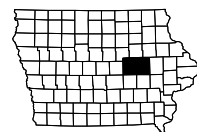


LETTING DATE
07-21-2020

PCC PAVEMENT - GRADE AND NEW
NHSX-030-6(240)--3H-86

TAMA CO.



INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
A.2	Location Map Sheet
B Sheets	Typical Cross Sections and Details
B.1 - 13	Typical Cross Sections and Details
C Sheets	Quantities and General Information
C.1	Project Description
C.1	Estimated Project Quantities
C.1	Estimate Reference Information
C.1	Standard Road Plans
C.1	Index of Tabulations
C.1	Pollution Prevention Plan
C.1	General Notes
C.1	Tabulations (beg. with tab. of incidentals if needed)
CD Sheets	Soils Tabulations
CD.1	Tabulations (beg. with tab. of incidentals if needed)
CE Sheets	Soils Tabulations
CE.1	Tabulations (beg. with tab. of incidentals if needed)
CS Sheets	Soils Tabulations
CS.1	Soils Tabulations
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 11	US 30
E Sheets	Side Road Plan and Profile Sheets
* E.1	IA 21
* E.2	11th Avenue
F Sheets	Detour or Temporary Pavement Sheets
* F.1	Detour Plan and Profile Sheets
G Sheets	Survey Sheets
G.1 - 6	Reference Ties and Bench Marks
G.7 - 19	Horizontal Control Tab. & Super for all Alignments
H Sheets	Right-of-Way Sheets
H.1	"Mainline Name"
J Sheets	Traffic Control and Staging Sheets
* J.1	Traffic Control Plan
* J.1	Staging Notes Stage
* J.1	Tabulation of Special Events
K Sheets	Interchange Sheets
* K.1 - 2	US 30 & IA 21 Interchange Layout Sheets
* K.3	US 30 & IA 21 RAMP "A" Plan and Profile Sheets
* K.4	US 30 & IA 21 RAMP "B" Plan and Profile Sheets
* K.5	US 30 & IA 21 RAMP "C" Plan and Profile Sheets
* K.6	US 30 & IA 21 RAMP "D" Plan and Profile Sheets
* K.7 - 8	US 30 & US 218 Interchange Layout Sheets
L Sheets	Geometric, Staking and Jointing Sheets
L.1	Geometric & Staking "Mainline or Side Road Name"
L.2	Edge Profiles "Mainline or Side Road Name"
* K.1 - 2	US 30 & IA 21 Interchange Layout Sheets
* K.2	US 30 & IA 21 RAMP "A" Plan and Profile Sheets
* K.2	US 30 & IA 21 RAMP "B" Plan and Profile Sheets
* K.2	US 30 & IA 21 RAMP "C" Plan and Profile Sheets
* K.2	US 30 & IA 21 RAMP "D" Plan and Profile Sheets
L.3	Jointing "Mainline or Side Road Name"



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

TAMA COUNTY

PCC PAVEMENT - GRADE AND NEW

W of IA 21 to 11th Ave Dr

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



REVISIONS

TOTAL	973
PROJECT IDENTIFICATION NUMBER	92-06-030-030-02
PROJECT NUMBER	NHSX-030-6(240)--3H-86
R.O.W. PROJECT NUMBER	NHSN-030-6(247)--2R-86
	NHSN-030-6(248)--2R-06

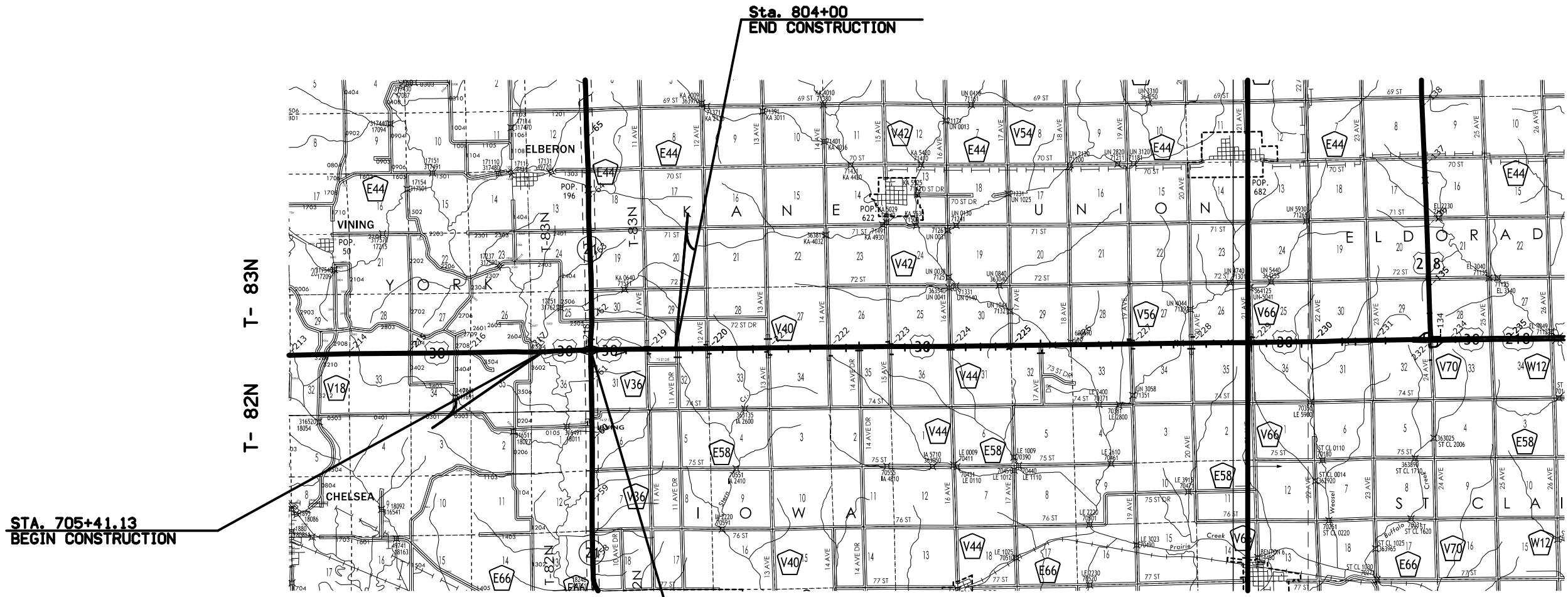
INDEX OF SHEETS	
No.	DESCRIPTION
Q Sheets	Soils Sheets
Q.1	Soils Legend & Symbol Information Sheet
Q.2	Soils Sheets "Mainline or Side Road Name"
T Sheets	Earthwork Quantity Sheets
T.1	Earthwork Quantity Sheets
U Sheets	500 Series, Mod.Stds. and Detail Sheets
U.1	500 Series, Modified Standards and Detail Sheets
W Sheets	Mainline Cross Sections
W.1 - 556	Mainline Cross Sections
X Sheets	Side Road Cross Sections
X.1 - 28	IA 21 Cross Section Sheets
X.100 - 106	11th Avenue Cross Sections
X.200 - 209	11th Avenue Drive Cross Sections
Y Sheets	Ramp Cross Sections
Y.1 - 13	US 30 & IA 21 Ramp "A" Cross Sections
Y.100 - 111	US 30 & IA 21 Ramp "B" Cross Sections
Y.200 - 210	US 30 & IA 21 Ramp "C" Cross Sections
Y.300 - 308	US 30 & IA 21 Ramp "D" Cross Sections
	* Color Plan Sheets

For Project Location Map
Refer to Sheet A.2

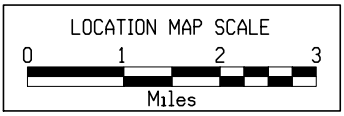
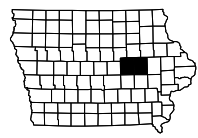
DESIGN DATA RURAL			
2017	AADT	5400	V.P.D.
2037	AADT	8500	V.P.D.
2037	DHV	880	V.P.H.
	TRUCKS	19	%
	Total		
	Design ESALs	--	

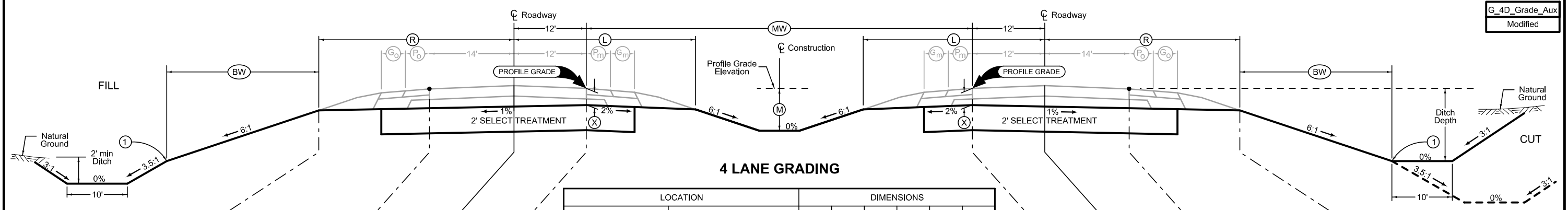
INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Kelly C. Bell	Primary Signature Block
CD.1	David R. Claman	Hydraulic Signature Block
CS.1	John A. Christiansen	Geotech Signature Block

ROADWAY DESIGN	
	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.
	Signature _____ Date <u>XX-XX-XXXX</u> Kelly C. Bell Printed or Typed Name
	My license renewal date is December 31, 2019
Pages or sheets covered by this seal: X _____	



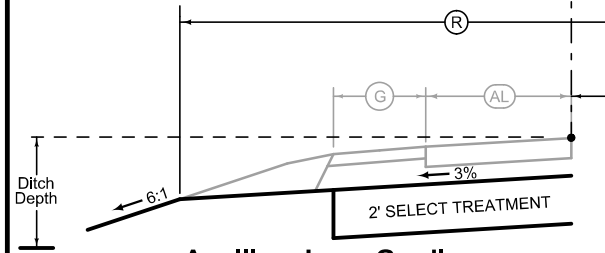
IA 21 Bridge
FHWA No.700500





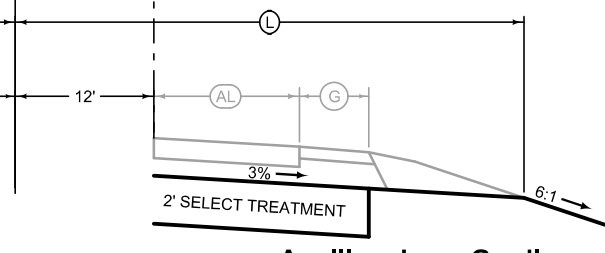
4 LANE GRADING

LOCATION		DIMENSIONS						
ROAD IDENTIFICATION	STATION TO STATION	(L) Feet	(R) Feet	(X) Inches	(BW) Feet	(MW) Feet	(M) Feet	
U.S. Highway 30	705+41.13 - 806+00.00	32.0	33.0	16	19.6	64	4	



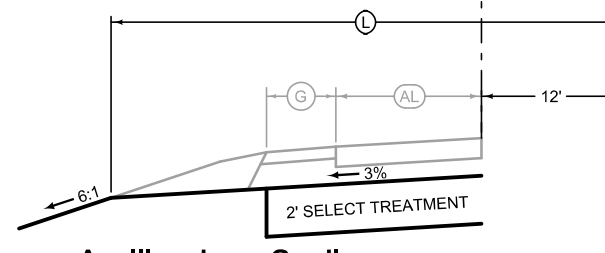
Auxiliary Lane Grading

LOCATION		(R) Feet
ROAD IDENTIFICATION	STATION TO STATION	
U.S. 30 WB (Ramp C Taper)	718+00.00 - 730+30.00	70.8
U.S. 30 WB (Ramp A Taper)	753+50.00 - 759+50.00	72.9



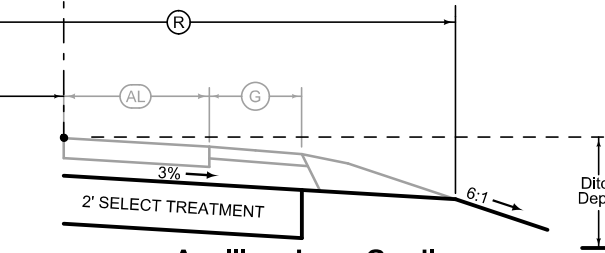
Auxiliary Lane Grading

LOCATION		(L) Feet
ROAD IDENTIFICATION	STATION TO STATION	
U.S. 30 WB (11th Ave)	791+30.00 - 791+30.00	41.3
U.S. 30 WB (11th Ave)	792+80.00 - 792+80.00	0.0 - 41.3



Auxiliary Lane Grading

LOCATION		(L) Feet
ROAD IDENTIFICATION	STATION TO STATION	
U.S. 30 EB (11th Ave)	786+80.20 - 788+00.20	0.0 - 41.3
U.S. 30 EB (11th Ave)	788+00.20 - 789+50.20	41.3



Auxiliary Lane Grading

LOCATION		(R) Feet
ROAD IDENTIFICATION	STATION TO STATION	
U.S. 30 EB (Ramp B Taper)	722+50.00 - 728+50.00	72.9
U.S. 30 EB (Ramp D Taper)	749+70.00 - 762+00.00	70.8

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.

① Refer to project plan and cross sections for specific location of foreslope change.

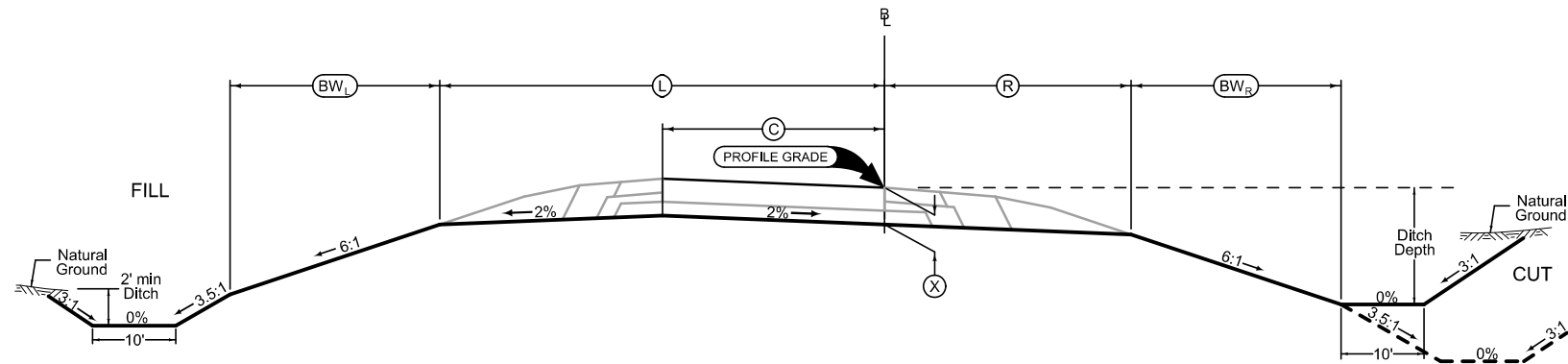
Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

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

① Refer to project plan and cross sections for specific location of foreslope change.

LOCATION				DIMENSIONS					
INTERCHANGE	RAMP	STATION TO STATION		(L) Feet	(R) Feet	(C) Feet	(X) Inches	(BW _L) Feet	(BW _R) Feet
Iowa 21	A	1540+80.38	1553+50.00	30.3	16.1	16.0	16.0	21.2	20.1
Iowa 21	B	2528+50.00	2541+35.84	30.3	16.1	16.0	16.0	21.2	20.1
Iowa 21	C	3530+28.66	3541+39.90	30.3	16.1	16.0	16.0	21.2	20.1
Iowa 21	D	4540+74.35	4549+71.34	30.3	16.1	16.0	16.0	21.2	20.1

G_1R_Grade
04-15-14



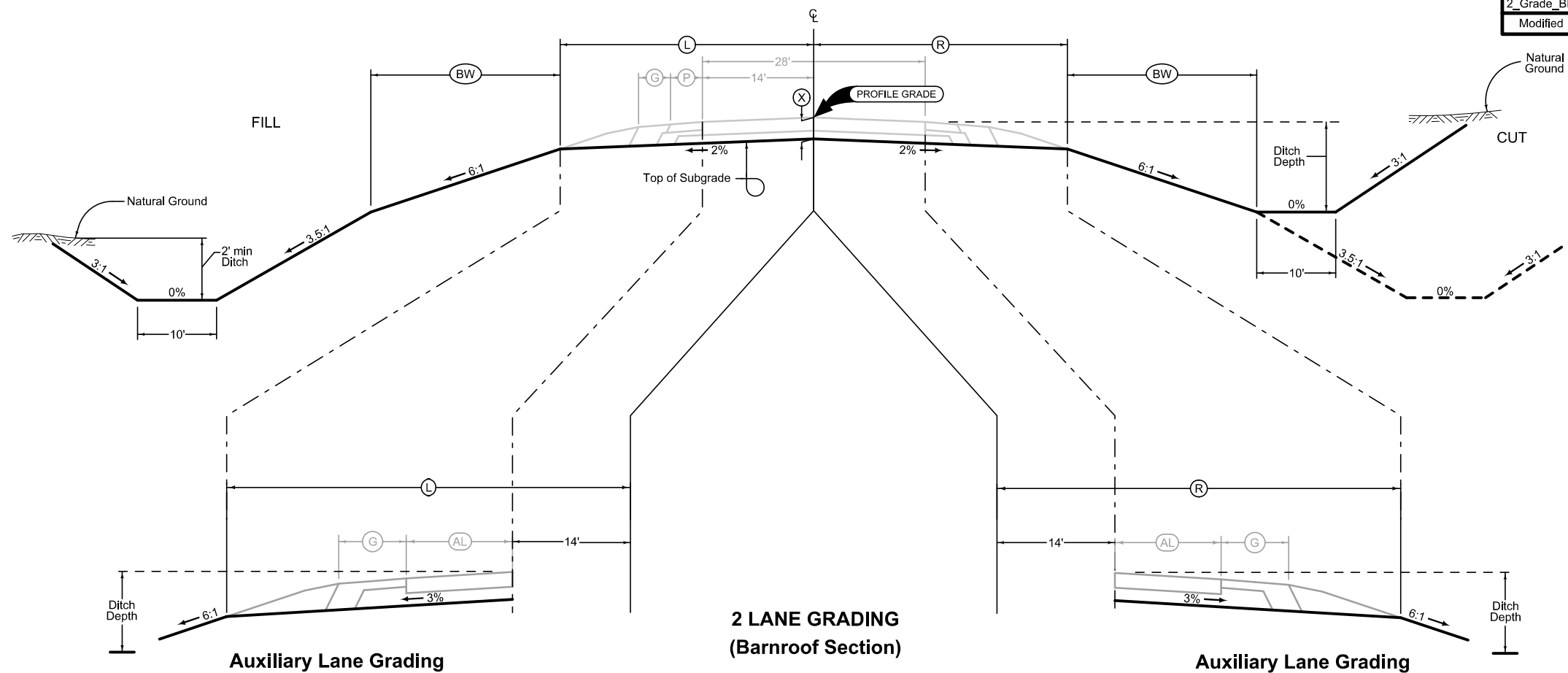
RAMP GRADING

Section view is in direction of traffic.
Normal sections shown may be appropriately modified for areas specifically designated by the Engineer such as intersections or superelevated curves.

LOCATION			DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	(BW) Feet
Iowa Highway 21	250+00.00	252+00.00	38.6	38.6	16.0	19.9
Iowa Highway 21	252+00.00	257+95.00	38.6 - 46.6	38.6 - 46.6	16.0	19.9
Iowa Highway 21	257+95.00	260+90.00	46.6	(1)	16.0	19.9
Iowa Highway 21	260+90.00	270+75.00	46.6	46.6	16.0	19.9
Iowa Highway 21	270+75.00	273+70.00	(1)	46.6	16.0	19.9
Iowa Highway 21	273+70.00	280+90.00	46.6 - 38.6	46.6 - 38.6	16.0	19.9
Iowa Highway 21	280+90.00	281+50.00	38.6	38.6	16.0	19.9

(1) See Auxiliary Lane Grading

2_Grade_BR
Modified



**2 LANE GRADING
(Barnroof Section)**

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

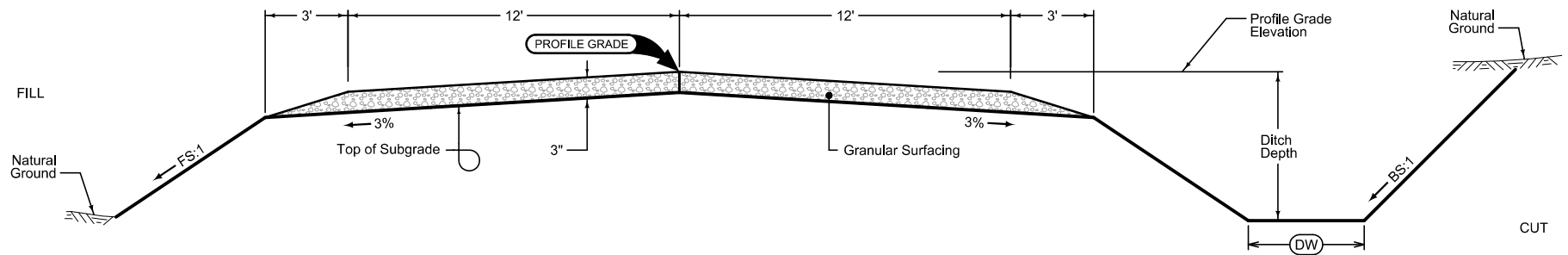
See Plan & Profile sheets and cross sections for additional details of ditches and backslopes.

LOCATION			(L) Feet
ROAD IDENTIFICATION	STATION TO STATION		
Iowa Highway 21	270+75.00	272+50.00	53.1
Iowa Highway 21	272+50.00	273+70.00	39.8 - 53.1

LOCATION			(R) Feet
ROAD IDENTIFICATION	STATION TO STATION		
Iowa Highway 21	257+95.00	259+15.00	39.8 - 53.1
Iowa Highway 21	259+15.00	260+90.00	53.1

LOCATION		DIMENSIONS		
ROAD IDENTIFICATION	STATION TO STATION	FS	BS	(DW) Feet
11th Avenue	11786+75.00	11789+81.93	3	3
11th Avenue	11790+97.94	11796+50.00	3	3

G_2_GradeGran
10-17-17



GRADING AND GRANULAR SURFACING

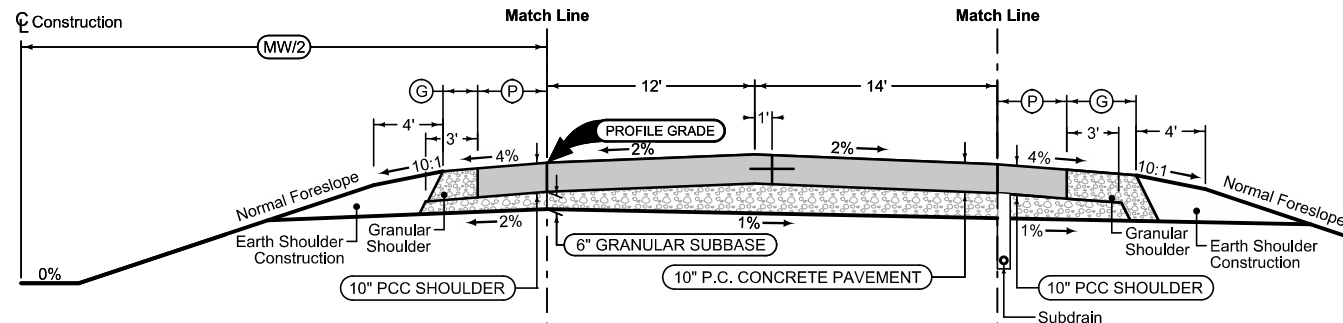
Normal section shown may be modified appropriately in areas of super-elevated curves or other locations specifically designated by the Engineer.

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

Combination Shoulder

Shoulder Jointing:
 Longitudinal joint: L-2 or KT-2
 Transverse joints: C at 17' spacing

4_C_ 10-19-10				
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(G) Feet
EB	705+41.13	786+80.20	4.0	2.0
EB	789+50.00	804+00.00	4.0	2.0



Section shown in the direction of traffic.

Mainline Jointing:
 Transverse joints: CD at 17' spacing
 Longitudinal joint: L-2

4DP_ 10-19-10			
Direction of Travel	BEGIN STATION	END STATION	(MW) Feet
EB	705+41.13	804+00.00	64

Combination Shoulder

Shoulder Jointing:
 Longitudinal joint: L-2 or KT-2
 Transverse joints: C at 17' spacing

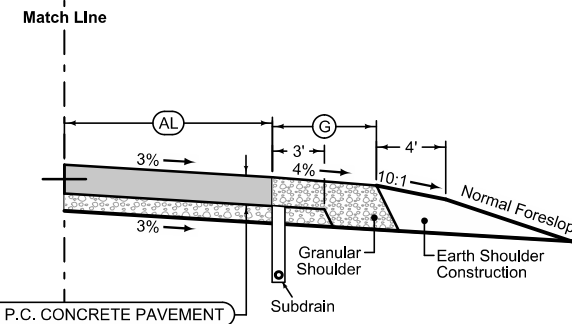
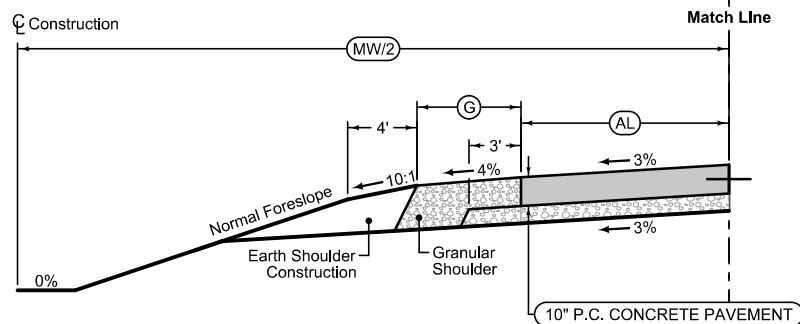
4_C_ 10-19-10				
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(G) Feet
EB	705+41.13	722+50.00	4.0	4.0
EB	728+50.00	749+40.00	4.0	4.0
EB	772+50.37	804+00.00	4.0	4.0

Auxiliary Lane

Longitudinal joint: L or KT
 Transverse joint: Match Mainline

4_AuxLane_PCC_ 10-19-10					4_AL_Shldr_G_ 10-19-10	
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(G) Feet		
EB	786+80.20	788+00.20	0.0 - 12.0	6.0		
EB	788+00.20	789+50.20	12.0	6.0		

Auxiliary Lane Granular Shoulder



Auxiliary Lane

Longitudinal joint: L or KT
 Transverse joint: Match Mainline

4_AuxLane_PCC_ 10-19-10					4_AL_Shldr_G_ 10-19-10	
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(G) Feet		
EB	722+50.00	728+50.00	0.0 - 40.0	6.0		
EB	749+70.00	760+00.00	37.9 - 4.0	6.0		

Auxiliary Lane Granular Shoulder

Auxiliary Lane Full Depth Shoulder

Shoulder Jointing:
 Longitudinal joint: L-2 or KT-2
 Transverse joint: Match Mainline

2_AuxLane_PCC_ 10-18-16				2_AL_Shldr_FullPCC_ 10-19-10	
STATION TO STATION	(AL) Feet	(P) Feet			
760+00.00	763+00.00	4-0	6-8		
763+00.00	772+50.37	0	8		

CHECK SHOULDERS

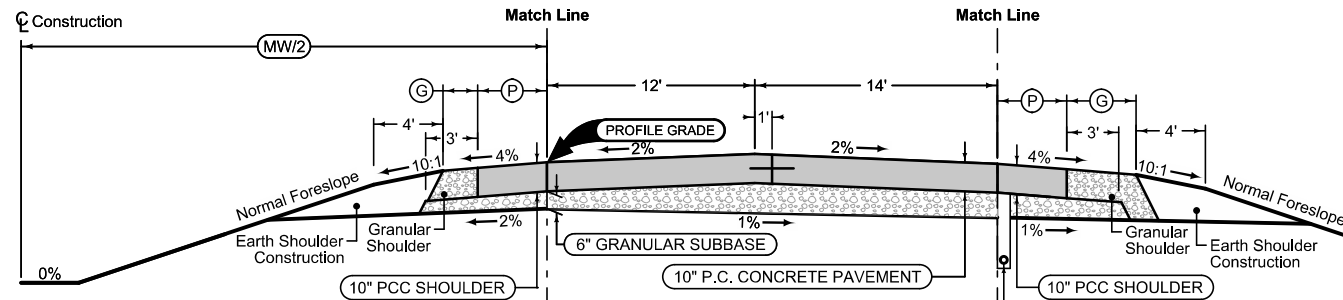
See Tab 100-24 for pavement quantities.
 See Tab 112-9 for shoulder quantities.

U.S. Highway 30 EB

Combination Shoulder

Shoulder Jointing:
 Longitudinal joint: L-2 or KT-2
 Transverse joints: C at 17' spacing

4_C_10-19-10				
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(G) Feet
WB	705+41.13	791+30.00	4.0	2.0
WB	794+00.00	795+00.00	4.0	2.0



Section shown in the direction of traffic.

Mainline Jointing:
 Transverse joints: CD at 17' spacing
 Longitudinal joint: L-2

4DP_10-19-10			
Direction of Travel	BEGIN STATION	END STATION	(MW) Feet
WB	705+41.13	795+00.00	64

Combination Shoulder

Shoulder Jointing:
 Longitudinal joint: L-2 or KT-2
 Transverse joints: C at 17' spacing

4_C_10-19-10				
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(G) Feet
WB	705+41.13	718+00.00	4.0	4.0
WB	730+00.00	753+50.00	4.0	4.0
WB	759+50.00	795+00.00	4.0	4.0

Auxiliary Lane

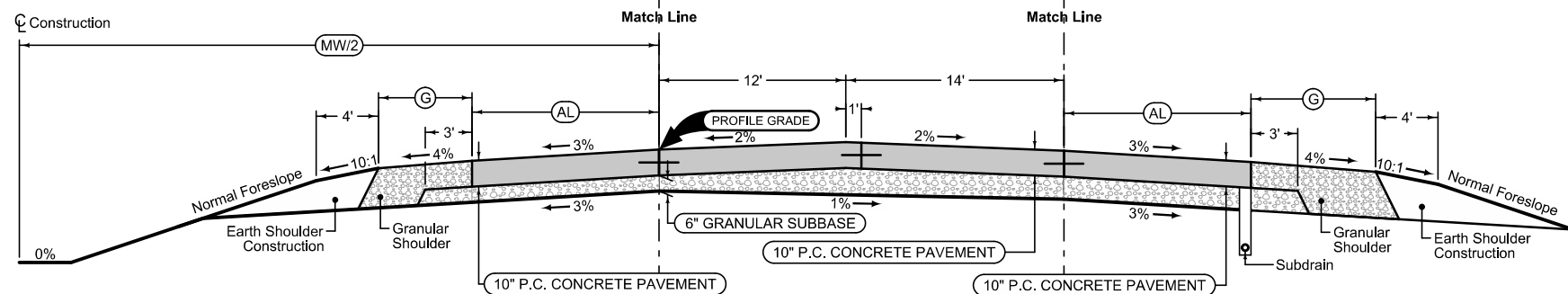
Longitudinal joint: L or KT
 Transverse joint: Match Mainline

4_AuxLane_PCC_10-19-10				
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(G) Feet
WB	791+30.00	792+80.00	12.0	6.0
WB	792+80.00	794+00.00	12.0-0.0	6.0

Auxiliary Lane Granular Shoulder

Longitudinal joint: L or KT
 Transverse joint: Match Mainline

4_AL_Shldr_G_10-19-10				
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(G) Feet
WB	791+30.00	792+80.00	12.0	6.0
WB	792+80.00	794+00.00	12.0-0.0	6.0



Auxiliary Lane

Longitudinal joint: L or KT
 Transverse joint: Match Mainline

4_AuxLane_PCC_10-19-10				
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(G) Feet
WB	718+00.00	730+30.00	0.0-37.9	6.0
WB	753+50.00	759+50.00	40.0-0.0	6.0

Auxiliary Lane Granular Shoulder

Longitudinal joint: L or KT
 Transverse joint: Match Mainline

4_AL_Shldr_G_10-19-10				
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(G) Feet
WB	718+00.00	730+30.00	0.0-37.9	6.0
WB	753+50.00	759+50.00	40.0-0.0	6.0

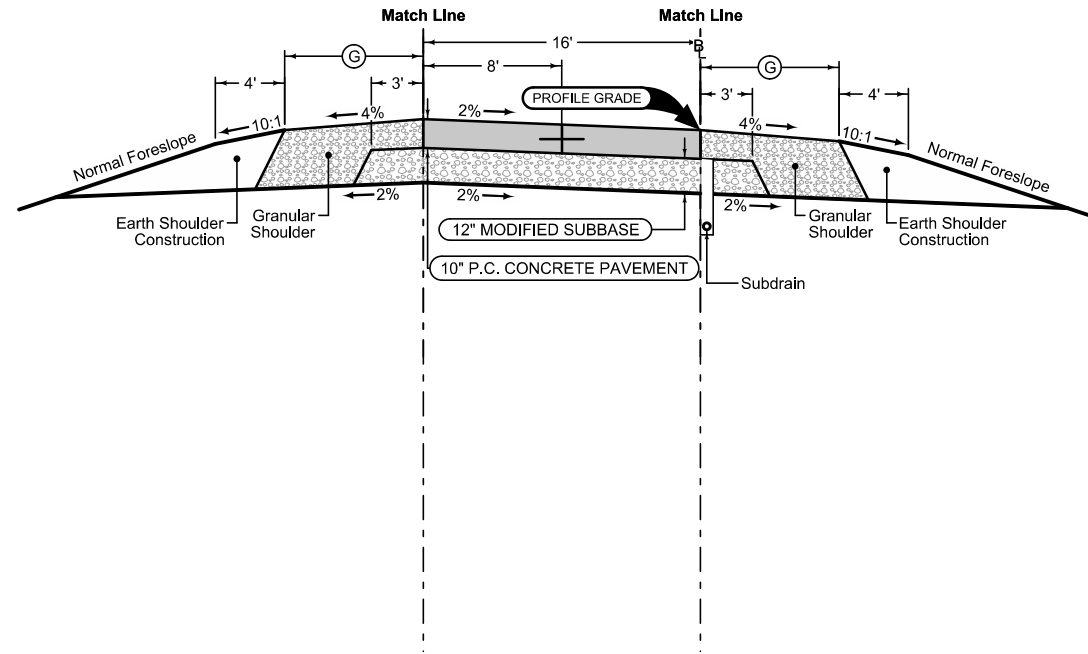
CHECK SHOULDERS

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

U.S. Highway 30 WB

Granular Shoulder

1R_G_		
10-19-10		
BEGIN STATION	END STATION	⊙ Feet
A 1540+80.38	1553+50.00	4.0
B 2528+50.00	2541+35.84	4.0
C 3530+28.66	3541+39.90	4.0
D 4540+74.35	4549+71.34	4.0



Granular Shoulder

1R_G_		
10-19-10		
BEGIN STATION	END STATION	⊙ Feet
A 1540+80.38	1553+50.00	6.0
B 2528+50.00	2541+35.84	6.0
C 3530+28.66	3541+39.90	6.0
D 4540+74.35	4549+71.34	6.0

Section shown in the direction of traffic.

Ramp Jointing:
 Transverse joints: CD at 15' spacing.
 Longitudinal joints: L-2

1RP_		
10-17-17		
BEGIN STATION	END STATION	
A 1540+80.38	1553+50.00	
B 2528+50.00	2541+35.84	
C 3530+28.66	3541+39.90	
D 4540+74.35	4549+71.34	

CHECK SHOULDERS

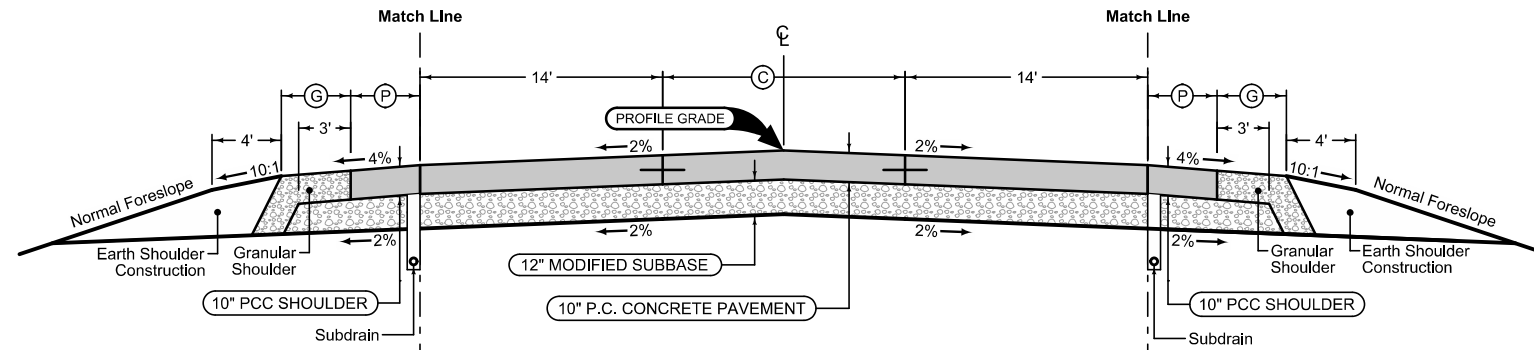
See Tab 100-24 or 100-25 for pavement quantities.
 See Tab 112-9 for shoulder quantities.

Iowa Highway 21 Ramps

Combination Shoulder

Shoulder Jointing:
 Longitudinal joint: L-2 or KT-2
 Transverse joints: C at 17' spacing

STATION TO STATION		(P) Feet	(G) Feet
250+00.00	270+75.00	4.0	4.0
273+70.00	281+50.00	4.0	4.0



Mainline Jointing:
 Transverse joints: CD at 17' spacing
 Longitudinal joint: L-2

STATION TO STATION		(C) Feet
250+00.00	252+00.00	0.0
252+00.00	257+95.00	0.0 - 16.0
257+95.00	273+70.00	16.0
273+70.00	280+90.00	16.0 - 0.0
280+90.00	281+50.00	0.0

Combination Shoulder

Shoulder Jointing:
 Longitudinal joint: L-2 or KT-2
 Transverse joints: C at 17' spacing

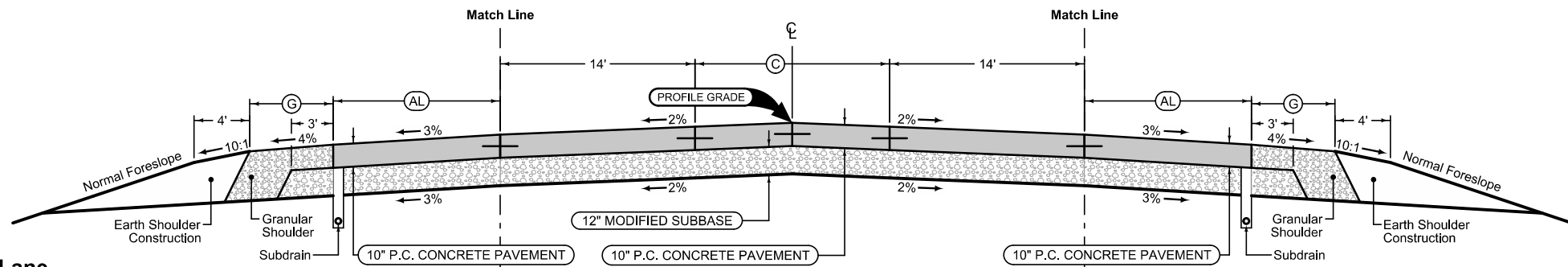
STATION TO STATION		(P) Feet	(G) Feet
250+00.00	257+95.00	4.0	4.0
260+90.00	281+50.00	4.0	4.0

Auxiliary Lane

Longitudinal joint: L or KT
 Transverse joint: Match Mainline

STATION TO STATION		(AL) Feet	(G) Feet
270+75.00	272+50.00	12.0	6.0
272+50.00	273+70.00	12.0 - 0.0	6.0

**Auxiliary Lane
Granular Shoulder**



Auxiliary Lane

Longitudinal joint: L or KT
 Transverse joint: Match Mainline

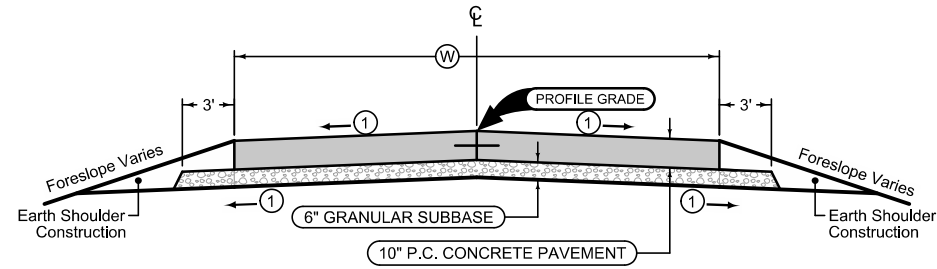
STATION TO STATION		(AL) Feet	(G) Feet
257+95.00	259+15.00	0.0 - 12.0	6.0
259+15.00	260+90.00	12.0	6.0

**Auxiliary Lane
Granular Shoulder**

CHECK SHOULDERS

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

Iowa Highway 21



Subgrade parallels pavement slope.
See L sheets for details.

Mainline Jointing:
Transverse joints: CD at 17' spacing
Longitudinal joint: L-2

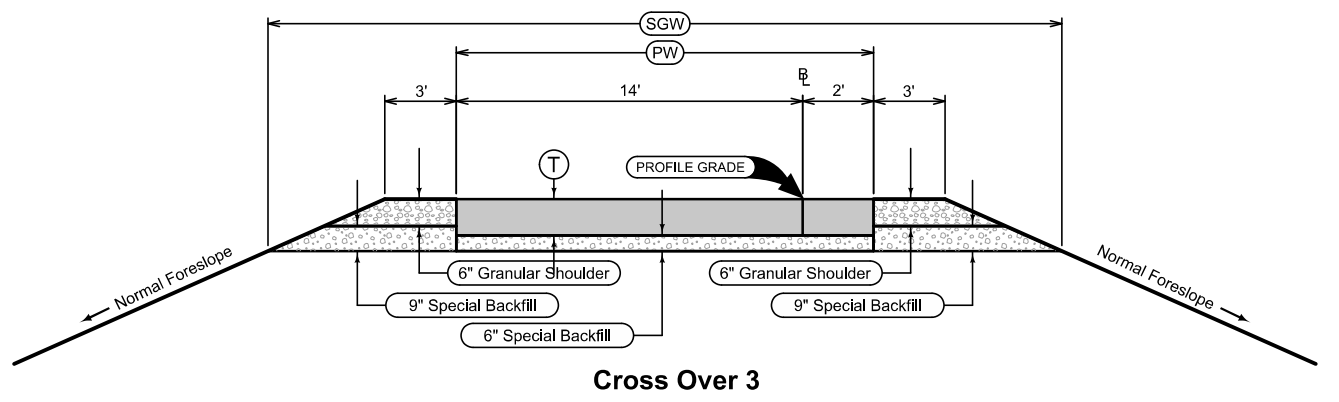
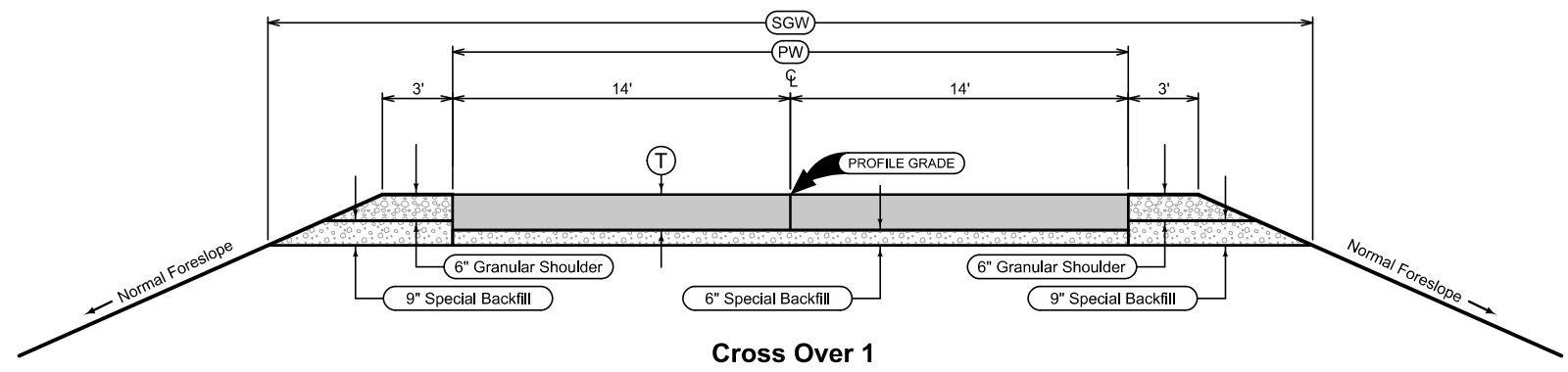
LOCATION		DIMENSIONS
ROAD IDENTIFICATION	STATION TO STATION	Ⓜ Feet

See Tab 100-24 for pavement quantities.

Paved Returns

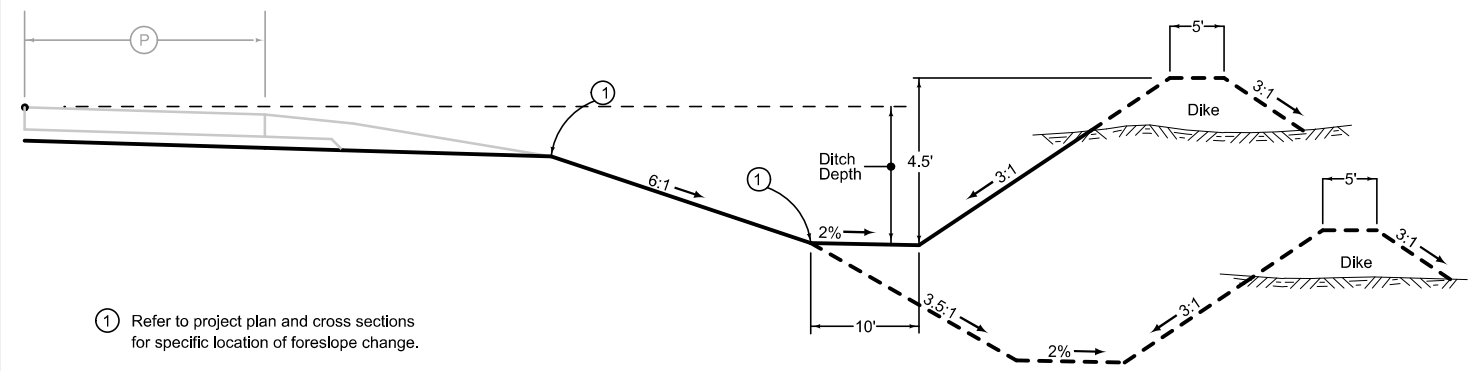
LOCATION		DIMENSIONS					
ROAD IDENTIFICATION	STATION TO STATION	HMA			PCC		
		PW Feet	T Inches	SGW Feet	PW Feet	T Inches	SGW Feet

Quantity calculations based on vertical pavement edges.
 Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.
 See Tab. 112-8 for Quantities



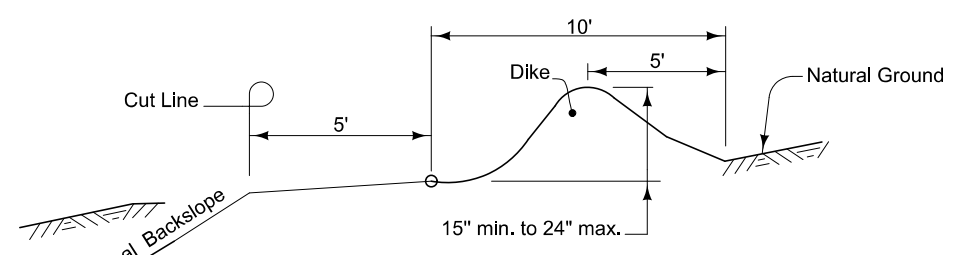
PCC Detour Pavement Jointing:
 Longitudinal joints adjacent to mainline pavement:
 KT-2 or L-2 if mainline pavement is new. Bend bars out.
 BT-3 if mainline pavement is existing.
 Longitudinal jointing of Detour Pavement (Crossover 2 Only)
 KT-2 or L-2 spaced at one-quarter median width.
 Transverse joints:
 Match existing roadway joints. CD joints are required.

HMA Detour Pavement Jointing:
 Longitudinal joints: B



① Refer to project plan and cross sections for specific location of foreslope change.

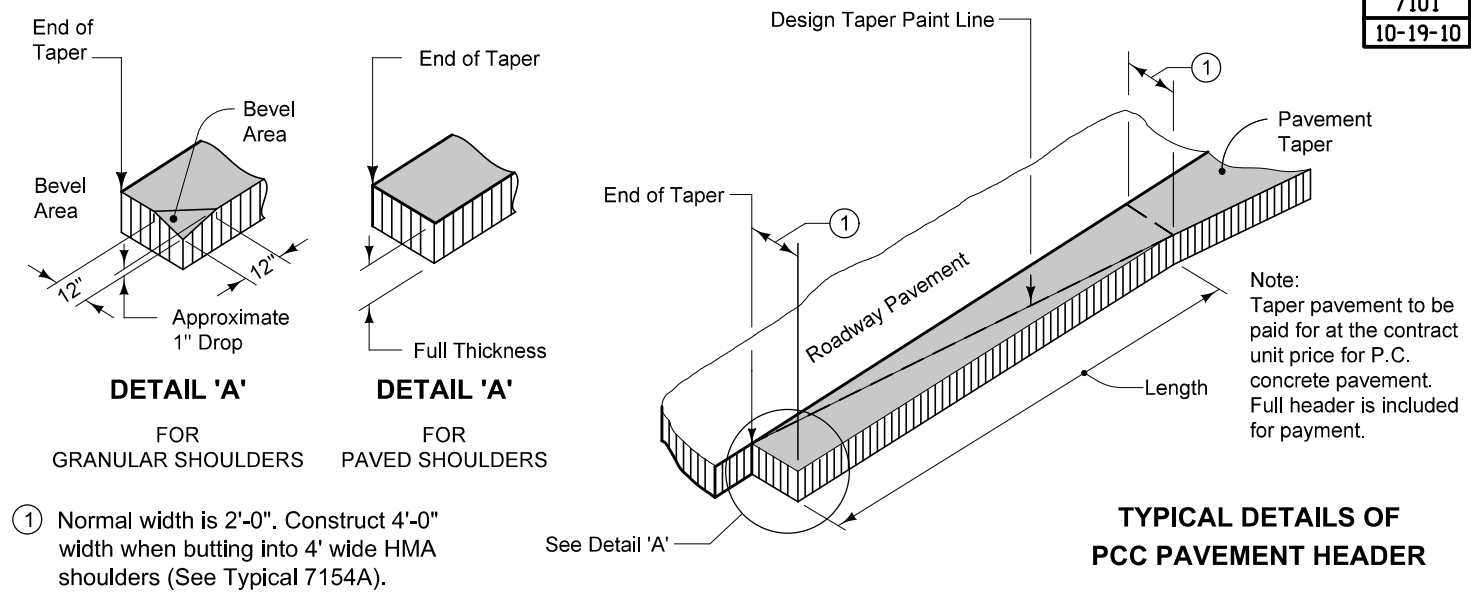
DETAILS OF TYPICAL DITCH W/ DIKE



Refer to plans for locations of intercepting ditches. Dike for intercepting ditch shall be made by taking earth from roadway side. Do not excavate back of dike.

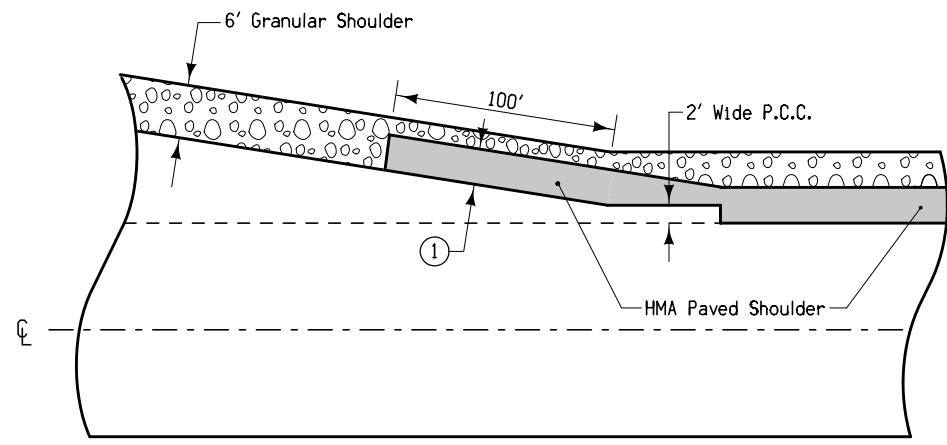
TYPICAL CROSS SECTION
INTERCEPTING DITCH

7101
10-19-10



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

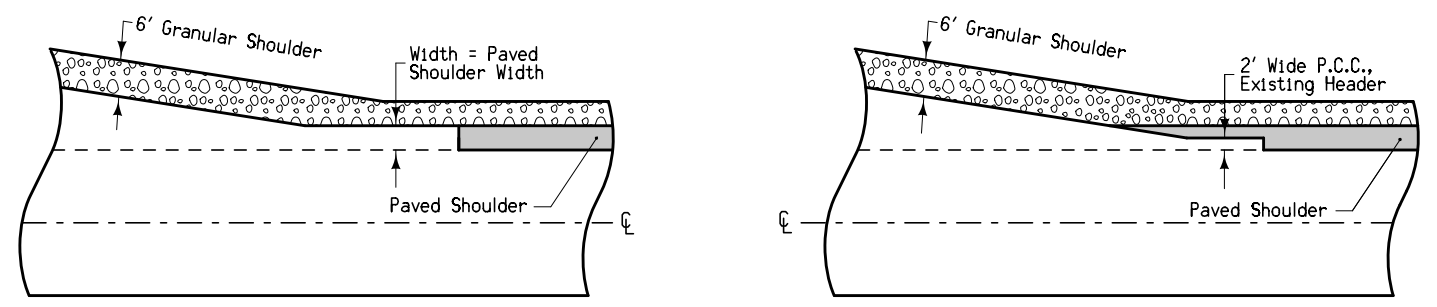
7154
04-20-10



① Width of paved shoulder on taper matches width of paved shoulder on mainline.

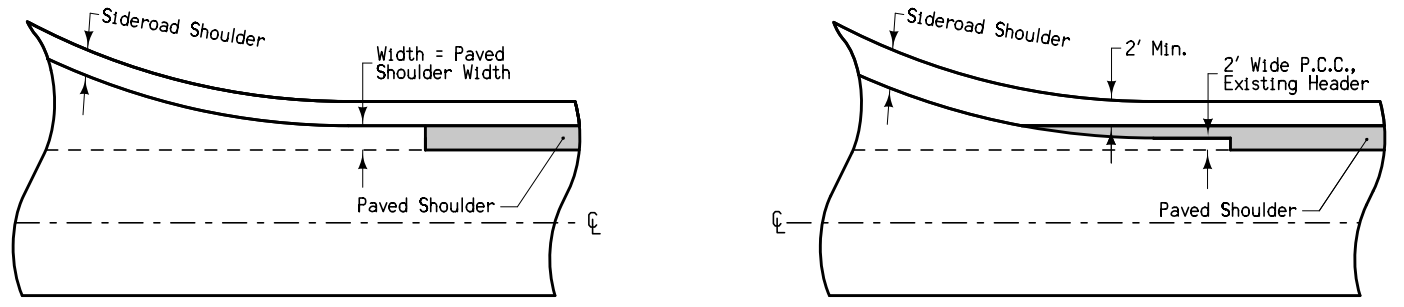
PAVED SHOULDER
DETAIL AT
RAMP TAPERS
(Non-Interstate)

7154A
10-20-09

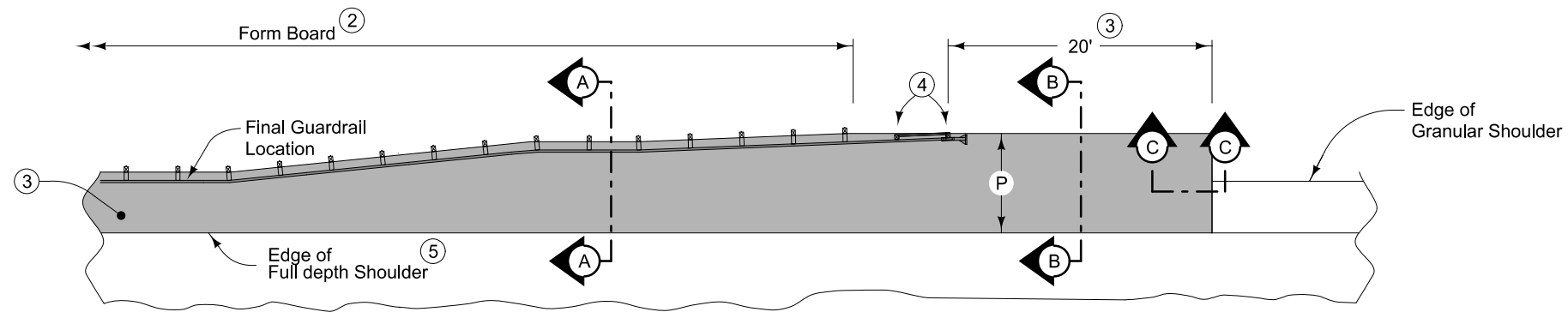


PAVED SHOULDER
DETAIL AT
TURN LANES

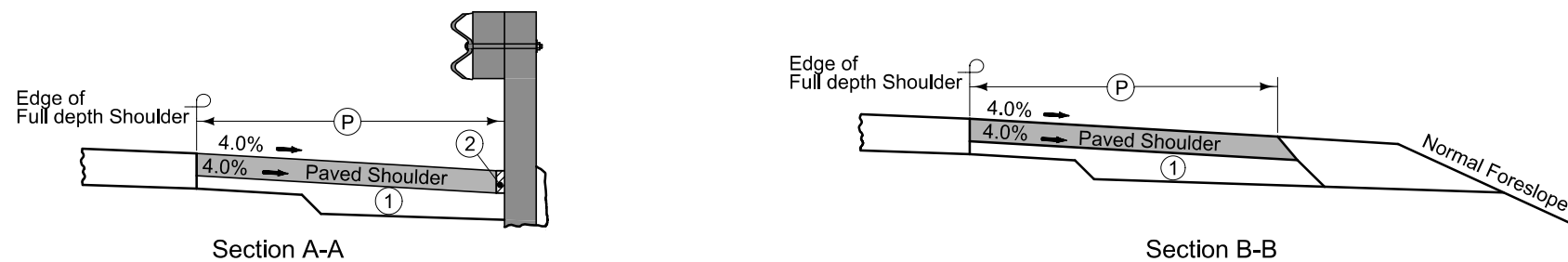
7154B
10-20-09



PAVED SHOULDER
DETAIL AT RETURNS



PLAN VIEW



NEW CONSTRUCTION

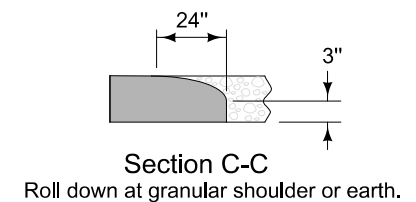
6" HMA Paved Shoulder at guardrail. 6" PCC may be substituted with the following jointing layout:

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 C-C
Roll down at granular shoulder or earth.

PAVED SHOULDER AT GUARDRAIL

100-1D
10-18-05

PROJECT DESCRIPTION

This project involves upgrading from two lane highway to a four lane divided highway with grading and paving of both eastbound and westbound US 30 from west of IA 21 to 11th Ave Dr. and includes the IA 21 Interchange in Benton County.

100-1C
04-17-12

**ESTIMATED PROJECT QUANTITIES
(UP TO A 5 DIVISION PROJECT)**

Item No.	Item Code	Item	Unit	Quantities																
				Estimated					As Built											
				Division 1	Division 2	Division 3	Division 4	Division 5	Total	Division 1	Division 2	Division 3	Division 4	Division 5						
1	2102-0425046	SELECTED BACKFILL	CY	0.0																
2	2102-2624980	CONTRACTOR FURNISHED SELECT TREATMENT	CY	56,141.4																
3	2102-2625000	EMBANKMENT-IN-PLACE	CY	500,465.0																
4	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	192,206.0																
5	2102-2712015	EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS	CY	0.0																
6	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	98,222.0																
7	2107-0875000	COMPACTION WITH MOISTURE AND DENSITY CONTROL	CY	648,311.0																
8	2111-8174100	GRANULAR SUBBASE	SY	85,983.3																
9	2115-0100000	MODIFIED SUBBASE	CY	8,479.7																
10	2121-7425010	GRANULAR SHOULDERS, TYPE A	TON	18,023.5																
11	2122-5190010	PAVED SHOULDER, P.C. CONCRETE, 10 IN.	SY	16,827.8																
12	2122-5191005	REINFORCED PAVED SHOULDER FOR CONCRETE BARRIER	SY	245.6																
13	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	505.30																
14	2301-1033100	STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLA SS C, CLASS 3 DURABILITY, 10 IN.	SY	85,608.7																
15	2315-8275025	SURFACING, DRIVEWAY, CLASS A CRUSHED STONE	TON	1,552.0																
16	2503-0500402	BRIDGE END DRAIN, DR-402	EACH	4																
17	2505-4008300	STEEL BEAM GUARDRAIL	LF	100.0																
18	2505-4008410	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201	EACH	4																
19	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	4																
20	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205	EACH	4																
21	2505-6000111	HIGH TENSION CABLE GUARDRAIL	LF	500.0																
22	2505-6000121	HIGH TENSION CABLE GUARDRAIL, END ANCHOR	EACH	4																
23	2510-6745850	REMOVAL OF PAVEMENT	SY	31,853.8																
24	2518-6910000	SAFETY CLOSURE	EACH	11																
25	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	972.28																
26	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	EACH	12																
27	2527-9263180	PAVEMENT MARKINGS REMOVED	STA	295.77																
28	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE	EACH	6																
29	2528-8445110	TRAFFIC CONTROL	LS	1.00																
30	2528-9109020	TEMPORARY LANE SEPARATOR SYSTEM	LF	0.0																
31	2533-4980005	MOBILIZATION	LS	1.00																
32	2548-0000200	MILLED SHOULDER RUMBLE STRIPS, PCC SURFACE	STA	789.8																
33	2548-0000320	MILLED CENTERLINE RUMBLE STRIPS, PCC SURFACE	STA	31.5																

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
1	2102-0425046	SELECTED BACKFILL --
2	2102-2624980	CONTRACTOR FURNISHED SELECT TREATMENT See Typical Cross-Sections in the B Sheets and Tab. 103-11 in the C Sheets for locations and details.
3	2102-2625000	EMBANKMENT-IN-PLACE See T Sheets. Approximately XXX,XXX CY of material is available from Tama County NHSX-030-6(256)--3H-86. Provide borrow material according to Section 2102 of the Standard Specifications.
4	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW See T Sheets. Overhaul is incidental to roadway excavation on this project and will not be paid for separately.
5	2102-2712015	EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS --
6	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD See Tab. 103-10 in the CS Sheets and the T Sheets.
7	2107-0875000	COMPACTION WITH MOISTURE AND DENSITY CONTROL See Tab.103-1 in the CS Sheets.
8	2111-8174100	GRANULAR SUBBASE
9	2115-0100000	MODIFIED SUBBASE See Tab. 100-24 in the C Sheets for locations and details.
10	2121-7425010	GRANULAR SHOULDERS, TYPE A
11	2122-5190010	PAVED SHOULDER, P.C. CONCRETE, 10 IN.
12	2122-5191005	REINFORCED PAVED SHOULDER FOR CONCRETE BARRIER
13	2123-7450000	SHOULDER CONSTRUCTION, EARTH See Tab. 112-9 in the C Sheets for locations and details.
14	2301-1033100	STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLA SS C, CLASS 3 DURABILITY, 10 IN. See Tab. 100-24 in the C Sheets for locations and details.
15	2315-8275025	SURFACING, DRIVEWAY, CLASS A CRUSHED STONE See Tab. 102-3 in the C Sheets for locations and details.
16	2503-0500402	BRIDGE END DRAIN, DR-402 See Tab. 104-8A in the C Sheets for locations and details.
17	2505-4008300	STEEL BEAM GUARDRAIL
18	2505-4008410	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201
19	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED
20	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205 See Tab. 108-8A in the C Sheets for locations and details.
21	2505-6000111	HIGH TENSION CABLE GUARDRAIL
22	2505-6000121	HIGH TENSION CABLE GUARDRAIL, END ANCHOR See Tab. 108-9A in the C Sheets for locations and details.
23	2510-6745850	REMOVAL OF PAVEMENT See Tab. 110-1 and Tab. 102-5 in the C Sheets for locations and details.
24	2518-6910000	SAFETY CLOSURE See Tab. 108-13A in the C Sheets and Tab. 113-2 in the J Sheets for locations and details.
25	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED See Tab. 108-22 in the C Sheets for locations and details.
26	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED See Tab. 108-29 in the C Sheets for locations and details.
27	2527-9263180	PAVEMENT MARKINGS REMOVED See Tab. 108-22 and 108-29 in the C Sheets for locations and details.
28	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE See Tab. 108-27 in C Sheets for locations and details.
29	2528-8445110	TRAFFIC CONTROL --
30	2528-9109020	TEMPORARY LANE SEPARATOR SYSTEM See Tab. 108-35 in C Sheets for locations and details.

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
31	2533-4980005	MOBILIZATION --
32	2548-0000200	MILLED SHOULDER RUMBLE STRIPS, PCC SURFACE
33	2548-0000320	MILLED CENTERLINE RUMBLE STRIPS, PCC SURFACE See Tab. 112-10 in the C Sheets for locations and details.

105-4
10-18-11

STANDARD ROAD PLANS

The following Standard Road Plans apply to construction work on this project.

Number	Date	Title
BA-200	04-16-19	Steel Beam Guardrail Components
BA-201	04-18-17	Steel Beam Guardrail Barrier Transition Section (MASH TL-3)
BA-202	10-20-15	Steel Beam Guardrail Bolted End Anchor
BA-205	04-19-16	Steel Beam Guardrail Tangent End Terminal (MASH TL-3)
BA-250	10-18-16	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-3)
BA-260	10-18-16	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-2)
BA-351	10-15-19	High Tension Cable Guardrail
DR-402	10-15-19	Rock Flume for Bridge End Drain
EW-301	10-20-15	Guardrail Grading
EW-302	10-20-15	Special Shaping for High Tension Cable Guardrail at Median Obstacles
EW-501	10-20-15	Rural Entrance
EW-503	10-20-15	Side Road Grading
LI-130	10-17-17	Temporary Floodlighting Luminaires
PM-110	10-16-18	Line Types
PM-111	04-21-15	Symbols and Legends
PM-120	10-21-14	Stop Lines and Islands
PM-310	04-19-16	Entrance and Exit Ramps
PV-12	04-19-16	Milled Shoulder Rumble Strips
PV-13	10-17-17	Milled Centerline Rumble Strips
PV-410	04-16-19	Deceleration Taper for 16' Exit Ramp
PV-411	10-16-18	Acceleration Taper for 16' Entrance Ramp
SI-173	04-19-16	Object Markers
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-61	10-15-19	Two-Lane, Two-way Operation

111-25
10-18-11

INDEX OF TABULATIONS

Tabulation	Tabulation Title	Sheet No.
C Sheets		
100-1C	ESTIMATED PROJECT QUANTITIES (UP TO A 5 DIVISION PROJECT)	C.1
100-1D	PROJECT DESCRIPTION	C.1
100-4A	ESTIMATE REFERENCE INFORMATION	C.2 - C.2
100-24	PCC PAVEMENT	C.7
100-27	PROPOSED POSTED SPEED LIMIT	C.7
102-3	ACCESS POINTS AND SAFETY RAMPS	C.5
102-5	EXISTING PAVEMENT	C.4
105-4	STANDARD ROAD PLANS	C.3
103-11	SELECT TREATMENT	C.6
107-23	GRADING FOR GUARDRAIL INSTALLATIONS	C.11
107-24	GRADING FOR HIGH TENSION CABLE GUARDRAIL INSTALLATIONS	C.11
104-8A	SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN	C.12
108-8A	STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION	C.11
108-9A	HIGH TENSION CABLE GUARDRAIL	C.11
108-13A	SAFETY CLOSURES	C.5
108-22	PAVEMENT MARKING LINE TYPES	C.13
108-27	TEMPORARY FLOODLIGHTING LUMINAIRES	C.5
108-29	PAVEMENT MARKING SYMBOLS AND LEGENDS	C.14
108-35	TEMPORARY LANE SEPARATOR SYSTEM	C.5
110-1	REMOVAL OF PAVEMENT	C.4
110-9	CULVERT ABANDONMENT	C.10
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111-25	INDEX OF TABULATIONS	C.3
112-9	SHOULDERS	C.8 - C.9
112-10	MILLED RUMBLE STRIPS	C.10

262-3
10-16-12

ROAD WEATHER INFORMATION SYSTEM

Road Weather Information System (RWIS) installation(s) are located within this project's construction limits (Sta. ____+__). Notify the Iowa DOT's Maintenance Office (telephone number 515-239-1971) a minimum of 7 days prior to working near the RWIS installation(s). Maintenance personnel will locate and mark the RWIS(s) one time. Treat these RWIS(s) similar to other public utilities. The Contractor is responsible for paying for unapproved damage they have caused to the RWIS(s).

262-4
04-16-13

AUTOMATIC TRAFFIC RECORDER

Automatic Traffic Recorder (ATR) installation(s) are located within this project's construction limits (Sta. ____+__). Notify the Iowa DOT's Transportation Data Office (telephone number 515-239-1197) a minimum of 7 days prior to working near the ATR installation(s). Transportation Data personnel will locate and mark the ATR(s) one time. Treat these ATR systems similar to other public utilities. The Contractor is responsible for paying for unapproved damage they have caused to the ATR system(s).

281-1
10-18-16

SECTION 404 PERMIT AND CONDITIONS

Construct this project according to the requirements of U.S. Army Corps of Engineers _____, Permit No. _____. A copy of this permit is available from the Iowa DOT website (<http://www.envpermits.iowadot.gov/>). The U.S. Army Corps of Engineers reserves the right to visit the site without prior notice.

EXISTING PAVEMENT

No.	Location					Year	Type	Project Number	Surface		Base		Subbase		Removal		Coarse Aggregate			Reinforcement	Remarks	
	County	Route	Dir. of Travel	Begin Ref. Loc. Sign	End Ref. Loc. Sign				Type	Depth	Type	Depth	Type	Depth	Type	Depth	Source	Type	Durability Class			Type
1	86	US 30	EB	209.81	218.08	2009	W	ESP-30-6(151)--2S-86	HMA	1.5	HMA	1.5	HMA	3	SCR	1						WIDEN 3' BOTH SIDES
						2009		ESP-30-6(151)--2S-86	HMA	1.5	HMA	1.5										
						1986		FR-30-6(44)--2G-86	AAC	1.5	BAC	1.5										
						1965		FN-553	AAC	1.5	AAC	1.5										
						1954		F-553(9)	PCC	10												
2	6	US 30	EB	218.08	221.1	2009		NHSX-030-6(143)--3H-06	HMA	2	HMA	2	CIP	4	MIL	4						
						1990		FN-30-6(48)--21-06	AAC	3												
						1977		FN-30-6(30)--21-06	AAC	1.5	TBB	1.5										
						1965		FN-553*<1>	AAC	1.5												
						1954		FN-553	BAC	3												
						1936		FA-553A	PC7	7												
3	6	IA 21	NB	56.51	61.49	1979		F-21-4(6)--20-06	PCC	8												
4	6	IA 21	NB	61.49	69.62	2000		STP-21-4(24)--2C-06	AAC	2	AAC	2										
						1980		F-21-4-(11)--20-06	PCC	8												

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5

* Not a Bid Item

Begin Station	End Station	Side	Pavement Type	Area	Saw Cut*	Remarks
				SY	LF	
US 30 705+41.13	795+00.00			31853.8	32.0	
IA 21 250+00.00	281+50.00			8400.0	24.0	
TOTALS:				31853.8	32.0	

102-3
10-15-13

ACCESS POINTS AND SAFETY RAMPS

Refer to Cross-Sections

Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.

- ① Refer to MI-210
- ② Refer to EW-501.
- ③ Refer to EW-501 or EW-502.

*Predetermined for access point not constructed with this project.

Location		Type	Length of Opening ①			Pipe Culvert ③			Aprons	Driveway Surface Area		Driveway Surfacing Material	Remarks					
Station	Side	A, B, C, Safety Ramp, or Predetermined*	Case	1½" Dropped Curb	3" Dropped Curb	W	PR ① ②	SR ②		H	Size			Pipe Length	Lt.	Rt.		
			1 or 2	LF	LF	FT	FT	FT		FT	IN			LF	LF	LF	No.	SY
US 30																		
772+00.00	Rt.	C				24.0											477.139	
776+50.00	Lt.	C				24.0											701.408	
IA 21																		
251+50.00	Lt.	C				24.0											33.085	
251+50.00	Rt.	C				24.0											25.966	
275+36.00	Lt.	C				24.0											119.898	
275+37.55	Rt.	C				24.0											45.531	
275+36.00	Rt.	C				12.0											28.207	
11th Ave																		
11787+00.00	Rt.	C				24.0											16.180	
11793+20.00	Lt.	C				24.0											65.291	
11793+20.00	Rt.	C				24.0											39.293	
TOTALS:																1551.995		

108-13A
08-01-08

SAFETY CLOSURES

Refer to Section 2518 of the Standard Specifications

Station	Closure Type		Remarks
	Road Qty.	Hazard Qty.	
STAGE 1			
705+41.13	1		US Hwy 30
250+00.00	1		IA 21
281+50.00	1		IA 21
11786+75.00	1		11th Ave
11790+71.94	1		11th Ave
STAGE 2			
705+41.13	1		US Hwy 30
795+00.00	1		US Hwy 30
263+00.00	1		IA 21
281+50.00	1		IA 21
11790+39.94	1		11th Ave
11796+50.00	1		11th Ave
TOTAL:		11	

108-35
04-17-12

TEMPORARY LANE SEPARATOR SYSTEM

See TC-61

Station to Station	Length LF	Remarks
STAGE 1 705+41.13	X	
STAGE 2 705+41.13 800+00.00	X X	

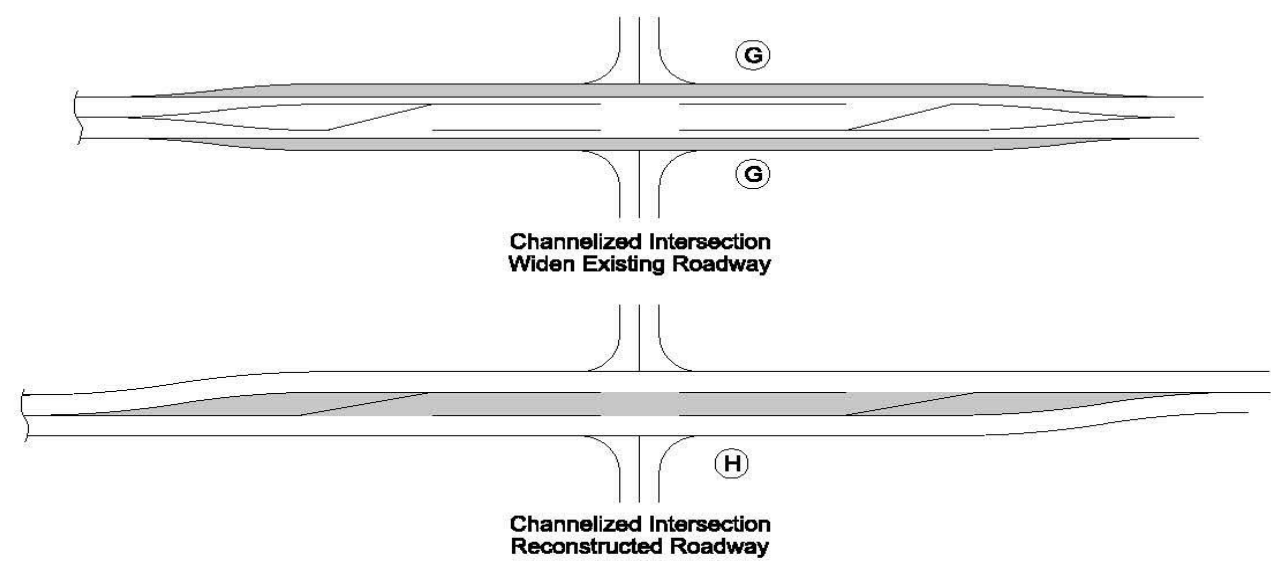
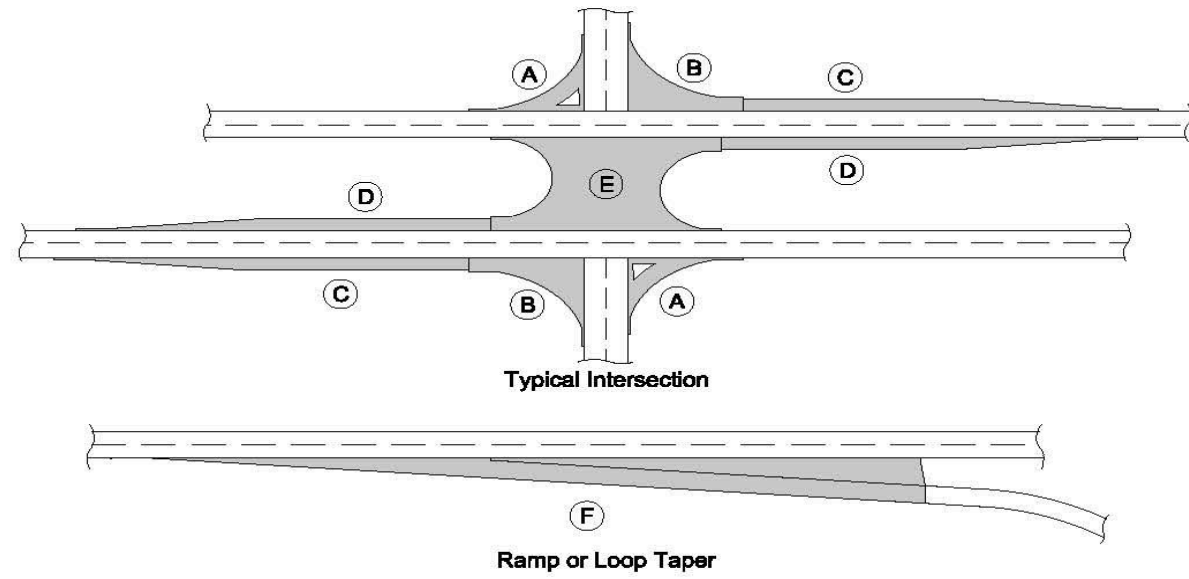
108-27
10-17-17

TEMPORARY FLOODLIGHTING LUMINAIRES

Possible Standard: LI-130

No.	Location Station	Offset	Number Lumin.	Remarks
1E 1				
1	711+00.00	+/-85	2	
2E 2				
2	711+00.00	+/-85	2	
3	807+00.00	+/-85	2	
TOTAL:			6	

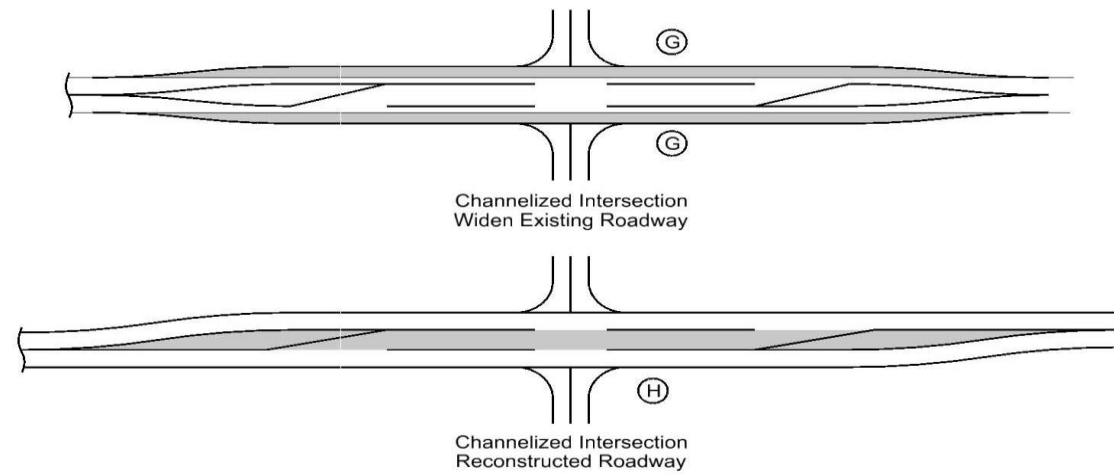
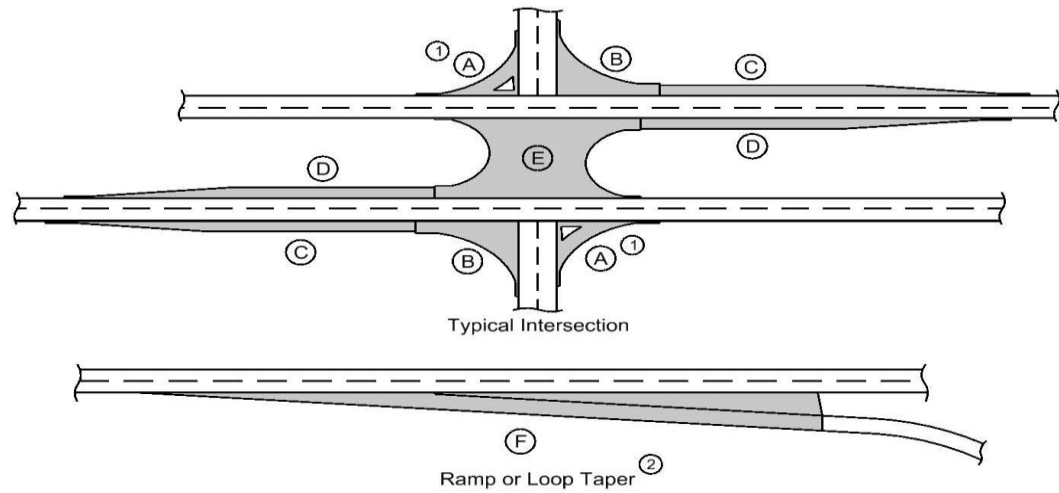
SELECT TREATMENT
Possible Detail: G_4D_Grade_Delay_S



Moisture control is required for select soils treatment and is incidental to placement of the material.

Road Identification	Location		Mainline								Section Area								Total Area (Mainline + Section)	Select Treatment Thickness (Y1)	Contractor Furnished Select Treatment CY	Remarks	
	Direction of Travel	Station to Station	Length FT	Width FT	Shoulder Width				Pavement & Subgrade Thickness (X)	Area SF	A	B	C	D	E	F	G	H					Area SF
					Median Side		Outside																
					GM	PM	PO	GO															
STAGE 1 US 30	EB	705+41.13 804+00.00	9858.9	26.0	2.0	4.0	4.0	4.0	16.0	394354.8				2599.9					2599.9	396954.7	24.0	29404.1	
STAGE 2 US 30	WB	705+41.13 795+00.00	8958.9	26.0	2.0	4.0	4.0	4.0	16.0	358354.8				2600.0					2600.0	360954.8	24.0	26737.4	
TOTAL:																						56141.4	

PCC PAVEMENT



- ① Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.
- ② Refer to PV-410, PV-411, PV-412, and PV-414.
- ③ Quantity includes Pavement Header.

Road Identification	Location Direction of Travel	Station to Station	Mainline			Area ③								Total Area By Pavement Thickness		Special Backfill TONS	Modified Subbase CY	Granular Subbase SY	Remarks					
			Width	Length	Area	A ①	B	C	D	E	F ②	G	H	SY										
			FT	FT	SY	SY	SY	SY	SY	SY	SY	SY	SY	10 IN	10% IN									
STAGE 1 US 30	EB	705+41.13 804+00.00	26.0	9858.9	28481.2				288.9										44106.1					
IA 21 Ramp B	EB	2528+48.93 2541+35.84	16.0	1286.9	2287.8	272.6	82.4							1345.8					1111.6					
IA 21 Ramp D	EB	4540+74.35 4549+71.34	16.0	897.0	1594.6	224.7	275.0							1836.7					817.4					
IA 21	NB/SB	250+00.00 263+92.73	28.0	1392.7	4332.9				322.2										2235.7					
11th Ave	NB/SB	11789+20.00 11789+77.93	24.0	57.9	154.5	124.8	124.8													404.0				
STAGE 2 US 30	WB	705+41.13 795+00.00	26.0	8958.9	25881.2				288.9											40106.1				
IA 21 Ramp C	WB	3530+28.66 3541+39.90	16.0	1111.2	1975.5	212.1	294.5							1836.7					992.2					
IA 21 Ramp A	WB	1540+80.38 1553+51.07	16.0	1270.7	2259.0	275.9	88.4							1345.7					1098.7					
IA 21	NB/SB	267+72.73 281+50.00	28.0	1377.3	4284.8				323.2										2224.0					
11th Ave	NB/SB	11791+01.94 11791+60.00	24.0	58.1	154.8	124.7	124.7				962.8									1367.1				
TOTALS:																				85608.7		8479.7	85983.3	

100-27
04-17-18

PROPOSED POSTED SPEED LIMIT

Road Identification	Begin Station	End Station	Proposed Posted Speed Limit			Remarks
			35 or less	40 - 45	over 45	
US 30	705+41.13	804+00.00			X	
IA 21	250+00.00	281+50.00			X	

SHOULDERS

- ① Lane(s) to which the shoulder is adjacent.
- ② Bid Item
- ③ Applies only for Paved Shoulders constructed on project with existing granular shoulders.
- ④ Does not include shrink.

Calculations assume a HMA unit weight (lbs/cf) of 145, a Special Backfill unit weight (lbs/cf) of 140, and a Granular Shoulder unit weight (lbs/cf) of 140.

Road Identification	Direction Of Traffic	Location			Quantities																	Remarks				
		Station to Station	Side	P Width FT	G Width FT	L Length FT	Class 13 Excavation CY ②	Hot Mix Asphalt		Binder TONS	Paved Shoulder SY ②	Reinforced Paved Shoulder SY ②	Special Backfill				Modified Subbase CY ②	Granular Shoulder		Earth Shoulder Construction Alternates						
								TON	TON/STA				HMA Alternate		PCC Alternate			TON ②	TON/STA	CY ②	TON ②		TON/STA	STA ②	HMA CY ④	PCC CY ④
													TON ②	TON/STA	TON ②	TON/STA										
US 30	WB	789+31.43	790+04.12	Med	0.0	6.0	72.7				0.0						36.062	49.611	0.7		4.9					
US 30	WB	790+75.88	793+60.00	Med	0.0	6.0	284.1				0.0						140.955	49.611	2.8		19.3					
US 30	WB	793+60.00	794+00.00	Med	0.0	6 to 2	40.0				0.0						12.811	32.029	0.4		6.4					
US 30	WB	794+00.00	795+00.00	Med	4.0	2.0	100.0				44.4						19.083	19.083	1.0		5.9					
IA 21 Ramp C	WB	3530+28.66	3539+75.00	Lt.	0.0	6.0	946.3				0.0						572.009	60.444	9.5		397.5					
IA 21 Ramp C	WB	3539+75.00	3540+18.54	Lt.	0.0	4 to 6	43.5				0.0						21.136	48.545	0.4		21.0					
IA 21 Ramp C	WB	3540+18.54	3541+53.49	Lt.	0.0	6.0	135.0				0.0						81.570	60.444	1.3		59.0					
IA 21 Ramp C	WB	3530+28.39	3539+60.00	Rt.	0.0	4.0	931.6				0.0						321.205	34.479	9.3		407.4					
IA 21 Ramp C	WB	3539+60.00	3540+06.43	Rt.	0.0	2 to 4	46.4				0.0						10.926	23.532	0.5		23.3					
IA 21 Ramp C	WB	3540+06.43	3541+12.95	Rt.	0.0	4.0	106.5				0.0						36.726	34.479	1.1		46.6					
IA 21 Ramp A	WB	1540+57.34	1541+50.18	Lt.	0.0	6.0	92.8				0.0						56.116	60.444	0.9		39.0					
IA 21 Ramp A	WB	1541+50.18	1541+75.00	Lt.	0.0	6 to 4	24.8				0.0						12.049	48.545	0.2		12.0					
IA 21 Ramp A	WB	1541+75.00	1553+51.07	Lt.	0.0	6.0	1176.1				0.0						710.867	60.444	11.8		494.0					
IA 21 Ramp A	WB	1541+01.51	1541+45.07	Rt.	0.0	4.0	43.6				0.0						15.019	34.479	0.4		19.0					
IA 21 Ramp A	WB	1541+45.07	1541+75.00	Rt.	0.0	4 to 2	29.9				0.0						7.043	23.532	0.3		15.0					
IA 21 Ramp A	WB	1541+75.00	1553+51.20	Rt.	0.0	4.0	1176.2				0.0						405.536	34.479	11.8		514.4					
IA 21	NB/SB	267+62.73	267+66.30	Lt.	9.5	0.0	3.6				3.8									0.0		1.7				
IA 21	NB/SB	267+66.30	267+79.50	Lt.	5 to 10.9	0.0	13.2				15.0									0.1		6.2				
IA 21	NB/SB	267+79.50	268+17.36	Lt.	9 to 12.4	0.0	37.9				49.0									0.4		16.4				
IA 21	NB/SB	268+17.36	268+49.63	Lt.	12.4	0.0	32.3				44.5									0.3		13.4				
IA 21	NB/SB	268+49.63	268+66.00	Lt.	4.0	8.4	16.4				7.3						17.906	109.382	0.2		6.0					
IA 21	NB/SB	268+66.00	269+39.69	Lt.	4.0	4.0	73.7				32.8						39.027	52.961	0.7		41.2					
IA 21	NB/SB	270+75.00	273+30.00	Lt.	0.0	6.0	255.0				0.0						190.011	74.514	2.6		111.4					
IA 21	NB/SB	273+30.00	273+50.36	Lt.	0.0	6 to 4	20.4				0.0						12.977	63.737	0.2		10.1					
IA 21	NB/SB	273+50.36	273+70.00	Lt.	0.0	4.0	19.6				0.0						10.401	52.961	0.2		11.0					
IA 21	NB/SB	273+70.00	281+50.00	Lt.	4.0	4.0	780.0				346.7						413.093	52.961	7.8		436.6					
IA 21	NB/SB	267+62.73	267+68.48	Rt.	4.0	5.5 to 4	5.8				2.6						3.514	61.117	0.1		3.0					
IA 21	NB/SB	267+68.48	269+54.37	Rt.	4.0	4.0	185.9				82.6						98.448	52.961	1.9		104.0					
IA 21	NB/SB	272+00.00	281+50.00	Rt.	4.0	4.0	950.0				422.2						503.126	52.961	9.5		531.8					
TOTALS:											16827.8		245.6				18023.496		505.3							

MILLED RUMBLE STRIPS

See PV-12 and PV-13.

* Calculated at 18" width for Shoulder.

Road Identification	Location		Shoulder Pavement Type	Rumble Strip Type (Centerline, Rt or Lt Shoulder)	Length		Fog Seal* (Milled Rumble Strip) Shoulder GAL	Effective Shoulder Width			Remarks
	Station to Station				PCC	HMA		PCC Paved	HMA Paved	Granular\ Earth	
					STA	STA					
						Fog Seal					
STAGE 1											
US 30 EB	705+41.73	795+00.00	PCC	Left Shoulder	89.58		0.0	4.0		2.0	
US 30 EB	705+41.73	804+00.00	PCC	Right Shoulder	98.58		0.0	4.0		4.0	
IA 21	250+00.00	267+72.75	PCC	Left Shoulder	17.73		0.0	4.0		4.0	
IA 21	250+00.00	267+72.75	PCC	Right Shoulder	17.73		0.0	4.0		4.0	
IA 21	250+00.00	267+72.75	PCC	Centerline	17.73		0.0	4.0		4.0	
STAGE 2											
US 30 WB	705+41.73	265+34.24	PCC	Left Shoulder	440.07		0.0	4.0		2.0	
US 30 WB	705+41.73	804+00.00	PCC	Right Shoulder	98.58		0.0	4.0		4.0	
IA 21	267+72.75	281+50.00	PCC	Left Shoulder	13.77		0.0	4.0		4.0	
IA 21	267+72.75	281+50.00	PCC	Right Shoulder	13.77		0.0	4.0		4.0	
IA 21	267+72.75	281+50.00	PCC	Centerline	13.77		0.0	4.0		4.0	
Totals					PCC	HMA	Fog Seal				
HMA Shoulders						0.00	0.0				
PCC Shoulders					789.82						
PCC or HMA Shoulders					0.00	0.00	0.0				
HMA Centerlines						0.00					
PCC Centerlines					31.50						
PCC or HMA Centerlines					0.00	0.00					

CULVERT ABANDONMENT

Refer to Details 4315 and 4316

* Not a bid item

Location Station	Description	Fill Material		4" Perforated Subdrain*	Remarks
		Flowable Mortar	Granular Backfill*		
		CY	TON		
11790+59.04	36" x 43' RCP				
	36" x 30' Uncl. Pipe				
	36" x 14' Uncl. Pipe				

107-23
10-18-11

GRADING FOR GUARDRAIL INSTALLATIONS

① Lane(s) to which the installation is adjacent.

Refer to EW-301

No.	Direction of Traffic	Location		Foreslope at Guardrail	Dimensions (Feet)									Earthwork		Remarks
		Station	Side		X1	Y1	X2	Y2	X3	Y3	X4	Y4	Z	Excavation Class 10	Embankment In Place	
IA 21																
1	NB	264+51.33	Rt.		52.5	5.0	65.0	6.3	65.0	6.3	115.2	8.3	51.2			
2	SB	267+14.12	Lt.		52.5	5.0	65.0	6.3	65.0	6.3	115.2	8.3	51.2			

108-8A
Modified

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, BA-210, BA-211, BA-221, BA-225, BA-250, BA-260, LS-625, LS-626, LS-630, LS-635, SI-172, SI-173 and SI-211.

① Lane(s) to which the obstacle is adjacent.

② Not a bid item. Incidental to guardrail installation.

No.	Direction of Traffic	Side O = Outside M = Median	Location		Layout Lengths				Long-Span System	Delineators and Object Markers ②				Bid Items								Remarks			
			Station	Offset	BA-250, BA-260, LS-630, or LS-635					SI-211	Delineator SI-172	Object Marker SI-173			Bolted End Anchor	Post Adapter	Steel Beam Guardrail	Barrier Transition Section	BA-250 or LS-630				BA-260 or LS-635		
					VT1	VF	VT2	ET				Type 1	Type 2	Type 3					End Terminal	Barrier Transition Section	End Terminal				
											Tangent			Flared	Tangent	Flared	Section	Terminal							
					FT	LF	LF	LF			LF	STATION	TYPE	TYPE	White	OM2-2	OM3-L	OM3-R	BA-202	BA-210	BA-200		BA-201	BA-205	BA-206
S 30																									
1	EB	0	740+77.08	13.0	53.125	12.50	0.00	47.7																	
2	WB	0	741+44.67	13.0	53.125	12.50	0.00	47.7																	
A 21																									
1	NB	0	264+51.33	9.6	53.125	12.50	0.00	47.7																	
2	SB	0	267+14.12	9.6	53.125	12.50	0.00	47.7																	
ALS:													4	4	100.0	4	4								

107-24
MODIFIED

GRADING FOR HIGH TENSION CABLE GUARDRAIL INSTALLATIONS

Refer to Standard Road Plan EW-302

① Lane(s) to which the installation is adjacent.

No.	Direction of Traffic	Location		Dimensions			Protection Length (C _A +C _O +C _T)	Earthwork: Earthwork Type	Remarks
		Station	Side	C _A	C _O	C _T			
US30									
1	EB	738+93.10	Med	200.0	50.0	0.0	250.0	391.7	
2	WB	743+28.50	Med	200.0	50.0	0.0	250.0	391.7	
TOTAL:								783.3	

108-9A
04-20-10

HIGH TENSION CABLE GUARDRAIL

① Lane(s) to which the installation is adjacent.

Refer to BA-351.

No.	Direction of Traffic	Location		Dimensions				Bid Items		Remarks
		Station	Side	Offset D ₀	Approach C _A	Obstacle C _O	Trailing C _T	Protection Length (C _A +C _O +C _T)	End Anchor	
S30										
1	EB	738+93.10	Lt.	12.0	200.0	50.0	0.0	250.0	2	
2	WB	743+28.50	Rt.	12.0	200.0	50.0	0.0	250.0	2	
ALS:									500.0	4

SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN

Refer to Standard Road Plan DR-401 and DR-402

Location		Bid Items			PCC Paved Shoulder			Scour Protection (DR-401)			Rock Flume (DR-402)			Remarks
Bridge Station	Bridge Corner	Distance DI-1 or DI-2	PCC Paved Shoulder	Bridge End Drain	Panels Required	Polymer Grid	Modified Subbase	Special Ditch Control, Wood Excelsior Mat	Turf Reinforced Mat (TRM), Type 2	Transition Mat	Macadam Stone Base	Engineering Fabric	Erosion Stone	
		FT	SY	TYPE	A B C or D	SY	TONS	EC-101 SQ	EC-104 SQ	EC-105 SF	TONS	SY	TONS	
IA 21														
265+82.73	SW	48.9		DR-402							1.219	width*length	.5*120)/2000	
265+82.73	SE	48.8		DR-402							1.219			
265+82.73	NW	48.8		DR-402							1.219			
265+82.73	NE	48.9		DR-402							1.219			
TOTALS:			DR-402:	4							4.875	0.0	0.000	

CLEARING AND GRUBBING

Location		Work and Material Type	Trees, Stumps, and Logs and Down Timber Material Diameters													All Other Materials		Estimated Quantities			Remarks
Station to Station or Ref. Loc. Sign to Ref. Loc. Sign or Description	Direction of Travel		3"-6"	>6"-9"	>9"-12"	>12"-15"	>15"-18"	>18"-24"	>24"-30"	>30"-36"	>36"-42"	>42"-48"	>48"-60"	>60"-72"	>72"	Length	Width	Units	Area	Herbicide Application	
			FT	FT	Units	Acres	Each	FT	FT	Units	Acres	Each									

PAVEMENT MARKING SYMBOLS AND LEGENDS

Refer to PM-111

Road Identification	Location		↑ STAW	↶ RTAW	↷ LTAW	↶↷ CSRW	↷↶ CSLW	↶↷↶ CSTW	↷↶↷ CRLW	↑ FERW	↗ LLRW	↖ RLRW	⊗ RRCW	🚲 BLSW	♿ WCSW	♿ WPSB	SCHOOL SCLW	XING XNGW	STOP STPW	AHEAD AHDW	ONLY ONLW	BIKE BIKW	LANE LANW	EXIT XITW	Groove Cuts EACH	Remarks
	Station	Side																								
STAGE 1 US 30 EB	Crossover																									
STAGE 2 US 30 EB	ove Crossover																									
US 30 WB US 30 WB	Crossover Crossover																									
IA 21 NB IA 21 SB	260+19.22 263+02.66	O M		2		2																				
STAGE 3 US 30 WB US 30 WB	ove Crossover ove Crossover																									
US 30 EB US 30 WB	788+82.07 791+93.57	M M			2	2																				
IA 21 NB IA 21 SB	268+71.49 271+49.63	M O		2		2																				
SUBTOTAL:				4		8																				
TOTALS:				12																						

DRAINAGE STRUCTURE BY ROAD CONTRACTOR

Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.

- * Not a bid item
- ① Diameter or equivalent diameter
- ② UNCL = Unclassified Pipe CMP = Corrugated Metal Pipe RCP = Reinforced Concrete Pipe LCP = Arch or Elliptical Low Clearance Pipe SARC = Steel Arch Pipe
- ③ Backfill according to DR-101

Drainage Area ACRE	Location	Type	Size ① IN	Kind Of Pipe ②	Length New Const. LF	Bedding Class	Design Cover (H)		Apron No.		Apron Guard* (DR-213)	Elbow* (DR-141)	Diaphragm* (DR-501)	Tee Section* (DR-142)	"D" Section* (DR-141)	Reducer*	Type 'C' Connections* (DR-122)	Connected Pipe Joint* (DR-121)	4" Perforated Subdrain*	Flow Line Elevations				Dimensions Lin. Ft.				Skew Ahead Degrees		Dike			Class 20 CY	Flowable Mortar CY	Floodable* Backfill (A) CY	Porous* Backfill (B) CY	Flooded Backfill (A+B) CY	Remarks																		
							FT	FT	IN	OUT										No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.							No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
							Lt.	Rt.	Other	Other										Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.							Rt.	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Location Station	Top Elevation	Type						
MED	708+50.00	1101	24	RCP	66		2.0	0.08	1	1									804.70	805.80			44.0	34.2													(1)																			
MED	723+50.00	1501	24	RCP	72				1										812.90	809.69	811.06	809.65					MED	723+30.00	815.66	M										(2)																
				CMP	66														809.65	801.27	802.16																																			
MED	738+50.00	1201	24	RCP	96		4.0	0.08	1	1									820.40	813.58	819.25						MED	738+30.00	823.16	M											(3)															
14.0	743+25.00	1101	30	RCP	192		4.0	0.08	1	1									820.75	816.92																																				
316.0	750+30.00	DES 3'x4'		RCB																																																				
MED	753+50.00	1201	24	RCP	92		3.0	0.08	1	1									835.36	832.76	834.45						MED	753+30.00	838.12	M											(4)															
MED	763+50.00	1201	24	RCP	94		5.3	0.17	1	1									860.89	869.65	866.96						MED	763+30.00	872.41	M											(5)															
MED	773+50.00	1201	24	RCP	92		3.9	0.08	1	1									903.84	897.30	902.70						MED	773+30.00	906.60	M										(6)																
10.0	778+25.00	1101	30	RCP	114		9.0	0.17	1	1									906.47	908.01																																				
10.0	778+25.00	1301	30	RCP	110		9.0	0.17											899.17	903.18	906.37																																			
8.0	785+18.00	1101	24	RCP	134		9.4	0.17	1	1									907.91	908.00																																				
MED	788+00.00	1201	24	RCP	88		3.5	0.08	1	1									914.40	908.70	912.05																																			
38.0	788+95.00	1301	42	RCP	64		7.0	0.17											905.33	906.19																																				
33.0	794+84.00	1101	24	RCP	112		4.5	0.08	1	1									919.05	922.52							RT	794+70.00	924.36	M											(12)															
MED	803+00.00	1201	24	RCP	92		4.0	0.08	1	1									940.58	934.30							MED	802+80.00	943.34	M											(13)															
22.0	816+25.00	1101	36	RCP	208		19.7	0.33	1	1									932.23	930.94																				(14)																

BID ITEMS:

APRONS, CMP, 24"	1 EACH
APRONS, CONCRETE, 24"	19 EACH
APRONS, CONCRETE, 30"	6 EACH
APRONS, CONCRETE, 36"	2 EACH
CULVERT, CMP, 24"	66 LF
CULVERT, CONCRETE ROADWAY PIPE, 24"	938 LF
CULVERT, CONCRETE ROADWAY PIPE, 30"	416 LF
CULVERT, CONCRETE ROADWAY PIPE, 36"	208 LF
CULVERT, CONCRETE ROADWAY PIPE, 42"	64 LF

SURVEY SYMBOLS

- GDL Guard Rail Steel
- D Centerline Draw or Stream (Down)
- TDC Tree Deciduous
- SI Sign
- BNK Stream Bank
- EW Edge of Water
- TEV Evergreen Tree
- HDG Hedge Row
- LP L.P. Tank
- DIK Centerline of Dike or Dam
- SHR Shrub
- SI Sign
- RET Retaining Walls
- FWD Wood Fence
- FCL Chain Link and Security Fence
- LUM Luminaire
- FLG Flag Poles
- WM Wind Mill
- STP Stump
- CIS Cistern
- PPB Power Pole Co. 2
- LUM Luminaire
- PPD Power Pole Co. 4
- PPC Power Pole Co. 3
- PPE Power Pole Co. 5
- RT Radio Tower
- UB Utility Box
- SI Sign
- TPD Telephone Pedestal
- TIL Tile Line
- OUT Tile Outlet
- MM Mile Marker Post
- MH Utility Access (Manhole)
- WV Water Valve
- WHD Water Hydrant
- CIS Cistern
- MIS Miscellaneous
- WEL Well
- EB Electrical Box
- STA Storm Sewer Line Co. 1
- IN Storm Sewer Intake
- INB Storm Sewer Beehive Intake
- SEP Septic Tank
- WM Wind Mill

UTILITY LEGEND

This is a POINT 25 Project and is subject to the provisions of IAC 761-115.25.

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PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

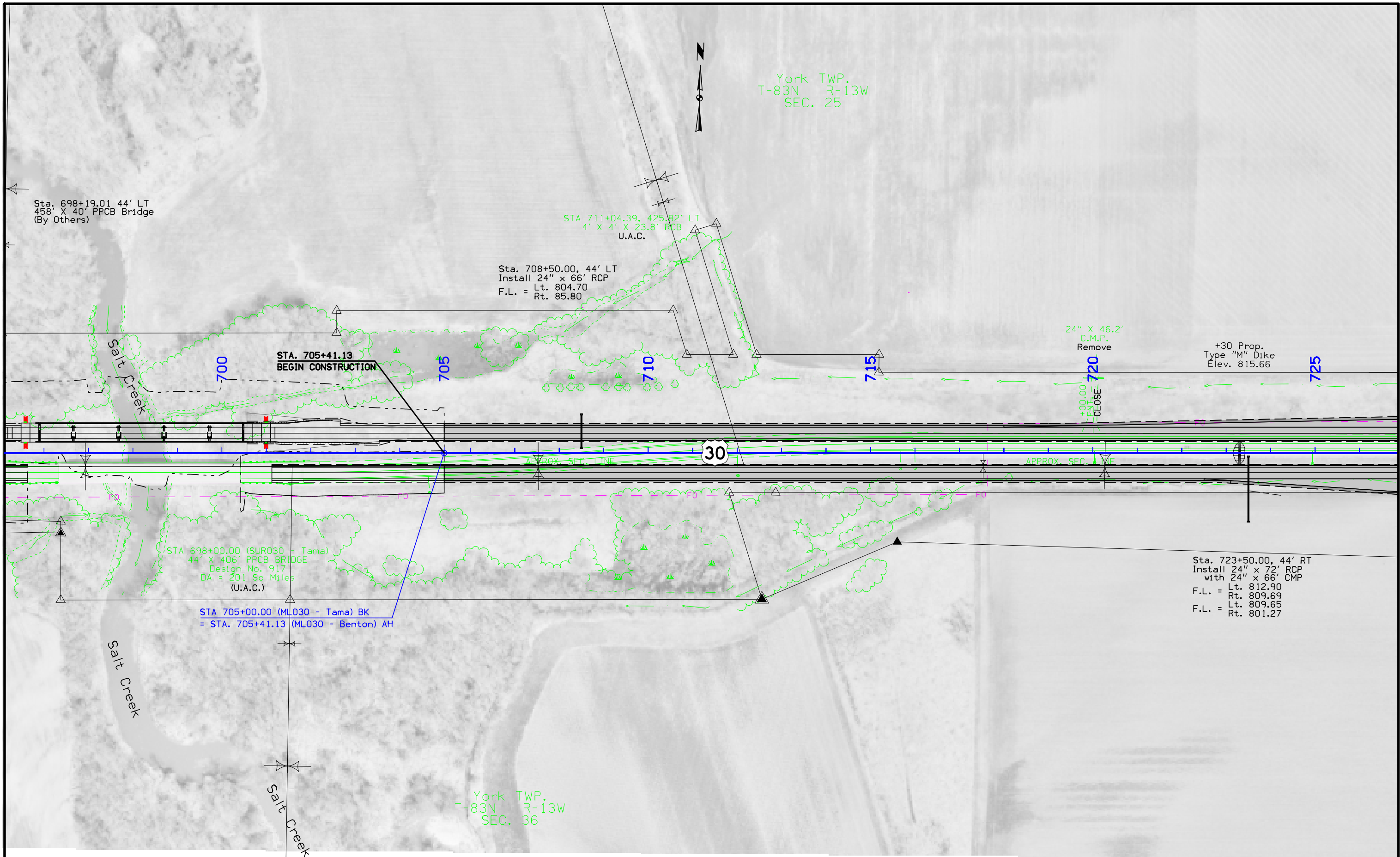
- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

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

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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



Sta. 698+19.01 44' LT
458' X 40' PPCB Bridge
(By Others)

York TWP.
T-83N R-13W
SEC. 25

STA 711+04.39, 425.82' LT
4' X 4' X 23.8' RCB
U.A.C.

Sta. 708+50.00, 44' LT
Install 24" x 66' RCP
F.L. = Lt. 804.70
Rt. 85.80

STA. 705+41.13
BEGIN CONSTRUCTION

24" X 46.2'
C.M.P.
Remove

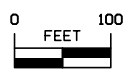
+30 Prop.
Type "M" Dike
Elev. 815.66

STA 698+00.00 (SUR030 - Tama)
44' X 406' PPCB BRIDGE
Design No. 917
DA = 201 Sq Miles
(U.A.C.)

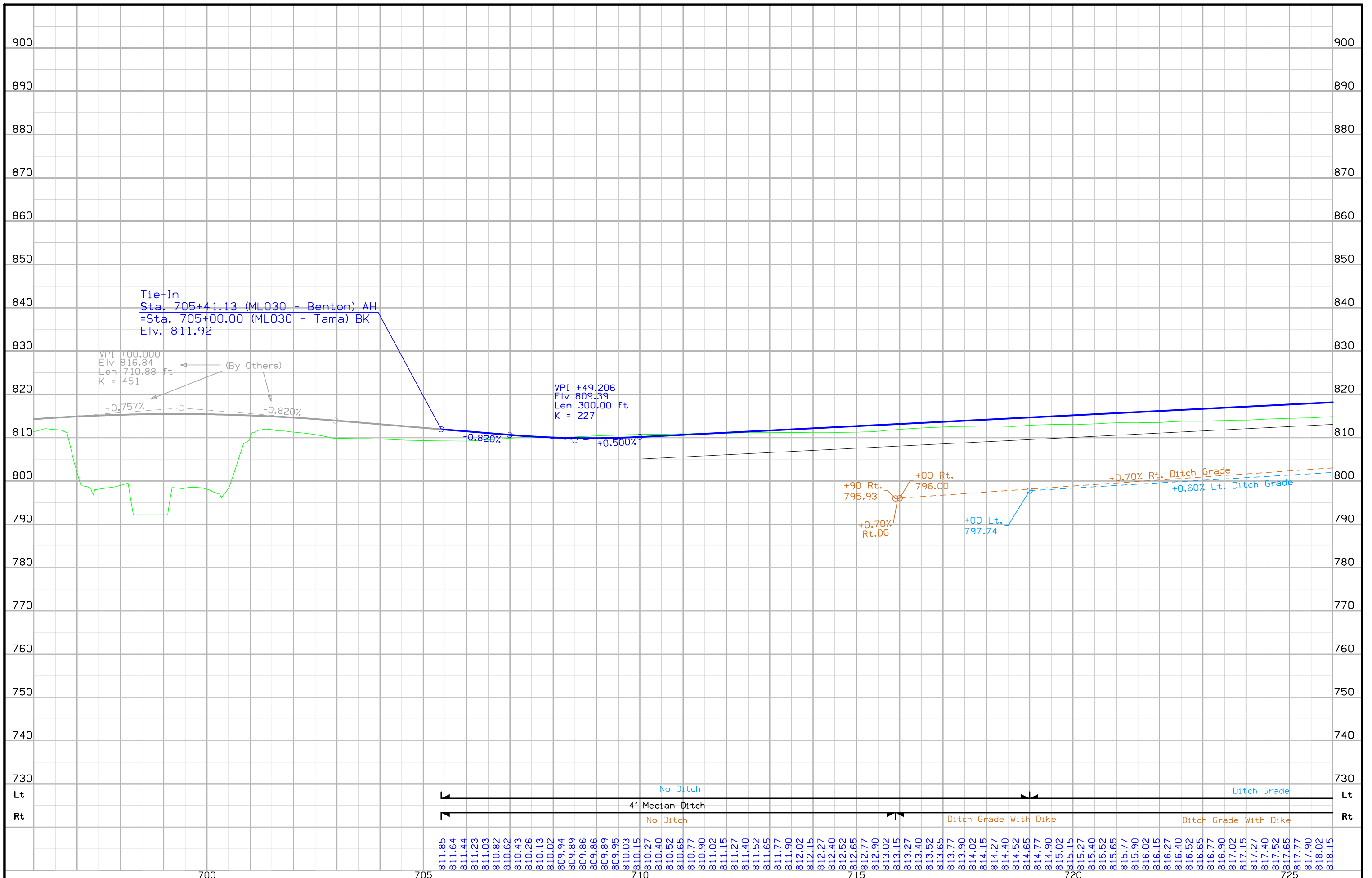
STA 705+00.00 (ML030 - Tama) BK
= STA. 705+41.13 (ML030 - Benton) AH

Sta. 723+50.00, 44' RT
Install 24" x 72' RCP
with 24" x 66' CMP
F.L. = Lt. 812.90
Rt. 809.69
F.L. = Lt. 809.65
Rt. 801.27

York TWP.
T-83N R-13W
SEC. 36



U.S. Highway 30



York TWP.
T-83N R-13W
SEC. 25

Kane TWP.
T-83N R-12W
SEC. 30

Sta. 743+25.00
Install 30' x 192' RCP
Lt. 820.75
F.L. = Rt. 816.92

Sta. 749+68
Skew 45° LT AHEAD
8' X 6' X 83' RCB
D.A. = 316 Ac - R
Remove

Sta. 742+01
24" X 104' Conc Pipe
D.A. = 14 Ac - R
Remove

Sta. 750+30.00 (PHASE 2)
Build 10' x 4' 193' RCB
Skew = 30° Lt. Ahd.
F.L. = Lt. 823.99
Design No. 818

+30 Prop.
Type "M" Dike
Elev. 823.16

+30 Prop.
Type "M" Dike
Elev. 838.12

Sta. 750+30.00 (PHASE 1)
Build 10' x 4' x 127' RCB
Skew = 30° Lt. Ahd.
F.L. = Lt. 822.09
Rt. 820.70
Design No. 418

Sta. 753+50.00
Install 24" x 92' RCP
F.L. = Lt. 835.36
Rt. 832.76

POT Sta. 741+11.03 (ML030)
= POT Sta. 265+80.76 (SUR021)

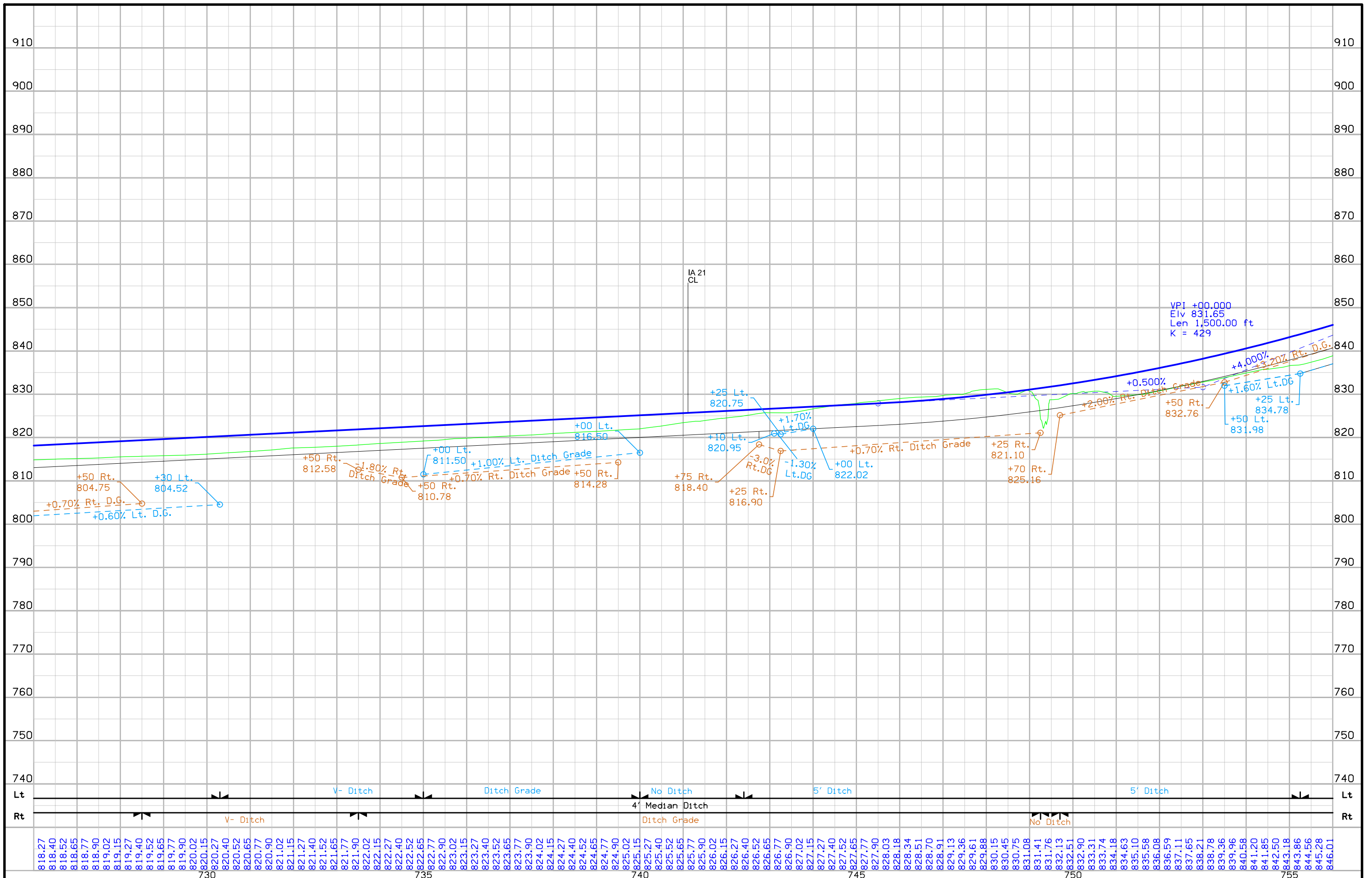
Curve Data
 $\Delta = 0^\circ 54' 40.33''$ (RT)
T = 111.33
L = 222.65
R = 14,000.00
E = 0.44

York TWP.
T-83N R-13W
SEC. 36

Kane TWP.
T-83N R-12W
SEC. 31



U.S. Highway 30



FILE NO. 31043	ENGLISH	DESIGN TEAM Flattery \ Bell	TAMA COUNTY	PROJECT NUMBER NHSX-030-6(240)--3H-86	SHEET NUMBER D.5	REVISED
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Kane TWP.
T-83N R-12W
SEC. 30

Kane TWP.
T-83N R-12W
SEC. 30

Sta. 785+19
24" X 69' Conc Pipe
D.A. = 8 Ac - R
Remove

Sta. 778+25.00 (PHASE 2)
Extend 30" x 114' RCP
with 30" x 110' RCP
F.L. = Lt. 899.17
Rt. 903.18
Other 906.37

Sta. 785+18.00 (PHASE 2)
Extend 24" x 134' RCP
with 24" x 98' RCP
F.L. = Lt. 903.13
Rt. 907.91
Other 907.91

+50 Prop.
Type "M" Dike
Elev. 872.41

24" X 49.6'
C.M.P.
Remove

Sta. 763+50.00
Install 24" x 94' RCP
F.L. = Lt. 860.89
Rt. 869.65

Sta. 778+27
2' X 2' X 71' RCB
D.A. = 10 Ac - VH
Remove

24" X 51.8'
C.M.P.
Remove



30

36" X 58.3'
C.M.P.
Remove

+00 Prop.
Type "C" Ent.
36" Uncl. Pipe

+30 Prop.
Type "M" Dike
Elev. 906.6

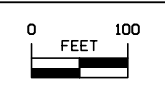
Sta. 778+25.00 (PHASE 1)
Install 30" x 114' RCP
F.L. = Lt. 906.47
Rt. 908.01

Sta. 785+18.00 (PHASE 1)
Install 24" x 134' RCP
F.L. = Lt. 907.91
Rt. 908.00

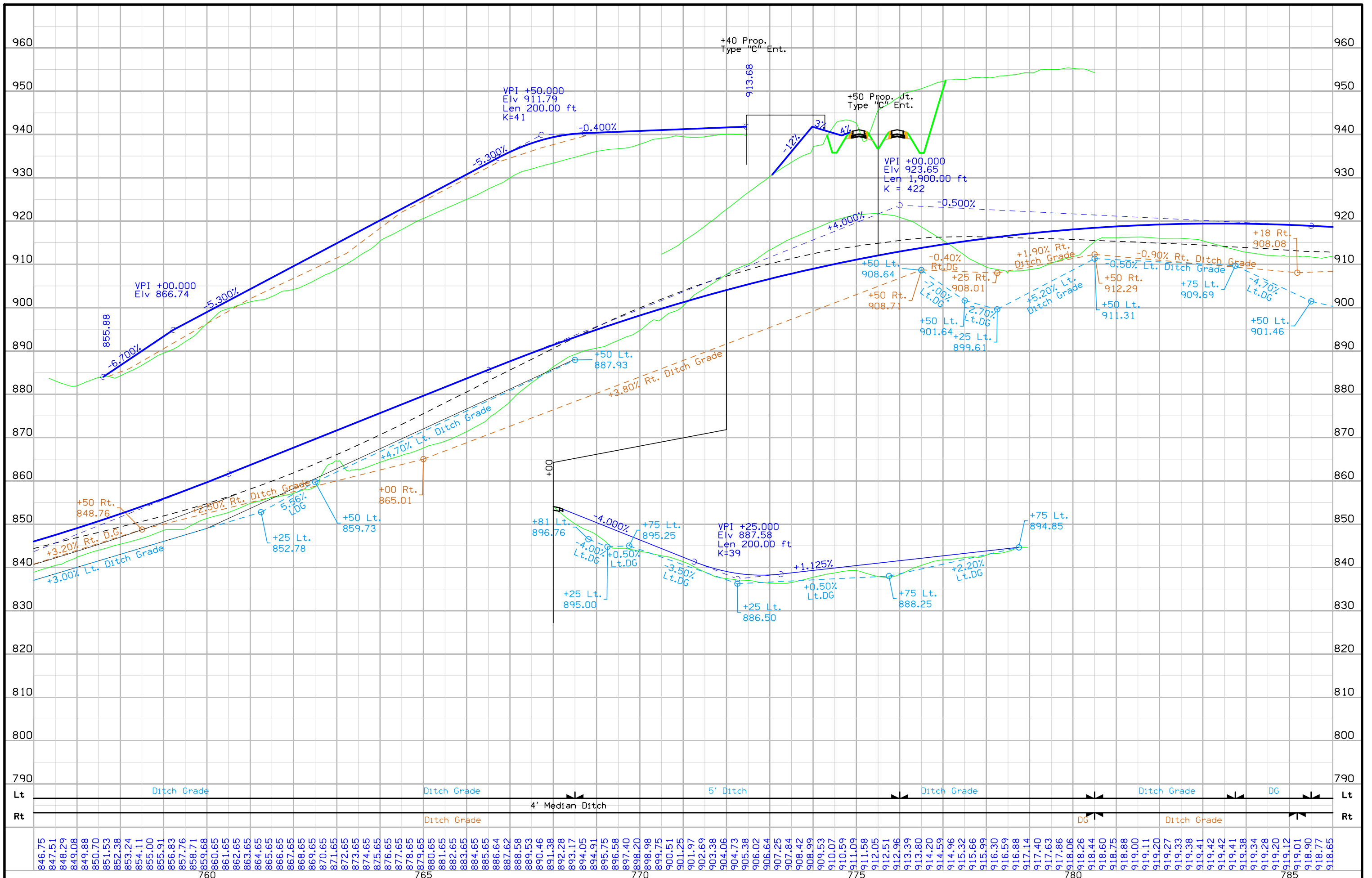
Sta. 773+50.00
Install 24" x 92' RCP
F.L. = Lt. 903.84
Rt. 897.30

Kane TWP.
T-83N R-12W
SEC. 31

Kane TWP.
T-83N R-12W
SEC. 31



U.S. Highway 30



Kane TWP.
T-83N R-12W
SEC. 29

Sta. 788+95.00
Build 5' x 4' 3:1 Flume & Basin
F.L. = Lt. 893.87
Rt. 905.33
Design No. 918

Sta. 788+95.00 (PHASE 2)
Extend 42" x 64' RCP
F.L. = Lt. 905.33
Rt. 906.19

POT Sta. 790+39.23 (ML030)
= POT Sta. 11790+40 (SR11THAVE)

Sta. 794+84.00 (PHASE 2)
Extend 24" x 112' RCP
with 24" x 84' RCP
F.L. = Lt. 916.70
Rt. 919.22

STA. 795+00.00
END WB CONSTRUCTION

Sta. 794+87
24" X 67' Conc Pipe
D.A. = 13 Ac - R
Remove

Sta. 794+84.00 (PHASE 1)
Install 24" X 112' RCP
F.L. = Lt. 919.05
Rt. 922.52

+70 Prop.
Type "M" Dike
Elev. 924.36

Sta. 803+00.00
Install 24" x 92'
F.L. = Lt. 940.58
Rt. 934.30

Sta. 816+56
4' X 5' X 40' W/ EXTS RCB
D.A. = 22 Ac - GR

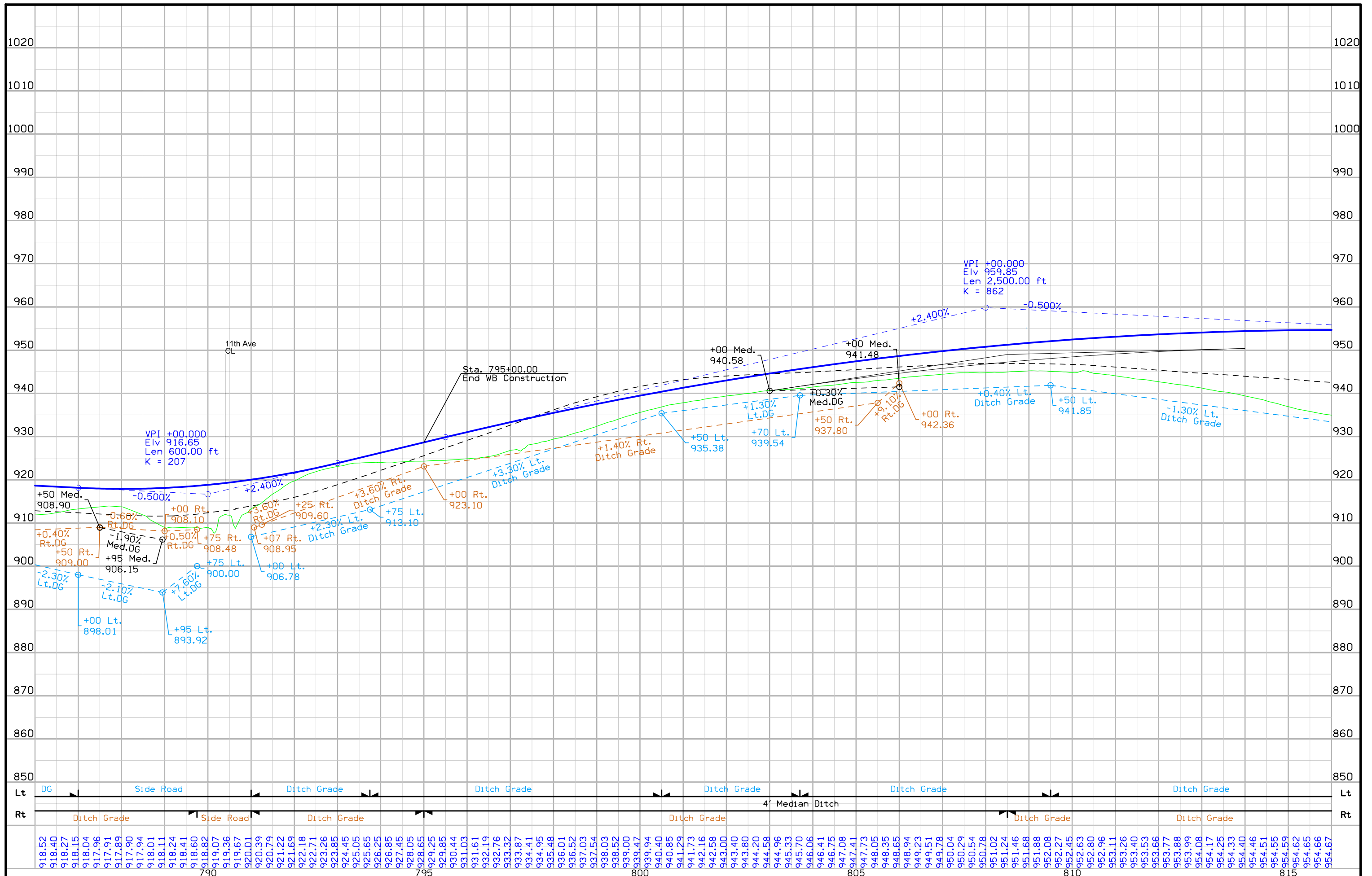
Sta. 788+97
3' X 3' X 65' RCB
D.A. = 38 Ac - R

Sta. 788+00.00
Install 24" x 88' RCP
F.L. = Lt. 914.40
Rt. 908.70

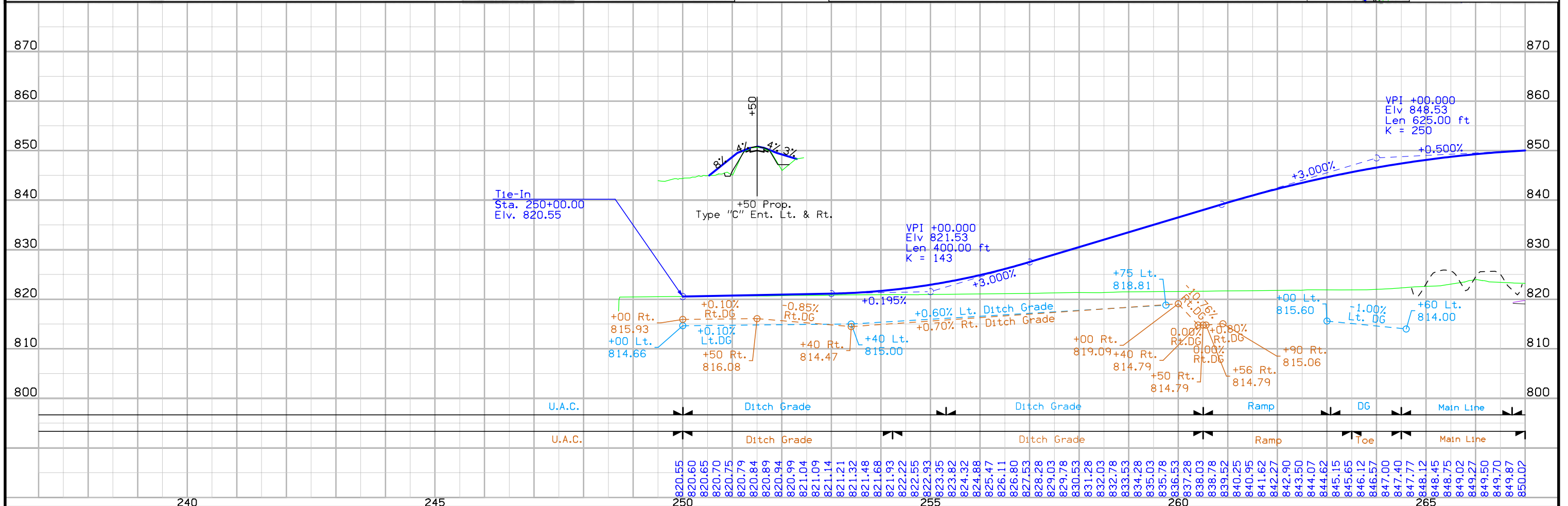
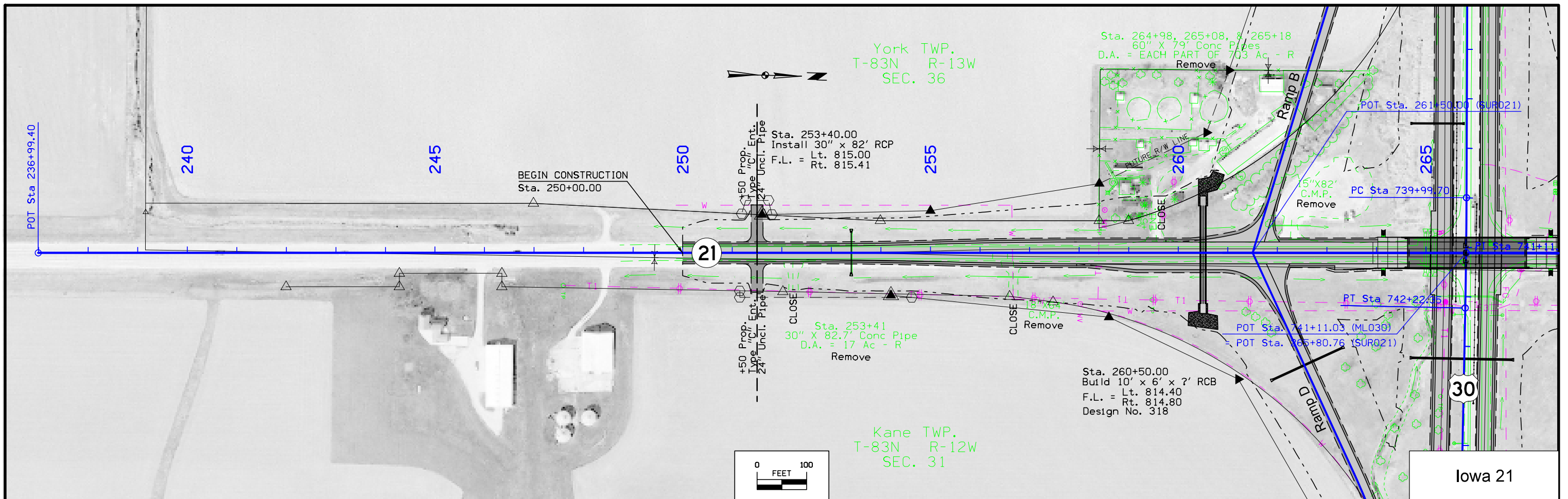
Kane TWP.
T-83N R-12W
SEC. 32

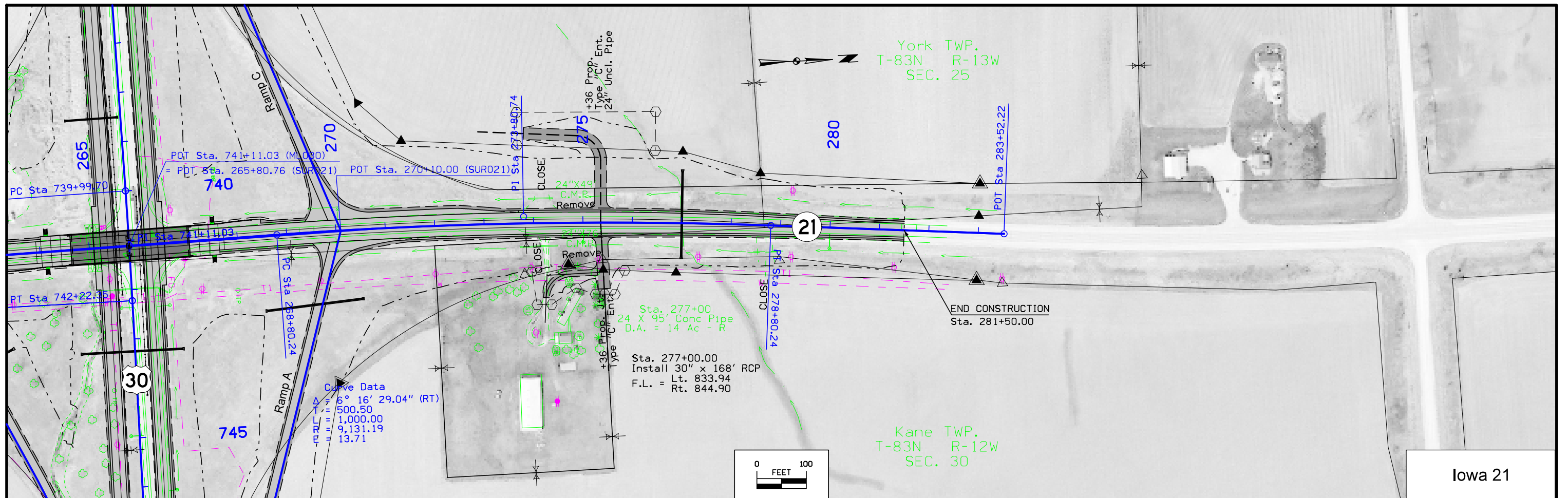


U.S. Highway 30

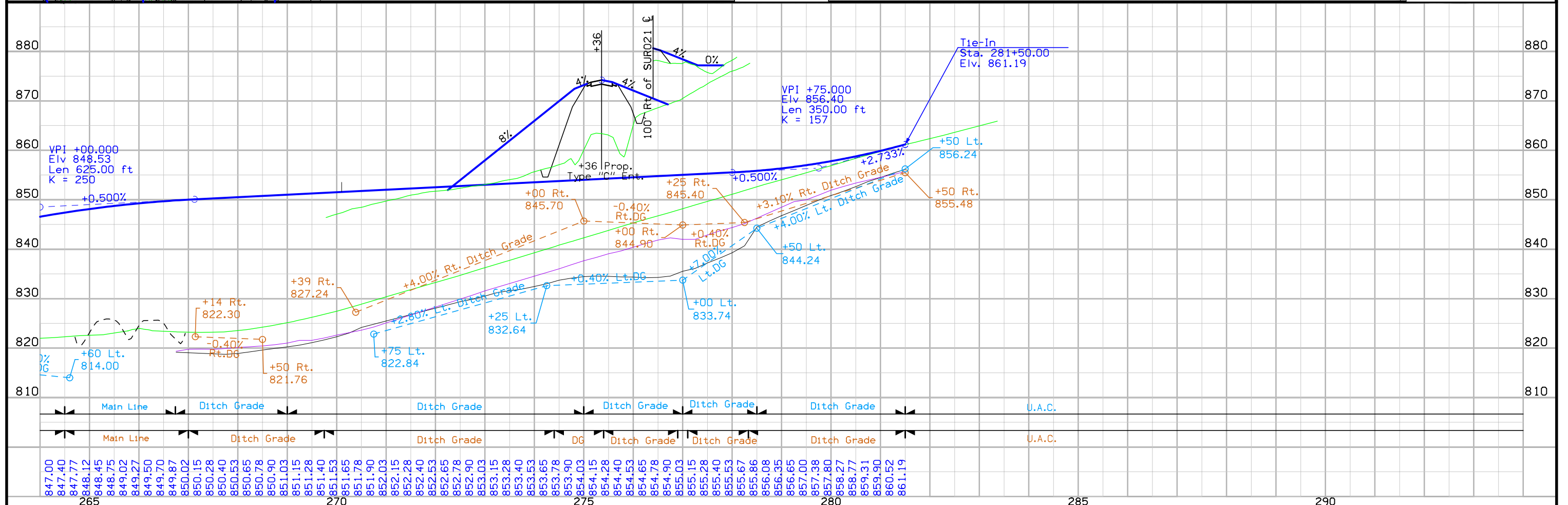


FILE NO. 31043	ENGLISH	DESIGN TEAM Flattery \ Bell	TAMA COUNTY	PROJECT NUMBER NHSX-030-6(240)--3H-86	SHEET NUMBER D.9	REVISED
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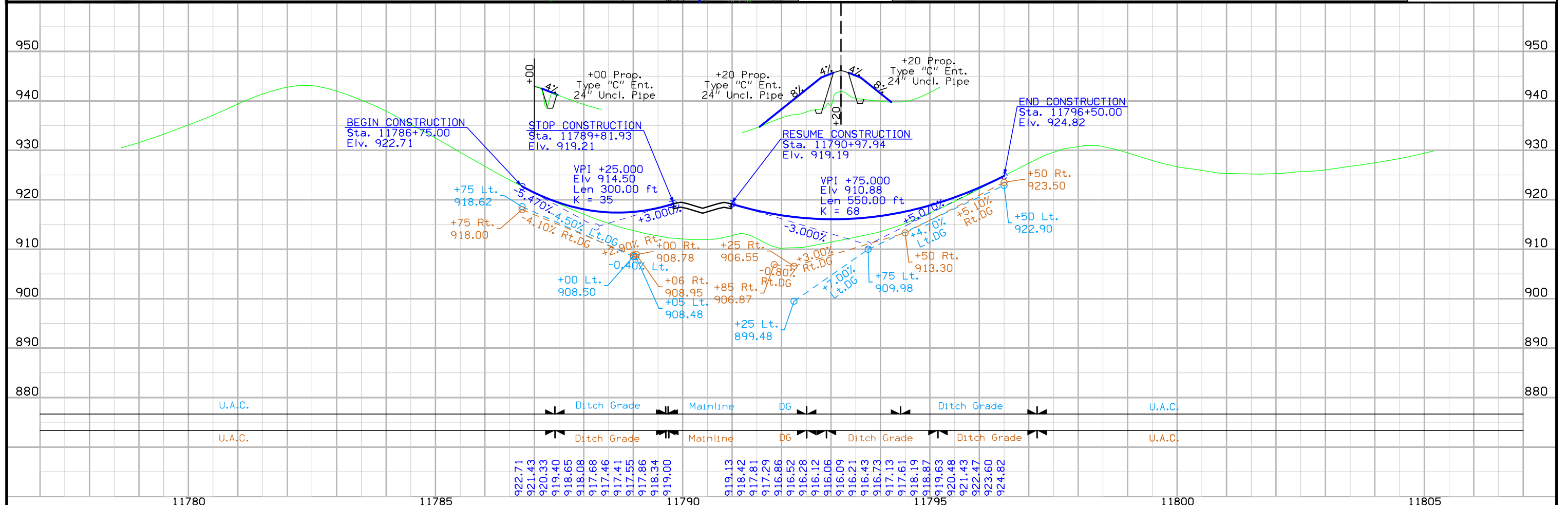
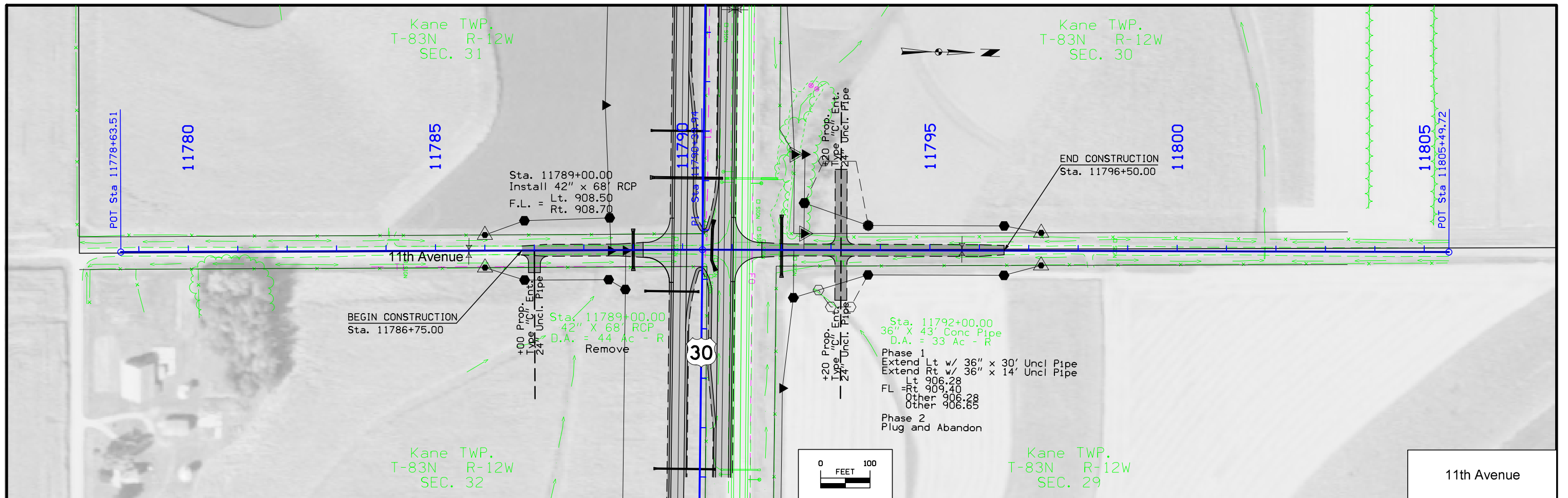


Iowa 21



FILE NO. 31043	ENGLISH	DESIGN TEAM Flattery \ Bell	TAMA COUNTY	PROJECT NUMBER NHSX-030-6(240)--3H-86	SHEET NUMBER E.2
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9:13:20 AM 9/13/2019 dhain pw:\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\0603003092\Design\.(240)_PCC Pavement - Grade and New\06030240_E01.sht



Survey Information

Benton County
 NHS-030-6(87)--19-06
 Benton County HWY 30 from the
 Tama County Line
 To HWY 218
 PIN 96-06-030-030
 Sap-0150.4

Party Personnel

John Dewey- Party Chief
 John Bennett- Assistant Survey
 Party Chief
 Jeffrey Duncan- Assistant Survey
 Party Chief

Date(s) of Survey

Begin Date
 12/2010
 End Date
 09/2011

General Information

Measurement units for this survey are US survey feet. This survey is for proposed reconstruction of Highway 30. This project is a partial field survey for the digital terrain model. This survey was limited to the specific area of the survey request. Additional aerial photography survey will be added to this survey in 06030087.pho

Vertical Control

Vertical datum for this survey is relative to NAVD88.

Horizontal Control

The coordinate system is Iowa State Plane North Zone. Due to lower linear distortion on this project there was no modification from state plane grid to ground. Horizontal control was brought to the site by averaging a minimum of five GPS network observations on control throughout the project. Geodetic datum for this survey is NAD83(CORS96)(EPOCH 2002.00)

Alignment Information

The horizontal alignment for Highway 30 survey is a retrace of As-built Plans No. FN-30-6(33)21-06, F-278 (2), NHS-30-6(63)19-06, and BR-30-6(51)38-86. Survey stationing was equated to the plan FN-30-6(33)21-06 at the POT at Sta. 741+13.08 and run back and ahead without equation throughout the survey.

Survey stationing relates to as built plans as follows:

- PI Sta. 712+36.65 This Survey
 = PI Sta. 1712+35.79 As-built Plans Project No. BR-30-6(51)38-86
- PI Sta. 773+71.87 This Survey
 = PI Sta. 773+71.89 As-built Plans Project No. FN-30-6(33)21-06
- PI Sta. 817+03.67 This Survey
 = PI Sta. 817+04.05 As-built Plans Project No. FN-30-6(33)21-06
- PI Sta. 896+29.25 This Survey
 = PI Sta. 896+29.59 As-built Plans Project No. FN-30-6(33)21-06
 = PI Sta. 130+40.1 As-built Plans Project No. F-278 (2)
- PI Sta. 921+04.41 This Survey
 = PI Sta. 155+15.25 As-built Plans Project No. F-278 (2)
- PI Sta. 949+24.00 This Survey
 = PI Sta. 183+34.73 As-built Plans Project No. F-278 (2)
- PI Sta. 1002+56.36 This Survey
 = PI Sta. 236+66.4 As-built Plans Project No. F-278 (2)
- PI Sta. 1055+72.26 This Survey
 = PI Sta. 289+81.7 As-built Plans Project No. F-278 (2)
- PI Sta. 1081+96.62 This Survey
 = PI Sta. 316+05.65 As-built Plans Project No. F-278 (2)
- PI Sta. 1108+34.49 This Survey
 = PI Sta. 342+43.56 As-built Plans Project No. F-278 (2)
- PI Sta. 1160+95.18 This Survey
 = PI Sta. 395+05.4 As-built Plans Project No. F-278 (2)

ALIGNMENT INFORMATION CONT.

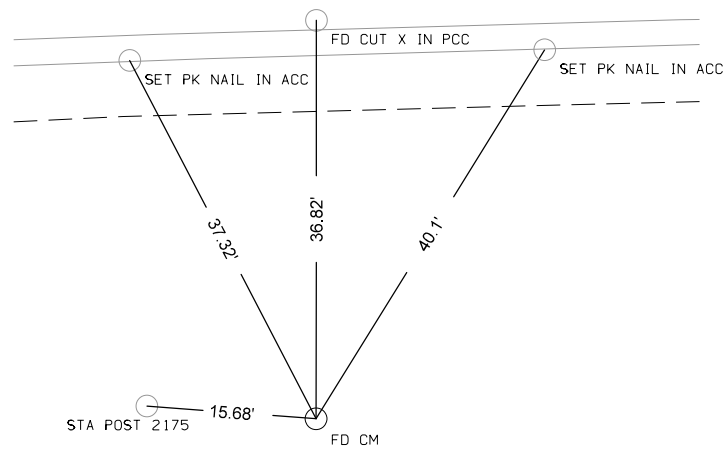
- PI Sta. 1213+52.34 This Survey
 = PI Sta. 447+63.2 As-built Plans Project No. F-278 (2)
- PI Sta. 1266+19.55 This Survey
 = PI Sta. 500+32.2 As-built Plans Project No. F-278 (2)
- PI Sta. 1300+58.26 This Survey
 = PI Sta. 534+72.9 As-built Plans Project No. F-278 (2)
- PI Sta. 1318+83.00 This Survey
 = PI Sta. 552+98.55 As-built Plans Project No. F-278 (2)
- PI Sta. 1345+08.44 This Survey
 = PI Sta. 579+25.1 As-built Plans Project No. F-278 (2)
- PI Sta. 1371+29.08 This Survey
 = PI Sta. 605+46.9 As-built Plans Project No. F-278 (2)
- PI Sta. 1383+16.83 This Survey
 = PI Sta. 617+35.0 As-built Plans Project No. F-278 (2)
- PI Sta. 1396+23.81 This Survey
 = PI Sta. 630+42.5 As-built Plans Project No. F-278 (2)
- PI Sta. 1422+83.03 This Survey
 = PI Sta. 657+03.2 As-built Plans Project No. F-278 (2)
- PI Sta. 1455+00.70 This Survey
 = PI Sta. 689+22.86 As-built Plans Project No. NHS-30-6(63)19-06
- PI Sta. 1466+79.53 This Survey
 = PI Sta. 701+02.41 As-built Plans Project No. NHS-30-6(63)19-06
- PI Sta. 1475+58.31 This Survey
 = PI Sta. 709+80.83 As-built Plans Project No. NHS-30-6(63)19-06
- PI Sta. 1501+99.70 This Survey
 = PI Sta. 736+22.21 As-built Plans Project No. NHS-30-6(63)19-06
- PI Sta. 1528+62.66 This Survey
 = PI Sta. 762+85.17 As-built Plans Project No. NHS-30-6(63)19-06

FOR ADDITIONAL SURVEY INFORMATION SEE SURVEY INDEX

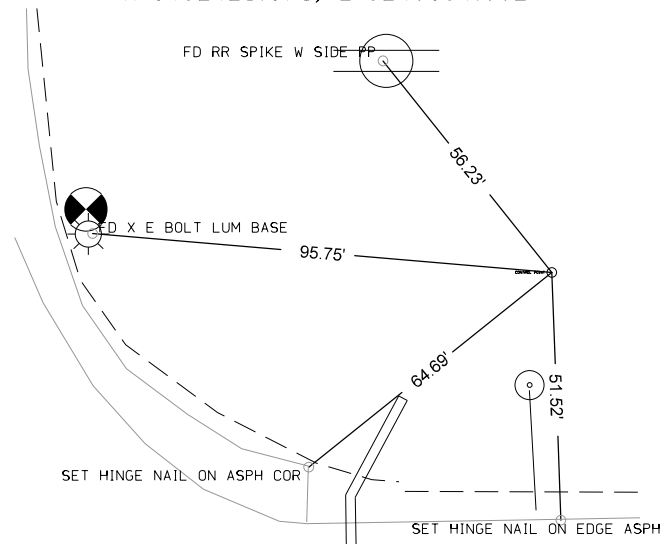
VERTICAL CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
571	3452388.867	5249107.981	831.446	749+96.36	-28.231	BM	FND IHC BM N. HDWL 8'X6' RCB
603	3452396.088	5253009.836	910.728	788+97.95	28.038	BM	BUTTON ON HDWL
606	3452384.629	5255882.182	935.222	817+70.02	65.218	BM	CM
608	3452415.538	5258481.886	925.434	843+69.90	59.781	CP	CP/BM FD CM
609	3452515.328	5259881.424	918.753	857+70.35	-26.293	BM	FND IHC BM N HDWL
610	3452471.161	5261092.660	893.613	869+81.10	29.739	BM	FND IHC BM S HDWL
613	3452428.726	5263785.828	937.363	896+73.32	99.251	BM	FND CUT SQUARE IN TOP OF 24" RCP
614	3452491.442	5264152.691	932.885	900+40.89	42.331	BM	FND CUT X INLET HDWL
615	3452526.591	5265450.419	943.449	913+39.03	29.014	BM	FND IHC BM ON INLET HDWL
618	3452617.654	5268415.187	938.062	943+04.79	-25.345	BM	FND IHC BM ON INLET HDWL
619	3452658.553	5269000.009	945.997	948+90.02	-59.907	BM	FND CONC MON
622	3452597.326	5271999.562	937.034	978+88.80	27.444	BM	FND IHC BM ON INLET HDWL
624	3452565.569	5274414.003	928.709	1003+03.04	79.812	BM	FND CM
625	3452623.082	5274950.147	933.220	1008+39.59	25.227	BM	FND IHC BM ON INLET HDWL
628	3452635.631	5277433.426	932.447	1033+22.90	25.354	BM	FND IHC BM ON INLET HDWL
630	3452694.607	5279099.715	923.109	1049+89.47	-25.116	BM	FND CUT X ON INLET HDWL
631	3452584.670	5279767.154	923.309	1056+55.90	89.182	BM	FND CM
632	3452652.205	5280091.417	919.408	1059+80.75	25.529	BM	IHC BM ON INLET HDWL
634	3452665.029	5281484.166	920.798	1073+73.55	30.660	BM	FND CUT X ON OUTLET HDWL
636	3452685.351	5283184.282	889.098	1090+73.76	32.996	BM	FND CUT X ON INLET HDWL
637	3452705.697	5284202.737	912.177	1100+92.40	26.641	BM	FND IHC BM ON INLET HDWL
638	3452799.972	5285001.824	904.935	1108+92.58	-56.775	BM	FND CONC MON
639	3452723.644	5285587.302	894.729	1114+77.14	26.316	BM	FND IHC BM ON INLET HDWL
640	3452738.144	5286677.374	894.998	1125+67.31	24.418	BM	FND IHC BM ON INLET HDWL
641	3451671.559	5287594.067	875.806	1134+71.61	1101.528	BM	CUT X IN HDWL
642	3452768.906	5288509.610	863.863	1143+99.78	14.838	BM	FND CUT X ON SW HANDRAIL OF BRIDGE
647	3452898.213	5294690.692	874.024	1205+82.06	-27.856	BM	FND IHC ON NE HANDRAIL OF BRIDGE
648	3452958.492	5295408.323	890.460	1213+00.51	-77.409	BM	◇ CONTROL POINT
649	3452923.486	5296554.911	898.809	1224+46.45	-25.187	BM	FND IHC ON NE HANDRAIL OF BRIDGE
650	3452931.138	5297070.286	894.703	1229+61.88	-25.096	BM	FND IHC BM ON INLET HDWL
657	3453041.305	5303314.193	906.294	1292+06.44	-57.164	BM	◇ CONTROL POINT
659	3452973.885	5304655.597	919.496	1305+47.03	25.354	BM	FND IHC BM ON INLET HDWL
660	3452934.892	5305956.039	902.142	1318+46.73	84.184	BM	FND CM
661	3453053.781	5306689.582	901.779	1325+81.99	-23.826	BM	FND IHC BM ON INLET HDWL
662	3453076.202	5308106.918	911.220	1339+99.50	-25.275	BM	FND IHC BM ON INLET HDWL
664	3453098.968	5310235.027	874.695	1361+27.62	-24.018	BM	FND IHC BM ON INLET HDWL
665	3453144.030	5311277.289	888.165	1371+70.39	-58.163	BM	◇ CONTROL POINT
667	3453144.072	5312921.061	875.129	1388+14.76	-26.940	BM	FND IHC BM ON INLET HDWL
64	3453142.516	5316335.395	884.289	1422+27.97	58.435	CP	FND REBAR IN CONC MON◇ CONTROL POINT
672	3453230.571	5316649.820	886.498	1425+44.16	-23.460	BM	FND IHC BM ON INLET HDWL
674	3453289.523	5319380.345	906.622	1452+75.17	-30.264	BM	FND IHC BM ON INLET HDWL
675	3453302.342	5320342.423	908.596	1462+36.49	-50.359	BM	FND IHC BM ON INLET HDWL
22882	3458665.009	5321373.879	891.321	1473+58.98	-5410.401	CP	FND CM
22879	3455926.698	5321531.534	925.754	1474+69.18	-2669.870	CP	FND CM
676	3450211.215	5321827.497	887.594	1476+76.43	3049.526	BM	CUT X IN HDWL
678	3453350.665	5322225.316	928.472	1481+21.14	-84.091	BM	CUT X IN CONC

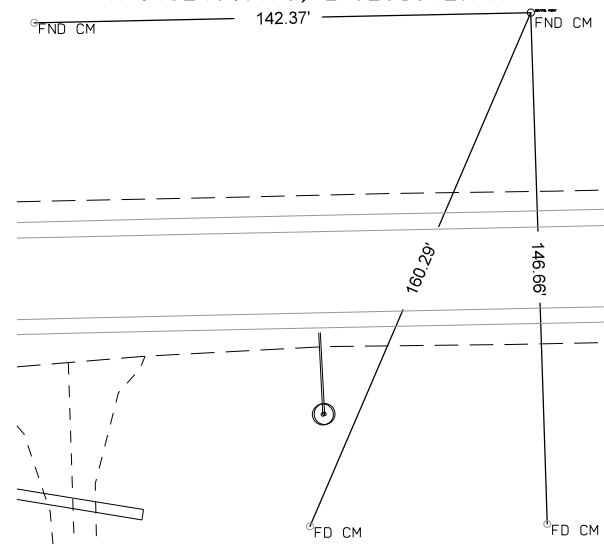
CP STA 715+16, 49' RT
 CP 1, FD Concrete Monument
 N=3452237.93, E=5245631.064



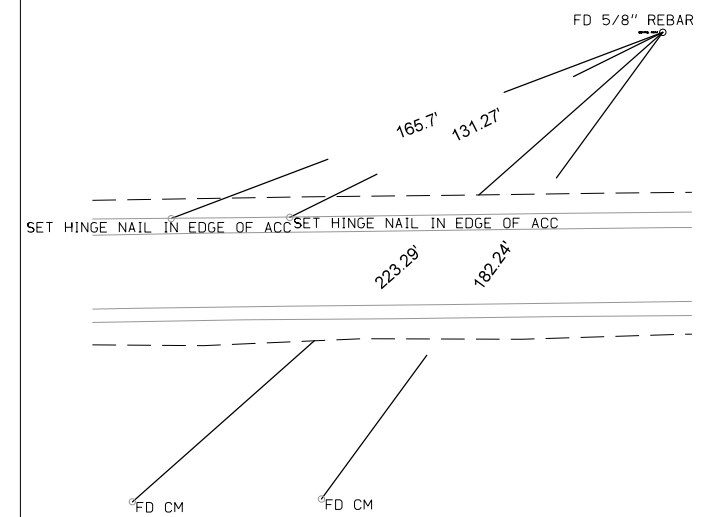
CP STA 742+44, 75' LT
 CP 37, FD Concrete Monument
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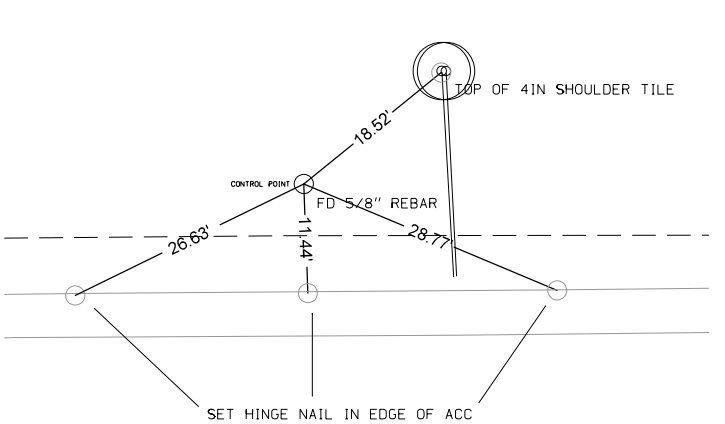
CP STA 764+32, 72' LT
 CP 22847, FD Concrete Monument
 N=3452463.475, E=5250542.797



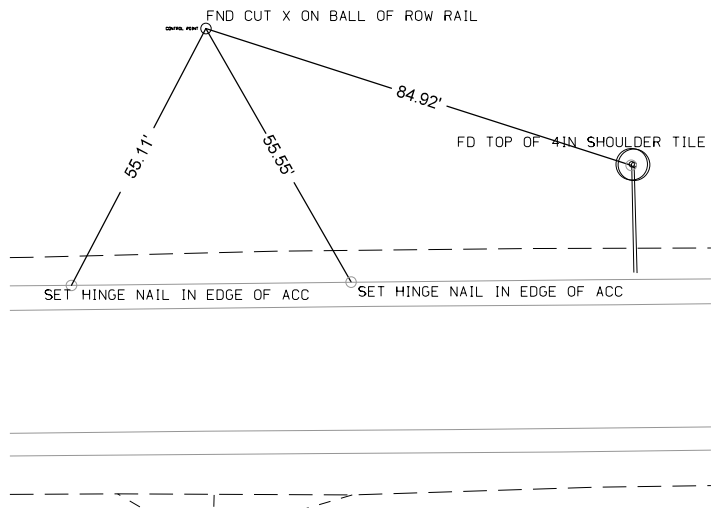
CP STA 775+10, 72' LT
 CP 38, FD 5/8" REBAR
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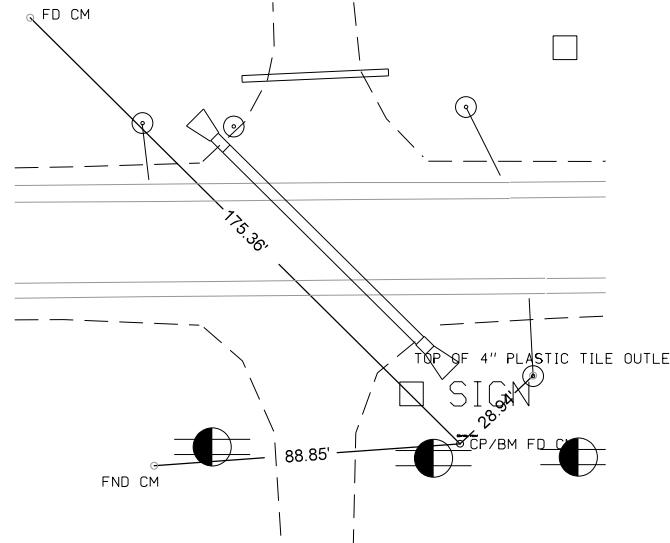
CP STA 803+70, 27' LT
 CP 39, FD 5/8" REBAR
 N=3452464.384, E=5254482.114



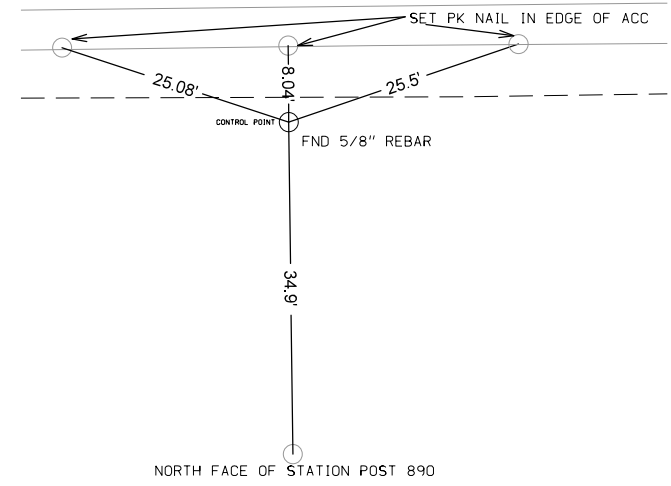
CP STA 830+03, 64' LT
 CP 40, FD CUT X ON BALL OF ROW RAIL
 N=3452526.458, E=5257114.173



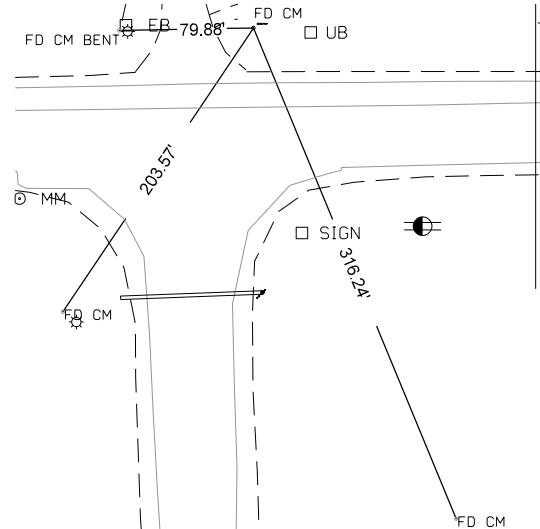
CP STA 843+69, 59' RT
 CP 608, FD Concrete Monument
 N=3452415.538, E=5258481.886



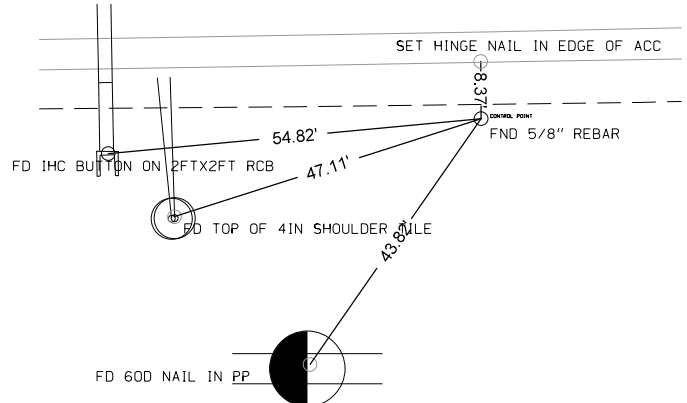
CP STA 889+91, 24' RT
 CP 42, FD 5/8" Rebar
 N=3452495.734, E=5263102.478



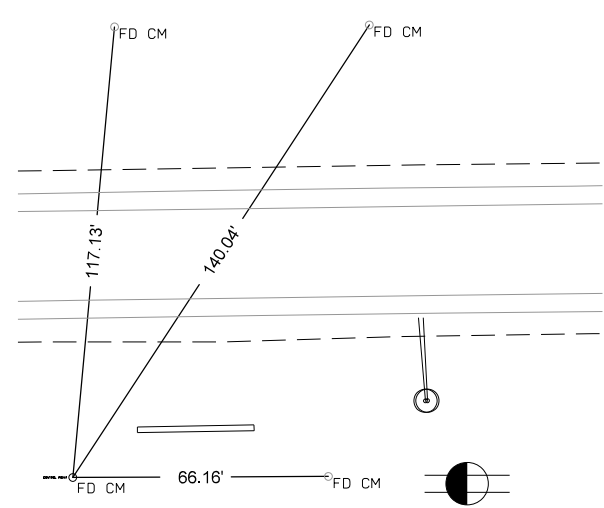
CP STA 896+70, 58' LT
 CP 37611, FD Concrete Monument
 N=3452586.289, E=5263780.417



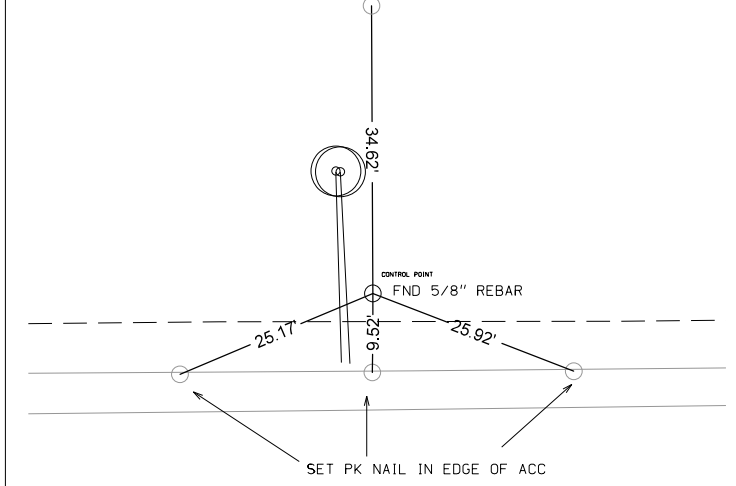
CP STA 913+93, 24' RT
 CP 43, FD 5/8" Rebar
 N=3452531.701, E=5265505.001



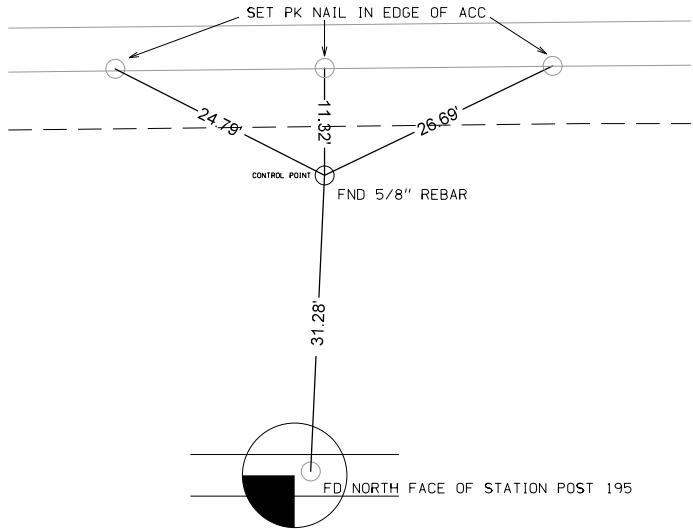
CP STA 920+65, 57' RT
 CP 200027, FD Concrete Monument
 N=3452509.859, E=5266176.792



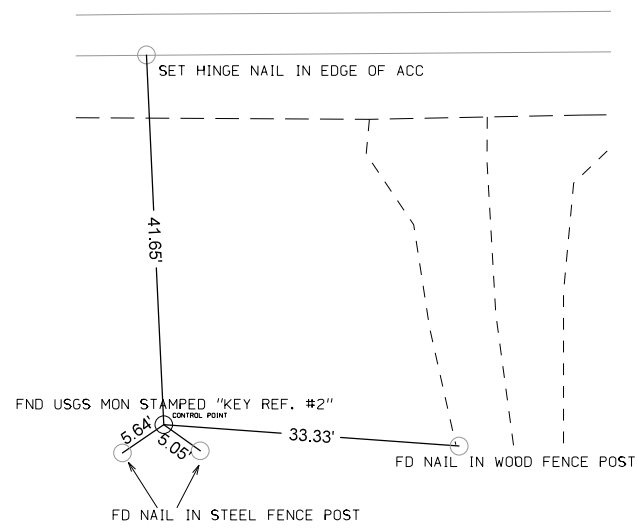
CP STA 936+00, 25' LT
 CP 44, FD 5/8" Rebar
 N=3452609.704, E=5267711.199
 FD IRON PIN WITH ALUMN DOT CAP WITH ROW POST



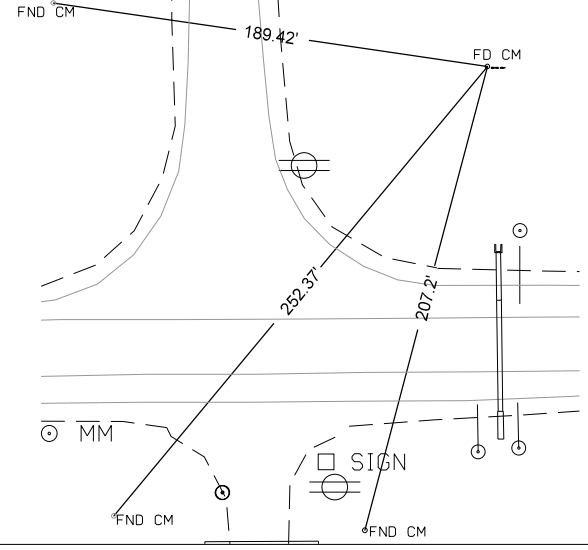
CP STA 960+93, 27' RT
 CP 45, FD 5/8" Rebar
 N=3452581.68, E=5270204.749



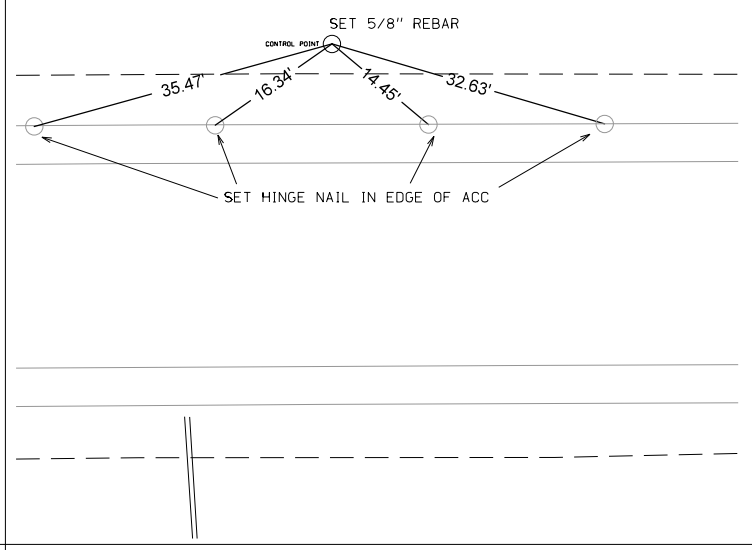
CP STA 992+38, 57' RT
 CP 46, FD 5/8" Rebar
 N=3452578.592, E=5273349.534



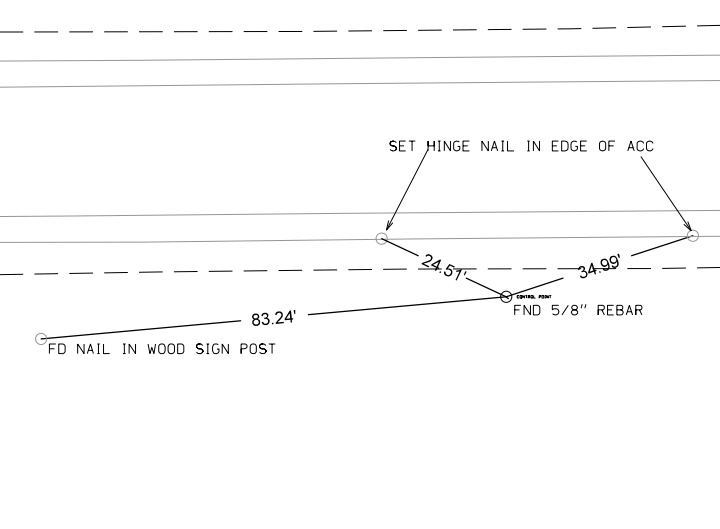
CP STA 1003+57, 120' LT
 CP 200008, FD Concrete Monument
 N=3452765.895, E=5274466.914



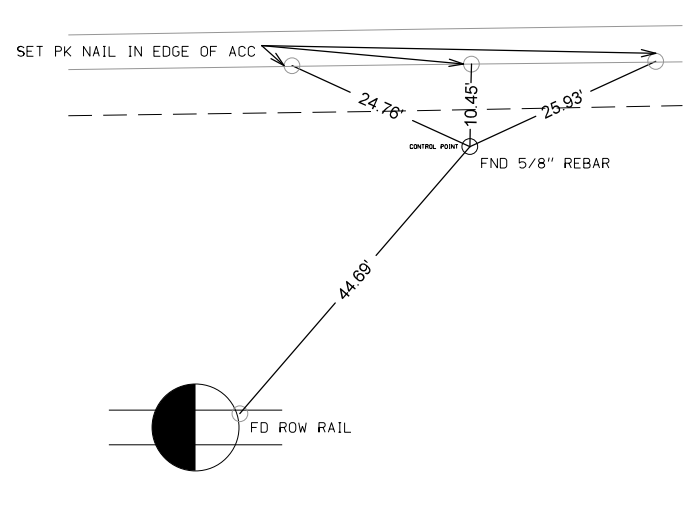
CP STA 1026+09, 24' LT
 CP 47, FD 5/8" Rebar
 N=3452682.333, E=5276719.615



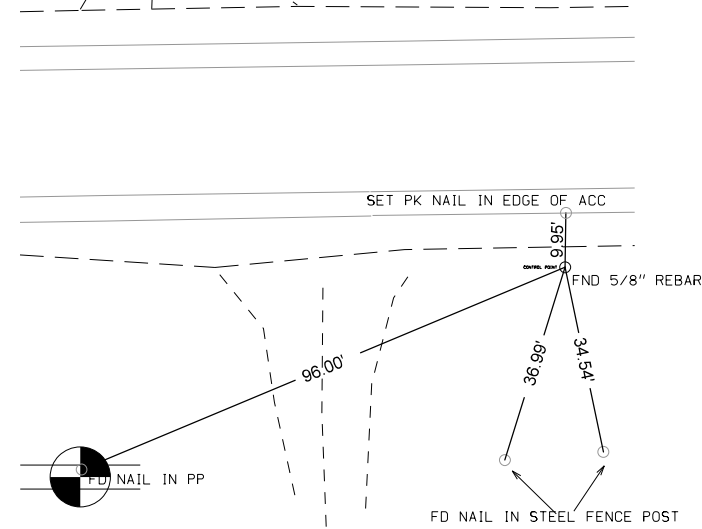
CP STA 1053+59, 26' RT
 CP 48, FD 5/8" Rebar
 N=3452645.246, E=5279470.035



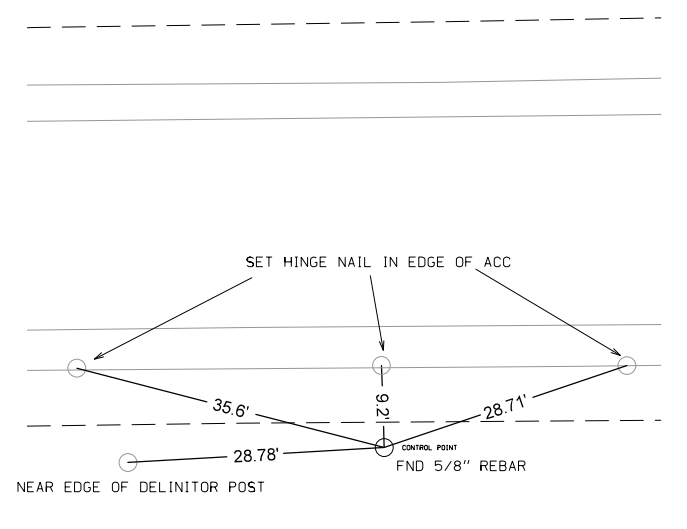
CP STA 1075+92, 26' RT
 CP 49, FD 5/8" Rebar
 N=3452672.429, E=5281703.269



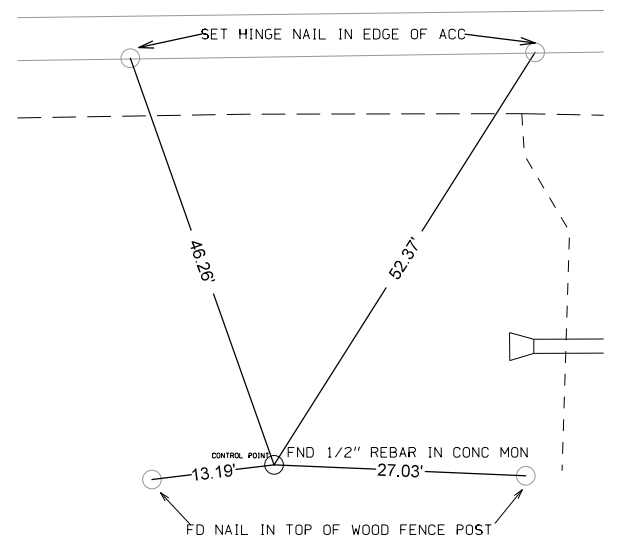
CP STA 1105+90, 25' RT
 CP 50, FD 5/8" Rebar
 N=3452713.844, E=5284700.81



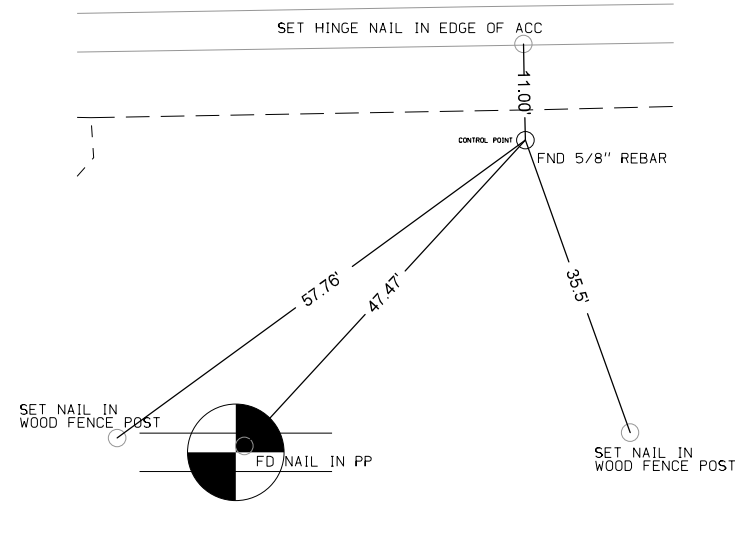
CP STA 1128+88, 24' RT
 CP 51, FD 5/8" Rebar
 N=3452742.03, E=5286998.851



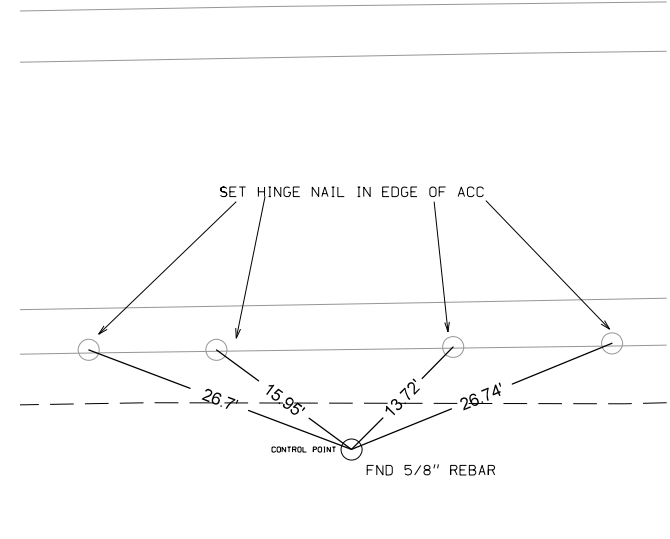
CP STA 1160+34, 59' RT
 CP 53, FD 5/8" Rebar
 N=3452743.585, E=5290145.25



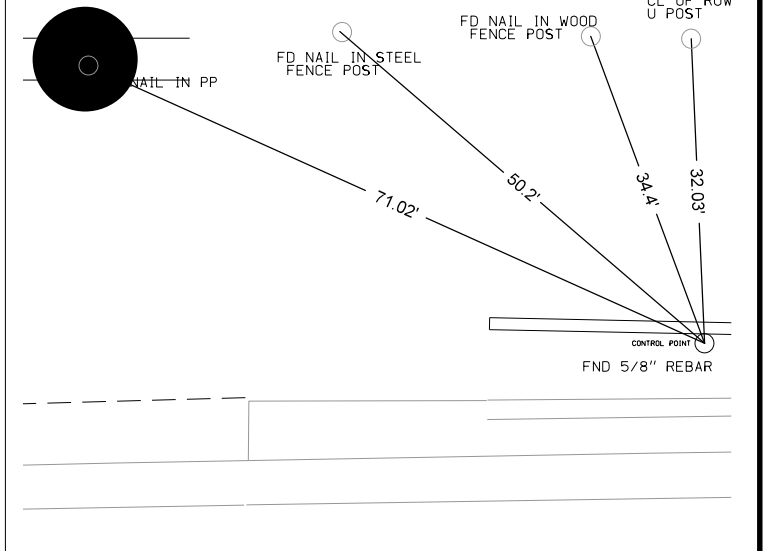
CP STA 1195+93, 26' RT
 CP 54, FD 5/8" Rebar
 N=3452829.352, E=5293703.037



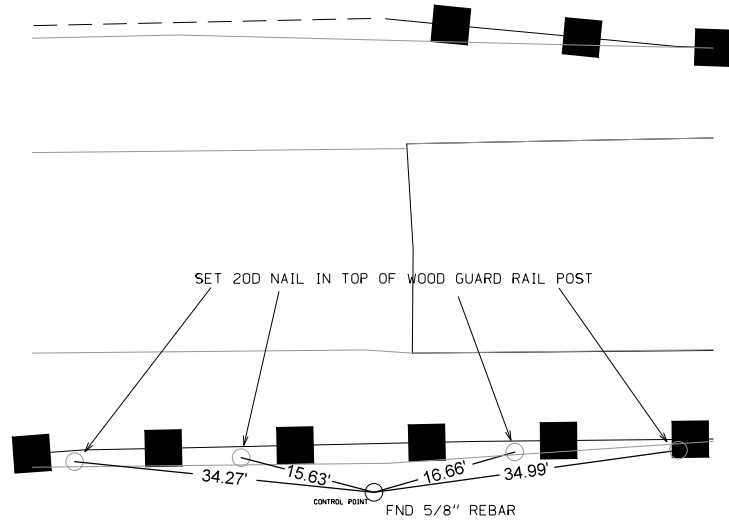
CP STA 1218+15, 25' RT
 CP 55, FD 5/8" Rebar
 N=3452863.299, E=5295924.992



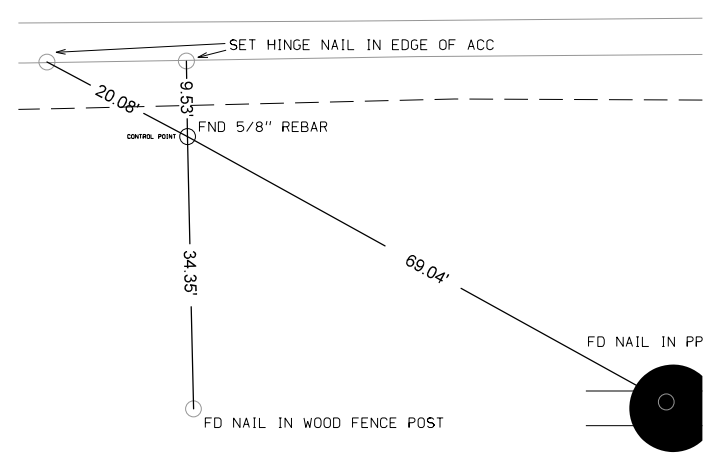
CP STA 1239+67, 28' LT
 CP 56, FD 5/8" Rebar
 N=3452949.563, E=5298076.012



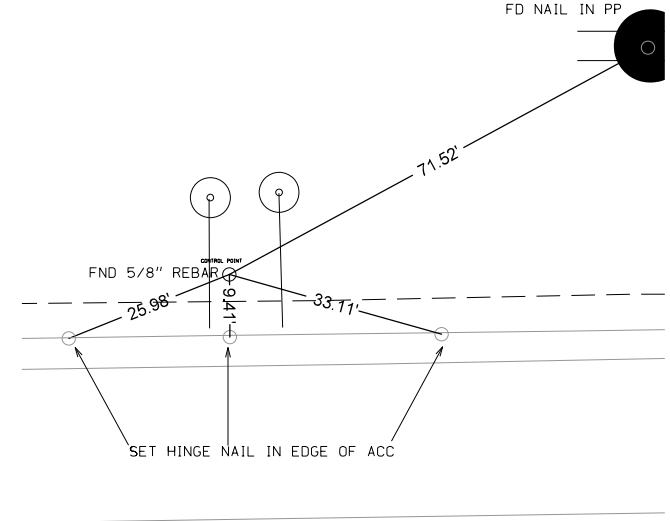
CP STA 1255+89, 27' RT
 CP 57, FD 5/8" Rebar
 N=3452917.867, E=5299698.368



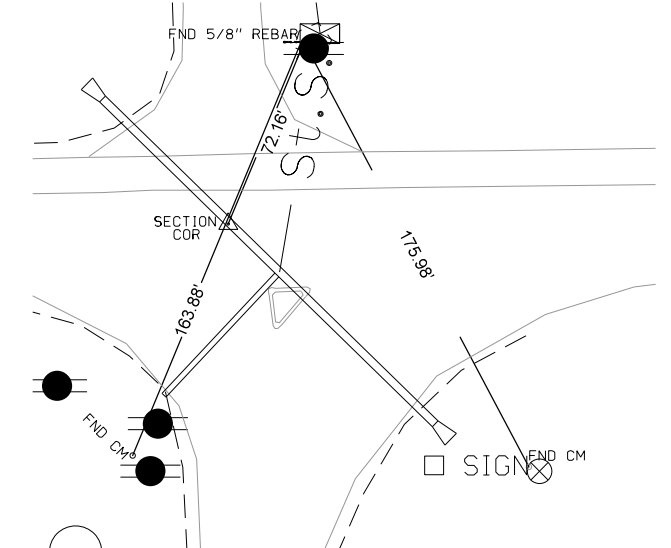
CP STA 1271+07, 25' RT
 CP 58, FD 5/8" Rebar
 N=3452939.646, E=5301215.846



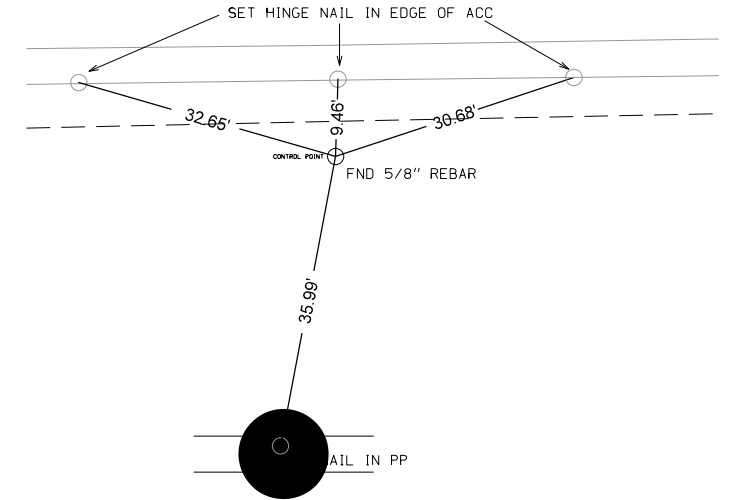
CP STA 1301+89, 25' LT
 CP 59, FD 5/8" Rebar
 N=3453019.332, E=5304297.558



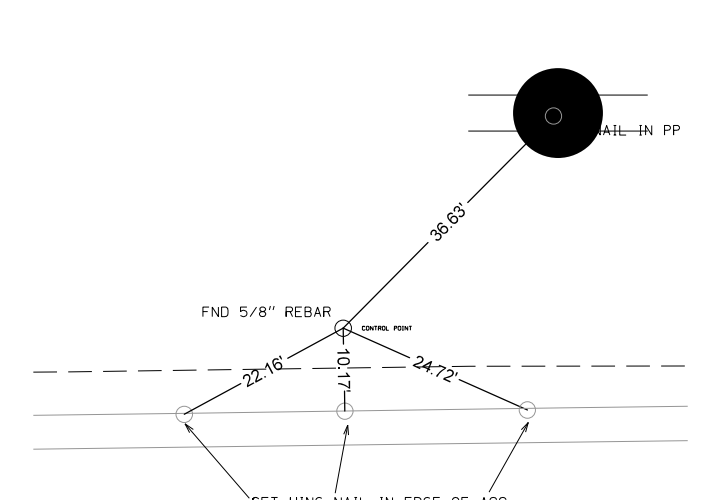
CP STA 1319+11, 66' LT
 CP 200015, FD 5/8" Rebar
 N=3453086.28, E=5306018.793



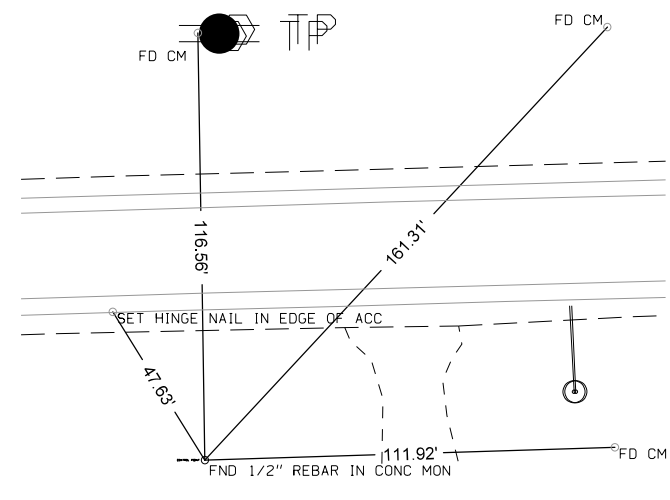
CP STA 1343+60, 25' RT
 CP 61, FD 5/8" Rebar
 N=3453030.746, E=5308468.565



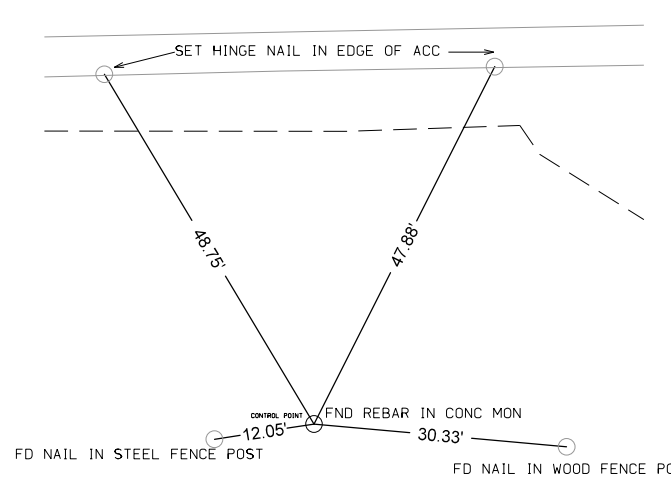
CP STA 1377+43, 25' RT
 CP 62, FD 5/8" Rebar
 N=3453119.625, E=5311851.158



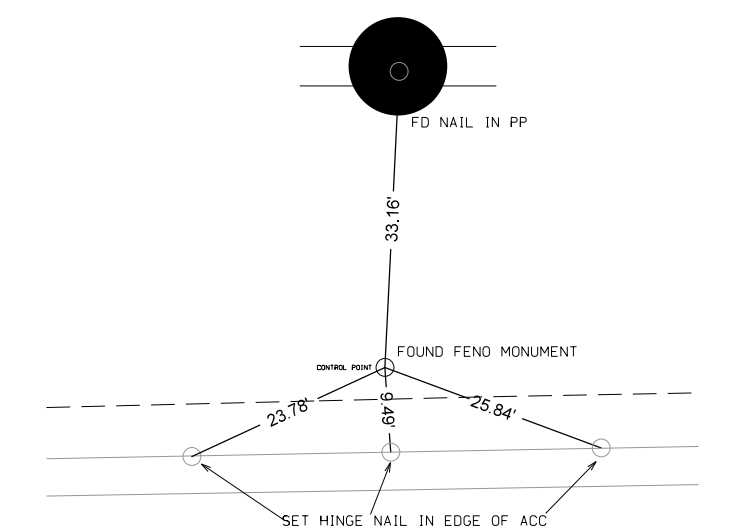
CP STA 1395+66, 57' RT
 CP 63, FD Concrete Monument
 N=3453085.514, E=5313675.183



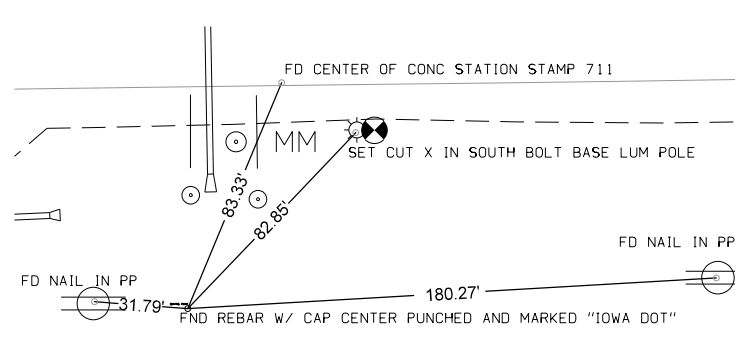
CP STA 1422+27, 58' RT
 CP 64, FD Concrete Monument
 N=3453142.516, E=5316335.395



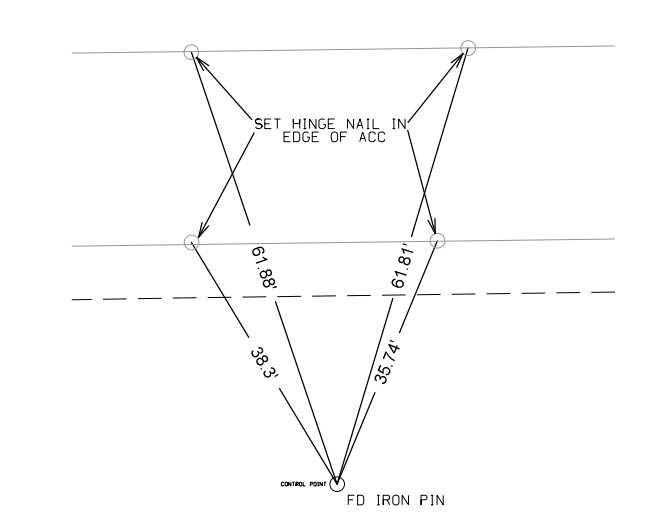
CP STA 1445+79, 25' LT
 CP 65, FD Feno Monument
 N=3453271.786, E=5318684.952



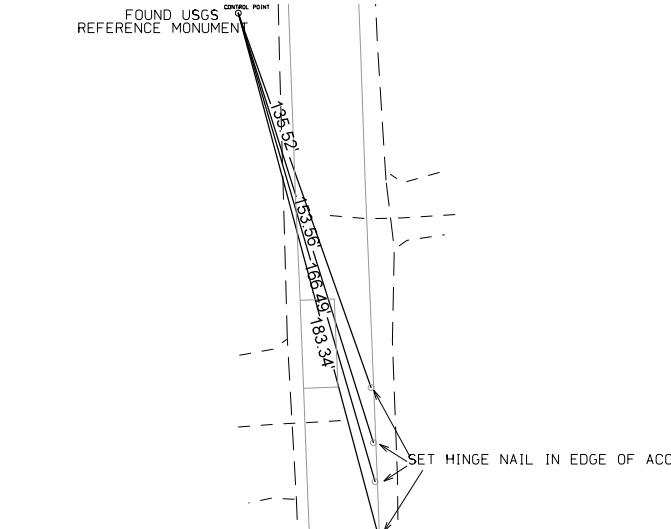
CP STA 1476+43, 165' RT
 CP 67, FD Rebar Cap CTR Punched, Marked "IOWA DOT"
 N=3453094.791, E=5321751.741



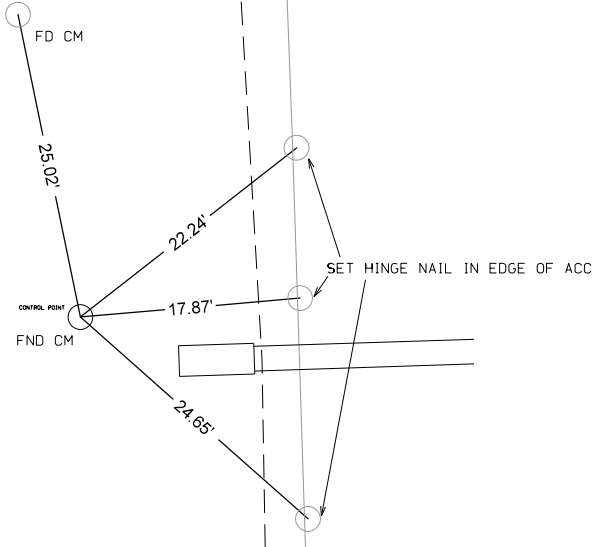
CP STA 1501+99, 1' RT
 CP 40910, FD Iron Pin
 N=3453293.933, E=5324304.848



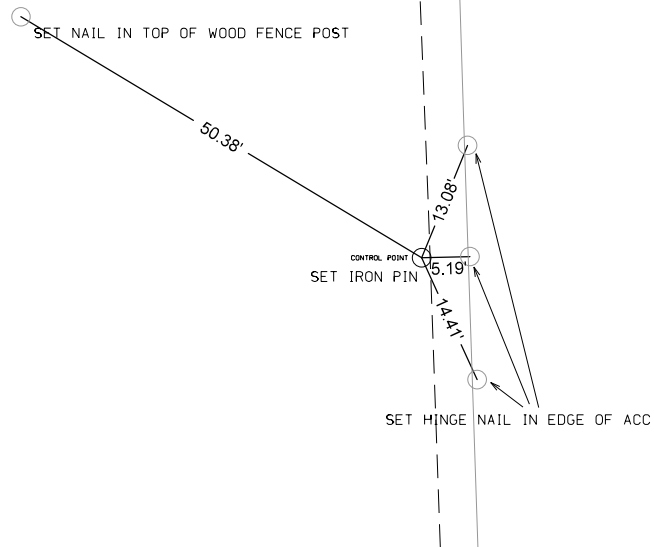
CP STA 1474+89, 1772' LT
 CP 6777, FD USGS Monument
 N=3455029.393, E=5321566.362



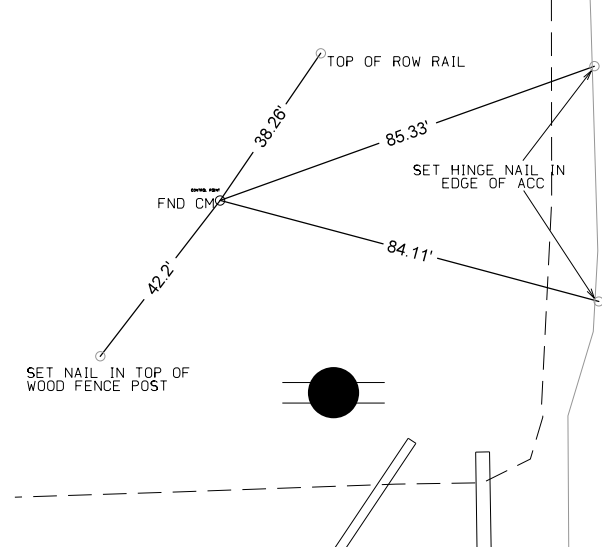
CP STA 1474+69, 2669' LT
 CP 22879, FD Concrete Monument
 N=3455926.698, E=5321531.534



CP STA 1474+53, 4182' LT
 CP 300, Set Iron Pin
 N=3457438.982, E=5321491.499



CP STA 1473+58, 5410' LT
 CP 300, FD Concrete Monument
 N=3458665.009, E=5321373.879



ALIGNMENT COORDINATES

101-16
10-20-09

Table with columns: Name, Location, Point on Tangent (Station, Y (Northing), X (Easting)), Begin Spiral (Station, Y (Northing), X (Easting)), Begin Curve (Station, Y (Northing), X (Easting)), Simple Curve PI or Master PI of SCS (Station, Y (Northing), X (Easting)), End Curve (Station, Y (Northing), X (Easting)), End Spiral (Station, Y (Northing), X (Easting)).

ALIGNMENT COORDINATES

101-16
10-20-09

Table with columns: Name, Location, Point on Tangent (Station, Coordinates), Begin Spiral (Station, Coordinates), Begin Curve (Station, Coordinates), Simple Curve PI or Master PI of SCS (Station, Coordinates), End Curve (Station, Coordinates), End Spiral (Station, Coordinates). Includes data for SR021D.RET.4, SR11THAVE.RET.3, SR11THAVE.RET.4, SRO21CH, DET1, DET2.

SPIRAL OR CIRCULAR CURVE DATA

101-17
04-19-11

Table with columns: Name, Location, Δscs, Horizontal Alignment Data (Spiral Data, Curve Data), Remarks. Includes data for SURO30, ML030, SURO21, SR021A, SR021B.

SPIRAL OR CIRCULAR CURVE DATA

101-17
04-19-11

Name	Location	Δ _{scs}	Horizontal Alignment Data												Remarks			
			Spiral Data						Curve Data									
			θs	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	Δ _c	T	L	R		E		
SR021C - Proposed IA 21 Ramp C BL 83001													17° 57' 38.31" LT	316.06'	626.94'	2,000.00'	24.82'	
SR021D - Proposed IA 21 Ramp D BL 84001 84002													17° 12' 01.45" RT 7° 26' 54.43" RT	201.15' 130.18'	399.27' 260.00'	1,330.00' 2,000.00'	15.12' 4.23'	
REVO21A - Proposed IA 21 Width Transition 40605 40606													1° 41' 45.91" RT 1° 41' 45.91" LT	135.14' 135.14'	270.27' 270.27'	9,130.00' 9,130.00'	1.00' 1.00'	
REVO21B - Proposed IA 21 Width Transition 40615													2° 14' 48.59" RT	260.81'	521.55'	13,300.00'	2.56'	
REVO21C - Proposed IA 21 Width Transition 40625 40626													1° 41' 45.91" LT 1° 41' 45.91" RT	135.14' 135.14'	270.27' 270.27'	9,130.00' 9,130.00'	1.00' 1.00'	
REVO21D - Proposed IA 21 Width Transition 40645													4° 09' 23.15" RT	252.20'	504.18'	6,950.00'	4.57'	
SR021A.RET.1 - IA 21 Ramp A Return 1 34011 34012 34013													17° 17' 04.21" RT 44° 25' 36.42" RT 12° 16' 51.91" RT	23.56' 32.67' 77.46'	46.76' 62.03' 154.33'	155.00' 80.00' 720.00'	1.78' 6.41' 4.15'	
SR021A.RET.4 - IA 21 Ramp A Return 4 81041 81042													57° 48' 25.06" RT 10° 37' 15.59" RT	27.61' 20.91'	50.45' 41.71'	50.00' 225.00'	7.11' 0.97'	
SR021B.RET.2 - IA 21 Ramp B Return 2 35021 35022													9° 27' 57.67" LT 47° 51' 05.86" LT	20.70' 26.62'	41.30' 50.11'	250.00' 60.00'	0.86' 5.64'	
SR021B.RET.3 - IA 21 Ramp B Return 3 35031 35032 35033													7° 38' 34.96" RT 52° 15' 30.00" RT 13° 08' 06.90" RT	26.72' 39.24' 71.96'	53.36' 72.97' 143.28'	400.00' 80.00' 625.00'	0.89' 9.11' 4.13'	
SR021C.RET.2 - IA 21 Ramp C Return 2 83023 83022 83021													30° 52' 07.74" RT 24° 28' 52.57" RT 14° 31' 34.39" RT	27.61' 16.27' 60.54'	53.88' 32.05' 120.43'	100.00' 75.00' 475.00'	3.74' 1.74' 3.84'	
SR021C.RET.3 - IA 21 Ramp C Return 3 36031 36032													12° 20' 38.18" RT 48° 48' 16.30" RT	58.40' 29.49'	116.34' 55.37'	540.00' 65.00'	3.15' 6.38'	
SR021D.RET.1 - IA 21 Ramp D Return 1 84011 84012													40° 57' 46.45" LT 10° 59' 18.43" LT	33.62' 52.90'	64.34' 105.48'	90.00' 550.00'	6.07' 2.54'	
SR021D.RET.4 - IA 21 Ramp D Return 4 84041 84042 84043													32° 53' 44.81" RT 19° 36' 45.48" RT 12° 48' 46.30" RT	31.00' 13.83' 60.63'	60.28' 27.38' 120.76'	105.00' 80.00' 540.00'	4.48' 1.19' 3.39'	
SR11THAVE.RET.3 - Proposed Median Return @ 11th Avenue 50032 50034 50036													33° 33' 16.79" LT 128° 38' 44.64" LT 17° 47' 58.57" LT	27.13' 20.80' 62.64'	52.71' 22.45' 124.26'	90.00' 10.00' 400.00'	4.00' 13.08' 4.87'	
SR11THAVE.RET.4 - Proposed Median Return @ 11th Avenue 50042 50044 50046													33° 33' 16.79" LT 128° 38' 44.64" LT 17° 47' 58.57" LT	27.13' 20.80' 62.64'	52.71' 22.45' 124.26'	90.00' 10.00' 400.00'	4.00' 13.08' 4.87'	
DET1 6005 6010 DET2 6105 6110													9° 36' 44.93" LT 9° 23' 20.19" RT 5° 18' 19.99" LT 5° 04' 55.25" RT	336.33' 328.47' 162.16' 155.32'	671.08' 655.47' 324.10' 310.44'	4,000.00' 4,000.00' 3,500.00' 3,500.00'	14.11' 13.46' 3.75' 3.44'	

SUPERELEVATION DATA

See PV-300 Series

Road Identification	Circular Curve or Spiral Curve Name	Radius	Superelevation Data			Standard Road Plan	Section A-A	Section B-B	Section C-C	Section D-D	Section E-E	Section F-F	Case A	Case B	Case C	Case S	Case T	Case U	Remarks
			e %	L FT	x FT														
IA 21 Ramp A	81001	1330	6.0	186	62	PV-303	1549+28.08		1549+96.28 1553+00.00	1550+52.08 1552+44.20					1549+90.08 1553+06.20	1549+90.08 1553+06.20			
IA 21 Ramp B	82001	1330	6.0	186	62	PV-303	2532+68.68		2529+00.00 2532+00.48	2529+55.80 2531+44.68					2528+93.80 2532+06.68	2528+93.80 2532+06.68			
IA 21 Ramp C	83001	2000	5.4	168	62	PV-303	3534+82.54		3528+00.00 3534+26.94	3528+50.40 3533+76.54					3528+06.84 3534+20.10	3528+06.84 3534+20.10			
IA 21 Ramp D	84001	1330	5.4	151	56	PV-303	4544+91.03		4545+40.73	4545+86.03 4549+40.00					4545+46.88 4549+79.15	4545+46.88 4549+79.15			
IA 21 Ramp D	84002	2000	5.4	168	62	PV-303	4552+55.60		4552+00.00	4549+40.00 4551+49.60					4548+96.44 4551+93.16	4548+96.44 4551+93.16			

IOWA DEPARTMENT OF TRANSPORTATION
Office of Traffic & Safety
Final

To: Nikki Cuva/Jeff Larson
Office of Right of Way Design

Initial Draft: December 2, 2013
Final Date: October 21, 2015/February 19, 2018

District: Jim Schnoebelen
Tony Gustafson

Design: Paul Flattery
Kelly Bell

From: Eric Wright
Office of Traffic & Safety

SUBJECT: Access Review

BENTON - US30 (Tama County line to US 218)

Project Details:
PIN: 92-06-030-030
Project #: NHS-030-6(87)--19-06
ROW #: NHSN-030-6(101)--2R-06

PROJECT LOCATION AND DESCRIPTION:

This project is the reconstruction of US 30 from the Tama County Line to US218 in Benton County. Access rights shall be acquired for this entire project.

ACCESS PRIORITY CLASSIFICATION:

Priority III Facility

- With the exception of the functional area of the interchanges at IA 21 (708+00 to 772+00) and US 218 (1440+00 to 1511+00) where access is restricted to maintain operational safety, the access classification for this highway project is Priority 3 which requires access spacing to maintained at 1320 feet preferred, 1000 feet minimum.
- Median openings should generally be placed at increments of 2640 feet (half mile); preferably at at public road connections.
- Access control shall be acquired along public road connections for a distance of 150 feet as measured from the near edge of the primary highway traveled way. Any existing accesses within this area shall be closed and access be established beyond the control limits.
- At the proposed interchange at IA-21 access control shall be maintained from station 255+50 (600' south side) to 275+35 (525' north side). At the proposed interchange at US-30, access control shall be maintained for a distance no less than 600 feet from the ramp bifurcation.

ACCESS REVIEW INFORMATION:

<u>Location</u>	<u>North Side (left)</u>	<u>South Side (right)</u>	<u>Comments</u>
700+83			<i>Beginning of project</i>
720+00	CLOSE	n/a	
760+31	CLOSE	n/a	<i>utility access relocated</i>
762+95	n/a	CLOSE	<i>access via 772+00</i>
776+50	Joint, Type "D"	n/a	<i>RIRO/District approved for field and utility</i>
780+56	n/a	CLOSE	<i>access via 11th Avenue</i>

ACCESS REVIEW INFORMATION:

<u>Location</u>	<u>North Side (left)</u>	<u>South Side (right)</u>	<u>Comments</u>
784+50	CLOSE	n/a	<i>access via 11th Avenue</i>
790+39	11 th Avenue	11 th Avenue	Median Opening/Public Road

803+70	Joint, Type "C"	n/a	RIRO
817+01	11th Avenue Drive	11th Avenue Drive	Median Opening/Public Road
830+14	Joint, Type "C"	Single, Type "C"	RIRO
843+25	12th Avenue	12th Avenue	Median Opening/Public Road
852+45	n/a	CLOSE	access via 856+53
856+53	Single, Type "C"	Single, Type "C"	RIRO
876+95	n/a	CLOSE	access via 883+04
883+04	Single, Type "C"	Single, Type "C"	RIRO
887+73	n/a	CLOSE	access via 883+04
887+79	CLOSE	n/a	access via 883+04
887+75	CLOSE	CLOSE	access via 883+04
896+27	13th Avenue/V-40	13th Avenue/V-40	Median Opening/Public Road
913+93	Joint, Type "C"	Joint, Type "C"	RIRO
921+39	n/a	CLOSE	access via 913+93
933+09	Joint, Type "C"	Single, Type "C"	Median Opening
946+20	CLOSE	n/a	access via 14 th Avenue
947+64	CLOSE	n/a	access via 14 th Avenue
949+21	14th Avenue	14th Avenue	Median Opening/Public Road
958+16	CLOSE	n/a	access via 14 th Avenue
963+55	CLOSE	n/a	access via 964+42
964+42	Single, Type "C"	CLOSE	RIRO
966+16	n/a	CLOSE	<i>total acquisition</i>
969+00	CLOSE	n/a	access via 975+85
975+84	SafetyDike/Type "C"	14th Avenue Drive	Median Opening/Public Road
978+40	n/a	CLOSE	access via 14 th Avenue Drive
983+62	CLOSE	n/a	access via 989+21
983+77	n/a	CLOSE	access via 989+21
989+21	Joint, Type "C"	Single, Type "C"	RIRO
992+72	n/a	CLOSE	access via 15 th Ave/V-42
994+83	CLOSE	n/a	access via 15 th Ave/V-42
1002+53	15th Avenue/V-42	15th Avenue/V-42	Median Opening/Public Road
1012+18	CLOSE	n/a	access via 1015+83

ACCESS REVIEW INFORMATION (continued):

<u>Location</u>	<u>North Side (left)</u>	<u>South Side (right)</u>	<u>Comments</u>
1015+45	n/a	CLOSE	access via 1015+83
1015+83	Joint, Type "C"	Single, Type "C"	RIRO
1015+90	CLOSE	n/a	access via 1015+83
1025+15	n/a	CLOSE	<i>total acquisition</i>

1029+46	n/a	CLOSE	access via 1035+87
1035+87	Single, Type "C"	Single, Type "C"	Median Opening
1036+31	CLOSE	n/a	access via 1035+87
1050+47	n/a	CLOSE	access via 16 th Ave
1052+22	n/a	CLOSE	total acquisition
1055+69	16 th Avenue/V-44	16 th Avenue/V-44	Median Opening/Public Road
1056+20	n/a	CLOSE	access via 16 th Ave/V-44
1068+50	Single, Type "C"	Single, Type "C"	Median Opening
1068+79	n/a	CLOSE	access via 1068+50
1070+95	CLOSE	n/a	access via 1068+50
1081+98	Joint, Type "C"	Joint, Type "C"	RIRO
1089+01	n/a	CLOSE	access via 1081+98
1089+05	CLOSE	n/a	access via 1081+98
1095+13	Joint, Type "C"	Single, Type "C"	RIRO
1100+32	n/a	CLOSE	access via 1095+13
1105+14	CLOSE	CLOSE	access via 17 th Ave/Safety Dike
1108+32	17 th Avenue	Safety Dike/Type "C"	Median Opening/Public Road
1115+95	n/a	CLOSE	access via 1121+44
1118+07	CLOSE	n/a	access via 1121+44
1121+44	Joint, Type "C"	Single, Type "C"	RIRO
1127+75	CLOSE	n/a	access via 17 th Ave/Safety Dike
1134+56	Safety Dike/Type "C"	17 th Avenue Drive	Median Opening/Public Road
1151+73	n/a	CLOSE	access via 1160+93
1160+93	18 th Avenue/V-56	Safety Dike/Joint, Type "C"	Median Opening/Public Road
1174+57	n/a	Single, Type "C"	Median Opening
1185+50	Single, Type "C"	n/a	RIRO
1187+22	n/a	Joint, Type "C"	RIRO
1195+20	n/a	CLOSE	access via 1197+22
1196+19	Single, Type "C"	n/a	RIRO
1197+22	n/a	Single, Type "C"	RIRO
1213+50	19 th Avenue/V-56	19 th Avenue/V-56	Median Opening/Public Road

ACCESS REVIEW INFORMATION (continued):

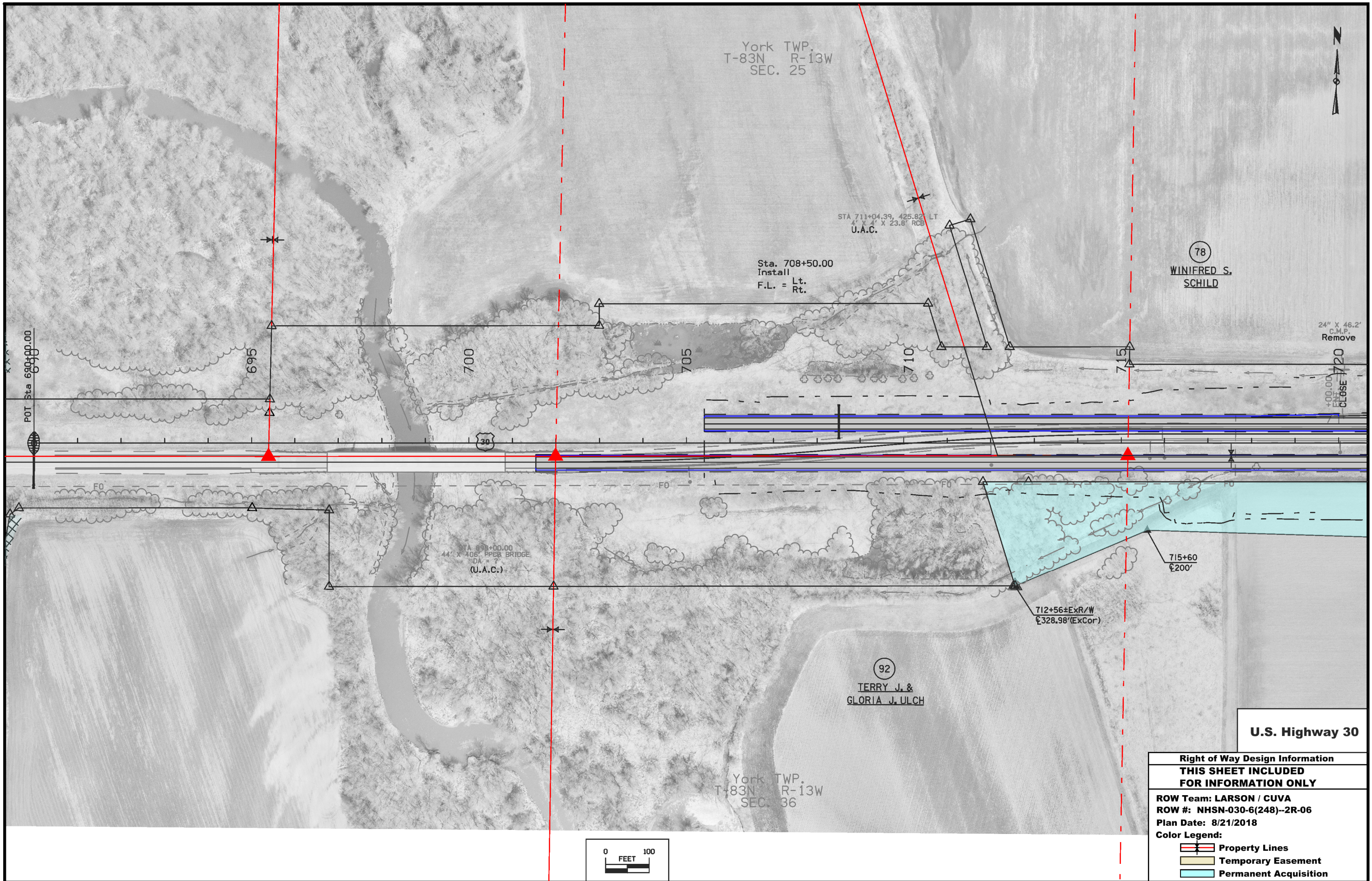
<u>Location</u>	<u>North Side (left)</u>	<u>South Side (right)</u>	<u>Comments</u>
1226+19	n/a	CLOSE	access via 1213+58
1229+85	Single, Type "C"	n/a	RIRO
1232+00	CLOSE	n/a	shift access to 1229+85
1233+10	n/a	CLOSE	total acquisition
1239+85	Joint, Type "C" (Cemetery)	Joint, Type "C"	Median Opening
1242+57	CLOSE	n/a	1239+85(cemetery)

1250+75	n/a	Single, Type "C"	RIRO
1252+22	Single, Type "C"	n/a	owner request/bridge sight distance needed
1266+17	20 th Avenue	20 th Avenue	Median Opening/Public Road
1279+31	n/a	Joint, Type "C"	RIRO
1285+88	Joint, Type "C"	n/a	RIRO
1292+27	n/a	CLOSE	access via 1292+46
1292+46	n/a	Joint, Type "C"	RIRO
1296+25	CLOSE	n/a	access via 1298+70
1297+66	n/a	CLOSE	access via 1292+46
1298+70	Single, Type "C"	n/a	Median Opening
1300+33	n/a	CLOSE	total acquisition
1301+05	CLOSE	n/a	access via 1298+70
1306+86	n/a	CLOSE	access via V-66
1318+81	21 st Avenue/V-66	21 st Avenue/V-66	Median Opening/Public Road
1331+45	n/a	CLOSE	access via 1331+94
1331+86	CLOSE	n/a	access via 1331+94
1331+94	Joint, Type "C"	Single, Type "C"	RIRO
1336+93	n/a	CLOSE	total acquisition
1342+28	Single, Type "C"	Single, Type "C"	Median Opening
1350+90	n/a	CLOSE	total acquisition
1353+32	n/a	Joint, Type "C"	RIRO
1358+00	CLOSE	n/a	access via 1358+16
1358+16	Joint, Type "C"	n/a	RIRO
1362+66	n/a	Single, Type "C"	RIRO; shift from 1365+07 (variance (861') - topography limitation)
1365+07	n/a	CLOSE	access via 1362+66
1371+27	22 nd Avenue	Safety Dike/Joint, Type "C"	Median Opening/Public Road
1376+96	CLOSE	CLOSE	access via 22 nd Avenue
1383+21	CLOSE	n/a	access via 22 nd Avenue

ACCESS REVIEW INFORMATION (continued):

<u>Location</u>	<u>North Side (left)</u>	<u>South Side (right)</u>	<u>Comments</u>
1389+39	Joint, Type "C"	n/a	Median Opening - variance: avoid landlock (869 feet)
1395+02	CLOSE	n/a	access via 1398+08
1396+24	n/a	CLOSE	access via 1398+08
1398+08	Single, Type "C"	Single, Type "C"	Median Opening
1403+19	n/a	CLOSE	access via 1409+90
1408+86	CLOSE	n/a	access via 1409+90

1409+90	Single, Type "C"	Single, Type "C"	RIRO
1422+81	23 rd Avenue	23 rd Avenue	Median Opening/Public Road
1435+86	n/a	CLOSE	access via 1436+04
1436+04	Joint, Type "C"	Single, Type "C"	RIRO
1443+80	CLOSE	n/a	access via 1436+04
1447+00	n/a	CLOSE	access via 1436+04
1457+84	CLOSE	CLOSE	
1457+86	n/a	CLOSE	access via 24 th Avenue
1475+57	US 218	24 th Avenue	Grade Separation
1485+80	CLOSE	n/a	Youngville Café (from side road)
1497+25	Single, Type "C"	CLOSE	RIRO
1512+00	Single, Type "C"	Single, Type "C"	RIRO
1516+70			End of Project



York TWP.
T-83N R-13W
SEC. 25

(78)
WINIFRED S.
SCHILD

STA 711+04.39, 425.82' LT
4' X 4' X 23.8' RCB
U.A.C.

Sta. 708+50.00
Install
F.L. = Lt.
Rt.

24" X 46.2'
C.M.P.
Remove

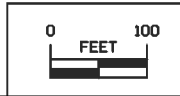
A 698+00.00
406' PPEB BRIDGE
DA = 7'
(U.A.C.)

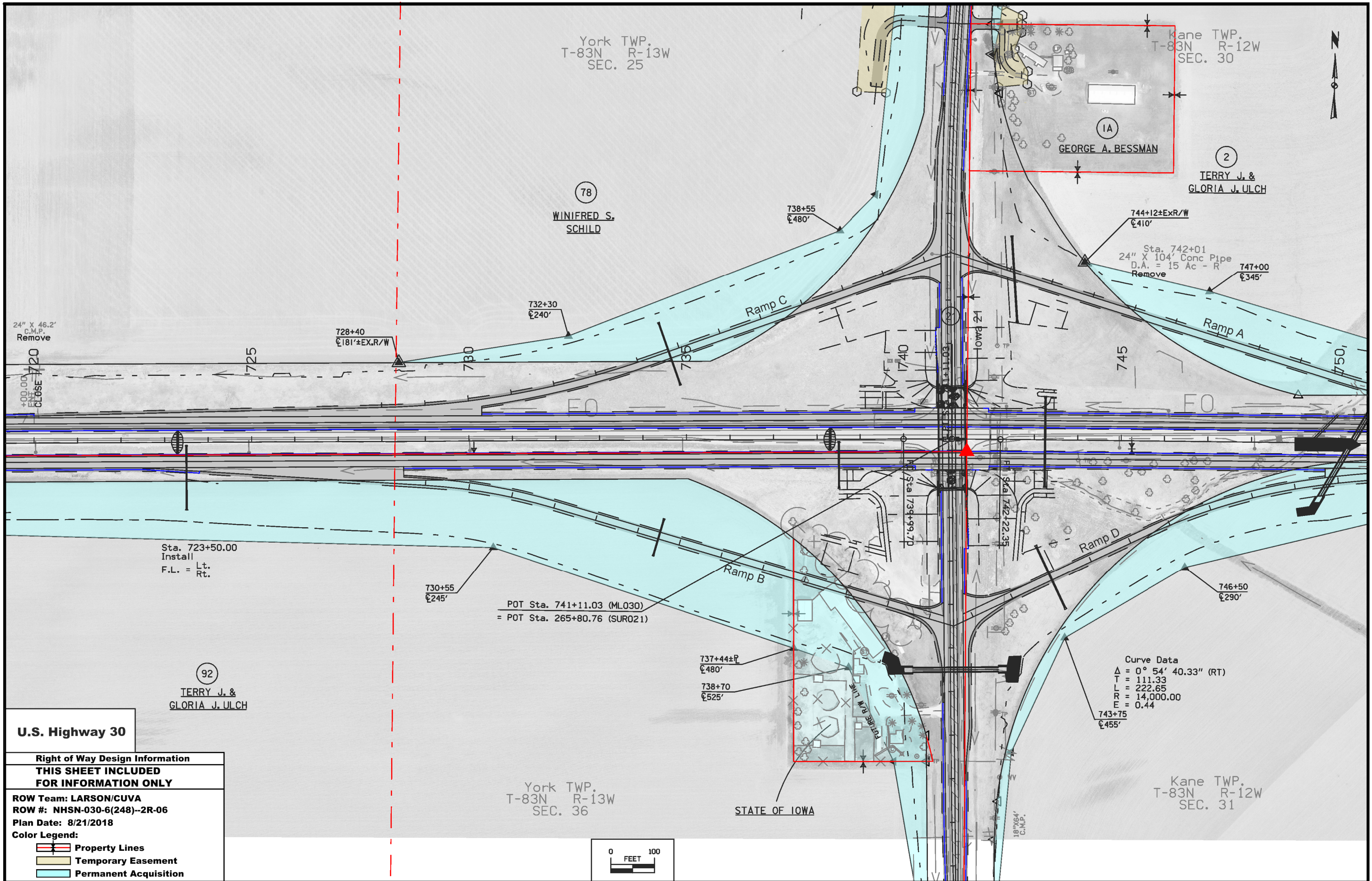
(92)
TERRY J. &
GLORIA J. ULCH

York TWP.
T-83N R-13W
SEC. 36

U.S. Highway 30

Right of Way Design Information	
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Plan Date: 8/21/2018	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition





York TWP.
T-83N R-13W
SEC. 25

Kane TWP.
T-83N R-12W
SEC. 30

York TWP.
T-83N R-13W
SEC. 36

Kane TWP.
T-83N R-12W
SEC. 31

(78)
WINIFRED S.
SCHILD

(1A)
GEORGE A. BESSMAN

(2)
TERRY J. &
GLORIA J. ULCH

(92)
TERRY J. &
GLORIA J. ULCH

STATE OF IOWA

Curve Data
 $\Delta = 0^\circ 54' 40.33''$ (RT)
 $T = 111.33$
 $L = 222.65$
 $R = 14,000.00$
 $E = 0.44$

24" X 46.2'
C.M.P.
Remove

Sta. 742+01
24" X 104' Conc Pipe
D.A. = 15 Ac - R
Remove

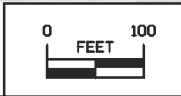
Sta. 723+50.00
Install
F.L. = Lt.
Rt.

U.S. Highway 30

Right of Way Design Information
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Sta. 749+68
Skew 45 LT AHEAD
8' X 6' X 83' RCB
D.A. = 316 Ac - R
Remove

Sta. 848+25.00
Build X' x X' RCB
Skew = 60° Lt. Ahd.
F.L. = Lt. 824.00
Rt. 820.70
Design No.

Kane TWP.
T-83N R-12W
SEC. 30

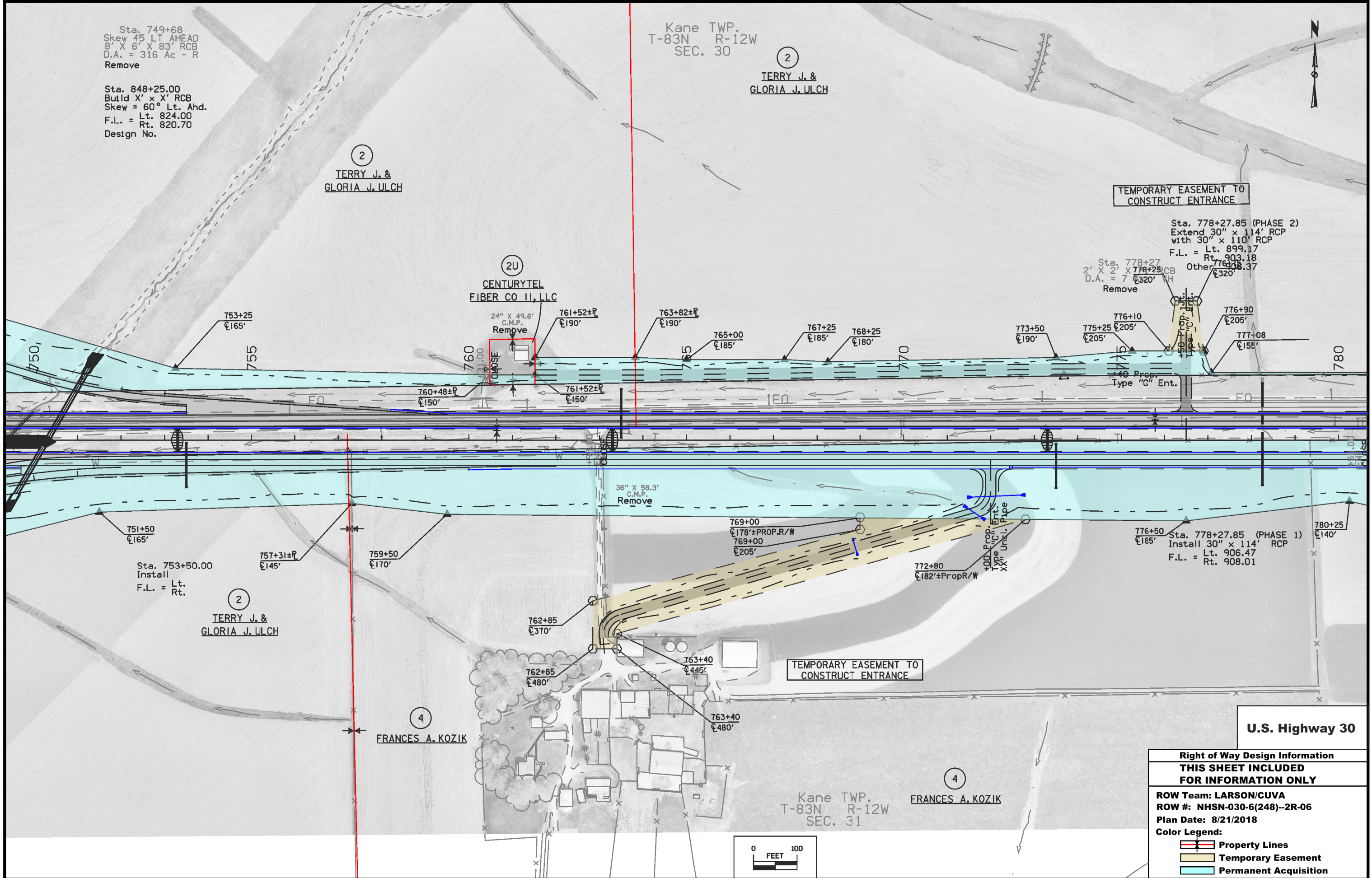
(2)
TERRY J. &
GLORIA J. ULCH

(2)
TERRY J. &
GLORIA J. ULCH

(2U)
CENTURYTEL
FIBER CO II, LLC

TEMPORARY EASEMENT TO
CONSTRUCT ENTRANCE

Sta. 778+27.85 (PHASE 2)
Extend 30" x 114' RCP
with 30" x 110' RCP
F.L. = Lt. 899.17
Rt. 903.18
Other: 176908.37
Sta. 778+27
2' x 2' x 76+25 RCB
D.A. = 7 @ 320' WH
Remove



Sta. 753+50.00
Install
F.L. = Lt.
Rt.

(2)
TERRY J. &
GLORIA J. ULCH

(4)
FRANCES A. KOZIK

Kane TWP.
T-83N R-12W
SEC. 31

(4)
FRANCES A. KOZIK

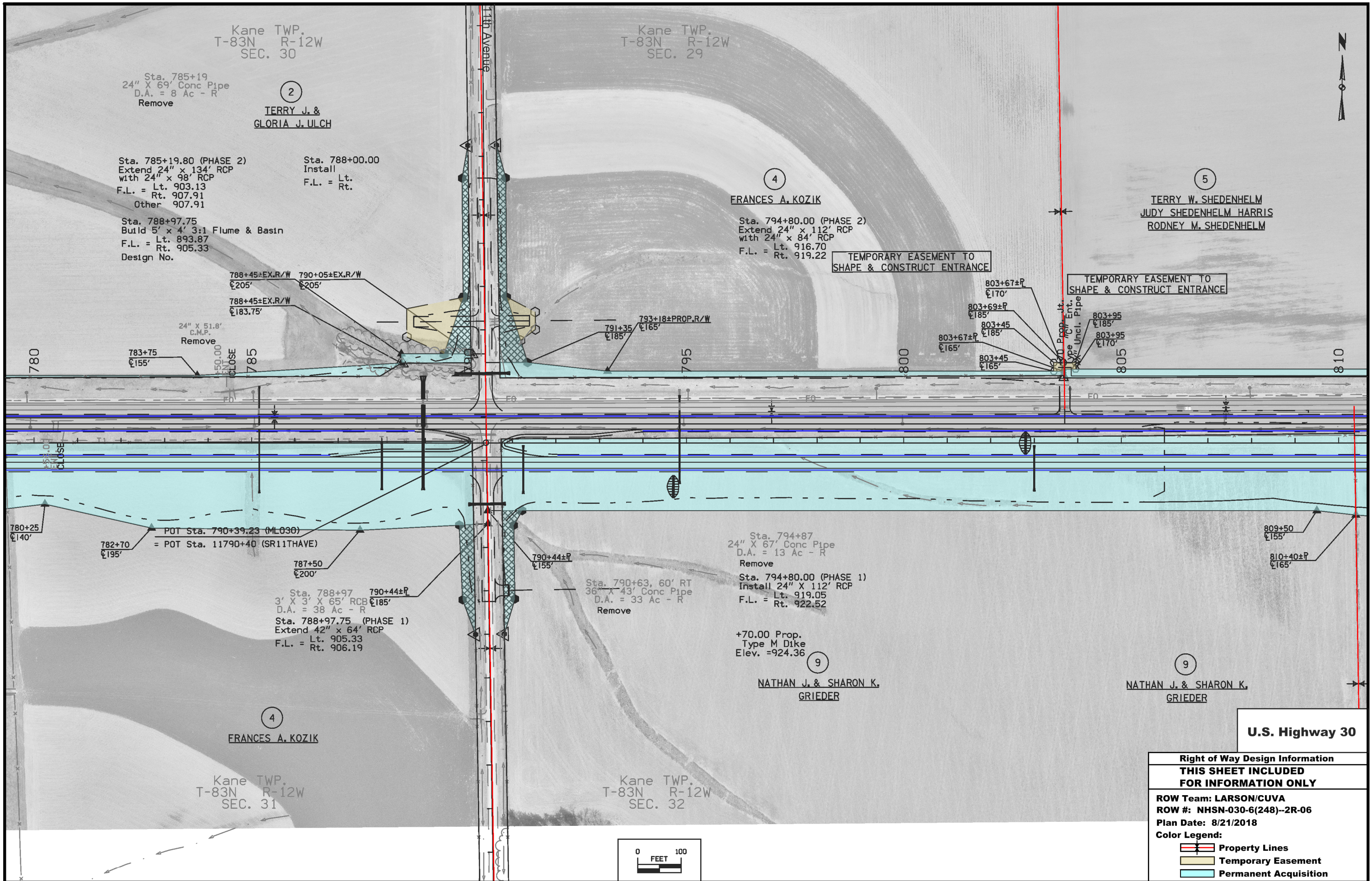
TEMPORARY EASEMENT TO
CONSTRUCT ENTRANCE

Sta. 778+27.85 (PHASE 1)
Install 30" x 114' RCP
F.L. = Lt. 906.47
Rt. 908.01

U.S. Highway 30

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Kane TWP.
T-83N R-12W
SEC. 30

Kane TWP.
T-83N R-12W
SEC. 29

Sta. 785+19
24" X 69' Conc Pipe
D.A. = 8 Ac - R
Remove

②
TERRY J. &
GLORIA J. ULCH

Sta. 785+19.80 (PHASE 2)
Extend 24" x 134' RCP
with 24" x 98' RCP
F.L. = Lt. 903.13
Rt. 907.91
Other 907.91

Sta. 788+00.00
Install
F.L. = Rt.

Sta. 788+97.75
Build 5' x 4' 3:1 Flume & Basin
F.L. = Lt. 893.87
Rt. 905.33
Design No.

④
FRANCES A. KOZIK

Sta. 794+80.00 (PHASE 2)
Extend 24" x 112' RCP
with 24" x 84' RCP
F.L. = Lt. 916.70
Rt. 919.22

⑤
TERRY W. SHEDENHELM
JUDY SHEDENHELM HARRIS
RODNEY M. SHEDENHELM

TEMPORARY EASEMENT TO
SHAPE & CONSTRUCT ENTRANCE

TEMPORARY EASEMENT TO
SHAPE & CONSTRUCT ENTRANCE

788+45±EX.R/W
±205'

790+05±EX.R/W
±205'

788+45±EX.R/W
±183.75'

791+35±
±185'

793+18±PROP.R/W
±165'

803+67±P
±170'

803+69±P
±185'

803+45±
±185'

803+45±
±165'

803+95±
±185'

803+95±
±170'

783+75±
±155'

795

800

805

810

24" X 51.8'
C.M.P.
Remove

785

±50.00
CLOSE

FD

FD

FD

FD

780+25±
±140'

782+70±
±195'

POT Sta. 790+39.23 (ML030)
= POT Sta. 11790+40 (SR11THAVE)

787+50±
±200'

Sta. 788+97 790+44±P
3' X 3' X 65' RCB ±185'
D.A. = 38 Ac - R
Sta. 788+97.75 (PHASE 1)
Extend 42" x 64' RCP
F.L. = Lt. 905.33
Rt. 906.19

790+44±P
±155'

Sta. 790+63, 60' RT
36" X 43' Conc Pipe
D.A. = 33 Ac - R
Remove

Sta. 794+87
24" X 67' Conc Pipe
D.A. = 13 Ac - R
Remove

Sta. 794+80.00 (PHASE 1)
Install 24" X 112' RCP
Lt. 919.05
Rt. 922.52

+70.00 Prop.
Type M Dike
Elev. = 924.36

⑨
NATHAN J. & SHARON K.
GRIEDER

809+50±
±155'

810+40±P
±165'

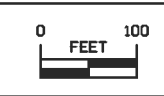
④
FRANCES A. KOZIK

Kane TWP.
T-83N R-12W
SEC. 31

Kane TWP.
T-83N R-12W
SEC. 32

⑨
NATHAN J. & SHARON K.
GRIEDER

U.S. Highway 30



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	Temporary Easement
	Permanent Acquisition

Kane TWP.
T-83N R-12W
SEC. 29



5
TERRY W. SHEDENHELM
JUDY SHEDENHELM HARRIS
RODNEY M. SHEDENHELM

6
WILLIAM D. &
TERESA A. SELKEN

TEMPORARY EASEMENT TO
SHAPE & CONSTRUCT ENTRANCE

Sta. 816+25.00 (PHASE 2)
Extend 36" x 208' RCP
with 36" x 126' RCP
F.L. = Lt. 932.95
Rt. 932.18

816+99±P
±195'

818+00
±195'

830+01±P
±170'
829+75
±170'
829+75
±160'

±14 Prop. Jt.
Type "C" Ent.

810

815

820

822+00
±160'

825

835

840

814+00
±190'

Sta. 816+56
4' x 5' x 40' W/ EXTS RCB
D.A. = 22 Ac - GR
Remove

Sta. 816+25.00 (PHASE 1)
Install 36" x 208' RCP
F.L. = Lt. 932.23
Rt. 930.94

POT Sta. 817+01.26 (MLU30)

POT Sta. 11817+02.31 (SR11THAVEDR)

819+00
±195'

817+04±P
±195'

827+40
±150'

18" x 45.7'
C.M.P.
Remove

±14 Prop. Ent.
Type "C" Ent.
XX" Uncl. Pipe

Sta. 831+50.00
Install
F.L. = Lt.
Rt.

835+80
±150'

839+00
±170'

843+31±
±170'

6
WILLIAM D. &
TERESA A. SELKEN

5
TERRY W. SHEDENHELM
JUDY SHEDENHELM HARRIS
RODNEY M. SHEDENHELM

5
TERRY W. SHEDENHELM
JUDY SHEDENHELM HARRIS
RODNEY M. SHEDENHELM

Kane TWP.
T-83N R-12W
SEC. 32

U.S. Highway 30

Right of Way Design Information

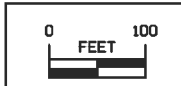
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FOR INFORMATION ONLY

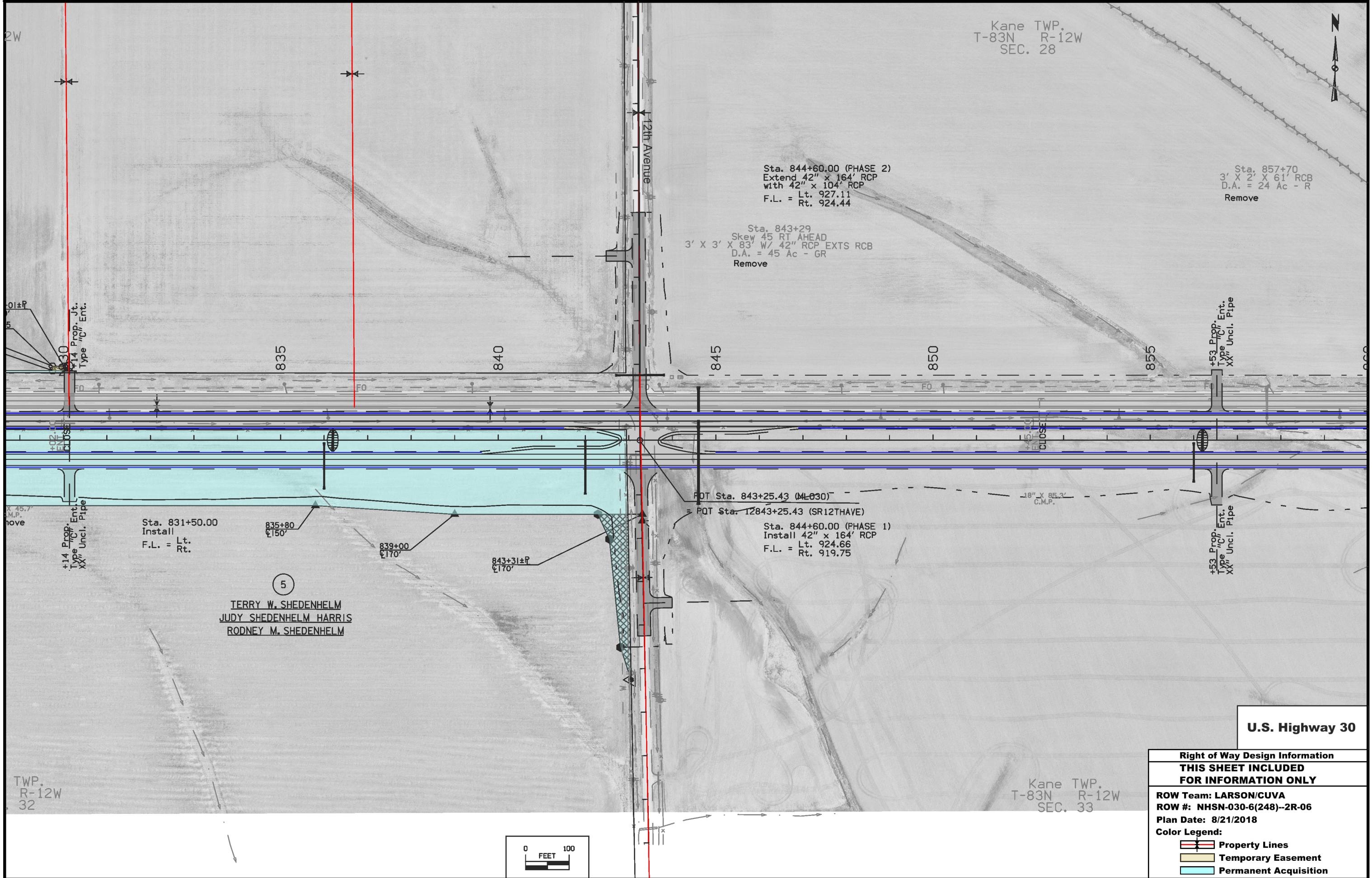
ROW Team: LARSON/CUVA
ROW #: NHSN-030-6(248)--2R-06

Plan Date: 8/21/2018

Color Legend:

- Property Lines
- Temporary Easement
- Permanent Acquisition





Kane TWP.
T-83N R-12W
SEC. 28

Sta. 844+60.00 (PHASE 2)
Extend 42" x 164' RCP
with 42" x 104' RCP
F.L. = Lt. 927.11
Rt. 924.44

Sta. 857+70
3' X 2' X 61' RCB
D.A. = 24 Ac - R
Remove

Sta. 843+29
Skew 45 RT AHEAD
3' X 3' X 83' W/ 42" RCP EXTS RCB
D.A. = 45 Ac - GR
Remove

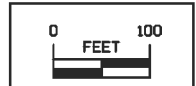
Sta. 831+50.00
Install
F.L. = Lt.
Rt.

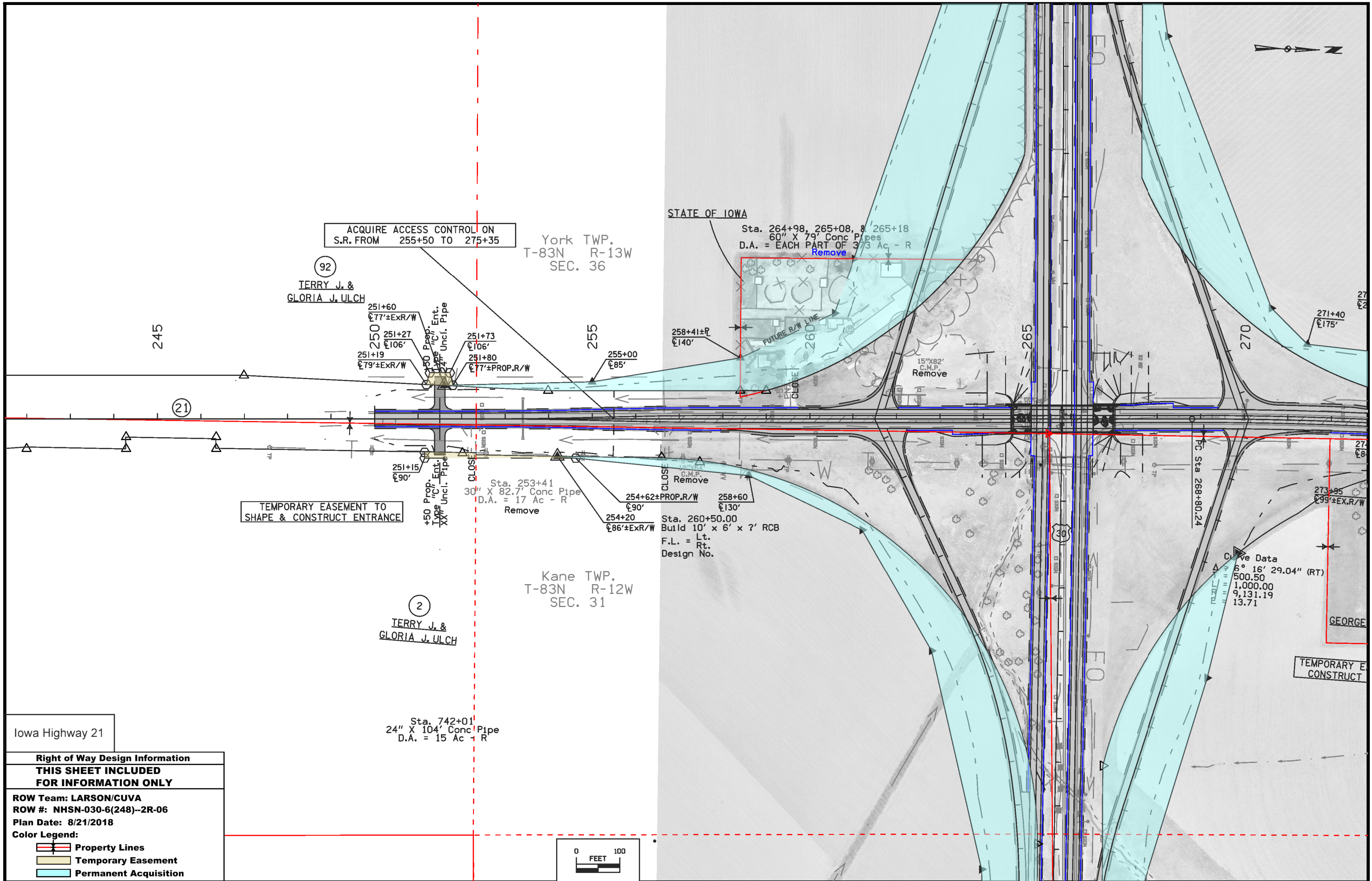
Sta. 844+60.00 (PHASE 1)
Install 42" x 164' RCP
F.L. = Lt. 924.66
Rt. 919.75

5
TERRY W. SHEDENHELM
JUDY SHEDENHELM HARRIS
RODNEY M. SHEDENHELM

U.S. Highway 30

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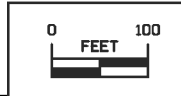


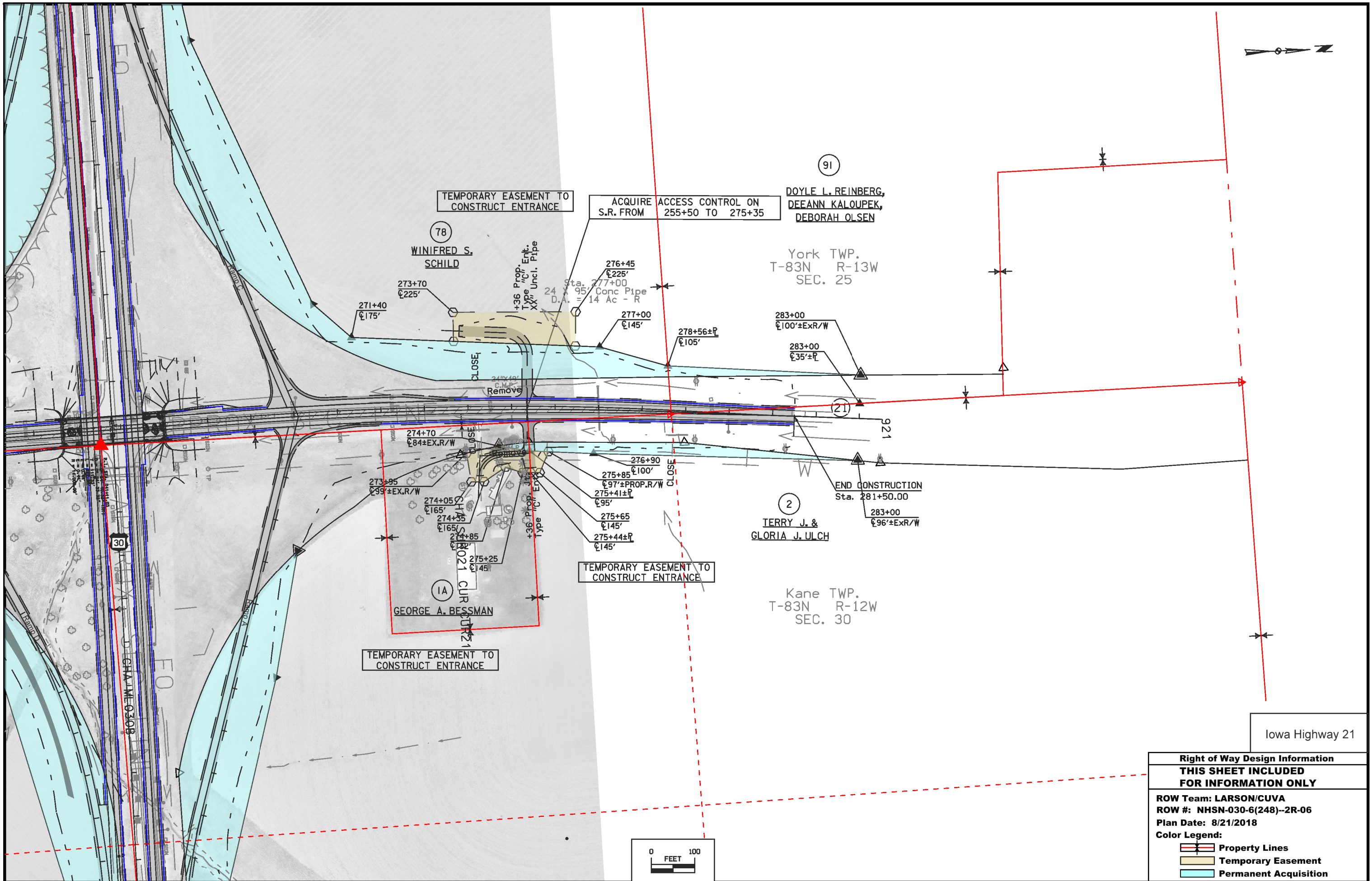
Iowa Highway 21

**Right of Way Design Information
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FOR INFORMATION ONLY**

ROW Team: LARSON/CUVA
ROW #: NHSN-030-6(248)--2R-06
Plan Date: 8/21/2018

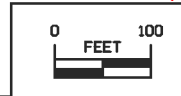
Color Legend:
 Property Lines
 Temporary Easement
 Permanent Acquisition

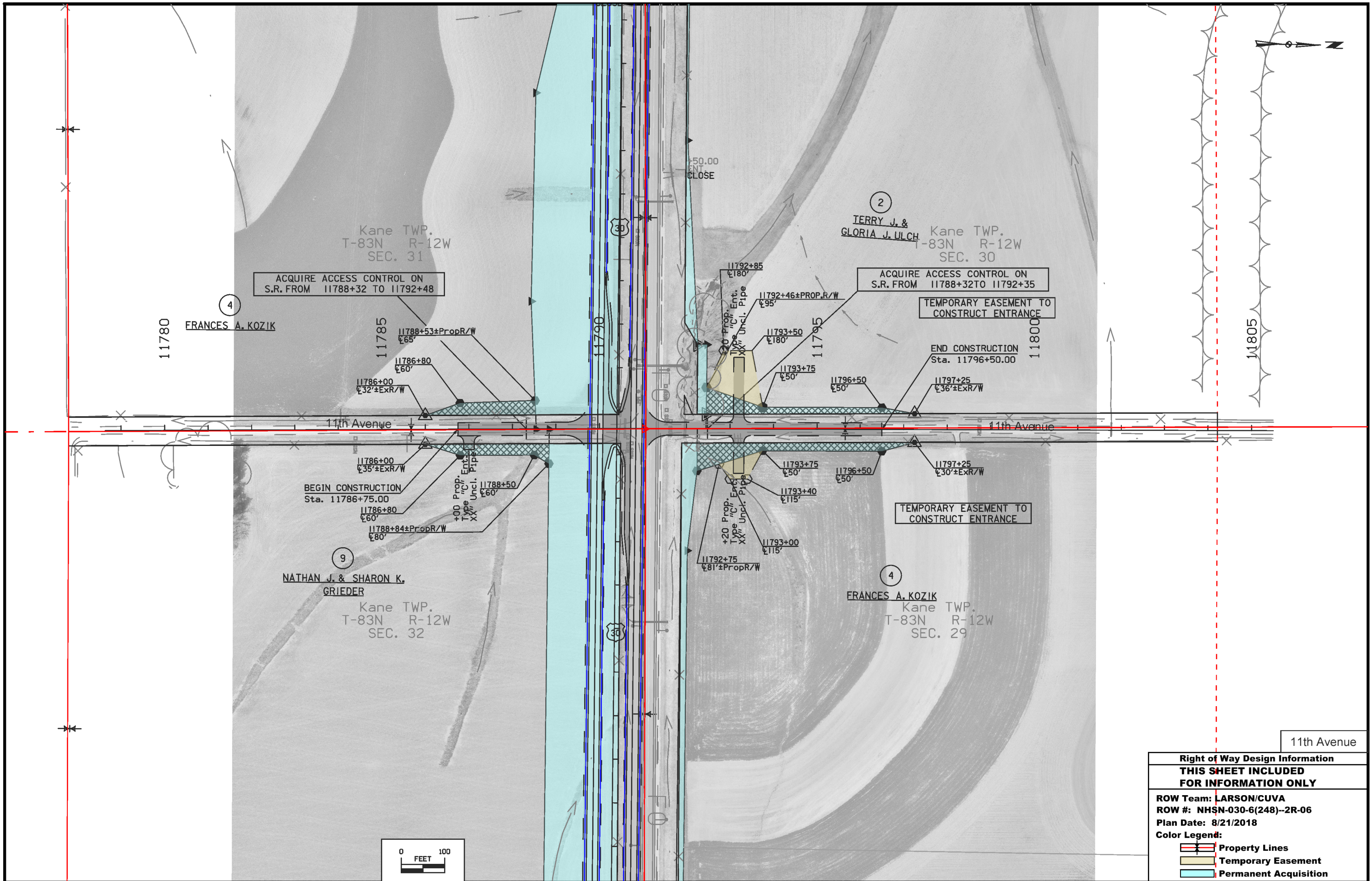




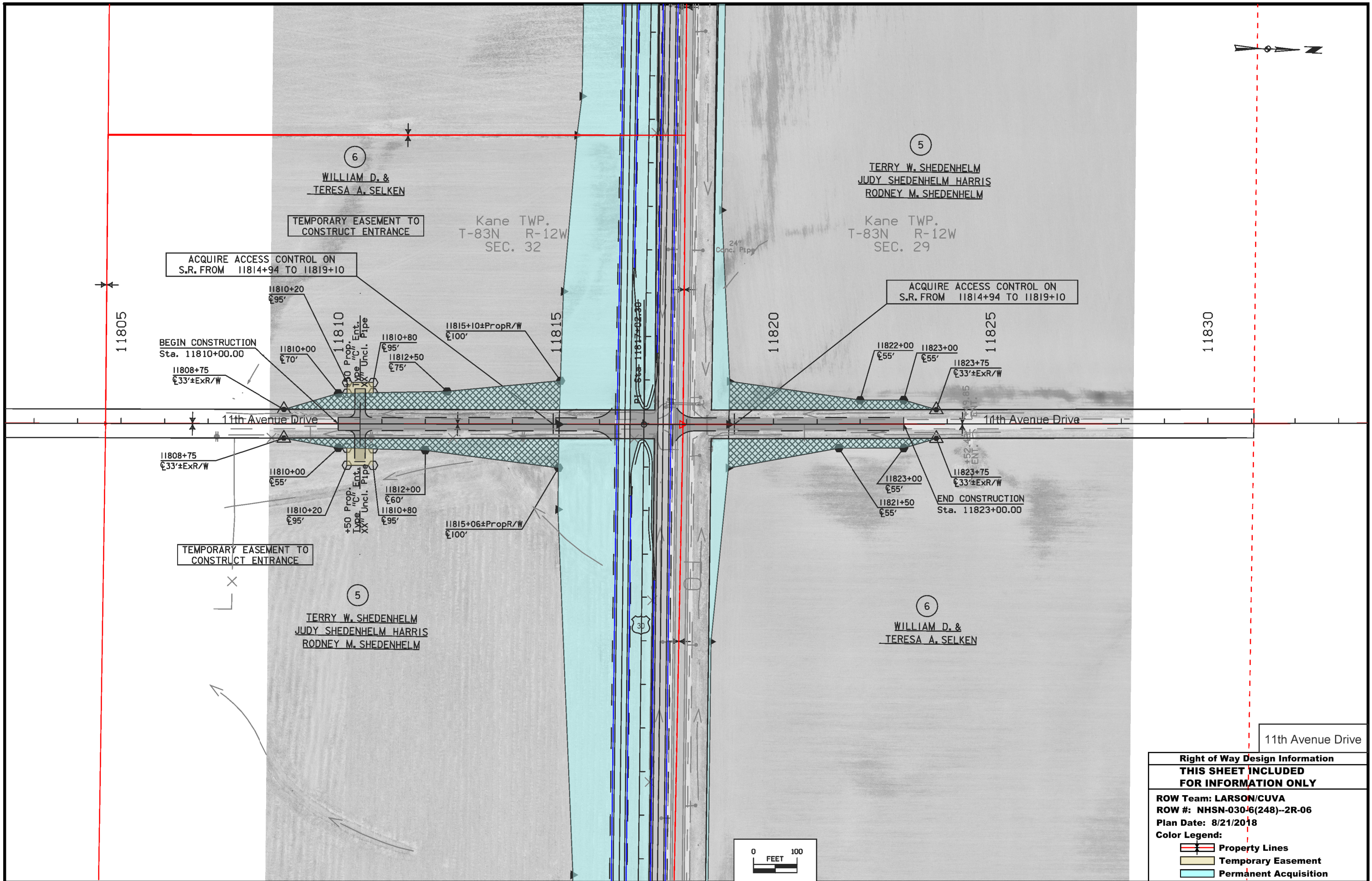
Iowa Highway 21

Right of Way Design Information	
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ROW #: NHSN-030-6(248)--2R-06	
Plan Date: 8/21/2018	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition



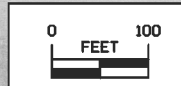


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11th Avenue Drive

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	Temporary Easement
	Permanent Acquisition





5

TERRY W. SHEDENHELM
JUDY SHEDENHELM HARRIS
RODNEY M. SHEDENHELM

Kane TWP.
T-83N R-12W
SEC. 32

Kane TWP.
T-83N R-12W
SEC. 29

ACQUIRE ACCESS CONTROL ON
S.R. FROM 12841+17.0 TO 12841+40.4

BEGIN CONSTRUCTION
Sta. 12838+75.00

12838+50
±55'

12837+75
±32'±ExR/W

12841+58±PropR/W
±100'

12841+00
±75'

+50 Prop. Type XX' Uncl. Pipe
Ent. Pipe

12th Avenue

12th Avenue

END CONSTRUCTION
Sta. 12848+50.00

+50 Prop. Type XX' Uncl. Pipe
Ent. Pipe

Kane TWP.
T-83N R-12W
SEC. 33

Kane TWP.
T-83N R-12W
SEC. 28

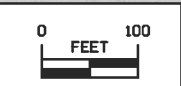
M

30

±5.70
ENT. CLOSE

12th Avenue

Right of Way Design Information	
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	Property Lines
	Temporary Easement
	Permanent Acquisition



TRAFFIC CONTROL PLAN

1. Traffic on US Highway 30 shall be maintained at all times
2. Traffic on IA Highway 21 shall be maintained at all times via off-site detour
3. Detour and detour signing shall be furnished, maintained, and removed by the Contractor????

STAGING NOTES

STAGE 1:
Traffic:
 US 30 on existing lanes
 IA 21 on detour
 11th Avenue open to the north, closed to the south

Construction:
 Grade and pave new US 30 EB lanes from Sta. 705+00 to Sta. 806+25
 Grade IA 21 from Sta. 250+00 to Sta. 265+00 and Sta. 266+50 to Sta. 281+50
 Pave IA 21 from Sta. 250+00 to Sta. 262+25
 Grade IA 21 Ramp A from Sta. 1540+80.38 to Sta. 1553+51.07
 Grade and pave IA 21 Ramp B from Sta. 2528+48.93 to Sta. 2541+35.84
 Grade IA 21 Ramp C from Sta. 3528+00 to Sta. 3541+63.27
 Grade and pave IA 21 Ramp D from Sta. 4540+74.35 to Sta. 4549+71.34
 Grade and surface 11th Avenue south of US 30
 Grade and pave proposed crossover 1 (new EB lanes to existing US 30)

STAGE 2:
Traffic:
 US 30 on new EB lanes from Sta. 705+00 to Sta. 795+00
 IA 21 south on new pavement via IA 21 Ramps B & D.
 IA 21 north on detour
 11th Avenue open to the south, closed to the north

Construction:
 Grade and pave new US 30 WB Lanes from Sta. 705+00 to Sta. 795+00
 Grade and pave IA 21 from Sta. 266+50 to Sta. 281+50
 Grade and pave IA 21 Ramp A from Sta. 1540+80.38 to Sta. 1553+51.07
 Grade and pave IA 21 Ramp C from Sta. 3528+00 to Sta. 3541+63.27
 Grade and surface 11th Avenue north of US 30
 Grade and pave proposed crossover 2 (new WB lanes to existing US 30)

STAGE 3:
Traffic:
 All traffic in normal lanes

Construction:
 Complete

COORDINATED OPERATIONS

Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

Project	Type of Work

511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks

York TWP.
T-83N R-13W
SEC. 25



Curve Data (36001)
Δ = 24° 30' 40.00" (LT)
T = 434.45
L = 855.60
R = 2,000.00
E = 46.64

POT Sta 726+75.00, 78.00' Lt =
PC Sta 3526+75.00
Point 'G' Standard Road Plan PV-411

POT Sta 726+75.00, 98.00' RT =
POT Sta 2526+75.00
Point 'M' Standard Road Plan PV-410

Curve Data (35001)
Δ = 28° 35' 39.44" (RT)
T = 338.94
L = 663.76
R = 1,330.00
E = 42.51

POC Sta 271+50.00 (SU021) =
PI Sta 1540+03.03 (SU021A) =
PI Sta 3542+09.55 (SU021C)

POC Sta 271+50.00 (SU021) =
PI Sta 1540+03.03 (SU021A) =
PI Sta 3542+09.55 (SU021C)

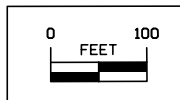
Curve Data (34001)
Δ = 27° 32' 22.88" (RT)
T = 183.80
L = 360.49
R = 750.00
E = 22.19

Curve Data (35002)
Δ = 27° 50' 57.88" (LT)
T = 185.95
L = 364.55
R = 750.00
E = 22.71

POC Sta 260+10.00 (SU021) =
PI Sta 2542+14.58 (SU021B) =
PI Sta 4540+17.97 (SU021D)

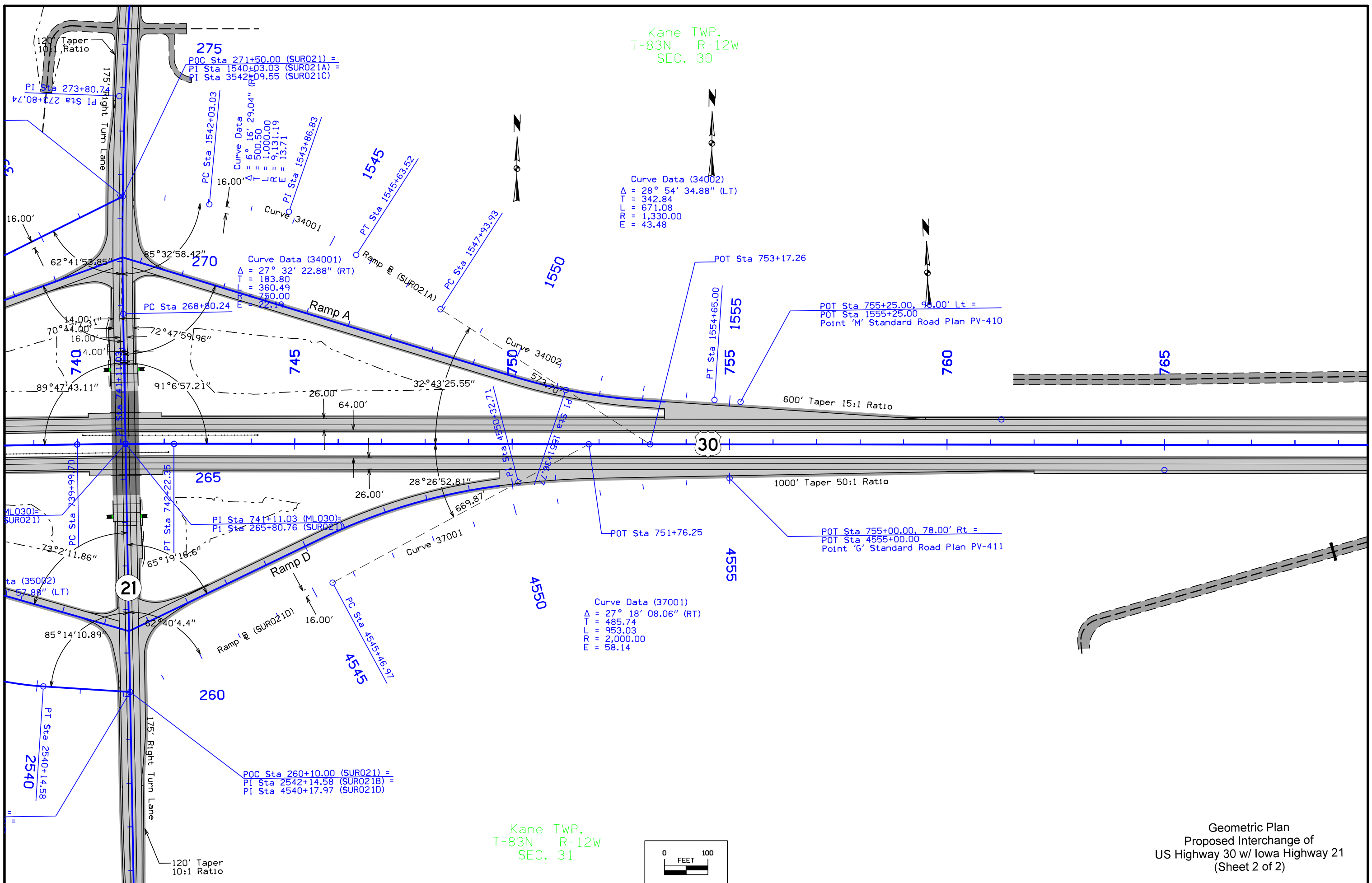
POC Sta 260+10.00 (SU021) =
PI Sta 2542+14.58 (SU021B) =
PI Sta 4540+17.97 (SU021D)

York TWP.
T-83N R-13W
SEC. 36

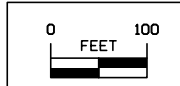


Geometric Plan
Proposed Interchange of
US Highway 30 w/ Iowa Highway 21
(Sheet 1 of 2)

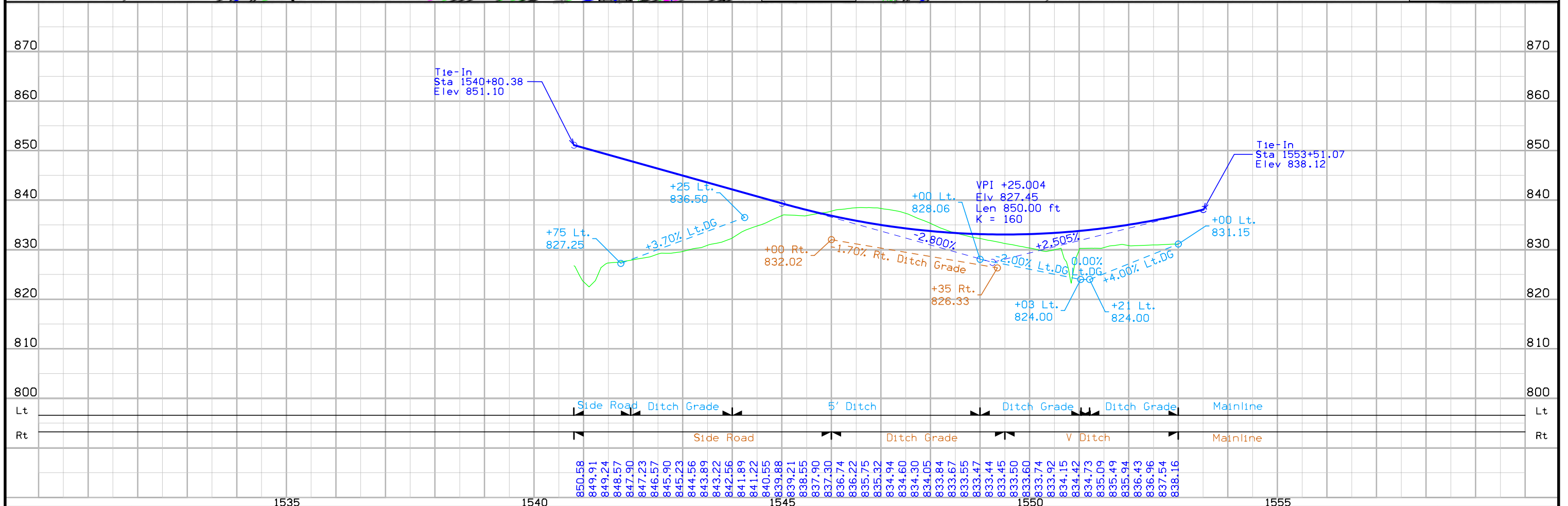
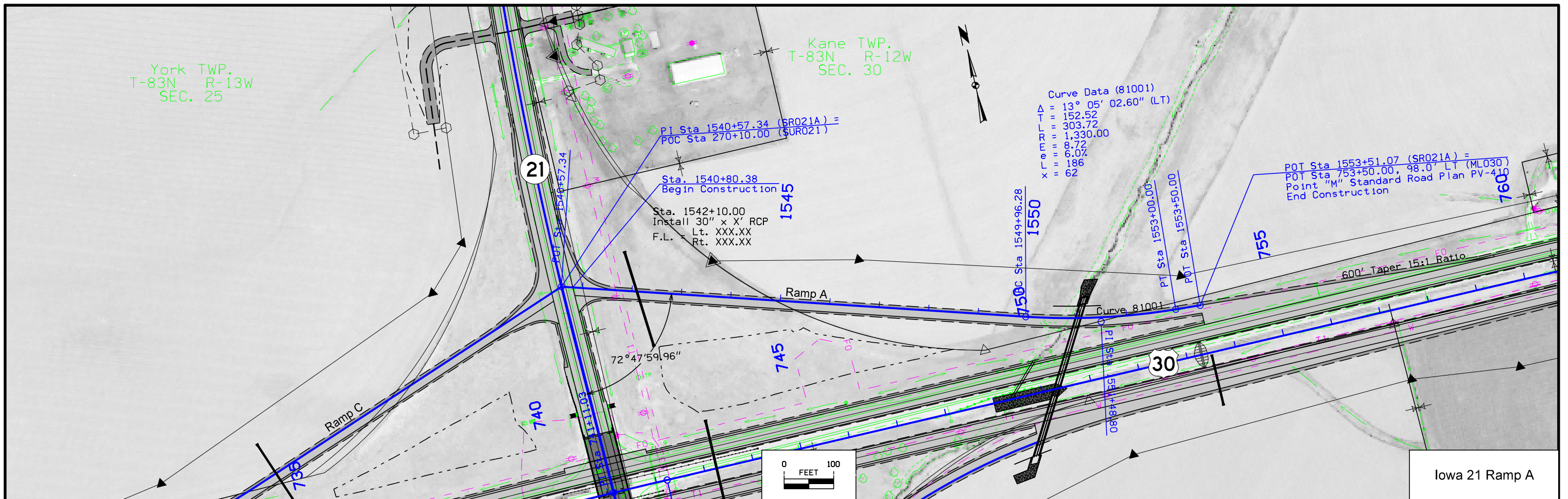
Kane TWP.
T-83N R-12W
SEC. 30

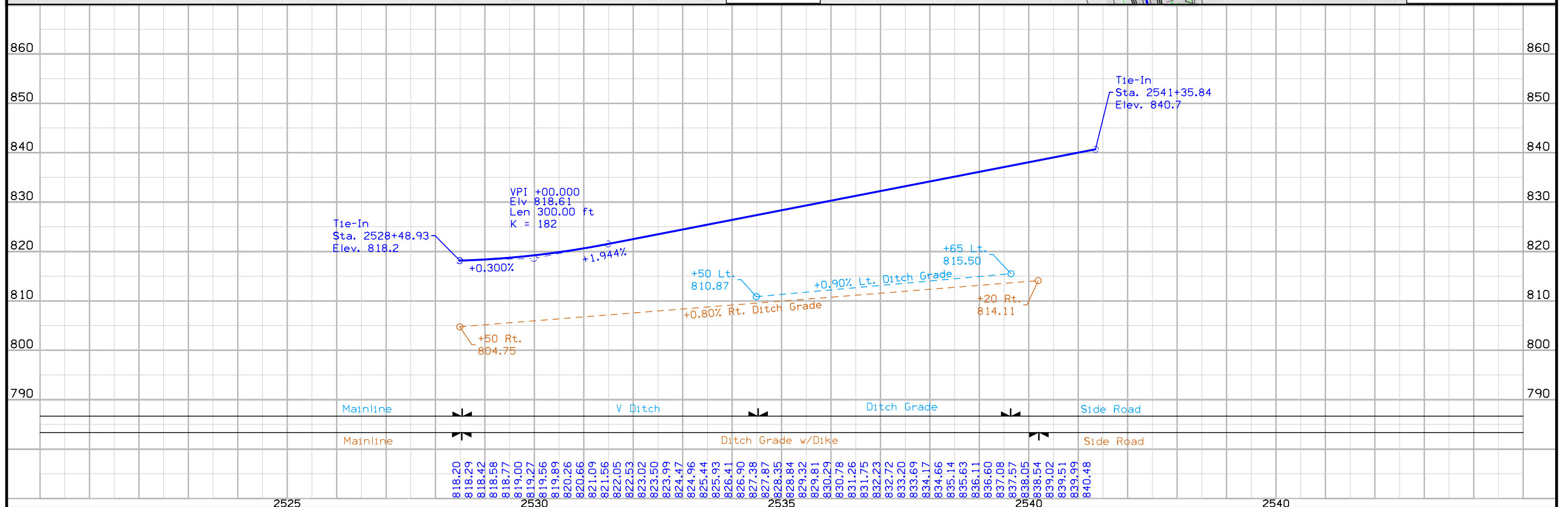
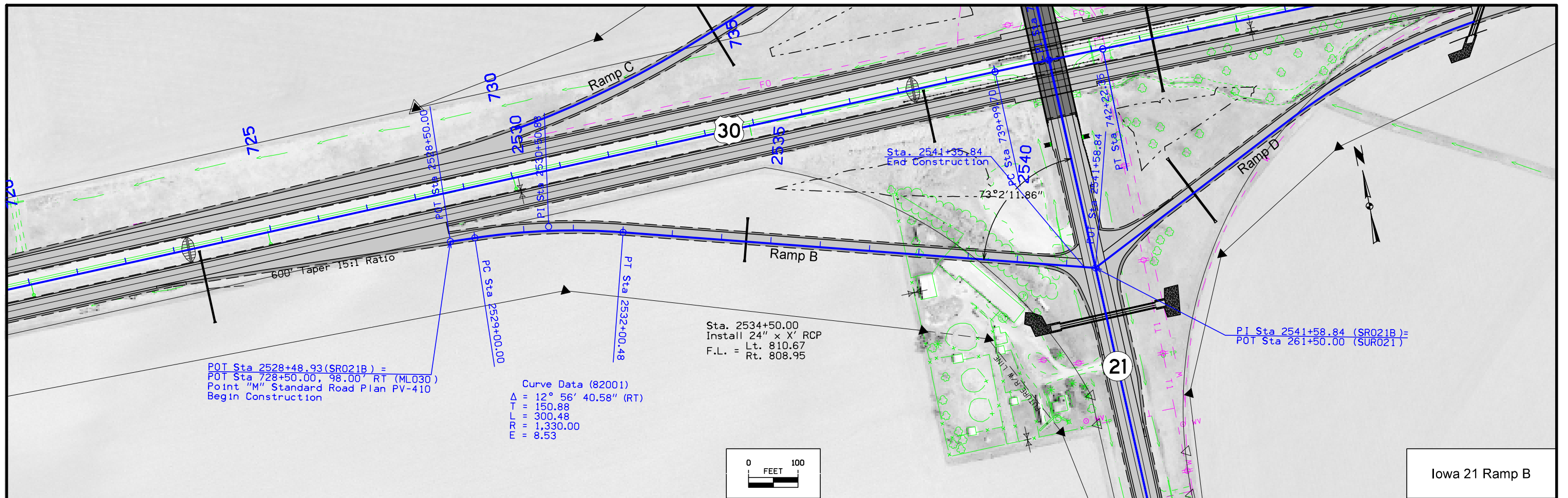


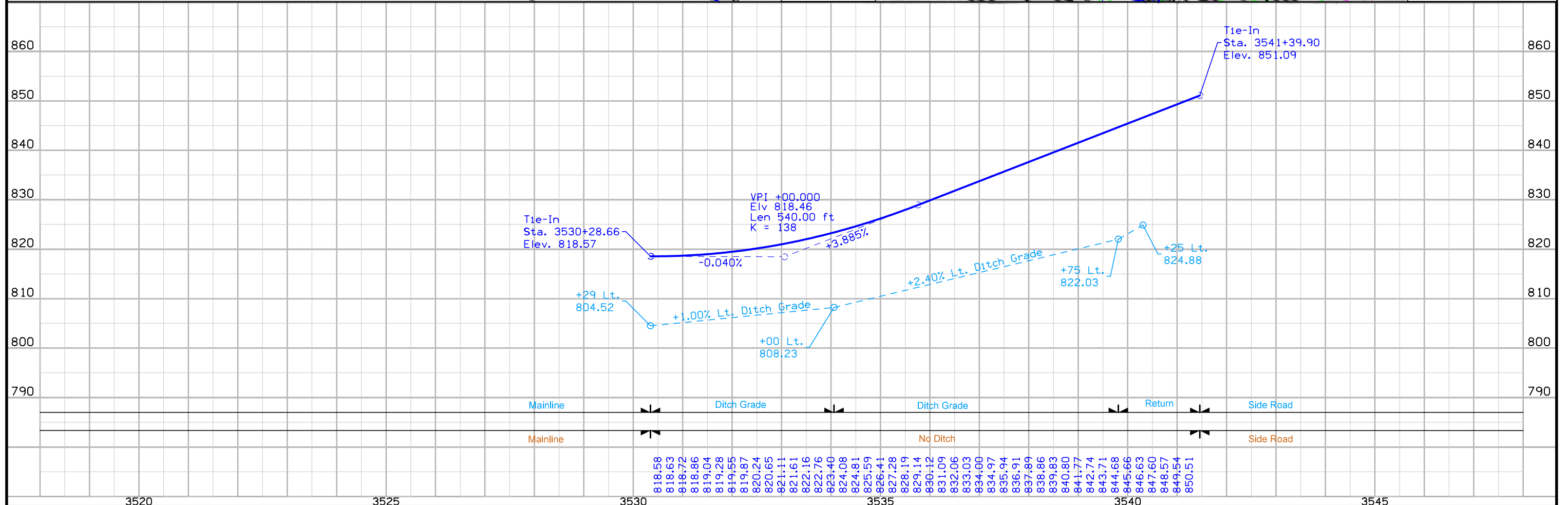
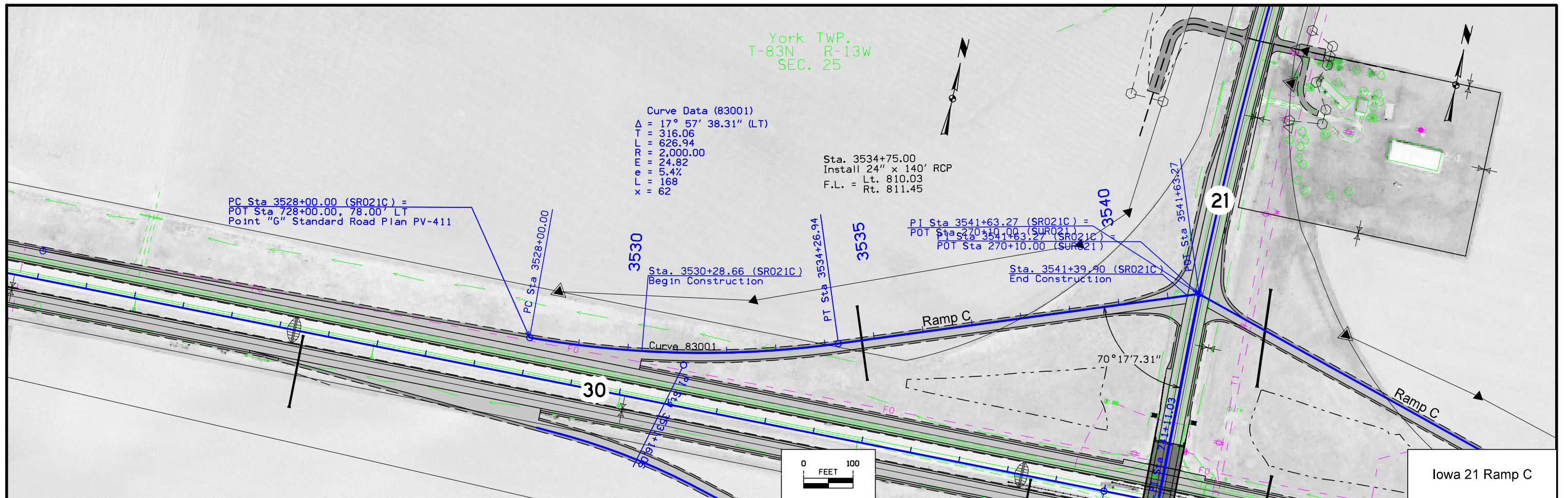
Kane TWP.
T-83N R-12W
SEC. 31

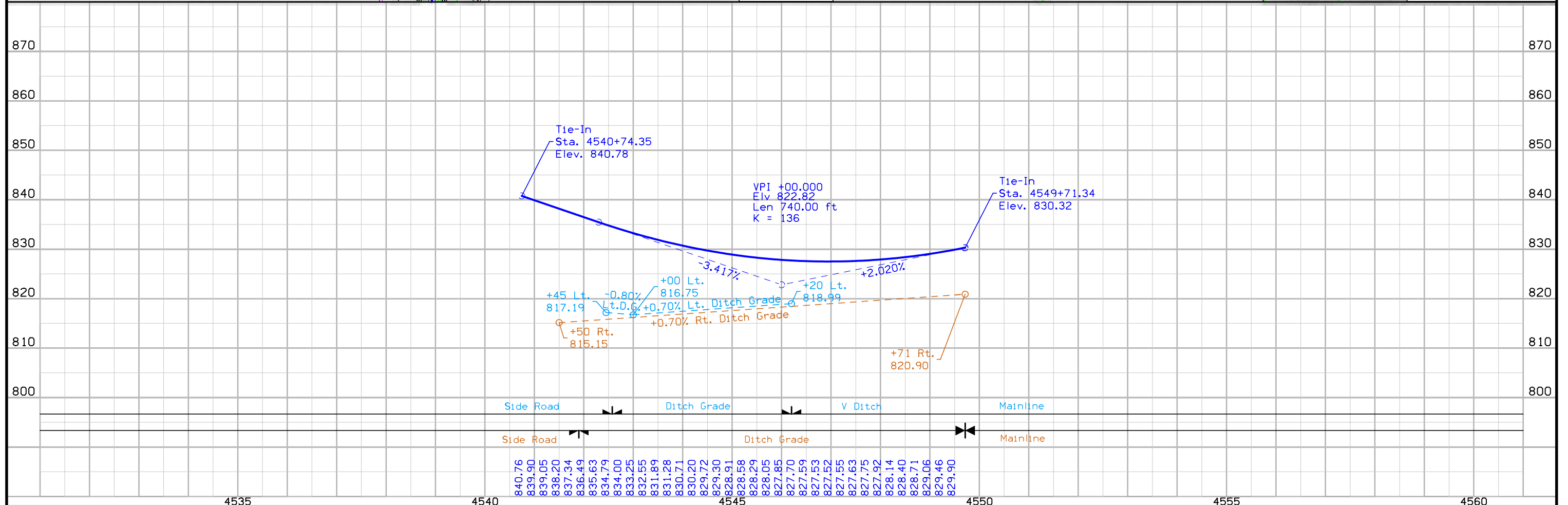
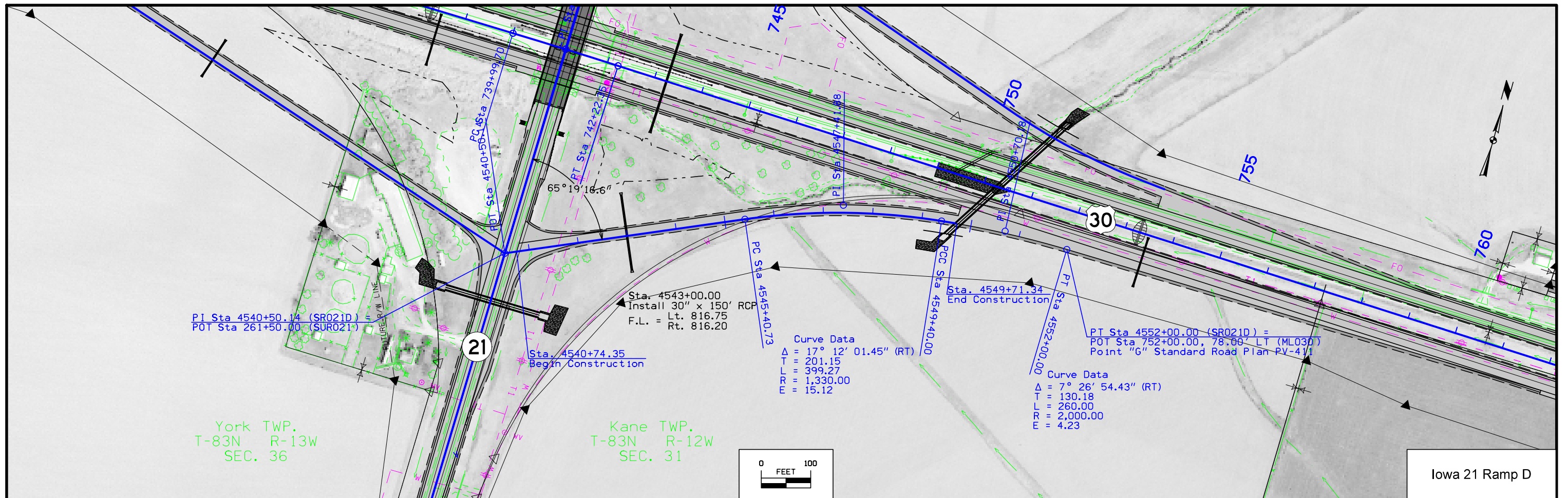


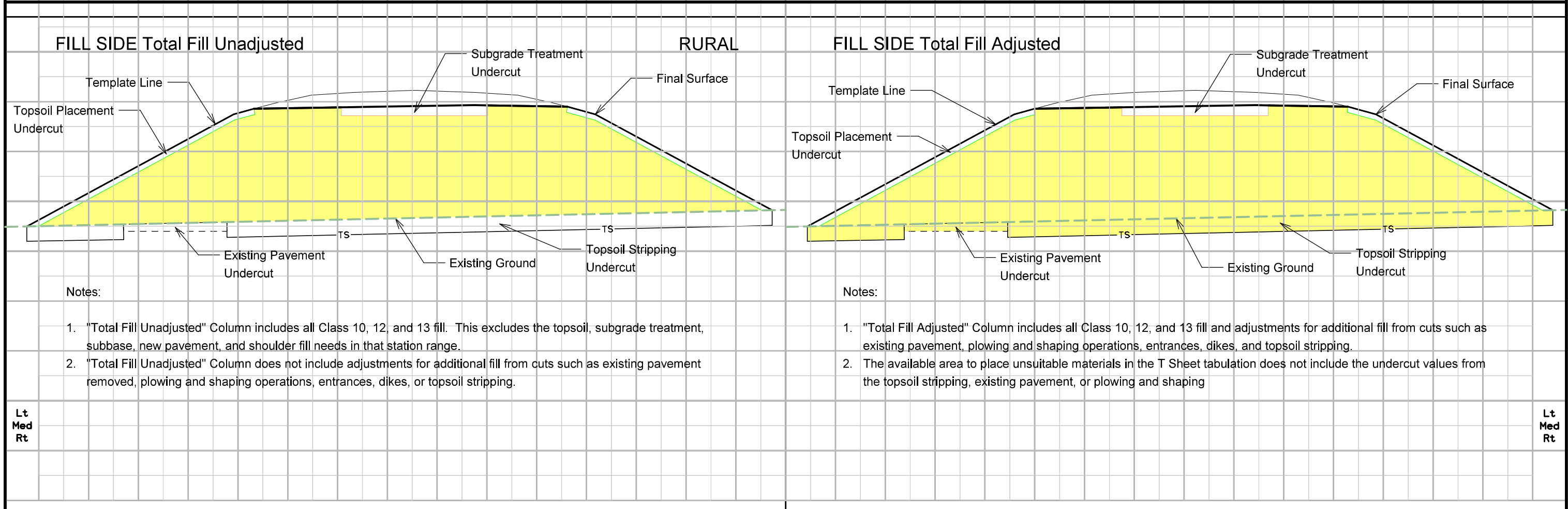
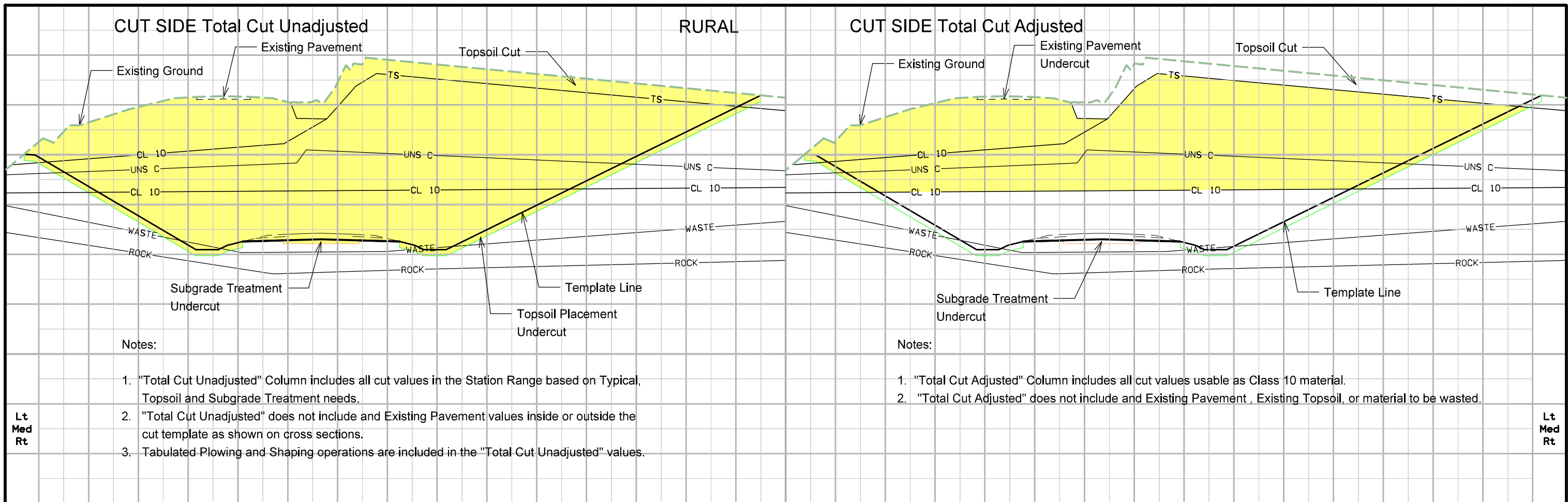
Geometric Plan
Proposed Interchange of
US Highway 30 w/ Iowa Highway 21
(Sheet 2 of 2)

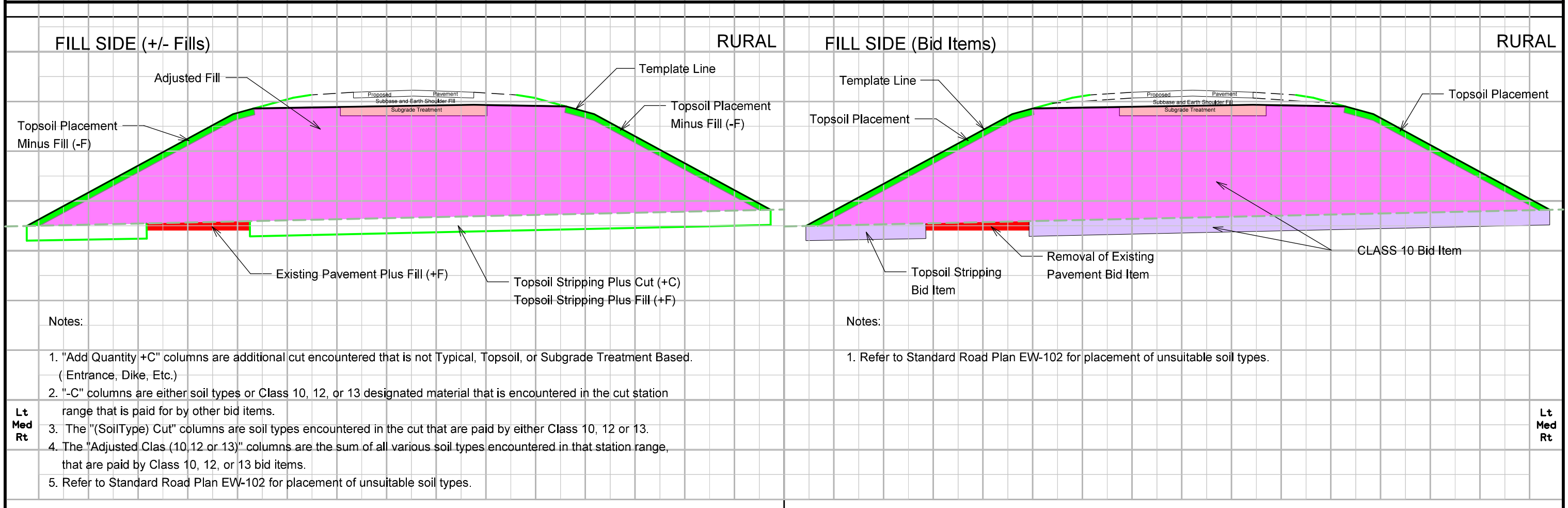
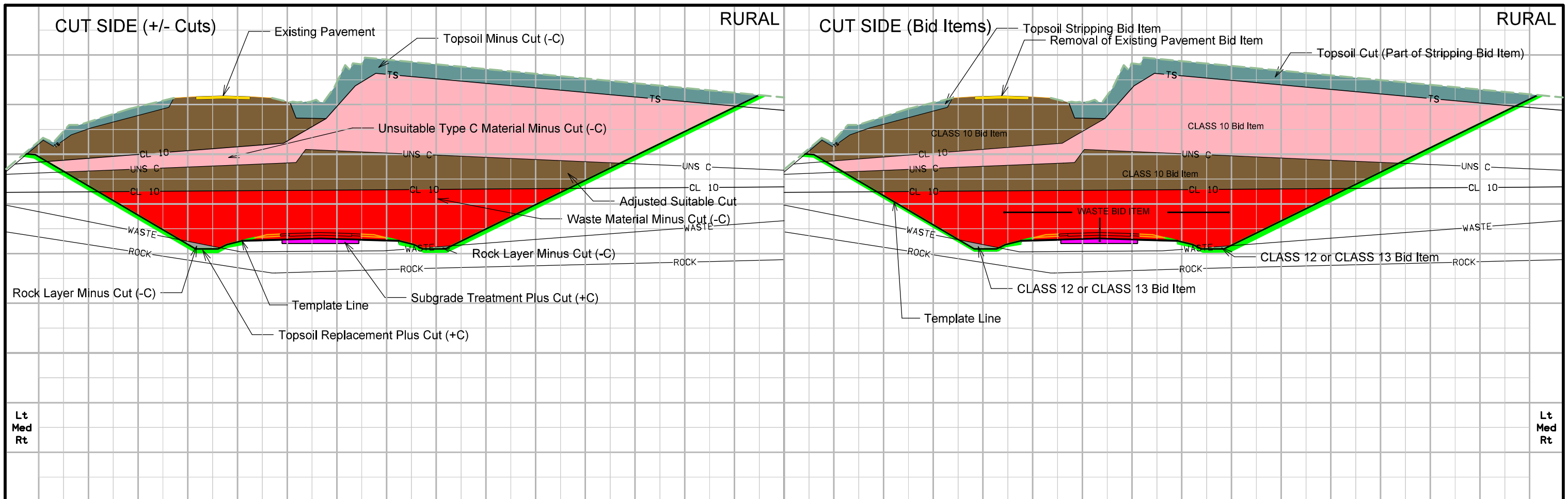












- Notes:
1. "Add Quantity +C" columns are additional cut encountered that is not Typical, Topsoil, or Subgrade Treatment Based. (Entrance, Dike, Etc.)
 2. "-C" columns are either soil types or Class 10, 12, or 13 designated material that is encountered in the cut station range that is paid for by other bid items.
 3. The "(SoilType) Cut" columns are soil types encountered in the cut that are paid by either Class 10, 12 or 13.
 4. The "Adjusted Clas (10,12 or 13)" columns are the sum of all various soil types encountered in that station range, that are paid by Class 10, 12, or 13 bid items.
 5. Refer to Standard Road Plan EW-102 for placement of unsuitable soil types.

- Notes:
1. Refer to Standard Road Plan EW-102 for placement of unsuitable soil types.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut								Fill								Checks (EW-102)		Topsoil			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink
805+25.00	278	158	120	0	0	0	158	188	0	120	0	308	400	-242	56	265	120	77	108	12		
805+50.00	248	133	115	0	0	0	133	189	0	115	0	304	395	-262	51	260	115	73	102	13		
805+75.00	193	88	105	0	0	0	88	190	0	105	0	295	384	-296	0	0	105	64	90	15		
806+00.00																						
US_30_STG1																						
Totals:	147,888	109,934	37,931	0	677	23	0	109,957	108,306	0	37,931	271	0	146,508	190,460	-80,503	81,948	136,154	37,931	15,756	22,058	15,873

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Table with columns: Station, Cut (Total Cut Unadjusted, Total Class 10 Unadjusted, Topsoil Cut, Template Unsuitable, Template Pavement Removal, Template Select Loam, Manually Calculated Cut, Total Cut Adjusted), Fill (Total Fill Unadjusted, Plowing & Shaping, Existing Topsoil, Existing Pavement, Manually Calculated Fill, Total Fill Adjusted), Checks (EW-102), and Topsoil (Stripping Undercut, Topsoil Placement, Topsoil Placement Factor, Topsoil Stripping). Rows include station numbers from 266+50.00 to 281+50.00 and a Totals row.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut								Fill								Checks (EW-102)		Topsoil			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	$[2] + [4] + [6] + [7]$ Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	$[10] + [11] + [12] + [13]$ Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	$[20] \times 1.4$ Topsoil Stripping Minus Topsoil Placement w/Shrink
11th Ave South																						
11786+75.00	48	19	29	0	0	0	19	3	0	12			15	20	-1	0	0	29	23	32	-3	
11787+00.00	81	37	44	0	0	0	37	10	0	20			93	121	-84	0	0	44	31	43	1	
11787+25.00	83	39	44	0	0	0	39	16	0	22		63	38	49	-10	0	0	44	32	45	-1	
11787+50.00	83	39	44	0	0	0	39	24	0	24			48	62	-23	0	0	44	32	45	-1	
11787+75.00	92	47	45	0	0	0	47	39	0	24			63	82	-35	0	0	45	33	46	-1	
11788+00.00	106	59	48	0	0	0	59	61	0	24			85	111	-52	0	0	48	35	49	-1	
11788+25.00	116	65	51	0	0	0	65	87	0	26			113	147	-82	0	16	51	38	53	-2	
11788+50.00	137	78	60	0	0	0	78	127	0	29			156	203	-125	0	73	60	46	64	-5	
11788+75.00	179	106	73	0	0	0	106	196	0	37			233	303	-197	0	173	73	56	78	-6	
11789+00.00	141	62	79	0	0	0	62	294	0	56			350	455	-393	0	324	79	55	77	2	
11789+25.00	78	1	76	0	0	0	1	471	0	72			543	706	-705	0	0	76	42	59	17	
11789+50.00																						
11th Ave South Totals:	1,144	552	593	0	0	0	552	1,328	0	346	0	63	1,737	2,259	-1,707	0	585	593	423	593	1	

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut								Fill								Checks (EW-102)		Topsoil			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	$[2] + [4] + [6] + [7]$ Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	$[10] + [11] + [12] + [13]$ Total Fill Adjusted	$[14] \times 1.3$ Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	$[8] - [15]$ Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	$[20] \times 1.4$ Topsoil Stripping Minus Topsoil Placement w/Shrink
IA_21_RampD_Channel																						
99+65.00	2	1	2	0	0	0	1	0	0				0	0	1	0	0	2	1	1	1	
99+75.00	38	17	21	0	0	0	17	0	0				0	0	17	0	0	21	18	25	-4	
100+00.00	90	47	43	0	0	0	47	0	0	1			1	1	46	0	0	43	38	53	-10	
100+25.00	119	63	57	0	0	0	63	0	0	10			10	13	50	0	0	57	50	70	-13	
100+50.00	128	61	67	0	0	0	61	5	0	23			28	36	25	0	0	67	59	83	-16	
100+75.00	126	65	60	0	0	0	65	5	0	15			20	26	39	0	0	60	54	76	-16	
101+00.00	25	16	9	0	0	0	16	0	0				0	0	16	0	0	9	8	11	-2	
101+09.00																						
IA_21_RampD_Channel Totals:	528	270	259	0	0	0	270	10	0	49	0	0	59	77	194	0	0	259	228	320	-61	

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut								Fill								Checks (EW-102)		Topsoil			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	$[2] + [4] + [6] + [7]$	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	$[10] + [11] + [12] + [13]$	$[14] \times 1.3$	$[8] - [15]$	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	$[20] \times 1.4$
789+00.00	198	5	94	100	0	0	0	105	453	0	48	29	530	689	-584	208	460	94	90	126	-32	
789+25.00	201	0	91	109	0	0	0	109	462	0	48	29	539	701	-592	220	472	91	86	120	-29	
789+50.00	108	0	57	50	0	0	0	50	403	0	41	29	473	615	-565	135	387	57	47	66	-9	
789+75.00	19	0	19	0	0	0	0	0	262	0	19	29	310	403	-403	0	174	19	4	6	13	
790+00.00	21	10	11	0	0	0	0	10	178	0	11	29	218	283	-273	0	56	11	0	0	11	
790+25.00	36	21	15	0	0	0	0	21	151	0	15	29	195	254	-233	0	26	15	0	0	15	
790+50.00	21	21	0	0	0	0	0	21	162	0	0	29	191	248	-227	0	0	0	0	0	0	
790+75.00	34	11	23	0	0	0	0	11	229	0	23	29	281	365	-354	0	137	23	3	4	19	
791+00.00	147	33	114	0	0	0	0	33	598	0	81	58	737	958	-925	0	502	114	71	99	15	
791+50.00	104	34	70	0	0	0	0	34	300	0	39	29	368	478	-444	0	250	70	63	88	-18	
791+75.00	100	40	60	0	0	0	0	40	274	0	32	29	335	436	-396	0	207	60	63	88	-28	
792+00.00	108	49	59	0	0	0	0	49	260	0	32	29	321	417	-368	0	189	59	63	88	-29	
792+25.00	120	60	59	0	0	0	0	60	252	0	32	29	313	407	-347	0	179	59	63	88	-29	
792+50.00	132	73	59	0	0	0	0	73	247	0	30	29	306	398	-325	0	169	59	63	88	-29	
792+75.00	137	79	59	0	0	0	0	79	242	0	28	29	299	389	-310	0	160	59	64	90	-31	
793+00.00	142	82	60	0	0	0	0	82	237	0	28	29	294	382	-300	0	153	60	66	92	-32	
793+25.00	148	88	60	0	0	0	0	88	233	0	29	29	291	378	-290	0	150	60	67	94	-34	
793+50.00	154	93	61	0	1	0	0	93	217	0	32	28	277	360	-267	0	134	61	69	97	-36	
793+75.00	166	76	62	0	2	28	0	104	185	0	35	27	247	321	-217	0	96	62	70	98	-36	
794+00.00	175	42	59	0	4	73	0	115	133	0	32	25	190	247	-132	0	25	59	71	99	-40	
794+25.00	179	34	60	0	6	85	0	119	104	0	34	23	161	209	-90	0	0	60	71	99	-39	
794+50.00	183	45	66	0	9	72	0	117	133	0	42	20	195	254	-137	0	36	66	71	99	-33	
794+75.00	156	49	57	0	9	50	0	99	128	0	39	14	181	235	-136	0	0	57	57	80	-23	
795+00.00																						
US_30_STG2																						
Totals:	63,861	44,699	17,959	895	6,205	308	0	45,902	66,366	1,457	11,286	4,959	1,364	85,432	111,062	-65,160	12,831	53,693	17,959	19,071	26,699	-8,740

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut								Fill								Checks (EW-102)		Topsoil				
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	$[2] + [4] + [6] + [7]$ Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	$[10] + [11] + [12] + [13]$ Total Fill Adjusted	$[14] \times 1.3$ Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	$[8] - [15]$ Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	$[19] - [21]$ Topsoil Stripping Minus Topsoil Placement w/Shrink	
11th Ave North																							
11791+25.00	0	0	0	0	0	0	0	368	0				368	478	-478	0	0	0	40	56		-56	
11791+50.00	0	0	0	0	0	0	0	506	0				506	658	-658	0	0	0	54	76		-76	
11791+75.00	83	16	67	0	0	0	16	644	0				706	918	-902	0	803	67	53	74		-7	
11791+97.00	20	10	10	0	0	0	10	93	0	62			102	133	-123	0	117	10	8	11		-1	
11792+00.00	217	127	90	0	0	0	127	582	0	71			653	849	-722	0	719	90	73	102		-12	
11792+25.00	165	88	77	0	0	0	88	371	0	45			416	541	-453	0	410	77	62	87		-10	
11792+50.00	119	52	67	0	0	0	52	308	0	41			349	454	-402	0	322	67	54	76		-9	
11792+75.00	103	41	61	0	0	0	41	251	0	37			288	374	-333	0	244	61	48	67		-6	
11793+00.00	84	30	54	0	0	0	30	197	0	33			230	299	-269	0	169	54	42	59		-5	
11793+25.00	64	16	48	0	0	0	16	158	0	30		982	1,170	1,521	-1,505	0	114	48	36	50		-2	
11793+50.00	51	9	42	0	0	0	9	135	0	27			162	211	-202	0	81	42	30	42		0	
11793+75.00	51	12	39	0	0	0	12	117	0	24			141	183	-171	0	53	39	27	38		1	
11794+00.00	61	23	38	0	0	0	23	101	0	20			121	157	-134	0	27	38	27	38		0	
11794+25.00	77	38	39	0	0	0	38	85	0	19			104	135	-97	0	4	39	27	38		1	
11794+50.00	88	50	39	0	0	0	50	68	0	17			85	111	-61	0	0	39	28	39		0	
11794+75.00	96	56	39	0	0	0	56	53	0	16			69	90	-34	0	0	39	28	39		0	
11795+00.00	101	62	39	0	0	0	62	41	0	14			55	72	-10	0	0	39	28	39		0	
11795+25.00	104	65	39	0	0	0	65	29	0	13			42	55	10	0	0	39	28	39		0	
11795+50.00	103	66	37	0	0	0	66	18	0	10			28	36	30	0	0	37	27	38		-1	
11795+75.00	104	67	37	0	0	0	67	8	0	9			17	22	45	0	0	37	27	38		-1	
11796+00.00	89	54	35	0	0	0	54	2	0	8			10	13	41	0	0	35	25	35		0	
11796+25.00	43	23	20	0	0	0	23	1	0	5			6	8	15	0	0	20	15	21		-1	
11796+50.00																							
11th Ave North Totals:	1,823	905	917	0	0	0	0	905	4,136	0	510	0	982	5,628	7,317	-6,412	0	3,065	917	787	1,102	-186	

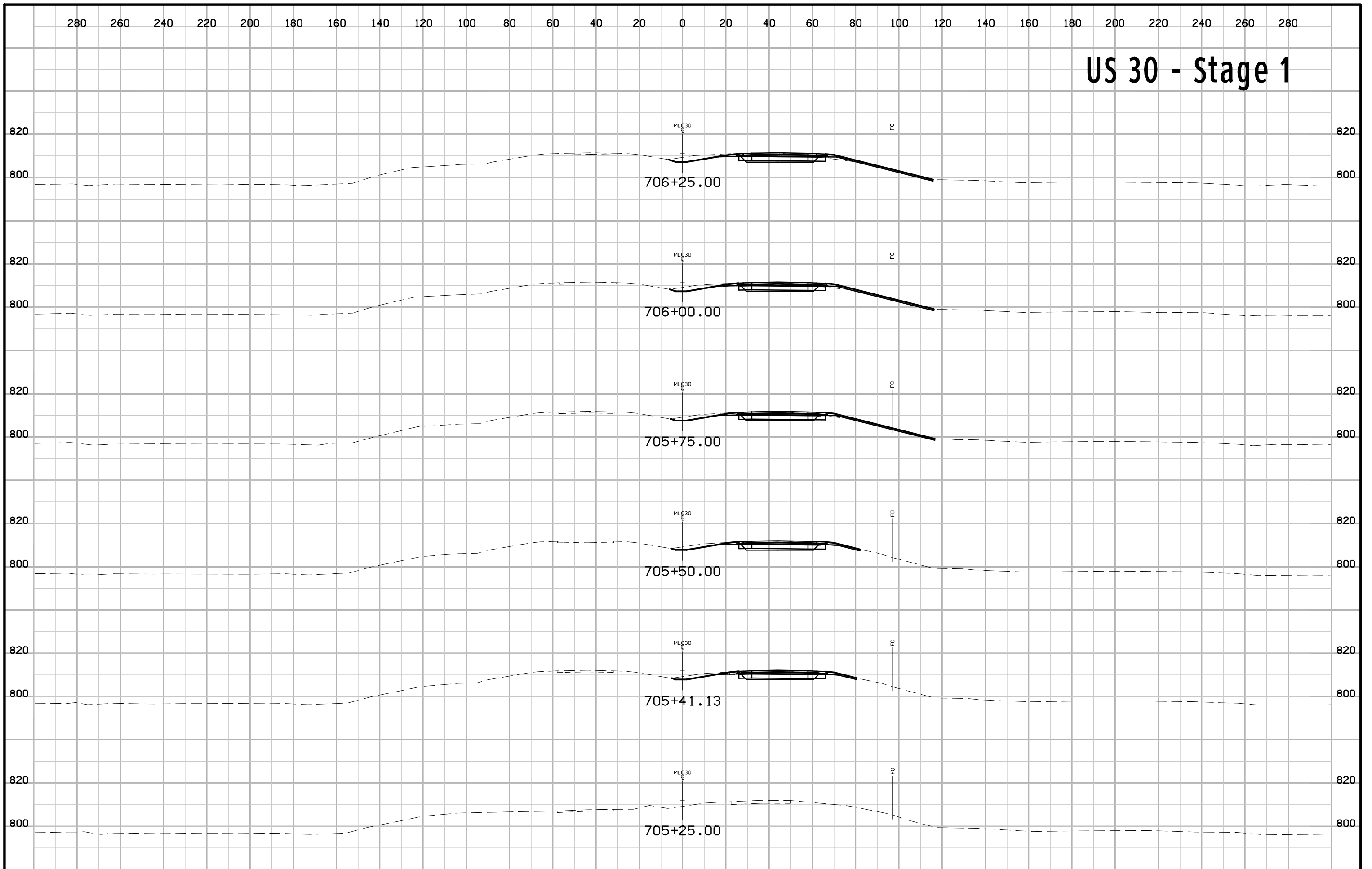
TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut								Fill								Checks (EW-102)		Topsoil				
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	$[2] + [4] + [6] + [7]$ Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	$[10] + [11] + [12] + [13]$ Total Fill Adjusted	$[14] \times 1.3$ Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	$[8] - [15]$ Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	$[19] - [21]$ Topsoil Stripping Minus Topsoil Placement w/Shrink	
Detour 2																							
205+00.00	178	60	71	0	10	47	107	222	0	51	15		288	374	-267	0	0	71	34	48	23		
205+25.00	178	76	68	0	12	35	111	209	0	49	13		271	352	-241	0	0	68	36	50	18		
205+50.00	178	92	66	0	13	21	113	201	0	48	12		261	339	-226	0	0	66	37	52	14		
205+75.00	178	107	63	0	15	8	115	196	0	46	10		252	328	-213	0	0	63	38	53	10		
206+00.00	177	116	61	0	17	1	117	193	0	44	8		245	319	-202	0	0	61	39	55	6		
206+25.00	177	118	59	0	19	0	118	189	0	42	6		237	308	-190	0	0	59	40	56	3		
206+50.00	178	120	58	0	22	0	120	182	0	42	3		227	295	-175	0	0	58	40	56	2		
206+75.00	180	121	59	0	23	0	121	167	0	43	2		212	276	-155	0	0	59	41	57	2		
207+00.00	182	122	60	0	25	0	122	147	0	44			191	248	-126	0	0	60	41	57	3		
207+25.00	187	127	60	0	25	0	127	132	0	42			174	226	-99	0	0	60	41	57	3		
207+50.00	191	132	59	0	25	0	132	117	0	40			157	204	-72	0	0	59	41	57	2		
207+75.00	189	130	60	0	25	0	130	98	0	40			138	179	-49	0	0	60	41	57	3		
208+00.00	186	126	60	0	25	0	126	77	0	39			116	151	-25	0	0	60	41	57	3		
208+25.00	182	122	60	0	26	0	122	55	0	38			93	121	1	0	0	60	41	57	3		
208+50.00	175	115	60	0	26	0	115	35	0	37			72	94	21	0	0	60	40	56	4		
208+75.00	166	106	60	0	26	0	106	19	0	34			53	69	37	0	0	60	40	56	4		
209+00.00	159	99	60	0	26	0	99	8	0	26			34	44	55	0	0	60	40	56	4		
209+25.00	159	100	59	0	26	0	100	2	0	15			17	22	78	0	0	59	39	55	4		
209+50.00	163	106	58	0	26	0	106	2	0	12			14	18	88	0	0	58	39	55	3		
209+75.00	171	113	58	0	26	0	113	2	0	16			18	23	90	0	0	58	39	55	3		
210+00.00	175	116	59	0	26	0	116	2	0	14			16	21	95	0	0	59	40	56	3		
210+25.00	173	114	59	0	26	0	114	1	0	10			11	14	100	0	0	59	39	55	4		
210+50.00	167	110	58	0	26	0	110	1	0	10			11	14	96	0	0	58	38	53	5		
210+75.00	162	106	56	0	26	0	106	1	0	12			13	17	89	0	0	56	36	50	6		
211+00.00	155	103	52	0	26	0	103	1	0	12			13	17	86	0	0	52	33	46	6		
211+25.00	148	99	49	0	26	0	99	0	0	12			12	16	83	0	0	49	31	43	6		
211+50.00	142	95	47	0	26	0	95	0	0	12			12	16	79	0	0	47	28	39	8		
211+75.00	138	94	44	0	25	0	94	0	0	11			11	14	80	0	0	44	28	39	5		
212+00.00	129	89	40	0	25	0	89	1	0	11			12	16	73	0	0	40	29	41	-1		
212+25.00	113	77	37	0	25	0	77	2	0	11			13	17	60	0	0	37	26	36	1		
212+50.00	100	65	34	0	25	0	65	2	0	12			14	18	47	0	0	34	23	32	2		
212+75.00	85	53	31	0	25	0	53	0	0	12			12	16	37	0	0	31	19	27	4		
213+00.00	76	50	26	0	25	0	50	0	0	12		1	13	17	33	0	0	26	15	21	5		
213+25.00	72	51	21	0	26	0	51	0	0	10			10	13	38	0	0	21	10	14	7		
213+50.00	28	20	8	0	10	0	20	0	0	3			3	4	16	0	0	8	3	4	4		
213+60.00																							
Detour 2 Totals:	5,397	3,450	1,840	0	806	112	0	3,562	2,264	0	912	70	0	3,246	4,220	-658	0	0	1,840	1,186	1,661	180	

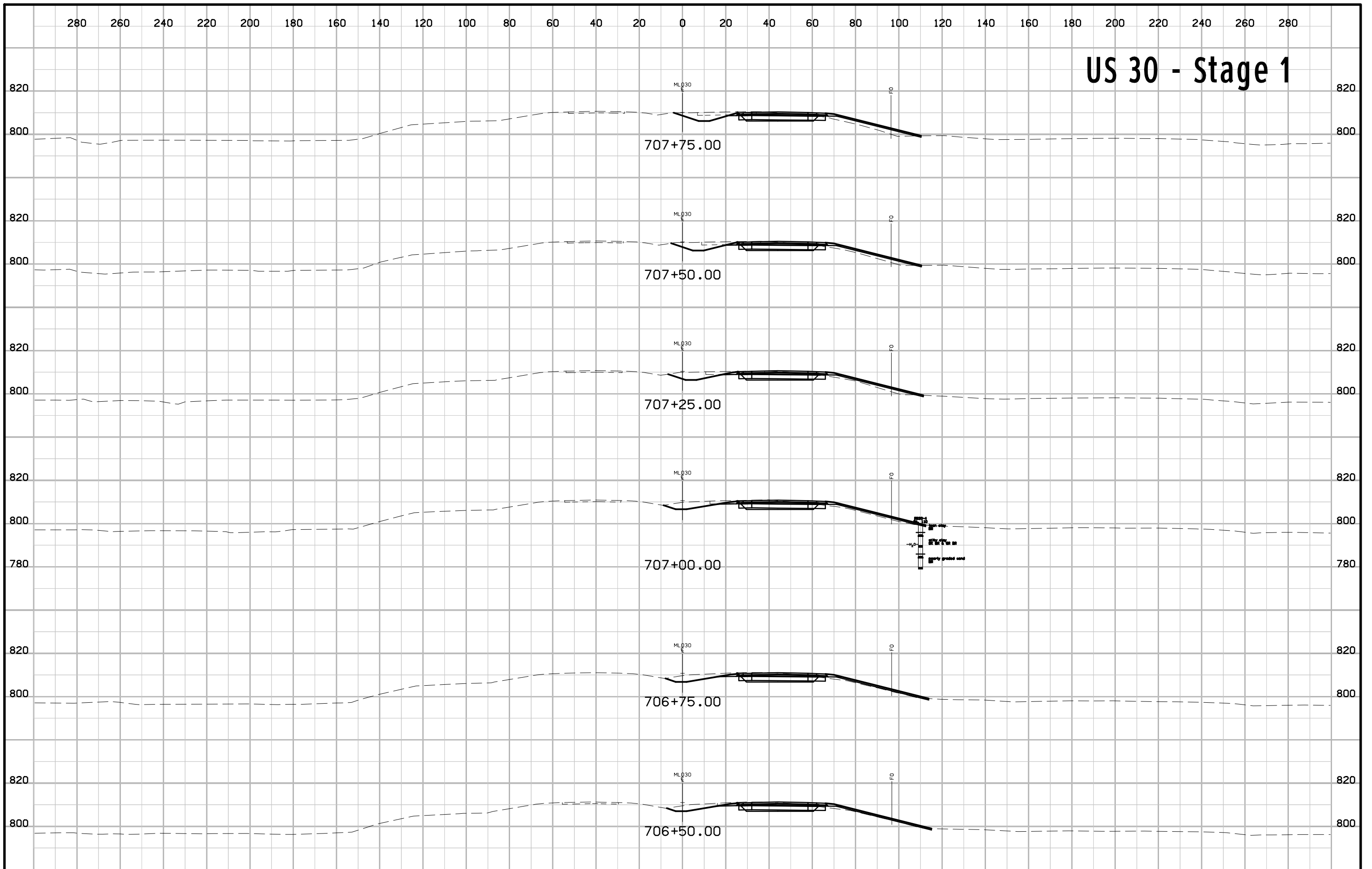
TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut								Fill								Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]		
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	$\frac{[2] + [4] + [6] + [7]}{[8]}$ Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+ Fill)	Manually Calculated Fill Adjustments (+/- Fill)	$\frac{[10] + [11] + [12] + [13]}{[14]}$ Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink		
Summary:																								
Stage 1																								
US_30_STG1	147,888	109,934	37,931	0	677	23	0	109,957	108,306	0	37,931	271	0	146,508	190,460	-80,503	81,948	136,154	37,931	15,756	22,058	15,873		
IA_21_RampA	15,016	9,943	5,078	0	0	0	0	9,943	27,529	0	2,594	0	0	30,123	39,160	-29,217	24,850	31,536	5,078	2,884	4,038	1,041		
IA_21_RampB	11,394	3,848	7,543	0	0	0	0	3,848	69,354	0	6,054	0	0	75,408	98,031	-94,183	72,221	84,335	7,543	5,251	7,352	192		
IA_21_RampC	6,840	1,489	5,354	0	0	0	0	1,489	71,574	0	4,637	0	0	76,211	99,075	-97,586	72,395	87,065	5,354	3,304	4,626	730		
IA_21_RampD	9,741	5,841	3,895	0	0	0	0	5,841	20,858	0	2,351	0	0	23,209	30,172	-24,331	19,584	24,165	3,895	2,289	3,205	691		
IA_21_South	8,463	3,570	4,894	0	282	0	0	3,570	66,758	0	3,339	637	288	71,022	92,329	-88,759	53,232	72,399	4,894	3,652	5,113	-219		
IA_21_North	10,205	3,684	6,434	2	165	78	67	3,831	100,910	651	5,005	1,245	6,056	113,867	148,028	-144,197	86,213	115,195	6,434	4,647	6,506	-72		
11th Ave South	1,144	552	593	0	0	0	0	552	1,328	0	346	0	63	1,737	2,259	-1,707	0	585	593	423	593	1		
Detour_1	1,851	277	1,570	0	0	0	0	277	3,874	0	1,440	0	0	5,314	6,909	-6,632	0	0	1,570	244	342	1,229		
IA_21_RampD_Channel	528	270	259	0	0	0	0	270	10	0	49	0	0	59	77	194	0	0	259	228	320	-61		
ENTR0722	1,609	421	1,189	0	0	0	0	421	3,021	0	852	0	0	3,873	5,035	-4,614	0	0	1,189	478	670	520		
Stage 1 Subtotals:	214,679	139,829	74,740	2	1,124	101	67	139,999	473,522	651	64,598	2,153	6,407	547,331	711,535	-571,535	410,443	551,434	74,740	39,156	54,823	19,925		
Stage 2																								
US_30_STG2	63,861	44,699	17,959	895	6,205	308	0	45,902	66,366	1,457	11,286	4,959	1,364	85,432	111,062	-65,160	12,831	53,693	17,959	19,071	26,699	-8,740		
11th Ave North	1,823	905	917	0	0	0	0	905	4,136	0	510	0	982	5,628	7,317	-6,412	0	3,065	917	787	1,102	-186		
Detour_2	5,397	3,450	1,840	0	806	112	0	3,562	2,264	0	912	70	0	3,246	4,220	-658	0	0	1,840	1,186	1,661	180		
ENTL0776	4,602	1,838	2,766	0	0	0	0	1,838	4,702	0	1,972	0	0	6,674	8,677	-6,839	0	0	2,766	1,456	2,039	728		
Stage 2 Subtotals:	75,683	50,892	23,482	895	7,011	420	0	52,207	77,468	1,457	14,680	5,029	2,346	100,980	131,276	-79,069	12,831	56,758	23,482	22,500	31,501	-8,018		
Project Totals:	290,362	190,721	98,222	897	8,135	521	67	192,206	550,990	2,108	79,278	7,182	8,753	648,311	842,811	-650,604	423,274	608,192	98,222	61,656	86,325	11,906		
BID ITEMS:																								
EMBANKMENT-IN-PLACE:																								
				$\frac{650,604}{[16]} \div 1.3 =$	500,465	CY																		
EXCAVATION, CLASS 10, ROADWAY AND BORROW:																								
				192,206	CY																			
				[8]																				
TOPSOIL, STRIP, SALVAGE AND SPREAD:																								
				98,222	CY																			
				[19]																				
COMPACTION WITH MOISTURE AND DENSITY CONTROL:																								
				648,311	CY																			
				[14]																				

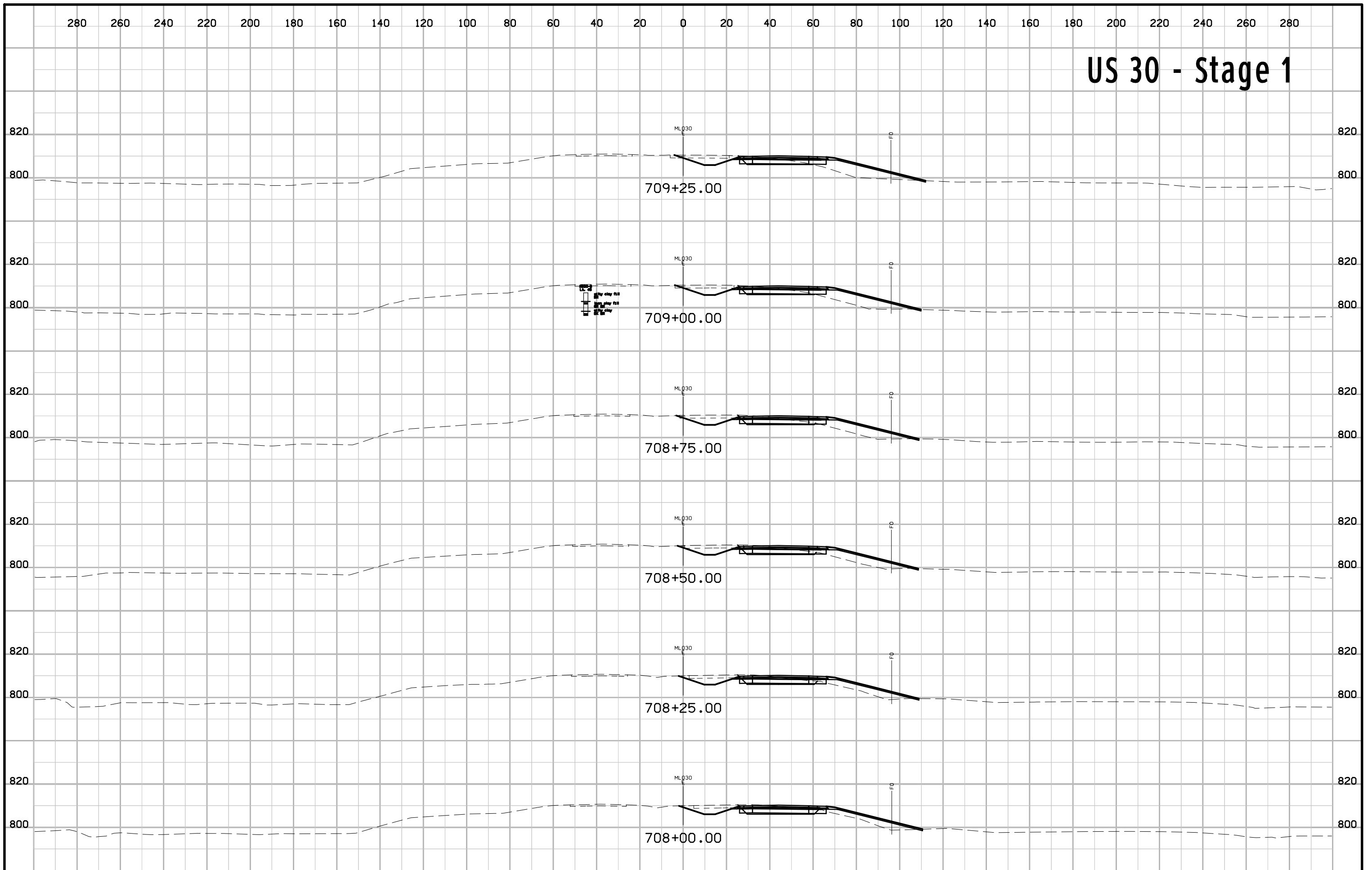
US 30 - Stage 1



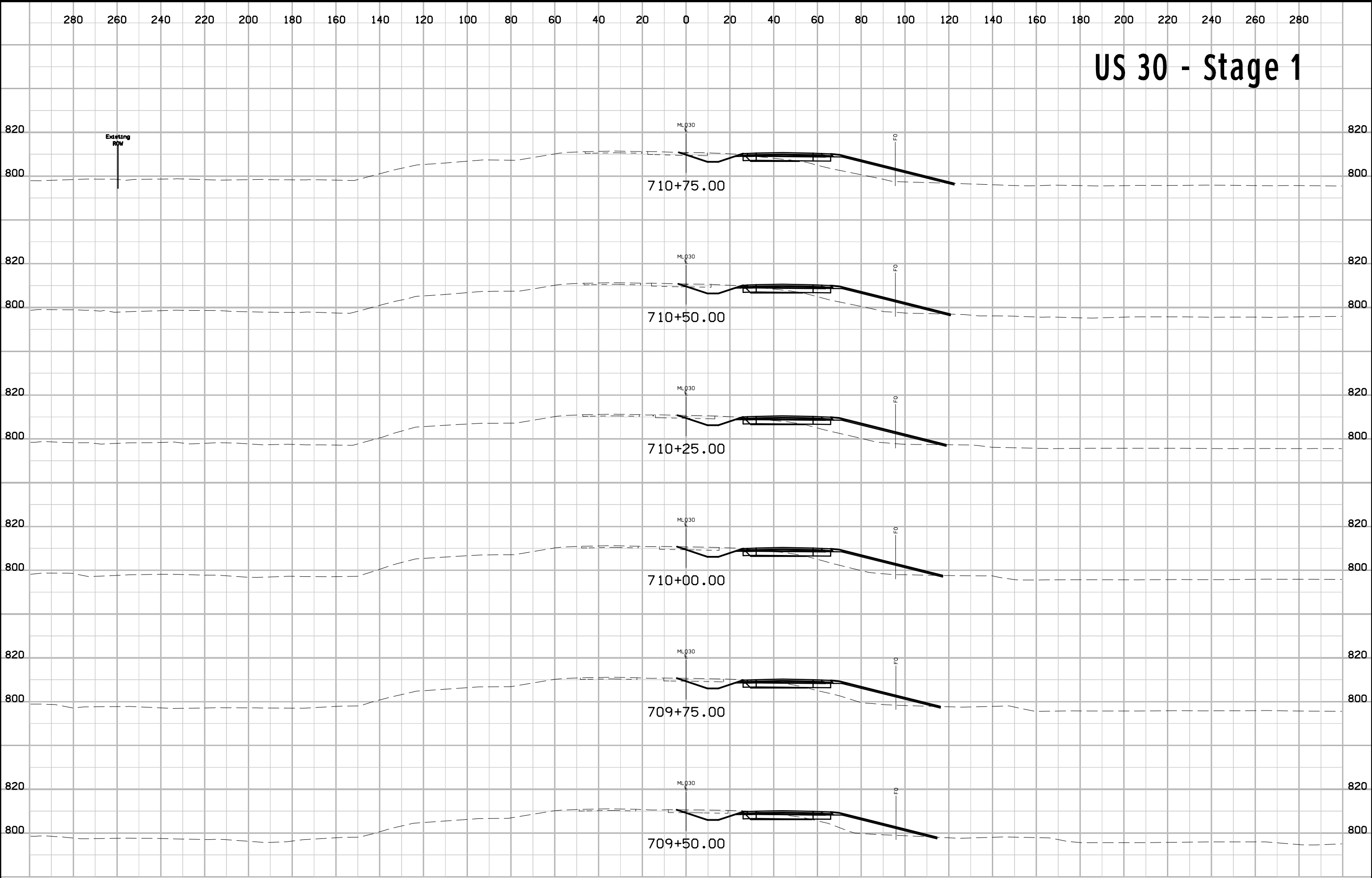
US 30 - Stage 1



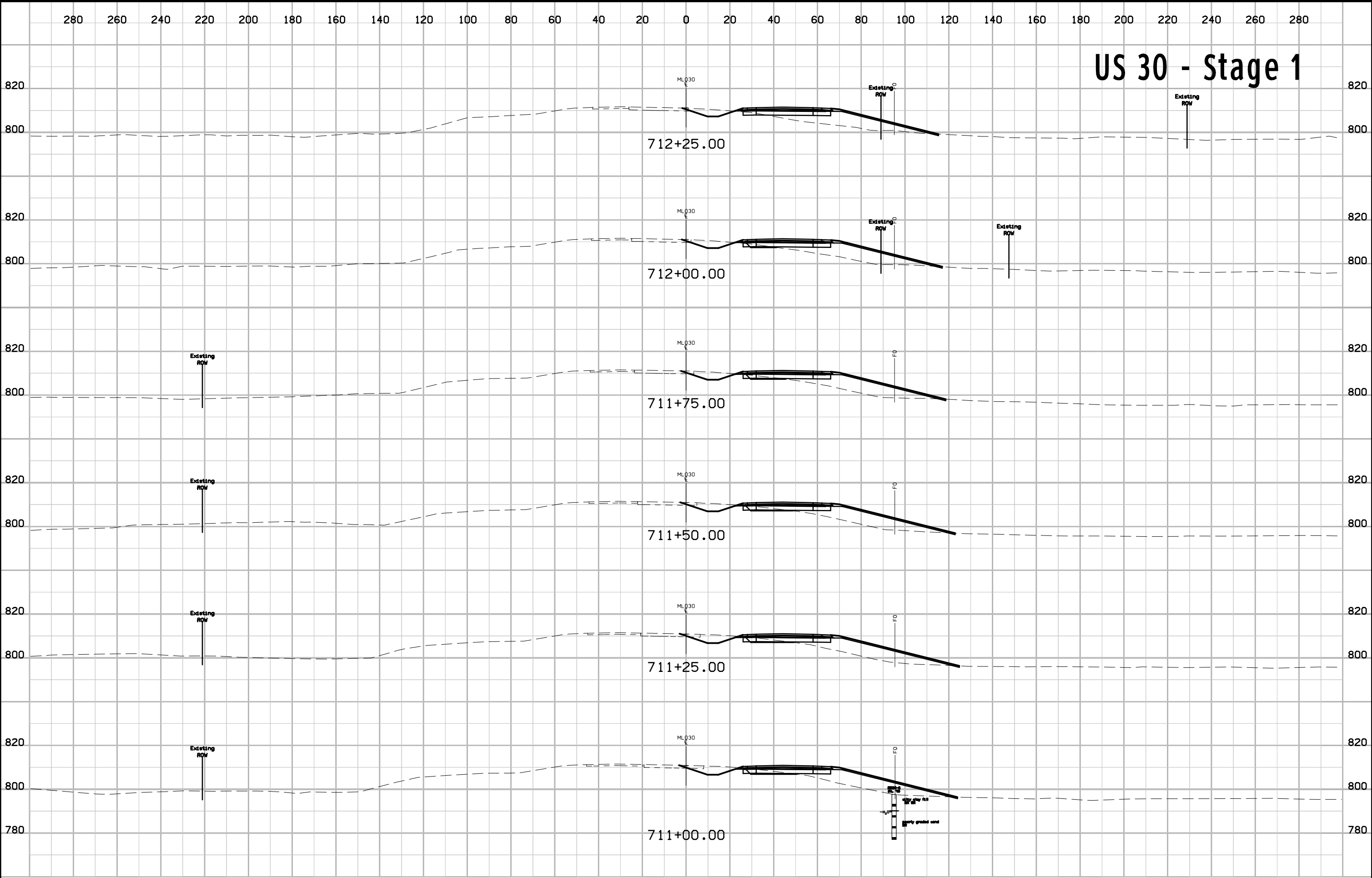
US 30 - Stage 1



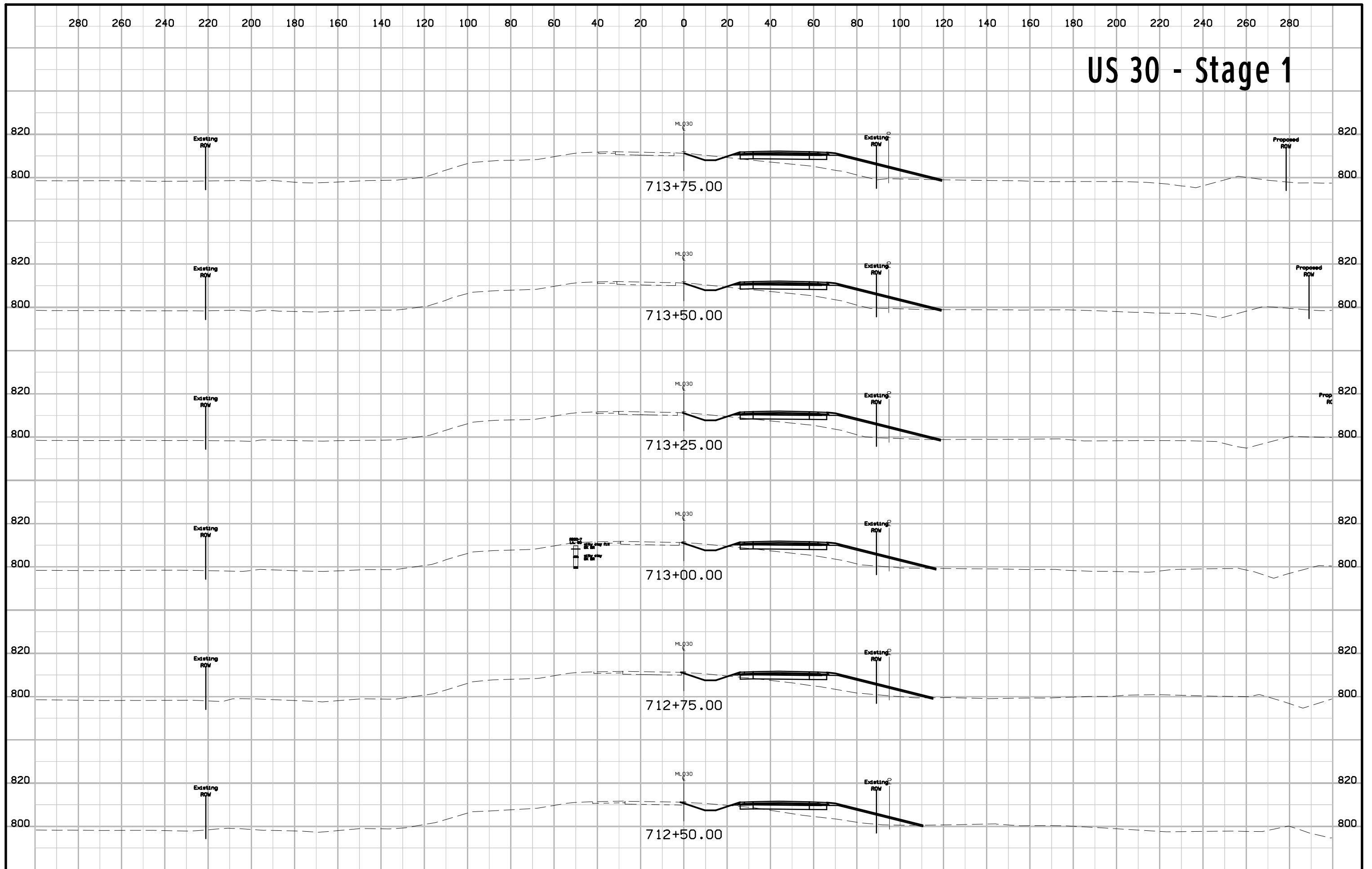
US 30 - Stage 1



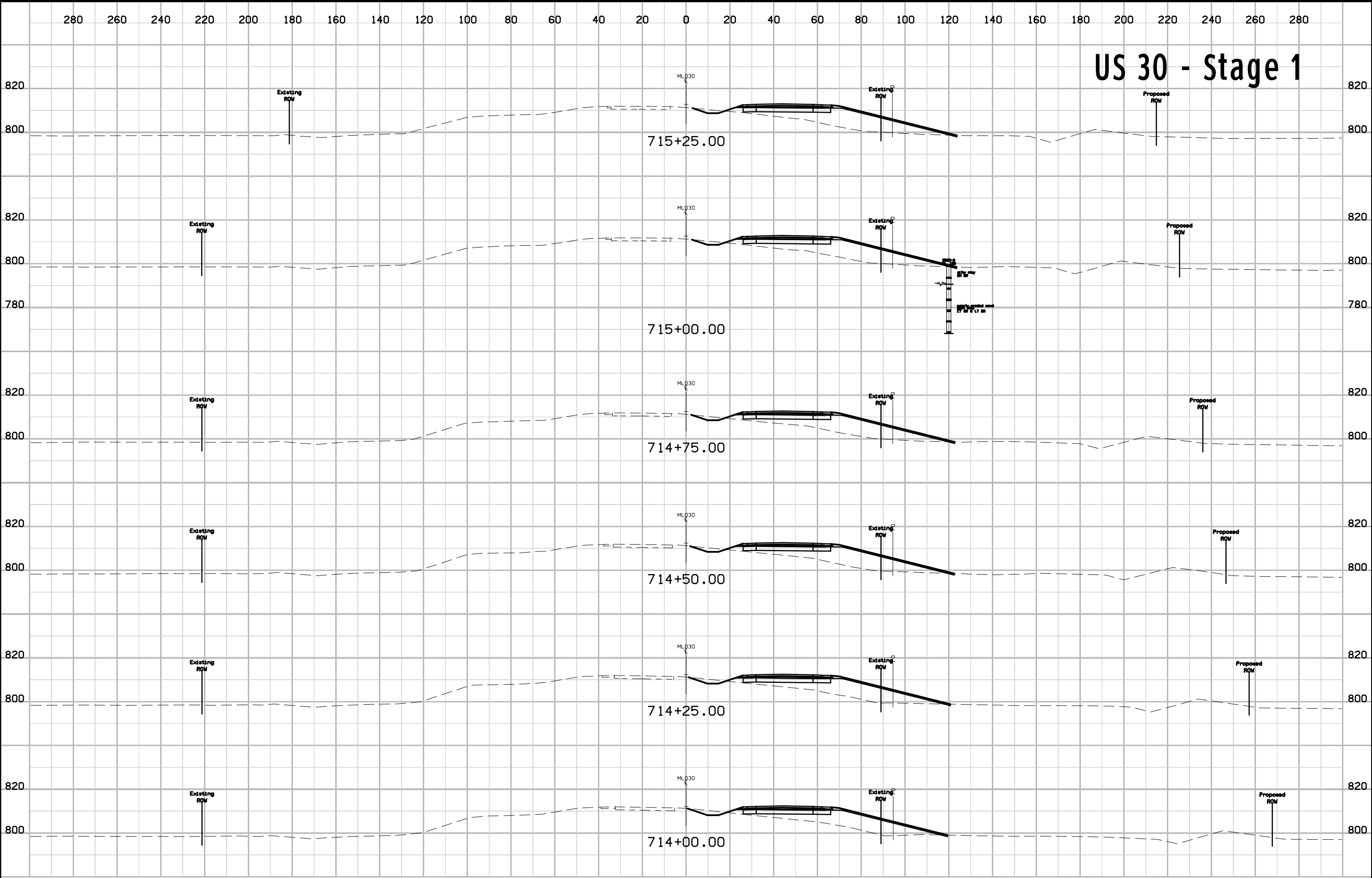
US 30 - Stage 1



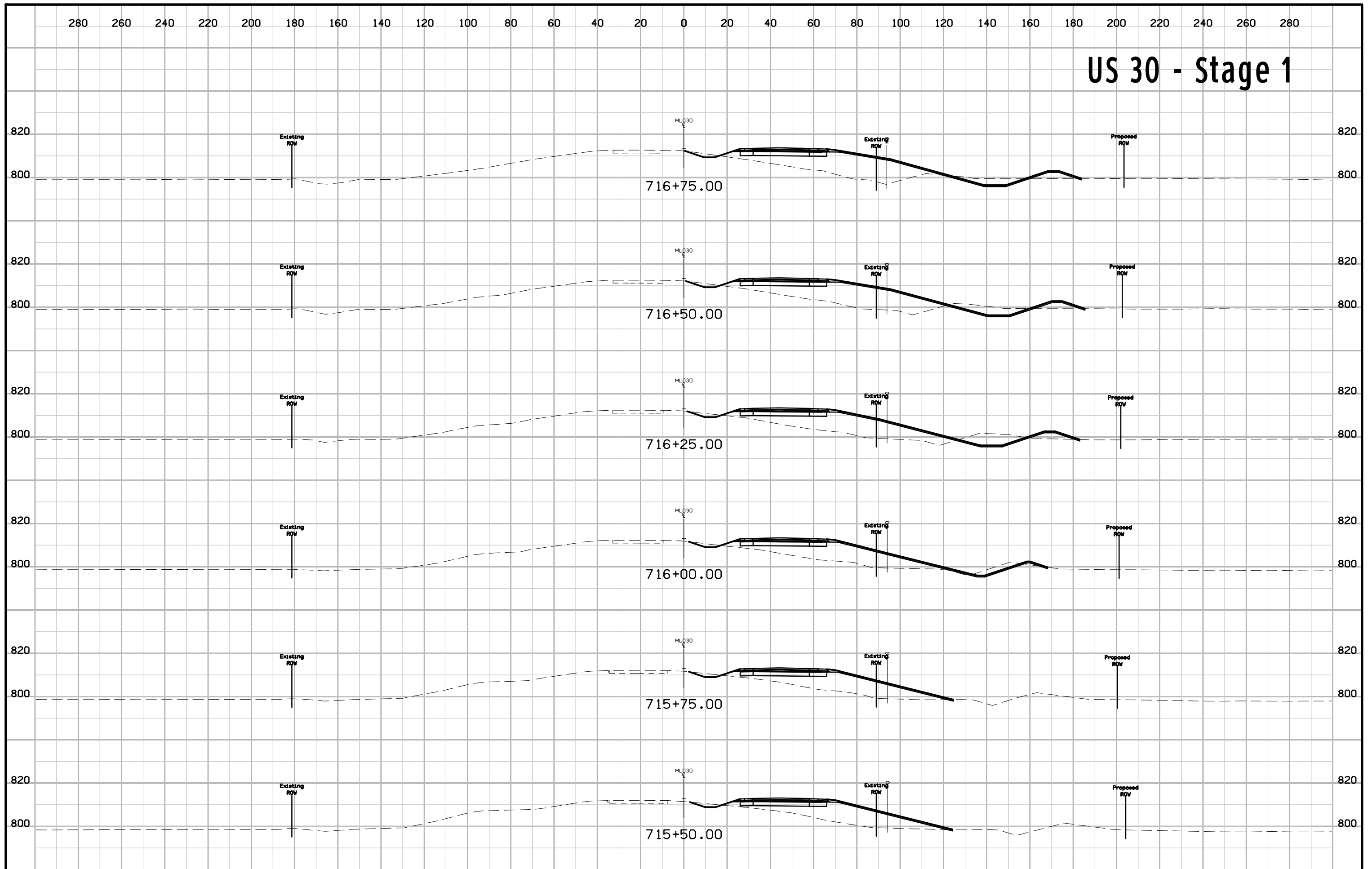
US 30 - Stage 1



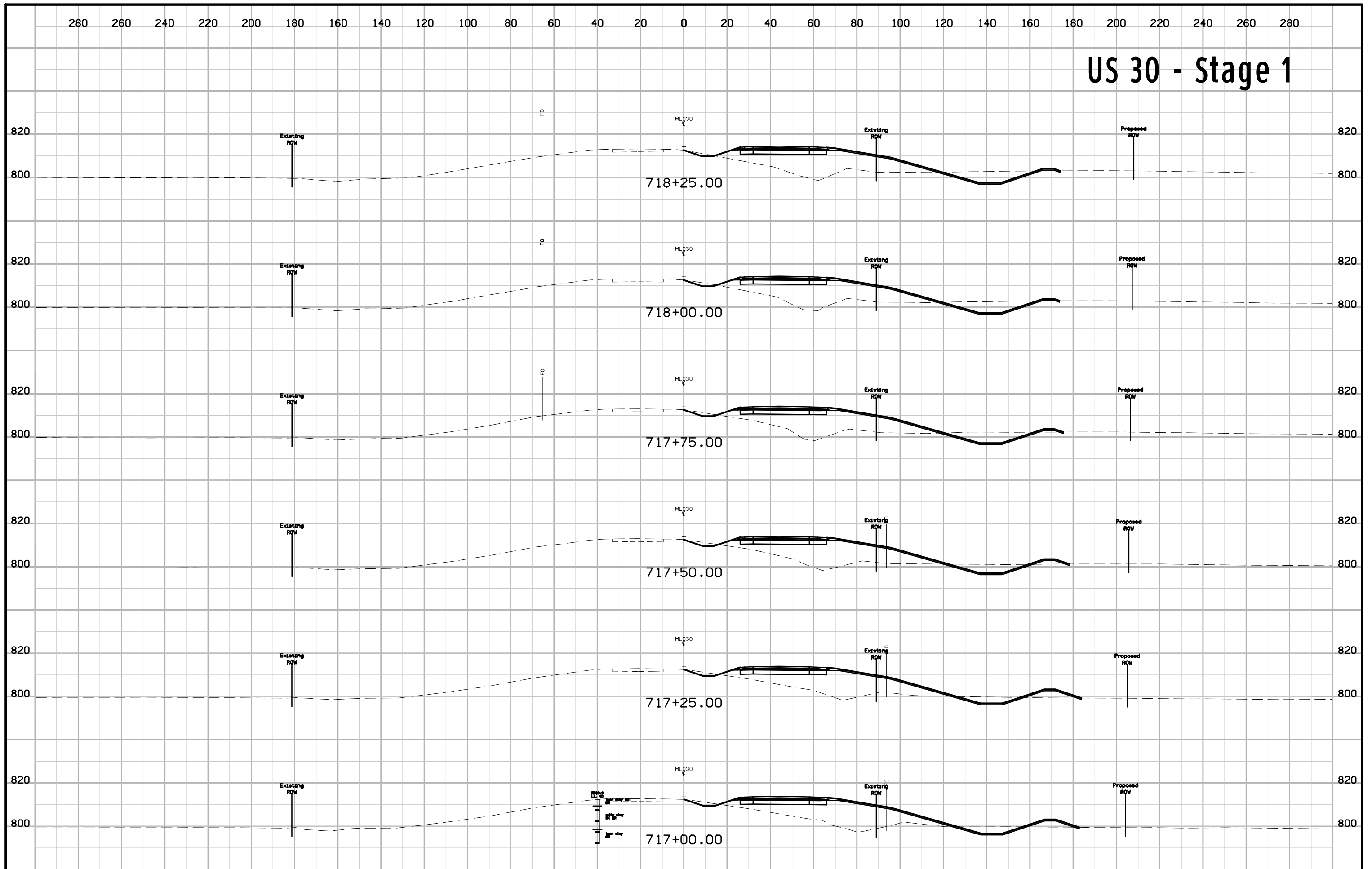
US 30 - Stage 1



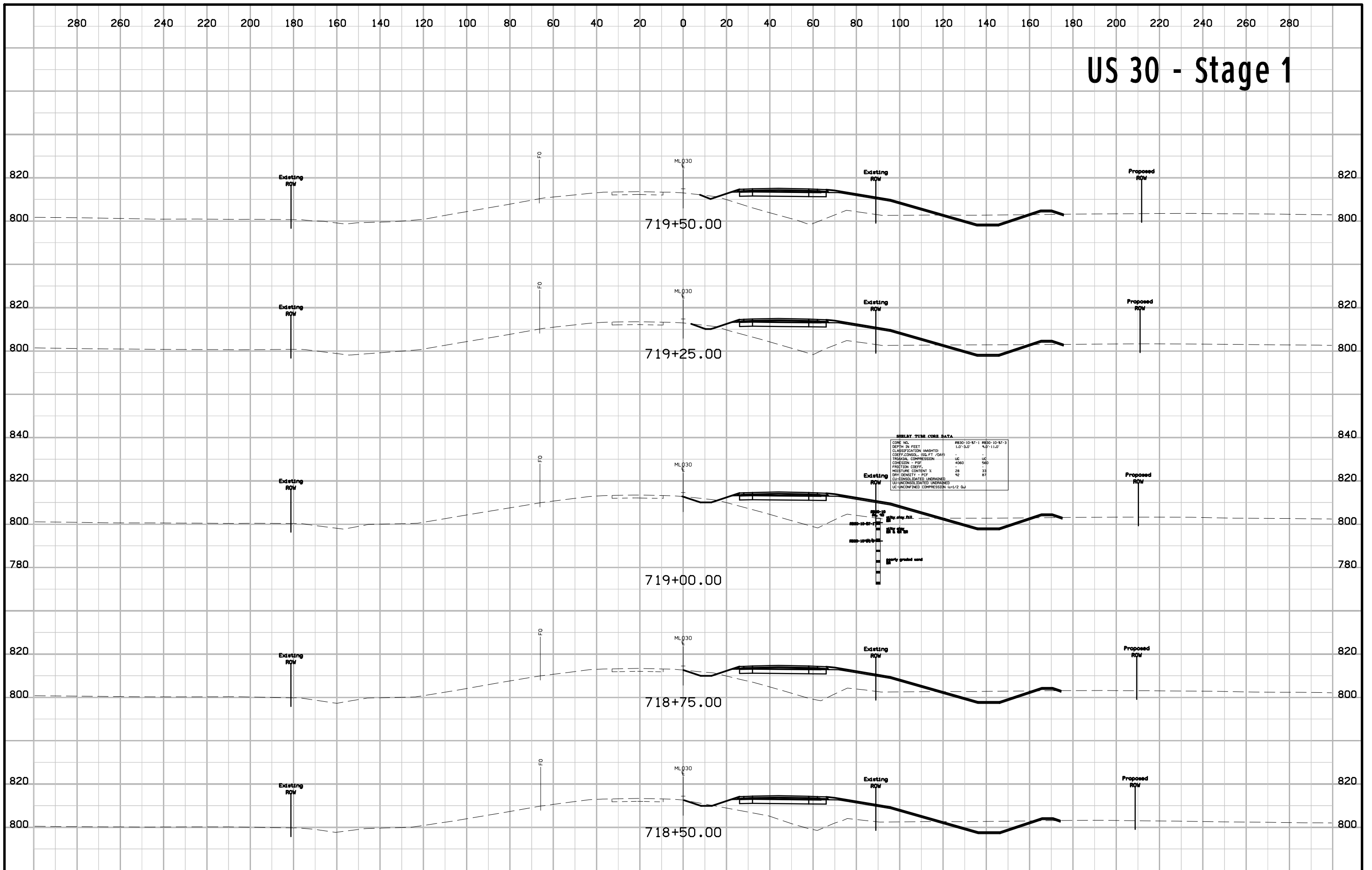
US 30 - Stage 1



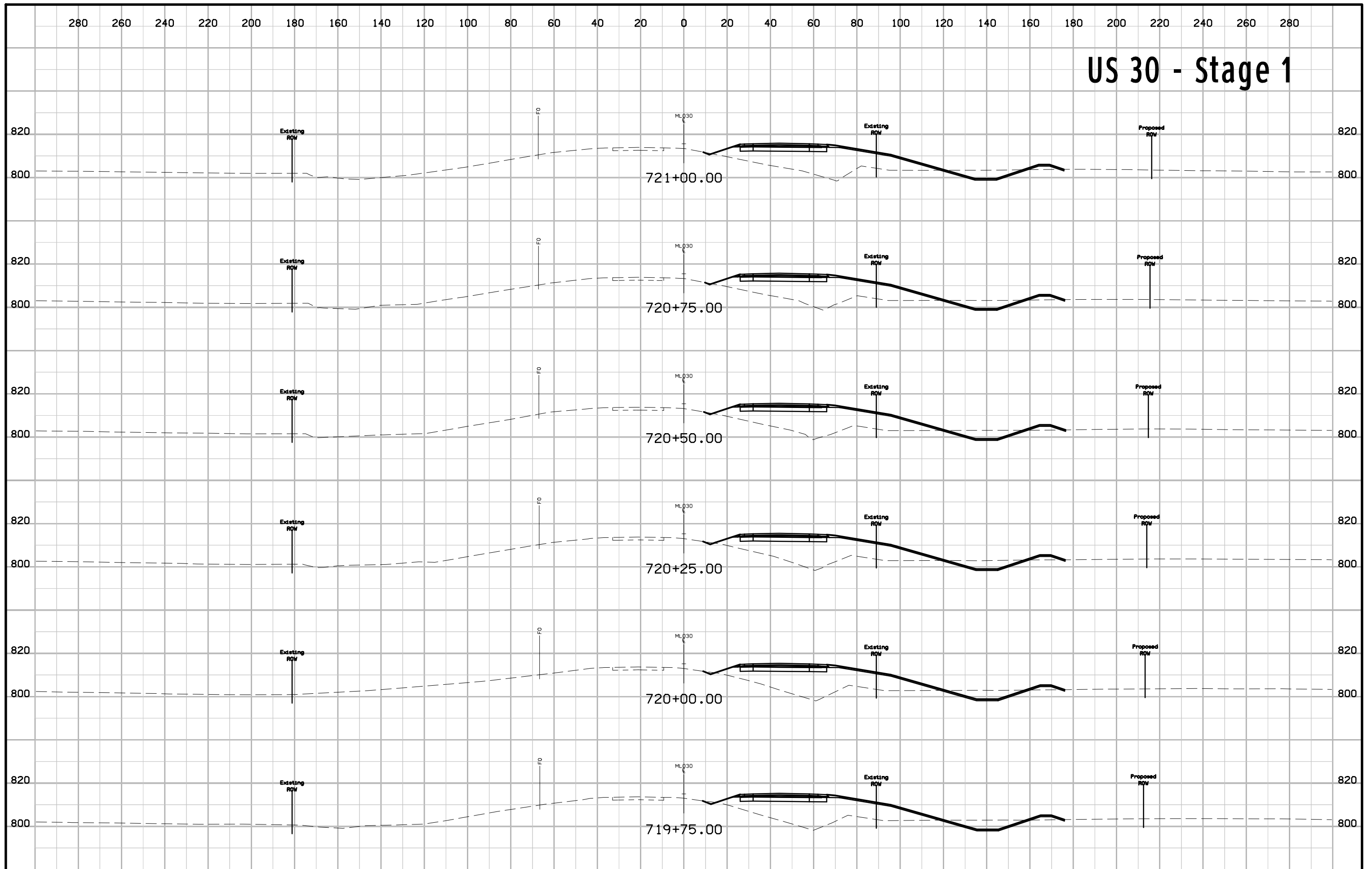
US 30 - Stage 1



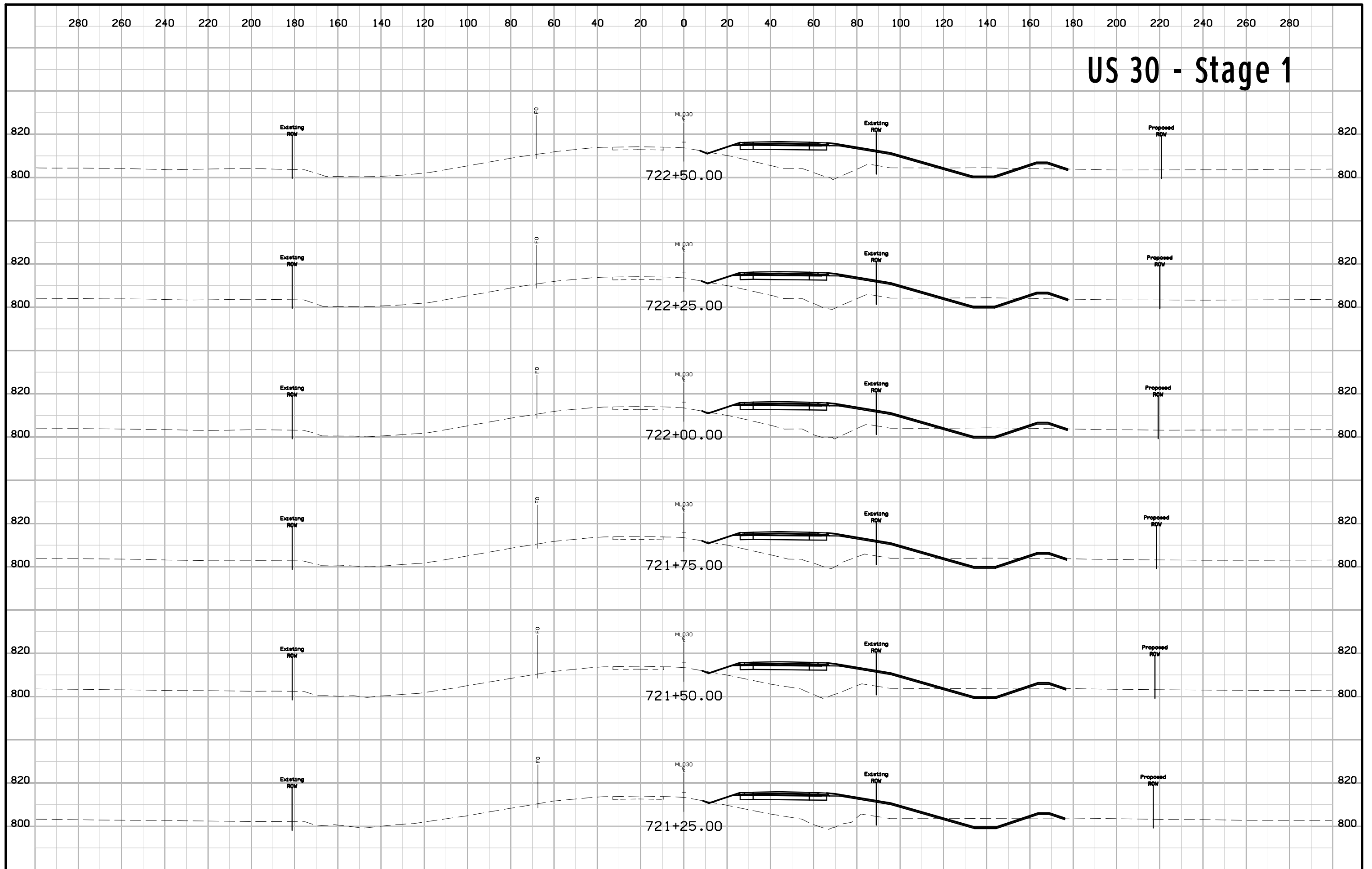
US 30 - Stage 1



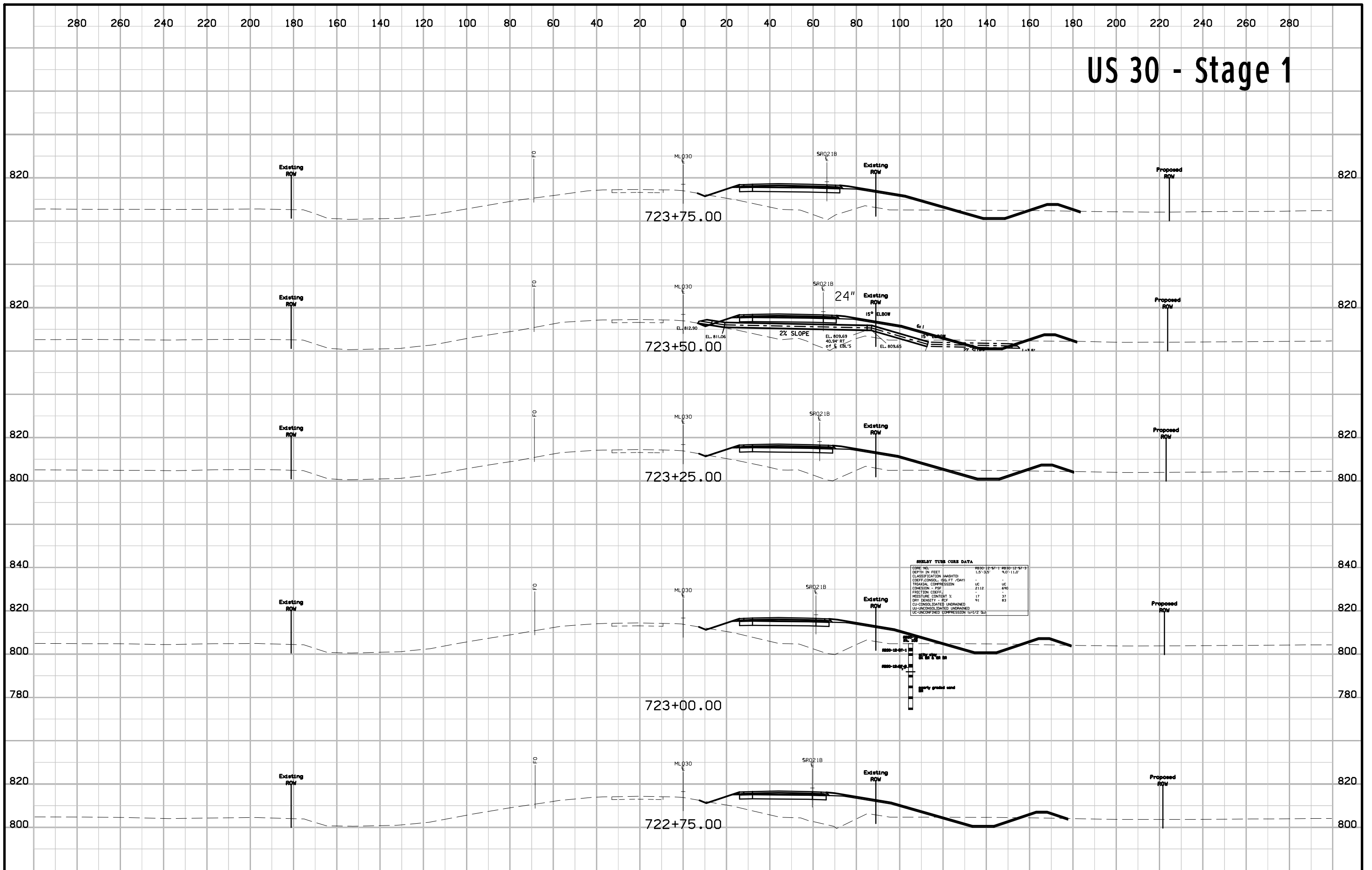
US 30 - Stage 1



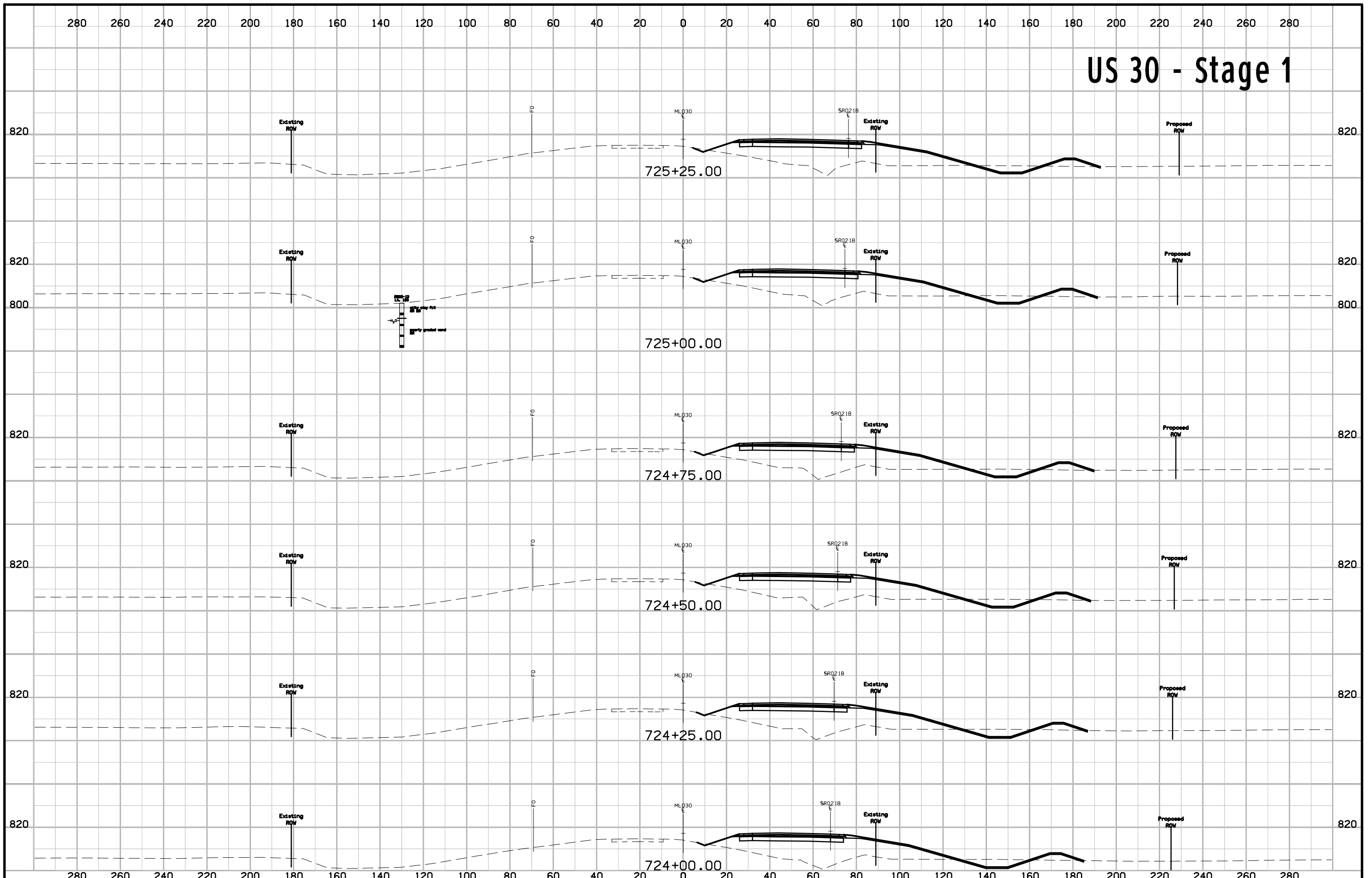
US 30 - Stage 1



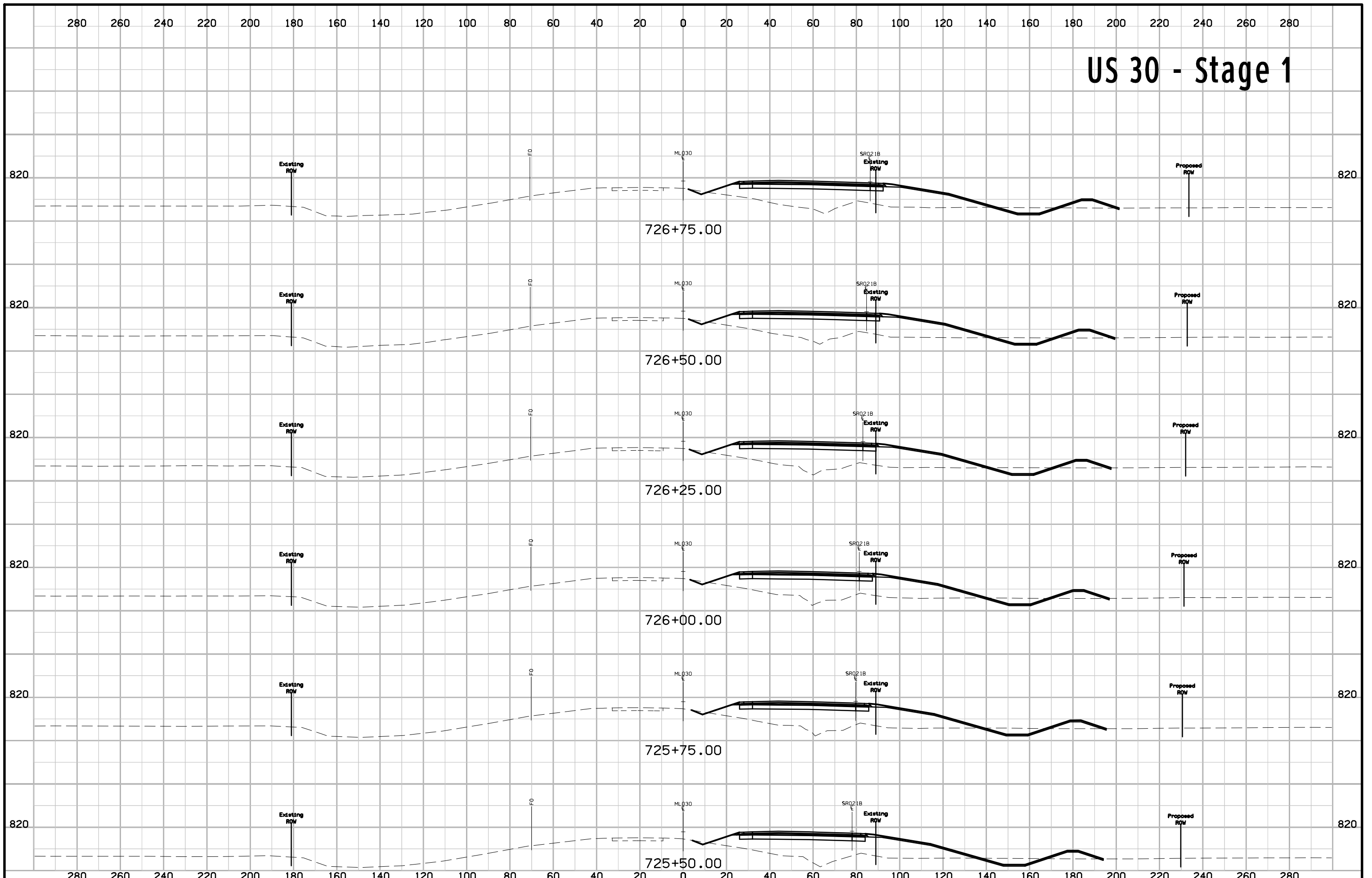
US 30 - Stage 1



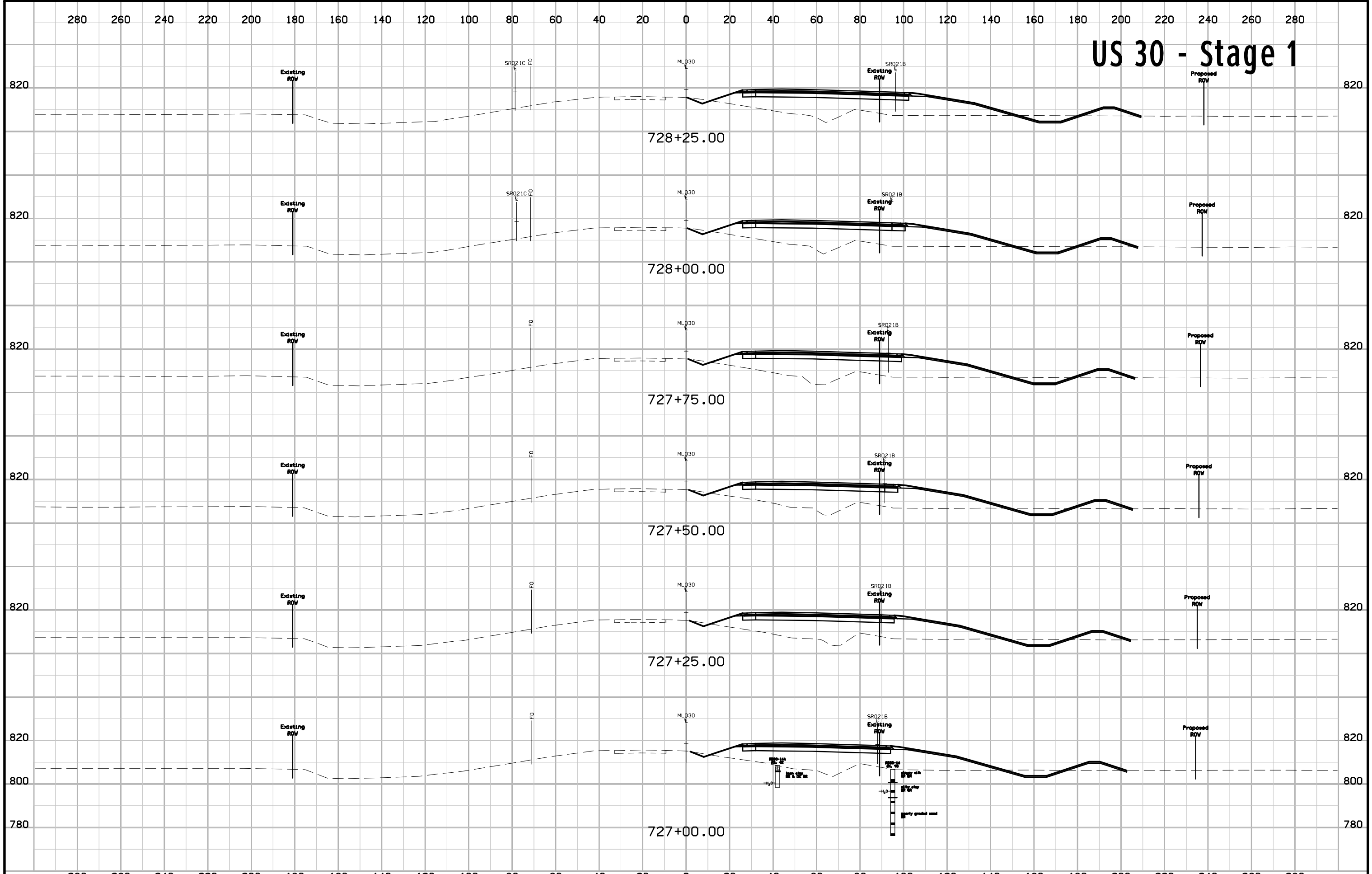
US 30 - Stage 1



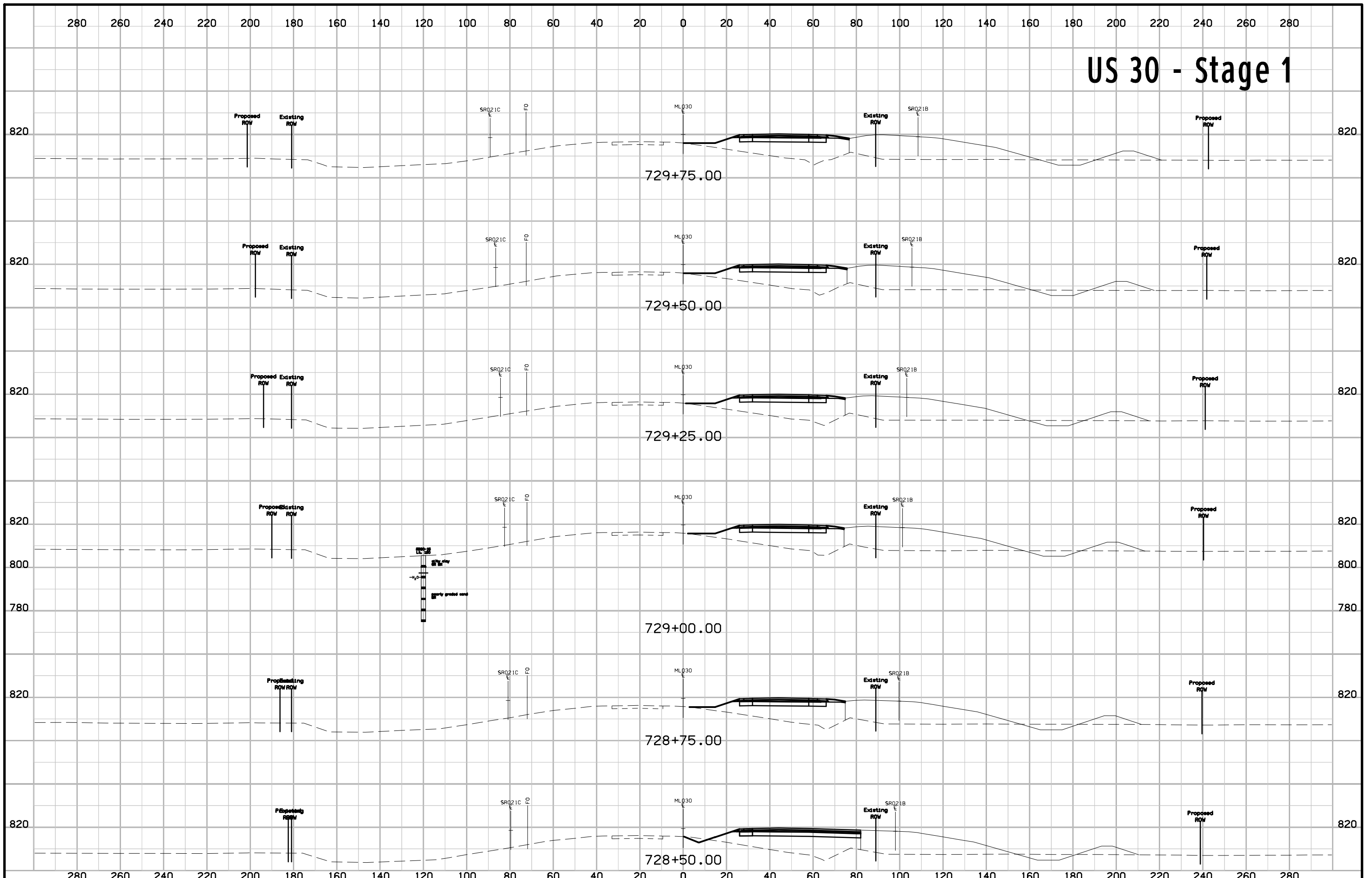
US 30 - Stage 1



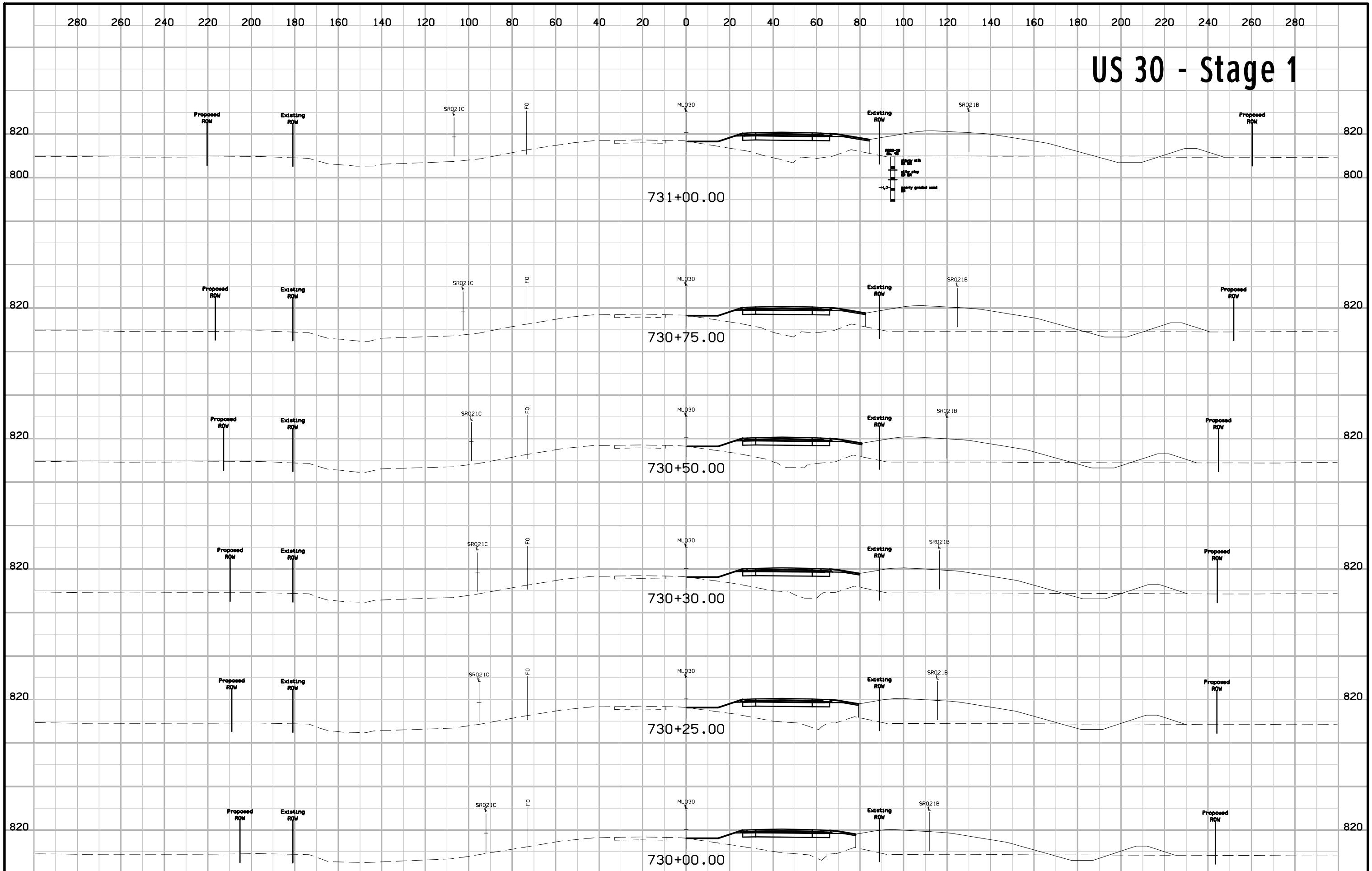
US 30 - Stage 1



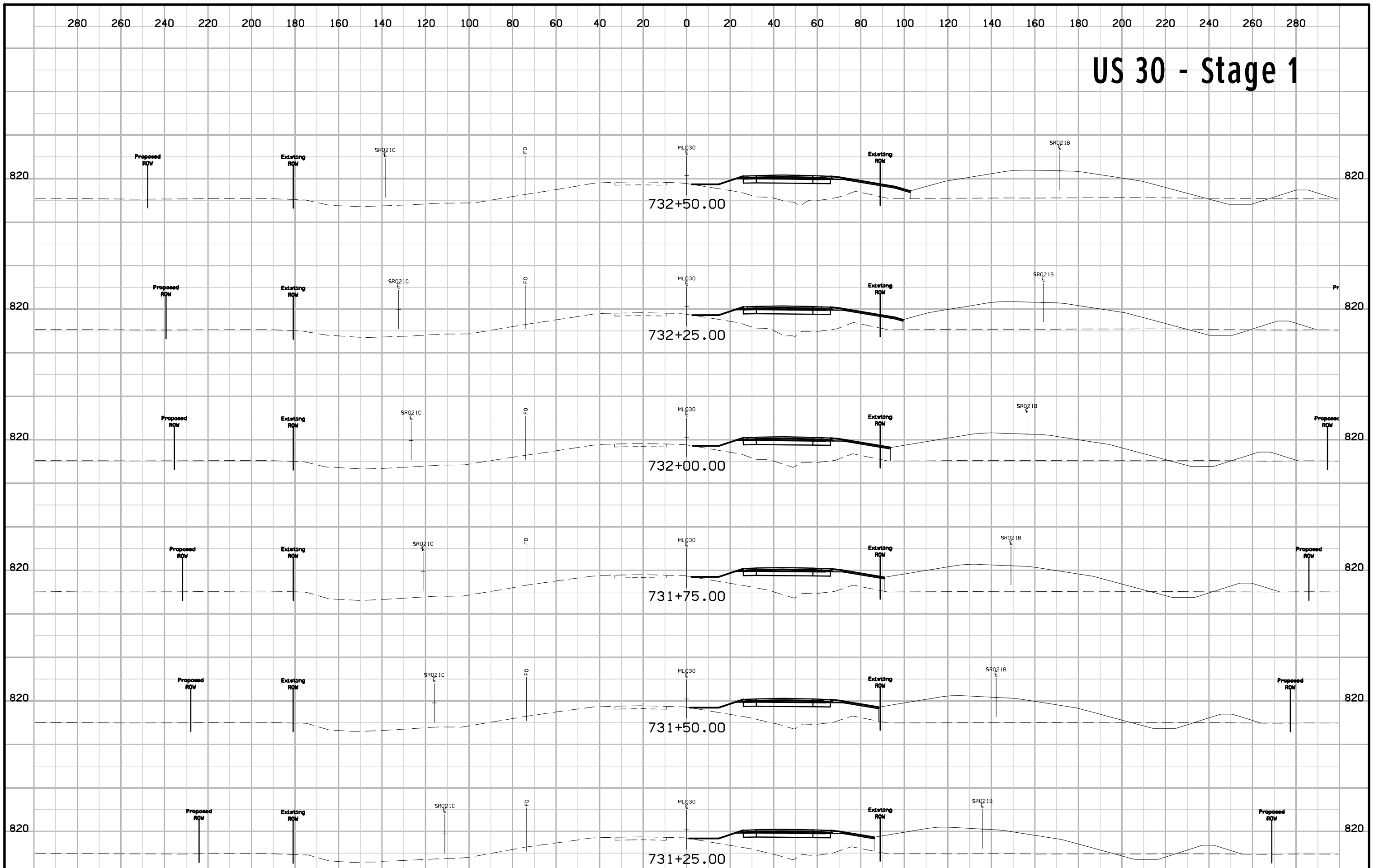
US 30 - Stage 1



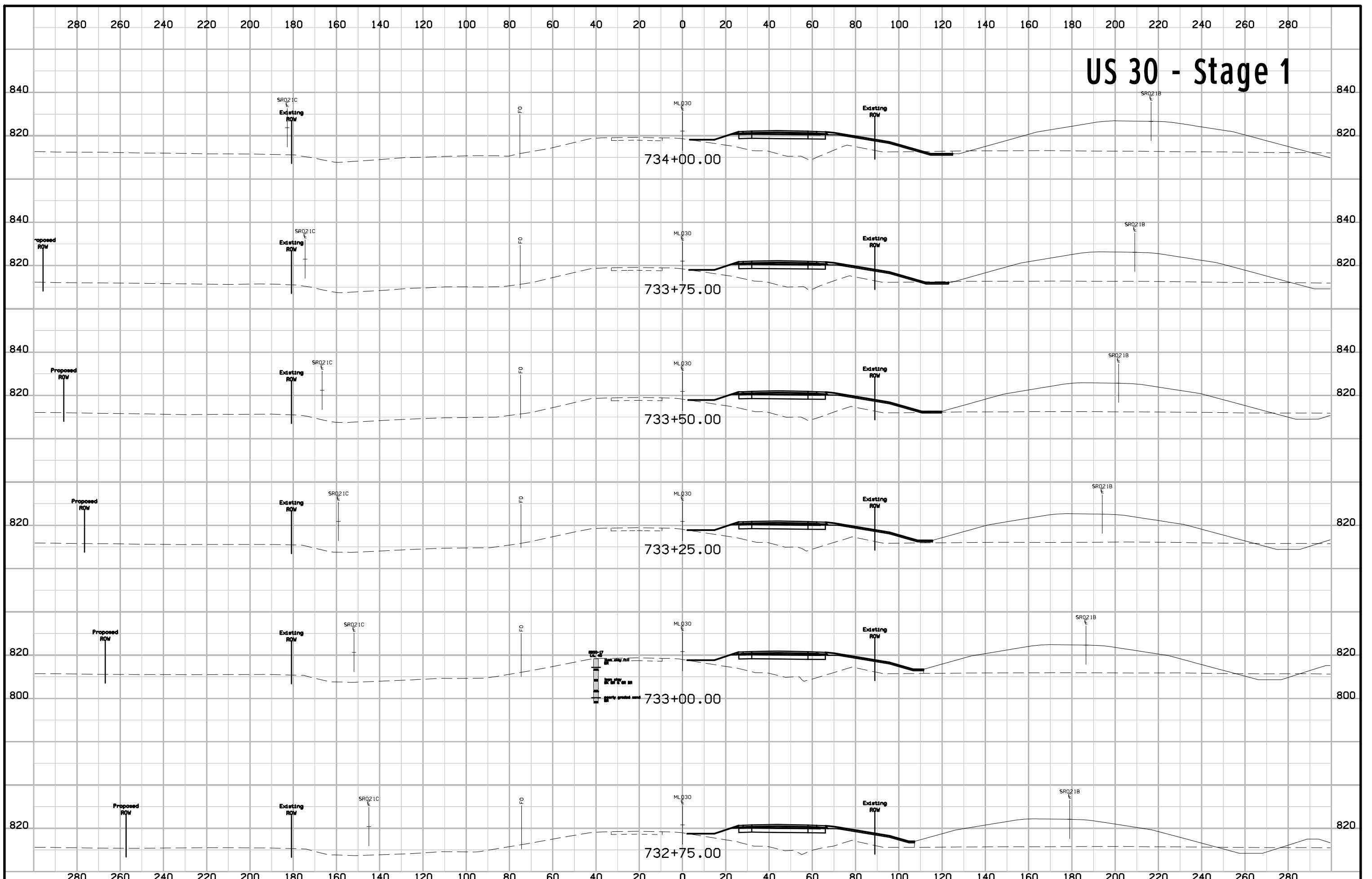
US 30 - Stage 1



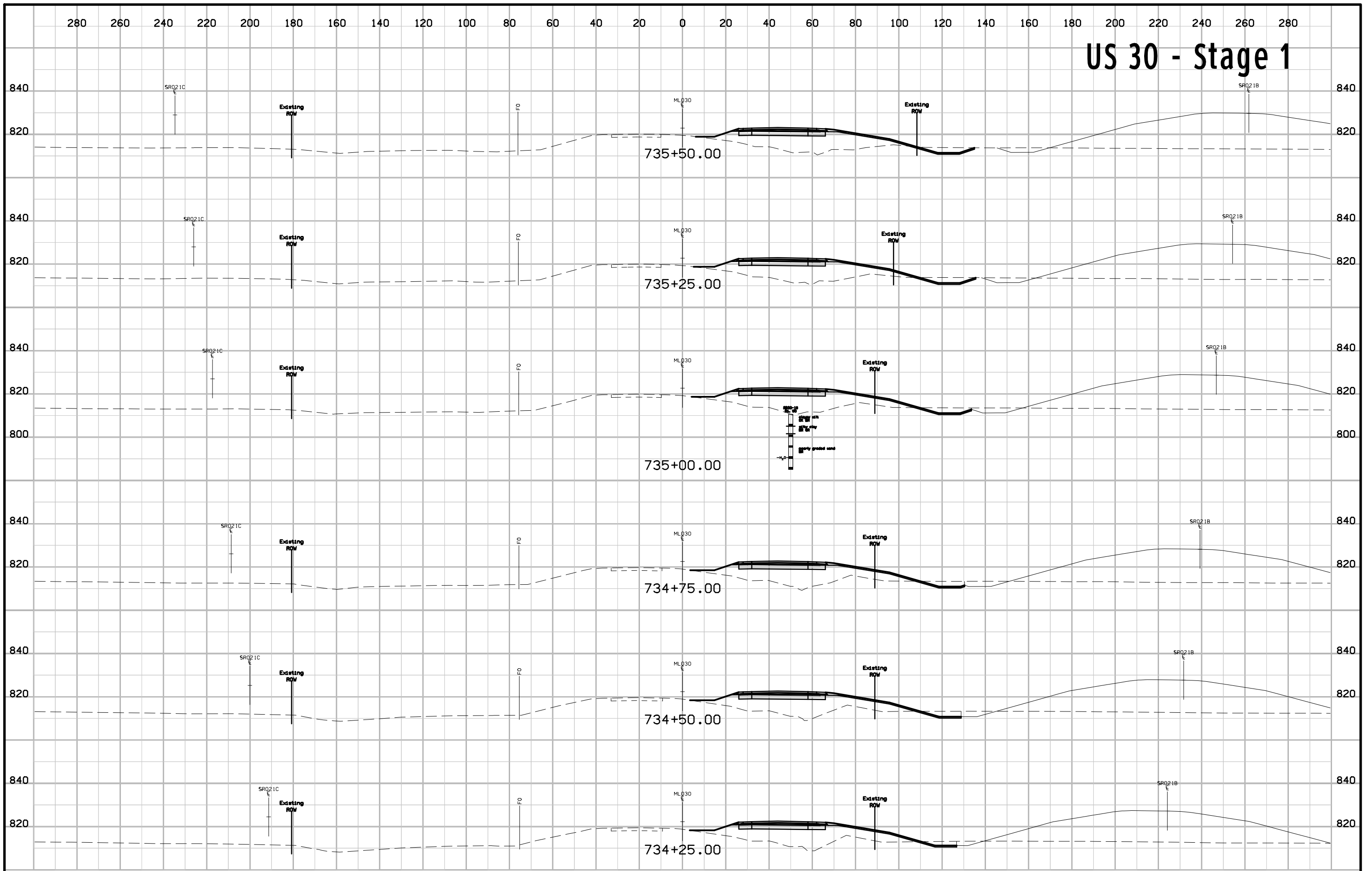
US 30 - Stage 1



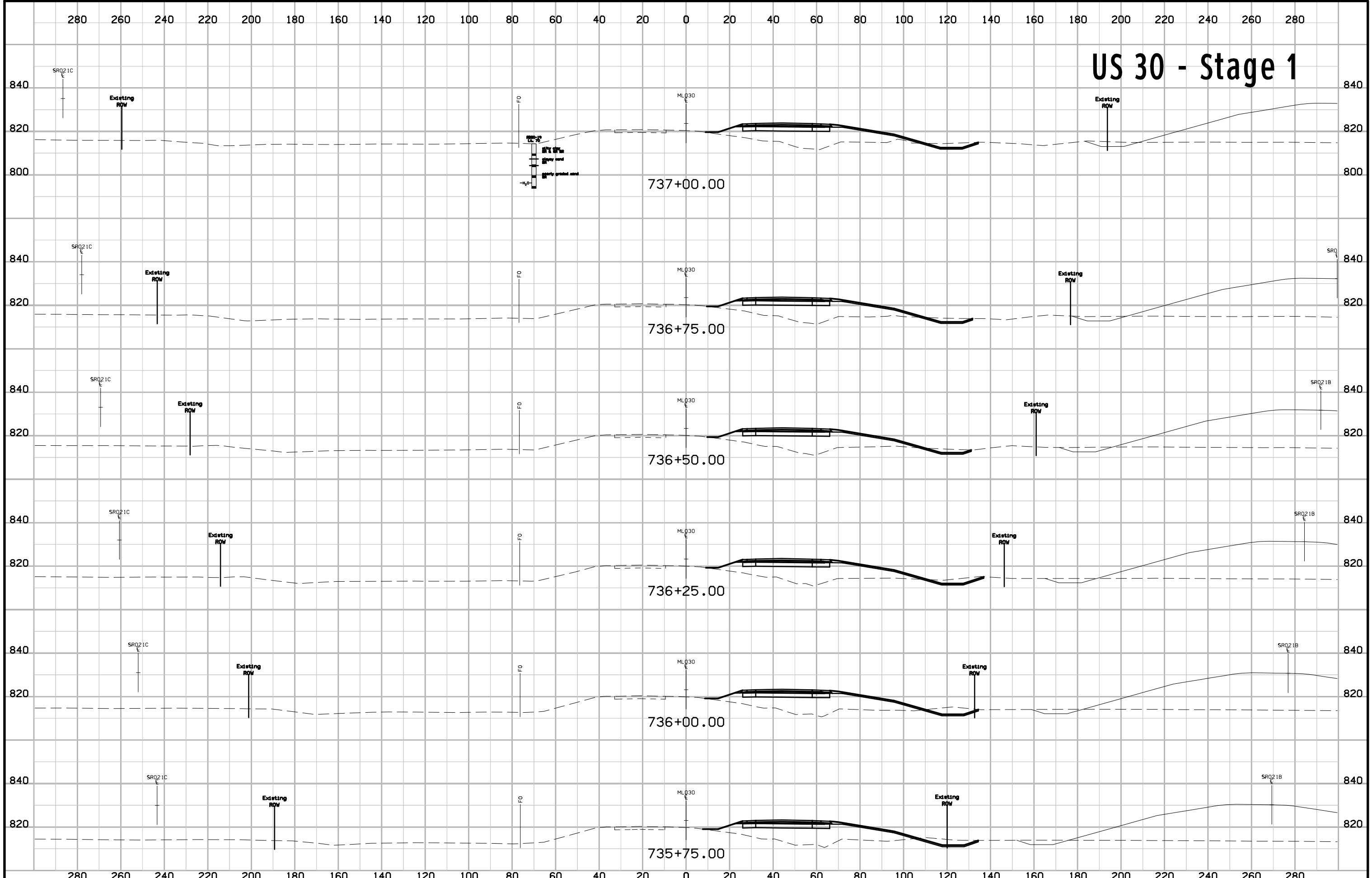
US 30 - Stage 1



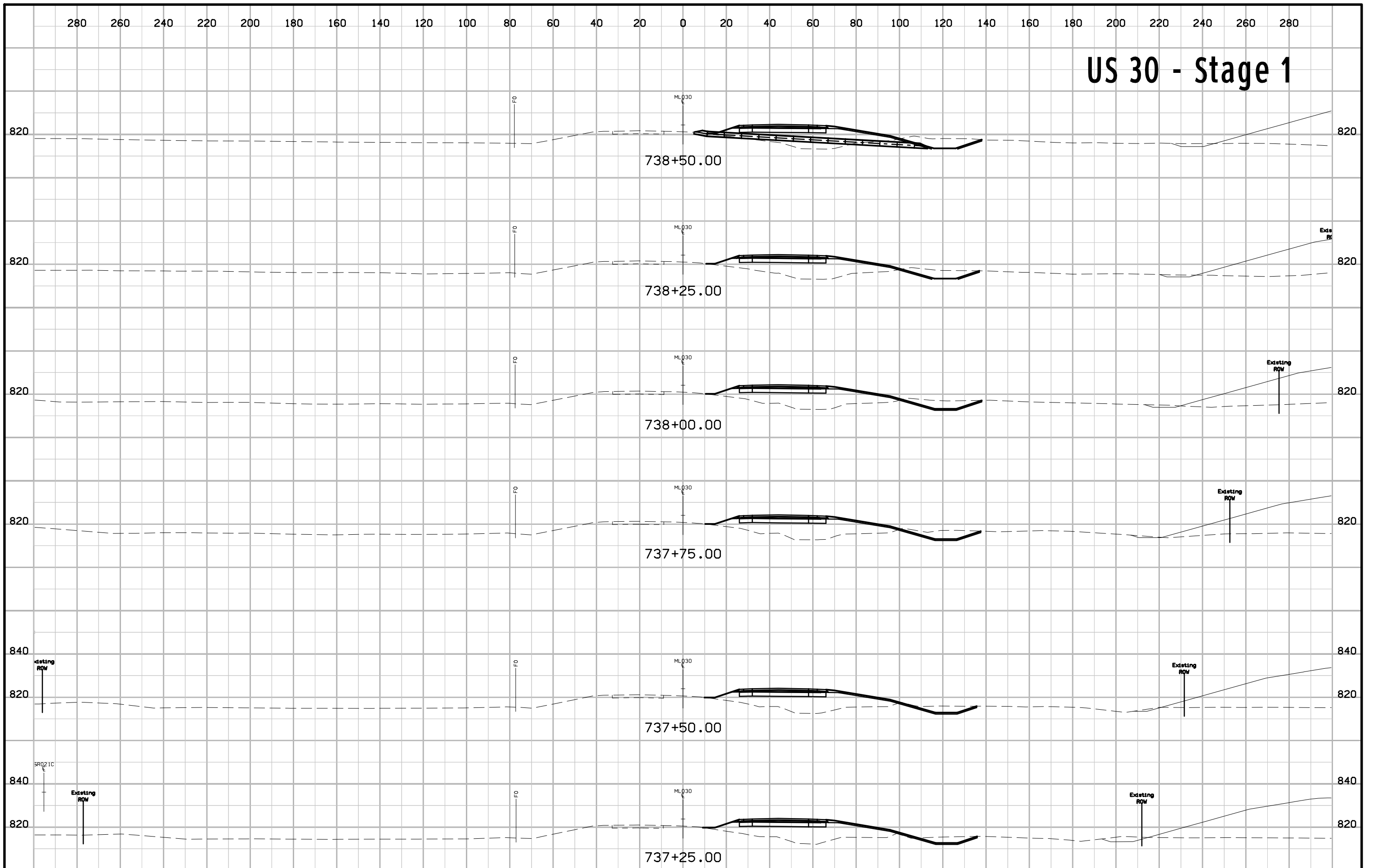
US 30 - Stage 1



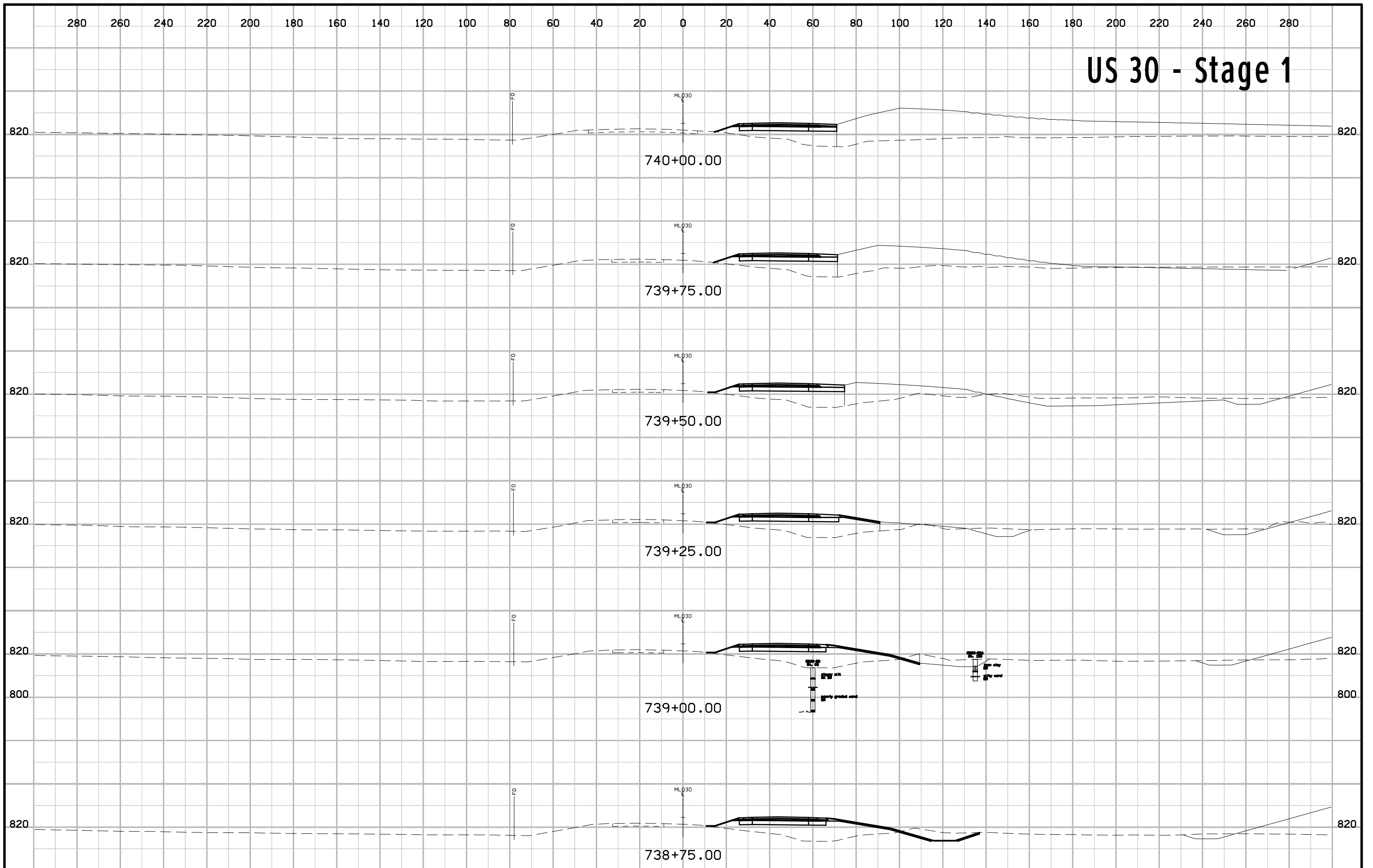
US 30 - Stage 1



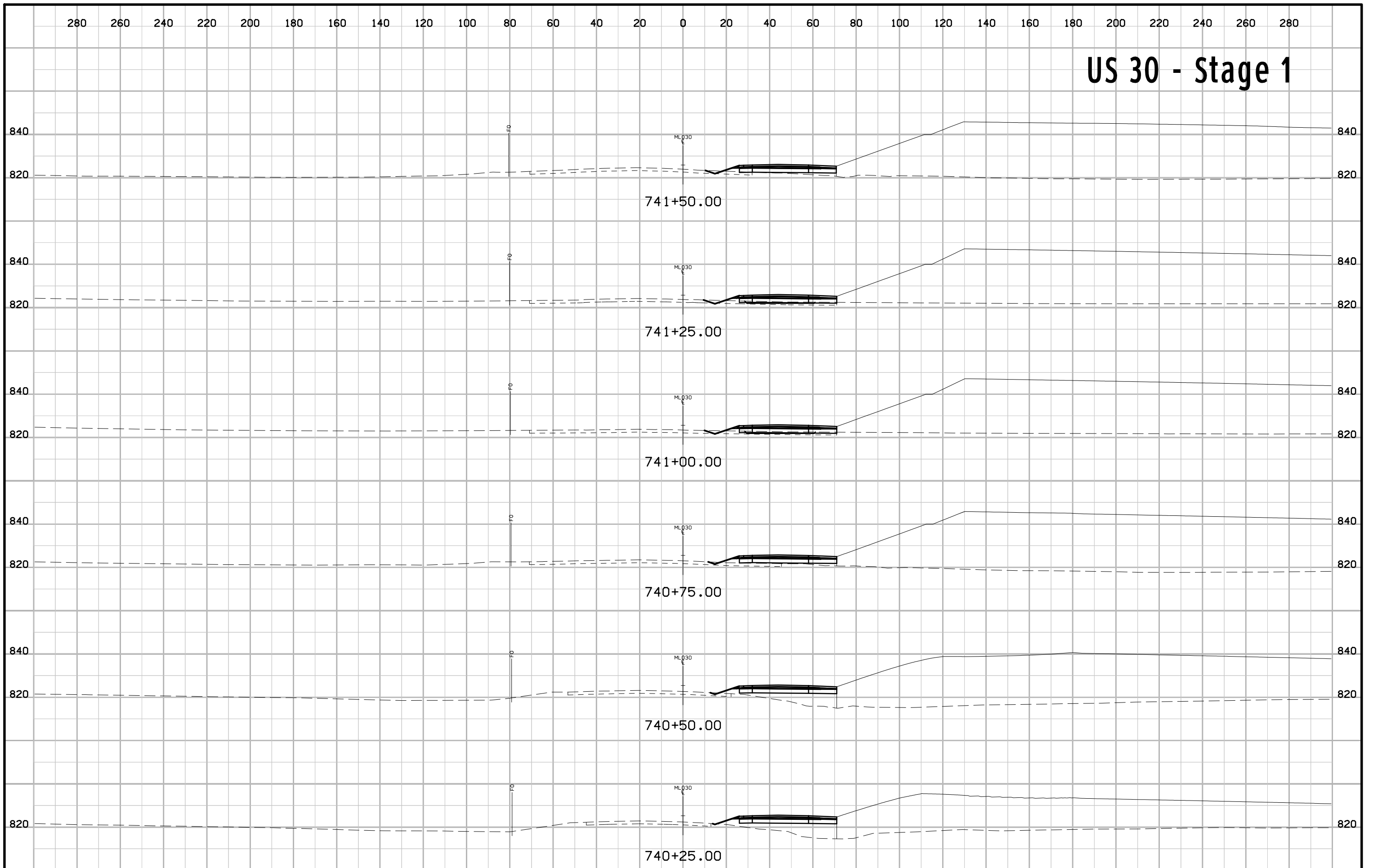
US 30 - Stage 1



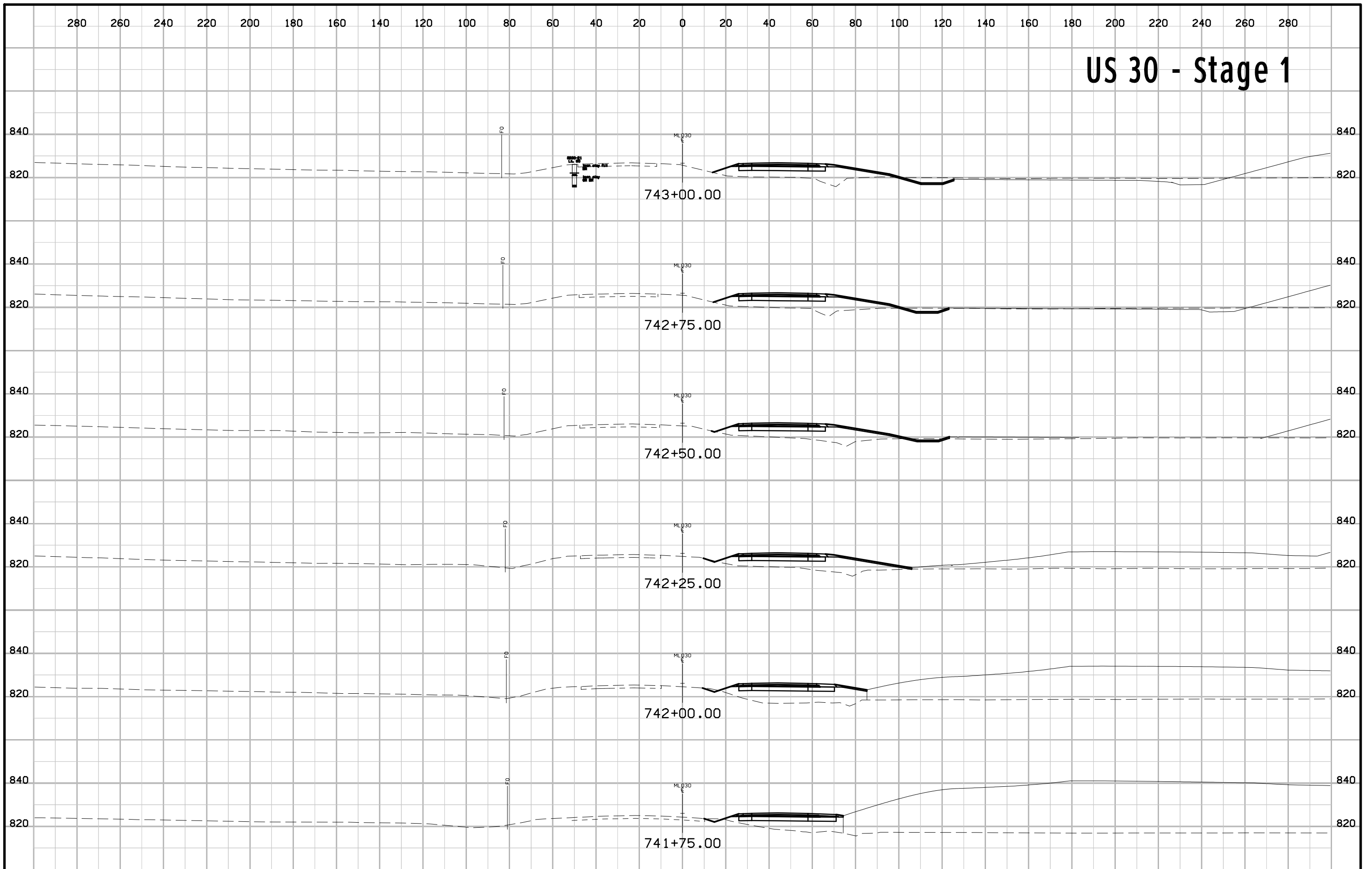
US 30 - Stage 1



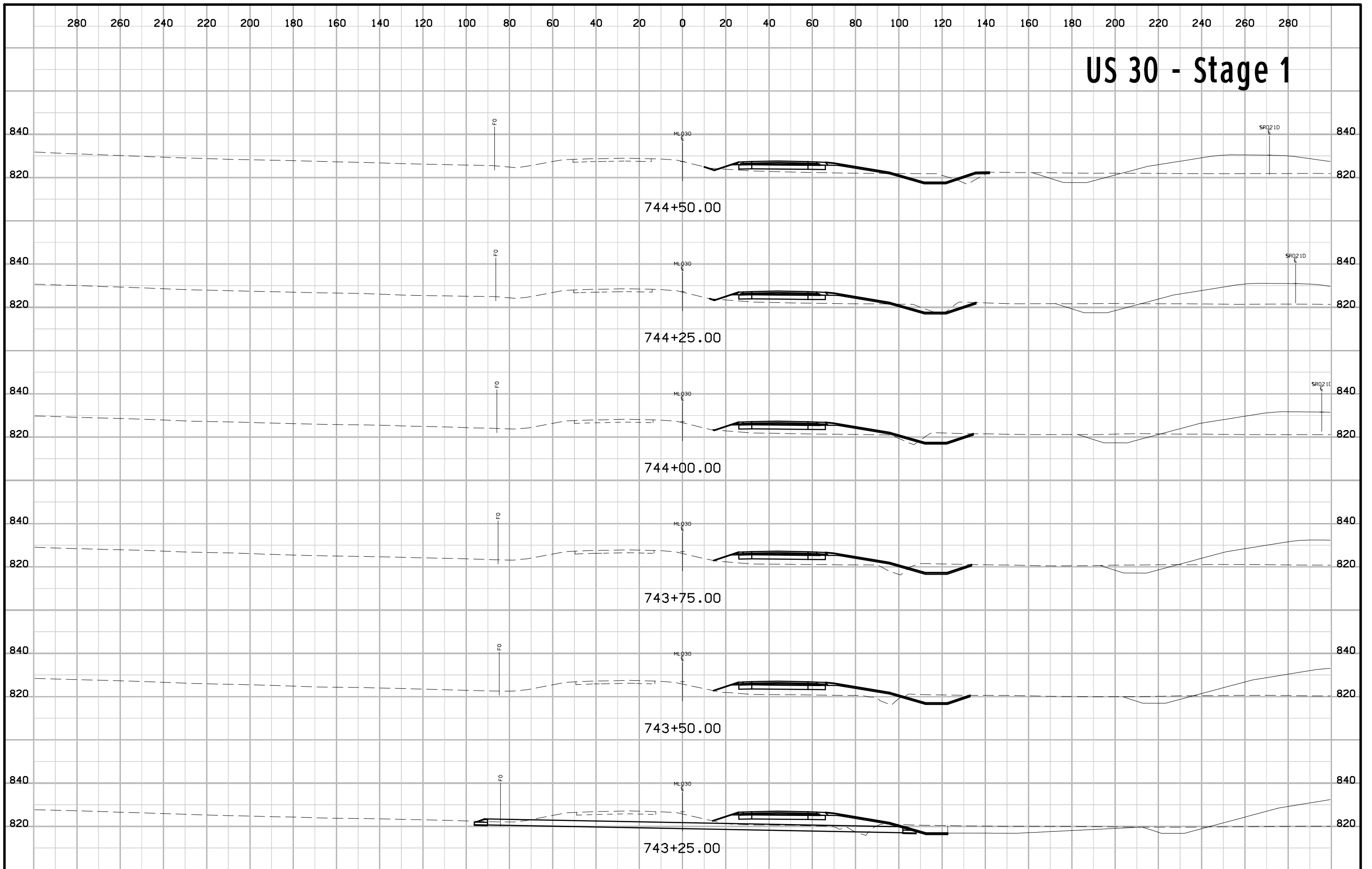
US 30 - Stage 1



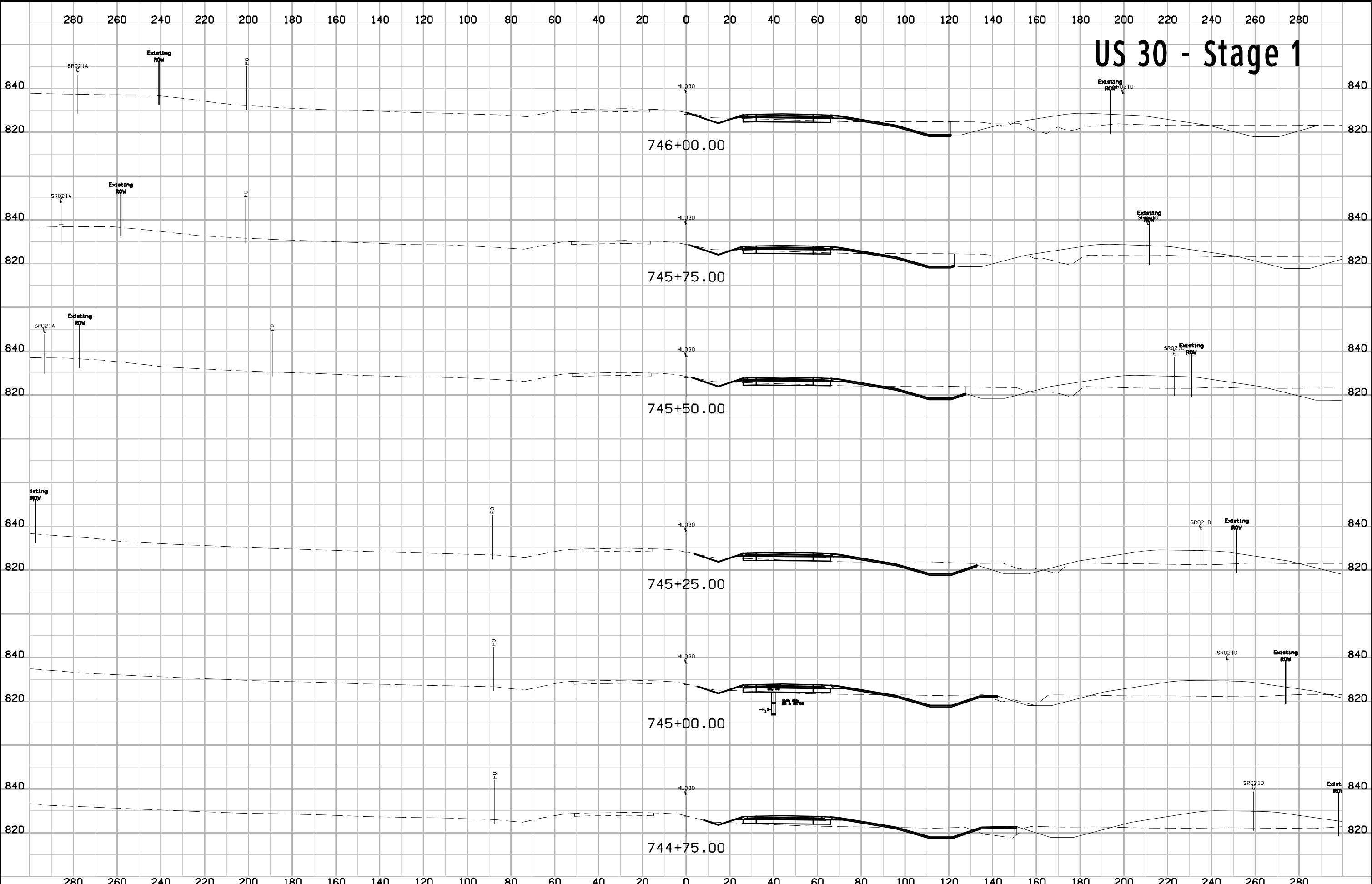
US 30 - Stage 1



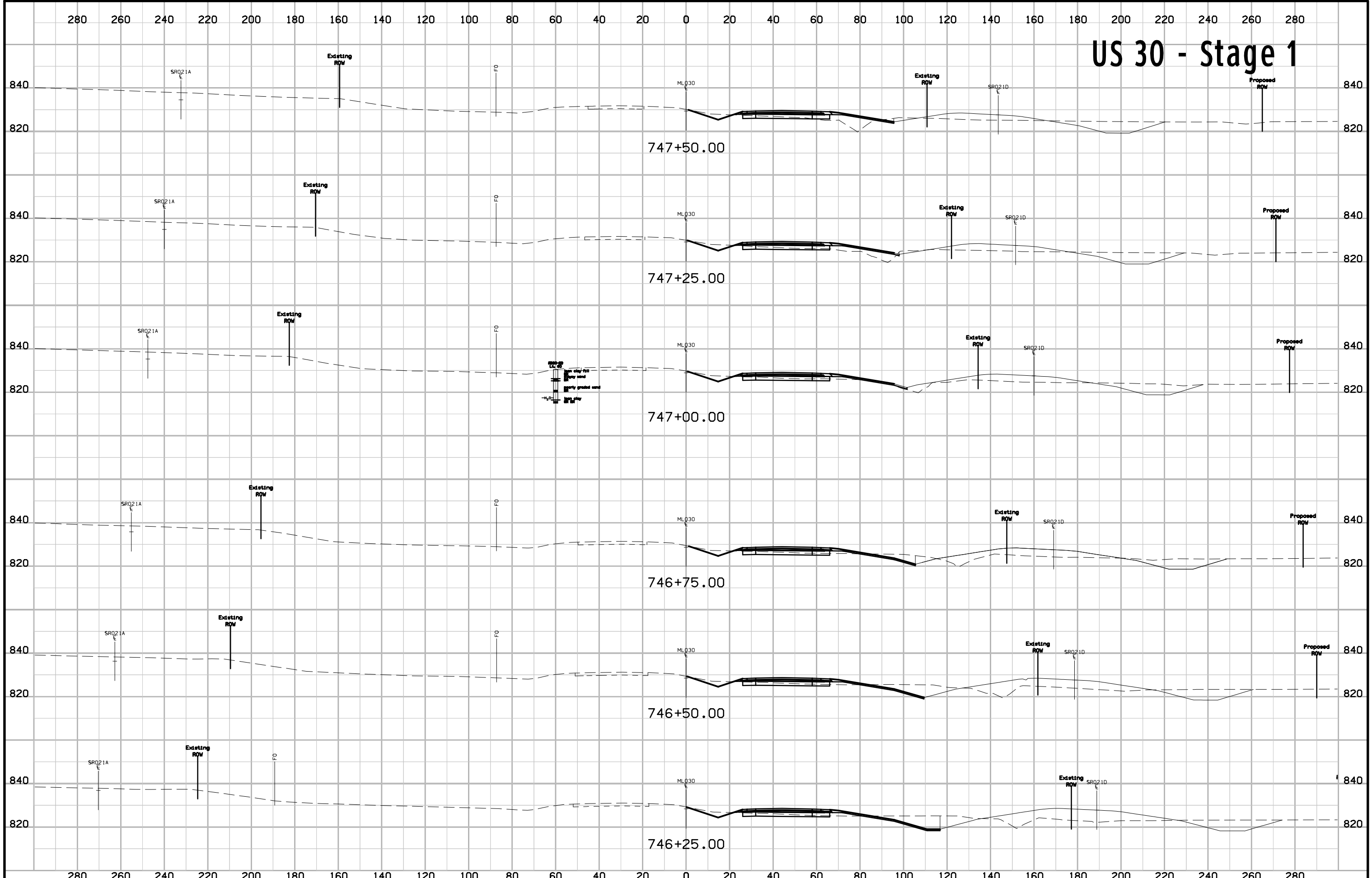
US 30 - Stage 1



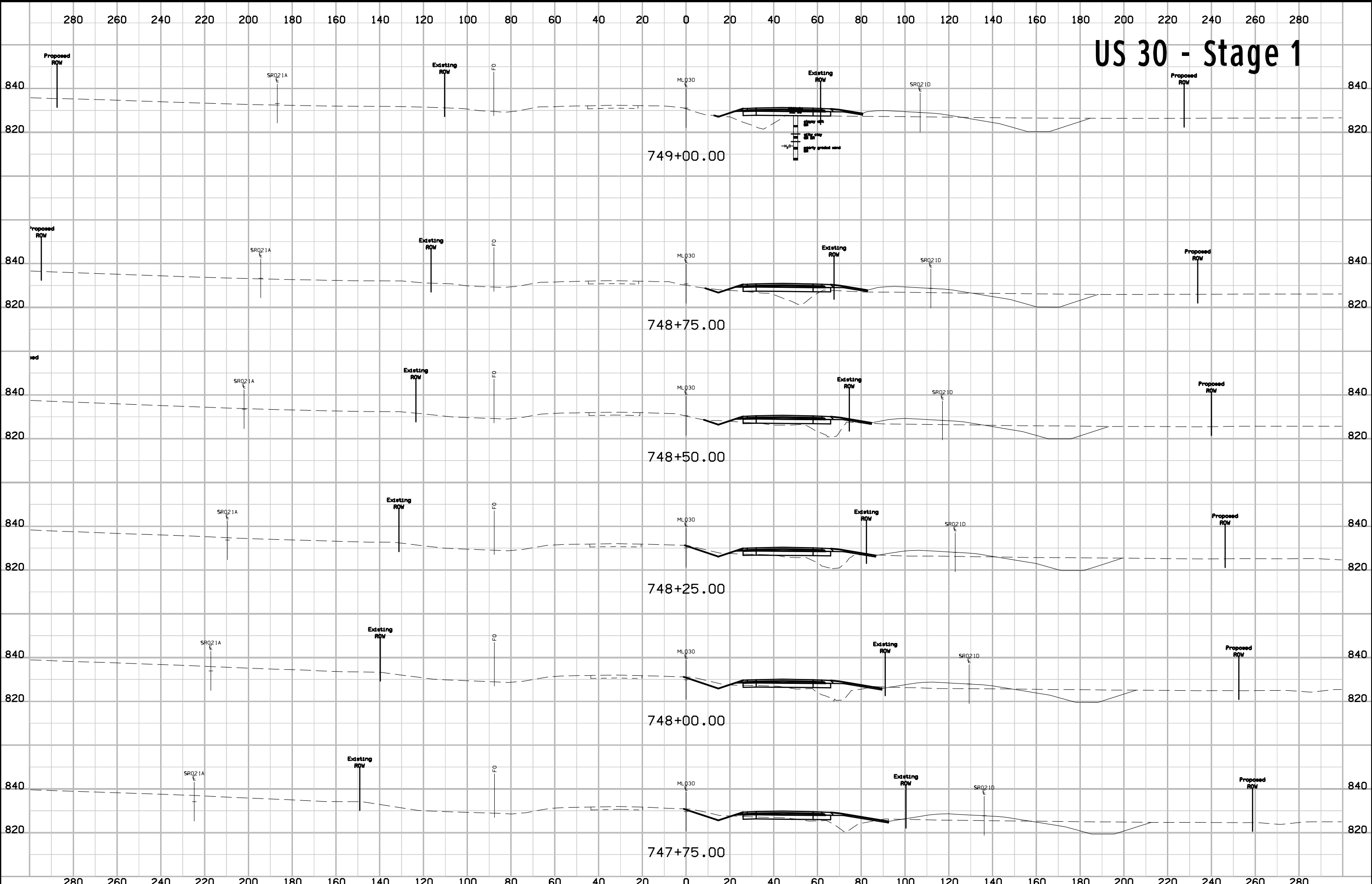
US 30 - Stage 1



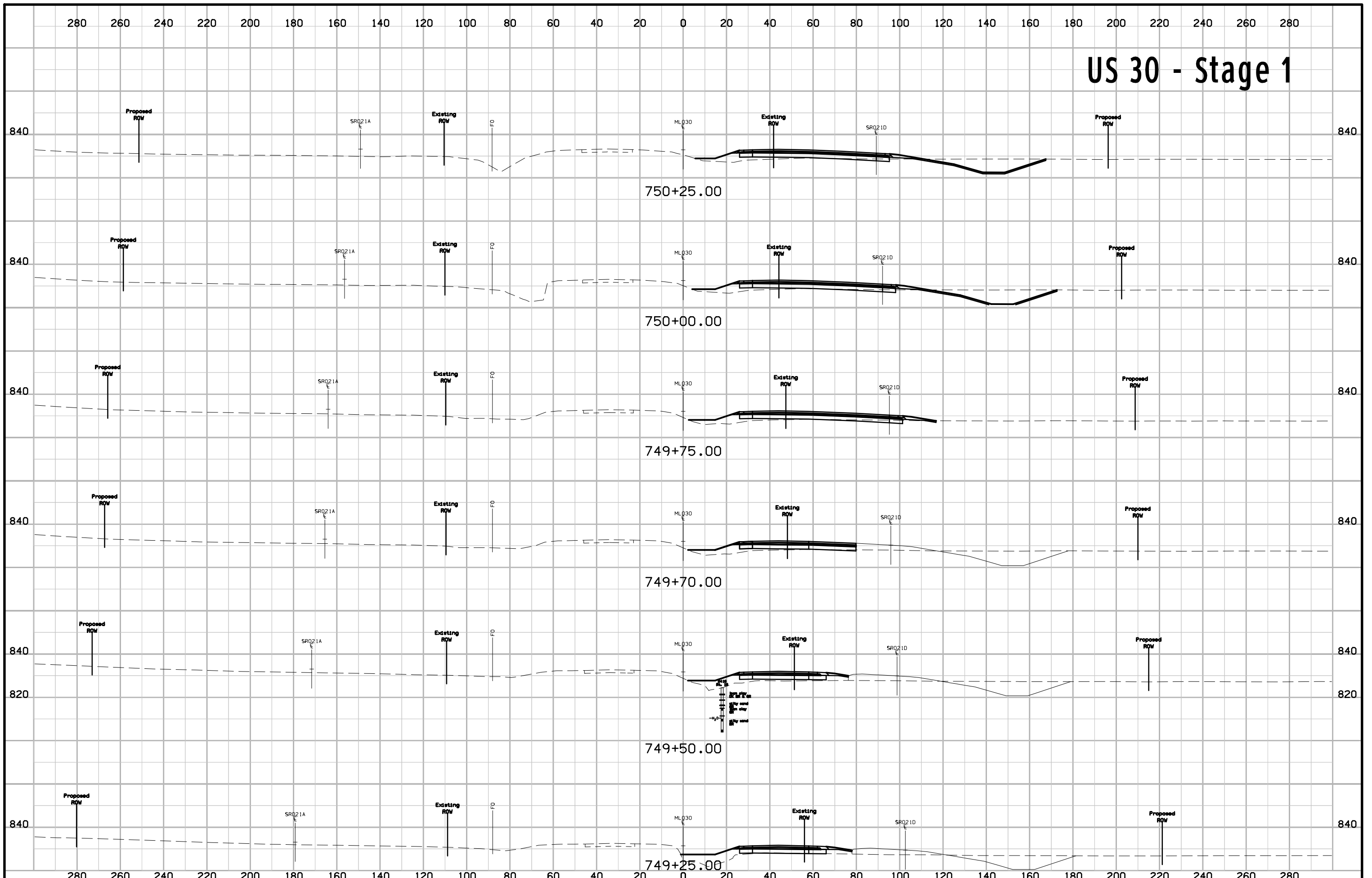
US 30 - Stage 1



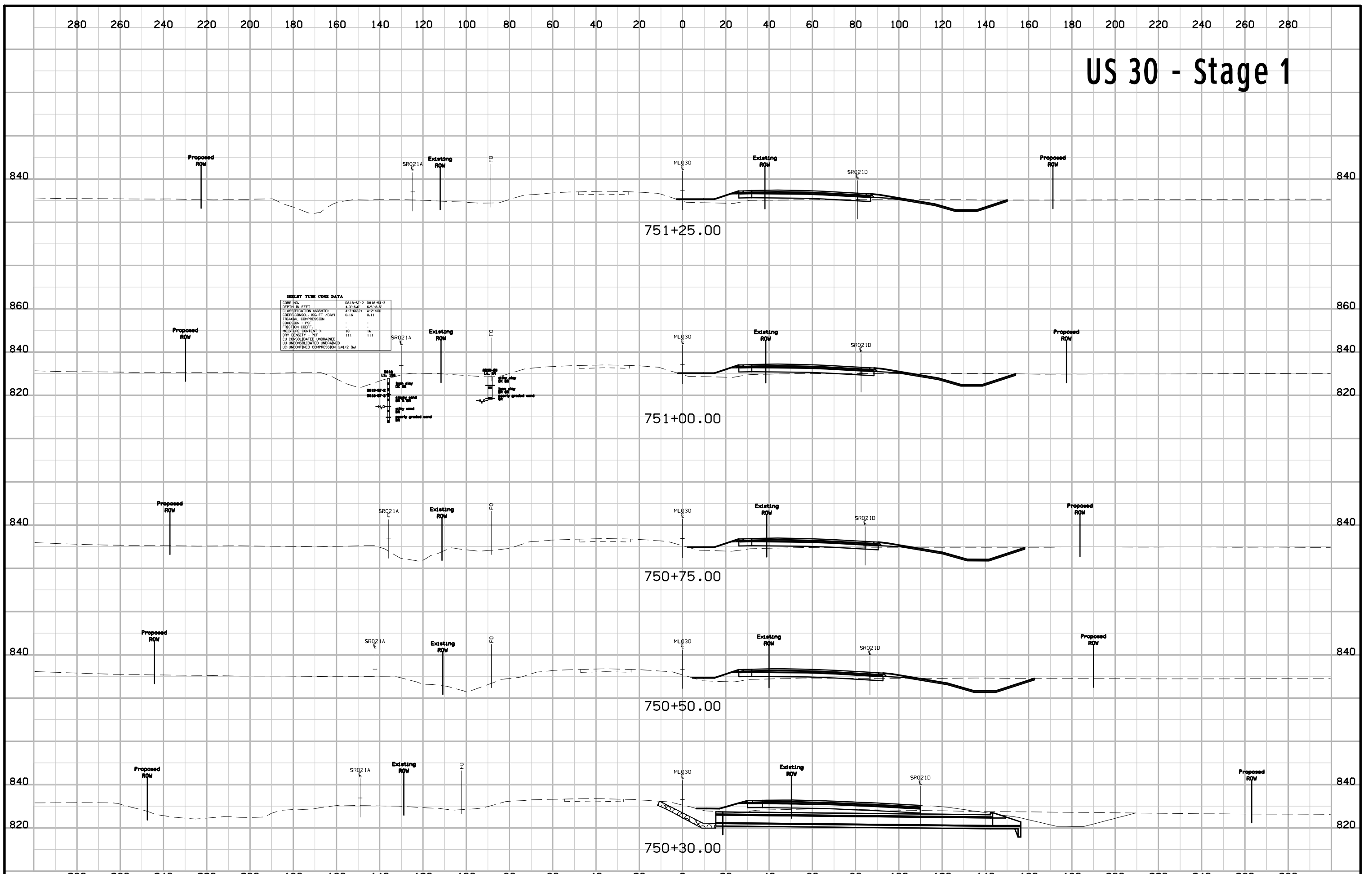
US 30 - Stage 1



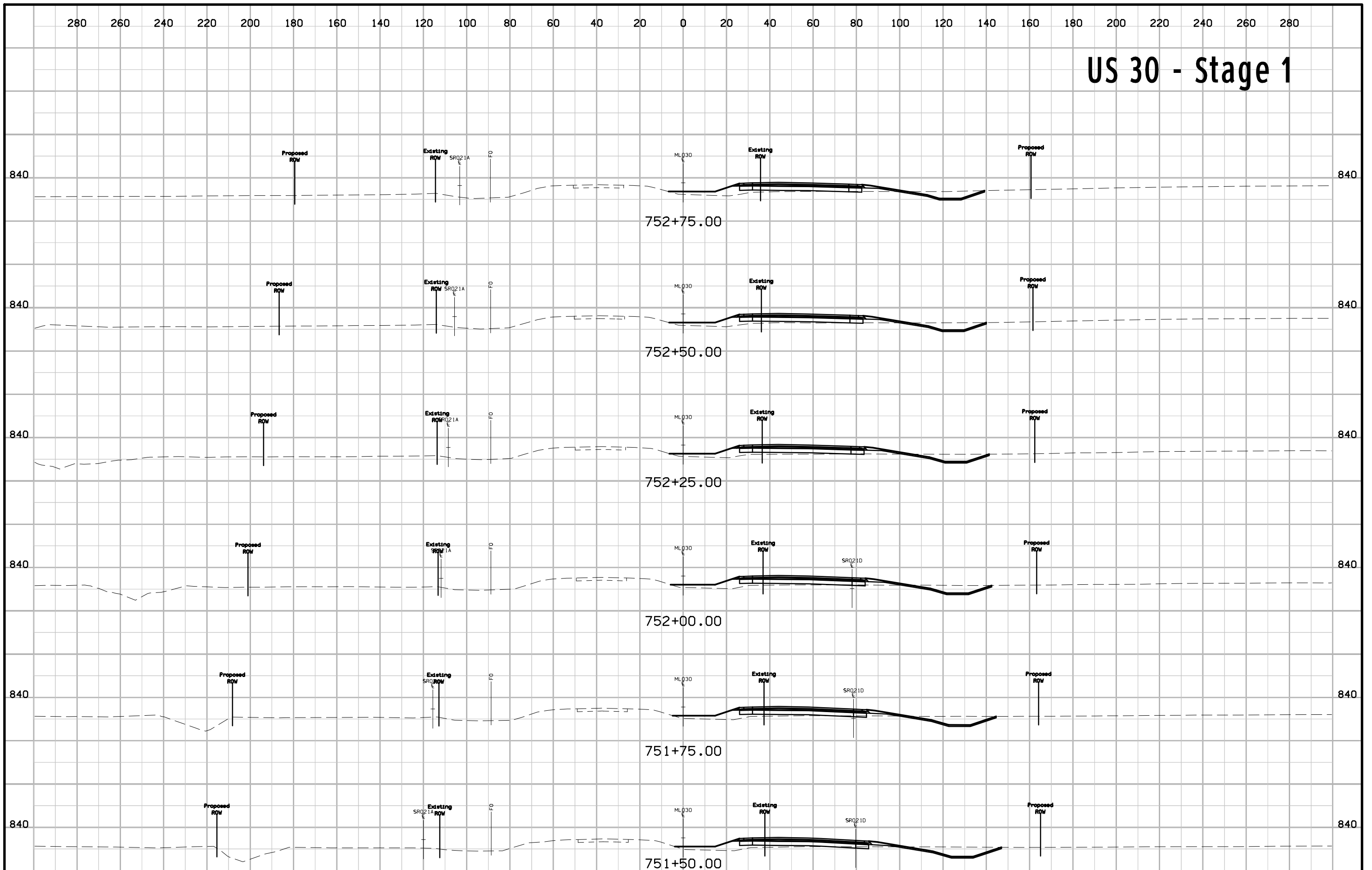
US 30 - Stage 1



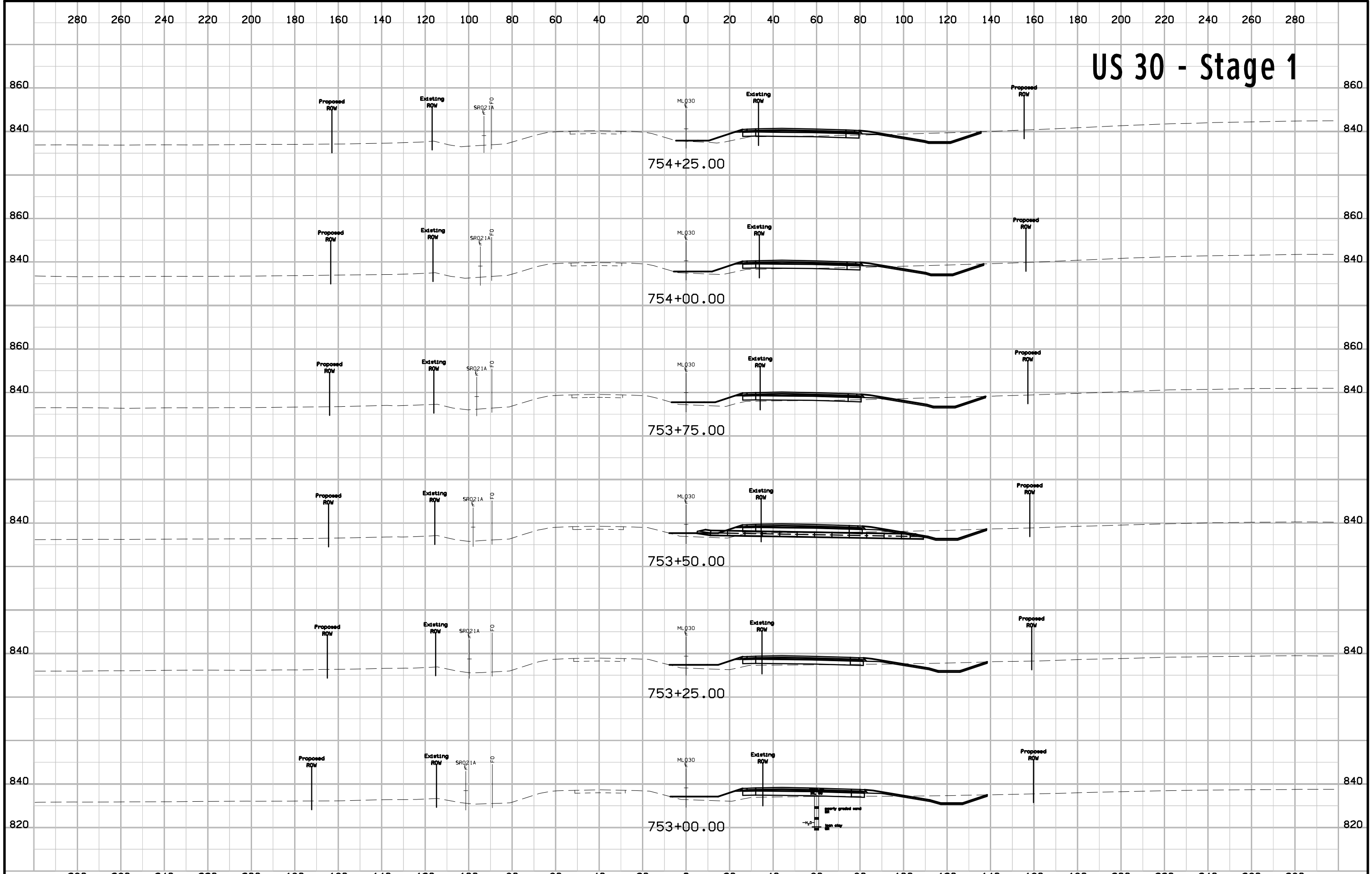
US 30 - Stage 1



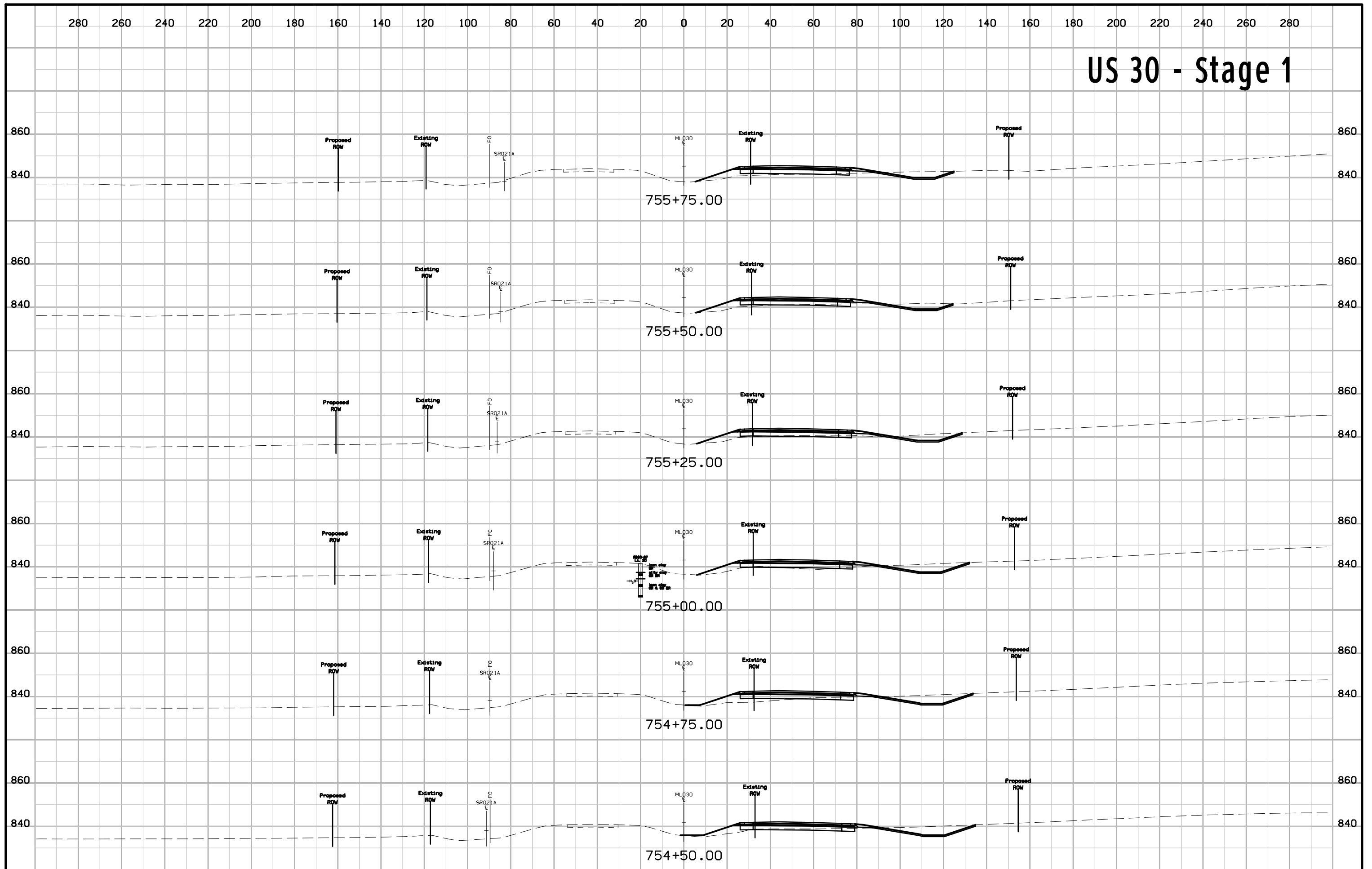
US 30 - Stage 1



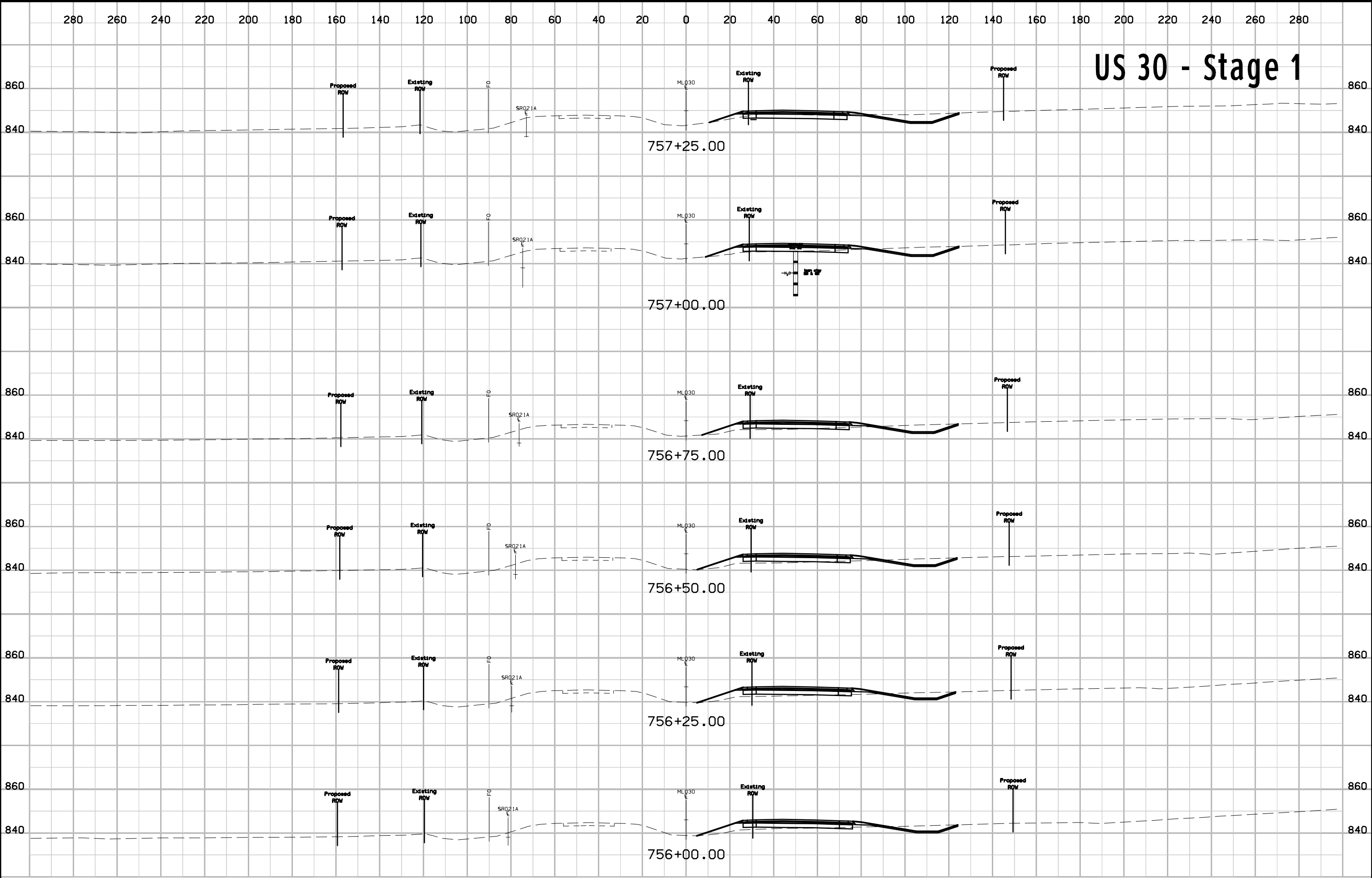
US 30 - Stage 1



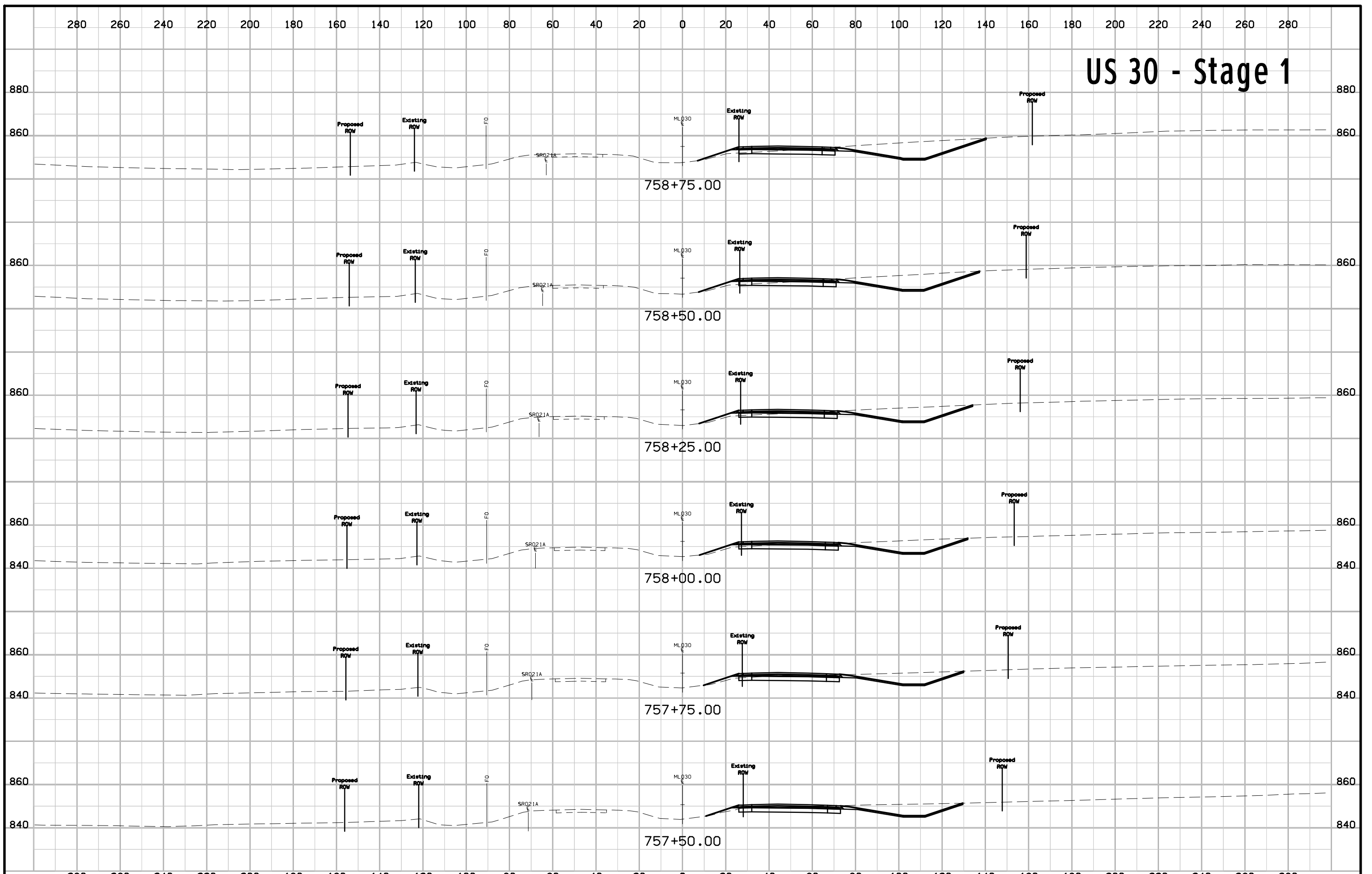
US 30 - Stage 1



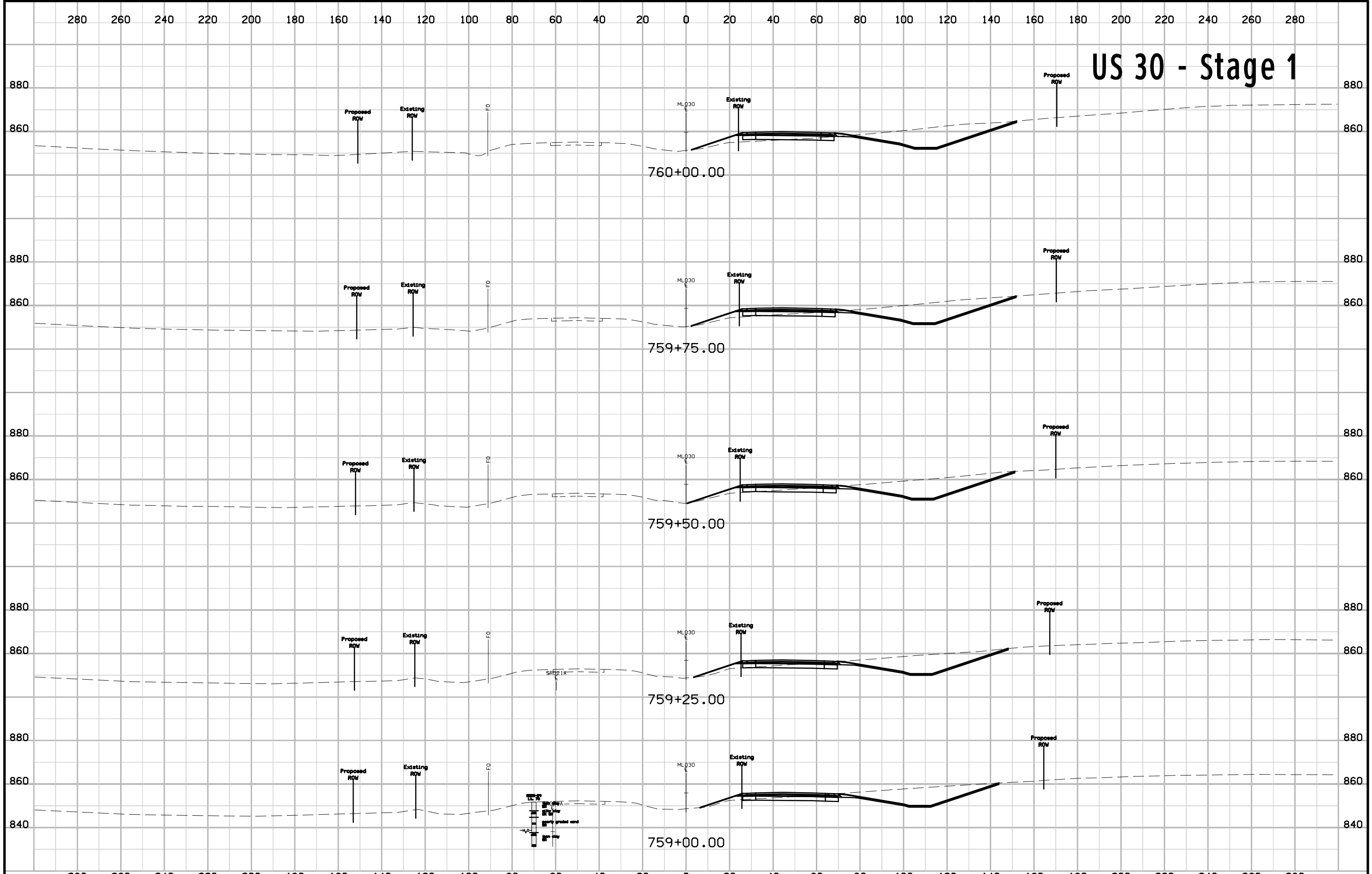
US 30 - Stage 1



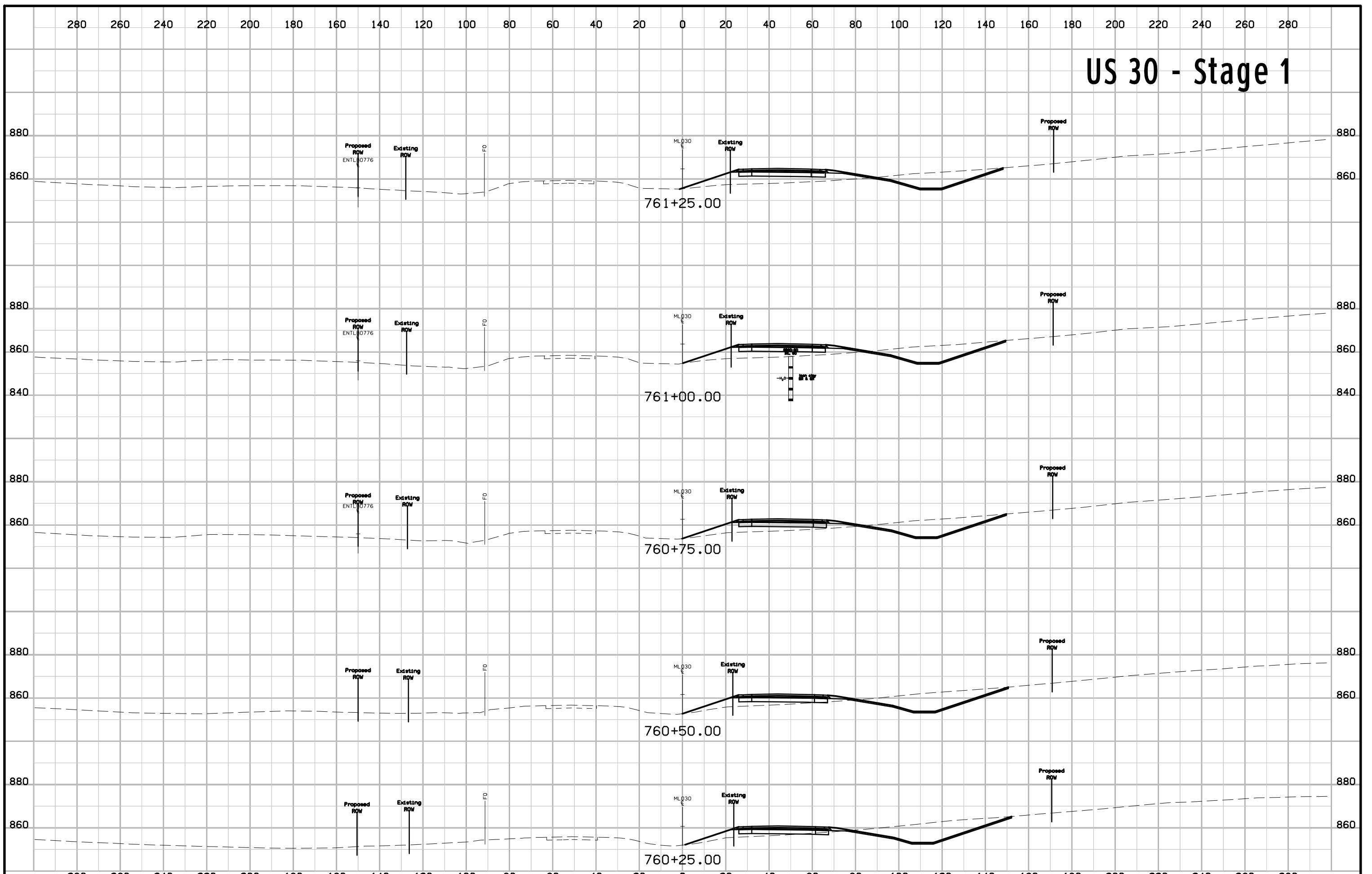
US 30 - Stage 1



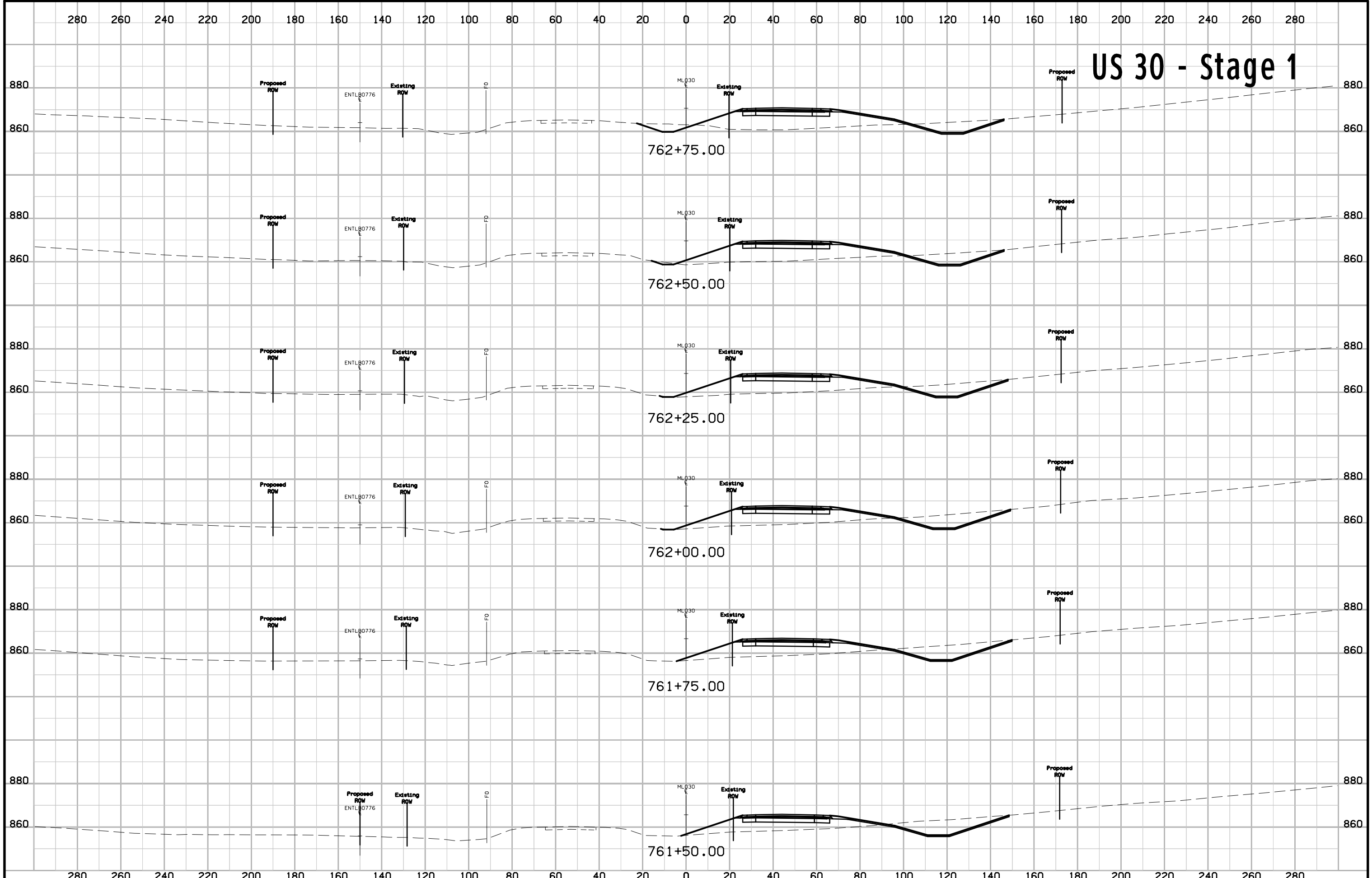
US 30 - Stage 1



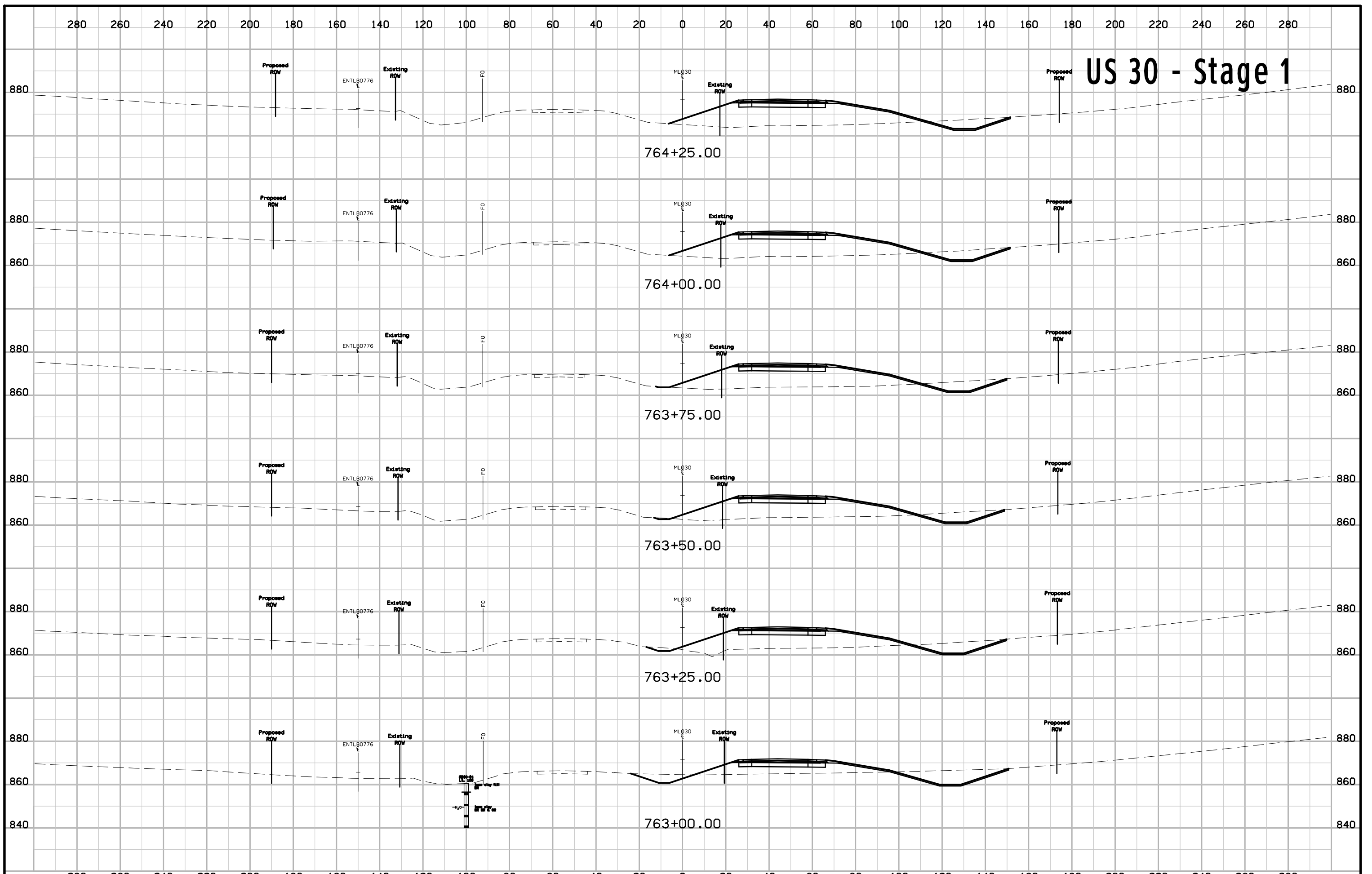
US 30 - Stage 1



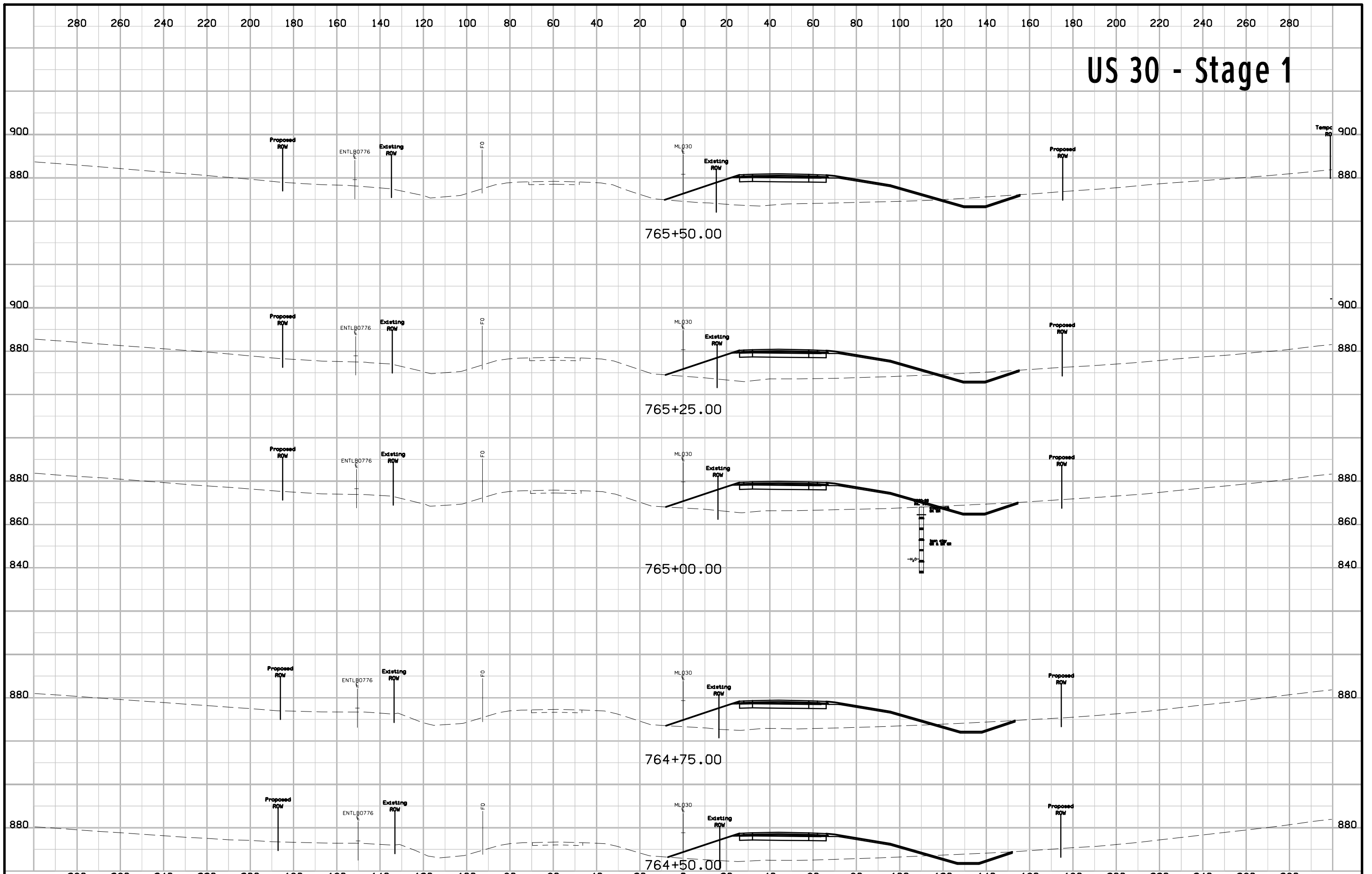
US 30 - Stage 1



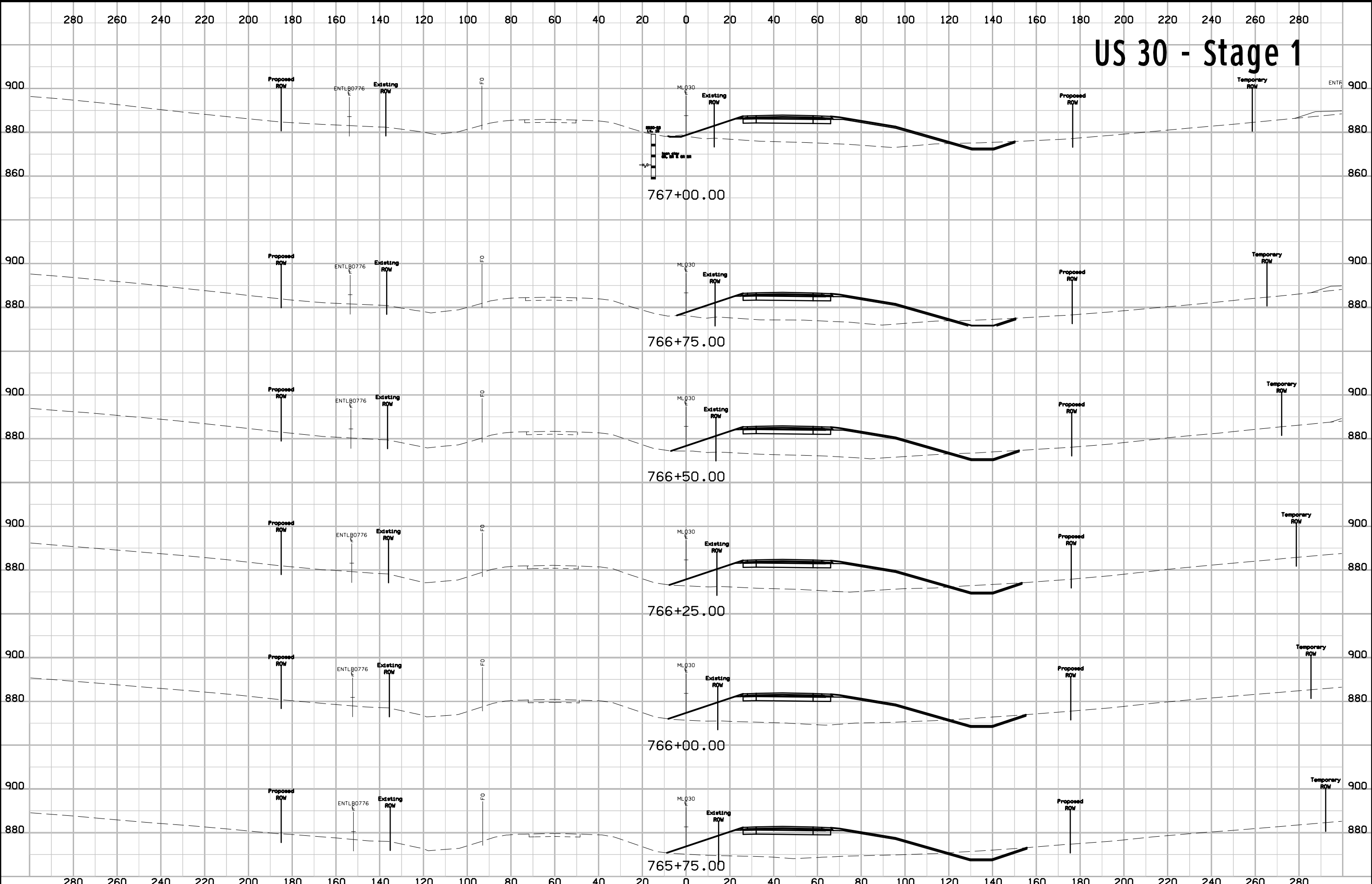
US 30 - Stage 1



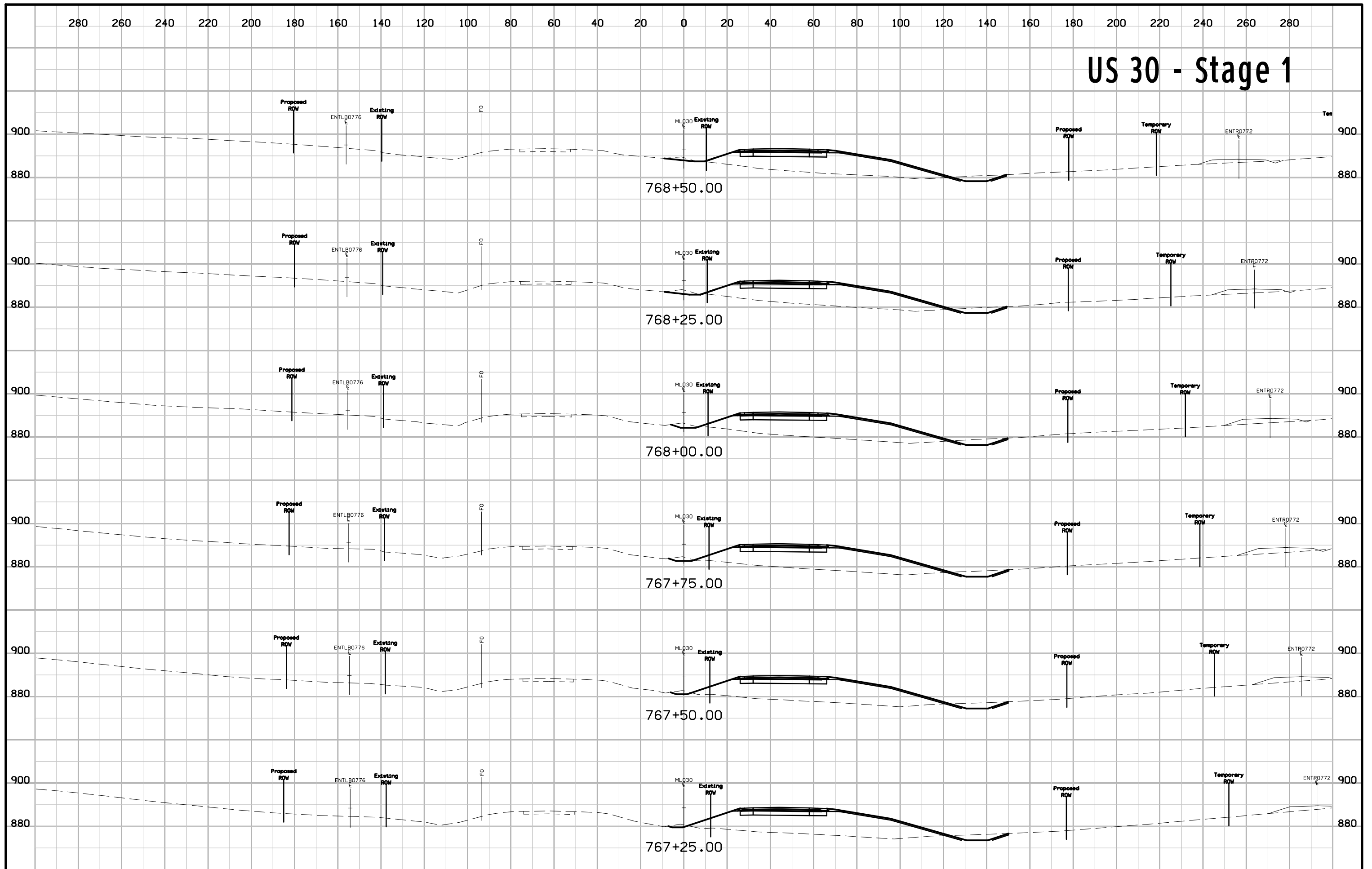
US 30 - Stage 1



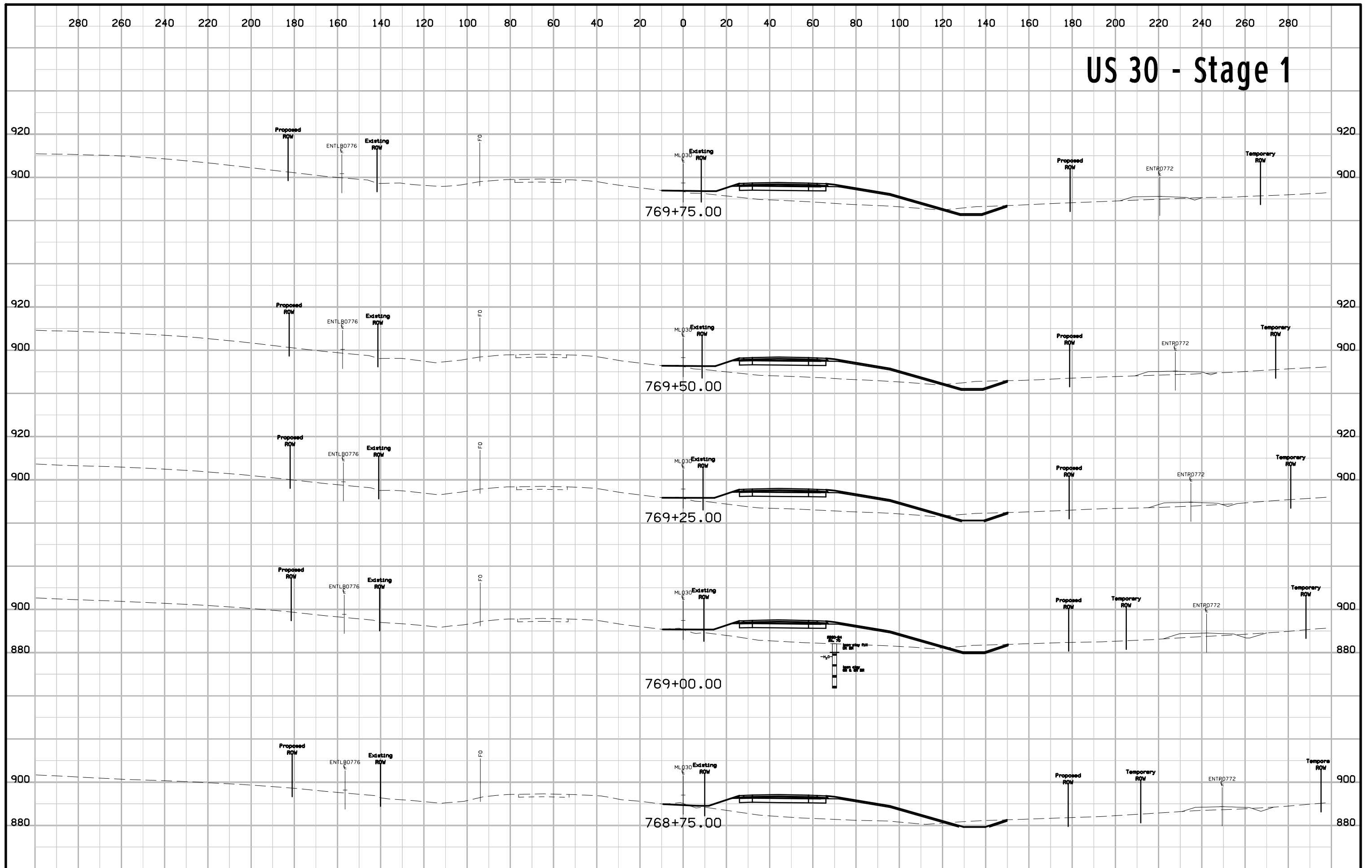
US 30 - Stage 1



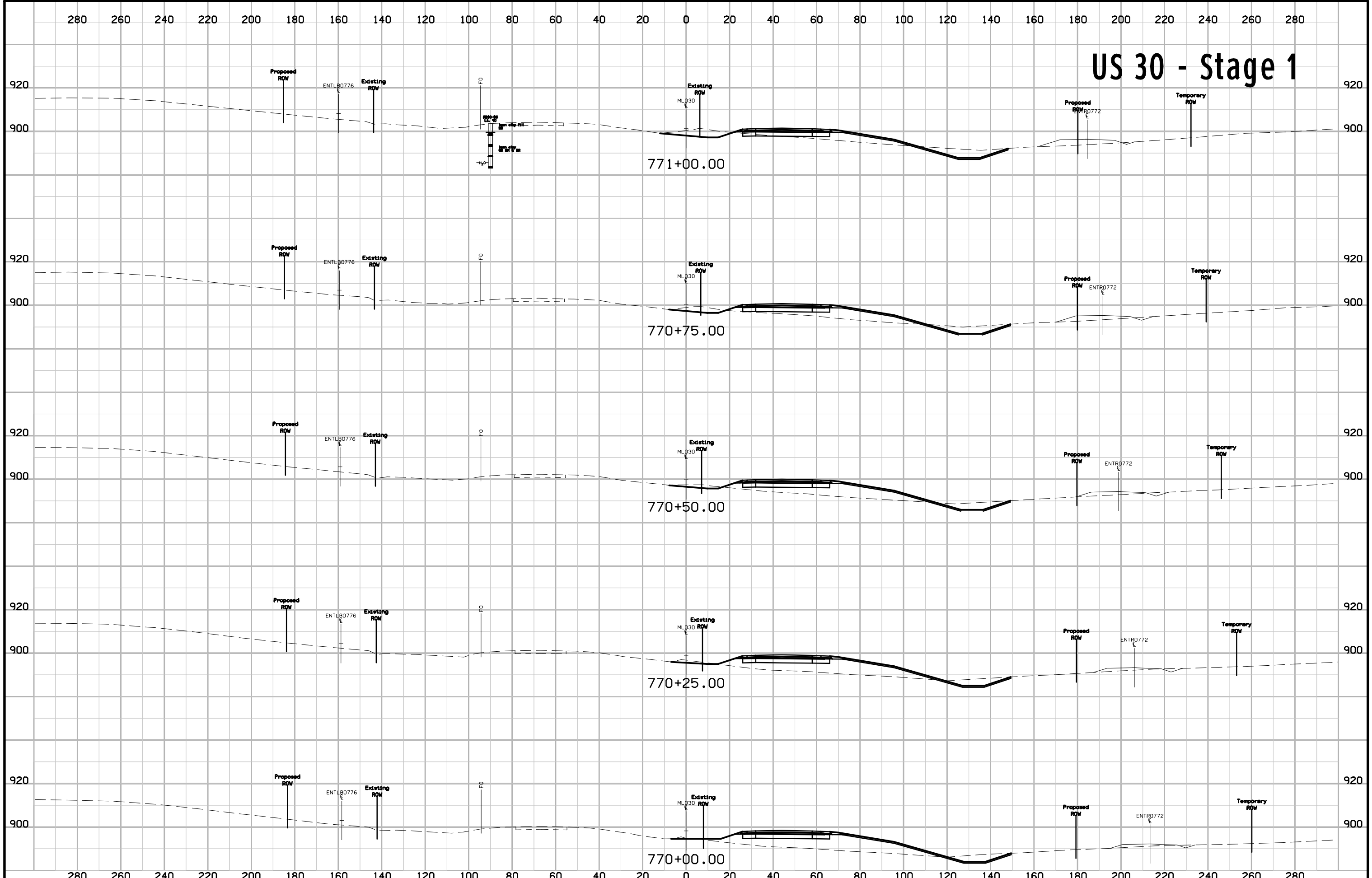
US 30 - Stage 1



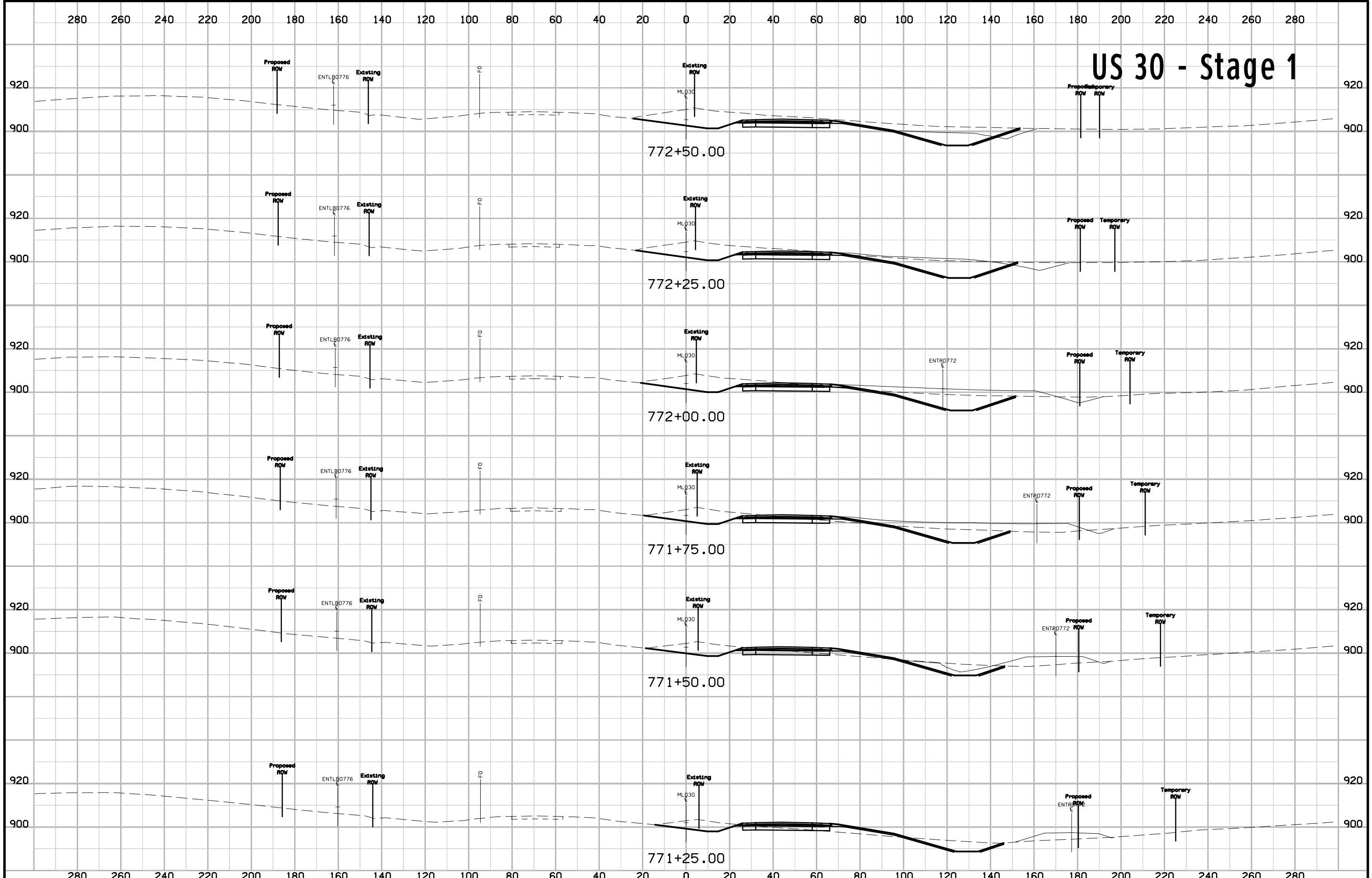
US 30 - Stage 1



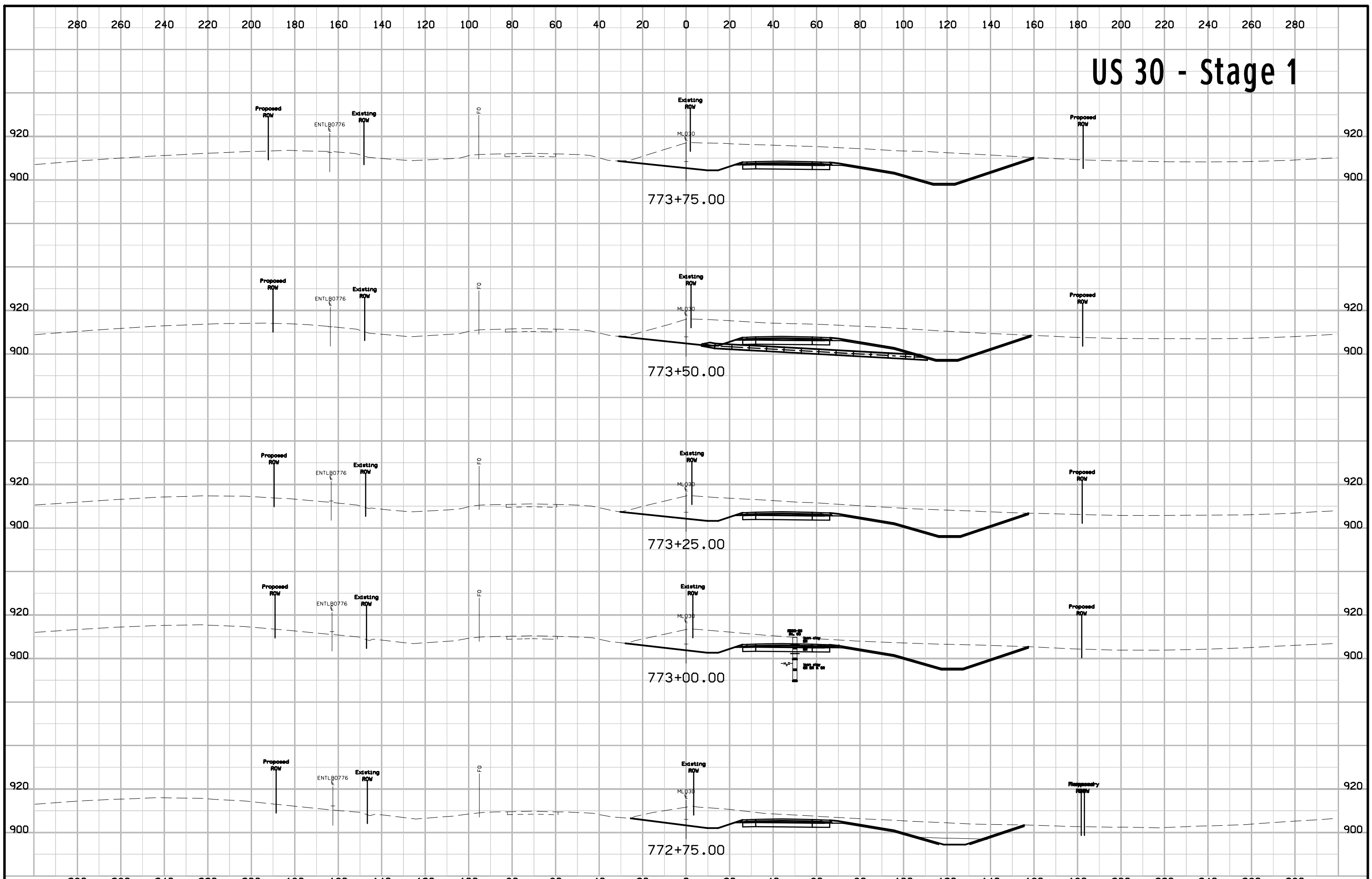
US 30 - Stage 1



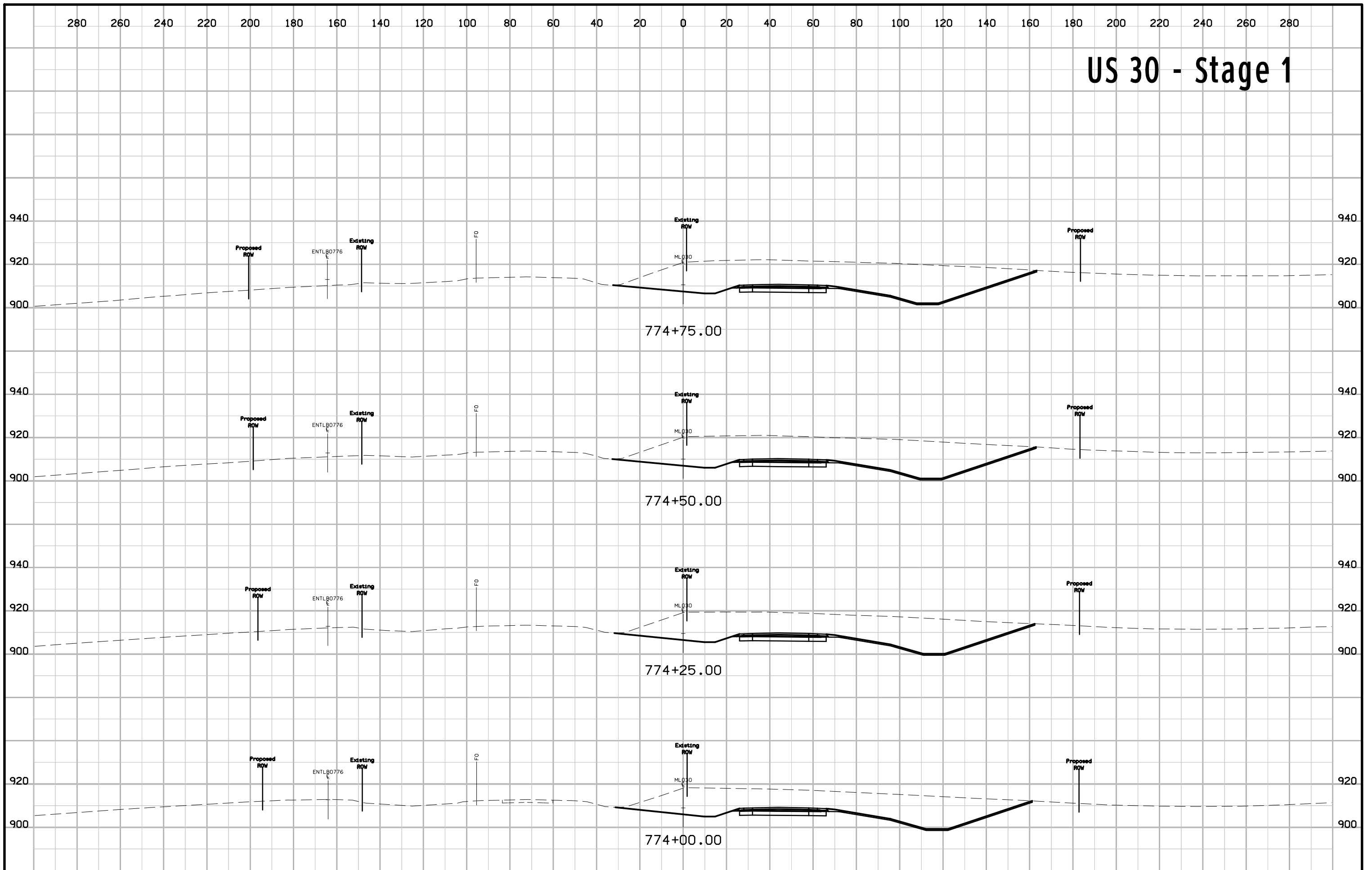
US 30 - Stage 1



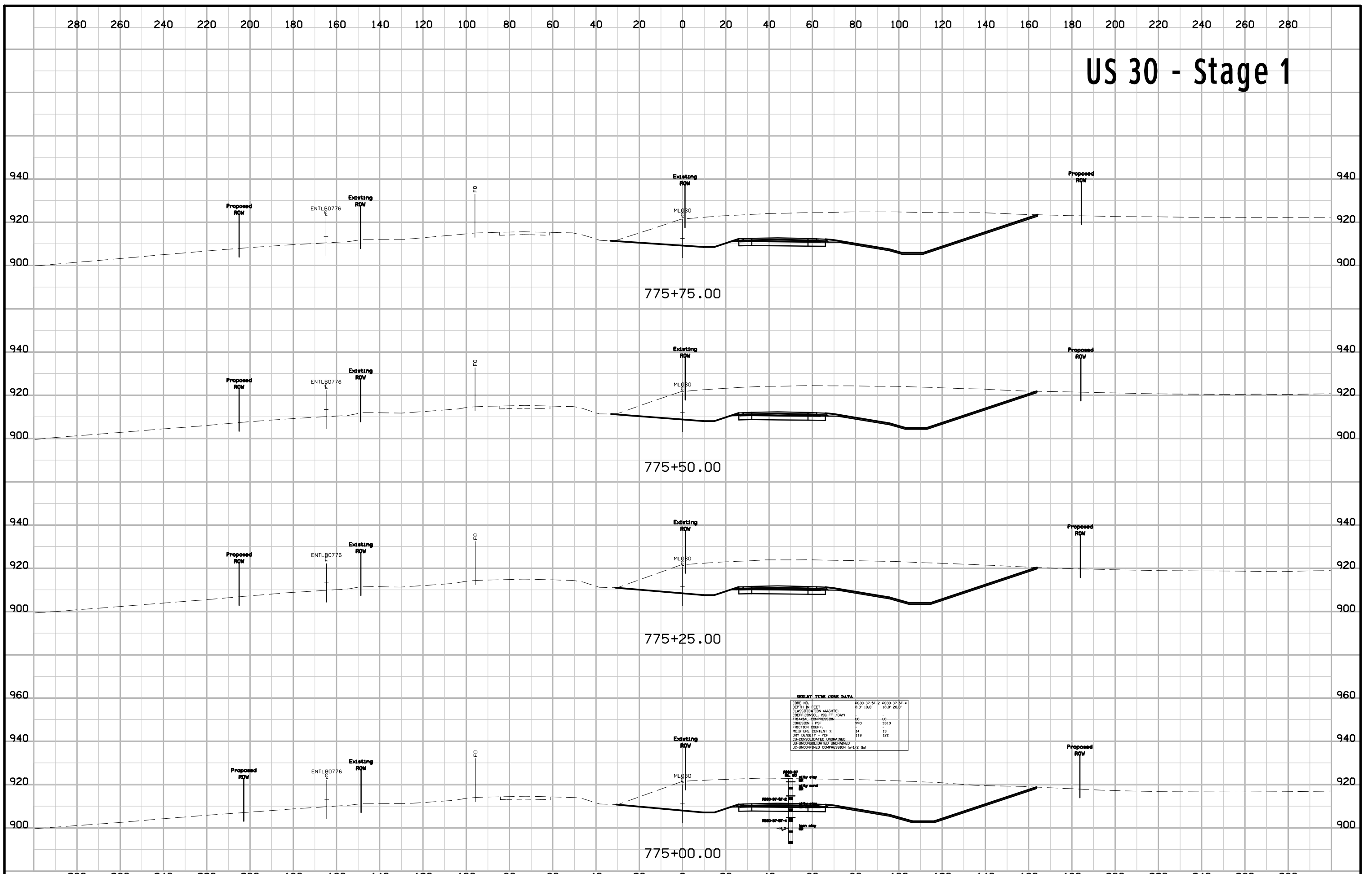
US 30 - Stage 1



US 30 - Stage 1



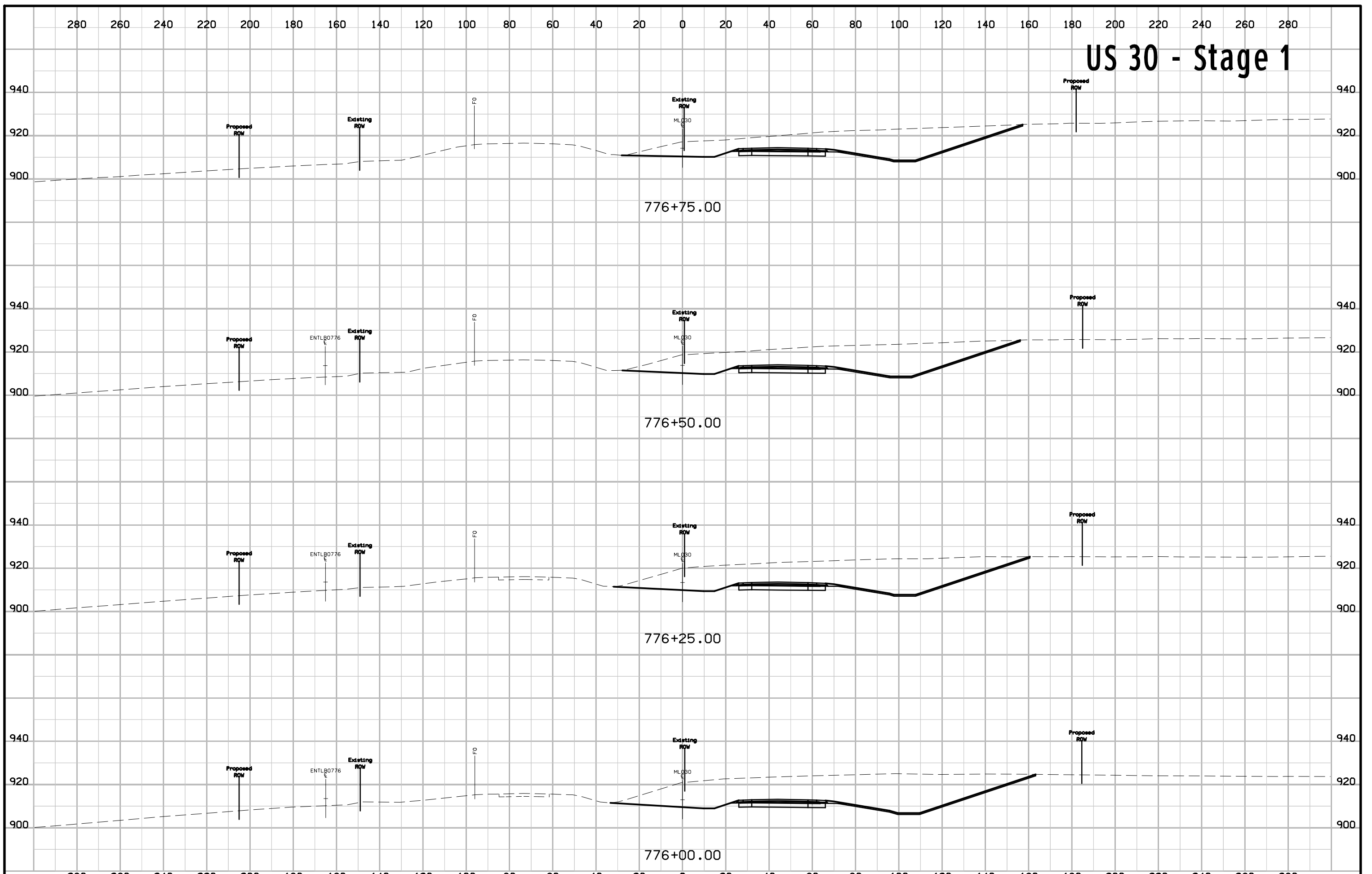
US 30 - Stage 1



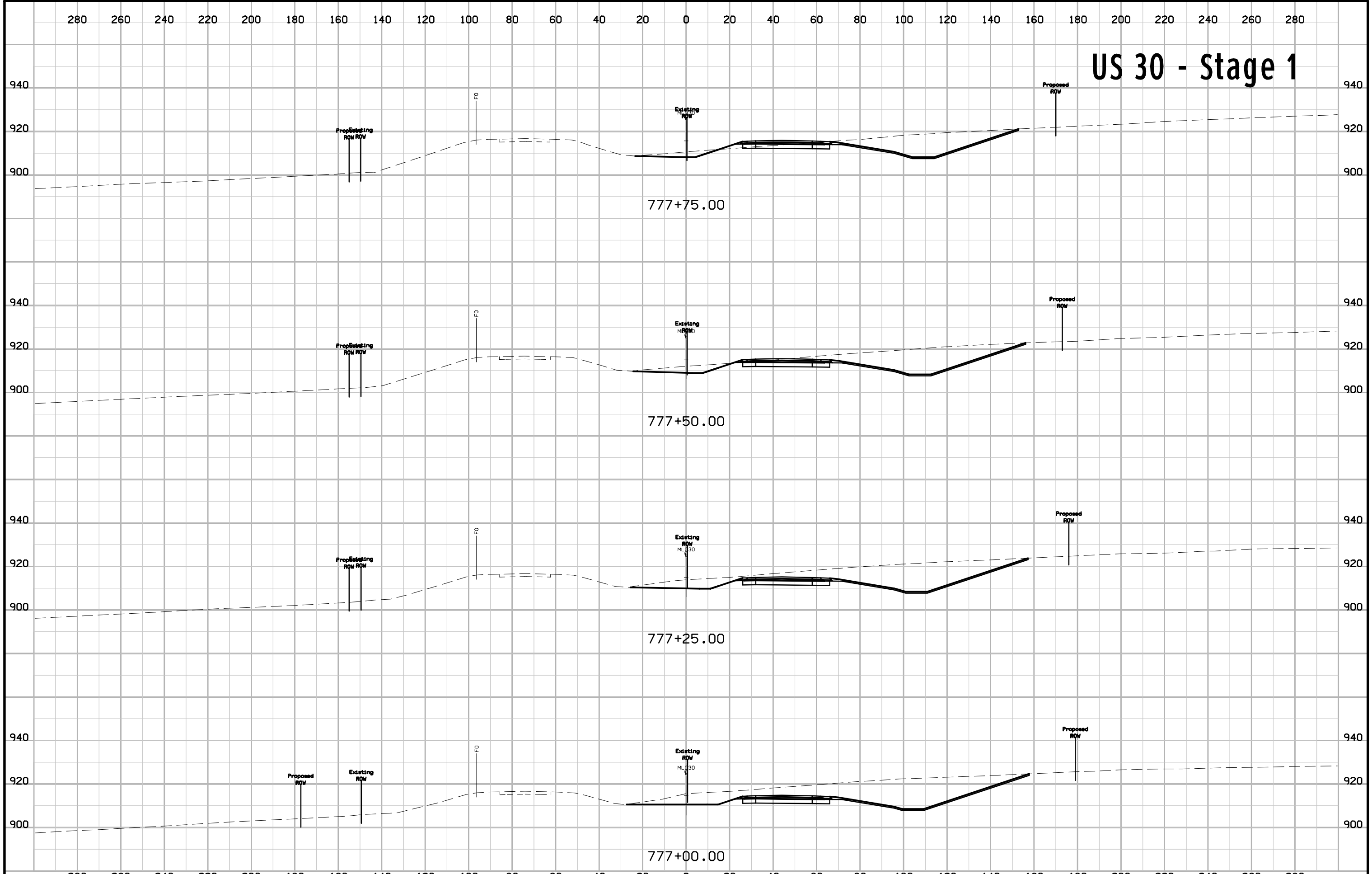
SHELBY TUBE CORE DATA

CORE NO.	#30-37-51-2	#30-37-51-4
DEPTH IN FEET	8.0'-10.0'	18.0'-20.0'
CLASSIFICATION (ASHSTO)	-	-
COEFF. CONSOL. - 150, FT / DAY	-	-
TRAXIAL COMPRESSION	1C	1C
COHESION - PSF	990	3310
FRICTION COEFF.	-	-
MOISTURE CONTENT %	14	13
DRY DENSITY - PCF	118	122
CU-CONSOLIDATED UNDRAINED	-	-
CU-UNCONSOLIDATED UNDRAINED	-	-
CU-UNCONSOLIDATED COMPRESSION (s=1/2 Q _u)	-	-

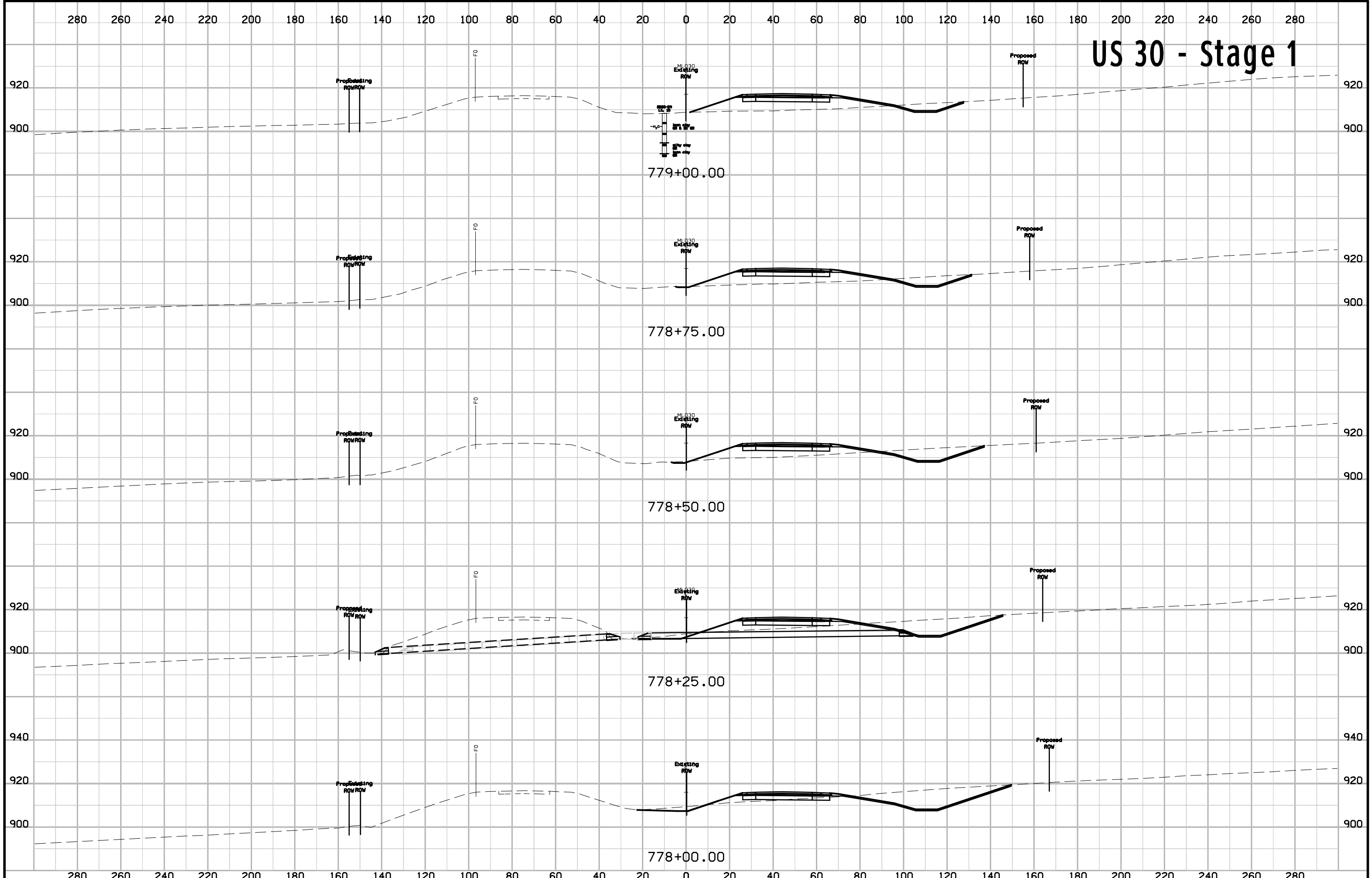
US 30 - Stage 1



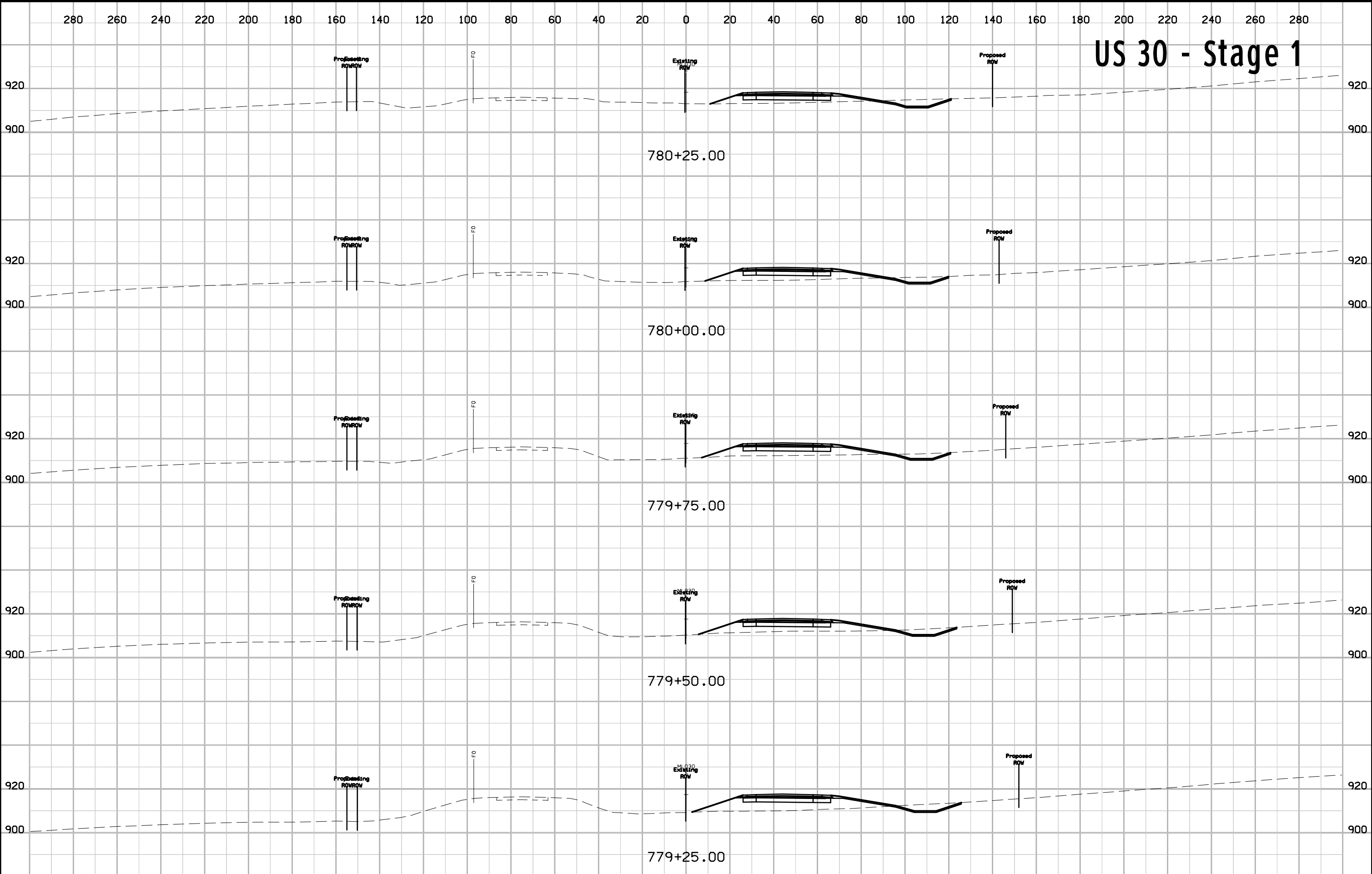
US 30 - Stage 1



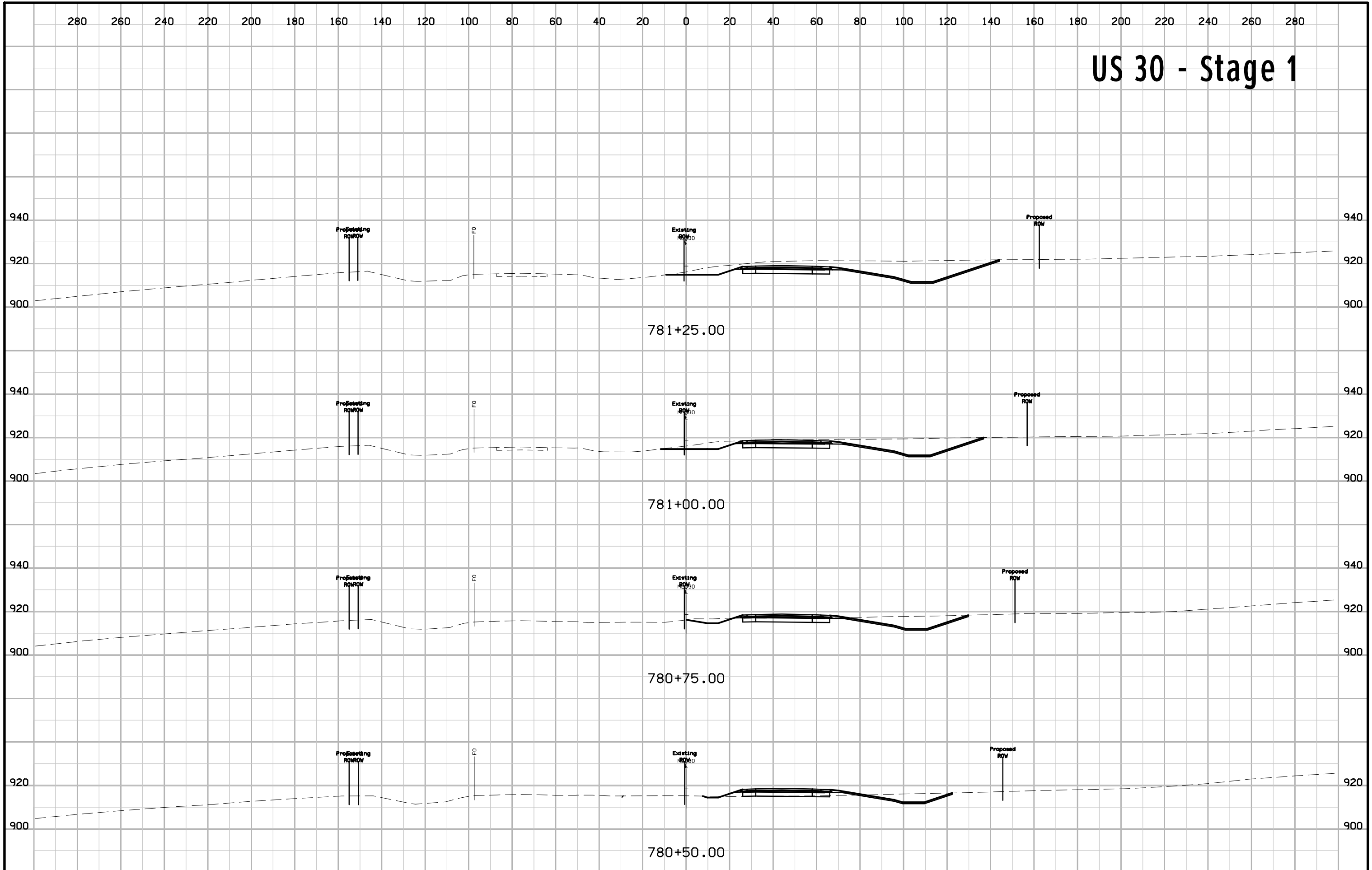
US 30 - Stage 1



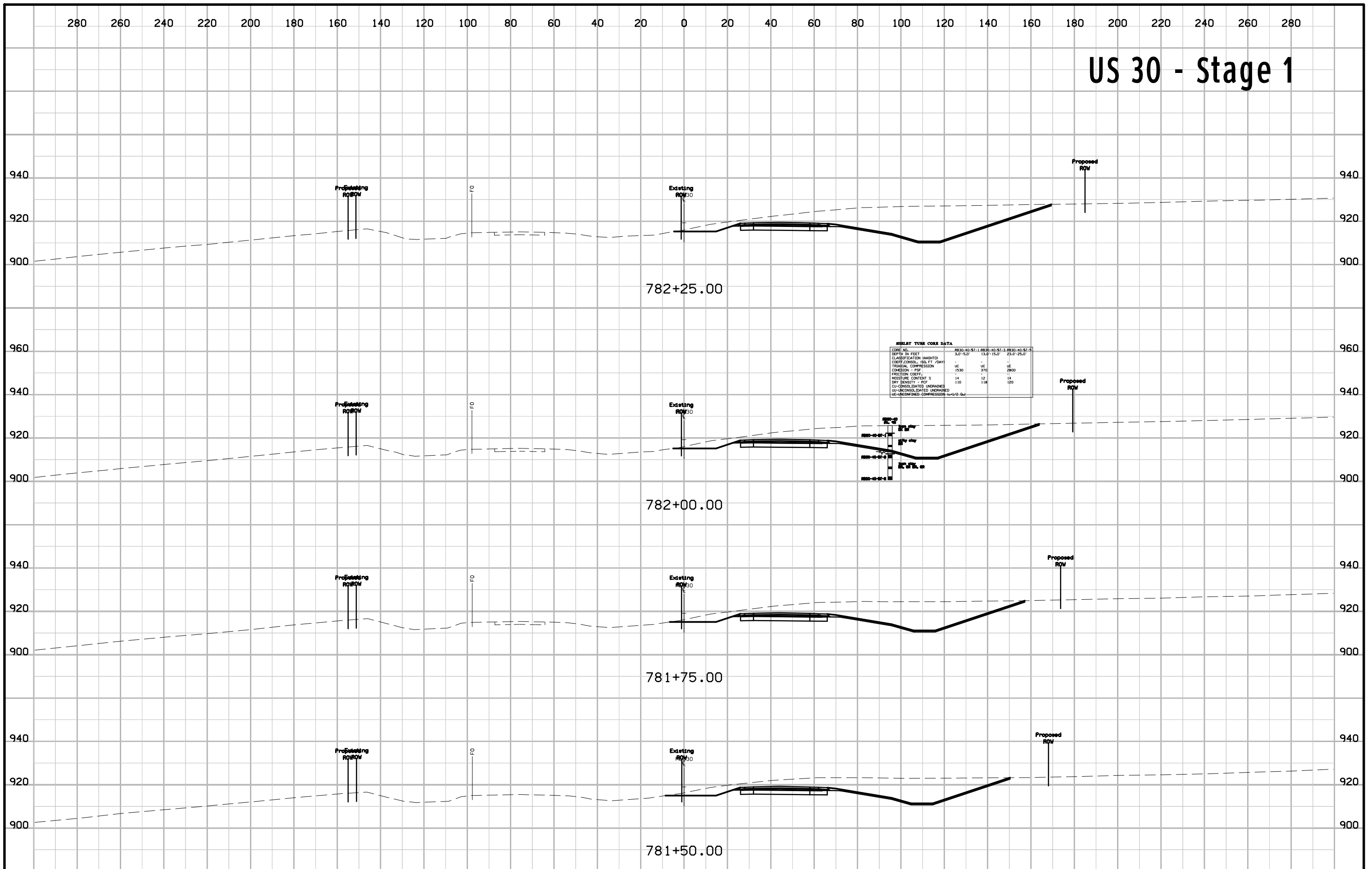
US 30 - Stage 1



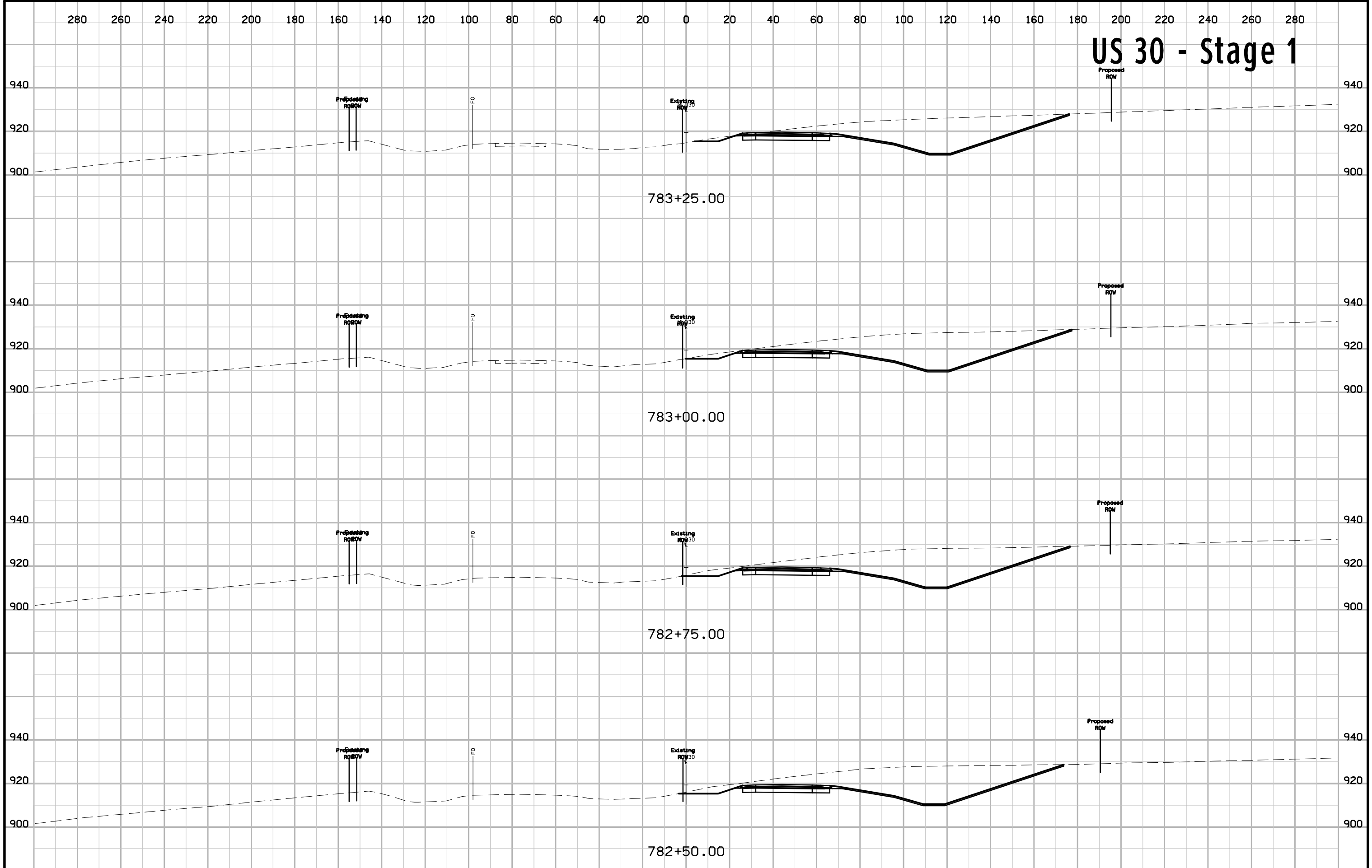
US 30 - Stage 1



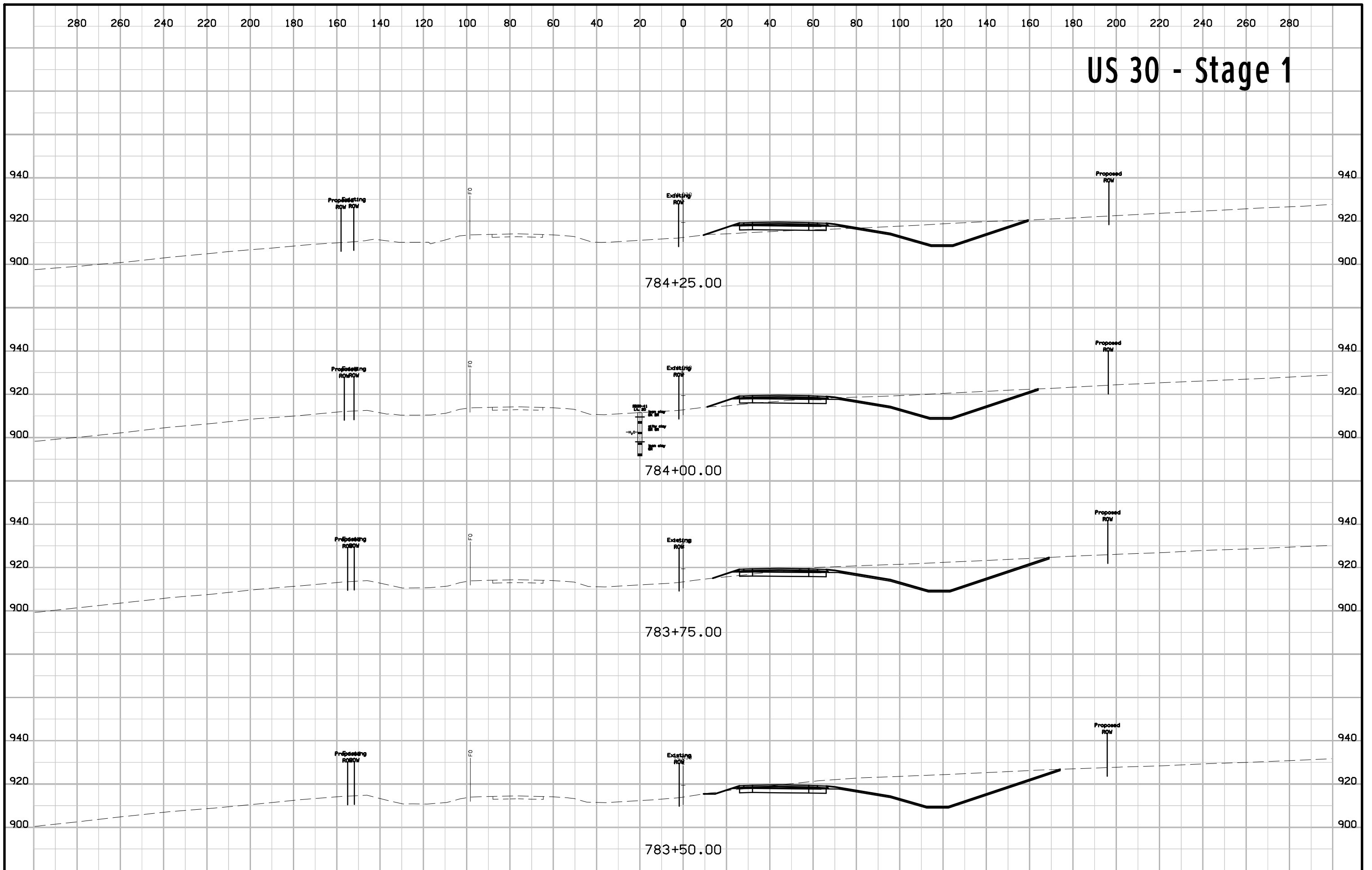
US 30 - Stage 1



US 30 - Stage 1



US 30 - Stage 1



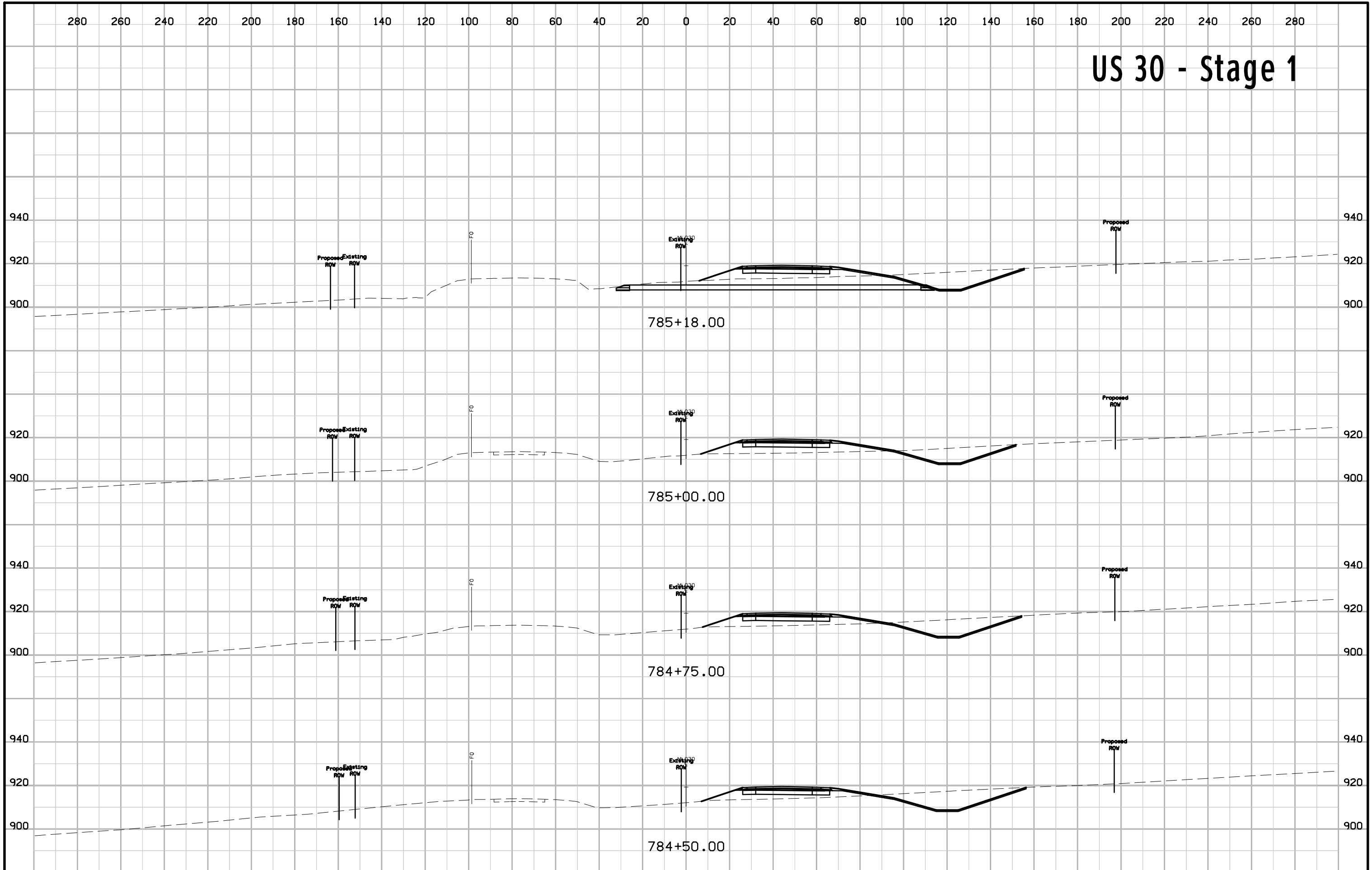
784+25.00

784+00.00

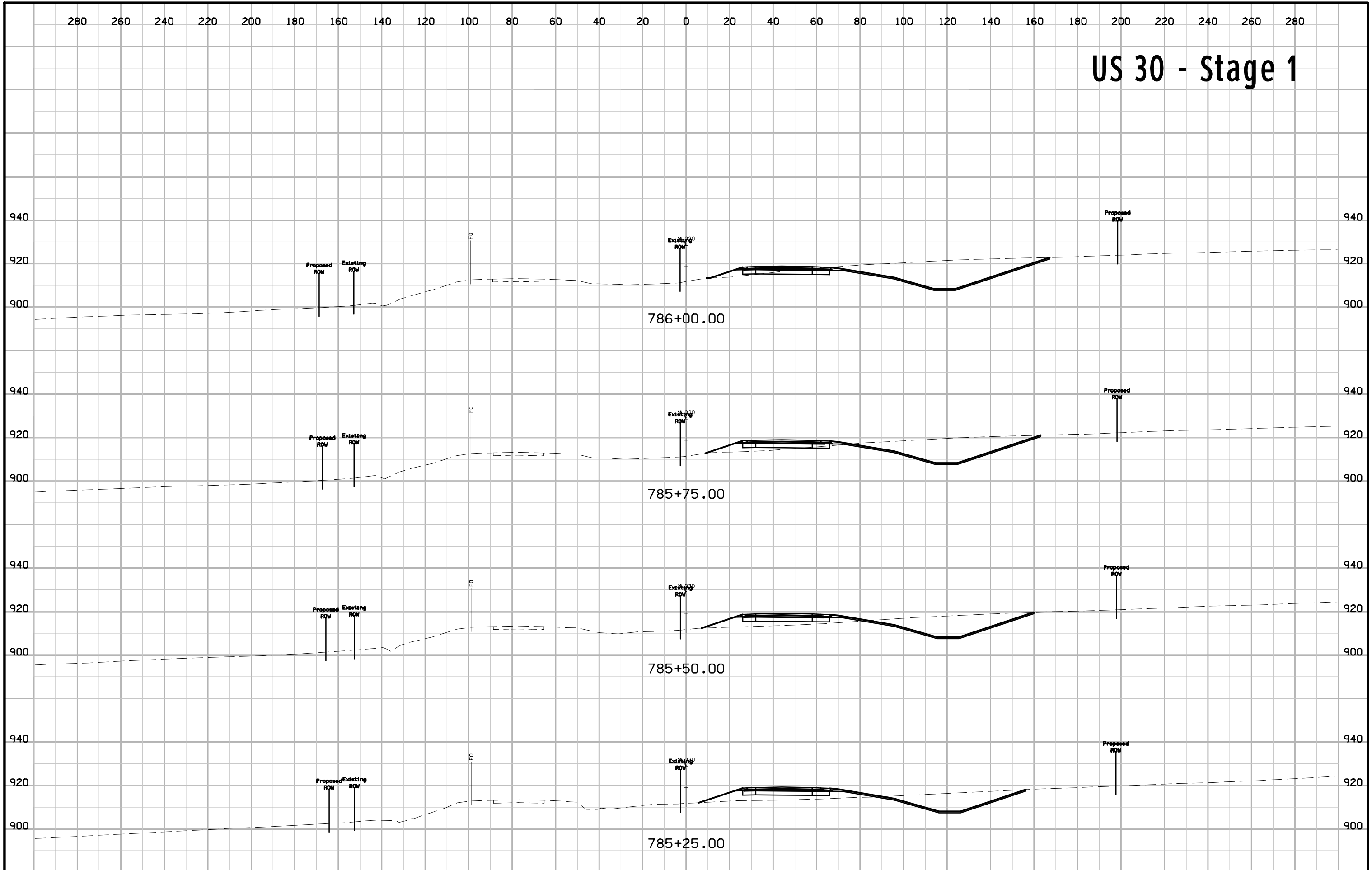
783+75.00

783+50.00

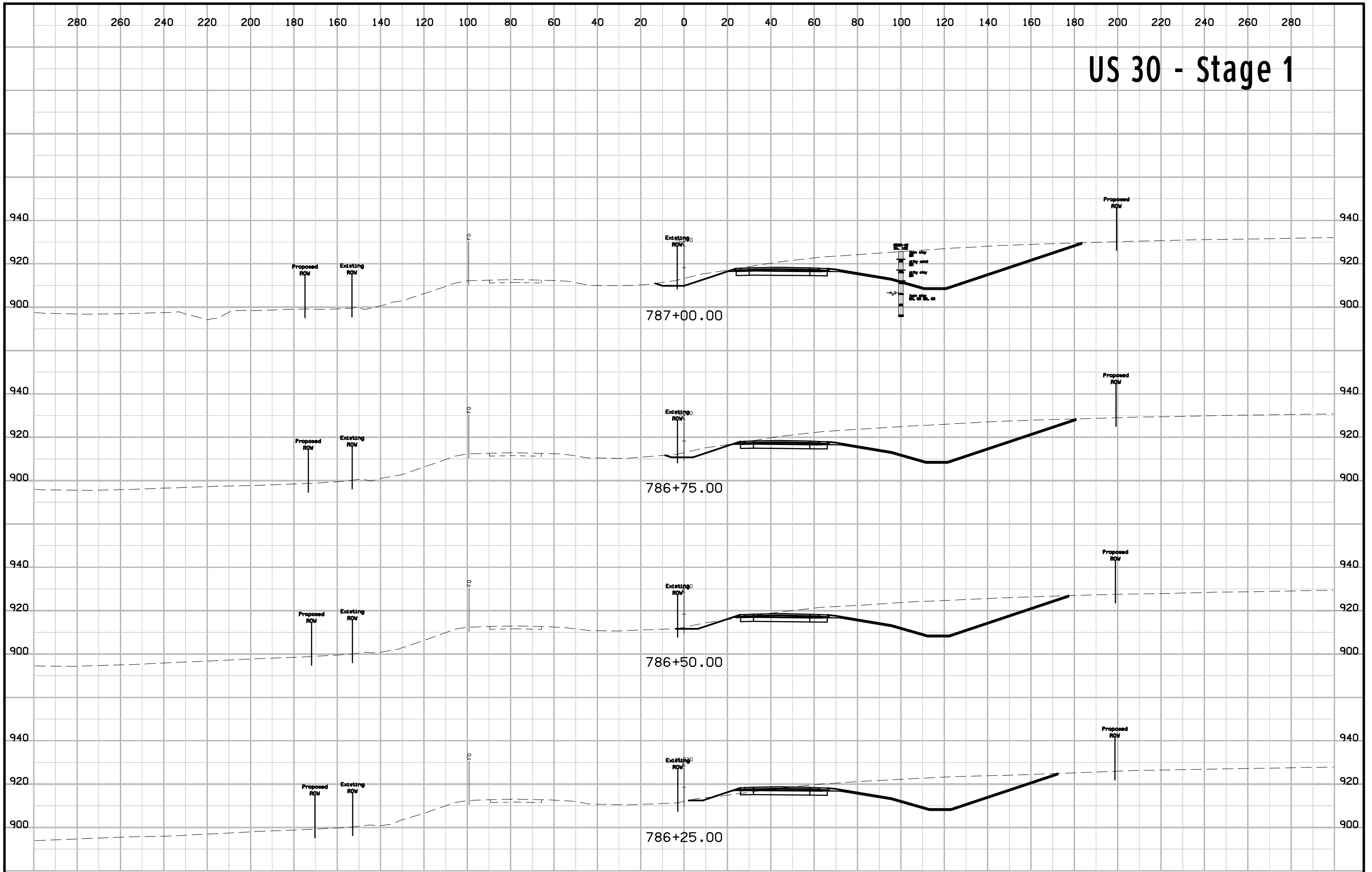
US 30 - Stage 1



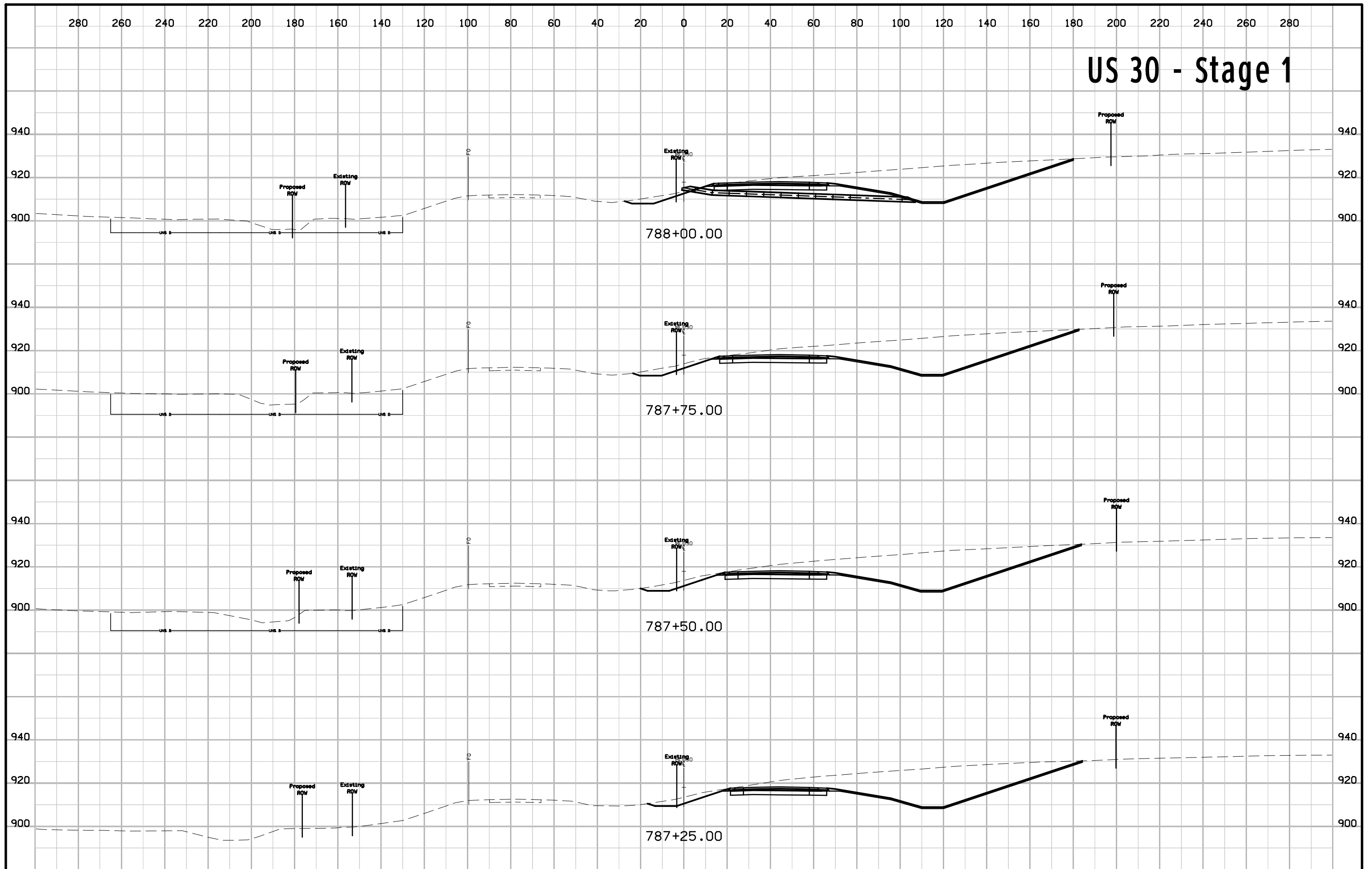
US 30 - Stage 1



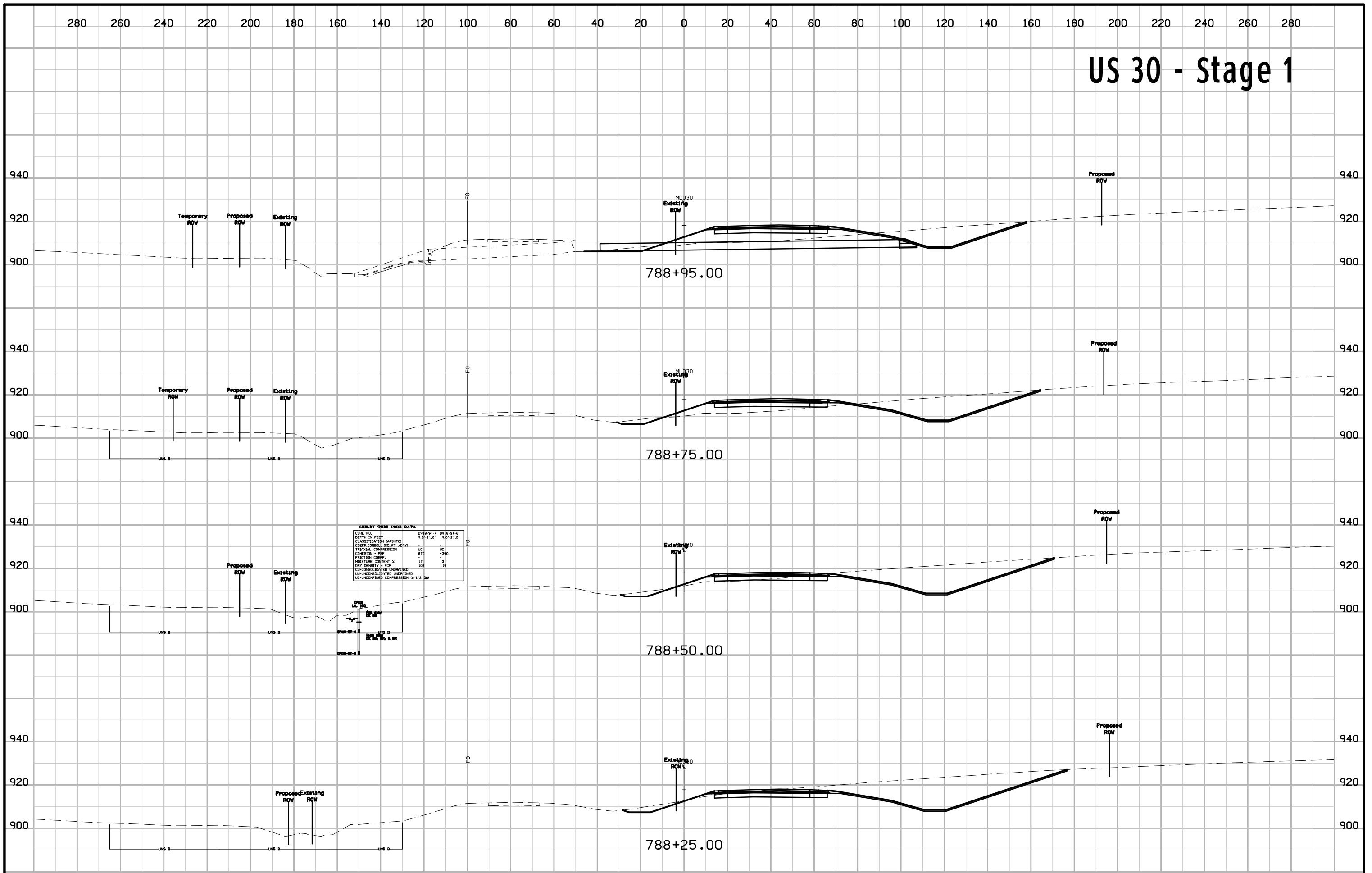
US 30 - Stage 1



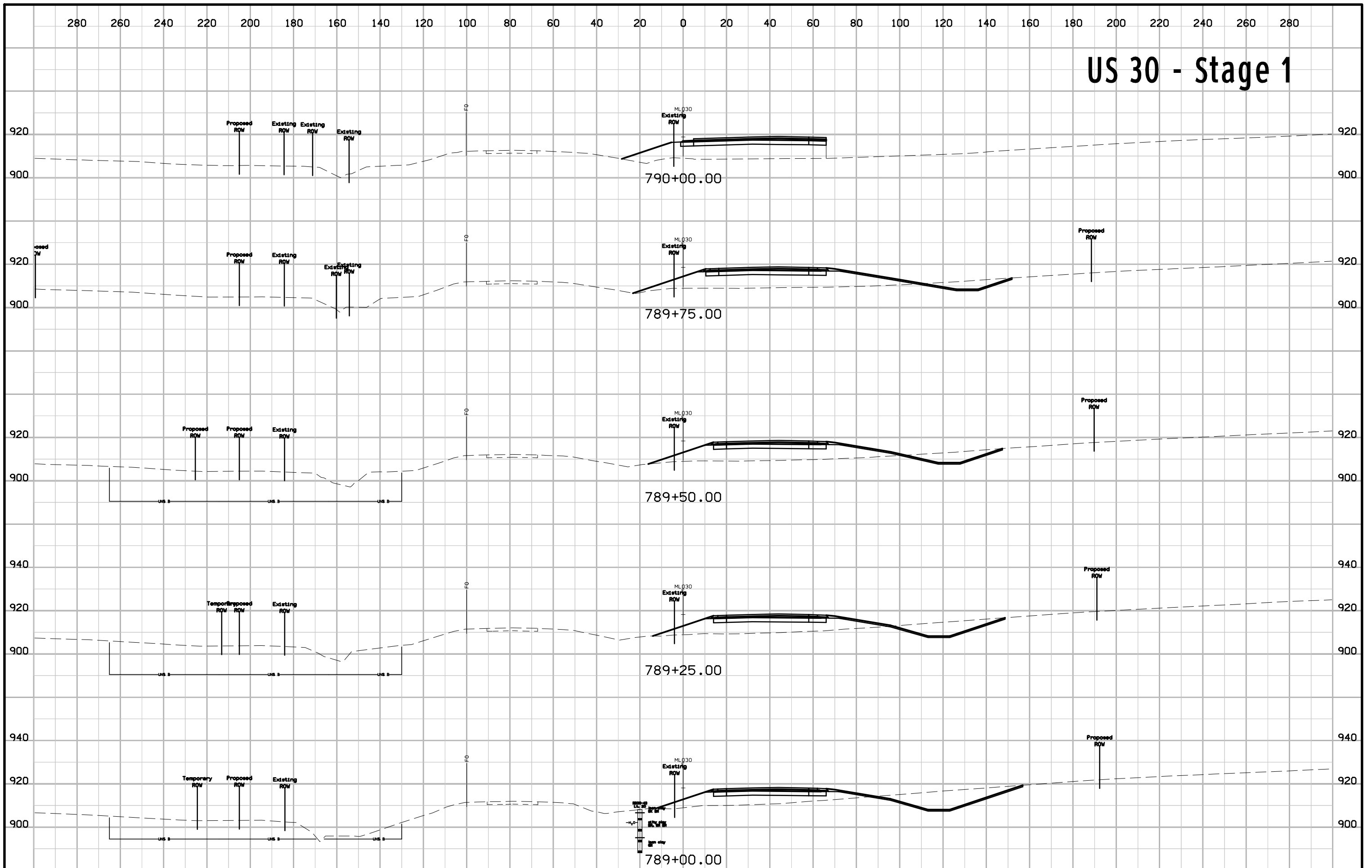
US 30 - Stage 1



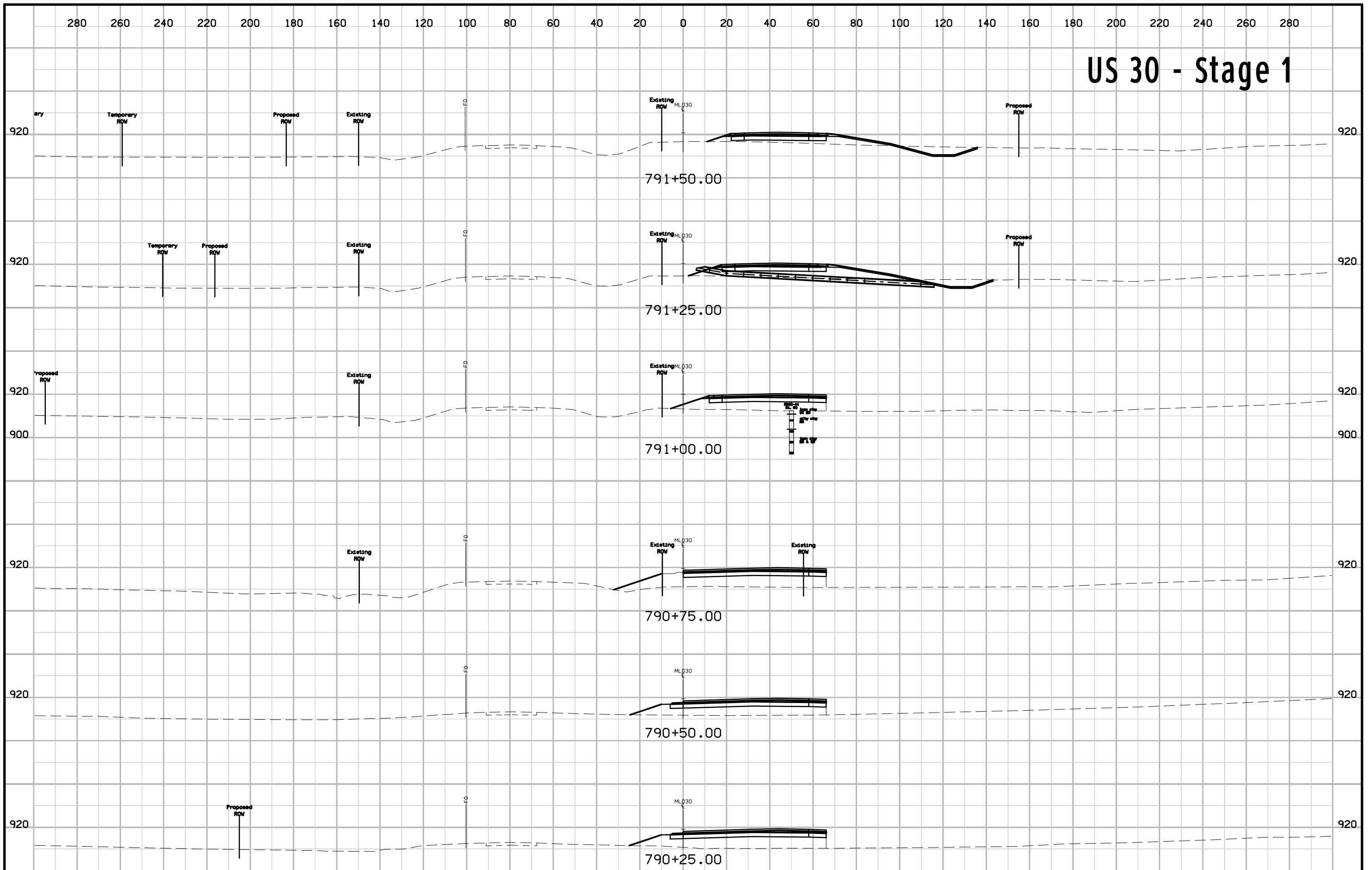
US 30 - Stage 1



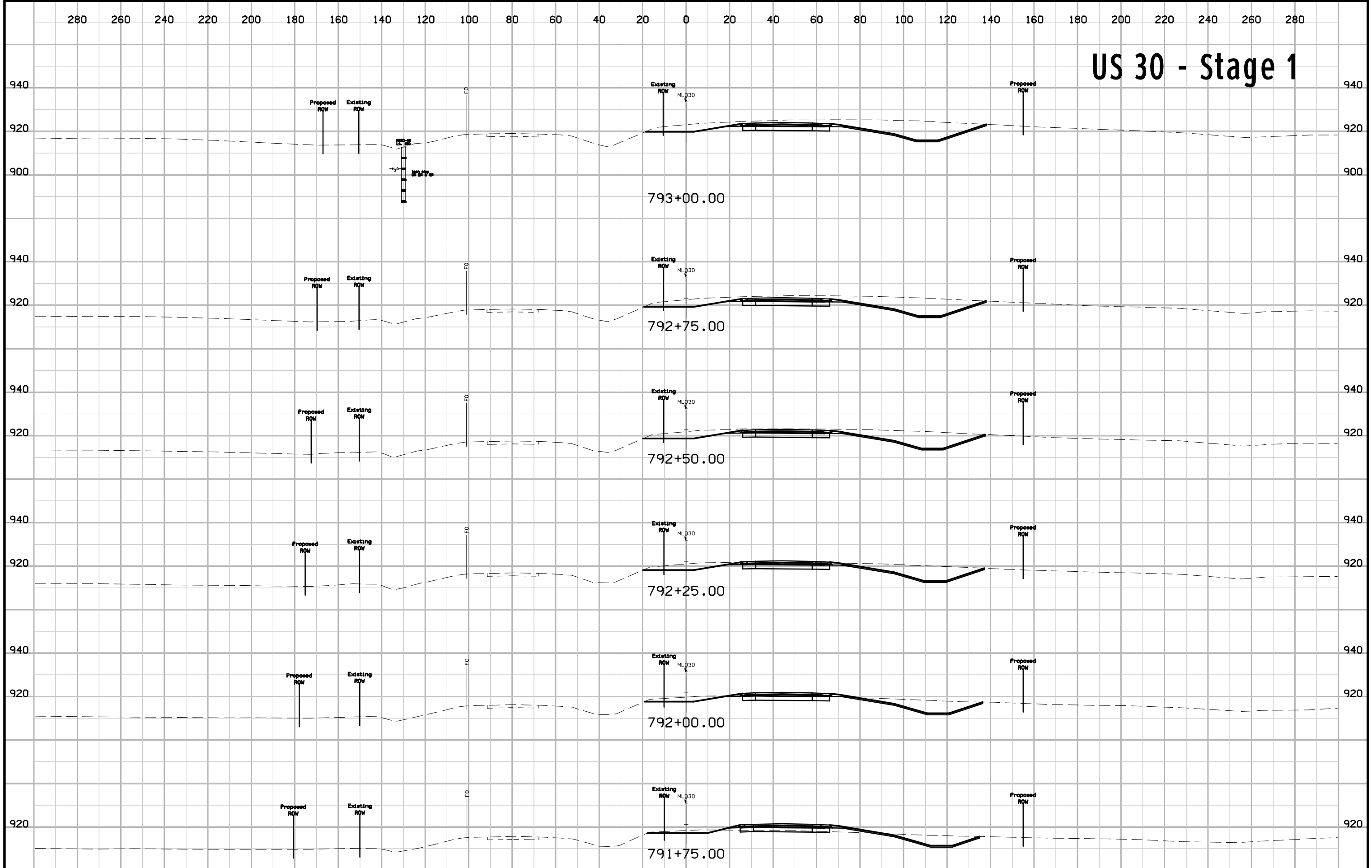
US 30 - Stage 1



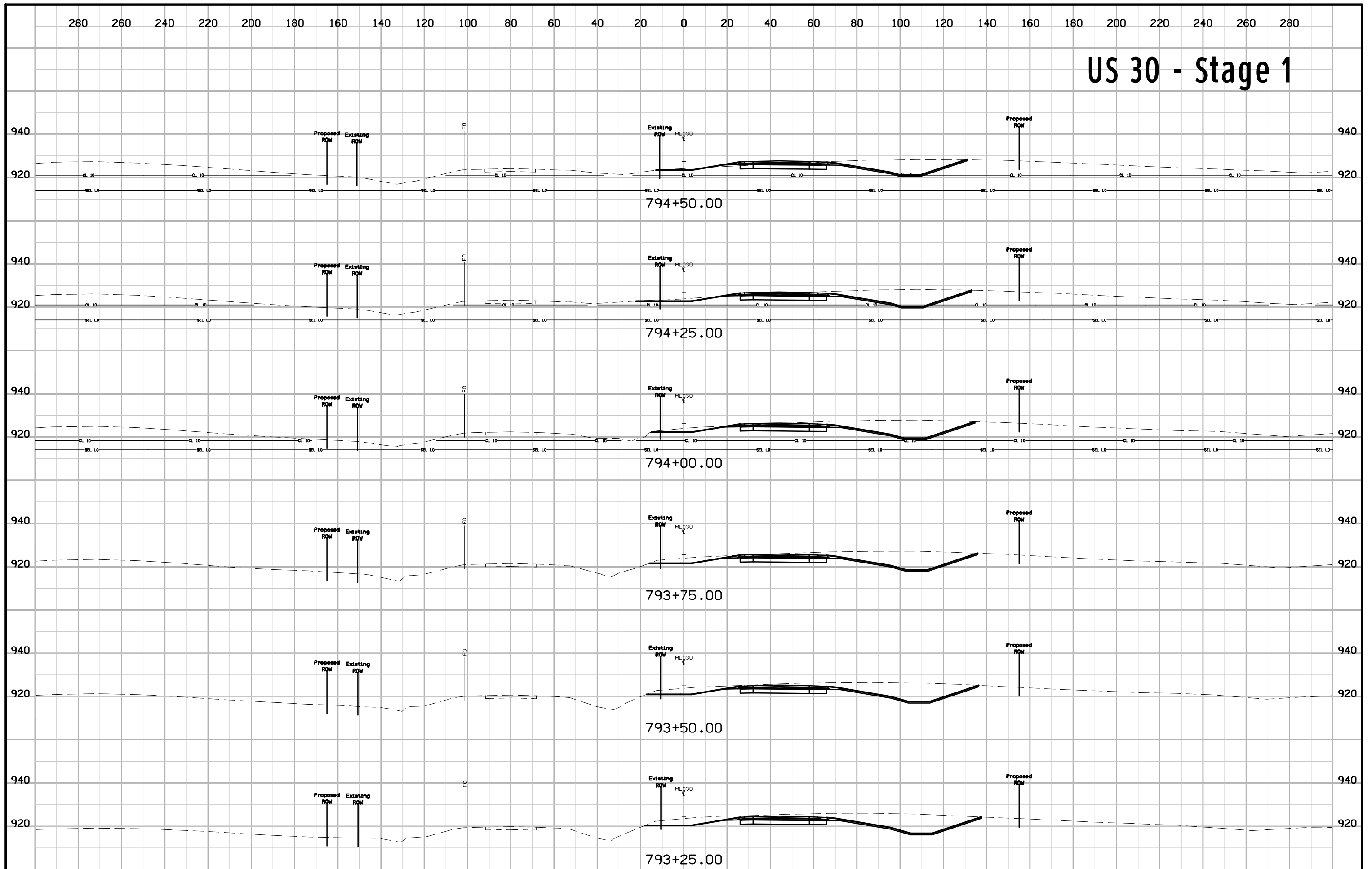
US 30 - Stage 1



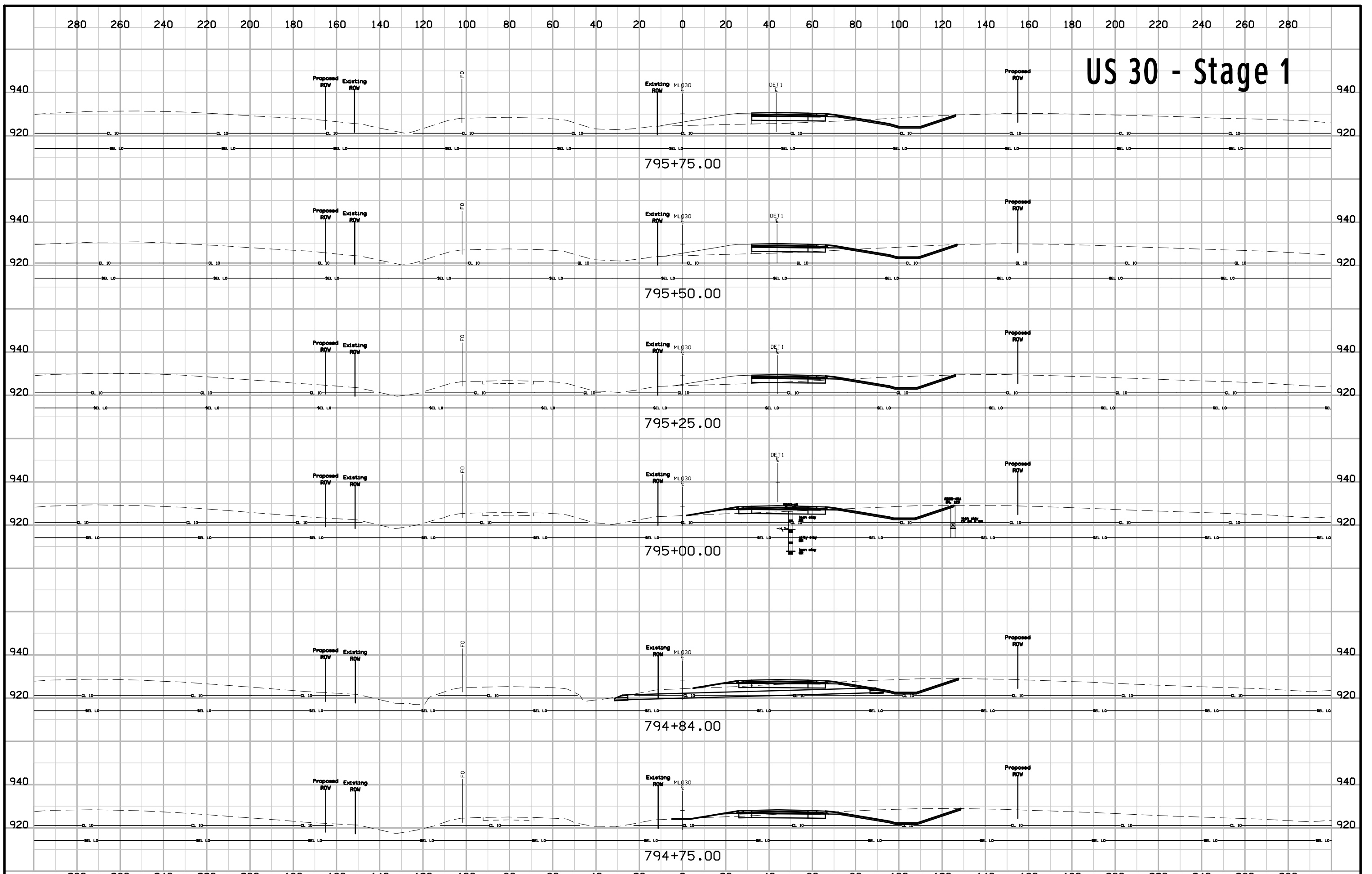
US 30 - Stage 1



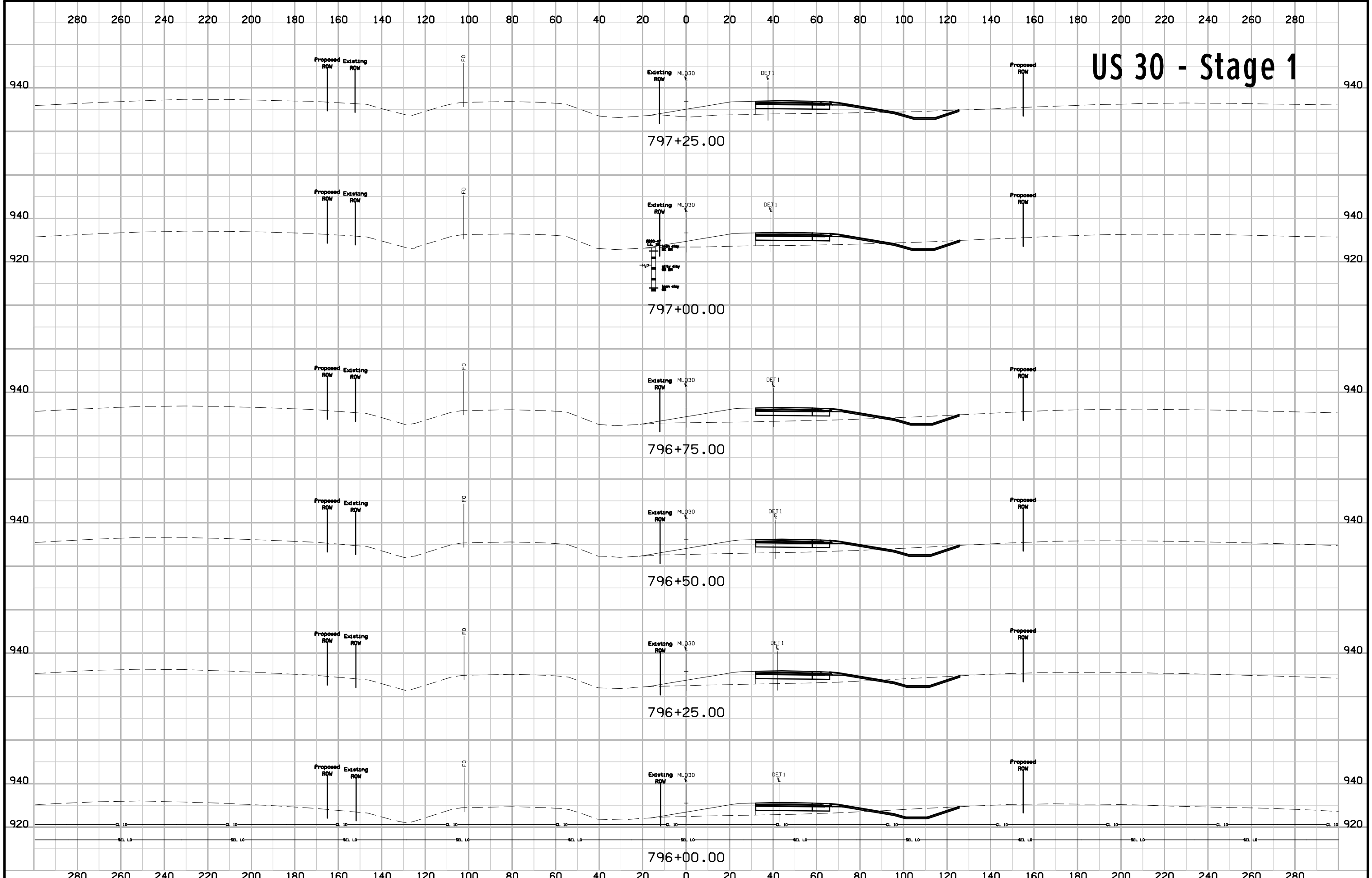
US 30 - Stage 1



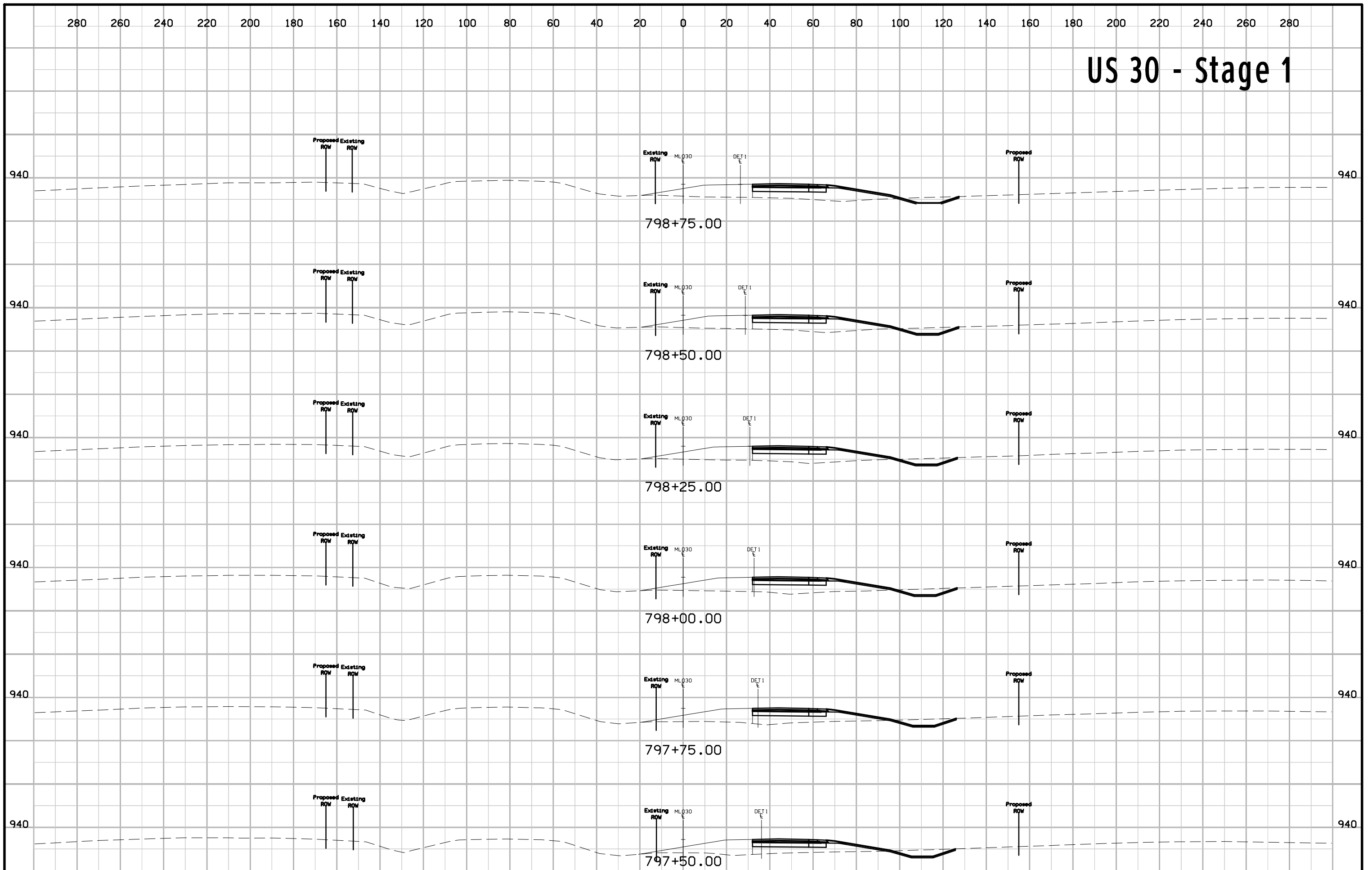
US 30 - Stage 1



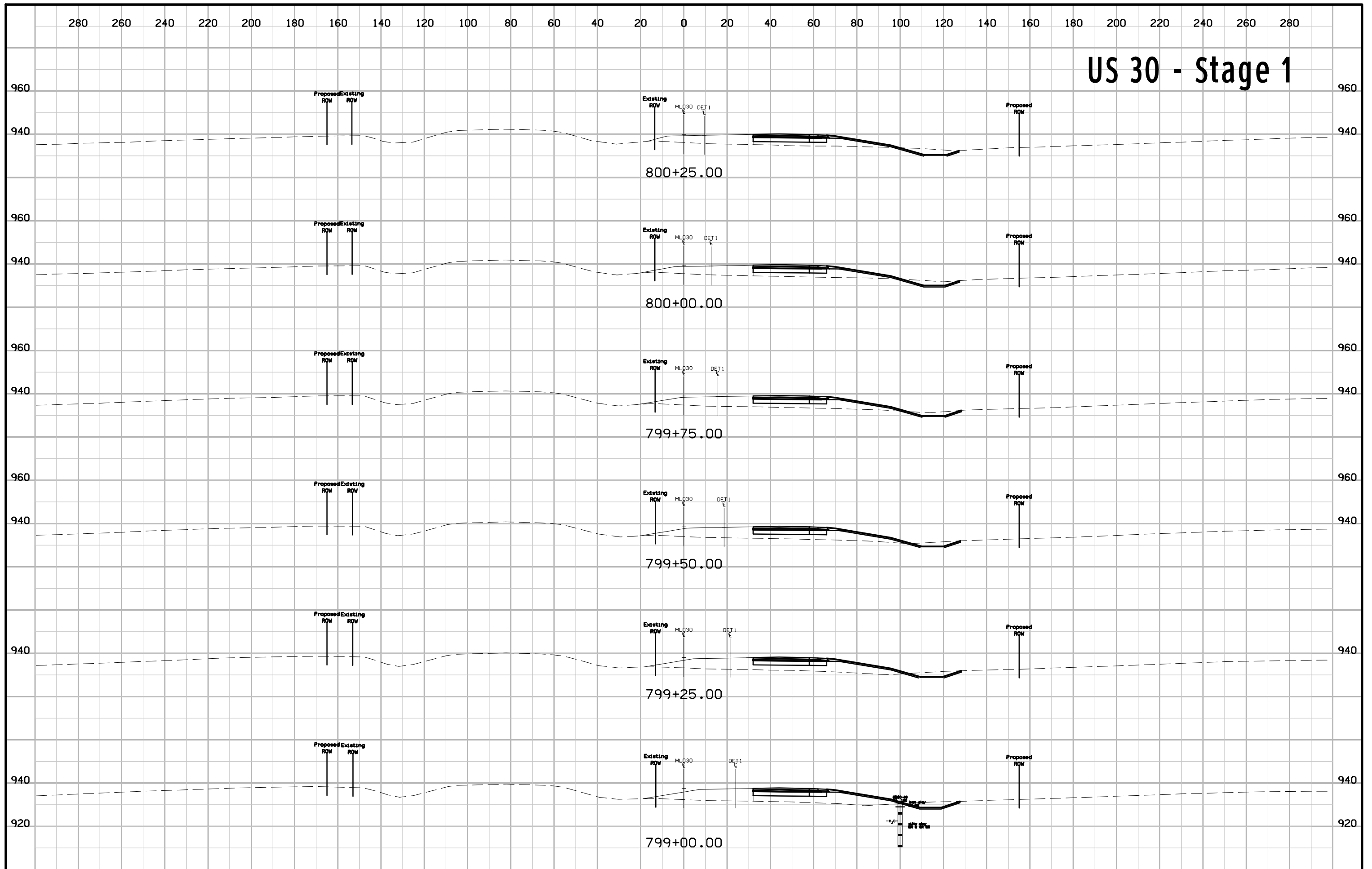
US 30 - Stage 1



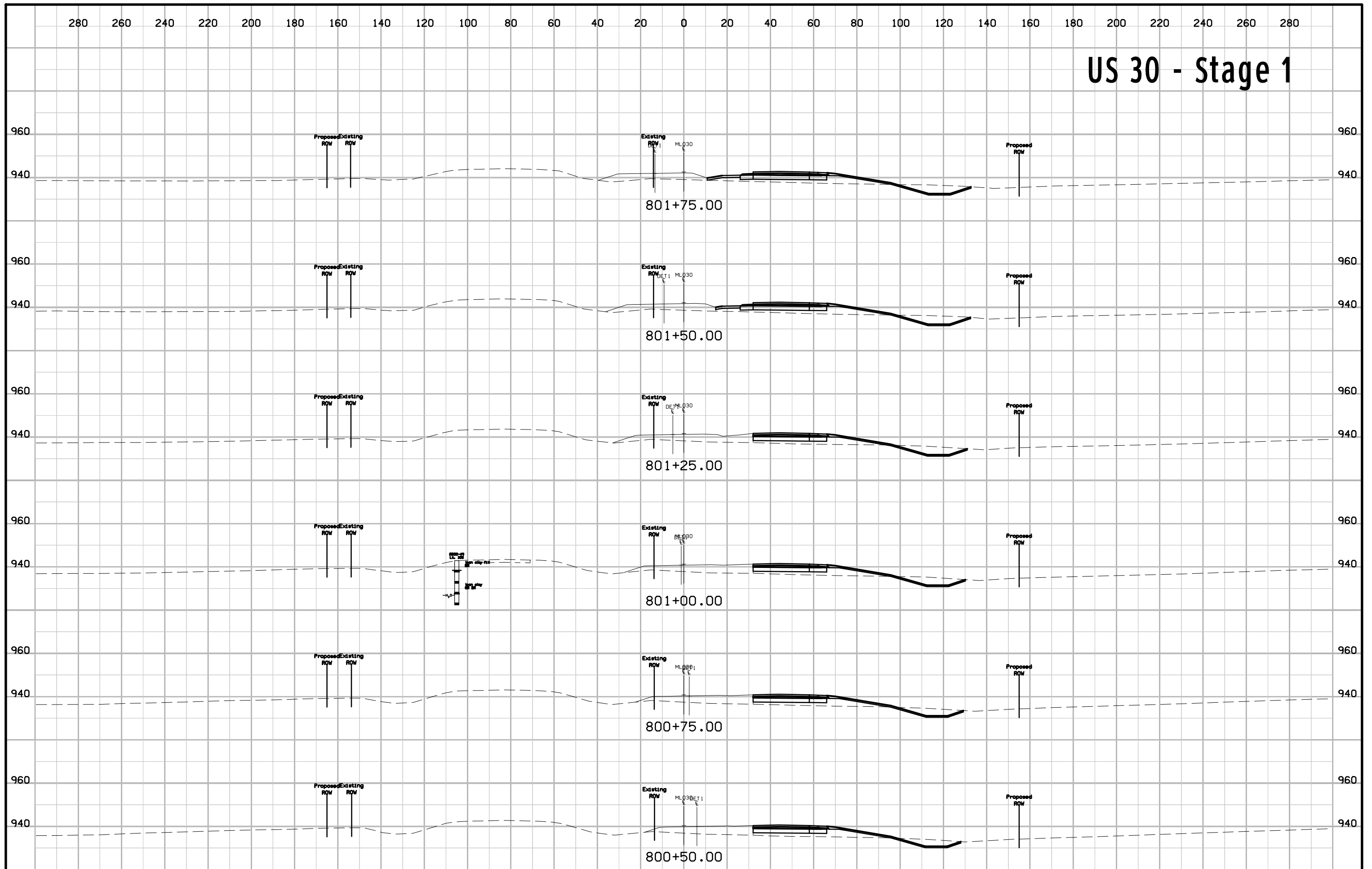
US 30 - Stage 1



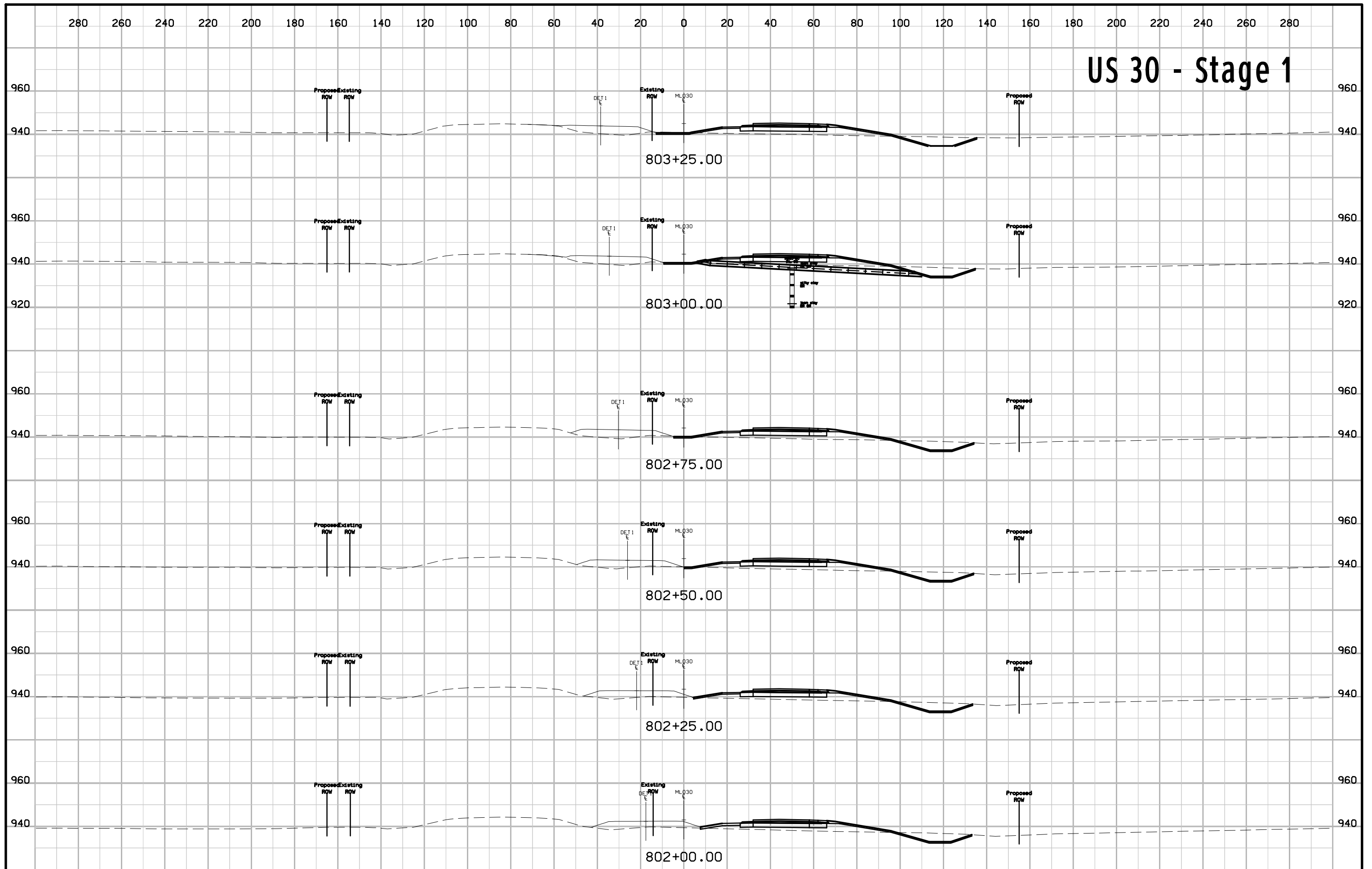
US 30 - Stage 1



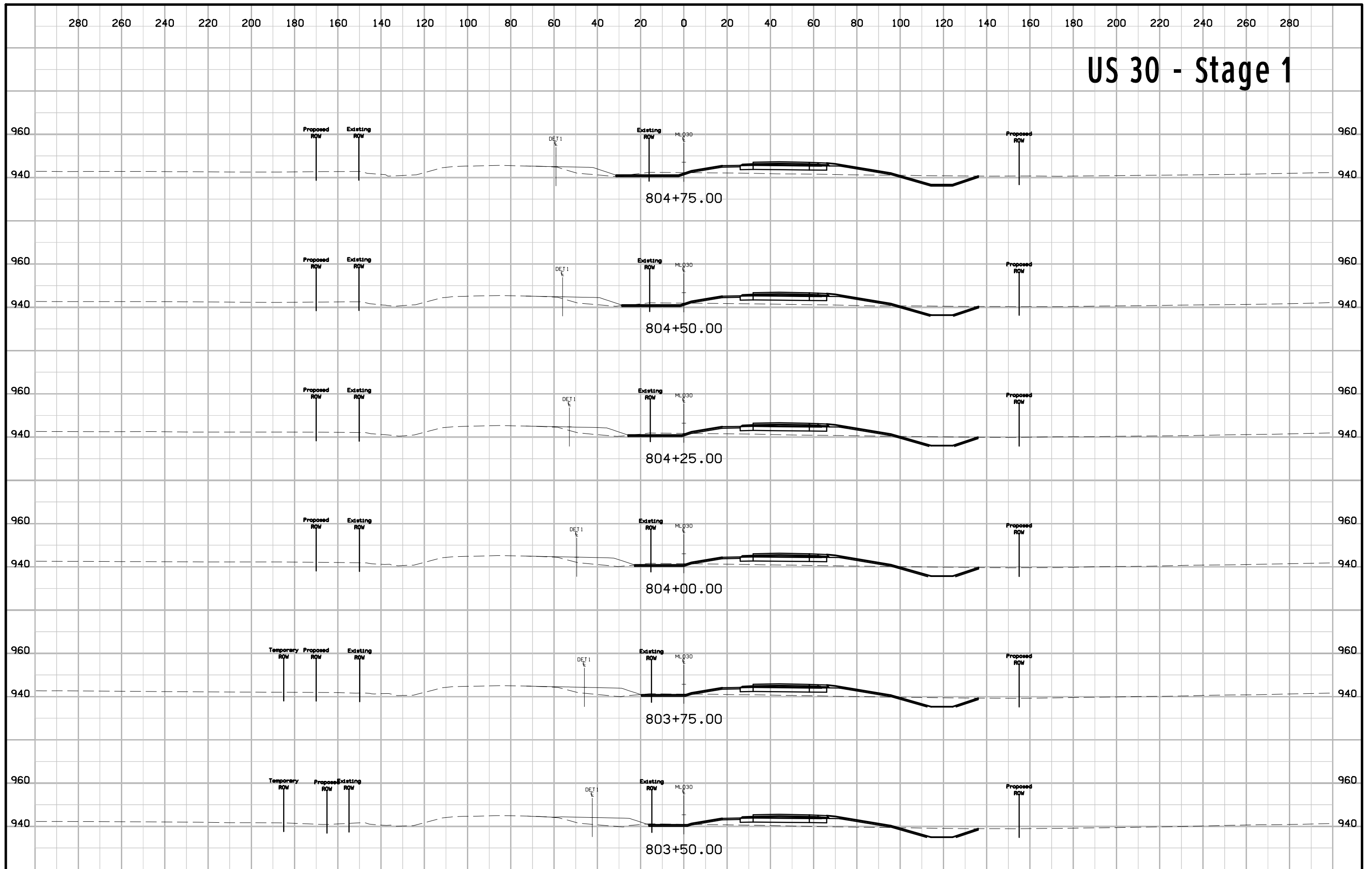
US 30 - Stage 1



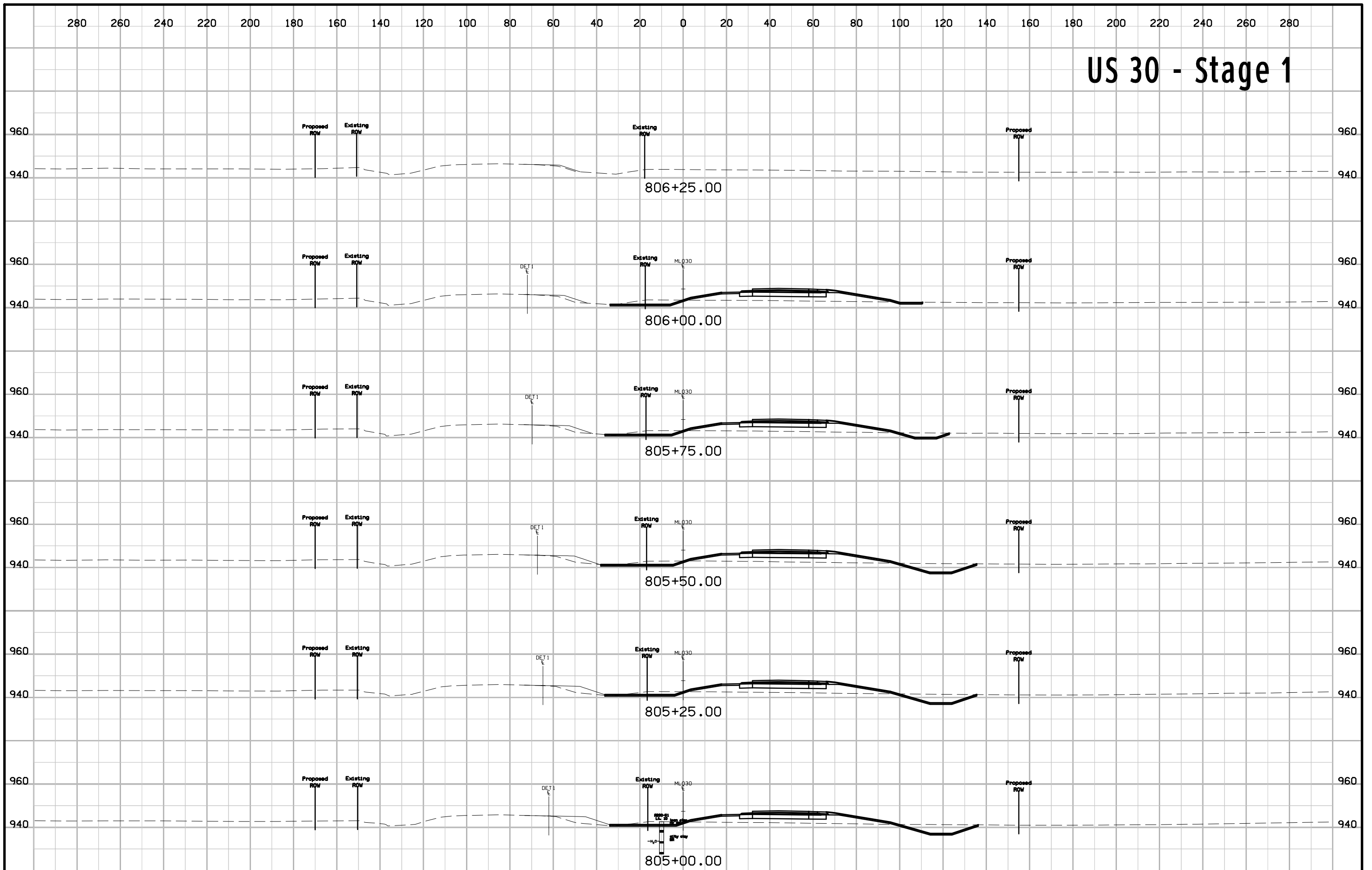
US 30 - Stage 1



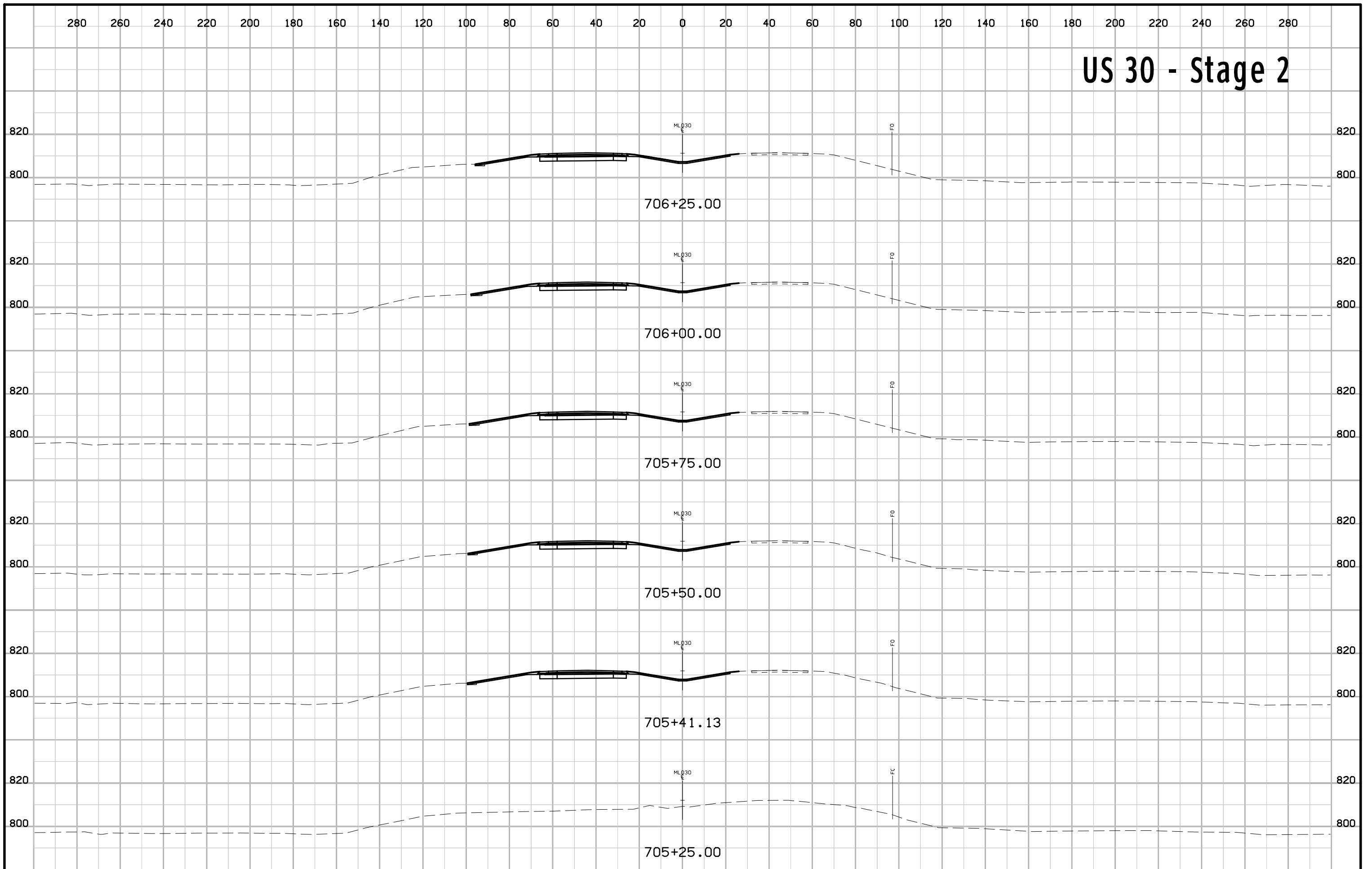
US 30 - Stage 1



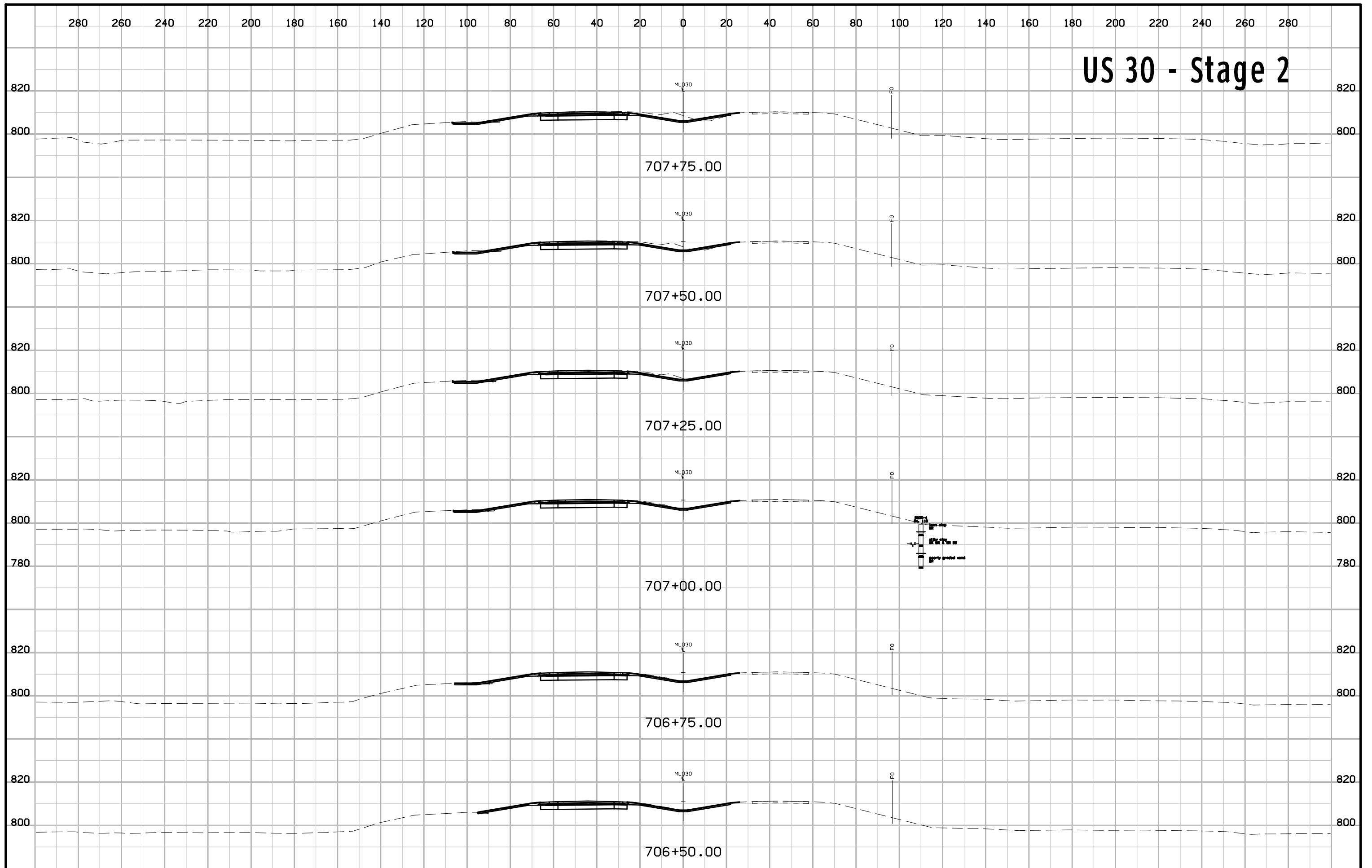
US 30 - Stage 1



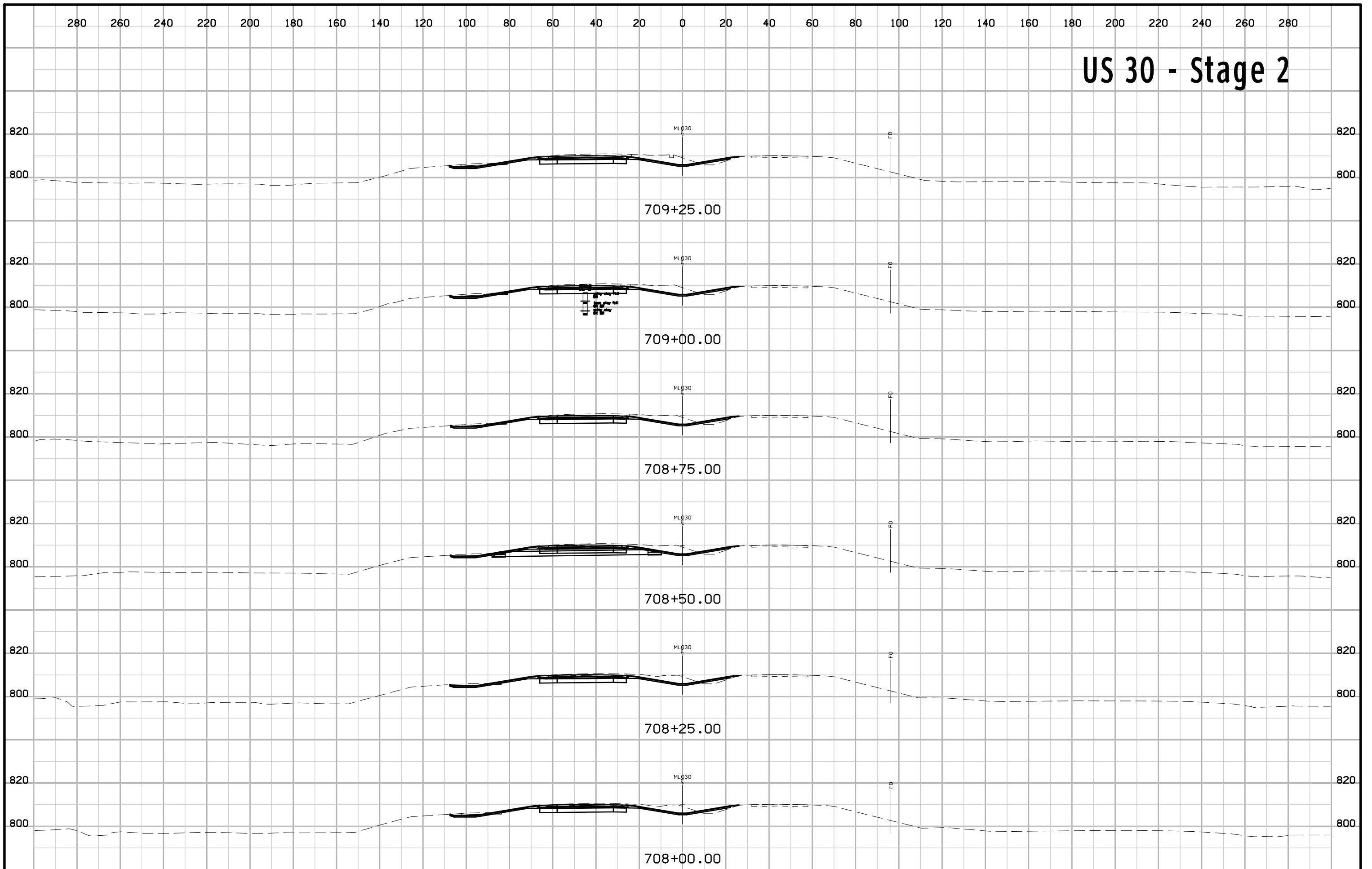
US 30 - Stage 2



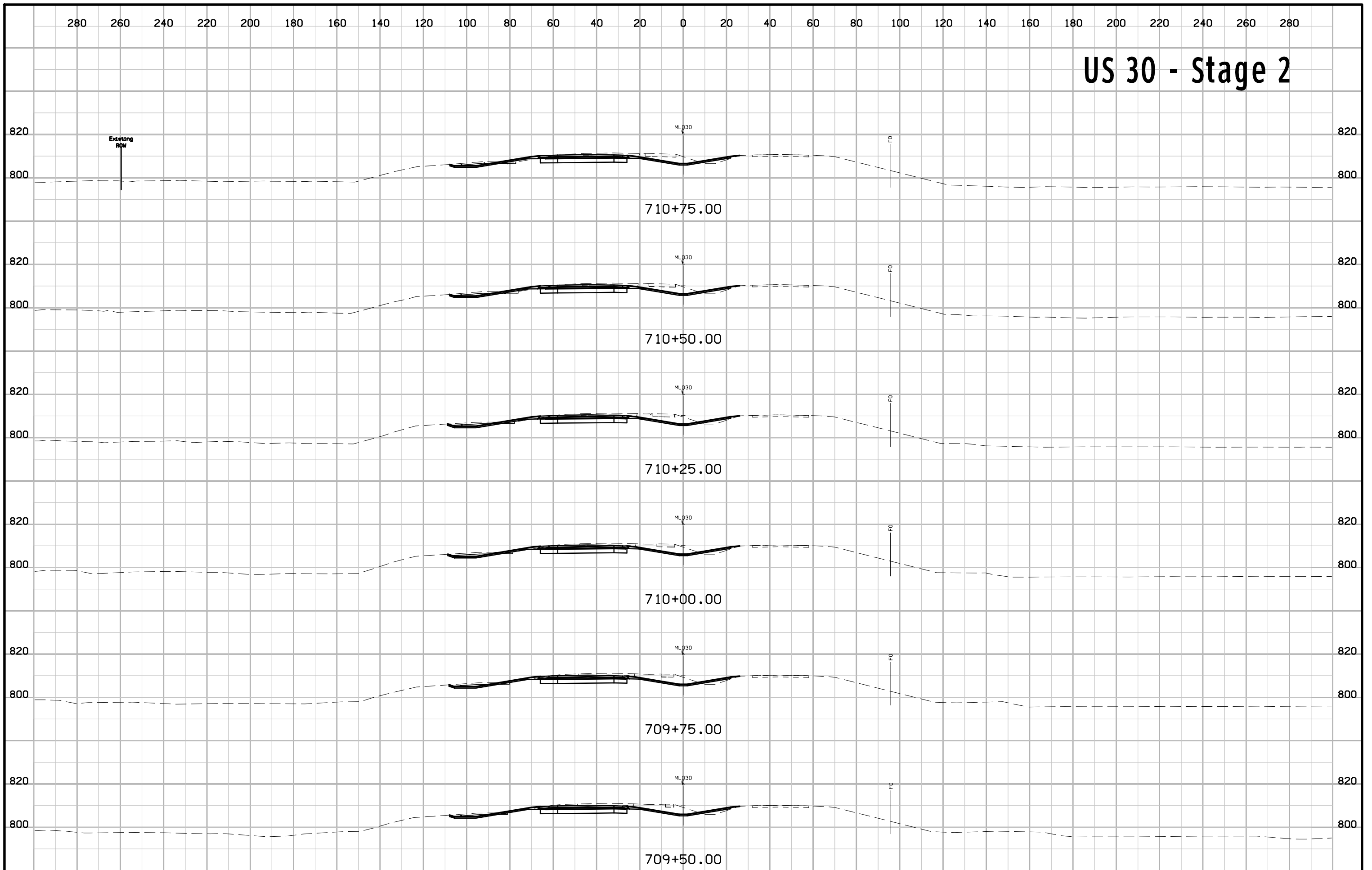
US 30 - Stage 2



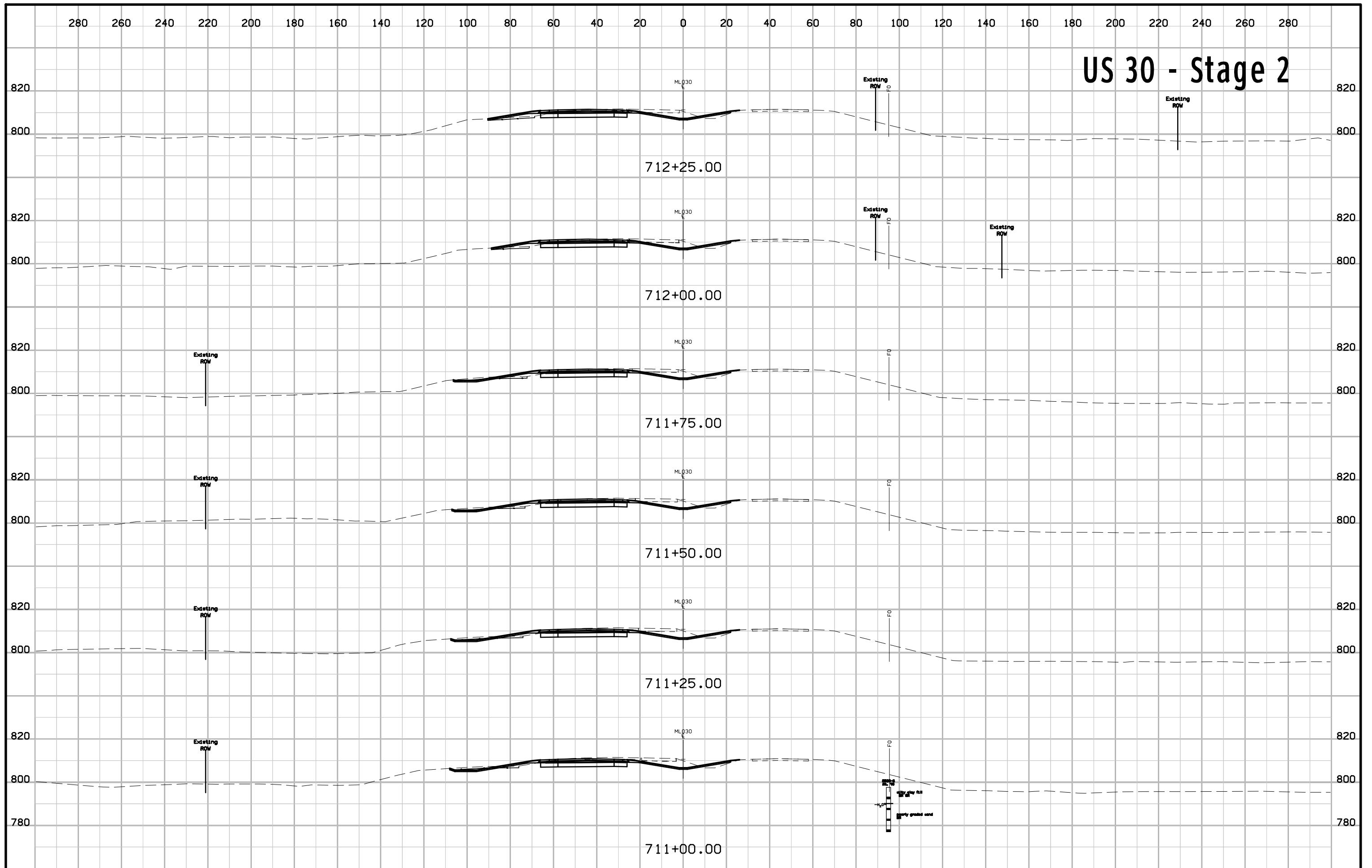
US 30 - Stage 2



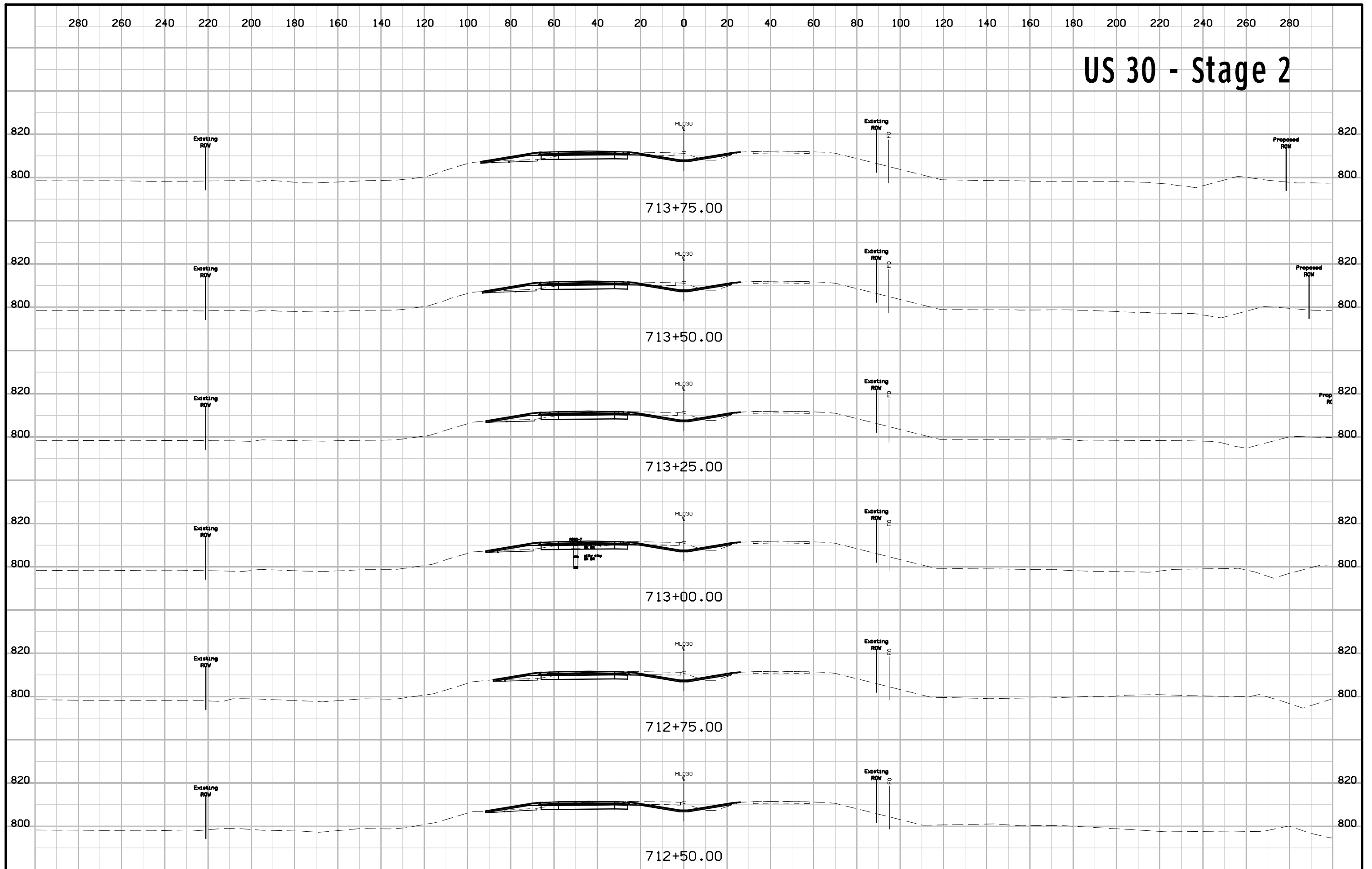
US 30 - Stage 2



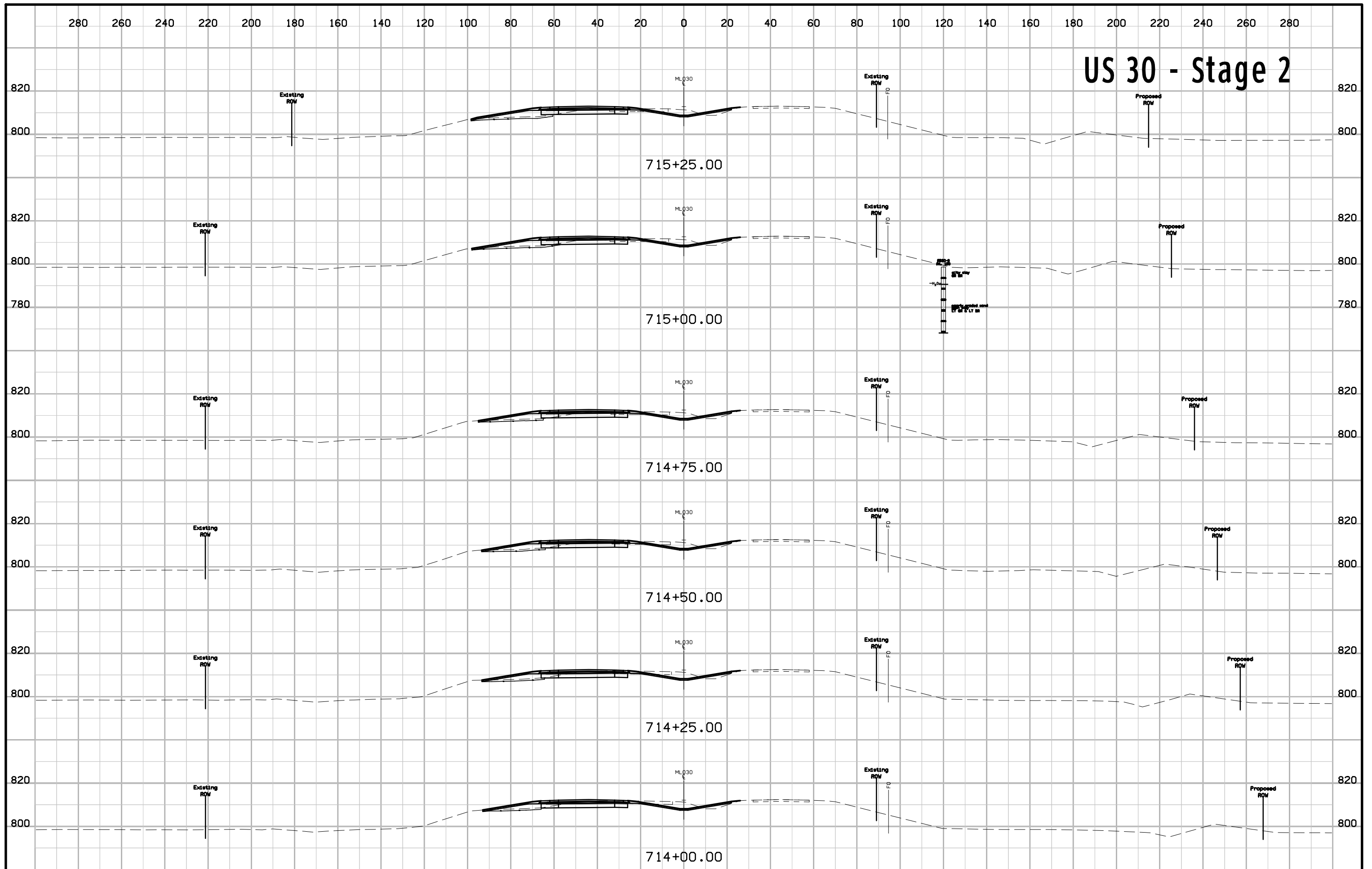
US 30 - Stage 2



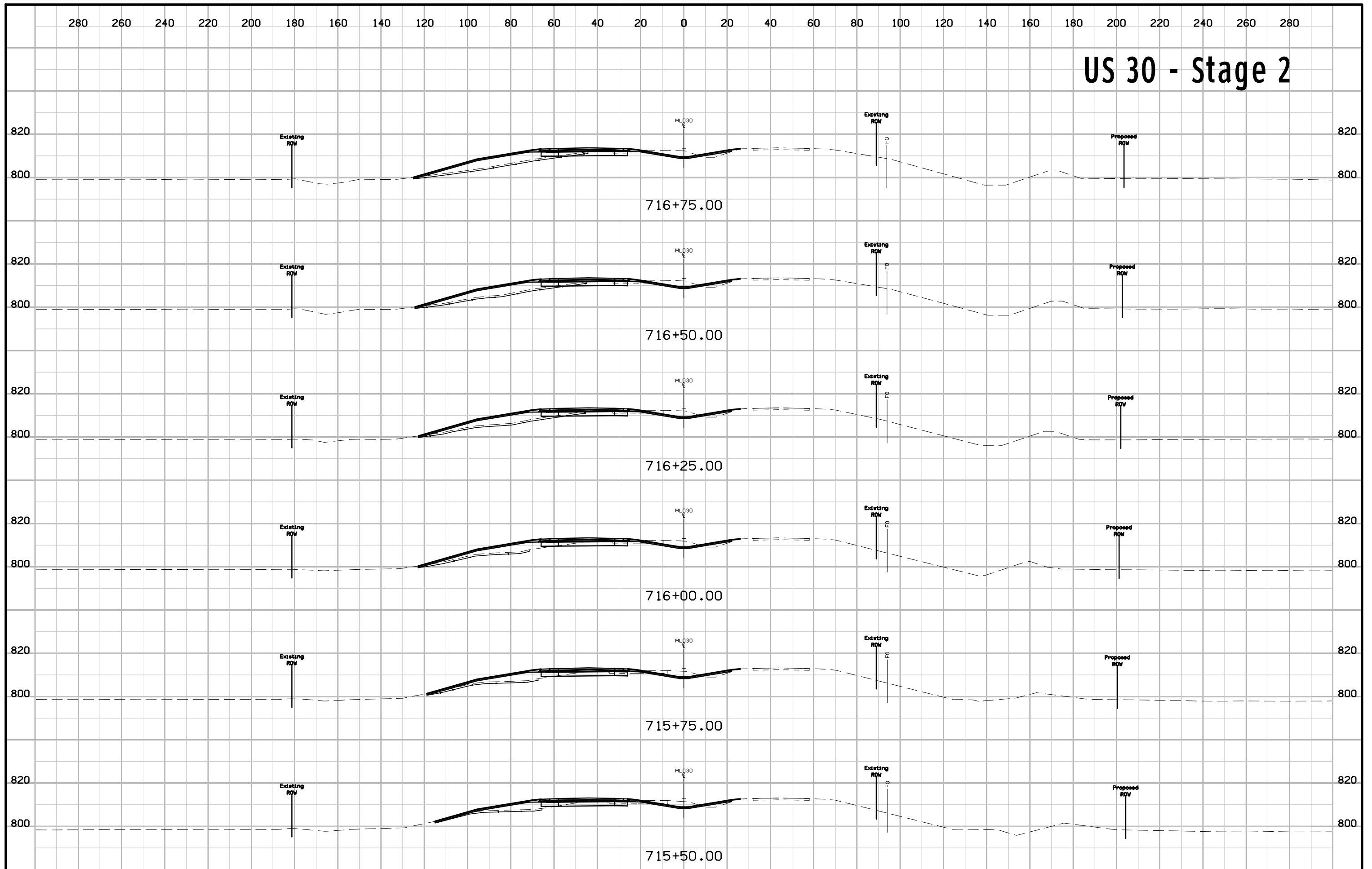
US 30 - Stage 2



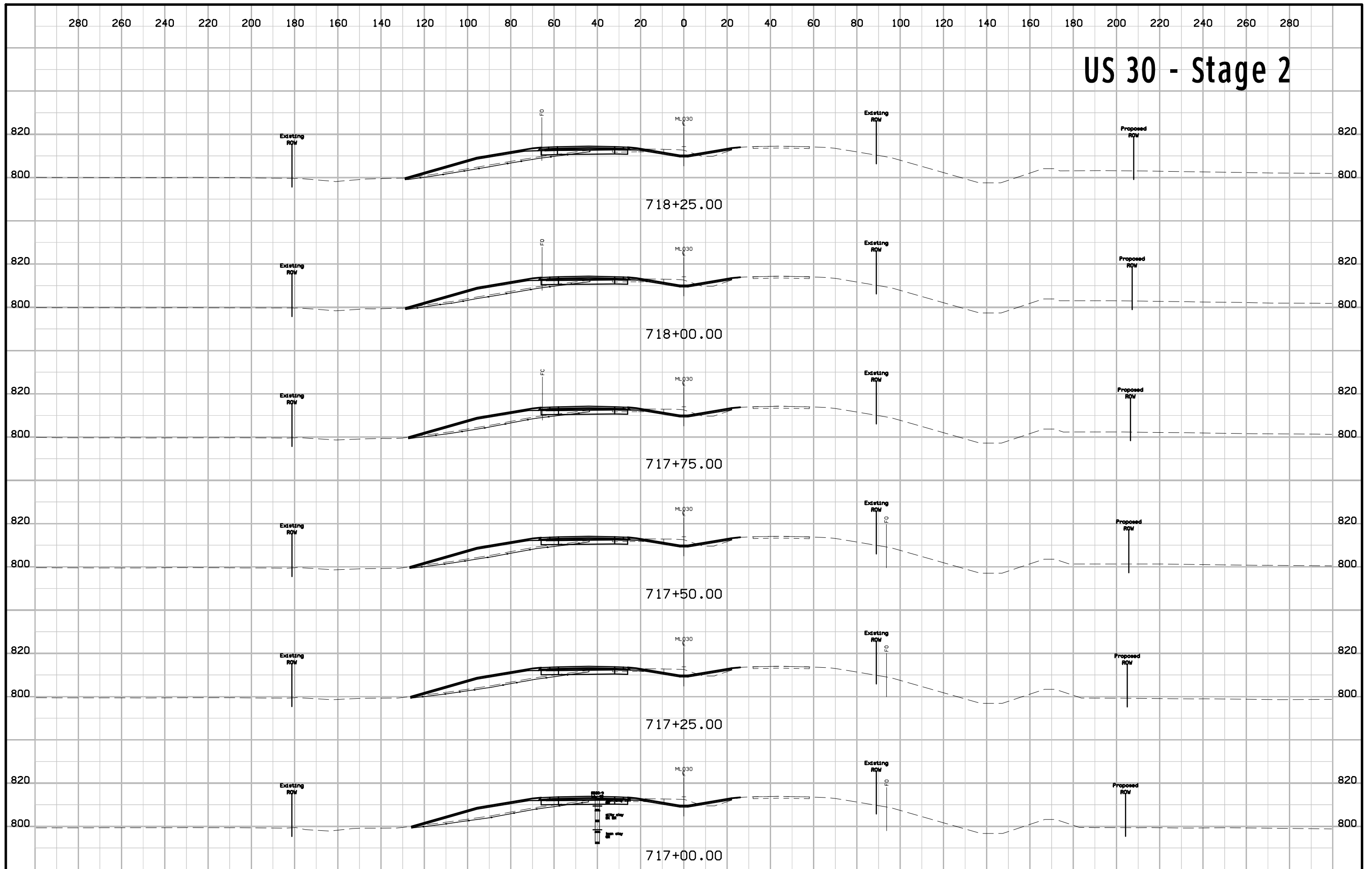
US 30 - Stage 2



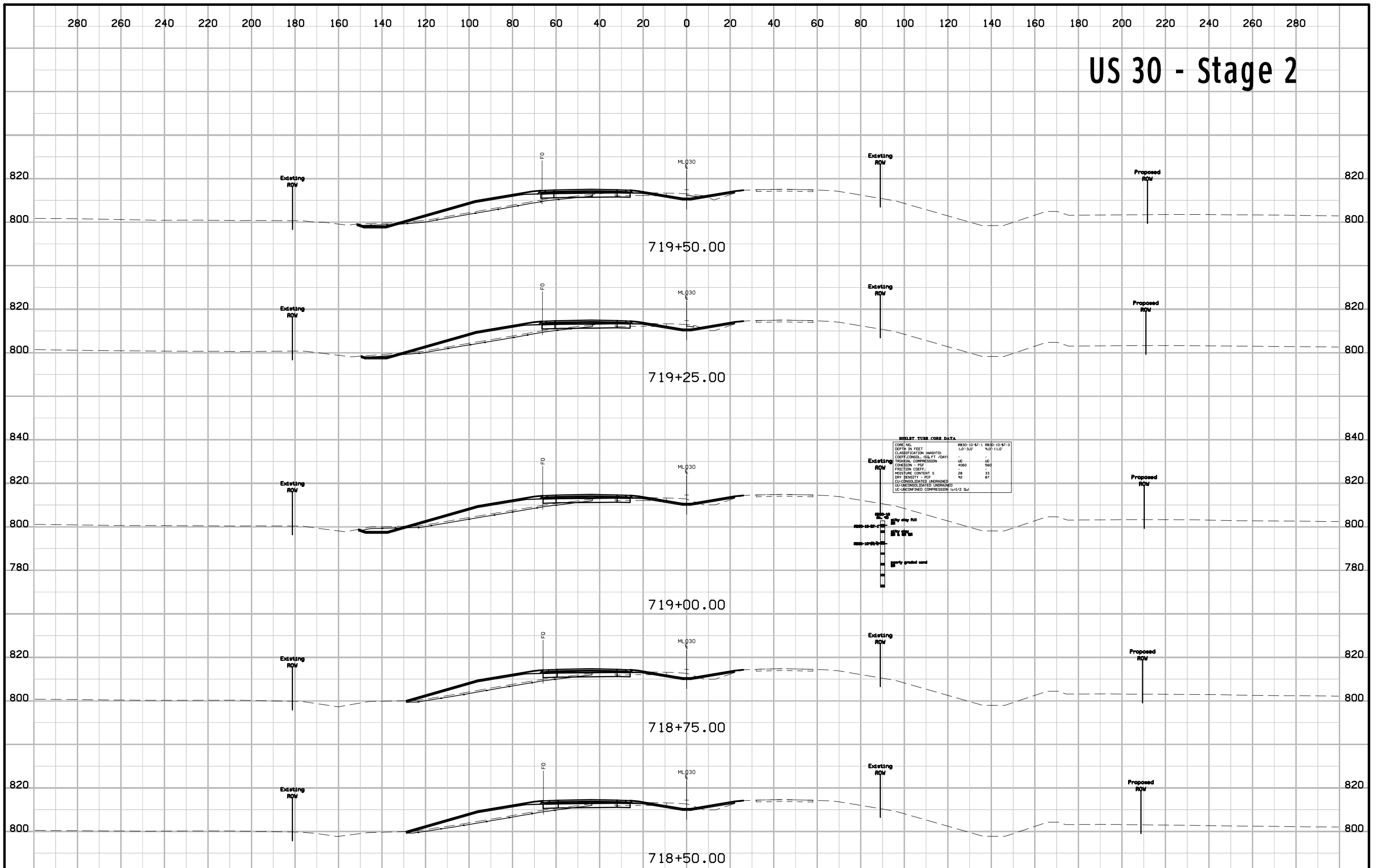
US 30 - Stage 2



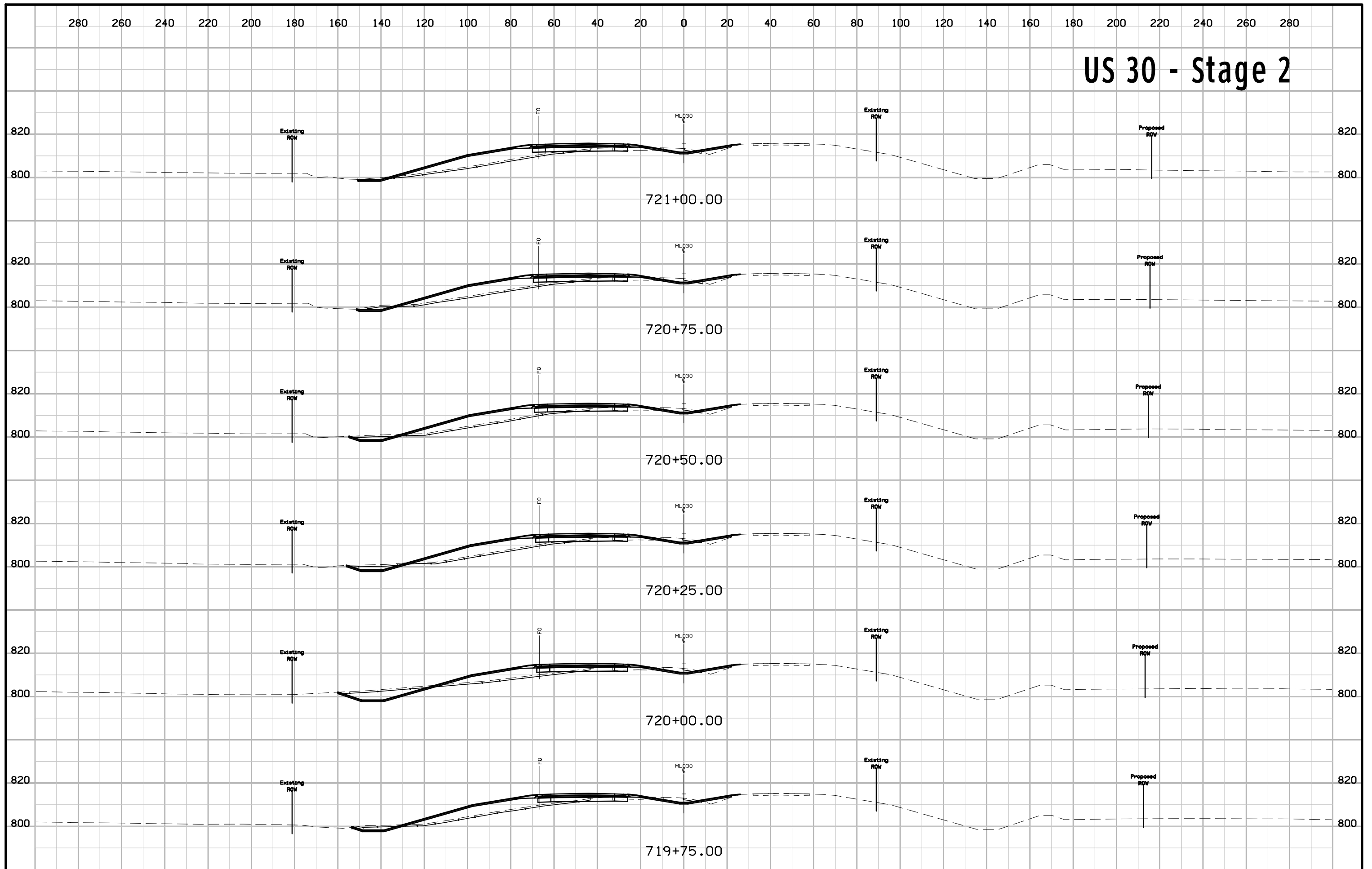
US 30 - Stage 2



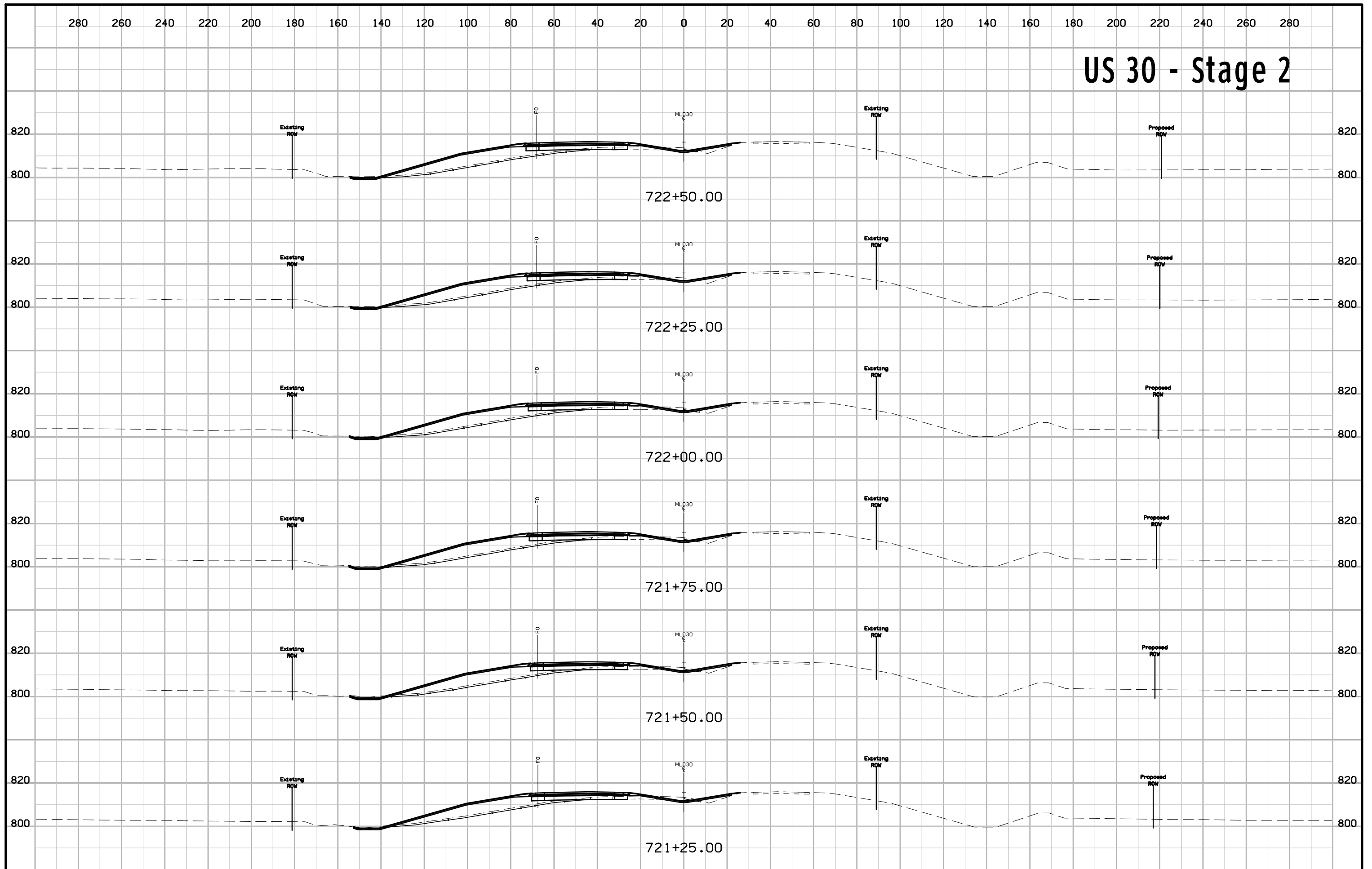
US 30 - Stage 2



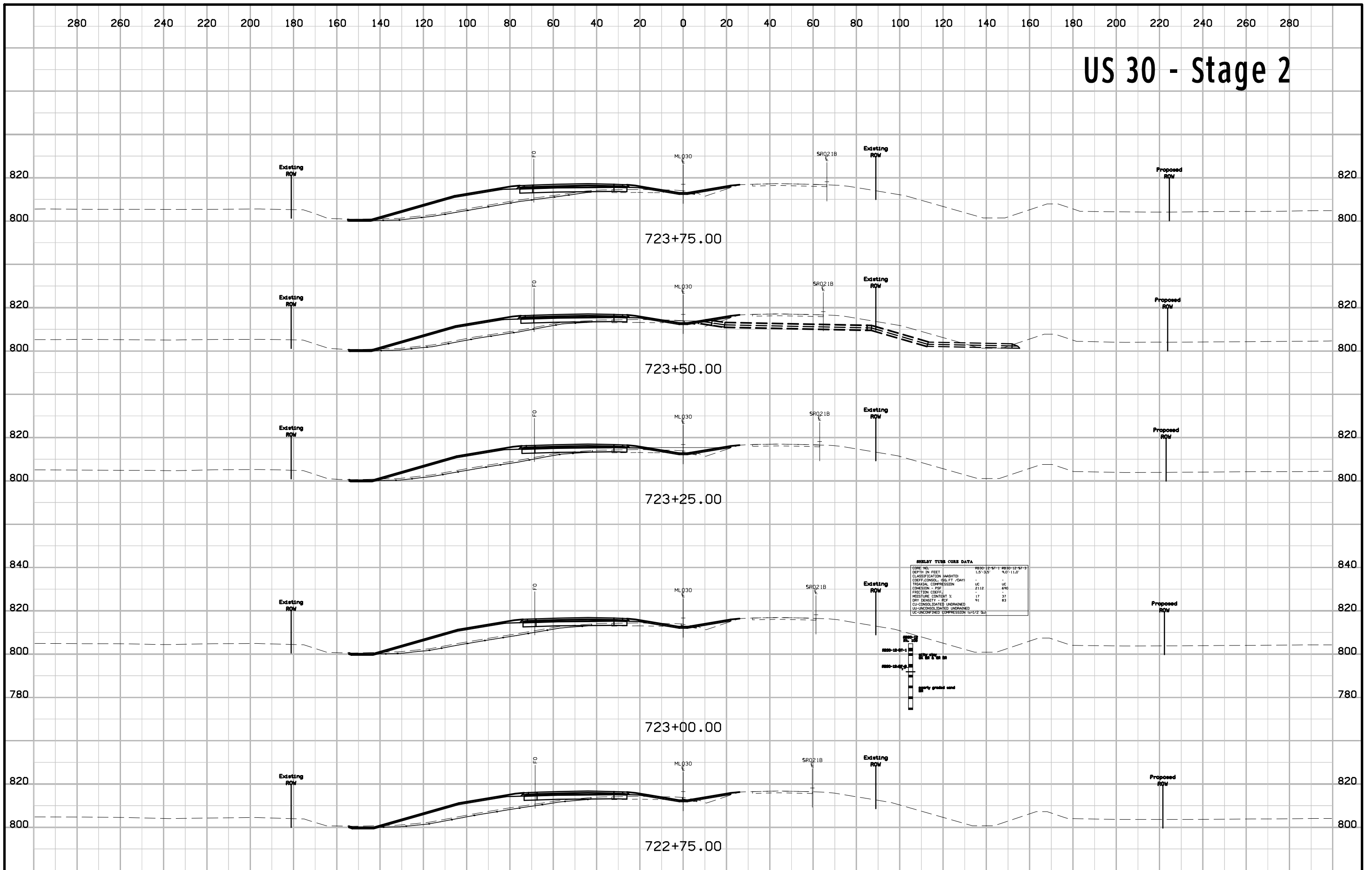
US 30 - Stage 2



US 30 - Stage 2



US 30 - Stage 2

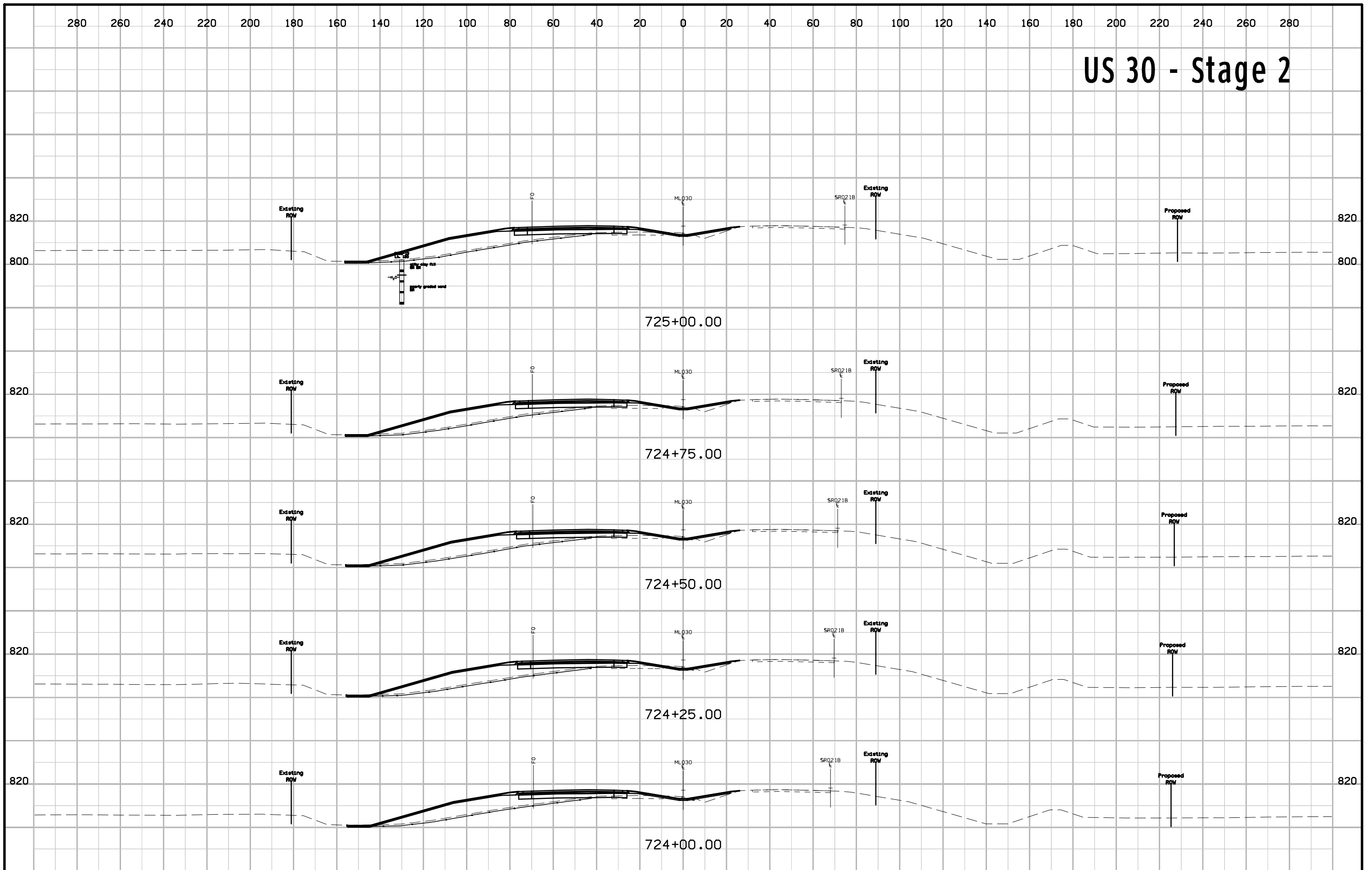


REILLY TUBE CORE DATA

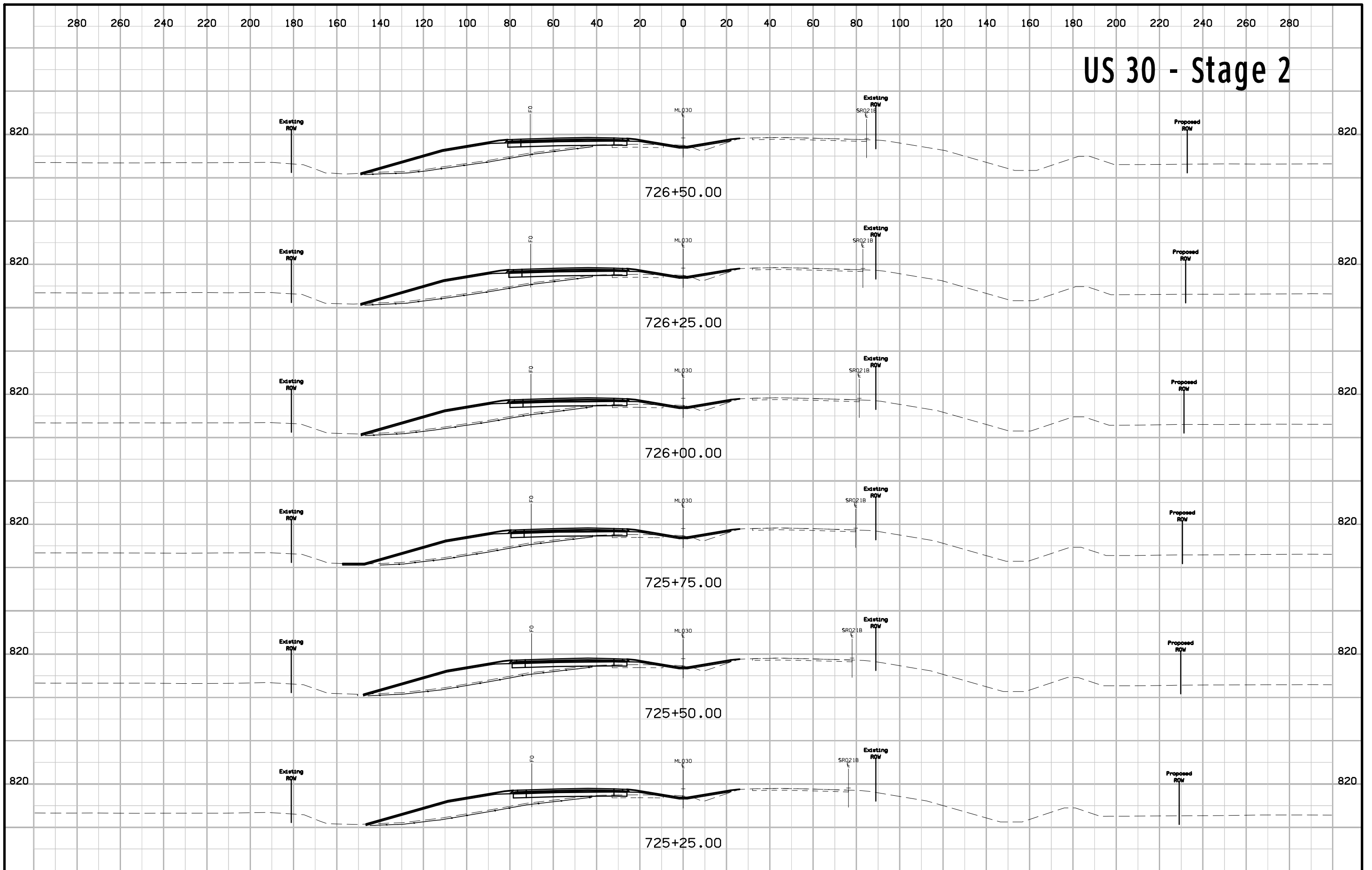
CORE NO.	RS30-12-91-1	RS30-12-91-3
DEPTH IN FEET	1.5'-3.0'	4.0'-11.0'
CLASSIFICATION (ASHSTO)	-	-
COEFF. CONSOL. (80, FT / DAY)	UC	UC
TRIAL. COMPRESSION	2112	690
COHESION - PSF	-	-
FRICTION COEFF.	17	37
MOISTURE CONTENT %	91	83
DRY DENSITY - PCF	-	-
CU-CONSOLIDATED UNDRAINED	-	-
UC-UNCONSOLIDATED COMPRESSION (141/2) CU	-	-



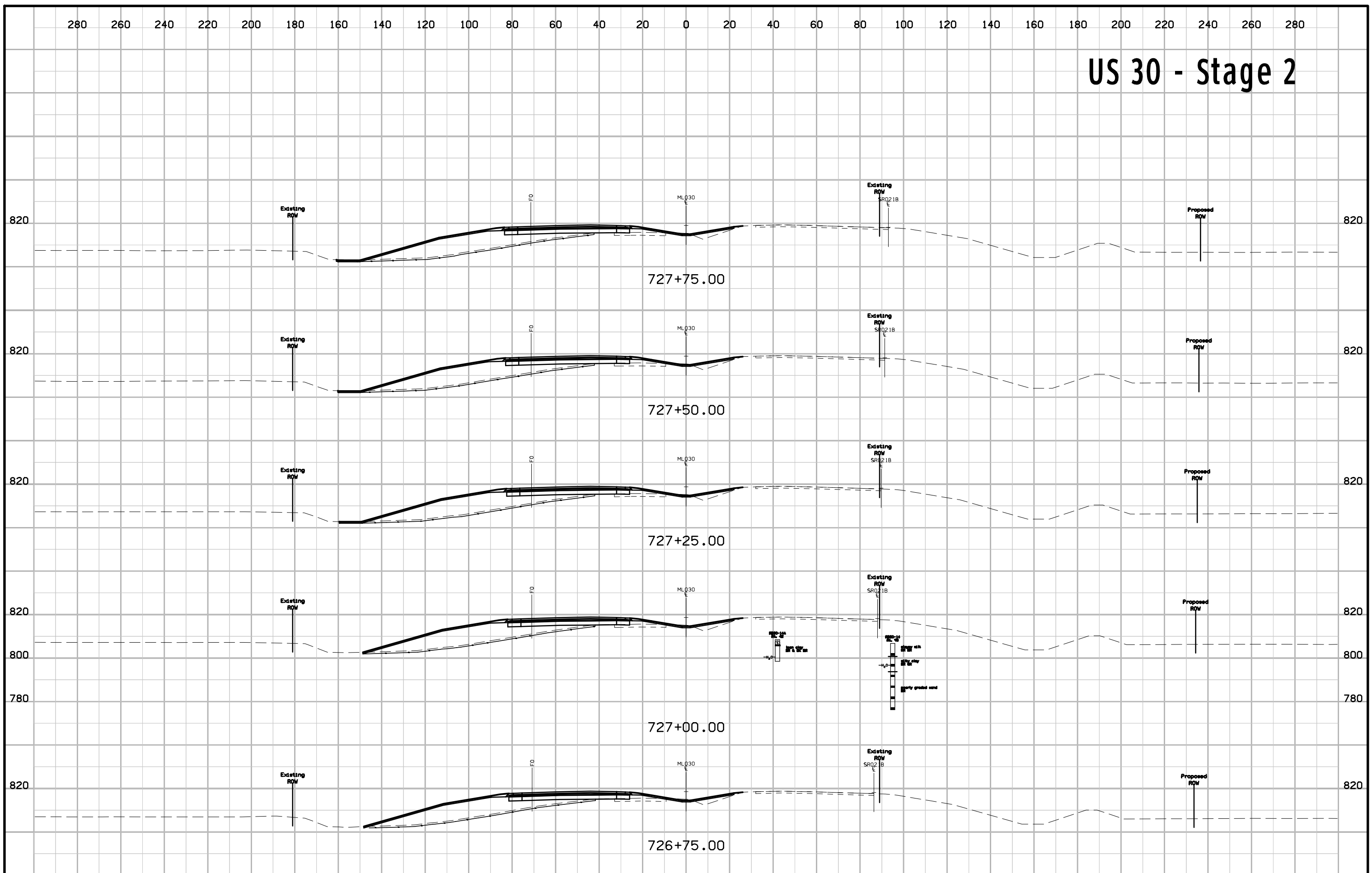
US 30 - Stage 2



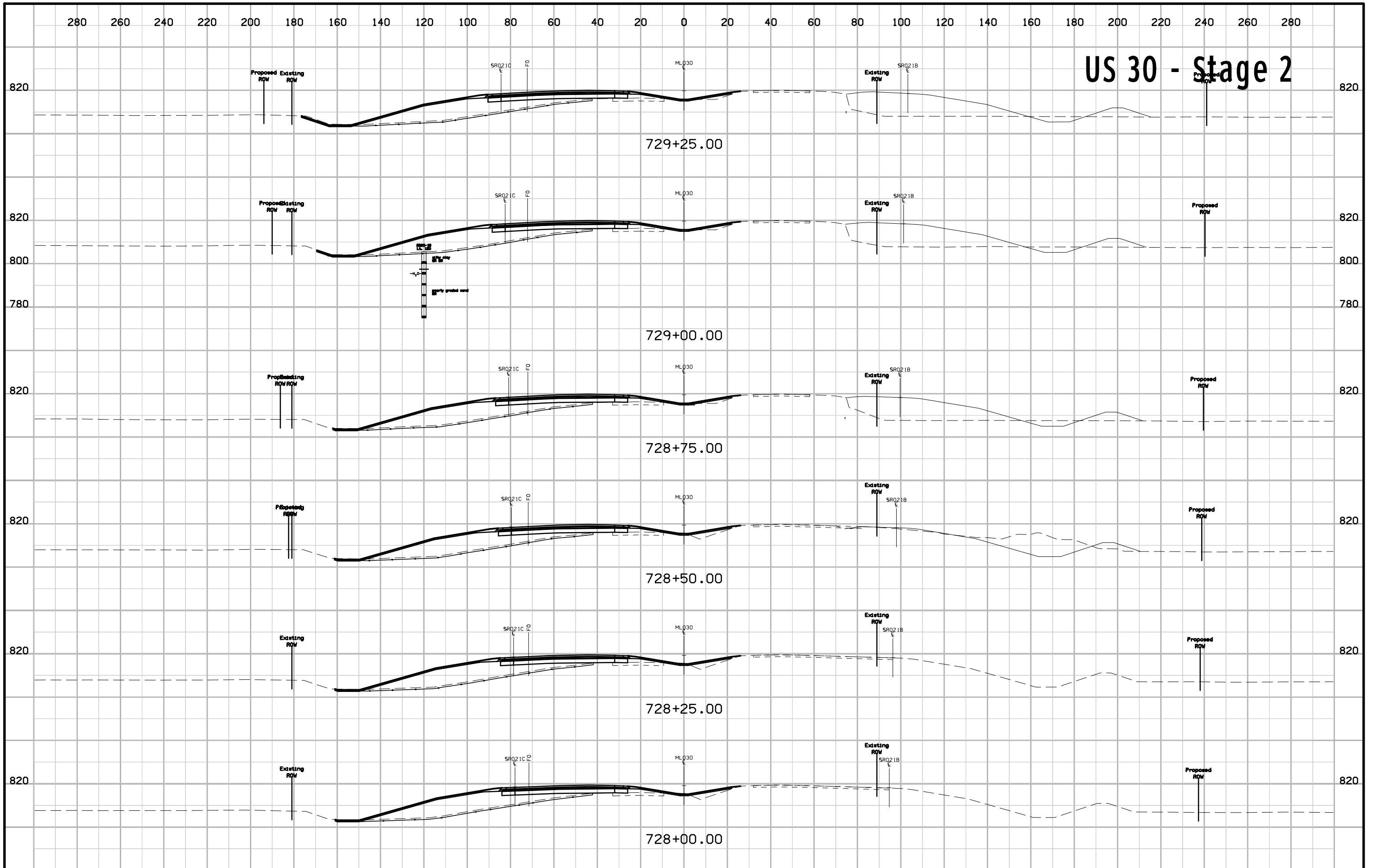
US 30 - Stage 2



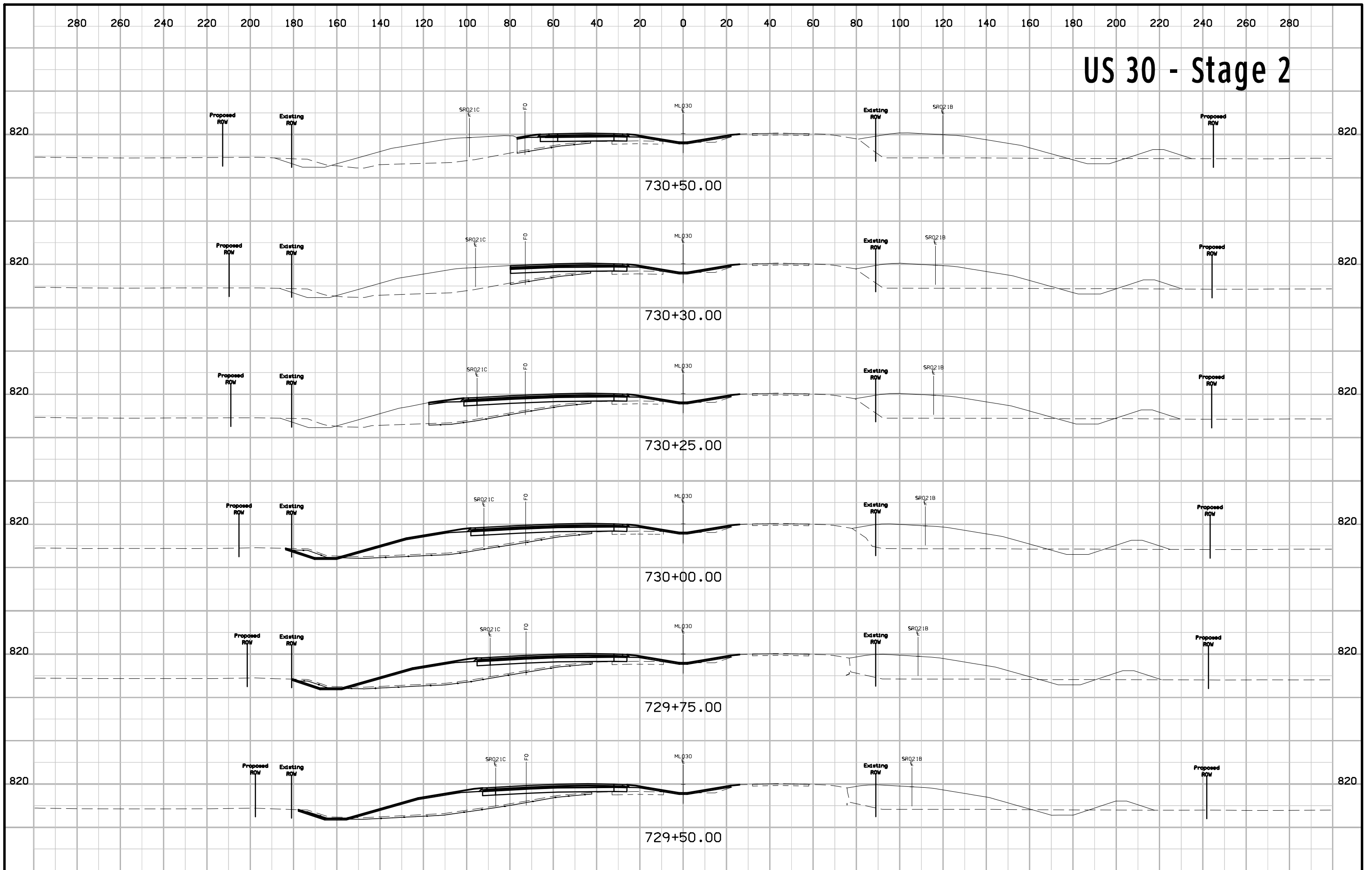
US 30 - Stage 2



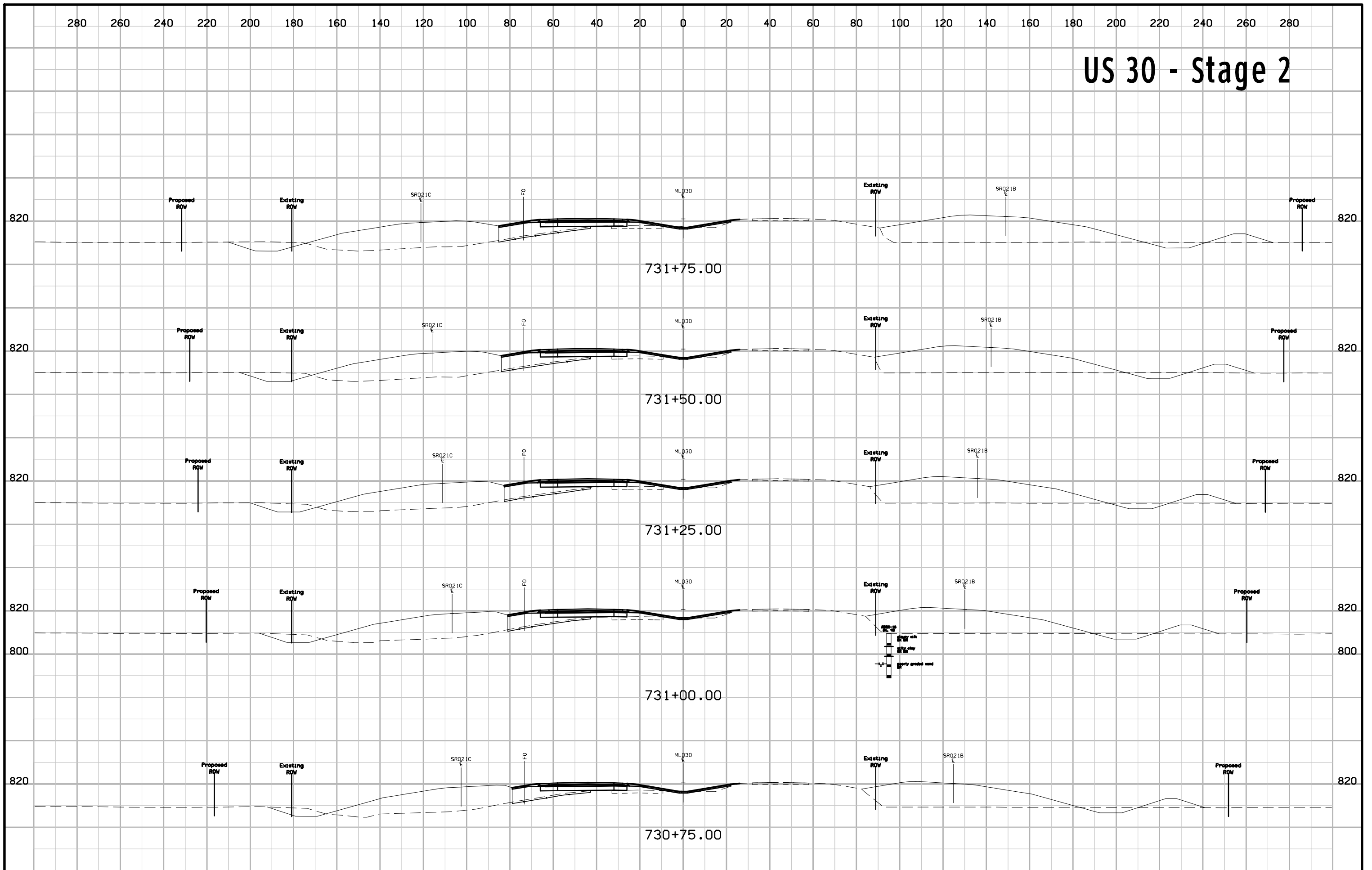
US 30 - Stage 2



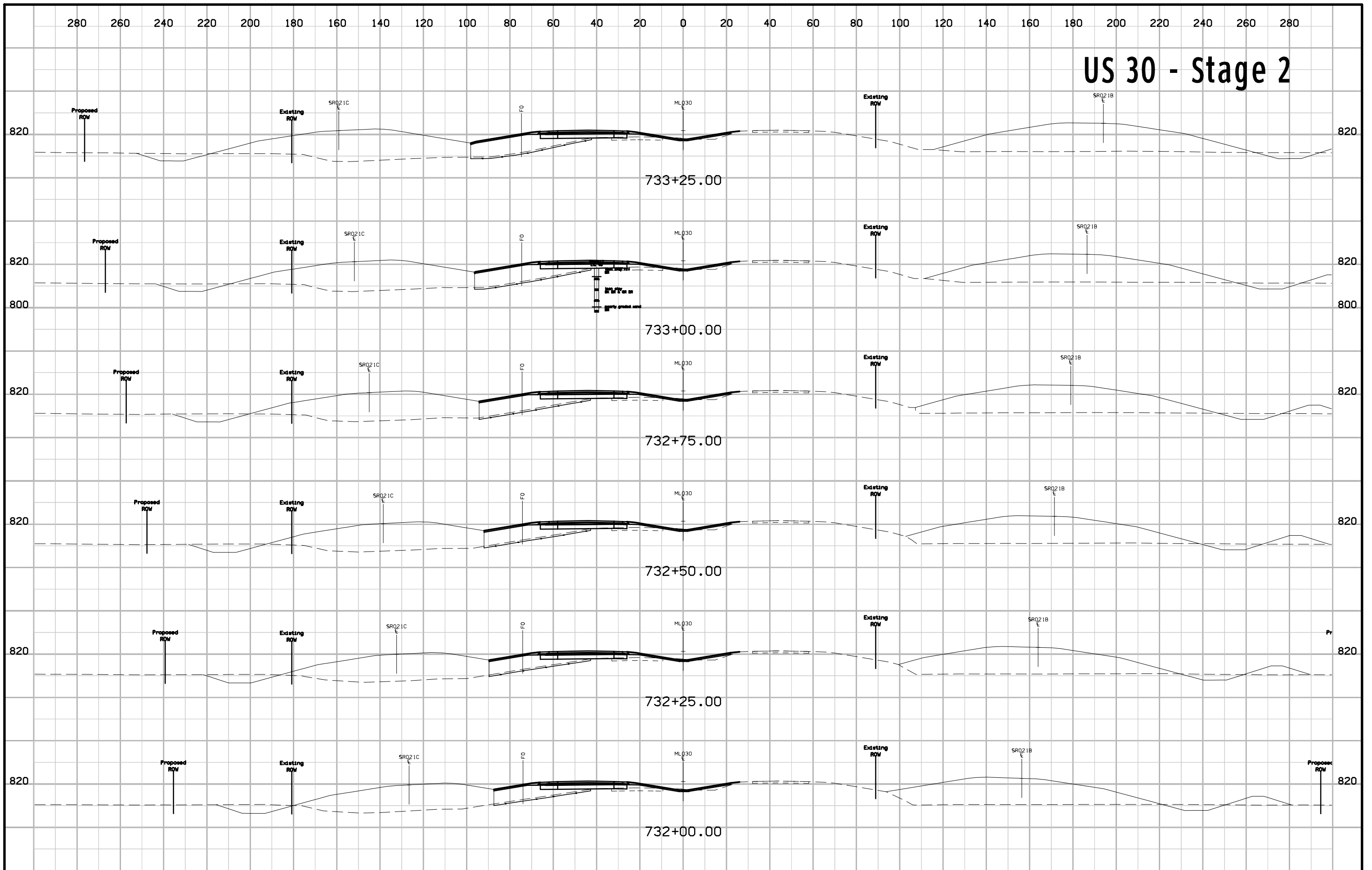
US 30 - Stage 2



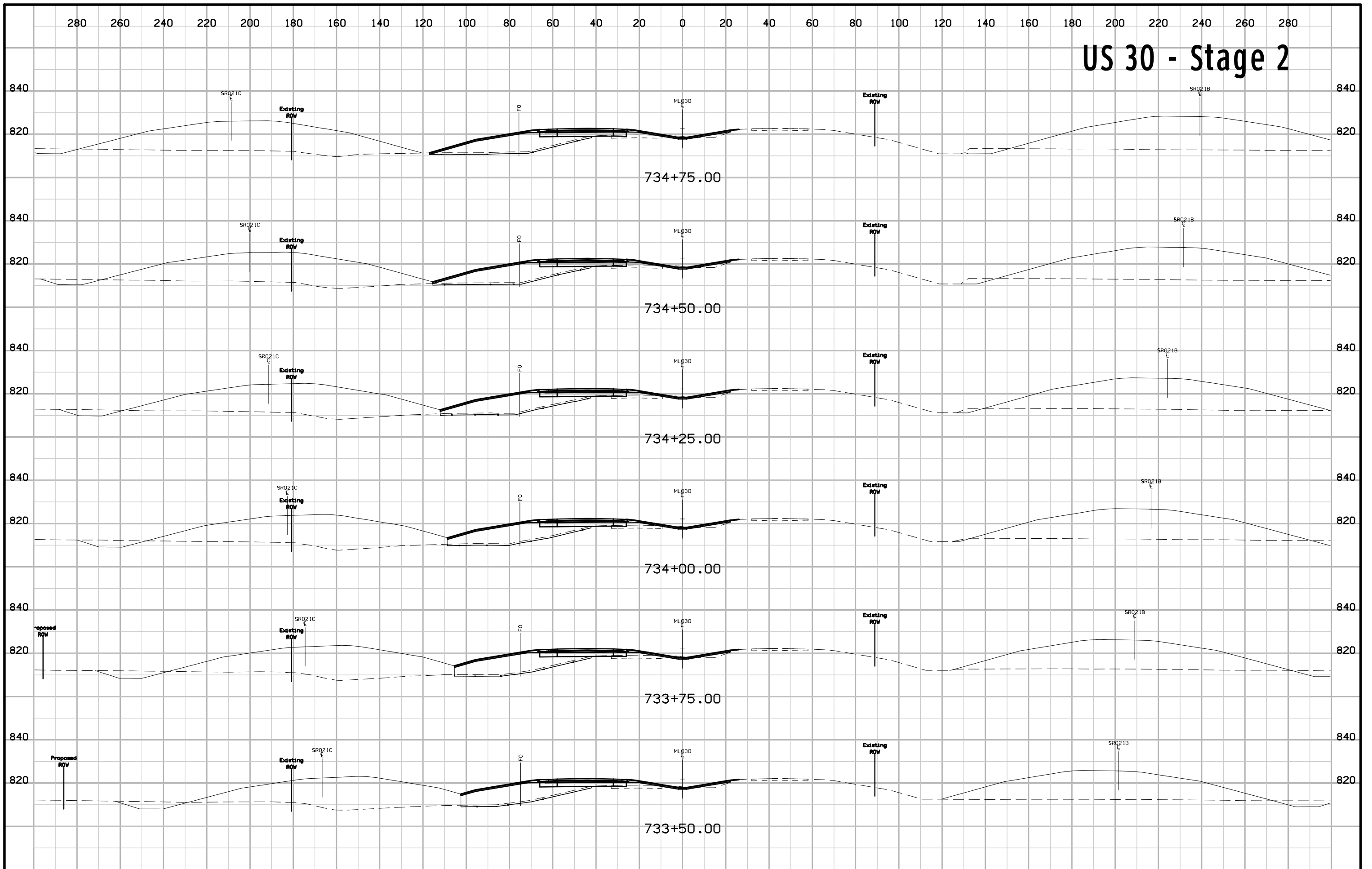
US 30 - Stage 2



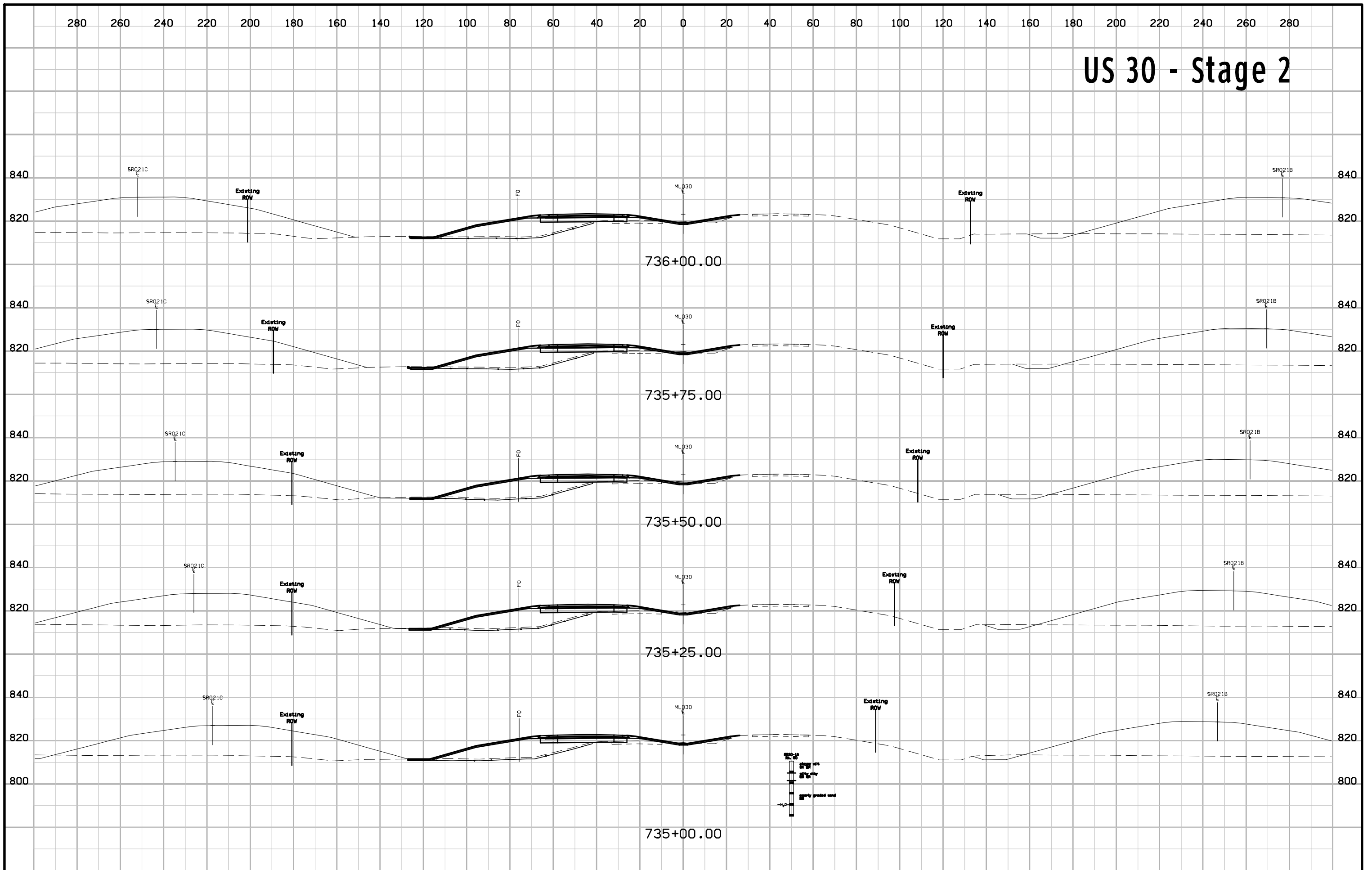
US 30 - Stage 2



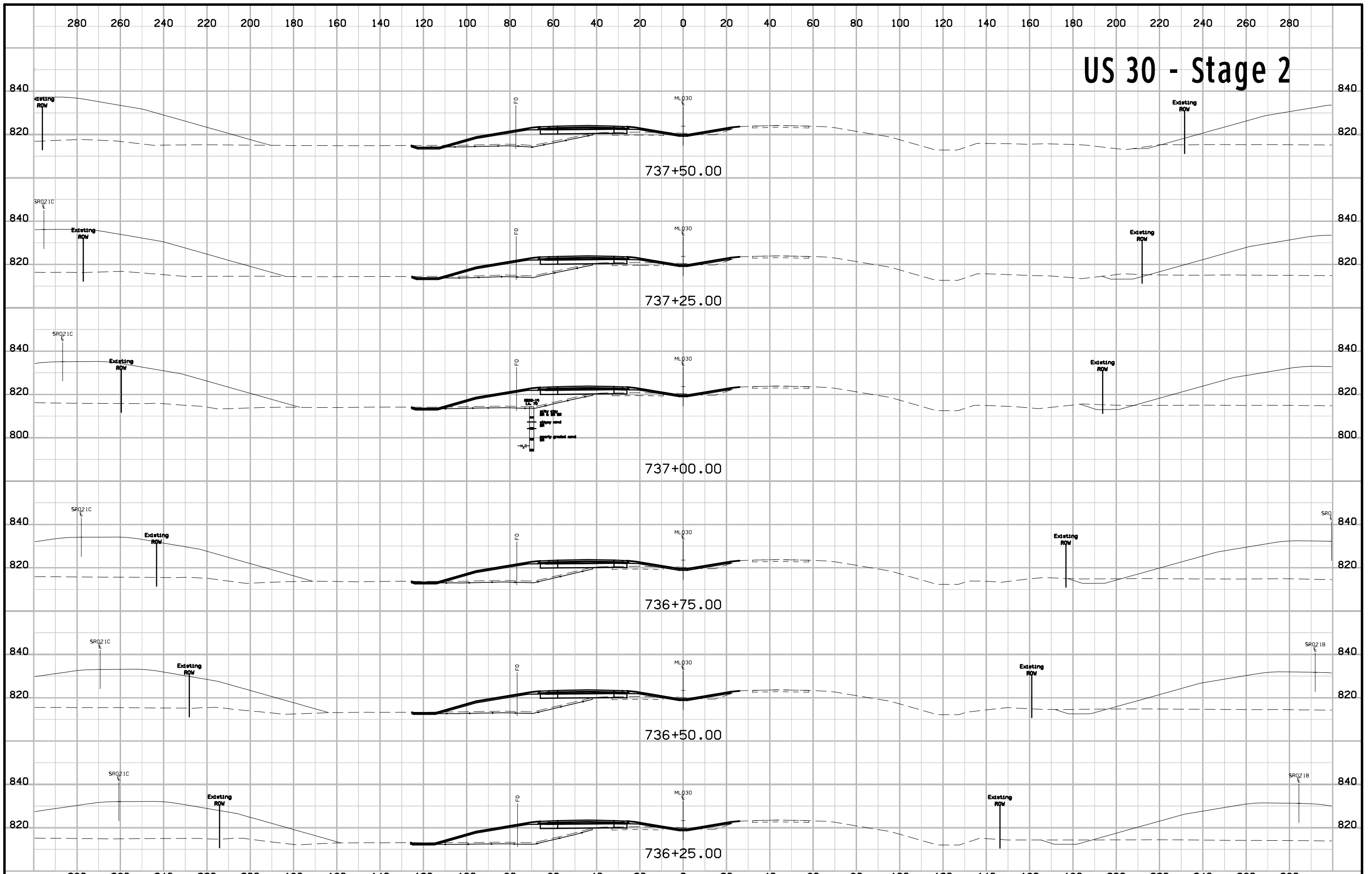
US 30 - Stage 2



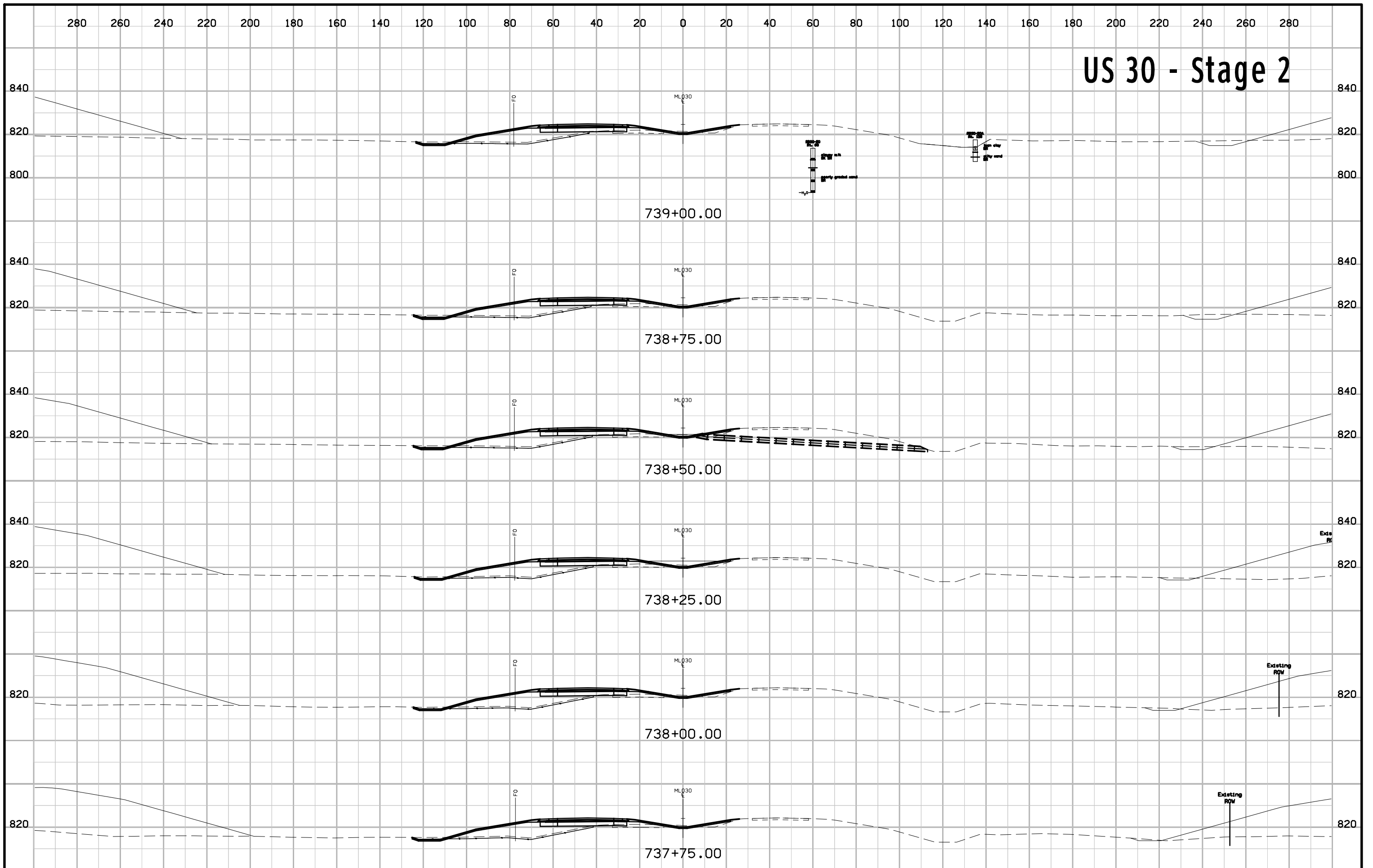
US 30 - Stage 2



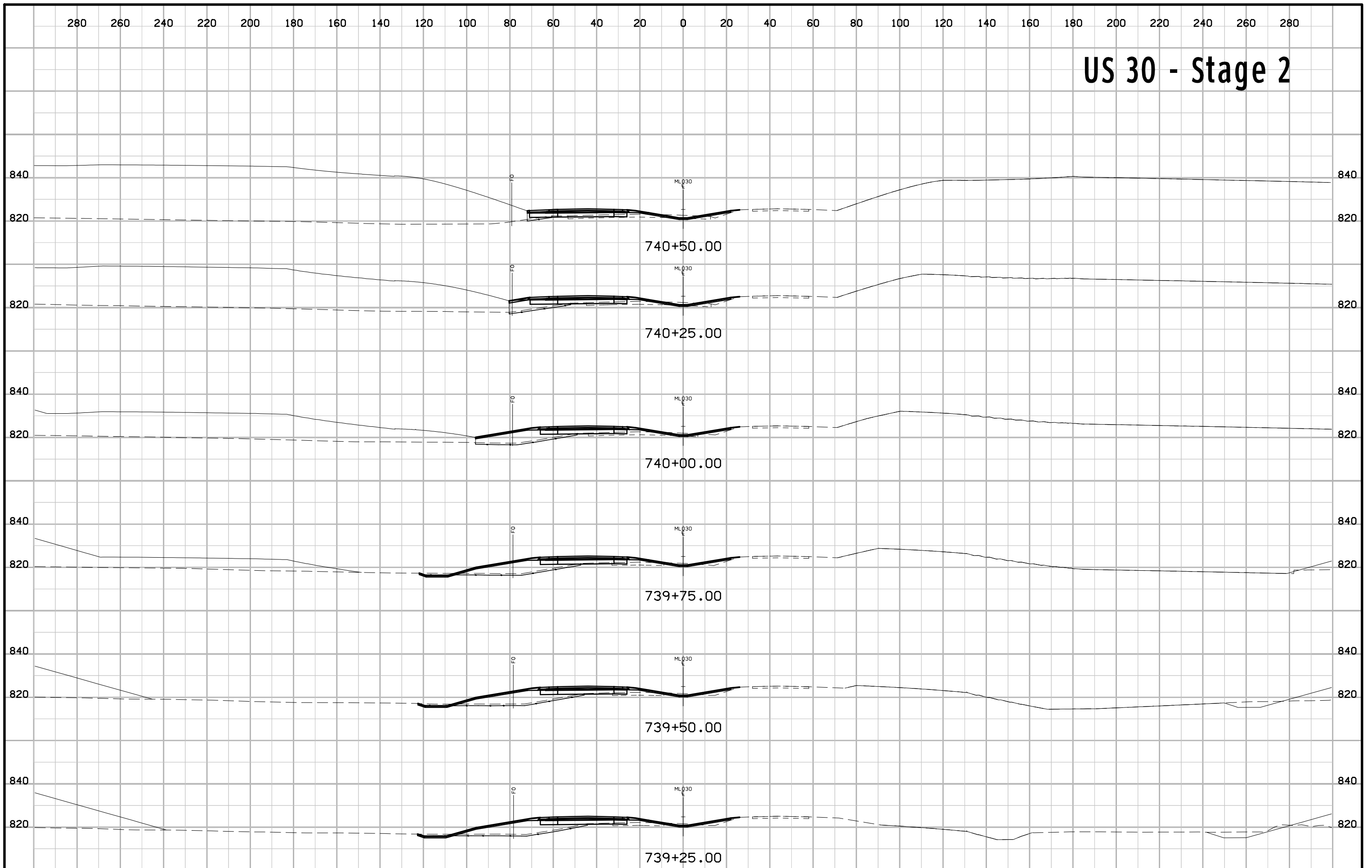
US 30 - Stage 2



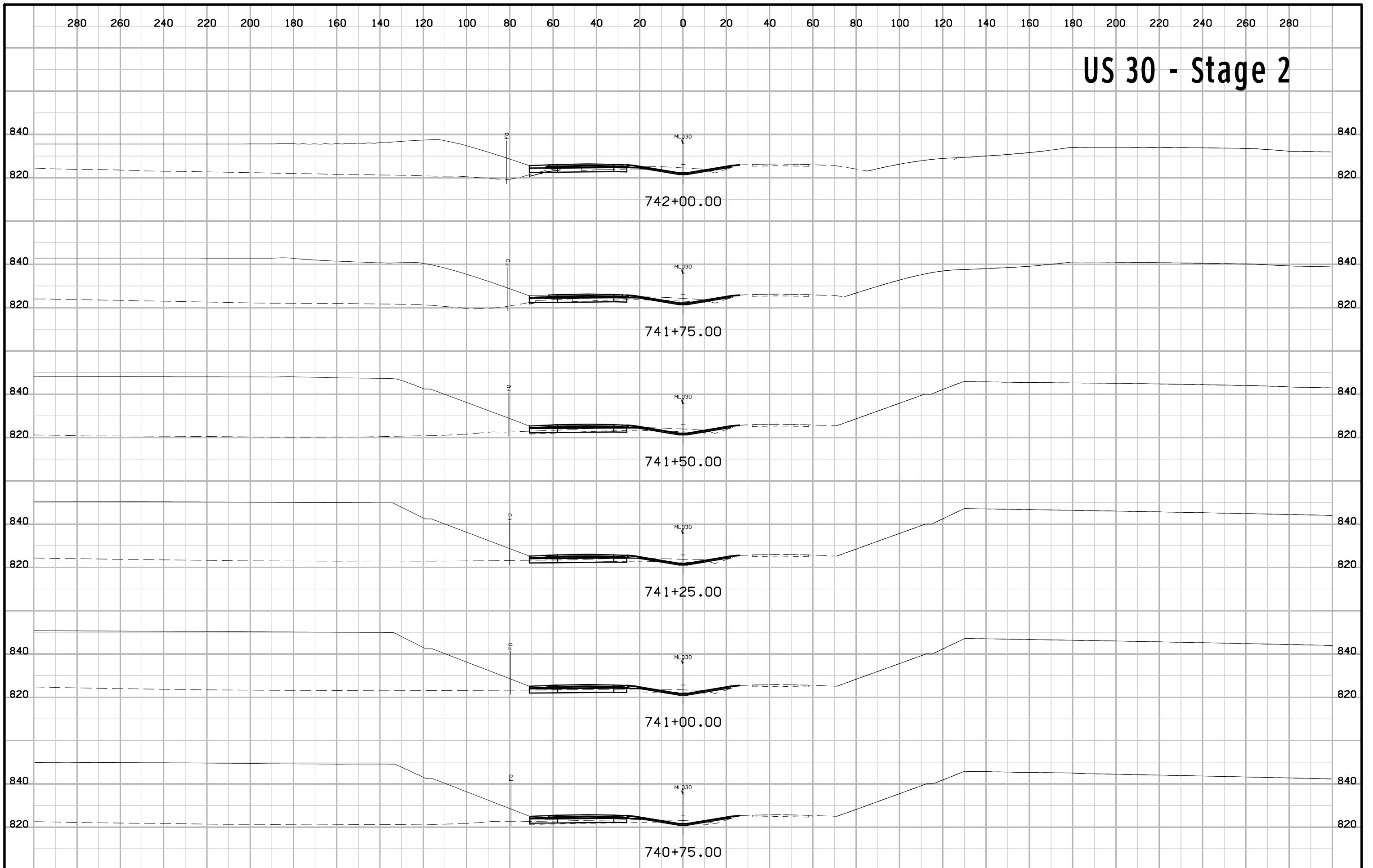
US 30 - Stage 2



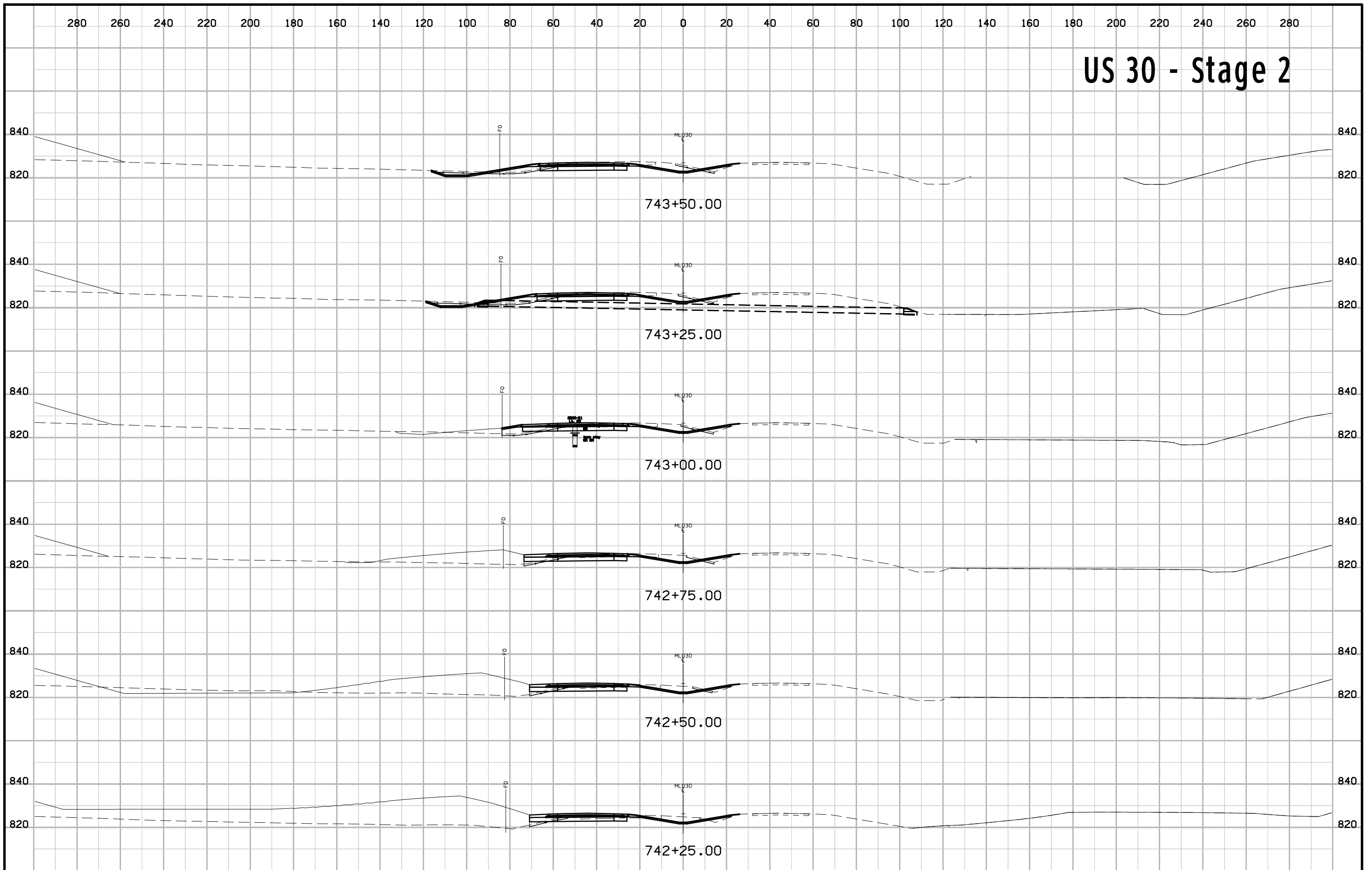
US 30 - Stage 2



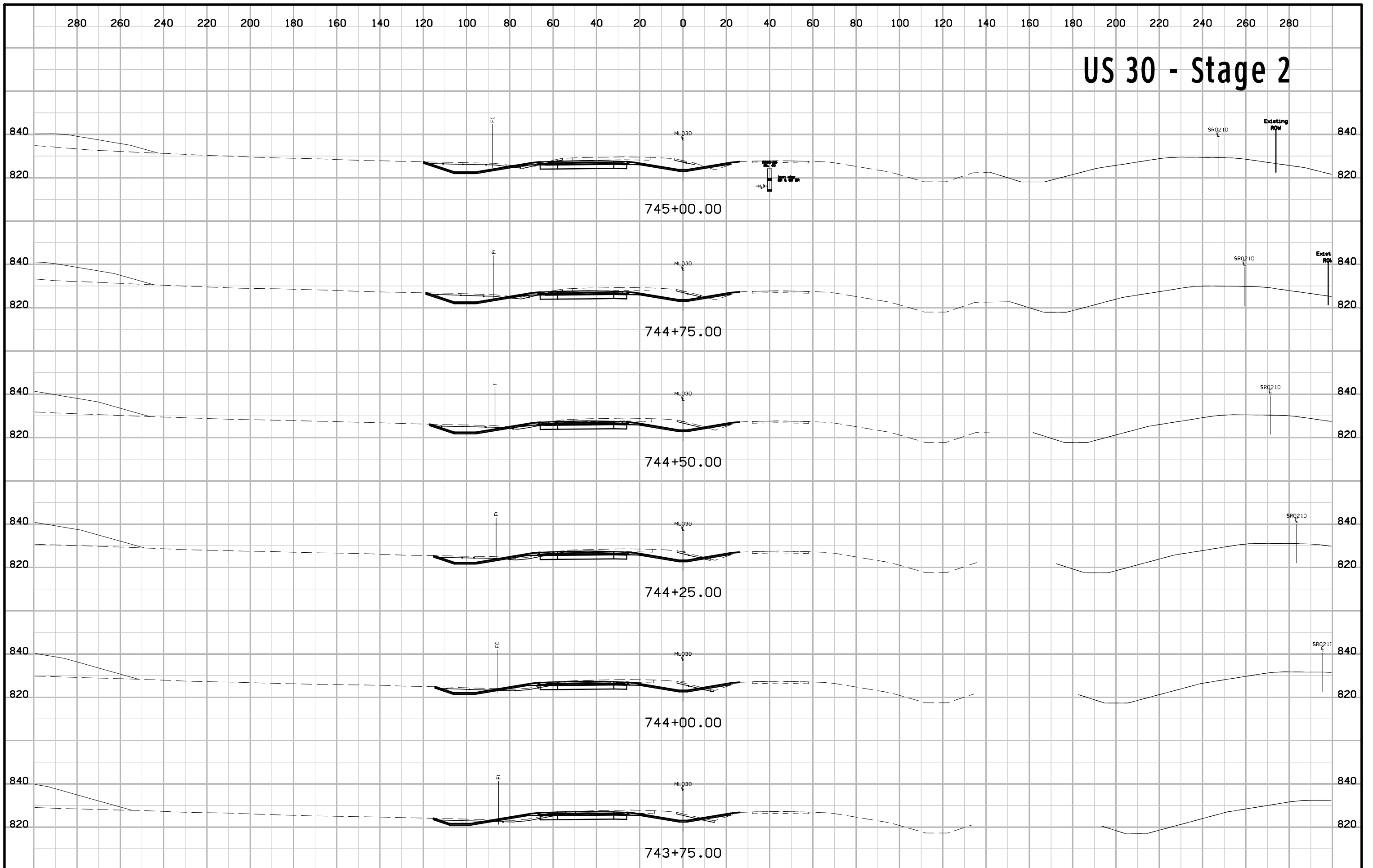
US 30 - Stage 2



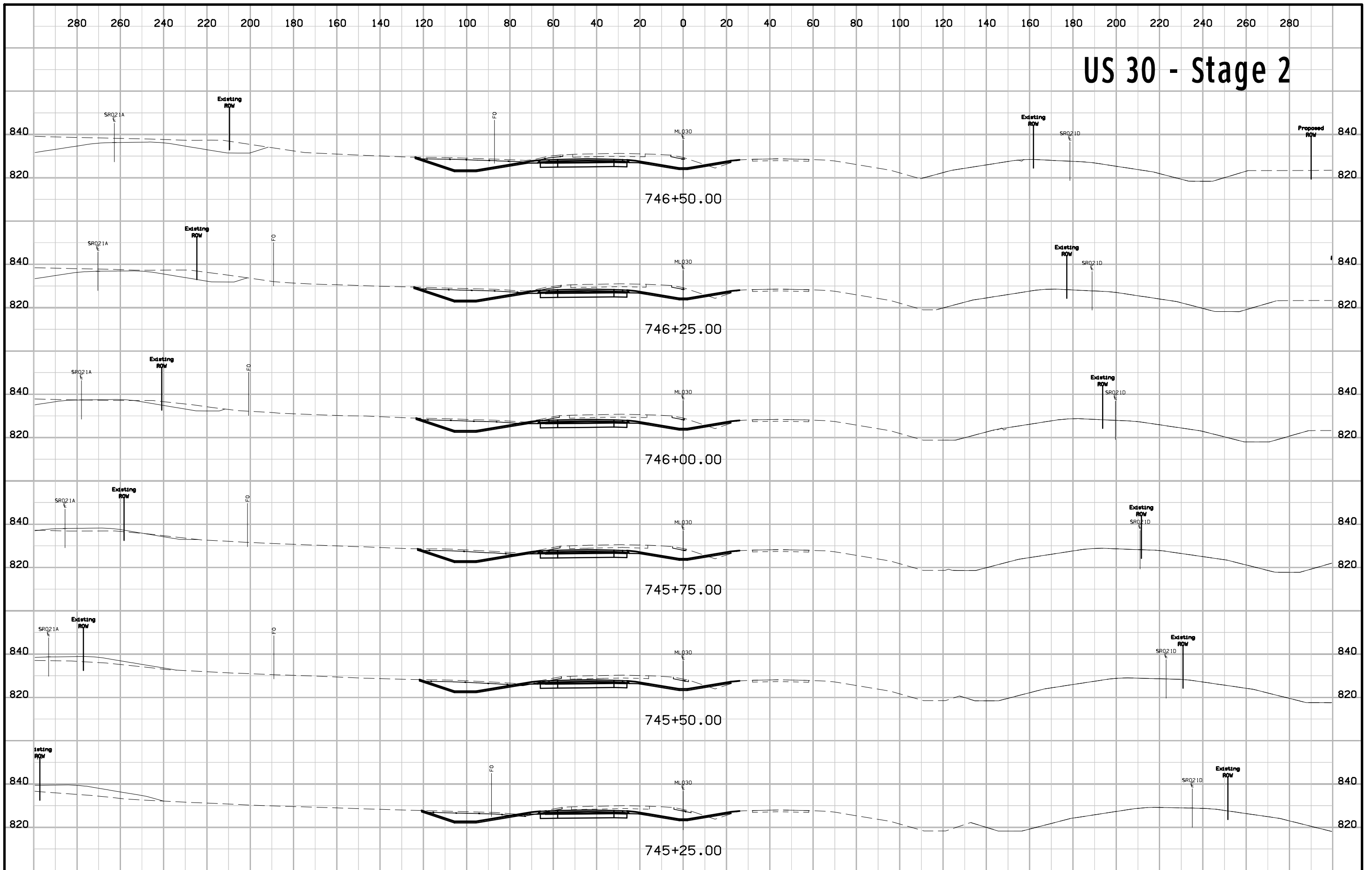
US 30 - Stage 2



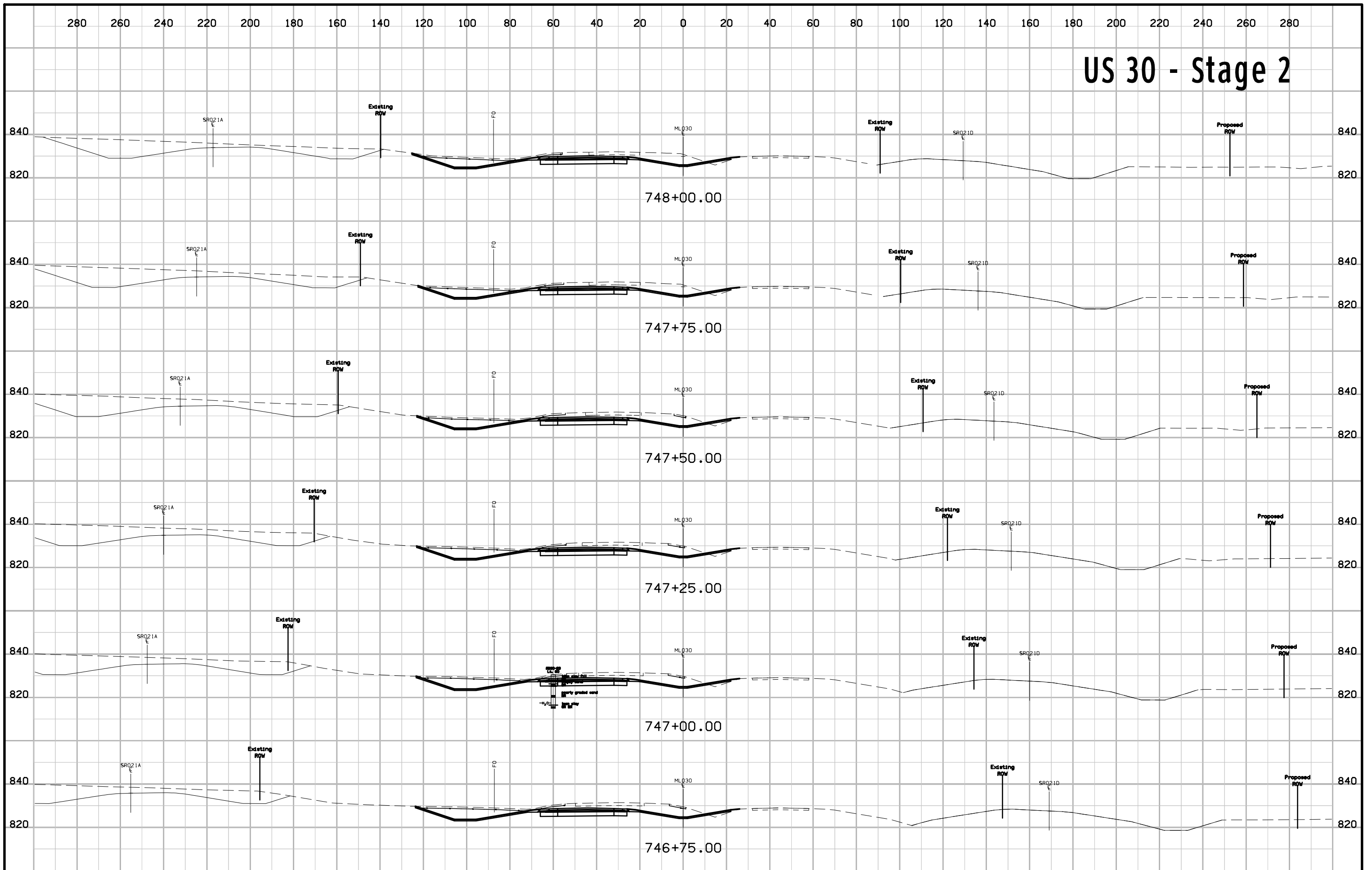
US 30 - Stage 2



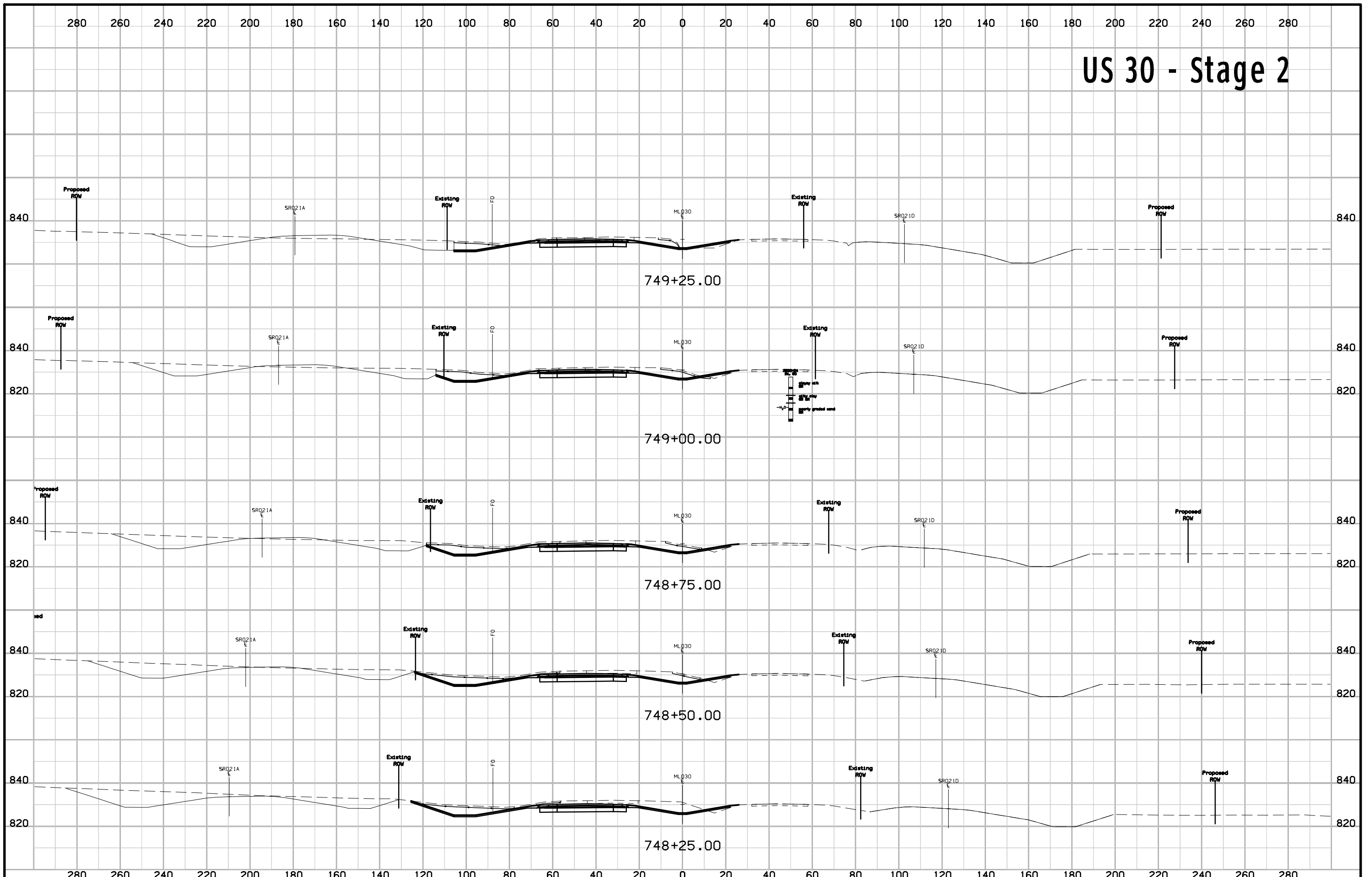
US 30 - Stage 2



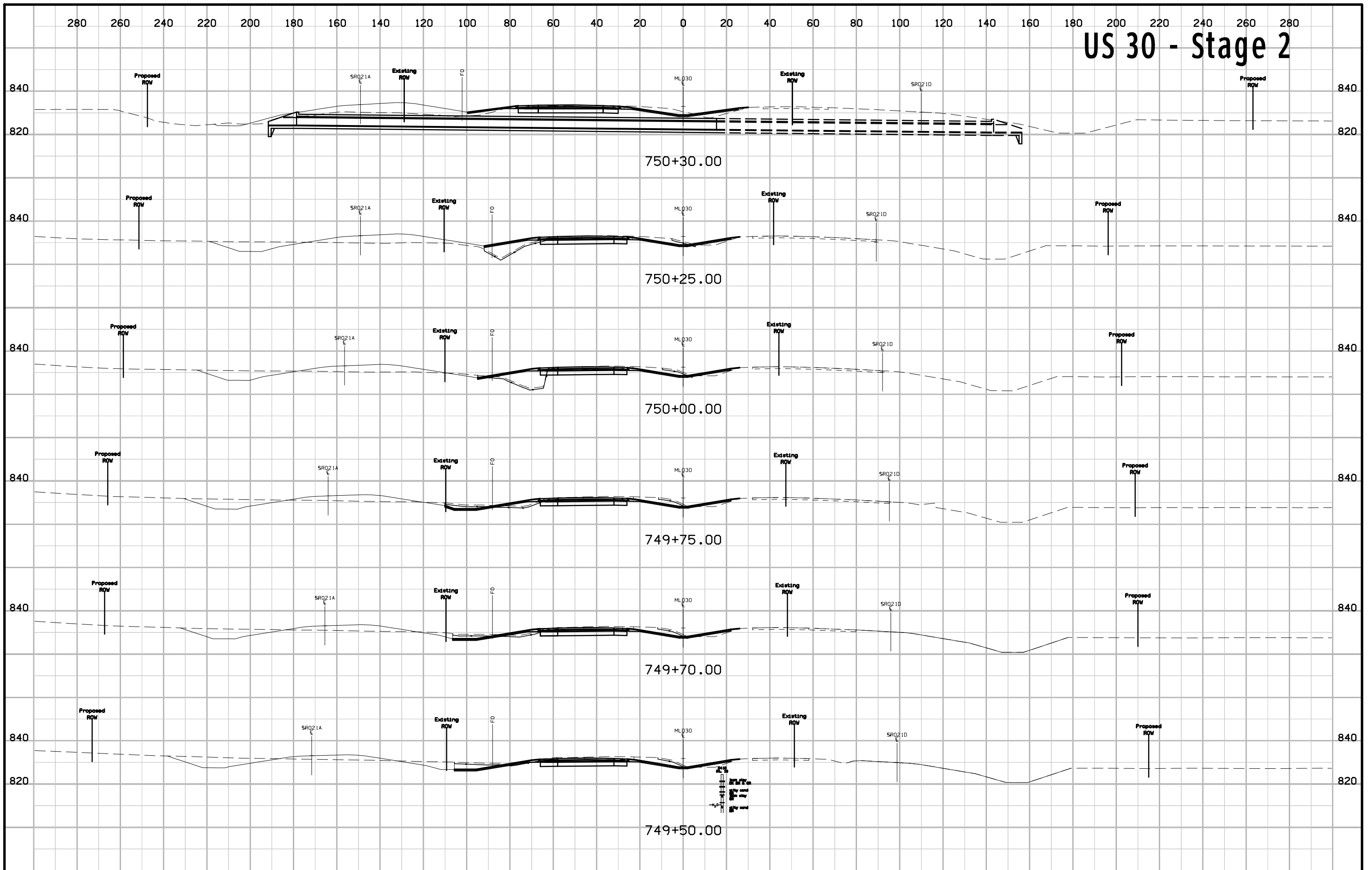
US 30 - Stage 2



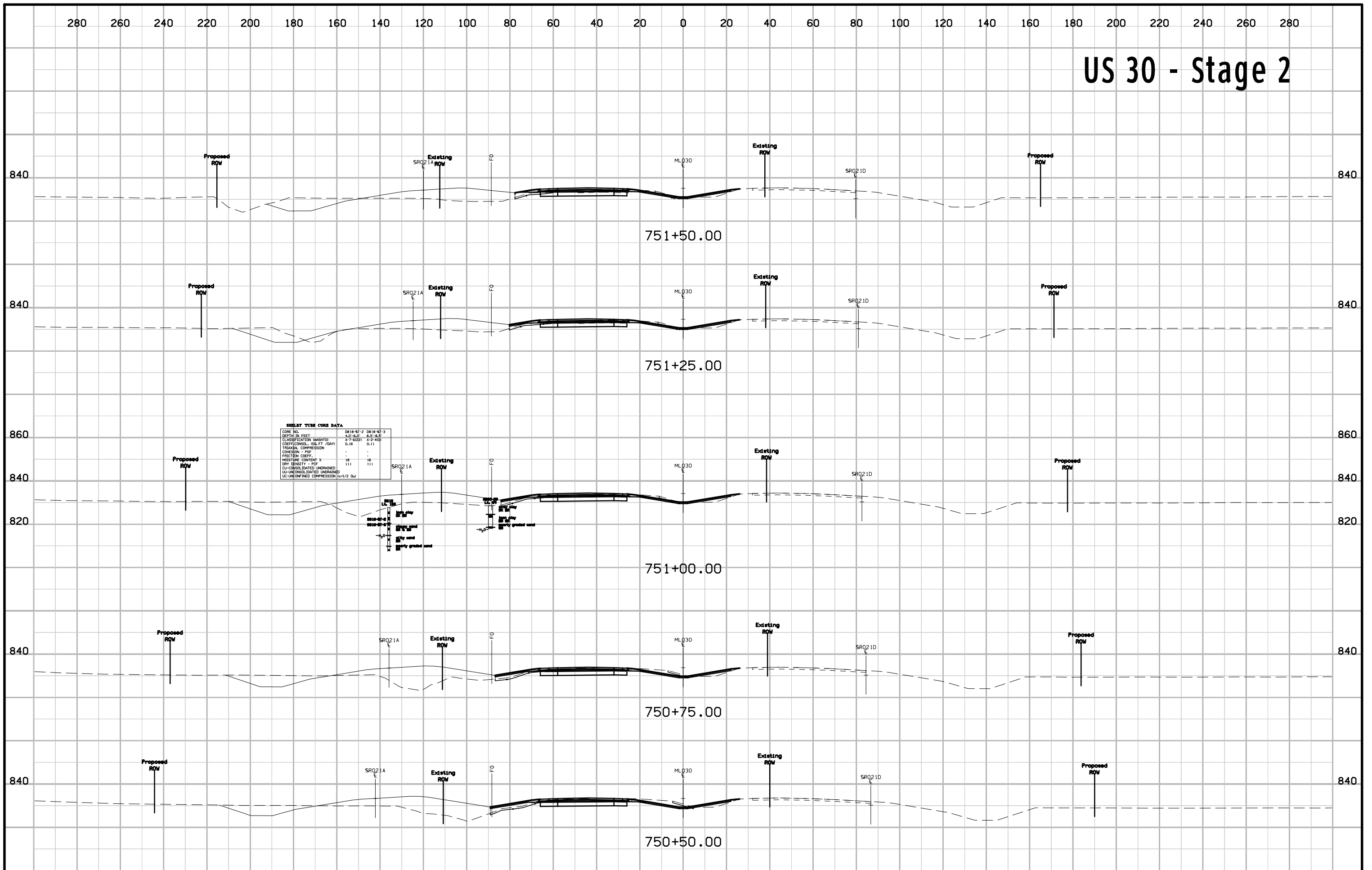
US 30 - Stage 2



US 30 - Stage 2



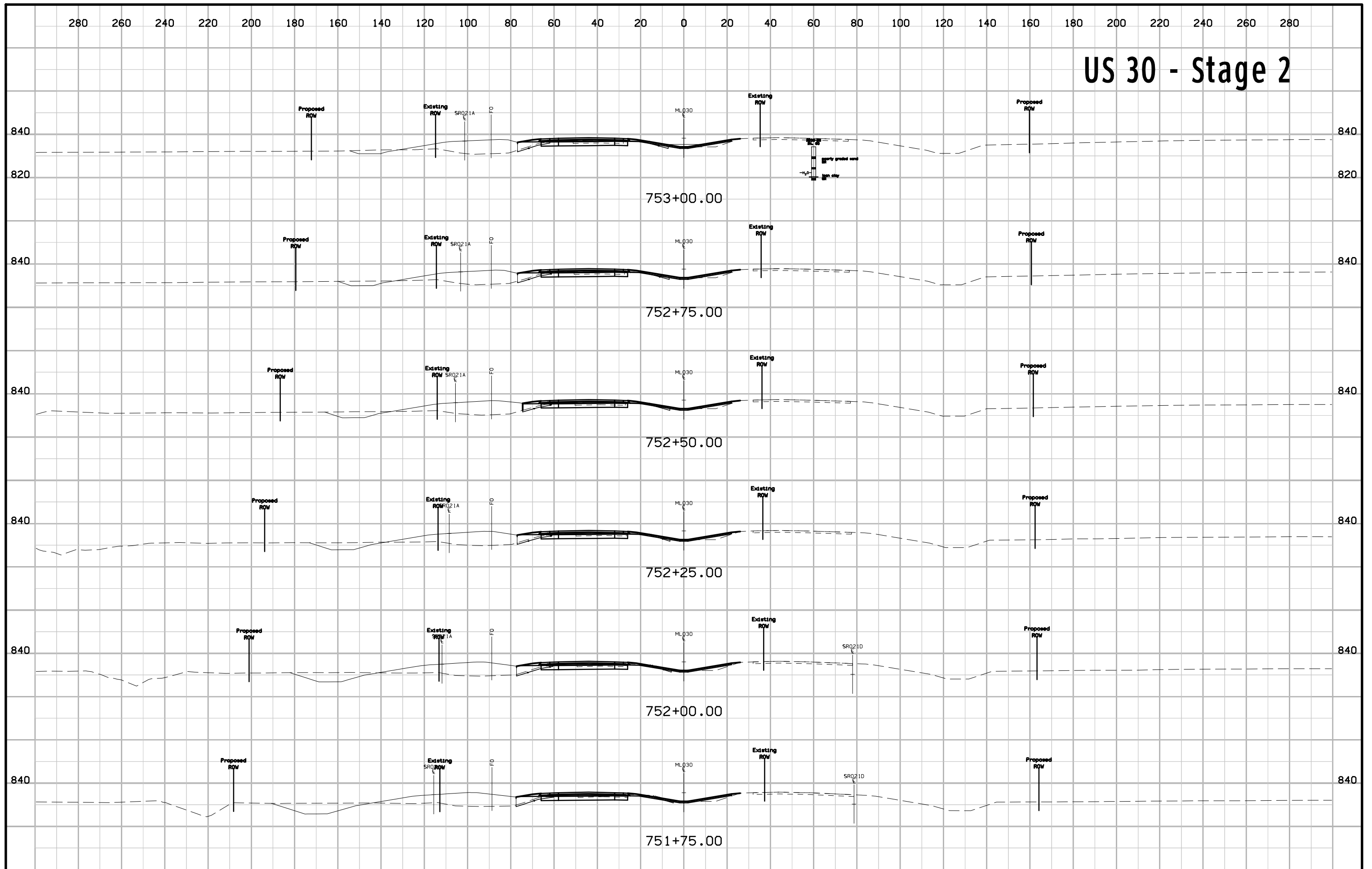
US 30 - Stage 2



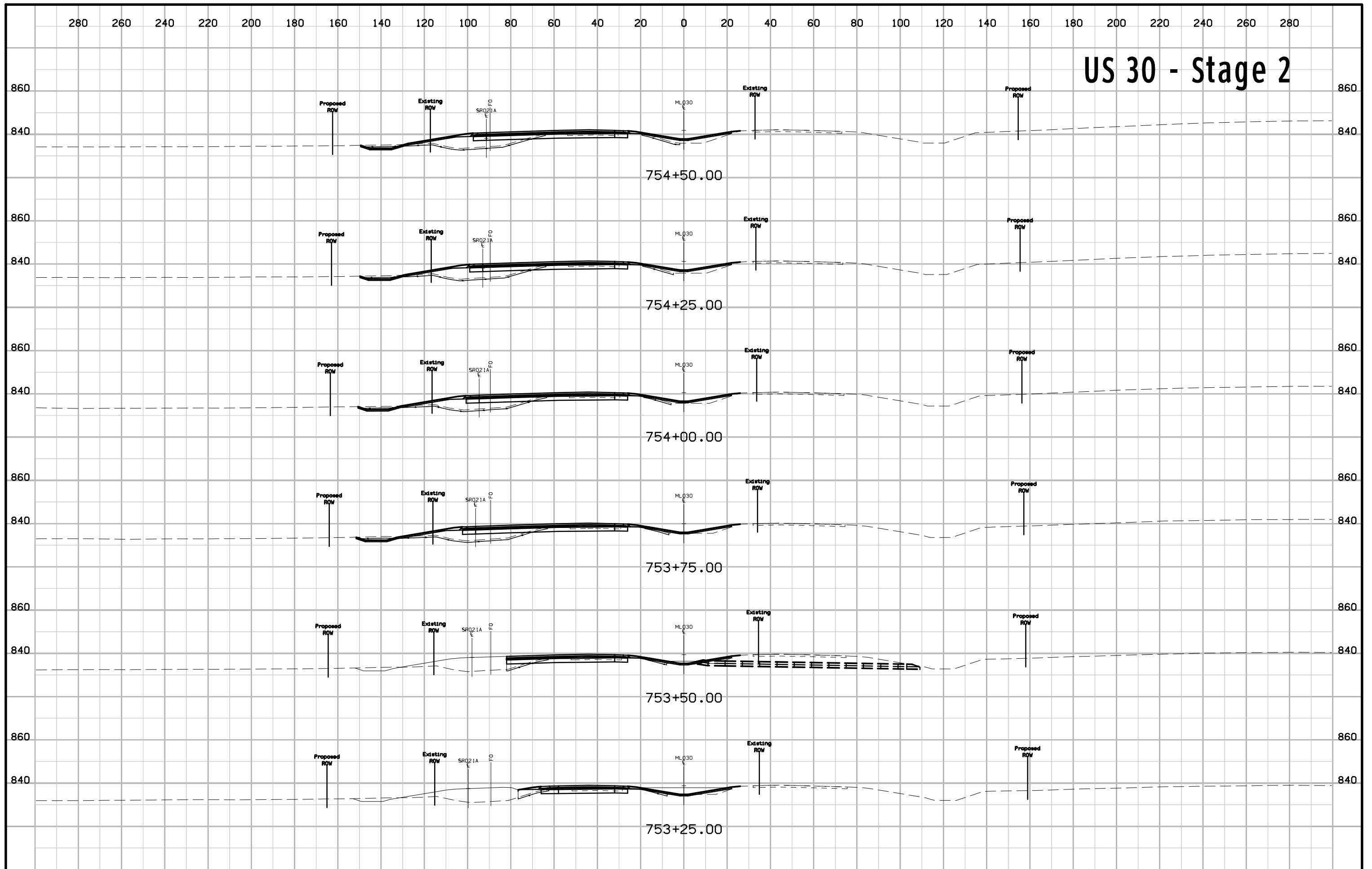
SIELIST TUBE CORE DATA

CORE NO.	DEPTH IN FEET	CLASSIFICATION (ASHSTO)	COEFFICIENT OF CONSOLIDATION (C _v) (FT ² /DAY)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT (%)	PLASTICITY INDEX (PI)
DB18-S1-2	4.0-6.0	6.5-8.5	0.16	18	111	111	111
DB18-S1-3	6.0-8.0	8.5-10.5	0.11	16	111	111	111

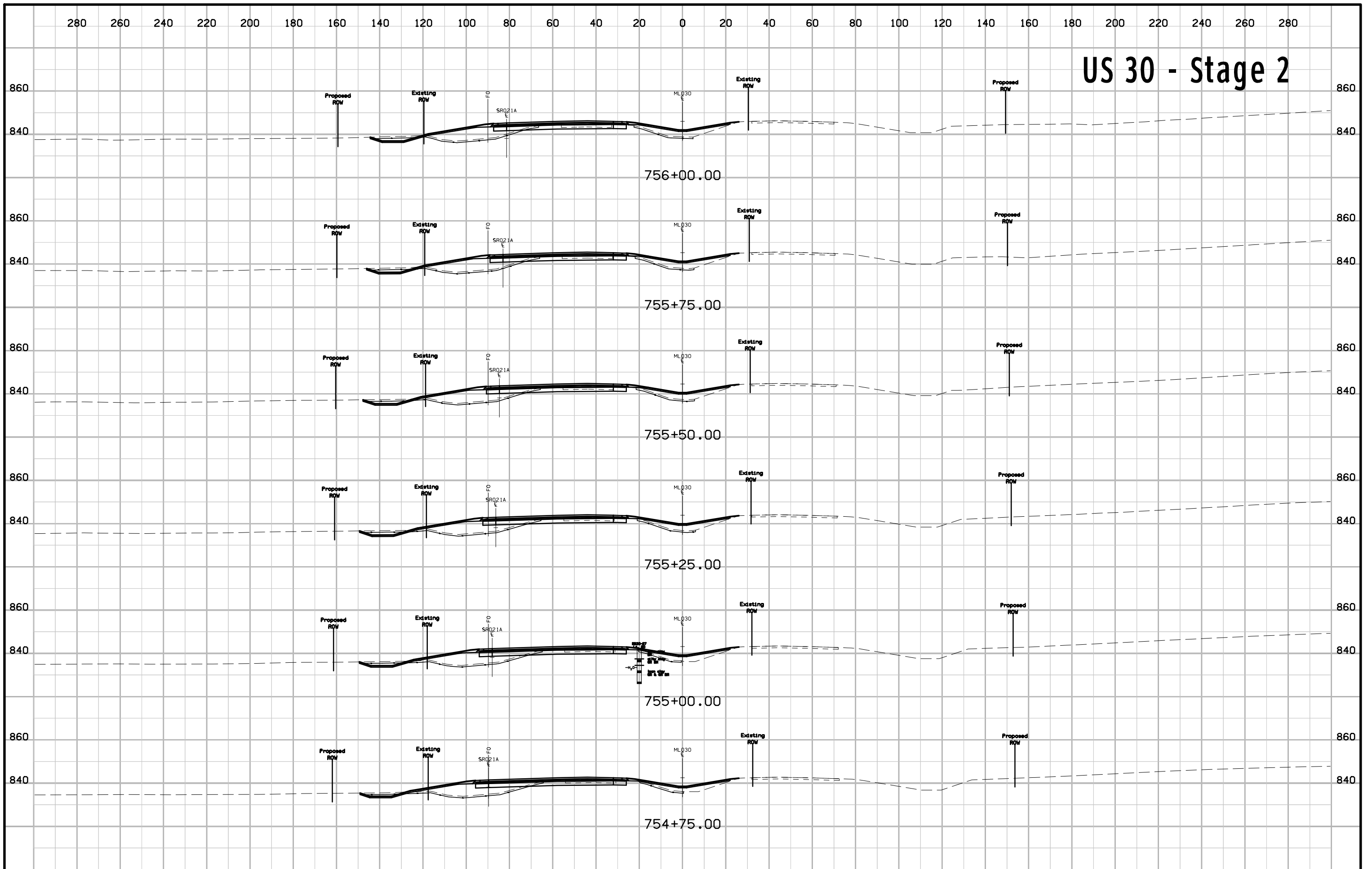
US 30 - Stage 2



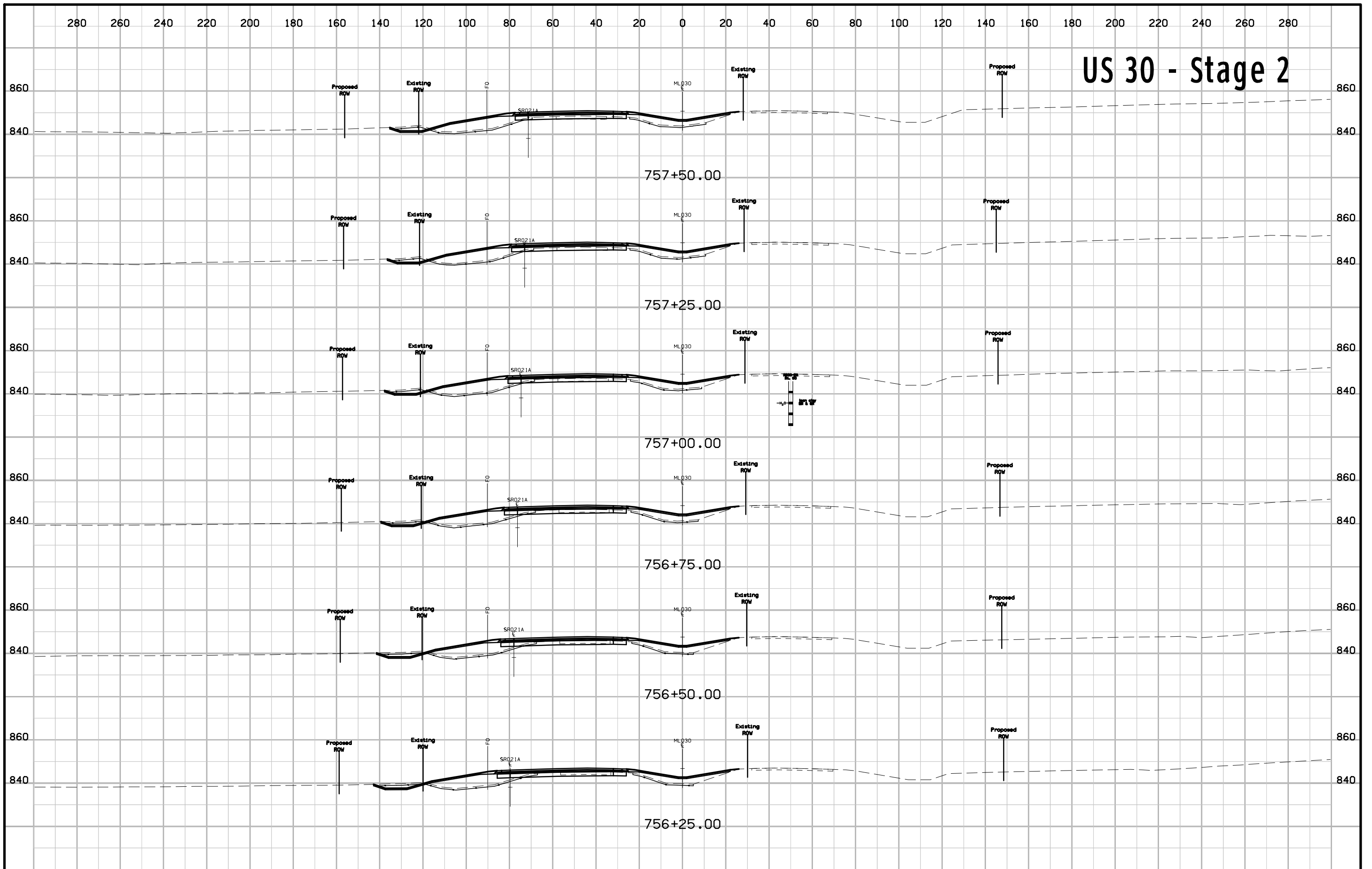
US 30 - Stage 2



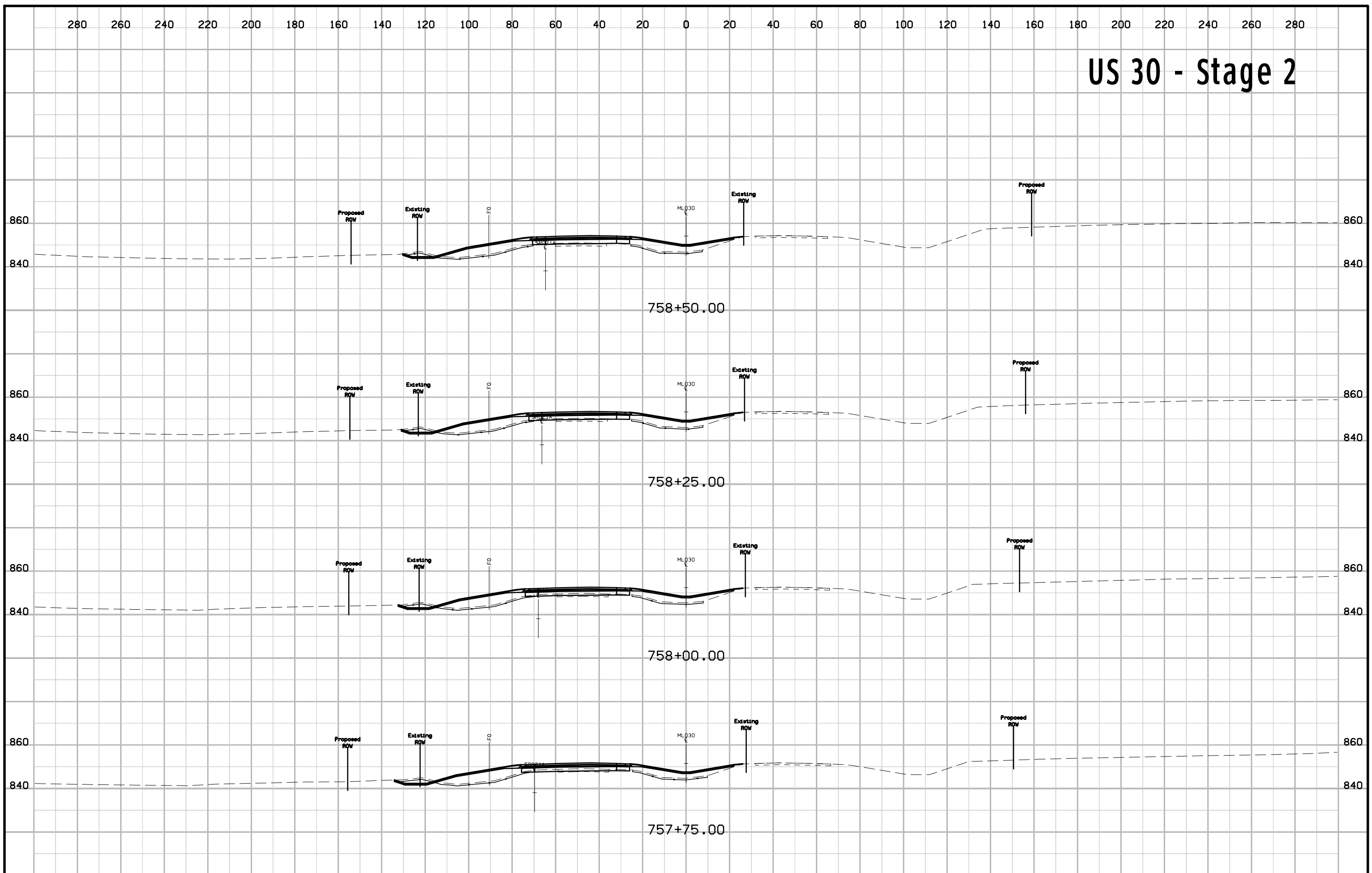
US 30 - Stage 2



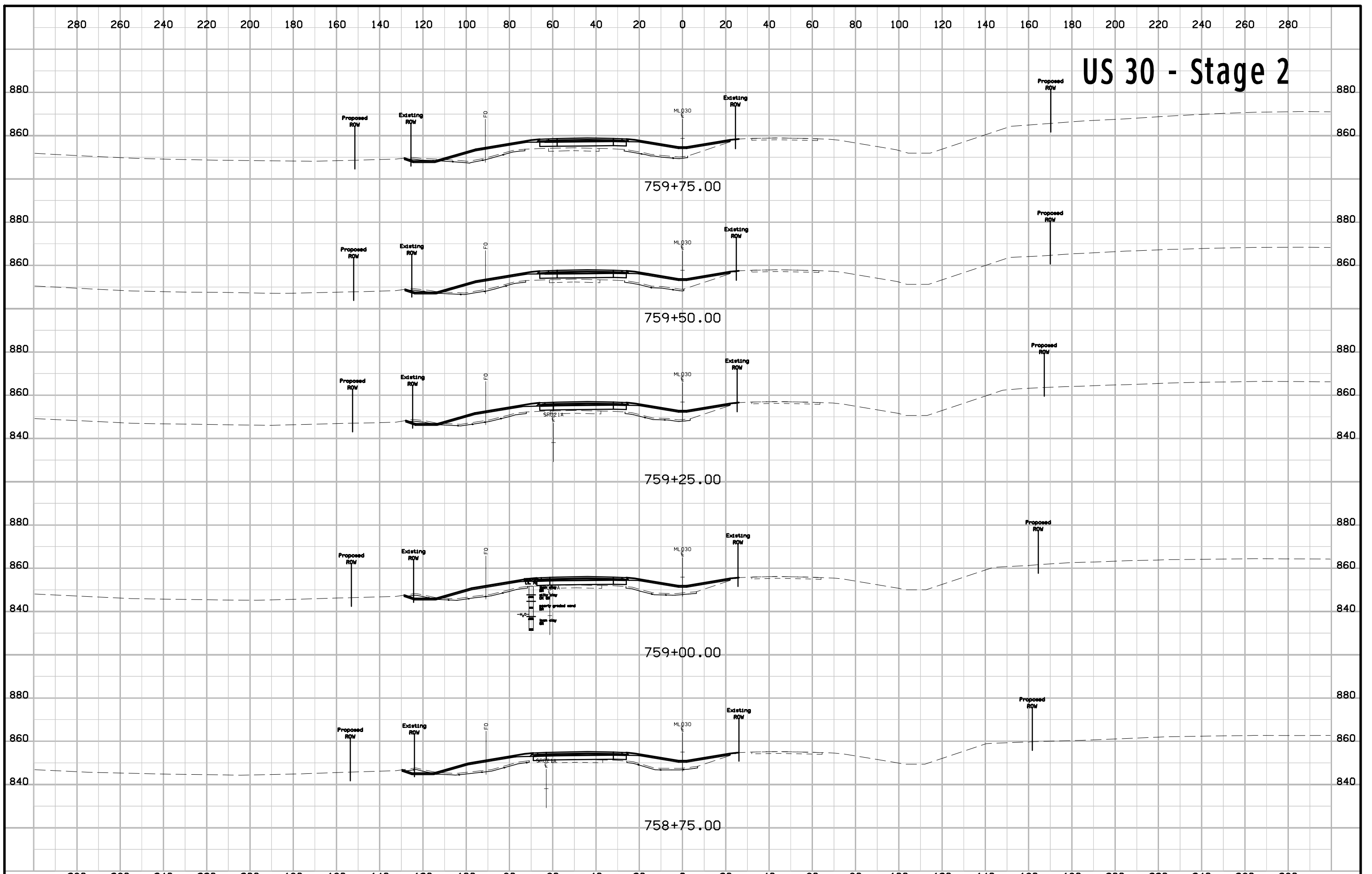
US 30 - Stage 2



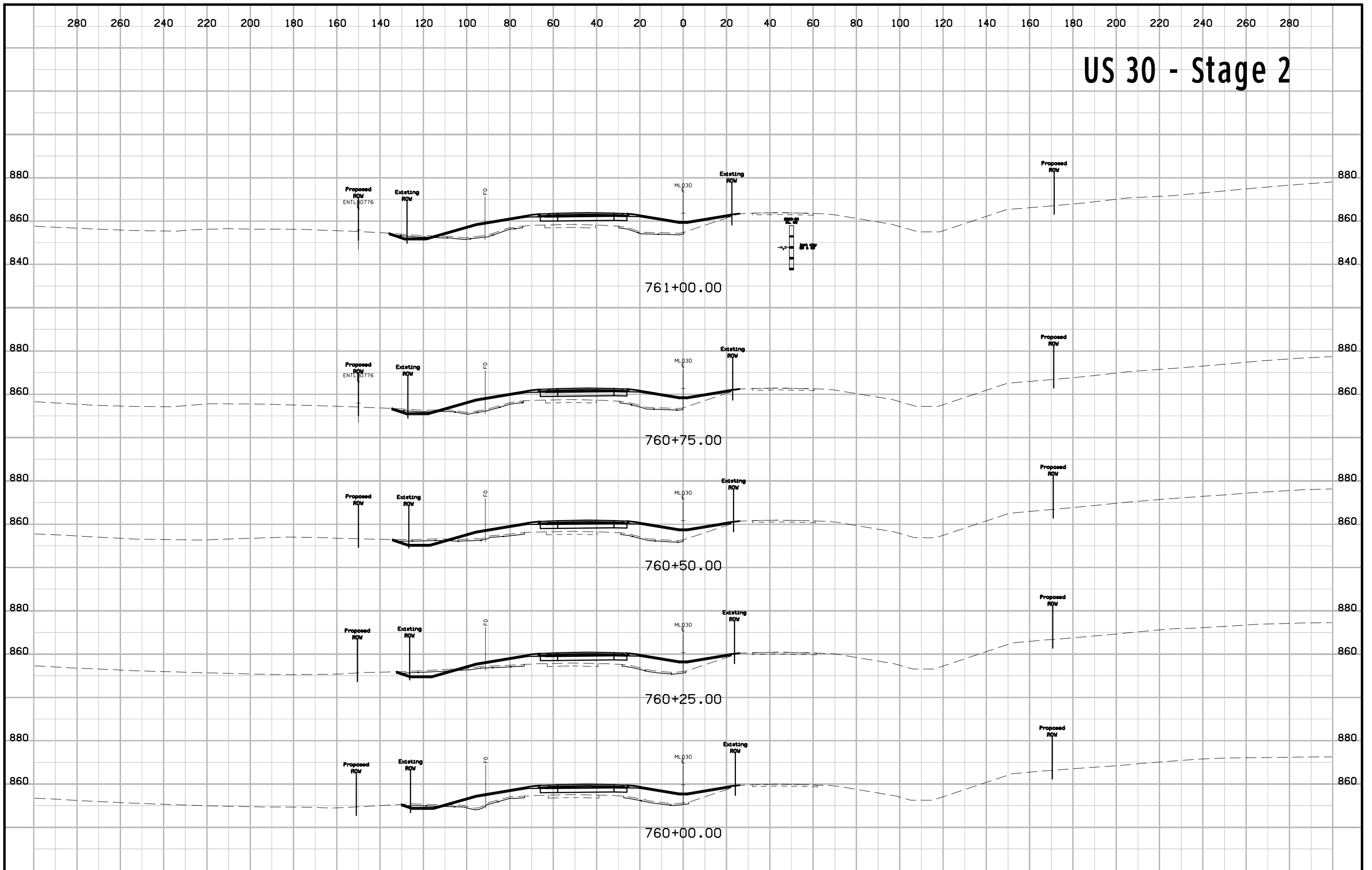
US 30 - Stage 2



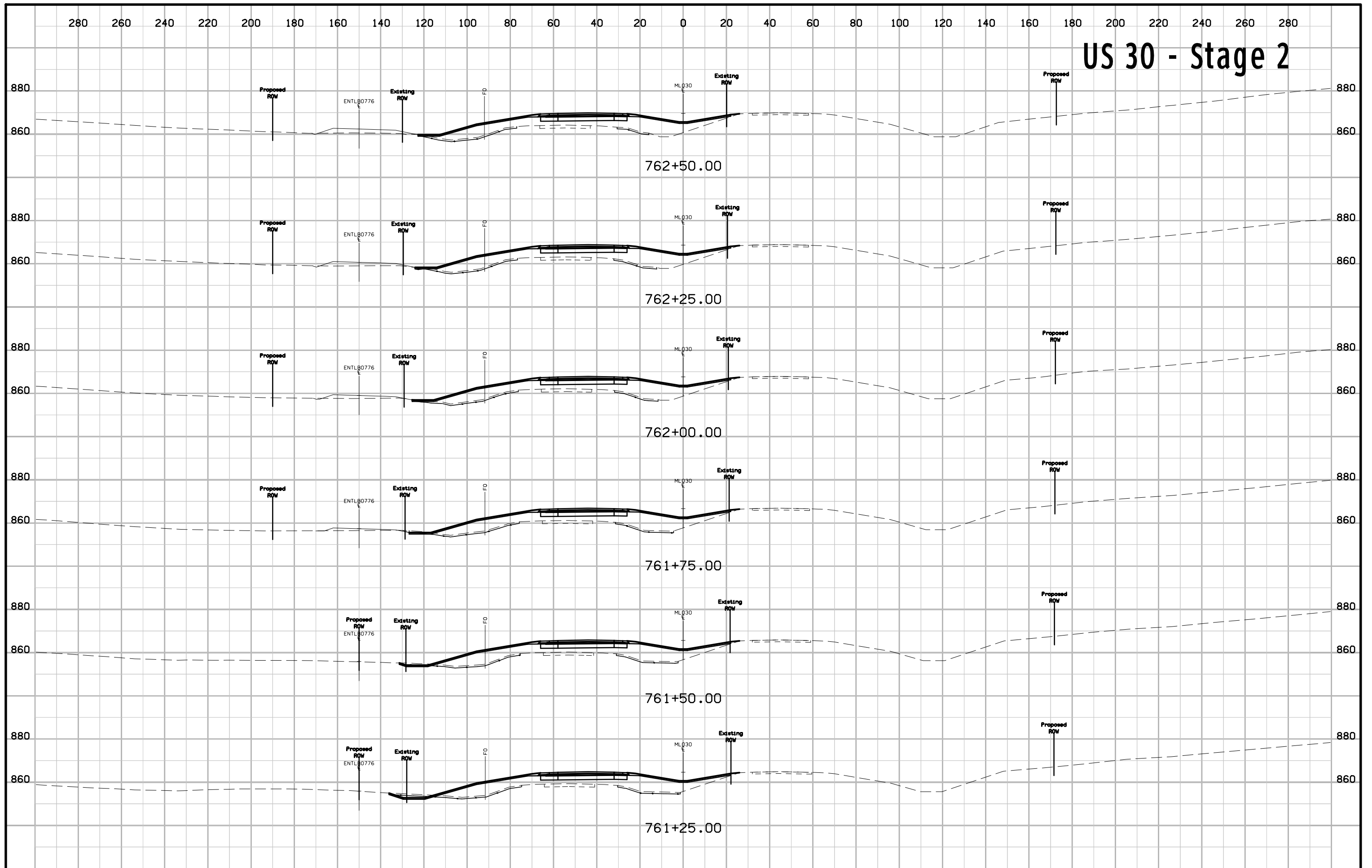
US 30 - Stage 2



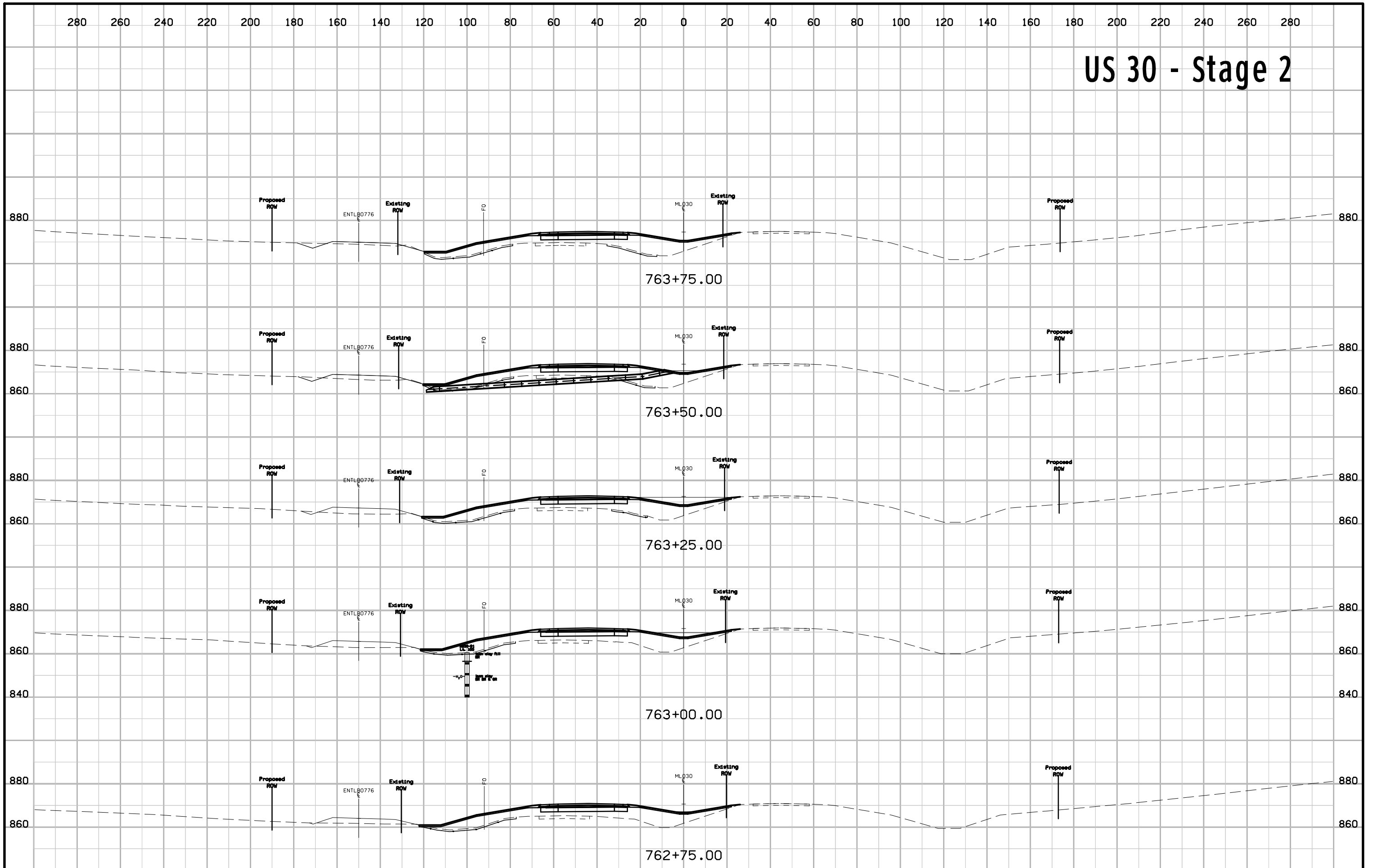
US 30 - Stage 2



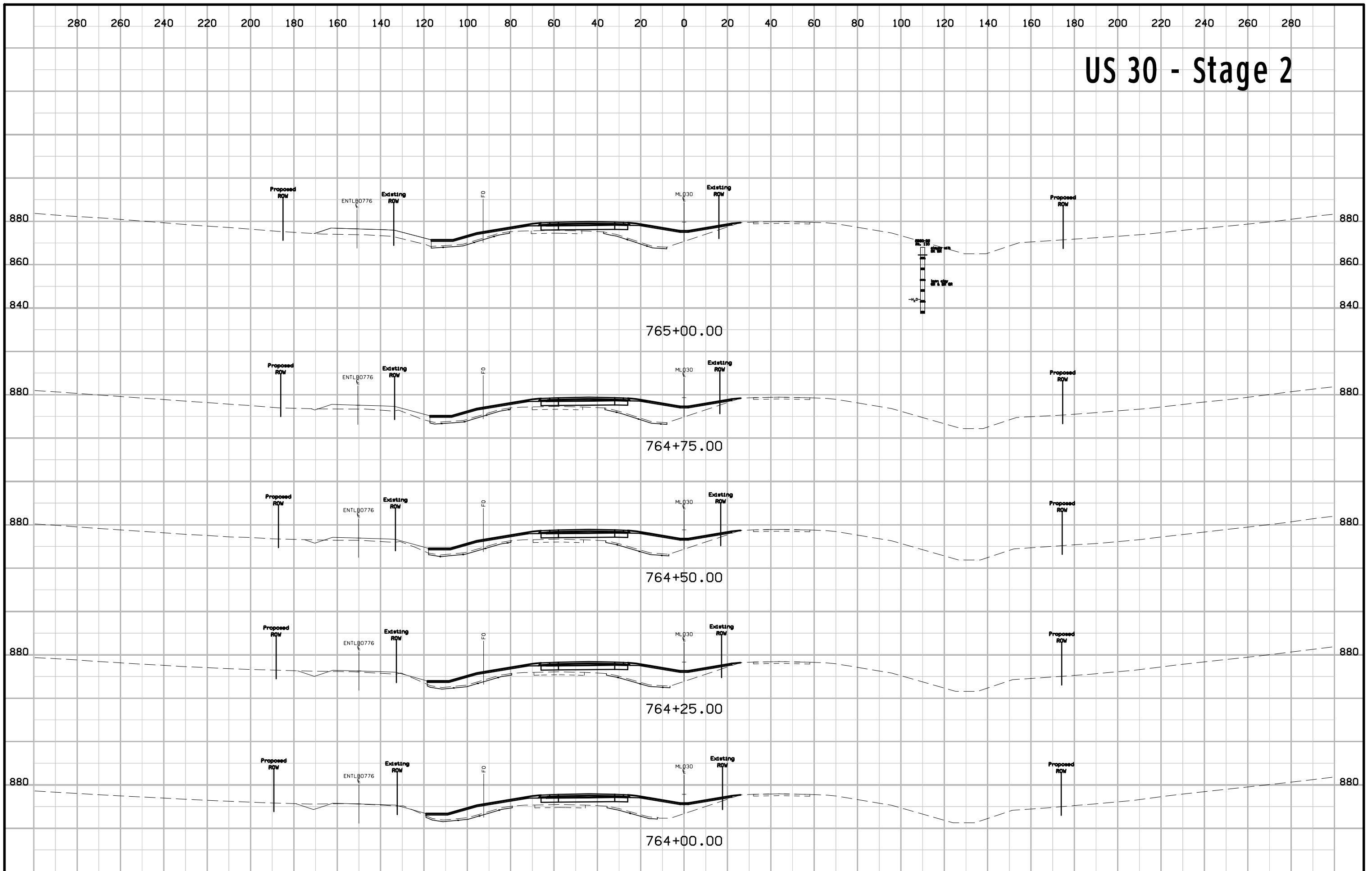
US 30 - Stage 2



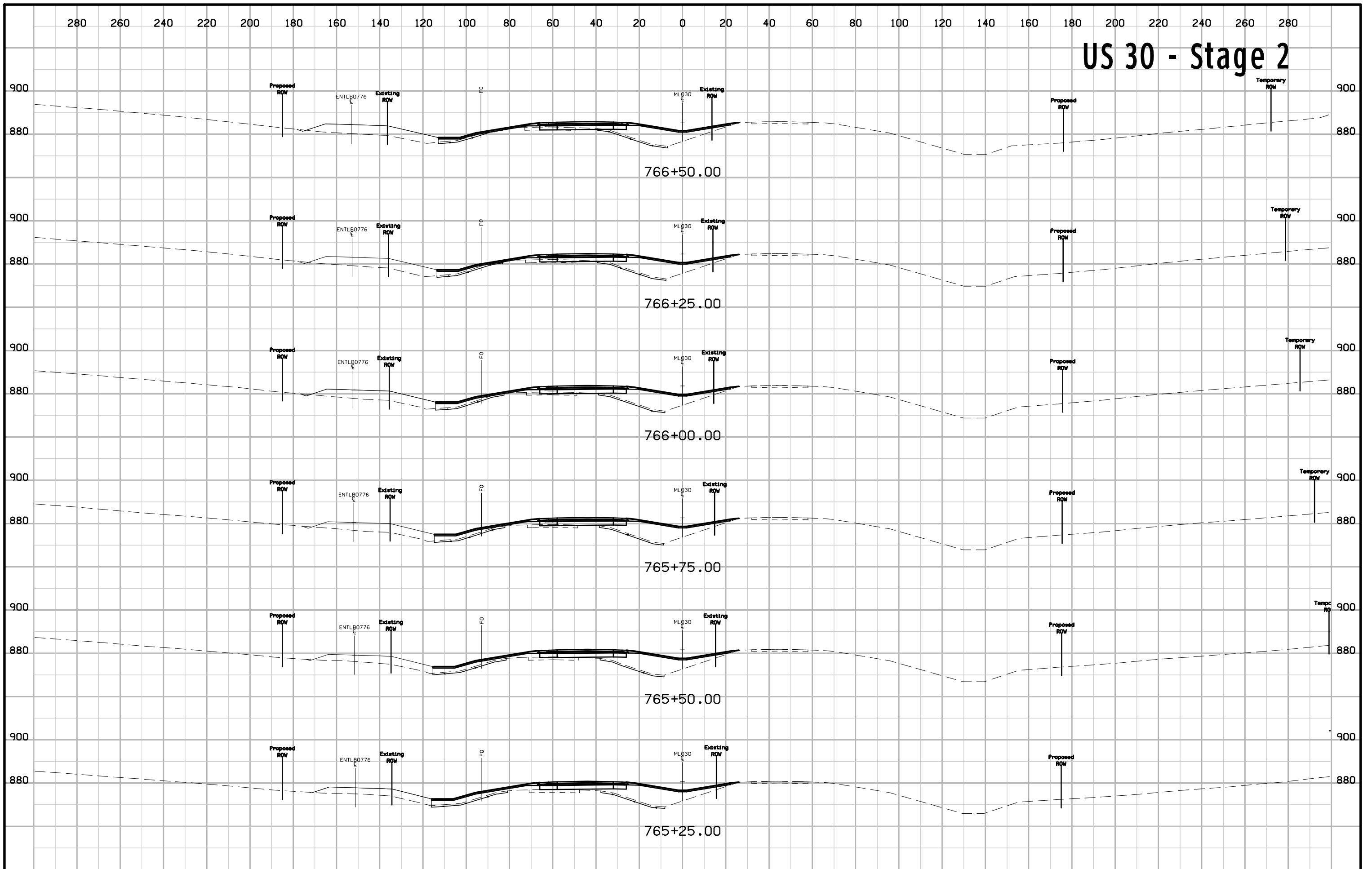
US 30 - Stage 2



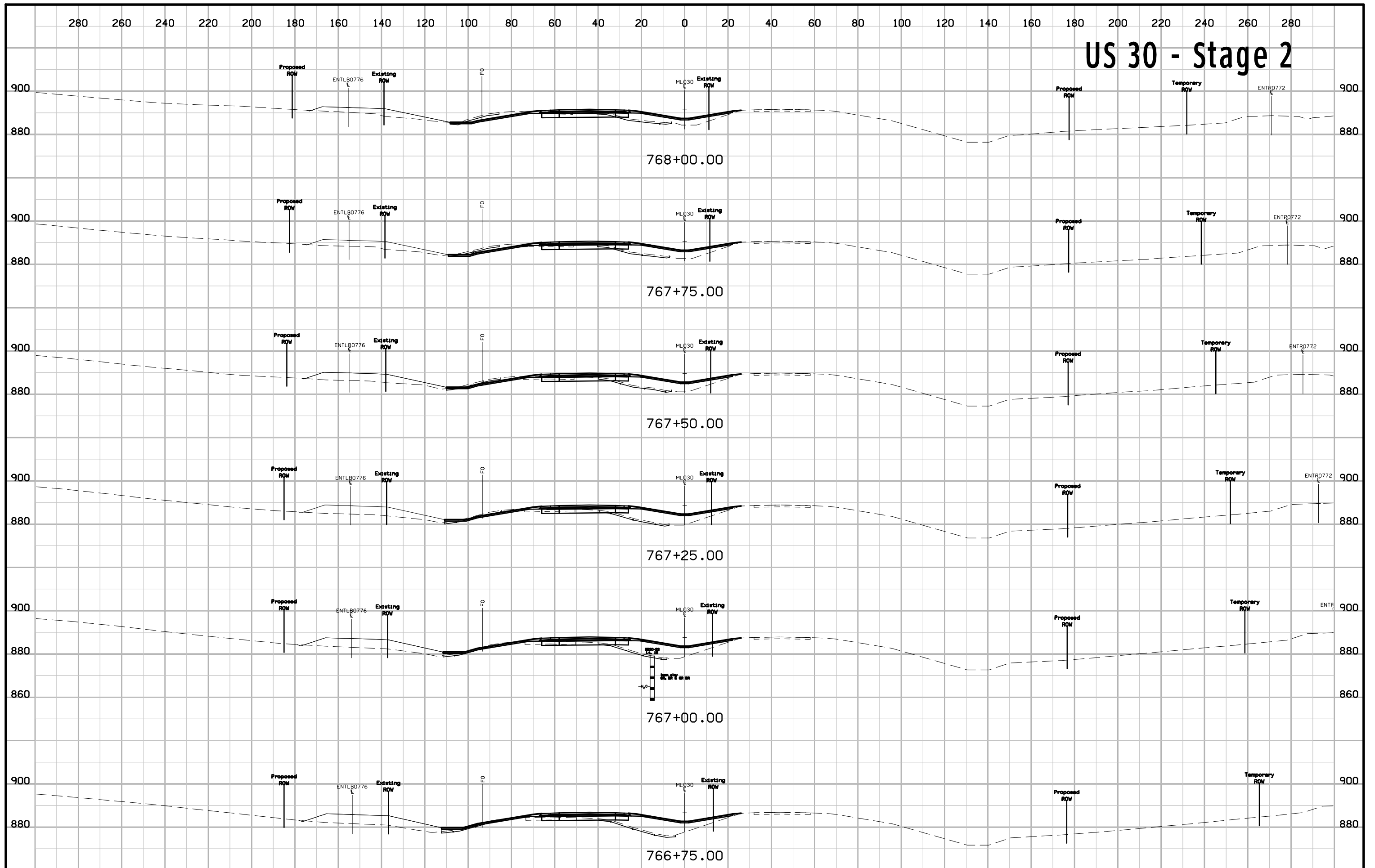
US 30 - Stage 2



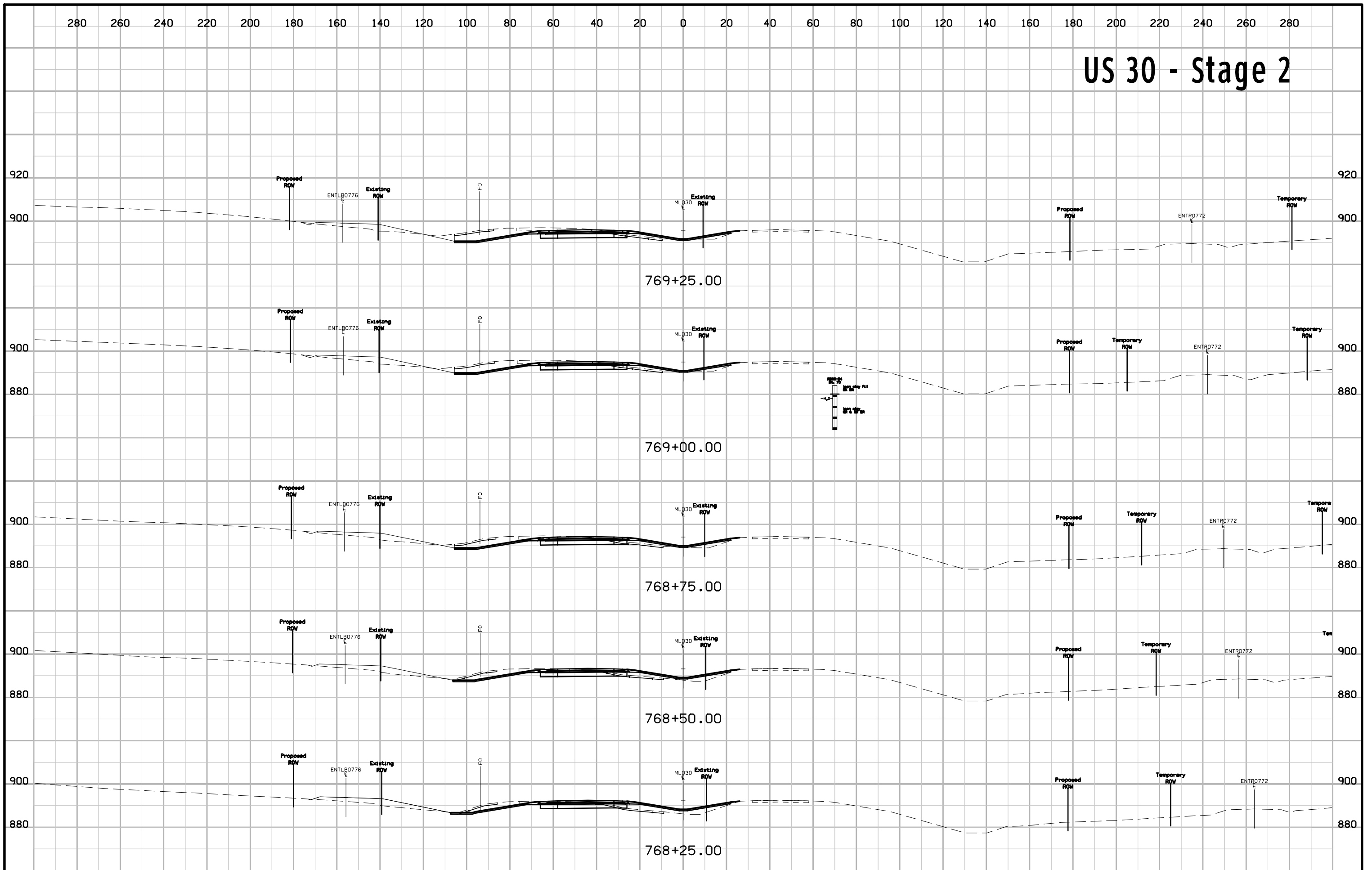
US 30 - Stage 2



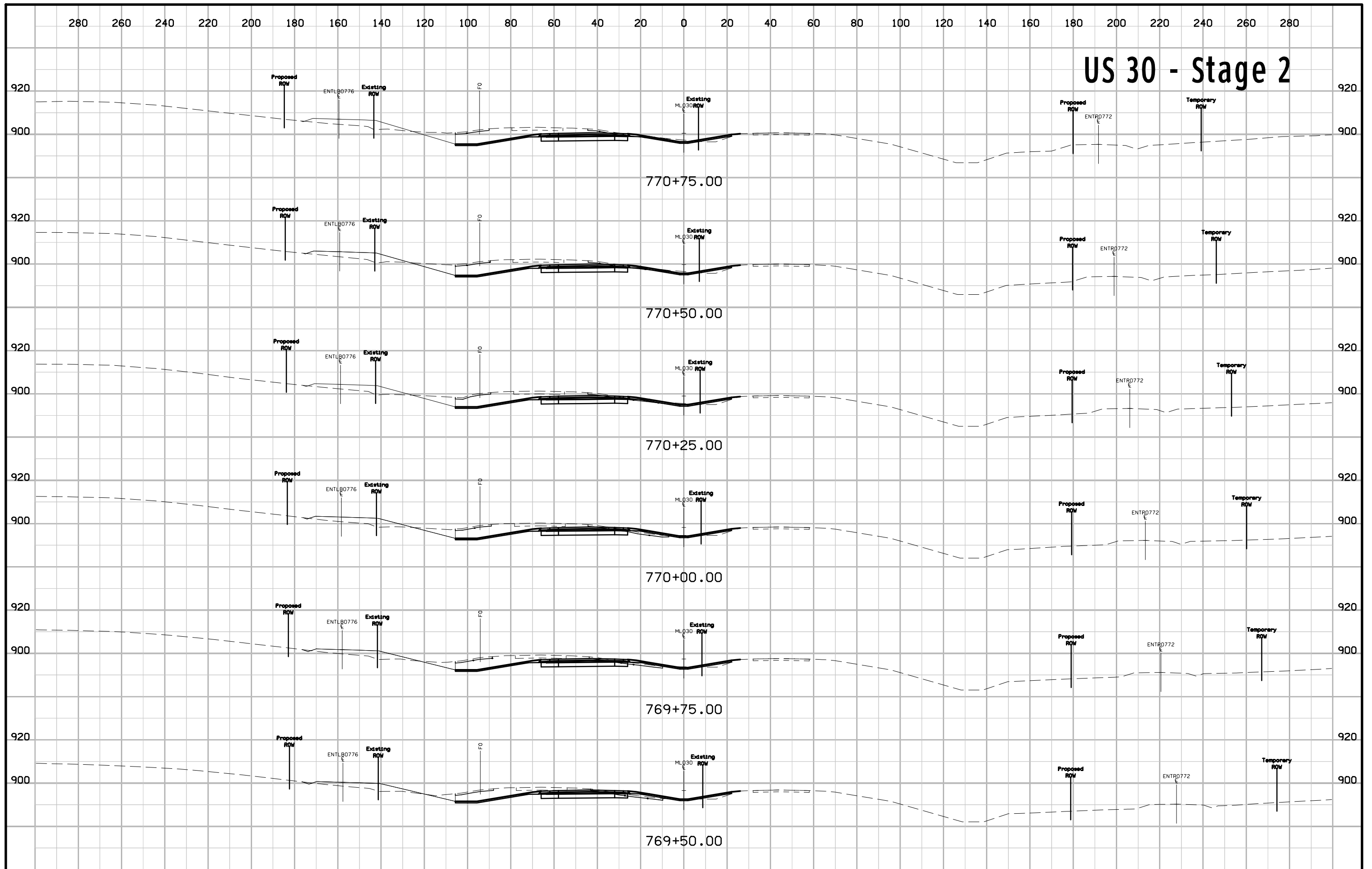
US 30 - Stage 2



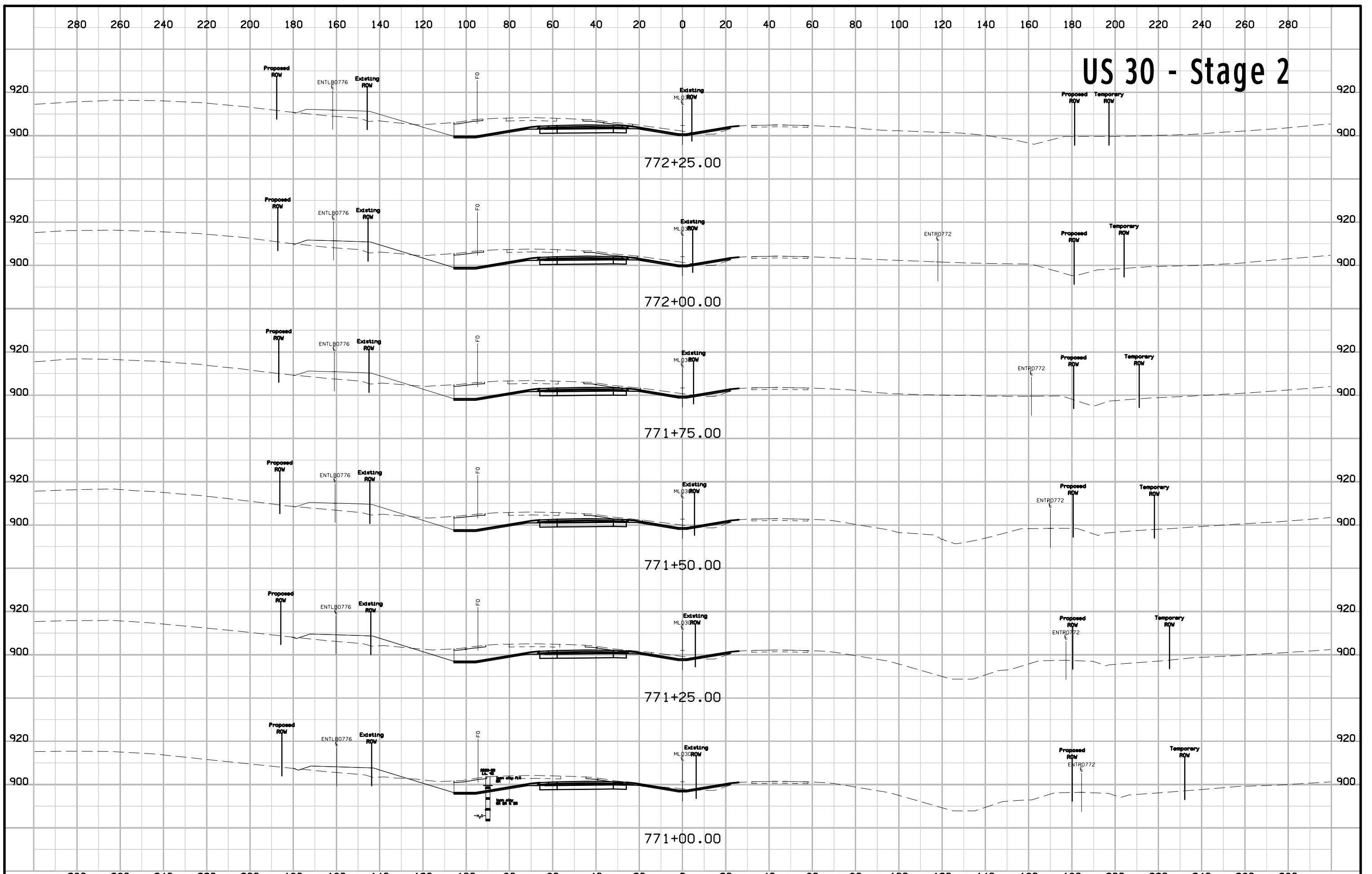
US 30 - Stage 2



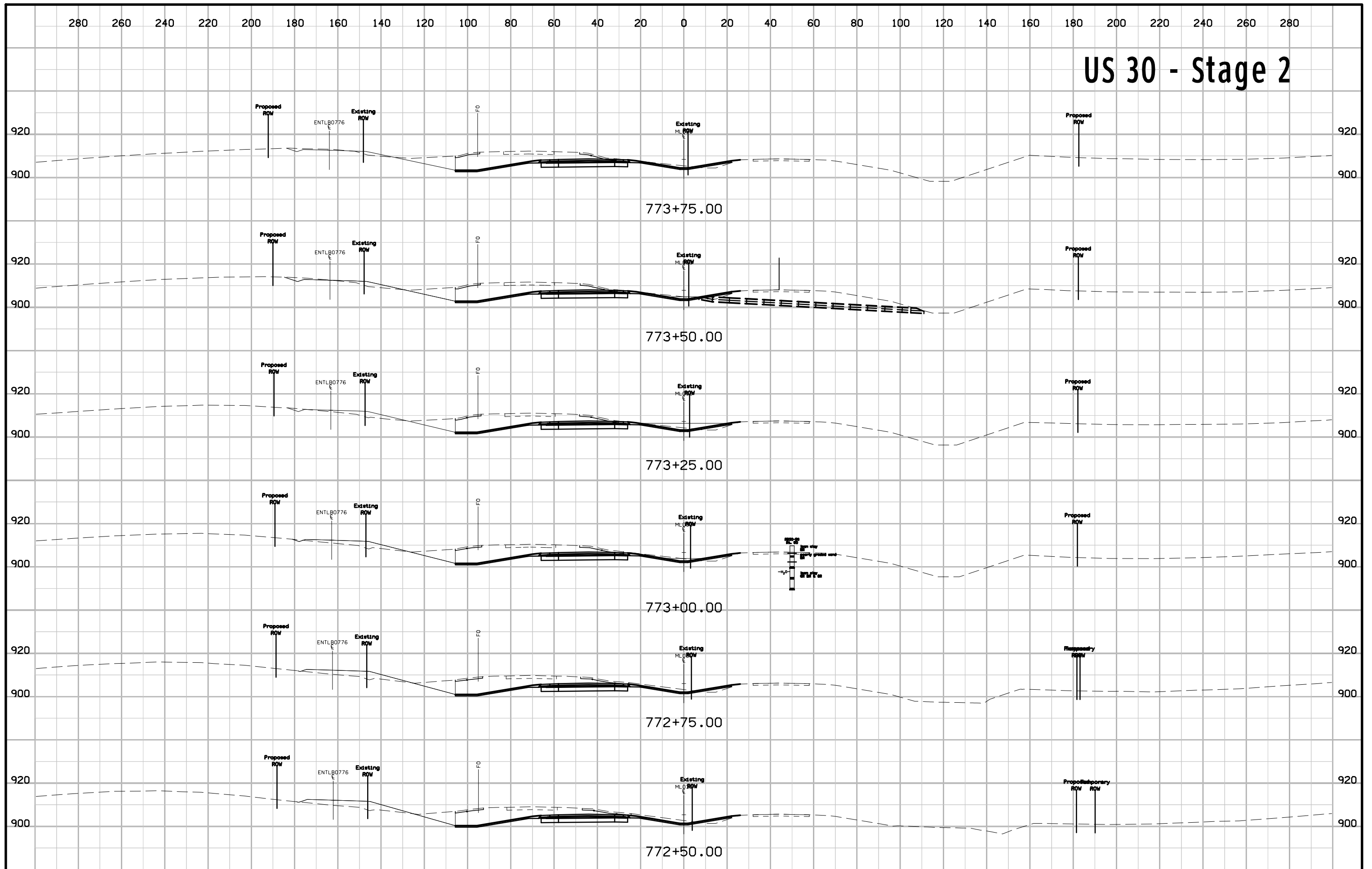
US 30 - Stage 2



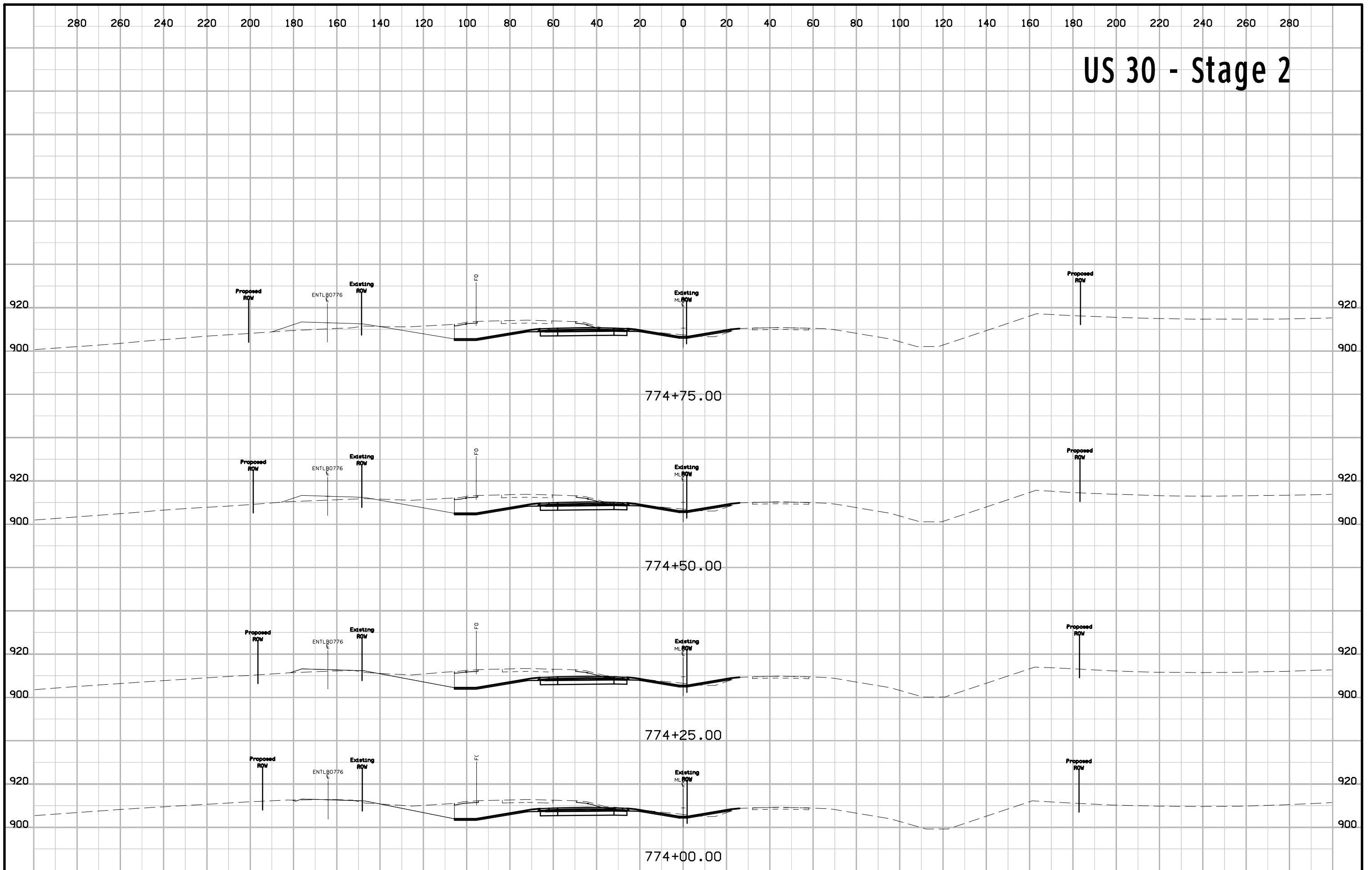
US 30 - Stage 2



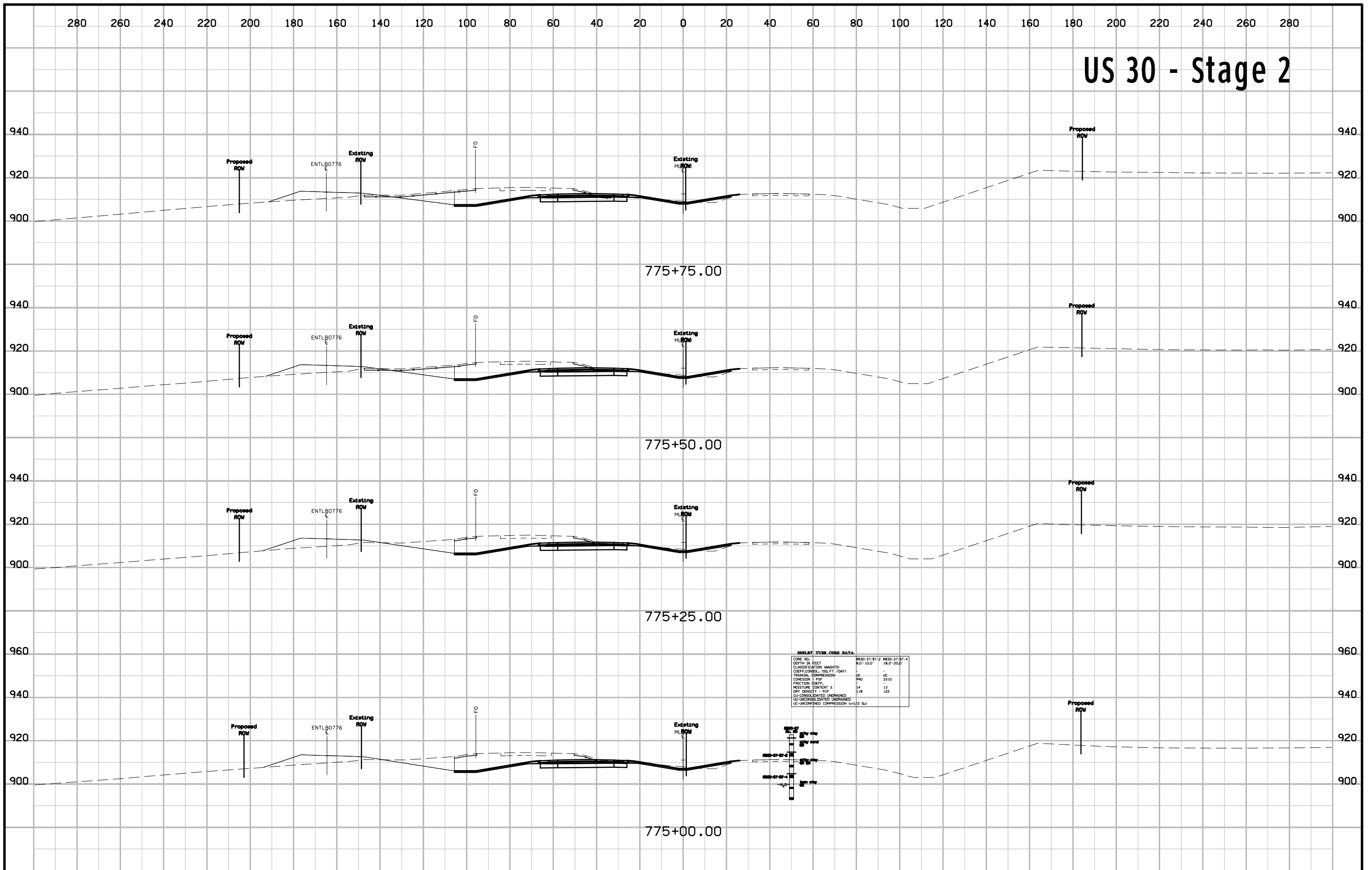
US 30 - Stage 2



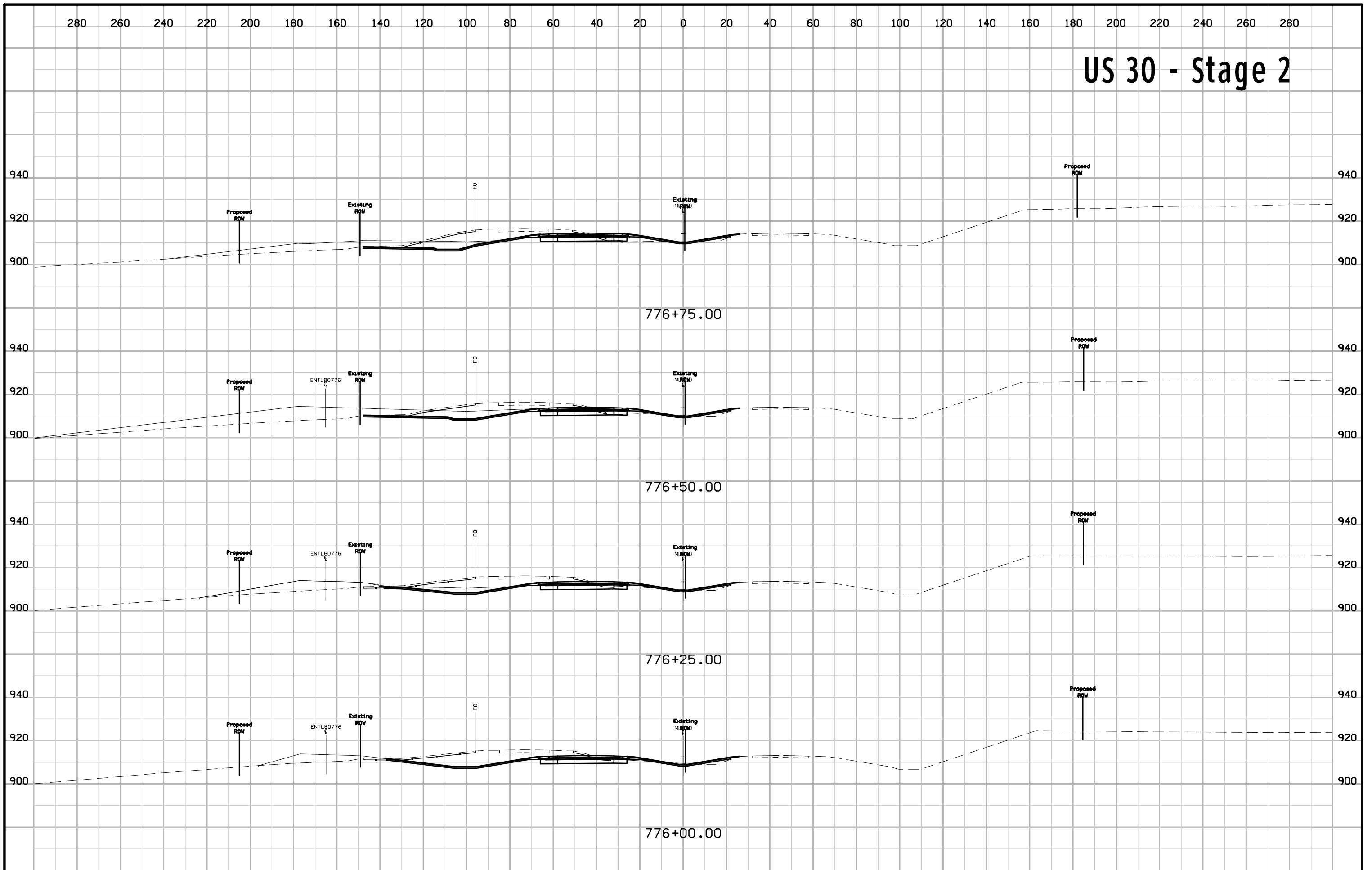
US 30 - Stage 2



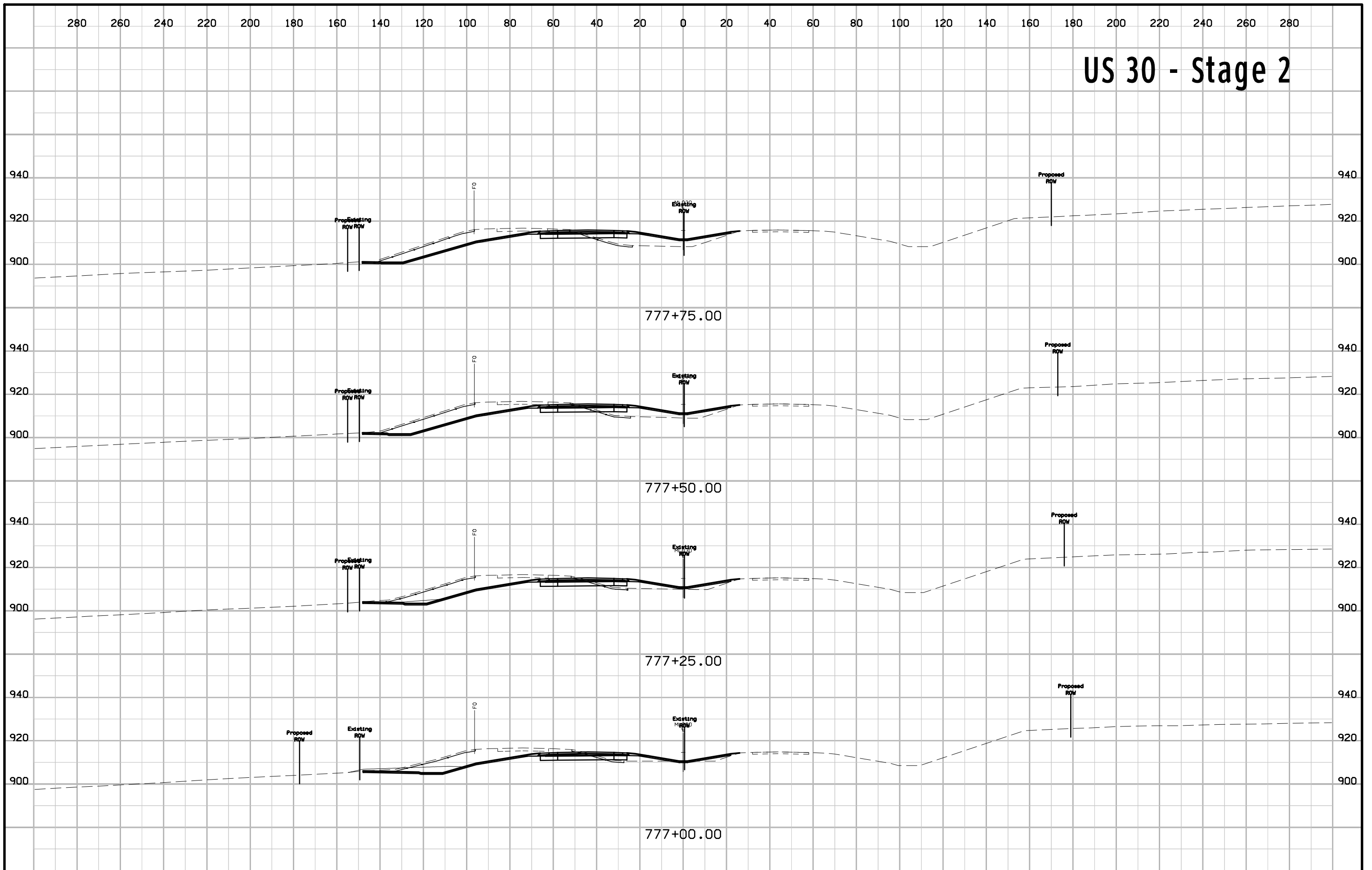
US 30 - Stage 2



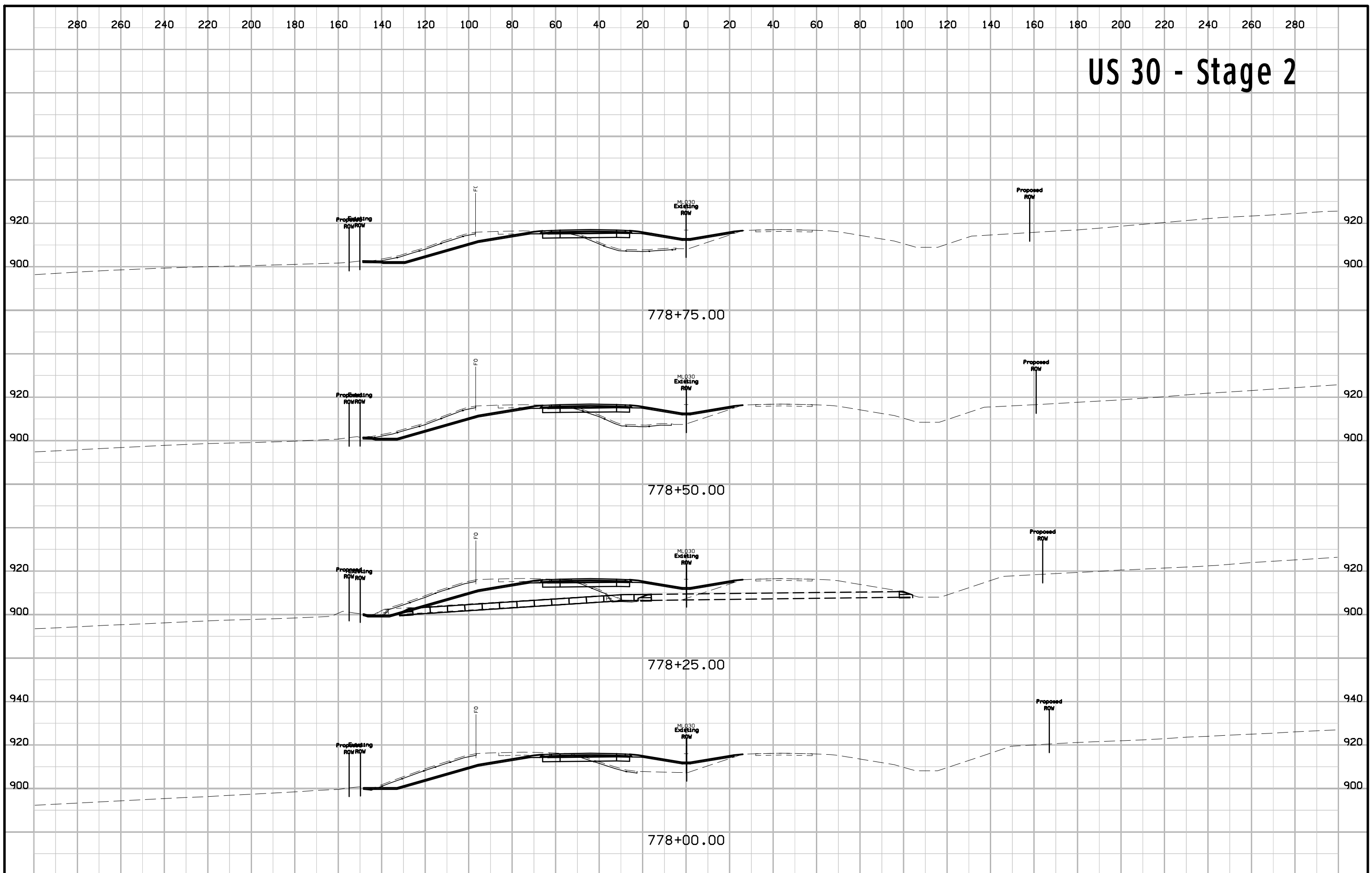
US 30 - Stage 2



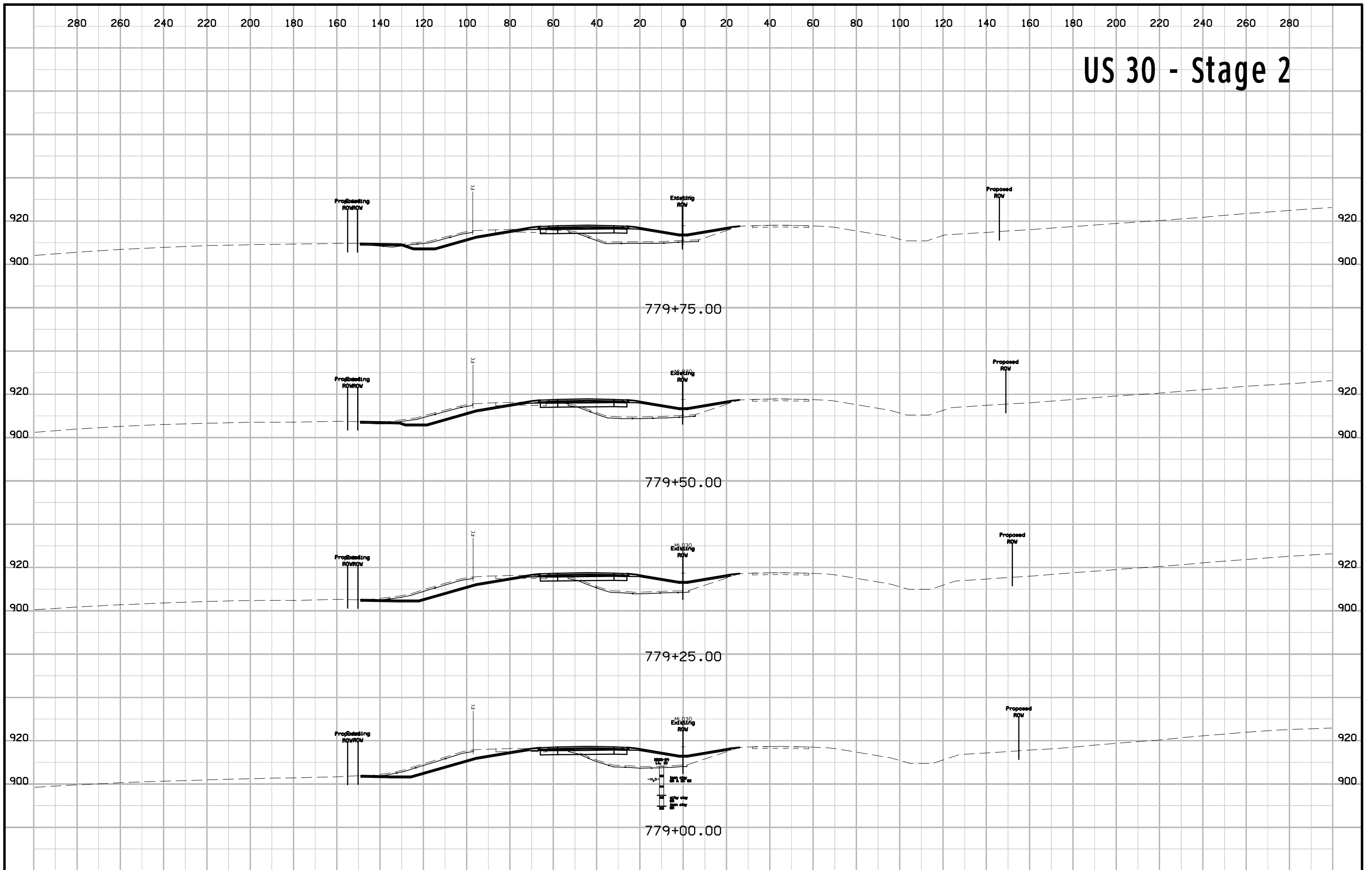
US 30 - Stage 2



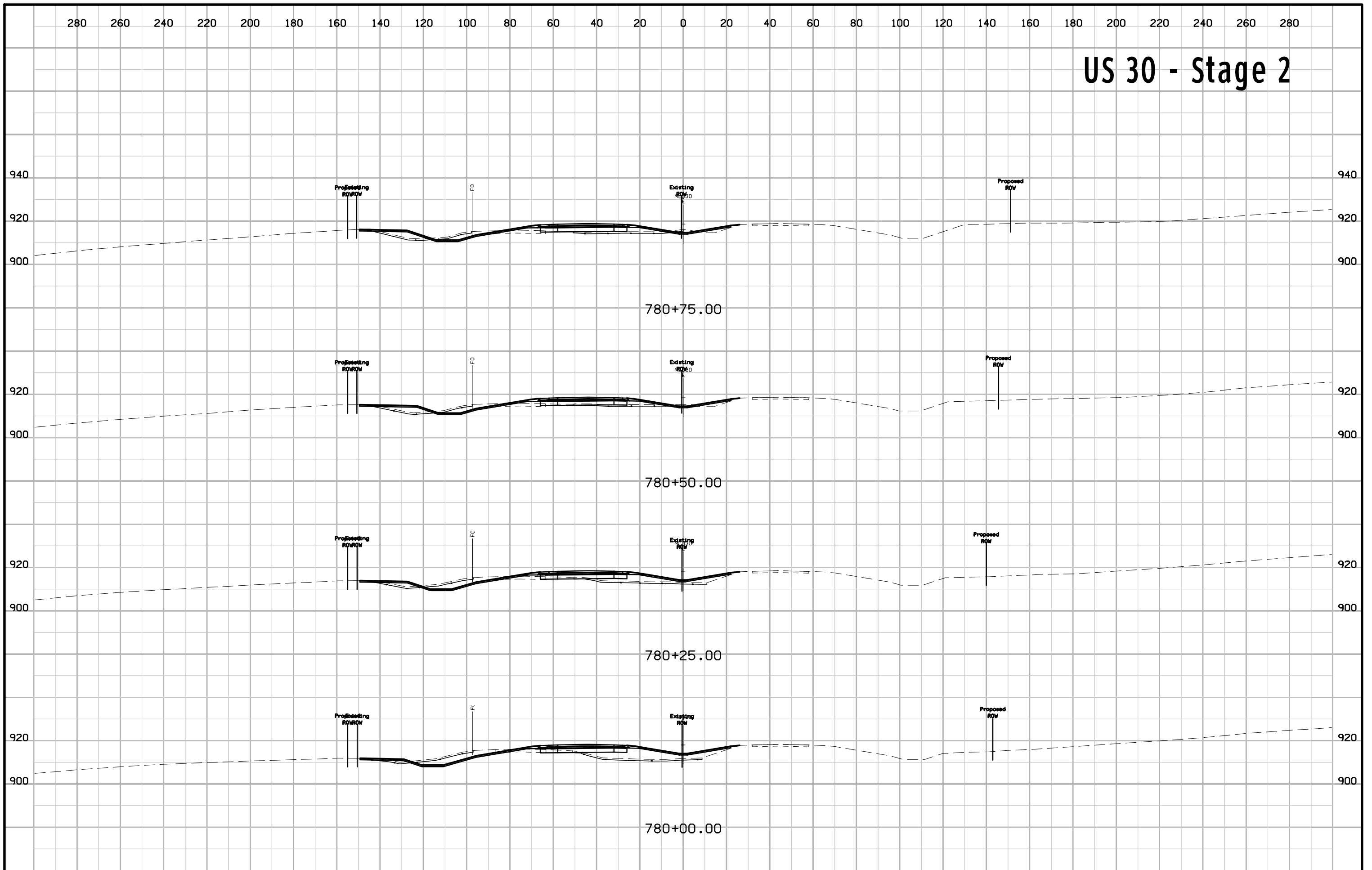
US 30 - Stage 2



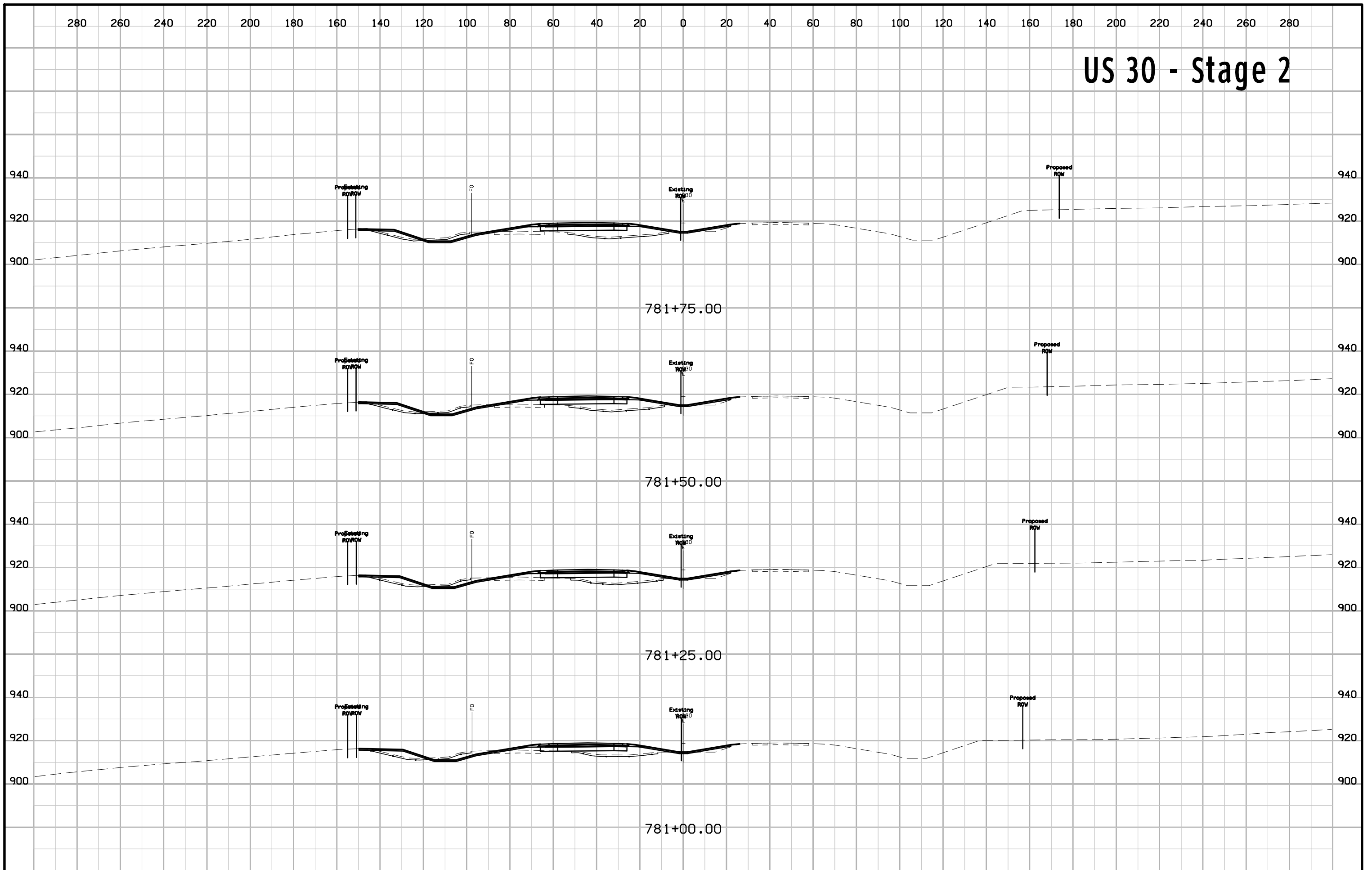
US 30 - Stage 2



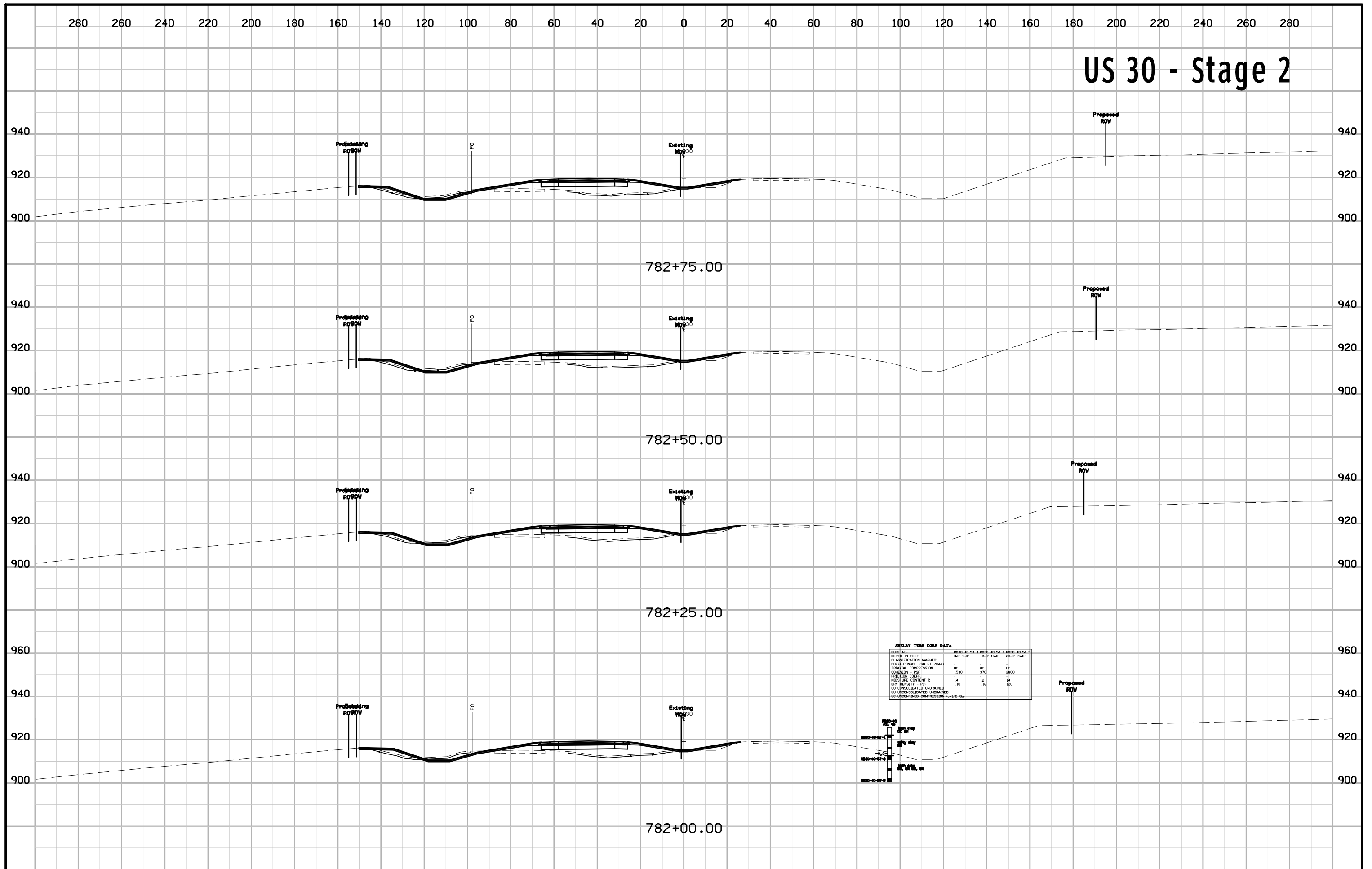
US 30 - Stage 2



US 30 - Stage 2

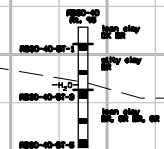


US 30 - Stage 2

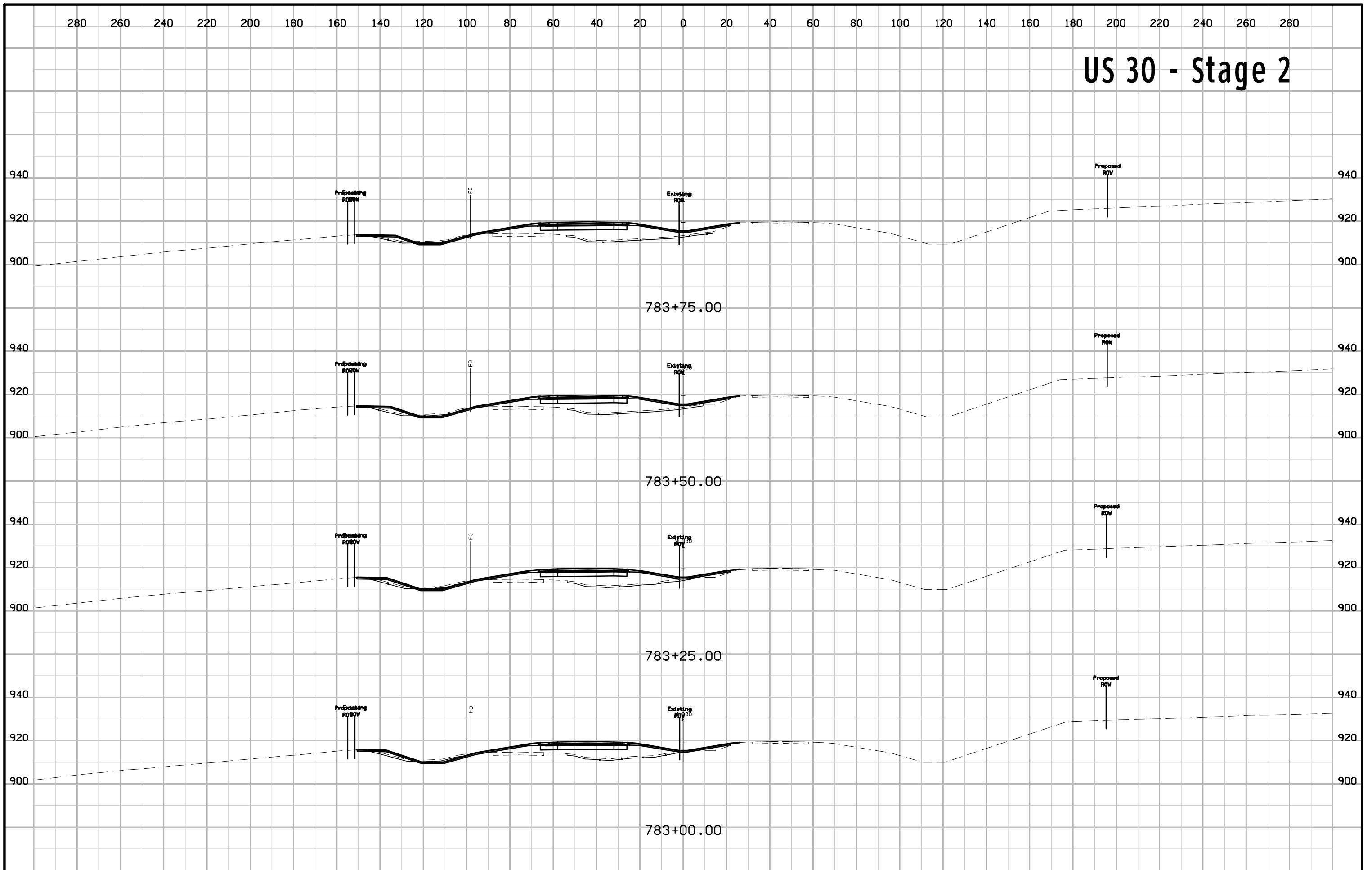


REBLY TUBE CORE DATA

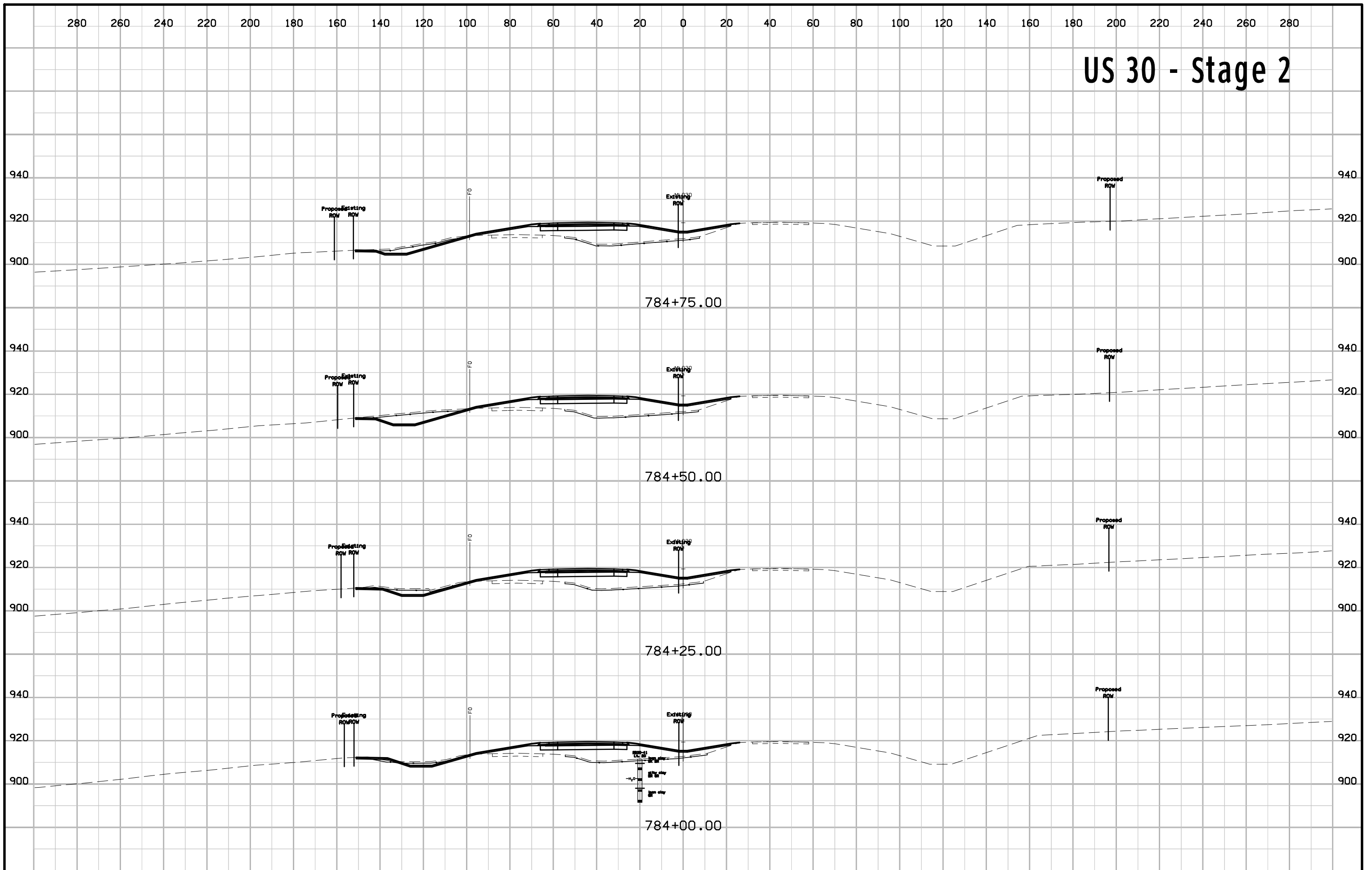
CORE NO.	8830-40-51-1	8830-40-51-3	8830-40-51-5
DEPTH IN FEET	3.07-5.07	13.47-15.07	23.07-25.07
CLASSIFICATION (ASHSTO)	-	-	-
COEFF. CONSOLID. (SO. FT. / DAY)	UC	UC	UC
TRIALIAL COMPRESSION	1530	370	2800
COMBESION - PPF	-	-	-
FRICTION COEFF.	-	-	-
MOISTURE CONTENT %	14	12	14
DRY DENSITY - PCF	110	118	120
CU-CONSOLIDATED UNDRAINED	-	-	-
UU-UNCONSOLIDATED UNDRAINED	-	-	-
UC-UNCONFIRMED COMPRESSION	44-1/2	Q _u	-



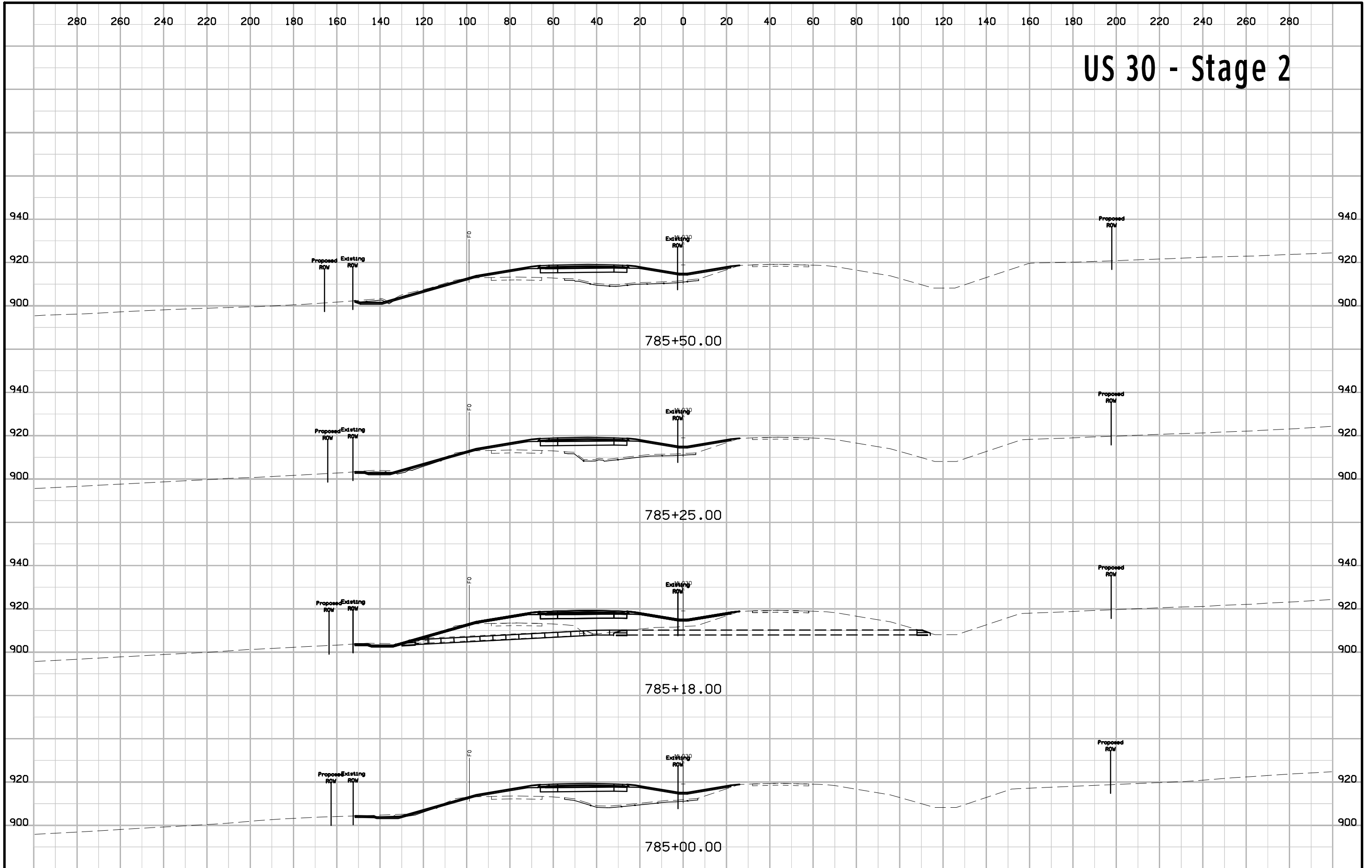
US 30 - Stage 2



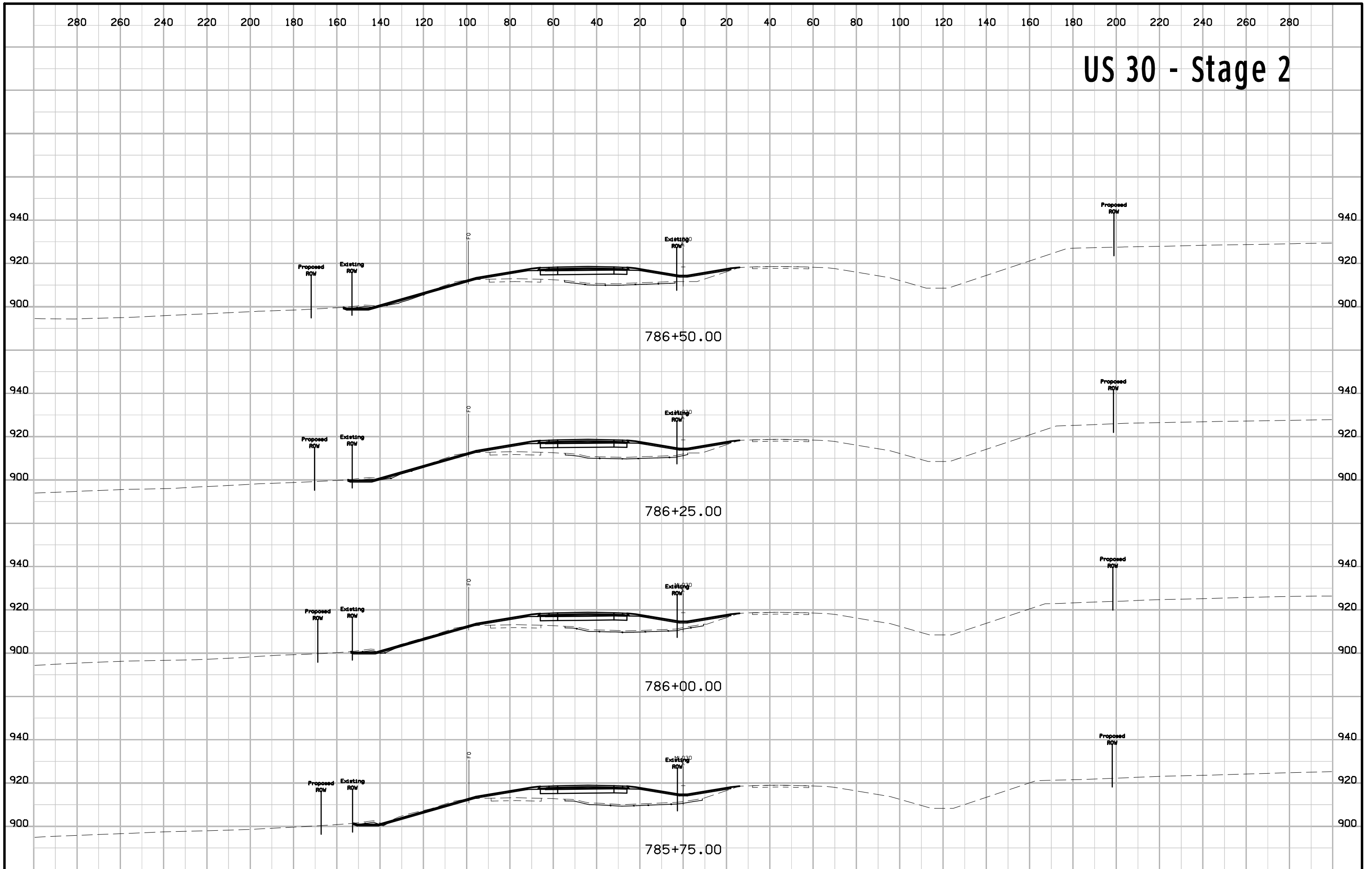
US 30 - Stage 2



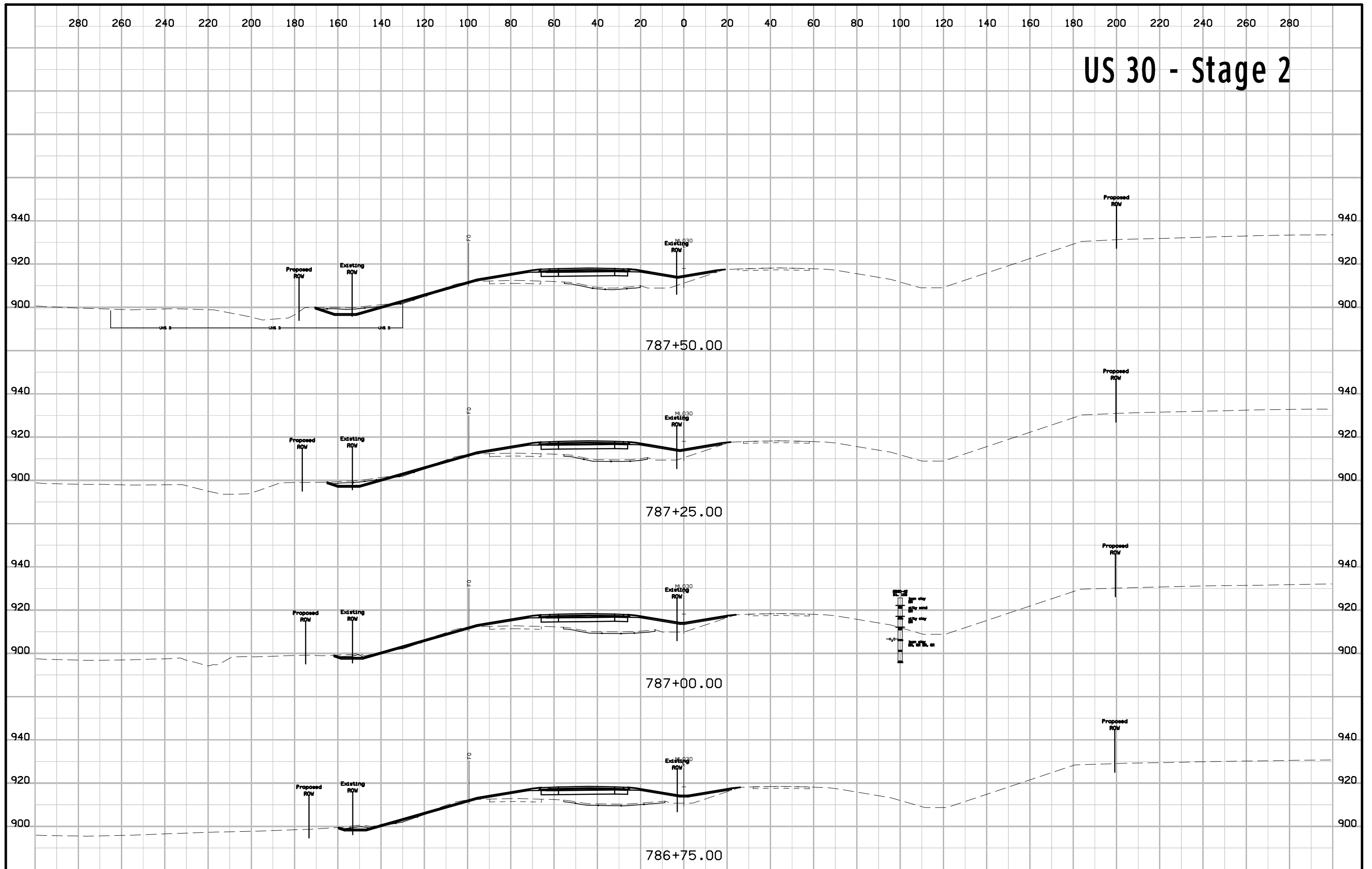
US 30 - Stage 2



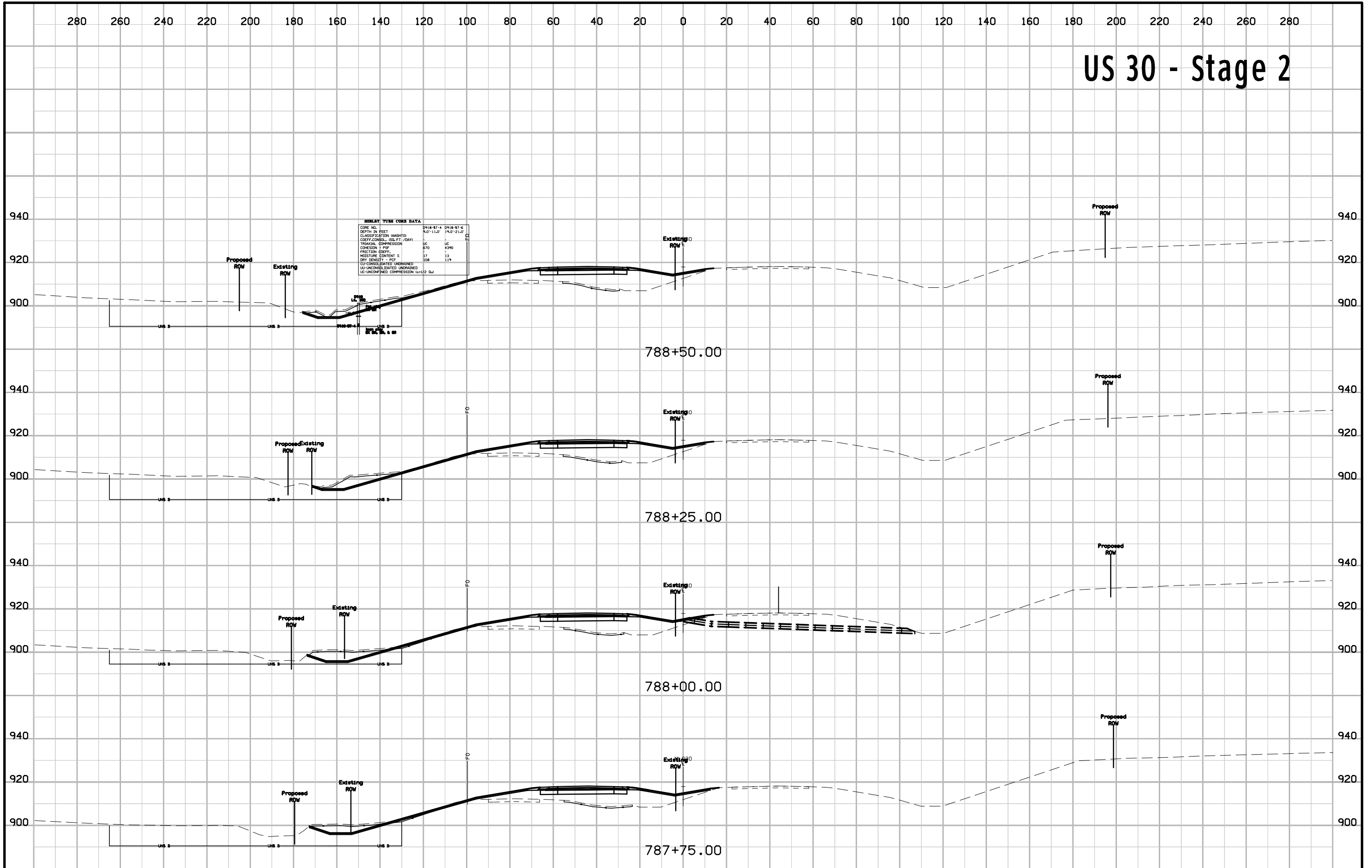
US 30 - Stage 2



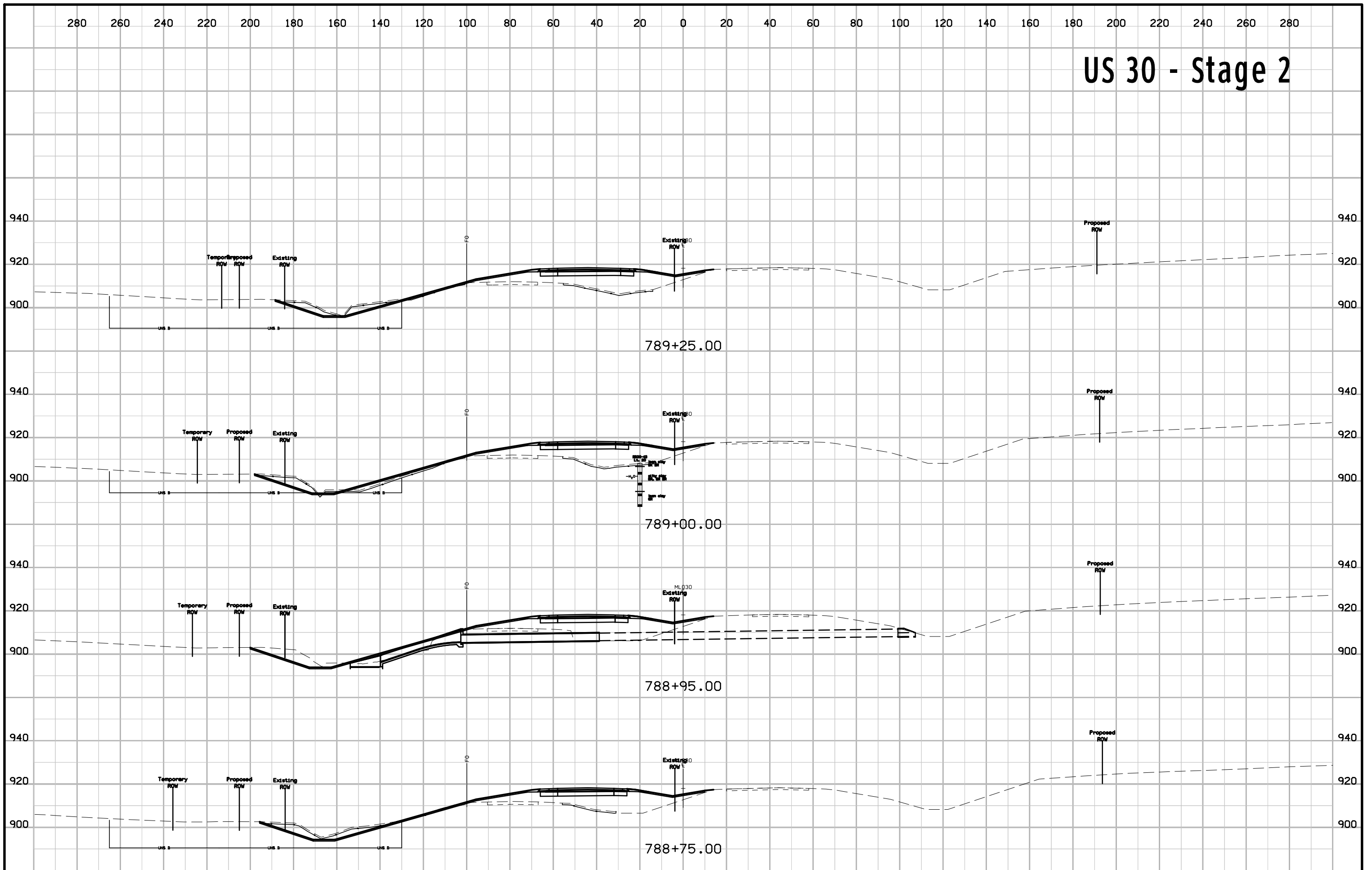
US 30 - Stage 2



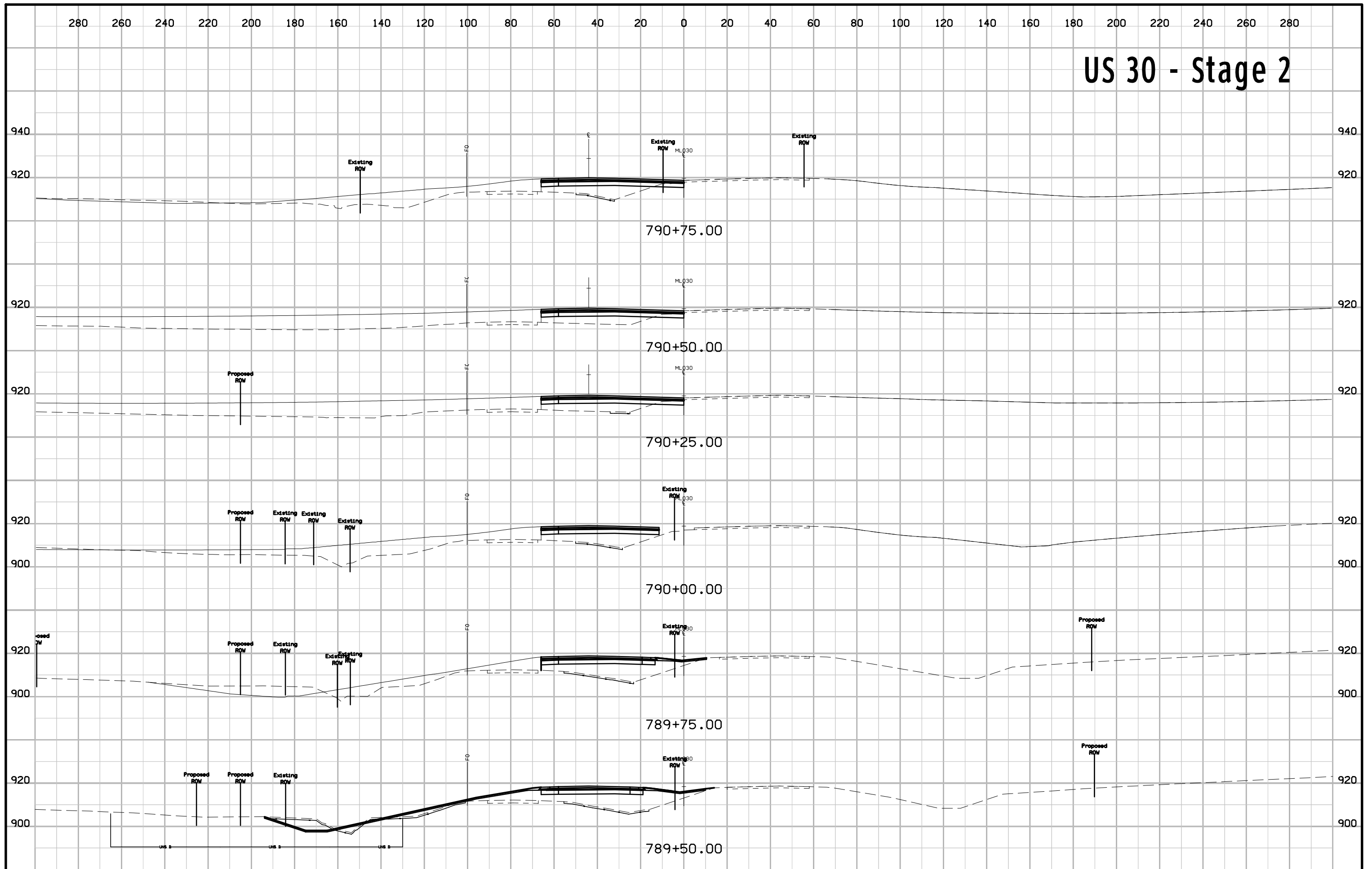
US 30 - Stage 2



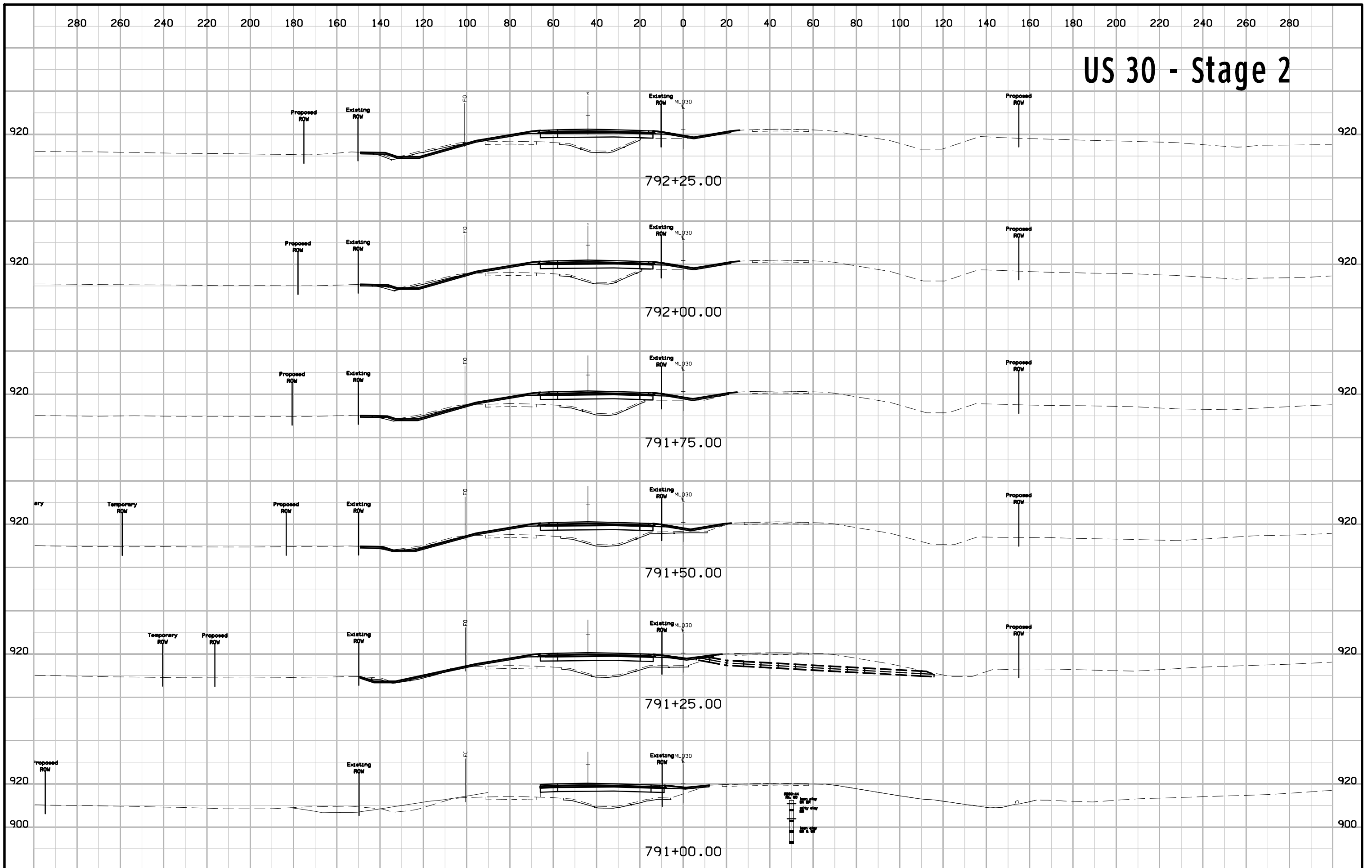
US 30 - Stage 2



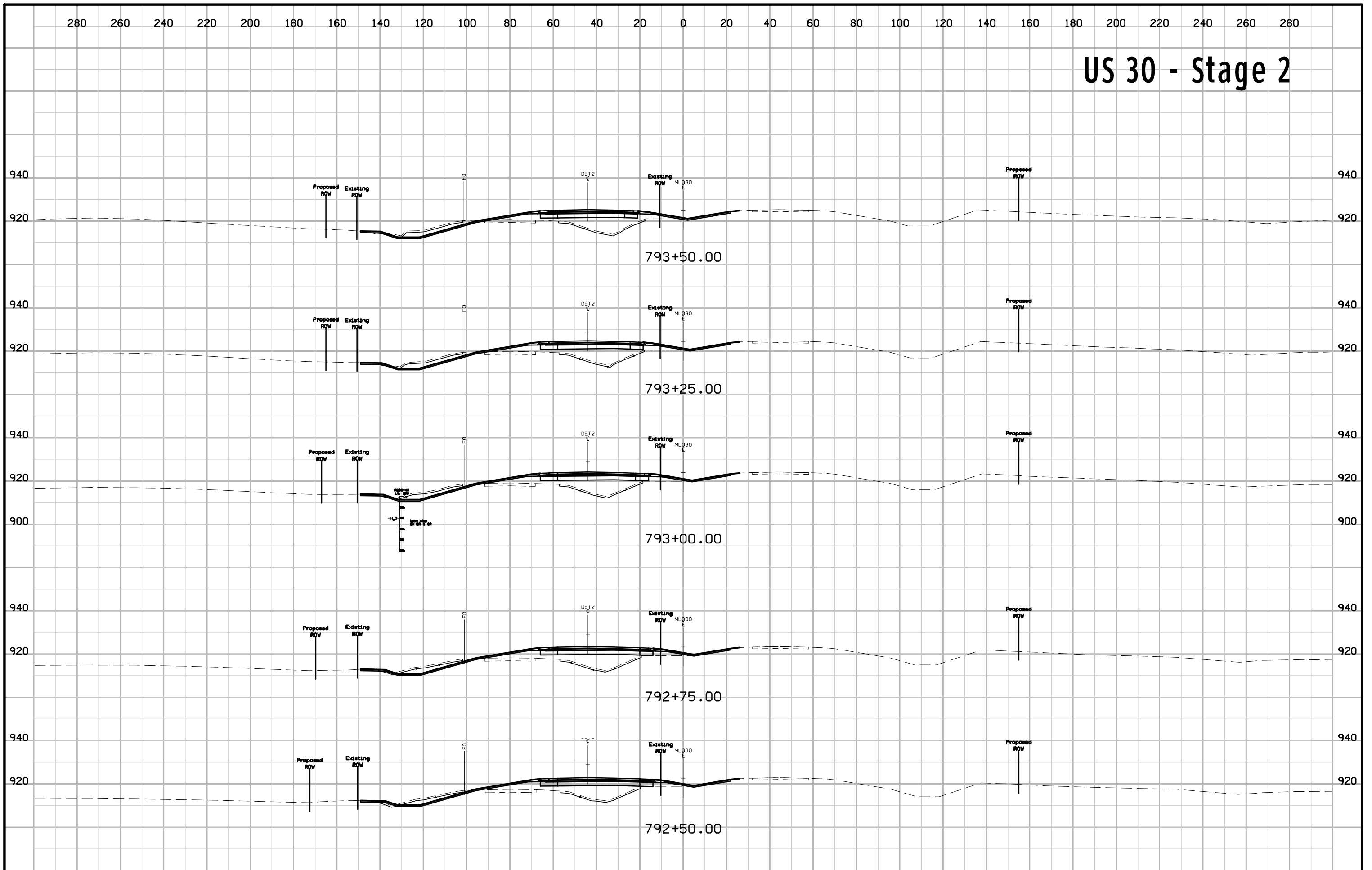
US 30 - Stage 2



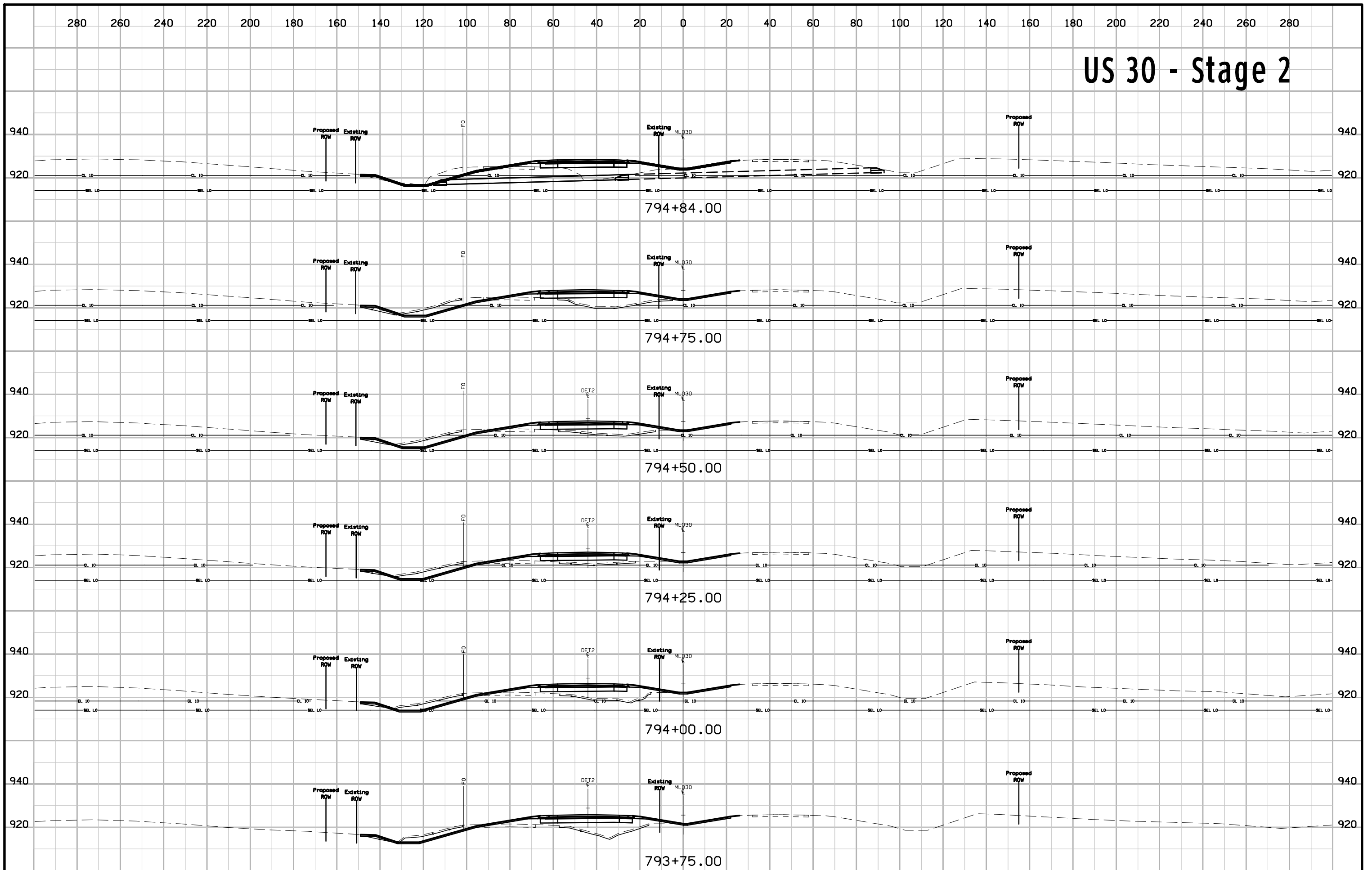
US 30 - Stage 2



US 30 - Stage 2

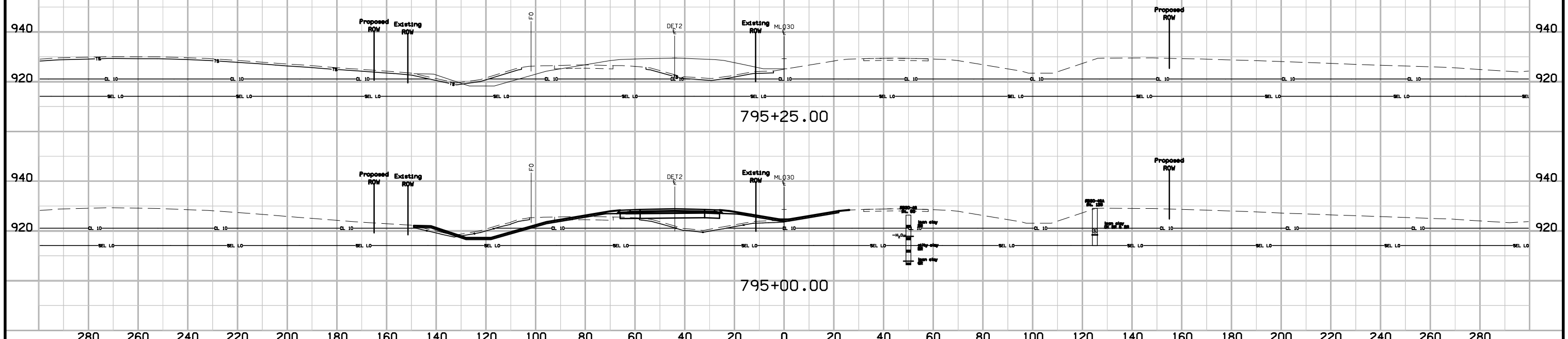


US 30 - Stage 2



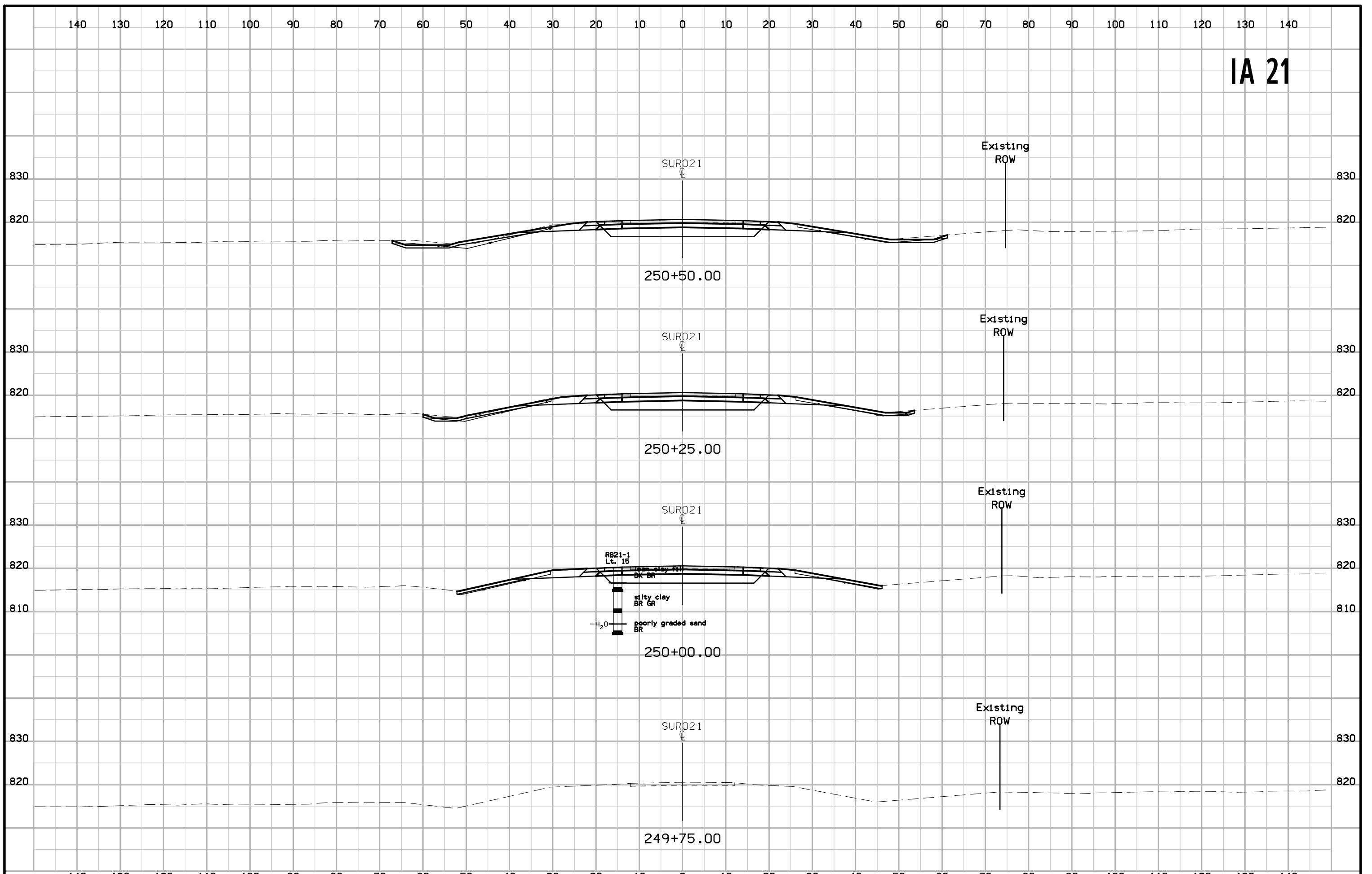
280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

US 30 - Stage 2

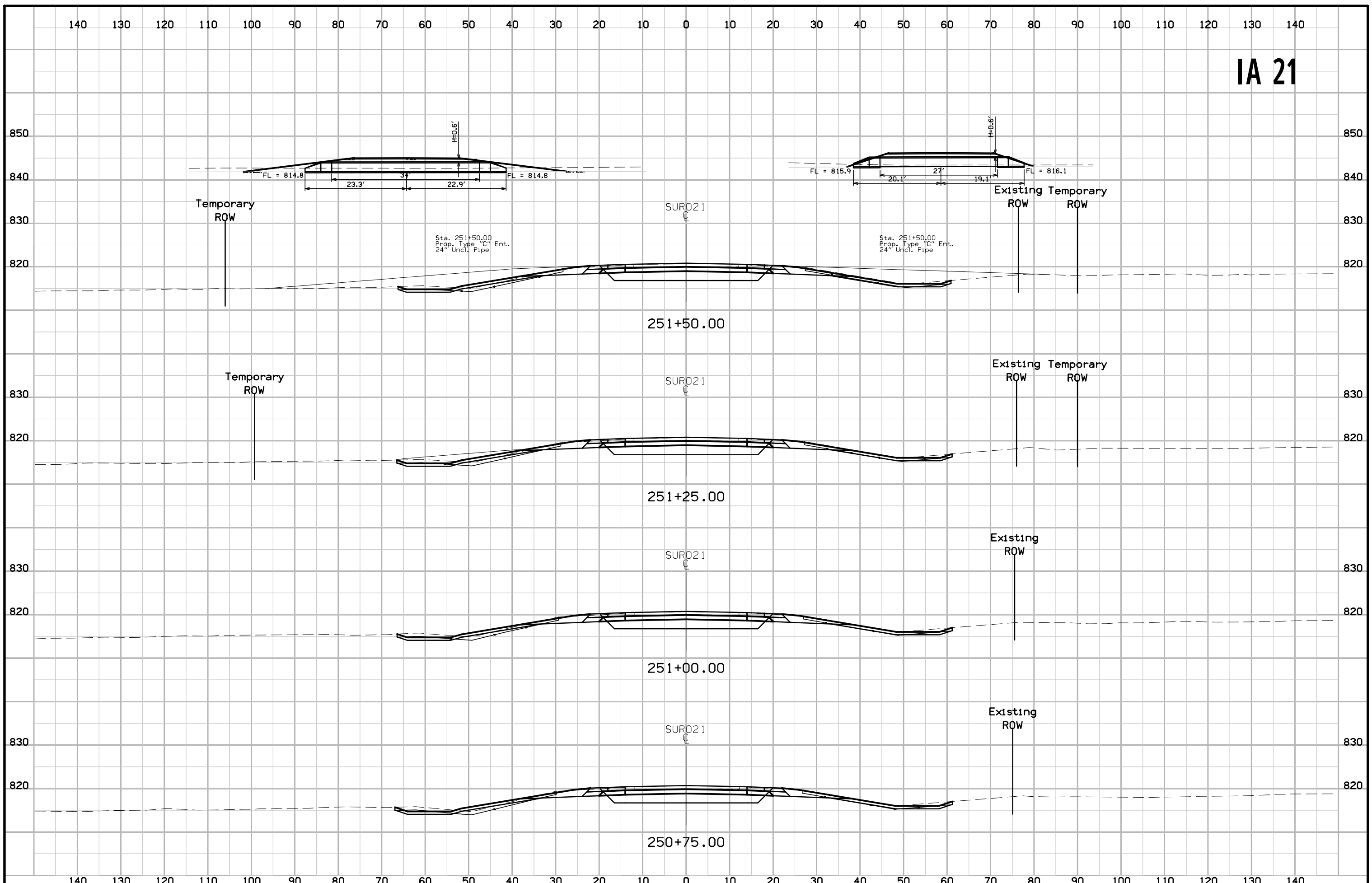


280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

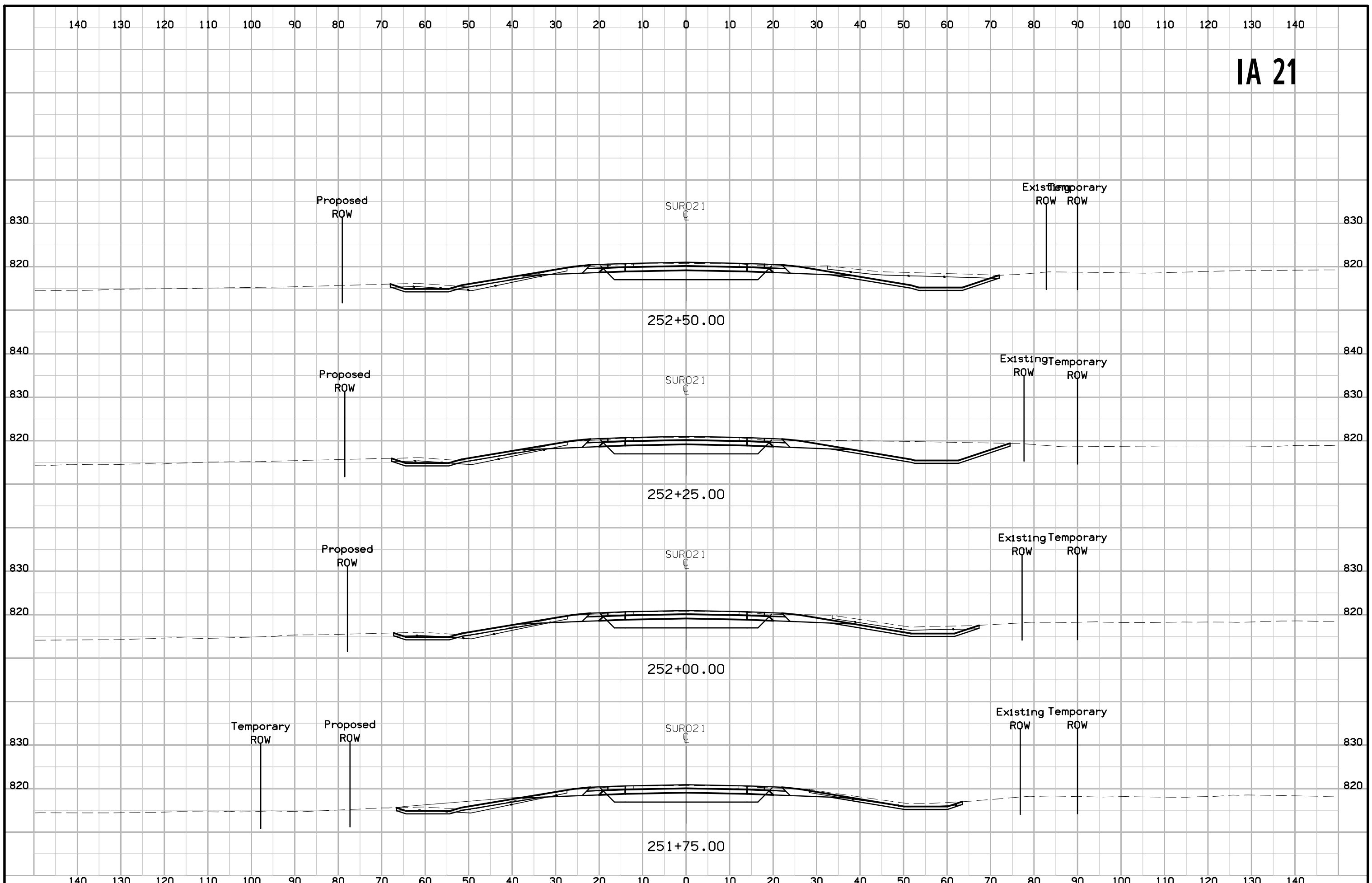
IA 21



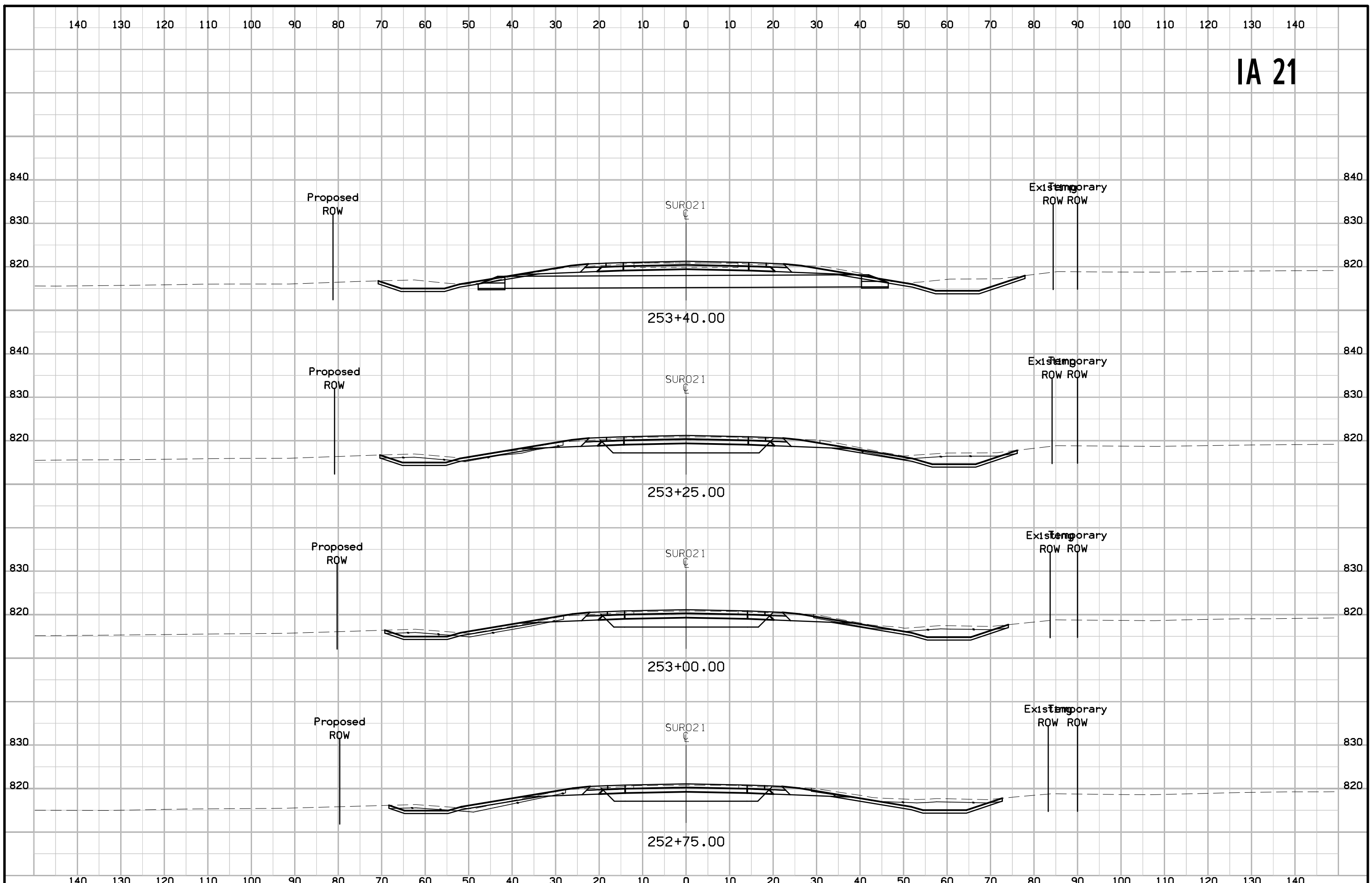
IA 21



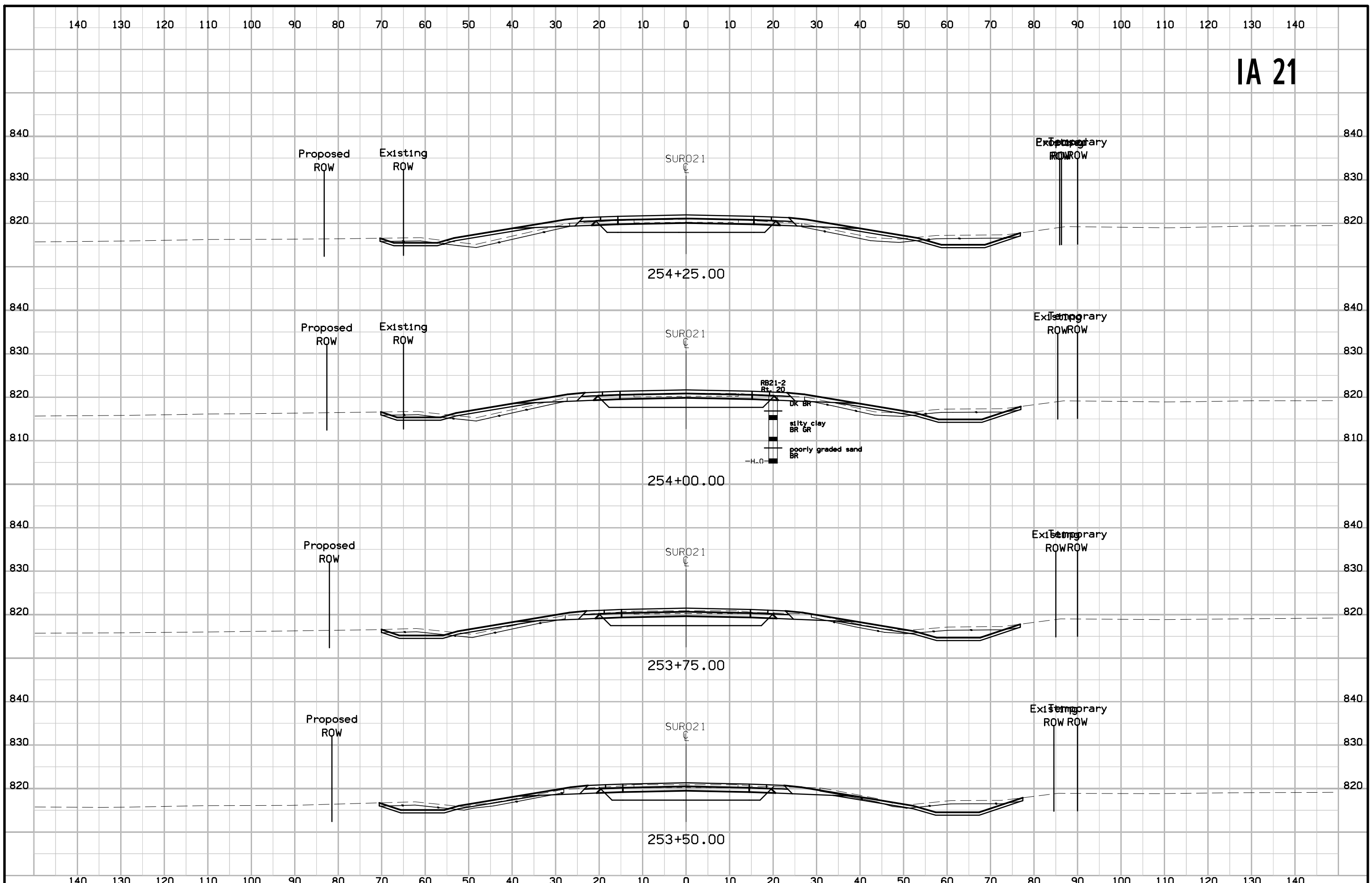
IA 21



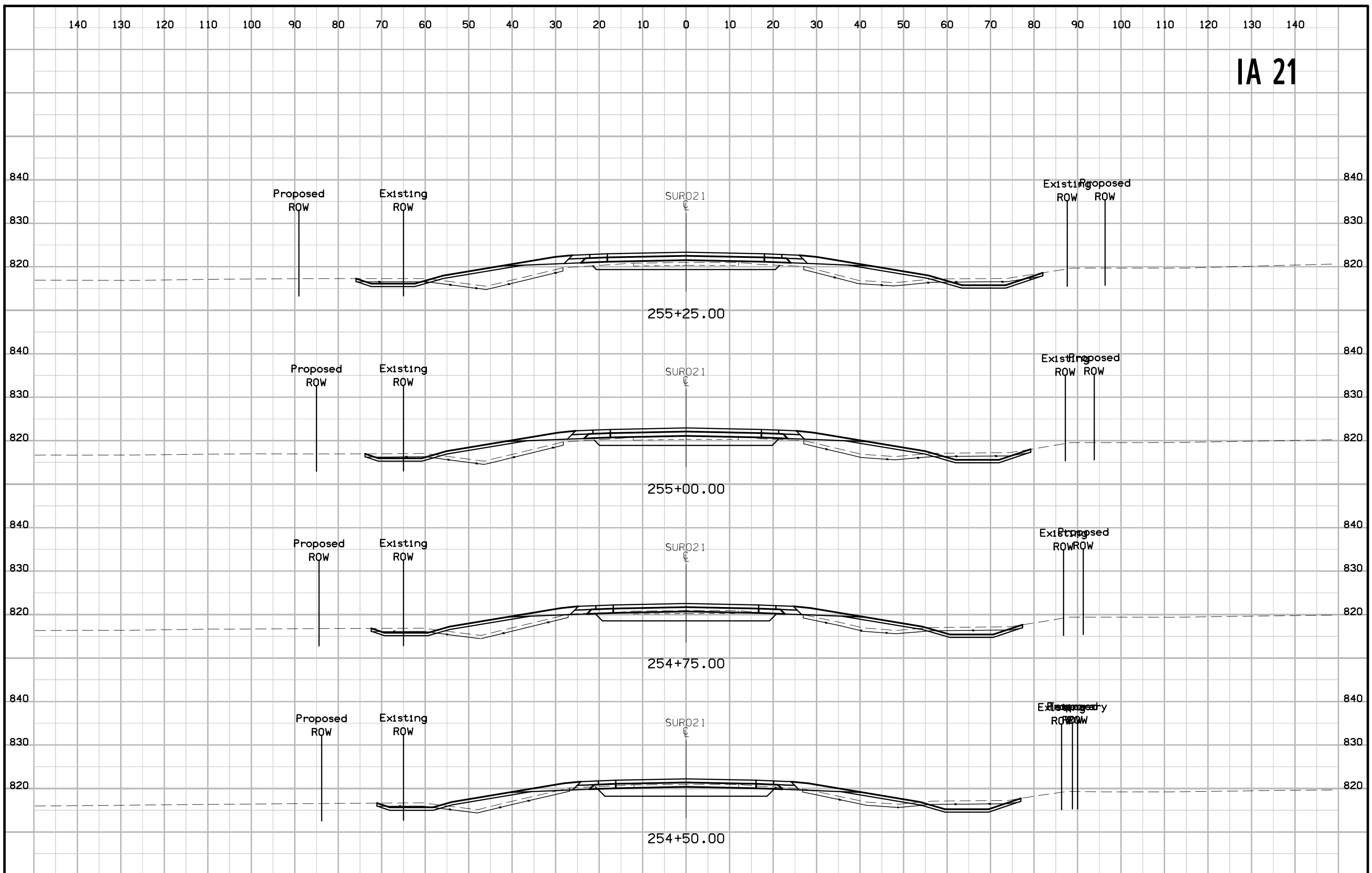
IA 21



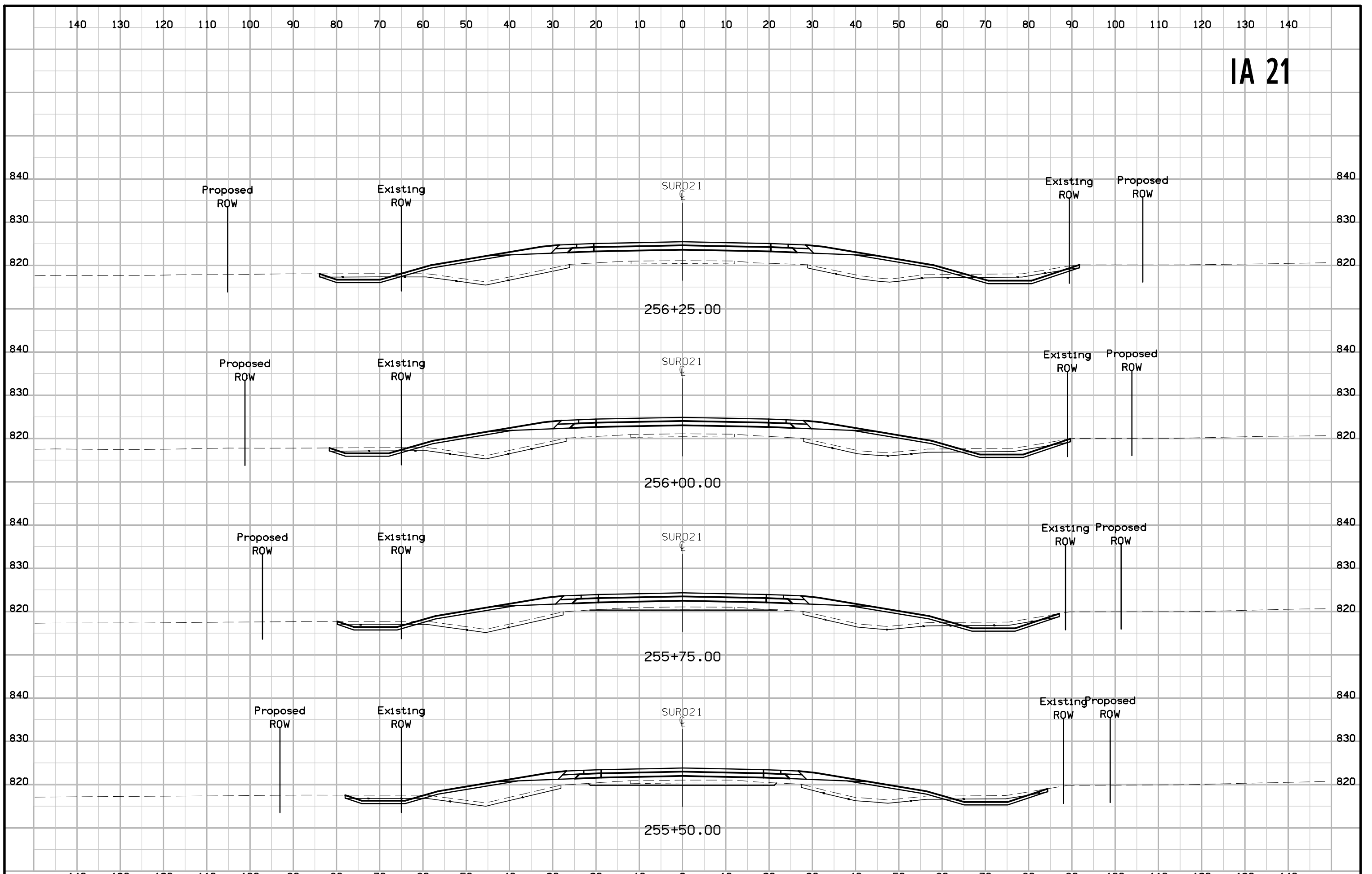
IA 21



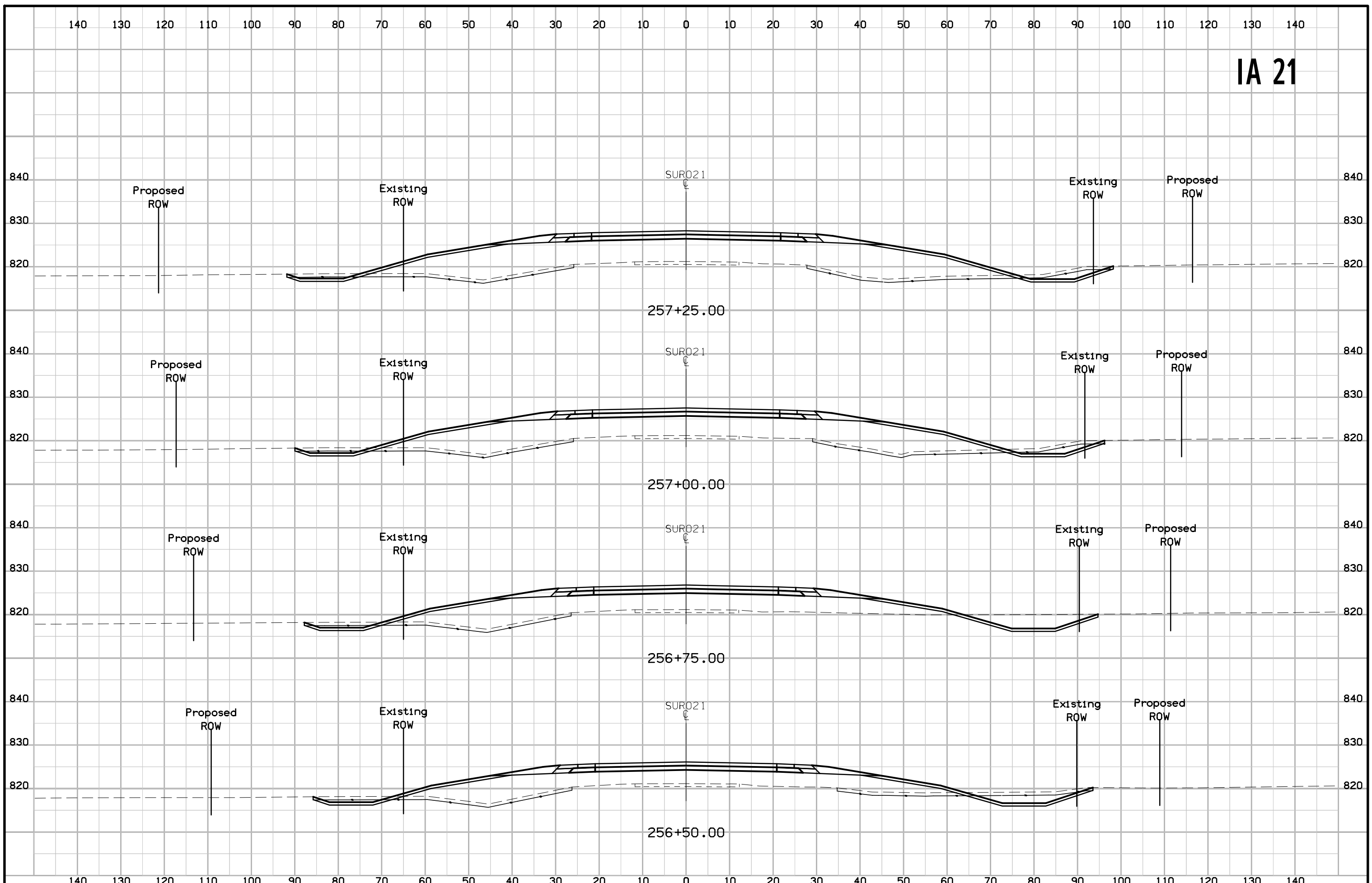
IA 21



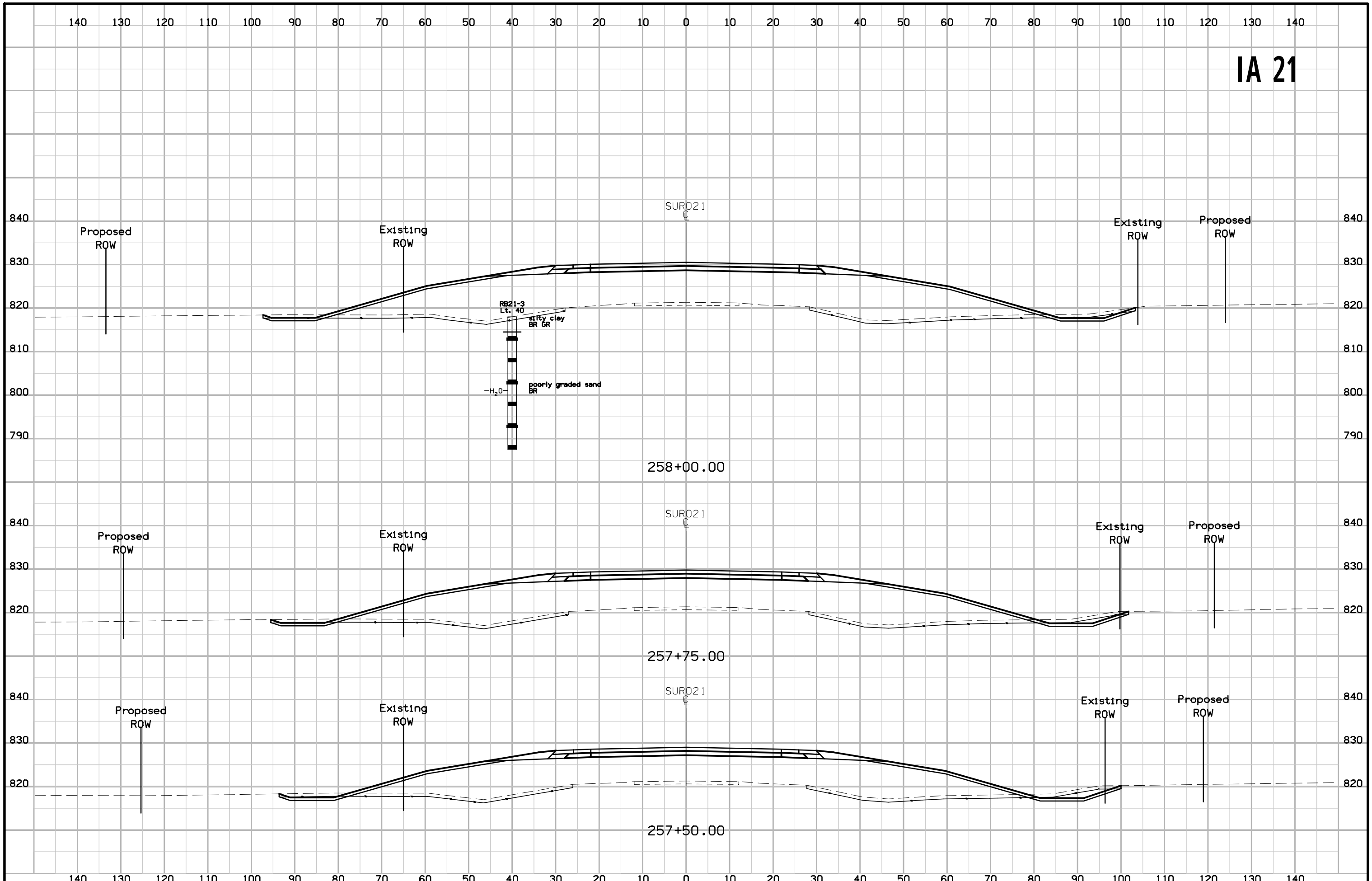
IA 21



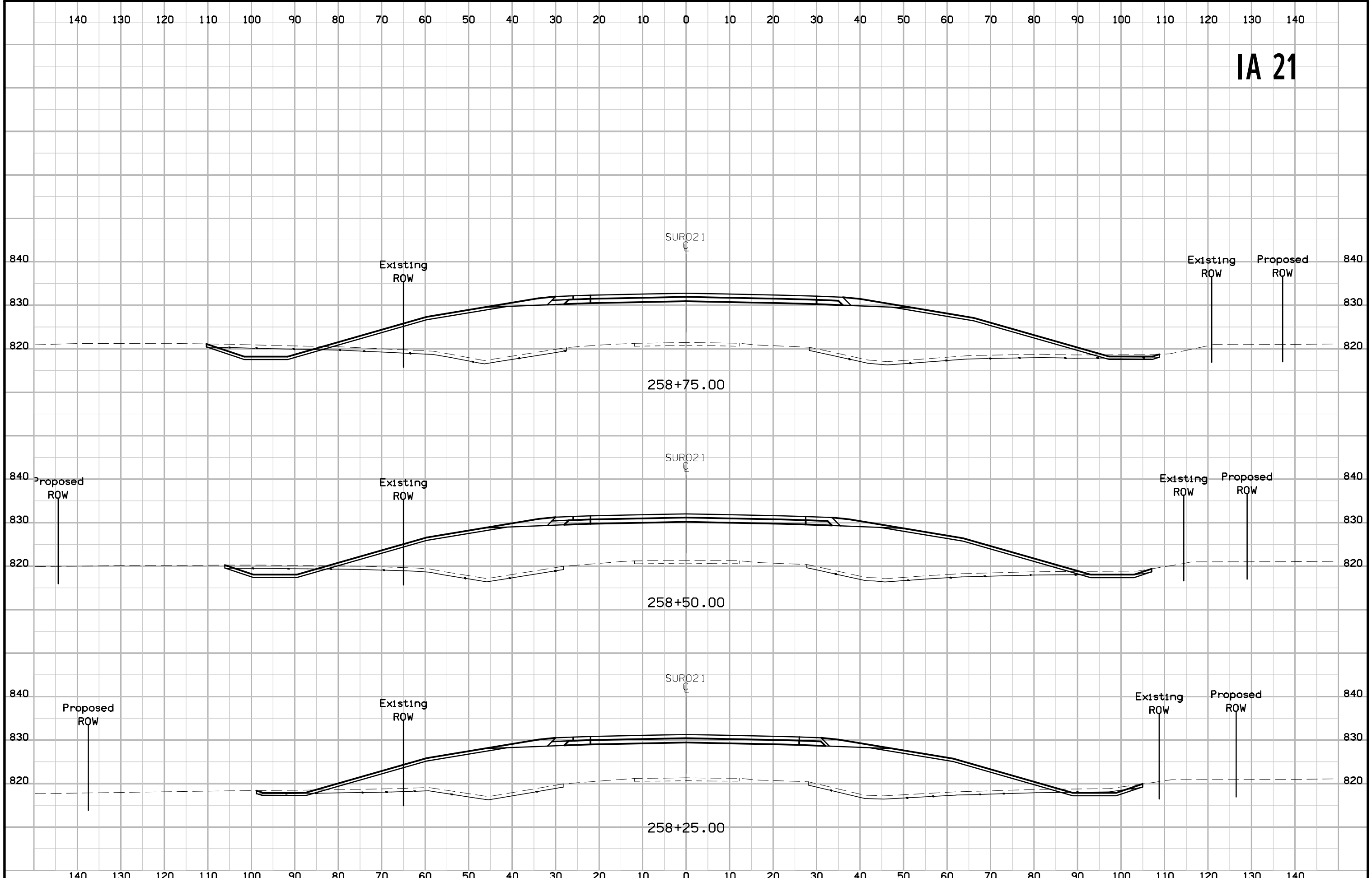
IA 21



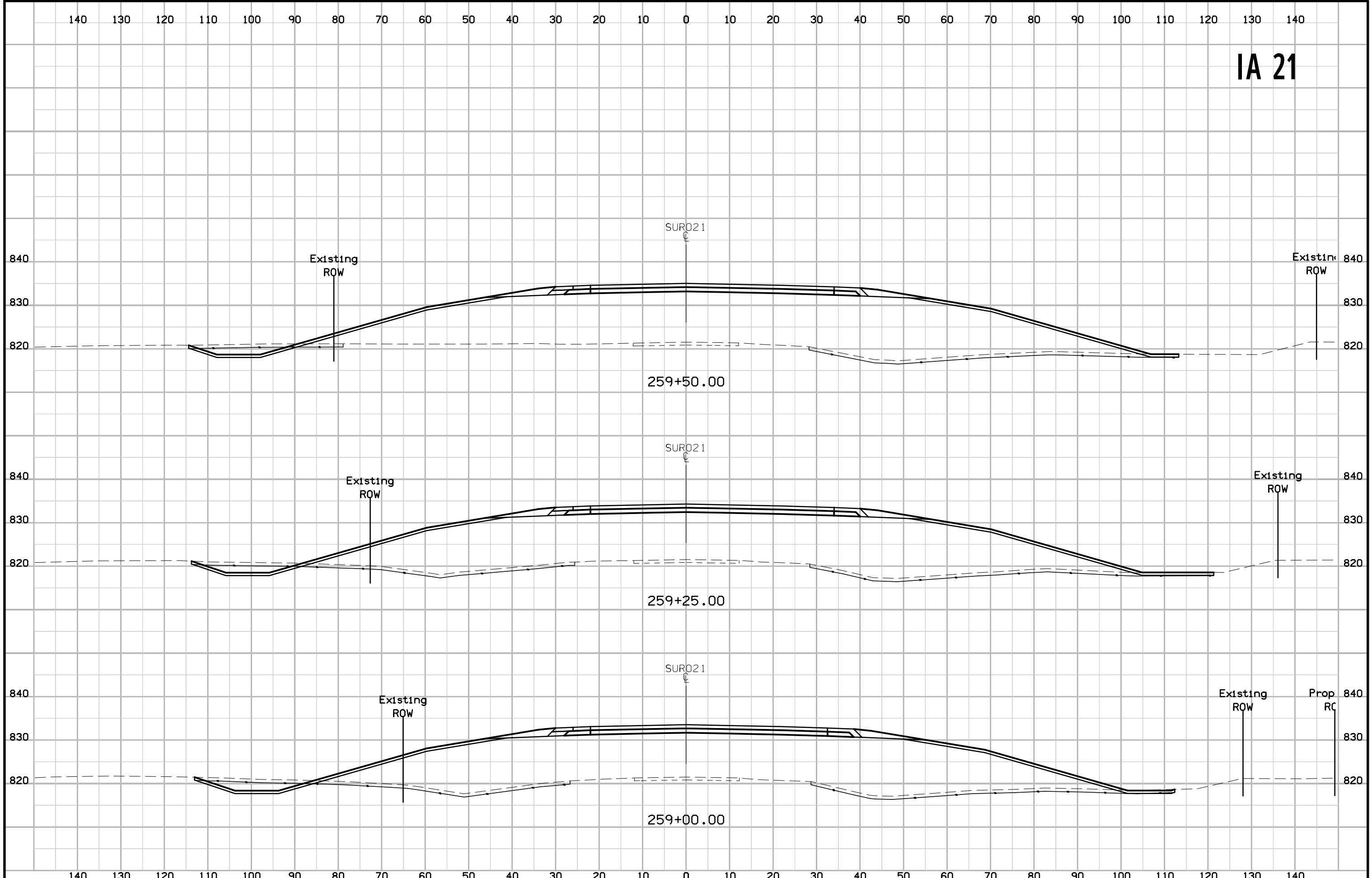
IA 21



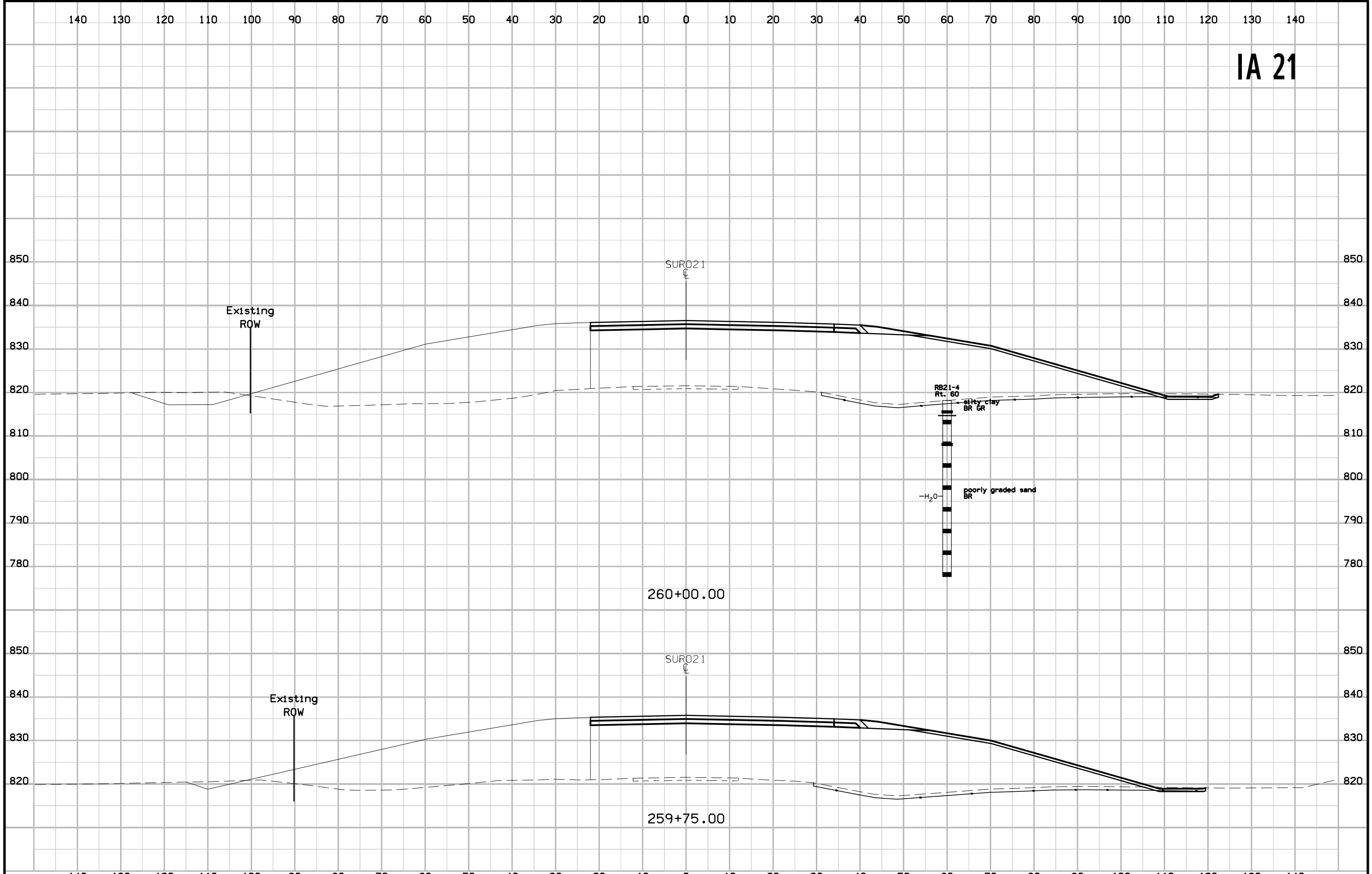
IA 21



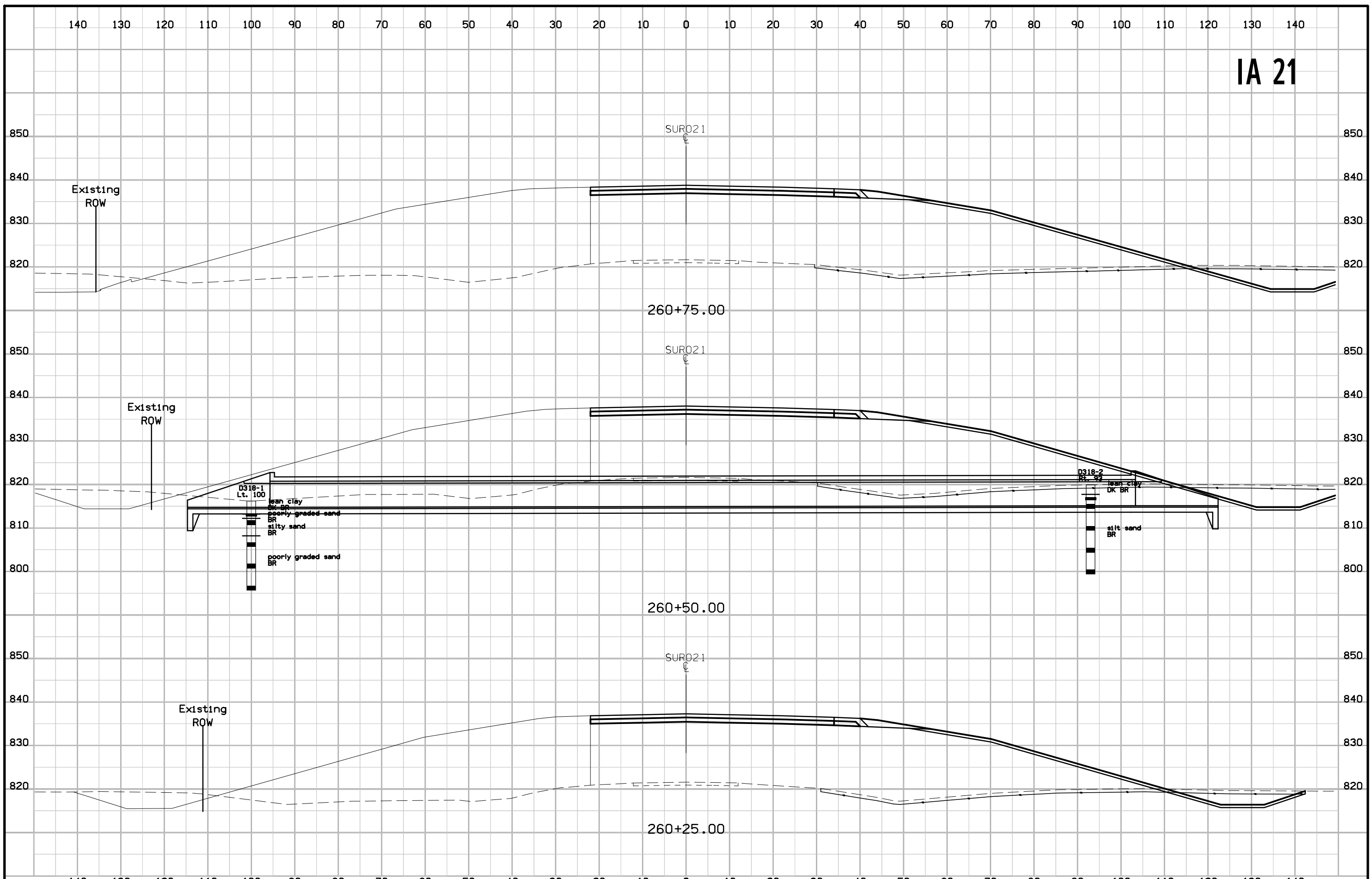
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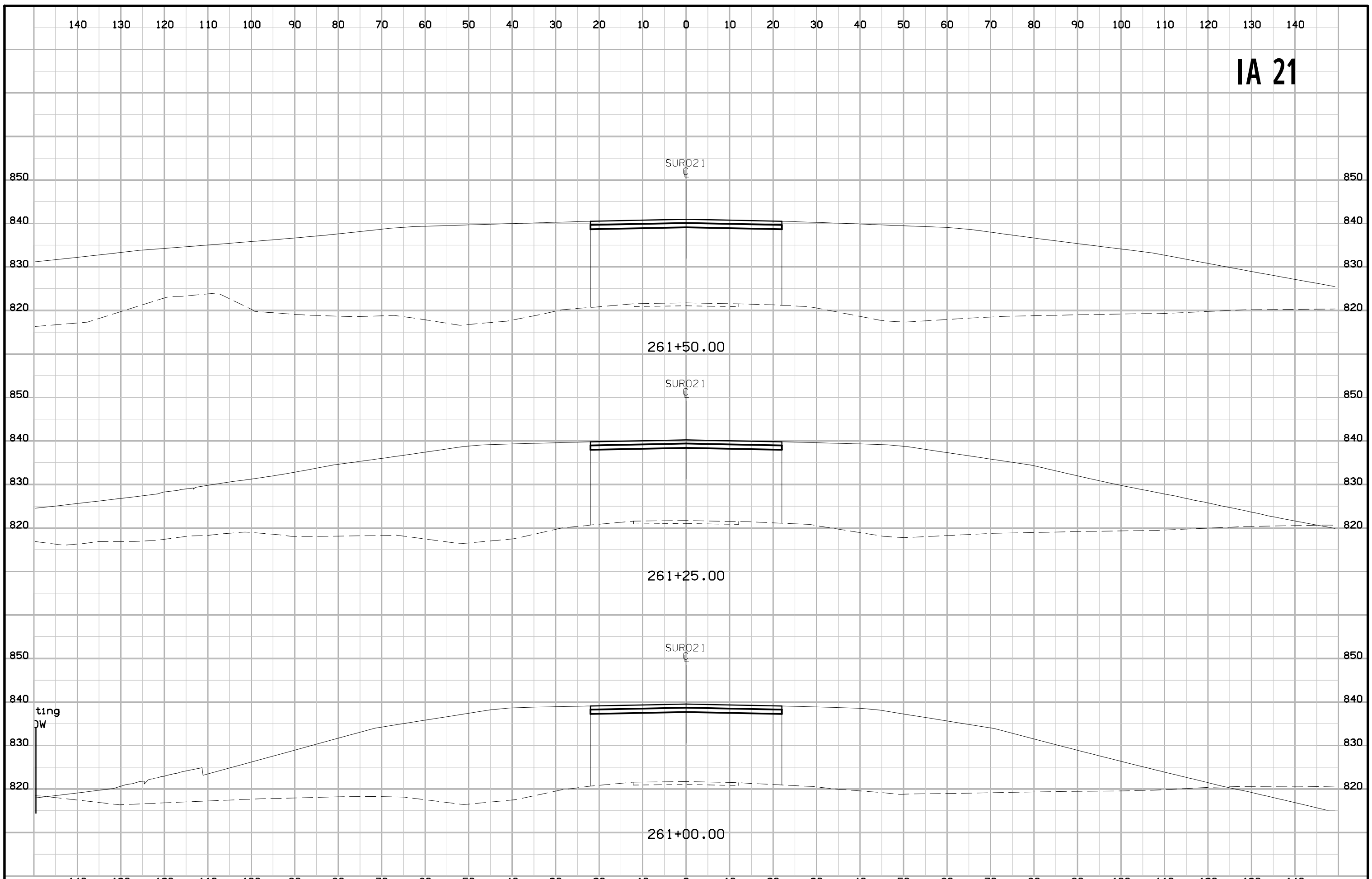
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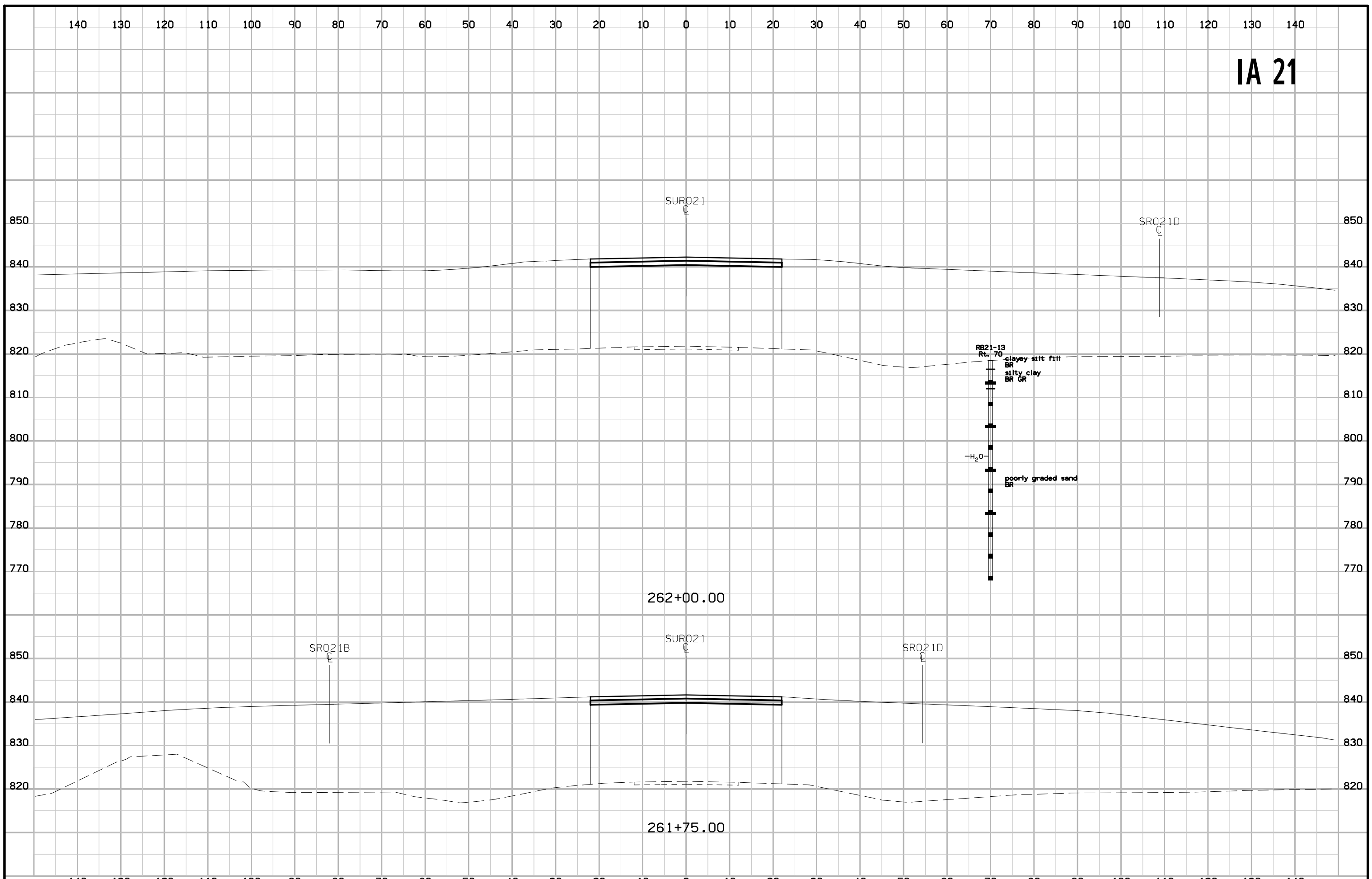
IA 21



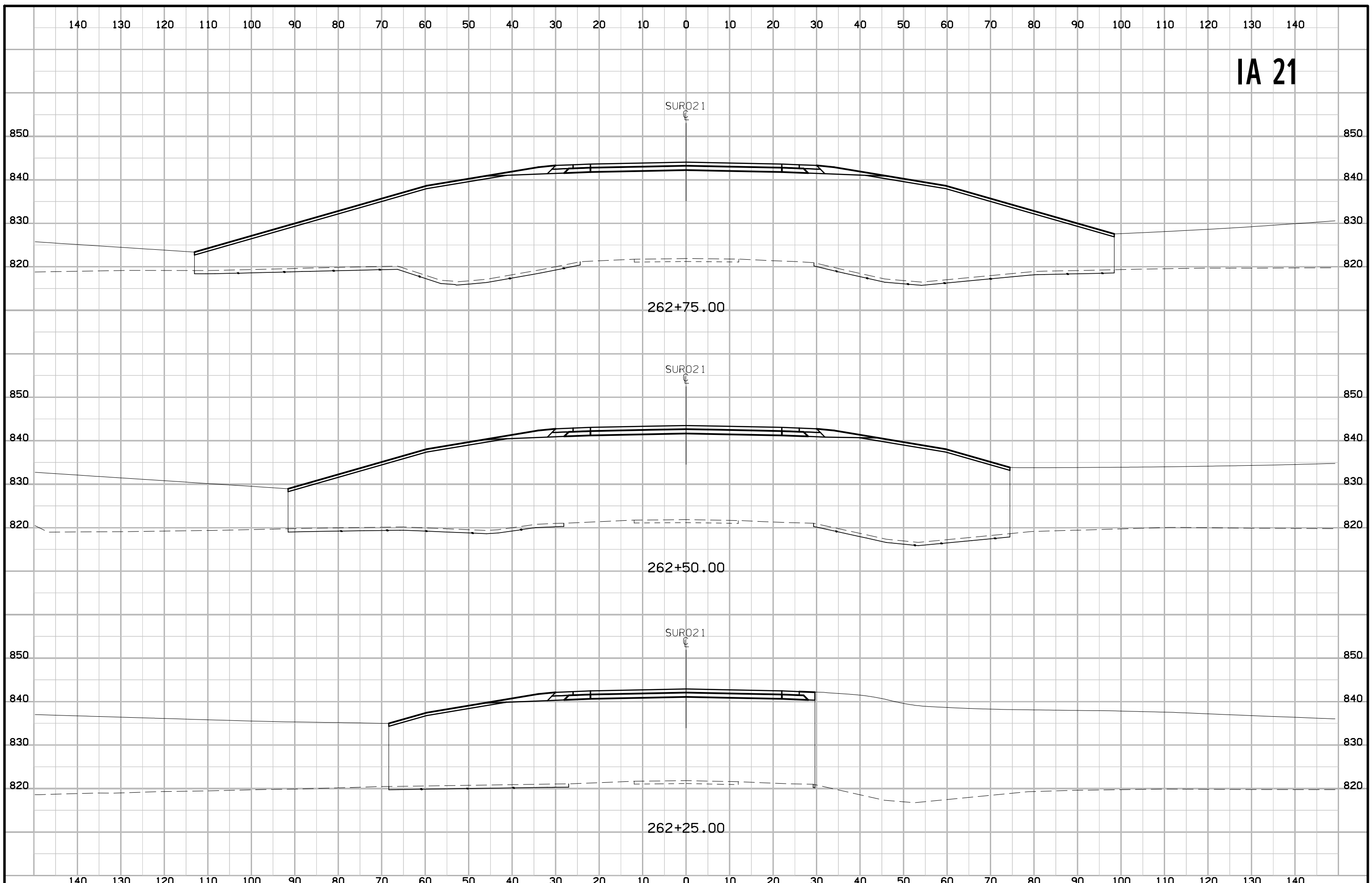
IA 21



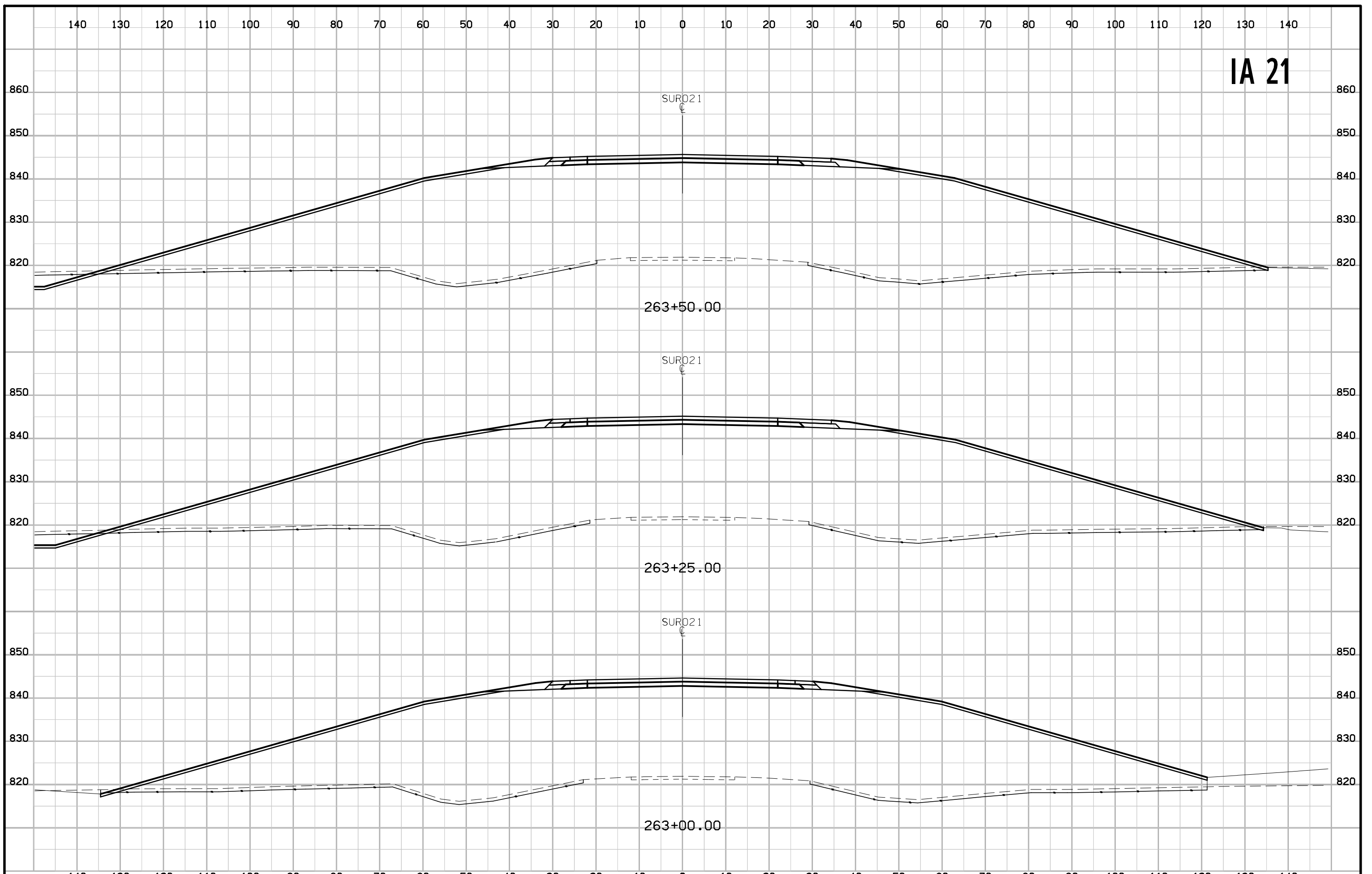
IA 21



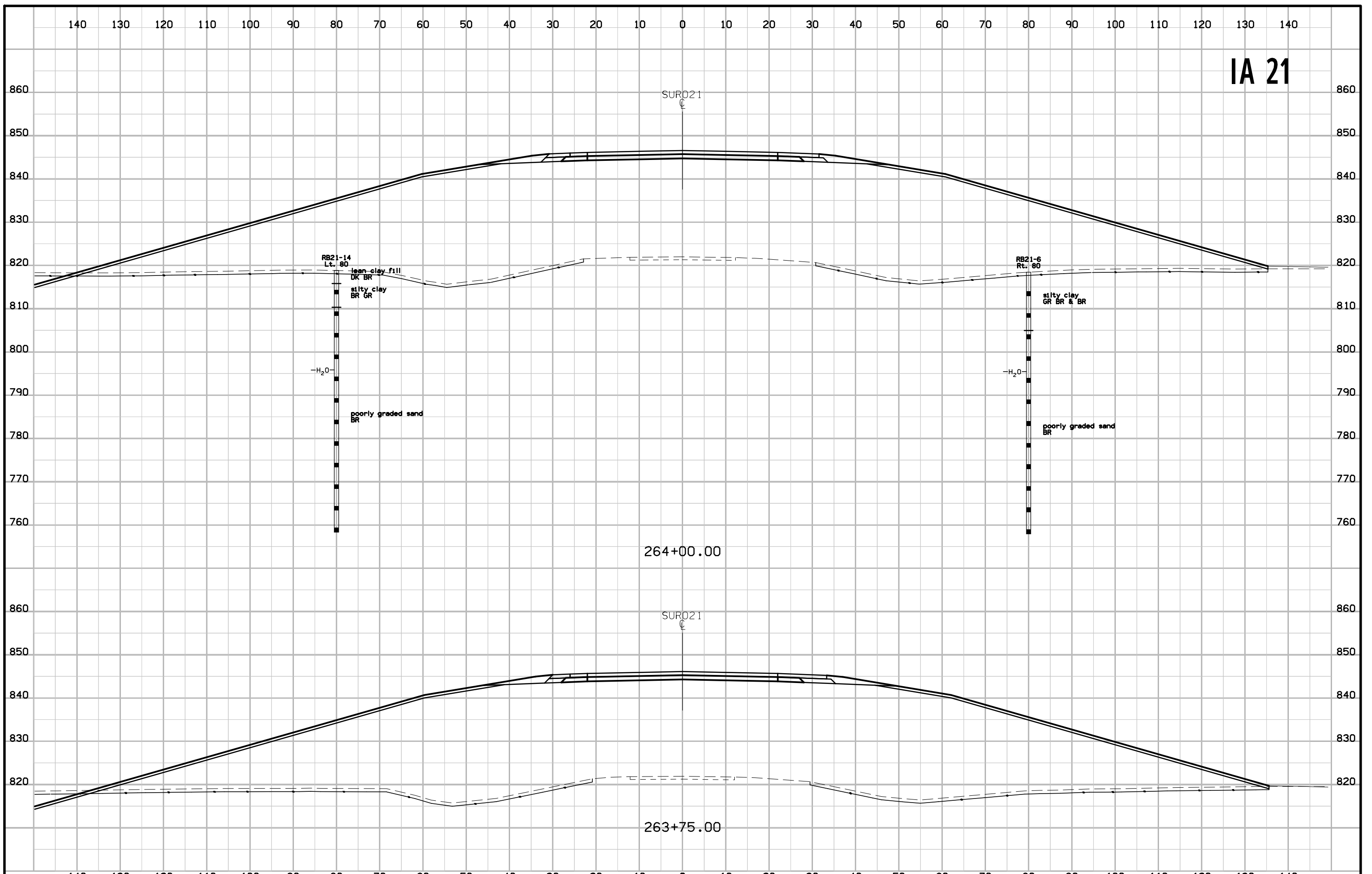
IA 21



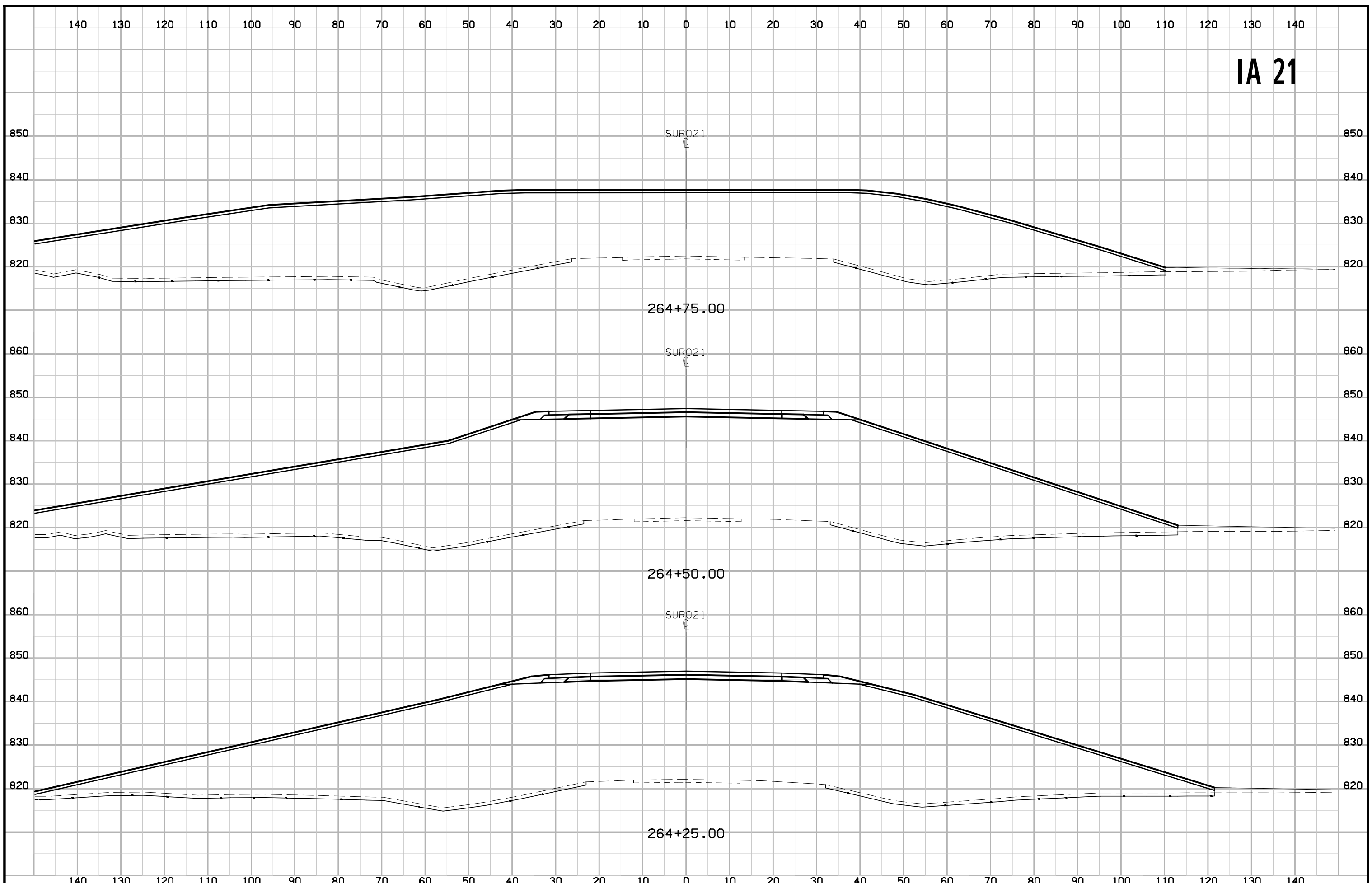
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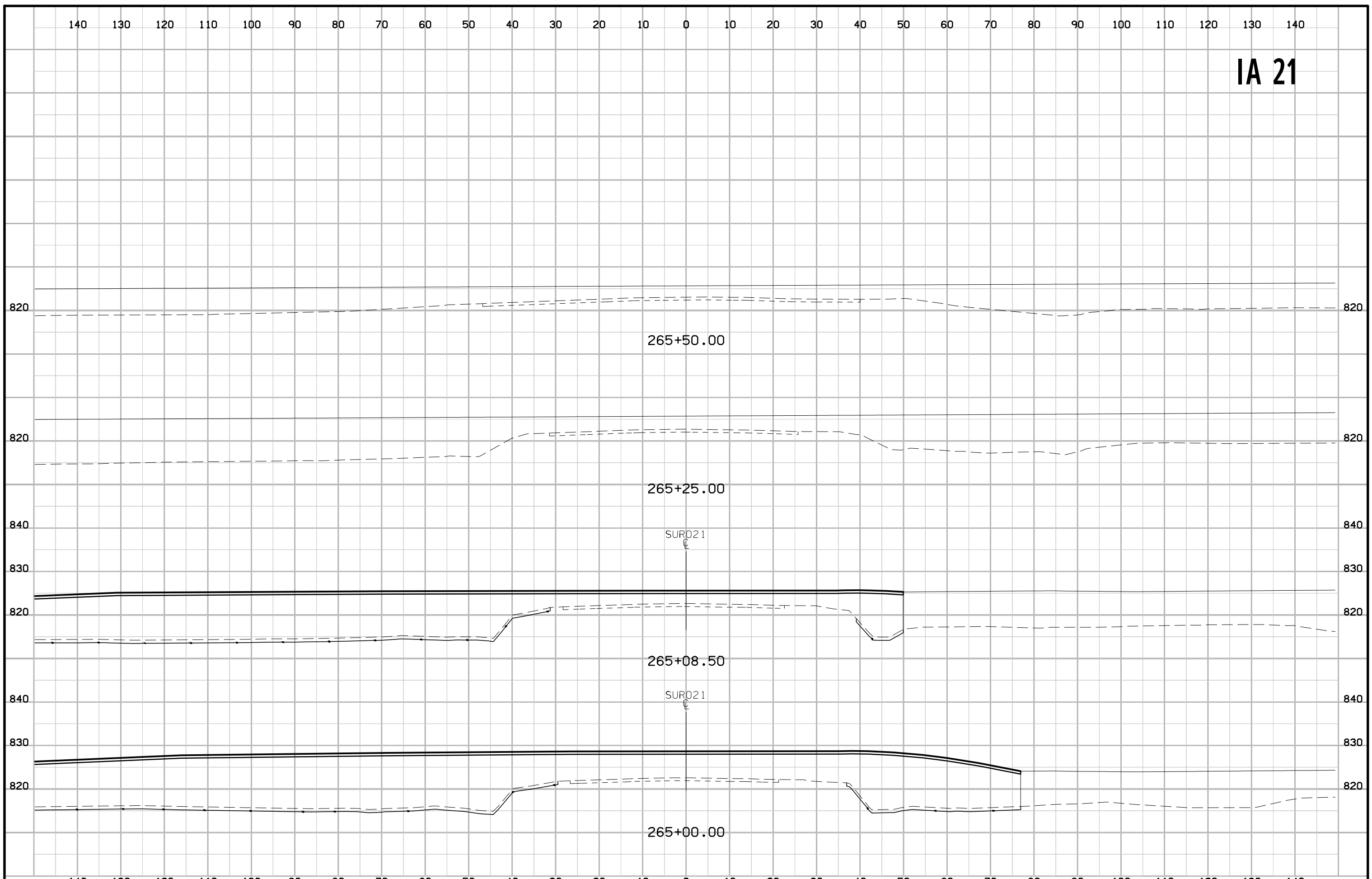
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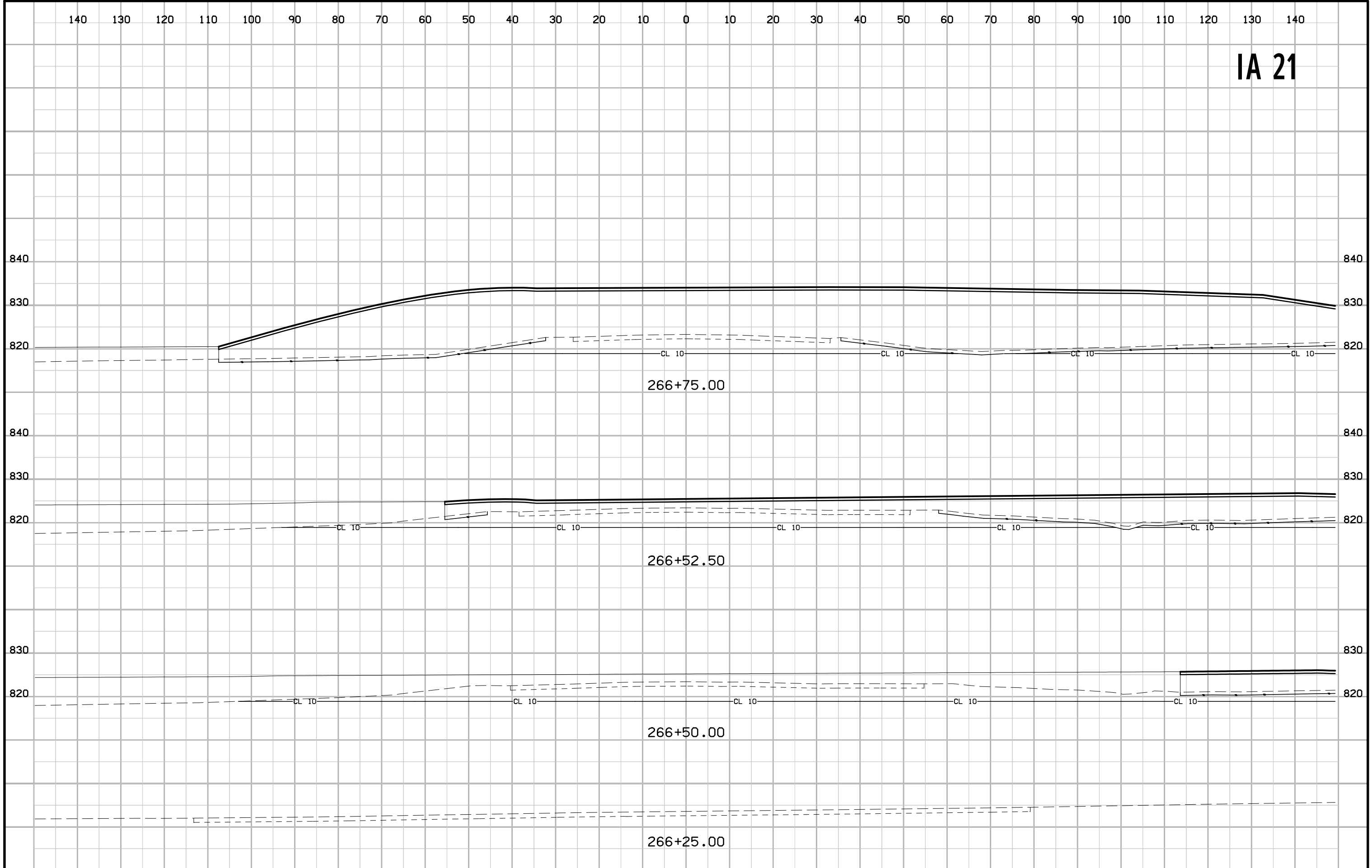
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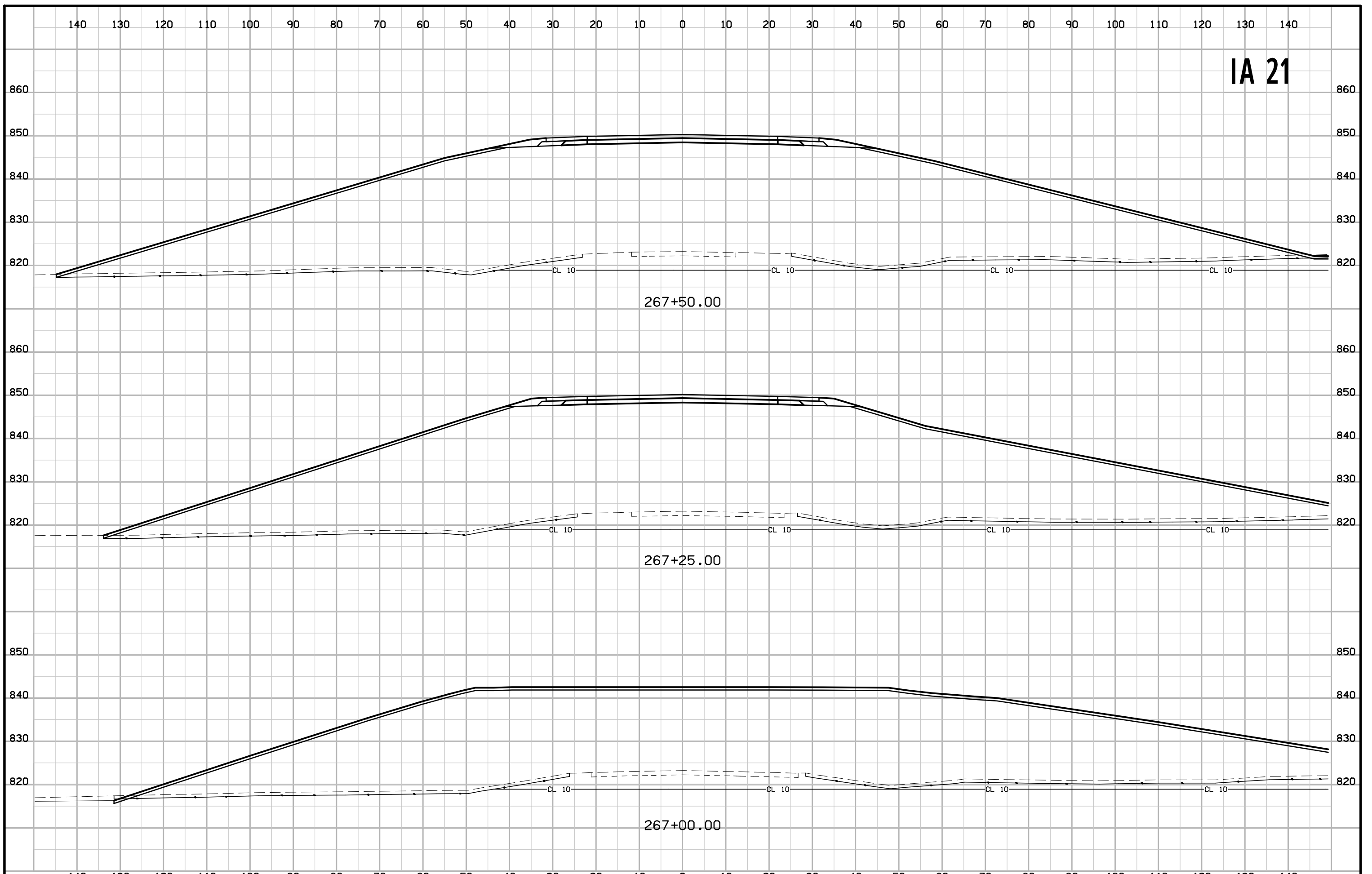
IA 21



IA 21



IA 21

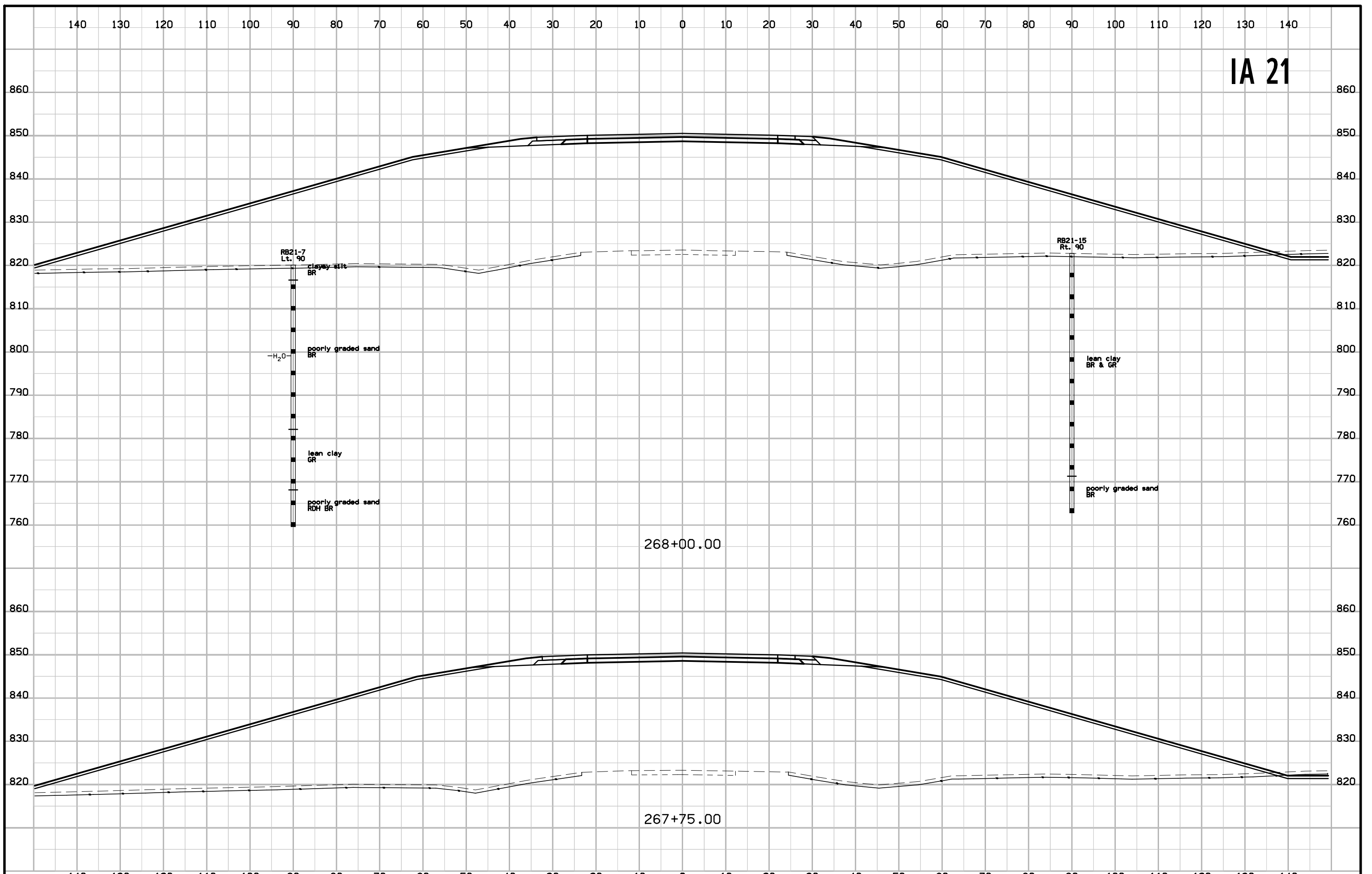


267+50.00

267+25.00

267+00.00

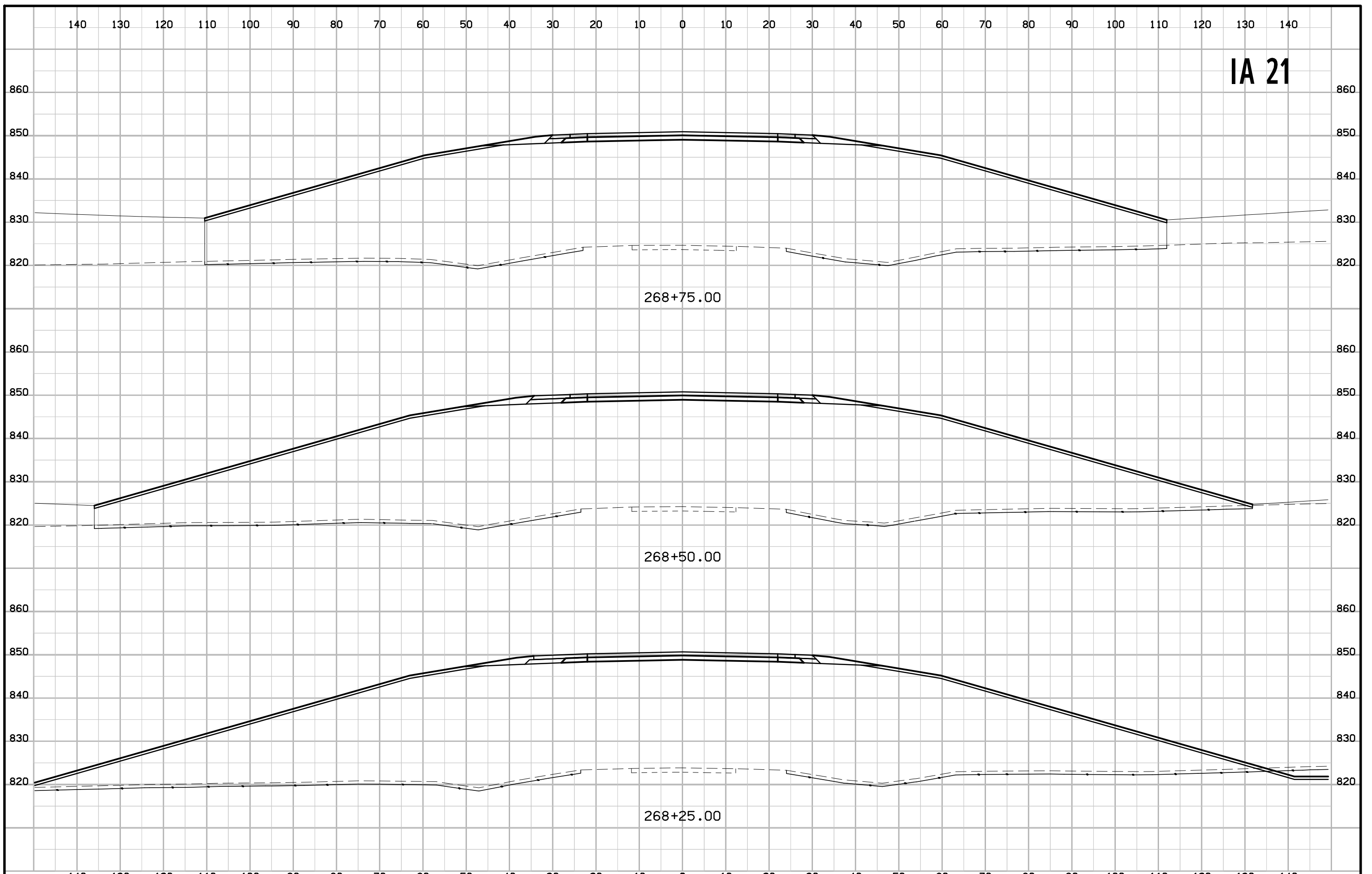
IA 21



268+00.00

267+75.00

IA 21

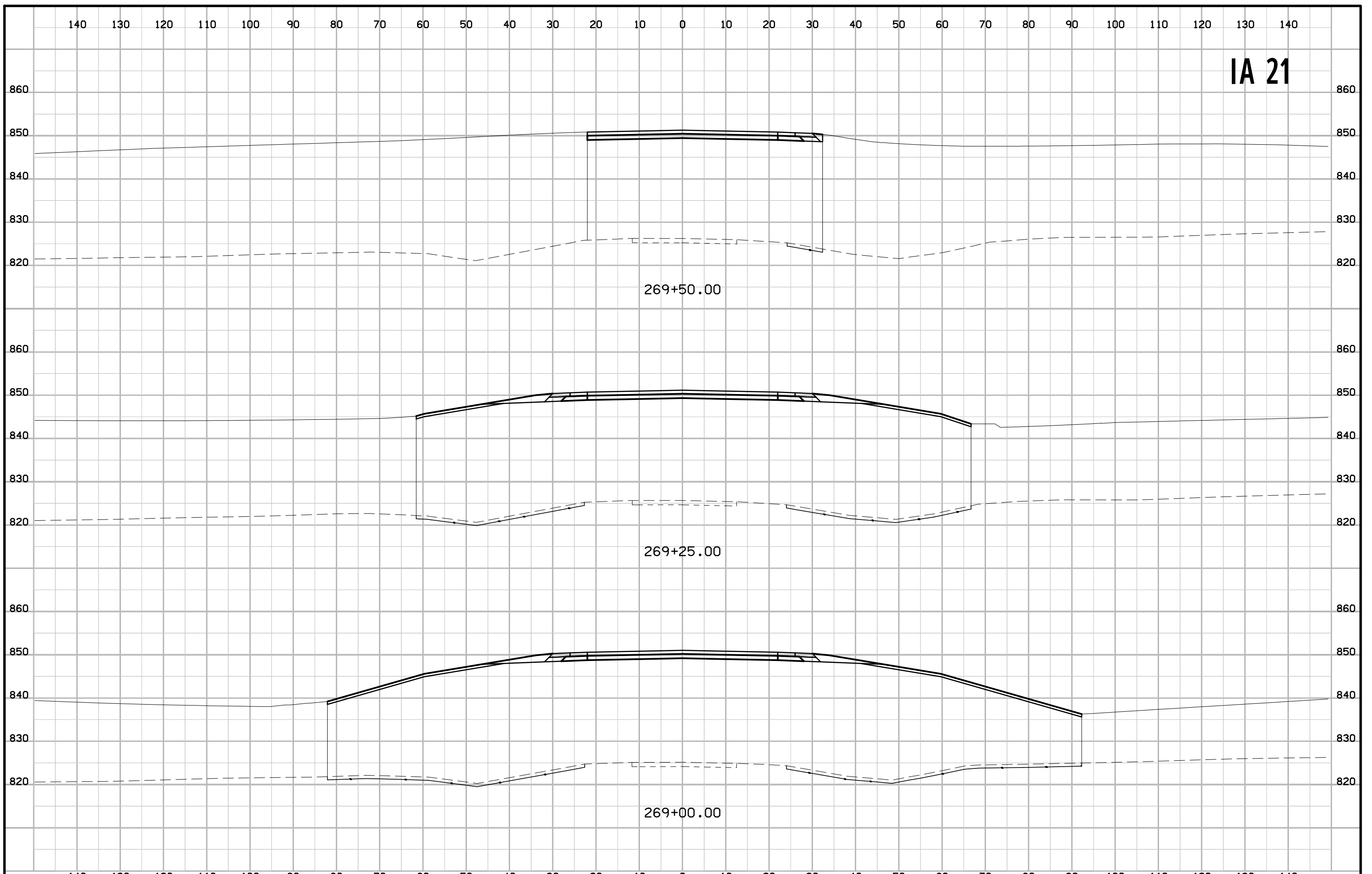


268+75.00

268+50.00

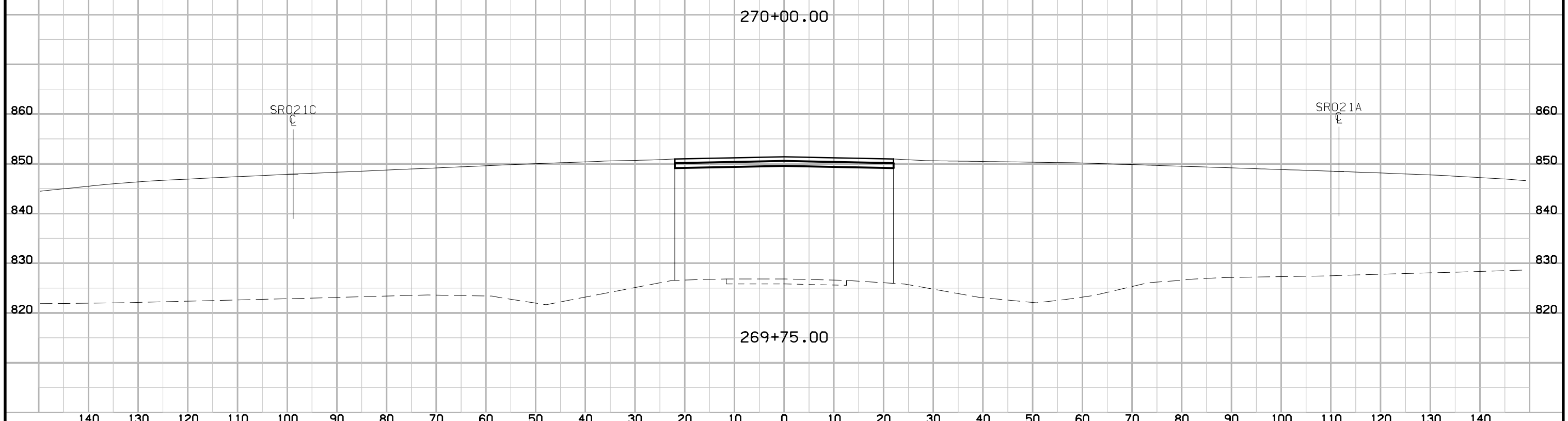
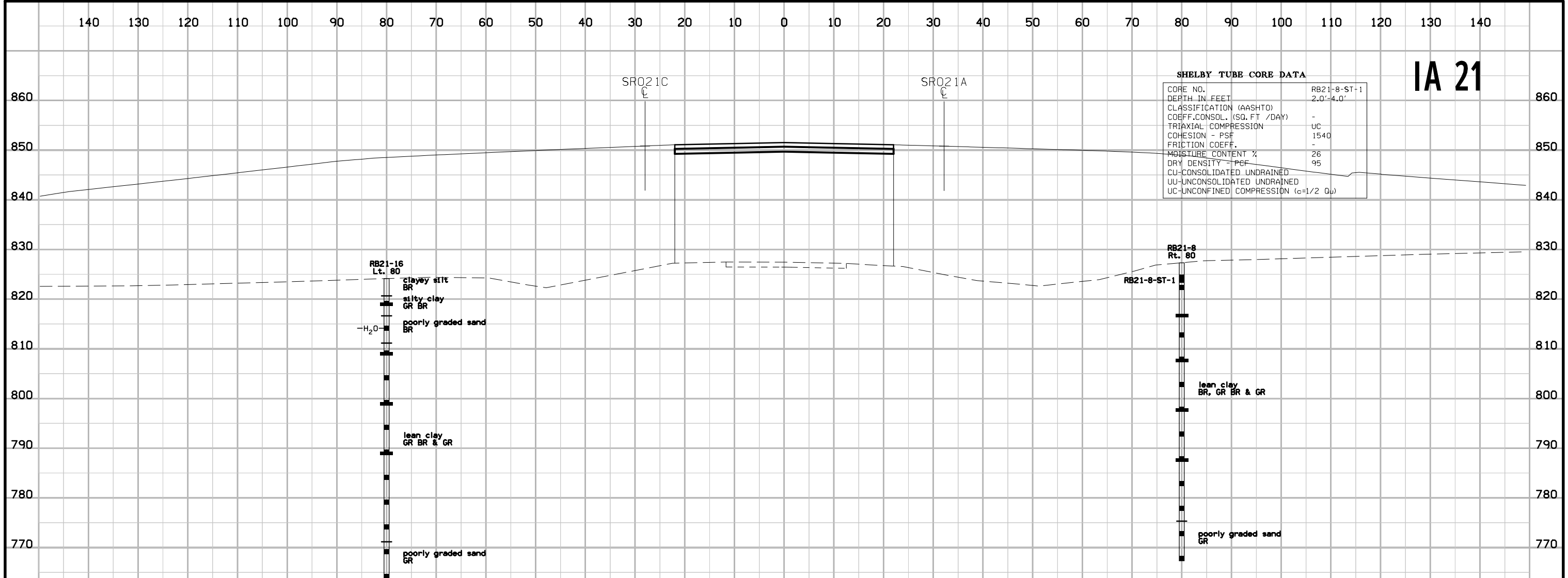
268+25.00

IA 21

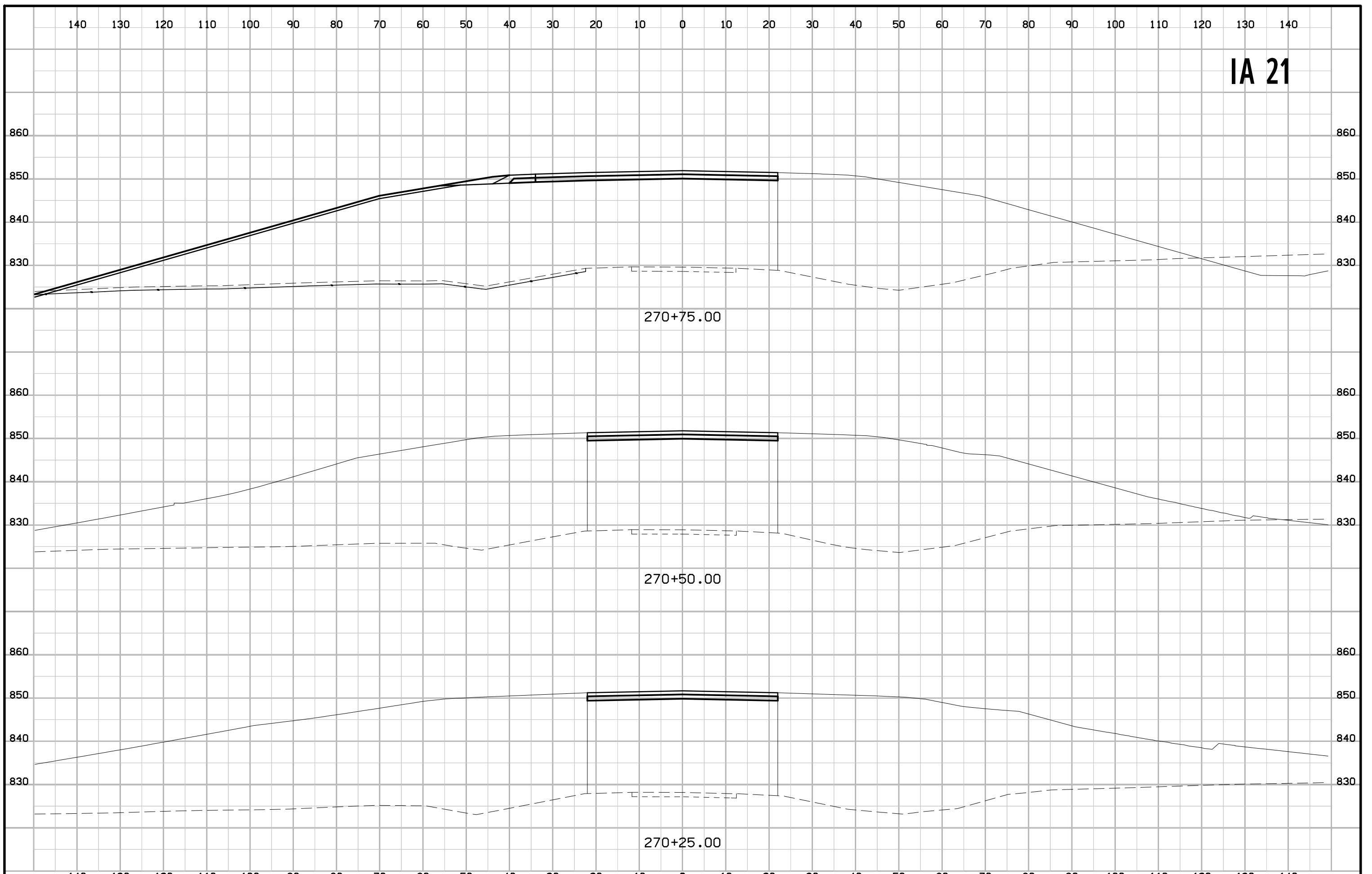


IA 21

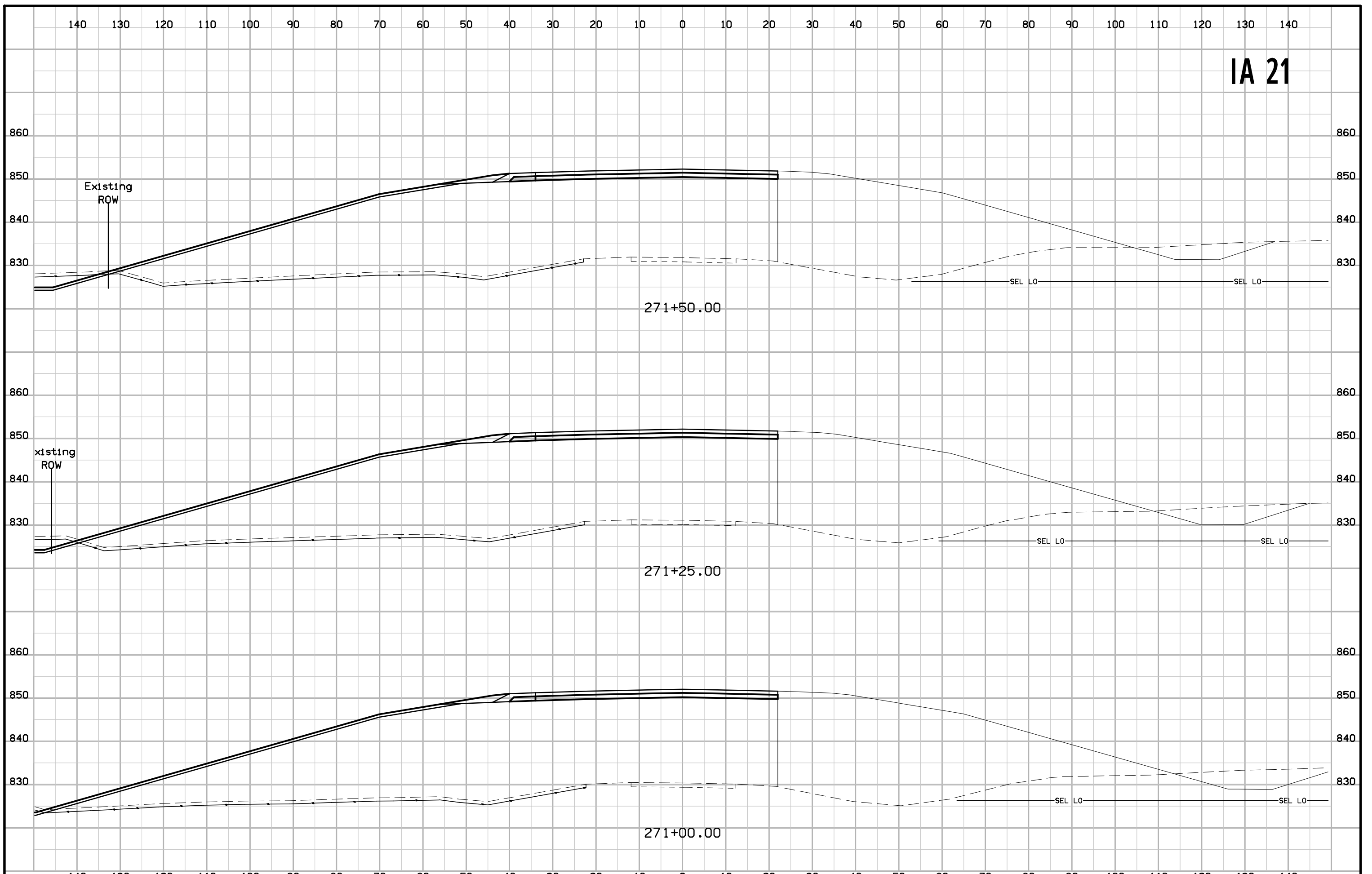
SHELBY TUBE CORE DATA	
CORE NO.	RB21-8-ST-1
DEPTH IN FEET	2.0'-4.0'
CLASSIFICATION (AASHTO)	
COEFF. CONSOL. (SQ. FT / DAY)	-
TRIAxIAL COMPRESSION	UC
COHESION - PSF	1540
FRICTION COEFF.	-
MOISTURE CONTENT %	26
DRY DENSITY - PCF	95
CU-CONSOLIDATED UNDRAINED	
UU-UNCONSOLIDATED UNDRAINED	
UC-UNCONFINED COMPRESSION (e=1/2 G _w)	



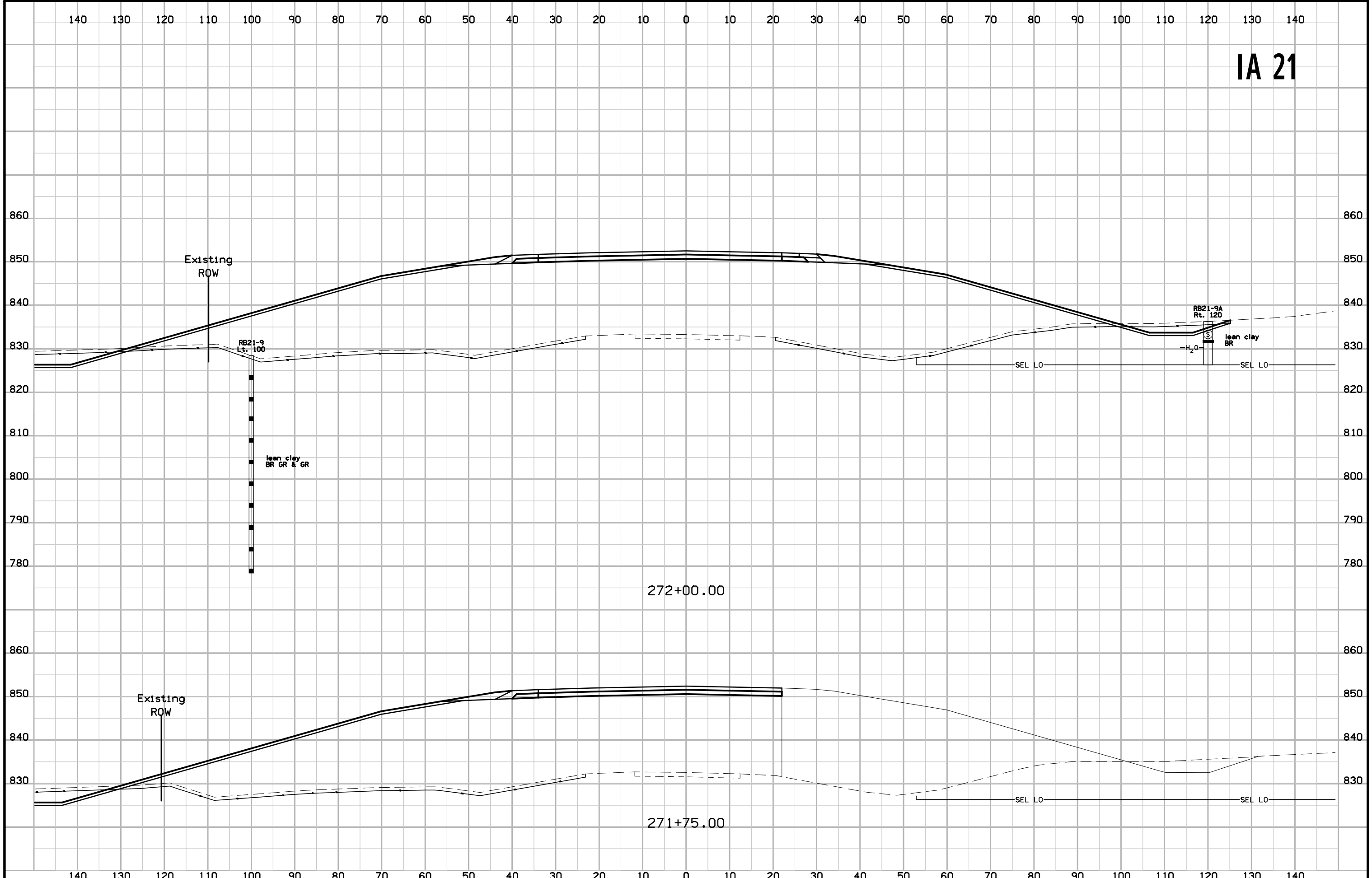
IA 21



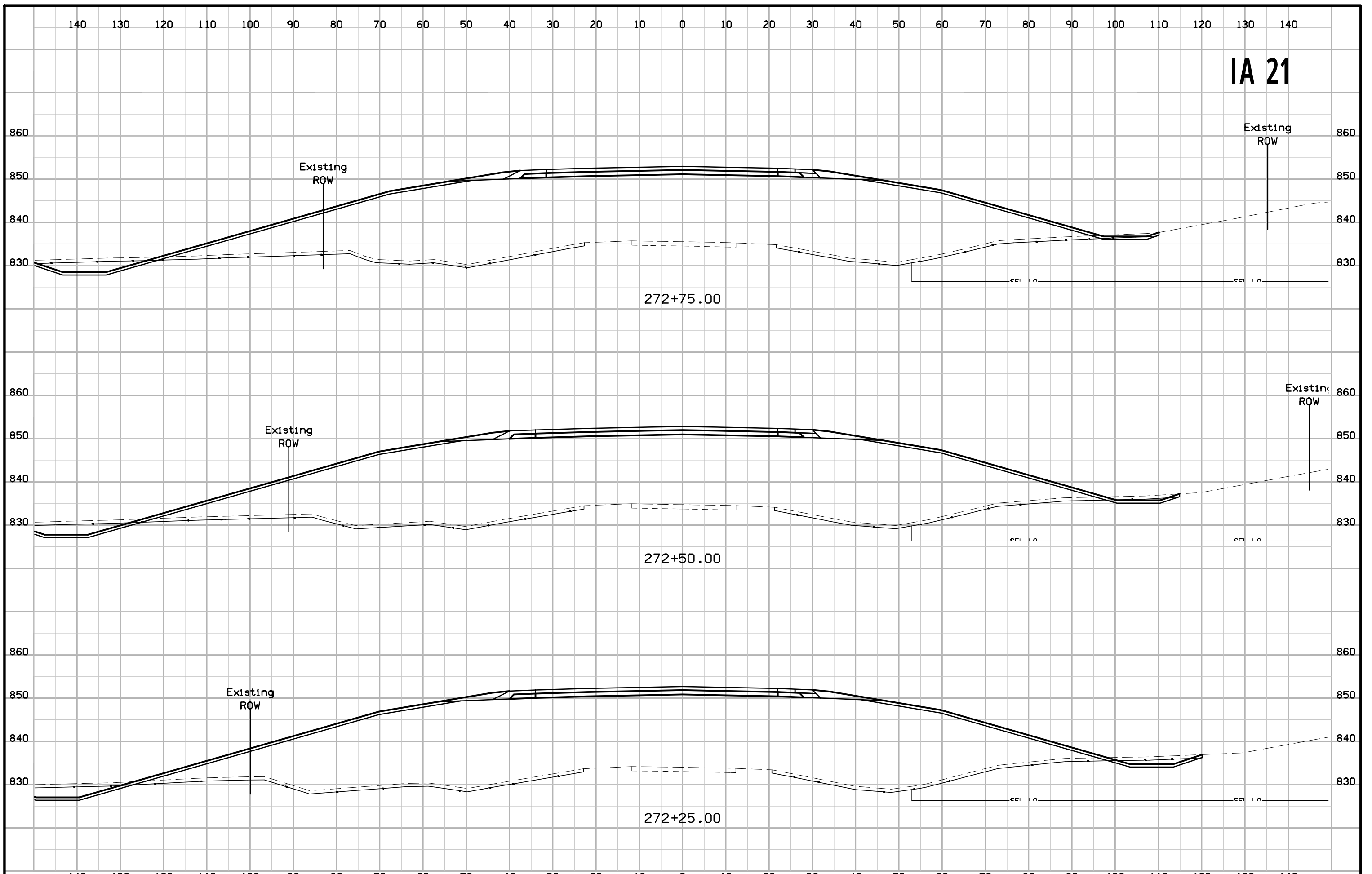
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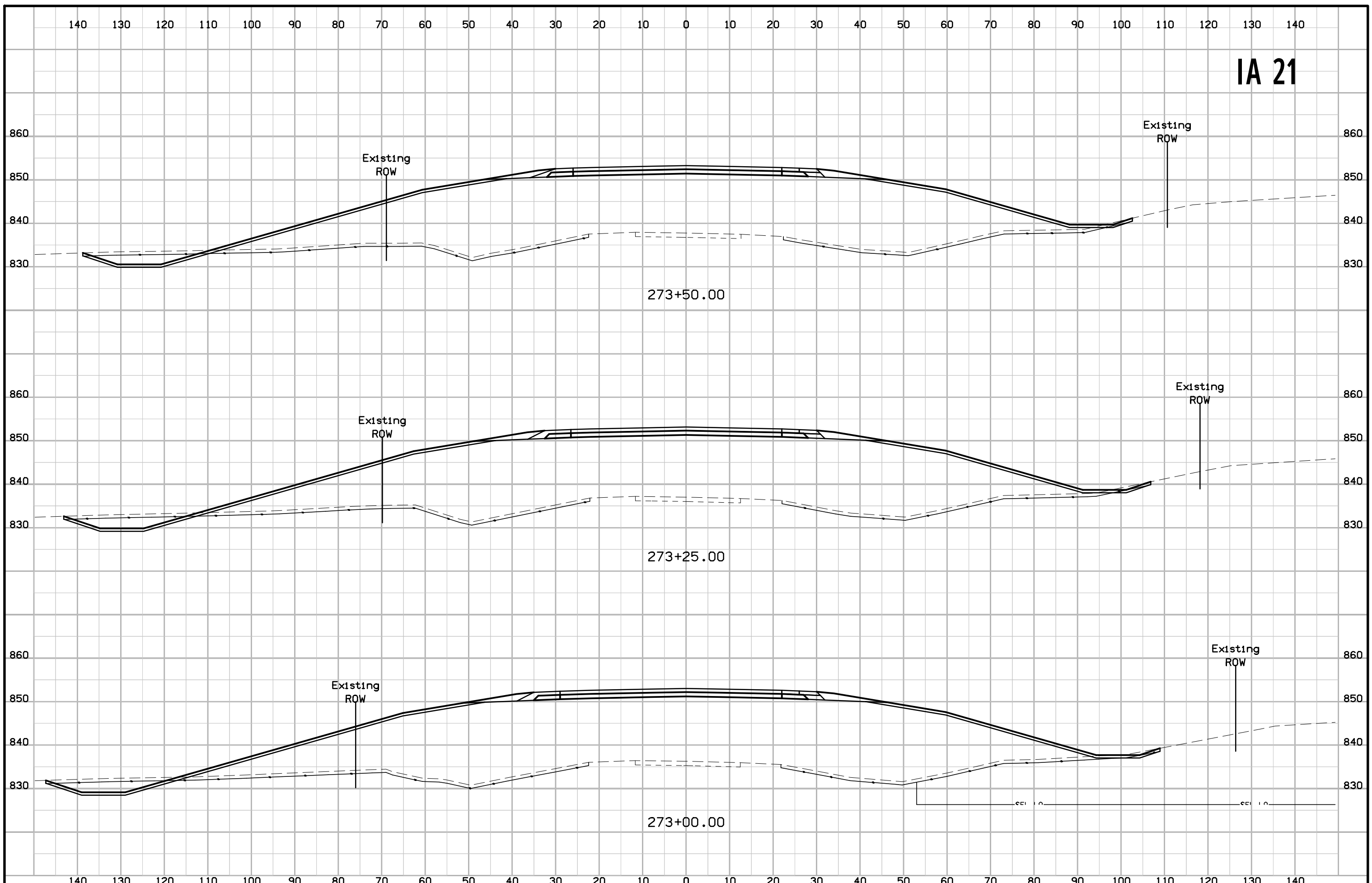
IA 21



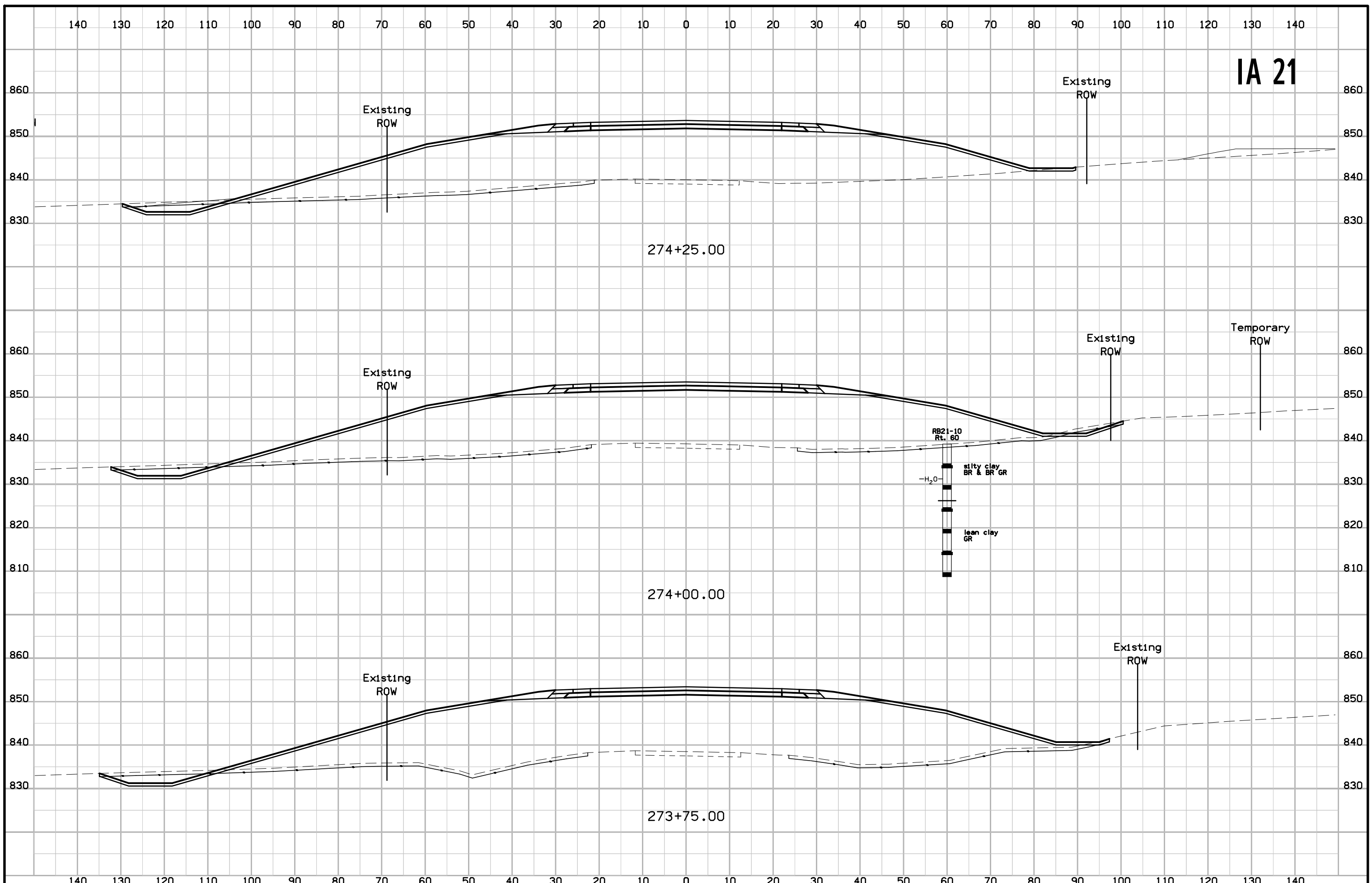
IA 21

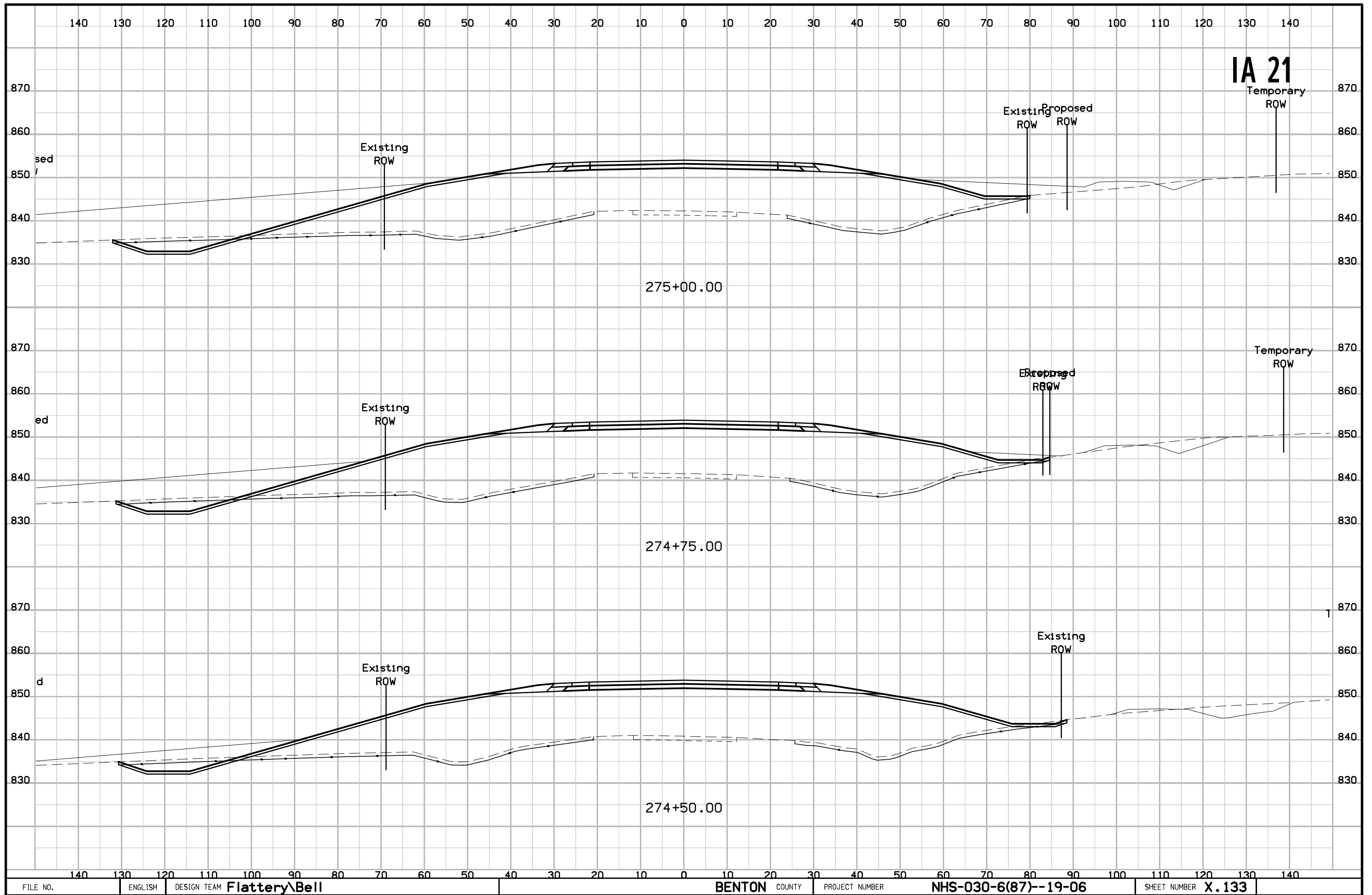


IA 21

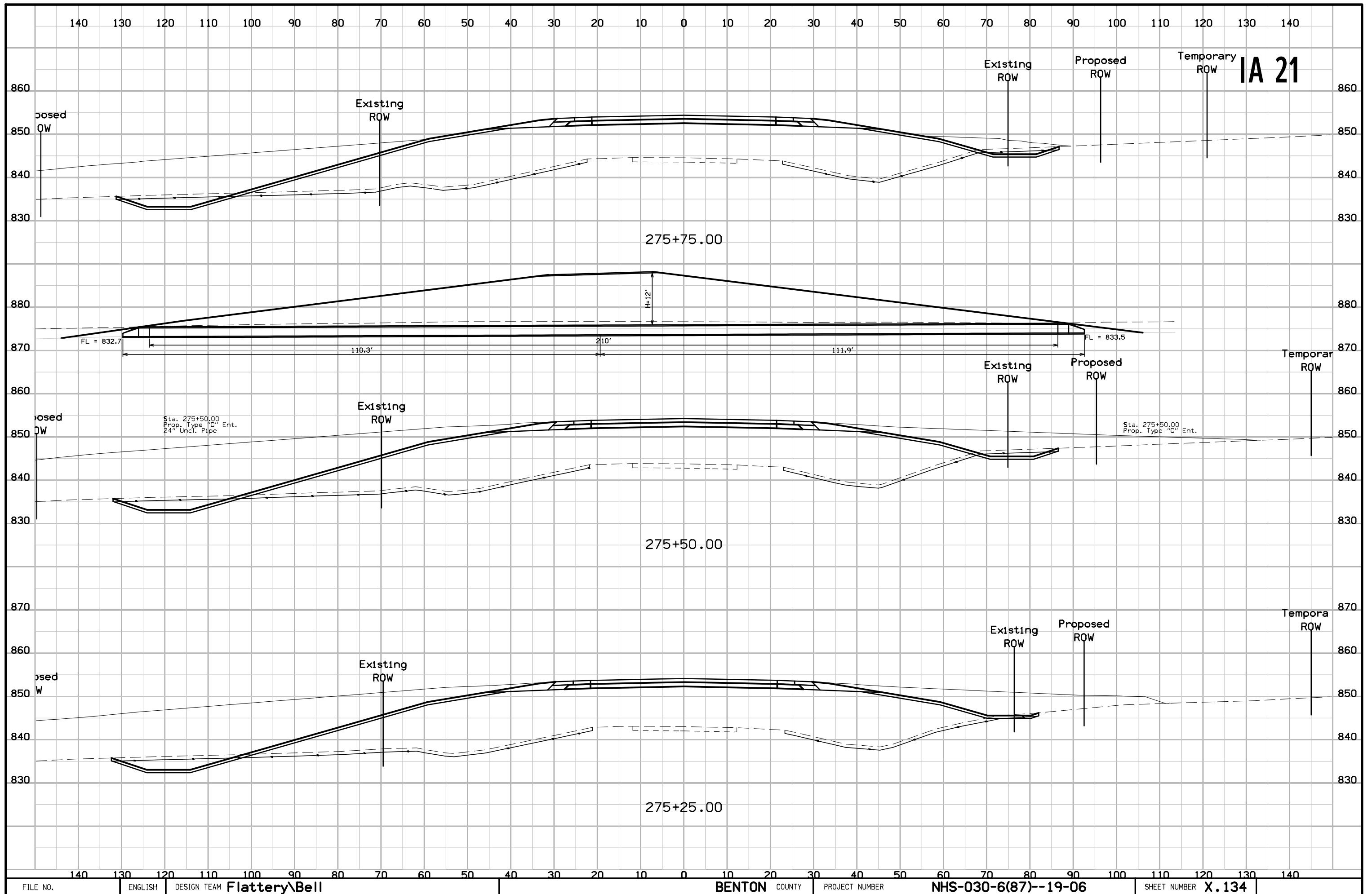


IA 21



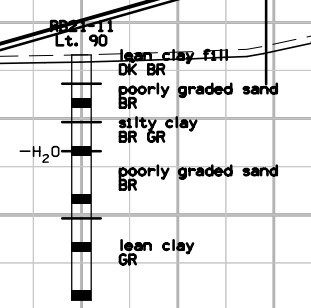
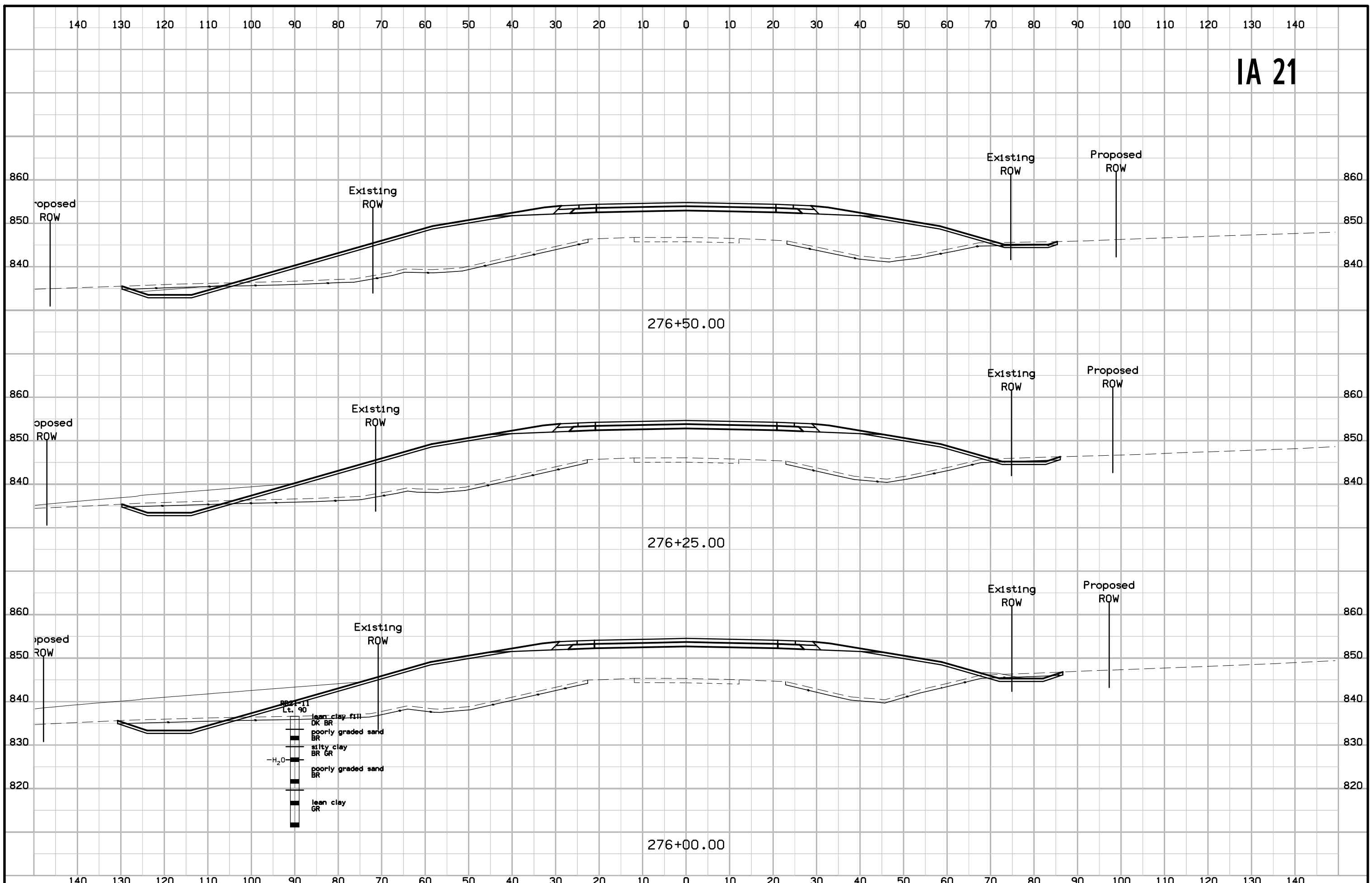


IA 21

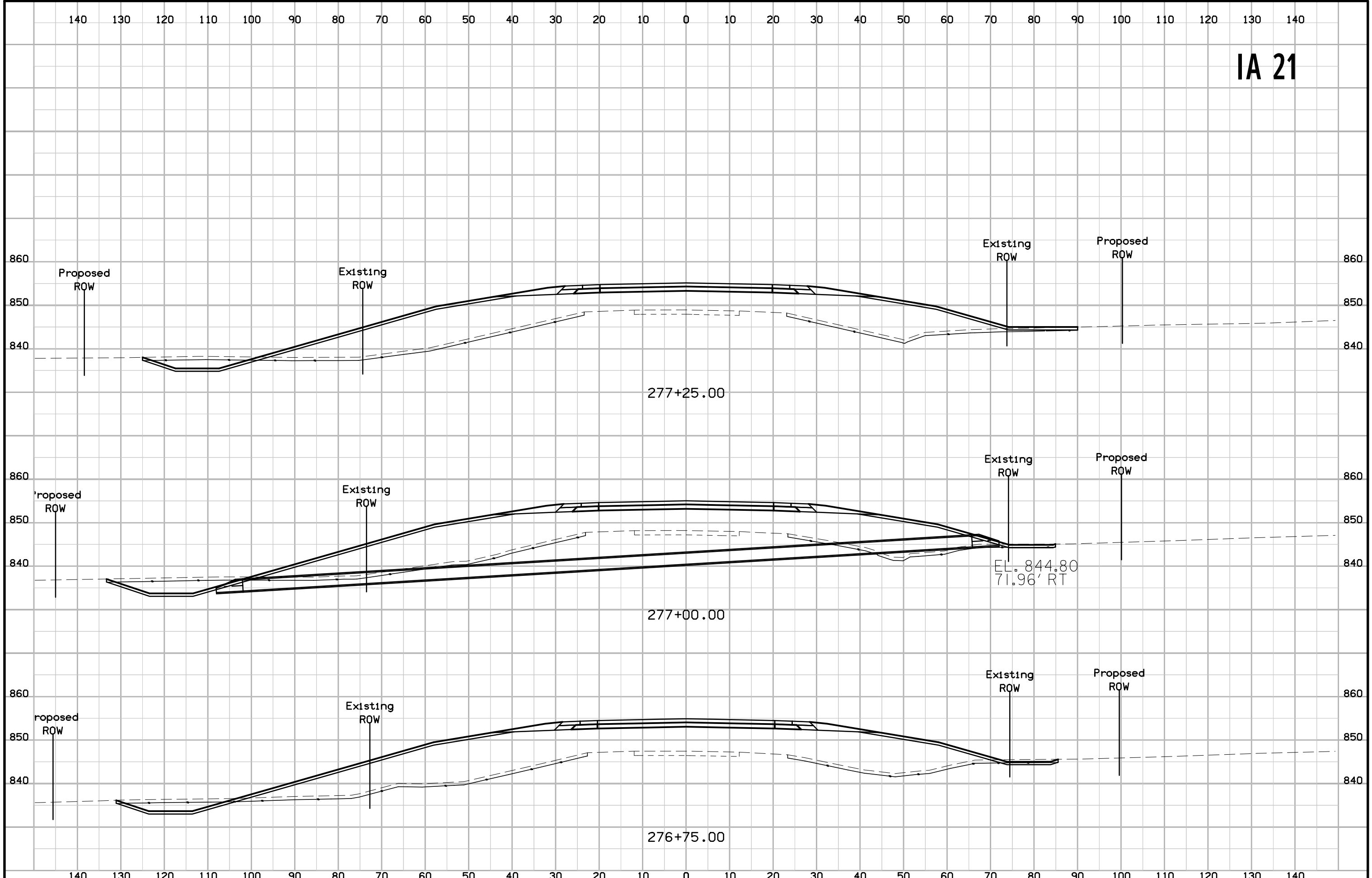


IA 21

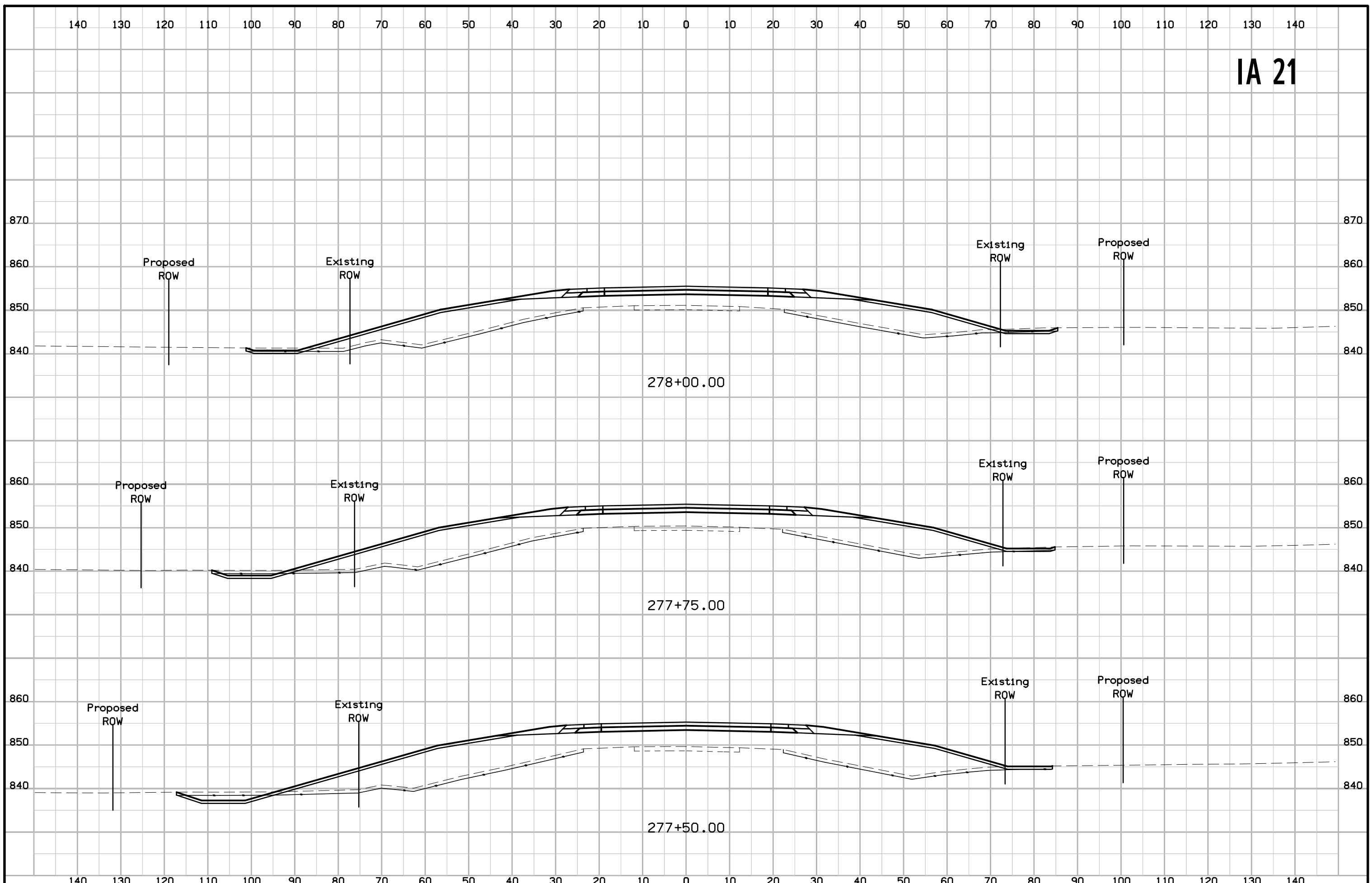
IA 21



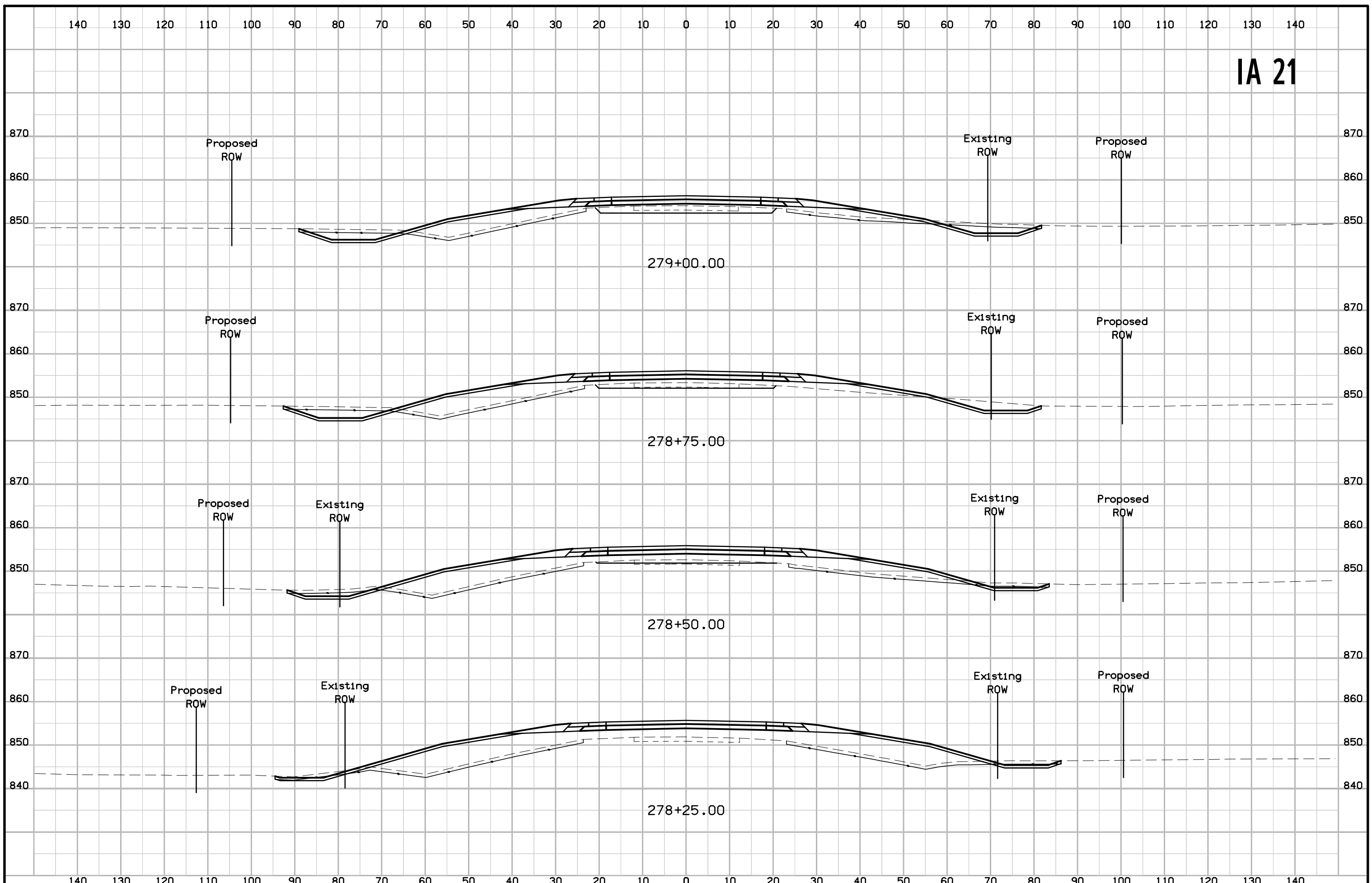
IA 21



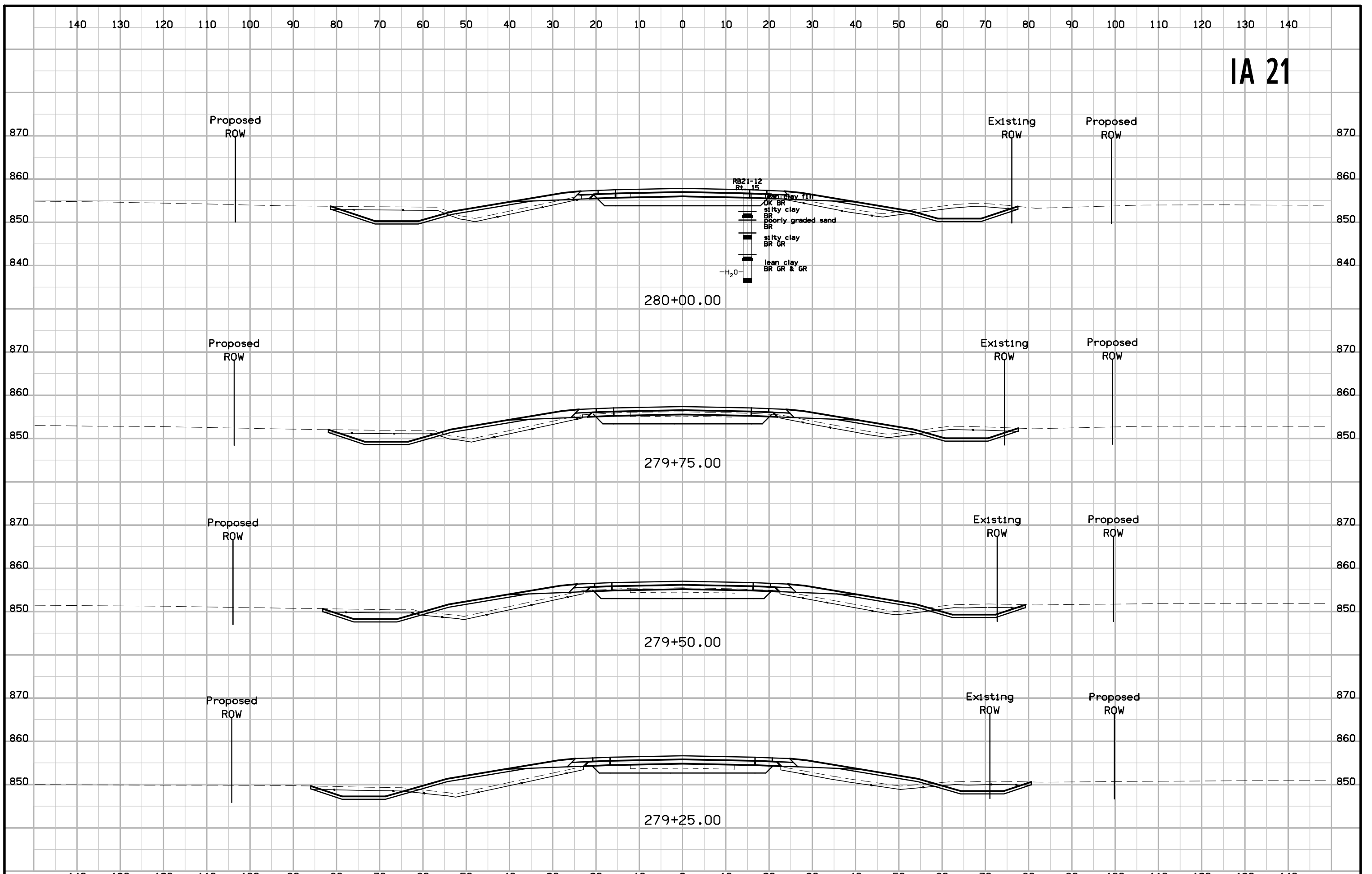
IA 21



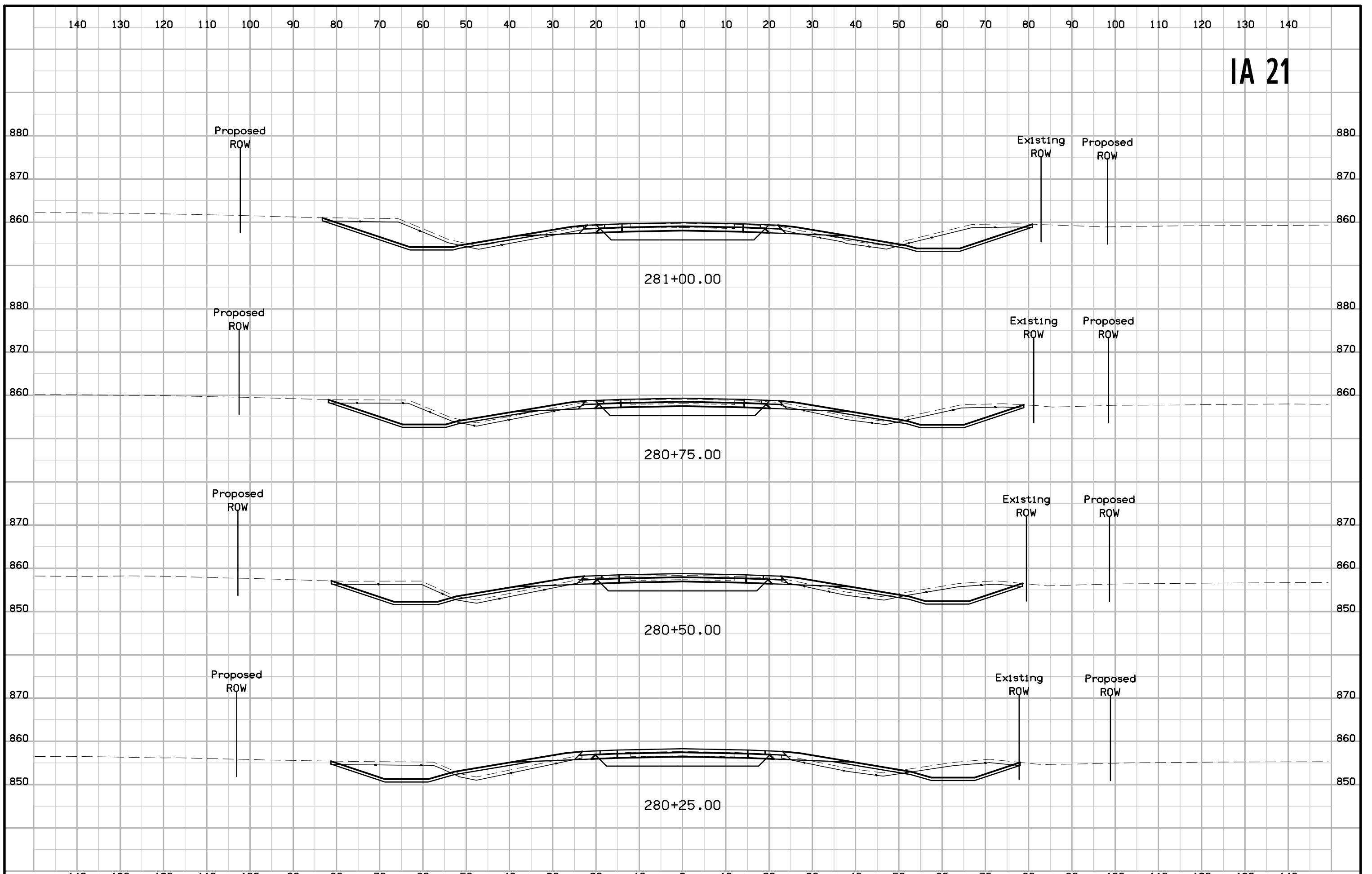
IA 21



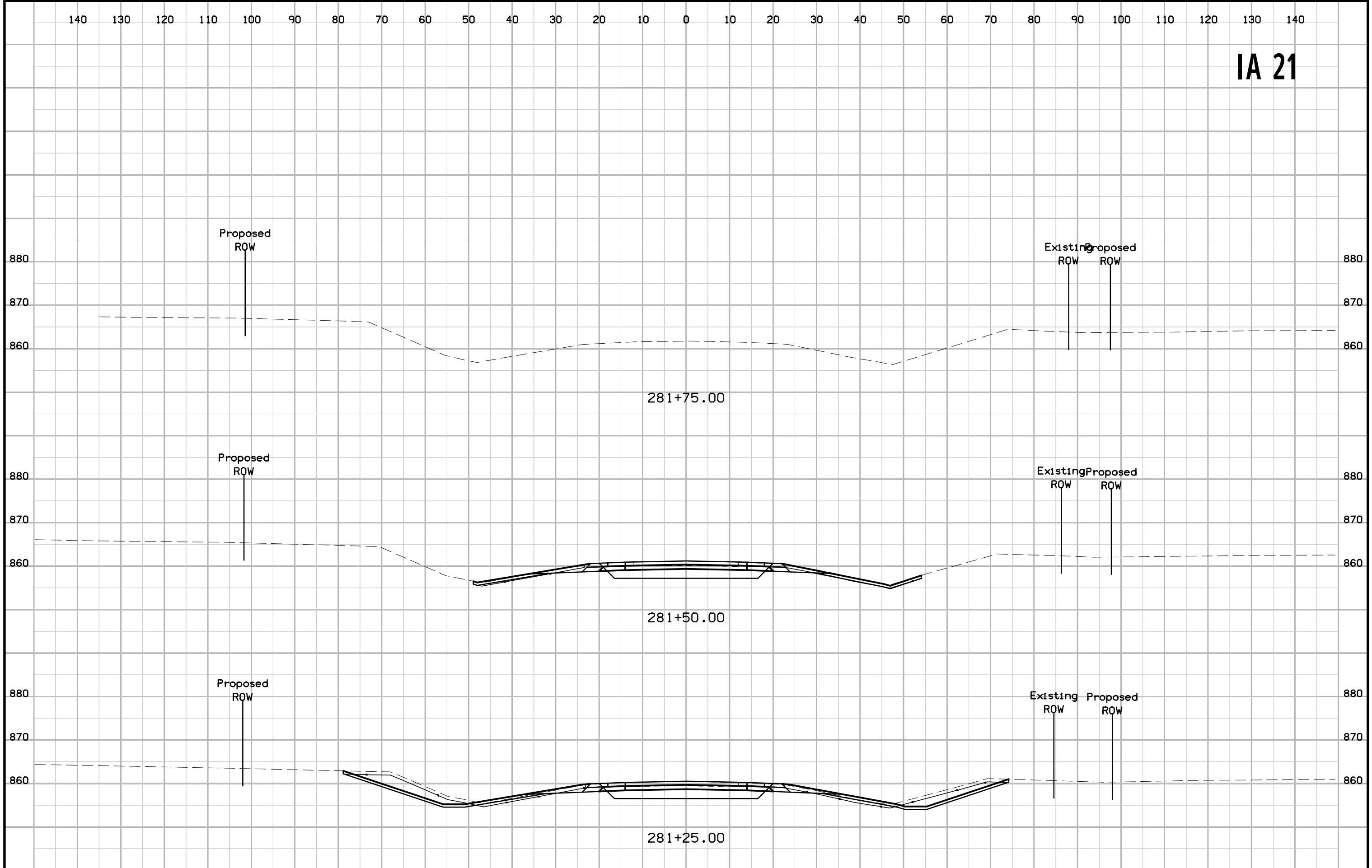
IA 21



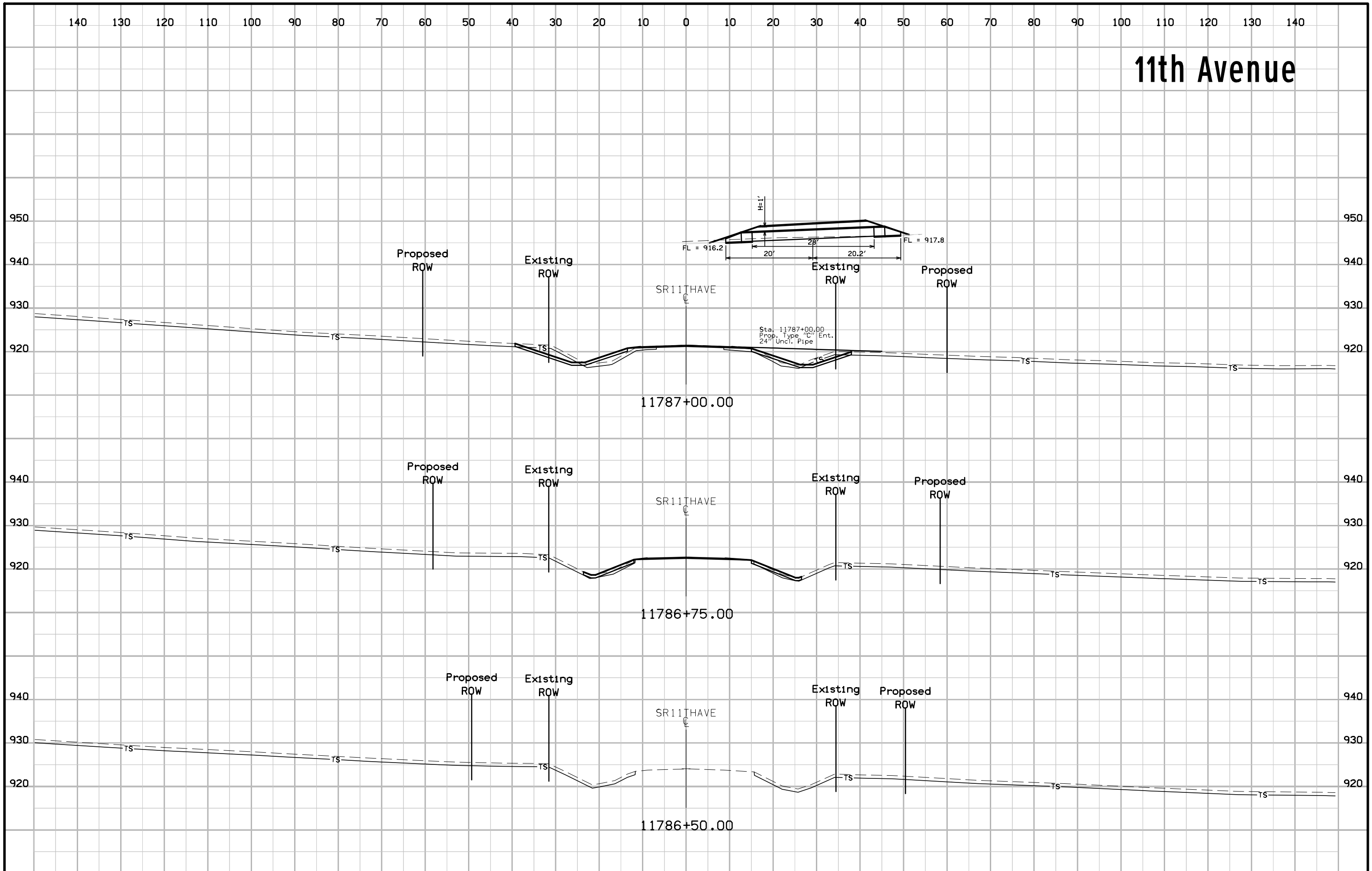
IA 21

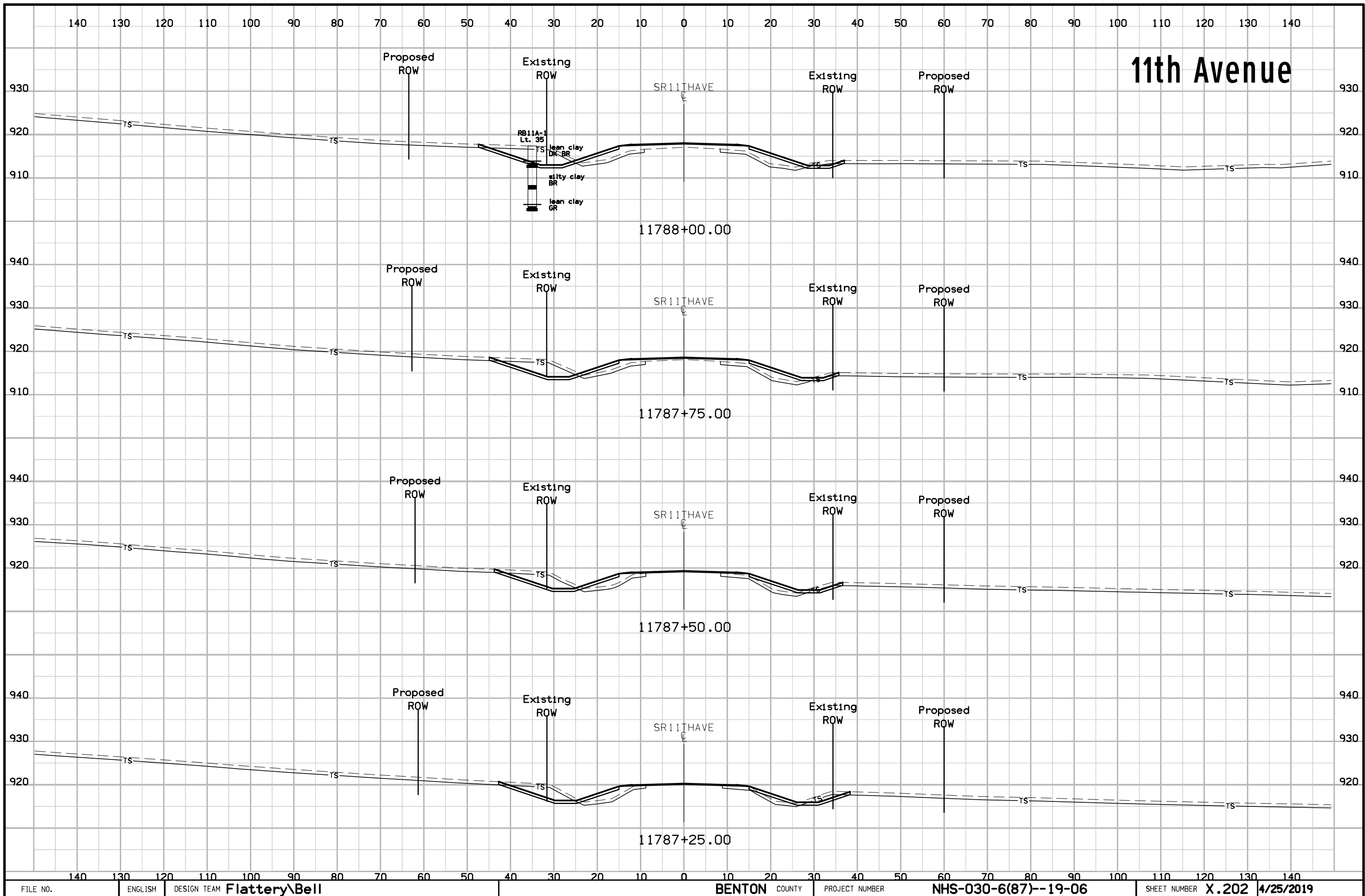


IA 21

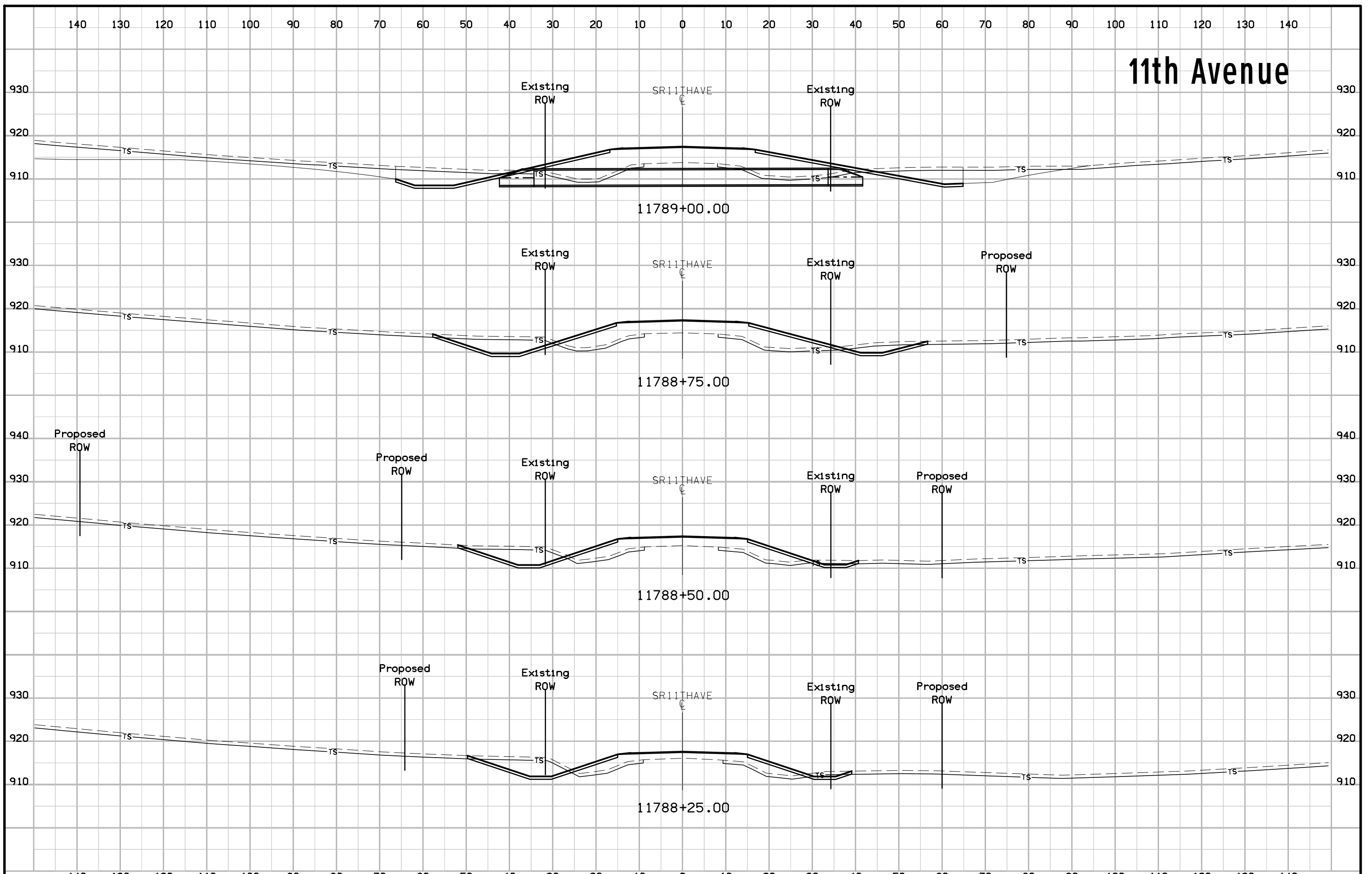


11th Avenue

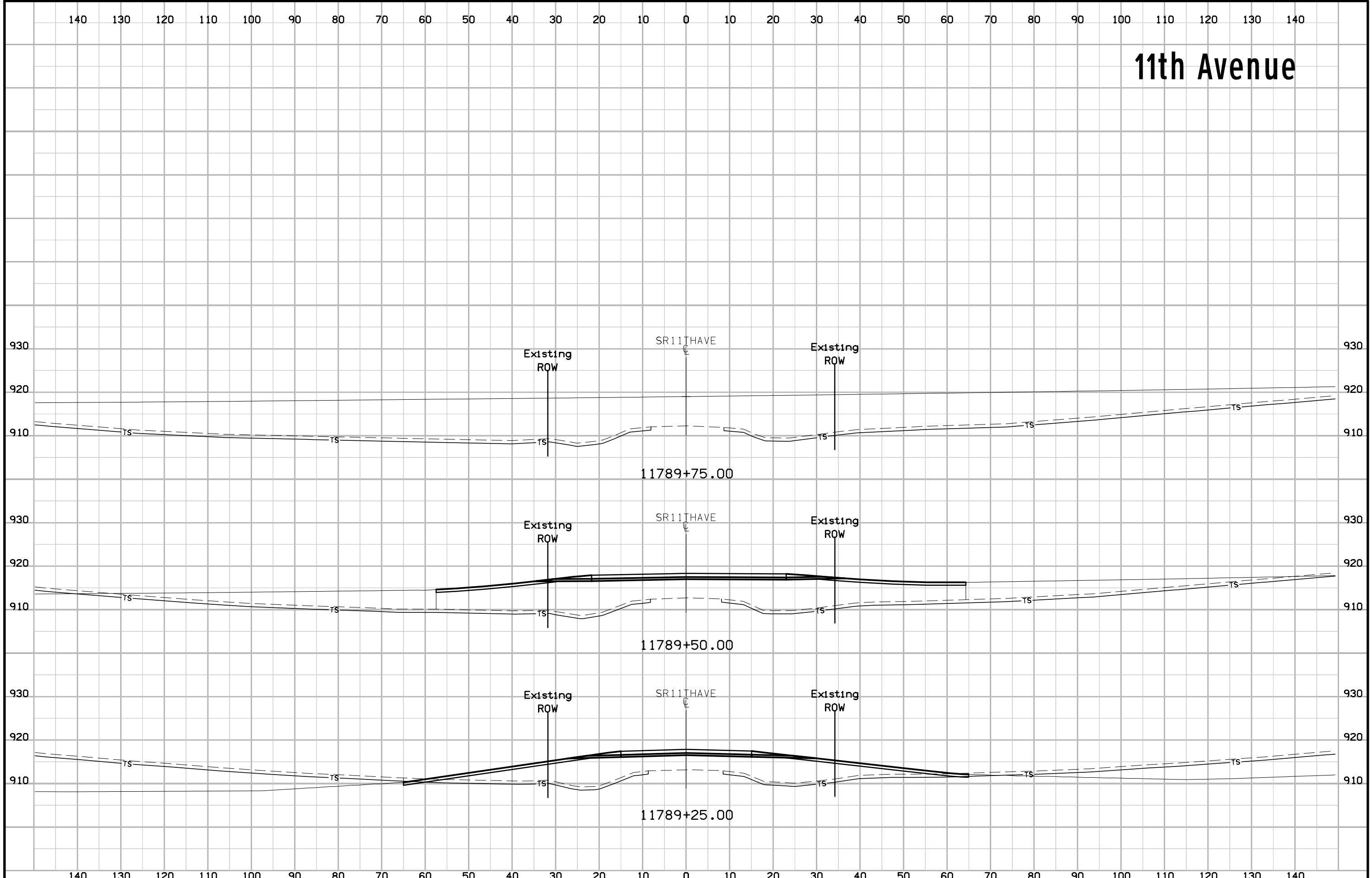




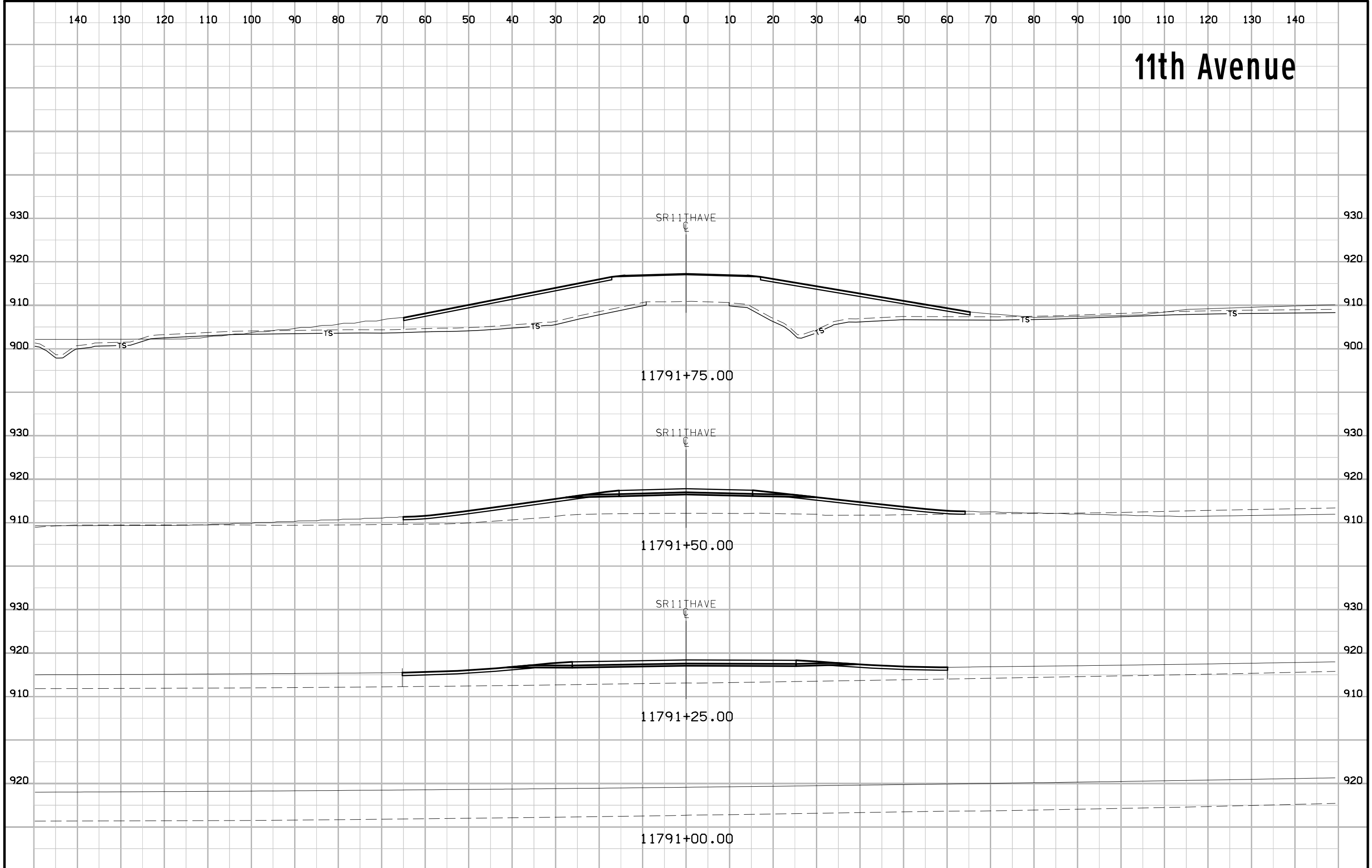
11th Avenue



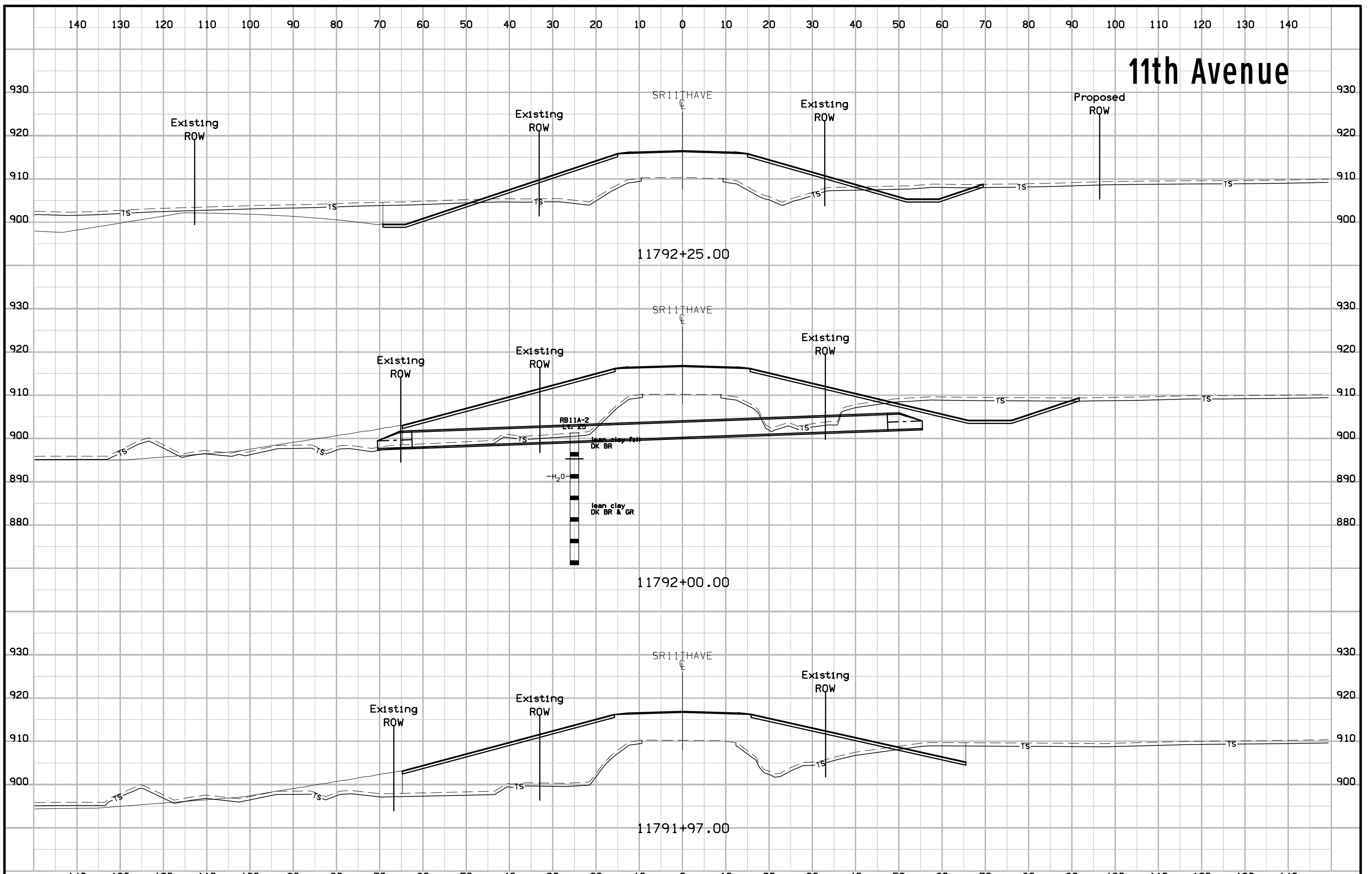
11th Avenue



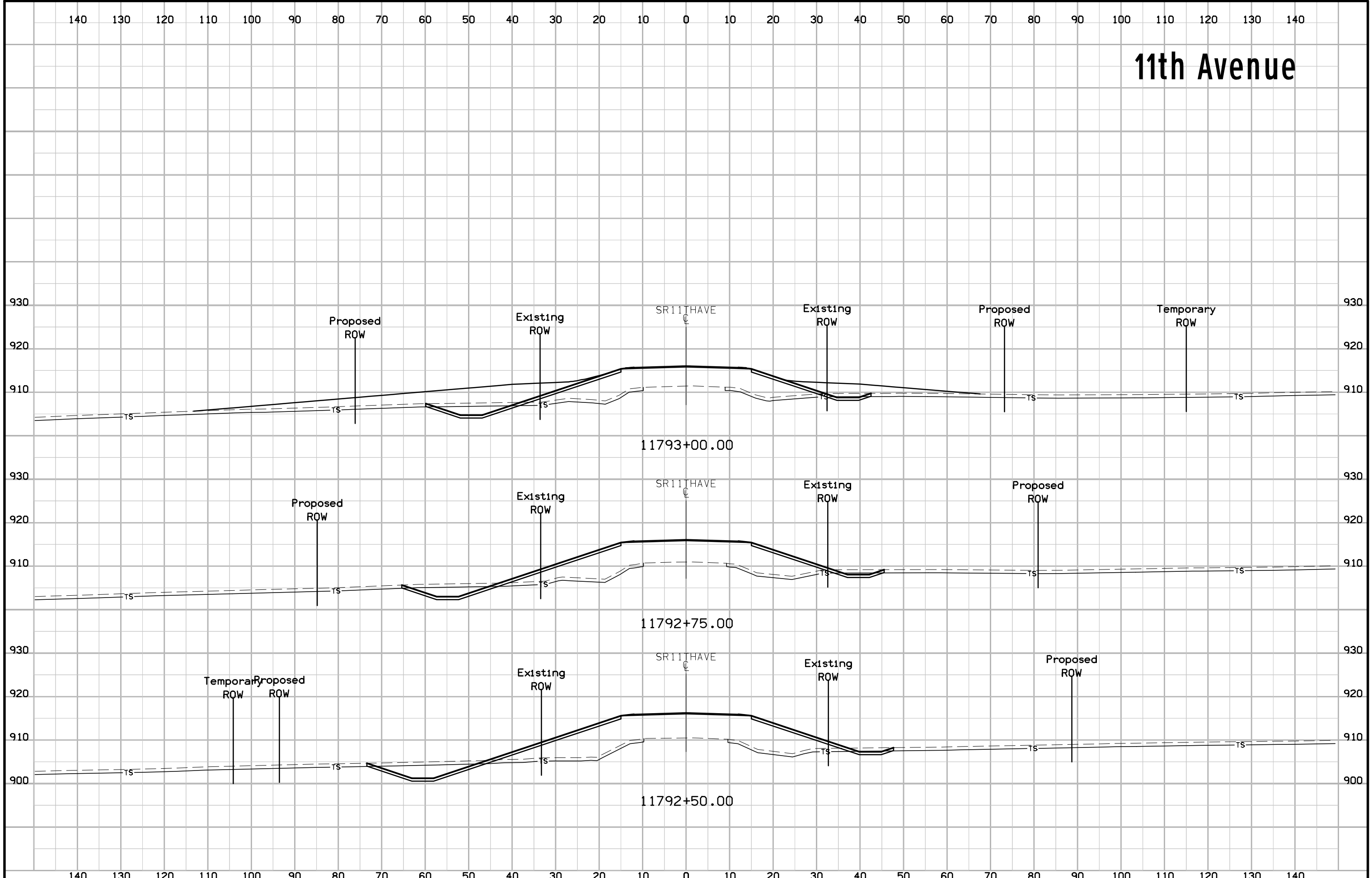
11th Avenue



11th Avenue

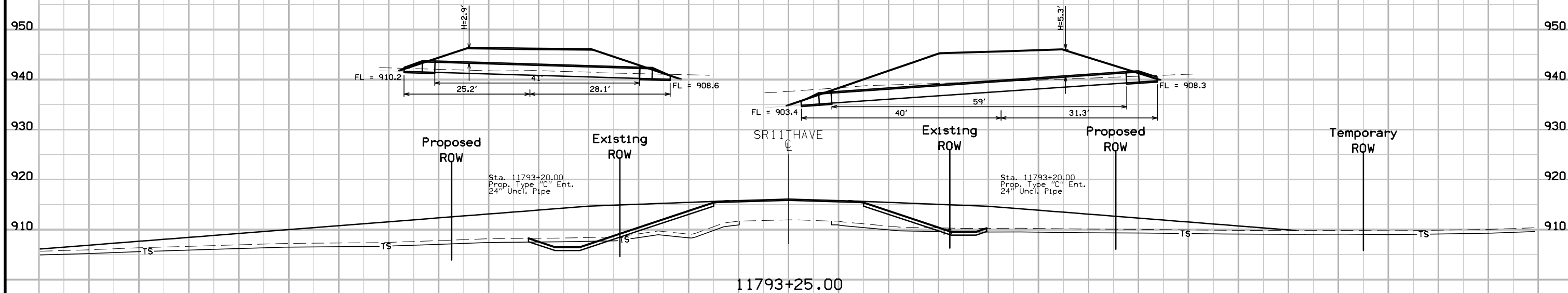
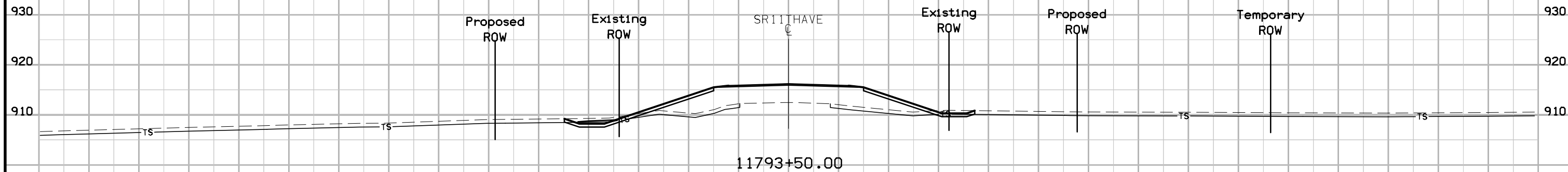
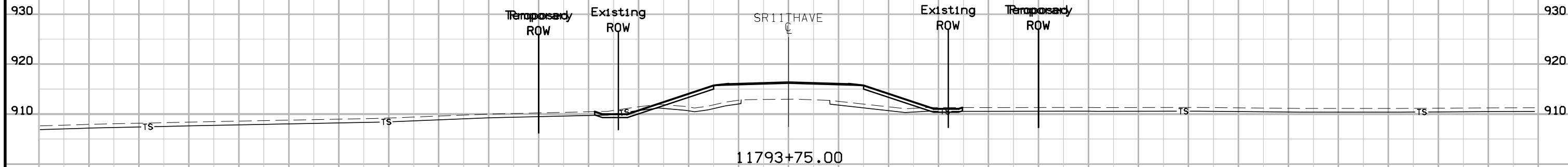


11th Avenue



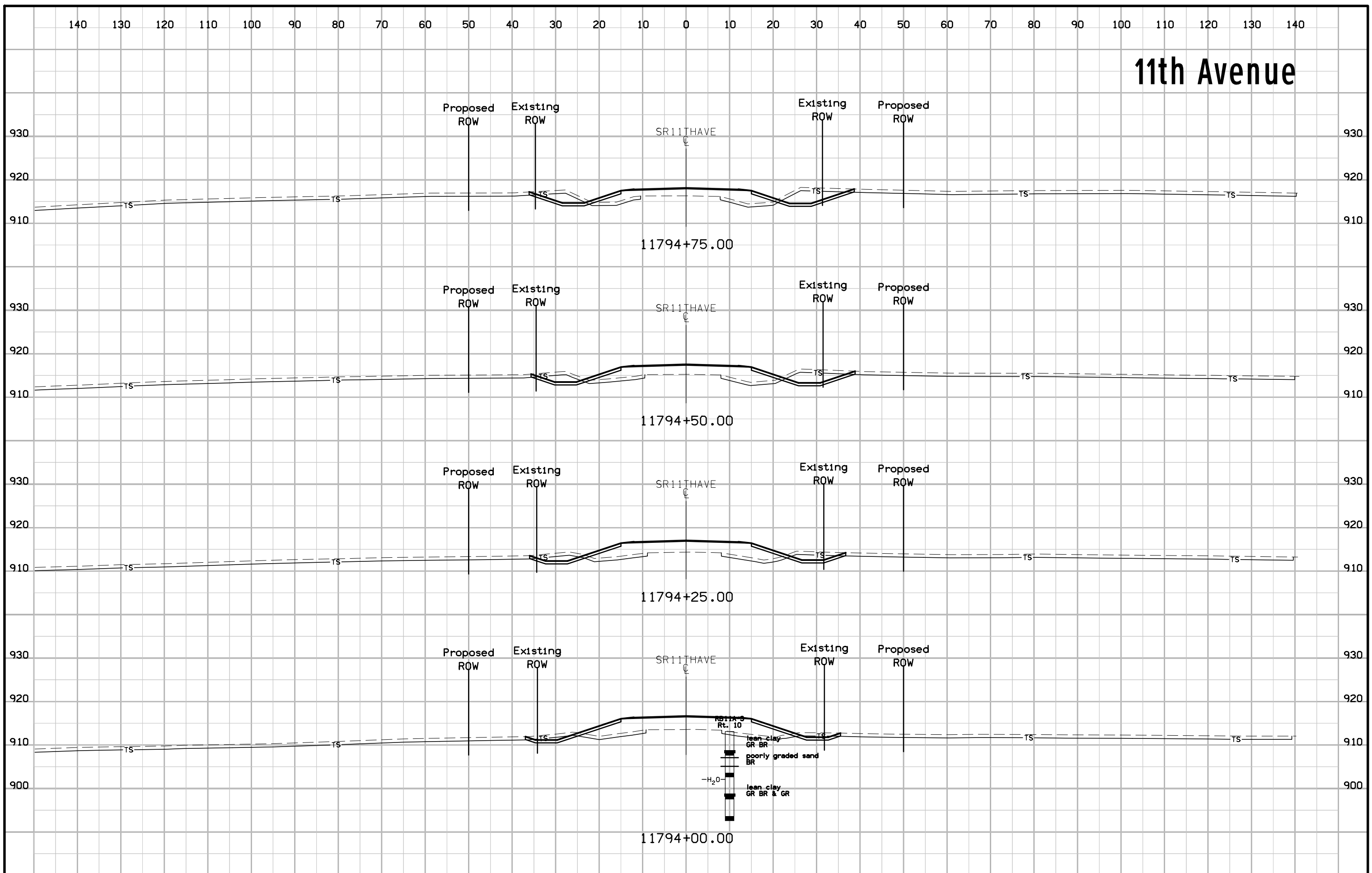
140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

11th Avenue

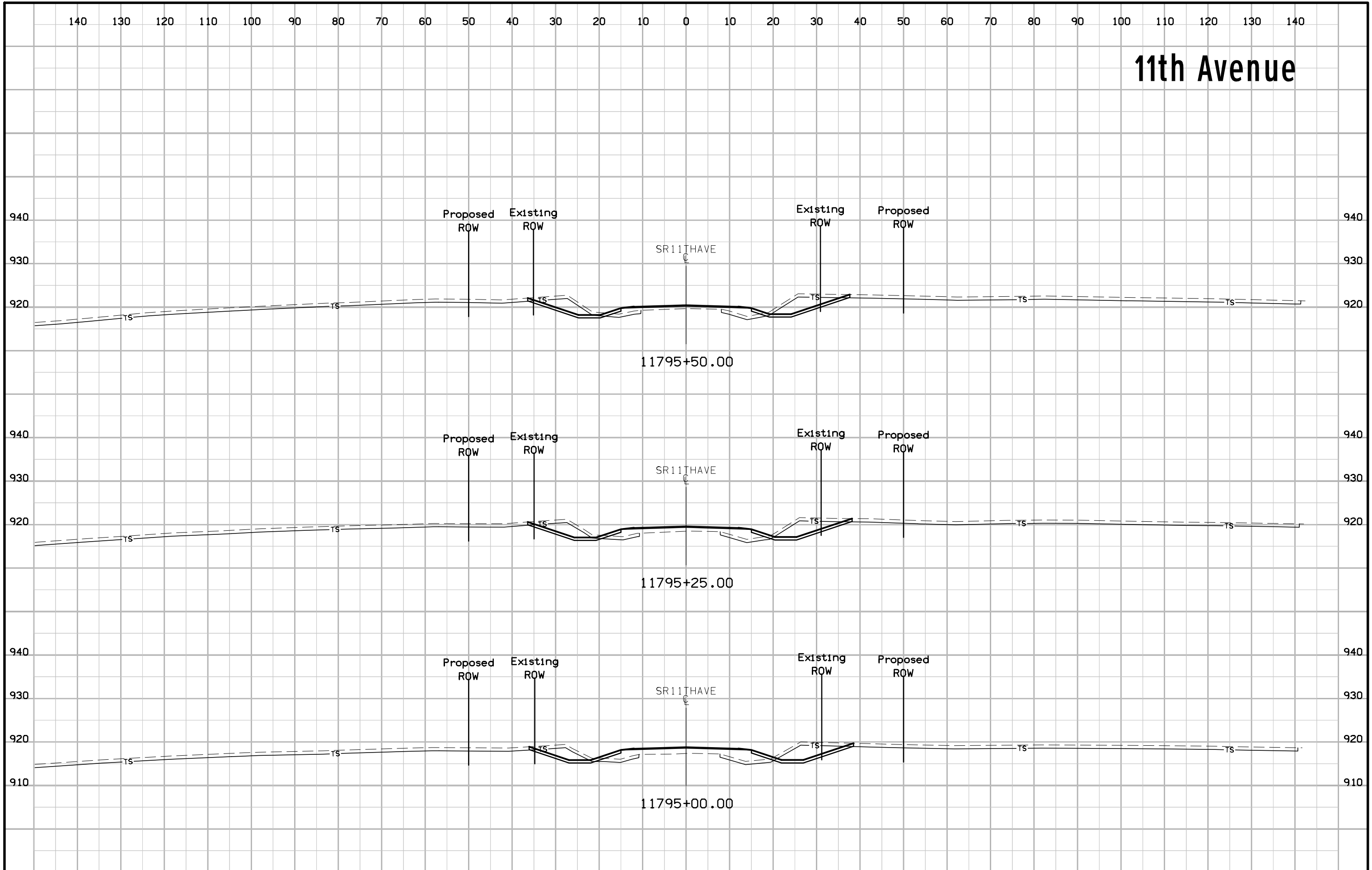


140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

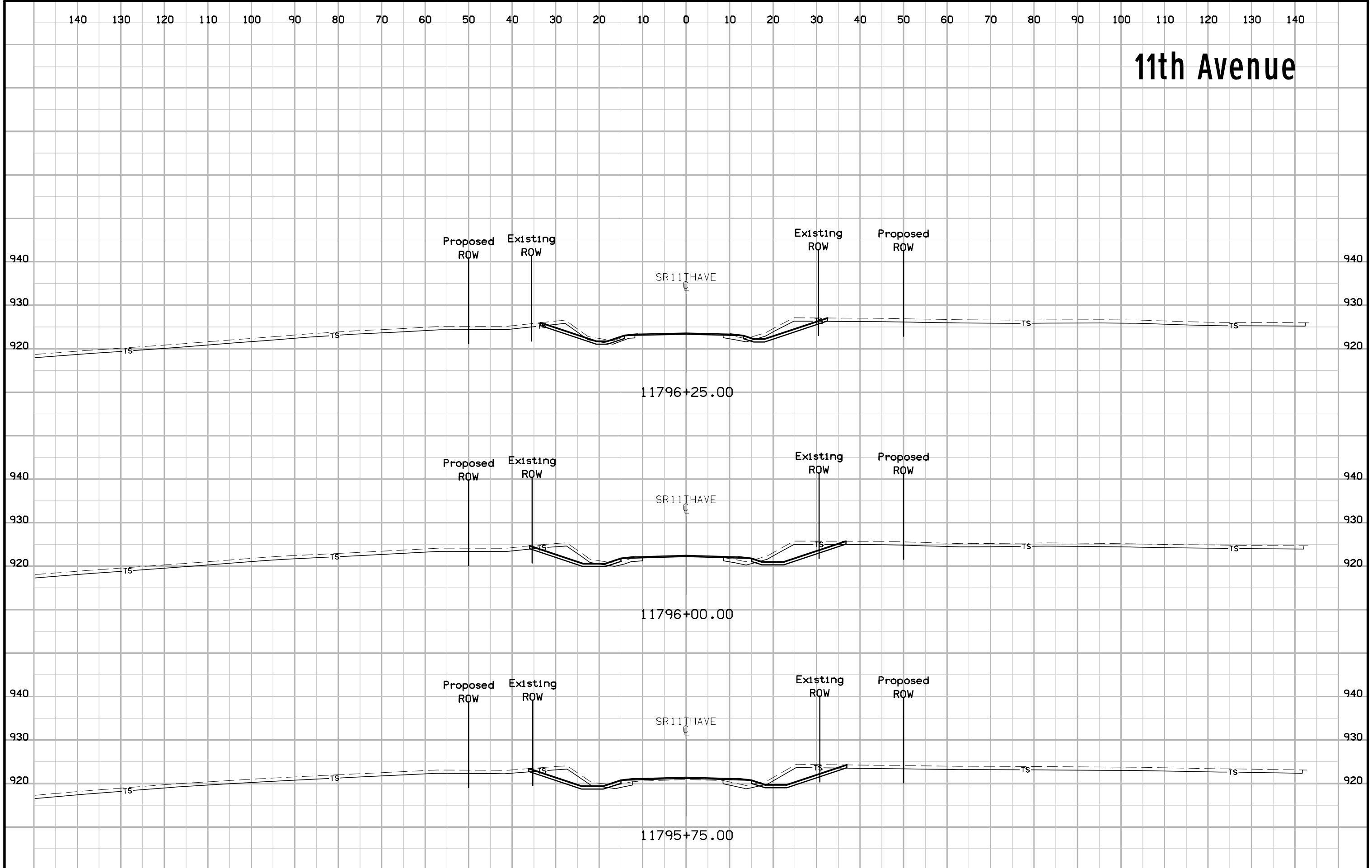
11th Avenue



11th Avenue

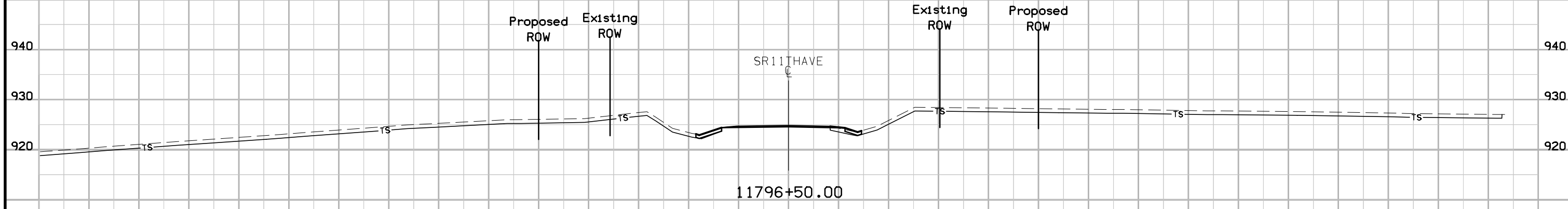
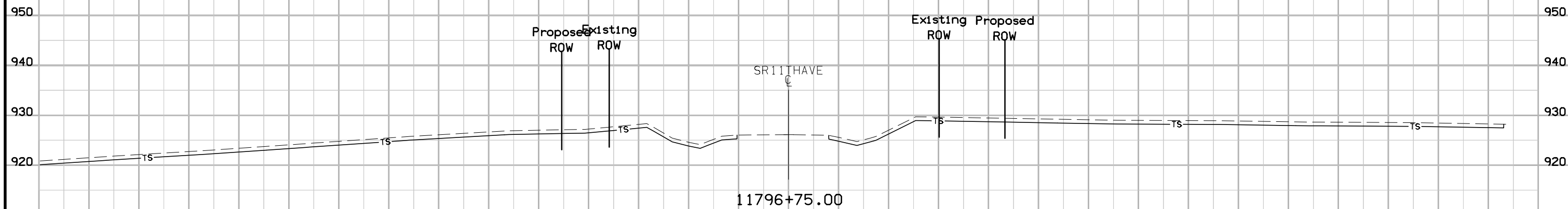


11th Avenue



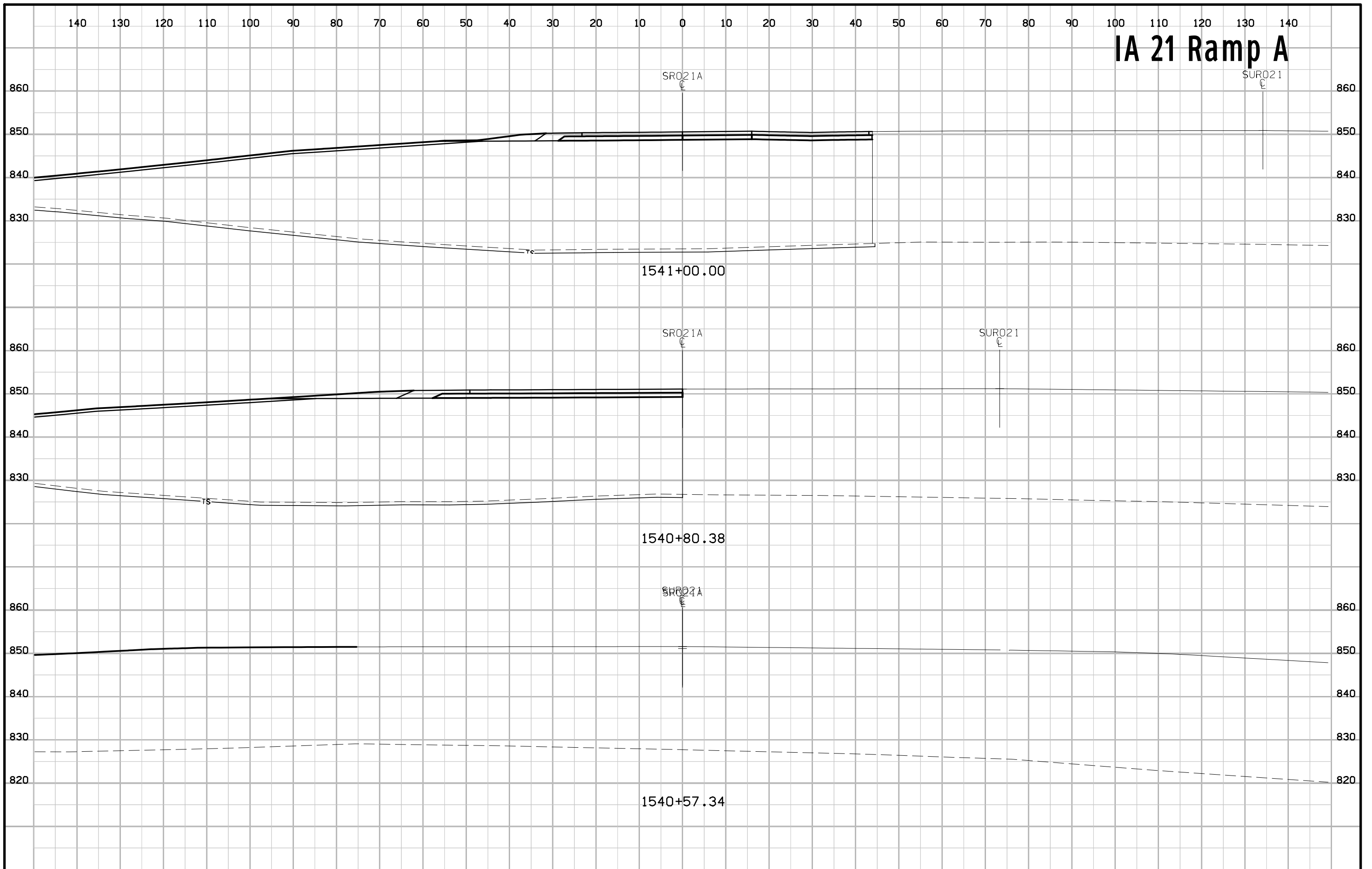
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11th Avenue

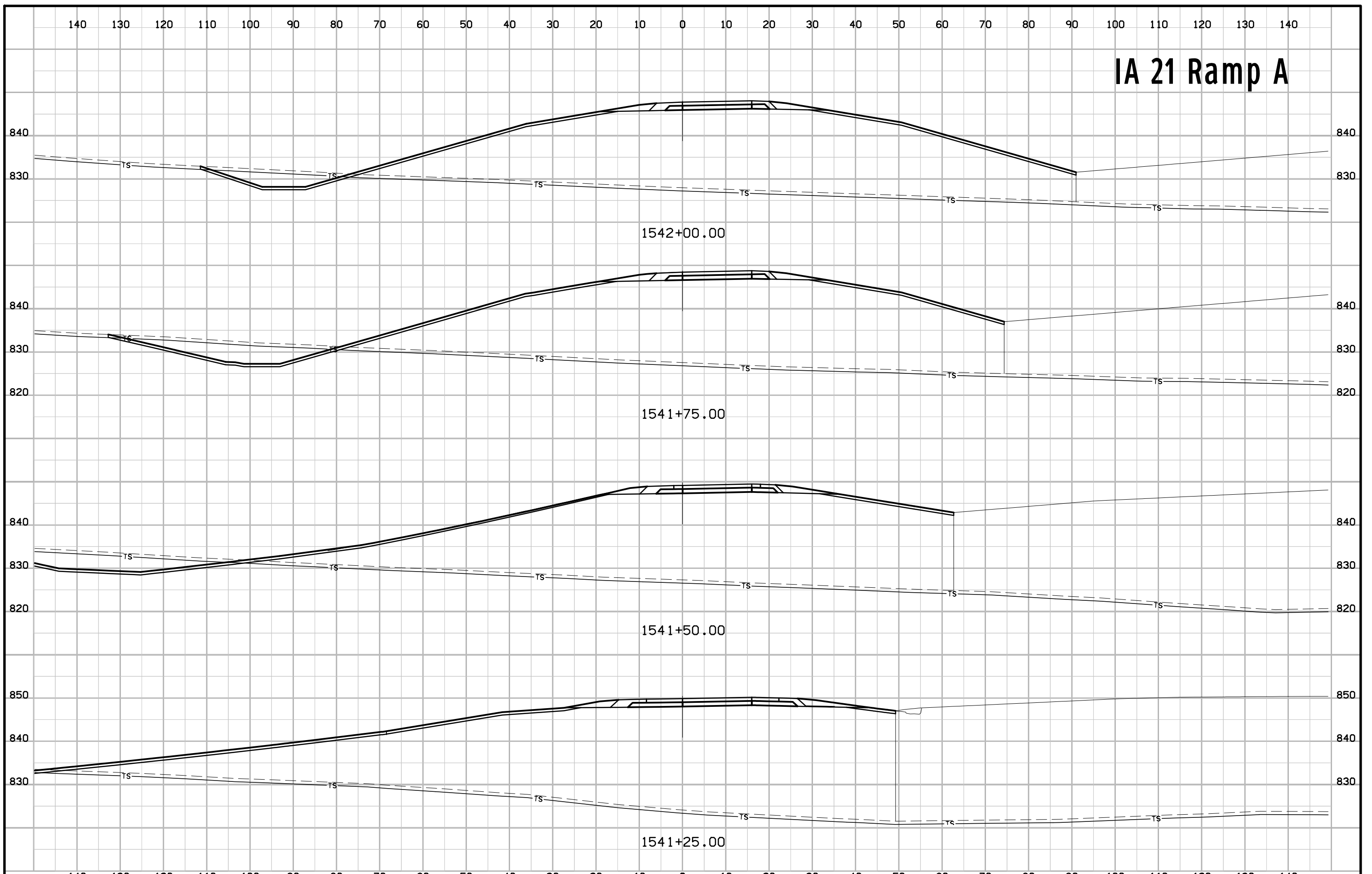


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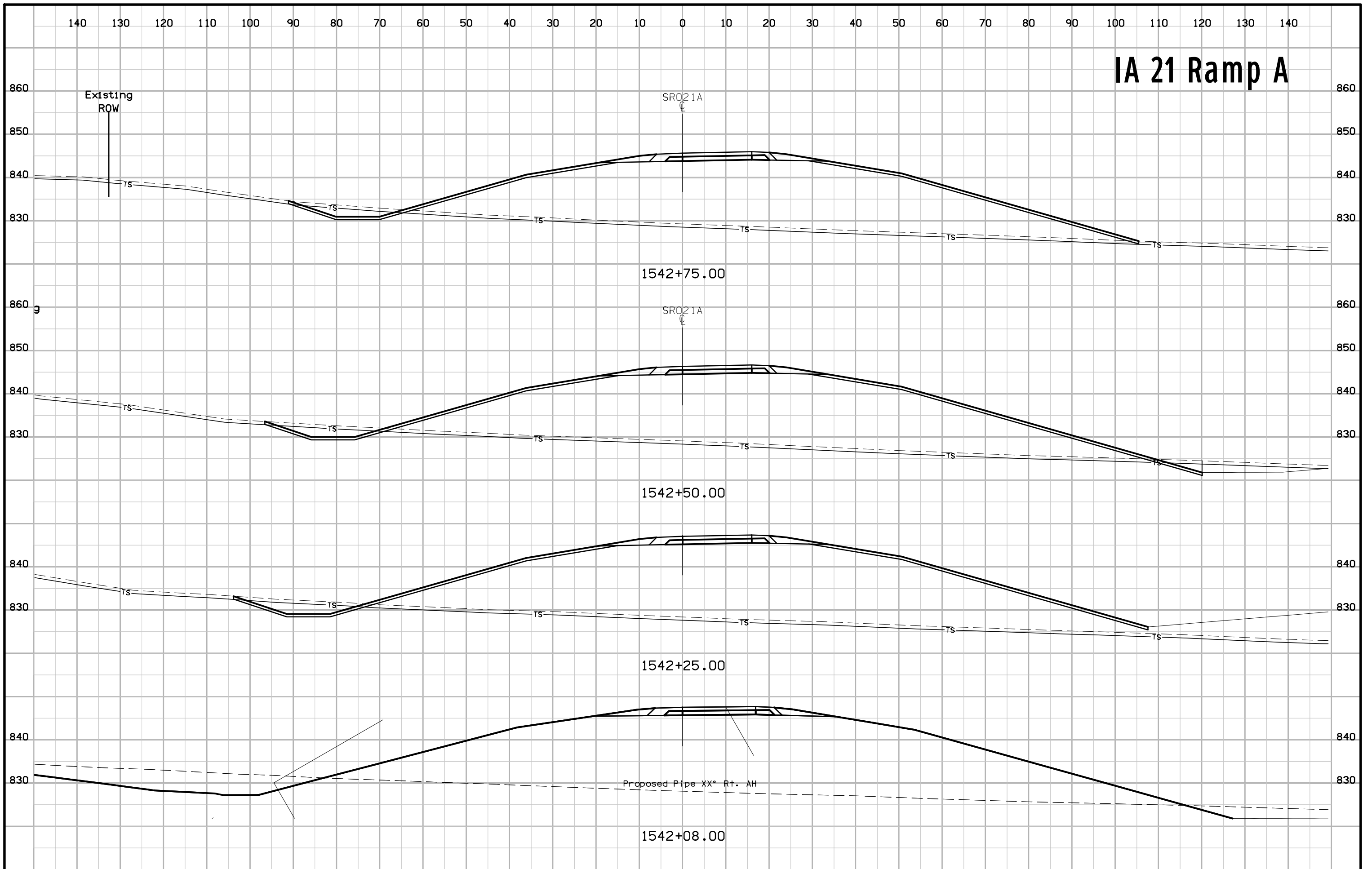
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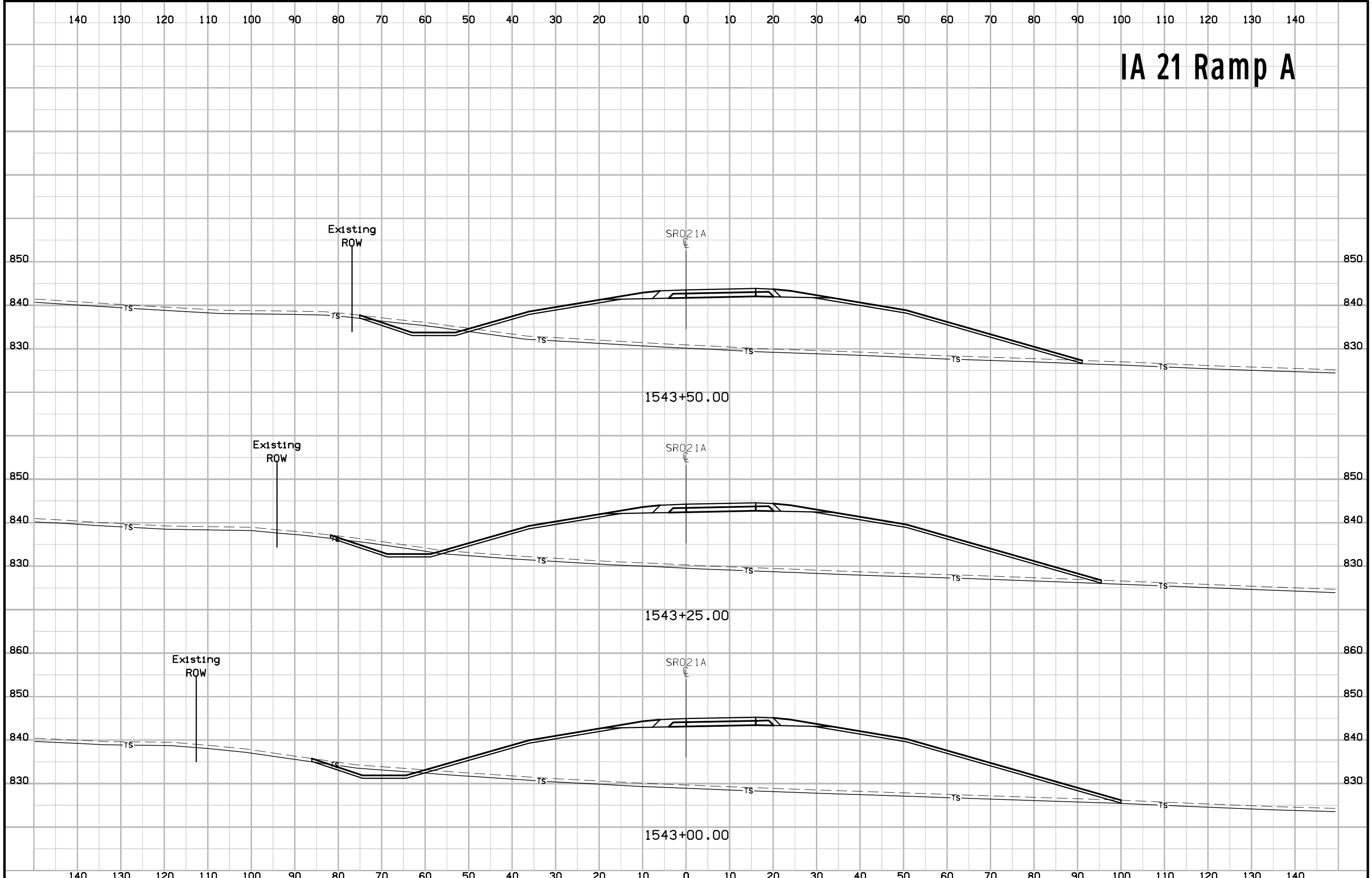
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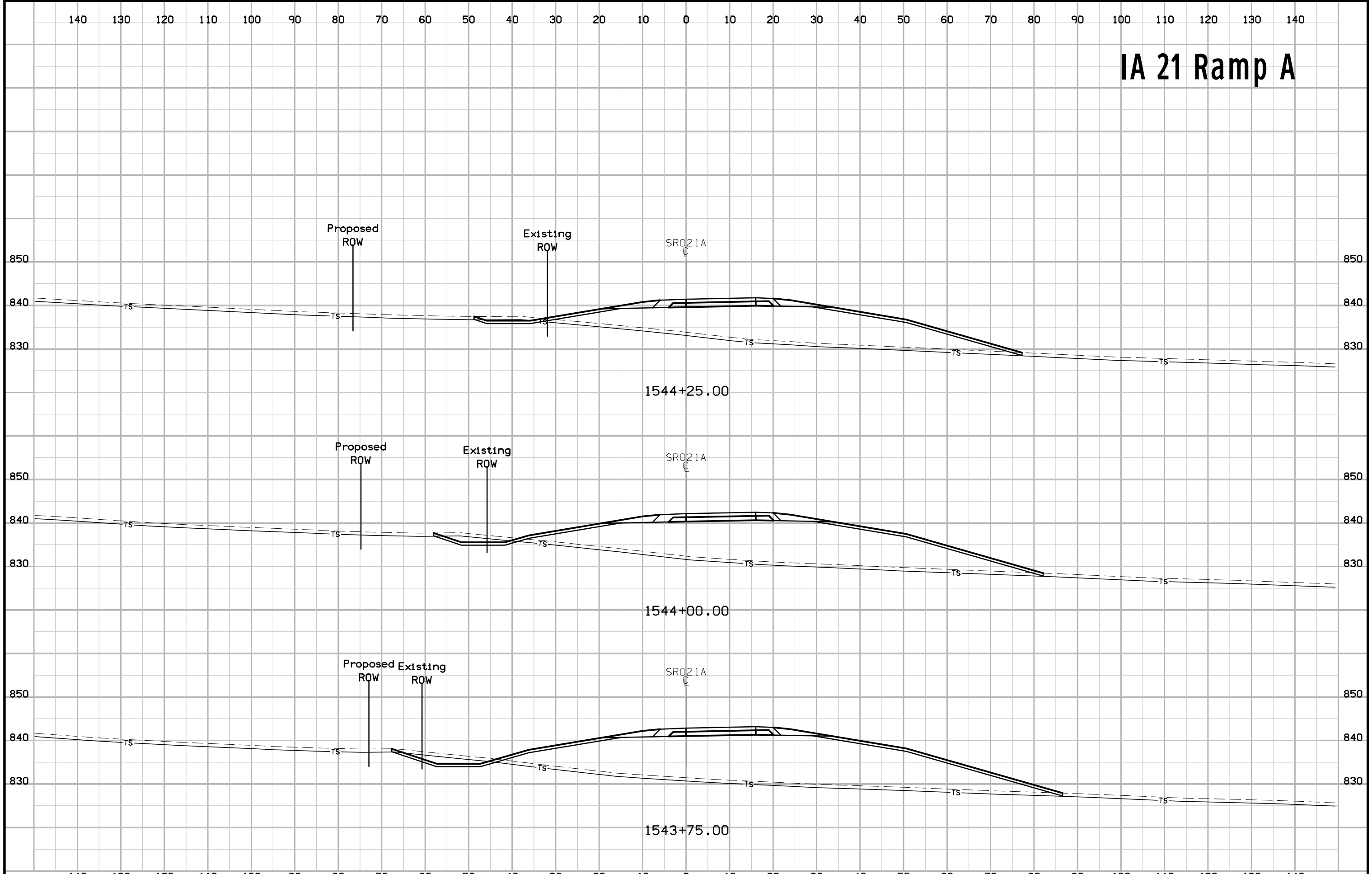
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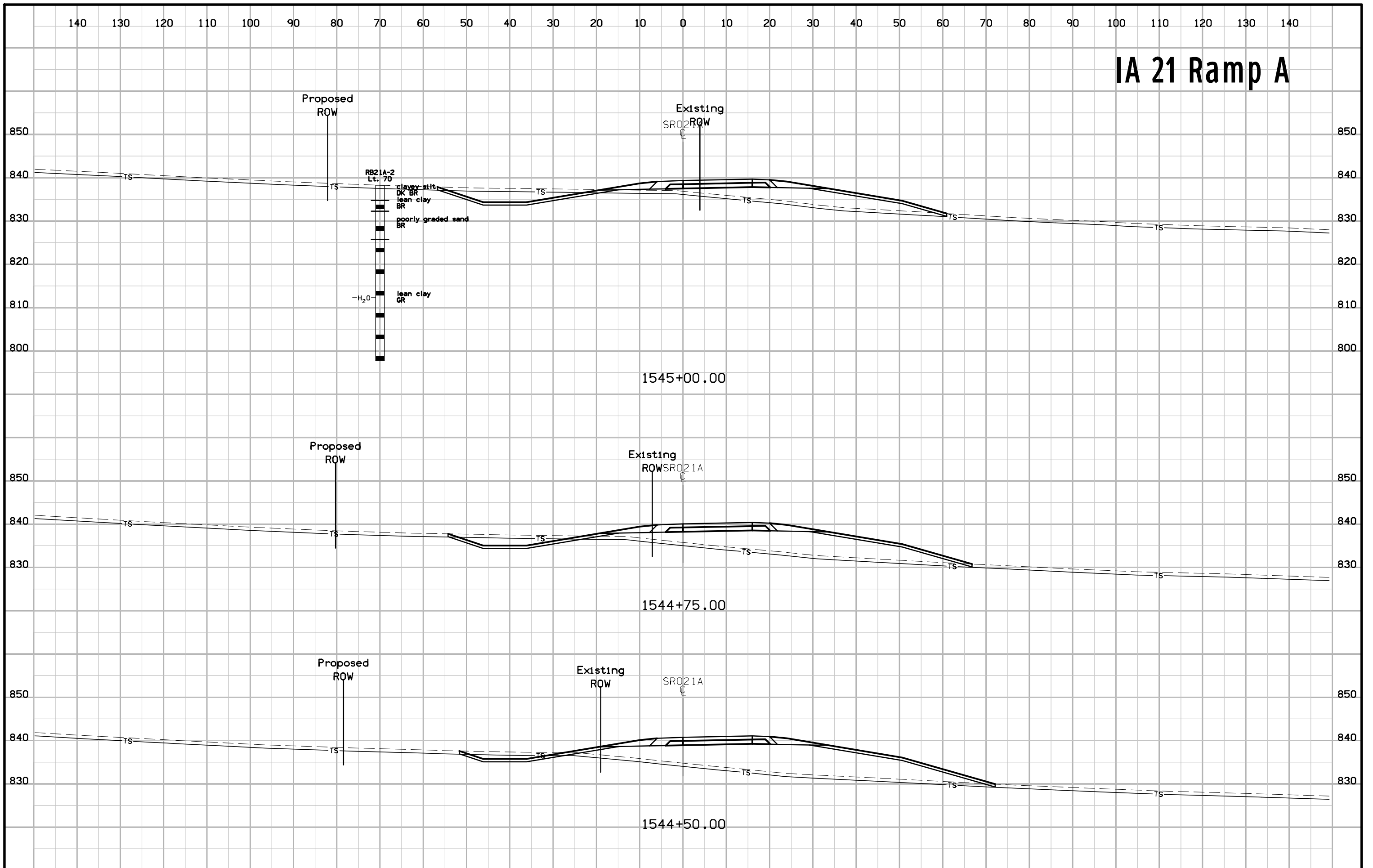
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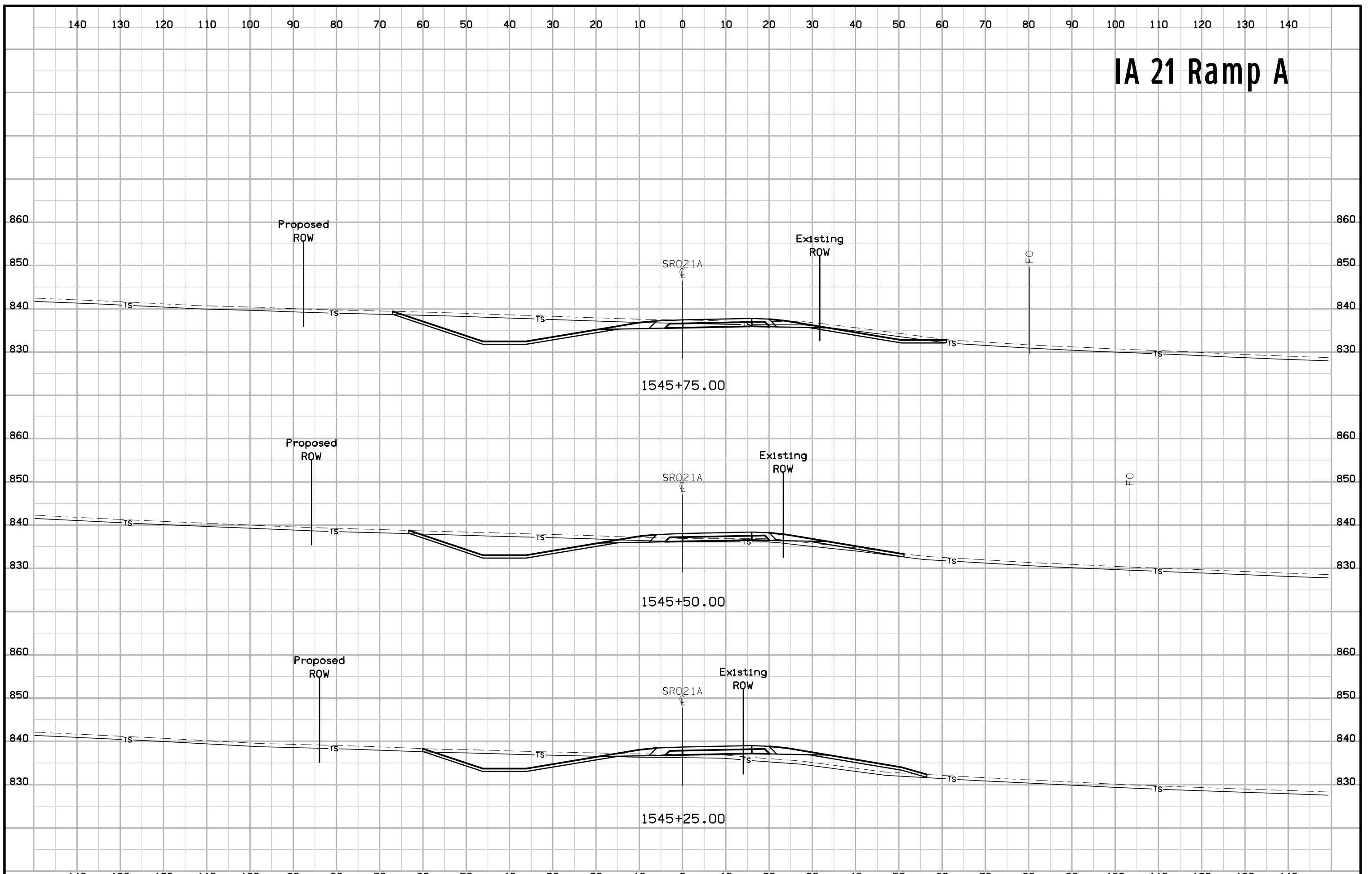
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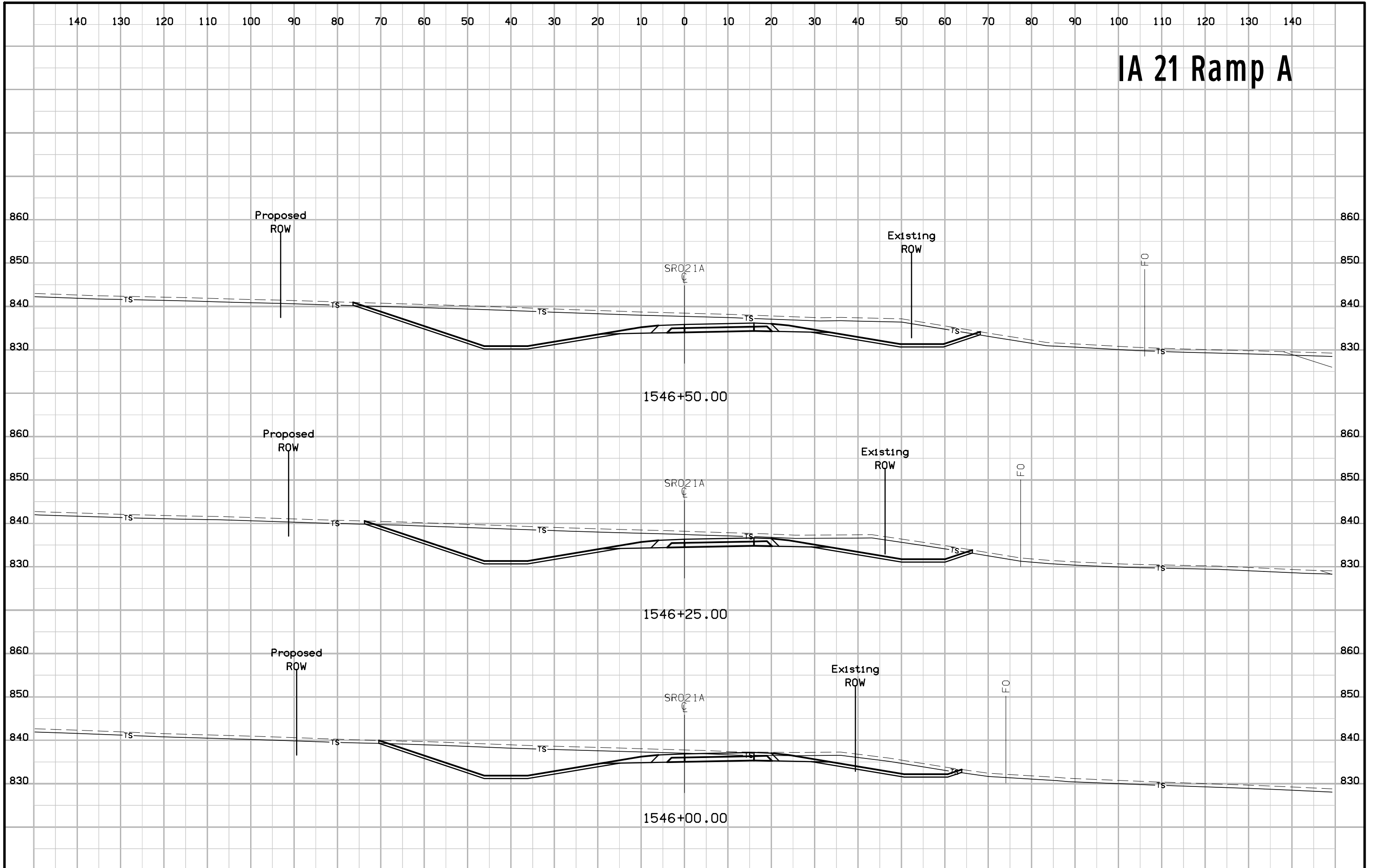
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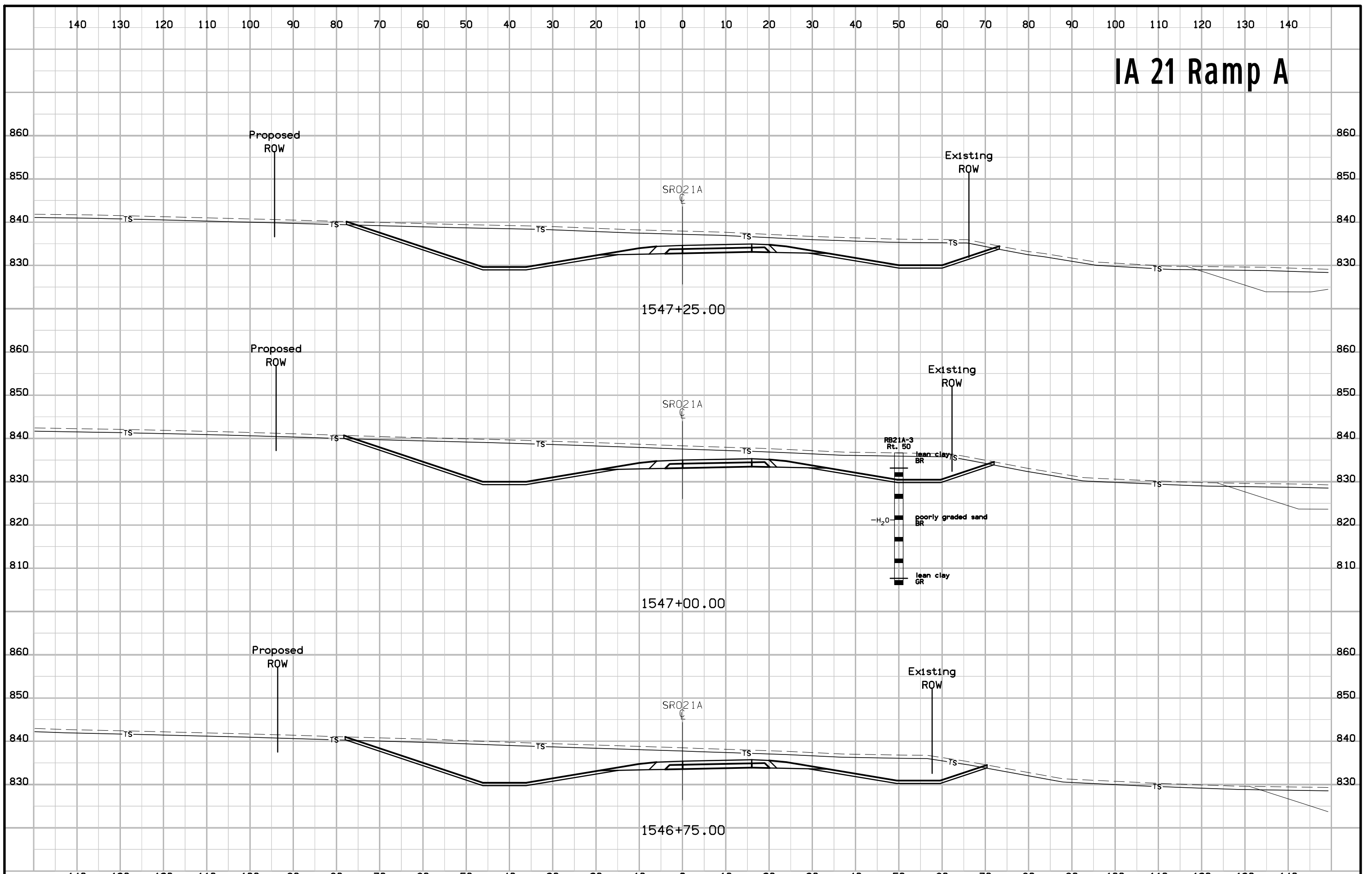
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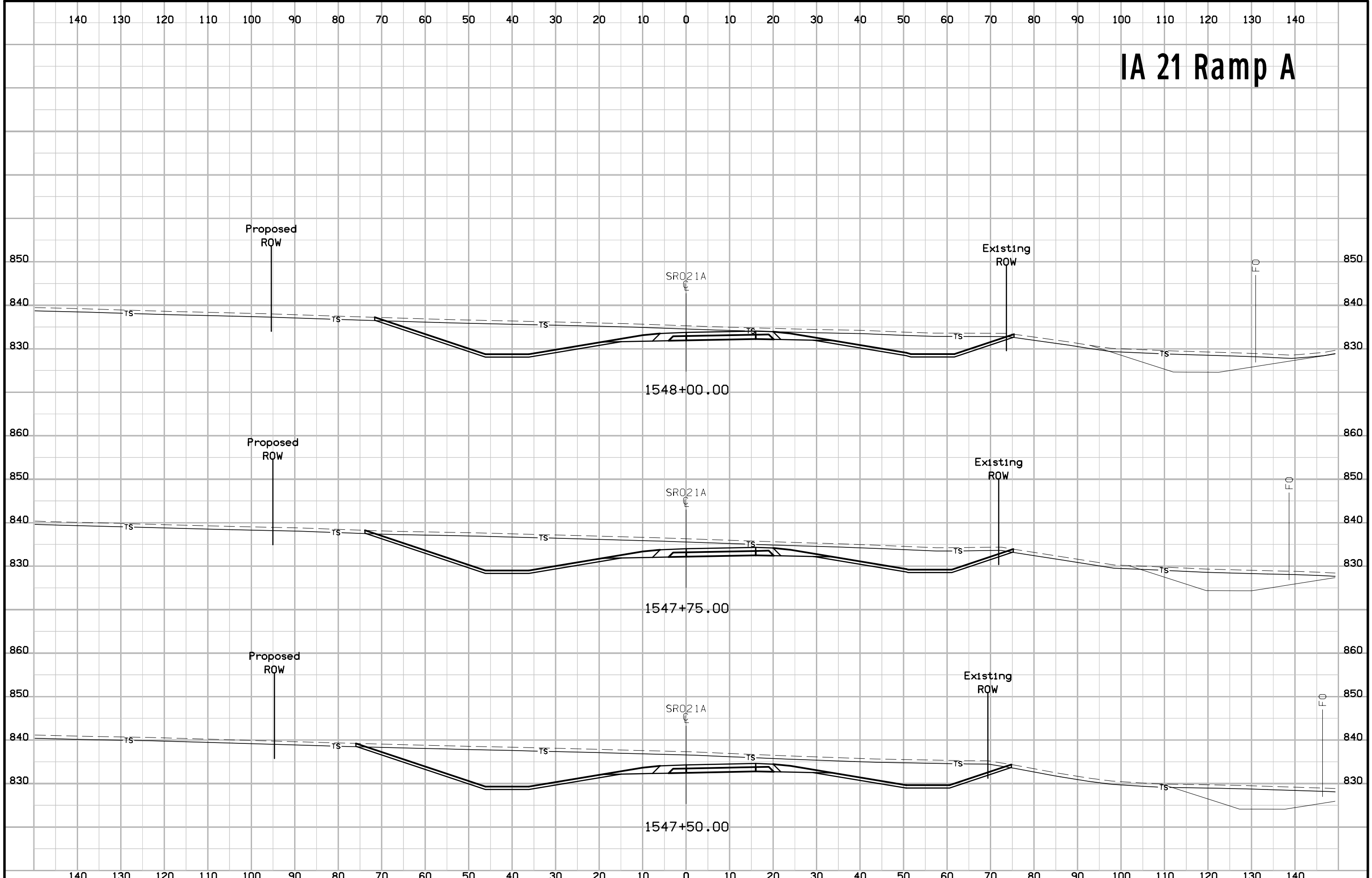
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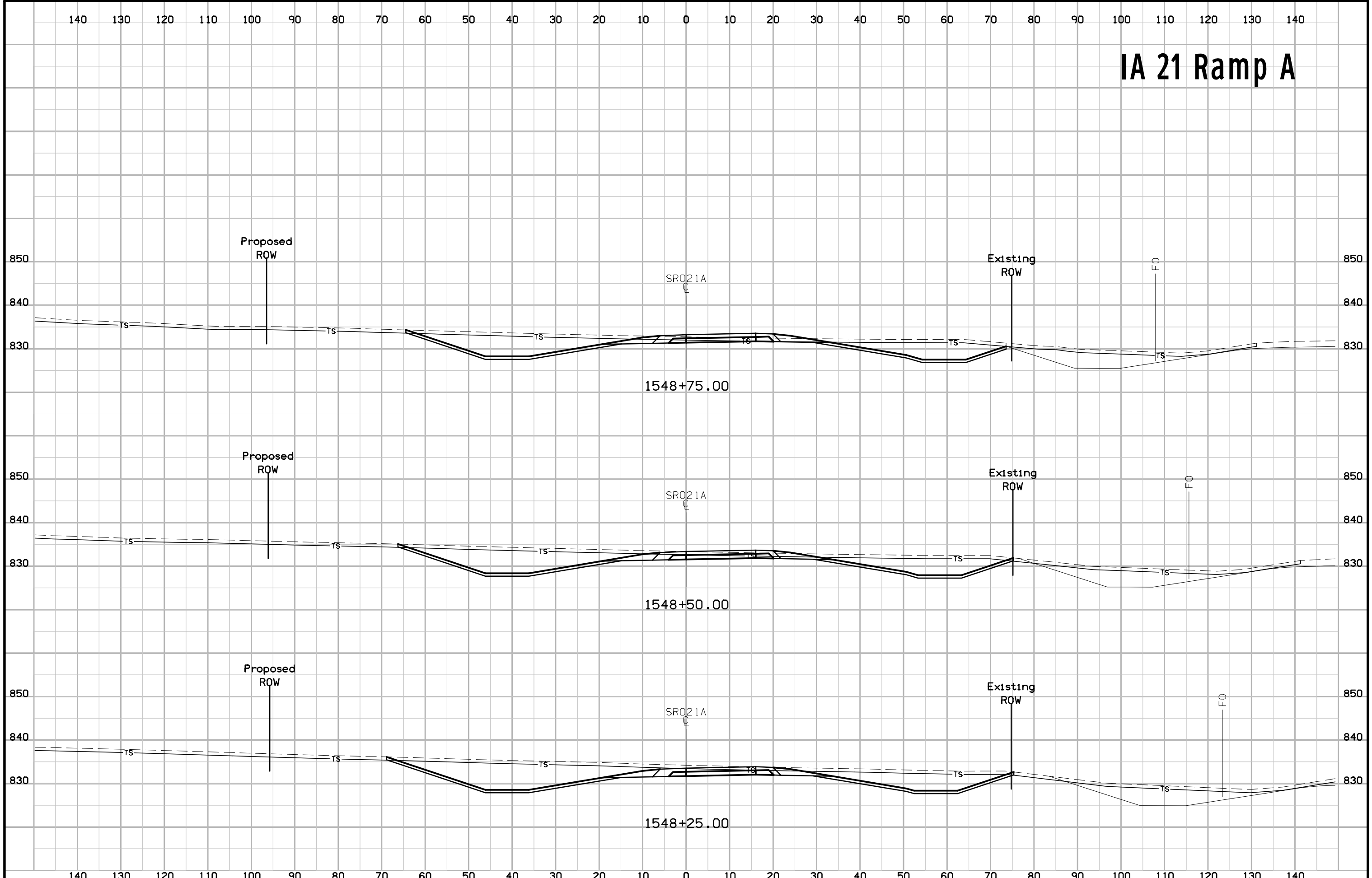
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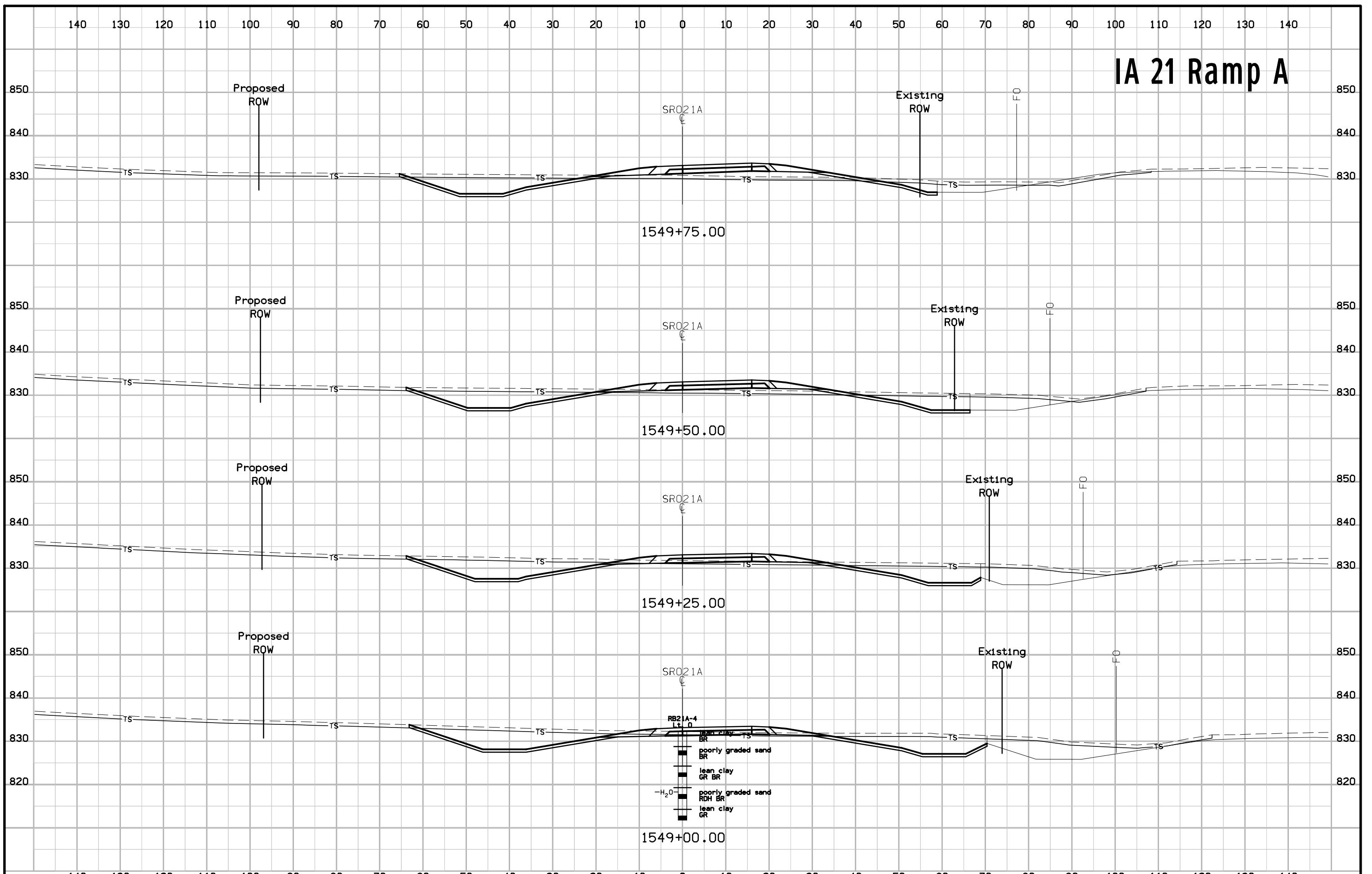
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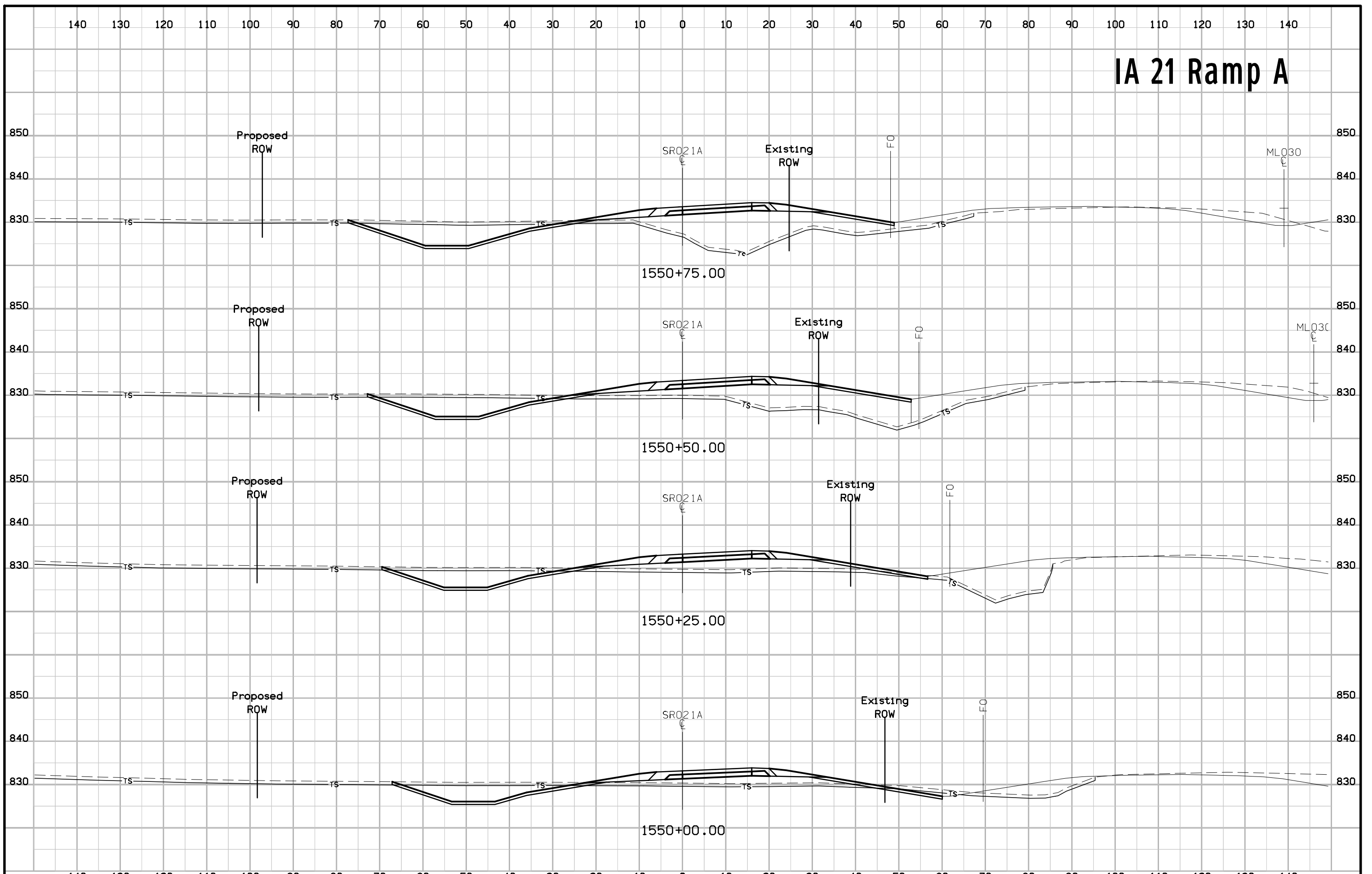
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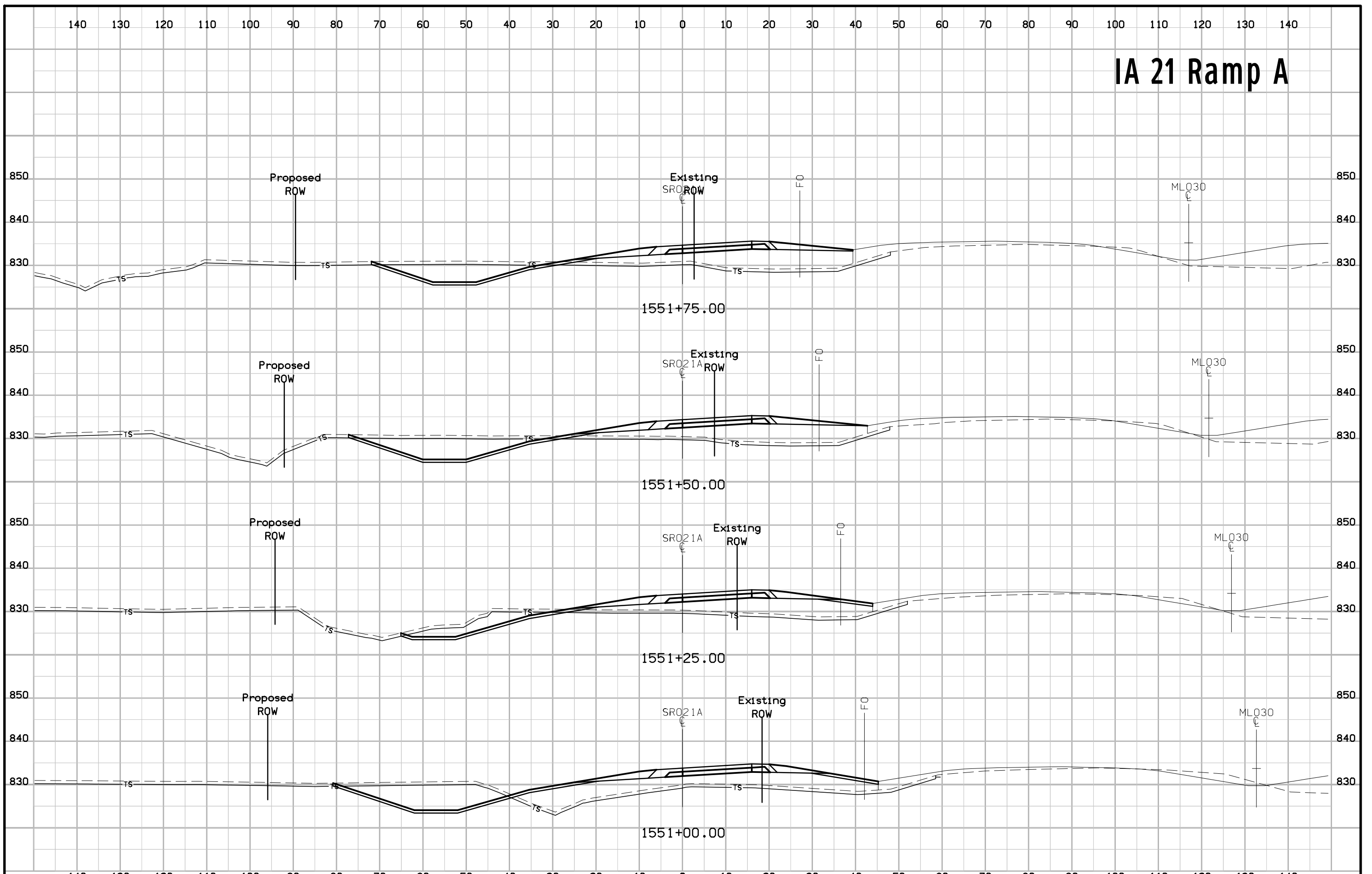
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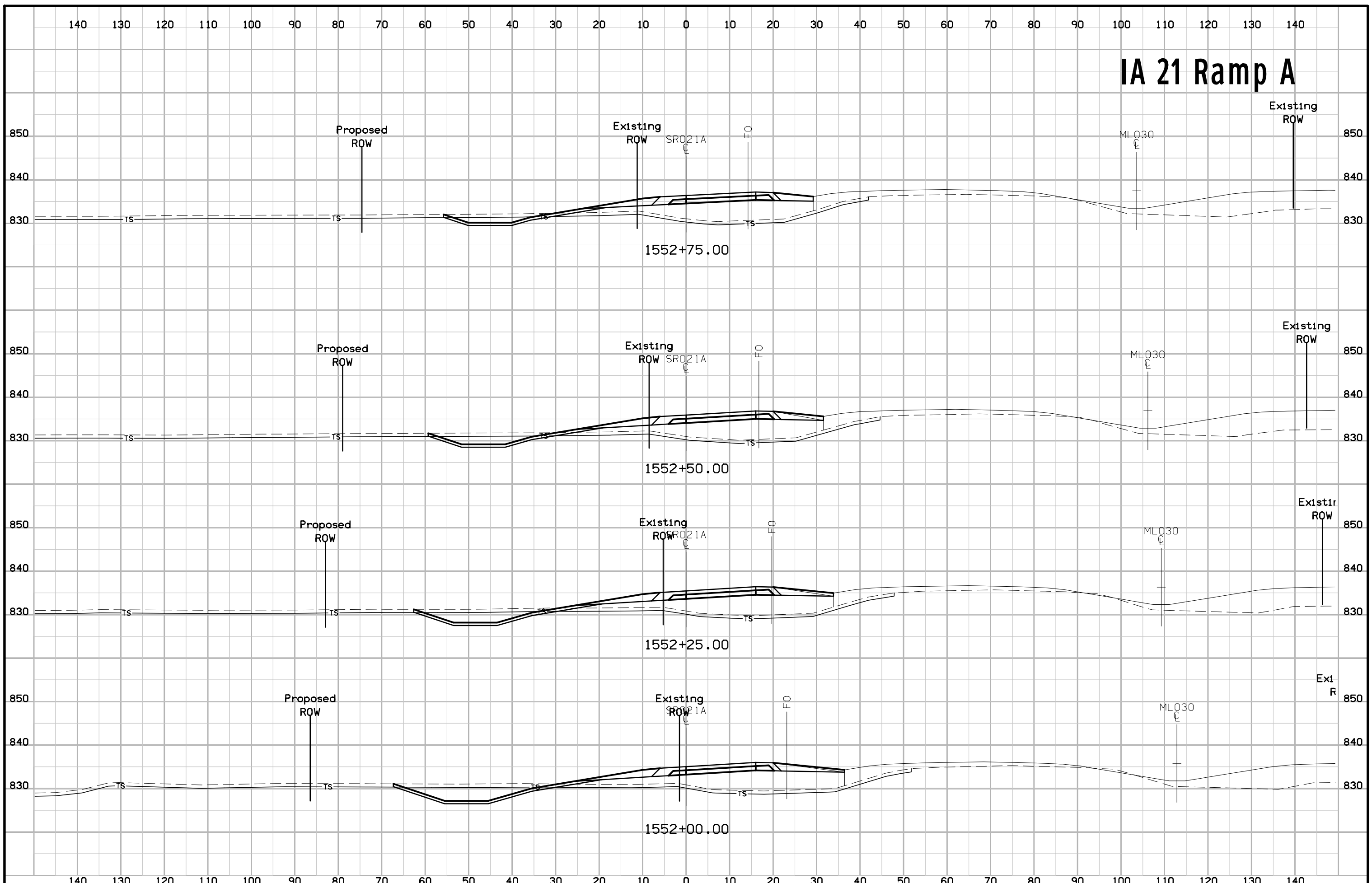
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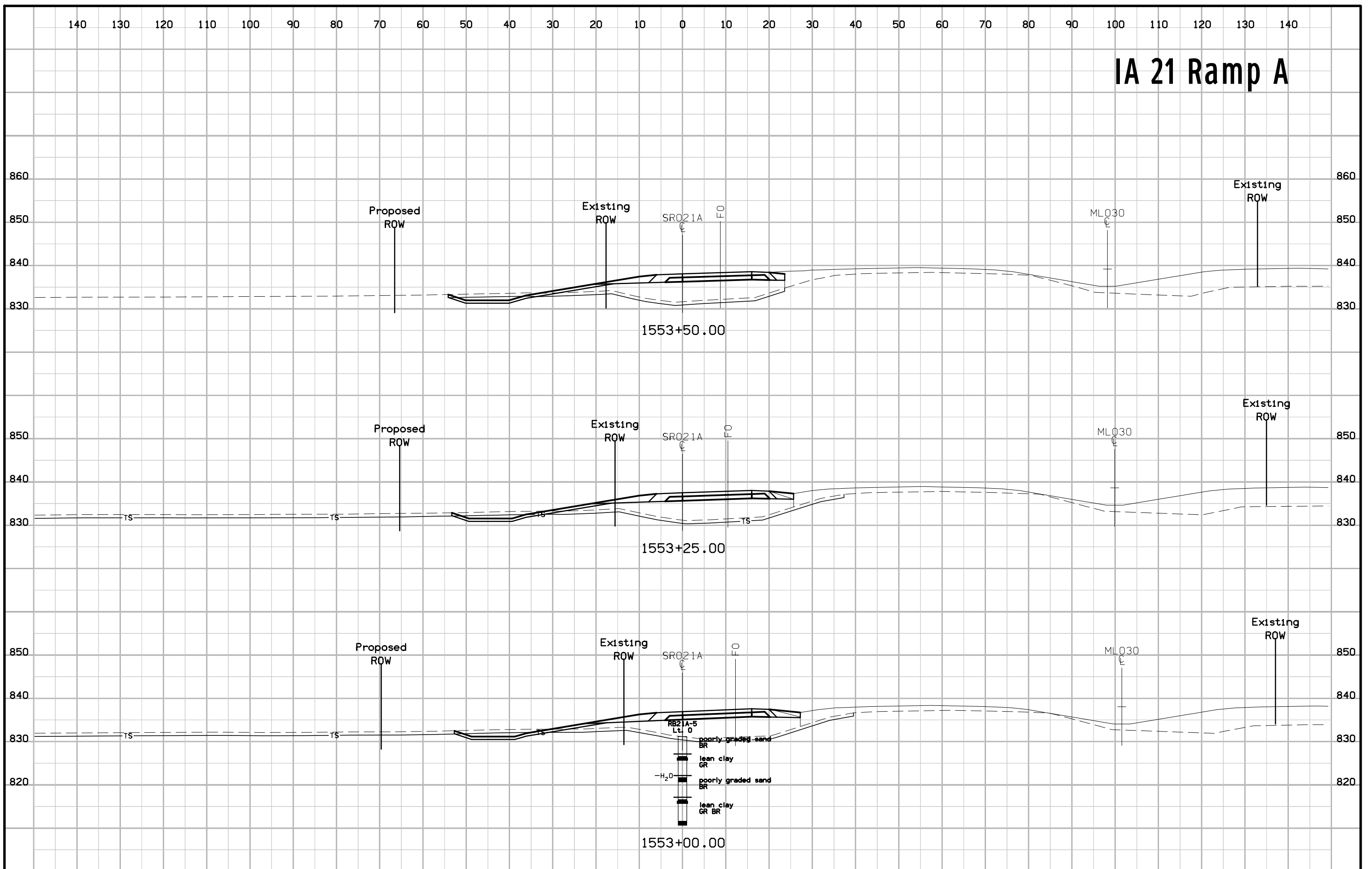
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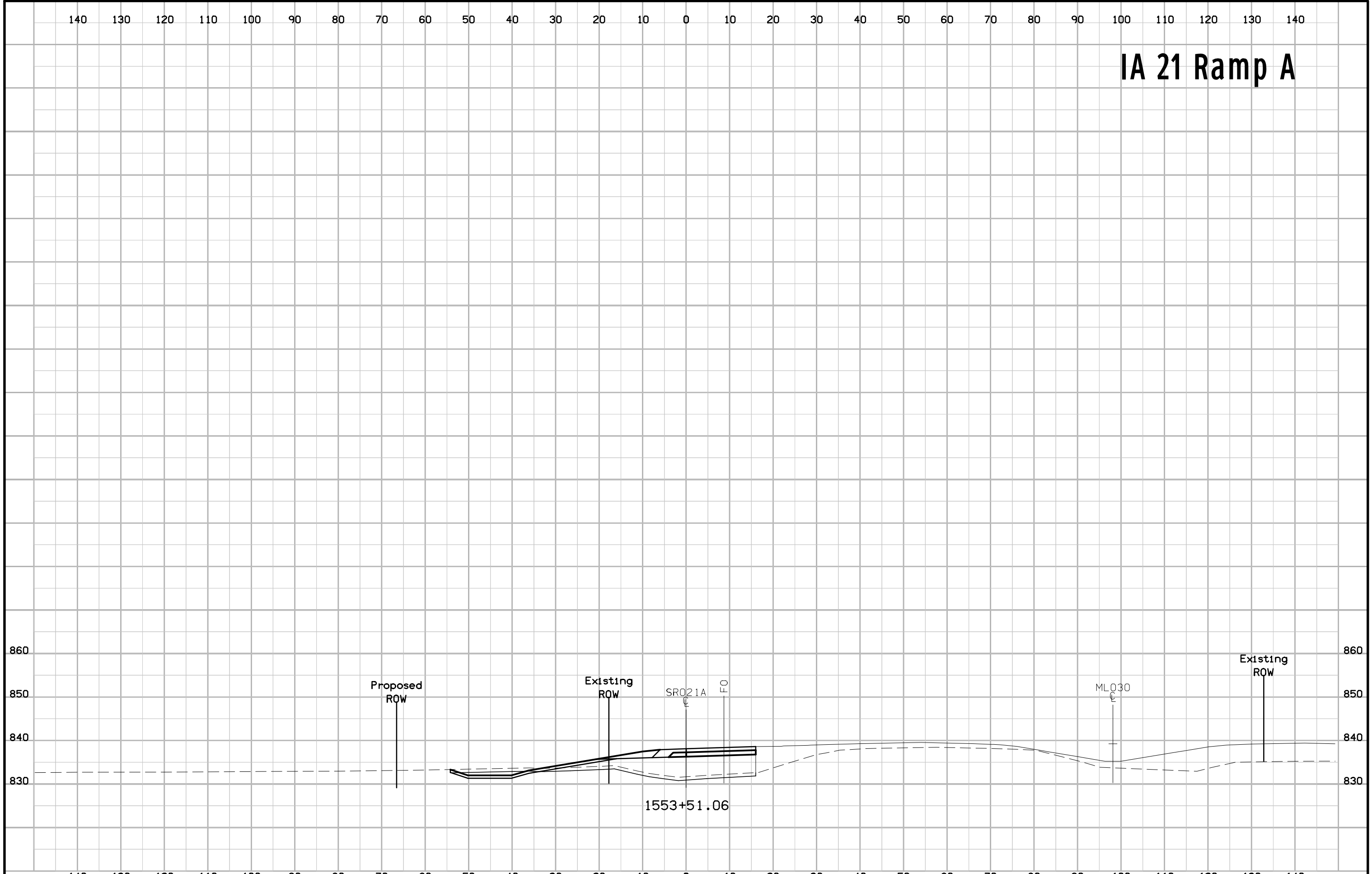
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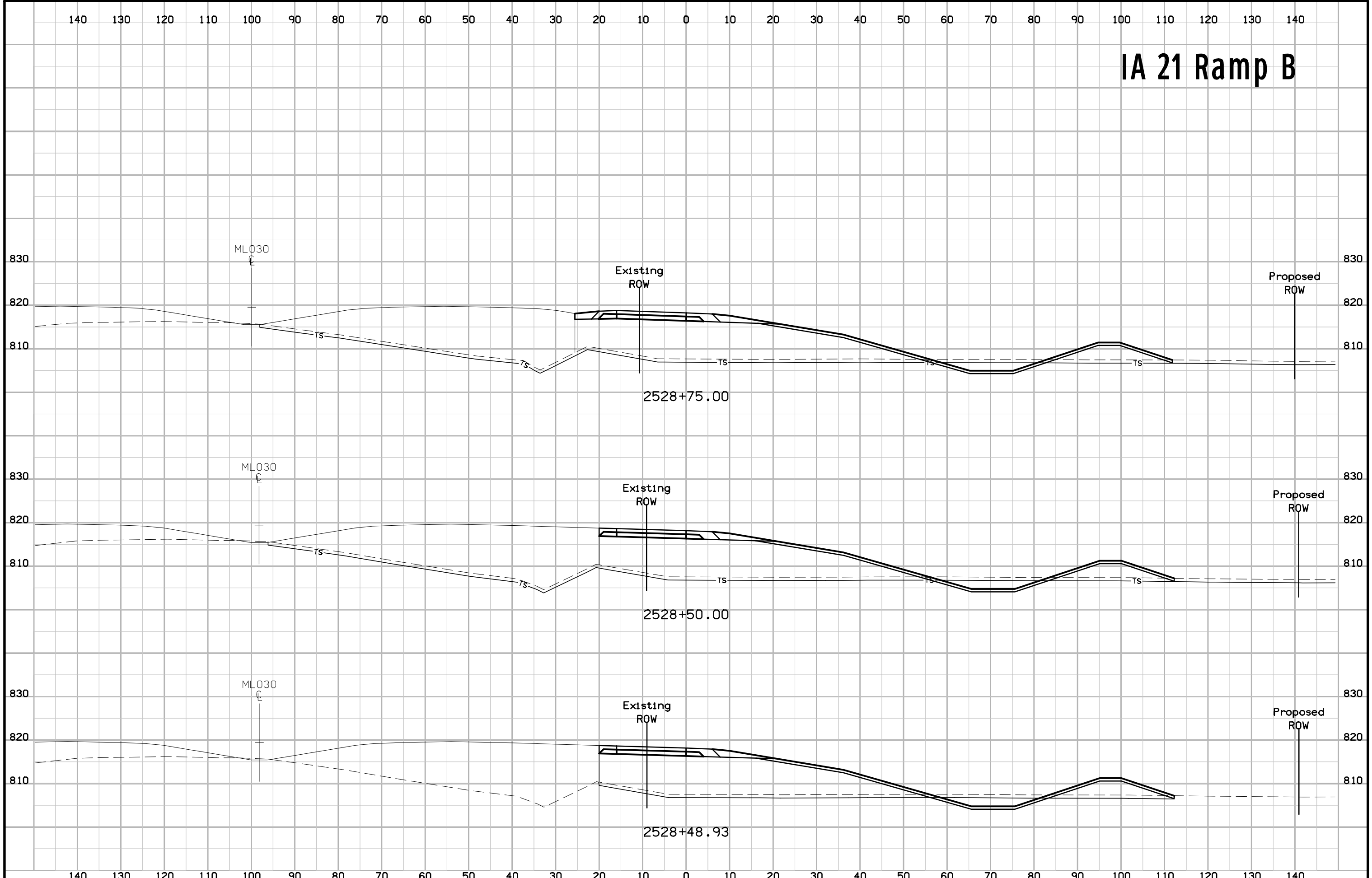
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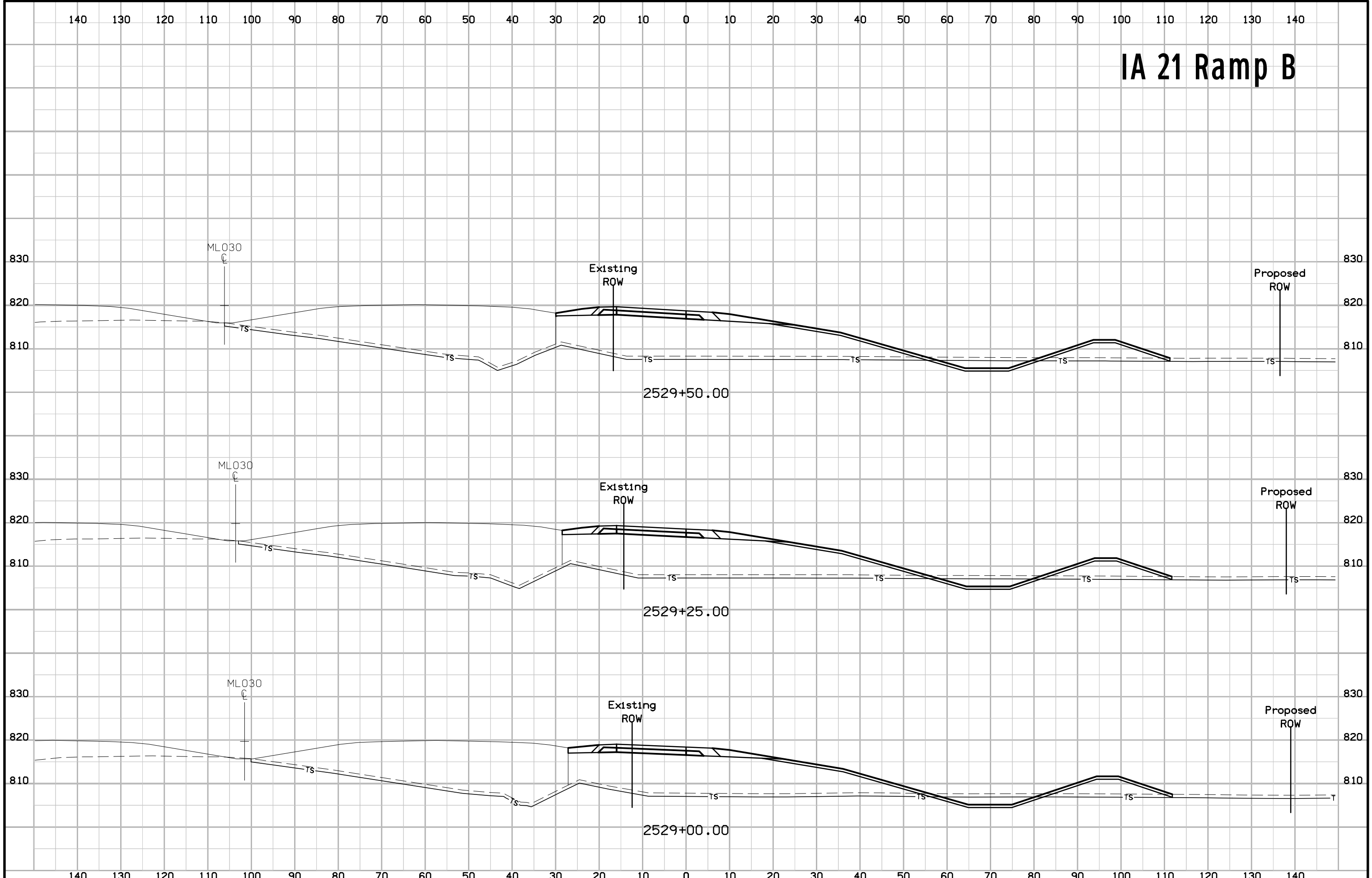
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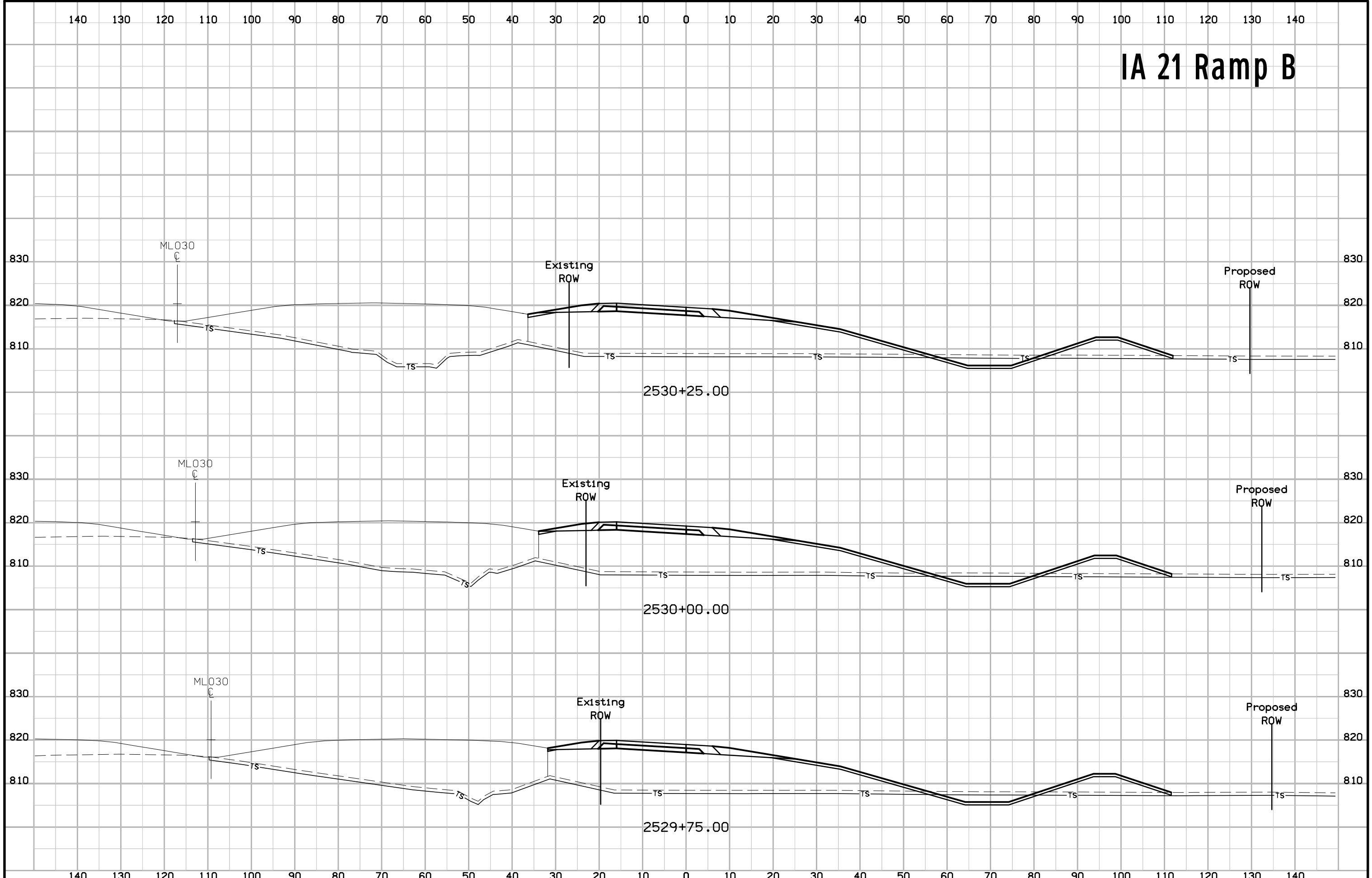
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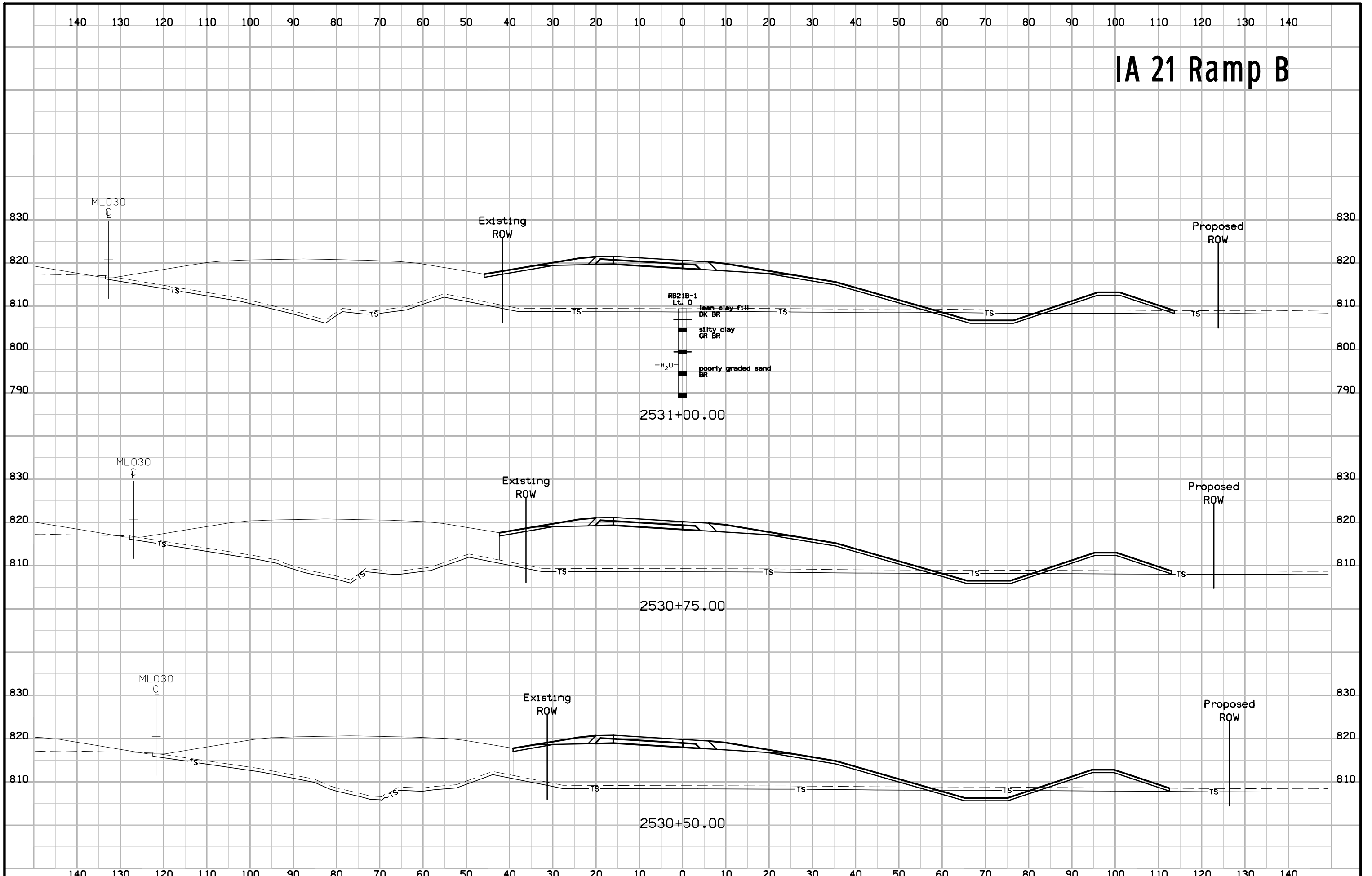
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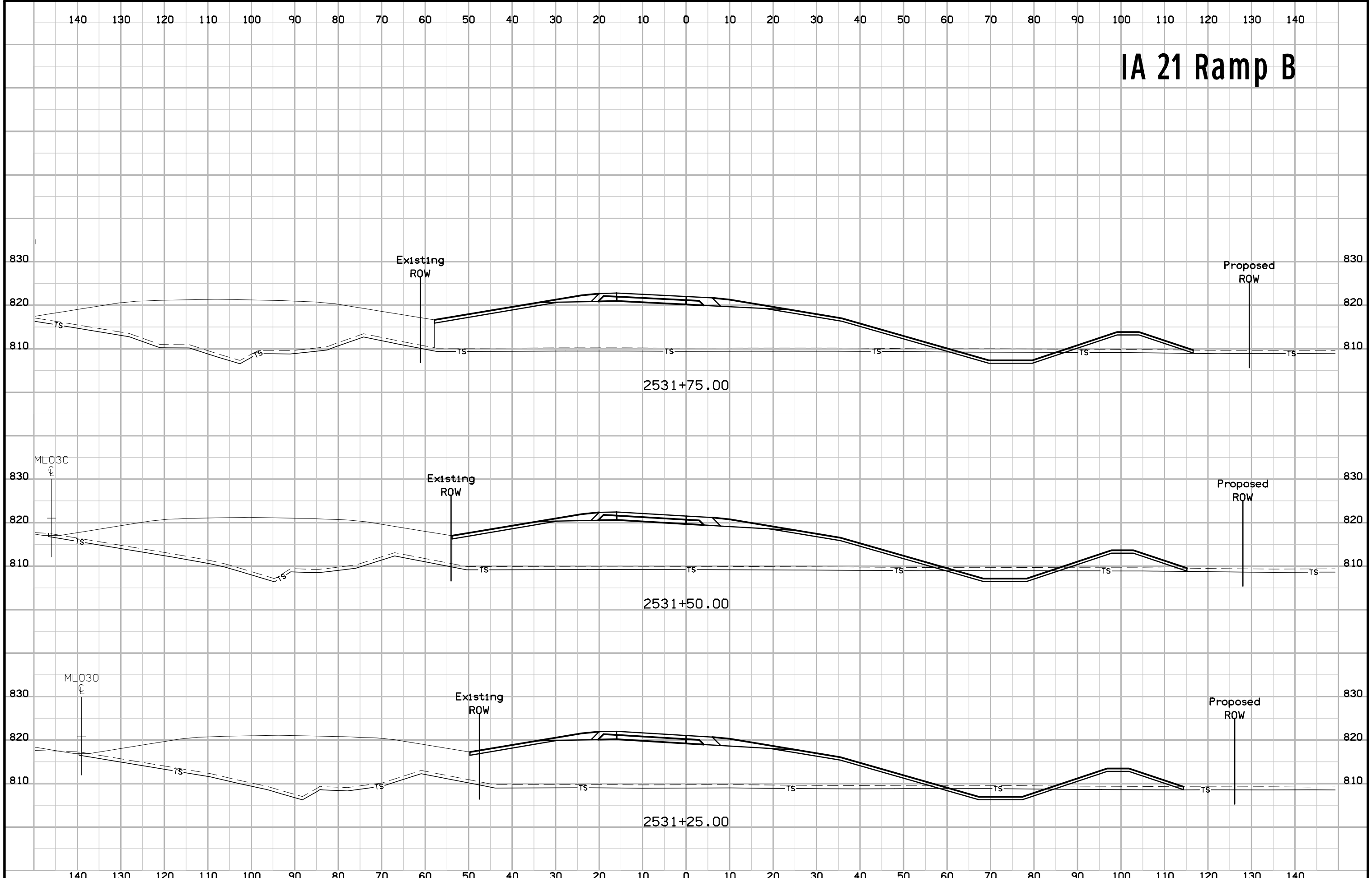
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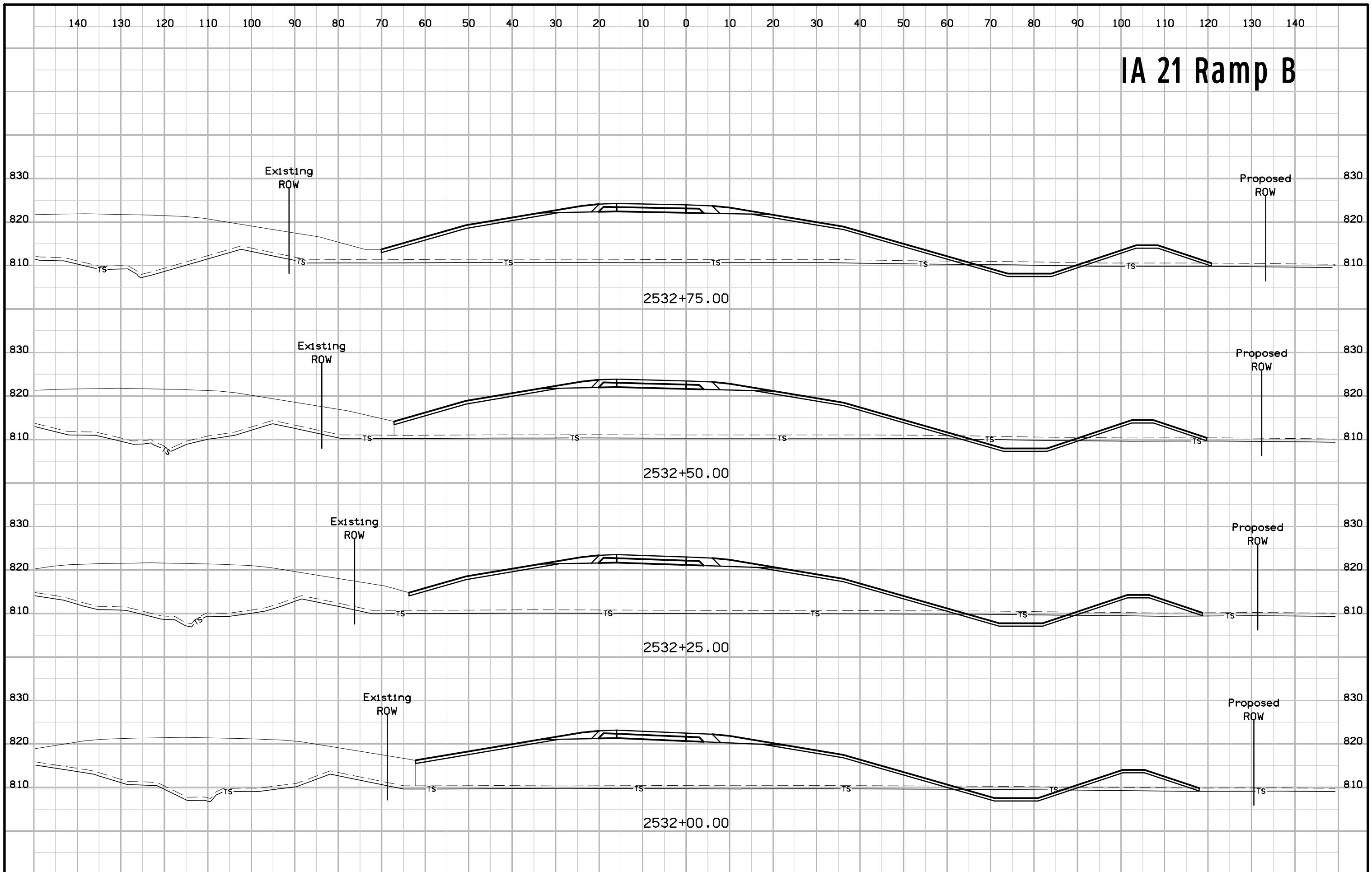
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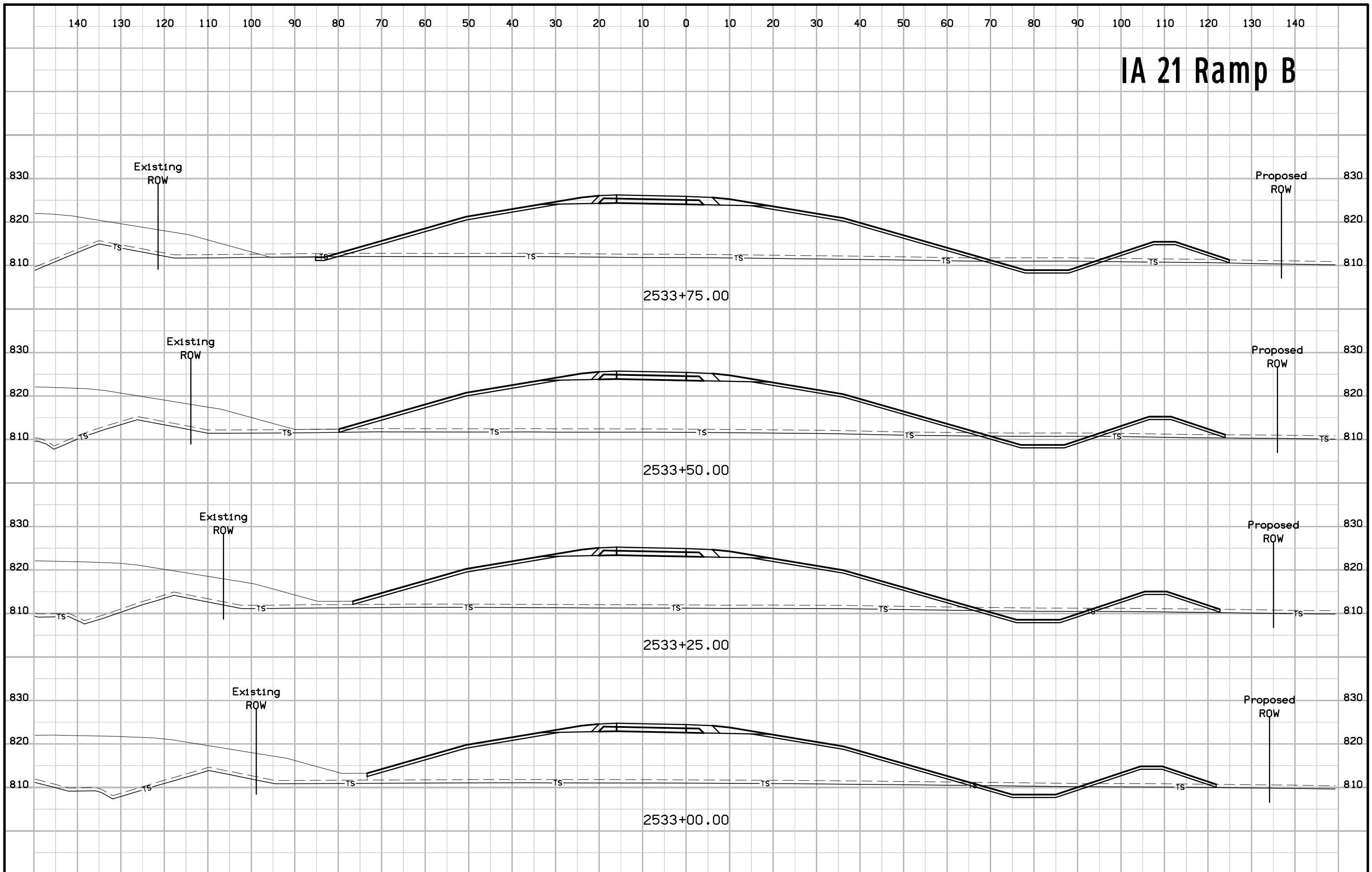
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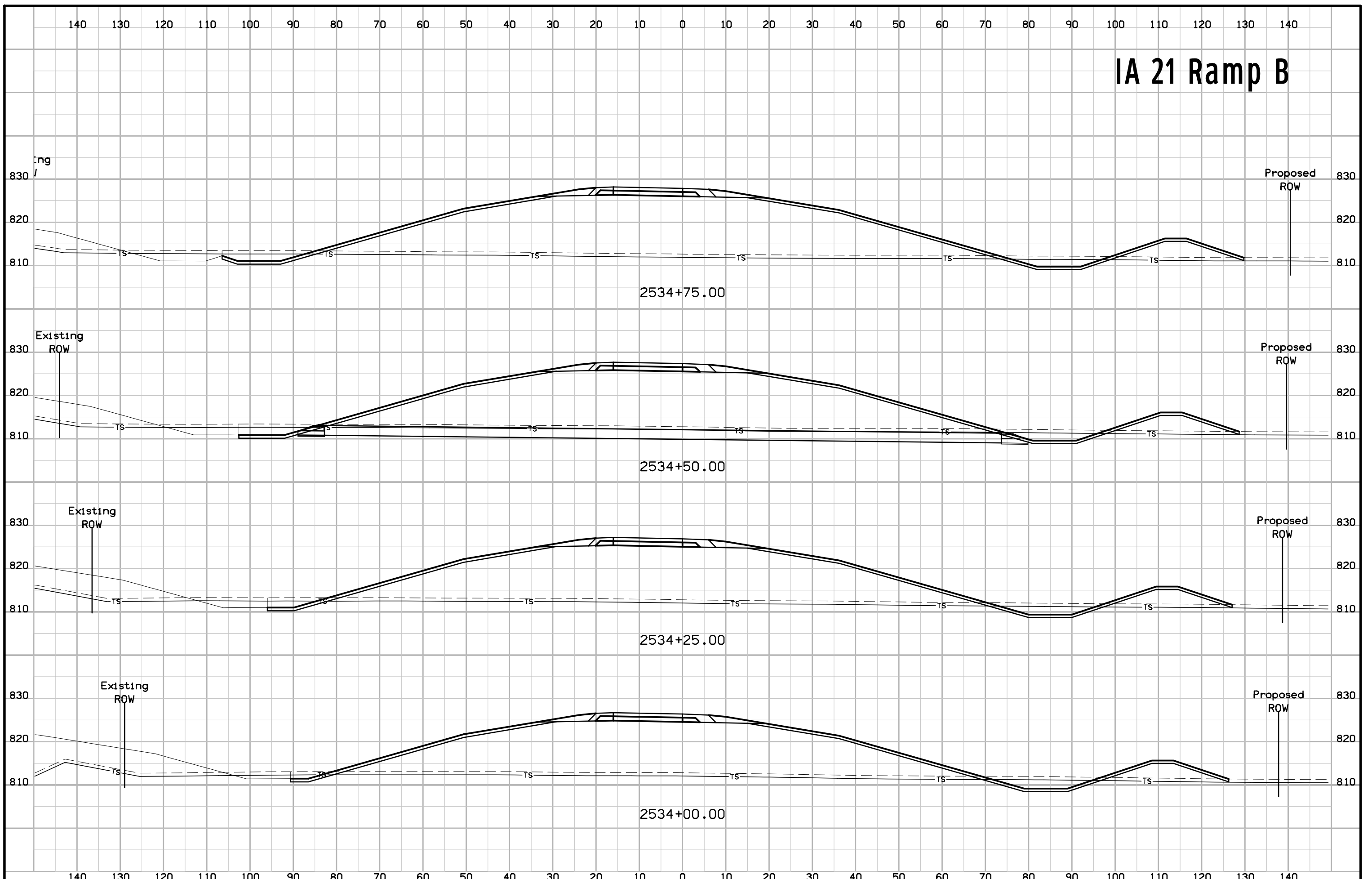
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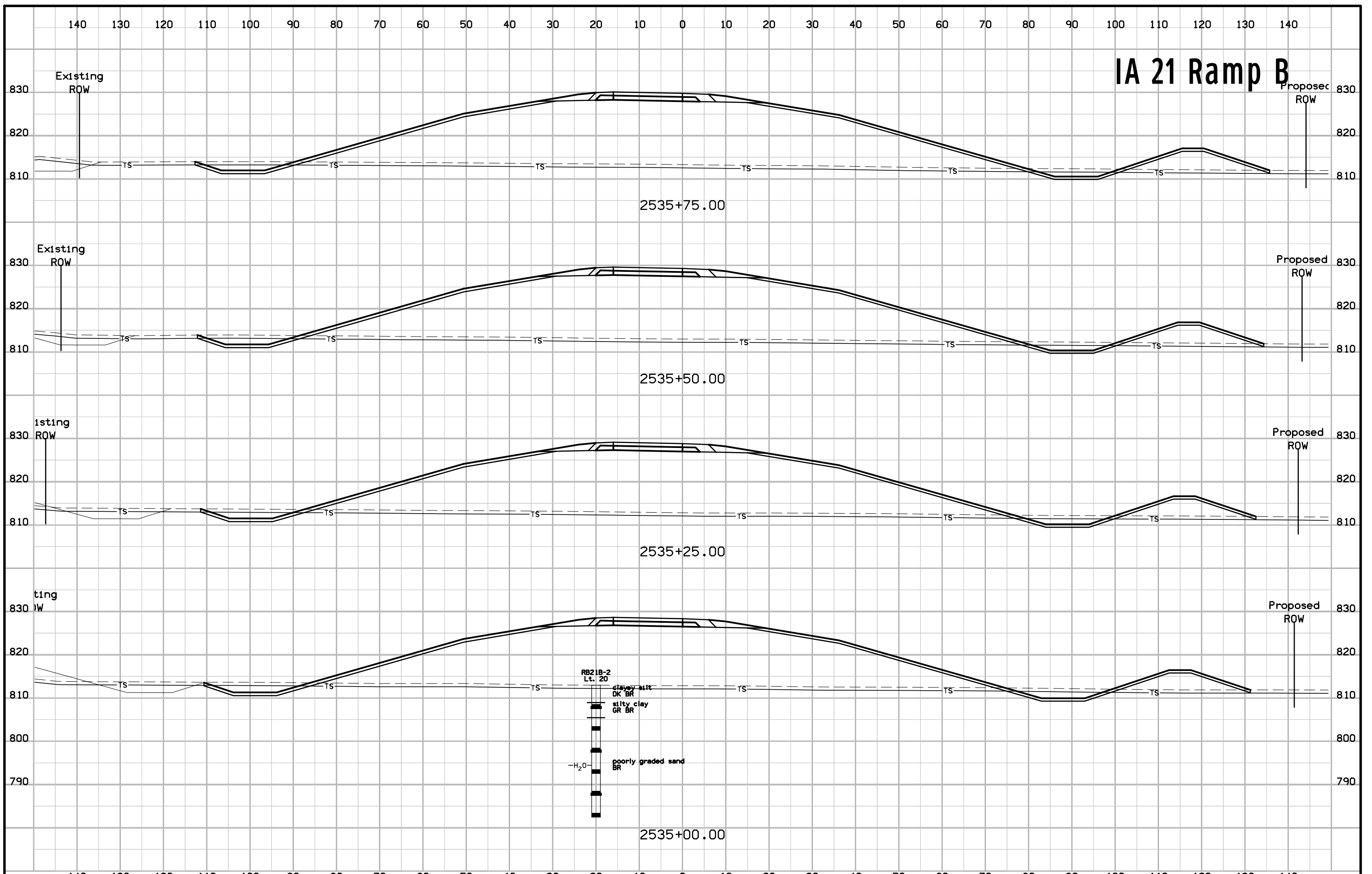
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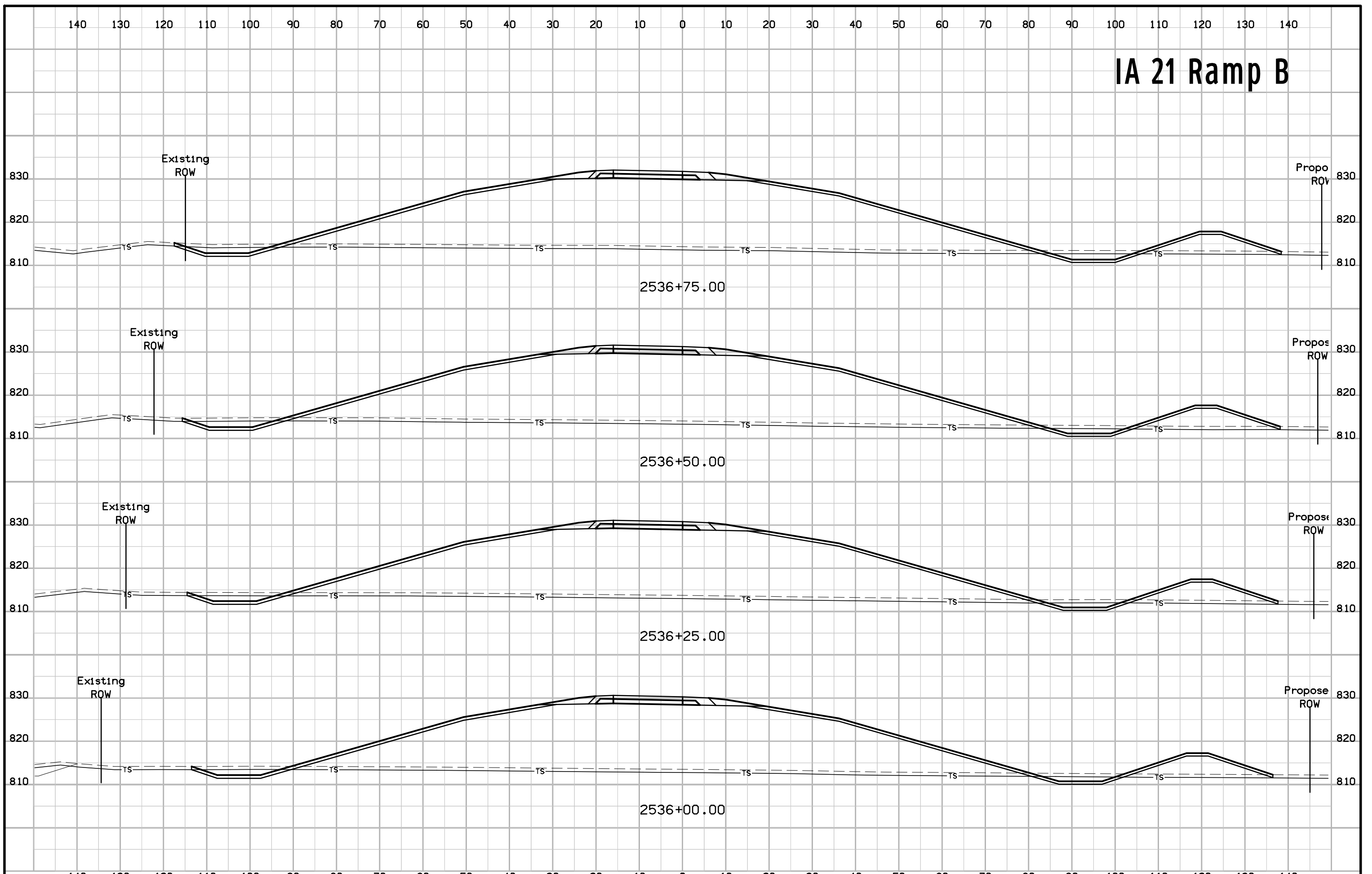
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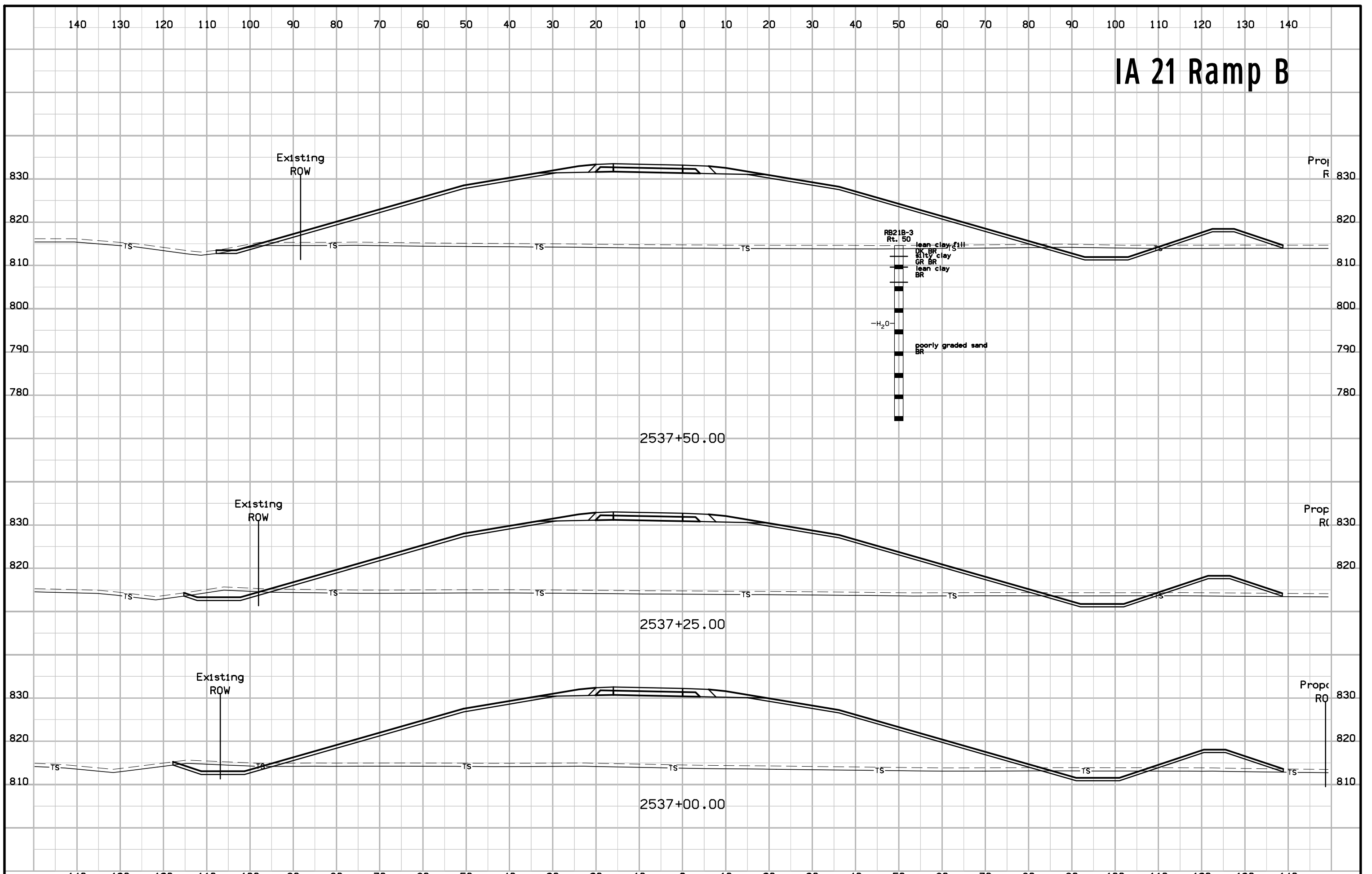
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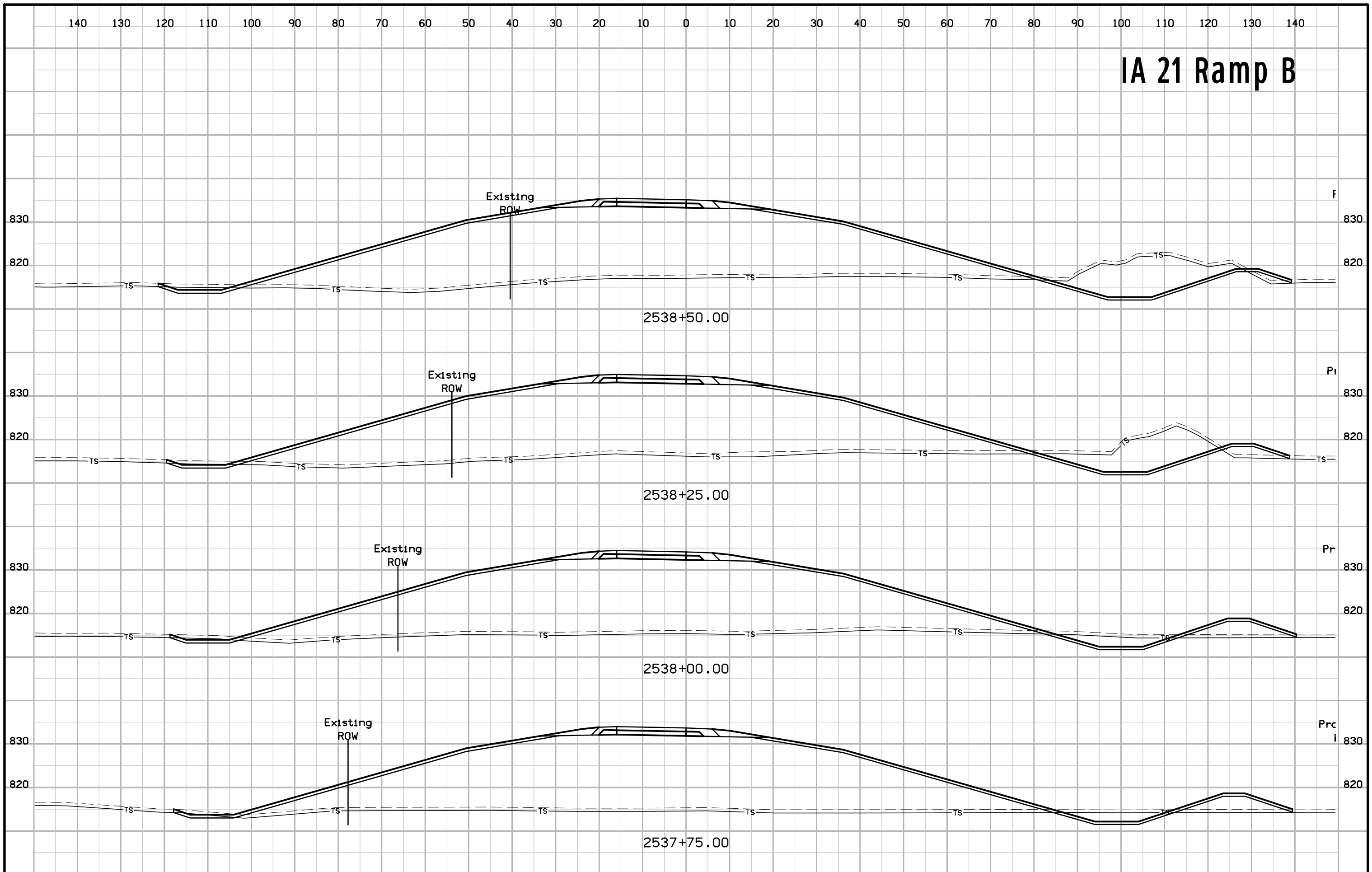
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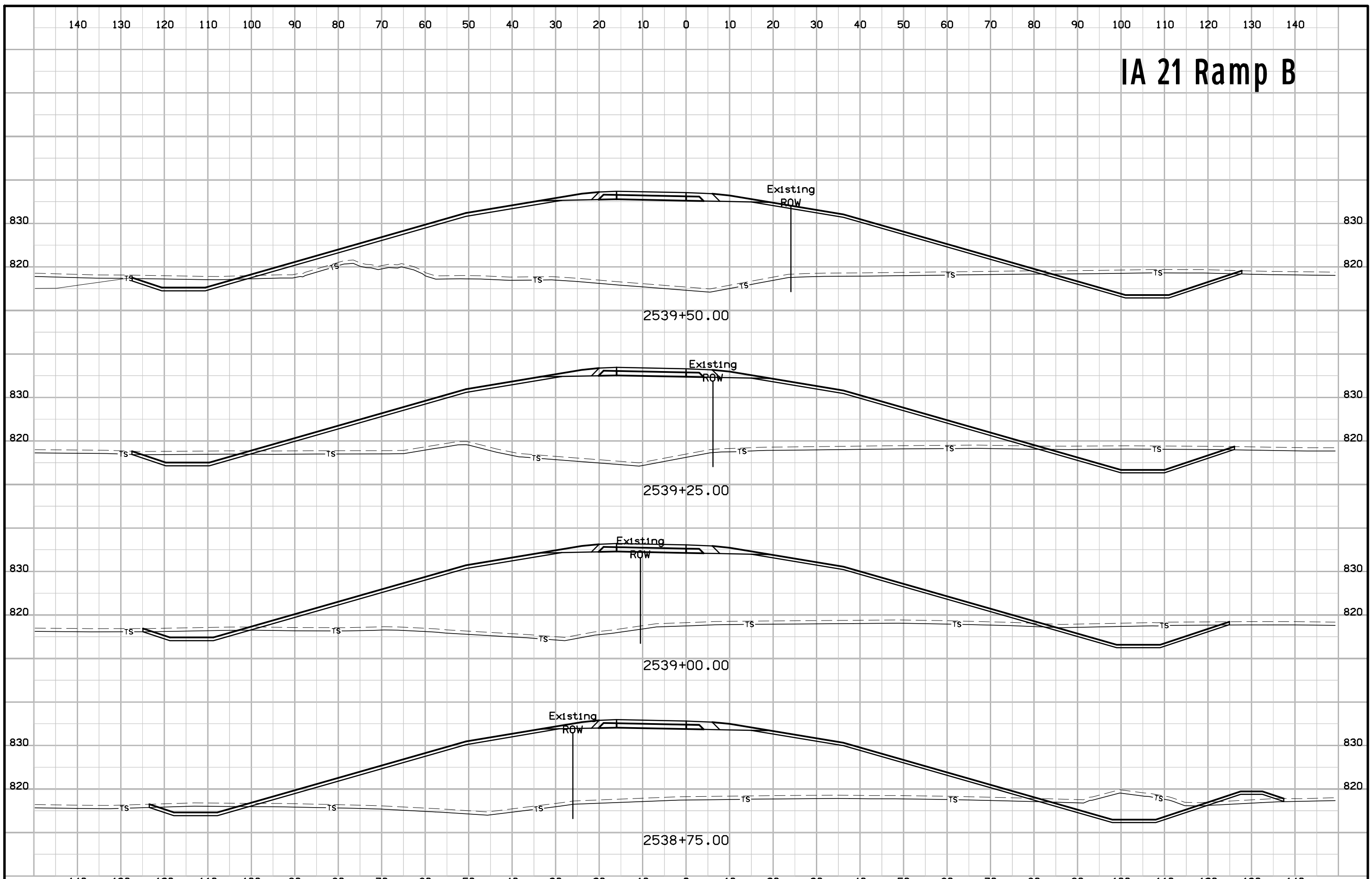
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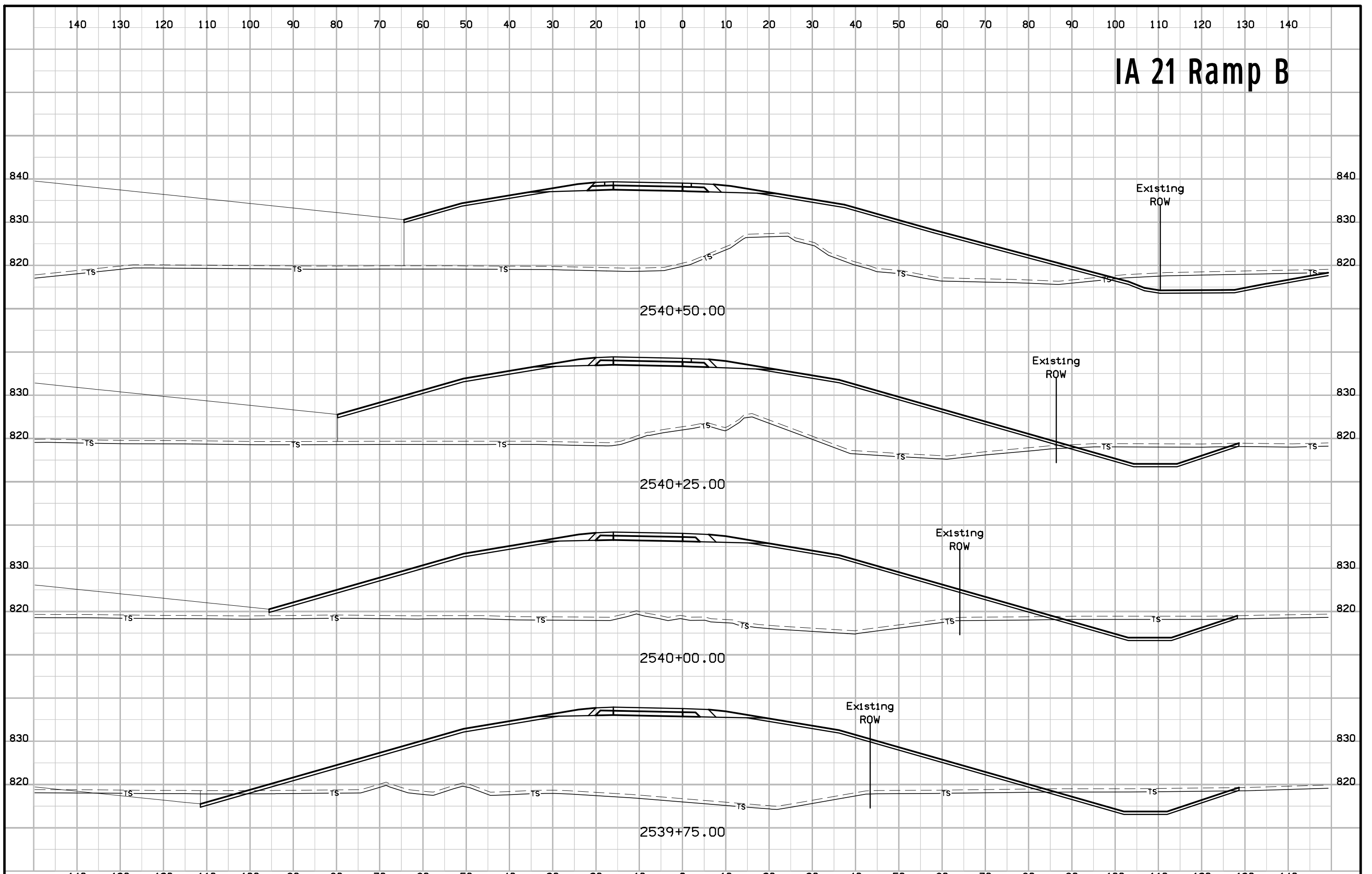
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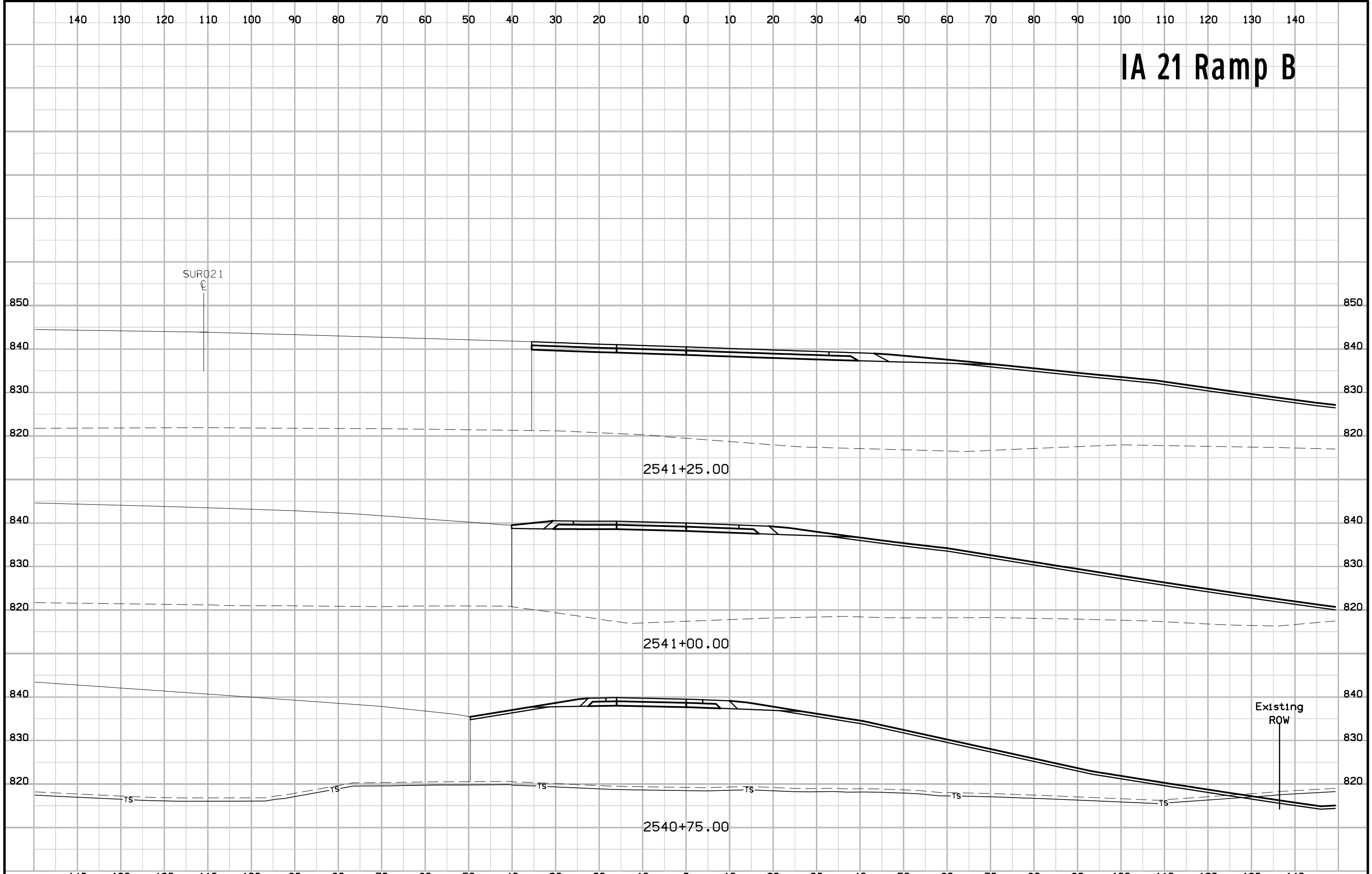
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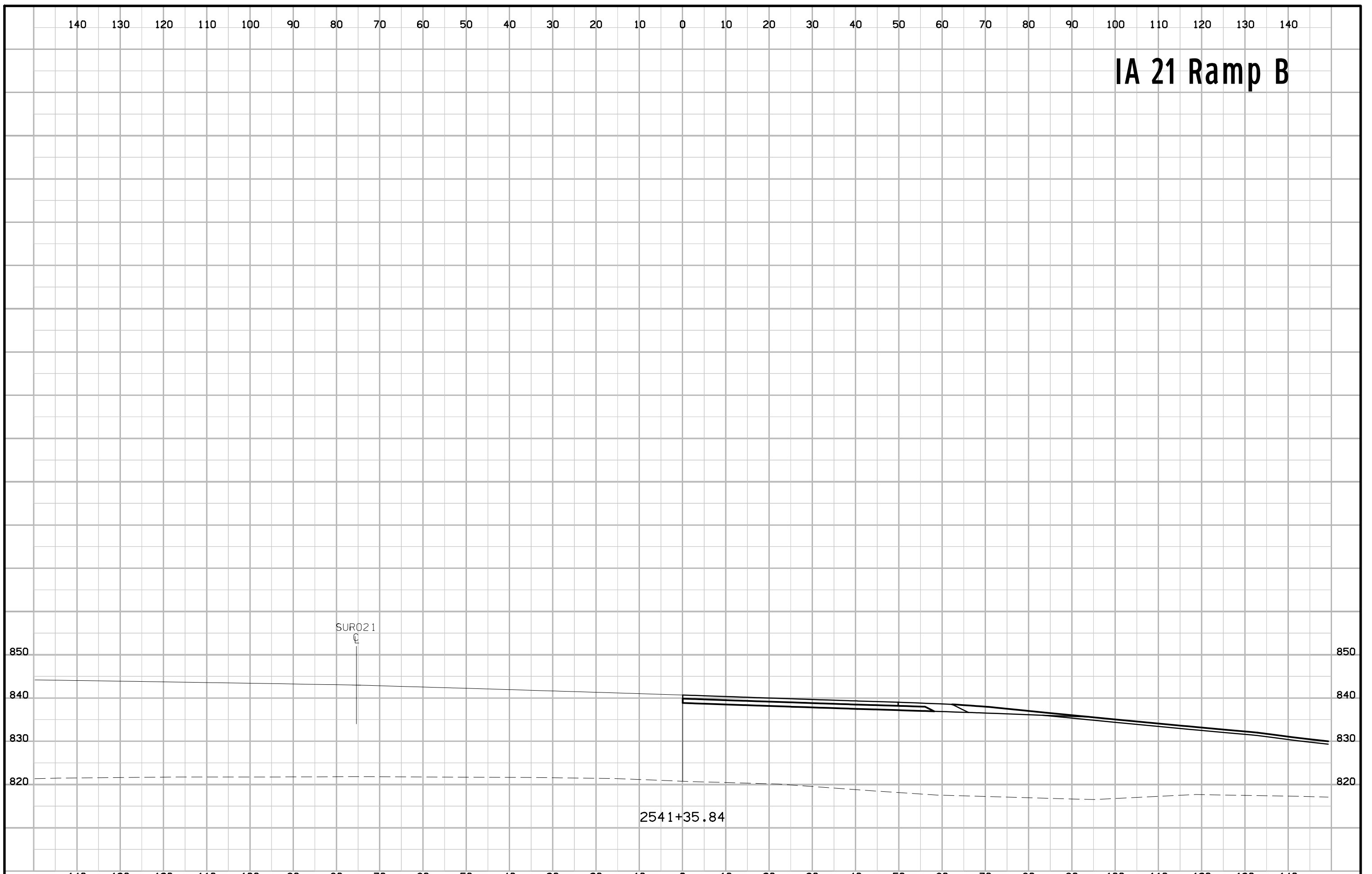
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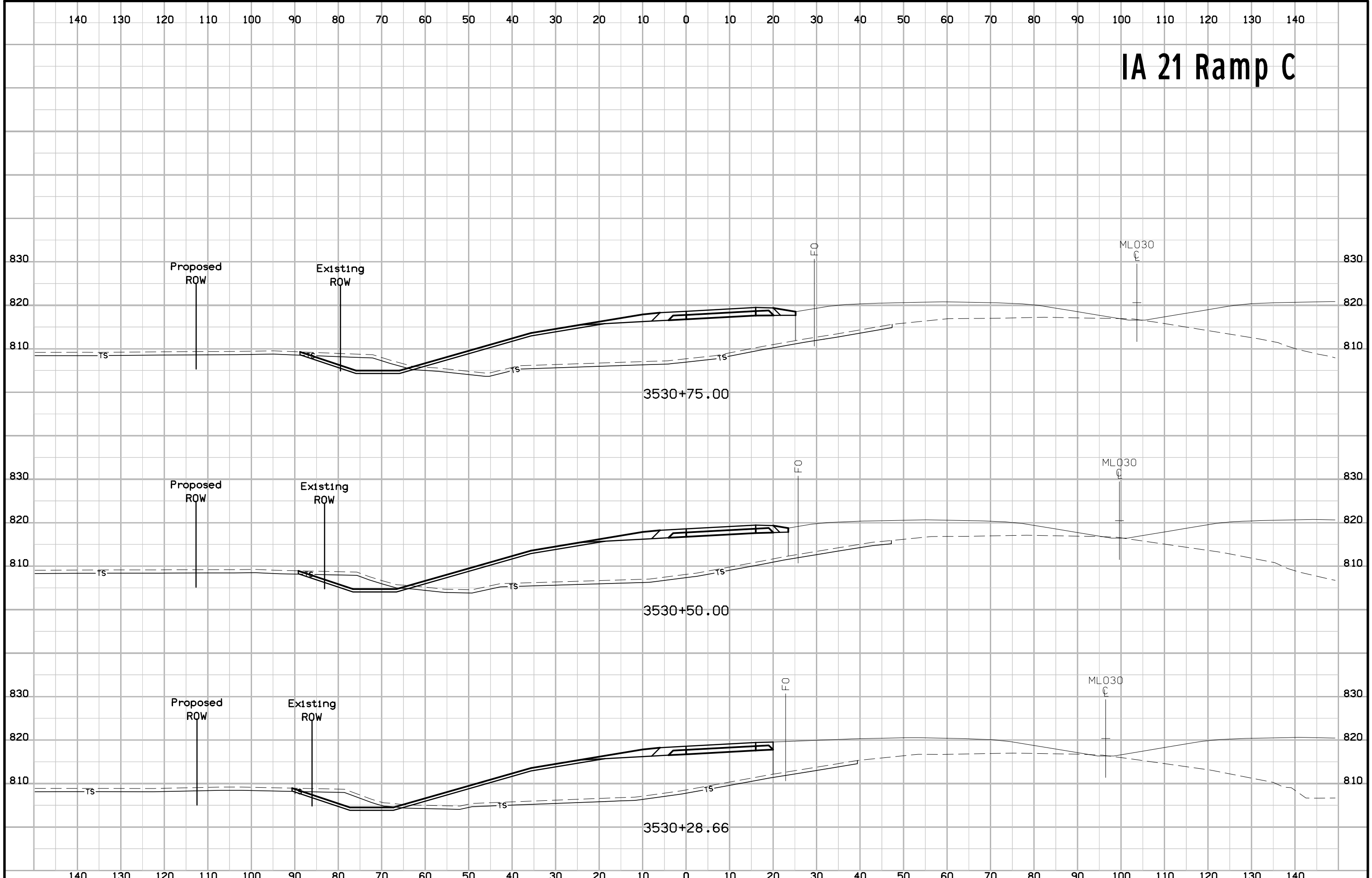
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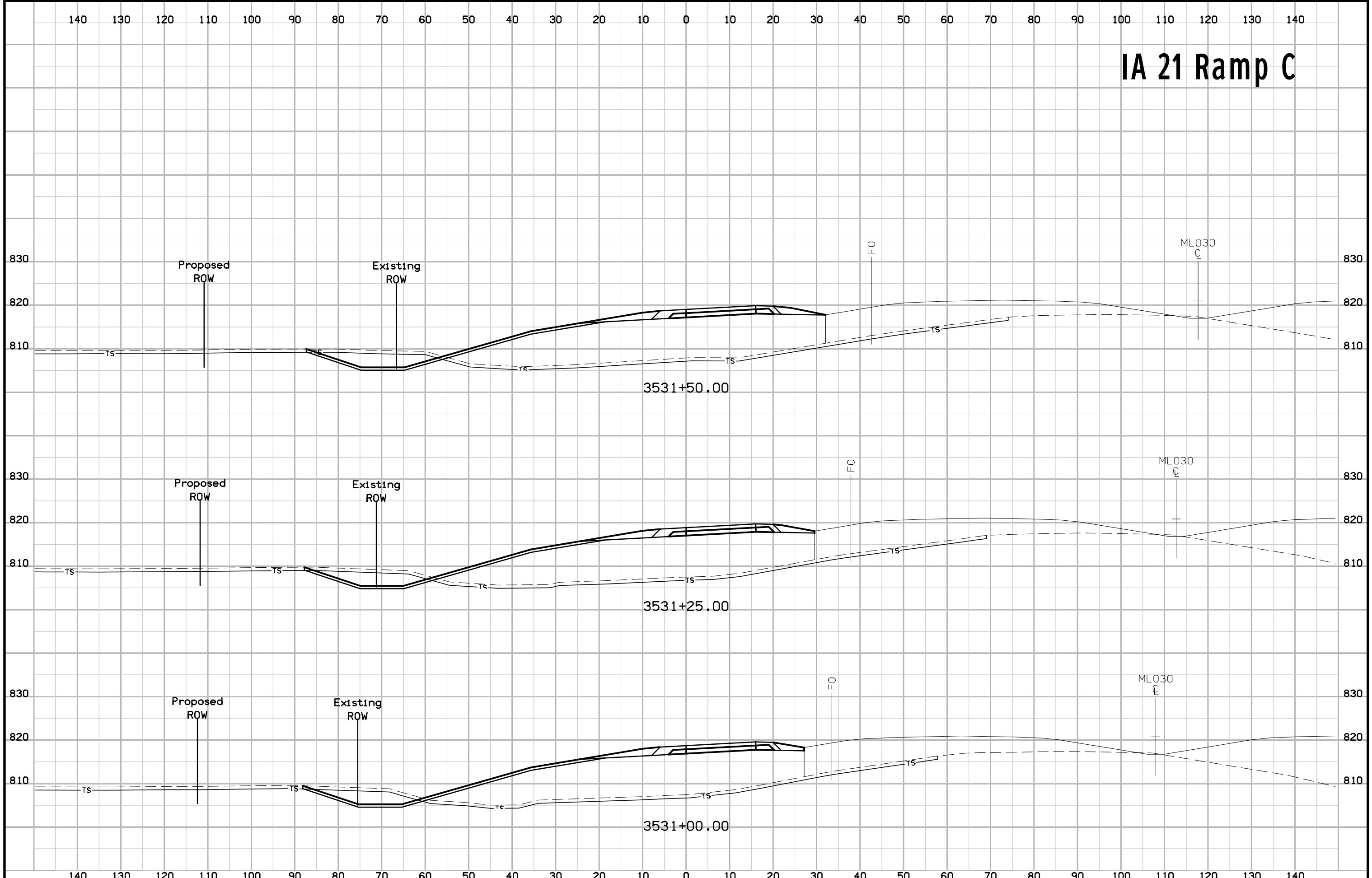
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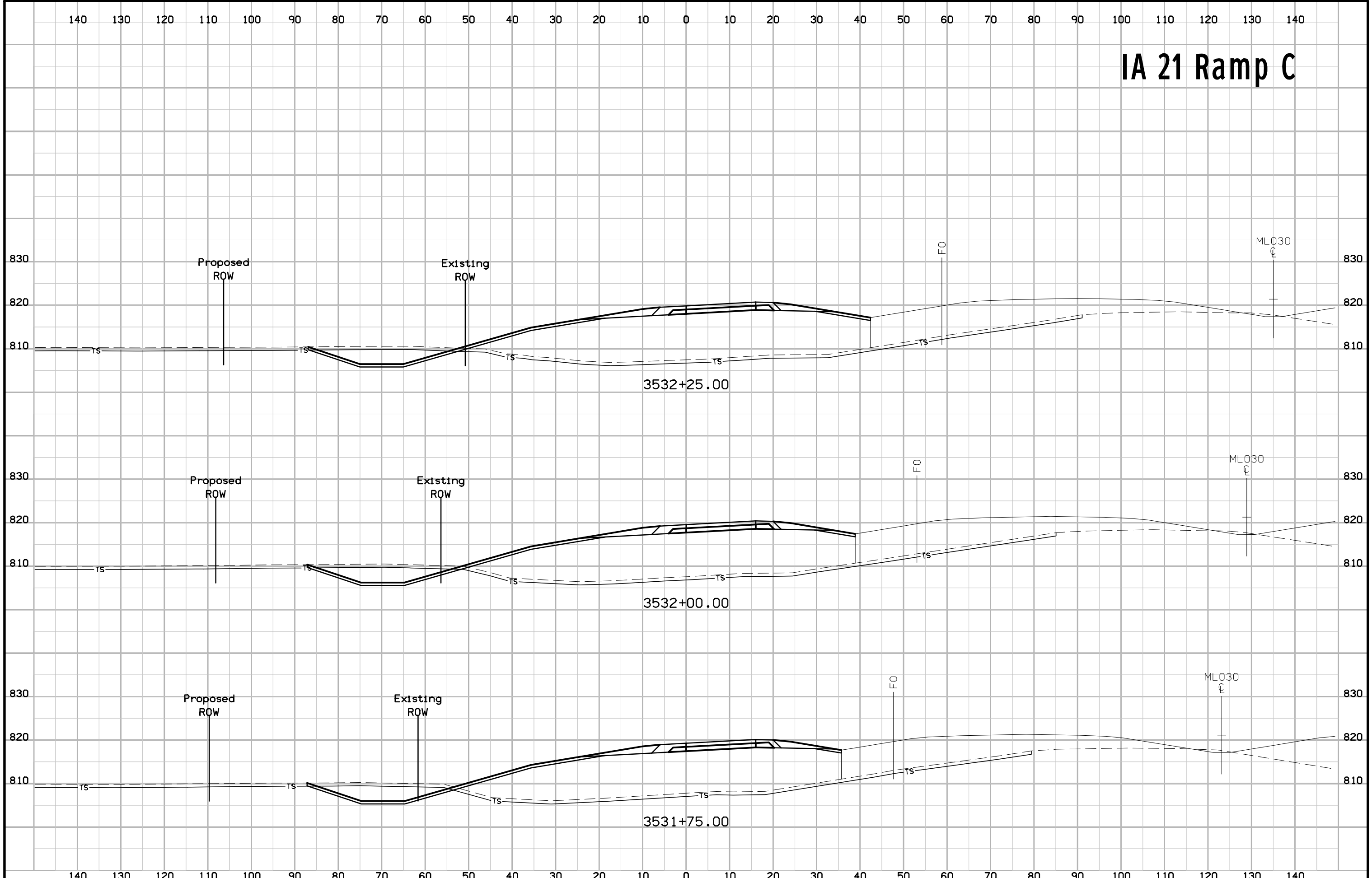
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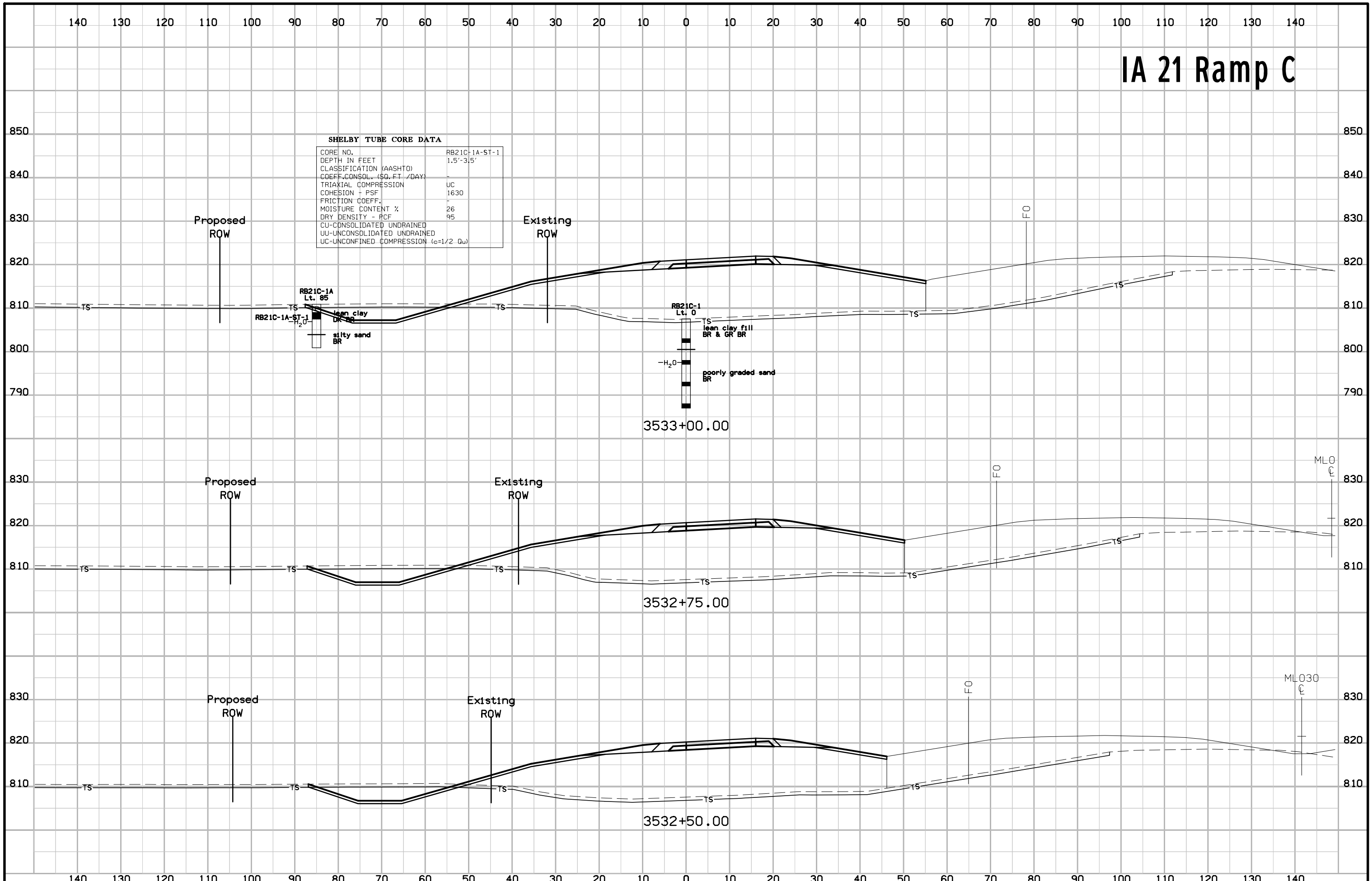
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IA 21 Ramp C



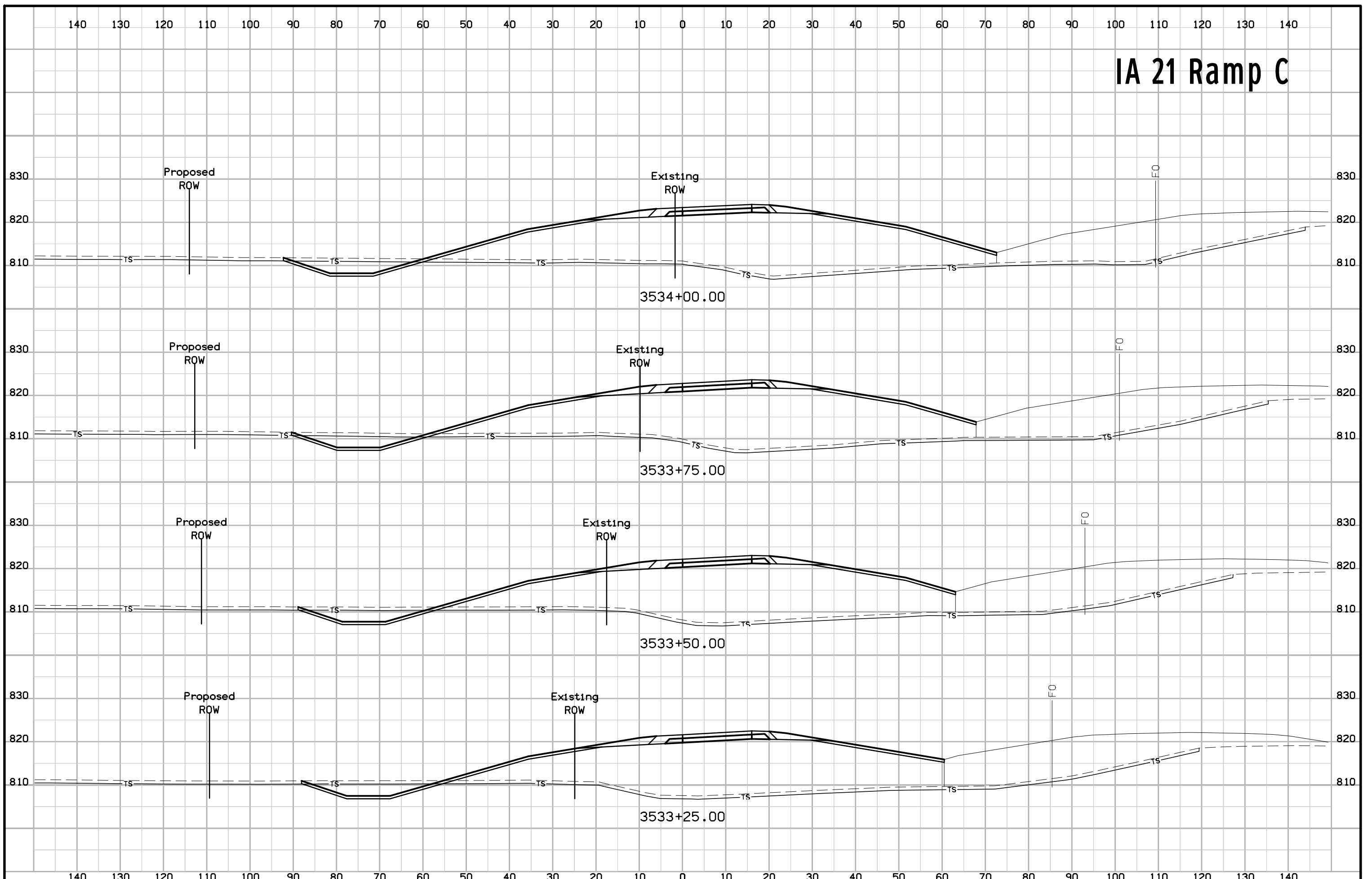
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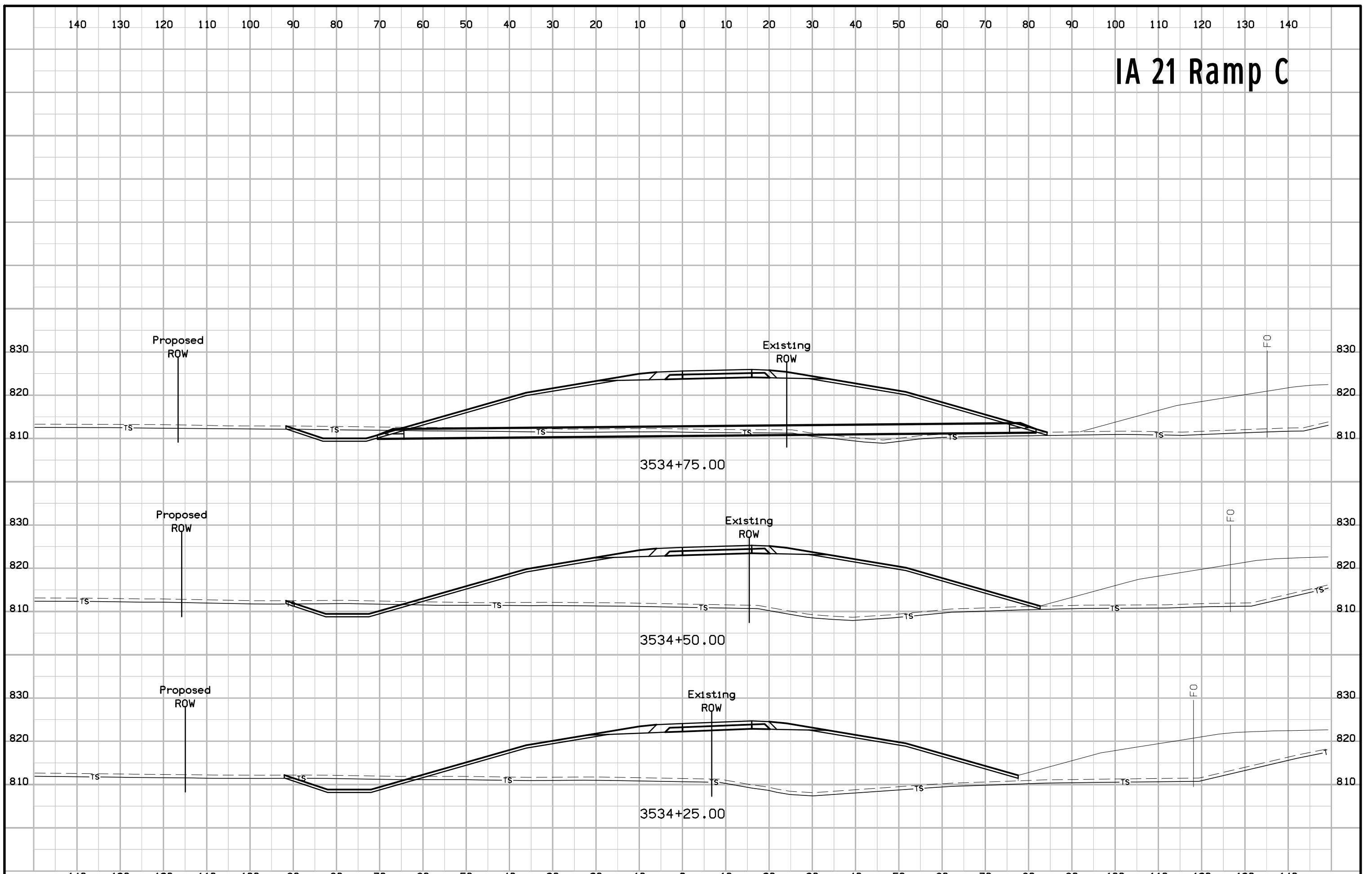
SHELBY TUBE CORE DATA

CORE NO.	RB21C-1A-ST-1
DEPTH IN FEET	1.5'-3.5'
CLASSIFICATION (AASHTO)	
COEFF. CONSOL. (SQ. FT. / DAY)	
TRIAxIAL COMPRESSION	UC
COHESION - PSF	1630
FRICTION COEFF.	
MOISTURE CONTENT %	26
DRY DENSITY - PCF	95
CU-CONSOLIDATED UNDRAINED	
UU-UNCONSOLIDATED UNDRAINED	
UC-UNCONFINED COMPRESSION (e=1/2.0u)	

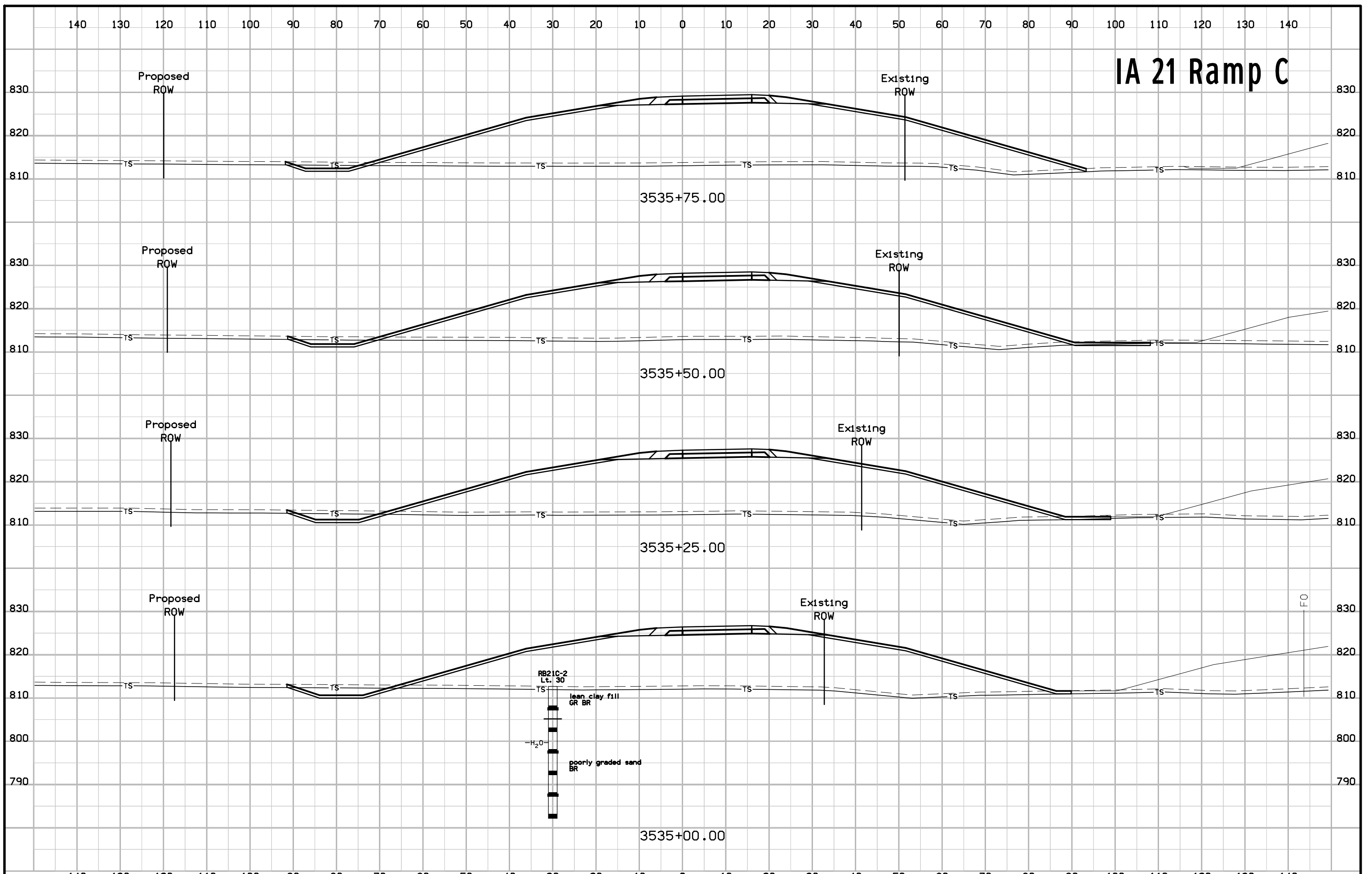
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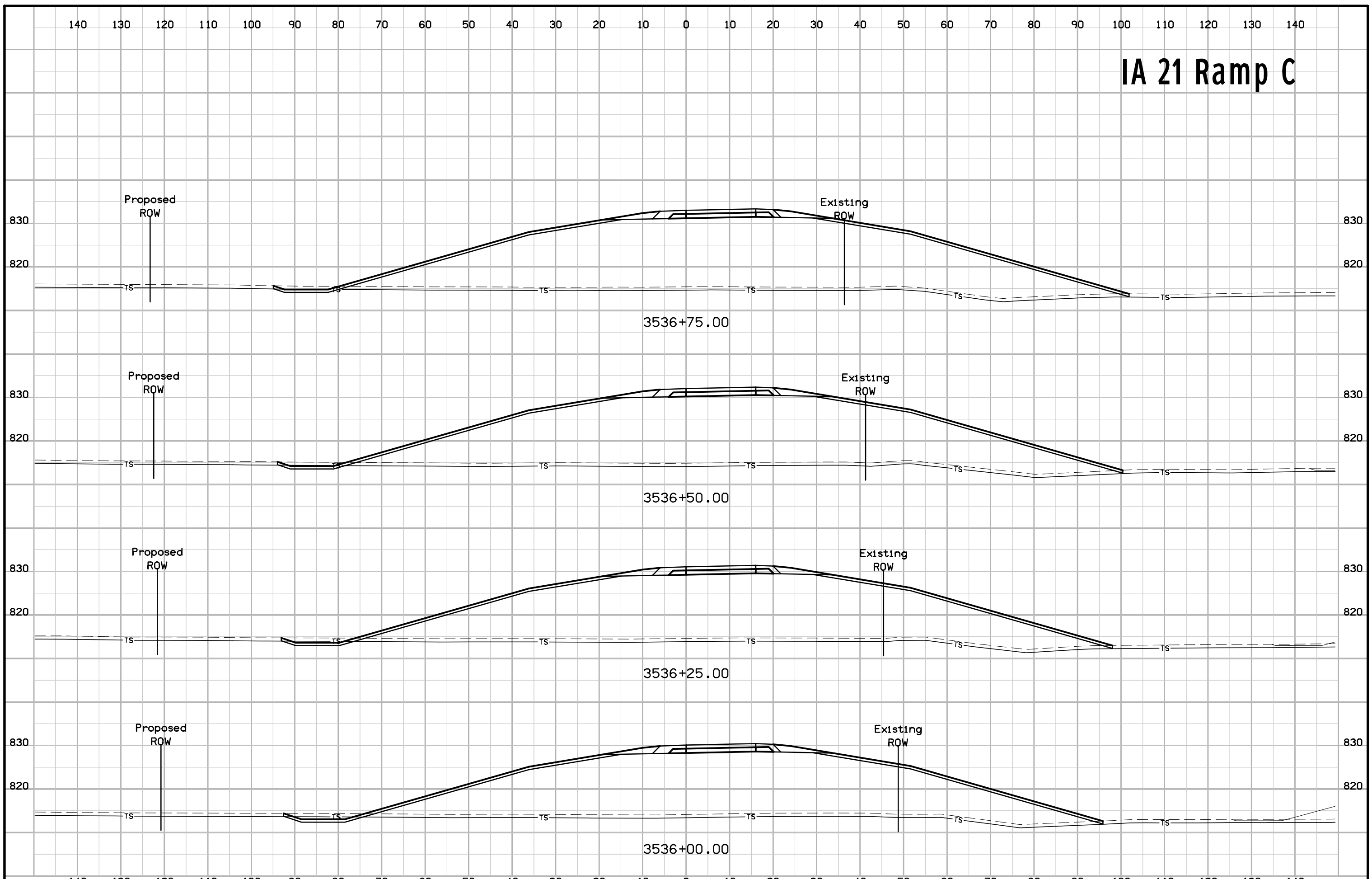
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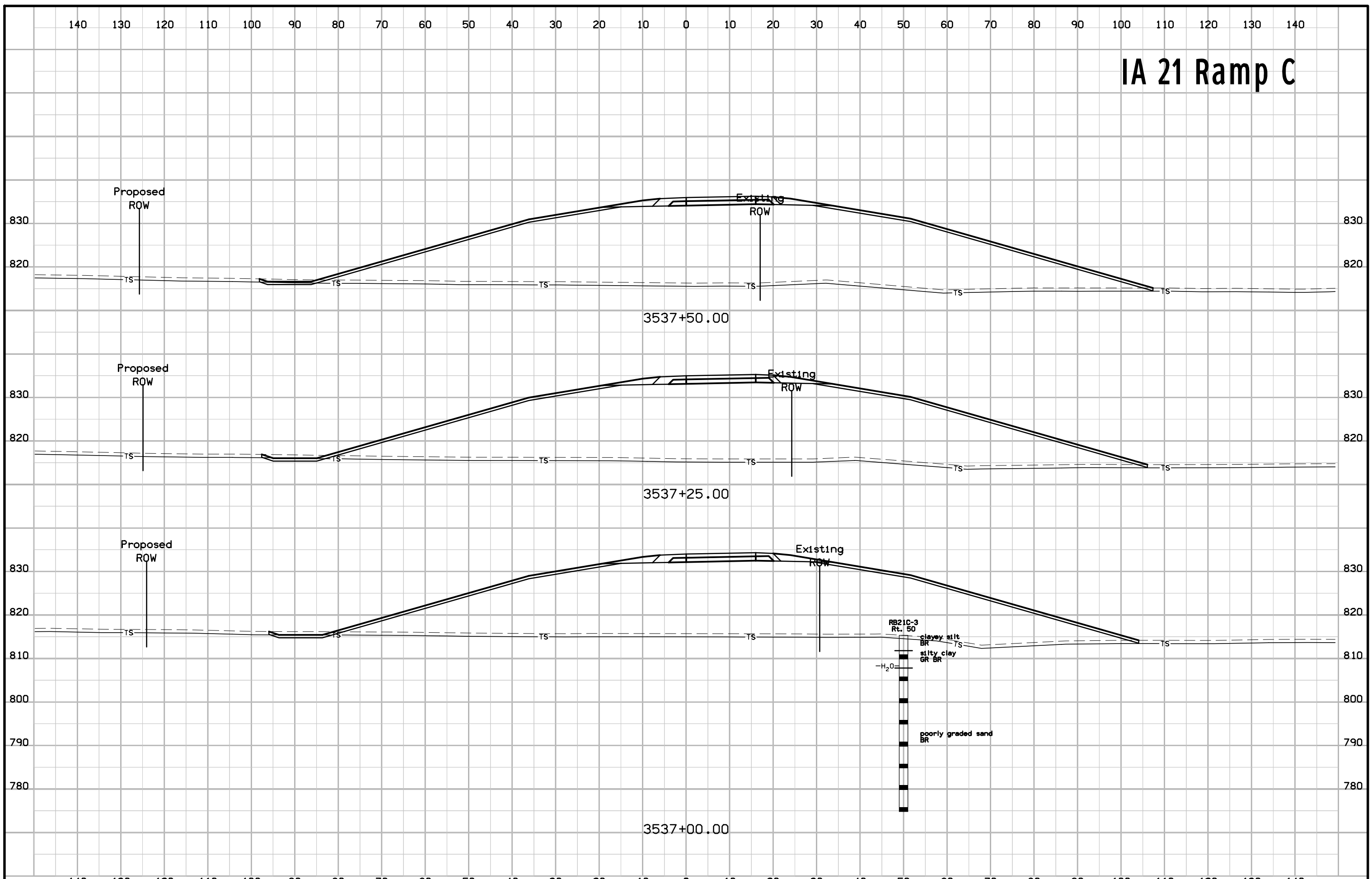
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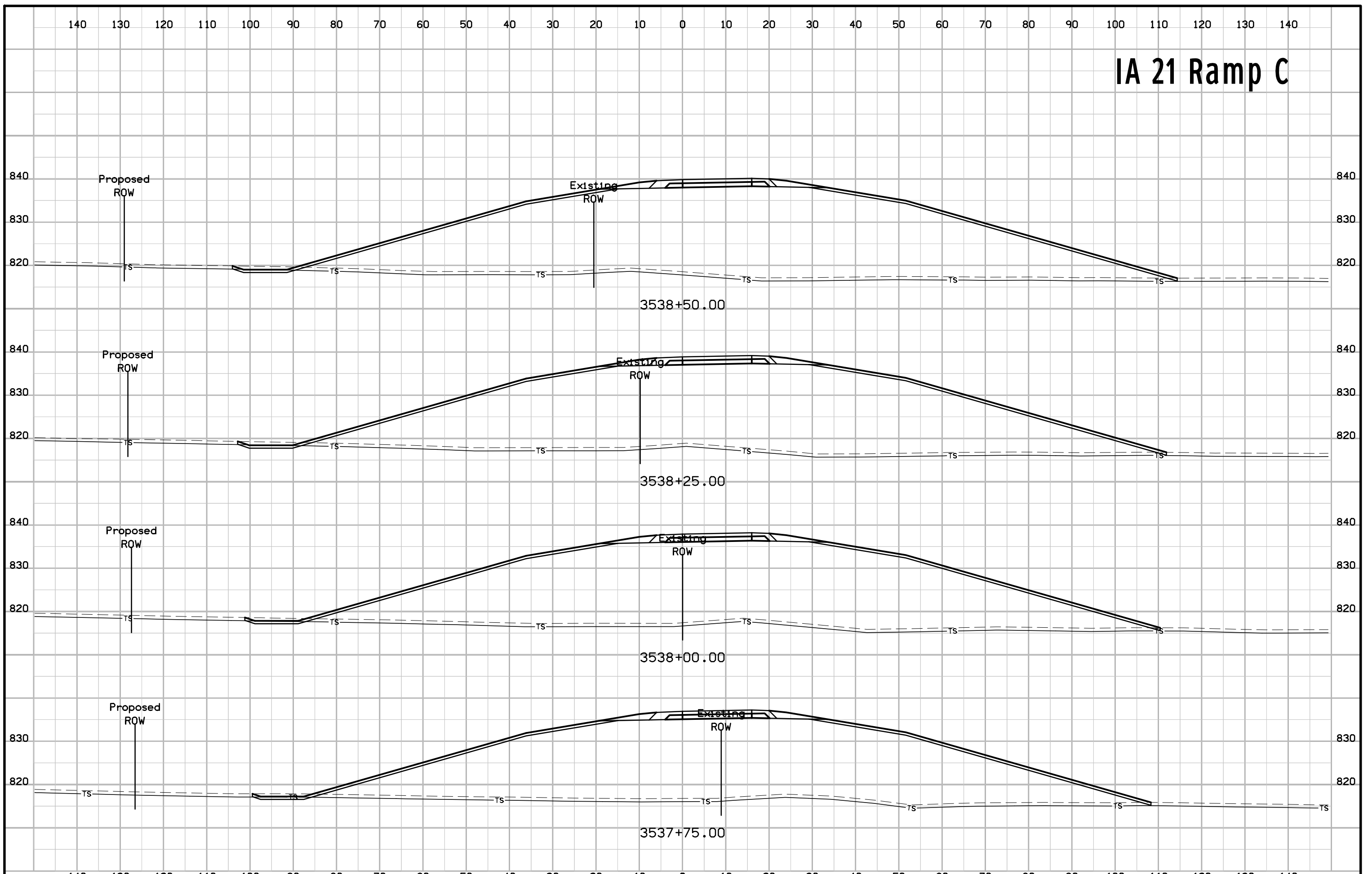
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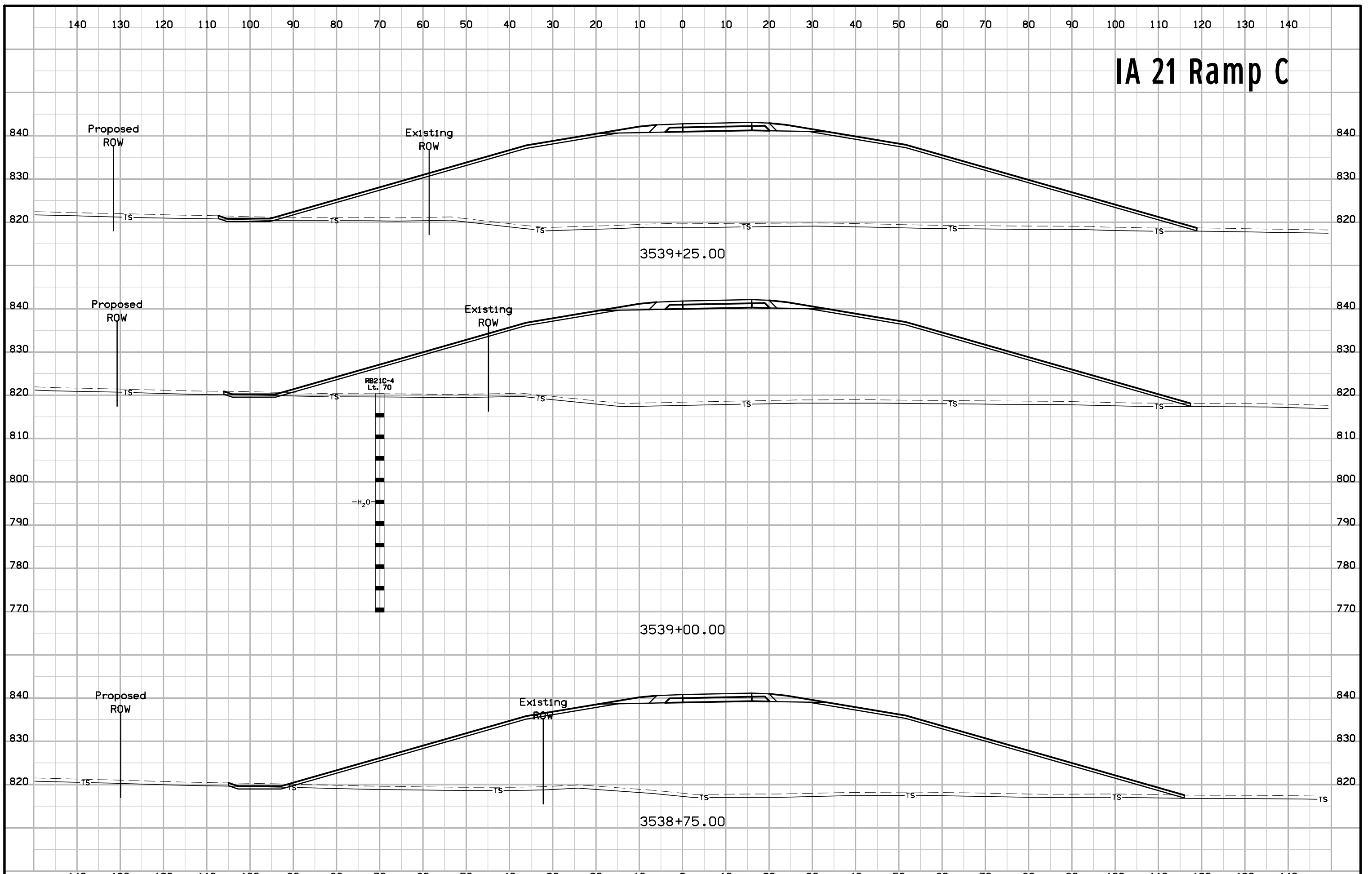
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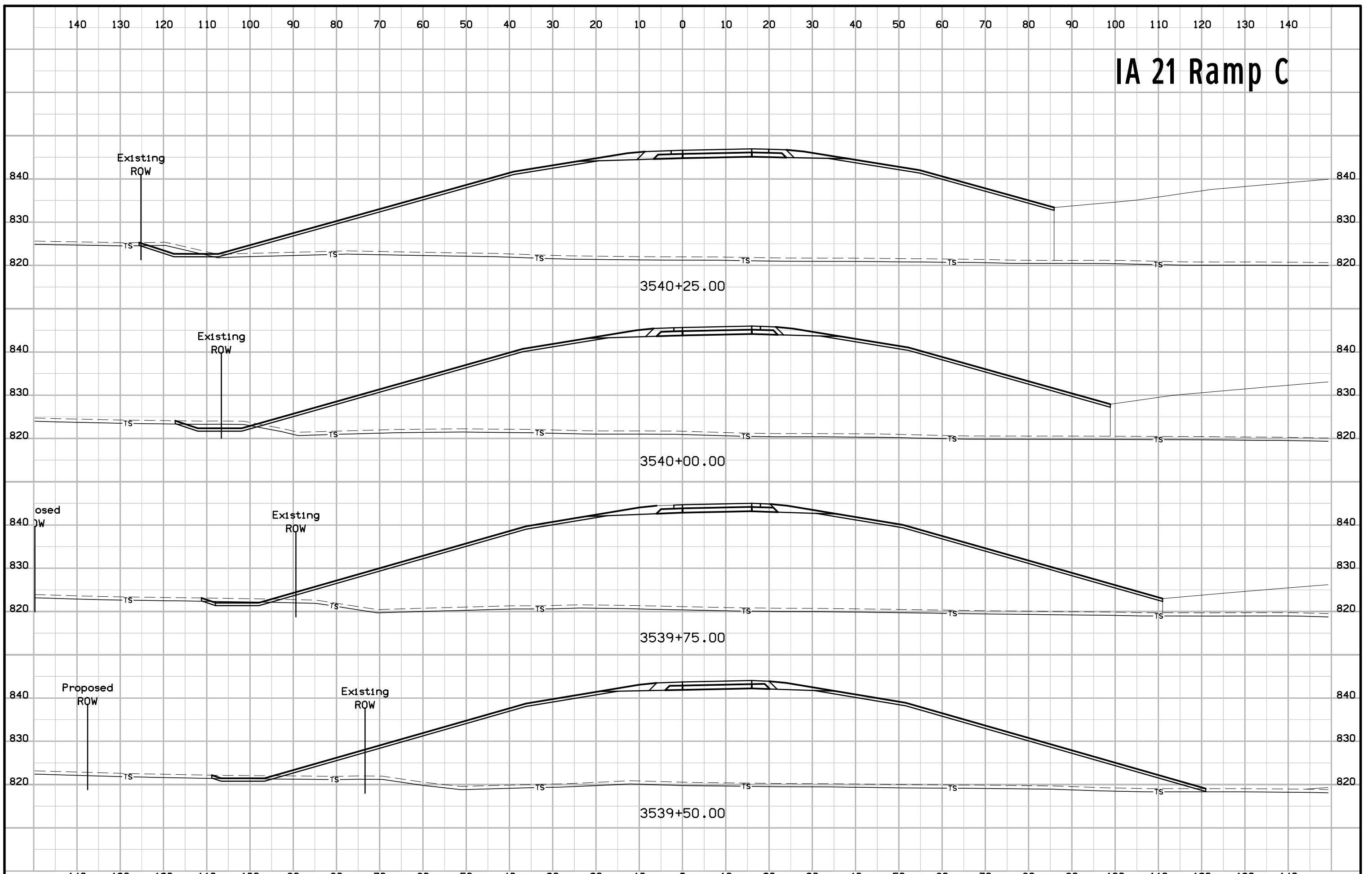
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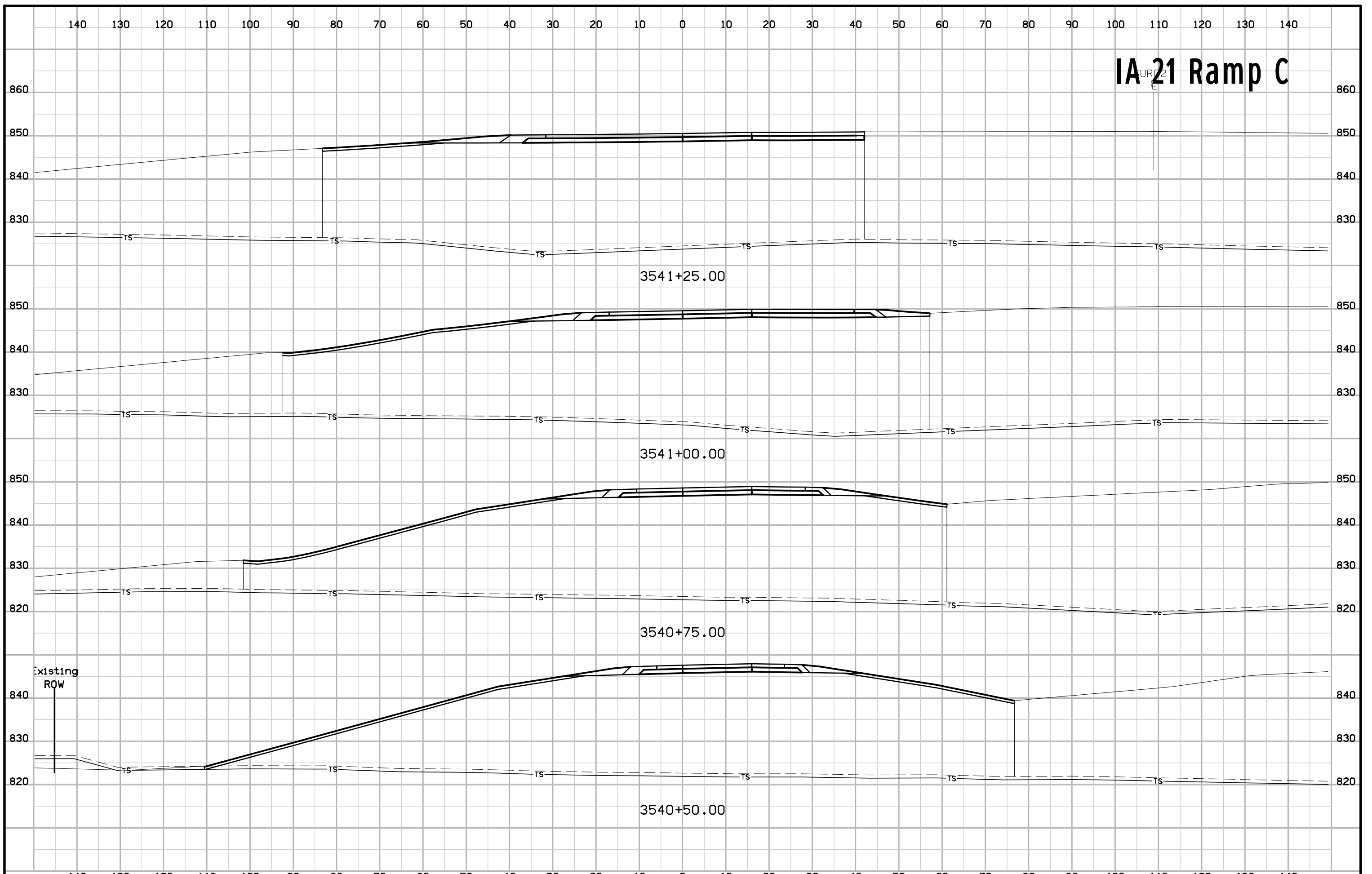
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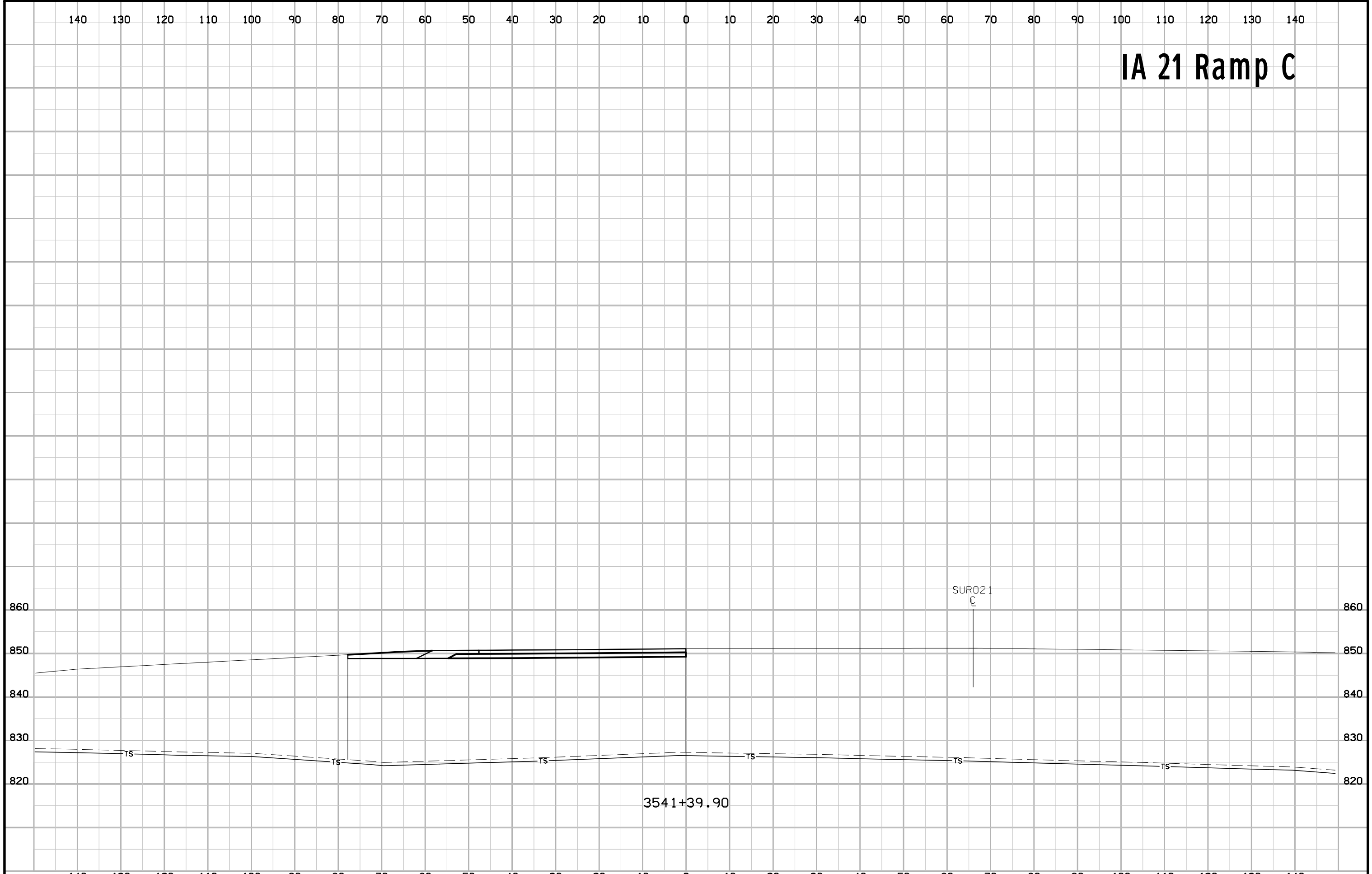
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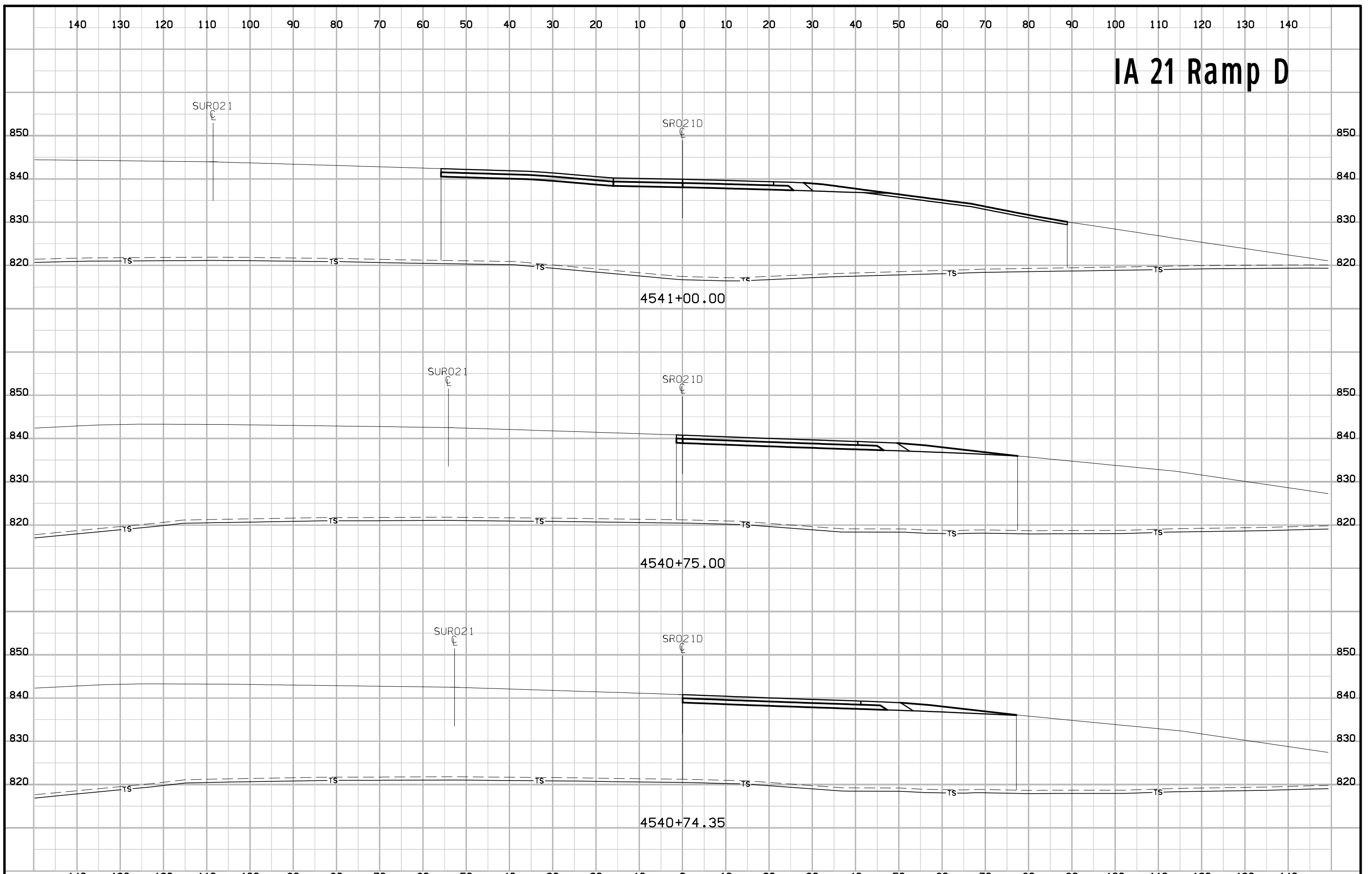
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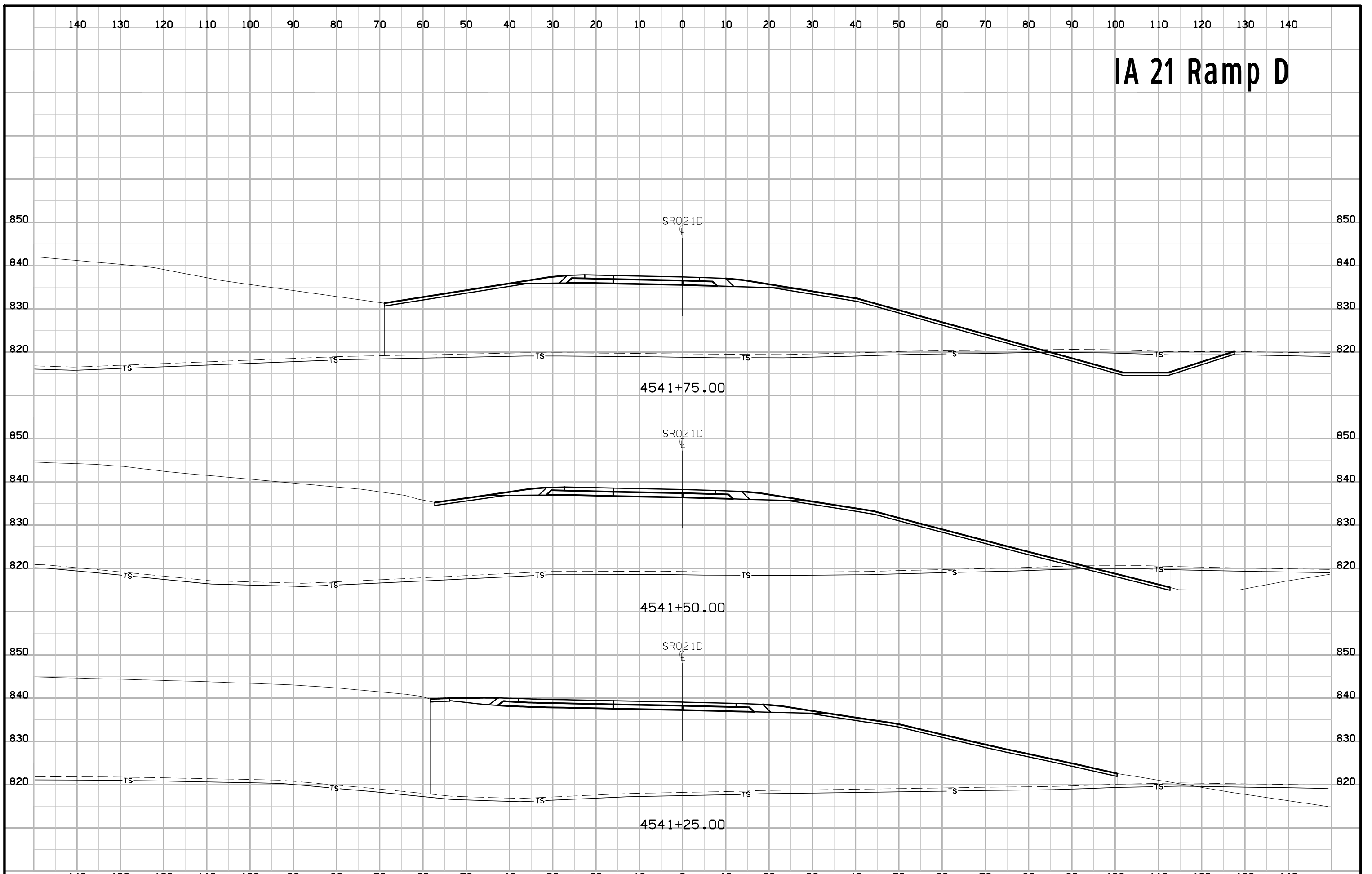
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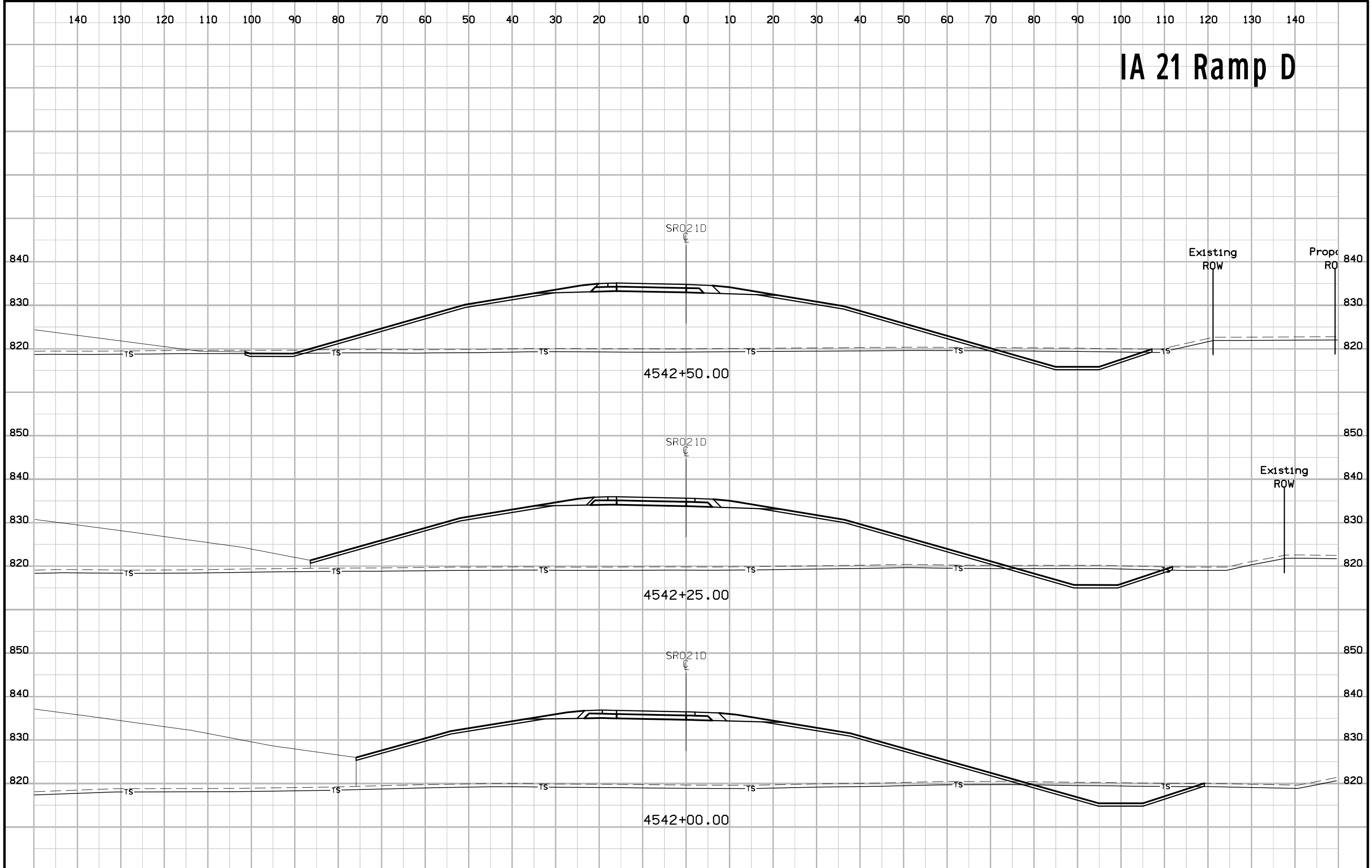
IA 21 Ramp D



IA 21 Ramp D

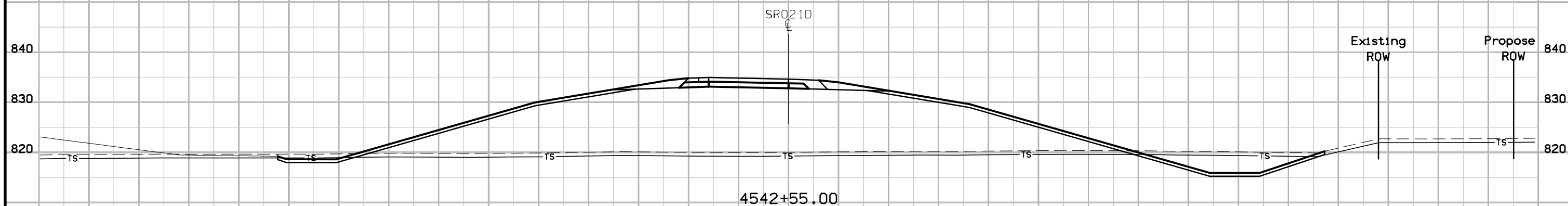
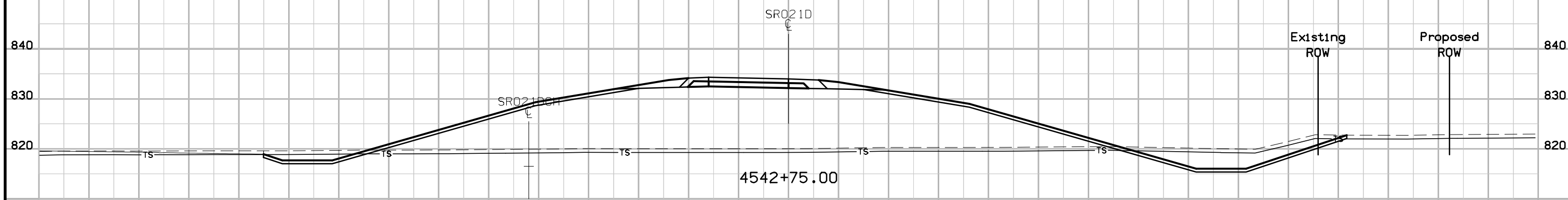


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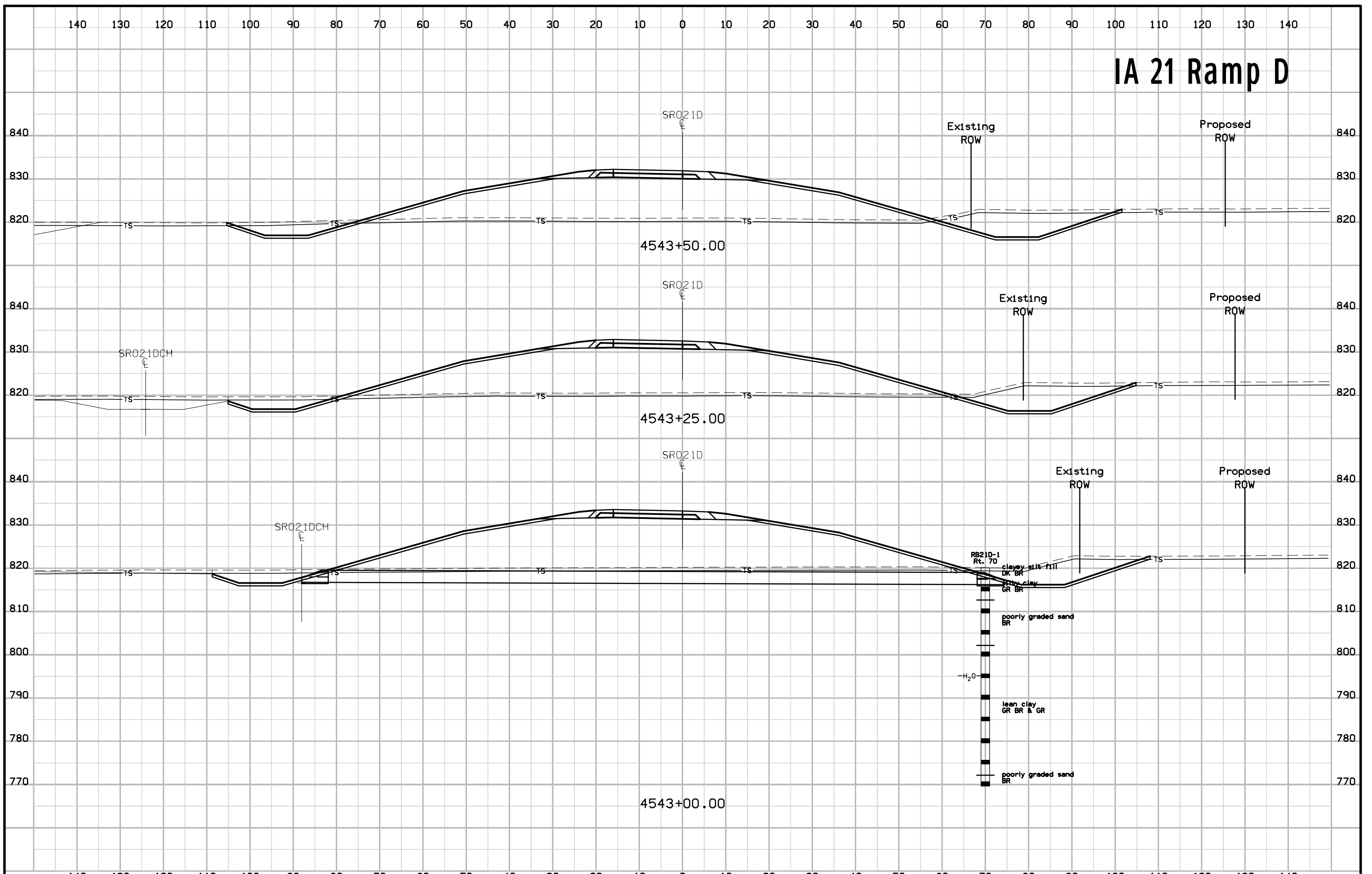
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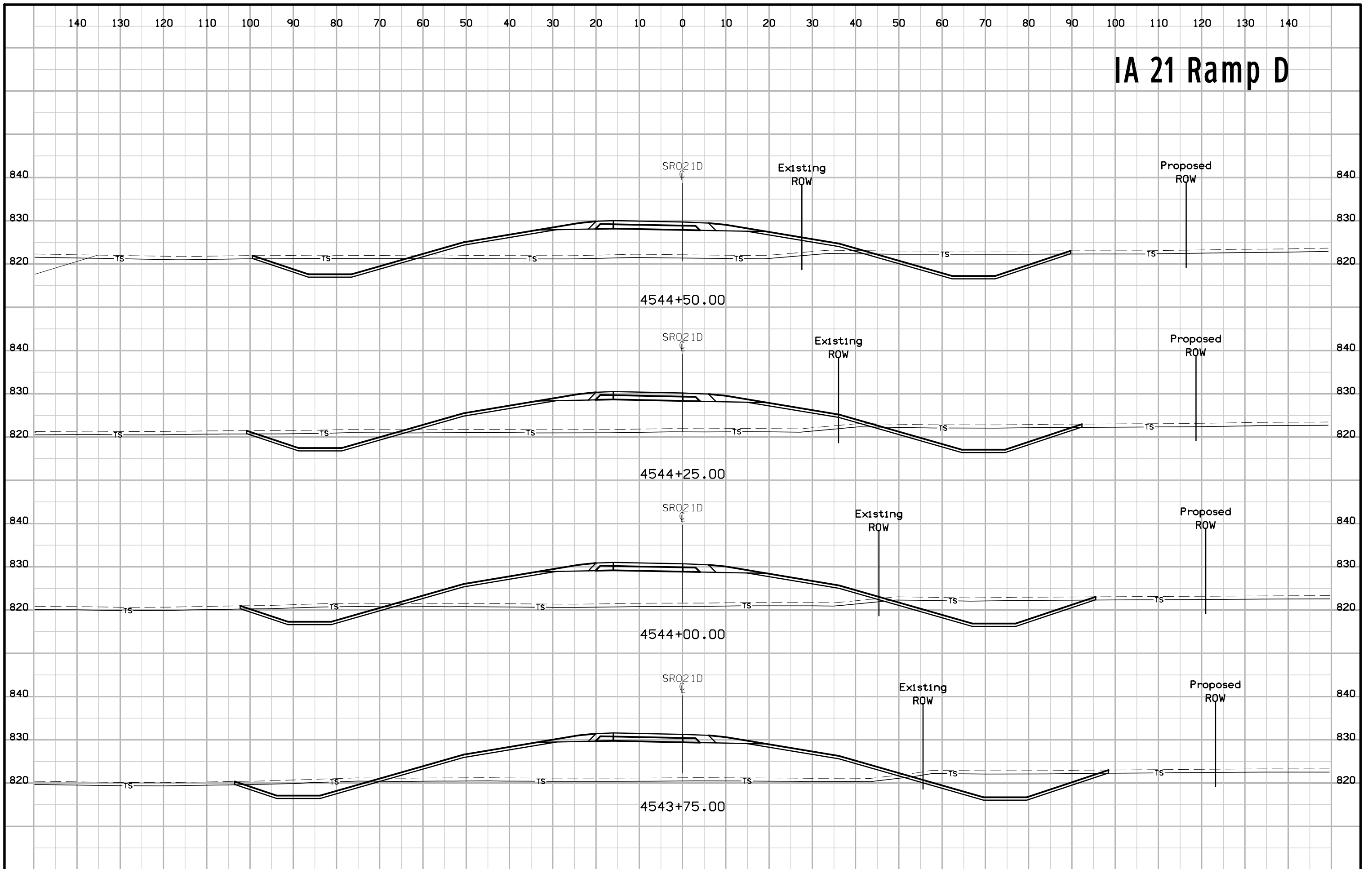


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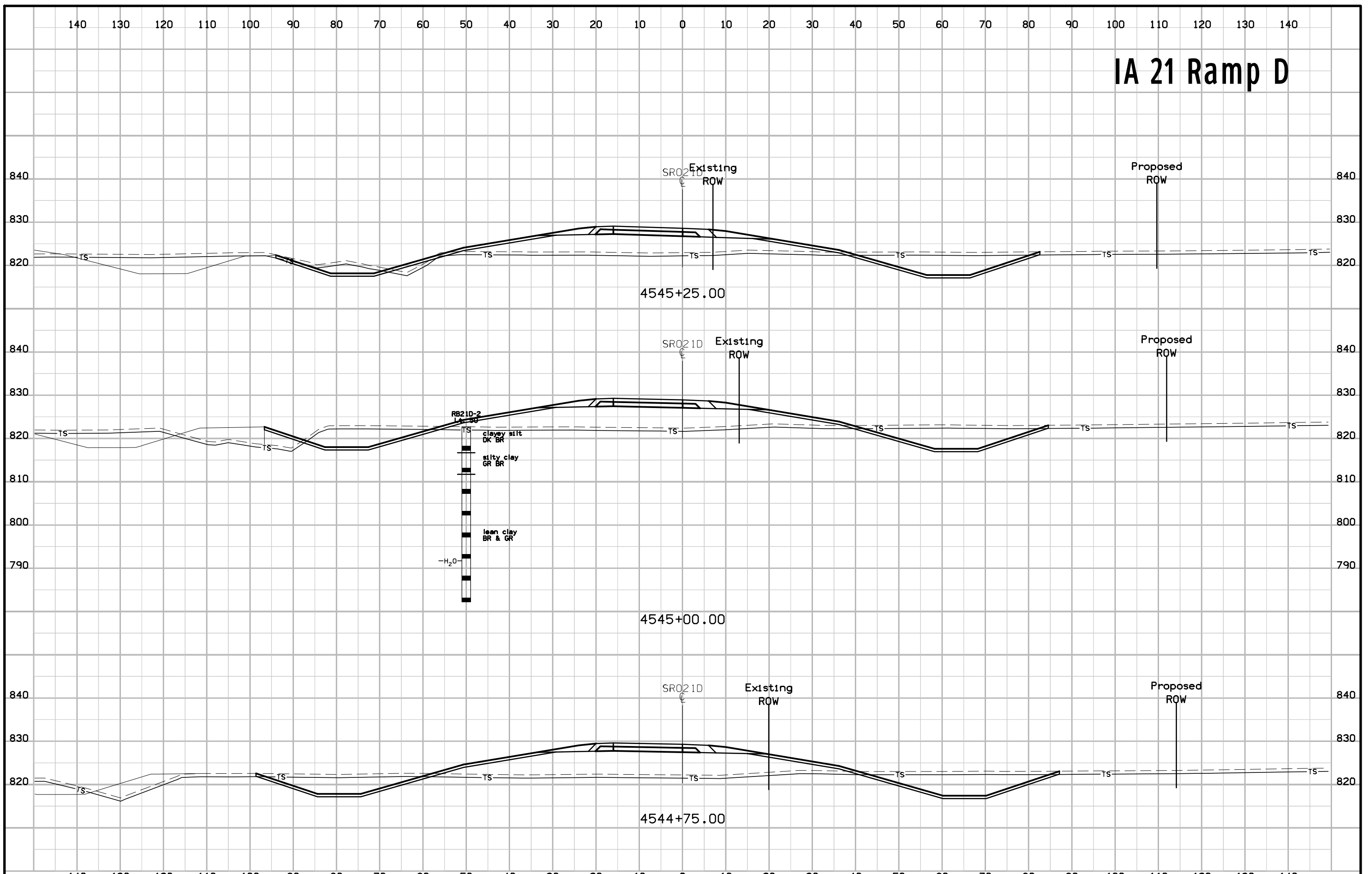
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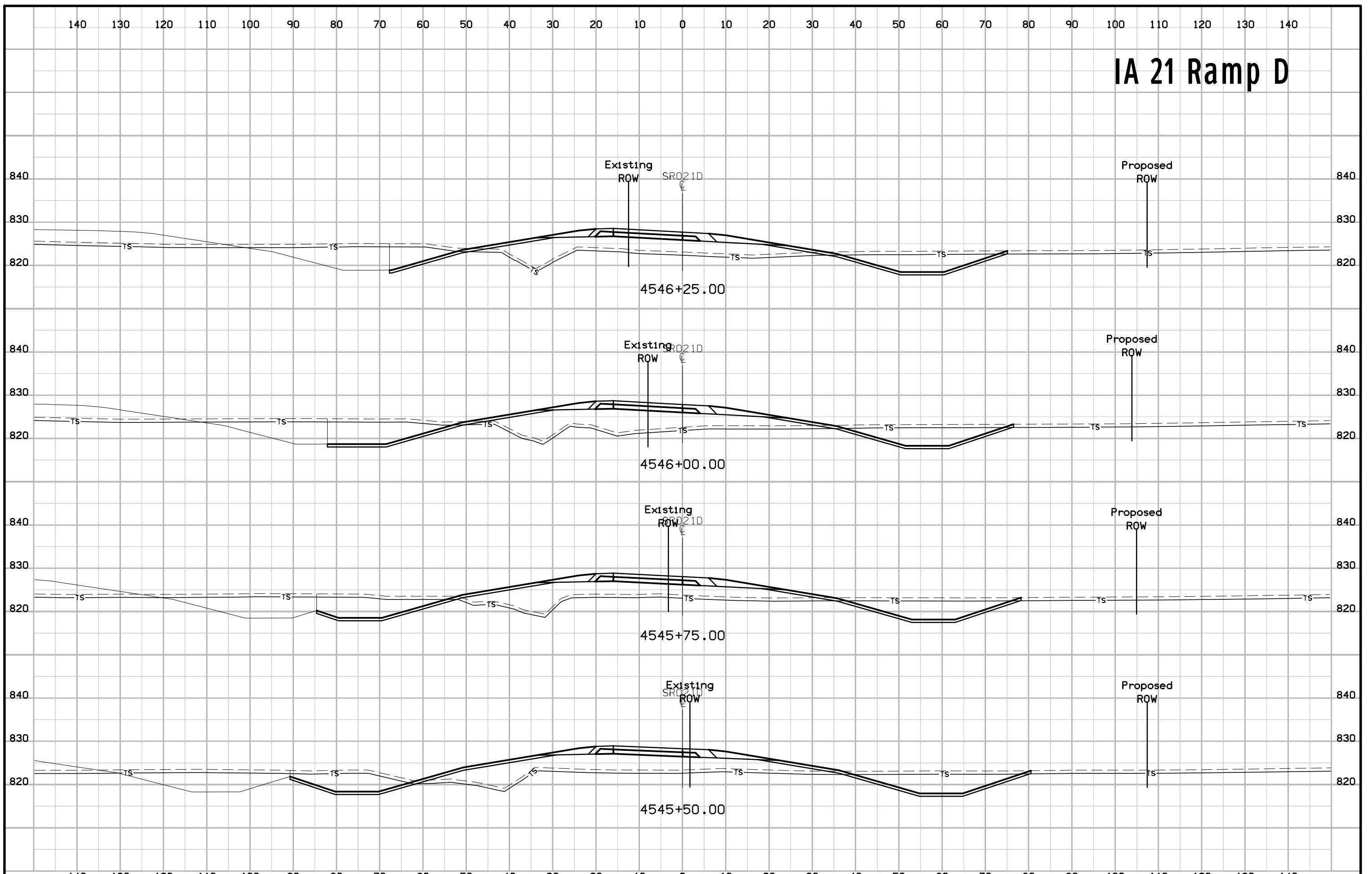
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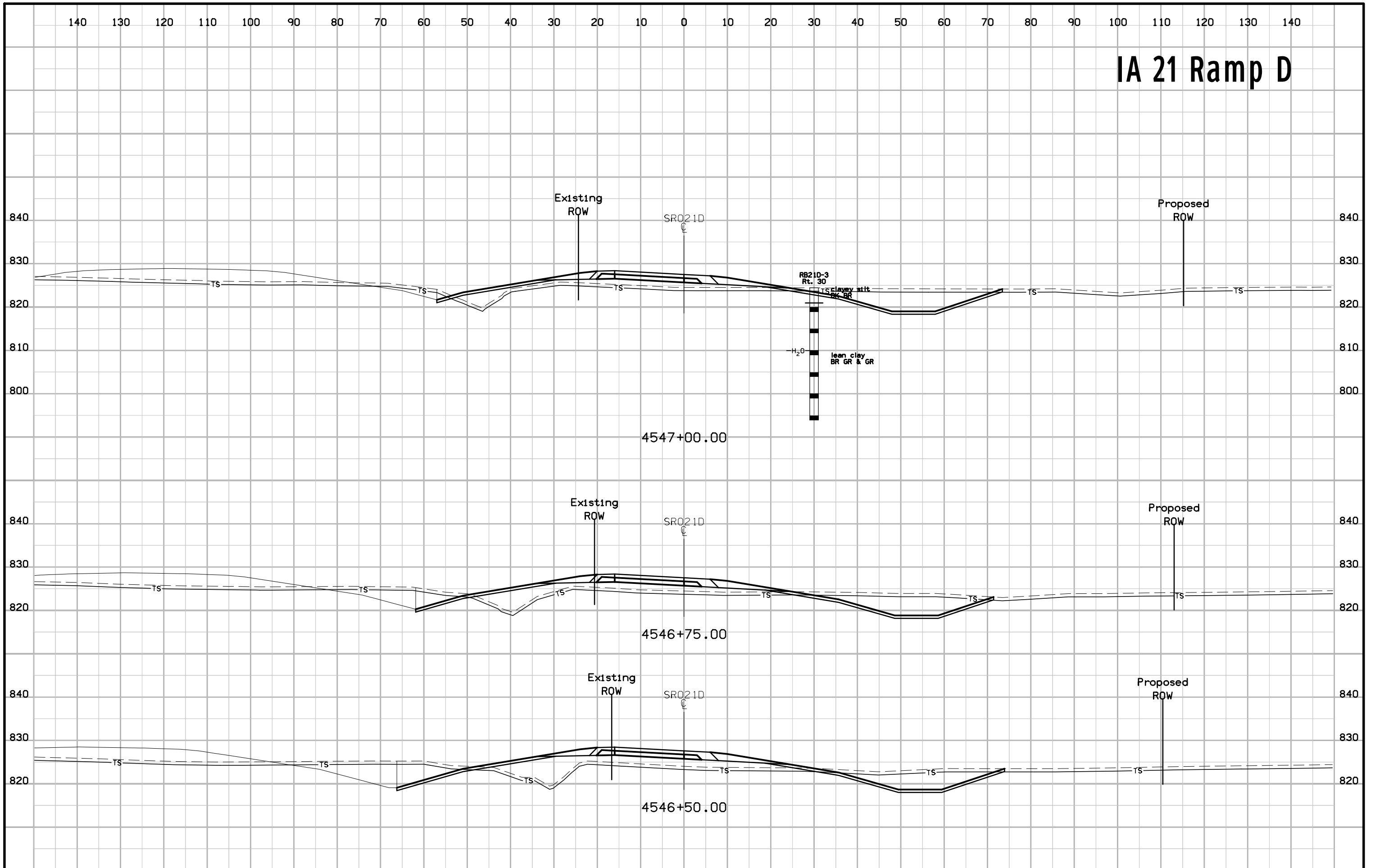
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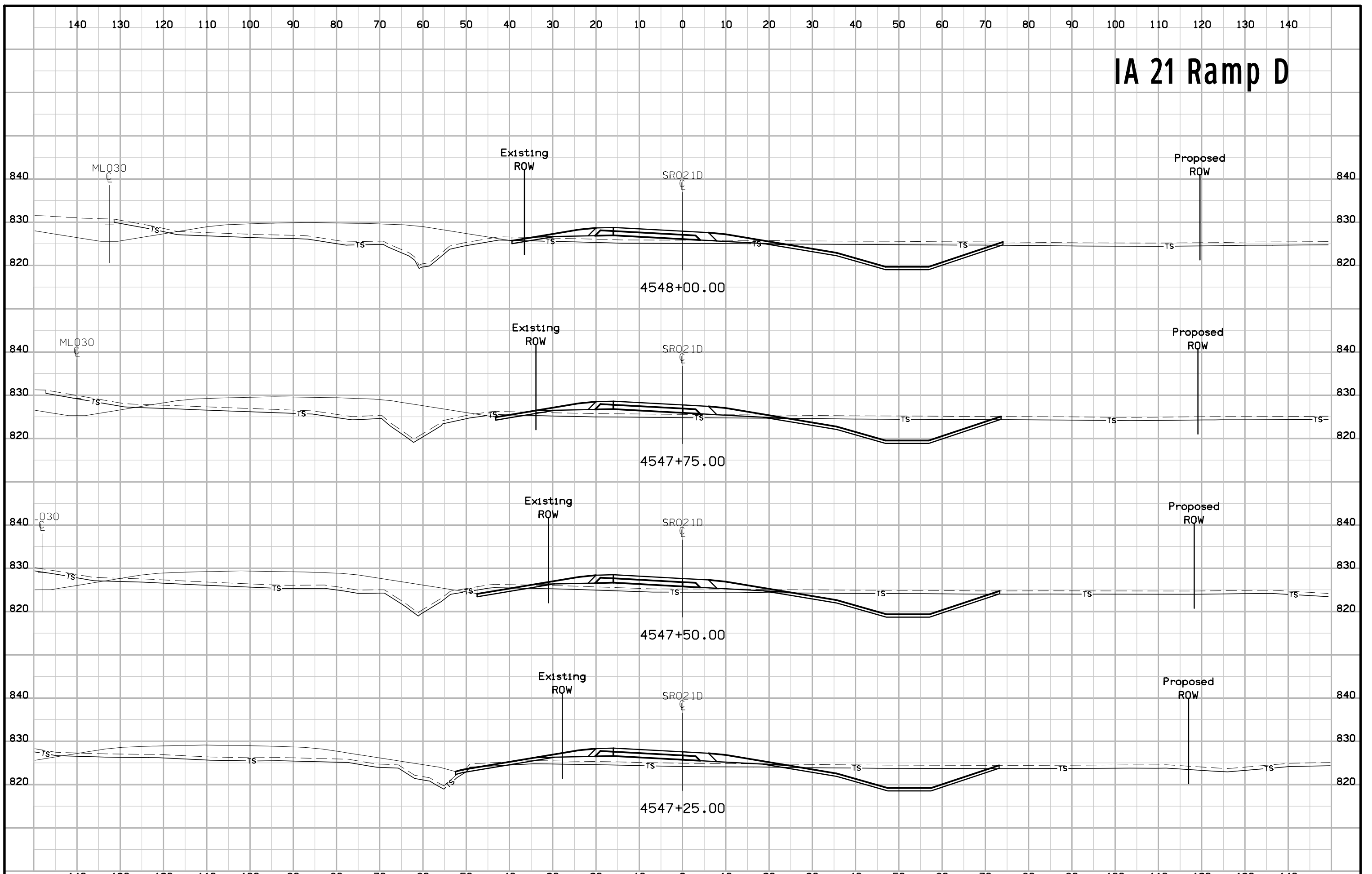
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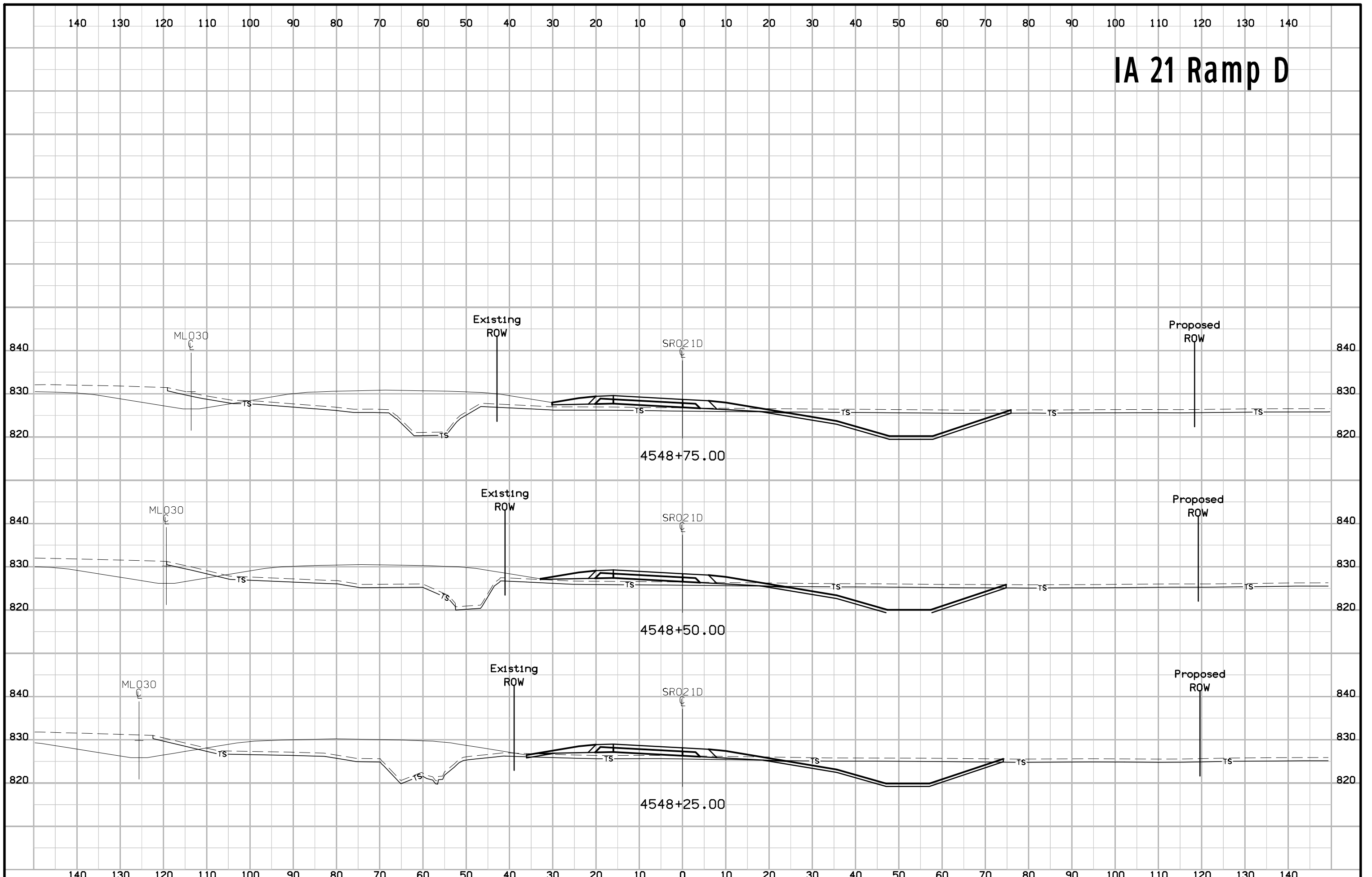
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IA 21 Ramp D



IA 21 Ramp D



IA 21 Ramp D

