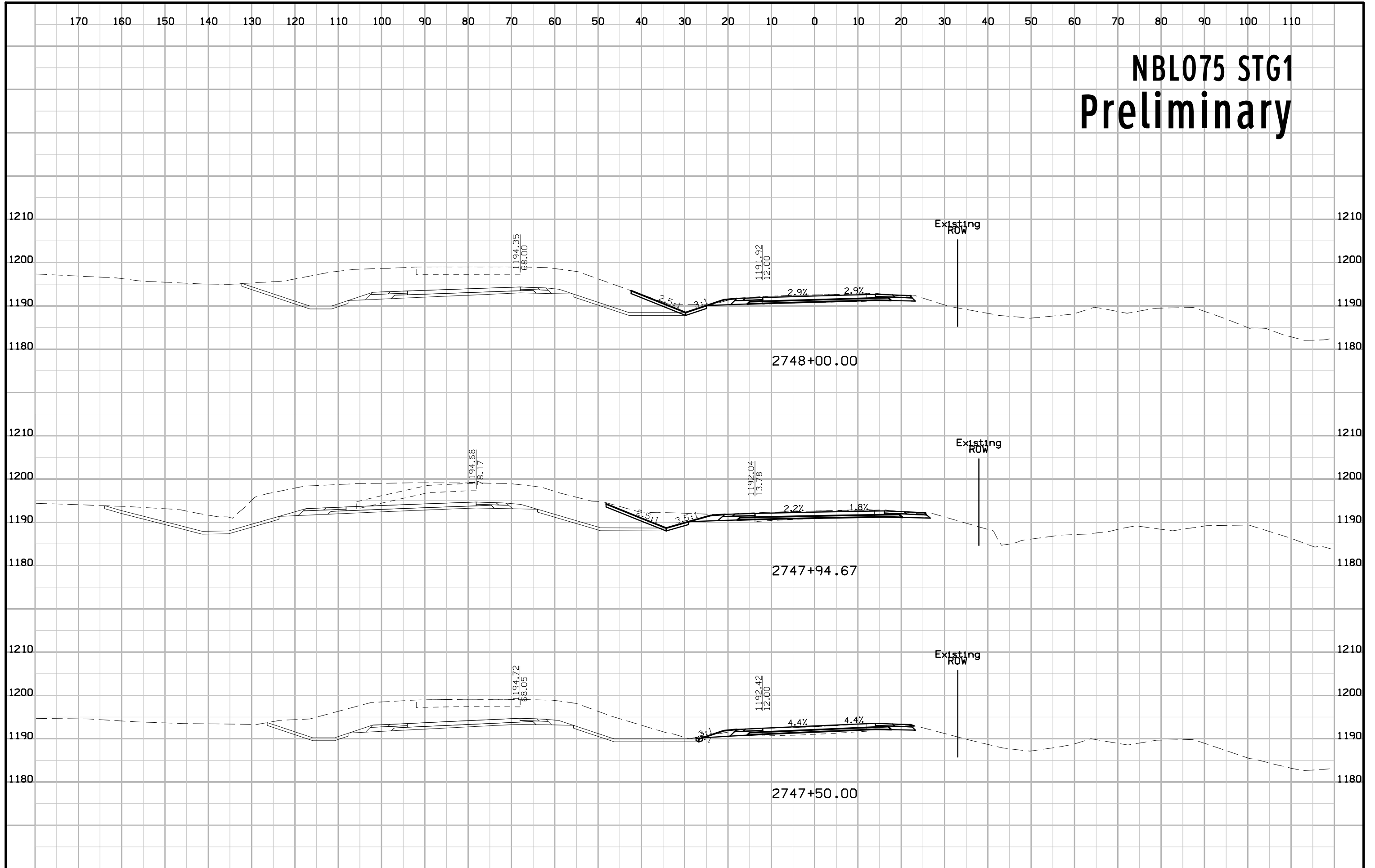
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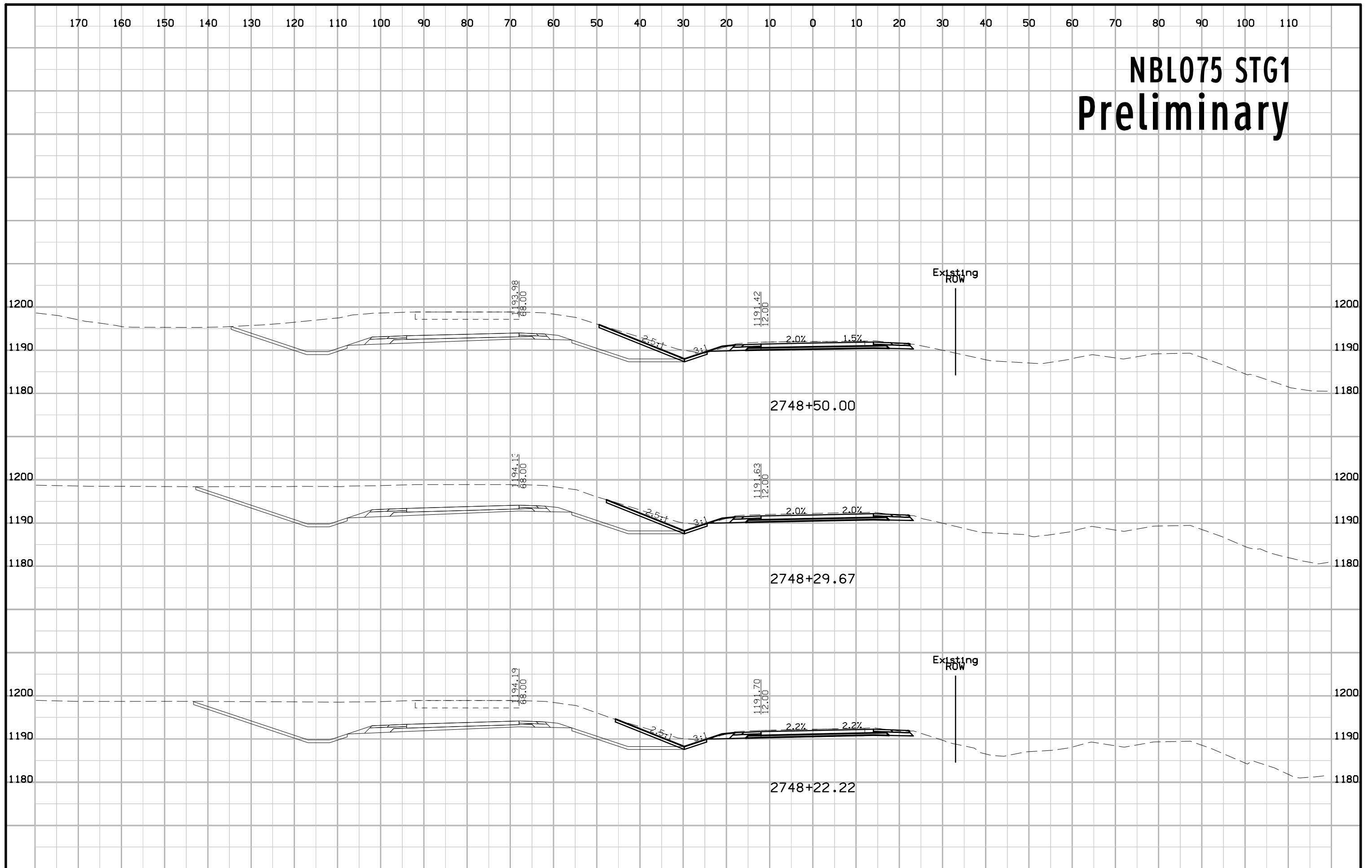
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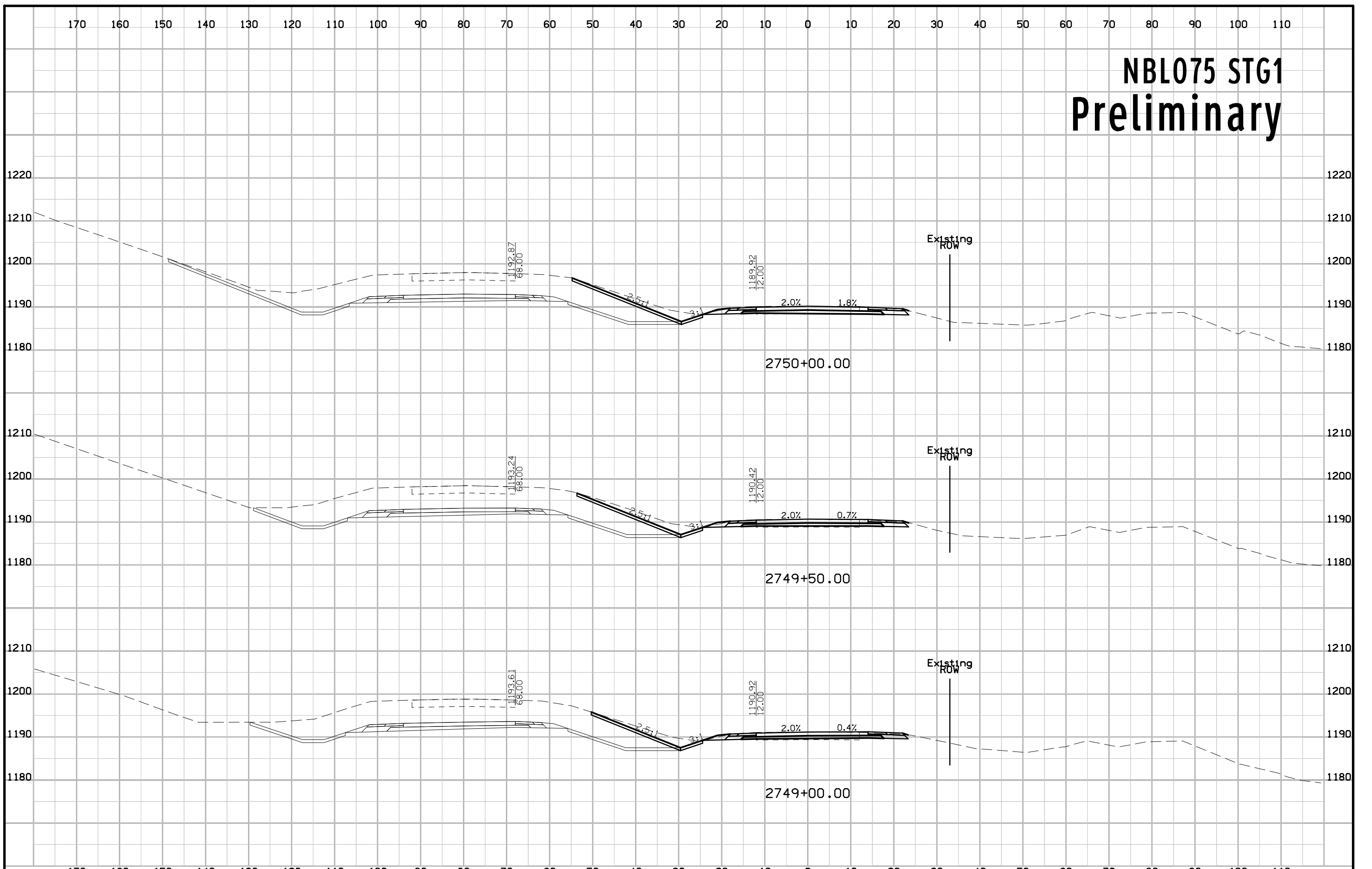


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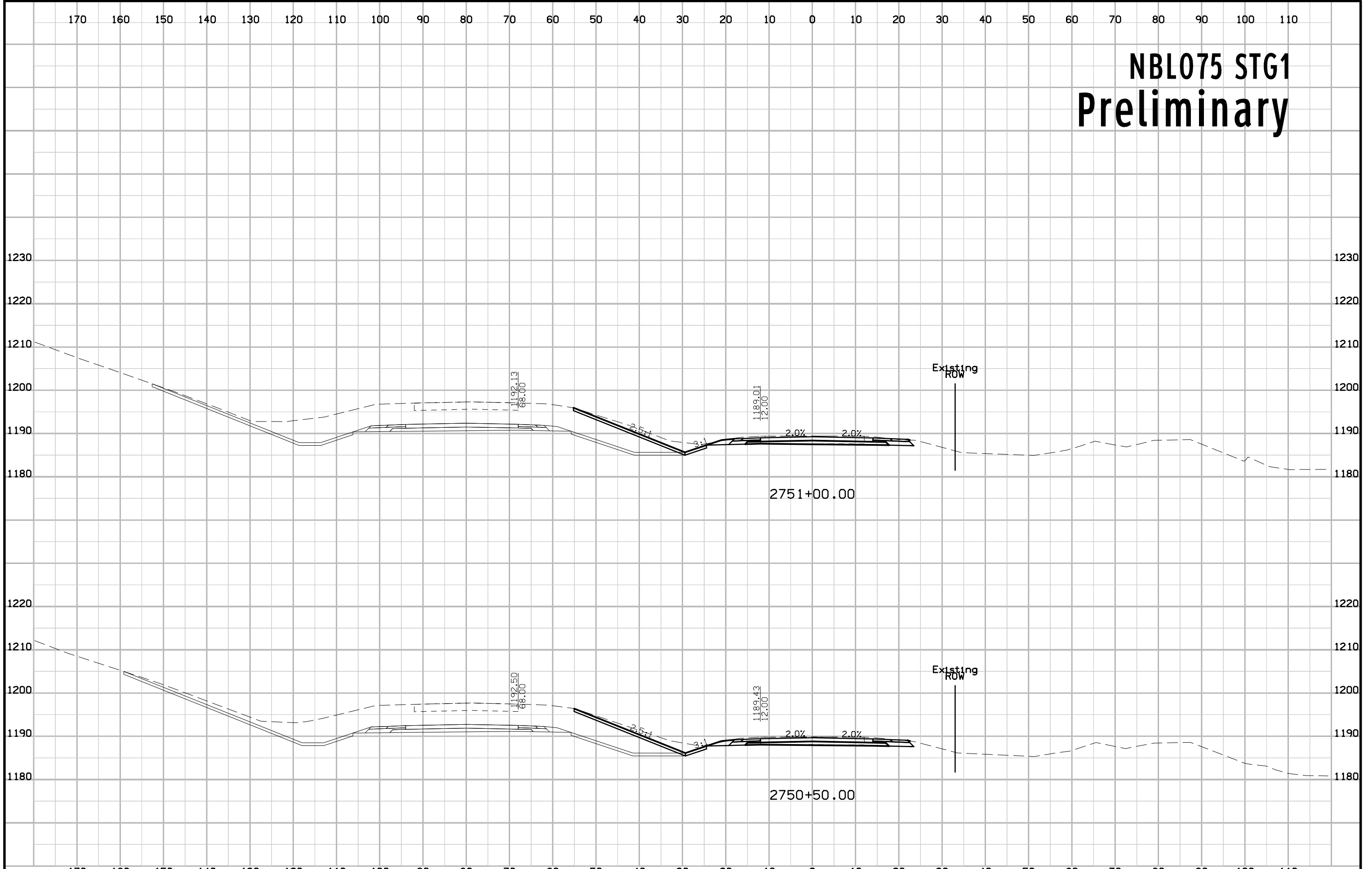




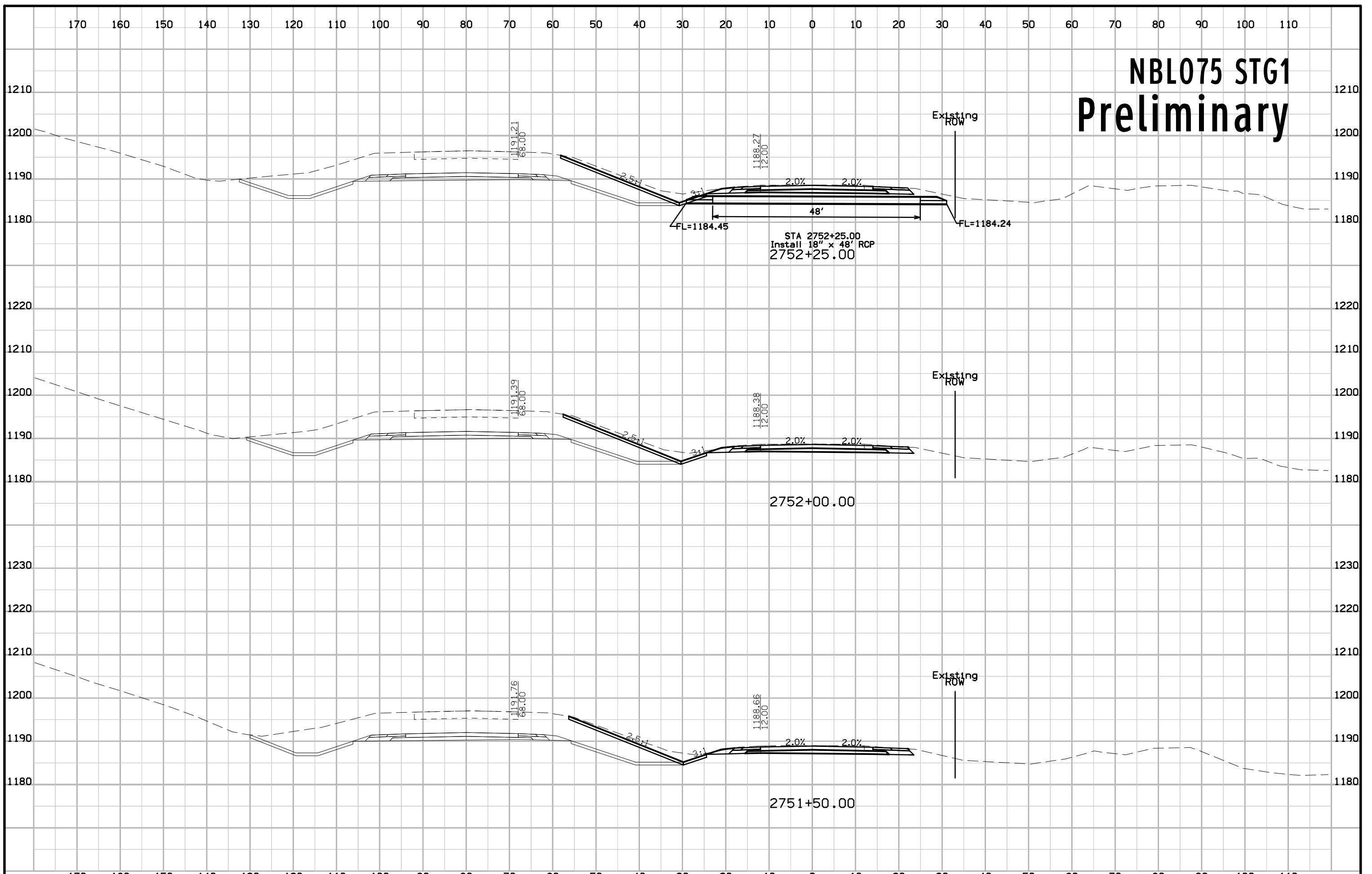
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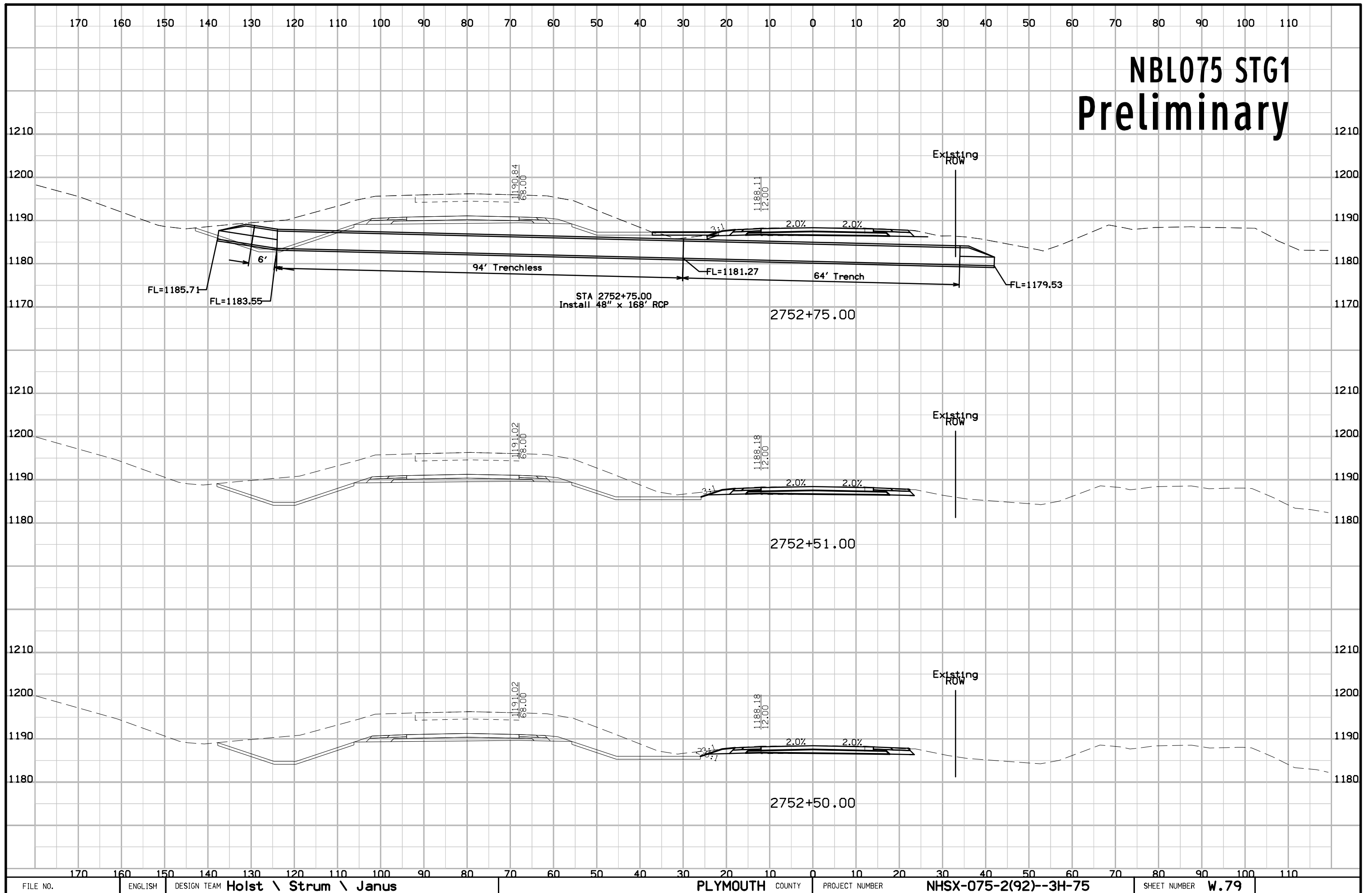
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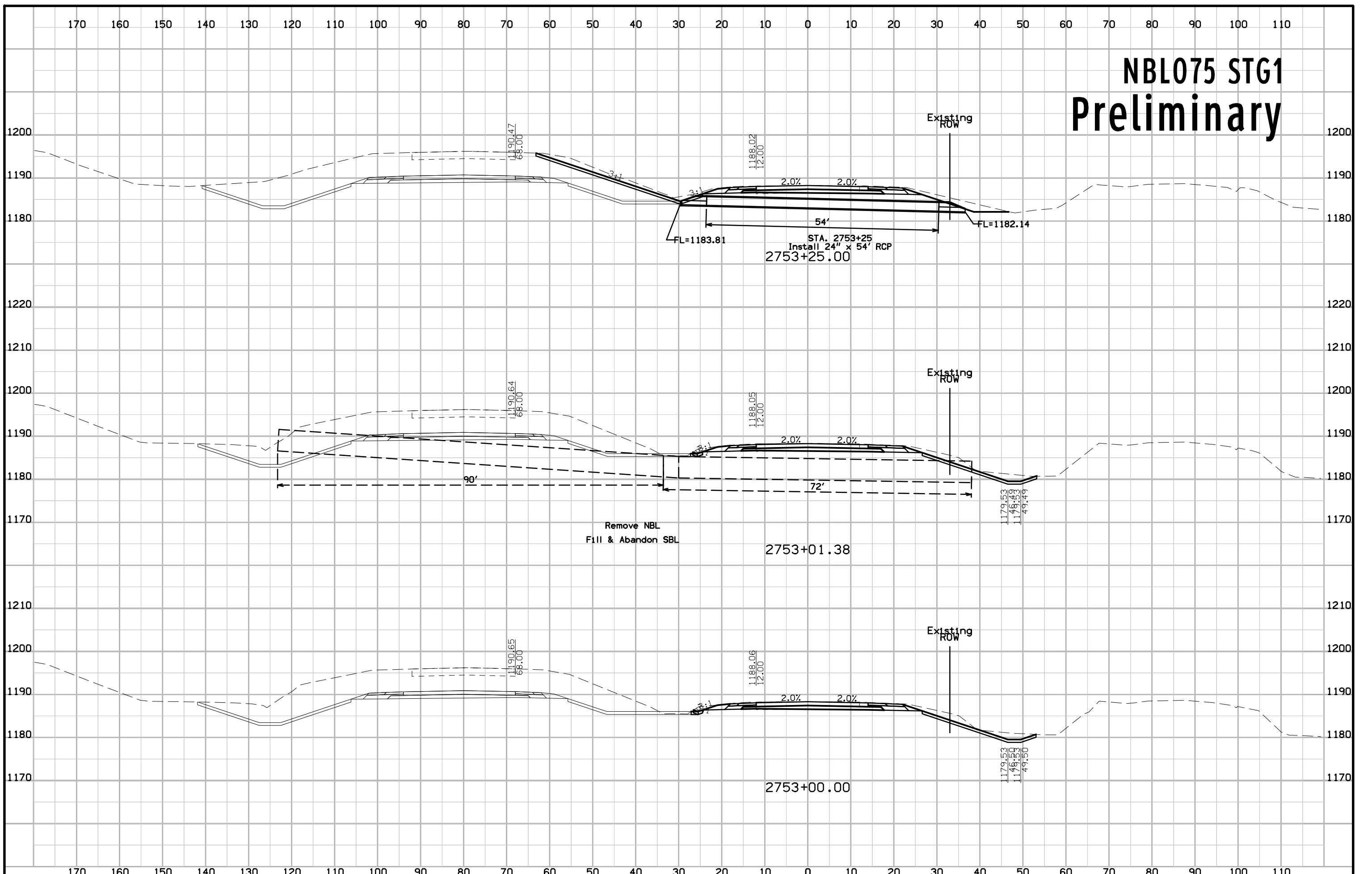
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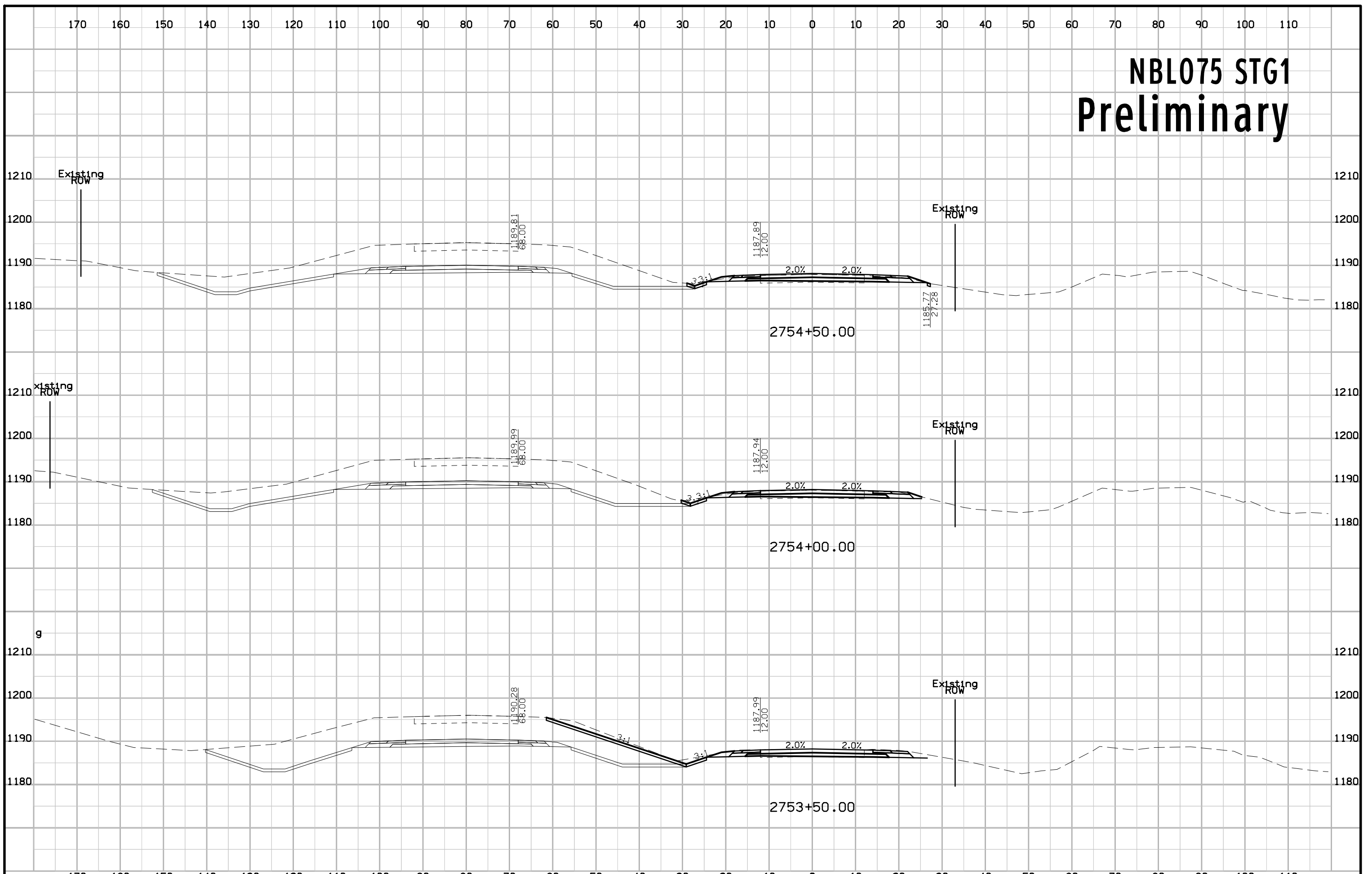
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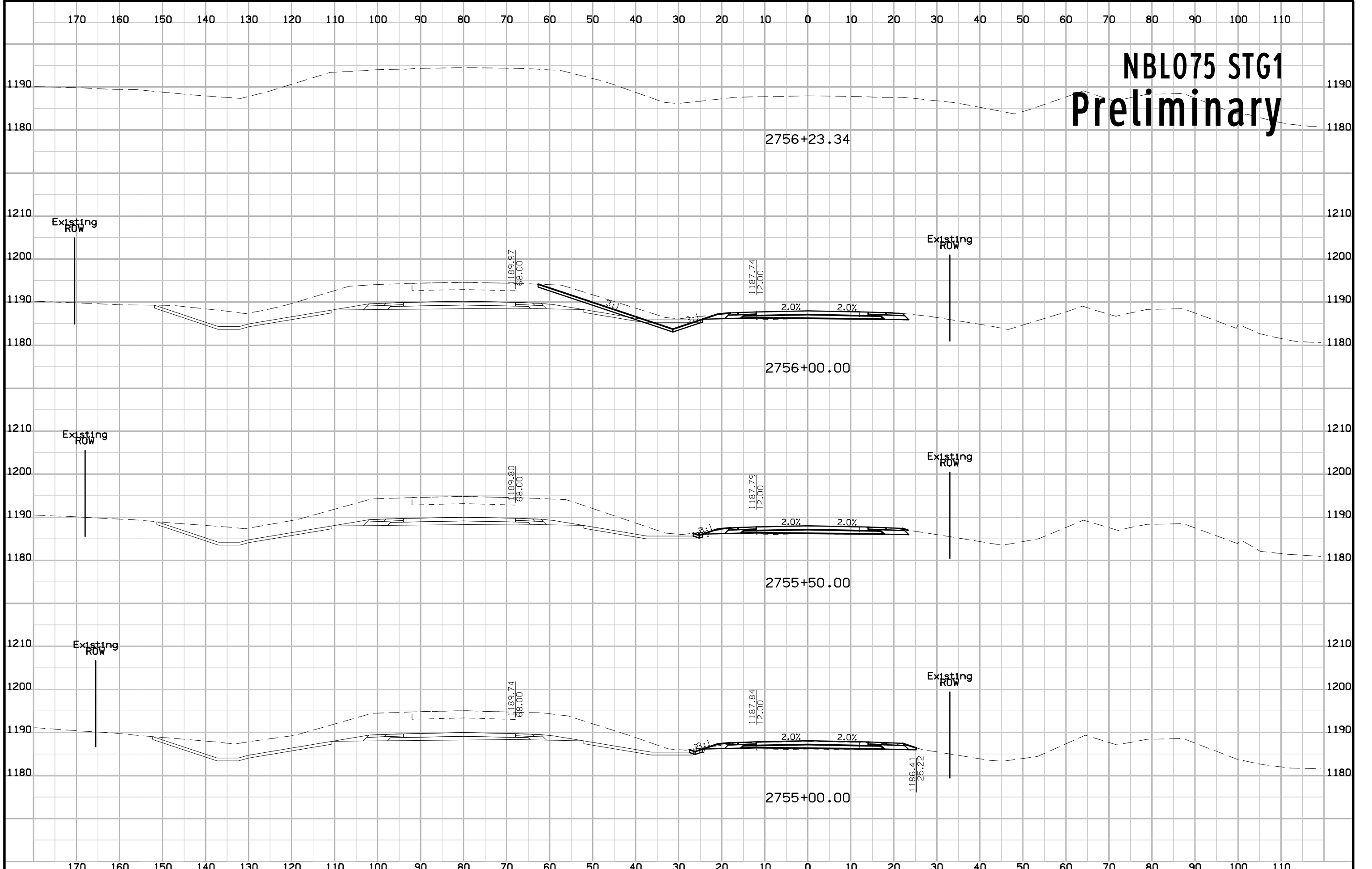
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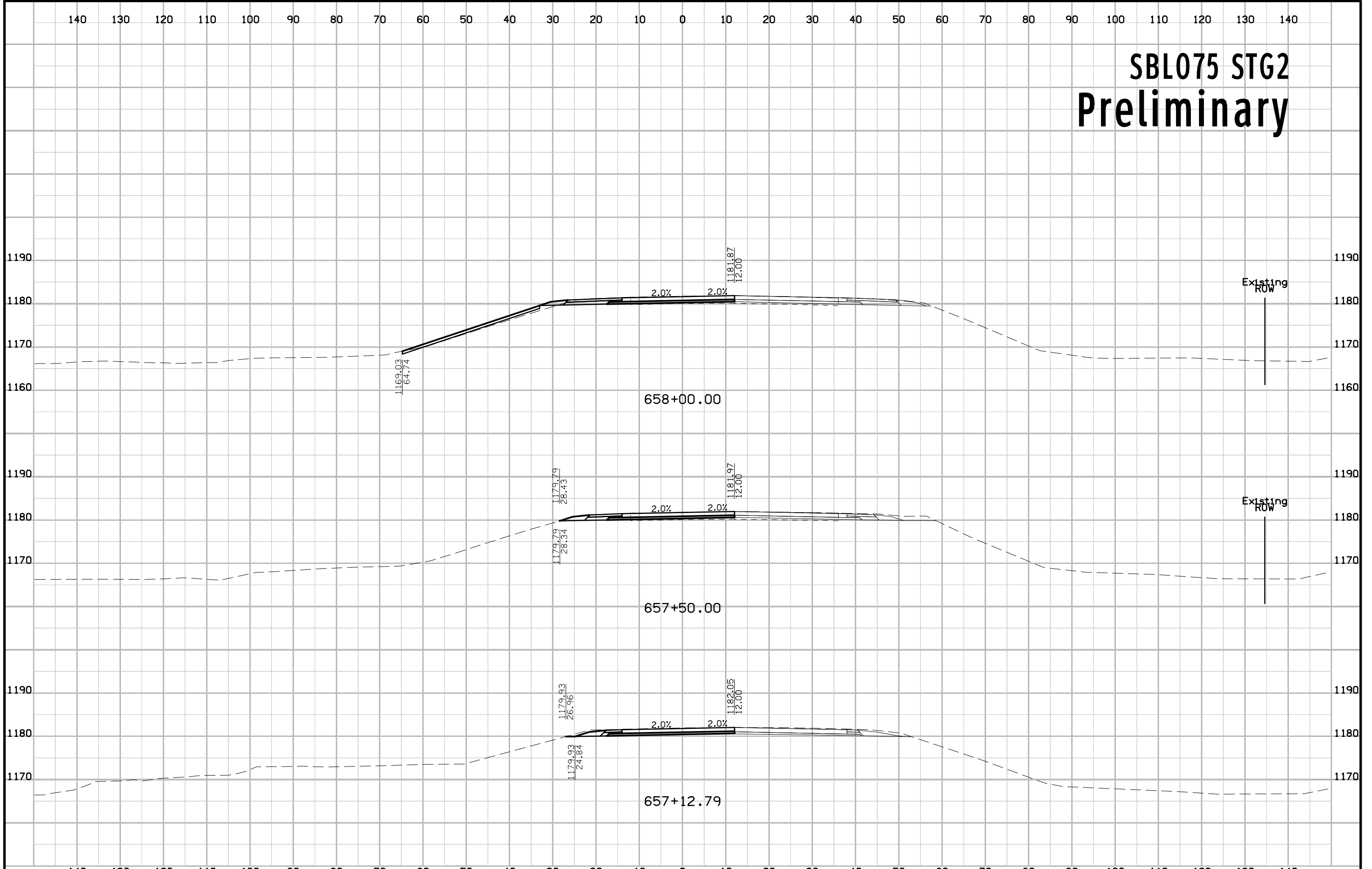
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# NBL075 STG1 Preliminary

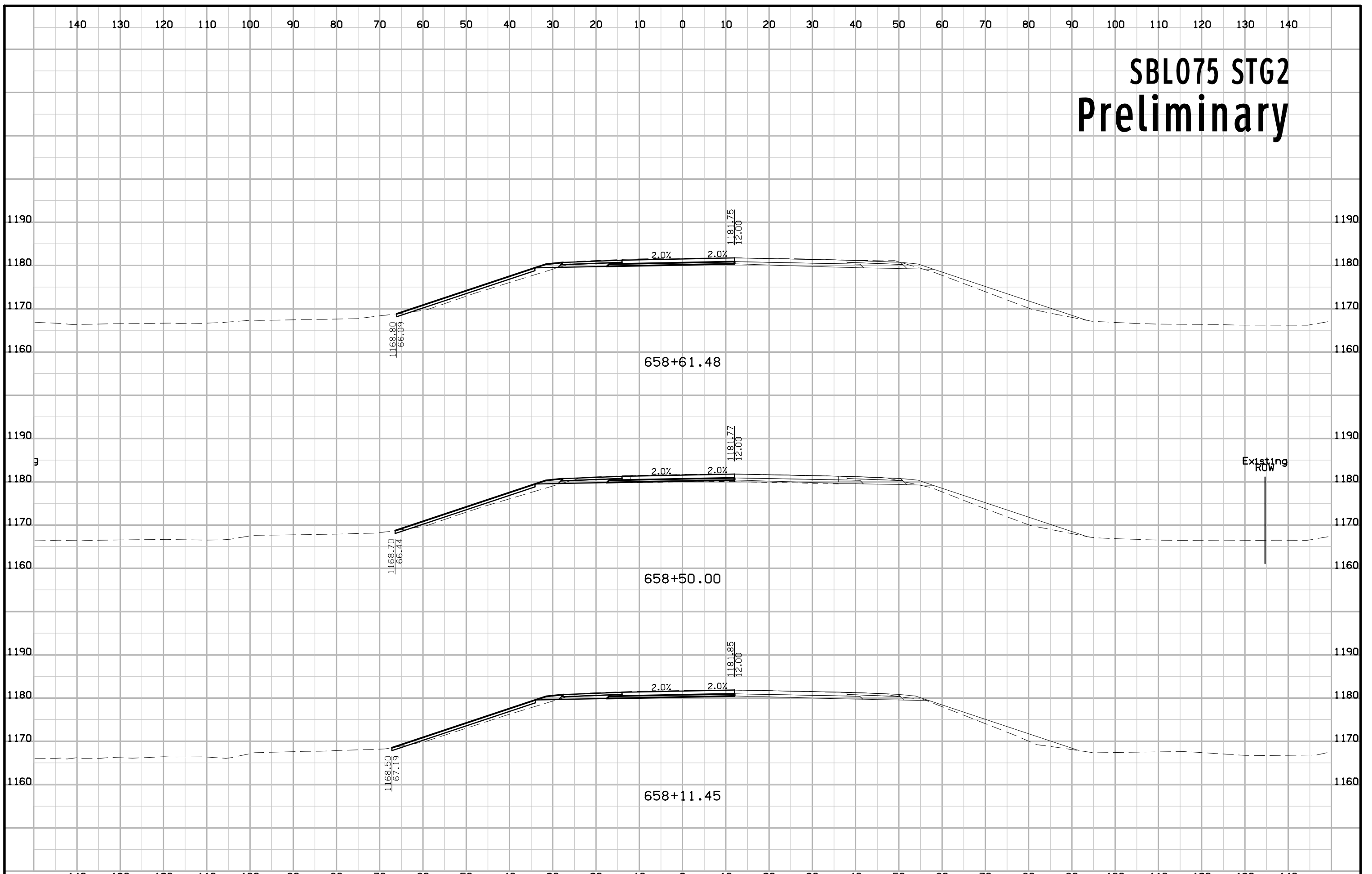


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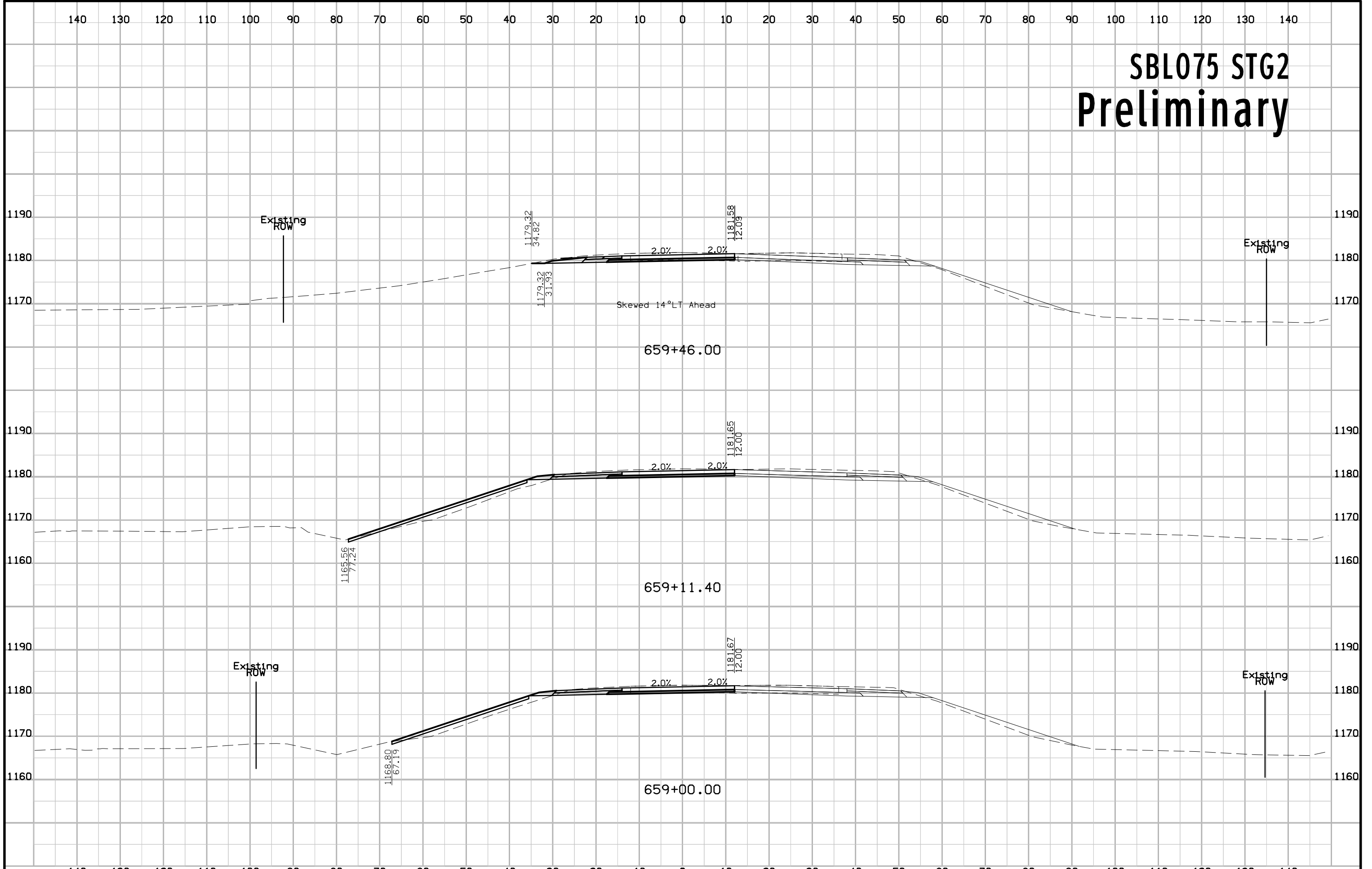


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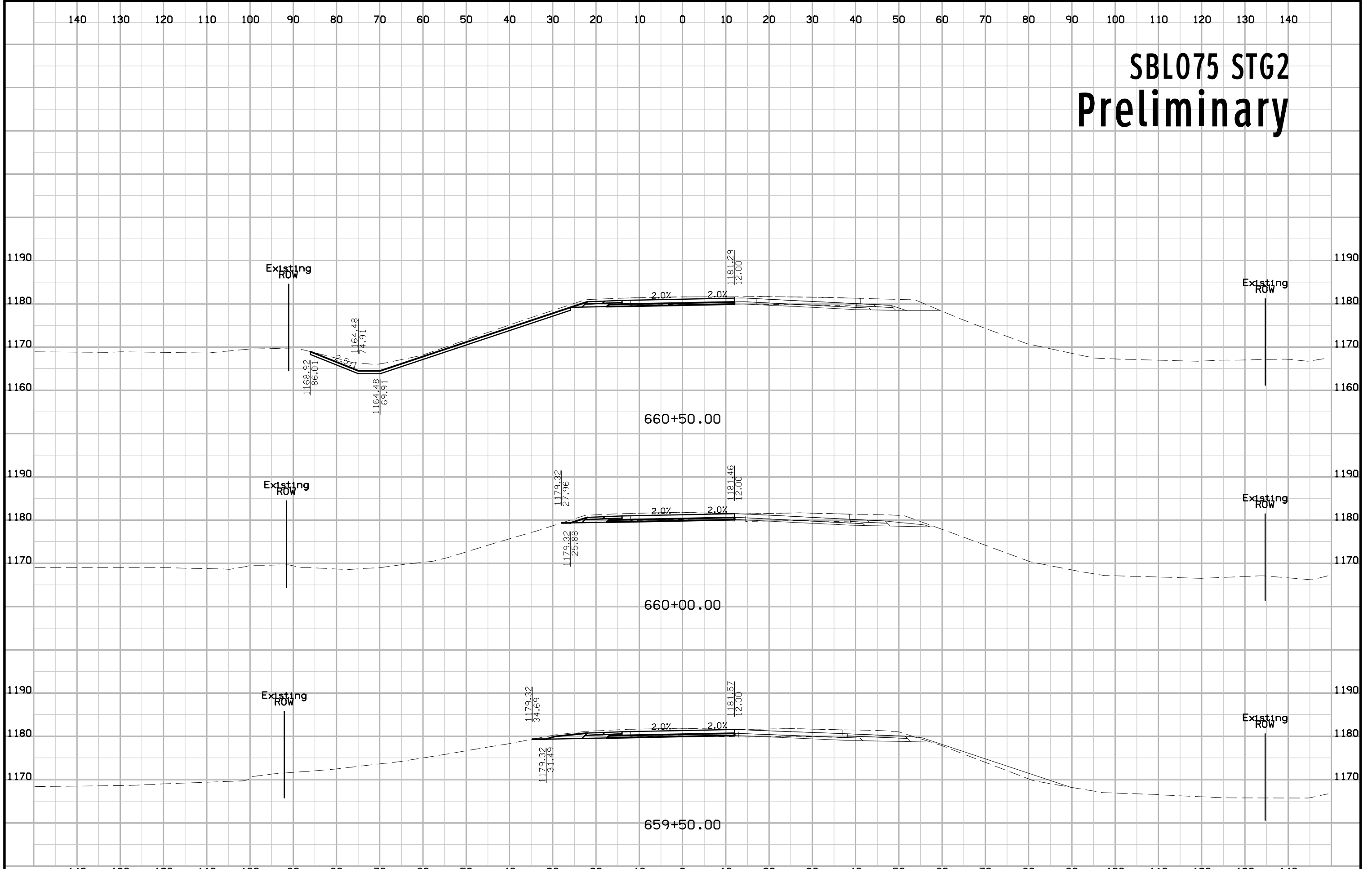


Existing  
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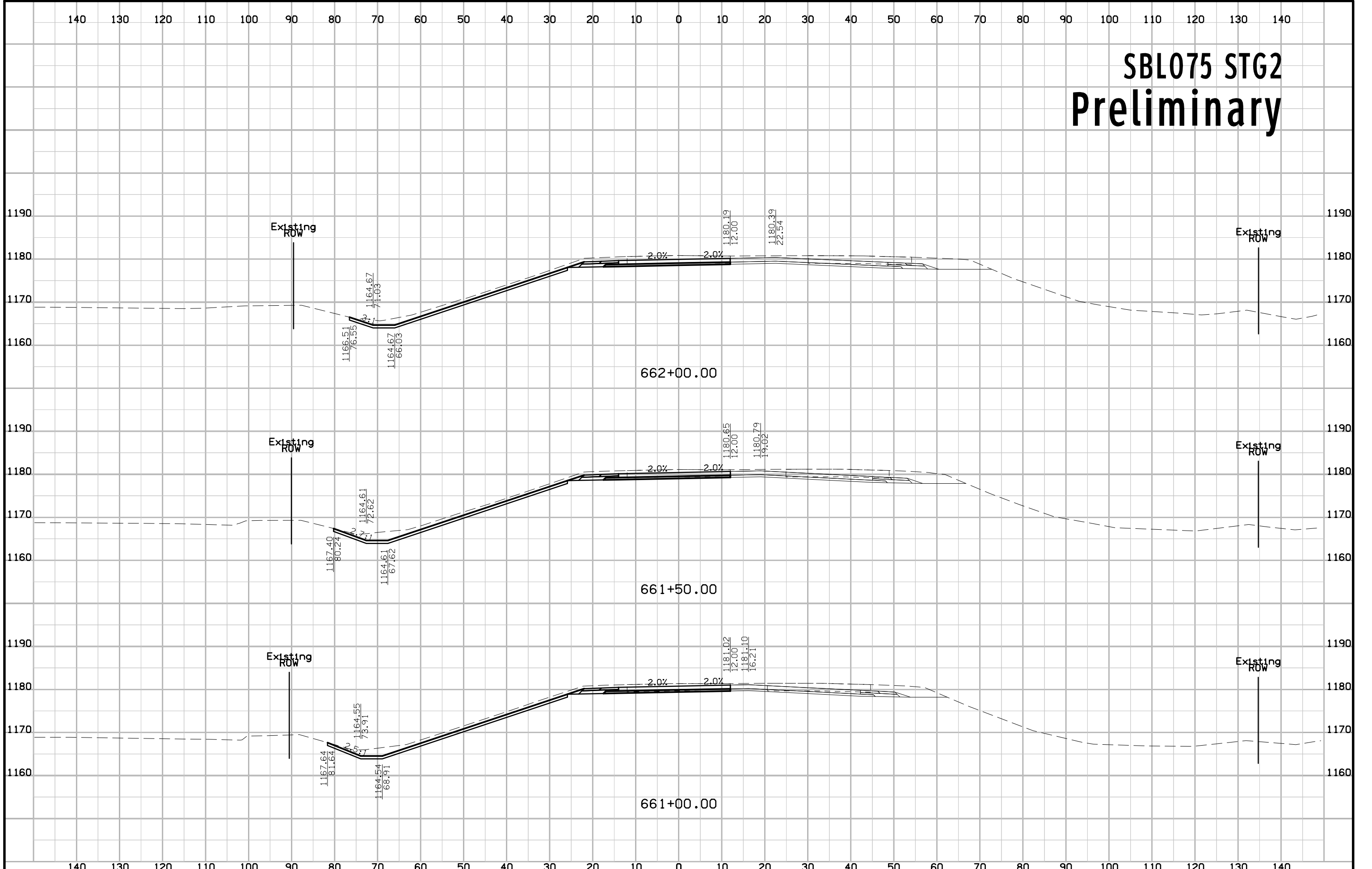
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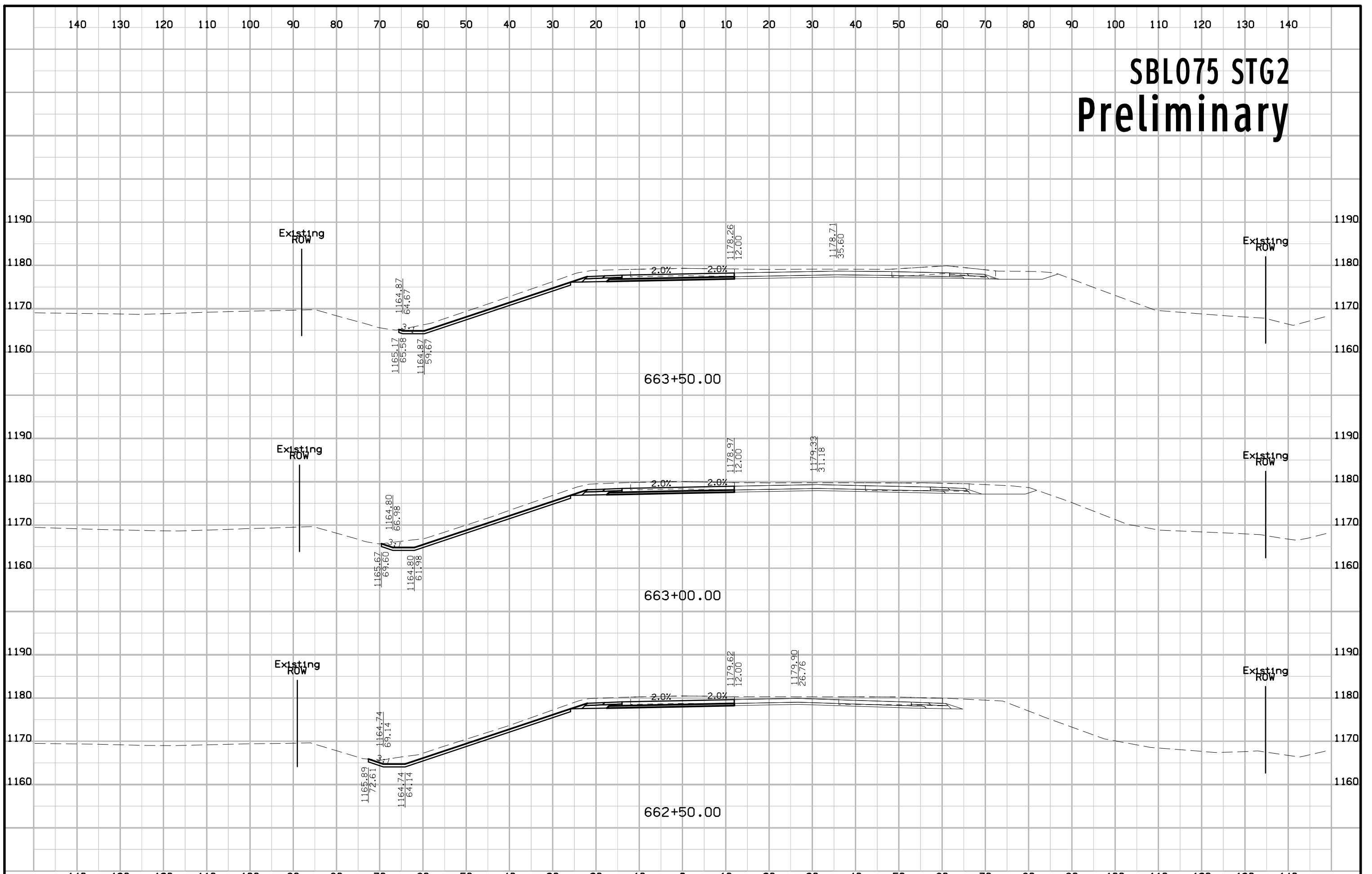
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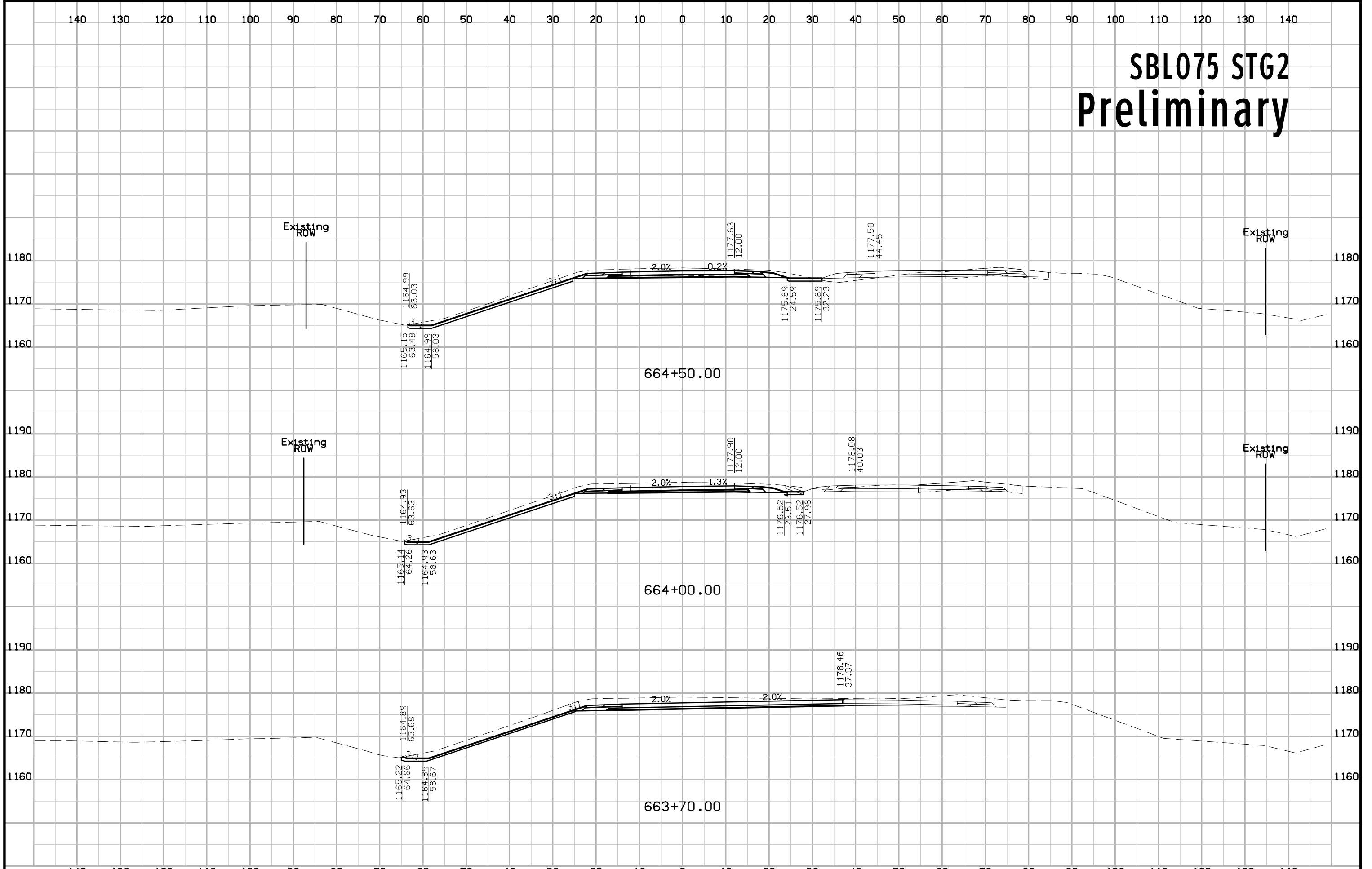
# SBL075 STG2 Preliminary



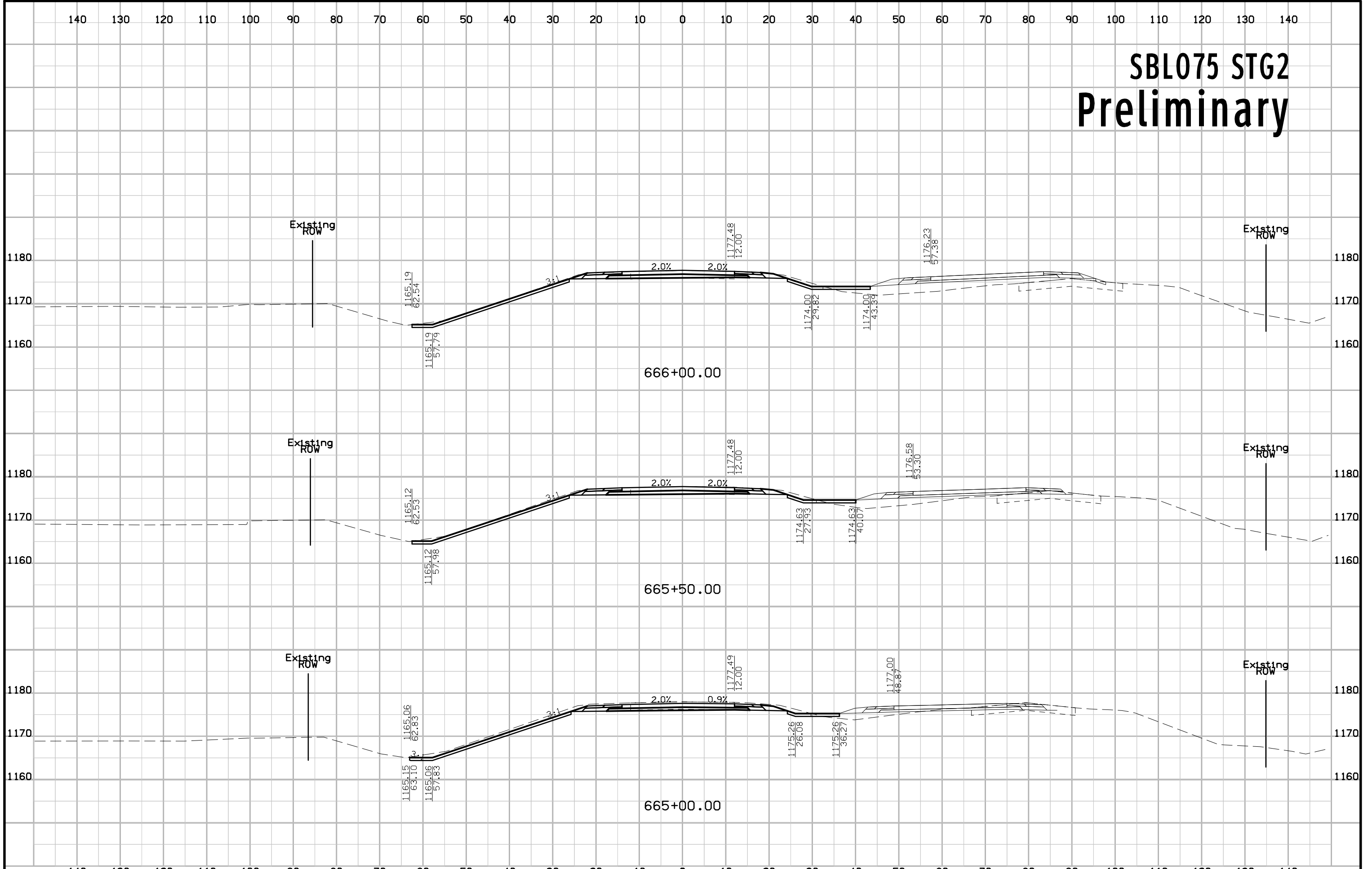
# SBL075 STG2 Preliminary



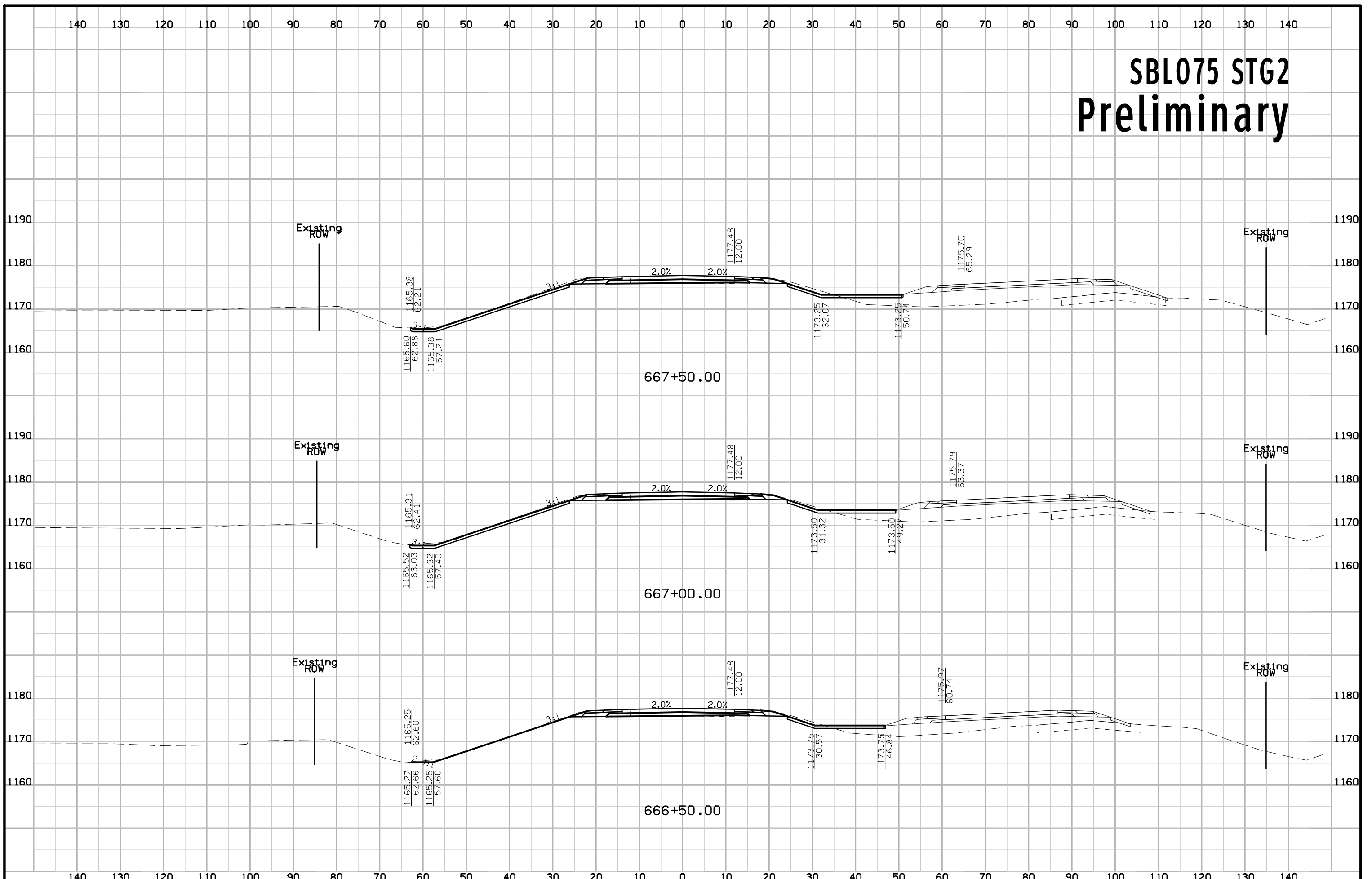
# SBL075 STG2 Preliminary



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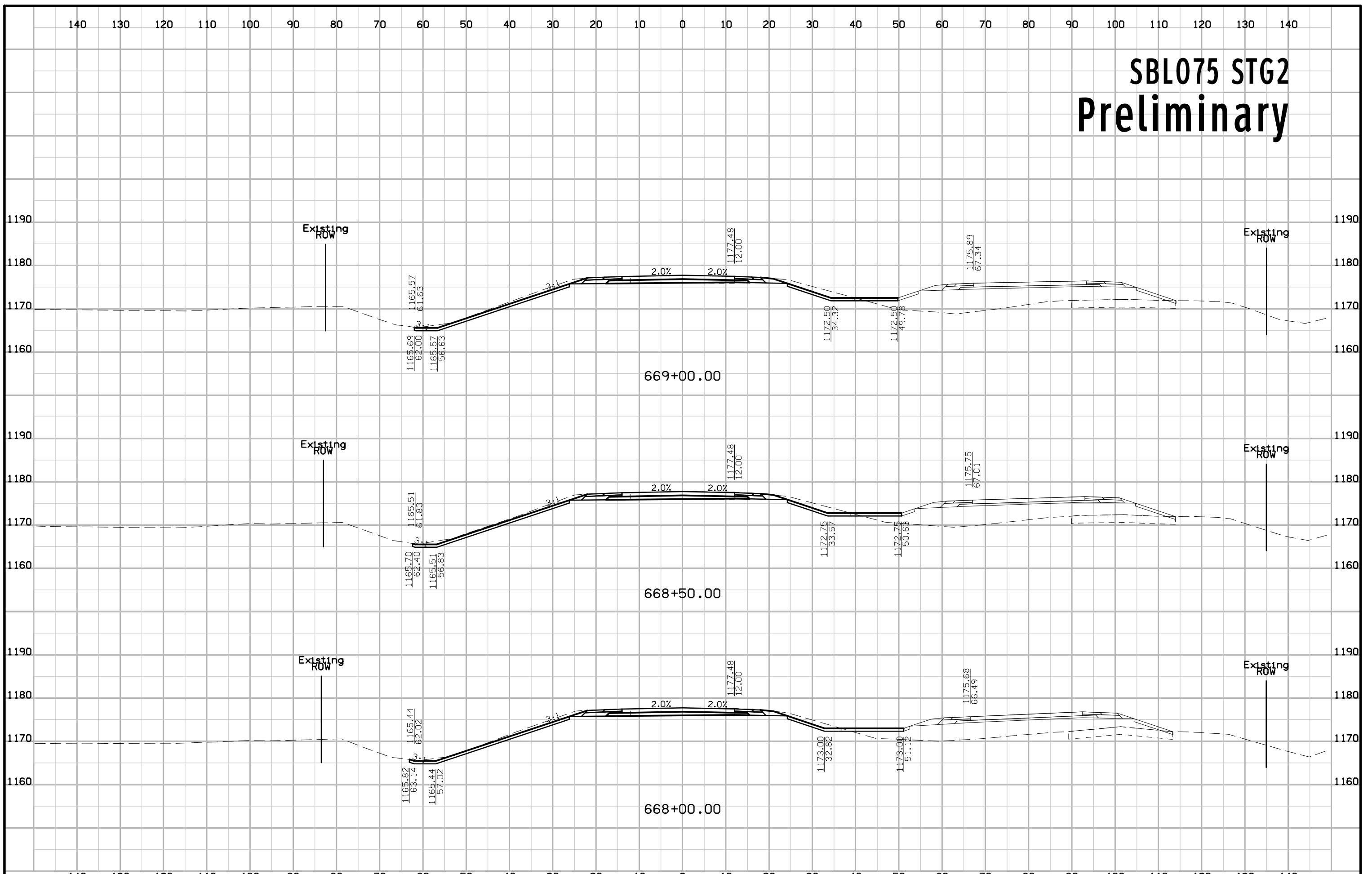


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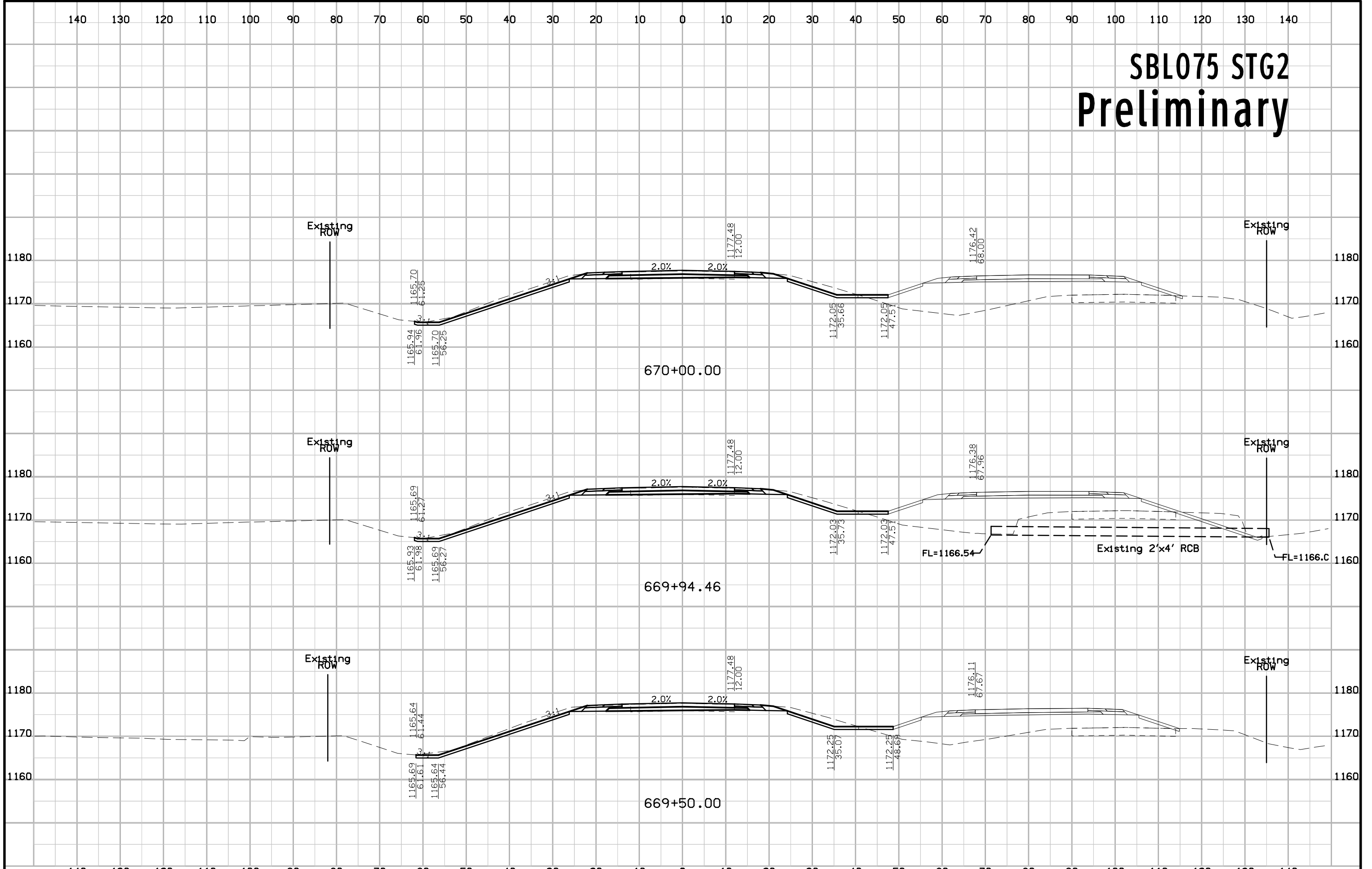




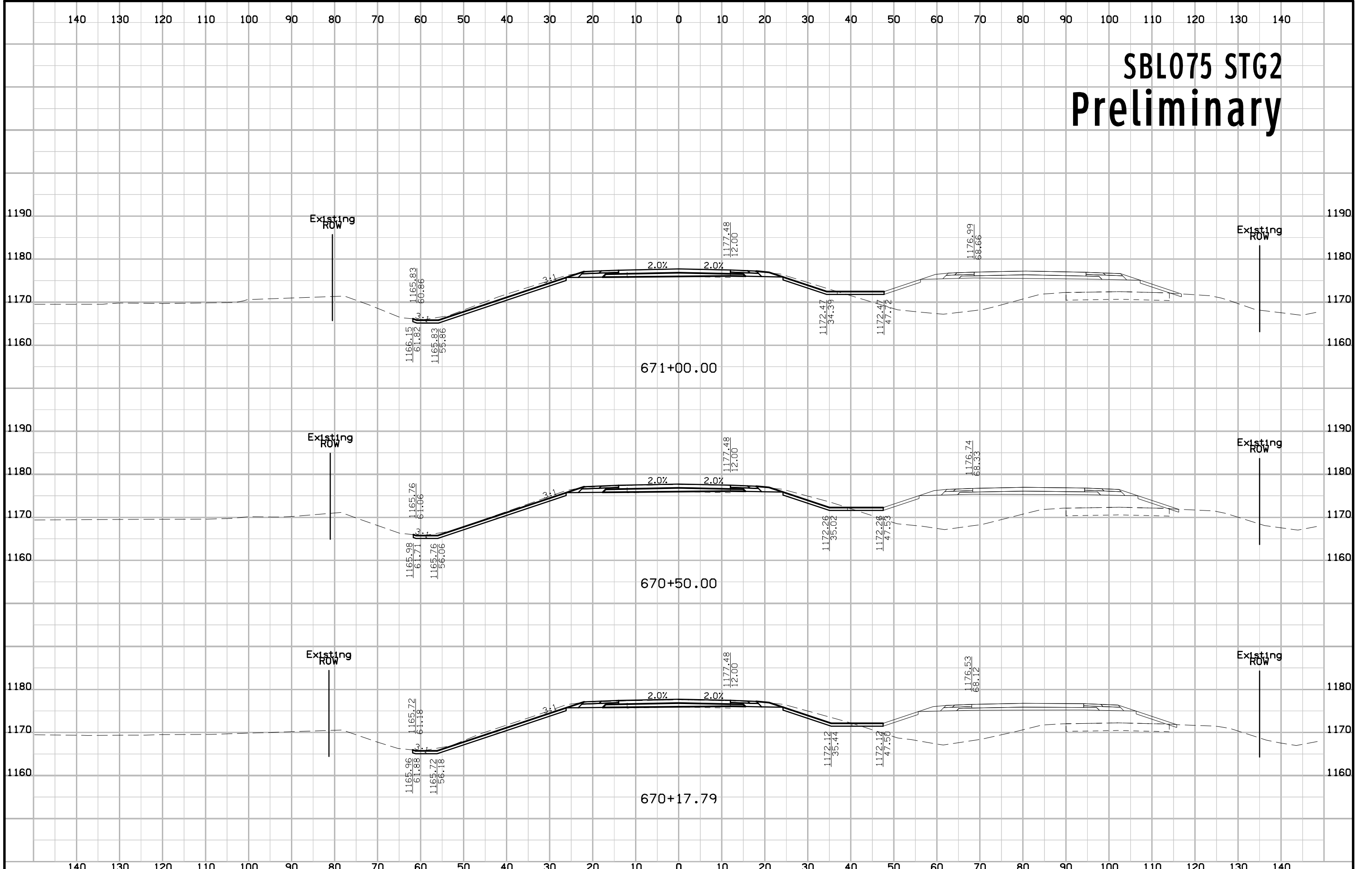
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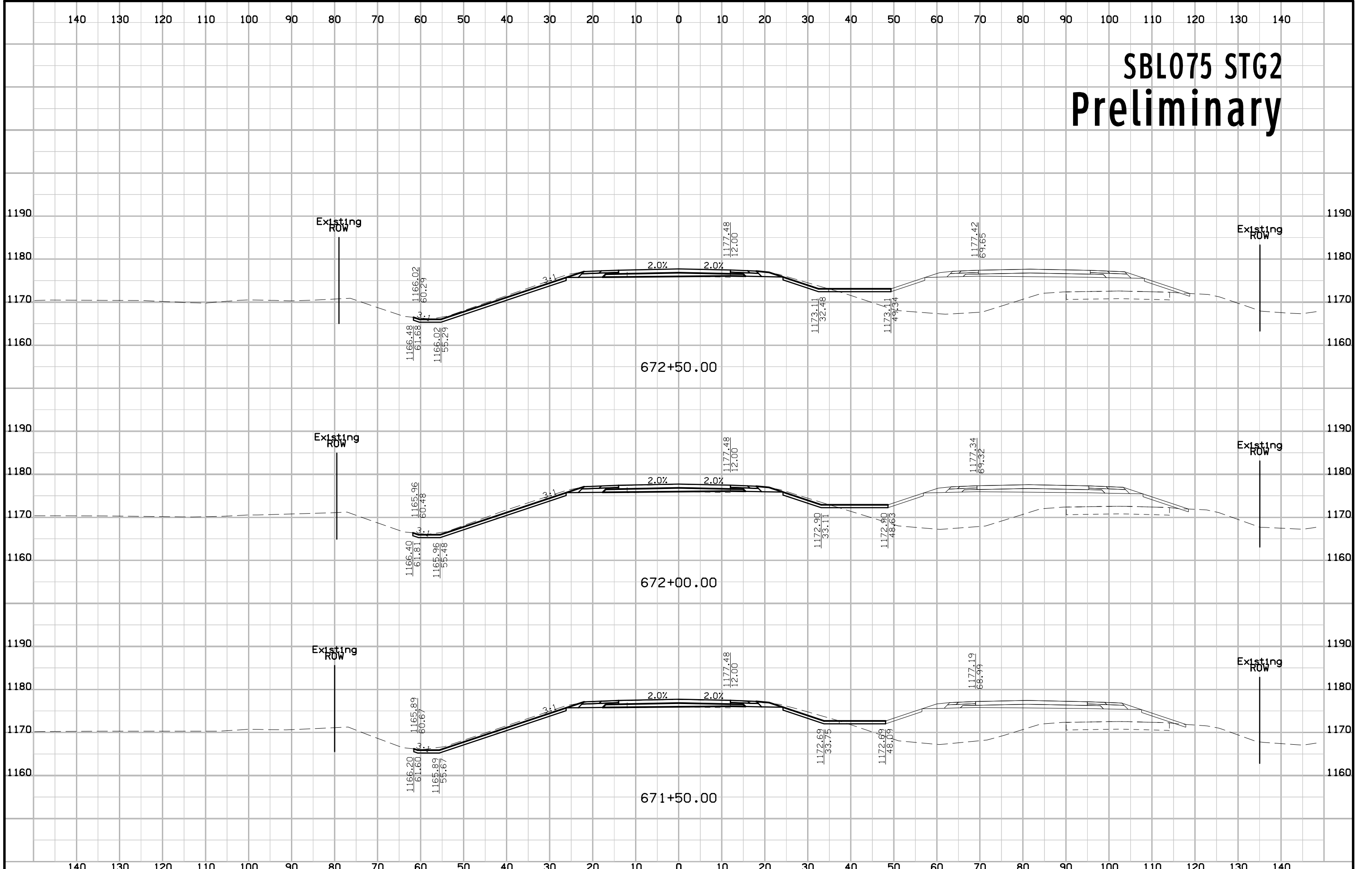
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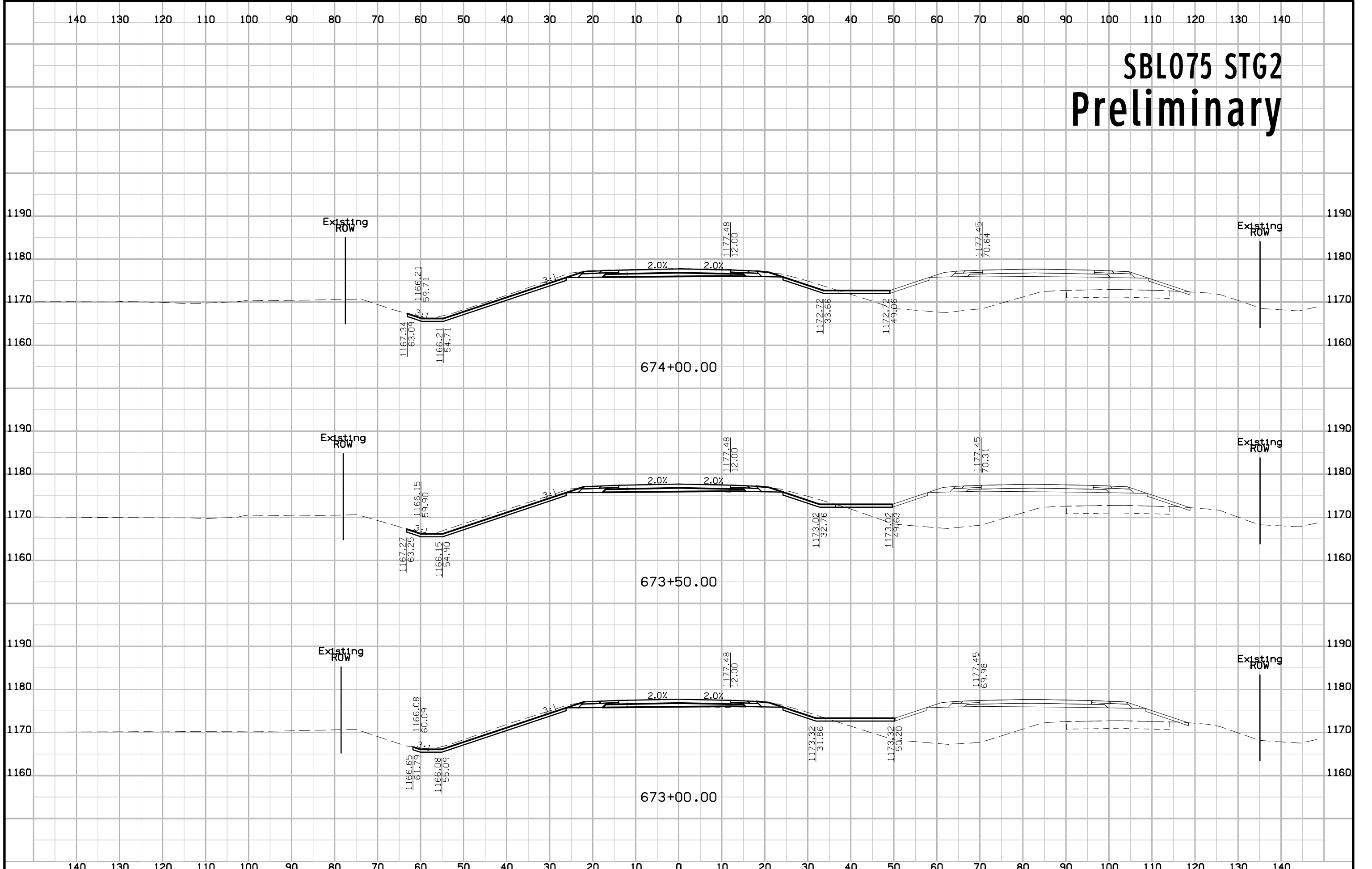
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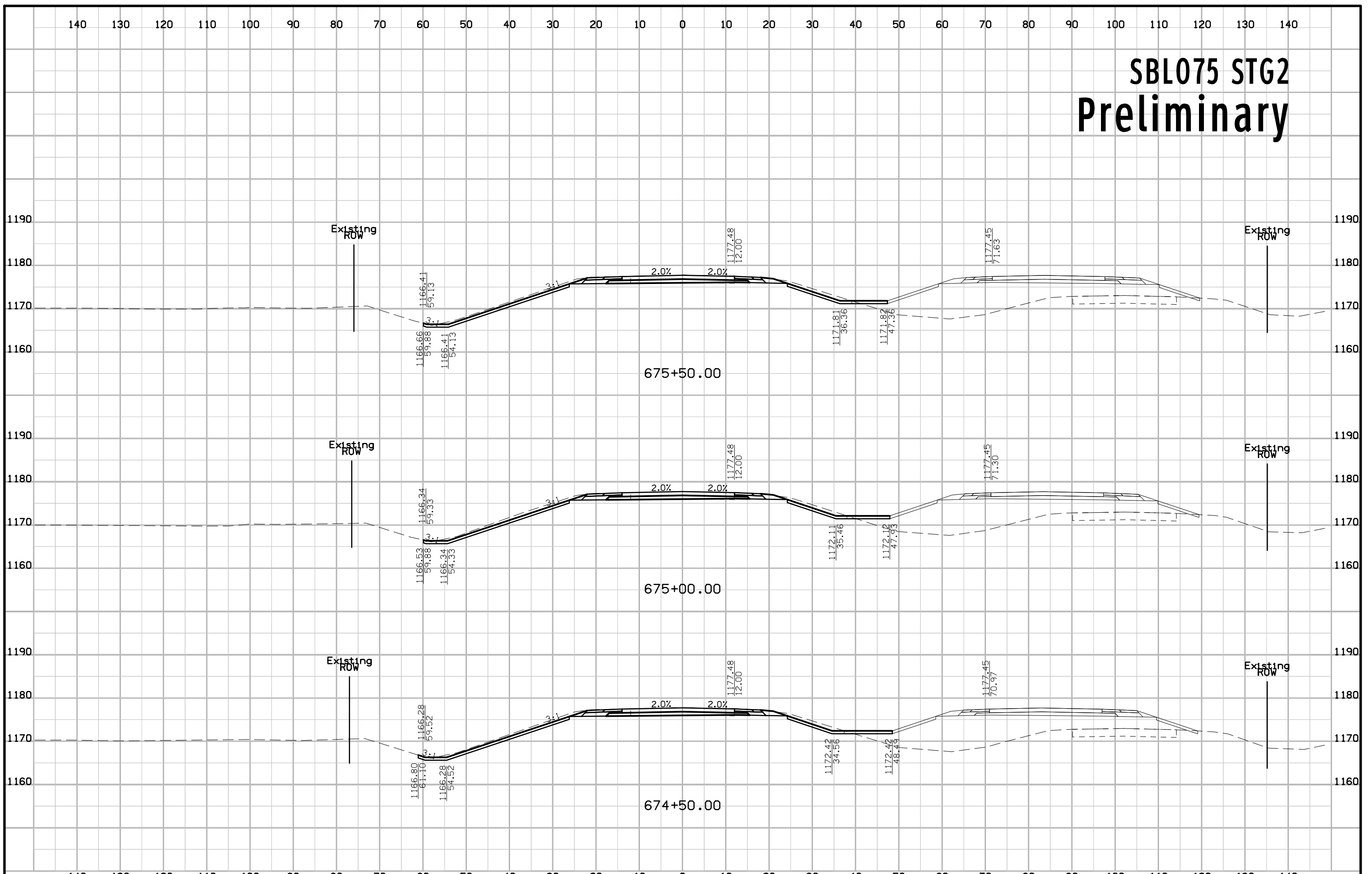
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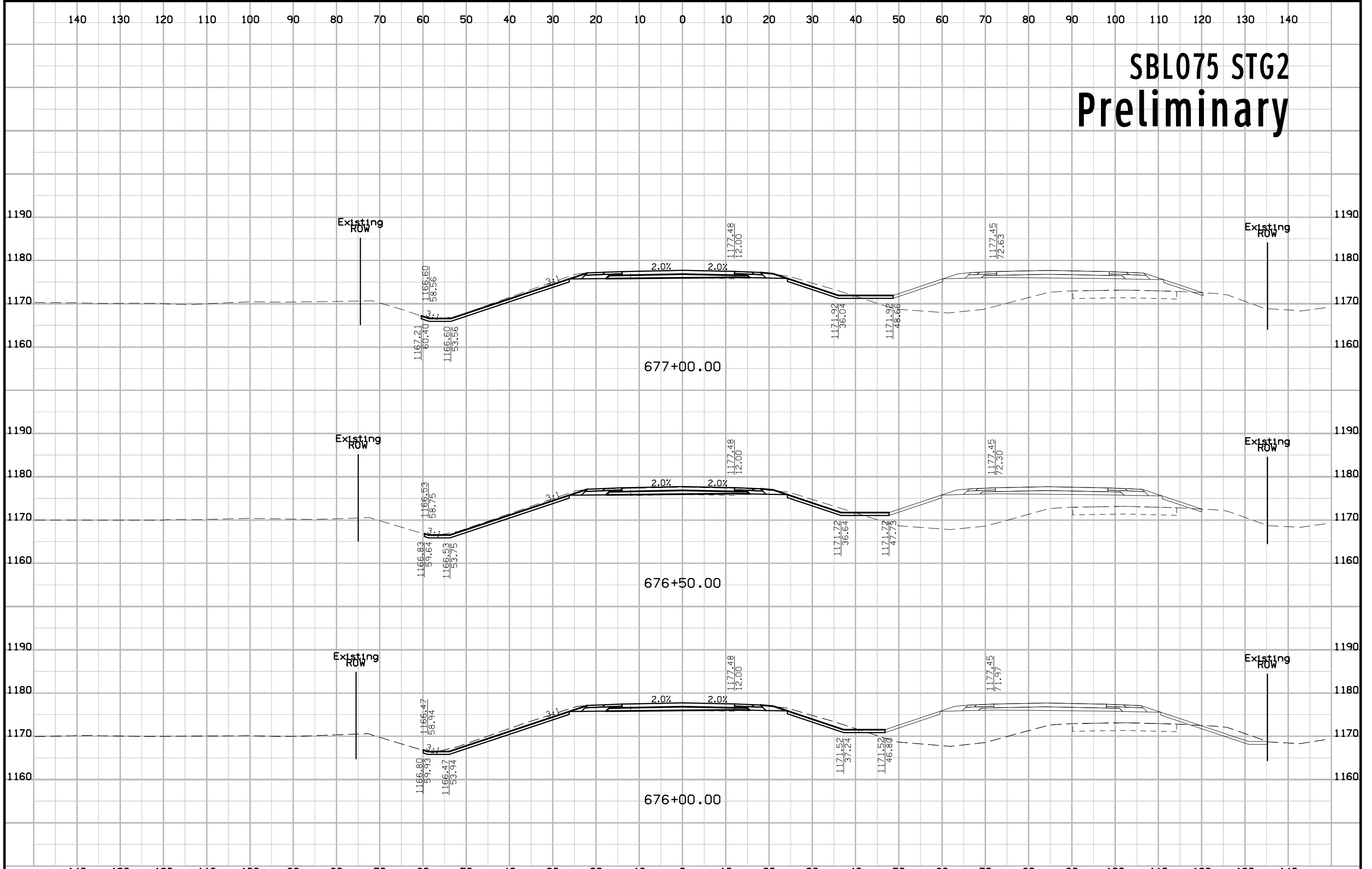
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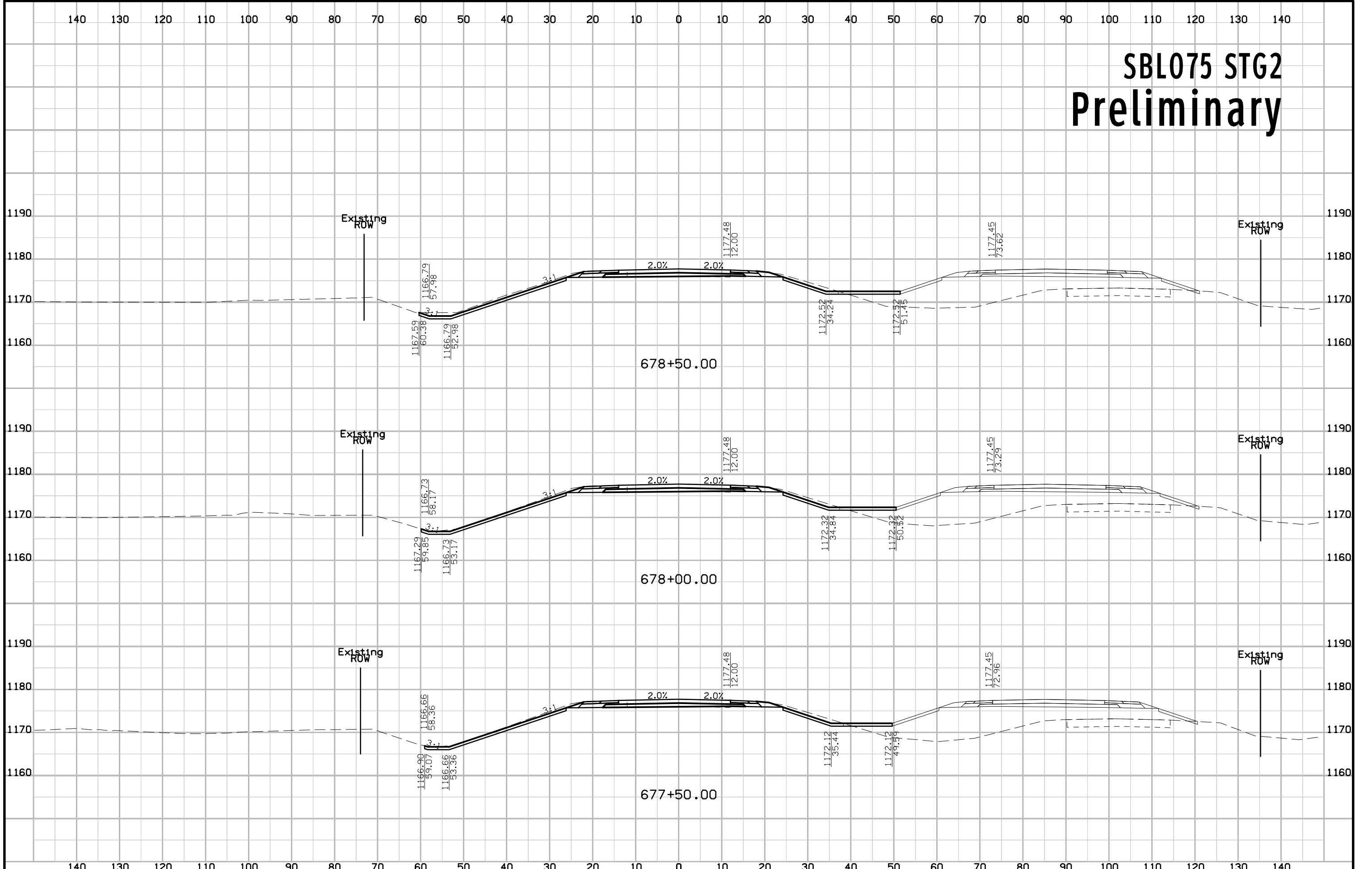
# SBL075 STG2 Preliminary



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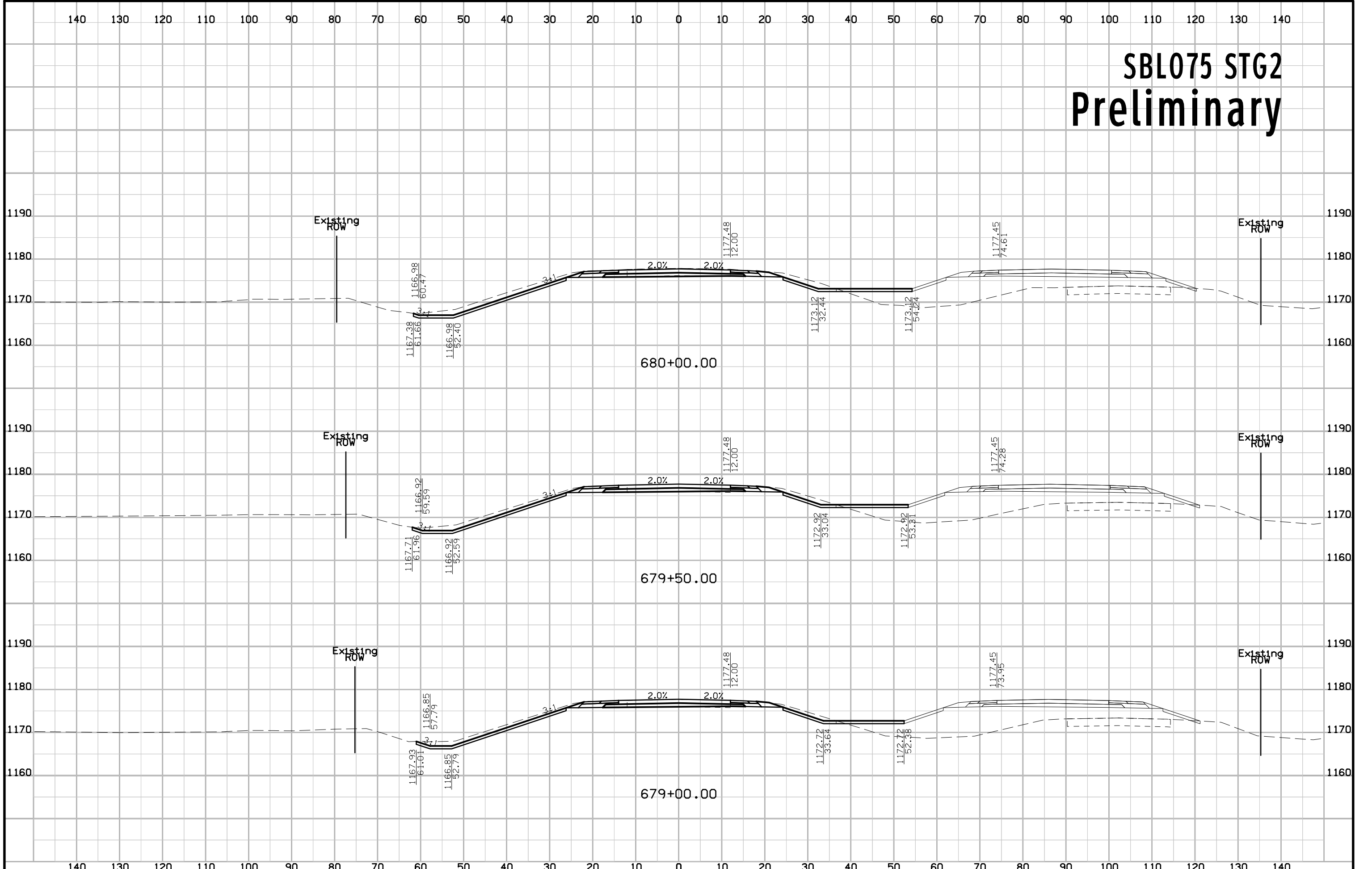


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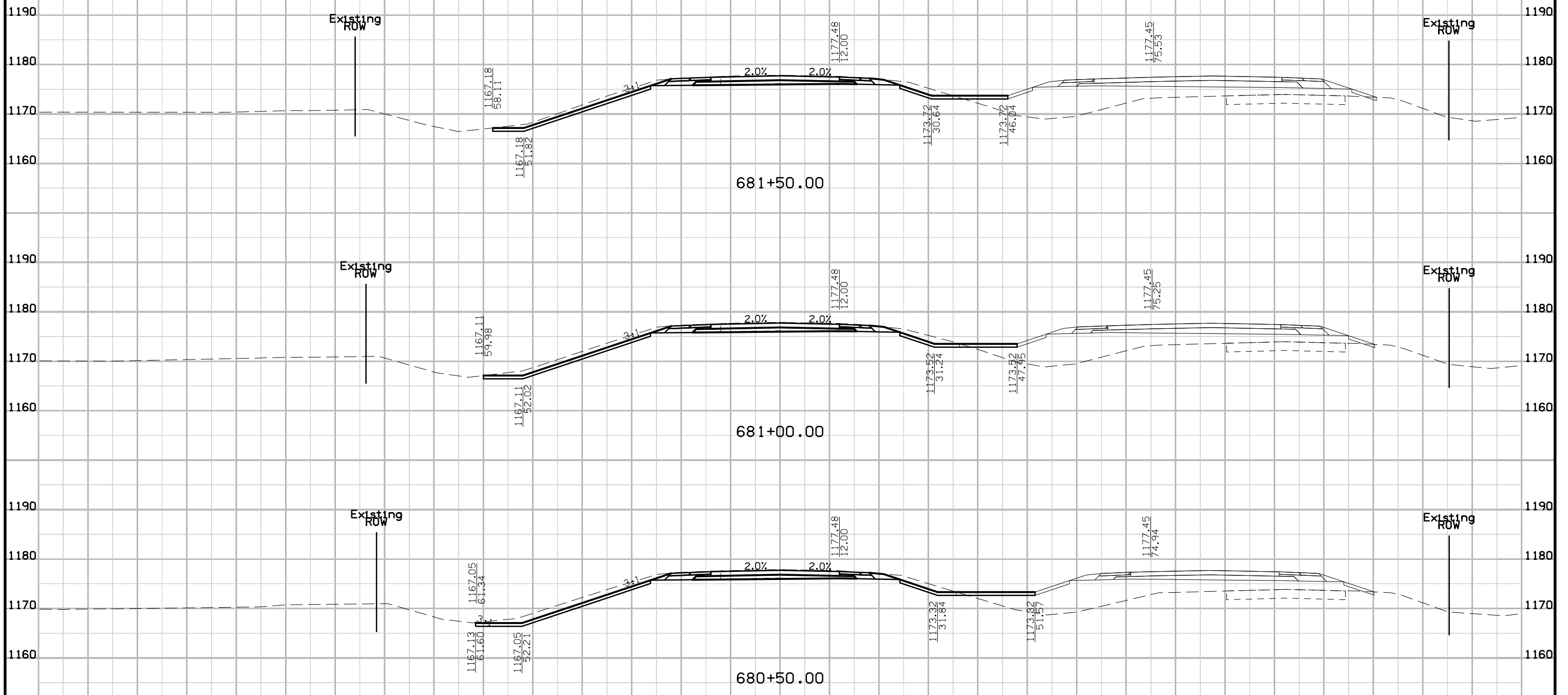




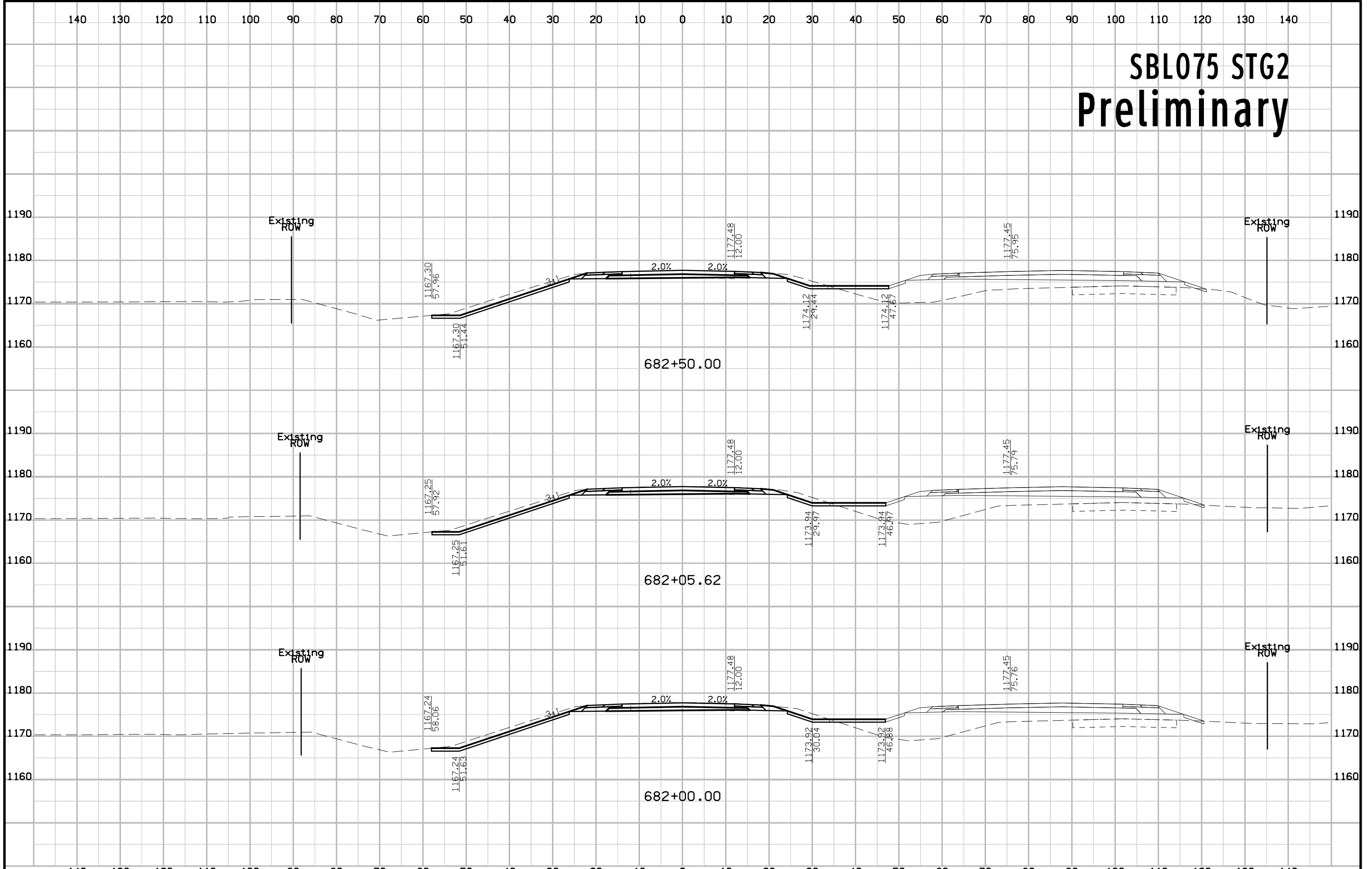
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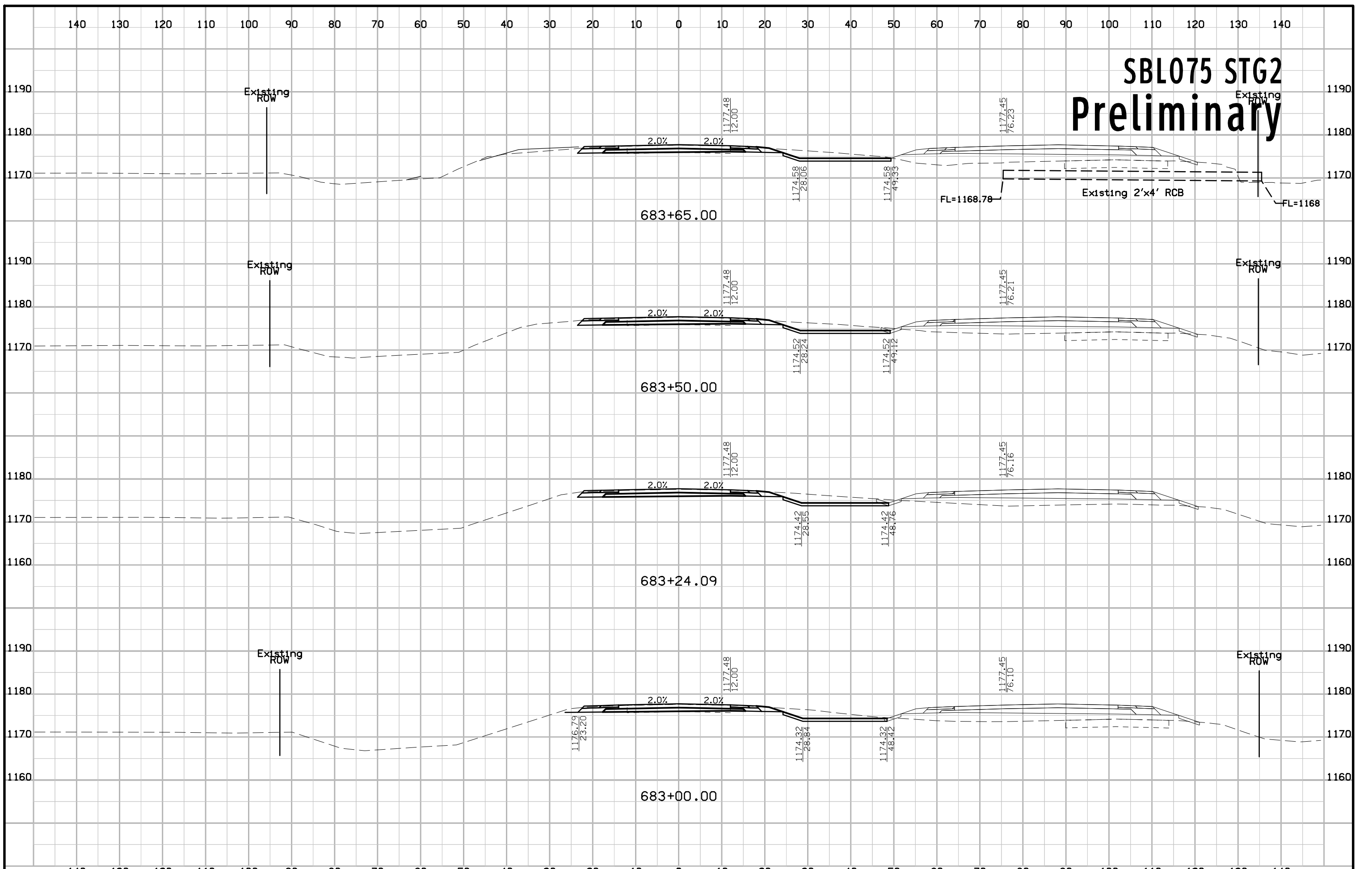
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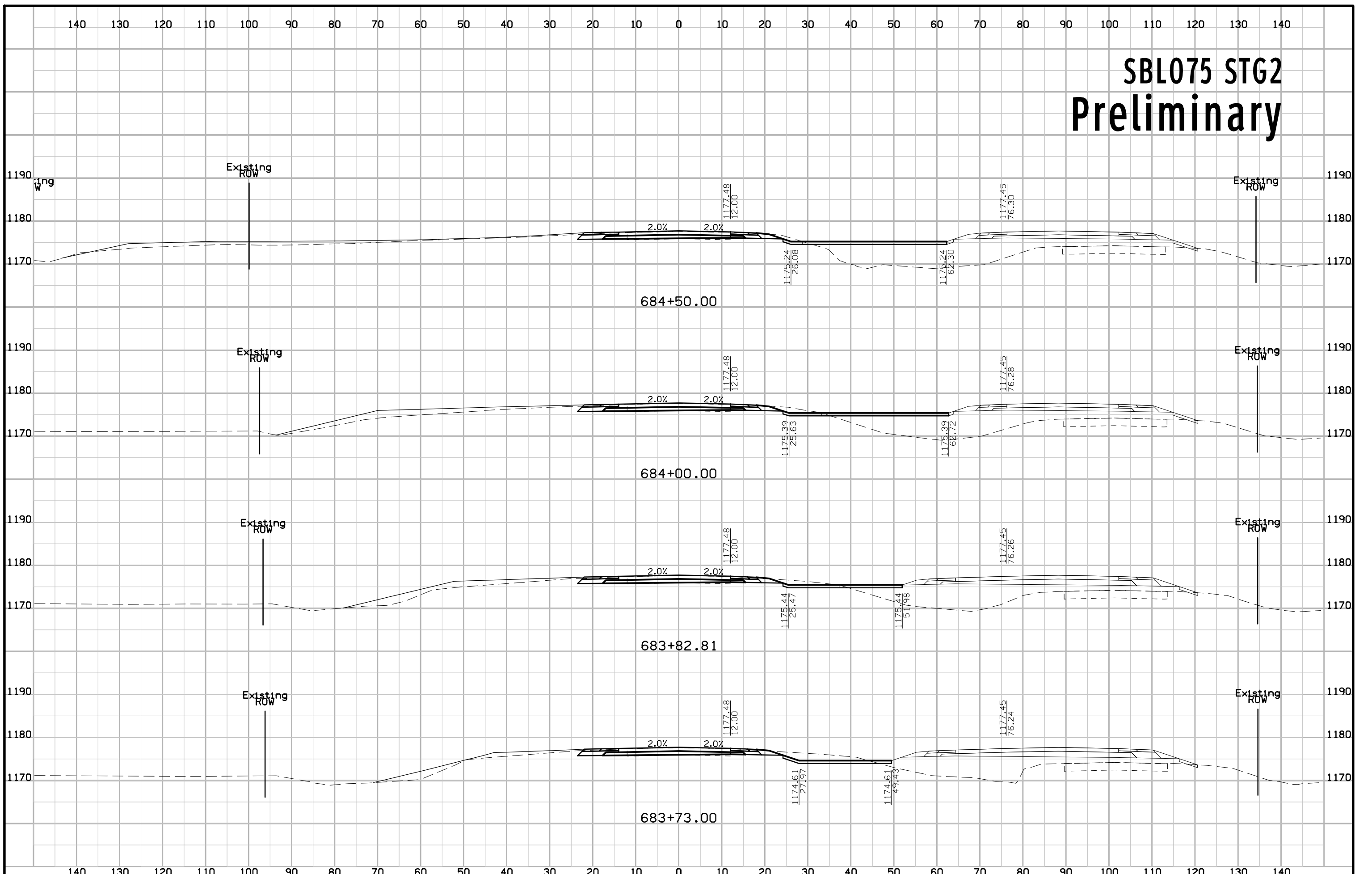
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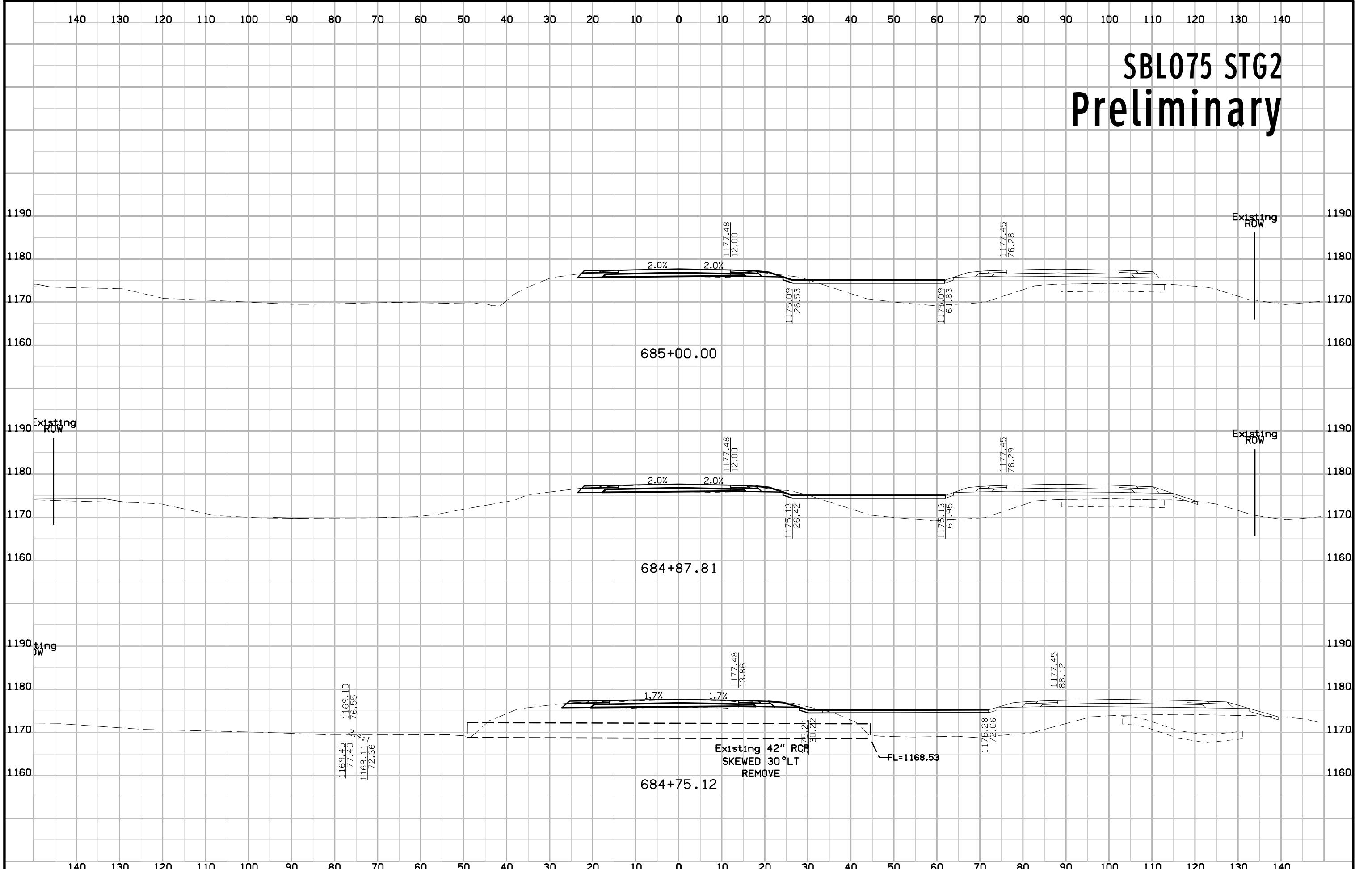
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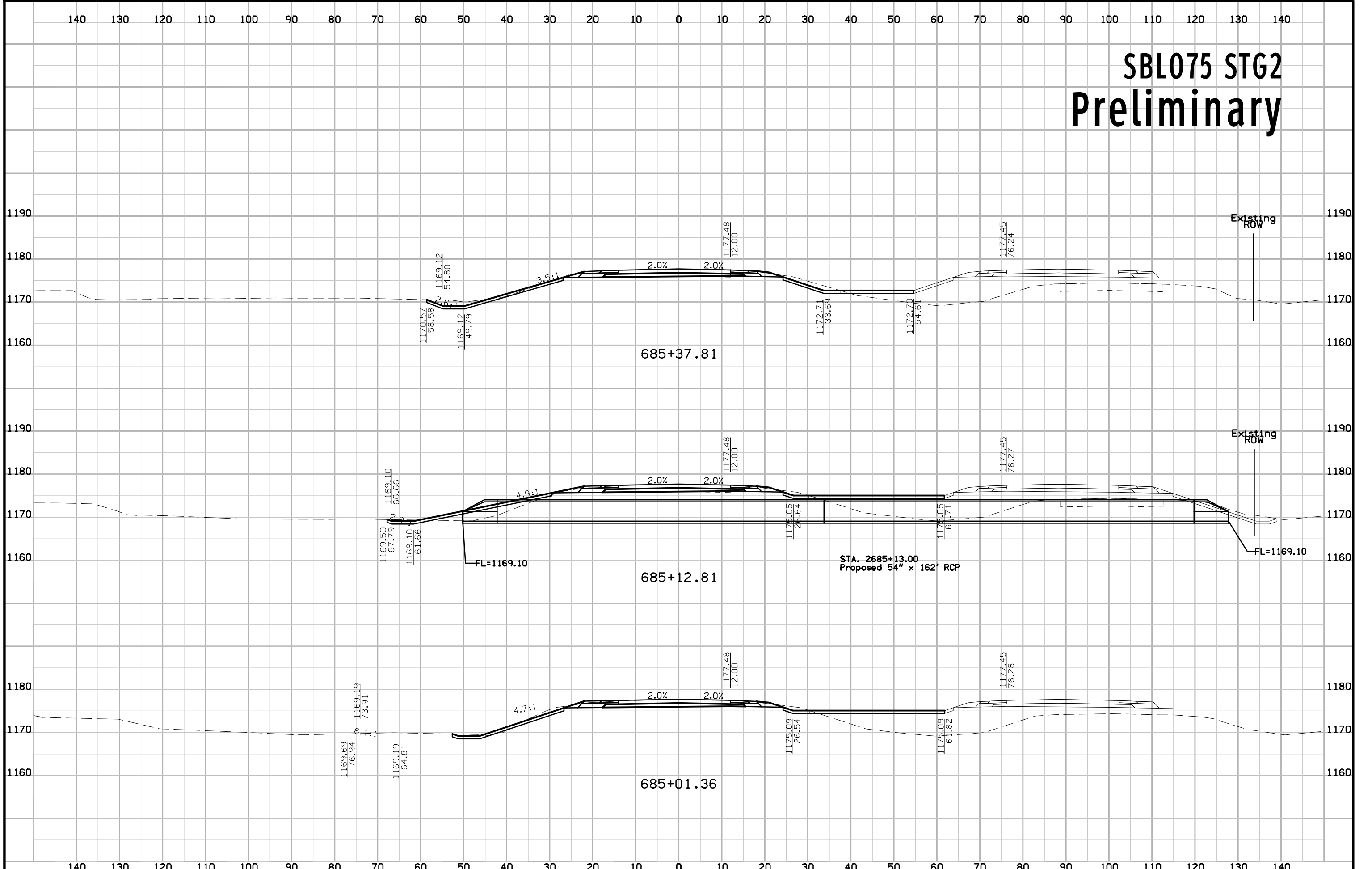
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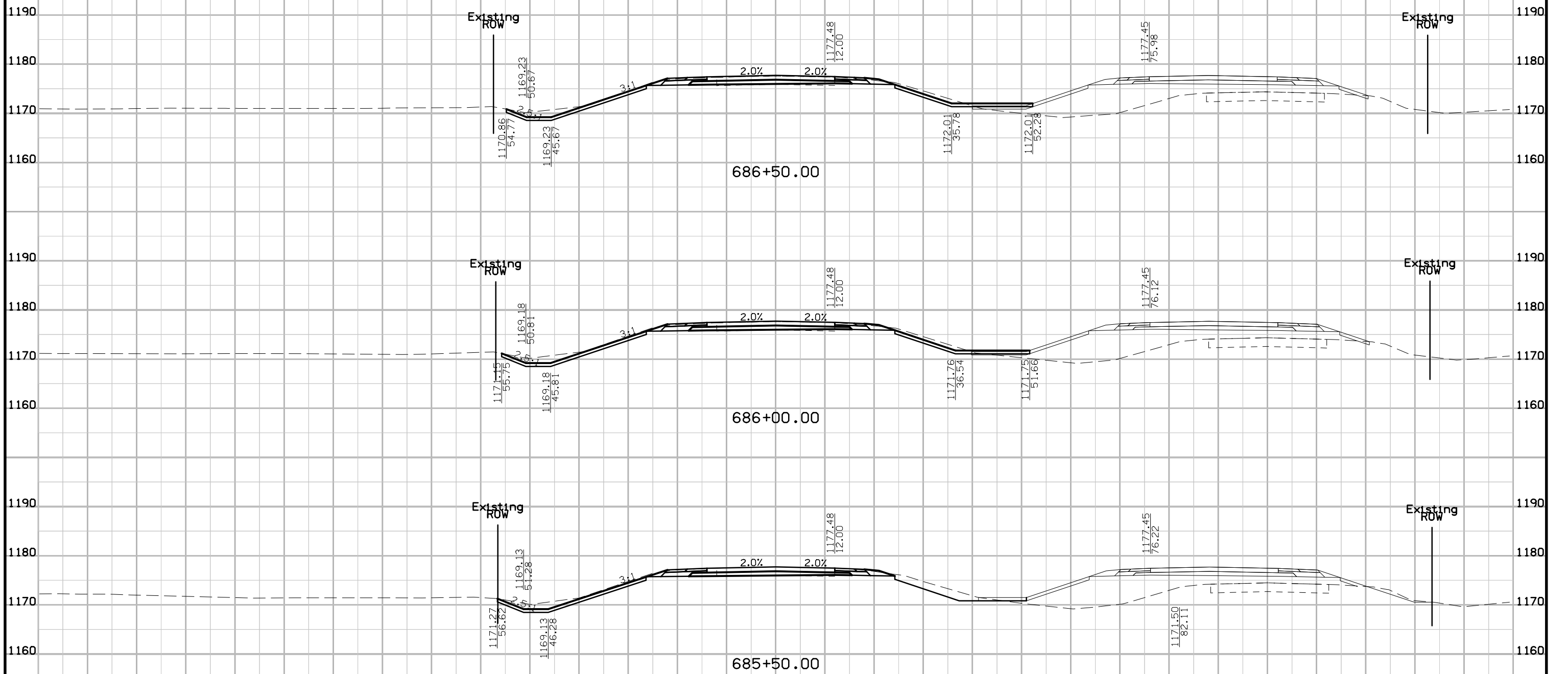
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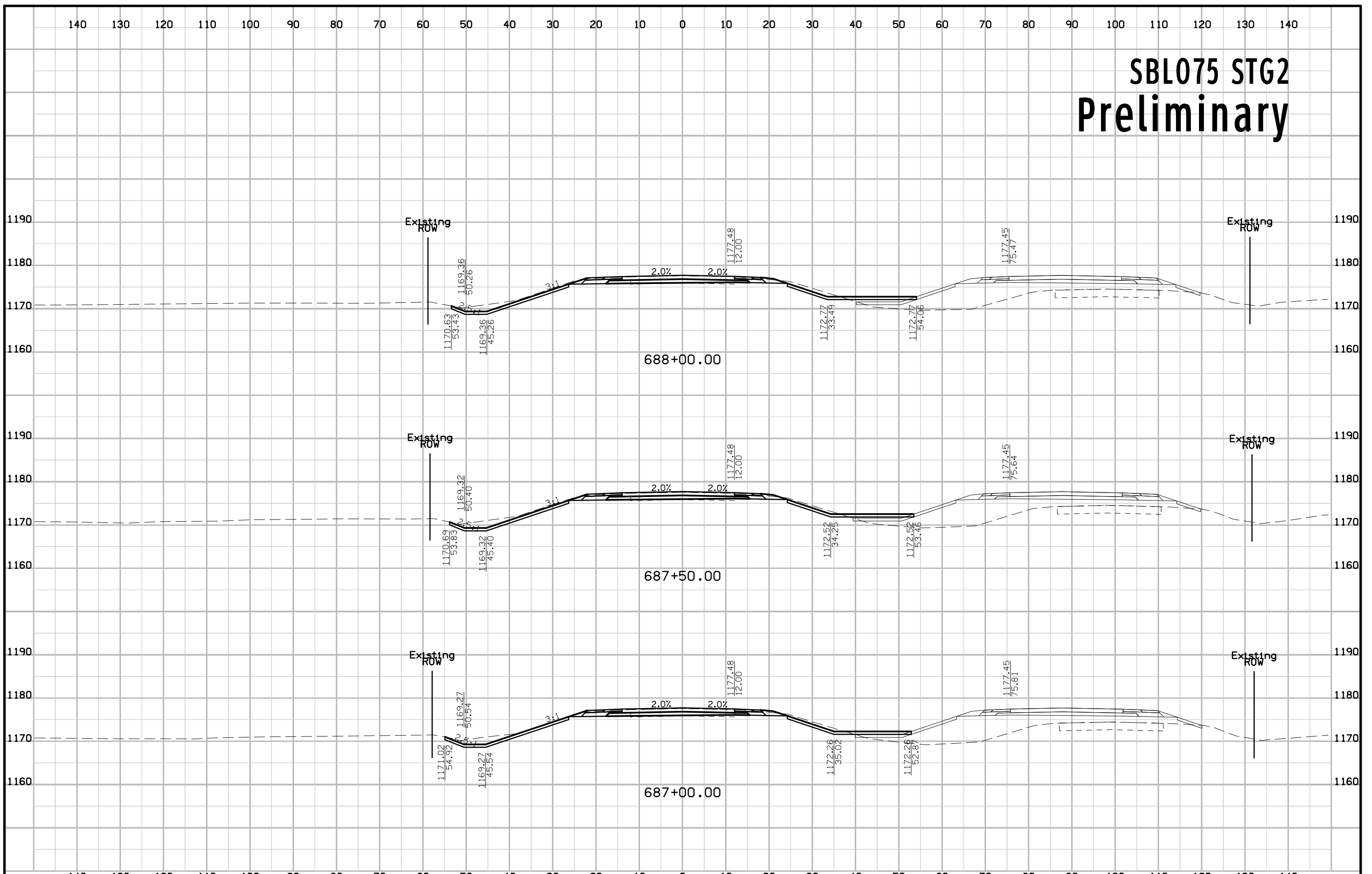


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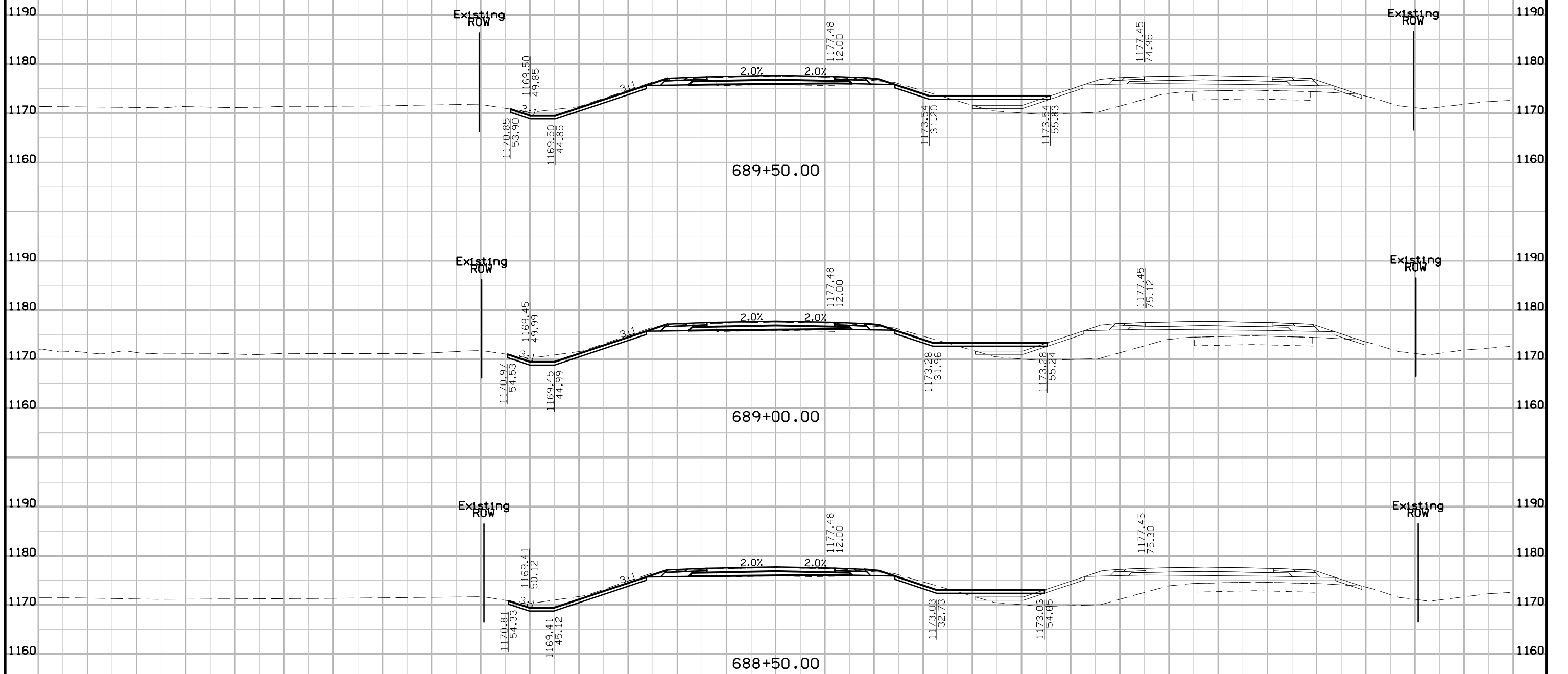




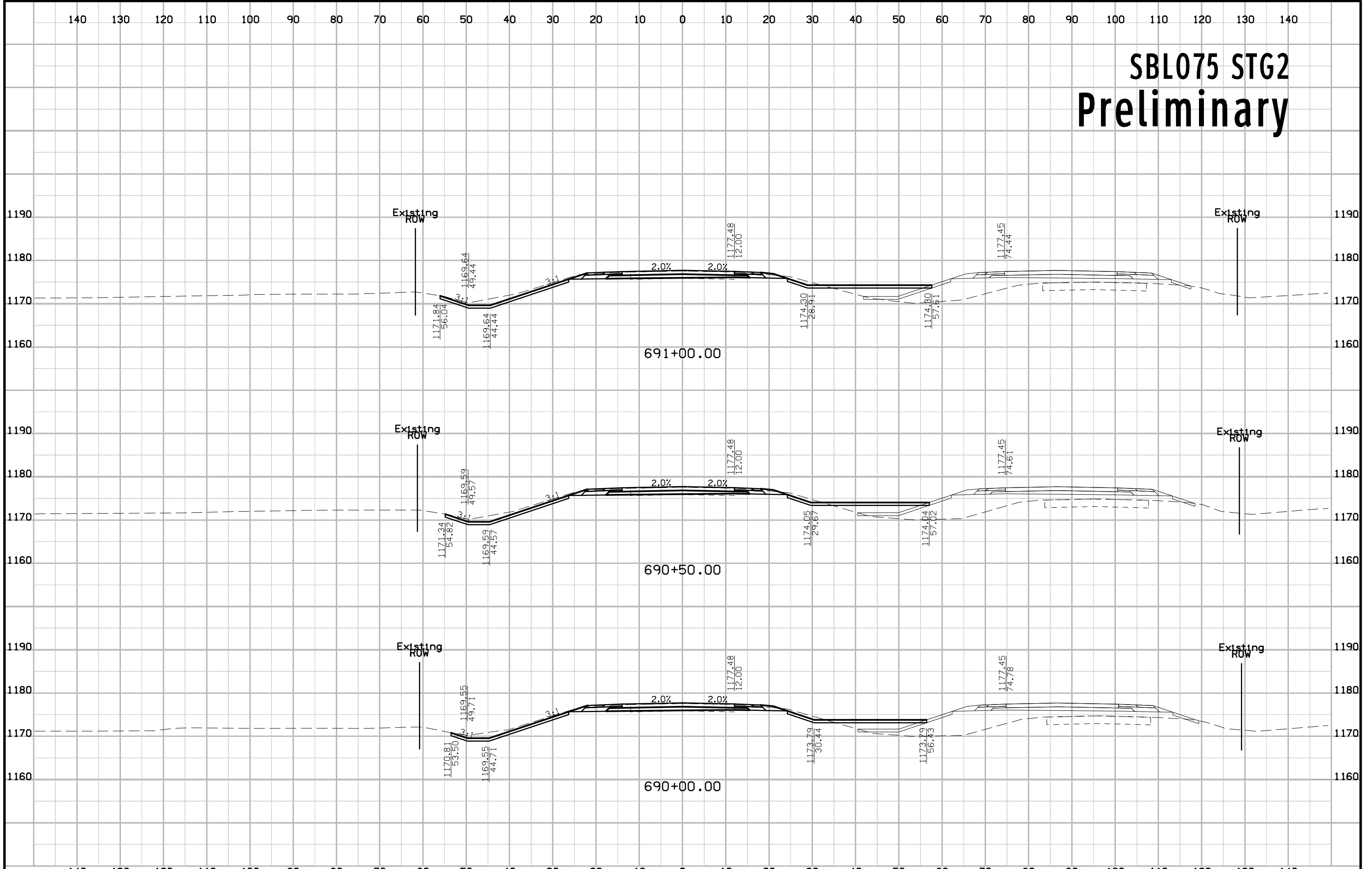
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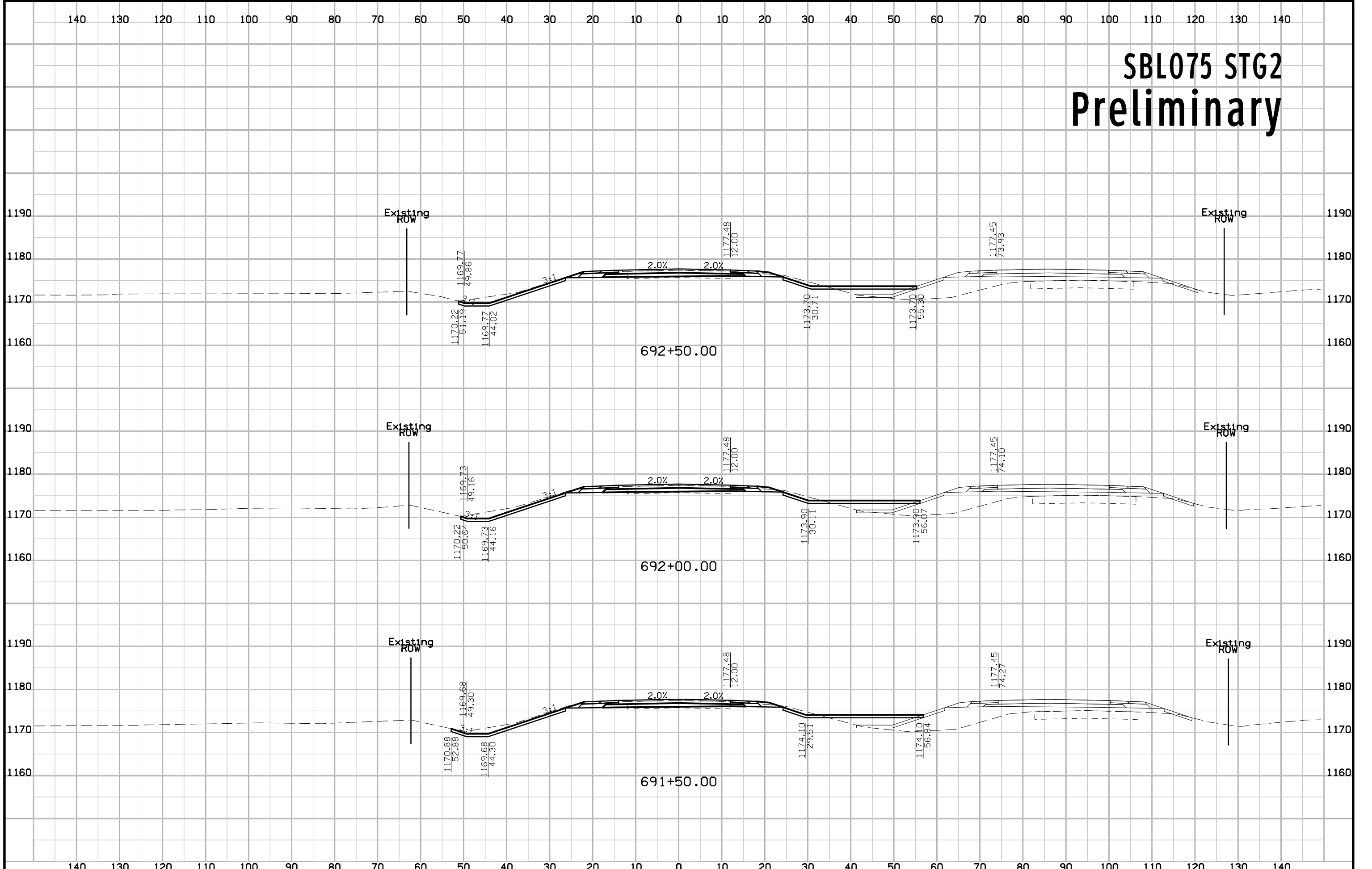
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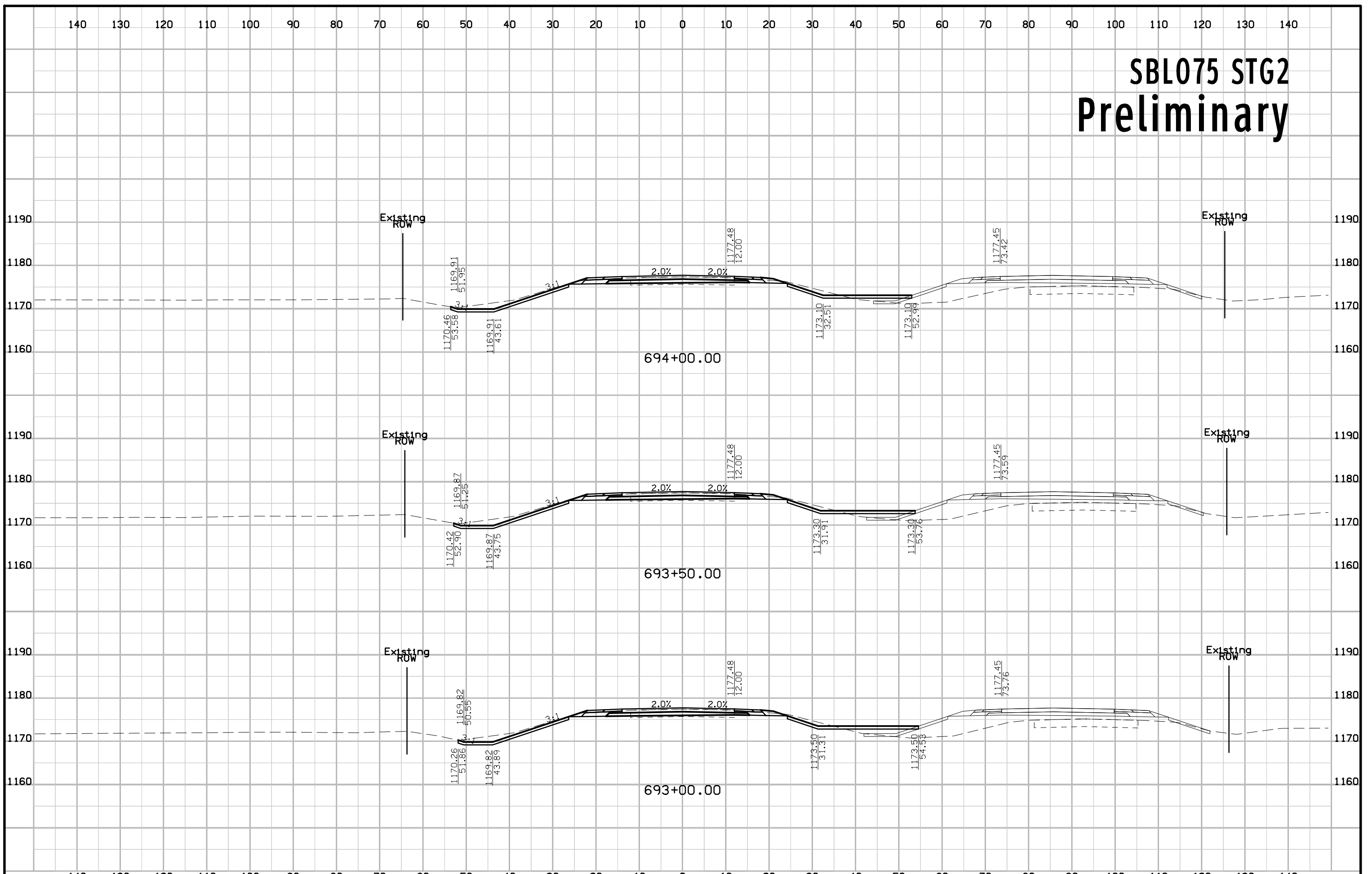
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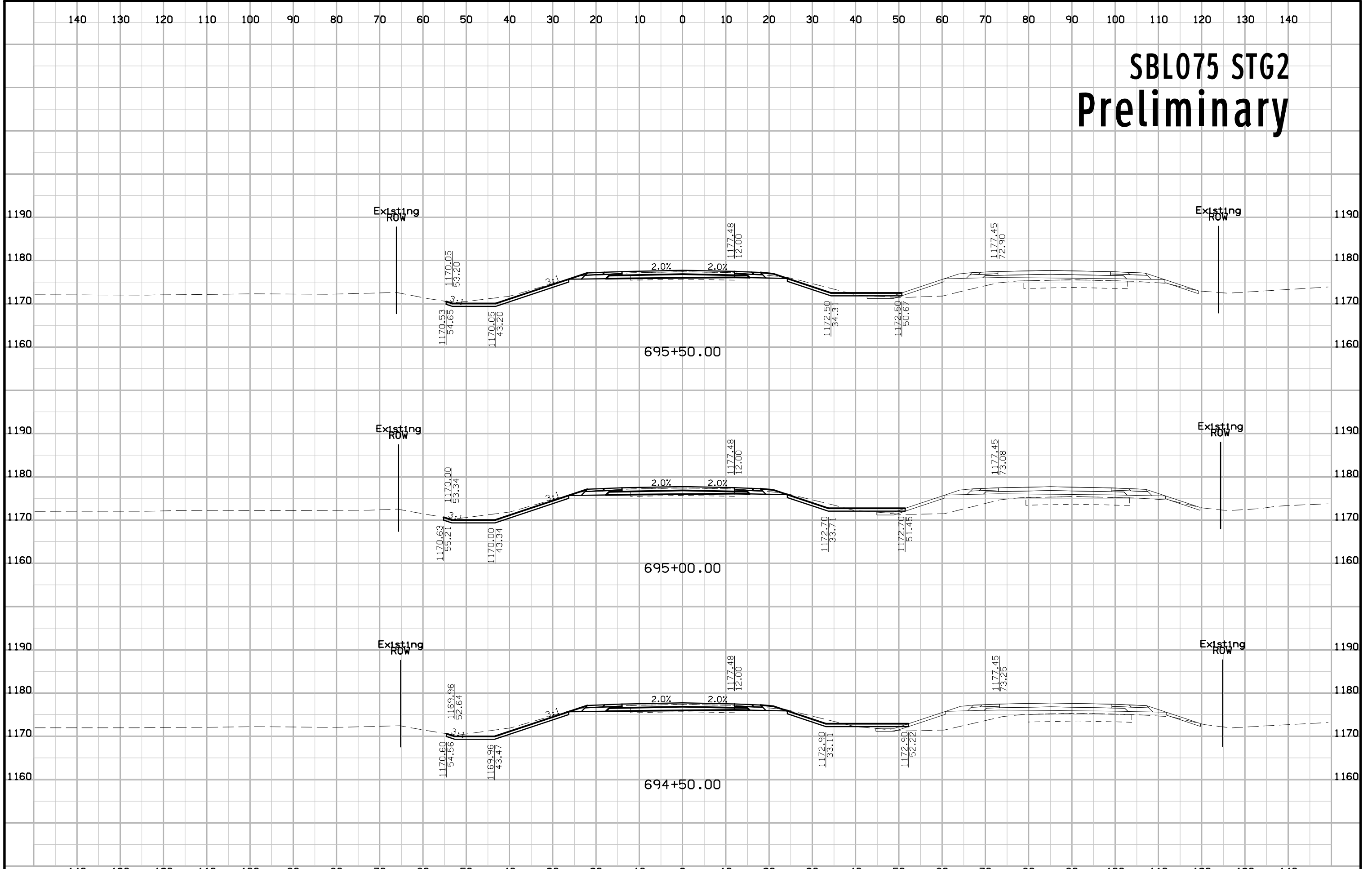
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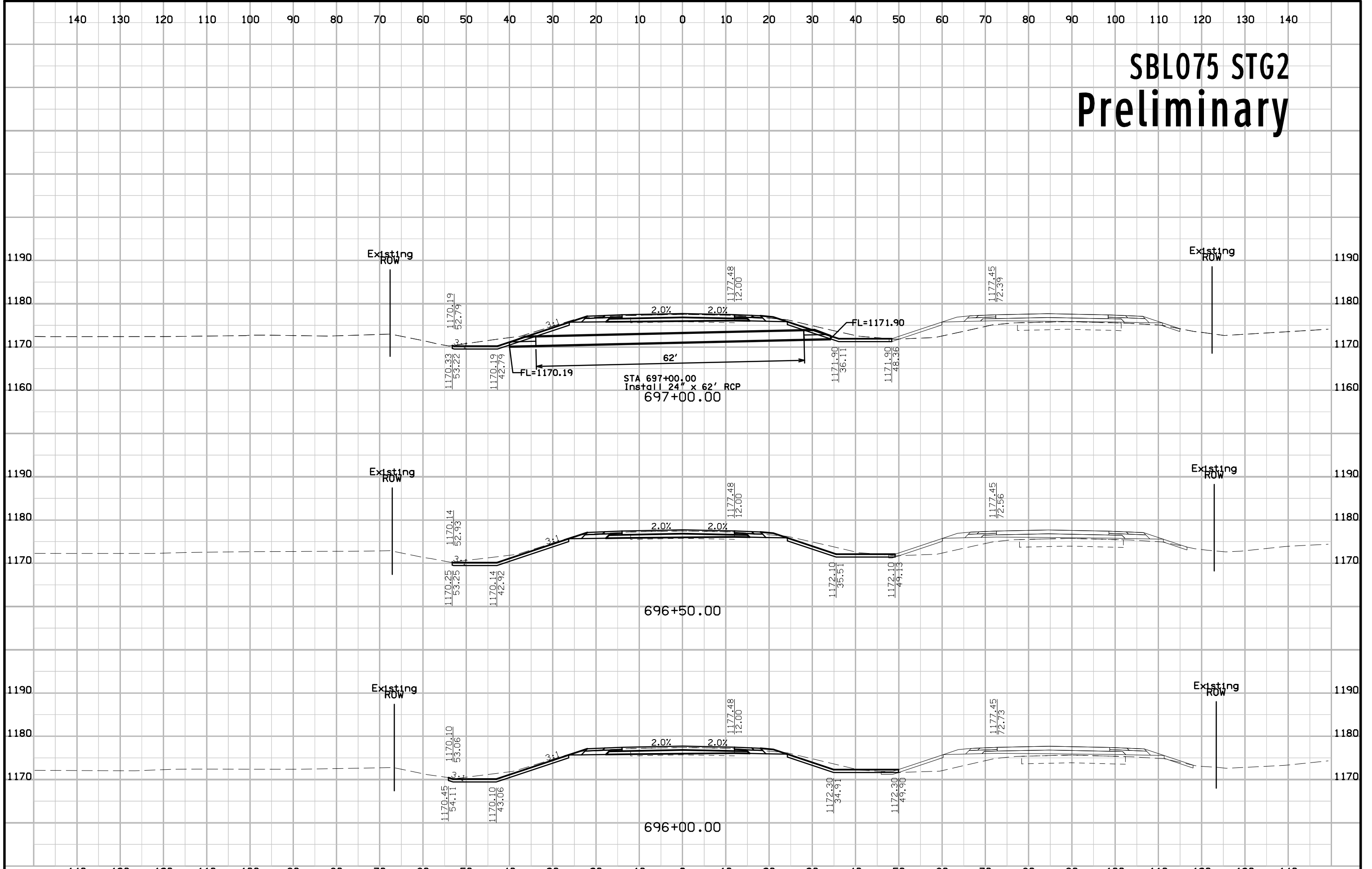
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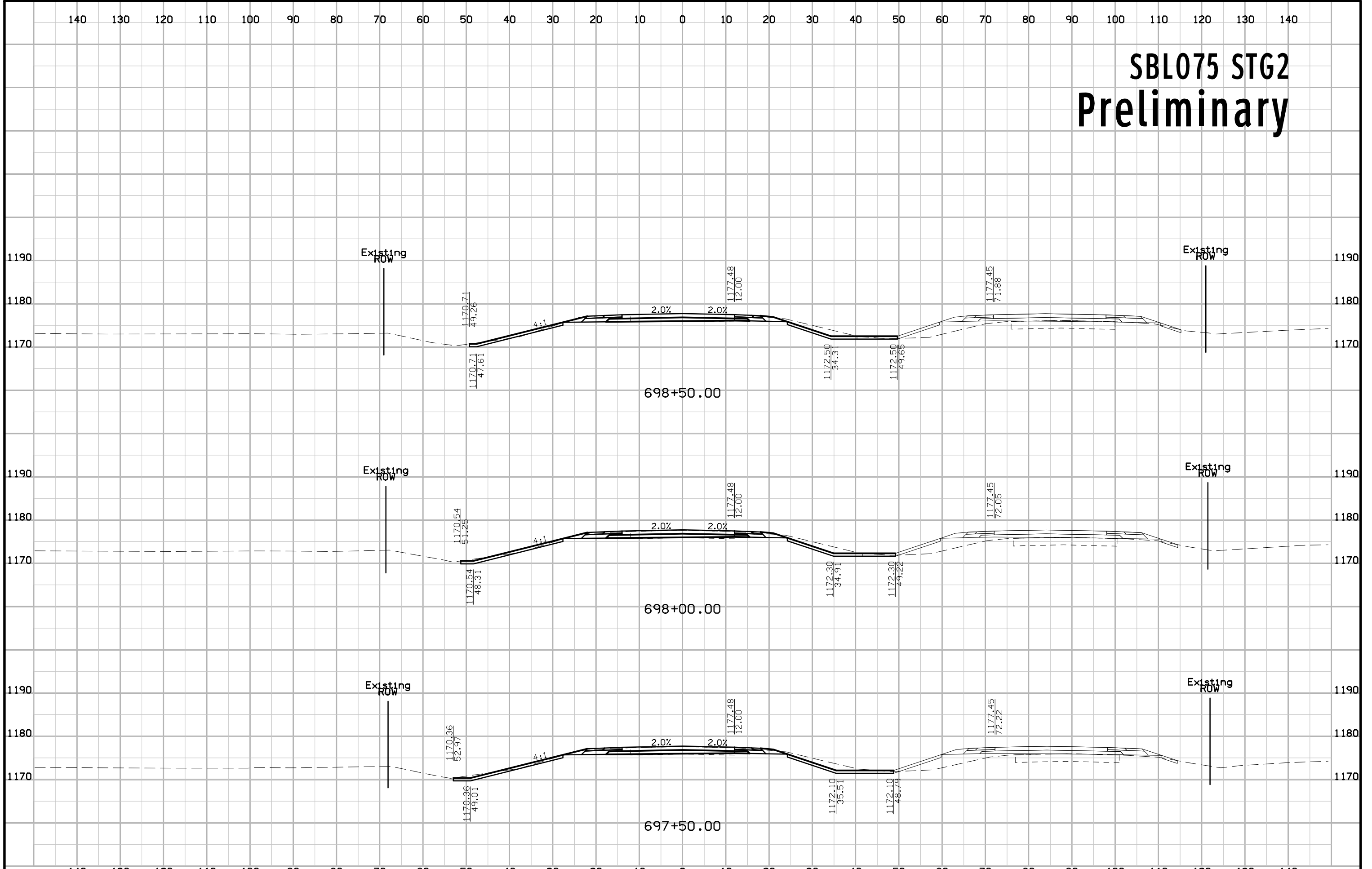
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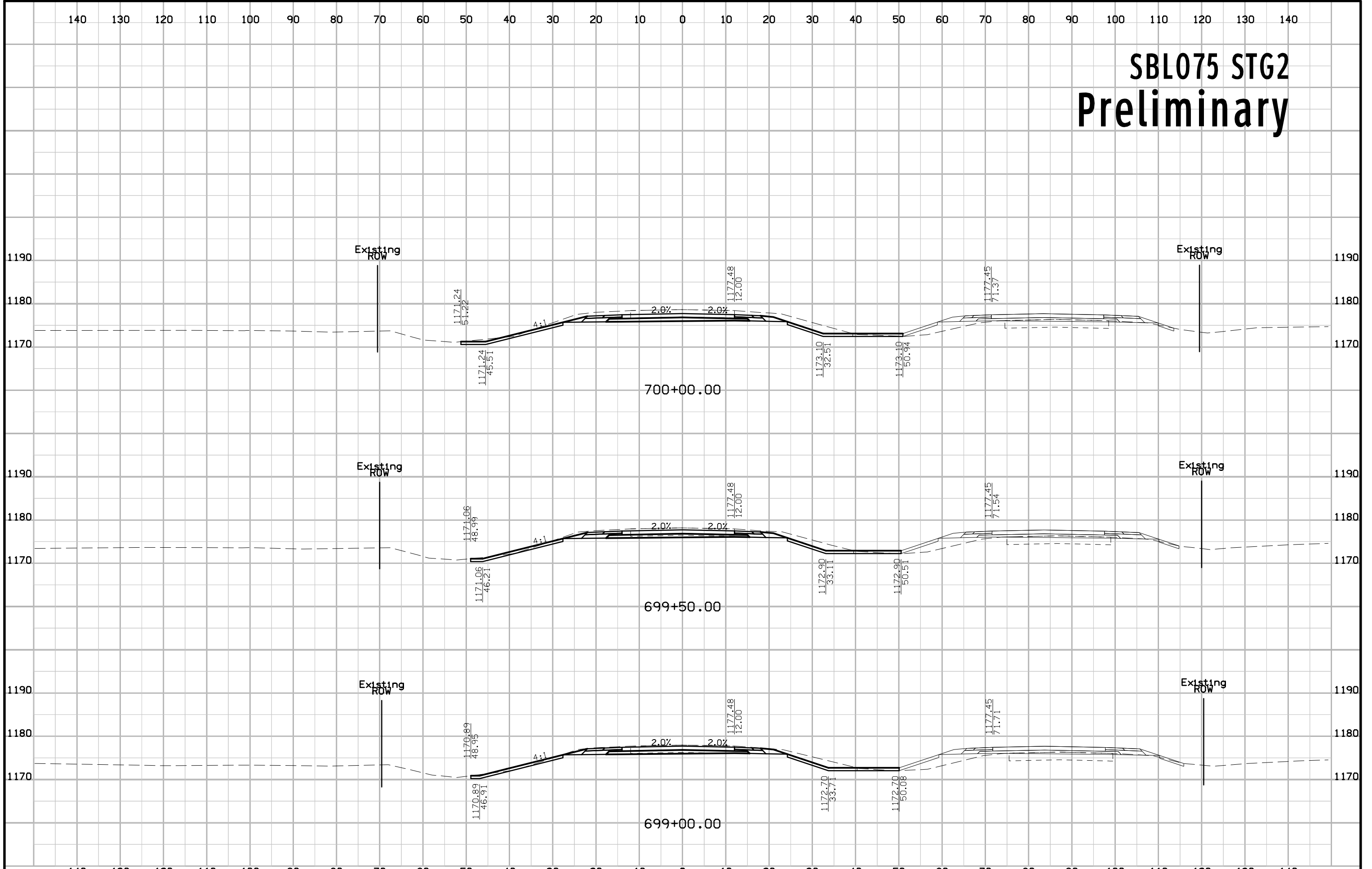


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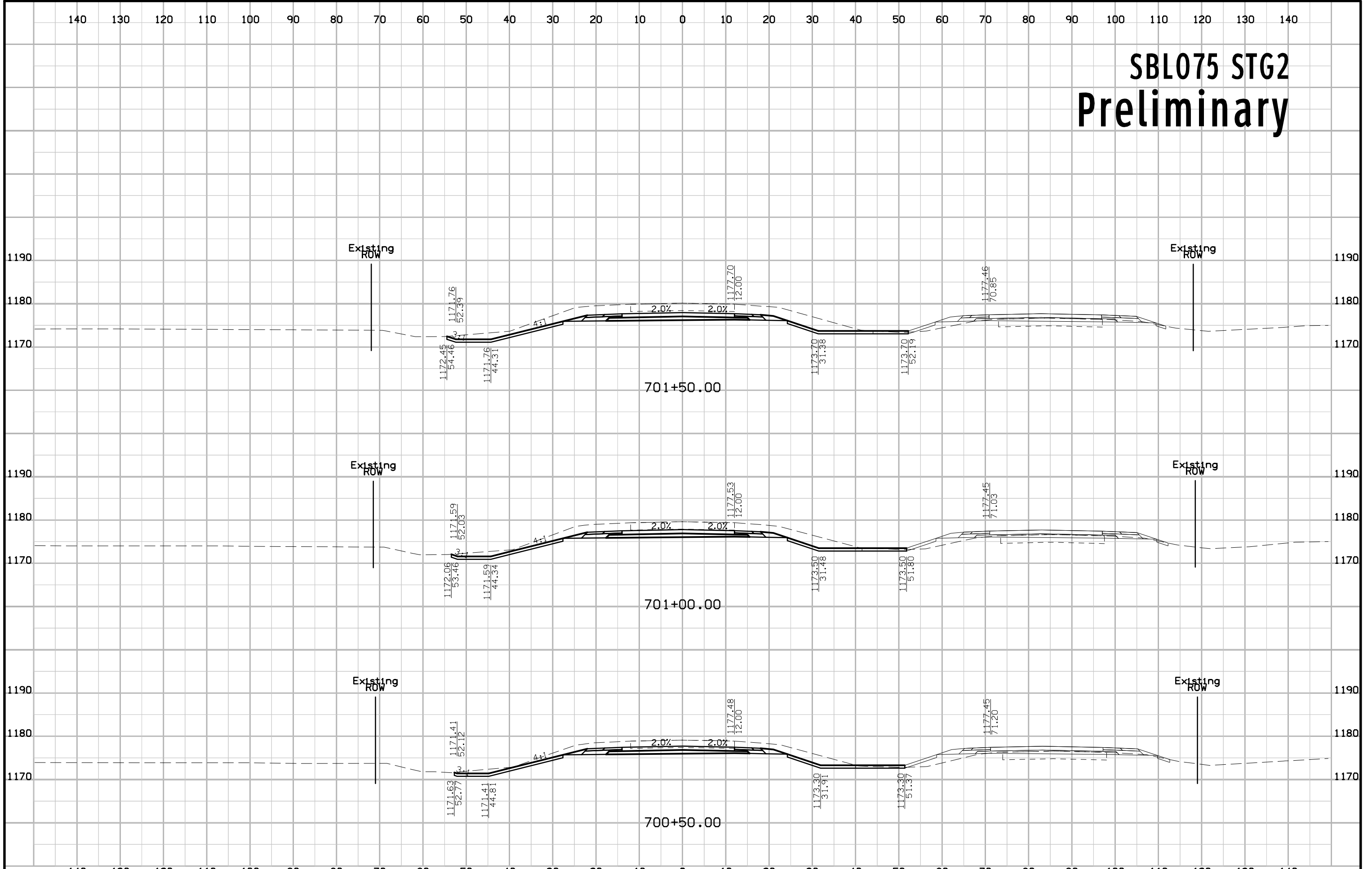




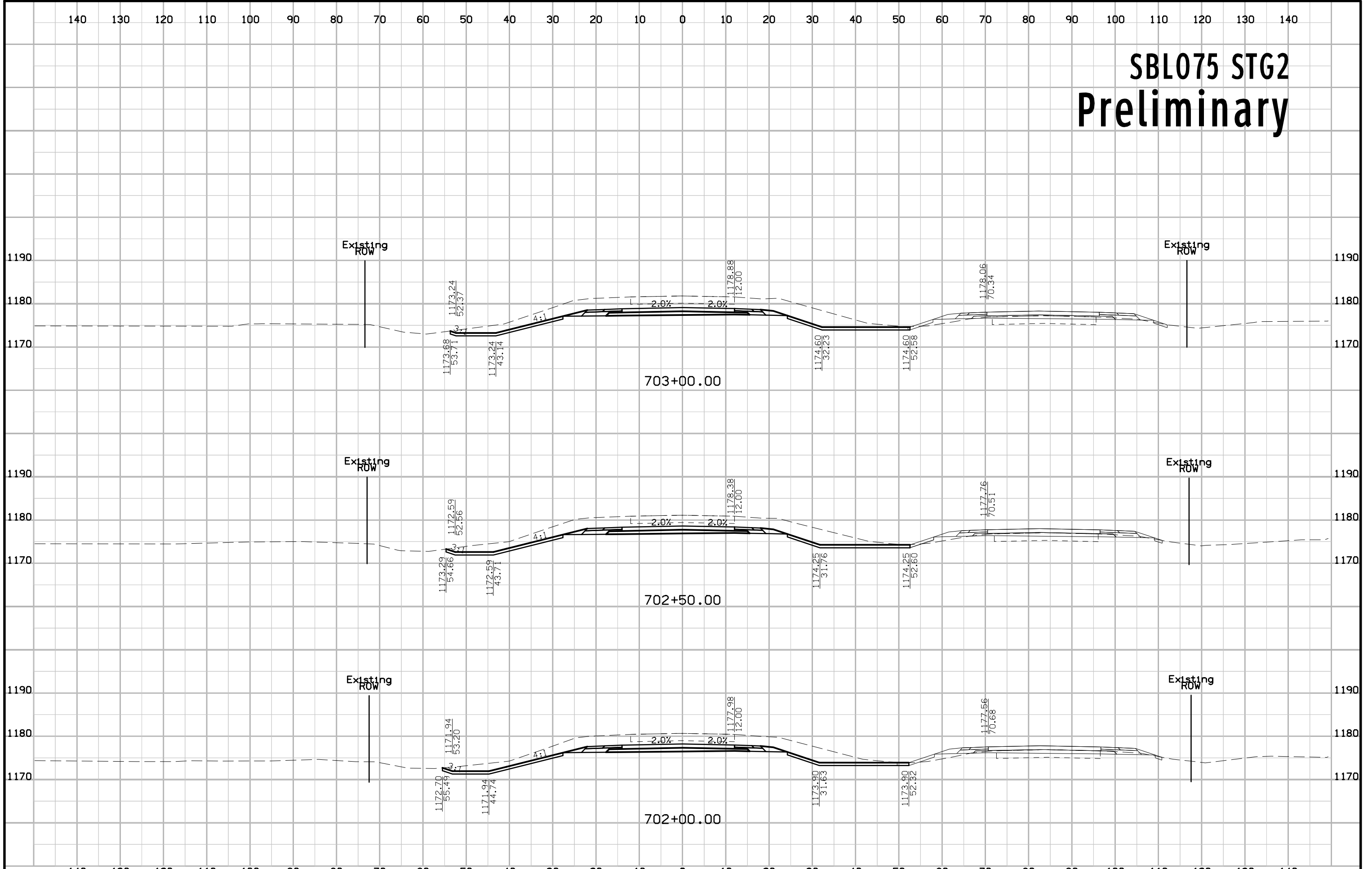
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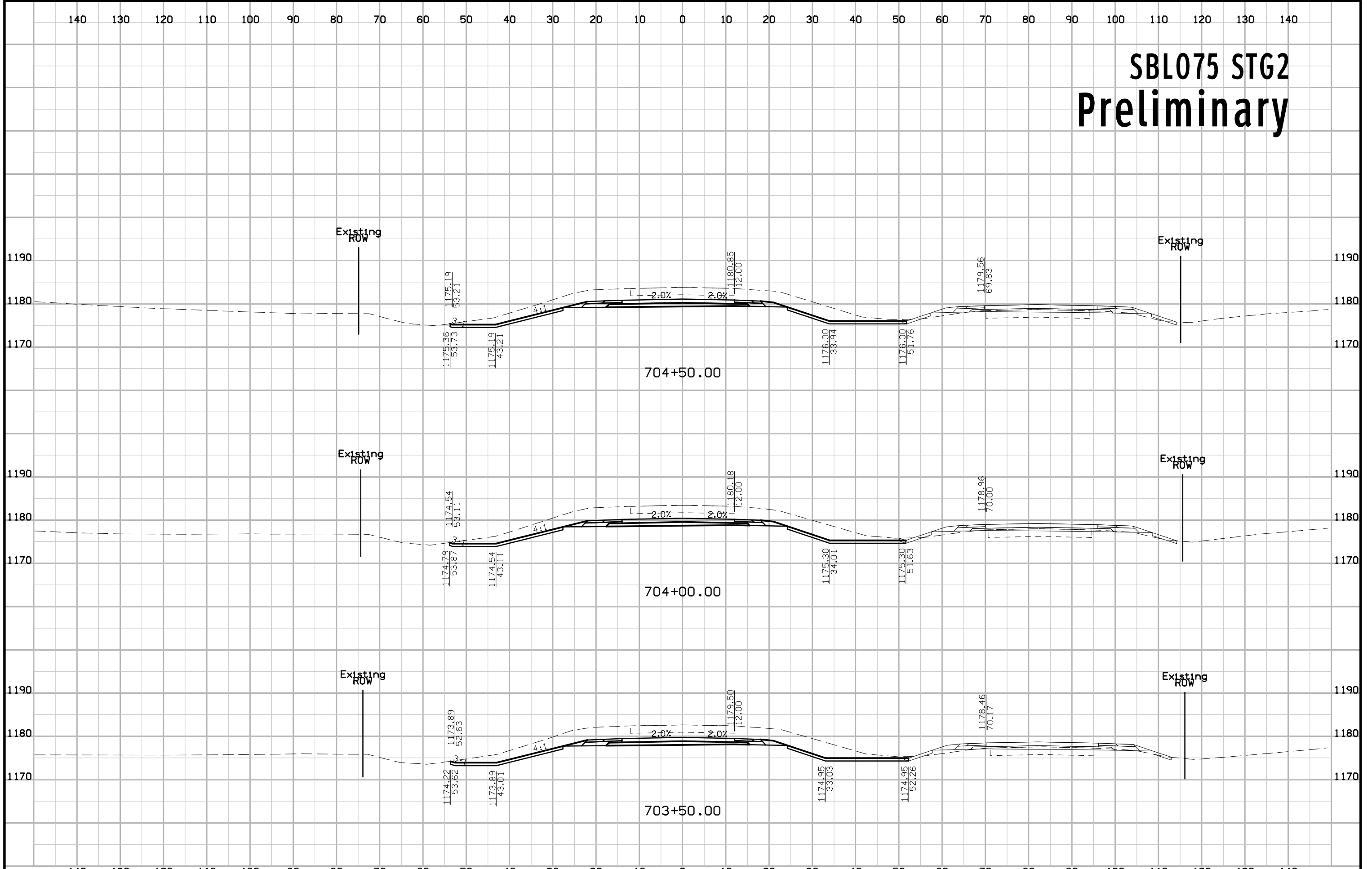
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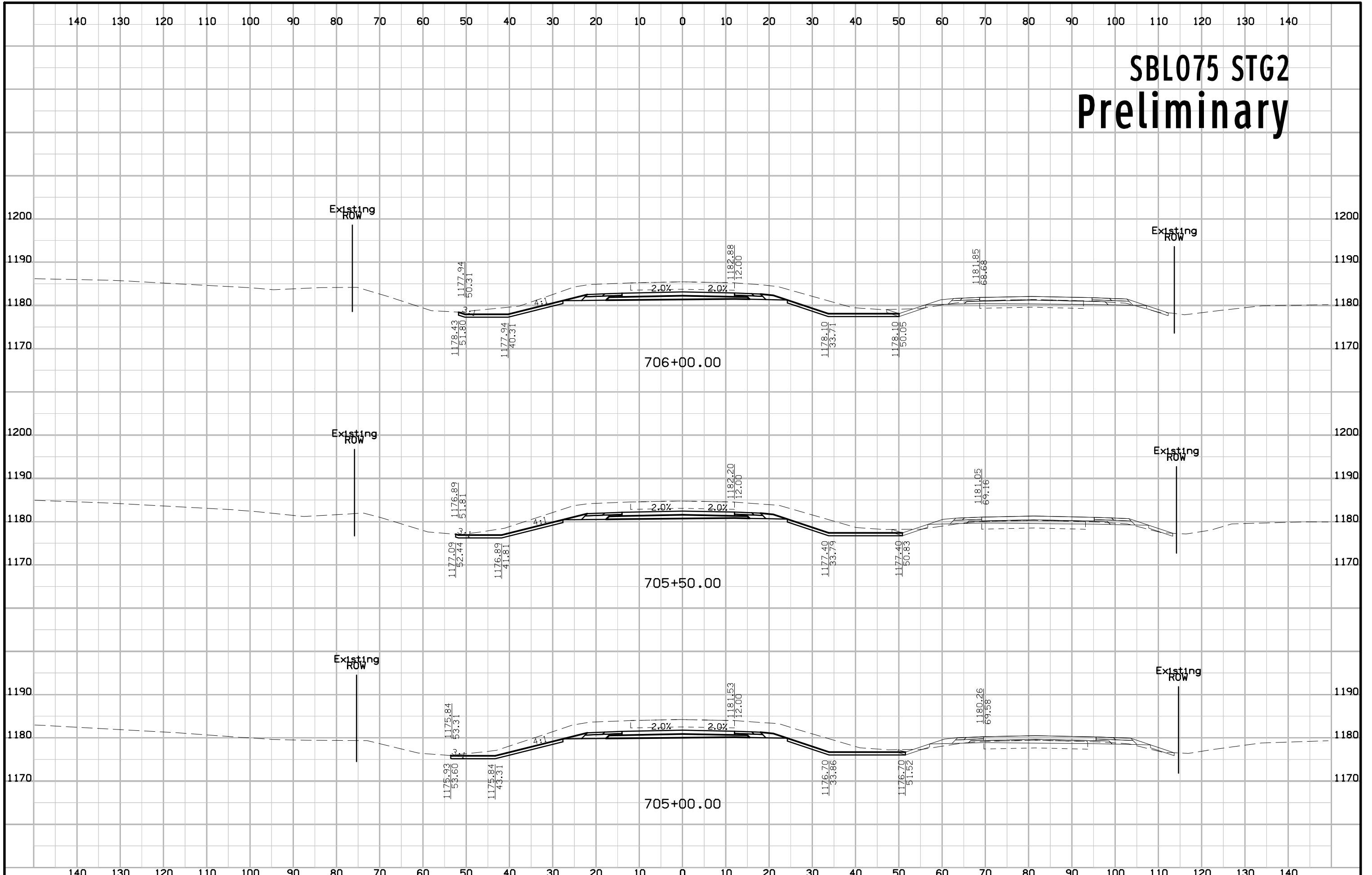
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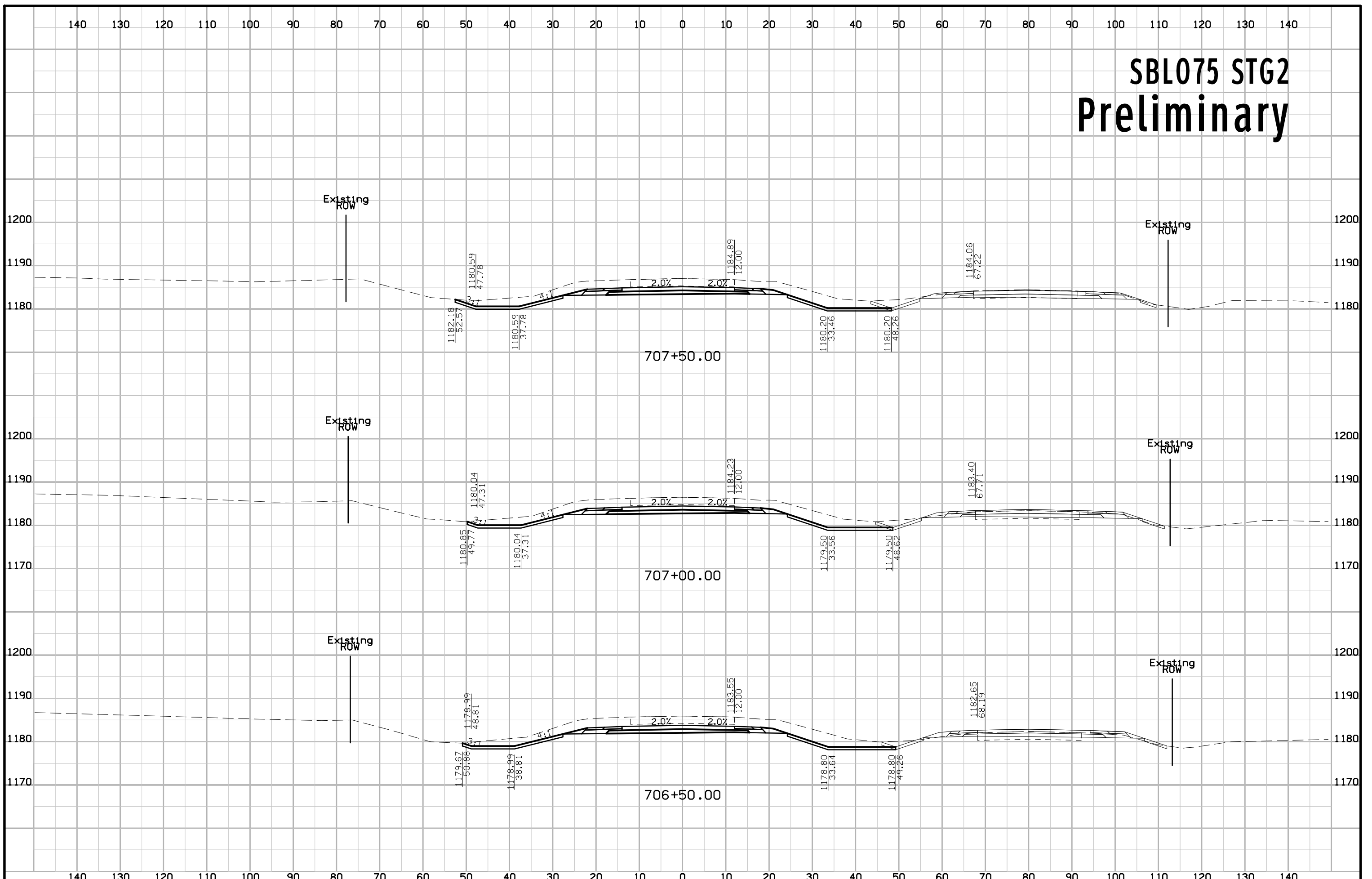
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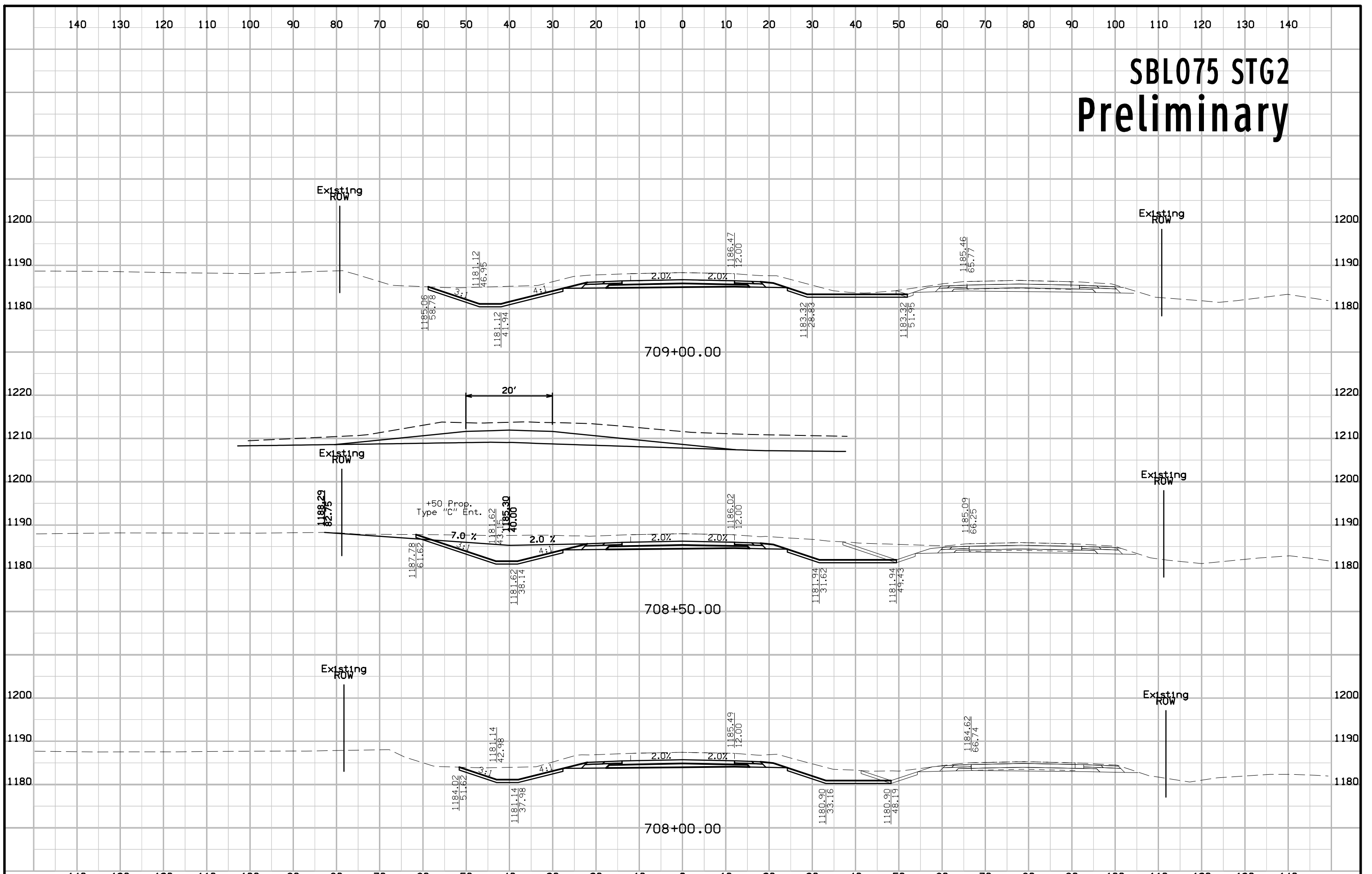
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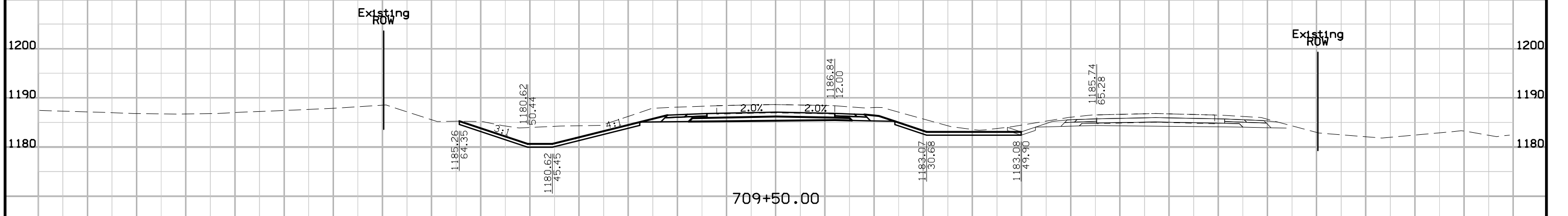
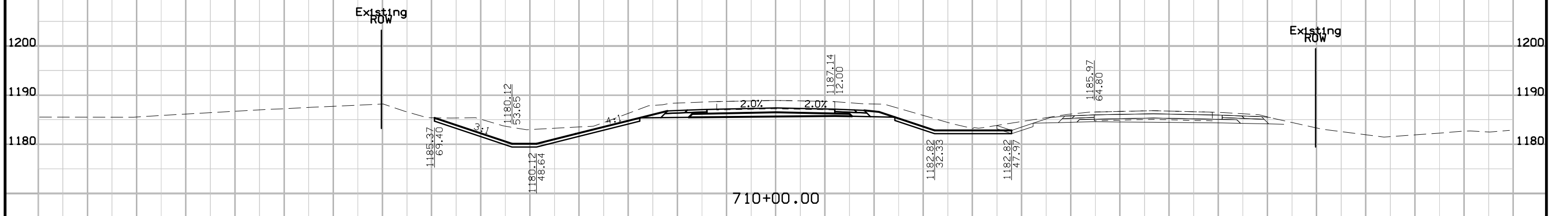
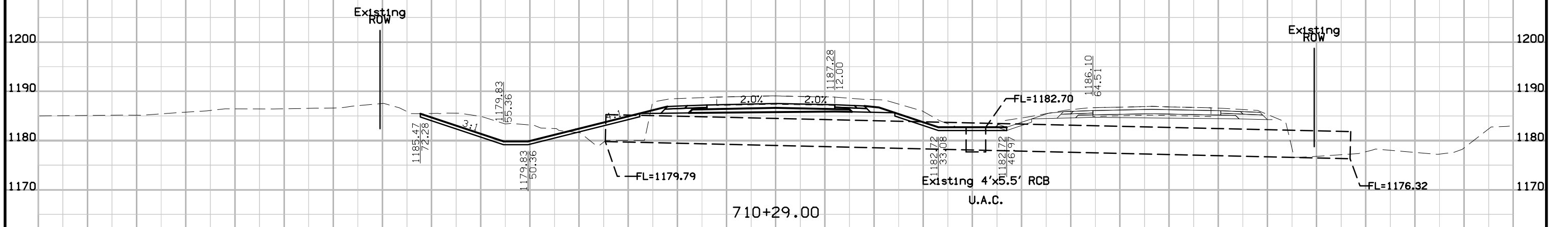
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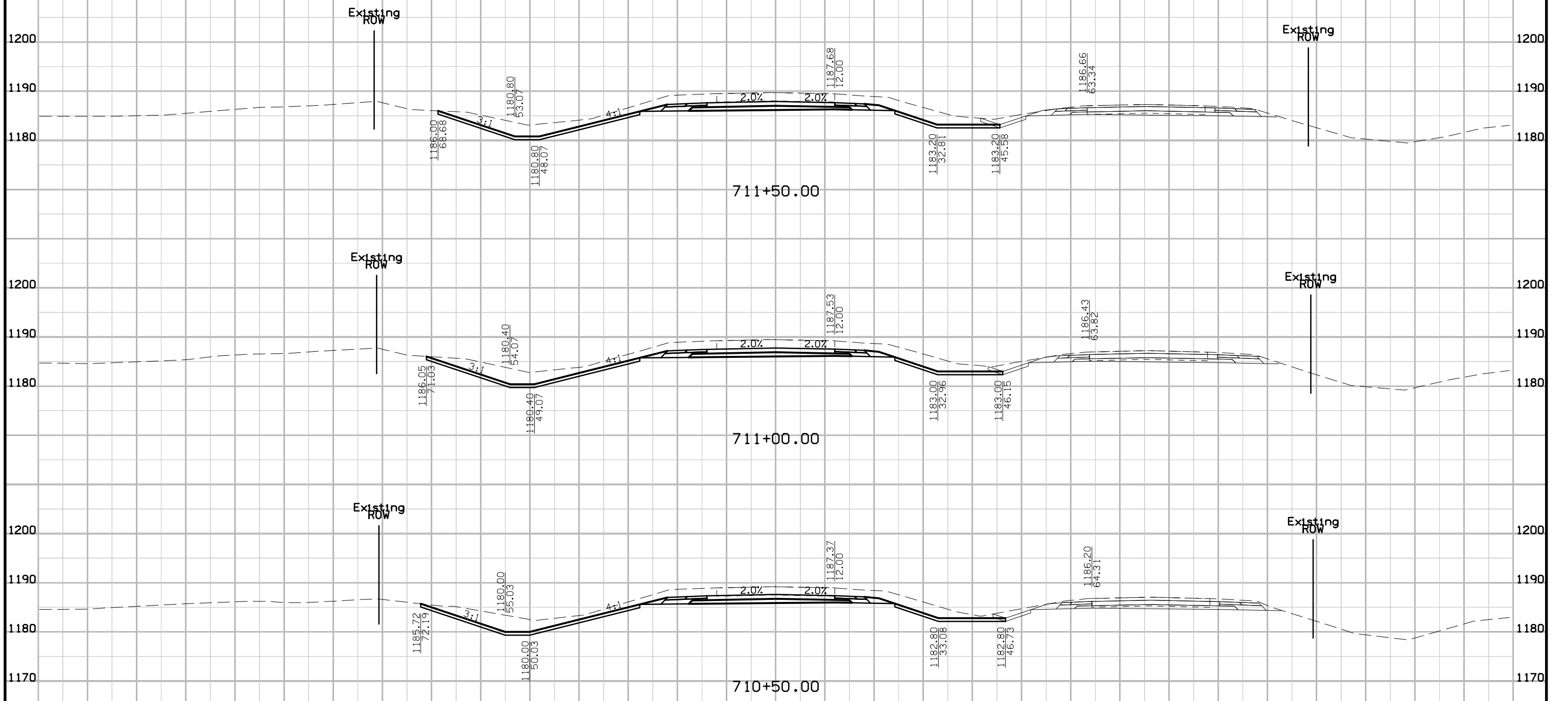


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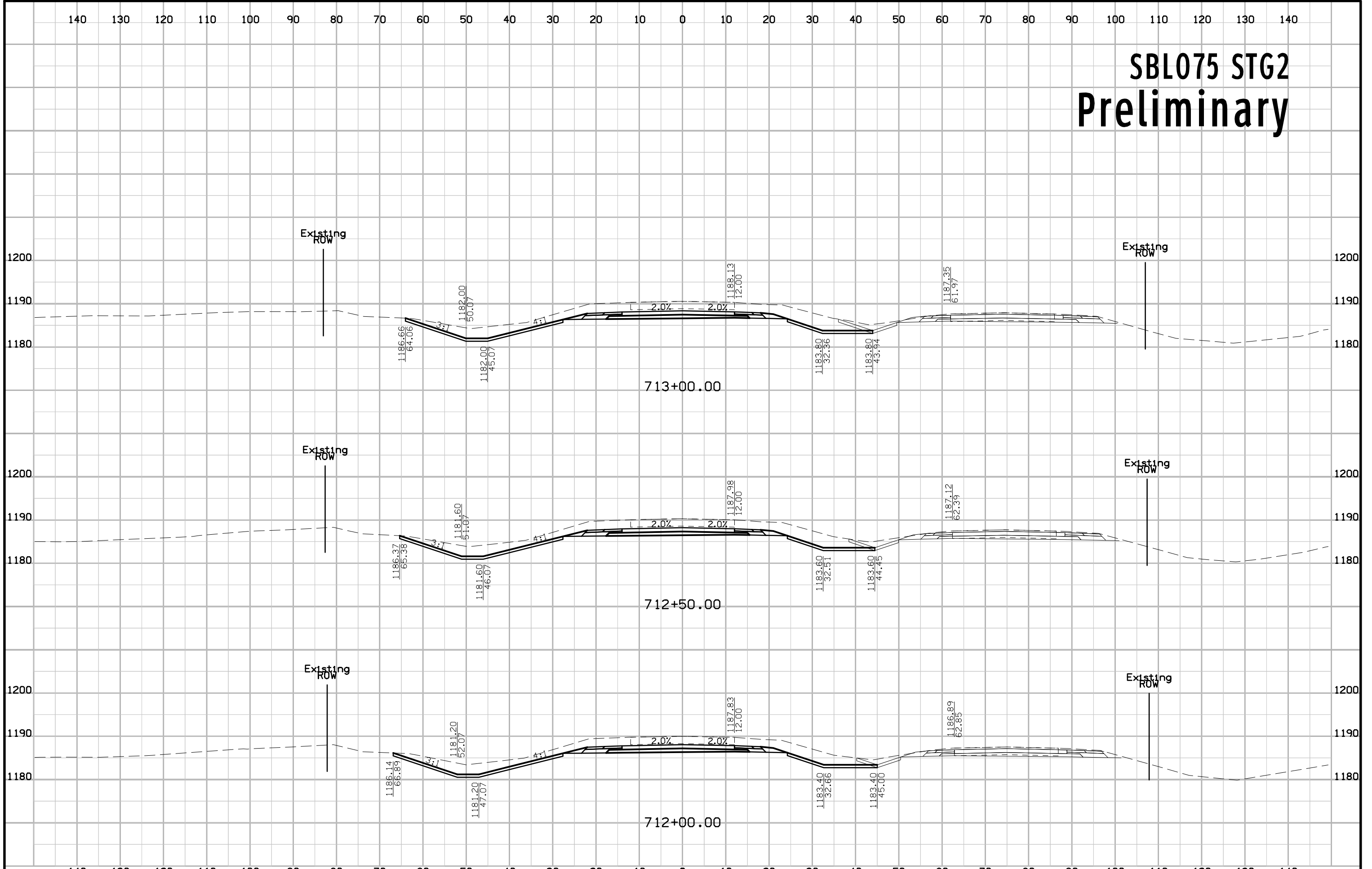




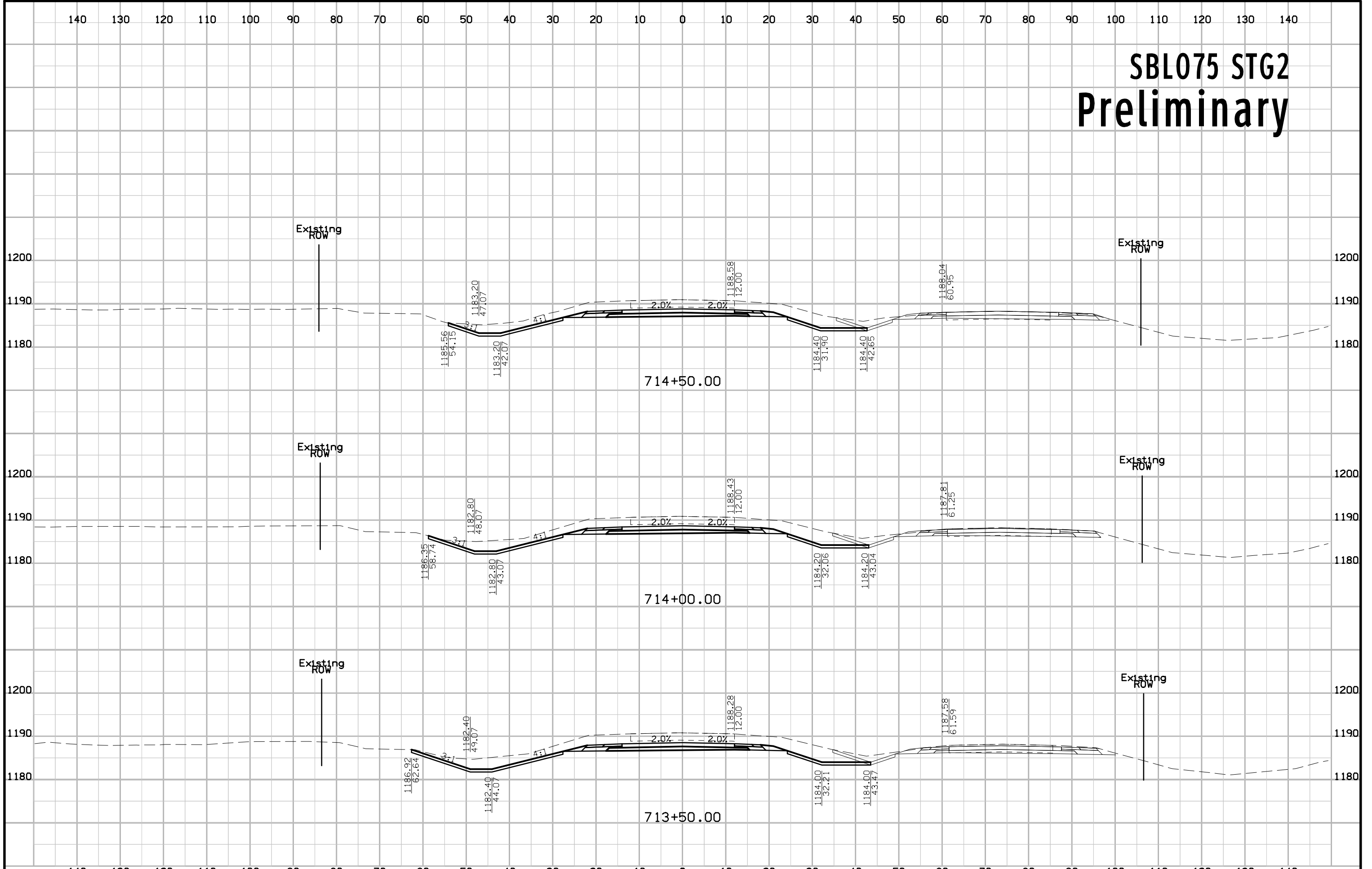
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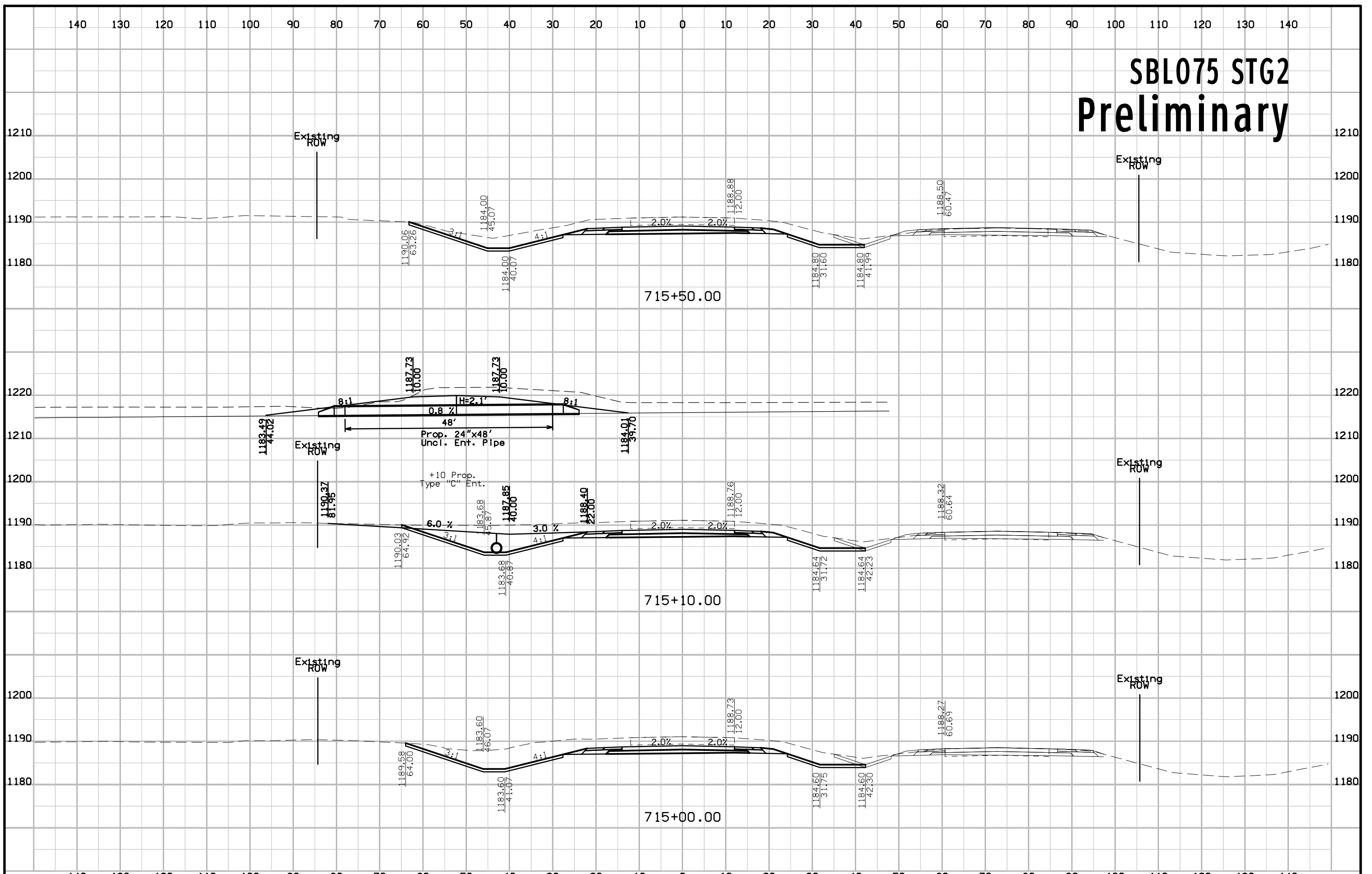
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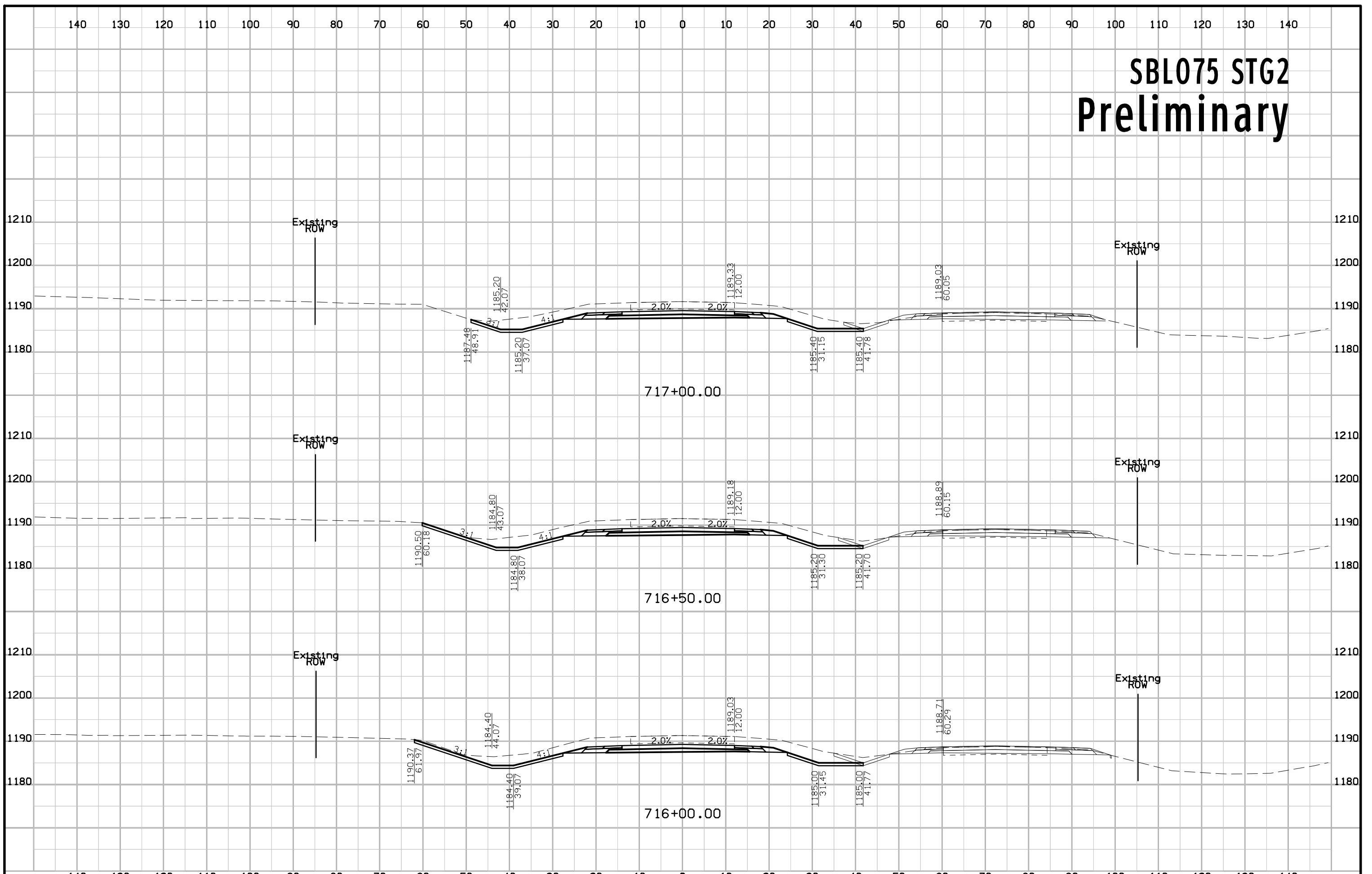
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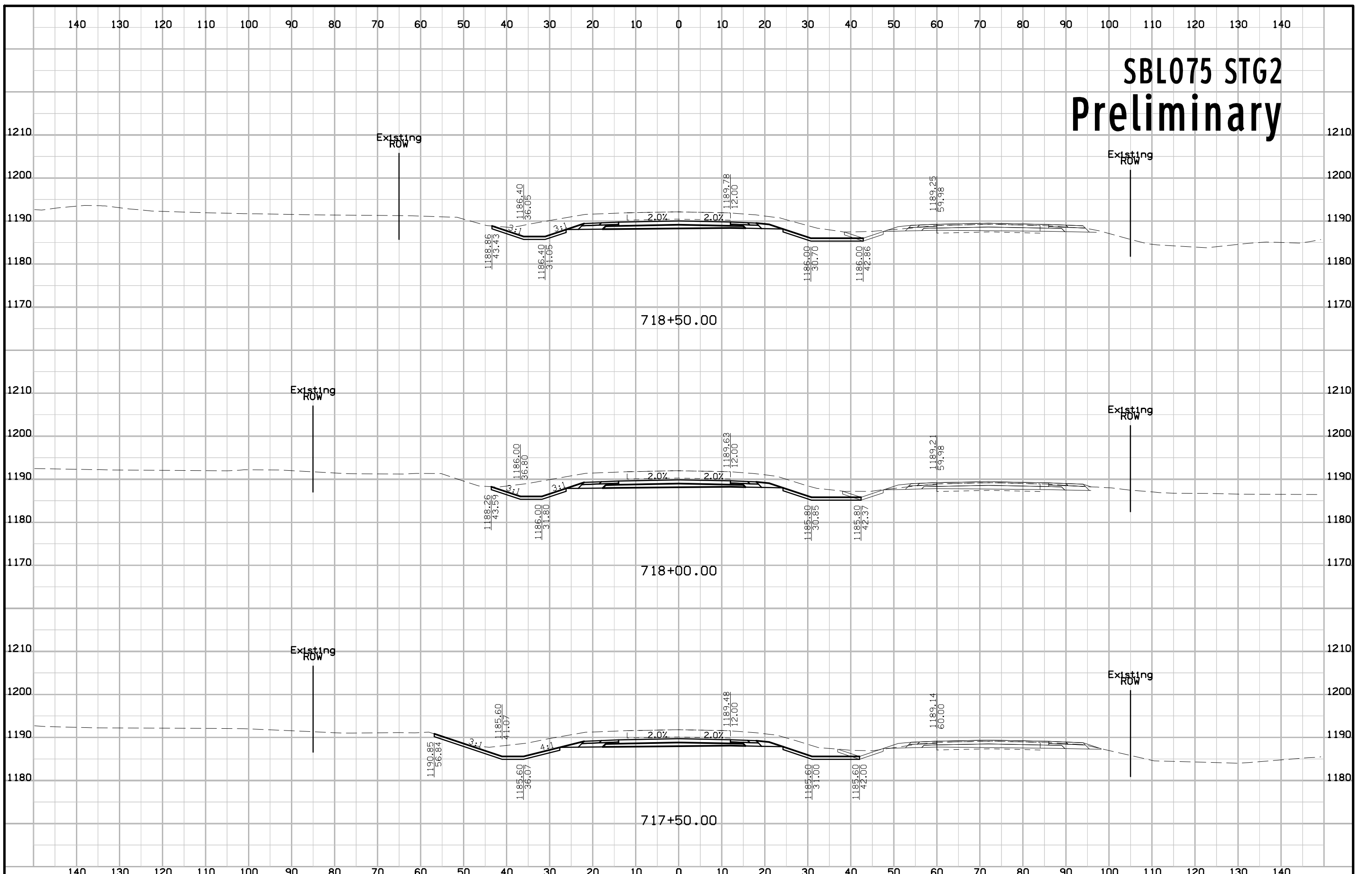
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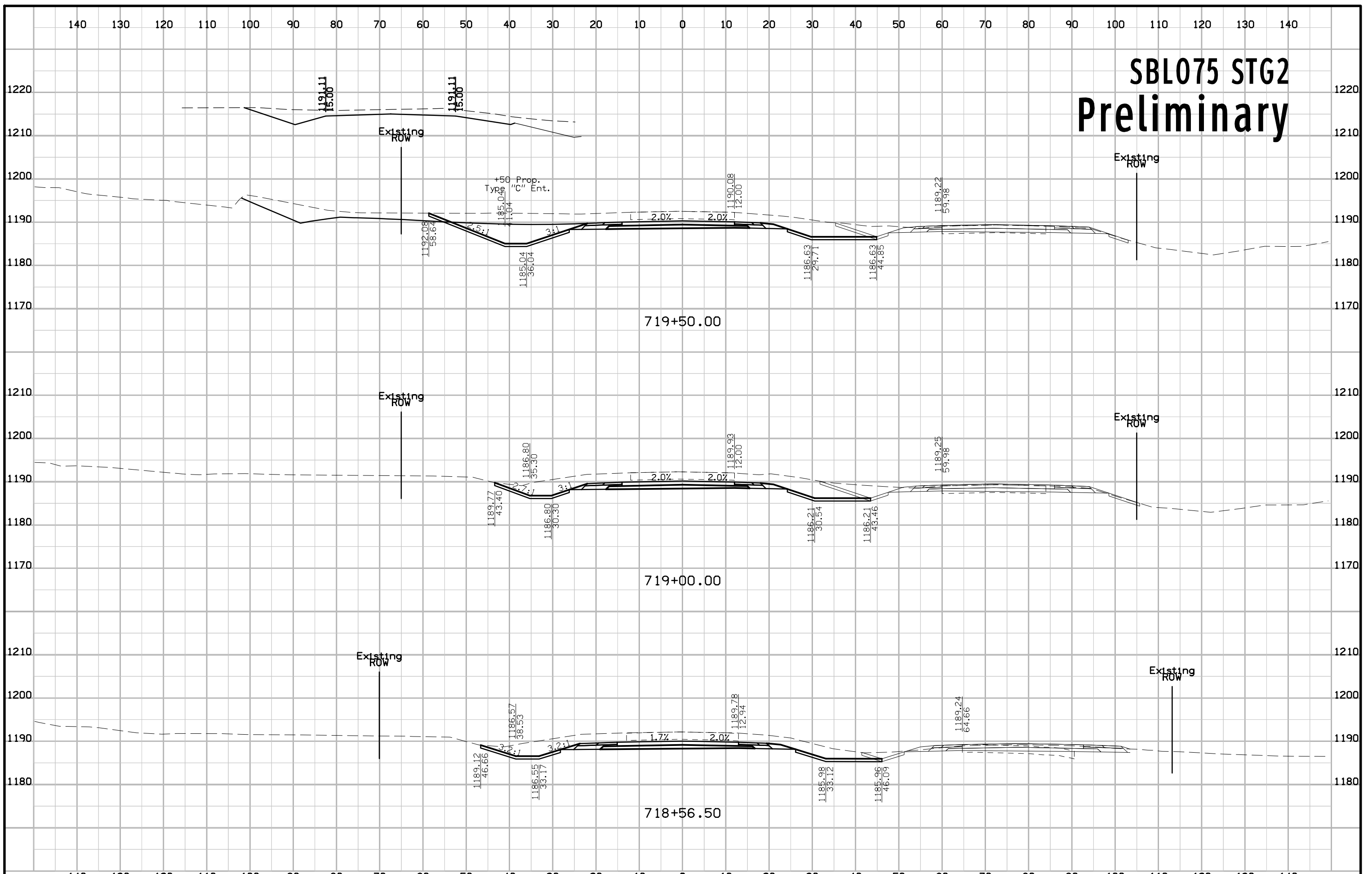
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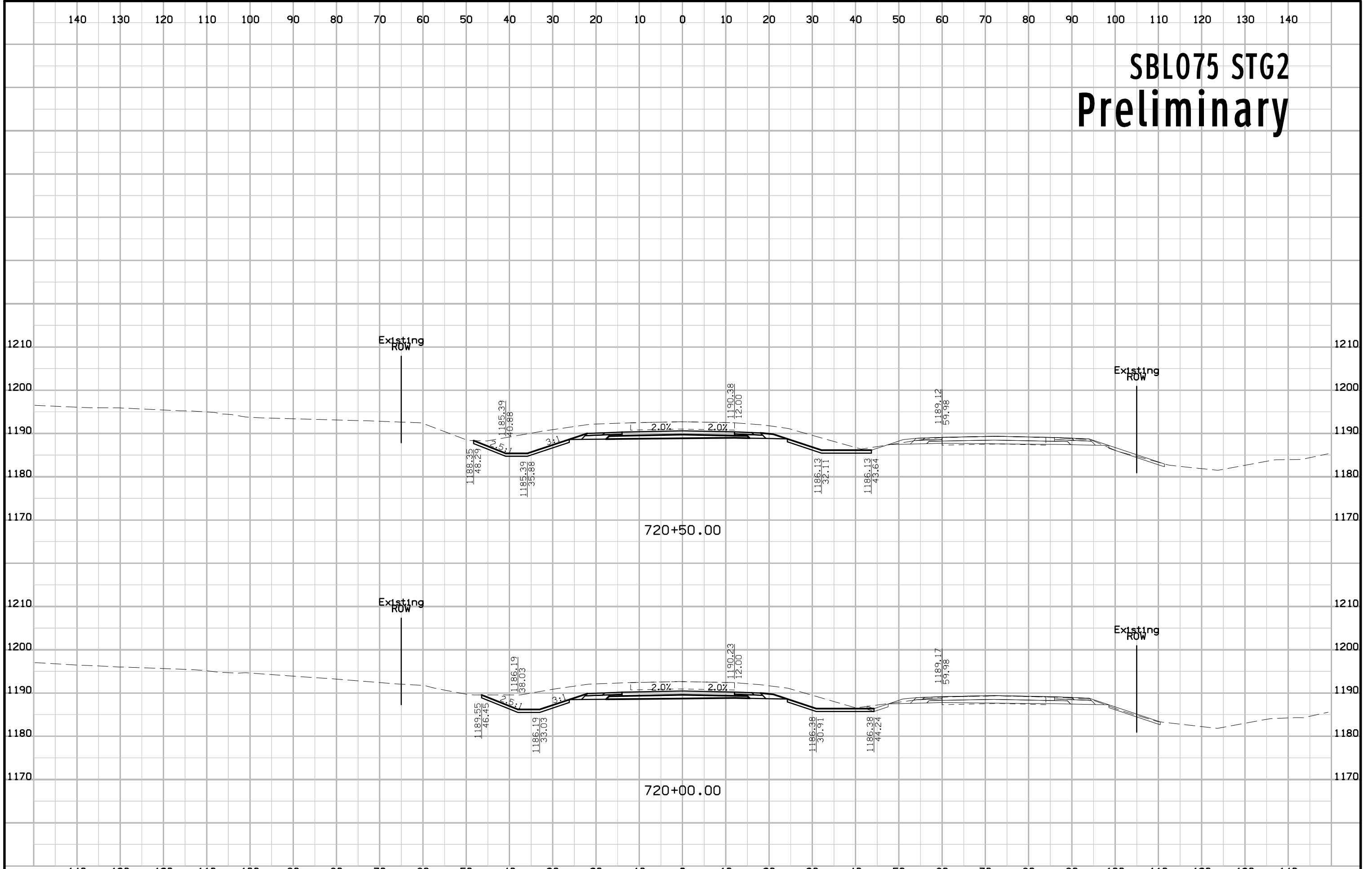
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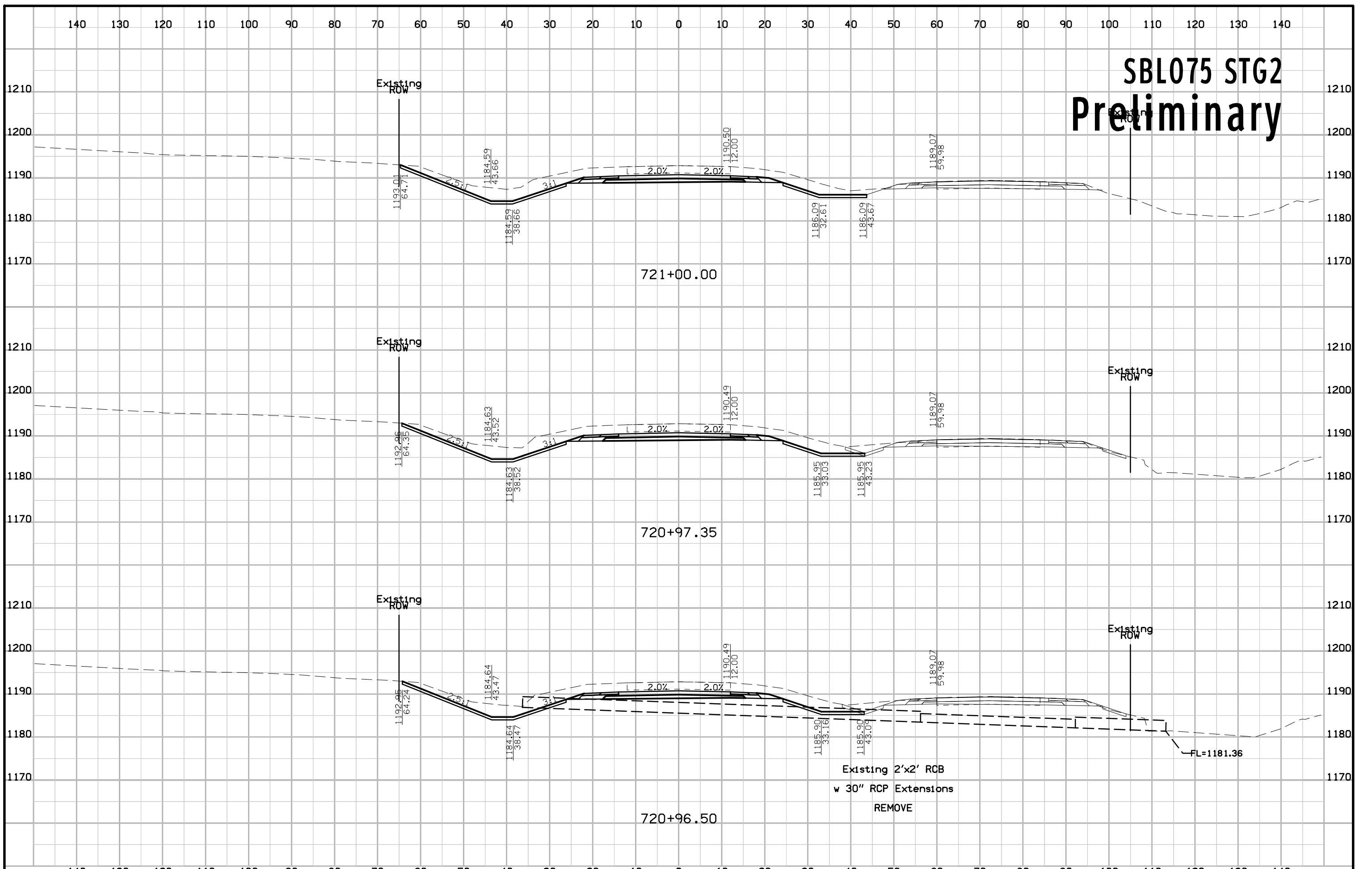


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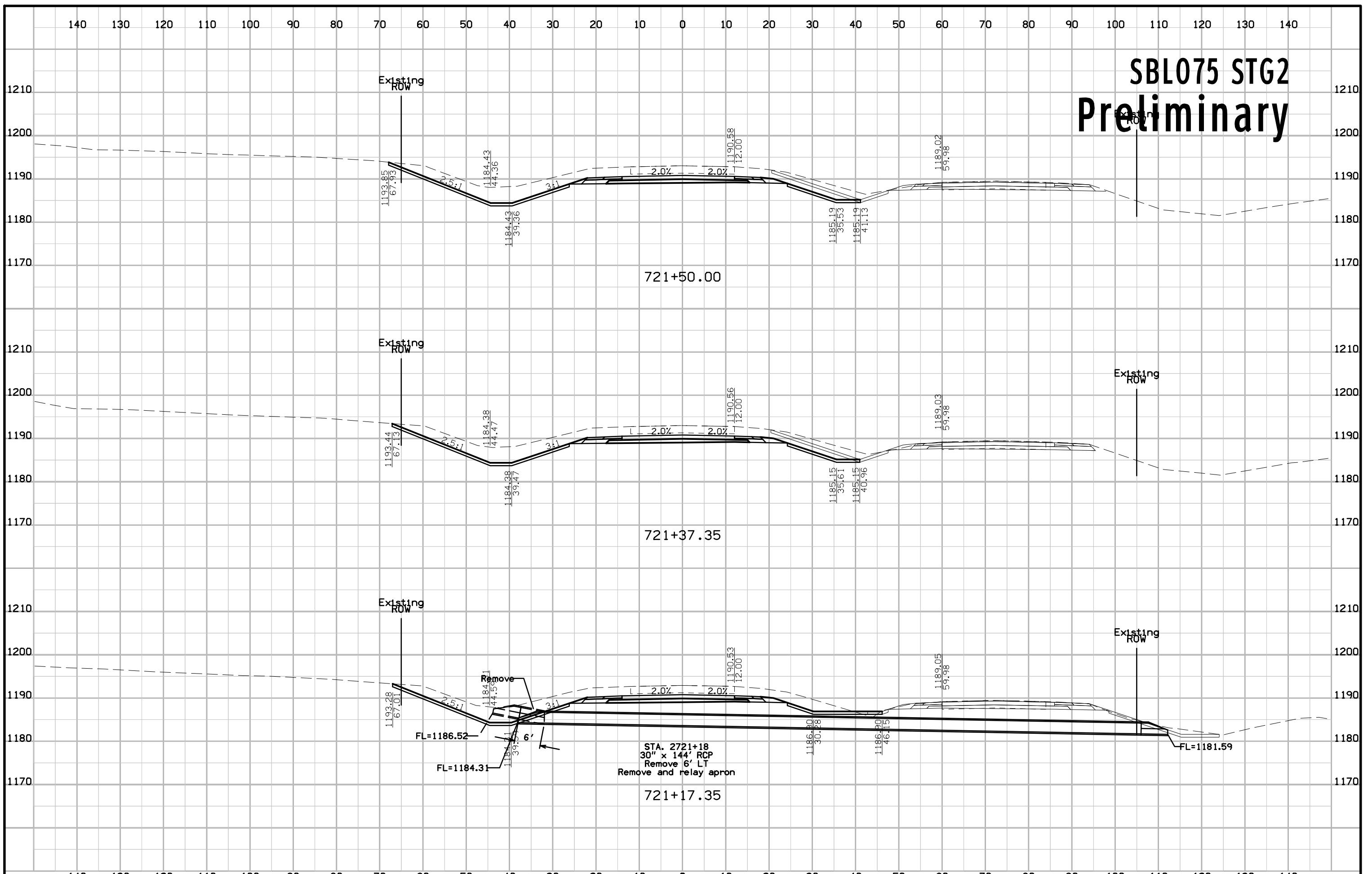
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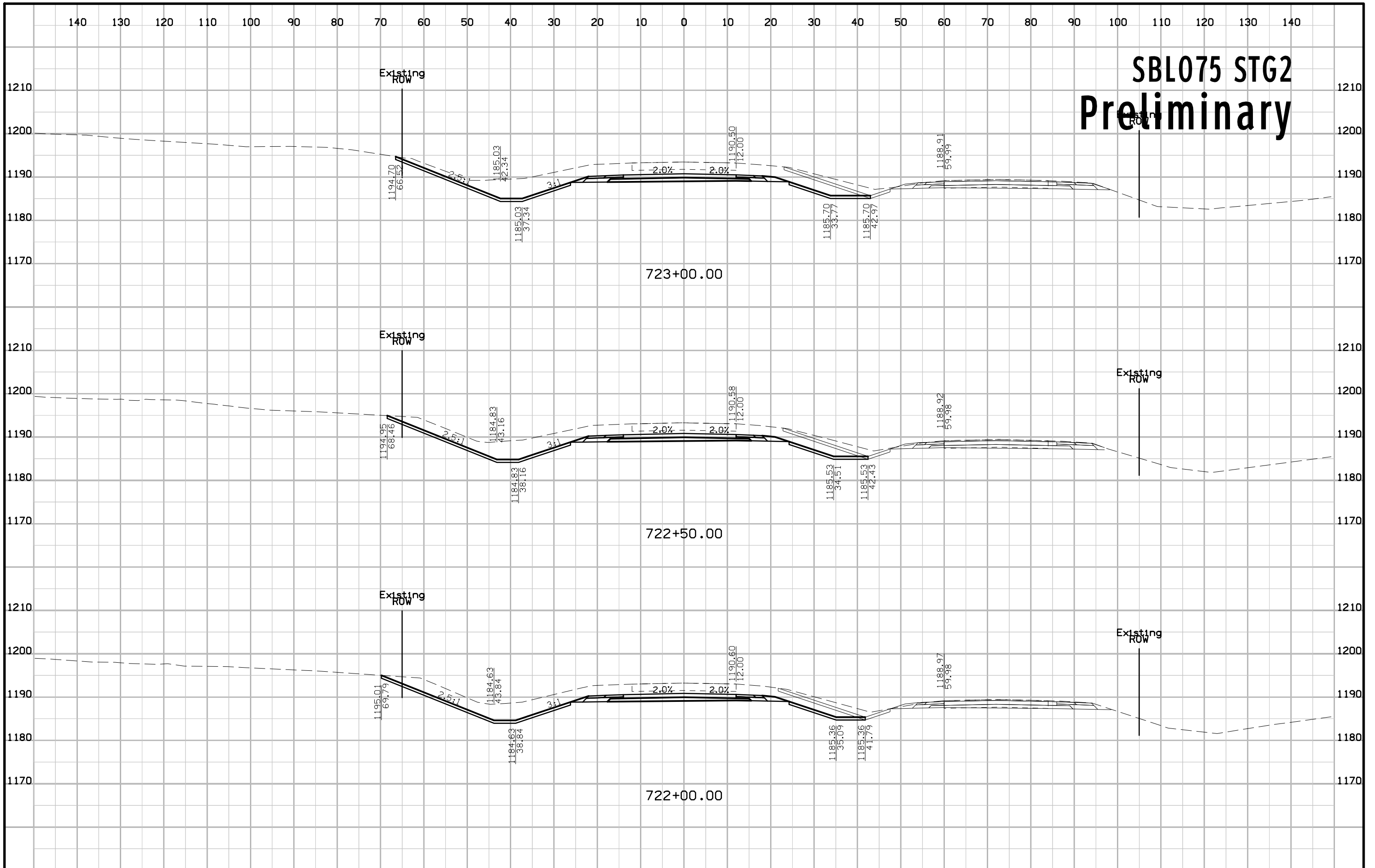
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w 30" RCP Extensions  
REMOVE

FL=1181.36

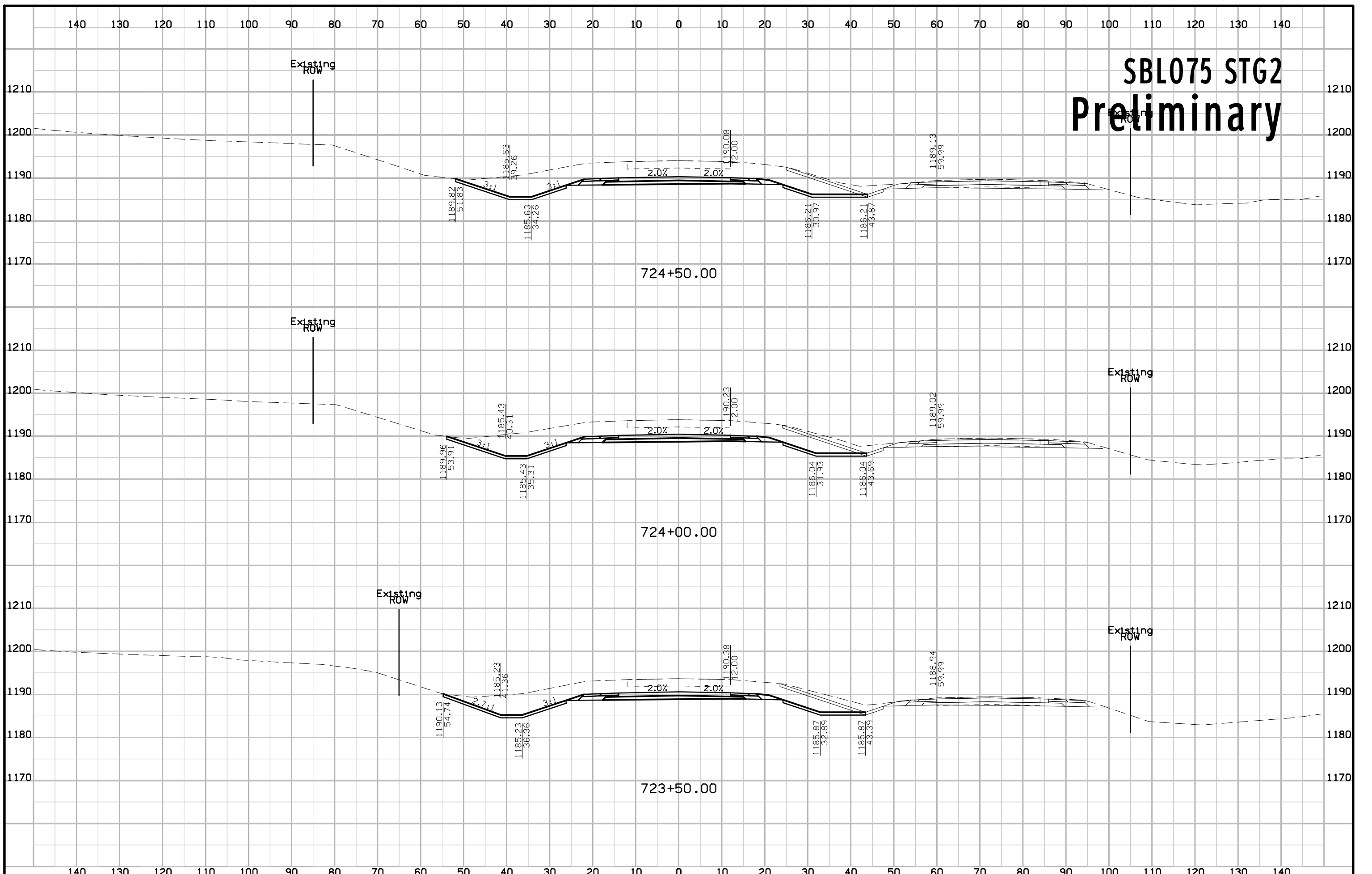
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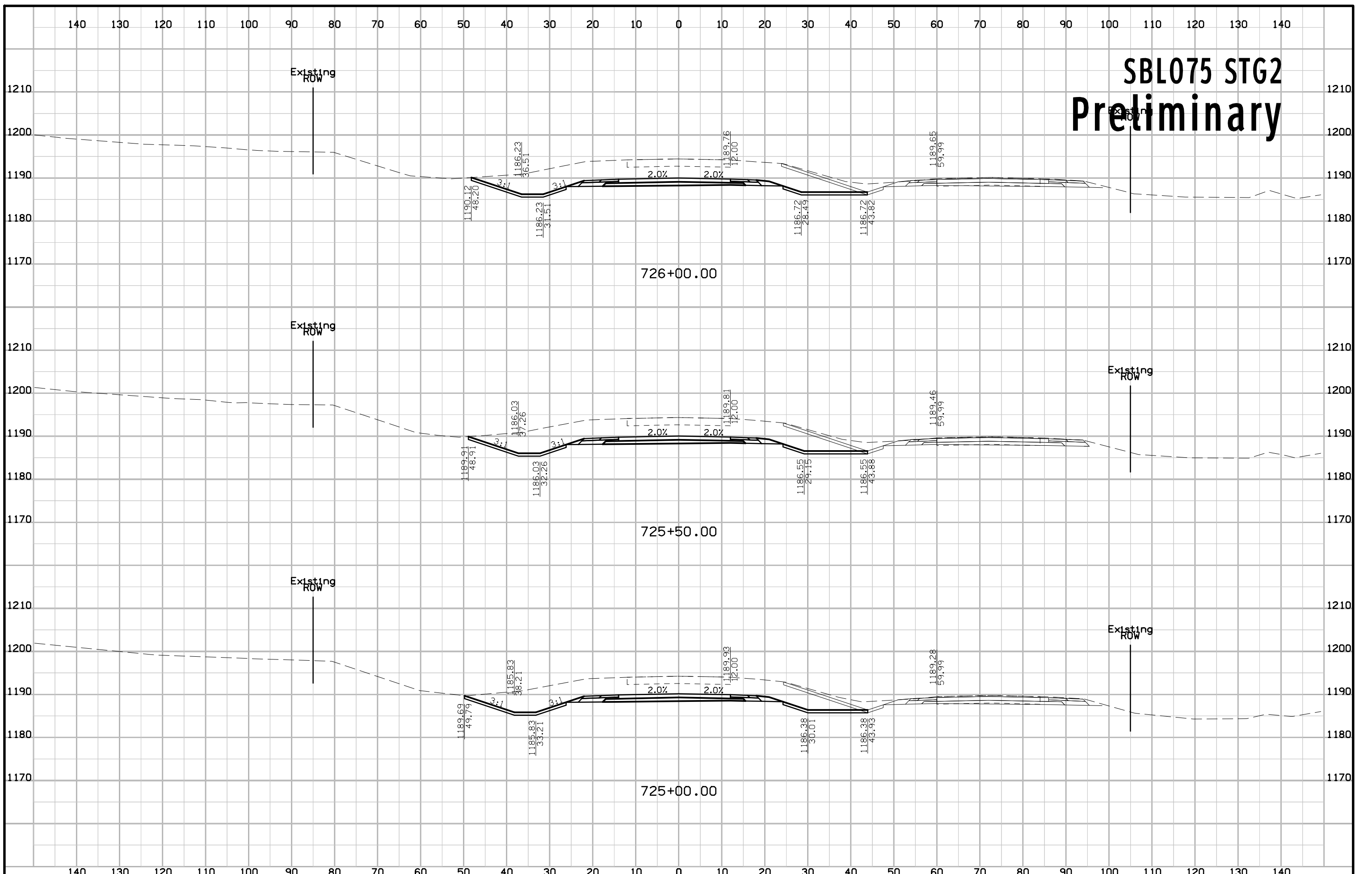
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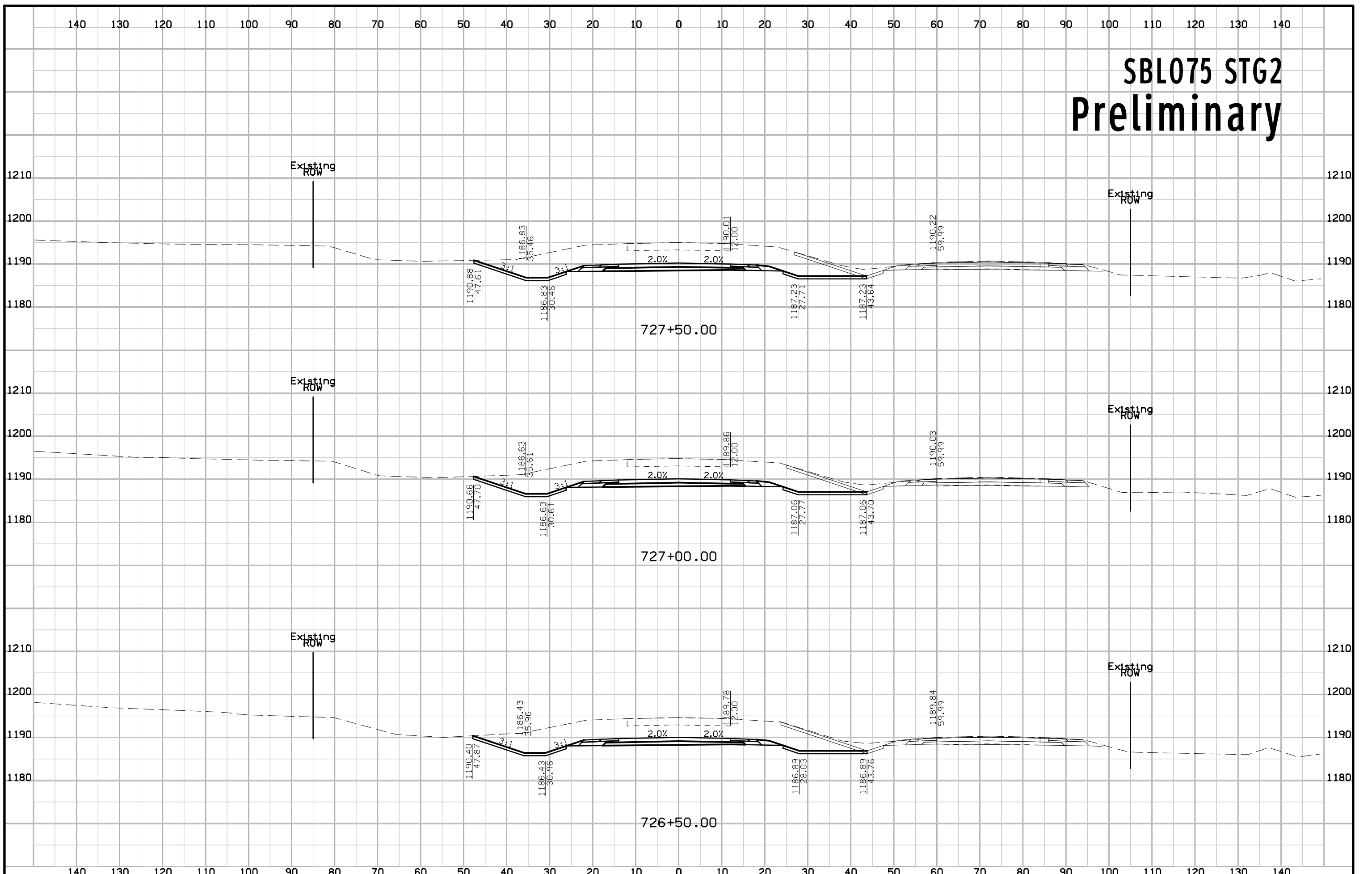
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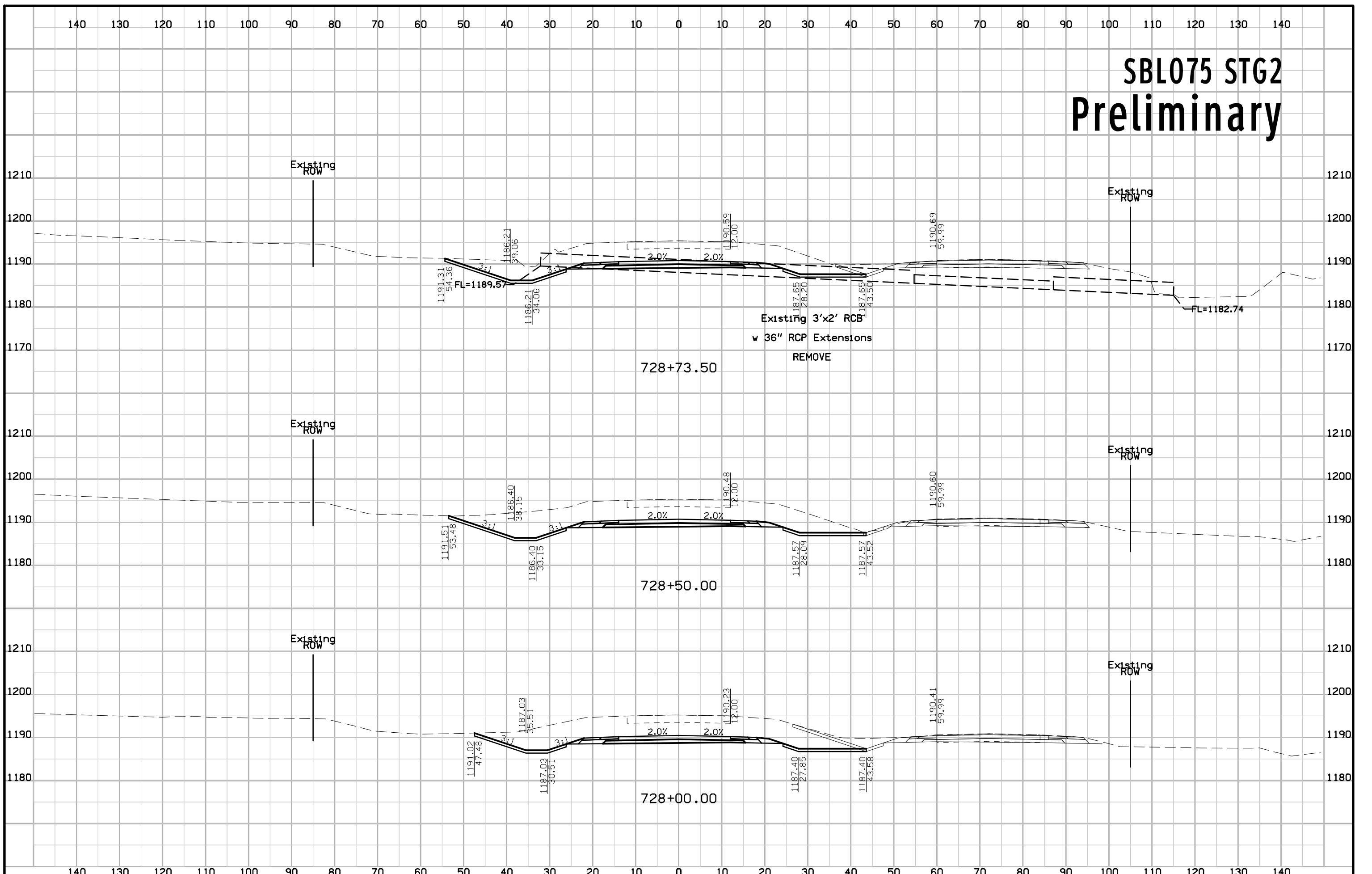
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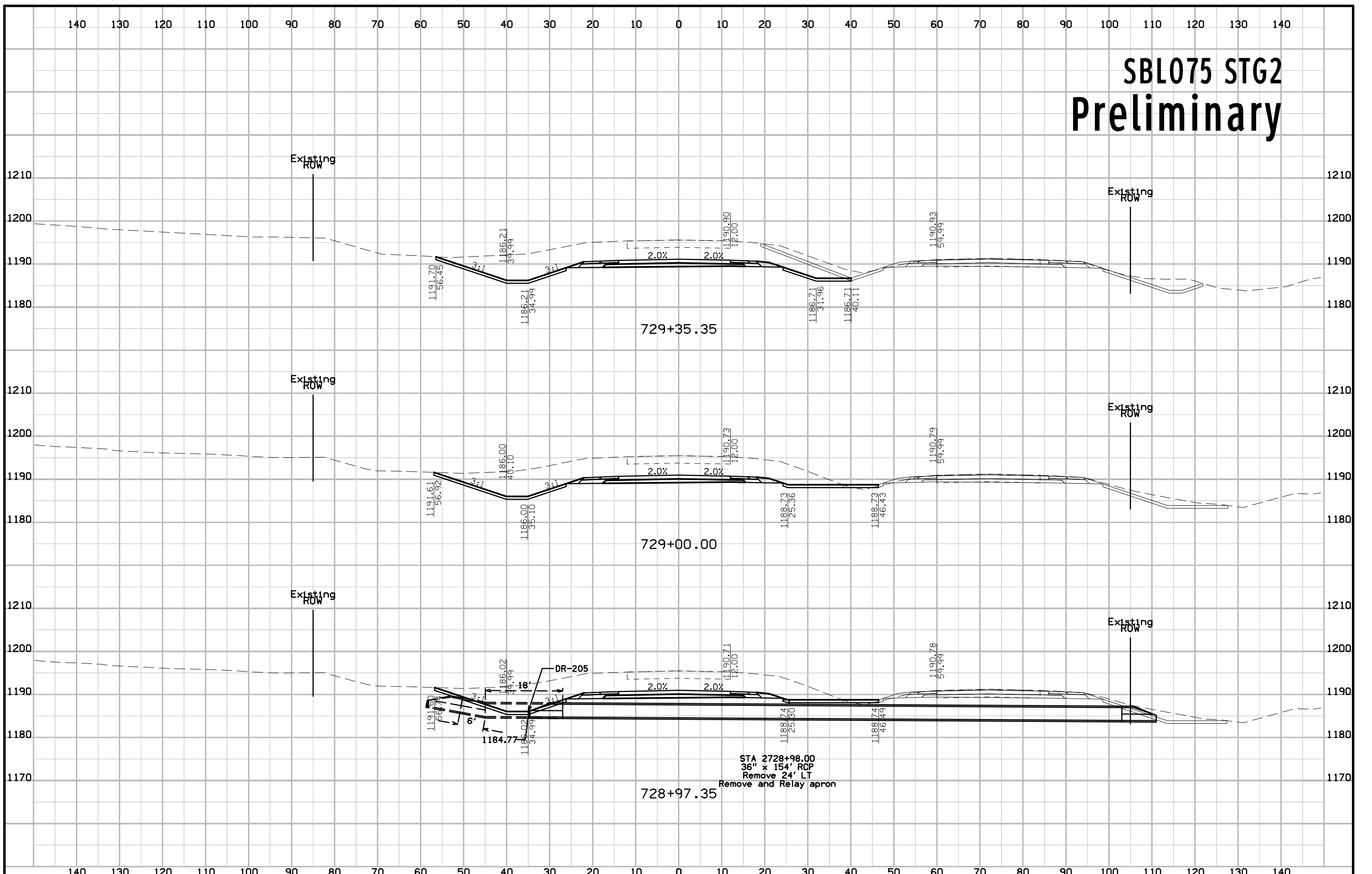
# SBL075 STG2 Preliminary



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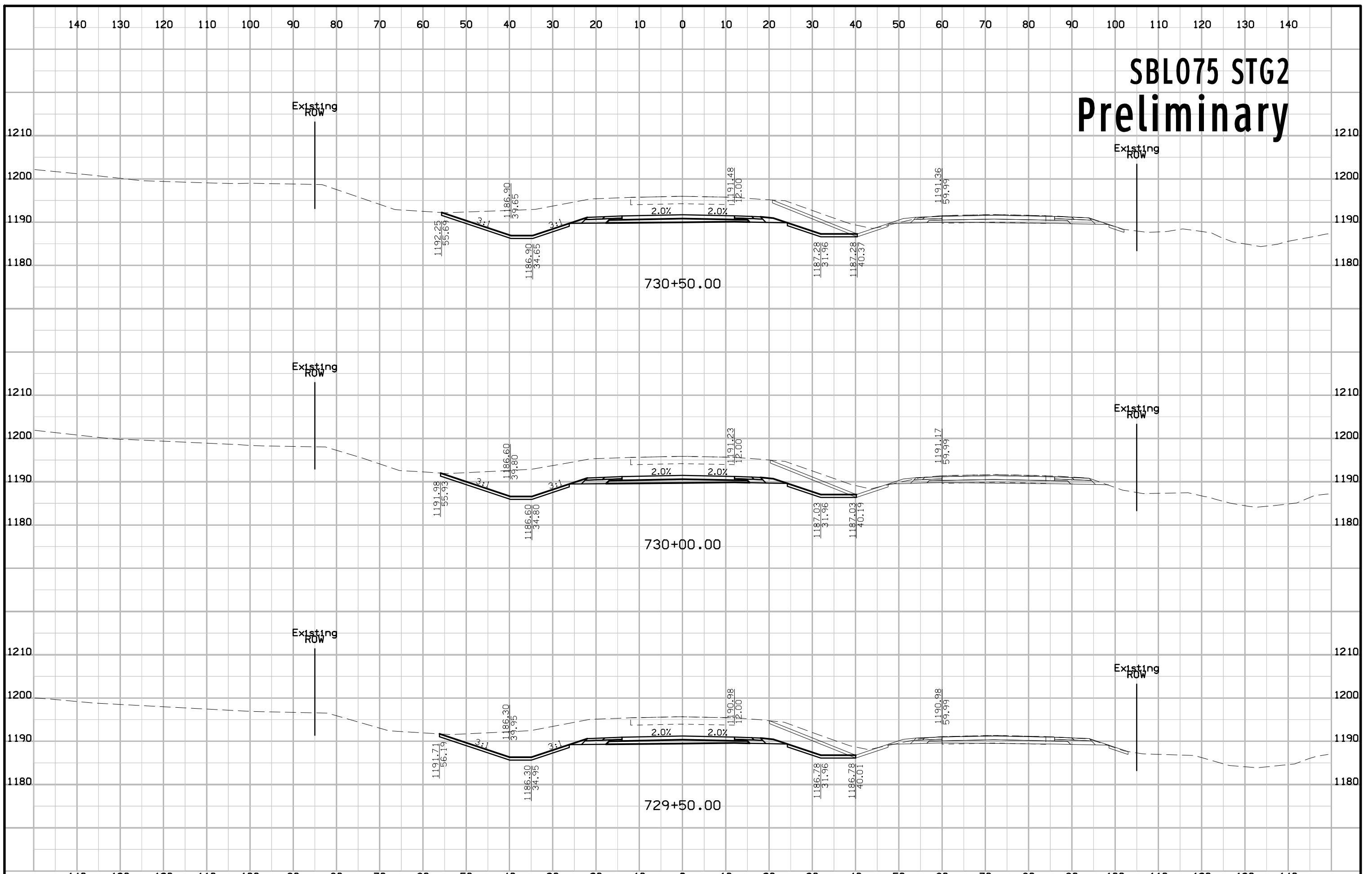


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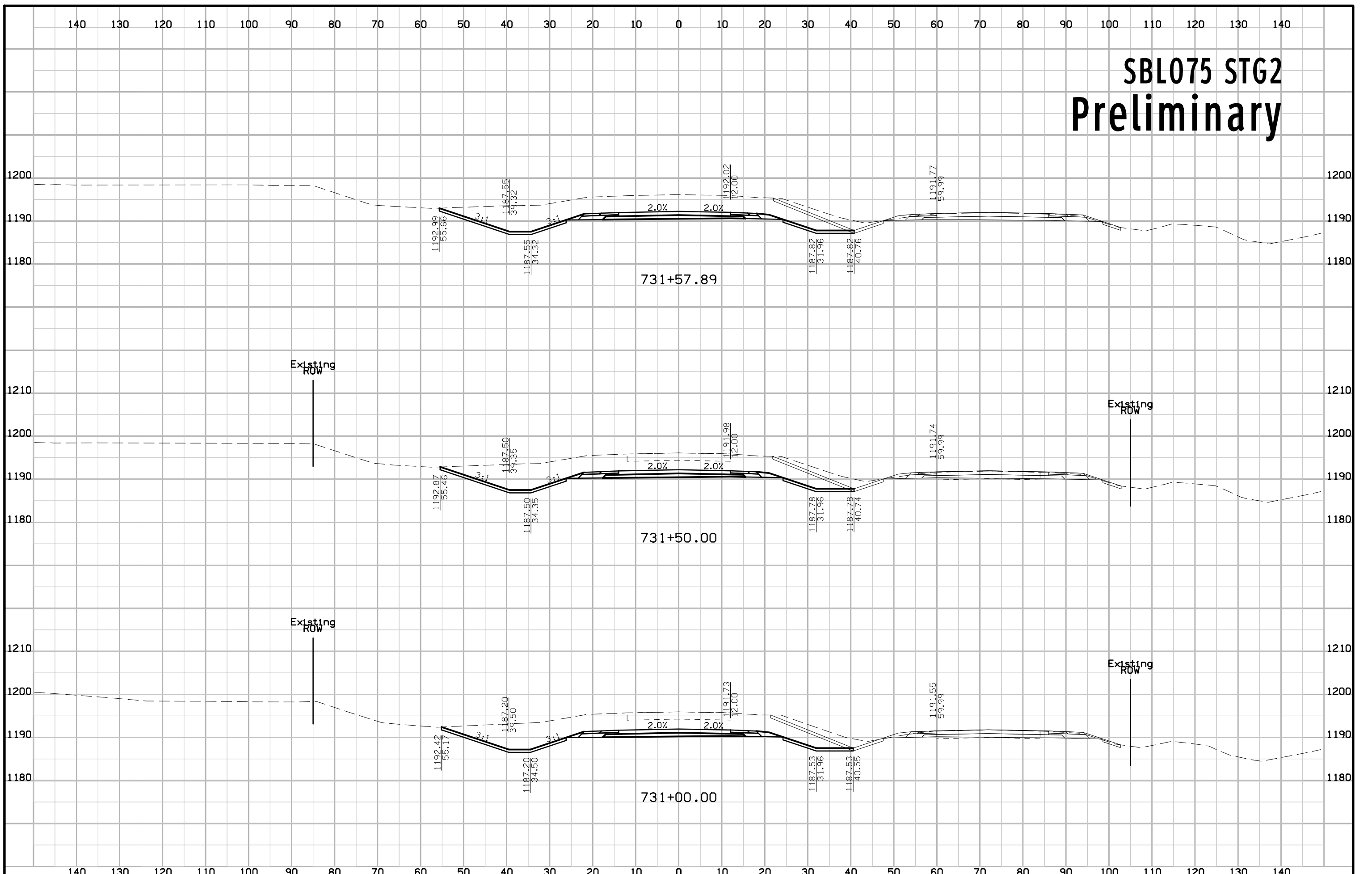




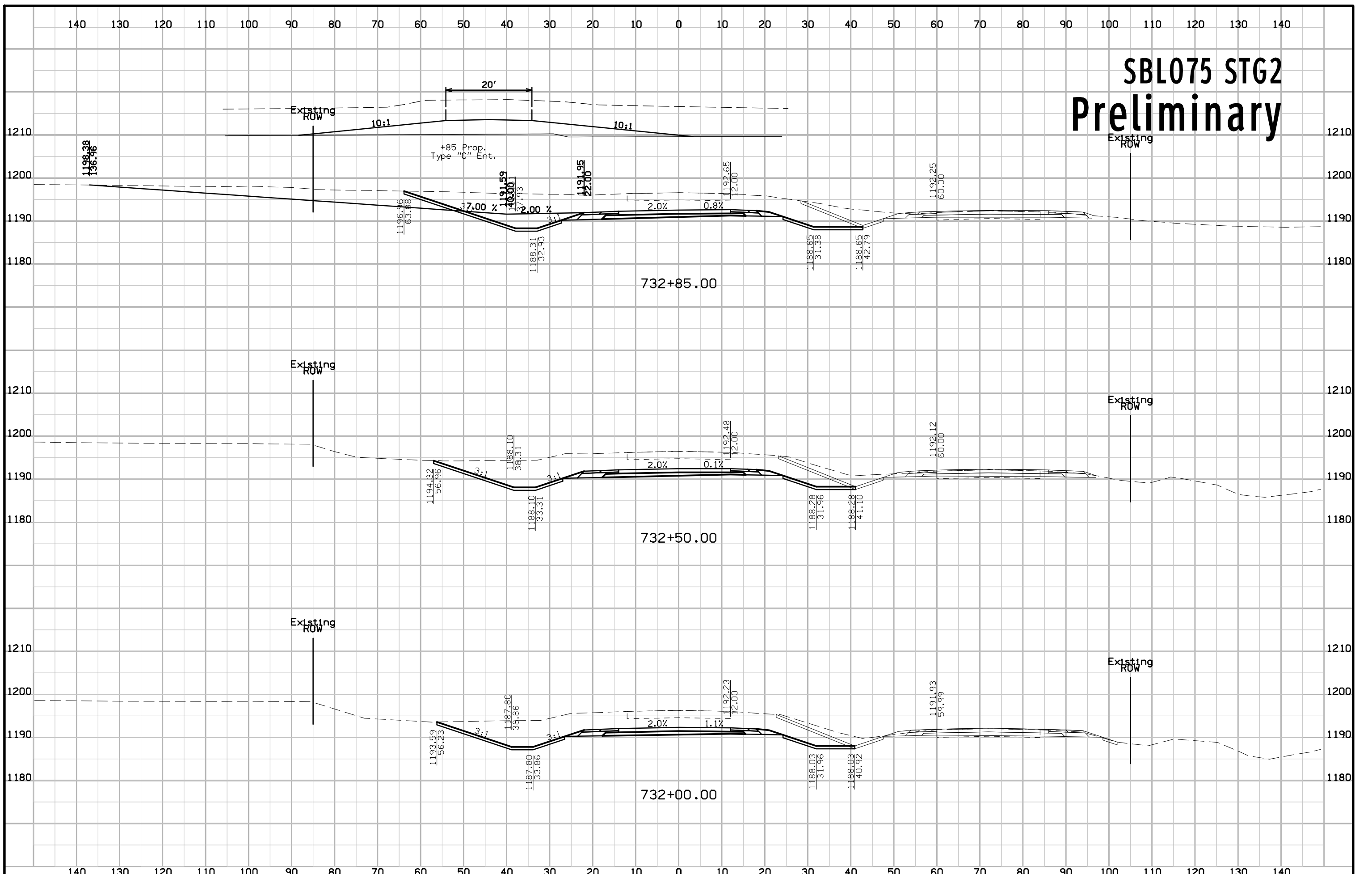
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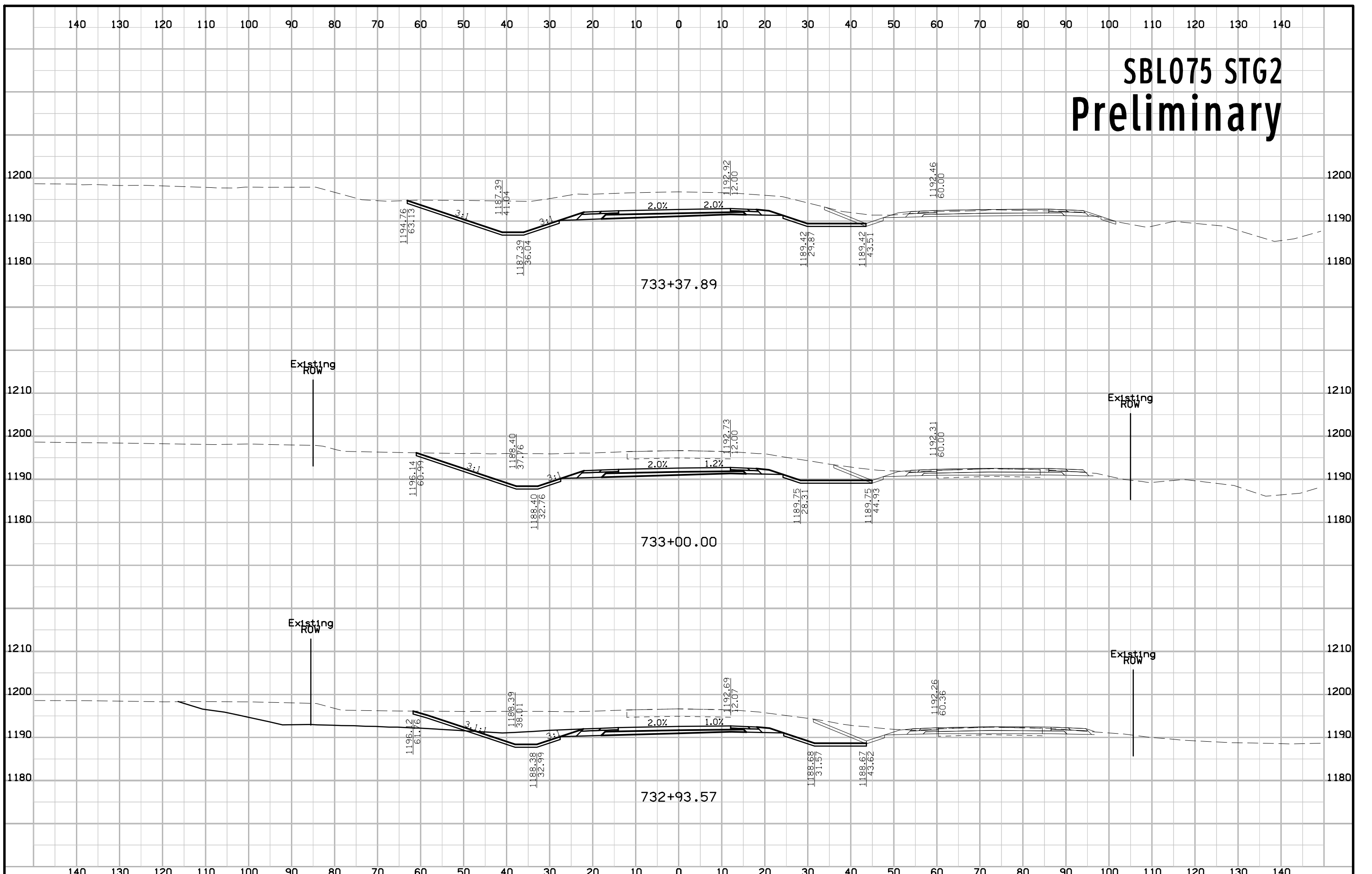
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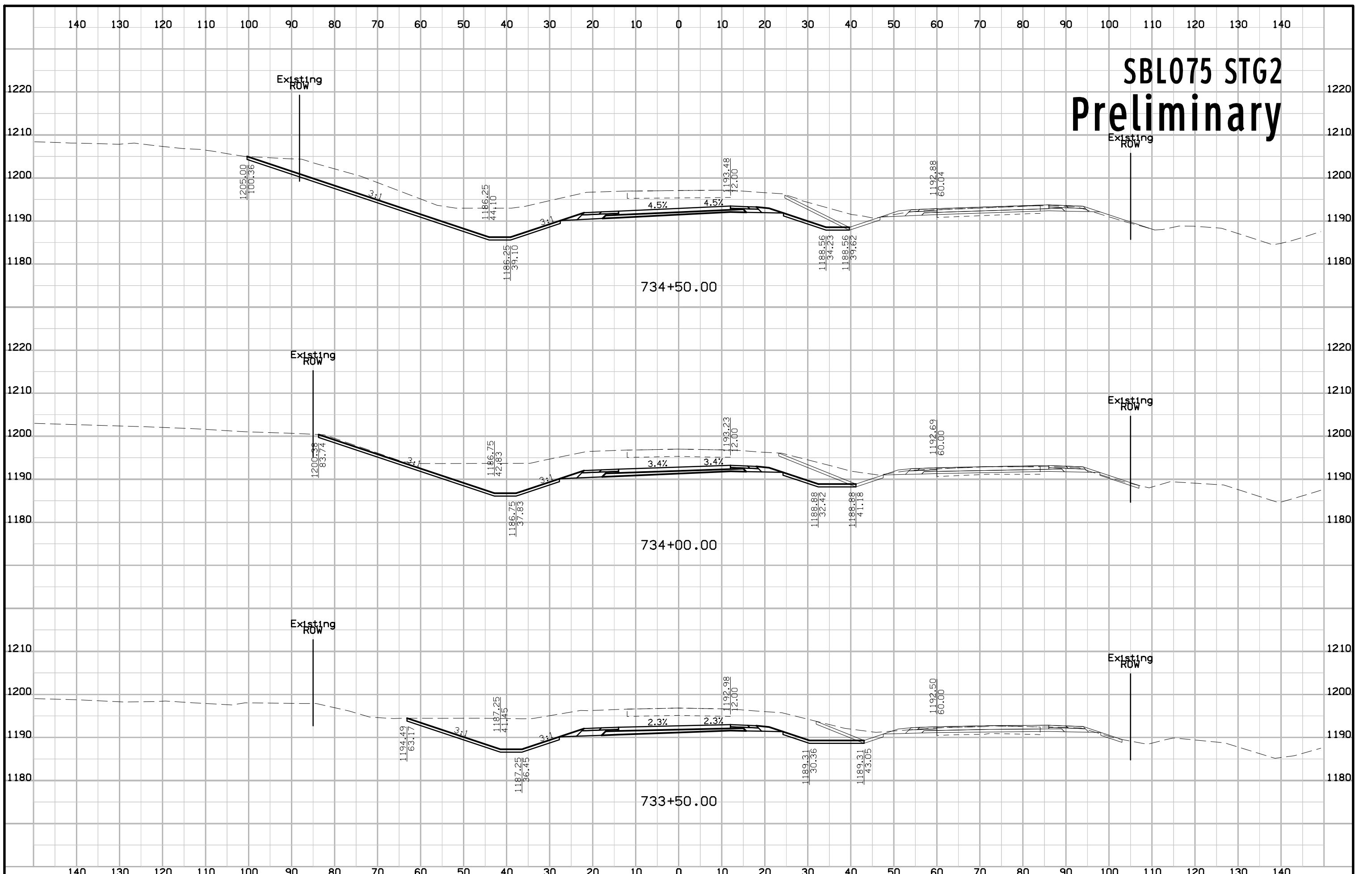
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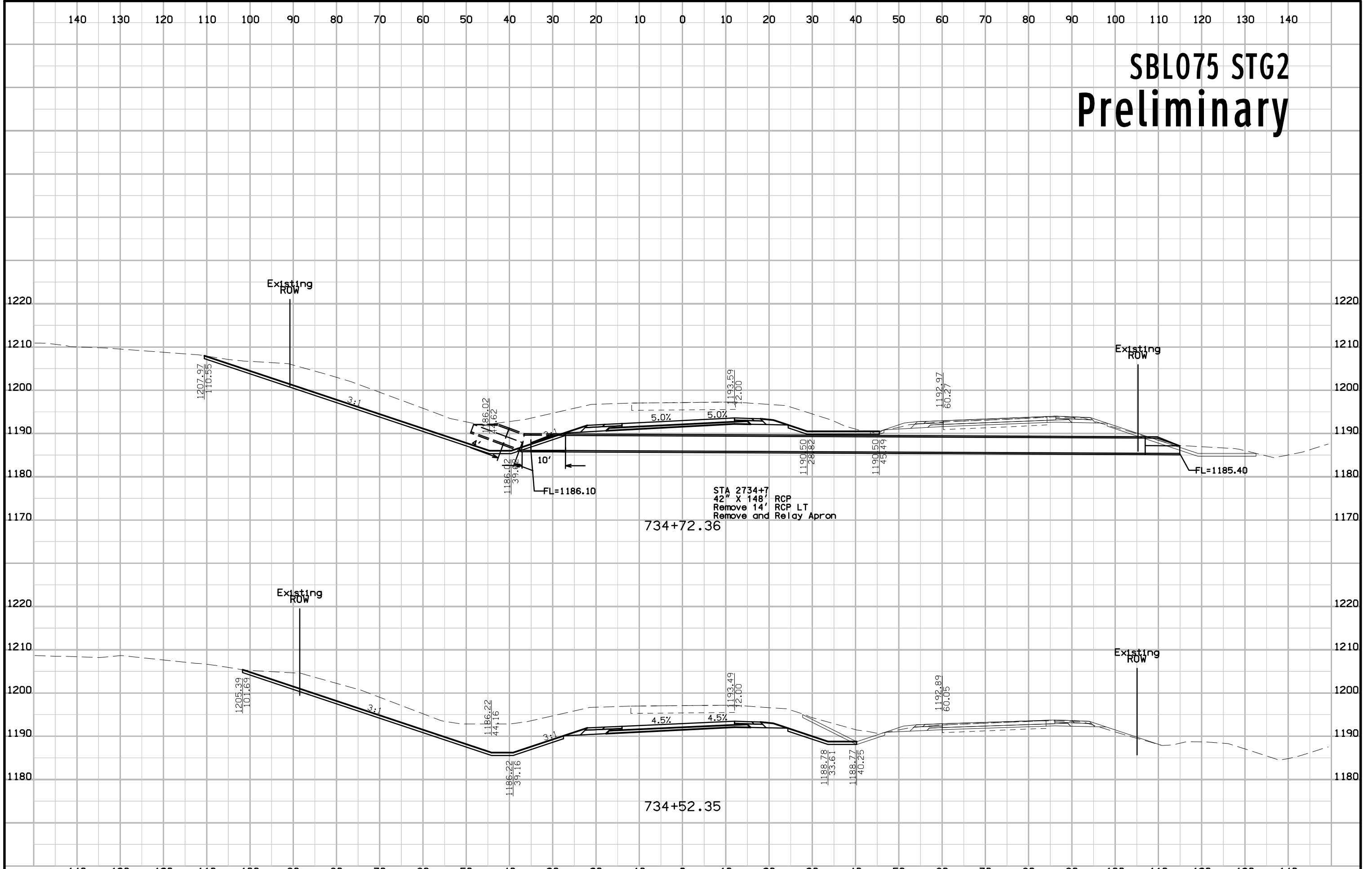
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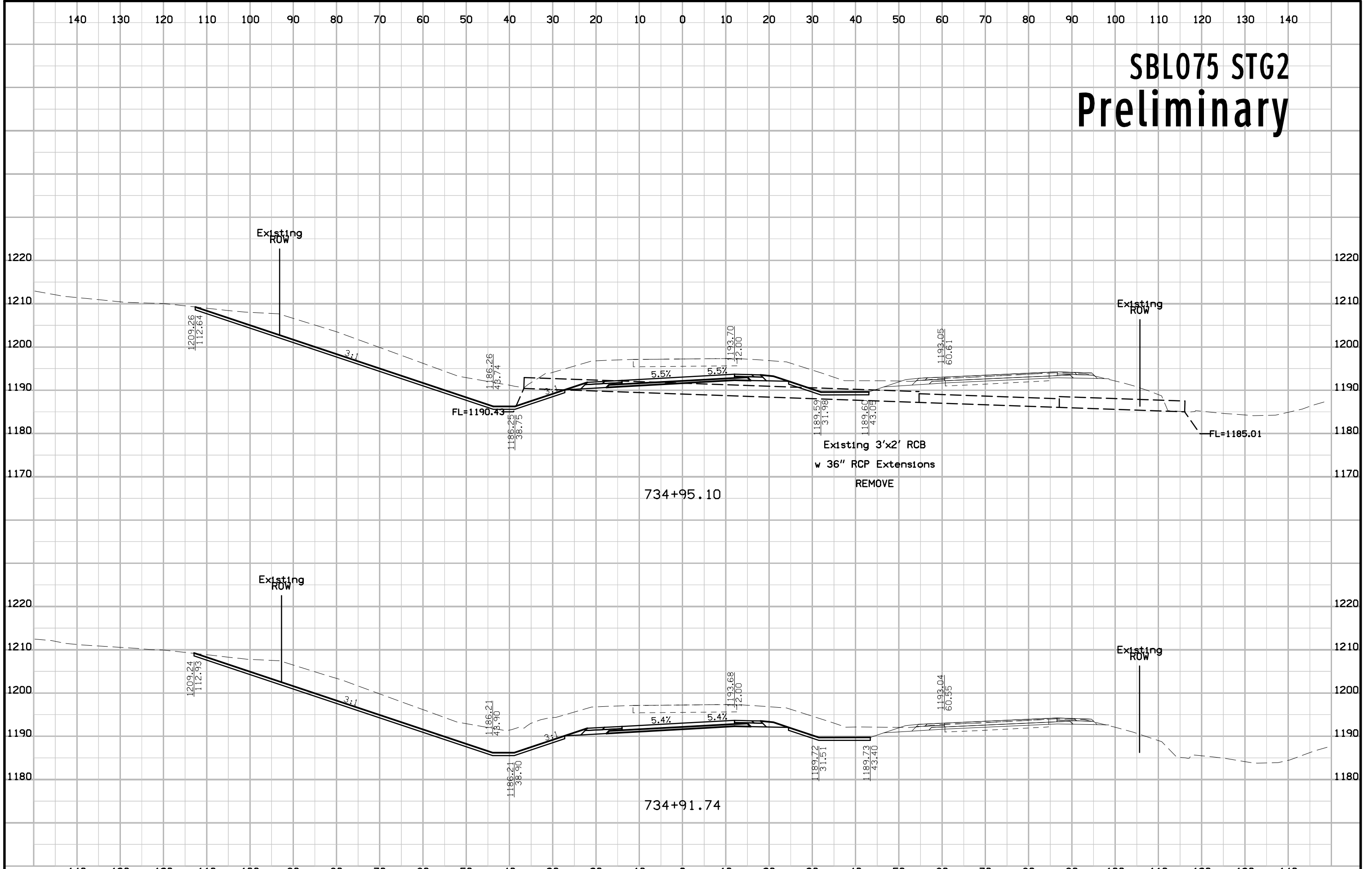
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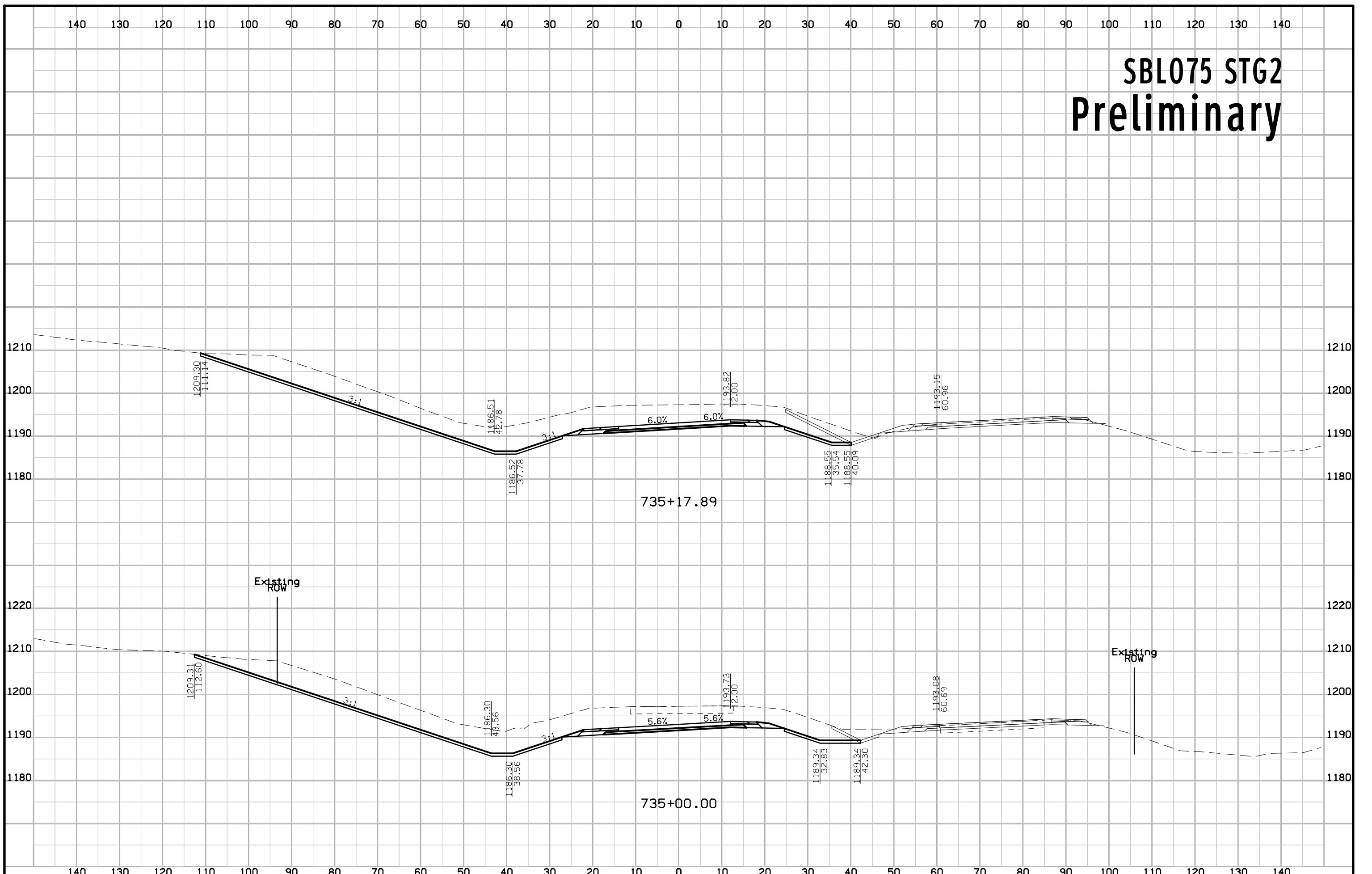
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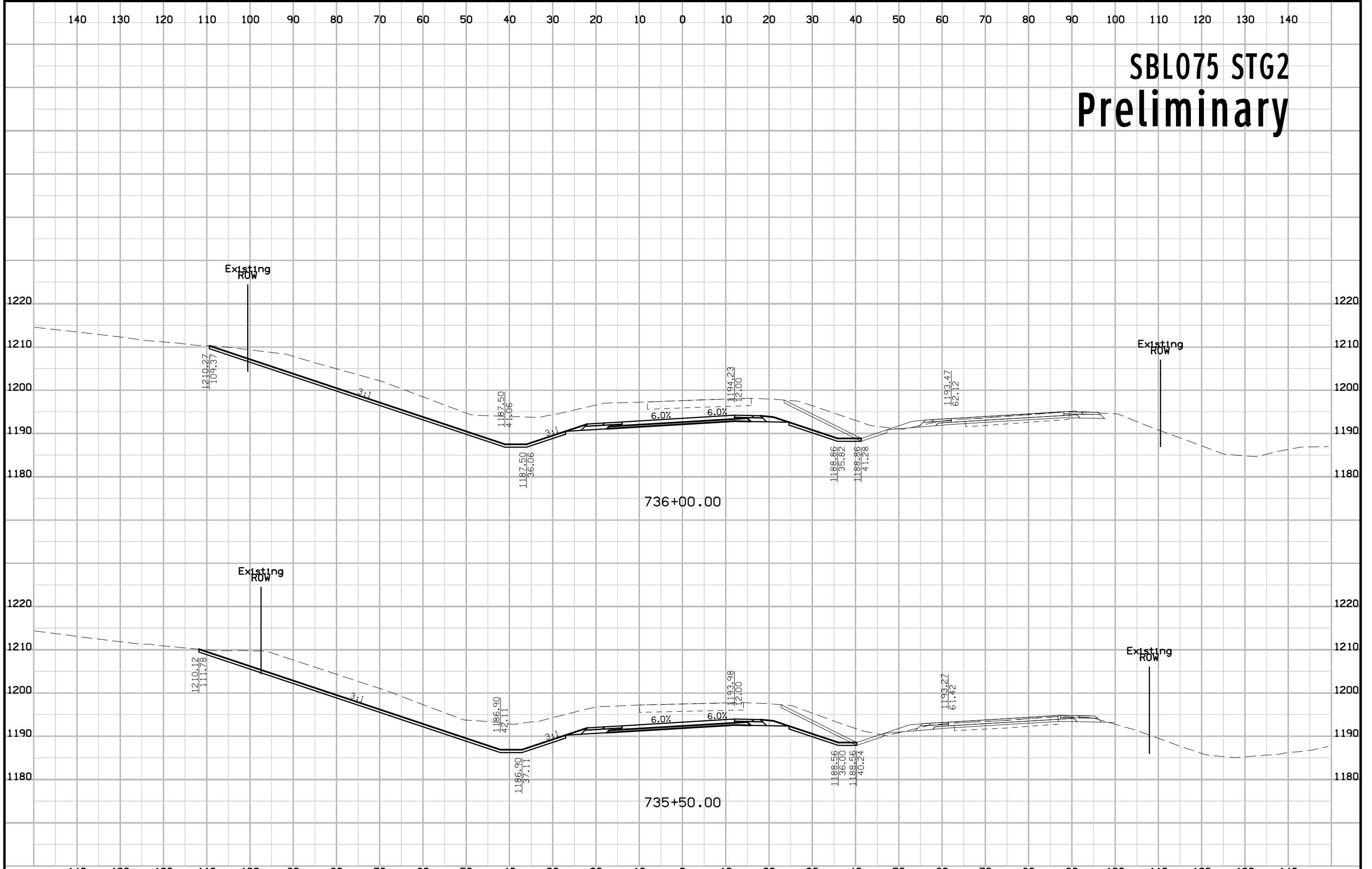


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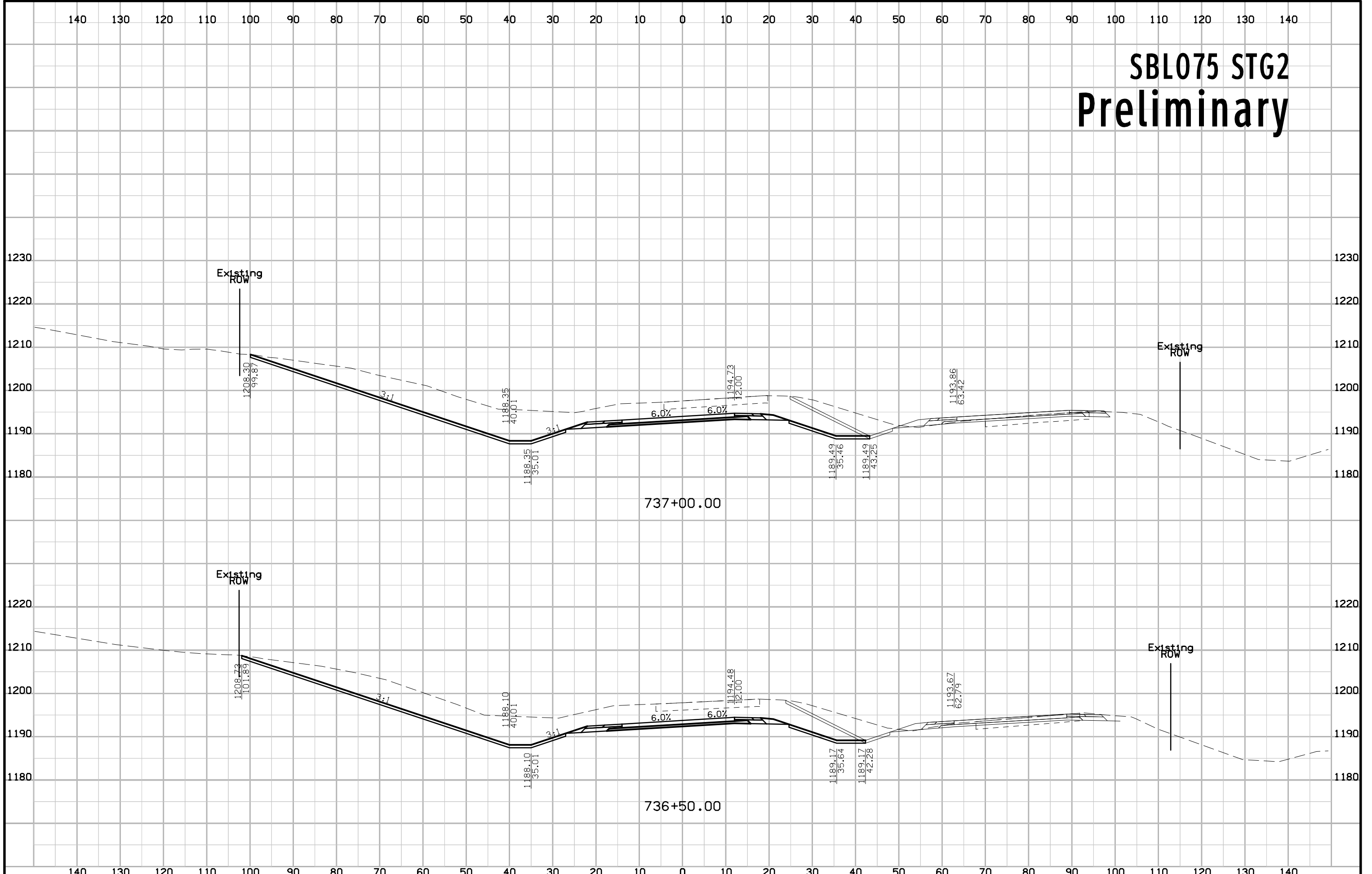




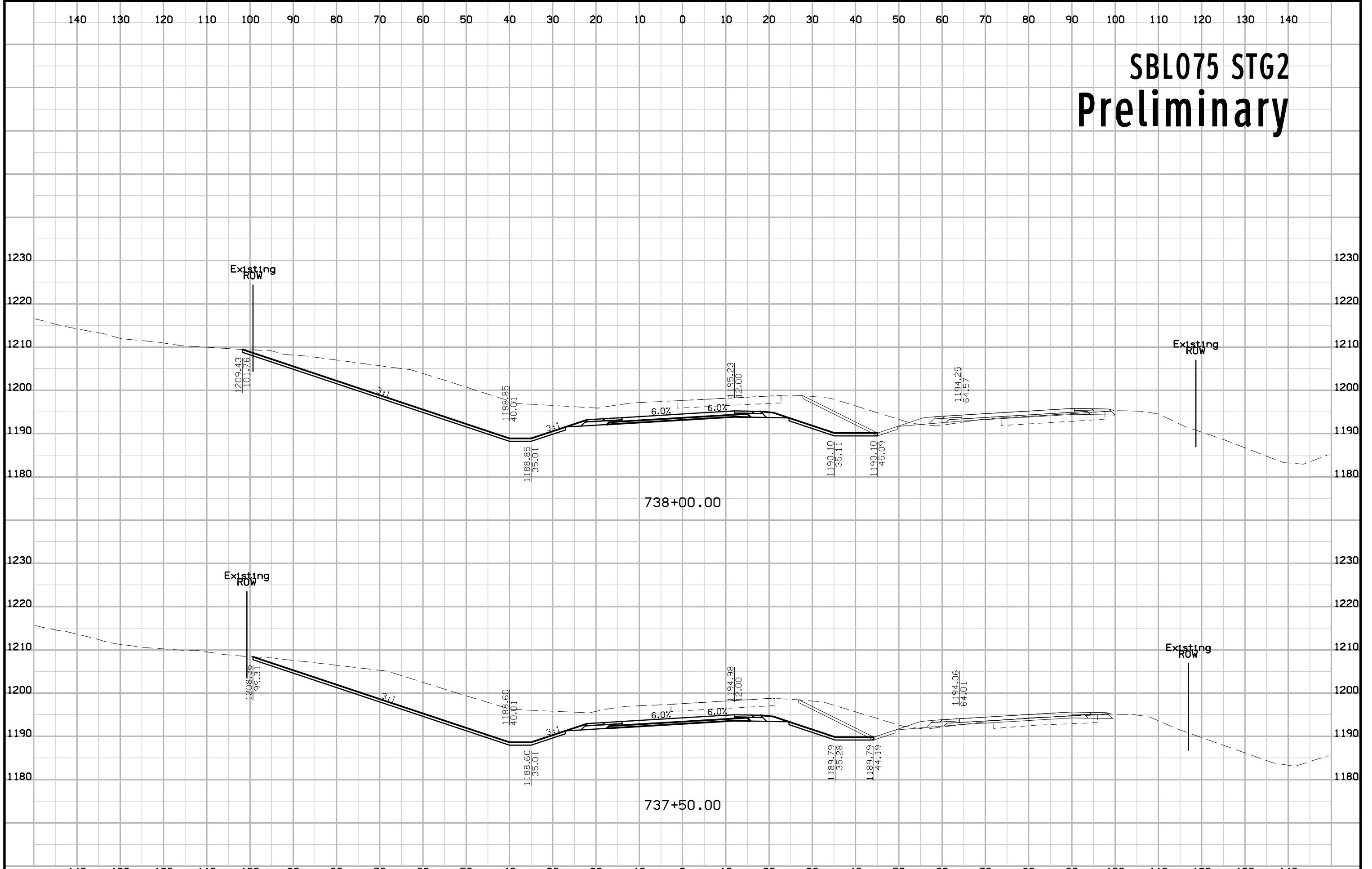
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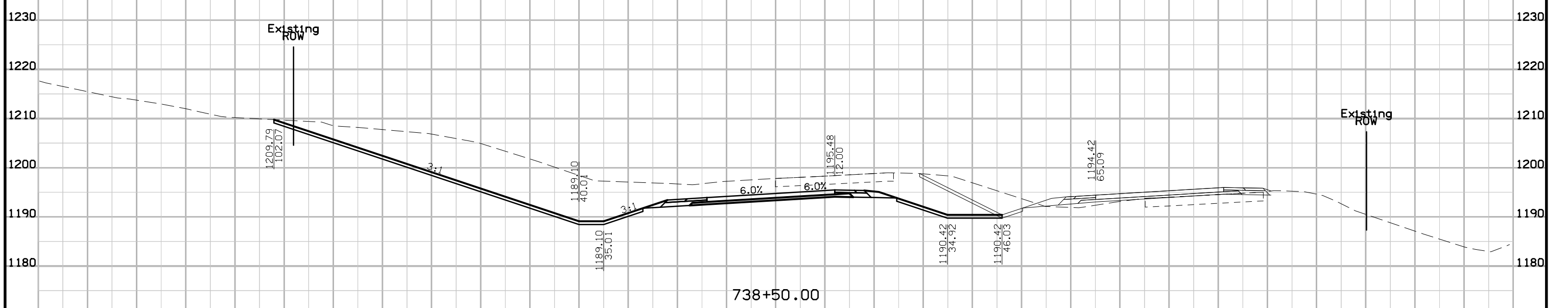
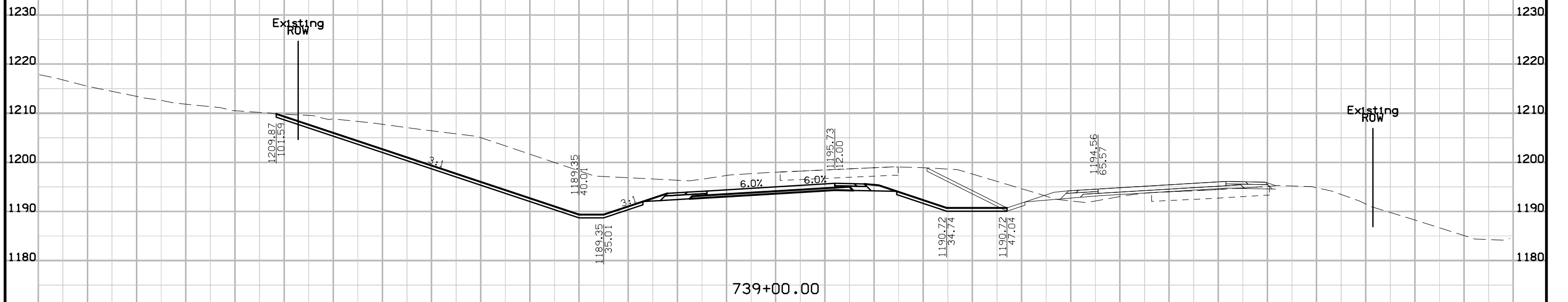
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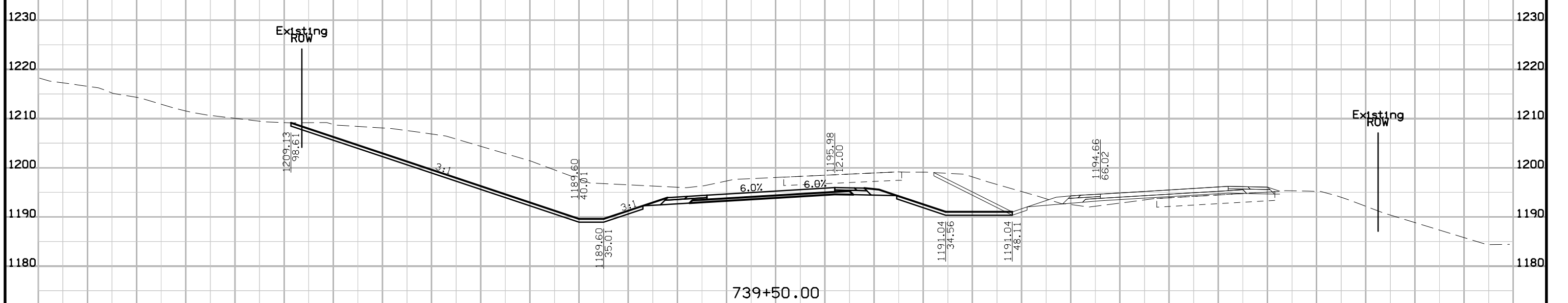
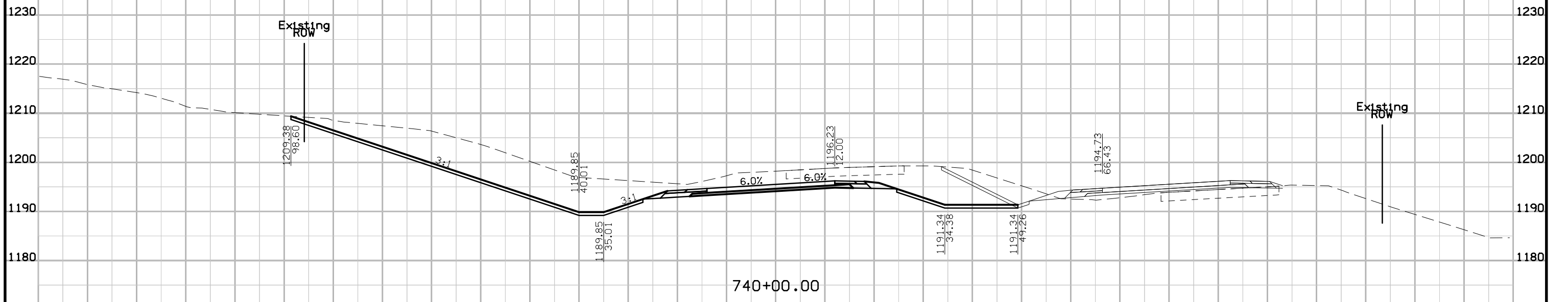
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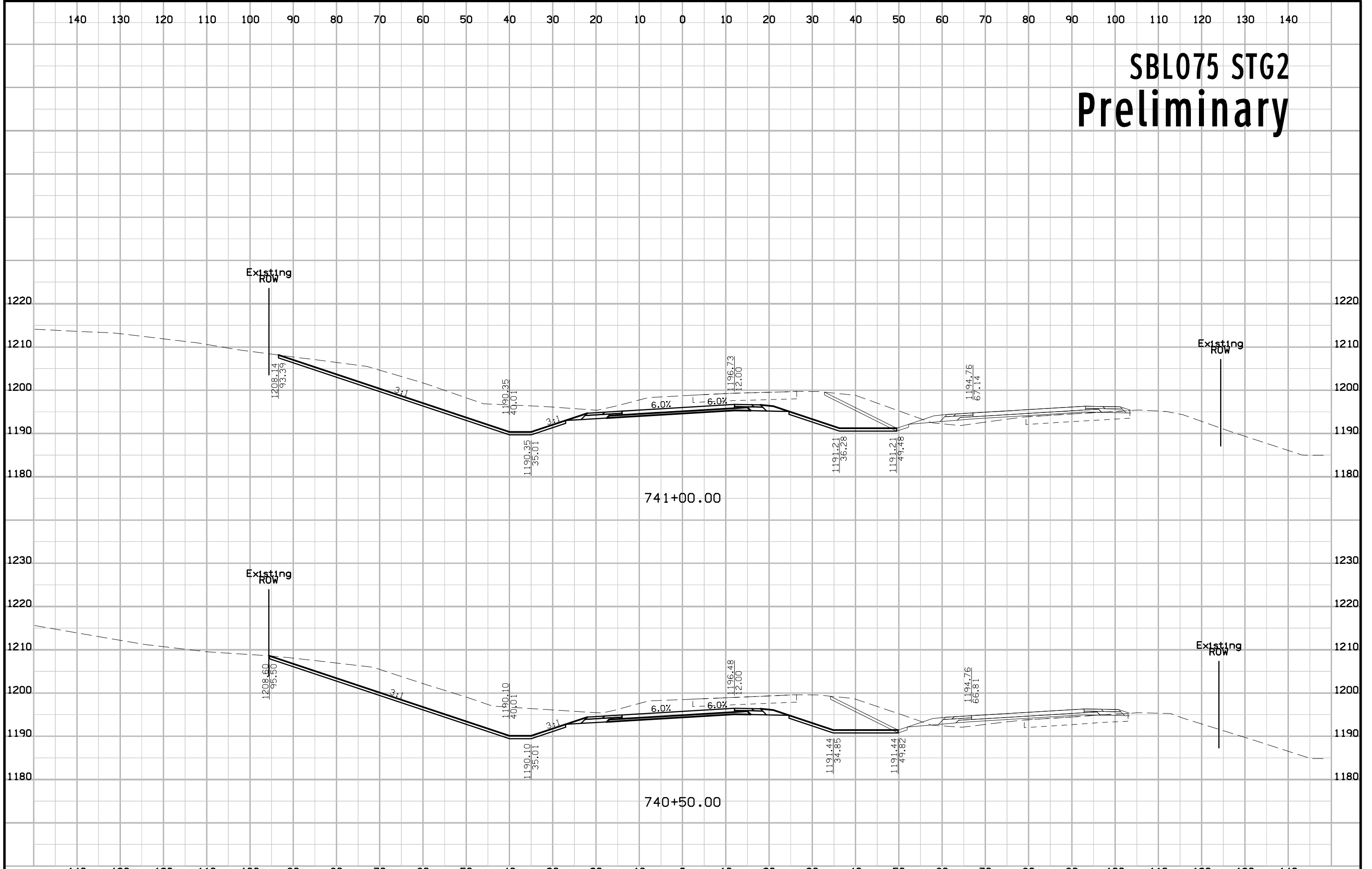
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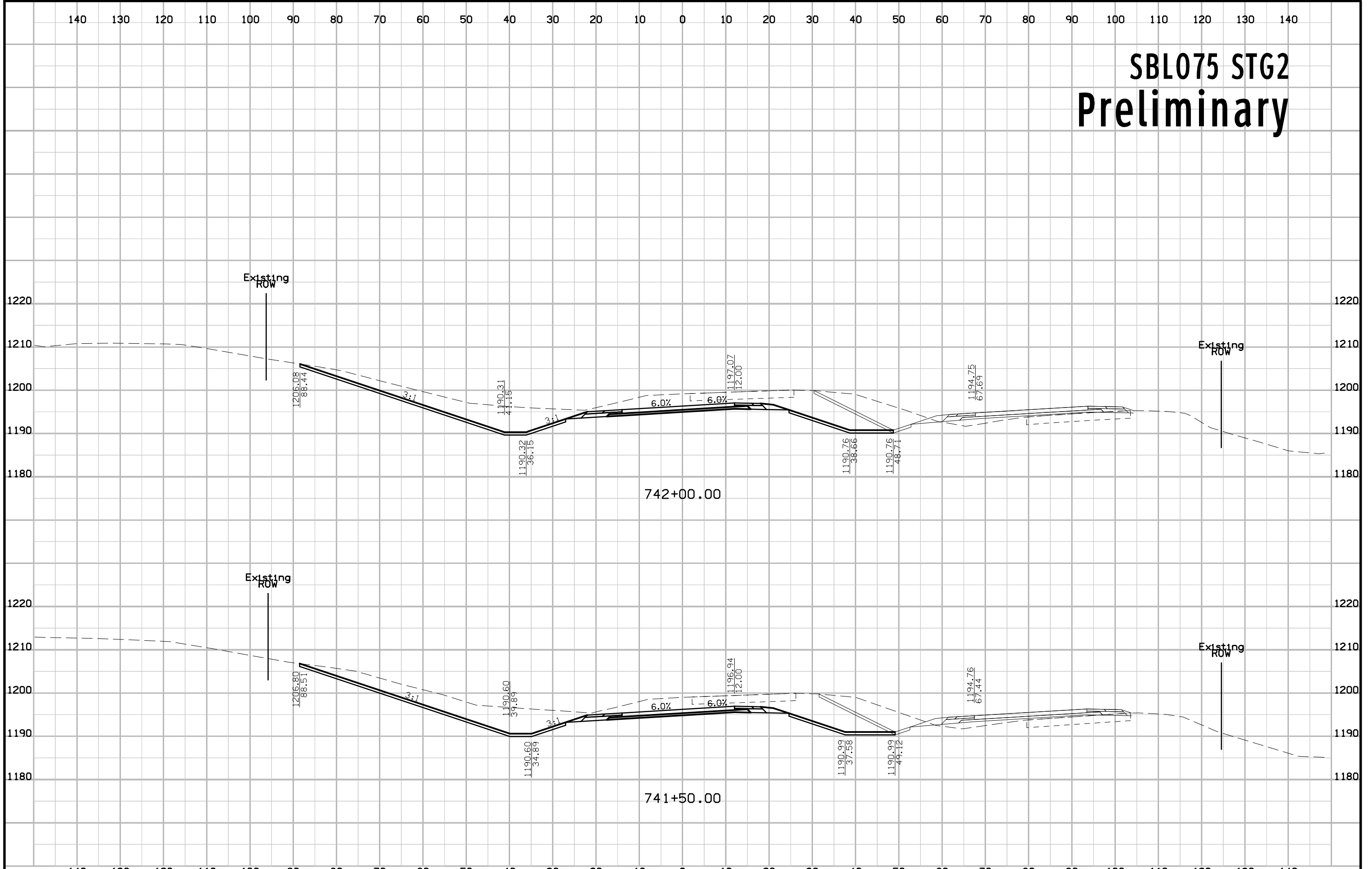
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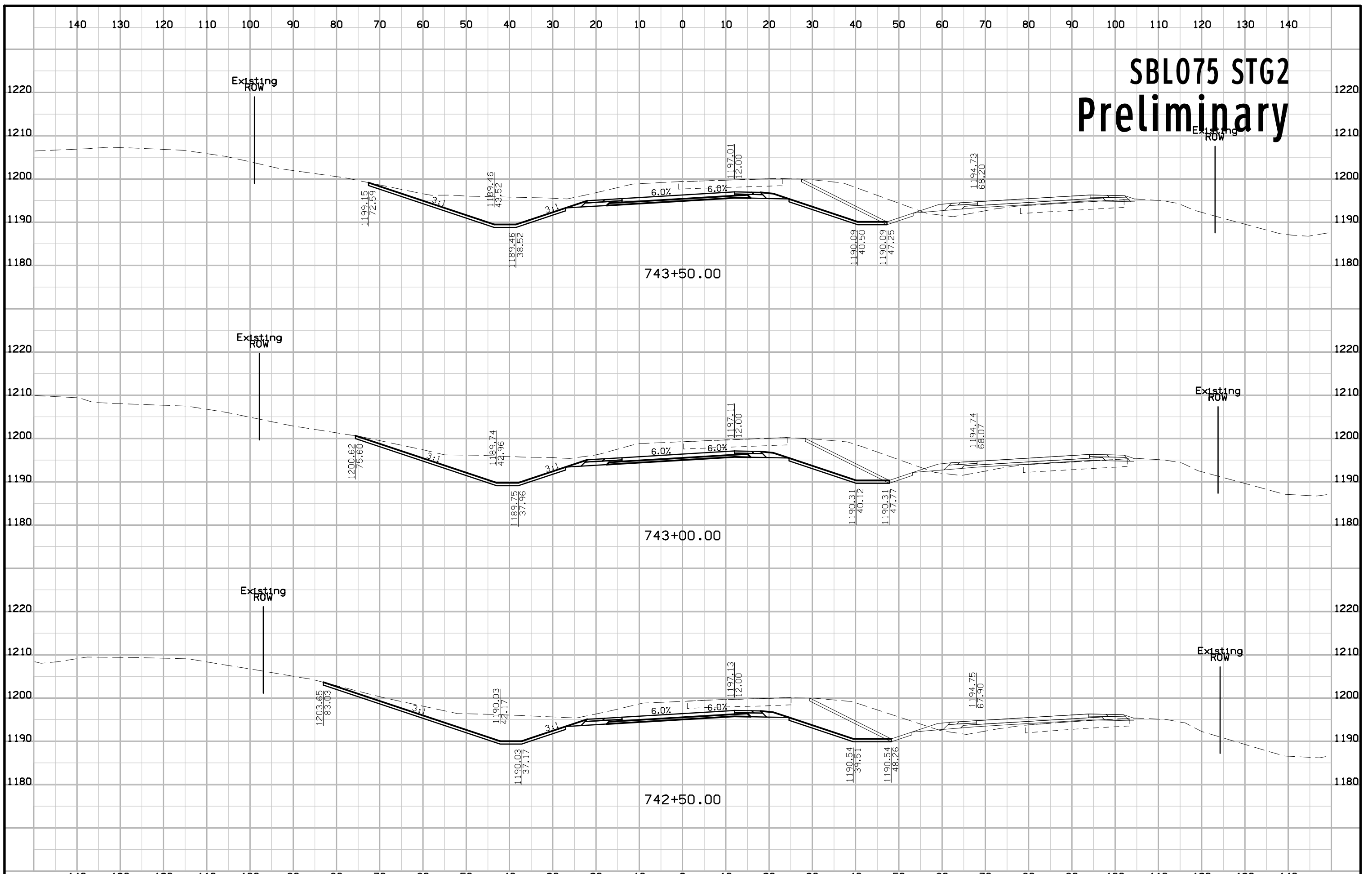
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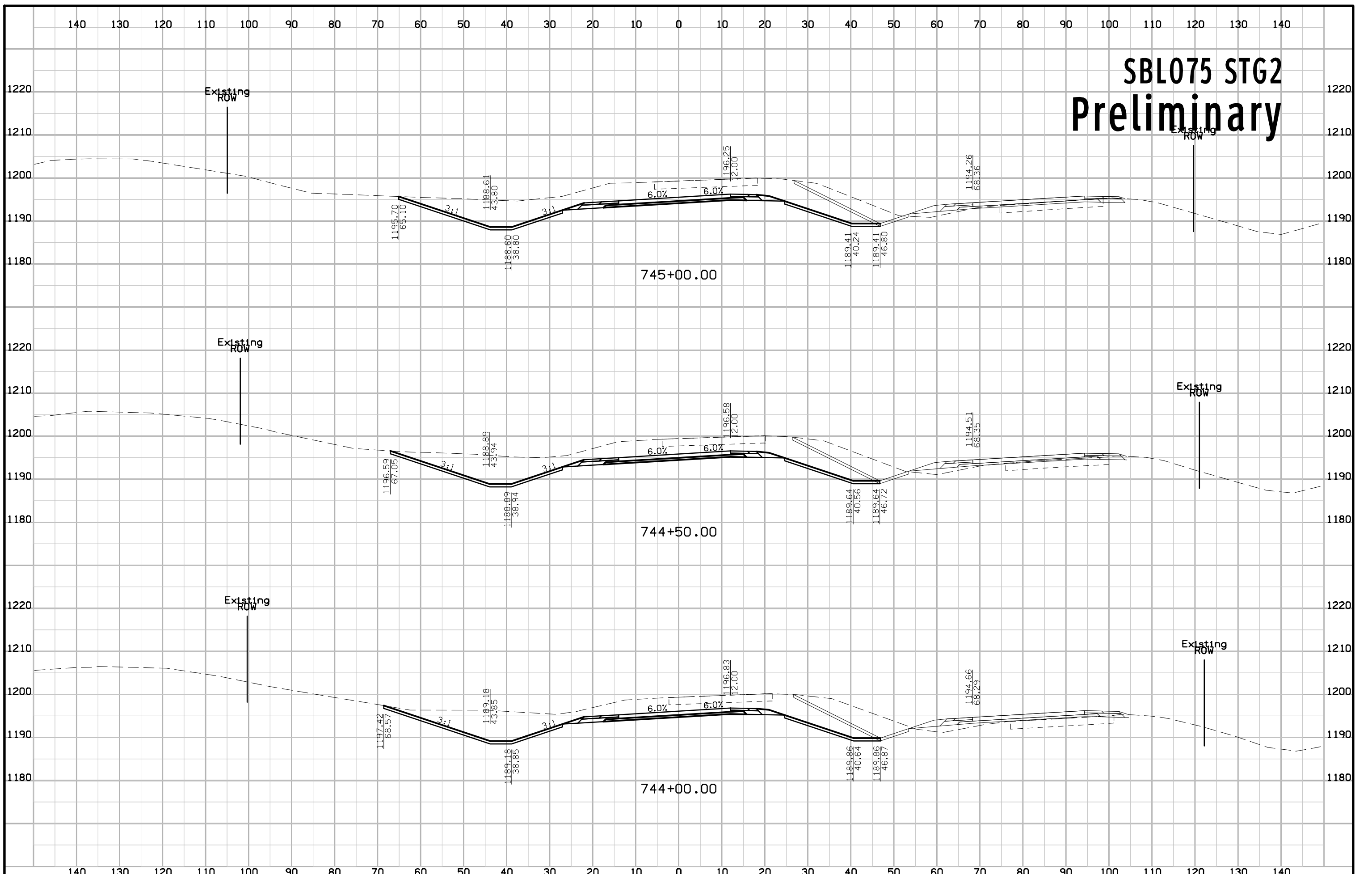


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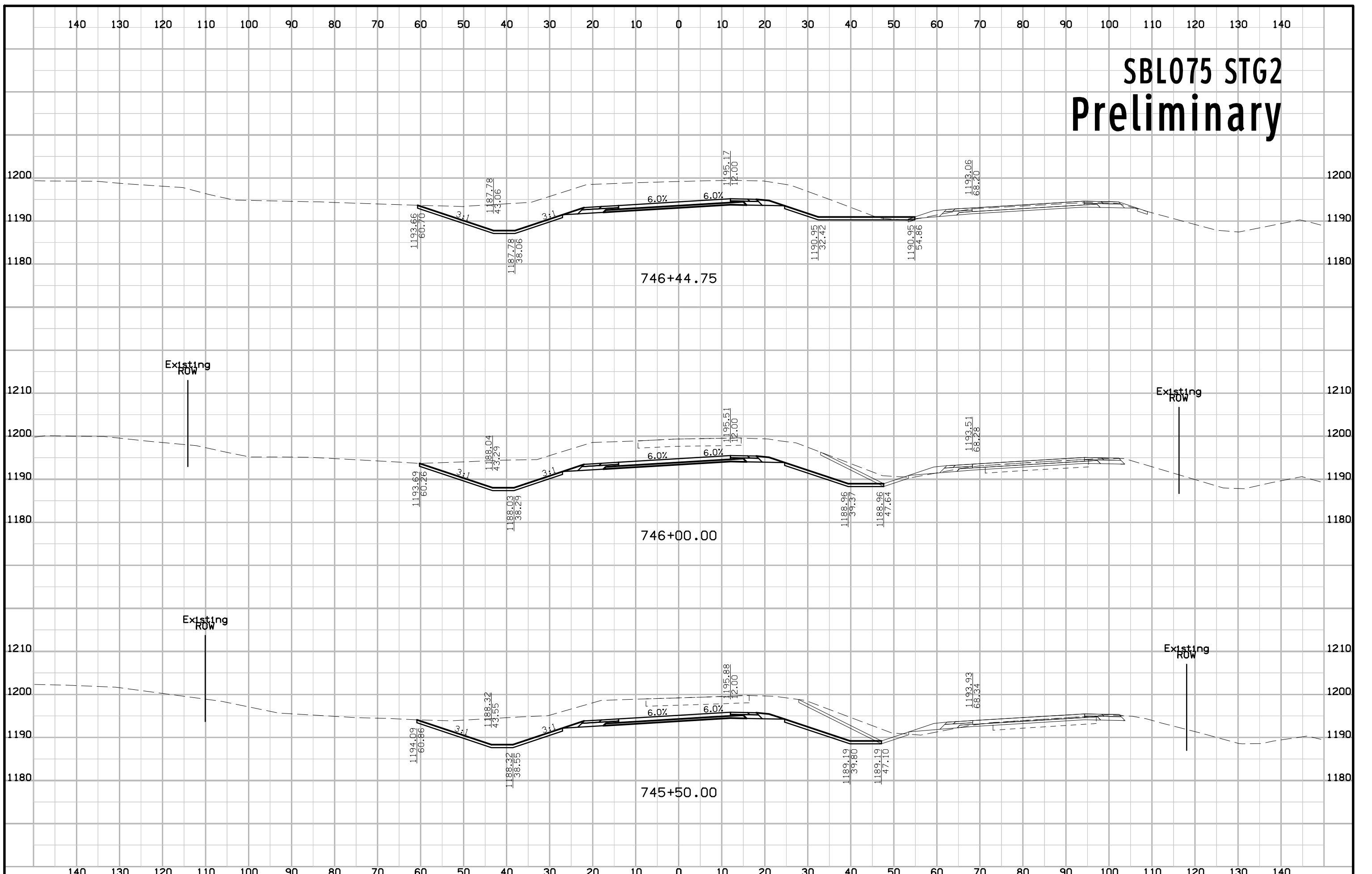




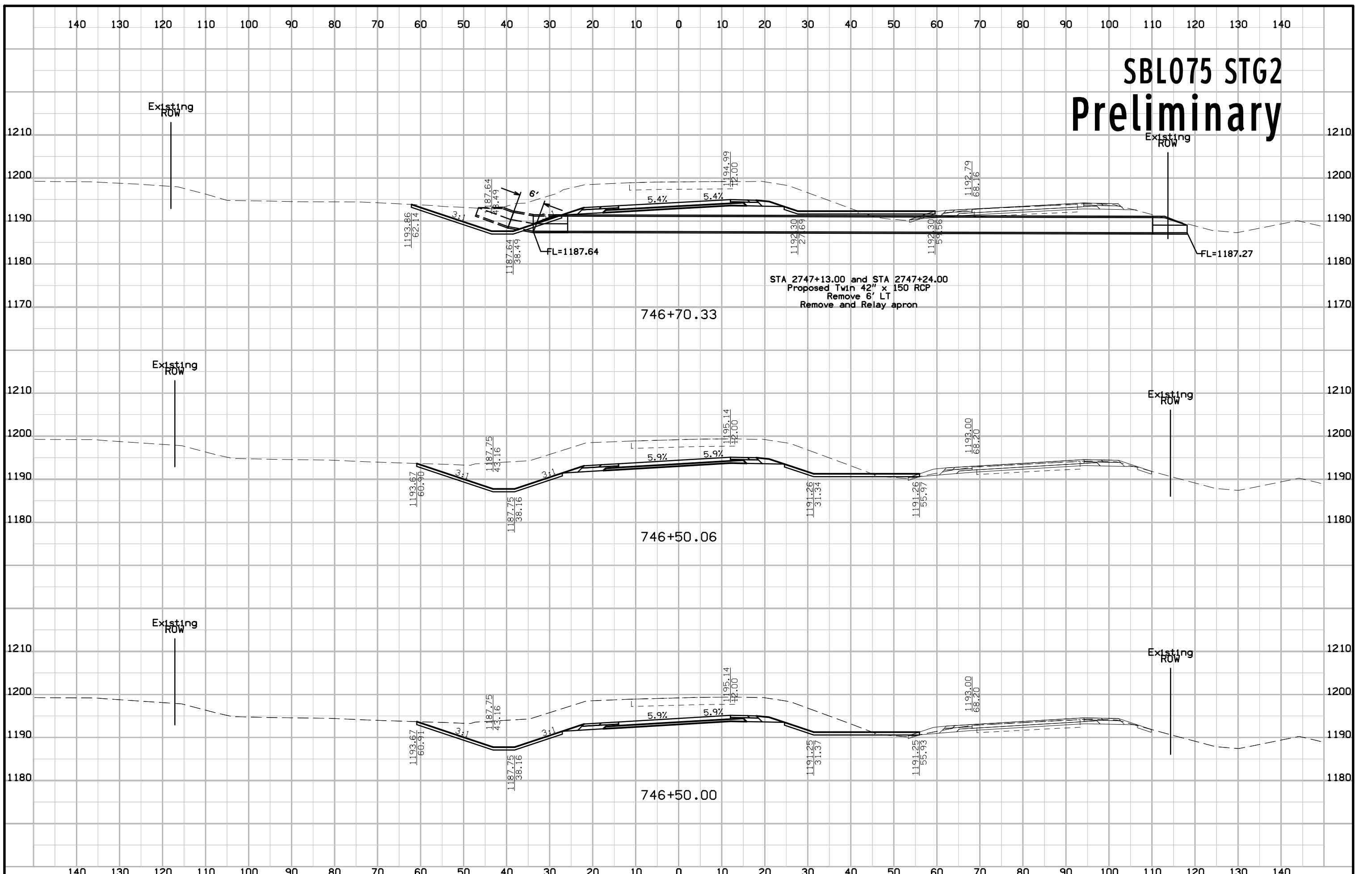
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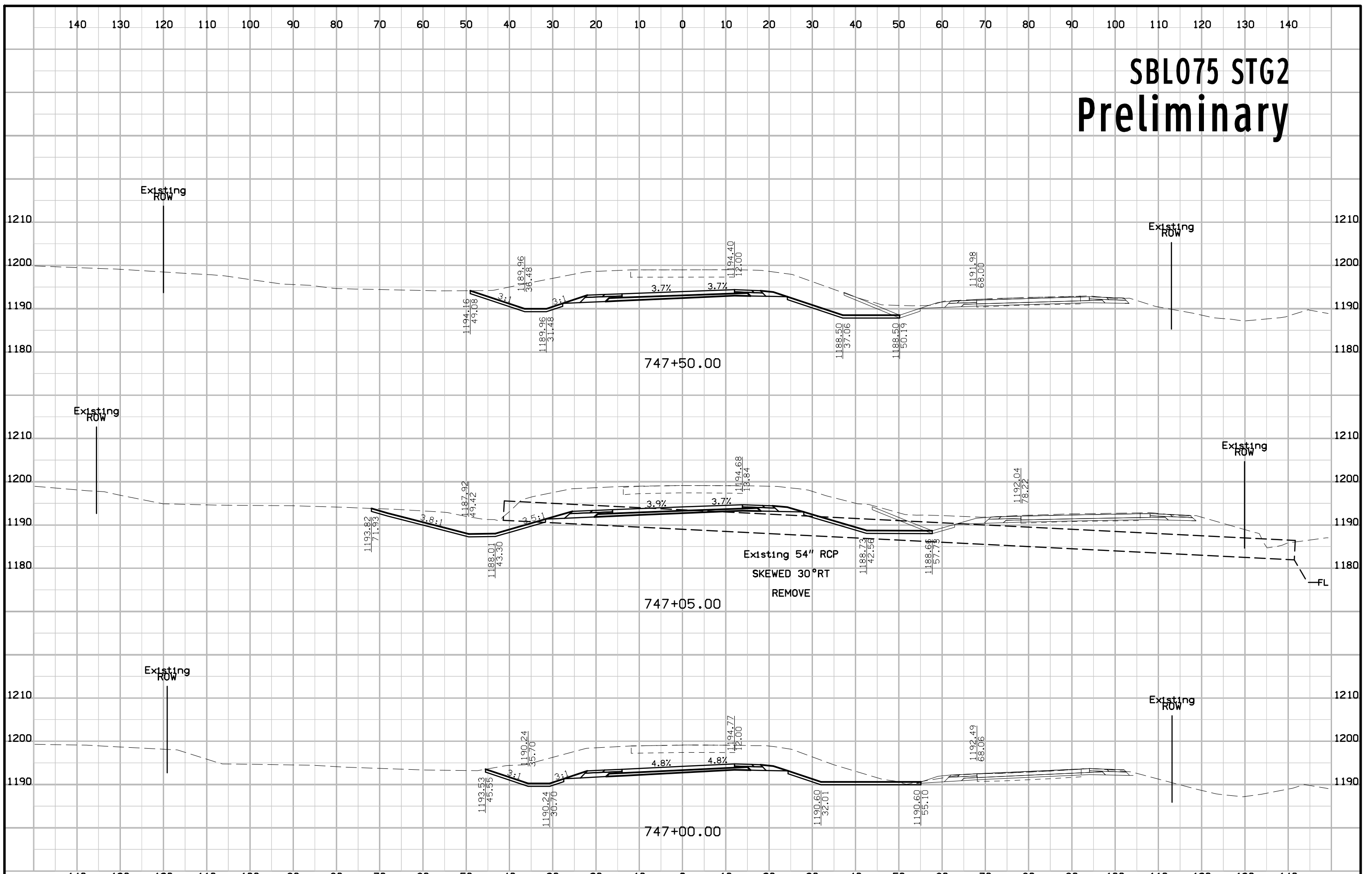
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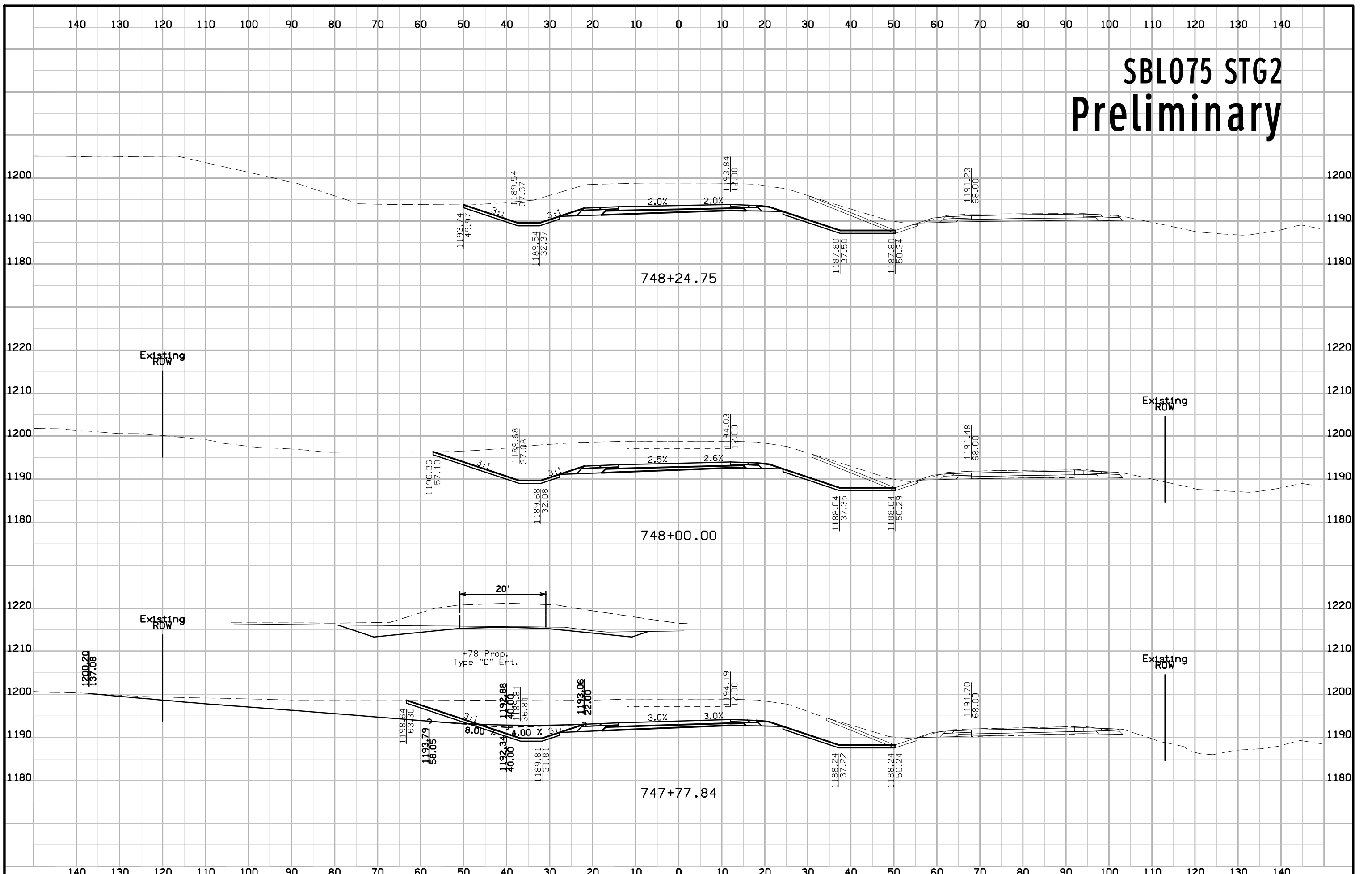
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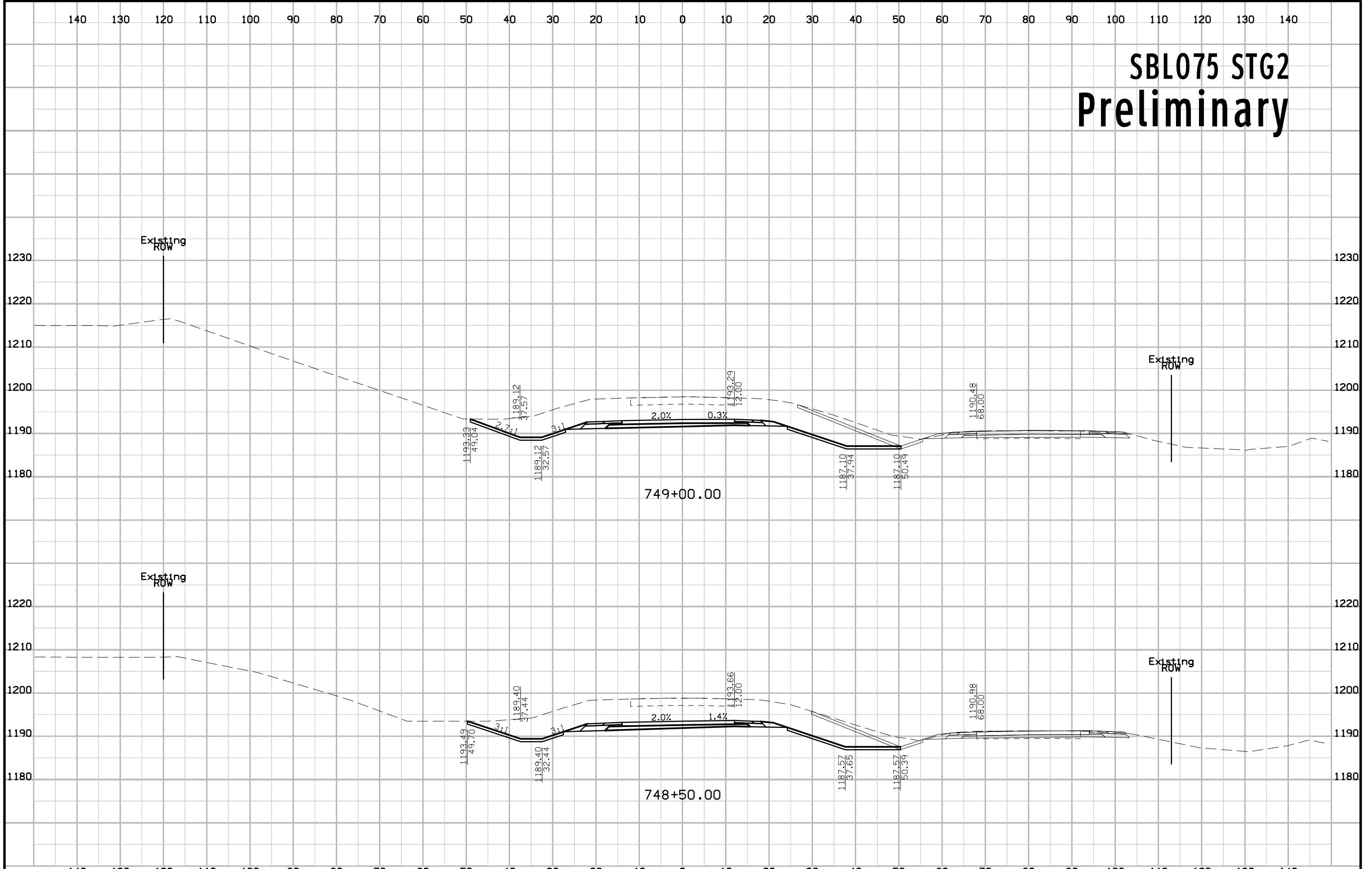
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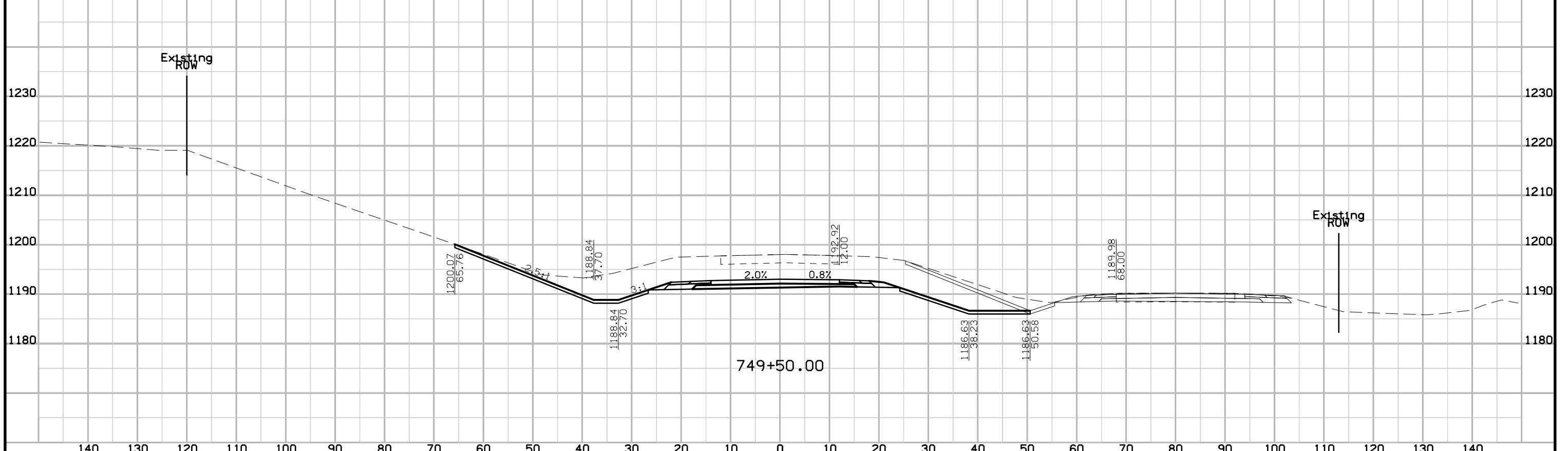
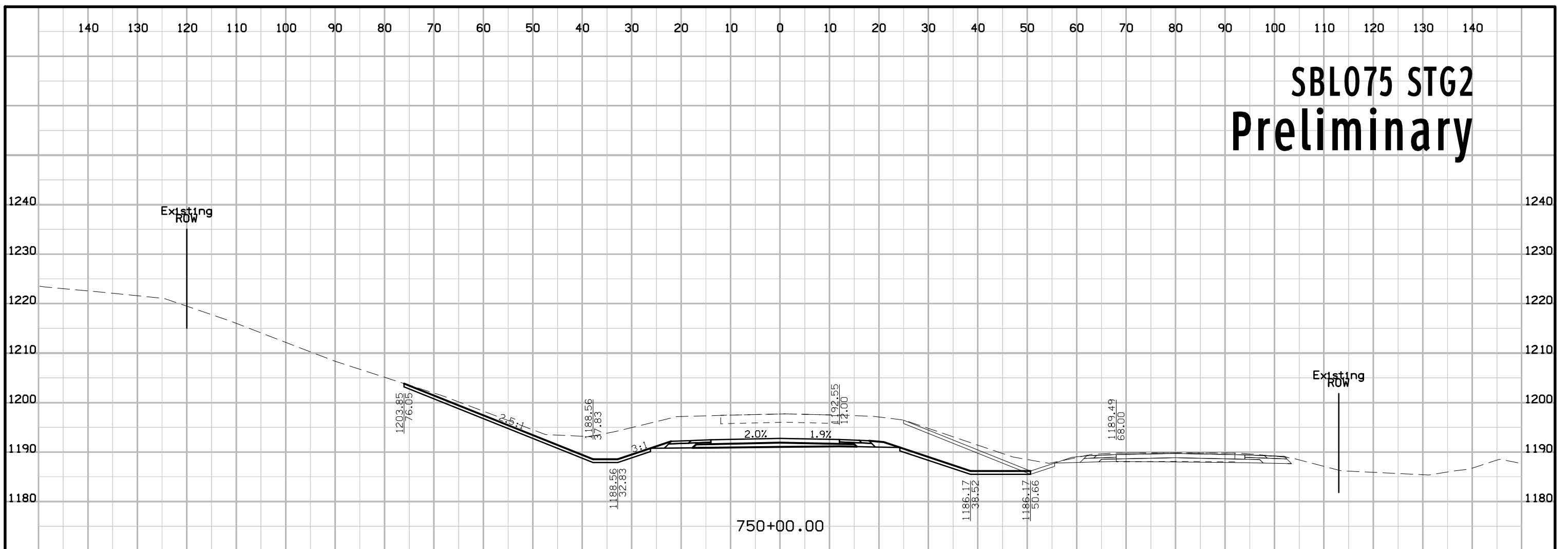
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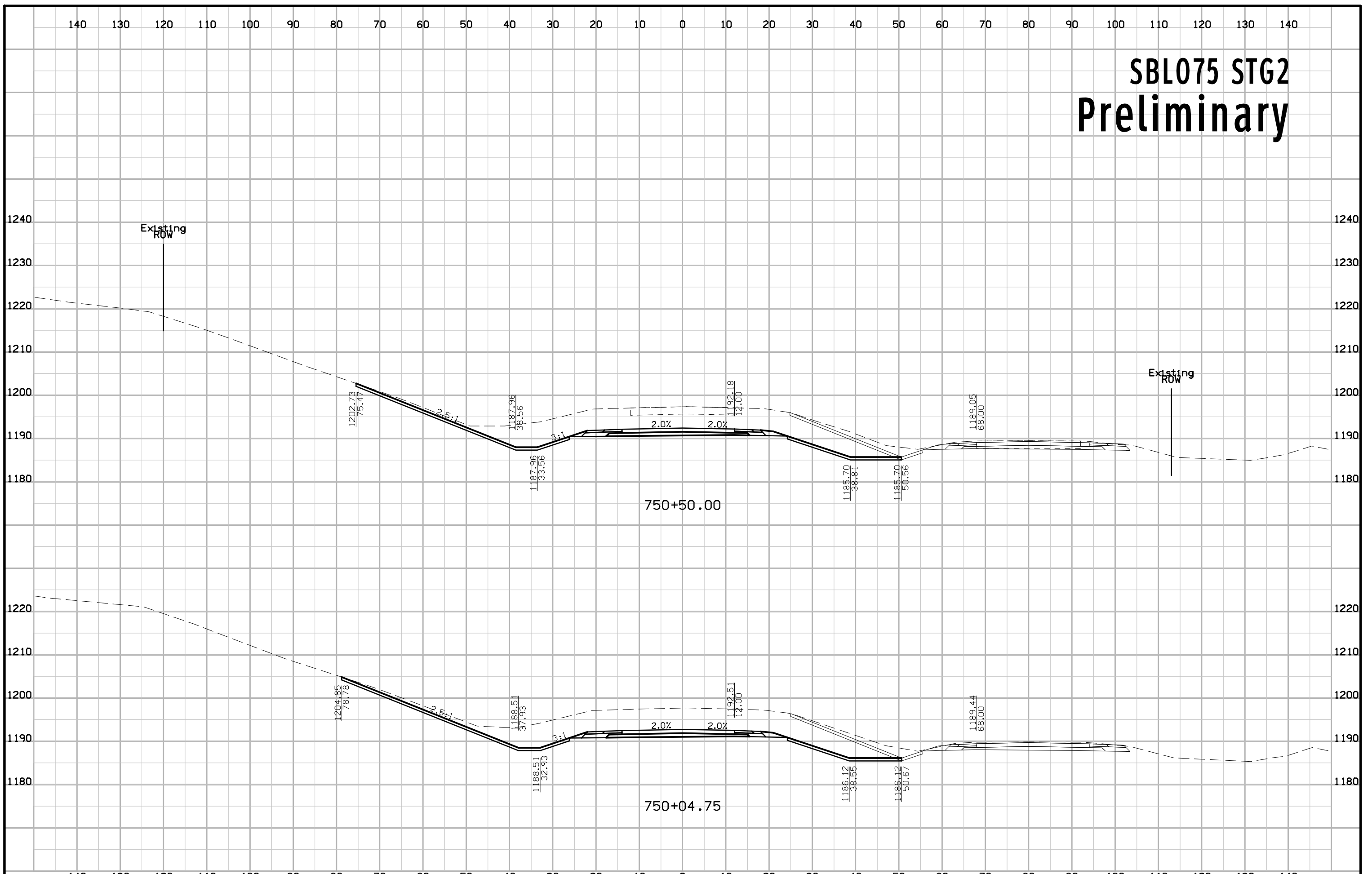
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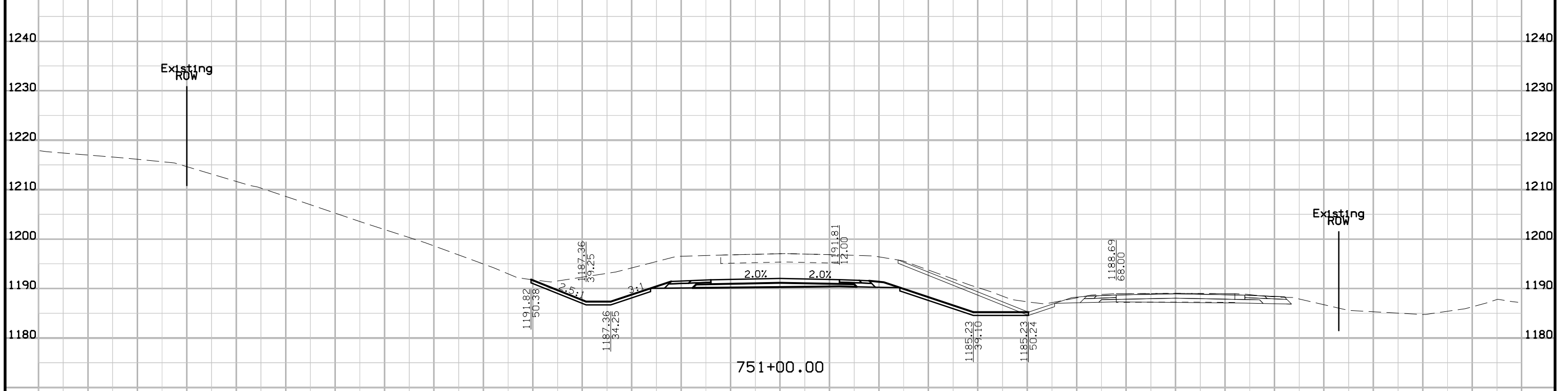
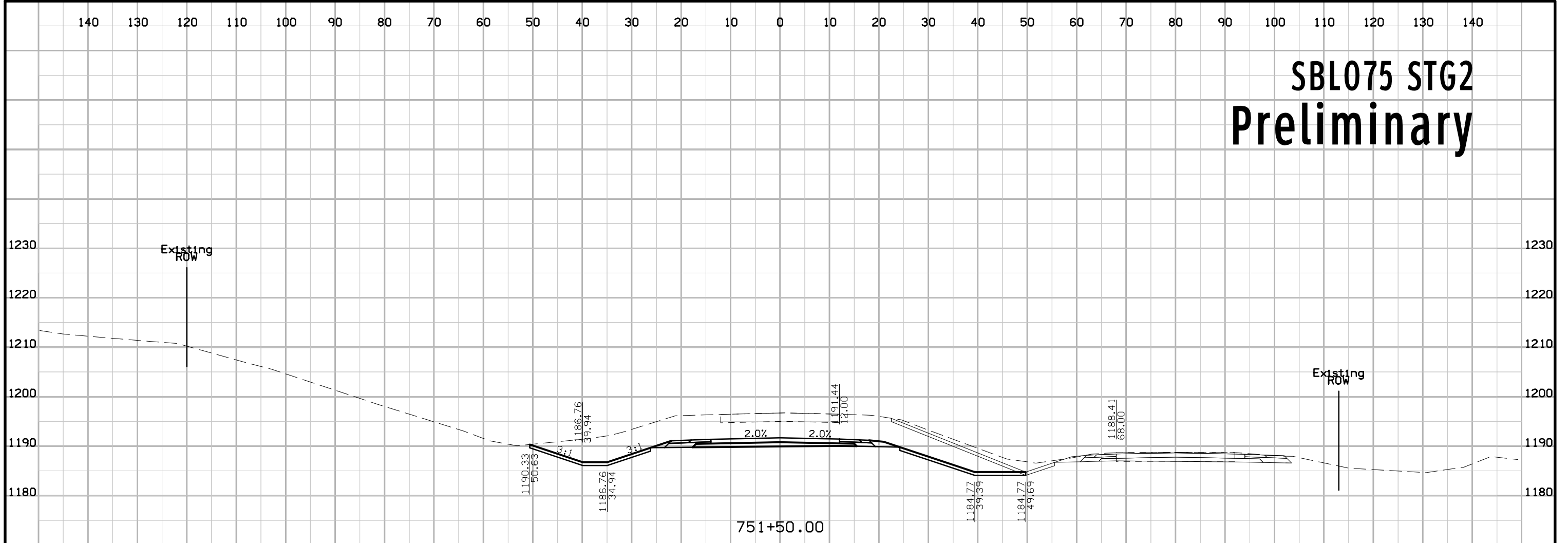


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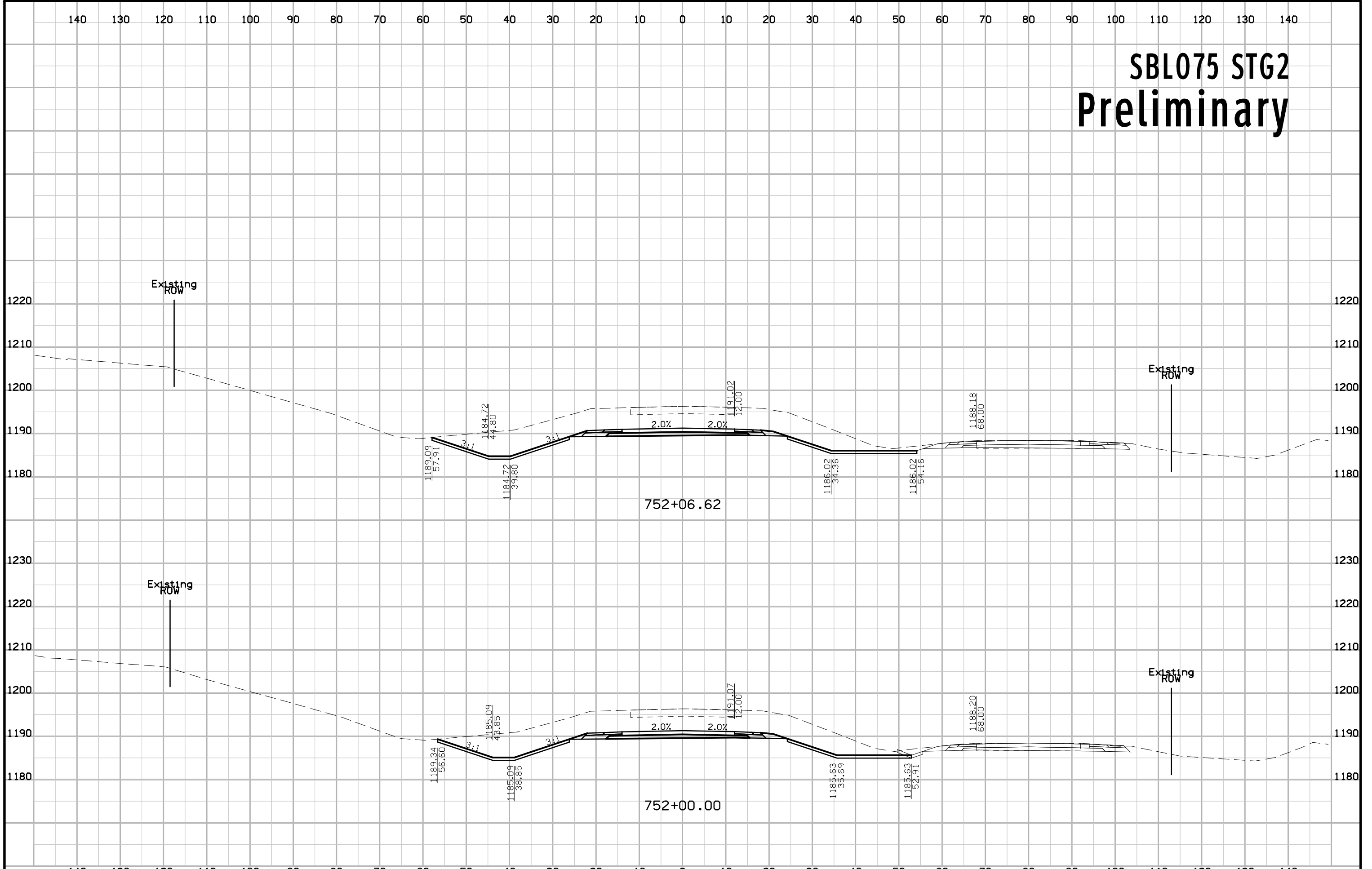




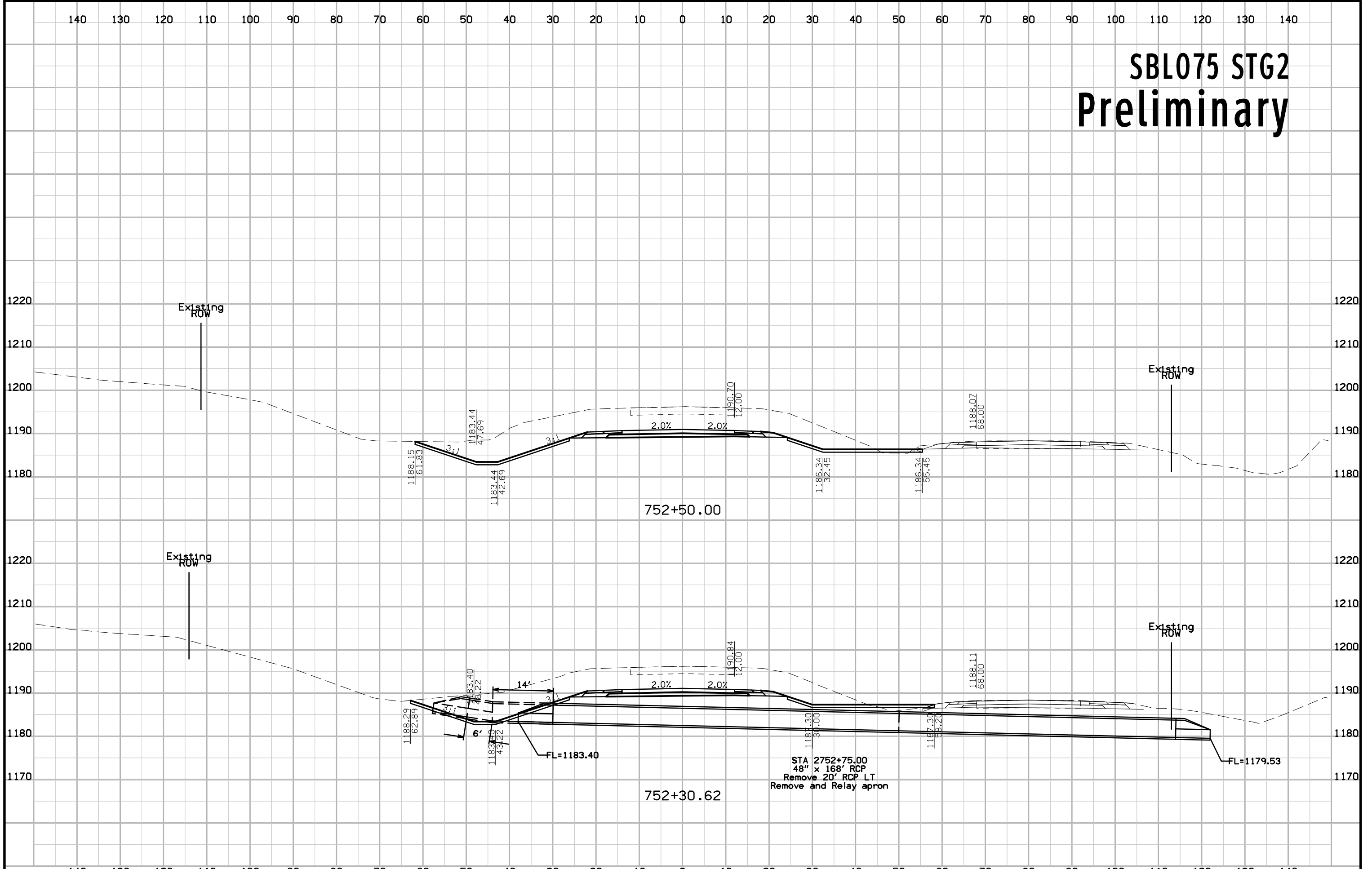
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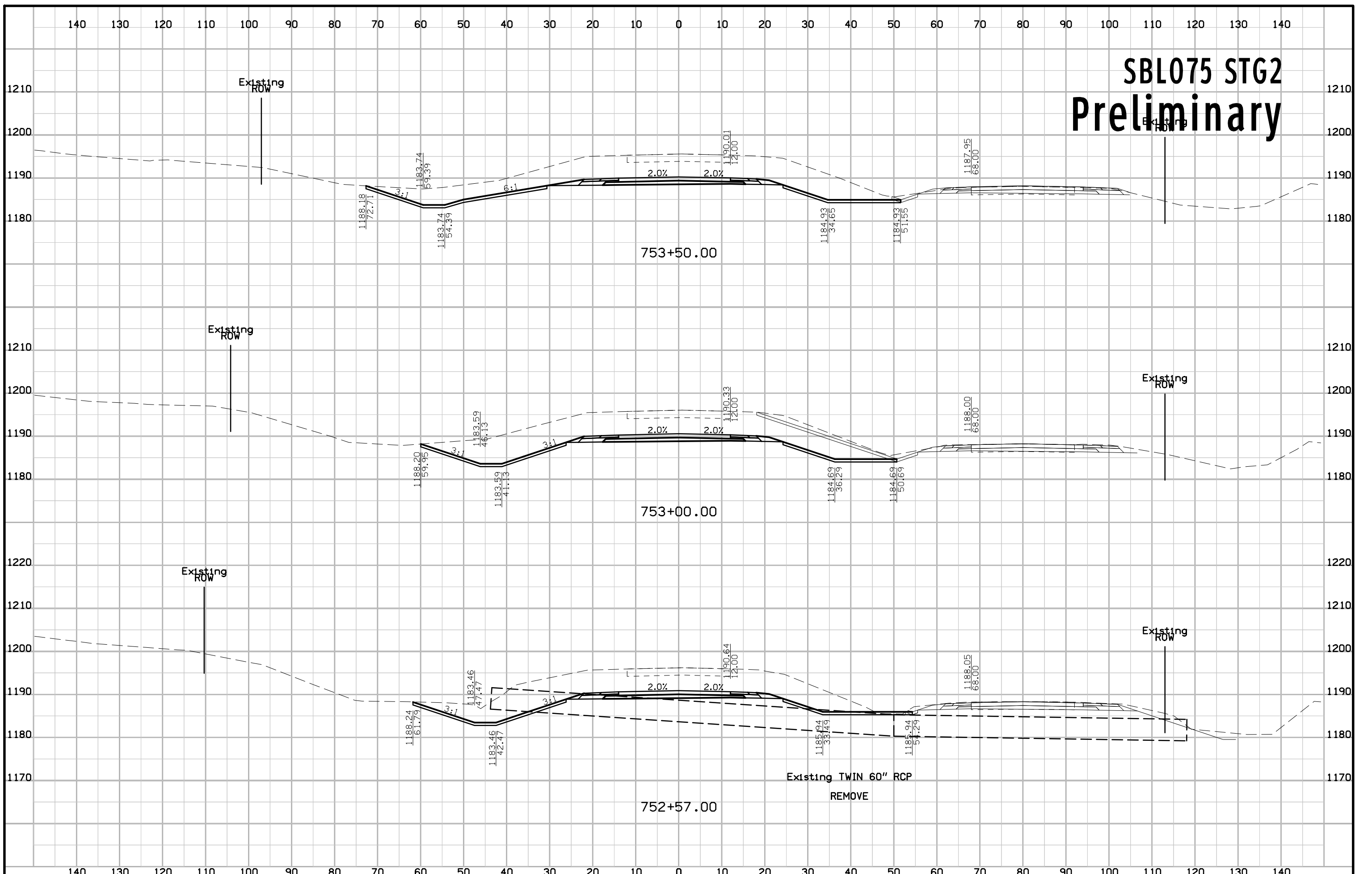
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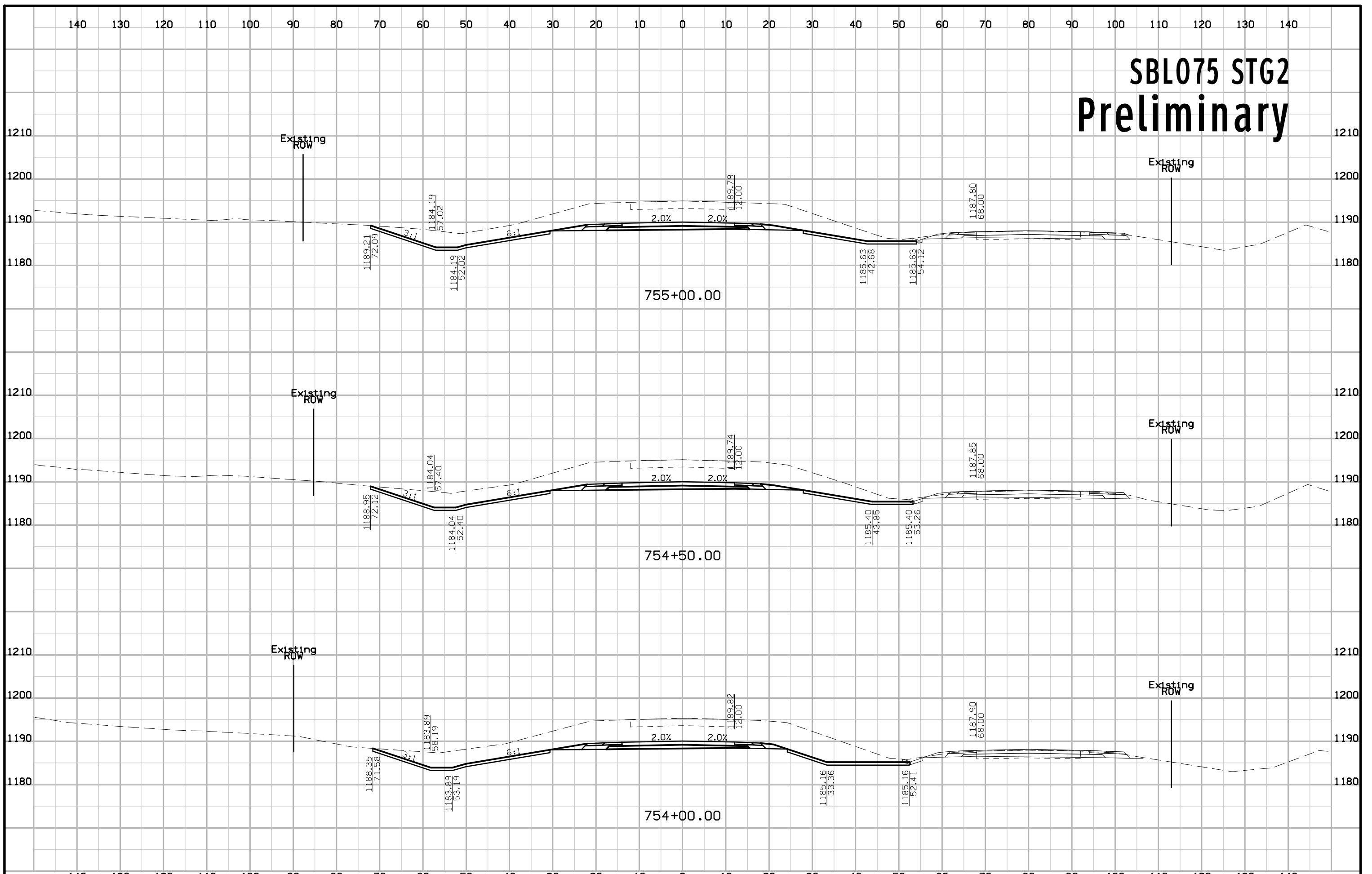
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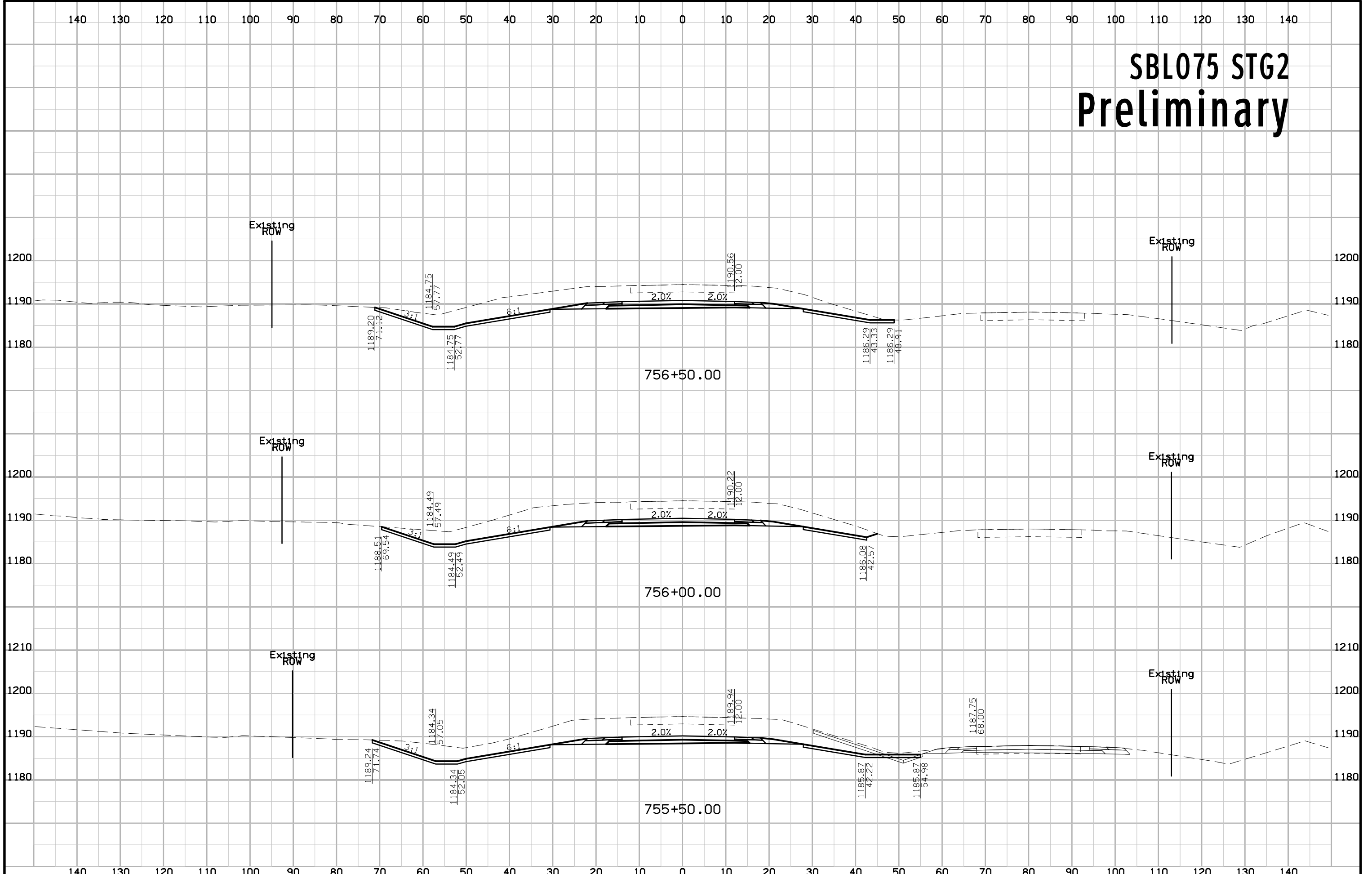
# SBL075 STG2 Preliminary



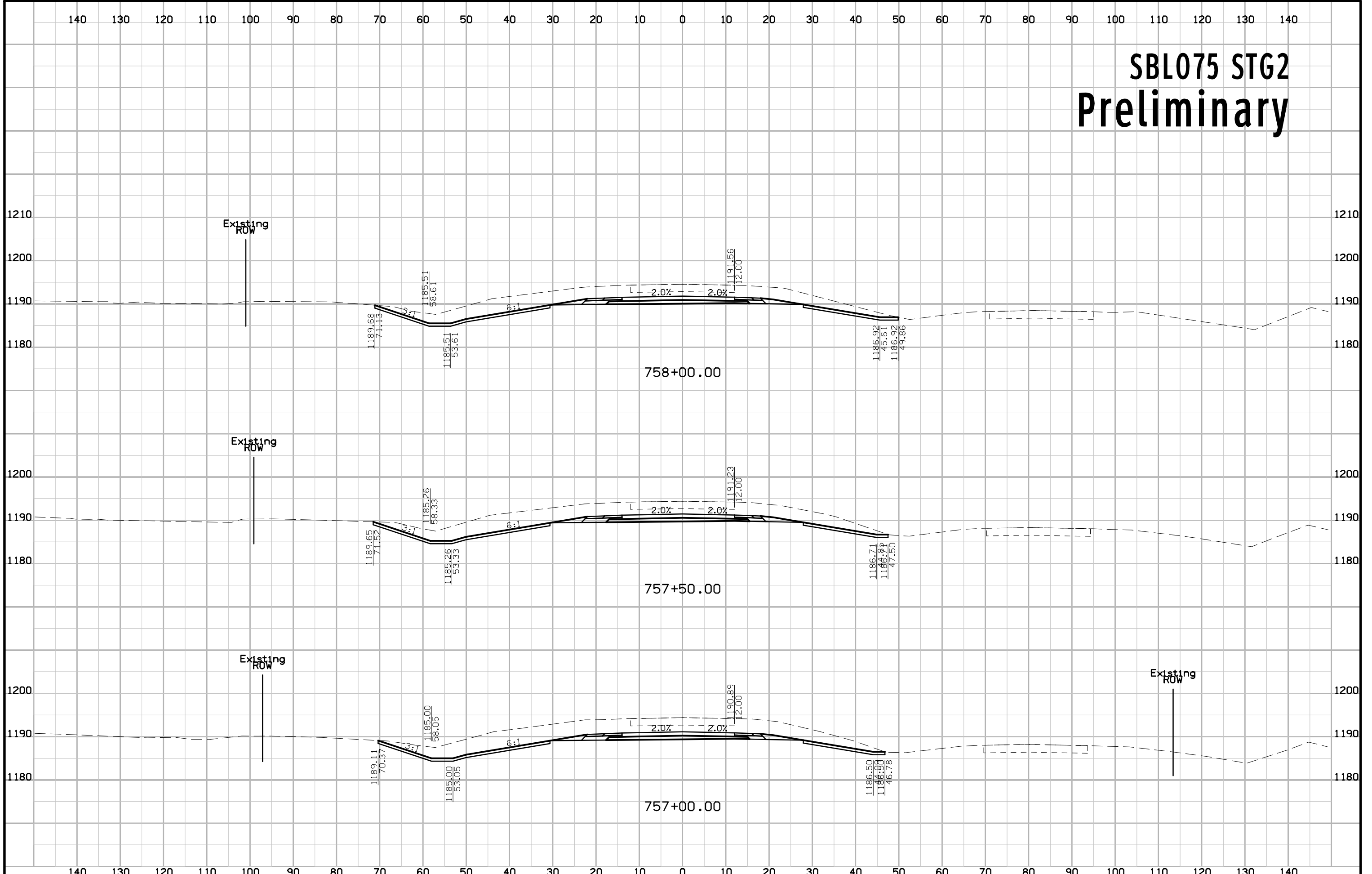
# SBL075 STG2 Preliminary



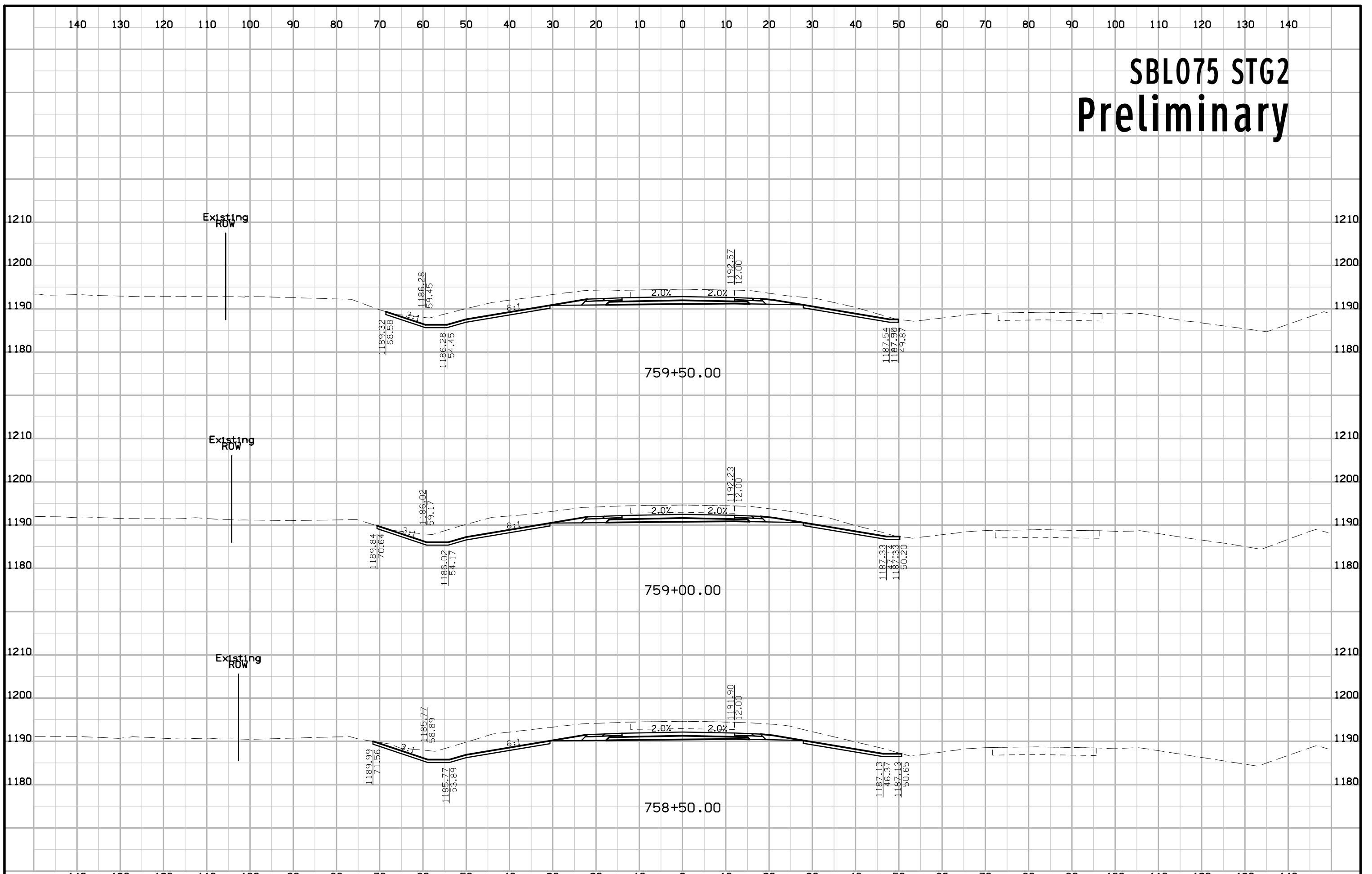
# SBL075 STG2 Preliminary



# SBL075 STG2 Preliminary

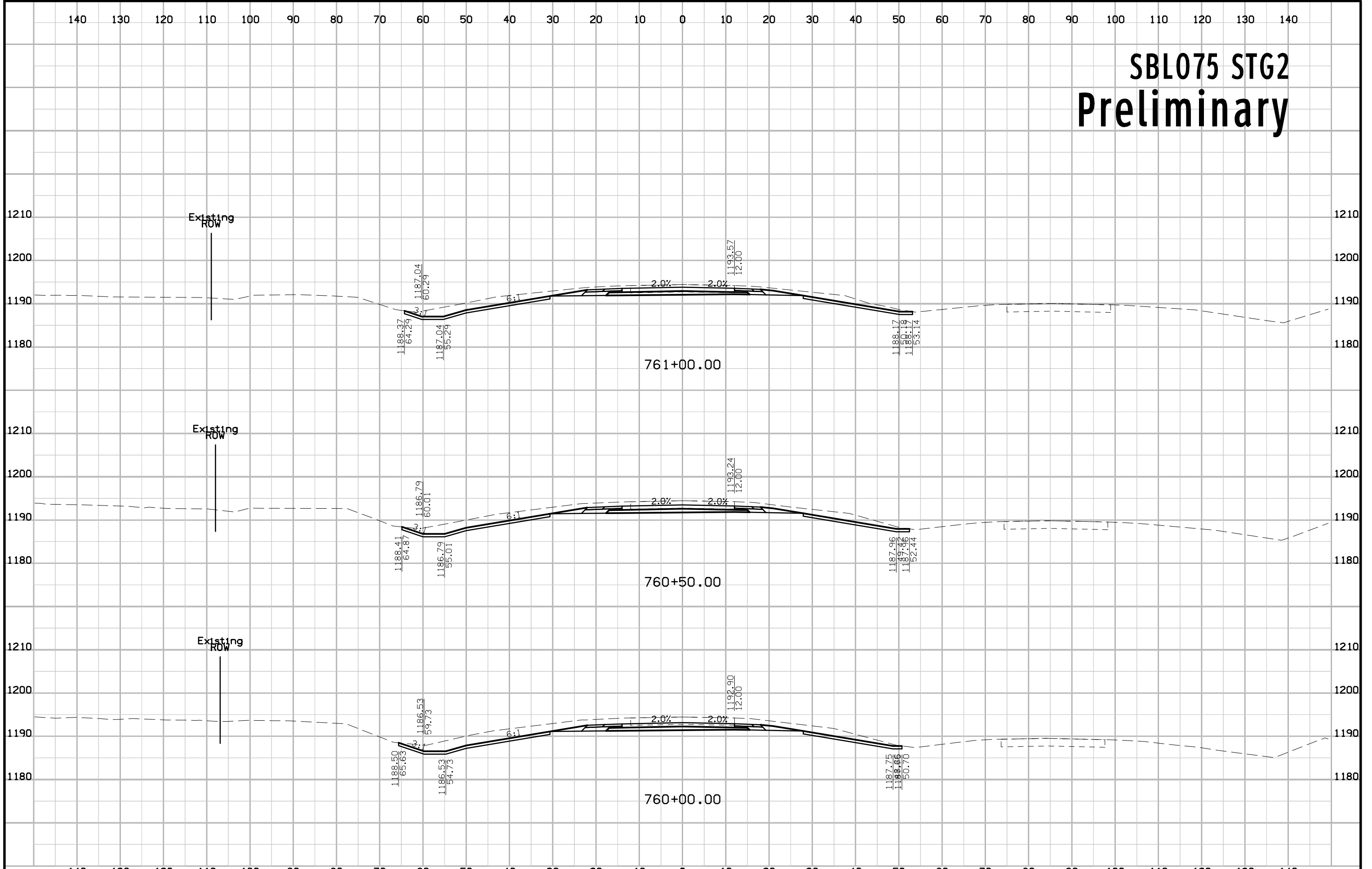


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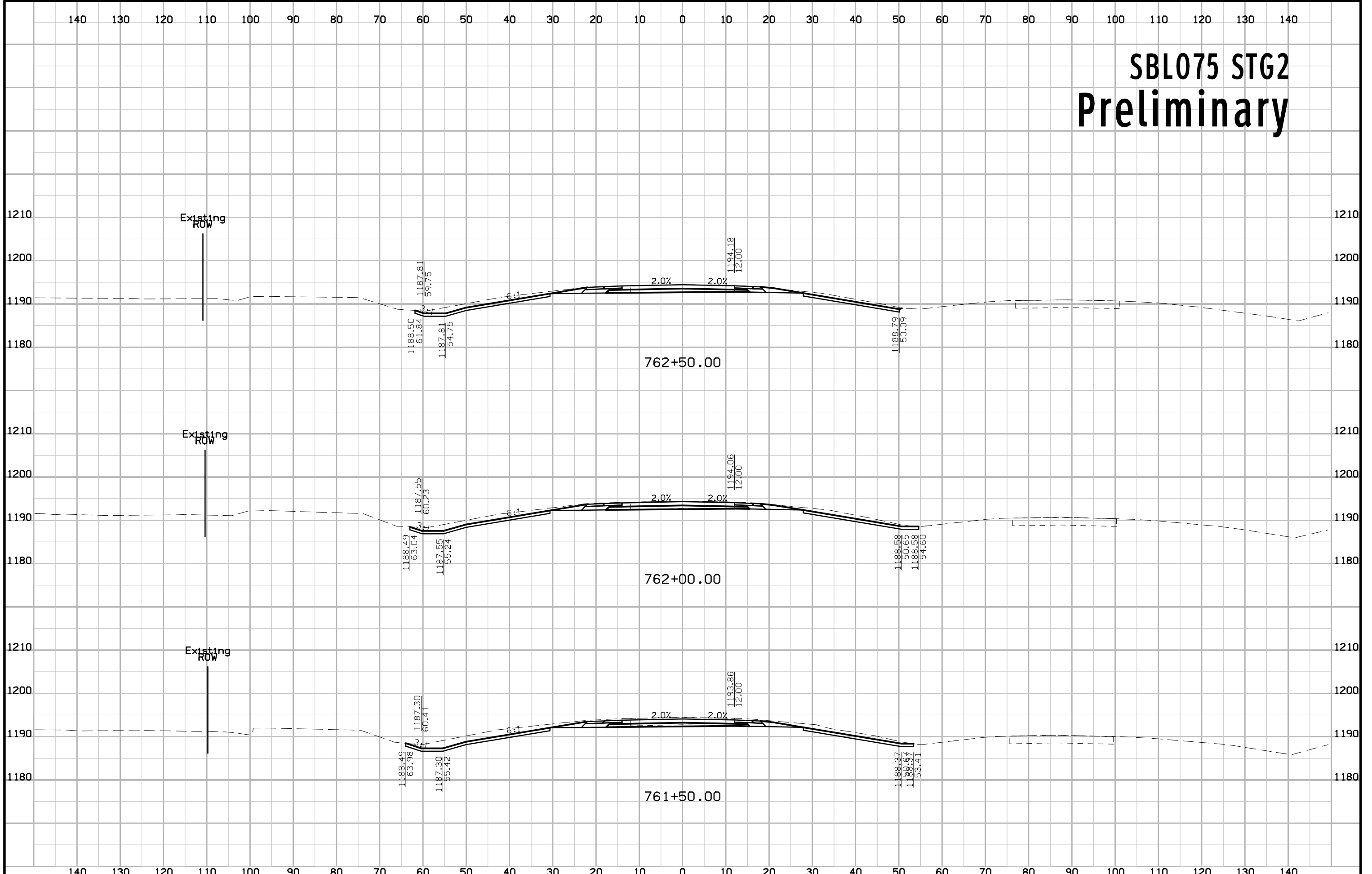




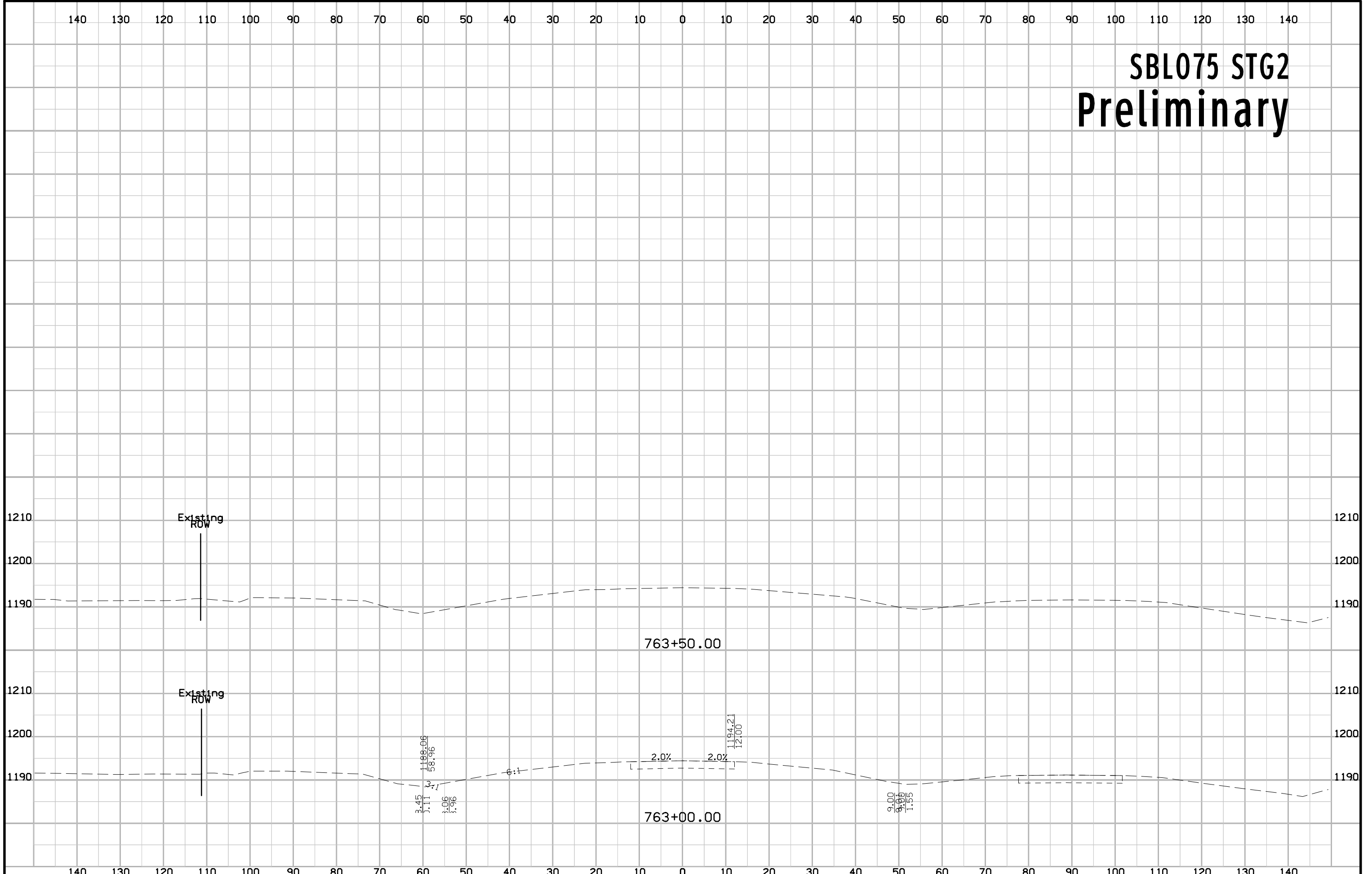
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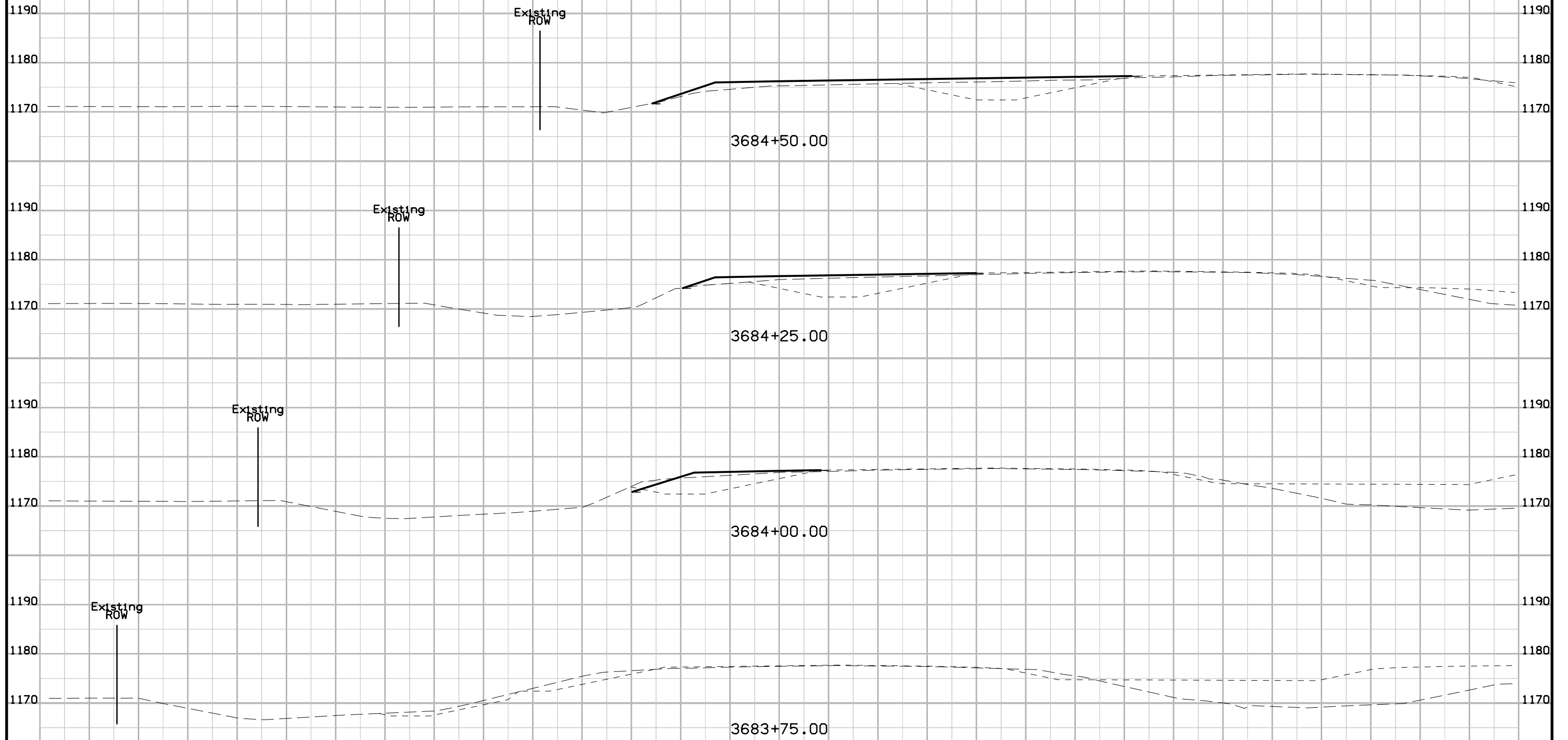
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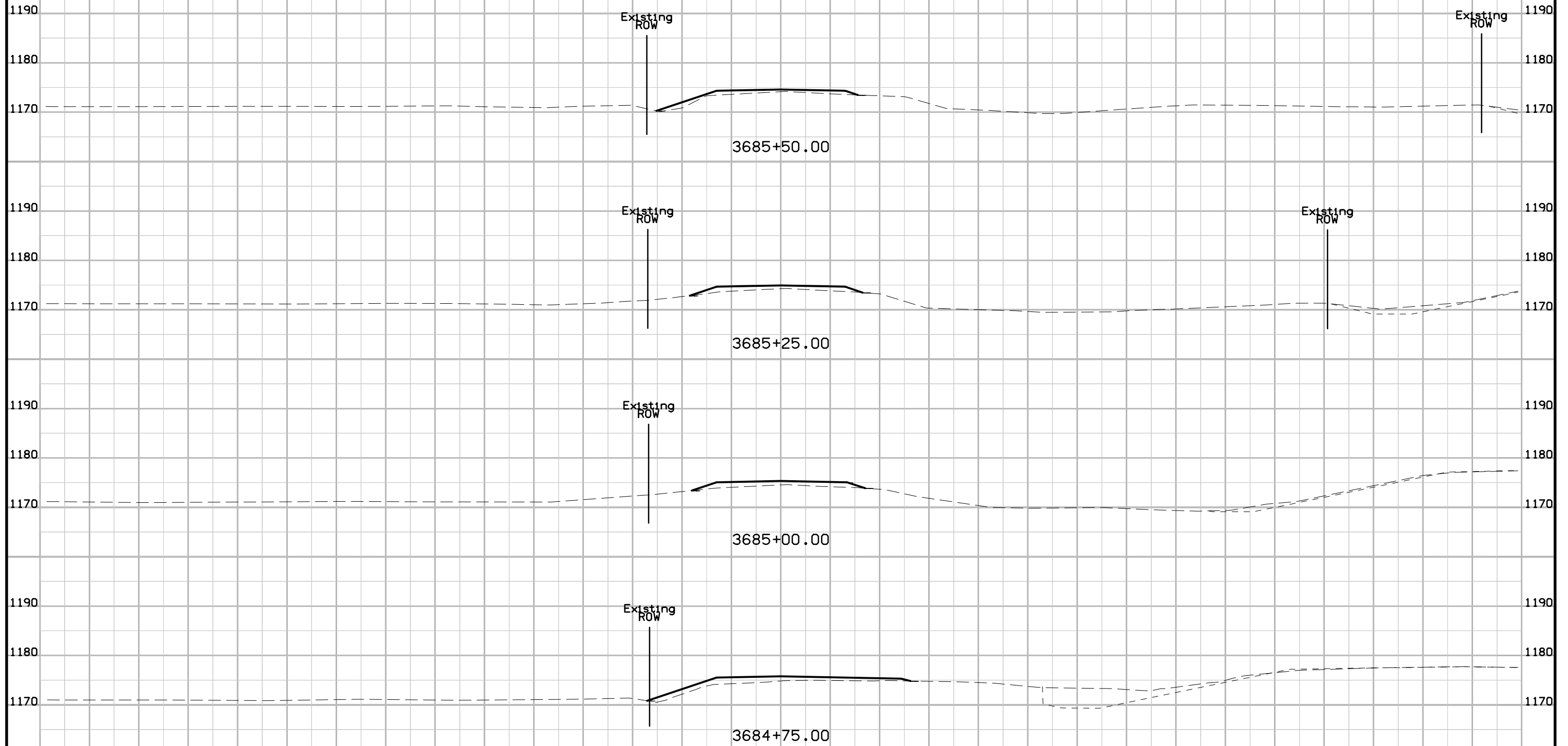
# SBL075 STG2 Preliminary



# Kestrel Ave Preliminary



# Kestrel Ave Preliminary



# Kestrel Ave Preliminary

