

PLYMOUTH CO.
UNKNOWN PAVEMENT - GRADE AND REPLACE
NHSX-075-2(96)--3H-75

LETTING DATE
 01/22/20



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM PLYMOUTH COUNTY

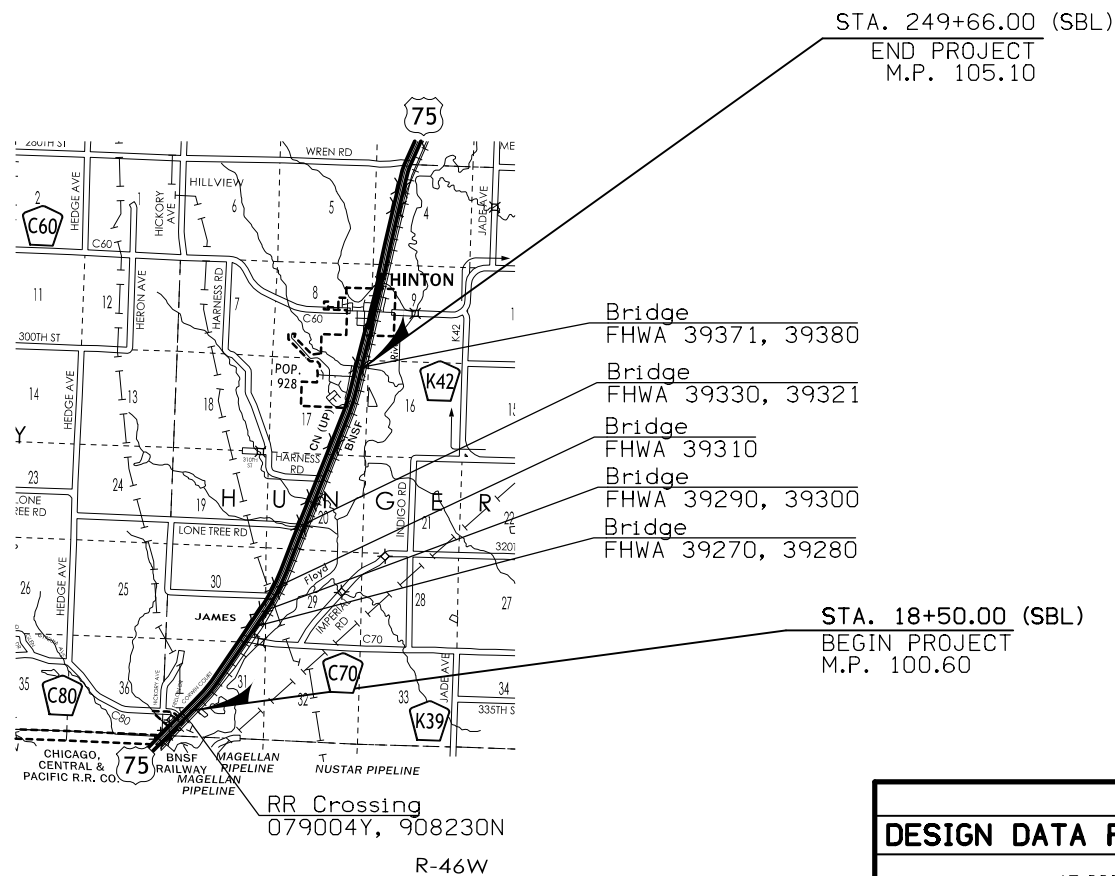
PCC PAVEMENT - GRADE AND REPLACE

Woodbury Co. to S of W Grover St in Hinton (SB)

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



DESIGN DATA RURAL

2019 AADT	17,000	V.P.D.
2039 AADT	22,700	V.P.D.
2039 DHV	2,350	V.P.H.
TRUCKS	15	%
Total Design ESALs	--	

REVISIONS

TOTAL

PROJECT IDENTIFICATION NUMBER

16-75-075-020

PROJECT NUMBER

NHSX-075-2(96)--3H-75

R.O.W. PROJECT NUMBER

NHSN-075-2(98)--2R-75

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
B Sheets	Typical Cross Sections and Details
B.1 - 9	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	US 75 SB
E Sheets	Side Road Plan and Profile Sheets
* E.1	C-80
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* E.3	Main St
* E.4	Fulton St
* E.5	325th St
* E.6	Lone Tree Rd
* E.7	Harness Rd
* E.8	Starview Dr
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G Sheets	Survey Sheets
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X.21 - 22	Lone Tree Rd Cross Sections
X.23 - 24	Harness Rd Cross Sections
X.25 - 26	Starview Dr Cross Sections
X.27	Orbit Dr Cross Sections
X.28 - 30	Titan Rd Cross Sections
	* Color Plan Sheets

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN - Date: 02-23-2018

FILE NO.

ENGLISH

DESIGN TEAM **Holst \ Strum \ Janus**

PLYMOUTH COUNTY

PROJECT NUMBER

NHSX-075-2(96)--3H-75

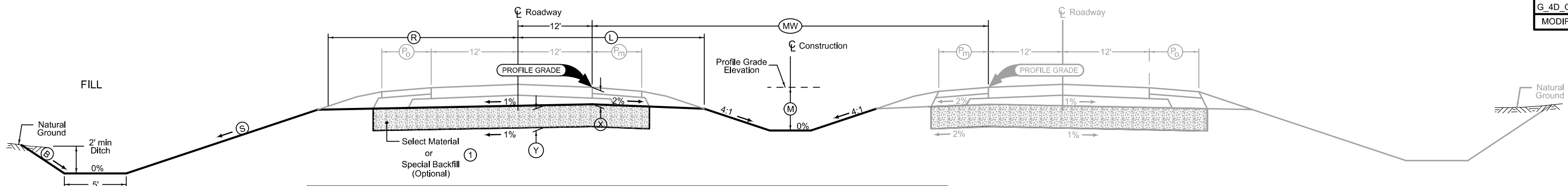
SHEET NUMBER

A.1

10:23:25 AM 2/15/2018

ajanus2

pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\7507502016\Design\96\Grade_Pave\75075096_A01.sht



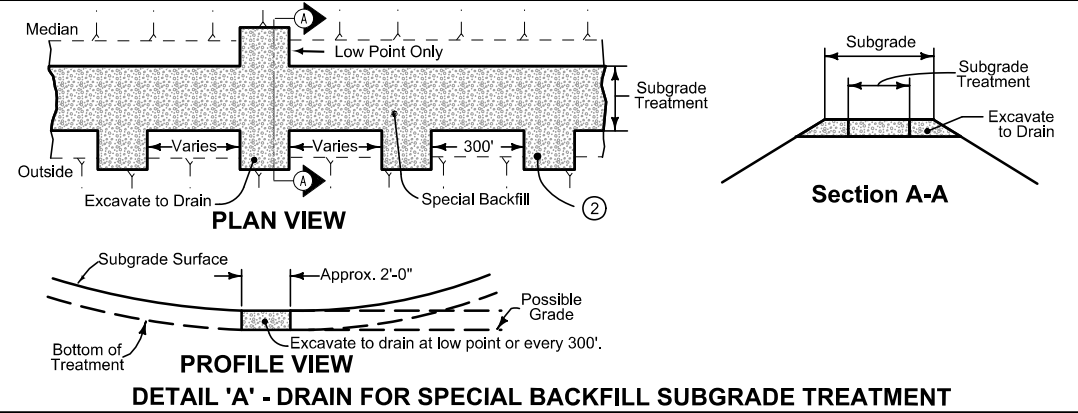
Normal section shown may be modified appropriately in areas of super-elevated curves or other locations specifically designated by the Engineer.

See Plan & Profile sheets and cross sections for additional details of ditches and backslopes.

- ① Quantity calculations based on Select Soil.
Compaction with Moisture Control for Select Soil is required. Maintain moisture content within limits specified in Article 2107.03, H, 1 of the Standard Specifications.

- ② Excavate a portion of subgrade as necessary to provide drainage for the treatment. The additional excavation and Special Backfill for outlets is incidental and will not be paid for separately.

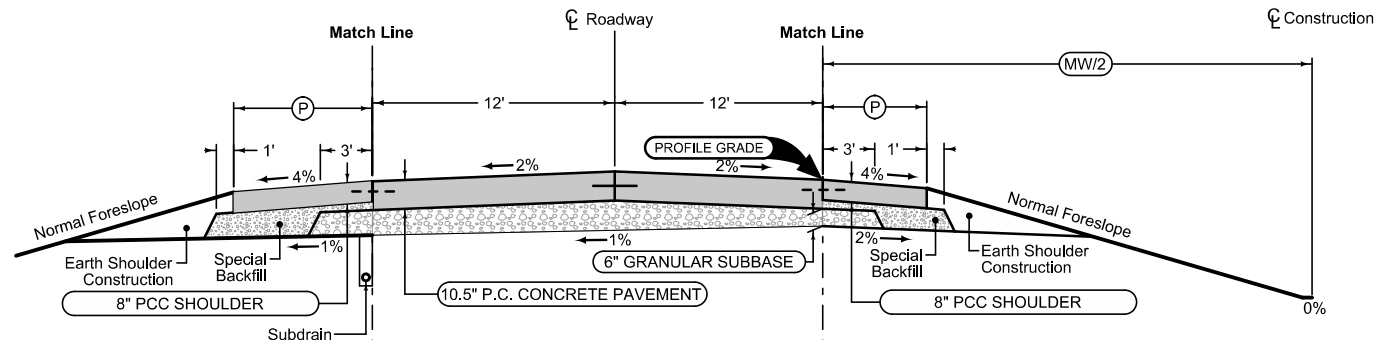
LOCATION		DIMENSIONS							Select Material	Special Backfill (Optional)
ROAD IDENTIFICATION	STATION TO STATION	L Feet	R Feet	X Inches	MW Feet	M Feet	S Feet	B Feet	Y Feet	Y Feet
U.S. 75 (SBL)	18+50.00 249+66.18	31.4	25.6	16.5	67-69	Vari.	4:1 / 3:1		2	1



PCC Paved Shoulder

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

Direction of Travel	BEGIN STATION	END STATION	(P) Feet
SB	18+50.00	249+66.18	10



Section shown in the direction of traffic.

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

4DP_ MODIFIED			
Direction of Travel	BEGIN STATION	END STATION	(MW) Feet
SB	18+50.00	249+66.18	67-69

PCC Paved Shoulder

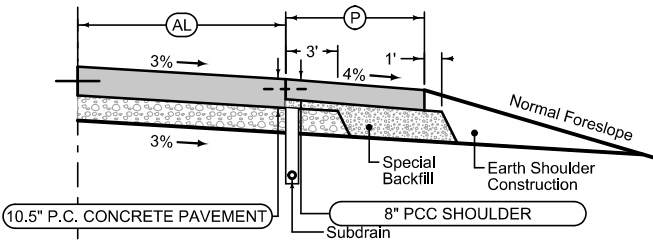
PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at 20' spacing

Direction of Travel	BEGIN STATION	END STATION	(P) Feet
SB	18+50.00	68+91.94	6
SB	77+00.00	249+66.18	6

Auxiliary Lane PCC Paved Shoulder

Auxiliary Lane Jointing:
 Longitudinal joint: L or KT
 Transverse joint: Match Mainline

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



4_AuxLane_PCC_				
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(P) Feet
SB	68+31.94	68+91.94	0-12	6
SB	68+91.94	75+80.00	12	6
SB	75+80.00	77+00.00	12-0	6

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

U.S 75 SB

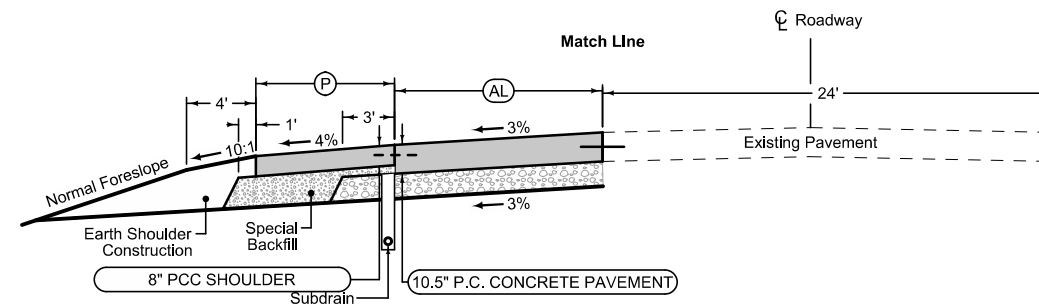
**Auxiliary Lane
PCC Paved Shoulder**

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

Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

4_AuxLane_PCC_10-18-16				
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(P) Feet
NB	1091+70.00	1092+90.00	0-12.0	6.0
NB	1092+90.00	1095+39.17	12.0	6.0
NB	1095+39.17	1095+99.17	12.0-0	6.0

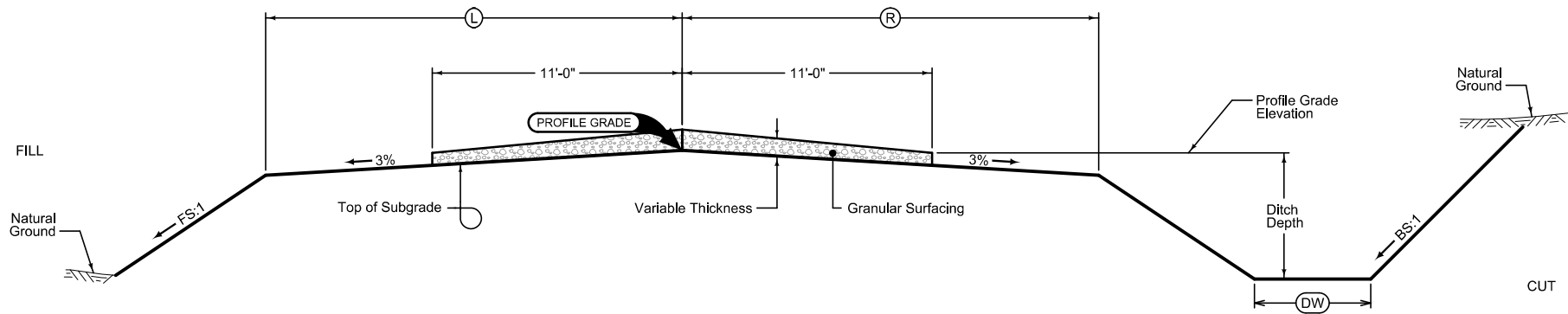


Refer to Tab 100-24 or 100-25 for pavement quantities.
Refer to Tab 112-9 for shoulder quantities.

U.S 75 NB

ROAD IDENTIFICATION	LOCATION		DIMENSIONS				
	STATION TO STATION		L Feet	R Feet	FS	BS	DW Feet
Plymouth St	3064+10.00	3065+17.27	12	12	4 or 6	3	3
Main St	3067+85.00	3069+33.38	12	12	3		
Fulton St	3072+05.00	3073+31.21	13	13	4		

G_2_GradeGran
MODIFIED



GRADING AND GRANULAR SURFACING

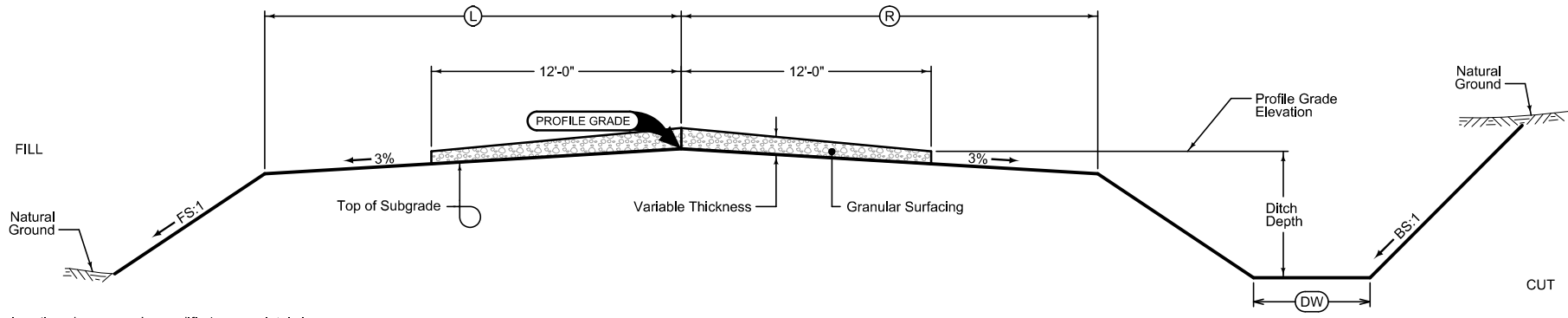
Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

See plan & profile sheets and cross sections for additional details of ditches and backslopes.

Place Granular Surfacing as follows:
Grading design application rate is ___ tons per mile.
Paving design application rate is ___ tons per mile.

ROAD IDENTIFICATION	LOCATION		DIMENSIONS				
	STATION TO STATION		L Feet	R Feet	FS	BS	DW Feet
325th St	3087+50.00	3094+68.00	13	13	3	3	3
Lone Tree Rd	3137+31.00	3138+00.11	15	15	3	U.A.C.	U.A.C.
Harness Rd	3165+00.00	3166+51.84	13	13	6		

G_2_GradeGran
04-17-12



GRADING AND GRANULAR SURFACING

Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

See plan & profile sheets and cross sections for additional details of ditches and backslopes.

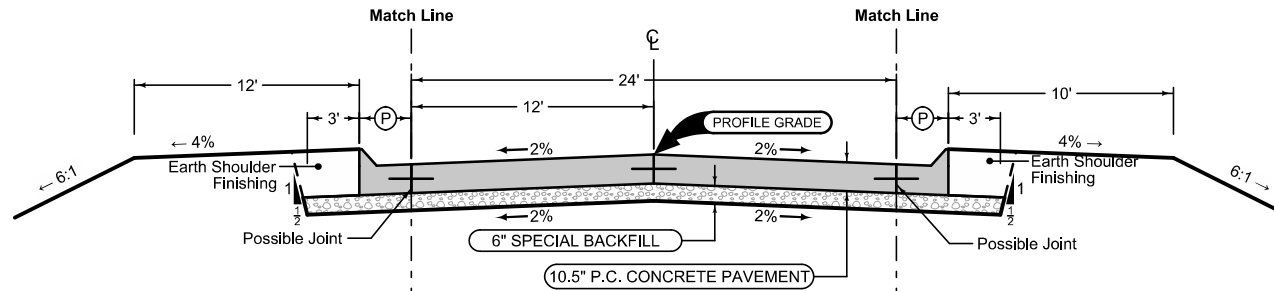
Place Granular Surfacing as follows:
Grading design application rate is ___ tons per mile.
Paving design application rate is ___ tons per mile.

Curbed Shoulder

Shoulder Jointing:
 Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
 Staged : KT-2
 Transverse:C at 20' spacing

2_Curb_04-19-11			
STATION TO STATION	(P) Feet	Curb Type See PV-102	
3210+35.00	3212+08.00	5.5	6" Standard



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

2P_10-19-10	
STATION TO STATION	
3210+35.00	3212+08.00

Curbed Shoulder

Shoulder Jointing:
 Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
 Staged : KT-2
 Transverse:C at 20' spacing

2_Curb_04-19-11			
STATION TO STATION	(P) Feet	Curb Type See PV-102	
3210+35.00	3212+08.00	5.5	6" Standard

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

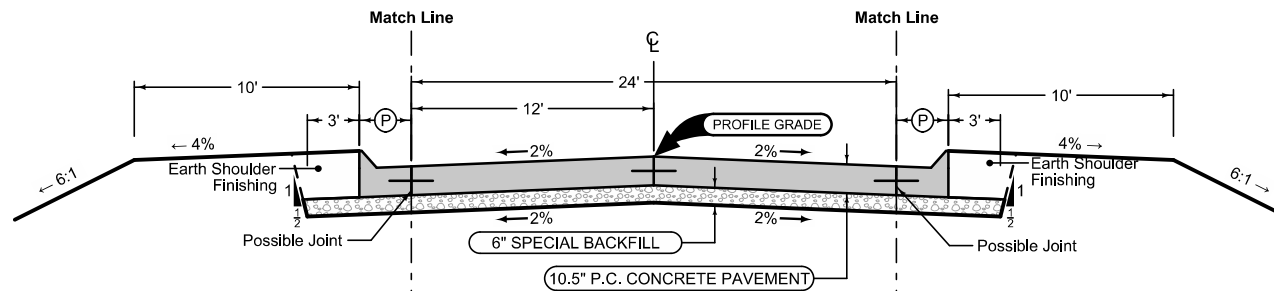
STARVIEW RD

Curbed Shoulder

Shoulder Jointing:
 Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
 Staged : KT-2
 Transverse:C at 20' spacing

2_Curb_04-19-11			
STATION TO STATION	(P) Feet	Curb Type See PV-102	
3224+57.00	3225+92.57	3	6" Standard



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

2P_10-19-10	
STATION TO STATION	
3224+57.00	3225+92.57

Curbed Shoulder

Shoulder Jointing:
 Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
 Staged : KT-2
 Transverse:C at 20' spacing

2_Curb_04-19-11			
STATION TO STATION	(P) Feet	Curb Type See PV-102	
3224+57.00	3225+92.57	3	6" Standard

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

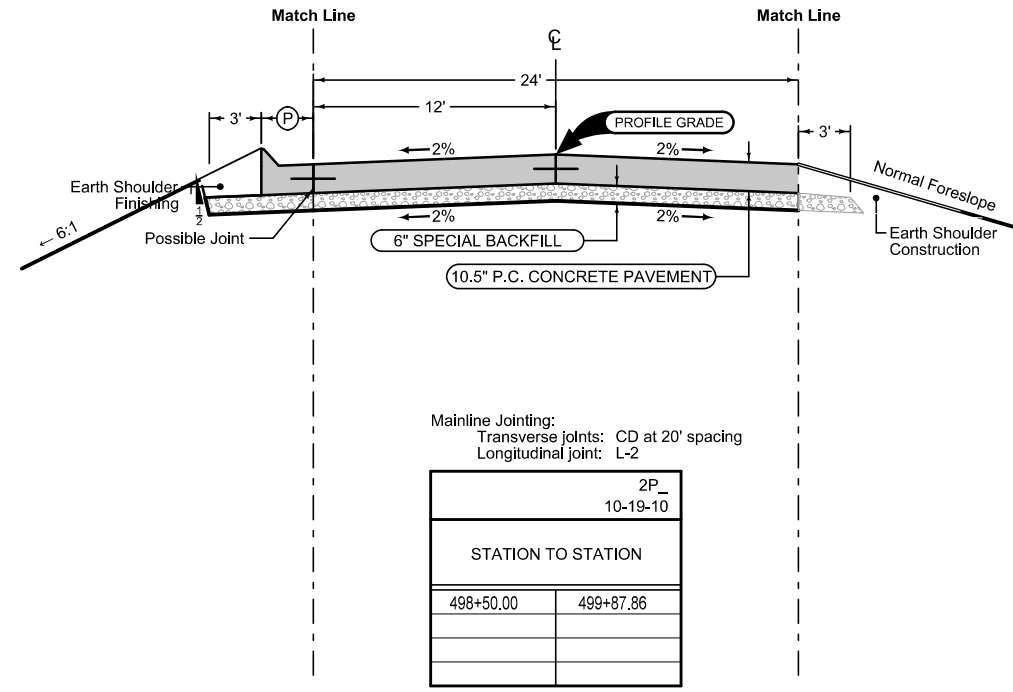
TITAN RD

Curbed Shoulder

Shoulder Joining:
 Longitudinal joint not required when distance from back of
 curb to nearest joint is less than 15':

Single pour: L-2
 Staged : KT-2
 Transverse:C at 20' spacing

		2_Curb_ 04-19-11	
STATION TO STATION		(P) Feet	Curb Type See PV-102
498+50.00	499+87.86	2.5	6" Standard



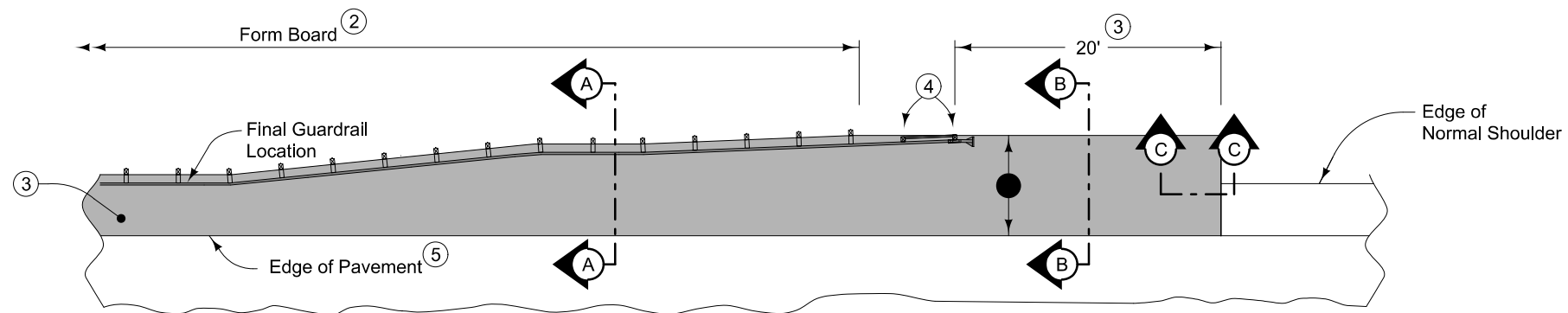
Mainline Joining:
 Transverse joints: CD at 20' spacing
 Longitudinal joint: L-2

		2P_ 10-19-10	
STATION TO STATION			
498+50.00	499+87.86		

		STATION TO STATION	
498+50.00	499+87.86		

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

ORBIT DR



PLAN VIEW

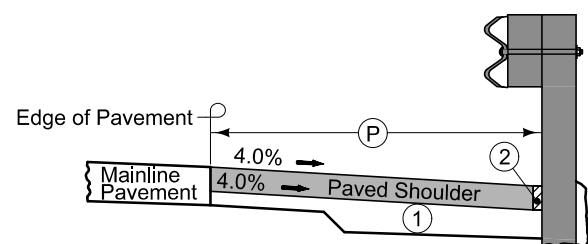
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

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 P/2 from edge of mainline pavement when P is greater than 10' wide. Terminate longitudinal joint at transverse joint less than 10' in length.

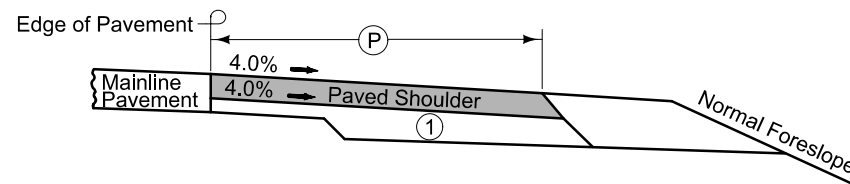
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

- ① For subgrade treatment, refer to other details in the plan.
- ② PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown. Refer to note 4 for final 2 posts.
- ③ Continue paved shoulder to existing paved shoulder or 20 feet beyond the center of the first post.
- ④ Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
- ⑤ 'KT-1 joint for PCC shoulder.
'B' joint for HMA shoulder.

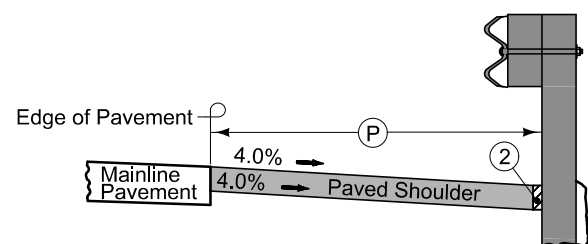


Section A-A

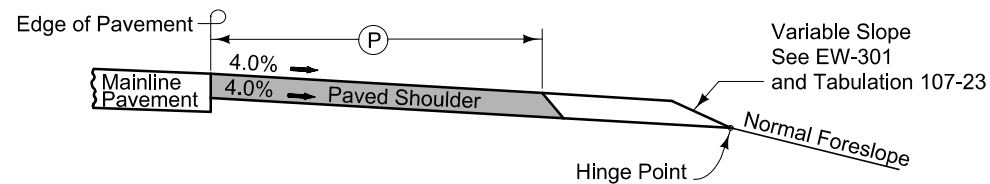


Section B-B

NEW CONSTRUCTION

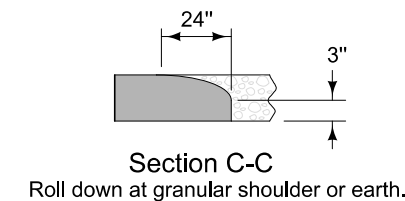


Section A-A



Section B-B

EXISTING SHOULDER

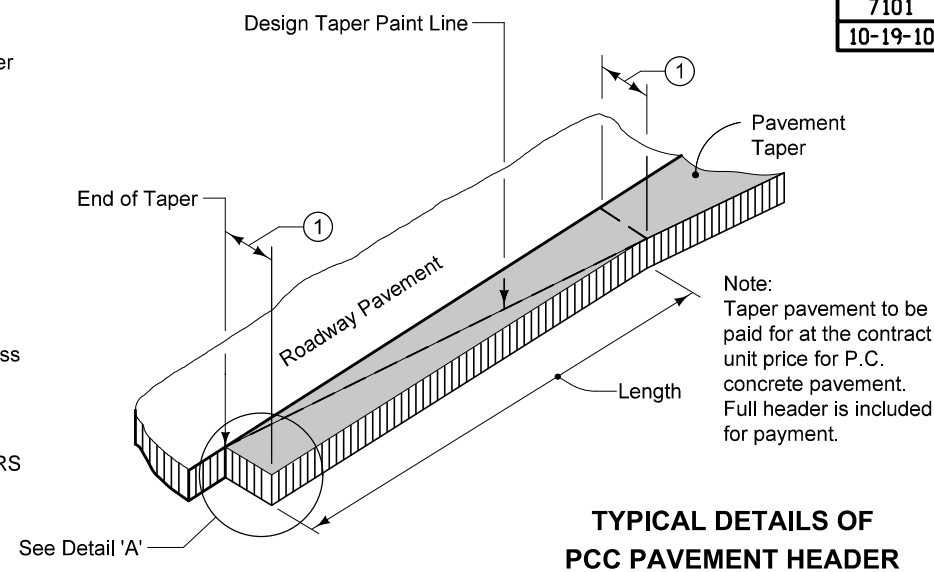
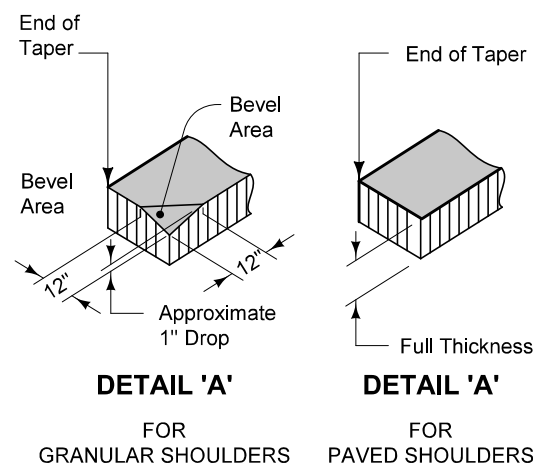


Section C-C

Roll down at granular shoulder or earth.

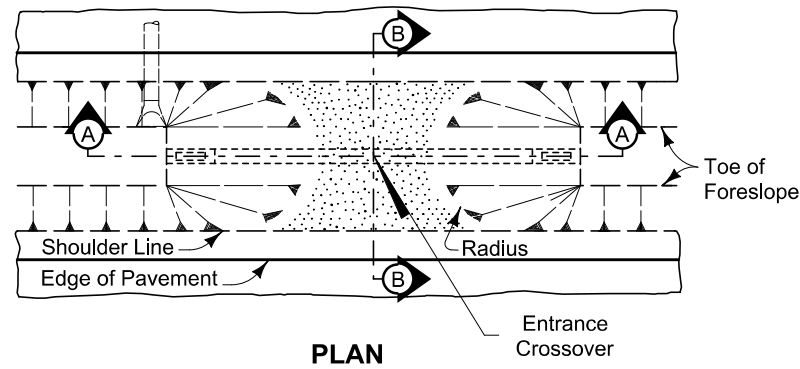
PAVED SHOULDER AT GUARDRAIL

7101
10-19-10

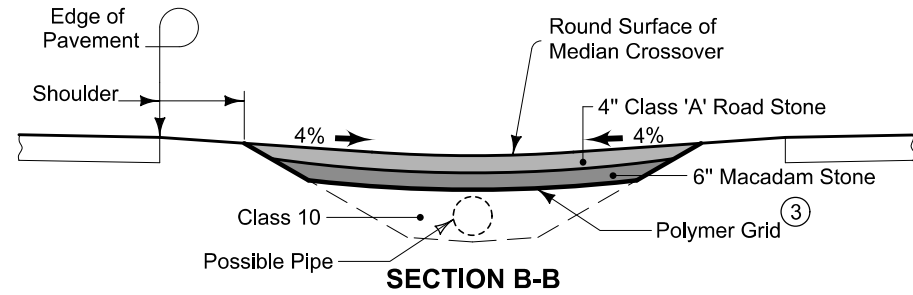
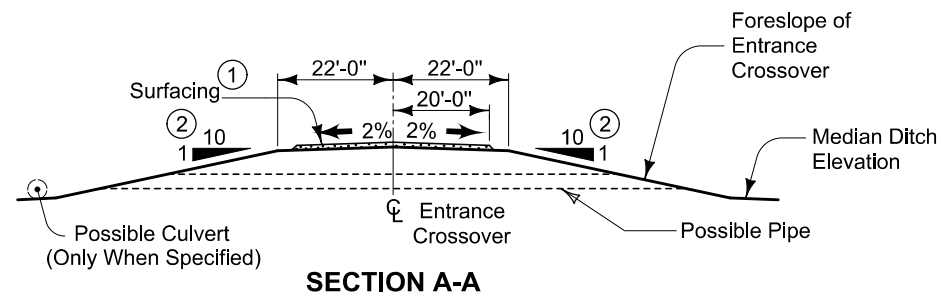


① Normal width is 2'-0". Construct 4'-0"
width when butting into 4' wide HMA
shoulders (See Typical 7154A).

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)	30+56.42	x	x	x		-	-	x	
	48+69.79	x	x	x		-	-	x	
	112+46.69	x	x	x		-	-	x	
	125+02.84								
	142+86.83								
	151+90.00								
	156+75.00								
	194+48.00								

SURVEY SYMBOLS

- DIK Centerline of Dike or Dam
- ENU Edge Unpaved Entrance & Parking
- TEV Evergreen Tree
- TDC Tree Deciduous
- PPA Power Pole Co. 1
- SI Sign
- RR Centerline of Railroad Tracks
- RIP Rip-Rap
- RET Retaining Walls
- FCL Chain Link and Security Fence
- RRS Railroad Signal
- SHR Shrub
- FWD Wood Fence
- HDG Hedge Row
- GDG Guard Rail Steel
- BNK Stream Bank
- EW Edge of Water
- IN Storm Sewer Intake
- HT Electrical Highline Tower
- LUM Luminaire
- MH Utility Access (Manhole)
- FHD Fire Hydrants
- FLG Flag Poles
- IN Storm Sewer Intake
- OUT Tile Outlet
- TIL Tile Line
- INB Storm Sewer Beehive Intake
- MH Utility Access (Manhole)
- DU Centerline Draw or Stream (Up)
- D Centerline Draw or Stream (Down)
- ST1B Storm Sewer Co. 1 - Quality B
- TPD Telephone Pedestal
- PPA Power Pole Co. 1
- EB Electrical Box
- UV Underground Utility Vault
- WV Water Valve
- PR Electric Riser Pole
- LUM Luminaire
- GV Gas Valve
- E3 EL3D Electric Line Co. 3 - Quality D
- F02 FO2D Fiber Optic Co. 2 - Quality D
- G-HP GH1D High Pres Gas Co 1 - Quality D
- F03 FO3D Fiber Optic Co. 3 - Quality D
- F0 FO1D Fiber Optic Co. 1 - Quality D
- F04 FO4D Fiber Optic Co. 4 - Quality D
- E1 EL1D Electric Line Co. 1 - Quality D

UTILITY LEGEND

- San.(B) SA1B Sanitary Sewer Co. 1- Quality B
- E2(B) EL2B Electric Line Co. 2 - Quality B
- E2 EL2D Electric Line Co. 2 - Quality D
- F05 FO5D Fiber Optic Co. 5 - Quality D
- G2 GL2D Gas Line Co. 2 - Quality D
- San.(B) City of Hinton- Quality B
- St.S. -
- PPA Midamerican Energy
- F0(B) Nuetral Path Comm
- F02(B) MCI FIBER
- F03(B) Fiber Comm
- F04(B) Premier Comm
- F05(B) Century Link
- F06(B) Long Lines
- F07(B) Winstream Communication
- E(B) City of Hinton
- E2(B) Midamerican Energy
- E3(B) Northwest REC
- G2(B) NUSTAR
- G3HP(B) Midamerican Energy
- T(B) Century Link
- T2(B) Premier (Abandoned)
- TV(B) Cable One
- W(B) City of Hinton

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design	Color No.	Description
Green	(2)		Existing Topographic Features and Labels
Blue	(1)		Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)		Existing Utilities
SHADING			
SHADING	Design	Color No.	Description
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

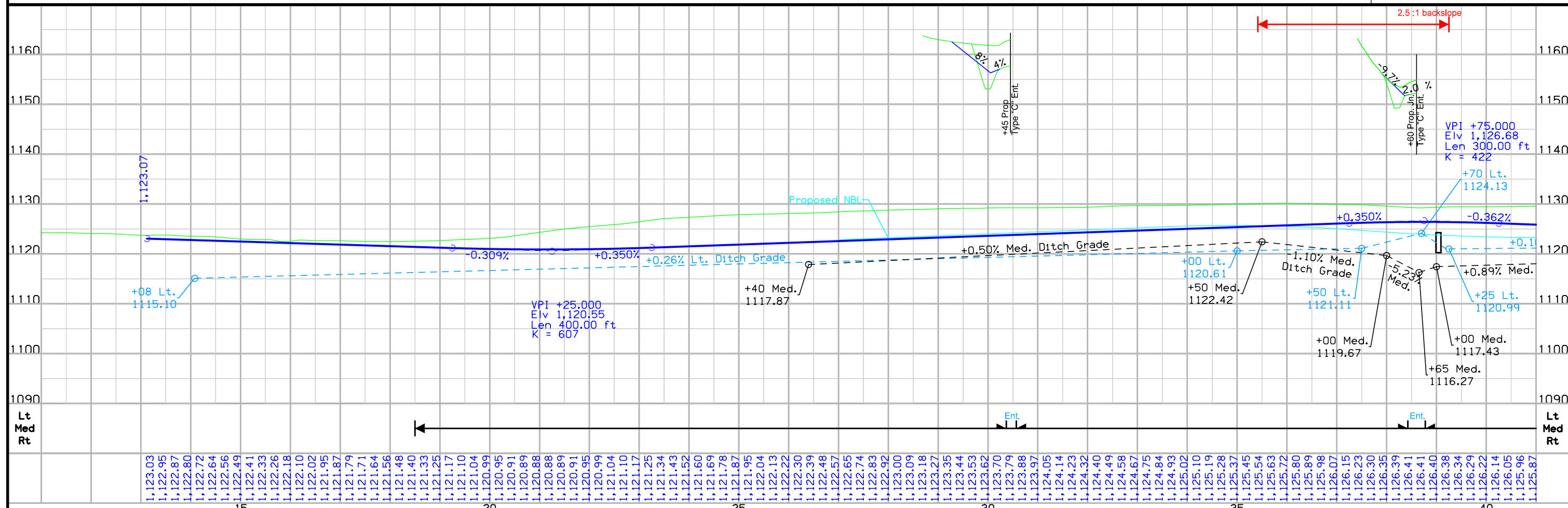
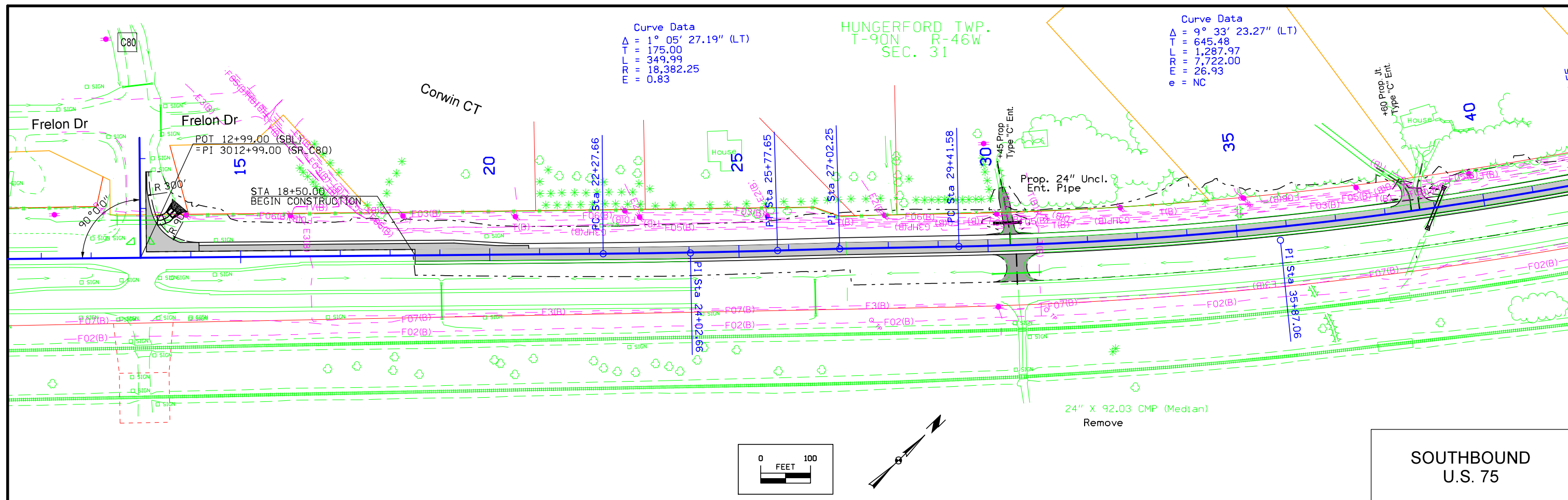
LINEWORK	Design	Color No.	Description
Green	(2)		Existing Ground Line Profile
Blue	(1)		Proposed Profile and Annotation
Magenta	(5)		Existing Utilities
Blue, Light	(230)		Proposed Ditch Grades, Left
Black	(0)		Proposed Ditch Grades, Median
Rust	(14)		Proposed Ditch Grades, Right

- 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

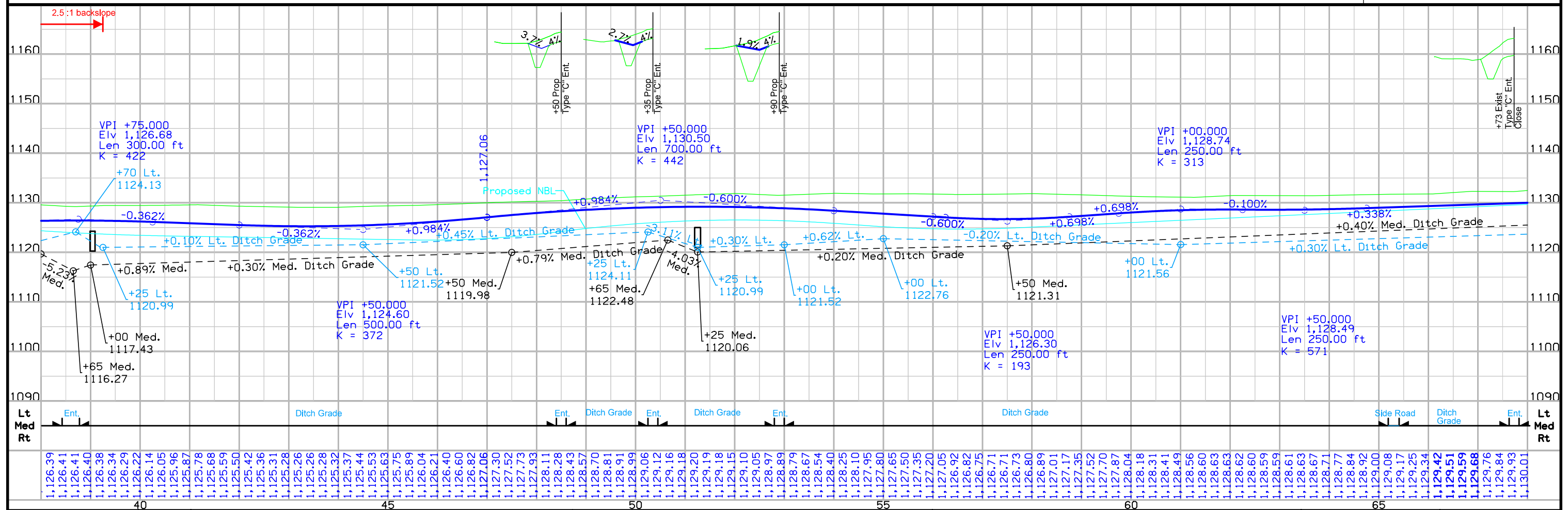
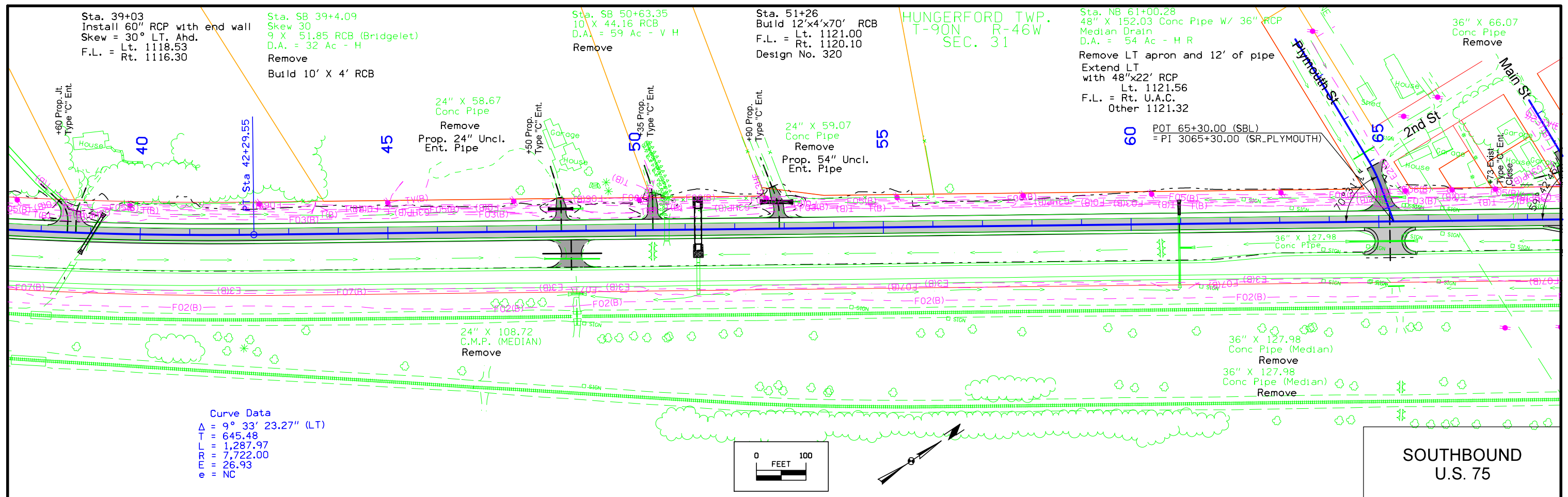
- ### RIGHT-OF-WAY LEGEND
- Proposed Right-of-Way
 - Existing Right of Way
 - Existing and Proposed Right-of-Way
 - Easement and Existing Right-of-Way
 - Easement (Temporary)
 - Easement
 - Access Control
 - Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

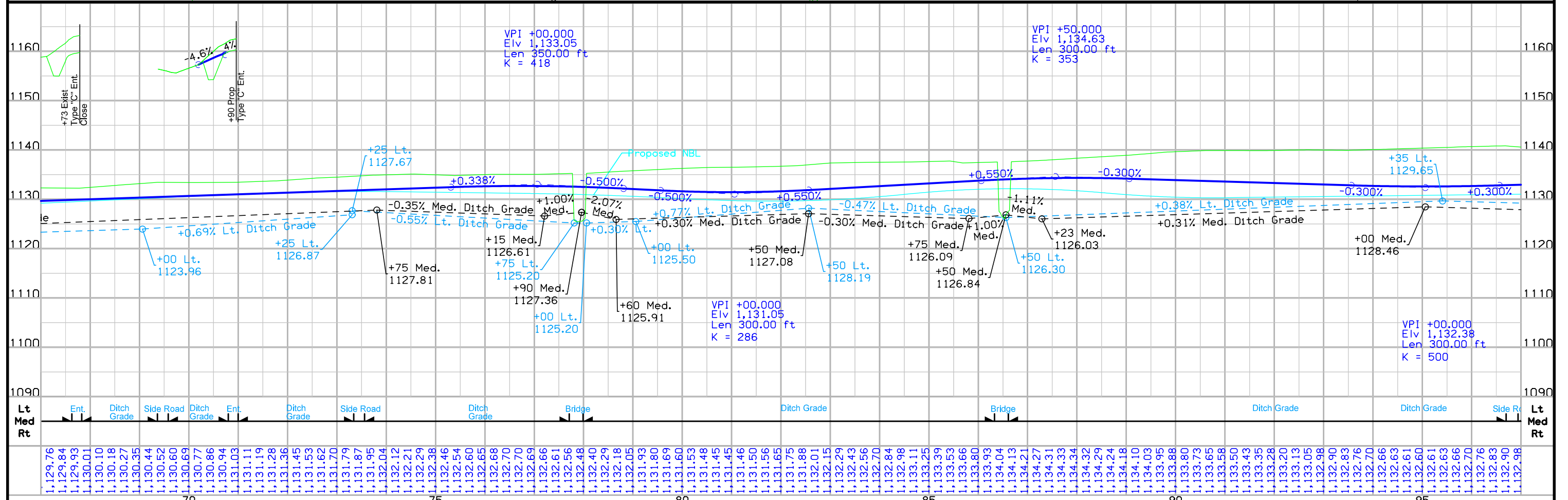
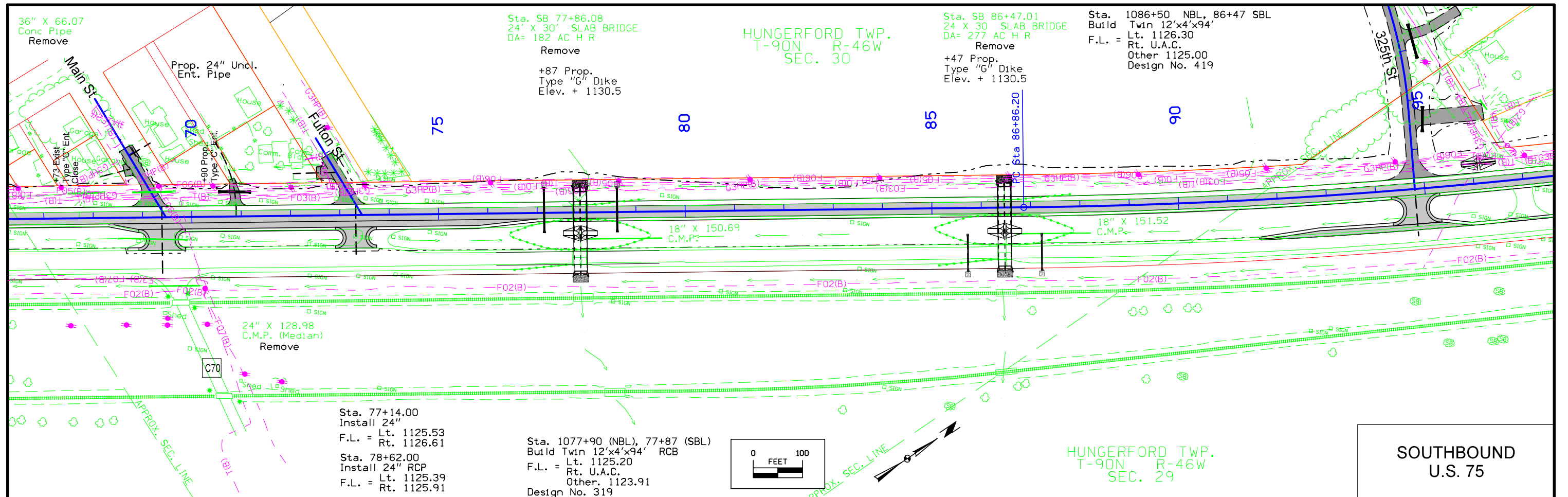
(COVERS SHEET SERIES D, E, F, & K)



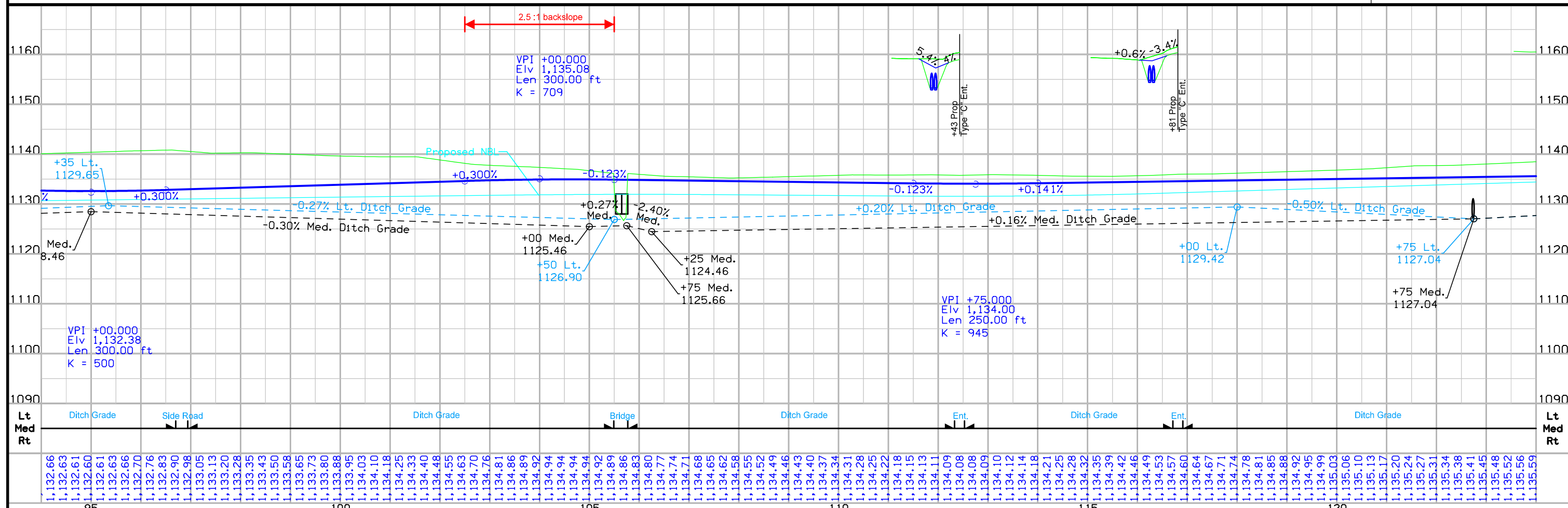
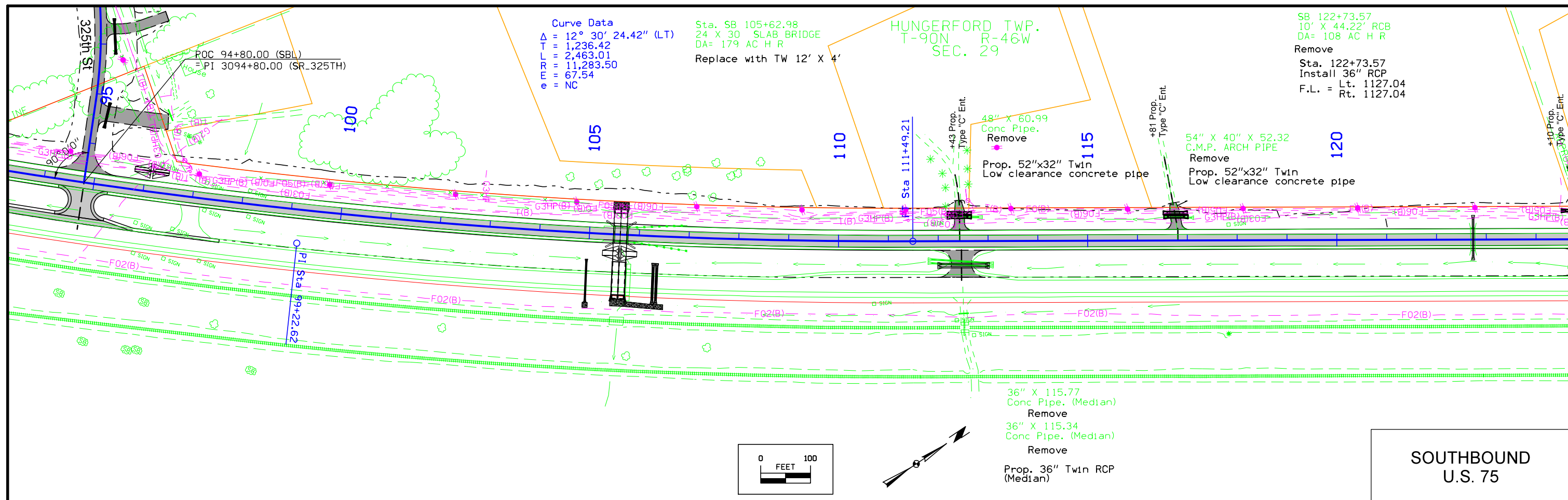
FILE NO.	ENGLISH	DESIGN TEAM	Holst \ Strum \ Janus	PLYMOUTH COUNTY	PROJECT NUMBER	NHSX-075-2(96)--3H-75	SHEET NUMBER	D.2
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FILE NO.	ENGLISH	DESIGN TEAM	Holst \ Strum \ Janus	PLYMOUTH COUNTY	PROJECT NUMBER	NHSX-075-2(96)--3H-75	SHEET NUMBER	D.3
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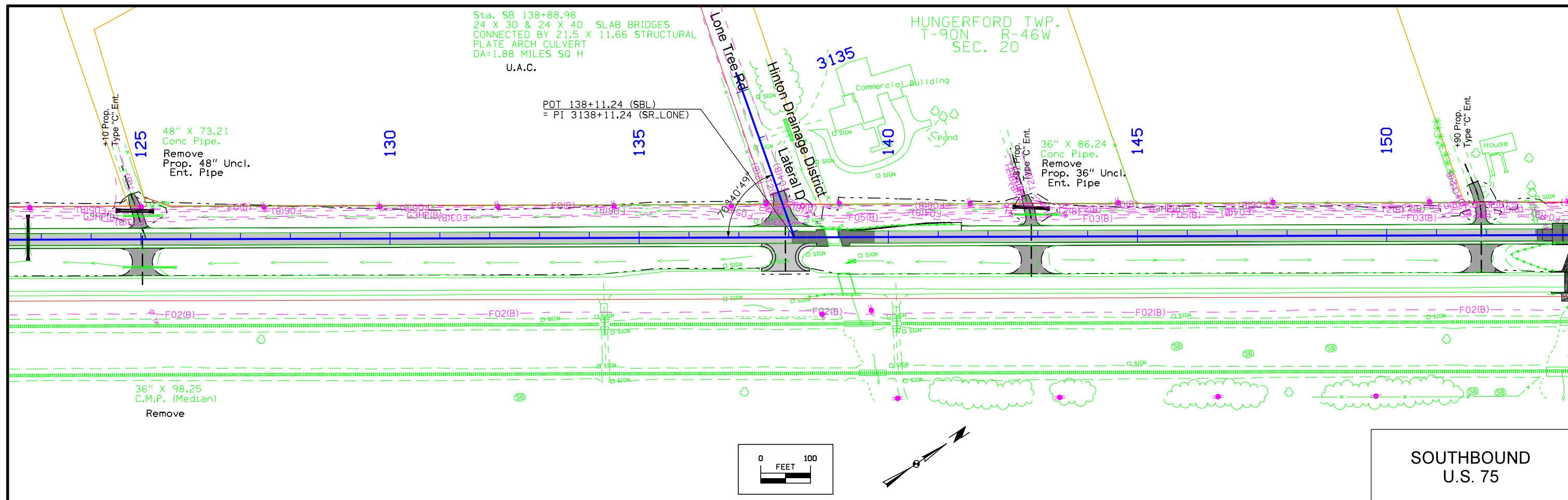


FILE NO.	ENGLISH	DESIGN TEAM	PLYMOUTH COUNTY	PROJECT NUMBER	SHEET NUMBER
		Holst \ Strum \ Janus		NHSX-075-2(96)--3H-75	D.4

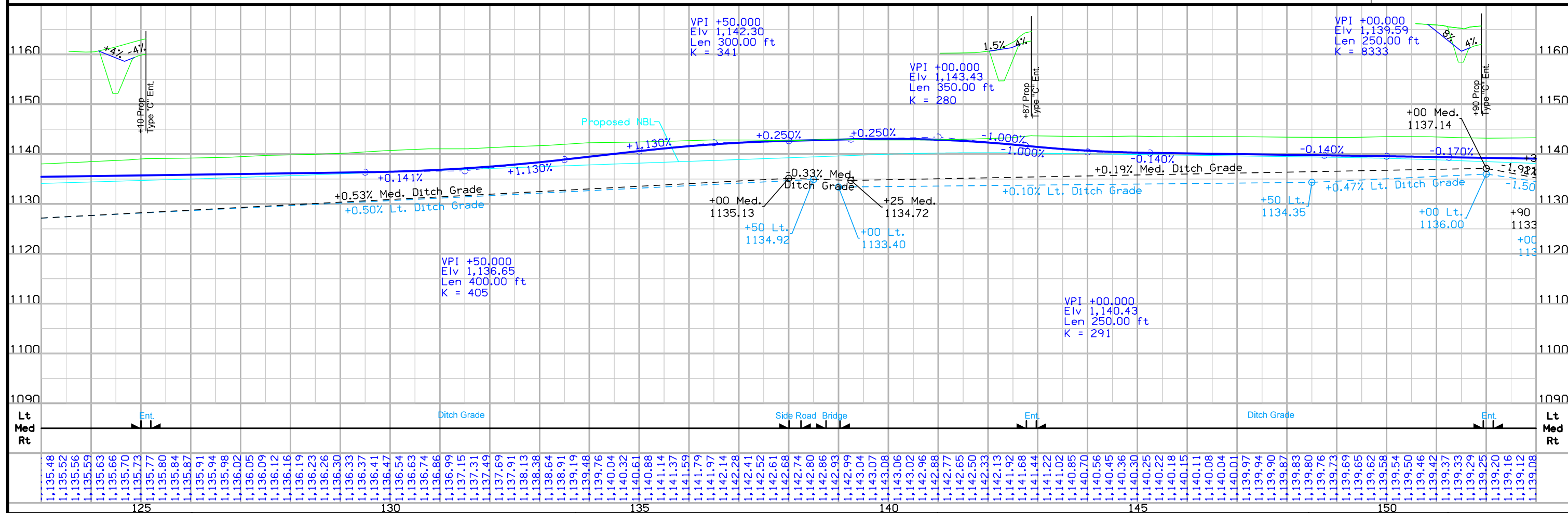


Sta. SB 138+88.98
 24 X 30 & 24 X 40 SLAB BRIDGES
 CONNECTED BY 21.5 X 11.66 STRUCTURAL
 PLATE ARCH CULVERT
 DA=1.88 MILES SQ H
 U.A.C.

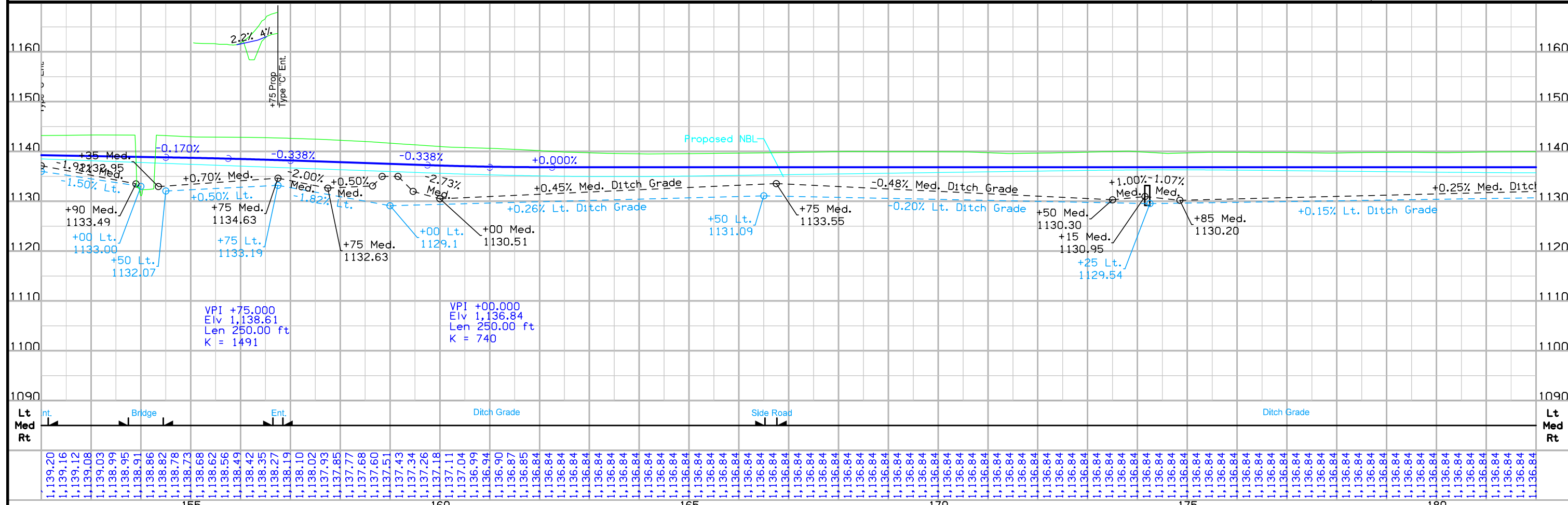
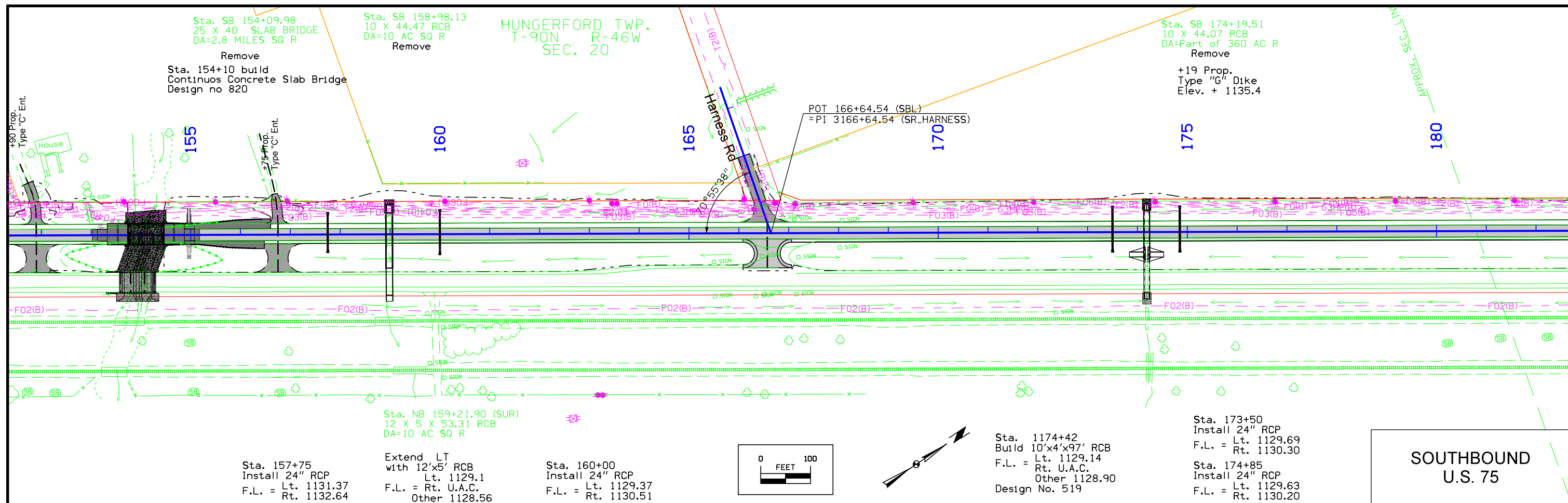
HUNGERFORD TWP.
 T-90N R-46W
 SEC. 20



**SOUTHBOUND
 U.S. 75**



FILE NO.	ENGLISH	DESIGN TEAM	PLYMOUTH COUNTY	PROJECT NUMBER	SHEET NUMBER
		Holst \ Strum \ Janus		NHSX-075-2(96)--3H-75	D.6



FILE NO.	ENGLISH	DESIGN TEAM	PLYMOUTH COUNTY	PROJECT NUMBER	SHEET NUMBER
		Holst \ Strum \ Janus		NHSX-075-2(96)--3H-75	D.7

Sta. SB 188+19.01
24 X 30 SLAB BRIDGE
DA=377 AC H R
Remove
Sta. 188+20.00
Build Twin 12'x4'x96 RCB
F.L. = Lt. 1127.7
Rt. U.A.C.
Other 1127.47
Design No. 1120

Sta. 189+00
Install 24" RCP
F.L. = Lt. 1127.89
Rt. 1130.00

36" X 51.00
Conc Pipe.
Remove
Prop. Twin 48" Uncl.
Ent. Pipe

HUNGERFORD TWP.
T-90N R-46W
SEC. 17

Curve Data
Δ = 8° 26' 14.41" (LT)
T = 832.51
L = 1,662.01
M = 11,286.28
e = 30.66
= NC

+53 Prop.
Type "M" Dike
Elev. + 1132.0

185

+20 Prop.
Type "G" Dike
Elev. + 1134.0

Hinton Drainage District
Lateral C

190

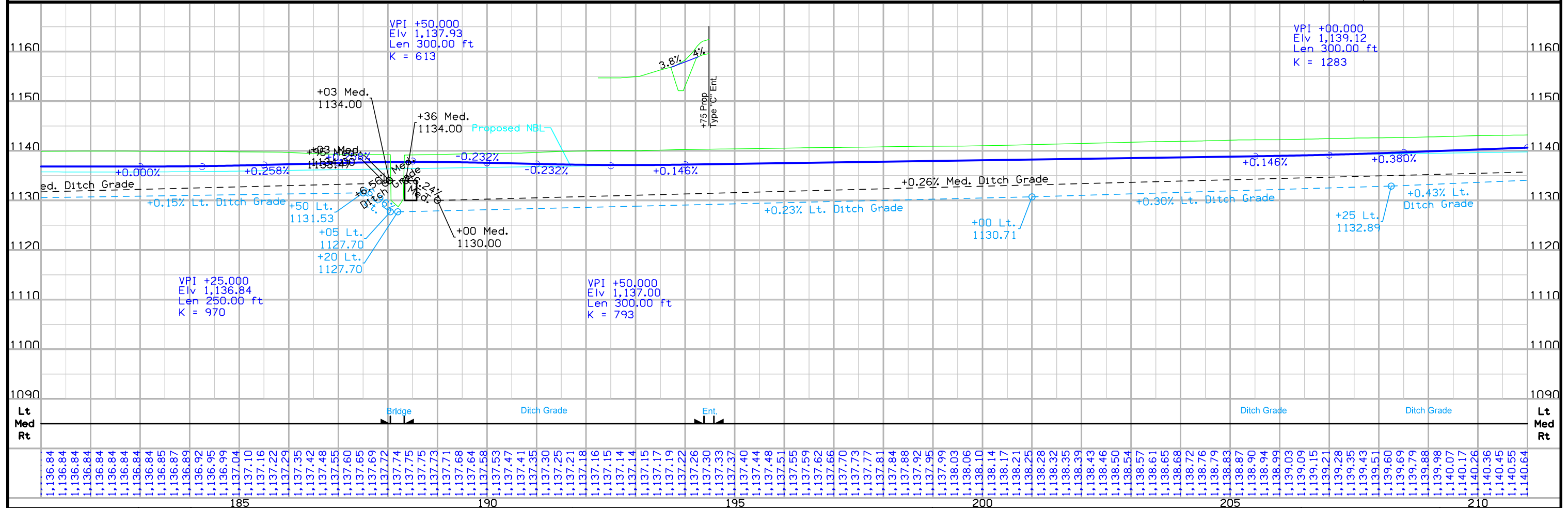
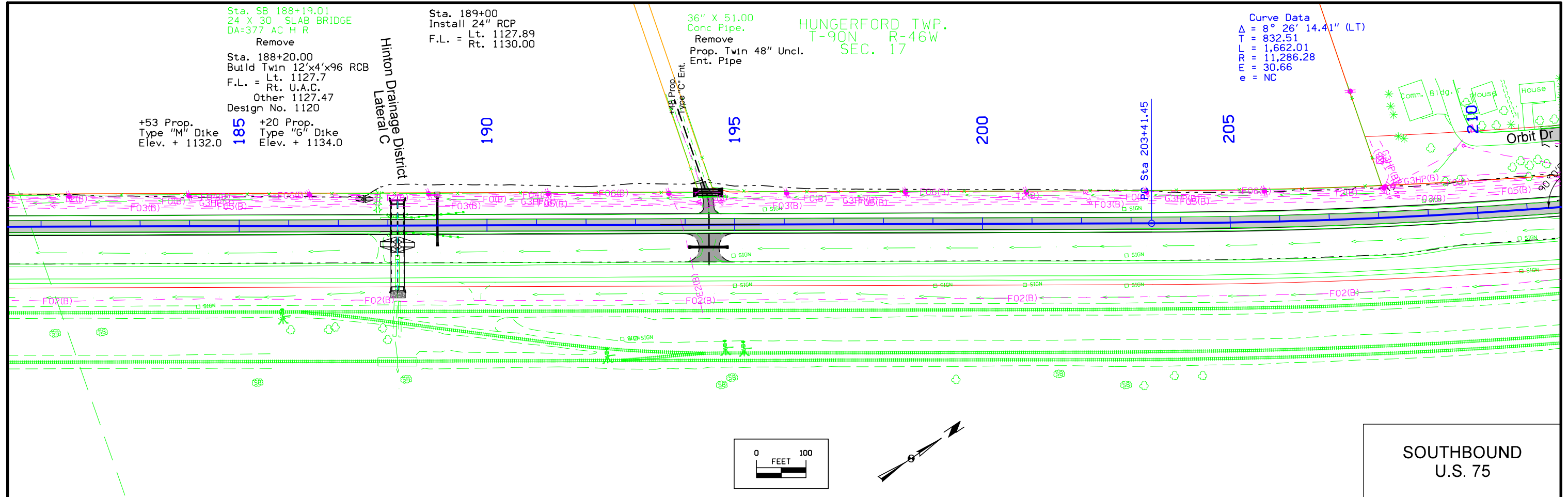
195

200

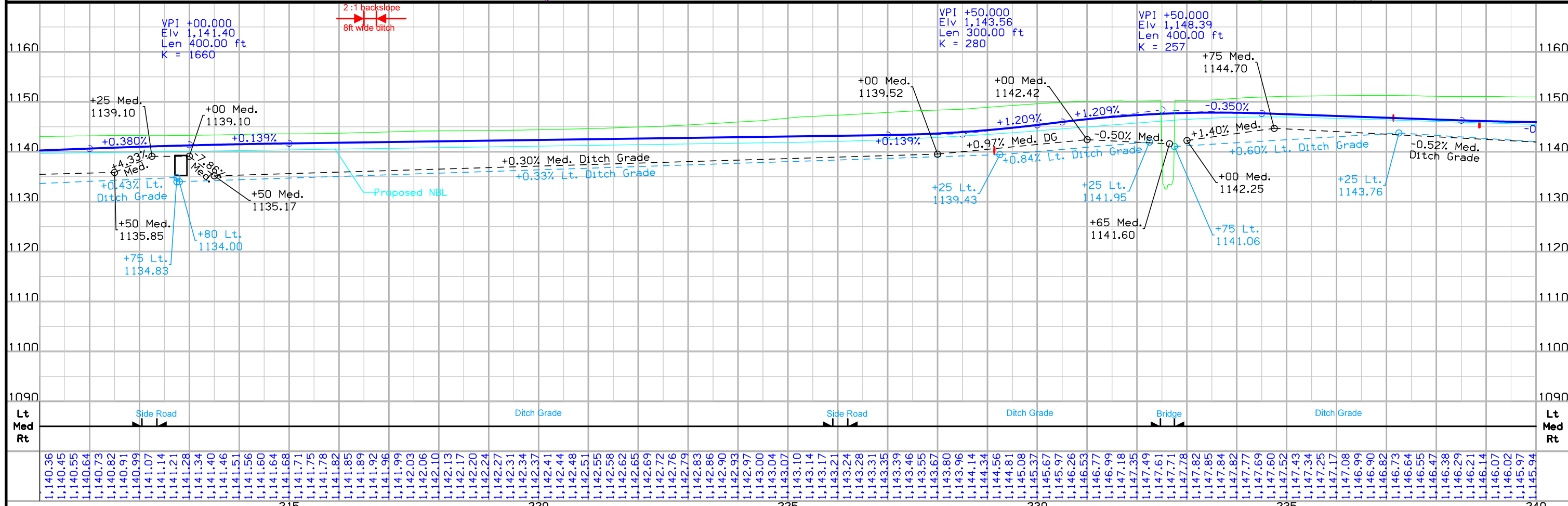
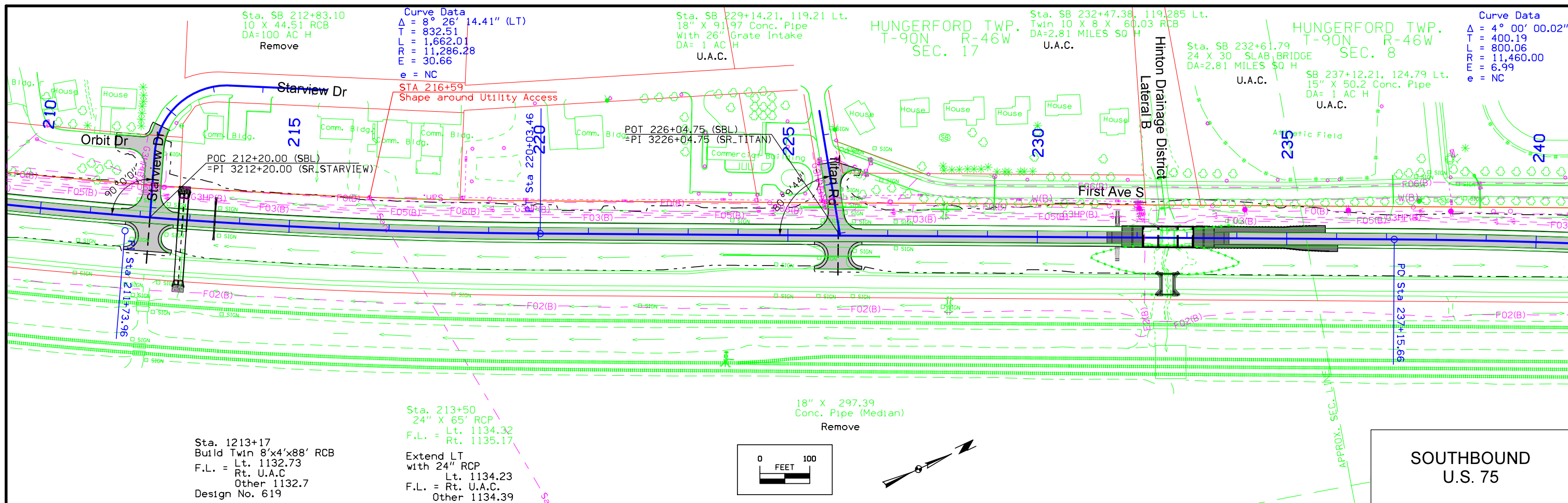
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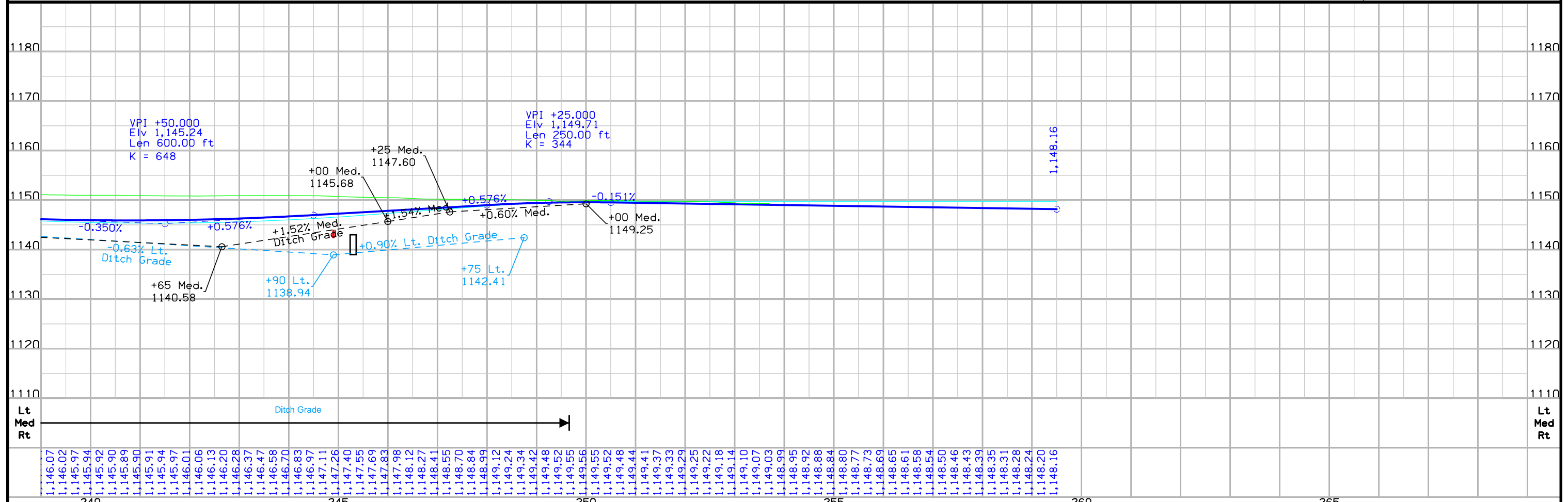
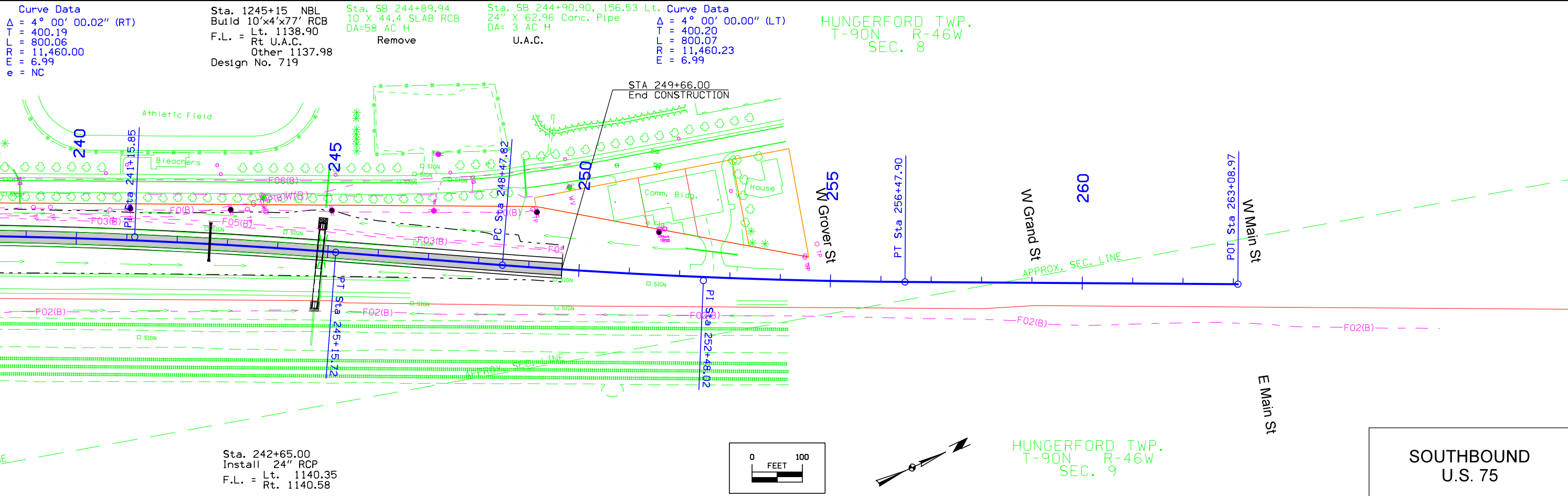
210

Orbit Dr



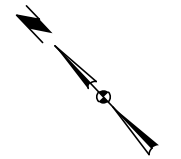
FILE NO.	ENGLISH	DESIGN TEAM	Holst \ Strum \ Janus	PLYMOUTH COUNTY	PROJECT NUMBER	NHSX-075-2(96)--3H-75	SHEET NUMBER	D.8
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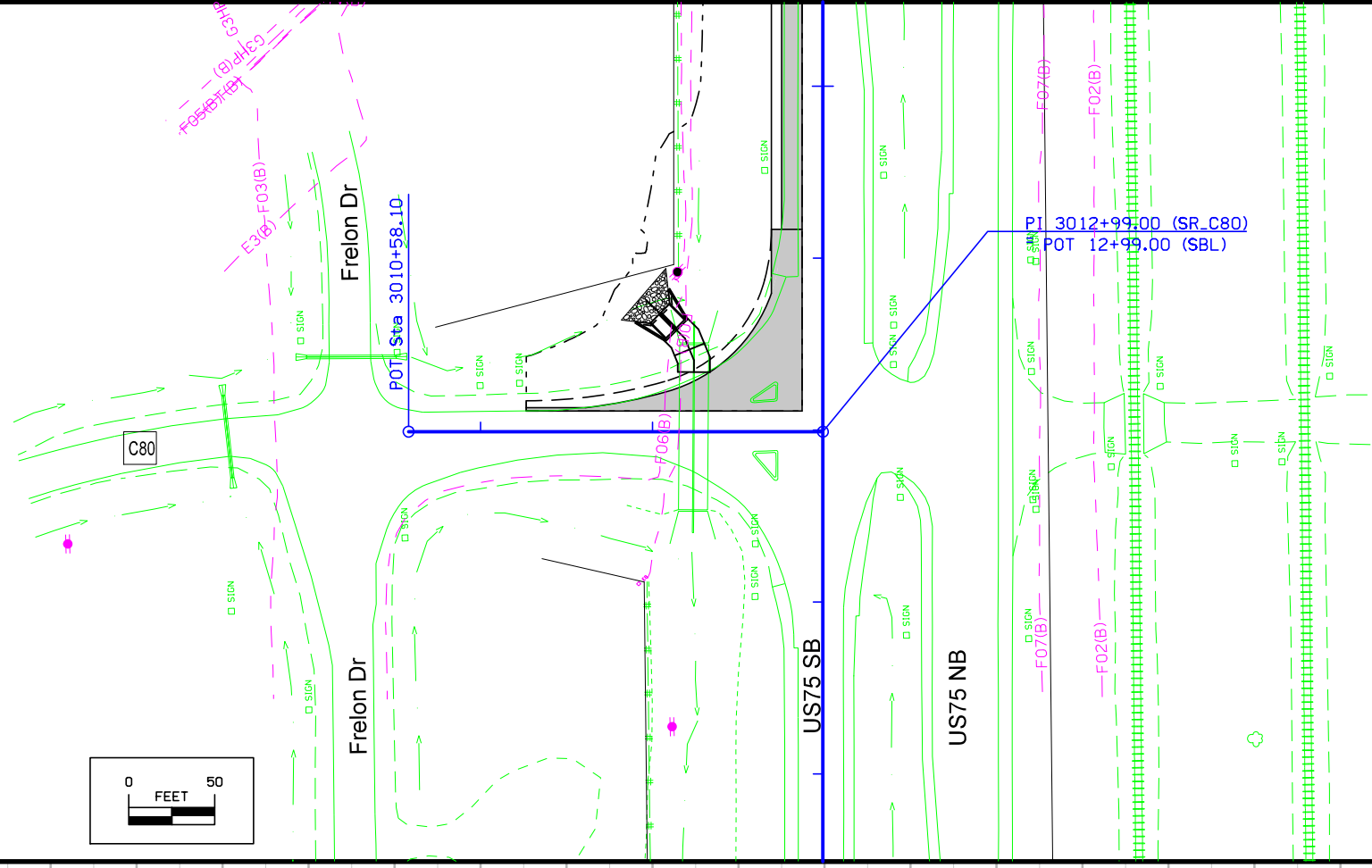
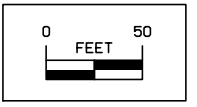


FILE NO.	ENGLISH	DESIGN TEAM	Holst \ Strum \ Janus	PLYMOUTH COUNTY	PROJECT NUMBER	NHSX-075-2(96)--3H-75	SHEET NUMBER	D.10
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HUNGERFORD TWP.
T-90N R-46W
SEC. 31



Sta. STA 3012+23.80
(SB 13+49.56, 74.81 Lt.)
Twin 8' X 6' X 95.94 RCB
Remove 16' LT
Extend LT
with 8' x 6' Twin RCB
Lt. 1114.05
F.L. = Rt. U.A.C.
Other 1114.05

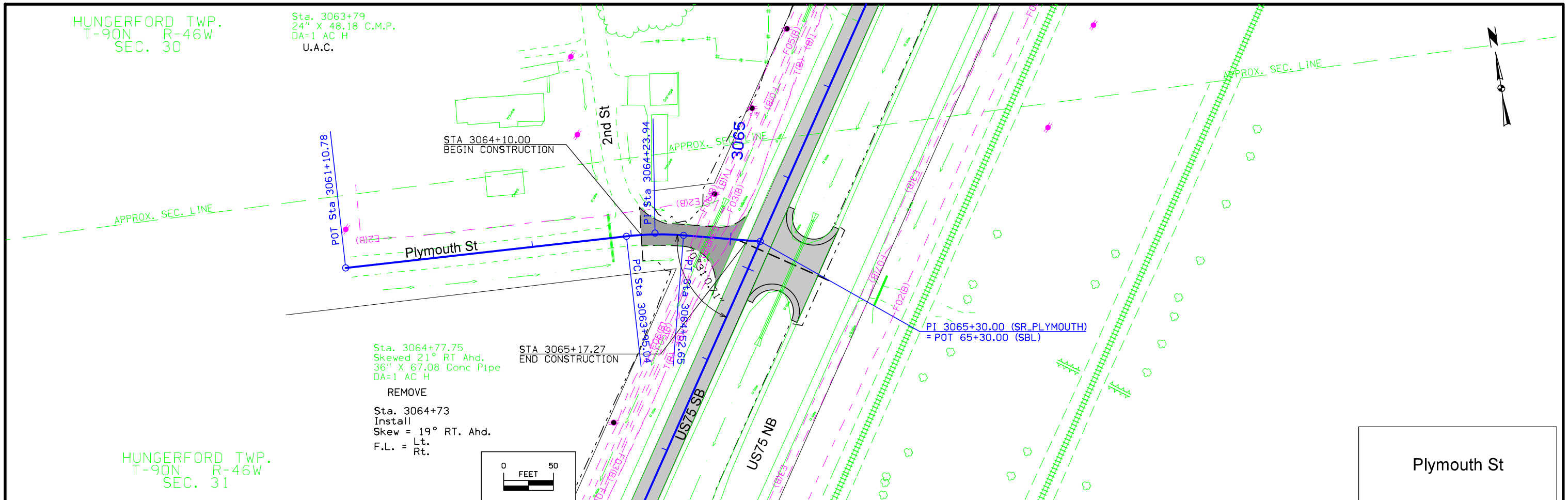


C-80



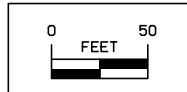
HUNGERFORD TWP.
T-90N R-46W
SEC. 30

Sta. 3063+79
24" X 48.18 C.M.P.
DA=1 AC H
U.A.C.



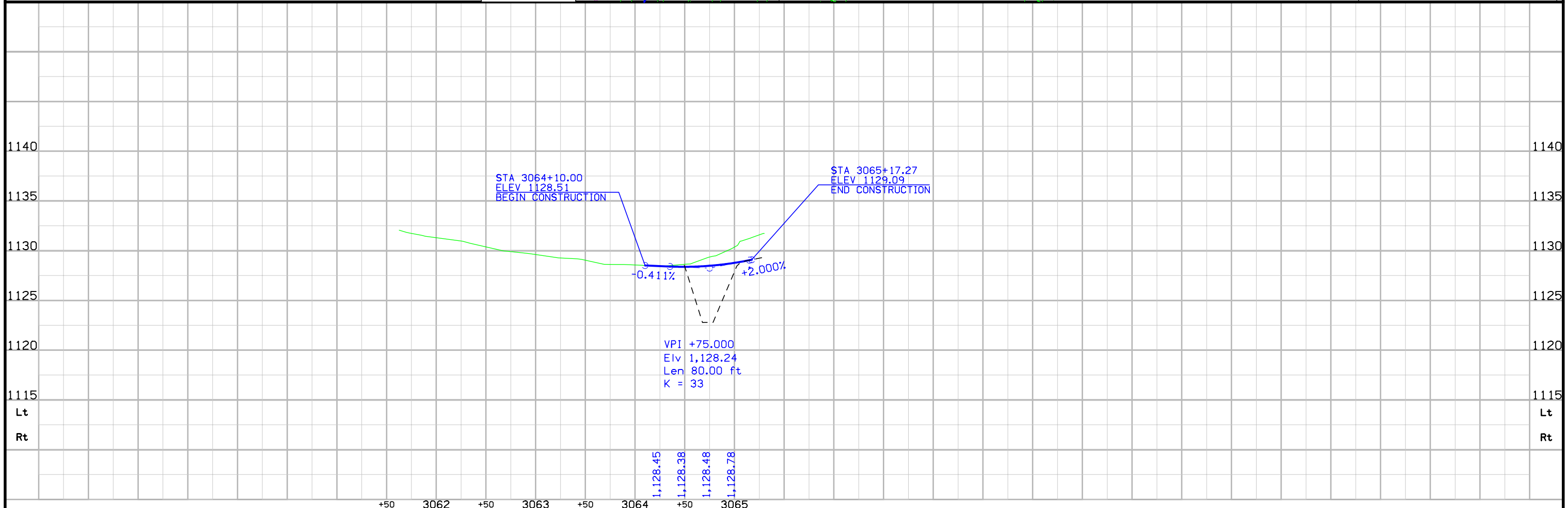
Sta. 3064+77.75
Skewed 21° RT Ahd.
36" X 67.08 Conc Pipe
DA=1 AC H

REMOVE
Sta. 3064+73
Install
Skew = 19° RT. Ahd.
F.L. = Lt.
Rt.



HUNGERFORD TWP.
T-90N R-46W
SEC. 31

Plymouth St



STA 3064+10.00
ELEV 1128.51
BEGIN CONSTRUCTION

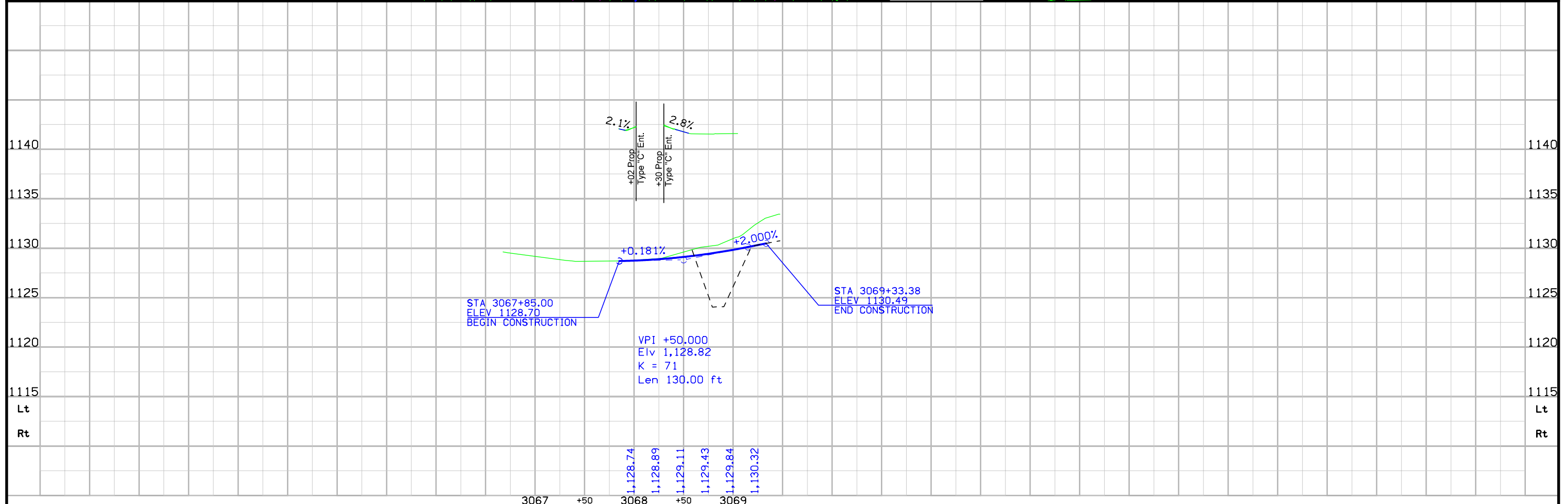
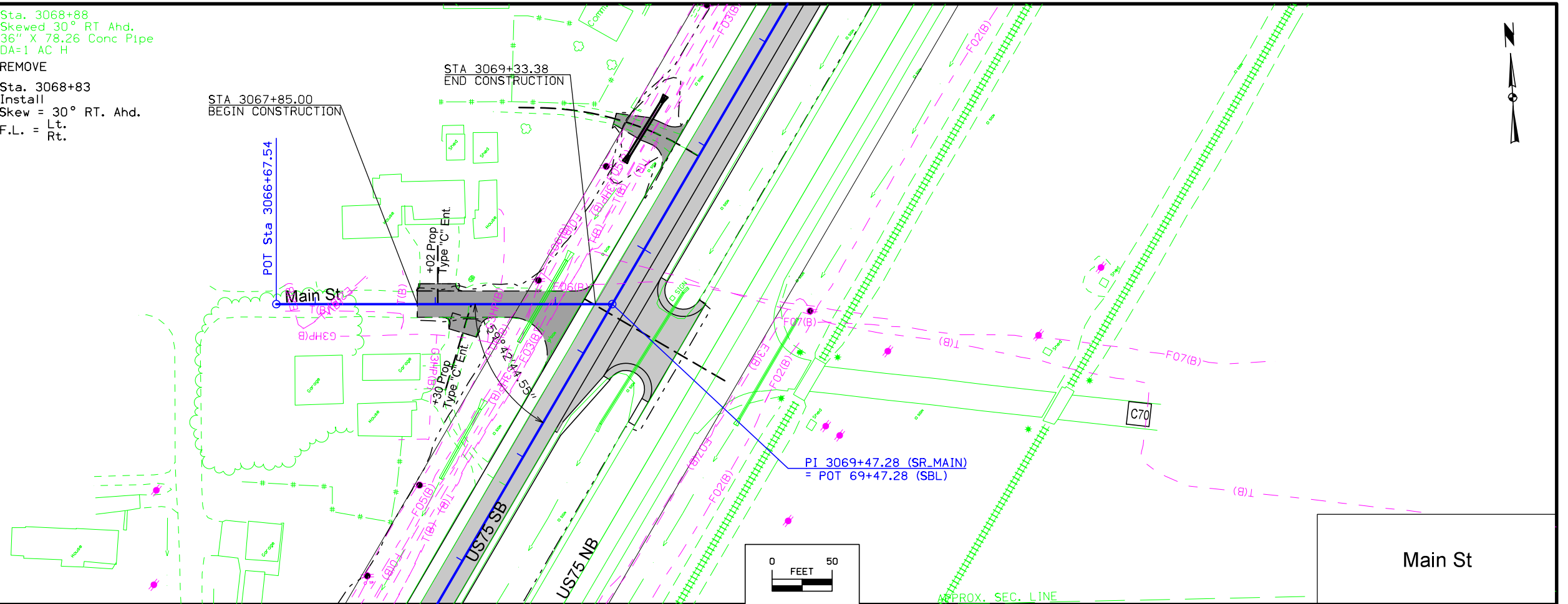
STA 3065+17.27
ELEV 1129.09
END CONSTRUCTION

VPI +75.000
Eiv 1,128.24
Len 80.00 ft
K = 33

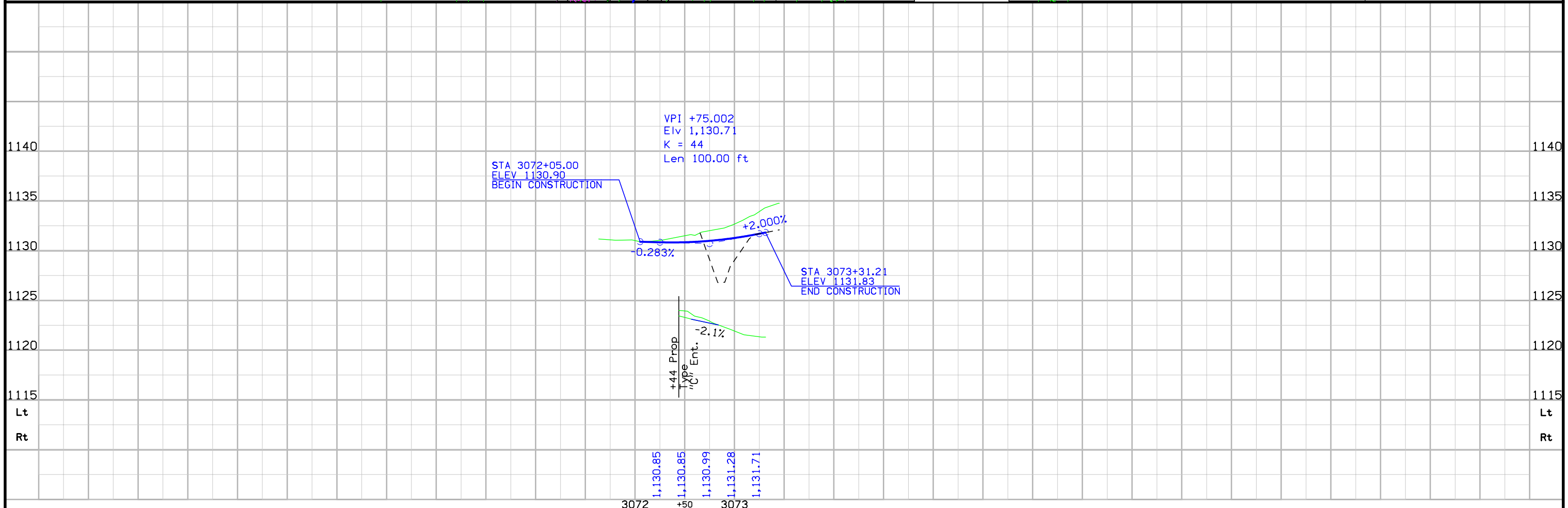
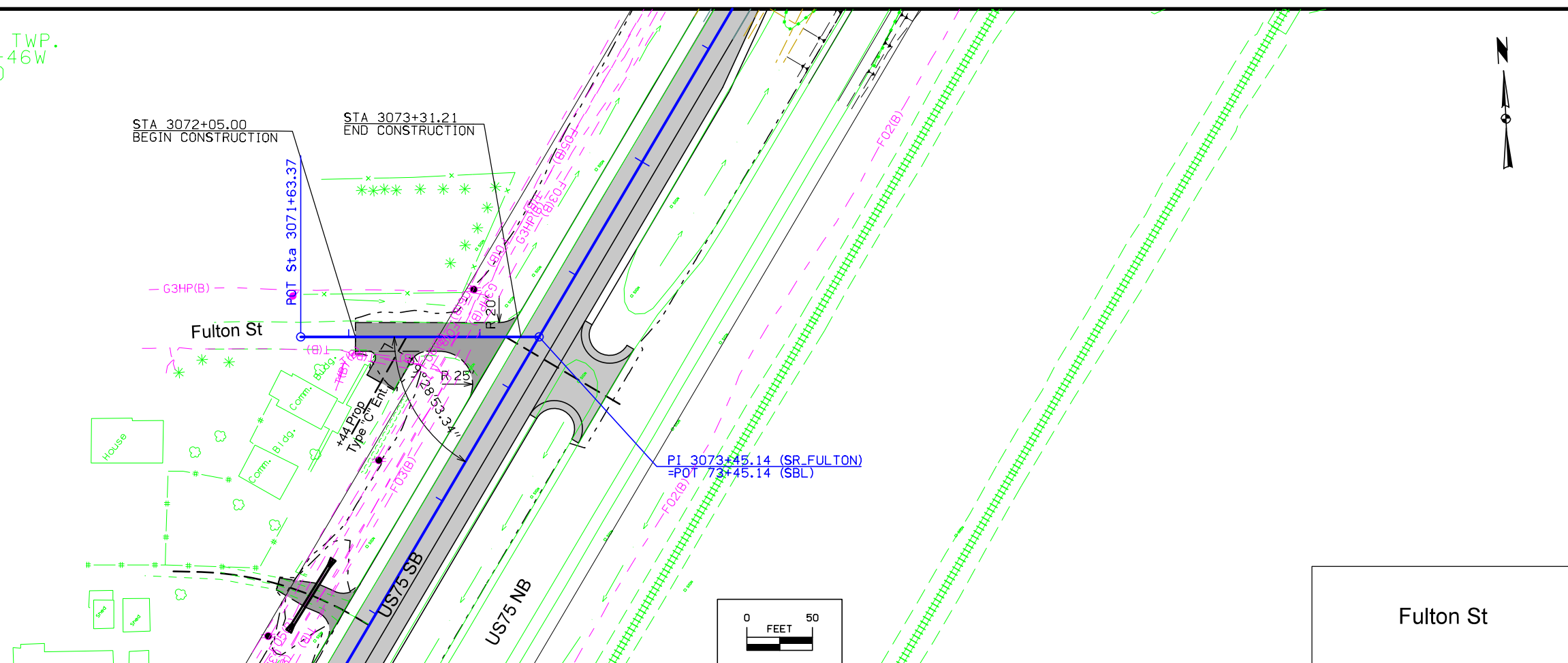
1,128.45
1,128.38
1,128.48
1,128.78

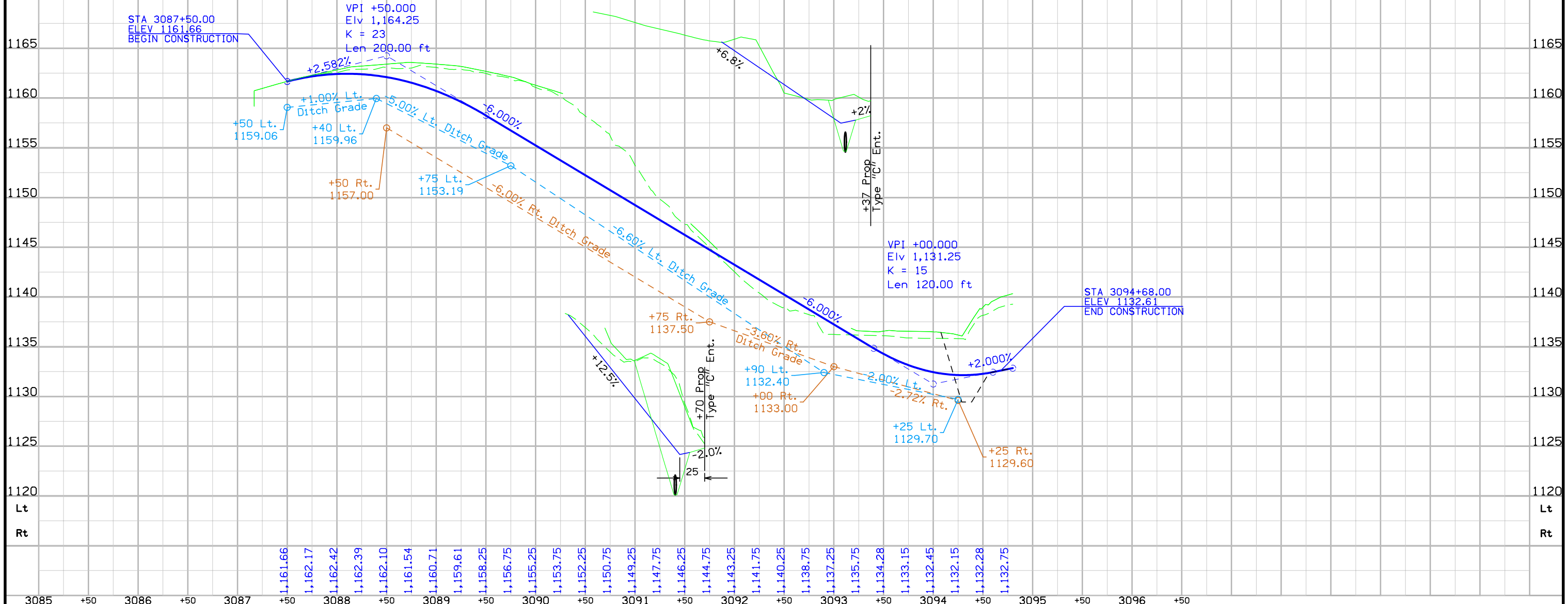
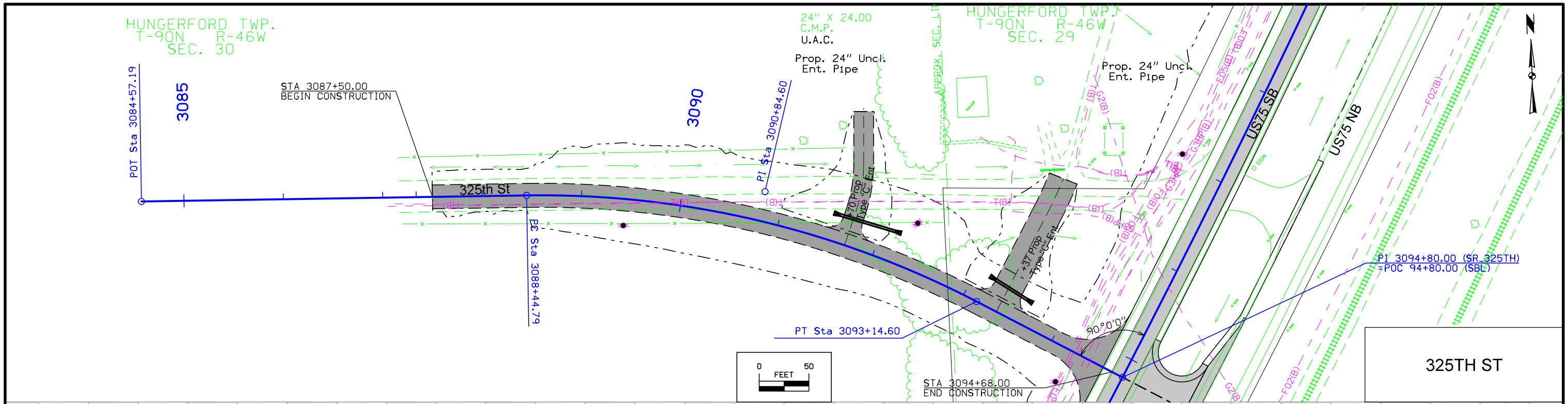
HUNGERFORD TWP.
T-90N R-46W
SEC. 30

Sta. 3068+88
Skewed 30° RT Ahd.
36" X 78.26 Conc Pipe
DA=1 AC H
REMOVE
Sta. 3068+83
Install
Skew = 30° RT. Ahd.
F.L. = Lt.
Rt.



HUNGERFORD TWP.
T-90N R-46W
SEC. 30





FILE NO.	ENGLISH	DESIGN TEAM	PLYMOUTH COUNTY	PROJECT NUMBER	SHEET NUMBER
		Holst \ Strum \ Janus		NHSX-075-2(96)--3H-75	E.5

HUNGERFORD TWP.
T-90N R-46W
SEC. 20

96" X 45.2
STEEL PIPE



POT Sta 3134+61.24

3135

Hinton Drainage District
Lateral D

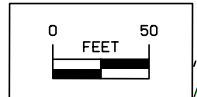
Lone Tree Rd

STA 3137+15.00
BEGIN CONSTRUCTION

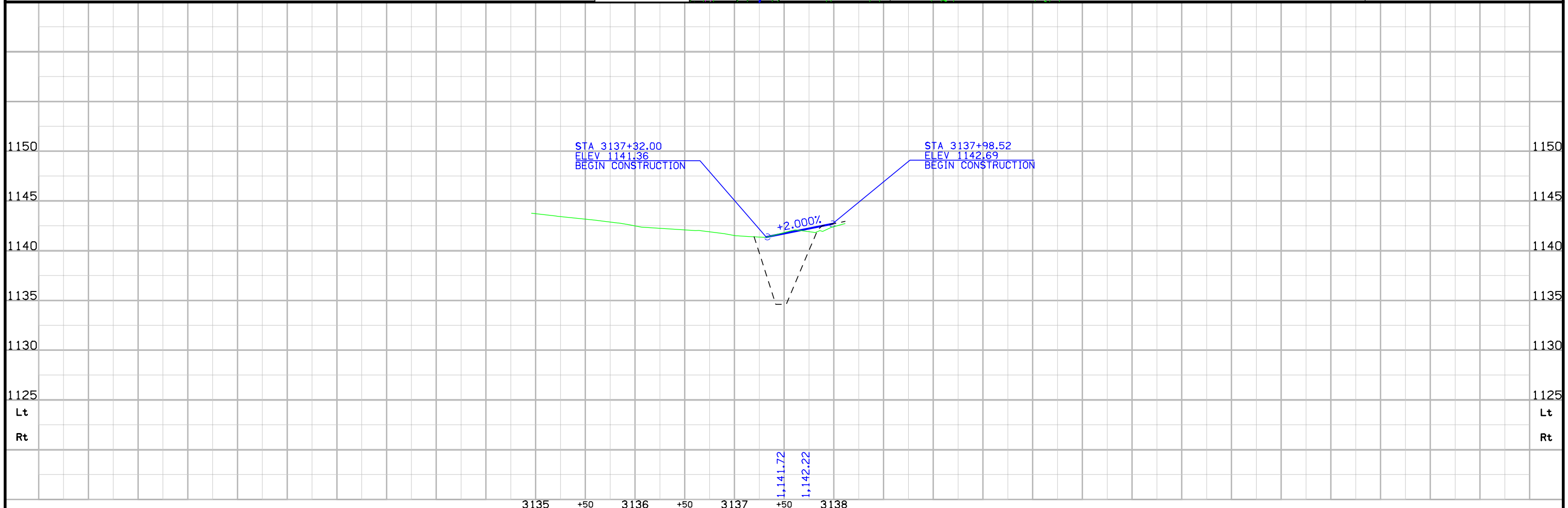
STA 3137+98.52
BEGIN CONSTRUCTION

PT 3138+11.24 (SR LONE)
POT 138+11.24 (SBL)

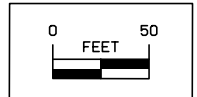
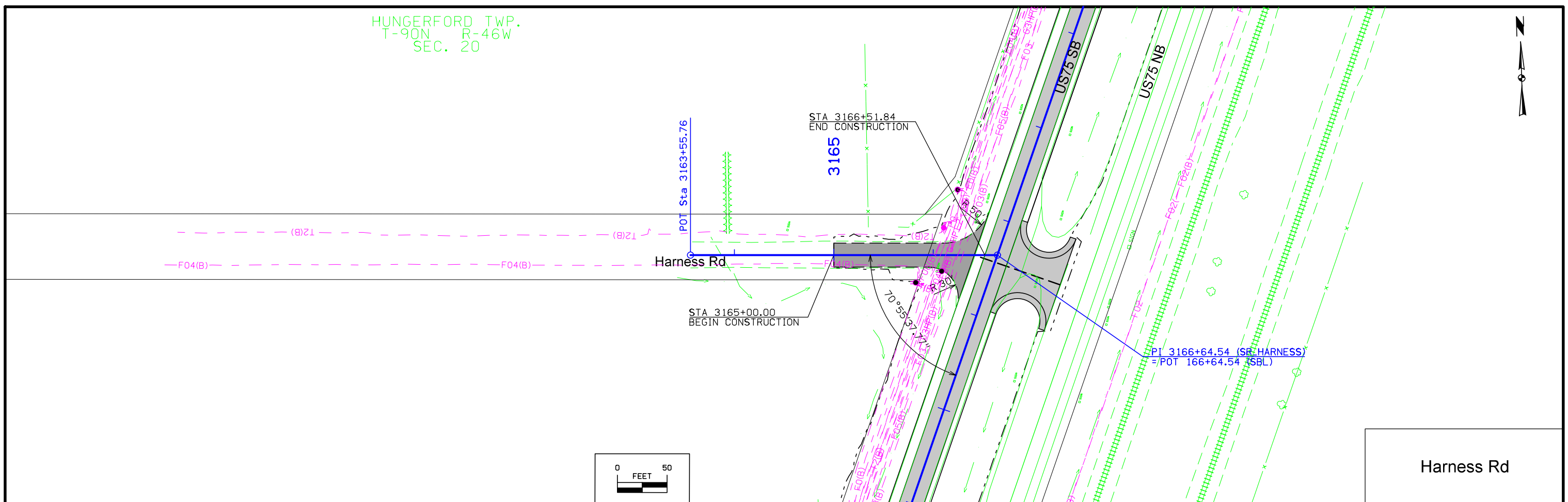
US75 SB
US75 NB



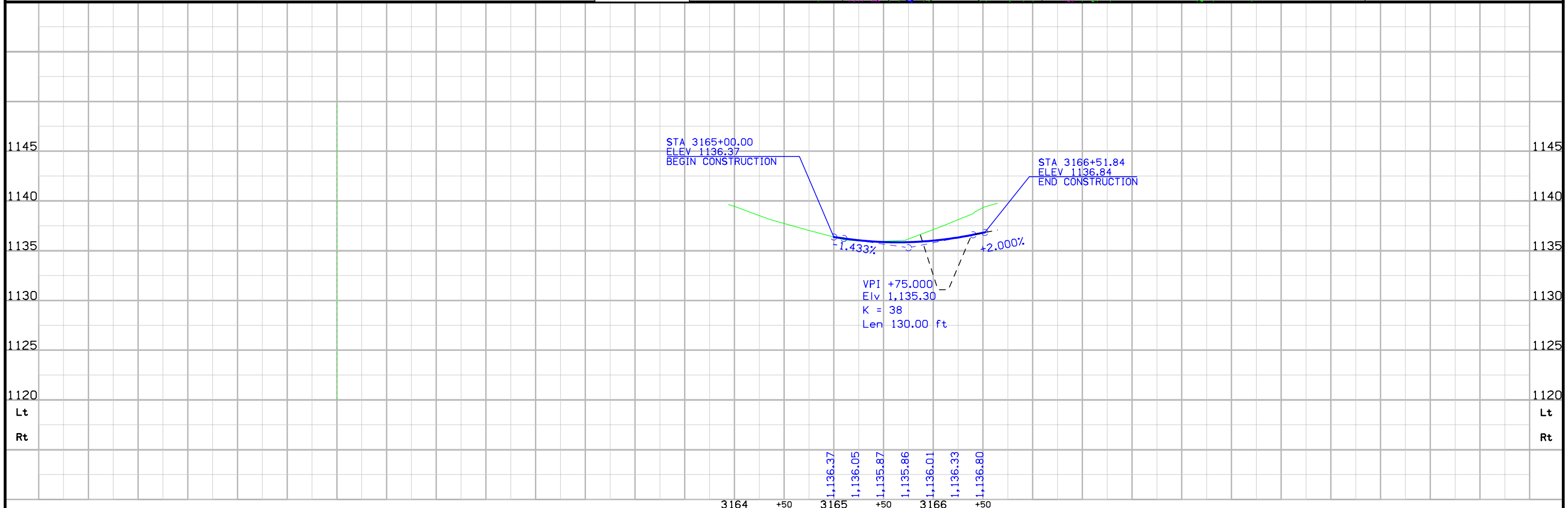
LONE TREE RD



HUNGERFORD TWP.
T-90N R-46W
SEC. 20

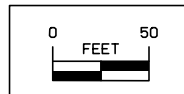
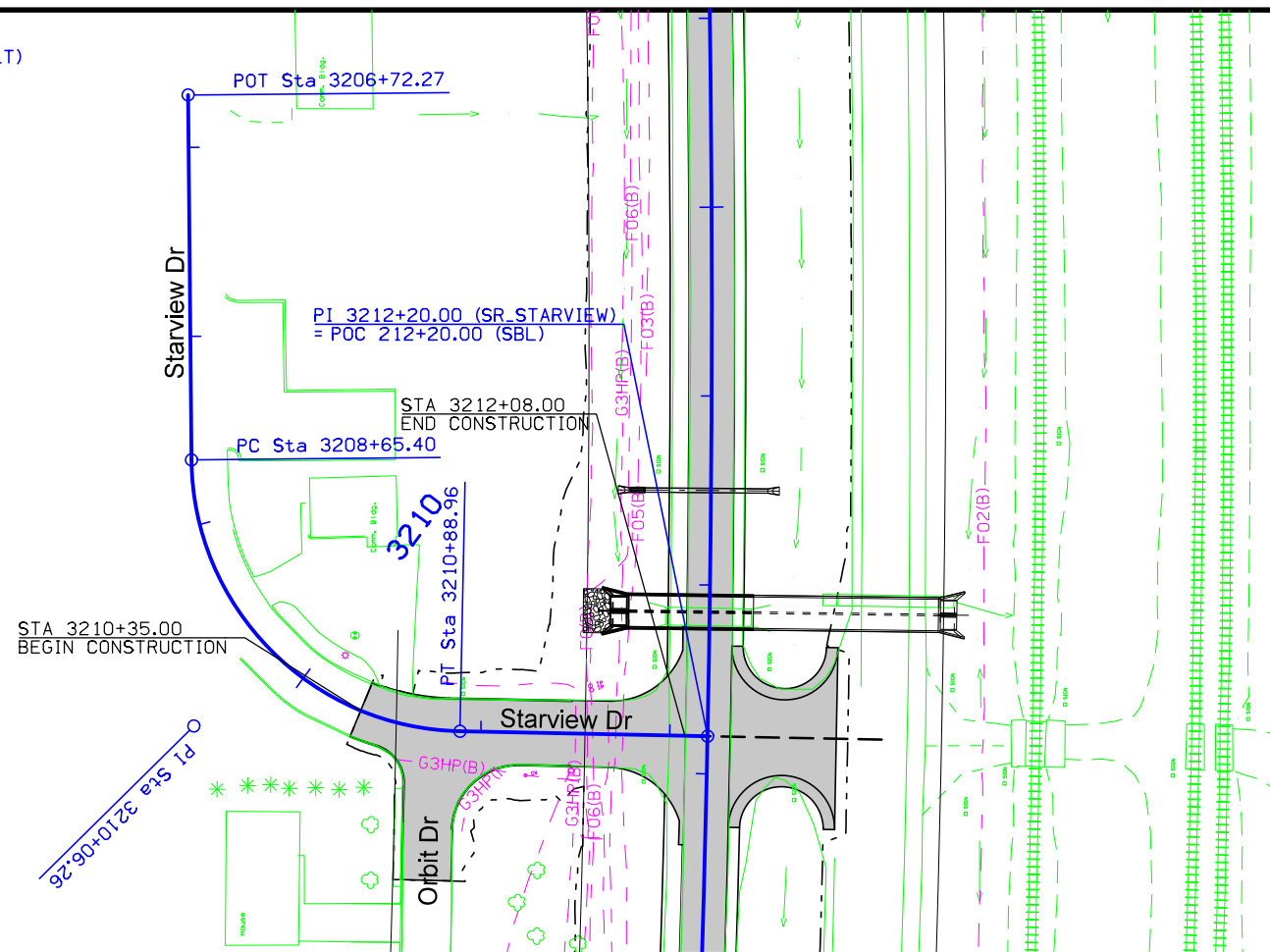


Harness Rd

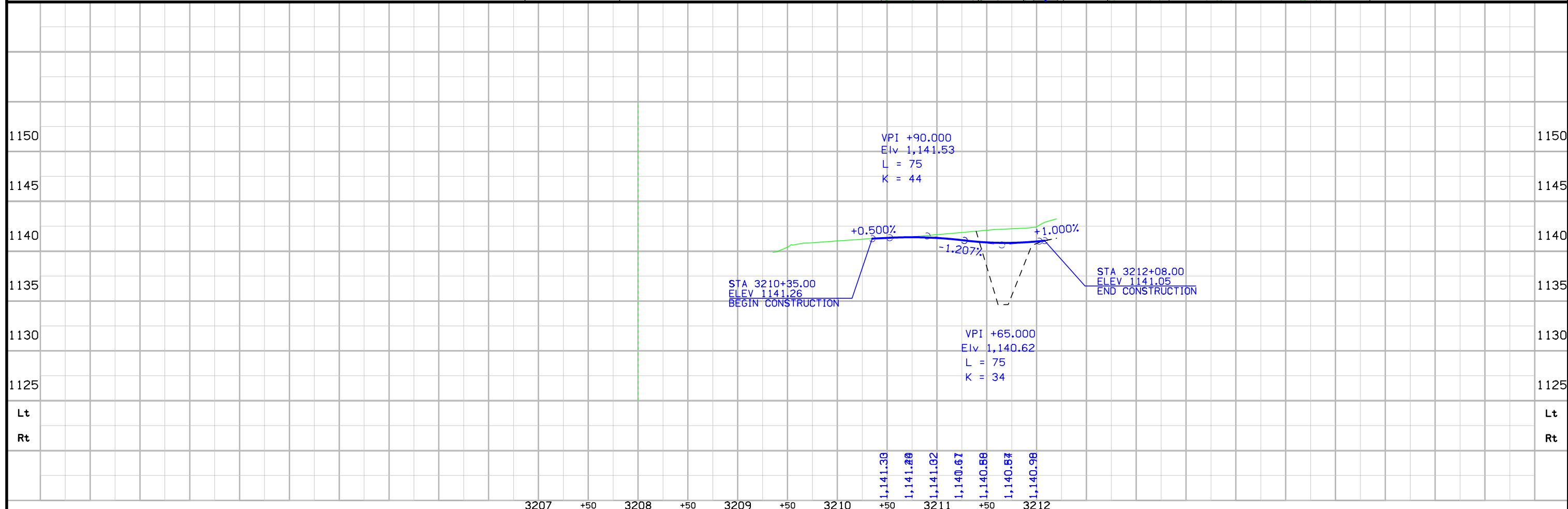


HUNGERFORD TWP.
T-90N R-46W
SEC. 17

Curve Data
 $\Delta = 88^\circ 20' 19.52''$ (LT)
 T = 140.86
 L = 223.56
 R = 145.00
 E = 57.15

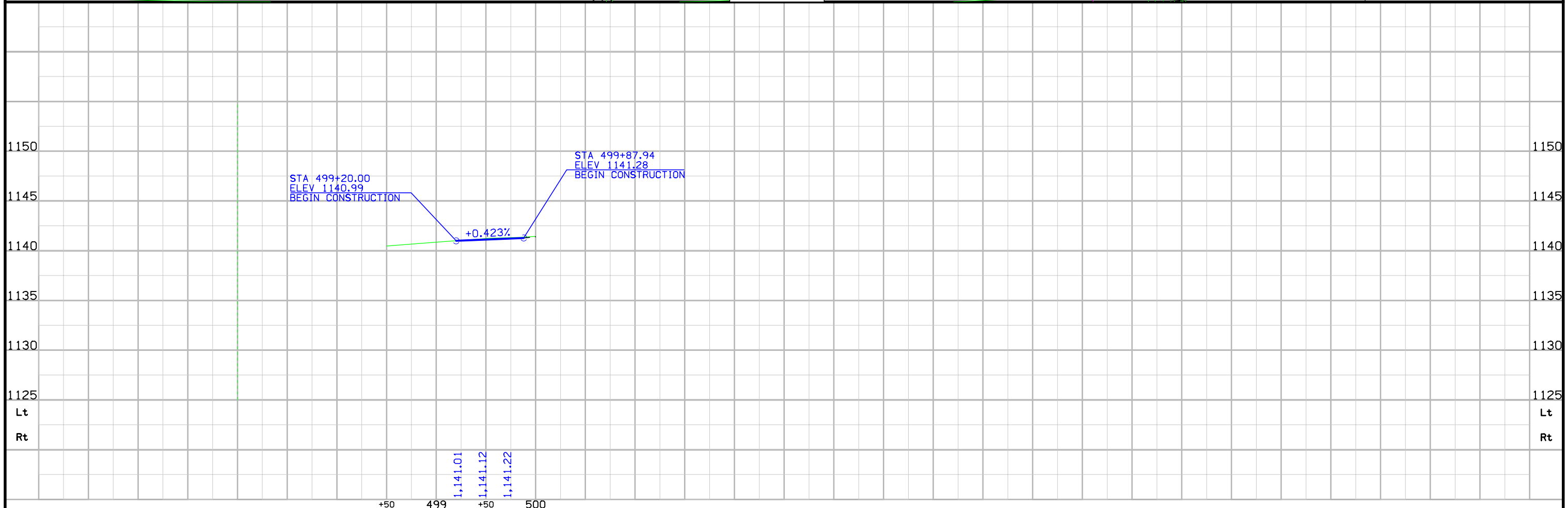
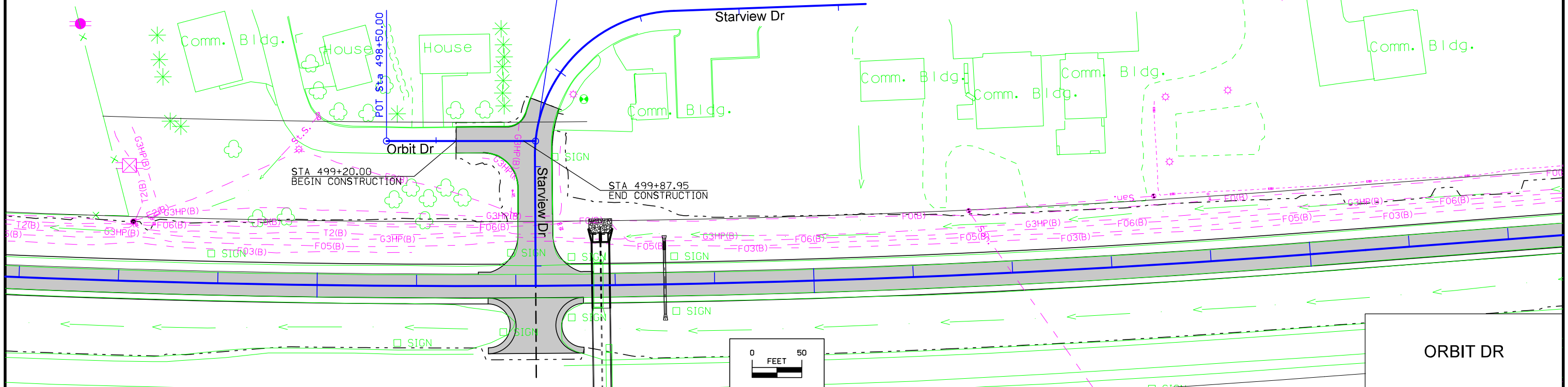


STARVIEW DR



HUNGERFORD TWP.
T-90N R-46W
SEC. 17

PI 500+00.00 (SR_ORBIT)
= POC 3210+74.23 (SR_STARVIEW)



HUNGERFORD TWP.
T-90N R-46W
SEC. 17

PI 3224+33.91 (SR_TITAN)
= POT 600+00.00 (SR_1STAVE)

STA 3225+92.57
END CONSTRUCTION

Titan Rd

STA 3224+57.00
BEGIN CONSTRUCTION

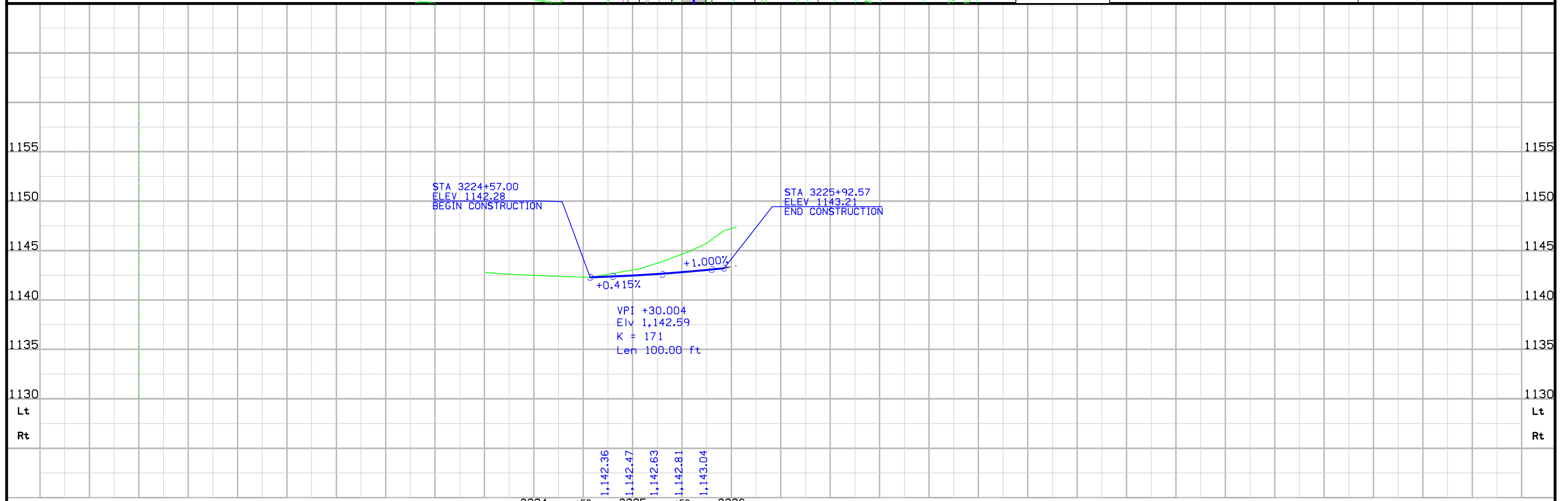
STA 3225+47.59
18" X 121'
Conc. Pipe
REMOVE

Sta. 3225+49
Install 24" RCP
Skew = 10° RT. Ahd.
F.L. = Lt.
Rt.

PI 3226+04.75 (SR_TITAN)
= POT 226+04.75 (SBL)



TITAN RD



Survey Information

County: Plymouth
 PIN: 16-75-075-020
 Project Number: NHSX-075-2(91)--3H-75
 Location: US 75 North of Sioux City to Grover St
 In Hinton
 Type of Work: Preliminary Engineering
 Project Directory: 7507502016
 SAP 666.2

General Information

Measurement units for this survey are US survey feet. This survey is for preliminary engineering of US 75 between Sioux City and Hinton. 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 Le Mars 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 Le Mars reference station orthometric height used is 1287.25 US Survey Ft.

This survey observed 4 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 $\frac{1}{2}$ 0.10 ft. The survey heights determined at the two county monuments validate the NAVD 88 height used at the Le Mars 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

County Control mark designated 057 has a published height. Of 1199.53
 Survey height. = 1199.612

County Control mark designated 125 has a published height. Of 1326.99
 Survey height. = 1327.167

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 Le Mars reference station are:
 N= 8699224.17, E= 14146951.66. See http://www.iowadot.gov/rtn/pdfs/IaRCS/IaRCS_04_SiouxCity_IowaFalls.pdf for information regarding Iowa Regional Coordinate System Zone 4.

Additional static observations of county monuments and feno monuments extended control south from Merrill to Sioux City.

Survey Alignment Information

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

PROJECT CONTROL (BENCHMARKS)

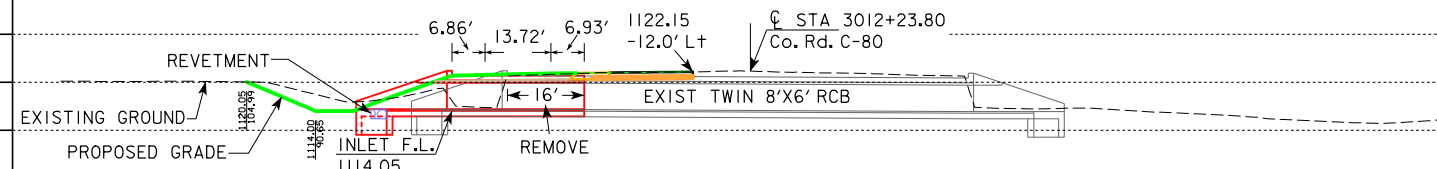
Point	North	East	Elevation	Station	Offset	Feature	Description
1	8612460.571	14094986.545	1118.369	Off Chain	Off Chain	CP	Iowa DOT Feno Monument 6" deep- in east right of way US 75 between highway and train tracks-40 feet east of mile marker 100
2	8619288.380	14101557.731	1126.053	74+07.52	747.945	CP	Iowa DOT Feno Monument 6" deep- in northwest berm of Floyd River Bridge 900 feet east of US 75 along Plymouth County road C 70 -100 feet north of northwest corner of bridge
3	8625665.153	14103836.665	1137.387	140+66.67	44.408	CP	Iowa DOT Feno Monument 6" deep- located 18 feet southeast of station post 140- 45 feet east of centerline northbound US 75- 20 feet north of north edge of field entrance to east.
125	8637478.516	14104870.080	1327.167	258+94.32	-2527.599	CP	

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)
JS174	NBL	1000+56.50	8,613,934.89	14,096,411.24															
24+21.73	NBL						1023+32.73	8,615,586.18	14,097,977.91	1024+32.72	8,615,658.72	14,098,046.73	1025+32.71	8,615,731.98	14,098,114.78				
35+71.5	NBL						1029+29.35	8,616,022.59	14,098,384.74	1035+82.44	8,616,501.08	14,098,829.23	1042+32.51	8,617,046.72	14,099,188.11				
99+21.72	NBL						1087+74.10	8,620,841.15	14,101,683.80	1099+32.62	8,621,809.07	14,102,320.43	1110+81.94	8,622,891.85	14,102,732.45				
JS168	NBL	1119+00.62	8,623,657.00	14,103,023.61															
JS169	NBL	1160+36.20	8,627,521.31	14,104,496.73															
211+80.24	NBL						1203+59.31	8,631,562.11	14,106,033.37	1211+91.18	8,632,339.65	14,106,329.06	1220+20.05	8,633,152.15	14,106,507.54				
239+90.07	NBL						1240+24.97	8,635,110.38	14,106,937.72	1245+54.58	8,635,627.66	14,107,051.36	1250+84.17	8,636,142.85	14,107,174.10				
250+84	NBL						1250+84.17	8,636,142.85	14,107,174.10	1252+34.24	8,636,288.83	14,107,208.89	1253+84.29	8,636,435.40	14,107,241.08				
20000	NBL	1263+43.97	8,637,372.72	14,107,446.99															
JS181	SBL	0+00.00	8,613,944.93	14,096,299.46															
SBL23+79.78	SBL						22+27.66	8,615,560.99	14,097,832.70	24+02.66	8,615,687.94	14,097,953.15	25+77.65	8,615,817.17	14,098,071.16				
JS179	SBL	27+02.25	8,615,909.18	14,098,155.18															
SBL35+63.9	SBL						29+41.58	8,616,084.52	14,098,318.07	35+87.06	8,616,557.44	14,098,757.38	42+29.55	8,617,096.73	14,099,112.08				
SBL99+22.6	SBL						86+86.20	8,620,820.18	14,101,561.09	99+22.62	8,621,853.19	14,102,240.52	111+49.21	8,623,008.82	14,102,680.13				
SBL212+03.4	SBL						203+41.45	8,631,600.41	14,105,948.43	211+73.96	8,632,378.52	14,106,244.42	220+03.46	8,633,191.64	14,106,423.05				
SBL241+56	SBL						237+15.66	8,634,863.97	14,106,790.42	241+15.85	8,635,254.84	14,106,876.29	245+15.72	8,635,638.77	14,106,989.21				
SBL252+85.7	SBL						248+47.82	8,635,957.38	14,107,082.92	252+48.02	8,636,341.31	14,107,195.84	256+47.90	8,636,732.19	14,107,281.71				
JS188	SBL	263+08.97	8,637,377.87	14,107,423.55															
38001	C-80	3010+58.10	8,615,053.10	14,097,018.77															
38000	C-80	3012+99.00	8,614,887.29	14,097,193.53															
31000	Plymouth St	3061+10.78	8,619,059.71	14,099,960.30															
31000							3063+95.04	8,619,045.58	14,100,244.21	3064+23.94	8,619,044.15	14,100,273.07	3064+52.65	8,619,037.23	14,100,301.12				
31001		3065+30.00	8,619,018.71	14,100,376.22															
32000	Main St	3066+67.54	8,619,382.21	14,100,326.18															
32001		3069+47.28	8,619,367.35	14,100,605.53															
33000	Fulton St	3071+63.37	8,619,708.68	14,100,642.61															
33001		3073+45.14	8,619,699.75	14,100,824.16															
33012	325th St	3084+57.19	8,621,707.10	14,100,992.94															
33014							3088+44.79	8,621,700.55	14,101,380.47	3090+84.60	8,621,696.50	14,101,620.26	3093+14.60	8,621,579.13	14,101,829.39				
33015		3094+80.00	8,621,498.18	14,101,973.62															
34000	Lone Tree St	3134+61.24	8,625,506.10	14,103,276.73															
34001		3138+11.24	8,625,496.90	14,103,626.61															
35000	Harness Rd	3163+55.76	8,628,173.21	14,104,332.47															
35001		3166+64.54	8,628,163.76	14,104,641.10															
36000	Starview Dr	3206+72.27	8,632,832.54	14,106,052.45															
36000							3208+65.40	8,632,645.73	14,106,003.42	3210+06.26	8,632,509.49	14,105,967.66	3210+88.96	8,632,469.80	14,106,102.81				
36001		3212+20.00	8,632,432.88	14,106,228.54															
36100	Orbit Dr	498+50.00	8,632,331.01	14,106,045.74															
36101		500+00.00	8,632,474.66	14,106,088.91															
37000	Titan Rd	3223+51.25	8,633,790.21	14,106,298.82															
37001		3226+04.75	8,633,778.92	14,106,552.06															

1140						1140
1130						1130
1120						1120
1110	EXISTING GROUND					1110
1100	PROPOSED GRADE					1100
1090						1090

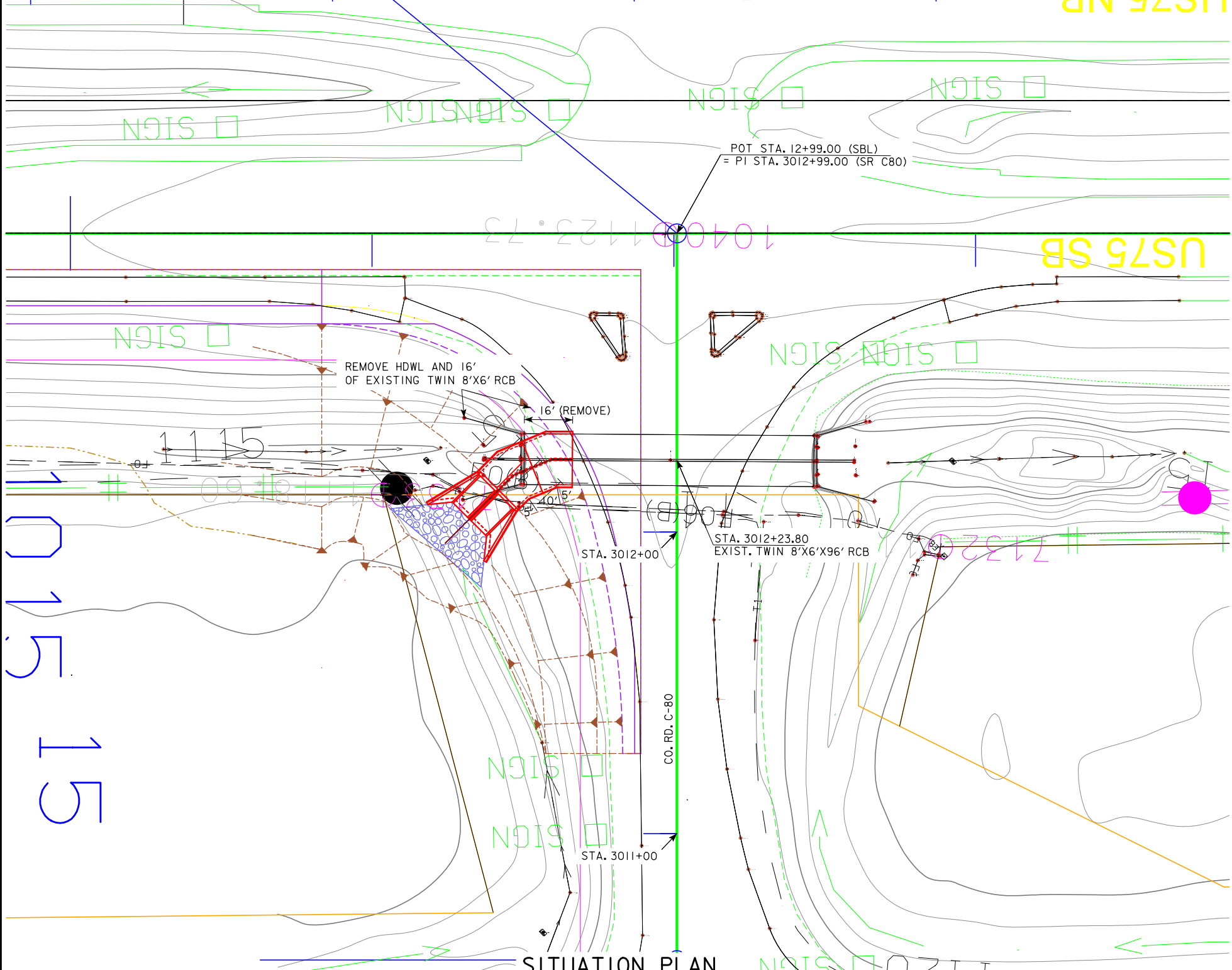


BENCH MARK NO. 2: NORTH 8619288.380, EAST 14101557.731, ELEV. 1126.053 IOWA DOT FENO MONUMENT 6" DEEP IN NORTHWEST BERM OF FLOYD RIVER BRIDGE 900 FEET EAST OF US 75 ALONG PLYMOUTH COUNTY ROAD C70 - 100 FEET NORTH OF NORTHWEST CORNER OF BRIDGE.

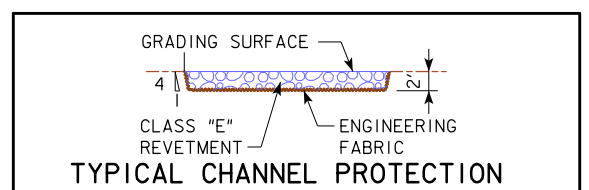
LONGITUDINAL SECTION ALONG ϕ CULVERT

US75 NB

NOTE:
REMOVE EXISTING INLET HEADWALL + 16'
OF EXISTING TWIN 8'X6' RCB BARREL AND EXTEND.
USE 2 - 22.5° BENDS



SITUATION PLAN



ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS			
LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	49	68	30
OUTLET	N/A	N/A	N/A
TOTALS	49	68	30

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.

HYDRAULIC DATA

DRAINAGE AREA = ?
DESIGN Q 50 = ? CFS

TRAFFIC ESTIMATE

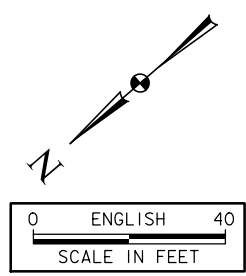
2019 AADT	17,000	V.P.D.
2039 AADT	22,700	V.P.D.
2039 DHV	2350	V.P.H.
TRUCKS	15	%
TOTAL DESIGN ESALs		

UTILITIES LEGEND:

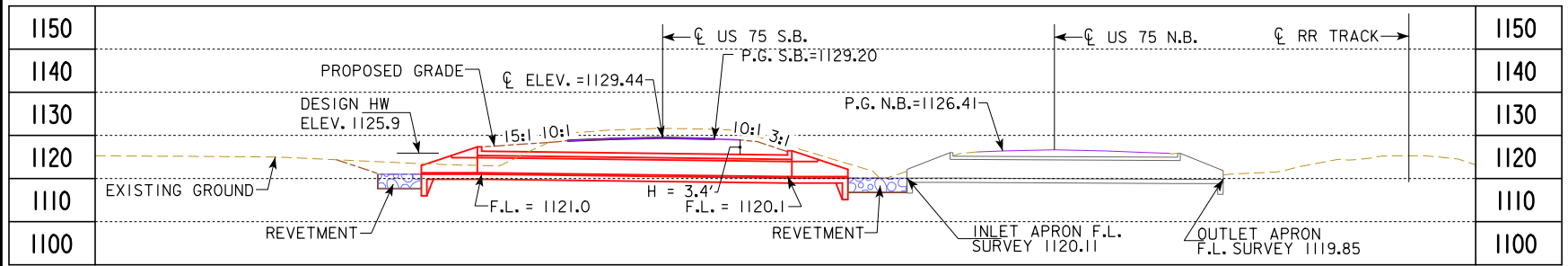
- FO - FIBER OPTIC - NEUTRAL PATH
- FO2 - FIBER OPTIC - MCI
- FO3 - FIBER OPTIC - FIBER COMM
- G-HP - HIGH PRESSURE GAS - MIDAMERICAN ENERGY
- PPA - PPA POWER POLE - MID AMERICAN ENERGY

LOCATION

T-90N R-46W
SECTION 31
HUNGERFORD TOWNSHIP
PLYMOUTH COUNTY
LATITUDE 42.564567°
LONGITUDE -96.328723°



PRELIMINARY
DESIGN FOR 0° SKEW
TWIN 8' X 6' X 27.5' REINFORCED CONCRETE BOX CULVERT EXTENSION SITUATION PLAN
STATION 1312+23.80 (Co. Rd. C-80) OCTOBER 2017
PLYMOUTH COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 1 FILE NO. 31438 DESIGN NO. 120

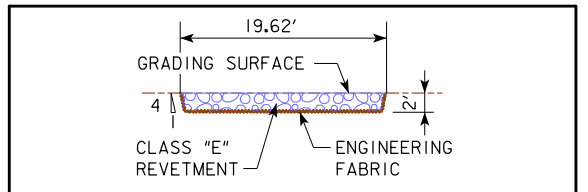
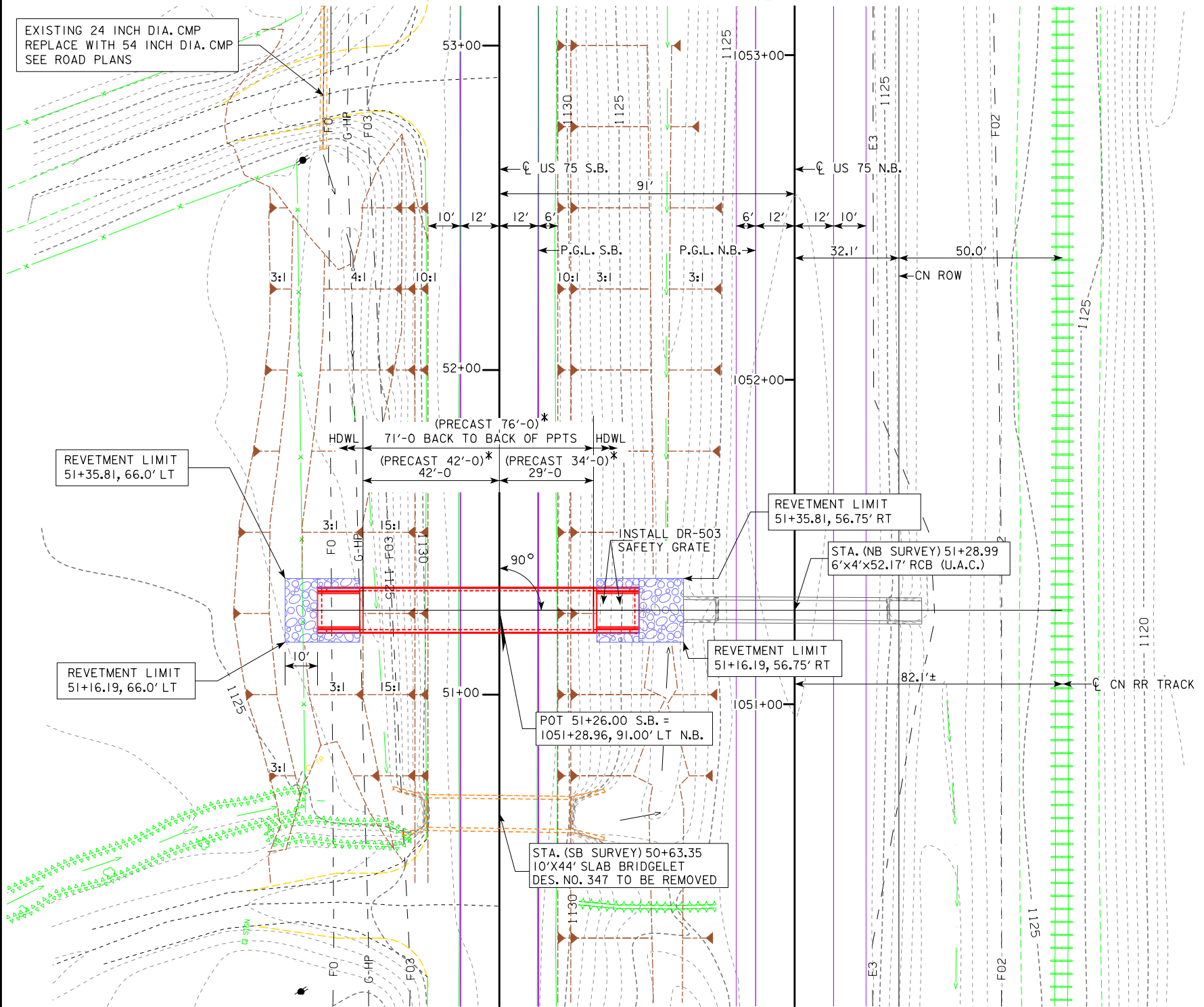


BENCH MARK NO. 2: NORTH 8619288.380, EAST 14101557.731, ELEV. 1126.053 IOWA DOT FENO MONUMENT 6" DEEP IN NORTHWEST BERM OF FLOYD RIVER BRIDGE 900 FEET EAST OF US 75 ALONG PLYMOUTH COUNTY ROAD C70 - 100 FEET NORTH OF NORTHWEST CORNER OF BRIDGE.

**PROPOSED PROFILE
GRADE US 75 (SOUTHBOUND)**

NOTES:
1. SOUTHBOUND PROFILE GRADE LINE IS ALONG THE MEDIAN SIDE EDGE OF DRIVING LANE.
2. DR-503 SAFETY GRATE REQUIRED ON OUTLET END.

LONGITUDINAL SECTION ALONG CULVERT



TYPICAL CHANNEL PROTECTION

ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	33.0	56.3	20.6
OUTLET	41.7	66.1	26.1
TOTALS	74.7	122.4	46.7

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.

*** NOTE TO FINAL DESIGNER**
DUAL DIMENSIONS ARE PROVIDED FOR THE PREPARATION OF A SEPARATE PRECAST OPTION TSL IN BRIDGE FINAL DESIGN.
- PRECAST DIMENSIONS REPRESENT A 75' BARREL PLUS 6 INCHES FROM END OF BARREL TO PARAPET ON EACH END.
- REVISE LEFT SIDE FLATTENED FORESLOPE IN PLAN AND LONGITUDINAL SECTION FROM 15:1 TO 6:1.

(REMOVE THESE DESIGNER NOTES FROM FINAL SITUATION PLAN.)

HYDRAULIC DATA
DRAINAGE AREA = PART OF 115 ACRES
Q100 = 184 OF 261 CFS
HW ELEV. = 1125.9
SB OVERTOP STA. 57+50, ELEV. 1127.0

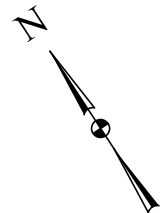
TRAFFIC ESTIMATE

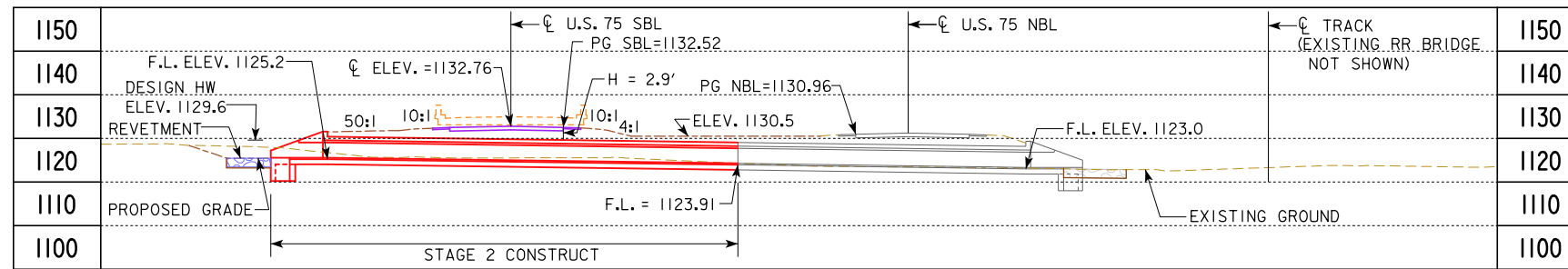
2019 AADT	17,000	V.P.D.
2039 AADT	22,700	V.P.D.
2039 DHV	2350	V.P.H.
TRUCKS	15	%
TOTAL DESIGN ESALS		

UTILITIES LEGEND:
FO - FIBER OPTIC - NEUTRAL PATH
F02 - FIBER OPTIC - MCI
F03 - FIBER OPTIC - FIBER COMM
G-HP - HIGH PRESSURE GAS - MIDAMERICAN ENERGY
E-3 - ELECTRIC LINE - NORTHWEST REC
PPA - PPA POWER POLE - MID AMERICAN ENERGY

LOCATION
US 75 OVER SM. DRAINAGE CROSSING
T-90N R-46W
SECTION 31
HUNGERFORD TOWNSHIP
PLYMOUTH COUNTY
LATITUDE 42.572664°
LONGITUDE -96.319763°

PRELIMINARY
DESIGN FOR 0° SKEW
12'-0 x 4'-0 x 71'-0 REINFORCED CONCRETE BOX CULVERT
SITUATION PLAN
STATION 51+26.00 (S.B. US 75) FEBRUARY 2018
PLYMOUTH COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 1 FILE NO. 31438 DESIGN NO. 320





BENCH MARK NO. 2: NORTH 8619288.380, EAST 14101557.731, ELEV. 1126.053 IOWA DOT FENO MONUMENT 6" DEEP IN NORTHWEST BERM OF FLOYD RIVER BRIDGE 900 FEET EAST OF US 75 ALONG PLYMOUTH COUNTY ROAD C70 - 100 FEET NORTH OF NORTHWEST CORNER OF BRIDGE.

GI = +0.400% GI = -0.500%

VPI STA = 77+00.00 VC = 350'

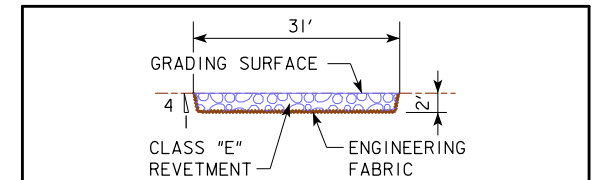
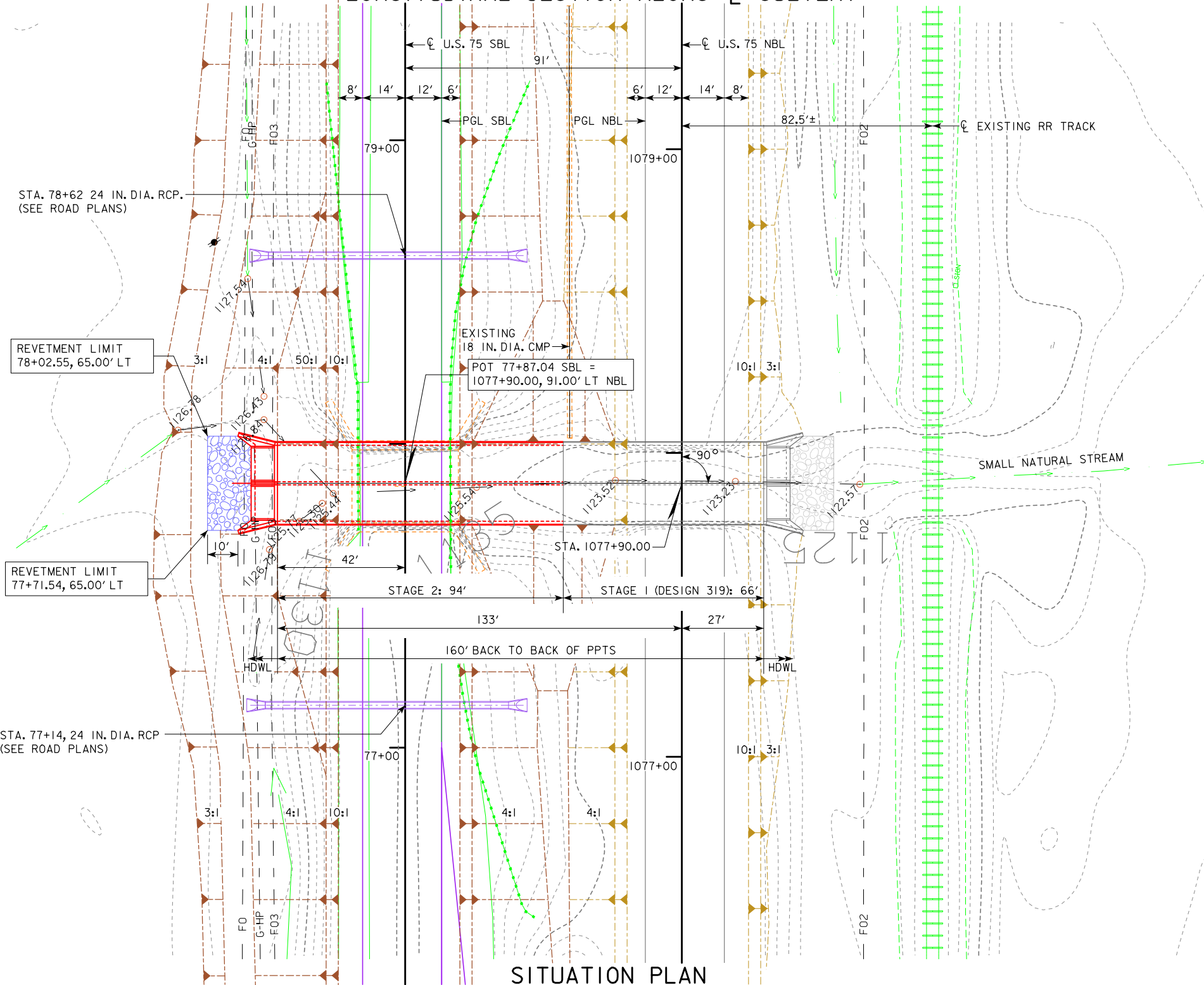
VPI ELEV = 1133.05

PROPOSED PROFILE GRADE U.S. 75 (SOUTHBOUND)

NOTES:

1. SOUTHBOUND PROFILE GRADE LINE IS ALONG THE MEDIAN SIDE EDGE OF DRIVING LANE.
2. STA. SB 77+86.08 (SURVEY BASELINE) EXISTING 24' X 30' SLAB BRIDGE, DESIGN NO. 1847, TO BE REMOVED.
3. DRAINAGE MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
4. THIS DESIGN INCLUDES STAGE 2: CONSTRUCT 94'-0 BARREL LENGTH PLUS INLET HEADWALL.

LONGITUDINAL SECTION ALONG CULVERT



TYPICAL CHANNEL PROTECTION

ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	51.0	67.0	31.9
OUTLET	--	--	--
TOTALS	51.0	67.0	31.9

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.

HYDRAULIC DATA

DRAINAGE AREA = 216 ACRES H
 DESIGN DISCHARGE, Q 100 = 409 CFS
 DESIGN HW ELEV. = 1129.6
 ROADWAY OVERTOP STA. 1081+75 NBL
 ELEV. 1129.87

TRAFFIC ESTIMATE

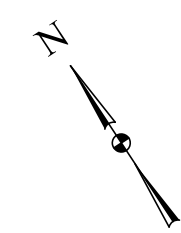
2019 AADT	17,000	V.P.D.
2039 AADT	22,700	V.P.D.
2039 DHV	2350	V.P.H.
TRUCKS	15	%
TOTAL DESIGN ESALS		

UTILITIES LEGEND:

- FO - FIBER OPTIC - NEUTRAL PATH
- F02 - FIBER OPTIC - MCI
- F03 - FIBER OPTIC - FIBER COMM
- G-HP - HIGH PRESSURE GAS - MIDAMERICAN ENERGY
- PPA - PPA POWER POLE - MID AMERICAN ENERGY

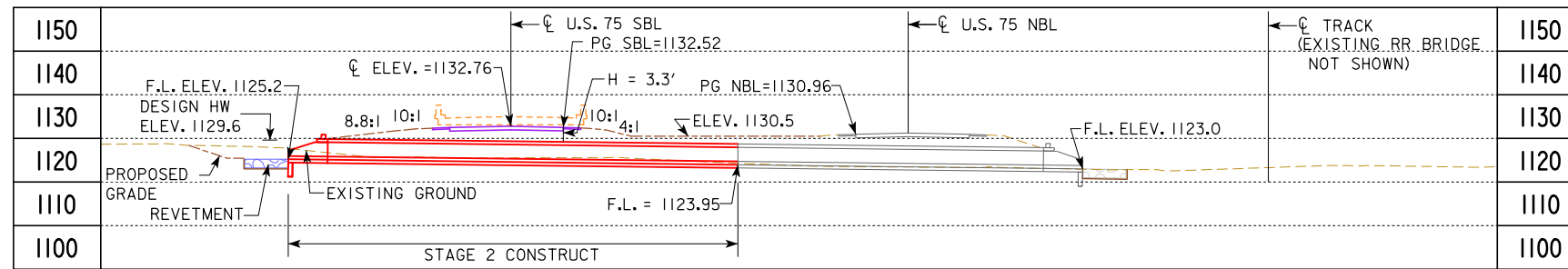
LOCATION

US 75 OVER SMALL NATURAL STREAM
 T-90N R-46W
 SECTION 30
 HUNGERFORD TOWNSHIP
 PLYMOUTH COUNTY
 FHWA NO. 700915
 BRIDGE MAINT. NO. 7501.9S075
 LATITUDE 42.578700°
 LONGITUDE -96.314194°
 PRELIMINARY



DESIGN FOR 0° SKEW TWIN 12' x 4' x 160' REINFORCED CONCRETE BOX CULVERT-STAGE 2

SITUATION PLAN
 STATION 1077+90 (N.B. U.S.75) FEBRUARY 2018
PLYMOUTH COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 1 FILE NO. 31438 DESIGN NO. 420



BENCH MARK NO. 2: NORTH 8619288.380, EAST 14101557.731, ELEV. 1126.053 IOWA DOT FENO MONUMENT 6" DEEP IN NORTHWEST BERM OF FLOYD RIVER BRIDGE 900 FEET EAST OF US 75 ALONG PLYMOUTH COUNTY ROAD C70 - 100 FEET NORTH OF NORTHWEST CORNER OF BRIDGE.

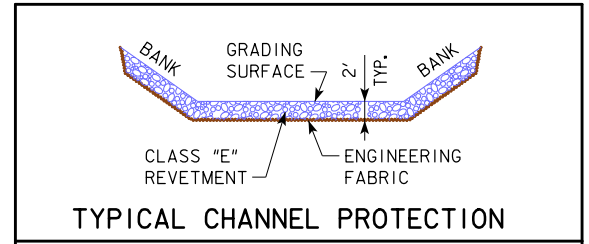
GI = +0.400% GI = -0.500%

VPI STA = 77+00.00 VC = 350'
VPI ELEV = 1133.05

PROPOSED PROFILE GRADE U.S. 75 (SOUTHBOUND)

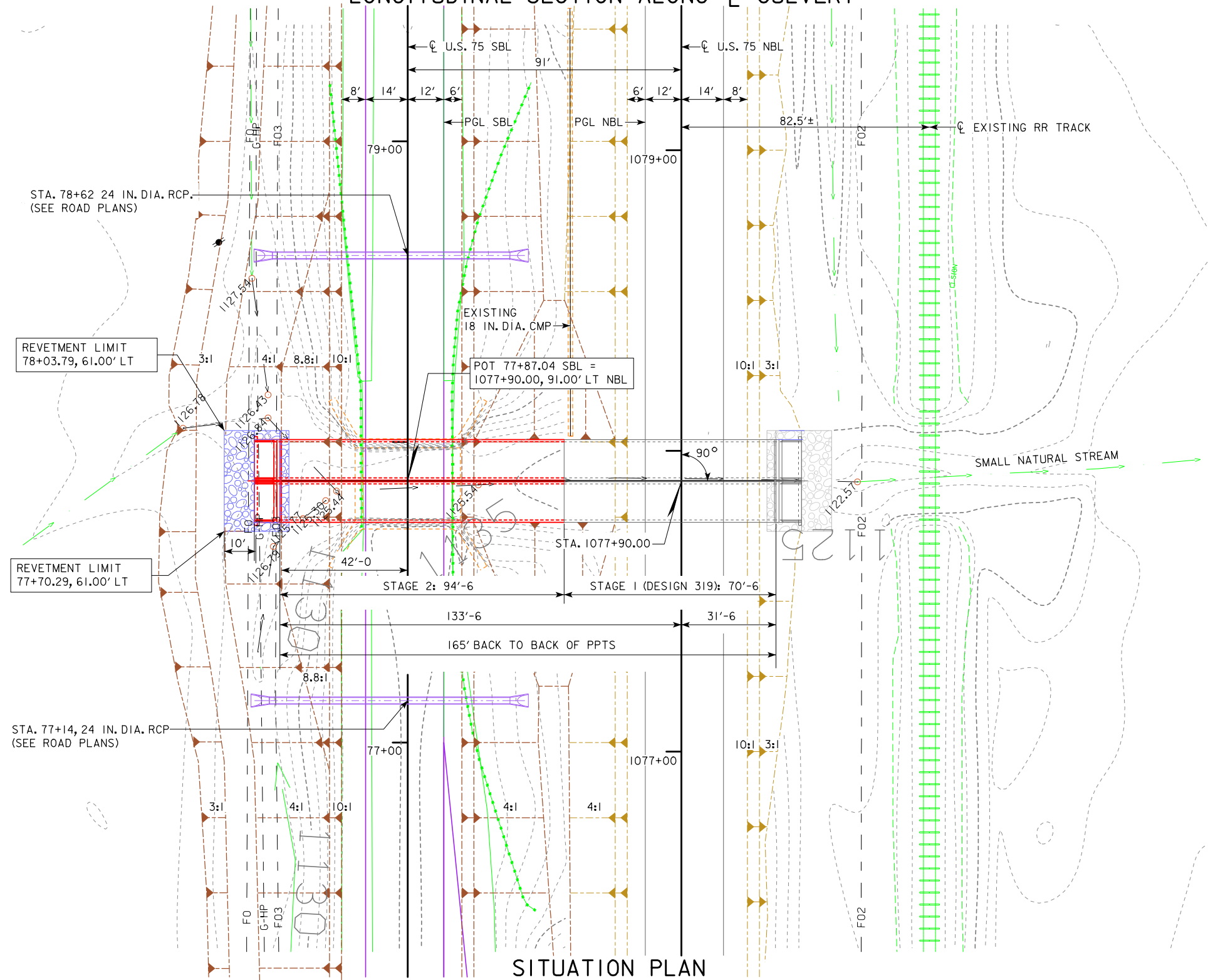
LONGITUDINAL SECTION ALONG \bar{C} CULVERT

- NOTES:
- SOUTHBOUND PROFILE GRADE LINE IS ALONG THE MEDIAN SIDE EDGE OF DRIVING LANE.
 - STA. SB 77+86.08 (SURVEY BASELINE) EXISTING 24' X 30' SLAB BRIDGE, DESIGN NO. 1847, TO BE REMOVED.
 - DRAINAGE MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
 - THIS DESIGN INCLUDES STAGE 2 BARREL LENGTH, INLET END SECTION AND INLET REVETMENT.



ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS			
LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	58.0	95.0	36.2
OUTLET	--	--	--
TOTALS	58.0	95.0	36.2

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.



HYDRAULIC DATA

DRAINAGE AREA = 216 ACRES H
DESIGN DISCHARGE, Q 100 = 409 CFS
DESIGN HW ELEV. = 1129.6
ROADWAY OVERTOP STA. 1081+75 NBL
ELEV. 1129.87

TRAFFIC ESTIMATE

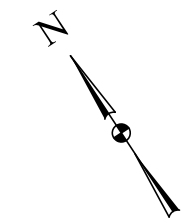
2019 AADT	17,000	V.P.D.
2039 AADT	22,700	V.P.D.
2039 DHV	2350	V.P.H.
TRUCKS	15	%
TOTAL DESIGN ESALS		

UTILITIES LEGEND:

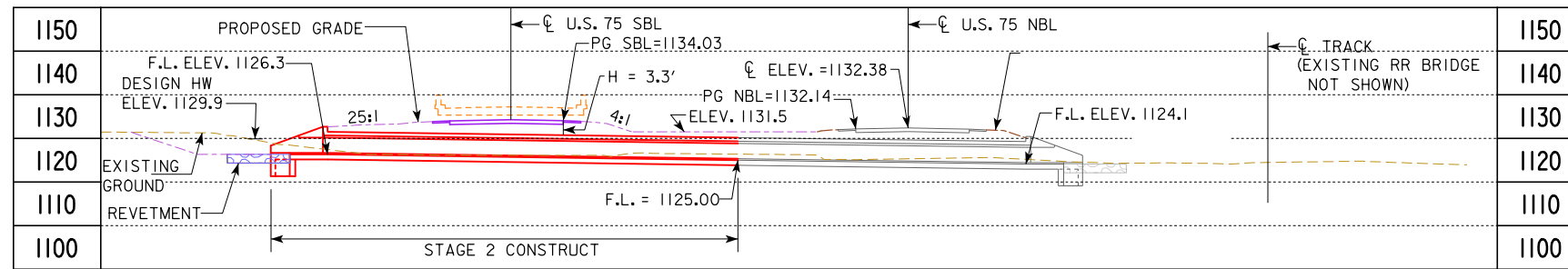
- FO - FIBER OPTIC - NEUTRAL PATH
- F02 - FIBER OPTIC - MCI
- F03 - FIBER OPTIC - FIBER COMM
- G-HP - HIGH PRESSURE GAS - MIDAMERICAN ENERGY
- PPA - PPA POWER POLE - MID AMERICAN ENERGY

LOCATION

US 75 OVER SMALL NATURAL STREAM
T-90N R-46W
SECTION 30
HUNGERFORD TOWNSHIP
PLYMOUTH COUNTY
FHWA NO. 700915
BRIDGE MAINT. NO. 7501.9S075
LATITUDE 42.578700°
LONGITUDE -96.314194°
PRELIMINARY



DESIGN FOR 0° SKEW
TWIN 12' x 4' x 165' PRECAST CONCRETE BOX CULVERT-STAGE 2
SITUATION PLAN
STATION 1077+90 (N.B. U.S.75) FEBRUARY 2018
PLYMOUTH COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 1 FILE NO. 31438 DESIGN NO. 420



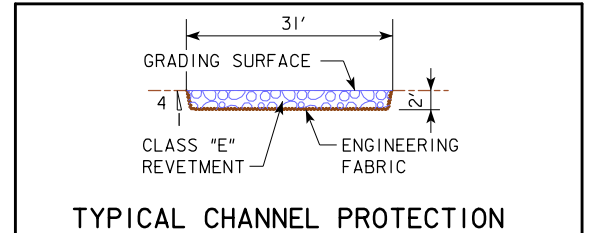
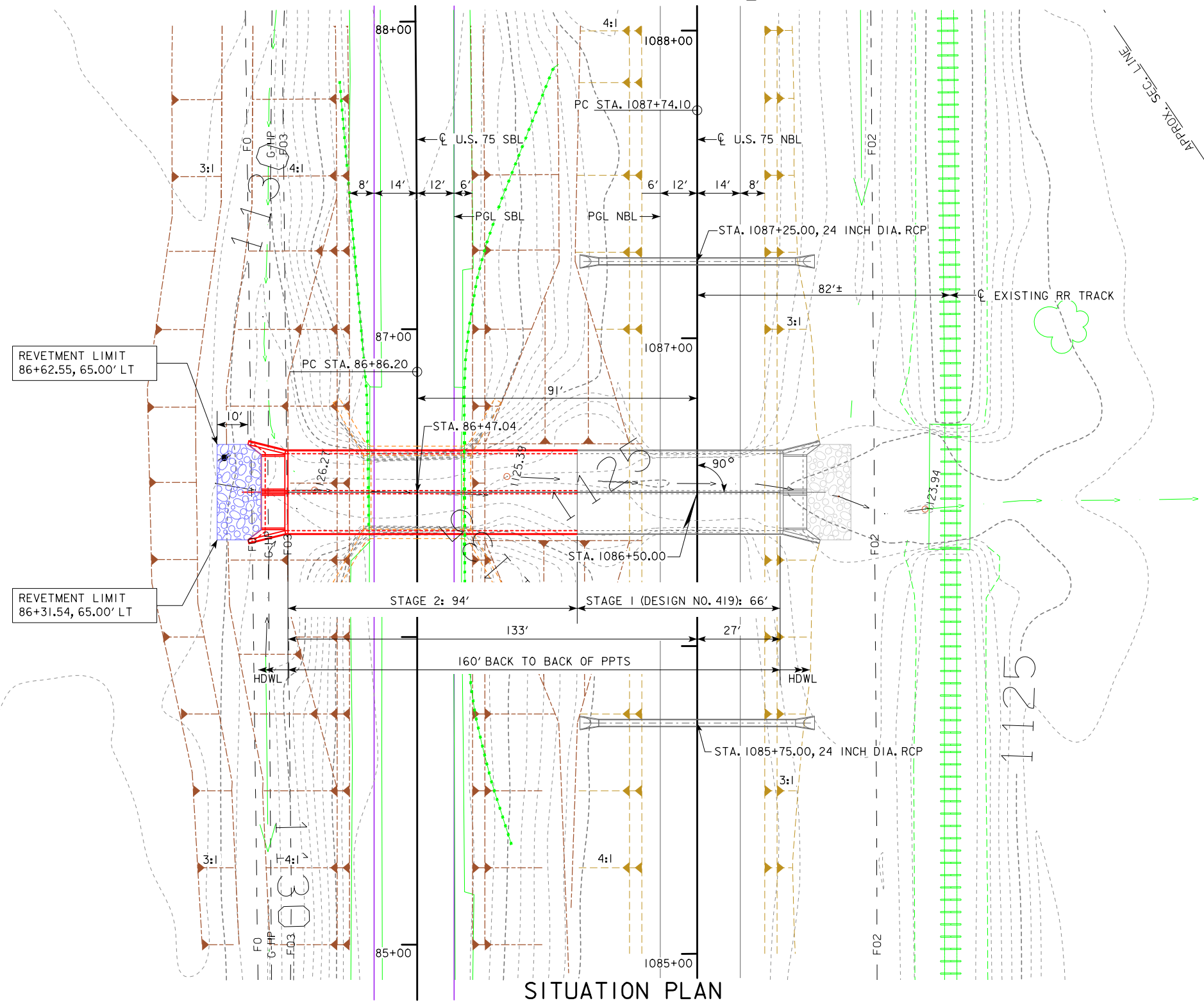
LONGITUDINAL SECTION ALONG CL CULVERT

BENCH MARK NO. 2: NORTH 8619288.380, EAST 14101557.731, ELEV. 1126.053 IOWA DOT FENO MONUMENT 6" DEEP IN NORTHWEST BERM OF FLOYD RIVER BRIDGE 900 FEET EAST OF US 75 ALONG PLYMOUTH COUNTY ROAD C70 - 100 FEET NORTH OF NORTHWEST CORNER OF BRIDGE.

GI = +.550% GI = -.300%
 VPI STA = 87+50.00 VC = 300'
 VPI ELEV = 1134.63

PROPOSED PROFILE GRADE U.S. 75 (SOUTHBOUND.)

- NOTES:
1. SOUTHBOUND PROFILE GRADE LINE IS ALONG THE MEDIAN SIDE EDGE OF DRIVING LANE.
 2. THE ROADWAY LANES AT THE CULVERT STATION ARE NOT IN A SUPERELEVATION TRANSITION.
 3. STA. SB 86+47.01 (SURVEY BASELINE) EXISTING 24' X 30' SLAB BRIDGE, DESIGN NO. 2047, TO BE REMOVED.
 4. DRAINAGE MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
 5. THIS DESIGN INCLUDES STAGE 2: CONSTRUCT 94'-0 BARREL LENGTH PLUS INLET HEADWALL AND REVETMENT.



ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	51.0	67.0	31.9
OUTLET	--	--	--
TOTALS	51.0	67.0	31.9

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.

HYDRAULIC DATA

DRAINAGE AREA = 270 ACRES H
 DESIGN DISCHARGE, Q 100 = 479 CFS
 DESIGN HW ELEV. = 1129.9
 Q500 = 646 CFS
 ROADWAY OVERTOP STA. 1081+75 NBL ELEV. 1129.87

TRAFFIC ESTIMATE

2019 AADT	17,000	V.P.D.
2039 AADT	22,700	V.P.D.
2039 DHV	2350	V.P.H.
TRUCKS	15 %	
TOTAL DESIGN ESALS		

UTILITIES LEGEND:

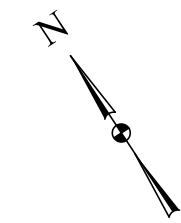
- FO - FIBER OPTIC - NUETRAL PATH
- F02 - FIBER OPTIC - MCI
- F03 - FIBER OPTIC - FIBER COMM
- G-HP - HIGH PRESSURE GAS - MIDAMERICAN ENERGY
- PPA - PPA POWER POLE - MID AMERICAN ENERGY

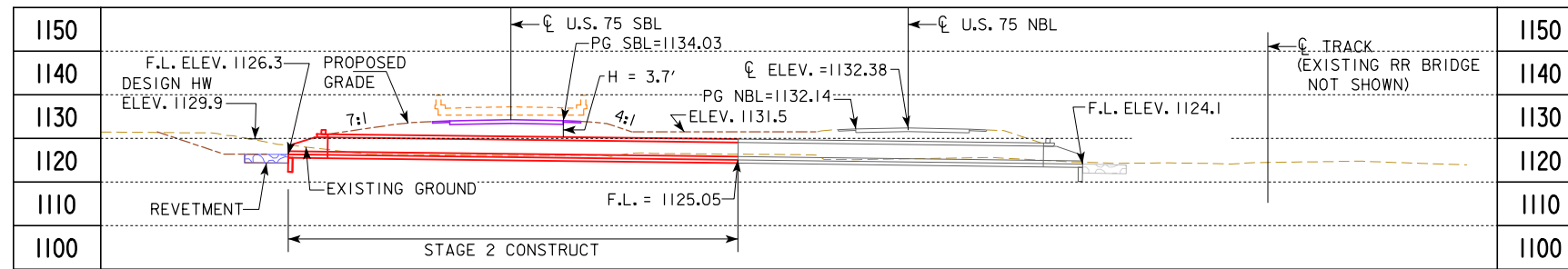
LOCATION

US 75 OVER SMALL NATURAL STREAM
 T-90N R-46W
 SECTION 30
 HUNGERFORD TOWNSHIP
 PLYMOUTH COUNTY
 FHWA NO. 700920
 BRIDGE MAINT. NO. 7502.IS075
 LATITUDE 42.580693°
 LONGITUDE -96.312486°
 PRELIMINARY

TWIN 12' X 4' X 160' REINFORCED CONCRETE BOX CULVERT-STAGE 2

SITUATION PLAN
 STATION 1086+50.00 (N.B. U.S. 75) FEBRUARY 2018
 PLYMOUTH COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 1 FILE NO. 31438 DESIGN NO. 520





BENCH MARK NO. 2: NORTH 8619288.380, EAST 14101557.731, ELEV. 1126.053 IOWA DOT FENO MONUMENT 6" DEEP IN NORTHWEST BERM OF FLOYD RIVER BRIDGE 900 FEET EAST OF US 75 ALONG PLYMOUTH COUNTY ROAD C70 - 100 FEET NORTH OF NORTHWEST CORNER OF BRIDGE.

GI = +.550% GI = -.300%

VPI STA = 87+50.00 VC = 300'

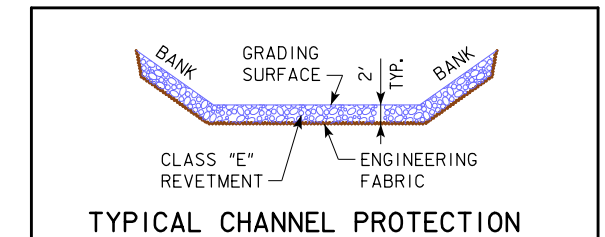
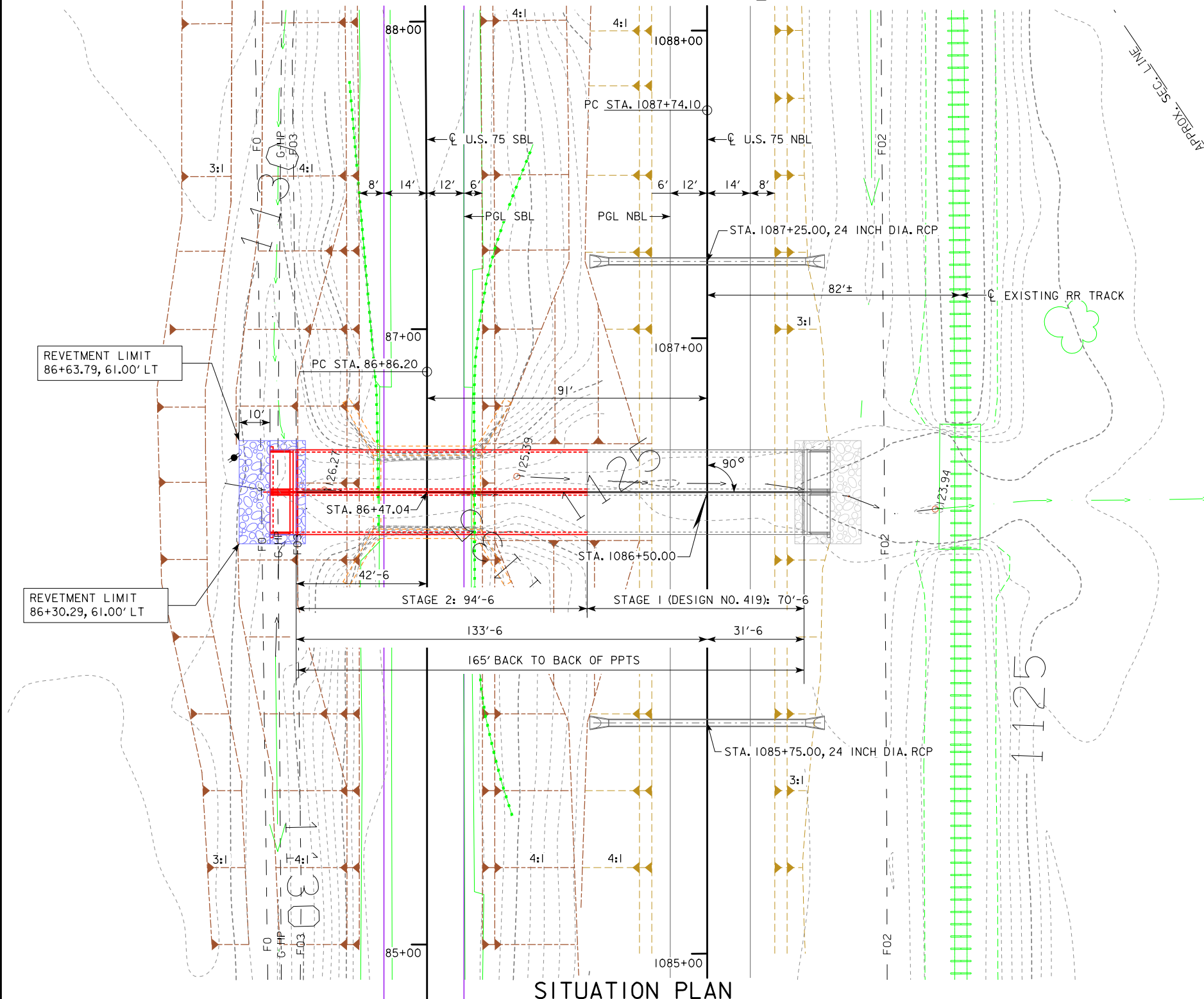
VPI ELEV = 1134.63

PROPOSED PROFILE GRADE U.S. 75 (SOUTHBOUND.)

NOTES:

1. SOUTHBOUND PROFILE GRADE LINE IS ALONG THE MEDIAN SIDE EDGE OF DRIVING LANE.
2. THE ROADWAY LANES AT THE CULVERT STATION ARE NOT IN A SUPERELEVATION TRANSITION.
3. STA. SB 86+47.01 (SURVEY BASELINE) EXISTING 24' X 30' SLAB BRIDGE, DESIGN NO. 2047, TO BE REMOVED.
4. DRAINAGE MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
5. THIS DESIGN INCLUDES STAGE 2 BARREL LENGTH, INLET END SECTION AND INLET REVETMENT.

LONGITUDINAL SECTION ALONG CL CULVERT



ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	58.0	95.0	36.2
OUTLET	--	--	--
TOTALS	58.0	95.0	36.2

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.

HYDRAULIC DATA

DRAINAGE AREA = 270 ACRES H
 DESIGN DISCHARGE, Q 100 = 479 CFS
 DESIGN HW ELEV. = 1129.9
 Q500 = 646 CFS
 ROADWAY OVERTOP STA. 1081+75 NBL
 ELEV. 1129.87

TRAFFIC ESTIMATE

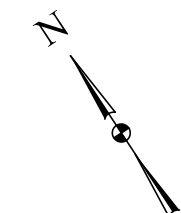
2019 AADT	17,000	V.P.D.
2039 AADT	22,700	V.P.D.
2039 DHV	2350	V.P.H.
TRUCKS	15	%
TOTAL DESIGN ESALS		

UTILITIES LEGEND:

- FO - FIBER OPTIC - NUETRAL PATH
- F02 - FIBER OPTIC - MCI
- F03 - FIBER OPTIC - FIBER COMM
- G-HP - HIGH PRESSURE GAS - MIDAMERICAN ENERGY
- PPA - PPA POWER POLE - MID AMERICAN ENERGY

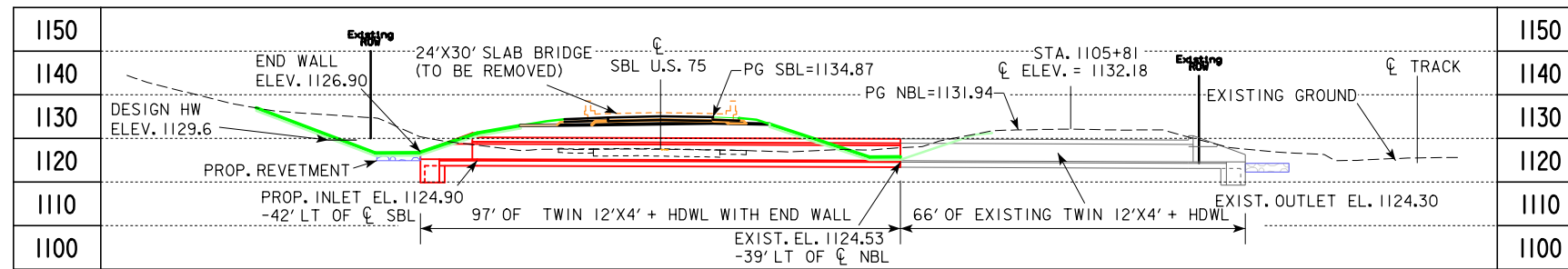
LOCATION

US 75 OVER SMALL NATURAL STREAM
 T-90N R-46W
 SECTION 30
 HUNGERFORD TOWNSHIP
 PLYMOUTH COUNTY
 FHWA NO. 700920
 BRIDGE MAINT. NO. 7502.IS075
 LATITUDE 42.580693°
 LONGITUDE -96.312486°
 PRELIMINARY



DESIGN FOR 0° SKEW
TWIN 12' X 4' X 165'-0 PRECAST CONCRETE BOX CULVERT-STAGE 2

SITUATION PLAN
 STATION 1086+50.00 (N.B. U.S. 75) FEBRUARY 2018
PLYMOUTH COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 1 FILE NO. 31438 DESIGN NO. 520



BENCH MARK NO. 2: NORTH 8619288.380, EAST 14101557.731, ELEV. 1126.053 IOWA DOT FENO MONUMENT 6" DEEP IN NORTHWEST BERM OF FLOYD RIVER BRIDGE 900 FEET EAST OF US 75 ALONG PLYMOUTH COUNTY ROAD C70 - 100 FEET NORTH OF NORTHWEST CORNER OF BRIDGE.

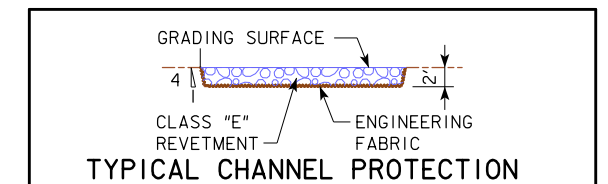
GI = +0.300% GI = -0.123%

VPI STA = 104+00.00 VC = 300'
VPI ELEV = 1135.08

PROPOSED PROFILE GRADE U.S. 75 (SOUTHBOUND)

NOTES:

1. SOUTHBOUND PROFILE GRADE LINE IS ALONG THE MEDIAN SIDE EDGE OF DRIVING LANE.
2. STA. SB 105+64.5 (SURVEY BASELINE) EXISTING 24' X 30' SLAB BRIDGE DES #2147 TO BE REMOVED.
3. DRAINAGE MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
4. THIS DESIGN INCLUDES STAGE 2 BARREL, INLET HEADWALL WITH END WALL, AND REVETMENT.
5. QUANTITIES INCLUDE ALL PROPOSED REVETMENT, ENGINEERING FABRIC AND EXCAVATION NEEDED ON THIS PLAN SHEET.
6. STAGE 1 IS DESIGN NO. 819.



ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	60	69	32
OUTLET	--	--	--
TOTALS	60	69	32

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.

HYDRAULIC DATA

DRAINAGE AREA = PART OF 167 ACRES VH
DESIGN DISCHARGE, Q 100 = 365 CFS
DESIGN HW ELEV. = 1129.6
ROADWAY OVERTOP STA. 95+00 SBL ELEV. 1132.84

TRAFFIC ESTIMATE

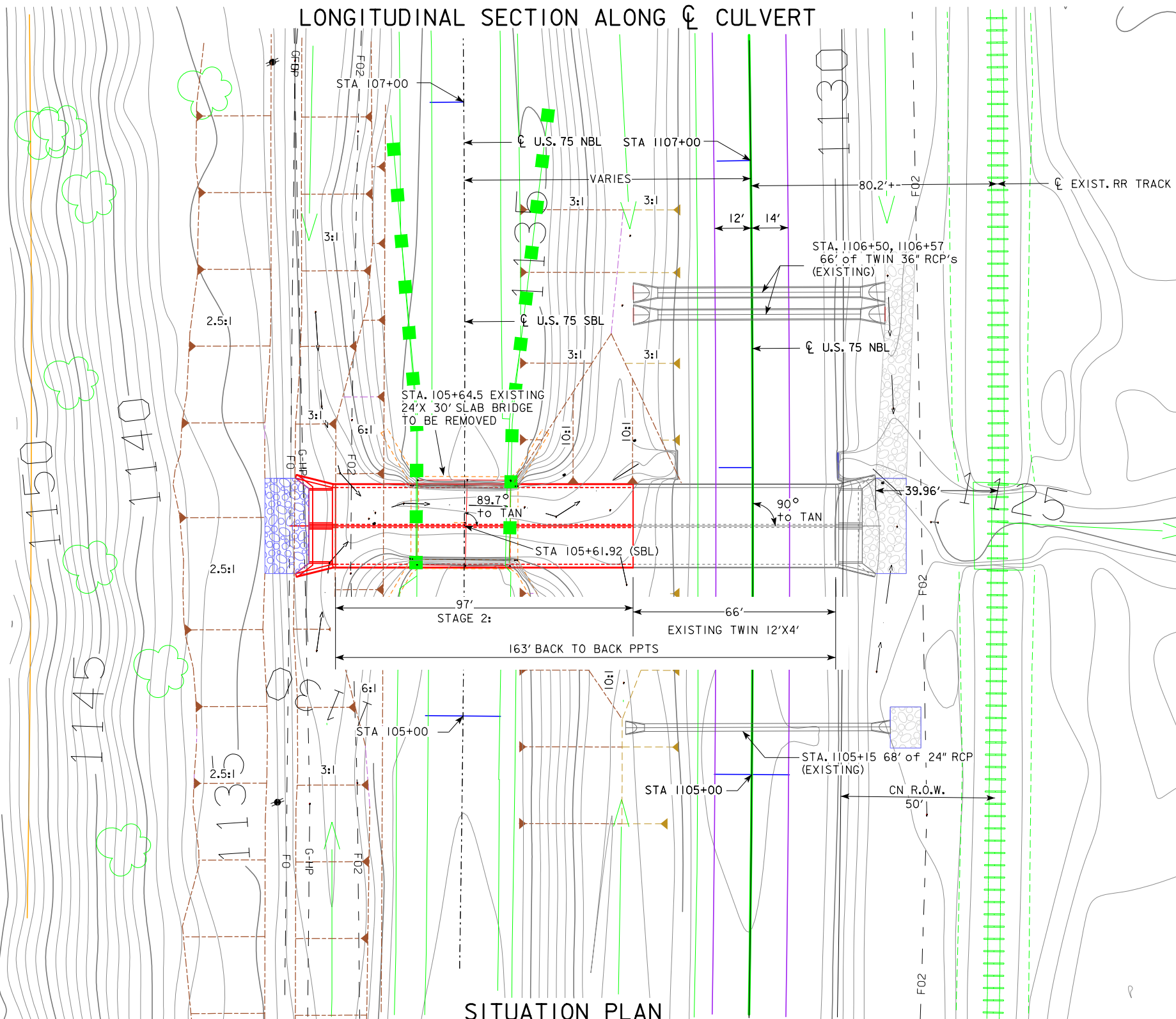
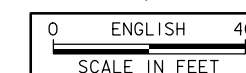
2019 AADT	17,000	V.P.D.
2039 AADT	22,700	V.P.D.
2039 DHV	2350	V.P.H.
TRUCKS	15	%
TOTAL DESIGN ESALs		

UTILITIES LEGEND:

- FO - FIBER OPTIC - NEUTRAL PATH
- FO2 - FIBER OPTIC - MCI
- FO3 - FIBER OPTIC - FIBER COMM
- G+HP - HIGH PRESSURE GAS - MIDAMERICAN ENERGY
- PPA - PPA POWER POLE - MID AMERICAN ENERGY

CURVE DATA

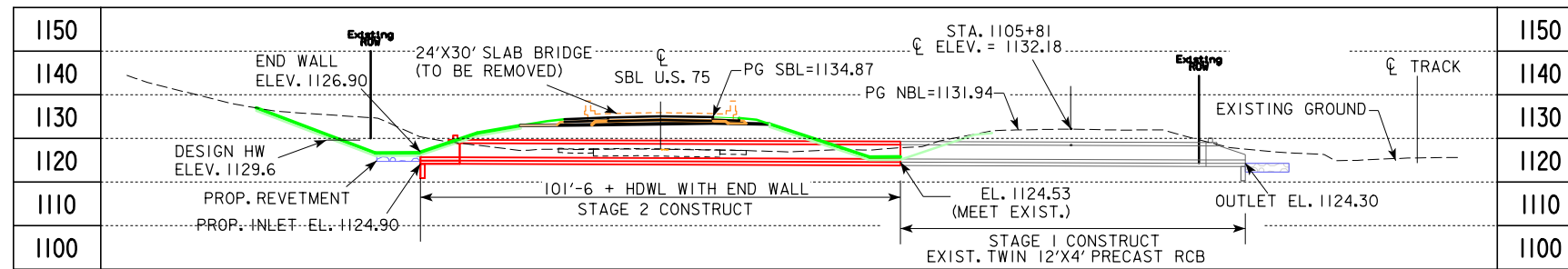
$\Delta = 12^\circ 30' 03.40''$
T = 1,158.52
L = 2307.84
E = 63.25
R = 10,577.57
e = nc



SITUATION PLAN

PRELIMINARY

DESIGN FOR 0° SKEW
TWIN 12' x 4' x 163' REINFORCED CONCRETE BOX CULVERT (STAGE 2)
SITUATION PLAN
STATION 1105+81 (N.B. U.S.75) FEBRUARY 2018
PLYMOUTH COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 1 FILE NO. 31438 DESIGN NO. 620



BENCH MARK NO. 2: NORTH 8619288.380, EAST 14101557.731, ELEV. 1126.053 IOWA DOT FENO MONUMENT 6" DEEP IN NORTHWEST BERM OF FLOYD RIVER BRIDGE 900 FEET EAST OF US 75 ALONG PLYMOUTH COUNTY ROAD C70 - 100 FEET NORTH OF NORTHWEST CORNER OF BRIDGE.

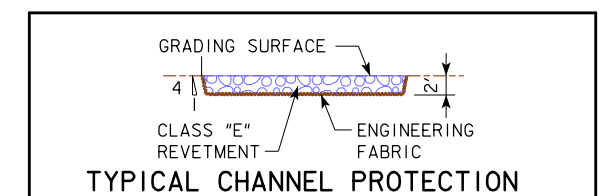
GI = +0.300% GI = -0.123%

VPI STA = 104+00.00 VC = 300'
VPI ELEV = 1135.08

PROPOSED PROFILE GRADE U.S. 75 (SOUTHBOUND)

NOTES:

1. SOUTHBOUND PROFILE GRADE LINE IS ALONG THE MEDIAN SIDE EDGE OF DRIVING LANE.
2. STA. SB 105+64.5 (SURVEY BASELINE) EXISTING 24'x30' SLAB BRIDGE DES #2147 TO BE REMOVED.
3. DRAINAGE MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
4. THIS DESIGN INCLUDES STAGE 2 BARREL, OUTLET END SECTION, AND REVETMENT.
5. QUANTITIES IN TABLE INCLUDE ALL PROPOSED REVETMENT, ENGINEERING FABRIC AND EXCAVATION REQUIRED ON THIS PLAN SHEET.
6. STAGE 1 IS DESIGN NO. 819.



ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	56	95	30
OUTLET	--	--	--
TOTALS	56	95	30

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.

HYDRAULIC DATA

DRAINAGE AREA = PART OF 167 ACRES VH
DESIGN DISCHARGE, Q 100 = 365 CFS
DESIGN HW ELEV. = 1129.6
ROADWAY OVERTOP STA. 95+00 SBL
ELEV. 1132.84

TRAFFIC ESTIMATE

2019 AADT 17,000 V.P.D.
2039 AADT 22,700 V.P.D.
2039 DHV 2350 V.P.H.
TRUCKS 15 %
TOTAL
DESIGN ESALs _____

UTILITIES LEGEND:

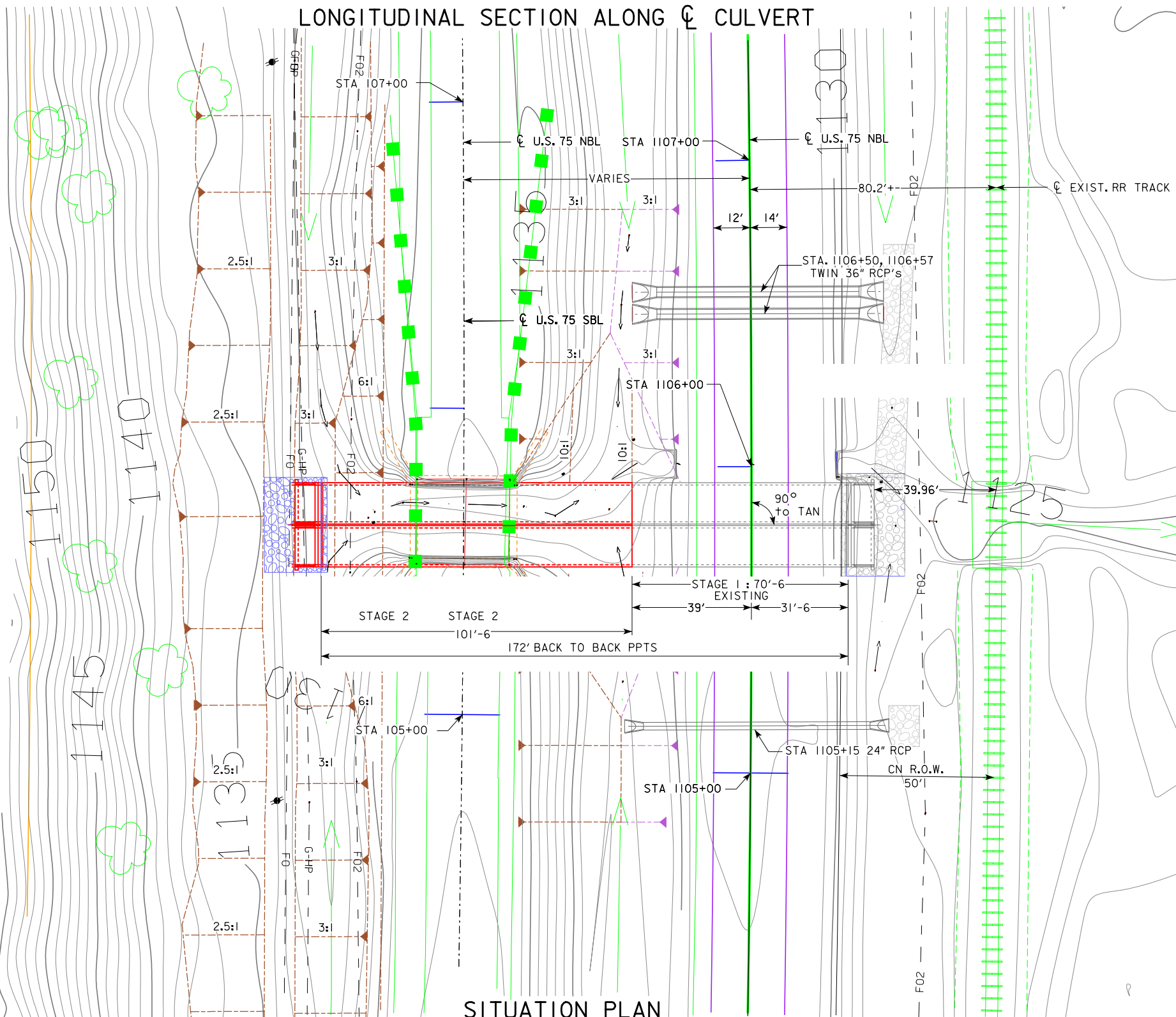
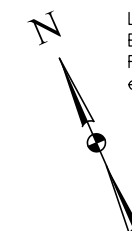
FO - FIBER OPTIC - NEUTRAL PATH
FO2 - FIBER OPTIC - MC1
FO3 - FIBER OPTIC - FIBER COMM
G-HP - HIGH PRESSURE GAS - MIDAMERICAN ENERGY
PPA - PPA POWER POLE - MID AMERICAN ENERGY

LOCATION

US 75 OVER SMALL NATURAL STREAM
T-90N R-46W
SECTION 29
HUNGERFORD TOWNSHIP
PLYMOUTH COUNTY
FHWA NO. 700955
BRIDGE MAINT. NO. 7502.5S075
LATITUDE 42.585375°
LONGITUDE -96.309152°

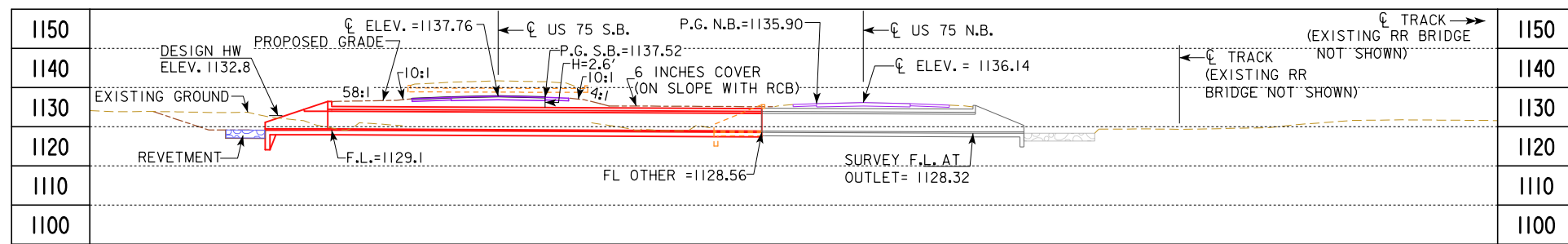
CURVE DATA

Δ = 12° 30' 03.40"
T = 1,158.52
L = 2307.84
E = 63.25
R = 10,577.57
e = nc

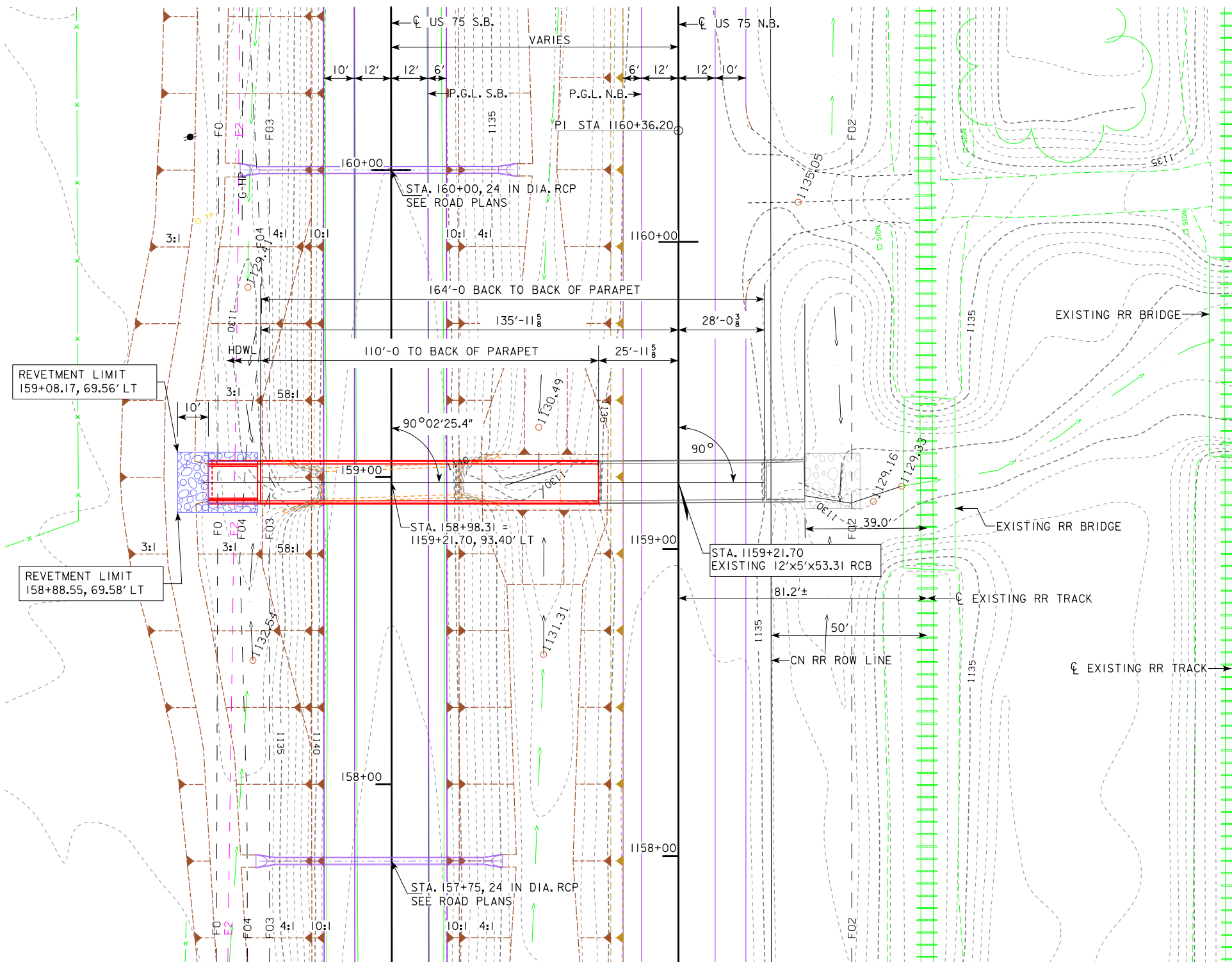


SITUATION PLAN

PRELIMINARY
DESIGN FOR 0° SKEW
**TWIN 12' x 4' x 172' PRECAST
CONCRETE BOX CULVERT
(STAGE 2)
SITUATION PLAN**
STATION 1105+81 (N.B. U.S.75) FEBRUARY 2018
PLYMOUTH COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 1 FILE NO. 31438 DESIGN NO. 620



LONGITUDINAL SECTION ALONG ϕ CULVERT



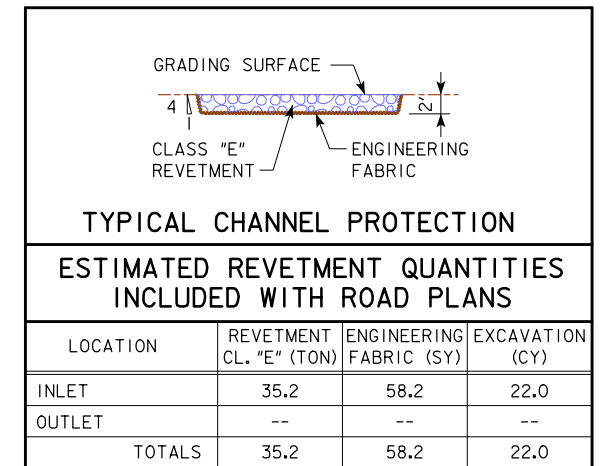
SITUATION PLAN

BENCH MARK NO. 3: NORTH 8625665.153, EAST 14103836.665, ELEV. 1137.387, STA. 140+66.67, 44.408
 IOWA DOT FENO MONUMENT 6" DEEP-LOCATED 18 FEET SOUTHEAST OF STATION POST 140- 45 FEET EAST OF CENTERLINE NORTHBOUND US 75- 20 FEET NORTH OF NORTH EDGE OF FIELD ENTRANCE TO EAST.

$G = -0.338\%$
 VPI STA = 157+00.000 VPI STA = 159+75.000
 VPI ELEV = 1138.19 VPI ELEV = 1137.26
PROPOSED PROFILE
GRADE US 75 (SOUTHBOUND)

NOTES:

1. SOUTHBOUND PROFILE GRADE LINE IS ALONG THE MEDIAN SIDE EDGE OF DRIVING LANE.
2. STA. SB 158+98.13 (SURVEY BASELINE) EXISTING 10' x 44' CONC. SLAB BRIDGE ON SHEET PILE, DESIGN NO. 547, TO BE REMOVED.
3. STA. NB 159+21.90 (SURVEY BASELINE) EXISTING 12'x5'x53.31 RCB DESIGN NO. 1771. REMOVE LEFT HEADWALL TO FRONT FACE OF PARAPET AND LEFT PARAPET TO TOP OF SLAB.
4. THE RCB SOIL COVER IN THE MEDIAN IS INTENDED TO BE APPROXIMATELY 6 INCHES LOWER THAN THE NORTHBOUND EDGE OF SHOULDER TO ALLOW MEDIAN DITCH OVERFLOW RELIEF.



EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.

HYDRAULIC DATA

DRAINAGE AREA = 66 ACRES (HILLY)
 Q100 = 219 CFS
 HW ELEV. = 1132.8
 ROADWAY OVERTOP N.B.
 STATION 1163+25, ELEV. 1135.2

TRAFFIC ESTIMATE

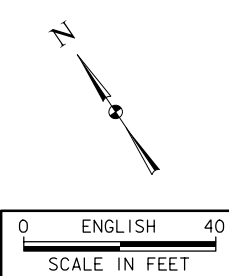
2019 AADT 17,000 V.P.D.
 2039 AADT 22,700 V.P.D.
 2039 DHV 2350 V.P.H.
 TRUCKS 15 %
 TOTAL DESIGN ESALS _____

UTILITIES LEGEND:

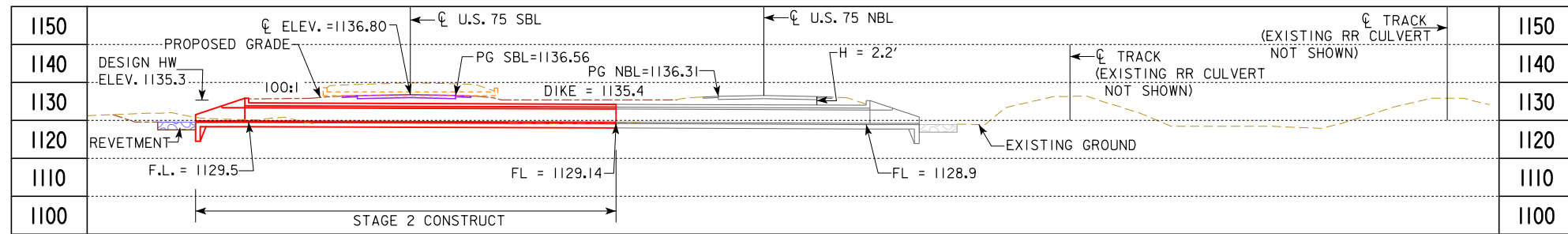
- FO - FIBER OPTIC - NEUTRAL PATH
- FO2 - FIBER OPTIC - MCI
- FO3 - FIBER OPTIC - FIBER COMM
- FO4 - FIBER OPTIC - PREMIER COMM
- G-HP - HIGH PRESSURE GAS - MIDAMERICAN ENERGY
- E2 - ELECTRIC LINE - MIDAMERICAN ENERGY
- PPA - PPA POWER POLE - MIDAMERICAN ENERGY

LOCATION

US 75 OVER DRAW
 T-90N R-46W
 SECTION 20
 HUNGERFORD TOWNSHIP
 PLYMOUTH COUNTY
 LATITUDE 42.599146°
 LONGITUDE -96.302372°



PRELIMINARY
 DESIGN FOR 0° SKEW
EXTEND 12' x 5' REINFORCED CONCRETE BOX CULVERT
 SITUATION PLAN
 STATION 1159+21.70 (N.B. US 75) FEBRUARY 2018
PLYMOUTH COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 1 FILE NO. 31438 DESIGN NO. 920



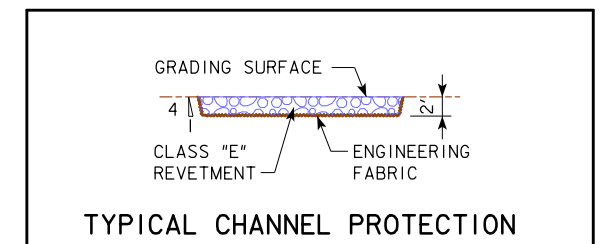
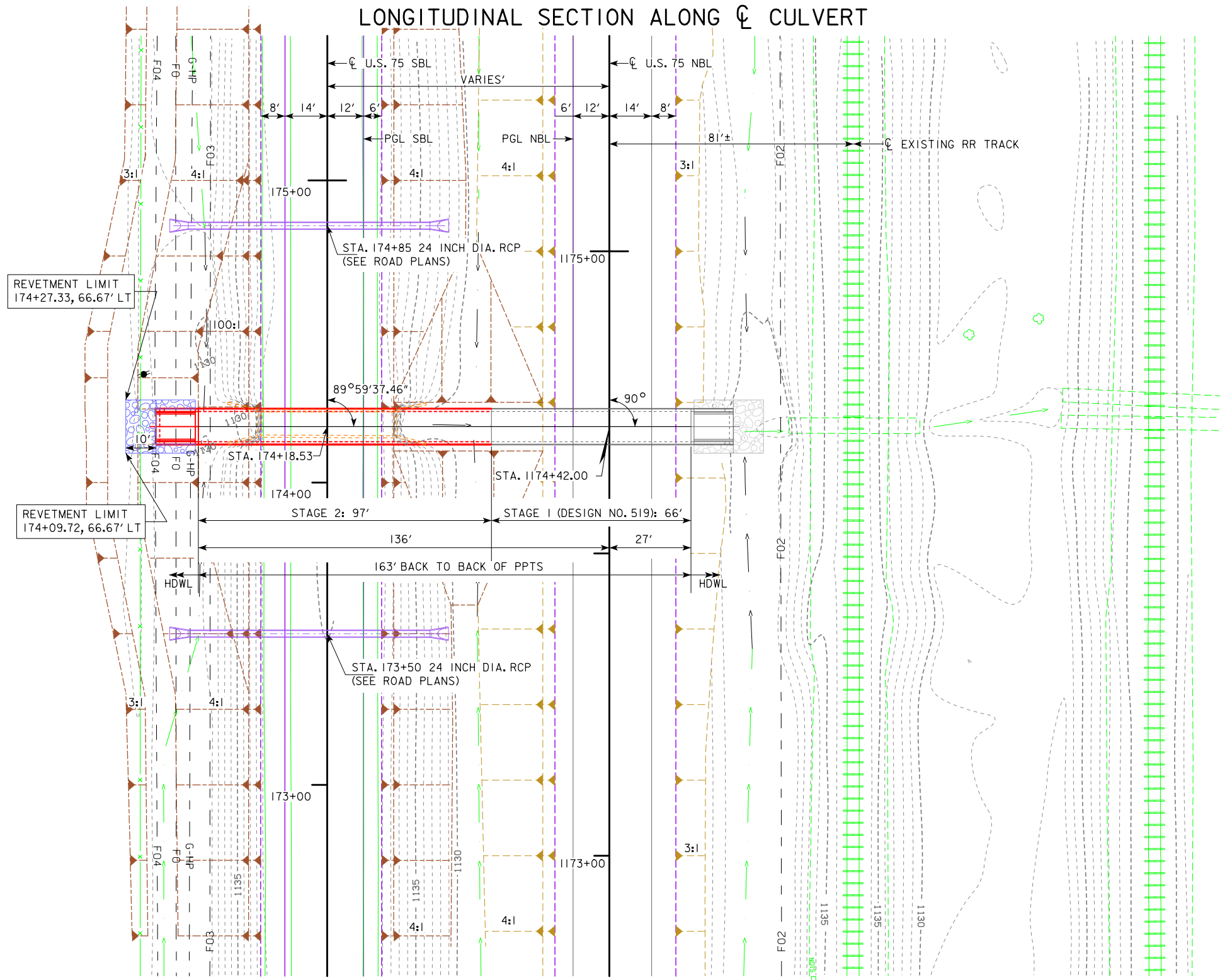
BENCH MARK NO. 3: NORTH 8625665.153, EAST 14103836.665, ELEV. 1137.387, STA. 140+66.67, 44.408
 IOWA DOT FENO MONUMENT 6" DEEP-LOCATED 18 FEET SOUTHEAST OF STATION POST 140- 45 FEET EAST OF CENTERLINE NORTHBOUND US 75- 20 FEET NORTH OF NORTH EDGE OF FIELD ENTRANCE TO EAST.

G1 = +0.100% G2 = -0.135%

VPI STA = 1174+00.000 VC = 250.00 FT
 VPI ELEV = 1136.64

**PROPOSED PROFILE
 GRADE U.S. 75 (SOUTHBOUND.)**

- NOTES:
1. SOUTHBOUND PROFILE GRADE LINE IS ALONG THE MEDIAN SIDE EDGE OF DRIVING LANE.
 2. STA. SB 174+19.51 (SURVEY BASELINE) EXISTING 10' X 44' CONC. SLAB ON SHEET PILE, DESIGN NO. 647, TO BE REMOVED.
 3. DRAINAGE MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
 4. STAGE 2: CONSTRUCT 97'-0 BARREL LENGTH PLUS INLET HDWL AND REVETMENT.



TYPICAL CHANNEL PROTECTION

ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	30.6	53.2	19.1
OUTLET	--	--	--
TOTALS	30.6	53.2	19.1

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.

HYDRAULIC DATA

DRAINAGE AREA = PART OF 429 ACRES HILLY
 DESIGN DISCHARGE, Q 100 = 190 CFS OF 674 CFS
 DESIGN HW ELEV. = 1135.8
 ROADWAY OVERTOP ELEV. 1135.6
 STA. 1167+00 NB

TRAFFIC ESTIMATE

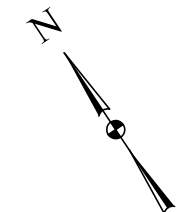
2019 AADT	17,000	V.P.D.
2039 AADT	22,700	V.P.D.
2039 DHV	2350	V.P.H.
TRUCKS	15	%
TOTAL DESIGN ESALS	--	

UTILITIES LEGEND:

- F0 - FIBER OPTIC - NEUTRAL PATH
- F02 - FIBER OPTIC - MCI
- F03 - FIBER OPTIC - FIBER COMM
- G-HP - HIGH PRESSURE GAS - MIDAMERICAN ENERGY
- PPA - PPA POWER POLE - MID AMERICAN ENERGY

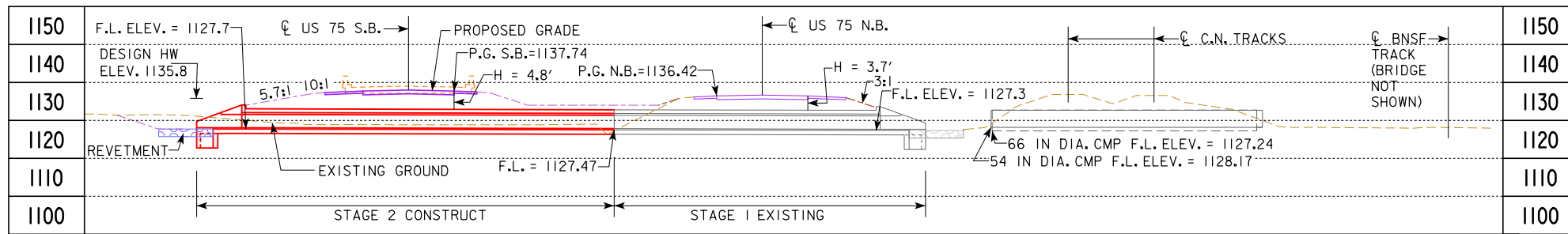
LOCATION

US 75 OVER DRAW
 T-90N R-46W
 SECTION 20
 HUNGERFORD TOWNSHIP
 PLYMOUTH COUNTY
 LATITUDE 42.603069°
 LONGITUDE -96.300457°
 PRELIMINARY



DESIGN FOR 0° SKEW
10' x 4' x 163' REINFORCED CONCRETE BOX CULVERT-STAGE 2

SITUATION PLAN
 STATION 1174+42.00 (N.B. U.S. 75) FEBRUARY 2018
PLYMOUTH COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 1 FILE NO. 31438 DESIGN NO. 1020



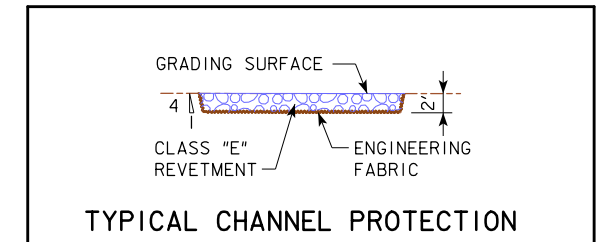
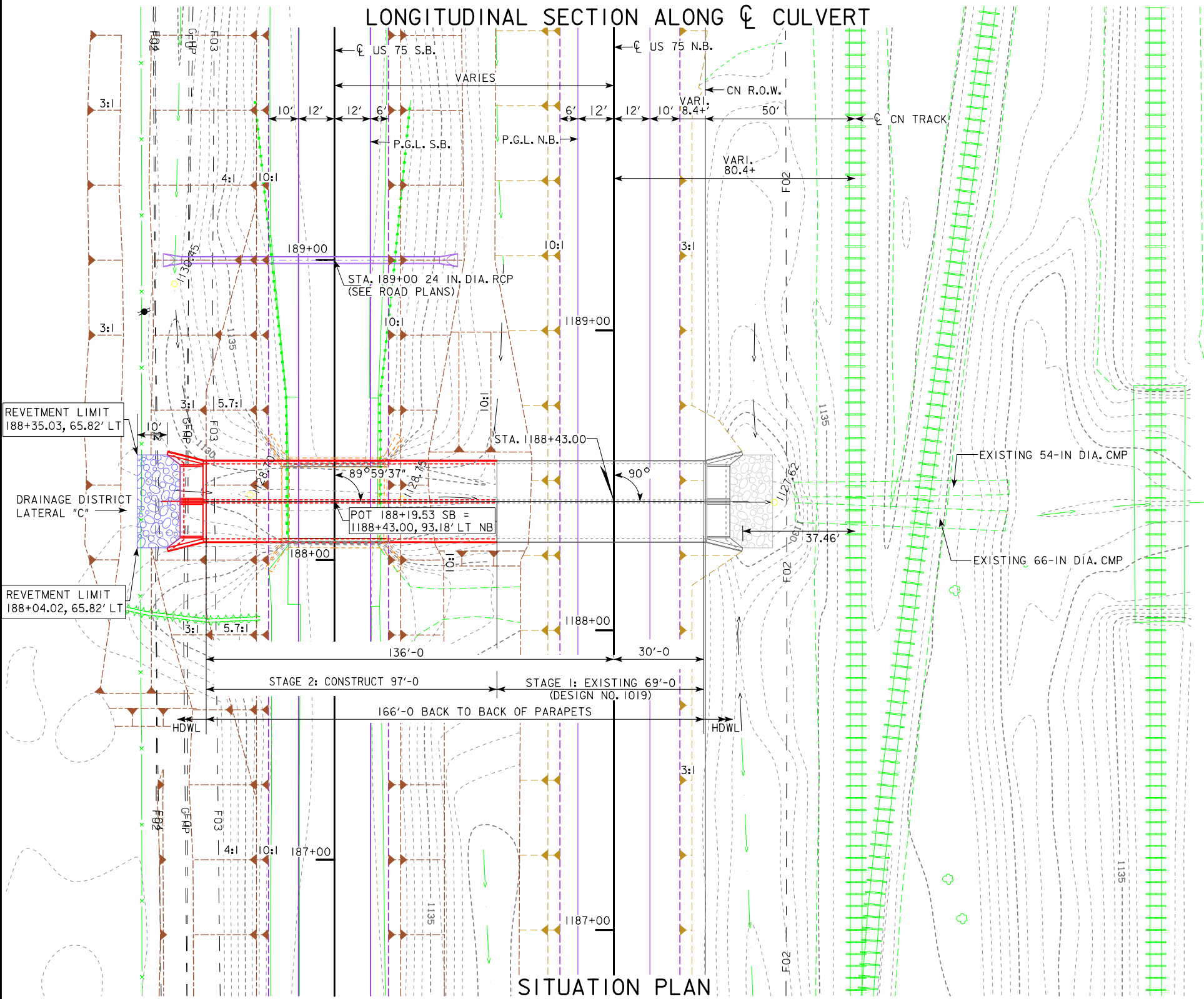
BENCH MARK NO. 3: NORTH 8625665.153, EAST 14103836.665, ELEV. 1137.387, STA. 140+66.67, 44.408 RT
 IOWA DOT FENO MONUMENT 6" DEEP-LOCATED 18 FEET SOUTHEAST OF STATION POST 140- 45 FEET
 EAST OF CENTERLINE NORTHBOUND US 75- 20 FEET NORTH OF NORTH EDGE OF FIELD ENTRANCE TO
 EAST.

G1 = +0.258% G2 = -0.232%

VPI STA = 188+50.000
 VPI ELEV = 1137.932
 L = 300.00

**PROPOSED PROFILE
 GRADE US 75 (SOUTHBOUND.)**

- NOTES:
1. SOUTHBOUND PROFILE GRADE LINE IS ALONG THE MEDIAN SIDE EDGE OF DRIVING LANE.
 2. STA. SB 188+19.01 (SURVEY BASELINE) EXISTING 24' X 30' CONCRETE SLAB BRIDGE DESIGN NO. 2447, TO BE REMOVED.
 3. THIS DESIGN INCLUDES STAGE 2 BARREL, INLET HDWL AND INLET REVETMENT.



TYPICAL CHANNEL PROTECTION

ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	51.0	67.0	31.9
OUTLET	--	--	--
TOTALS	51.0	67.0	31.9

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.

HYDRAULIC DATA

DRAINAGE AREA = PART OF 429 ACRES (HILLY)
 DESIGN DISCHARGE, Q 100 = 484 CFS OF 674 CFS
 DESIGN HW ELEV. = 1135.8
 ROADWAY OVERTOP ELEV. 1135.6
 STA. 1167+00 N.B.

TRAFFIC ESTIMATE

2019 AADT	17,000	V.P.D.
2039 AADT	22,700	V.P.D.
2039 DHV	2350	V.P.H.
TRUCKS	15	%
TOTAL DESIGN ESALS		

UTILITIES LEGEND:

- FO - FIBER OPTIC - NUETRAL PATH
- F02 - FIBER OPTIC - MCI
- F03 - FIBER OPTIC - FIBER COMM
- F04 - FIBER OPTIC - PREMIER COMM
- G-HP - HIGH PRESSURE GAS - MIDAMERICAN ENERGY

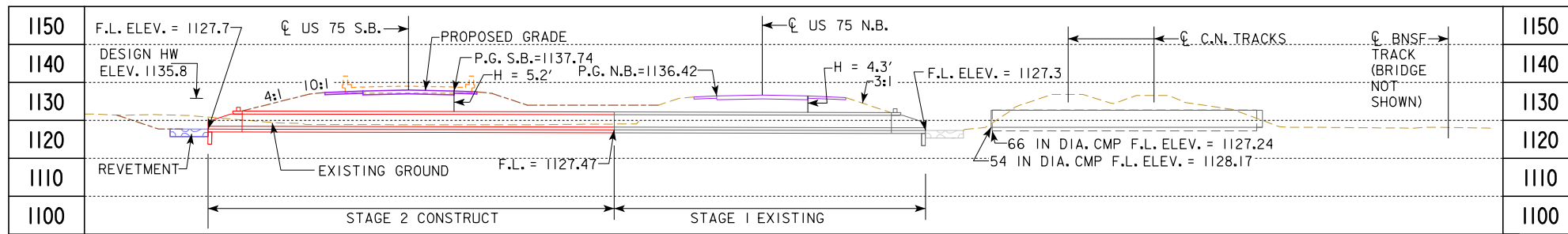
LOCATION

US 75 OVER DRAINAGE DISTRICT LATERAL C
 T-90N R-46W
 SECTION 17
 HUNGERFORD TOWNSHIP
 PLYMOUTH COUNTY
 FHWA NO. 700995
 MAINTENANCE NO. 7504.0S075
 LATITUDE 42.606685°
 LONGITUDE -96.298692°



PRELIMINARY
 DESIGN FOR 0° SKEW
**TWIN 12' x 4' x 166' REINFORCED
 CONCRETE BOX CULVERT-STAGE 2**

SITUATION PLAN
 STATION 1188+43.00 (N.B. US 75) FEBRUARY 2018
PLYMOUTH COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 1 FILE NO. 31438 DESIGN NO. 1120



BENCH MARK NO. 3: NORTH 8625665.153, EAST 14103836.665, ELEV. 1137.387, STA. 140+66.67, 44.408 RT
 IOWA DOT FENO MONUMENT 6" DEEP-LOCATED 18 FEET SOUTHEAST OF STATION POST 140- 45 FEET
 EAST OF CENTERLINE NORTHBOUND US 75- 20 FEET NORTH OF NORTH EDGE OF FIELD ENTRANCE TO
 EAST.

G1 = +0.258% G2 = -0.232%

VPI STA = 188+50.00
 VPI ELEV = 1137.932
 L = 300.00

**PROPOSED PROFILE
 GRADE US 75 (SOUTHBOUND.)**

- NOTES:
 1. SOUTHBOUND PROFILE GRADE LINE IS ALONG THE MEDIAN SIDE EDGE OF DRIVING LANE.
 2. STA. SB 188+19.01 (SURVEY BASELINE) EXISTING 24' X 30' CONCRETE SLAB BRIDGE DESIGN NO. 2447, TO BE REMOVED.
 3. THIS DESIGN INCLUDES STAGE 2 BARREL, INLET END SECTION AND INLET REVETMENT.

TYPICAL CHANNEL PROTECTION

ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	58.0	95.3	36.2
OUTLET	--	--	--
TOTALS	58.0	95.3	36.2

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.

HYDRAULIC DATA

DRAINAGE AREA = PART OF 429 ACRES (HILLY)
 DESIGN DISCHARGE, Q 100 = 484 CFS OF 674 CFS
 DESIGN HW ELEV. = 1135.8
 ROADWAY OVERTOP ELEV. 1135.6
 STA. 1167+00 N.B.

TRAFFIC ESTIMATE

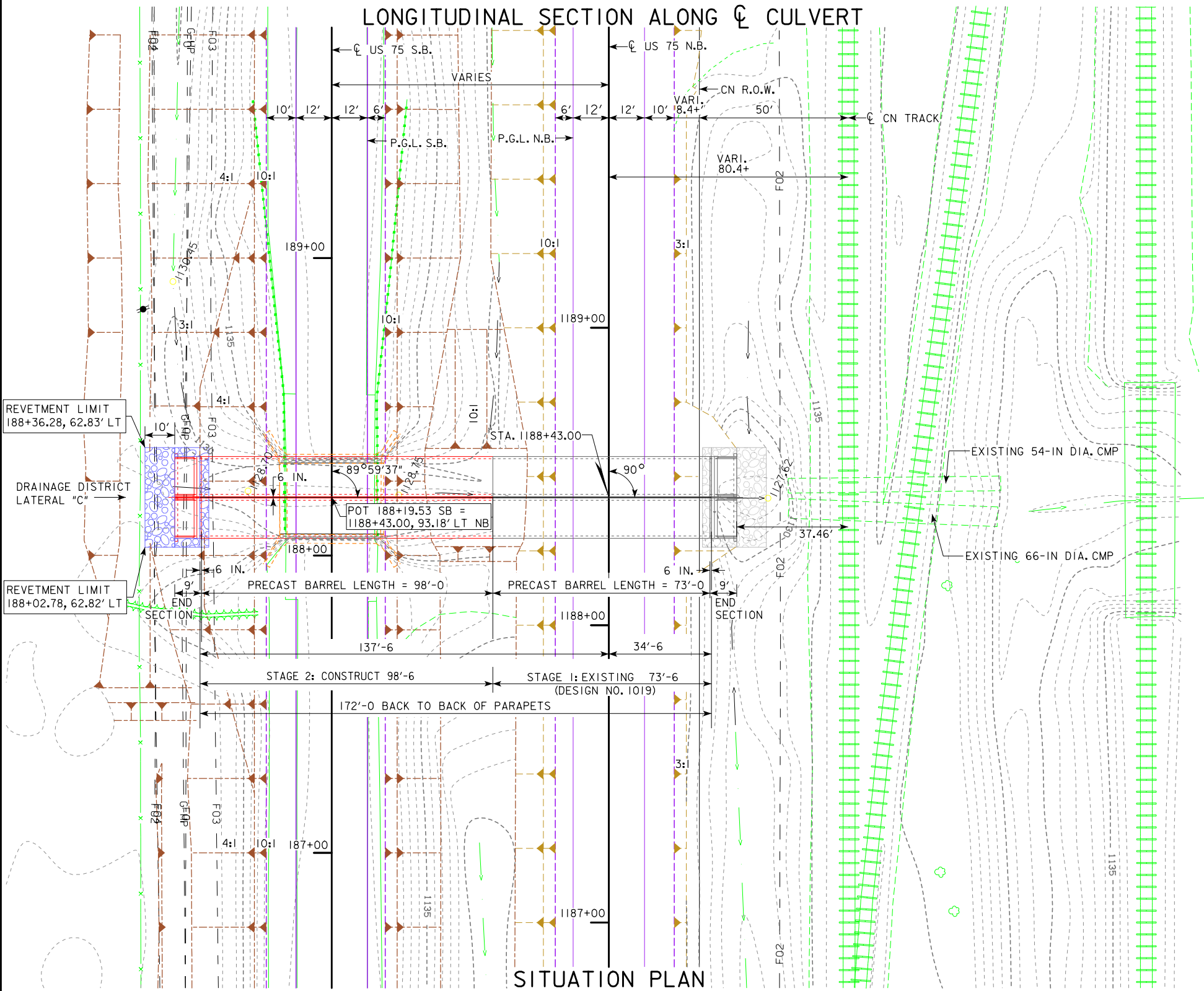
2019 AADT 17,000 V.P.D.
 2039 AADT 22,700 V.P.D.
 2039 DHV 2350 V.P.H.
 TRUCKS 15 %
 TOTAL DESIGN ESALS

UTILITIES LEGEND:

- FO - FIBER OPTIC - NUETRAL PATH
- F02 - FIBER OPTIC - MCI
- F03 - FIBER OPTIC - FIBER COMM
- F04 - FIBER OPTIC - PREMIER COMM
- G-HP - HIGH PRESSURE GAS - MIDAMERICAN ENERGY

LOCATION

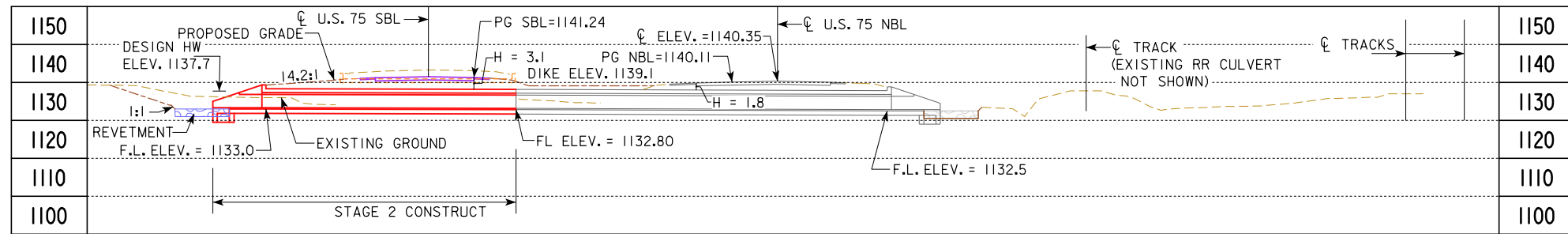
US 75 OVER DRAINAGE DISTRICT LATERAL C
 T-90N R-46W
 SECTION 17
 HUNGERFORD TOWNSHIP
 PLYMOUTH COUNTY
 FHWA NO. 700995
 MAINTENANCE NO. 7504.0S075
 LATITUDE 42.606685°
 LONGITUDE -96.298692°



SITUATION PLAN



PRELIMINARY
 DESIGN FOR 0° SKEW
**TWIN 12' x 4' x 172' PRECAST
 CONCRETE BOX CULVERT-STAGE 2**
SITUATION PLAN
 STATION 1188+43.00 (N.B. US 75) FEBRUARY 2018
PLYMOUTH COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 1 FILE NO. 31438 DESIGN NO. 1120

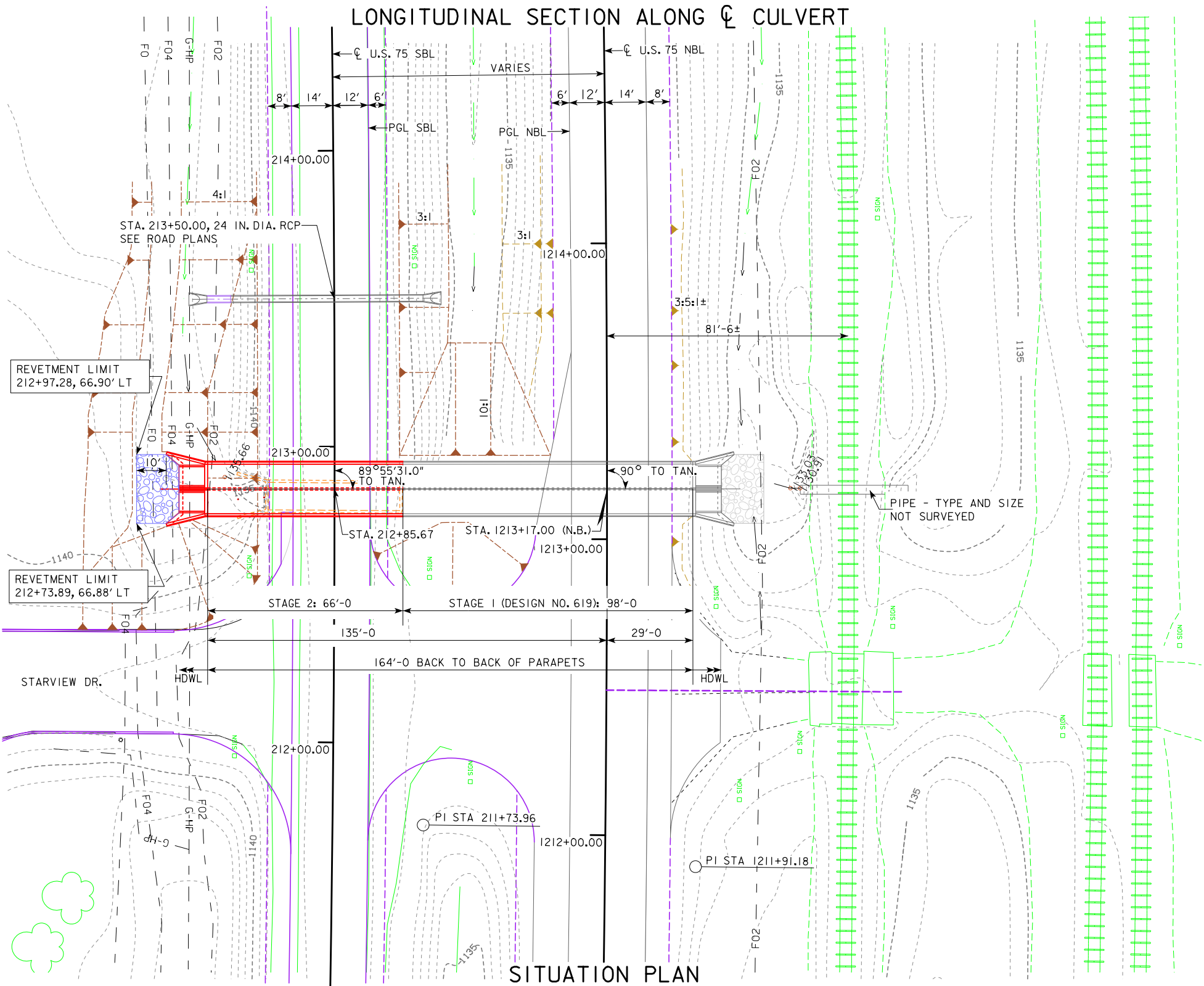


BENCH MARK NO. 3: NORTH 8625665.153, EAST 14103836.665, ELEV. 1137.387, STA. 140+66.67, 44.408
 IOWA DOT FENO MONUMENT 6" DEEP-LOCATED 18 FEET SOUTHEAST OF STATION POST 140- 45 FEET EAST OF CENTERLINE NORTHBOUND US 75- 20 FEET NORTH OF NORTH EDGE OF FIELD ENTRANCE TO EAST.

GI = +0.380% G2 = +1.390%
 VPI STA = 213+00.00 VC= 400.00 FT
 VPI ELEV = 1141.40

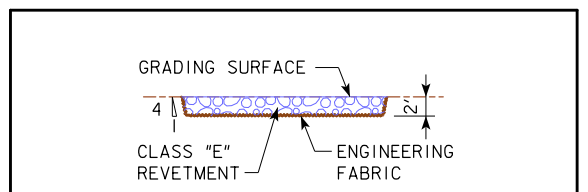
**PROPOSED PROFILE
 GRADE U.S. 75 (SOUTHBOUND.)**

- NOTES:
1. SOUTHBOUND PROFILE GRADE LINE IS ALONG THE MEDIAN SIDE EDGE OF DRIVING LANE.
 2. STA. SB 212+83.10 (SURVEY BASELINE) EXISTING 10' X 44.51' RCB, DESIGN NO. 747, TO BE REMOVED.
 3. DRAINAGE MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
 4. THIS DESIGN INCLUDES STAGE 2 BARREL, INLET HDWL AND INLET REVETMENT.
 5. THE CULVERT FLOWLINES ARE BURIED 1' LOWER THAN THE DITCH GRADES SO THAT A STANDARD CULVERT DESIGN CAN BE UTILIZED.



CURVE DATA S.B.

PI STA. 211+73.96
 $\Delta = 8^\circ 26' 14.41''$ (LT)
 T = 832.51
 L = 1,662.01
 E = 30.66
 R = 11,286.28
 e = NORMAL CROWN
 PC STA. 203+41.45
 PT STA. 220+03.46



TYPICAL CHANNEL PROTECTION

ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	37.7	51.0	23.5
OUTLET	--	--	--
TOTALS	37.7	51.0	23.5

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.

HYDRAULIC DATA

DRAINAGE AREA = 65 ACRES H
 DESIGN DISCHARGE, Q 100 = 283 CFS
 DESIGN HW ELEV. = 1137.7
 Q500 = 348 CFS, HW = 1138.7
 ROADWAY OVERTOP ELEV. 1140.2
 STA. 1212+00 N.B.

TRAFFIC ESTIMATE

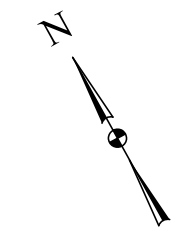
2019 AADT 17,000 V.P.D.
 2039 AADT 22,700 V.P.D.
 2039 DHV 2350 V.P.H.
 TRUCKS 15 %
 TOTAL DESIGN ESALs --

UTILITIES LEGEND:

F0 - FIBER OPTIC - NUETRAL PATH
 F02 - FIBER OPTIC - MCI
 F04 - FIBER OPTIC - PREMIER COMM
 G-HP - HIGH PRESSURE GAS - MIDAMERICAN ENERGY

LOCATION

US 75 OVER EXISTING DRAINAGE WAY
 T-90N R-46W
 SECTION 17
 HUNGERFORD TOWNSHIP
 PLYMOUTH COUNTY
 LATITUDE 42.613106°
 LONGITUDE -96.295717°



PRELIMINARY

DESIGN FOR 0° SKEW

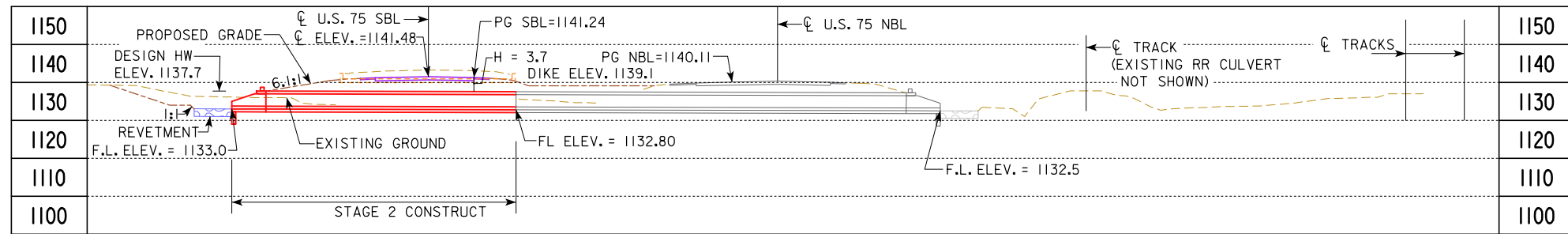
TWIN 8' x 4' x 164' REINFORCED CONCRETE BOX CULVERT-STAGE 2

SITUATION PLAN

STATION 1213+17.00 (N.B. US 75) FEBRUARY 2018

PLYMOUTH COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 1 FILE NO. 31438 DESIGN NO. 1220

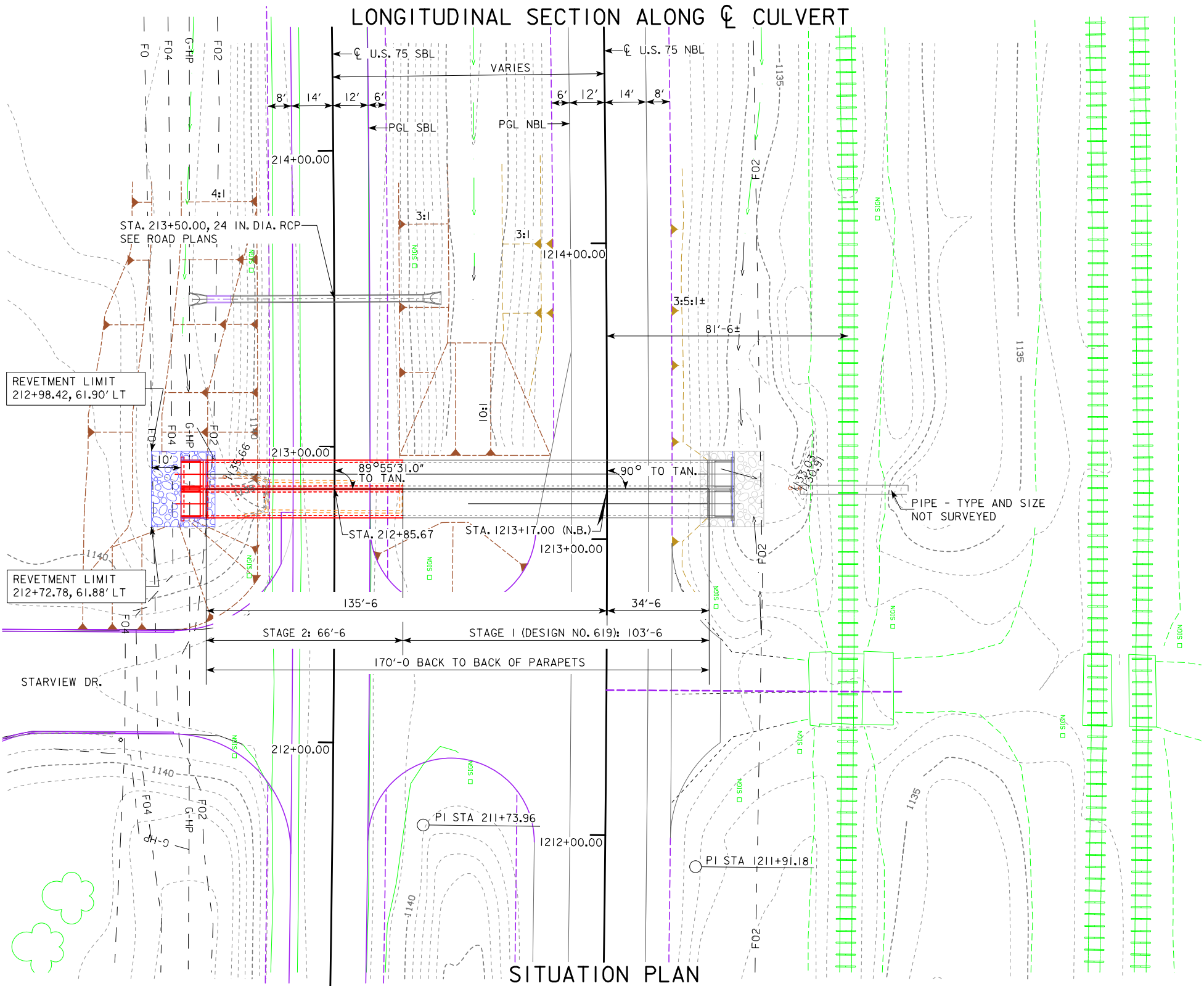


BENCH MARK NO. 3: NORTH 8625665.153, EAST 14103836.665, ELEV. 1137.387, STA. 140+66.67, 44.408
 IOWA DOT FENO MONUMENT 6" DEEP-LOCATED 18 FEET SOUTHEAST OF STATION POST 140- 45 FEET EAST OF CENTERLINE NORTHBOUND US 75- 20 FEET NORTH OF NORTH EDGE OF FIELD ENTRANCE TO EAST.

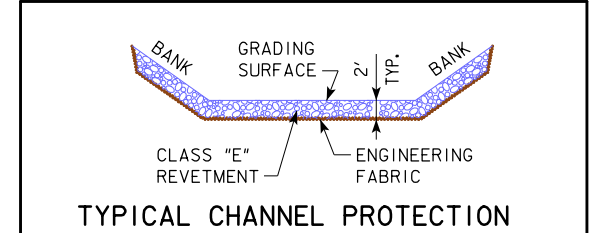
G1 = +0.380% G2 = +1.390%

VPI STA = 213+00.00 VC= 400.00 FT
 VPI ELEV = 1141.40

**PROPOSED PROFILE
 GRADE U.S. 75 (SOUTHBOUND.)**



- NOTES:
1. SOUTHBOUND PROFILE GRADE LINE IS ALONG THE MEDIAN SIDE EDGE OF DRIVING LANE.
 2. STA. SB 212+83.10 (SURVEY BASELINE) EXISTING 10' X 44.51' RCB, DESIGN NO. 747, TO BE REMOVED.
 3. DRAINAGE MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
 4. THIS DESIGN INCLUDES STAGE 2 BARREL, INLET END SECTION AND INLET REVETMENT.
 5. THE CULVERT FLOWLINES ARE BURIED 1' LOWER THAN THE DITCH GRADES SO THAT A STANDARD CULVERT DESIGN CAN BE UTILIZED.



CURVE DATA S.B.

PI STA. 211+73.96
 $\Delta = 8^\circ 26' 14.41''$ (LT)
 T = 832.51
 L = 1,662.01
 E = 30.66
 R = 11,286.28
 e = NORMAL CROWN
 PC STA. 203+41.45
 PT STA. 220+03.46

ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	45.6	76.6	28.5
OUTLET	--	--	--
TOTALS	45.6	76.6	28.5

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.

HYDRAULIC DATA

DRAINAGE AREA = 65 ACRES H
 DESIGN DISCHARGE, Q 100 = 283 CFS
 DESIGN HW ELEV. = 1137.7
 Q500 = 348 CFS, HW = 1138.7
 ROADWAY OVERTOP ELEV. 1140.2
 STA. 1212+00 N.B.

TRAFFIC ESTIMATE

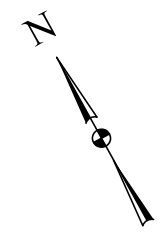
2019 AADT	17,000	V.P.D.
2039 AADT	22,700	V.P.D.
2039 DHV	2350	V.P.H.
TRUCKS	15	%
TOTAL DESIGN ESALs		

UTILITIES LEGEND:

- F0 - FIBER OPTIC - NEUTRAL PATH
- F02 - FIBER OPTIC - MCI
- F04 - FIBER OPTIC - PREMIER COMM
- G-HP - HIGH PRESSURE GAS - MIDAMERICAN ENERGY

LOCATION

US 75 OVER EXISTING DRAINAGE WAY
 T-90N R-46W
 SECTION 17
 HUNGERFORD TOWNSHIP
 PLYMOUTH COUNTY
 LATITUDE 42.613106°
 LONGITUDE -96.295717°



PRELIMINARY

DESIGN FOR 0° SKEW

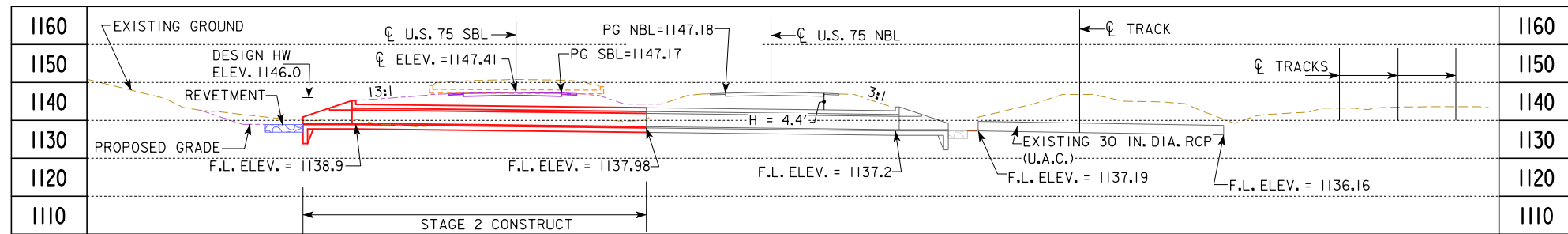
TWIN 8' x 4' x 170'-0 PRECAST CONCRETE BOX CULVERT-STAGE 2

SITUATION PLAN

STATION 1213+17.00 (N.B. U.S. 75) FEBRUARY 2018

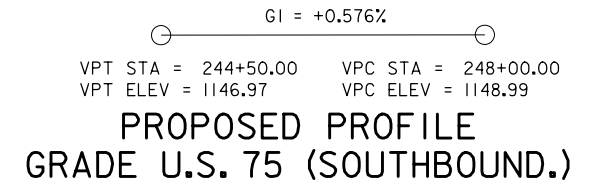
PLYMOUTH COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 1 FILE NO. 31438 DESIGN NO. 1220



LONGITUDINAL SECTION ALONG ϕ CULVERT

BENCH MARK NO. 3: NORTH 8625665.153, EAST 14103836.665, ELEV. 1137.387, STA. 140+66.67, 44.408
 IOWA DOT FENO MONUMENT 6" DEEP-LOCATED 18 FEET SOUTHEAST OF STATION POST 140- 45 FEET
 EAST OF CENTERLINE NORTHBOUND US 75- 20 FEET NORTH OF NORTH EDGE OF FIELD ENTRANCE TO
 EAST.



PROPOSED PROFILE
 GRADE U.S. 75 (SOUTHBOUND.)

NOTES:

1. SOUTHBOUND PROFILE GRADE LINE IS ALONG THE MEDIAN SIDE EDGE OF DRIVING LANE.
2. STA. SB 244+89.94 (SURVEY BASELINE) 10'X44.34' SLAB RCB TO BE REMOVED.
3. DRAINAGE MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
4. THIS DESIGN INCLUDES STAGE 2 BARREL, INLET HDWL AND INLET REVETMENT.
5. REMOVAL OF EXISTING MEDIAN TRANSITION REVETMENT AS NEEDED IS INCIDENTAL TO THE WORK.

TYPICAL CHANNEL PROTECTION			
ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS			
LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	30.6	53.2	19.1
OUTLET	--	--	--
TOTALS	30.6	53.2	19.1

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.

HYDRAULIC DATA

DRAINAGE AREA = 50 ACRES
 Q 100 = 155 CFS
 HW ELEV. = 1146.0

CURVE DATA (S.B.)

PI STA. 241+15.85
 $\Delta = 4^\circ 00' 00.02''$ (RT)
 T = 400.19
 L = 800.06
 E = 6.99
 R = 11,460.00
 e = N.C.
 PC STA. 237+15.66
 PT STA. 245+15.72

UTILITIES LEGEND:

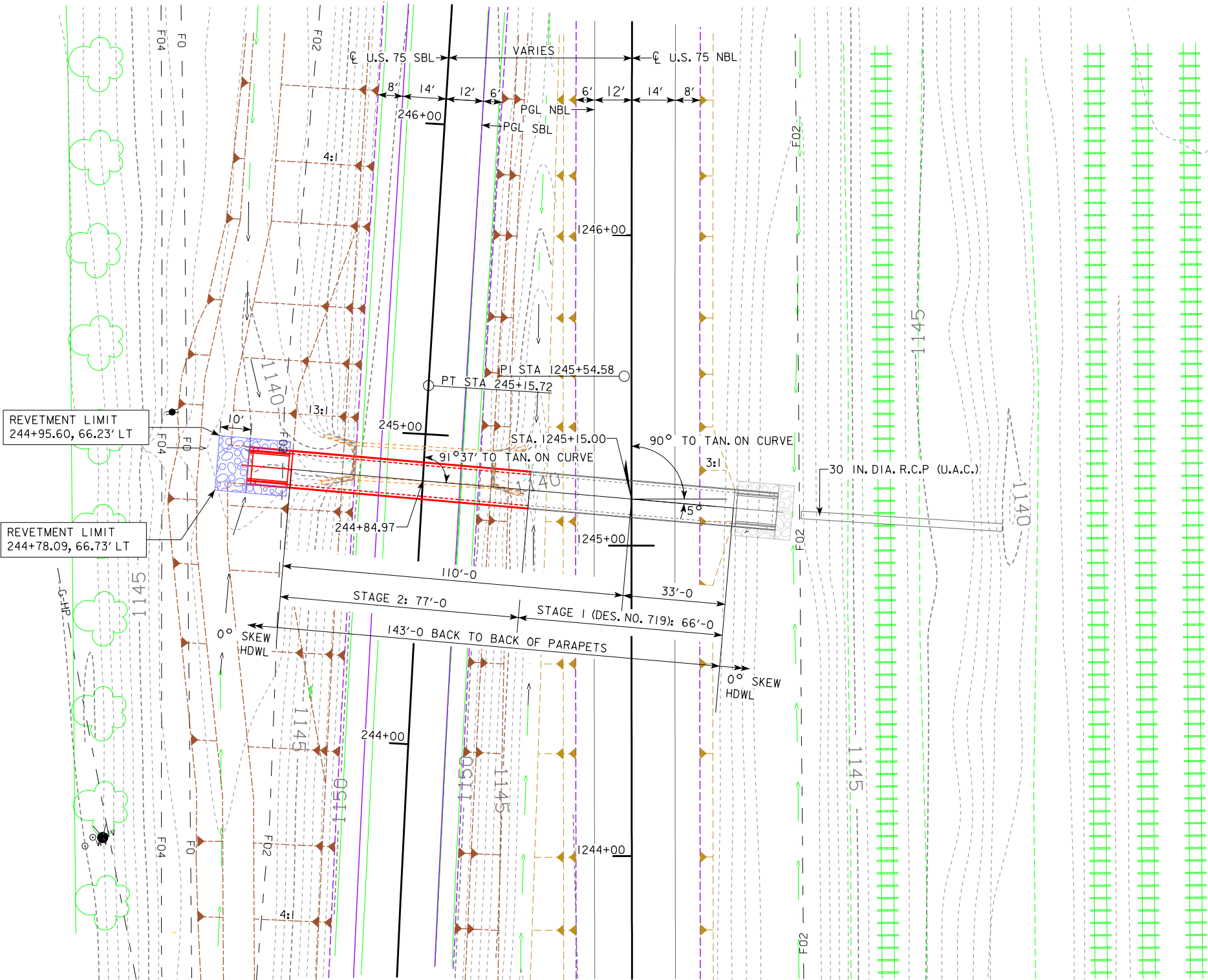
- FO - FIBER OPTIC - NUETRAL PATH
- F02 - FIBER OPTIC - MCI
- F04 - FIBER OPTIC - PREMIER COMM
- G-HP - HIGH PRESSURE GAS - MIDAMERICAN ENERGY
- W - FHD FIRE HYDRANT
- W - WATER VALVE
- W - PPA MID AMERICAN ENERGY

TRAFFIC ESTIMATE

2019 AADT	17,000	V.P.D.
2039 AADT	22,700	V.P.D.
2039 DHV	2350	V.P.H.
TRUCKS	15	%
TOTAL DESIGN ESALS		

LOCATION

U.S. 75 OVER EXISTING DRAINAGE WAY
 T-90N R-46W
 SECTION 8
 HUNGERFORD TOWNSHIP
 PLYMOUTH COUNTY
 LATITUDE 42.621693°
 LONGITUDE -96.293282°

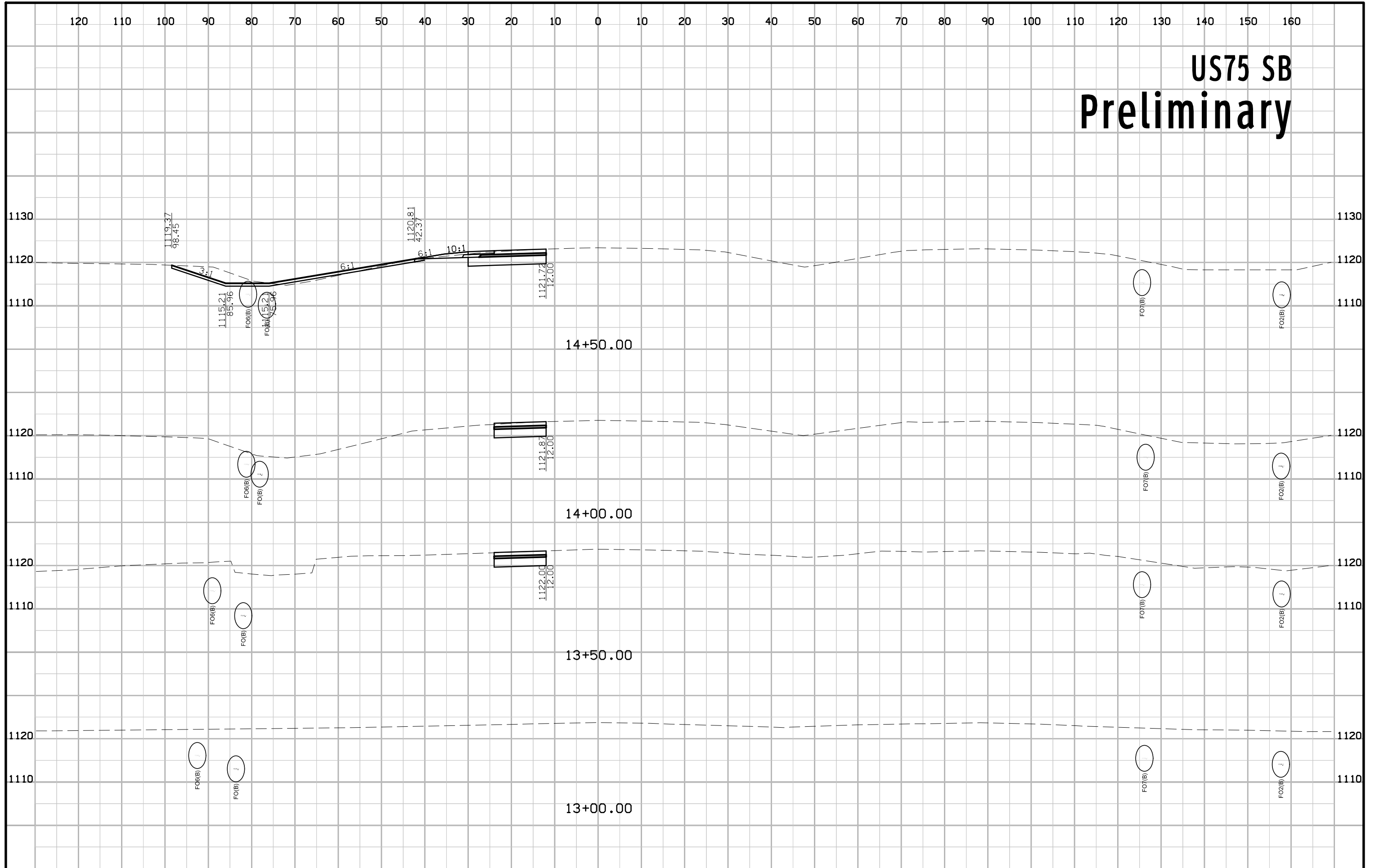


SITUATION PLAN

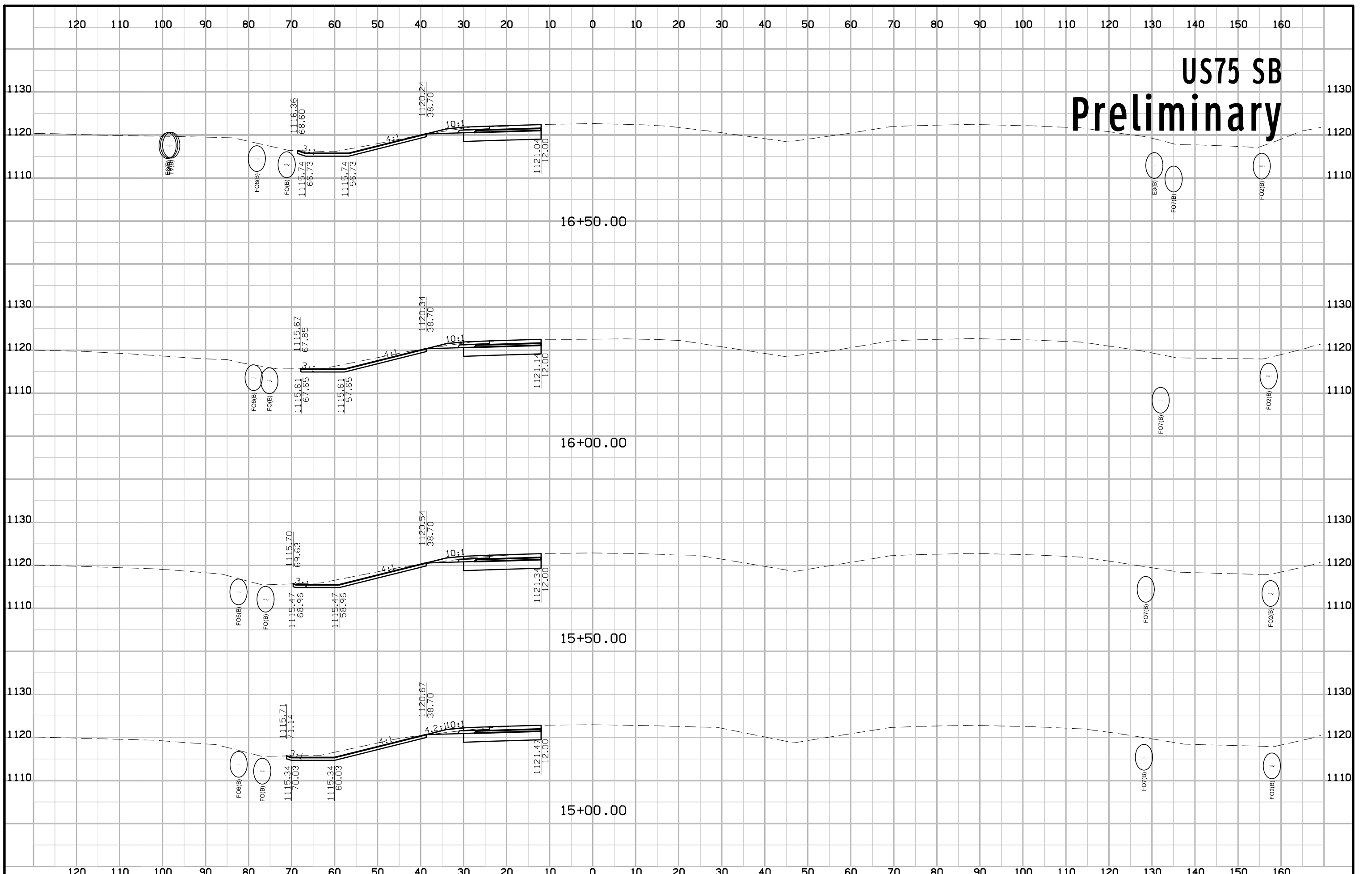
PRELIMINARY
 DESIGN FOR 5° SKEW (L.A.)
 10'-0 X 4'-0 X 143'-0 REINFORCED
 CONCRETE BOX CULVERT-STAGE 2

SITUATION PLAN
 STATION 1245+15.00 (N.B. U.S.75) FEBRUARY 2018
 PLYMOUTH COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 1 FILE NO. 31438 DESIGN NO. 1420

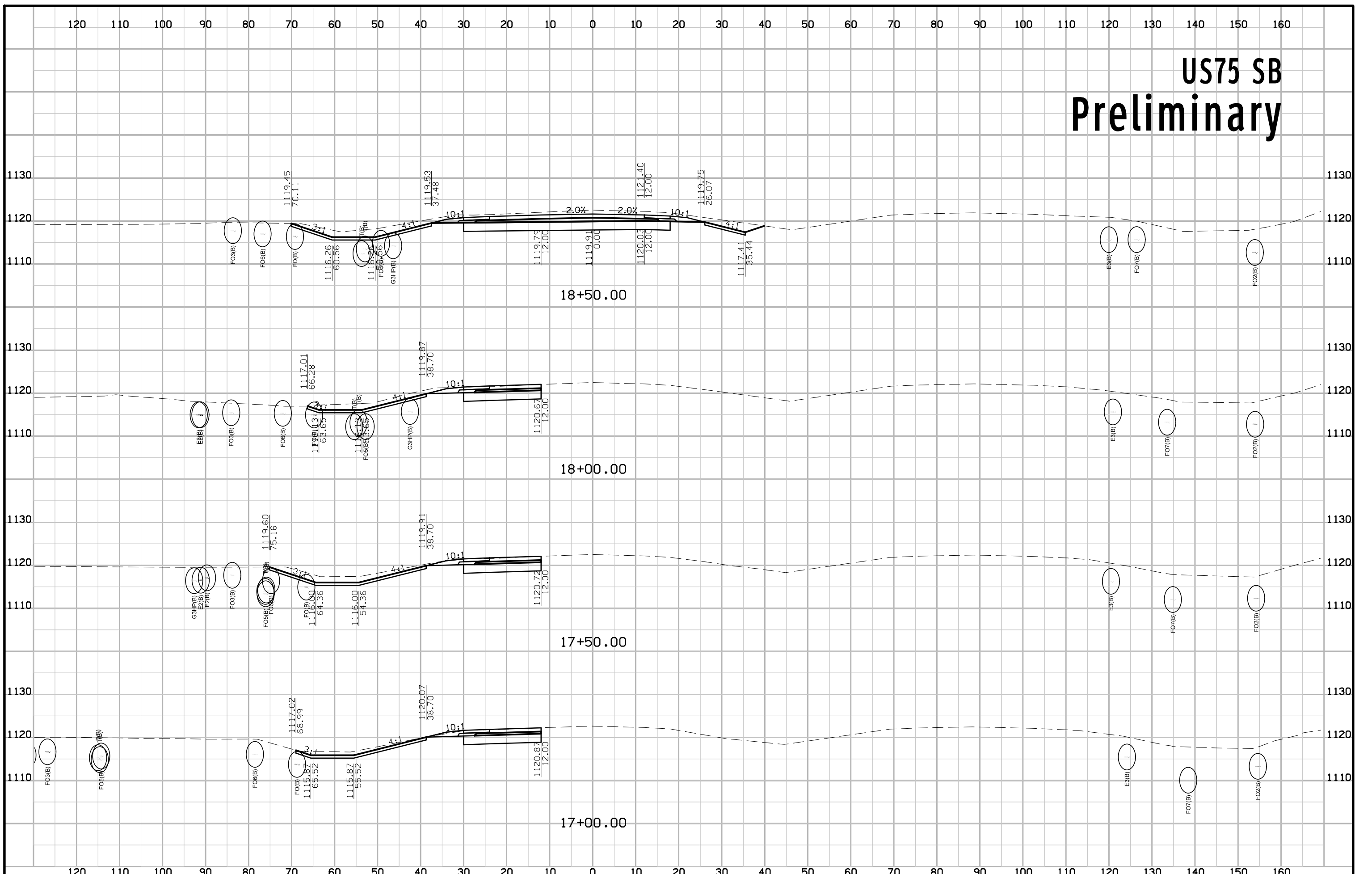
US75 SB Preliminary



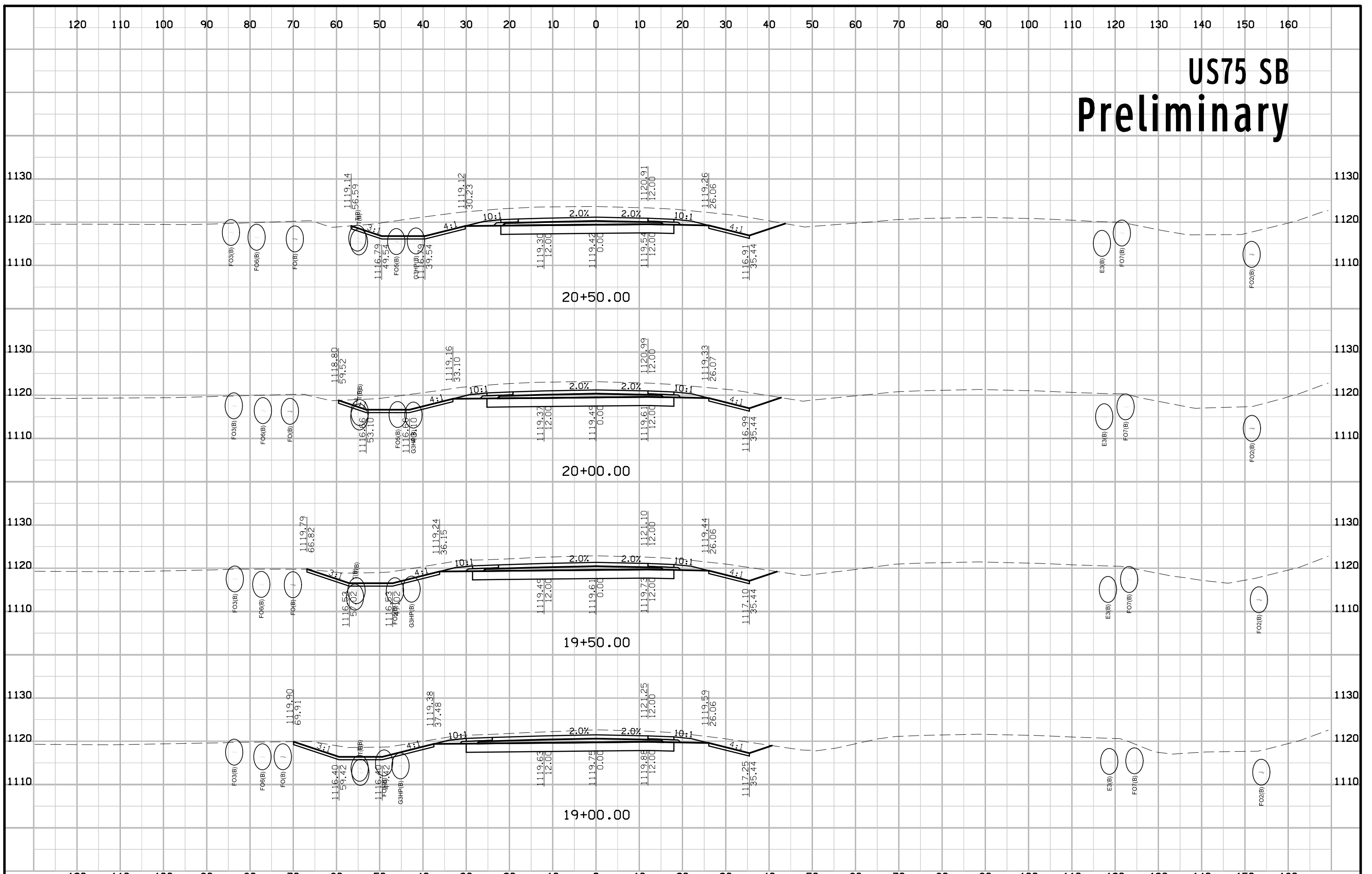
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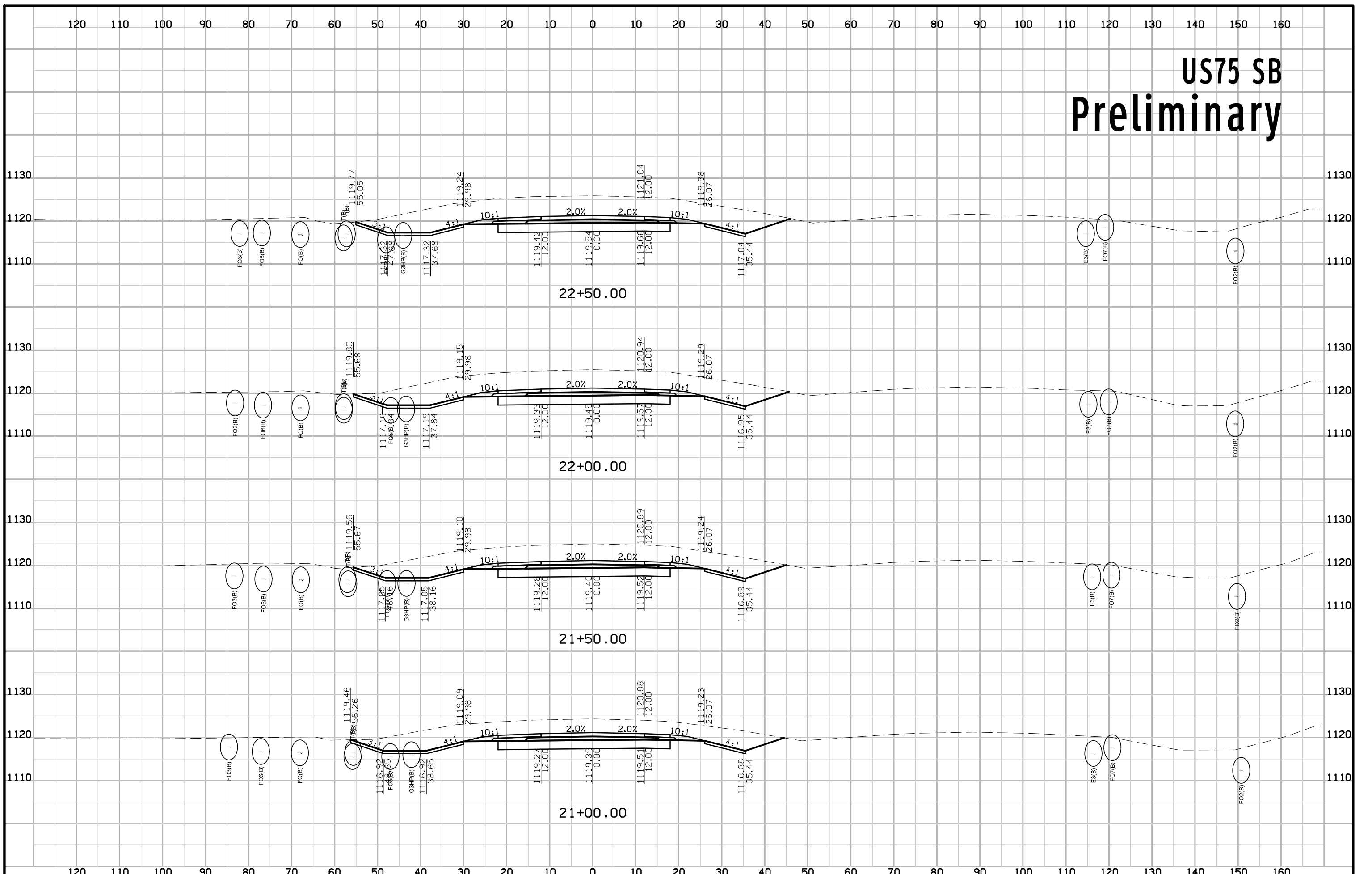
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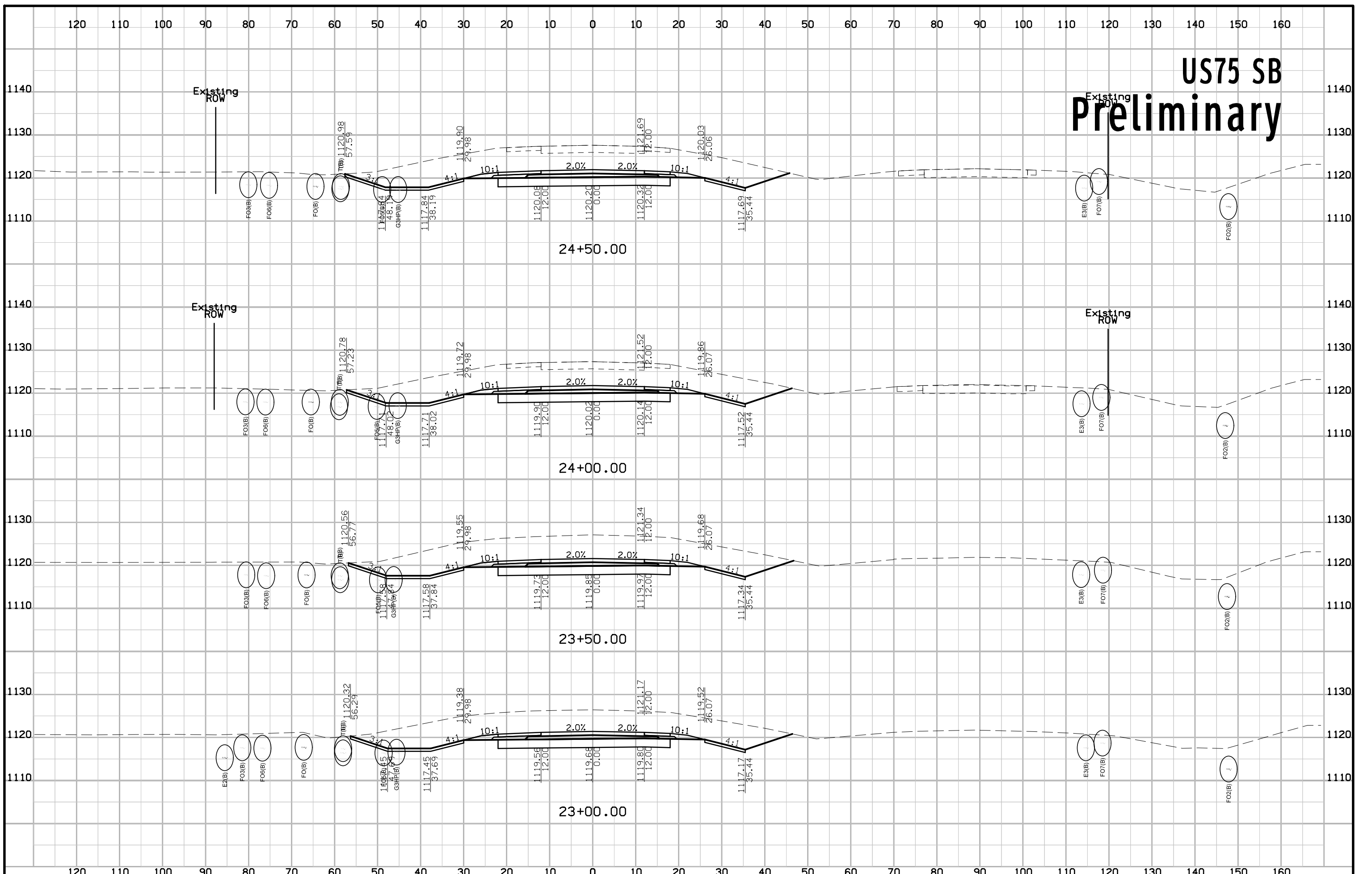
US75 SB Preliminary



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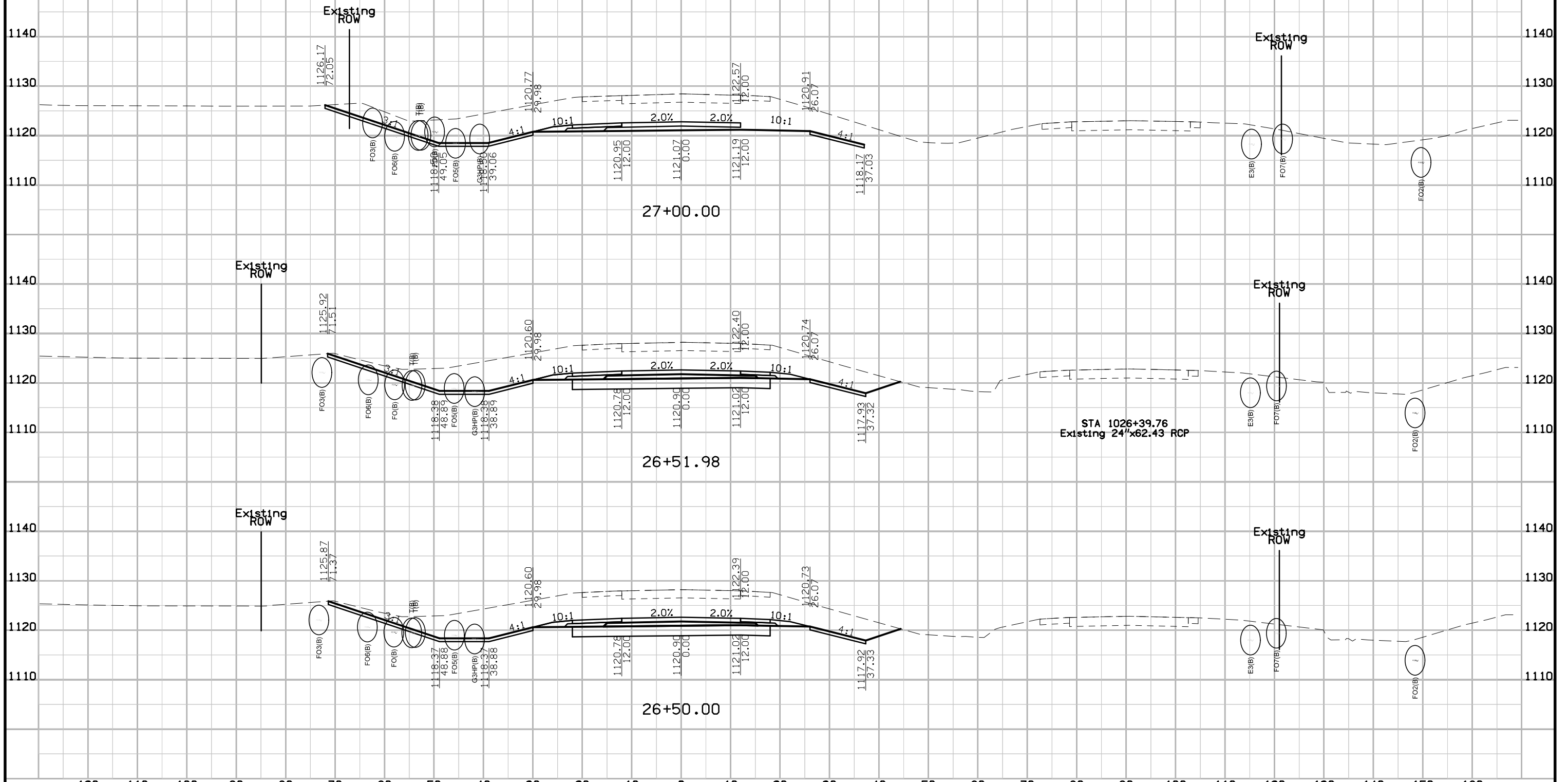
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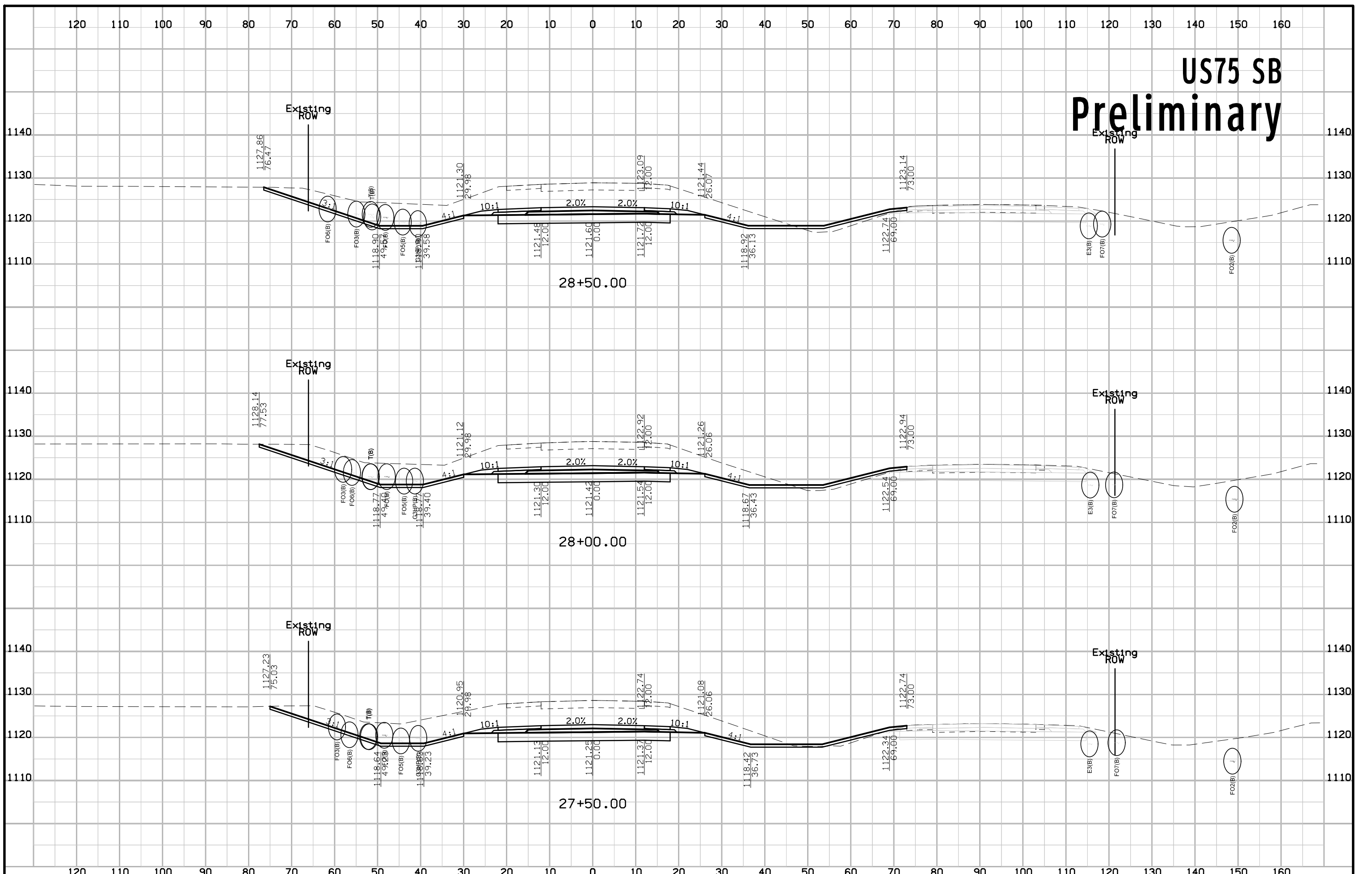
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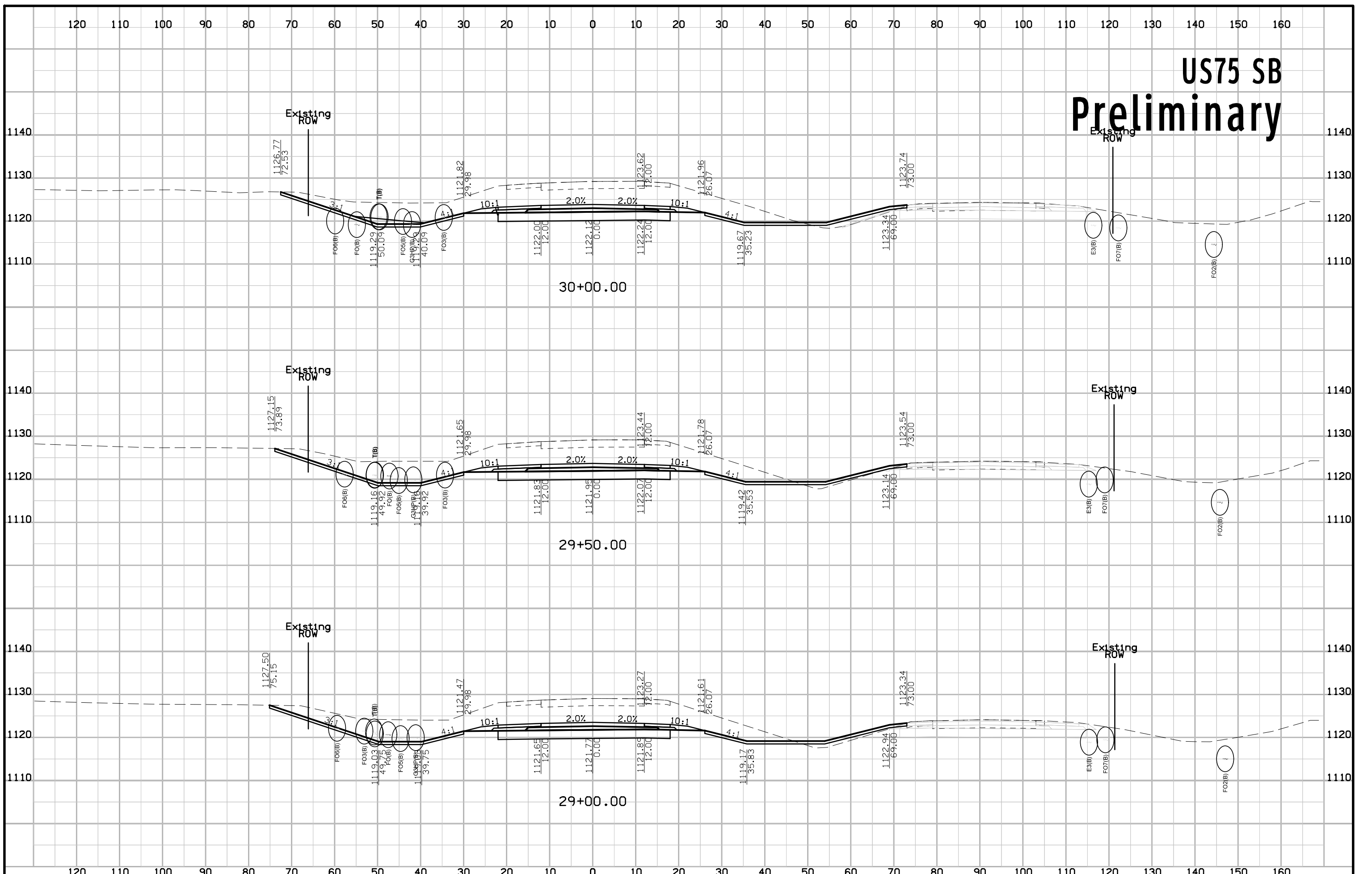
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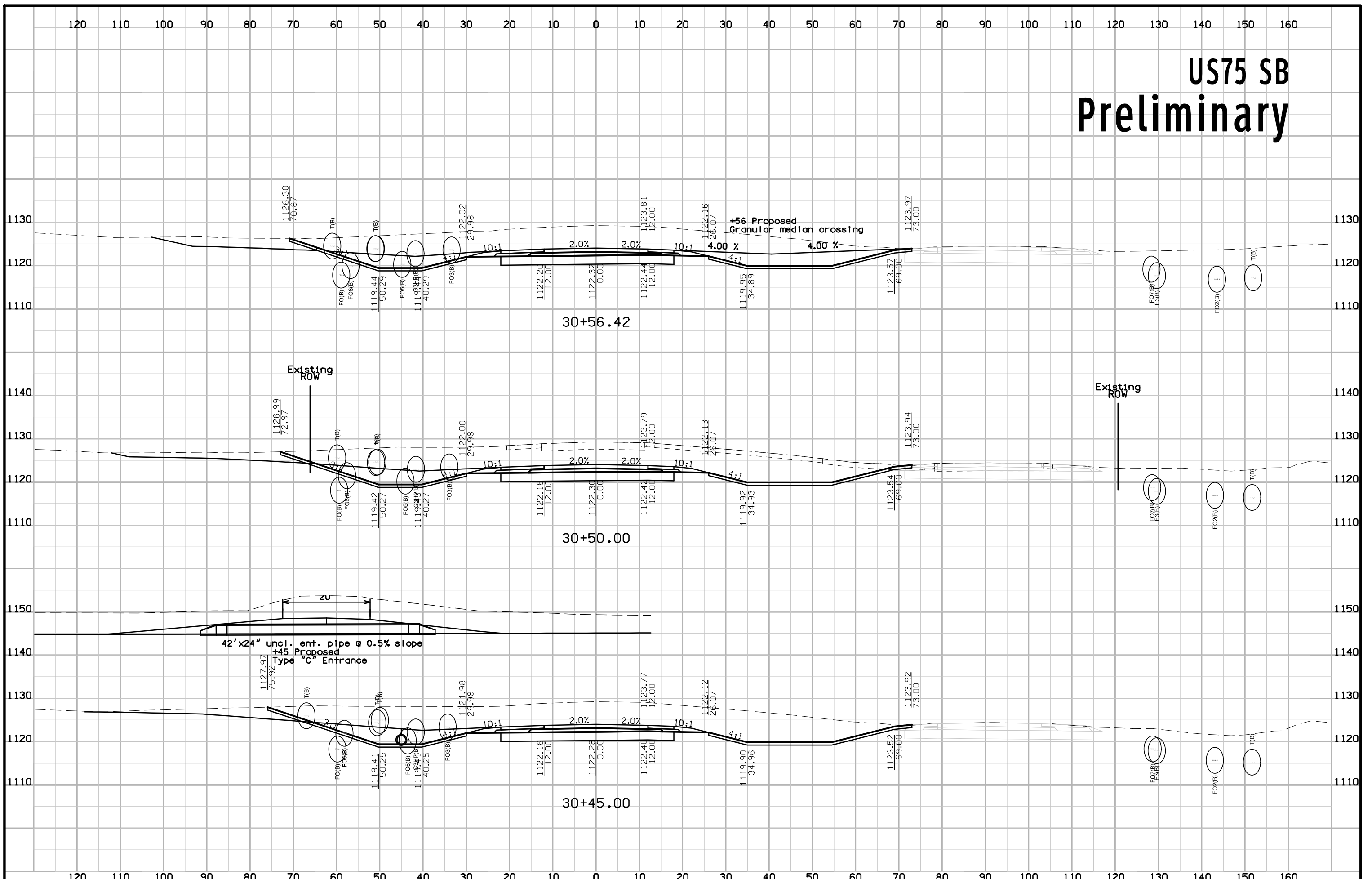
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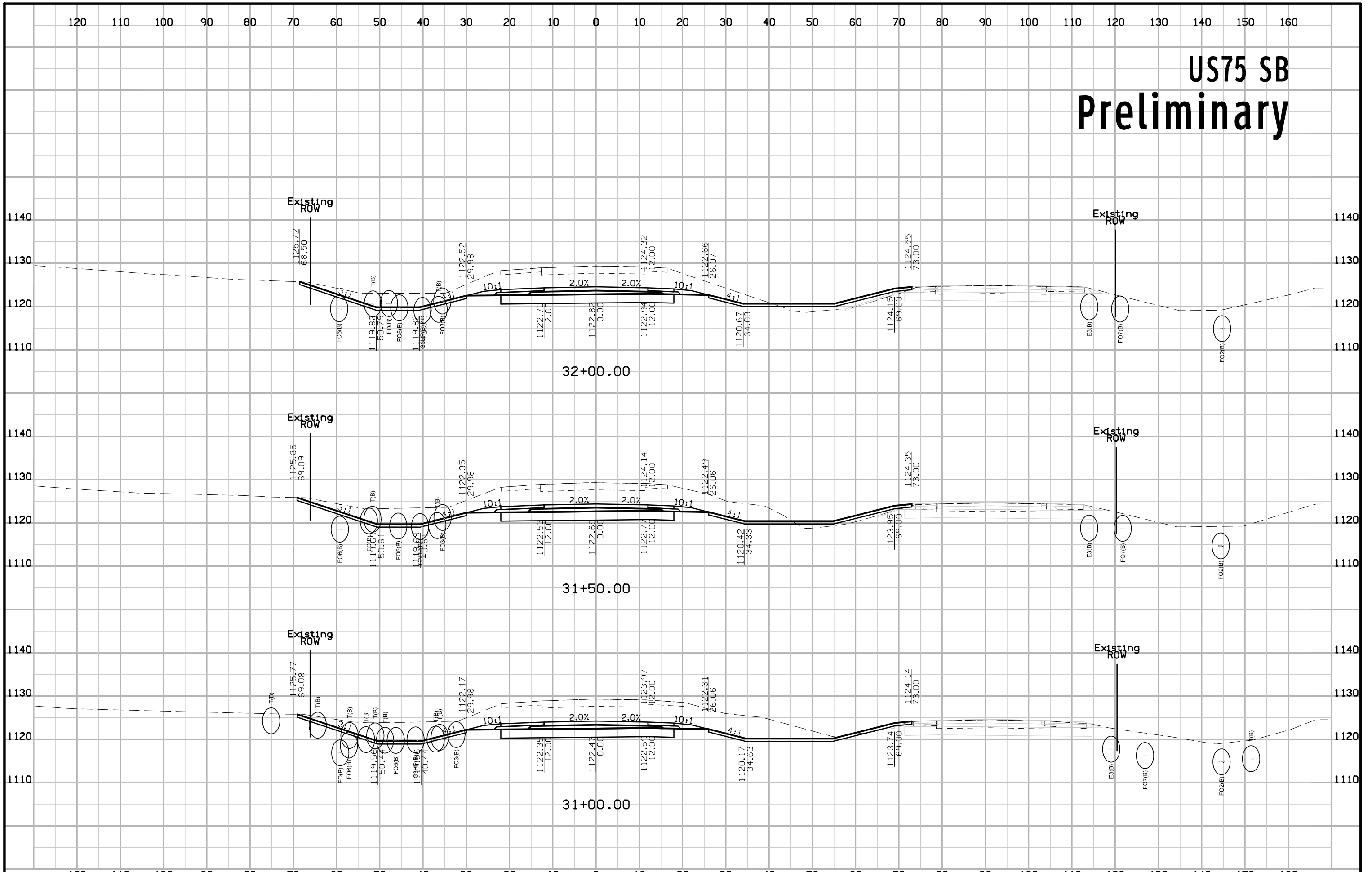
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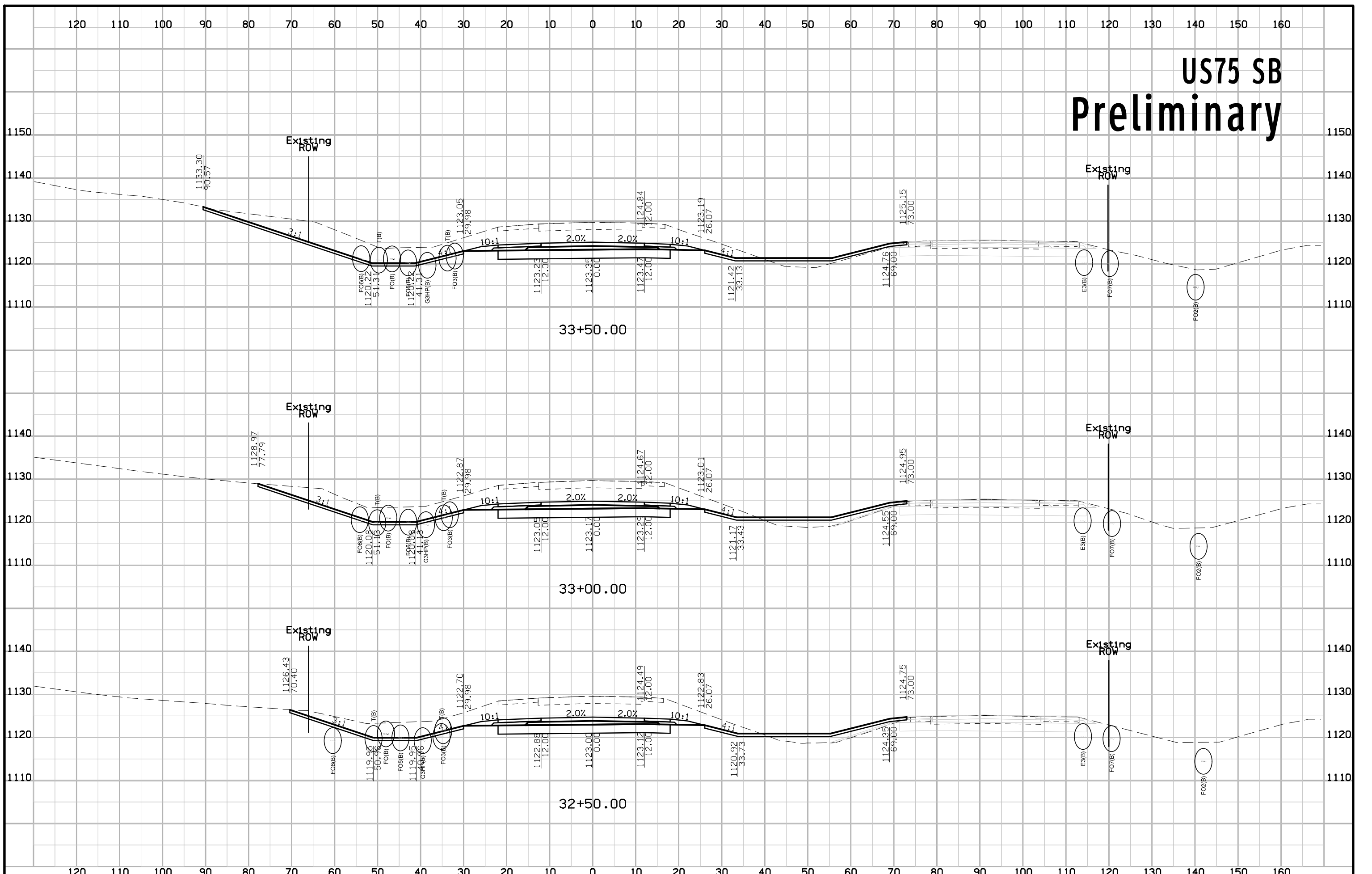
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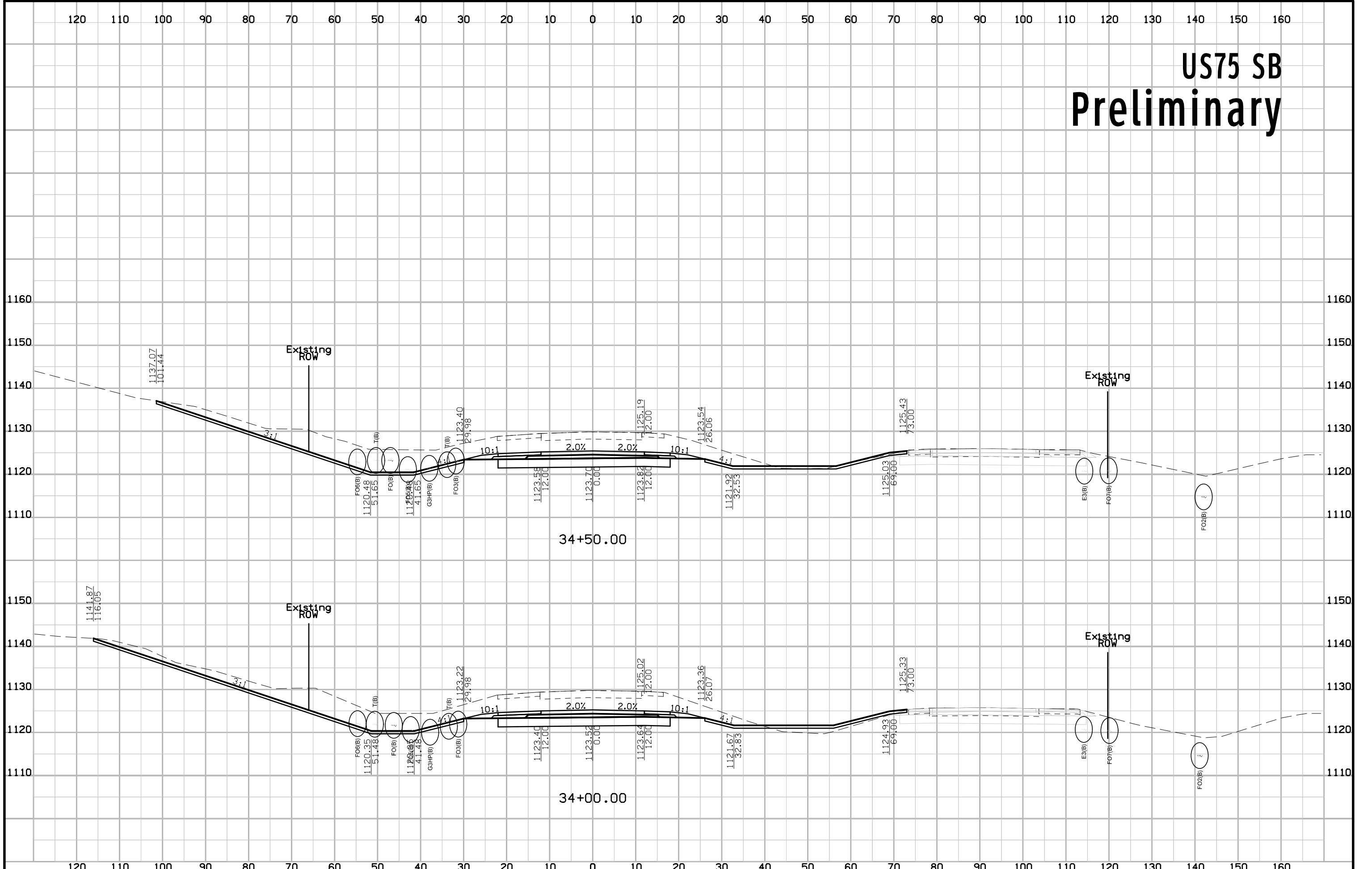
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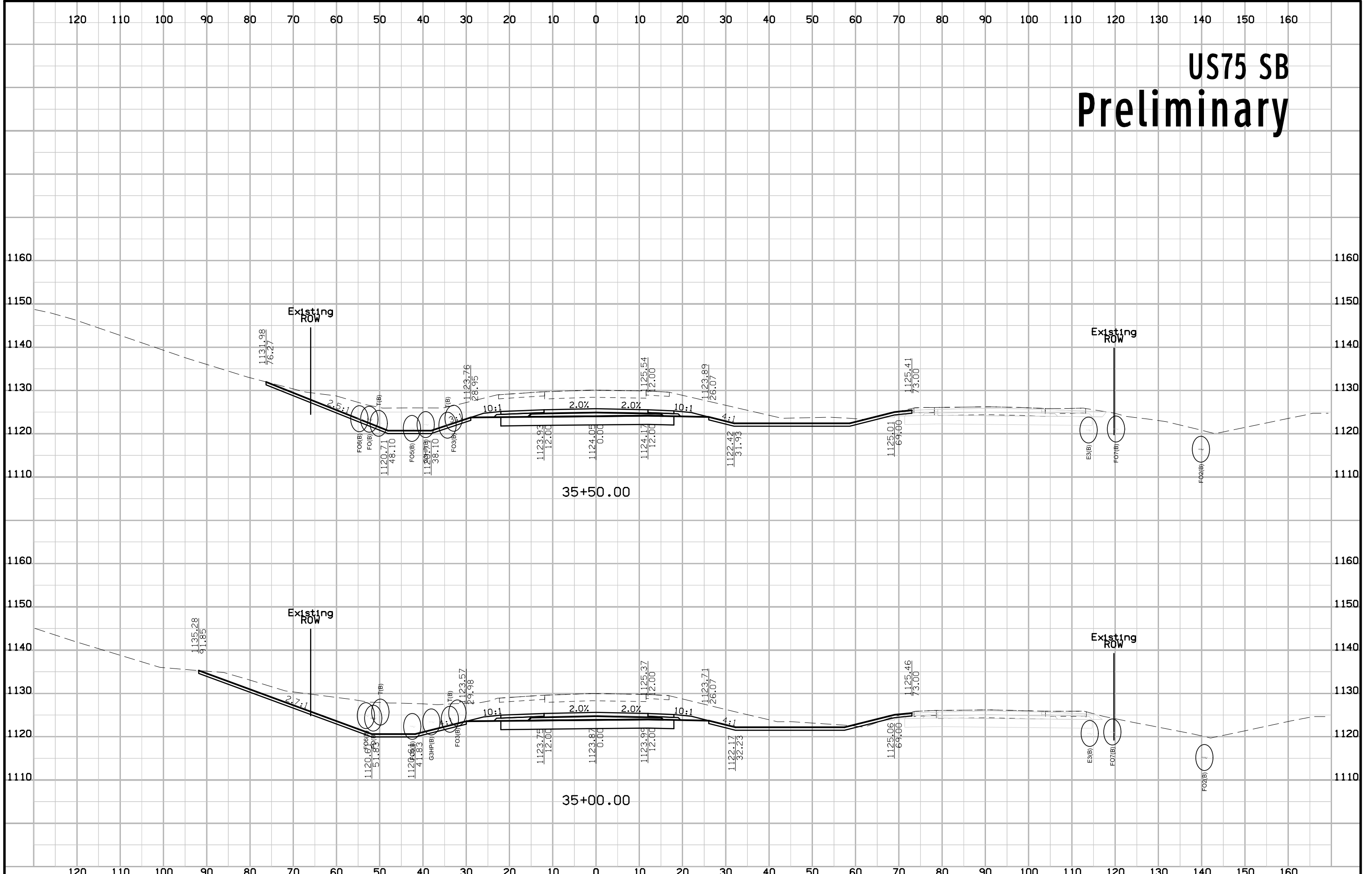
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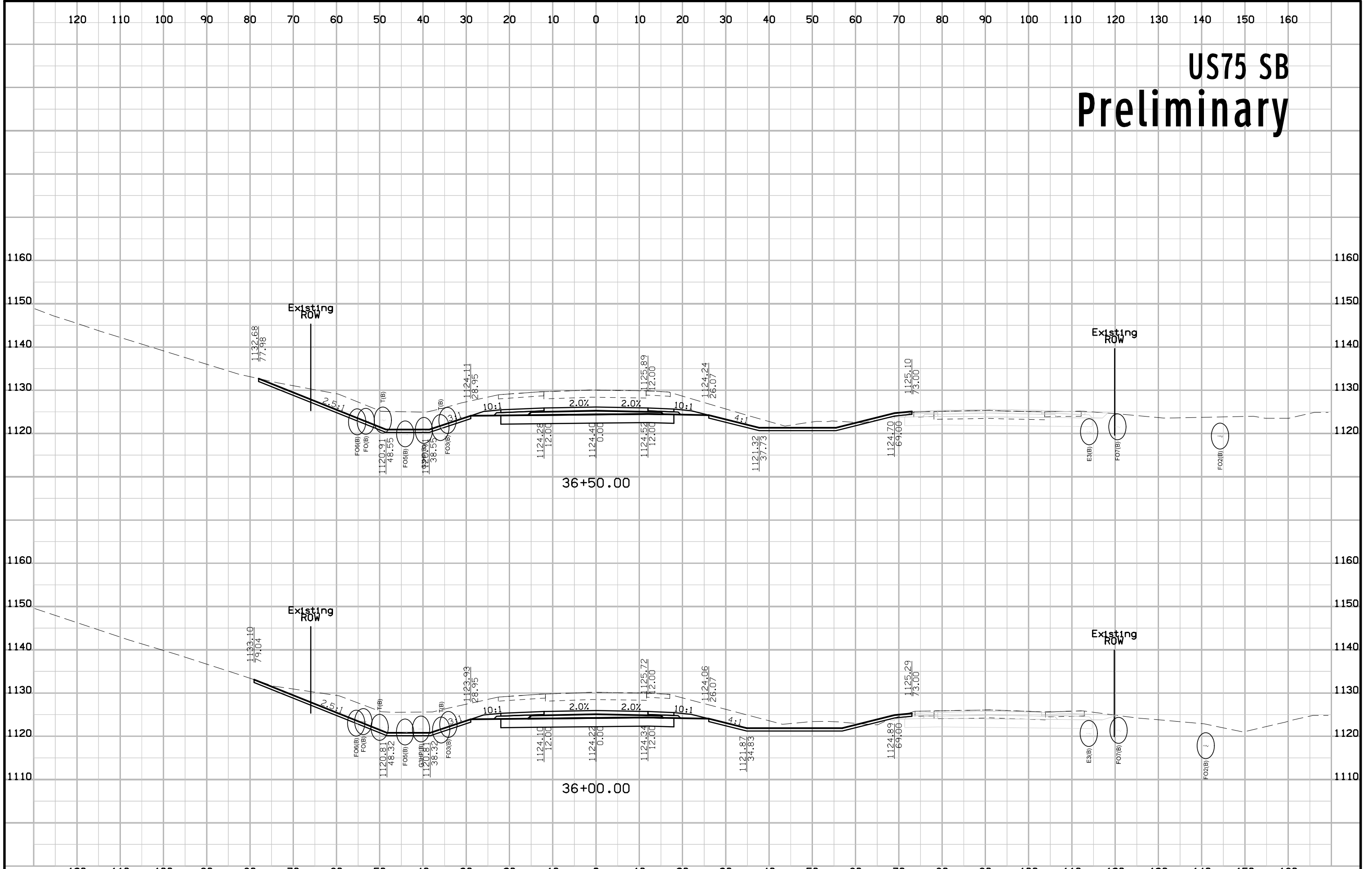
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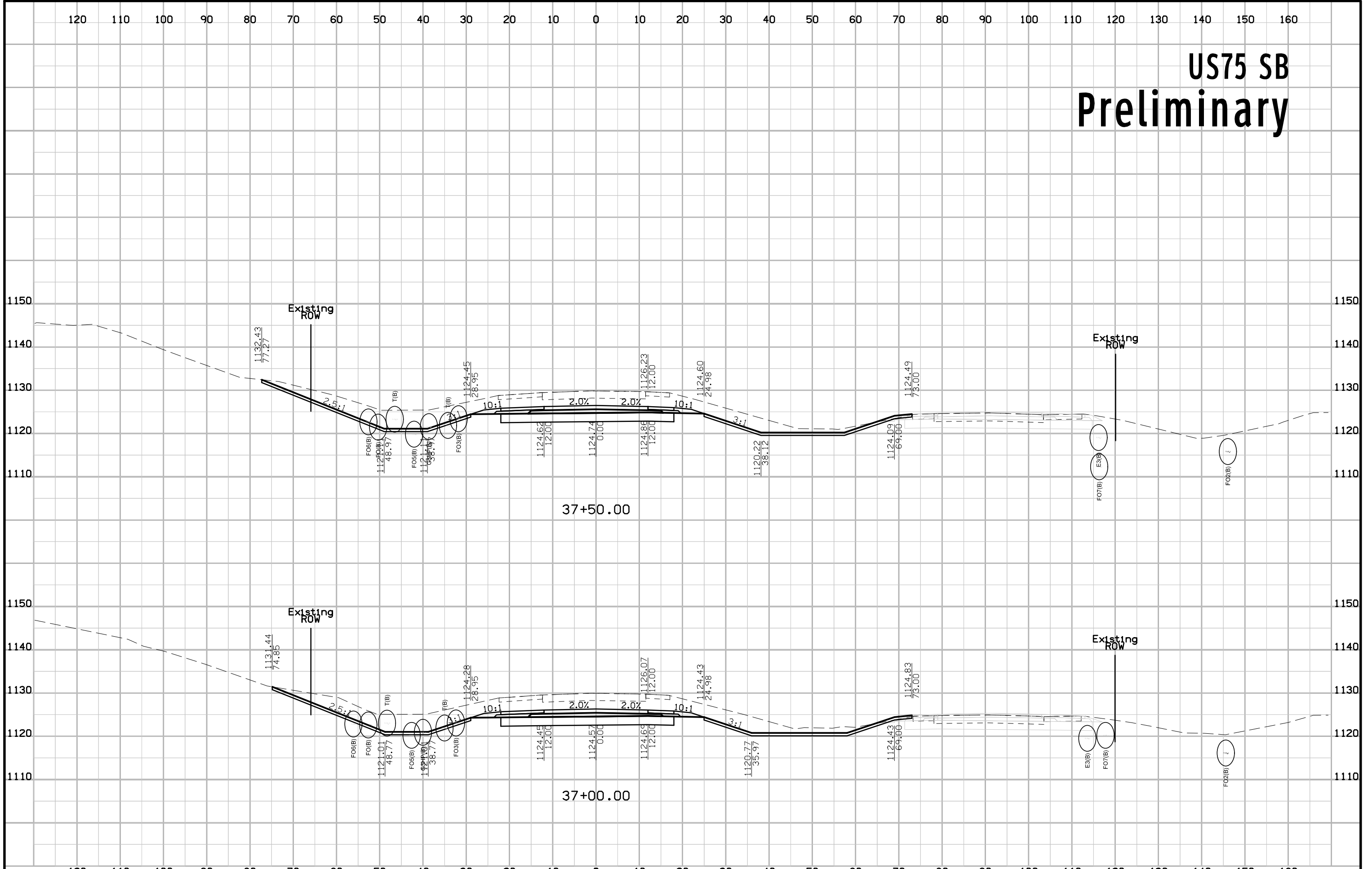
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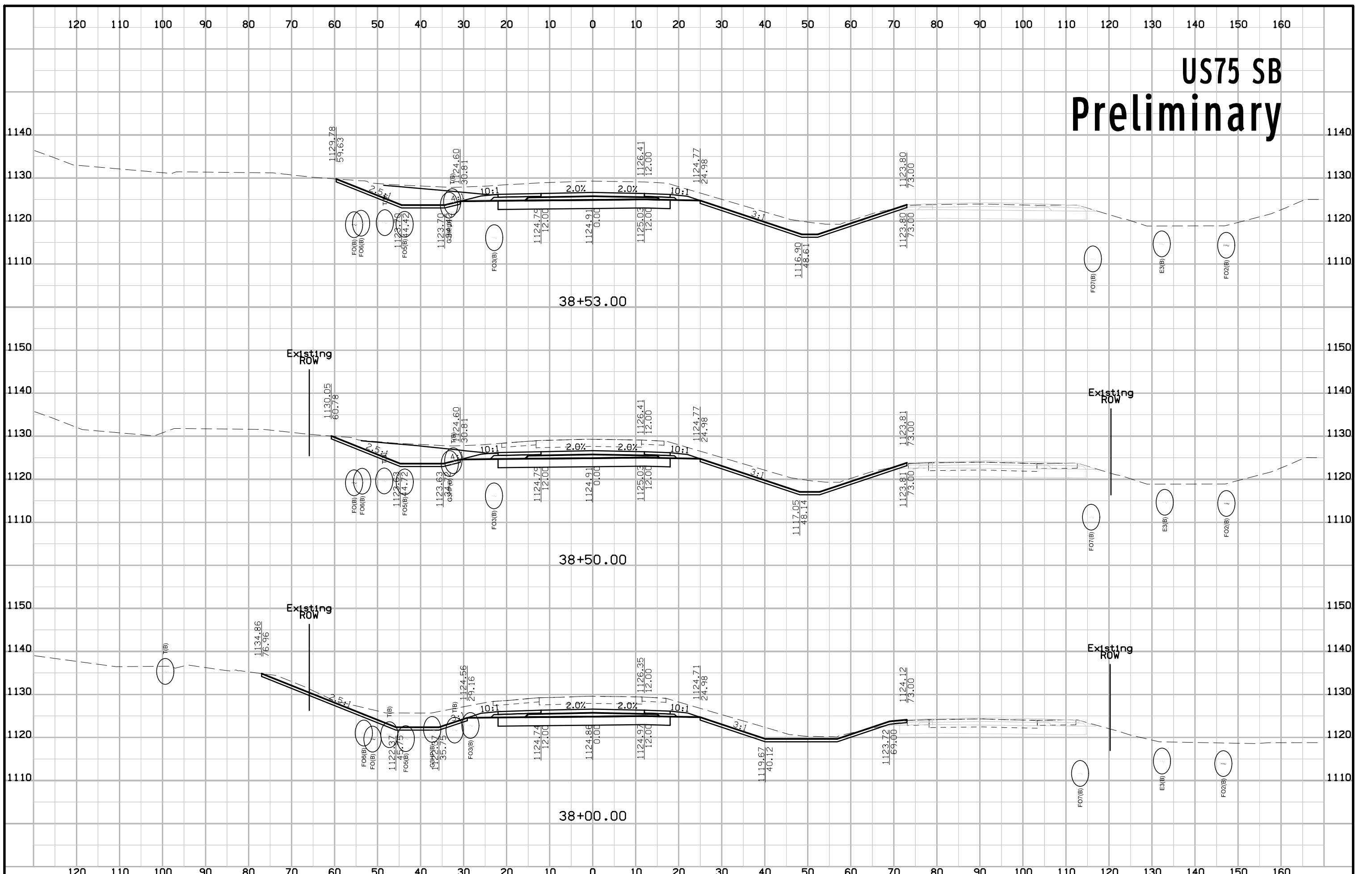
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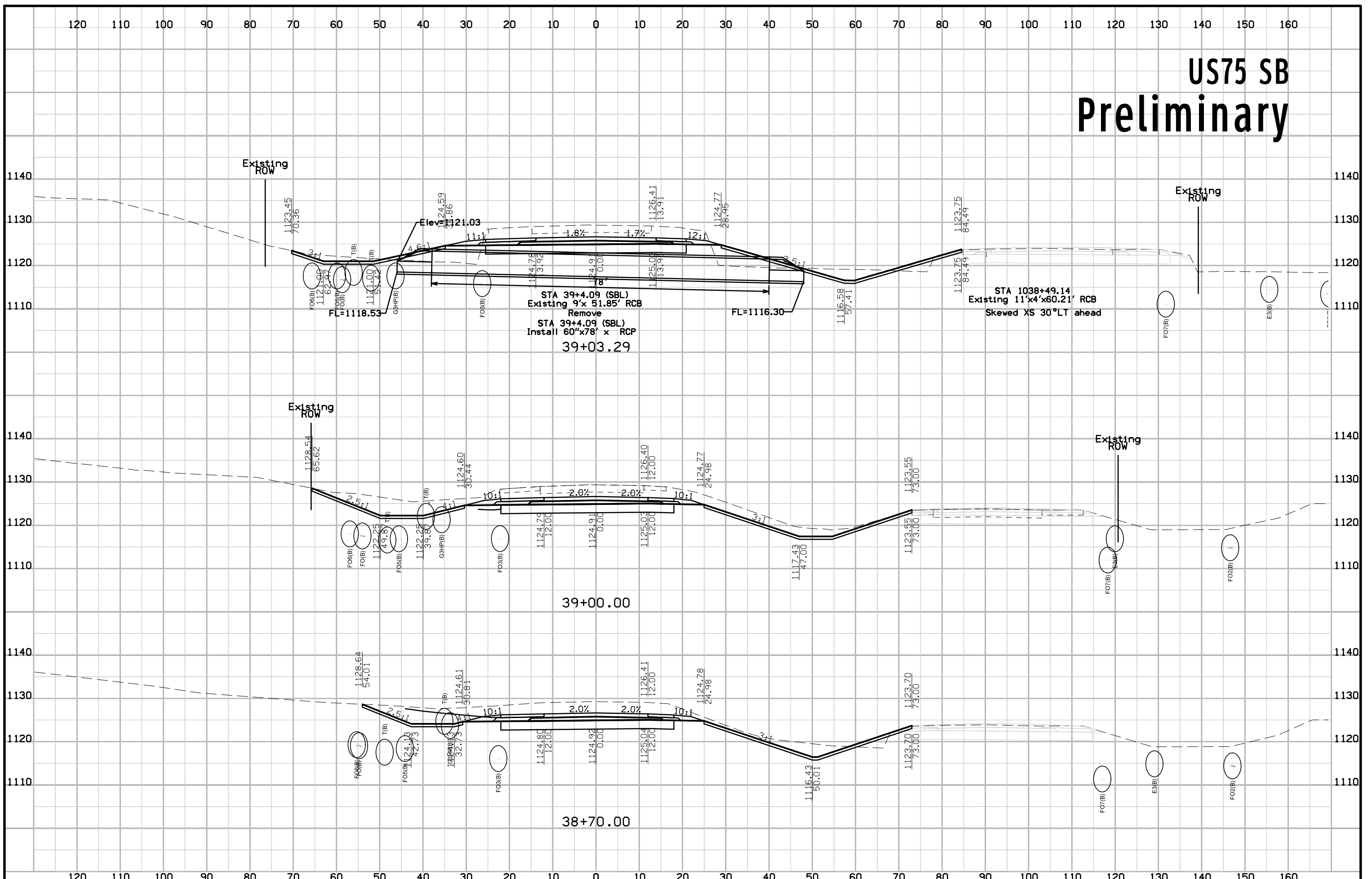
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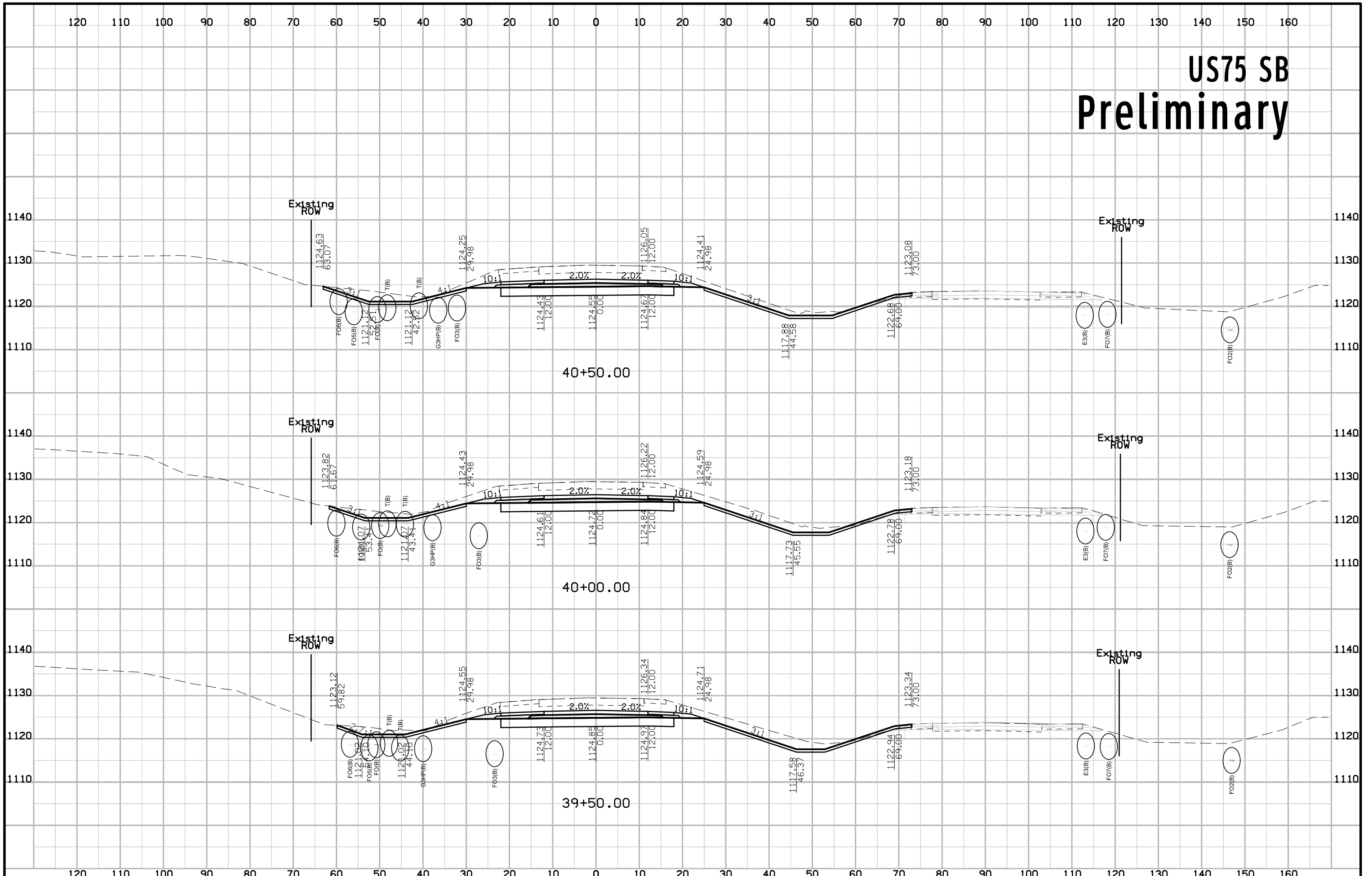
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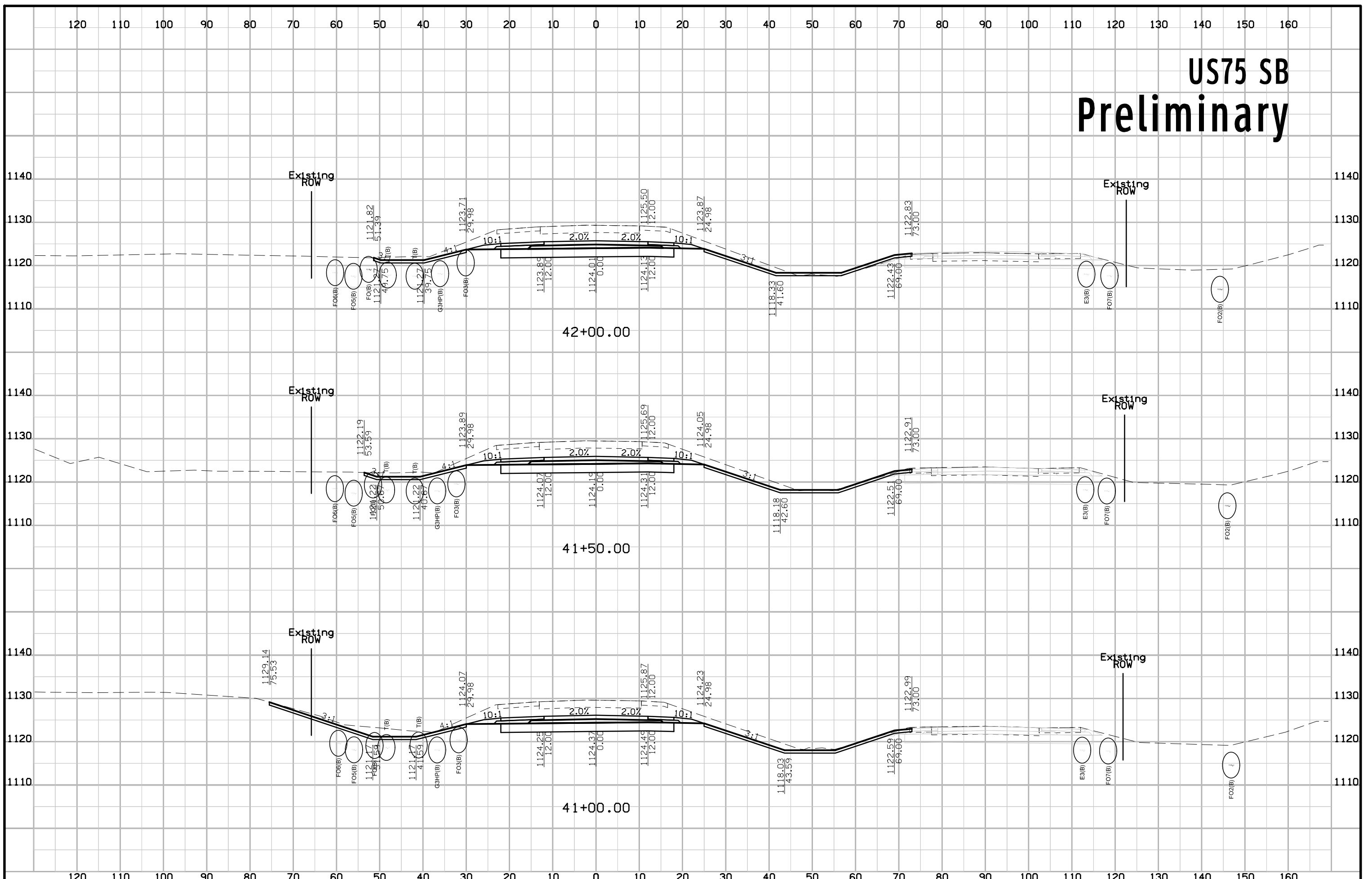
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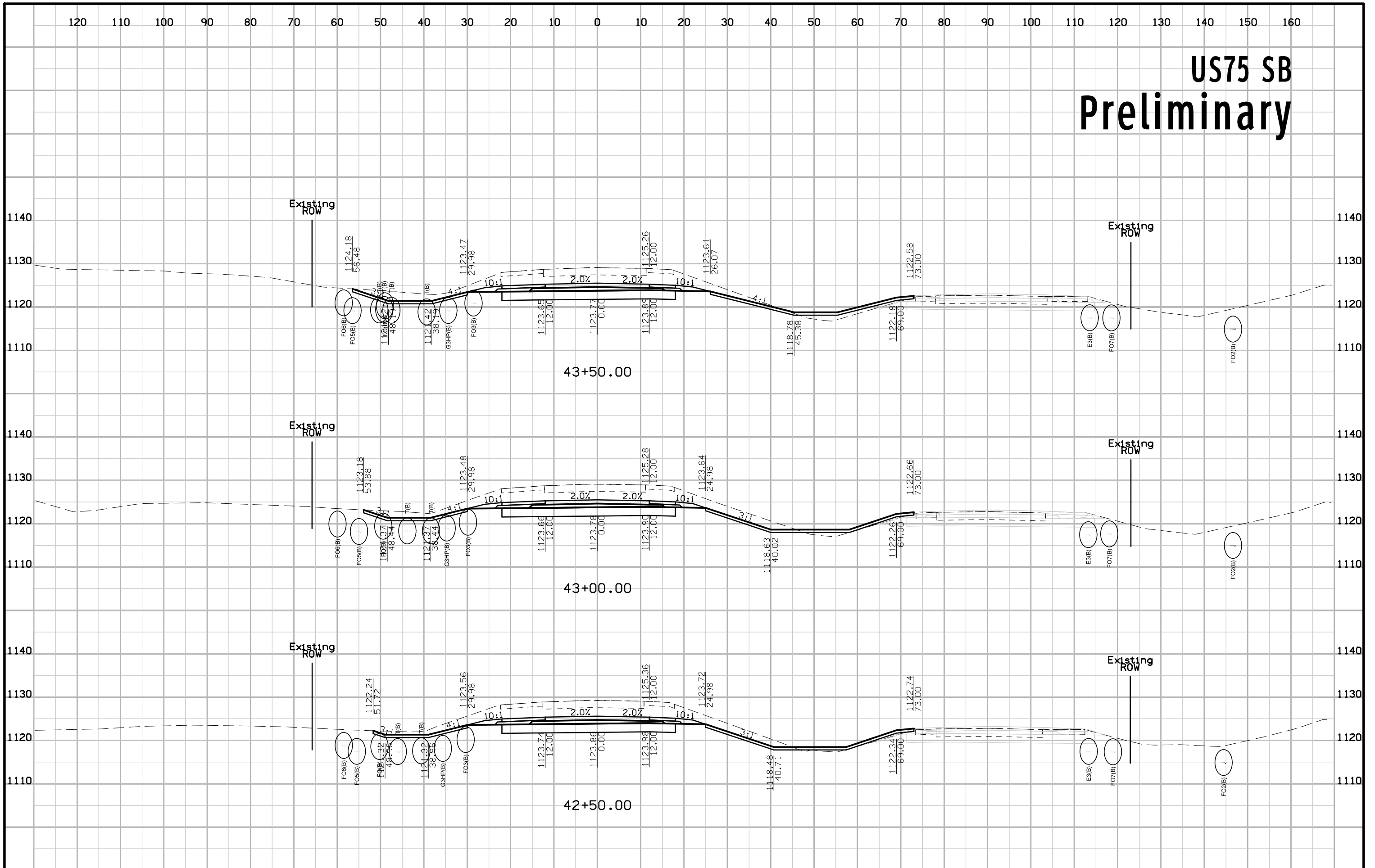
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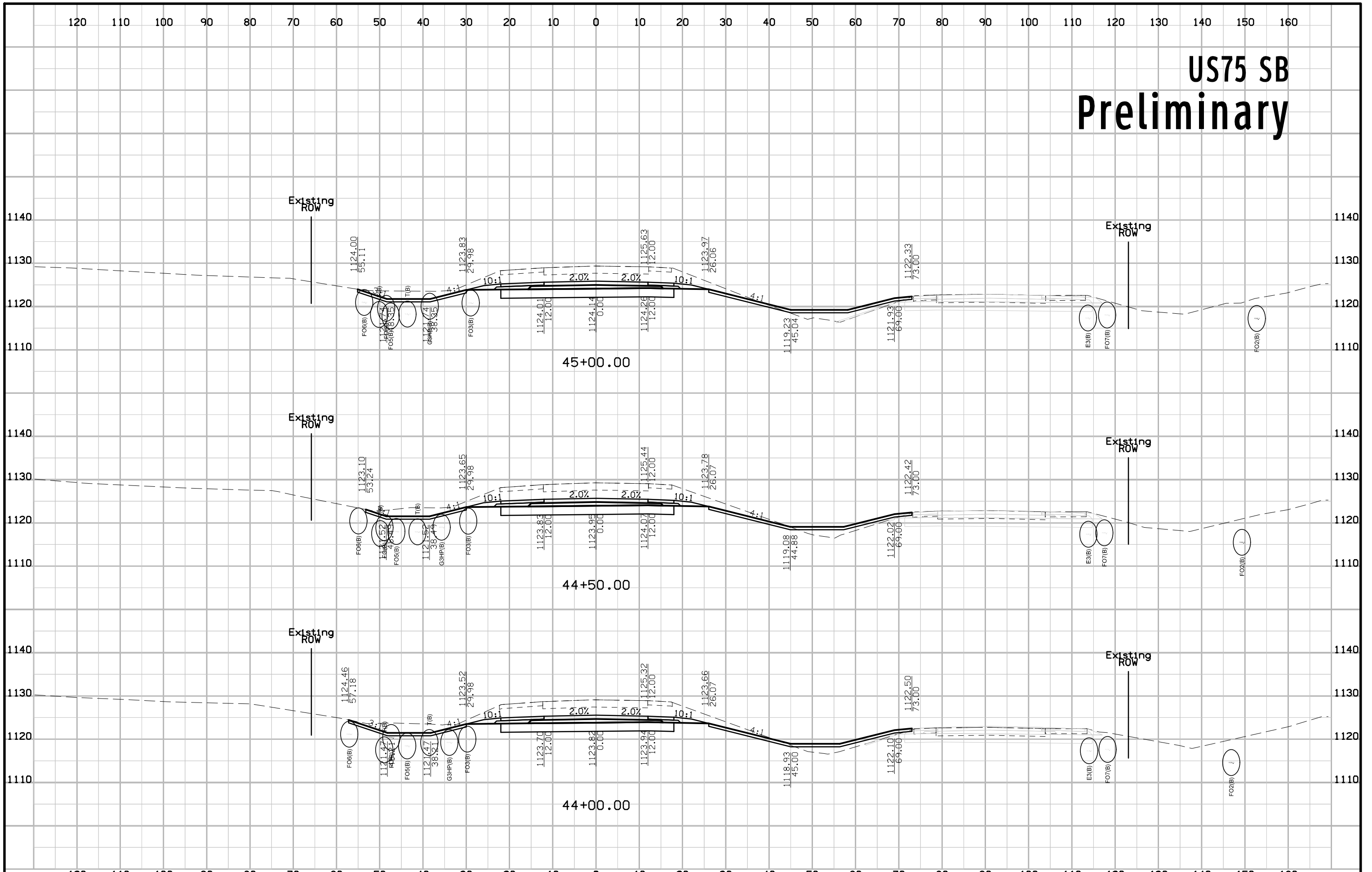
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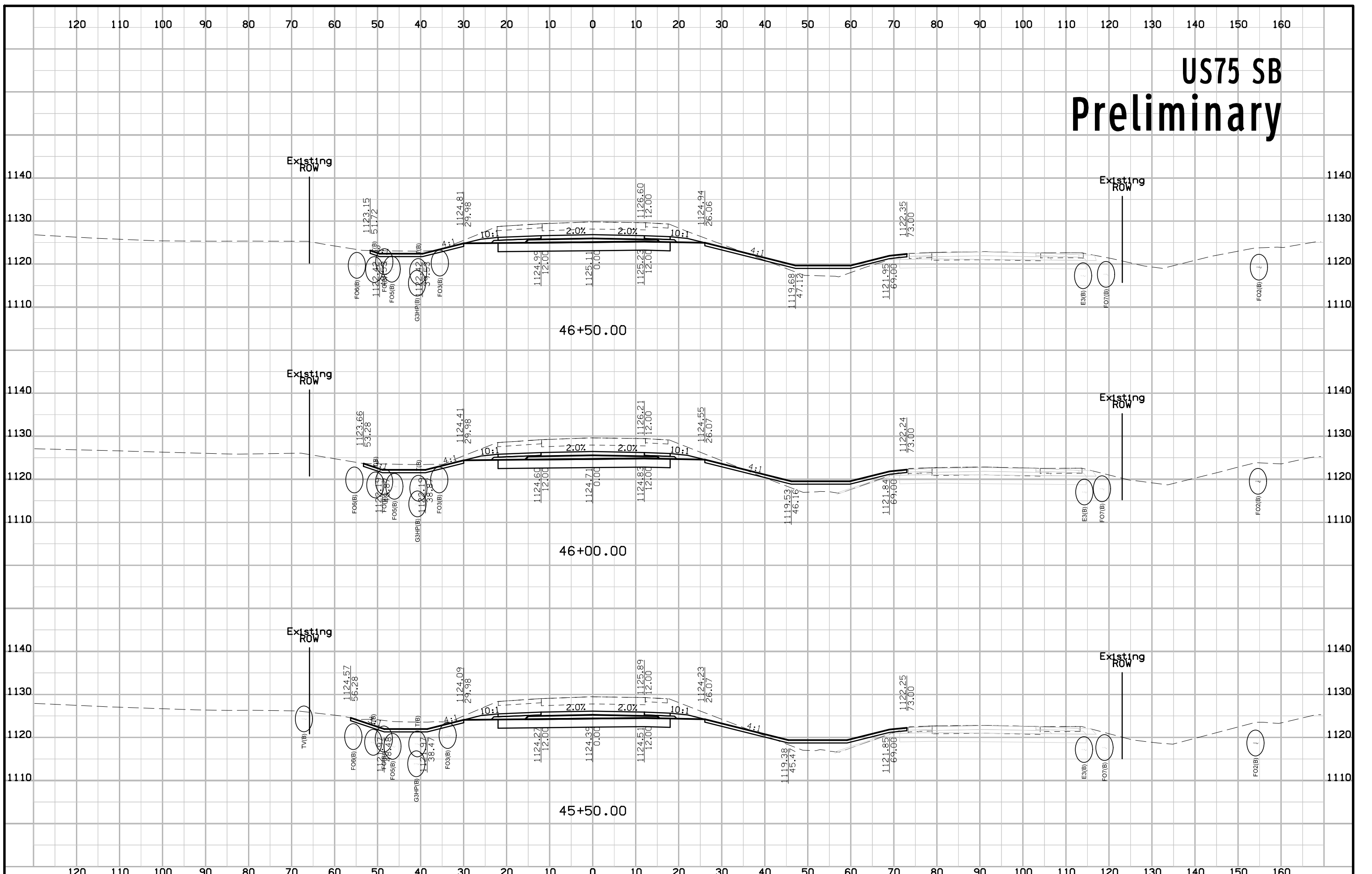
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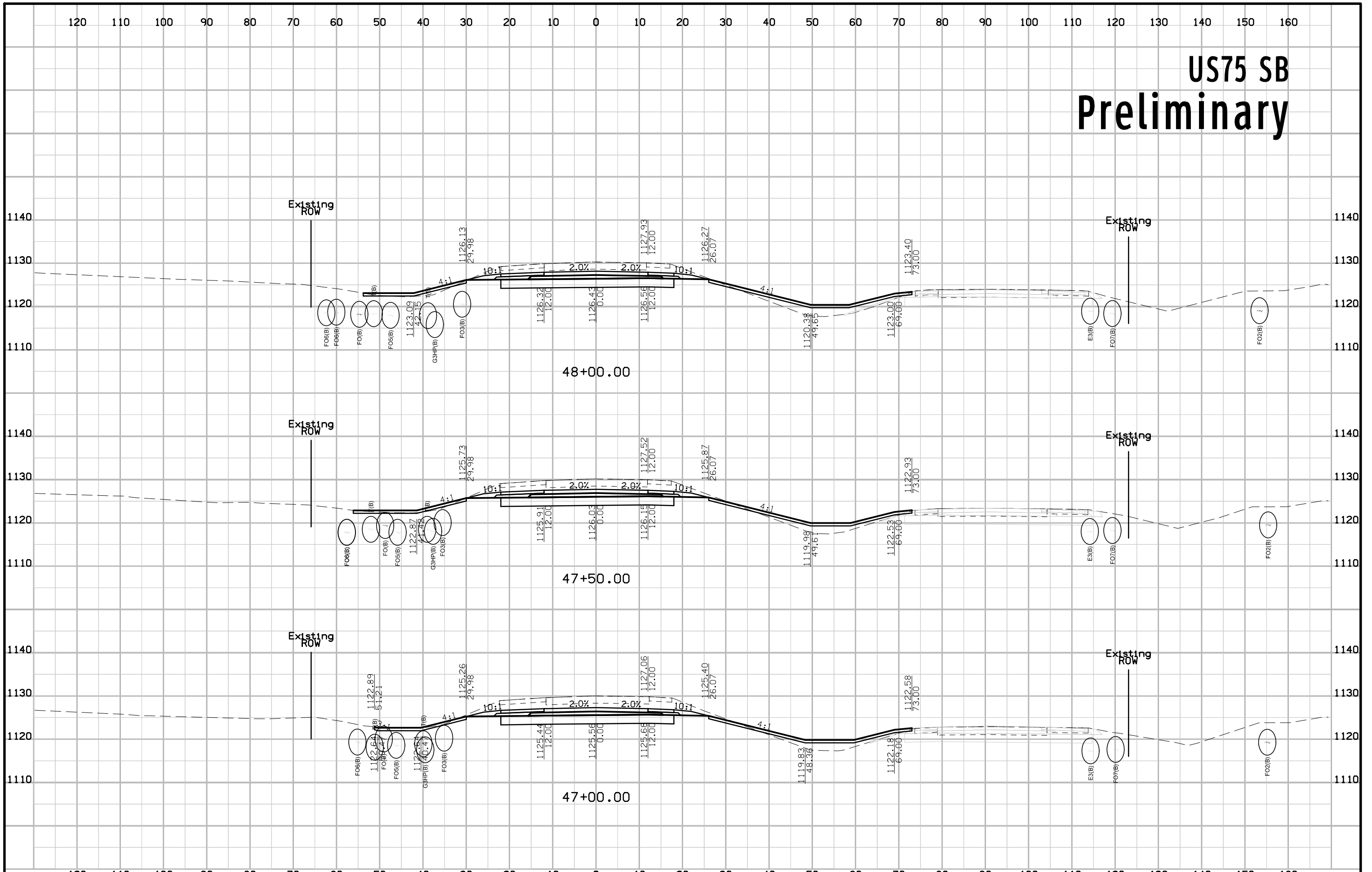
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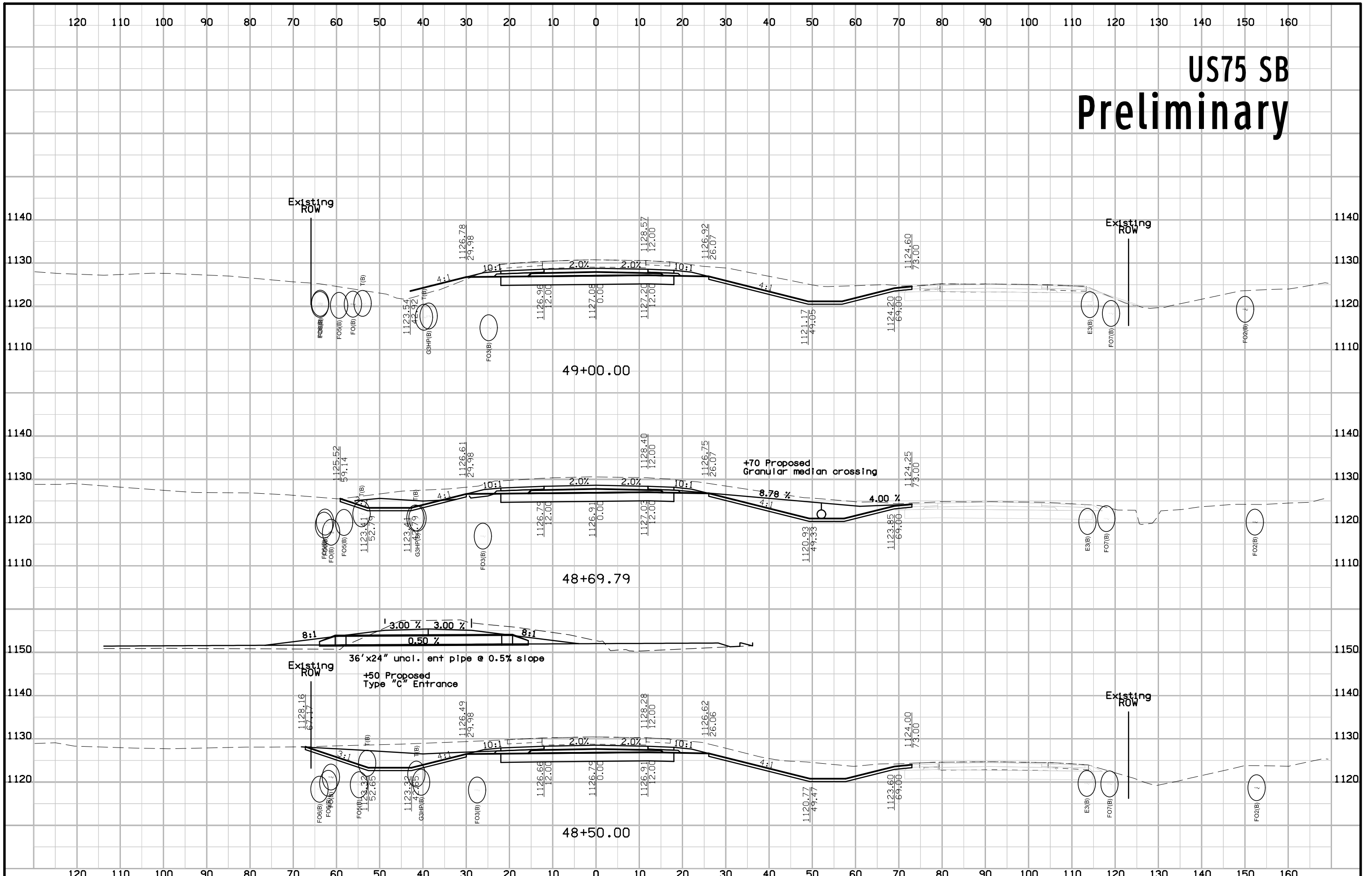
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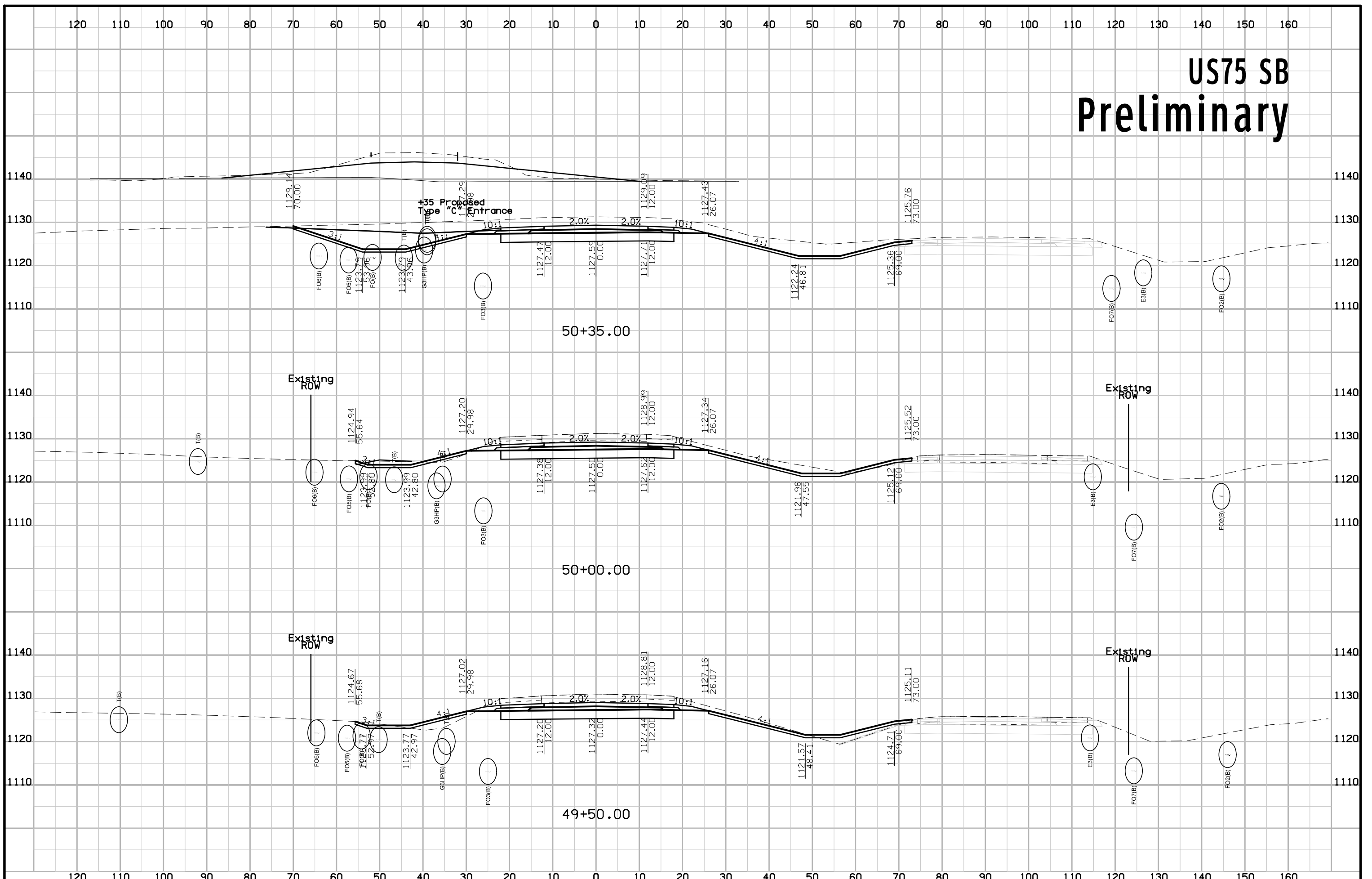
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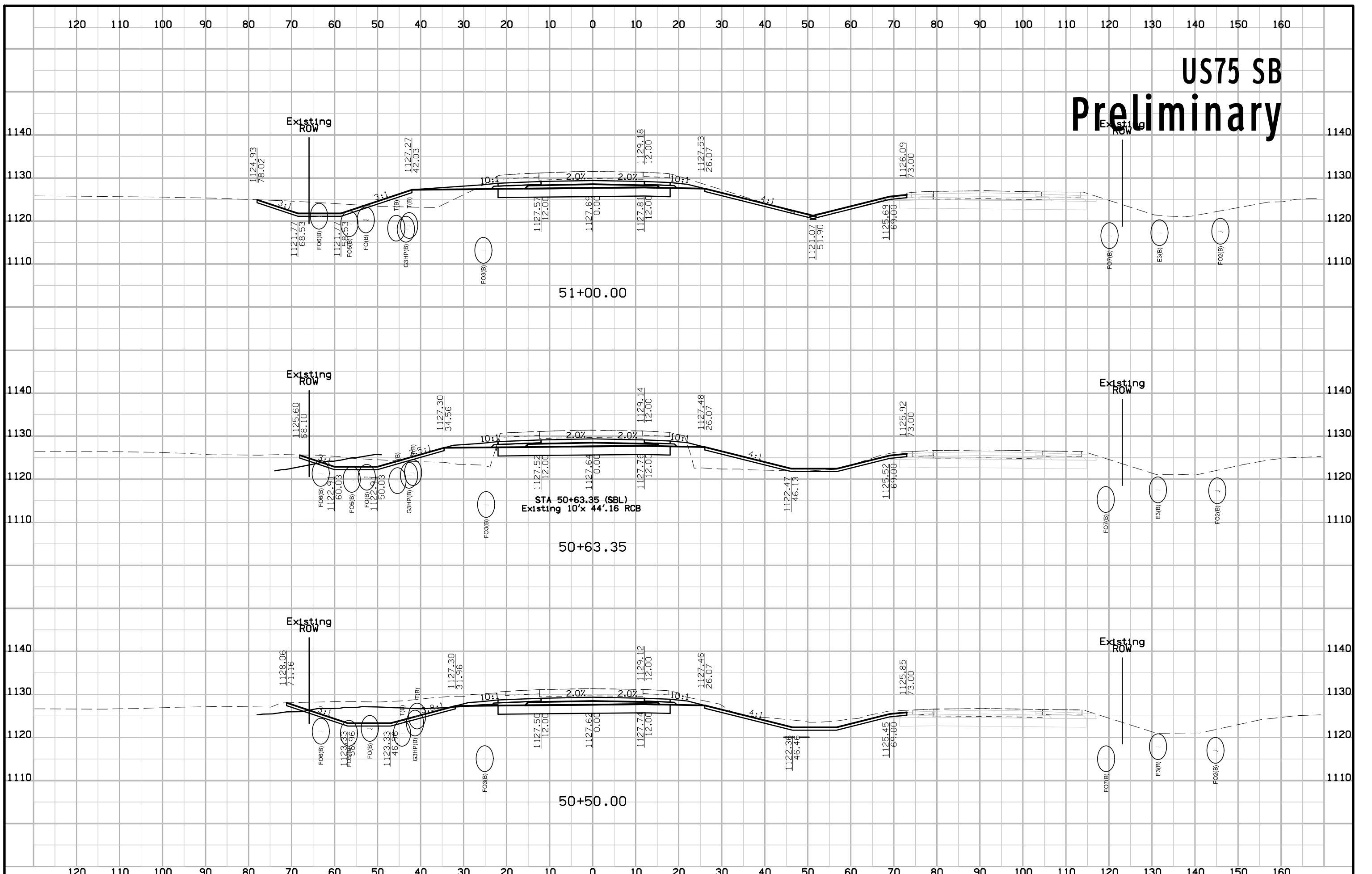
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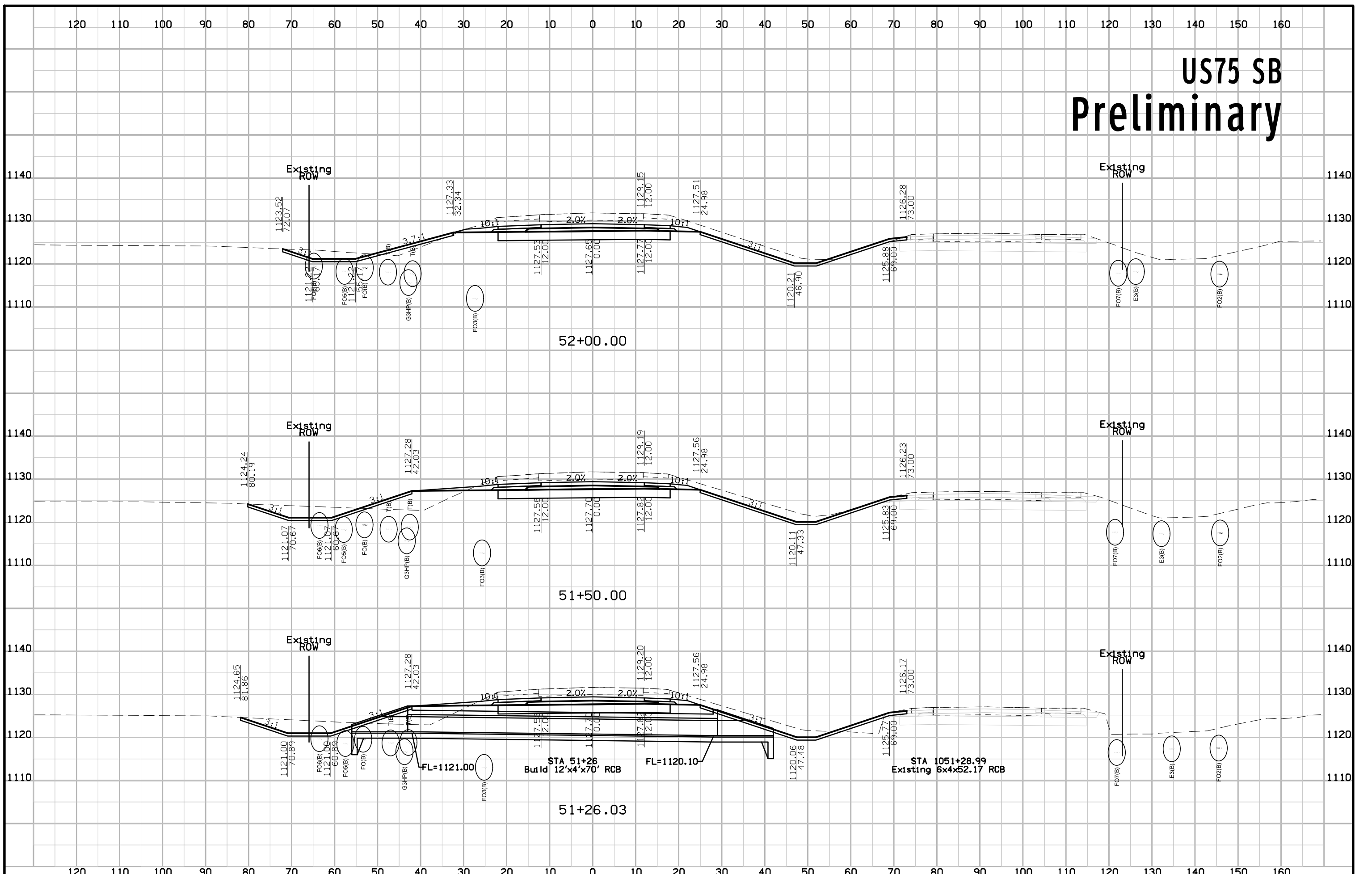
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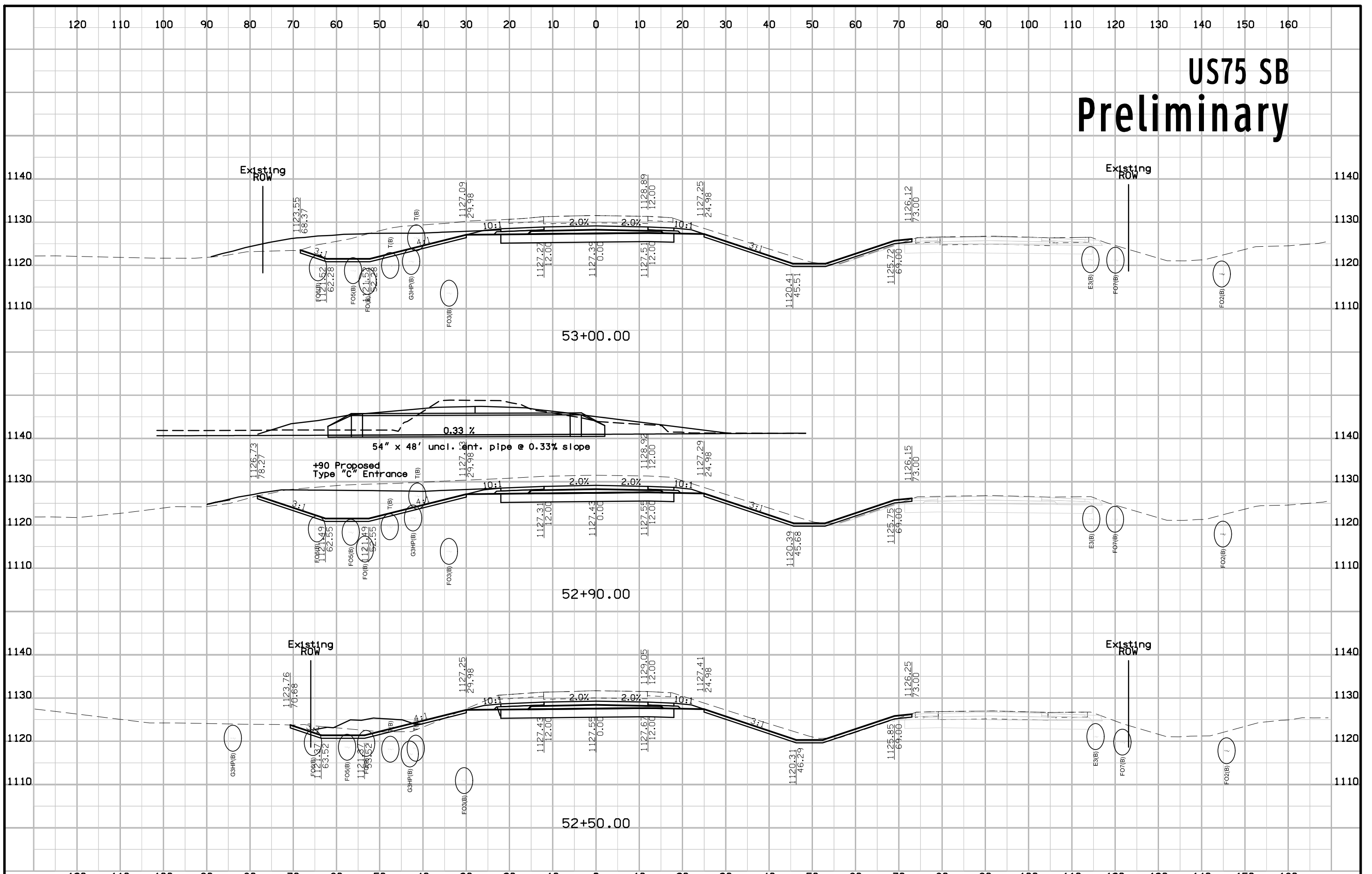
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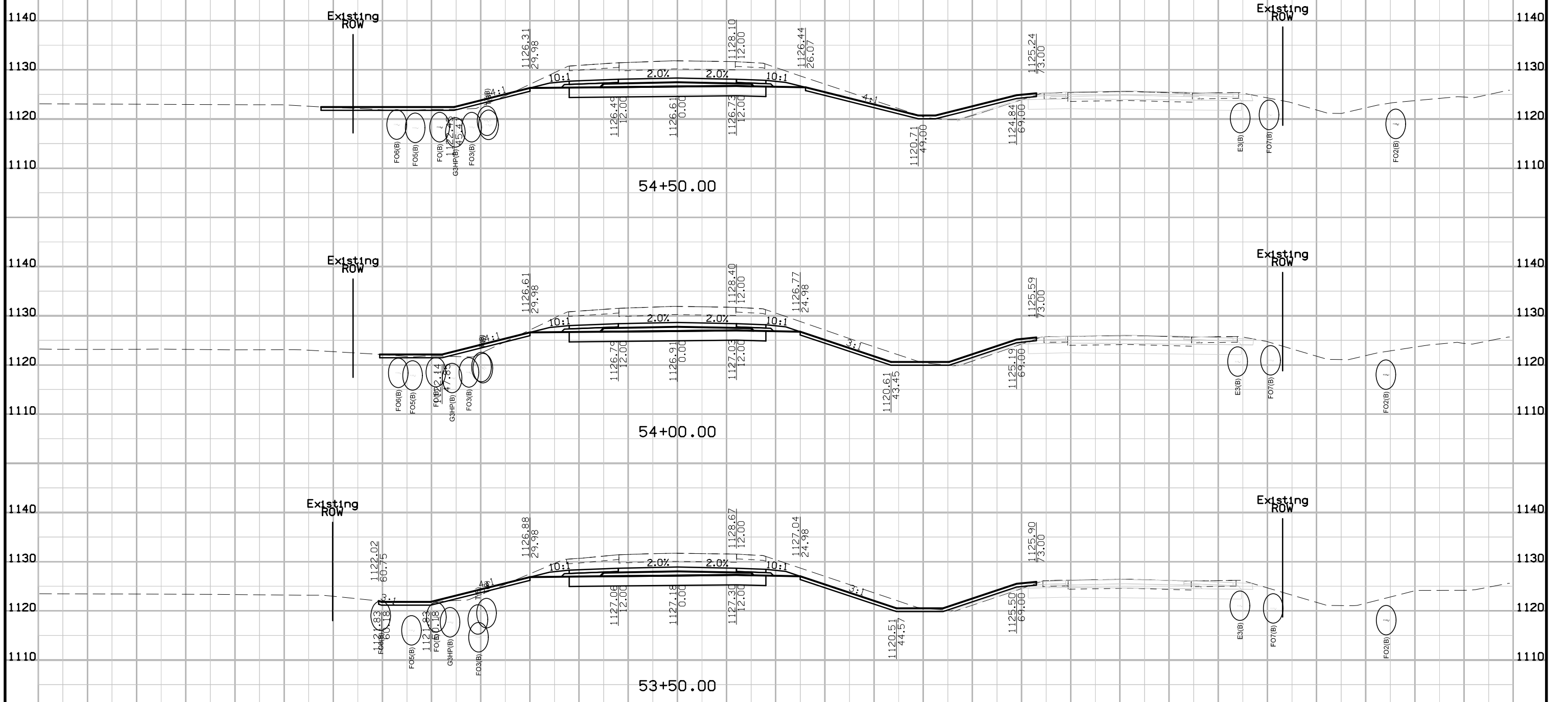
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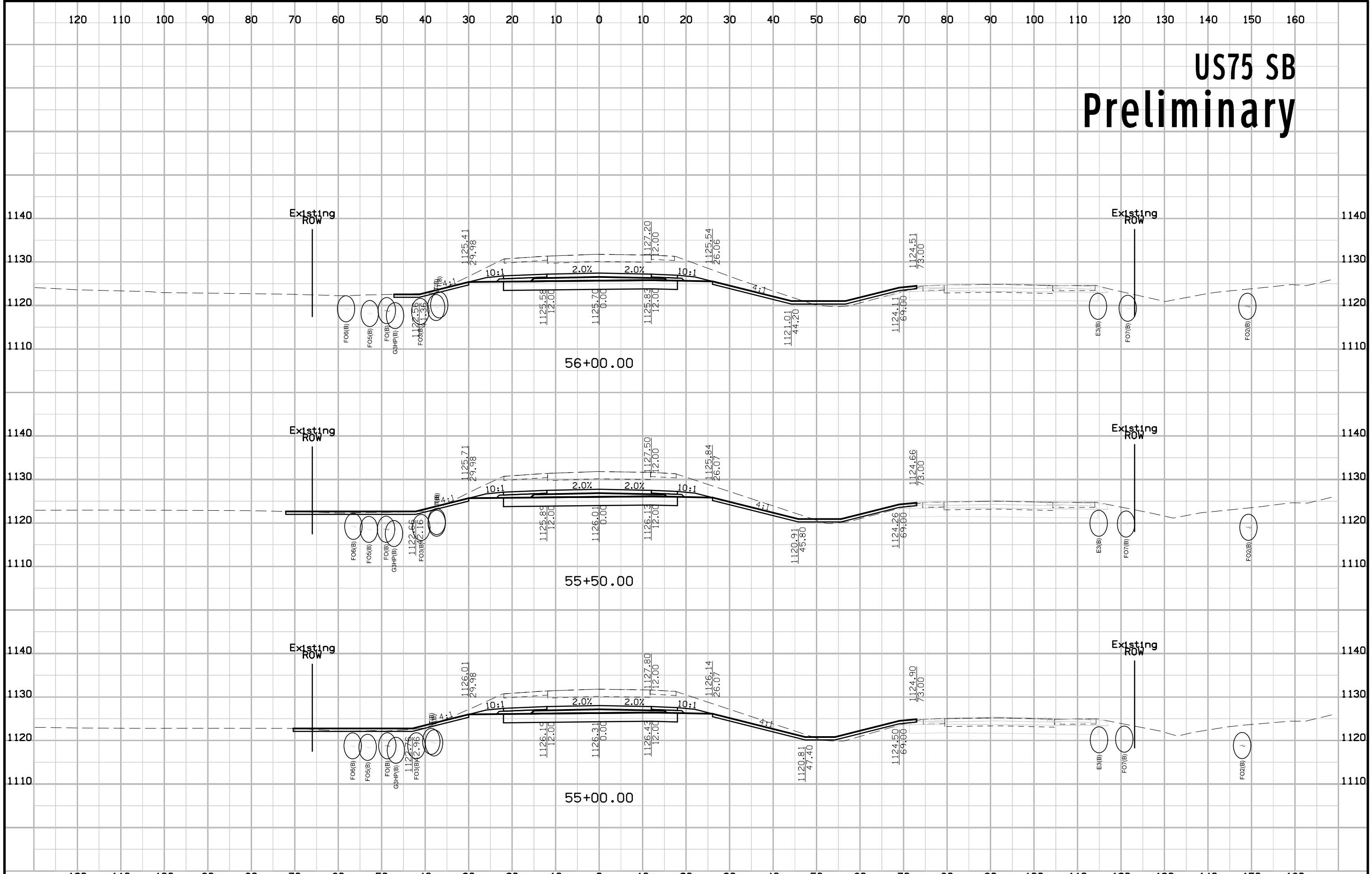
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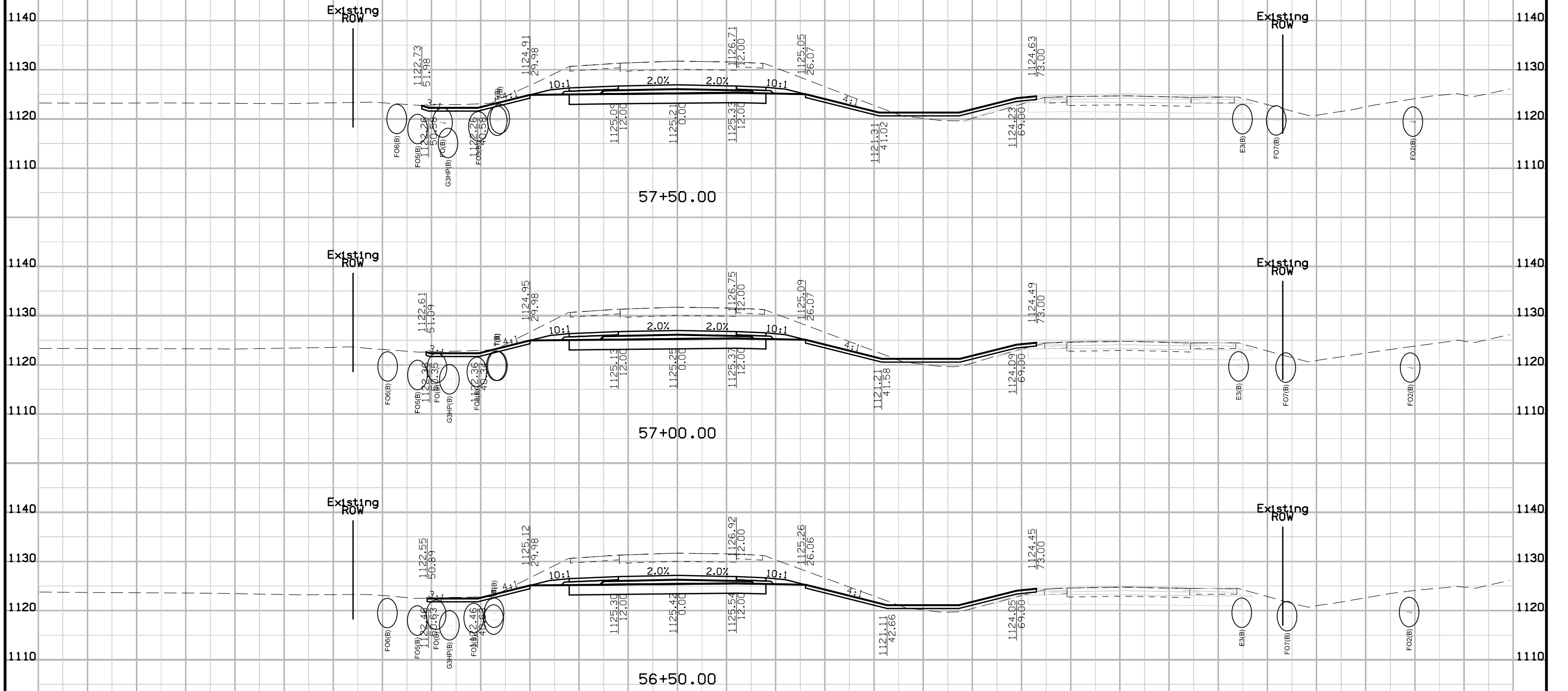
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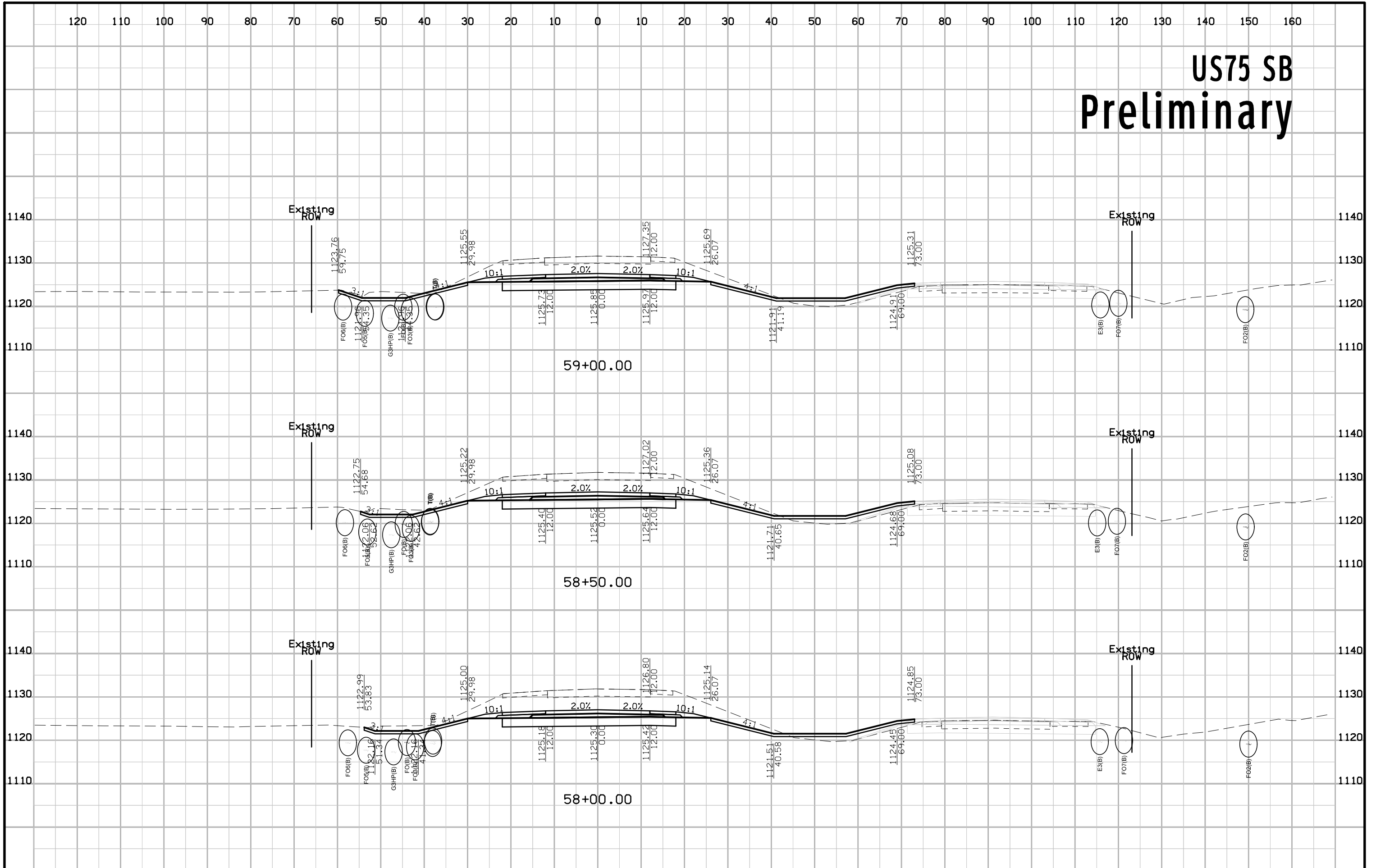
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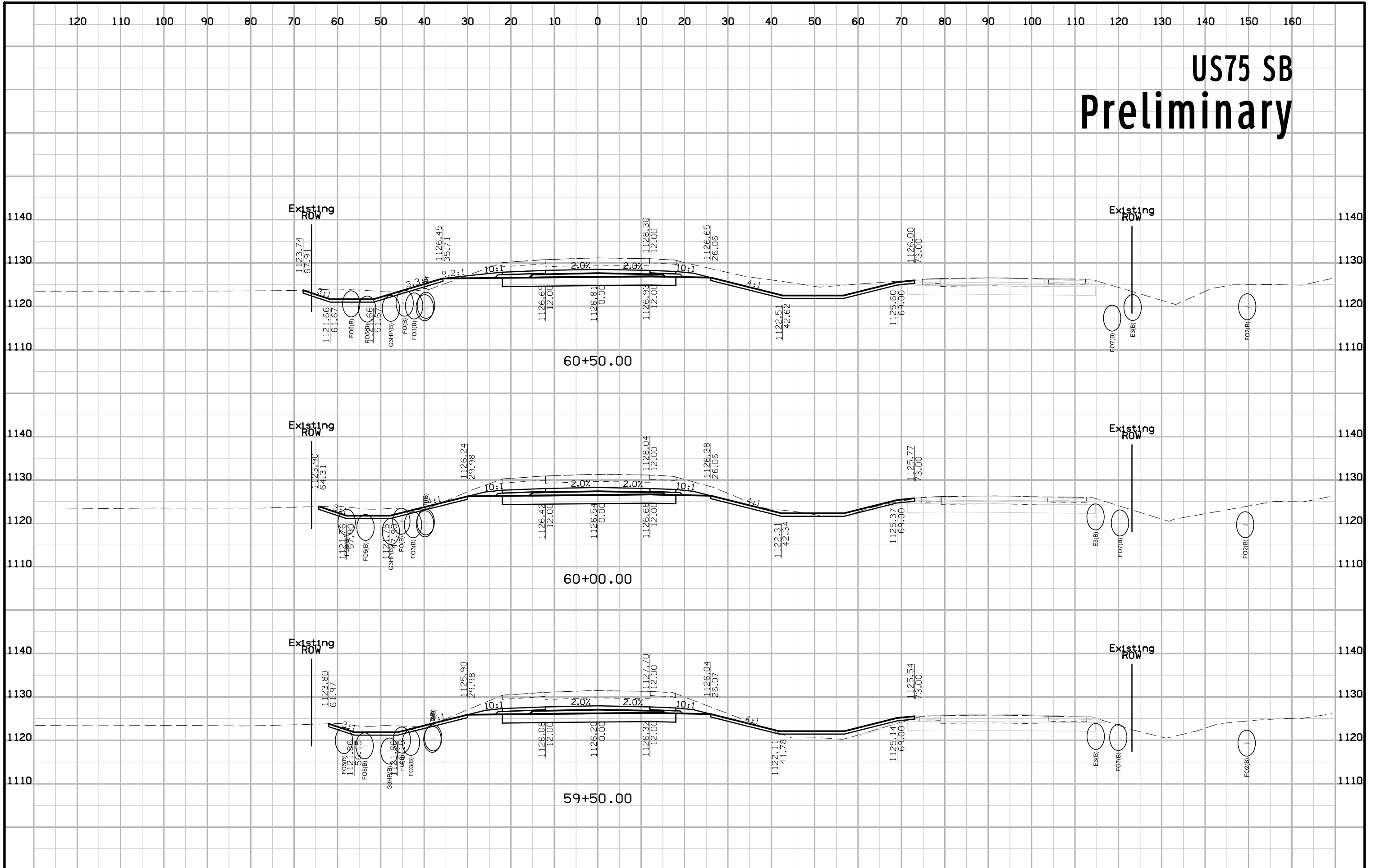
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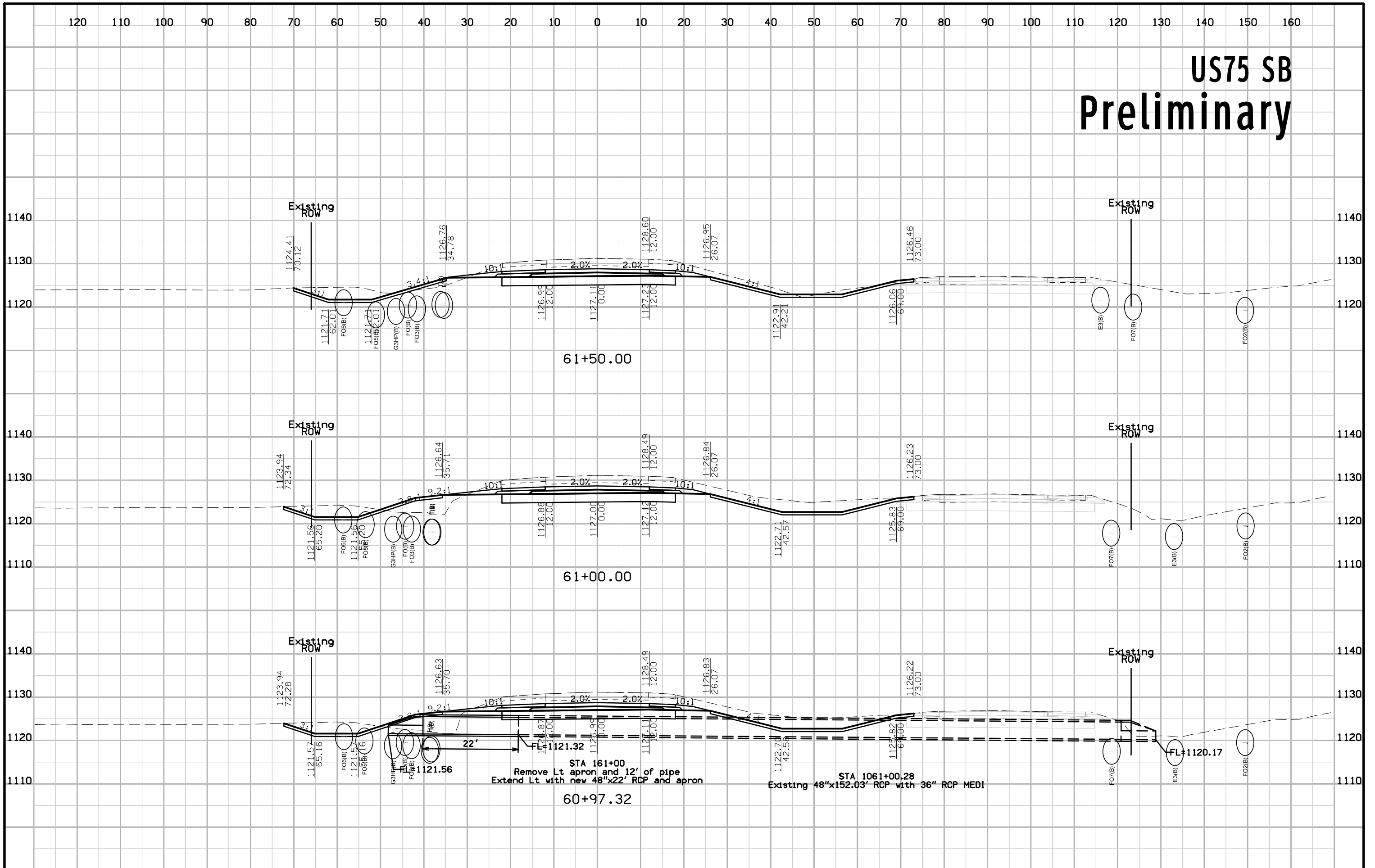
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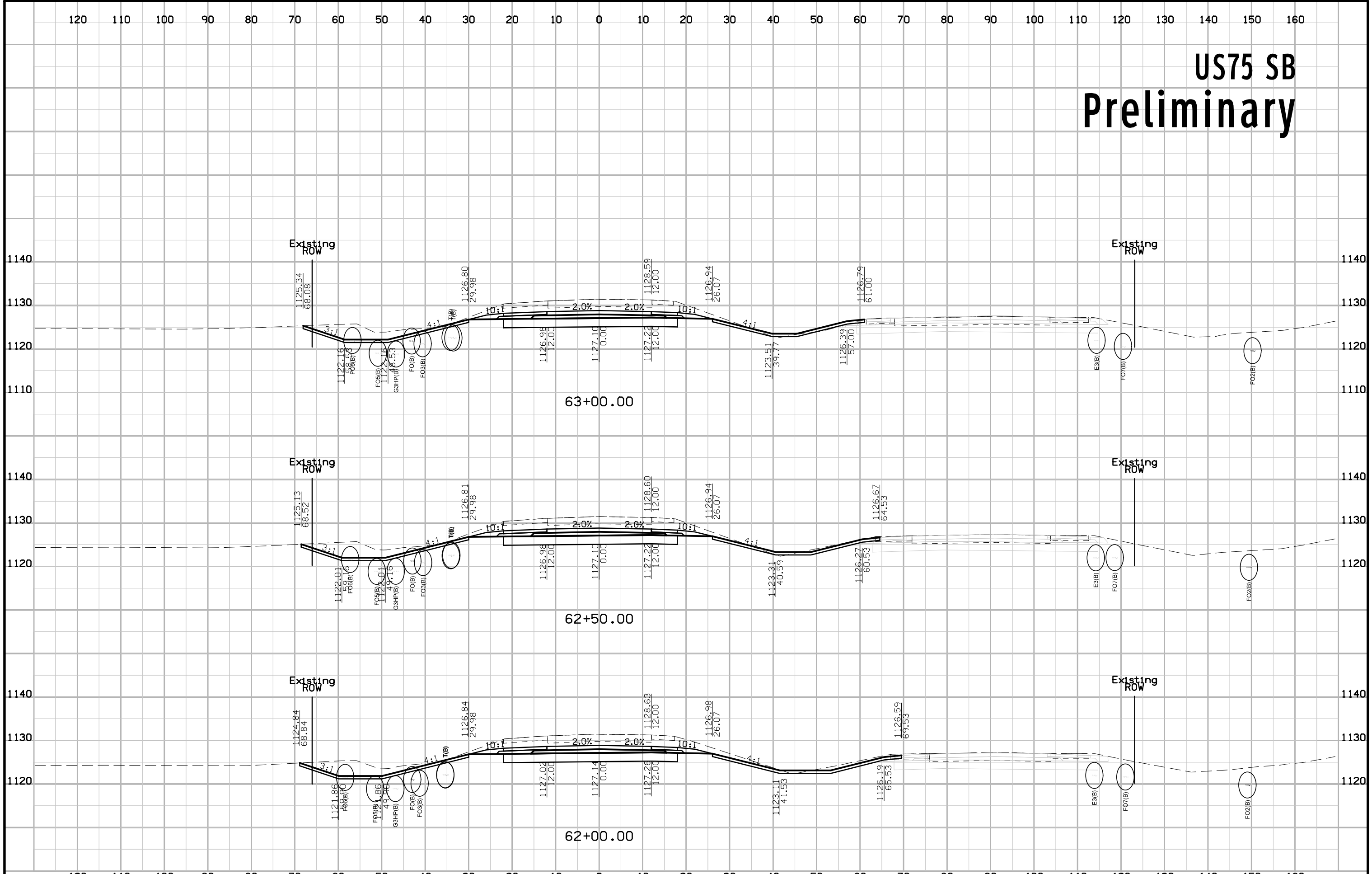
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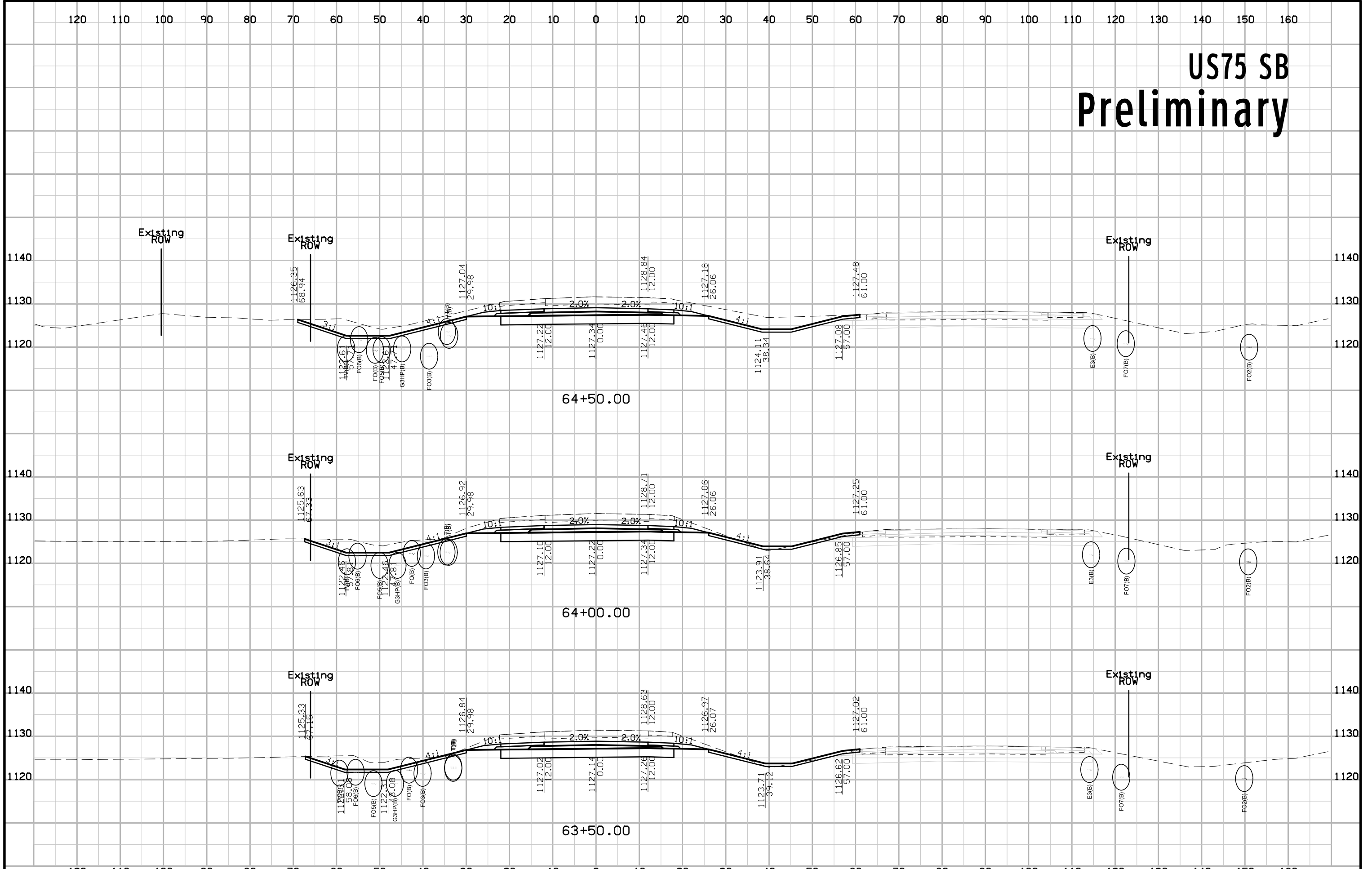
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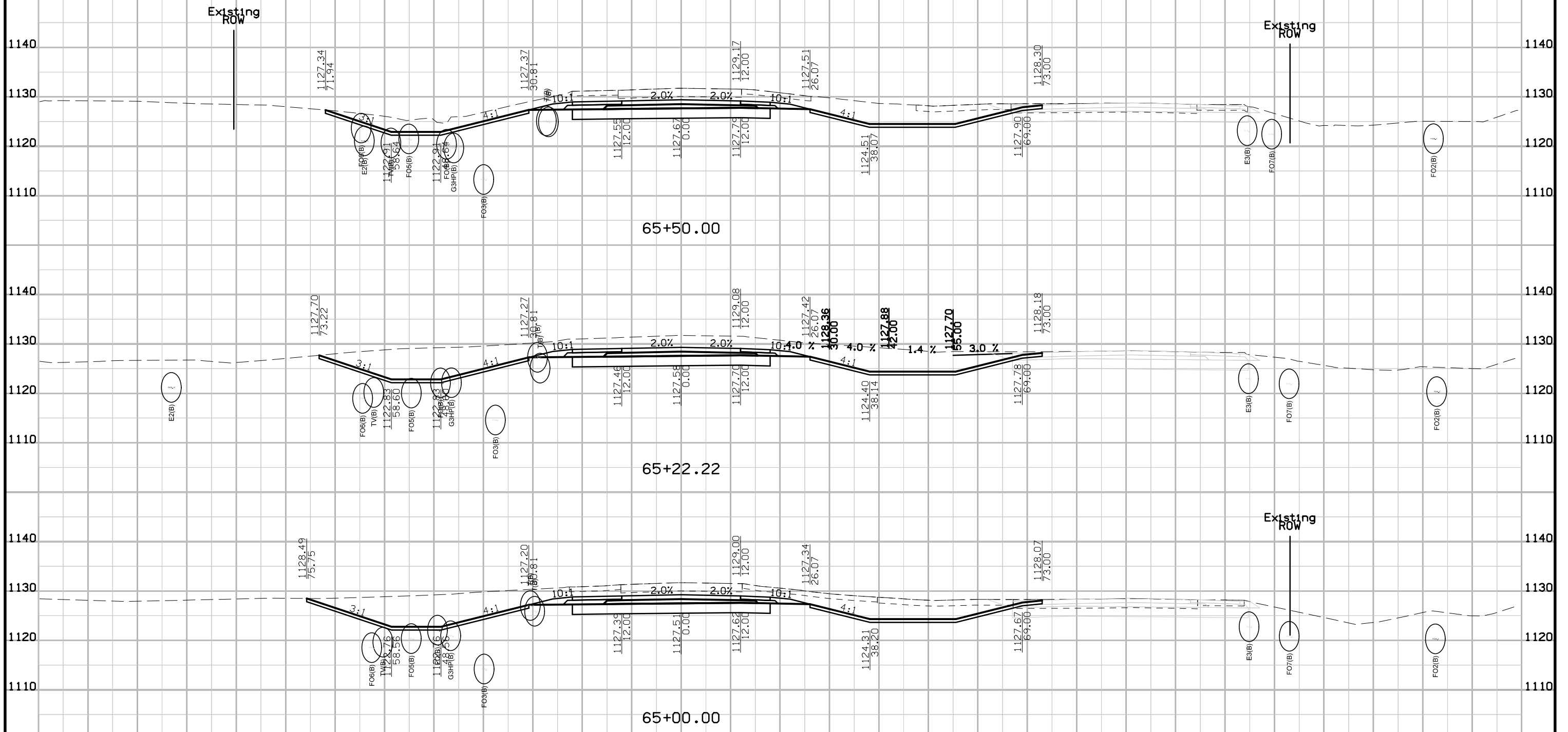
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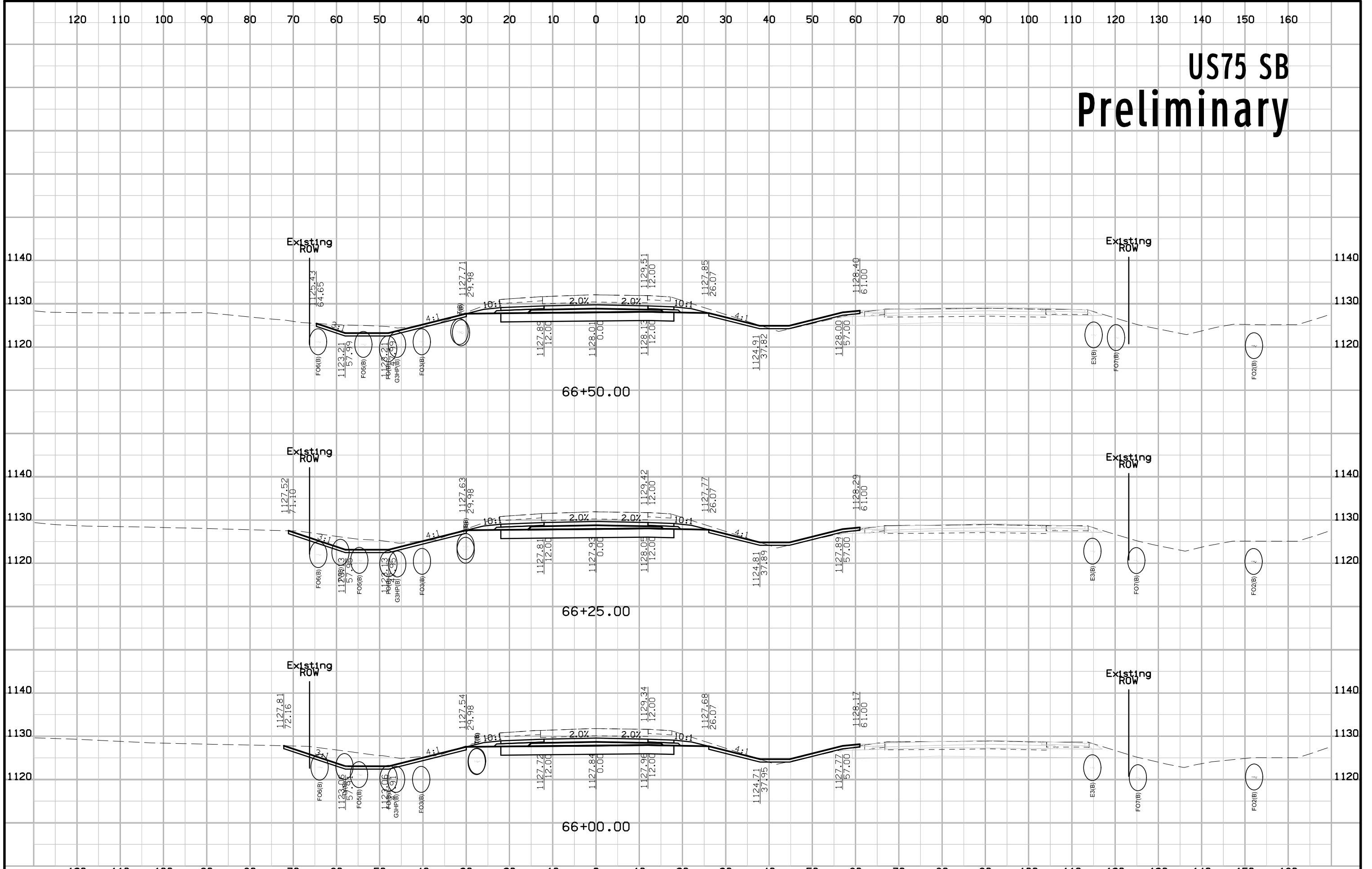
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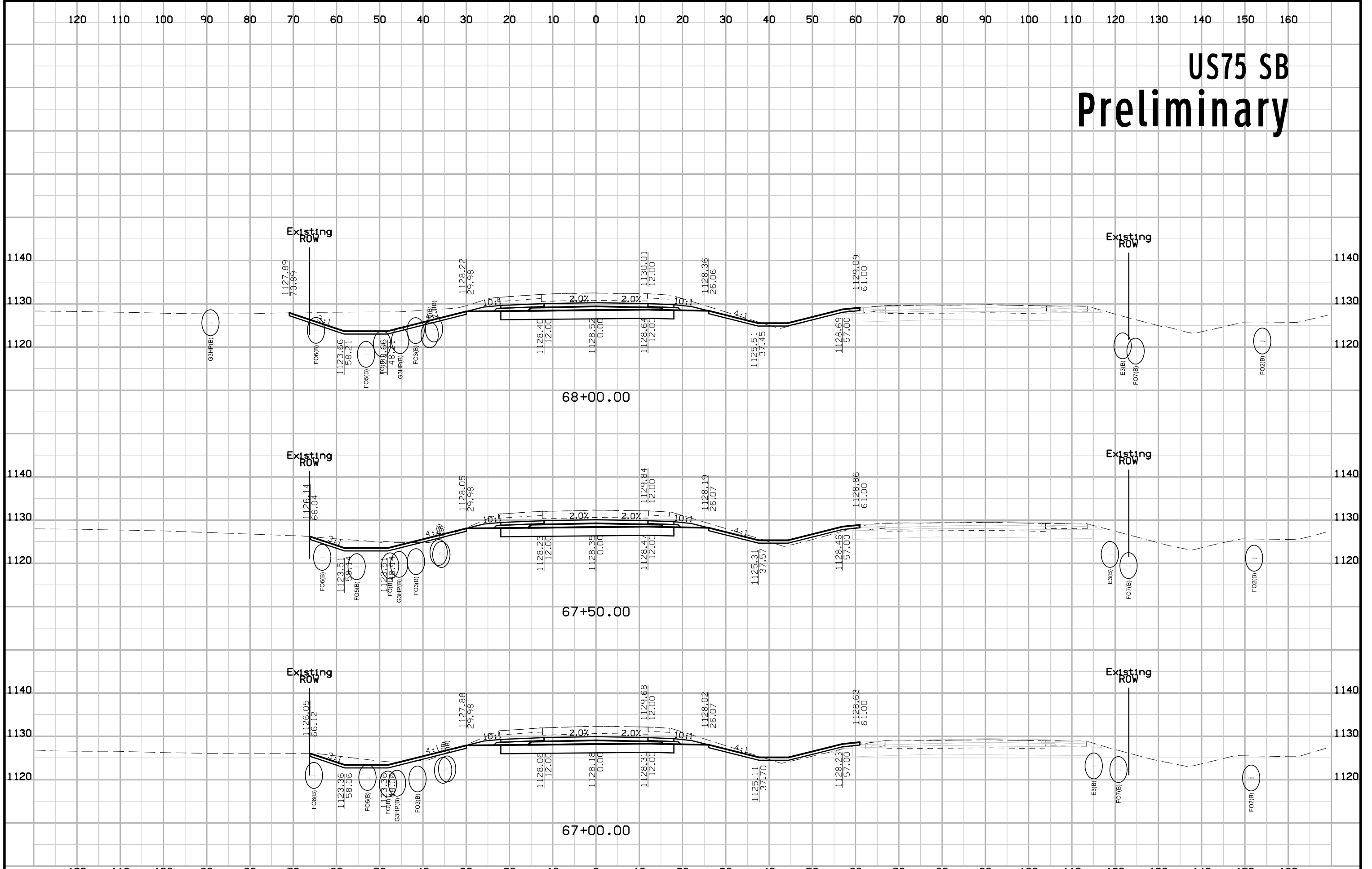
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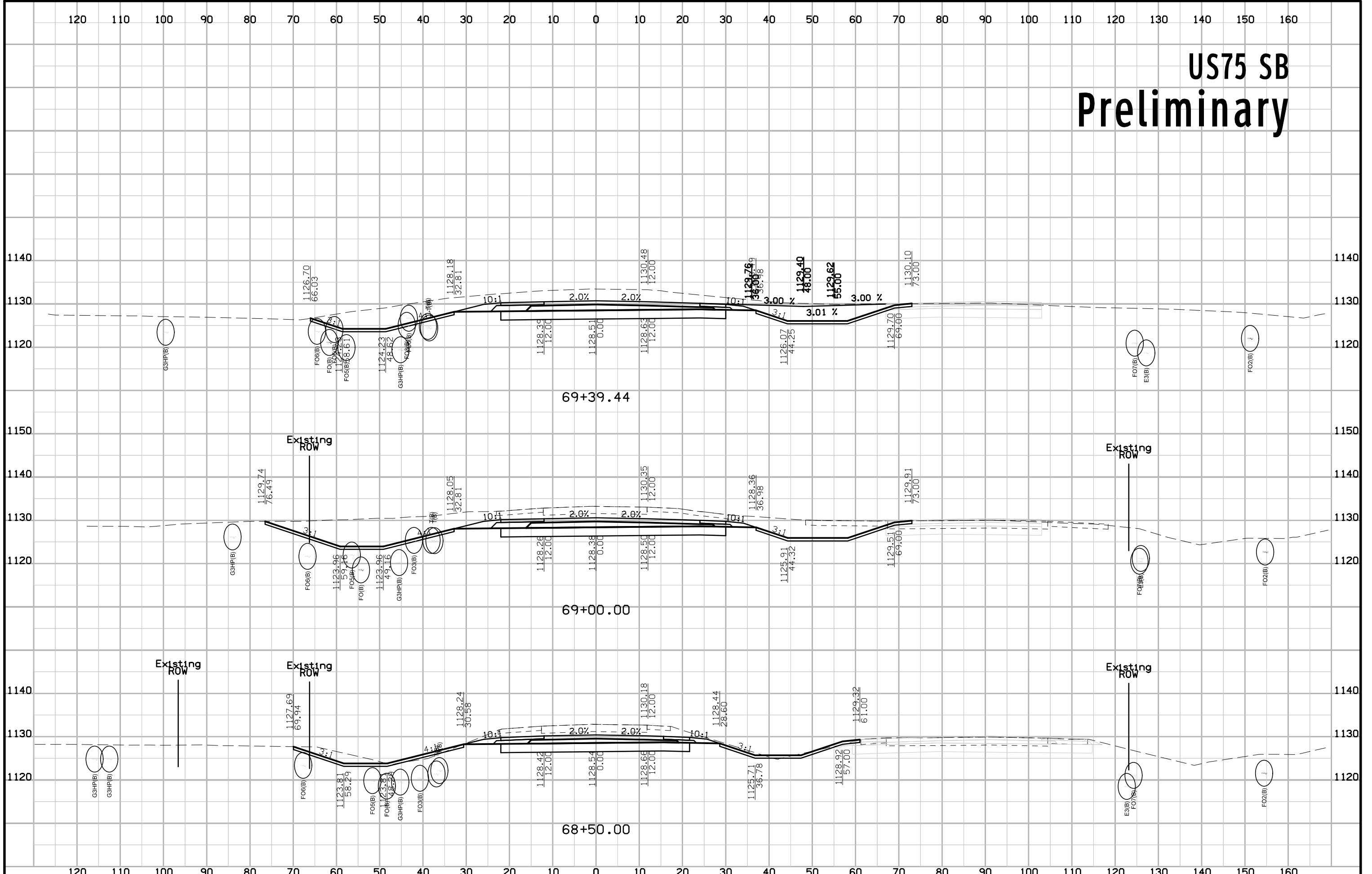
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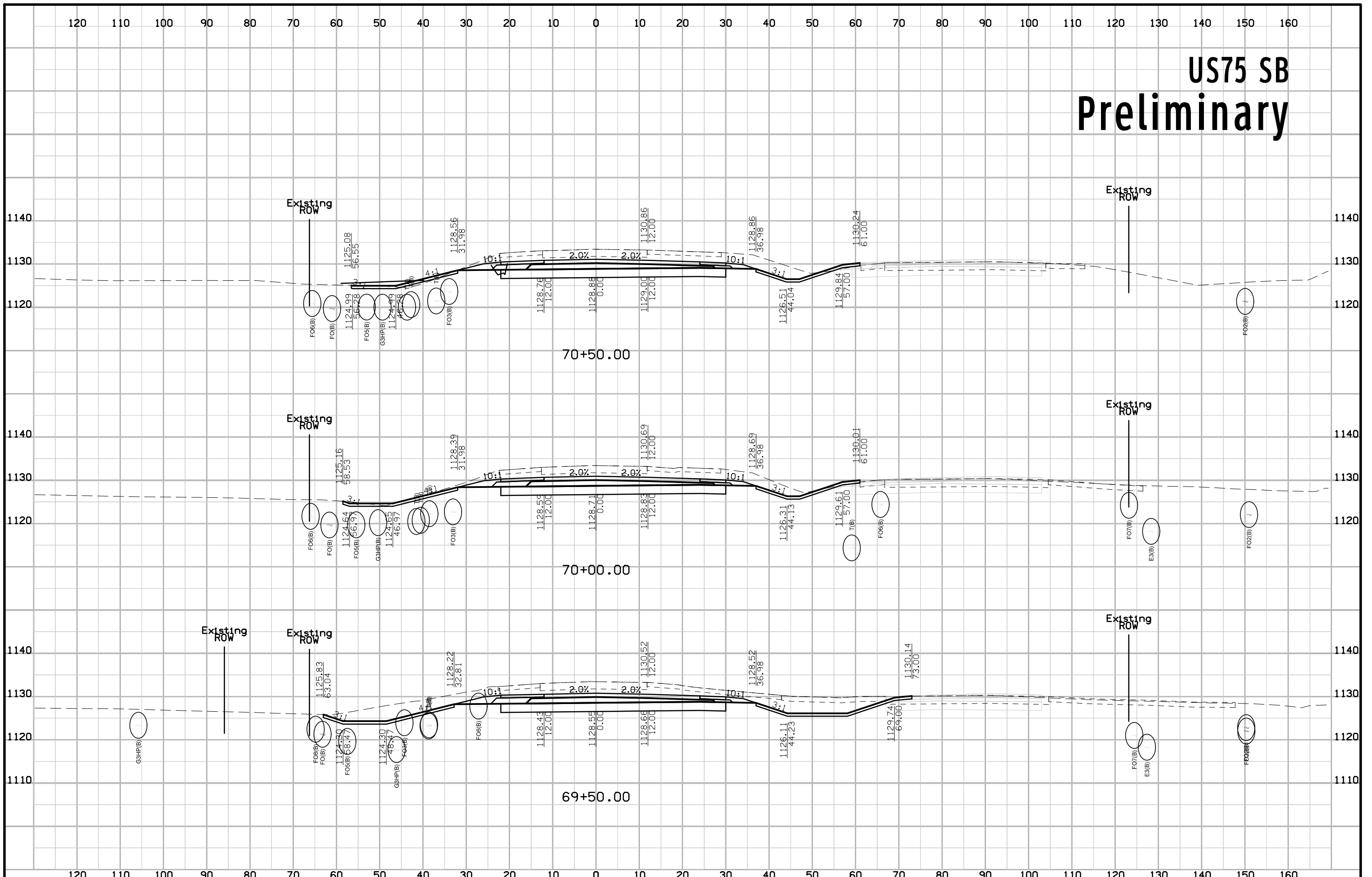
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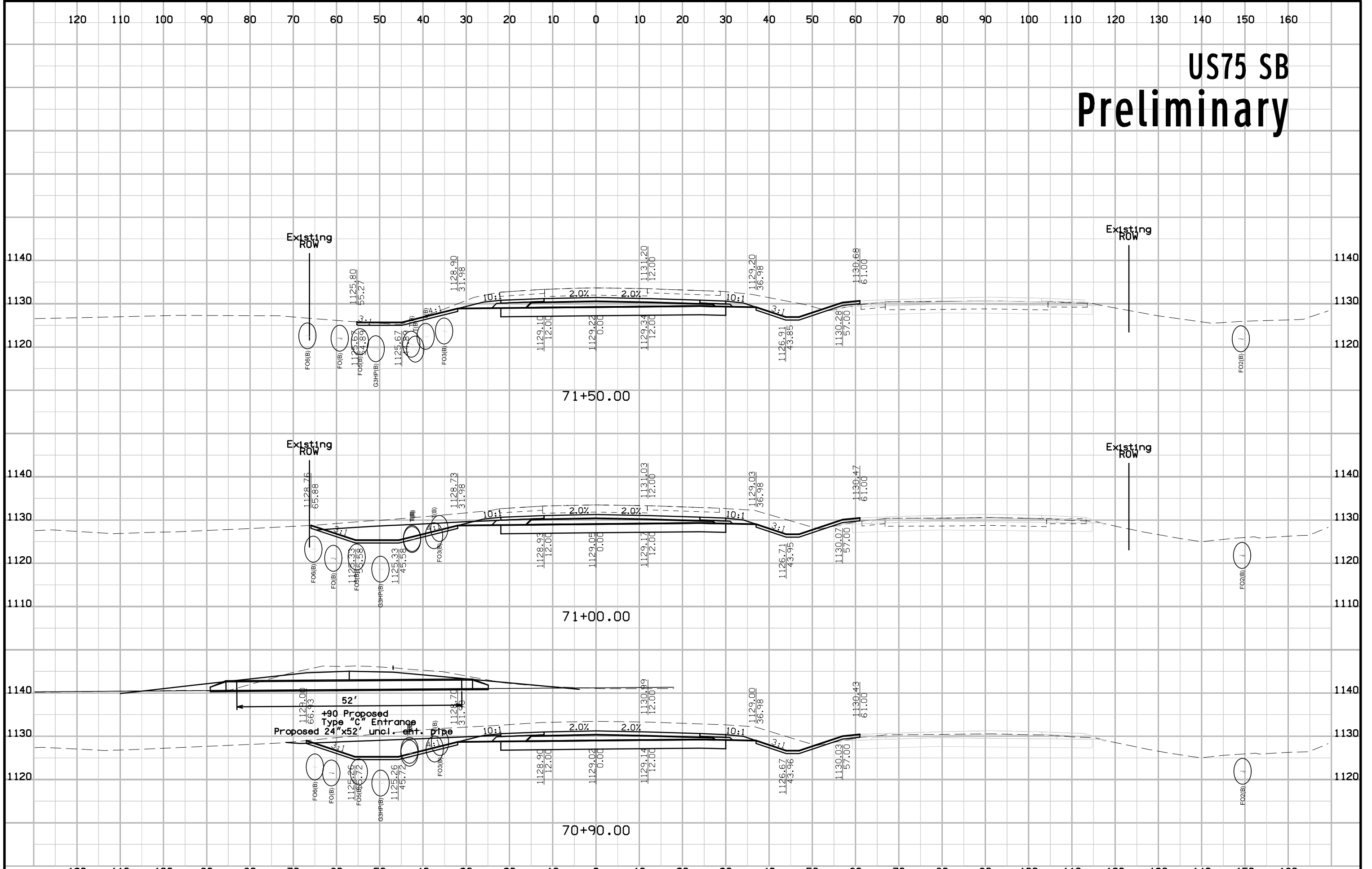
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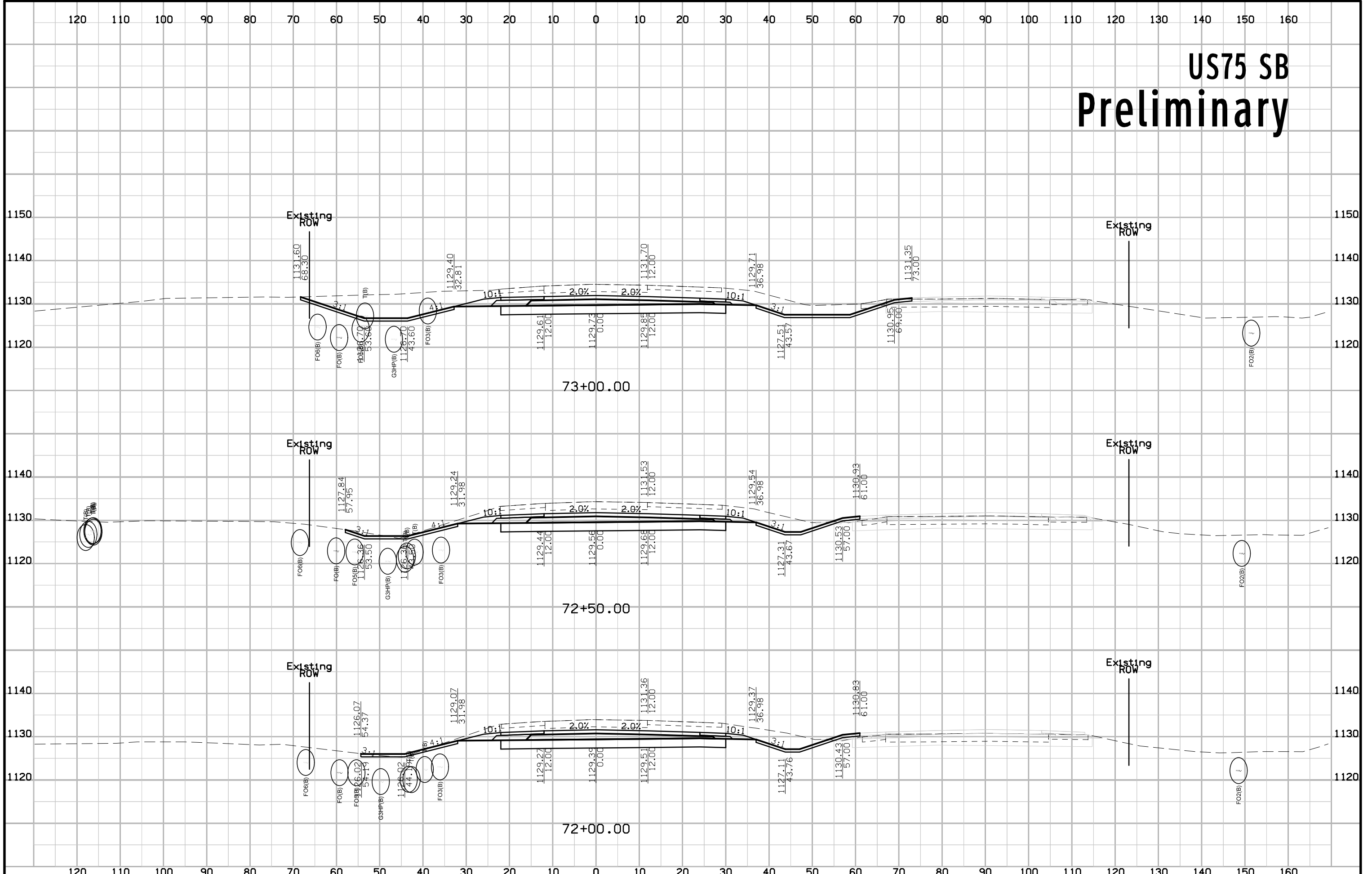
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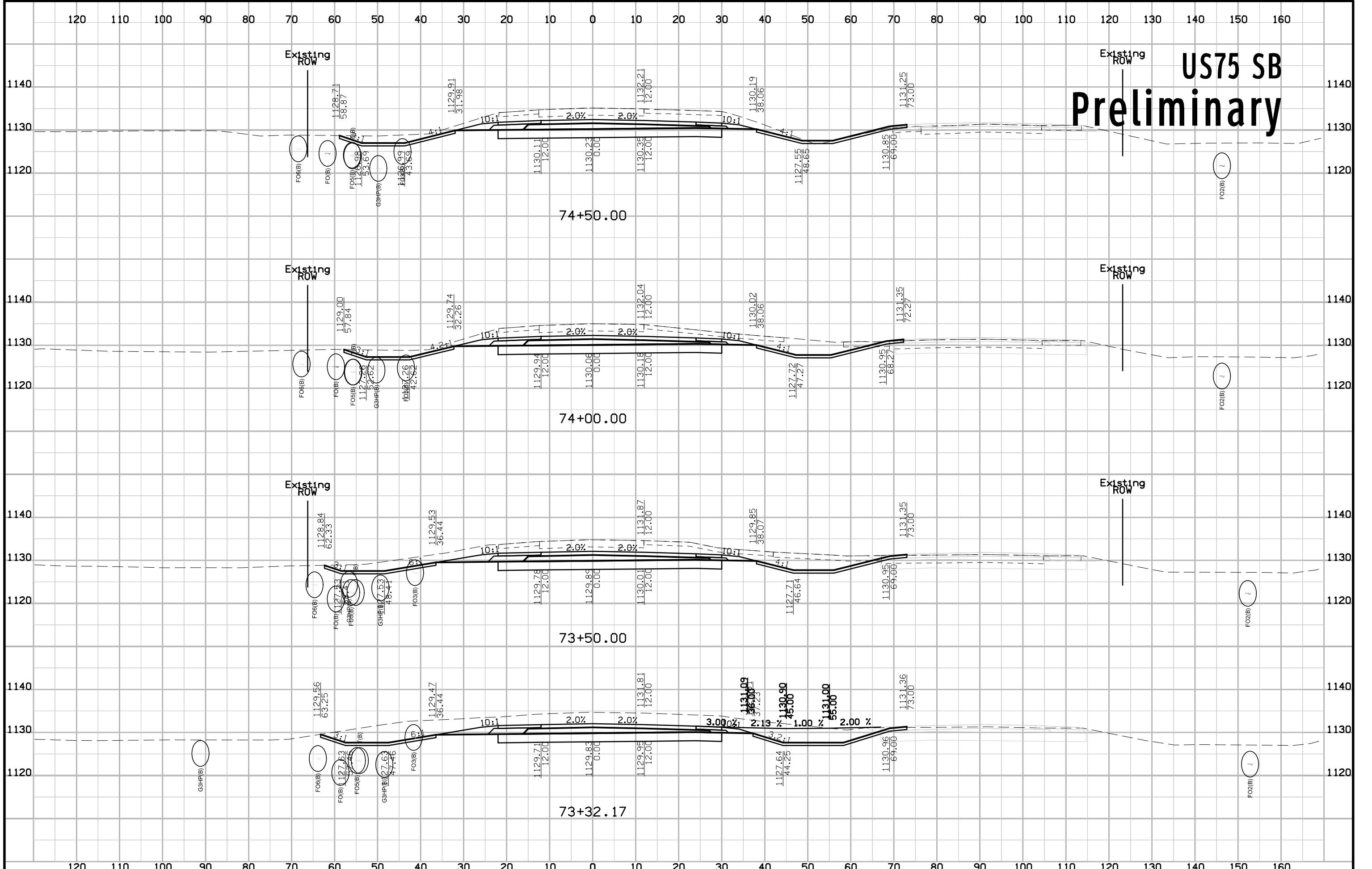
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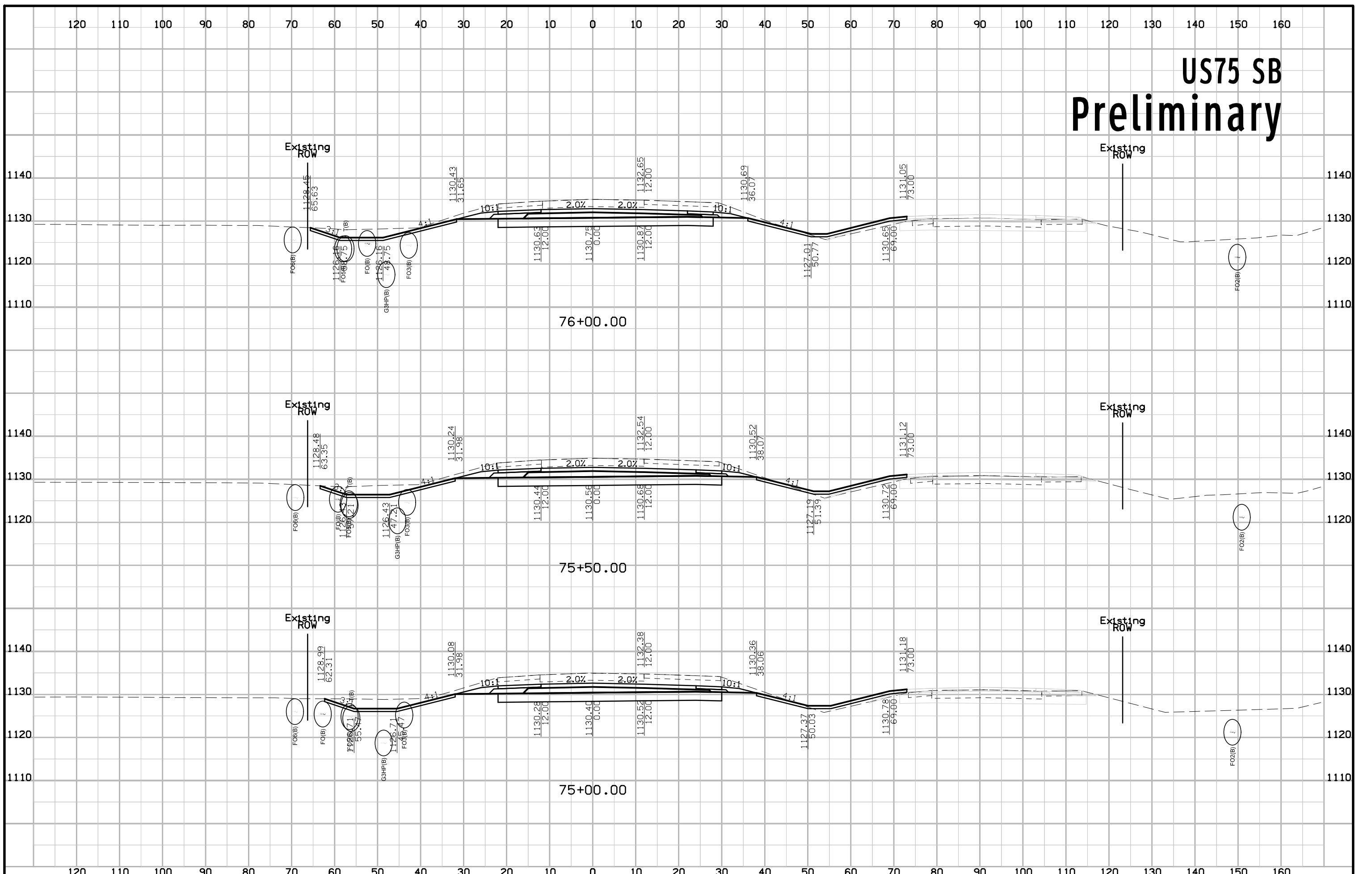
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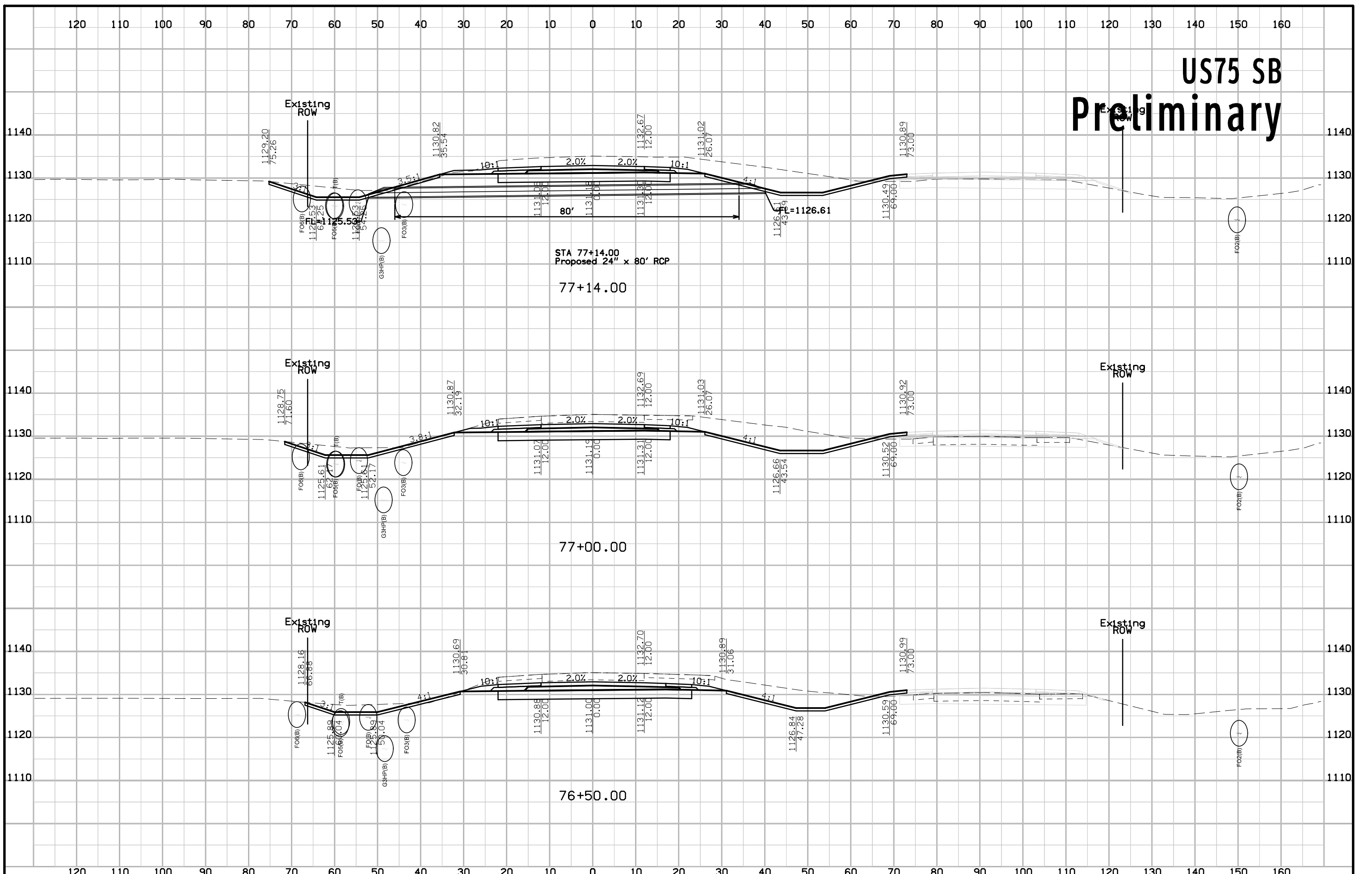
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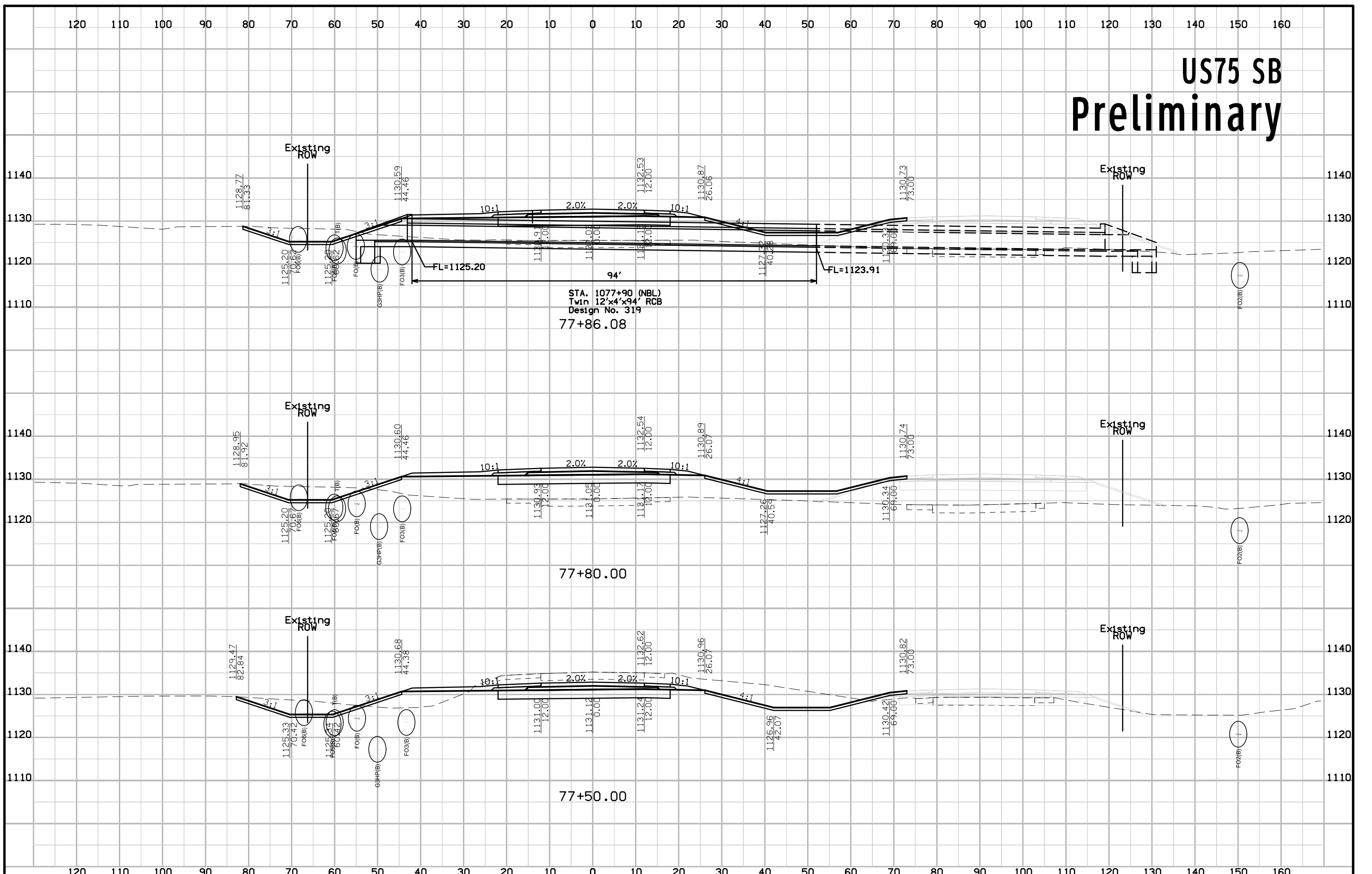
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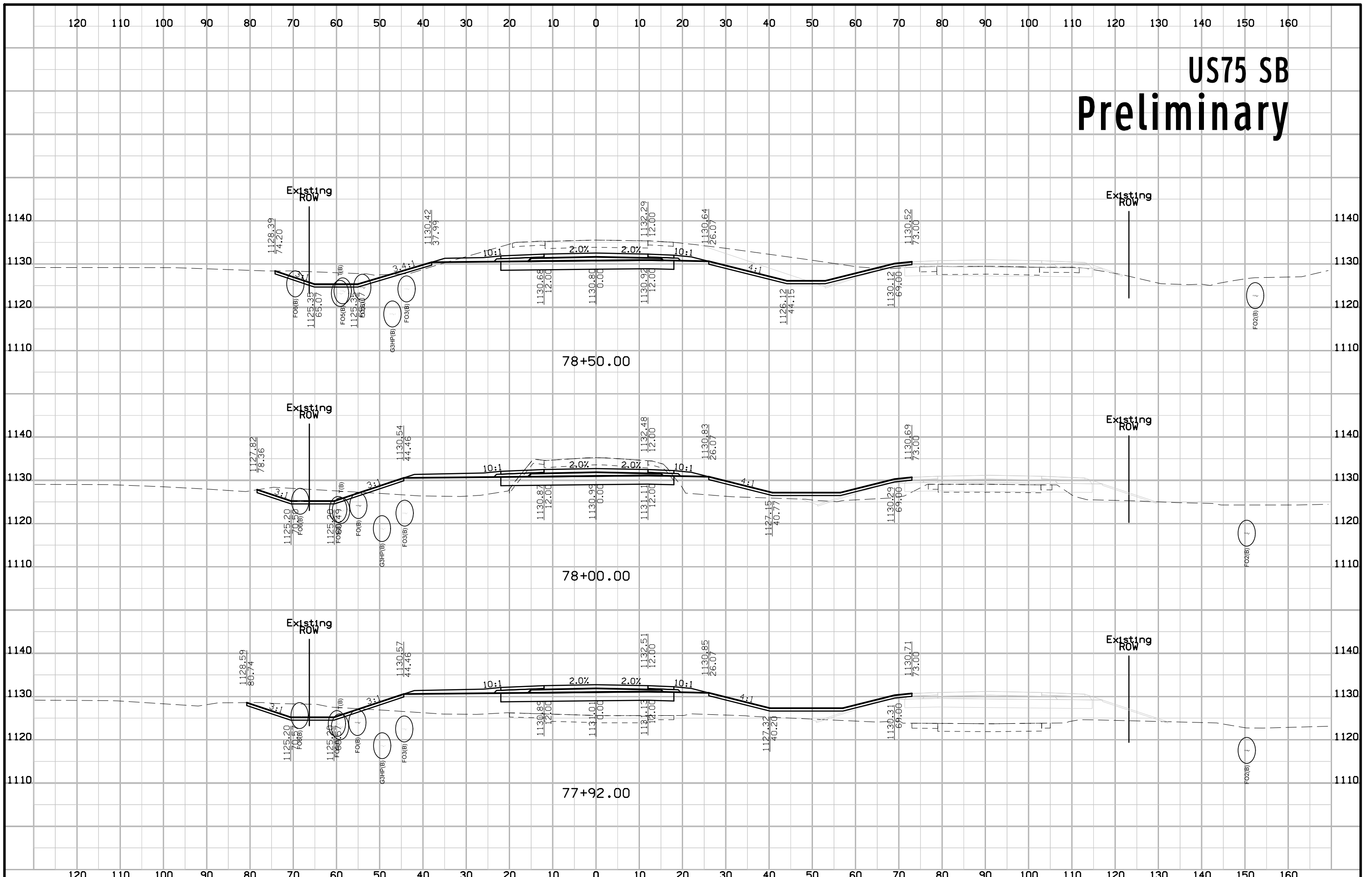
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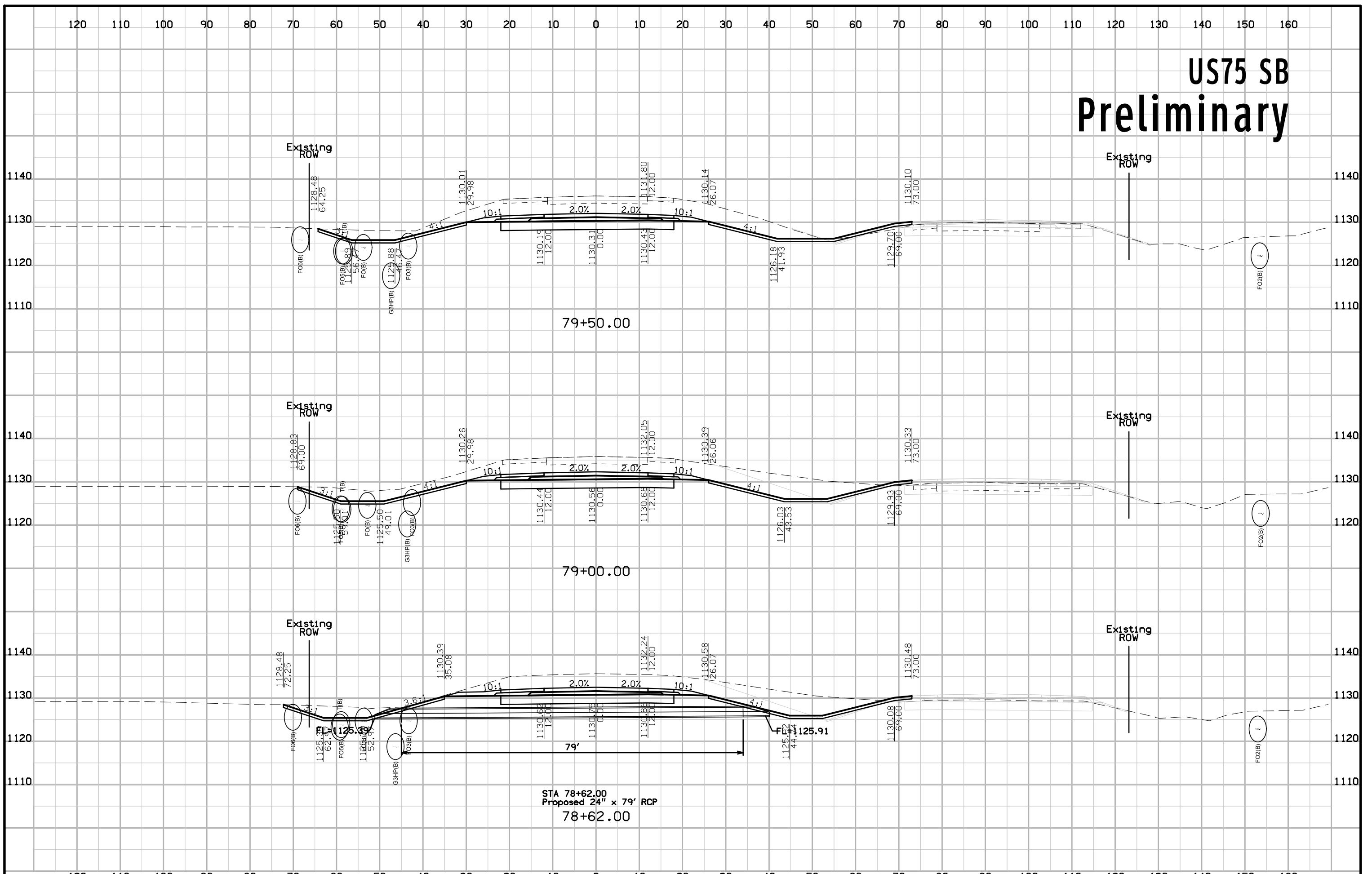
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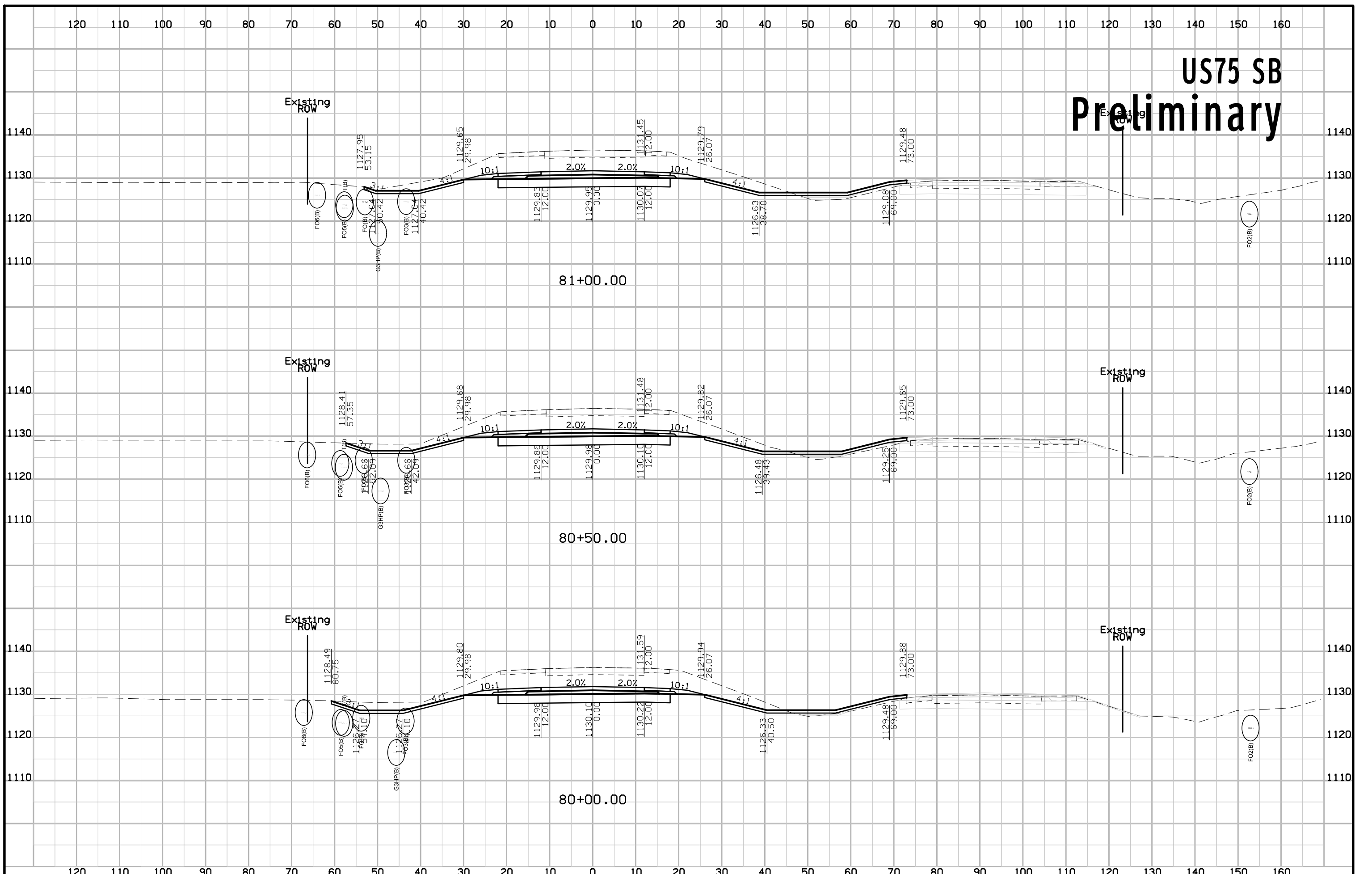
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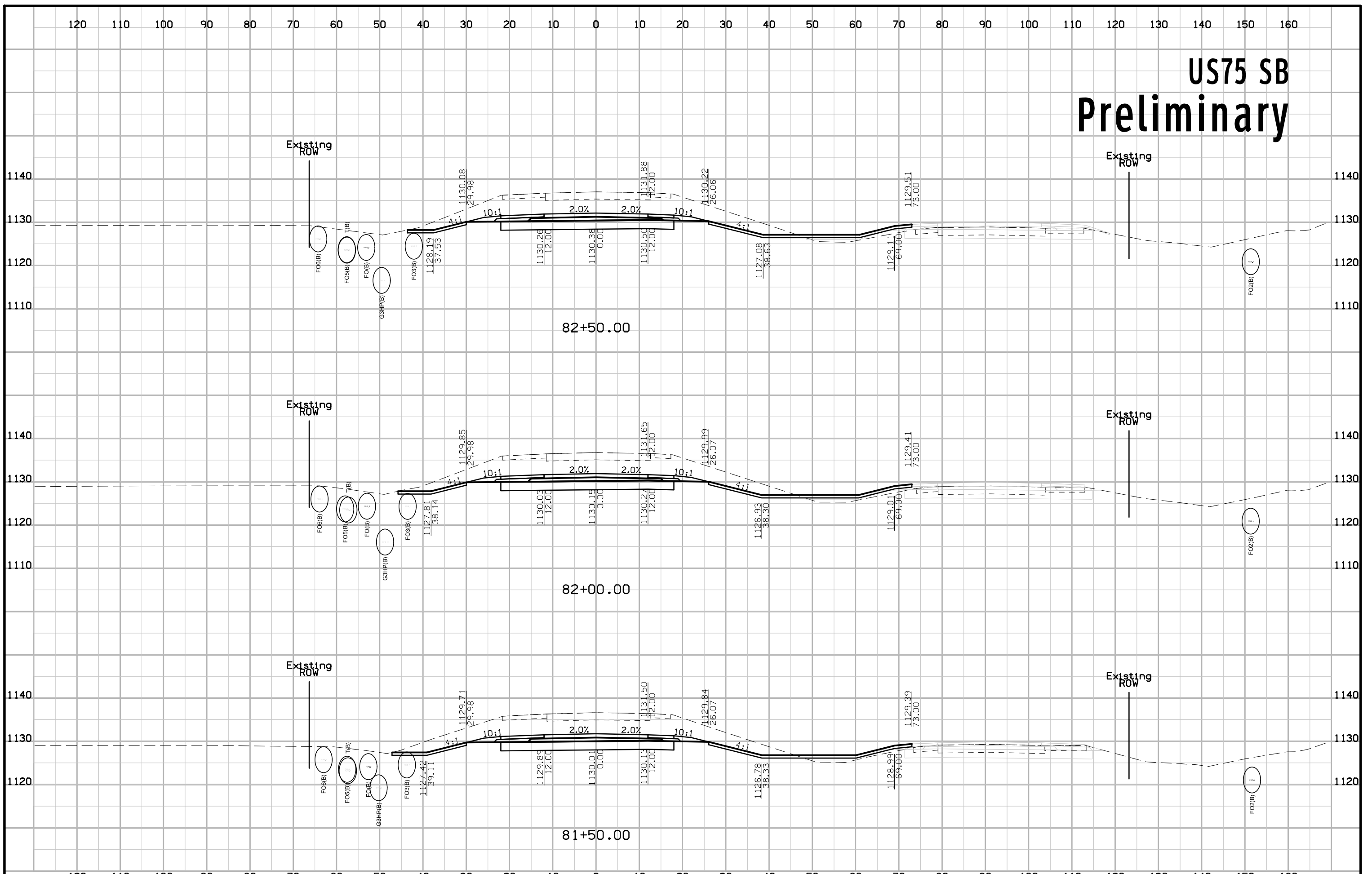
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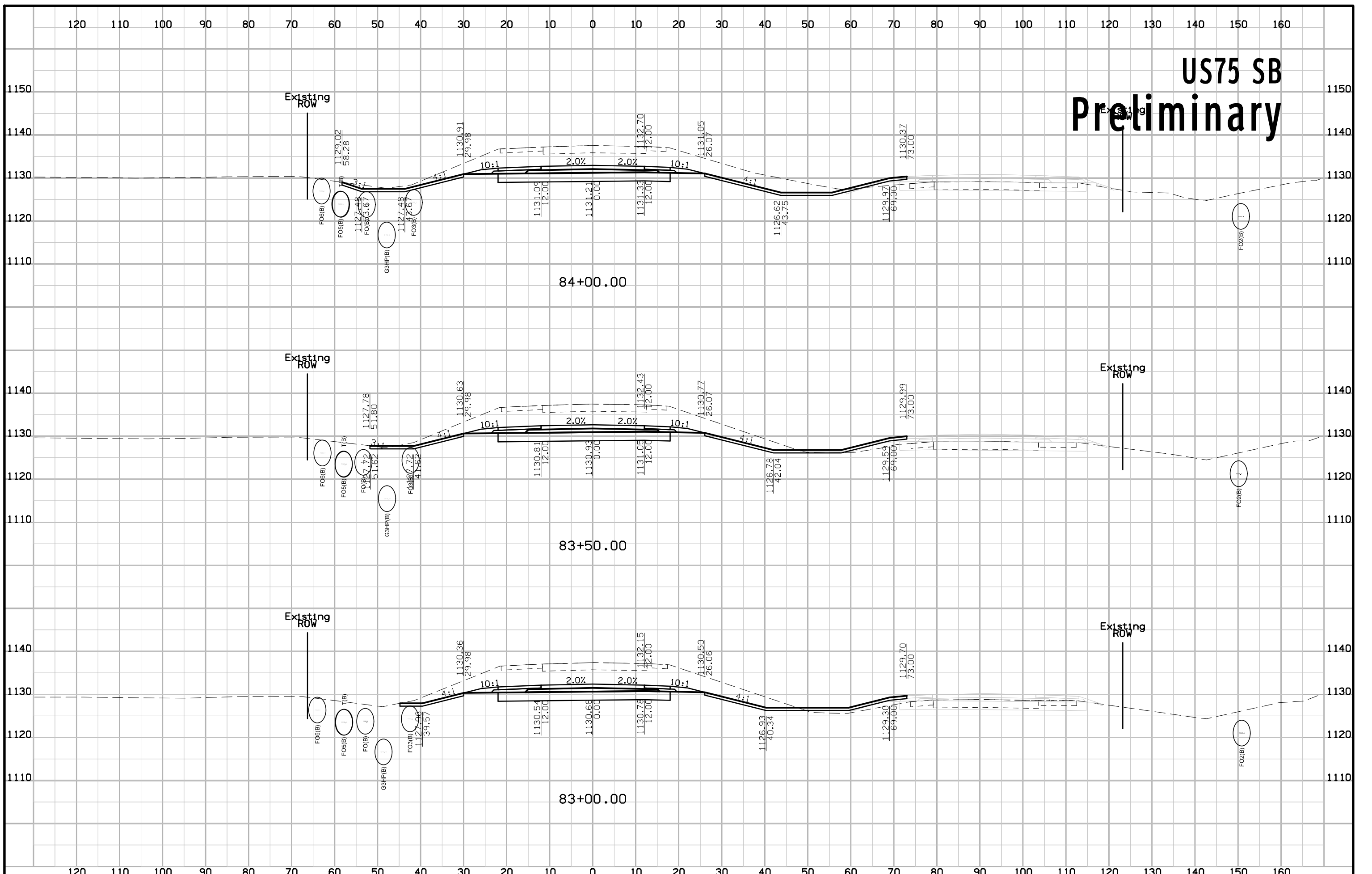
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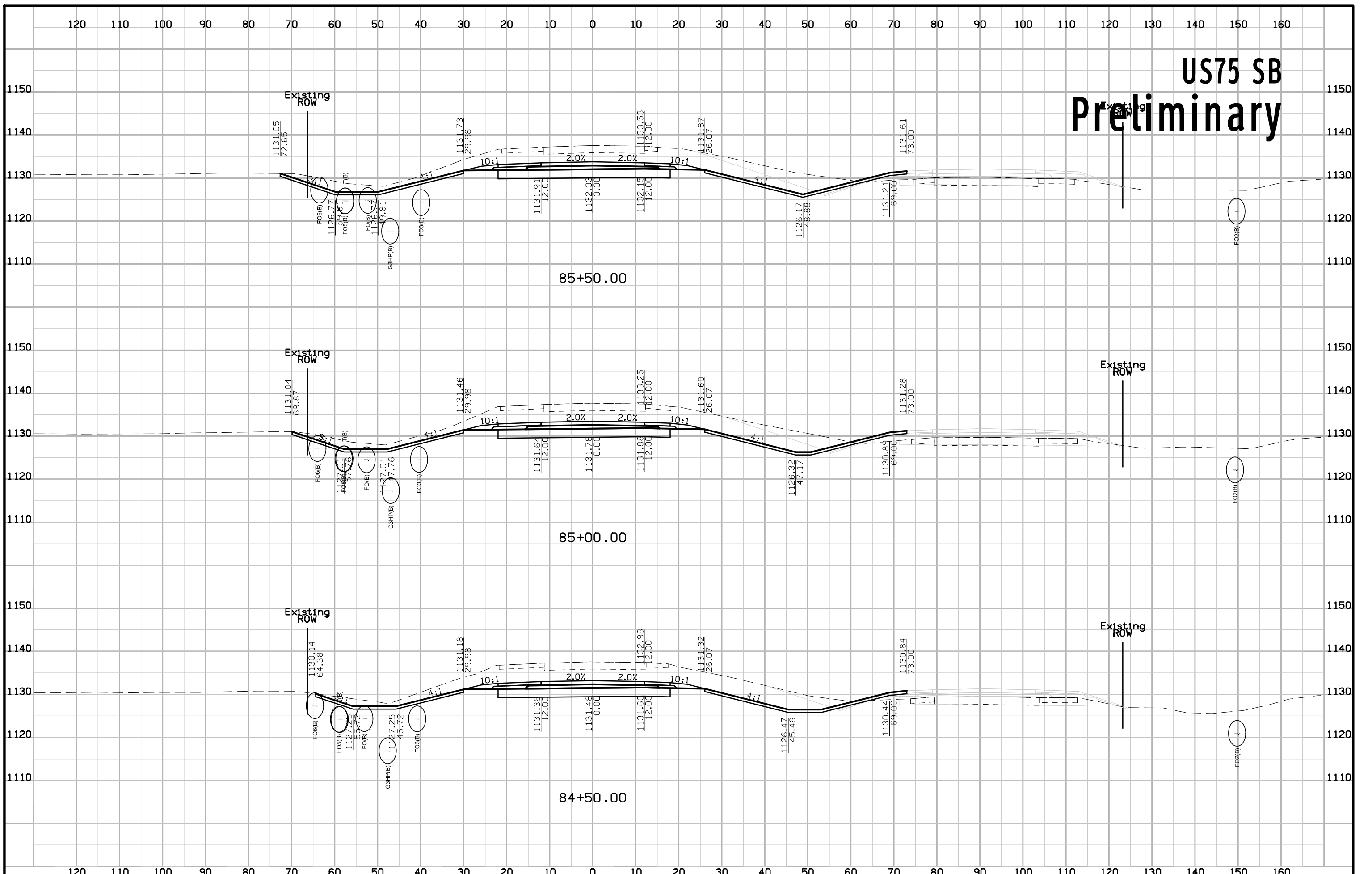
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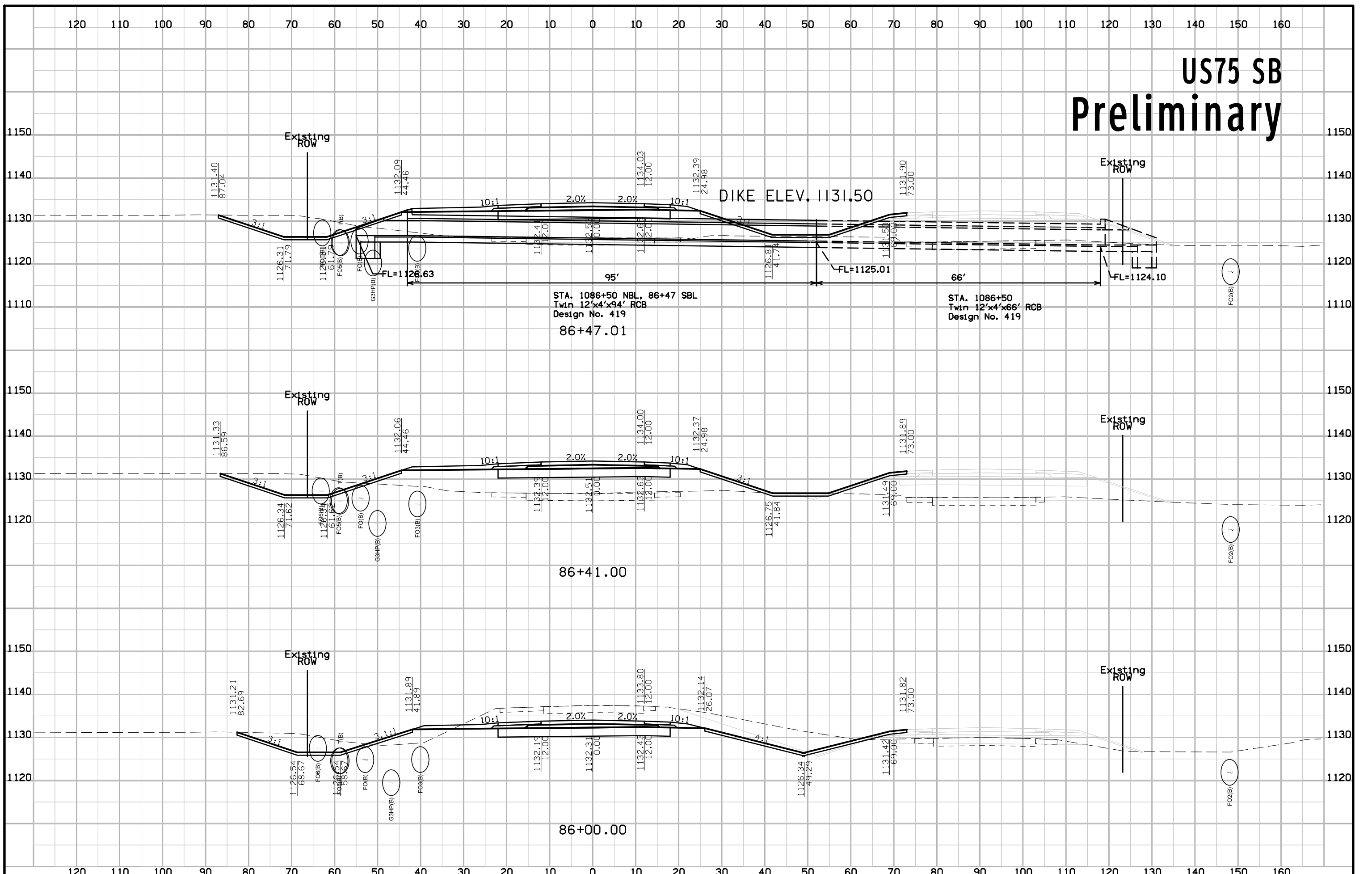
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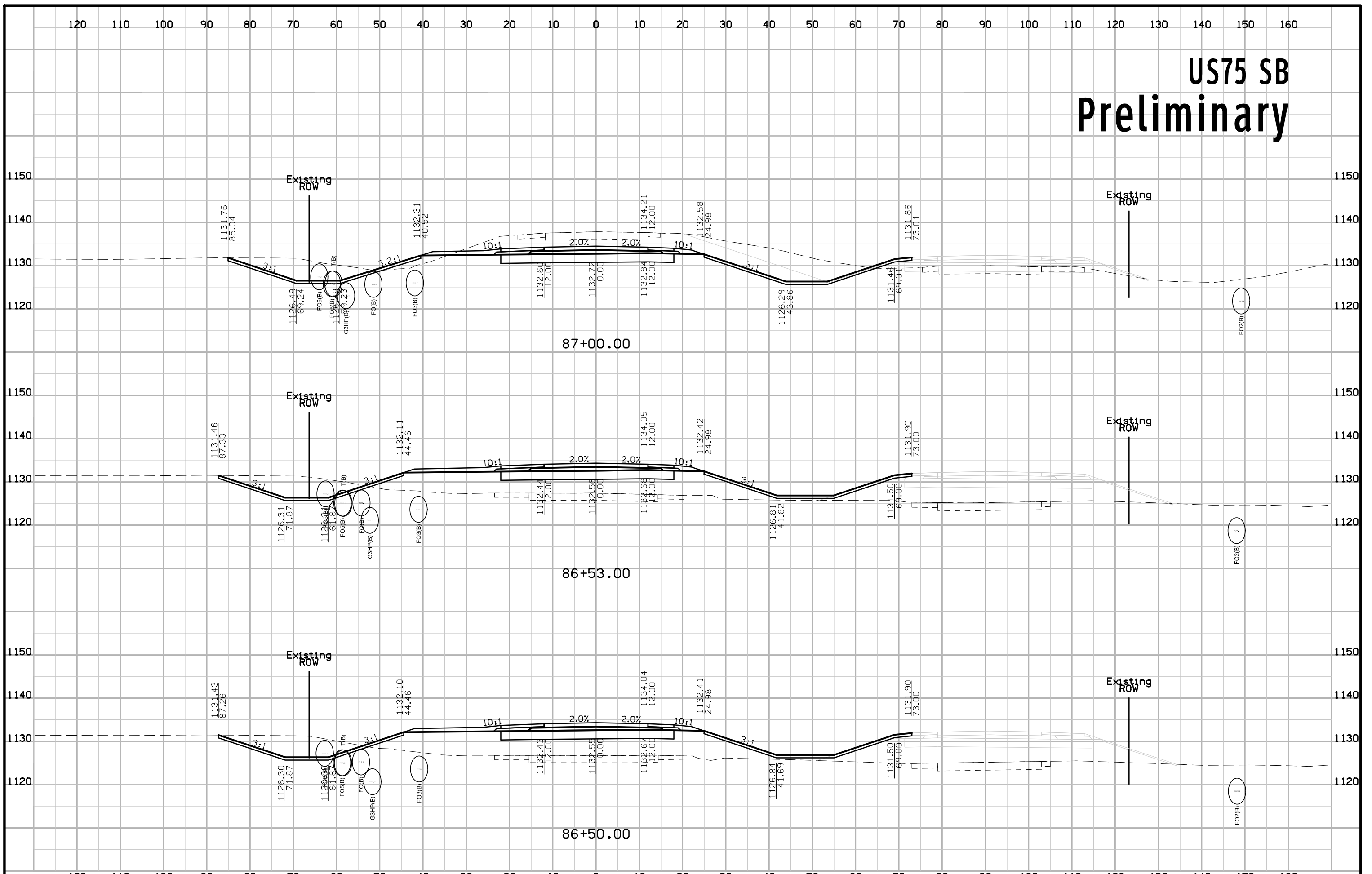
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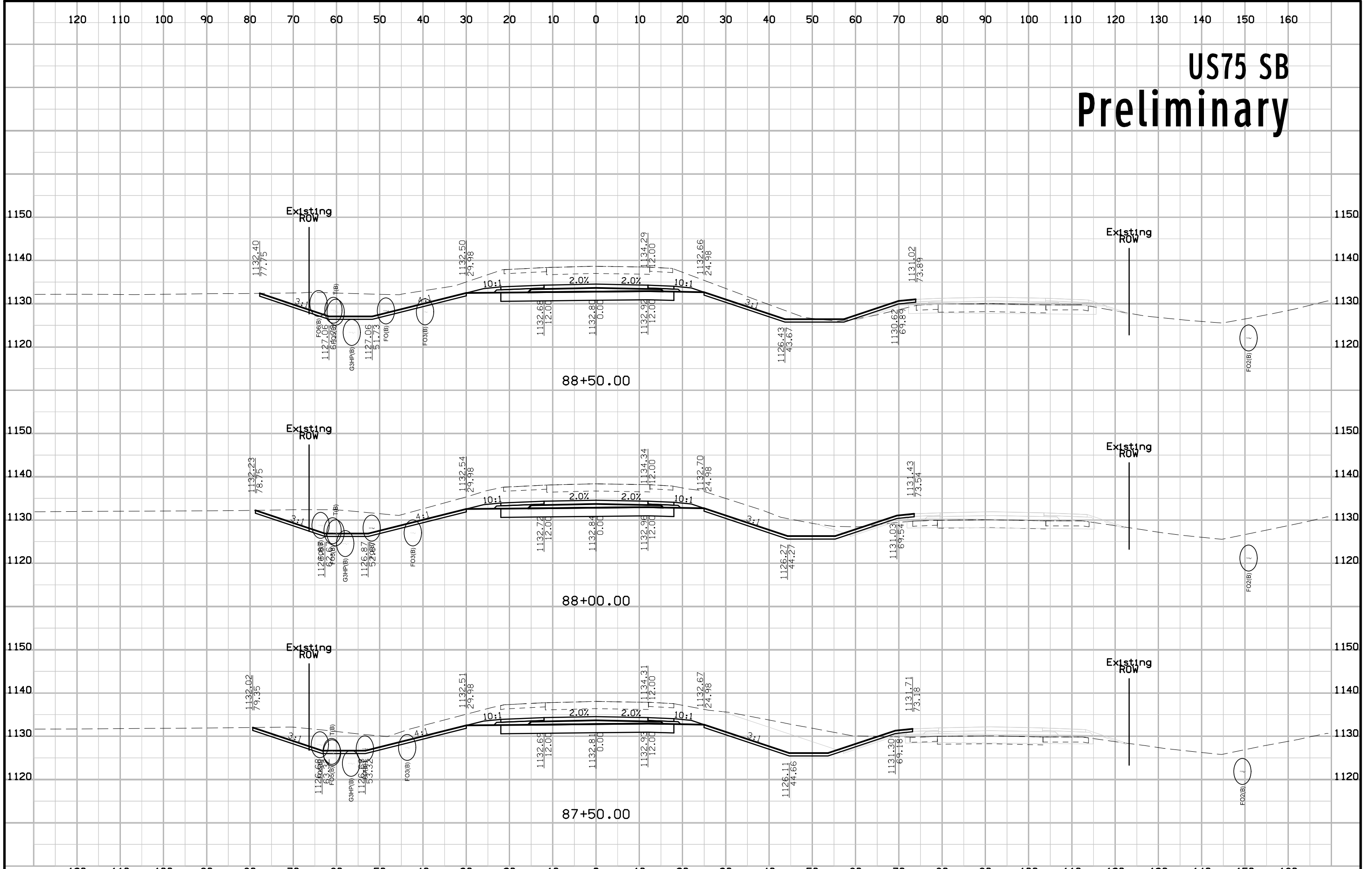
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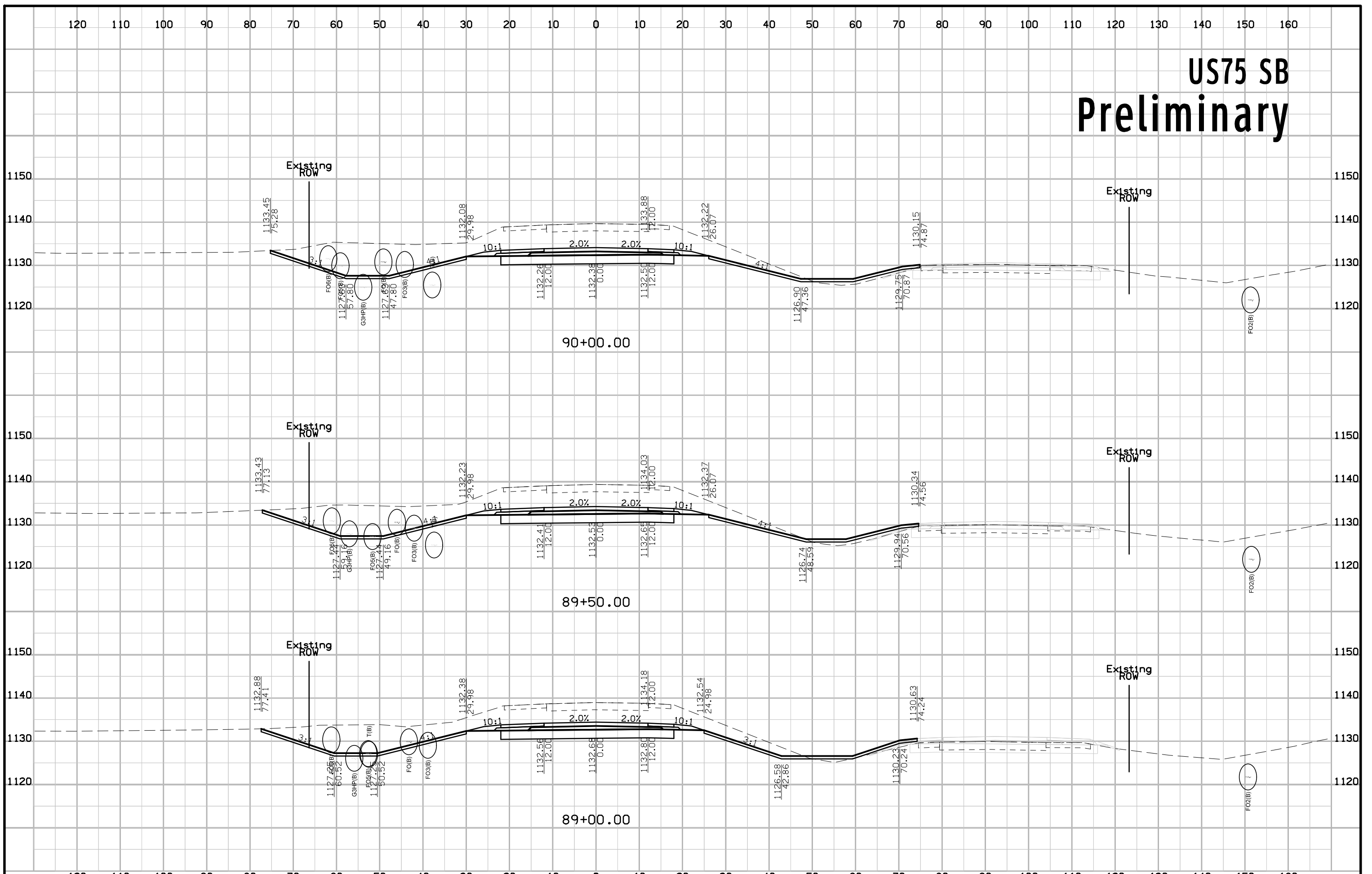
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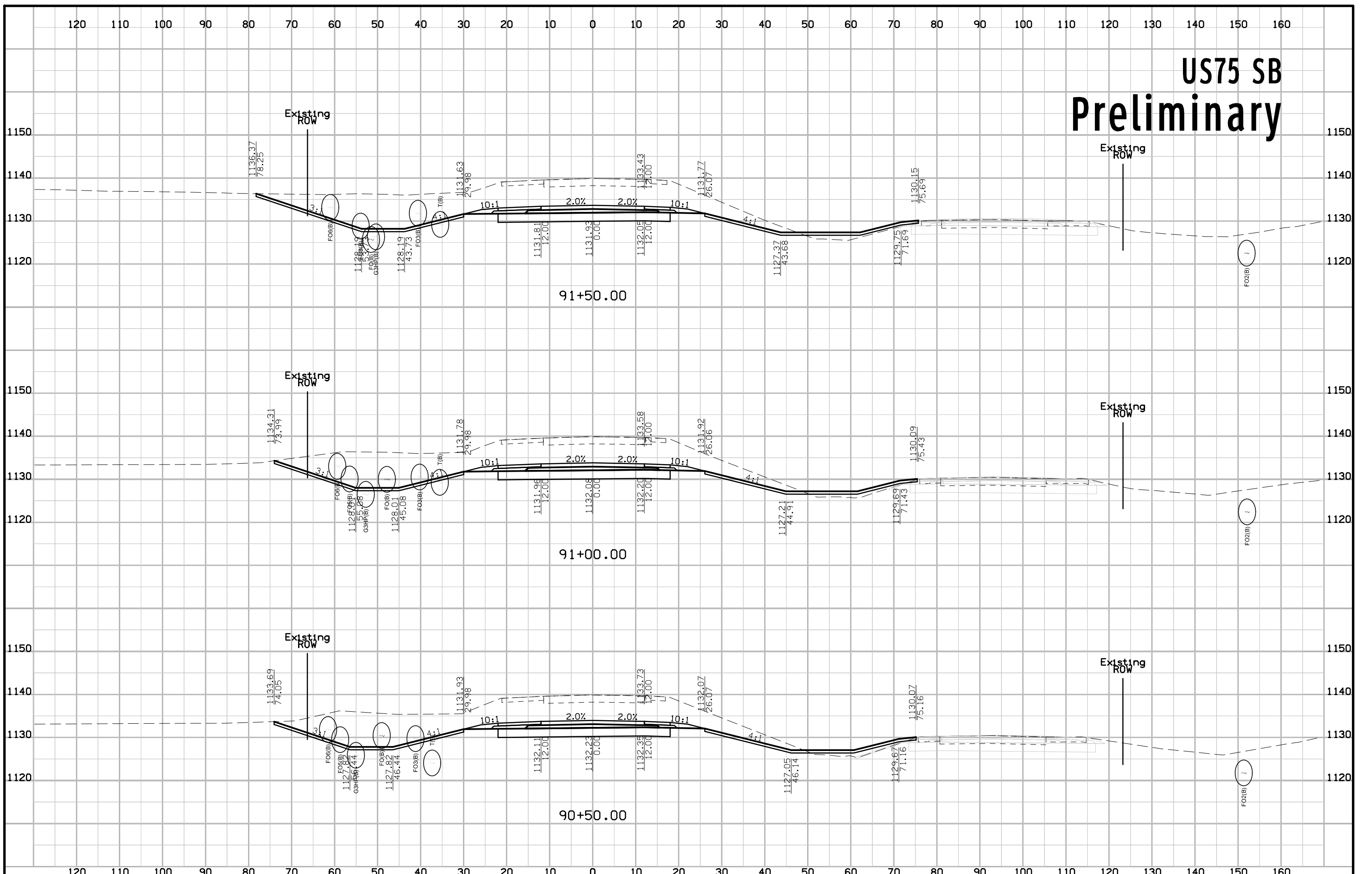
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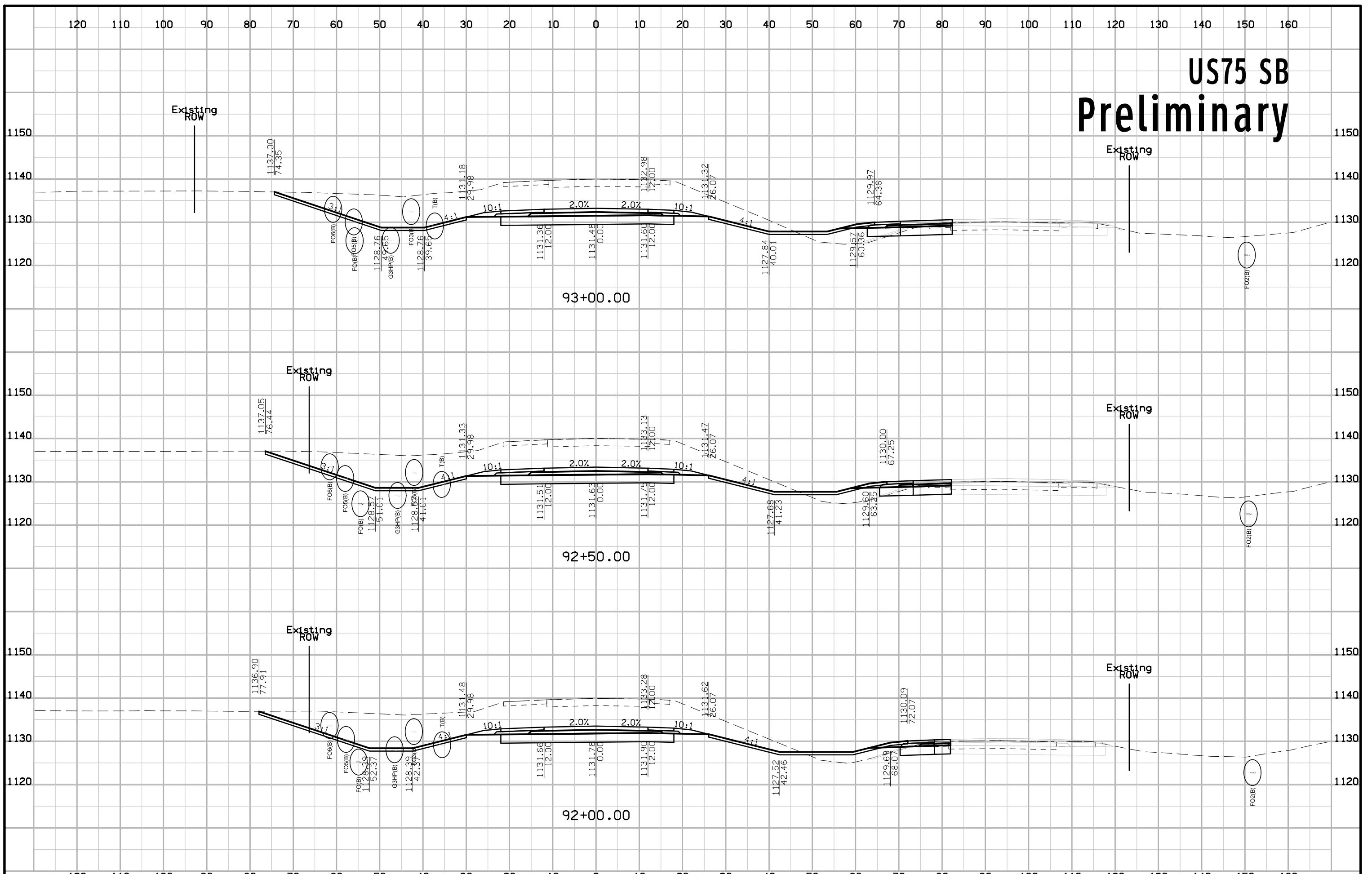
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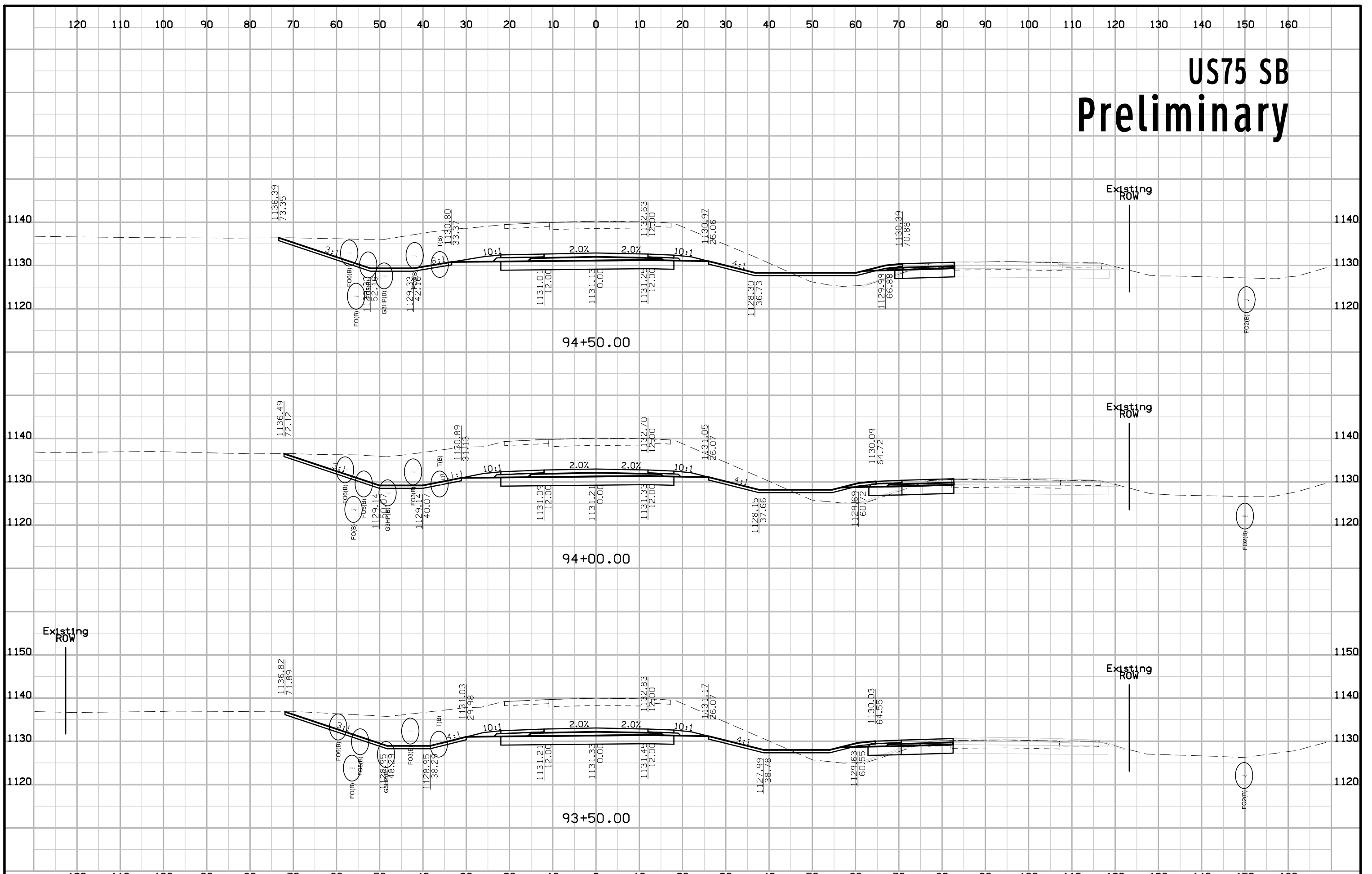
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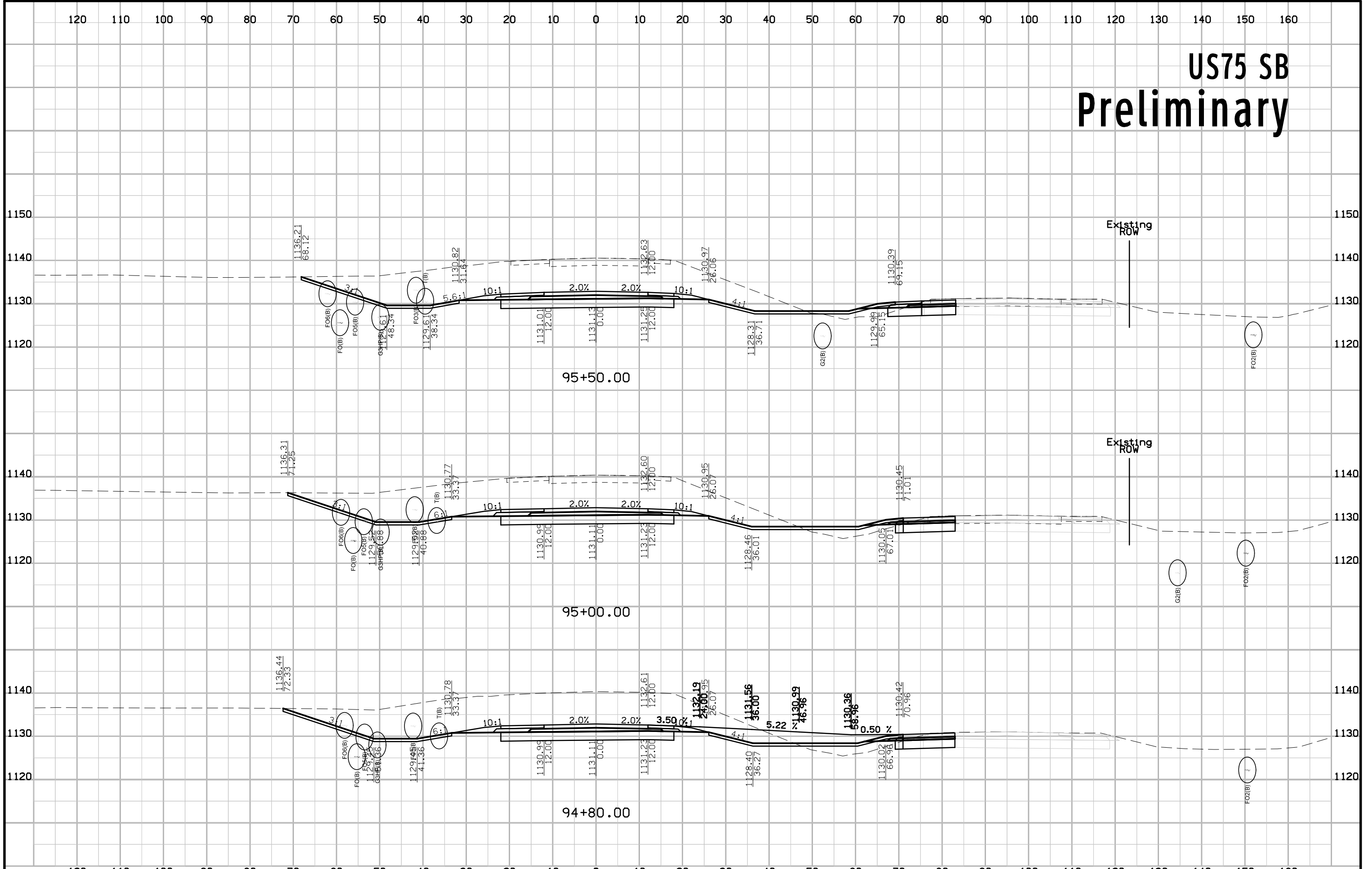
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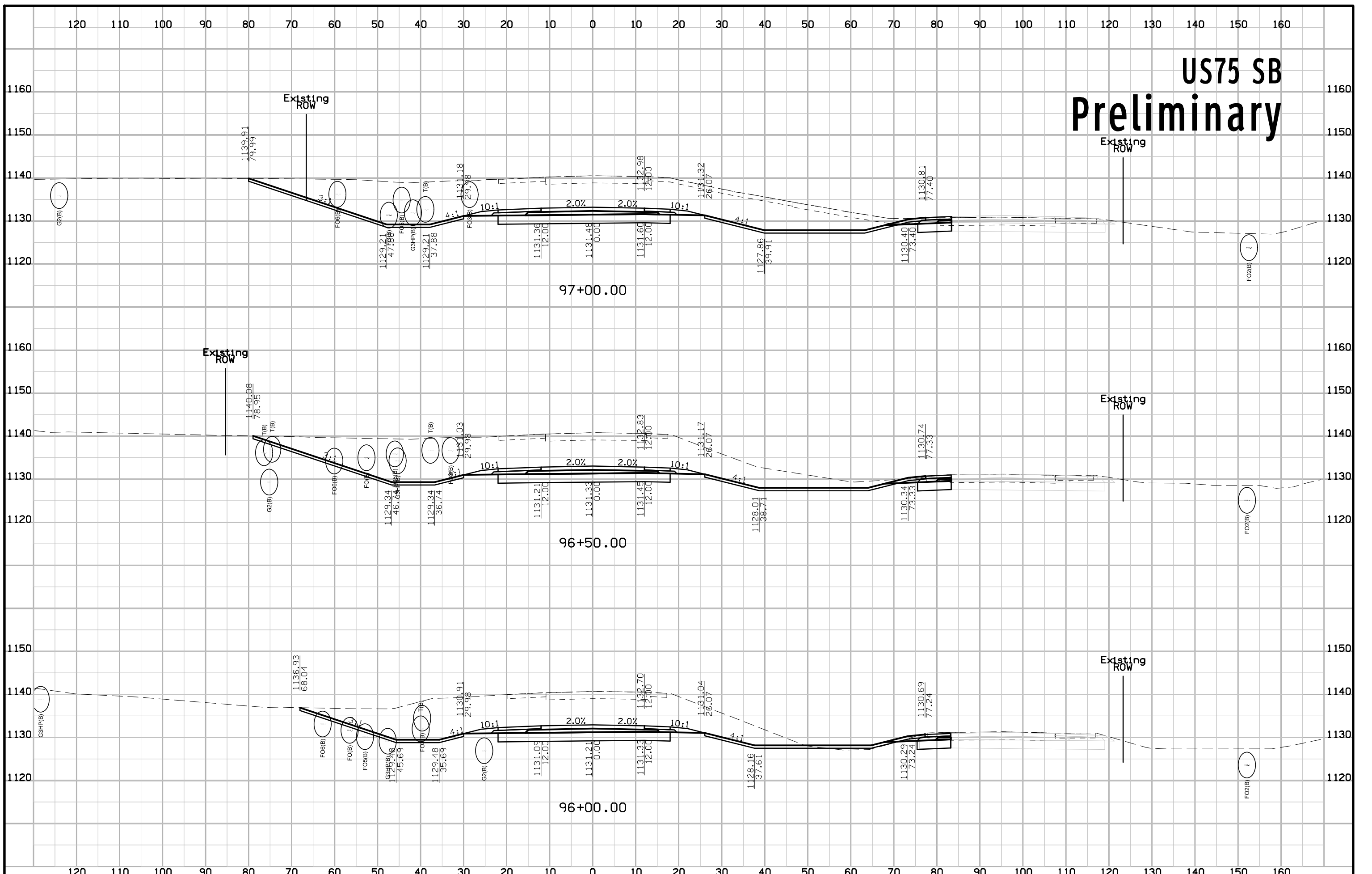
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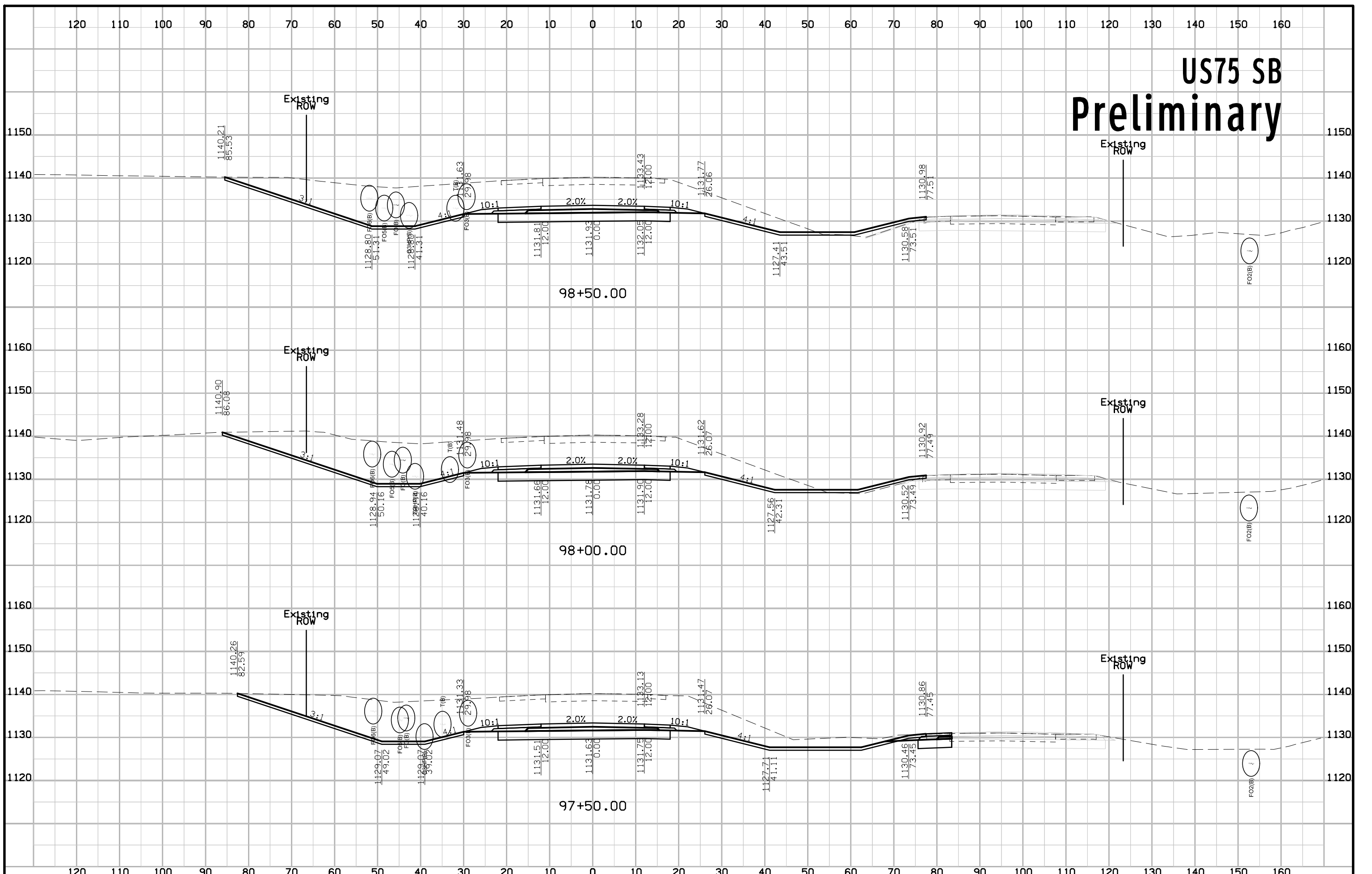
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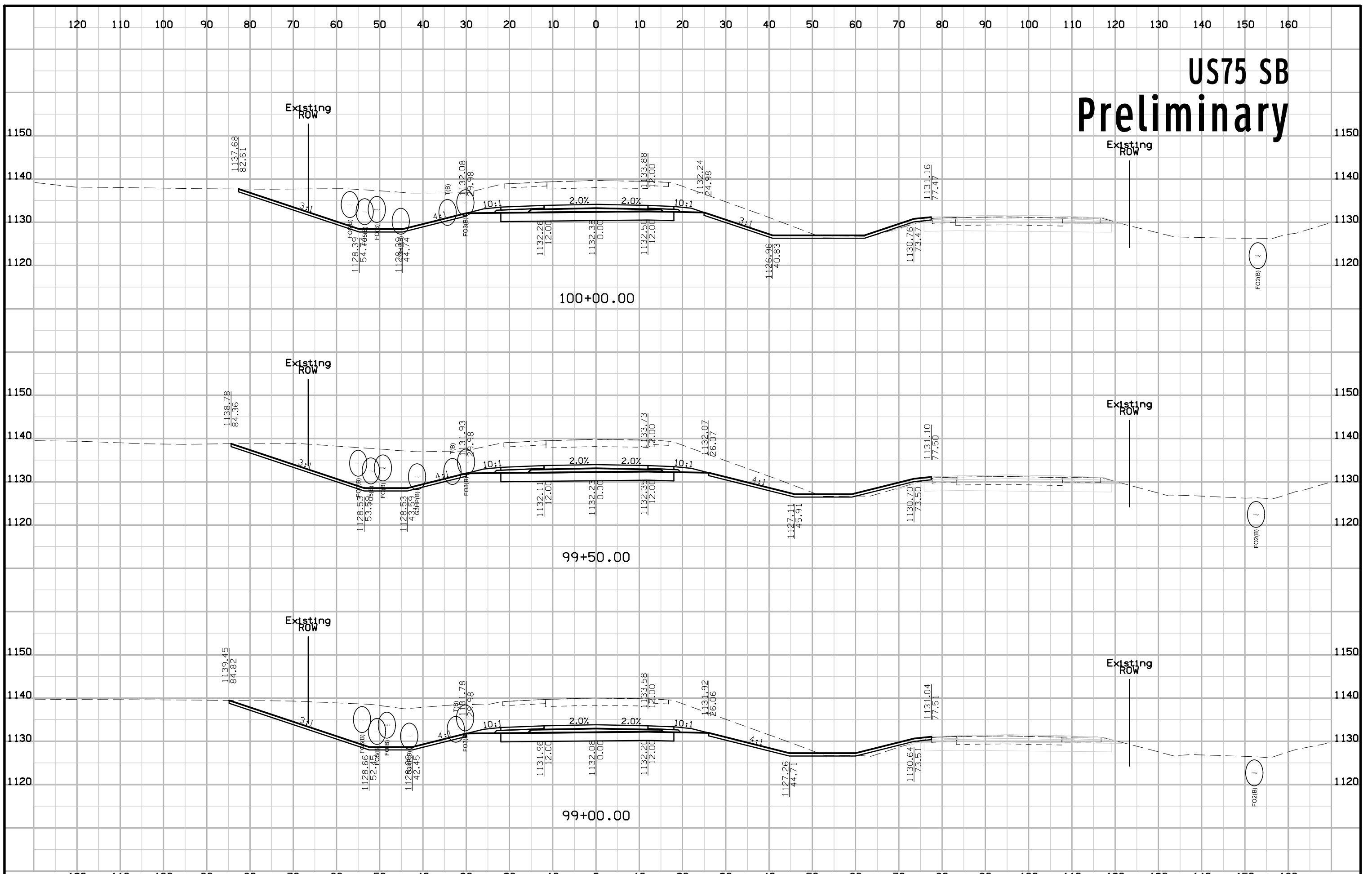
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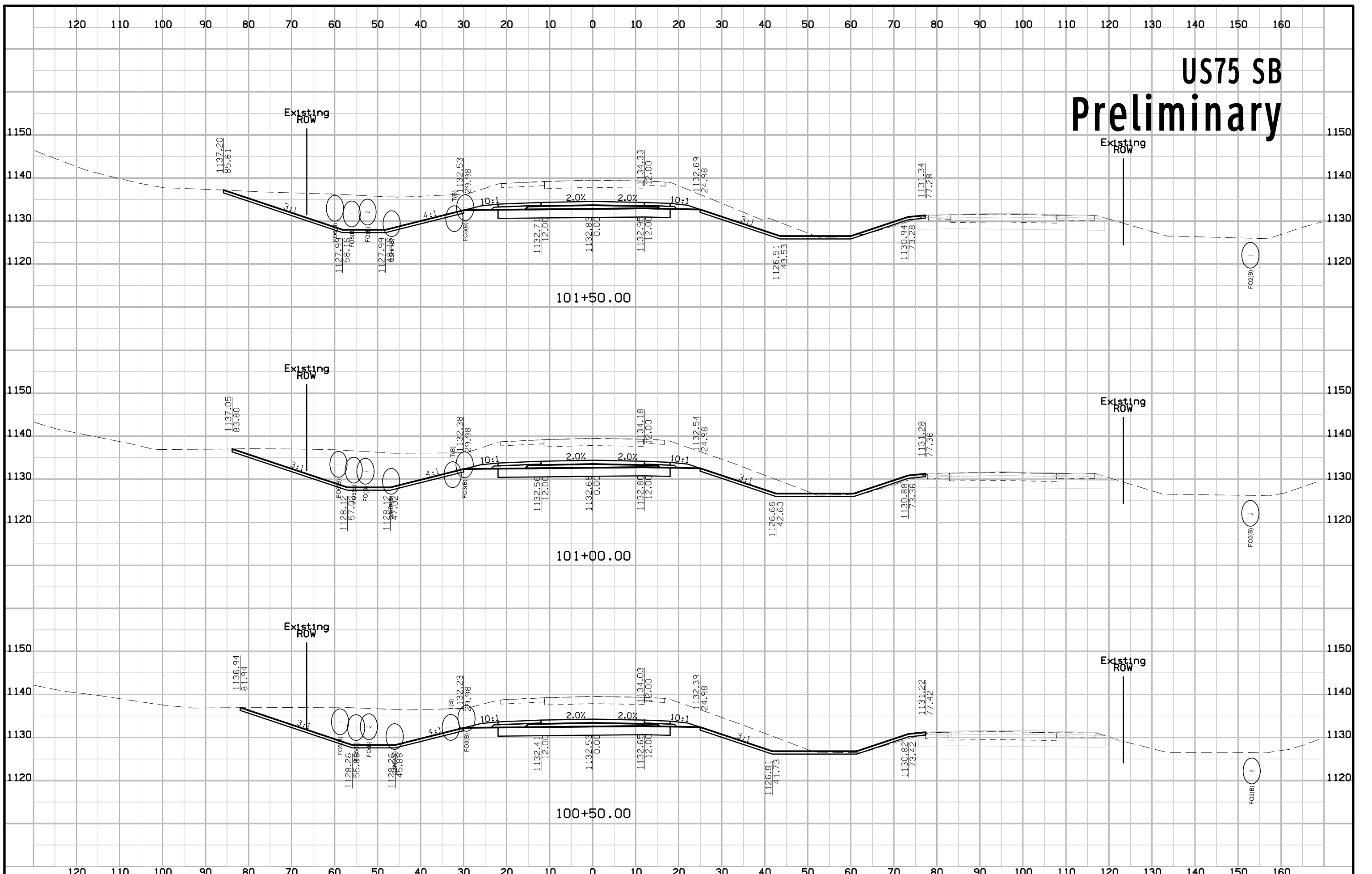
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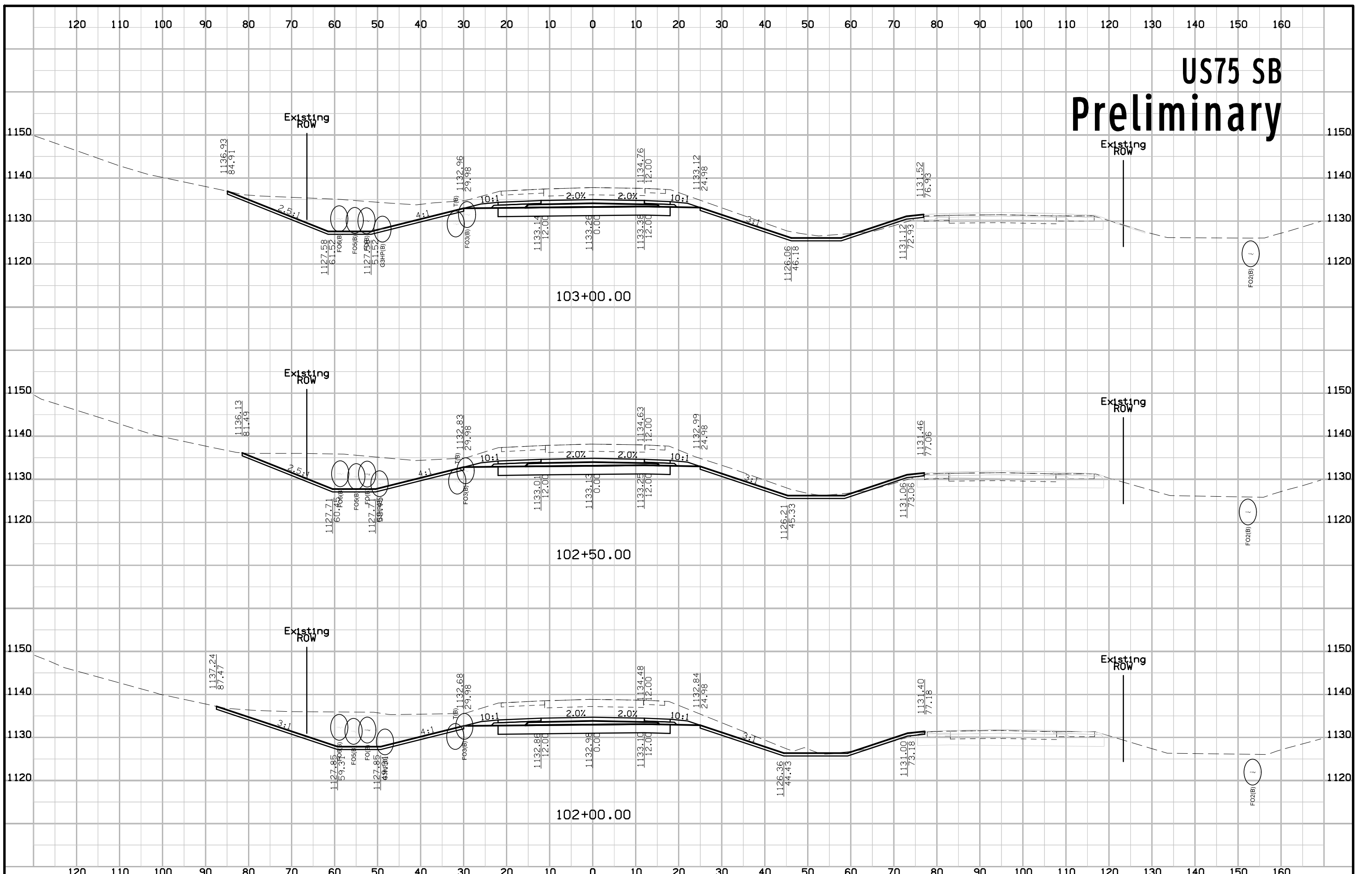
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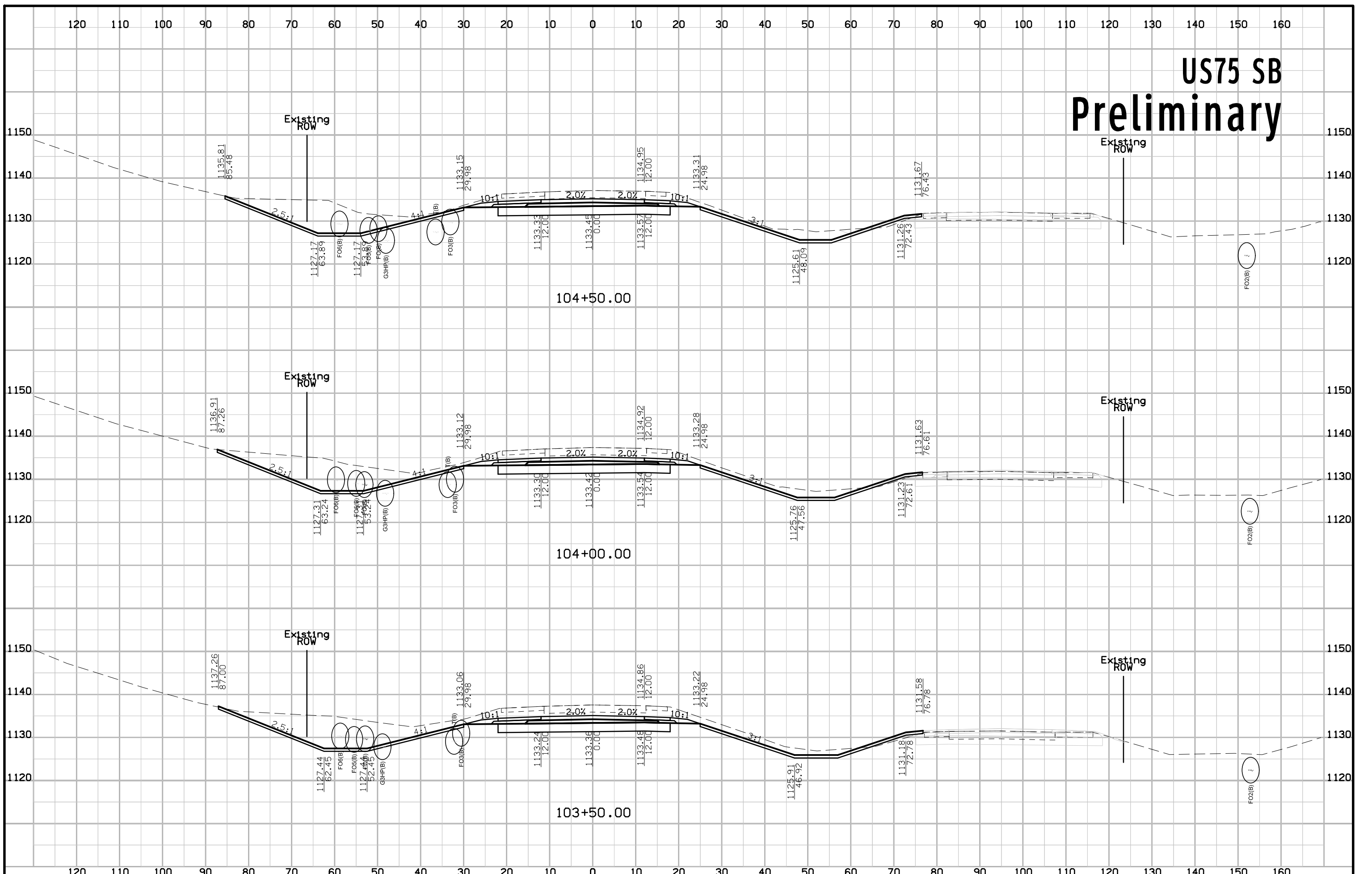
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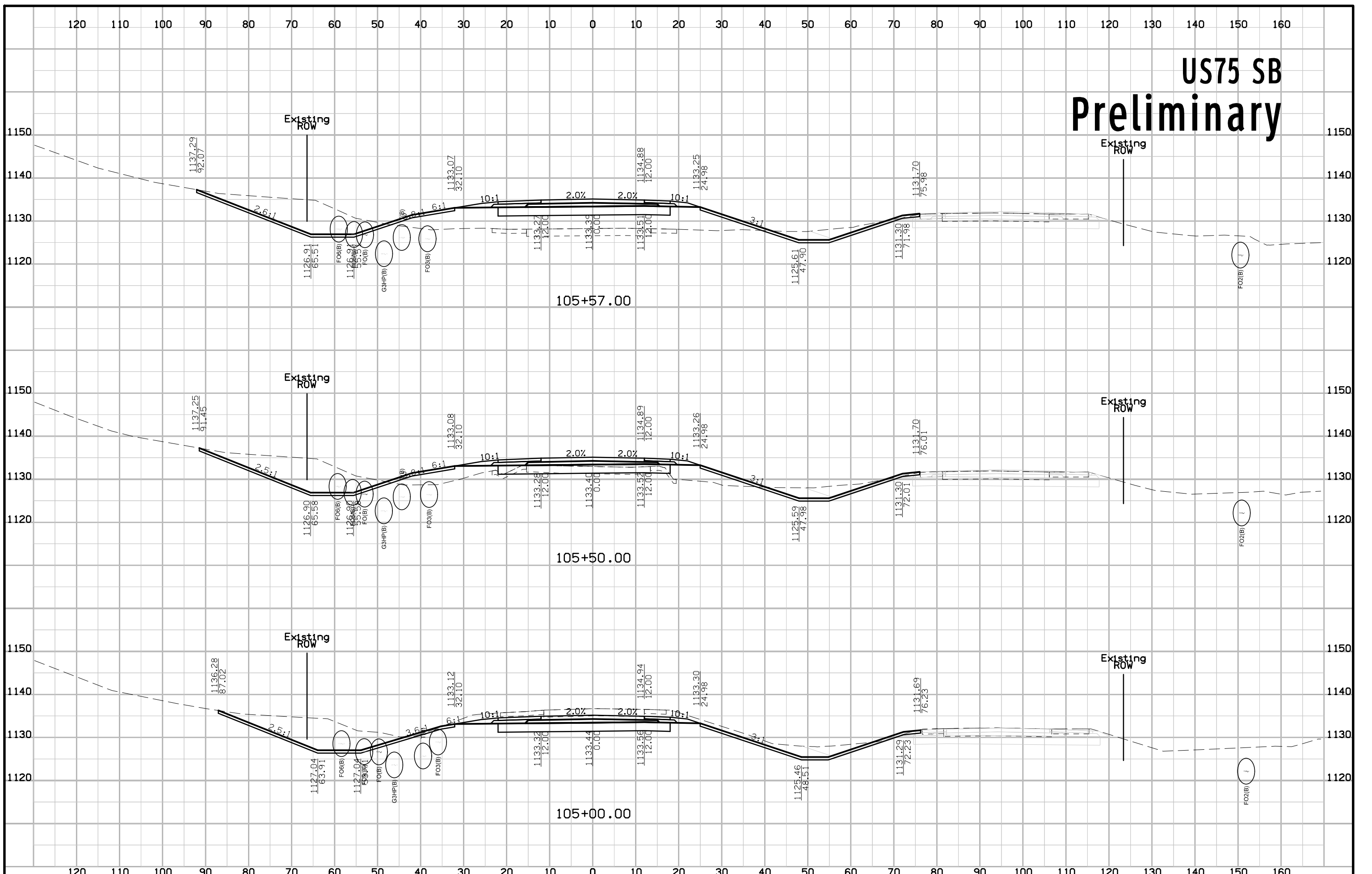
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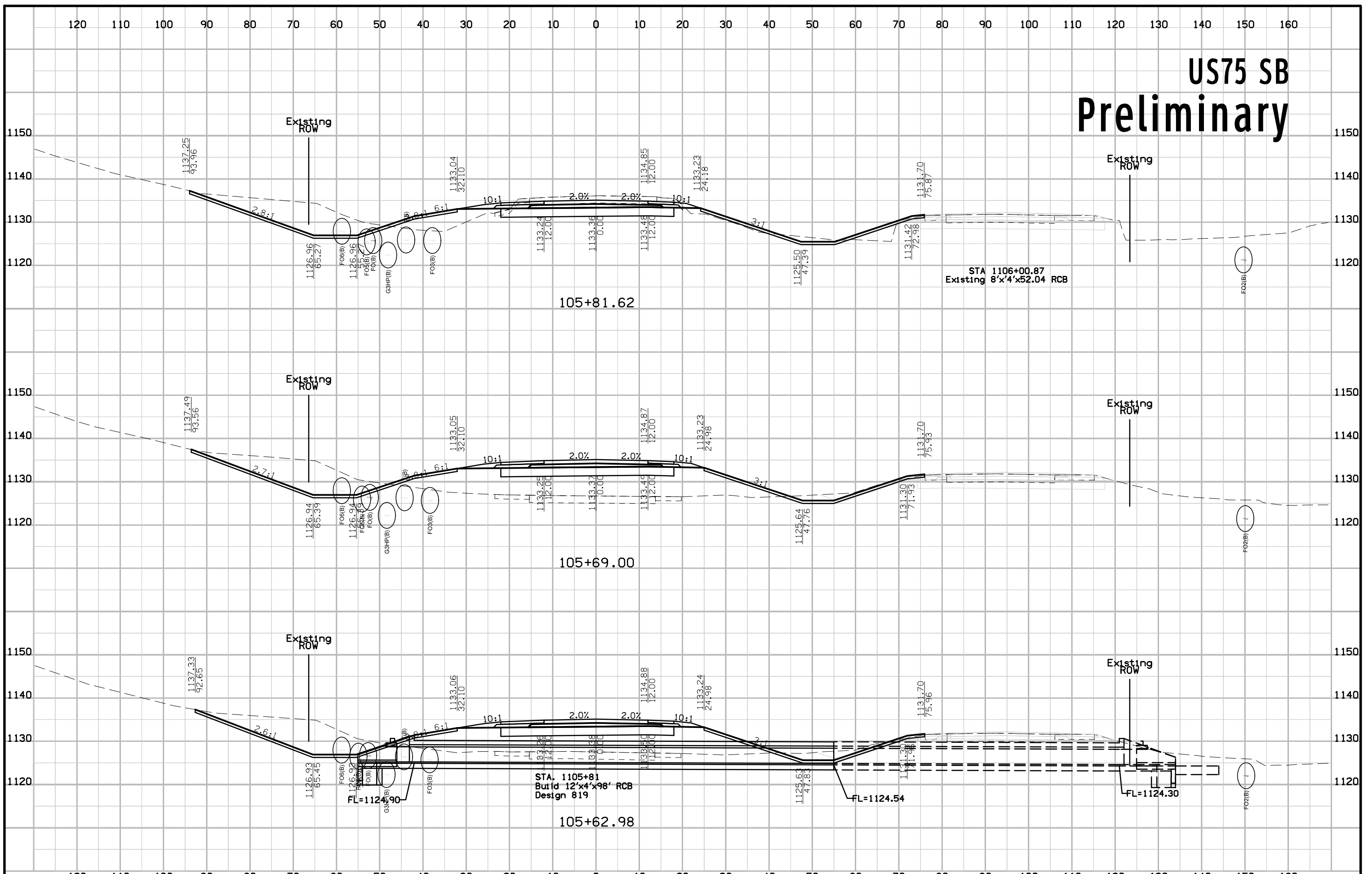
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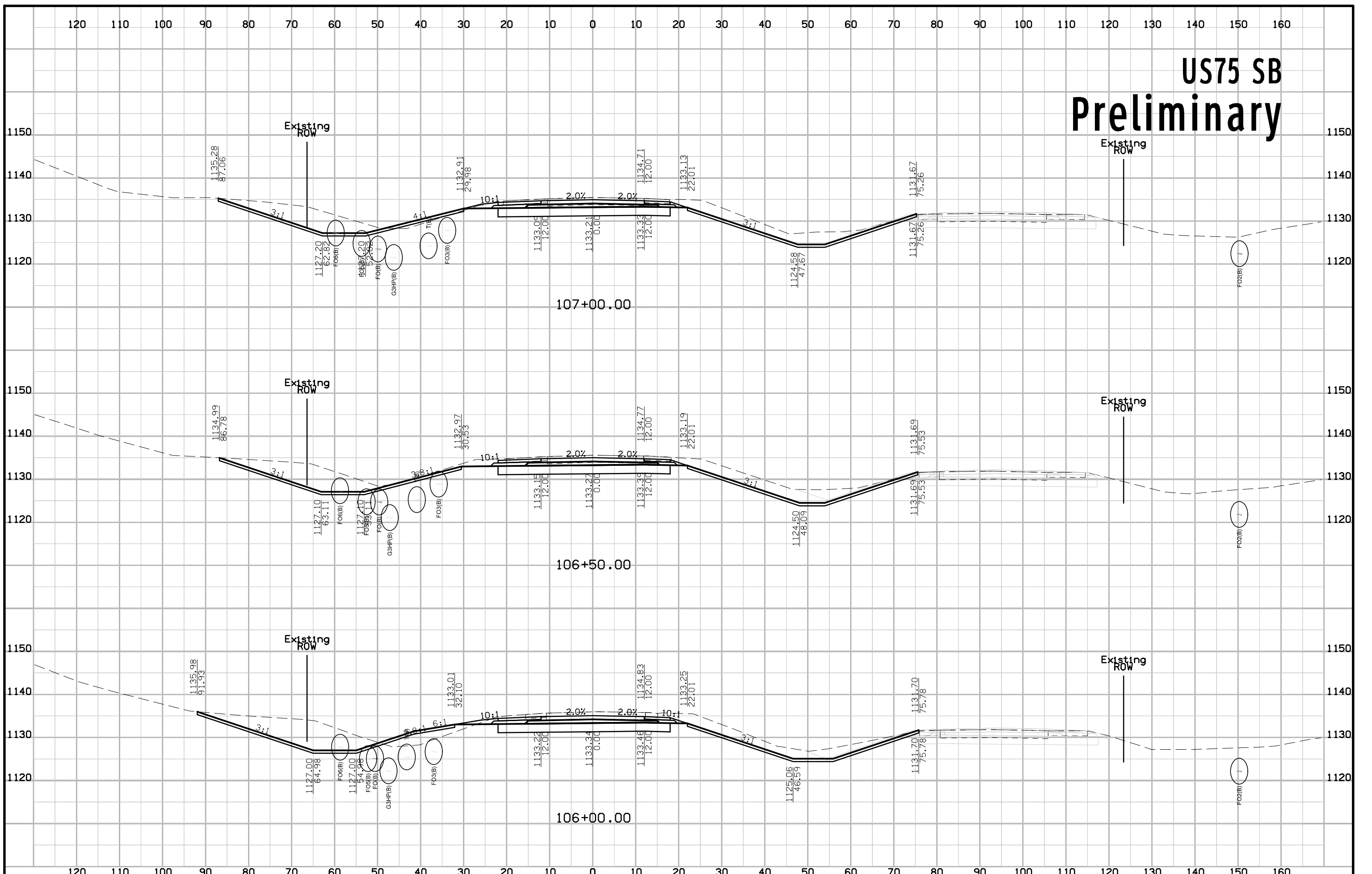
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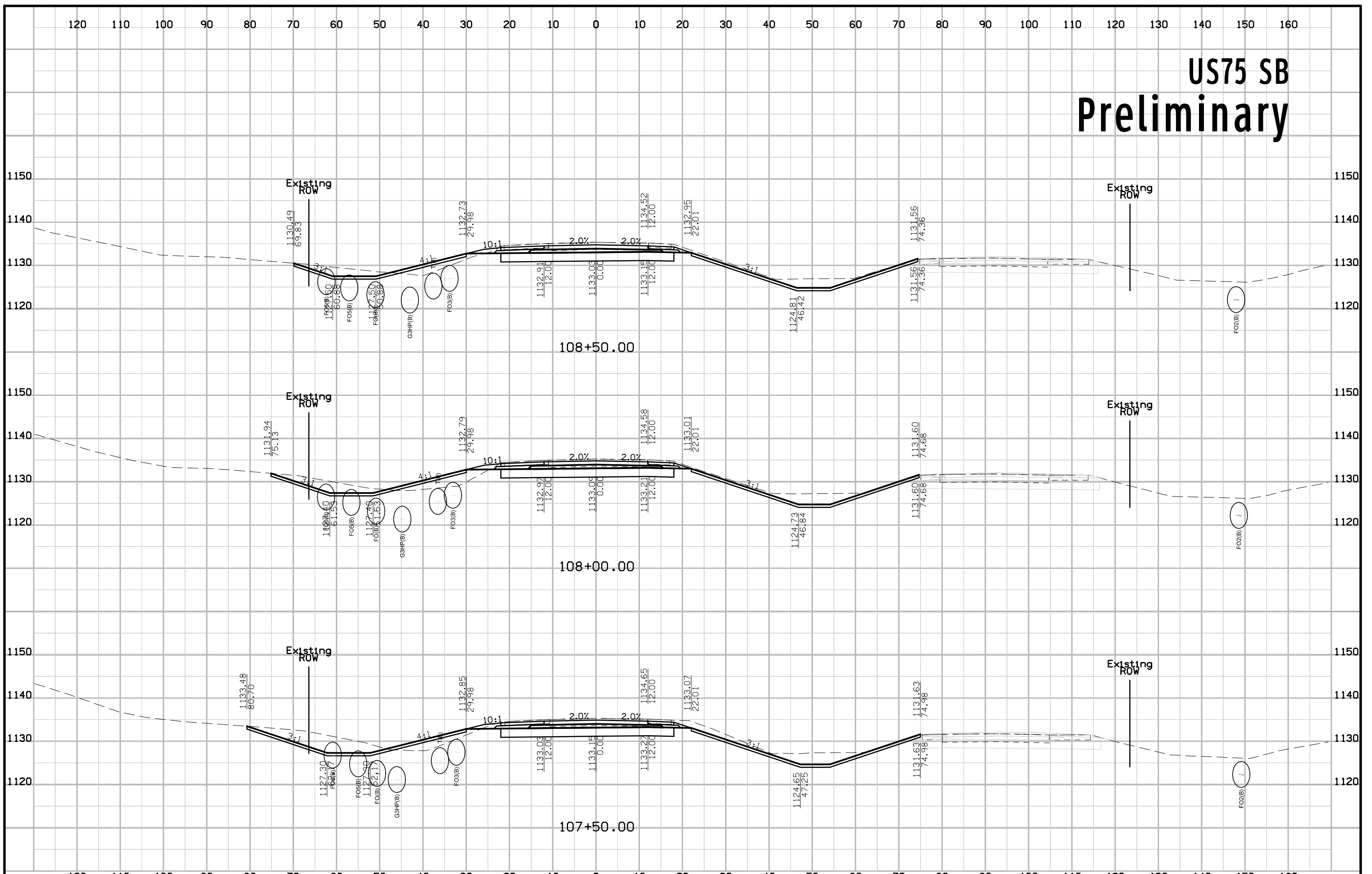
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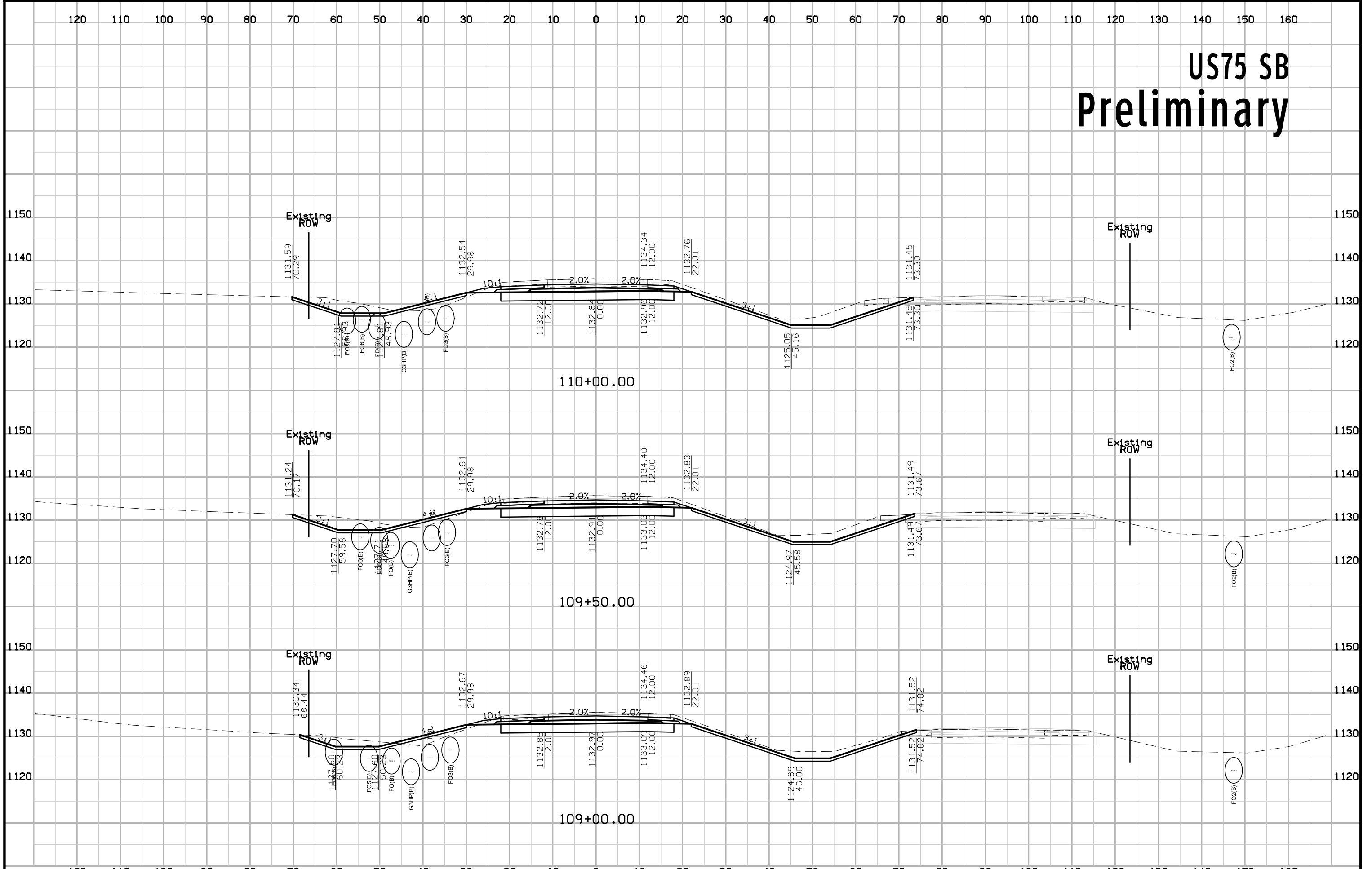
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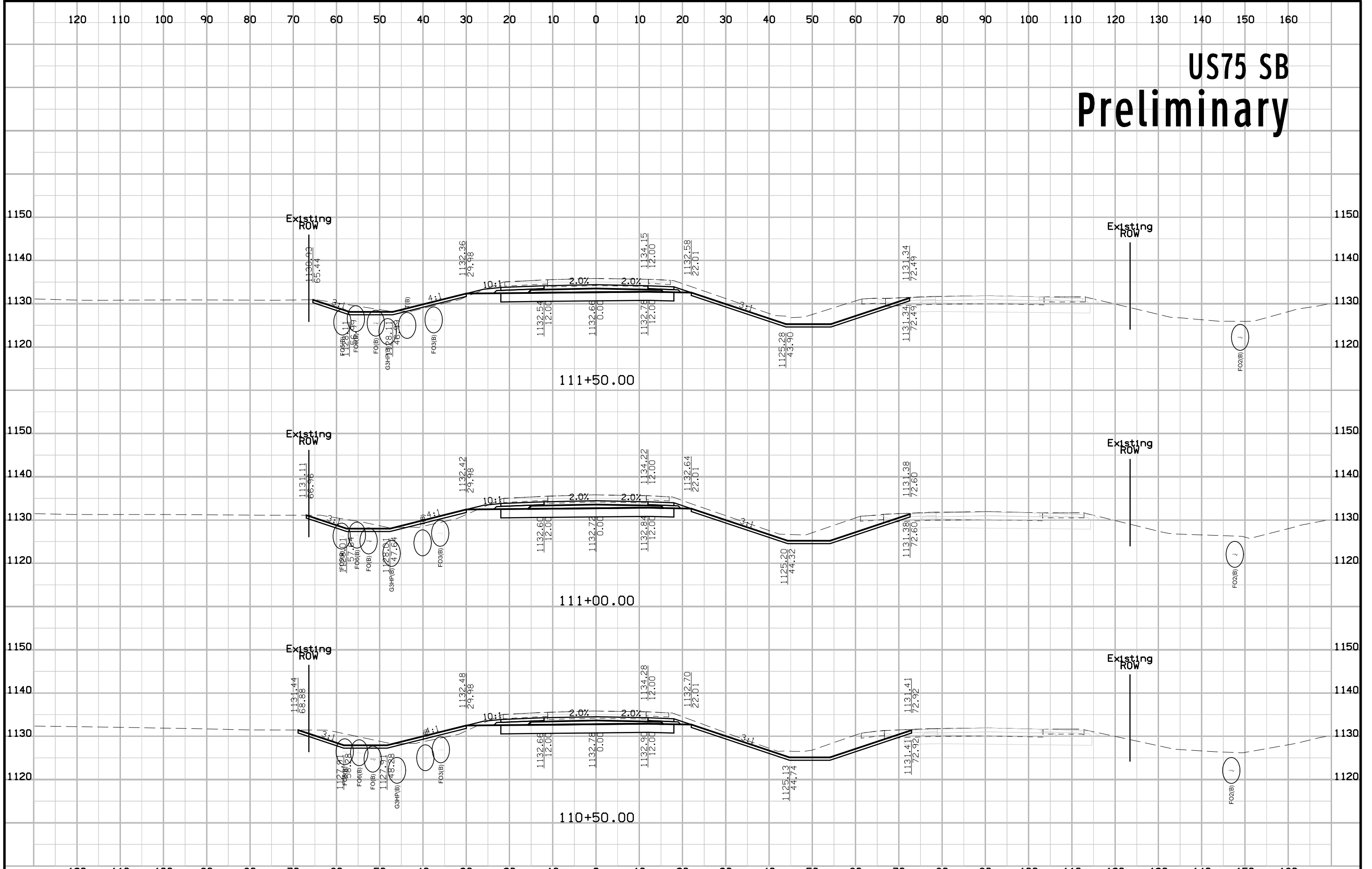
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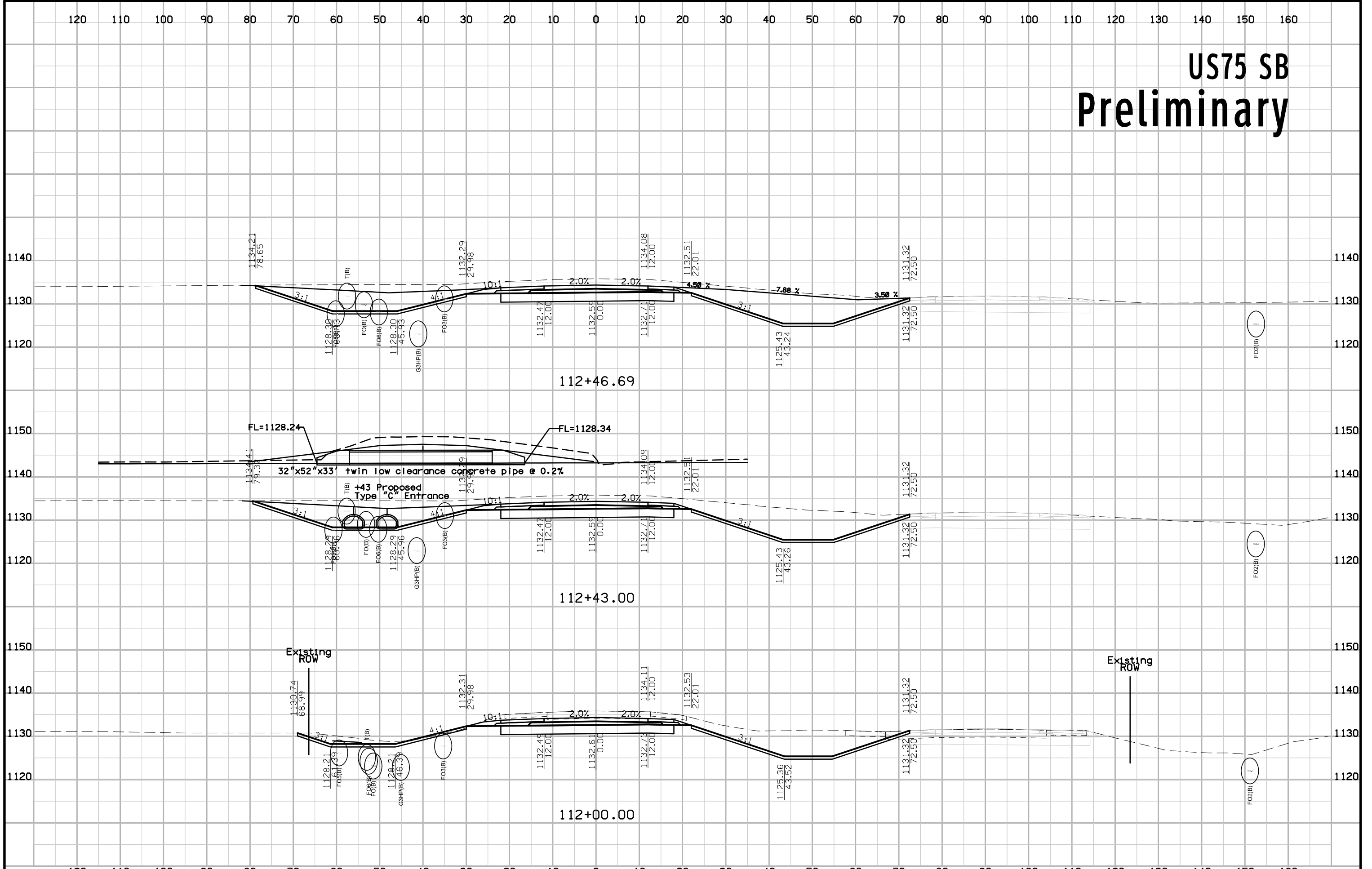
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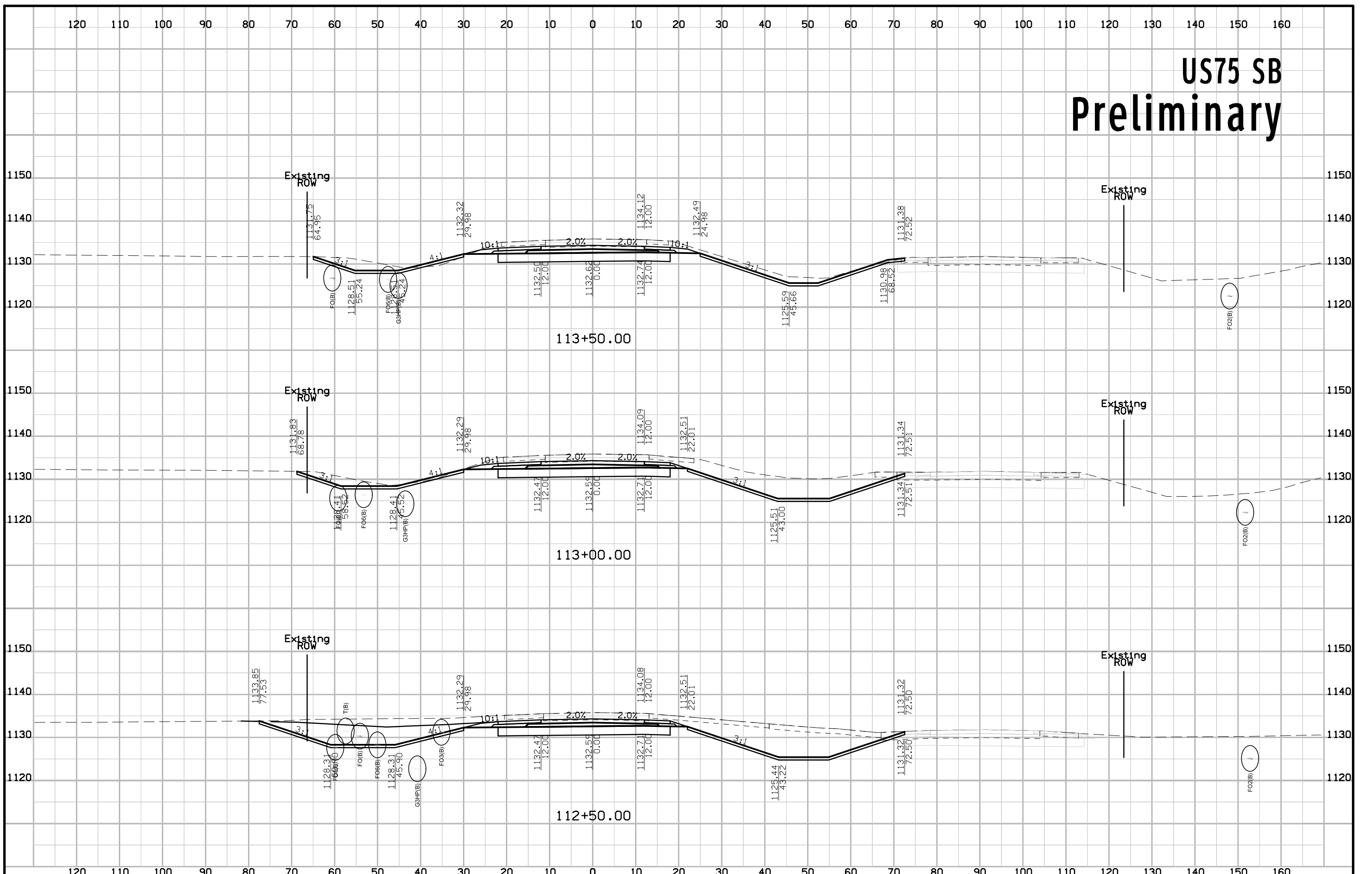
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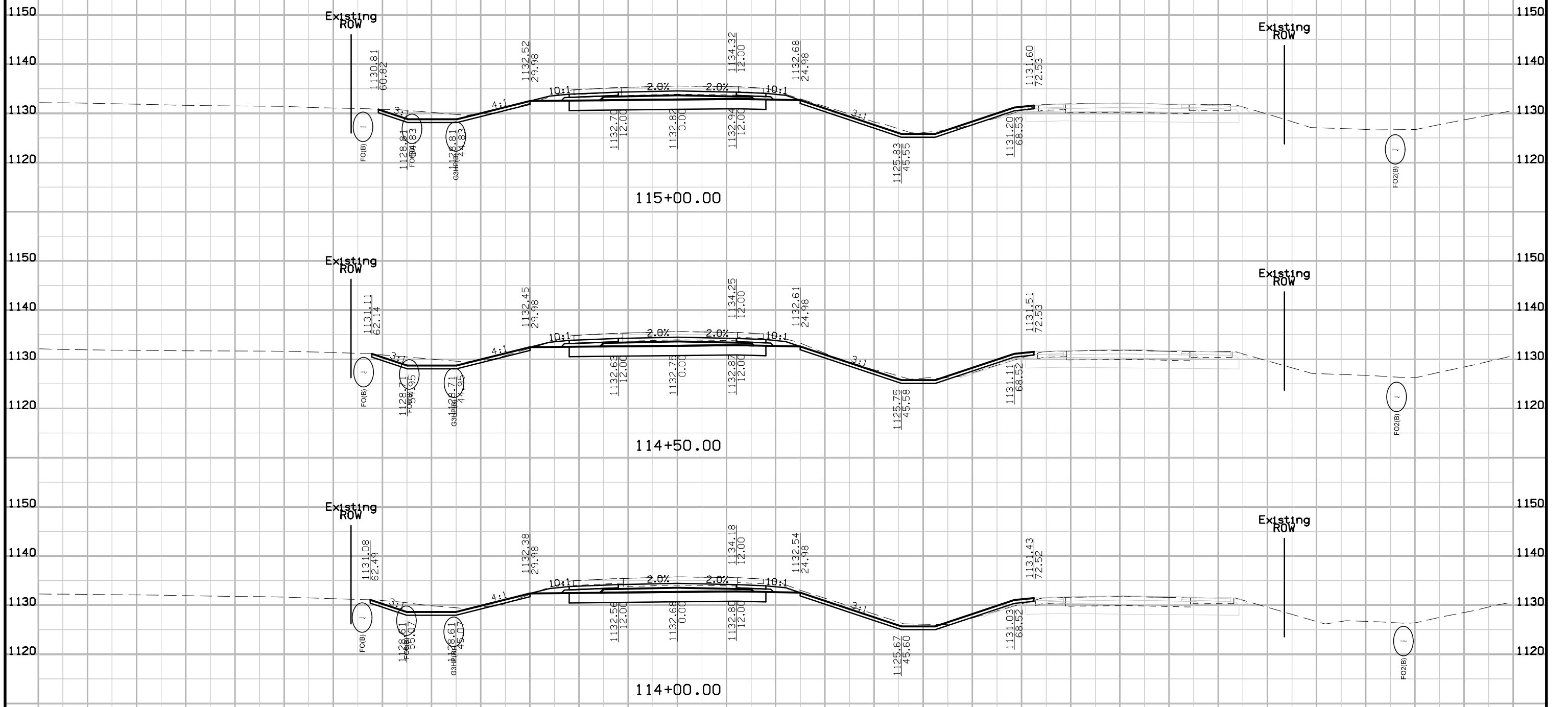
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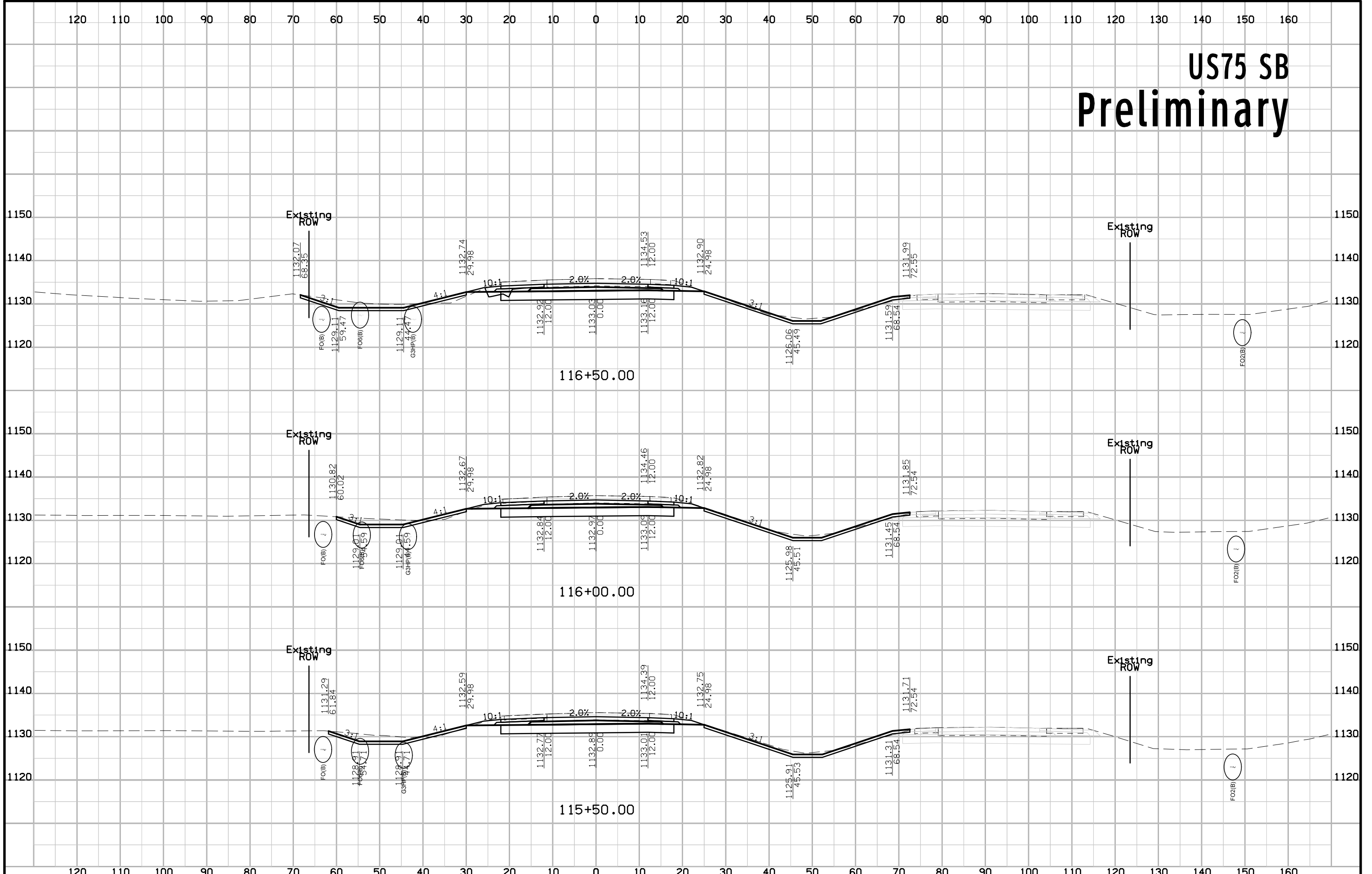
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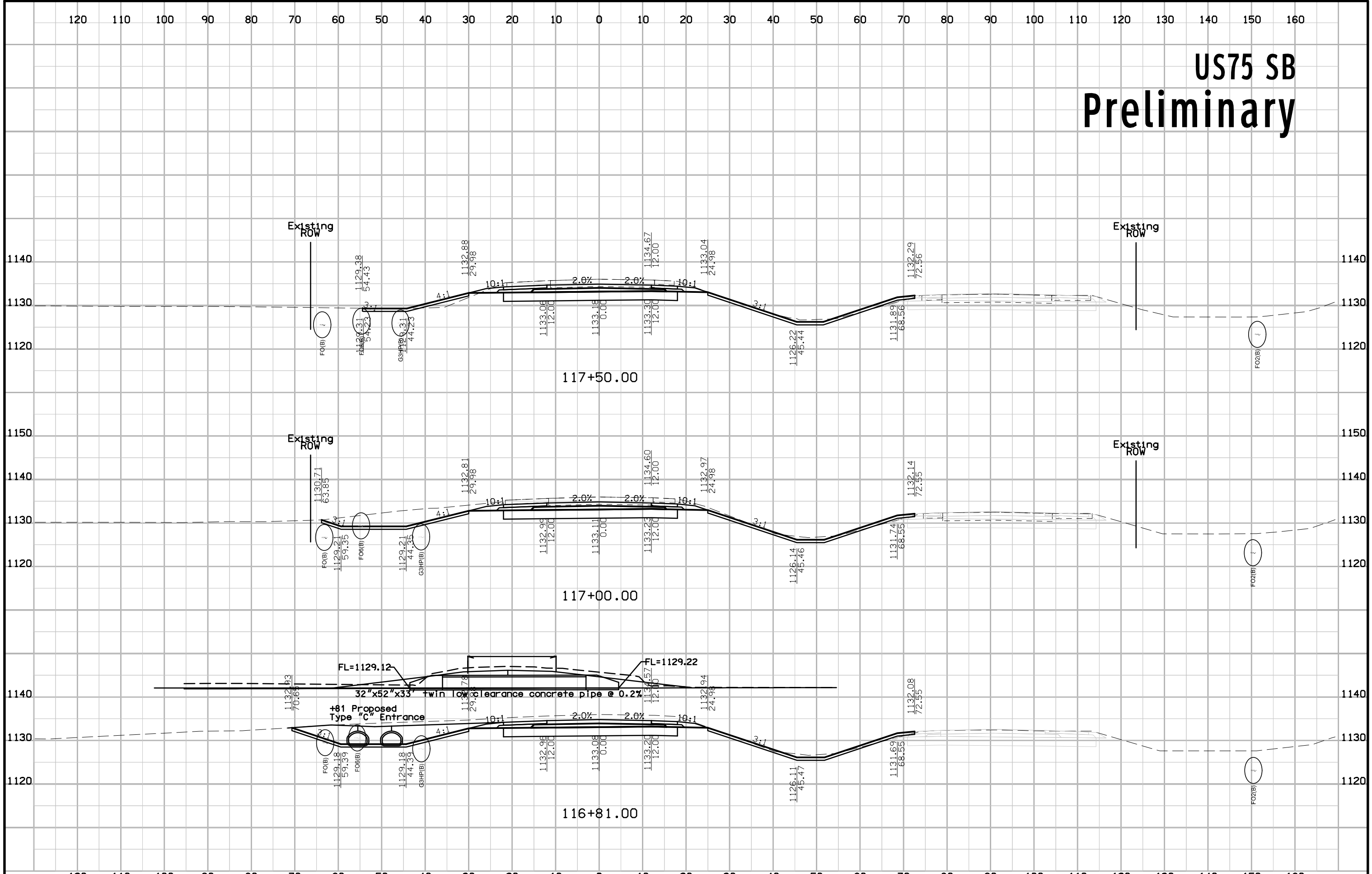
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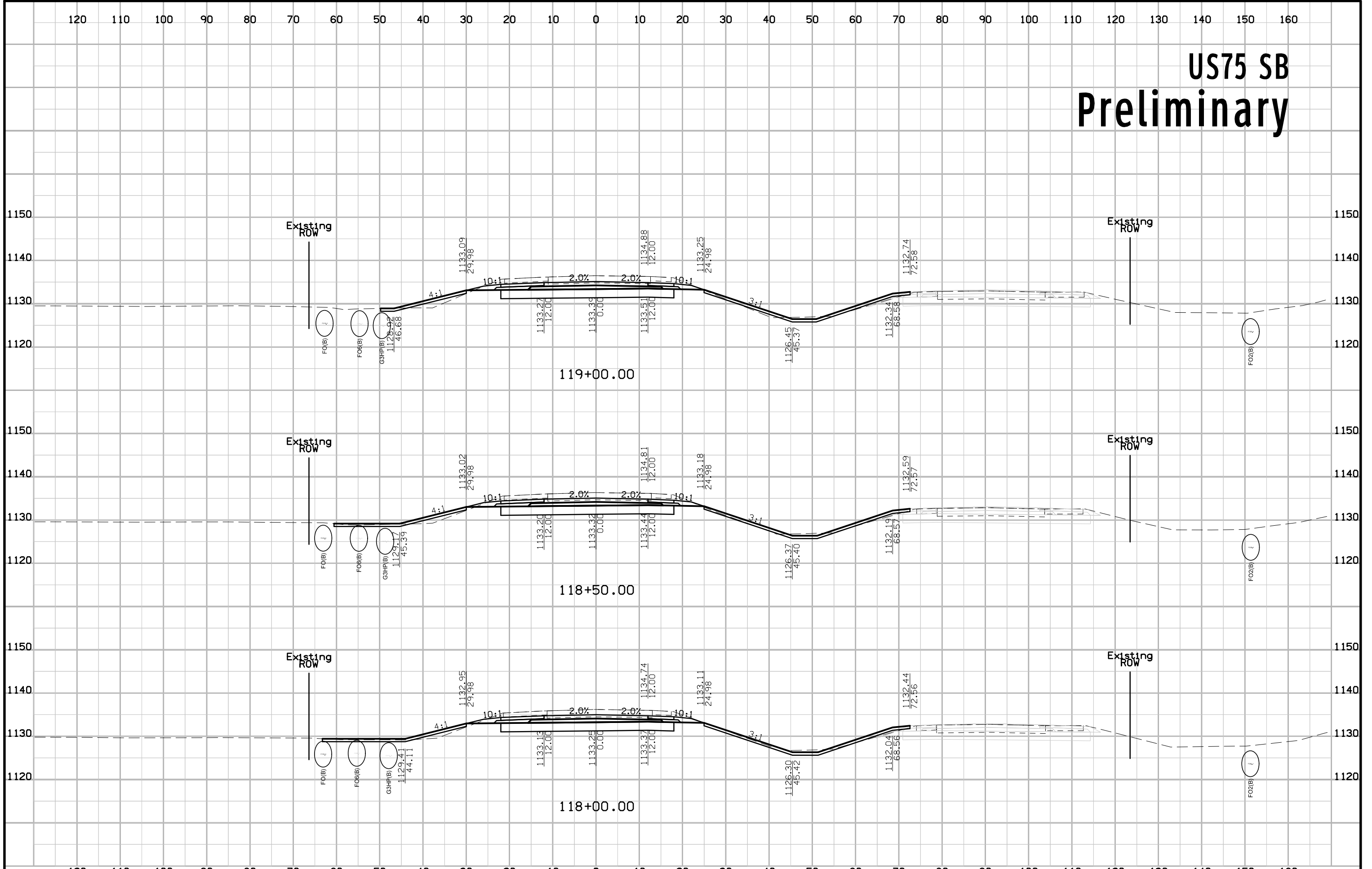
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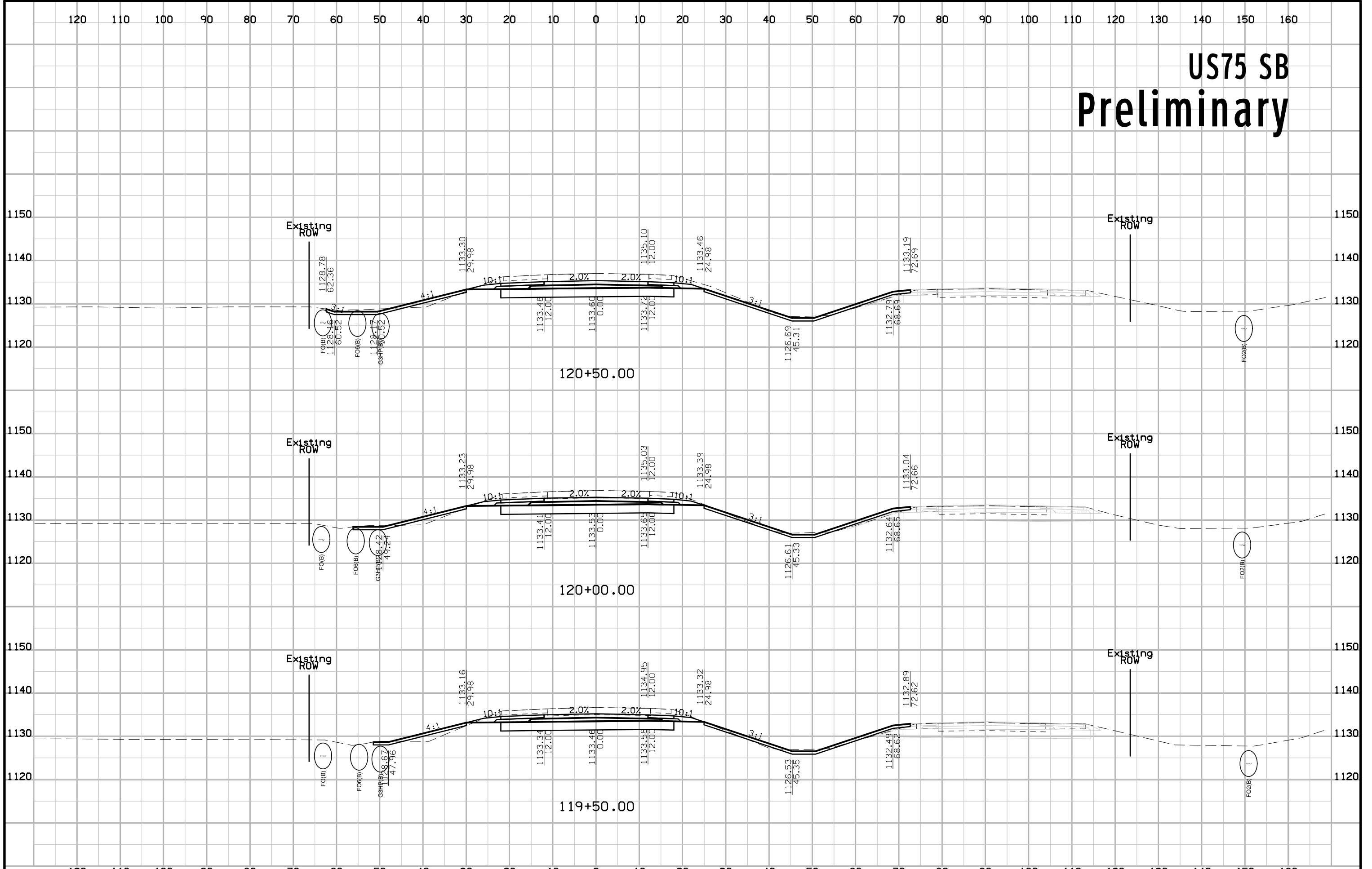
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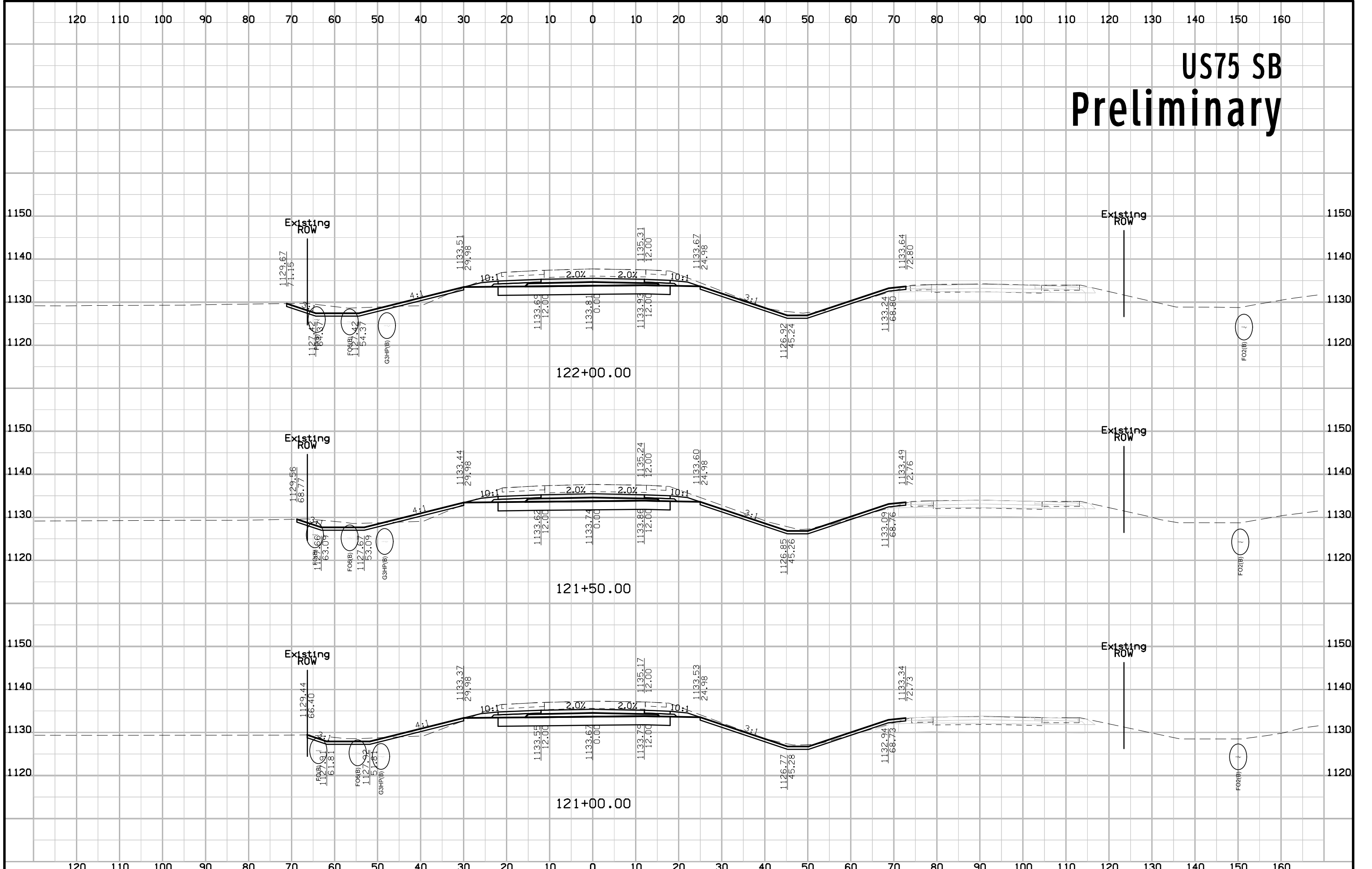
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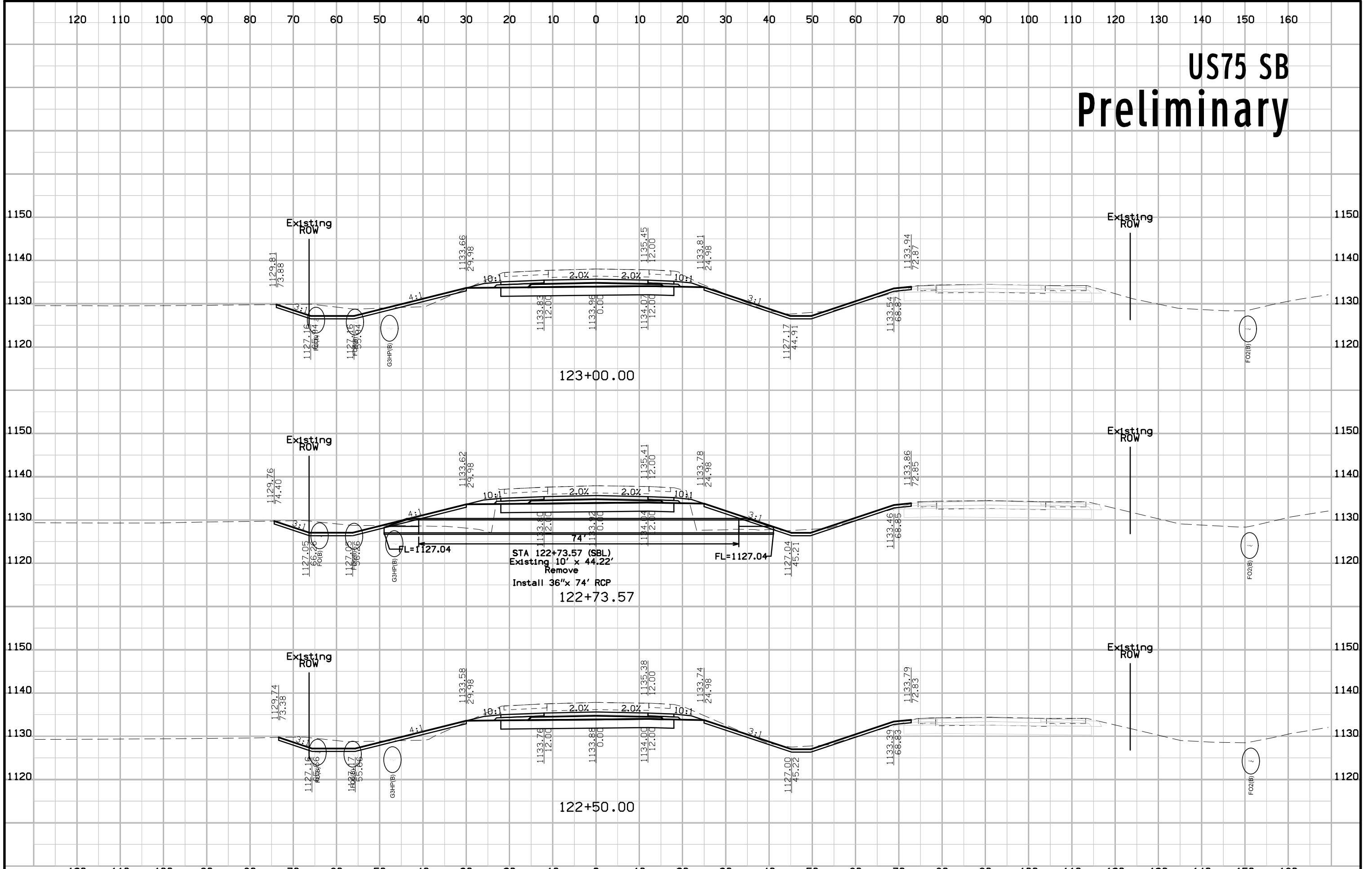
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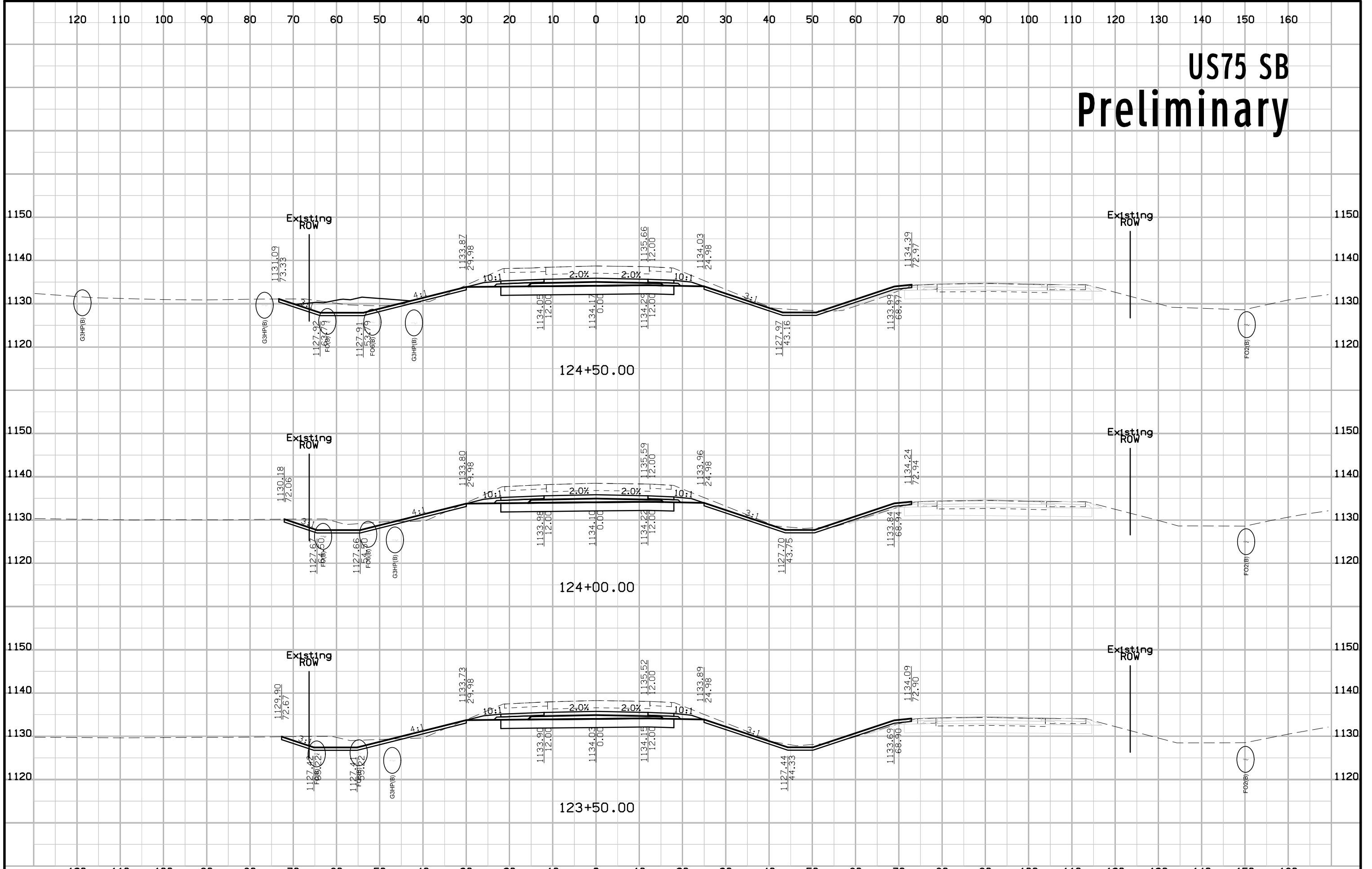
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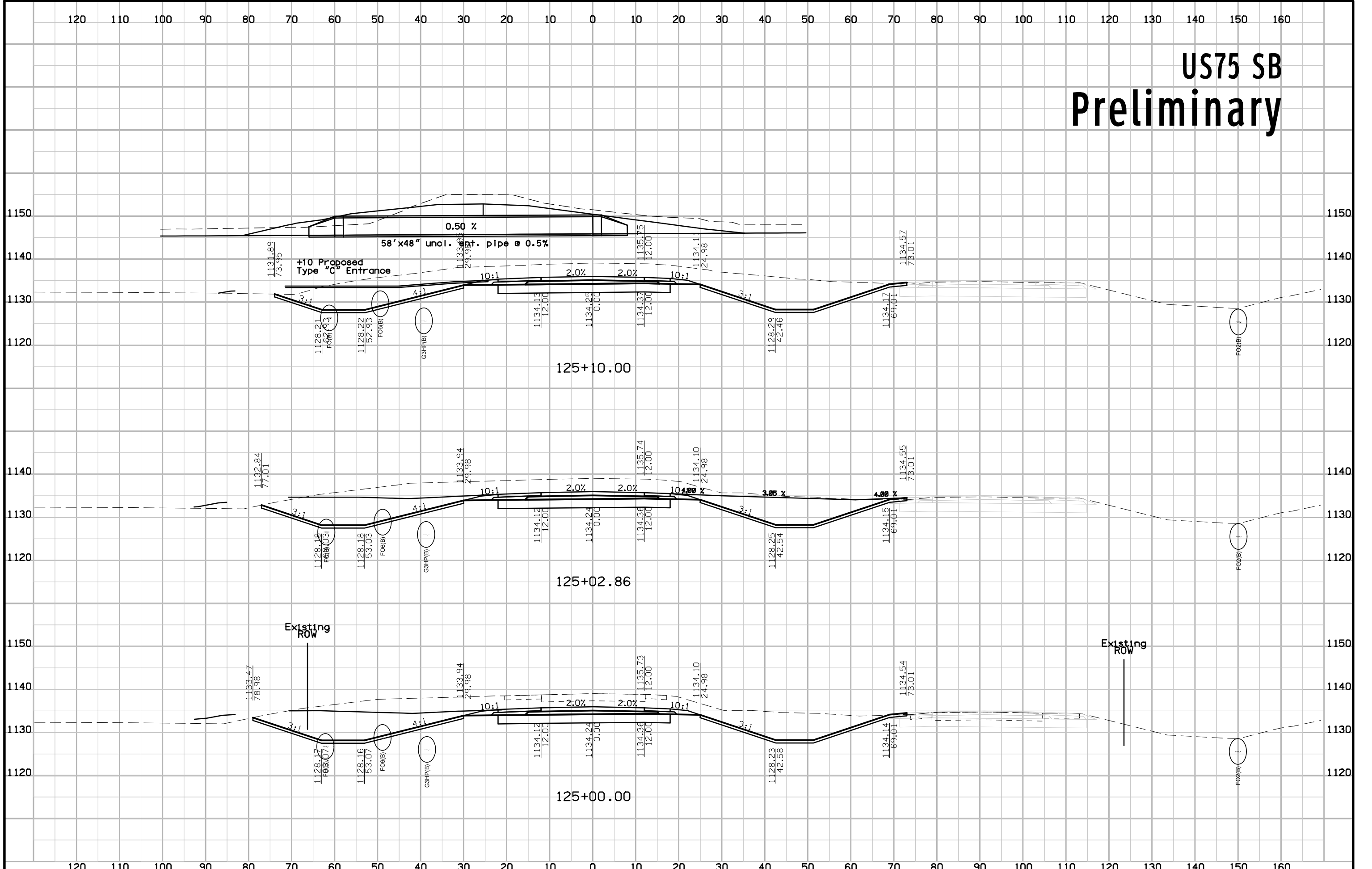
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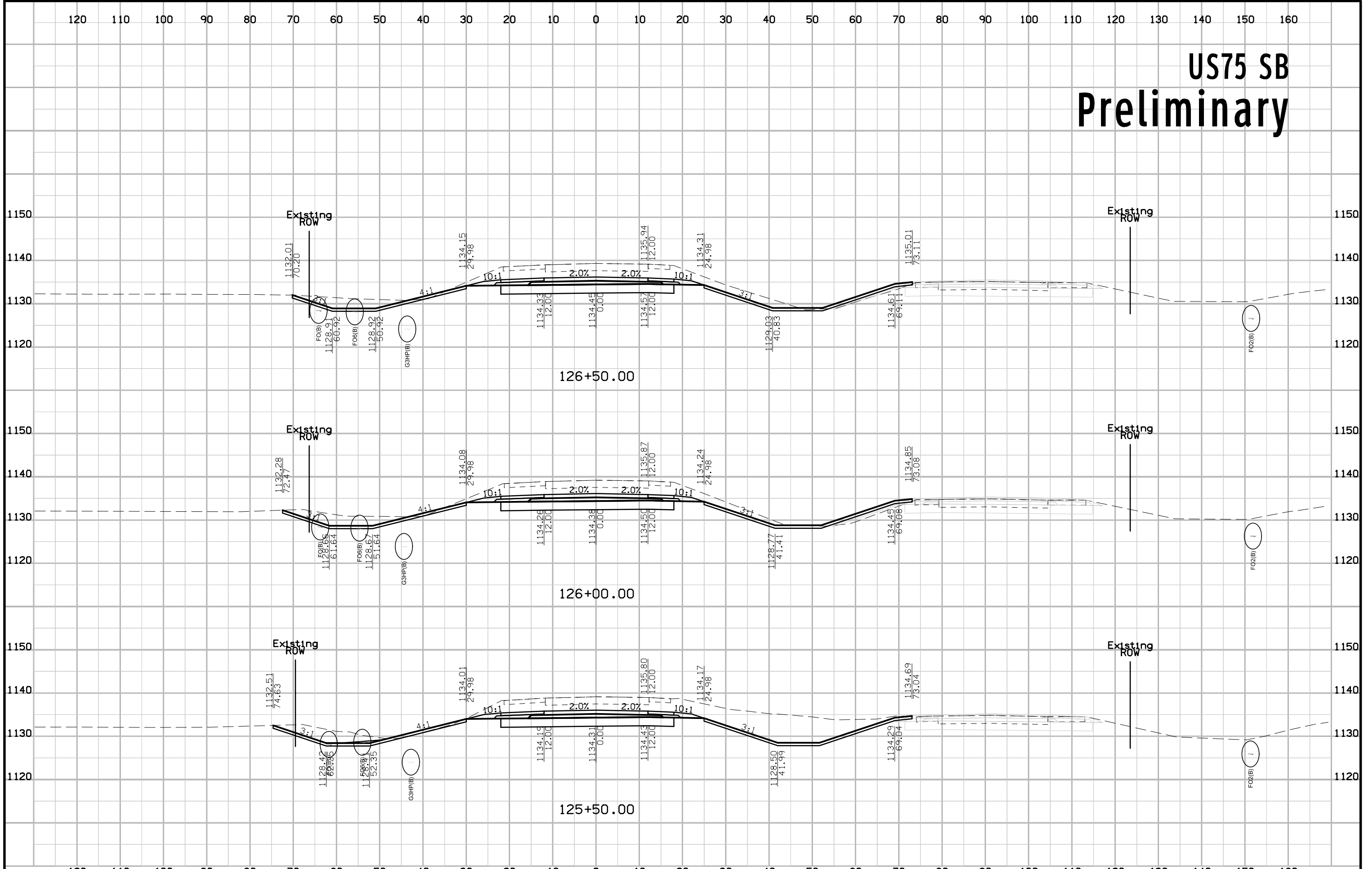
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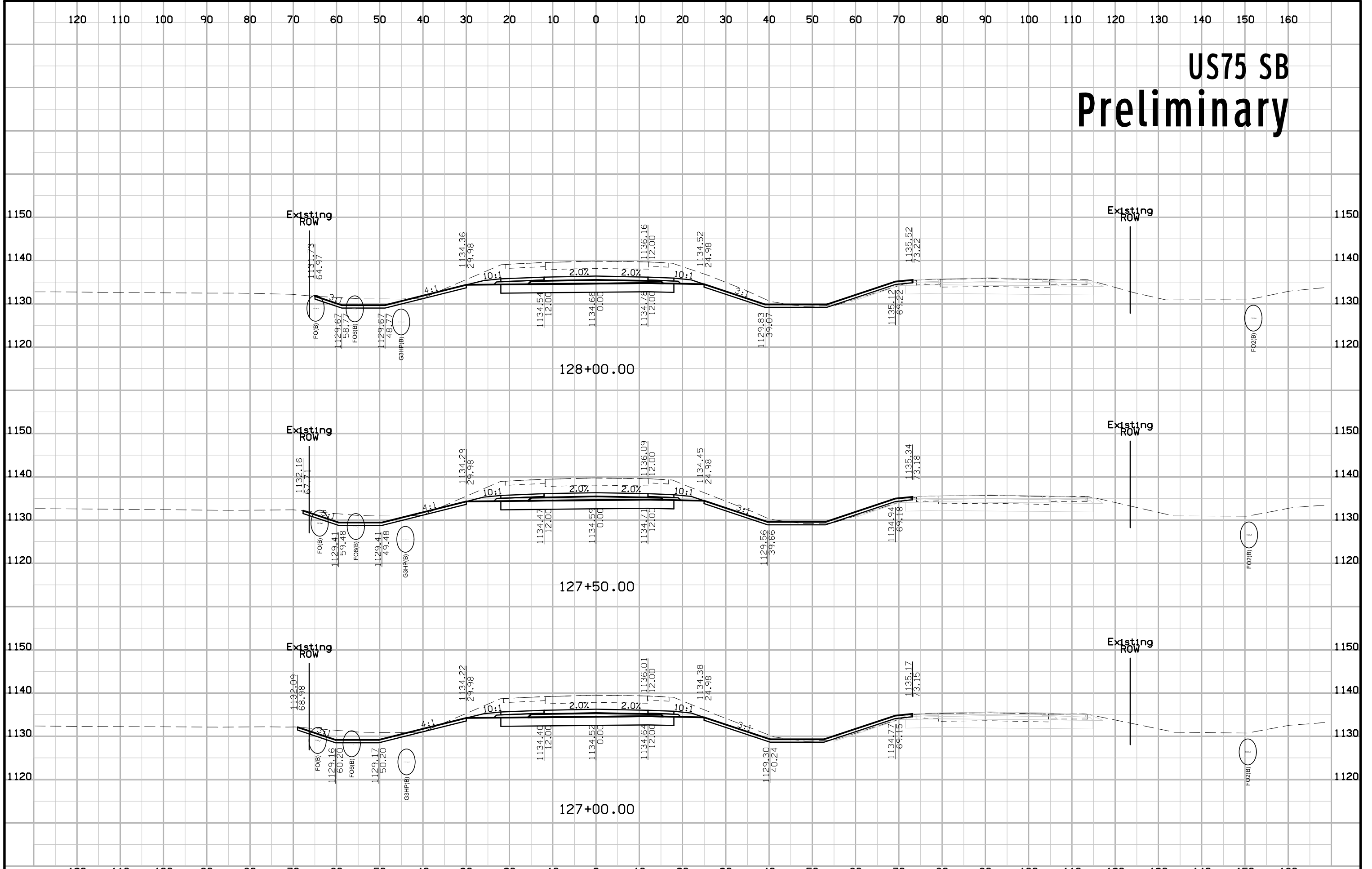
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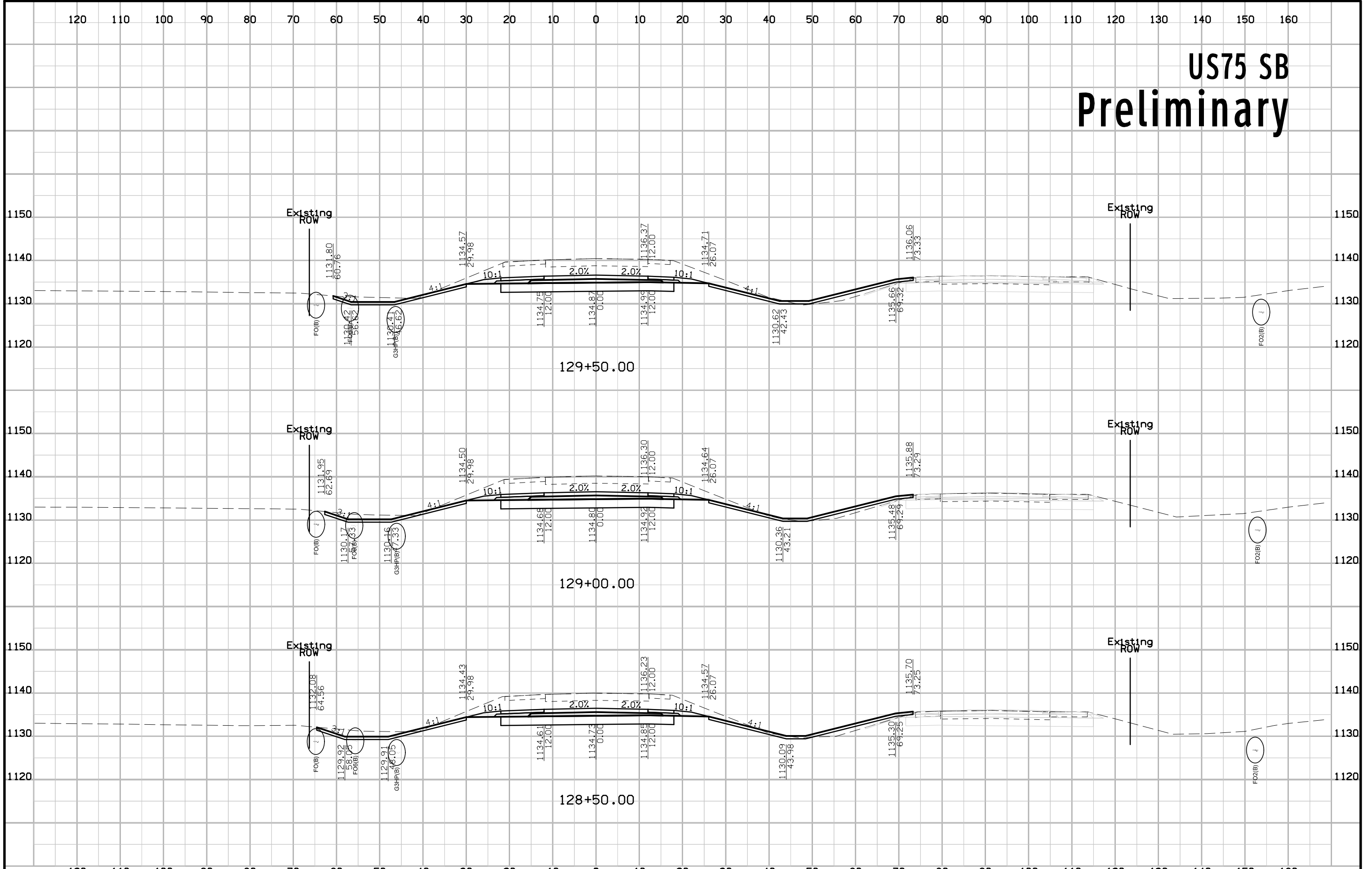
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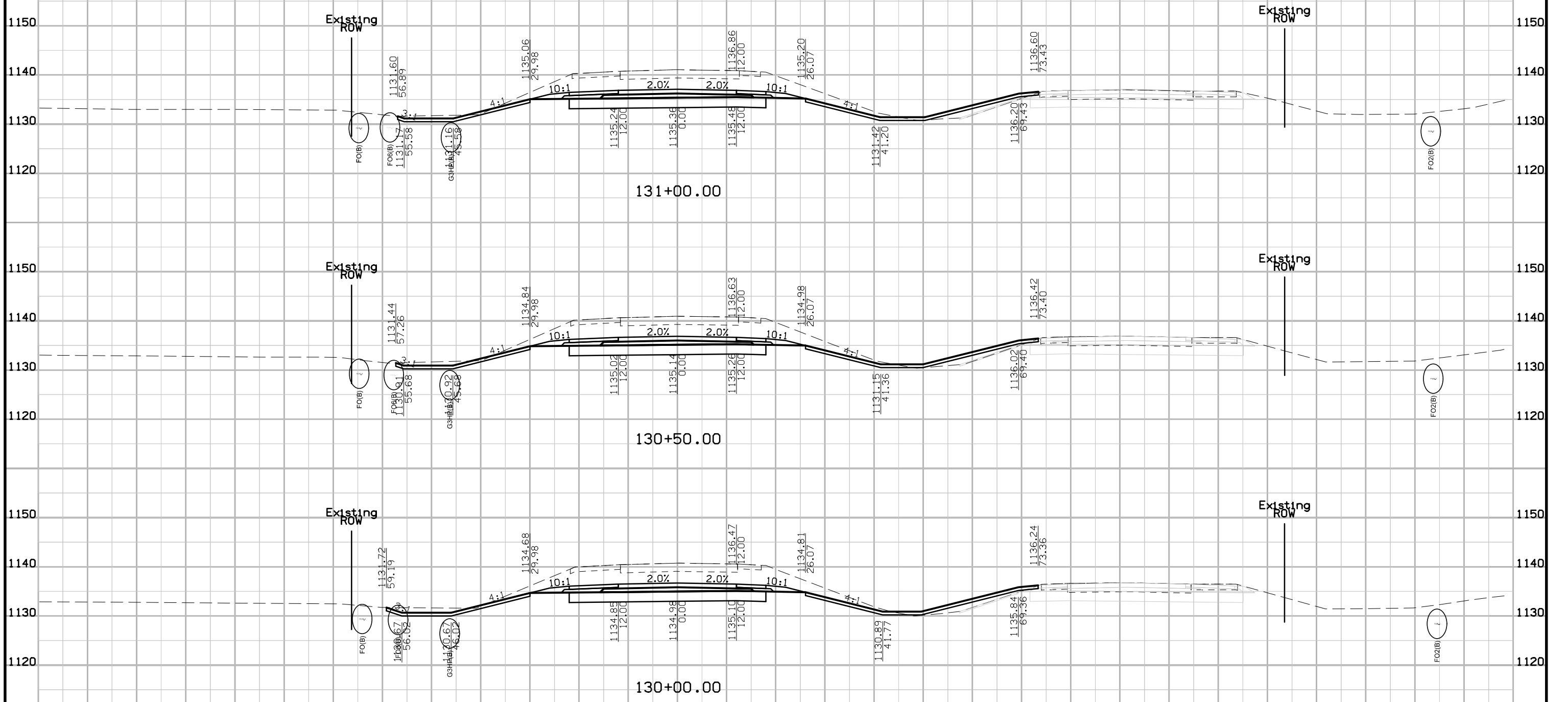
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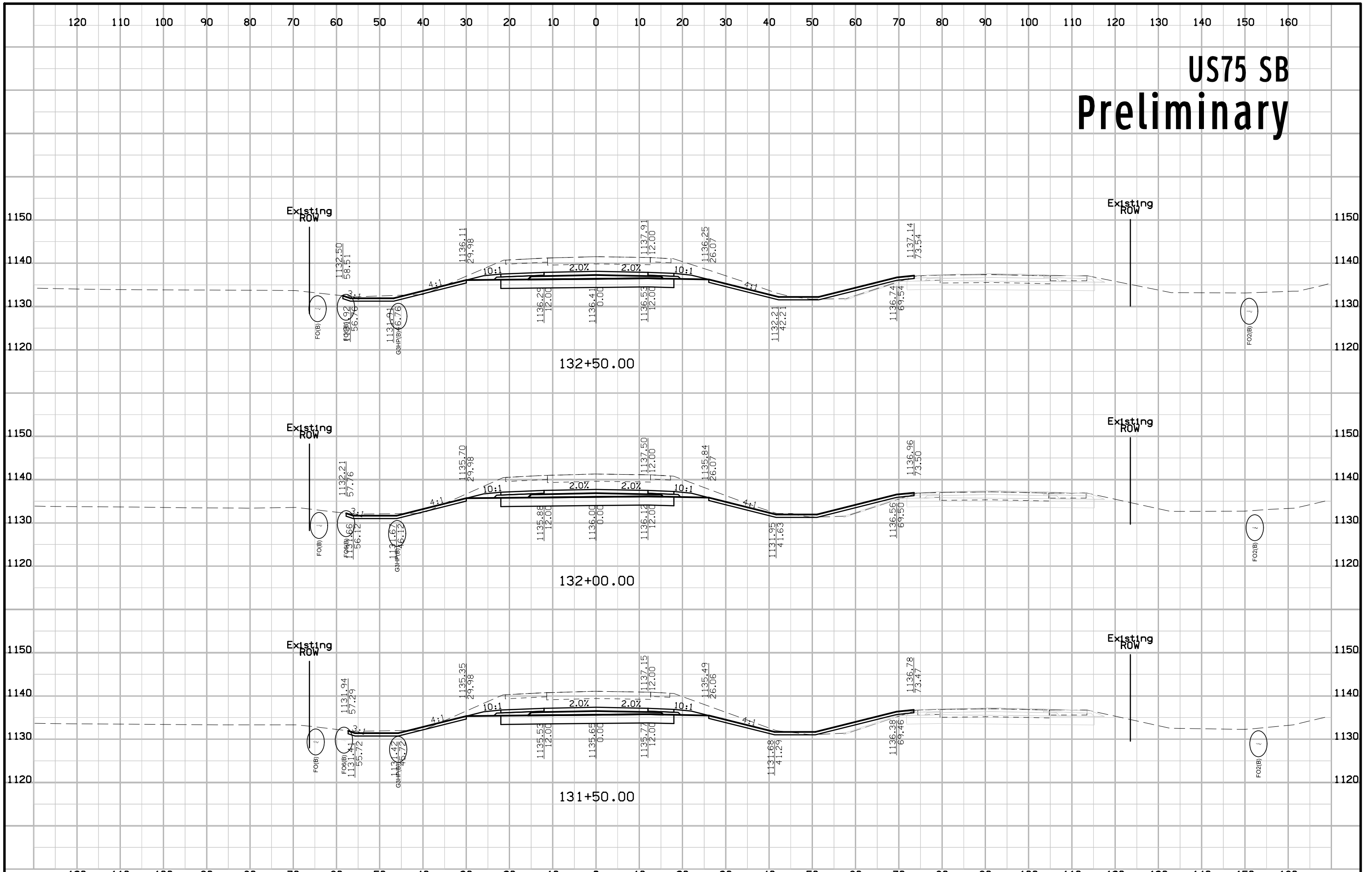
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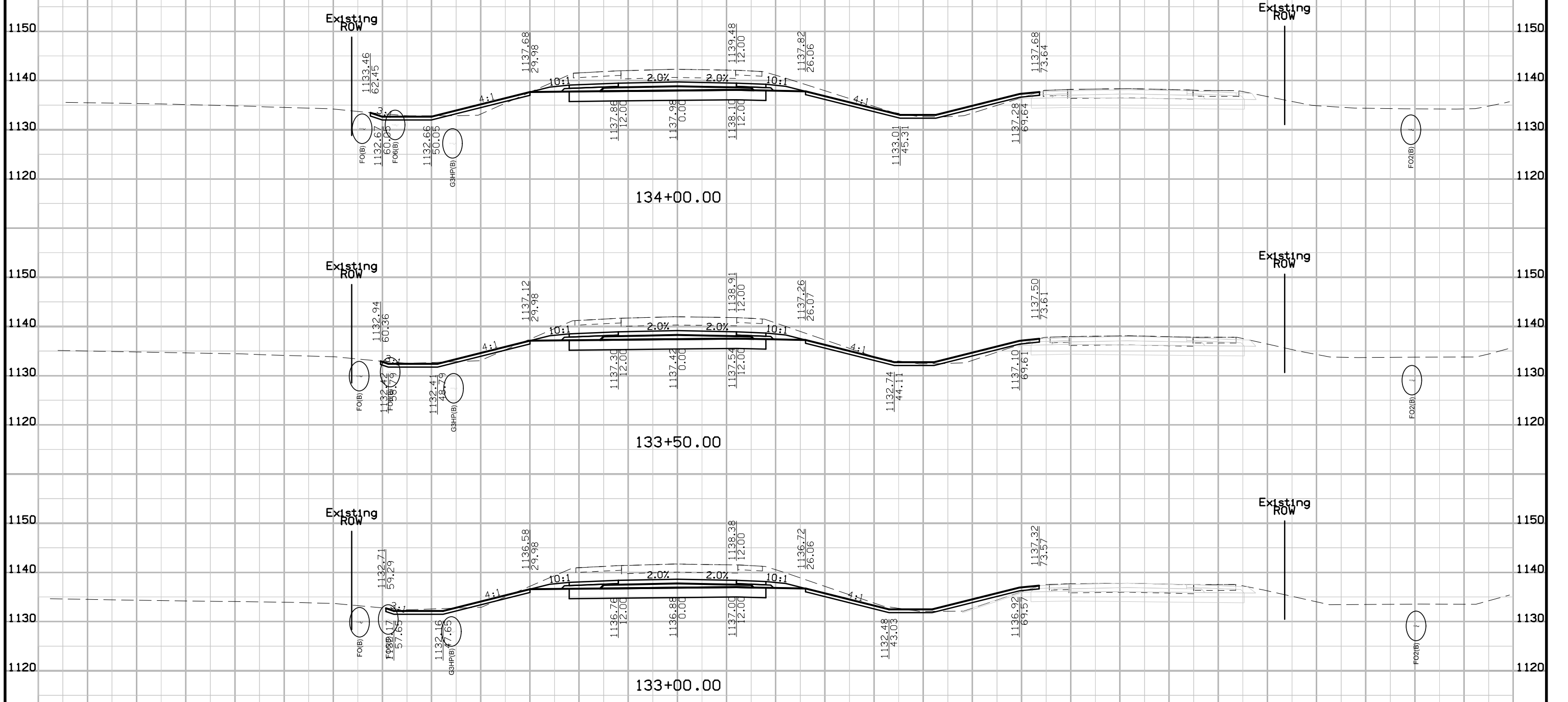
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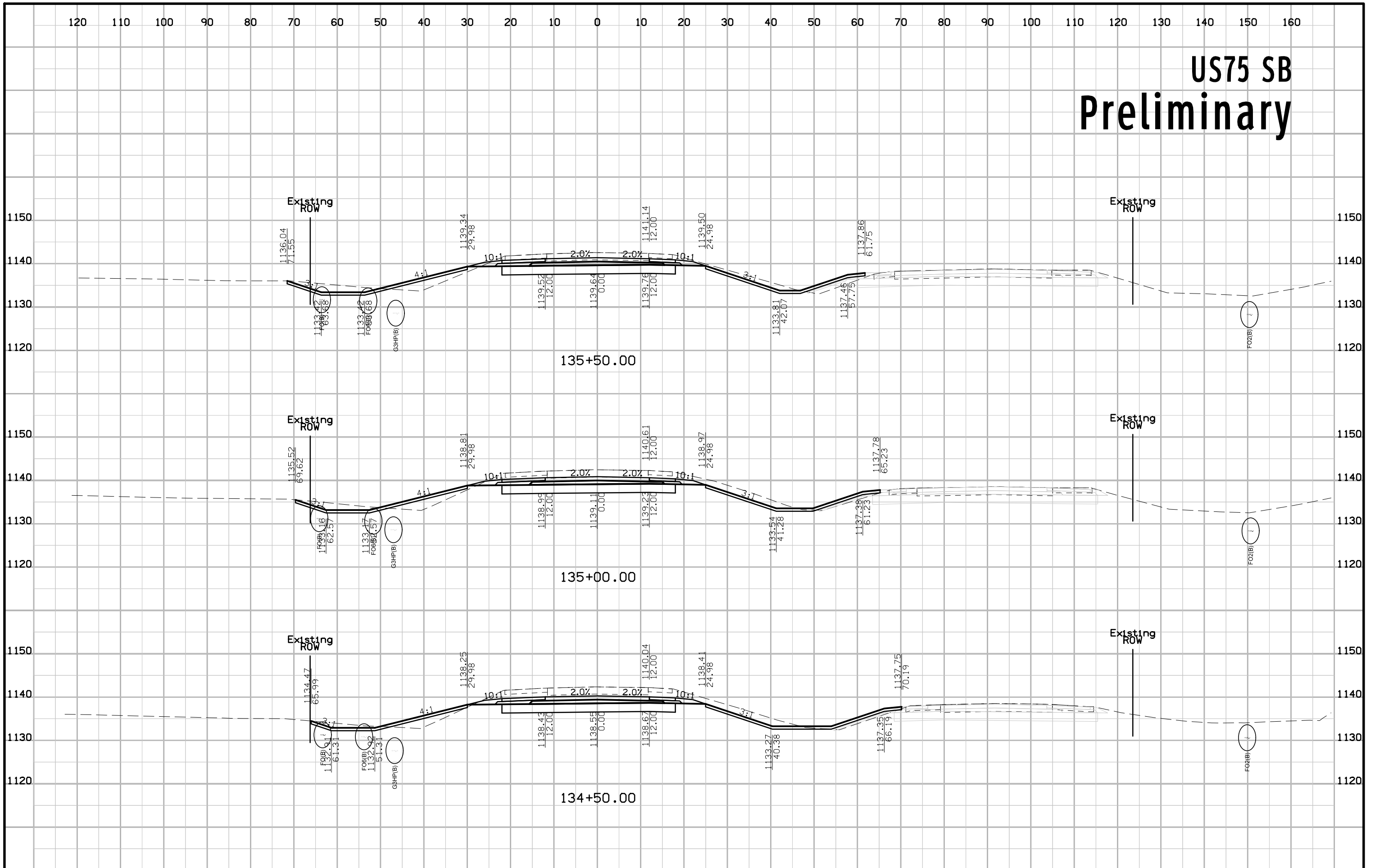
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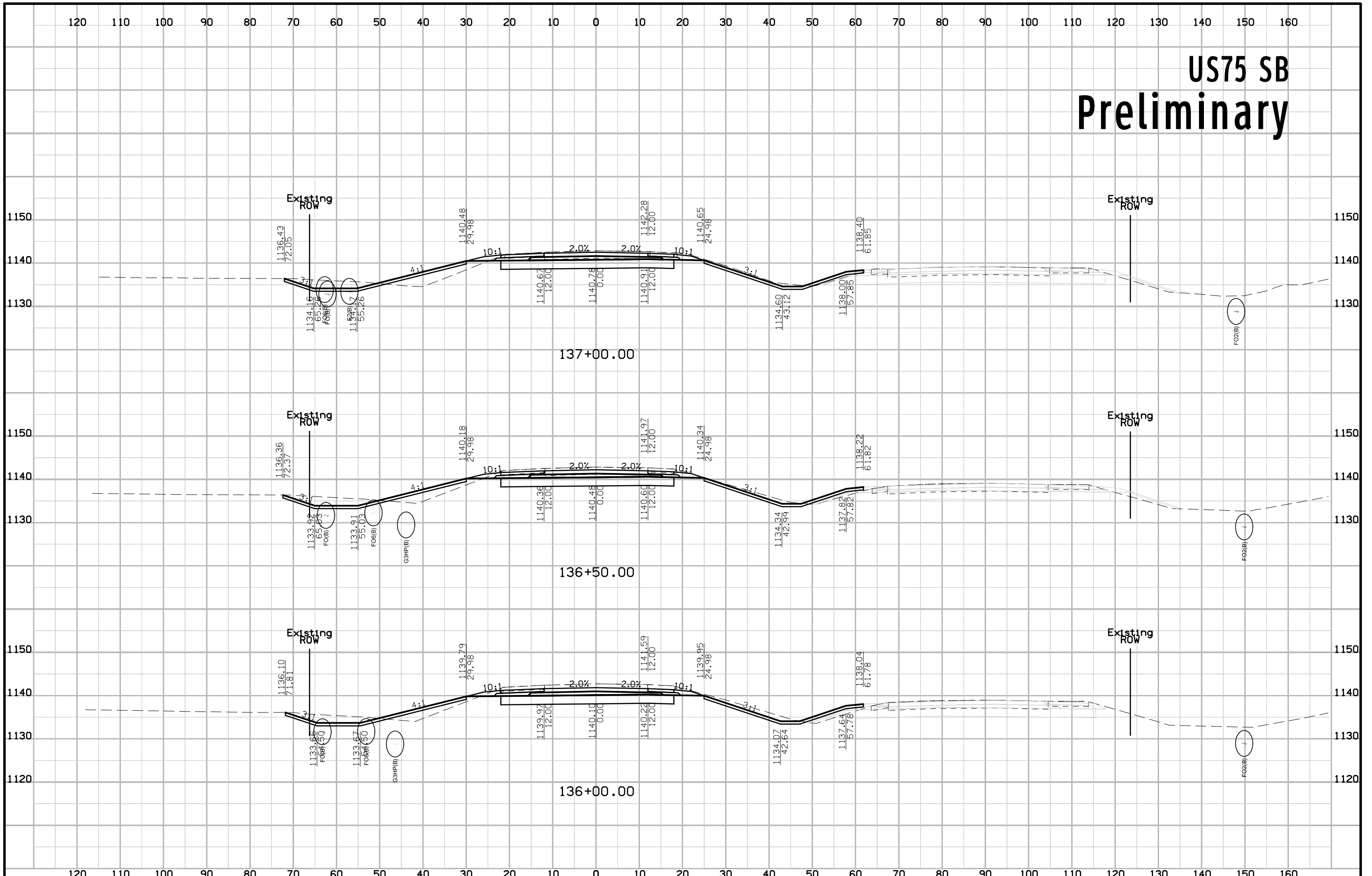
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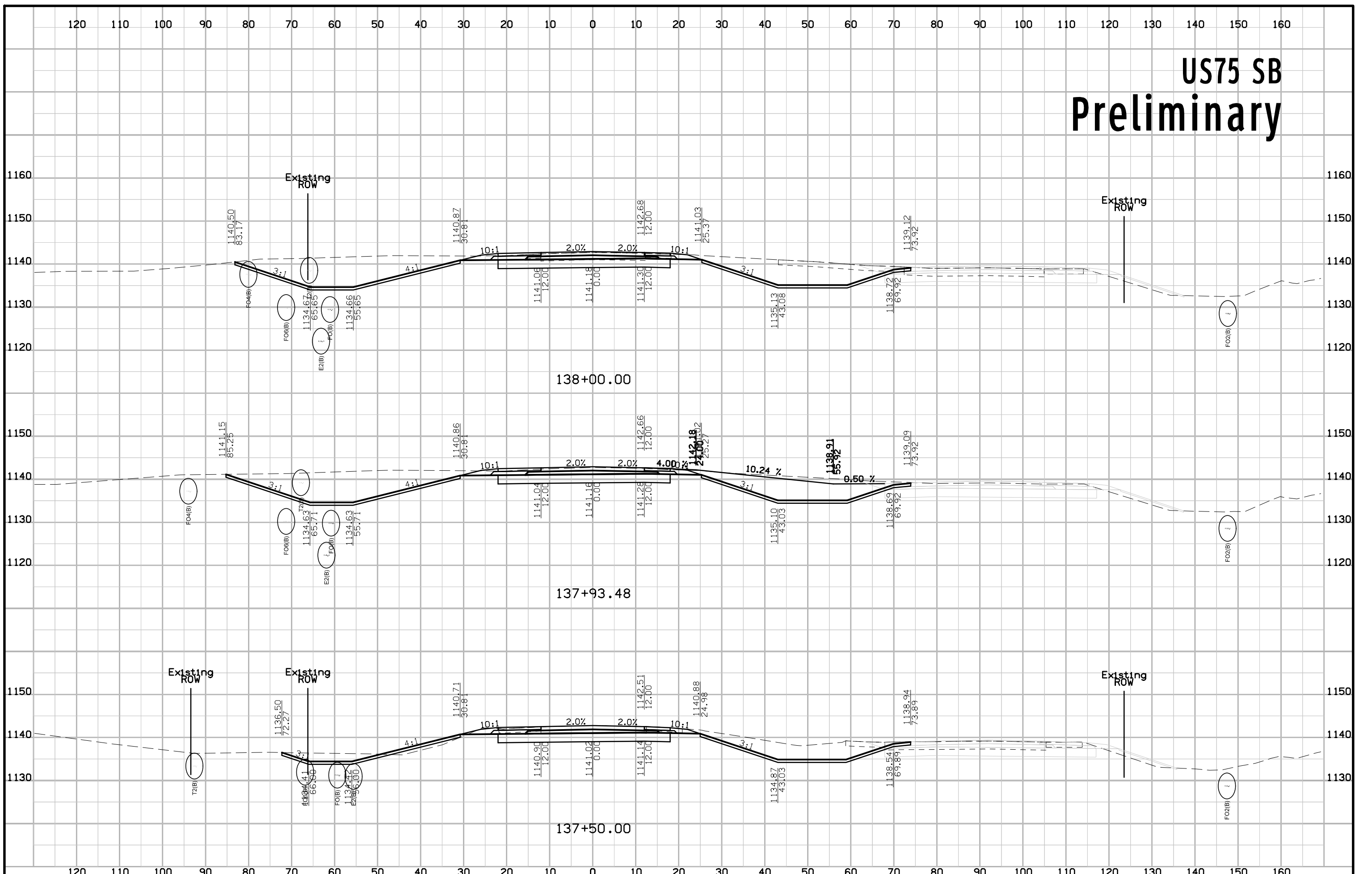
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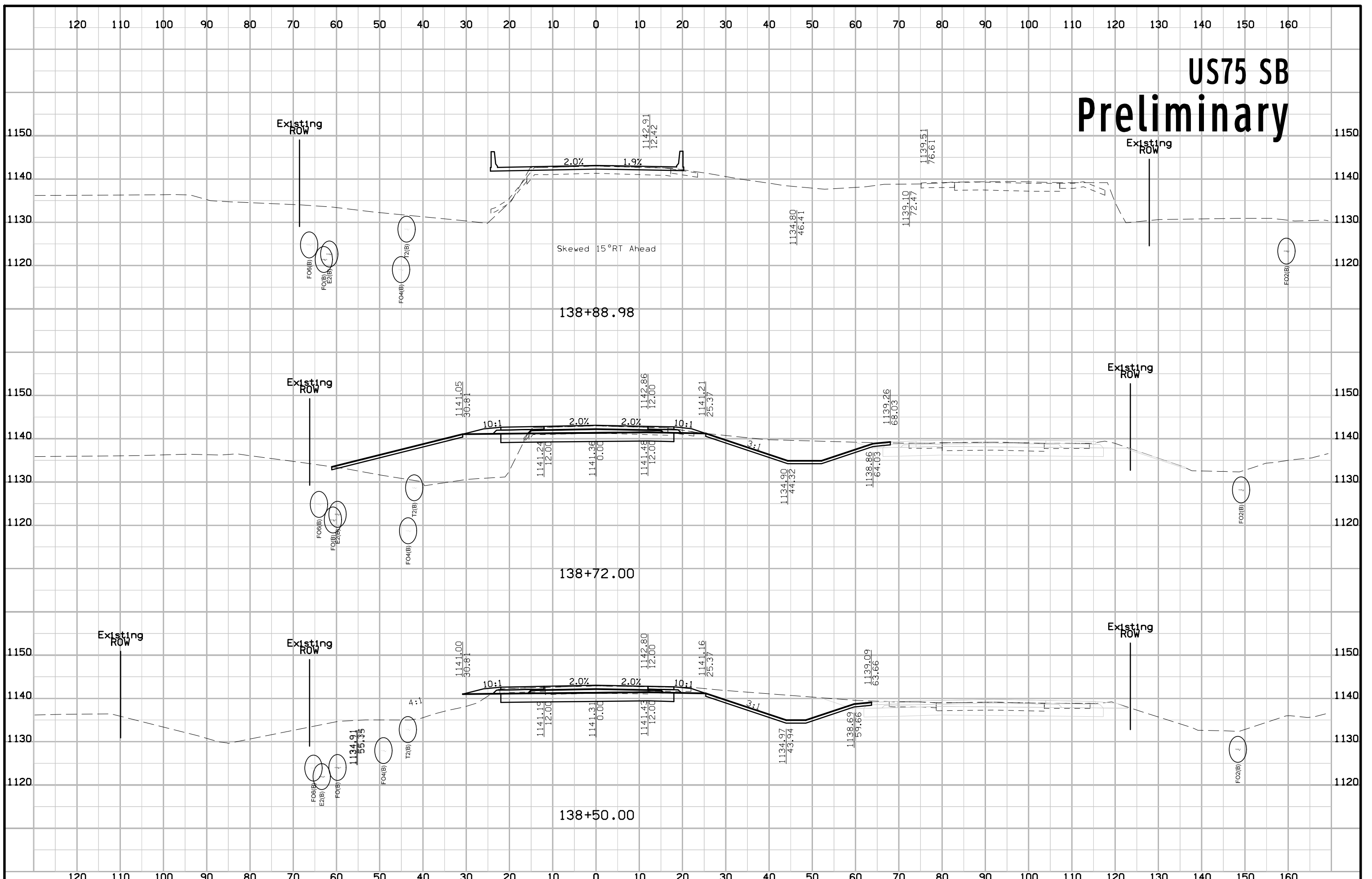
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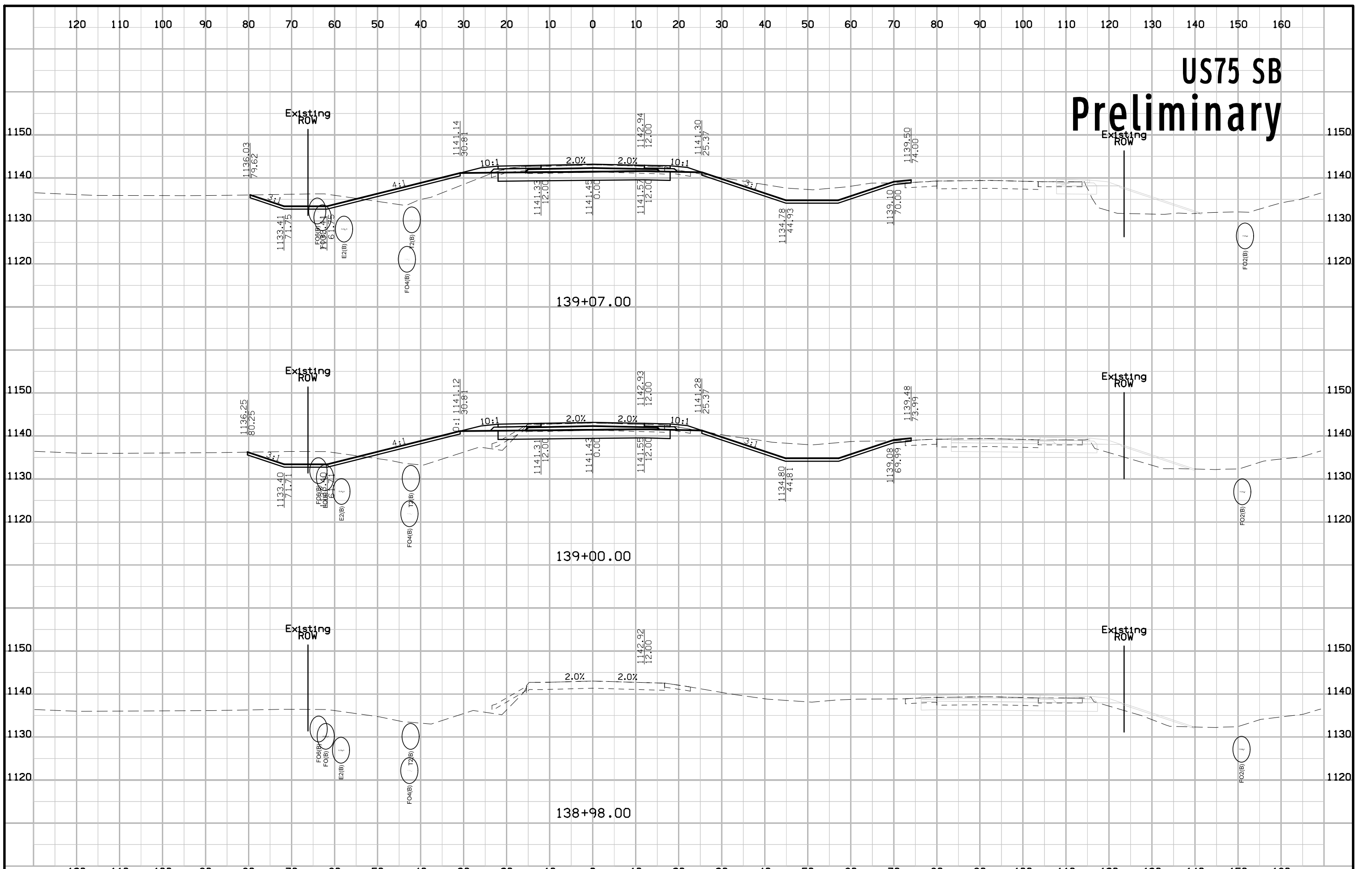
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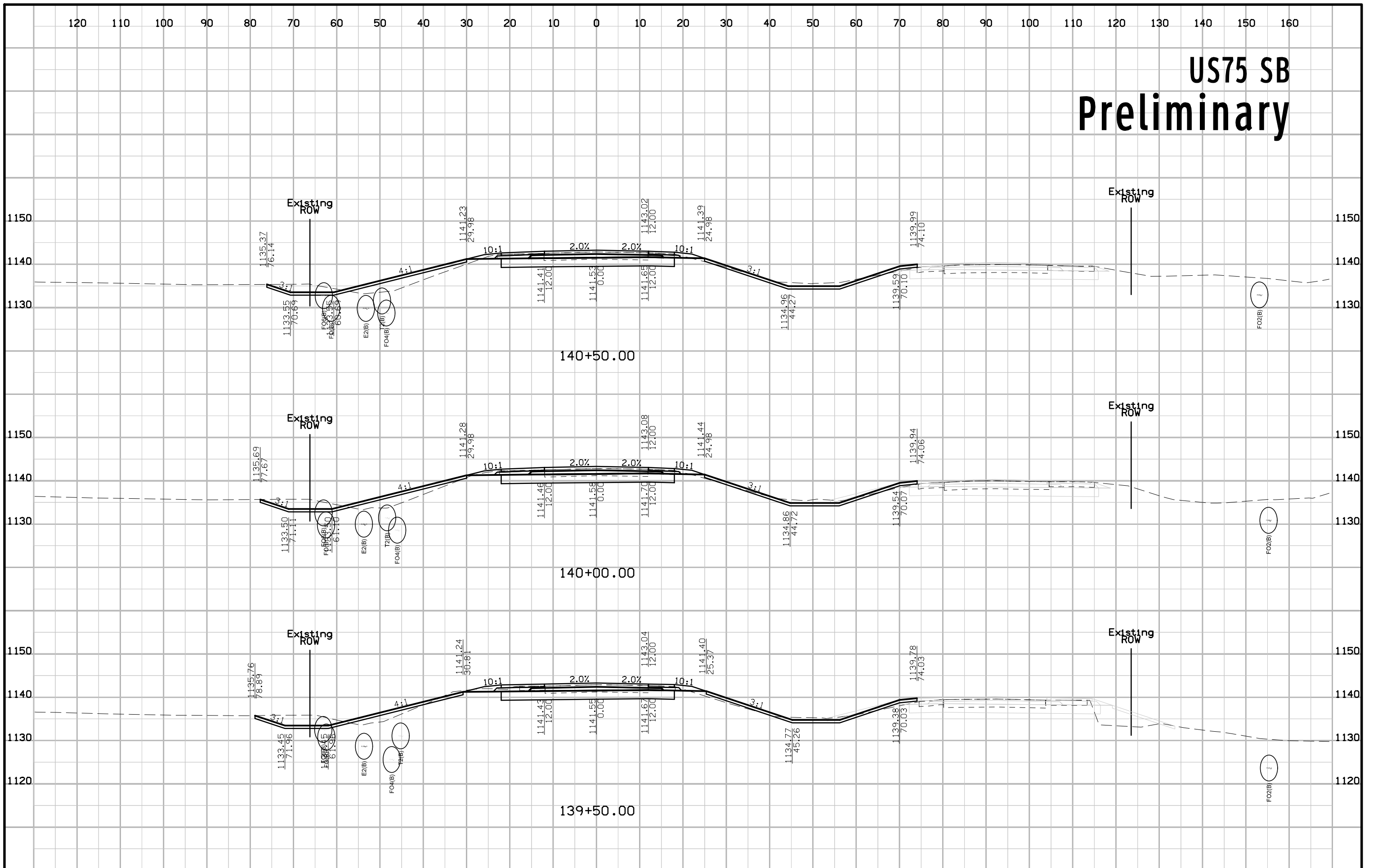
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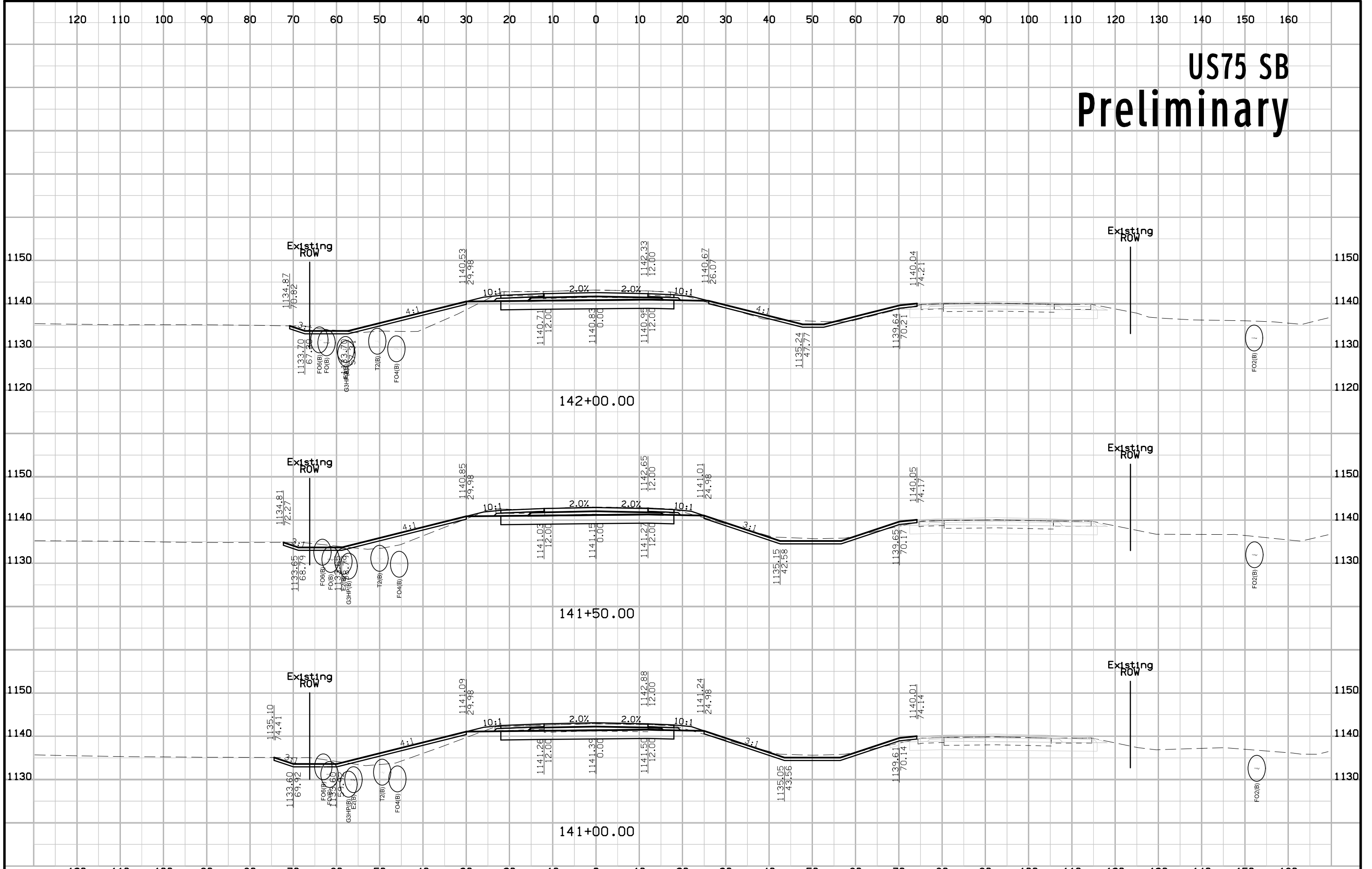
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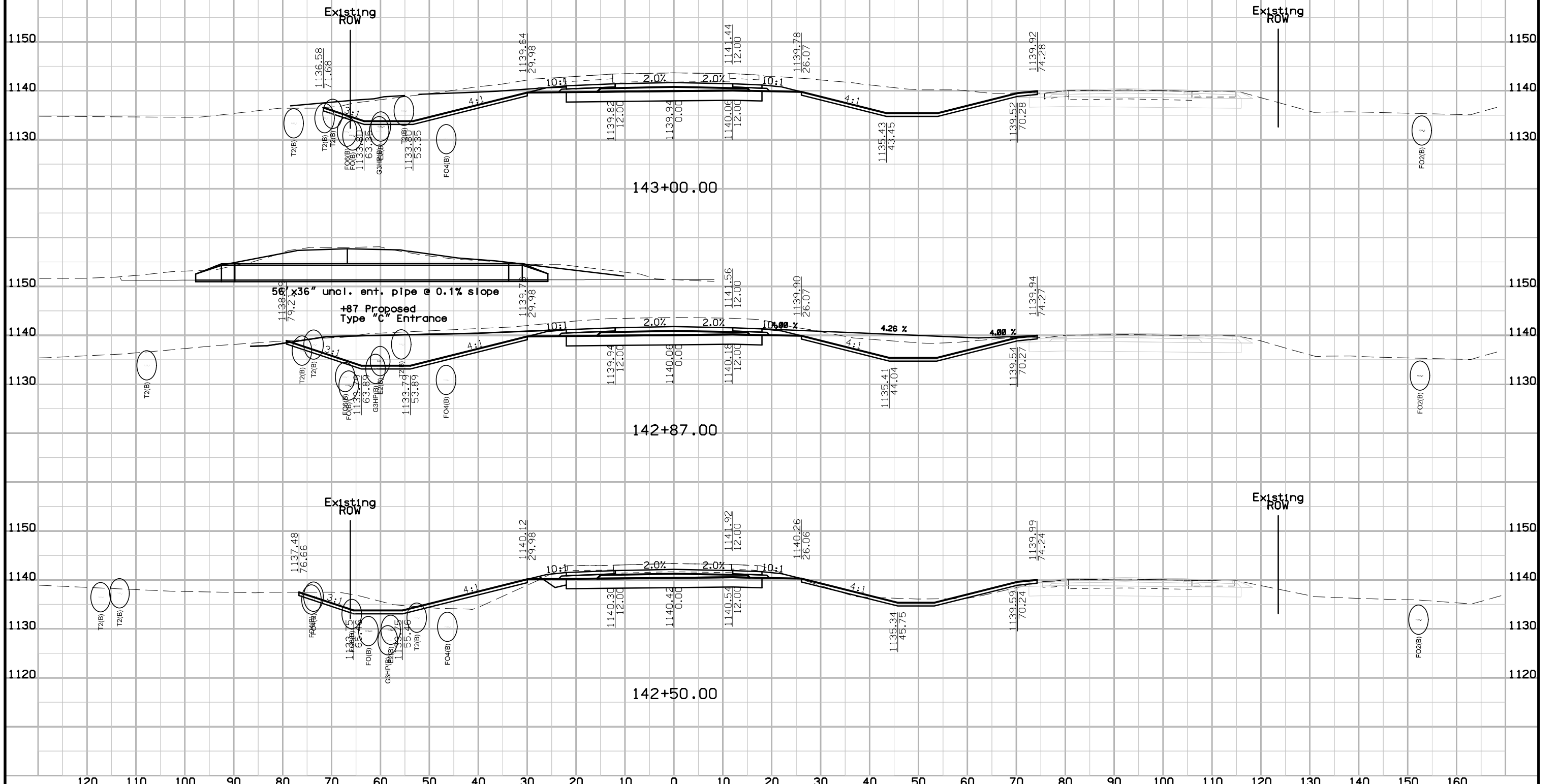
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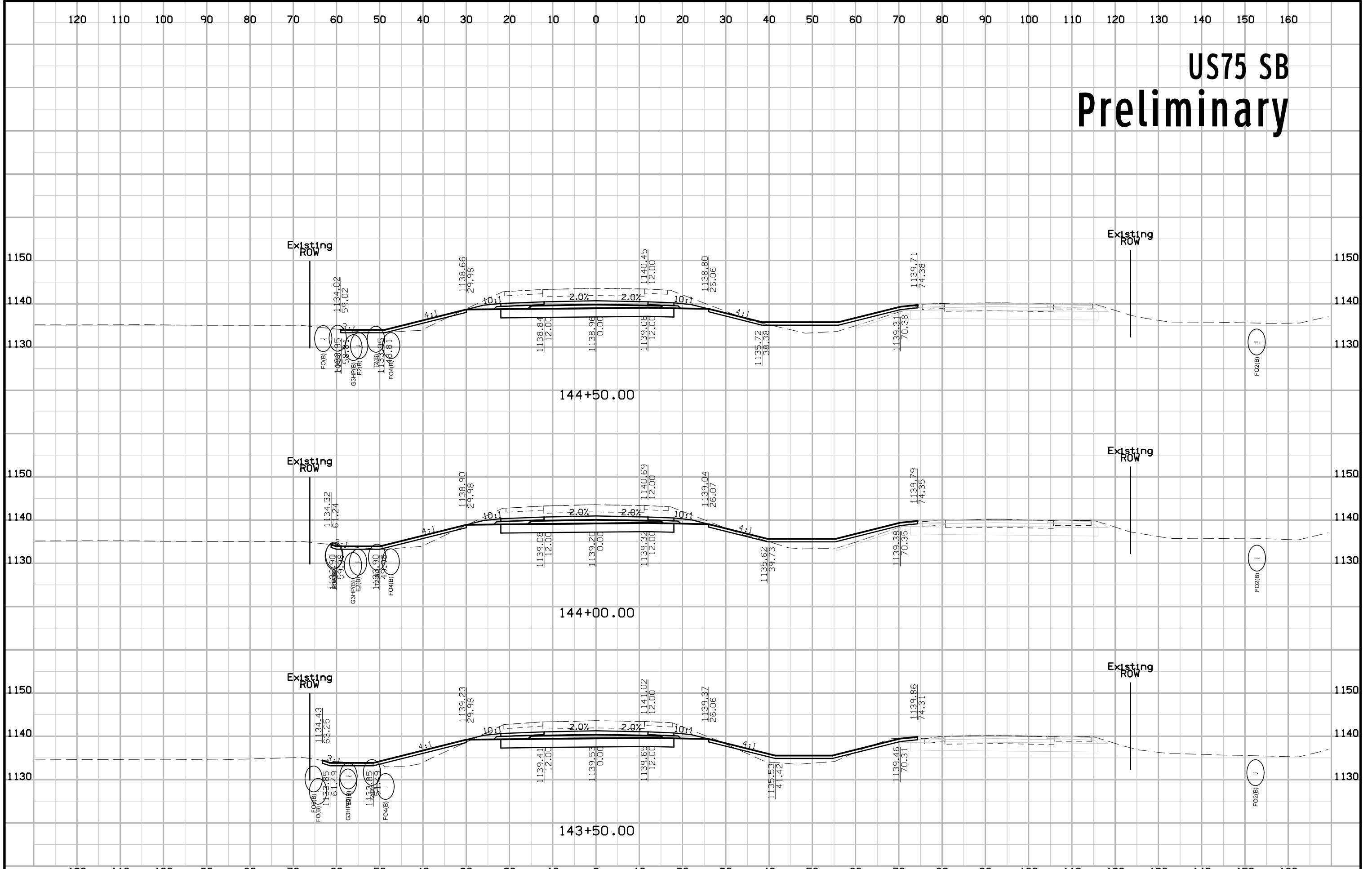
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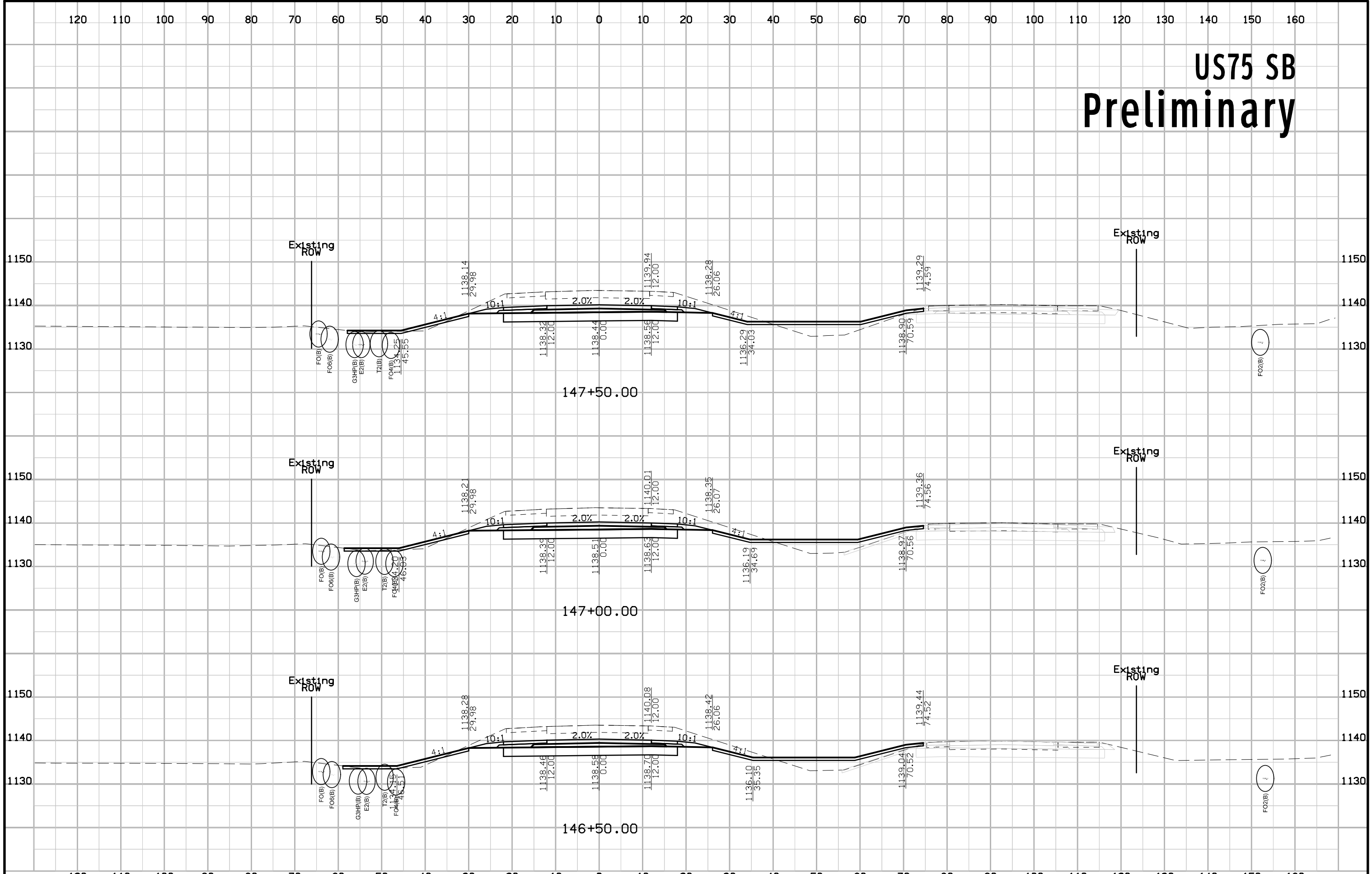
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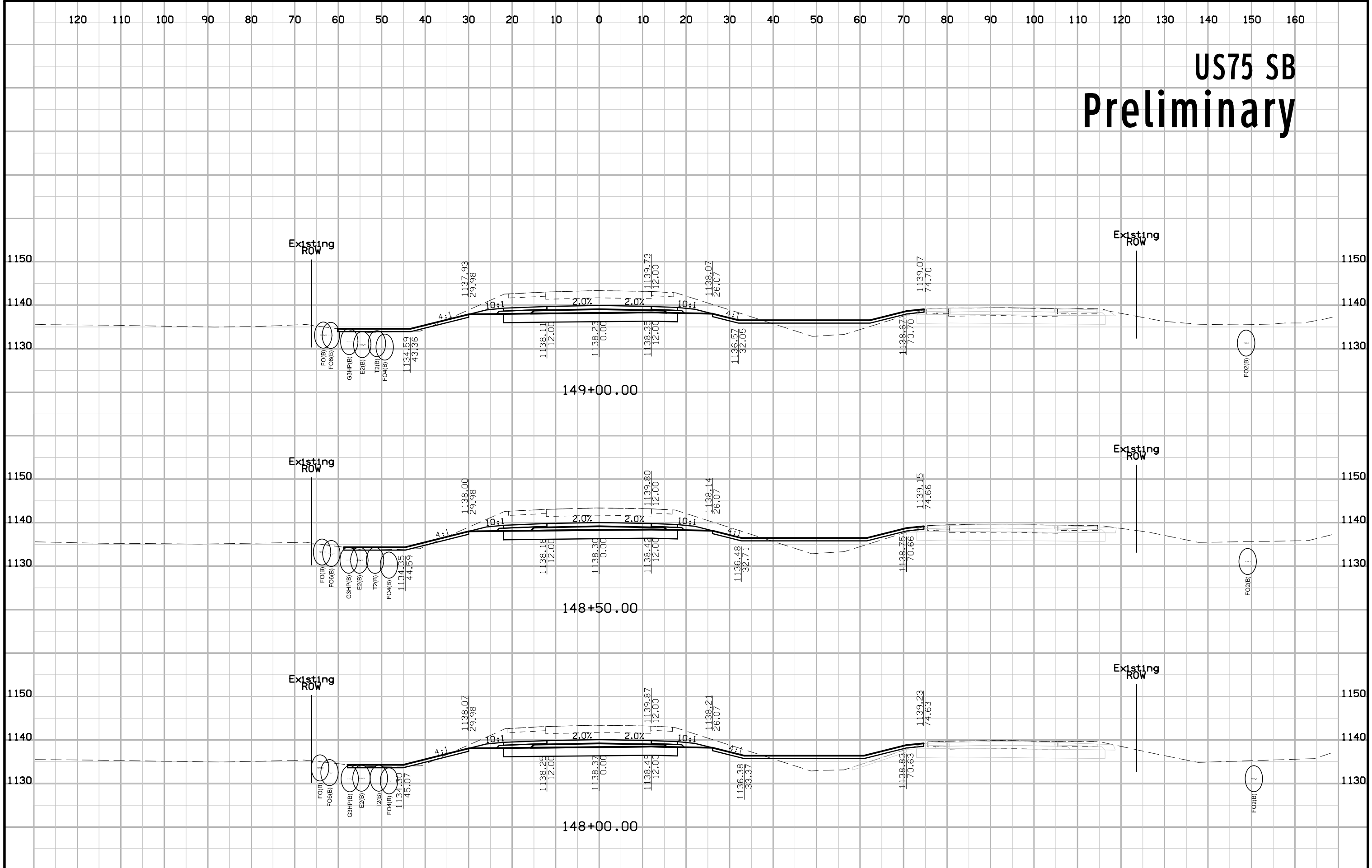
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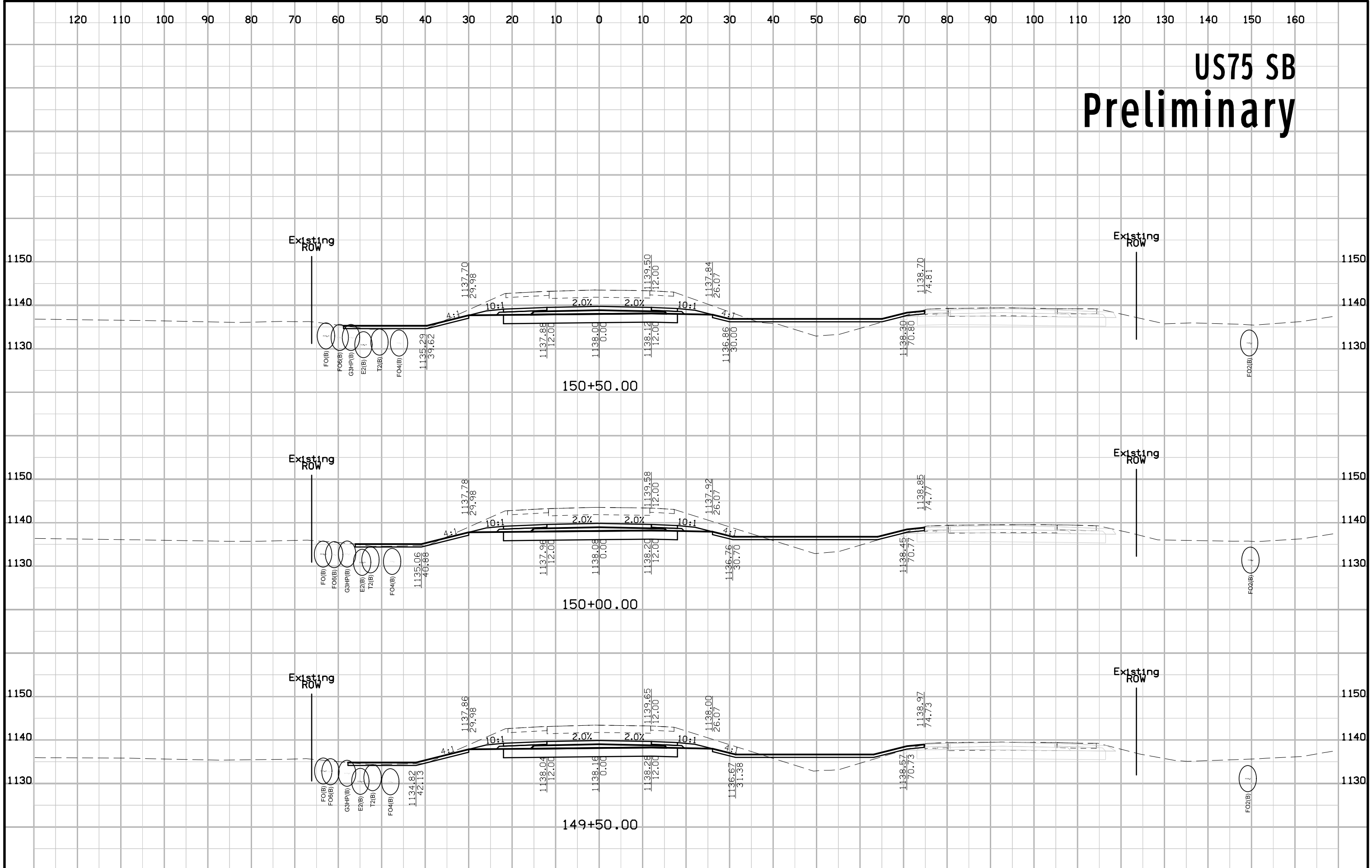
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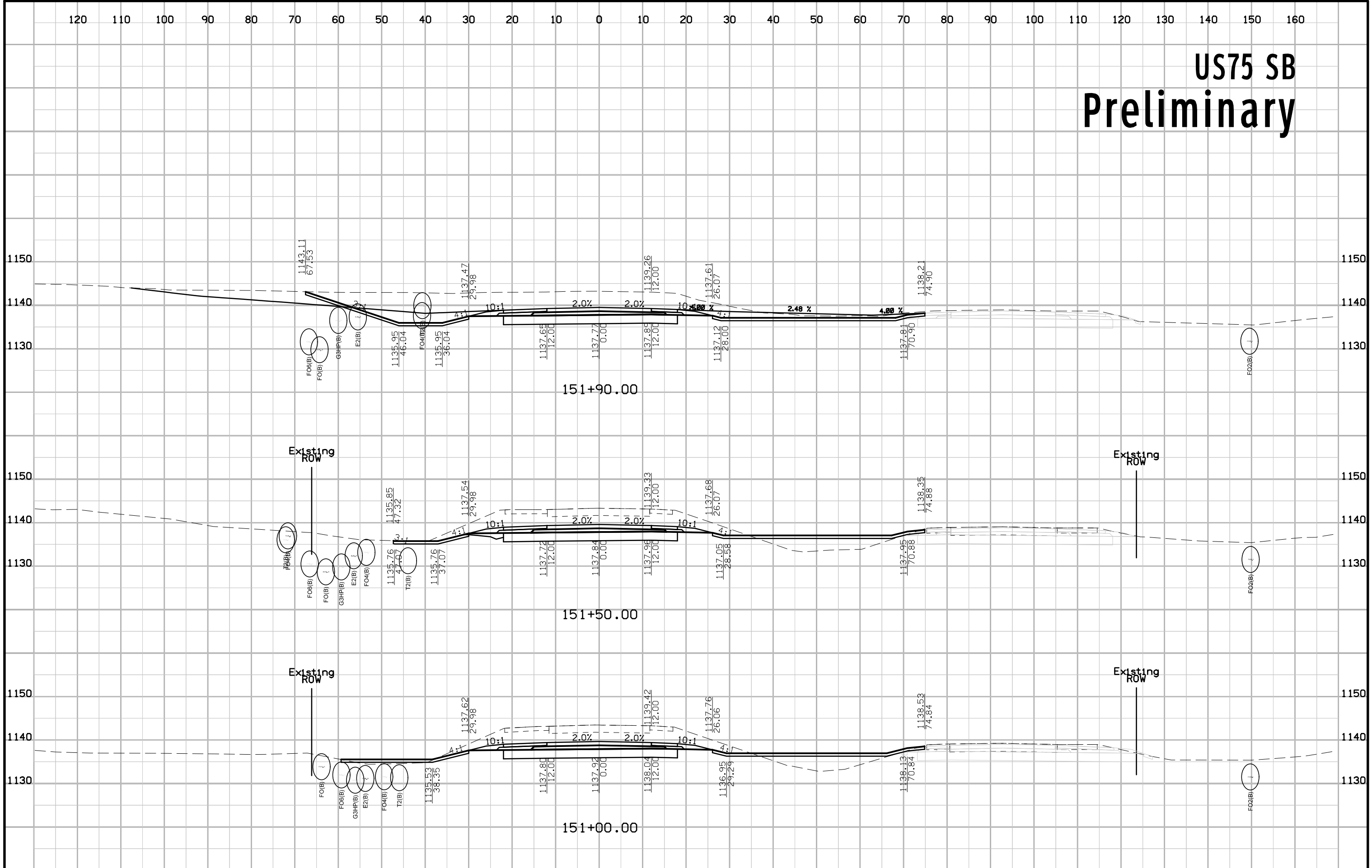
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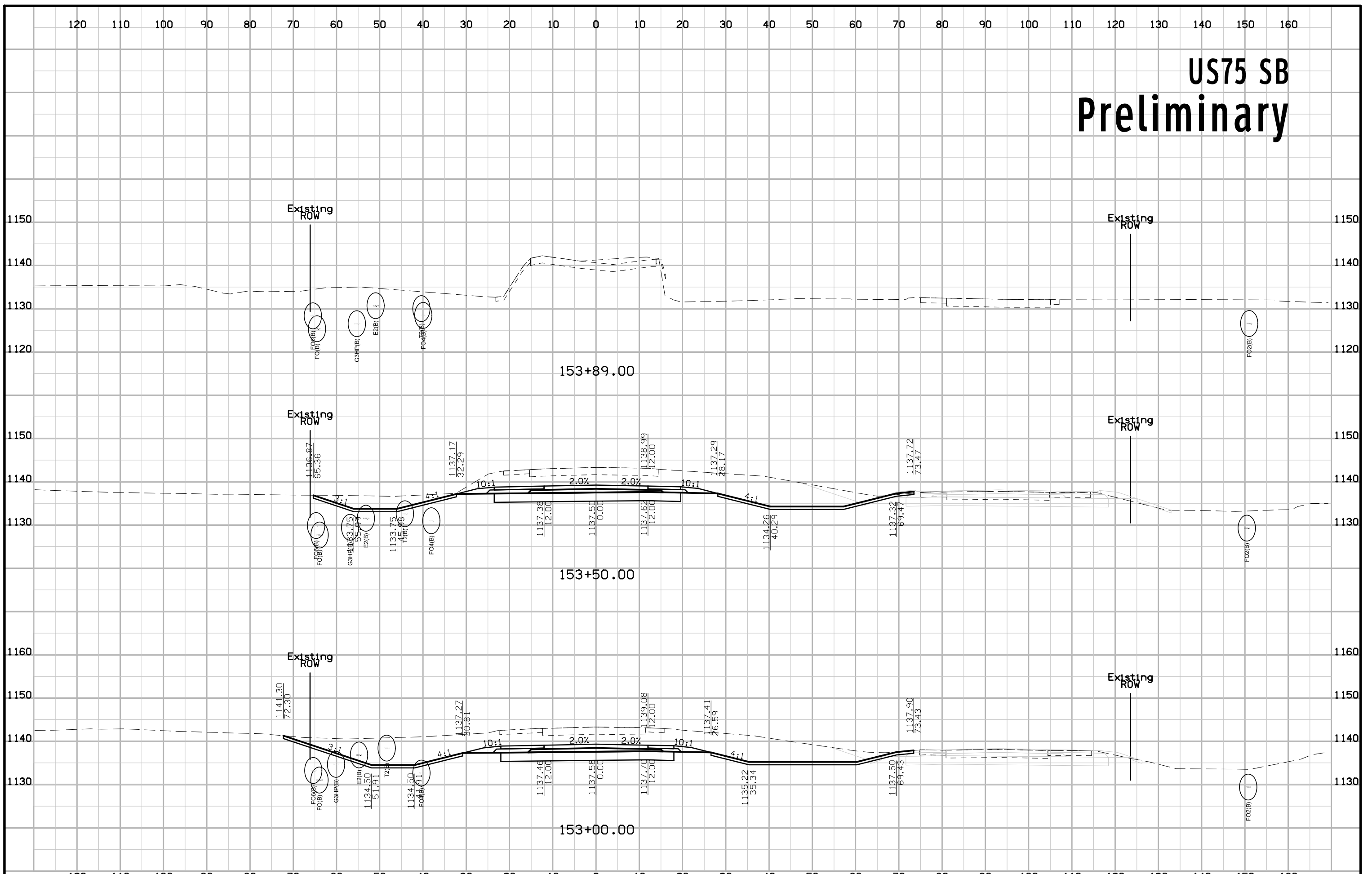
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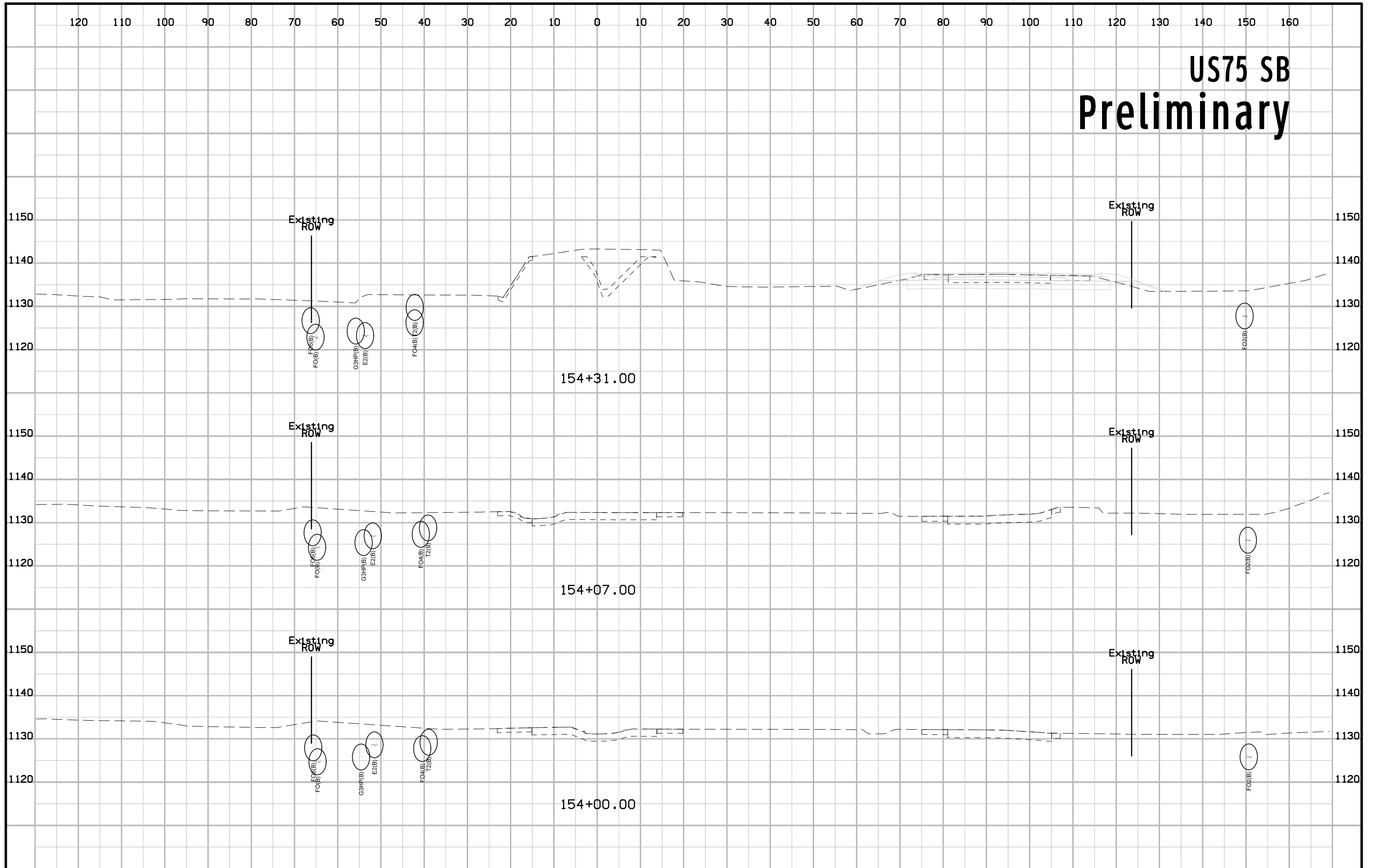
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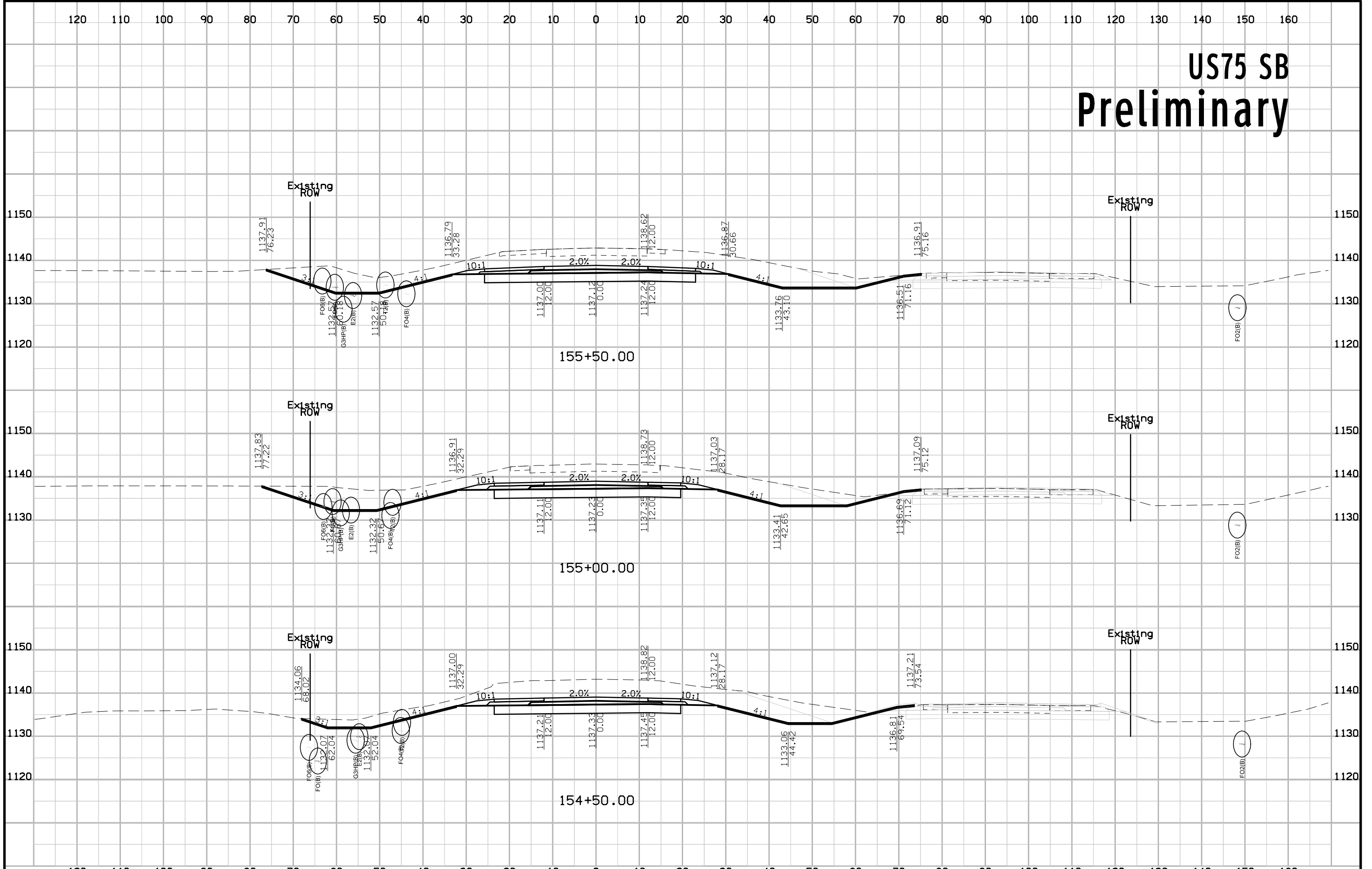
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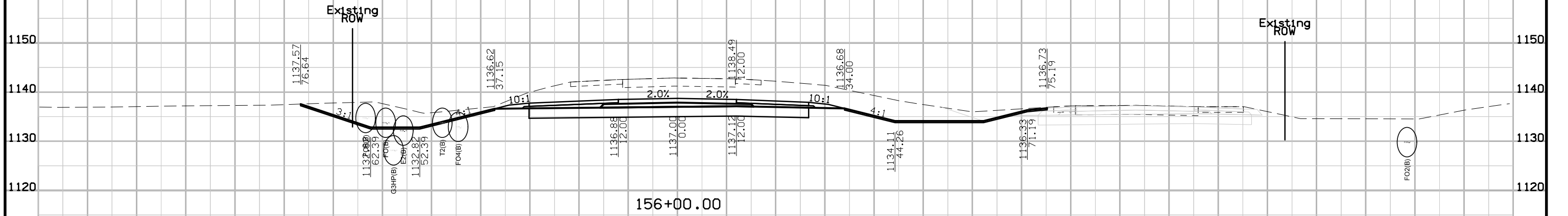
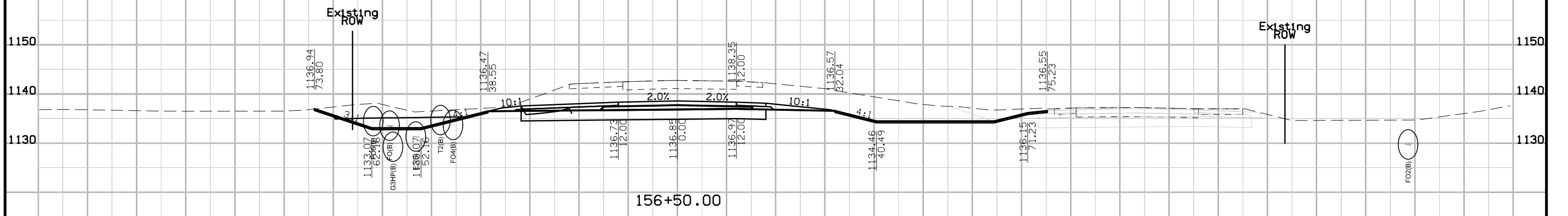
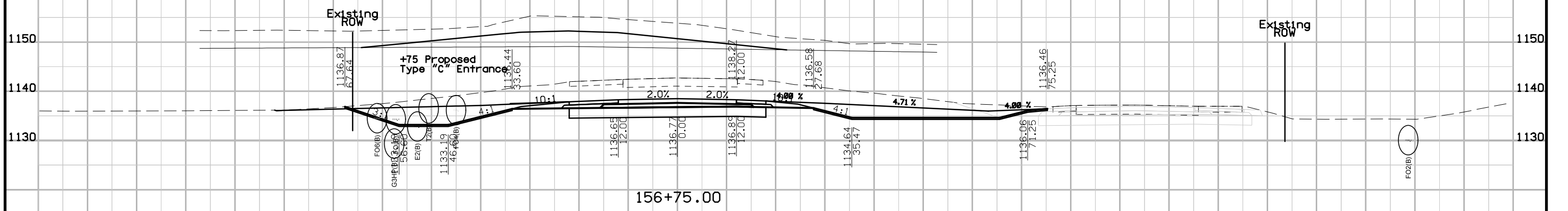
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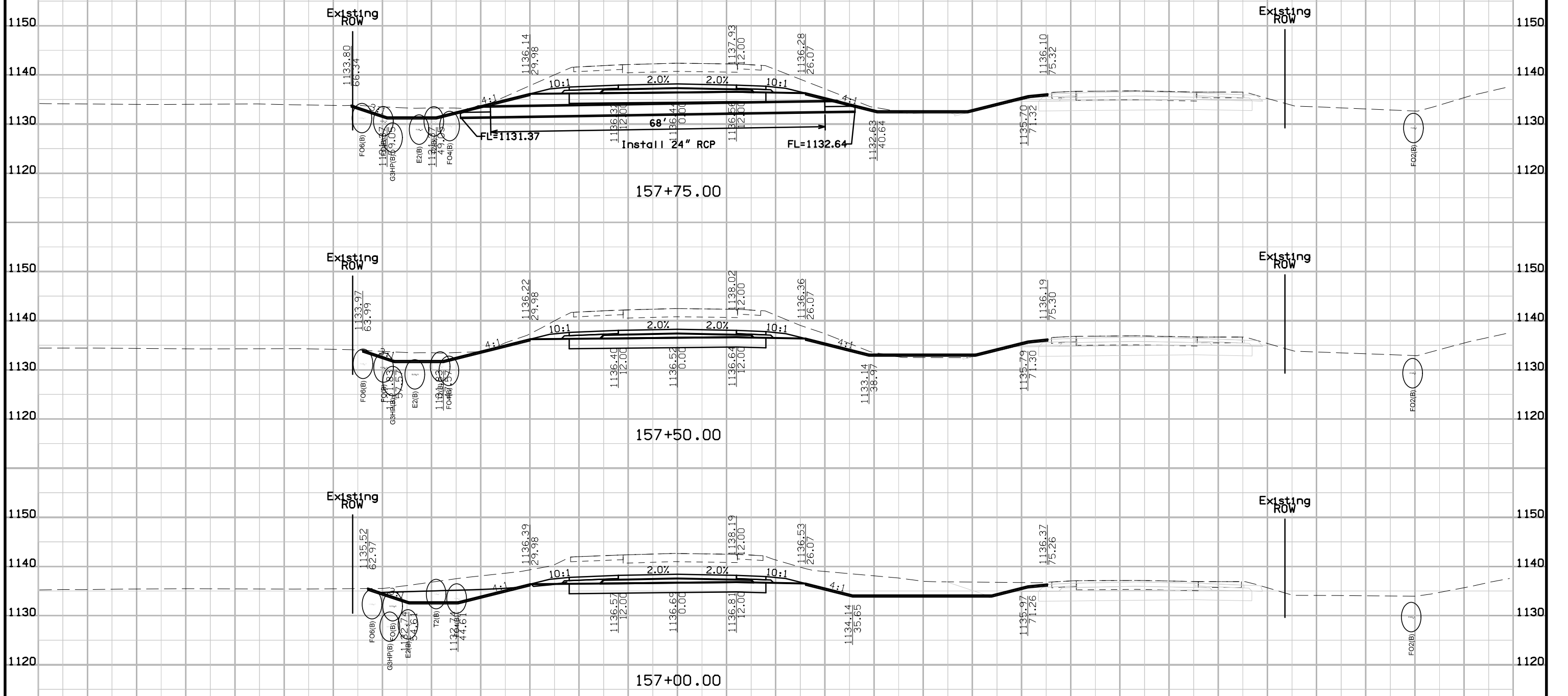
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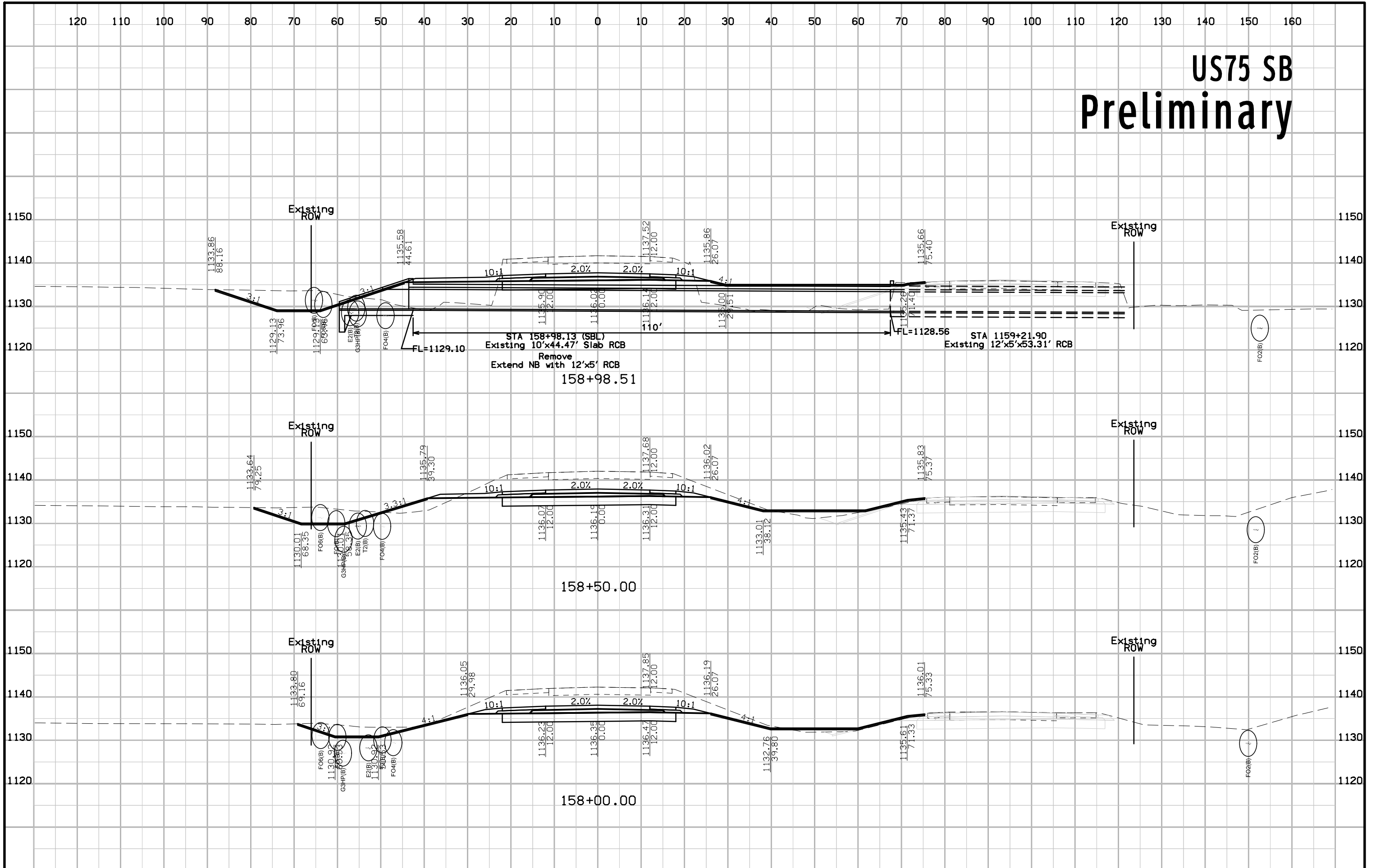
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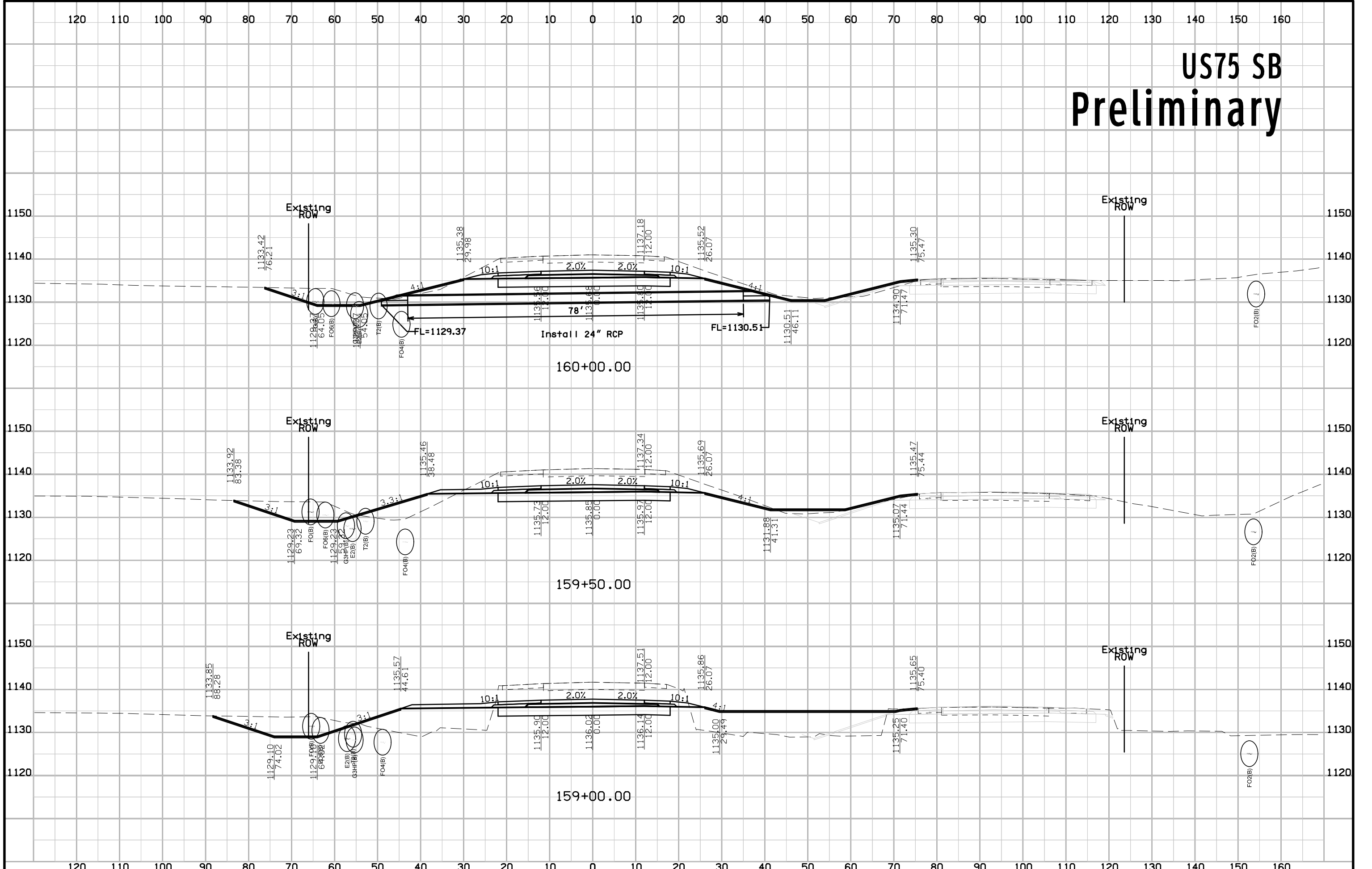
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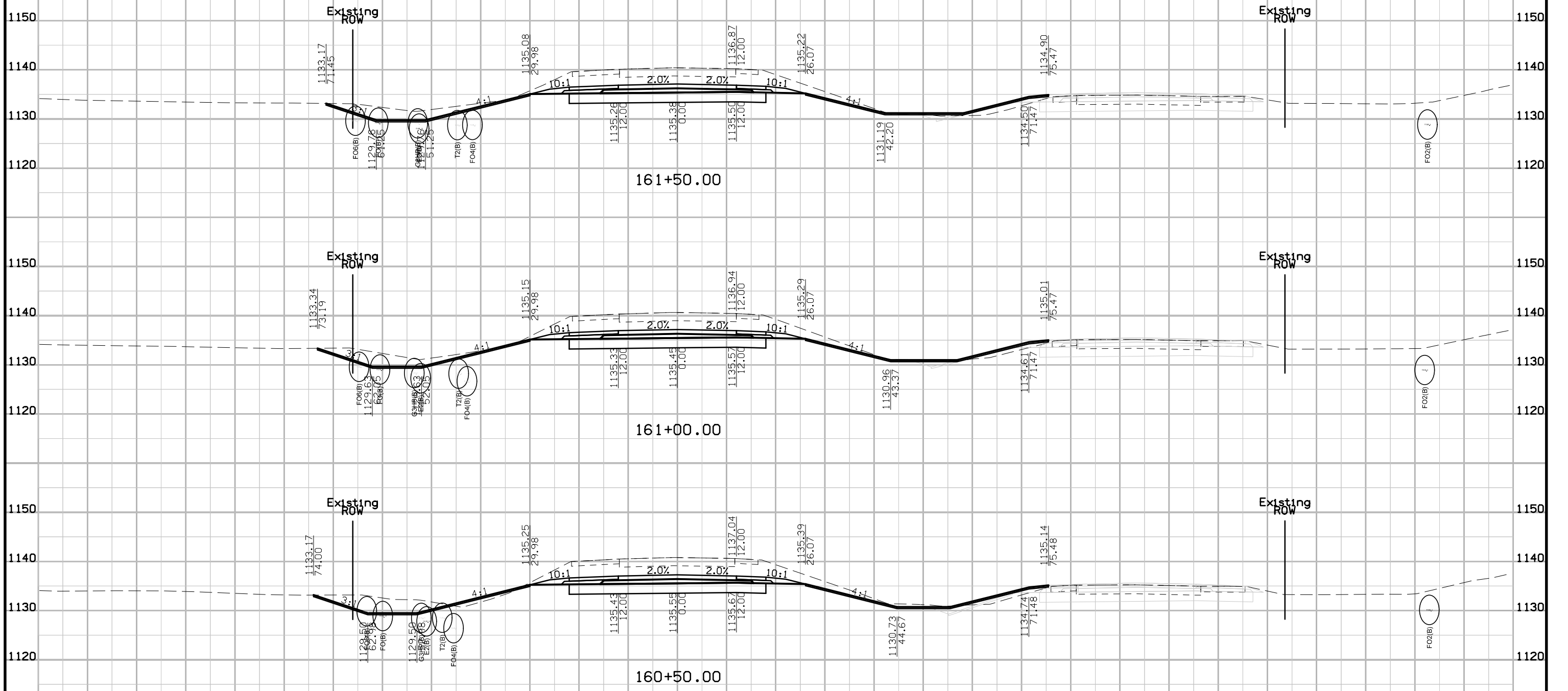
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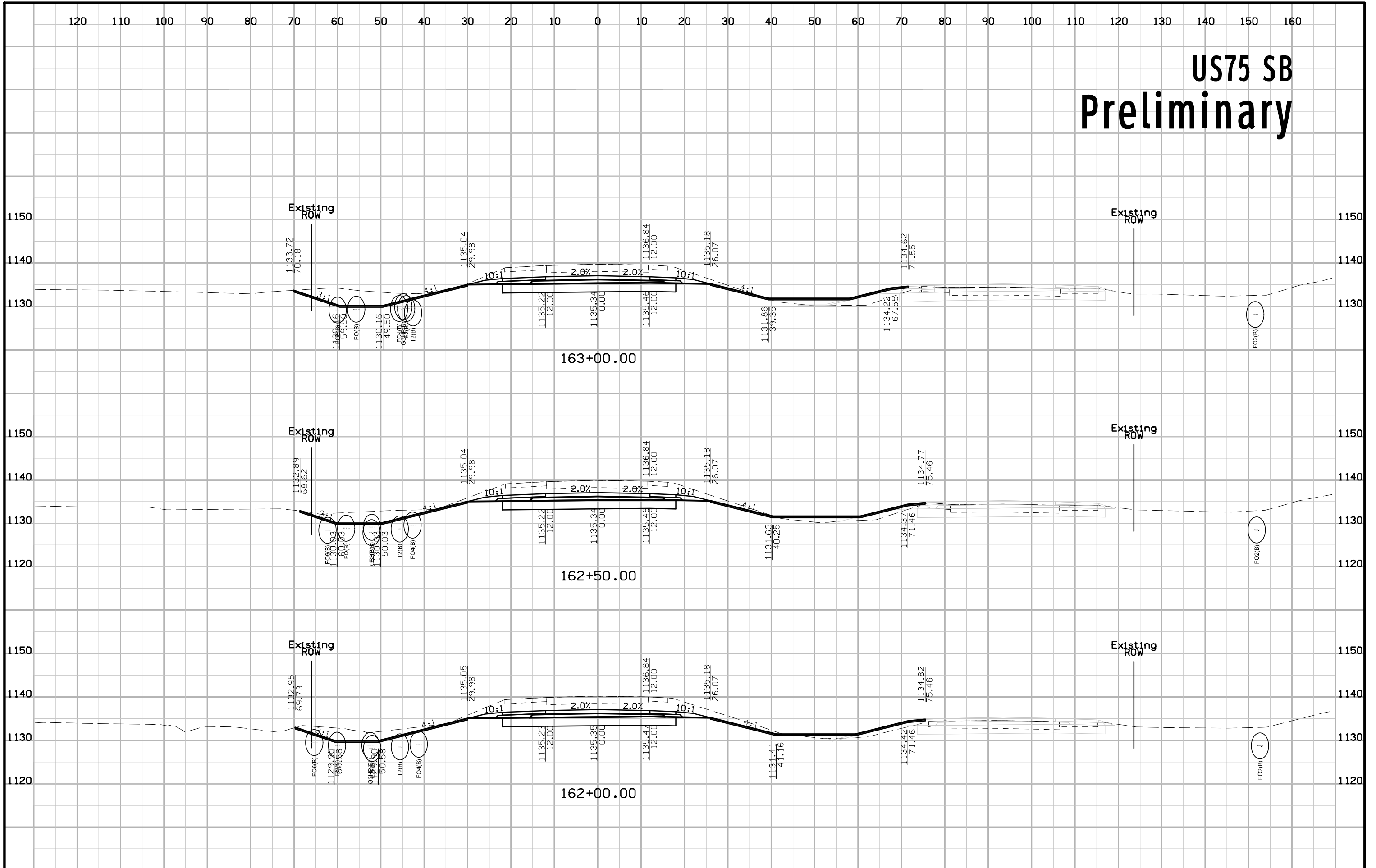
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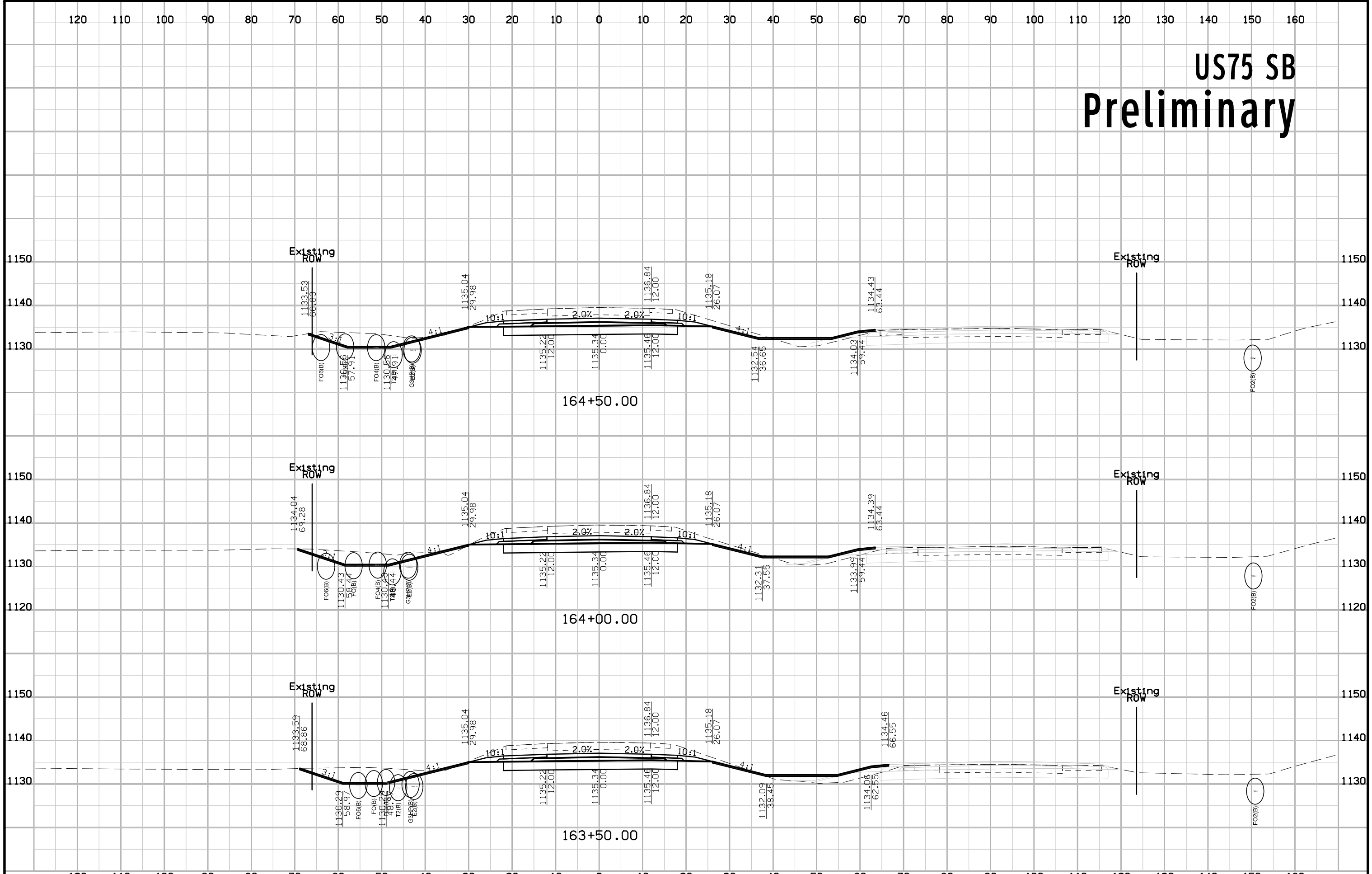
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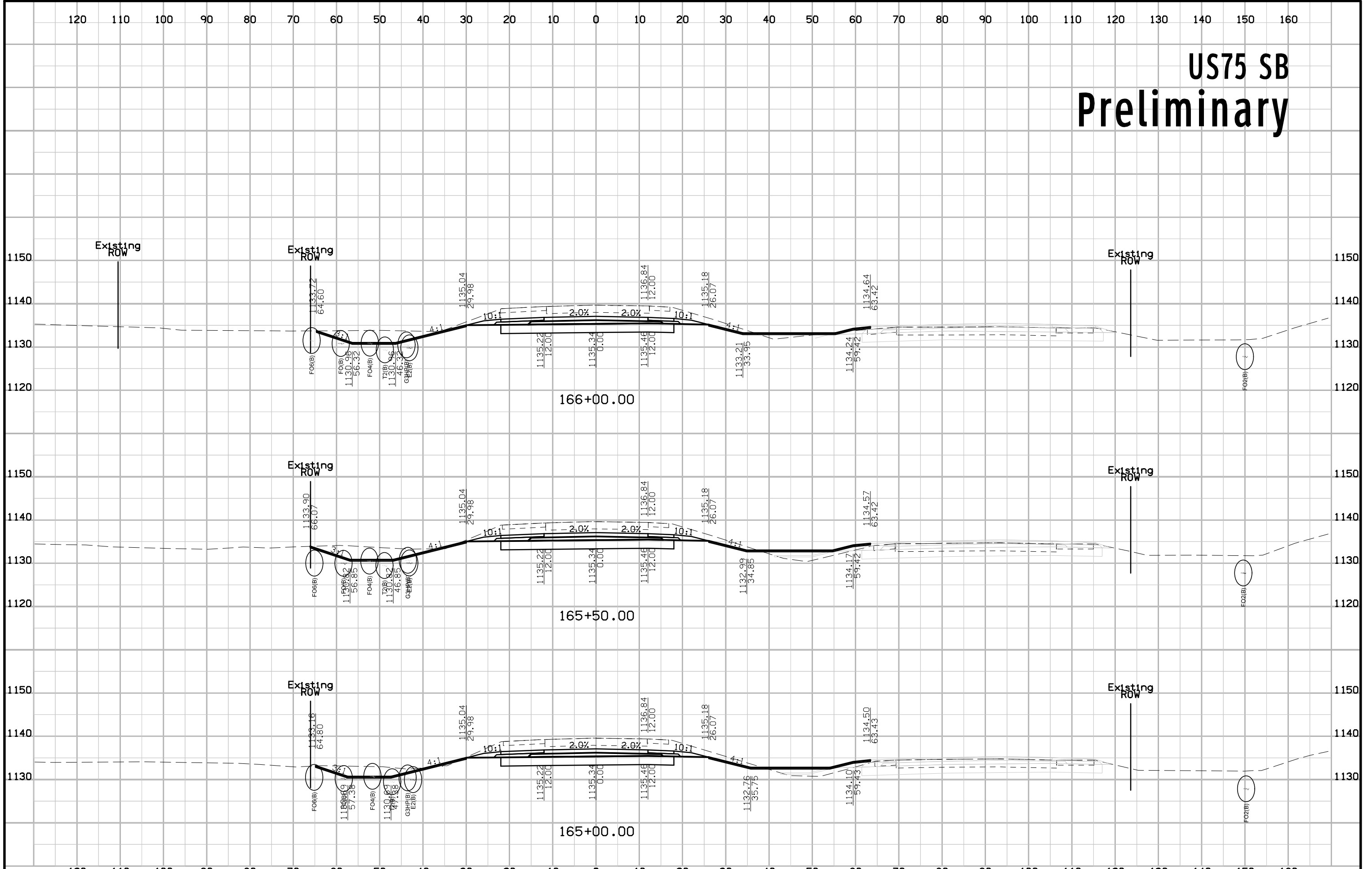
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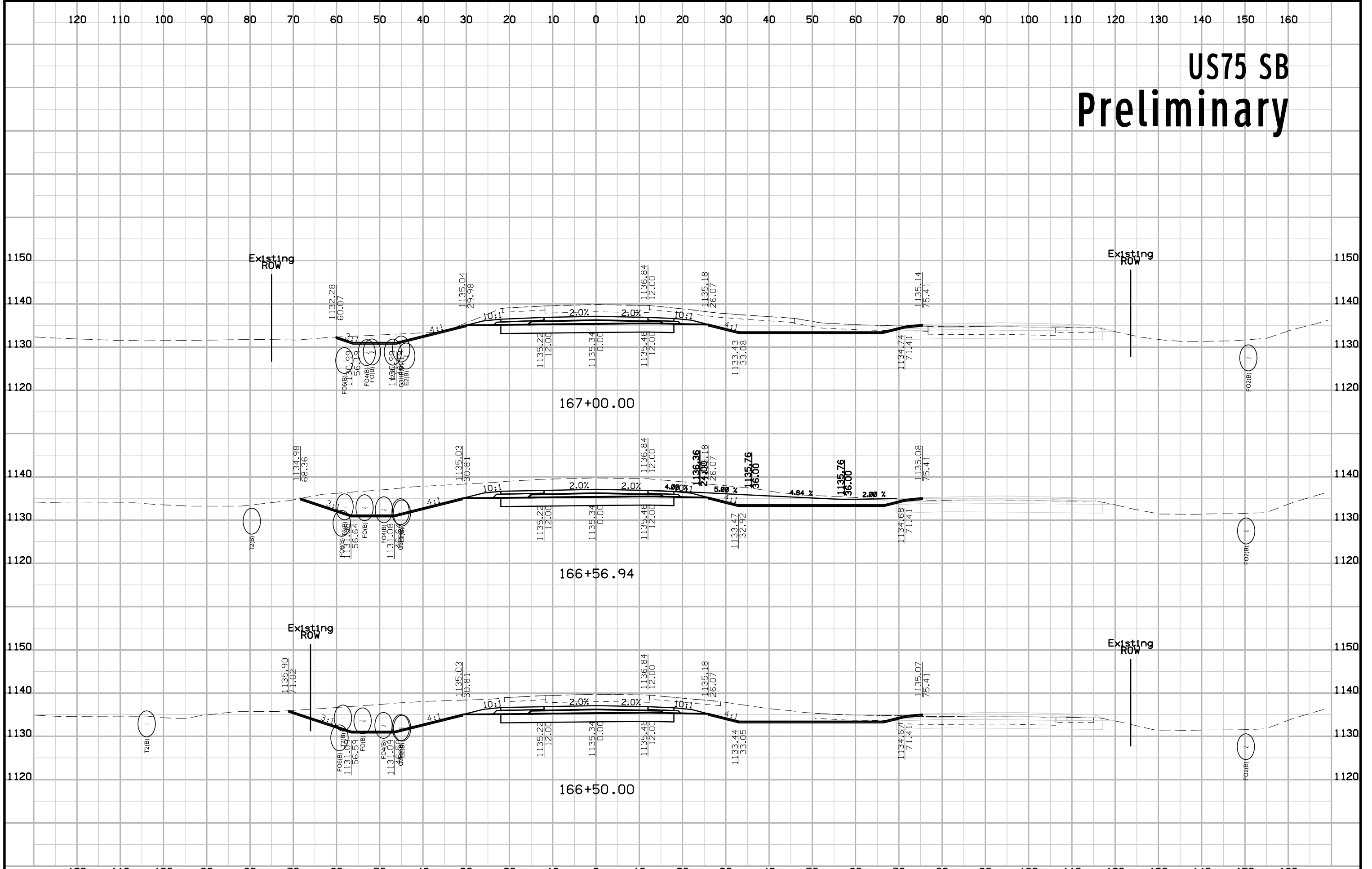
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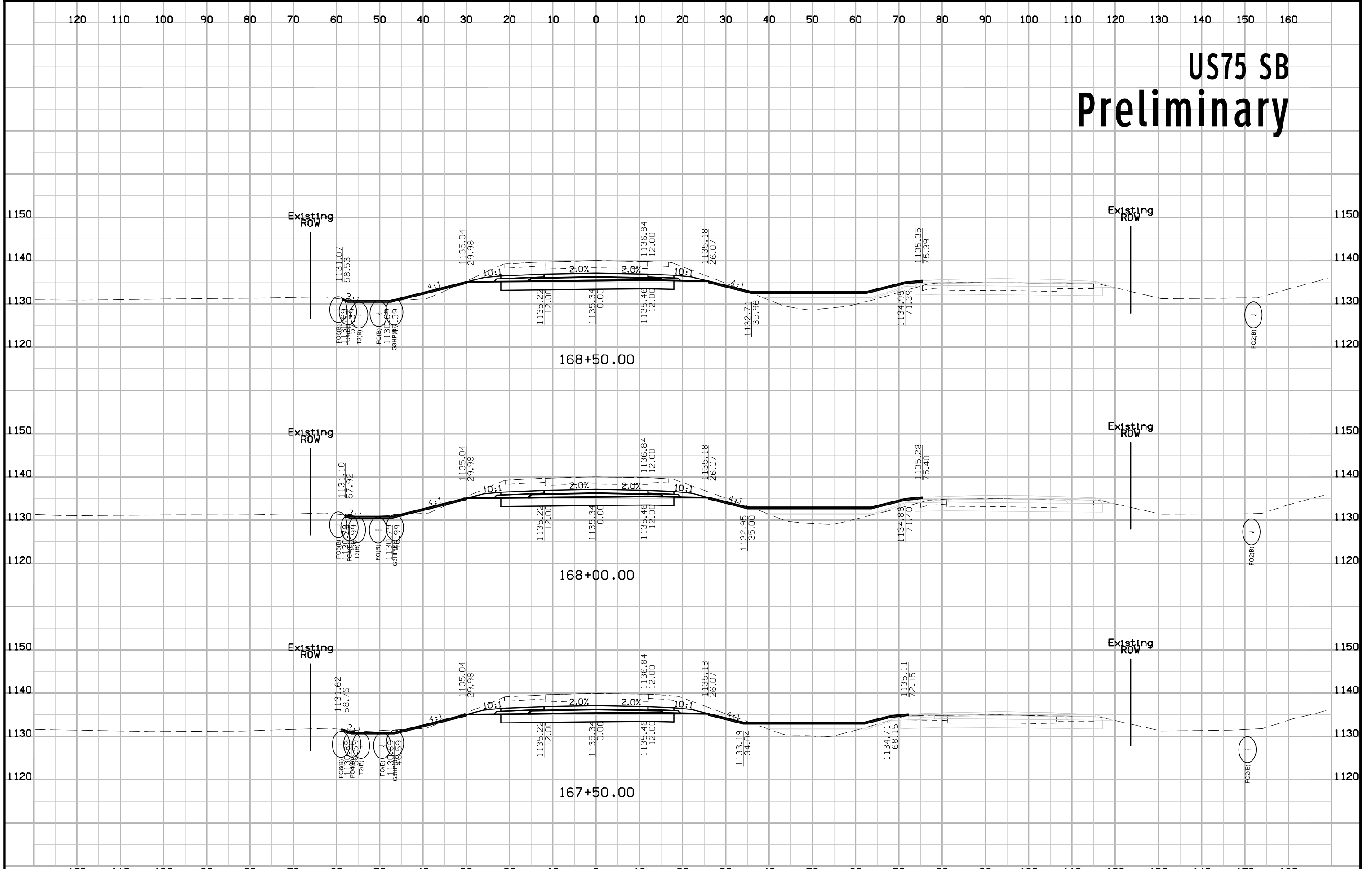
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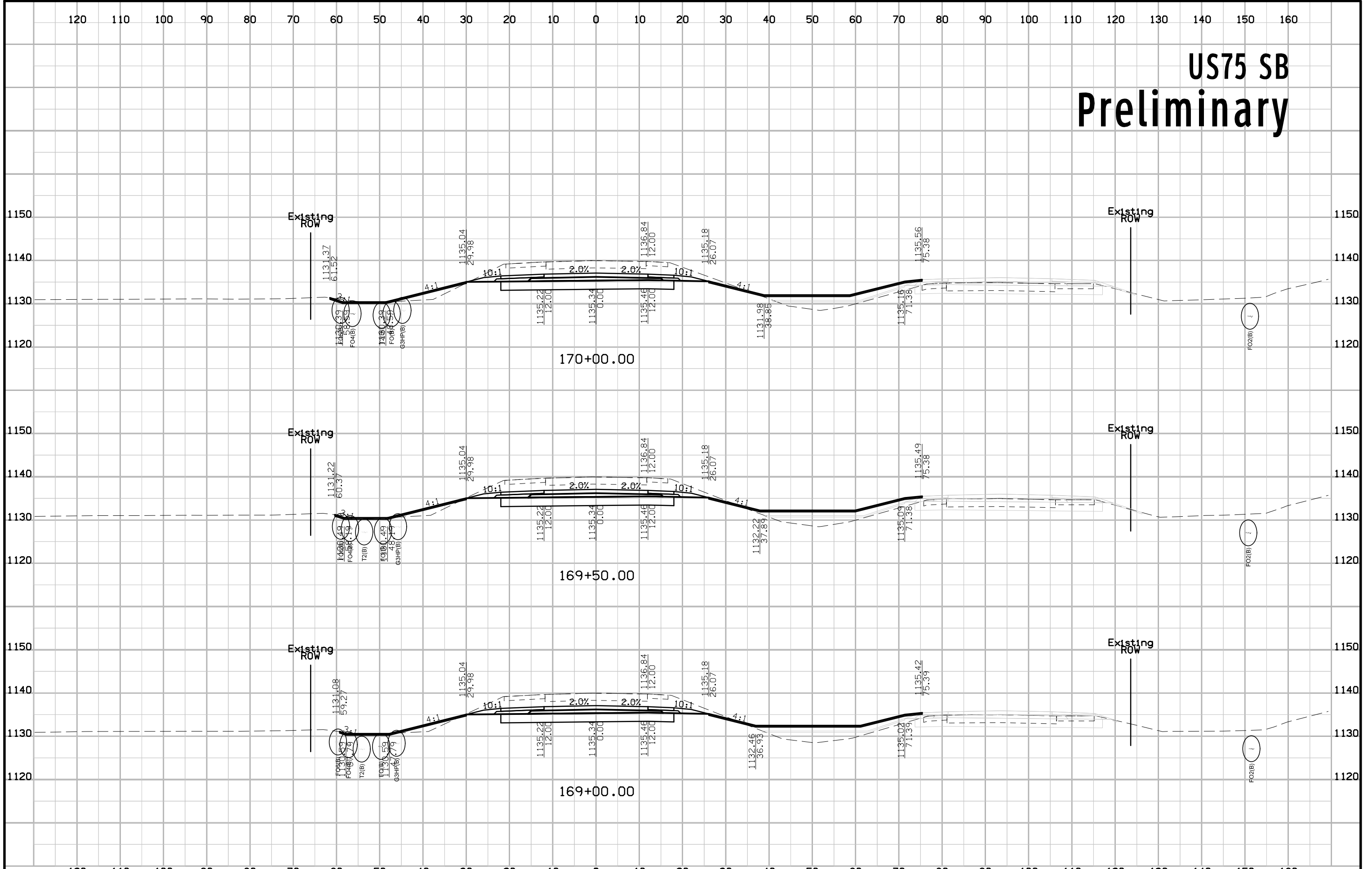
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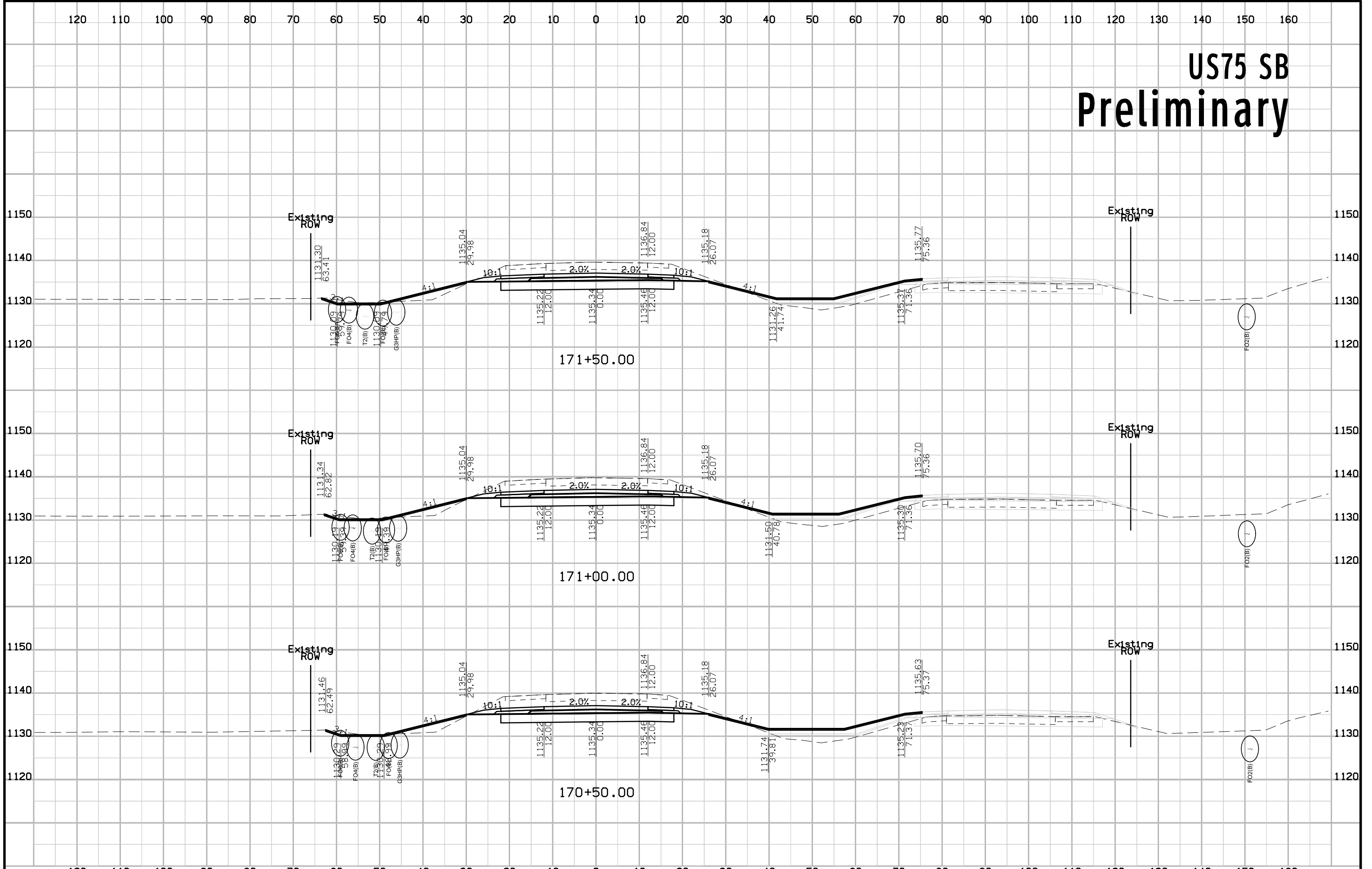
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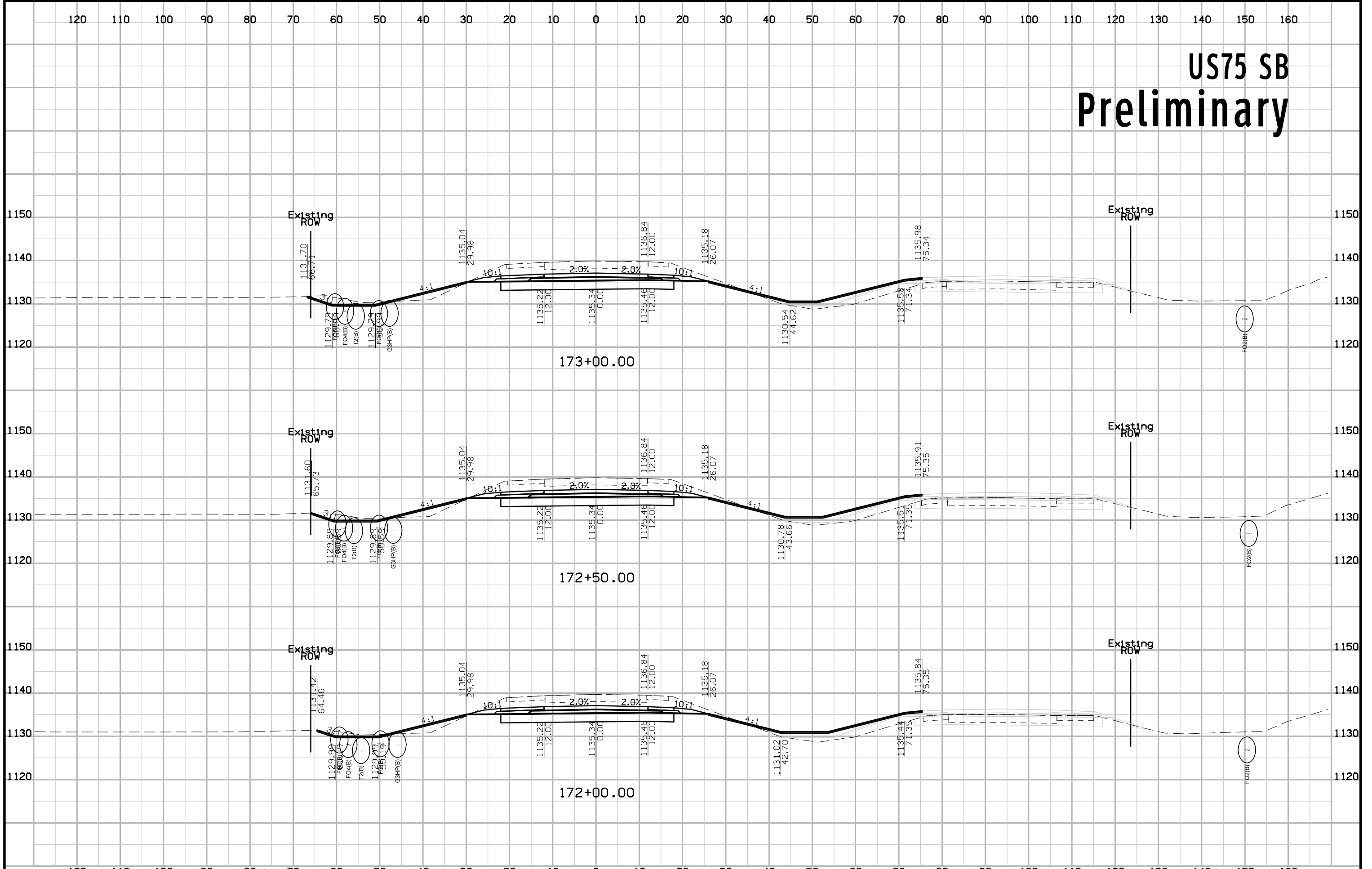
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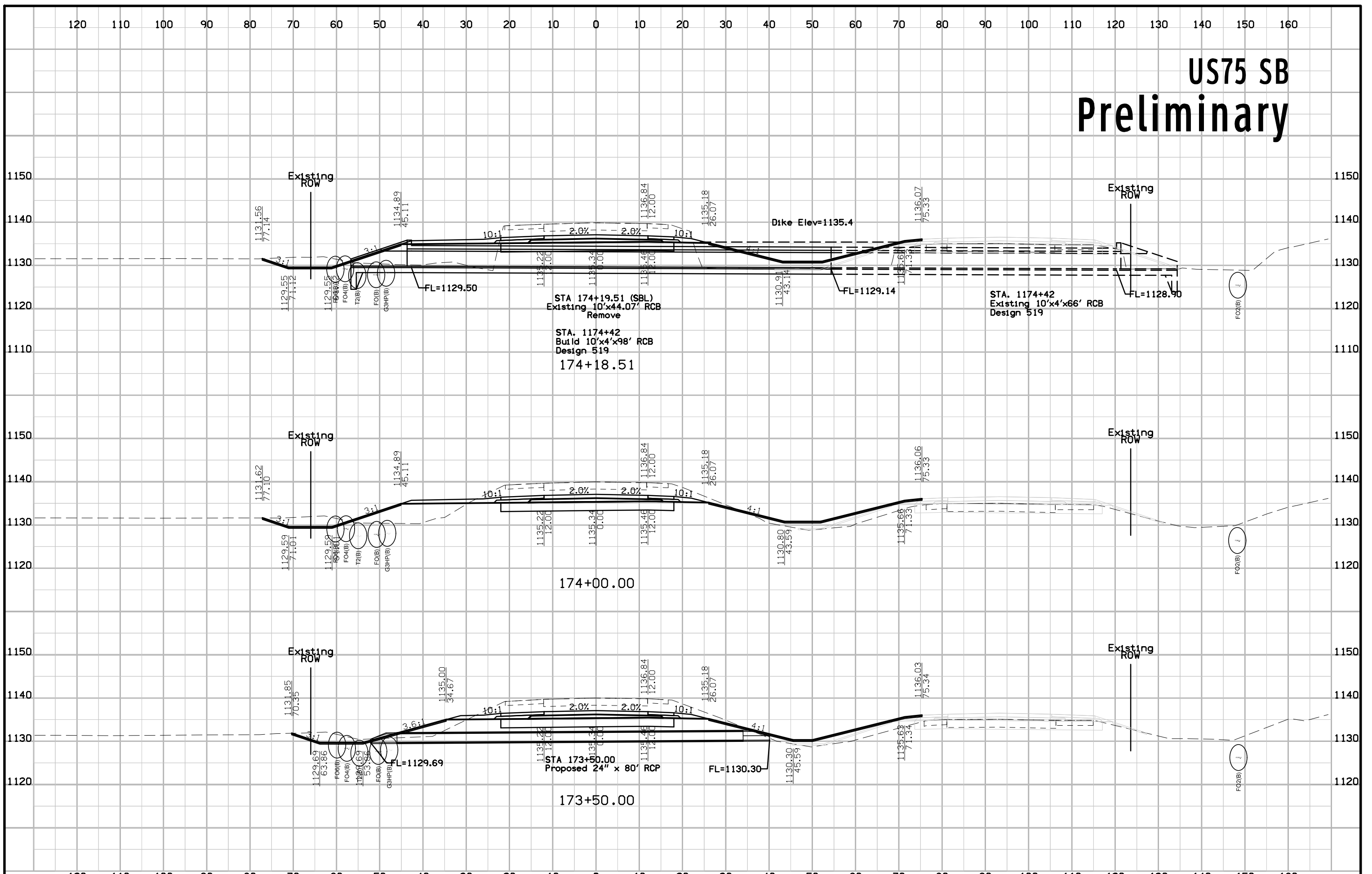
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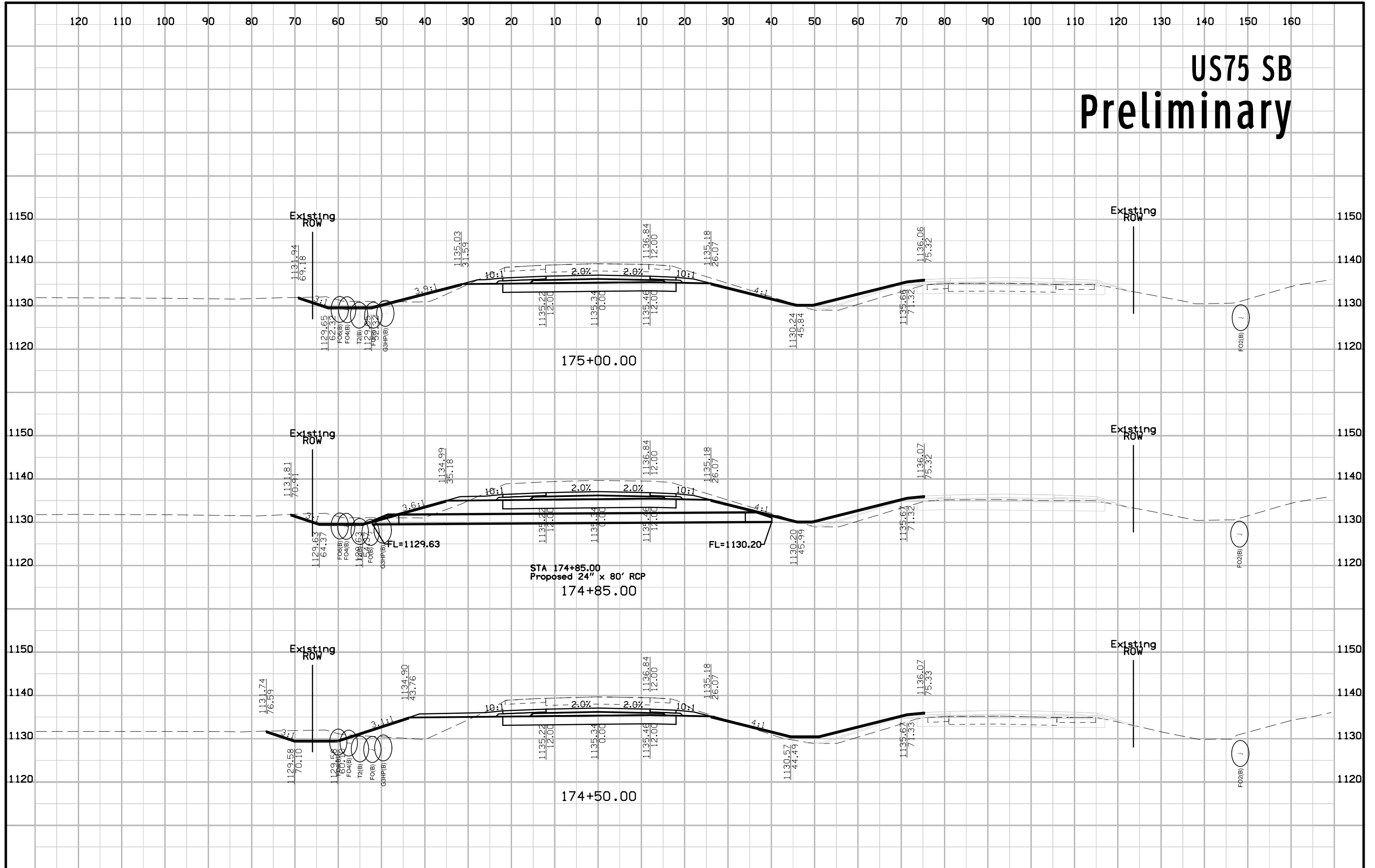
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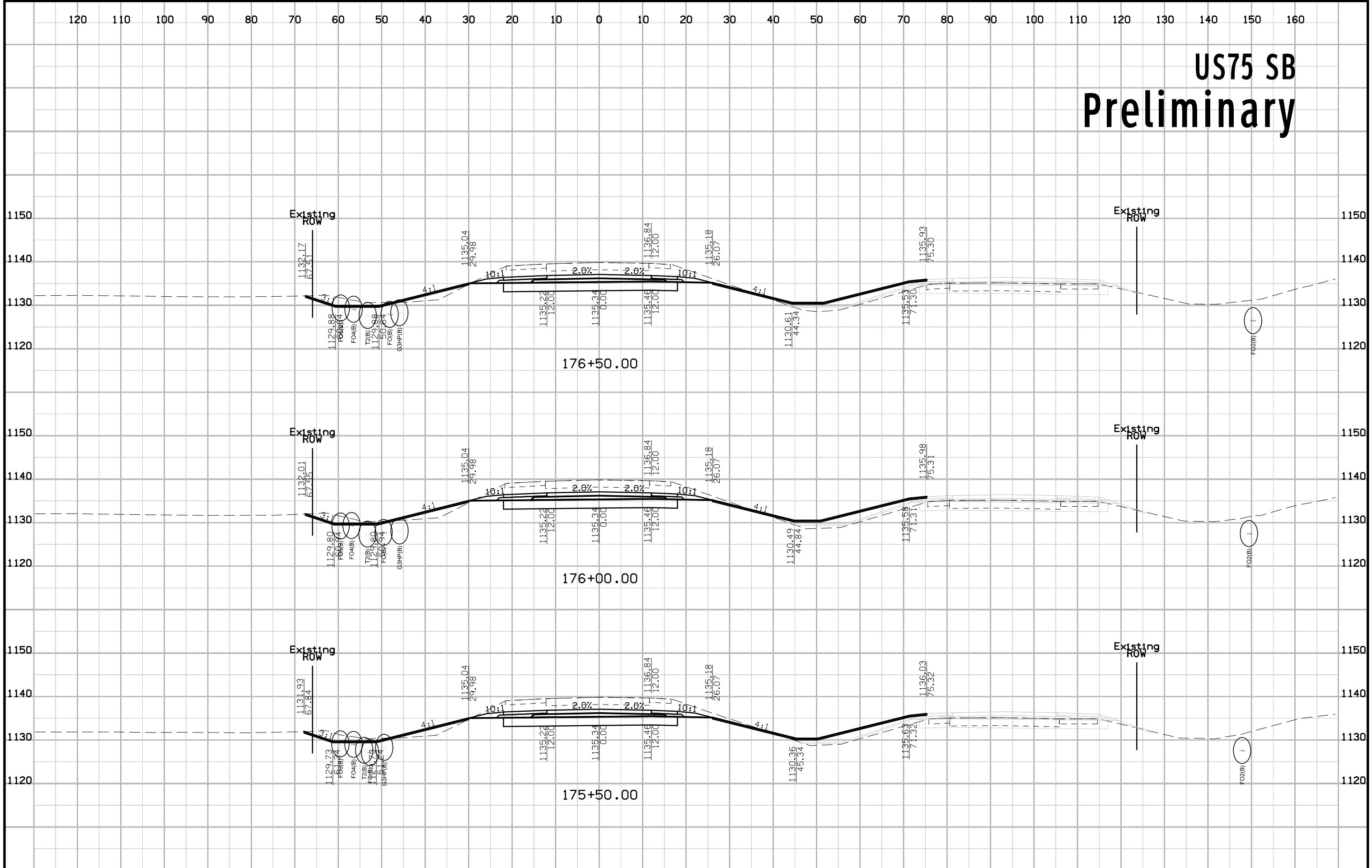
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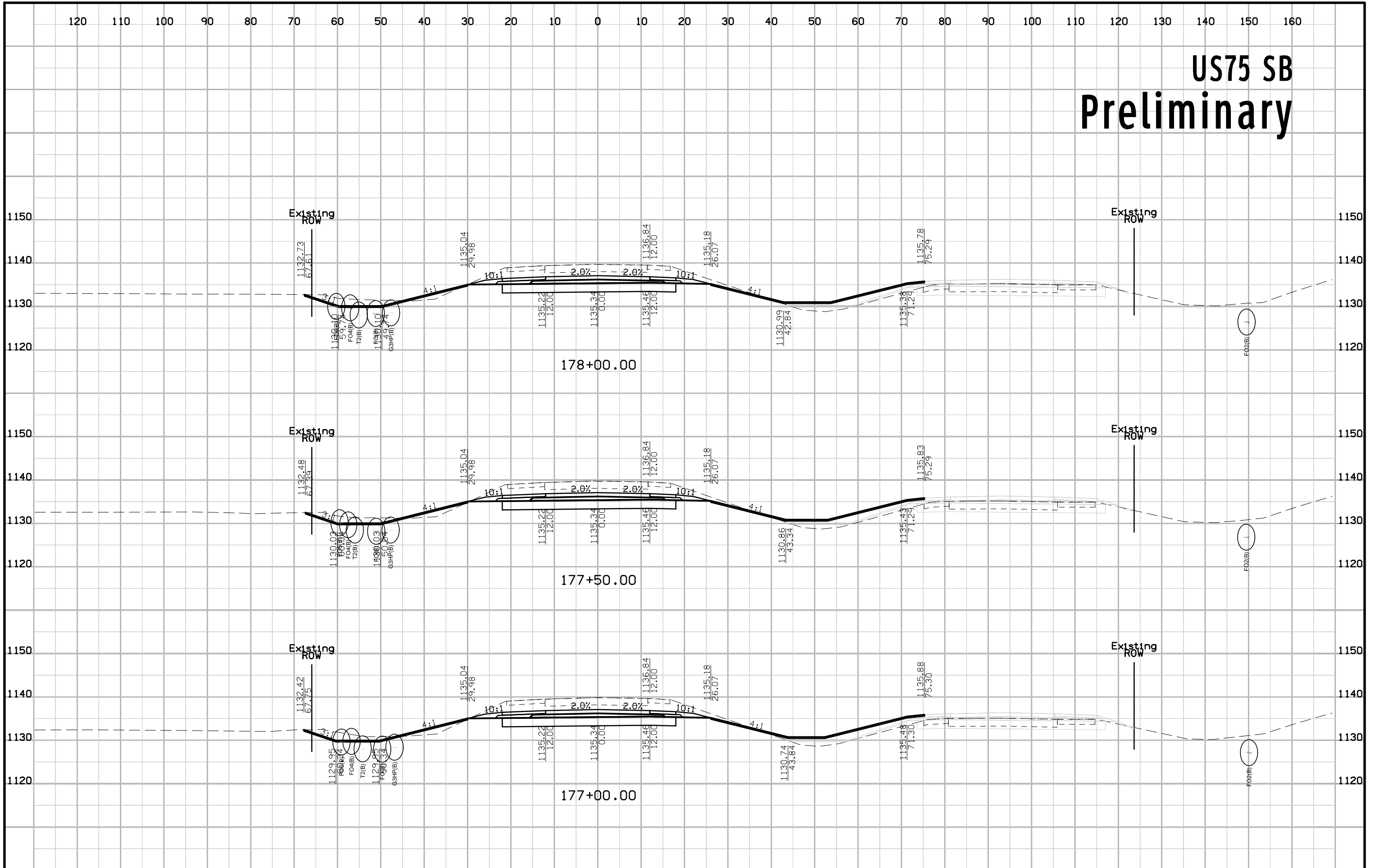
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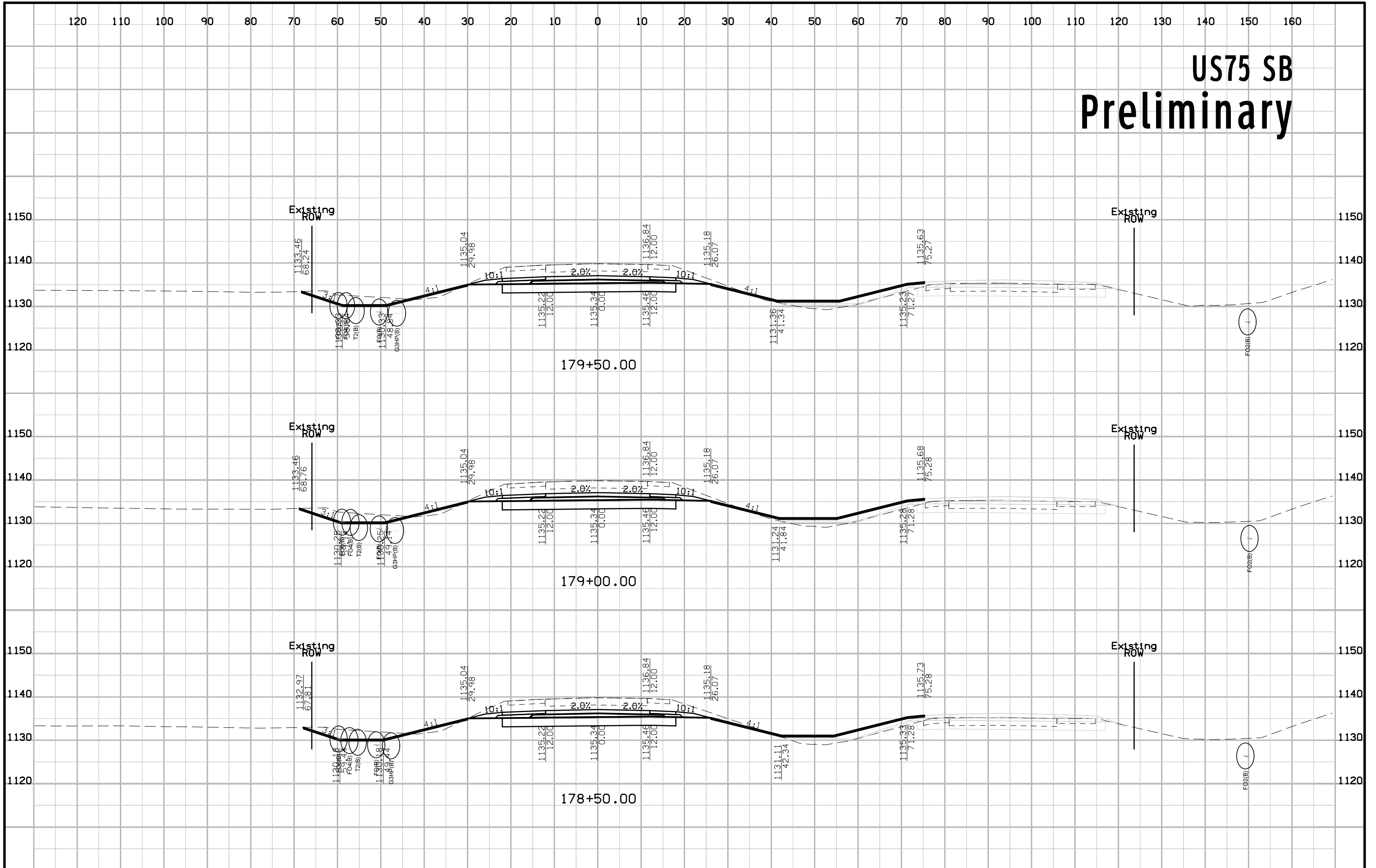
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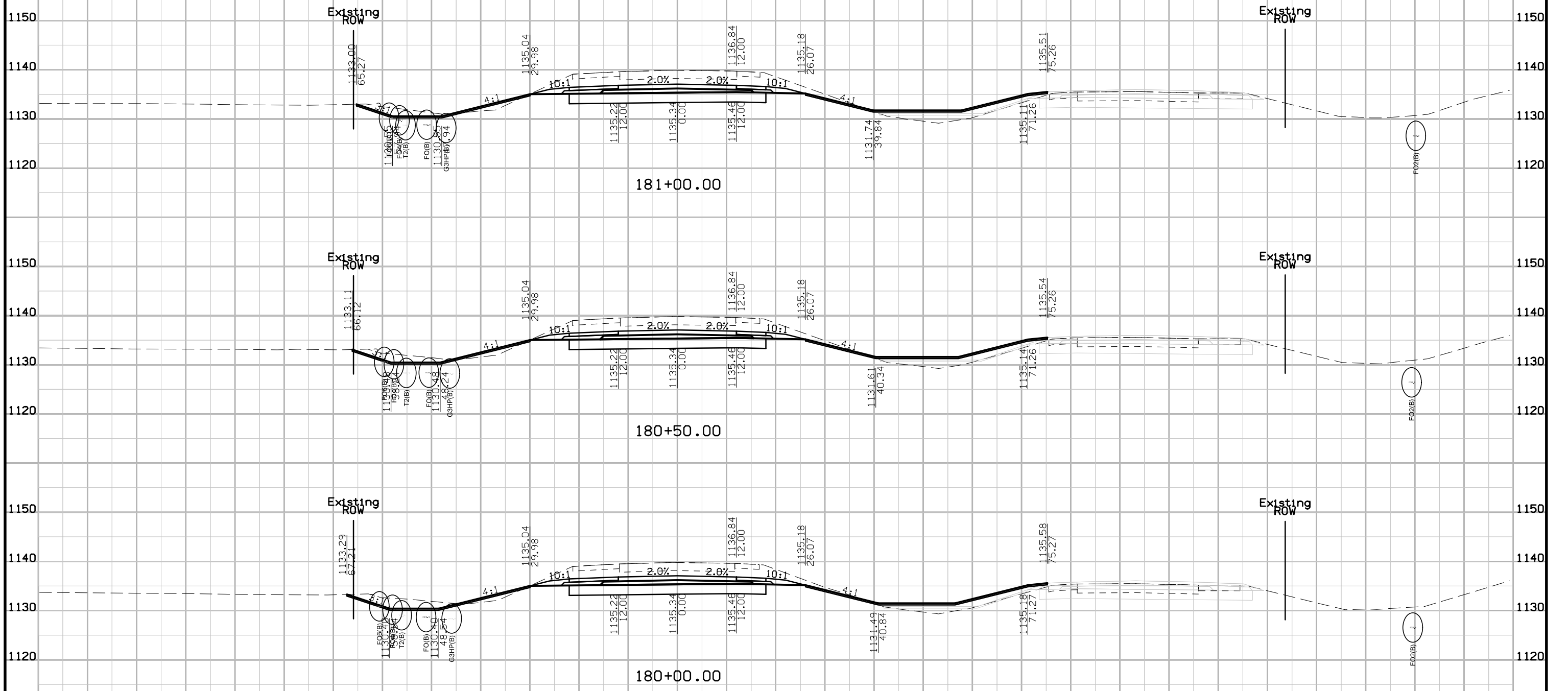
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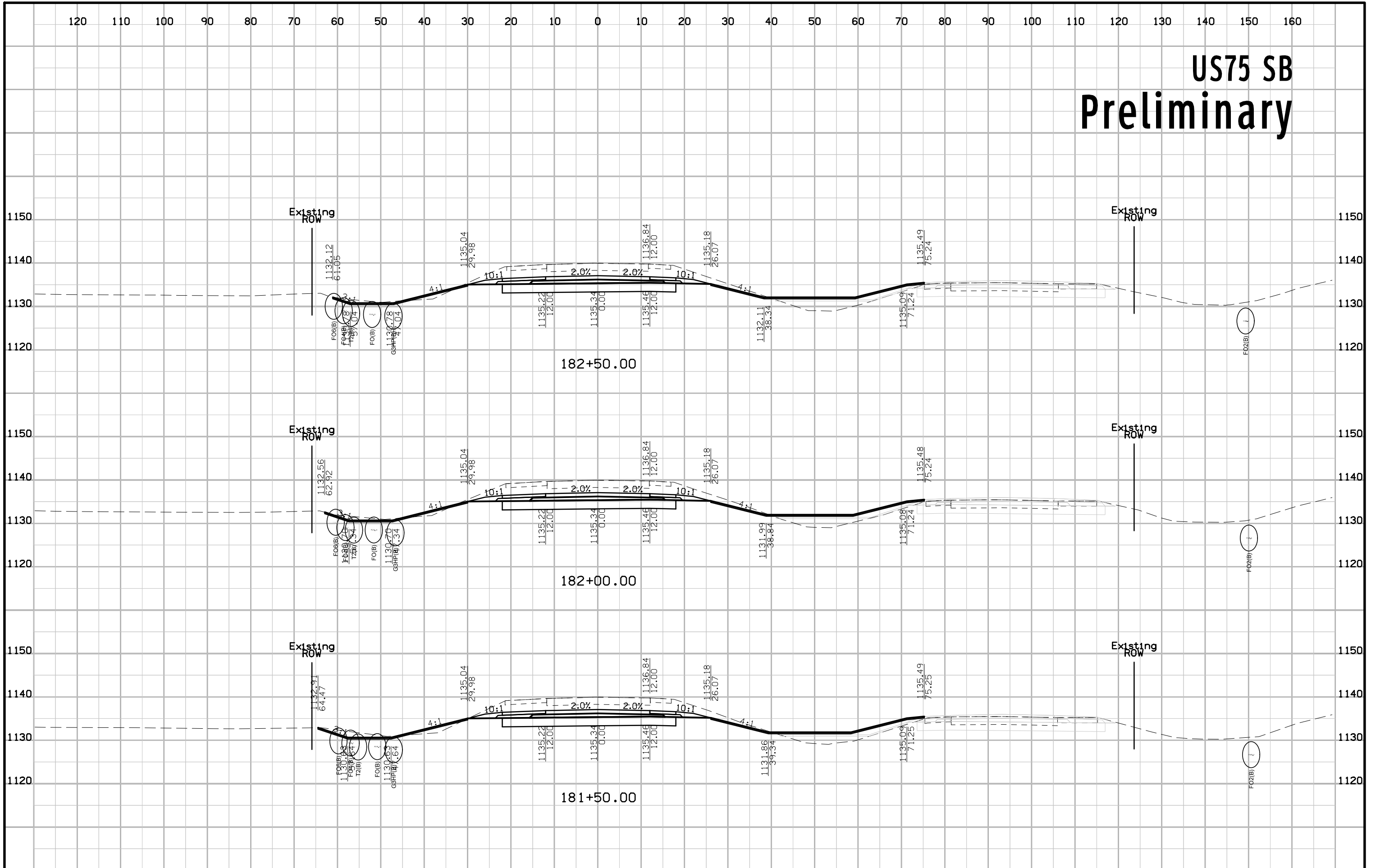
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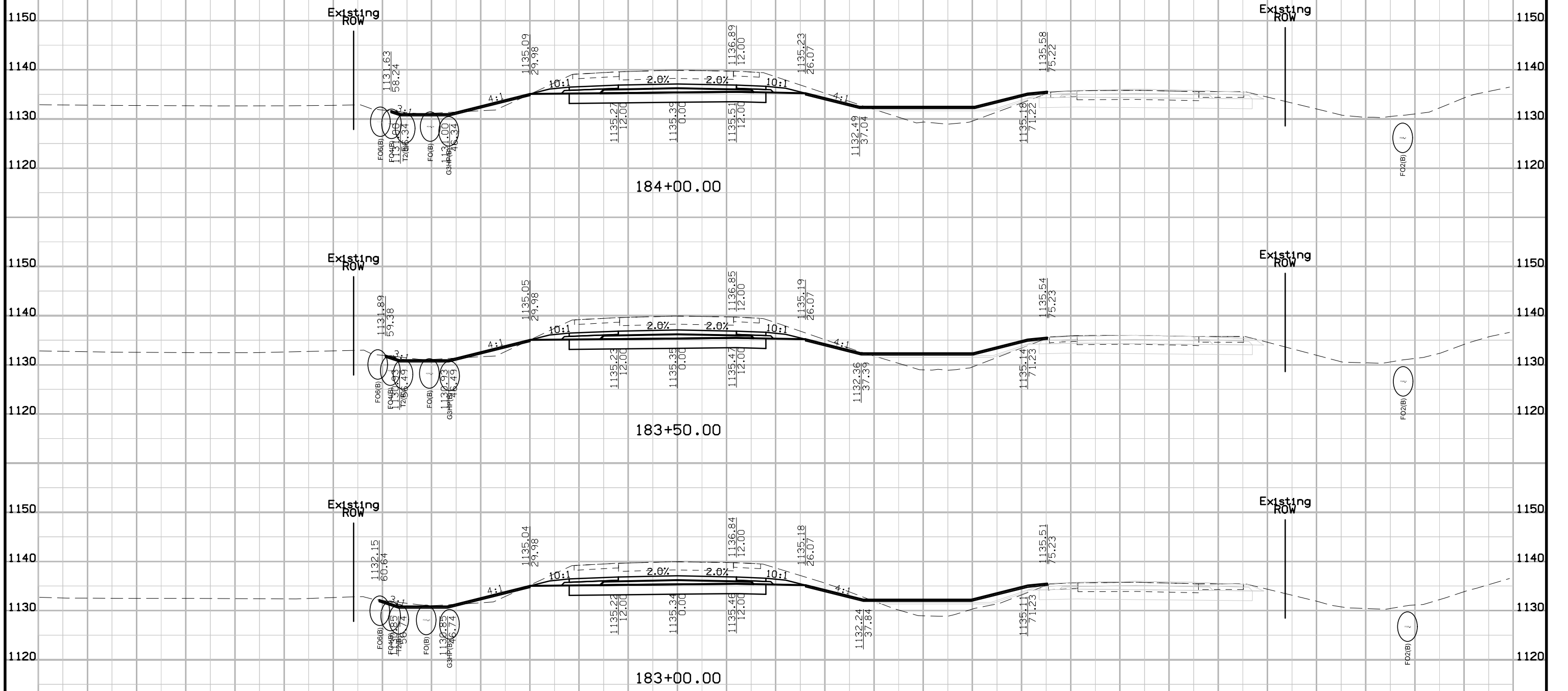
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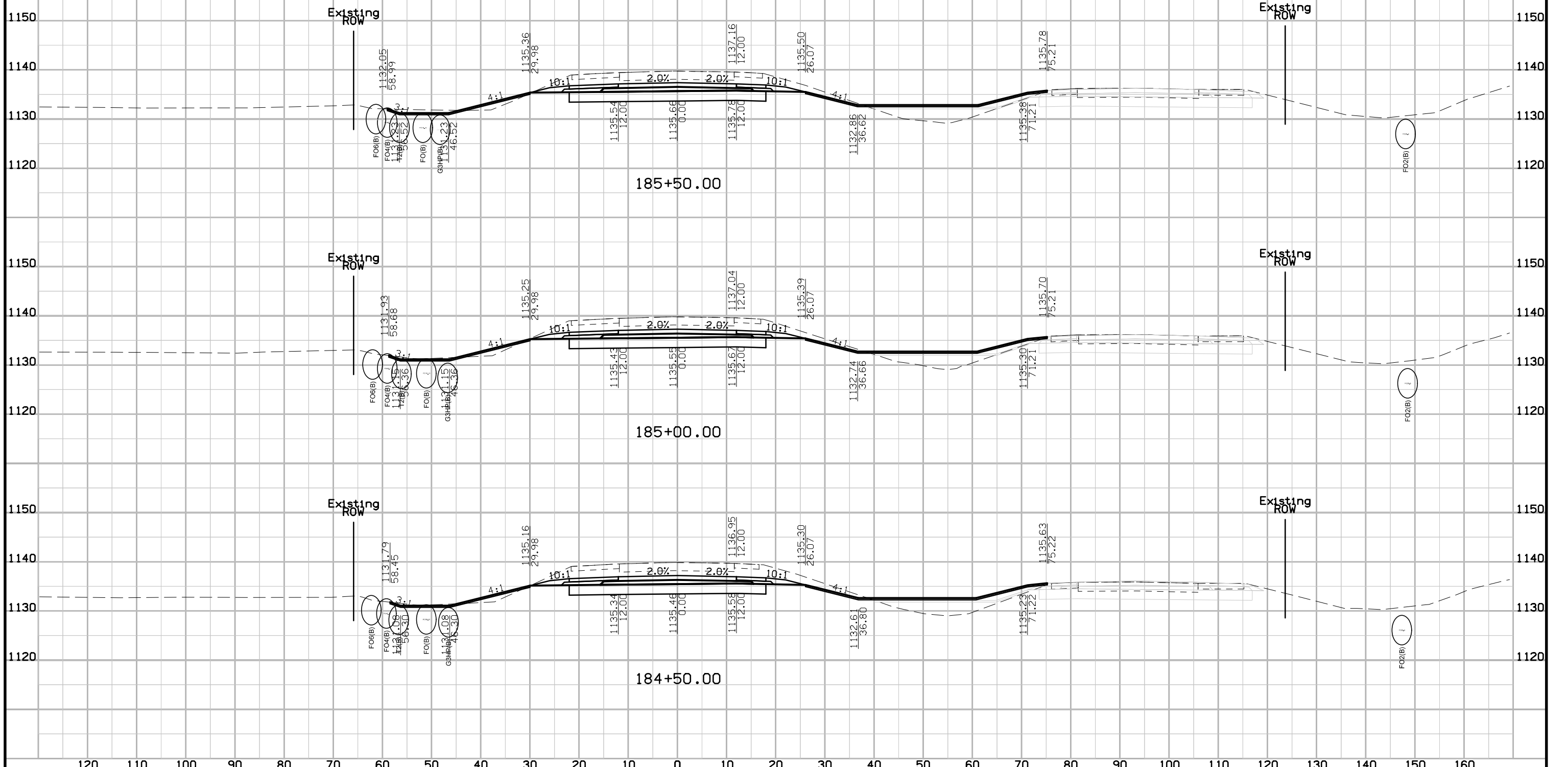
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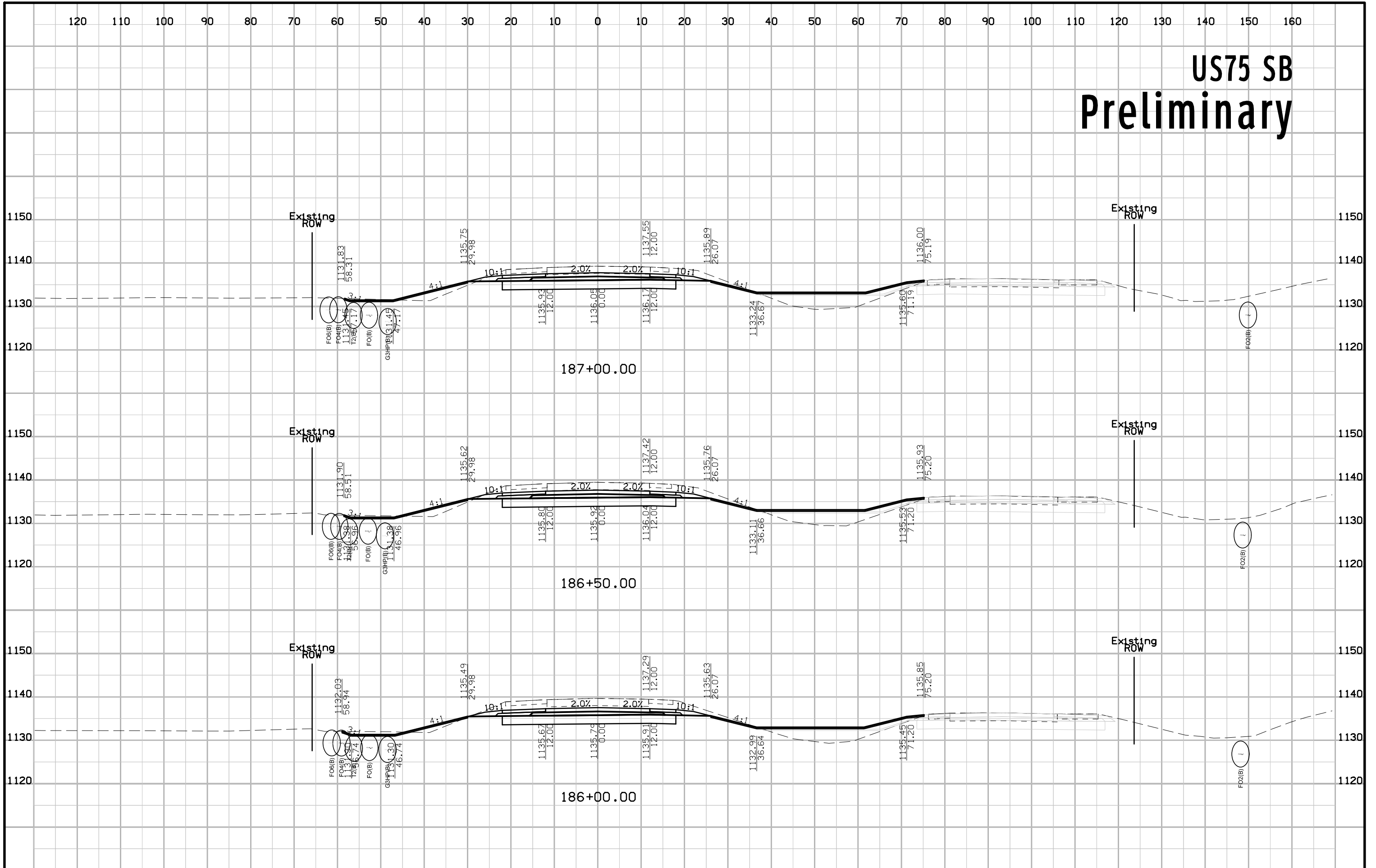
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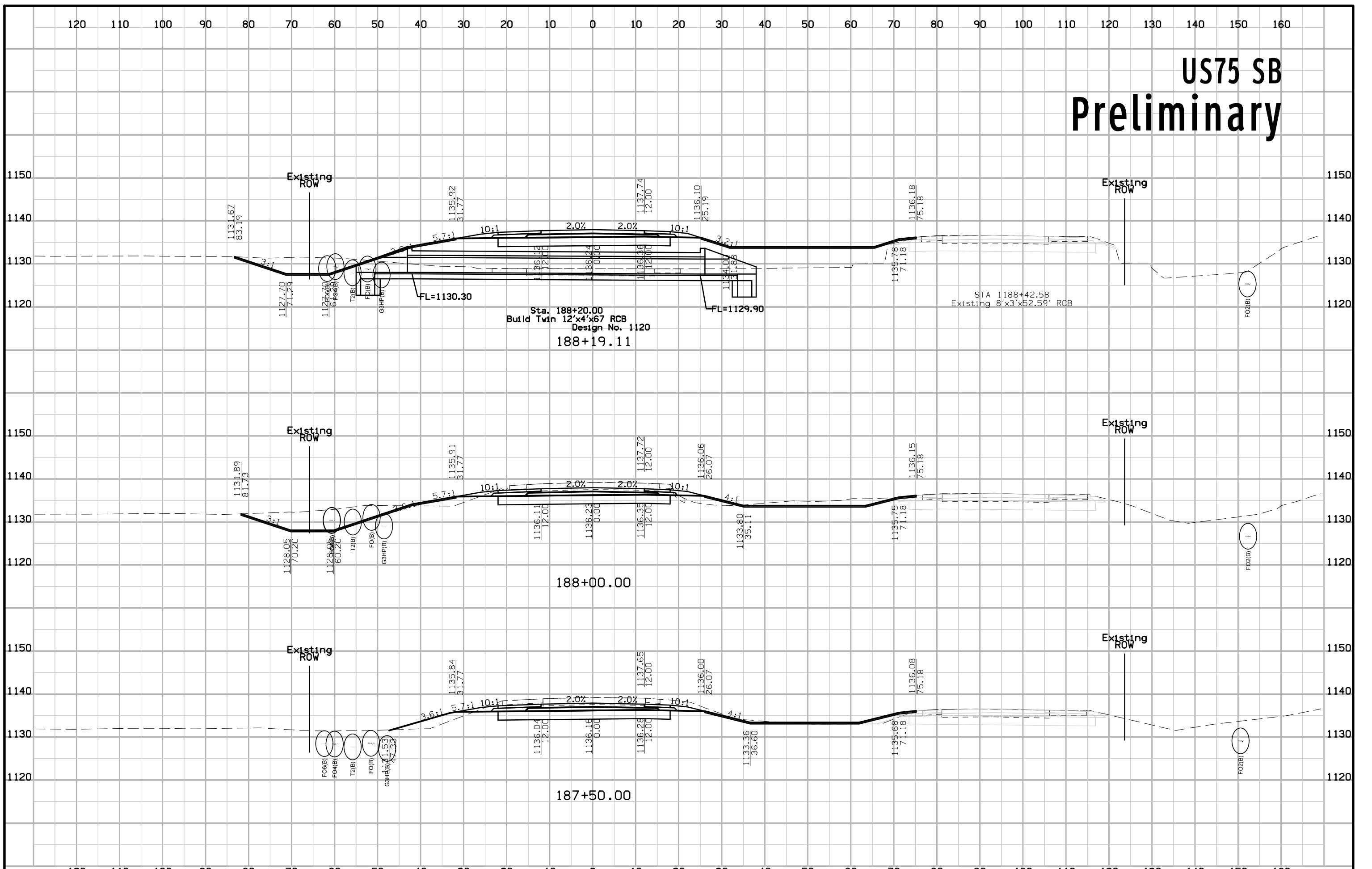
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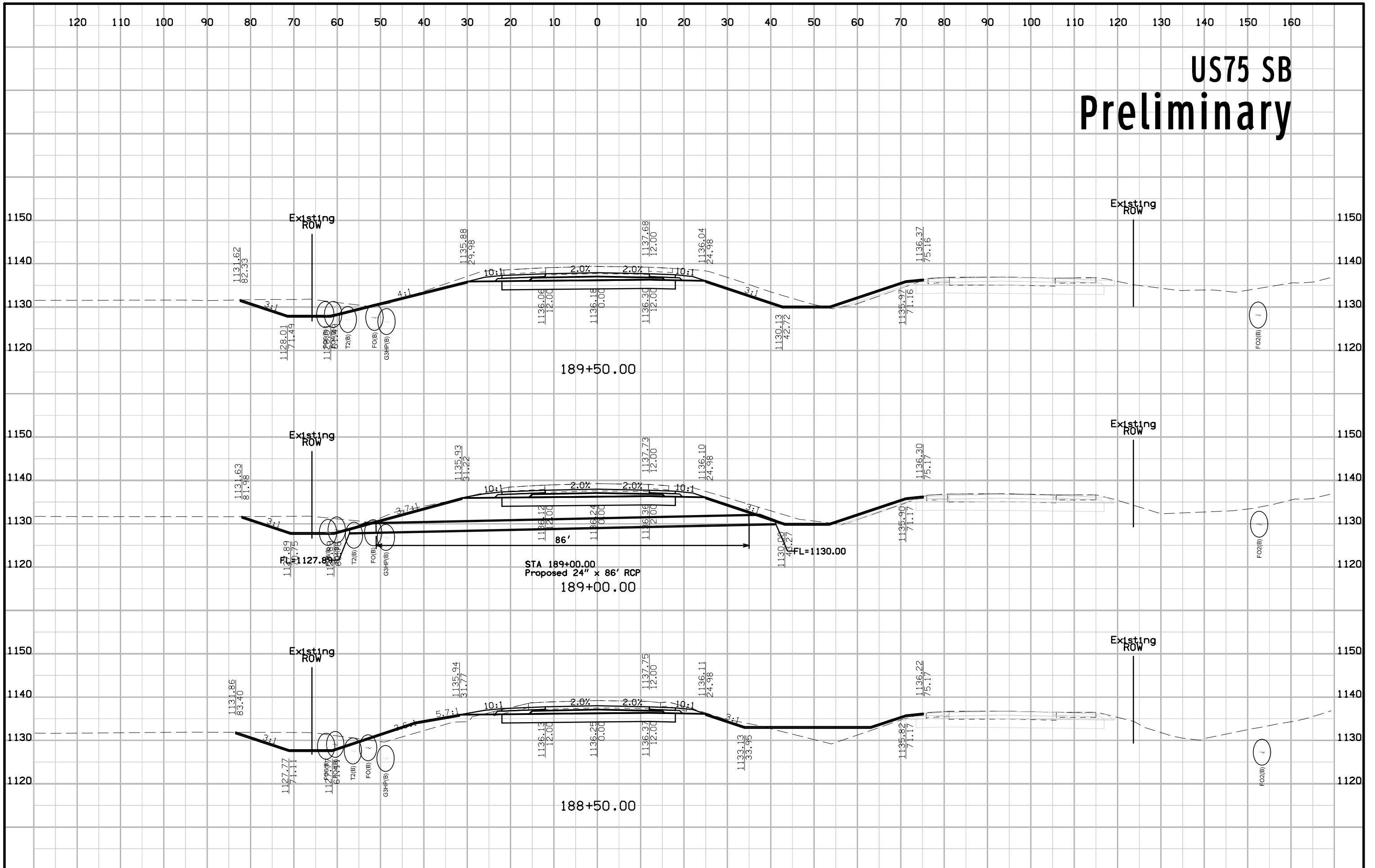
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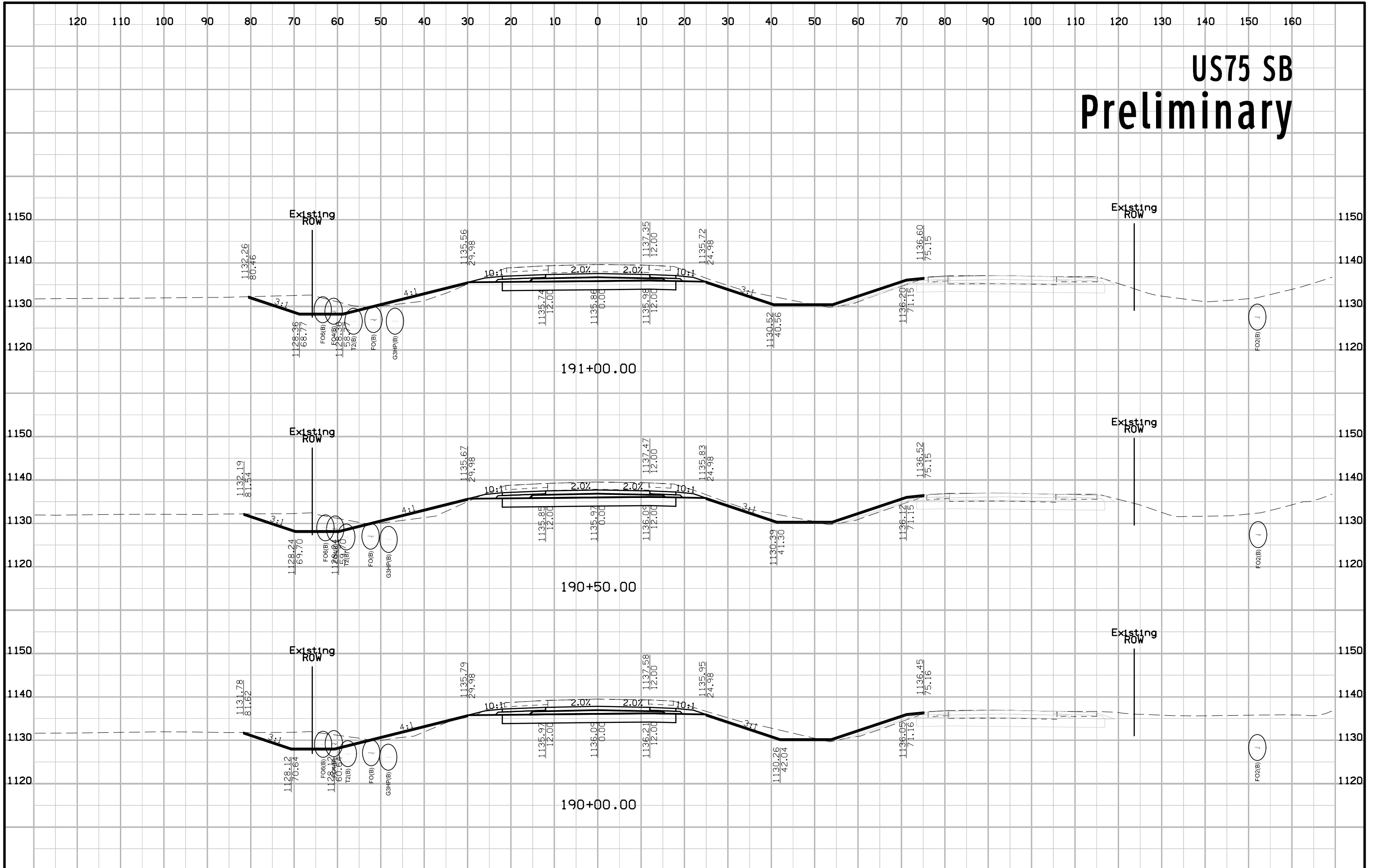
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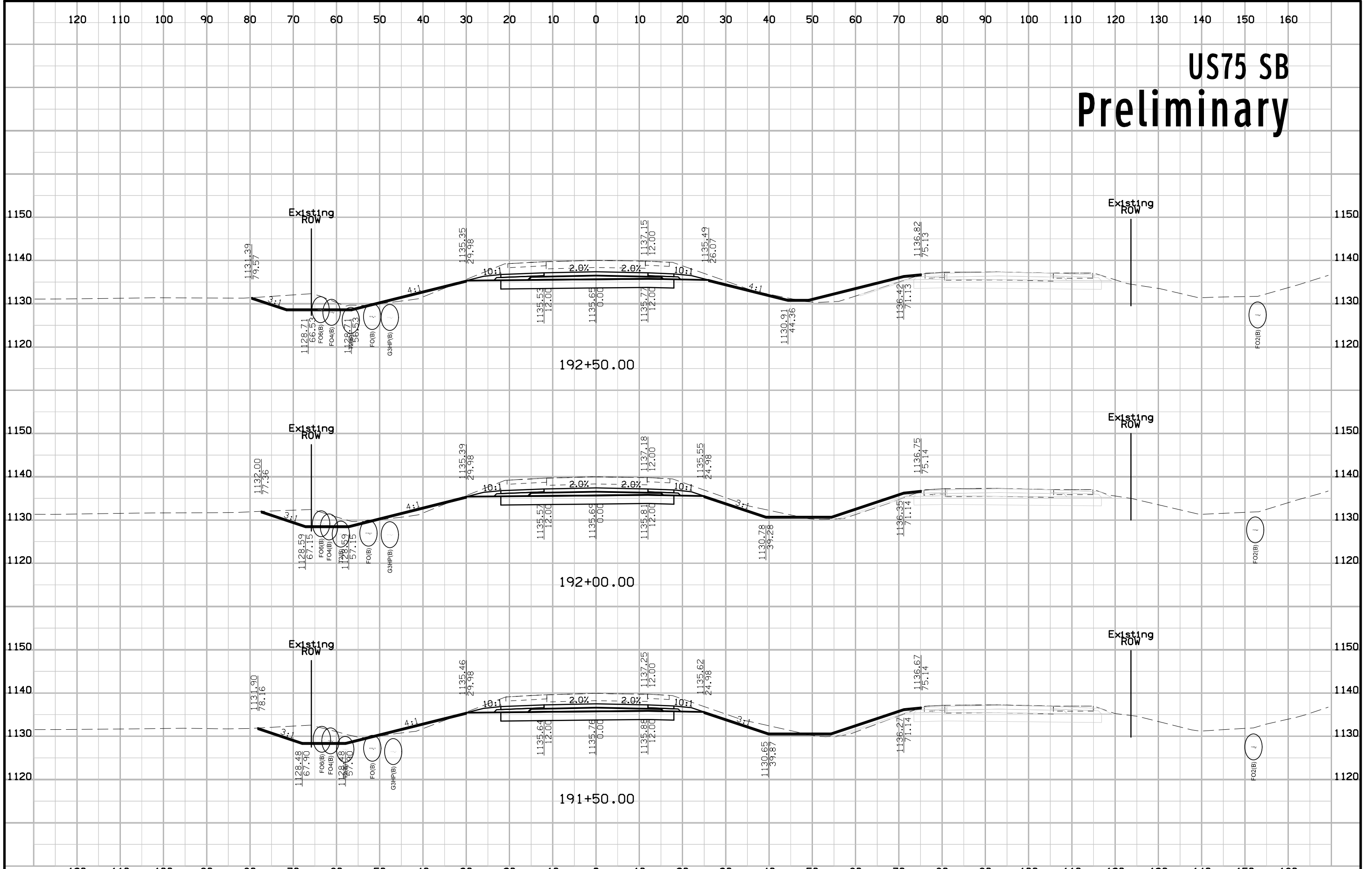
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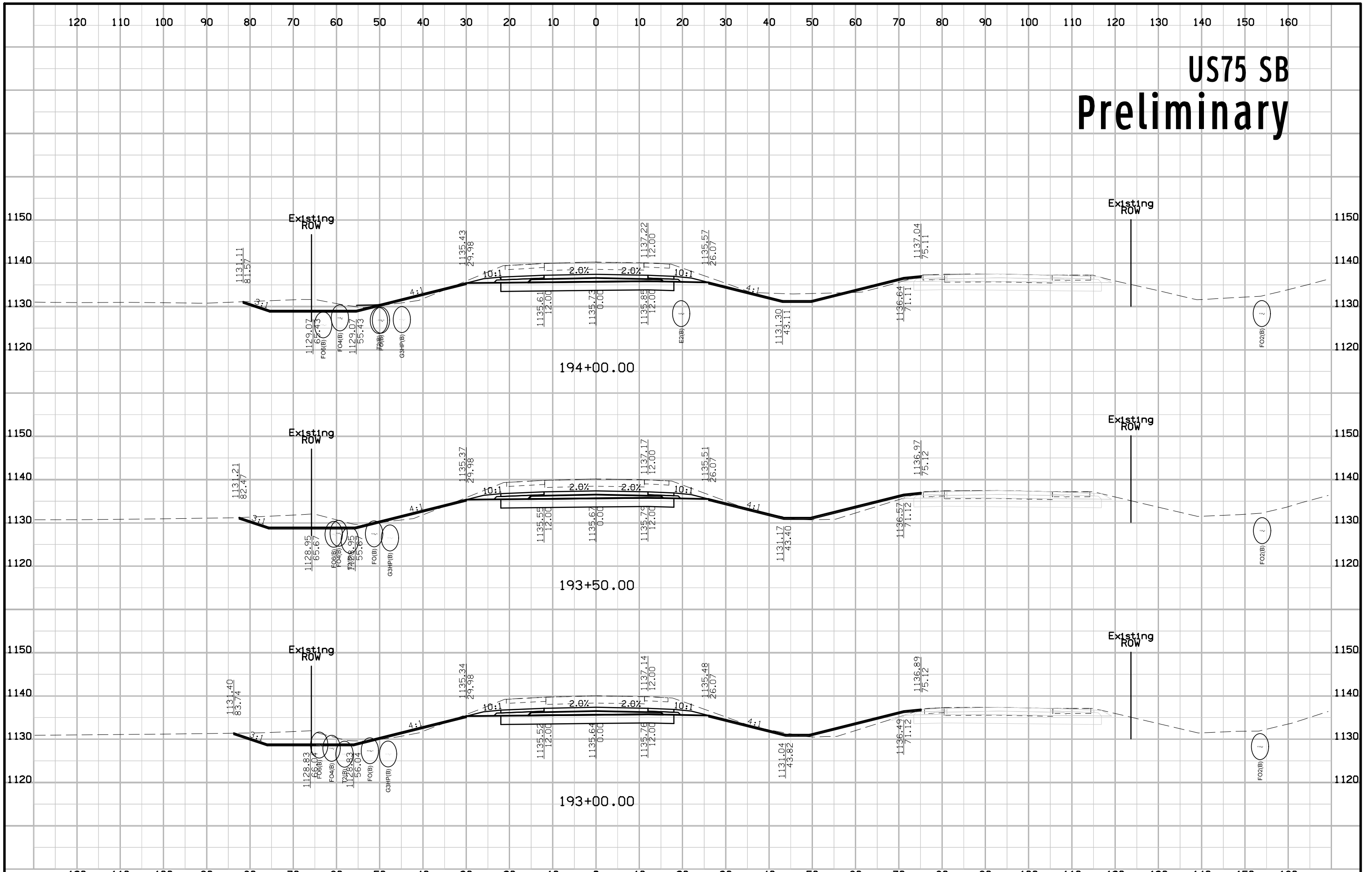
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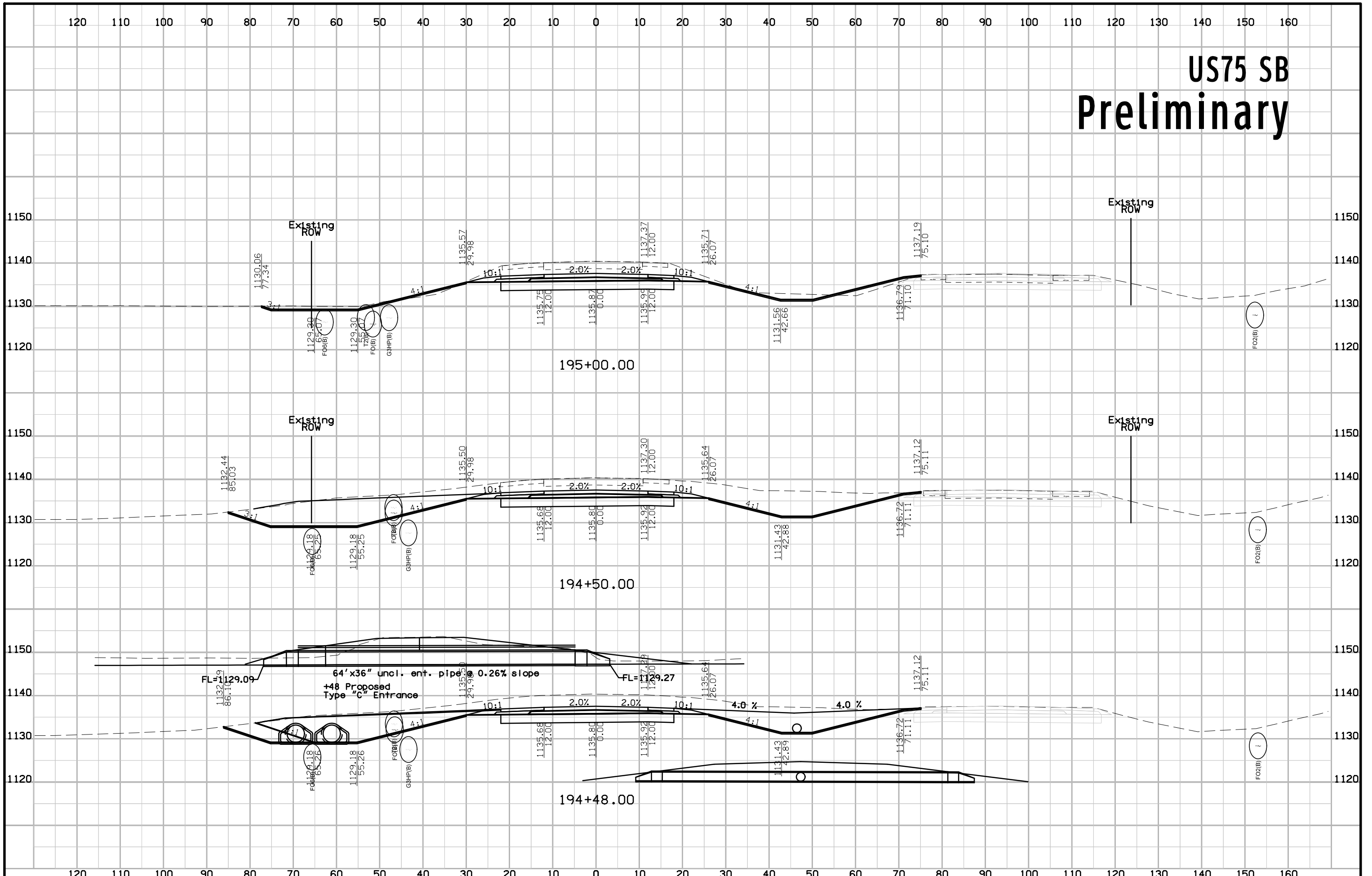
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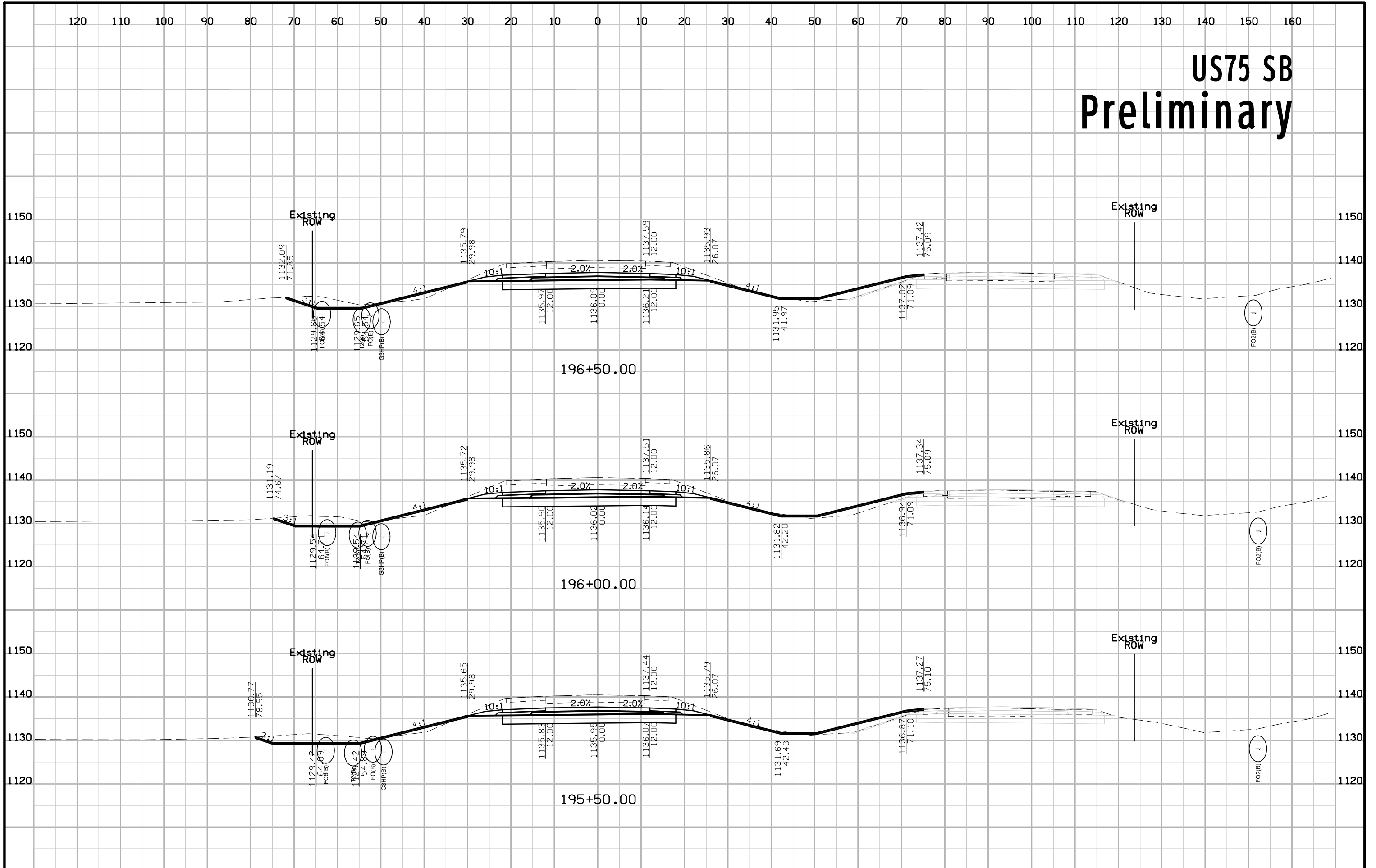
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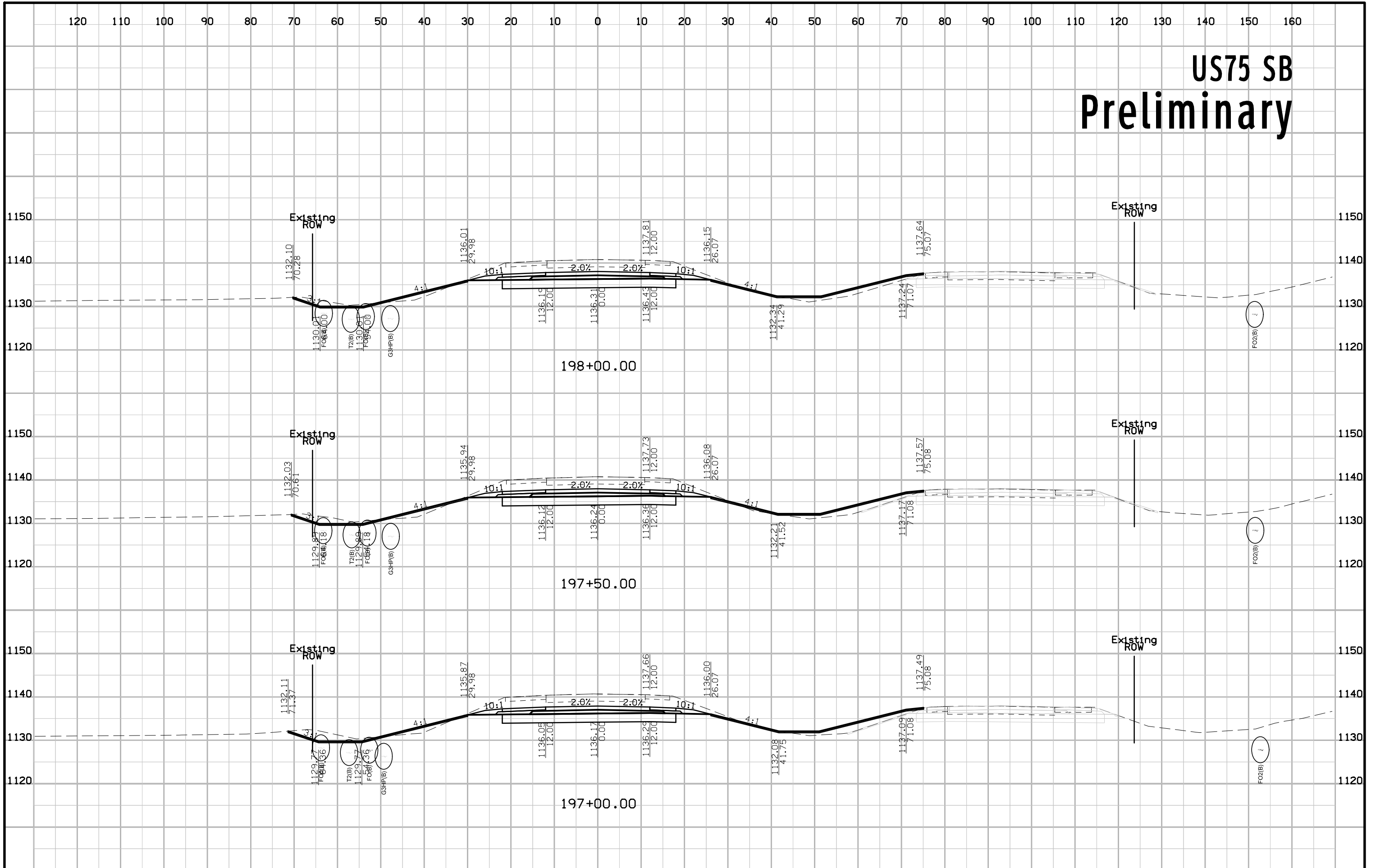
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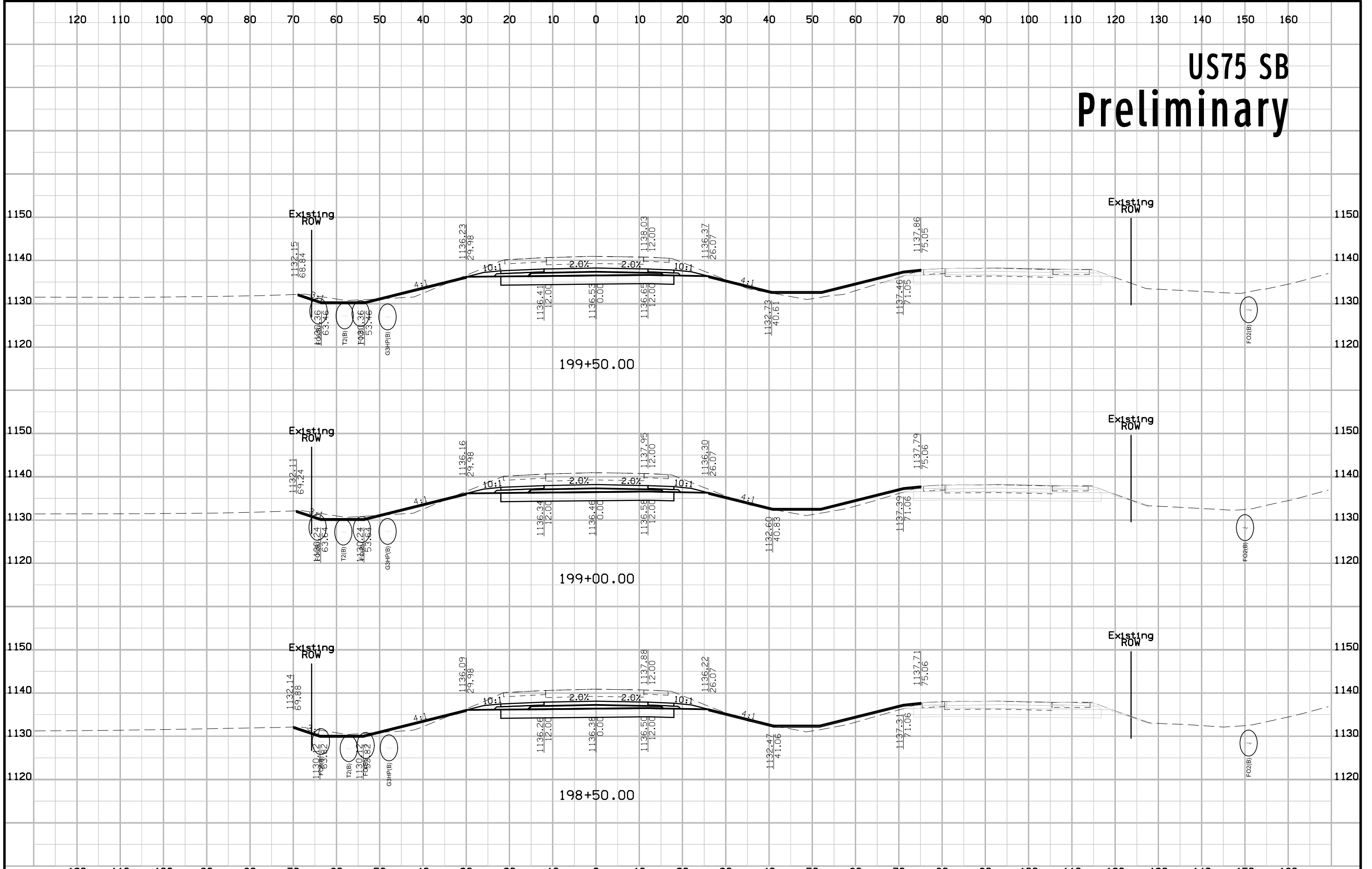
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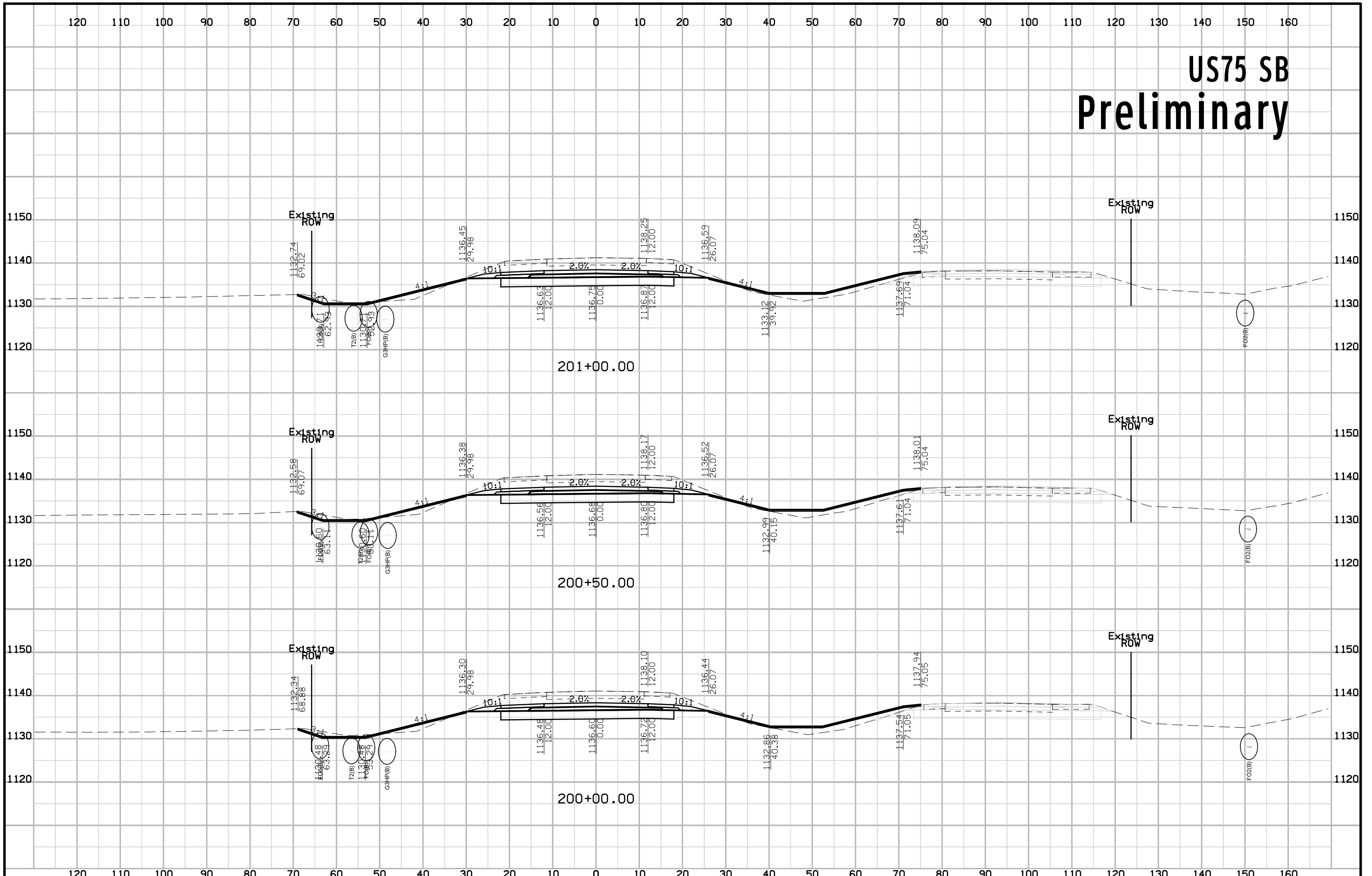
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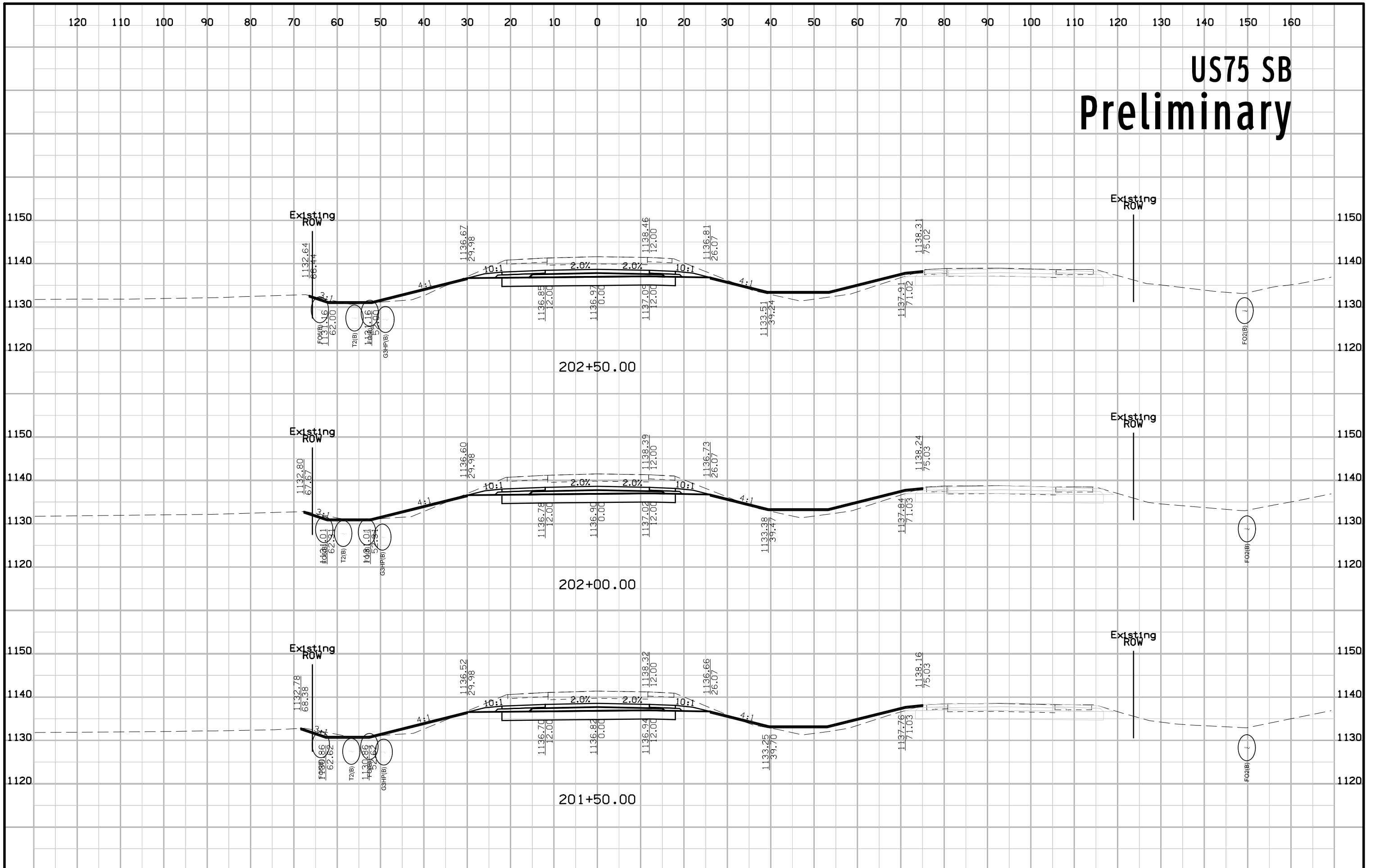
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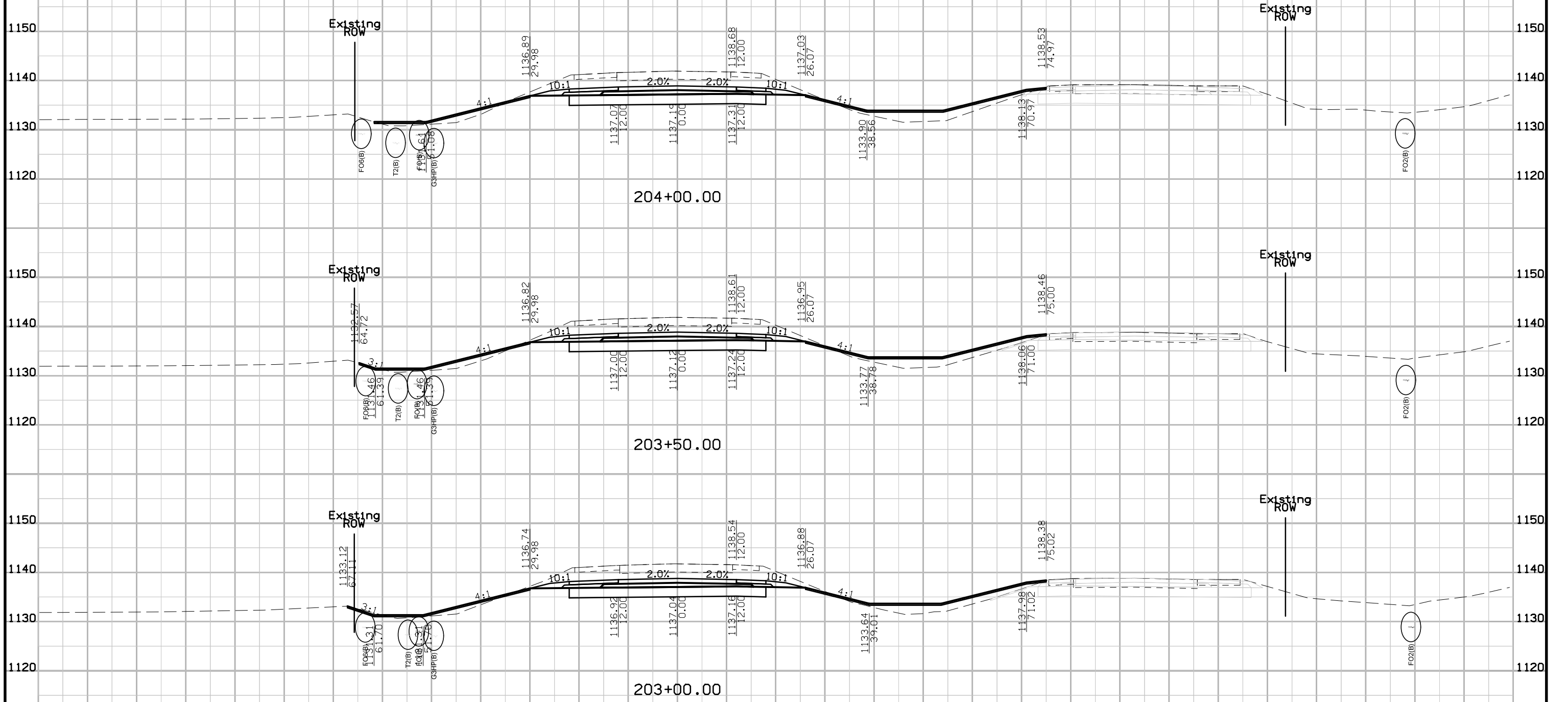
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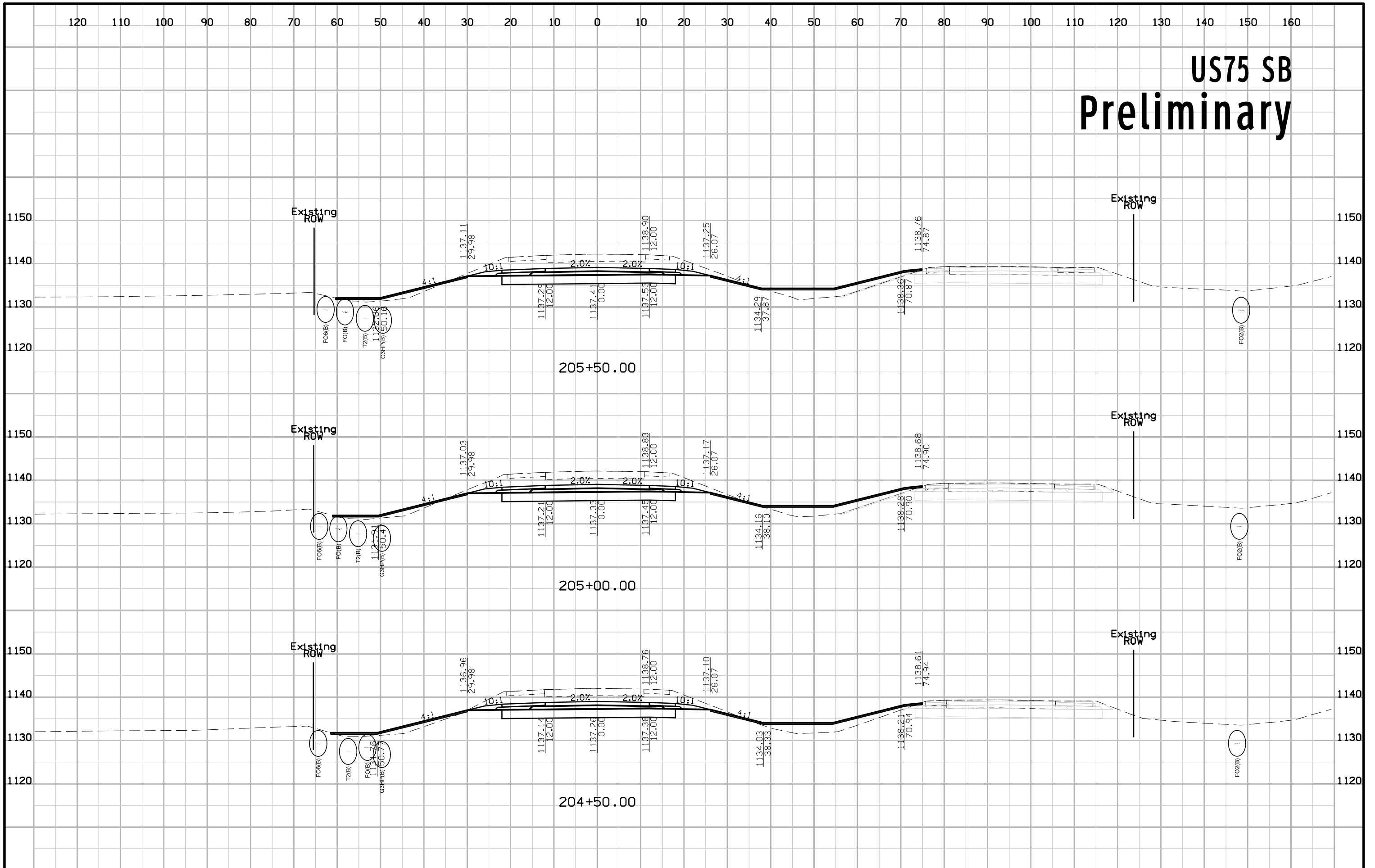
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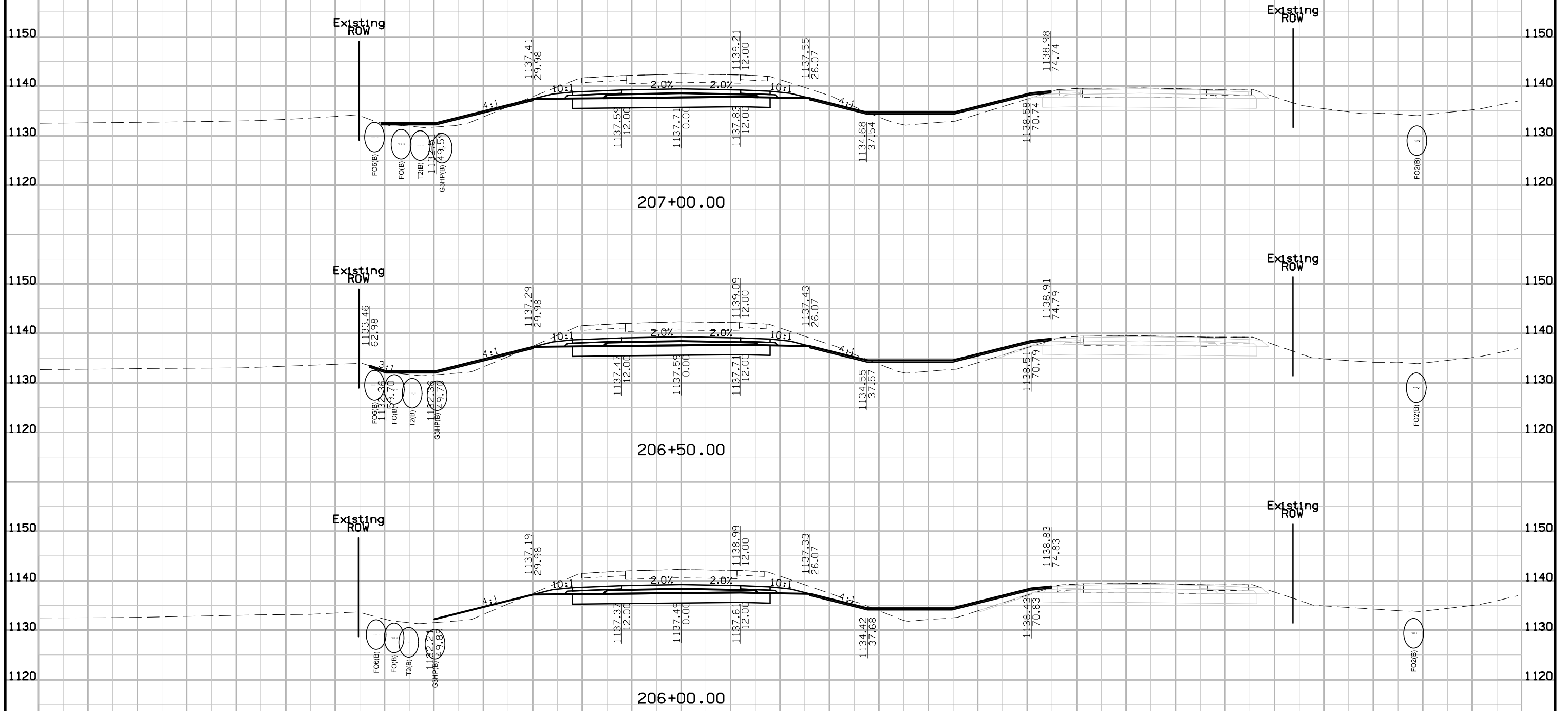
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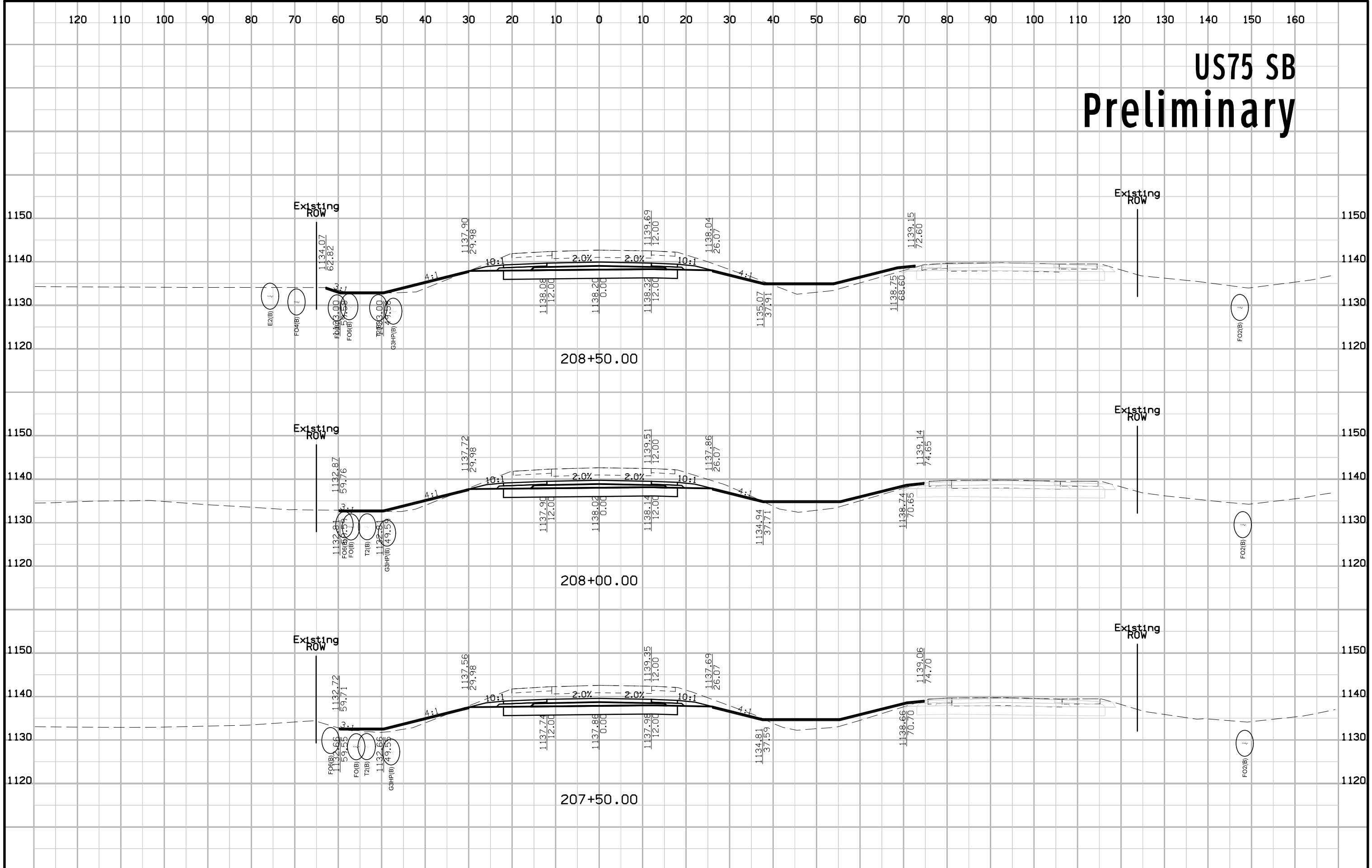
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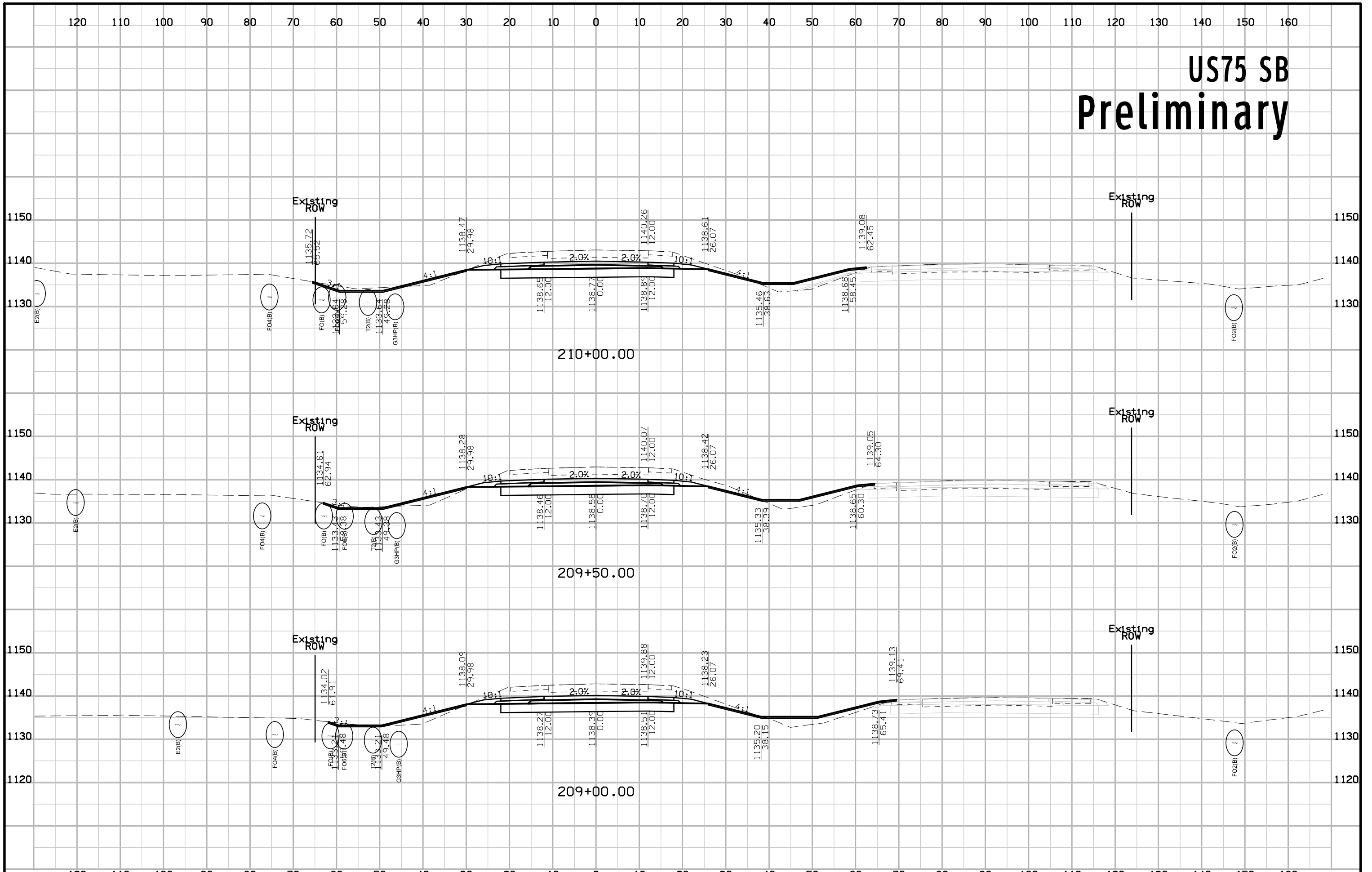
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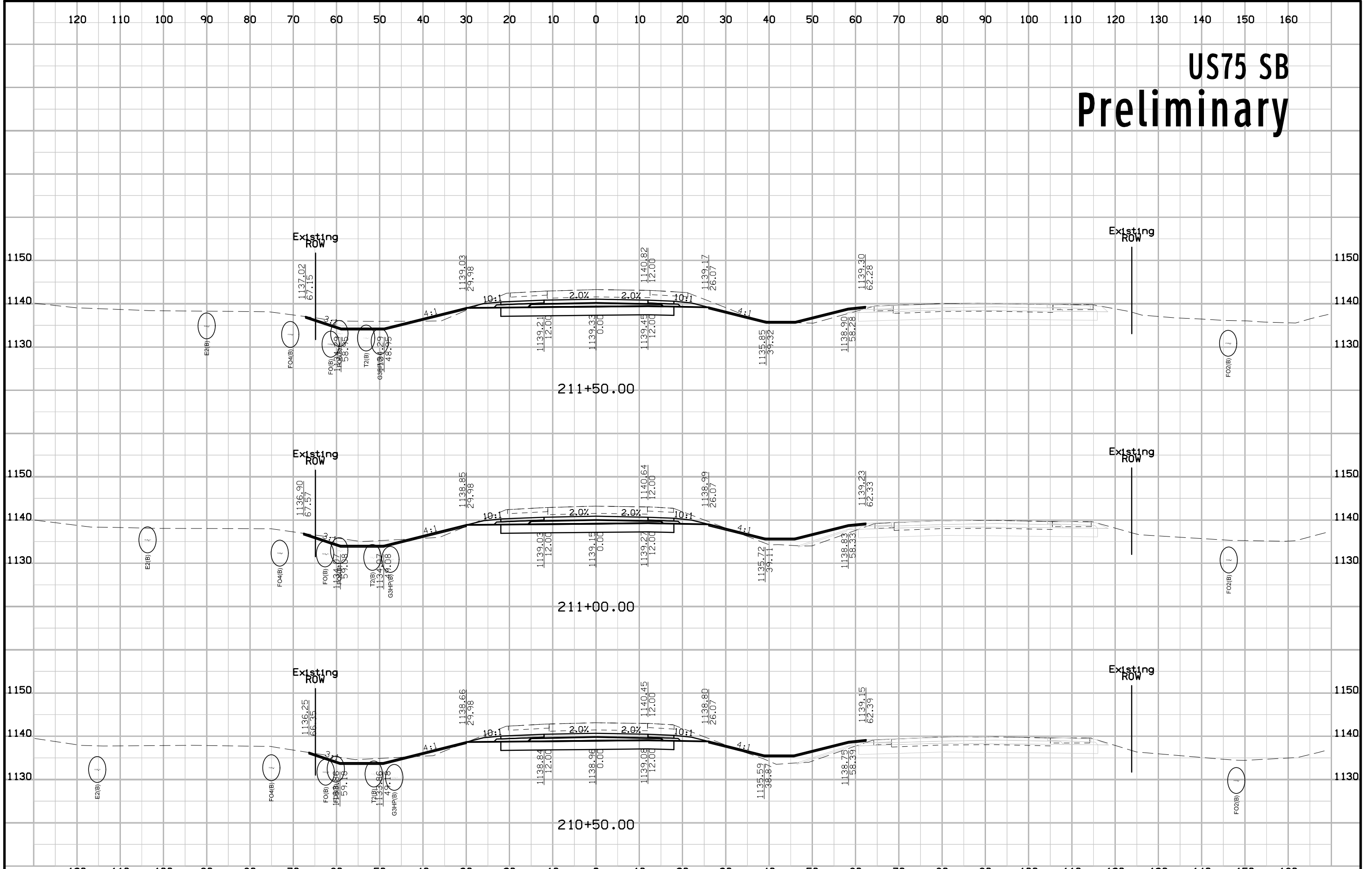
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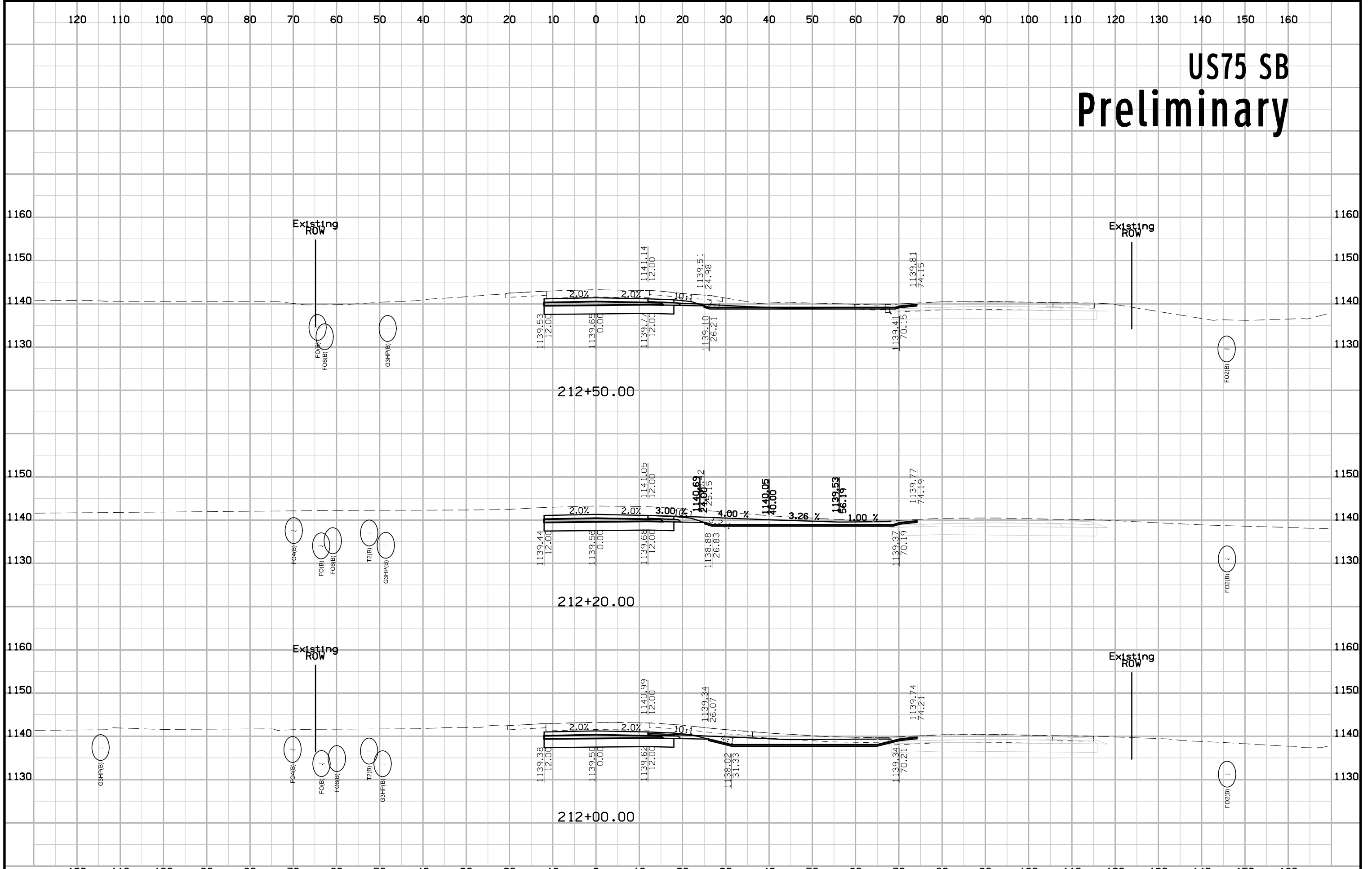
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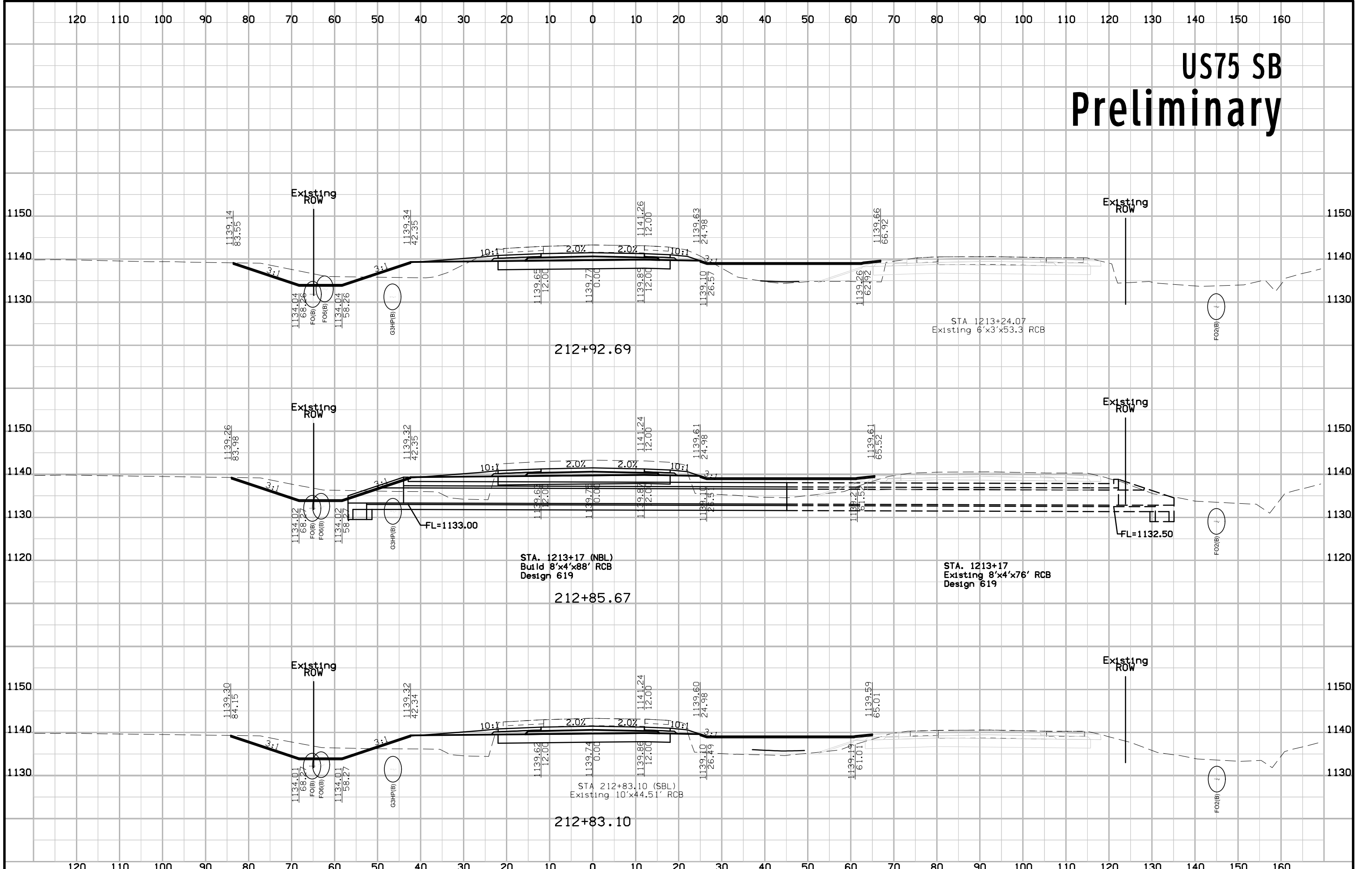
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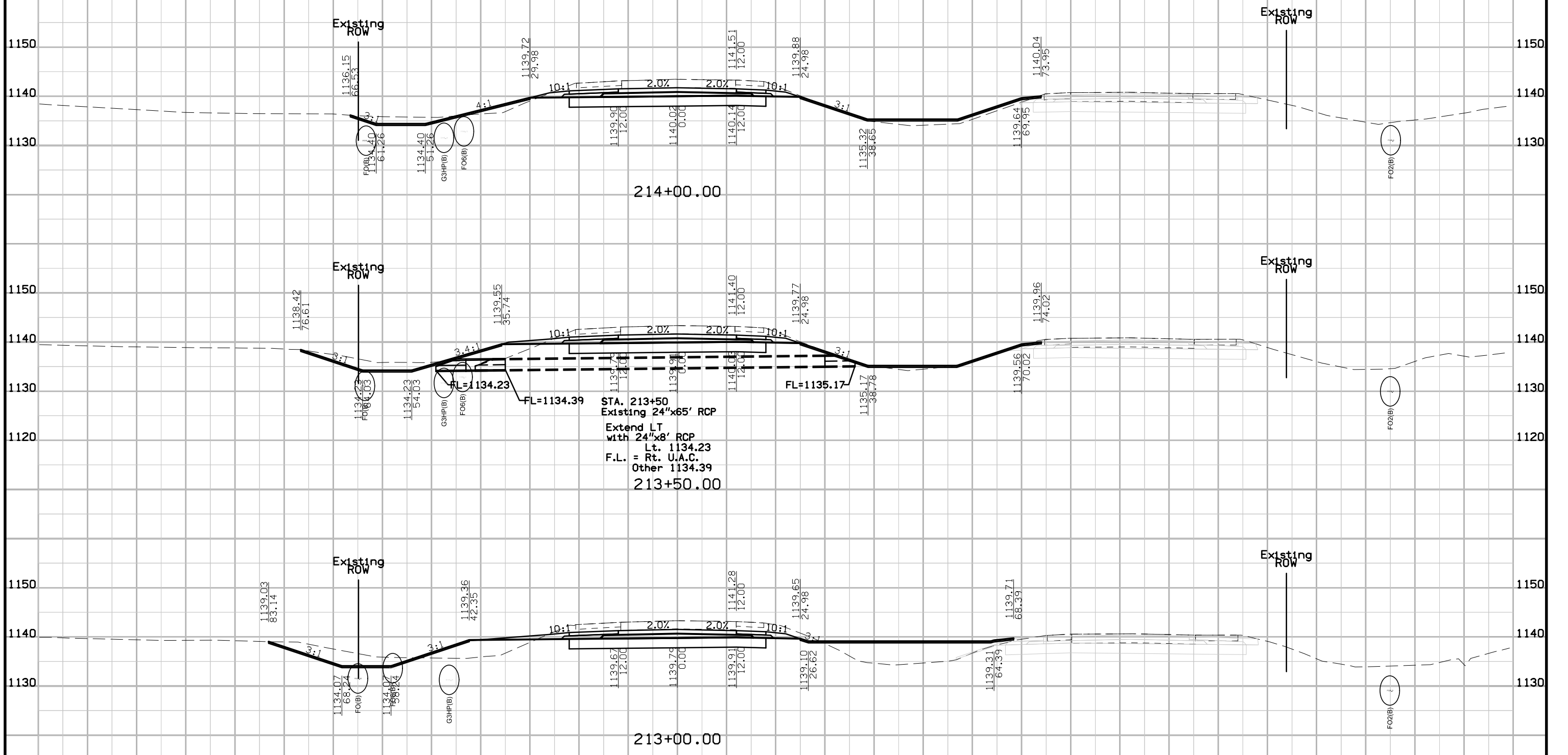
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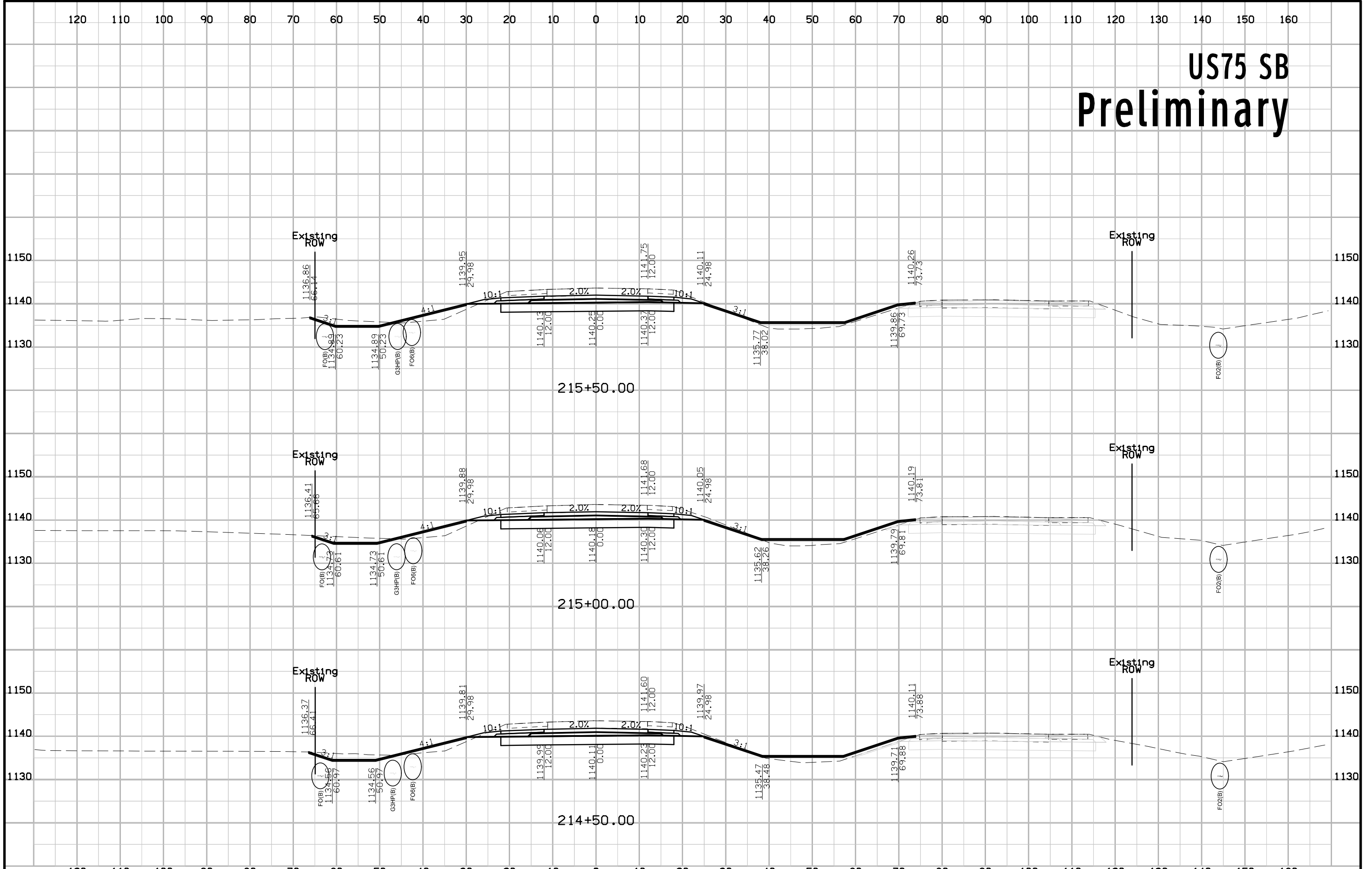
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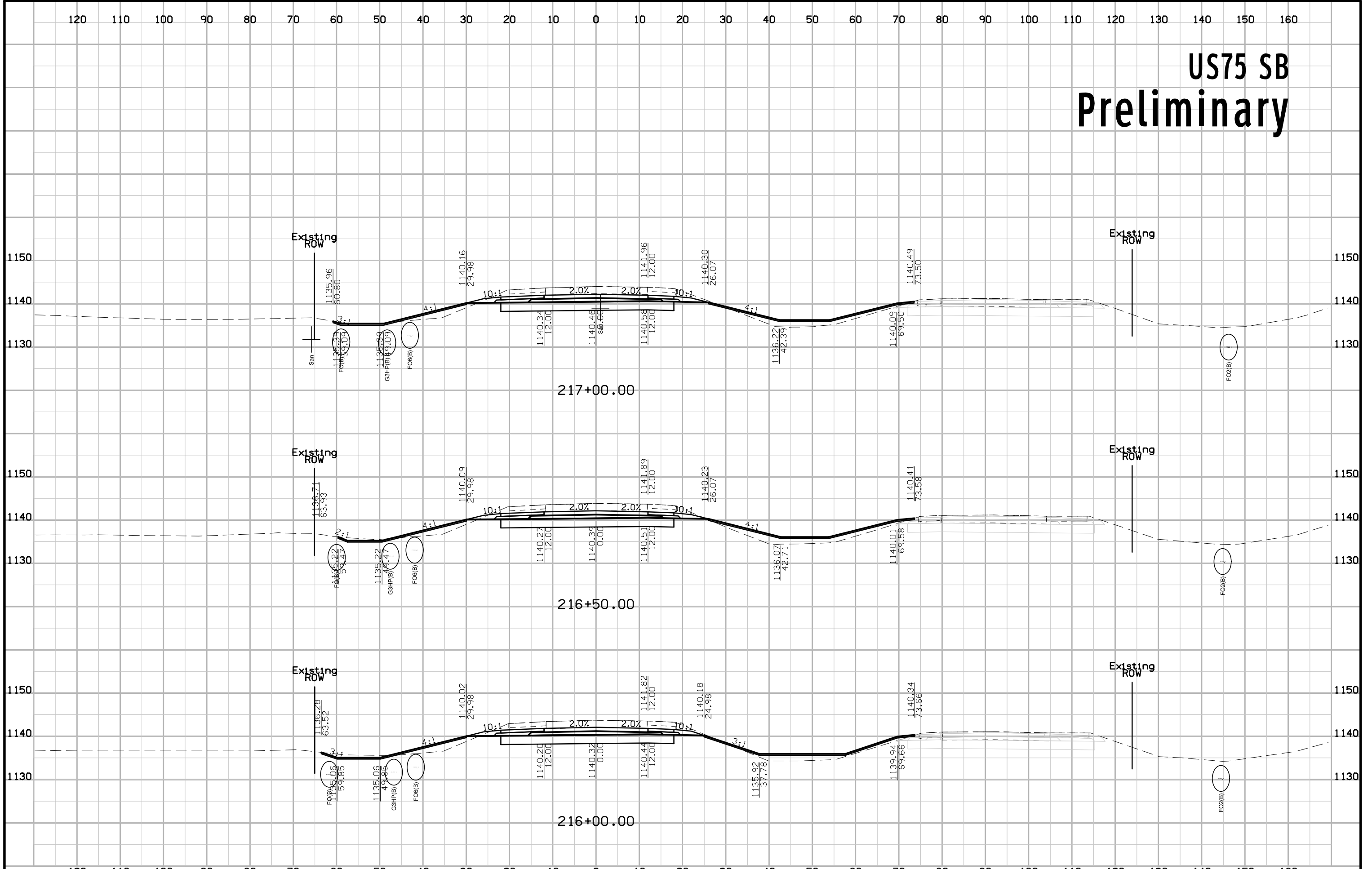
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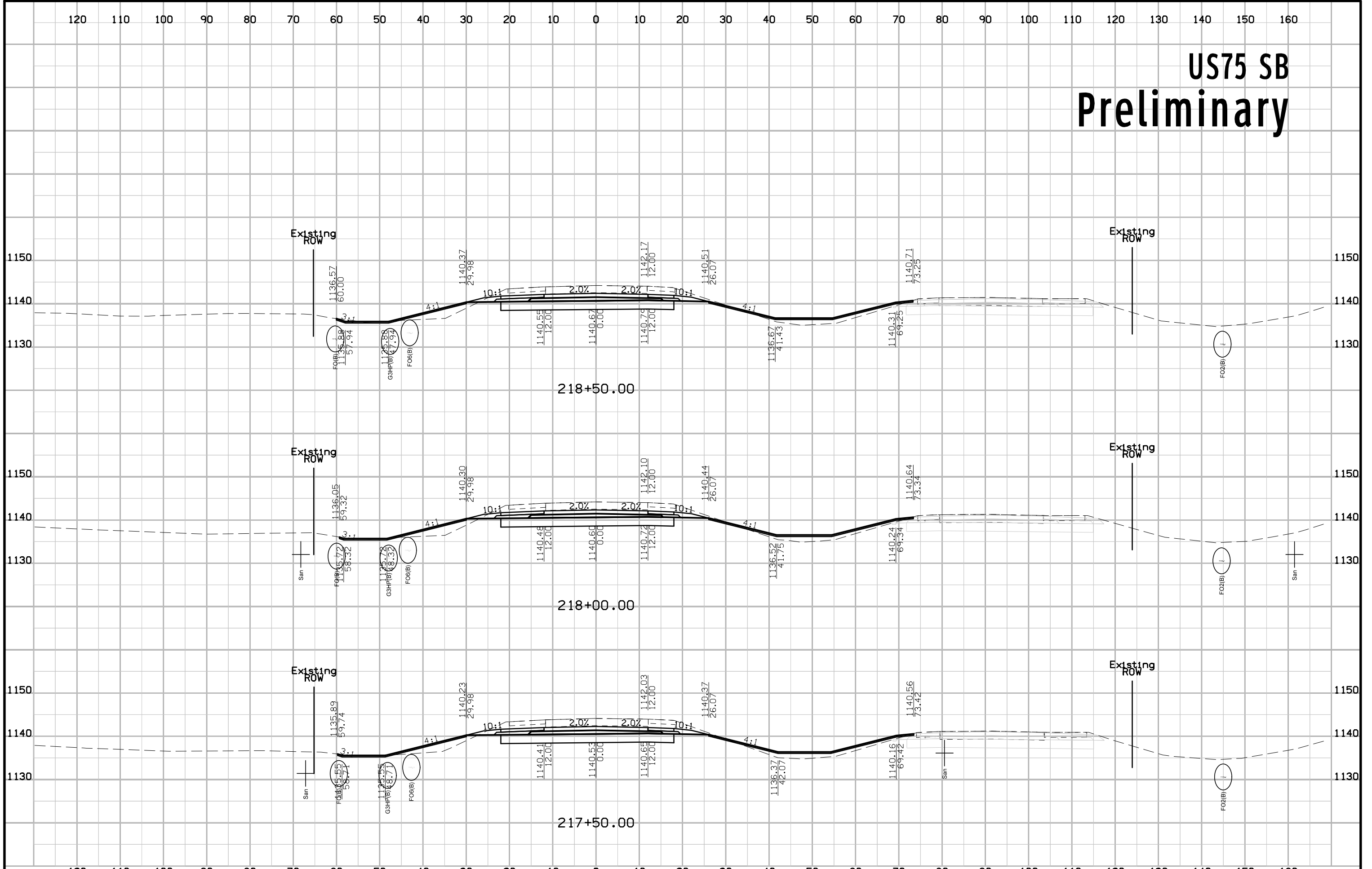
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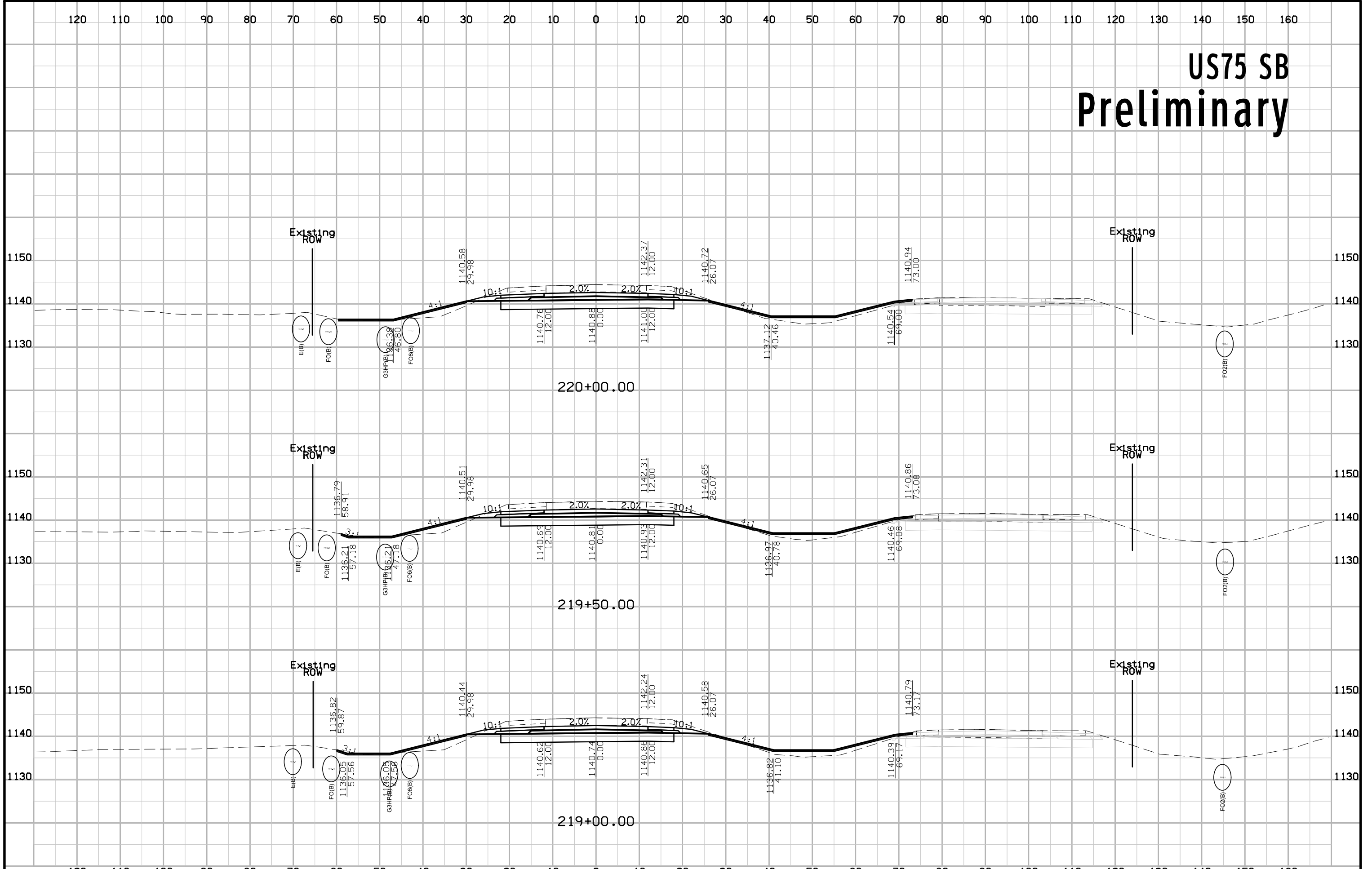
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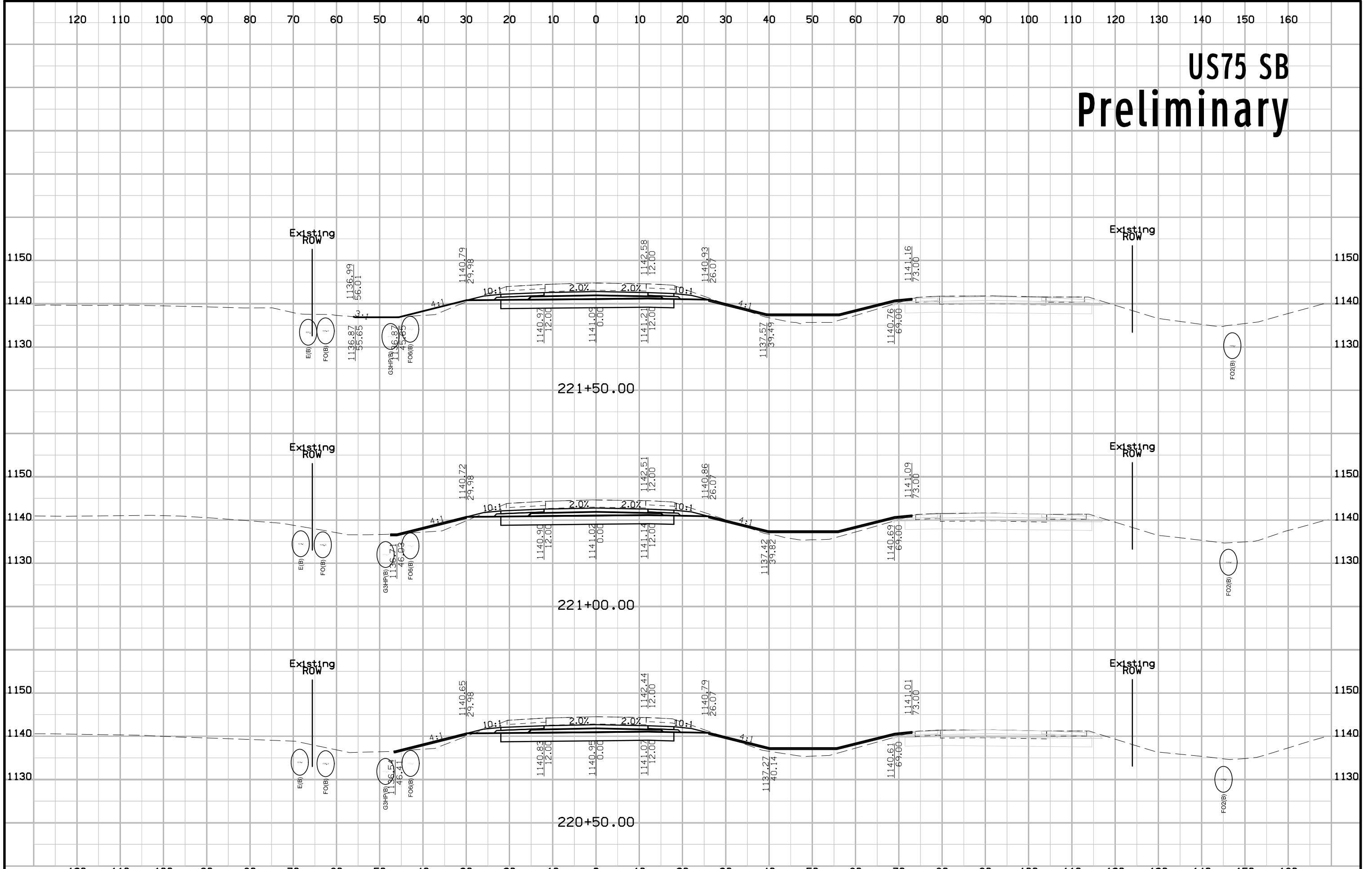
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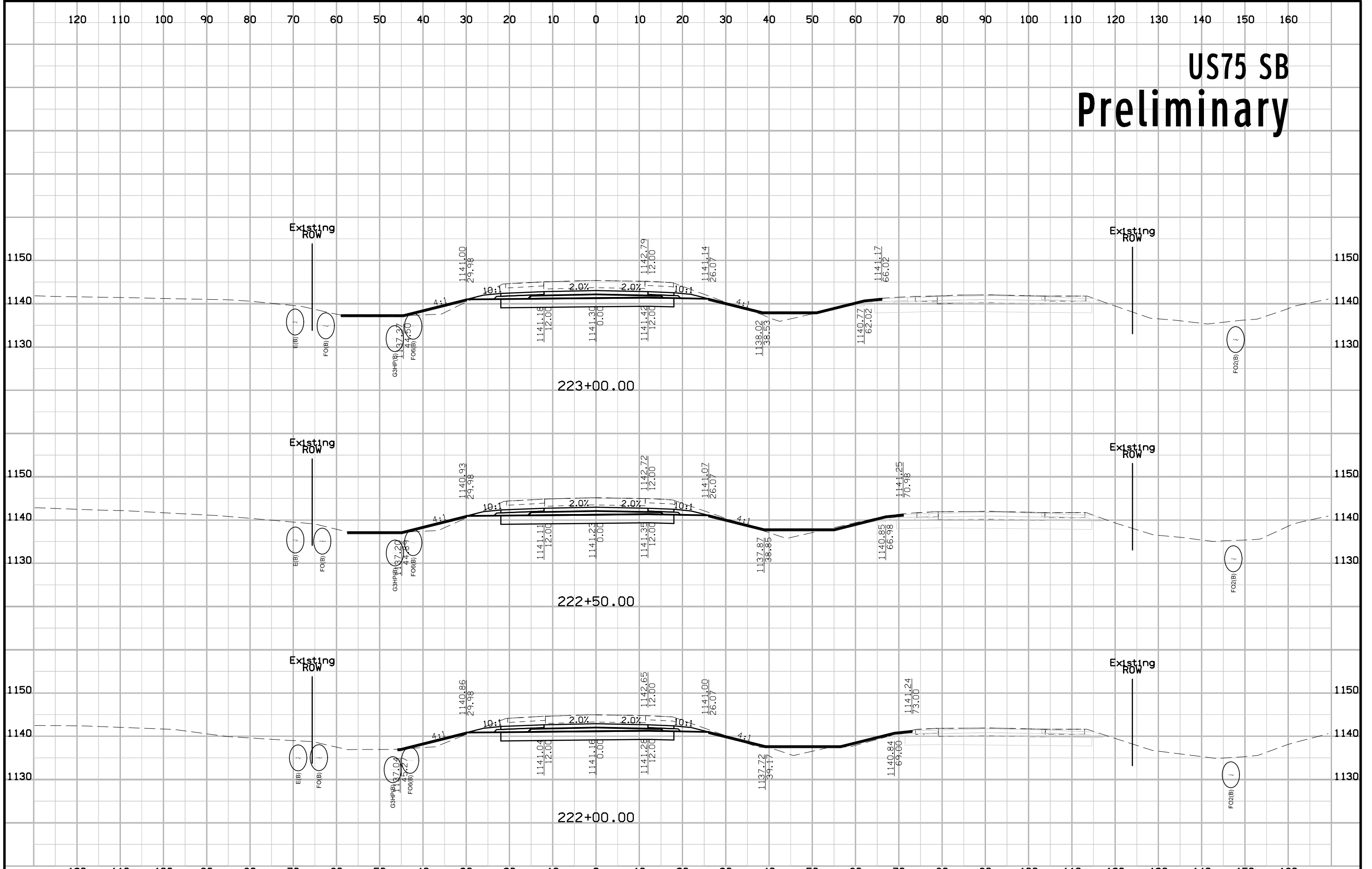
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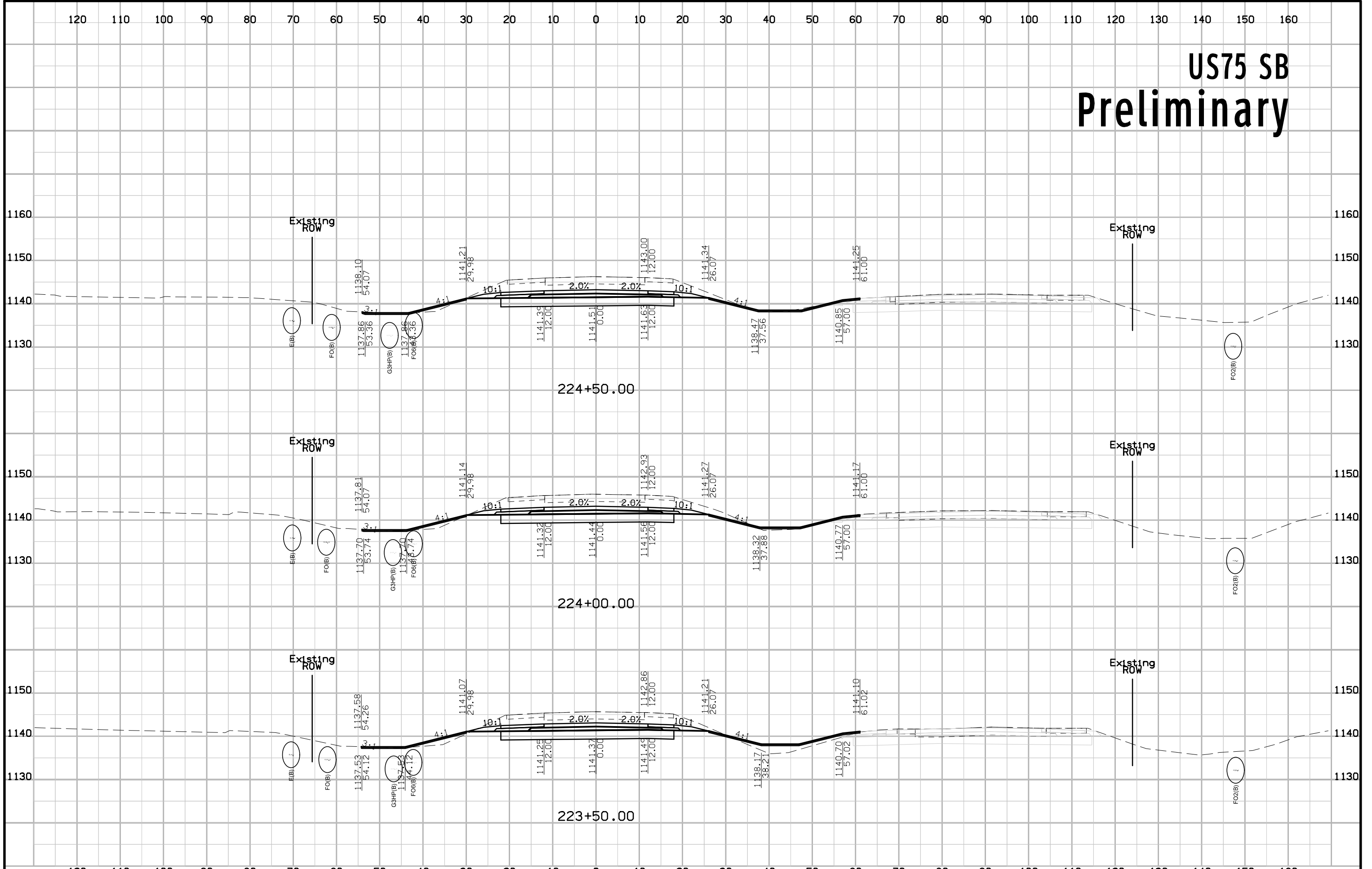
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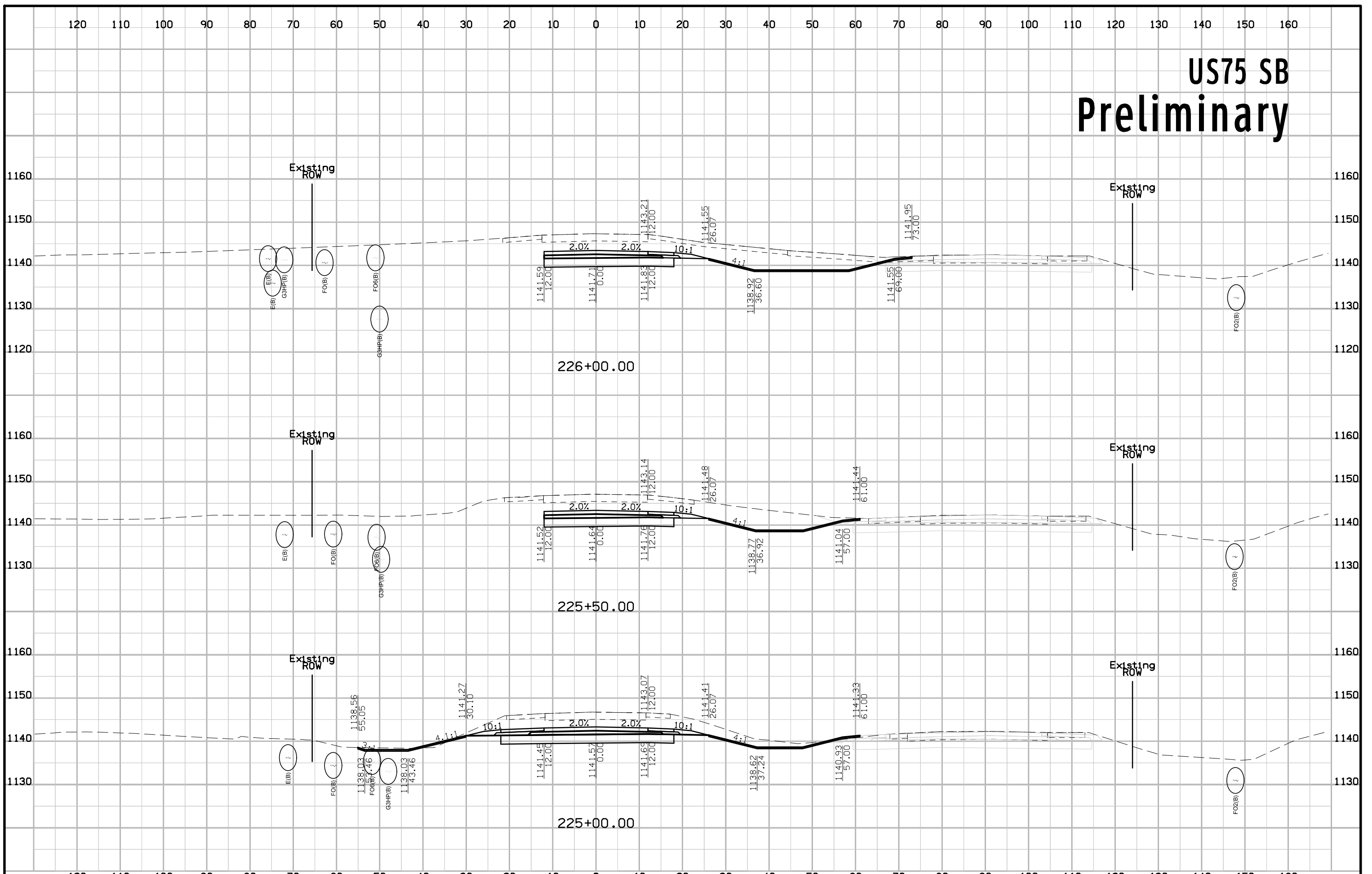
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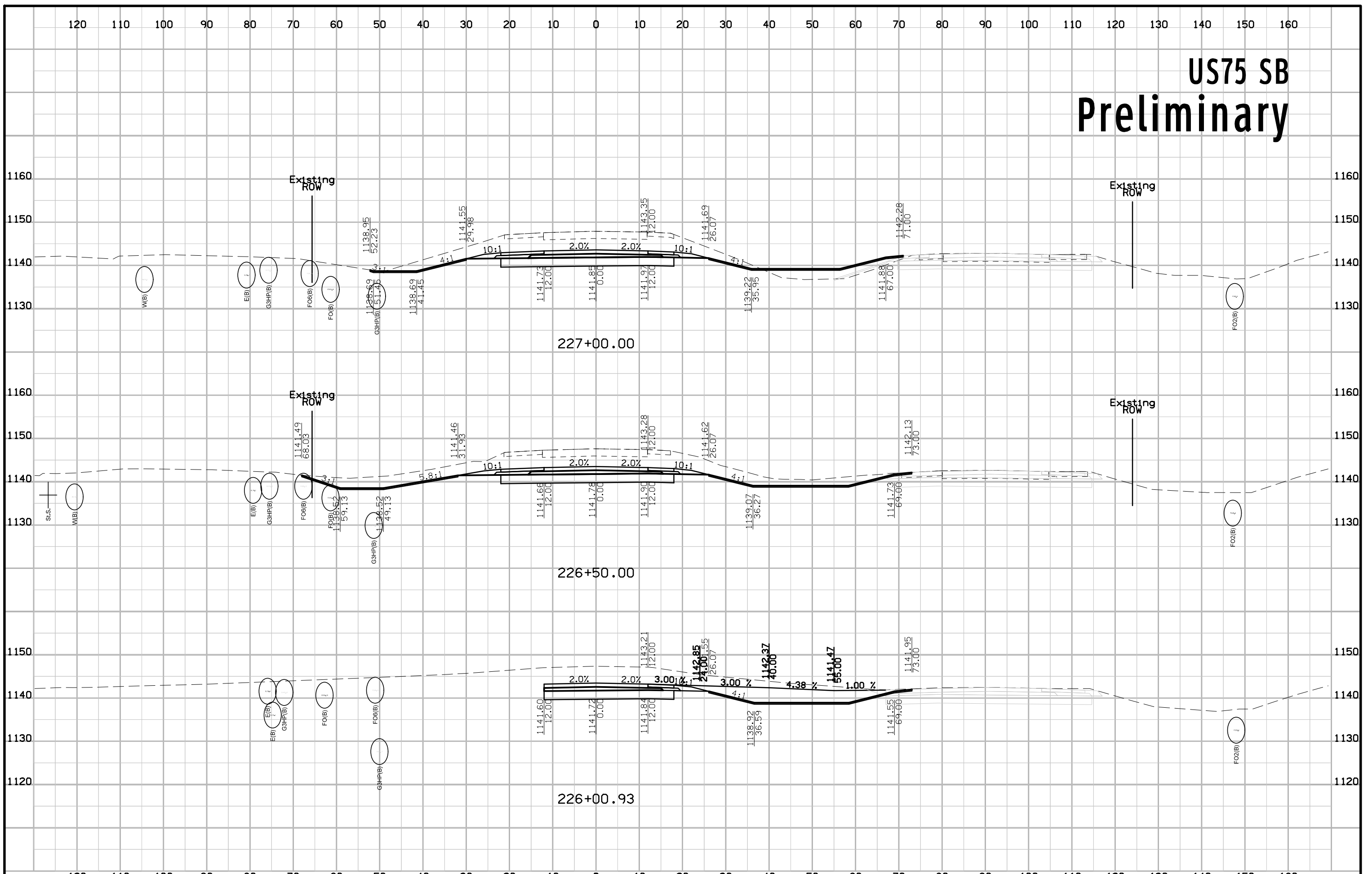
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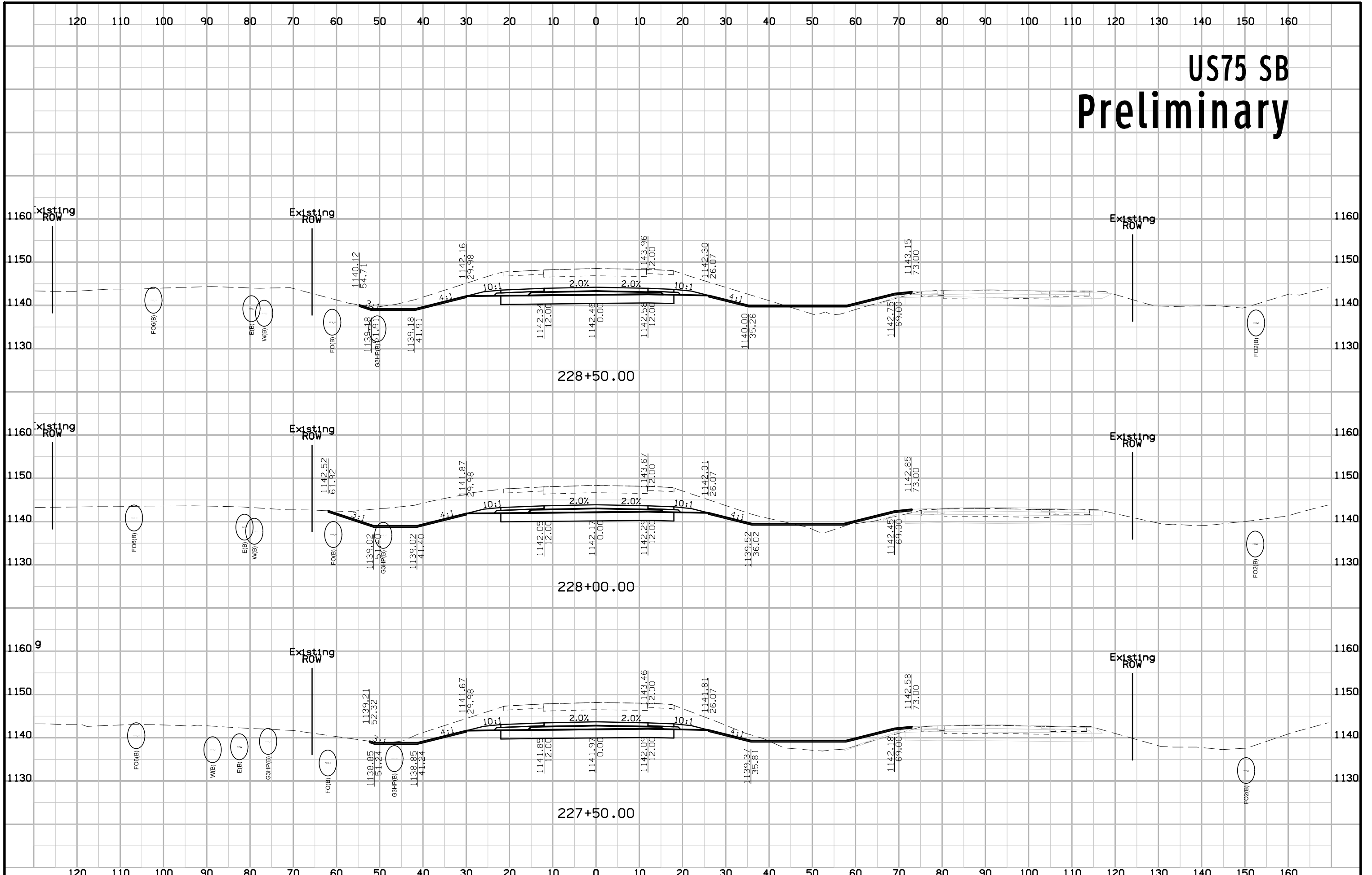
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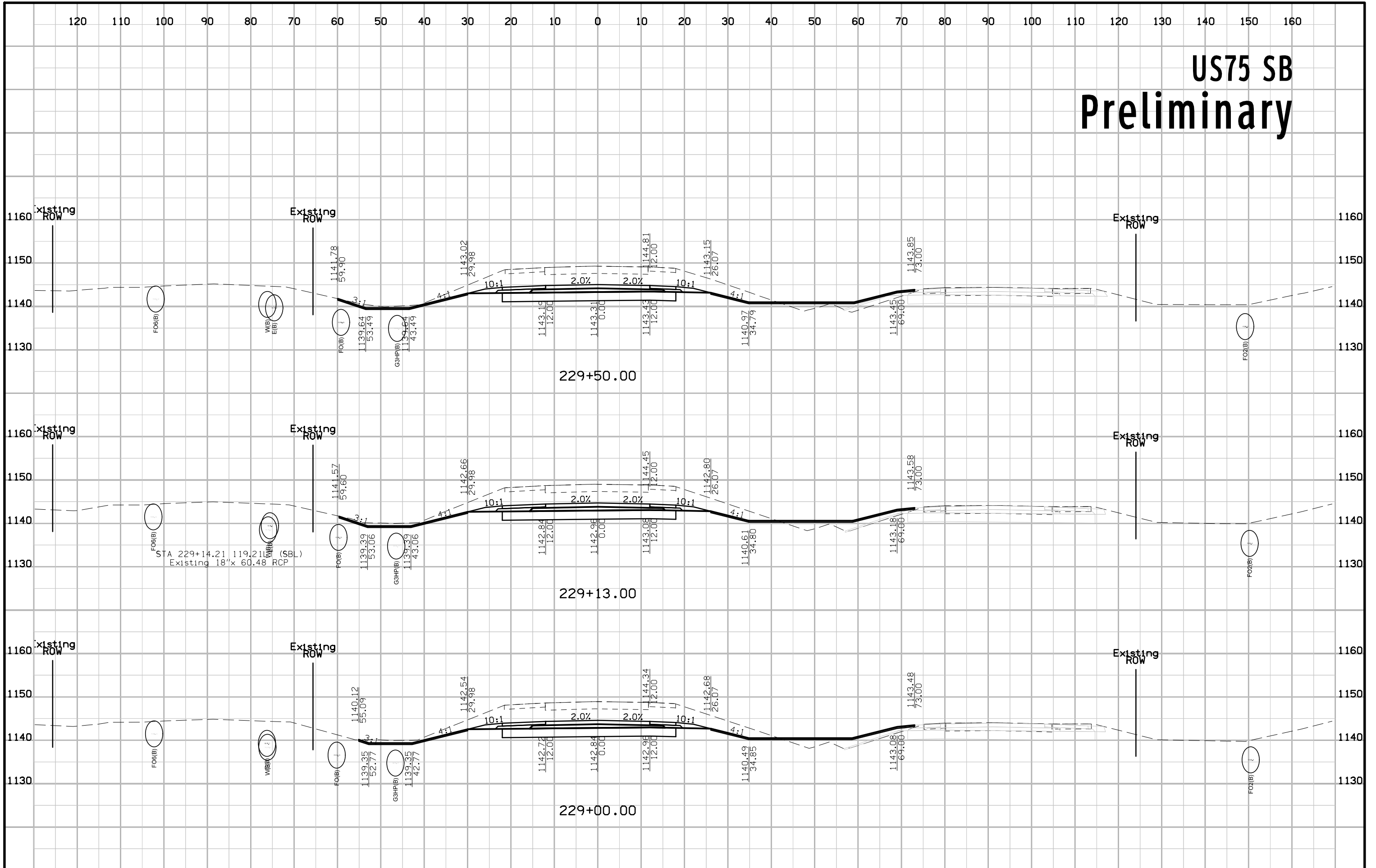
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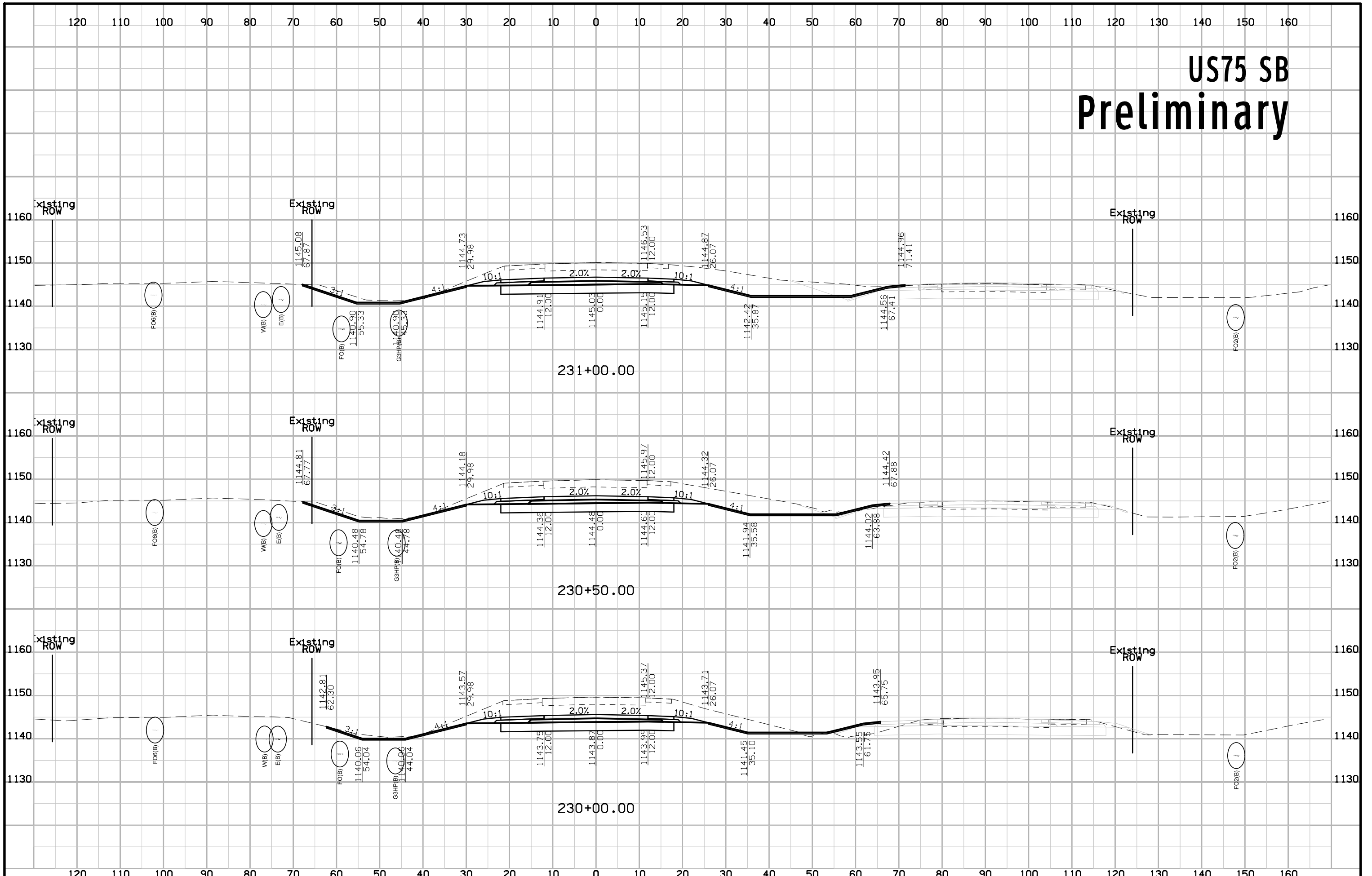
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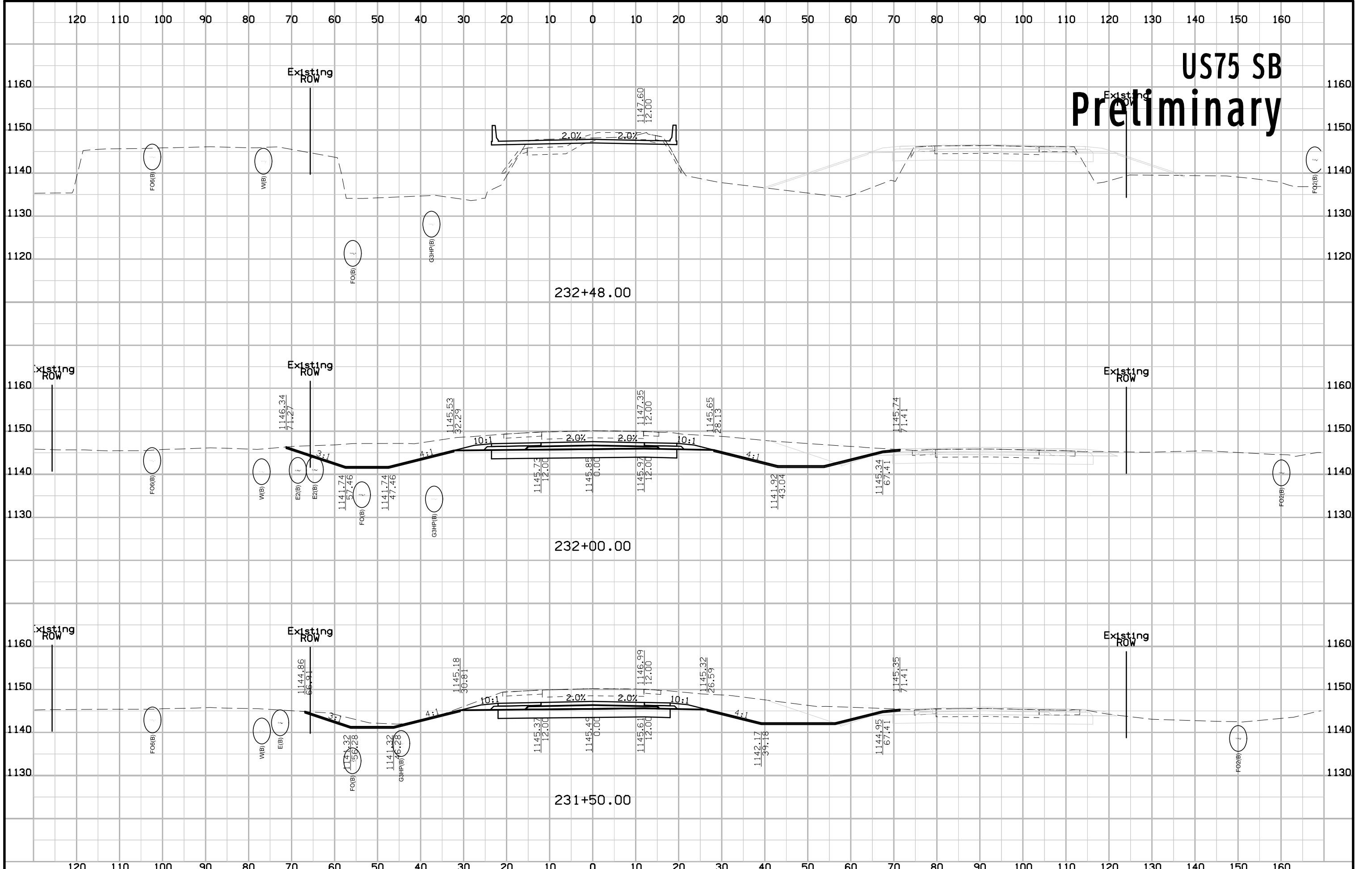
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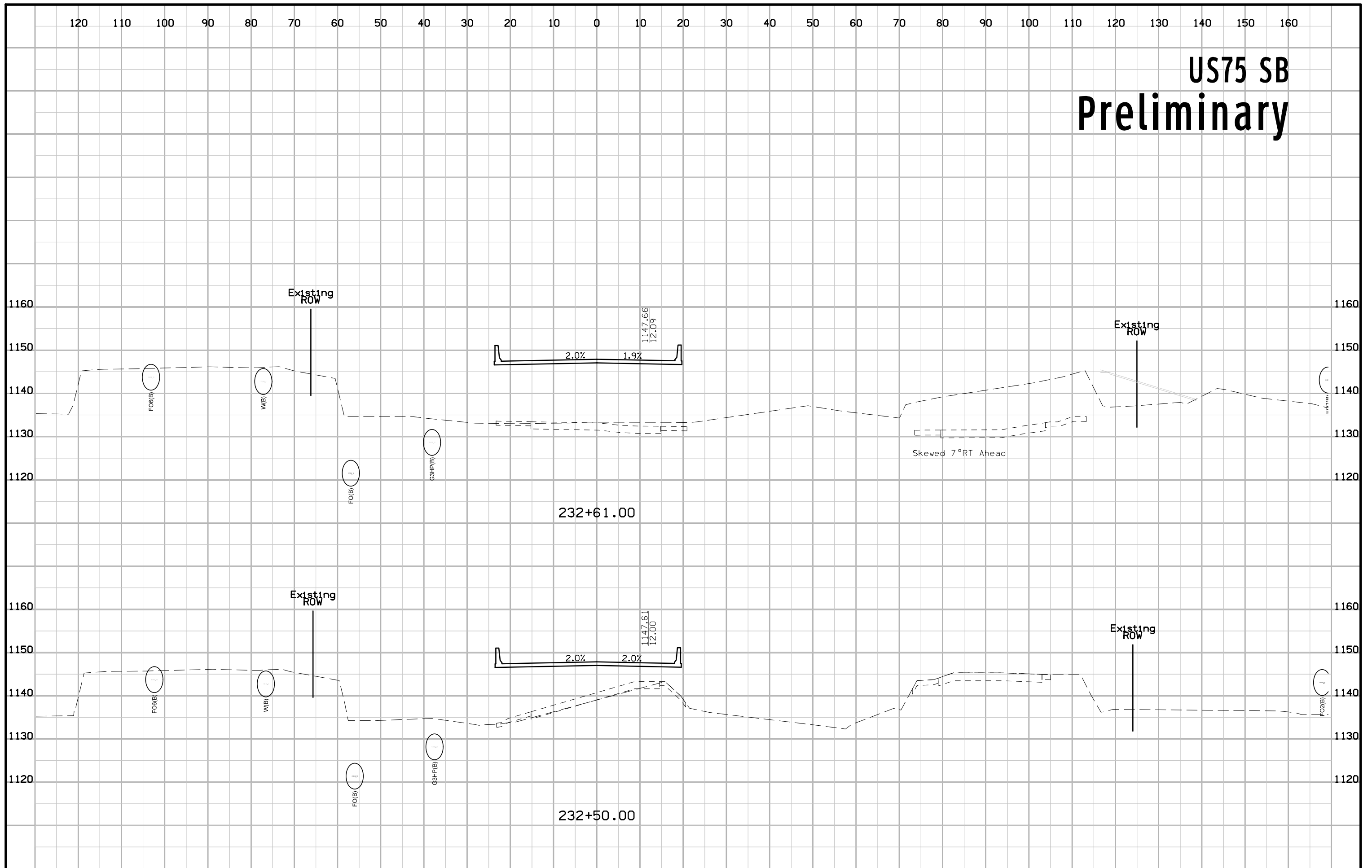
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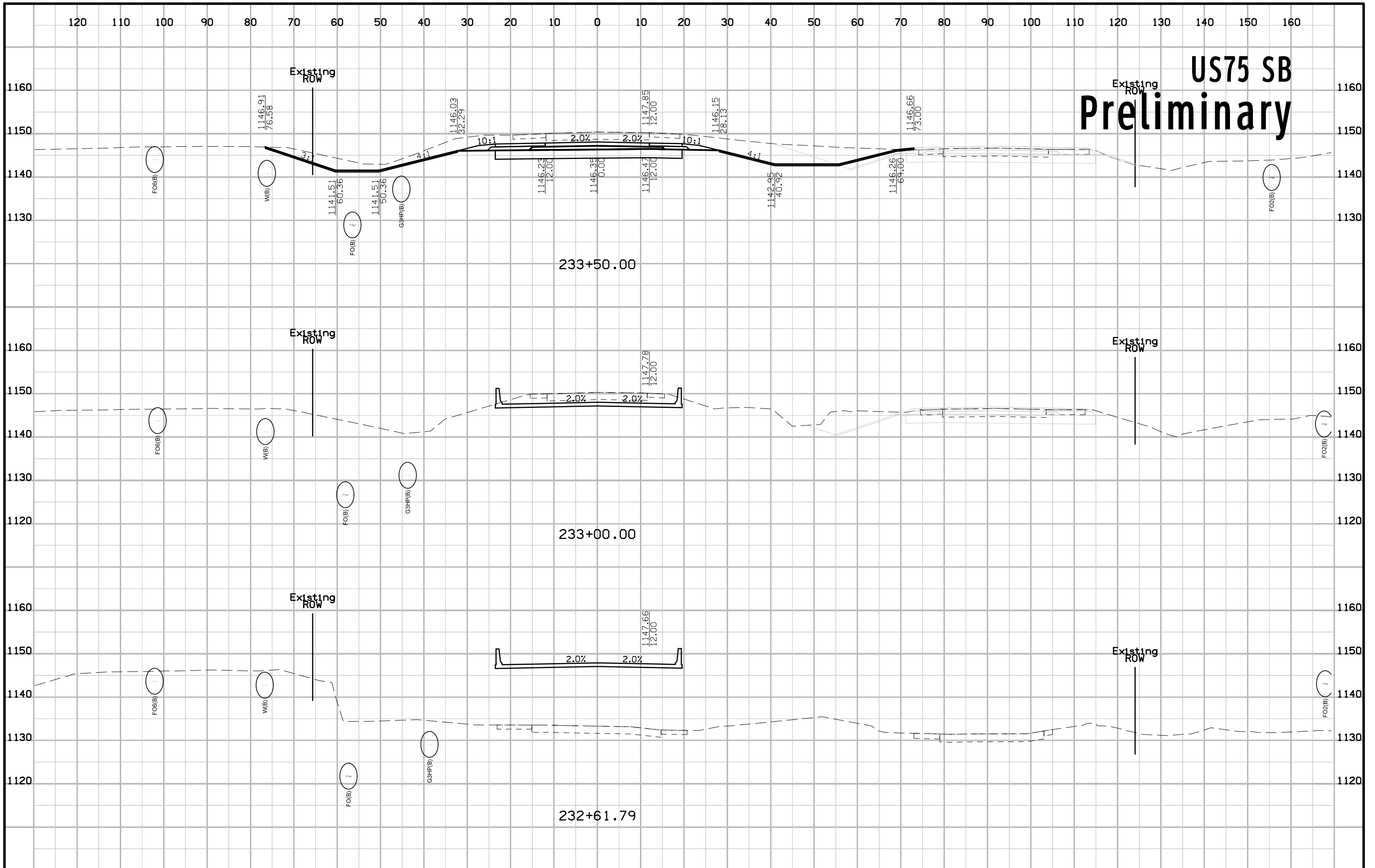
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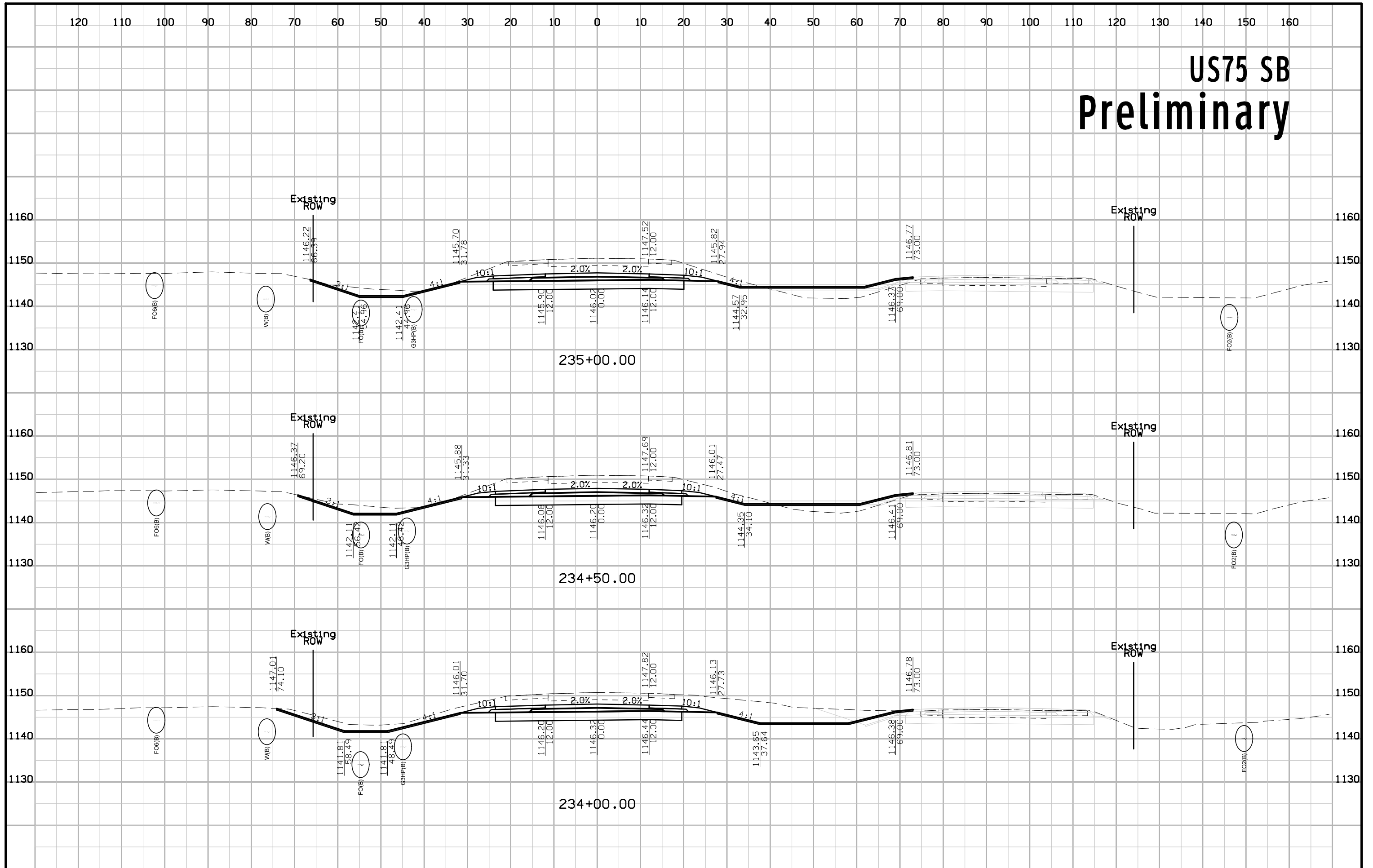
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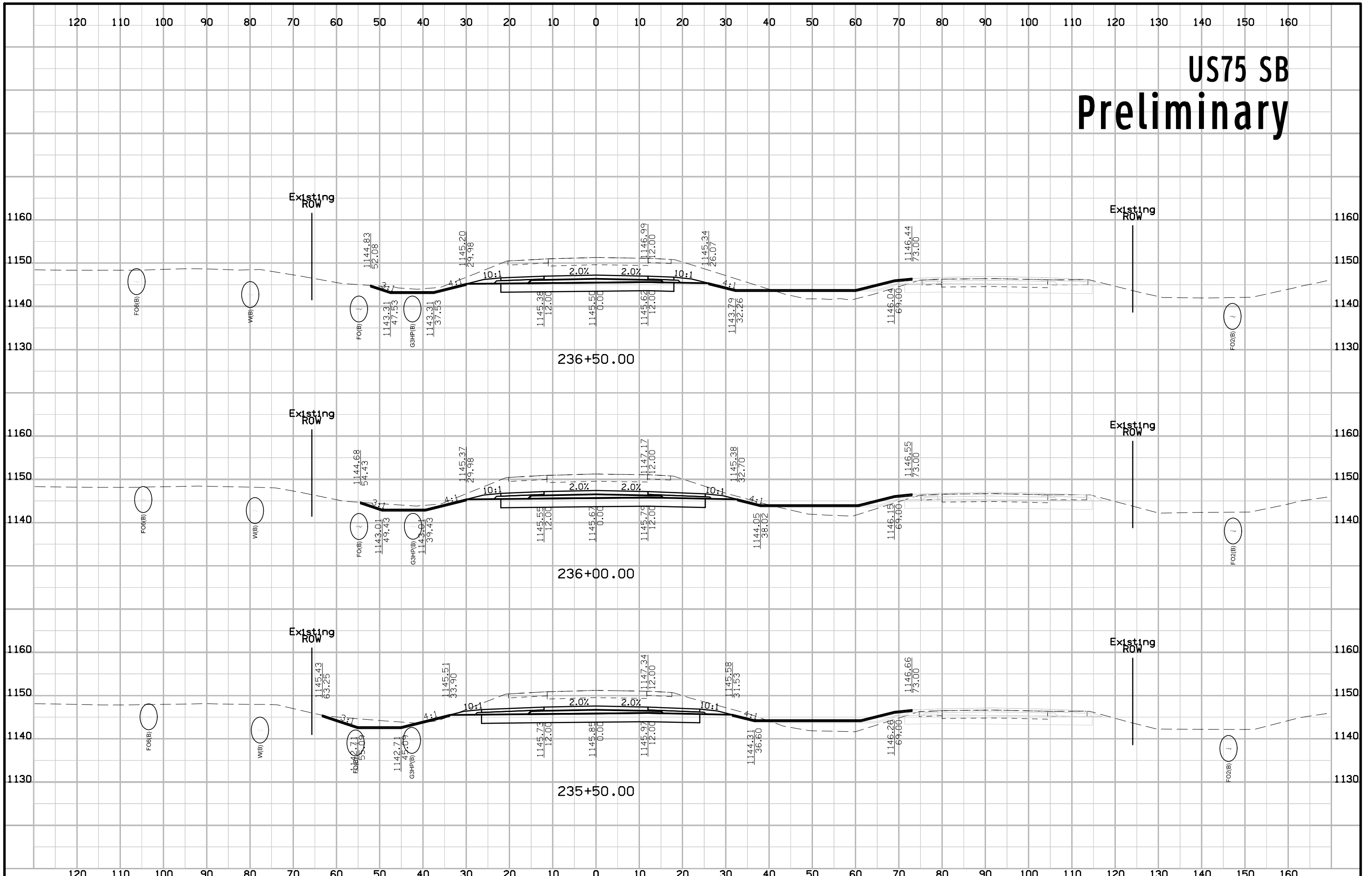
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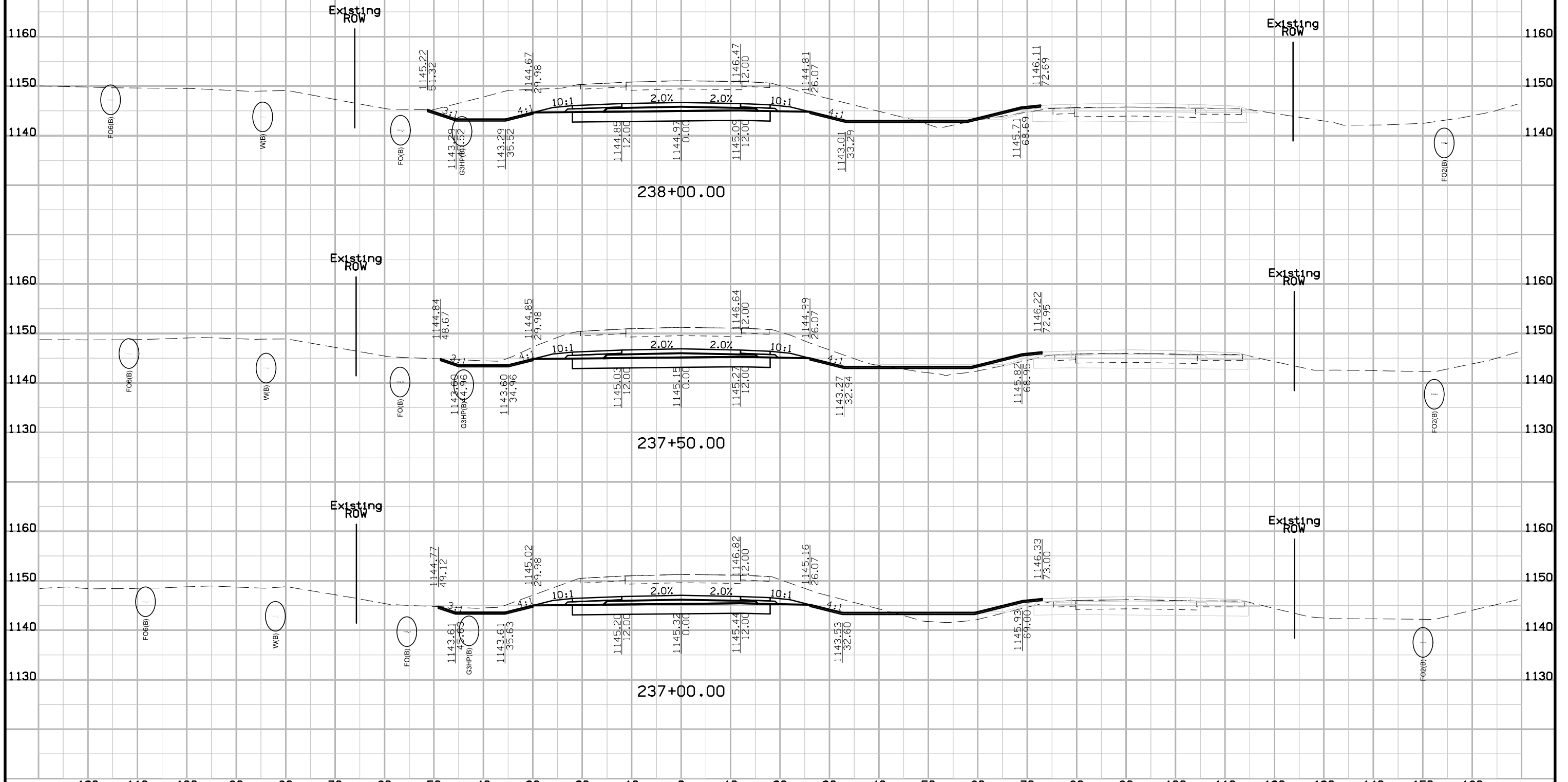
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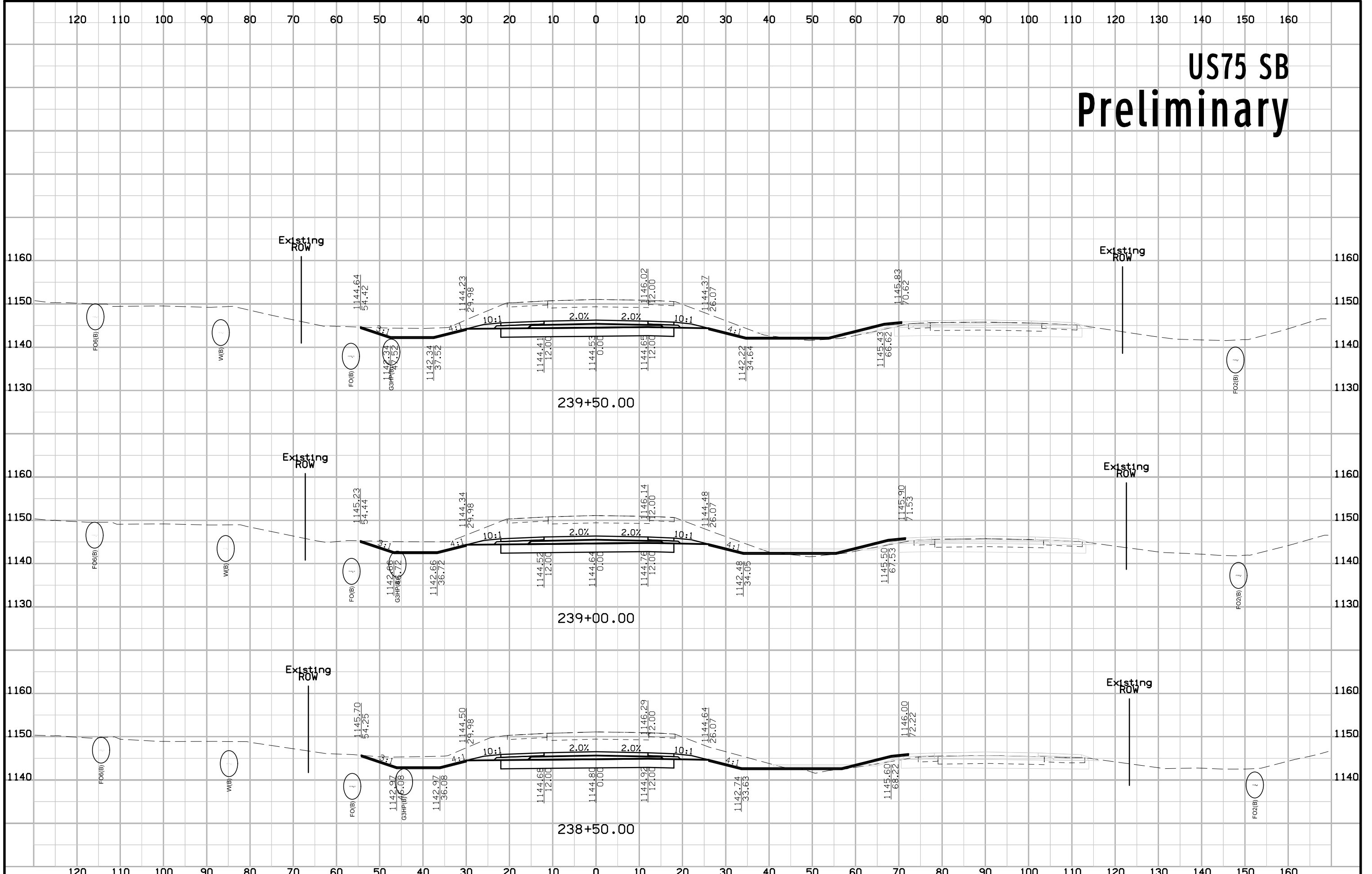
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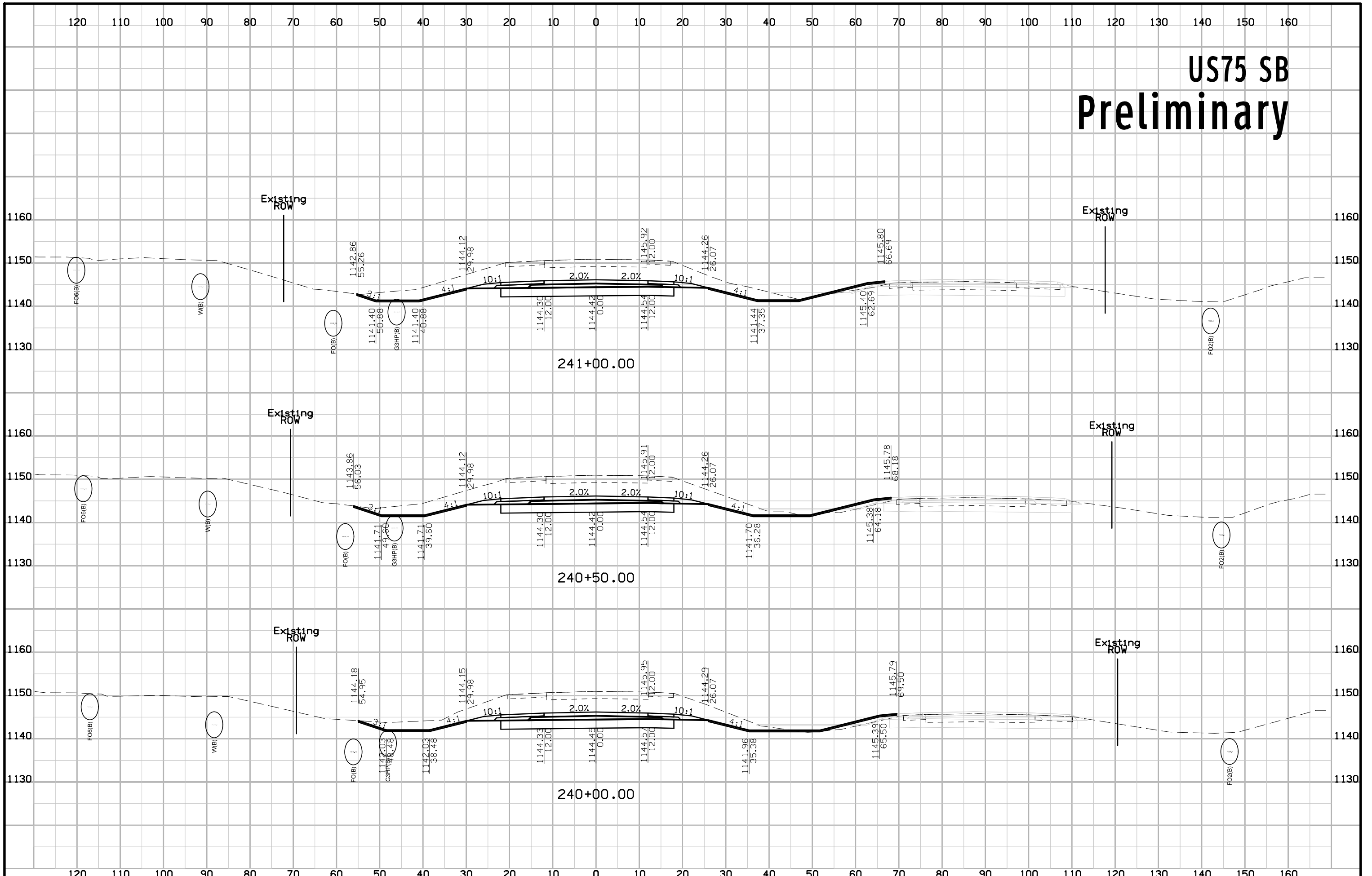
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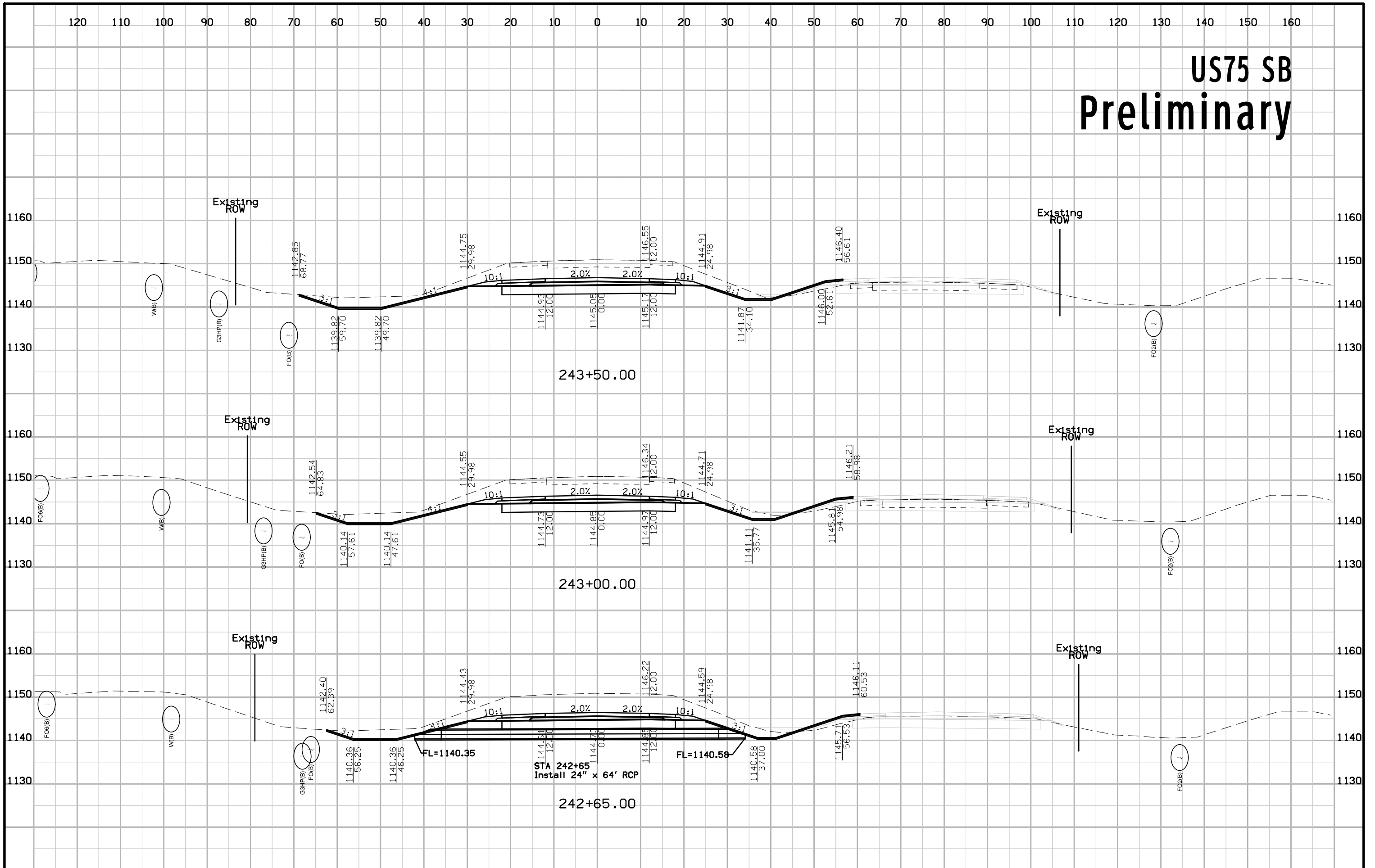
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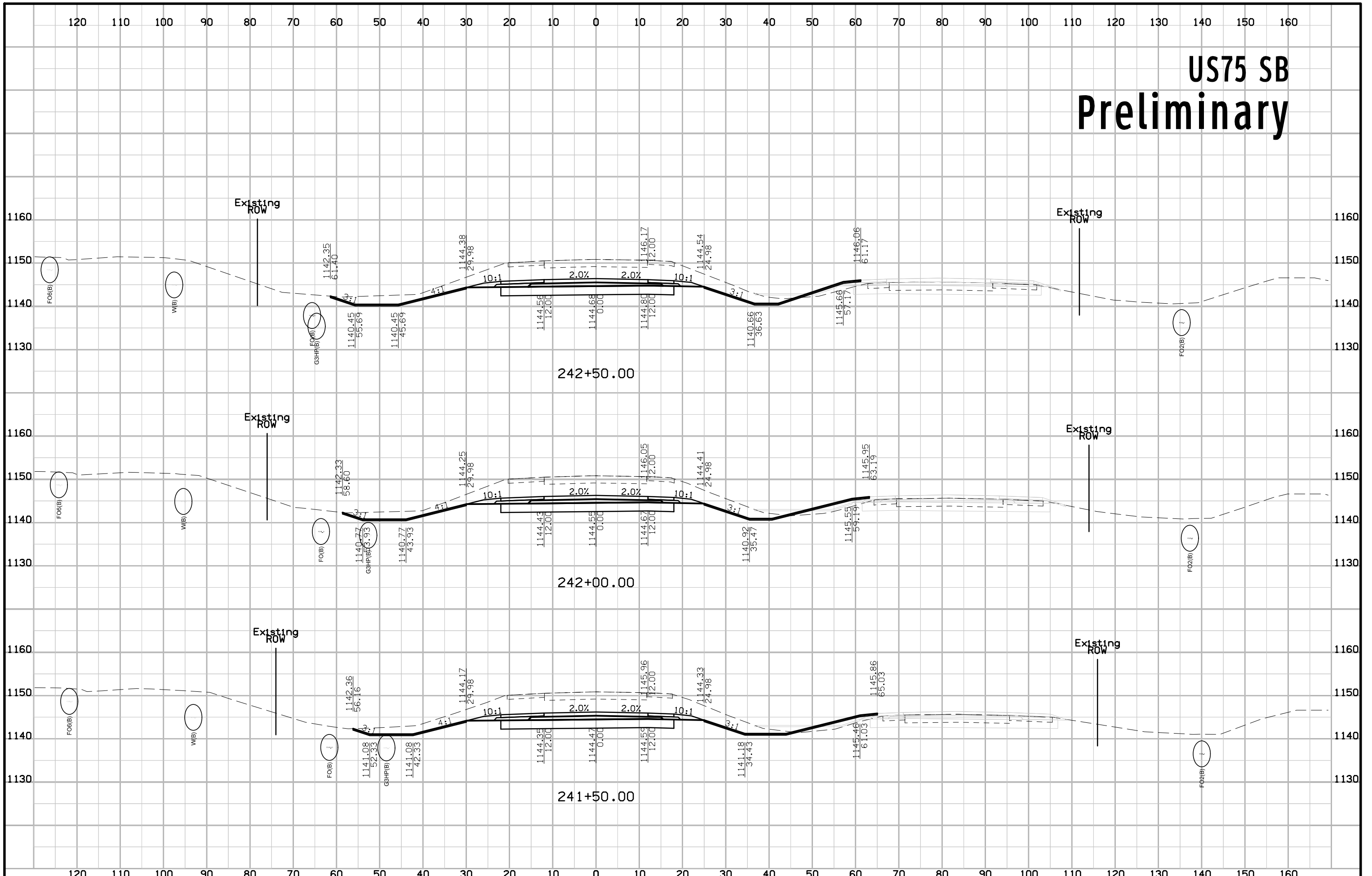
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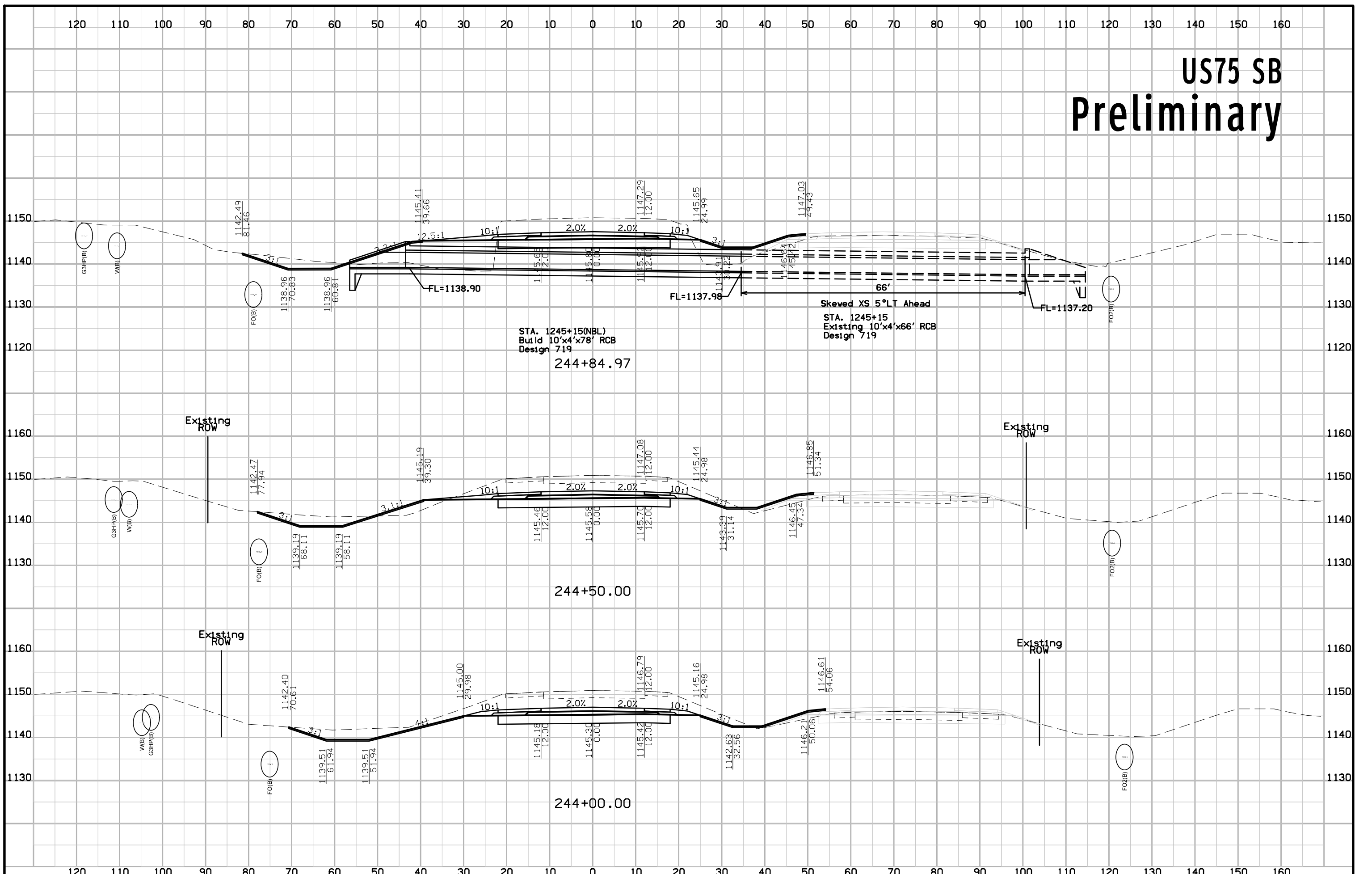
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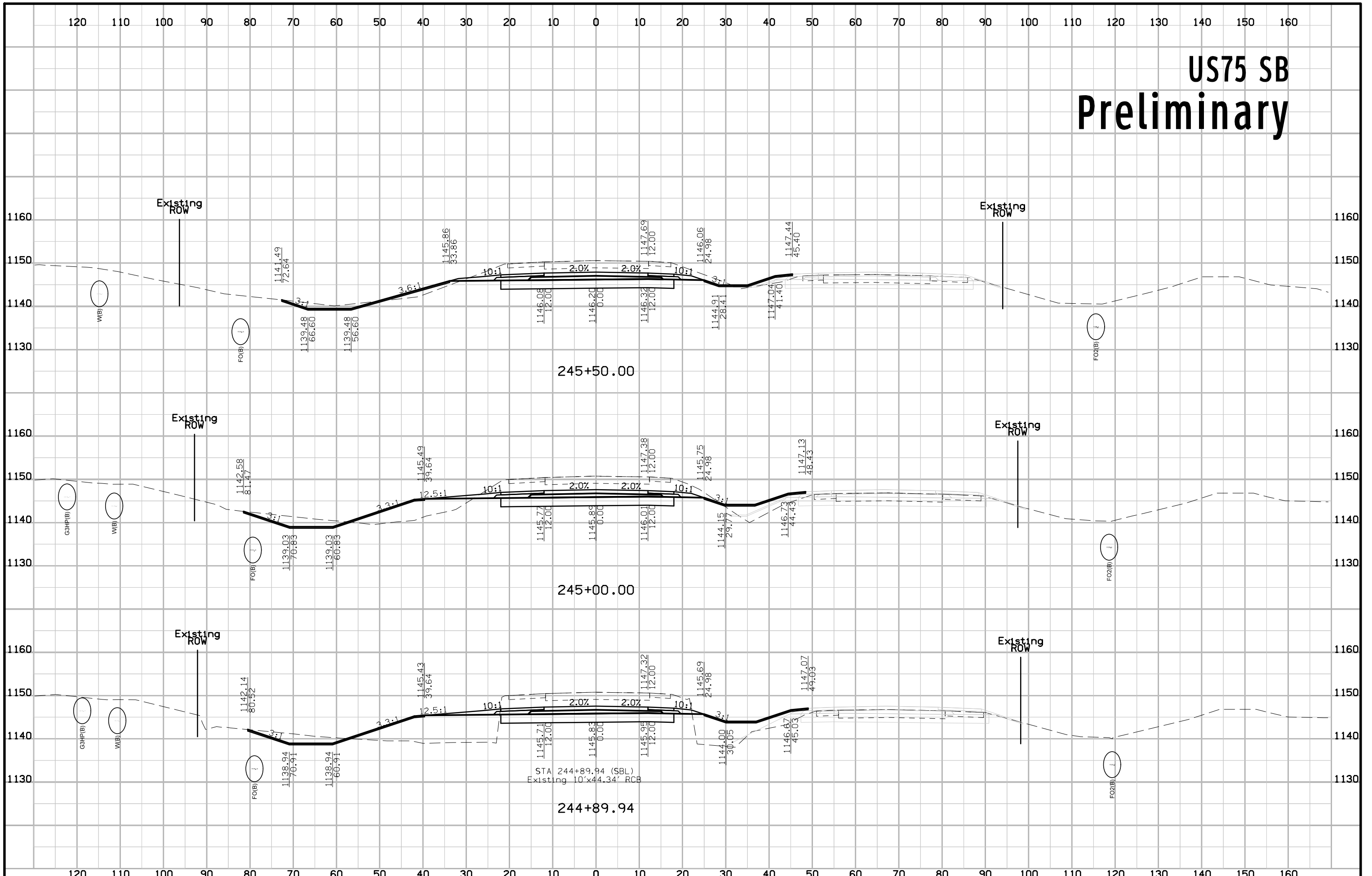
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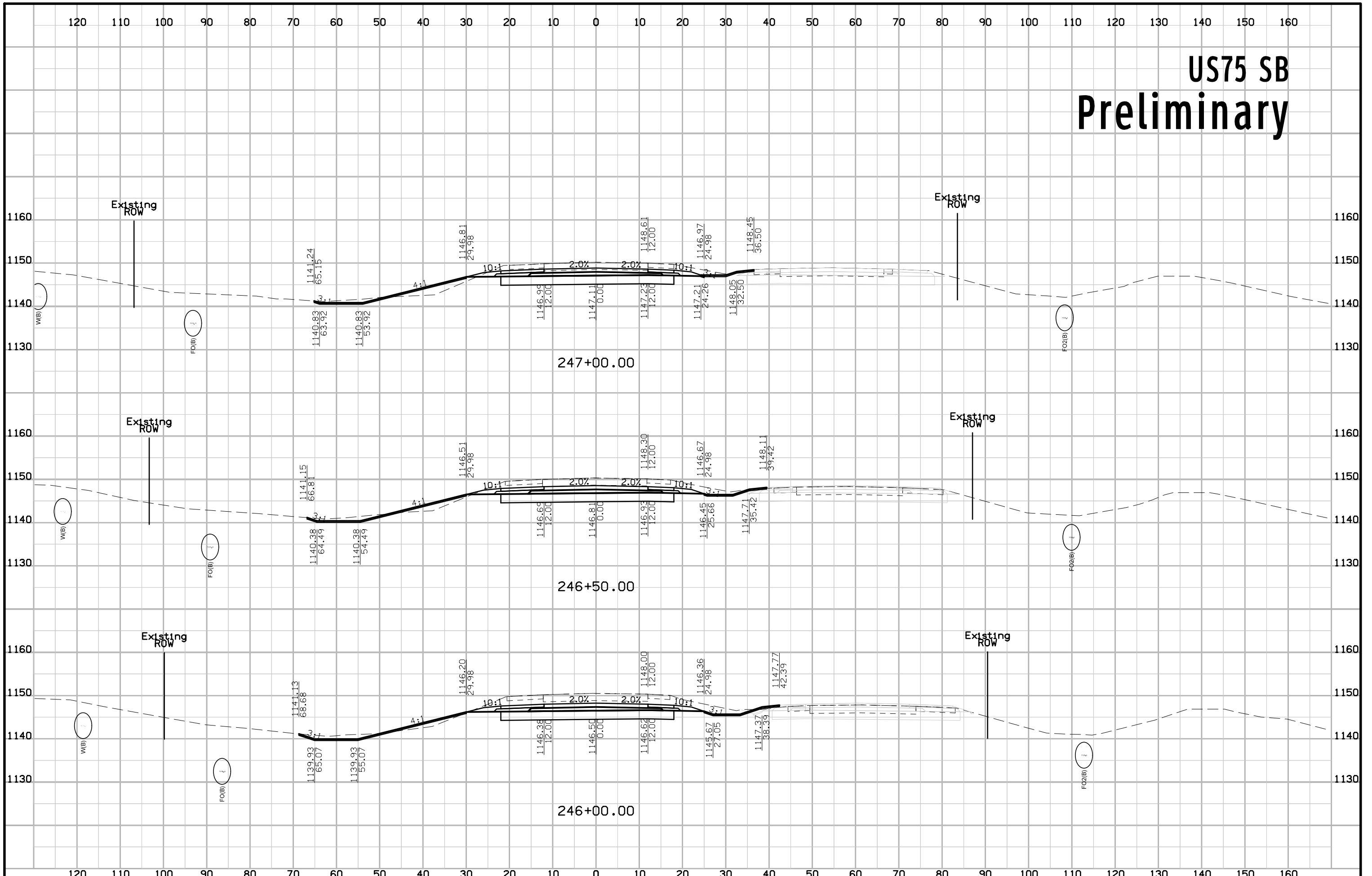
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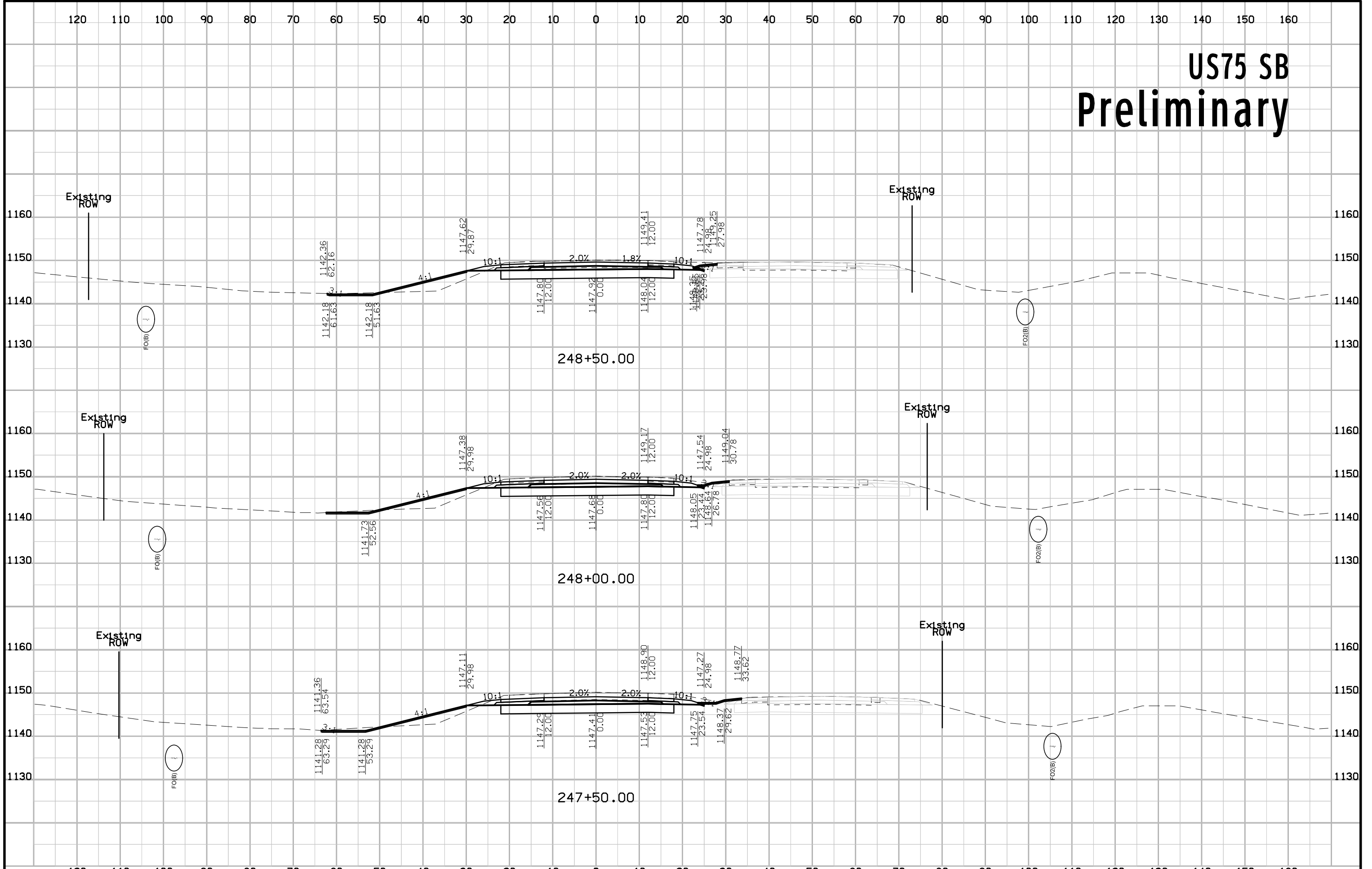
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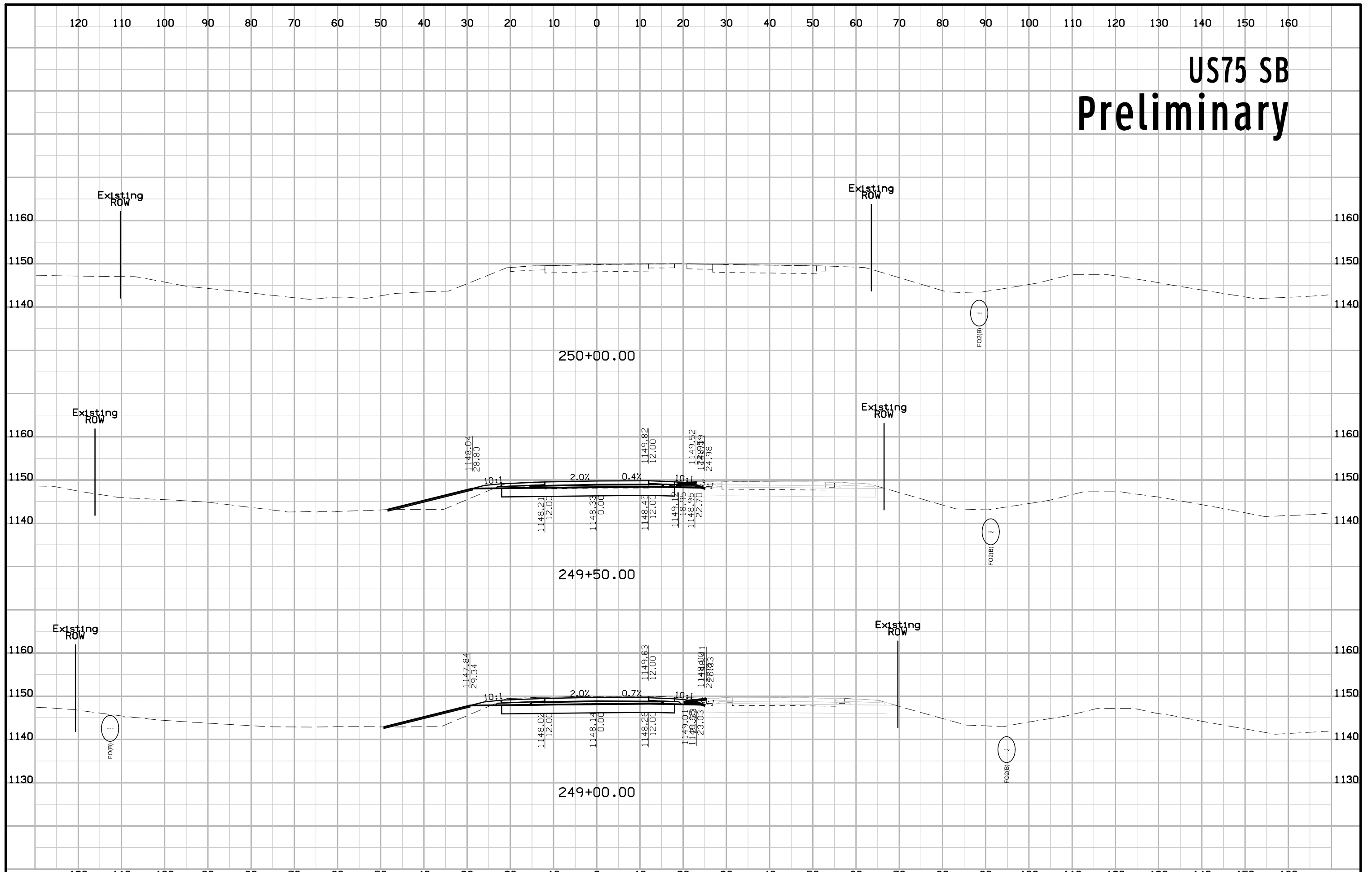
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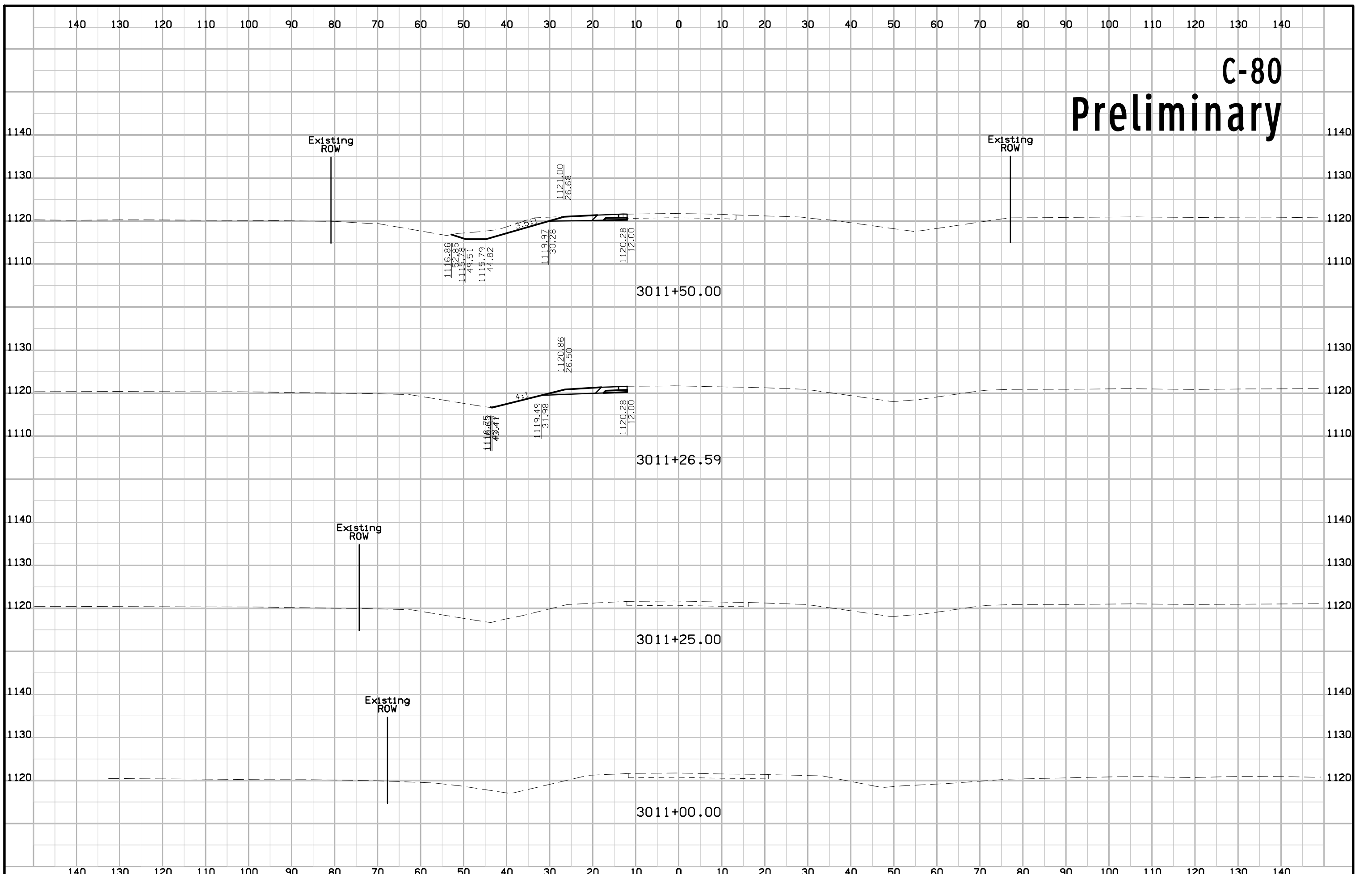
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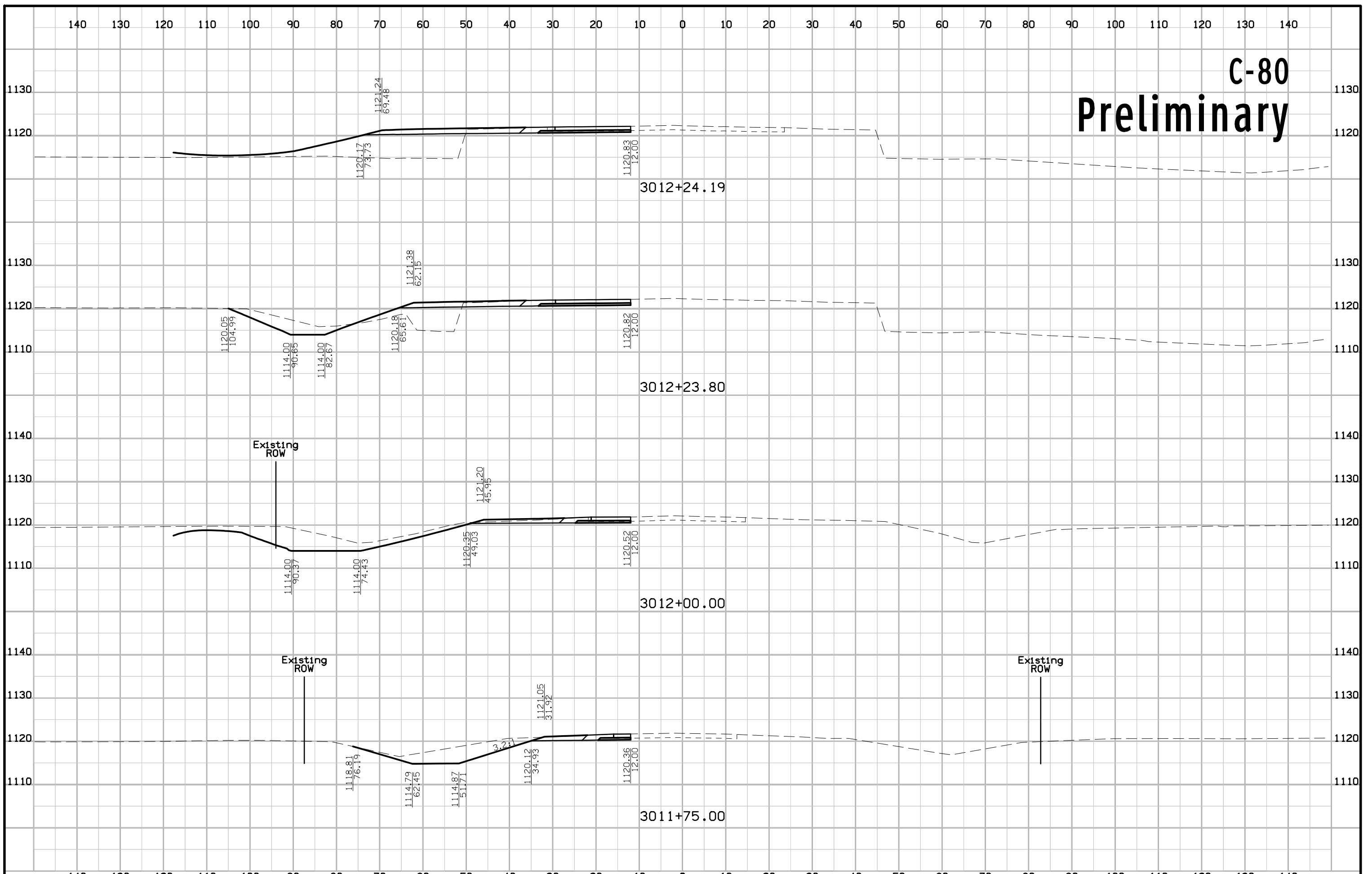
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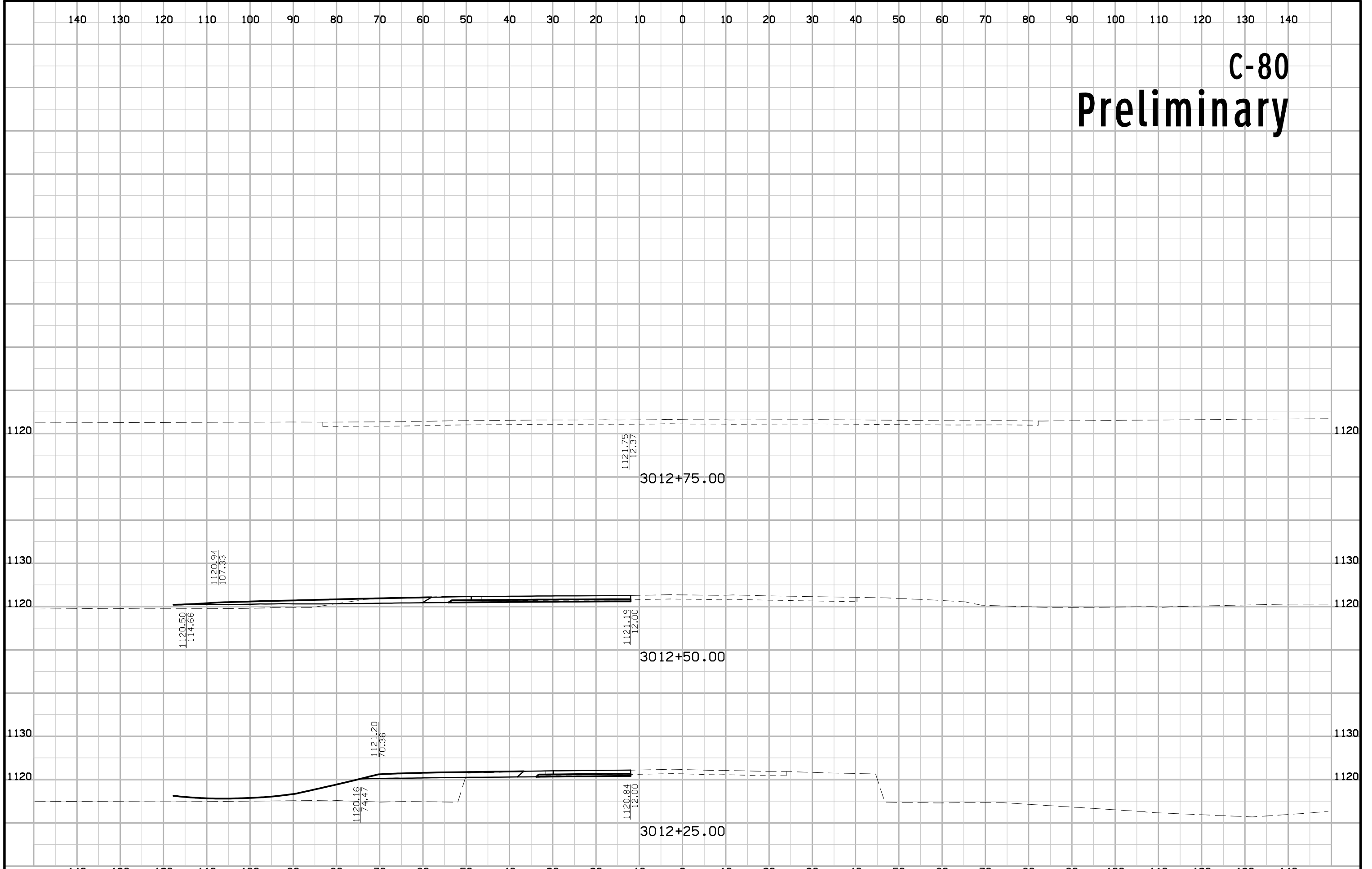
C-80 Preliminary



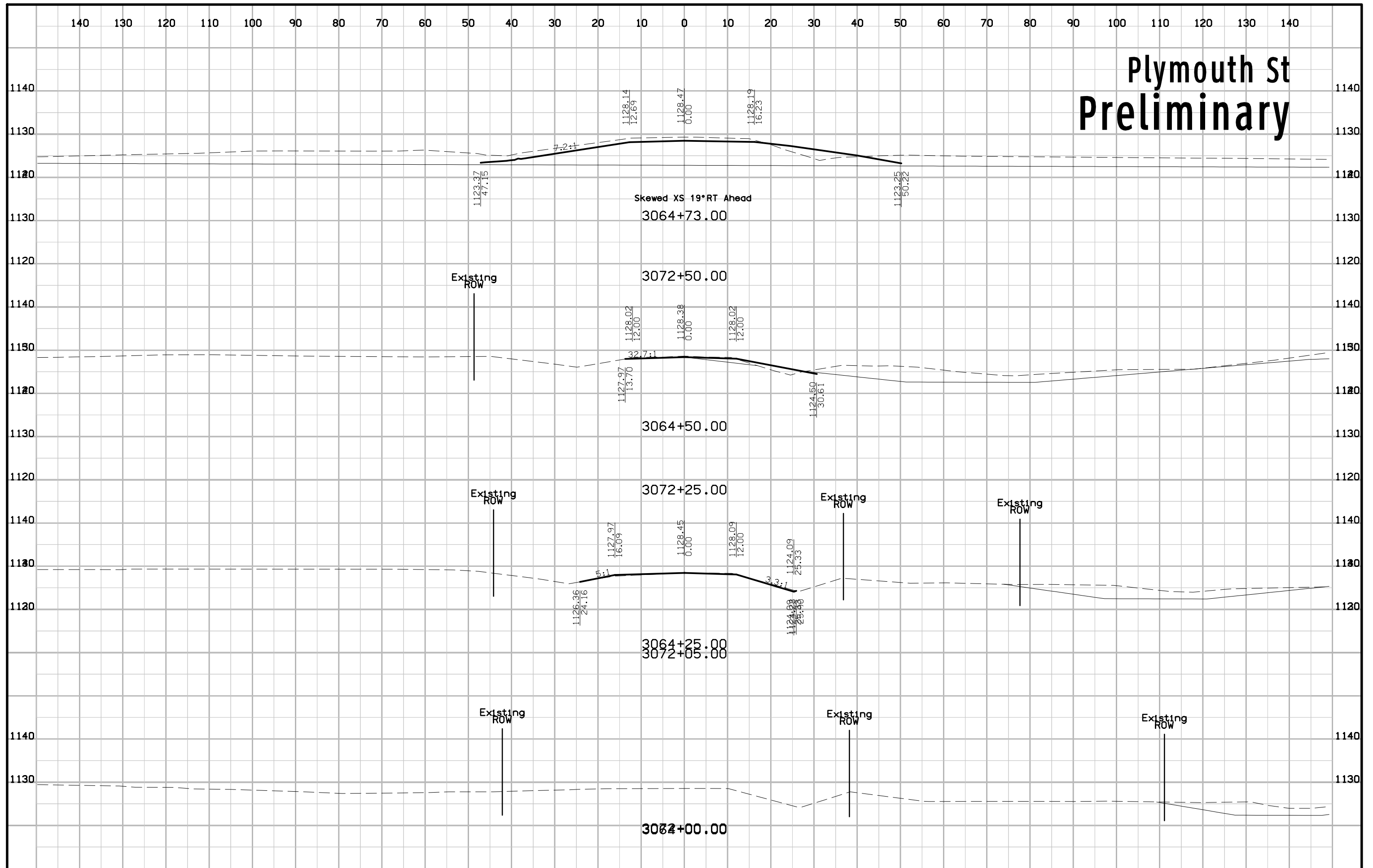
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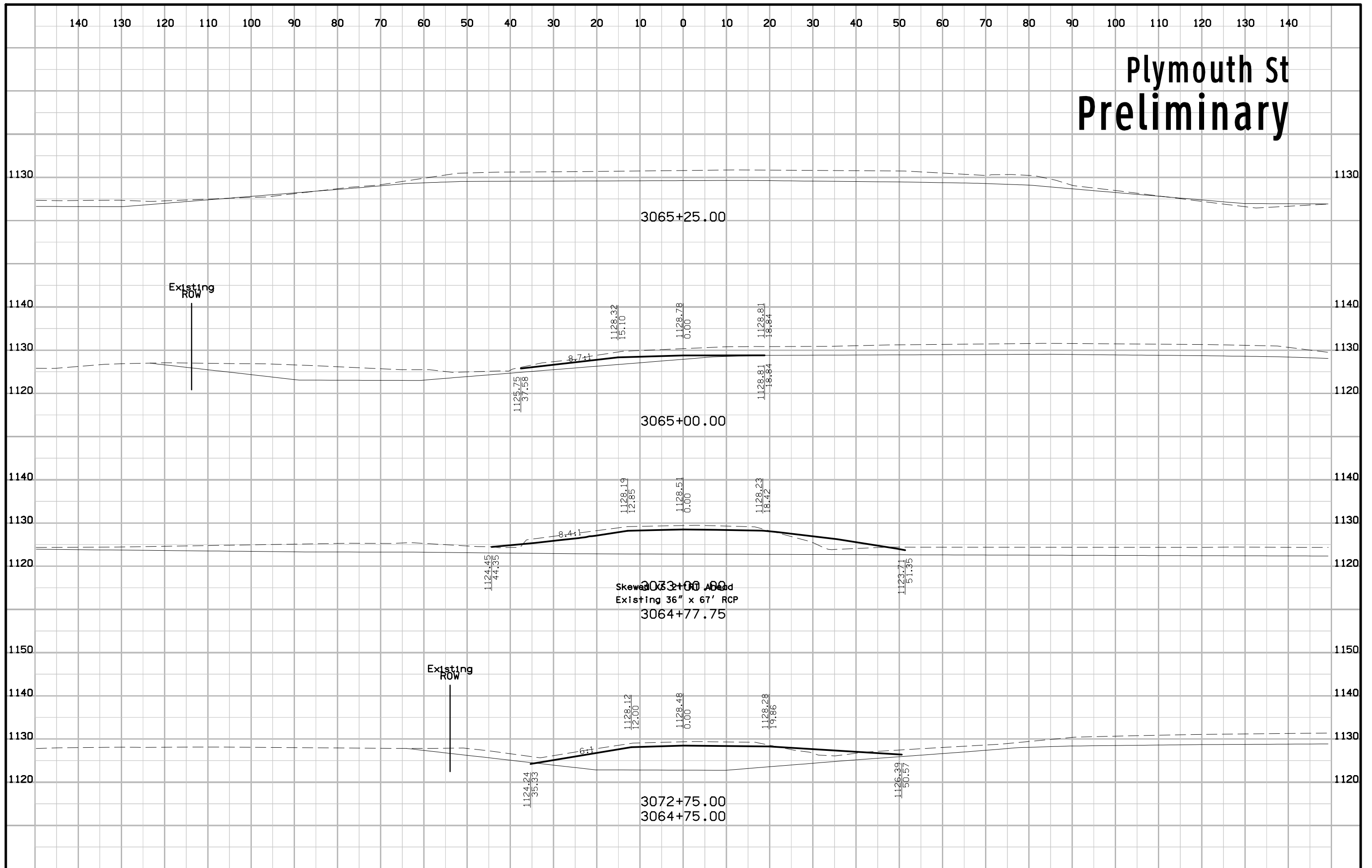
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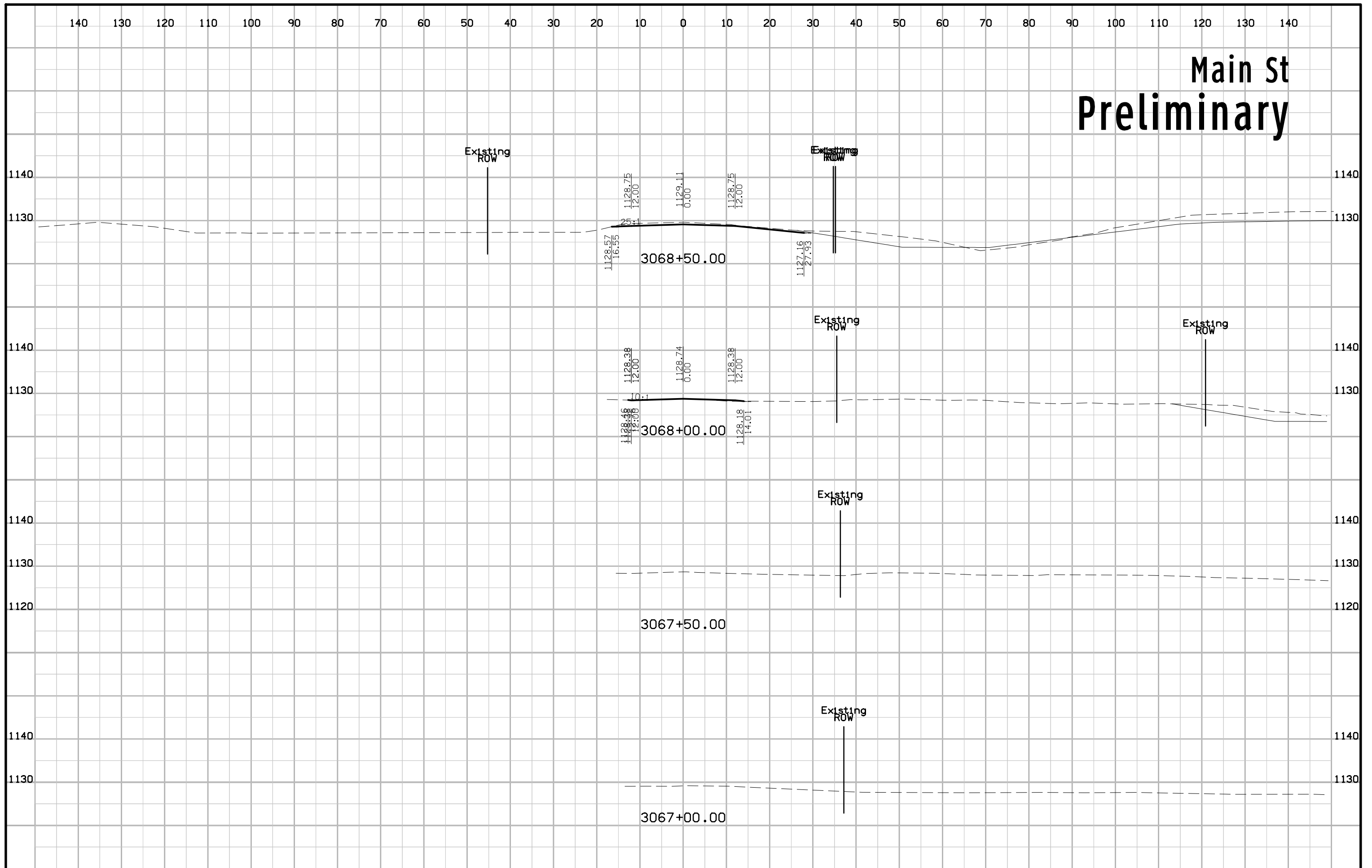
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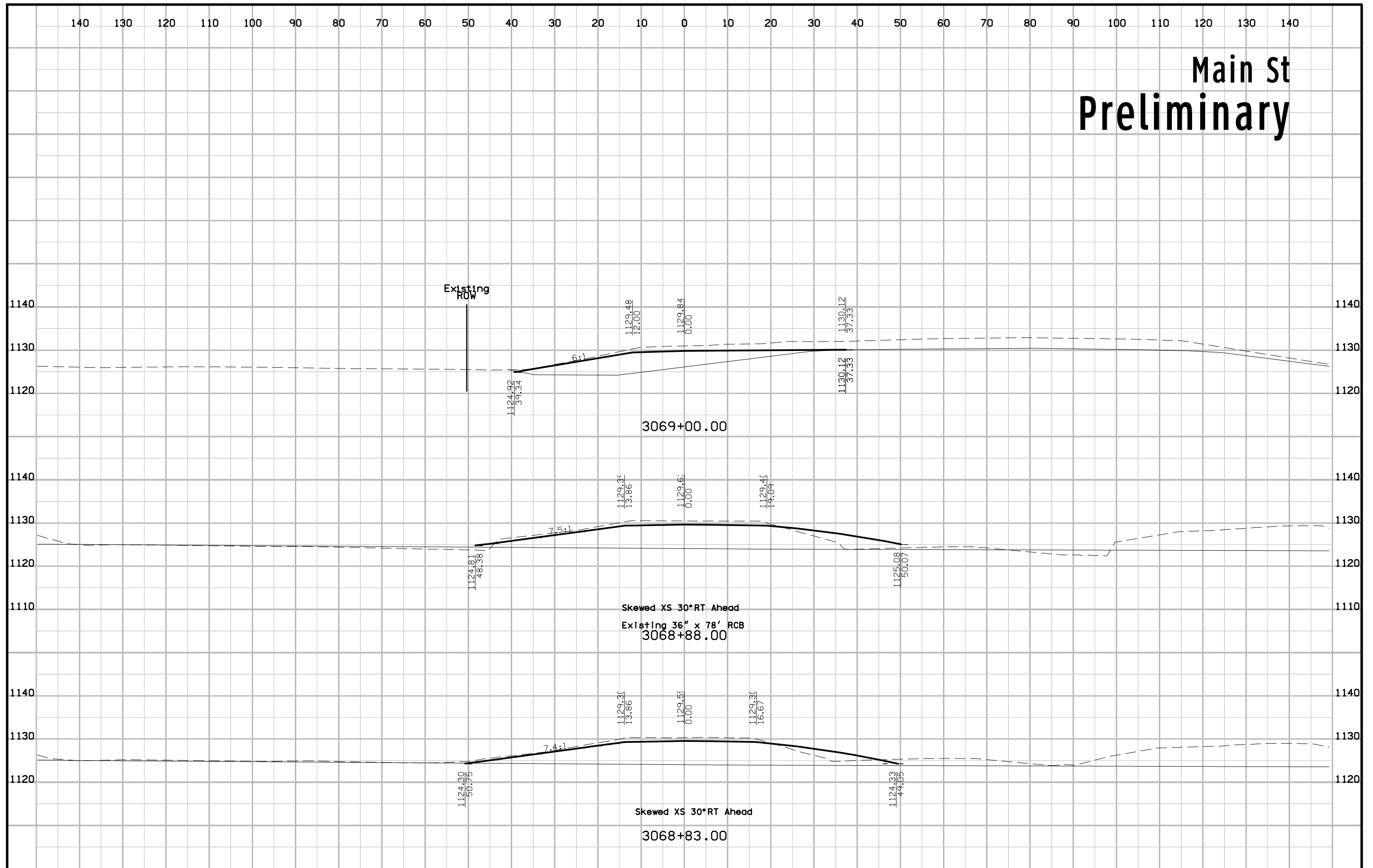
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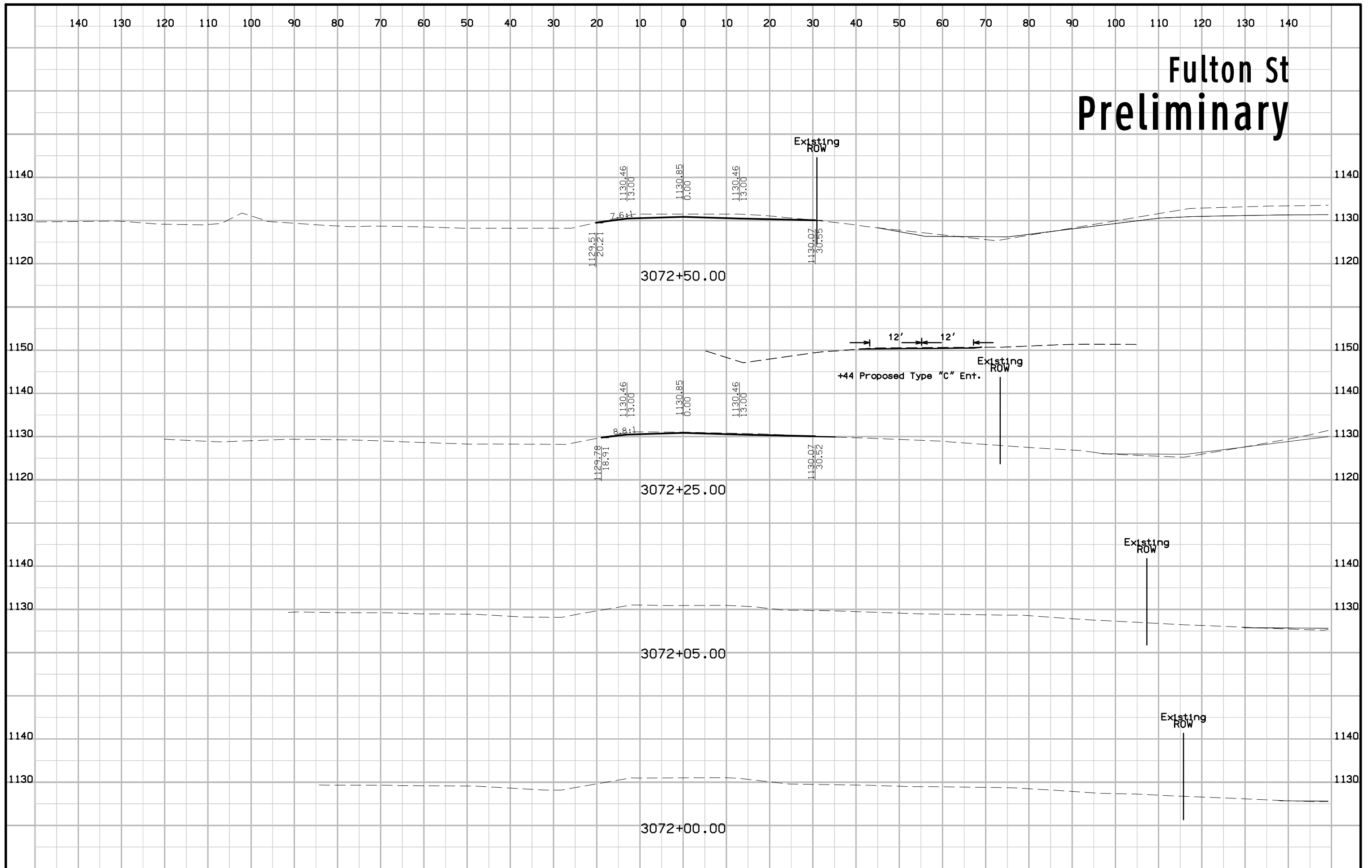
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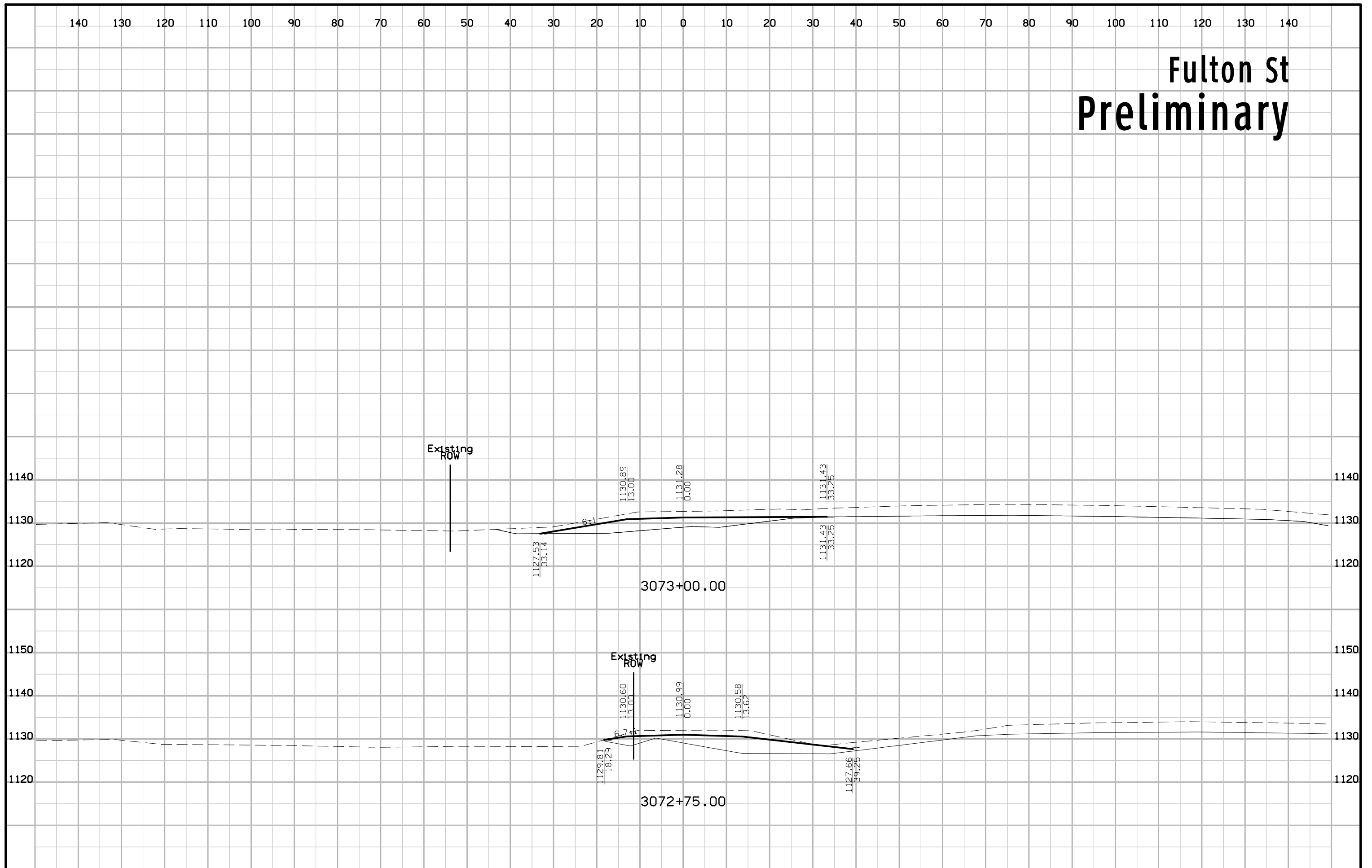
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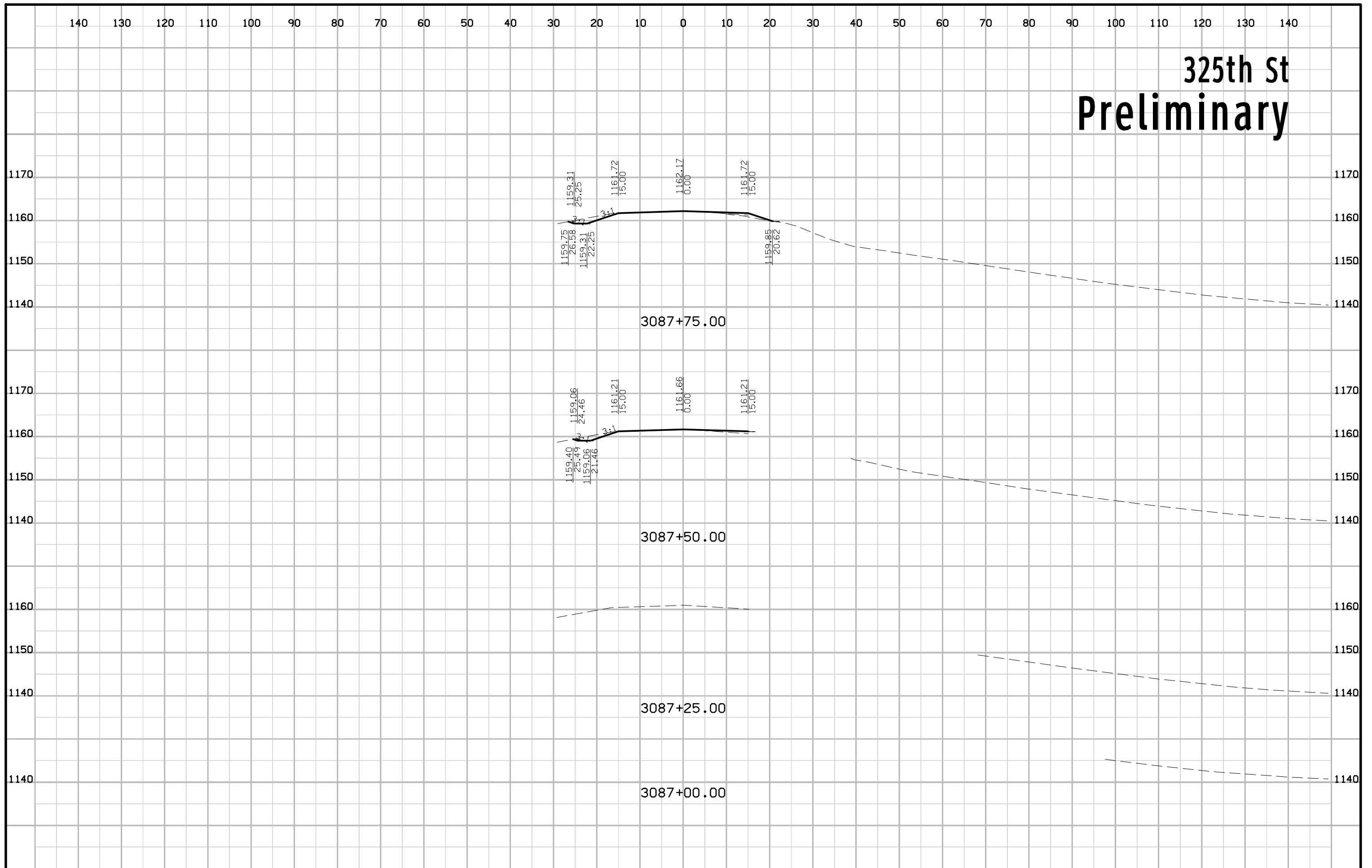
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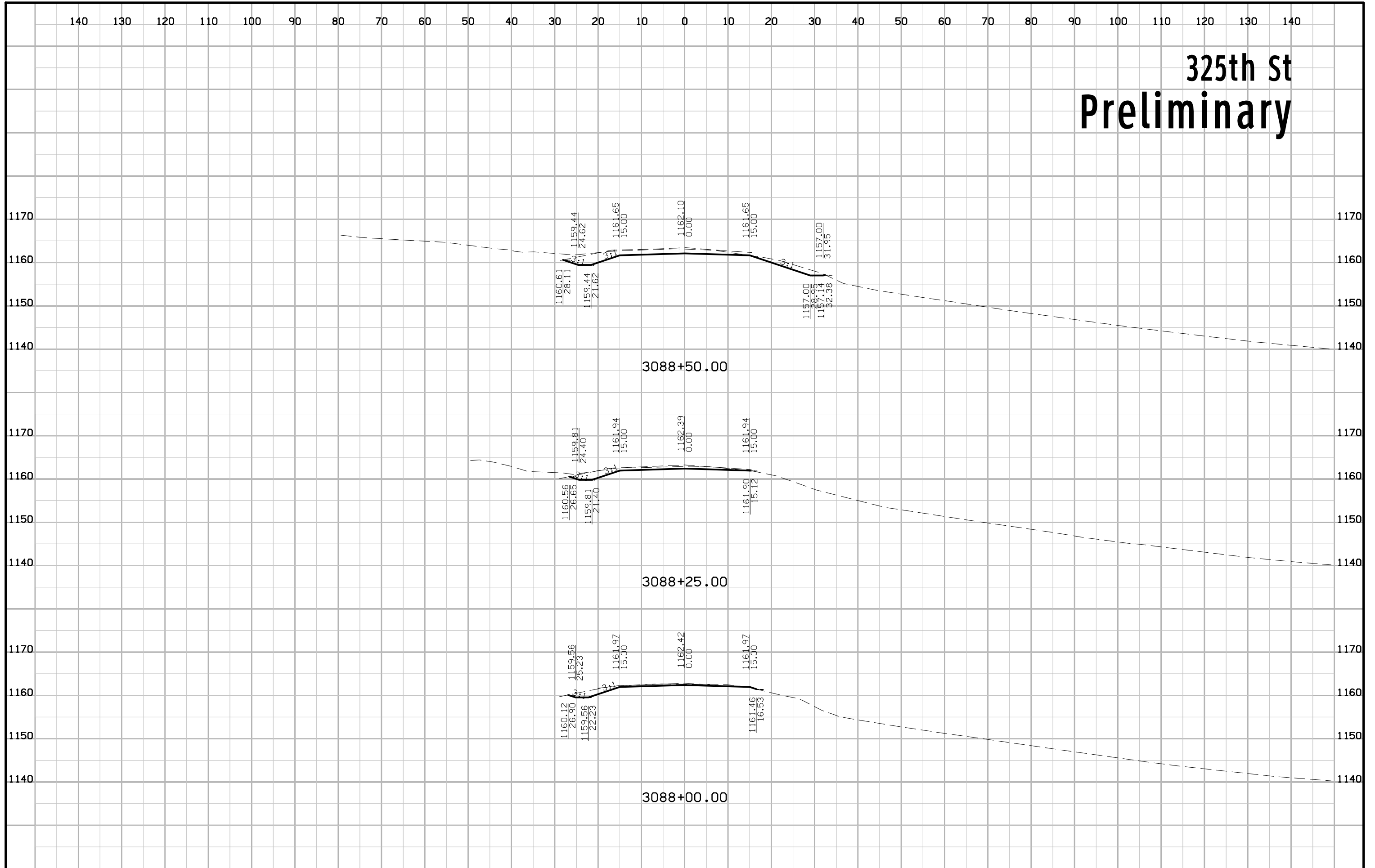
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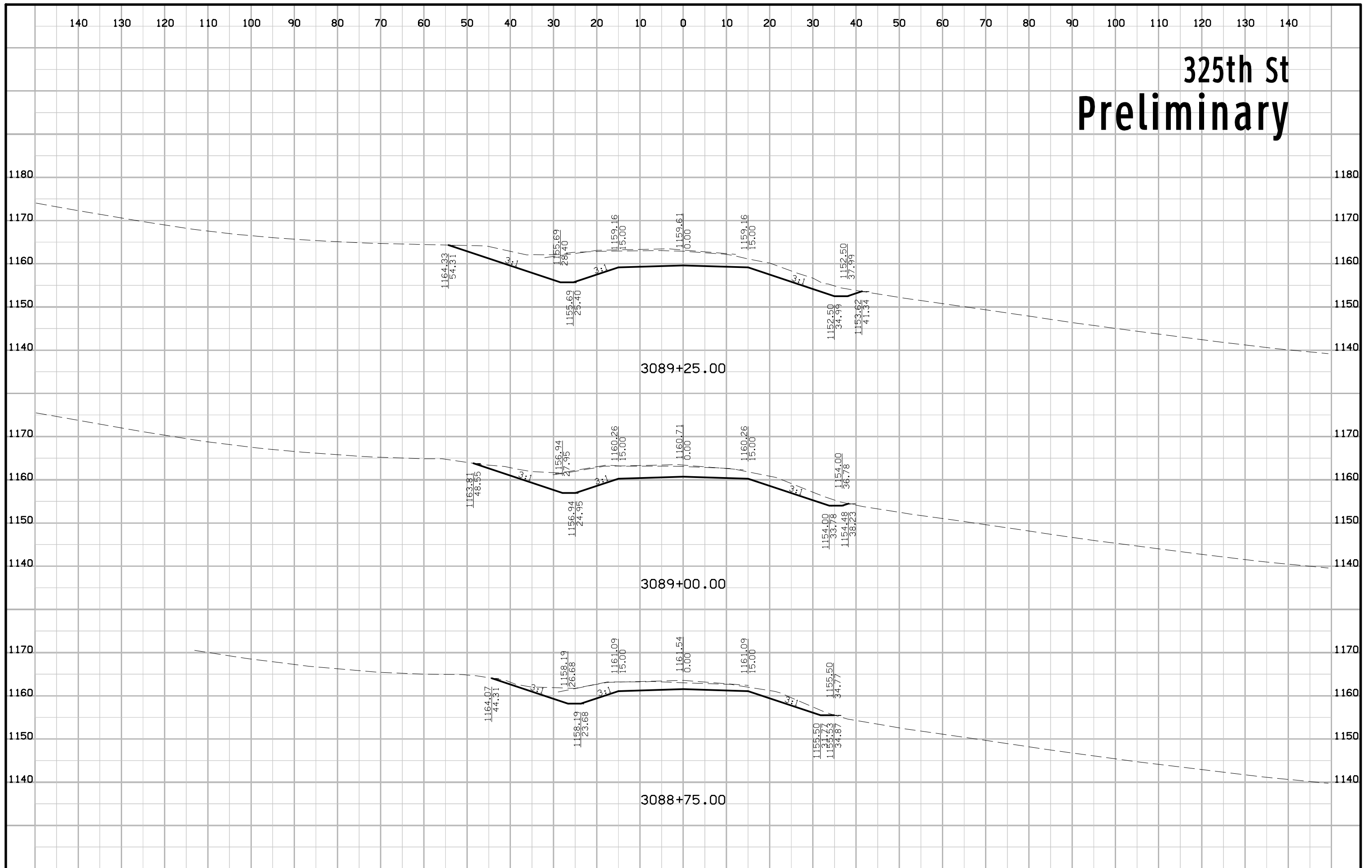
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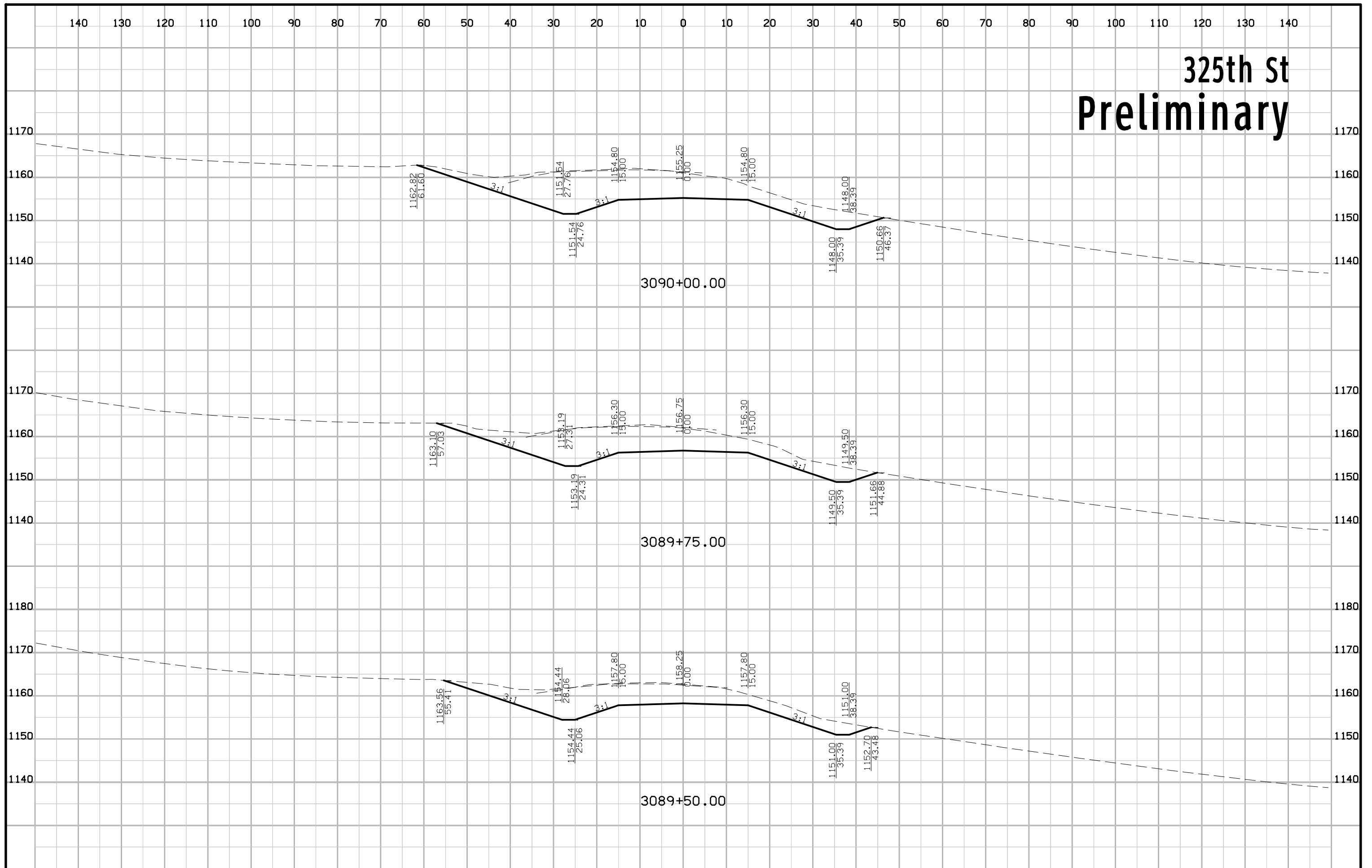
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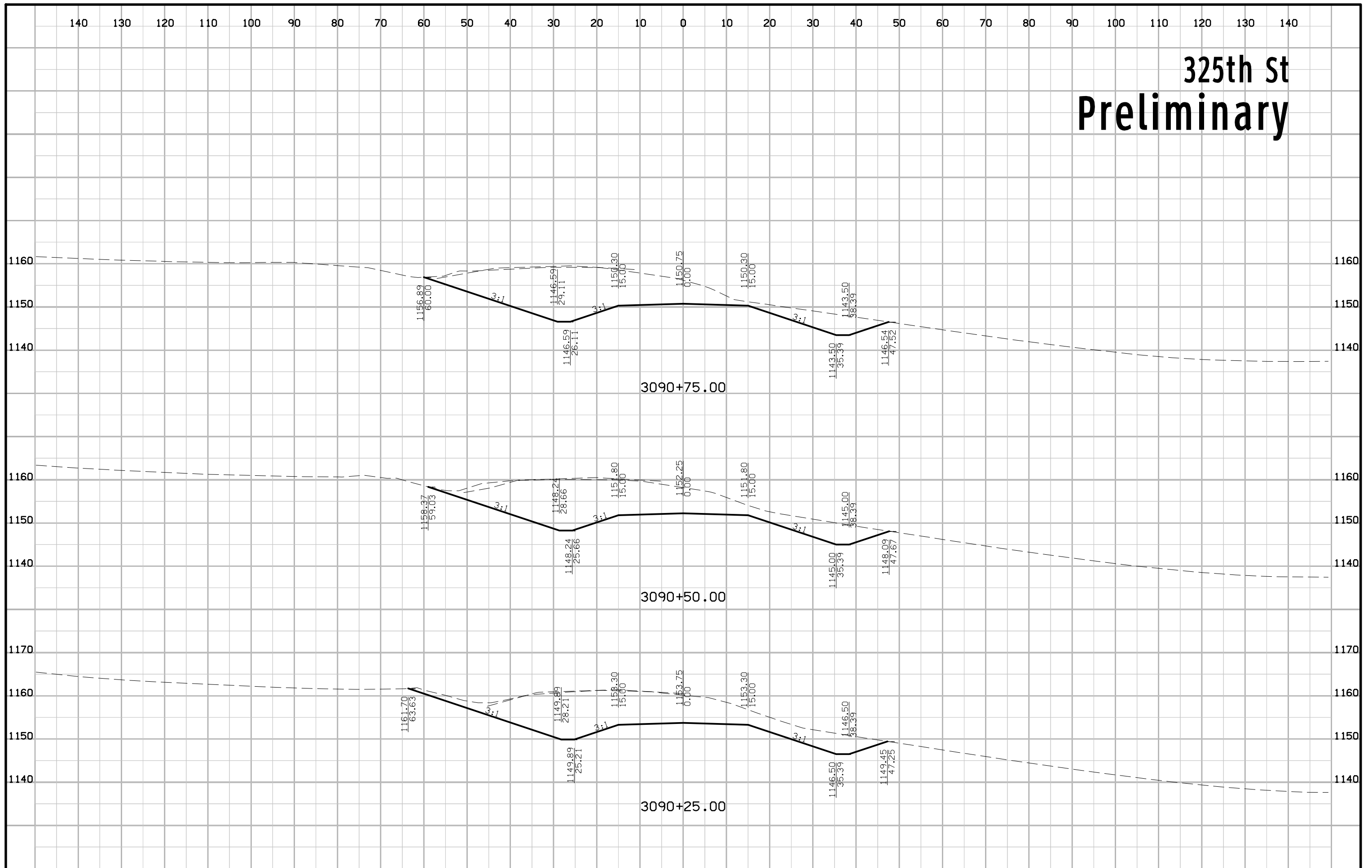
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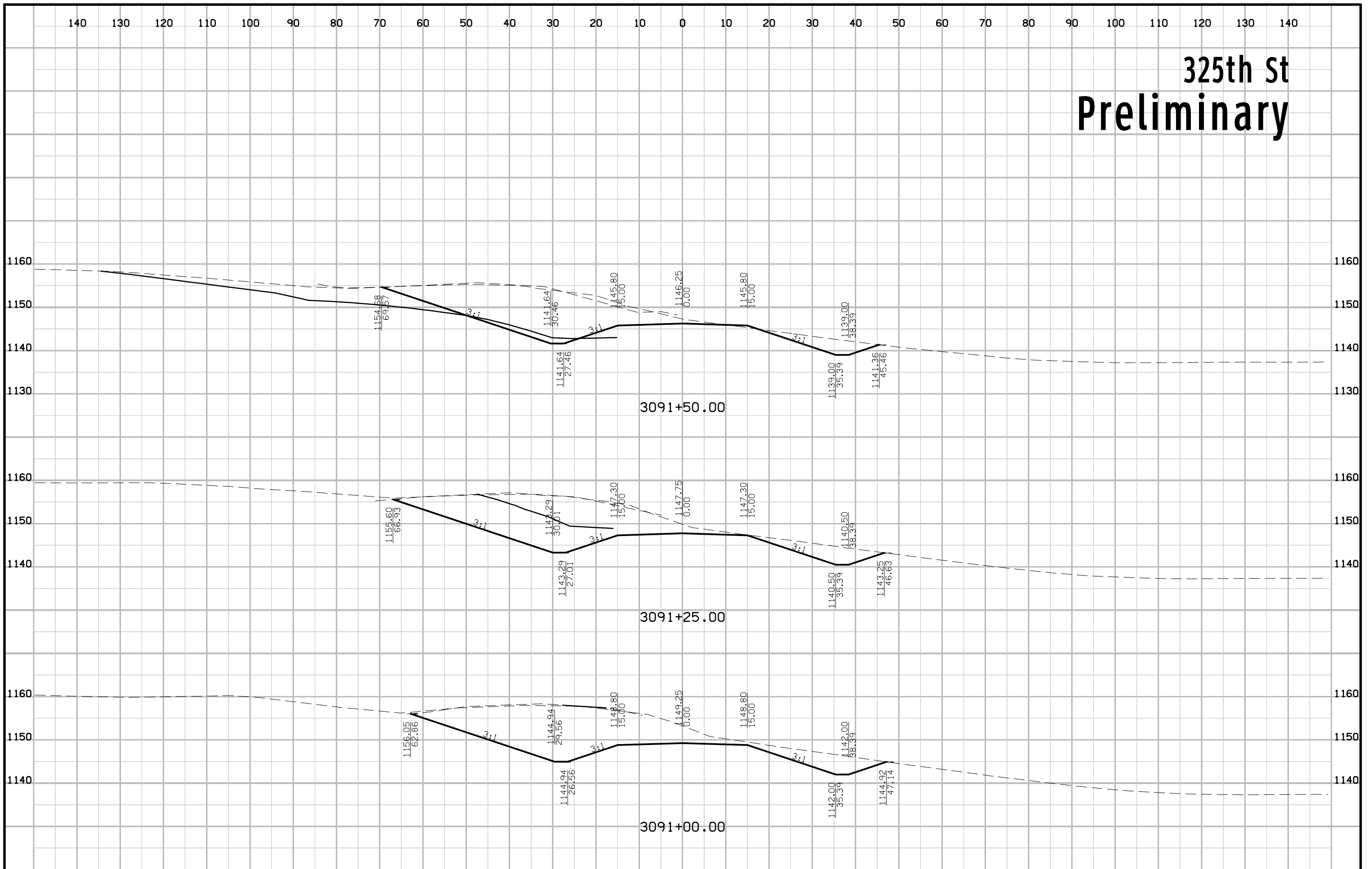
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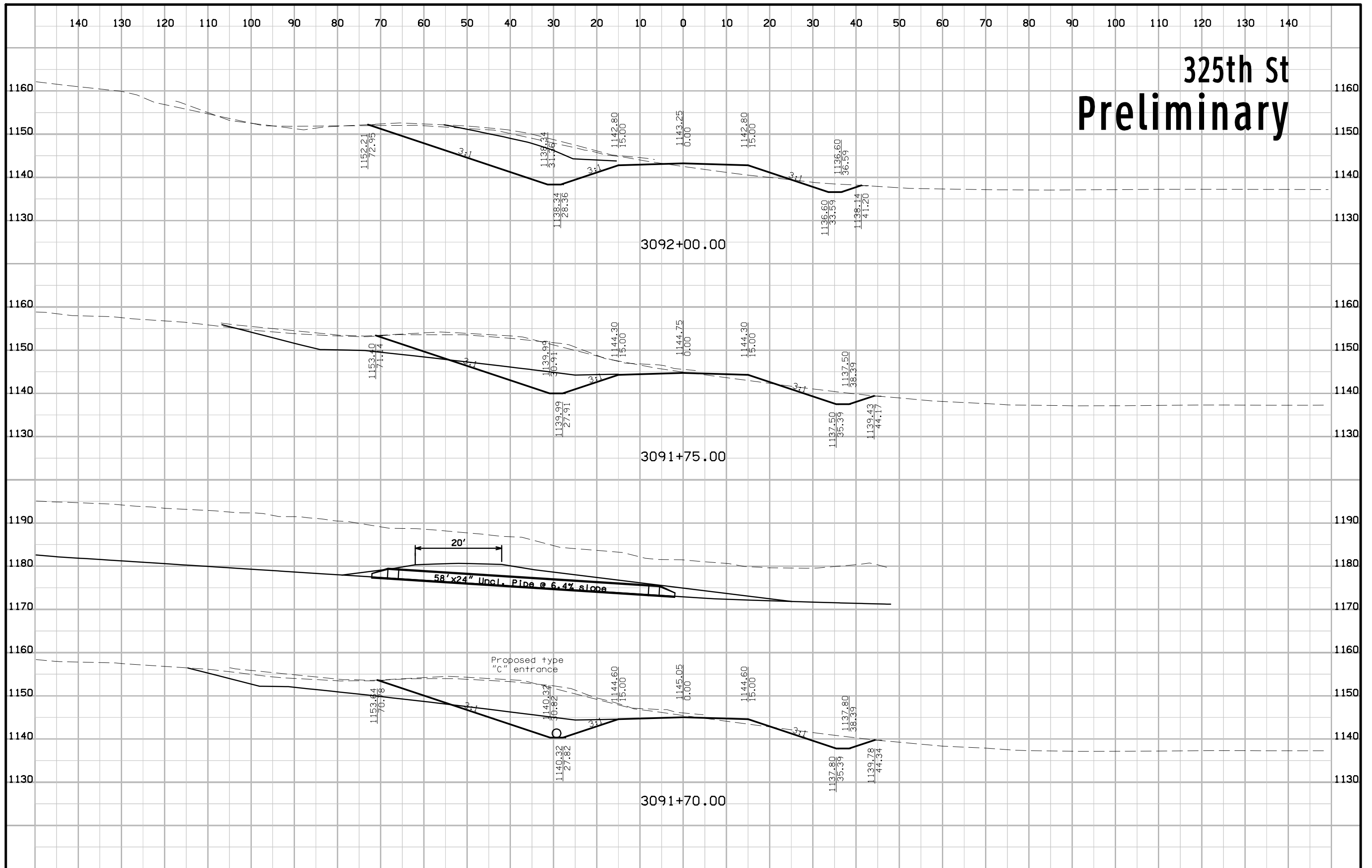
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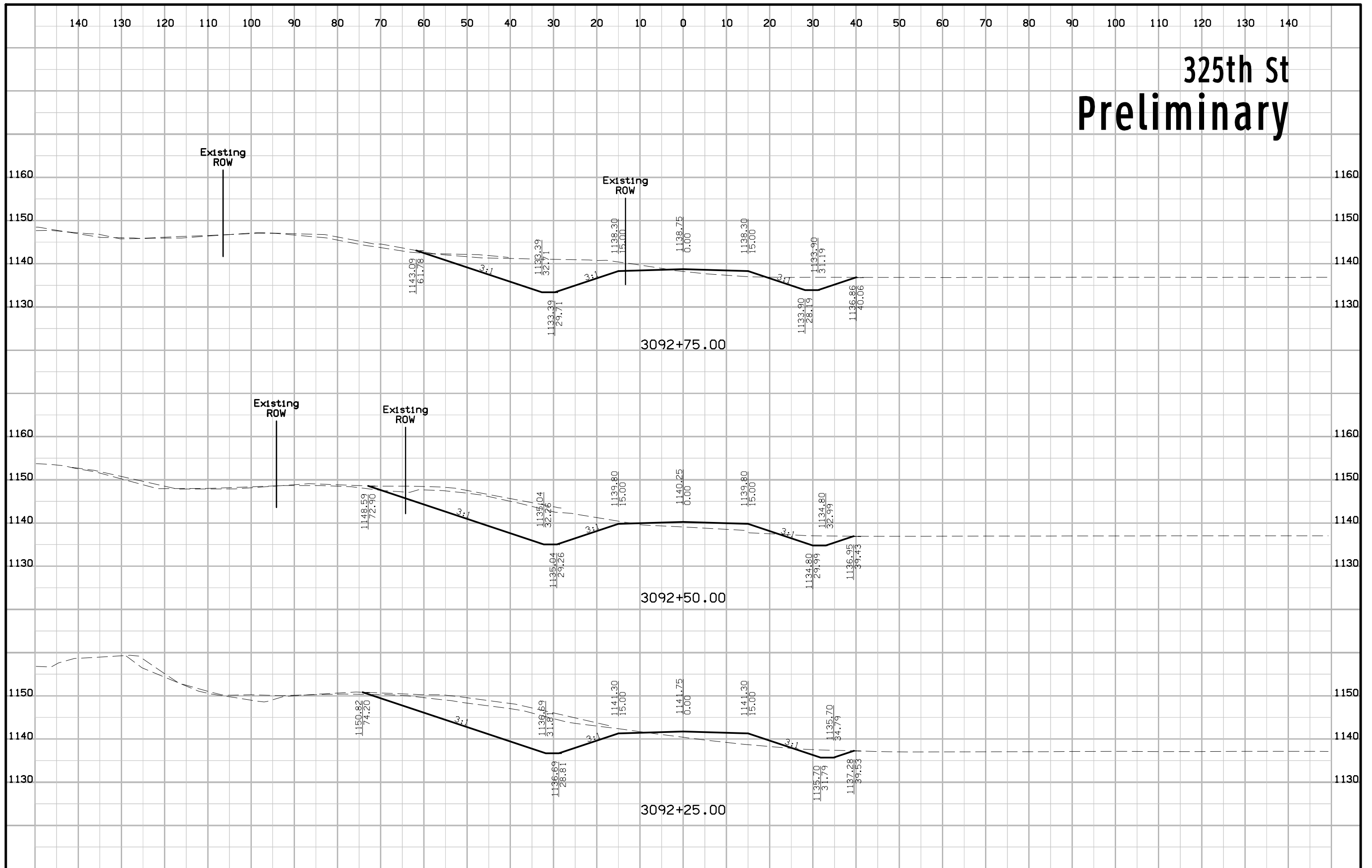
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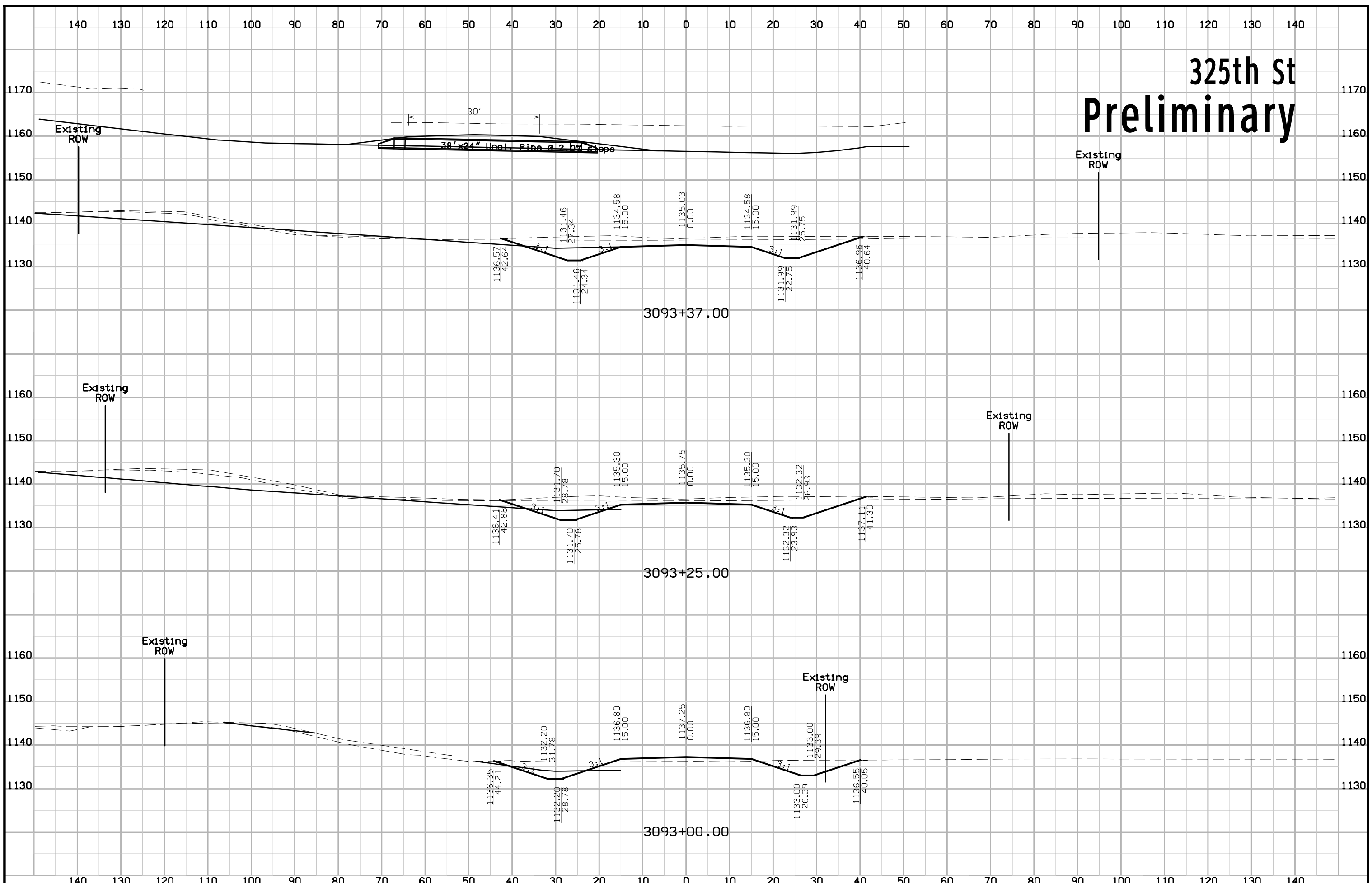
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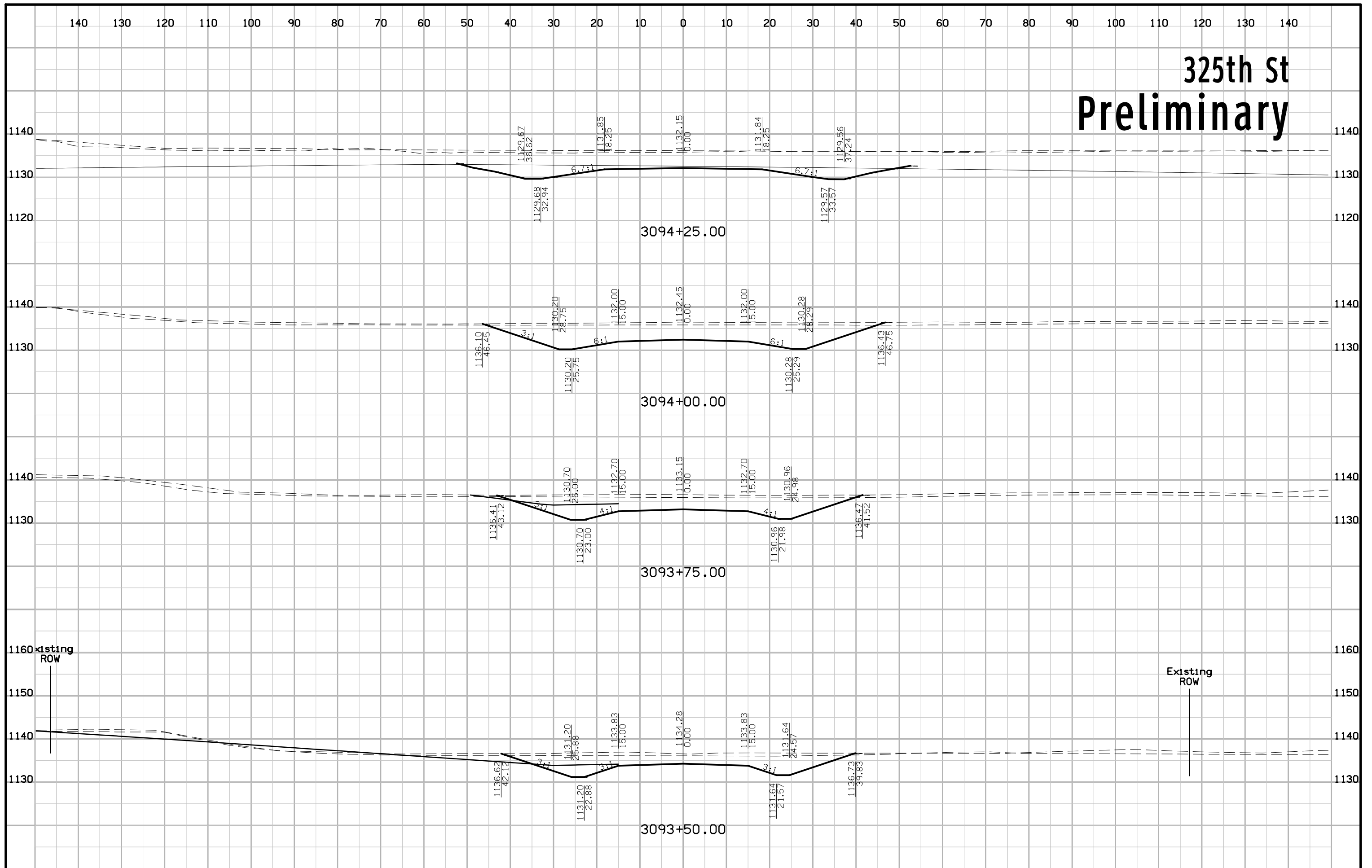
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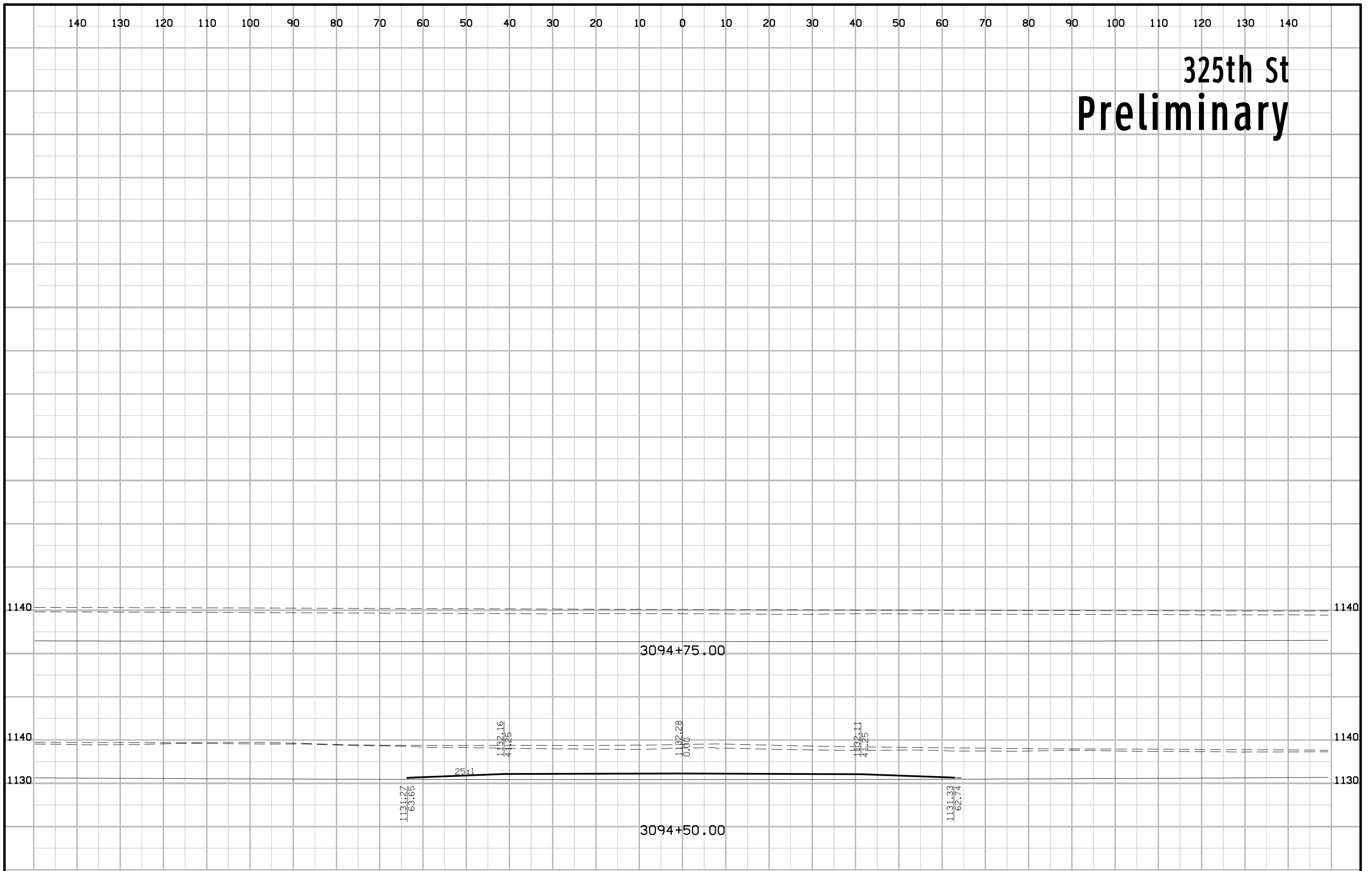
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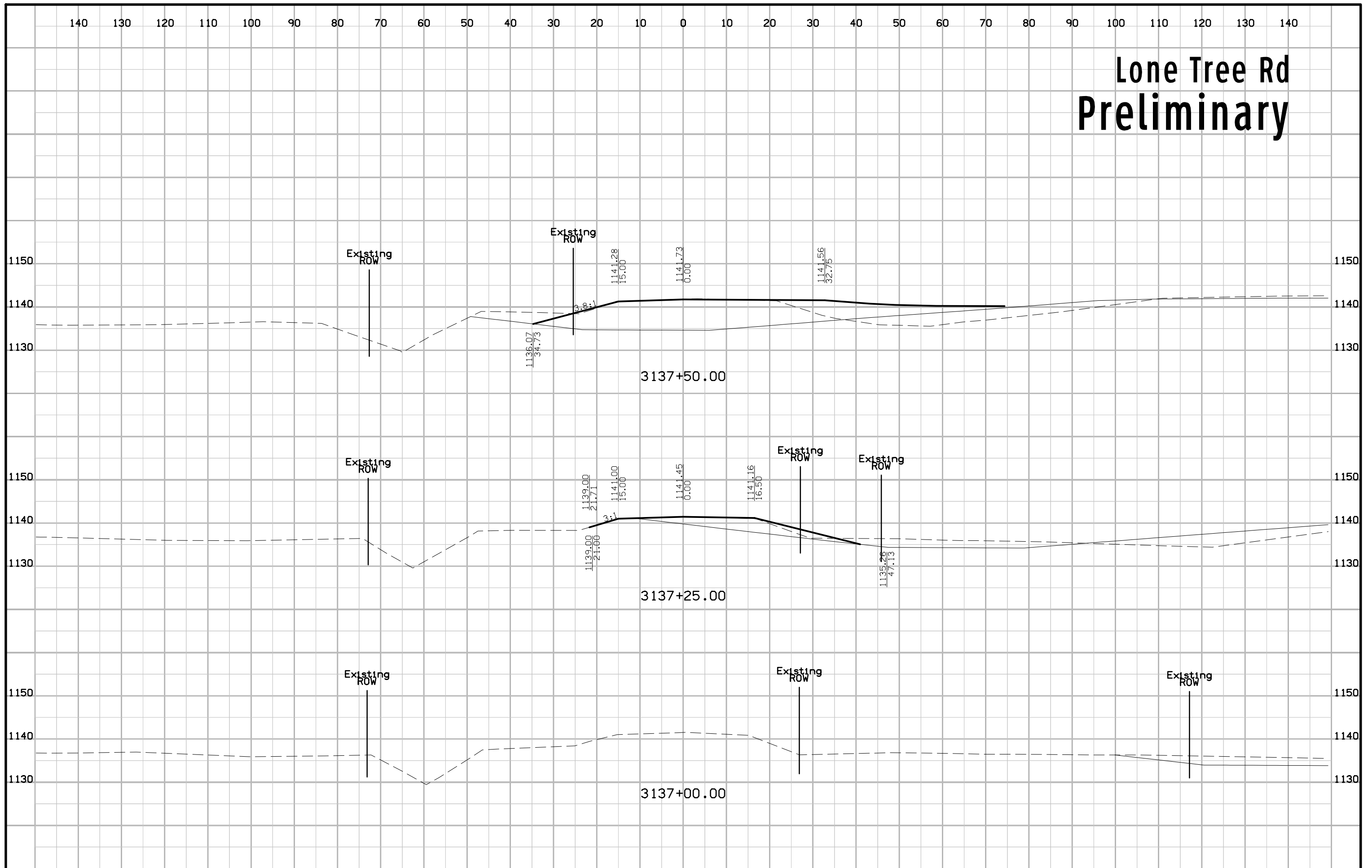
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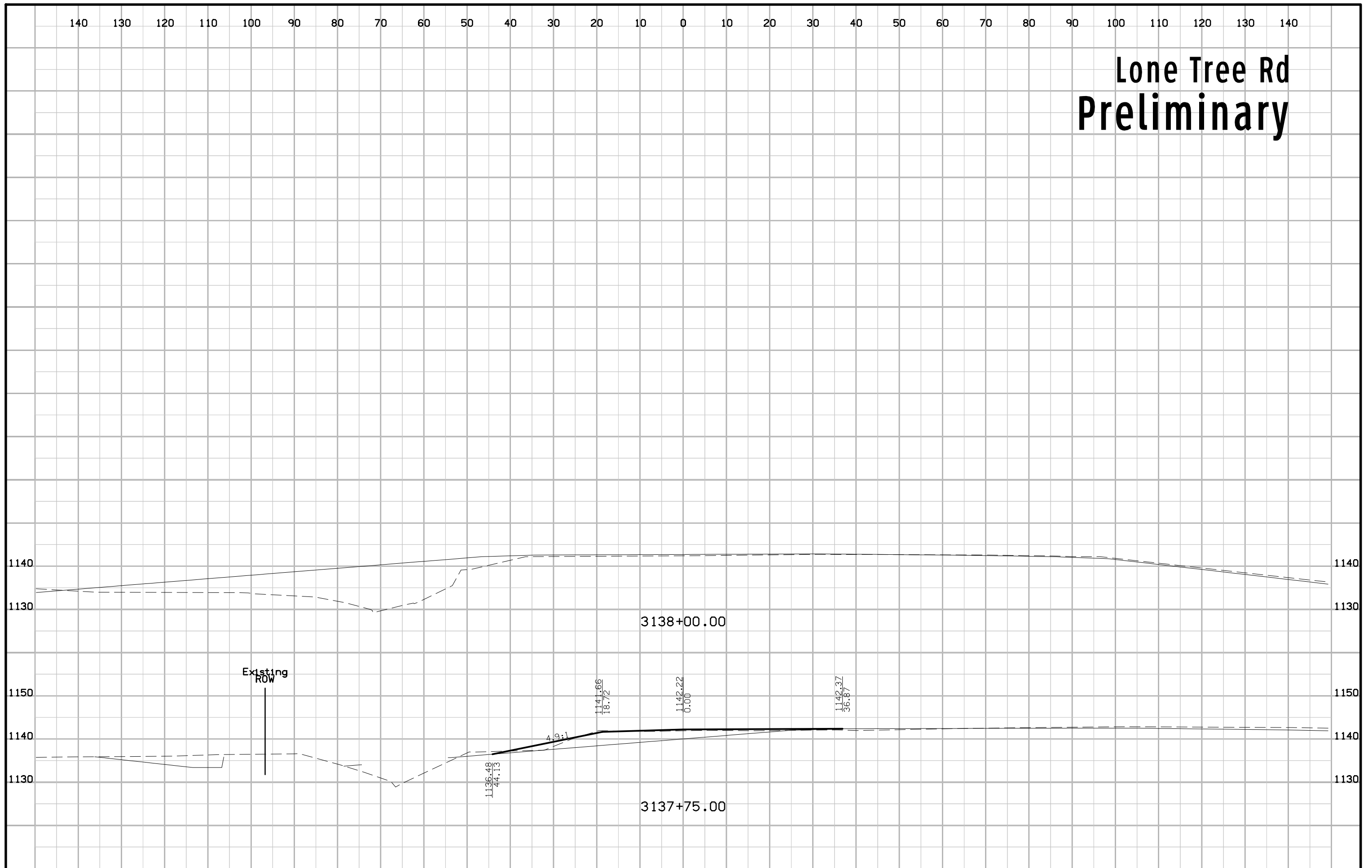
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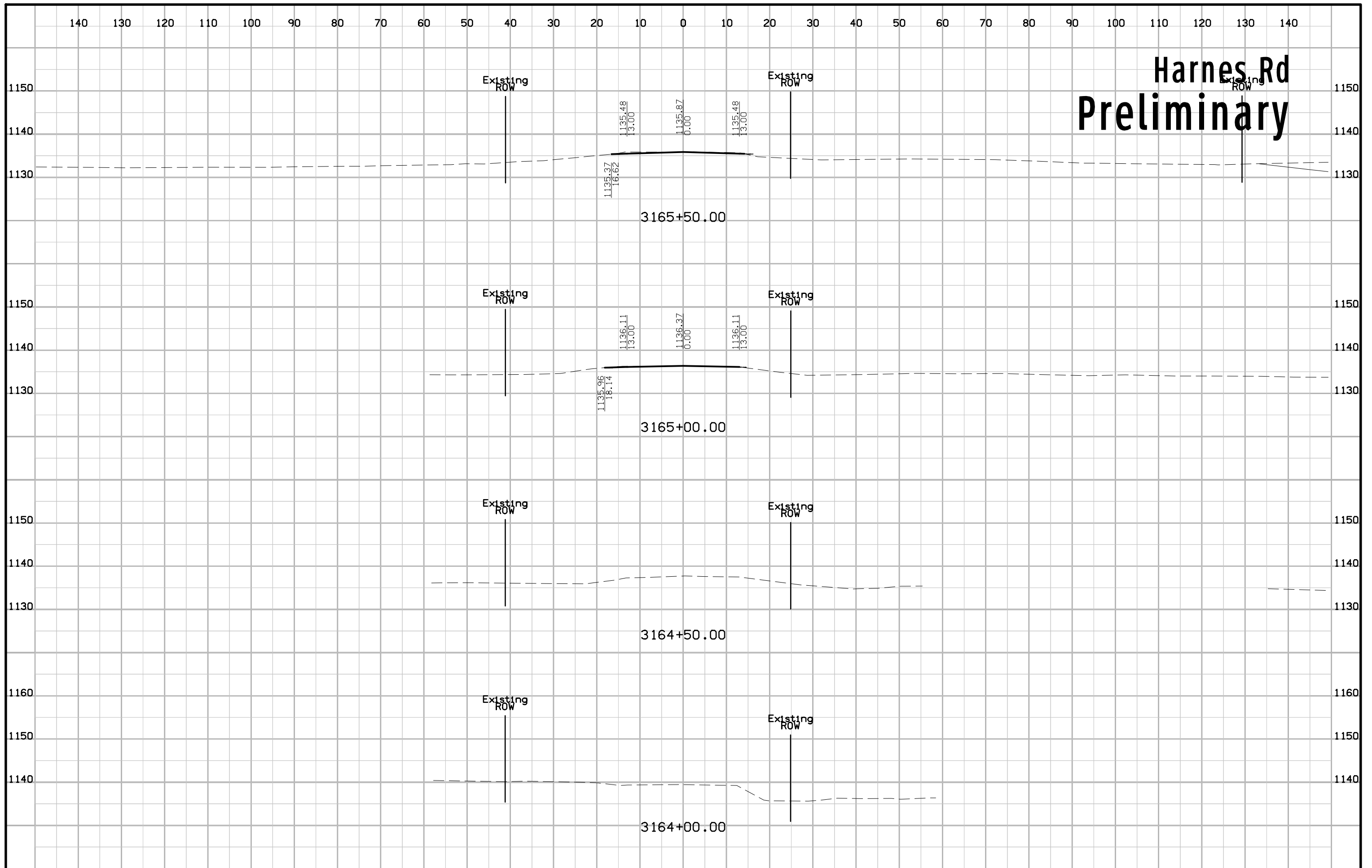
Lone Tree Rd Preliminary



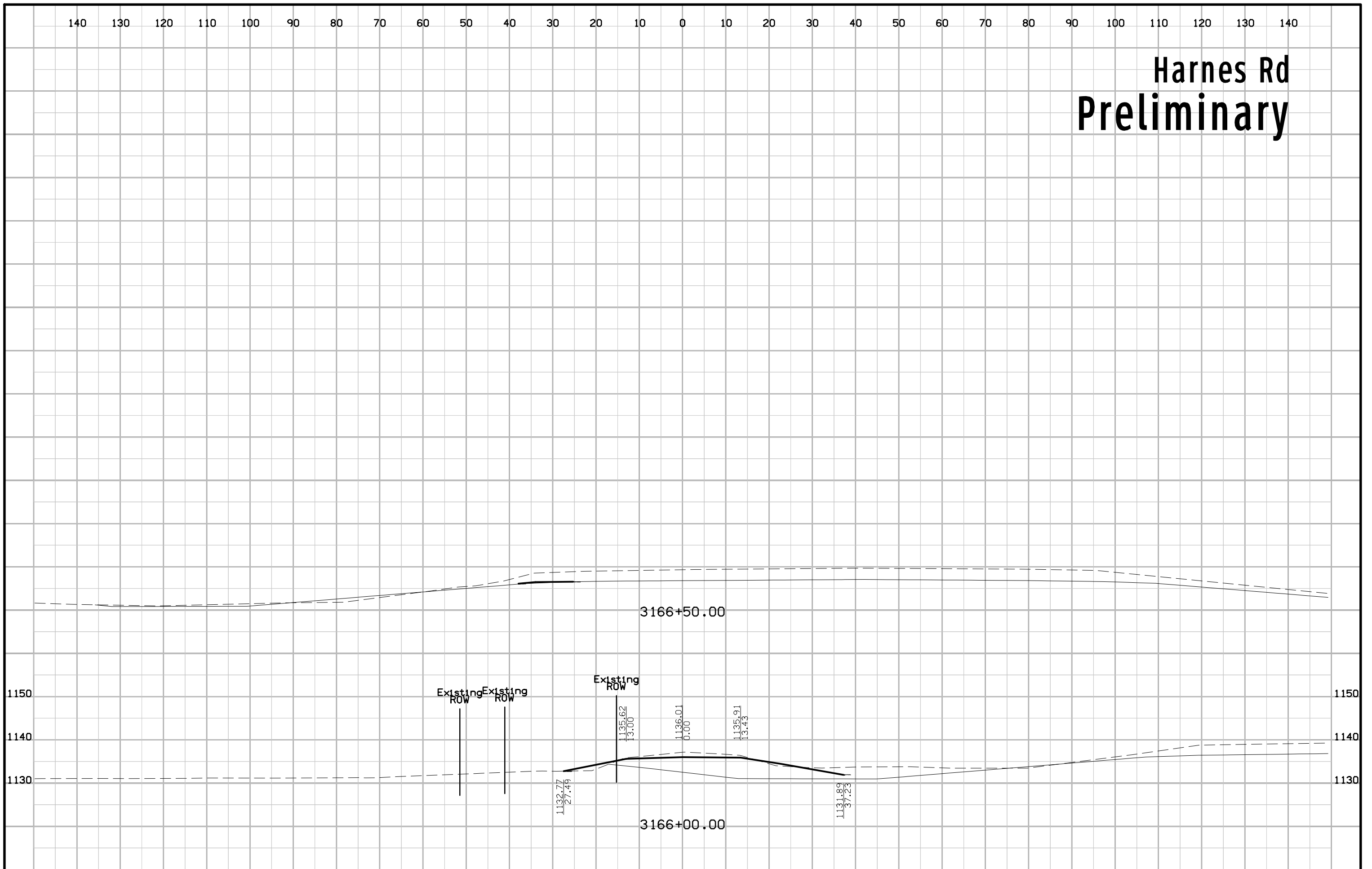
Lone Tree Rd Preliminary



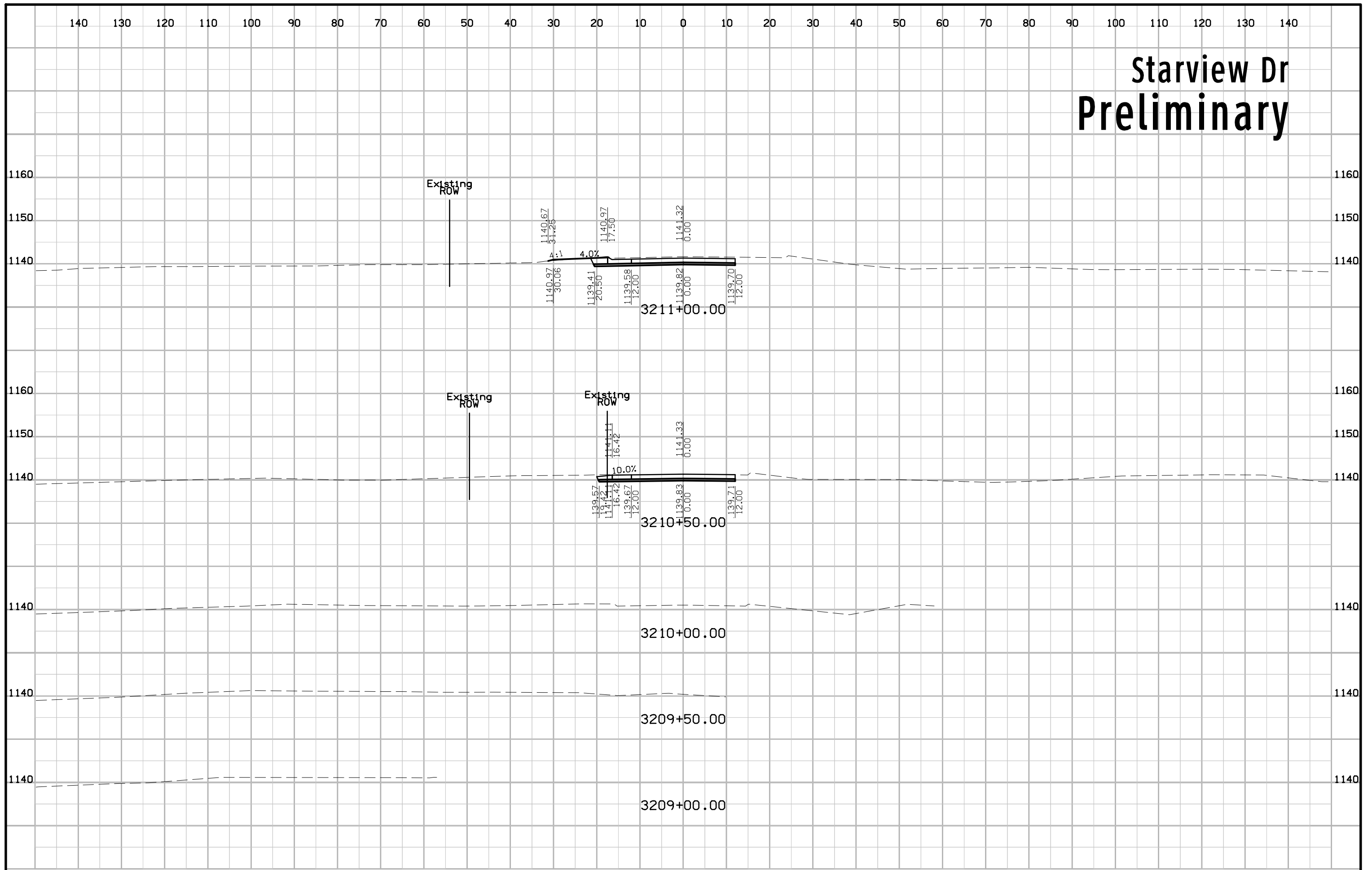
Harnes Rd Preliminary



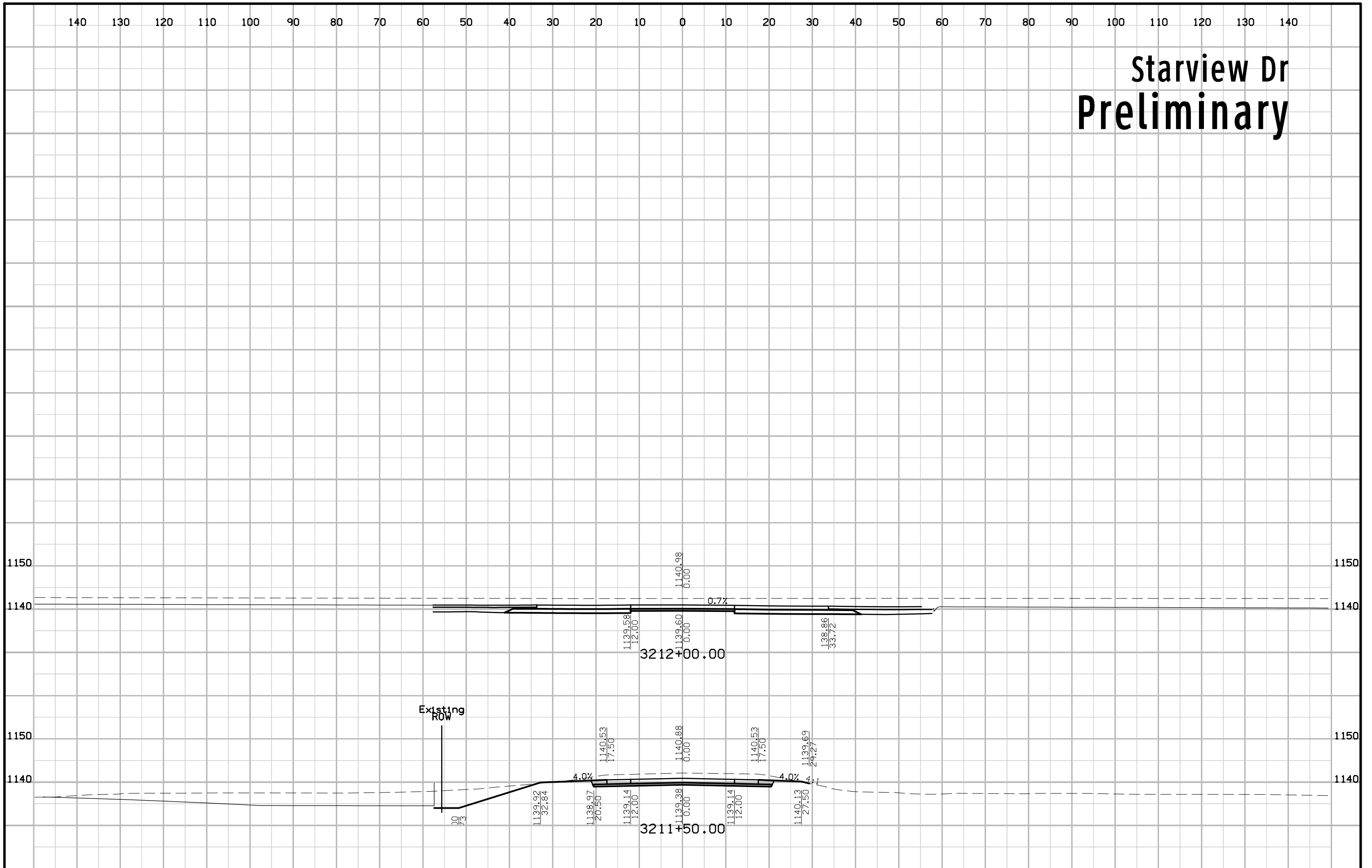
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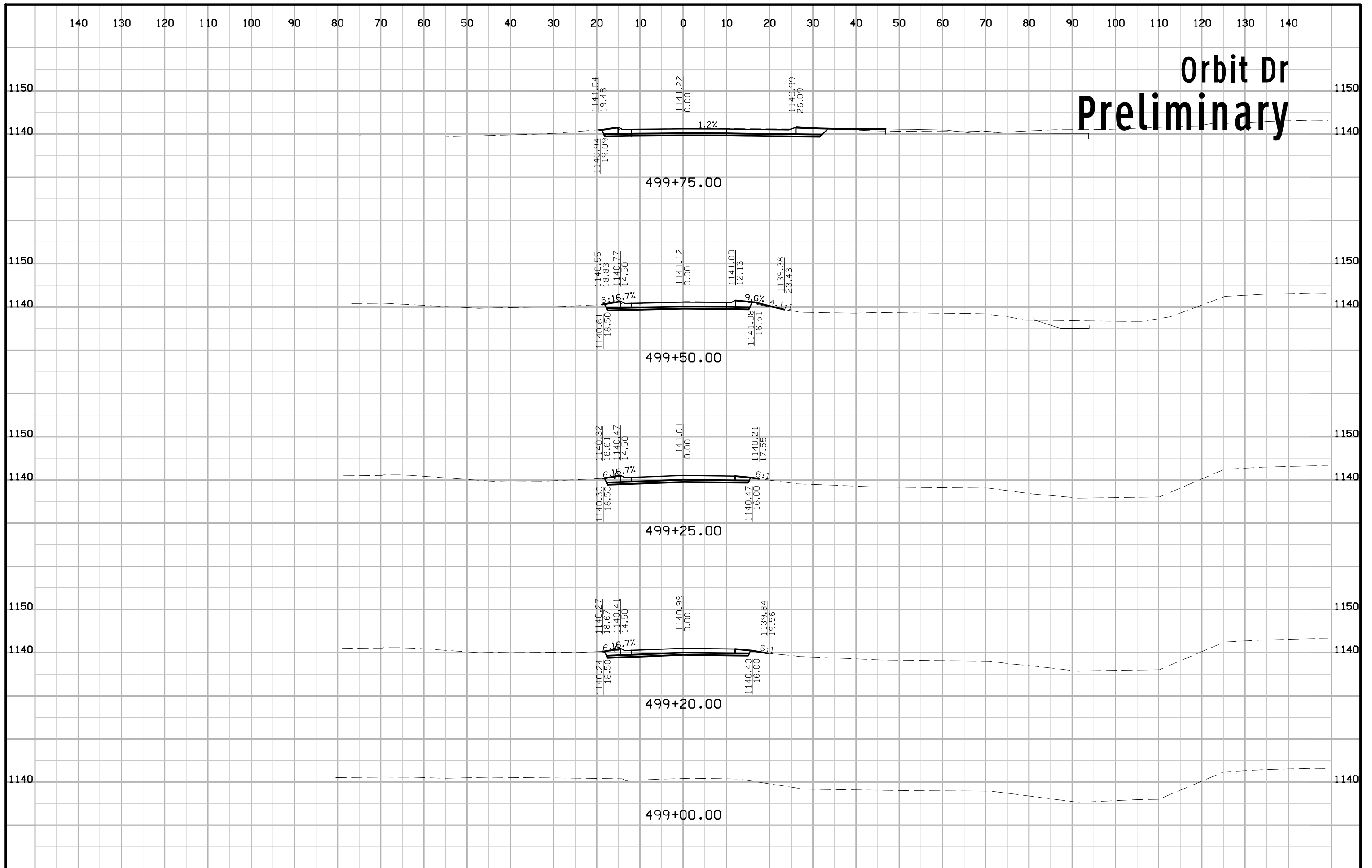
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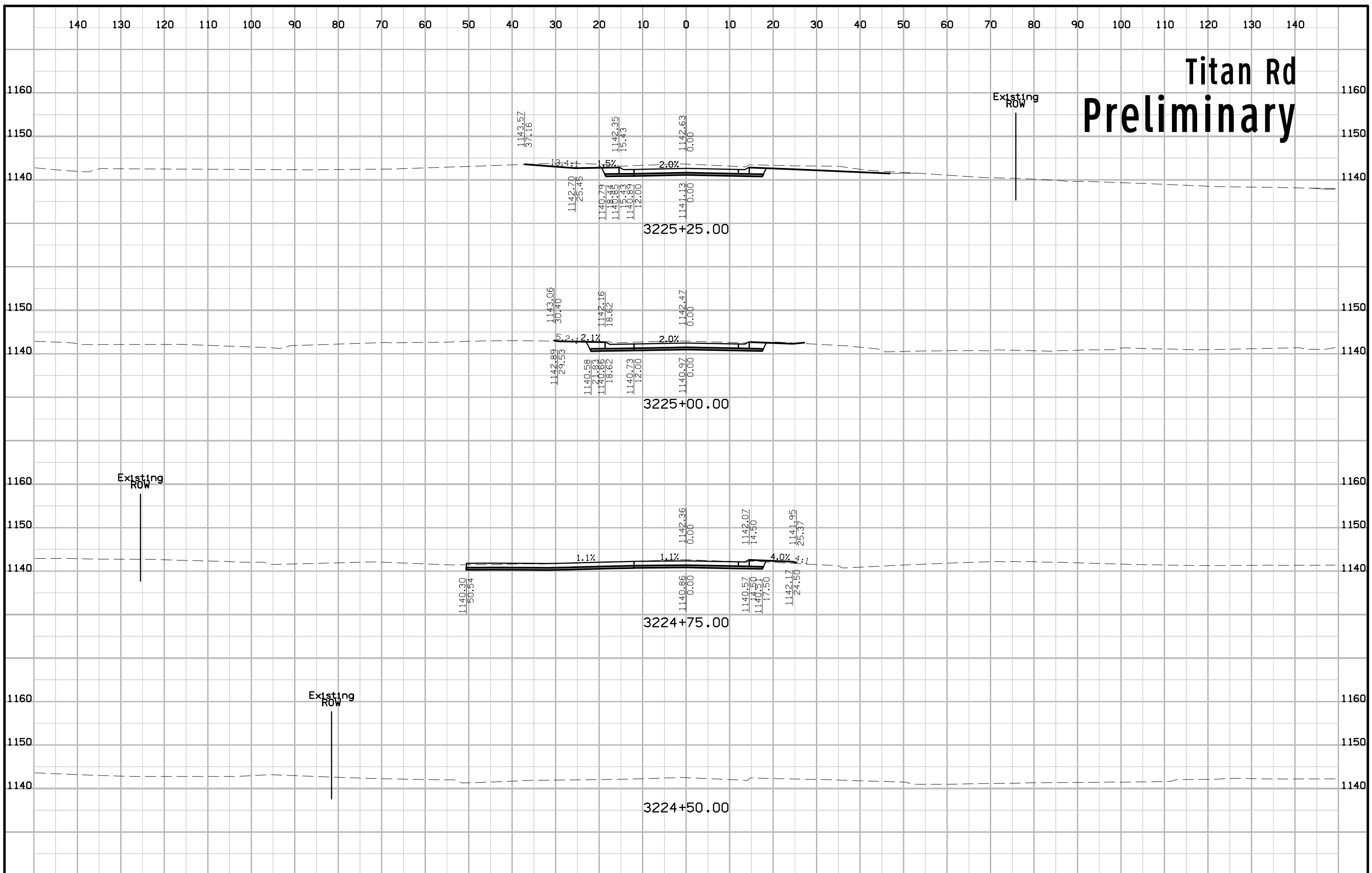
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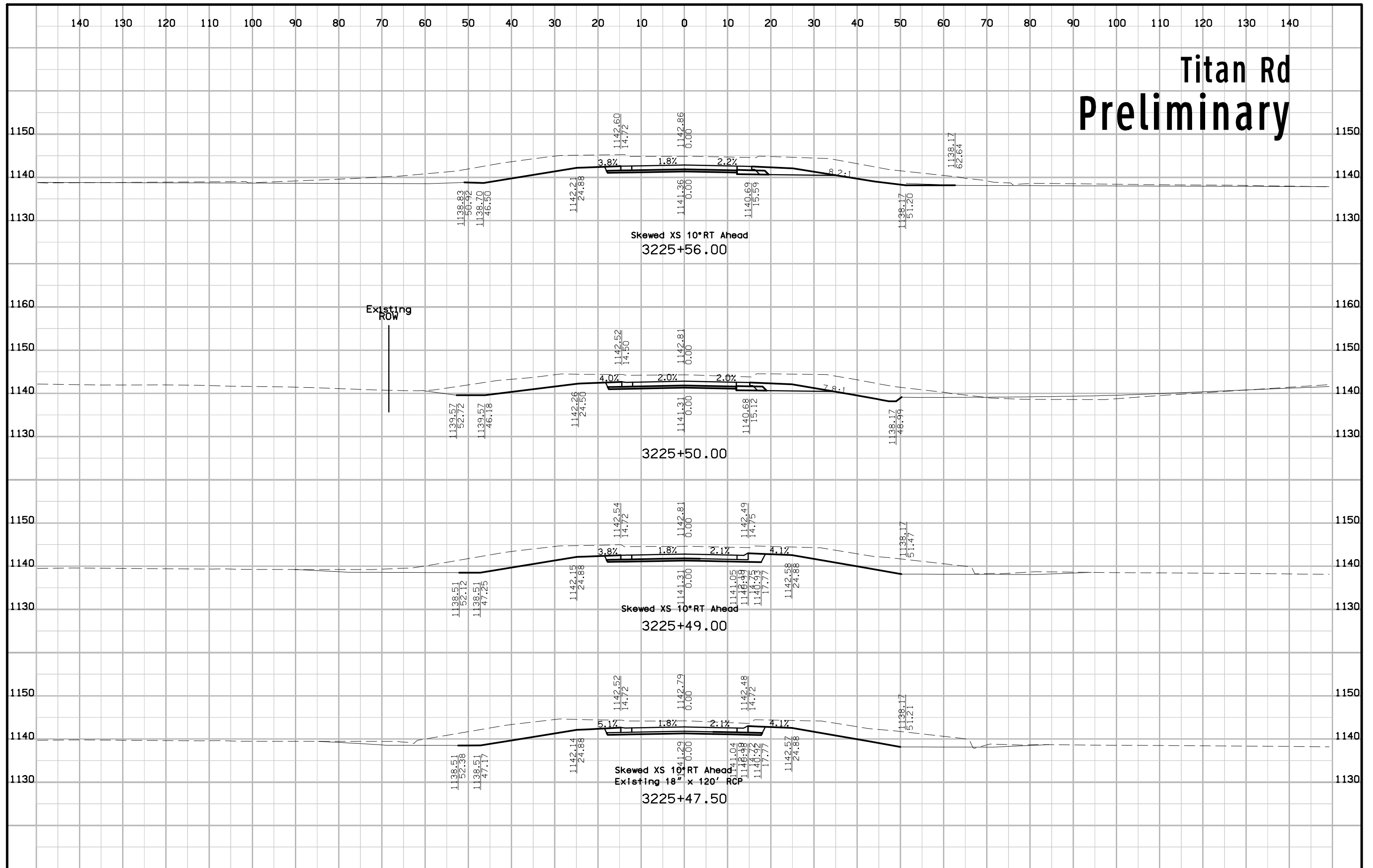
Orbit Dr Preliminary



Titan Rd Preliminary



Titan Rd Preliminary



Titan Rd Preliminary

