

POLK CO.
PCC PAVEMENT - GRADE AND NEW
IM-080-5(298)142--13-77

LETTING DATE
 12/16/2014

REVISIONS

TOTAL	XXX
PROJECT IDENTIFICATION NUMBER	94-77-080-180
PROJECT NUMBER	IM-080-5(298)142--13-77
R.O.W. PROJECT NUMBER	IMN-080-5(224)142--0E-77

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

INTERSTATE ROAD SYSTEM

POLK COUNTY

PCC PAVEMENT - GRADE AND NEW

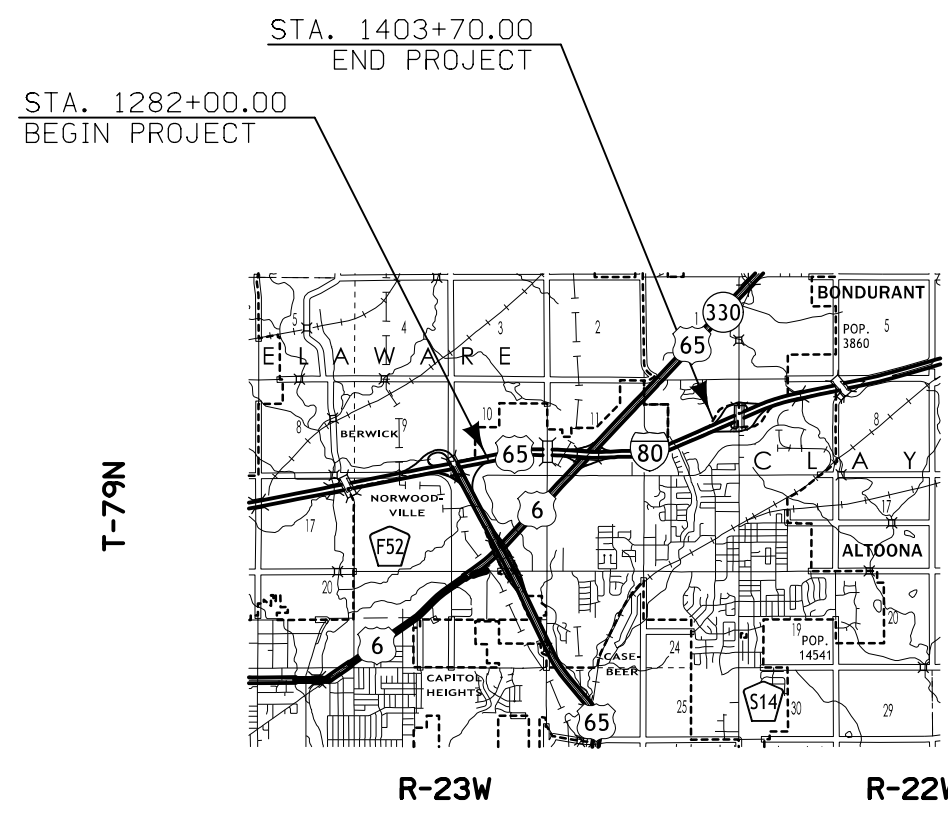
I-80 & US 65 Interchange (Mainline & Ramps)
 US 65 Interchange (EBL)

See Sheet A.2 for Index of Sheets

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.15 of the Specifications.



MILEAGE SUMMARY			
			105-1 09-27-94
Div.	Location	Lin. Ft.	Miles
1	RURAL		
	Sta. 1282+00.00 to Sta. 1377+94.10	9594.10	1.817
	Deduct Bridges at Sta. 1316+33.43	312.00	0.059
	Total Length of Roadway in Division 1	1282.10	1.758
	Total Length of Bridge in Division 1	312.00	0.059
	Total Length of Division 1	9594.10	1.817

04-30-02	34th Ave NW	101-4
DESIGN DATA RURAL		
2008	AADT	3,600 V.P.D.
2034	AADT	9,000 V.P.D.
20	DHV	-- V.P.H.
	TRUCKS	-- %
Total Design ESALs		

04-30-02	US 65	101-4
DESIGN DATA RURAL		
20	AADT	-- V.P.D.
20	AADT	-- V.P.D.
20	DHV	-- V.P.H.
	TRUCKS	-- %
Total Design ESALs		

180		
DESIGN DATA RURAL		
2009	AADT	64,100 V.P.D.
2029	AADT	118,500 V.P.D.
20	DHV	-- V.P.H.
	TRUCKS	18 %
Total Design ESALs		

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Elijah D. Gansen	Primary Signature Block
CS.1	Robert L. Stanley	Geotechnical Design

ROADWAY DESIGN

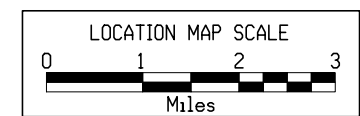
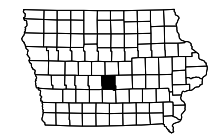
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

XX-XX-20XX
Date

Signature
Elijah D. Gansen
Printed or Typed Name

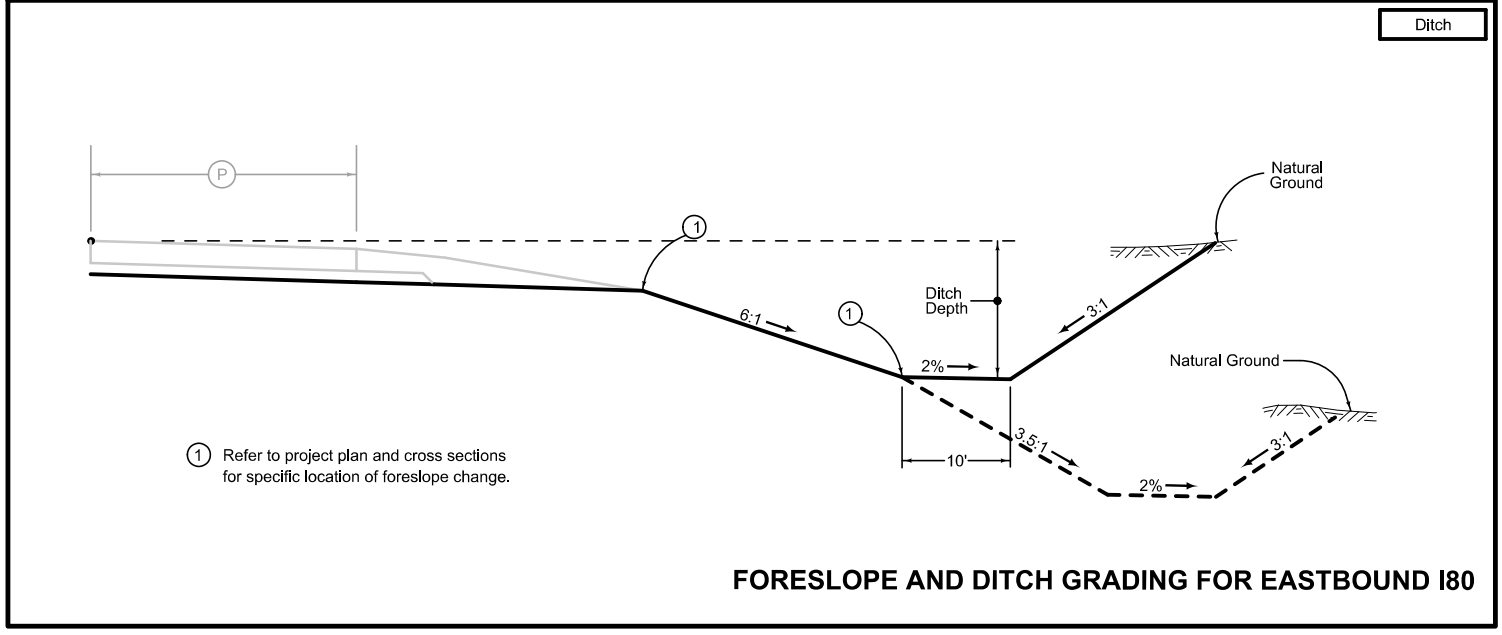
My license renewal date is December 31, 2015

Pages or sheets covered by this seal: X

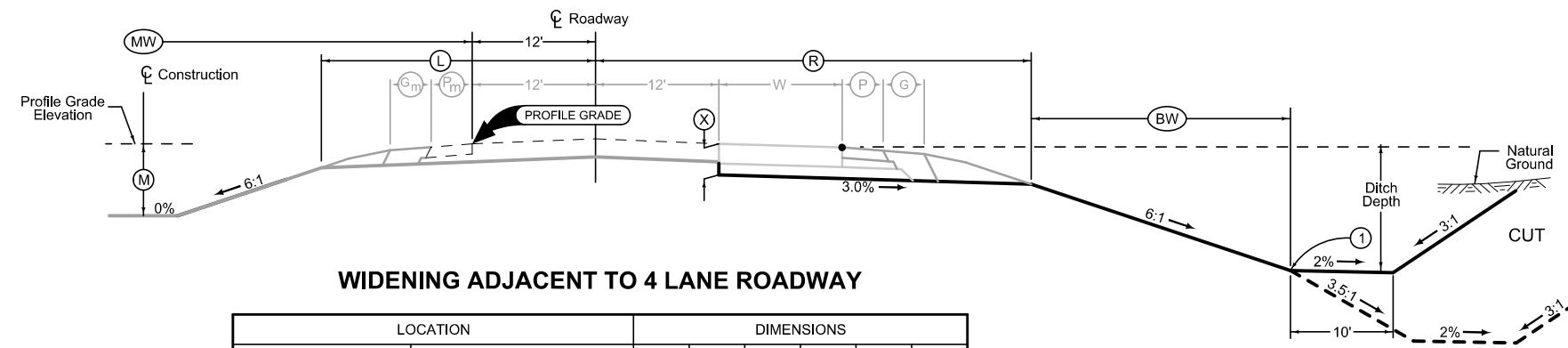


INDEX OF SHEETS	
No.	DESCRIPTION
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A.1	Title Sheet
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C Sheets	Quantities and General Information
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C.1	Estimated Project Quantities
C.1	Estimate Reference Information
C.2	Standard Road Plans
C.2	Index of Tabulations
C.2	General Notes
C.3	Pollution Prevention Plan
C.4 - 15	Tabulations (beg. with tab. of incidentals if needed)
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* J.38	Ramp D
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* K.4 - 5	Plan and Profile Sheets Ramp D
* K.6	Plan and Profile Sheets Ramp D2
* K.7	Staking Details Ramp B
* K.8	Edge Profile Ramp B Return
* K.9 - 10	Jointing Details Ramp B
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* K.14	Edge Profile Ramp D Return
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M Sheets	Storm Sewer Sheets
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M.2	Storm Sewer Legend & Symbols Information Sheet
M.3	Storm Sewer Removals Hubbell Ave.
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U.7	Jointing Details 24' Exit Ramp
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U.11	Jointing Details Acceleration Taper 16' Ent. Ramp
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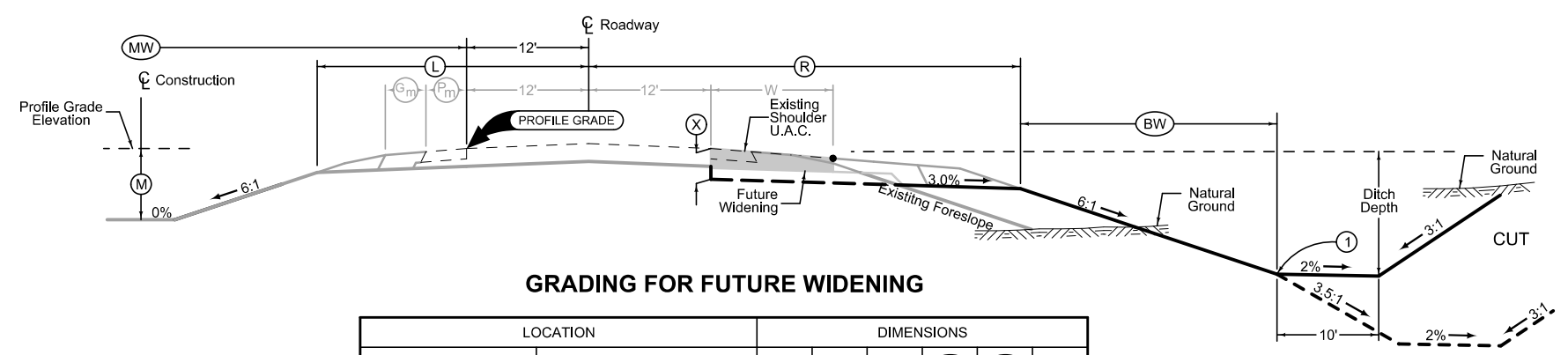
FORESLOPE AND DITCH GRADING FOR EASTBOUND I80



WIDENING ADJACENT TO 4 LANE ROADWAY

ROAD IDENTIFICATION	LOCATION		DIMENSIONS						
	STATION TO STATION		L Feet	R Feet	X Inches	BW Feet	MW Feet	M Feet	
US 65 NB	7866+61.72	7872+20.00	U.A.C.	46	24	10.3	40	U.A.C.	
US 65 SB	7869+40.00	7872+40.00	U.A.C.	46	24	10.3	40	U.A.C.	

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

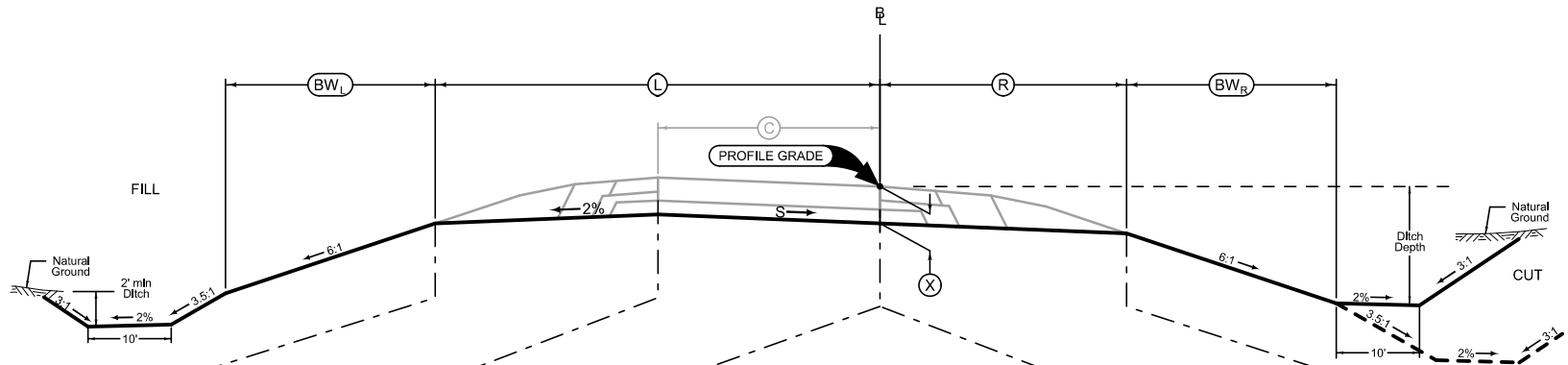


GRADING FOR FUTURE WIDENING

ROAD IDENTIFICATION	LOCATION		DIMENSIONS						
	STATION TO STATION		L Feet	R Feet	X Inches	BW Feet	MW Feet	M Feet	
US 65 NB	7888+00.00	7888+97.00	U.A.C.	46	24	10.3	40	U.A.C.	
US 65 NB	7890+80.00	7896+00.00	U.A.C.	46	24	10.3	40	U.A.C.	
US 65 NB	7898+50.00	7900+50.00	U.A.C.	46	24	10.3	40	U.A.C.	
US 65 SB	7880+00.00	7891+60.00	U.A.C.	46	24	10.3	40	U.A.C.	

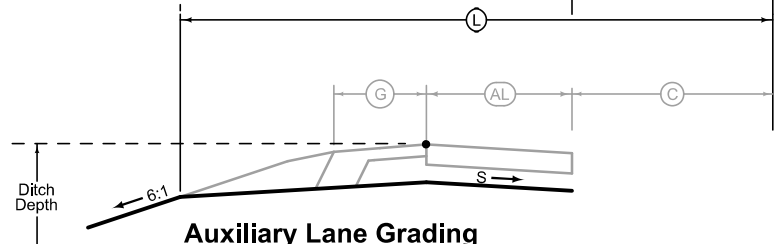
1 Refer to project plan and cross sections for specific location of foreslope change.

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.



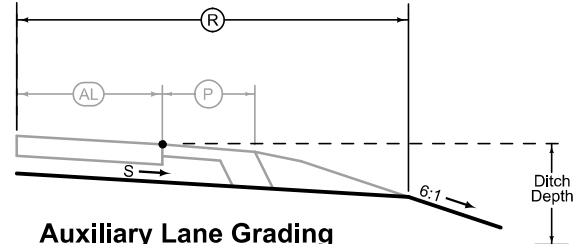
RAMP GRADING

LOCATION			DIMENSIONS							
INTERCHANGE	RAMP	STATION TO STATION	(L) Feet	(R) Feet	(C) Feet	(S) Percent	(X) Inches	(BW _L) Feet	(BW _R) Feet	
I80/Hubbell Ave.	B	2298+50.00 2312+55.27	30.8	22	24	3	24.0	16.7	9	
I80/Hubbell Ave.	D	4310+88.72 4330+25.78	34.8	22	16	2	24.0	16.7	9	
I80/Hubbell Ave.	D2	44312+22.33 44313+41.82	30.8	22	16	2	24.0	16.7	9	



Auxiliary Lane Grading

LOCATION		(L) Feet	(S) Percent
RAMP IDENTIFICATION	STATION TO STATION		
B	2304+80.00 2312+55.27	30.8	3
D	4313+41.22 44330+25.78	30.8-22	2
D2	44312+22.33 44313+41.82	42.8	3



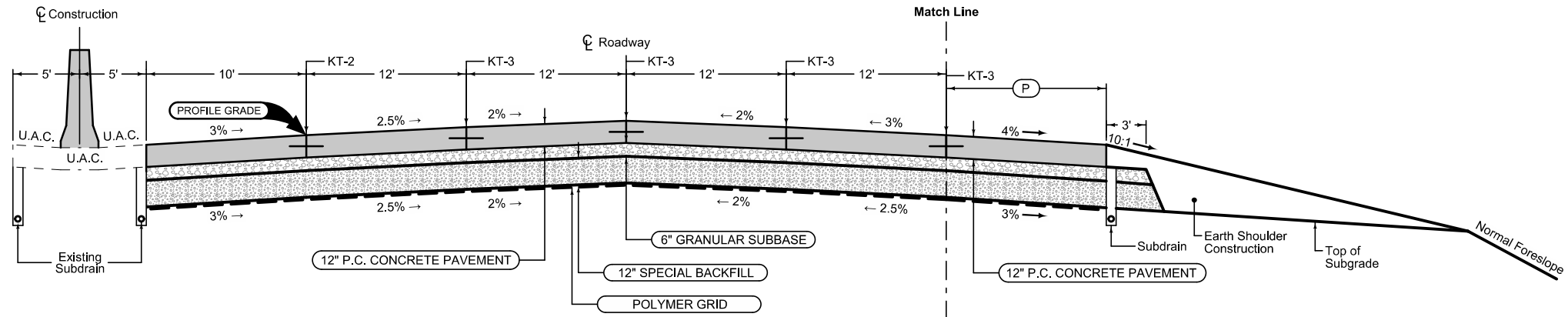
Auxiliary Lane Grading

LOCATION		(R) Feet	(S) Percent
RAMP IDENTIFICATION	STATION TO STATION		
B	2305+80.00 2312+55.27	42.8	3

Full Depth Paved Shoulder

Longitudinal joint: KT-3
 Transverse joint: Match Mainline

Direction of Travel	BEGIN STATION	END STATION	(P) Feet
EB	1282+00.00	1289+79.04	12



Section shown in the direction of traffic.

Transverse joints: CD at 20' spacing

Direction of Travel	BEGIN STATION	END STATION
EB	1282+00.00	1296+00.00

Ramp Taper With Paved Shoulder Alternates

See U Sheets for taper details

PCC Shoulder Jointing:

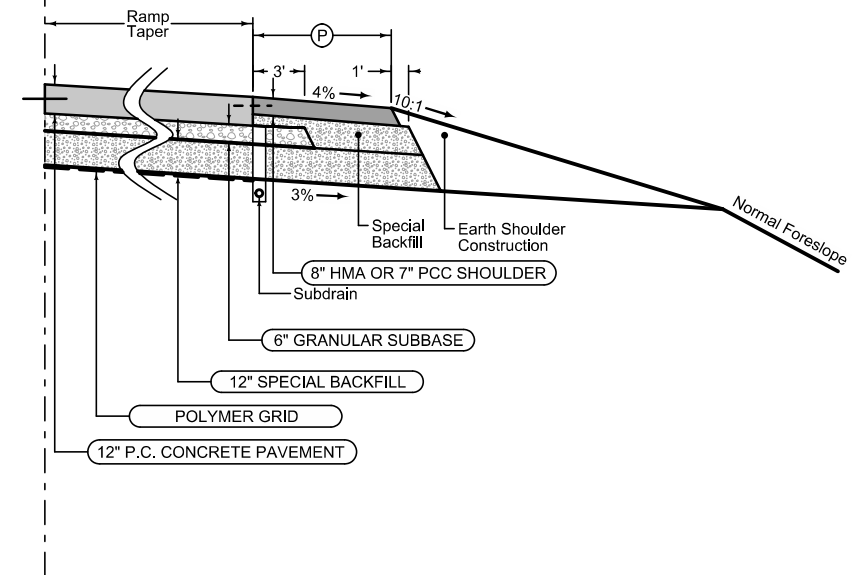
Longitudinal joint: BT-1 or BT-5

Transverse joints: C at 20' spacing

HMA Shoulder Jointing:

Longitudinal joint: B

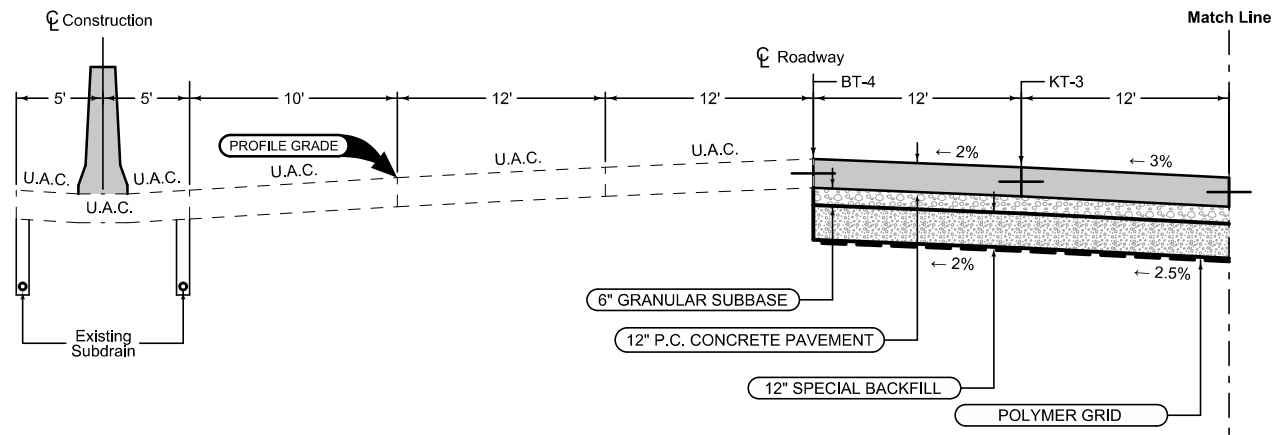
Direction of Travel	BEGIN STATION	END STATION	(P) Feet
EB	1289+79.04	1296+00.00	6



See Tab 100-24 for pavement quantities.

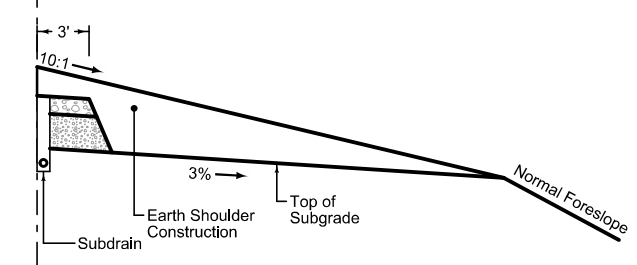
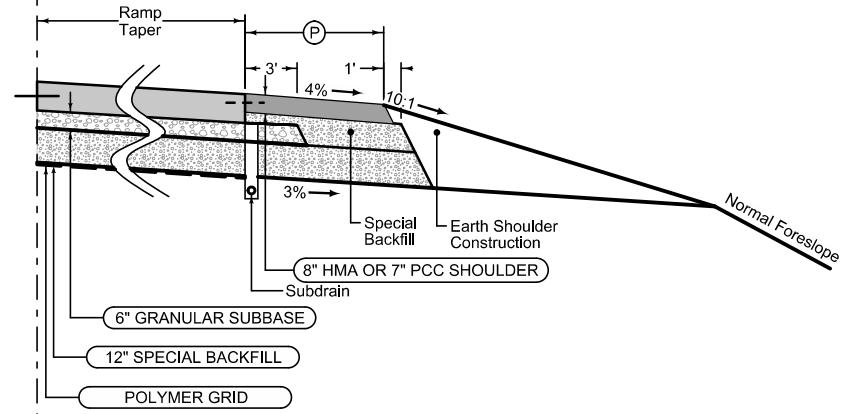
See Tab 112-9 for shoulder quantities.

180 EASTBOUND



Section shown in the direction of traffic.
 Transverse joints: CD at 20' spacing

Direction of Travel	BEGIN STATION	END STATION
EB	1296+00.00	1304+00.00



Ramp Taper With Paved Shoulder Alternates

See U Sheets for taper details
 PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at 20' spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

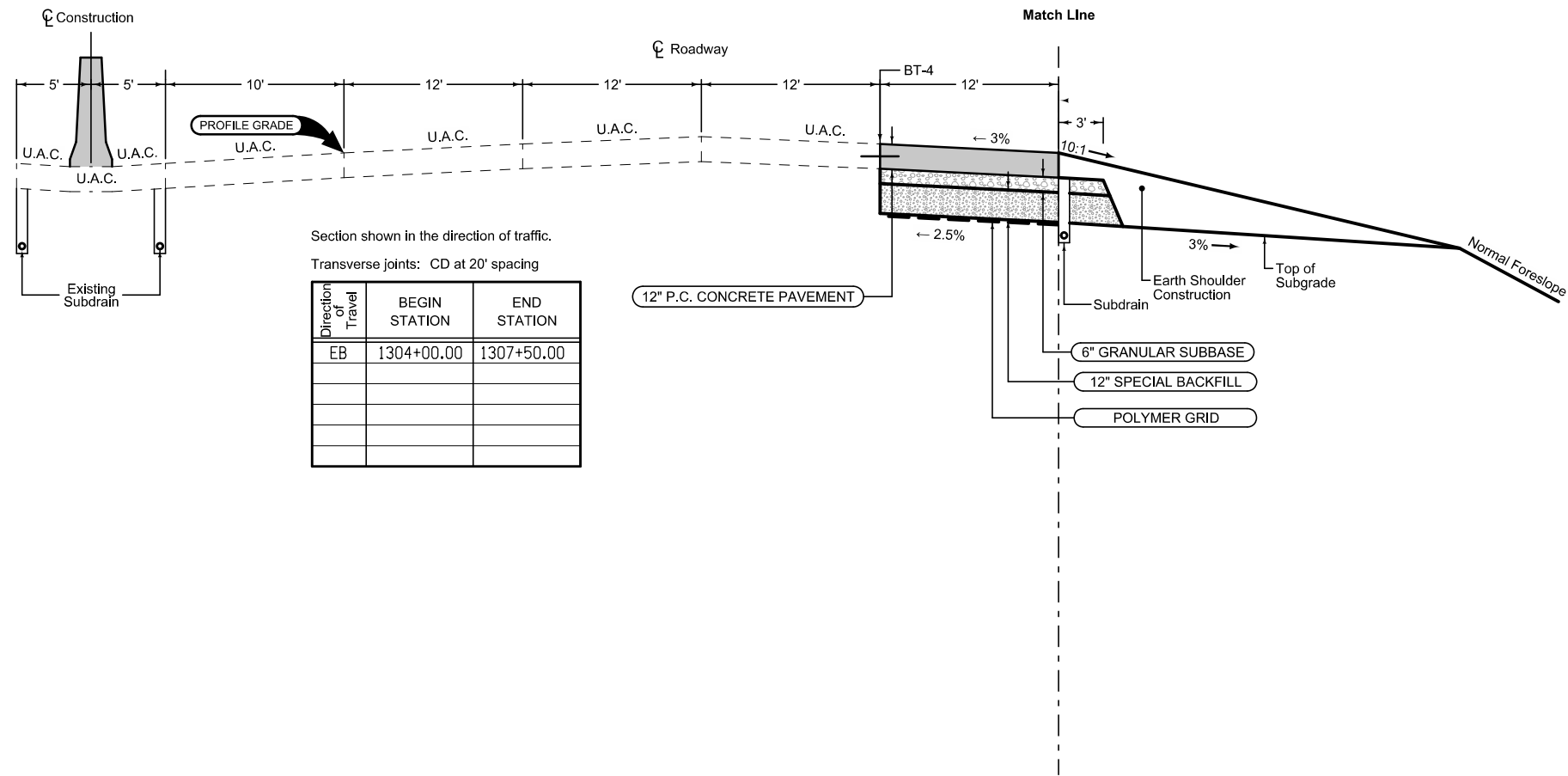
Direction of Travel	BEGIN STATION	END STATION	(P) Feet
EB	1296+00.00	1298+51.60	6

Earth Shoulder Fillet

Direction of Travel	BEGIN STATION	END STATION
EB	1298+51.60	1304+00.00

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

180 EASTBOUND



Section shown in the direction of traffic.
 Transverse joints: CD at 20' spacing

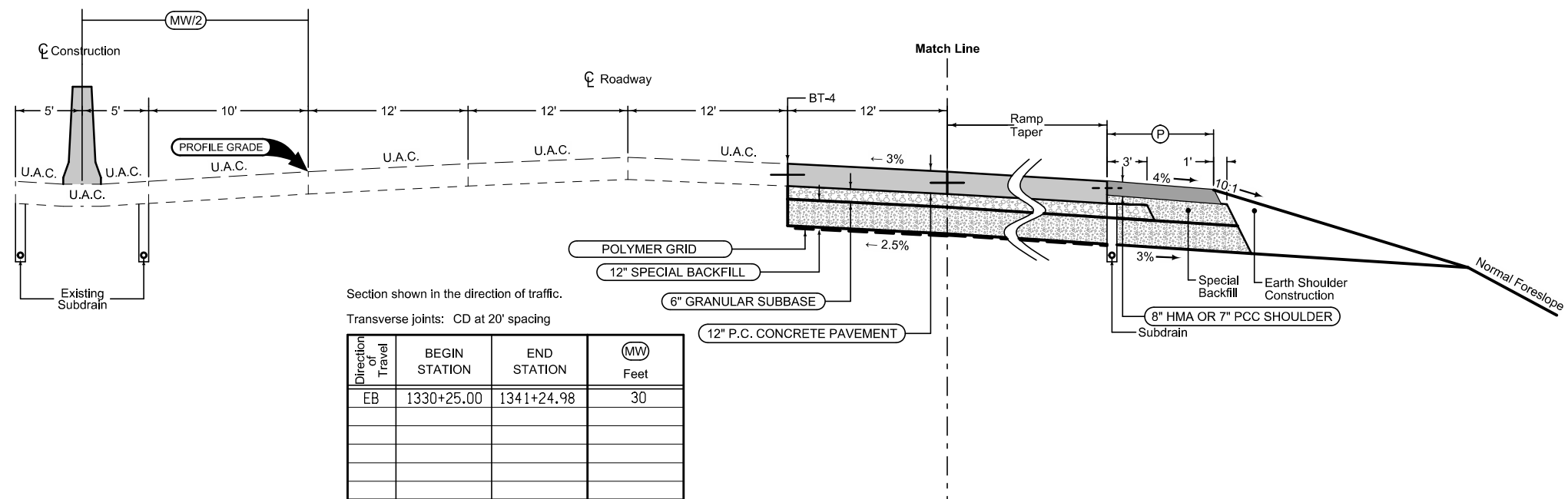
Direction of Travel	BEGIN STATION	END STATION
EB	1304+00.00	1307+50.00

Earth Shoulder Fillet

Direction of Travel	BEGIN STATION	END STATION
EB	1304+00.00	1307+50.00

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

180 EASTBOUND



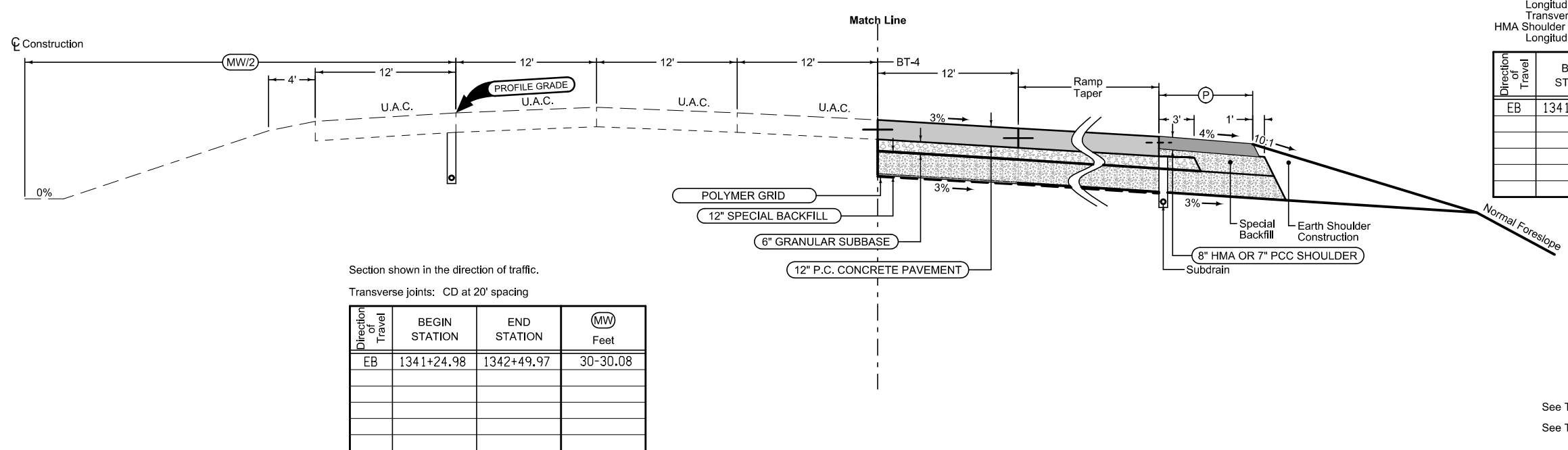
Section shown in the direction of traffic.
 Transverse joints: CD at 20' spacing

Direction of Travel	BEGIN STATION	END STATION	(MW) Feet
EB	1330+25.00	1341+24.98	30

Auxillary Lane With Paved Shoulder Alternates

See U Sheets for taper details
 PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at 20' spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

Direction of Travel	BEGIN STATION	END STATION	(P) Feet
EB	1330+25.00	1341+24.98	6



Section shown in the direction of traffic.
 Transverse joints: CD at 20' spacing

Direction of Travel	BEGIN STATION	END STATION	(MW) Feet
EB	1341+24.98	1342+49.97	30-30.08

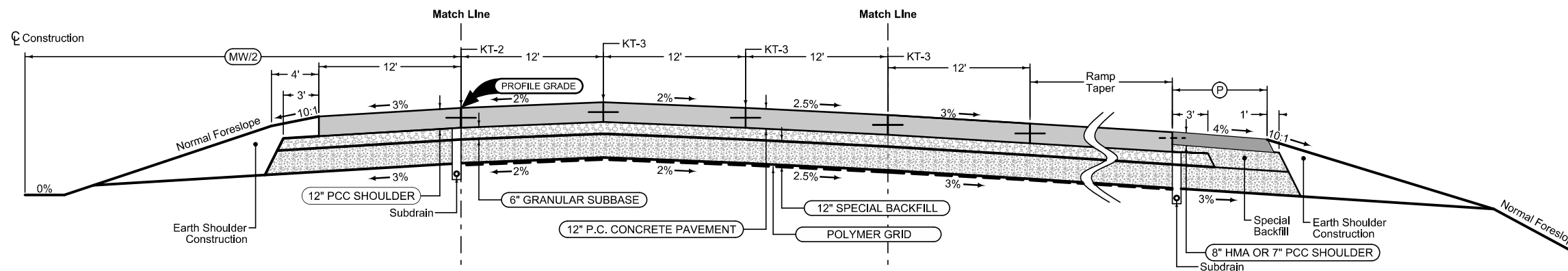
Ramp Taper With Paved Shoulder Alternates

See U Sheets for taper details
 PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at 20' spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

Direction of Travel	BEGIN STATION	END STATION	(P) Feet
EB	1341+24.98	1342+49.97	6

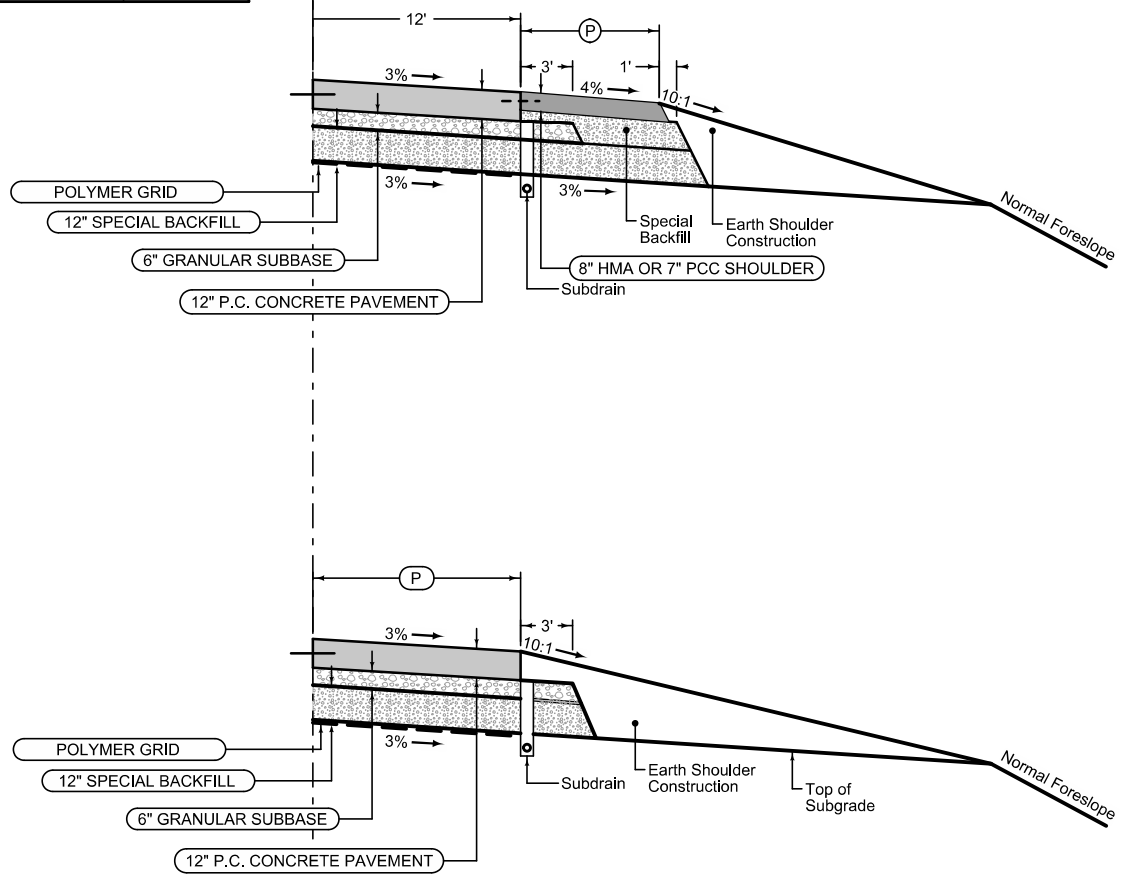
See Tab 100-24 for pavement quantities.
 See Tab 112-9 for shoulder quantities.

180 EASTBOUND



Section shown in the direction of traffic.
Mainline Jointing:
Transverse joints: CD at 20' spacing

Direction of Travel	BEGIN STATION	END STATION	(MW) Feet
EB	1342+49.97	1365+55.00	30.08-50



Ramp Taper With Paved Shoulder Alternates

See U Sheets for taper details
PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

Direction of Travel	BEGIN STATION	END STATION	(P) Feet
EB	1342+49.97	1344+23.90	6

Full Depth PCC Shoulder

Shoulder Jointing:
Longitudinal joint: L-2 or KT-2
Transverse joints: C at 20' spacing

Direction of Travel	BEGIN STATION	END STATION
EB	1342+49.97	1365+55.00

Auxillary Lane With Paved Shoulder Alternates

Longitudinal Joint: KT-3
PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

Direction of Travel	BEGIN STATION	END STATION	(P) Feet
EB	1344+23.90	1345+73.35	6

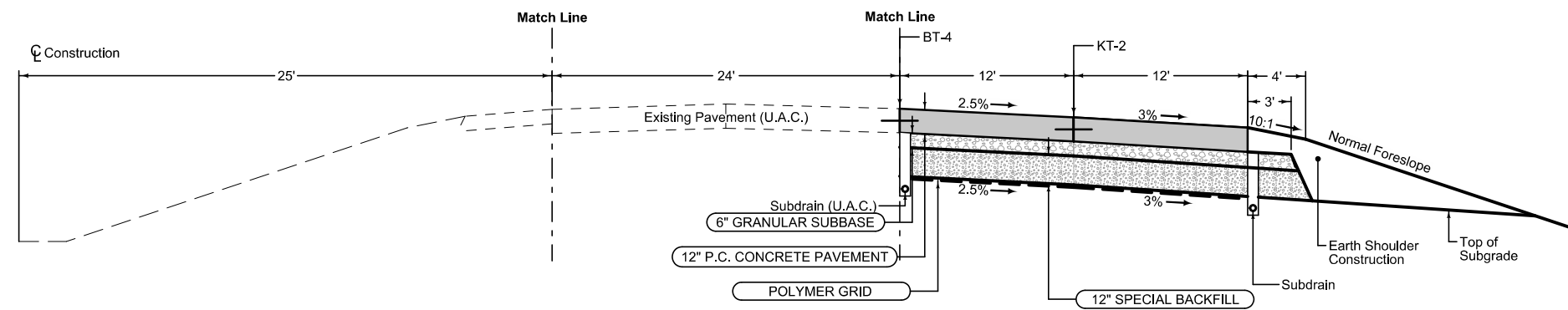
Full Depth Paved Shoulder

Longitudinal joint: KT-2
Transverse joint: Match Mainline

Direction of Travel	BEGIN STATION	END STATION	(P) Feet
EB	1345+73.35	1365+55.00	12

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

180 EASTBOUND



Widening With Paved Shoulder

Transverse joint: Match Mainline

Direction of Travel	BEGIN STATION	END STATION
EB	1365+55.00	1377+94.10

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

180 EASTBOUND

Paved Shoulder Alternates

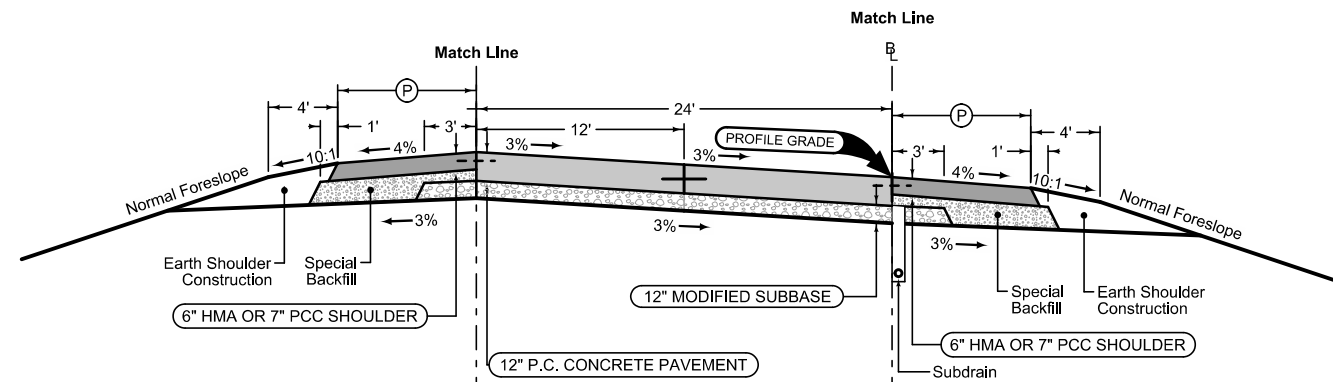
PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at 20' spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

1R_P_ALT 10-21-14		
STATION TO STATION	(P)	Feet
2298+50.00	2304+80.00	4

Paved Shoulder Alternates

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

1R_P_ALT 10-21-14		
STATION TO STATION	(P)	Feet
2298+50.00	2305+80.00	6



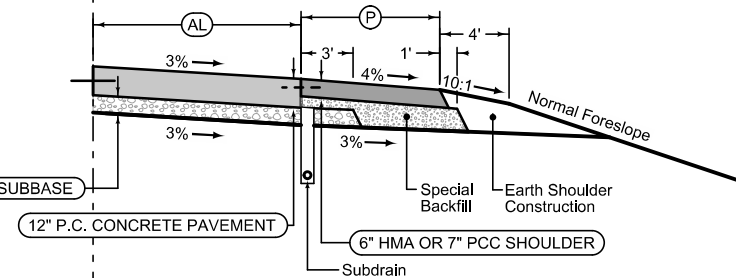
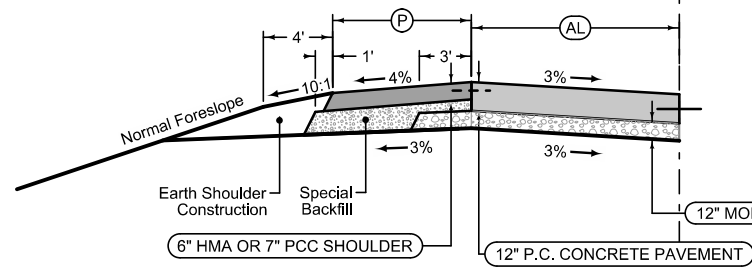
Section shown in the direction of traffic.
 Ramp Jointing:
 Transverse joints: CD at 20' spacing.
 Longitudinal joint: L-2

2RP_ 04-16-13	
BEGIN STATION	END STATION
2298+50.00	2312+55.27

Auxillary Lane With Paved Shoulder Alternates

PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at 20' spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B
 Longitudinal joint: L-2 or KT-2
 Transverse joint: Match Mainline

2_AuxLane_PCC_ 10-19-10			
STATION TO STATION	(AL)	(P)	Feet
2304+80.00	2305+00.00	2	4
2305+00.00	2306+00.00	2-12	4
2306+00.00	2312+55.27	12	4



Auxillary Lane With Paved Shoulder Alternates

PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at 20' spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B
 Longitudinal joint: L-2 or KT-2
 Transverse joint: Match Mainline

2_AuxLane_PCC_ 10-19-10			
STATION TO STATION	(AL)	(P)	Feet
2305+80.00	2306+00.00	2	6
2306+00.00	2307+00.00	2-12	6
2307+00.00	2312+55.27	12	6

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

RAMP B

Paved Shoulder Alternates

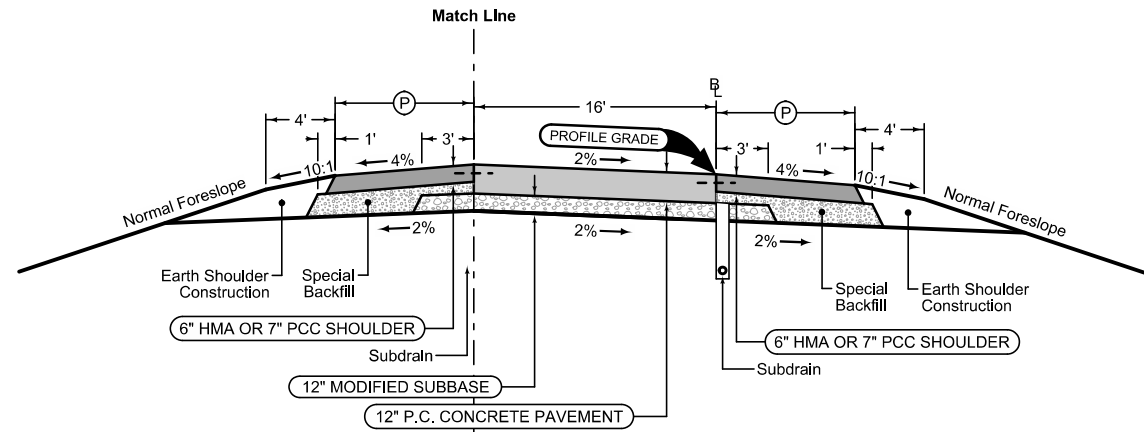
PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at 20' spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

1R_P_ALT 10-21-14			(P)
STATION TO STATION		Feet	
4310+88.72	4313+41.22	4	
4322+59.97	4330+25.78	4	

Paved Shoulder Alternates

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

1R_P_ALT 10-21-14			(P)
STATION TO STATION		Feet	
4310+88.72	4313+41.22	6	
4322+59.97	4330+25.78	6	



Section shown in the direction of traffic.
 Ramp Jointing:
 Transverse joints: CD at 20' spacing.

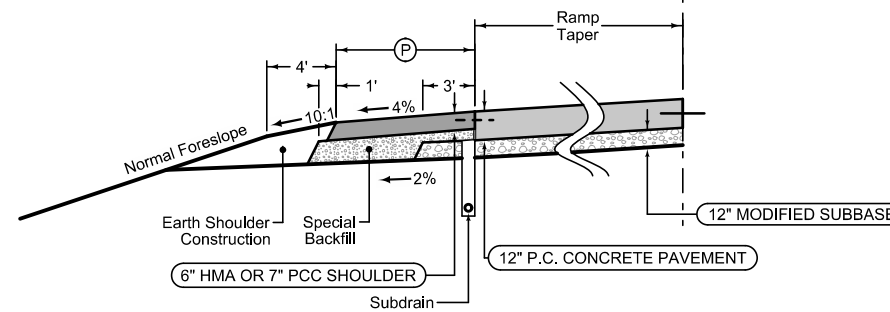
1RP 10-19-10	
BEGIN STATION	END STATION
4310+88.72	4330+25.78

Ramp Taper With Paved Shoulder Alternates

See U Sheets for taper details

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

Direction of Travel	BEGIN STATION	END STATION	(P) Feet
EB	4313+41.22	4322+59.97	4



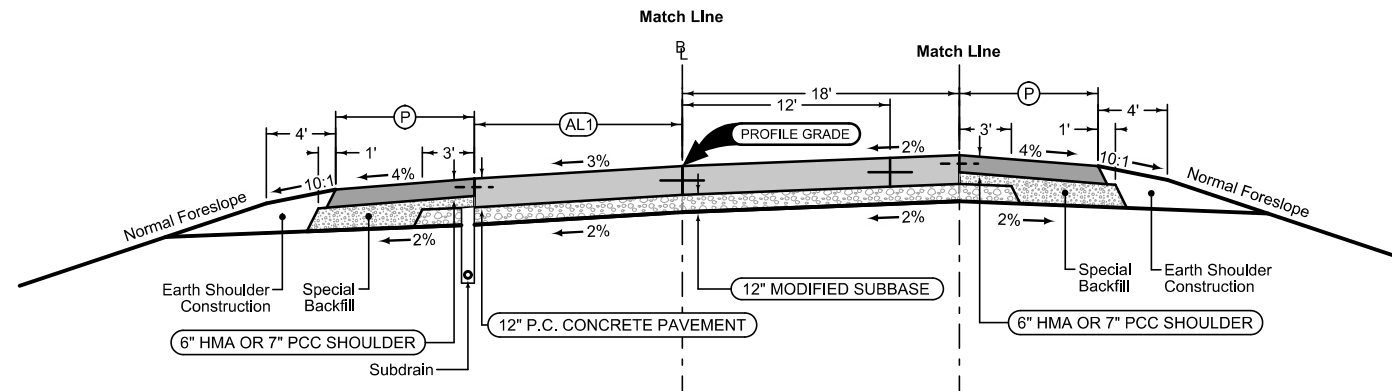
See Tab 100-24 or 100-25 for pavement quantities.
 See Tab 112-9 for shoulder quantities.

RAMP D

Auxiliary Lane With Paved Shoulder Alternates

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

STATION TO STATION		(P) Feet	(AL) Feet
44312+22.33	44313+41.82	4	



Section shown in the direction of traffic.

Ramp Jointing:
 Transverse joints: CD at 20' spacing.
 Longitudinal joints: L-2

1RP_ 10-19-10	
BEGIN STATION	END STATION
44312+22.33	44313+41.82

Paved Shoulder Alternates

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

STATION TO STATION		(P) Feet
44312+22.33	44313+41.82	6

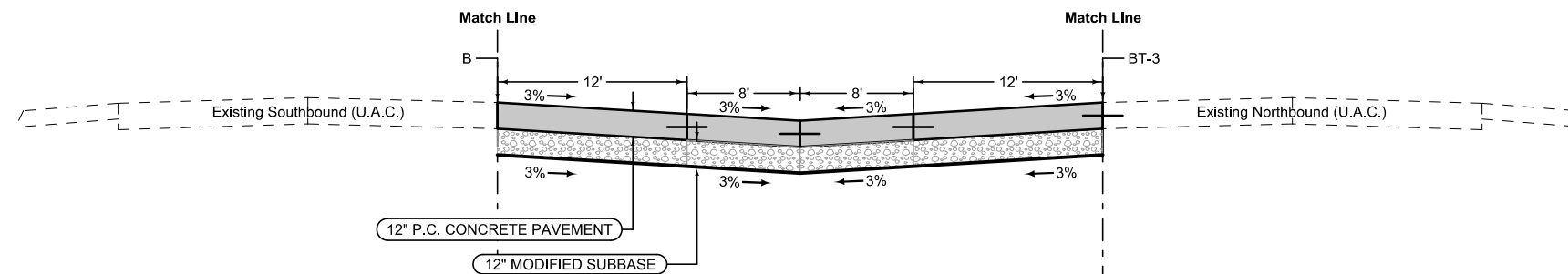
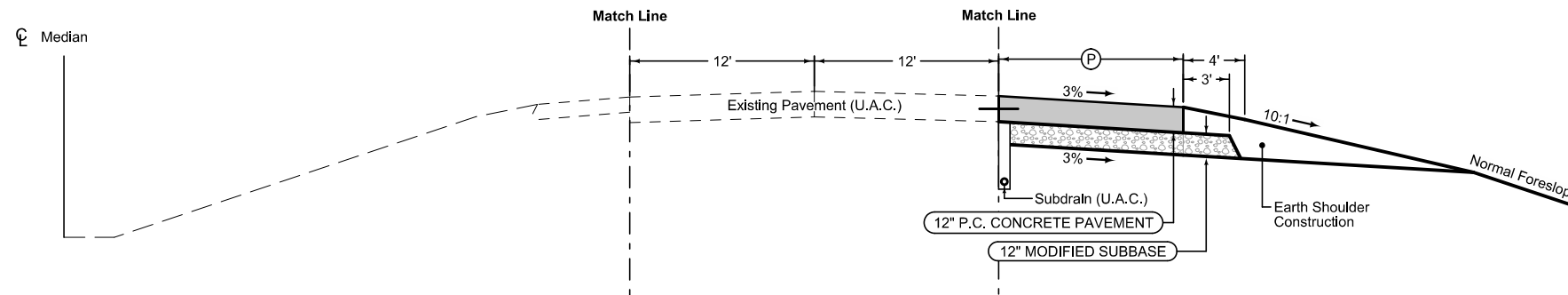
See Tab 100-24 or 100-25 for pavement quantities.
 See Tab 112-9 for shoulder quantities.

RAMP D2

Widening With Fillet

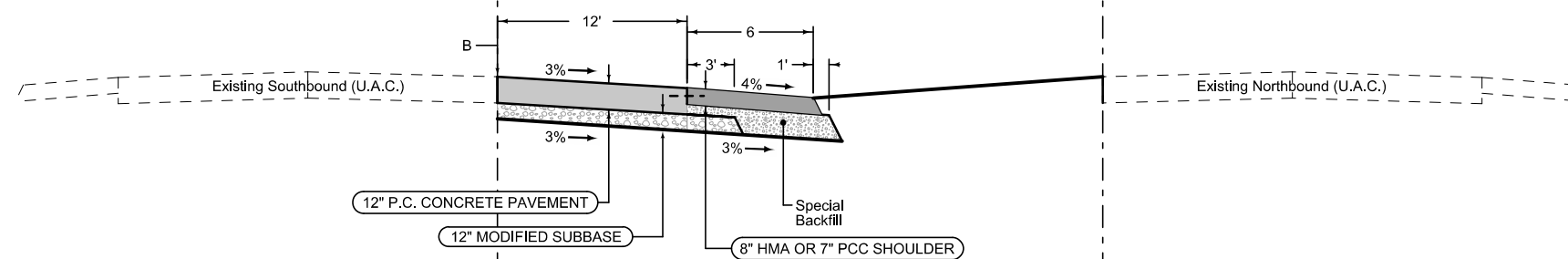
Longitudinal joint Northbound: BT-3
 Longitudinal joint Southbound: B
 Transverse joint: CD Match Mainline

Direction Travel	BEGIN STATION	END STATION	(P) Feet
NB	7866+61.72	7872+20.00	12.0
SB	7869+40.00	7872+40.00	12.0



Transverse: See L Sheets for details
 Longitudinal: See L Sheets for details

BEGIN STATION	END STATION
7871+79.00	7873+65.15

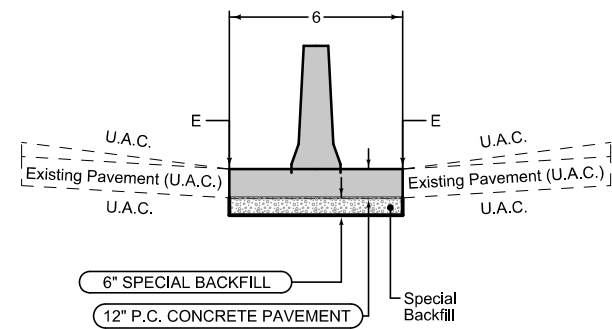
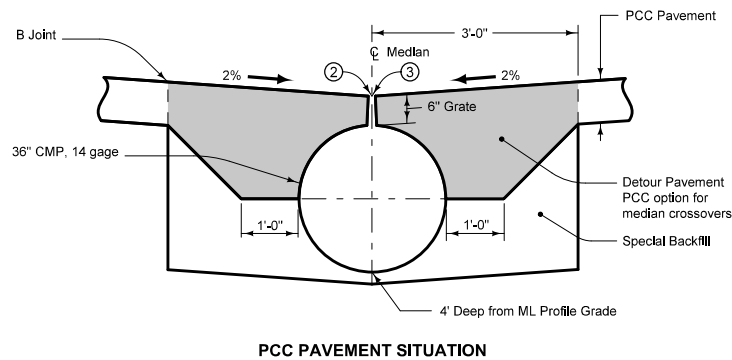


Transverse: See L Sheets for details
 Longitudinal: See L Sheets for details

BEGIN STATION	END STATION
7873+65.15	7875+93.82

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

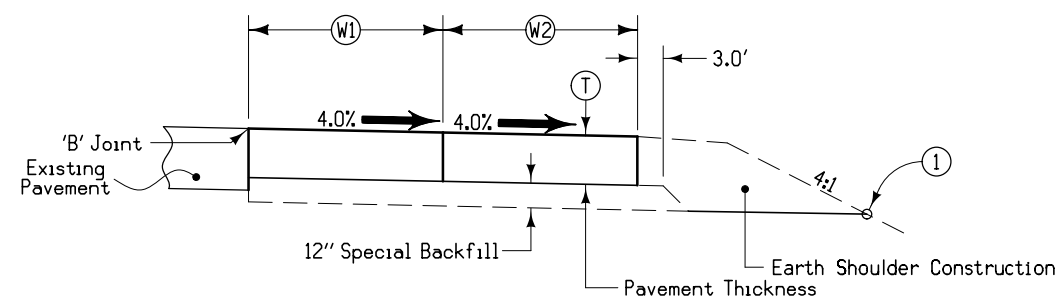
US 6/US 65/HUBBELL AVE.



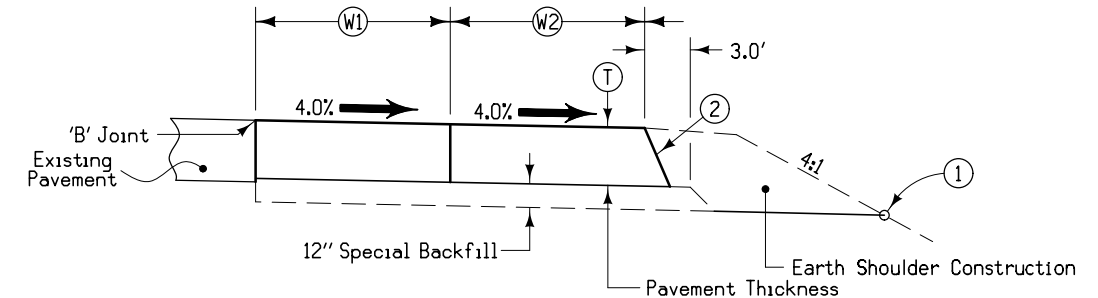
BEGIN STATION	END STATION
1263+90.00	1267+85.00

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

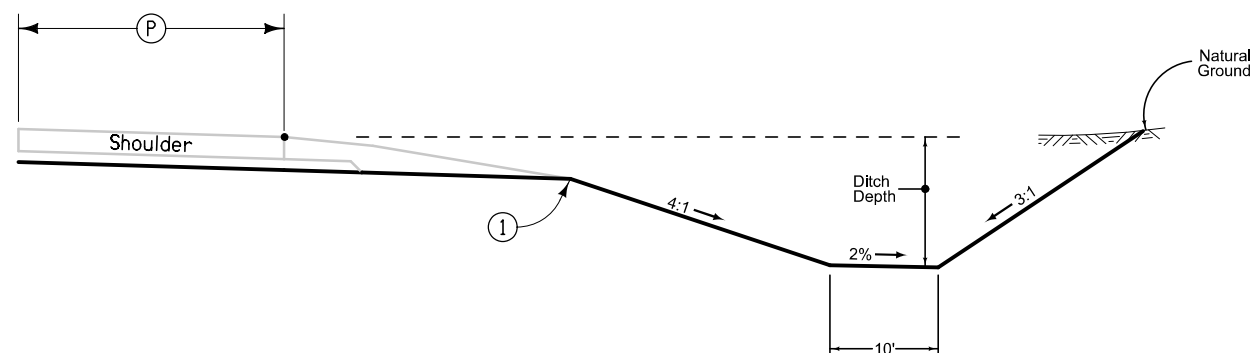
Slotted Drain Removal



PCC OPTION



HMA OPTION

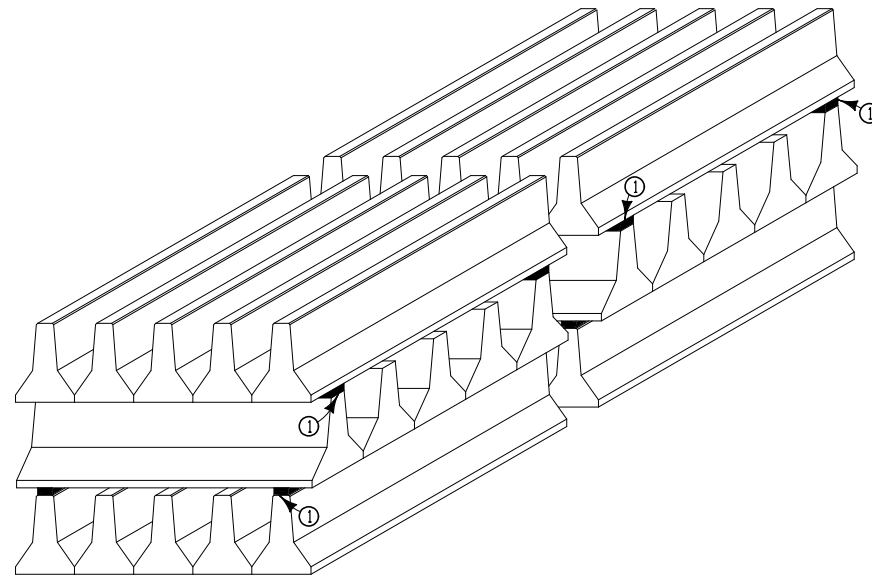


TYPICAL CROSS SECTION SHOULDER STRENGTHENING

Location				Pavement Alternates			
Road Identification	Station To Station		Side	HMA		PCC	
				T	T	W1	W2
			Inches	Inches	Feet	Feet	
EB I80 (Eastbound I80 Chain)	1319+15.00	1319+14.60	Med	11.0	9.0	12.0	0.0
EB I80 (Mainline Chain)	1340+94.00	1342+50.00	Med	11.0	9.0	12.0	0.0
EB I80 (Mainline Chain)	1342+50.00	1346+00.00	Med	11.0	9.0	12.0	13.5
EB I80 (Mainline Chain)	1346+00.00	1379+00.00	Med	11.0	9.0	12.0	0.0
WB I80 (Mainline Chain)	1298+00.00	1305+50.00	Out	11.0	9.0	10.0	0.0
WB I80 (Mainline Chain)	1305+50.00	1307+00.00	Out	11.0	9.0	10-6	0.0
WB I80 (Mainline Chain)	1309+10.00	1313+00.00	Out	11.0	9.0	10.0	0.0

SHLDR

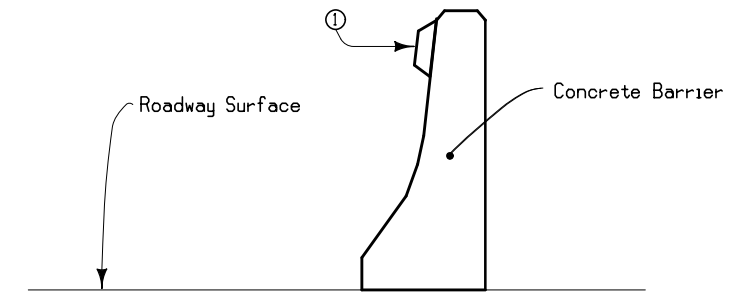
8207
10-28-97



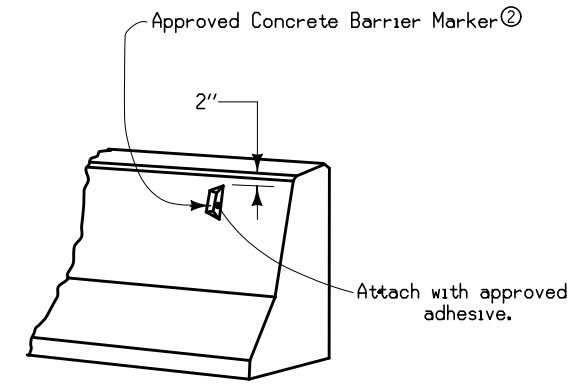
Notes:
At the completion of the project, the contractor shall stack the temporary barrier rail at locations designated in the plans.
Barrier sections shall be stacked 3 high in alternating layers or as modified by the Engineer.
The cost of hauling and stacking the temporary barrier rail shall be incidental to the item "Temporary Barrier Rail".
① 2x4 or scrap lumber.

STORAGE PLAN FOR BARRIER RAIL

8203
05-10-88

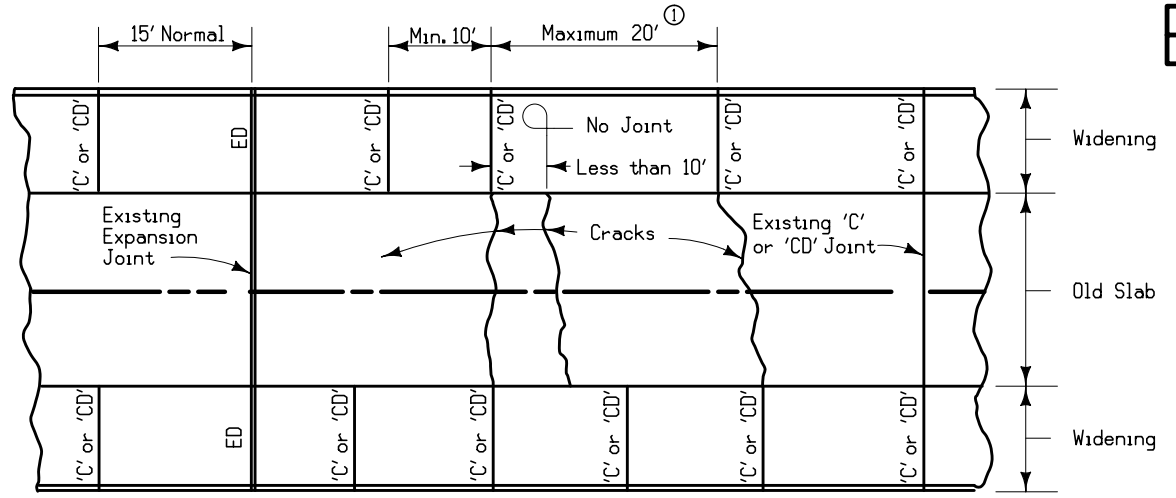


① Delineator color same color as edge line, when edge line exists, otherwise same color as edge line would be.
② See Materials Instructional Memorandums.



INSTALLATION DETAILS OF CONCRETE BARRIER MARKER

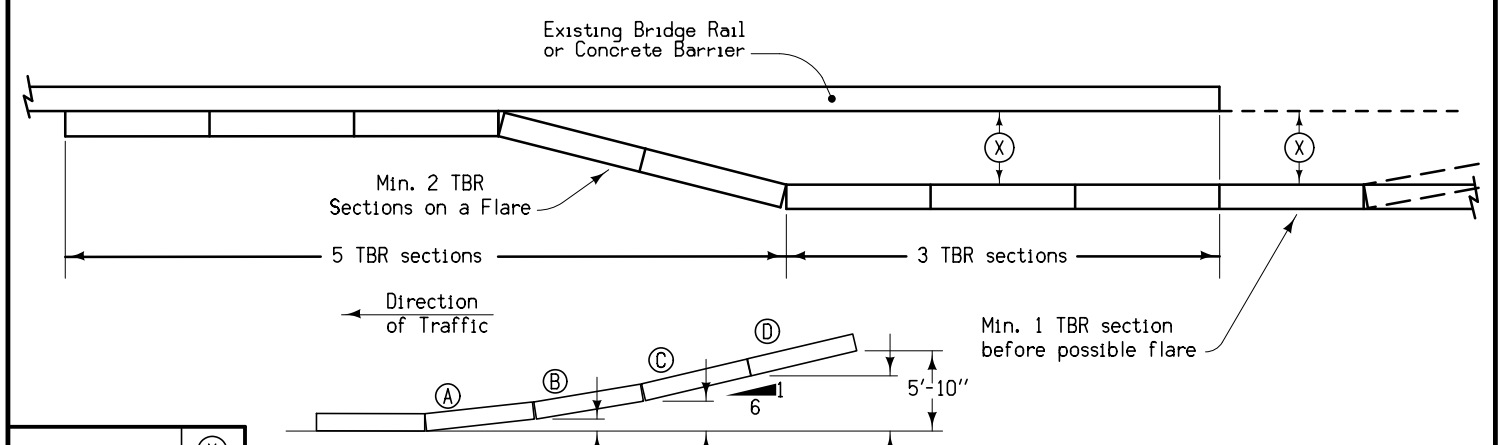
7203
04-19-11



JOINTING DIAGRAM FOR WIDENING EXISTING PAVEMENT

For joint details see PV-101.
① If more than 20' make extra joint 1/2 distance.

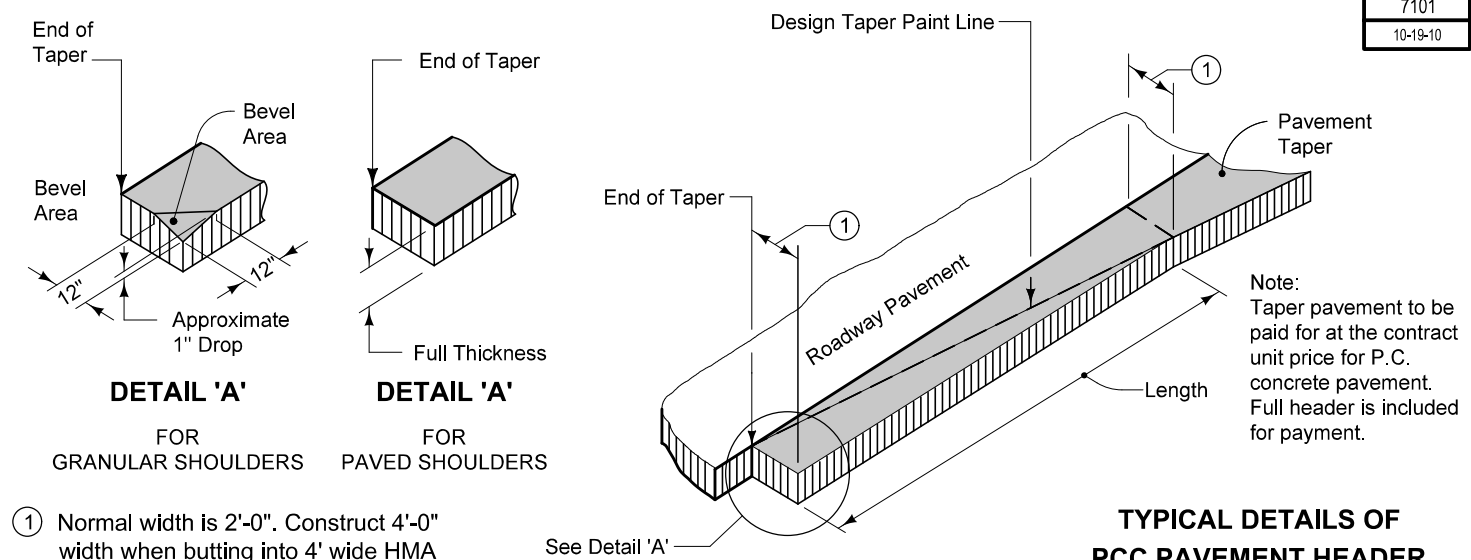
TBR 1



BARRIER OFFSETS FOR FLARE SECTIONS (ONE-WAY TRAFFIC)

TBR	(X) Inches
Anchored	12
Unanchored	24

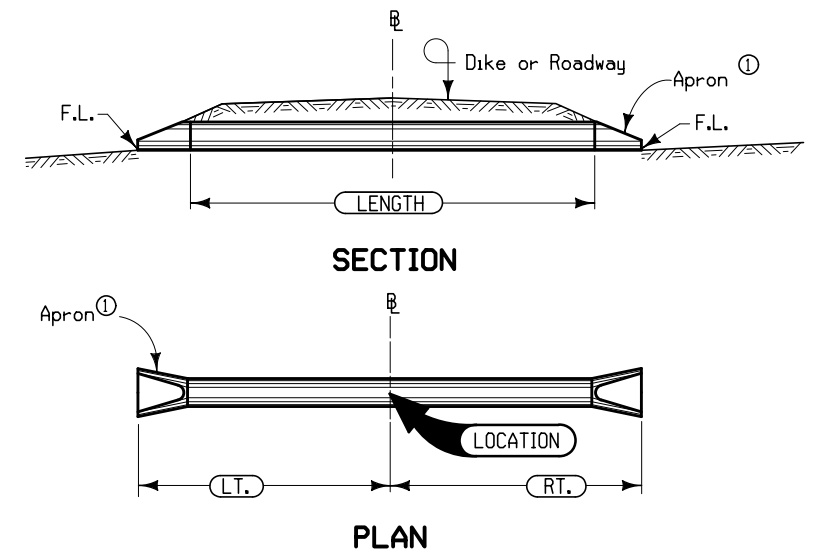
7101
10-19-10



TYPICAL DETAILS OF PCC PAVEMENT HEADER

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

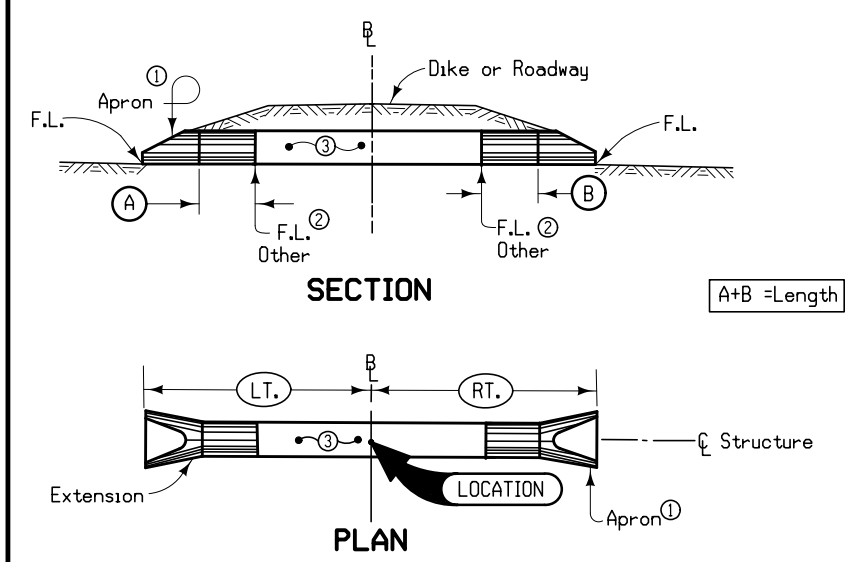
1101
04-30-02



Notes:
CL shall be CL of roadway, dike, survey, or other; as detailed on plans.
Skew angle is the angle which one end of the pipe is ahead (by stationing) of a line perpendicular to the CL (example skew Rt. ahead 30°).
Refer to tabular listing and other plans for additional information.
① See Standard Road Plan RF-3 For Conc. or RF-5 for Metal.

PIPE CULVERT

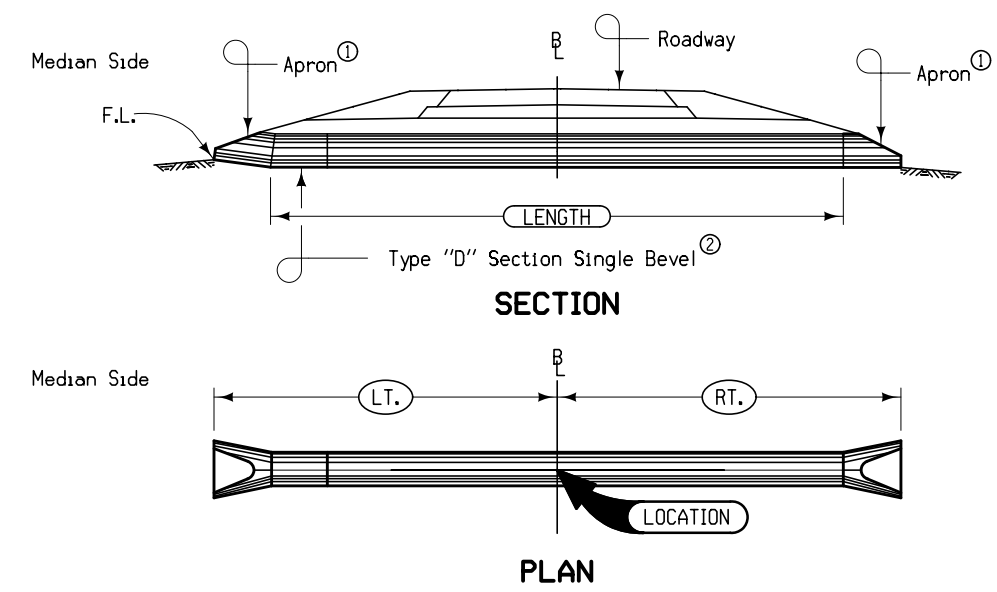
1301
10-03-00



Notes:
CL shall be CL of roadway, dike, survey, or other; as detailed on plans.
Extension shall be on line of existing structure to Lt., Rt. or both as specified. Adaptors may be required, see Standard Road Plan RF-2.
Refer to tabular listing and other plans for additional information.
① See Standard Road Plan RF-3 for concrete, RF-5 for metal.
② Optional type "D" section only when specified in tabulation.
③ Existing structure.

PIPE EXTENSION

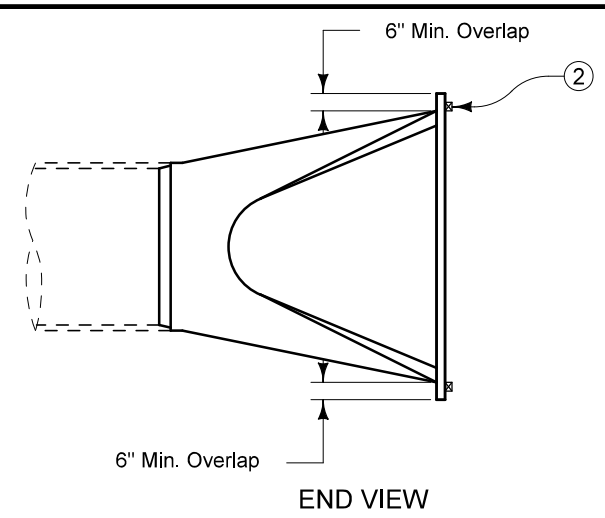
1103
04-30-02



Notes:
CL shall be CL of roadway.
① See Standard Road Plan RF-3 for concrete, RF-5 for metal aprons.
② Type "D" section with single bevel. See Standard Road Plan RF-13 for details.

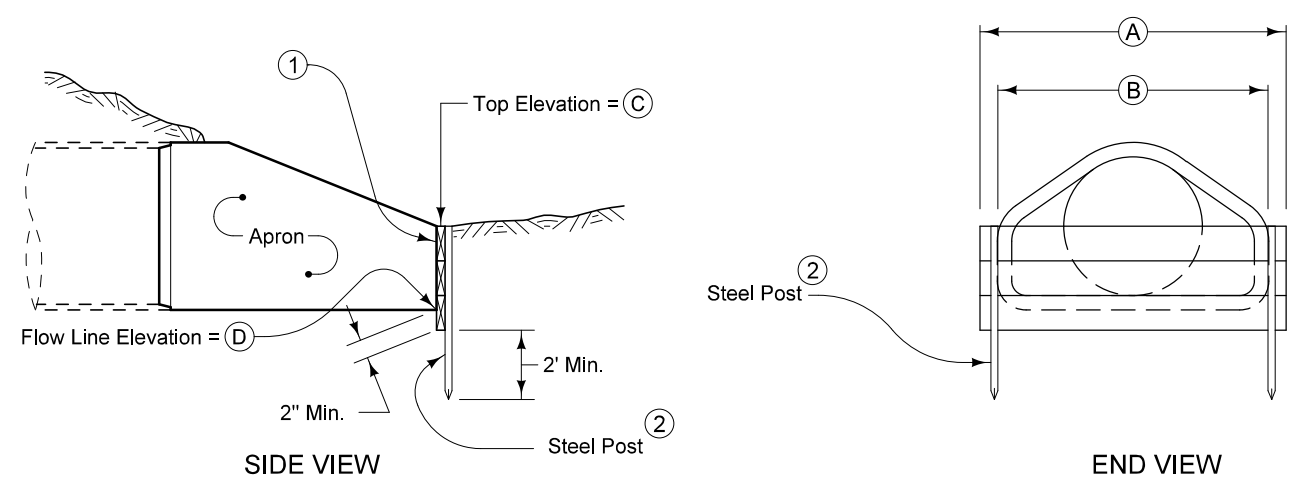
CONCRETE PIPE WITH "D" SECTION

1407
04-15-14



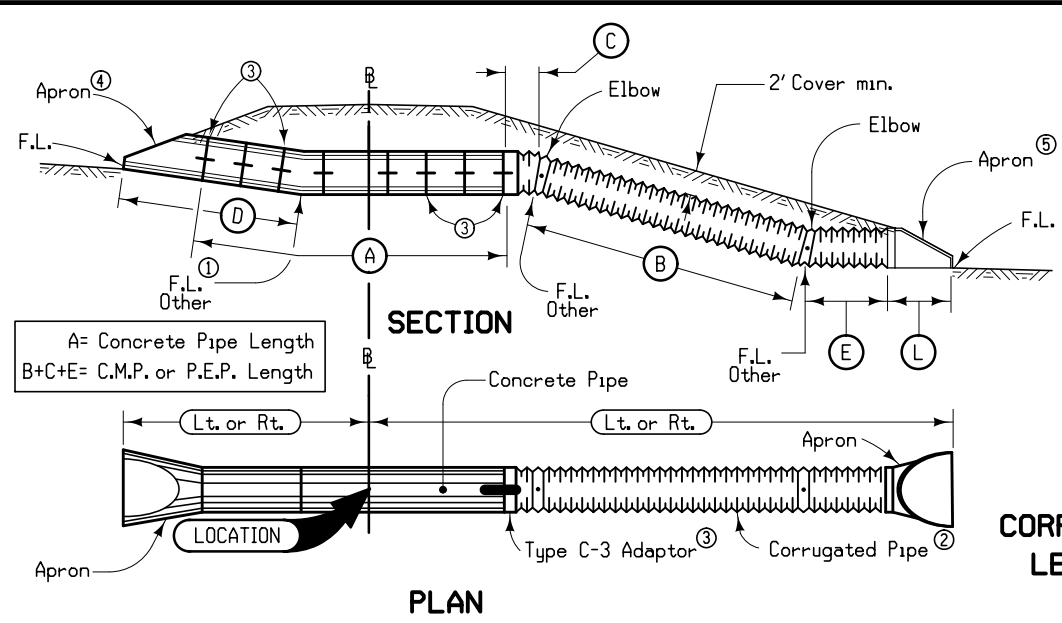
Construction of the apron and wall as detailed hereon including wood planks, steel post, and excavation and backfill is incidental to the price bid for the apron.

- ① 3" x 12" (or other size if approved by the Engineer) treated wood plank meeting the requirements of Section 4163 of the Standard Specifications.
- ② Drive steel post to be flush with top of wood plank with 2' minimum embedment below bottom of the lower plank.



SPECIAL END WALL

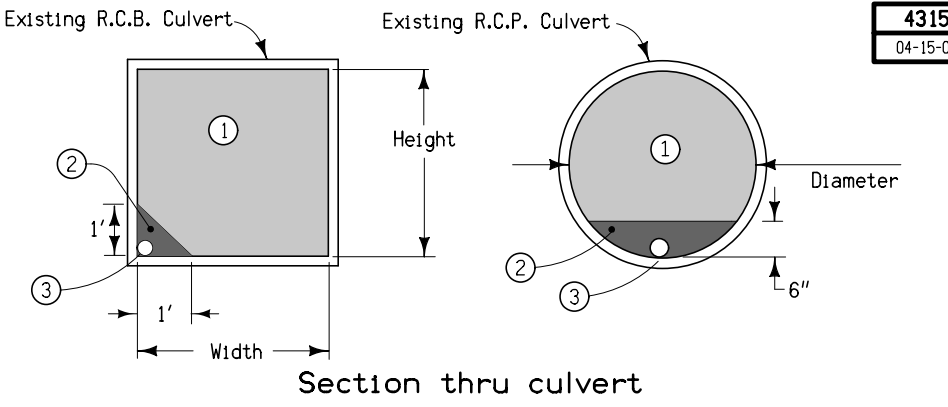
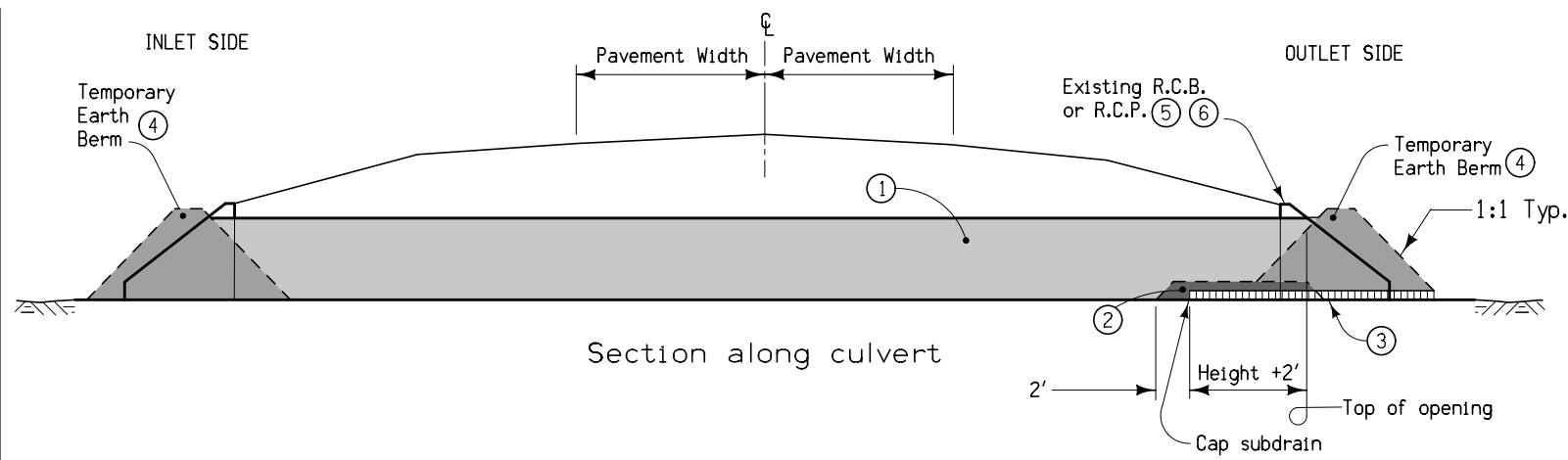
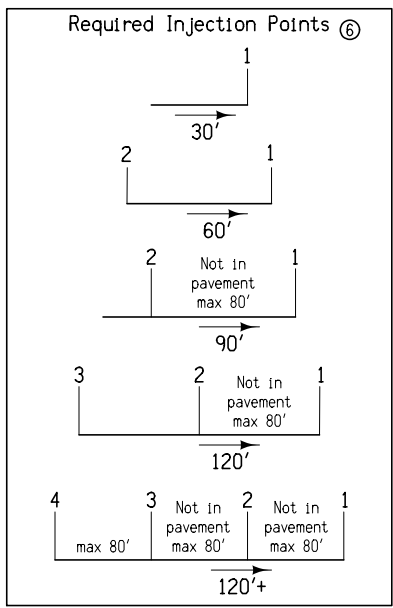
1501
04-20-10



Notes:
CL shall be CL of roadway, dike, survey, or other; as detailed on plans.
Skew angle is the angle which one end of the pipe is ahead (by stationing) of a line perpendicular to the CL.
Refer to Tabulation 104-3.
① Optional D section only when specified in tabulation.
② Standard type joint couplings are required. (See Materials I.M. 441)
③ See RF-2 & RF-14.
④ See RF-3.
⑤ See RF-5 for Metal and Polyethylene.

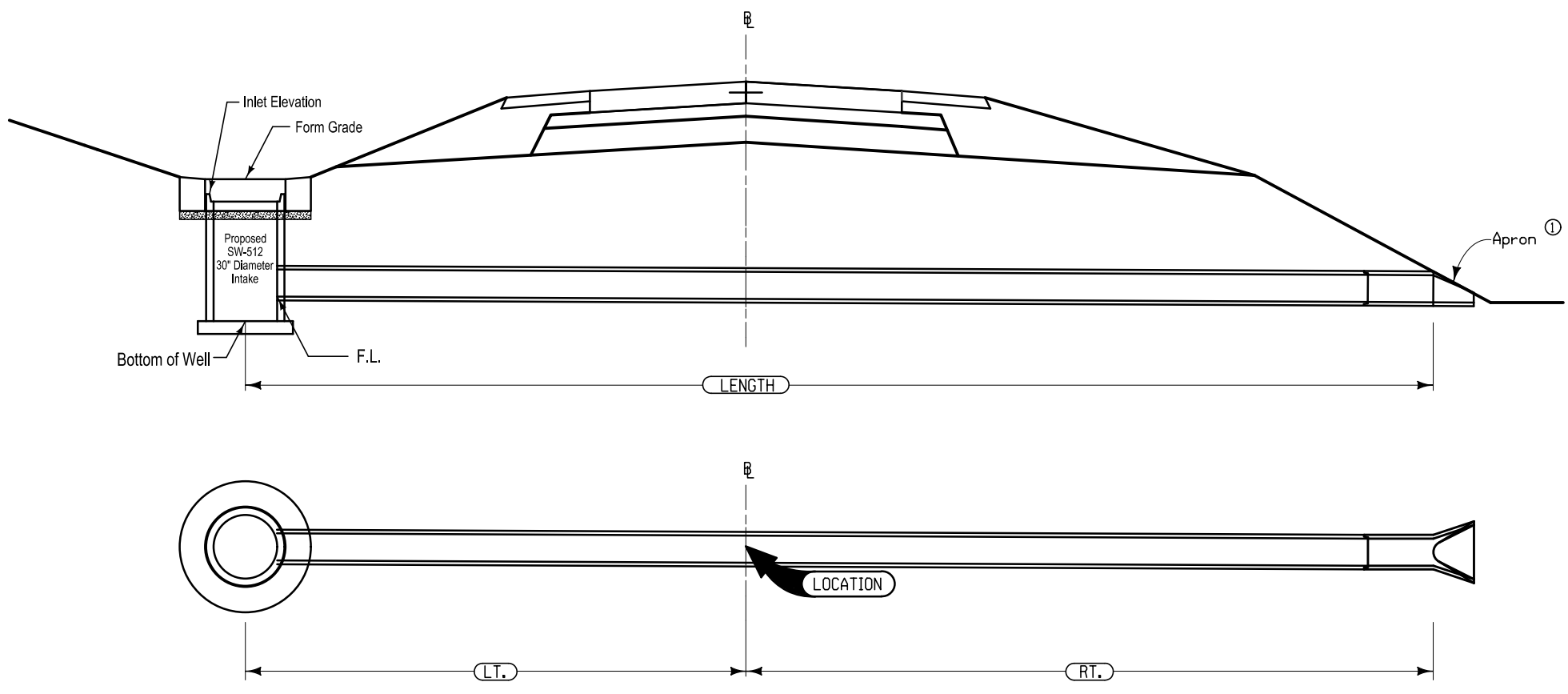
CORRUGATED PIPE - CONCRETE LETDOWN STRUCTURE WITH METAL APRON

LOCATION			A	B	C	D	No. of Planks
ROAD IDENTIFICATION	STATION	SIDE	Feet	Feet	Feet	Feet	



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

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



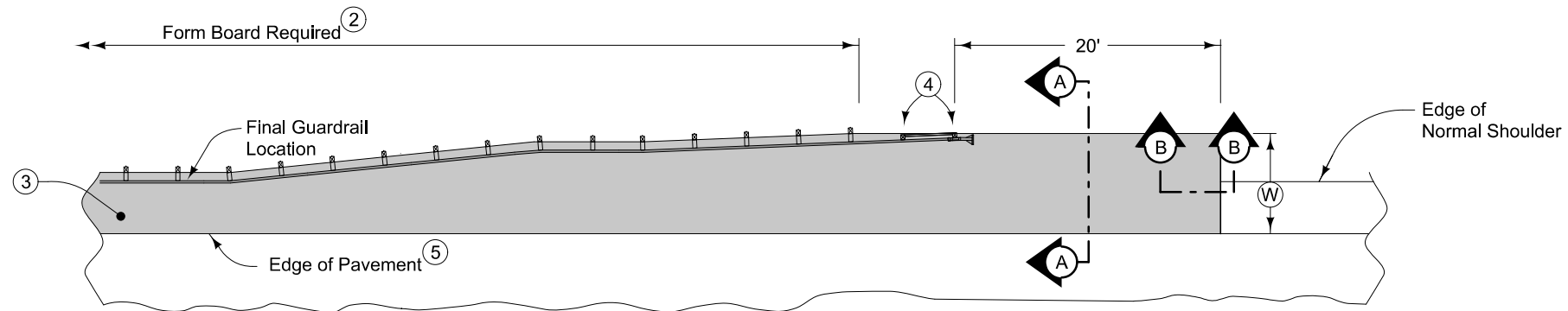
Notes:
 ☉ shall be ☉ of roadway, dike, survey, or other; as detailed on plans.
 Skew angle is the angle which one end of the pipe is ahead (by stationing) of line perpendicular to the ☉ (example skew Rt. ahead 30°).
 Refer to tabular listing and other plans for additional information.
 ① See Standard Road Plan RF-3

INTAKE ADJUSTMENT RING SEE SHEET U.12 FOR DETAILS

For bedding and backfill purposes use crushed rock or crushed gravel material complying with Article 4120.04 of the current Standard Specifications for all bedding and backfill. Place and compact the material according to Article 2435.03, A. Gravels must be 100% crushed produced by crushing material retained on a 1.5 inch or larger screen.

No.	Location		Proposed Intake Inlet Elev.	Form Grade Intake Adjustment Ring Elev.	Bottom of Well	Notes
	Station	Offset				
1	15+97.17	30.3' Lt.	1108.8	1109.01		
2	22+02.98	30.4' Lt.	1119.90	1120.52		
3	41+50.86	31.2' Lt.	1124.80	1125.38		
4	46+40.22	31.6' Lt.	1124.10	1124.67		

PIPE CULVERT WITH INTAKE

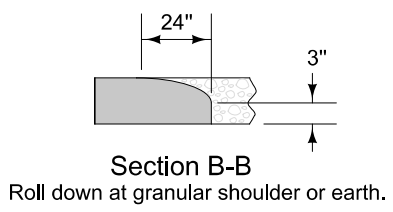
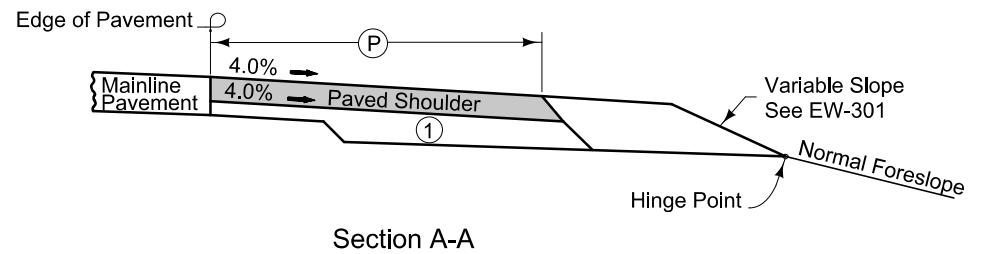
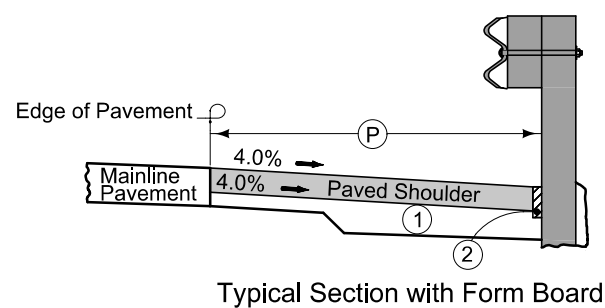


6" HMA Paved Shoulder at guardrail. 7" PCC may be substituted with the following jointing layout:

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

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

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



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

PAVED SHOULDER AT GUARDRAIL

PROJECT DESCRIPTION

This project is to reconstruct the eastbound lanes of I80, the eastbound exit ramp, and eastbound entrance ramp at the I80/US6/US65/Hubbell Ave. Interchange in the City of Altoona.

**ESTIMATED PROJECT QUANTITIES
(1 DIVISION PROJECT)**

Item No.	Item Code	Item	Unit	Total	As Built Qty.
1	2101-0850001	CLEARING AND GRUBBING	ACRE	4.4	
2	2102-0425070	SPECIAL BACKFILL	TON	26,678.1	
3	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	177,433.0	
4	2102-2710090	EXCAVATION, CLASS 10, WASTE	CY	83,479.0	
5	2102-2712015	EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS	CY	25.0	
6	2102-4560000	LOCATING TILE LINES	STA	10.00	
7	2105-8425005	TOPSOIL, FURNISH AND SPREAD	CY	13,810.0	
8	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	21,094.0	
9	2107-0875100	COMPACTION WITH MOISTURE CONTROL	CY	136,487.0	
10	2111-8174100	GRANULAR SUBBASE	SY	35,066.2	
11	2113-0001100	SUBGRADE STABILIZATION MATERIAL, POLYMER GRID	SY	35,066.2	
12	2115-0100000	MODIFIED SUBBASE	CY	3,586.1	
13	2121-7425010	GRANULAR SHOULDERS, TYPE A	TON	167.0	
14	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	175.80	
15	2301-1004120	STANDARD OR SLIP-FORM PORTLAND CEMENT CONCRETE PAVEMENT, QM-C, CLASS 3I DURABILITY, 12 IN.	SY	50,852.0	
16	2301-4875004	MEDIAN, P.C. CONCRETE, 4 IN.	SY	0.0	
17	2304-0100000	DETOUR PAVEMENT	SY	3,128.7	
18	2402-0425030	GRANULAR BACKFILL	CY	0.0	
19	2402-0425040	FLOODED BACKFILL	CY	0.0	
20	2402-2720000	EXCAVATION, CLASS 20	CY	0	
21	2416-0100024	APRONS, CONCRETE, 24 IN. DIA.	EACH	8	
22	2416-0100036	APRONS, CONCRETE, 36 IN. DIA.	EACH	1	
23	2416-0100042	APRONS, CONCRETE, 42 IN. DIA.	EACH	4	
24	2416-0100048	APRONS, CONCRETE, 48 IN. DIA.	EACH	1	
25	2416-1180024	CULVERT, CONCRETE ROADWAY PIPE, 24 IN. DIA.	LF	258	
26	2416-1180042	CULVERT, CONCRETE ROADWAY PIPE, 42 IN. DIA.	LF	124	
27	2416-1245042	CULVERT, 3750D CONCRETE ROADWAY PIPE, 42 IN. DIA.	LF	72	
28	2416-1245048	CULVERT, 3750D CONCRETE ROADWAY PIPE, 48 IN. DIA.	LF	158	
29	2416-1262024	CULVERT, CONCRETE PIPE, 2000D, TRENCHLESS, 24 IN. DIA.	LF	92	
30	2416-1264042	CULVERT, CONCRETE PIPE, 3750D, TRENCHLESS, 42 IN. DIA.	LF	334	
31	2417-0225024	APRONS, METAL, 24 IN. DIA.	EACH	1	
32	2417-0225036	APRONS, METAL, 36 IN. DIA.	EACH	1	
33	2417-1060036	CULVERT, CORRUGATED METAL ROADWAY PIPE, 36 IN. DIA.	LF	26	
34	2417-2307015	DRAIN, CORRUGATED METAL SLOTTED PIPE, 15 IN., W/6 IN. GRATE	LF	230	
35	2417-5895015	BEVELED PIPE AND GUARD, 15 INCH	EACH	2	
36	2422-1720000	UNCLASSIFIED PIPE CULVERT, 15 INCH	LF	364	
37	2435-0251100	INTAKE, SW-511	EACH	1	
38	2502-8212034	SUBDRAIN, LONGITUDINAL, (SHOULDER) 4 IN. DIA.	LF	10,539.0	
39	2502-8220196	SUBDRAIN OUTLET, RF-19E	EACH	45	
40	2503-0124224	STORM SEWER GRAVITY MAIN, TRENCHLESS, REINFORCED CONCRETE PIPE (RCP), 2000D (CLASS III), 24 IN.	LF	100.0	
41	2503-0200036	REMOVE STORM SEWER PIPE LESS THAN OR EQUAL TO 36 IN.	LF	288	
42	2505-4008130	REMOVAL OF CABLE GUARDRAIL	LF	1,093.3	
43	2505-4008300	STEEL BEAM GUARDRAIL	LF	125.0	
44	2505-4021020	STEEL BEAM GUARDRAIL END ANCHOR, W-BEAM	EACH	1	
45	2505-4021700	STEEL BEAM GUARDRAIL END TERMINAL	EACH	1	
46	2505-6000111	HIGH TENSION CABLE GUARDRAIL	LF	8,218.8	
47	2505-6000121	HIGH TENSION CABLE GUARDRAIL, END ANCHOR	EACH	10	
48	2506-4984000	FLOWABLE MORTAR	CY	0.0	
49	2510-6745850	REMOVAL OF PAVEMENT	SY	63,213.9	
50	2510-6750600	REMOVAL OF INTAKES AND UTILITY ACCESSES	EACH	1	
51	2518-6910000	SAFETY CLOSURE	EACH	8	
52	2519-1002072	FENCE, CHAIN LINK, 72 IN. HEIGHT	LF	5,074.5	
53	2519-4200140	REMOVAL OF FENCE, FIELD	LF	0.0	
54	2526-8285000	CONSTRUCTION SURVEY	LS	1.00	
55	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	1,000.00	
56	2527-9263131	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	STA	700.00	
57	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	EACH	16	
58	2527-9263180	PAVEMENT MARKINGS REMOVED	STA	500.00	
59	2527-9263190	SYMBOLS AND LEGENDS REMOVED	EACH	8	
60	2528-3800000	MODULAR GLARE SCREEN SYSTEM	LF	32,190.0	
61	2528-4983200	MONITORING WITH INCIDENT RESPONSE	CDAY	See Proposal	
62	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	32,190.0	
63	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE	EACH	2	
64	2528-8445110	TRAFFIC CONTROL	LS	1.00	
65	2533-4980005	MOBILIZATION	LS	1.00	
66	2548-0000200	MILLED SHOULDER RUMBLE STRIPS, PCC SURFACE	STA	412.1	
67	2551-0000130	TEMP CRASH CUSHION, SEVERE USE (SU)	EACH	5	
68	2551-0000230	PERMANENT CRASH CUSHION, SEVERE USE (SU)	EACH	3	

**ESTIMATED PROJECT QUANTITIES
(1 DIVISION PROJECT)**

Item No.	Item Code	Item	Unit	Total	As Built Qty.
69	2599-9999005	CONCRETE BARRIER TRANSITION, 42 IN FULL SECTION TO 42 IN HALF SECTION	EACH	10	
70	2599-9999005	CONCRETE BARRIER TRANSITION, 42 IN HALF SECTION TO 54 IN HALF SECTION	EACH	8	
71	2599-9999005	CONCRETE BARRIER TRANSITION, 42 IN HALF SECTION TO BRIDGE END POST	EACH	2	
72	2599-9999005	CONCRETE BARRIER TRANSITION, 42 IN HALF SECTION TO CRASH CUSHION	EACH	2	
73	2599-9999009	CONCRETE BARRIER, REINFORCED, 42 IN FULL	LF	0.0	
74	2599-9999009	CONCRETE BARRIER, REINFORCED, 42 IN HALF	LF	0.0	
75	2599-9999009	CONCRETE BARRIER, REINFORCED, 54 IN HALF	LF	0.0	
76	2599-9999010	REMOVAL OF SHEET PILE RETAINING WALL	LS	1.00	
77	2601-2634100	MULCHING	ACRE	0.0	
78	2601-2634105	MULCHING, BONDED FIBER MATRIX	ACRE	0.0	
79	2601-2636041	SEEDING AND FERTILIZING	ACRE	0.0	
80	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	0.0	
81	2601-2636044	SEEDING AND FERTILIZING (URBAN)	ACRE	0.0	
82	2601-2638352	SLOPE PROTECTION, WOOD EXCELSIOR MAT	SQ	0.0	
83	2601-2640350	SPECIAL DITCH CONTROL, WOOD EXCELSIOR MAT	SQ	0.0	
84	2601-2642100	STABILIZING CROP - SEEDING AND FERTILIZING	ACRE	0.0	
85	2601-2642120	STABILIZING CROP - SEEDING AND FERTILIZING (URBAN)	ACRE	0.0	
86	2601-2643110	WATERING FOR SOD, SPECIAL DITCH CONTROL, OR SLOPE PROTECTION	MGAL	0.00	
87	2602-0000020	SILT FENCE	LF	0.0	
88	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	0.0	
89	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	0.0	
90	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	0.0	
91	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	0.0	
92	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	0.0	
		ALTERNATE 'AA' OPTION 1			
93	2102-0425070	SPECIAL BACKFILL	TON	0.0	
94	2122-5190007	PAVED SHOULDER, P.C. CONCRETE, 7 IN.	SY	0.0	
		ALTERNATE 'AA' OPTION 2			
95	2102-0425070	SPECIAL BACKFILL	TON	0.0	
96	2122-5500080	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 8 IN.	SY	0.0	

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
1	2101-0850001	CLEARING AND GRUBBING For removal of trees encountered in the disturbed area.
2	2102-0425070	SPECIAL BACKFILL Refer to Tabs 100-24 and 112-9 in the C Sheets for locations and details. Tab 100-24 requires ??? Tons Tab 112-9 requires ??? Tons
3	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW
4	2102-2710090	EXCAVATION, CLASS 10, WASTE Refer to Tab 107-30 in the T sheets and the cross sections for details. No waste material will be allowed to be hauled off site until all necessary fill sections have been completed. No payment for overhaul will be made.
5	2102-2712015	EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS Refer to Tab 103-7 in the CS Sheets for details.
6	2102-4560000	LOCATING TILE LINES To be used to locate tile line along the ROW line on Ramp D from Sta. 4320+00.00 to Sta. 4330+00.00.
7	2105-8425005	TOPSOIL, FURNISH AND SPREAD
8	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD Refer to Tab 107-30 in the T sheets and the cross sections for details. No payment for overhaul will be made.
9	2107-0875100	COMPACTION WITH MOISTURE CONTROL
10	2111-8174100	GRANULAR SUBBASE
11	2113-0001100	SUBGRADE STABILIZATION MATERIAL, POLYMER GRID
12	2115-0100000	MODIFIED SUBBASE Refer to Tab 100-24 in the C Sheets for locations and details.
13	2121-7425010	GRANULAR SHOULDERS, TYPE A Refer to Tab 112-8 in the C Sheets and Sheet U.? for locations and details.
14	2123-7450000	SHOULDER CONSTRUCTION, EARTH Refer to Tab 112-9 for locations and details.
15	2301-1004120	STANDARD OR SLIP-FORM PORTLAND CEMENT CONCRETE PAVEMENT, QM-C, CLASS 3I DURABILITY, 12 IN. Refer to Tab 100-24 in the C Sheets for locations and details.
16	2301-4875004	MEDIAN, P.C. CONCRETE, 4 IN. To be used to cap the area between the half section barrier rails. Refer to Tab CB-1 for locations and the U Sheets for details.
17	2304-0100000	DETOUR PAVEMENT Refer to Tab 100-24 for locations and details.
18	2402-0425030	GRANULAR BACKFILL To be used to backfill area between half sections of barrier rail at sign trusses. Refer Tab CB-1 for locations and to the U Sheets for details.
19	2402-0425040	FLOODED BACKFILL
20	2402-2720000	EXCAVATION, CLASS 20 Refer to Tab 104-3 in the C Sheets for locations and details.
21	2416-0100024	APRONS, CONCRETE, 24 IN. DIA. Refer to Tab 104-3 in the C Sheets and Tab 104-5B in the M Sheets for locations and details.
22	2416-0100036	APRONS, CONCRETE, 36 IN. DIA.
23	2416-0100042	APRONS, CONCRETE, 42 IN. DIA.
24	2416-0100048	APRONS, CONCRETE, 48 IN. DIA.
25	2416-1180024	CULVERT, CONCRETE ROADWAY PIPE, 24 IN. DIA.
26	2416-1180042	CULVERT, CONCRETE ROADWAY PIPE, 42 IN. DIA.
27	2416-1245042	CULVERT, 3750D CONCRETE ROADWAY PIPE, 42 IN. DIA.
28	2416-1245048	CULVERT, 3750D CONCRETE ROADWAY PIPE, 48 IN. DIA.
29	2416-1262024	CULVERT, CONCRETE PIPE, 2000D, TRENCHLESS, 24 IN. DIA.
30	2416-1264042	CULVERT, CONCRETE PIPE, 3750D, TRENCHLESS, 42 IN. DIA.
31	2417-0225024	APRONS, METAL, 24 IN. DIA.
32	2417-0225036	APRONS, METAL, 36 IN. DIA.
33	2417-1060036	CULVERT, CORRUGATED METAL ROADWAY PIPE, 36 IN. DIA. Refer to Tab 104-3 in the C Sheets for locations and details.
34	2417-2307015	DRAIN, CORRUGATED METAL SLOTTED PIPE, 15 IN., W/6 IN. GRATE Refer to Tab 112-8 in the C Sheets and the U Sheets for locations and details. Drain, Corrugated Metal Slotted Pipe will be measured and paid for on the basis of Linear Feet that is installed.

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
35	2417-5895015	BEVELED PIPE AND GUARD, 15 INCH
36	2422-1720000	UNCLASSIFIED PIPE CULVERT, 15 INCH Refer to Tab 112-8 in the C Sheets and the U Sheets for locations and details.
	2422-1720000	UNCLASSIFIED PIPE CULVERT, 15 INCH Unclassified Pipe Culvert will be measured and paid for on the basis of Linear Feet that is installed.
37	2435-0251100	INTAKE, SW-511 Refer to Tab. 104-5B in the M Sheets and the M Sheets for locations and details.
38	2502-8212034	SUBDRAIN, LONGITUDINAL, (SHOULDER) 4 IN. DIA. Refer to Tab 104-12 in The C Sheets and Tab 104-9 in the CS Sheets for locations and details. Tab 104-12 requires 161 LF Tab 104-9 requires 10378 LF
39	2502-8220196	SUBDRAIN OUTLET, RF-19E Refer to Tab 104-12 in The C Sheets and Tab 104-9 in the CS Sheets for locations and details. Tab 104-12 requires 1 EACH Tab 104-9 requires 44 EACH
40	2503-0124224	STORM SEWER GRAVITY MAIN, TRENCHLESS, REINFORCED CONCRETE PIPE (RCP), 2000D (CLASS III), 24 IN. Refer to Tab. 104-5B in the M Sheets and the M Sheets for locations and details.
41	2503-0200036	REMOVE STORM SEWER PIPE LESS THAN OR EQUAL TO 36 IN. Refer to Tab 110-14 for locations and details.
42	2505-4008130	REMOVAL OF CABLE GUARDRAIL
43	2505-4008300	STEEL BEAM GUARDRAIL
44	2505-4021020	STEEL BEAM GUARDRAIL END ANCHOR, W-BEAM
45	2505-4021700	STEEL BEAM GUARDRAIL END TERMINAL Refer to Tab 108-8C for locations and details.
46	2505-6000111	HIGH TENSION CABLE GUARDRAIL
47	2505-6000121	HIGH TENSION CABLE GUARDRAIL, END ANCHOR Refer to Tab 108-9A for locations and details.
48	2506-4984000	FLOWABLE MORTAR Refer to Tab 110-14 and Tab 104-3 for locations and details.
49	2510-6745850	REMOVAL OF PAVEMENT Refer to Tab 110-1 in the C Sheets for locations and details.
50	2510-6750600	REMOVAL OF INTAKES AND UTILITY ACCESSES Refer to Tab 110-15 in the C Sheets for locations and details.
51	2518-6910000	SAFETY CLOSURE Refer to Tab 108-13A in the C Sheets for locations and details.
52	2519-1002072	FENCE, CHAIN LINK, 72 IN. HEIGHT Refer to Tab 100-7 in the C Sheets for locations and details.
53	2519-4200140	REMOVAL OF FENCE, FIELD Refer to Tab 100-7 in the C Sheets for locations and details of fence to be removed. All fencing materials removed shall be disposed of per Standard Specification 1106.07.
54	2526-8285000	CONSTRUCTION SURVEY
55	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED
56	2527-9263131	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS Refer to Tab 108-22 in the C Sheets for locations and details.
57	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED Refer to Tab 108-29 in the C Sheets for locations and details.
58	2527-9263180	PAVEMENT MARKINGS REMOVED Refer to Tab 108-22 in the C Sheets for locations and details.
59	2527-9263190	SYMBOLS AND LEGENDS REMOVED Refer to Tab 108-29 in the C Sheets for locations and details.
60	2528-3800000	MODULAR GLARE SCREEN SYSTEM Refer to Tab 108-33 in the C Sheets for locations and details.
61	2528-4983200	MONITORING WITH INCIDENT RESPONSE
62	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE Refer to Tab 108-33 in the C Sheets for locations and details.

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
63	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE Refer to Tab 108-27 for locations and details.
64	2528-8445110	TRAFFIC CONTROL
65	2533-4980005	MOBILIZATION
66	2548-0000200	MILLED SHOULDER RUMBLE STRIPS, PCC SURFACE Refer to Tab 112-10 for locations and details.
67	2551-0000130	TEMP CRASH CUSHION, SEVERE USE (SU) Refer to Tab 108-30 in the C Sheets for locations and details. All crash cushions removed shall be disposed of per Standard Specification 1106.07.
68	2551-0000230	PERMANENT CRASH CUSHION, SEVERE USE (SU) Refer to Tab 108-30 in the C Sheets for locations and details.
69	2599-9999005	CONCRETE BARRIER TRANSITION, 42 IN FULL SECTION TO 42 IN HALF SECTION Refer to Tab CB-1 in the C Sheets and the U Sheets for location and details of transition section. Apply Section 2513 of the Standard Specifications. Concrete Barrier Transition, 42 IN Full Section To 42 IN Half Section shall be measured and paid for on the basis of each that is installed.
70	2599-9999005	CONCRETE BARRIER TRANSITION, 42 IN HALF SECTION TO 54 IN HALF SECTION Refer to Tab CB-1 in the C Sheets and the U Sheets for location and details of transition section. Apply Section 2513 of the Standard Specifications. Concrete Barrier Transition, 42 IN Half Section To 54 IN Half Section shall be measured and paid for on the basis of each that is installed.
71	2599-9999005	CONCRETE BARRIER TRANSITION, 42 IN HALF SECTION TO BRIDGE END POST Refer to Tab CB-1 in the C Sheets and the U Sheets for location and details of transition section. Apply Section 2513 of the Standard Specifications. Concrete Barrier Transition, 42 IN Half Section To Bridge End Post shall be measured and paid for on the basis of each that is installed.
72	2599-9999005	CONCRETE BARRIER TRANSITION, 42 IN HALF SECTION TO CRASH CUSHION Refer to Tab CB-1 in the C Sheets and the U Sheets for location and details of transition section. Apply Section 2513 of the Standard Specifications. Concrete Barrier Transition, 42 IN Half Section To Crash Cushion shall be measured and paid for on the basis of each that is installed.
73	2599-9999009	CONCRETE BARRIER, REINFORCED, 42 IN FULL Refer to Tab CB-1 in the C Sheets and the U Sheets for location and details of concrete barrier. Apply Section 2513 of the Standard Specifications. Concrete Barrier, Reinforced, 42 IN Full shall be measured and paid for on the basis of Linear Feet that is installed.
74	2599-9999009	CONCRETE BARRIER, REINFORCED, 42 IN HALF Refer to Tab CB-1 in the C Sheets and the U Sheets for location and details of concrete barrier. Apply Section 2513 of the Standard Specifications. Concrete Barrier, Reinforced, 42 IN Half shall be measured and paid for on the basis of Linear Feet that is installed.
75	2599-9999009	CONCRETE BARRIER, REINFORCED, 54 IN HALF Refer to Tab CB-1 in the C Sheets and the U Sheets for location and details of concrete barrier. Apply Section 2513 of the Standard Specifications. Concrete Barrier, Reinforced, 54 IN Half shall be measured and paid for on the basis of Linear Feet that is installed.
76	2599-9999010	REMOVAL OF SHEET PILE RETAINING WALL For the removal of the existing sheet pile retaining wall on the project. Refer to the V Sheets for locations and details. After the adjacent embankment is constructed the existing sheet pile wall may be removed in its entirety or to a minimum of 3 feet below the proposed pavement surface. All materials removed shall be disposed of per Standard Specification 1106.07. The Removal Of Sheet Pile Retaining Wall shall be measured and paid for on a lump sum basis.
77	2601-2634100	MULCHING
78	2601-2634105	MULCHING, BONDED FIBER MATRIX
79	2601-2636041	SEEDING AND FERTILIZING

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
80	2601-2636043	SEEDING AND FERTILIZING (RURAL)
81	2601-2636044	SEEDING AND FERTILIZING (URBAN)
82	2601-2638352	SLOPE PROTECTION, WOOD EXCELSIOR MAT
83	2601-2640350	SPECIAL DITCH CONTROL, WOOD EXCELSIOR MAT
84	2601-2642100	STABILIZING CROP - SEEDING AND FERTILIZING
85	2601-2642120	STABILIZING CROP - SEEDING AND FERTILIZING (URBAN)
86	2601-2643110	WATERING FOR SOD, SPECIAL DITCH CONTROL, OR SLOPE PROTECTION
87	2602-0000020	SILT FENCE
88	2602-0000030	SILT FENCE FOR DITCH CHECKS
89	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS
90	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK
91	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.
92	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.
93	2102-0425070	ALTERNATE 'AA' OPTION 1 SPECIAL BACKFILL
94	2122-5190007	PAVED SHOULDER, P.C. CONCRETE, 7 IN.
95	2102-0425070	ALTERNATE 'AA' OPTION 2 SPECIAL BACKFILL
96	2122-5500080	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 8 IN.

STANDARD ROAD PLANS

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

Number	Date	Title
BA-200	10-18-11	Steel Beam Guardrail Components
BA-203	10-18-11	Steel Beam Guardrail W-Beam End Anchor
BA-205	10-18-11	Steel Beam Guardrail End Terminal
BA-252	10-18-11	Steel Beam Guardrail Installation at Side Obstacle (One-Way Protection)
BA-351	04-20-10	High Tension Cable Guardrail
BA-401	04-16-13	Temporary Barrier Rail (Precast Concrete)
BA-500	04-20-10	Temporary Crash Cushions Sand Barrel
EC-101	04-20-10	Wood Excelsior Mat for Ditch Protection
EC-103	04-20-10	Wood Excelsior Mat for Slope Protection
EC-201	04-20-10	Silt Fence
EC-202	10-21-14	Floating Silt Curtain
EW-301	04-19-11	Guardrail Grading
LI-130	10-21-14	Temporary Floodlighting Luminaires
PM-110	04-16-13	Line Types
PM-111	10-16-12	Symbols and Legends
PM-120	10-21-14	Stop Lines and Islands
PM-310	04-16-13	Entrance and Exit Ramps
PR-103	10-21-14	Full Depth PCC Patch with Dowels
PR-140	10-21-14	Subbase Patches
PV-101	10-21-14	Joints
PV-103	04-19-11	Manhole Boxouts in PCC Pavement
PV-303	04-19-11	Superelevation Details Ramps
PV-304	04-17-12	Superelevation Details Six Lane Roadway Depressed Median
PV-410	10-18-11	Deceleration Taper for 16' Exit Ramp
PV-411	10-18-11	Acceleration Taper for 16' Entrance Ramp
RF-3	10-15-13	Concrete Aprons
RF-5	04-16-13	Metal Pipe Aprons and Beveled Ends
RF-7	10-16-07	Corrugated Metal Type "A" Diaphragm
RF-14	04-16-13	Connected Pipe Joints
RF-19C	10-16-12	Subdrains (Longitudinal)
RF-19E	10-21-14	Outlets for Longitudinal, Transverse and Backslope Subdrains
RF-27	10-19-10	Beveled Pipe and Guard
RF-30A	04-15-14	Pipe Culvert (Bedding and Backfill)
RF-30B	10-19-10	Pipe Culvert (Cover and Camber)
RF-30C	04-16-13	Pipe Culvert (Installation Details)
RF-31	03-28-95	Depth of Cover Tables for Concrete Pipe
SI-173	04-20-10	Object Markers
SI-211	10-19-10	Object Marker and Delineator Placement with Guardrail
SI-881	10-15-13	Special Signs for Workzones
SW-101	04-21-09	Trench Bedding and Backfill Zones
SW-102	04-21-09	Rigid Gravity Pipe Trench Bedding
SW-401	04-21-09	Circular Storm Sewer Manhole
SW-508	10-21-14	Single Open-Throat Intake, Large Box
SW-511	04-21-09	Rectangular Area Intake
SW-547	10-16-12	Triple-Grate Barrier Intake
SW-602	04-15-14	Castings for Storm Sewer Manholes
SW-603	10-15-13	Castings for Grate Intakes
TC-1	04-16-13	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-418	10-15-13	Lane Closure on Divided Highway
TC-420	04-17-12	Lane Closure at Ramps
TC-421	10-21-14	Lane Closure with TBR

INDEX OF TABULATIONS

Tabulation	Tabulation Title	Sheet No.

253-1
10-18-11

MEDIAN CROSSOVER

The Contractor is prohibited from using any established or other type median crossover on this project unless specifically designated for the Contractor's use by this plan.

254-1
10-02-01

INCIDENT MANAGEMENT

An incident management plan, provided by the District Office, will be discussed at the pre-construction conference.

262-5
10-18-05

UTILITIES (POINT 25 PROJECT)

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

281-1
10-15-13

SECTION 404 PERMIT AND CONDITIONS

Construct this project according to the requirements of U.S. Army Corps of Engineers Individual Permit, Permit No. 2009-1509. A copy of this permit is available from the Iowa DOT website (<http://envpermits.iowadot.gov/CMEPortalENV/Home.aspx>). The U.S. Army Corps of Engineers reserves the right to visit the site without prior notice.

POLLUTION PREVENTION PLAN

This Base Pollution Prevention Plan (PPP) includes information on Roles and Responsibilities, Project Site Description, Controls, Maintenance Procedures, Inspection Requirements, Non-Storm Water Controls, Potential Sources of Off Right-of-Way Pollution, and Definitions. This plan references other documents rather than repeating the information contained in the documents. A copy of this Base Pollution Prevention Plan, amended as needed per plan revisions or by contract modification, will be readily available for review.

All contractors shall conduct their operations in a manner that controls pollutants, minimizes erosion, and prevents sediments from entering waters of the state and leaving the highway right-of-way. The prime contractor shall be responsible for compliance and implementation of the PPP for their entire contract. This responsibility shall be further shared with subcontractors whose work is a source of potential pollution as defined in this PPP.

I. ROLES AND RESPONSIBILITIES**A. Designer:**

1. Prepares Base PPP included in the project plan.
2. Prepares Notice of Intent (NOI) submitted to Iowa DNR.
3. Signature authority on the Base PPP and NOI.

B. Contractor/Subcontractor:

1. Affected contractors/subcontractors are co-permittees with the IDOT and will sign a certification statement adhering to the requirements of the NPDES permit and this PPP plan. All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
2. Submit a detailed schedule according to Article 2602 of the Specifications and any additional plan notes.
3. Install and maintain appropriate controls.
4. Supervise and implement good housekeeping practices.
5. Conduct joint required inspections of the site with inspection staff.
6. Signature authority on Co-Permittee Certification Statements and storm water inspection reports.

C. RCE/Inspector:

1. Update PPP whenever there is a change in design, construction, operation or maintenance, which has a significant effect on the discharge of pollutants from the project.
2. Maintain an up-to-date list that identifies contractors and subcontractors as co-permittees.
3. Make these plans available to the DNR upon their request.
4. Conduct joint required inspections of the site with the contractor/subcontractor.
5. Complete an inspection report after each inspection.
6. Signature authority on storm water inspection reports and Notice of Discontinuation (NOD).

II. PROJECT SITE DESCRIPTION

A. This Pollution Prevention Plan (PPP) is for the construction of a multi-lane facility, and ramps on Interstate 80 in Polk County around and at the US 65 interchanges in Altoona.

B. This PPP covers approximately 189 acres with an estimated *Provide # Of Acres* acres being disturbed. The portion of the PPP covered by this contract has *Provide # Of Acres* acres disturbed.

C. The PPP is located in an area of one soil association (Clarion - Nicollette - Webster). The estimated average SCS runoff curve number for this PPP after completion will be *Provide SCS Curve Number*.

D. Storm Water Site Map - Multiple sources of information comprise the base storm water site map including:

1. Drainage patterns - Plan and Profile sheets and Situation plans.
2. Proposed Slopes - Cross Sections.
3. Areas of Soil Disturbance - construction limits shown on Plan and Profile sheets.
4. Location of Structural Controls - Tabulations on C sheets.
5. Locations of Non-structural Controls - Tabulations on C sheets.
6. Locations of Stabilization Practices - generally within construction limits shown on Plan and Profile sheets.
7. Surface Waters (including wetlands) - Plan and Profile sheets.
8. Locations where storm water is discharged - Plan and Profile sheets.

E. The base site map is amended by contract modifications and progress payments of completed erosion control work.

F. Runoff from this work will flow into Fourmile Creek which drains to the Des Moines River.

III. CONTROLS

A. The contractor's work plan and sequence of operations specified in Article 2602.03 for accomplishment of storm water controls should clearly describe the intended sequence of major activities and for each activity define the control measure and the timing during the construction process that the measure will be implemented.

B. Preserve vegetation in areas not needed for construction.

C. Section 2601 and 2602 of the Standard Specifications define requirements to implement erosion and sediment control measures.

Actual quantities used may vary from the Base PPP and amendment of the plan will be documented via fieldbook entries or by contract modification. Additional erosion and sediment control items may be required as determined by the inspector and/or contractor during storm water monitoring inspections. If the work involved is not applicable to any contract items, the work will be paid for according to Article 1109.03 paragraph B.

1. EROSION AND SEDIMENT CONTROLS**a. Stabilization Practices**

- 1) Site plans will ensure that existing vegetation is preserved where attainable and disturbed portions of the site will be stabilized.
- 2) Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased.
- 3) Temporary stabilizing seeding shall be completed as the disturbed areas are constructed. If construction activity is not planned to occur in a disturbed area for at least 21 days, the area shall be stabilized by temporary seeding or mulching within 14 days. Other stabilizing methods shall be used outside the seeding time period.
- 4) Stabilization measures to be used for this project are located in the Estimated Project Quantities (100-1A) and Estimate Reference Information (100-4A) located on the C sheets of the plan. Additional items may be found in the Inspector's Daily Reports (IDR) or Contract Modifications.

b. Structural Practices

- 1) Structural practices will be implemented to divert flows from exposed soils and detain or otherwise limit runoff and the discharge of pollutants from exposed areas of the site.
- 2) Structural items to be used for this project are located in the Estimated Project Quantities (100-1A) and Estimate Reference Information (100-4A) located on the C sheets of the plan, as well as all other item specific Tabulations. Typical drawings detailing construction of the devices to be used on this project can be found on the B sheets of the plan or are referenced in the Standard Road Plans Tabulation.

c. Storm Water Management

- 1) Measures shall be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. The installation of these devices may be subject to Section 404

POLLUTION PREVENTION PLAN

of the Clean Water Act.

2. OTHER CONTROLS

- a. Contractor disposal of unused construction materials and construction material wastes shall comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive laws, rules or regulations shall apply.
 - 1) Vehicle Entrances and Exits - Construct and maintain entrances and exits to prevent tracking of sediments onto roadways.
 - 2) Material Delivery, Storage and Use - Implement practices to prevent discharge of construction materials during delivery, storage, and use.
 - 3) Stockpile Management - Install controls to reduce or eliminate pollution of storm water from stockpiles of soil and paving.
 - 4) Waste Disposal - Do not discharge any materials, including building materials, into waters of the state, except as authorized by a Section 404 permit.
 - 5) Spill Prevention and Control - Implement procedures to contain and clean-up spills and prevent material discharges to the storm drain system and waters of the state.
 - 6) Concrete Residuals and Washout Wastes - Designate temporary concrete washout facilities for rinsing out concrete trucks. Provide directions to truck drivers where designated washout facilities are located.
 - 7) Vehicle and Equipment Cleaning - Employ washing practices that prevent contamination of surface and ground water from wash water.
 - 8) Vehicle and Equipment Fueling and Maintenance - Perform on site fueling and maintenance in accordance with all environment laws such as proper storage of onsite fuels and proper disposal of used engine oil or other fluids on site.
 - 9) Litter Management - Ensure employees properly dispose of litter.

3. APPROVED STATE OR LOCAL PLANS

During the course of this construction, it is possible that situations will arise where unknown materials will be encountered. When such situations are encountered, they will be handled according to all federal, state, and local regulations in effect at the time.

IV. MAINTENANCE PROCEDURES

The contractor is required to maintain all temporary erosion and sediment control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract period. This shall begin when the features have lost 50% of their capacity.

V. INSPECTION REQUIREMENTS

A. Inspections shall be made jointly by the contractor and the contracting authority at least once every seven calendar days. Storm water monitoring inspections will include:

1. Date of the inspection.
2. Summary of the scope of the inspection.
3. Name and qualifications of the personnel making the inspection.
4. Rainfall amount.
5. Review erosion and sediment control measures within disturbed areas for the effectiveness in preventing impacts to receiving waters.
6. Major observations related to the implementation of the PPP.
7. Identify corrective actions required to maintain or modify erosion and sediment control measures.

B. Include storm water monitoring inspection reports in the Amended PPP. Incorporate any additional erosion and sediment control measures determined as a result of the inspection. Immediately begin corrective actions on all deficiencies found and complete all actions within 3 calendar days of the inspection.

VI. NON-STORM WATER DISCHARGES

This includes subsurface drains (i.e. longitudinal and standard subdrains) and slope drains. The velocity of the discharge from these features may be controlled by the use of patio blocks, Class A stone, erosion stone or other appropriate materials.

VII. POTENTIAL SOURCES OF OFF RIGHT-OF-WAY (ROW) POLLUTION

Silts, sediment, and other forms of pollution may be transported onto highway right-of-way (ROW) as a result of a storm event. Potential sources of pollution located outside highway ROW are beyond the control of this PPP. Pollution within highway ROW will be conveyed and controlled per this PPP.

VIII. DEFINITIONS

- A. Base PPP - Initial Pollution Prevention Plan.
- B. Amended PPP - May include Plan Revisions or Contract Modifications for new items and fieldbook entries made by the inspector.
- C. IDR - Inspector's Daily Report - this contains the inspector's daily diary and item postings.
- D. Controls - Methods, practices, or measures to minimize or prevent erosion, control sedimentation, control storm water, or minimize contaminants from other types of waste or materials.
- E. Signature Authority - Representative from Designer, Contractor/Subcontractor, or RCE/Inspector authorized to sign various storm water documents.

EXISTING PAVEMENT

No.	Location					Year	Type	Project Number	Surface		Base		Subbase		Removal		Coarse Aggregate			Reinforcement	Remarks
	County	Route	Dir. of Travel	Begin Milepost	End Milepost				Type	Depth	Type	Depth	Type	Depth	Type	Depth	Source	Type	Durability Class	Type	
	Polk	I-80	EB/WB	138.56	141.58	2009		IMX-080-5(280)138--02-77	HMA	2	HMA	2	HMA	2	MIL	2					
						1994		IM-080-5(145)37--13-77	PCC	12.5	GSB	6					AMES MINE	C. LST.	I		
				141.58	142.15	2010		IM-080-5(273)142--13-77	HMA	3					MIL	1.5					
						2003		IMX-080-5(226)142--02-77	AAC	1.5	AAC	2									
						1960		I-IG-80-4(4)142	PCC	10	GSB	4								Wire mesh	
			EB	142.15	149.89	1989		IR-080-5(127)143	PCC	11.5	GSB	9					SULLY MINE	C. LST.	I		
			WB	142.15	149.89	1990		IR-080-5(130)143	PCC	11.5	GSB	9					SULLY MINE	C. LST.	I		

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	
1365+48.91	1373+07.25	Median	Detour	1653.9	1242.3	
1282+00.00	1365+55.09	Median	Mainline	21800.8	3934.8	
4308+85.01	4330+26.26	Out	Ramp	8771.0	582.3	
1330+25.00	1377+94.10	Out	Mainline	14382.9	2513.5	
1282+00.00	1307+50.00	Out	Mainline	4947.9	1215.2	
2298+50.00	2312+55.19	Out	Ramp	8898.5	323.9	
7871+79.00	7873+65.15	Median	Shoulder	265.4	192.2	Northbound
7871+79.00	7879+92.95	Median	Shoulder	1134.1	814.3	Southbound

FENCING

* Bid Item

Refer to MI-101, MI-102, MI-103, MI-104, 510-3, and 510-5

Location				Side	Chain Link				Deer				Field				Channel Crossing		Remarks
From		To			Fence		Gate		Fence Length*	Brace Panels*	Gate		Fence Length*	Brace Panels*	Gate		Length*	Type	
Station	Offset	Station	Offset		Length*	Type	No.*	Type			No.*	Type			No.*	Type			
					LF		EACH		LF	EACH	EACH		LF	EACH	EACH	LF			
1291+64.08	175.1	1292+67.10	155.1	RT	104.9	72 IN.													
1293+25.26	154.1	1294+39.18	175.0	RT	115.8	72 IN.													
1294+39.18	175.0	1301+99.91	175.0	RT	760.7	72 IN.													
1301+99.91	175.0	1306+47.83	310.0	RT	467.8	72 IN.													
1306+47.83	310.0	1309+38.00	416.8	RT	309.2	72 IN.													
1309+38.00	416.8	1309+50.97	538.8	RT	112.7	72 IN.													
1357+51.53	150.4	1359+13.75	155.0	RT	167.8	72 IN.													
1359+13.75	155.0	1362+11.13	165.0	RT	302.5	72 IN.													
1362+11.13	165.0	1362+97.05	180.0	RT	87.2	72 IN.													
1362+97.05	180.0	1363+35.00	180.0	RT	38.0	72 IN.													
1363+35.00	180.0	1364+05.00	175.0	RT	70.2	72 IN.													
1364+05.00	175.0	1369+05.00	145.0	RT	500.9	72 IN.													
1369+05.00	145.0	1373+27.69	155.0	RT	422.8	72 IN.													
1291+73.42	175.0	1292+62.22	150.9	LT	92.0	72 IN.													
1293+20.38	151.8	1293+98.42	176.5	LT	81.8	72 IN.													
1360+34.68	140.5	1363+15.00	175.0	LT	281.7	72 IN.													
1363+15.00	175.0	1363+75.00	180.0	LT	60.2	72 IN.													
1363+75.00	180.0	1369+05.00	150.0	LT	530.9	72 IN.													
1369+05.00	150.0	1374+71.67	175.0	LT	567.2	72 IN.													
					5074.5														

SANITARY OR STORM SEWER ABANDONMENT OR REMOVAL

* Not a bid item

Location/Description	Sanitary or Storm Sewer	Abandonment, Plug Only or Abandonment, Plug and Fill or Removal	Length of Pipe		Fill Material*	Remarks
			≤ 36 inch diameter	> 36 inch diameter	Flowable Mortar or CLSM	
			LF	LF	CY	
1288+00.46, 24" x 72.01' R.C.P.	Storm Sewer	Removal	72			
1292+30.74, 24" x 82.34' R.C.P.	Storm Sewer	Removal	82			
1293+70.93, 36" x 83.20' R.C.P.	Storm Sewer	Removal	83			
1295+01.64, 12" x 84.43' C.M.P.	Sanitary Sewer	Removal	84			
1300+00.00, 34.45' RT, 18" x 41.03' R.C.P.	Storm Sewer	Removal	41			
1305+00.00, 115.1' RT, 18" x 100.00' Steel Pipe	Sanitary Sewer	Removal	100			
1309+98.85, 42" x 376.4' R.C.P.	Sanitary Sewer	Abandonment, Plug Only		376		
1309+98.85, 42" x 116' C.M.P. Extension	Sanitary Sewer	Abandonment, Plug Only		116		
1316+50.00, 225.93' RT, 24" x 200' Steel Pipe	Sanitary Sewer	Removal	200			
1323+85.79, 242.78' RT, 48" x 54.00' R.C.P.	Sanitary Sewer	Removal		54		
1323+85.79, 48" x 200.46' R.C.P.	Sanitary Sewer	Abandonment, Plug Only		200		
1327+30.77, 183.73 RT, 30" x 36.00' R.C.P.	Sanitary Sewer	Removal	36			
1327+30.77, 30" x 105.77' R.C.P.	Sanitary Sewer	Abandonment, Plug Only	106			
1352+39.14, 37.66' RT, 24" x 69.16' R.C.P.	Storm Sewer	Removal	69			
1363+38.94, 36.71' RT, 24" x 53.02' R.C.P.	Storm Sewer	Removal	53			
1363+38.94, 94.49' RT, 84.04' C.M.P Extension	Storm Sewer	Removal	84			
1367+40.16, 0.33 LT, 15" x 344.00' C.M.P.	Storm Sewer	Removal	344			
7872+37.80, 35.60 RT, 15" x 131.75' R.C.P.	Storm Sewer	Removal	132			
		TOTAL:	1486	746		

CULVERT ABANDONMENT

Refer to Details 4315 and 4316

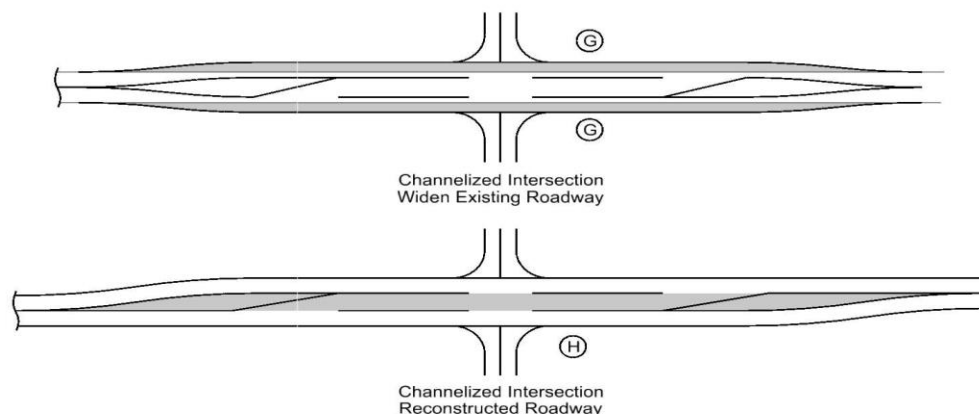
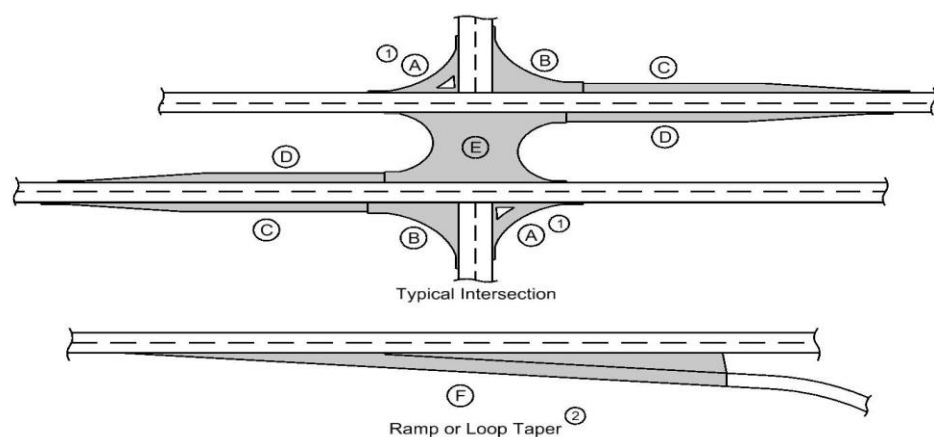
* Not a bid item

Location Station	Description	Fill Material		4" Perforated Subdrain*	Remarks
		Flowable Mortar	Granular Backfill*		
		CY	TON		

REMOVAL OF INTAKES AND UTILITY ACCESSES

No.	Location/Description	Type	Remarks

PCC PAVEMENT



- ① Does not include 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		Mainline			Area (3)								Total Area By Pavement Thickness		Special Backfill TONS	Modified Subbase CY	Granular Subbase SY	Remarks
	Direction of Travel	Station to Station	Width FT	Length FT	Area SY	A	B	C	D	E	F	G	H	12 IN	10% IN				
						SY	SY	SY	SY	SY	SY	SY	SY	SY	SY				
I-80																			
STAGE 1																			
STAGE 2																			
Interstate 80	EB	1282+00.00	1296+00.00	34.0	1400.0	5288.9								5288.9		3724.0		5755.6	
Interstate 80	EB	1342+49.97	1365+55.09	34.0	2305.1	8708.2								8708.2		6131.6		9476.6	
Interstate 80	EB	1282+00.00	1289+79.03	36.0	779.0	3116.1								3116.1				3116.1	
Interstate 80	EB	1289+79.03	1298+51.60	24.0	872.6	2326.9								2326.9				2326.9	
Interstate 80	EB	1298+51.60	1304+00.00	24.0	548.4	1462.4								1462.4				1462.4	
Interstate 80	EB	1289+79.03	1296+00.00	2-26.73	621.0	#####							1166.7	1166.7					
Interstate 80	EB	1296+00.00	1298+51.60	6.73-41	251.6	#####							936.9	936.9					
Interstate 80	EB	1304+00.00	1307+50.00	12.0	350.0	466.7								466.7				583.3	
Hubbell Ramp B	SB	2298+50.00	2304+80.00	24.0	630.0	1680.0								1680.0				700.0	
Hubbell Ramp B	SB	2304+80.00	2305+00.00	26.0	20.0	57.8								57.8				23.7	
Hubbell Ramp B	SB	2305+00.00	2305+80.00	26-36	80.0	#####							267.2	267.2				27.7	
Hubbell Ramp B	SB	2305+80.00	2306+00.00	36-38	20.0	#####							82.2	82.2				7.5	
Hubbell Ramp B	SB	2306+00.00	2307+00.00	38-48	100.0	#####							476.8	476.8				39.9	
Hubbell Ramp B	SB	2307+00.00	2311+04.68	48.0	404.7	2158.3							2158.3	2158.3				809.4	
Hubbell Ramp B	SB	2311+04.68	2312+43.27	48.0	138.6	739.1							739.1	739.1				261.8	
Hubbell Ramp B	SB	2311+04.68	2312+43.27	2to2	138.6	#####		267.2					267.2	267.2				25.3	
Hubbell	NB	7871+79.00	7872+99.50	28-2	120.5	#####							454.3	454.3				21.3	
Hubbell	SB	7872+99.50	7879+92.50	12.0	693.0	924.0							924.0	924.0		582.1		924.0	
STAGE 3																			
Interstate 80	EB	1330+25.00	1365+55.09	12.0	3530.1	4706.8								4706.8		3953.7		5883.5	
Interstate 80	EB	1330+25.00	1344+23.90	40.3-2	1398.9	#####							2171.7	2171.7				707.6	
Interstate 80	EB	1365+55.09	1377+94.10	24.0	1239.0	3304.0							3304.0	3304.0		2428.5		3717.0	
Hubbell Ramp D	EB	4309+80.79	4311+54.79	2to16	174.0	#####	231.3						231.3	231.3				47.2	
Hubbell Ramp D	EB	4311+54.79	4313+41.22	16.0	186.4	331.4							331.4	331.4				151.9	
Hubbell Ramp D	EB	4313+41.22	4322+59.97	16.0	918.8	1633.3							1633.3	1633.3				646.5	
Hubbell Ramp D	EB	4322+59.97	4330+26.26	16.0	766.3	1362.3							1362.3	1362.3				624.4	
Hubbell Ramp D	EB	4313+41.22	4322+59.97	33.26-2	918.8	#####							1573.0	1573.0				160.3	
Hubbell Ramp D2	EB	44312+22.33	44313+41.82	2-20.65	119.5	#####		341.6					341.6	341.6				39.2	
Hubbell	NB	7866+61.72	7872+20.00	12.0	558.3	744.4							744.4	744.4		625.3		930.5	
STAGE 4																			
Interstate 80 Median		1263+90.00	1267+85.00	6.0	395.0	263.3								263.3		83.0			

PAVEMENT SMOOTHNESS + PCC TEXTURE

Road Identification	Begin Station	End Station	Proposed Posted Speed			Remarks
			35 or less	40 - 45	over 45	
Interstate 80	1282+00.00	1377+94.10			X	
Hubbell	7871+79.00	7879+92.95		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	TON/STA	TON ②	TON/STA										
I-80																										
STAGE 1																										
STAGE 2																										
Interstate 80	EB	1285+89.37	1298+51.60	Out	6.0	1262.2		387.1	30.7	23.2			898.6	71.2	852.6	67.6								12.6	1359.0	1417.0
Interstate 80	EB	1298+51.60	1307+50.00	Out	0.0	898.4		0.0	0.0	0.0			0.0	0.0	0.0	0.0								9.0	1152.6	
Ramp B	EB	2298+50.00	2311+04.68	Out	6.0	1254.7		384.8	30.7	23.1			855.4	68.2	814.2	64.9								12.5	1002.3	1053.5
Ramp B	EB	2311+04.68	2312+37.27	Out	6 to 4	132.6		34.2	25.8	2.1	73.7		75.1	56.6	69.2	52.2								1.3	160.8	167.2
Ramp B	EB	2298+50.00	2312+43.27	Med	4.0	1393.3		292.9	21.0	17.6			599.8	43.1	537.4	38.6								13.9	1124.9	1187.4
Hubbell		7871+79.00		Med	6.0	40.0		12.3	30.7	0.7			27.3	68.2	26.0	64.9								0.4	32.0	33.6
Hubbell	NB	7872+51.03	7873+27.78	Med	6.0	76.8		23.5	30.7	1.4			52.3	68.2	49.8	64.9								0.8	61.3	64.4
Hubbell	NB	7873+27.78	7873+65.15	Med	6 to 4	37.4		9.6	25.8	0.6	20.8		21.2	56.6	19.5	52.2								0.4	45.3	47.1
Hubbell	SB	7872+51.03	7875+93.82	Med	6.0	342.8		105.1	30.7	6.3			233.7	68.2	222.4	64.9								3.4	273.9	287.8
STAGE 3																										
Interstate 80	EB	1330+25.00	1343+74.08	Out	6.0	1349.1		416.7	30.9	25.0			965.1	71.5	915.1	67.8								13.5	1192.7	1255.6
Interstate 80	EB	1343+74.08	1345+73.36	Out	6 to 2	199.3		41.8	21.0	2.5	88.6		90.7	45.5	99.5	49.9								2.0	290.1	289.6
Interstate 80	EB	1345+73.36	1377+94.10	Out	0.0	3220.7		0.0	0.0	0.0			0.0	0.0	0.0	0.0								32.2	5977.5	
Ramp D	EB	4309+82.79	4310+13.15	Out	4 to 6	30.4		7.9	25.9	0.5	16.9		17.1	56.4	15.9	52.4								0.3	27.4	28.8
Ramp D	EB	4310+13.15	4330+23.88	Out	6.0	2010.7		625.4	31.1	37.5			1397.7	69.5	1331.5	66.2								20.1	1622.0	1712.1
Ramp D	EB	4310+88.72	4330+25.78	Med	4.0	1937.1		407.3	21.0	24.4			833.9	43.1	747.1	38.6								19.4	1562.6	1649.4
Ramp D2	EB	44312+22.33	44313+41.82	Out	6.0	119.5		36.6	30.7	2.2			81.4	68.1	77.3	64.7								1.2	89.8	95.1
Ramp D2	EB	44312+22.33	44313+41.11	Med	4.0	118.8		25.0	21.0	1.5			52.3	44.0	46.9	39.5								1.2	52.6	57.9
STAGE 4																										

STEEL BEAM GUARDRAIL FOR SIDE OBSTACLE (ONE-WAY PROTECTION)

Refer to BA-200, BA-203, BA-205, BA-206, BA-210, BA-211, BA-252, SI-172, SI-173, and SI-211.

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

No.	Direction of Traffic ①	Location		Offset	O _L	D ₀	Layout Lengths BA-252					Long-Span System		Delineators and Object Markers				Bid Items					Remarks	
		Side	Station				Approach Side (A)			Trailing Side (T)		SI-211	SI-172	Object Marker SI-173			Steel Beam Guardrail	W-Beam End Anchor	End Terminal			Post Adapter		
							ET	VT _{2A}	VF _A	VT _{1A}	VT _{1T}			EA	Type 1	Type 2			Type 3	Standard	Flared			BA-210
							37.5' or 50.0'							9.375'	White	OM2-2			OM3-L	OM3-R	BA-200			BA-203
		FT	FT	FT	LF	LF	LF	LF	LF	LF	STATION	TYPE	TYPE	White	EACH	EACH	EACH	EACH	BA-200	BA-203	BA-205	BA-206	BA-210	
			1297+94.0	106.4	12.8	0.0	50.0	75.00	25.00	12.50	18.75	9.375							125.0	1	1			

HIGH TENSION CABLE GUARDRAIL

Refer to BA-351.

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

No.	Direction of Traffic ①	Location		Offset D ₀	Approach C _A	Obstacle C _O	Trailing C _T	Protection Length (C _A +C _O +C _T)	End Anchor No.	Remarks
		Station	Side							
	I-80 EB	1272+29.24	Out	12.0	113.0	12.8	0.0	125.8	2	
	I-80 EB	1288+58.63	Out	6.0	135.0	12.8	317.7	465.5	2	
	I-80 EB	1359+23.85	Med	2.0	170.0	12.8	0.0	182.8	2	
	I-80 EB	1375+93.98	Med	0.0	199.8	12.8	93.3	305.9	1	
	I-80 EB	1379+00.00	Med	4.0	2271.5	87.8	0.7	2360.0	1	
	I-80 WB	1342+15.00	Med	2.0	1877.1	12.8	448.6	2338.5	1	
	I-80 WB	1365+55.00	Med	8.0	1239.0	12.8	195.9	1447.7	0	
	I-80 WB	1370+00.00	Med	8.0-6.0	0.0	100.0	0.0	100.0	0	
	I-80 WB	1371+00.00	Med	6.0	683.7	12.8	196.0	892.5	1	

GRADING FOR GUARDRAIL INSTALLATIONS

Refer to EW-301

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

No.	Direction of Traffic ①	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	
	EB	1298+06.42	Rt	0.417361111	25.0	5.0	37.3	7.5	106.1	7.3	162.5	10.6	60.4	49.3	64.1	

TEMPORARY BARRIER RAIL

Refer to BA-400 and BA-401

* Not a bid item. Anchorage requirements are based on TBR locations shown in the plans. TBR alignments that vary from what is shown in the plans may result in additional TBR sections requiring anchorage.

No.	Station to Station	Length LF	(Select One)		Anchored* (Y/N)	Remarks	
			Steel BA-400	Concrete BA-401			
Stage 1							
Stage 2							
	1253+49.5	1315+66.1	6220.6		X	No	Between temporary I-80 EB and WB lanes
	1262+35.1	1293+43.2	3105.0		X	No	I-80 Median
	1292+62.1	1307+59.6	1497.8		X	No	I-80 Median
	1317+07.1	1340+87.9	2381.0		X	No	I-80 Median
	7873+98.5	7877+99.0	400.5		X	No	Hubbell NB Left
	7874+94.4	7877+77.45	283.5		X	No	Hubbell SB Left
	7878+94.3	7879+97.1	102.9		X	No	Hubbell SB Left
Stage 3							
	1249+00.0	1262+35.1	1335.1		X	No	Extend existing I-80 Median TBR
	1335+50.5	1370+01.0	3452.5				Extend existing I-80 Median TBR between temporary EB and WB lanes
	1327+01.4	1378+92.5	5199.8		X	No	Right of I-80 temporary EB lanes
Stage 4							
	Total:		23978.7				

CRASH CUSHIONS

* Bid Item

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

② Complete this section when using the Temporary Crash Cushion bid item and Earthwork is needed for Sand Barrel placement. Refer to BA-500

No.	Direction of Traffic	Location Station	Side	Obstacle Width FT	Crash Cushion (Select One)*					Sand Barrel Details ②					Earthwork*		Spare Parts Kit (Select One)*		Obstacle Description	Remarks
					Temporary	Temporary Redirective	Temporary Severe Use	Permanent	Permanent Severe Use	V	W	X	Y	Z	Excavation Class 10 CY	Embankment in Place CY	Permanent EACH	Permanent Severe Use EACH		
										Length FT	Length FT	Length FT	Length FT	Length FT						
Stage 1																				
Stage 2																				
	WB	1340+89.0	LT	1.90	1															
	NB	7873+98.5	LT	1.90	1															
	SB	7879+98.5	LT	1.90	1															
Stage 3																				
Stage 4																				
	Total:				3															

MEDIAN CROSSOVERS

Refer to PV-500 Series.

* Not a bid item

Road Ident.	Location Station	Standard Road Plan	Detour Pavement	Special Backfill	Granular Shoulder	Embankment in Place	Class 10 Excavation	Class 13 Excavation	Removal of Pavement	Saw Cut*	18" Unclassified Roadway Pipe	36" CMP Slotted Drain/ 6" Grate	Beveled Pipe and Guard	Remarks
		No.	SY	TON	TON	CY	CY	CY	SY	LF	LF	LF	No.	

SAFETY CLOSURES			
Refer to Section 2518 of the Standard Specifications			
Station	Closure Type		Remarks
	Road Qty.	Hazard Qty.	

TEMPORARY FLOODLIGHTING LUMINAIRES				
No.	Location Station	Offset	Number Lumin.	Remarks

LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

Refer to Soils Sheets

① Refer to EW-203, EW-204, or EW-211.
*Not a bid item

EMBANKMENT WITH MOISTURE CONTROL

Moisture content shall be within the limits of minus 2_ and plus 2_ percentage points of Optimum Moisture Content for maximum density within the area described and listed below.

Moisture Control is required for all Class 10 fill placed in all locations and depths. Stability berms placed outside the normal foreslope template and topsoil will not require Moisture Control.

Line No.	Road or Lane Ident.	Location Station to Station		Side	Longitudinal Subdrain (RF-19C)							Subdrain Outlet			Porous* Backfill CY	Class "A" Crushed Stone CY	Remarks	
					Shoulder		Backslope		Bridge Berm ①			RF-19C, RF-19E, or RF-19F						
					Depth (D)	Size IN	Length FT	Size IN	Length FT	Size IN	Type	Length FT	Station	Size IN				Standard Road Plan and Type
1	I-80	1282+00.00	1287+00.00	RT	42.0	4.0	540.0						1282+00.00	6.0	RF-19E	50.0	0.2	
2	I-80	1287+00.00	1290+96.00	RT	42.0	4.0	436.0						1287+00.00	6.0	RF-19E	40.4	0.2	
3	I-80	1291+04.00	1294+14.50	RT	42.0	4.0	350.5						1291+04.00	6.0	RF-19E	32.5	0.2	
4	I-80	1294+23.50	1298+50.00	RT	42.0	4.0	466.5						1294+23.50	6.0	RF-19E	43.2	0.2	
5	I-80	1298+50.00	1303+50.00	RT	42.0	4.0	540.0						1298+50.00	6.0	RF-19E	50.0	0.2	SEE NOTE 1
6	I-80	1303+50.00	1307+50.00	RT	42.0	4.0	440.0						1303+50.00	6.0	RF-19E	40.7	0.2	
7	I-80	1328+50.00		RT	42.0	4.0	50.0						1328+50.00	6.0	RF-19E	4.6	0.2	SEE NOTE 2
8	I-80	1328+50.00	1333+50.00	RT	42.0	4.0	540.0						1333+50.00	6.0	RF-19E	50.0	0.2	SEE NOTE 3
9	I-80	1333+50.00	1339+00.00	RT	42.0	4.0	590.0						1339+00.00	6.0	RF-19E	54.6	0.2	SEE NOTE 4
10	I-80	1363+45.00	1368+00.00	RT	42.0	4.0	495.0						1363+45.00	6.0	RF-19E	45.8	0.2	
11	I-80	1368+00.00	1373+00.00	RT	42.0	4.0	540.0						1373+00.00	6.0	RF-19E	50.0	0.2	
12	I-80	1373+00.00	1376+32.00	RT	42.0	4.0	372.0						1376+32.00	6.0	RF-19E	34.4	0.2	
13	I-80	1376+76.00	1377+94.00	RT	42.0	4.0	138.0						1377+94.00	6.0	RF-19E	12.8	0.2	CAP @ 1377+94
14	RAMP B	2298+50.00	2304+00.00	RT	42.0	4.0	590.0						2304+00.00	6.0	RF-19E	56.9	0.2	
15	RAMP B	2304+00.00	2309+75.00	RT	42.0	4.0	615.0						2309+75.00	6.0	RF-19E	23.0	0.2	
16	RAMP B	2309+75.00	2311+83.00	RT	42.0	4.0	248.0						2311+83.00	6.0	RF-19E	50.0	0.2	
17	RAMP D	4316+00.00	4321+00.00	LT	42.0	4.0	540.0						4321+00.00	6.0	RF-19E	26.9	0.2	
18	RAMP D	4310+00.00	4312+50.00	RT	42.0	4.0	290.0						4312+50.00	6.0	RF-19E	63.9	0.2	
19	RAMP D	4312+50.00	4319+00.00	RT	42.0	4.0	690.0						4319+00.00	6.0	RF-19E	50.0	0.2	
20	RAMP D	4319+00.00	4324+00.00	RT	42.0	4.0	540.0						4324+00.00	6.0	RF-19E	45.1	0.2	
21	RAMP D	4324+00.00	4328+47.00	RT	42.0	4.0	487.0						4328+47.00	6.0	RF-19E	49.6	0.2	SEE NOTE 5
22	RAMP D	4328+54.00	4333+50.00	RT	42.0	4.0	536.0						4333+50.00	6.0	RF-19E	31.9	0.2	SEE NOTE 5
23	RAMP D	44313+00.00	4316+00.00	RT	42.0	4.0	344.0						4316+00.00	6.0	RF-19E		0.2	
Totals							10378.0	0.0							44	960.9	8.8	

- NOTE: ALL LONGITUDINAL SUBDRAINS ARE TYPE 7 WITH PCC OR TYPE 8 WITH HMA (ACC) UNLESS OTHERWISE NOTED IN REMARKS COLUMN.
 NOTE: ANY/ALL EXISTING LONGITUDINALSUBDRAINS SHALL BE REMOVED WITHIN THE PAVEMENT RECONSTRUCTION AREA. SEE CS.2 FOR DETAILS.
 NOTE 1: EXTEND OUTLET UNDER RAMP B & INSTALL PRIOR TO PAVING
 NOTE 2: EXTEND EXISTING OUTLET THROUGH RAMP
 NOTE 3: EXTEND OUTLET @ 1328+50 THROUGH NEW RAMP & INSTALL PRIOR TO PAVING.
 NOTE 4: RUN LONGITUDINAL SUBDRAIN UNDER PAVED SHOULDER SIMILAR TO RF-19C TYPE 12 AND OUTLET @ 1333+50.
 NOTE 5: INSTALL OUTLET ADJACENT TO OUTLETS EXTENDED FROM MAINLINE.

103-7
08-01-08

SHRINKAGE DATA

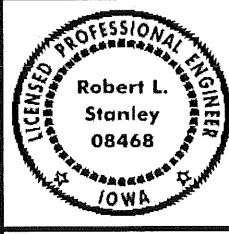
Material	%	Remarks
TOPSOIL	40%	
REMAINDER PROJECT CUT	30%	
		25 Cu. Yds. Boulders

RLS-1

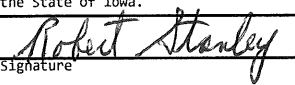
SPECIAL ATTENTION-SLIVER FILL

Special attention should be given to Article 2107.03.C, Standard Specification Series of 2012, on this project.

GEOTECHNICAL 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.

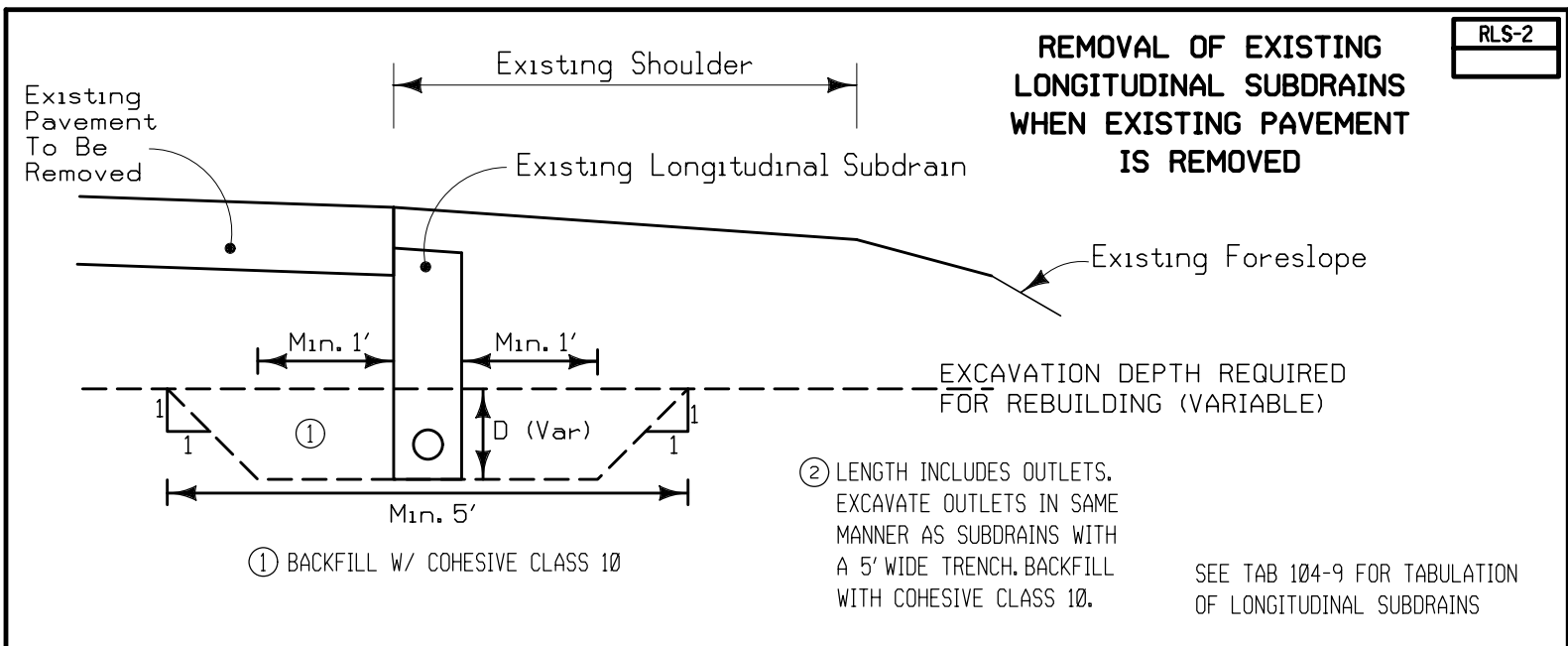

 Signature
 Date: 4-24-14

Robert L. Stanley
 Printed or Typed Name
 My license renewal date is December 31, 2014

Pages or sheets covered by this seal: CS.1 - 2

RLS-2

**REMOVAL OF EXISTING
LONGITUDINAL SUBDRAINS
WHEN EXISTING PAVEMENT
IS REMOVED**



ROAD IDENTIFICATION	LOCATION			② LENGTH	③ DEPTH	EXCAVATION QUANTITY (CY)	REMARKS
	STATION TO	STATION	SIDE				
I-80	1282+00	1290+96	RT	956'	18'	266'	ANY ADDITIONAL LONGITUDINAL SUBDRAINS SHALL BE REMOVED IN THIS MANNER.

SURVEY SYMBOLS

	Interstate Highway Symbol		Cistern
	U.S. Highway Symbol		L.P. Gas Tank (No Footing)
	Iowa Highway Symbol		Underground Storage Tank
	County Road Highway Symbol		Latrine
	Evergreen Tree		Luminaire
	Deciduous Tree		Traffic Signal
	Fruit Tree		Traffic Signal with Luminaire
	Shrub (Bushes)		Telephone Pedestal
	Timber		Television Pedestal
	Hedge		Telephone Pole
	Stump		Telephone Pole (Second Company)
	Swamp		Telephone Pole (Third Company)
	Rock Outcrop		Telephone Pole (Fourth Company)
	Broken Concrete		Telephone Pole (Fifth Company)
	Revetment (Rip Rap)		Power Pole
	Cemetery		Power Pole (Second Company)
	Grave		Power Pole (Third Company)
	Cave		Power Pole (Fourth Company)
	Sink Hole		Power Pole (Fifth Company)
	Board Fence		Electrical Highline Tower (Metal or Concrete)
	Chain Link or Security Fence		Telephone Riser Pole
	Wire Fence		Power Riser Pole
	Terrace		Telegraph Pole
	Earth Dam or Dike (Existing)		Satellite TV Dish
	Earth Dam or Dike (Proposed)		Water Hook Up
	Tile Outlet		Radio Tower
	Edge of Water		Tower Anchor
	Existing Drainage		Guardrail (Beam or Cable)
	Proposed Drainage		Guard Post (one or two)
	Right of Way Rail or Lot Corner		Guard Post (over two)
	Concrete Monument		Filler Pipe
	Well		Gas Valve
	Windmill		Water Valve
	Beehive Intake		Speed Limit Sign
	Existing Intake		Mile Marker Post
	Proposed Intake		Sign
	Existing Utility Access (Manhole)		Traffic Signal Control Box
	Proposed Utility Access (Manhole)		Rail Road Signal Control Box
	Fire Hydrant		Telephone Switch Box
	Water Hydrant (Rural)		Electric Box

UTILITY LEGEND

	City of Altoona Aaron Putnam 407 8th Street SE Altoona, IA 50009 515-967-5136 aputnam@altoona-iowa.com
	Des Moines Water Works Gary Benjamin 2201 George Flagg Parkway Des Moines, IA 50321 515-283-8731 benjamin@dmww.com
	Mid American Energy Eric Cheikes 10510 Douglas Avenue. Urbandale, IA 50322 515-252-6497 escheikes@midamerican.com
	Iowa Department of Transportation Scott Smyth 515-986-5457 Scott.Smyth@dot.iowa.gov
	Mid American Energy Tom Albertson 106 East Second Street Davenport, IA 52801 563-333-8155 ktalbertson@midamerican.com
	Century Link Steven Parker 2103 E. University Ave. 1st Floor Des Moines, IA 50317 515-265-0968 StevenParker4@CenturyLink.com
	Level 3 Communications Marsha Kidd TC-115 216B 1 Technology Center Tulsa, OK 74102 918-547-0029 marsha.kidd@level3.com
	Lightcore Robert Sampson 1151 Century Tel Drive Building A Wentzville, MO 63385 636-887-5367 robert.sampson@centurylink.com
	Iowa Network Services Jeff Klocko 4201 Corporate Dr. West Des Moines, IA 50266 515-830-0445 jeff@netins.net
	Magellan Midstream Partners Tim Kassen One Williams Center MD 27-2 Tulsa, OK 74172 819-574-7351 tim.kassen@magellanlp.com
	Koch Pipeline Inc. Jennifer Sweeney Box 64596 Saint Paul, MN 55164 651-480-3936 jennifer.sweeney@kockpipeline.com
	Iowa Department of Transportation
	@dot.iowa.gov

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)	HMA Overlay Shading
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

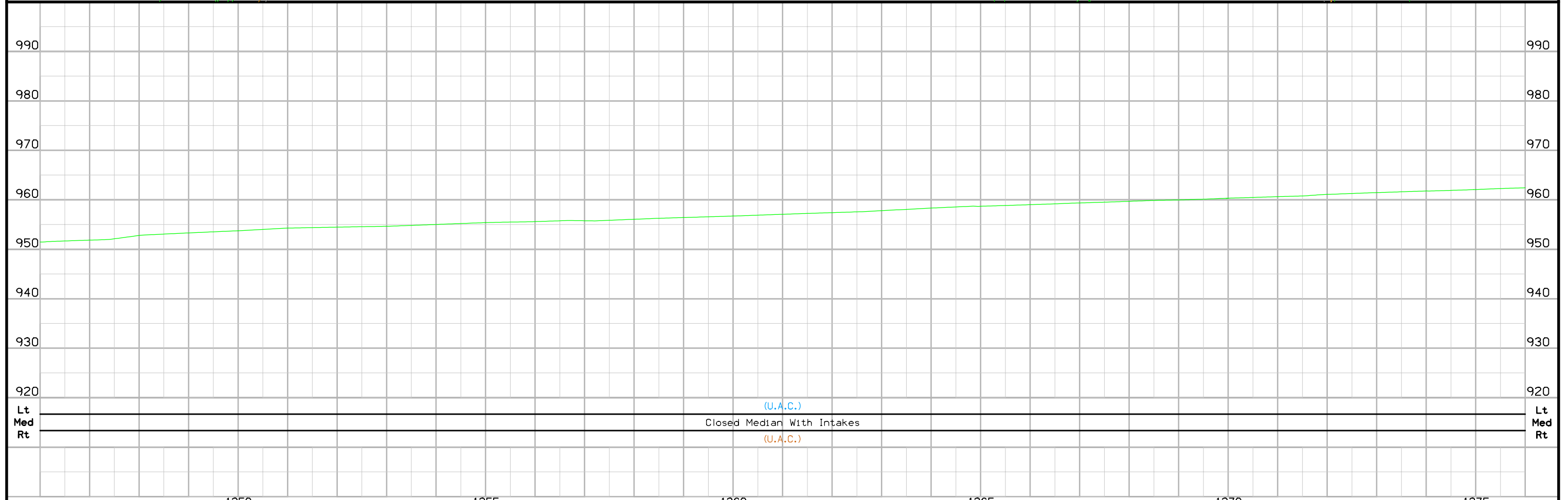
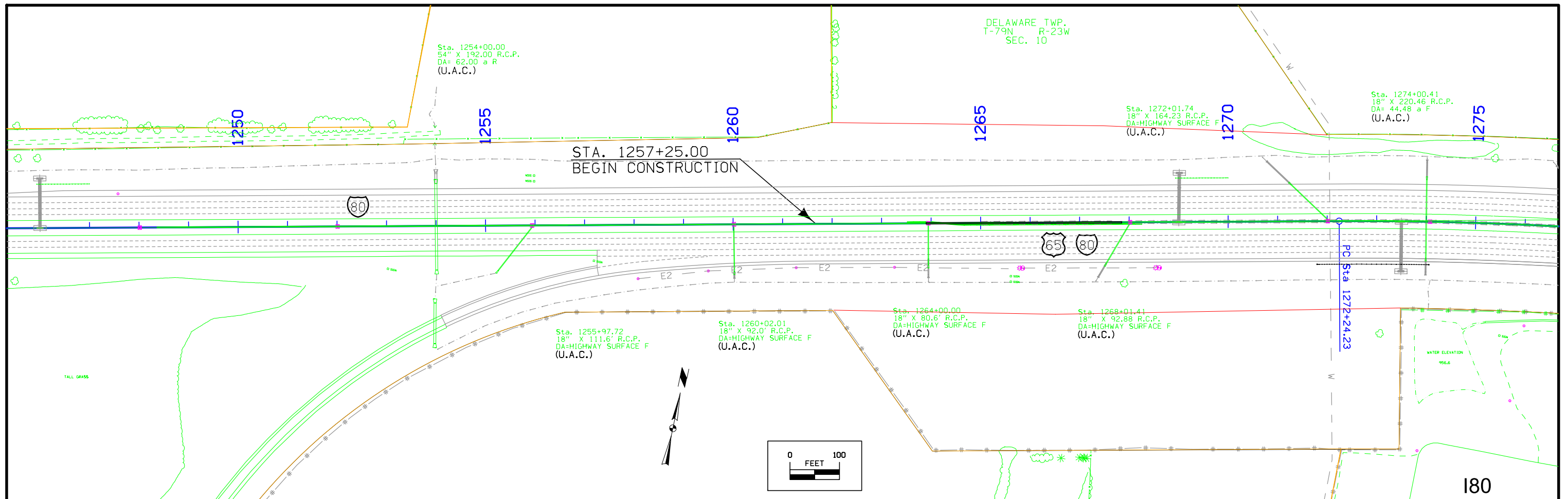
LINEWORK	Design Color No.	
Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

RIGHT-OF-WAY LEGEND

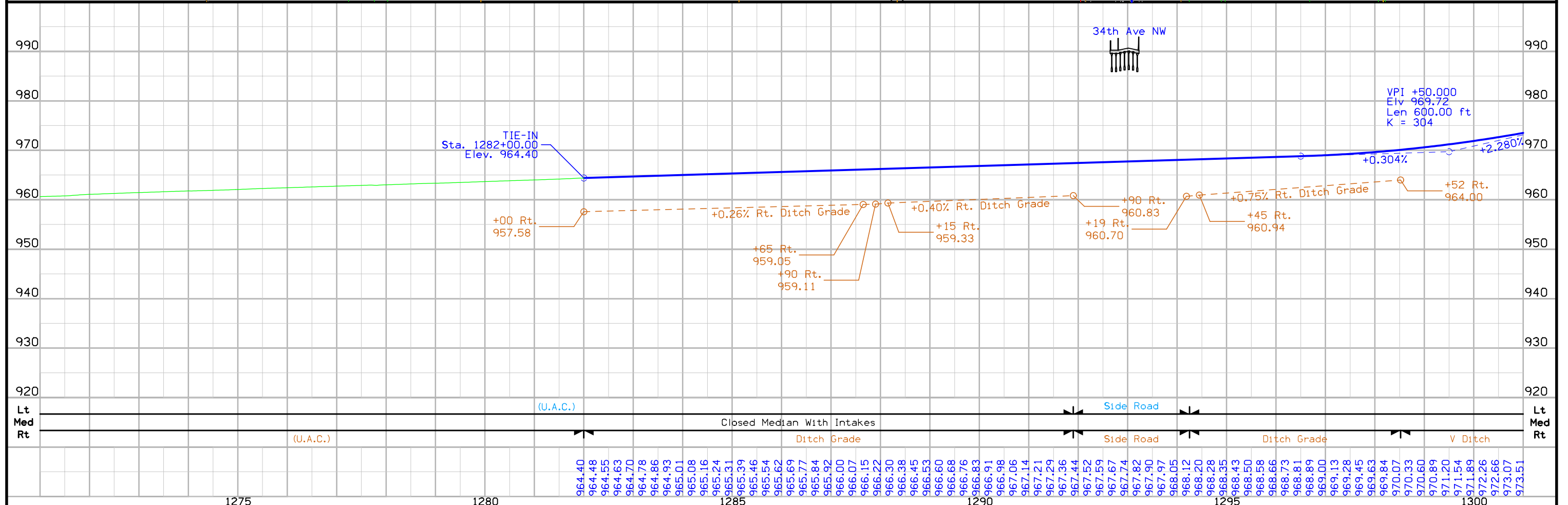
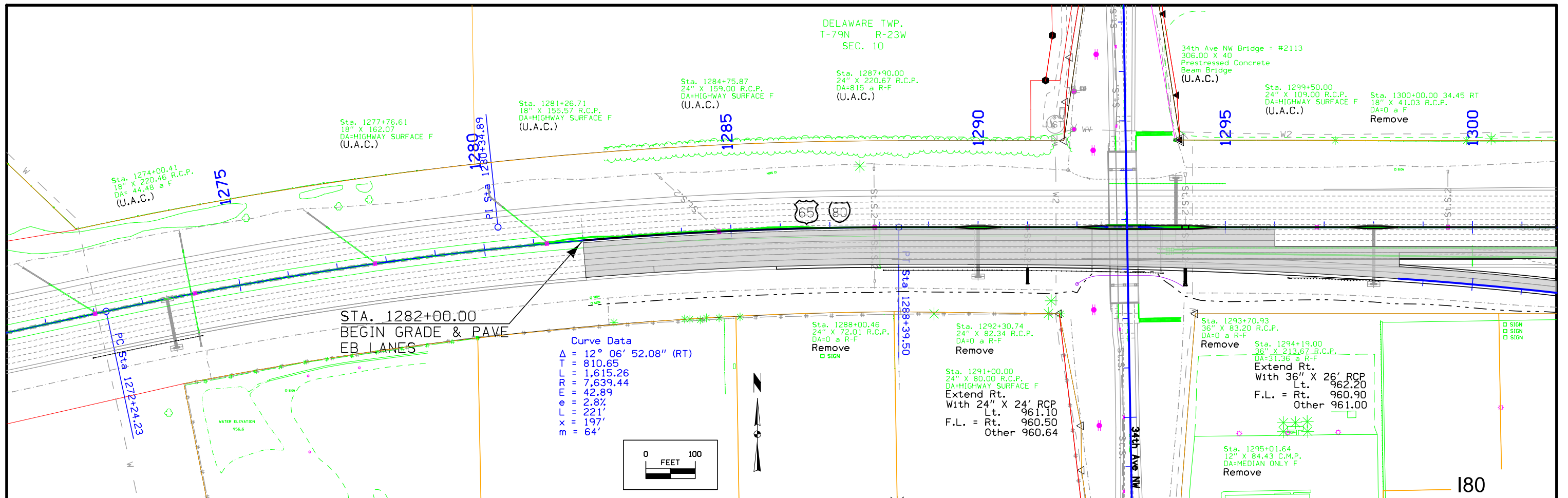
- Proposed Right-of-Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Borrow
- Easement (Temporary)
- Easement
- Excess
- Access Control

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

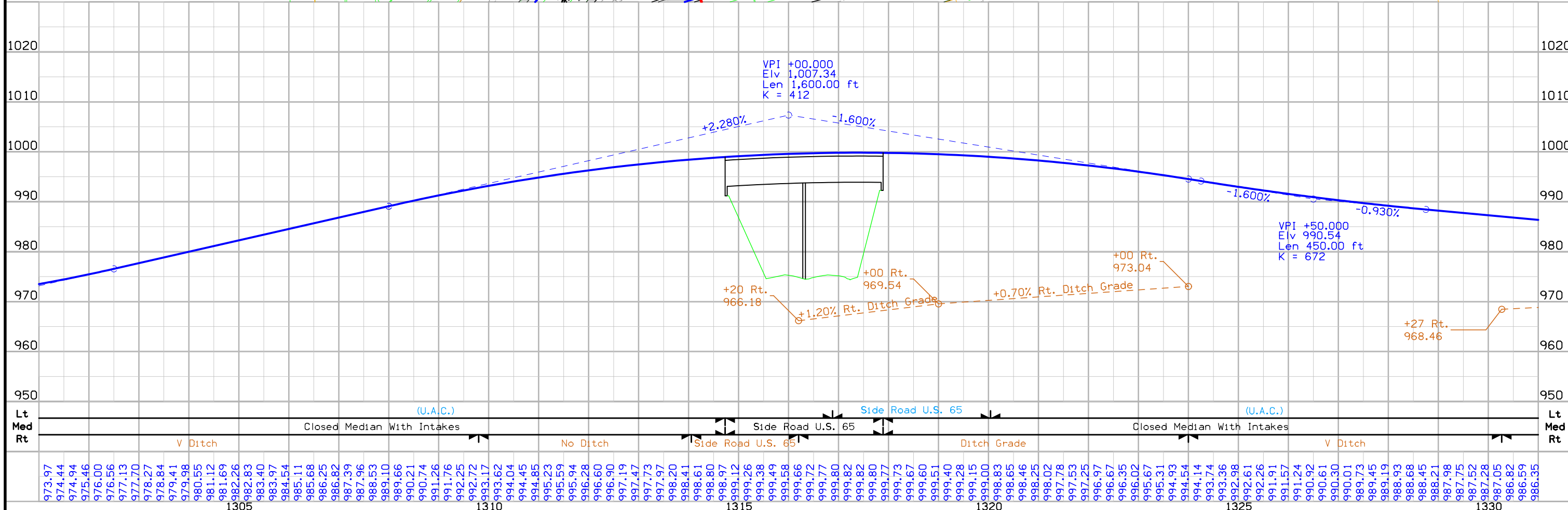
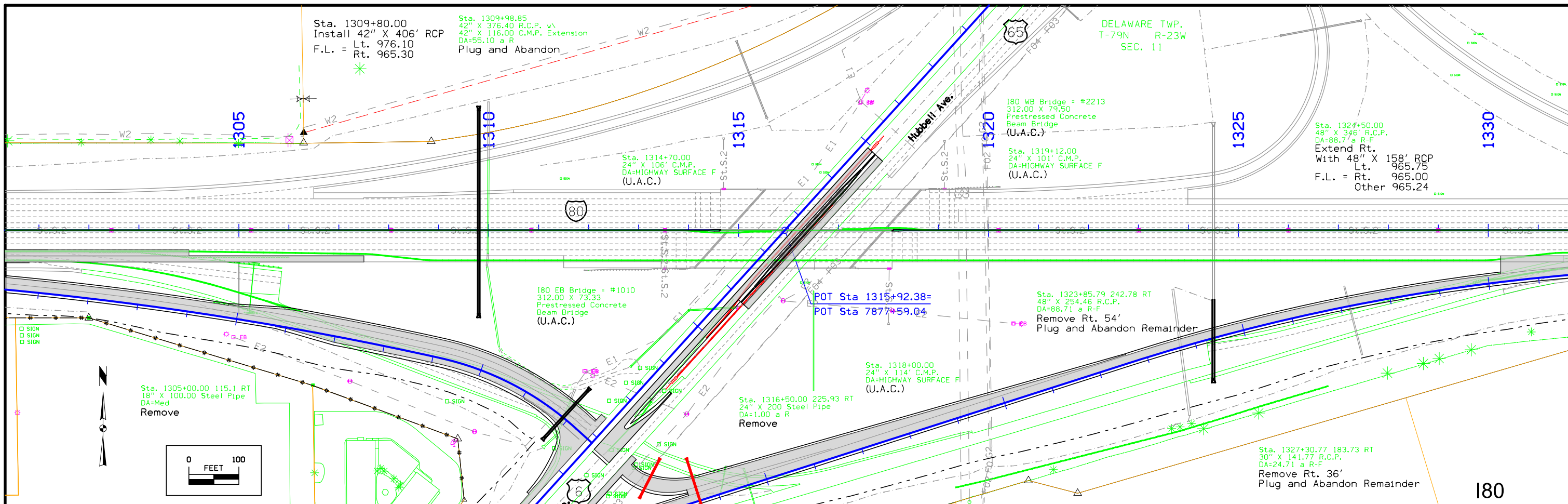
(COVERS SHEET SERIES D, E, F, & K)



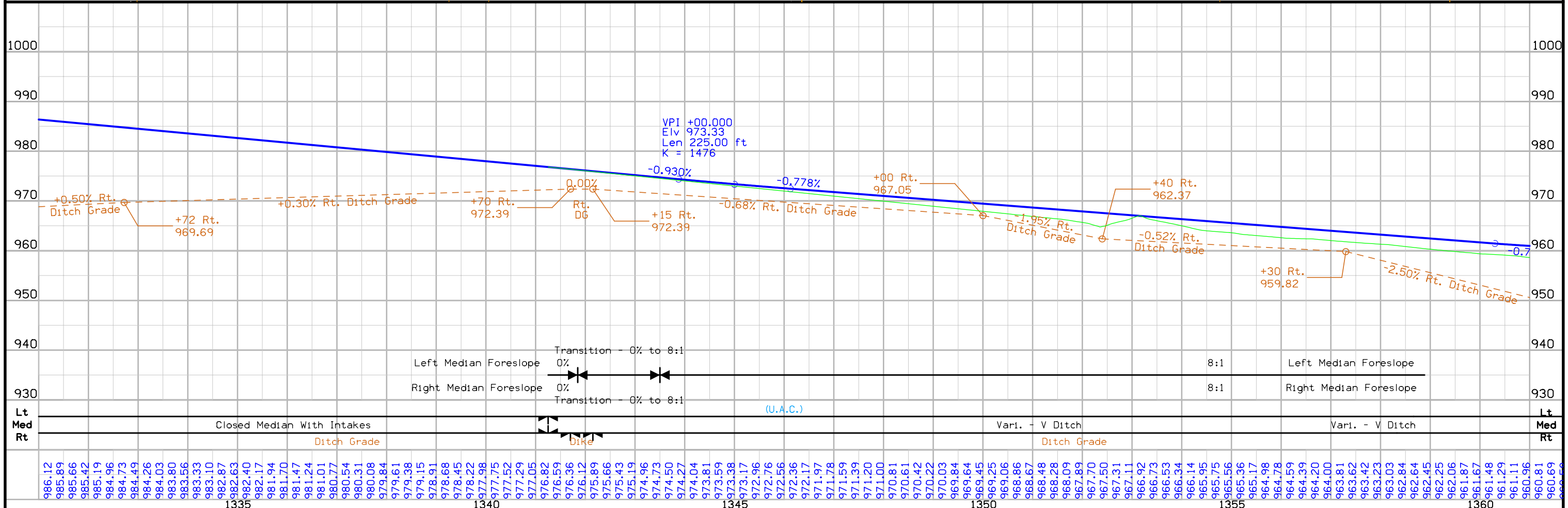
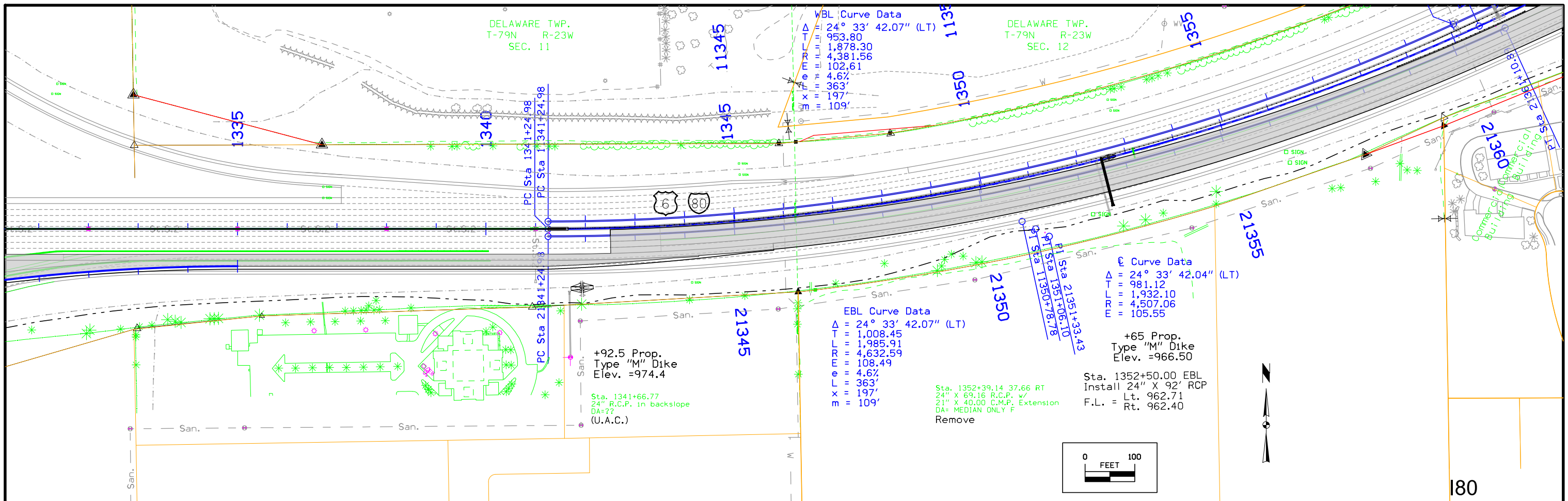
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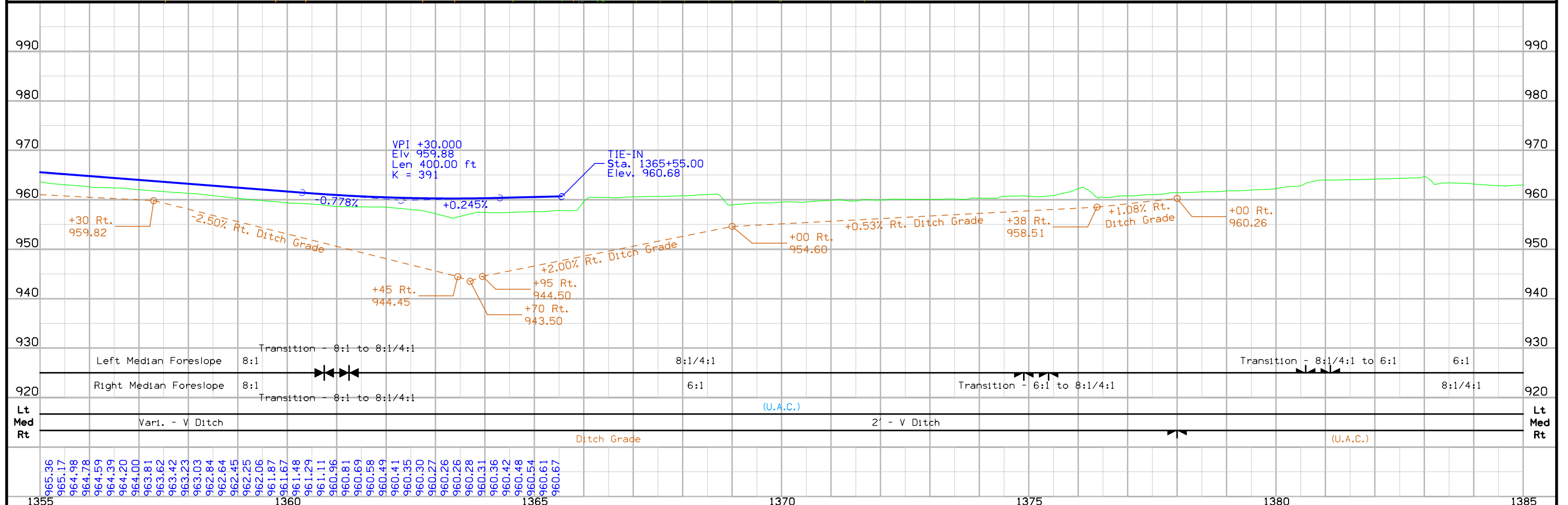
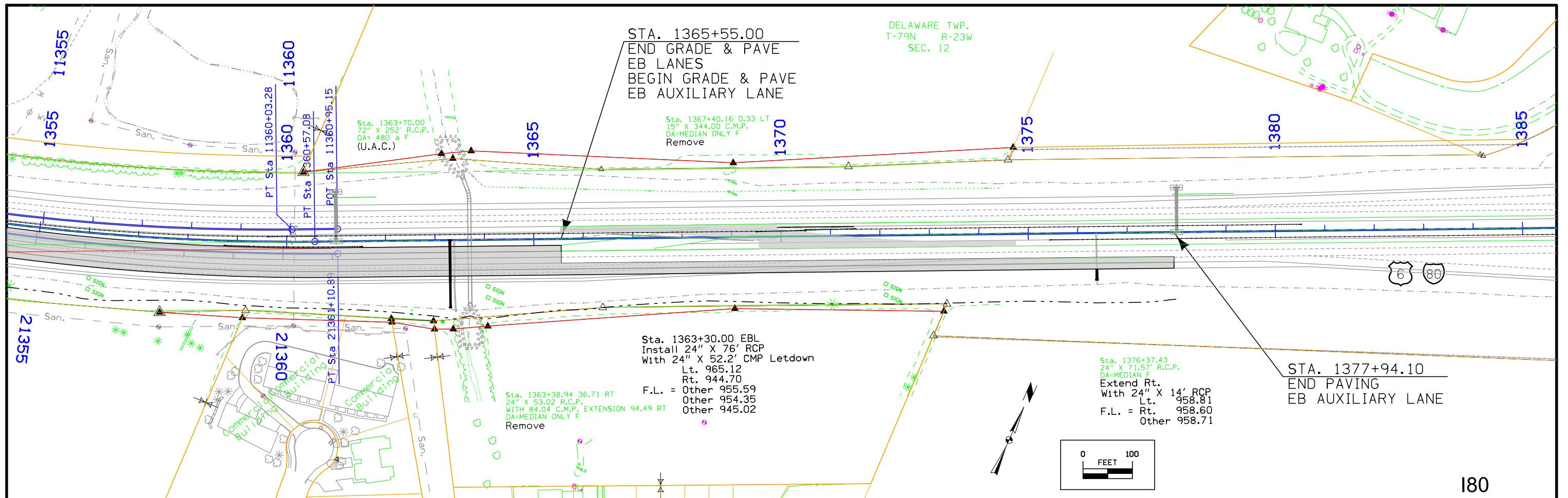


FILE NO.	ENGLISH	DESIGN TEAM	FLATTERY\Gansen	POLK COUNTY	PROJECT NUMBER	IM-080-5(298)142--13-77	SHEET NUMBER	D.3
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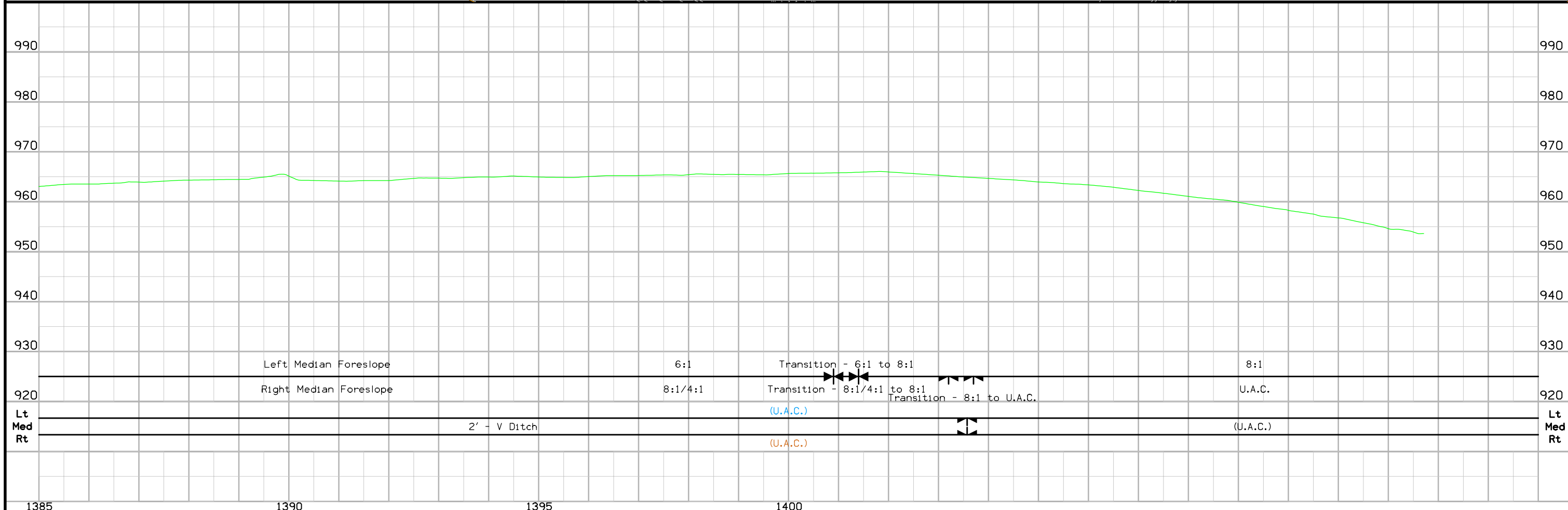
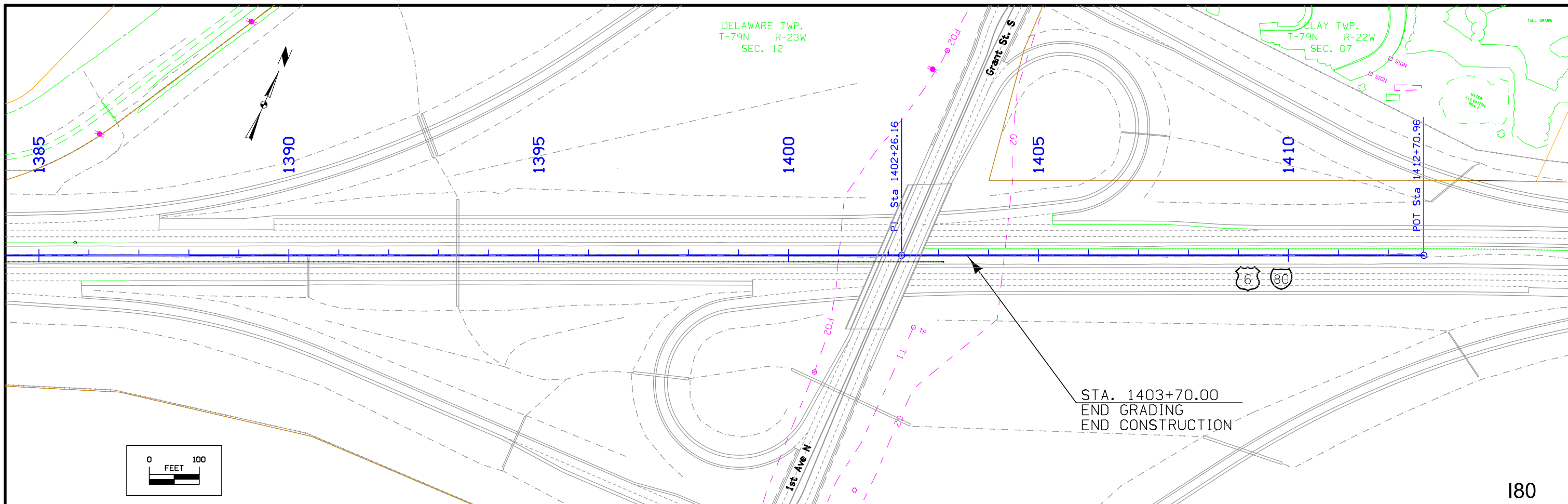


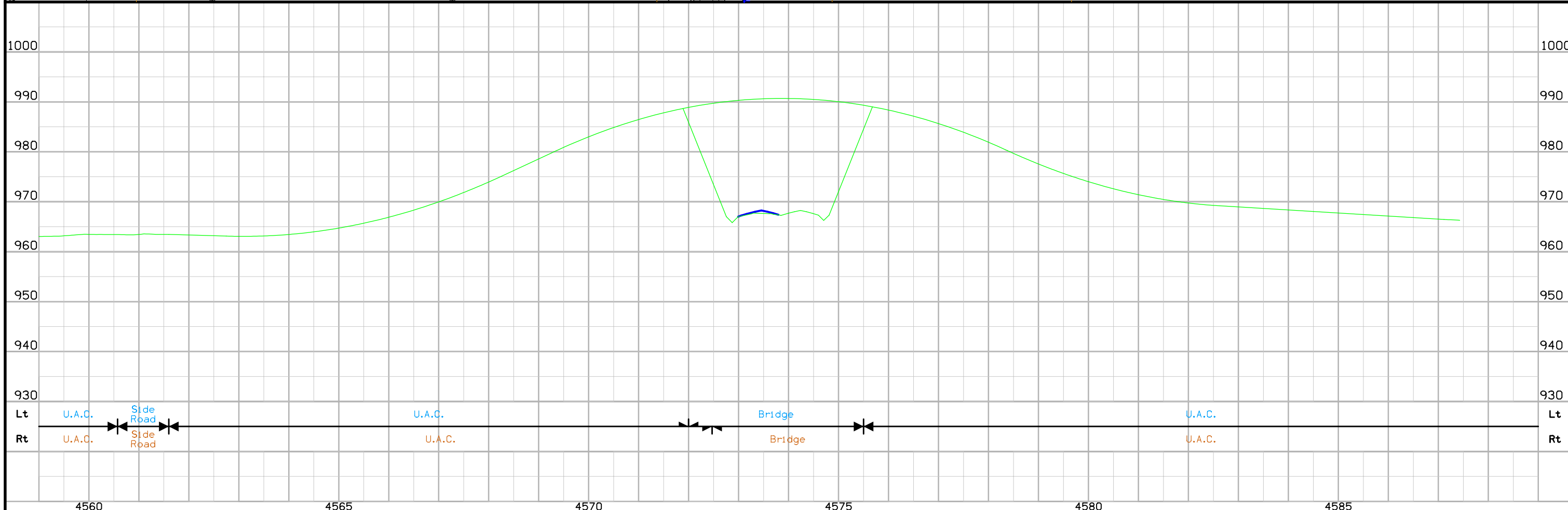
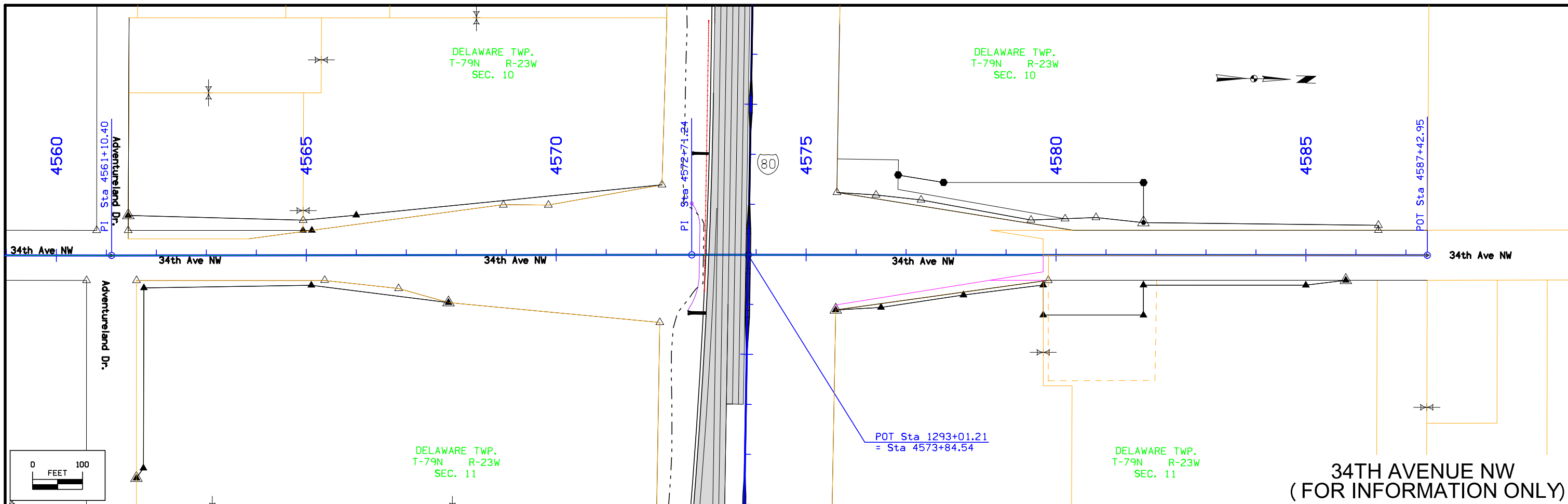
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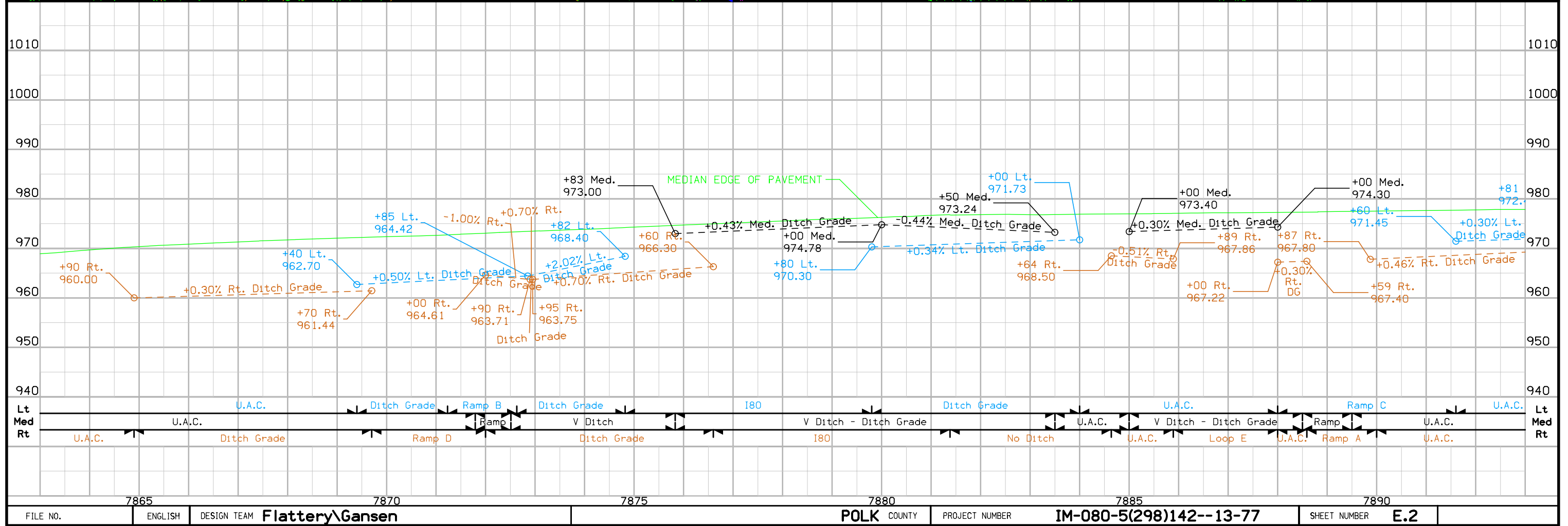
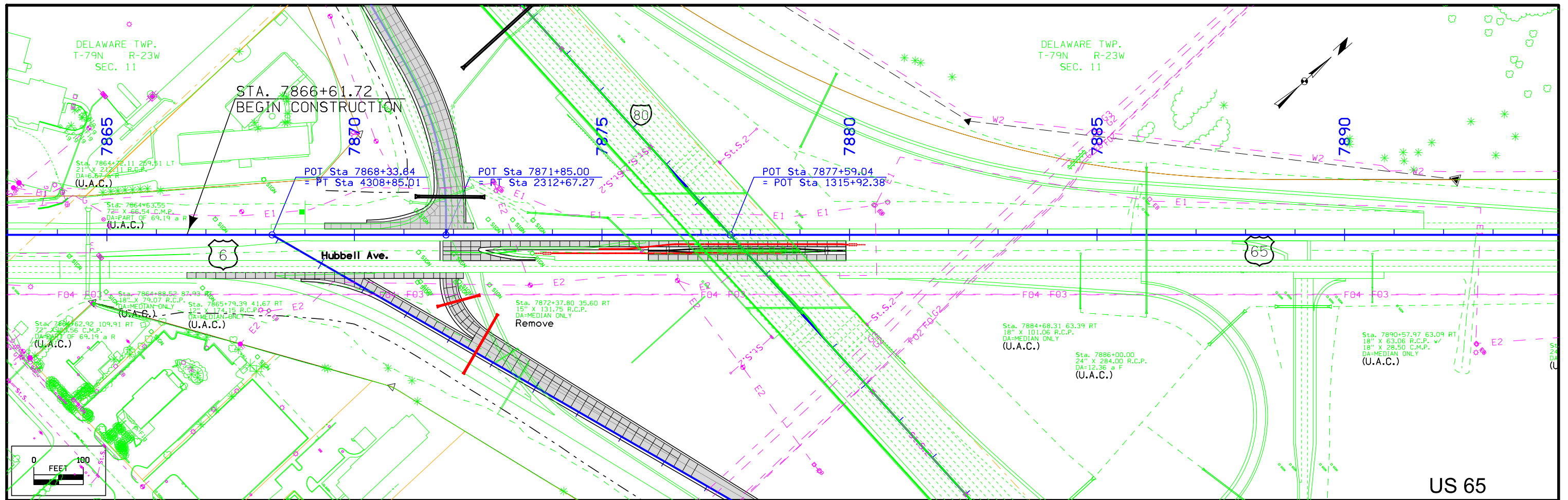


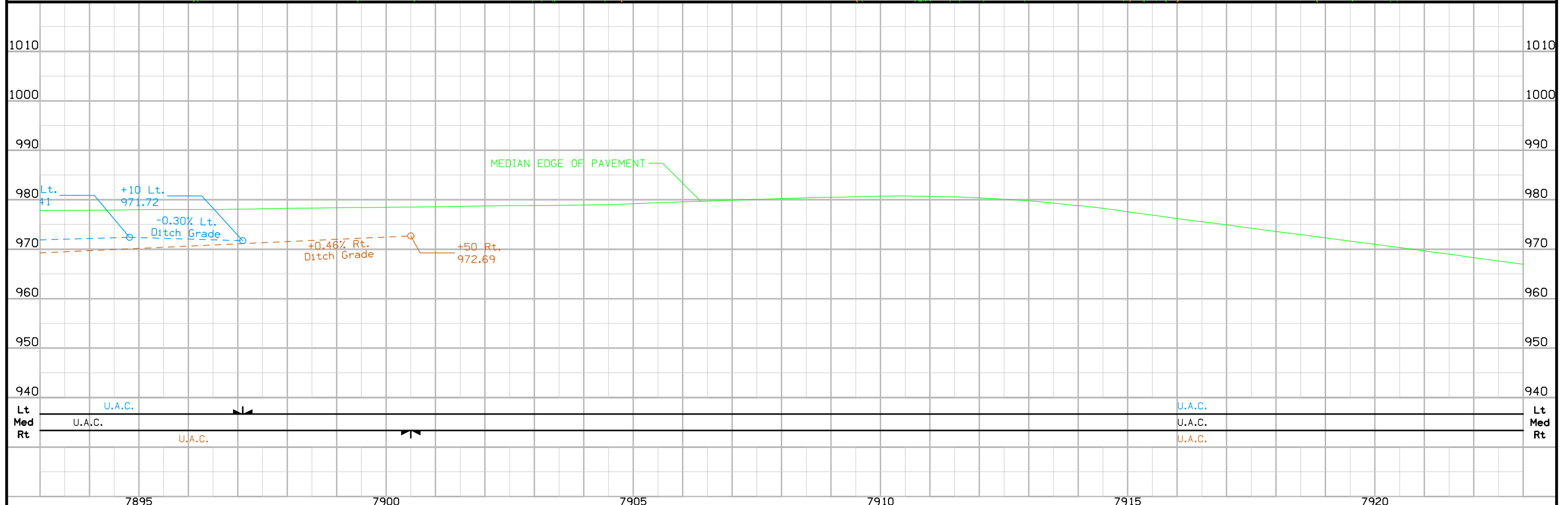
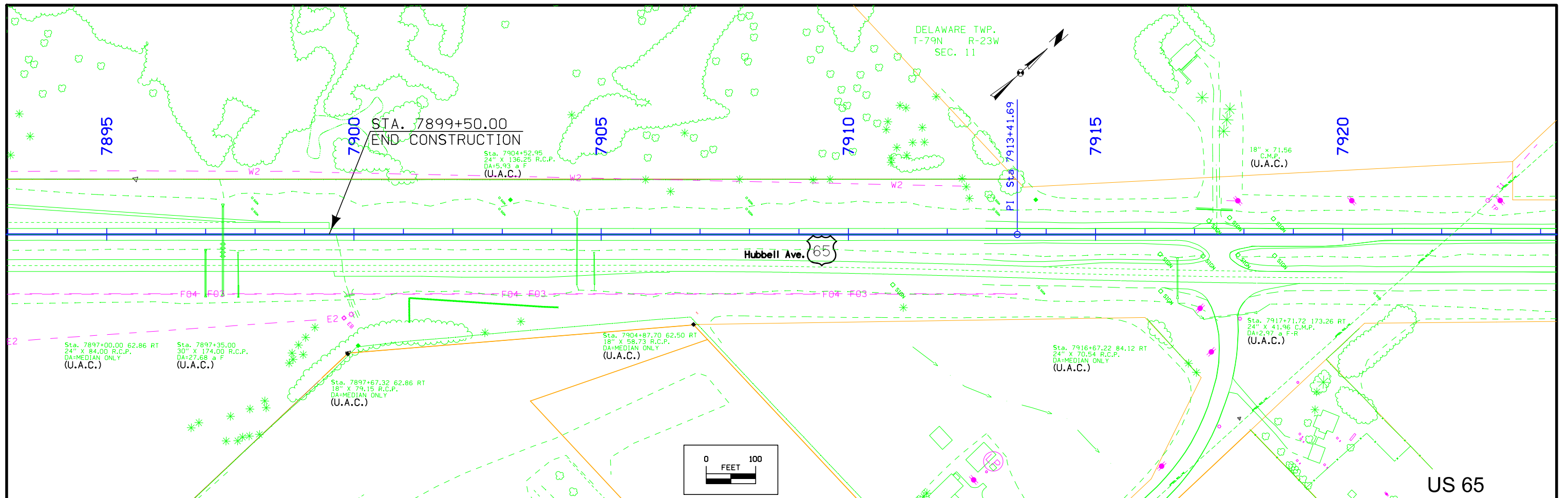


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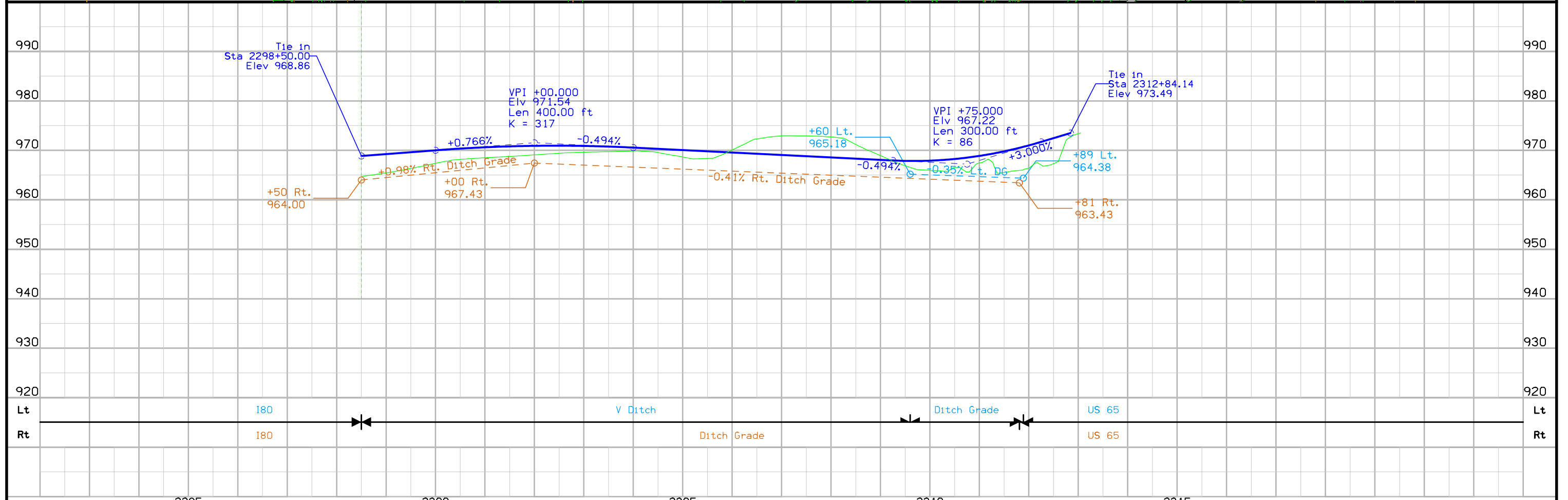
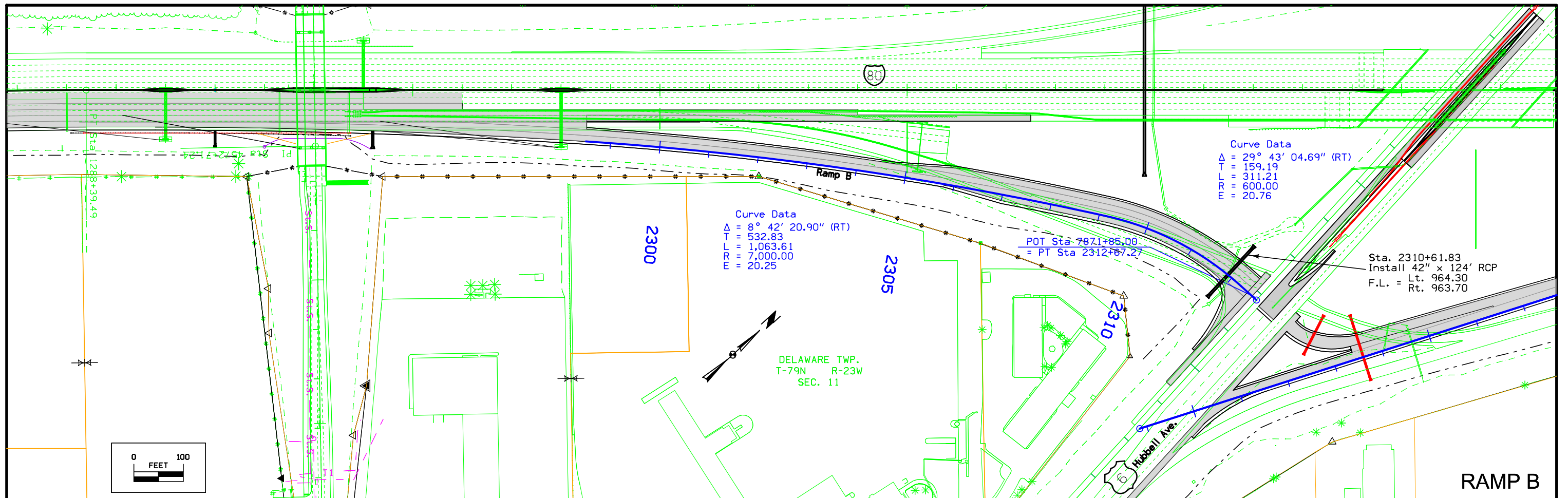


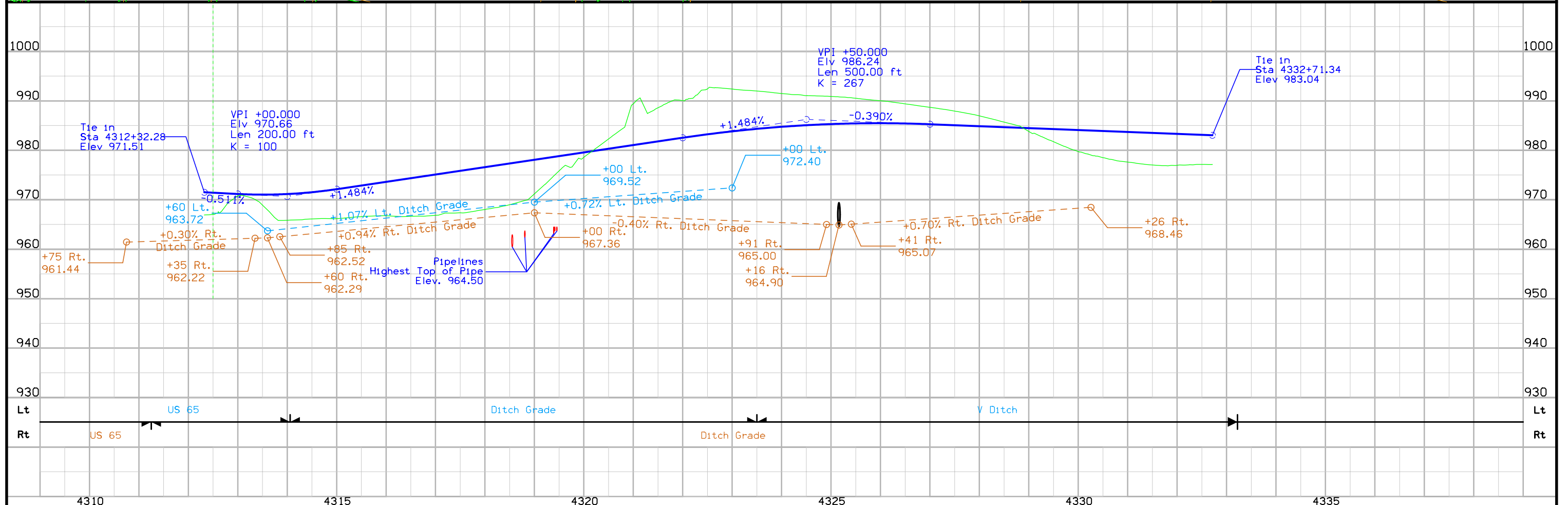
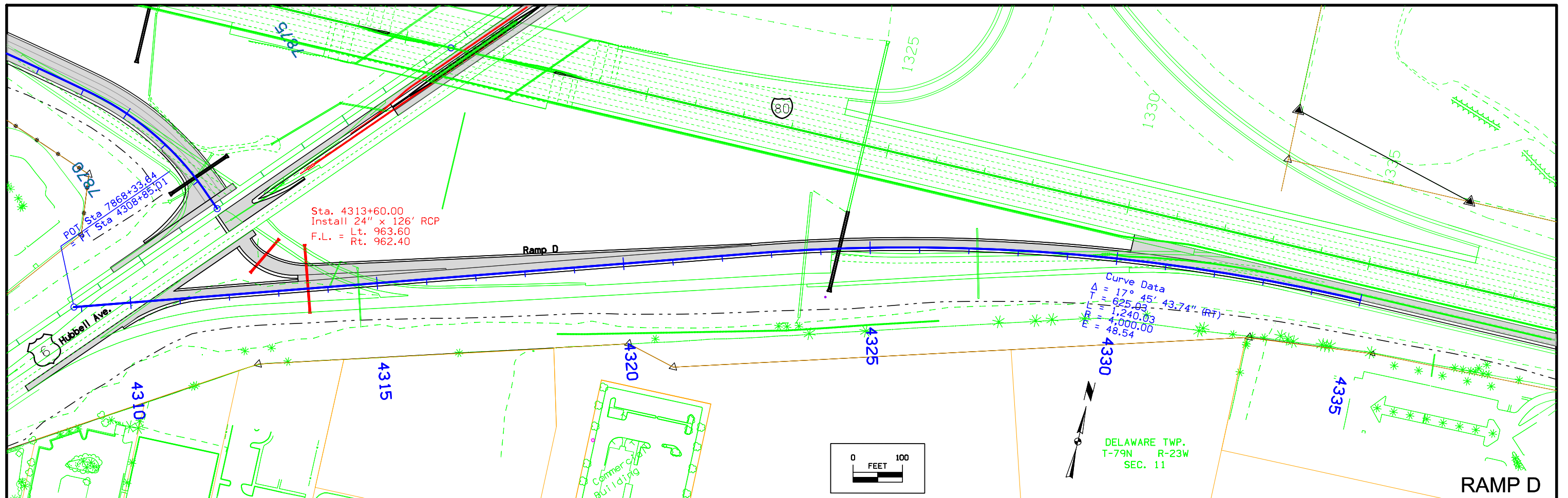


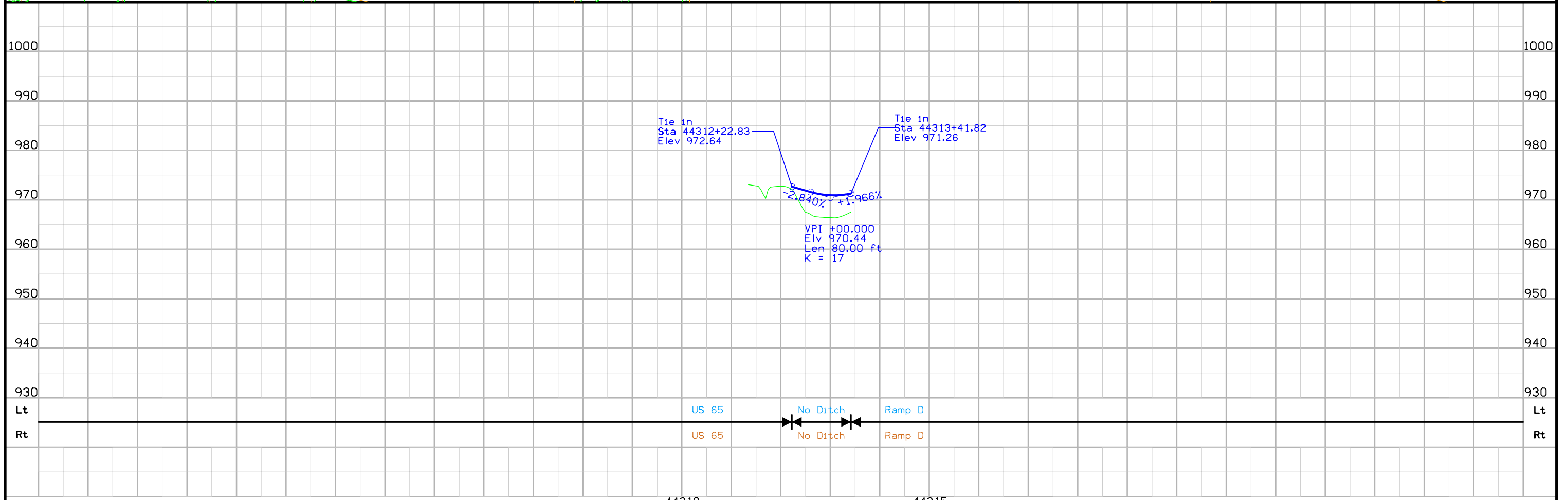
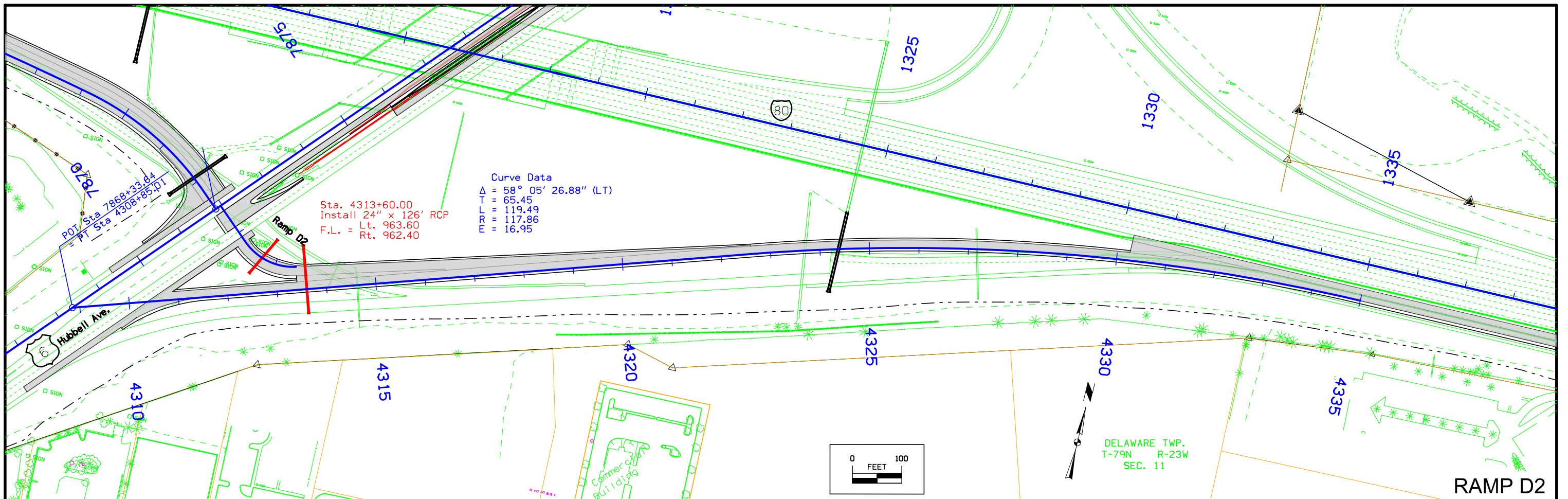




FILE NO.	ENGLISH	DESIGN TEAM	POLK COUNTY	PROJECT NUMBER	SHEET NUMBER
		Flattery\Gansen		IM-080-5(298)142--13-77	E.3







GENERAL INFORMATION
 THIS SURVEY WAS CONVERTED TO ENGLISH UNITS. THE ORIGINAL SURVEY WAS IN METRIC UNITS. THE DATUM PLANE FOR THIS SURVEY IS THE SAME AS THAT OF JOHN ADAMS FEB-1996 @ APR-1996 SURVEY ON EAST BOUND OFF RAMP @ EAST BOUND ON RAMP ON I-80 AT THE US # 65 INTERCHANGE. PROJ # IM-80-5(181)--13-77

BM # 503 THIS CONVERTED SURVEY ELEVATION 972.642
 = BM # 503 JOHN ADAMS FEB @ APR 1996 SURVEY ELEVATION 296.462

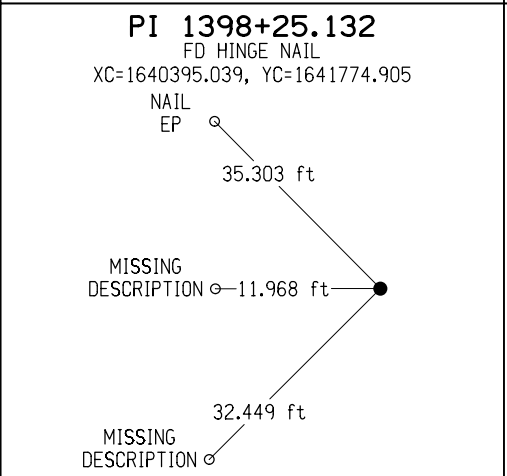
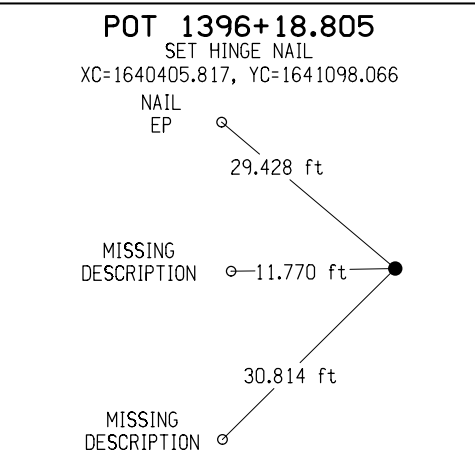
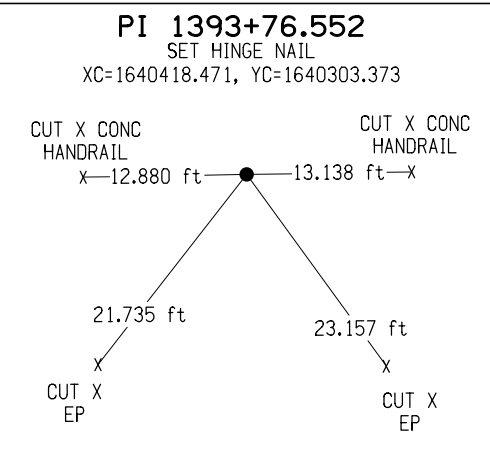
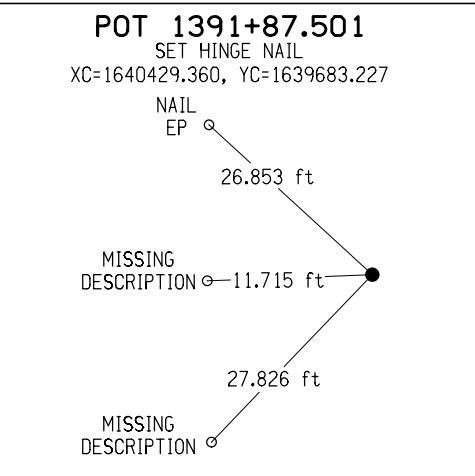
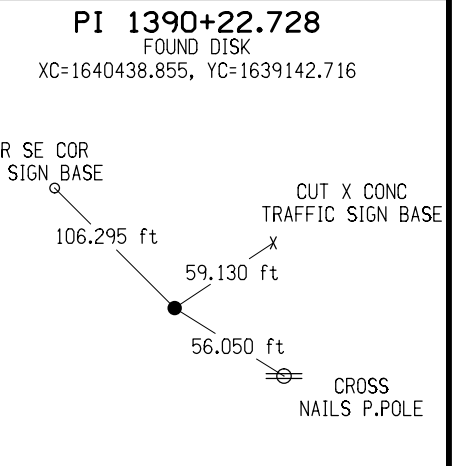
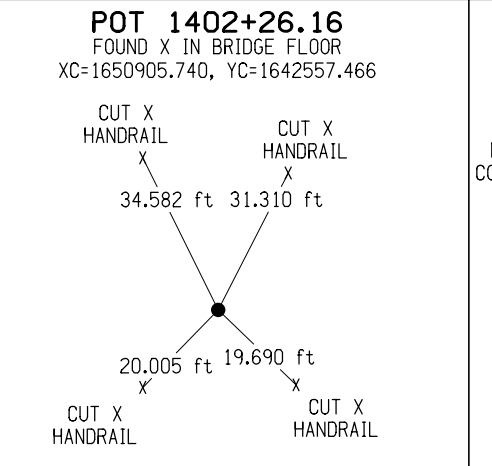
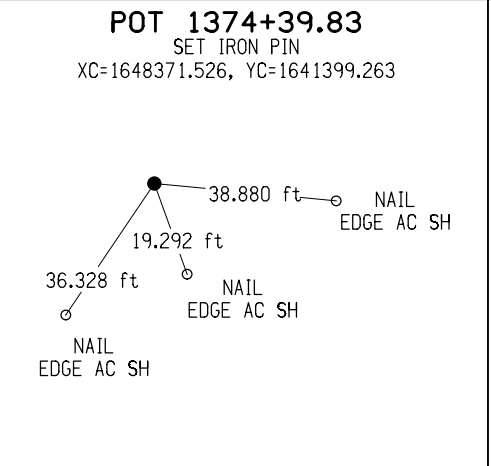
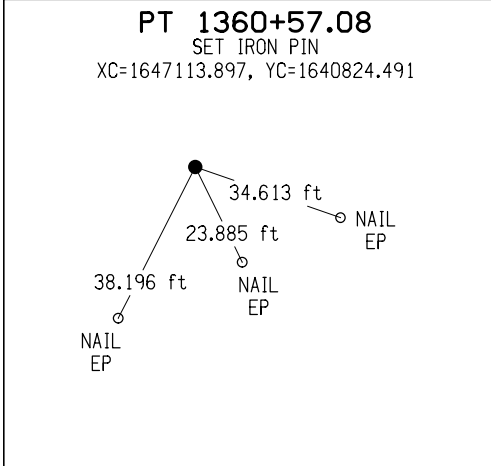
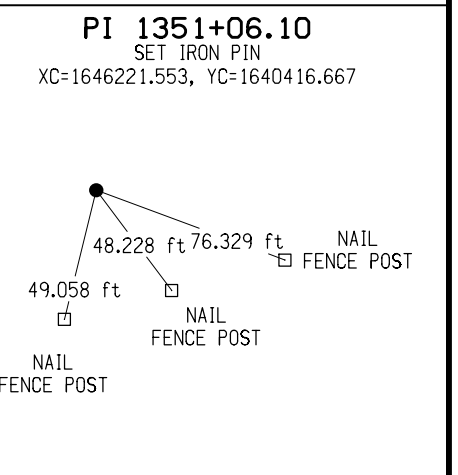
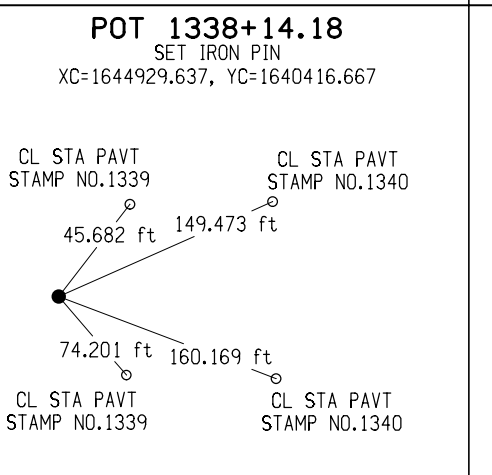
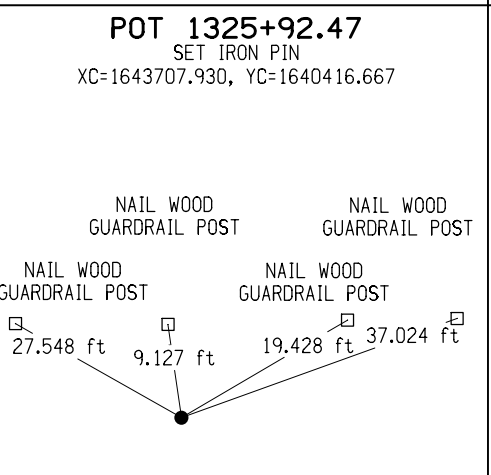
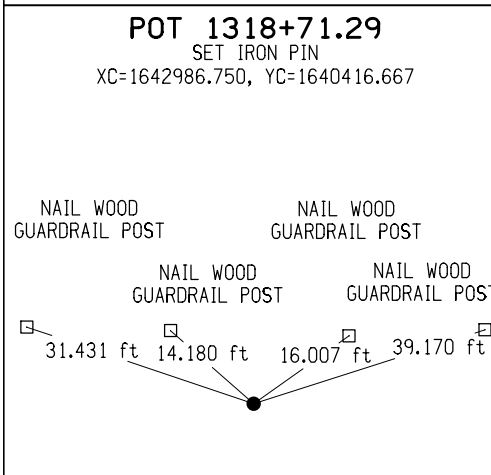
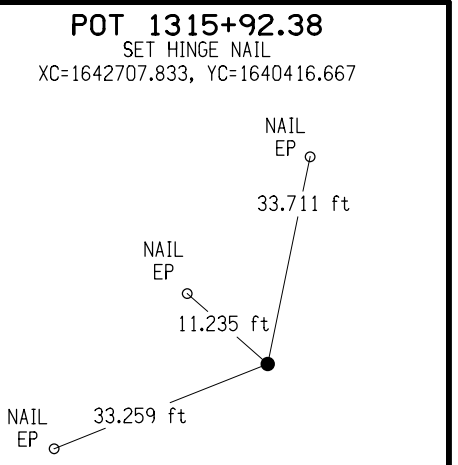
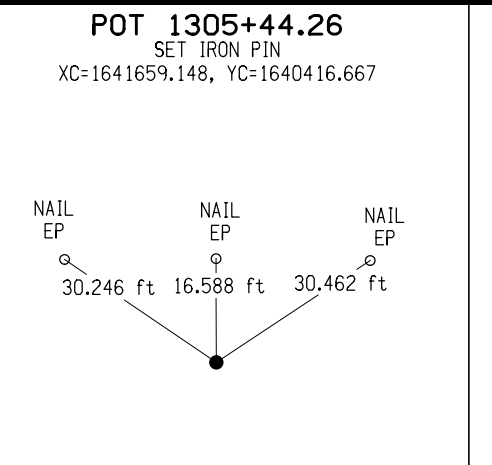
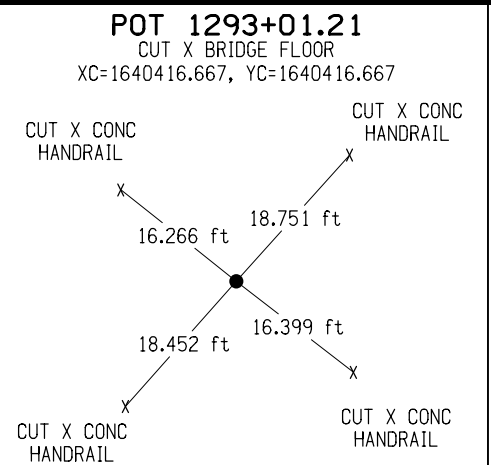
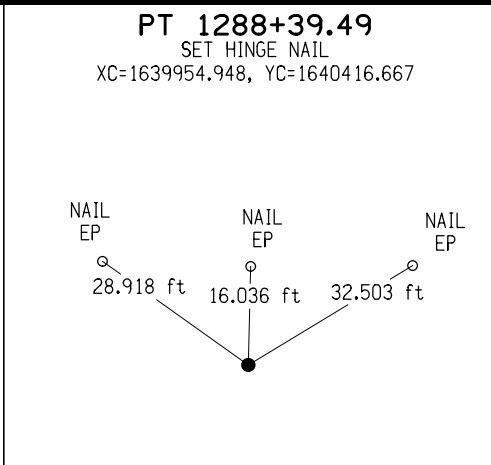
BM # 504 THIS SURVEY ELEVATION 995.067
 = BM # 504 JOHN ADAMS FEB @ APR 1996 SURVEY ELEVATION 303.297

THIS SURVEY IS A RETRACE OF THE CENTERLINE OF THE MEDIAN OF I-80

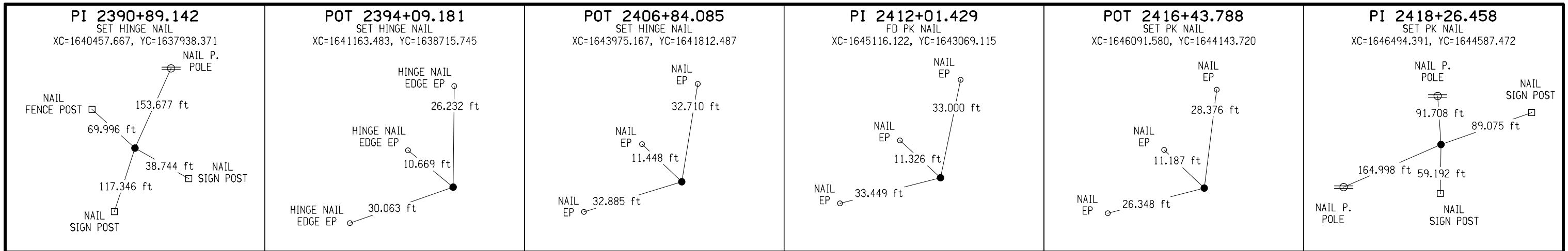
THE DATUM STATIONING FOR THIS SURVEY WAS OBTAINED BY FINDING POT STA 1293+01.21 (ENGLISH) CENTERLINE OAK HILL ROAD
 = POT STA 1293+01.21 (ENGLISH) THIS SURVEY
 THIS STATIONING WAS CARRIED THROUGHOUT THIS SURVEY ON I-80.

POT STA 1293+01.21 THIS SURVEY (ENGLISH)
 = POT 1293+01.21 (ENGLISH) I-80 I-16-80-4(2)142 ASBUILT PLANS
 YC 1640416.666 XC 1640416.666 WAS USED FOR ASSUMED COORDINATES ON THIS POINT

BENCHMARKS	ELEVATION
No. 505 Sta. 1268+53.159 71.38 Rt. CUT X S. BOLT OF FIRST LIGHT PO WEST OF OAK HILL BRIDGE	958.325
No. 506 Sta. 1278+01.622 74.38 Rt. CUT X CONC BASE OF FIRST OVERHEAD SIGN W. OF THE OAK HILL BRG	964.558
No. 503 Sta. 1304+75.025 206.13 Rt. N. BOLT FIRST STEEL LAMP POLE W. OF THE HWY 65 & OFFRAMP I-80 E.BOUND	972.642
No. 510 Sta. 1315+12.867 11.15 Lt. FD IHC BM SW WING OF THE W.BOUND BRG OVER HWY 65	994.795
No. 504 Sta. 1326+19.237 26.13 Rt. FD IHC SW WING HWY 65 N. BRG OVER I-80 W.BOUND	995.067
No. 515 Sta. 1341+24.319 97.92 Lt. CUT X FIRST CONC SIGN BASE E. OF THE HWY 65 N. BRG	971.629
No. 516 Sta. 1363+52.857 84.33 Rt. CUT X OUTLET HDWL 1.83 X 1.83 RCB???????	951.399
No. 517 Sta. 1382+46.744 138.19 Rt. SET (2)60DD NAIL COR POST	970.077
No. 507 Sta. 4572+73.234 14.60 Lt. CUT X SW WING OAK HILL BRG OVER I-80	988.489
No. 508 Sta. 7868+11.387 149.95 Rt. CUT X CONC BASE LAMP POLE	964.253
No. 509 Sta. 7874+18.247 67.44 Lt. FD IHC BM SW WING OF E.BOUND BRG OVER HWY 65	992.600
No. 511 Sta. 7892+65.519 239.19 Rt. CUT X E.BOLT STEEL LAMP POLE	973.522
No. 512 Sta. 7906+79.873 166.63 Rt. SET (2)60DD NAIL COR POST	979.604
No. 513 Sta. 7917+87.813 67.34 Lt. SET RR SPK E.SIDE P.POLE	972.557
No. 514 Sta. 7926+16.081 67.67 Lt. SET RR SPK E.SIDE P.POLE	959.614



DETAILS OF REFERENCE INFORMATION
 All References Plumb Distances
 (unless otherwise noted)



DETAILS OF REFERENCE INFORMATION

**All References Plumb Distances
(unless otherwise noted)**

ALIGNMENT COORDINATES

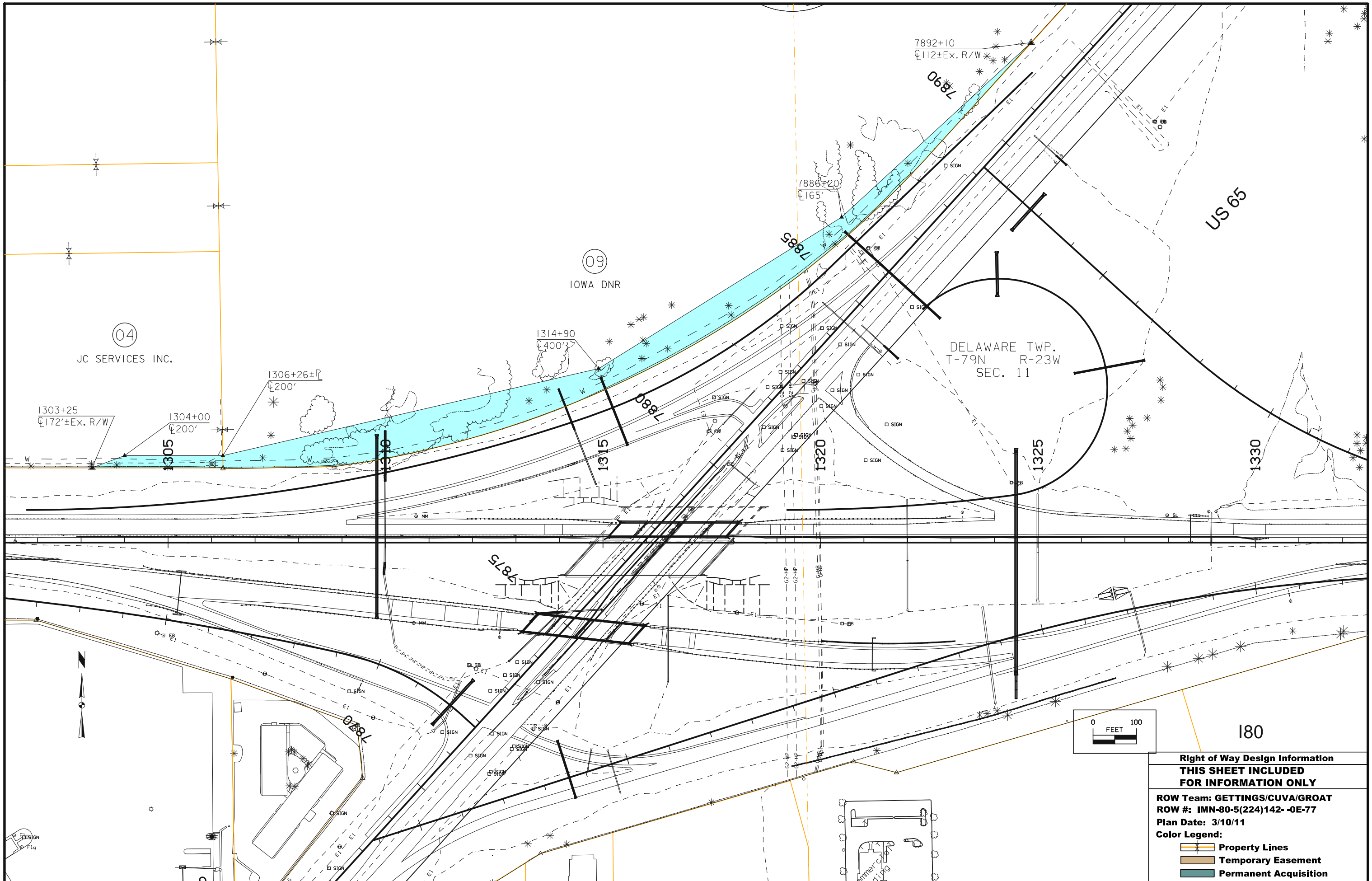
101-16
10-20-09

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
I80 (ML080)																			
ML1		1235+00.00	1,639,464.95	1,634,710.40															
ML1								1272+24.23	1,640,246.54	1,638,351.69	1280+34.88	1,640,416.67	1,639,144.29	1288+39.49	1,640,416.67	1,639,954.95			
ML2								1341+24.98	1,640,416.67	1,645,240.43	1351+06.10	1,640,416.67	1,646,221.55	1360+57.08	1,640,824.49	1,647,113.90			
ML2		1402+26.16	1,642,557.46	1,650,905.74															
Median Width Transition Eastbound CUR21006	Lanes (MWTEB080)																		
21008		21366+07.87	1,641,027.43	1,647,618.08				21341+24.98	1,640,401.67	1,645,240.43	21351+33.43	1,640,401.67	1,646,248.88	21361+10.89	1,640,820.85	1,647,166.07			
Median Width Transition Westbound CUR21001	Lanes (MWTWB080)																		
21002		11360+95.15	1,640,866.33	1,647,145.29				11341+24.98	1,640,431.67	1,645,240.43	11350+78.78	1,640,431.67	1,646,194.23	11360+03.28	1,640,828.14	1,647,061.73			
21003		11365+92.13	1,641,072.91	1,647,597.30															
US 65/Hubbell Ave. (HUBBELL)																			
HUBBELL1		7844+11.63	1,637,938.37	1,640,457.67															
HUBBELL2		7913+41.69	1,643,069.12	1,645,116.12															
HUBBELL3		7933+92.31	1,644,587.48	1,646,494.39															
Hubbell Ave. Ramp B (HUB_B)																			
42001								2298+50.00	1,640,312.67	1,640,965.45	2303+82.83	1,640,277.22	1,641,497.11	2309+13.61	1,640,161.72	1,642,017.27			
42002								2309+13.61	1,640,161.72	1,642,017.27	2310+72.80	1,640,127.21	1,642,172.67	2312+24.82	1,640,020.20	1,642,290.53			
42003		2312+67.27	1,639,991.67	1,642,321.96															
Hubbell Ave. Ramp B (HUBB_RET_1)																			
44120		0+00.00	1,640,060.31	1,642,416.69															
44121								0+00.00	1,640,060.31	1,642,416.69	0+22.47	1,640,043.67	1,642,401.59	0+44.91	1,640,025.74	1,642,388.03			
44122								0+44.91	1,640,025.74	1,642,388.03	0+63.97	1,640,010.54	1,642,376.54	0+55.83	1,640,019.84	1,642,393.18			
44123								0+55.83	1,640,019.84	1,642,393.18	1+13.02	1,640,047.74	1,642,443.10	1+69.22	1,640,090.09	1,642,481.55			
44124		1+69.22	1,640,090.09	1,642,481.55															
Hubbell Ave. Ramp B (HUBB_RET_3)																			
42050		0+00.00	1,640,081.24	1,642,187.98															
42051								0+00.00	1,640,081.24	1,642,187.98	0+35.05	1,640,063.31	1,642,218.10	0+69.78	1,640,038.92	1,642,243.27			
42052								0+69.78	1,640,038.92	1,642,243.27	1+02.56	1,640,016.11	1,642,266.81	1+27.81	1,639,985.42	1,642,255.29			
42053								1+27.81	1,639,985.42	1,642,255.29	1+85.18	1,639,931.72	1,642,235.11	2+41.17	1,639,889.25	1,642,196.55			
42054		2+41.17	1,639,889.25	1,642,196.55															
Hubbell Ave. Ramp D (HUB_D)																			
44001		4308+85.01	1,639,731.54	1,642,085.77															
44002								4322+59.97	1,640,150.99	1,643,395.19	4328+85.00	1,640,341.67	1,643,990.43	4335+00.00	1,640,341.67	1,644,615.45			
Hubbell Ave. Ramp D (HUBD_RET_4)																			
44040		0+00.00	1,639,715.79	1,642,190.34															
44041								0+00.00	1,639,715.79	1,642,190.34	0+93.78	1,639,785.23	1,642,253.38	1+83.26	1,639,813.84	1,642,342.69			
44042		1+83.26	1,639,813.84	1,642,342.69															
Hubbell Ave. Ramp D2 (HUB_D2)																			
44101		44311+34.33	1,640,000.55	1,642,330.02															
44102								44312+22.33	1,639,941.40	1,642,395.17	44312+87.78	1,639,897.40	1,642,443.63	44313+41.82	1,639,915.28	1,642,506.59			
Hubbell Ave. Ramp D2 (HUBD2_RET_1)																			
44111		0+00.00	1,639,947.71	1,642,400.90															
44112								0+00.00	1,639,947.71	1,642,400.90	0+21.41	1,639,931.46	1,642,414.84	0+41.71	1,639,925.01	1,642,435.26			
44113								0+41.71	1,639,925.01	1,642,435.26	0+94.16	1,639,909.23	1,642,485.28	1+43.63	1,639,923.55	1,642,535.73			
44116		10+31.99	1,640,166.23	1,643,390.31															

SPIRAL OR CIRCULAR CURVE DATA

101-17
04-19-11

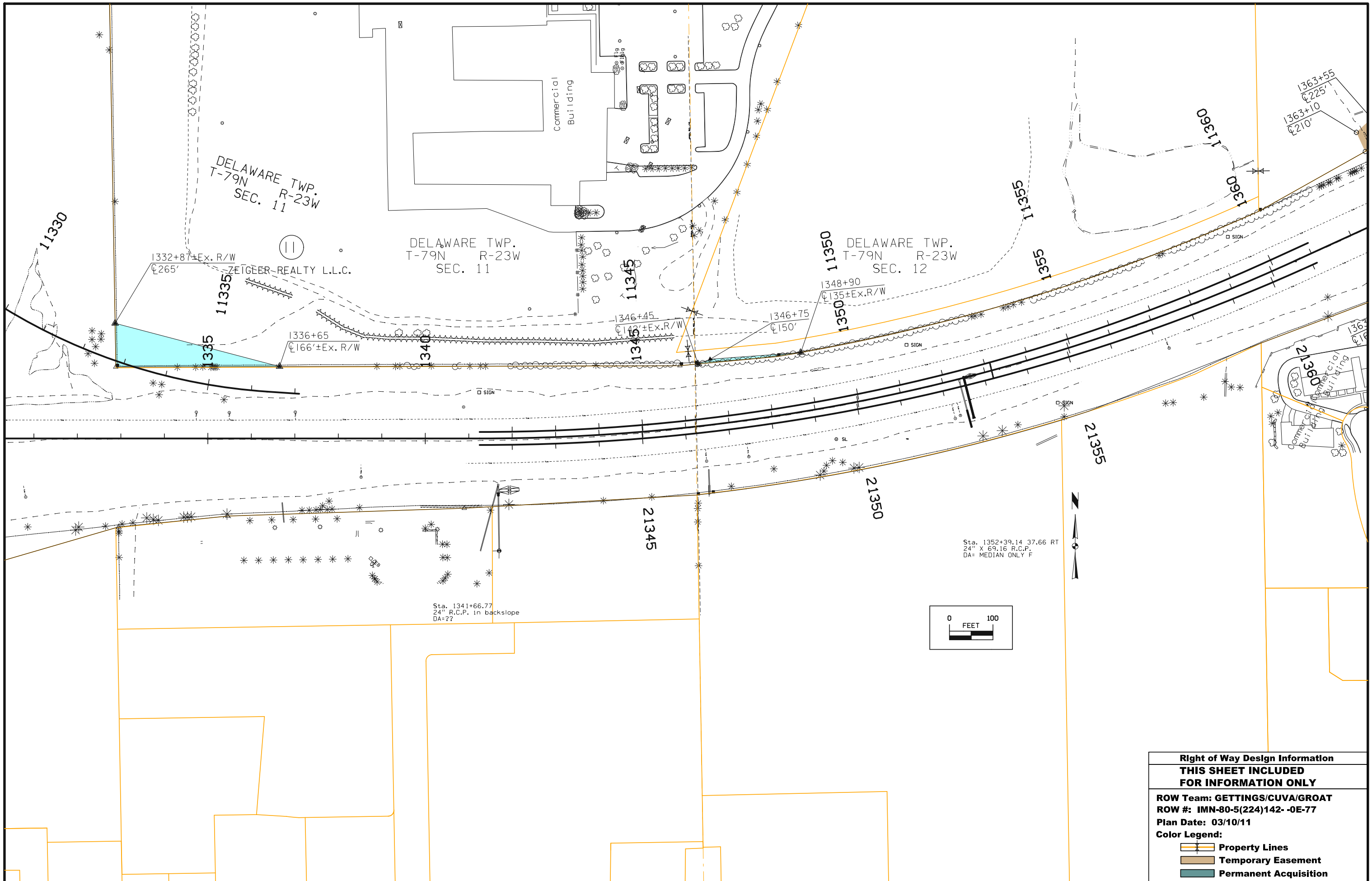
Name	Location	Δ _{scs}	Horizontal Alignment Data													Remarks	
			Spiral Data						Curve Data								
			θs	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	Δ _c	T	L	R	E		
I80 (ML080)																	
ML1																	
ML2																	
Median Width CUR21006	Transition Eastbound Lanes (MWB080)																
Median Width CUR21001	Transition Westbound Lanes (MWB080)																
Hubble Ave. Ramp B (HUB.B)																	
42001																	
42002																	
Hubbell Ave. Ramp B (HUBB_RET_1)																	
44121																	
44122																	
44123																	
Hubble Ave. Ramp B (HUBB_RET_3)																	
42051																	
42052																	
42053																	
Hubble Ave. Ramp D (HUB.D)																	
44002																	
Hubbell Ave. Ramp D (HUBD_RET_4)																	
44041																	
Hubbell Ave. Ramp D2 (HUB_D2)																	
44102																	
Hubbell Ave. Ramp D2 (HUBD2_RET_1)																	
44112																	
44113																	



**Right of Way Design Information
THIS SHEET INCLUDED
FOR INFORMATION ONLY**

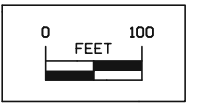
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ROW #: IMN-80-5(224)142--0E-77
Plan Date: 3/10/11
Color Legend:

- Property Lines
- Temporary Easement
- Permanent Acquisition

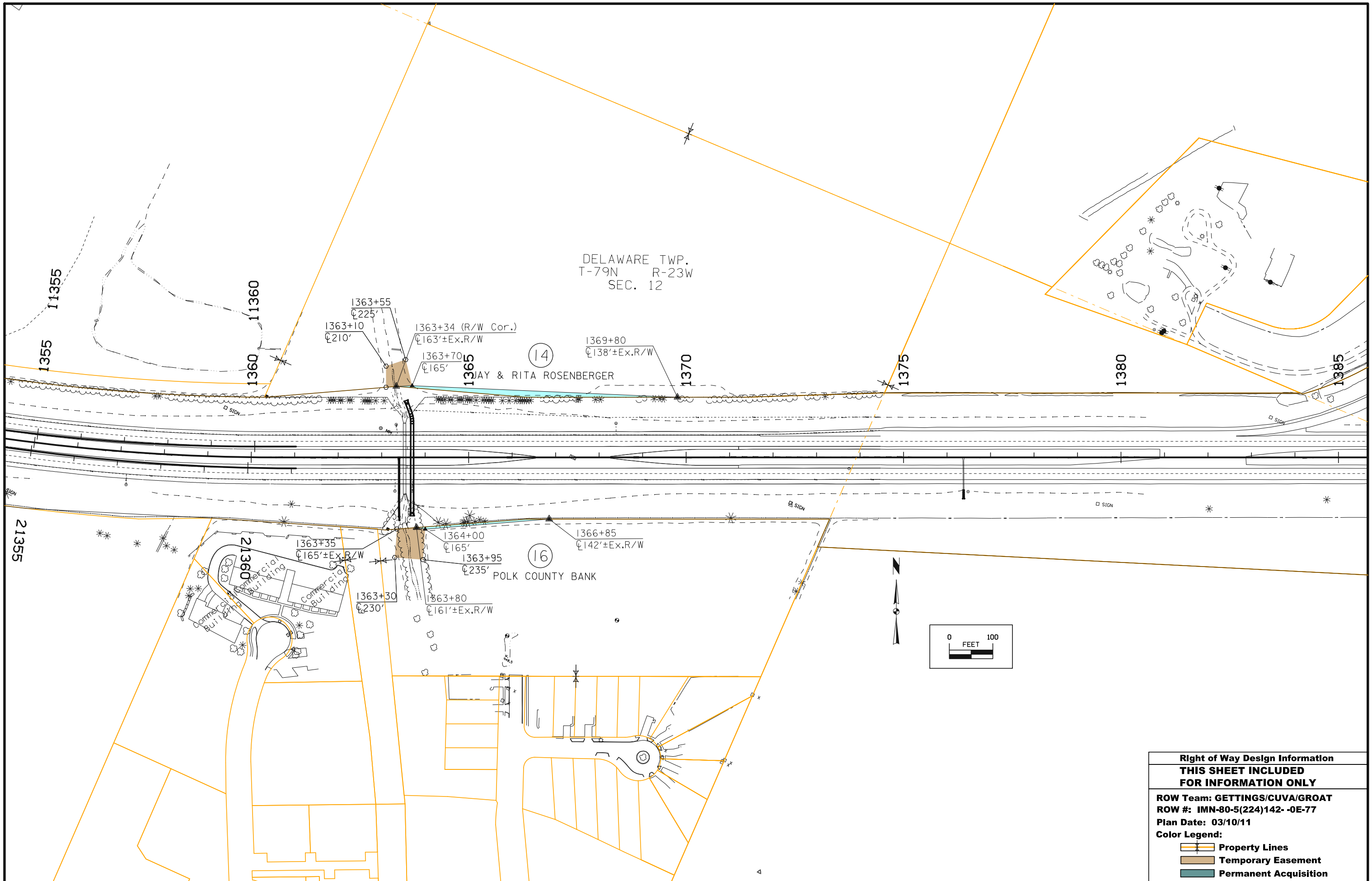


Sta. 1341+66.77
24" R.C.P. in backslope
DA=??

Sta. 1352+39.14 37.66 RT
24" X 69.16 R.C.P.
DA= MEDIAN ONLY F



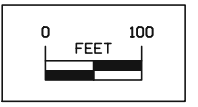
Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: GETTINGS/CUVA/GROAT	
ROW #: IMN-80-5(224)142--0E-77	
Plan Date: 03/10/11	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition



DELAWARE TWP.
T-79N R-23W
SEC. 12

JAY & RITA ROSENBERGER

POLK COUNTY BANK



Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: GETTINGS/CUVA/GROAT	
ROW #: IMN-80-5(224)142--0E-77	
Plan Date: 03/10/11	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

TRAFFIC CONTROL PLAN

1. Traffic shall be maintained on I-80, US 65, US 6, and Hubbell Ave. at all times, except as noted below.
2. Two lanes of traffic shall be maintained on I-80 at all times except as noted in Note 3.
3. Night time work will only be allowed on I-80 for the strengthening of the eastbound shoulder, removal of the existing median crossover, and the construction of the new crossover. Work will only be allowed from 9:00pm on Sunday to 6:00am on Monday, and from 8:00pm to 6:00am Monday through Thursday, beginning at 9:00pm on Sunday and ending at 6:00am on Friday.

On each allowed work day, no traffic control devices shall be placed before 9:00pm on Sunday or 8:00pm on Monday through Thursday. All traffic control devices shall be removed before 6:00am each working day.
4. Traffic control on this project shall be in accordance with Standard Road Plans listed in Tab 104-5 in the C Sheets and the J Sheets in this plan. For additional complimentary information refer to Part 6 of the Manual on Uniform Traffic Control Devices and to the current Standard Specifications.

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
BRFIM-080-5(297)142--05-77	Bridge Replacement-PPCB
IM-080-5(277)142--13-77	Lighting
IM-080-5(296)142--13-77	Traffic Signs
IM-080-5(312)142--13-77	PCC Pavement - Grade and New
IM-080-5(275)142--13-77	PCC Pavement - Grade and New

STAGING NOTES

2015 Construction Season

Stage 1:
All traffic to remain on existing lanes, with inside night lane closures on EB & WB I-80.

Construct 8' strengthened shoulder from Sta. 1379+00 (ML080) to Sta. 1385+85.38 (ML080).
Remove existing median crossover at Sta. 1368+00; construct new median crossover at Sta. 1370+00.

Stage 2A:
EB I-80 traffic to be reduced to two lanes at Sta. 1235+00 (ML080), shifted 57.4' left at Sta. 1259+02.57 (ML080), shifted 7' right at Sta. 1290+00 (ML080), and shifted 48.4' right to existing EB lanes at Sta. 1307+50.38 (ML080). Maintain two lanes of traffic through construction area.
WB I-80 traffic to be widened to existing three lanes at Sta. 1240+00 (ML080), shifted 12' left at Sta. 1256+90 (ML080), shifted 7' right at Sta. 1292+90 (ML080), shifted 10' right at Sta. 1325+41 (ML080), and shifted 12' right at Sta. 1391+71 (ML080). Maintain two lanes of traffic through construction area.
Add NB US 65 as parallel acceleration lane to EB lanes from Sta. 1258+00 (ML080) to 1273+00.17 (ML080)
Ramp B closed.
All other traffic to remain on existing lanes.

Remove existing EB I-80 from Sta. 1282+00 (ML080) to Sta. 1296+00 (ML080).
Grade and pave new EB I-80 pavement from Sta. 1282+00 (ML080) to Sta. 1296+00 (ML080).

Stage 2B:
WB & EB I-80 traffic to remain in Stage 2A lanes.

Remove existing EB I-80 from Sta. 1282+00 (ML080) to Sta. 1307+50 (ML080).
Grade and pave new EB I-80 pavement from Sta. 1282+00 (ML080) to Sta. 1307+50 (ML080).

Stage 2C:
WB & EB I-80 traffic to remain in Stage 2A lanes.

Remove existing Ramp B.
Grade and pave proposed Ramp B.

Stage 2DE:
WB & EB I-80 traffic to remain in Stage 2A lanes.

Remove existing Hubbell Ramp B connection from Sta. 7869+40 (HUBBELL) to Sta. 7872+49.20 (HUBBELL)
Remove existing Hubbell median from Sta. 7871+79 (HUBBELL) to Sta. 7879+93 (HUBBELL)
Grade and pave proposed Hubbell Ramp B connection from Sta. 7869+40 (HUBBELL) to Sta. 7872+40 (HUBBELL)
Grade and pave proposed Hubbell median from Sta. 7871+79 (HUBBELL) to Sta. 7879+93 (HUBBELL)

Stage 3A:
EB I-80 traffic to be placed on new EB lanes, shifted 45.6' left from Sta. 1333+02.73 (ML080) to Sta. 1374+75.09 (ML080), and shifted 8' right to existing EB lanes at Sta. 1382+55.42. Maintain two lanes of traffic through construction area.
WB I-80 traffic to be placed on new WB lanes, widened to four lanes at Sta. 1318+89.50 (ML080), shifted 9' right from existing lanes at Sta. 1370+25.50 (ML080).
Ramp D & D2 closed.
Ramp B open to through traffic.
All other traffic to remain on existing lanes.

Remove existing EB I-80 from Sta. 1342+50 (ML080) to Sta. 1365+55 (ML080).
Grade and pave new EB I-80 pavement from Sta. 1342+50 (ML080) to Sta. 1365+55 (ML080).

Stage 3B:
WB & EB I-80 traffic to remain in Stage 3A lanes.

Remove existing EB I-80 from Sta. 1330+25 (ML080) to Sta. 1337+94.10 (ML080).
Grade and pave new EB I-80 pavement from Sta. 1330+25 (ML080) to Sta. 1337+94.10 (ML080).

Stage 3C:
WB & EB I-80 traffic to remain in Stage 3A lanes.

Remove existing Ramp D.
Grade and pave proposed Ramp D.

Stage 3D:
WB & EB I-80 traffic to remain in Stage 3A lanes.

Remove existing Ramp D2.
Grade and pave proposed Ramp D2.

Stage 3E:
WB & EB I-80 traffic to remain in Stage 3A lanes.

Remove existing Hubbell Ramp D connection from Sta. 7866+61.72 (HUBBELL) to Sta. 7872+20 (HUBBELL).
Grade and pave proposed Hubbell Ramp D connection from Sta. 7866+61.72 (HUBBELL) to Sta. 7872+20 (HUBBELL).










Stage 4:
WB I-80 traffic to be placed on new WB lanes.
EB I-80 traffic to be placed on new EB lanes.
Ramps D & D2 open to through traffic.
All other traffic to remain on existing lanes.

Remove TBR along finished slopes.

**CROSS SECTION VIEW COLOR LEGEND
OF TRAFFIC CONTROL AND STAGING SHEETS**

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Med	(237)	Future Proposed Pavement Shading

**CROSS SECTION VIEW PATTERN AND SYMBOL LEGEND
OF TRAFFIC CONTROL AND STAGING SHEETS**



















	Pavement Removal		Proposed Granular Shoulder
	Proposed Granular Subbase		Temporary Shoulder
	Proposed Special Backfill		Existing Shoulder Strengthening
	Temporary Barrier Rail		Permanent Barrier Rail
			Channelizing Device

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Magenta	(5)	Pavement Marking Call Outs
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Yellow	(4)	Pavement Markings, Yellow
Off White	(254)	Pavement Markings, White

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Pink, Dark	(13)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

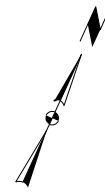
**PLAN VIEW PATTERN AND SYMBOL LEGEND
OF TRAFFIC CONTROL AND STAGING SHEETS**

	Channelizing Device		Crash Cushion
	Drum		Traffic Signal
	Temporary Lane Separator		Flagger
	Tubular Marker		Temporary Floodlighting
	Channelizer Marker		Traffic Sign
	Concrete Barrier Marker		Type III Barricade
	Delineator		Type A Warning Light
	Temporary Barrier Rail		Direction of Traffic
	Pavement Removal		Safety Closure

NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

**TRAFFIC CONTROL
AND
STAGING
LEGEND AND SYMBOL
INFORMATION SHEET**

(COVERS SHEET SERIES J)

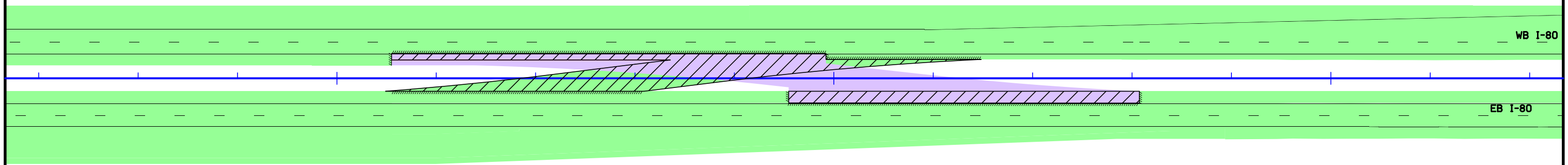


DELAWARE TWP.
T-79N R-23W
SEC. 12

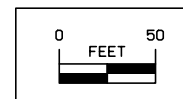
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1370

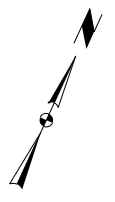
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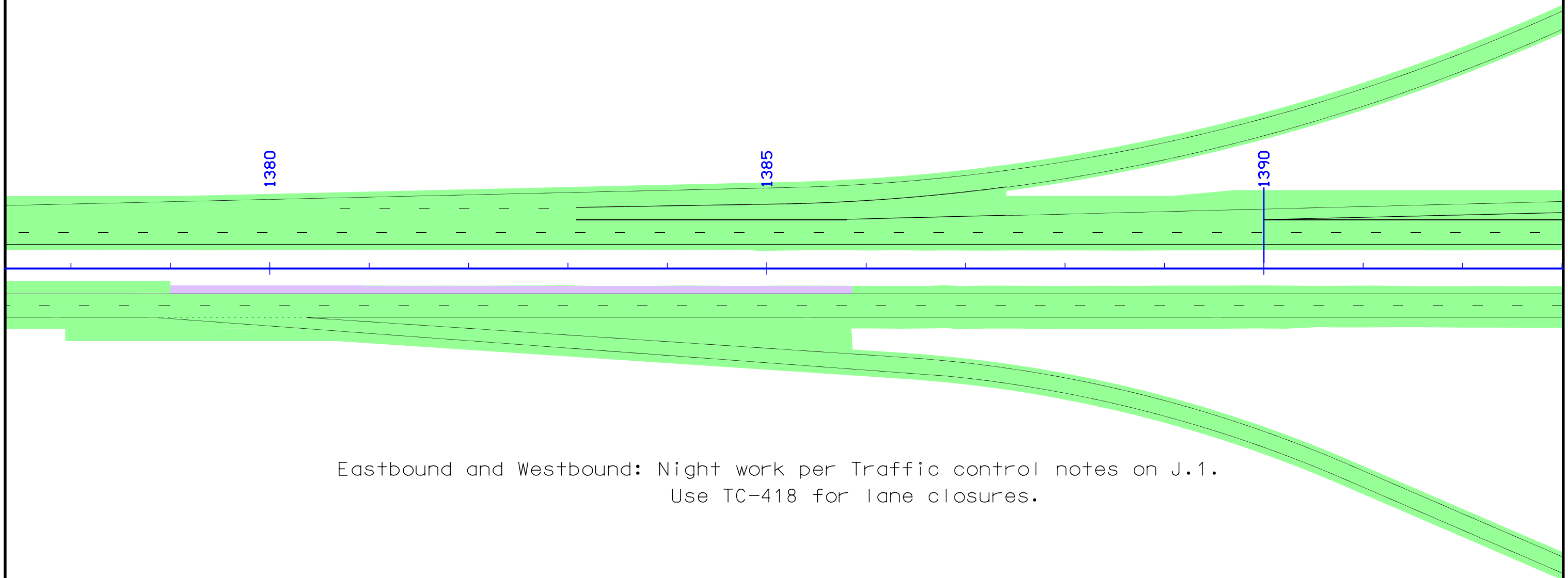
Eastbound and Westbound: Night work per Traffic control notes on J.1.
Use TC-418 for lane closures.



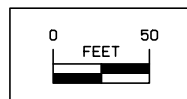
Stage 1
Sheet 1 of 2



DELAWARE TWP.
T-79N R-23W
SEC. 12



Eastbound and Westbound: Night work per Traffic control notes on J.1.
Use TC-418 for lane closures.



Stage 1
Sheet 2 of 2

DELAWARE TWP.
T-79N R-23W
SEC. 12



END
ROAD WORK

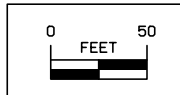
G20-2A
48" x 24"

1235

780' X 12' Taper

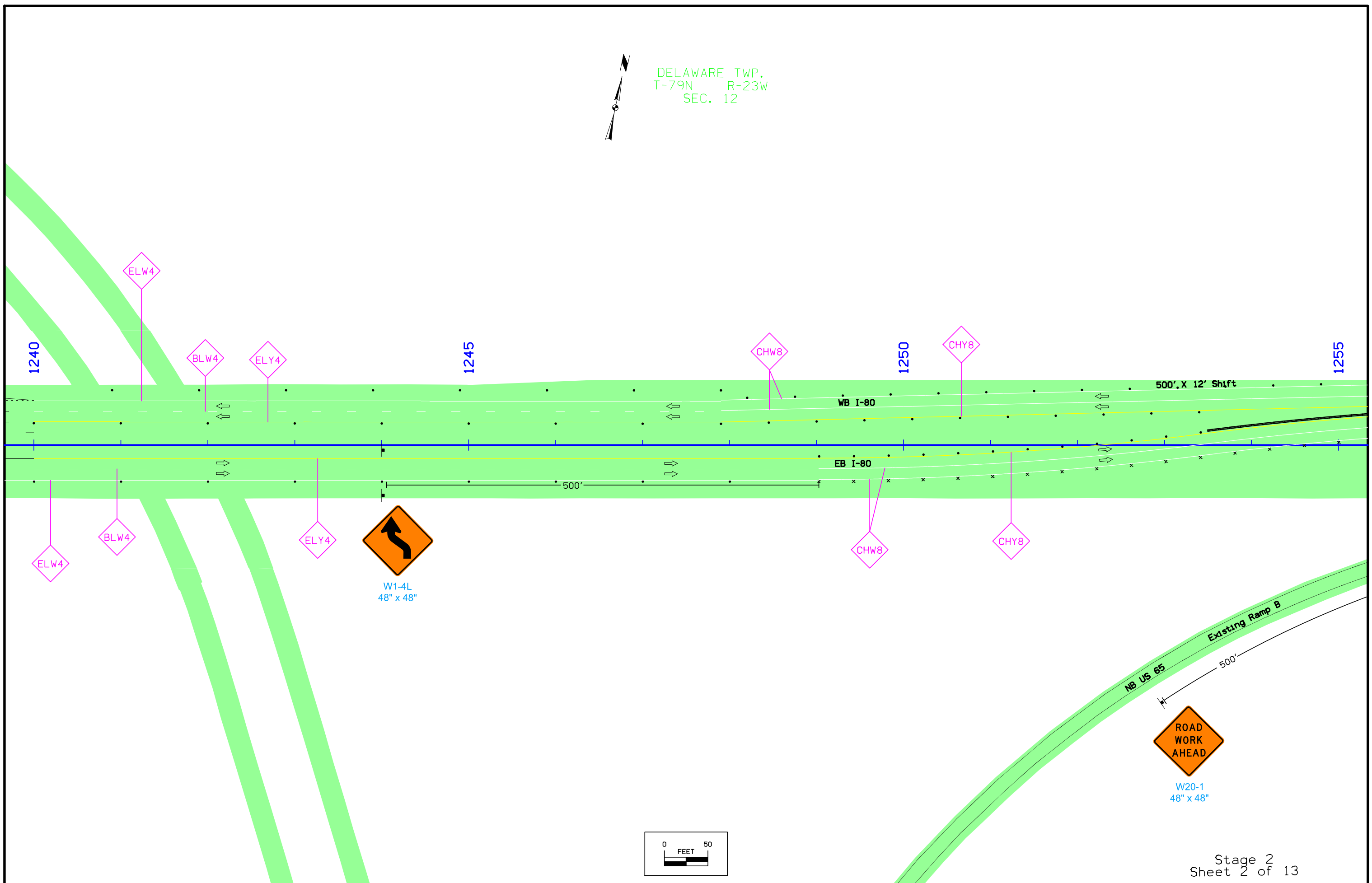
ELW4

Advance signing per Standard Road Plan TC-418.



Stage 2
Sheet 1 of 13

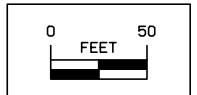
DELAWARE TWP.
T-79N R-23W
SEC. 12



W1-4L
48" x 48"



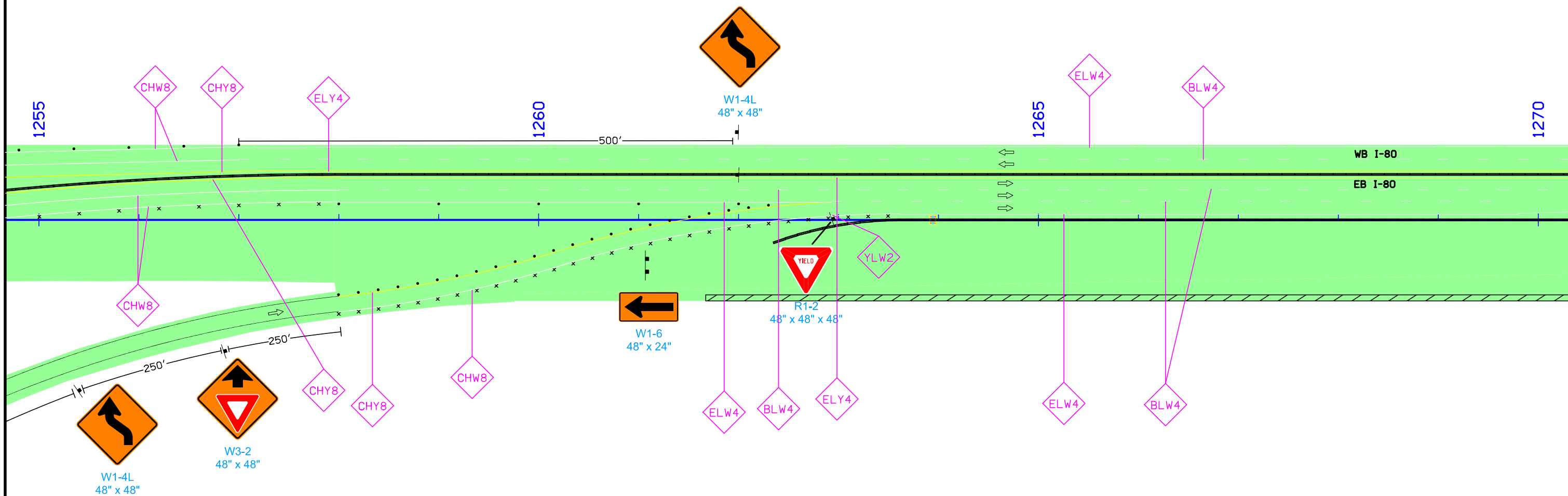
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48" x 48"



Stage 2
Sheet 2 of 13

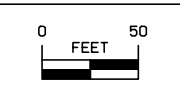
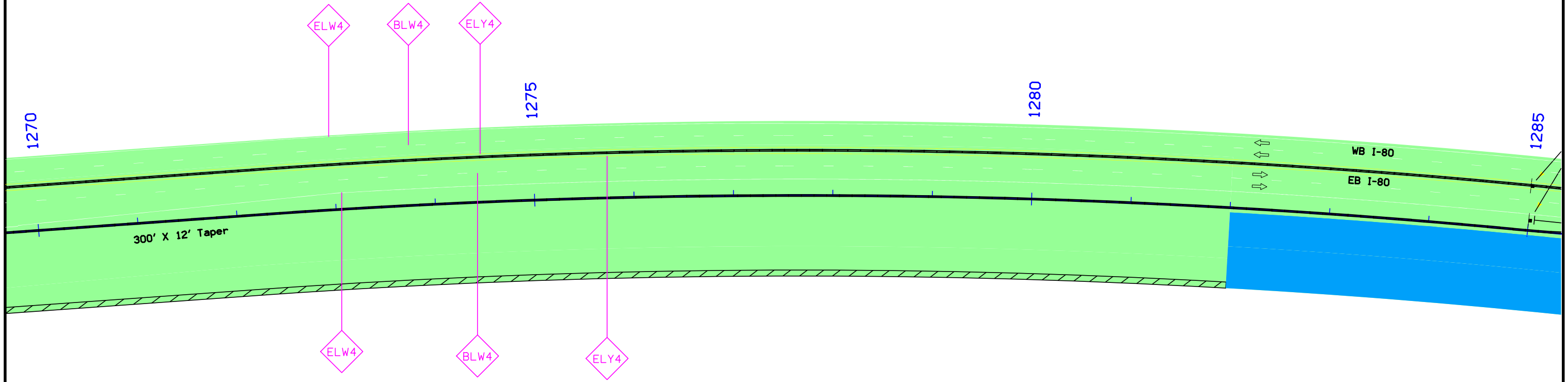


DELAWARE TWP.
T-79N R-23W
SEC. 12



Stage 2
Sheet 3 of 13

DELAWARE TWP.
T-79N R-23W
SEC. 12



Stage 2
Sheet 4 of 13

DELAWARE TWP.
T-79N R-23W
SEC. 12



34th Ave NW

34th Ave NW



W1-4R
48" x 48"

1285

ELW4
BLW4
ELY4

1290

290' X 7' Shift

CHW8
CHY8

500'

1295

BLW4
ELY4

500' X 12' Taper

WB I-80

EB I-80



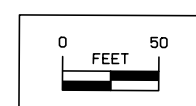
W1-4R
48" x 48"

1300

ELW4
BLW4
ELY4

CHW8
CHY8

ELW4
BLW4
ELY4



Stage 2
Sheet 5 of 13

DELAWARE TWP.
T-79N R-23W
SEC. 12



W20-1
48" x 48"



W20-7B
48" x 48"



W1-4R
48" x 48"



1300

1305

1310

1315

WB I-80

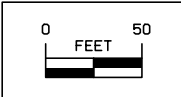
EB I-80

Proposed Ramp B

Existing Ramp B

Existing Ramp C

US 65/Hubbell Ave



Stage 2
Sheet 6 of 13

DELAWARE TWP.
T-79N R-23W
SEC. 12



W20-1
48" x 48"

Existing Loop E

Existing Ramp

BLW4 ELY4
CHW8 CHY8

1315

1320

1325

1330

415' X 10' Shift

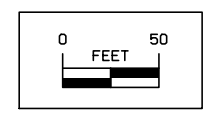
WB I-80

EB I-80



W20-1
48" x 48"

Existing Ramp D



Stage 2
Sheet 7 of 13

DELAWARE TWP.
T-79N R-23W
SEC. 12



Existing Ramp A



1330
W1-4R
48" x 48"

1335

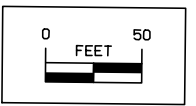


1340

1345

WB I-80

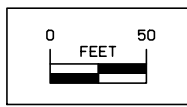
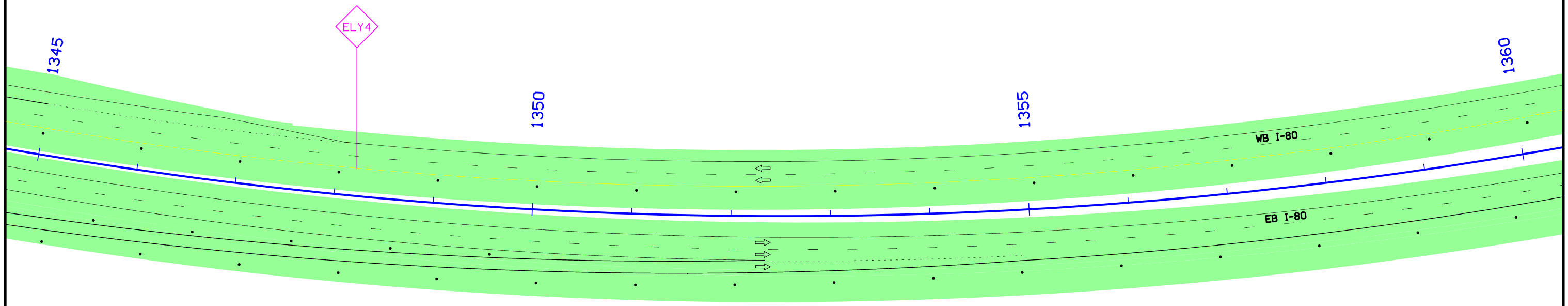
EB I-80



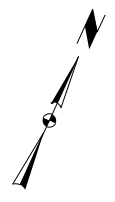
Stage 2
Sheet 8 of 13



DELAWARE TWP.
T-79N R-23W
SEC. 12



Stage 2
Sheet 9 of 13



DELAWARE TWP.
T-79N R-23W
SEC. 12

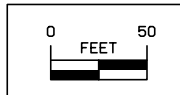
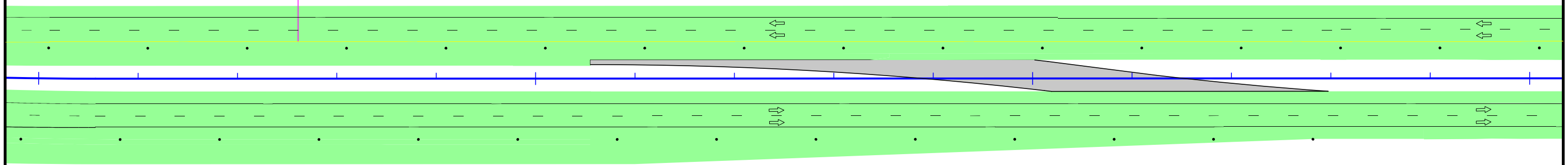
ELY4

1360

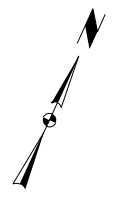
1365

1370

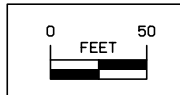
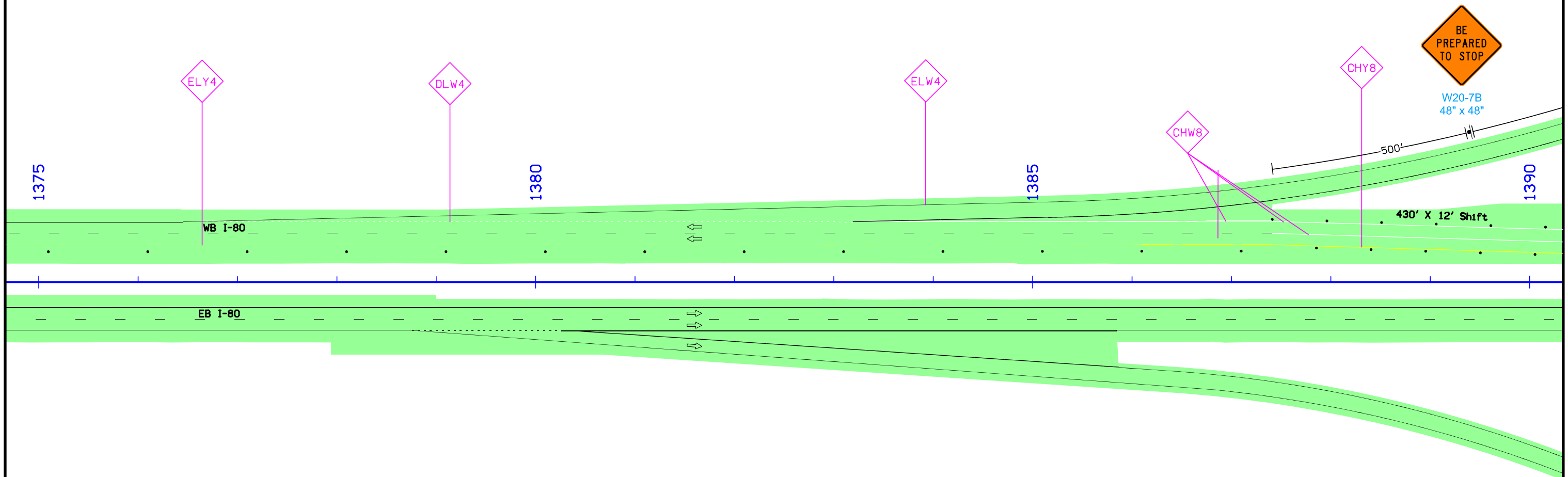
1375



Stage 2
Sheet 10 of 13

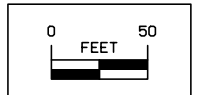
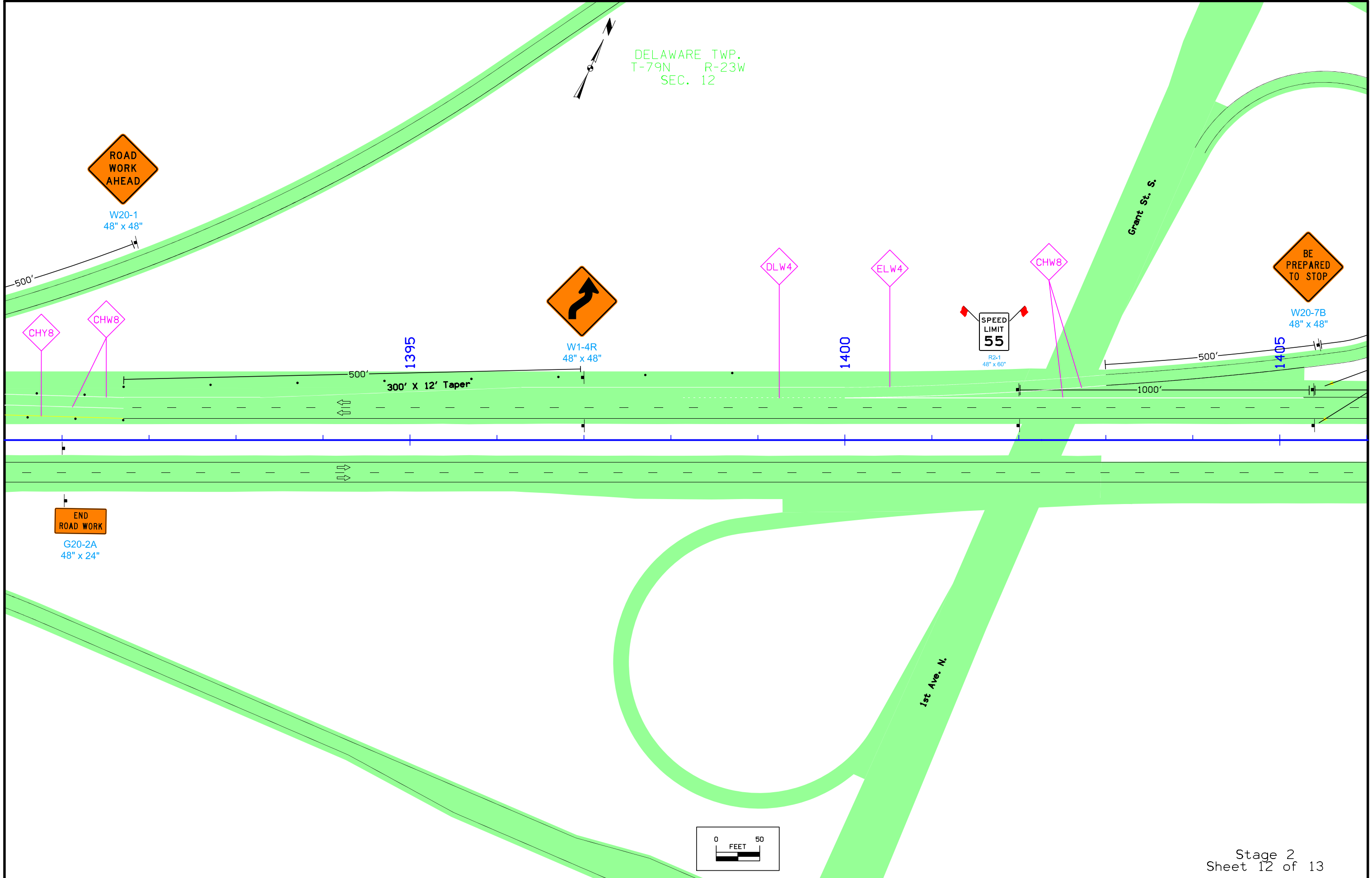
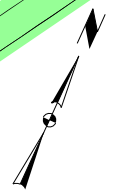


DELAWARE TWP.
T-79N R-23W
SEC. 12



Stage 2
Sheet 11 of 13

DELAWARE TWP.
T-79N R-23W
SEC. 12



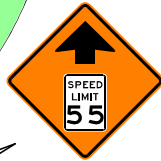
Stage 2
Sheet 12 of 13

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Gansen	POLK COUNTY	PROJECT NUMBER IM-080-5(298)142--13-77	SHEET NUMBER J.16
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DELAWARE TWP.
T-79N R-23W
SEC. 12



W20-1
48" x 48"



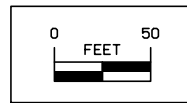
W3-5
48" x 48"



W20-1
48" x 48"

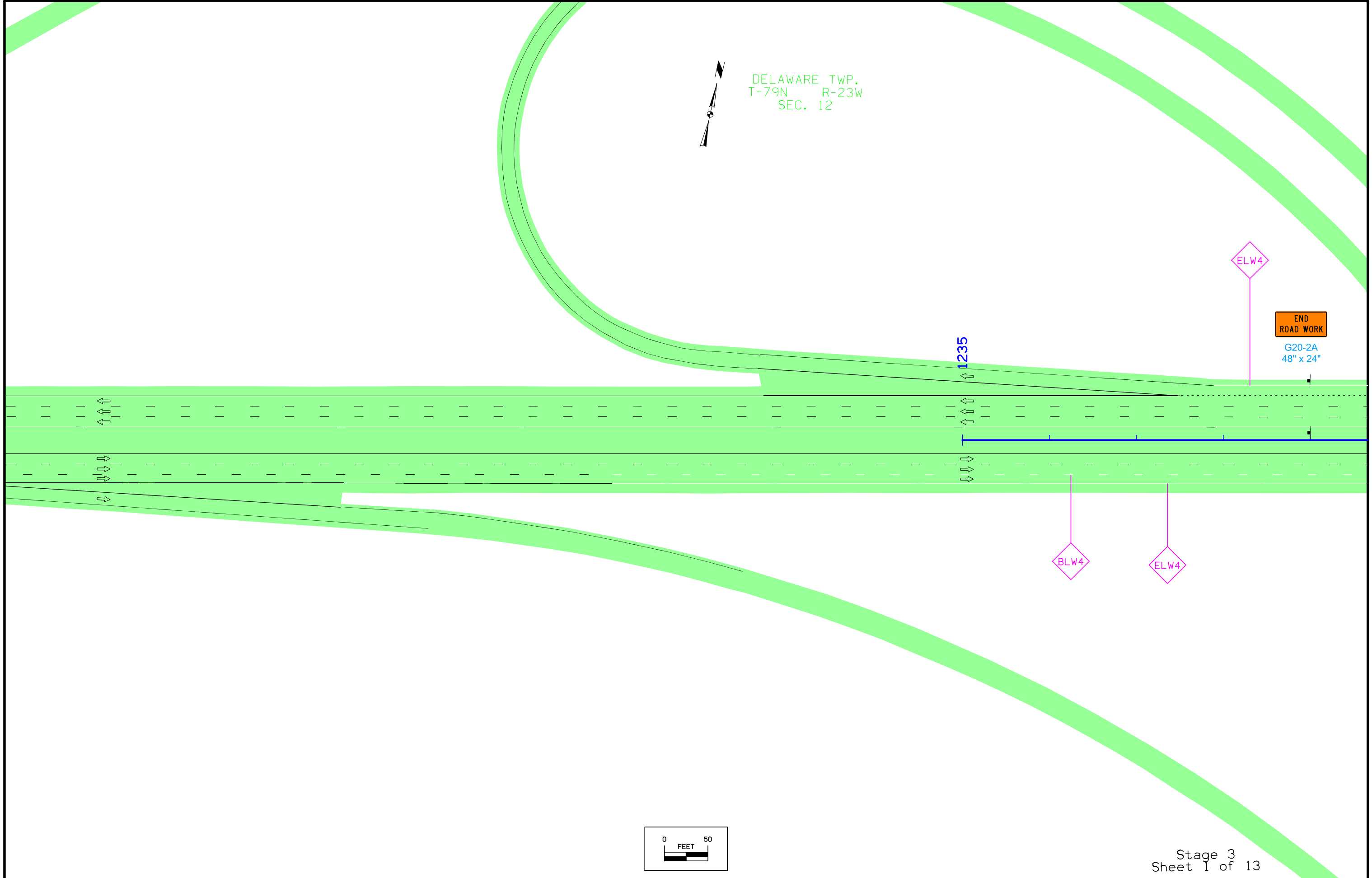
1410

1000'



Stage 2
Sheet 13 of 13

DELAWARE TWP.
T-79N R-23W
SEC. 12



1235

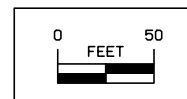
ELW4

END
ROAD WORK

G20-2A
48" x 24"

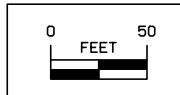
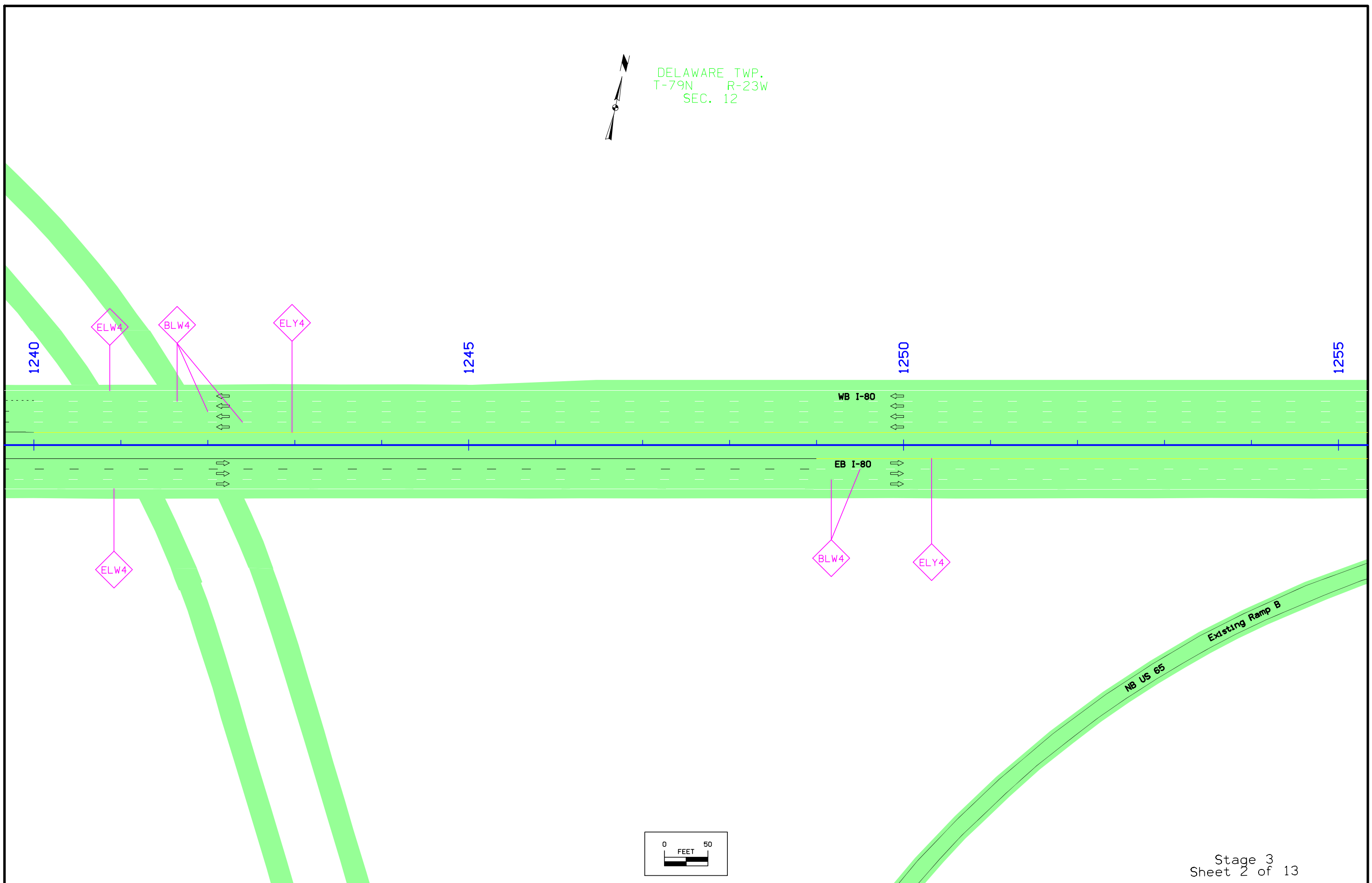
BLW4

ELW4



Stage 3
Sheet 1 of 13

DELAWARE TWP.
T-79N R-23W
SEC. 12



Stage 3
Sheet 2 of 13

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Gansen	POLK COUNTY	PROJECT NUMBER IM-080-5(298)142--13-77	SHEET NUMBER J.19
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DELAWARE TWP.
T-79N R-23W
SEC. 12

1255

ELW4

BLW4

1260

ELY4

1265

1270

WB I-80

EB I-80

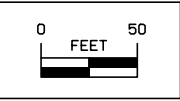
ELW4

CHW8

ELW4

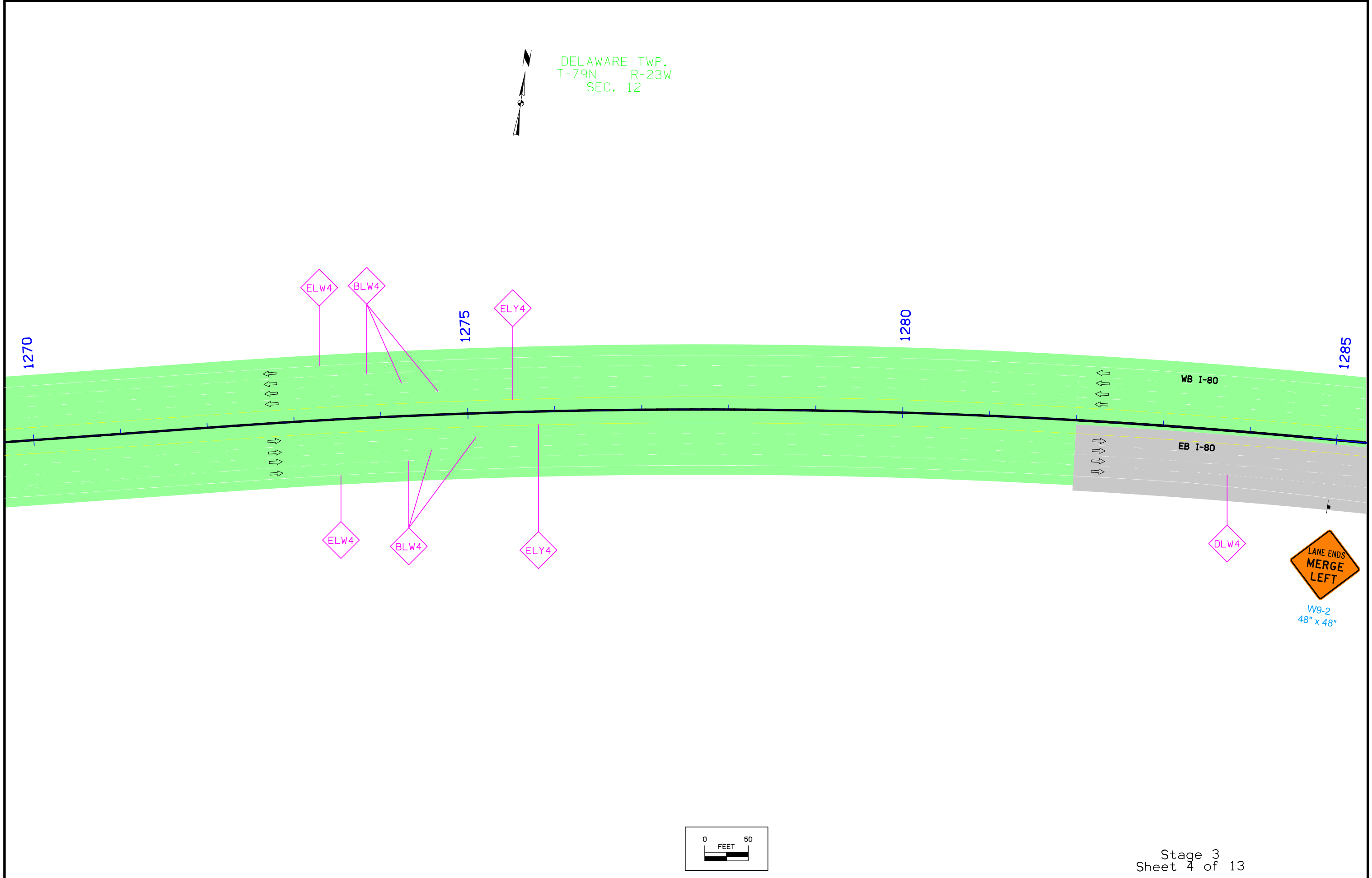
BLW4

ELY4



Stage 3
Sheet 3 of 13

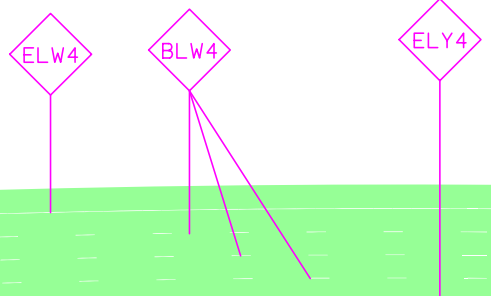
DELAWARE TWP.
T-79N R-23W
SEC. 12



DELAWARE TWP.
T-79N R-23W
SEC. 12



1285



1290



1295

WB I-80

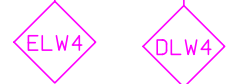


1300

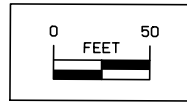
EB I-80



W9-2
48" x 48"

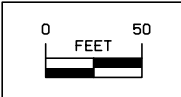
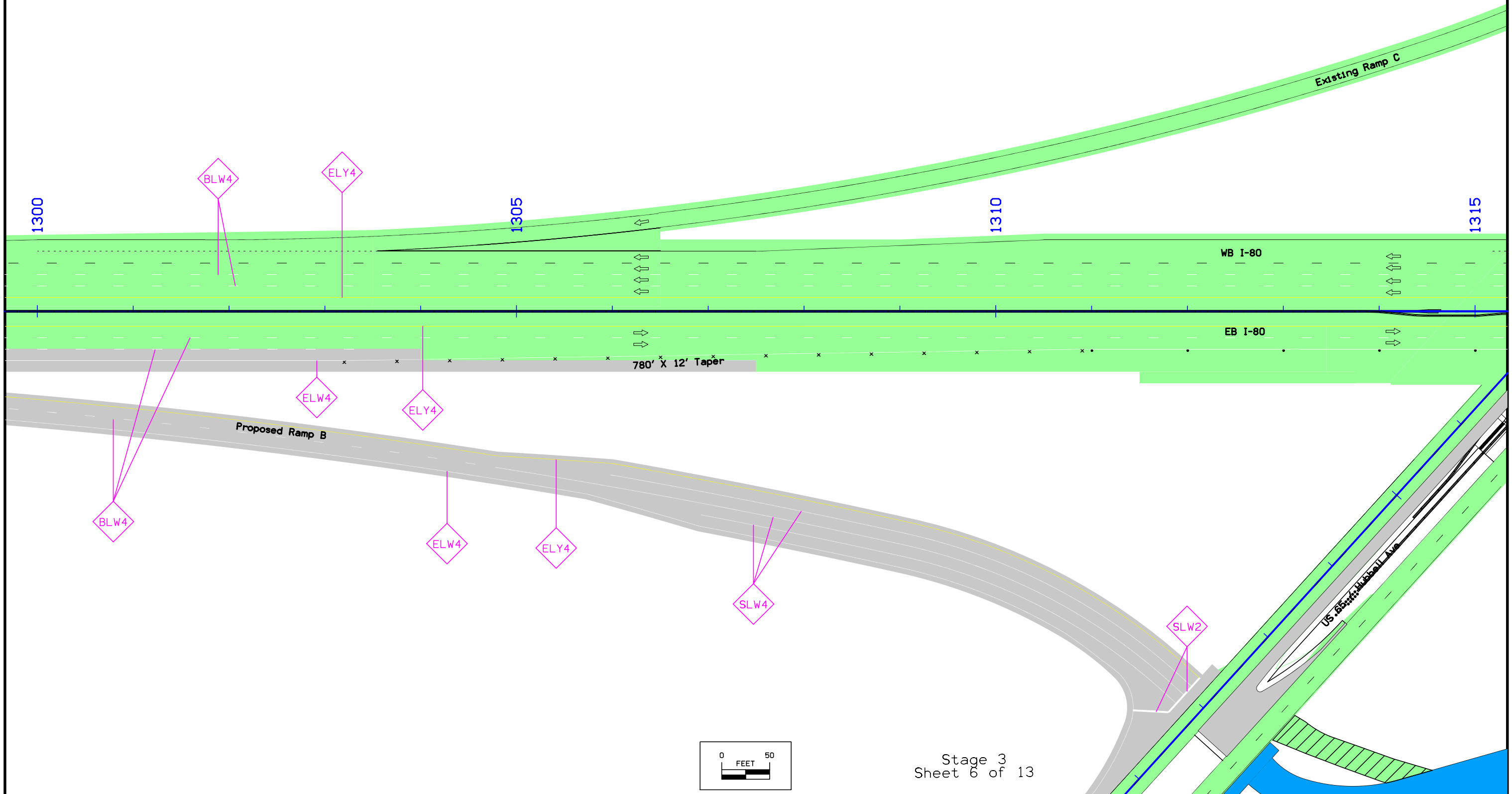


W4-2
48" x 48"



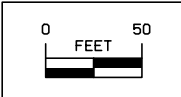
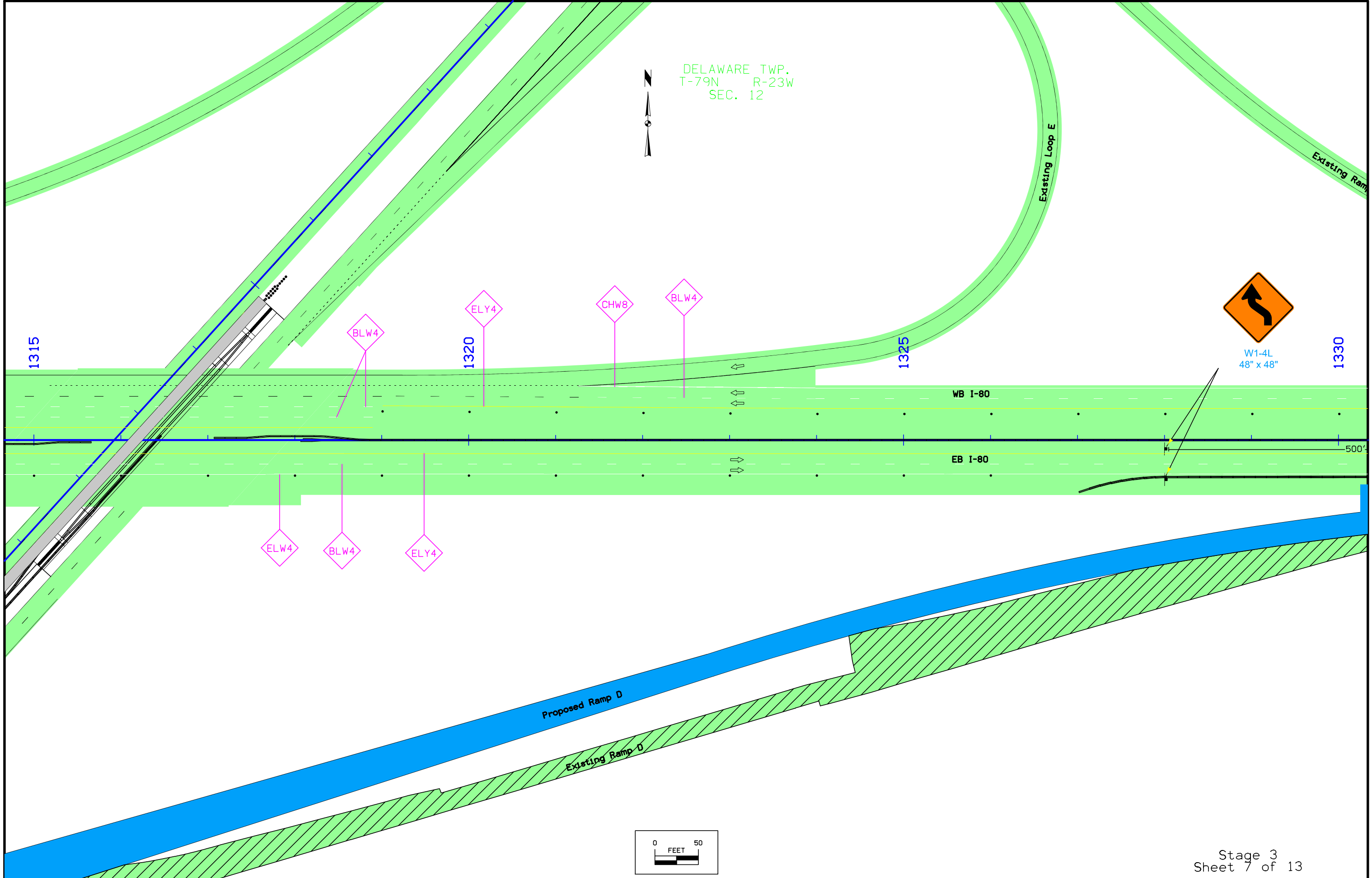
Stage 3
Sheet 5 of 13

DELAWARE TWP.
T-79N R-23W
SEC. 12



Stage 3
Sheet 6 of 13

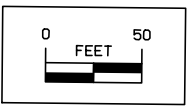
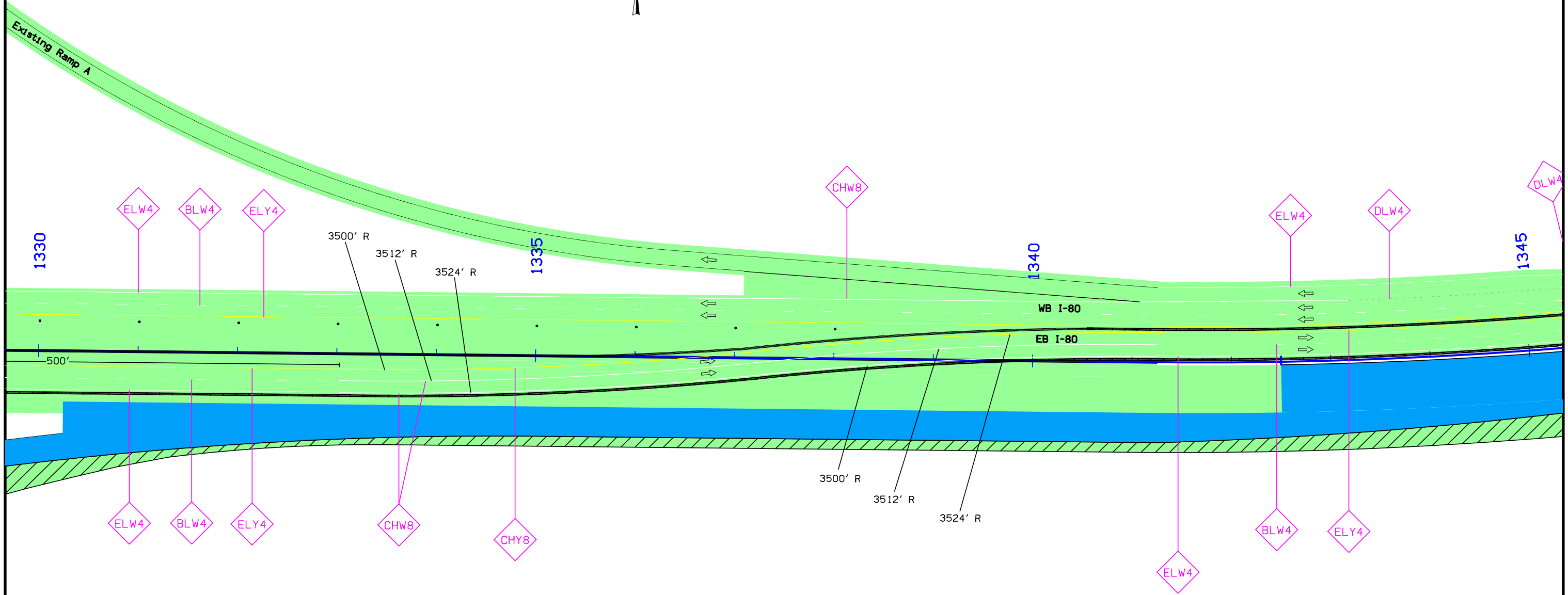
DELAWARE TWP.
T-79N R-23W
SEC. 12



Stage 3
Sheet 7 of 13



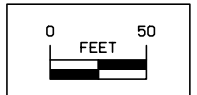
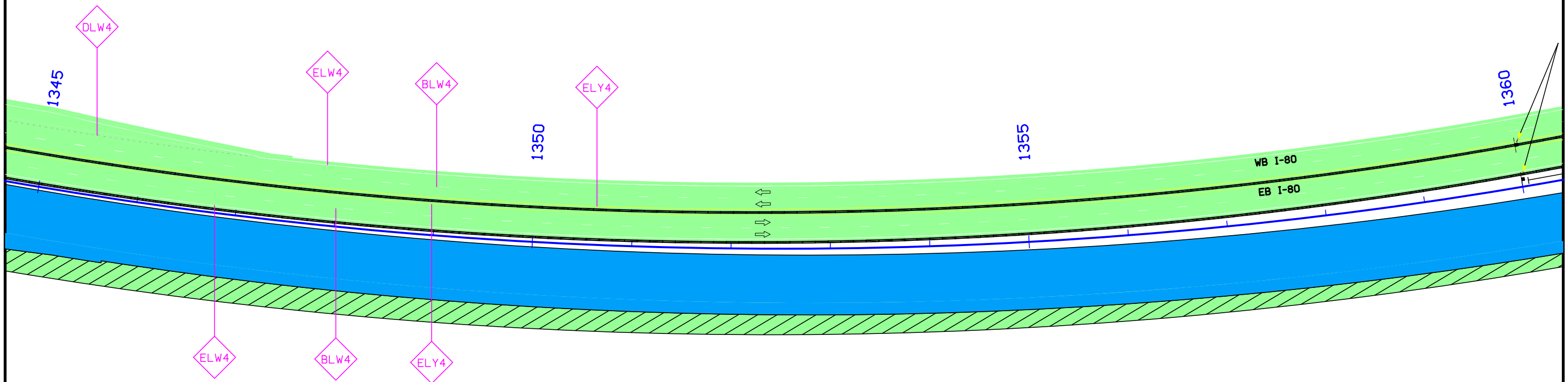
DELAWARE TWP.
T-79N R-23W
SEC. 12



Stage 3
Sheet 8 of 13



DELAWARE TWP.
T-79N R-23W
SEC. 12

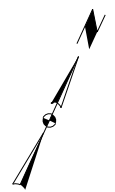


Stage 3
Sheet 9 of 13

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Gansen	POLK COUNTY	PROJECT NUMBER IM-080-5(298)142--13-77	SHEET NUMBER J.26
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DELAWARE TWP.
T-79N R-23W
SEC. 12



W1-4R
48" x 48"

1360

ELW4

BLW4

ELY4

1365

CHW8

CHY8

1370

375' X 9' Shift

500'

3500' R

3512' R

3524' R

1375

ELW4

BLW4

ELY4

CHW8

CHY8

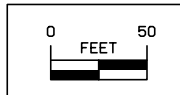
3500' R

3512' R

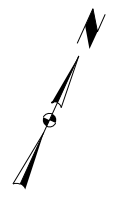
3524' R

EXIT
500 FT

G20-22
72" x 42"



Stage 3
Sheet 10 of 13



DELAWARE TWP.
T-79N R-23W
SEC. 12



W20-7B
48" x 48"



W1-4R
48" x 48"

1375

1380

1385

1390

WB I-80

EB I-80

500'

330' X 8' Shift

ELW4

BLW4

ELY4



W1-4R
48" x 48"

DLW4



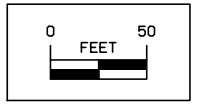
1 43

G20-23
48" x 48"

G20-23A
36" x 12"

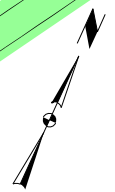
CHW8

CHY8



Stage 3
Sheet 11 of 13

DELAWARE TWP.
T-79N R-23W
SEC. 12



W20-1
48" x 48"

500'

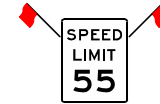


W1-4R
48" x 48"

1395

500'

1400



R2-1
48" x 60"

Grant St. S.



W20-7B
48" x 48"

500'

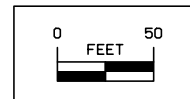
1405

1000'



G20-2A
48" x 24"

1st Ave. N.

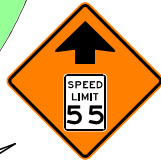


Stage 3
Sheet 12 of 13

DELAWARE TWP.
T-79N R-23W
SEC. 12



W20-1
48" x 48"



W3-5
48" x 48"

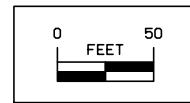


W20-1
48" x 48"

1410

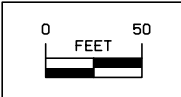
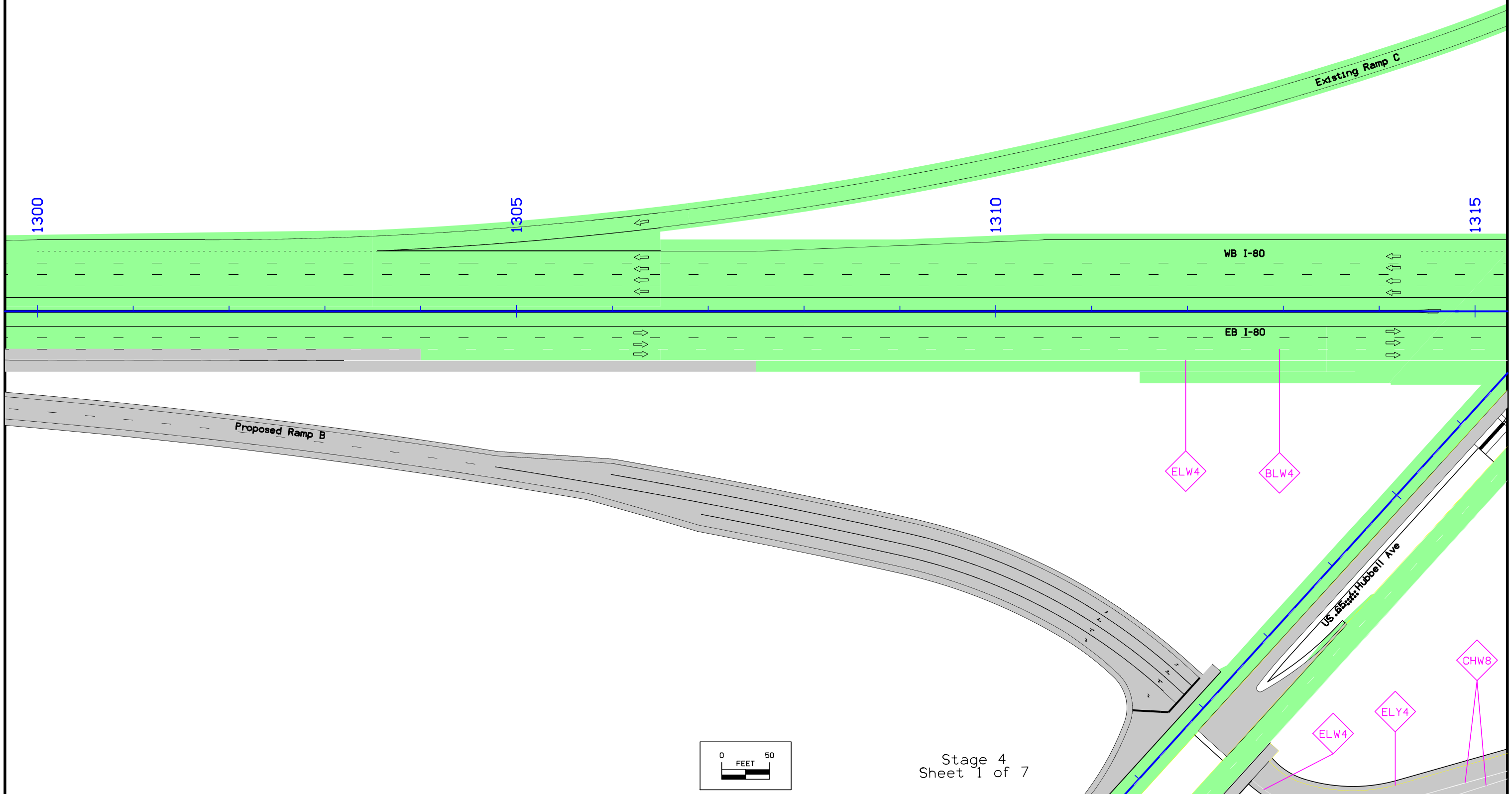
500'

1000'



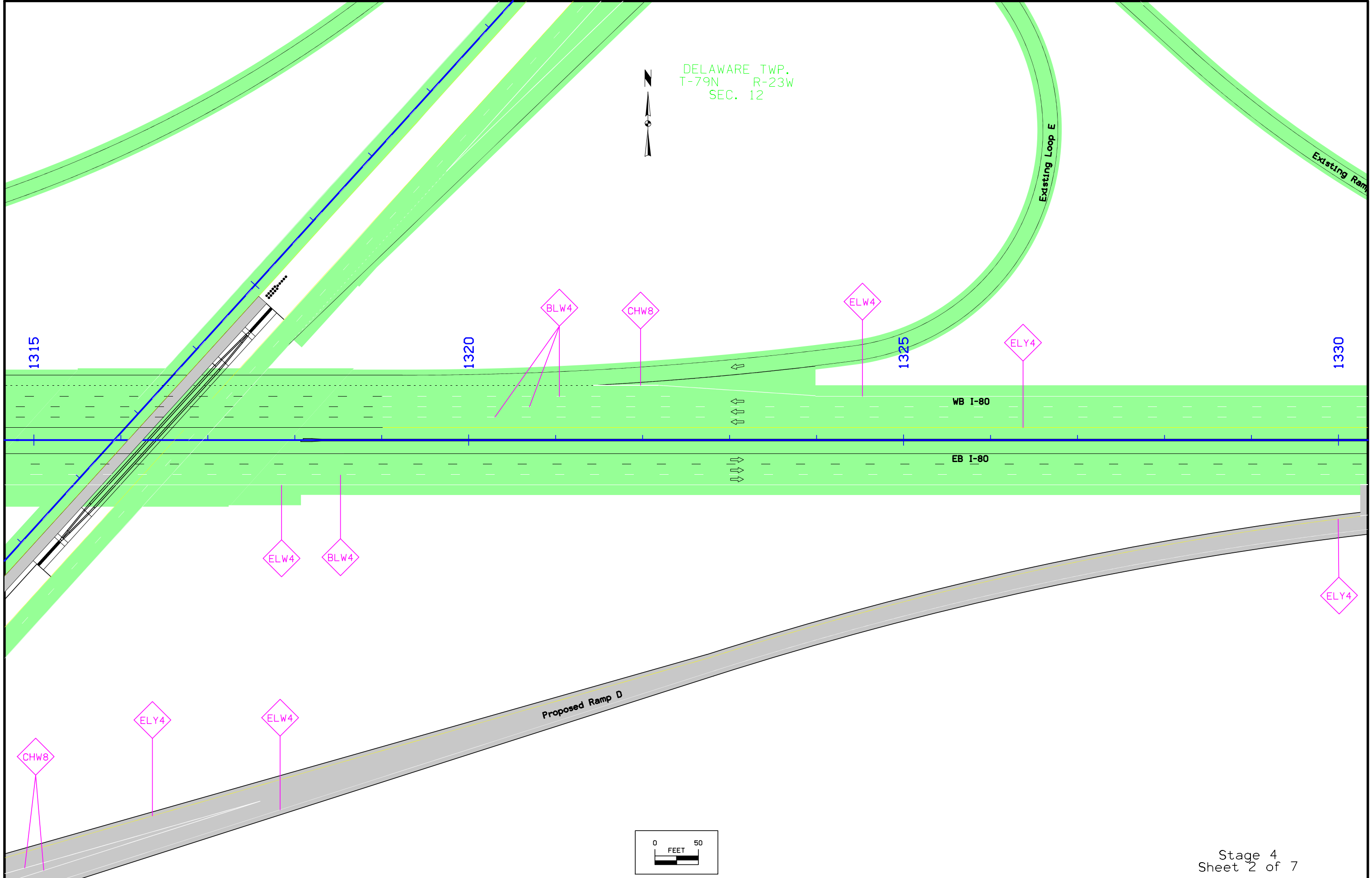
Stage 3
Sheet 13 of 13

DELAWARE TWP.
T-79N R-23W
SEC. 12



Stage 4
Sheet 1 of 7

DELAWARE TWP.
T-79N R-23W
SEC. 12



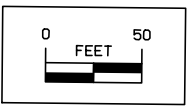
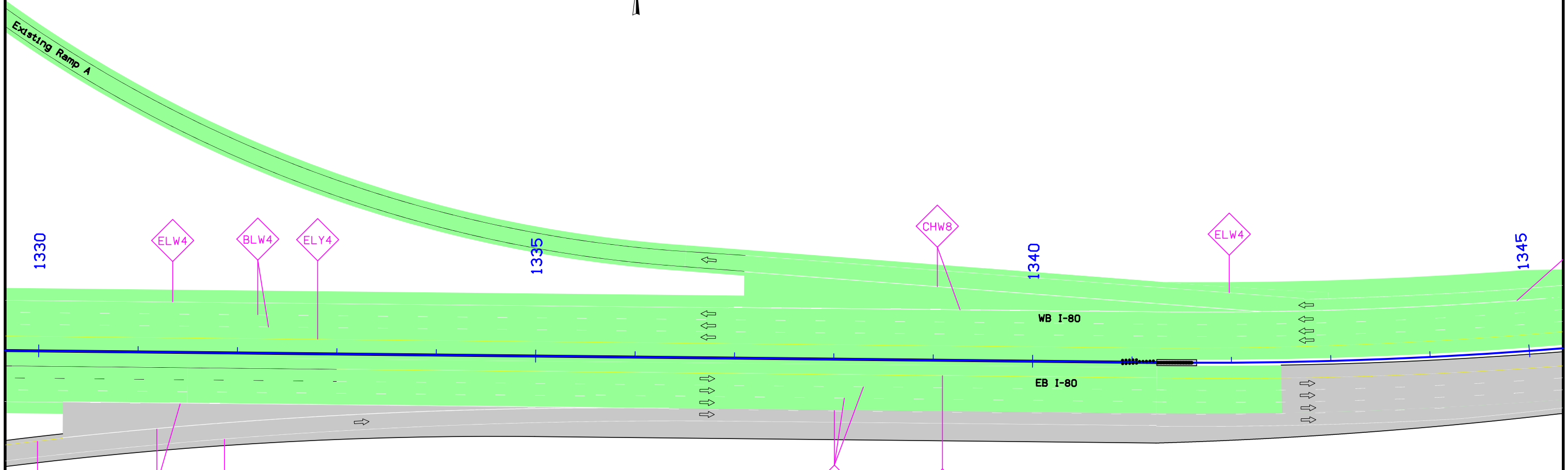
Stage 4
Sheet 2 of 7

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Gansen	POLK COUNTY	PROJECT NUMBER	IM-080-5(298)142--13-77	SHEET NUMBER	J.32
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DELAWARE TWP.
T-79N R-23W
SEC. 12



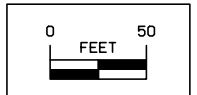
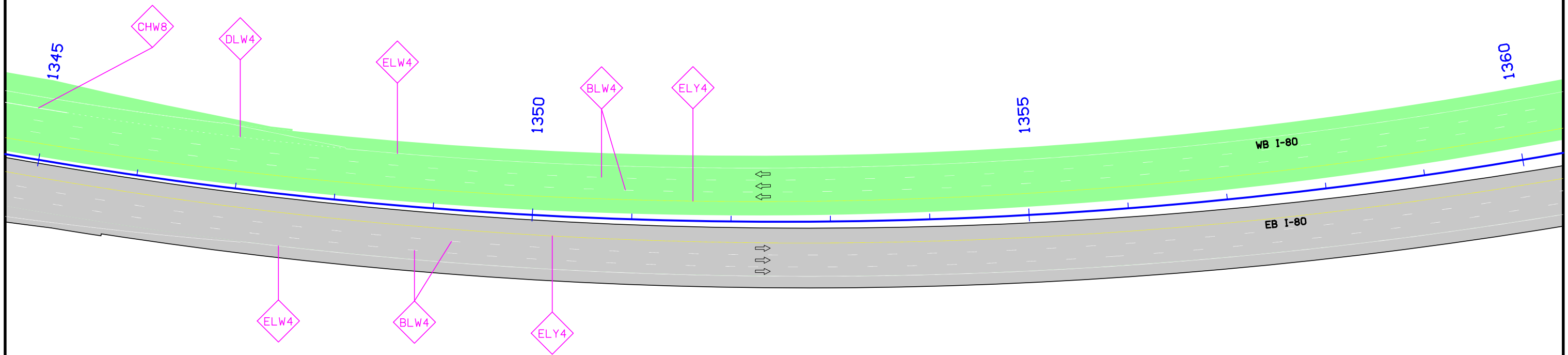
Stage 4
Sheet 3 of 7

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Gansen	POLK COUNTY	PROJECT NUMBER IM-080-5(298)142--13-77	SHEET NUMBER J.33
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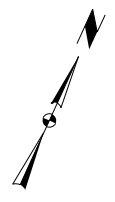
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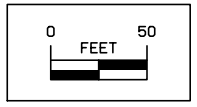
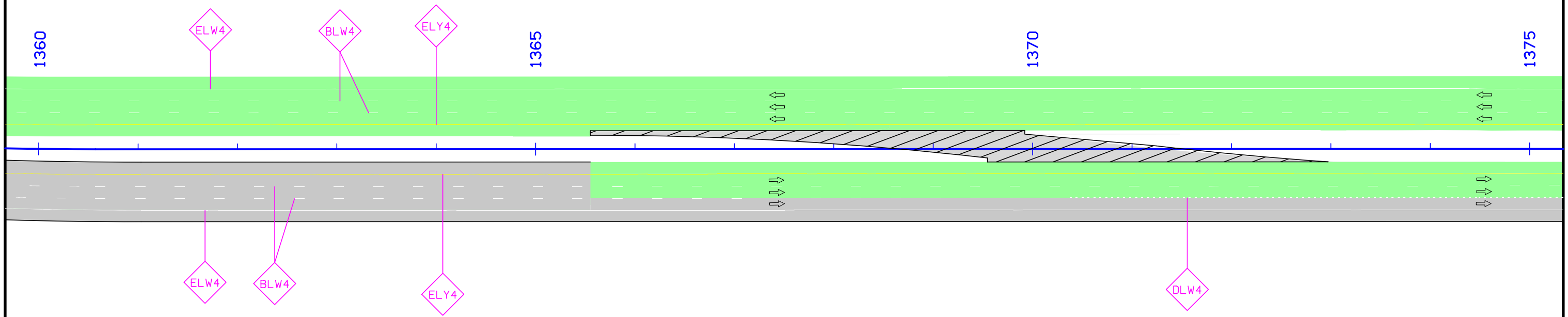
DELAWARE TWP.
T-79N R-23W
SEC. 12



Stage 4
Sheet 4 of 7

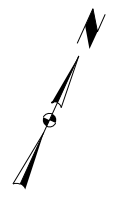


DELAWARE TWP.
T-79N R-23W
SEC. 12

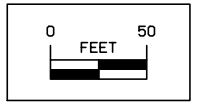
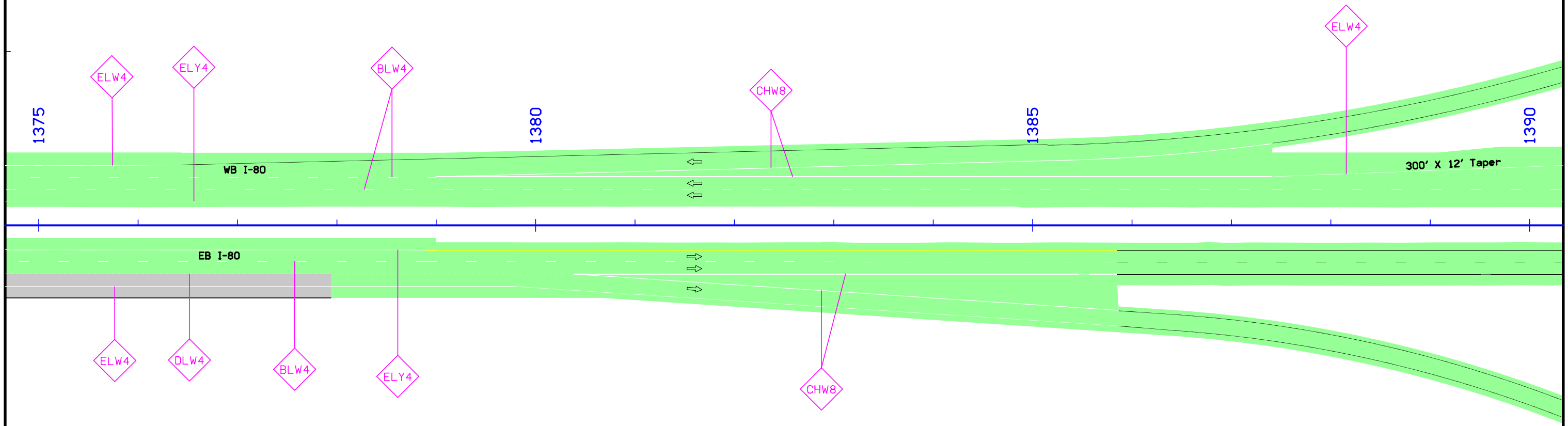


Stage 4
Sheet 5 of 7

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Gansen	POLK COUNTY	PROJECT NUMBER IM-080-5(298)142--13-77	SHEET NUMBER J.35
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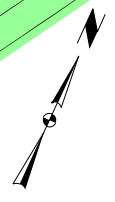


DELAWARE TWP.
T-79N R-23W
SEC. 12



Stage 4
Sheet 6 of 7

DELAWARE TWP.
T-79N R-23W
SEC. 12



BLW4

ELY4

ELW4

DLW4

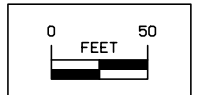
1395

1400

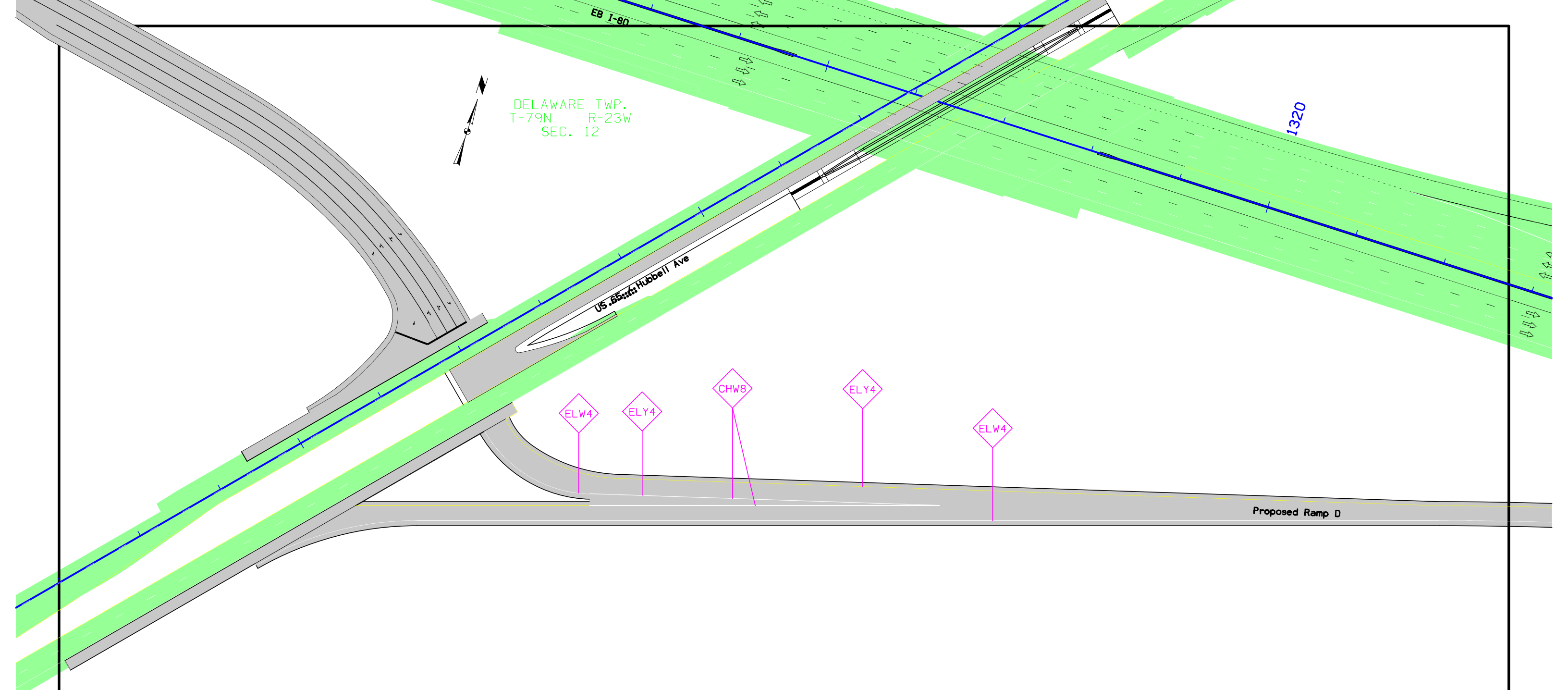
1405

Grant St. S.

1st Ave. N.



Stage 4
Sheet 7 of 7



DELAWARE TWP.
T-79N R-23W
SEC. 12

US 65 Hubbell Ave

Proposed Ramp D

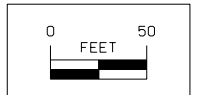
ELW4

ELY4

CHW8

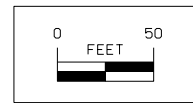
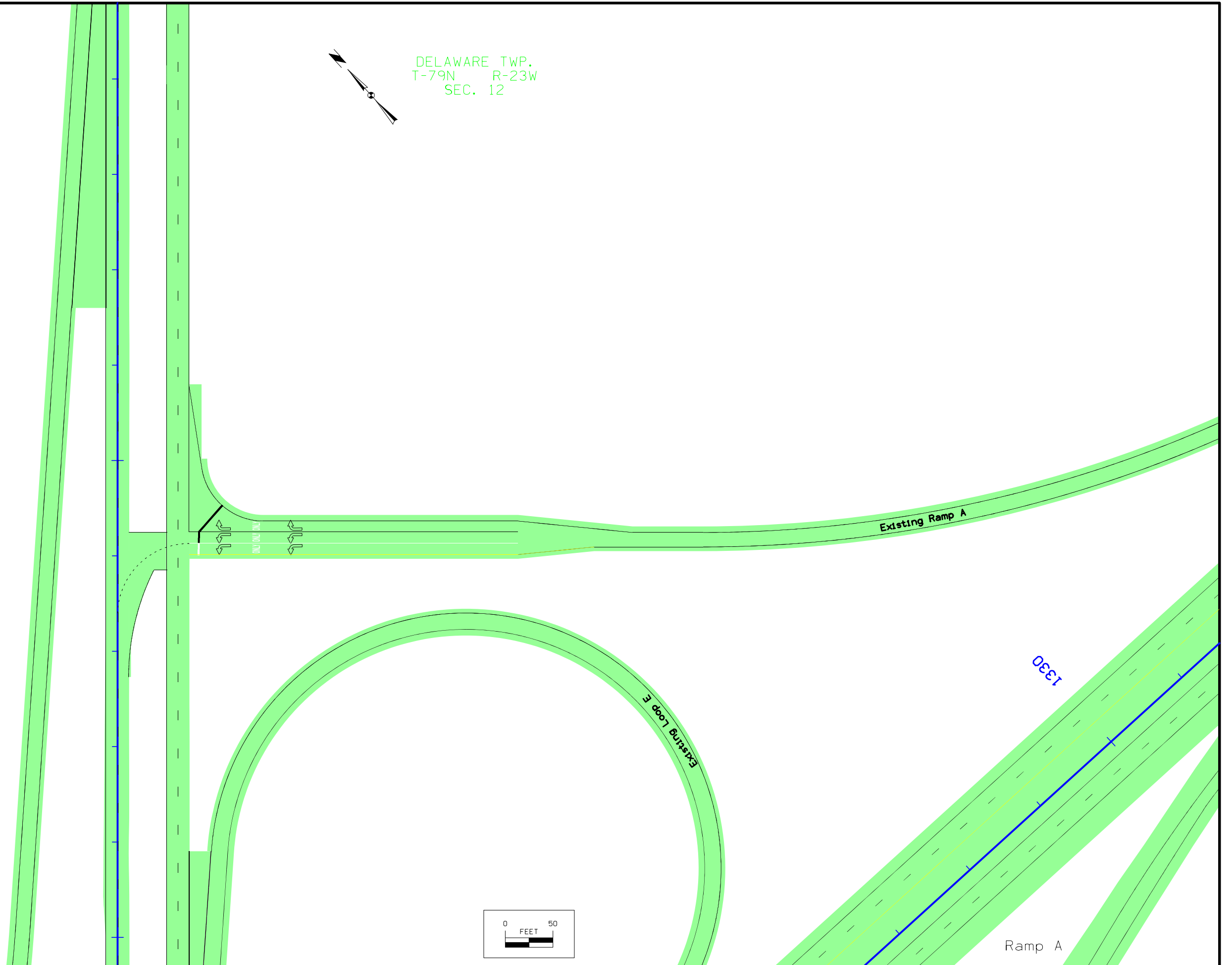
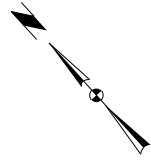
ELY4

ELW4



Stage 4
Ramp D

DELAWARE TWP.
T-79N R-23W
SEC. 12



DELAWARE TWP.
T-79N R-23W
SEC. 11



Curve Data
 $\Delta = 25^\circ 26' 24.51''$ (LT)
 $T = 345.36$
 $L = 679.34$
 $R = 1,530.00$
 $e = 38.49$
 $L = 6.0\%$
 $L = 186$
 $x = 62$

Curve Data
 $\Delta = 18^\circ 30' 28.56''$ (LT)
 $T = 651.73$
 $L = 1,292.10$
 $R = 4,000.00$
 $e = 52.75$
 $L = 3.6\%$
 $L = 112$
 $x = 62$

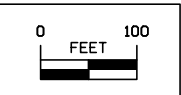
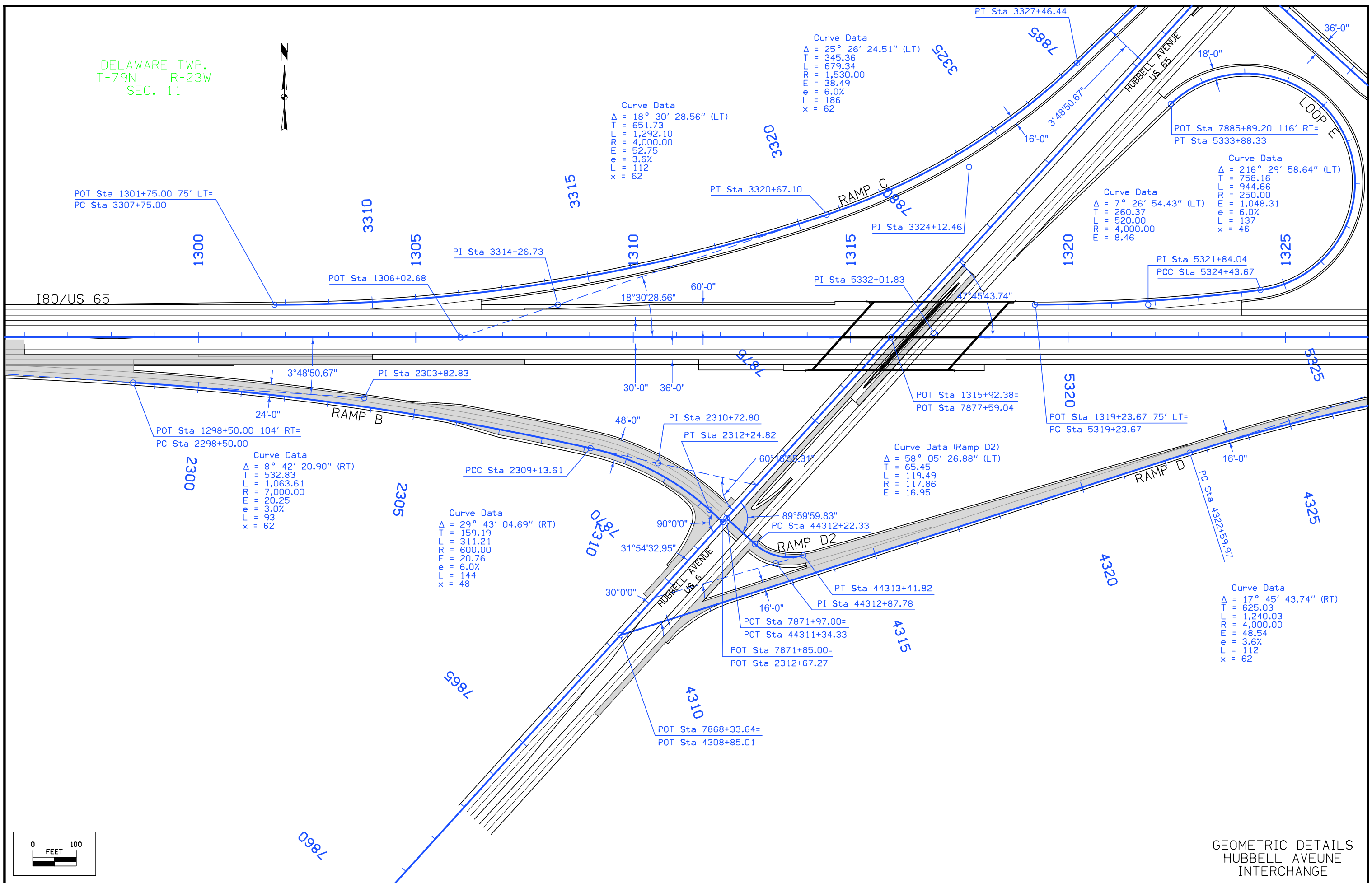
Curve Data
 $\Delta = 7^\circ 26' 54.43''$ (LT)
 $T = 260.37$
 $L = 520.00$
 $R = 4,000.00$
 $e = 8.46$
 $L = 137$
 $x = 46$

Curve Data
 $\Delta = 216^\circ 29' 58.64''$ (LT)
 $T = 758.16$
 $L = 944.66$
 $R = 250.00$
 $e = 1,048.31$
 $L = 6.0\%$
 $L = 137$
 $x = 46$

Curve Data (Ramp D2)
 $\Delta = 58^\circ 05' 26.88''$ (LT)
 $T = 65.45$
 $L = 119.49$
 $R = 117.86$
 $e = 16.95$

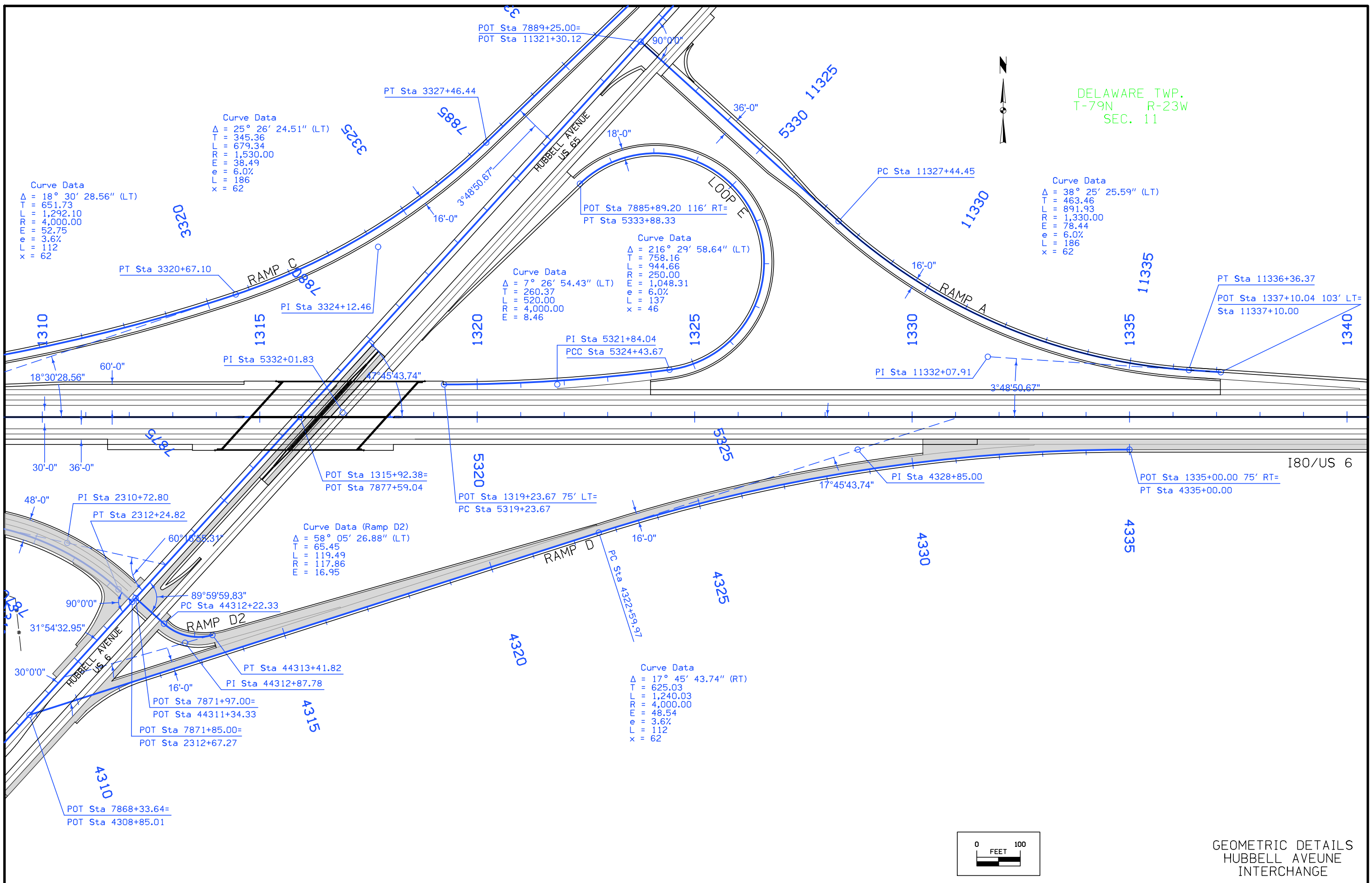
Curve Data
 $\Delta = 29^\circ 43' 04.69''$ (RT)
 $T = 159.19$
 $L = 311.21$
 $R = 600.00$
 $e = 20.76$
 $L = 6.0\%$
 $L = 144$
 $x = 48$

Curve Data
 $\Delta = 17^\circ 45' 43.74''$ (RT)
 $T = 625.03$
 $L = 1,240.03$
 $R = 4,000.00$
 $e = 48.54$
 $L = 3.6\%$
 $L = 112$
 $x = 62$



GEOMETRIC DETAILS
 HUBBELL AVENE
 INTERCHANGE

DELAWARE TWP.
T-79N R-23W
SEC. 11



Curve Data
 $\Delta = 18^\circ 30' 28.56''$ (LT)
 T = 651.73
 L = 1,292.10
 R = 4,000.00
 E = 52.75
 e = 3.6%
 L = 112
 x = 62

Curve Data
 $\Delta = 25^\circ 26' 24.51''$ (LT)
 T = 345.36
 L = 679.34
 R = 1,530.00
 E = 38.49
 e = 6.0%
 L = 186
 x = 62

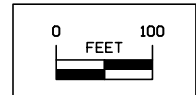
Curve Data
 $\Delta = 7^\circ 26' 54.43''$ (LT)
 T = 260.37
 L = 520.00
 R = 4,000.00
 E = 8.46

Curve Data
 $\Delta = 216^\circ 29' 58.64''$ (LT)
 T = 758.16
 L = 944.66
 R = 250.00
 E = 1,048.31
 e = 6.0%
 L = 137
 x = 46

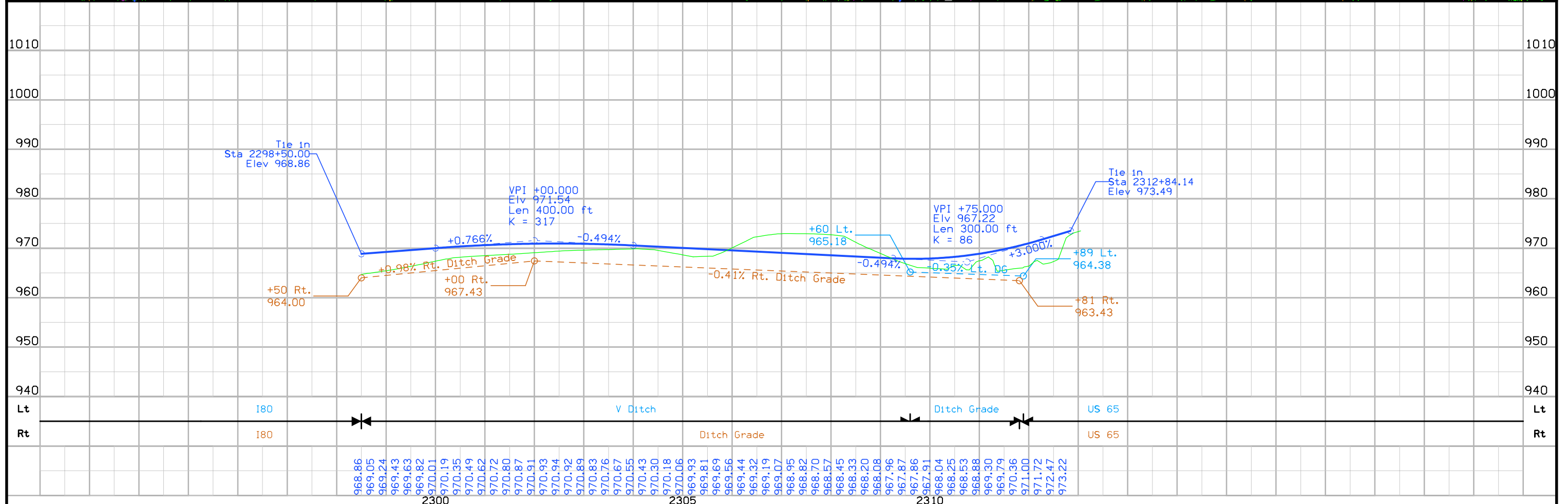
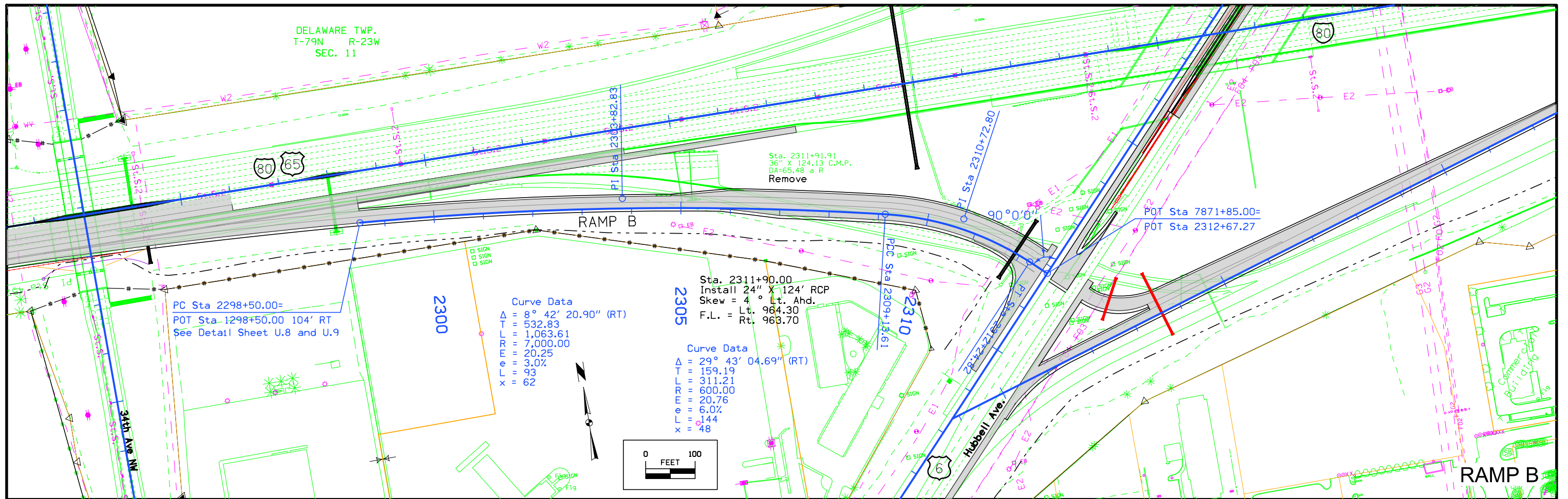
Curve Data
 $\Delta = 38^\circ 25' 25.59''$ (LT)
 T = 463.46
 L = 891.93
 R = 1,330.00
 E = 78.44
 e = 6.0%
 L = 186
 x = 62

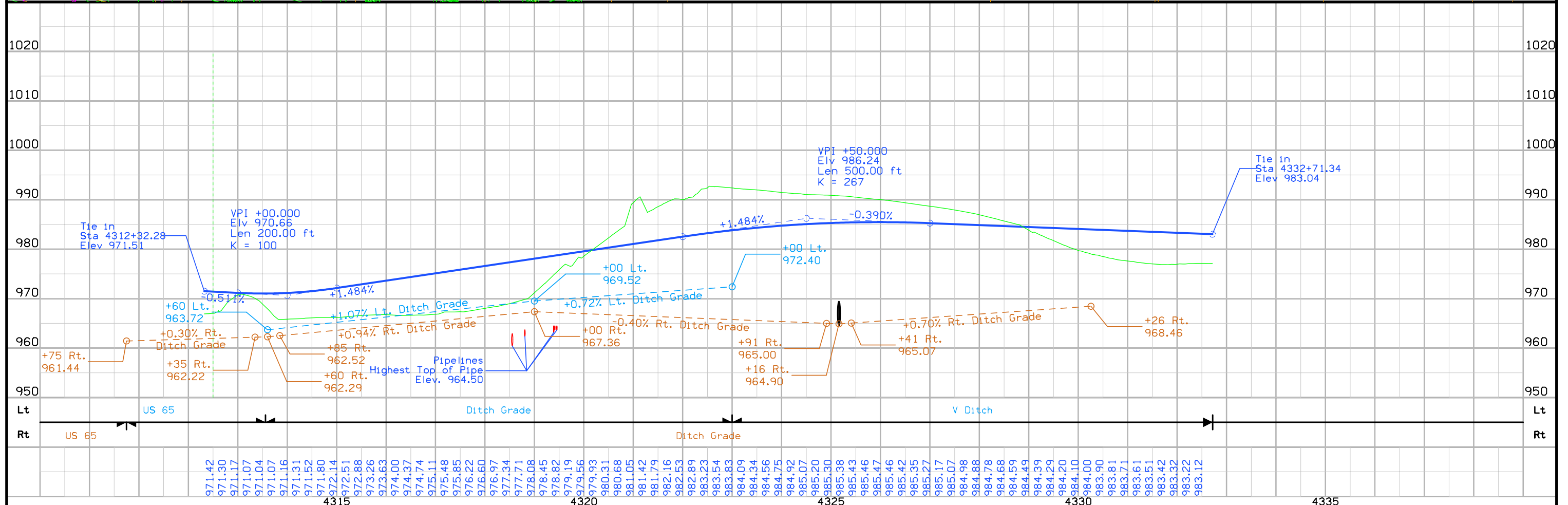
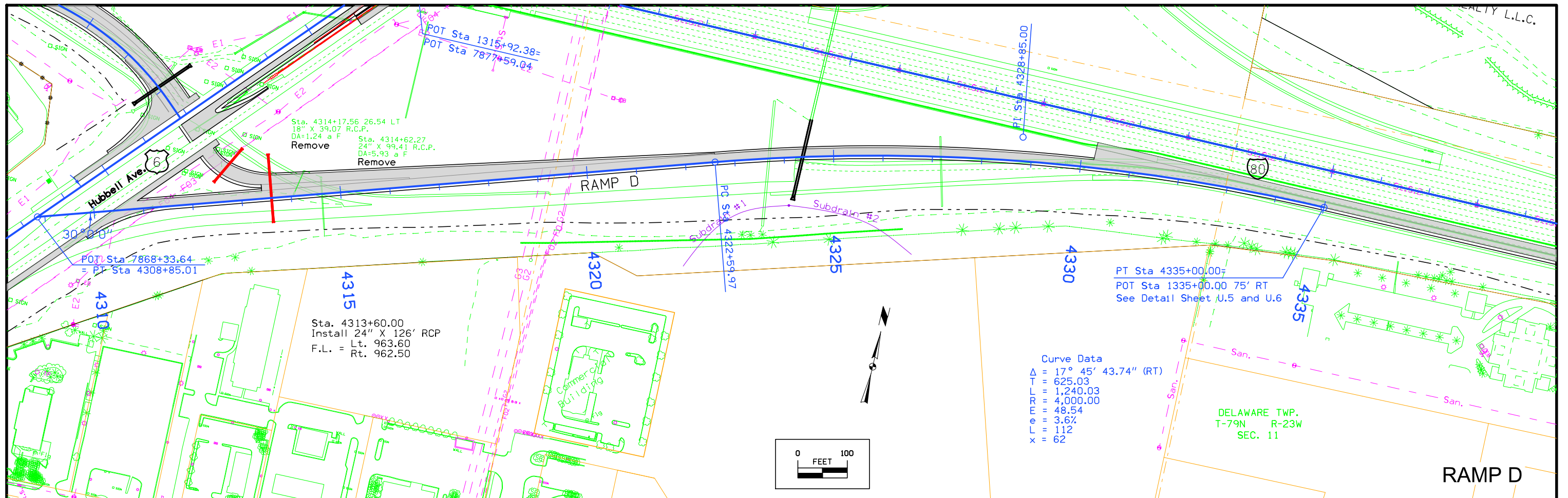
Curve Data (Ramp D2)
 $\Delta = 58^\circ 05' 26.88''$ (LT)
 T = 65.45
 L = 119.49
 R = 117.86
 E = 16.95

Curve Data
 $\Delta = 17^\circ 45' 43.74''$ (RT)
 T = 625.03
 L = 1,240.03
 R = 4,000.00
 E = 48.54
 e = 3.6%
 L = 112
 x = 62



GEOMETRIC DETAILS
HUBBELL AVENUE
INTERCHANGE





FILE NO.	ENGLISH	DESIGN TEAM	POLK COUNTY	PROJECT NUMBER	SHEET NUMBER
		Flattery\Gansen		IM-080-5(298)142--13-77	K.4

DELAWARE TWP.
T-79N R-23W
SEC. 11

80

POT Sta 7871+97.00=
POT Sta 44311+34.33

Sta.
Install 24" X ??' RCP
F.L. =
Lt.
Rt.

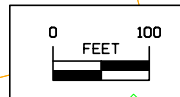
Subdrain #2

RAMP D2

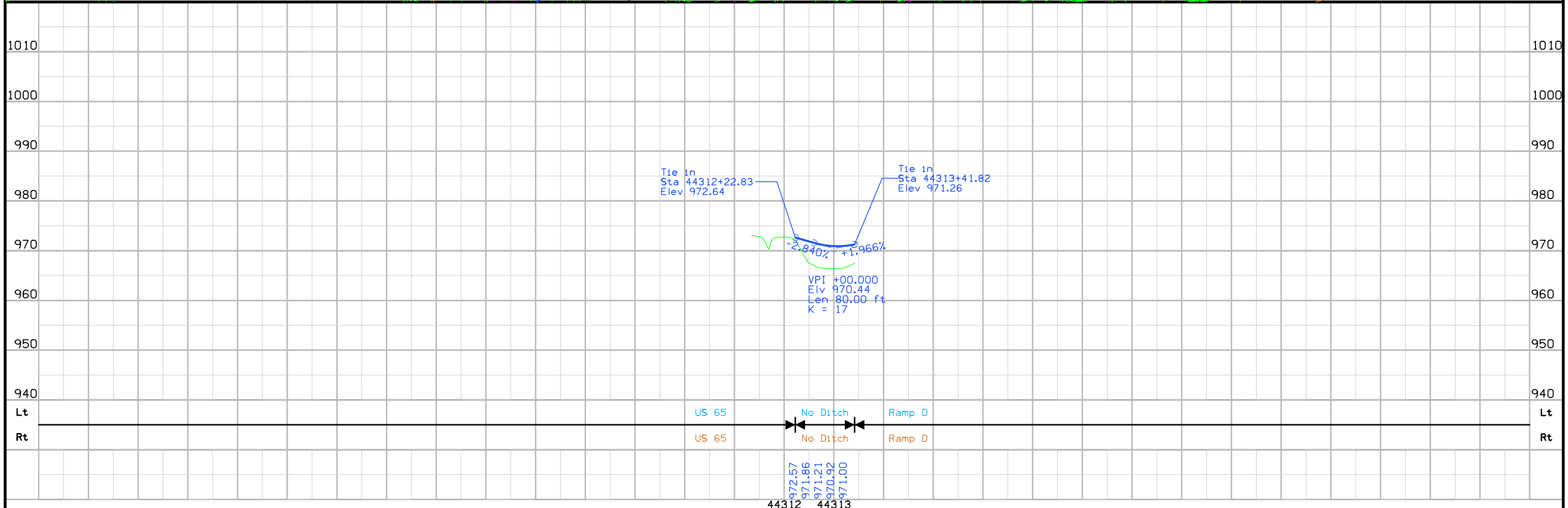
PT Sta 44313+41.82=
PT Sta 4313+41.82 46.60' RT

Curve Data
Δ = 58° 05' 26.88" (LT)
T = 65.45
L = 119.49
R = 117.86
E = 16.95

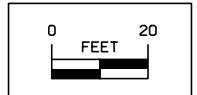
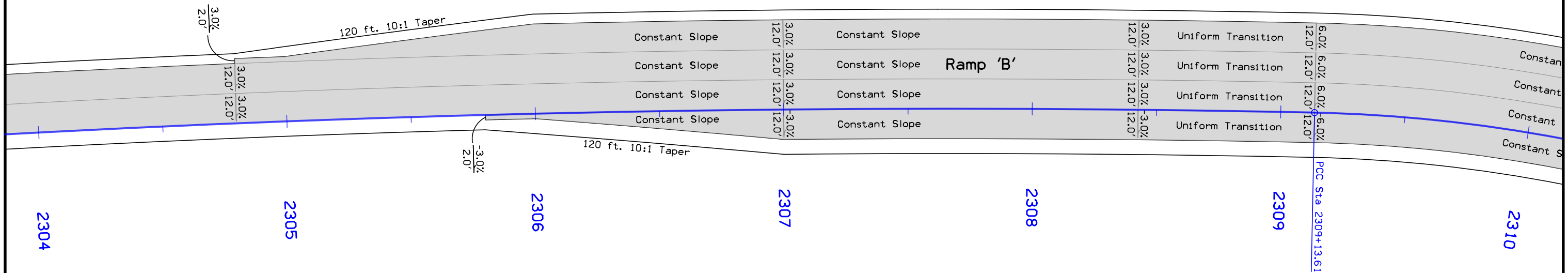
90° 30.17"
Hubbell Ave.



RAMP D2

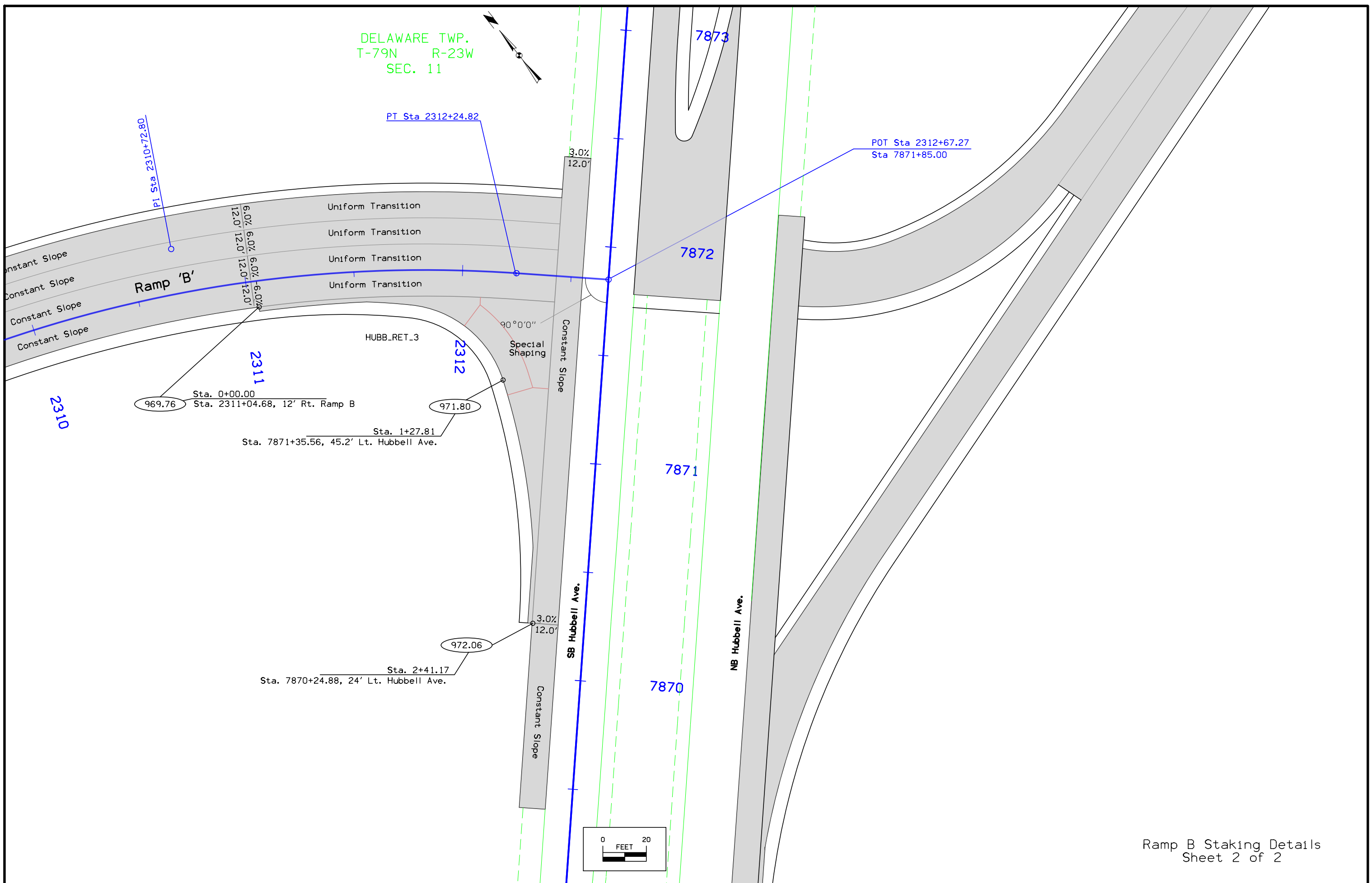


DELAWARE TWP.
T-79N R-23W
SEC. 11



Ramp B Staking Details
Sheet 1 of 2

DELAWARE TWP.
T-79N R-23W
SEC. 11



PI Sta 2310+72.80

PT Sta 2312+24.82

POT Sta 2312+67.27
Sta 7871+85.00

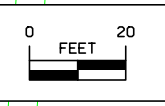
Ramp 'B'

Uniform Transition
Uniform Transition
Uniform Transition
Uniform Transition

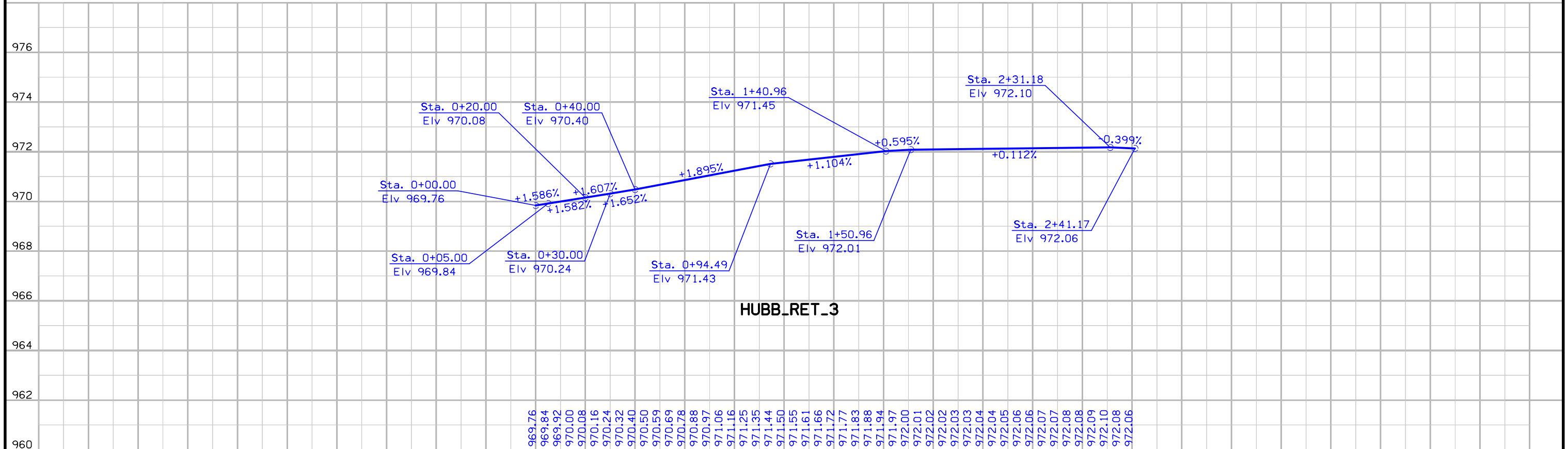
Sta. 0+00.00
Sta. 2311+04.68, 12' Rt. Ramp B

Sta. 1+27.81
Sta. 7871+35.56, 45.2' Lt. Hubbell Ave.

Sta. 2+41.17
Sta. 7870+24.88, 24' Lt. Hubbell Ave.



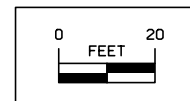
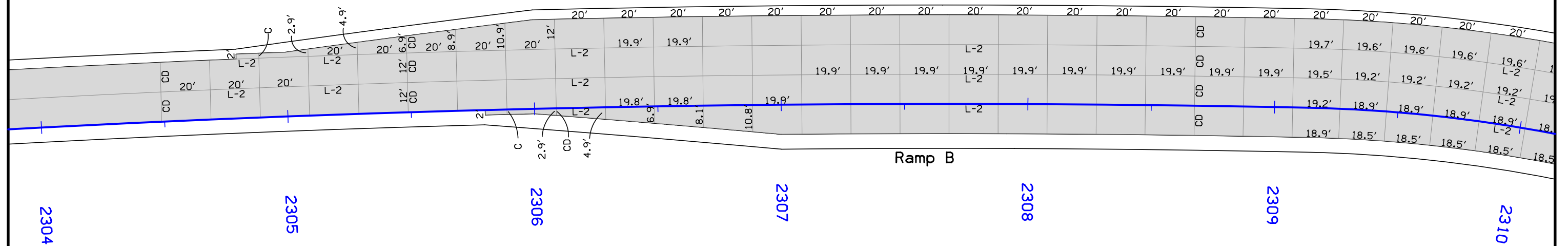
Ramp B Staking Details
Sheet 2 of 2



0+00	969.76	0+20	970.08	0+40	970.40	0+60	970.78	0+80	971.16	1+00	971.55	1+20	971.93	1+40	972.31	1+60	972.69	1+80	973.07	2+00	973.45	2+20	973.83	2+40	974.21
------	--------	------	--------	------	--------	------	--------	------	--------	------	--------	------	--------	------	--------	------	--------	------	--------	------	--------	------	--------	------	--------

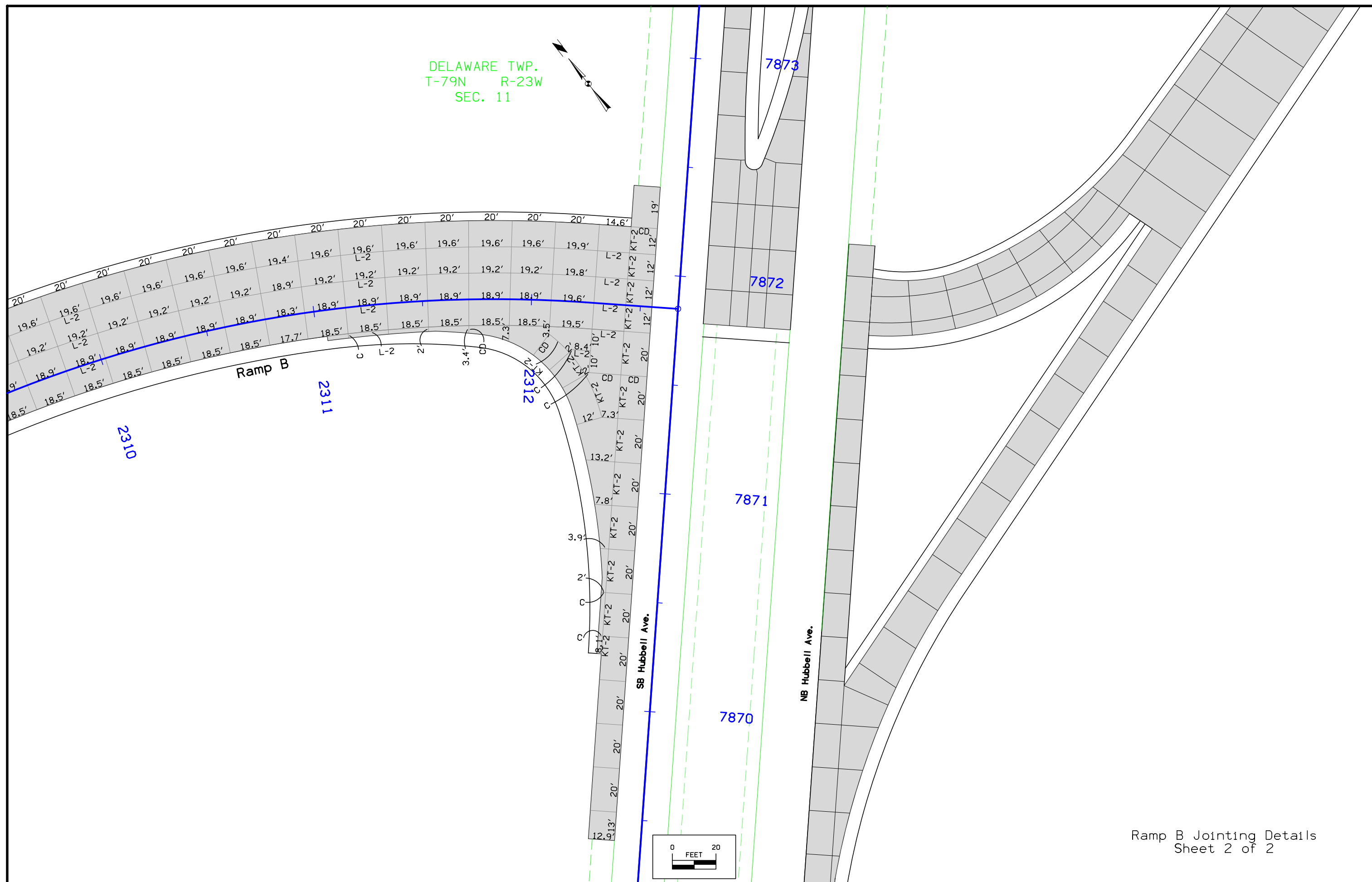
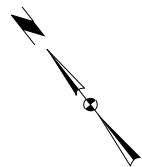
Edge Profile
Ramp B

DELAWARE TWP.
T-79N R-23W
SEC. 11



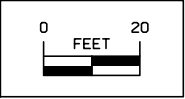
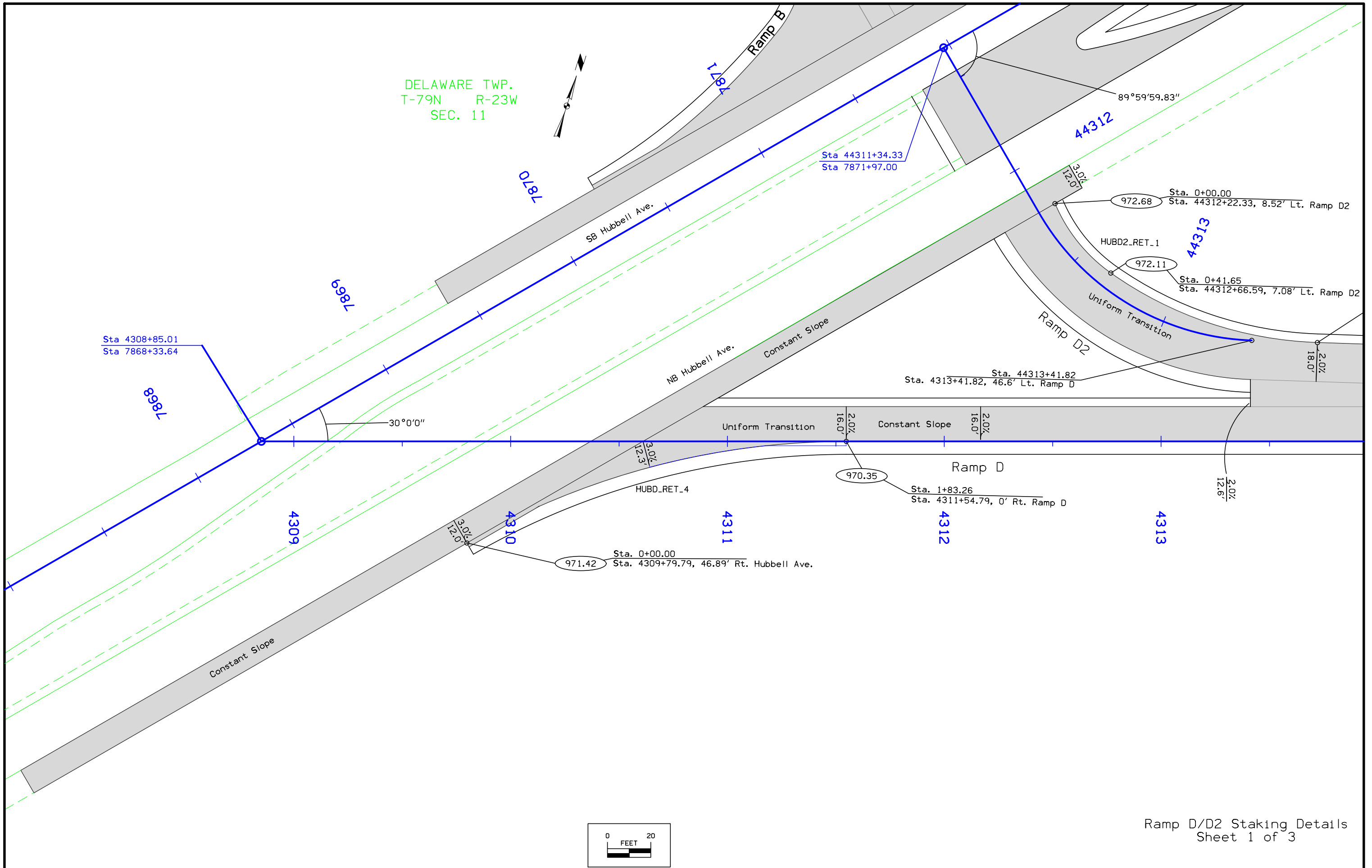
Ramp B Jointing Details
Sheet 1 of 2

DELAWARE TWP.
T-79N R-23W
SEC. 11



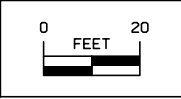
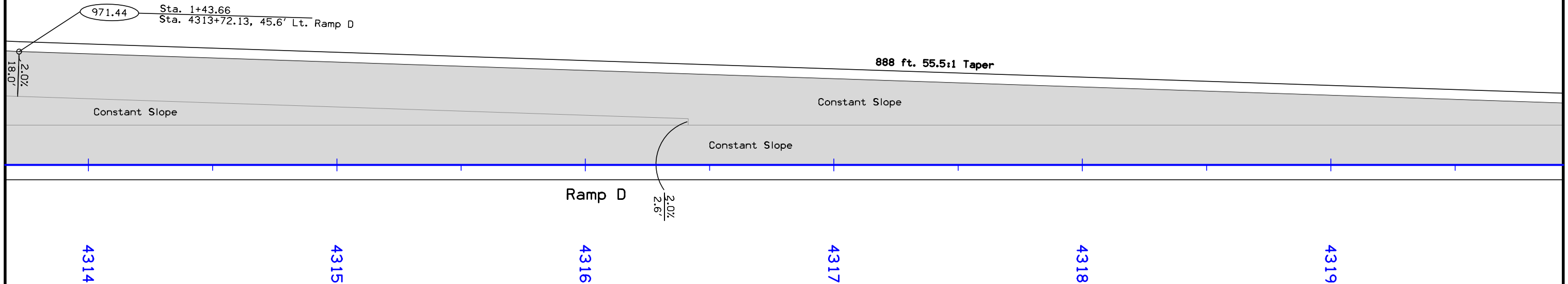
Ramp B Jointing Details
Sheet 2 of 2

DELAWARE TWP.
T-79N R-23W
SEC. 11



Ramp D/D2 Staking Details
Sheet 1 of 3

DELAWARE TWP.
T-79N R-23W
SEC. 11



Ramp D/D2 Staking Details
Sheet 2 of 3

DELAWARE TWP.
T-79N R-23W
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Sta. 10+32.00
Sta. 4322+59.97

2.0%
2.0'

Constant Slope

Constant Slope

2.0%
16.0'

3.6%
16.0'

Constant Slope

Uniform Transition

4320

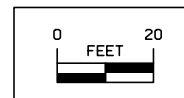
4321

4322

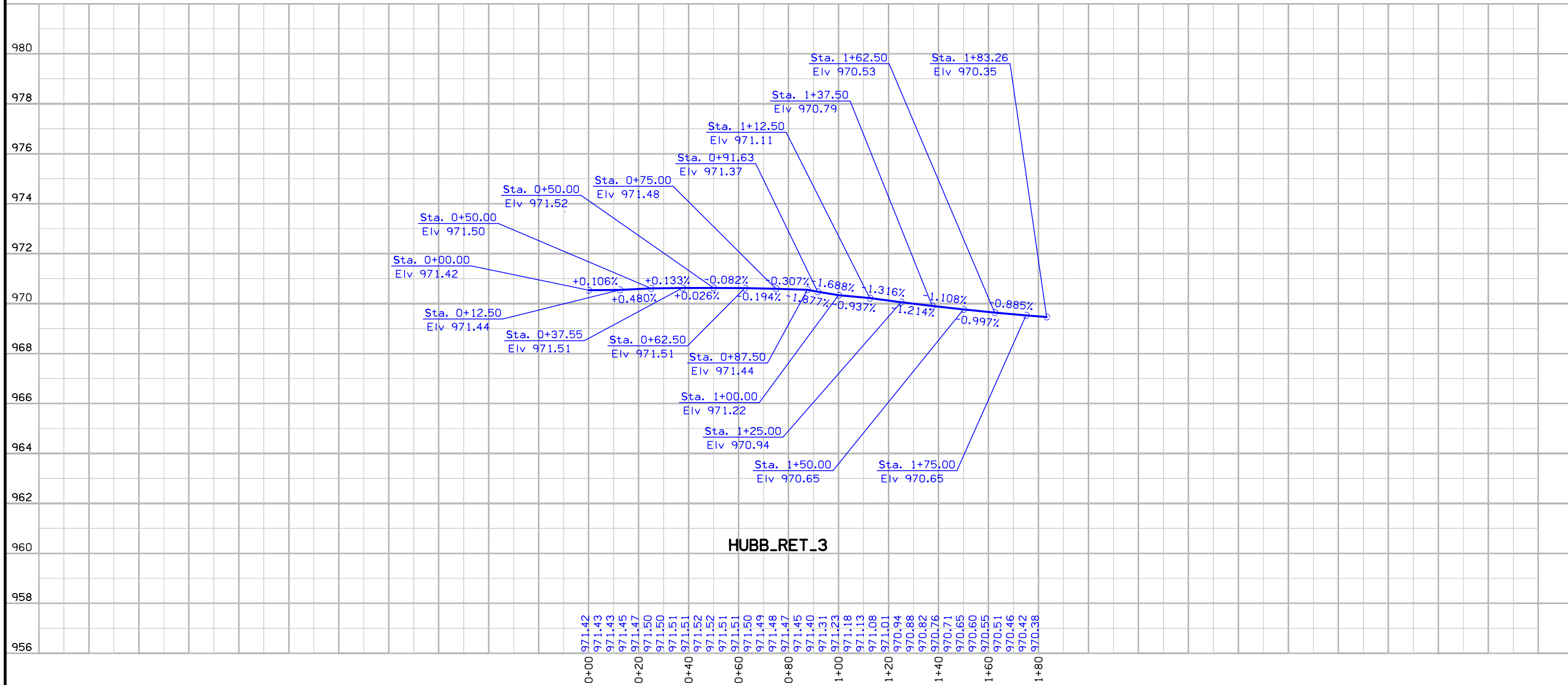
4323

4324

4325

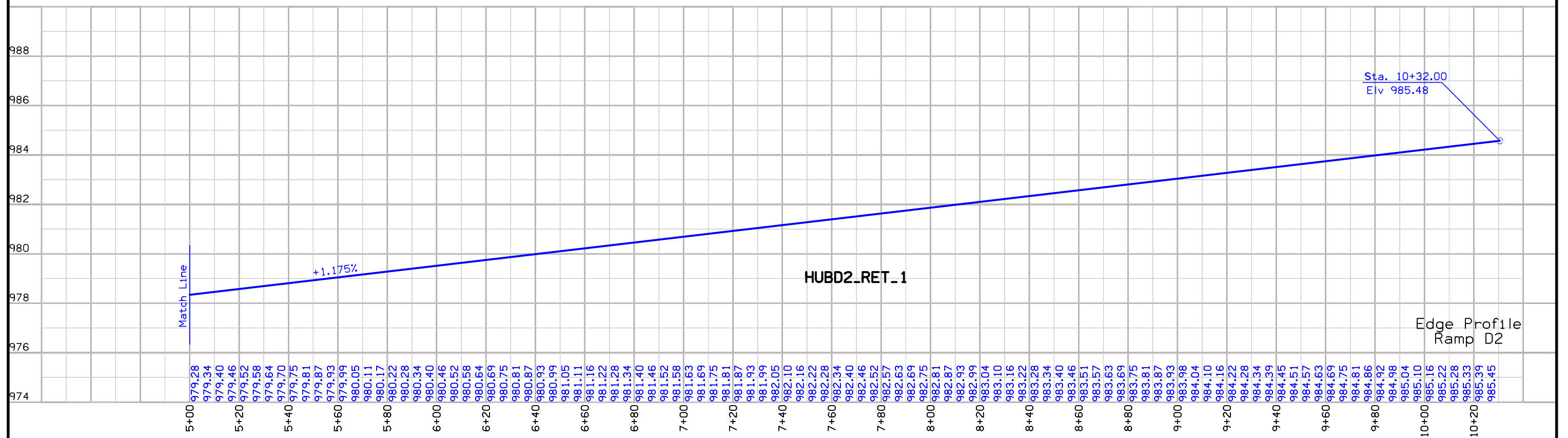
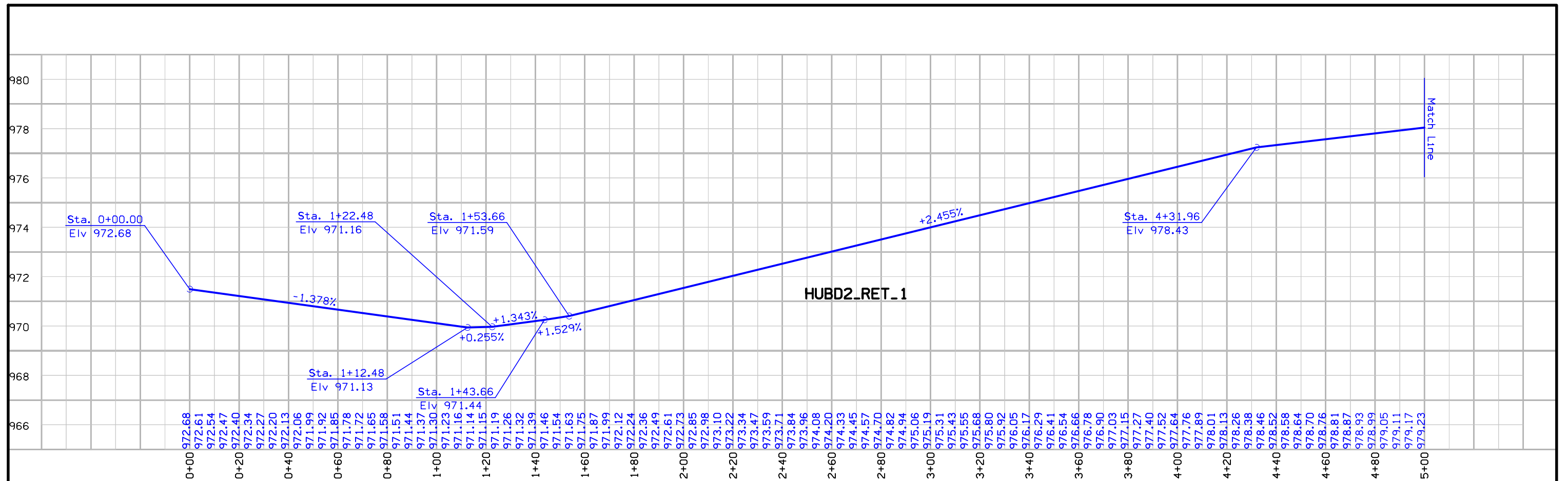


Ramp D/D2 Staking Details
Sheet 3 of 3

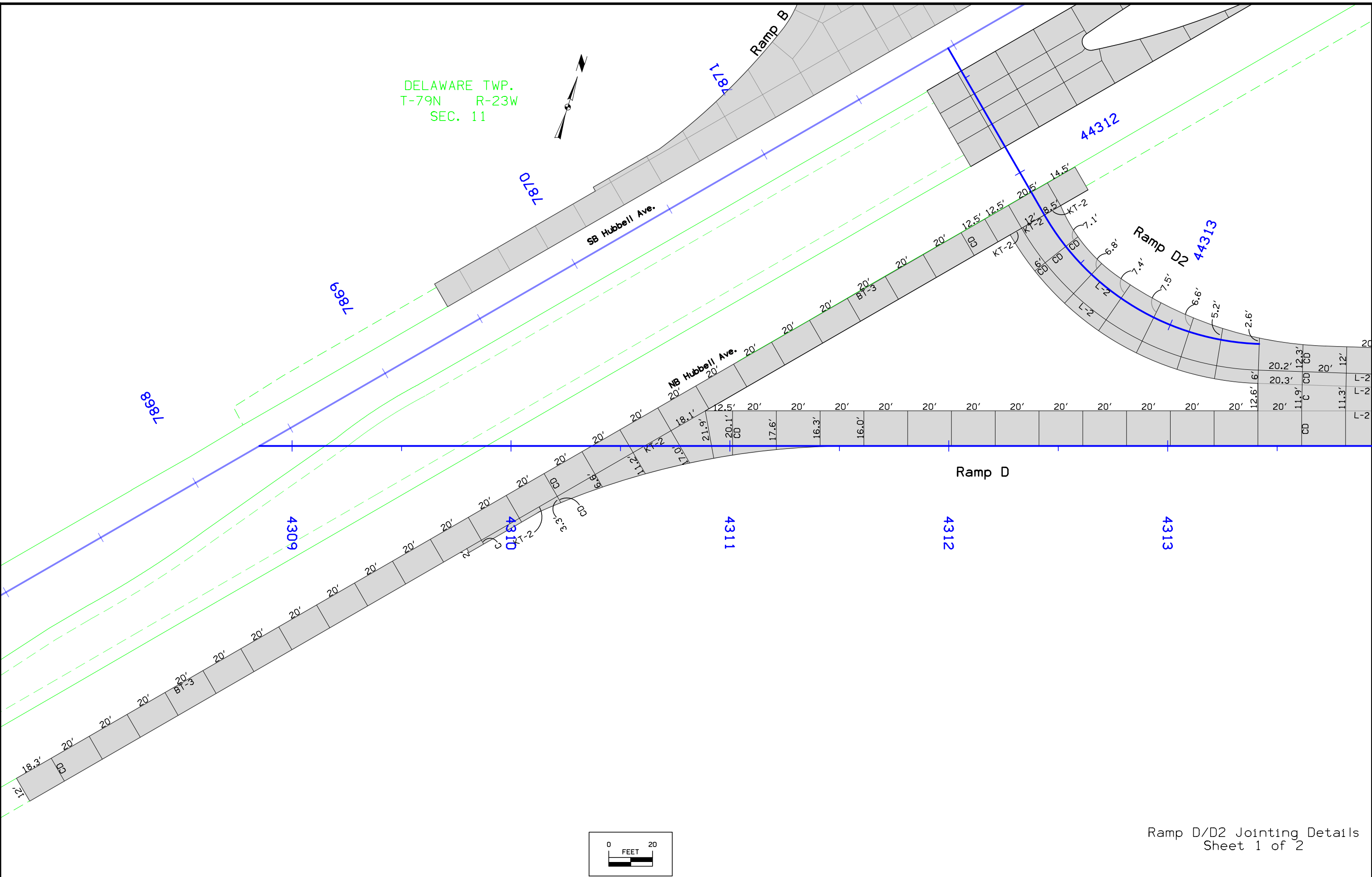


HUBB_RET_3

Edge Profile
Ramp D

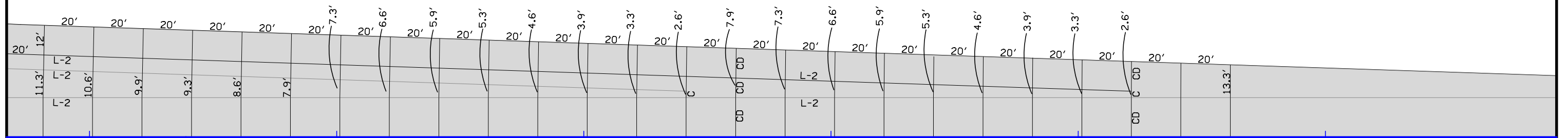


DELAWARE TWP.
T-79N R-23W
SEC. 11



Ramp D/D2 Jointing Details
Sheet 1 of 2

DELAWARE TWP.
T-79N R-23W
SEC. 11



Ramp D

4314

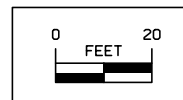
4315

4316

4317

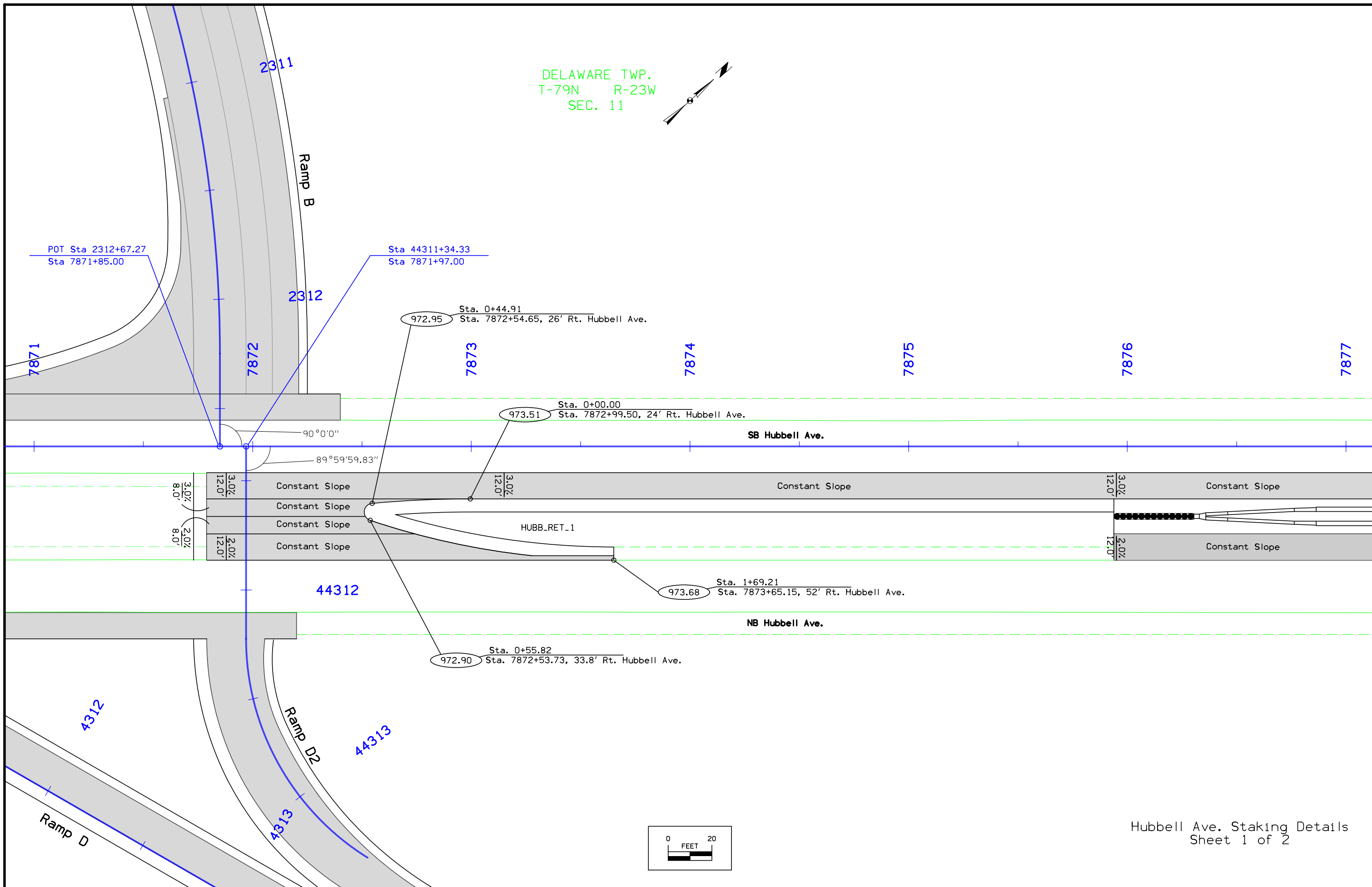
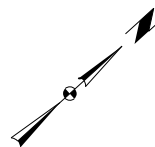
4318

4319



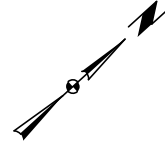
Ramp D/D2 Jointing Details
Sheet 2 of 2

DELAWARE TWP.
T-79N R-23W
SEC. 11



Hubbell Ave. Staking Details
Sheet 1 of 2

DELAWARE TWP.
T-79N R-23W
SEC. 11



7877

7878

7879

7880

7881

7882

7883

SB Hubbell Ave.

Constant Slope

12.0'

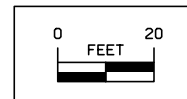
3.0%

Constant Slope

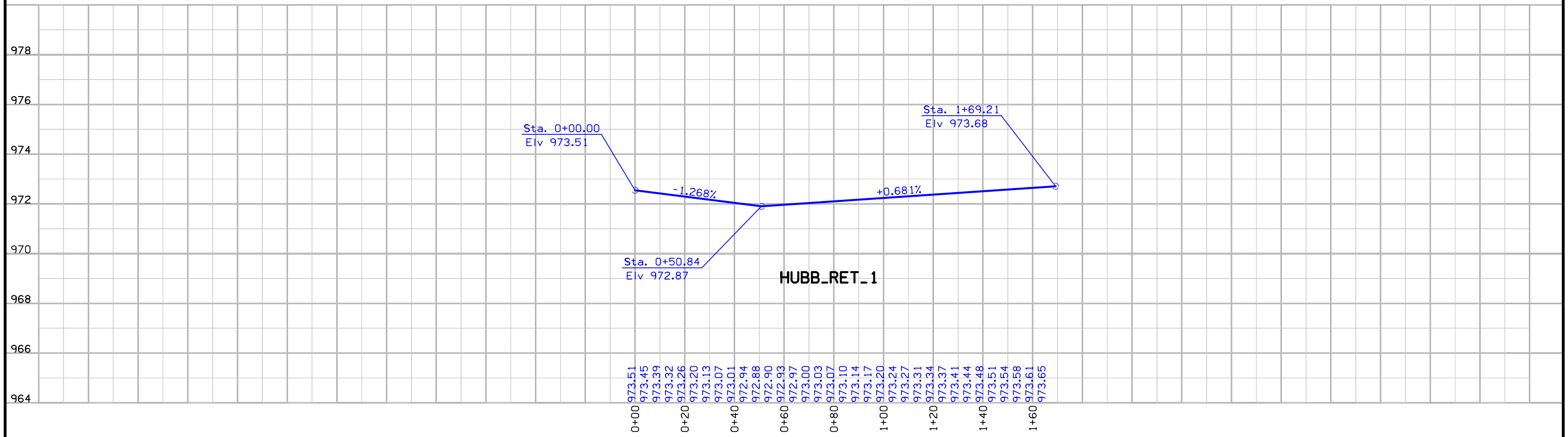
12.0'

2.0%

NB Hubbell Ave.

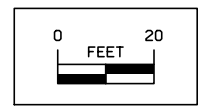
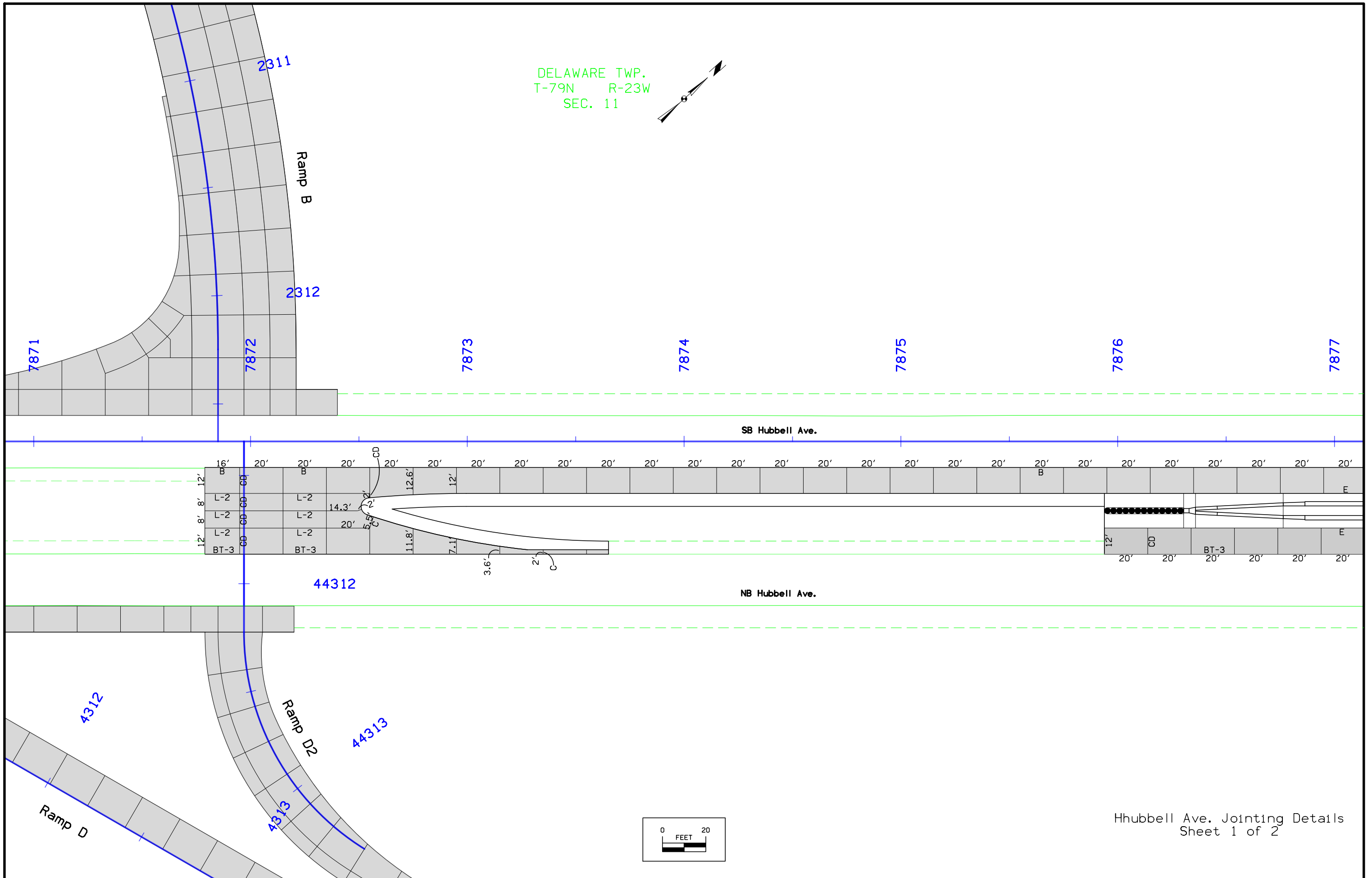
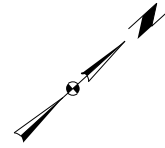


Hubbell Ave. Staking Details
Sheet 2 of 2



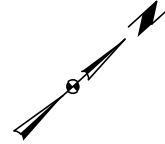
Edge Profile
Hubbell Ave.

DELAWARE TWP.
T-79N R-23W
SEC. 11



Hubbell Ave. Jointing Details
Sheet 1 of 2

DELAWARE TWP.
T-79N R-23W
SEC. 11



7877

7878

7879

7880

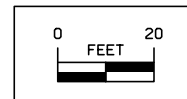
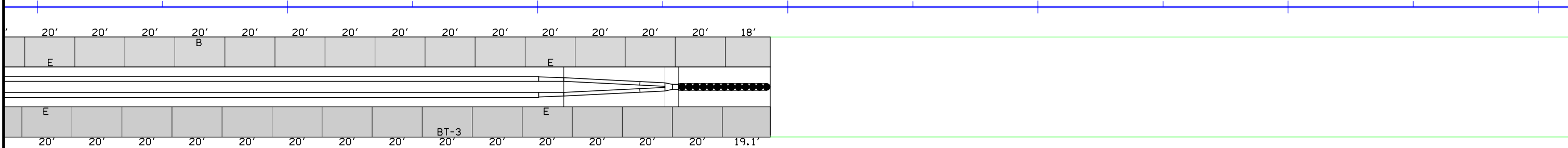
7881

7882

7883

SB Hubbell Ave.

NB Hubbell Ave.



Hubbell Ave. Jointing Details
Sheet 2 of 2

STORM SEWER

① Diameter or equivalent diameter
* Bid Item
** For SW-545

INTAKES AND UTILITY ACCESSES

PIPES

Design Length, Slope, and Flowlines are calculated from inside wall to inside wall along CL of pipe. An additional 3 ft length is added to each side of the Design Length to account for estimated length to center of structures.

No.	Location Station and Offset	*Type or Standard Road Plan	Form	Bottom	Extension Length**	Notes	Line Number	Intake/Utility Access No.		Class 'D'	① Pipe Size	Bid* Length	Design Length	Slope %	Flow Lines			Pipe Profile Sheet No.	Notes		
			Grade	Well				From	To		IN				FT	FT	Inlet Elevation			Outlet Elevation	Other Elevation
			Elev.	Elev.				FT													
P100	7873+50.00, 37.34 Rt.	SW-511	970	968			PP-100	P100	110	2000	24	100	97.2	2.30	968.33	965.83		M.5			
110	7873+50.00, 60.83 Lt.	RF-3 (24")	---	966																	
		Total:							Total:												
		RF-3 (24")		1					2000		24	100									
		SW-511		1																	

SURVEY SYMBOLS

	Interstate Highway Symbol		Cistern
	U.S. Highway Symbol		L.P. Gas Tank (No Footing)
	Iowa Highway Symbol		Underground Storage Tank
	County Road Highway Symbol		Latrine
	Evergreen Tree		Luminaire
	Deciduous Tree		Traffic Signal
	Fruit Tree		Traffic Signal with Luminaire
	Shrub (Bushes)		Telephone Pedestal
	Timber		Television Pedestal
	Hedge		Telephone Pole
	Stump		Telephone Pole (Second Company)
	Swamp		Telephone Pole (Third Company)
	Rock Outcrop		Telephone Pole (Fourth Company)
	Broken Concrete		Telephone Pole (Fifth Company)
	Revetment (Rip Rap)		Power Pole
	Cemetery		Power Pole (Second Company)
	Grave		Power Pole (Third Company)
	Cave		Power Pole (Fourth Company)
	Sink Hole		Power Pole (Fifth Company)
	Board Fence		Electrical Highline Tower (Metal or Concrete)
	Chain Link or Security Fence		Telephone Riser Pole
	Wire Fence		Power Riser Pole
	Terrace		Telegraph Pole
	Earth Dam or Dike (Existing)		Satellite TV Dish
	Earth Dam or Dike (Proposed)		Water Hook Up
	Tile Outlet		Radio Tower
	Edge of Water		Tower Anchor
	Existing Drainage		Guardrail (Beam or Cable)
	Proposed Drainage		Guard Post (one or two)
	Right of Way Rail or Lot Corner		Guard Post (over two)
	Concrete Monument		Filler Pipe
	Well		Gas Valve
	Windmill		Water Valve
	Beehive Intake		Speed Limit Sign
	Existing Intake		Mile Marker Post
	Proposed Intake		Sign
	Existing Utility Access (Manhole)		Traffic Signal Control Box
	Proposed Utility Access (Manhole)		Rail Road Signal Control Box
	Fire Hydrant		Telephone Switch Box
	Water Hydrant (Rural)		Electric Box

UTILITY LEGEND

W	City of Altoona Aaron Putnam 407 8th Street SE Altoona, IA 50009 515-967-5136 aputnam@altoona-iowa.com
San.	Des Moines Water Works Gary Benjamin 2201 George Flagg Parkway Des Moines, IA 50321 515-283-8731 benjamin@dmww.com
St.S.	Mid American Energy Eric Cheikes 10510 Douglas Avenue. Urbandale, IA 50322 515-252-6497 escheikes@midamerican.com
W2	Iowa Department of Transportation Scott Smyth 515-986-5457 Scott.Smyth@dot.iowa.gov
G	Mid American Energy Tom Albertson 106 East Second Street Davenport, IA 52801 563-333-8155 ktalbertson@midamerican.com
E1	Century Link Steven Parker 2103 E. University Ave. 1st Floor Des Moines, IA 50317 515-265-0968 StevenParker4@CenturyLink.com
E2	Level 3 Communications Marsha Kidd TC-115 216B 1 Technology Center Tulsa, OK 74102 918-547-0029 marsha.kidd@level3.com
T1	Lightcore Robert Sampson 1151 Century Tel Drive Building A Wentzville, MO 63385 636-887-5367 robert.sampson@centurylink.com
F0	Iowa Network Services Jeff Klocko 4201 Corporate Dr. West Des Moines, IA 50266 515-830-0445 jeff@netins.net
F02	Magellan Midstream Partners Tim Kassen One Williams Center MD 27-2 Tulsa, OK 74172 819-574-7351 tim.kassen@magellanlp.com
F03	Koch Pipeline Inc. Jennifer Sweeney Box 64596 Saint Paul, MN 55164 651-480-3936 Jennifer.sweeney@kockpipeline.com
F04	Iowa Department of Transportation
G2	
G3	
St.S.2	@dot.iowa.gov

PLAN VIEW COLOR LEGEND OF STORM SEWER SHEETS

LINEWORK	Design Color No.	Description
Gray, Dark	(112)	Existing Topographic Features, Utilities, and Labels
Black	(17)	Proposed Storm Sewer Details, Alignment, Stationing, T1c Marks, and Alignment Annotation
SHADING	Design Color No.	Description
Gray, Light	(48)	Proposed Pavement Shading

PROFILE VIEW COLOR LEGEND OF STORM SEWER SHEETS

LINEWORK	Design Color No.	Description
Gray, Dark	(112)	Existing Ground Line Profile and Existing Utilities Information
Black	(17)	Proposed Pipes and Intakes

PLAN VIEW LINE STYLE LEGEND OF STORM SEWER SHEETS

	Plug and Abandon Existing Pipe or Structure
	Removal of Existing Pipe or Structure
	Previously Constructed Pipe or Structure
	Direction of Pipe Flow

PROFILE VIEW LINE STYLE LEGEND OF STORM SEWER SHEETS

	Existing Ground
	Proposed Ground
	Previously Constructed Pipe or Structure
	Proposed Pipe or Structure

Reference Point

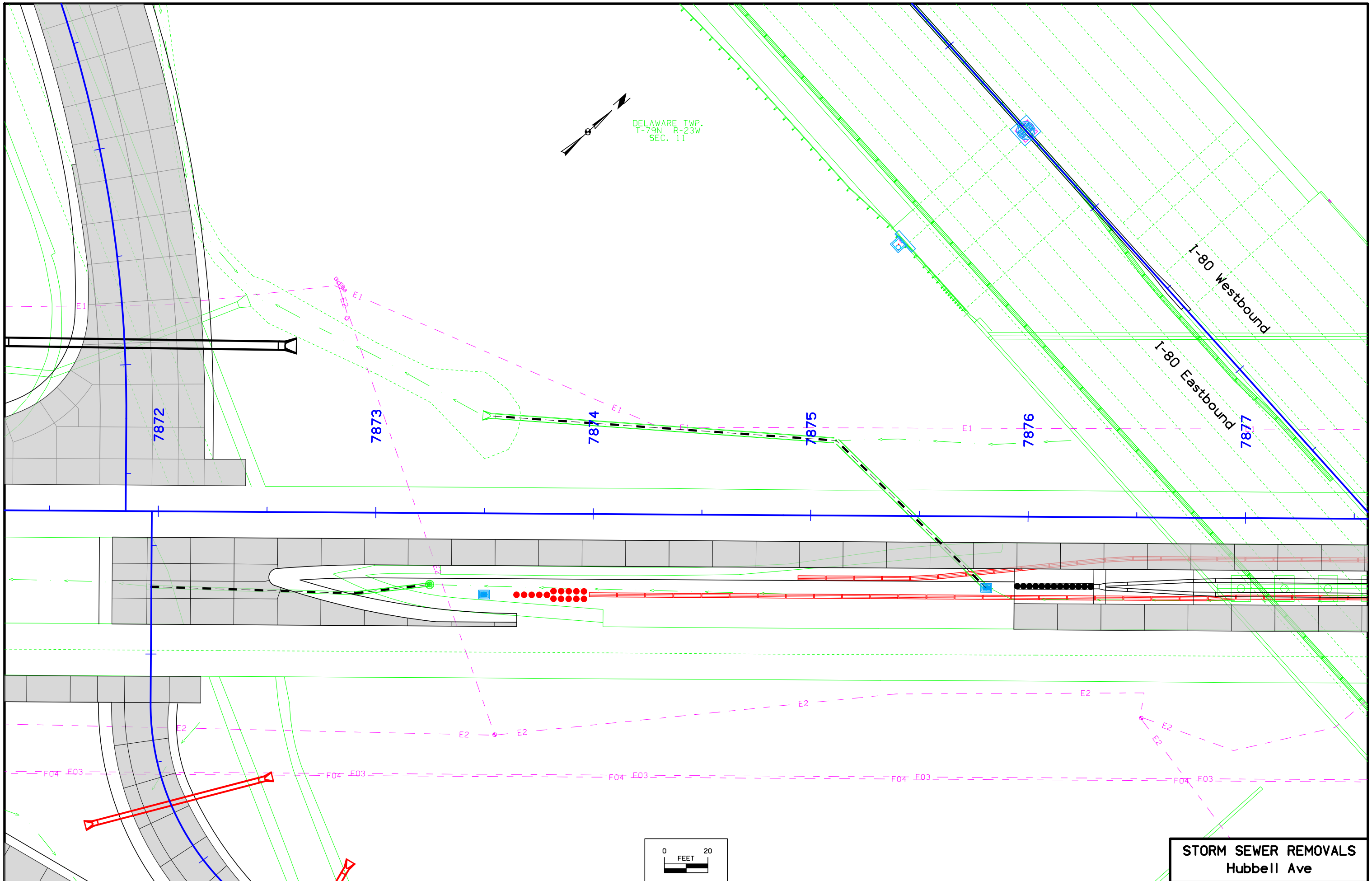
	Station
	Section Corner
	Ground Line Intercept
	Saw Cut
	Guardrail
	Clearing & Grubbing Area
	Pavement Removal

RIGHT-OF-WAY LEGEND

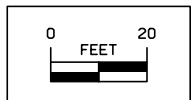
	Proposed Right-of-Way
	Existing and Proposed Right-of-Way
	Easement and Existing Right-of-Way
	Borrow
	Easement (Temporary)
	Easement
	Excess
	A/C Access Control

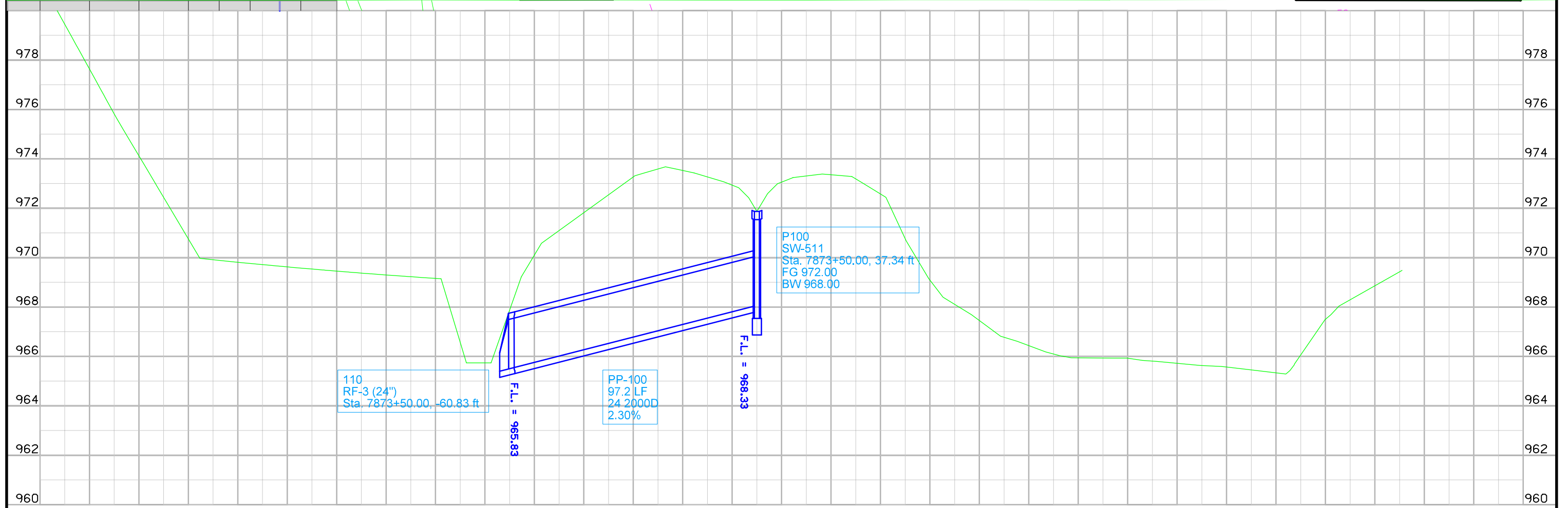
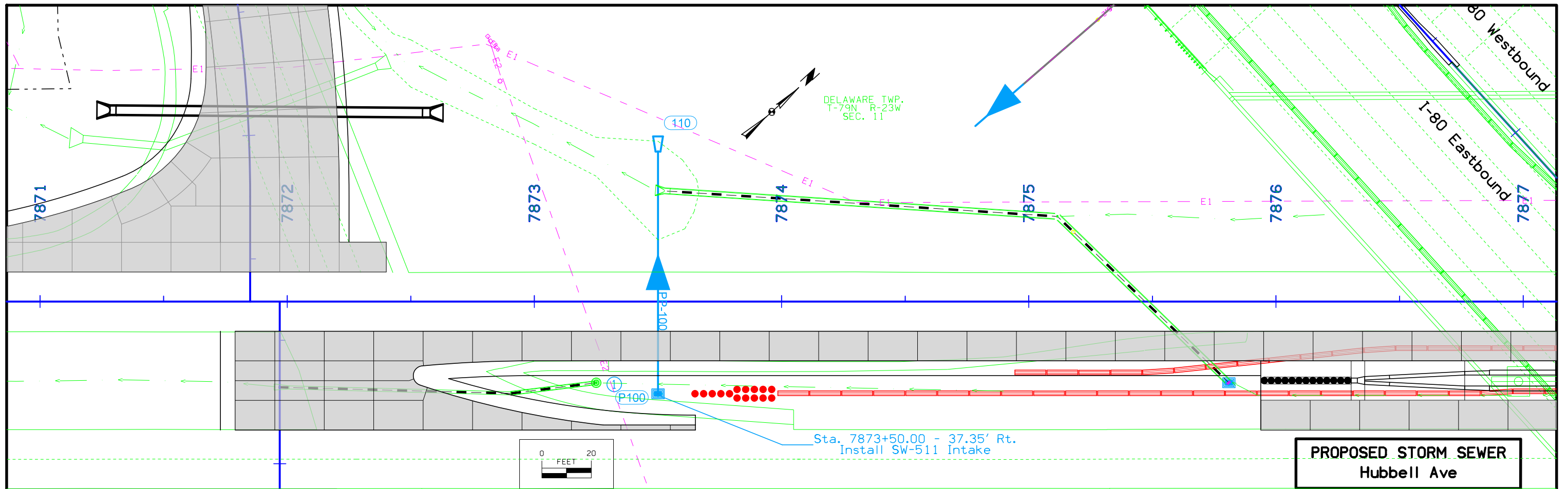
STORM SEWER LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES M)



STORM SEWER REMOVALS
Hubbell Ave





TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Refer to Standard Road Plans EW-101 and EW-102.

STATION	TEMPLATE CUT	TOPSOIL (-CUT)	CLASS 10 SUITABLE CUT	SUITABLE (CUT - 30%)	CLASS 10 ROADWAY AND BORROW	TEMPLATE FILL	TOTAL FILL	TOTAL FILL MINUS CUT WITH SHRINK	APPROX. FILL VOLUME BELOW 3 FT	APPROX. FILL VOLUME BELOW 5 FT	TOPSOIL, STRIP SALVAGE AND SPREAD (12" THICK)	TOPSOIL PLACEMENT (8" THICK)	TOPSOIL, SPREAD WITH 40% SHRINK	SHRINK MINUS TOTAL TOPSOIL AVAILABLE																									
STAGE 1																																							
I-80_Median																																							
1365+50.00	1		1	1	1	1	1	0	0	0	0	0	0	0																									
1365+55.00	16		16	12	16	20	20	8	0	0	0	0	0	0																									
1366+00.00	23		23	18	23	26	26	8	0	0	0	0	0	0																									
1366+50.00	28		28	22	28	29	29	7	0	0	0	0	0	0																									
1367+00.00	23		23	18	23	32	32	14	0	0	0	0	0	0																									
1367+50.00	14		14	11	14	30	30	19	0	0	0	0	0	0																									
1368+00.00	7		7	5	7	20	20	15	0	0	0	0	0	0																									
1368+50.00	9		9	7	9	8	8	1	0	0	0	0	0	0																									
1369+00.00	23		23	18	23	4	4	-14	0	0	0	0	0	0																									
1369+50.00	24		24	18	24	6	6	-12	0	0	0	0	0	0																									
1369+92.10	5		5	4	5	2	2	-2	0	0	0	0	0	0																									
1370+00.00	32		32	25	32	19	19	-6	0	0	0	0	0	0																									
1370+50.00	30		30	23	30	22	22	-1	0	0	0	0	0	0																									
1371+00.00	19		19	15	19	16	16	1	0	0	0	0	0	0																									
1371+50.00	12		12	9	12	16	16	7	0	0	0	0	0	0																									
1372+00.00	12		12	9	12	17	17	8	0	0	0	0	0	0																									
1372+50.00	13		13	10	13	13	13	3	0	0	0	0	0	0																									
1373+00.00																																							
SUBTOTALS:	291	0	291	225	291	281	281	56	0	0	0	0	0	0																									
STAGE 2A																																							

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Refer to Standard Road Plans EW-101 and EW-102.

STATION	TEMPLATE CUT	TOPSOIL (-CUT)	CLASS 10 SUITABLE CUT	SUITABLE (CUT - 30%)	CLASS 10 ROADWAY AND BORROW	TEMPLATE FILL	TOTAL FILL	TOTAL FILL MINUS CUT WITH SHRINK	APPROX. FILL VOLUME BELOW 3 FT	APPROX. FILL VOLUME BELOW 5 FT	TOPSOIL, STRIP SALVAGE AND SPREAD (12" THICK)	TOPSOIL PLACEMENT (8" THICK)	TOPSOIL, SPREAD WITH 40% SHRINK	SHRINK MINUS TOTAL TOPSOIL AVAILABLE																
STAGE 2A I-80																														
1281+50.00			69	53	69	5	5	-48	0	0	0	0	0	0																
1282+00.00	69		138	106	138			-106	0	0	0	0	0	0																
1282+50.00	141		141	108	141			-108	0	0	0	0	0	0																
1283+00.00	144		144	111	144			-111	0	0	0	0	0	0																
1283+50.00	145		145	112	145			-112	0	0	0	0	0	0																
1284+00.00	146		146	112	146			-112	0	0	0	0	0	0																
1284+50.00	148		148	114	148			-114	0	0	0	0	0	0																
1285+00.00	149		149	115	149			-115	0	0	0	0	0	0																
1285+50.00	148		148	114	148			-114	0	0	0	0	0	0																
1286+00.00	147		147	113	147			-113	0	0	0	0	0	0																
1286+50.00	145		145	112	145			-112	0	0	0	0	0	0																
1287+00.00	141		141	108	141			-108	0	0	0	0	0	0																
1287+50.00	136		136	105	136			-105	0	0	0	0	0	0																
1288+00.00	133		133	102	133			-102	0	0	0	0	0	0																
1288+50.00	115		115	88	115			-88	0	0	0	0	0	0																
1289+00.00	99		99	76	99			-76	0	0	0	0	0	0																
1289+50.00	98		98	75	98			-75	0	0	0	0	0	0																
1290+00.00	98		98	75	98			-75	0	0	0	0	0	0																
1290+50.00	97		97	75	97			-75	0	0	0	0	0	0																
1291+00.00	101		101	78	101			-78	0	0	0	0	0	0																
1291+50.00	223		223	172	223			-172	0	0	0	0	0	0																
1292+50.00	121		121	93	121			-93	0	0	0	0	0	0																
1293+00.00	126		126	97	126			-97	0	0	0	0	0	0																
1293+50.00	129		129	99	129			-99	0	0	0	0	0	0																
1294+00.00	129		129	99	129			-99	0	0	0	0	0	0																
1294+50.00	130		130	100	130			-100	0	0	0	0	0	0																
1295+00.00	137		137	105	137			-105	0	0	0	0	0	0																
1295+50.00	140		140	108	140			-108	0	0	0	0	0	0																
1296+00.00	69		69	53	69			-53	0	0	0	0	0	0																
SUBTOTALS:	3,742	0	3,742	2,878	3,742	5	5	-2,873	0	0	0	0	0	0																
STAGE 2B I-80																														
1282+00.00	183	30	153	118	153	39	39	-79	3	0	0	0	0	0																
1282+50.00	185	30	155	119	155	39	39	-80	3	0	30	34	48	-18																
1283+00.00	185	32	153	118	153	39	39	-79	3	0	30	34	48	-18																
1283+50.00	183	32	151	116	151	39	39	-77	3	0	32	34	48	-16																
1284+00.00	188	31	157	121	157	40	40	-81	4	0	32	34	48	-16																
1284+50.00	187	30	157	121	157	40	40	-81	4	0	31	34	48	-17																
1285+00.00	182	31	151	116	151	41	41	-75	5	0	30	34	48	-18																
1285+50.00	178	33	145	112	145	41	41	-71	5	0	31	34	48	-17																
1286+00.00	173	33	140	108	140	42	42	-66	6	0	33	33	46	-13																
1286+50.00	161	33	128	98	128	42	42	-56	6	0	33	33	46	-13																
1287+00.00	158	33	125	96	125	44	44	-52	8	0	33	32	45	-12																
1287+50.00	153	35	118	91	118	47	47	-44	11	0	33	32	45	-12																
1288+00.00	135	35	100	77	100	53	53	-24	17	0	35	33	46	-11																
1288+50.00	117	37	80	62	80	65	65	3	29	0	35	32	45	-10																
1289+00.00	113	38	75	58	75	70	70	12	34	5	37	32	45	-8																
1289+50.00	119	36	83	64	83	69	69	5	33	4	38	33	46	-8																
1290+00.00	127	36	91	70	91	79	79	9	43	13	36	33	46	-10																
1290+50.00	143	43	100	77	100	89	89	12	51	20	36	33	46	-10																
1291+00.00	152	42	110	85	110	78	78	-7	38	7	43	34	48	-5																
1291+50.00	178	46	132	102	132	59	59	-43	18	0	42	35	49	-7																
1292+00.00	159	29	130	100	130	30	30	-70	0	0	46	38	53	-7																
1292+50.00	116		116	89	116	8	8	-81	0	0	29	28	39	-10																
1293+00.00	123		123	95	123	9	9	-86	0	0	0	16	22	-22																
1293+50.00	260	43	217	167	217	38	38	-129	0	0	0	14	20	-20																
1294+00.00	327	62	265	204	265	71	71	-133	22	0	43	35	49	-6																
1294+50.00	283	39	244	188	244	78	78	-110	27	0	62	54	76	-14																
1295+00.00																														

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Refer to Standard Road Plans EW-101 and EW-102.

STATION	TEMPLATE CUT	TOPSOIL (-CUT)	CLASS 10 SUITABLE CUT	SUITABLE (CUT - 30%)	CLASS 10 ROADWAY AND BORROW		TEMPLATE FILL	TOTAL FILL	TOTAL FILL MINUS CUT WITH SHRINK		APPROX. FILL VOLUME BELOW 3 FT	APPROX. FILL VOLUME BELOW 5 FT		TOPSOIL, STRIP SALVAGE AND SPREAD (12" THICK)	TOPSOIL PLACEMENT (8" THICK)	TOPSOIL, SPREAD WITH 40% SHRINK	SHRINK MINUS TOTAL TOPSOIL AVAILABLE																		
1295+00.00	290	43	247	190	247		83	83	-107		30	0		39	51	71	-32																		
1295+50.00	247	51	196	151	196		90	90	-61		36	0		43	49	69	-26																		
1296+00.00	233	57	176	135	176		97	97	-38		41	3		51	45	63	-12																		
1296+50.00	258	63	195	150	195		111	111	-39		53	14		57	40	56	1																		
1297+00.00	260	70	190	146	190		128	128	-18		69	29		63	36	50	13																		
1297+50.00	242	79	163	125	163		146	146	21		85	45		70	33	46	24																		
1298+00.00	153	42	111	85	111		77	77	-8		31	0		79	32	45	34																		
1298+50.00	60		60	46	60				-46		0	0		42	16	22	20																		
1299+00.00	40		40	31	40		5	5	-26		0	0		0	0	0	0																		
1299+50.00	28		28	22	28		21	21	-1		0	0		0	0	0	0																		
1300+00.00	22		22	17	22		49	49	32		19	0		0	0	0	0																		
1300+50.00	21		21	16	21		95	95	79		65	41		0	0	0	0																		
1301+00.00	21		21	16	21		155	155	139		125	101		0	0	0	0																		
1301+50.00	19		19	15	19		220	220	205		190	166		0	1	1	-1																		
1302+00.00	17		17	13	17		295	295	282		265	241		0	6	8	-8																		
1302+50.00	17		17	13	17		362	362	349		332	308		0	13	18	-18																		
1303+00.00	27		27	21	27		408	408	387		378	354		0	18	25	-25																		
1303+50.00	36		36	28	36		443	443	415		413	389		0	22	31	-31																		
1304+00.00	53		53	41	53		503	503	462		473	449		0	29	41	-41																		
1304+50.00	89		89	68	89		590	590	522		560	536		0	36	50	-50																		
1305+00.00	123		123	95	123		612	612	517		582	558		0	42	59	-59																		
1305+50.00	182	16	166	128	166		299	299	171		269	245		0	48	67	-67																		
1306+00.00	258	32	226	174	226		9	9	-165		0	0		16	53	74	-58																		
1306+50.00	340	31	309	238	309		5	5	-233		0	0		32	59	83	-51																		
1307+00.00	417	31	386	297	386		20	20	-277		0	0		31	66	92	-61																		
1307+50.00	515	31	484	372	484		36	36	-336		6	0		31	74	104	-73																		
1308+00.00	671	31	640	492	640		36	36	-456		6	0		31	82	115	-84																		
1308+50.00	833	30	803	618	803		23	23	-595		0	0		31	89	125	-94																		
1309+00.00	974	15	959	738	959		6	6	-732		0	0		30	95	133	-103																		
1309+50.00	1,030		1,030	792	1,030				-792		0	0		15	101	141	-126																		
1310+00.00	993		993	764	993				-764		0	0		0	100	140	-140																		
1310+50.00	911		911	701	911				-701		0	0		0	98	137	-137																		
1311+00.00	812		812	625	812		5	5	-620		0	0		0	100	140	-140																		
1311+50.00	698		698	537	698		23	23	-514		0	0		0	100	140	-140																		
1312+00.00	583		583	448	583		29	29	-419		0	0		0	102	143	-143																		
1312+50.00	538		538	414	538		22	22	-392		0	0		0	101	141	-141																		
1313+00.00	567		567	436	567		16	16	-420		0	0		0	100	140	-140																		
1313+50.00				0	0				0		0	0		0	106	148	-148																		
SUBTOTALS:	17,046	1,491	15,555	11,970	15,555		6,308	6,308	-5,662		4,401	3,528		1,491	2,761	3,866	-2,375																		

STAGE 2C

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Refer to Standard Road Plans EW-101 and EW-102.

STATION	TEMPLATE CUT	TOPSOIL (-CUT)	CLASS 10 SUITABLE CUT	SUITABLE (CUT - 30%)	CLASS 10 ROADWAY AND BORROW		TEMPLATE FILL	TOTAL FILL	TOTAL FILL MINUS CUT WITH SHRINK		APPROX. FILL VOLUME BELOW 3 FT	APPROX. FILL VOLUME BELOW 5 FT		TOPSOIL, STRIP SALVAGE AND SPREAD (12" THICK)	TOPSOIL PLACEMENT (8" THICK)	TOPSOIL, SPREAD WITH 40% SHRINK	SHRINK MINUS TOTAL TOPSOIL AVAILABLE																				
STAGE 2C																																					
Ramp_B																																					
2298+50.00																																					
2299+00.00	132	79	53	41	53		274	274	233		205	151		0	0	0	0																				
2299+50.00	126	65	61	47	61		316	316	269		247	193		79	36	50	29																				
2300+00.00	143	67	76	58	76		315	315	257		246	192		65	34	48	17																				
2300+50.00	154	72	82	63	82		300	300	237		231	177		67	33	46	21																				
2301+00.00	149	79	70	54	70		270	270	216		201	147		72	32	45	27																				
2301+50.00	135	84	51	39	51		234	234	195		165	111		79	30	42	37																				
2302+00.00	141	106	35	27	35		174	174	147		105	51		84	25	35	49																				
2302+50.00	169	131	38	29	38		128	128	99		59	5		106	20	28	78																				
2303+00.00	198	142	56	43	56		122	122	79		53	0		131	19	27	104																				
2303+50.00	238	150	88	68	88		109	109	41		40	0		142	23	32	110																				
2304+00.00	274	146	128	98	128		84	84	-14		15	0		150	30	42	108																				
2304+50.00	303	141	162	125	162		70	70	-55		1	0		146	34	48	98																				
2305+00.00	338	136	202	155	202		57	57	-98		0	0		141	36	50	91																				
2305+50.00	399	122	277	213	277		41	41	-172		0	0		136	36	50	86																				
2306+00.00	496	119	377	290	377		30	30	-260		0	0		122	37	52	70																				
2306+50.00	584	129	455	350	455		21	21	-329		0	0		119	38	53	66																				
2307+00.00	639	141	498	383	498		12	12	-371		0	0		129	41	57	72																				
2307+50.00	676	151	525	404	525		22	22	-382		0	0		141	44	62	79																				
2308+00.00	735	150	585	450	585		48	48	-402		0	0		151	46	64	87																				
2308+50.00	835	151	684	526	684		84	84	-442		15	0		150	40	56	94																				
2309+00.00	944	149	795	612	795		145	145	-467		76	22		151	45	63	88																				
2309+50.00	1,213	151	1,062	817	1,062		207	207	-610		138	84		149	56	78	71																				
2310+00.00	1,582	169	1,413	1,087	1,413		277	277	-810		208	154		151	70	98	53																				
2310+50.00	1,899	192	1,707	1,313	1,707		318	318	-995		249	195		169	93	130	39																				
2311+00.00	2,181	211	1,970	1,515	1,970		350	350	-1,165		281	227		192	121	169	23																				
2311+50.00	2,383	246	2,137	1,644	2,137		320	320	-1,324		251	197		211	158	221	-10																				
2312+00.00	1,384	202	1,182	909	1,182		260	260	-649		191	137		246	209	293	-47																				
2312+24.81	243	135	108	83	108		170	170	87		136	109		202	150	210	-8																				
2312+43.25	70		70	54	70		1	1	-53		0	0		135	15	21	114																				
				0	0				0		0	0		0	0	0	0																				
SUBTOTALS:	18,763	3,816	14,947	11,497	14,947		4,759	4,759	-6,738		3,113	2,152		3,816	1,551	2,170	1,646																				
STAGE 2D																																					

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Refer to Standard Road Plans EW-101 and EW-102.

STATION	TEMPLATE CUT	TOPSOIL (-CUT)	CLASS 10 SUITABLE CUT	SUITABLE (CUT - 30%)	CLASS 10 ROADWAY AND BORROW		TEMPLATE FILL	TOTAL FILL	TOTAL FILL MINUS CUT WITH SHRINK		APPROX. FILL VOLUME BELOW 3 FT	APPROX. FILL VOLUME BELOW 5 FT		TOPSOIL, STRIP SALVAGE AND SPREAD (12" THICK)	TOPSOIL PLACEMENT (8" THICK)	TOPSOIL, SPREAD WITH 40% SHRINK	SHRINK MINUS TOTAL TOPSOIL AVAILABLE															
STAGE 2D																																
Hubbell_SB																																
7869+40.00	21	14	7	5	7		13	13	8		0	0		0	0	0	0															
7869+50.00	148	105	43	33	43		166	166	133		97	43		14	10	14	0															
7870+00.00	77	55	22	17	22		118	118	101		83	56		105	50	70	35															
7870+25.00	77	57	20	15	20		117	117	102		82	0		55	25	35	20															
7870+50.00	182	131	51	39	51		236	236	197		167	113		57	25	35	22															
7871+00.00	123		123	95	123		157	157	62		19	0		131	50	70	61															
7871+50.00	222	266	-44	-34	-44		221	221	255		152	98		0	51	71	-71															
7872+50.00	130	90	40	31	40		136	136	105		67	13		266	29	41	225															
7873+00.00	366	126	240	185	240		162	162	-23		93	39		90	78	109	-19															
7873+50.00	913	99	814	626	814		78	78	-548		9	0		126	98	137	-11															
7874+00.00	901	69	832	640	832		9	9	-631		0	0		99	99	139	-40															
7874+50.00	280		280	215	280		-30	-30	-245		0	0		69	80	112	-43															
7875+00.00	56		56	43	56				-43		0	0		0	49	69	-69															
7875+50.00	7		7	5	7				-5		0	0		0	24	34	-34															
7875+79.00				0	0				0		0	0		0	7	10	-10															
SUBTOTALS:	3,503	1,012	2,491	1,915	2,491		1,383	1,383	-532		769	362		1,012	675	946	66															
STAGE 2E																																
Hubbell Median																																
7874+50.00	132		132	102	132				-102		0	0		0	0	0	0															
7875+00.00	140		140	108	140				-108		0	0		0	0	0	0															
7875+50.00	81		81	62	81				-62		0	0		0	0	0	0															
7875+79.00	53		53	41	53				-41		0	0		0	0	0	0															
7876+00.00	119		119	92	119				-92		0	0		0	0	0	0															
7876+50.00	119		119	92	119				-92		0	0		0	0	0	0															
7877+00.00	117		117	90	117				-90		0	0		0	0	0	0															
7877+50.00	118		118	91	118		1	1	-90		0	0		0	0	0	0															
7878+00.00	116		116	89	116		1	1	-88		0	0		0	0	0	0															
7878+50.00	124		124	95	124				-95		0	0		0	0	0	0															
7879+00.00	127		127	98	127				-98		0	0		0	0	0	0															
7879+50.00																																
SUBTOTALS:	1,246	0	1,246	960	1,246		2	2	-958		0	0		0	0	0	0															
STAGE 3A																																

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Refer to Standard Road Plans EW-101 and EW-102.

STATION	TEMPLATE CUT	TOPSOIL (-CUT)	CLASS 10 SUITABLE CUT	SUITABLE (CUT - 30%)	CLASS 10 ROADWAY AND BORROW		TEMPLATE FILL	TOTAL FILL	TOTAL FILL MINUS CUT WITH SHRINK		APPROX. FILL VOLUME BELOW 3 FT	APPROX. FILL VOLUME BELOW 5 FT		TOPSOIL, STRIP SALVAGE AND SPREAD (12" THICK)	TOPSOIL PLACEMENT (8" THICK)	TOPSOIL, SPREAD WITH 40% SHRINK	SHRINK MINUS TOTAL TOPSOIL AVAILABLE											
STAGE_3C Ramp_D																												
4311+00.00	399	92	307	236	307		109	109	-127		64	23		0	0	0	0											
4311+50.00	385	108	277	213	277		169	169	-44		124	83		92	61	85	7											
4312+00.00	360	116	244	188	244		239	239	51		194	153		108	58	81	27											
4312+50.00	327	106	221	170	221		271	271	101		226	185		116	57	80	36											
4313+00.00	368	126	242	186	242		409	409	223		364	323		106	57	80	26											
4313+50.00	411	159	252	194	252		603	603	409		558	517		126	71	99	27											
4314+00.00	410	179	231	178	231		785	785	607		740	699		159	100	140	19											
4314+50.00	489	261	228	175	228		1,032	1,032	857		987	946		179	116	162	17											
4315+00.00	616	358	258	198	258		1,323	1,323	1,125		1,278	1,237		261	158	221	40											
4315+50.00	1,126	422	704	542	704		1,509	1,509	967		1,464	1,423		358	217	304	54											
4316+00.00	2,512	459	2,053	1,579	2,053		1,545	1,545	-34		1,500	1,459		422	253	354	68											
4316+50.00	3,862	445	3,417	2,628	3,417		1,543	1,543	-1,085		1,498	1,457		459	291	407	52											
4317+00.00	4,533	412	4,121	3,170	4,121		1,506	1,506	-1,664		1,461	1,420		445	311	435	10											
4317+50.00	4,657	378	4,279	3,292	4,279		1,444	1,444	-1,848		1,399	1,358		412	305	427	-15											
4318+00.00	4,677	344	4,333	3,333	4,333		1,304	1,304	-2,029		1,259	1,218		378	282	395	-17											
4318+50.00	4,931	310	4,621	3,555	4,621		1,054	1,054	-2,501		1,009	968		344	259	363	-19											
4319+00.00	5,052	295	4,757	3,659	4,757		804	804	-2,855		759	718		310	248	347	-37											
4319+50.00	5,020	294	4,726	3,635	4,726		605	605	-3,030		560	519		295	239	335	-40											
4320+00.00	4,890	286	4,604	3,542	4,604		395	395	-3,147		350	309		294	232	325	-31											
4320+50.00	4,749	274	4,475	3,442	4,475		187	187	-3,255		142	101		286	225	315	-29											
4321+00.00	4,623	259	4,364	3,357	4,364		45	45	-3,312		0	0		274	218	305	-31											
4321+50.00	4,434	244	4,190	3,223	4,190		1	1	-3,222		0	0		259	210	294	-35											
4322+00.00	4,432	202	4,230	3,254	4,230				-3,254		0	0		244	201	281	-37											
4322+50.00	4,067	164	3,903	3,002	3,903				-3,002		0	0		202	194	272	-70											
4323+00.00	3,570	200	3,370	2,592	3,370		88	88	-2,504		43	2		164	189	265	-101											
4323+50.00	3,381	227	3,154	2,426	3,154		369	369	-2,057		324	283		200	194	272	-72											
4324+00.00	3,139	214	2,925	2,250	2,925		669	669	-1,581		624	583		227	189	265	-38											
4324+50.00	2,975	212	2,763	2,125	2,763		837	837	-1,288		792	751		214	175	245	-31											
4325+00.00	2,677	207	2,470	1,900	2,470		817	817	-1,083		772	731		212	172	241	-29											
4325+50.00	2,326	196	2,130	1,638	2,130		697	697	-941		652	611		207	161	225	-18											
4326+00.00	2,006	185	1,821	1,401	1,821		606	606	-795		561	520		196	148	207	-11											
4326+50.00	1,720	176	1,544	1,188	1,544		491	491	-697		446	405		185	137	192	-7											
4327+00.00	1,465	164	1,301	1,001	1,301		371	371	-630		326	285		176	127	178	-2											
4327+50.00	1,207	149	1,058	814	1,058		259	259	-555		214	173		164	118	165	-1											
4328+00.00	963	145	818	629	818		160	160	-469		115	74		149	108	151	-2											
4328+50.00	704	136	568	437	568		74	74	-363		29	0		145	102	143	2											
4329+00.00	480	122	358	275	358		23	23	-252		0	0		136	100	140	-4											
4329+50.00	313	119	194	149	194		29	29	-120		0	0		122	98	137	-15											
4330+00.00	127	63	64	49	64		42	42	-7		19	0		119	99	139	-20											
4330+25.78														63	51	71	-8											
SUBTOTALS:	94,383	8,808	85,575	65,825	85,575		22,414	22,414	-43,411		20,853	19,534		8,808	6,531	9,143	-335											
STAGE_3D Ramp_D2																												
44312+25.00	54	30	24	18	24		110	110	92		87	67		0	0	0	0											
44312+50.00	68	59	9	7	9		215	215	208		192	172		30	0	0	30											
44312+75.00	90	52	38	29	38		186	186	157		163	143		59	2	3	56											
44313+00.00	117	41	76	58	76		146	146	88		123	103		52	8	11	41											
44313+25.00	80	19	61	47	61		78	78	31		63	49		41	14	20	21											
44313+41.82														19	12	17	2											
SUBTOTALS:	409	201	208	159	208		735	735	576		628	534		201	36	51	150											
STAGE_3E																												

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Refer to Standard Road Plans EW-101 and EW-102.

STATION	TEMPLATE CUT	TOPSOIL (-CUT)	CLASS 10 SUITABLE CUT	SUITABLE (CUT - 30%)	CLASS 10 ROADWAY AND BORROW	TEMPLATE FILL	TOTAL FILL	TOTAL FILL MINUS CUT WITH SHRINK	APPROX. FILL VOLUME BELOW 3 FT	APPROX. FILL VOLUME BELOW 5 FT	TOPSOIL, STRIP SALVAGE AND SPREAD (12" THICK)	TOPSOIL PLACEMENT (8" THICK)	TOPSOIL, SPREAD WITH 40% SHRINK	SHRINK MINUS TOTAL TOPSOIL AVAILABLE																			
1397+00.00	75		75	58	75			-58	0	0	0	47	66	-66																			
1397+50.00	79		79	61	79			-61	0	0	0	47	66	-66																			
1398+00.00	83		83	64	83			-64	0	0	0	47	66	-66																			
1398+50.00	83		83	64	83			-64	0	0	0	47	66	-66																			
1399+00.00	85		85	65	85			-65	0	0	0	47	66	-66																			
1399+50.00	85		85	65	85			-65	0	0	0	47	66	-66																			
1400+00.00	82		82	63	82			-63	0	0	0	47	66	-66																			
1400+50.00	83		83	64	83			-64	0	0	0	47	66	-66																			
1401+00.00	77		77	59	77			-59	0	0	0	47	66	-66																			
1401+50.00	71		71	55	71			-55	0	0	0	47	66	-66																			
1402+00.00	70		70	54	70			-54	0	0	0	47	66	-66																			
1402+50.00	62		62	48	62			-48	0	0	0	47	66	-66																			
1403+00.00	54		54	42	54			-42	0	0	0	47	66	-66																			
1403+50.00	20		20	15	20			-15	0	0	0	47	66	-66																			
1403+70.00									0	0	0	19	27	-27																			
SUBTOTALS:	5,997	0	5,997	4,615	5,997	0	0	-4,615	0	0	0	3,462	4,862	-4,862																			
SUMMARY:																																	
STAGE 1	291	0	291	225	291	281	281	56	0	0	0	0	0	0																			
STAGE 2A	3,742	0	3,742	2,878	3,742	5	5	-2,873	0	0	0	0	0	0																			
STAGE 2B	17,046	1,491	15,555	11,970	15,555	6,308	6,308	-5,662	4,401	3,528	1,491	2,761	3,866	-2,375																			
STAGE 2C	18,763	3,816	14,947	11,497	14,947	4,759	4,759	-6,738	3,113	2,152	3,816	1,551	2,170	1,646																			
STAGE 2D	3,503	1,012	2,491	1,915	2,491	1,383	1,383	-532	769	362	1,012	675	946	66																			
STAGE 2E	1,246	0	1,246	960	1,246	2	2	-958	0	0	0	0	0	0																			
STAGE 3A	8,943	0	8,943	6,877	8,943	4	4	-6,873	0	0	0	743	1,041	-1,041																			
STAGE 3B	29,776	4,487	25,289	19,450	25,289	14,877	14,877	-4,573	12,558	11,527	4,487	7,167	10,033	-5,546																			
STAGE 3C	94,383	8,808	85,575	65,825	85,575	22,414	22,414	-43,411	20,853	19,534	8,808	6,531	9,143	-335																			
STAGE 3D	409	201	208	159	208	735	735	576	628	534	201	36	51	150																			
STAGE 3E	14,428	1,279	13,149	10,114	13,149	2,238	2,238	-7,876	1,756	1,355	1,279	1,993	2,792	-1,513																			
STAGE 4	5,997	0	5,997	4,615	5,997	0	0	-4,615	0	0	0	3,462	4,862	-4,862																			
GRAND TOTALS:	198,527	21,094	177,433	136,485	177,433	53,006	53,006	-83,479	44,078	38,992	21,094	24,919	34,904	-13,810																			

Refer to specific curve data contained in project plans for tangent runout length (x), runoff length (L) and full superelevation (e).

When spiral curve transitions are not required:
 Place 70% of full superelevation at the P.C. and P.T.
 Place 30% of the runoff length within the curve.

Unless otherwise specified, all lengths are measured along the centerline of construction.

Superelevations on this standard are shown for curves to the right. Curves to the left are a mirror image of what is shown.

Smooth curves should be established at the time of construction at sections A-F along the profile edges of lines A-F.

See Detail A for profile grade location.

m = 30% of Runoff Length (L)

Ⓜ = 48'

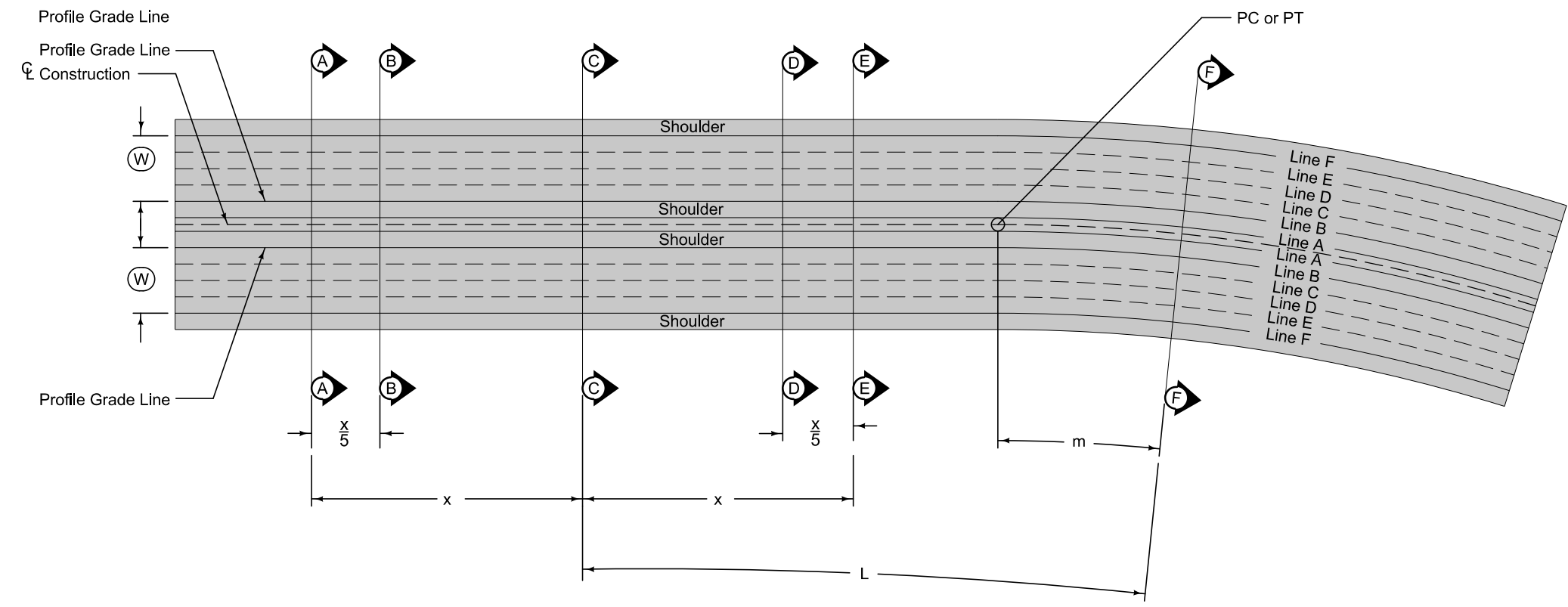
g = Normal Cross Slope (2.5%)

L = Distance to Change Cross Slope from 0% to e

e = Superelevation Rate

x = Distance to Change Cross Slope from 0% to 2.5%

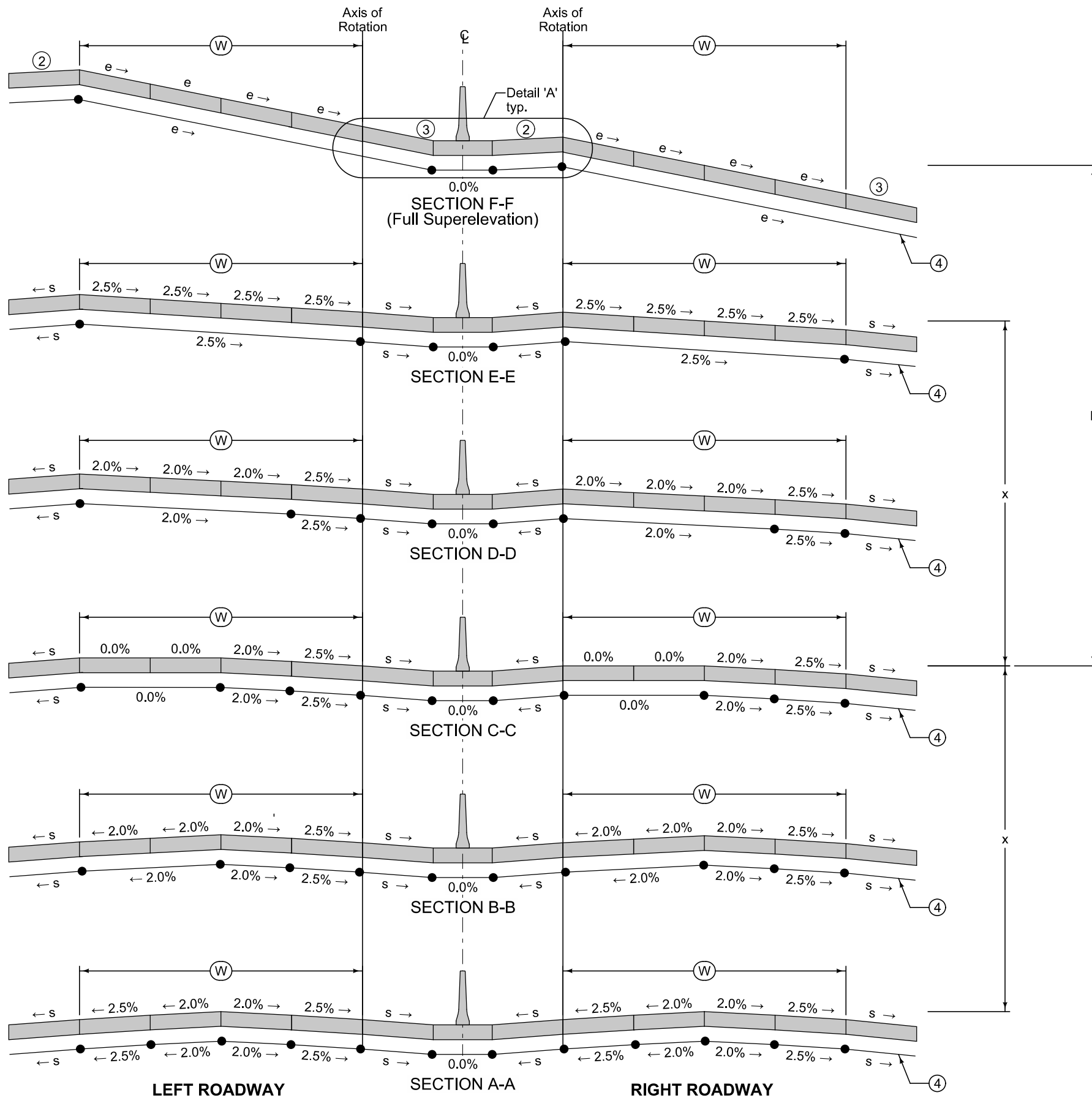
s = Normal Shoulder Slope



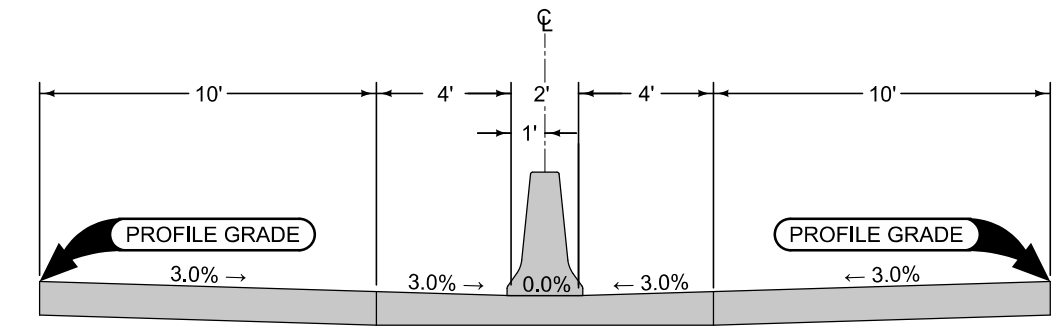
TRANSITION DETAILS - TANGENT TO CURVE

Possible Tabulation:
101-18

**SUPERELEVATION DETAILS
 EIGHT LANE ROADWAY
 CLOSED MEDIAN**

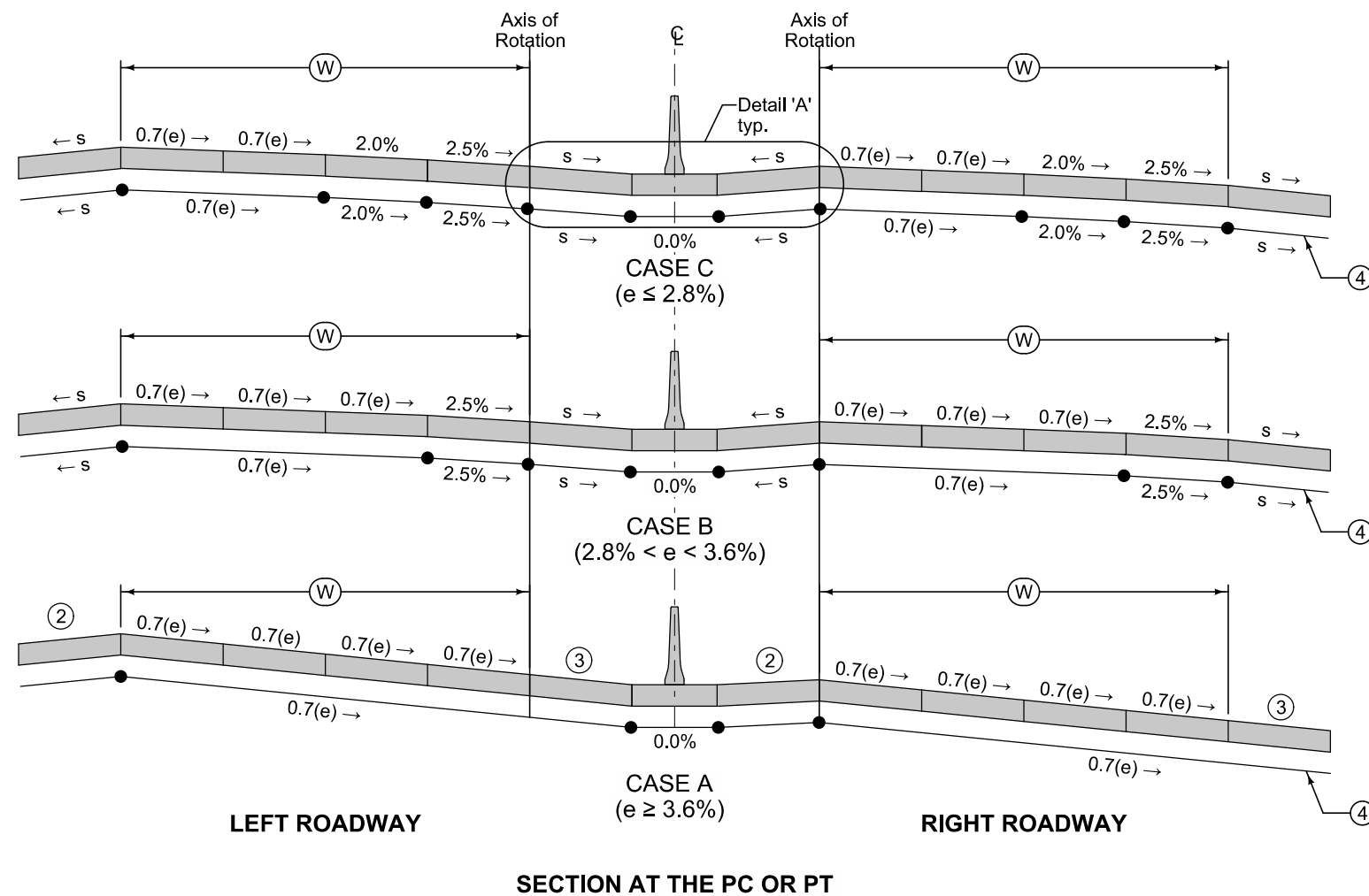


- ② High Side Shoulder: Maintain normal shoulder cross slope (s) until the cross slope break with the adjacent pavement reaches 8.0%, then slope the shoulder at the same rate as the adjacent pavement maintaining an 8% cross slope breakover.
- ③ Low Side Shoulder: Maintain normal shoulder cross slope (s) until the adjacent pavement slope equals s, then slope the shoulder at the same cross slope as the adjacent pavement.
- ④ Subgrade Surface: Subgrade surface cross slope parallel to pavement surface cross slope.

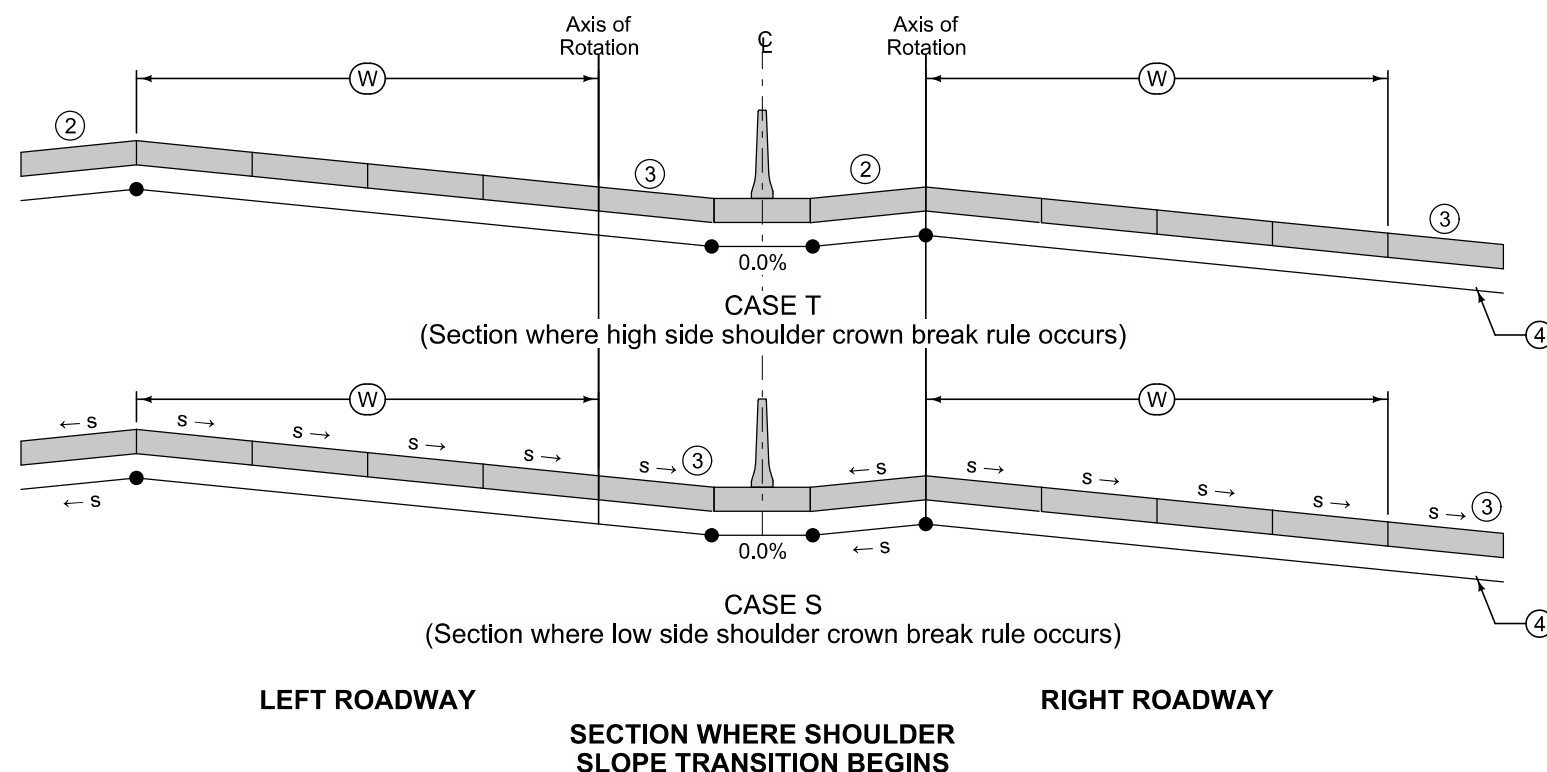


DETAIL A

**SUPERELEVATION DETAILS
EIGHT LANE ROADWAY
CLOSED MEDIAN**



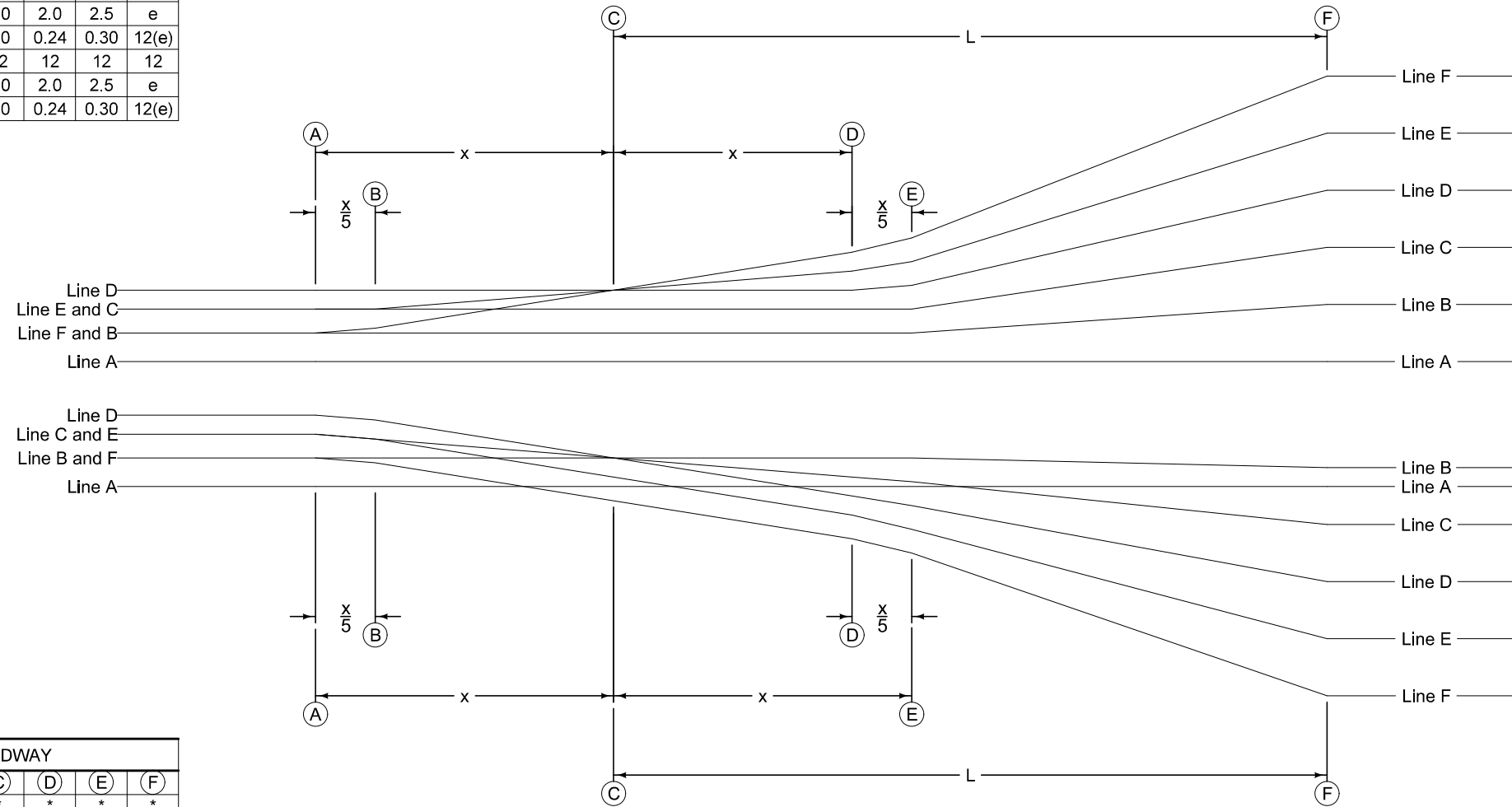
- ② High Side Shoulder: Maintain normal shoulder cross slope (s) until the cross slope break with the adjacent pavement reaches 8.0%, then slope the shoulder at the same rate as the adjacent pavement maintaining an 8% cross slope breakover.
- ③ Low Side Shoulder: Maintain normal shoulder cross slope (s) until the adjacent pavement slope equals s, then slope the shoulder at the same cross slope as the adjacent pavement.
- ④ Subgrade Surface: Subgrade surface cross slope parallel to pavement surface cross slope.



**SUPERELEVATION DETAILS
EIGHT LANE ROADWAY
CLOSED MEDIAN**

TABLE OF OFFSETS AND DROPS FOR LEFT ROADWAY							
Location of Cross Sections		(A)	(B)	(C)	(D)	(E)	(F)
From Line A To Line B	Offset (Ft.)	*	*	*	*	*	*
	Slope (%)	s	s	s	s	s	(3)
	Drop (Ft.)						
From Line B To Line C	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	2.5	2.5	2.5	2.5	2.5	e
	Drop (Ft.)	0.30	0.30	0.30	0.30	0.30	12(e)
From Line C To Line D	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	2.0	2.0	2.0	2.0	2.5	e
	Drop (Ft.)	0.24	0.24	0.24	0.24	0.30	12(e)
From Line D To Line E	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	-2.0	-2.0	0.0	2.0	2.5	e
	Drop (Ft.)	-0.24	-0.24	0.0	0.24	0.30	12(e)
From Line E To Line F	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	-2.5	-2.0	0.0	2.0	2.5	e
	Drop (Ft.)	-0.30	-0.24	0.0	0.24	0.30	12(e)

* Refer to plan details for shoulder width



DIAGRAMMATIC PROFILES OF THE PAVEMENT EDGE LINES

TABLE OF OFFSETS AND DROPS FOR RIGHT ROADWAY							
Location of Cross Sections		(A)	(B)	(C)	(D)	(E)	(F)
From Line A To Line B	Offset (Ft.)	*	*	*	*	*	*
	Slope (%)	s	s	s	s	s	(2)
	Drop (Ft.)						
From Line B To Line C	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	2.5	2.0	0.0	-2.0	-2.5	-e
	Drop (Ft.)	0.30	0.24	0.0	-0.24	-0.30	-12(e)
From Line C To Line D	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	2.0	2.0	0.0	-2.0	-2.5	-e
	Drop (Ft.)	0.24	0.24	0.0	-0.24	-0.30	-12(e)
From Line D To Line E	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	-2.0	-2.0	-2.0	-2.0	-2.5	-e
	Drop (Ft.)	-0.24	-0.24	-0.24	-0.24	-0.30	-12(e)
From Line E To Line F	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	-2.5	-2.5	-2.5	-2.5	-2.5	-e
	Drop (Ft.)	-0.30	-0.30	-0.30	-0.30	-0.30	-12(e)

* Refer to plan details for shoulder width

**SUPERELEVATION DETAILS
EIGHT LANE ROADWAY
CLOSED MEDIAN**

DELAWARE TWP.
T-79N R-23W
SEC. 10

1289

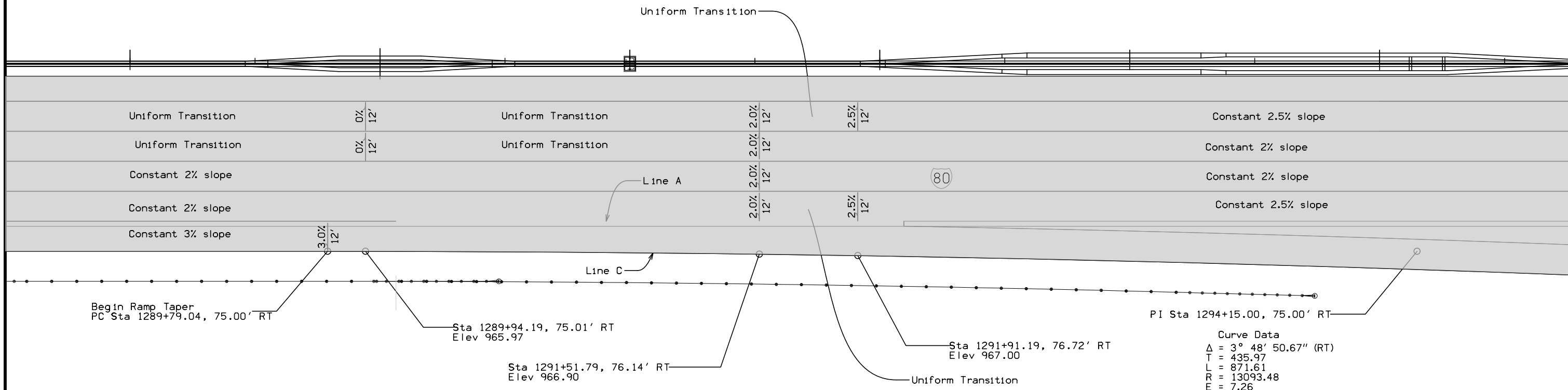
1290

1291

1292

1293

1294

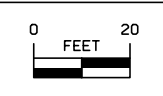


Curve Data

Δ	= 3° 48' 50.67" (RT)
T	= 435.97
L	= 871.61
R	= 13093.48
E	= 7.26

	1289+79.04	1290+00.00	1290+25.00	1290+50.00	1290+75.00	1291+00.00	1291+25.00	1291+50.00	1291+75.00	1292+00.00	1292+25.00	1292+50.00	1292+75.00	1293+00.00	1293+25.00	1293+50.00	1293+75.00	1294+00.00	
Elevation Line A	966.24	966.37	966.52	966.67	966.83	966.98	967.13	967.28	967.36	967.44	967.52	967.59	967.67	967.74	967.82	967.90	967.97	968.05	
Line "A" to Line "B"	Offset																		
	Slope																		
Elevation Line B																			
Line "B" to Line "C"	Offset																		
	Slope																		
Line "A" to Line "C"	Offset	12.00	12.02	12.08	12.19	12.35	12.56	12.81	13.11	13.47	13.86	14.31	14.80	15.34	15.93	16.57	17.26	17.99	18.77
	Slope	3.0%																	3.0%
Elevation Line C	965.88	966.01	966.16	966.31	966.46	966.60	966.75	966.89	966.96	967.02	967.09	967.15	967.21	967.27	967.32	967.38	967.43	967.48	

Geometric and Staking Detail
I-80/ US 65 (Hubbell Ave)
Interchange
Eastbound Exit Ramp Taper
Ramp "B"
Sheet 1 of 2



DELAWARE TWP.
T-79N R-23W
SEC. 11

1295

1296

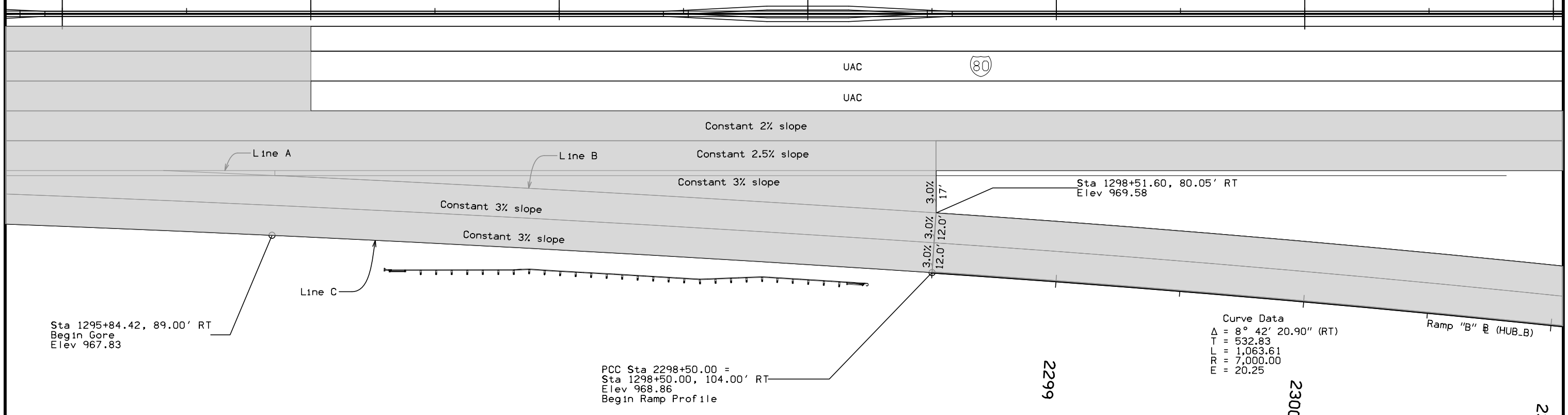
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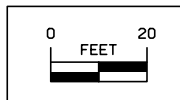
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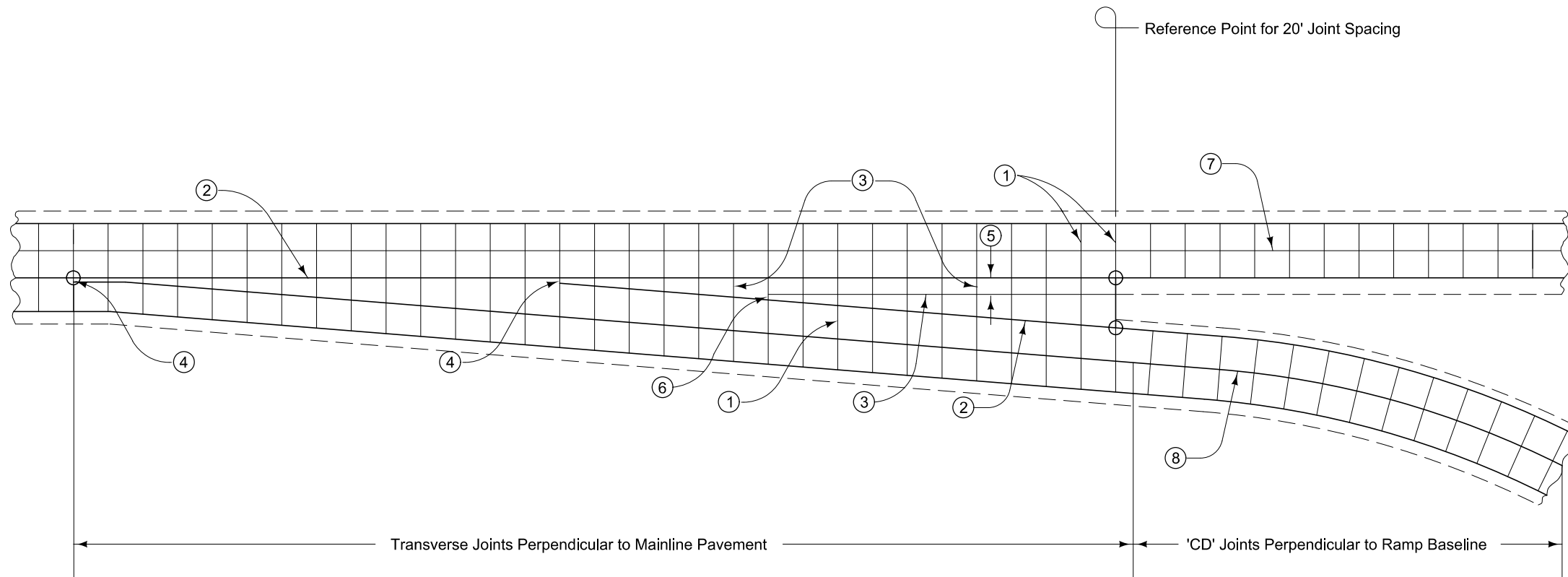
1301



	1294+25.00	1294+50.00	1294+75.00	1295+00.00	1295+25.00	1295+50.00	1295+75.00	1296+00.00	1296+25.00	1296+50.00	1296+75.00	1297+00.00	1297+25.00	1297+50.00	1297+75.00	1298+00.00	1298+25.00	1298+50.00	
Elevation Line A	968.12	968.20	968.28	968.35	968.43	968.50	968.58	968.66	968.73	968.81	968.89	969.00	969.13	969.28	969.45	969.63	969.84	970.07	
Line "A" to Line "B"	Offset							2.73	3.94	5.20	6.51	7.86	9.27	10.72	12.22	13.76	15.36	17.00	
	Slope							3.0%	Constant 3% Slope										3.0%
Elevation Line B								968.57	968.61	968.65	968.70	968.77	968.85	968.96	969.08	969.22	969.38	969.57	
Line "B" to Line "C"	Offset							24.00	Constant 24.0' Width										24.00
	Slope							3.0%	Constant 3% Slope										3.0%
Line "A" to Line "C"	Offset	19.60	20.47	21.40	22.37	23.39	24.45	25.57	26.73	27.94	29.20	30.51	31.86	33.27	34.72	36.22	37.76	39.36	41.00
	Slope	3.0%	Constant 3% Slope																3.0%
Elevation Line C	967.54	967.59	967.63	967.68	967.73	967.77	967.81	967.85	967.89	967.93	967.98	968.05	968.13	968.24	968.36	968.50	968.66	968.86	

Geometric and Staking Detail
I-80/ US 65 (Hubbell Ave)
Interchange
Eastbound Exit Ramp Taper
Ramp "B"
Sheet 2 of 2





- ① 'CD' Joints at 20' spacing.
- ② 'BT-2' or 'KT-2' Joint.
- ③ 'C' Joint.
- ④ 'B' Joint. 2' minimum. 4' maximum.
- ⑤ 10' minimum or equal to mainline shoulder width.
- ⑥ 'B' or 'C' Joint. 2' minimum. 4' maximum.
- ⑦ 'L-2' or 'KT-2' Joint.
- ⑧ 'BT-2 or KT-2 Joint.

24' EXIT RAMP

**JOINTING DETAILS
DECELERATION TAPER
24' EXIT RAMP**

DELAWARE TWP.
T-79N R-23W
SEC. 11



1329

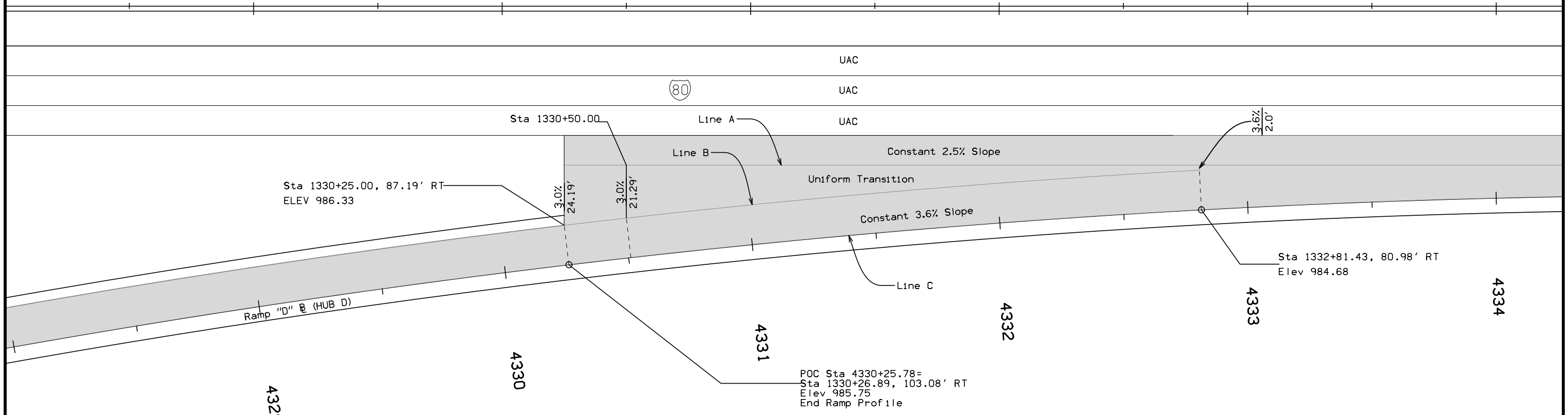
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1331

1332

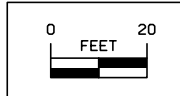
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1334



	1330+25.00	1330+50.00	1330+75.00	1331+00.00	1331+25.00	1331+50.00	1331+75.00	1332+00.00	1332+25.00	1332+50.00	1332+75.00	1333+00.00	1333+25.00	1333+50.00	1333+75.00	1334+00.00	1334+25.00
Line A Elevation	987.05	986.82	986.59	986.36	986.12	985.89	985.66	985.43	985.19	984.96	984.73	984.50	984.26	984.03	983.80	983.57	983.33
Line A to Line B	Slope	3.0%	3.0%	3.06%	3.12%	3.18%	3.24%	3.30%	3.36%	3.42%	3.48%	3.54%					
	Offset	24.19	21.29	18.55	15.97	13.55	11.28	9.17	7.22	5.43	3.79	2.31					
Line B Elevation	986.33	986.18	986.02	985.86	985.69	985.52	985.35	985.18	985.01	984.83	984.64						
Line B to Line C	Slope	3.6%	Constant 3.6% Slope										3.6%				
	Offset	16.0	Constant 16' Width										16.0				
Line A to Line C	Slope	Variable Slope											3.6%	Constant 3.6% Slope			3.6%
	Offset	40.19	37.29	34.55	31.97	29.55	27.28	25.17	23.22	21.43	19.79	18.31	17.00	15.83	14.81	13.95	13.25
Line C Elevation	985.75	985.61	985.44	985.28	985.12	984.95	984.78	984.61	984.43	984.25	984.07	983.88	983.69	983.50	983.30	983.09	982.88

Geometric and Staking Detail
I-80 / US 65 (Hubbell Ave)
Interchange
Eastbound Entrance Ramp
Ramp "D"
Sheet 1 of 3



DELAWARE TWP.
T-79N R-23W
SEC. 11

1335

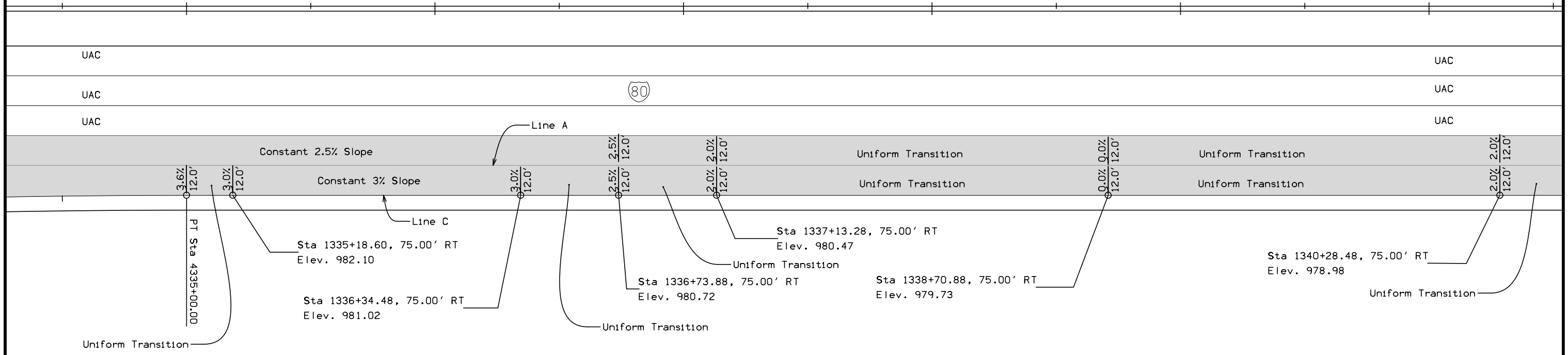
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1338

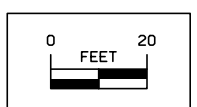
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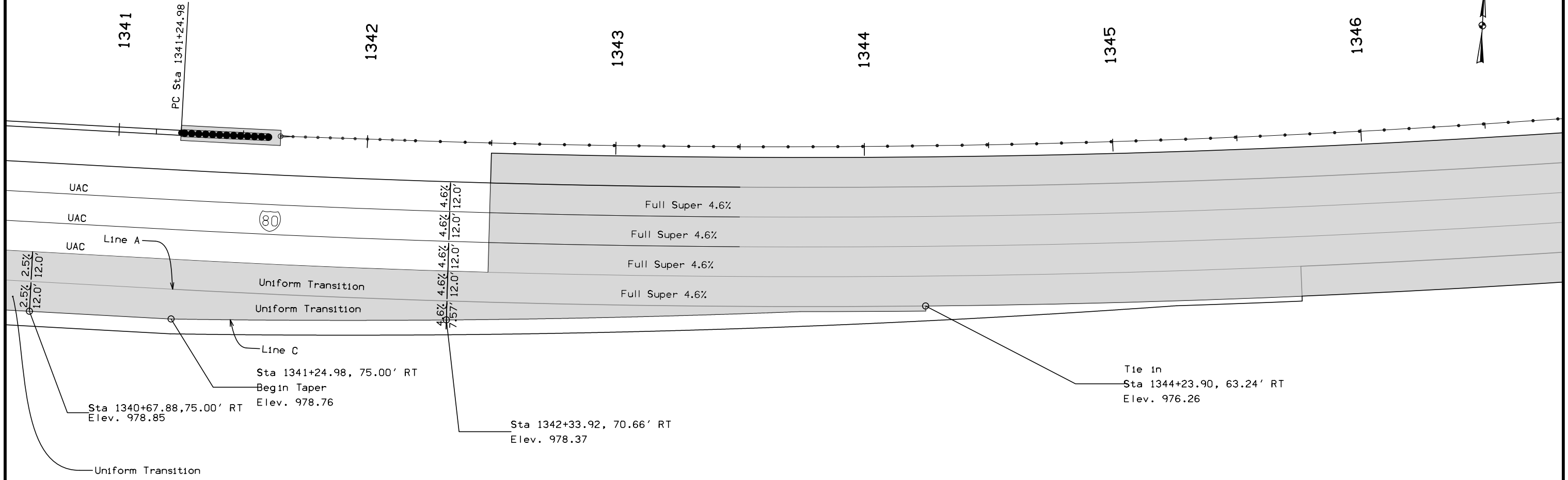
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Line A Elevation	983.10	982.87	982.64	982.40	982.17	981.94	981.71	981.47	981.24	981.01	980.81	980.64	980.48	
Line A to Line C	Slope	3.6%	3.6%	3.6%	3.0%	3.0%	3.0%	3.0%	3.0%	2.80%	2.49%	2.17%	1.85%	1.53%
	Offset	12.31	12.08	12.0	Constant 12.0' Width									12.0
Line C Elevation	982.66	982.43	982.20	982.04	981.81	981.58	981.35	981.11	980.90	980.71	980.55	980.42	980.30	

	1337+75.00	1338+00.00	1338+25.00	1338+50.00	1338+75.00	1339+00.00	1339+25.00	1339+50.00	1339+75.00	1340+00.00	1340+25.00	1340+50.00	
Line A Elevation	980.32	980.17	980.01	979.86	979.70	979.54	979.39	979.23	979.07	978.92	978.76	978.64	
Line A to Line C	Slope	1.22%	0.90%	0.58%	0.26%	-0.05%	-0.37%	-0.69%	-1.00%	-1.32%	-1.64%	-1.96%	-2.27%
	Offset	12.0	Constant 12.0' Width									12.0	
Line C Elevation	980.18	980.06	979.94	979.83	979.71	979.59	979.47	979.35	979.23	979.12	979.00	978.91	



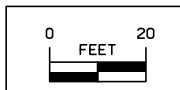
Geometric and Staking Detail
I-80 / US 65 (Hubbell Ave)
Interchange
Eastbound Entrance Ramp
Ramp "D"
Sheet 2 of 3

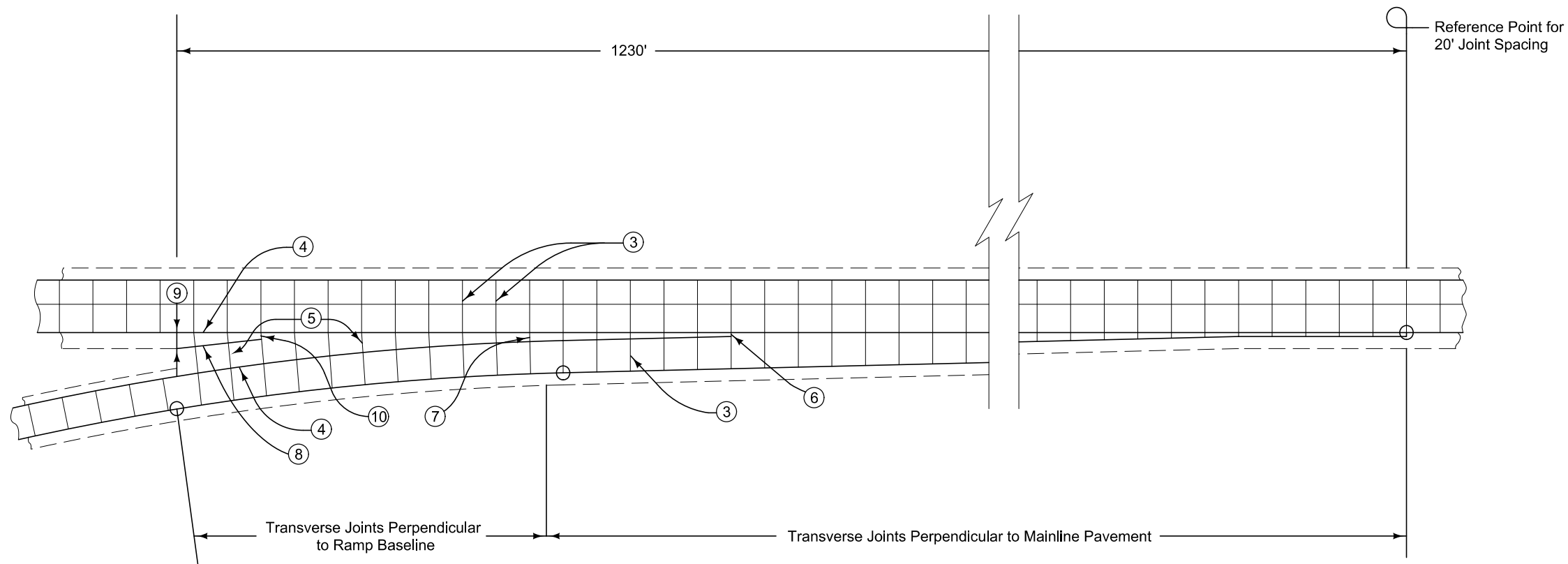
DELAWARE TWP.
T-79N R-23W
SEC. 11



Station	1340+75.00	1341+00.00	1341+24.98	1341+50.00	1341+75.00	1342+00.00	1342+25.00	1342+50.00	1342+75.00	1343+00.00	1343+25.00	1343+50.00	1343+75.00	1344+00.00	1344+23.90	
Line A Elevation	978.53	978.45	978.37	978.29	978.21	978.13	978.05	977.87	977.64	977.40	977.17	976.94	976.71	976.47	976.26	
Line A to Line C	Slope	-2.59%	-2.90%	-3.22%	-3.54%	-3.85%	-4.17%	-4.49%	-4.6%	Constant 4.6% Slope						-4.6%
	Offset	12.0	12.0	12.0	10.9	9.94	8.91	7.9	6.95	5.88	4.95	3.88	2.90	1.96	0.96	0
Line C Elevation	978.84	978.80	978.75	978.68	978.59	978.50	978.40	978.19	977.91	977.63	977.35	977.07	976.80	976.52	976.26	

Geometric and Staking Detail
I-80 / US 65 (Hubbell Ave)
Interchange
Eastbound Entrance Ramp
Ramp "D"
Sheet 3 of 3

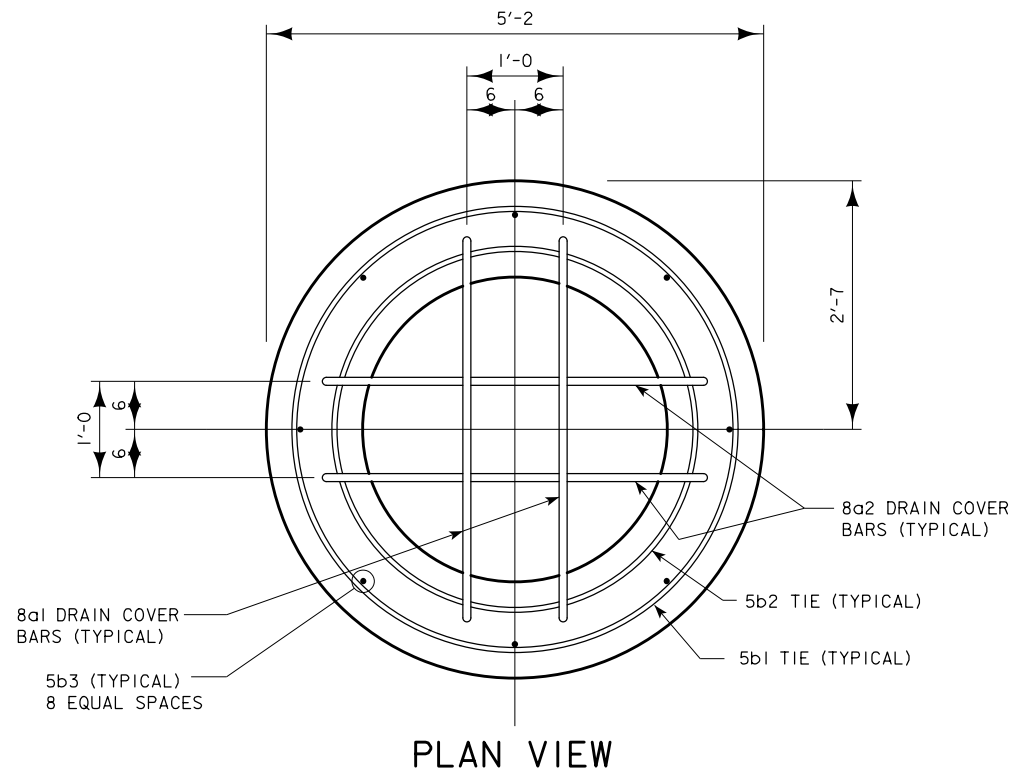




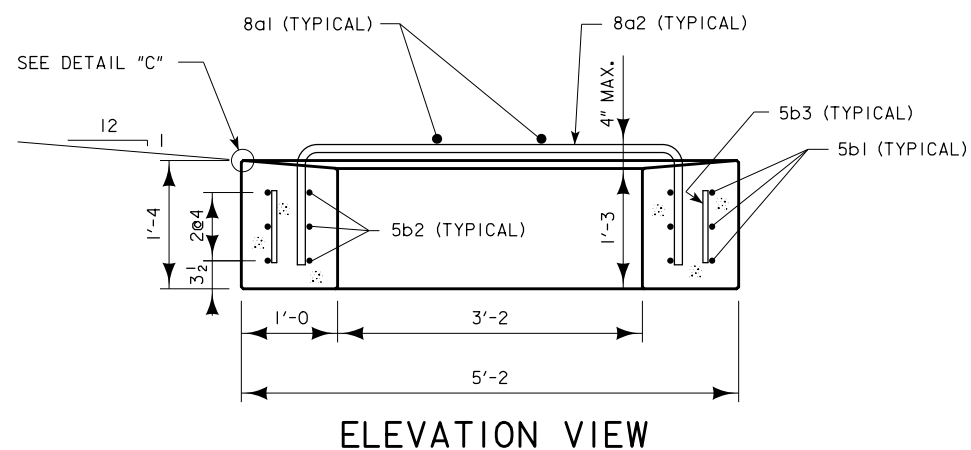
- ③ 'CD' Joints at 20' spacing.
- ④ 'BT-2' or 'KT-2' Joint.
- ⑤ 'C' Joint.
- ⑥ 'B' Joint. 2' minimum, 4' maximum.
- ⑦ Construct transverse joints on the exit ramp taper perpendicular to the tapered edge where the gore area is greater than 4 feet.
- ⑧ 'C' Joint parallel to ramp baseline.
- ⑨ 10' minimum, or equal to mainline shoulder width.
- ⑩ 'B' or 'C' Joint. 2' minimum. 4' maximum.

16' ENTRANCE RAMP

**JOINTING DETAILS
ACCELERATION TAPER
FOR 16' ENTRANCE RAMP**



PLAN VIEW



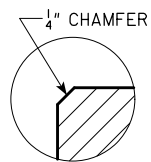
ELEVATION VIEW

DRAIN EXTENSION NOTES:

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 3" UNLESS OTHERWISE NOTED OR SHOWN.

8a1 AND 8a2 BARS SHALL BE GALVANIZED AFTER BENDING. CONTRACTOR SHALL ENSURE THE 8a1 AND 8a2 BARS BEAR AGAINST EACH OTHER DURING PLACEMENT. ALL OTHER BARS SHALL BE EPOXY COATED.

CONCRETE $f'c$ = 4.0 KSI AND ALL REINFORCING STEEL GRADE 60.



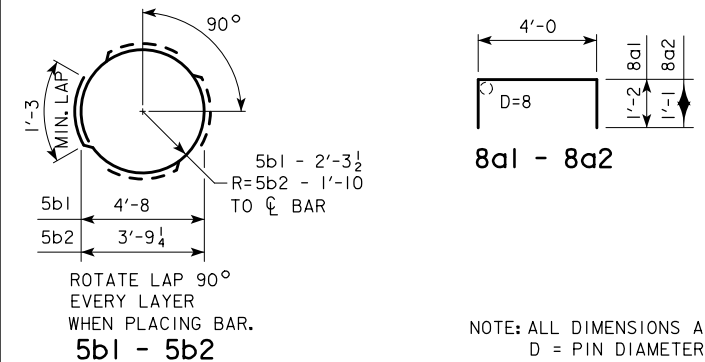
DETAIL "C"

TYPICAL - ON ALL EDGES

REINFORCING BAR LIST

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
8a1	DRAIN COVER BARS - TOP LAYER	U	2	6'-4	34
8a2	DRAIN COVER BARS - BOTTOM LAYER	U	2	6'-2	33
REINFORCING STEEL, GALVANIZED - TOTAL (LBS.)					67
5b1	CIRCULAR TIE BARS - OUTSIDE FACE	O	3	16'-0	50
5b2	CIRCULAR TIE BARS - INSIDE FACE	O	3	13'-2	42
5b3	TIE BARS - VERTICAL	I	8	0'-9	6
REINFORCING STEEL, EPOXY COATED - TOTAL (LBS.)					98

BENT BAR DETAILS

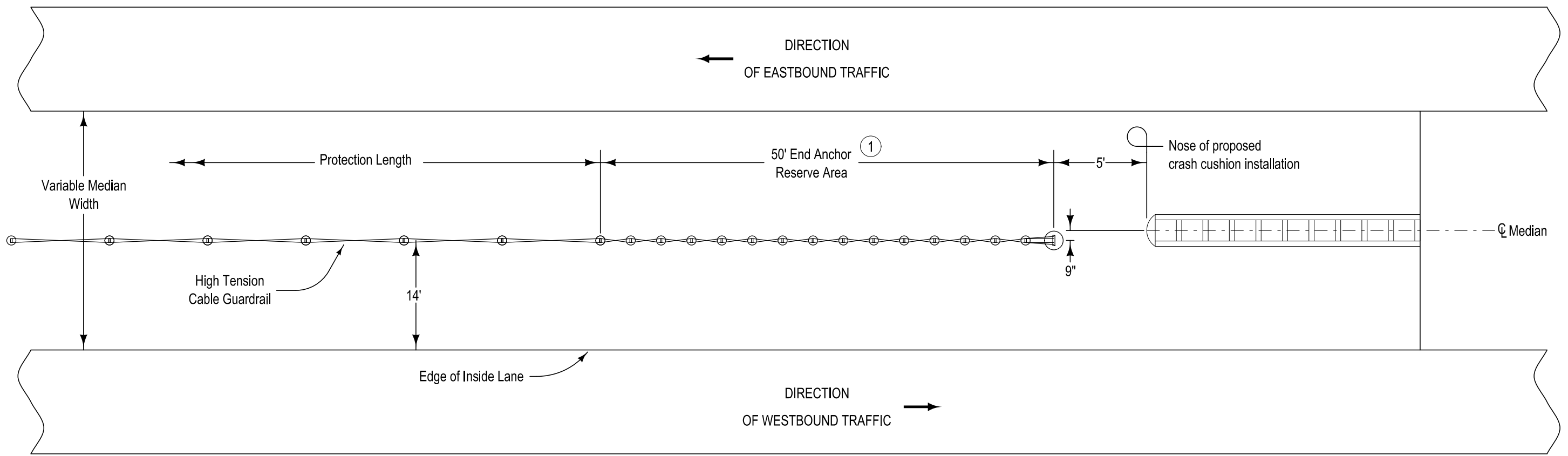


ESTIMATED QUANTITIES

ITEM	UNIT	TOTAL
STRUCTURAL CONCRETE (MISCELLANEOUS)	CU. YDS.	0.64
REINFORCING STEEL, EPOXY COATED	LBS.	101
REINFORCING STEEL, GALVANIZED *	LBS.	67

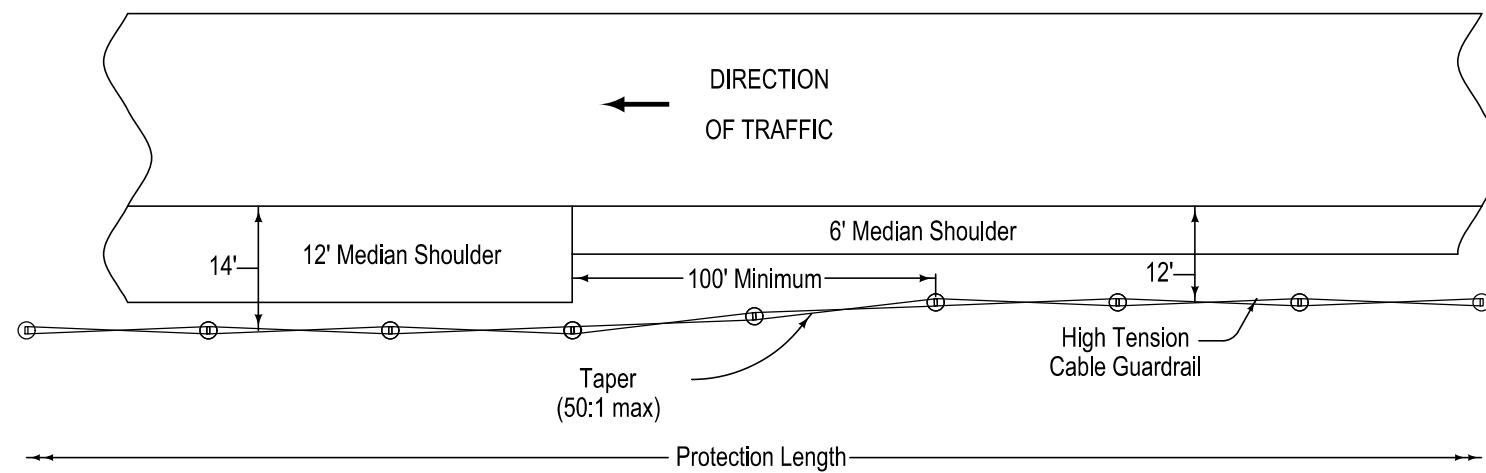
* SEE DRAIN EXTENSION NOTES

PRECAST CONCRETE
DRAIN EXTENSION

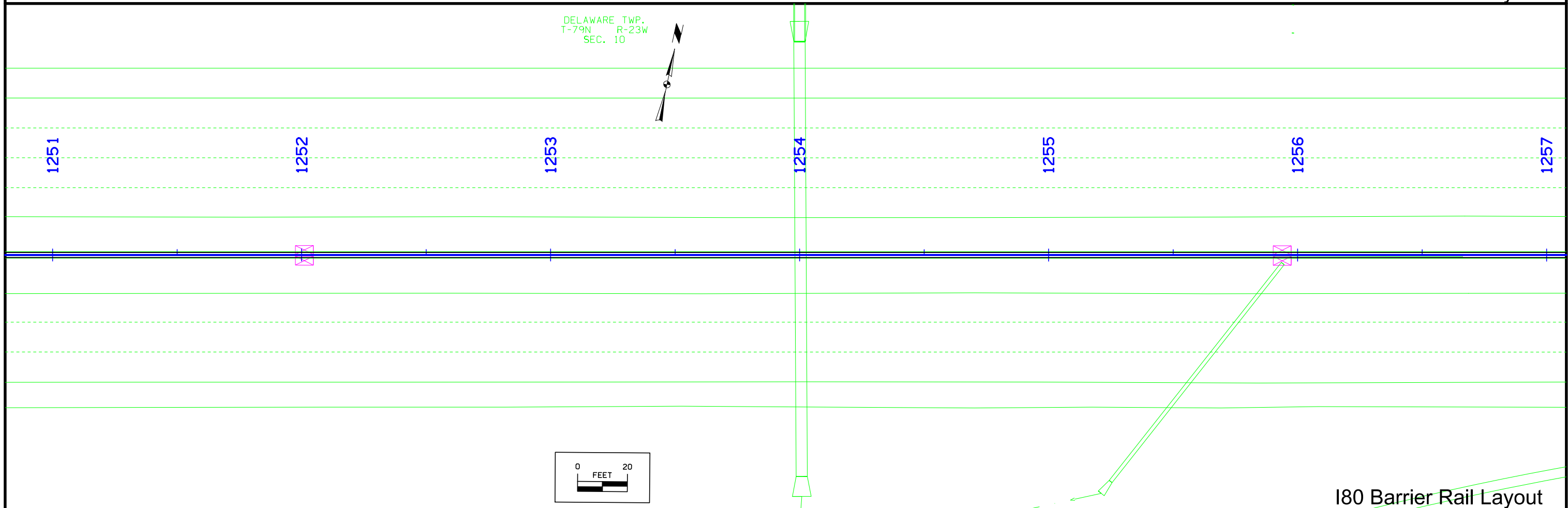
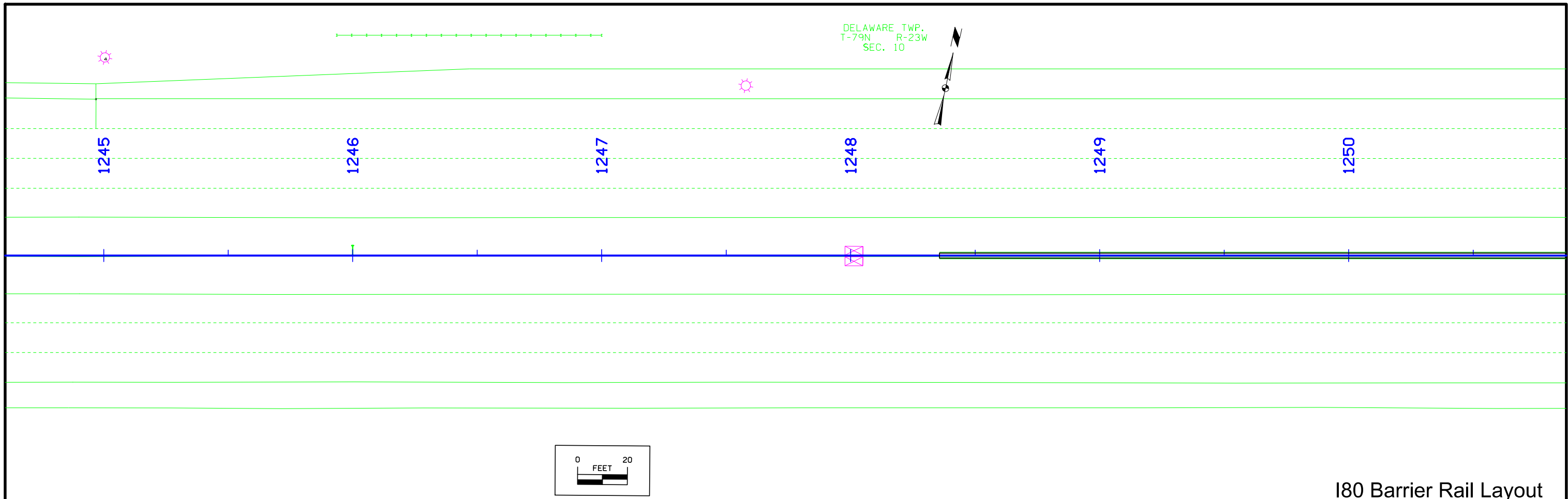


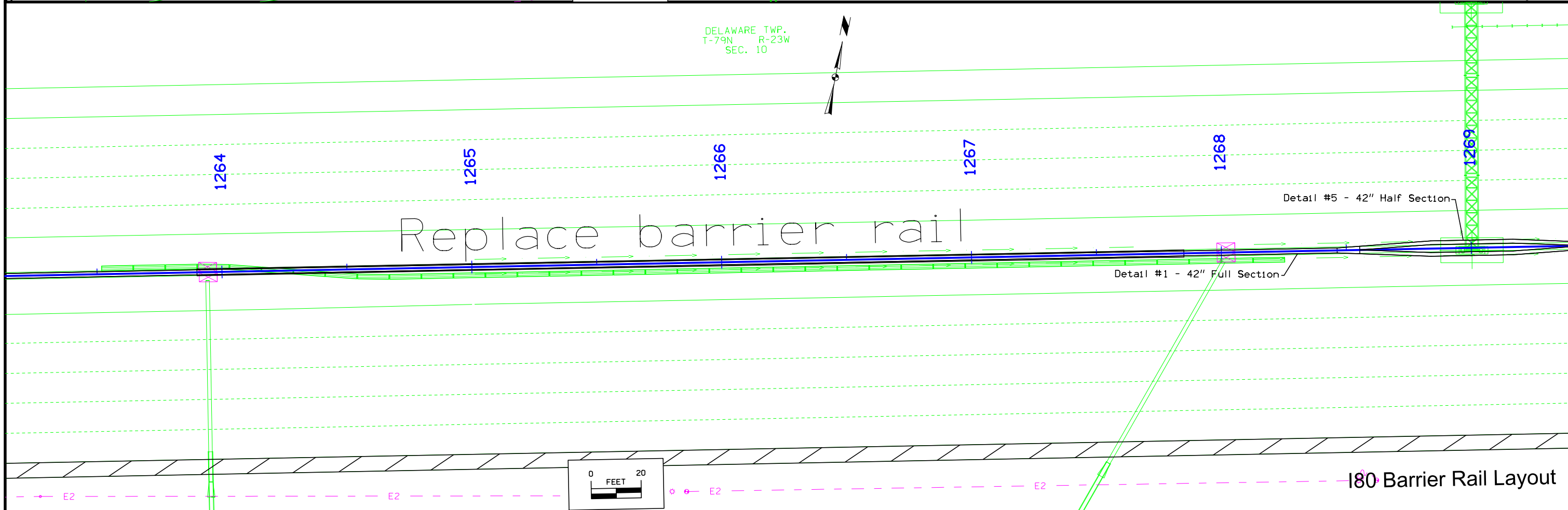
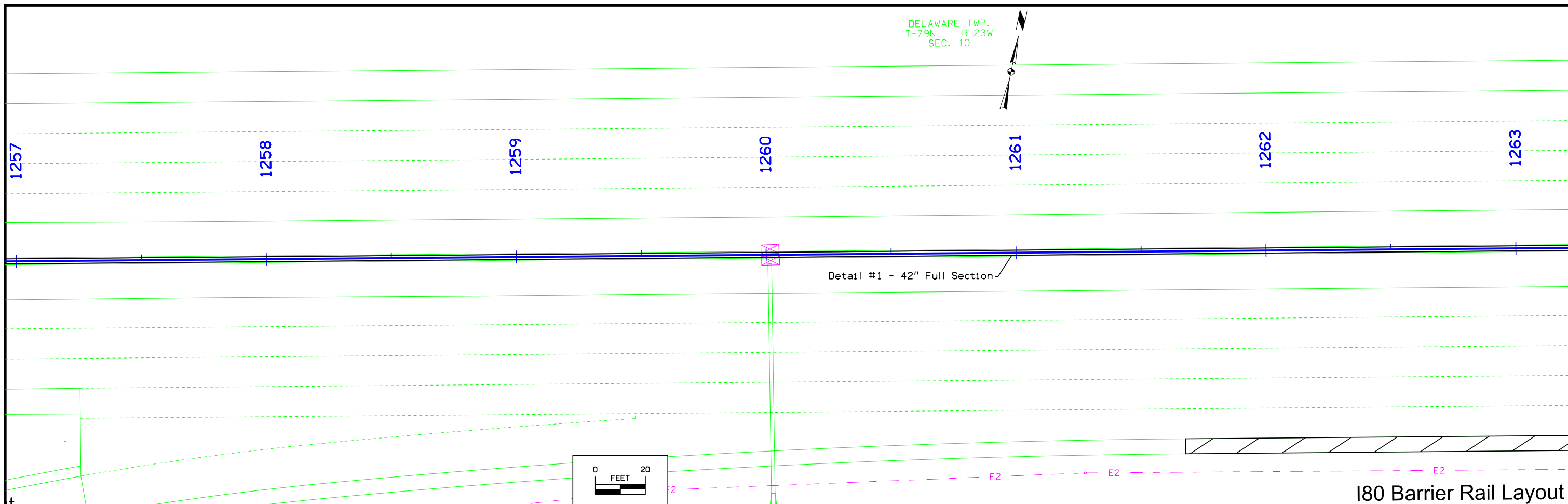
① Where supplied end anchor is less than 50 feet, increase protection length in order to align end anchor with crash cushion as shown.

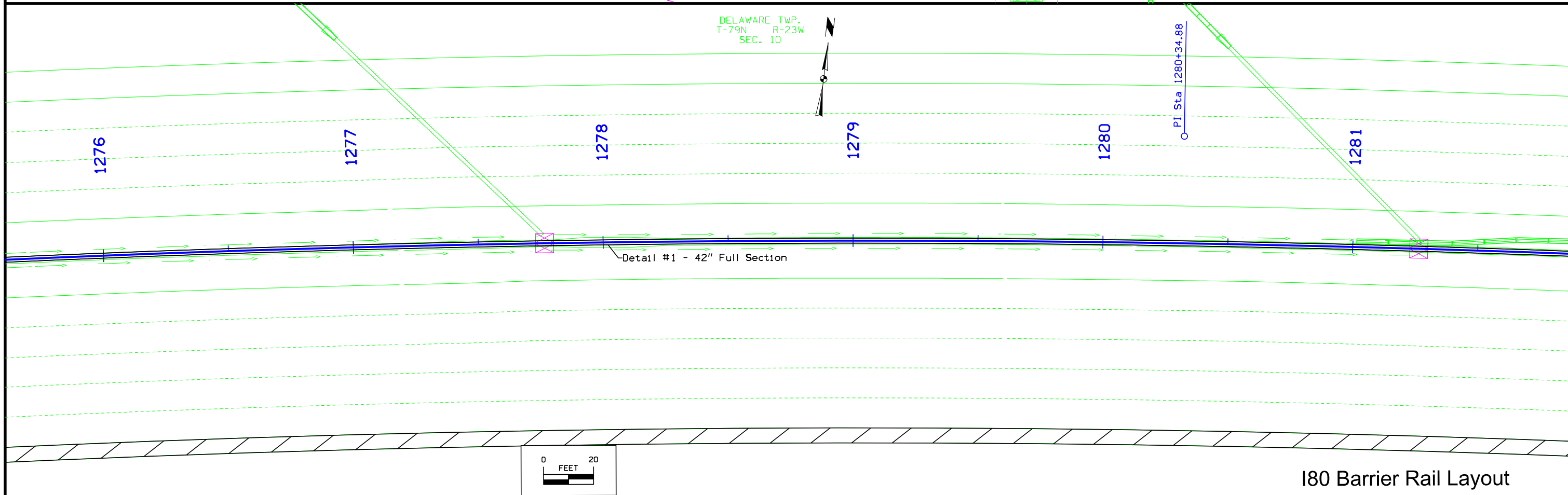
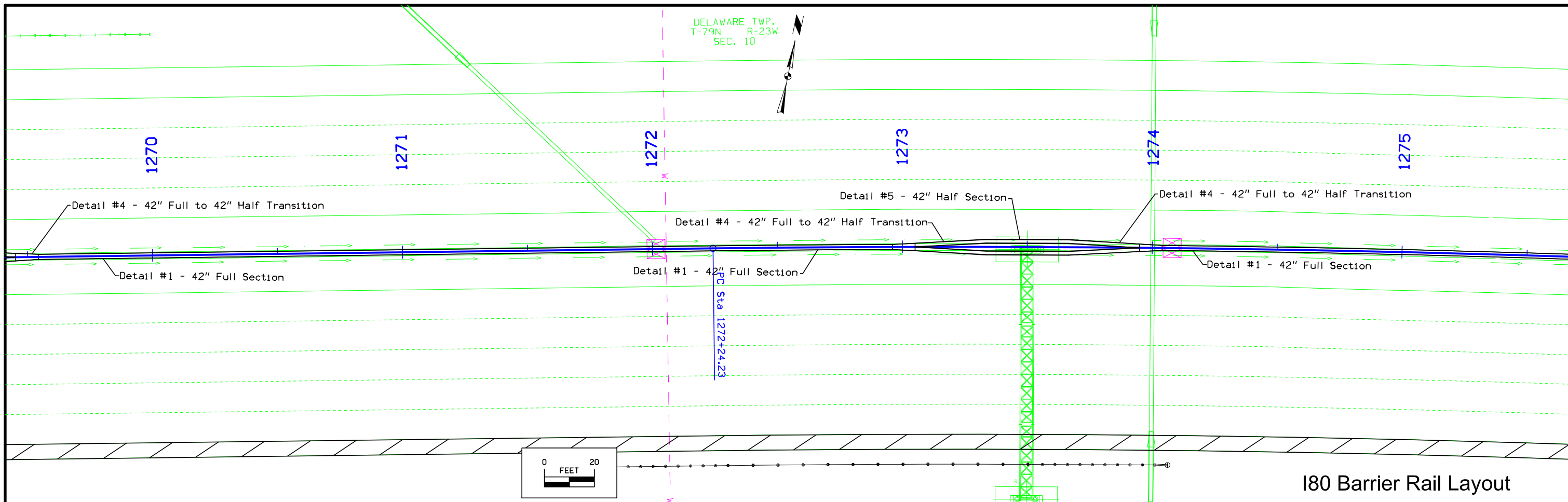
**HIGH TENSION CABLE GUARDRAIL,
END ANCHOR
(At Crash Cushion)**

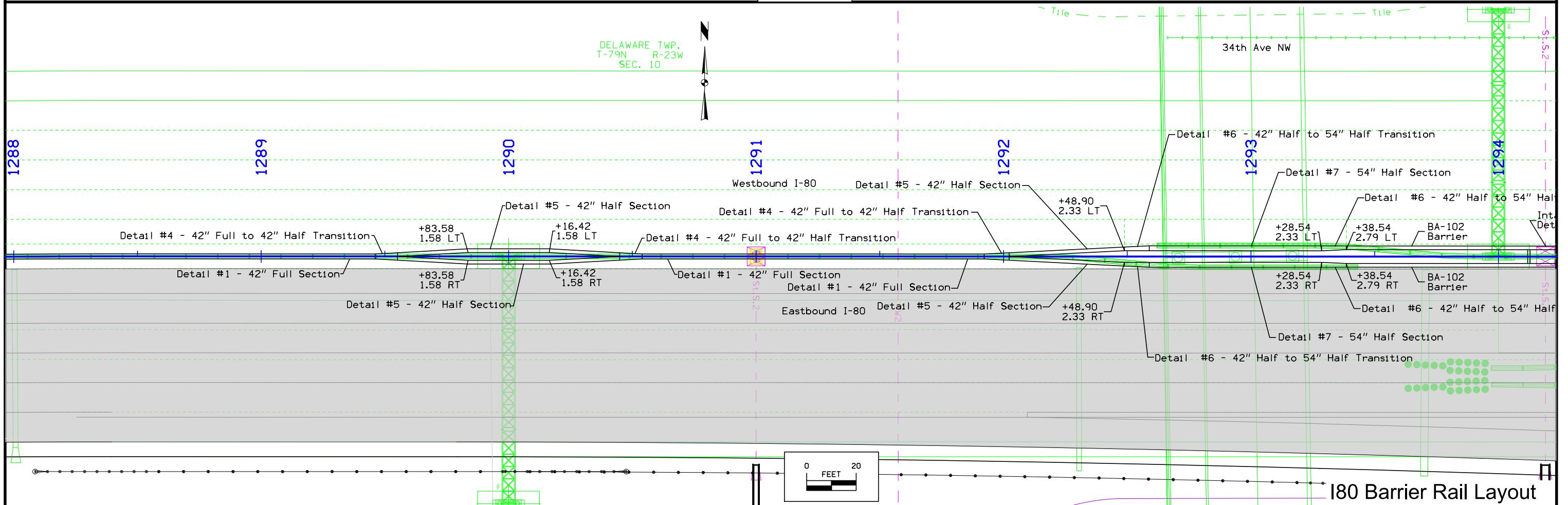
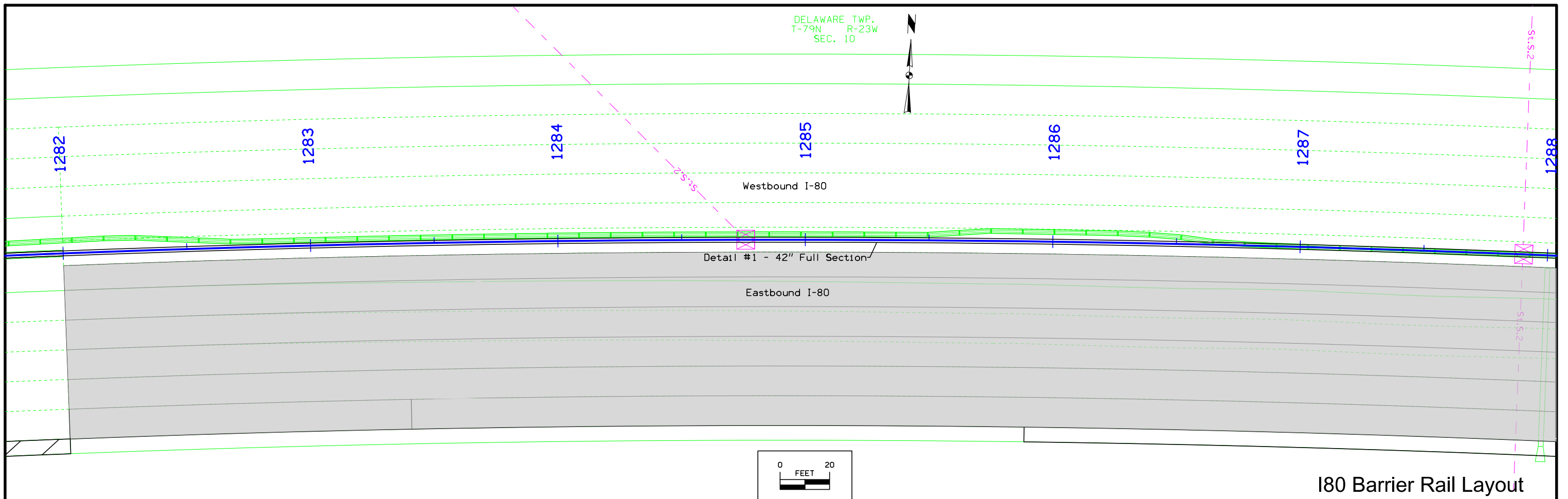


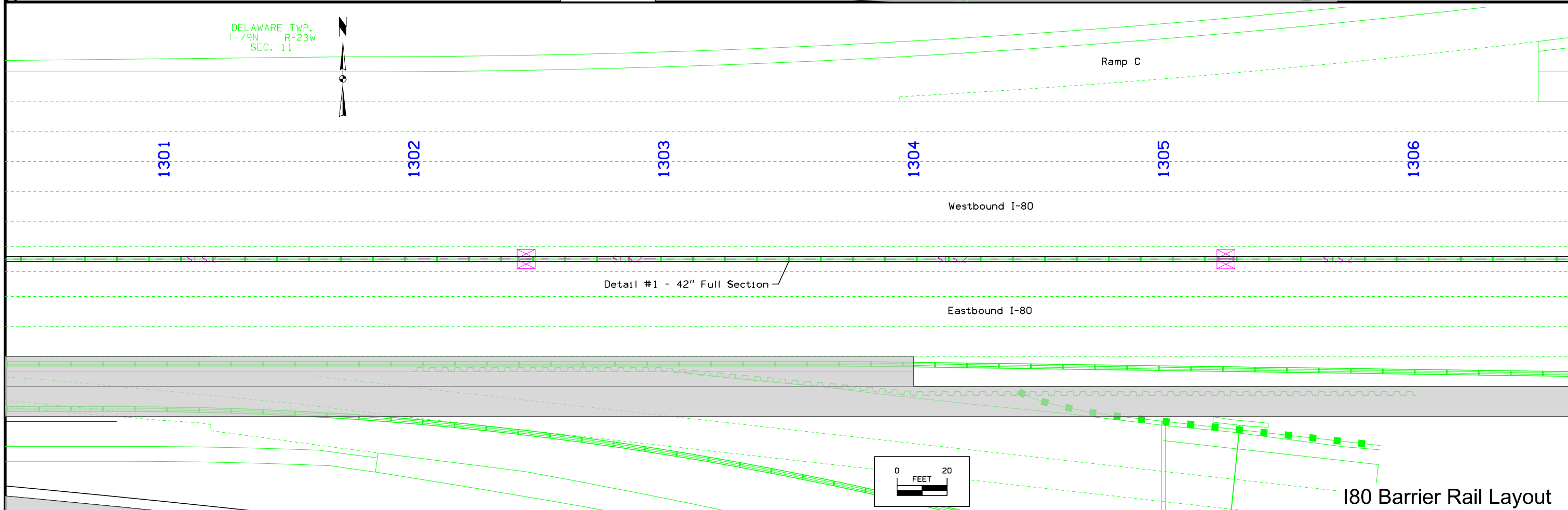
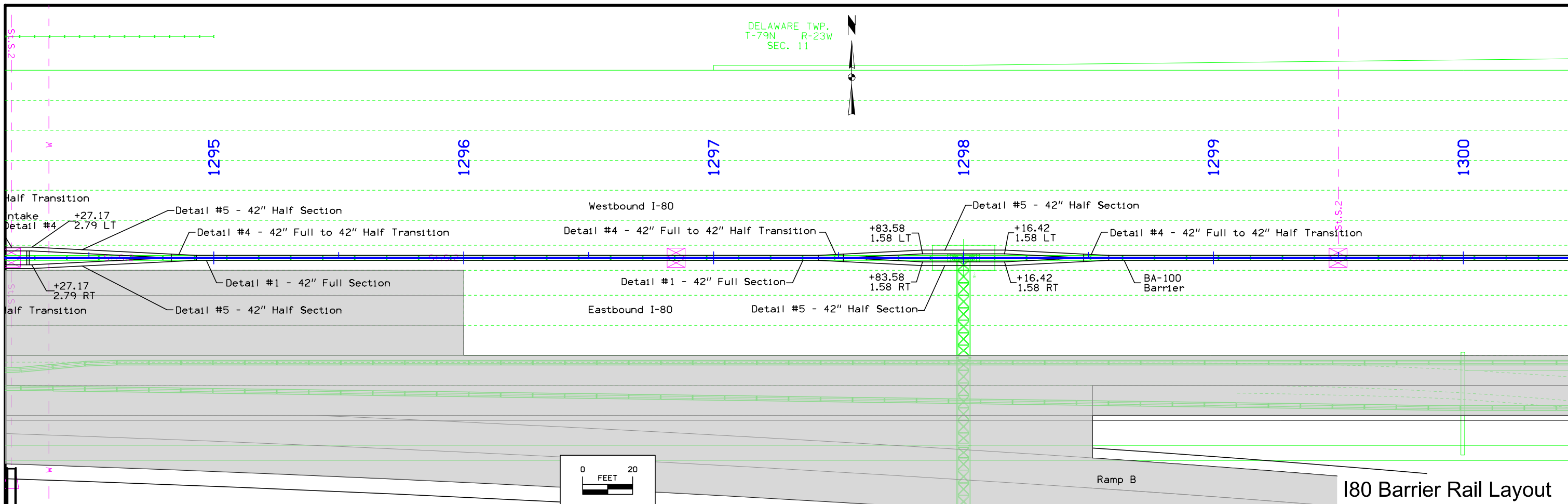
**HIGH TENSION CABLE GUARDRAIL,
TRANSITION AT SHOULDER
WIDTH CHANGE**

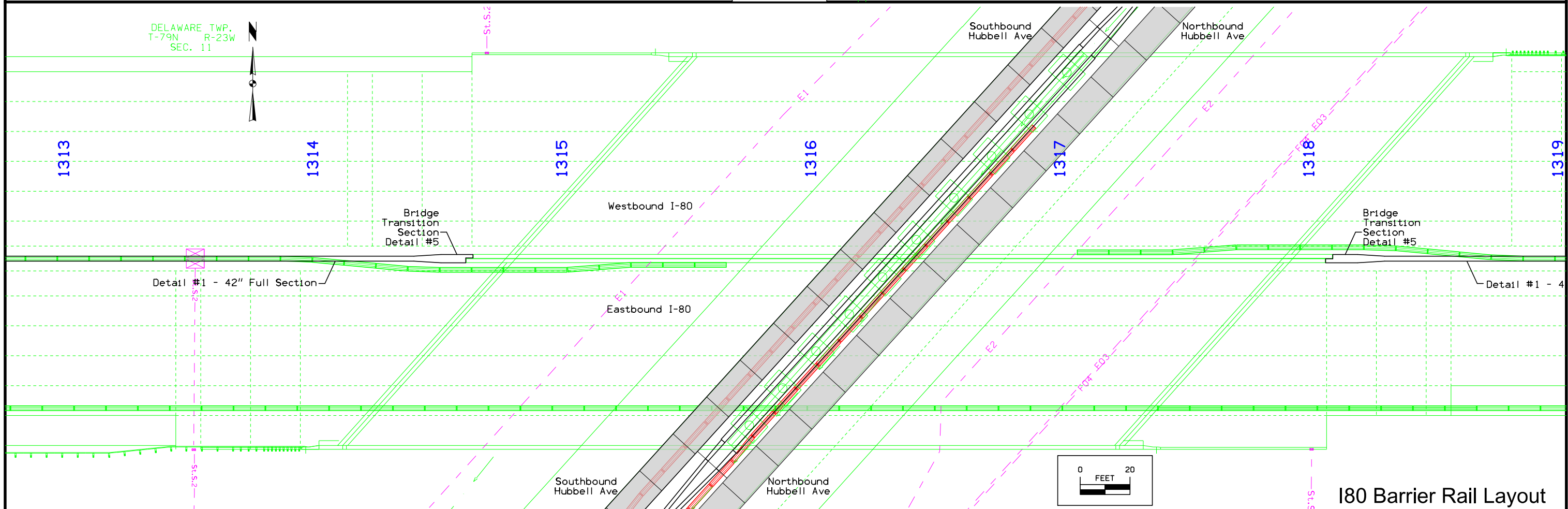
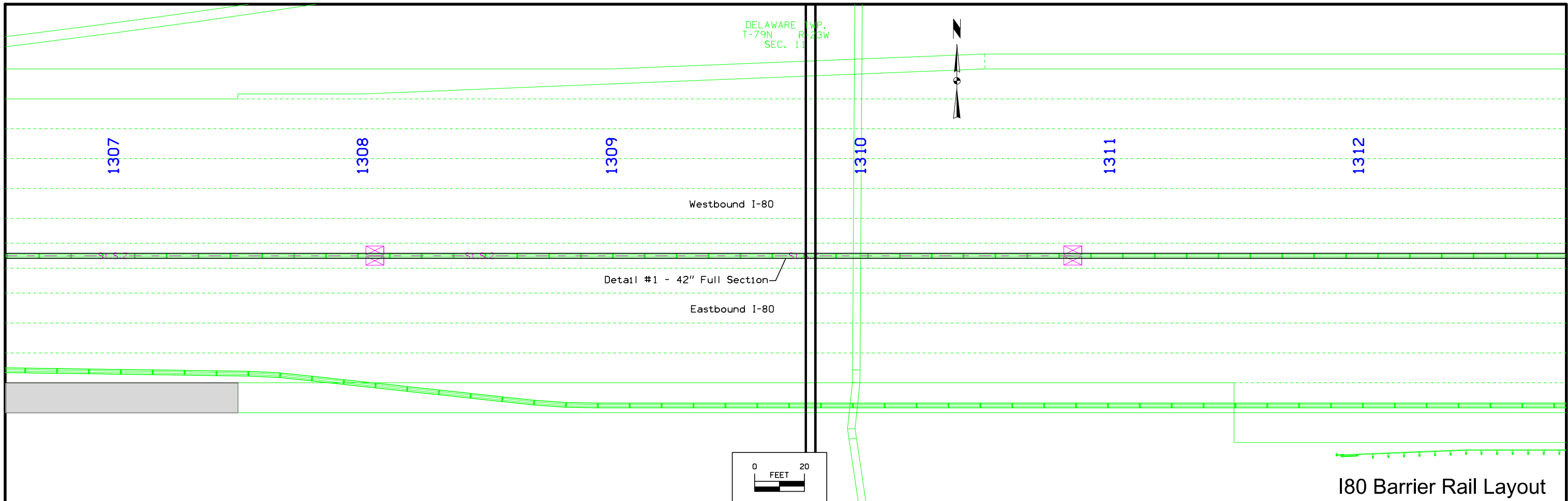


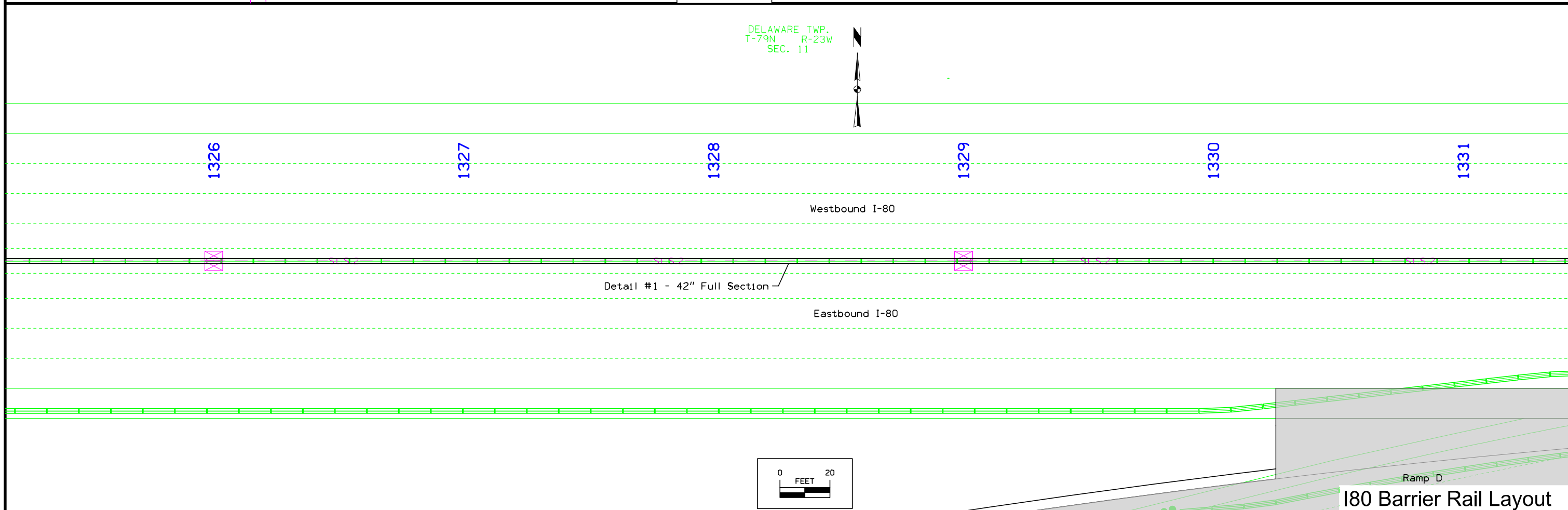
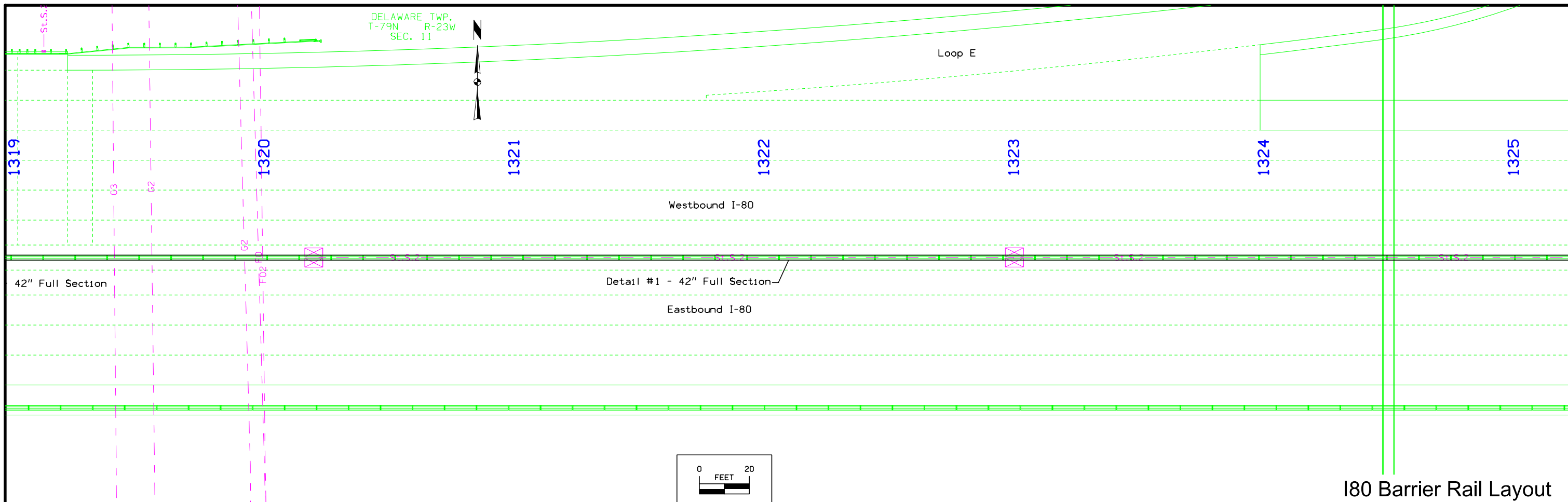




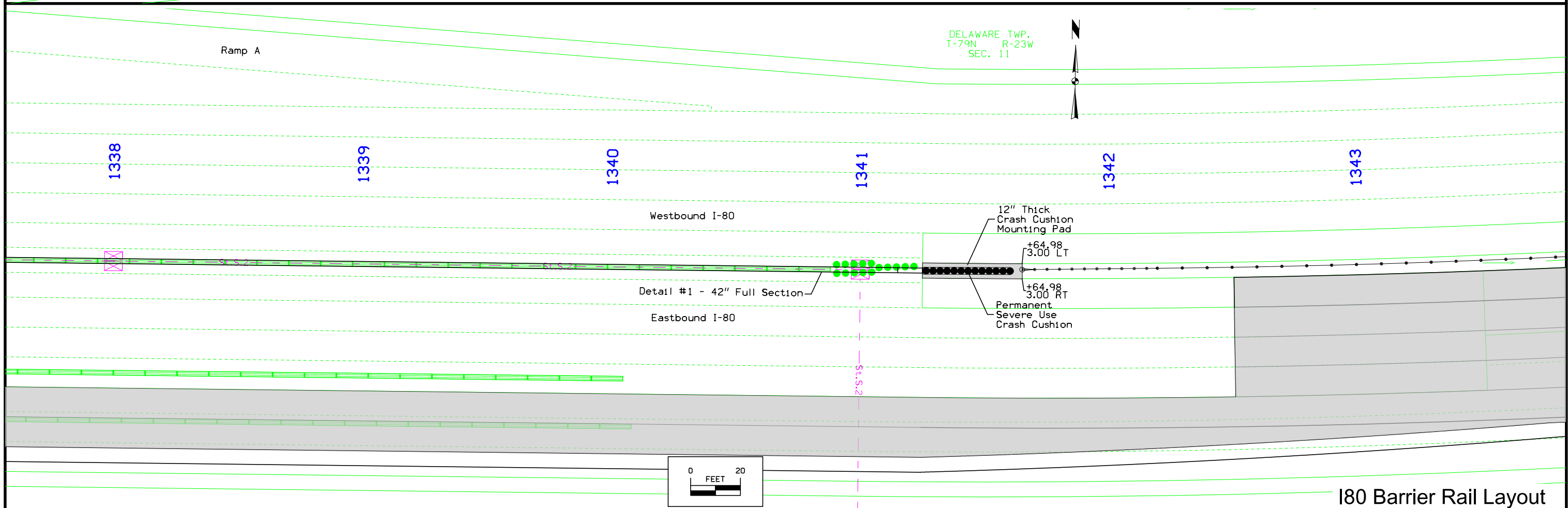
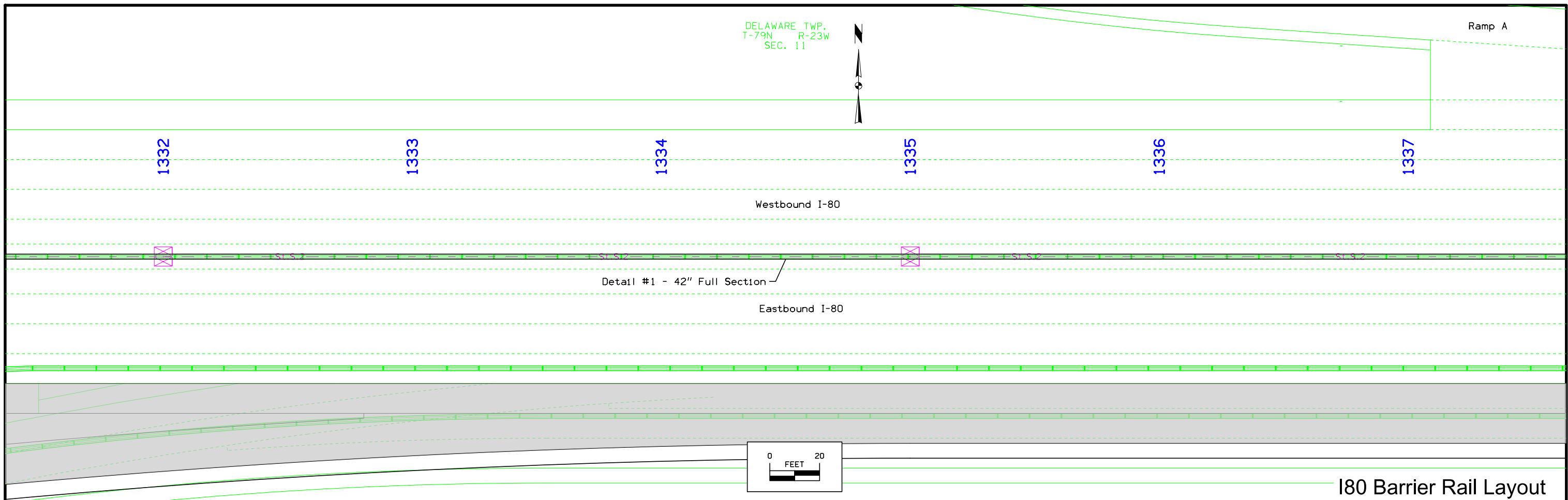








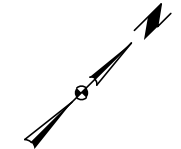
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DELAWARE TWP.
T-79N R-23W
SEC. 11

Eastbound I-80

Westbound I-80



7876

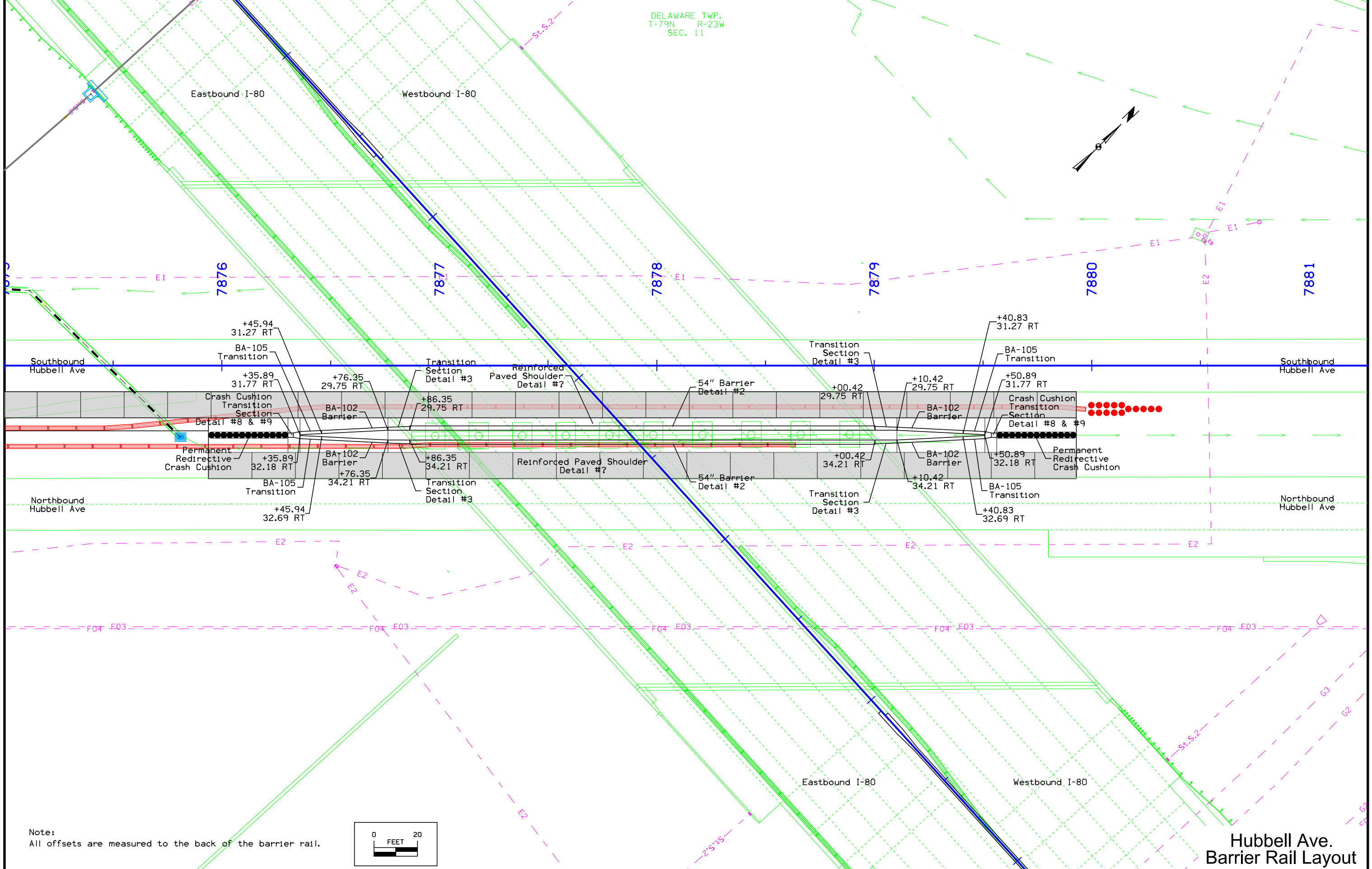
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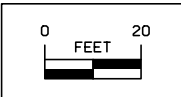
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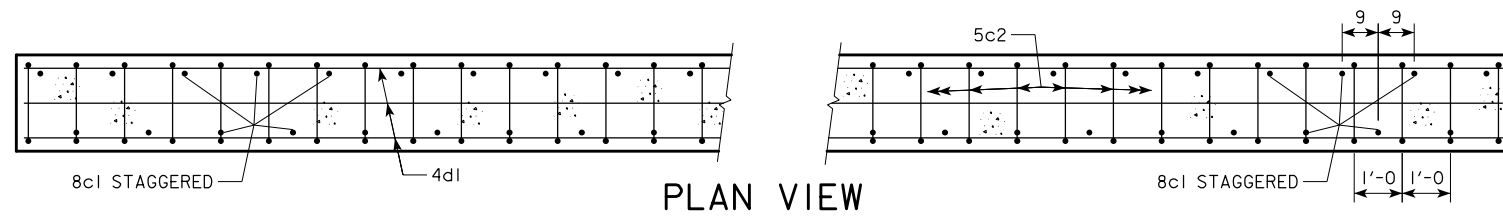
7881



Note:
All offsets are measured to the back of the barrier rail.

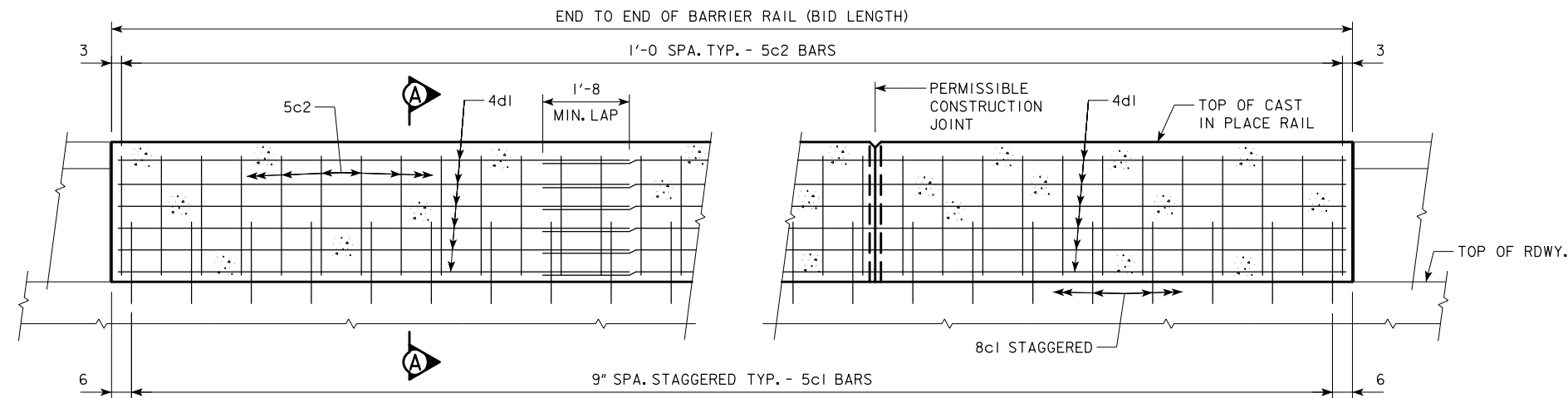


Hubbell Ave. Barrier Rail Layout

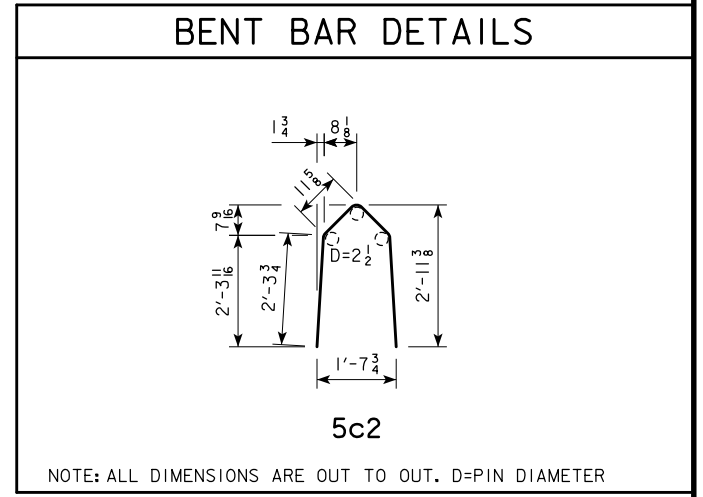


PLAN VIEW

EPOXY REINF. BAR LIST - RAIL PER FT.					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
8c1	DOWEL BAR	—	1.33	2'-6"	9
5c2	RAIL, VERTICAL	U	1	6'-6"	7
4d1	RAIL, LONGITUDINAL	—	11	1'-0"	7
TOTAL (LBS) PER LINEAL FOOT					23

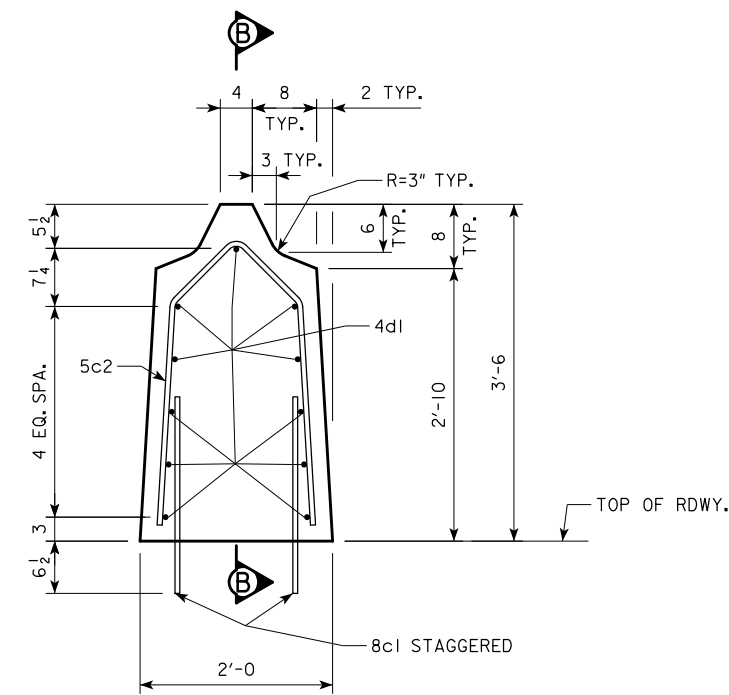


SECTION B-B FULL SECTION BARRIER RAIL



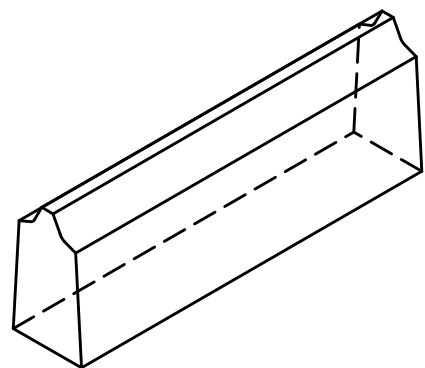
NOTE: ALL DIMENSIONS ARE OUT TO OUT. D=PIN DIAMETER

CONCRETE QTY. - RAIL PER FT.	
TOTAL CU. YDS. PER LINEAL FOOT	0.2109



SECTION A-A FULL SECTION BARRIER RAIL REINFORCING

NOTES:
 CONSTRUCTION JOINTS SHALL BE PLACED AS NEEDED. WHERE ABUTTING SECTIONS ARE PLACED AS SEPARATE POURS, A BUTT JOINT MAY BE USED. LONGITUDINAL REINFORCEMENT SHALL BE EXTENDED INTO THE ABUTTING SECTION A MINIMUM OF 1'-10" SPANNING THE BUTT JOINT.
 WHERE THERE IS A DRAIN SLOT ADJUST DOWEL AND VERTICAL REINFORCING TO MAINTAIN 2" CLEAR FROM EDGE OF CONCRETE.



VIEW OF FULL SECTION BARRIER RAIL

42" CONCRETE BARRIER RAIL
 (#1 - 42" FULL SECTION)
 MEDIAN BARRIER RAIL

EPOXY REINF. BAR LIST - PER DRAIN

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5c4	RAIL, VERTICAL		3	7'-9"	24
5c5	RAIL, VERTICAL		4	8'-2"	34
6d2	RAIL, LONGITUDINAL		6	18'-0"	162
TOTAL (LBS) PER LINEAL FOOT					220

BENT BAR DETAILS

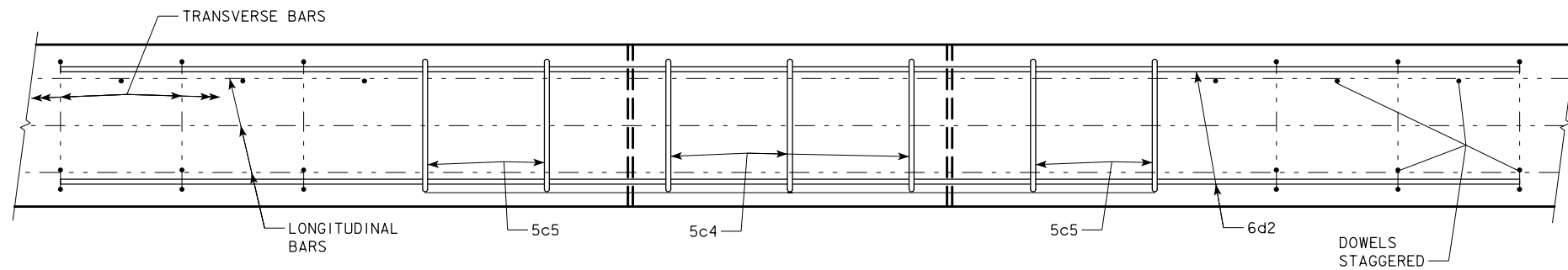


5c4

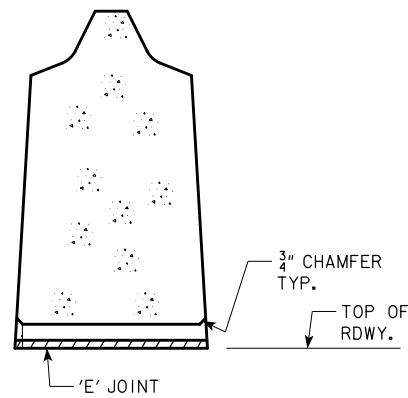
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NOTE: ALL DIMENSIONS ARE OUT TO OUT. D=PIN DIAMETER

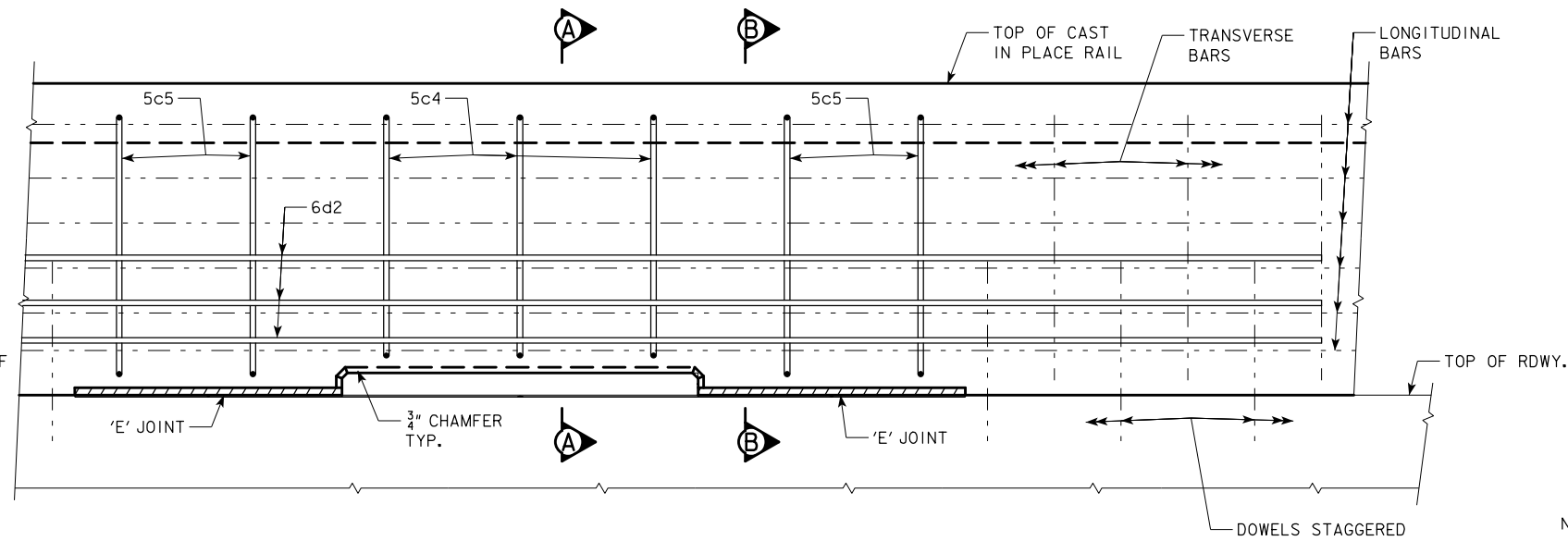
NOTES:
WHERE THERE IS A DRAIN SLOT ADJUST DOWEL AND VERTICAL REINFORCING TO MAINTAIN 2" CLEAR FROM EDGE OF CONCRETE.
FOR JOINT DETAILS REFER TO PV-101.



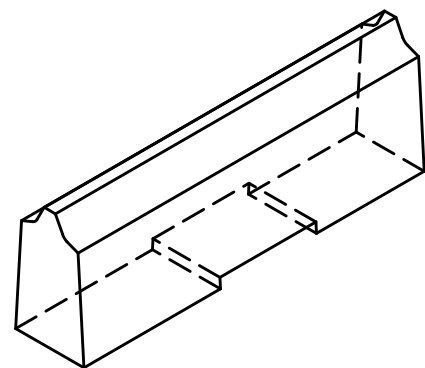
PLAN VIEW



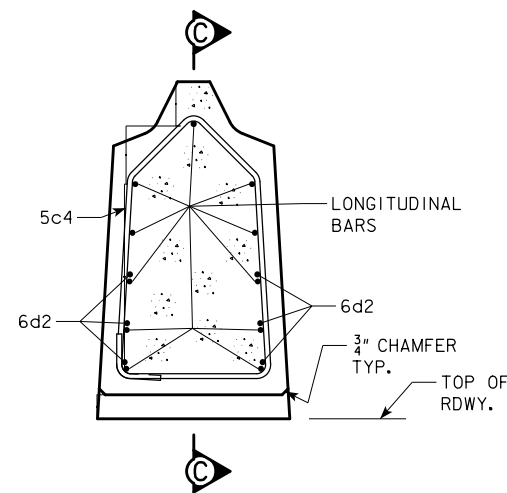
SECTION A-A
NOT SHOWING REINFORCING



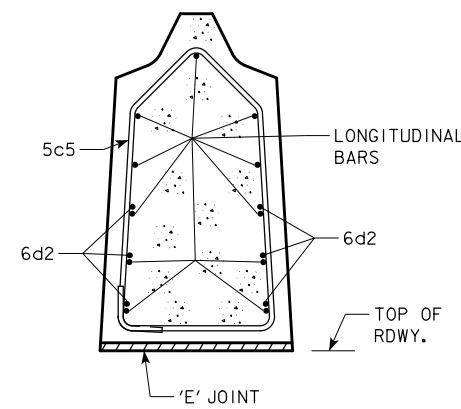
SECTION C-C DETAIL OF BARRIER RAIL
DRAIN SLOT AT INTAKE LOCATION



VIEW OF FULL SECTION
BARRIER RAIL

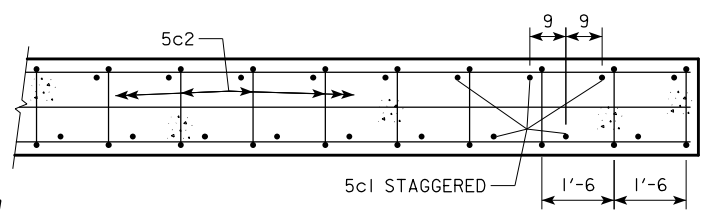
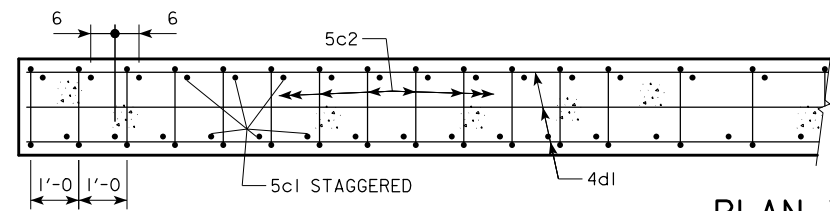


SECTION A-A
FULL SECTION BARRIER RAIL
DRAIN REINFORCING



SECTION B-B
FULL SECTION BARRIER RAIL
DRAIN REINFORCING

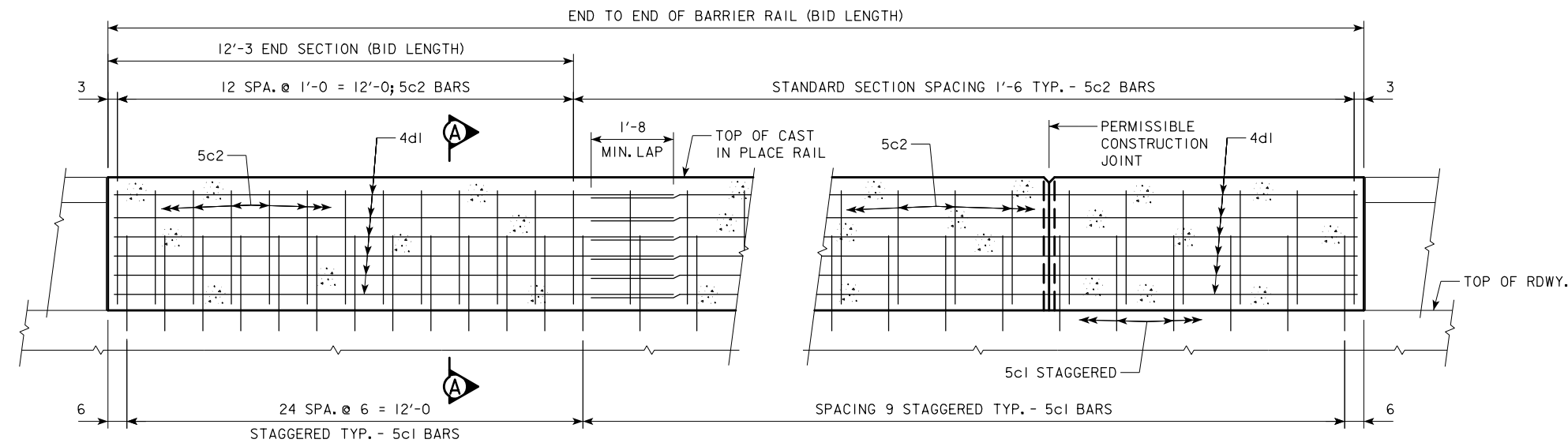
DRAIN SLOT DETAIL
(#2 - 42" FULL SECTION)
MEDIAN BARRIER RAIL



PLAN VIEW

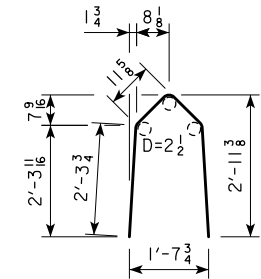
EPOXY REINF. BAR LIST - RAIL END SECT.

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5c1	DOWEL BAR	—	25	2'-6	65
5c2	RAIL, VERTICAL	U	13	6'-6	88
4d1	RAIL, LONGITUDINAL	—	11	11'-10	87
TOTAL (LBS) PER LINEAL FOOT					240



SECTION B-B FULL SECTION BARRIER RAIL

BENT BAR DETAILS



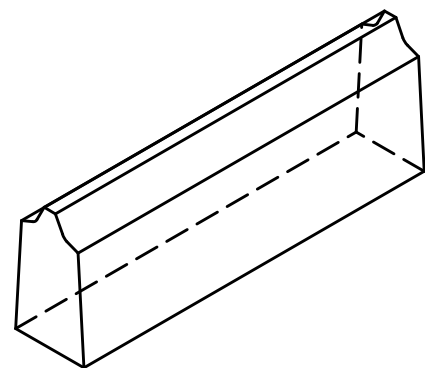
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NOTE: ALL DIMENSIONS ARE OUT TO OUT. D=PIN DIAMETER

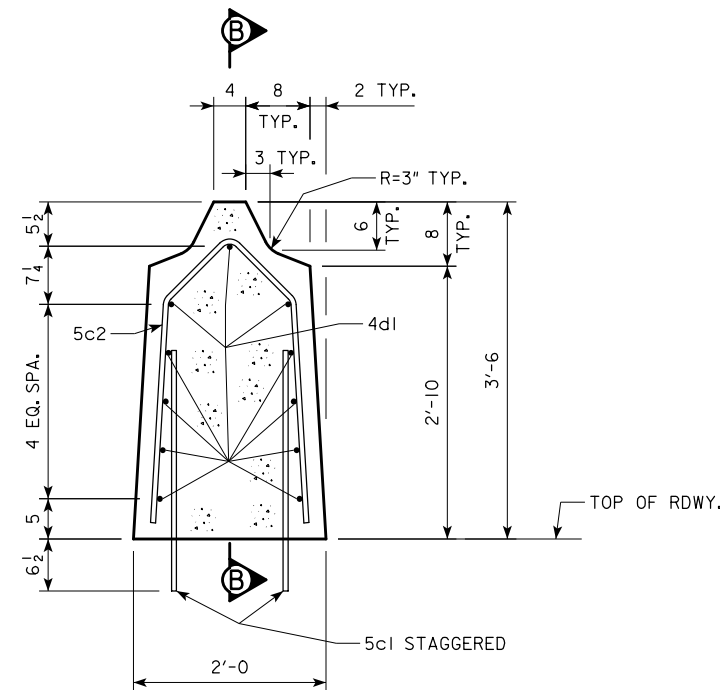
CONCRETE QTY. - RAIL PER FT.

TOTAL CU. YDS. PER LINEAL FOOT	0.2109
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NOTES:
 CONSTRUCTION JOINTS SHALL BE PLACED AS NEEDED. WHERE ABUTTING SECTIONS ARE PLACED AS SEPARATE POURS, A BUTT JOINT MAY BE USED. LONGITUDINAL REINFORCEMENT SHALL BE EXTENDED INTO THE ABUTTING SECTION A MINIMUM OF 1'-10" SPANNING THE BUTT JOINT. WHERE THERE IS A DRAIN SLOT ADJUST DOWEL AND VERTICAL REINFORCING TO MAINTAIN 2" CLEAR FROM EDGE OF CONCRETE.

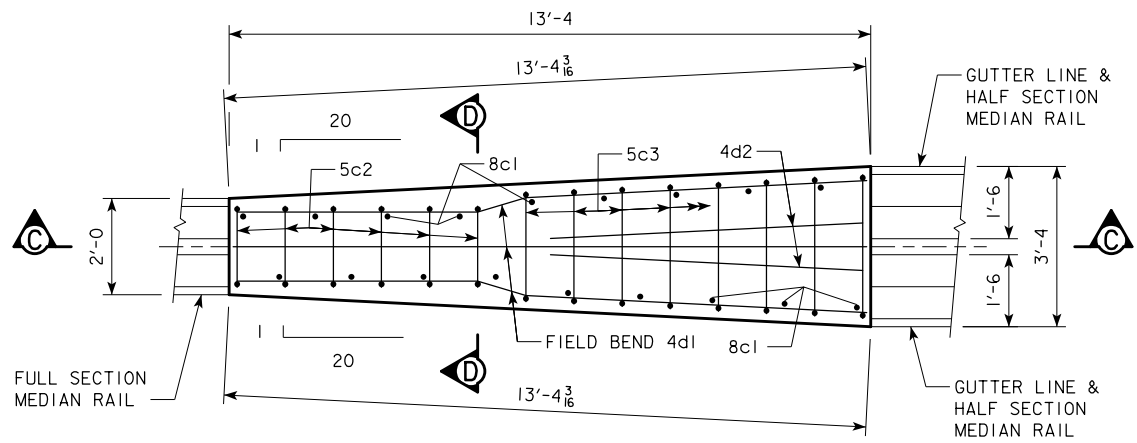


VIEW OF FULL SECTION BARRIER RAIL

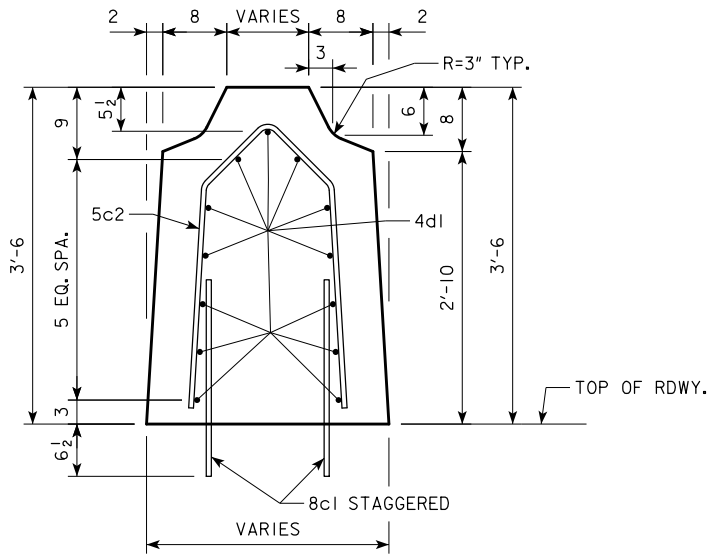


SECTION A-A FULL SECTION BARRIER RAIL REINFORCING

42" CONCRETE BARRIER RAIL
 (#3 - 42" FULL SECTION)
 MEDIAN BARR. RAIL - END SECT.

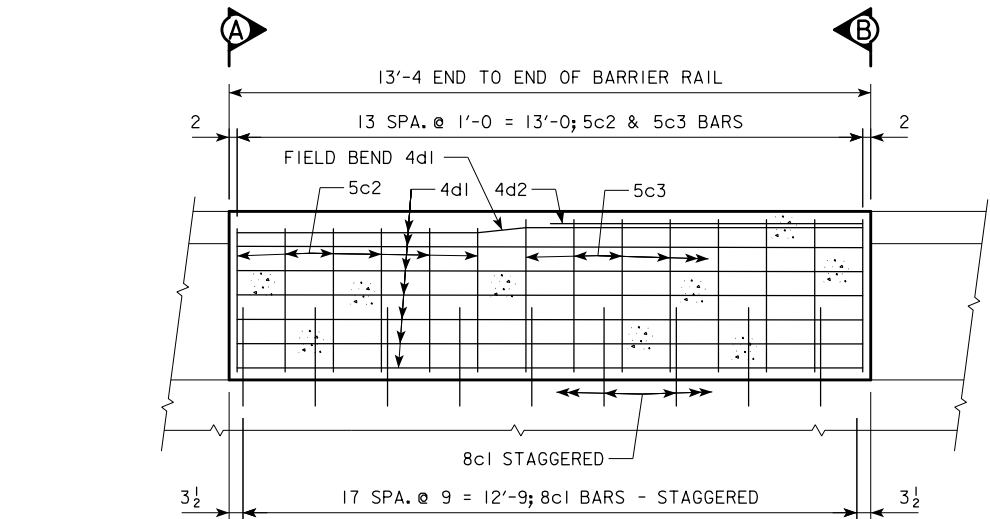


PLAN VIEW

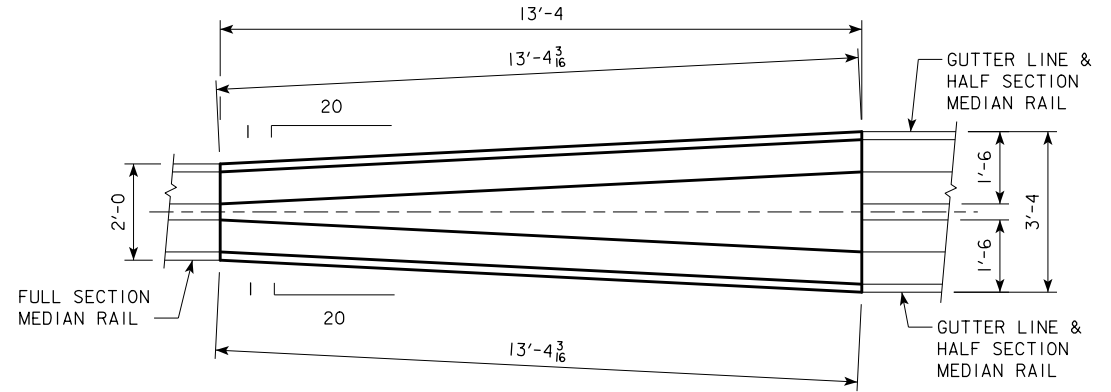


VIEW D-D

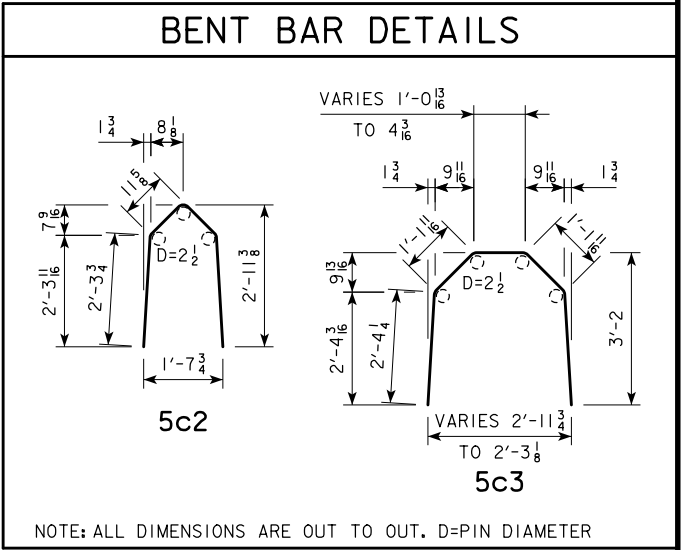
EPOXY REINF. BAR LIST - TRANSITION					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
8c1	DOWEL BAR	—	18	2'-6	120
5c2	RAIL, VERTICAL	U	6	6'-6	41
5c3	RAIL, VERTICAL	U	8	VARIES	64
4d1	RAIL, LONGITUDINAL	—	13	13'-0	113
4d2	RAIL, LONGITUDINAL	—	2	6'-6	9
TOTAL (LBS) PER LINEAL FOOT					347



SECTION C-C ELEV. VIEW

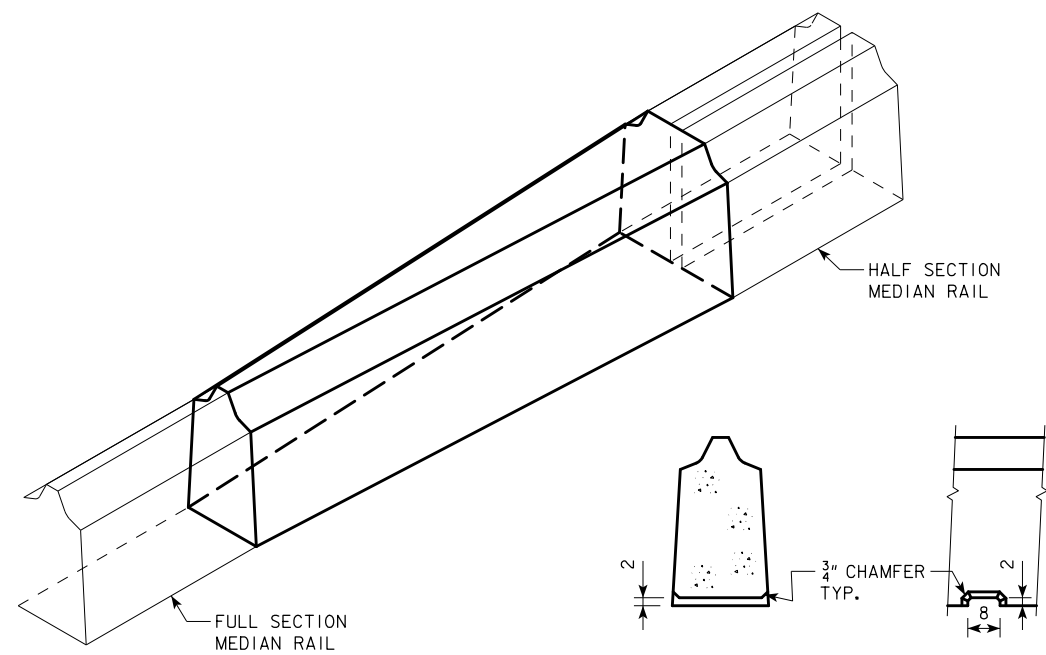


PLAN VIEW
NOT SHOWING REINFORCING



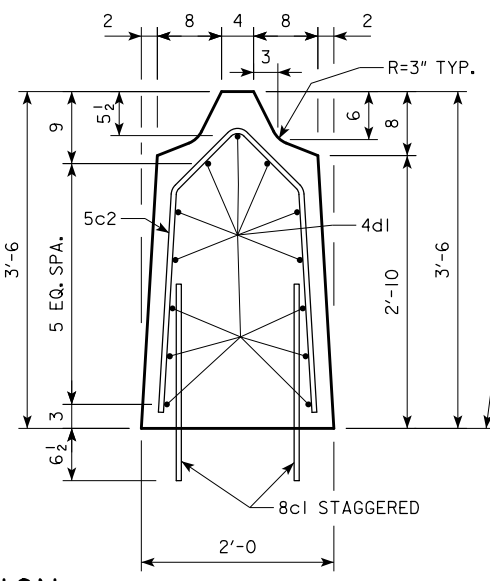
CONCRETE QTY. - TRANSITION	
TOTAL CU. YDS.	4.0

NOTES:
CONSTRUCTION JOINTS SHALL BE PLACED AS NEEDED. WHERE ABUTTING SECTIONS ARE PLACED AS SEPARATE POURS, A BUTT JOINT MAY BE USED. LONGITUDINAL REINFORCEMENT SHALL BE EXTENDED INTO THE ABUTTING SECTION A MINIMUM OF 1'-10 SPANNING THE BUTT JOINT. WHERE THERE IS A DRAIN SLOT ADJUST DOWEL AND VERTICAL REINFORCING TO MAINTAIN 2" CLEAR FROM EDGE OF CONCRETE.

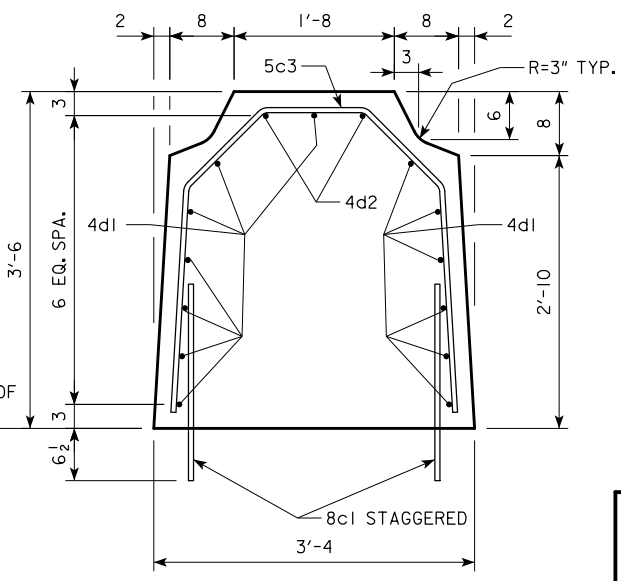


MEDIAN TRANSITION TAPER SECTION

DETAIL OF BARRIER RAIL DRAIN SLOT AT INTAKE LOCATION
MAY NOT BE NEEDED.

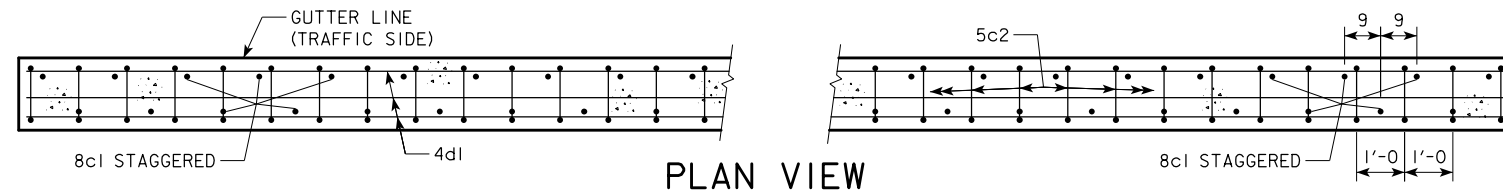


VIEW A-A



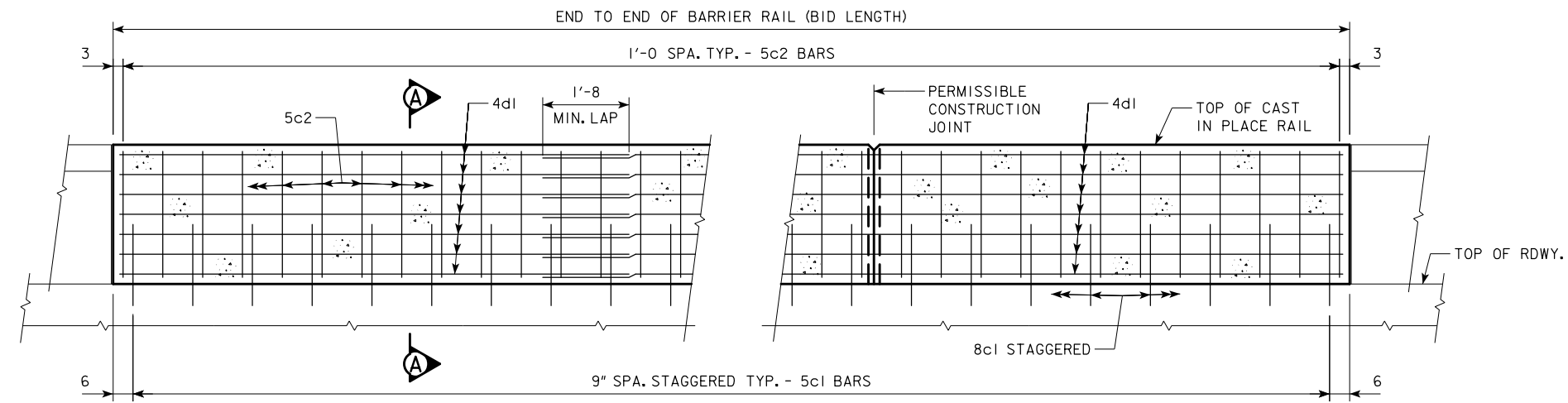
VIEW B-B

42" FULL SECT. TO HALF SECT.
(#4 - FULL TO HALF TRANSITION)
TRANSITION BLOCK

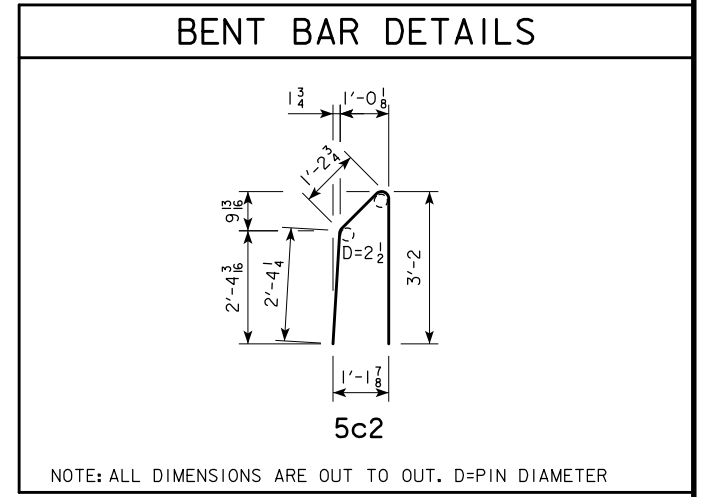


PLAN VIEW

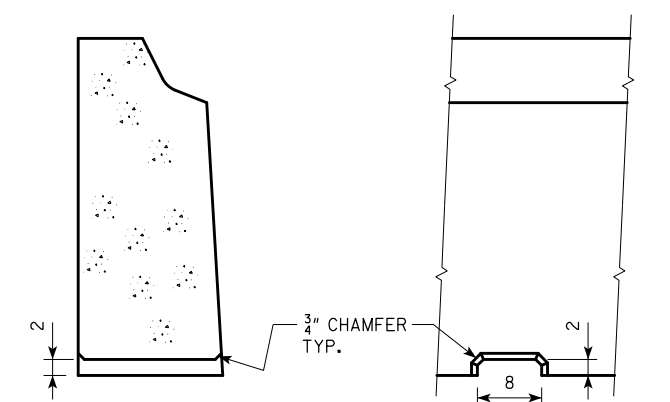
EPOXY REINF. BAR LIST - RAIL PER FT.					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
8c1	DOWEL BAR	—	1.33	2'-6	9
5c2	RAIL, VERTICAL	U	1	6'-9	7
4d1	RAIL, LONGITUDINAL	—	13	1'-0	9
TOTAL (LBS) PER LINEAL FOOT					25



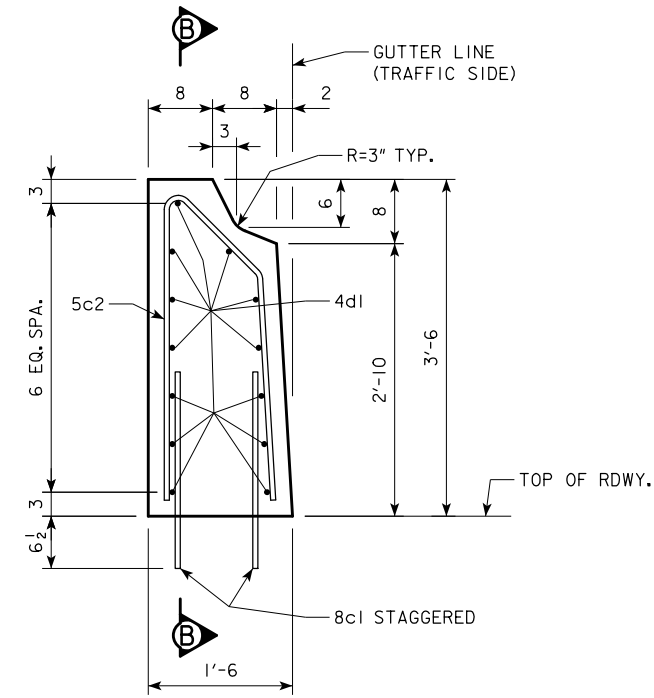
SECTION B-B 42" HALF SECTION BARRIER RAIL



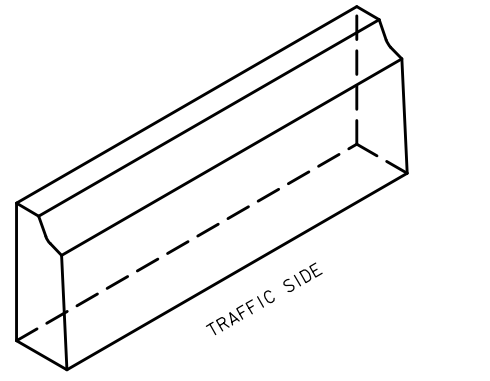
CONCRETE QTY. - RAIL PER FT.	
TOTAL CU. YDS. PER LINEAL FOOT	0.1703



DETAIL OF BARRIER RAIL DRAIN SLOT AT INTAKE LOCATION



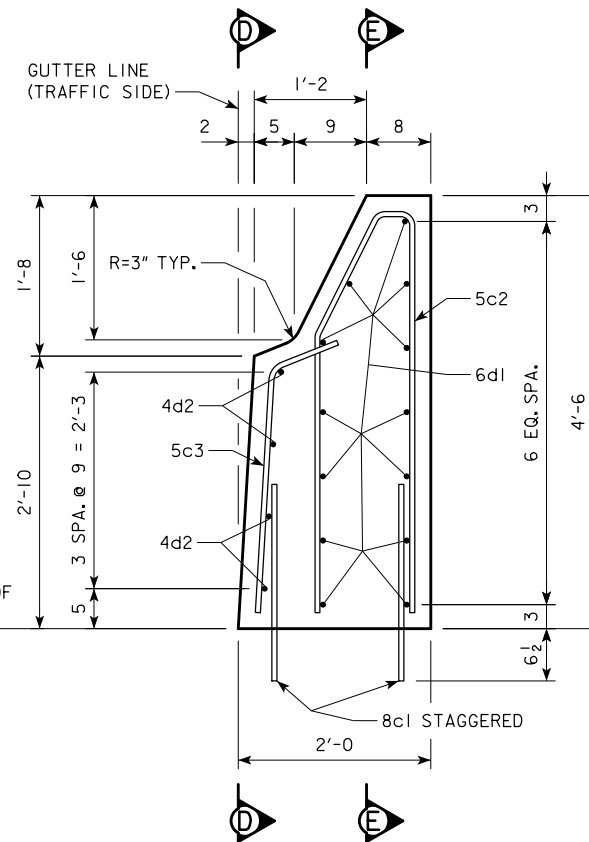
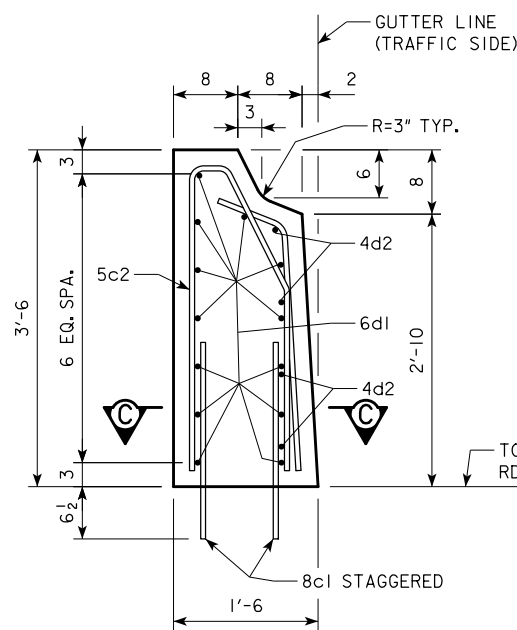
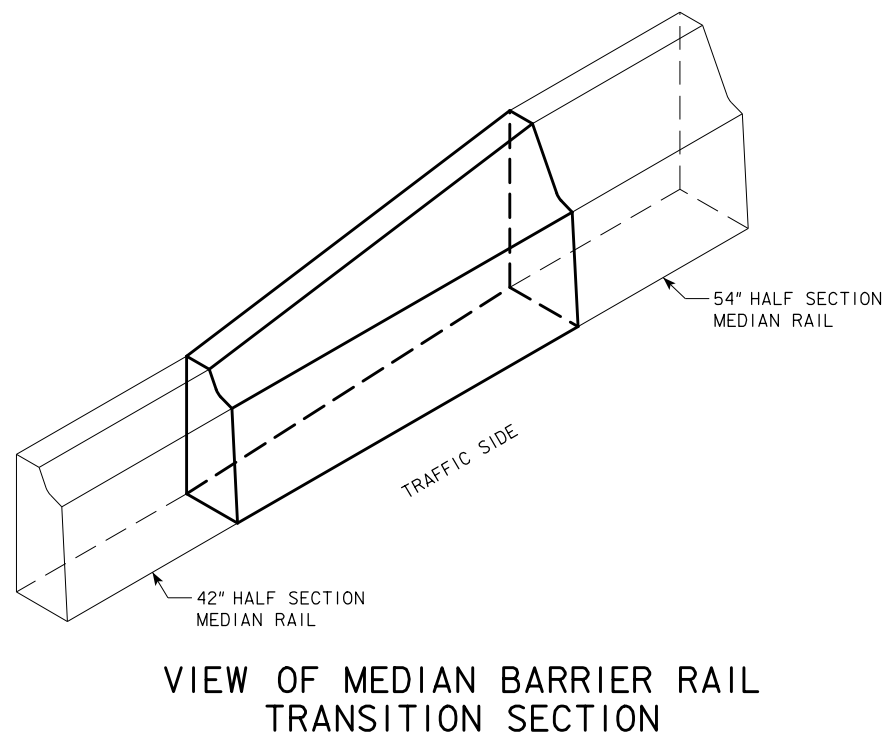
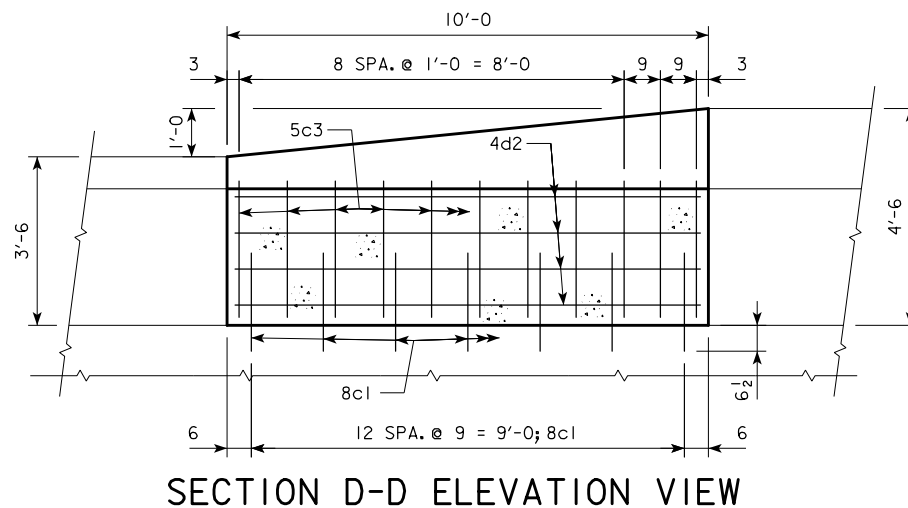
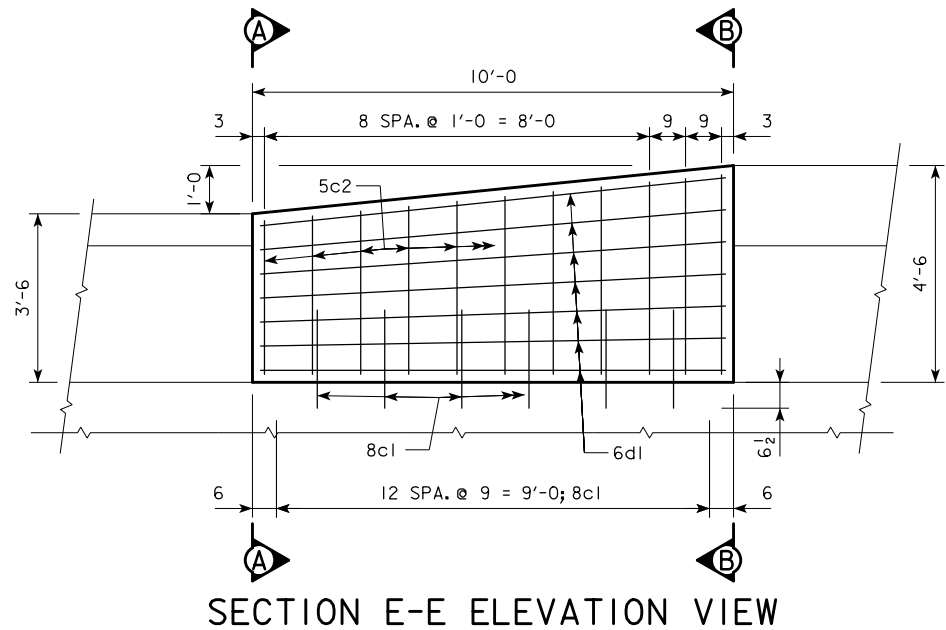
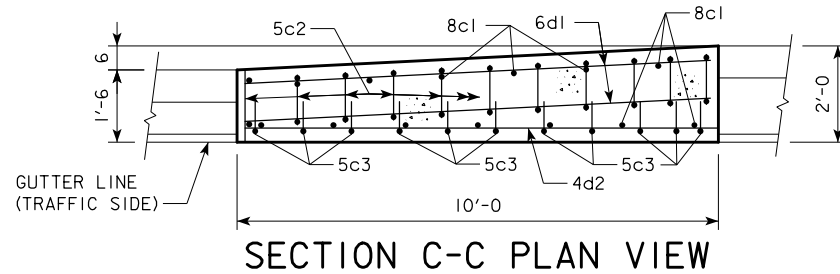
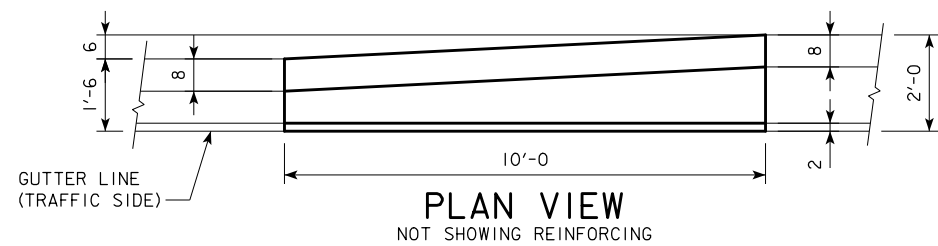
SECTION A-A HALF SECTION BARRIER RAIL REINFORCING



VIEW OF HALF SECTION BARRIER RAIL

NOTES:
 CONSTRUCTION JOINTS SHALL BE PLACED AS NEEDED. WHERE ABUTTING SECTIONS ARE PLACED AS SEPARATE POURS, A BUTT JOINT MAY BE USED. LONGITUDINAL REINFORCEMENT SHALL BE EXTENDED INTO THE ABUTTING SECTION A MINIMUM OF 1'-10" SPANNING THE BUTT JOINT.
 WHERE THERE IS A DRAIN SLOT ADJUST DOWEL AND VERTICAL REINFORCING TO MAINTAIN 2" CLEAR FROM EDGE OF CONCRETE.

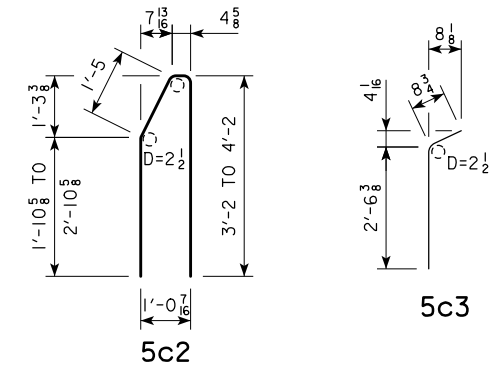
42" CONCRETE BARRIER RAIL
 (#5 - 42" HALF SECTION)
 MEDIAN BARRIER RAIL



EPOXY REINF. BAR LIST

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
8c1	DOWEL BAR	—	13	2'-6	87
5c2	RAIL, VERTICAL	U	11	VARIES	89
5c3	RAIL, VERTICAL	U	11	3'-3	37
					8.1
6d1	RAIL, LONGITUDINAL	—	13	9'-8	189
4d2	RAIL, LONGITUDINAL	—	4	9'-8	26
TOTAL (LBS)					428

BENT BAR DETAILS



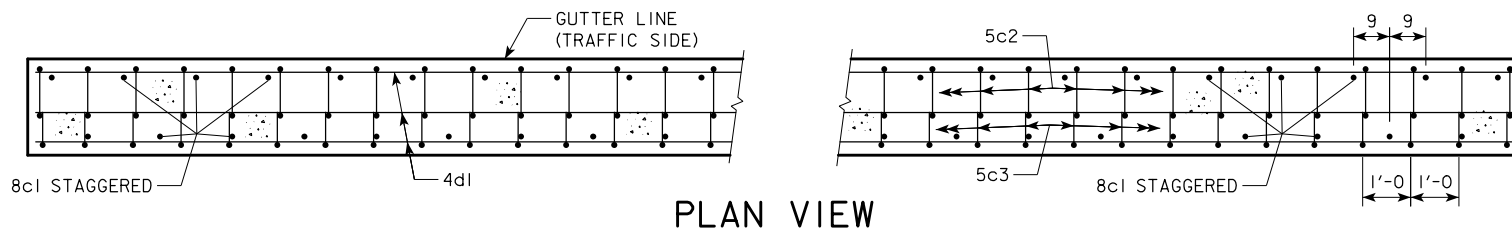
NOTE: ALL DIMENSIONS ARE OUT TO OUT. D=PIN DIAMETER

CONCRETE QTY.

	TOTAL CU. YDS.
	2.1815

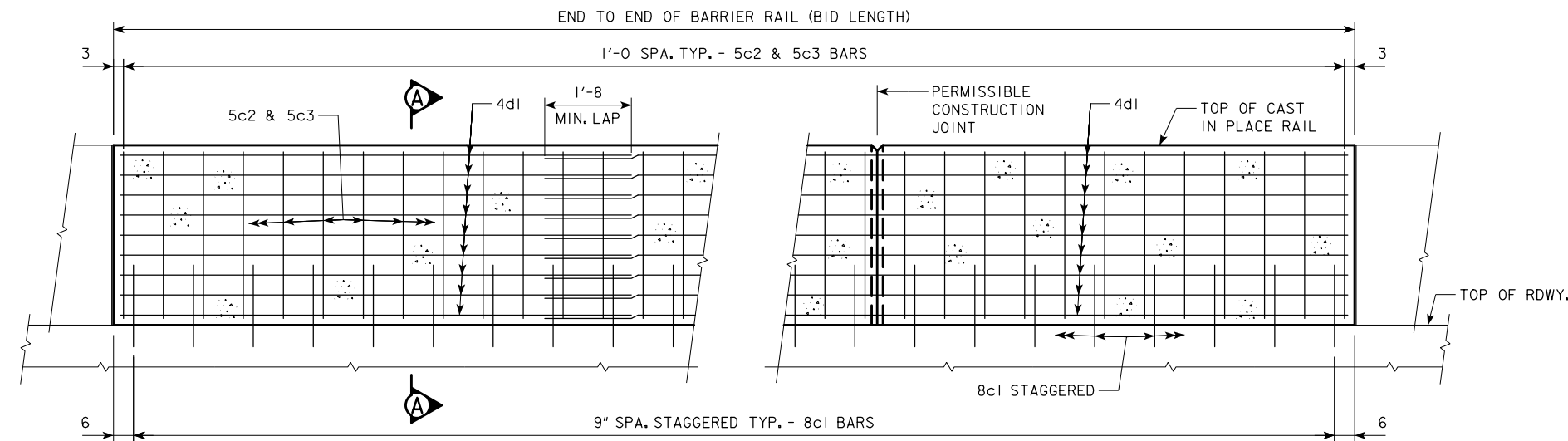
NOTES:
 CONSTRUCTION JOINTS SHALL BE PLACED AS NEEDED. WHERE ABUTTING SECTIONS ARE PLACED AS SEPARATE POURS, A BUTT JOINT MAY BE USED. LONGITUDINAL REINFORCEMENT SHALL BE EXTENDED INTO THE ABUTTING SECTION A MINIMUM OF 2'-6 SPANNING THE BUTT JOINT.

42" HALF SECT. TO 54" HALF SECT.
 (#6 - 42" HALF TO 54" HALF)
 TRANSITION BLOCK

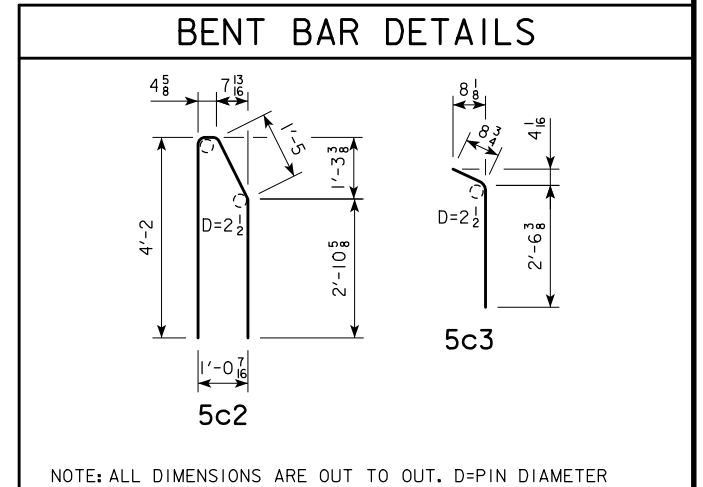


PLAN VIEW

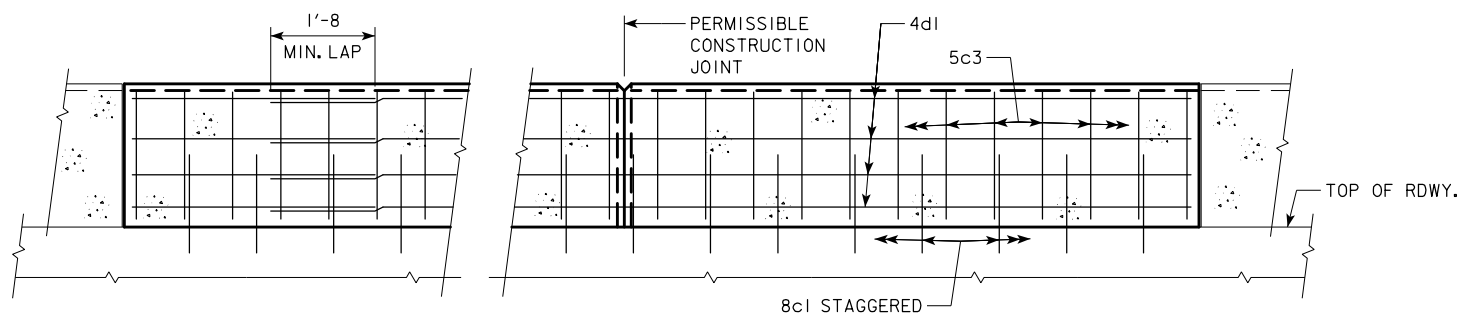
EPOXY REINF. BAR LIST - RAIL PER FT.					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
8c1	DOWEL BAR	—	1.33	2'-6	9
5c2	RAIL, VERTICAL	U	1	8'-10	9
5c3	RAIL, VERTICAL	U	1	3'-3	3
4d1	RAIL, LONGITUDINAL	—	21	1'-0	14
TOTAL (LBS) PER LINEAL FOOT					35



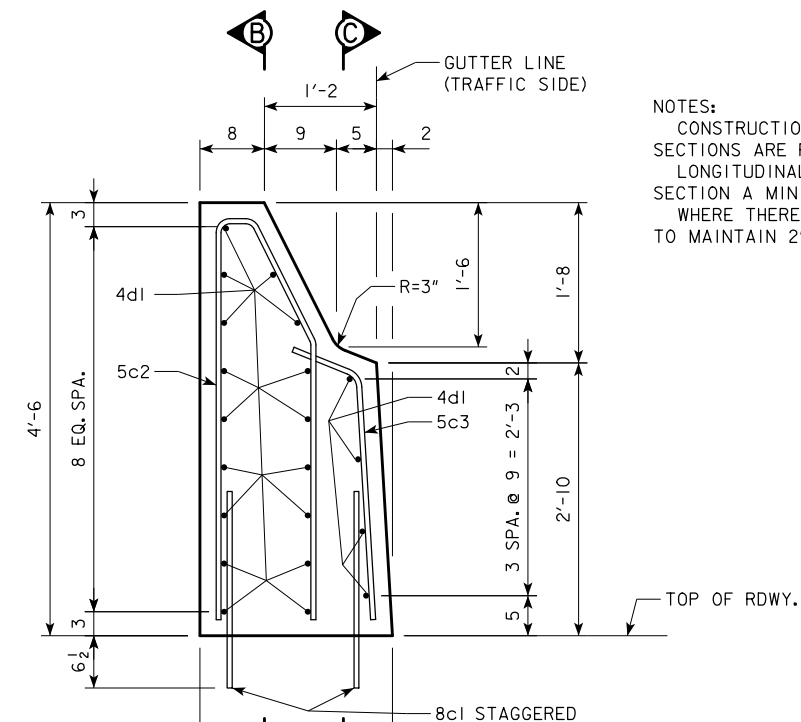
SECTION B-B 54" HALF SECTION BARRIER RAIL



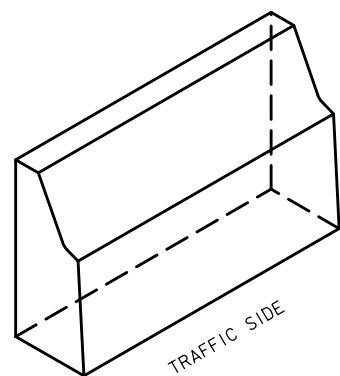
CONCRETE QTY. - RAIL PER FT.	
TOTAL CU. YDS. PER LINEAL FOOT	0.2691



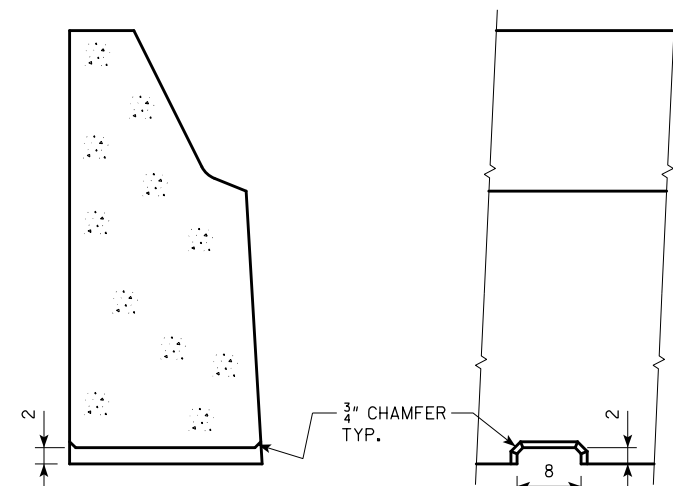
SECTION C-C



SECTION A-A HALF SECTION BARRIER RAIL REINFORCING



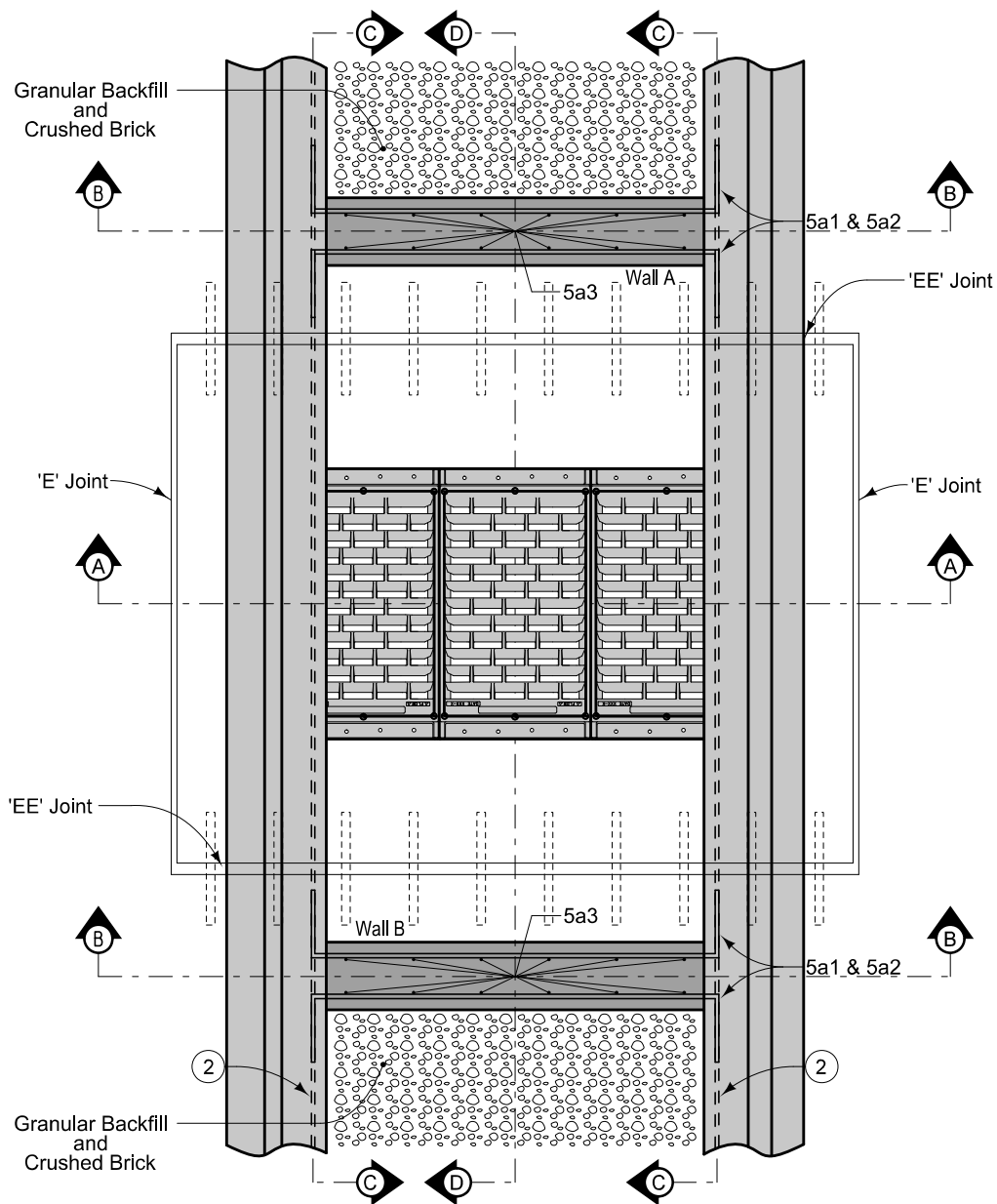
VIEW OF HALF SECTION BARRIER RAIL



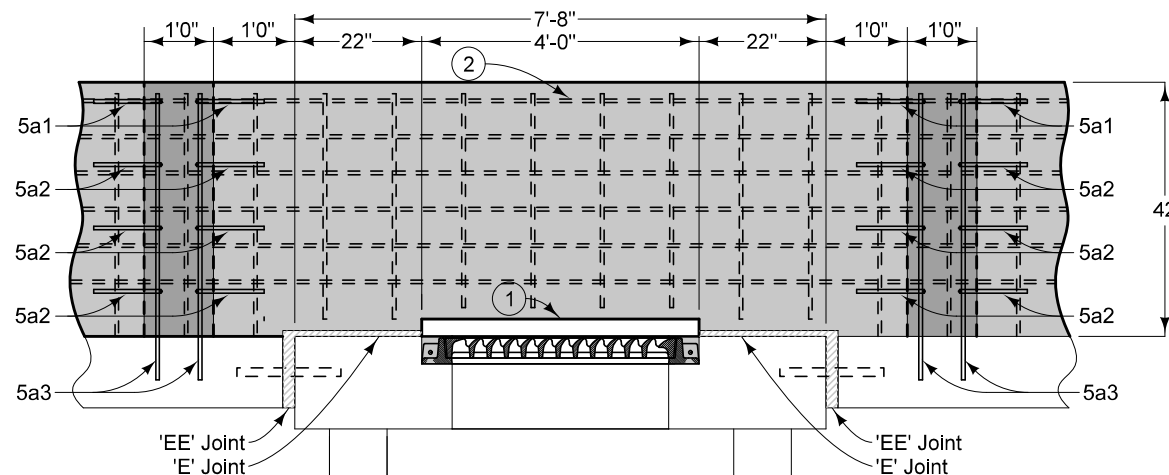
DETAIL OF BARRIER RAIL DRAIN SLOT AT INTAKE LOCATION

NOTES:
 CONSTRUCTION JOINTS SHALL BE PLACED AS NEEDED. WHERE ABUTTING SECTIONS ARE PLACED AS SEPARATE POURS, A BUTT JOINT MAY BE USED. LONGITUDINAL REINFORCEMENT SHALL BE EXTENDED INTO THE ABUTTING SECTION A MINIMUM OF 1'-10 SPANNING THE BUTT JOINT.
 WHERE THERE IS A DRAIN SLOT ADJUST DOWEL AND VERTICAL REINFORCING TO MAINTAIN 2" CLEAR FROM EDGE OF CONCRETE.

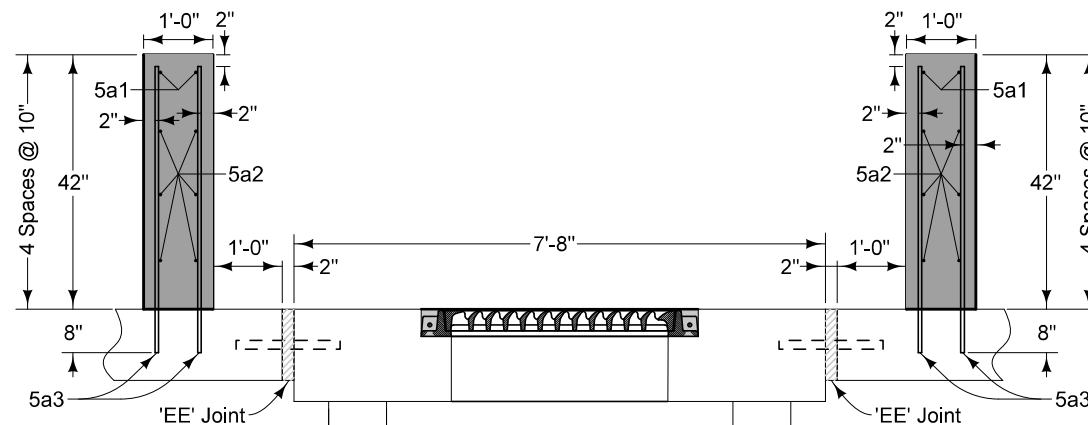
54" CONCRETE BARRIER RAIL (#7 - 54" HALF SECTION)
 MEDIAN BARRIER RAIL



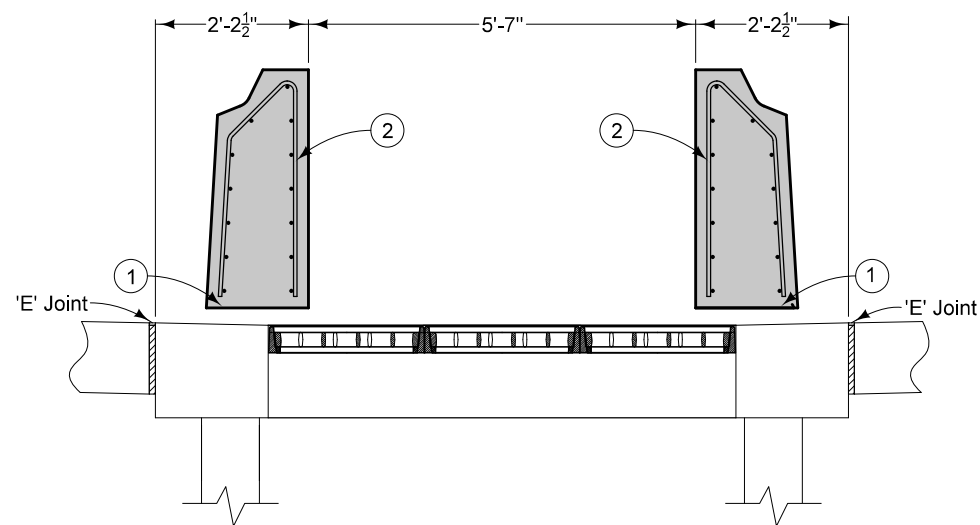
PLAN



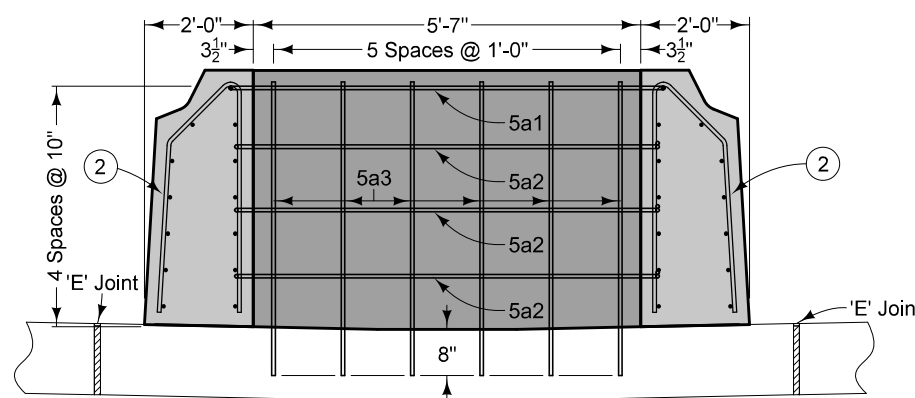
SECTION C-C



SECTION D-D

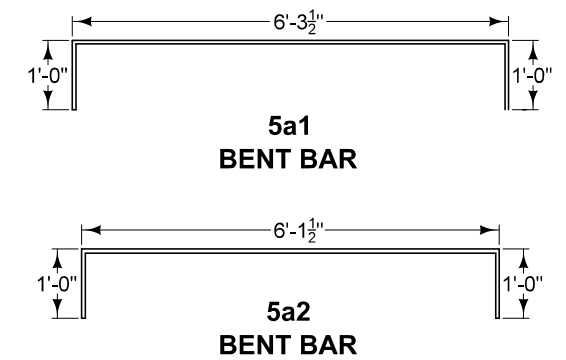


SECTION A-A



SECTION B-B

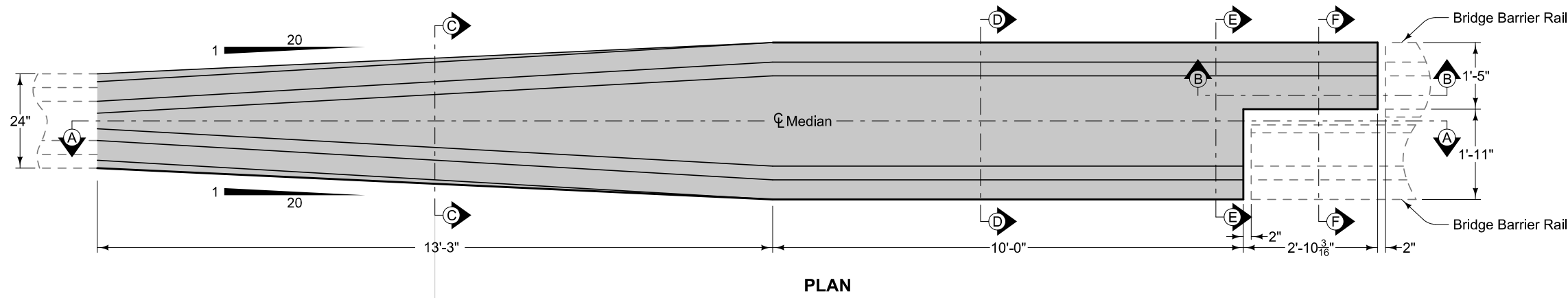
REINFORCING BAR LIST							
Bar	Wall A			Wall B			
	Number of Bars	Length	Weight (lbs.)	Number of Bars	Length	Weight (lbs.)	
5a1	2	8'-3 1/2"	17.3	2	8'-3 1/2"	17.3	
5a2	6	8'-1 1/2"	50.8	6	8'-1 1/2"	50.8	
5a3	12	4'-2 3/4"	52.9	12	4'-2 3/4"	52.9	
TOTAL:			121.0	TOTAL:			121.0



- ① Leave 3-inch opening through barrier over the intake.
- ② Refer to Detail Sheet U.27 for barrier rail reinforcing details.

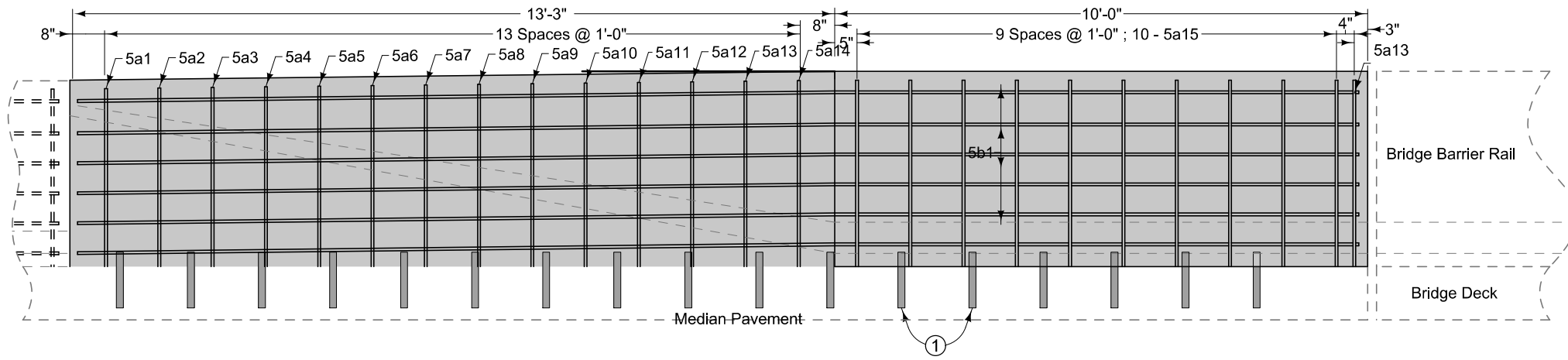
CONCRETE QUANTITY
(Per Wall)
0.76 cy

**HALF SHAPE BARRIER RAIL AT TRIPLE-GRATE BARRIER INTAKE
DETAIL #8**

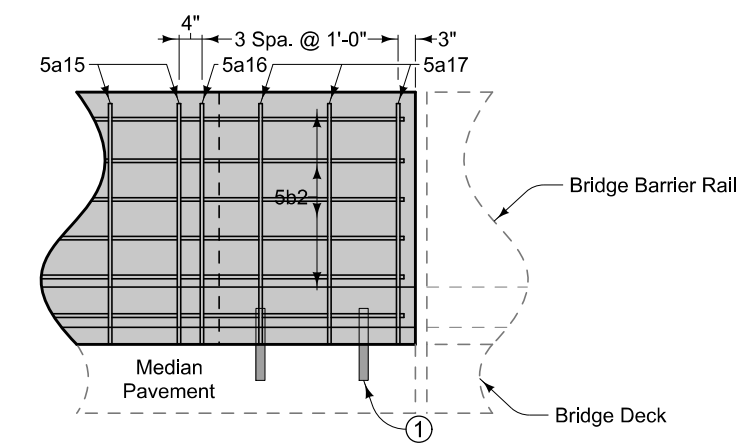


Use epoxy-coated grade 60 reinforcing bars. Provide 2 inches minimum cover. Anchor barrier reinforcement to prevent movement. Secure each section at the front, back, and at 3'-6" minimum intervals using a method approved by the Engineer.

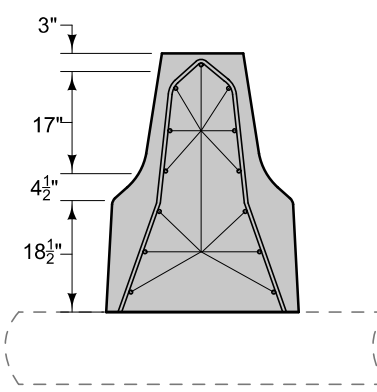
- ① Use 1 inch diameter deformed dowel bars of sufficient length to ensure 6 inch minimum embedment in barrier and supporting surface. Install bars either in supporting surface when placed or in drilled holes using polymer grout complying with Materials I.M. 491.11 or hydraulic cement grout complying with Materials I.M. 491.13.
- ② Provide 18 inch overlap of reinforcing steel between sections.



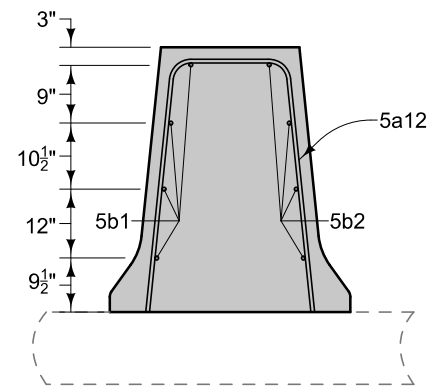
SECTION A-A



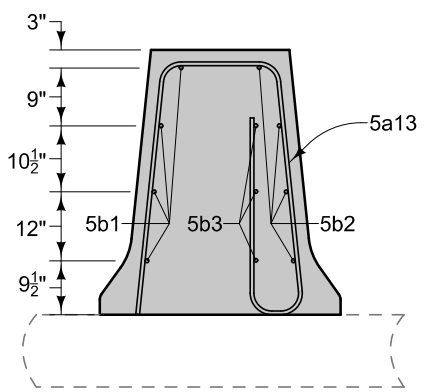
SECTION B-B



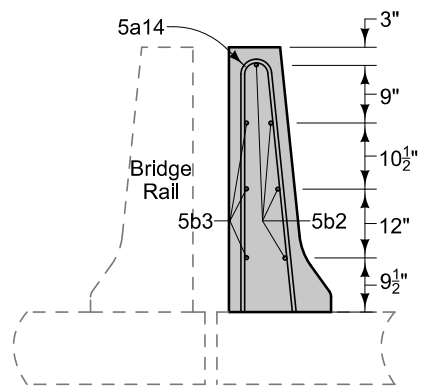
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F

Possible Contract Item:
Concrete Barrier, Transition Section, As Per Plan

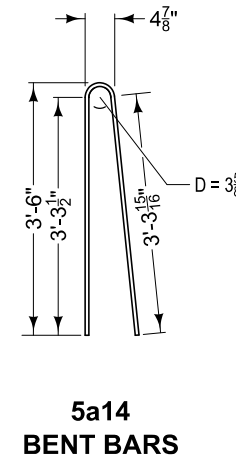
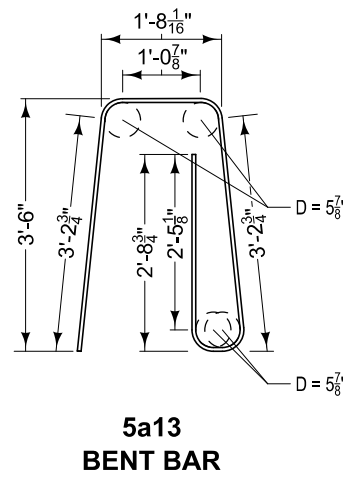
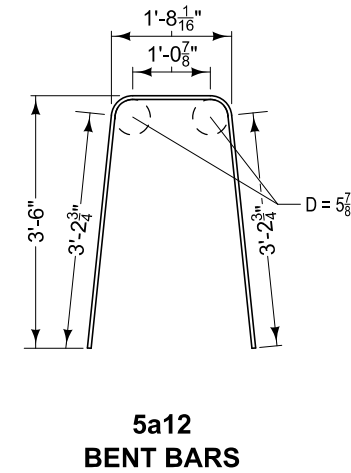
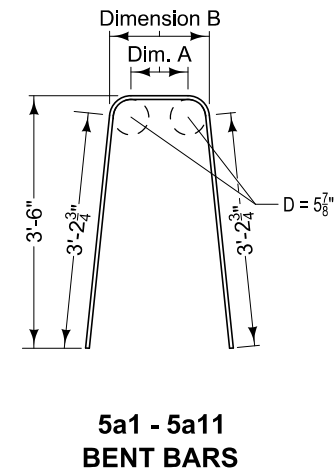
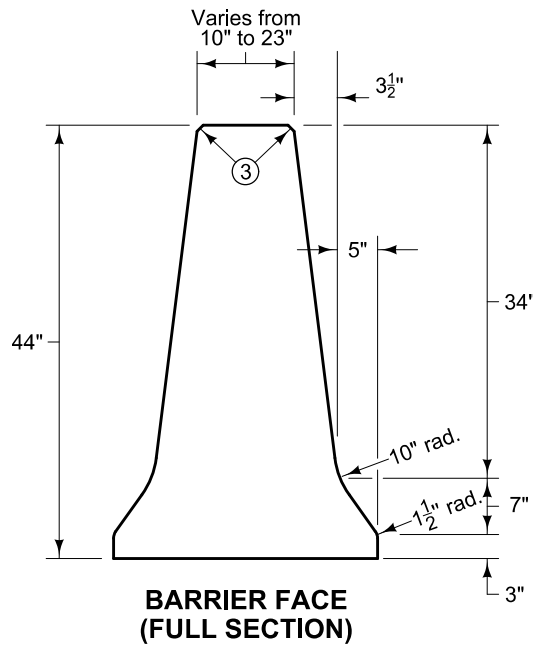
Possible Tabulation:
108-18

CONCRETE QUANTITY
6.36 cy

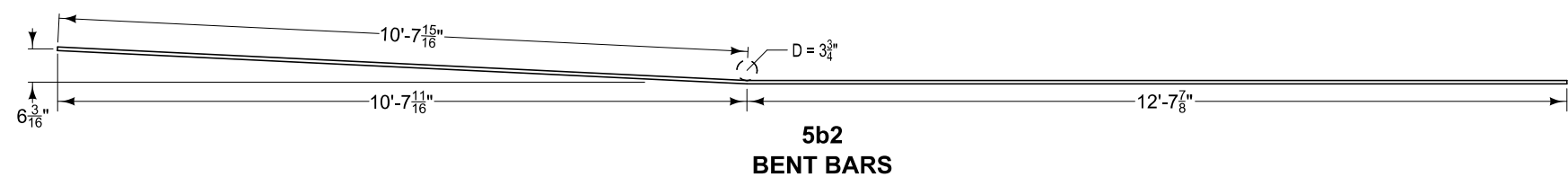
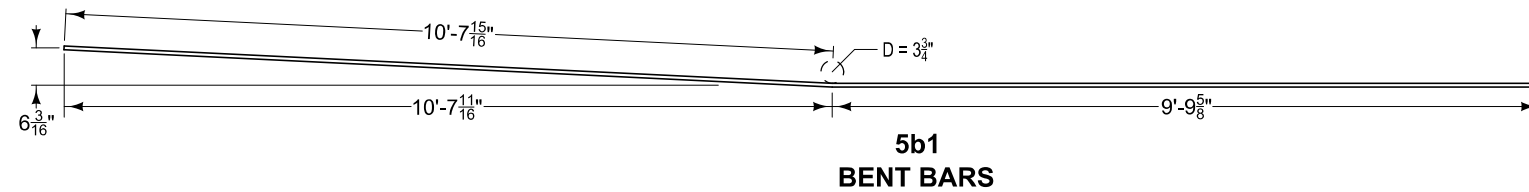
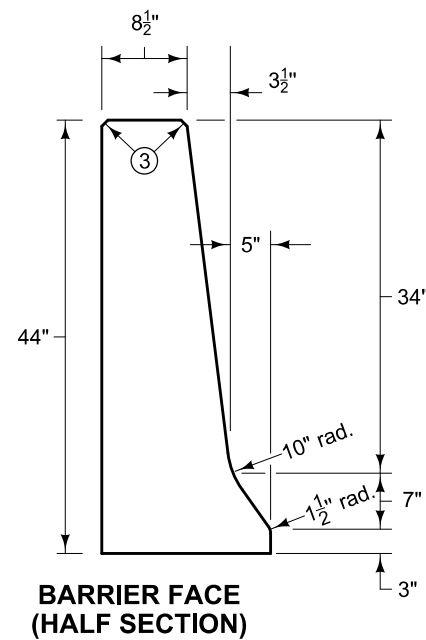
**44" CONCRETE MEDIAN BARRIER
TRANSITION AT BRIDGE
(Sheet 1 of 2)
DETAIL #9**

REINFORCING BAR LIST

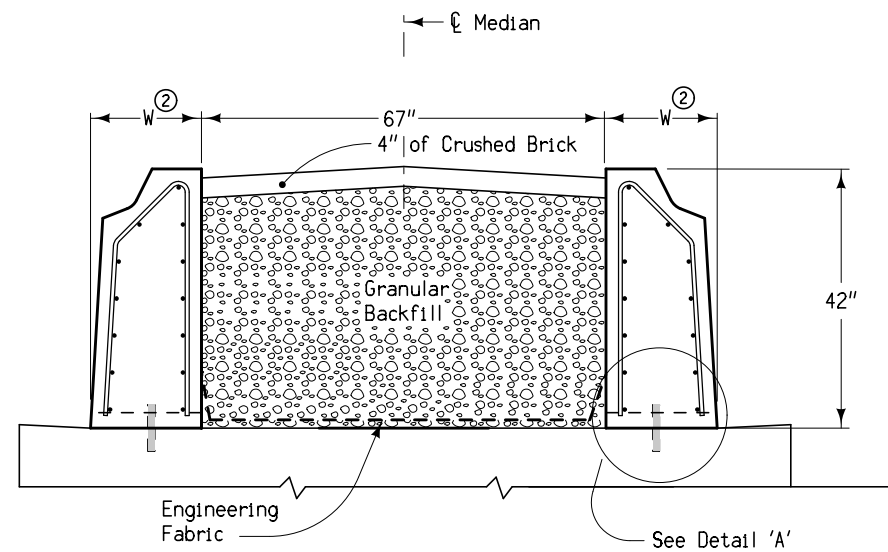
Bar	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Number of Bars	Length	Weight (lbs.)
5a1	29 ⁷ / ₁₆ "	6 ¹ / ₂ "	1 ³ / ₄ "	6 ¹ / ₂ "	-	-	1	X	X
5a2	27 ³ / ₄ "	5 ¹⁵ / ₁₆ "	1 ⁵ / ₈ "	6 ¹ / ₂ "	-	-	1	X	X
5a3	27 ¹ / ₂ "	3 ³ / ₈ "	7 ⁷ / ₁₆ "	1 ¹ / ₂ "	3 ¹³ / ₁₆ "	2 ¹ / ₈ "	1	X	X
5a4	24 ¹ / ₂ "	2 ¹⁵ / ₁₆ "	8 ⁷ / ₁₆ "	1 ¹ / ₂ "	3 ¹ / ₂ "	2 ³ / ₈ "	1	X	X
5a5	22 ¹¹ / ₁₆ "	2"	11 ¹ / ₈ "	1 ¹⁵ / ₁₆ "	2 ¹ / ₁₆ "	2 ³ / ₈ "	1	X	X
5a6	20 ¹ / ₈ "	2 ⁷ / ₈ "	11 ¹ / ₁₆ "	1 ³ / ₁₆ "	3 ¹ / ₂ "	2 ³ / ₁₆ "	1	X	X
5a7	16 ¹ / ₈ "	2 ¹³ / ₁₆ "	17 ³ / ₁₆ "	1 ⁵ / ₁₆ "	3 ⁷ / ₁₆ "	2 ⁷ / ₈ "	1	X	X
5a8	16 ³ / ₈ "	2 ¹³ / ₁₆ "	17 ³ / ₁₆ "	1 ⁵ / ₁₆ "	3 ⁷ / ₁₆ "	2 ⁷ / ₈ "	1	X	X
5a9	14 ³ / ₁₆ "	2 ¹ / ₂ "	19 ¹³ / ₁₆ "	1 ³ / ₁₆ "	3 ¹ / ₁₆ "	3 ³ / ₈ "	1	X	X
5a10	12 ¹ / ₁₆ "	3 ⁵ / ₁₆ "	21 ³ / ₁₆ "	1 ¹¹ / ₁₆ "	3 ¹ / ₂ "	3 ⁹ / ₁₆ "	1	X	X
5a11	10 ¹¹ / ₁₆ "	4 ¹ / ₈ "	21 ⁷ / ₈ "	5 ⁸ / ₁₆ "	4 ⁵ / ₁₆ "	2 ³ / ₄ "	1	X	X
5a12	7 ¹ / ₈ "	4 ³ / ₈ "	25 ³ / ₄ "	7 ¹ / ₁₆ "	3 ¹ / ₁₆ "	3 ⁷ / ₁₆ "	1	X	X
5a13	5 ⁵ / ₈ "	5 ¹ / ₂ "	26 ⁵ / ₈ "	5 ⁵ / ₁₆ "	4 ³ / ₁₆ "	3"	1	X	X
5a14	38 ¹ / ₂ "	4"	12 ⁷ / ₈ "	-	-	-	1	X	X
5b1									
5b2									
5b3									
								TOTAL:	XXX



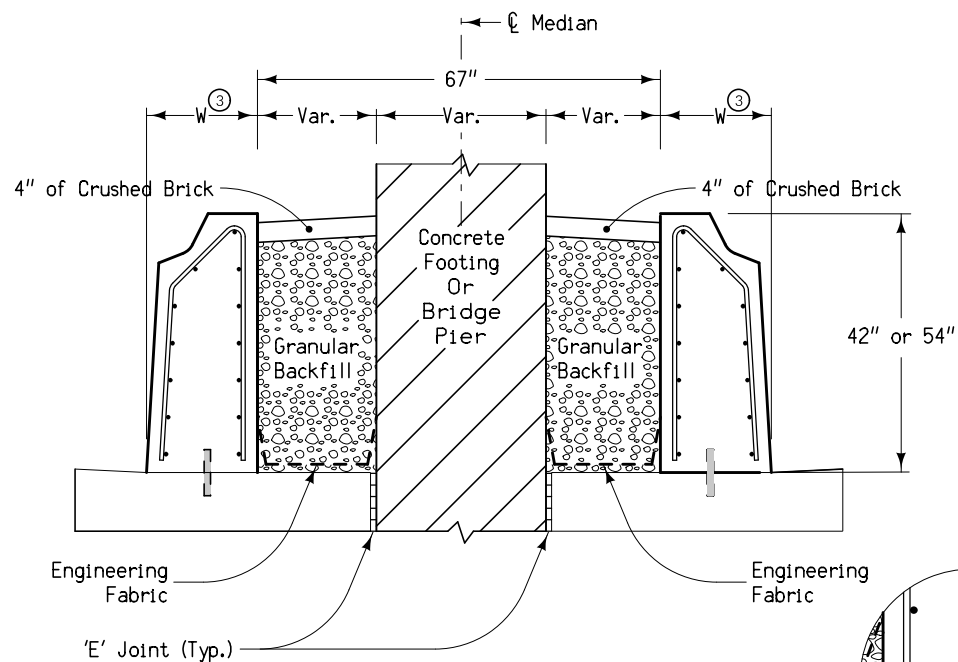
③ Fillet all exposed corners with a 3/4 inch dressed and beveled strip.



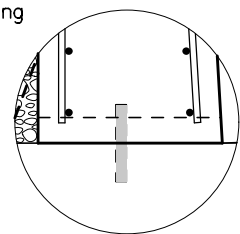
**44" CONCRETE MEDIAN BARRIER
TRANSITION AT BRIDGE
(Sheet 2 of 2)
DETAIL #9**



SECTION A-A



SECTION B-B

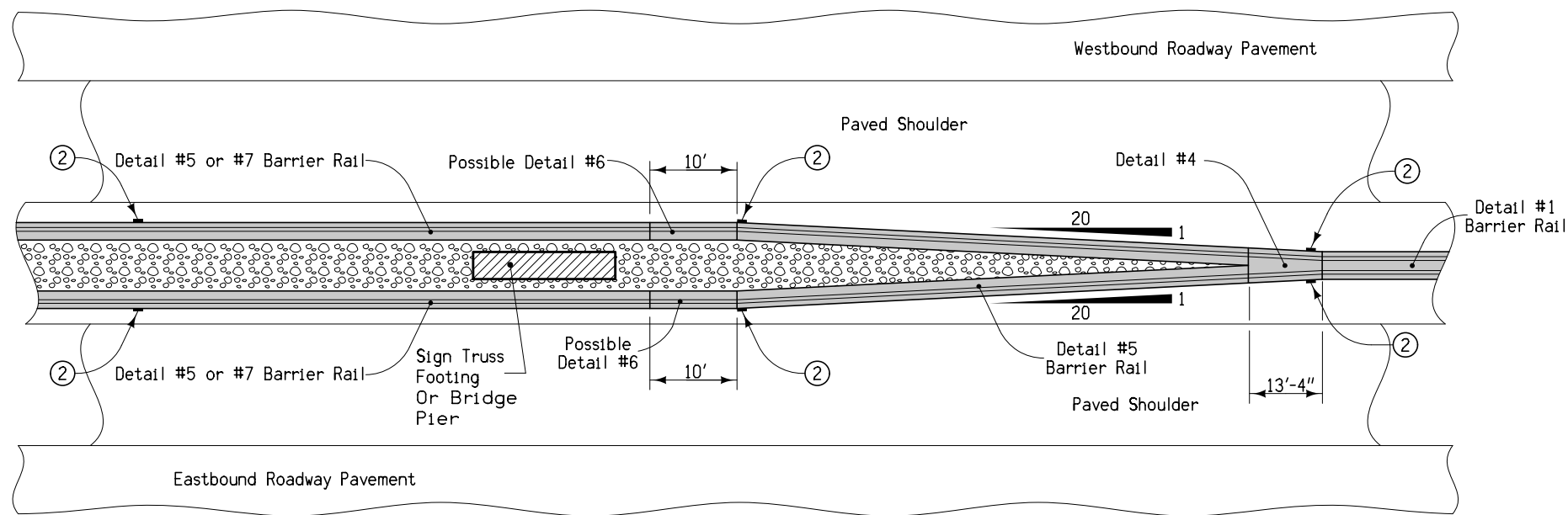


DETAIL 'A'
3" Weep Hole

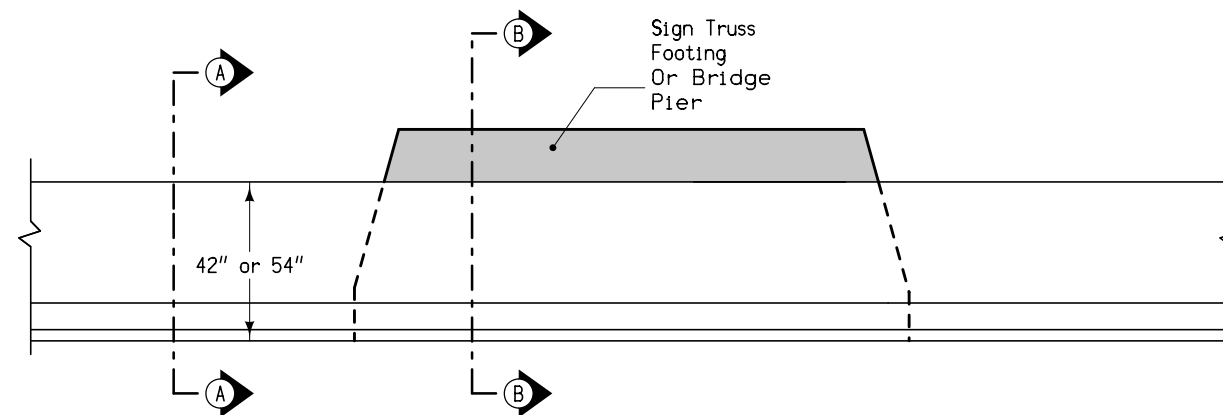
① Construct weep holes from 3 inch diameter PVC pipe. Maximum spacing between weep holes is 20 feet. However, keep holes at least 5 feet from any transverse joints. Cover interior of weep holes with copper screening or galvanized hardware cloth. Attach engineering fabric at least 3 inches above top of weep holes in a manner approved by the engineer. The cost of supplying and installing weep holes, engineering fabric, and screening will be considered incidental to concrete barrier items.

② Place barrier markers at 100 foot increments in areas with non-continuous lighting, or 250 foot increments in areas with continuous lighting. Marker color to be the same as adjacent edge line.

③ For Detail #5 W=1'-6". For Detail #7 W=2'-0"



PLAN



ELEVATION

BACKFILL BETWEEN
HALF SHAPE
BARRIER RAILS
DETAIL #10

LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)

- - - - - - Existing Ground Line
- Proposed Template
- Proposed Topsoil Placement
- - - - - Additional Topsoil Removal
- Subgrade Treatment
- - - - - Granular Shoulder
- Pavement
- - - - - Existing Pipe\RCB
- Proposed Pipe\RCB
- Proposed Dike
- All Elements Associated with Proposed Entrances

LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)

- TS——— Topsoil (Class 10)
- TS A——— Topsoil (Type A Disposal)
- TS B——— Topsoil (Type B Disposal)
- TS C——— Topsoil (Type C Disposal)
- CL 10——— Class 10 Materials
- SEL LO——— Select Loams And Clay-Loams
- SEL SA——— Select Sand
- UNS A——— Unsuitable Type A Disposal
- UNS B——— Unsuitable Type B Disposal
- UNS C——— Unsuitable Type C Disposal
- SHALE——— Shale
- WASTE——— Waste
- B&W LS——— Broken and Weathered Rock
- ROCK——— Solid Rock
- BLDRS——— Boulders

Note: All layer lines and descriptions identify layers above the line.

Note: Vertical or near vertical lines connecting soil layers at edges of cross sections are only for the purpose of calculating template quantities and do not depict soil stratification.

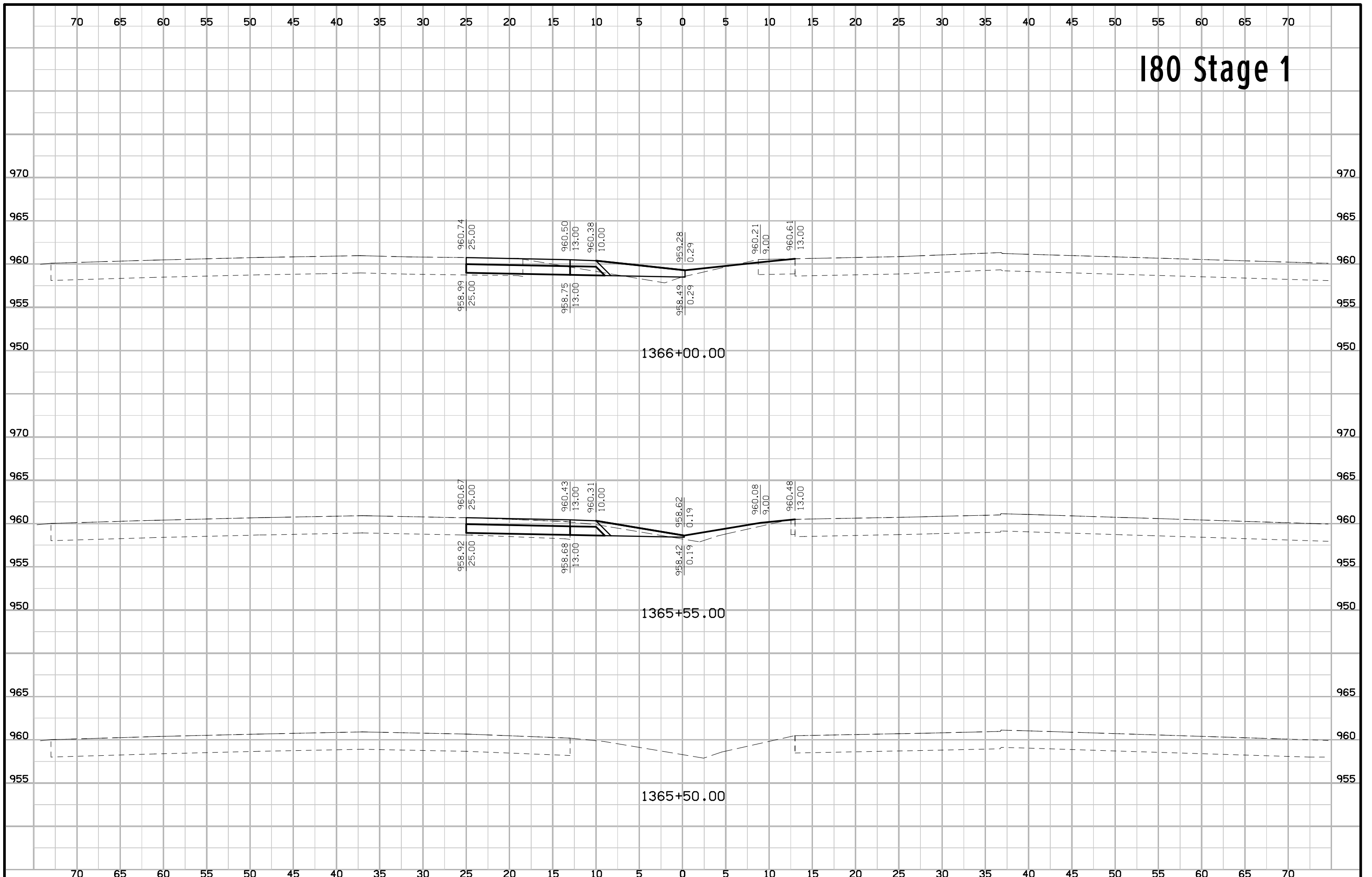
SYMBOL LEGEND OF CROSS SECTION SHEETS

- Existing ROW
|
Existing Right-of-Way Limit
- Proposed ROW
|
Proposed Right-of-Way Limit
- Temporary ROW
|
Temporary Right-of-Way Limit

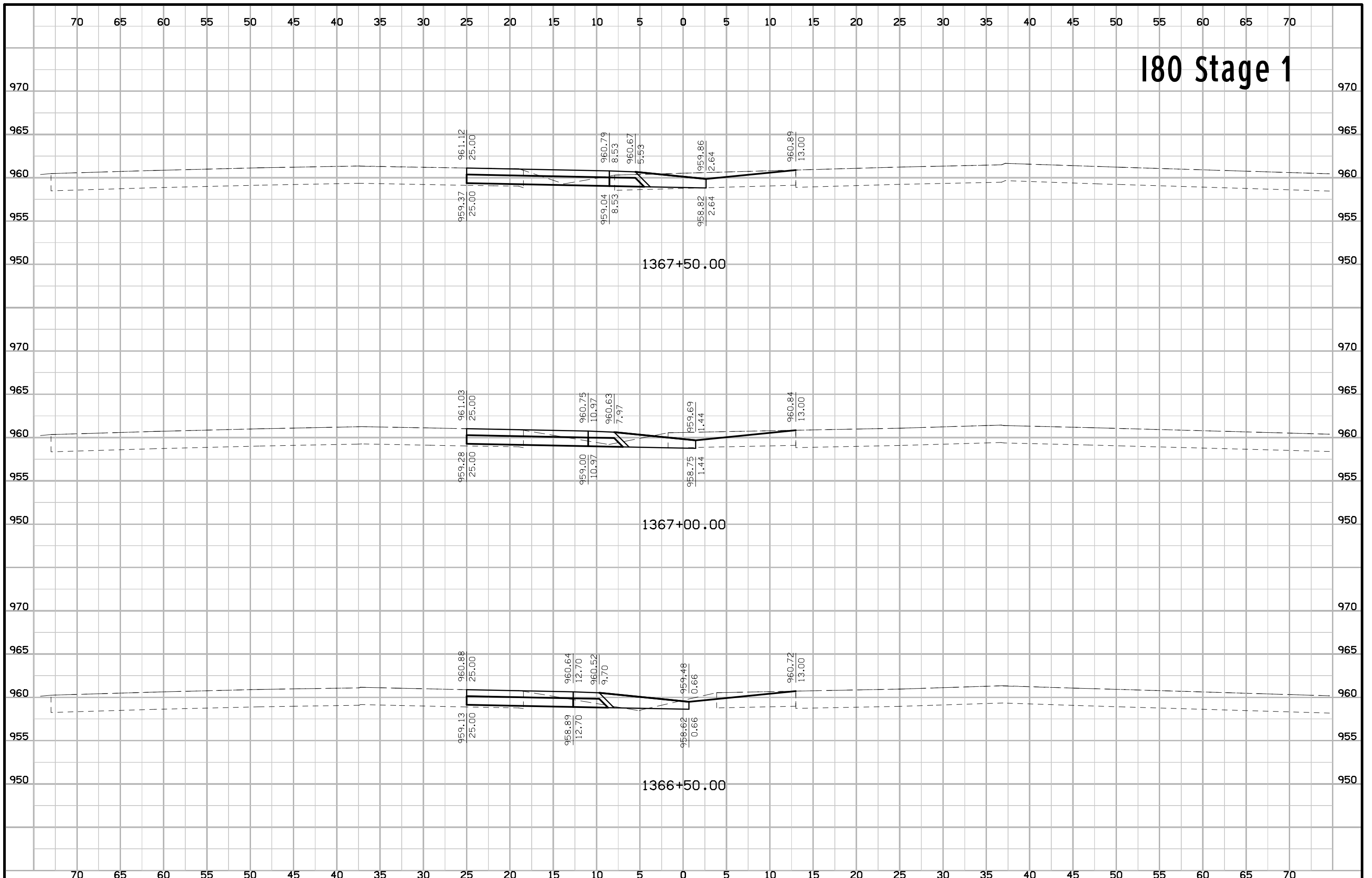
**CROSS SECTION
LEGEND AND SYMBOL
INFORMATION SHEET**

(COVERS SHEET SERIES W, X, Y, & Z)

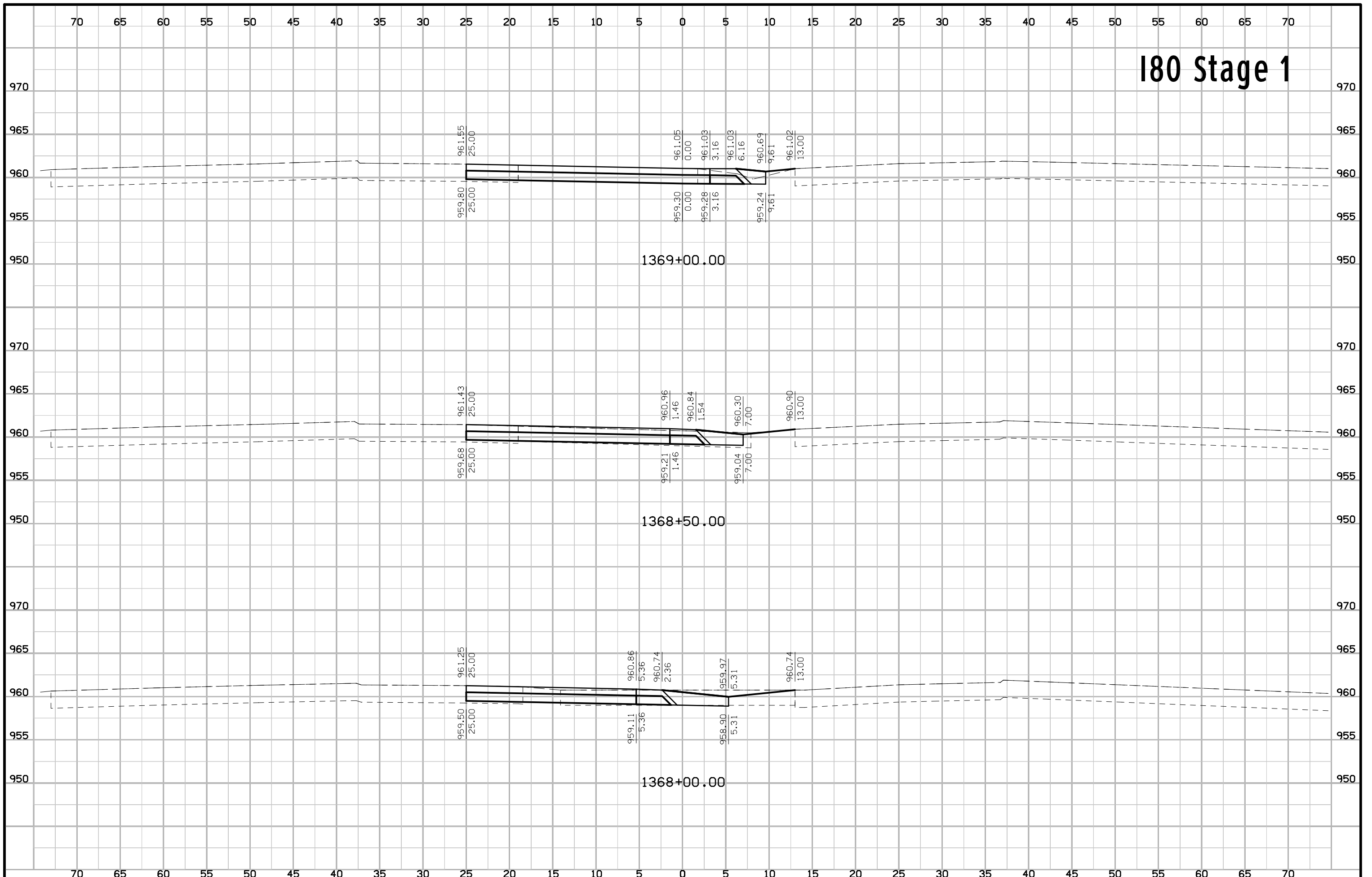
180 Stage 1



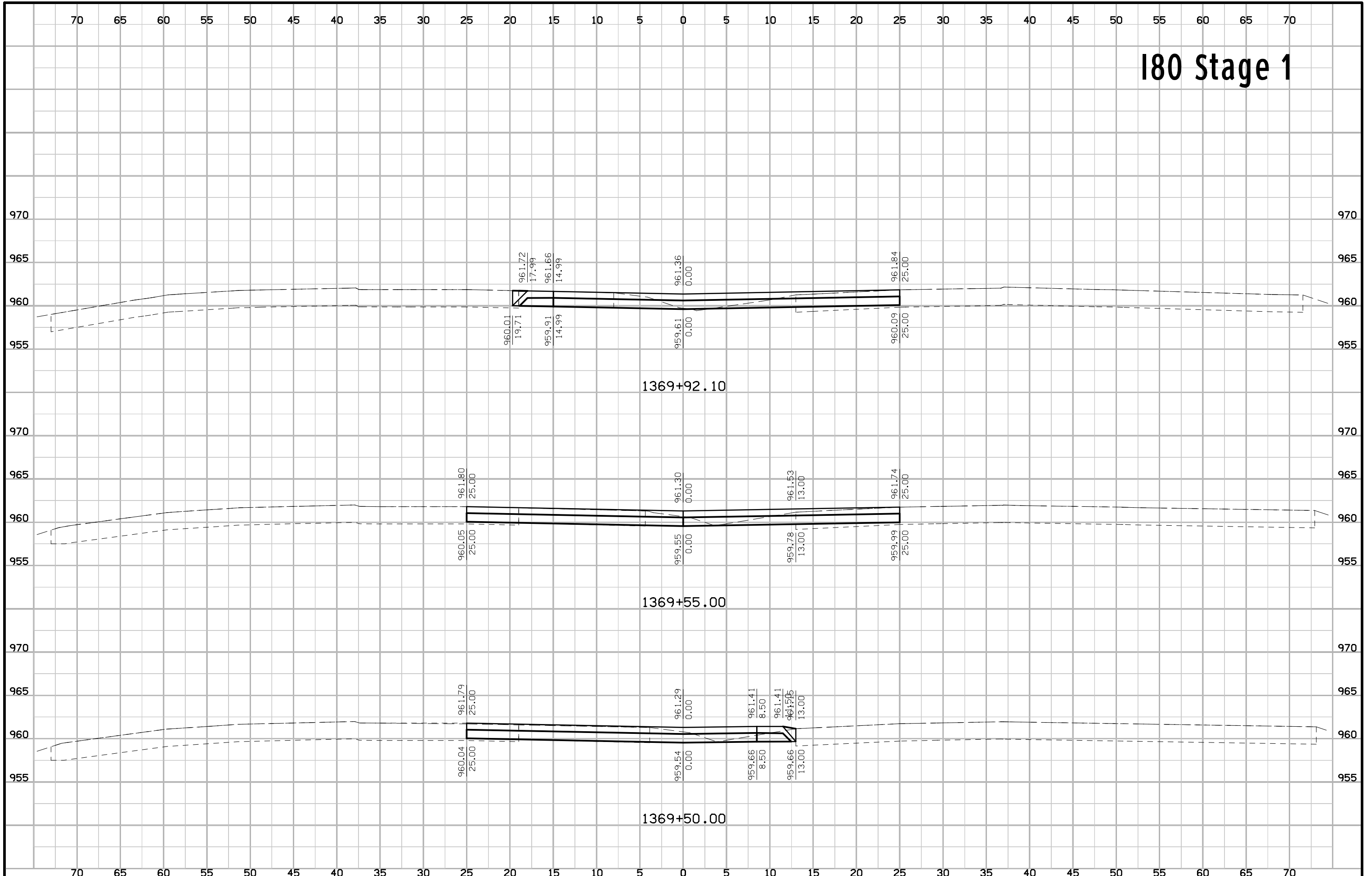
180 Stage 1



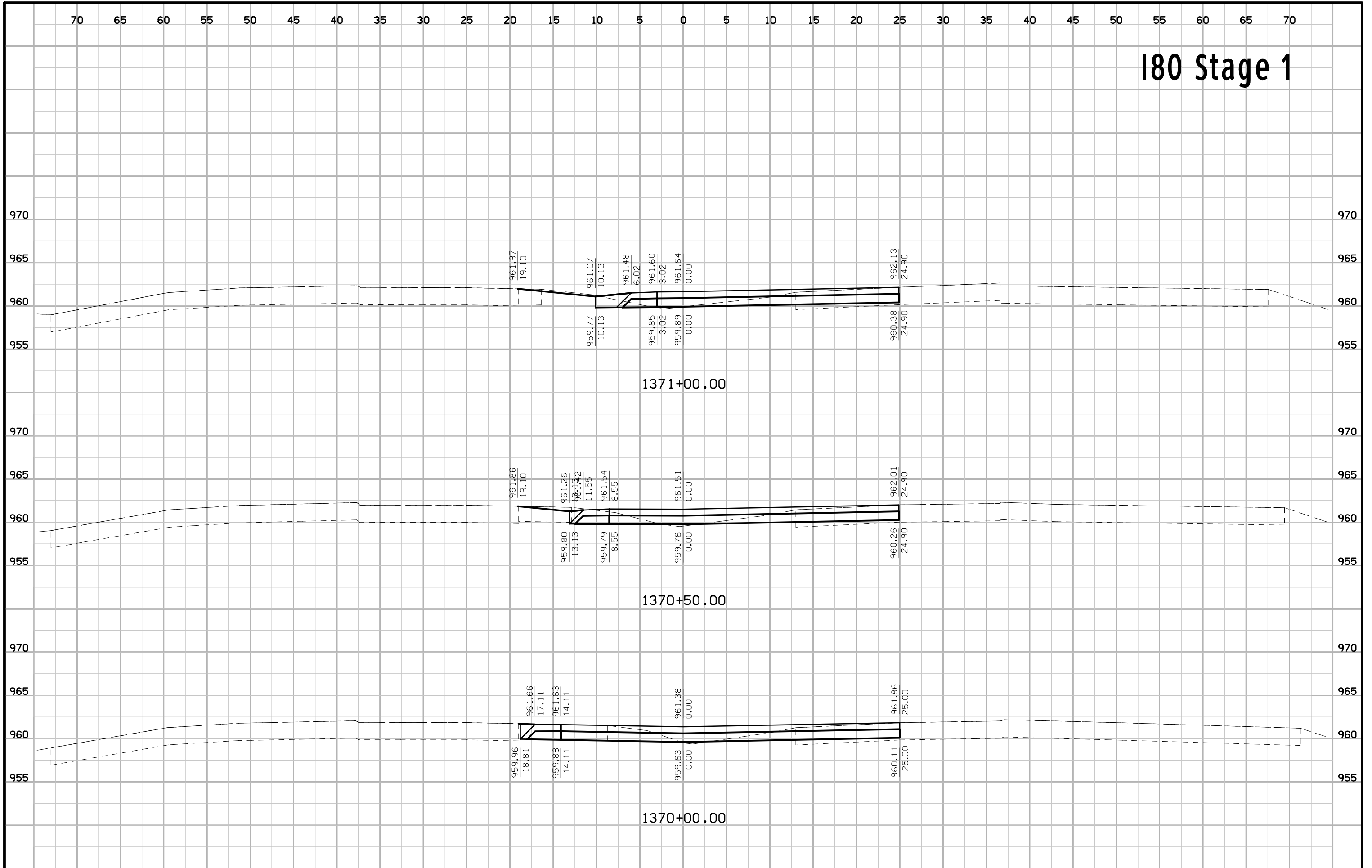
180 Stage 1



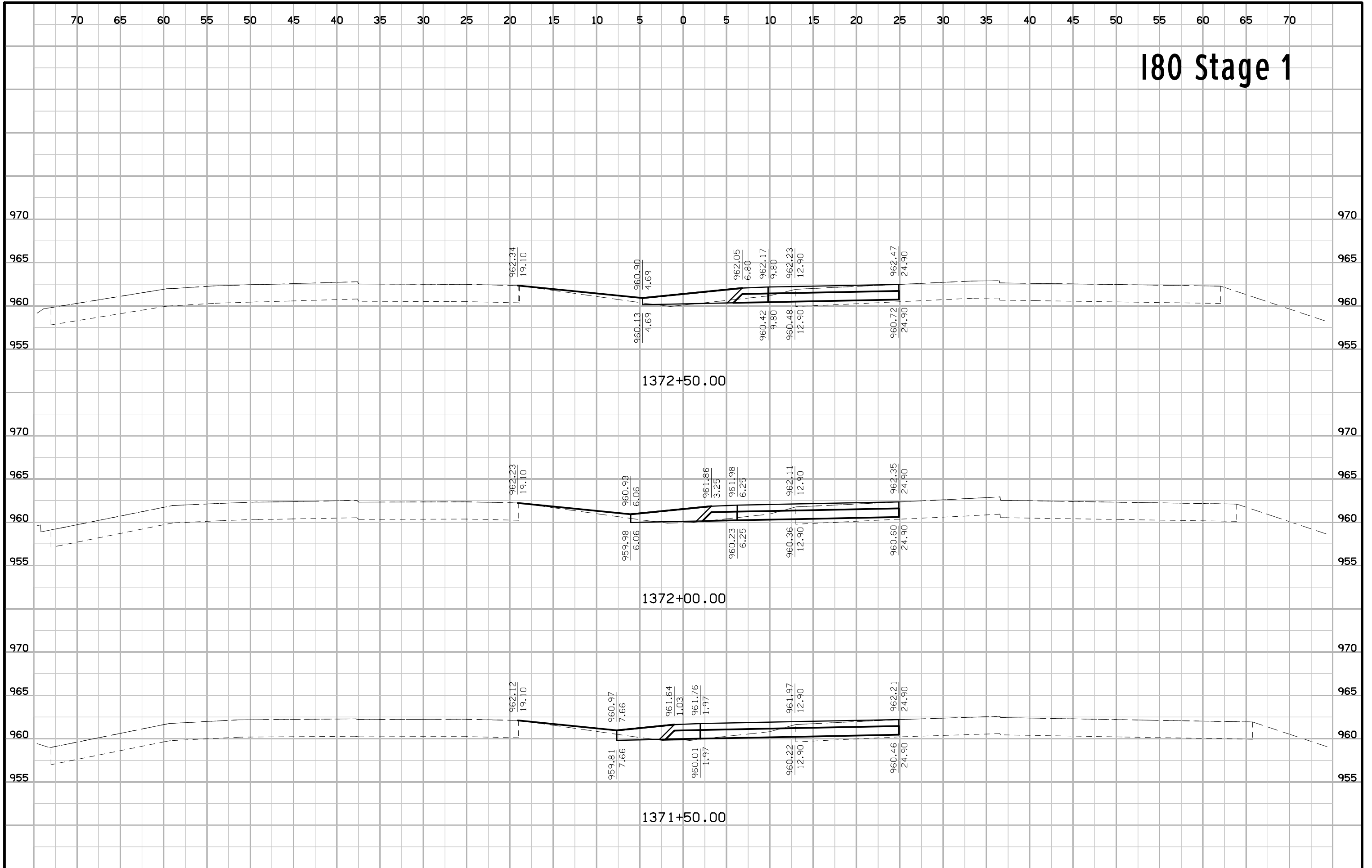
180 Stage 1



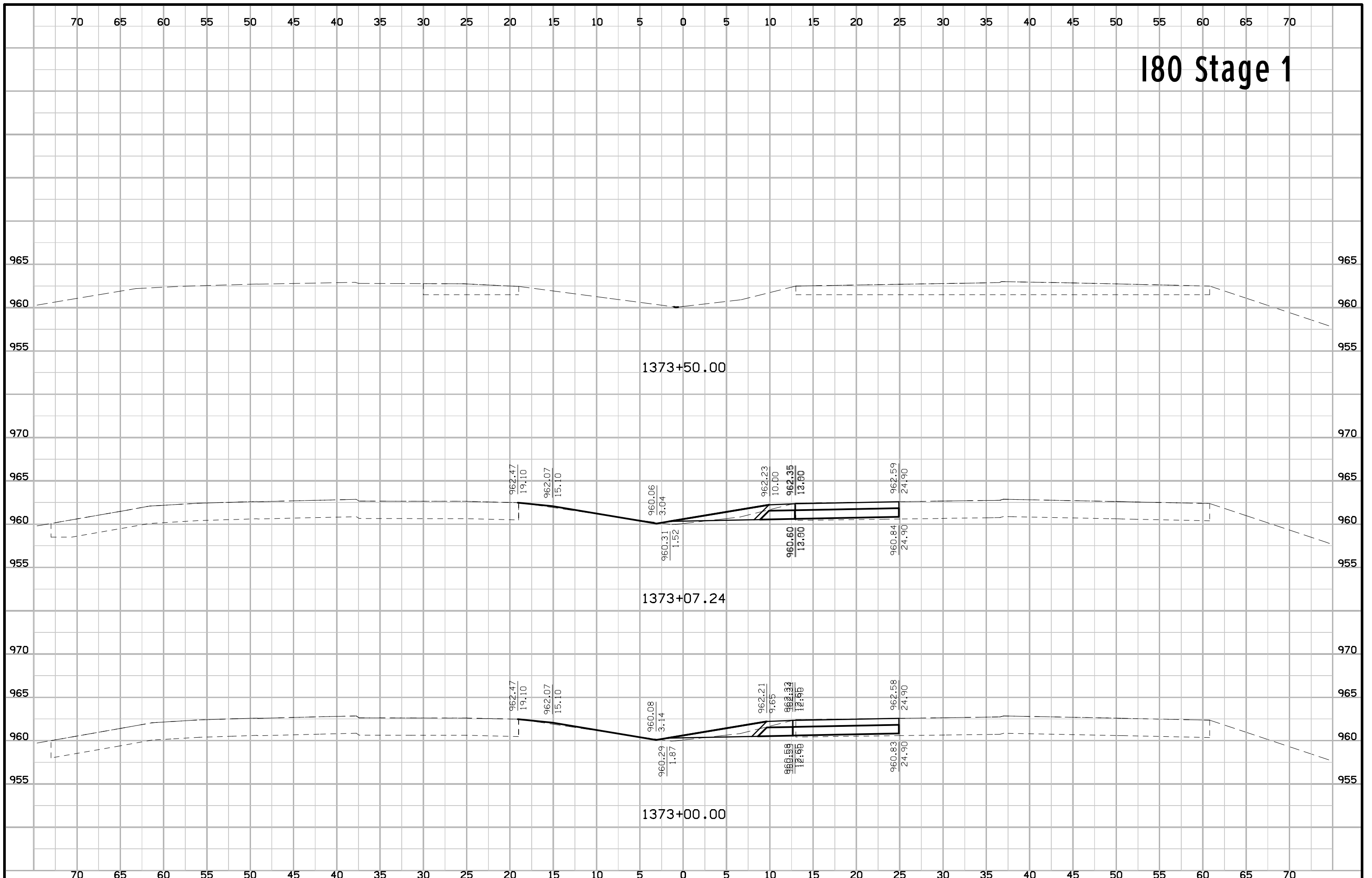
180 Stage 1



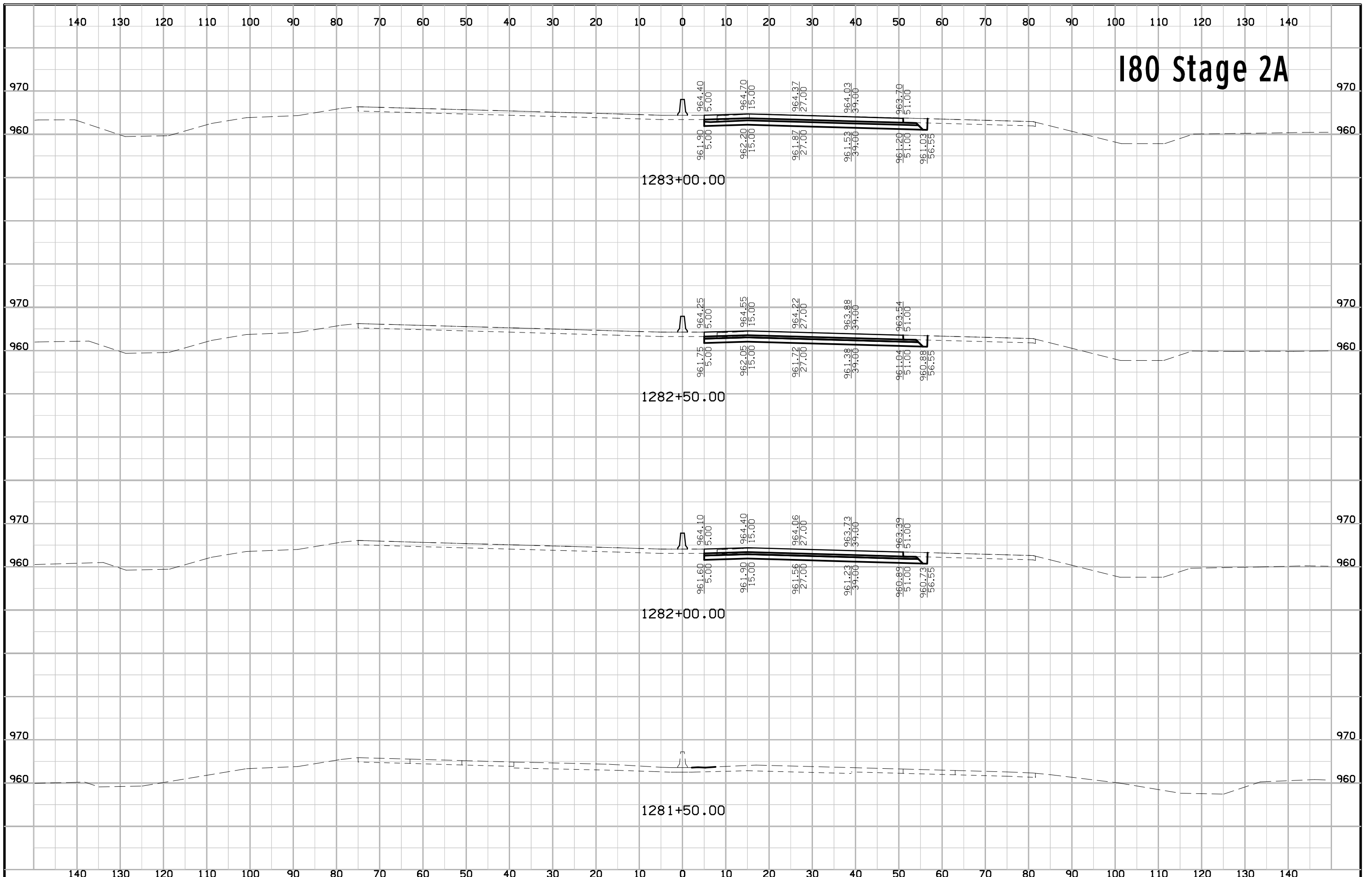
180 Stage 1



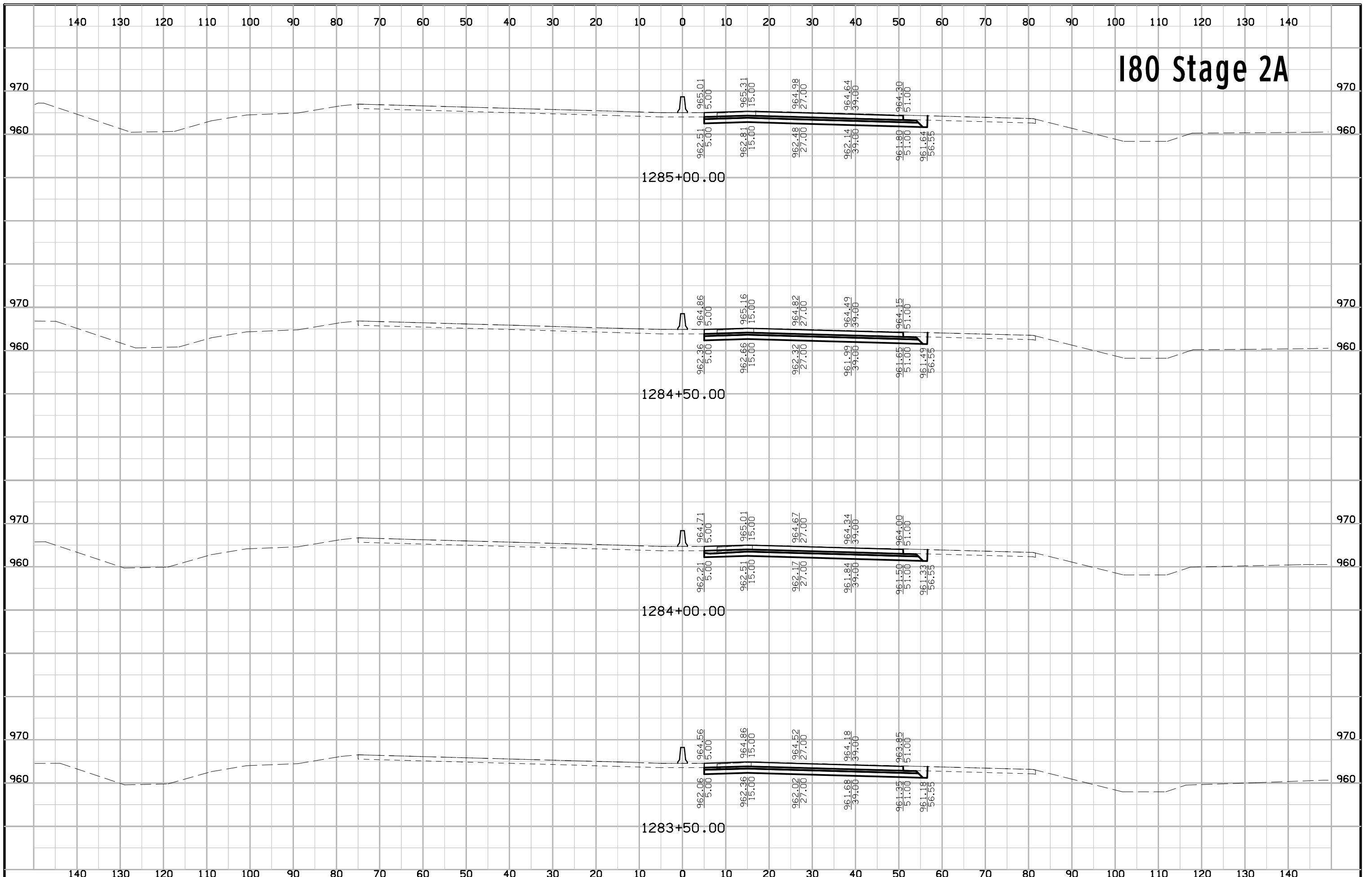
180 Stage 1



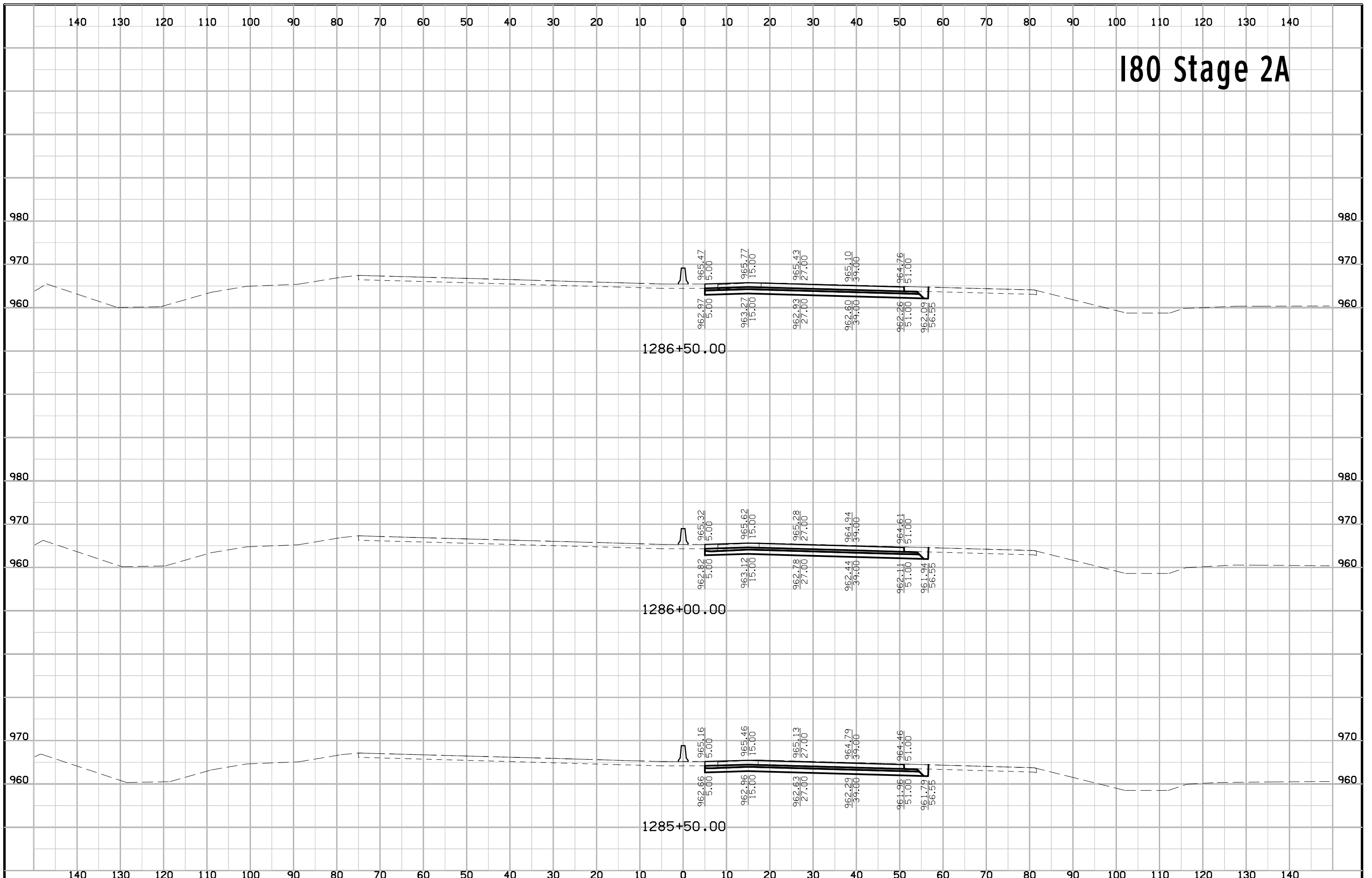
180 Stage 2A



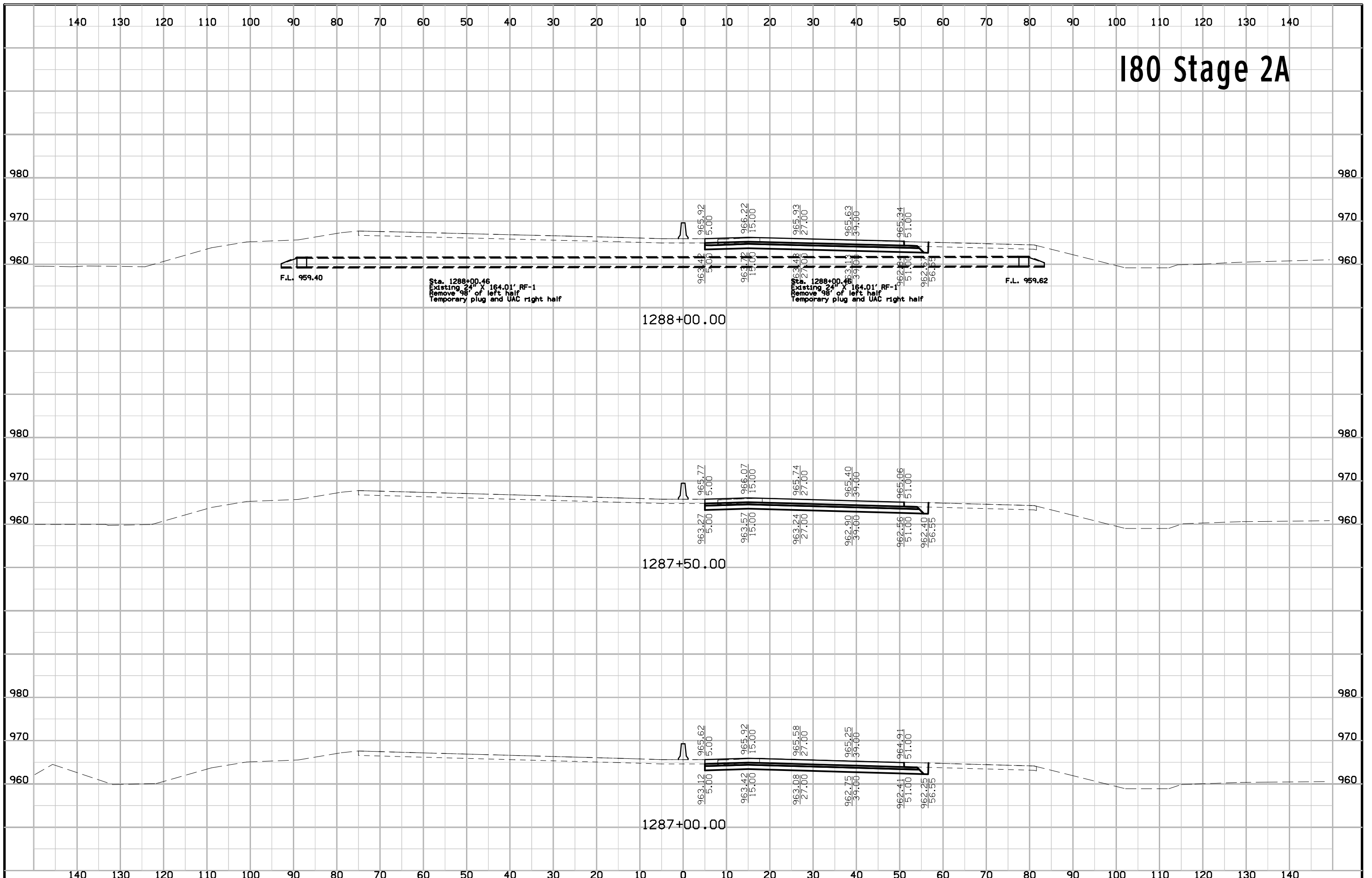
I80 Stage 2A



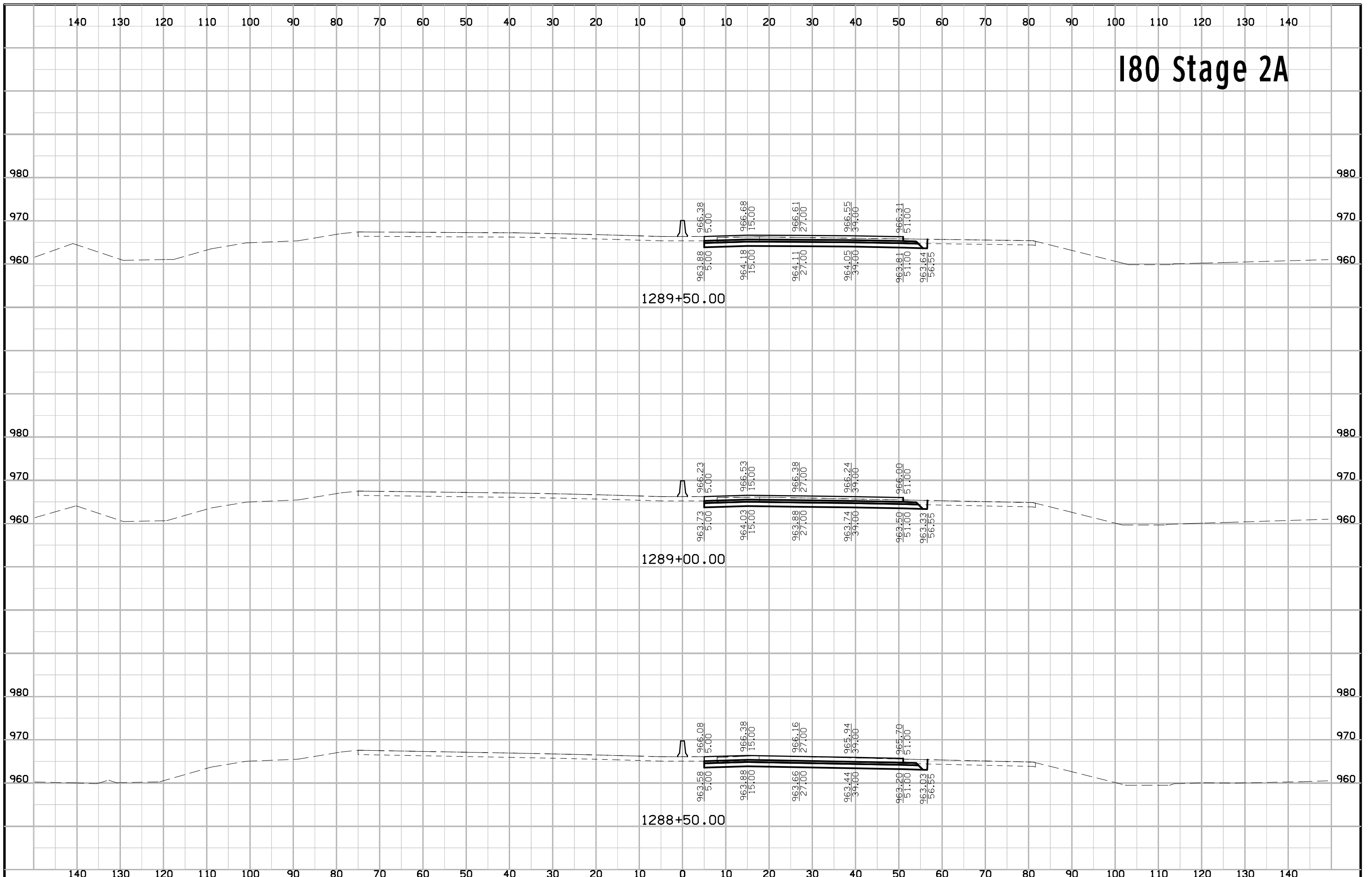
I80 Stage 2A



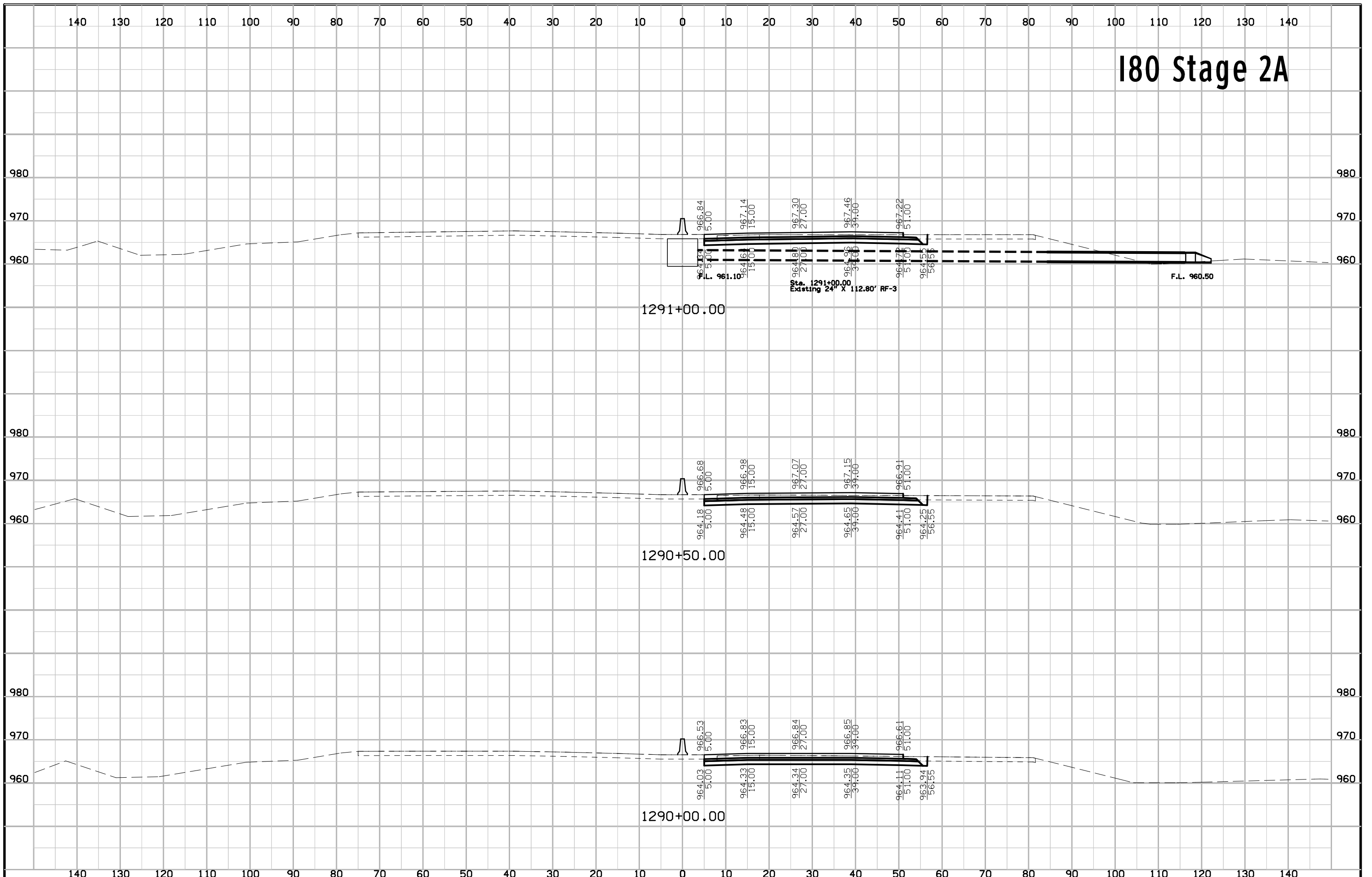
I80 Stage 2A



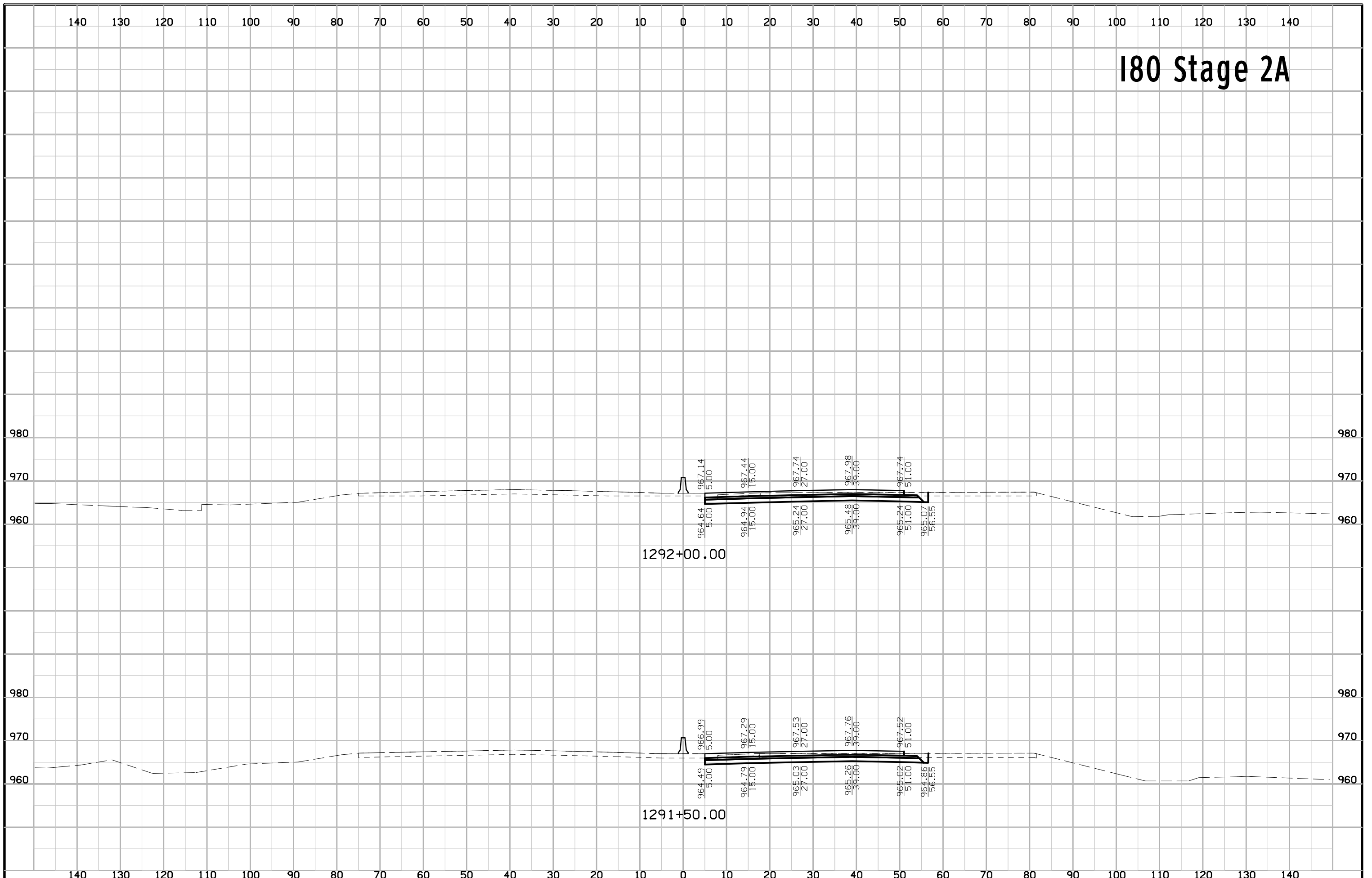
180 Stage 2A



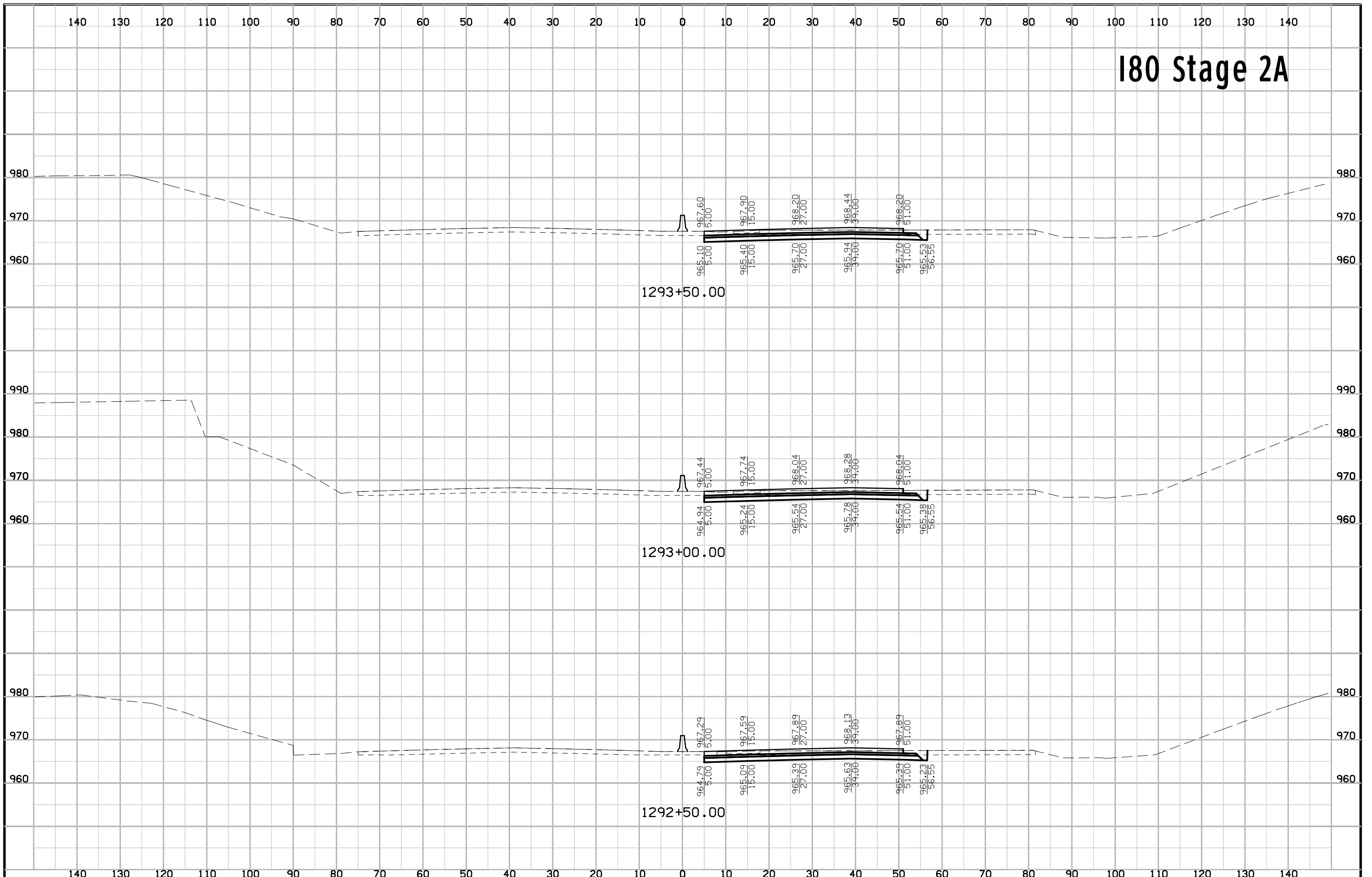
I80 Stage 2A



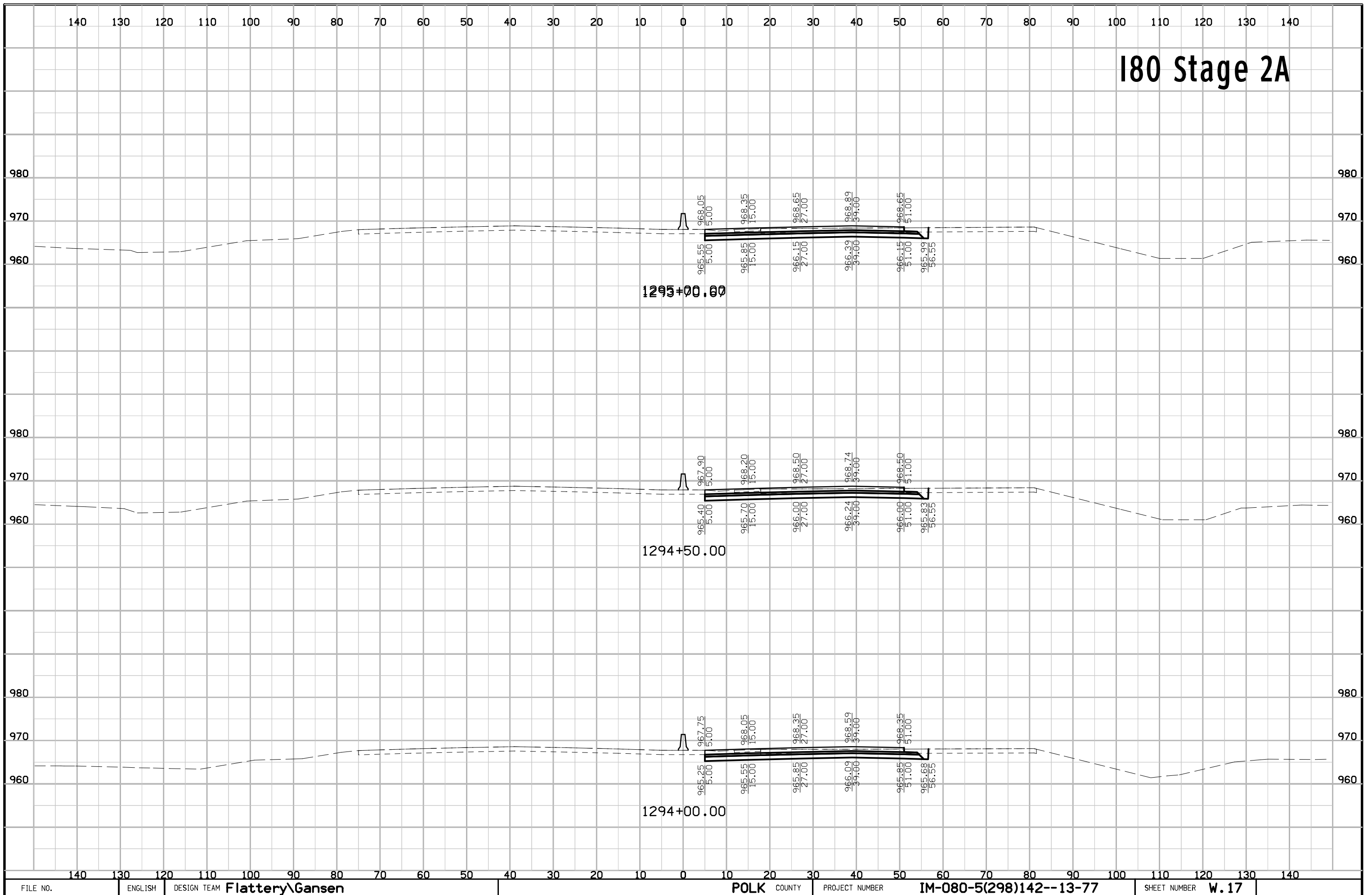
I80 Stage 2A



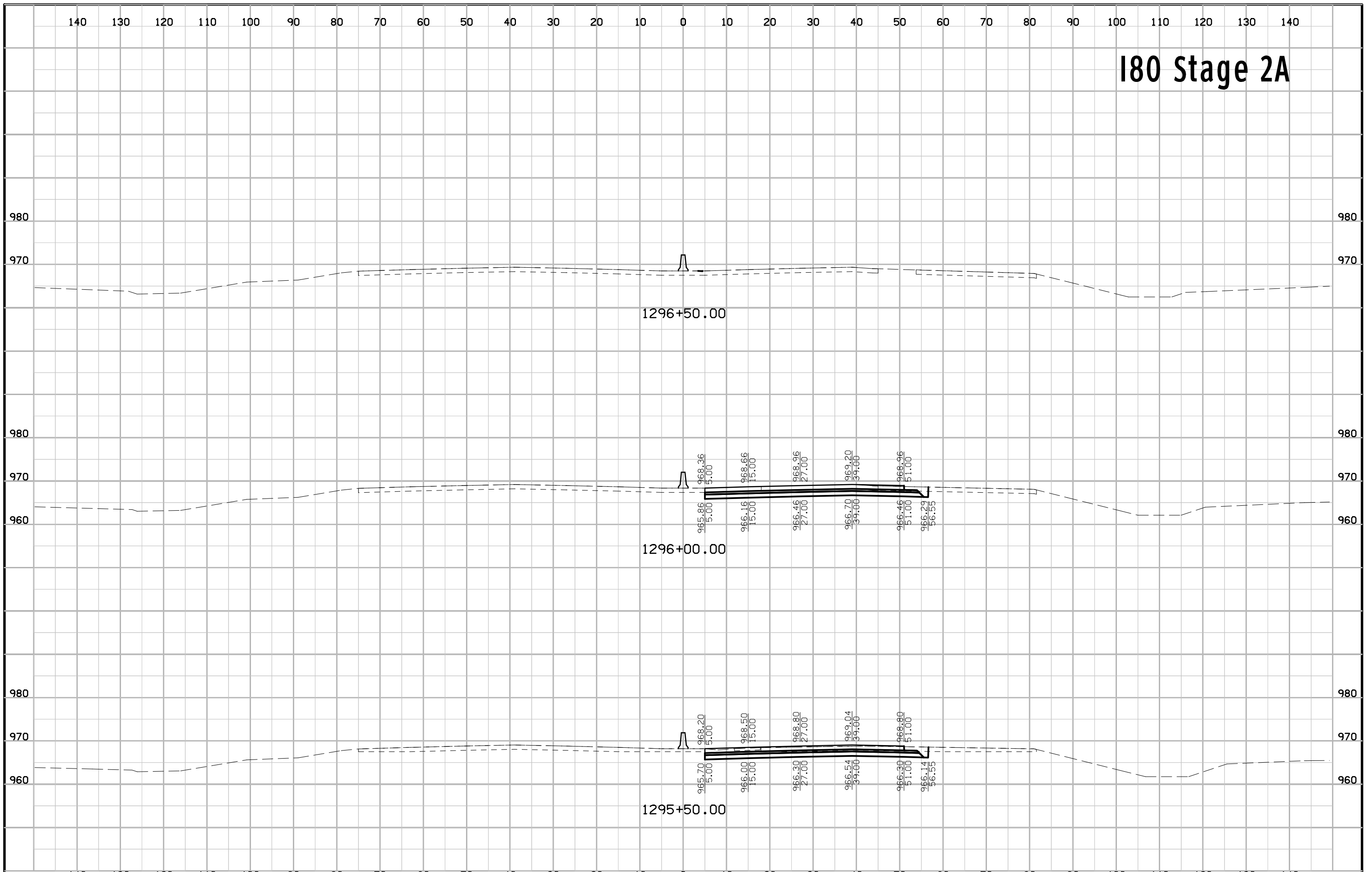
I80 Stage 2A



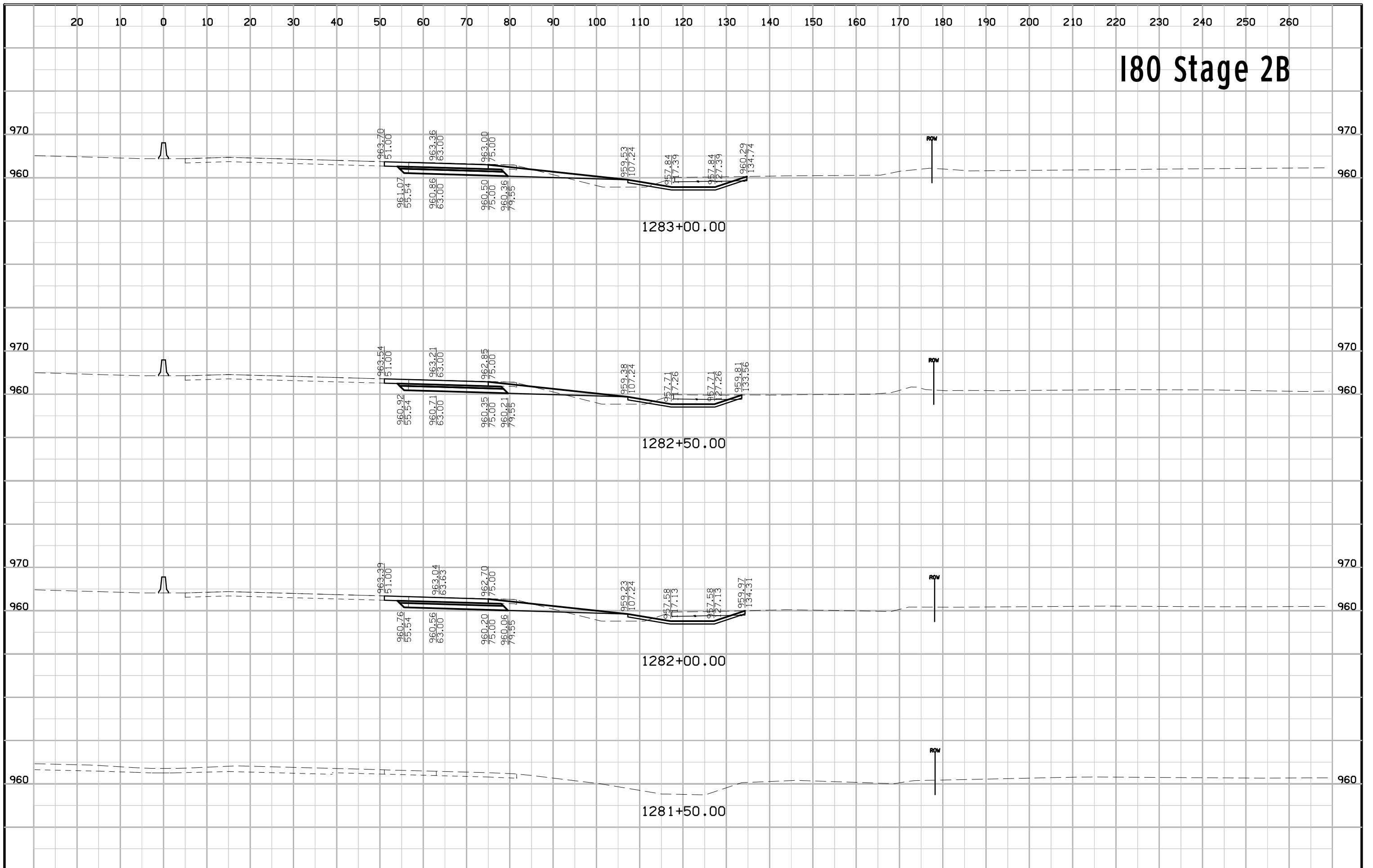
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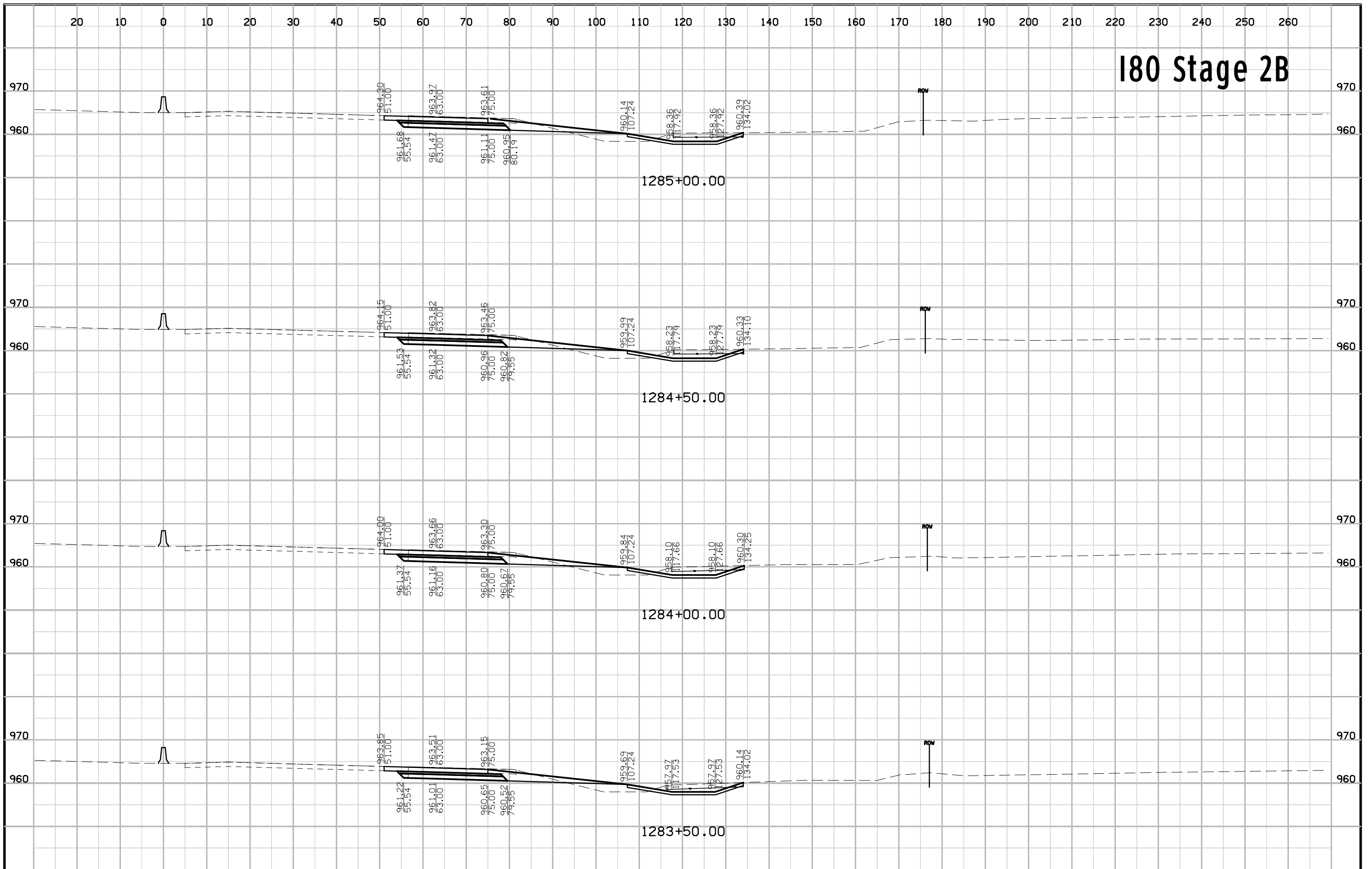
I80 Stage 2A



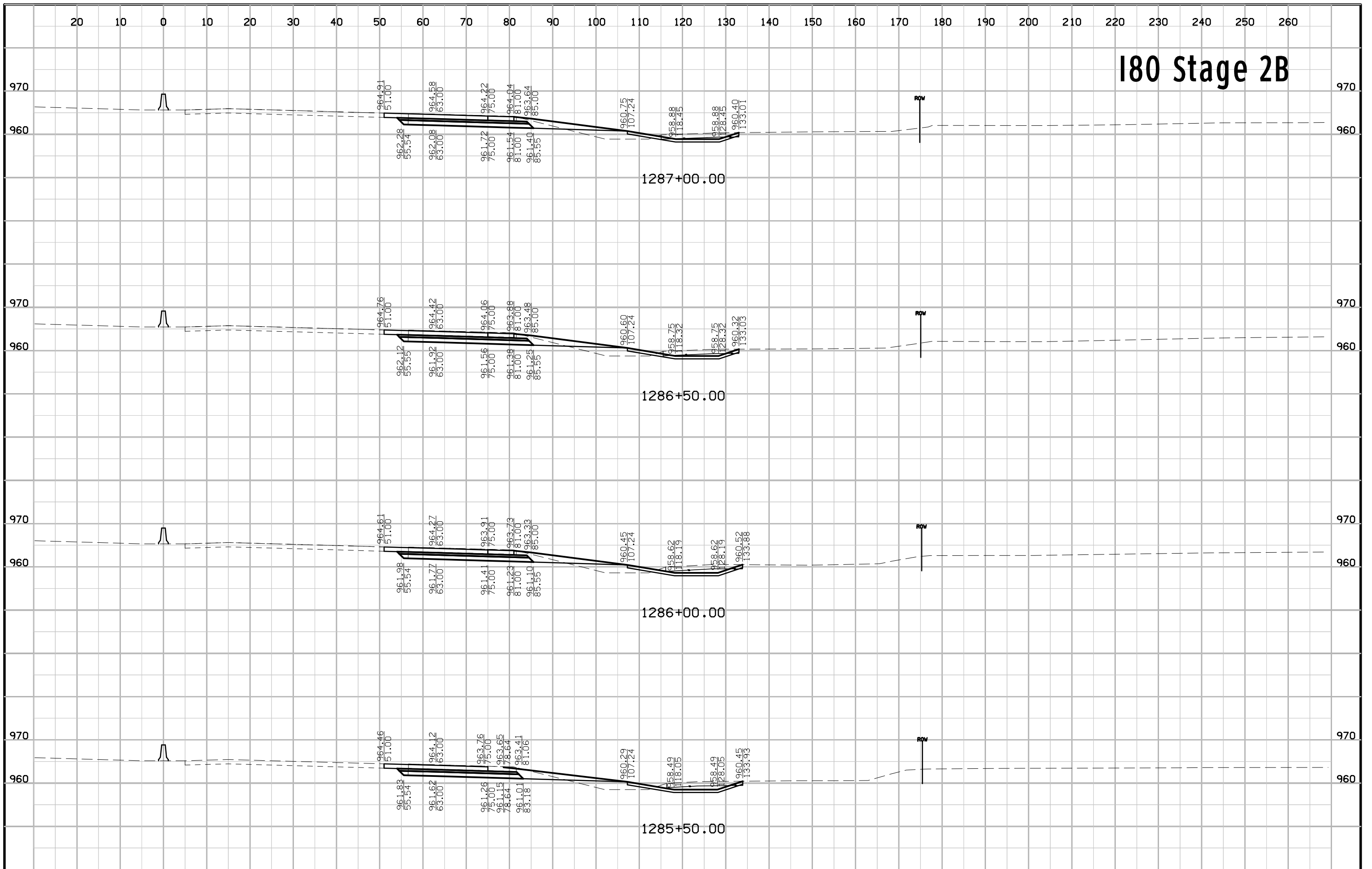
I80 Stage 2B



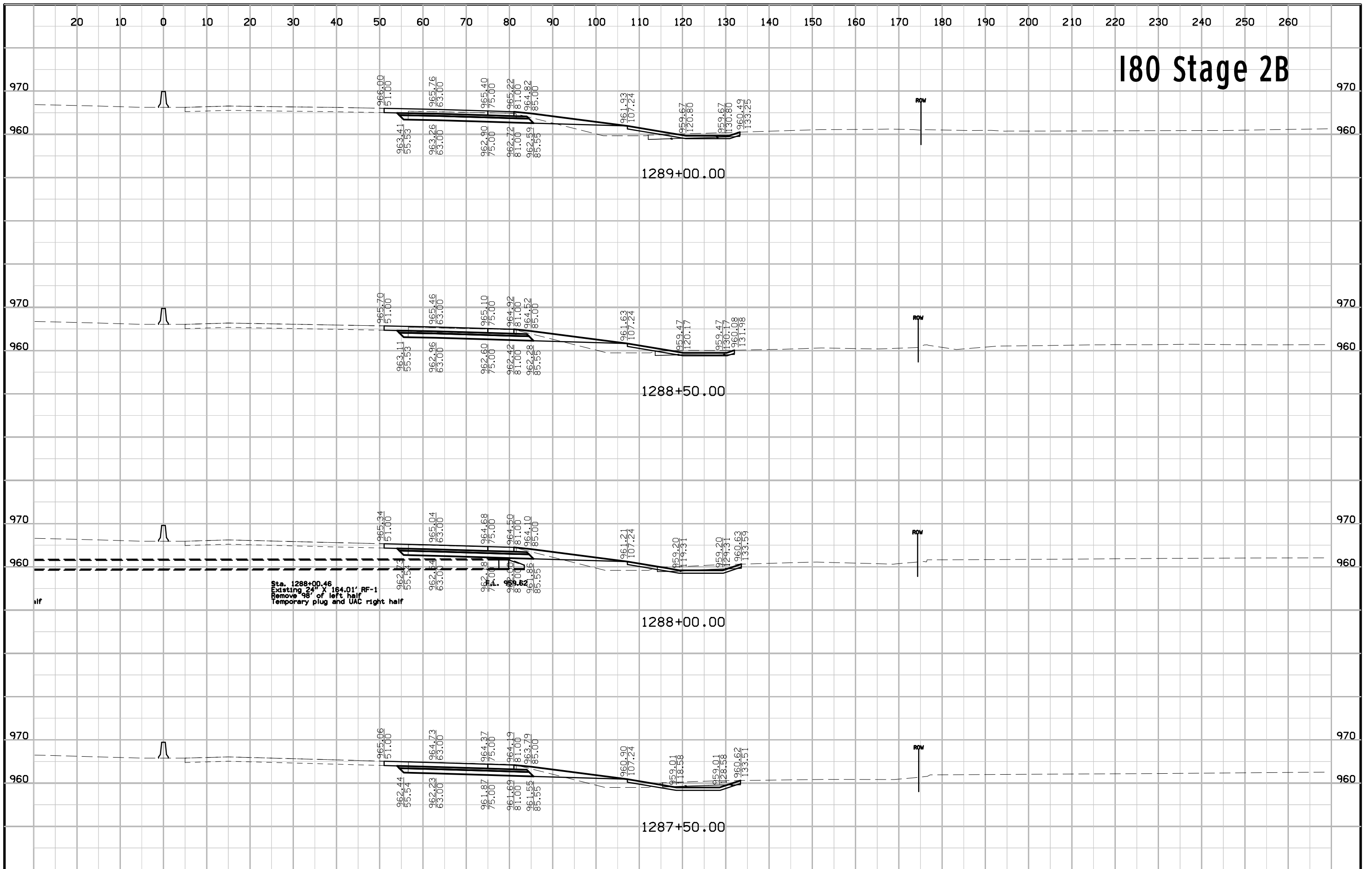
I80 Stage 2B



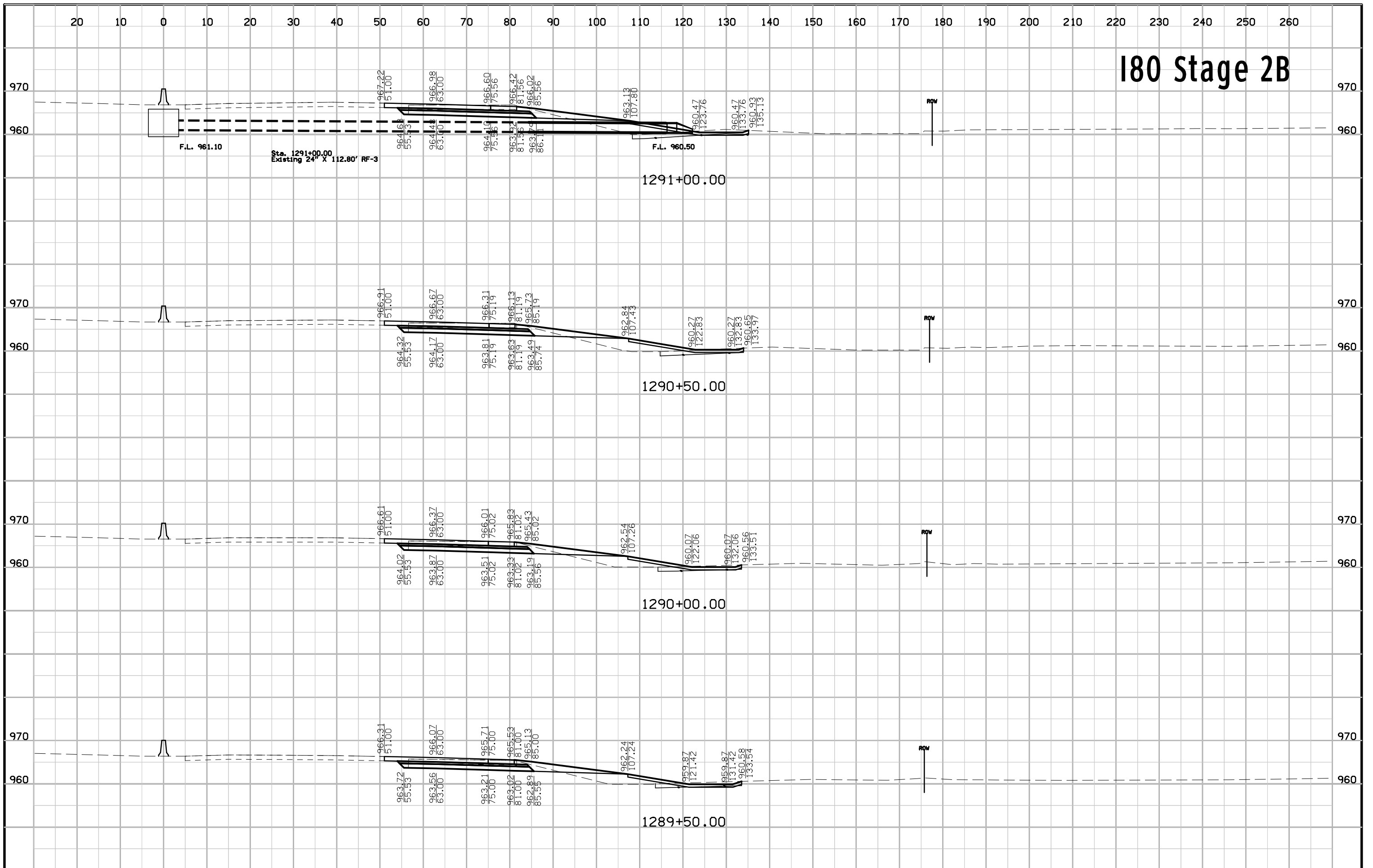
I80 Stage 2B



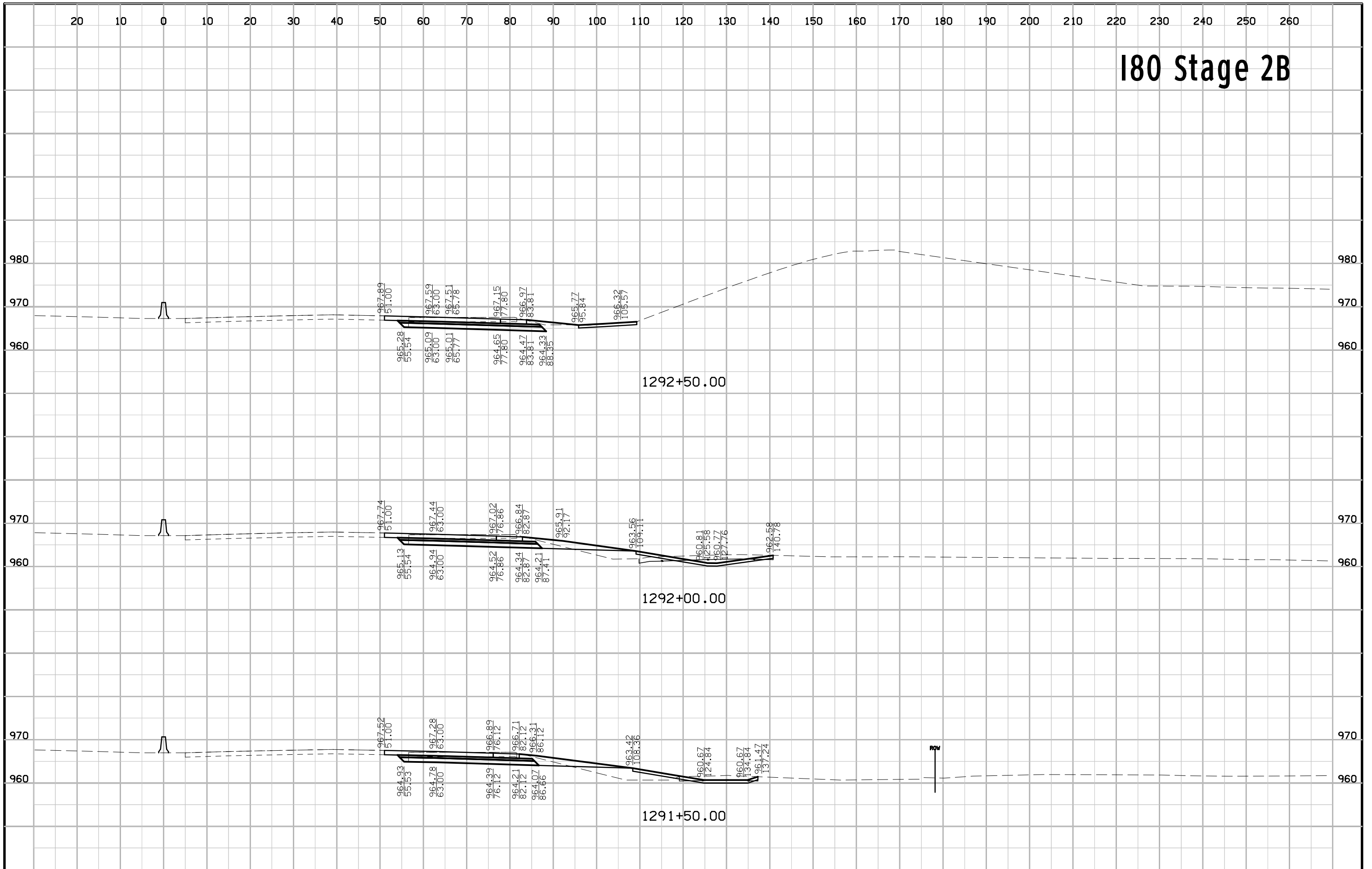
I80 Stage 2B



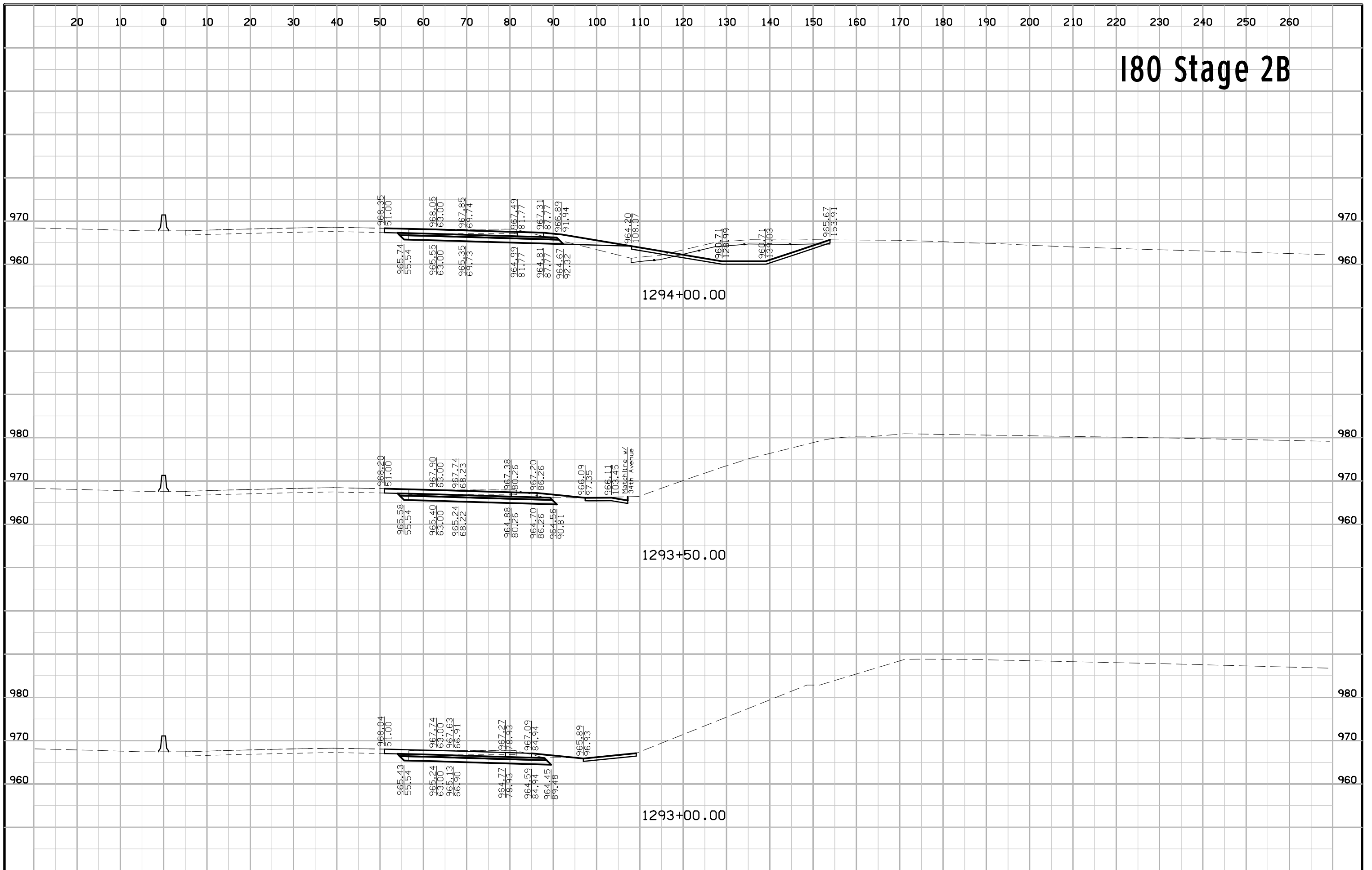
I80 Stage 2B



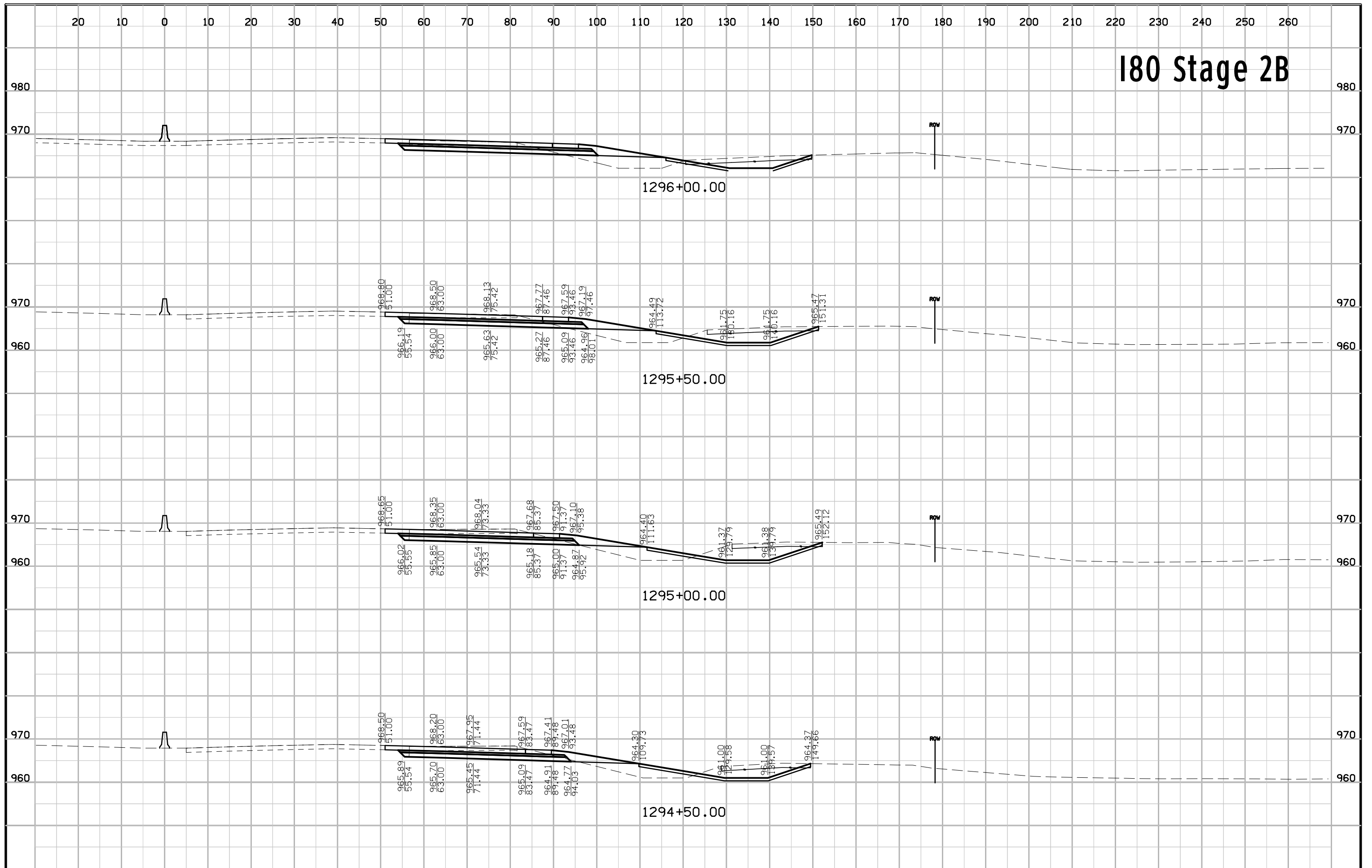
I80 Stage 2B



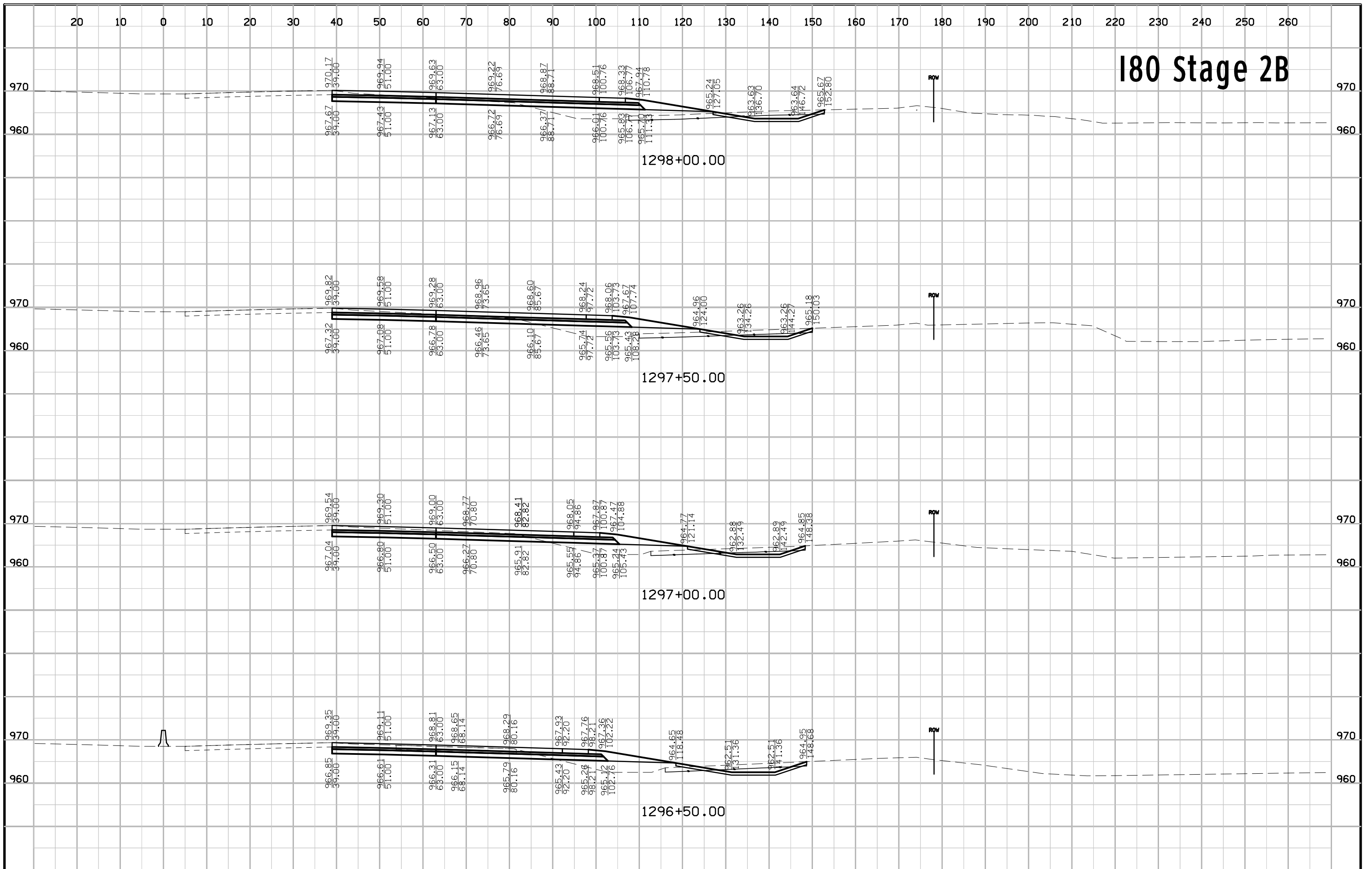
I80 Stage 2B



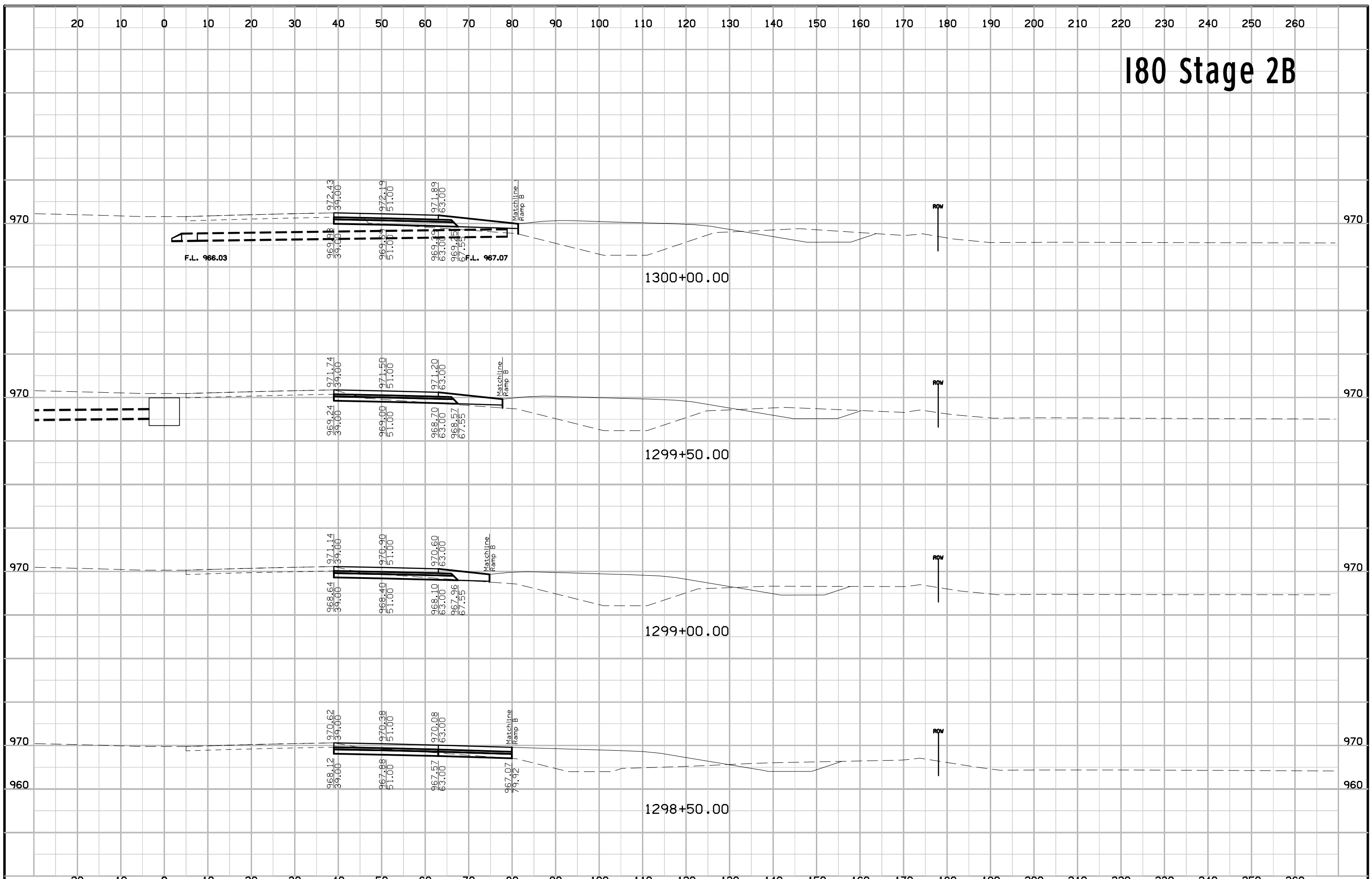
I80 Stage 2B



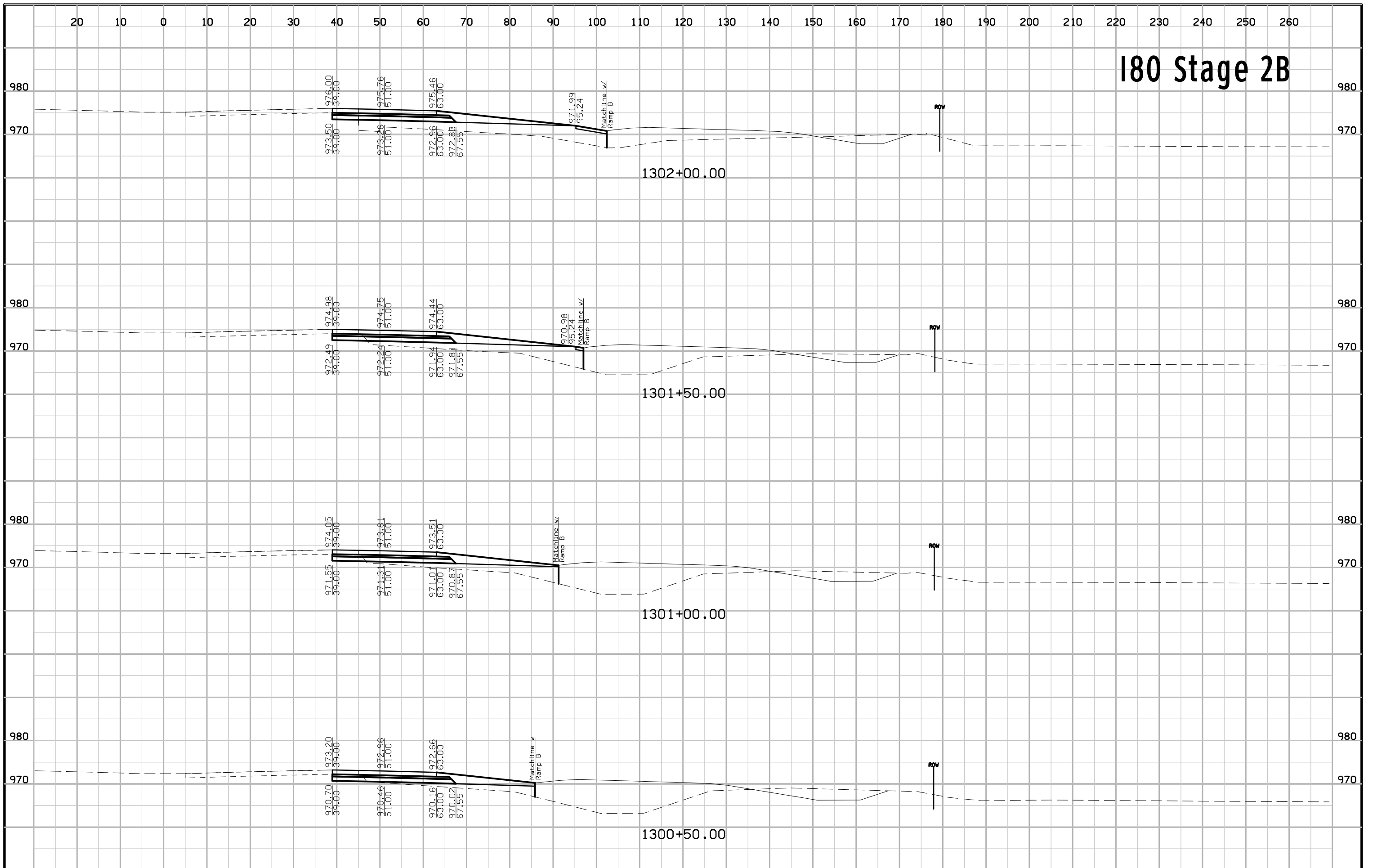
I80 Stage 2B



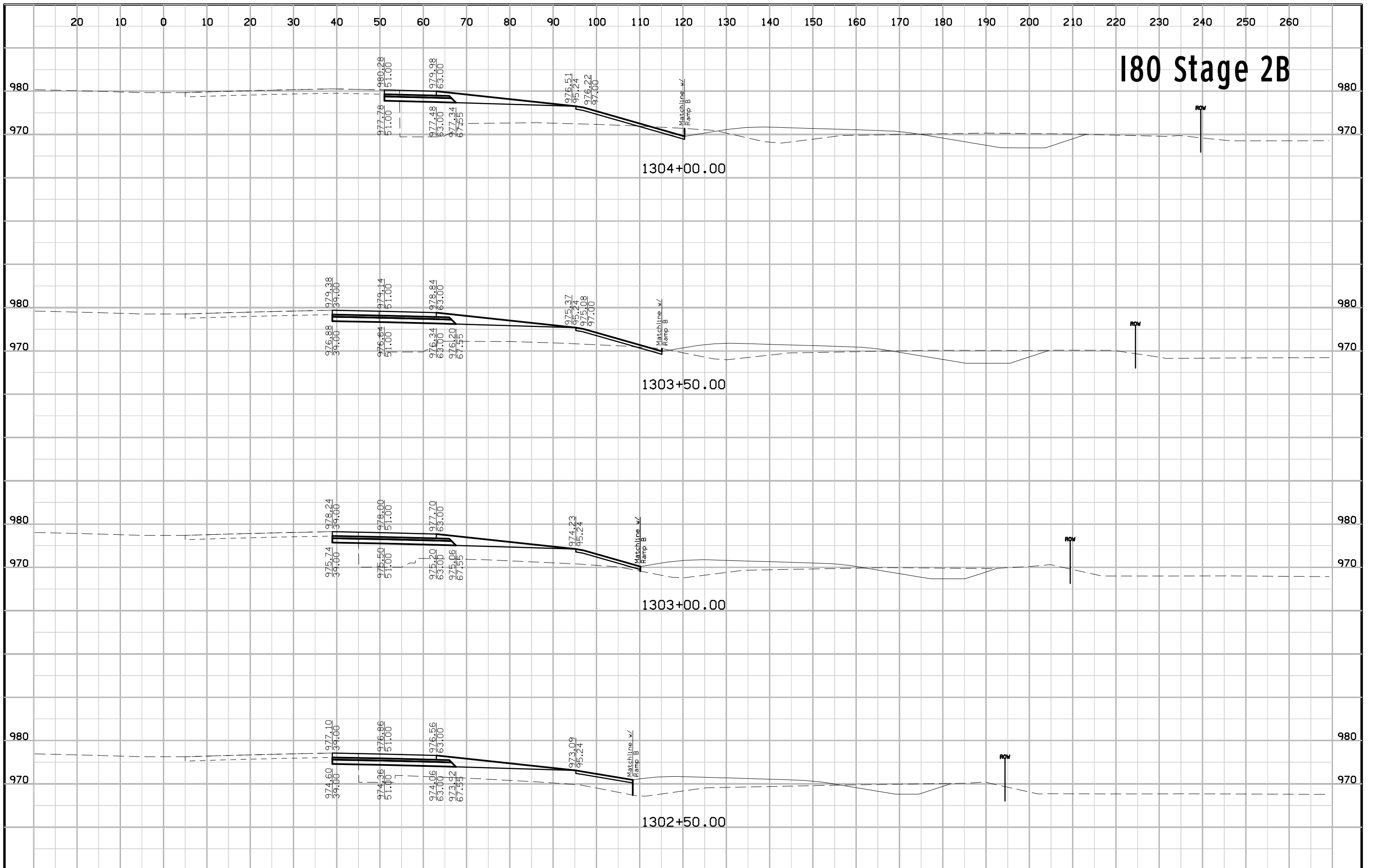
I80 Stage 2B



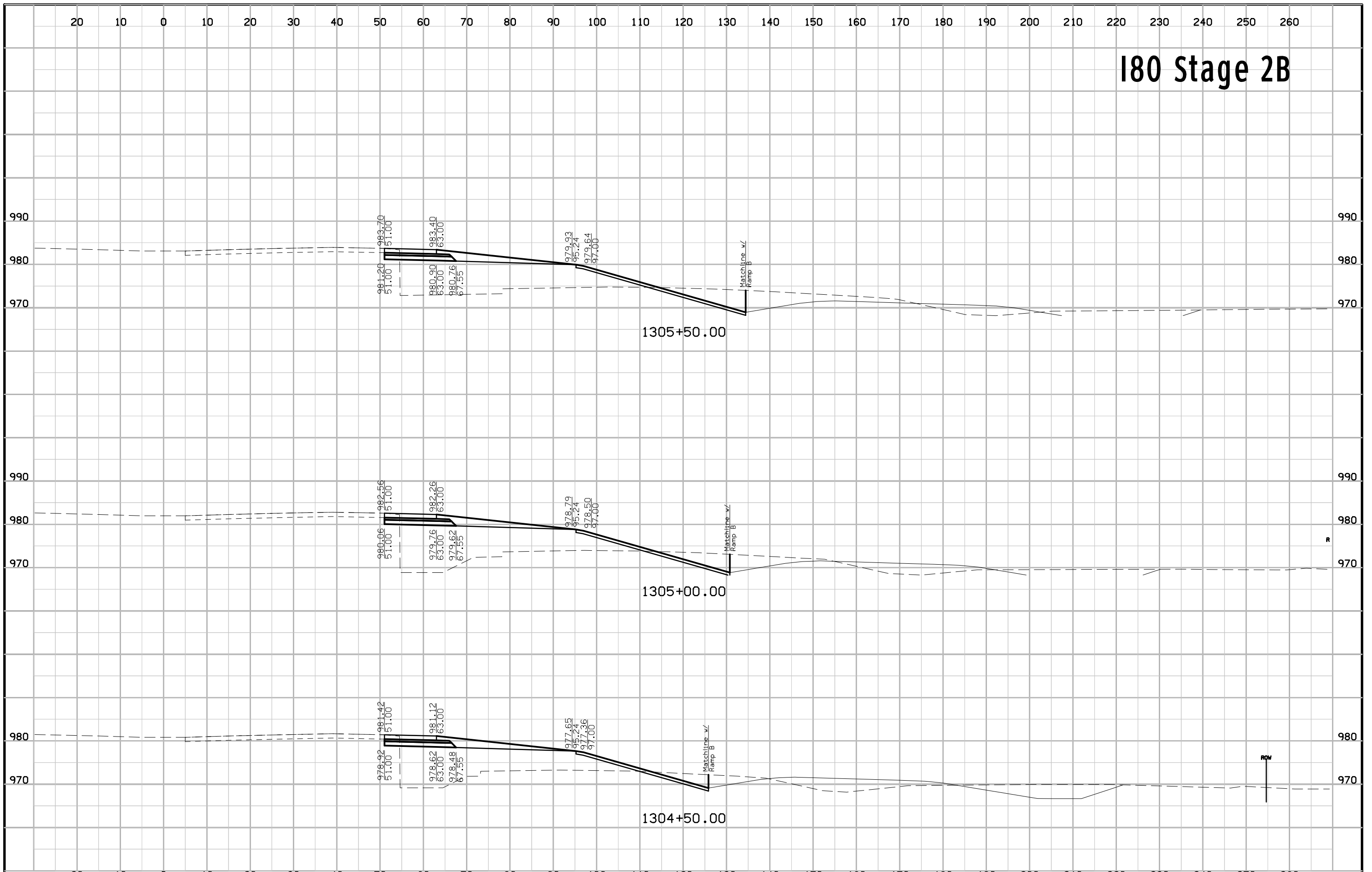
I80 Stage 2B



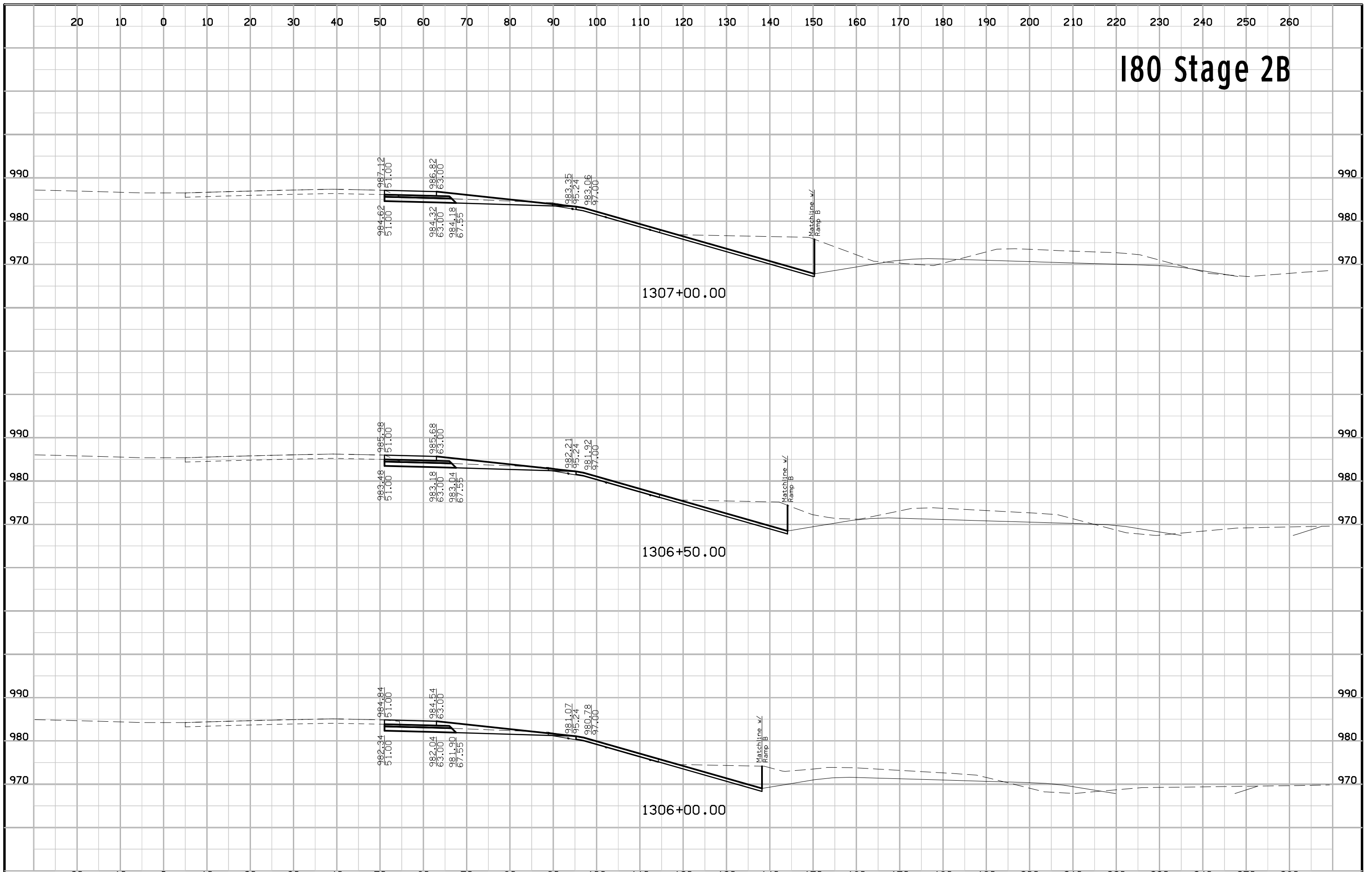
I80 Stage 2B



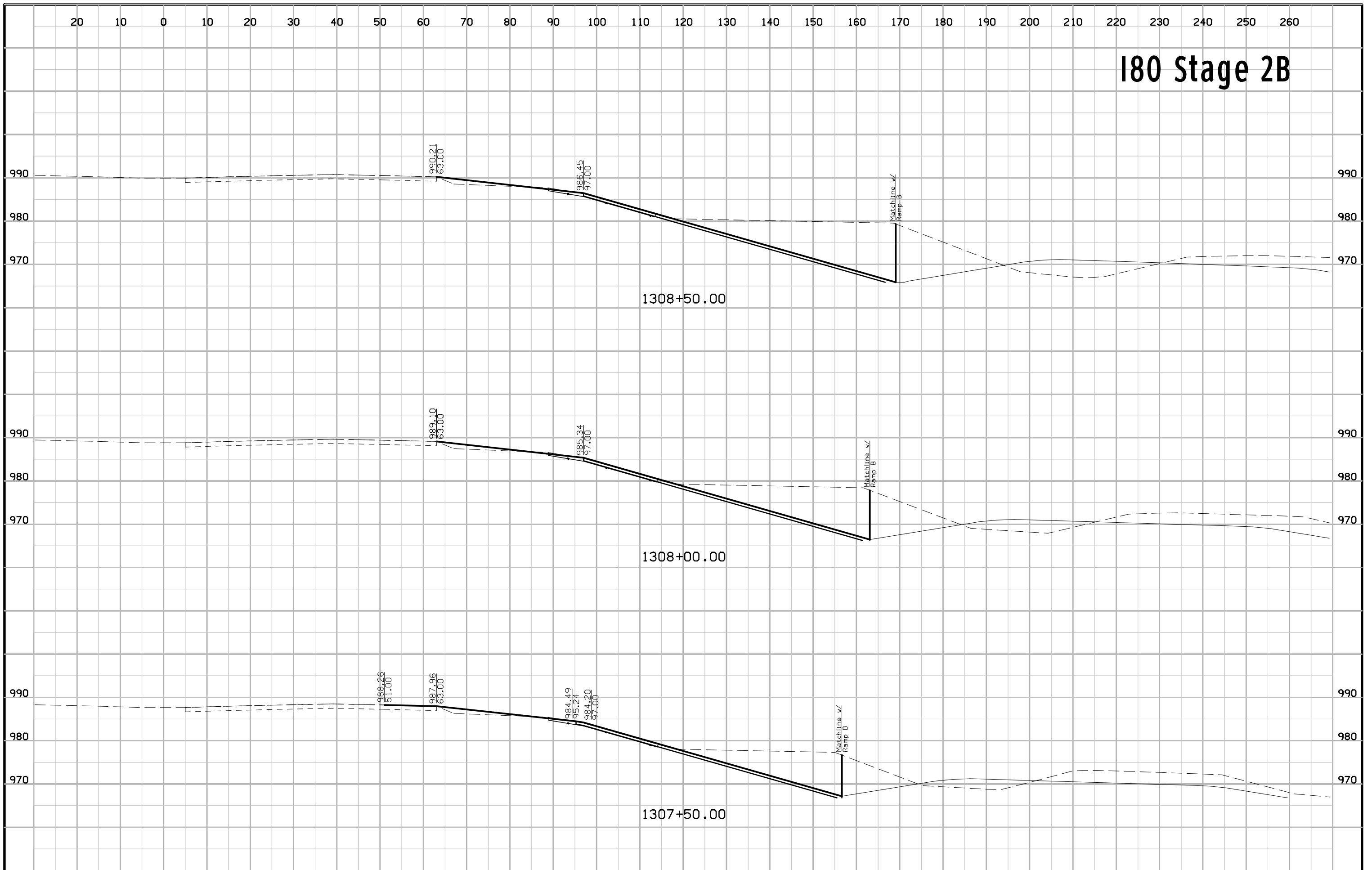
I80 Stage 2B



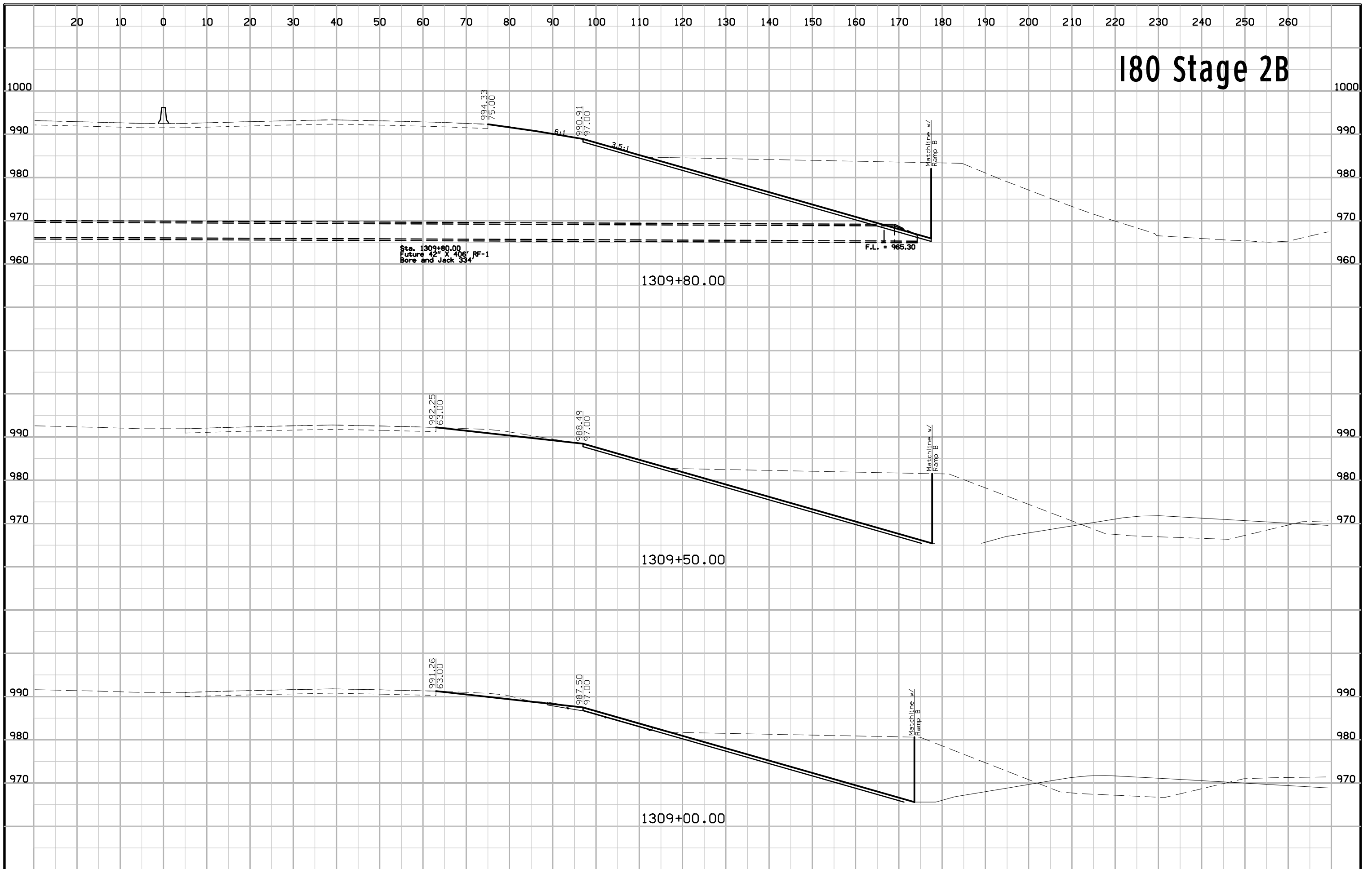
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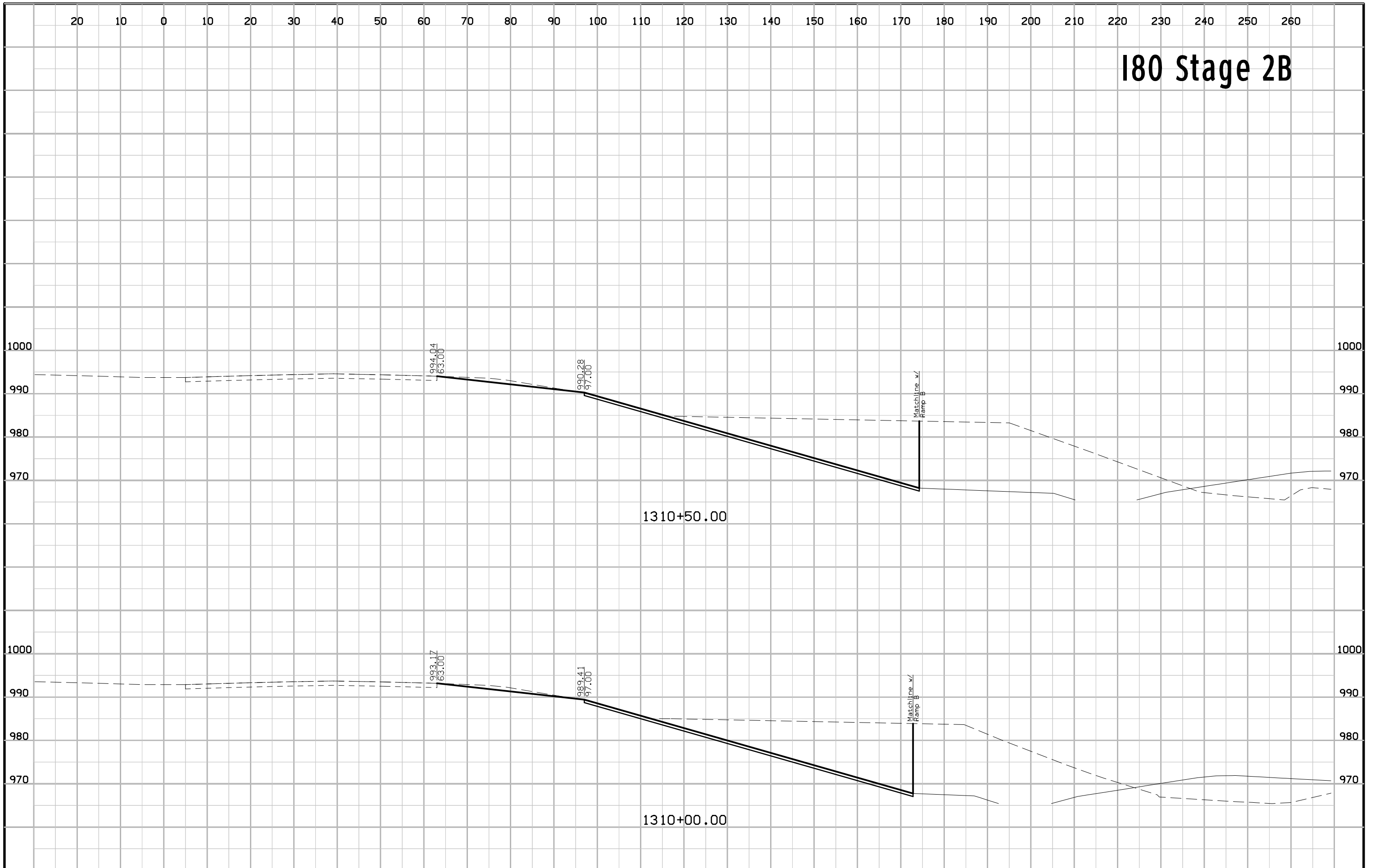
I80 Stage 2B



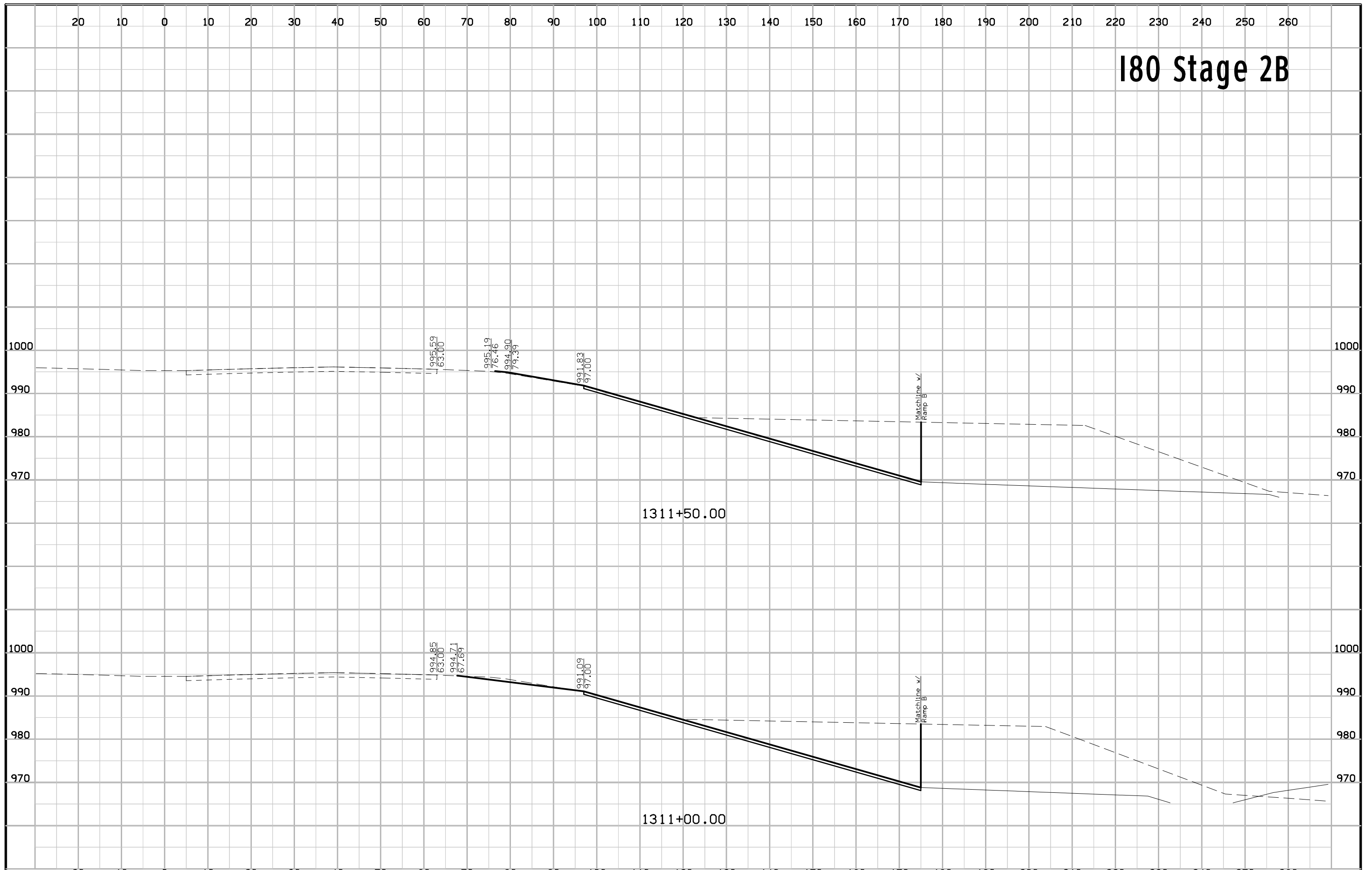
I80 Stage 2B



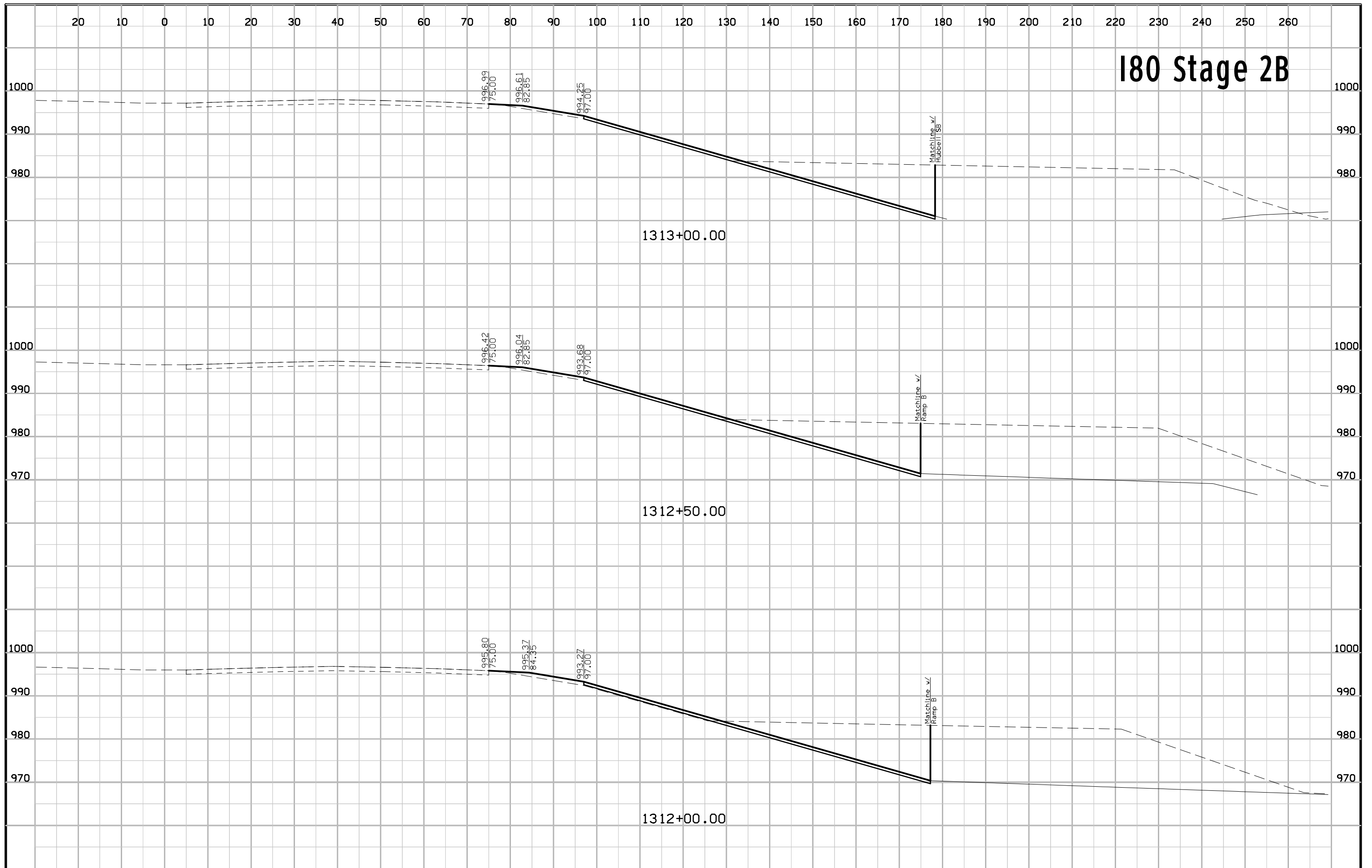
I80 Stage 2B



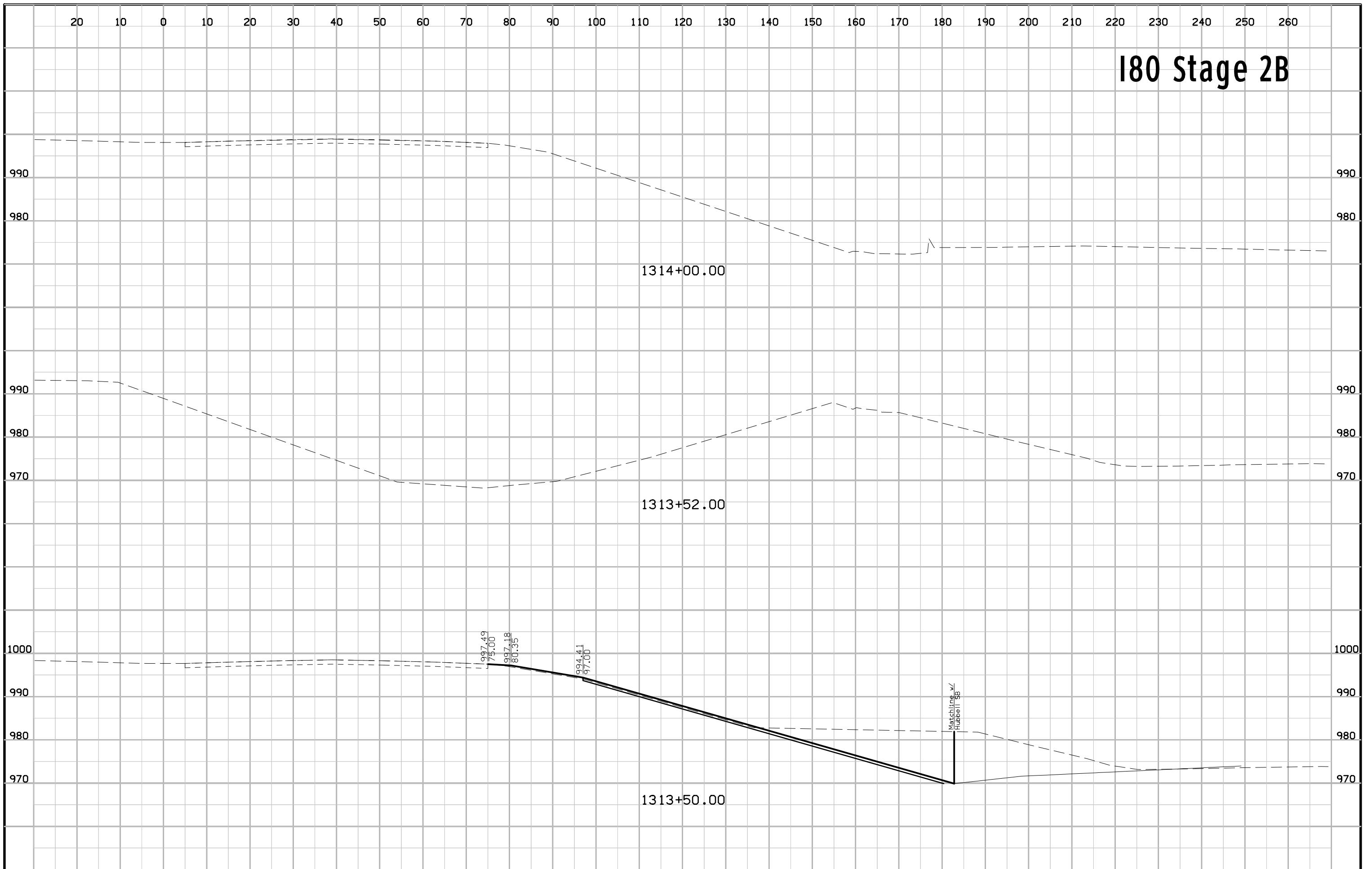
I80 Stage 2B



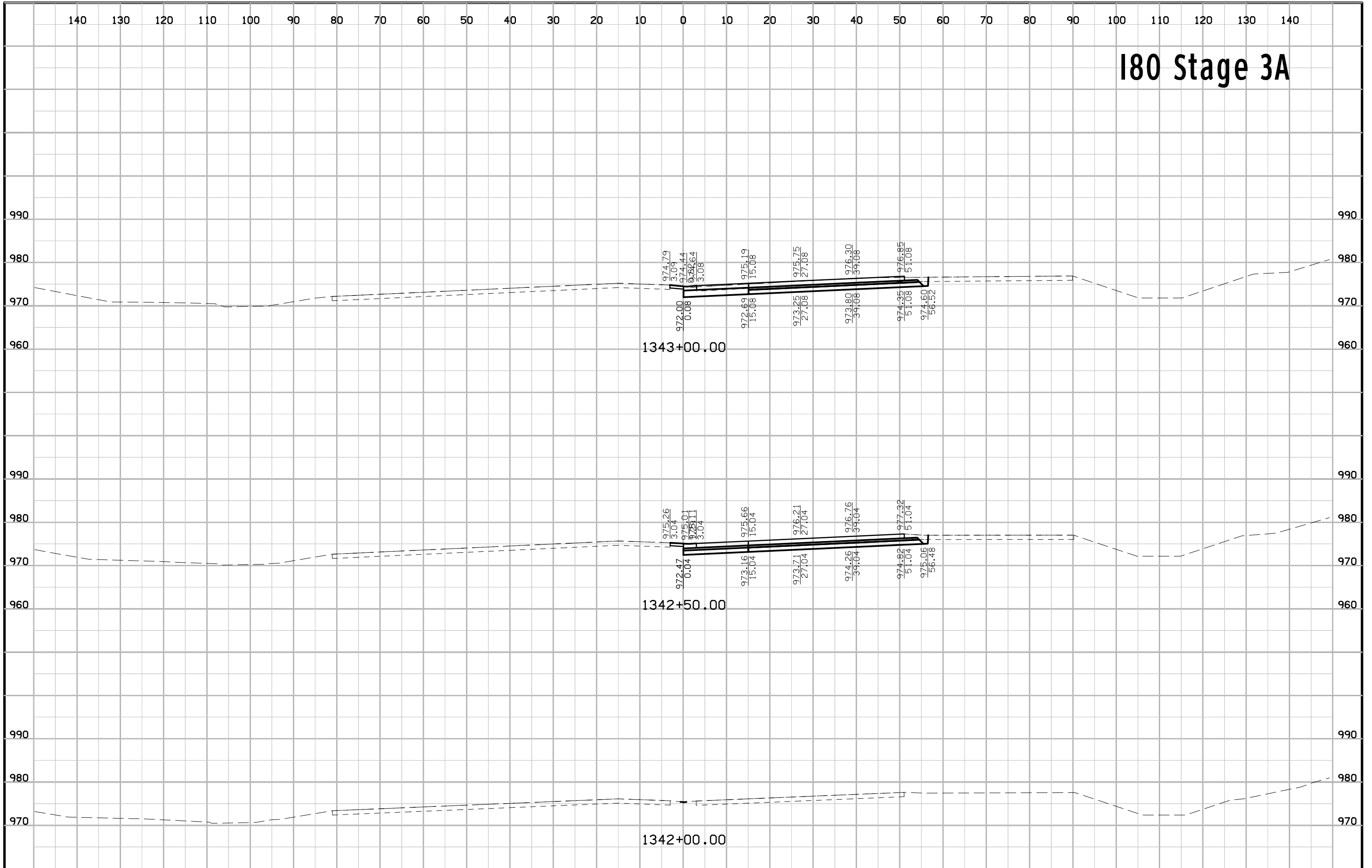
I80 Stage 2B



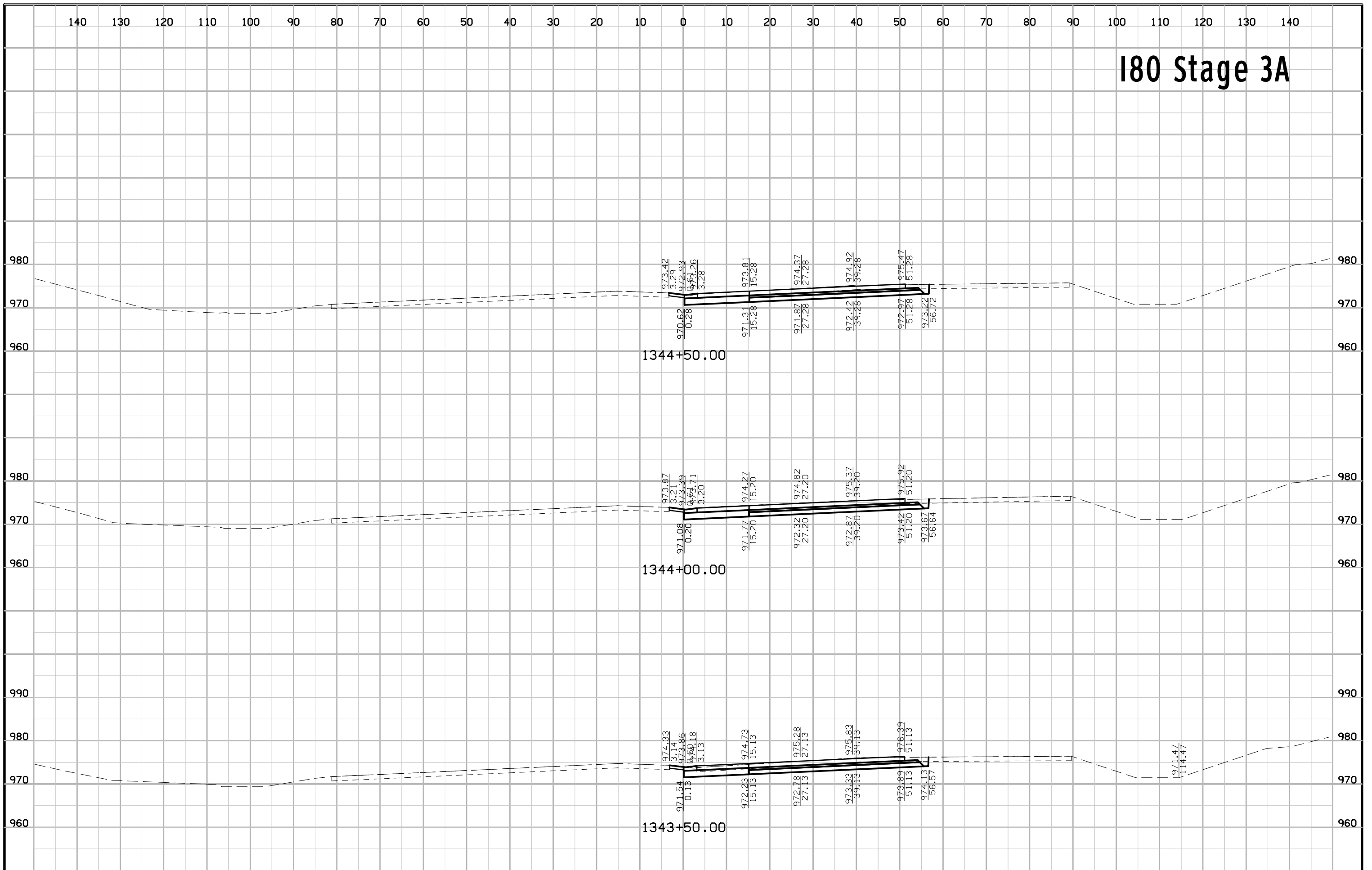
I80 Stage 2B



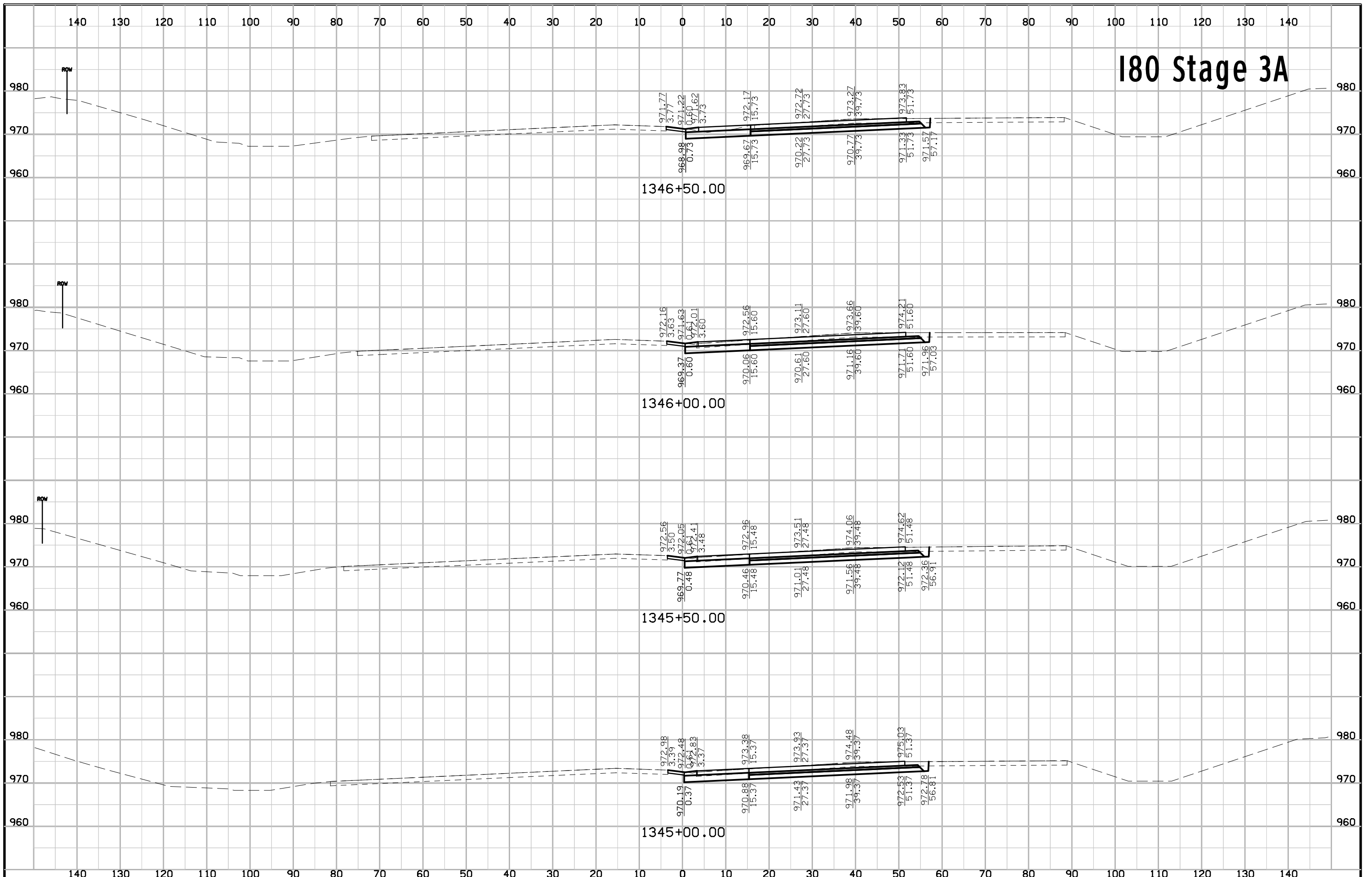
180 Stage 3A



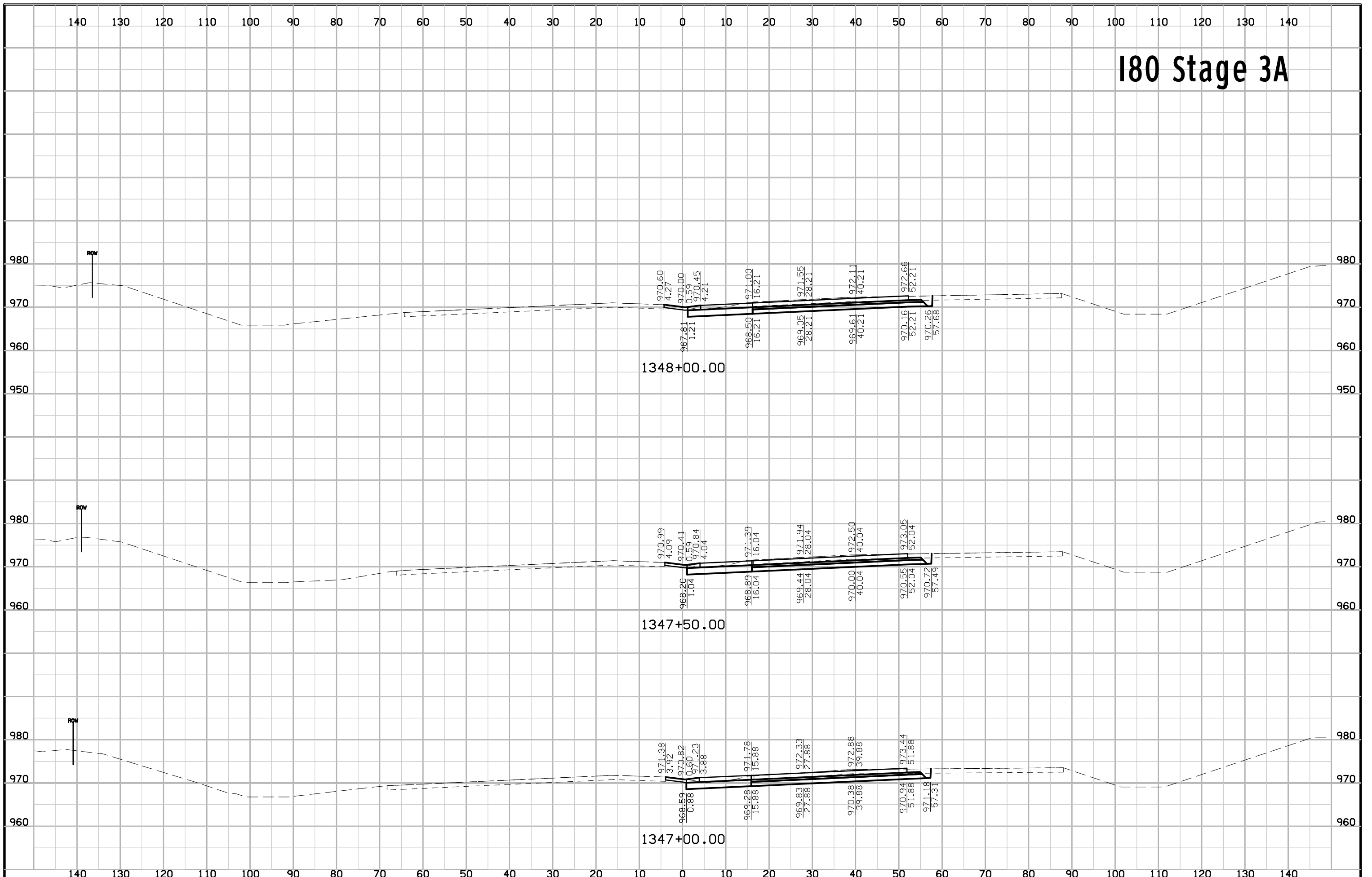
I80 Stage 3A



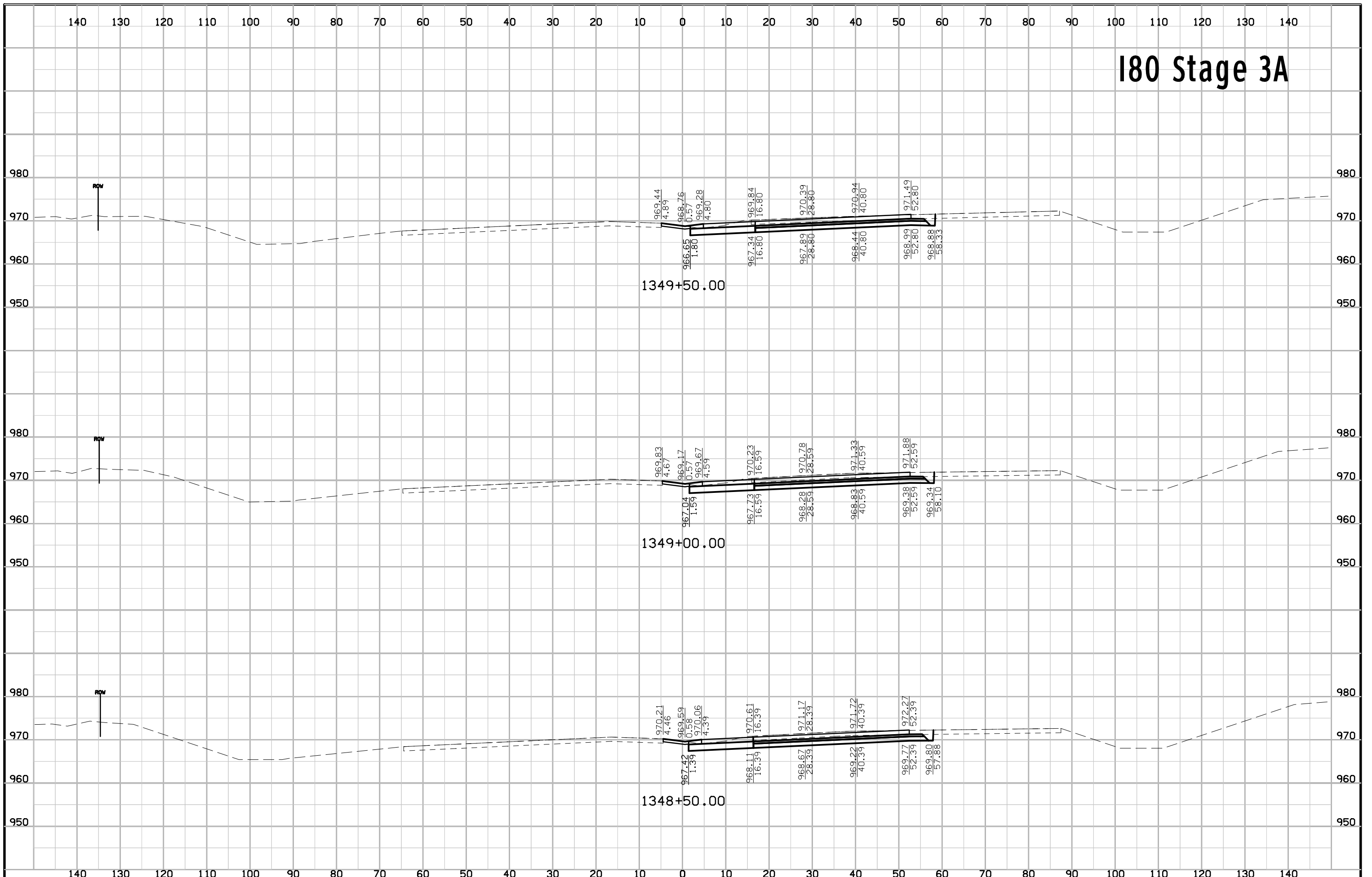
180 Stage 3A



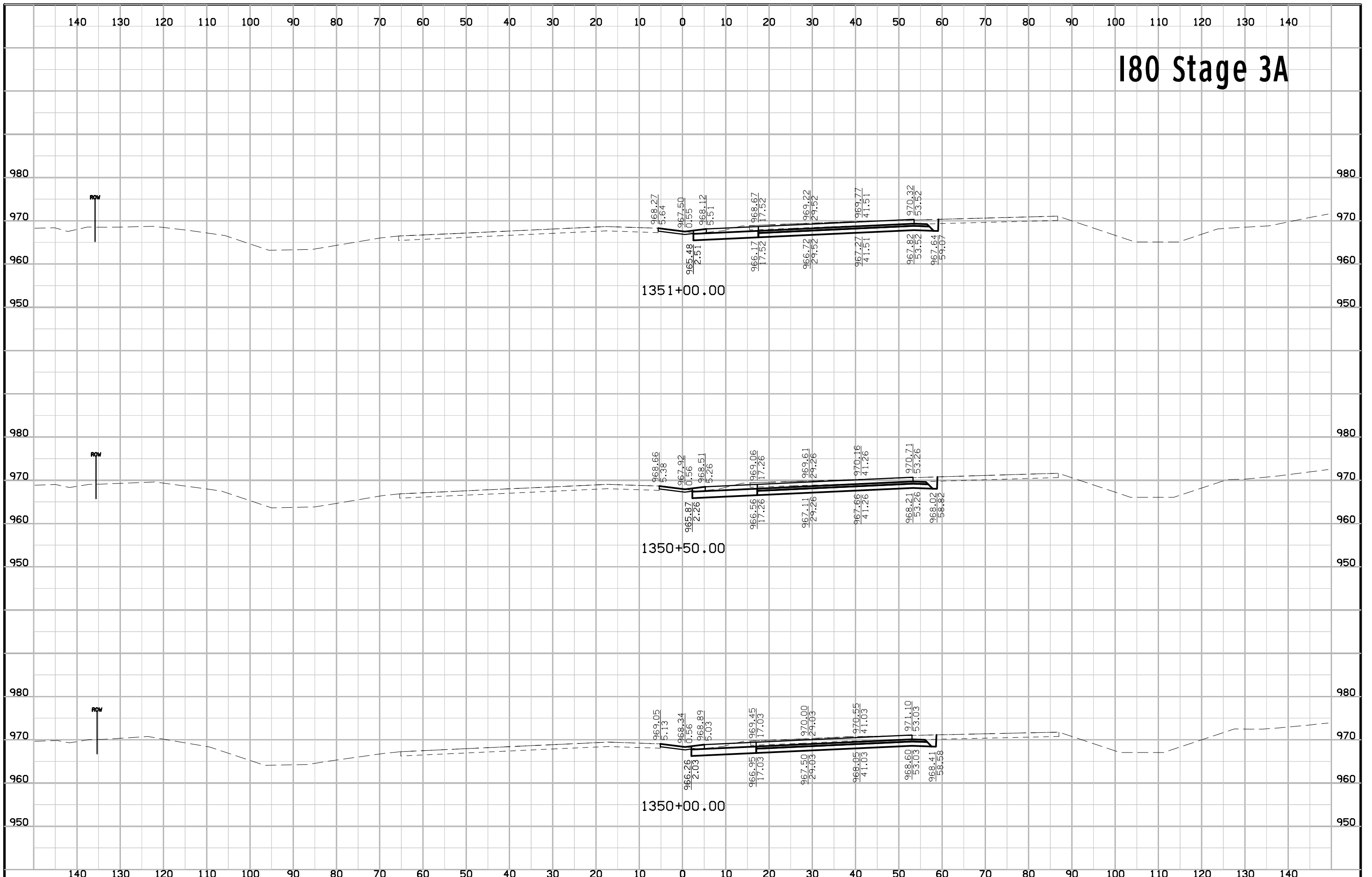
180 Stage 3A



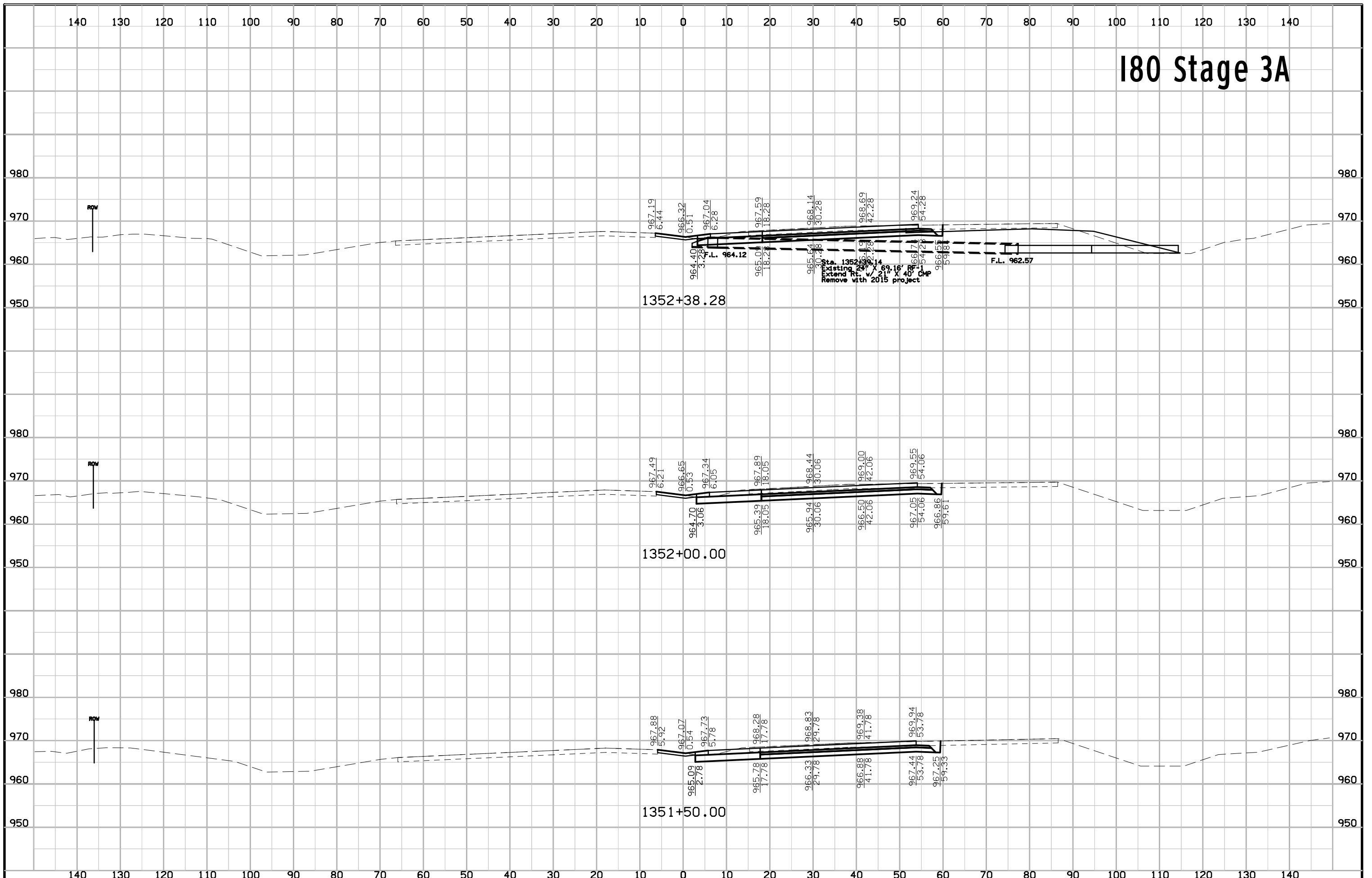
180 Stage 3A



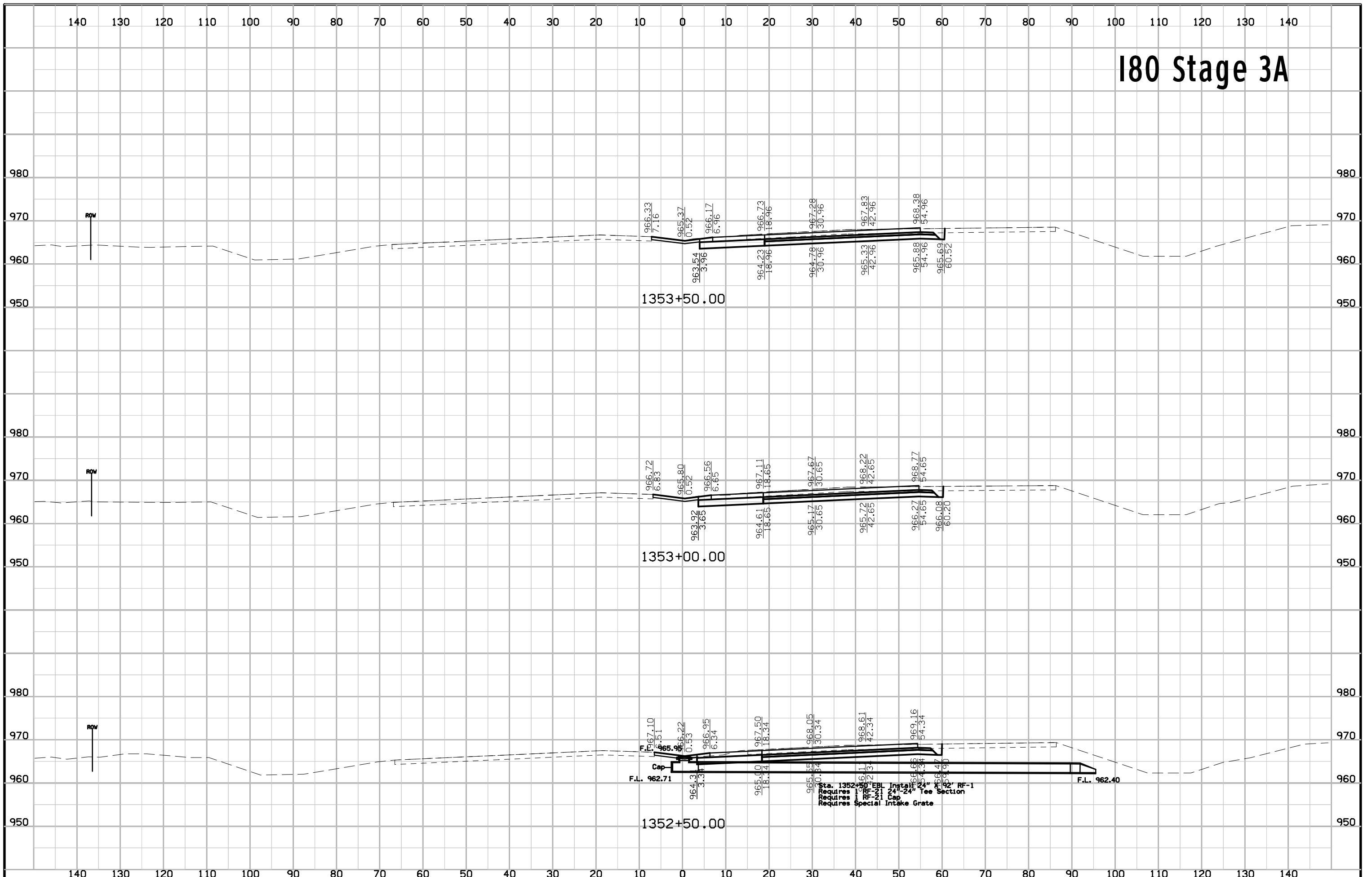
180 Stage 3A



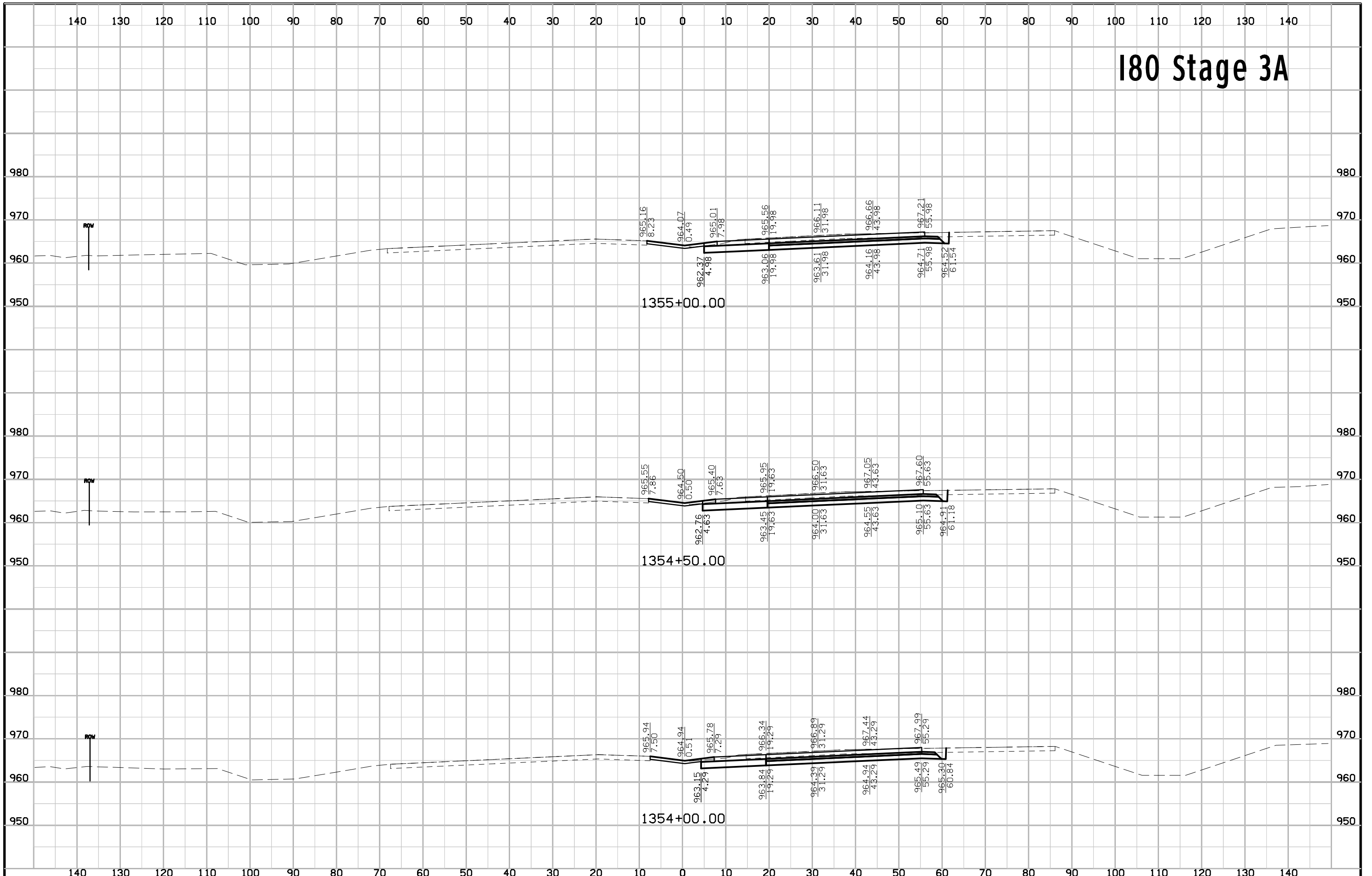
180 Stage 3A



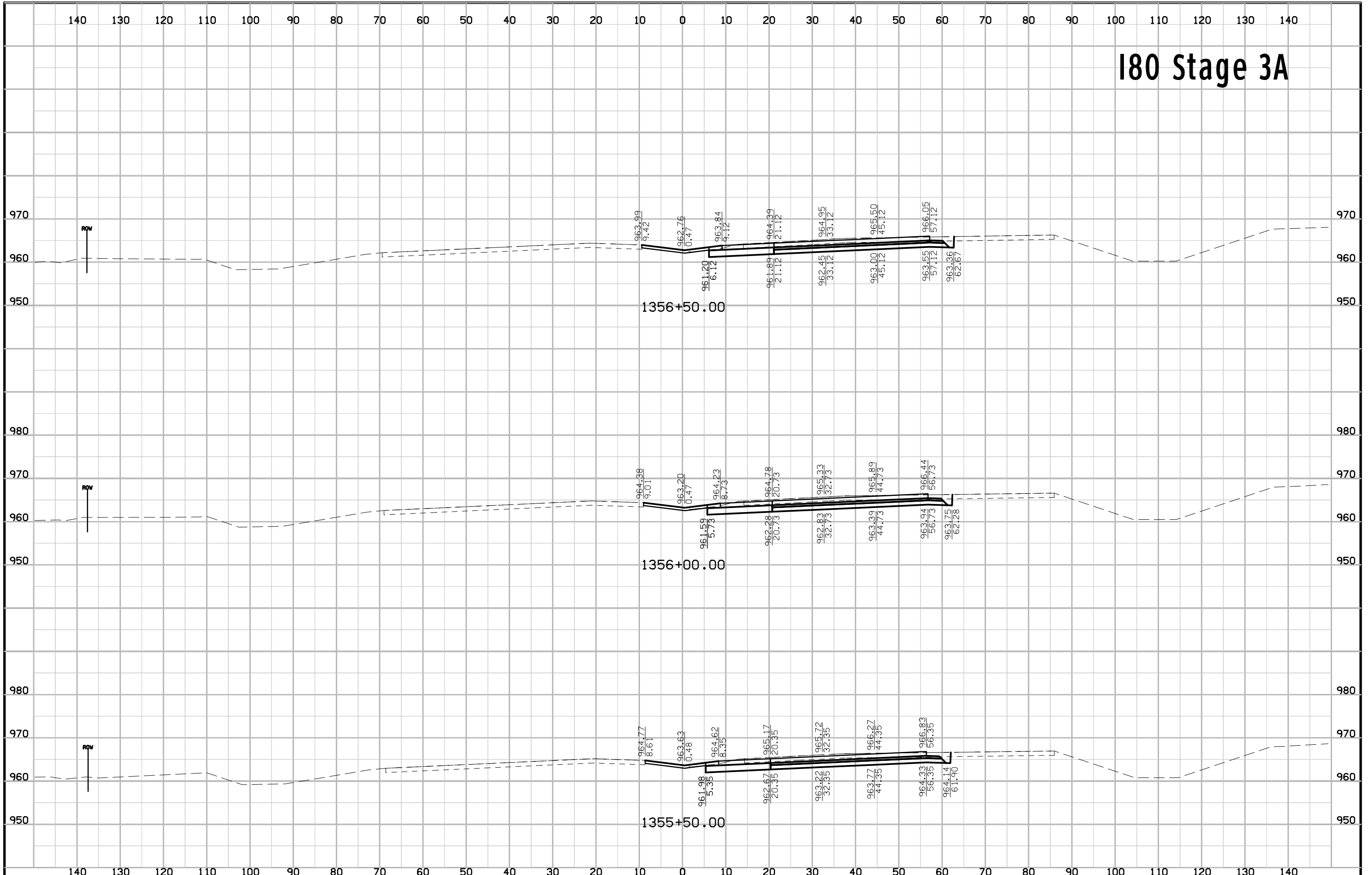
180 Stage 3A



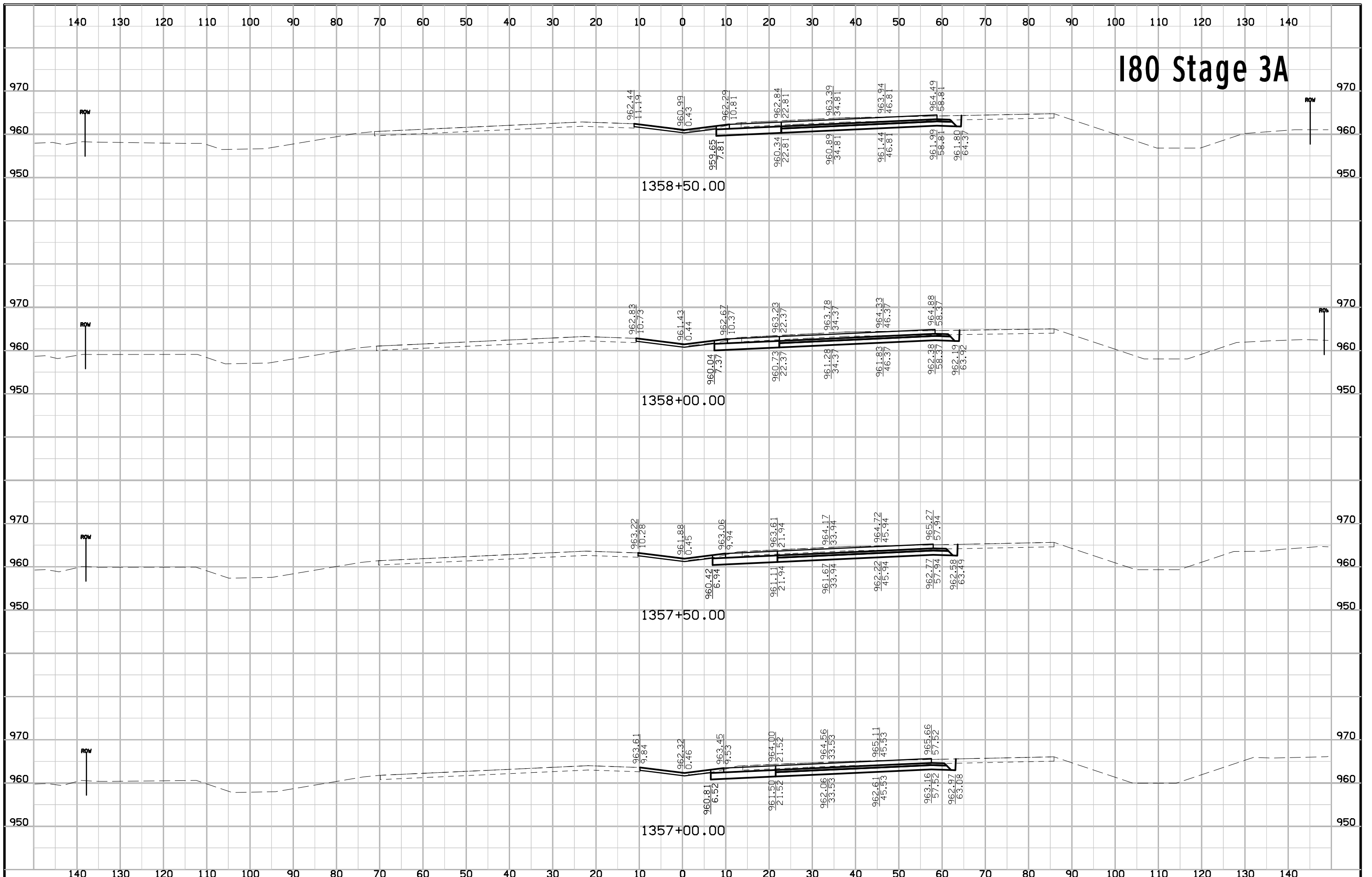
180 Stage 3A



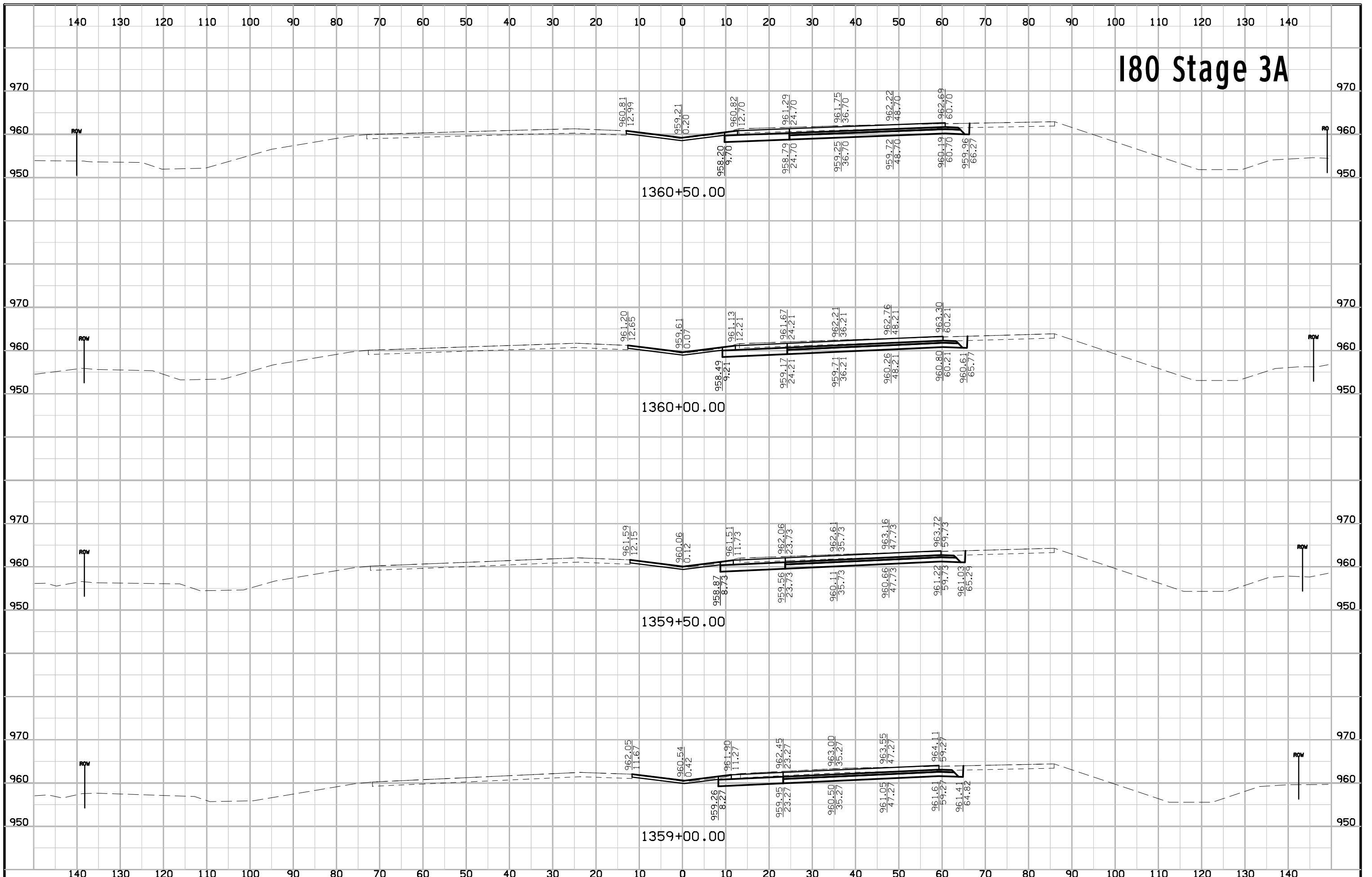
I80 Stage 3A



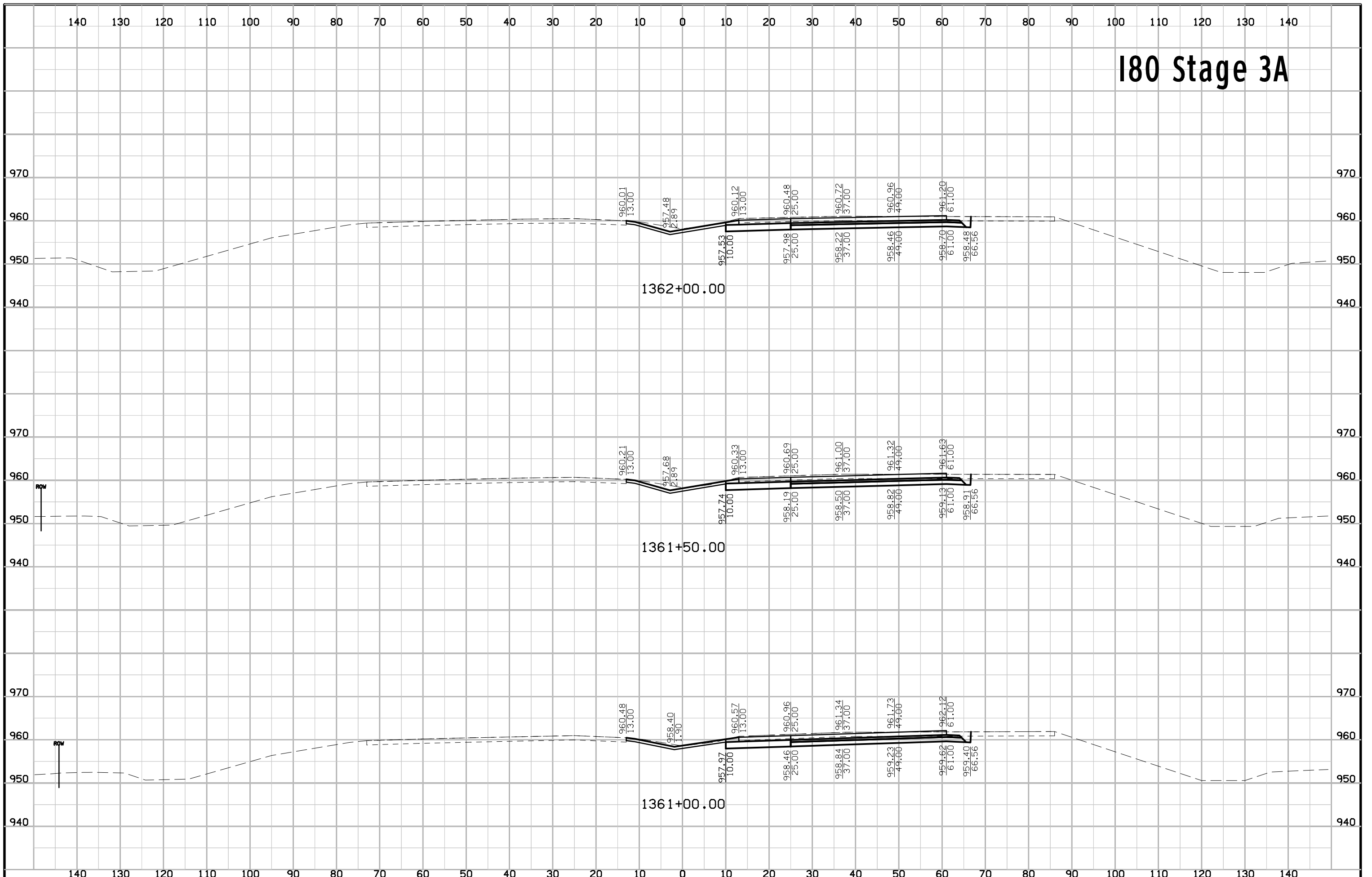
180 Stage 3A



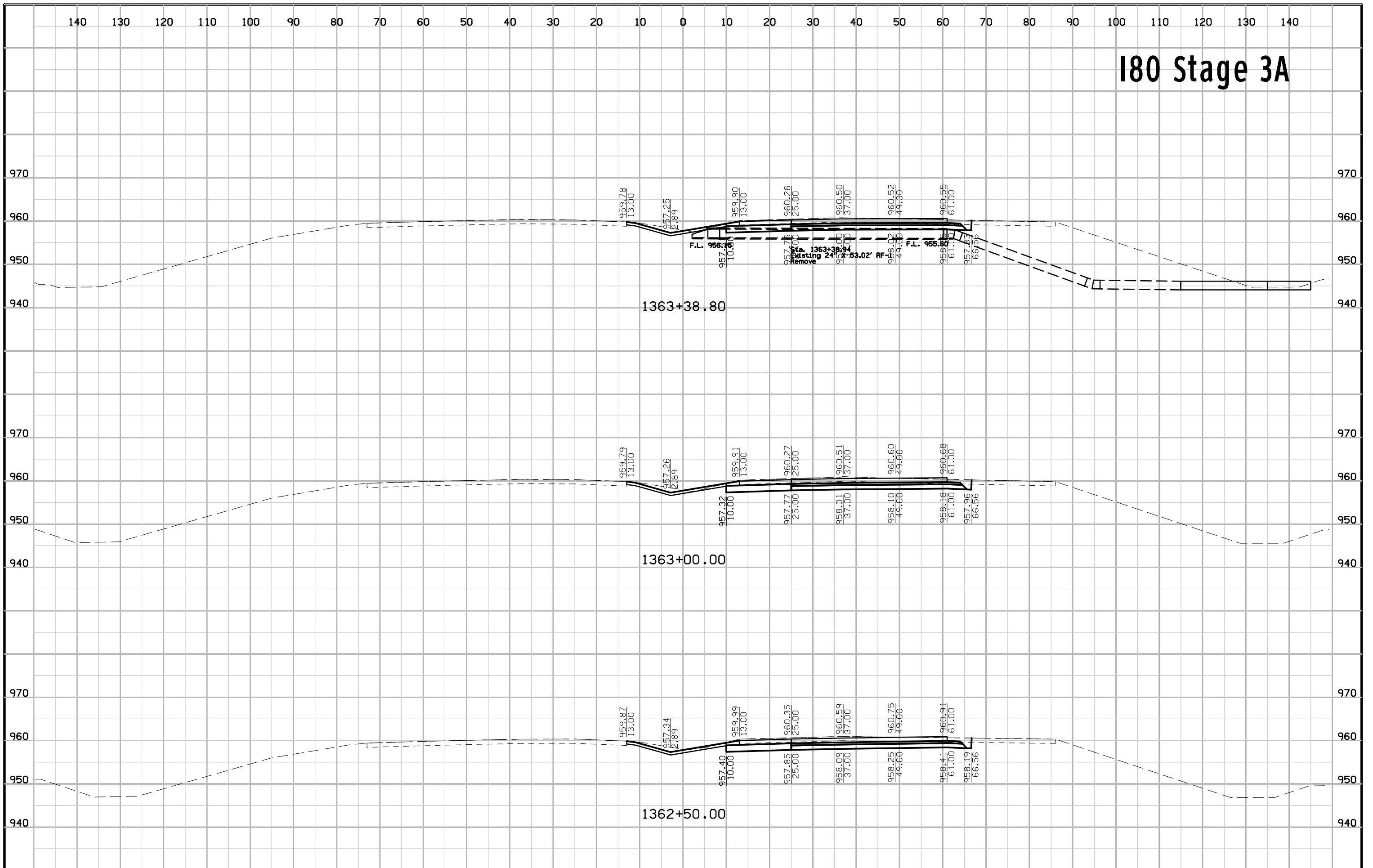
180 Stage 3A



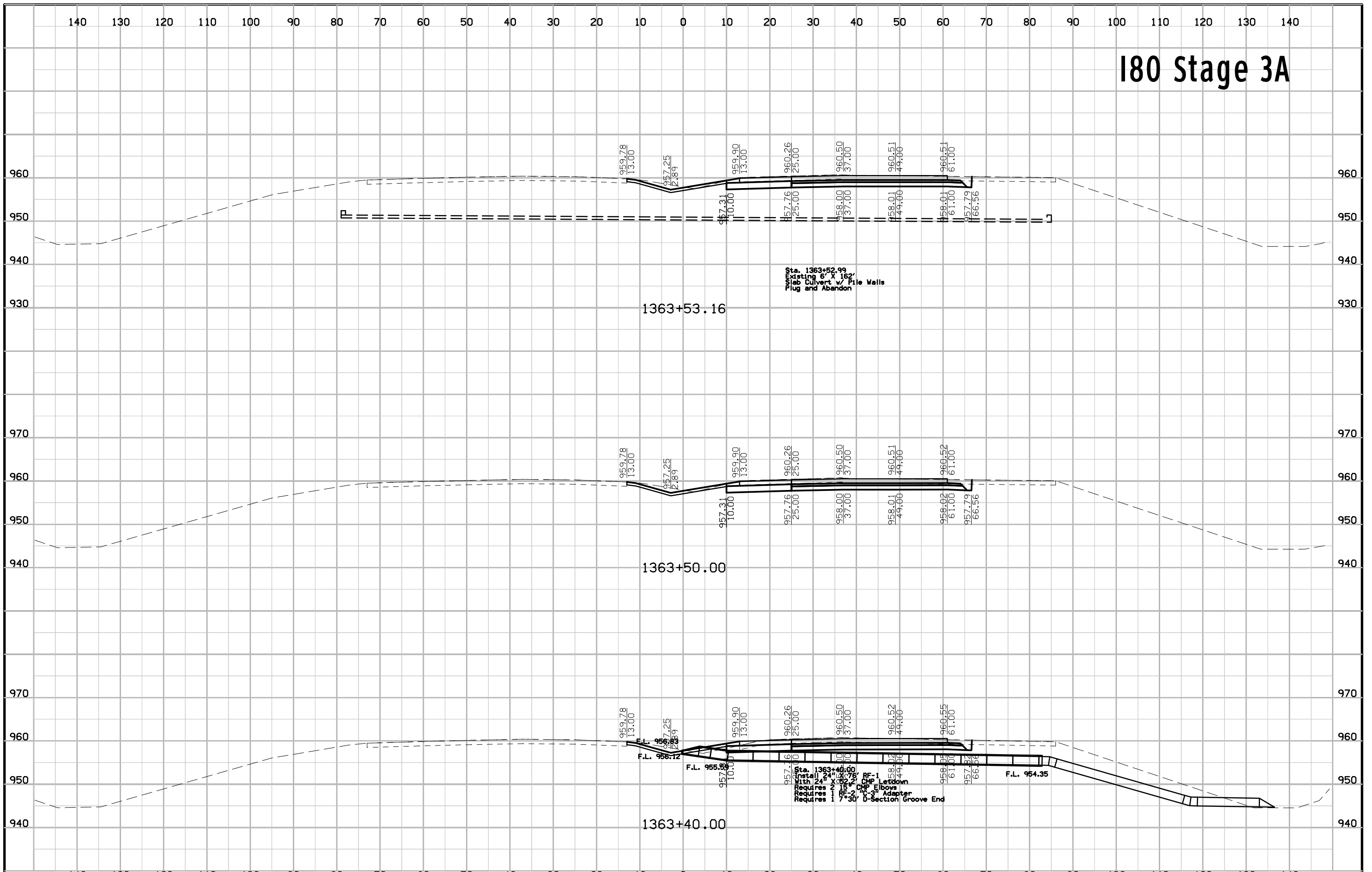
I80 Stage 3A



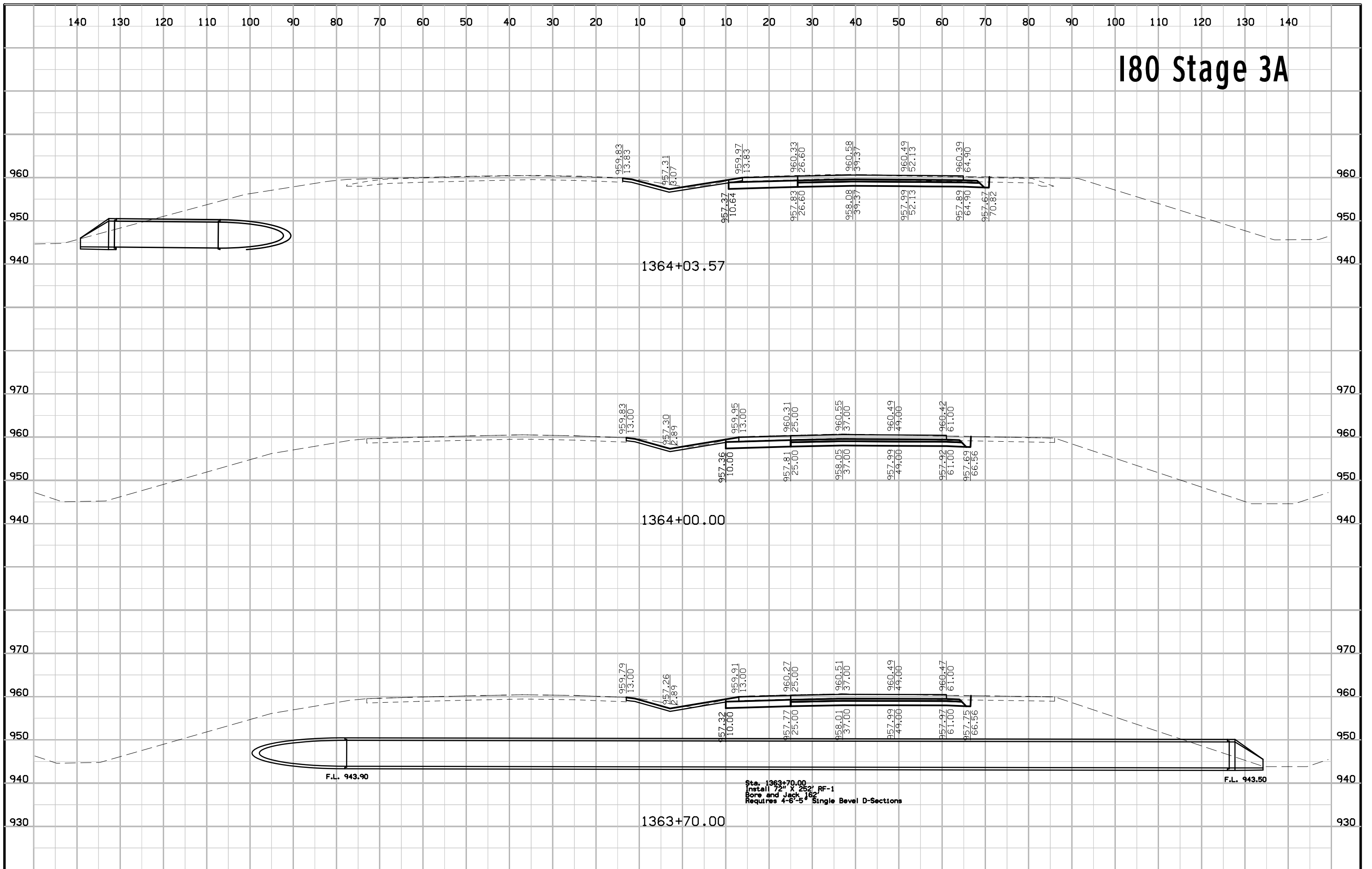
I80 Stage 3A



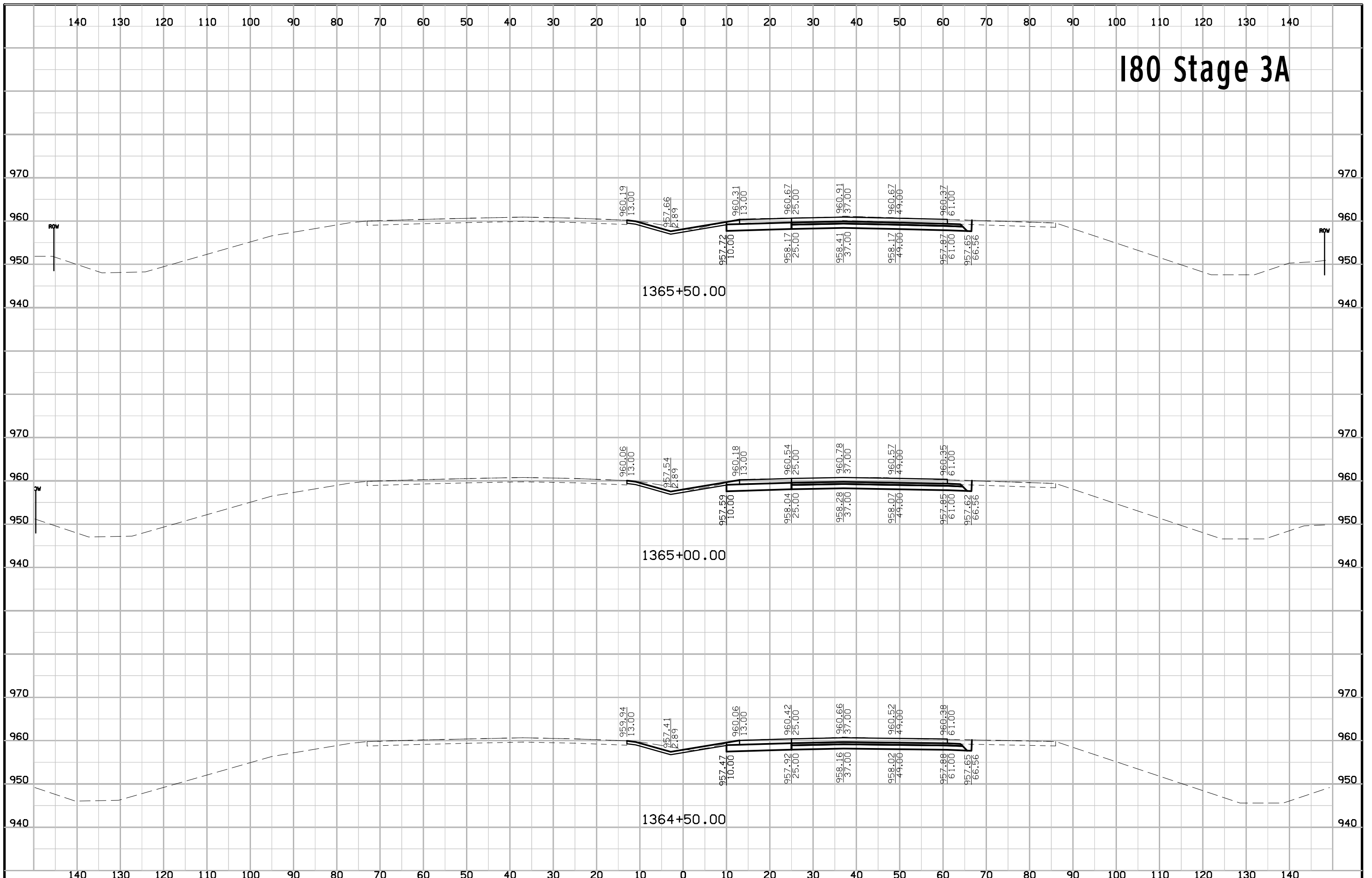
180 Stage 3A



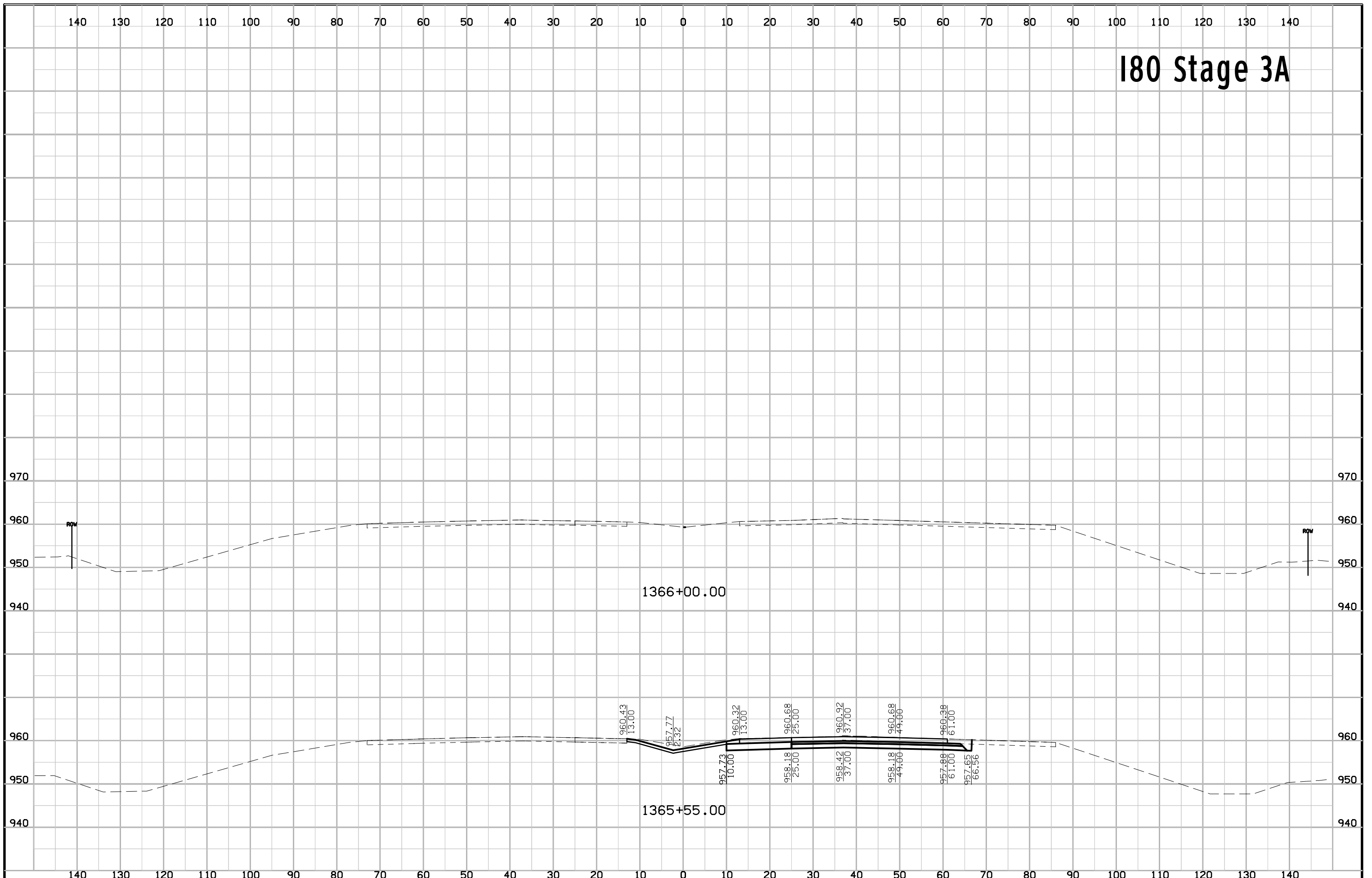
180 Stage 3A



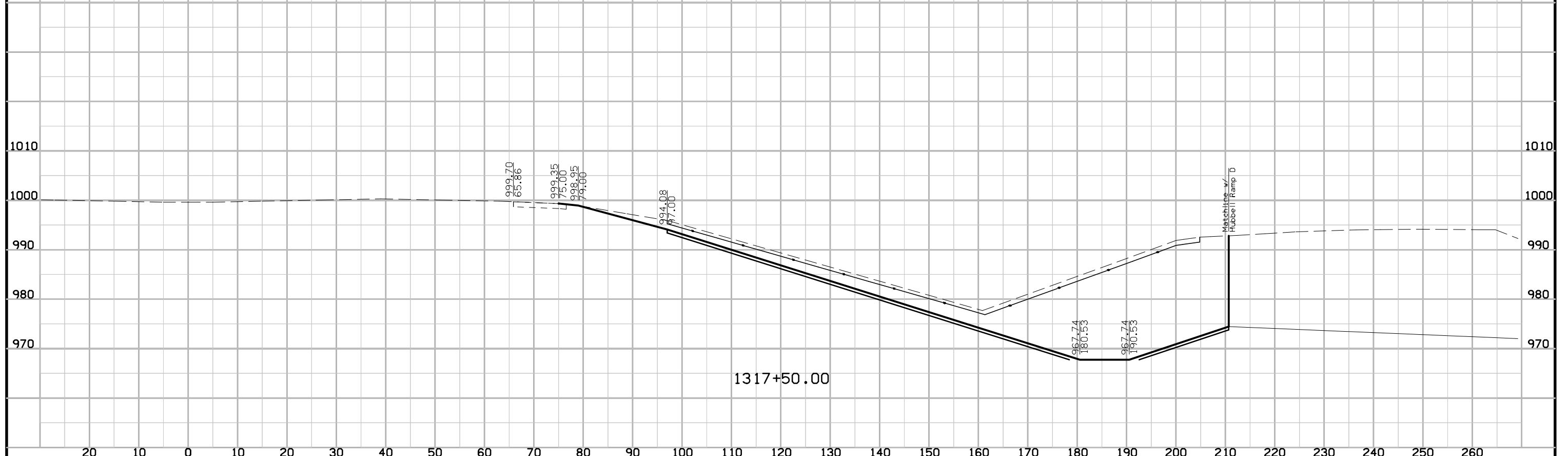
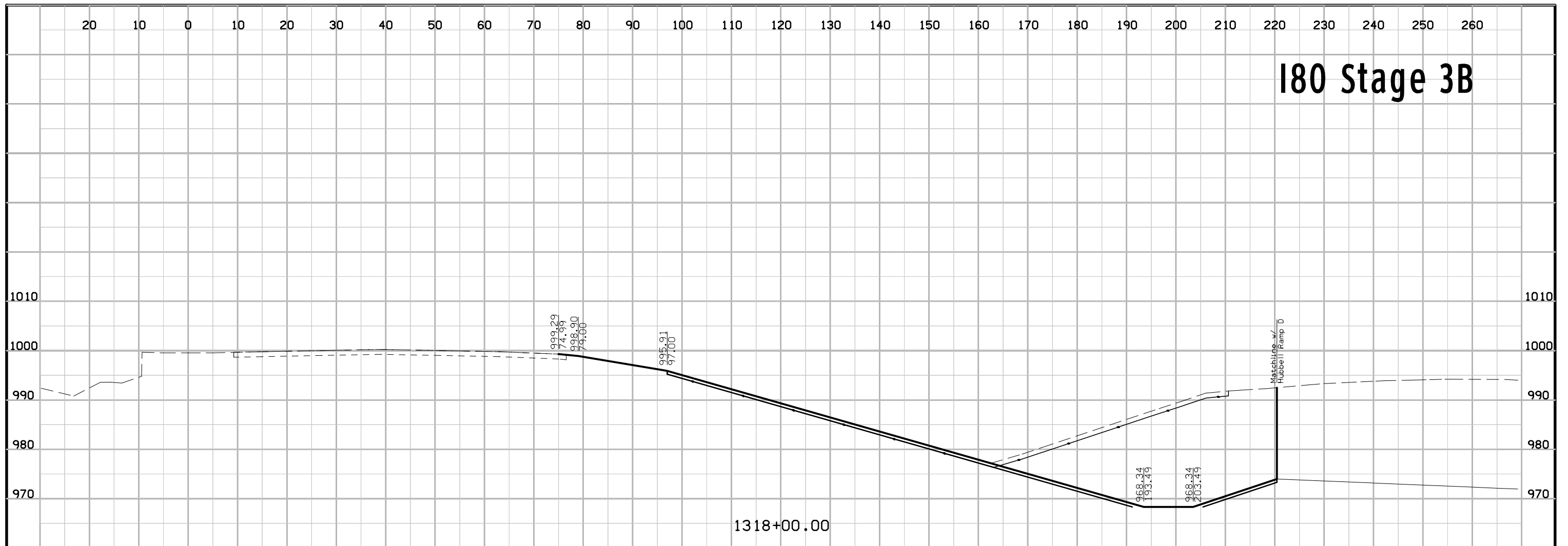
180 Stage 3A



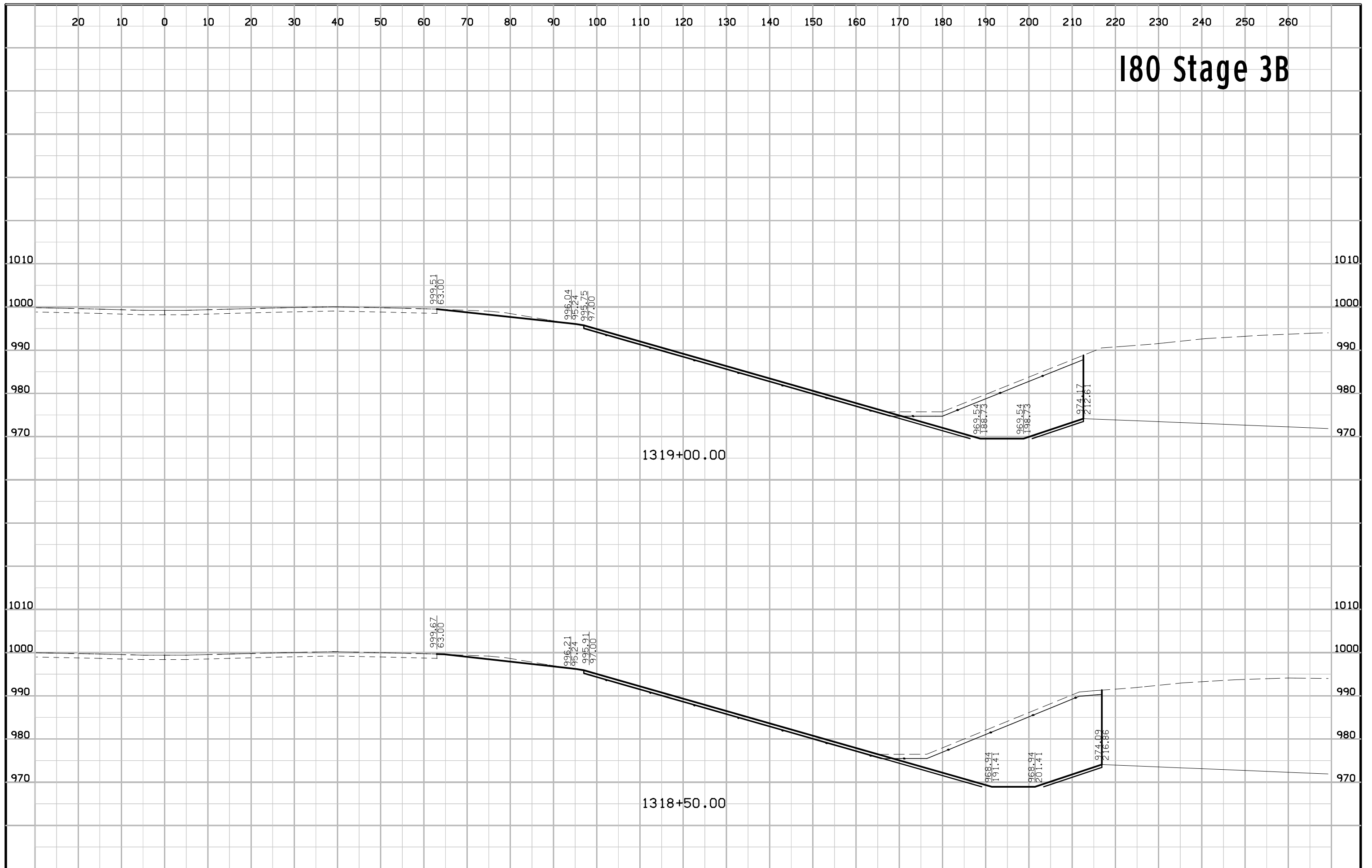
I80 Stage 3A



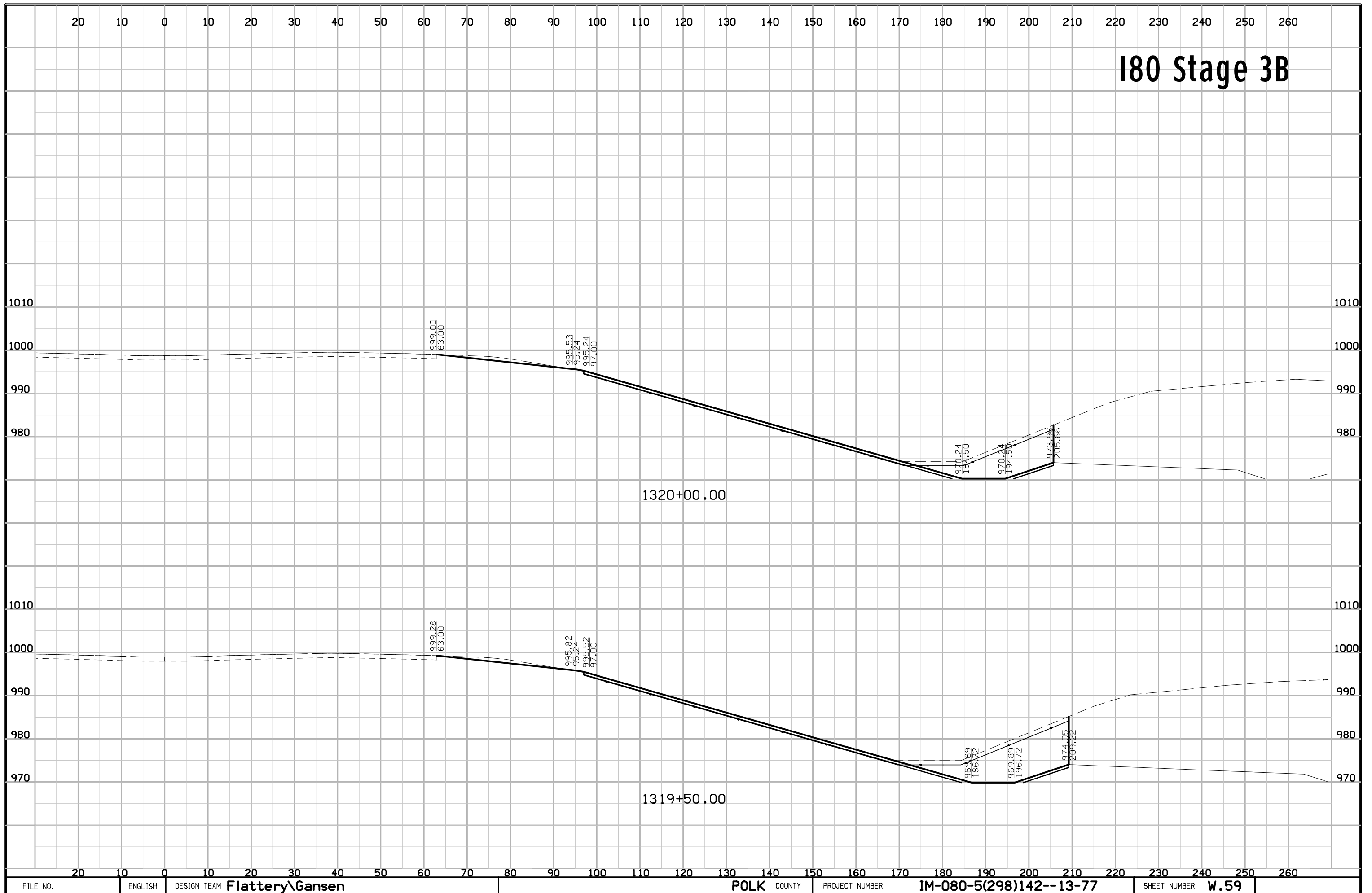
180 Stage 3B



I80 Stage 3B



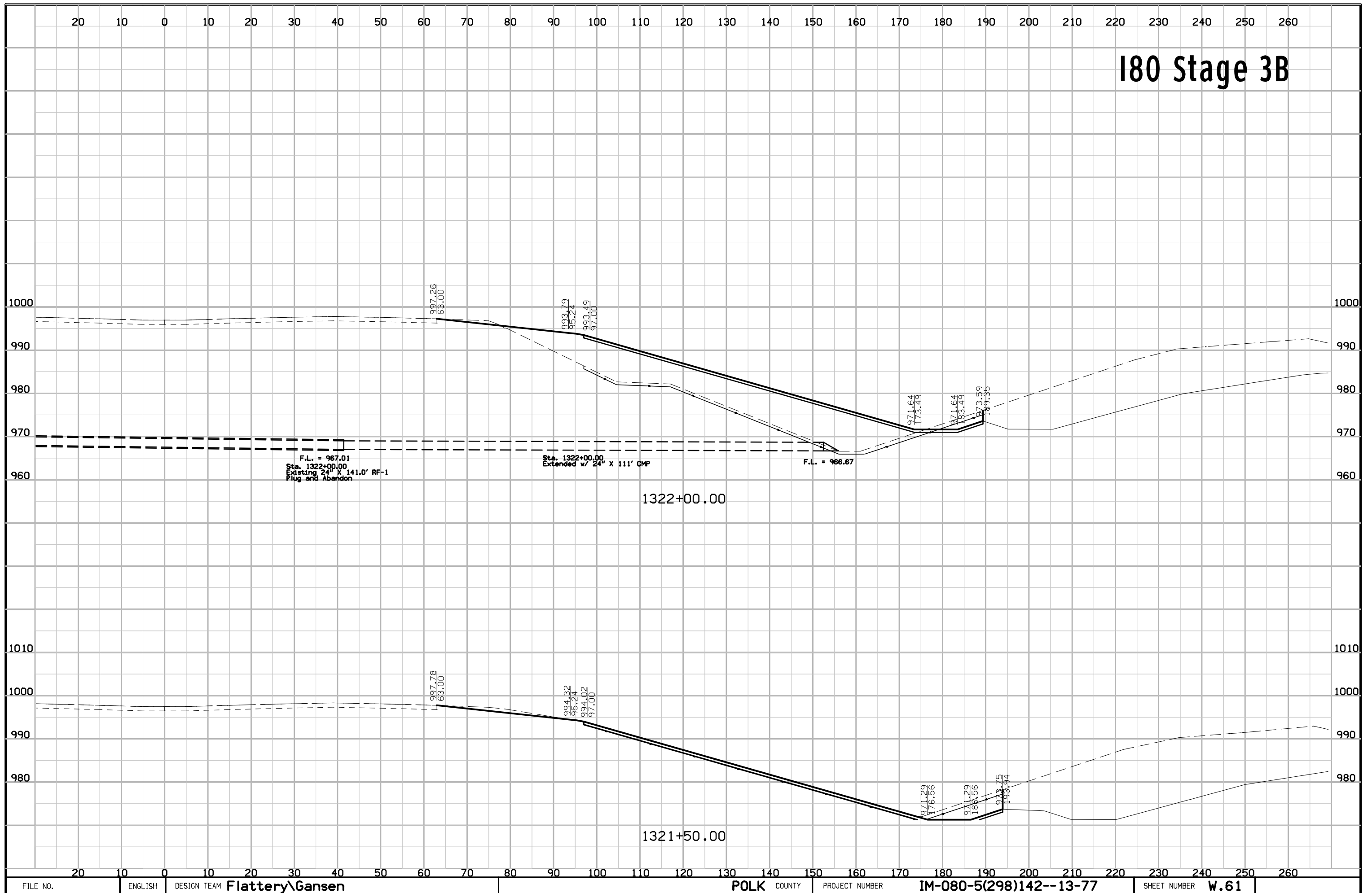
I80 Stage 3B



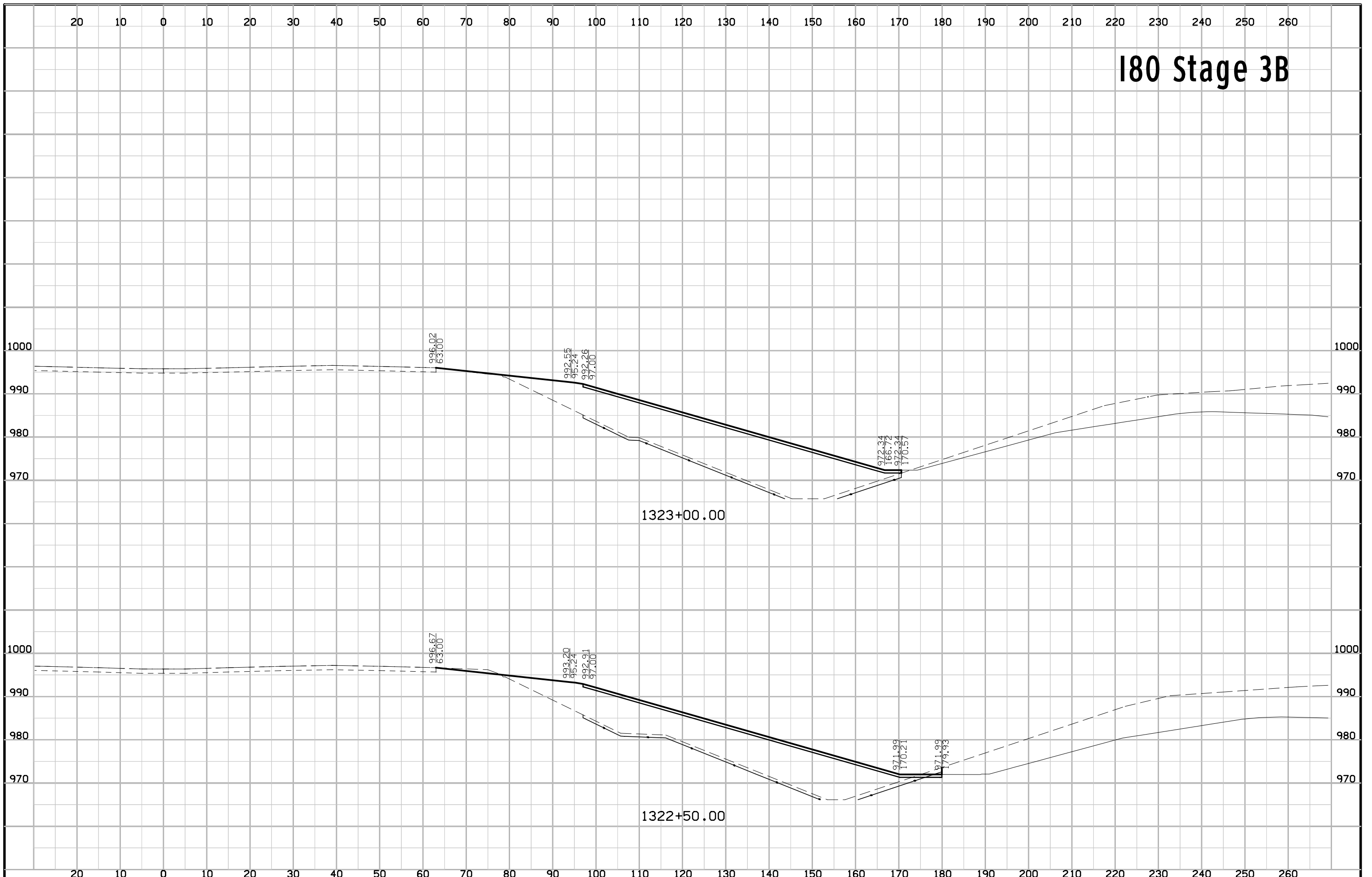
I80 Stage 3B



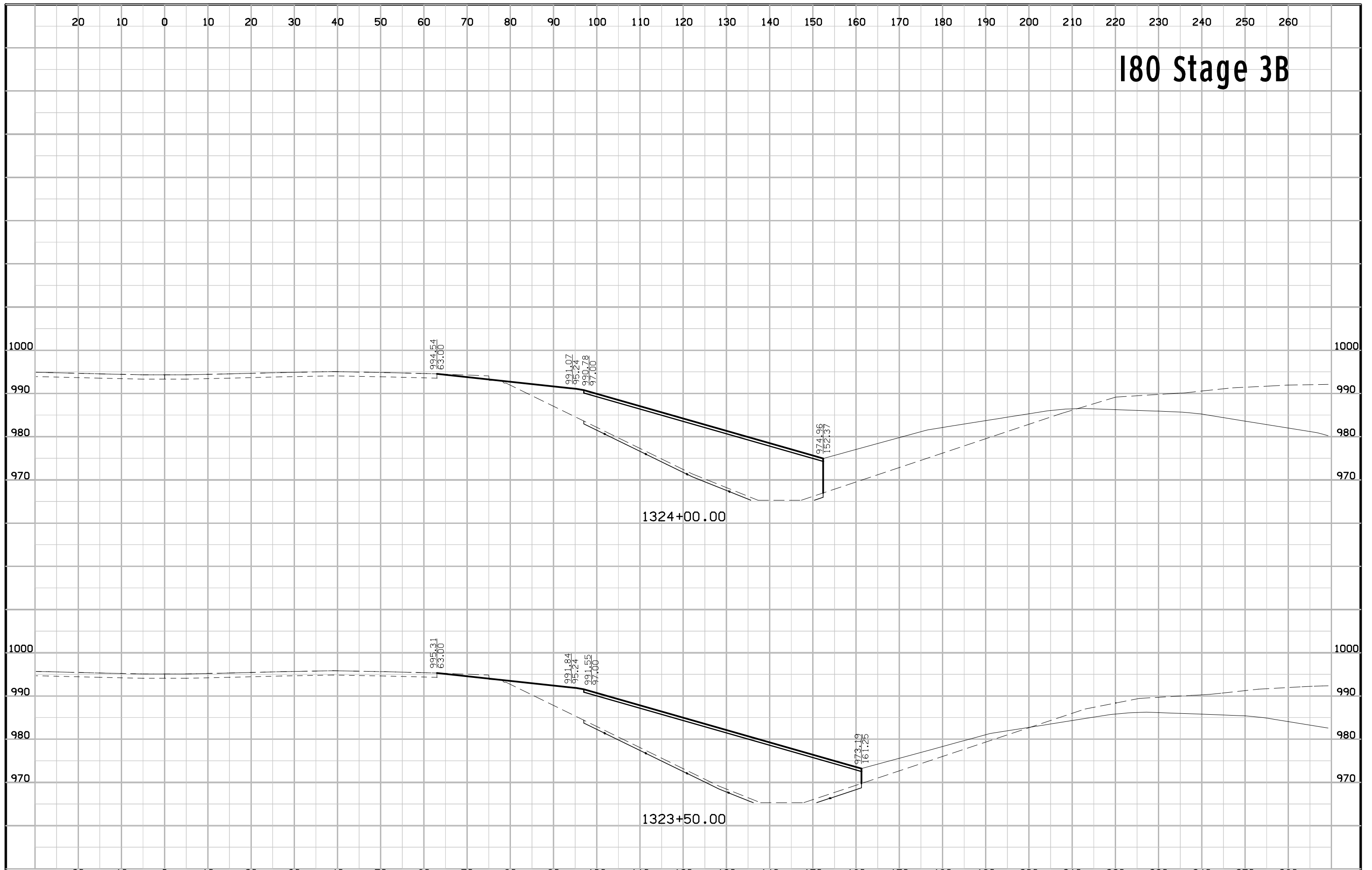
I80 Stage 3B



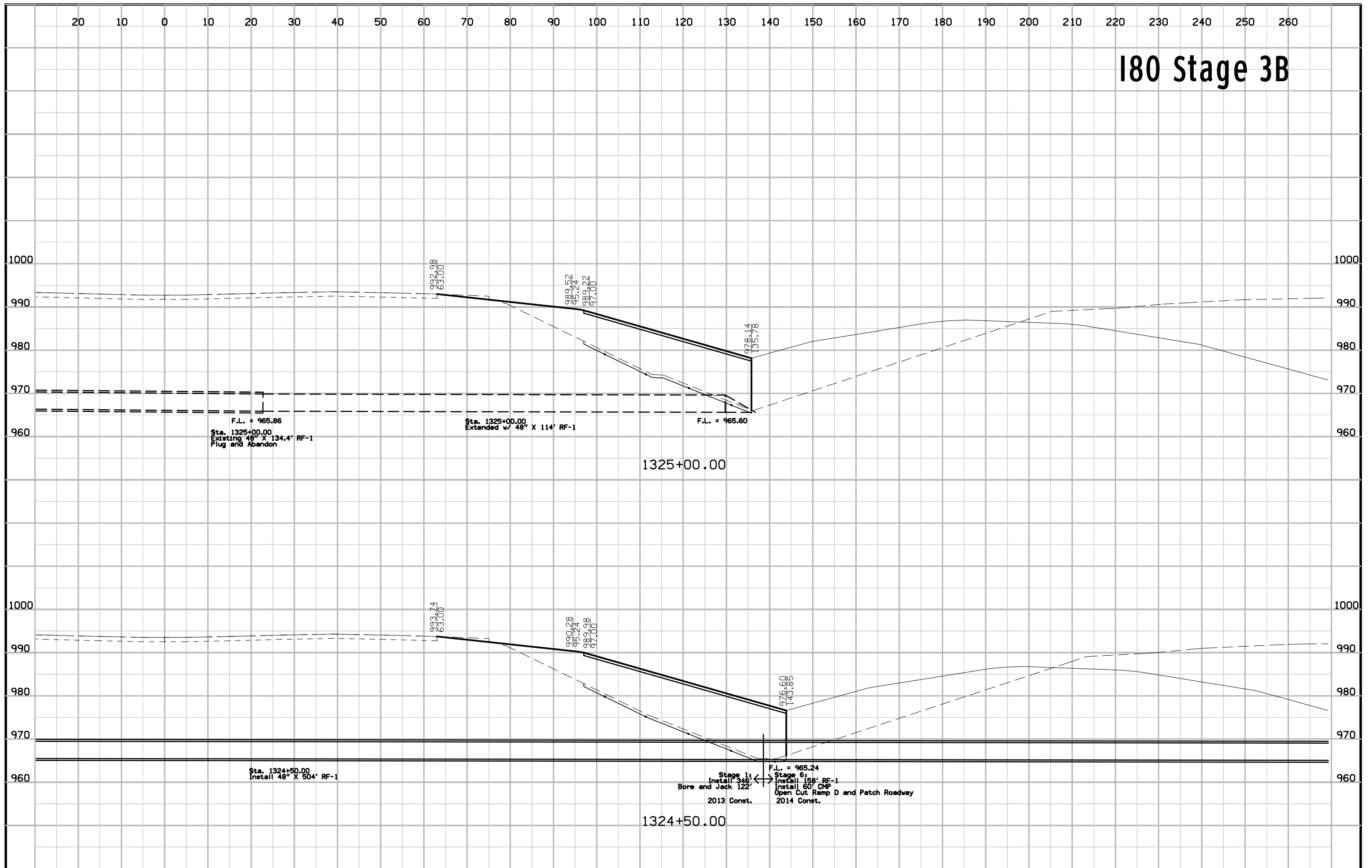
I80 Stage 3B



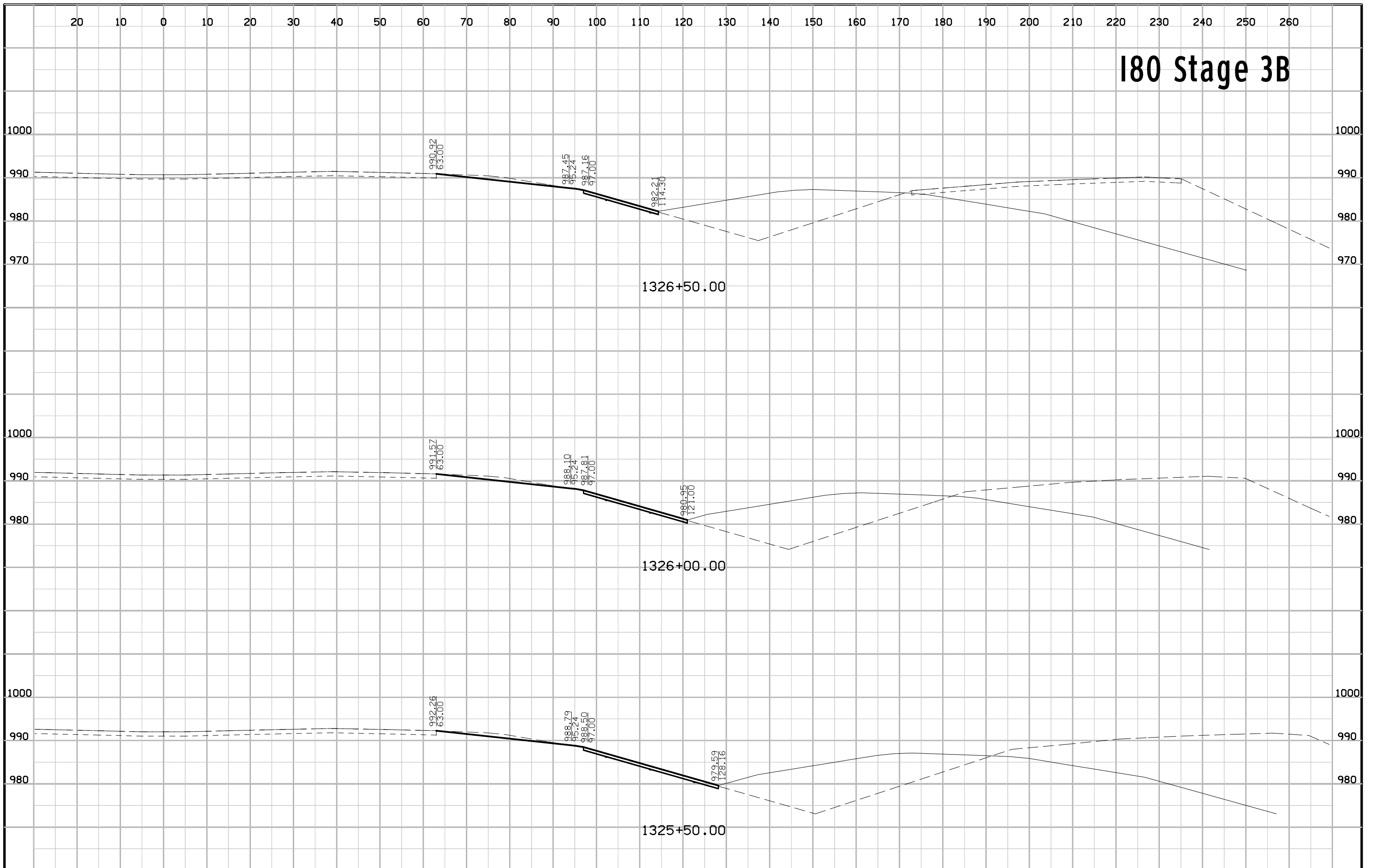
I80 Stage 3B



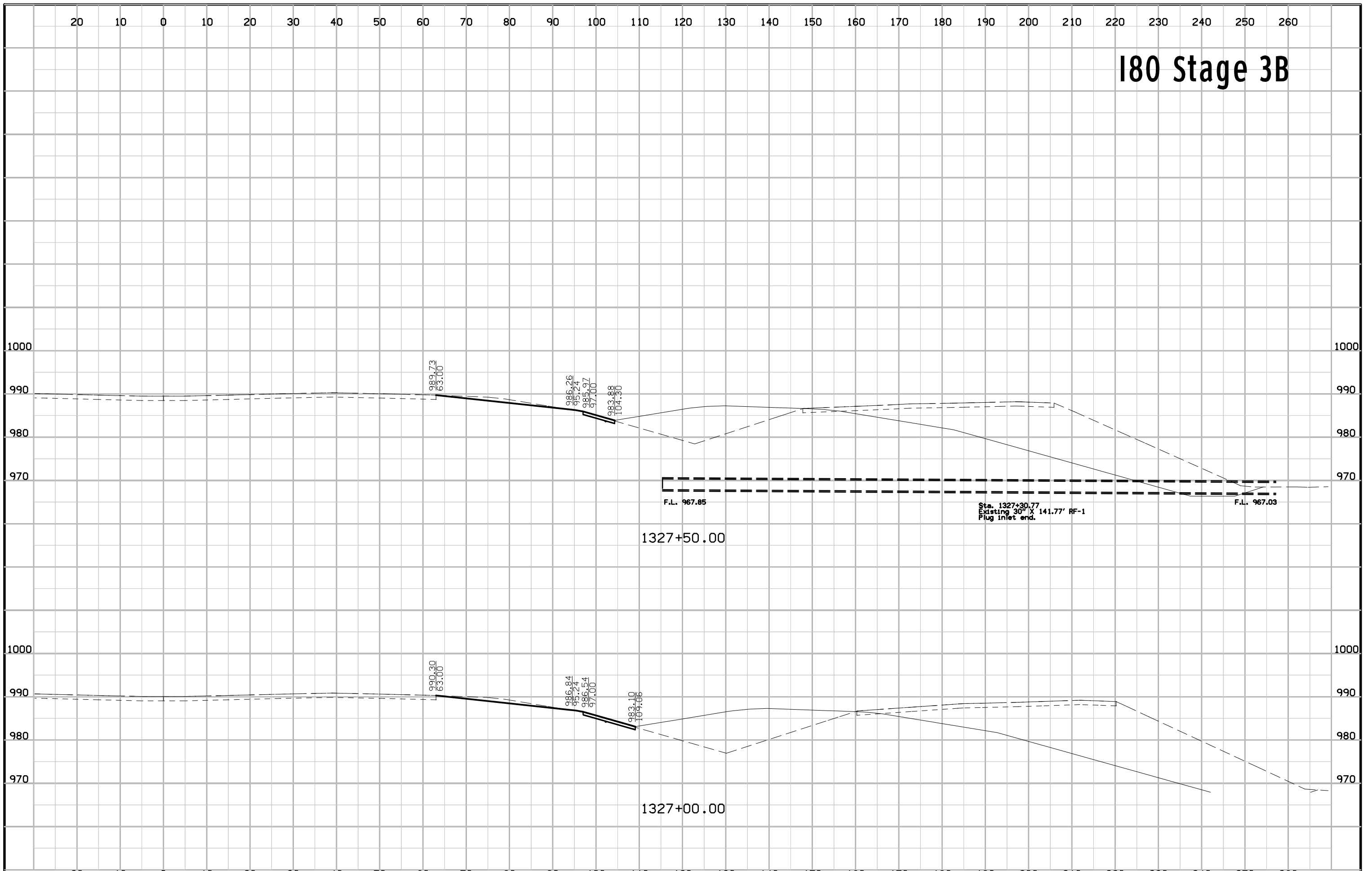
I80 Stage 3B



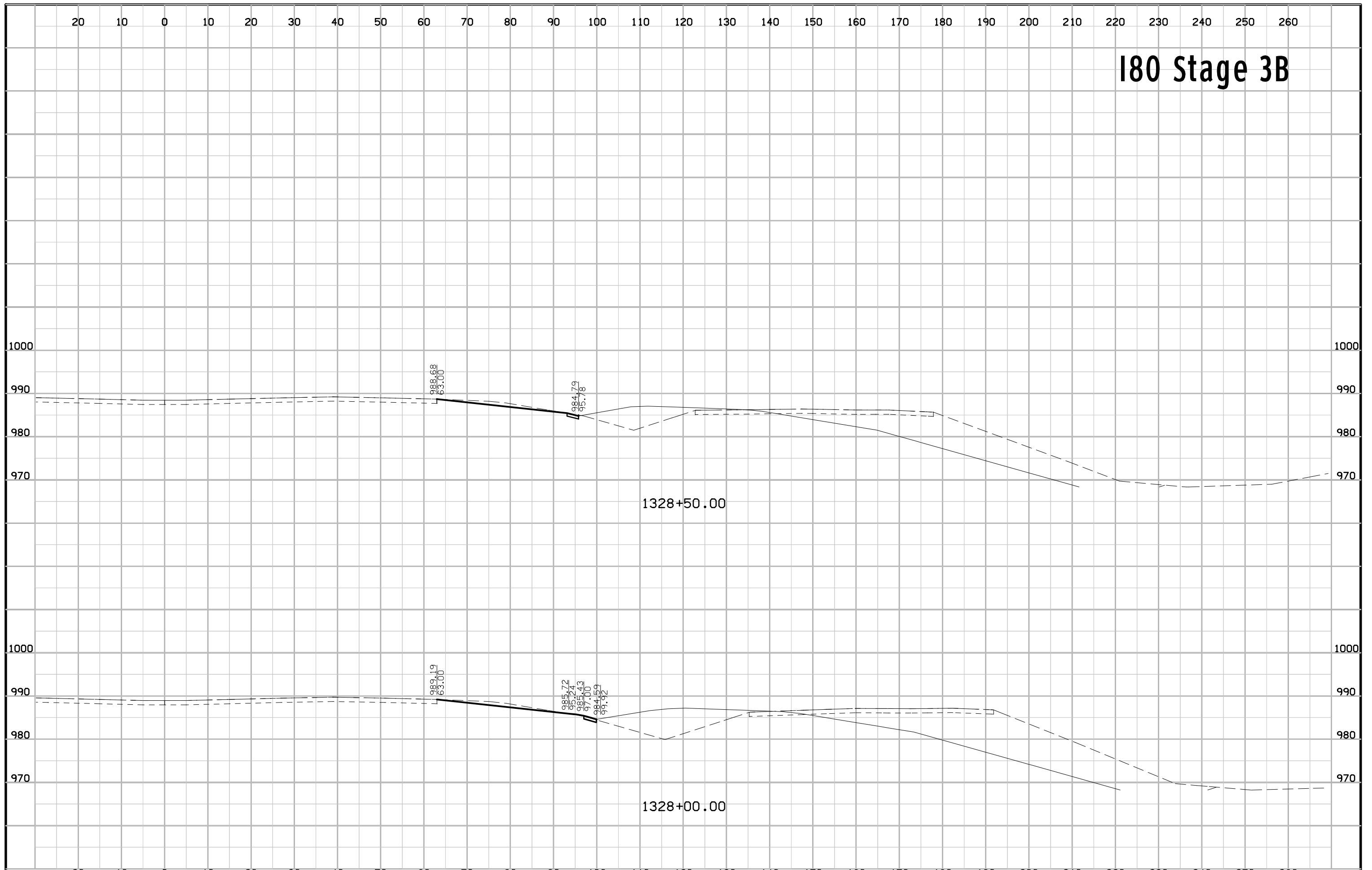
I80 Stage 3B



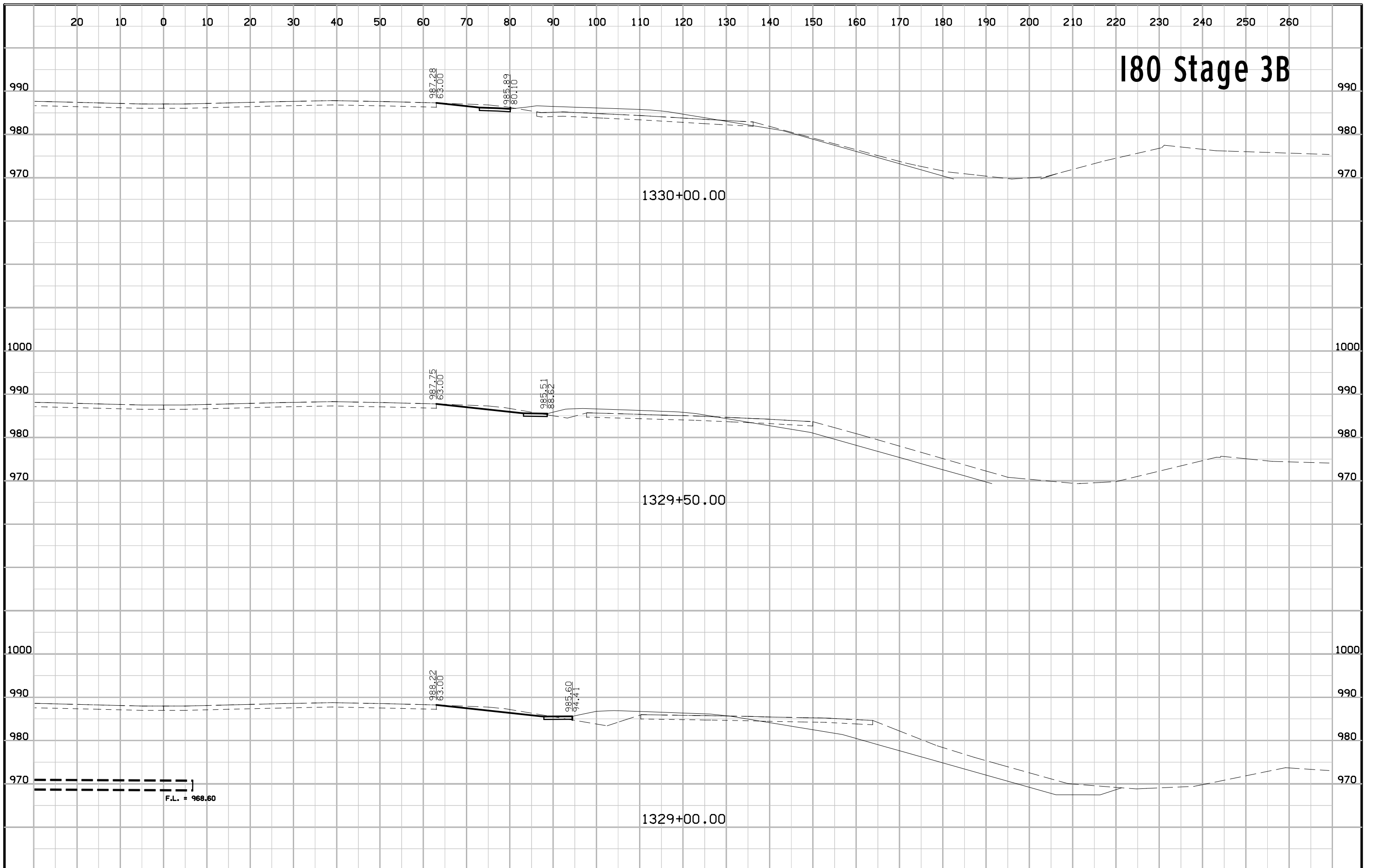
I80 Stage 3B



I80 Stage 3B

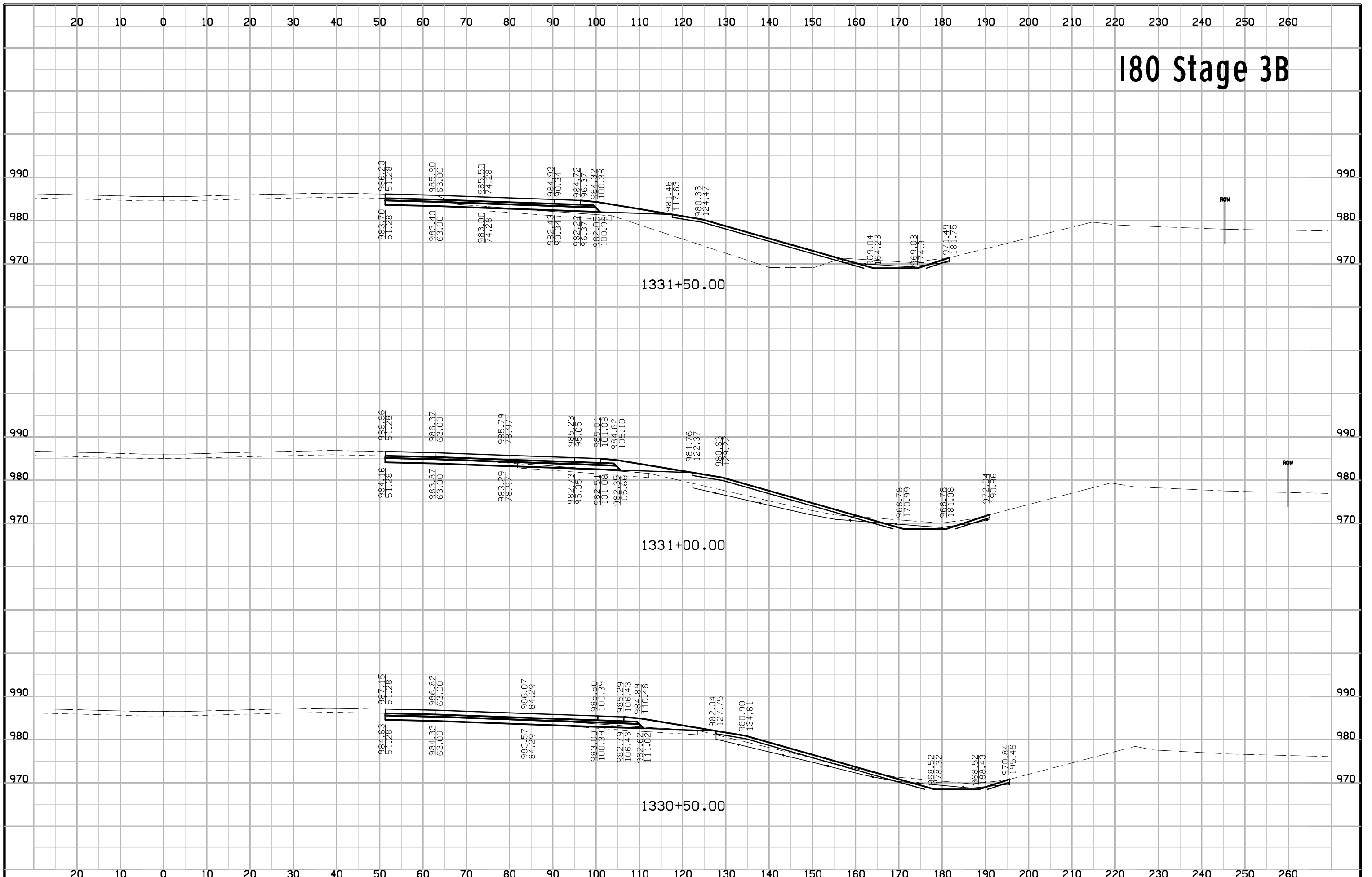


I80 Stage 3B

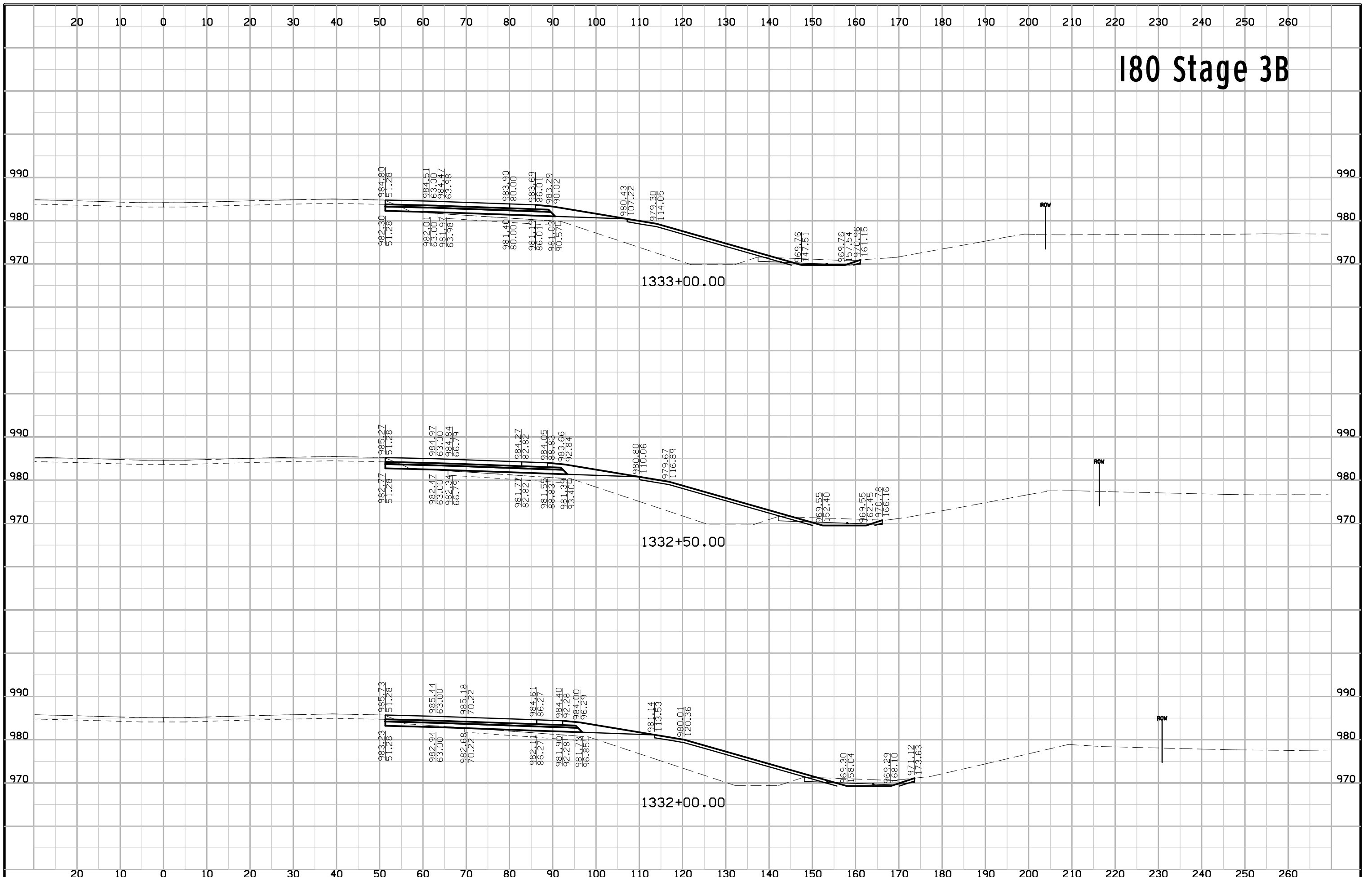


F.L. = 968.60

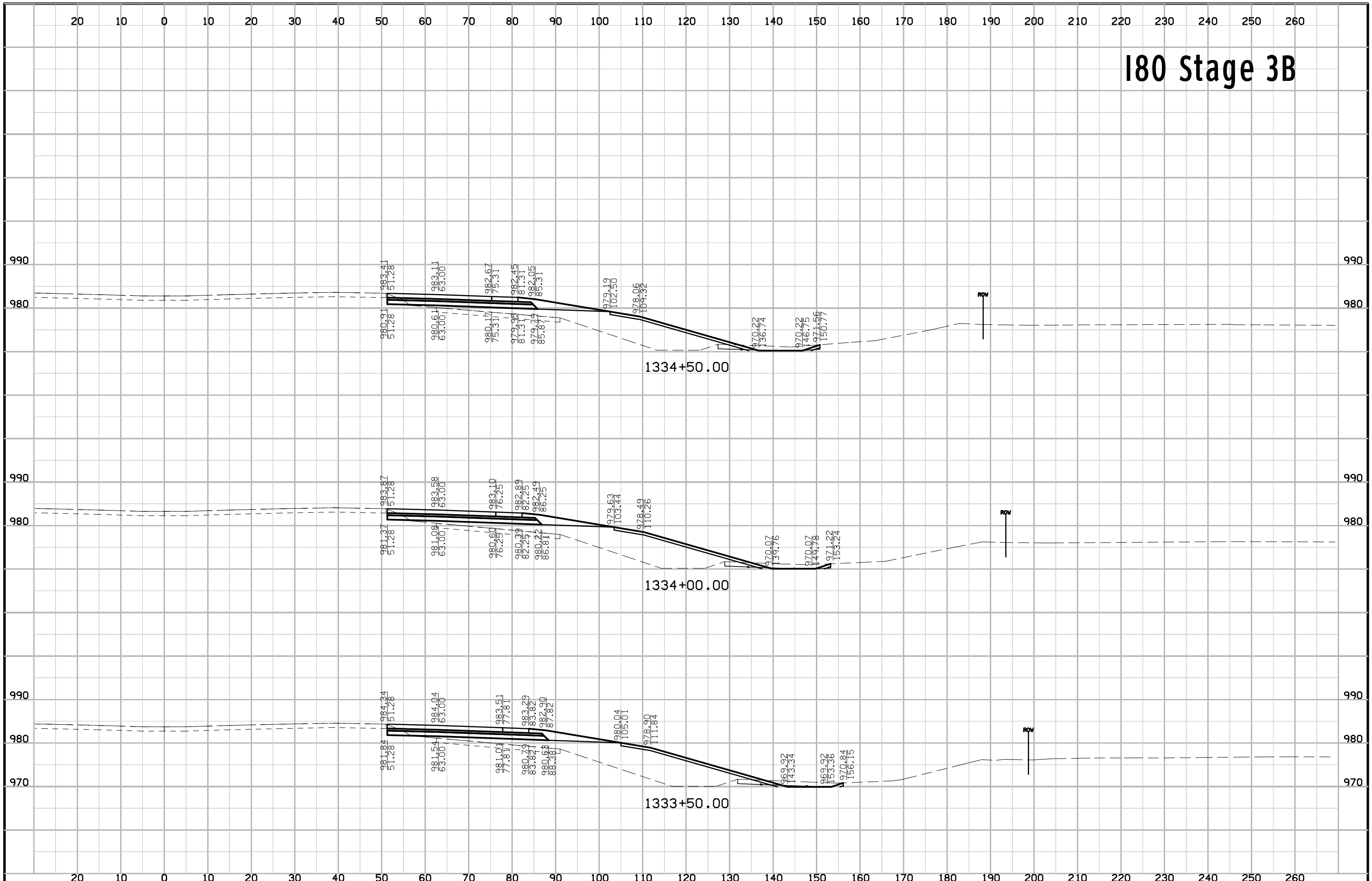
I80 Stage 3B



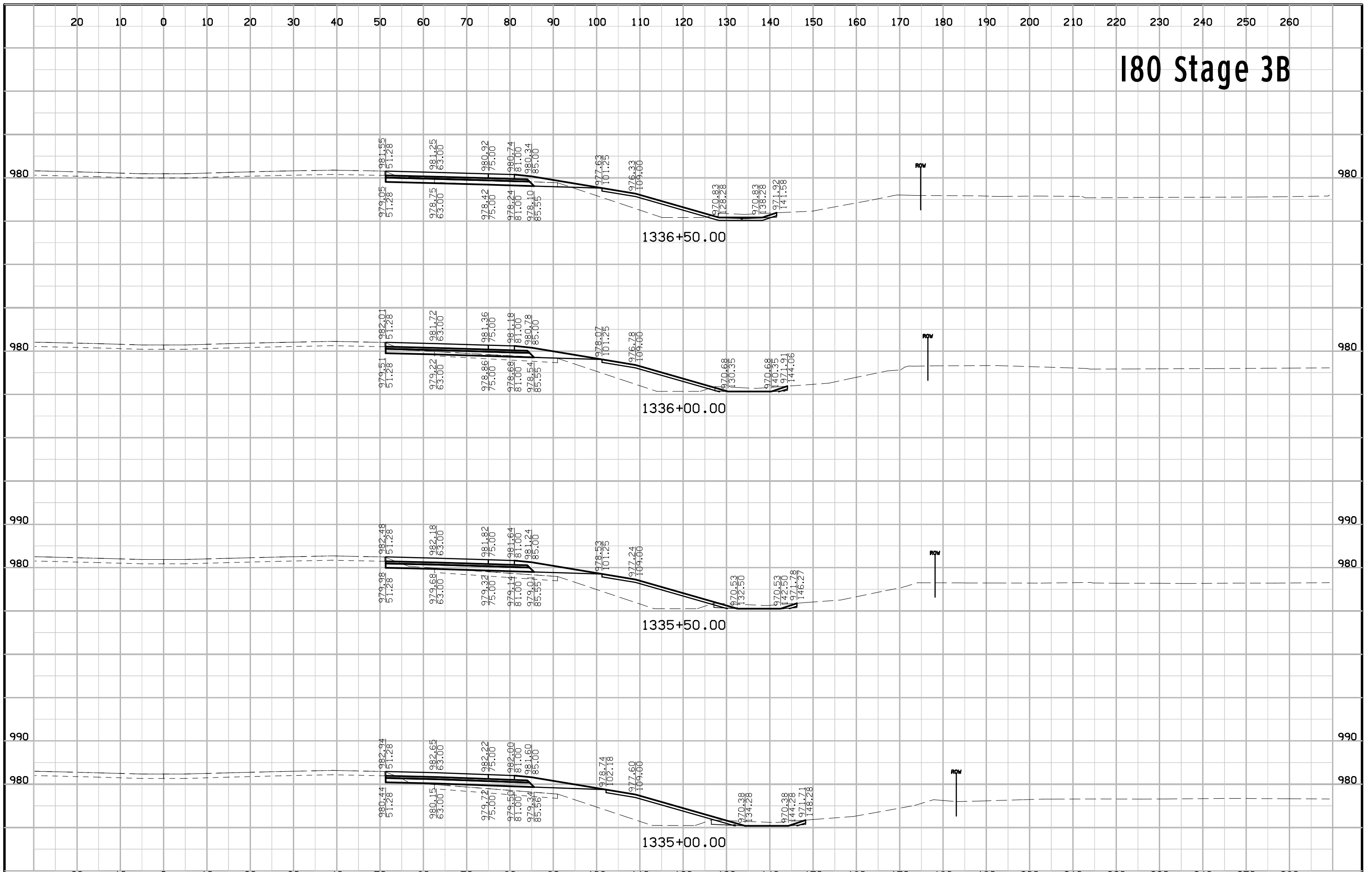
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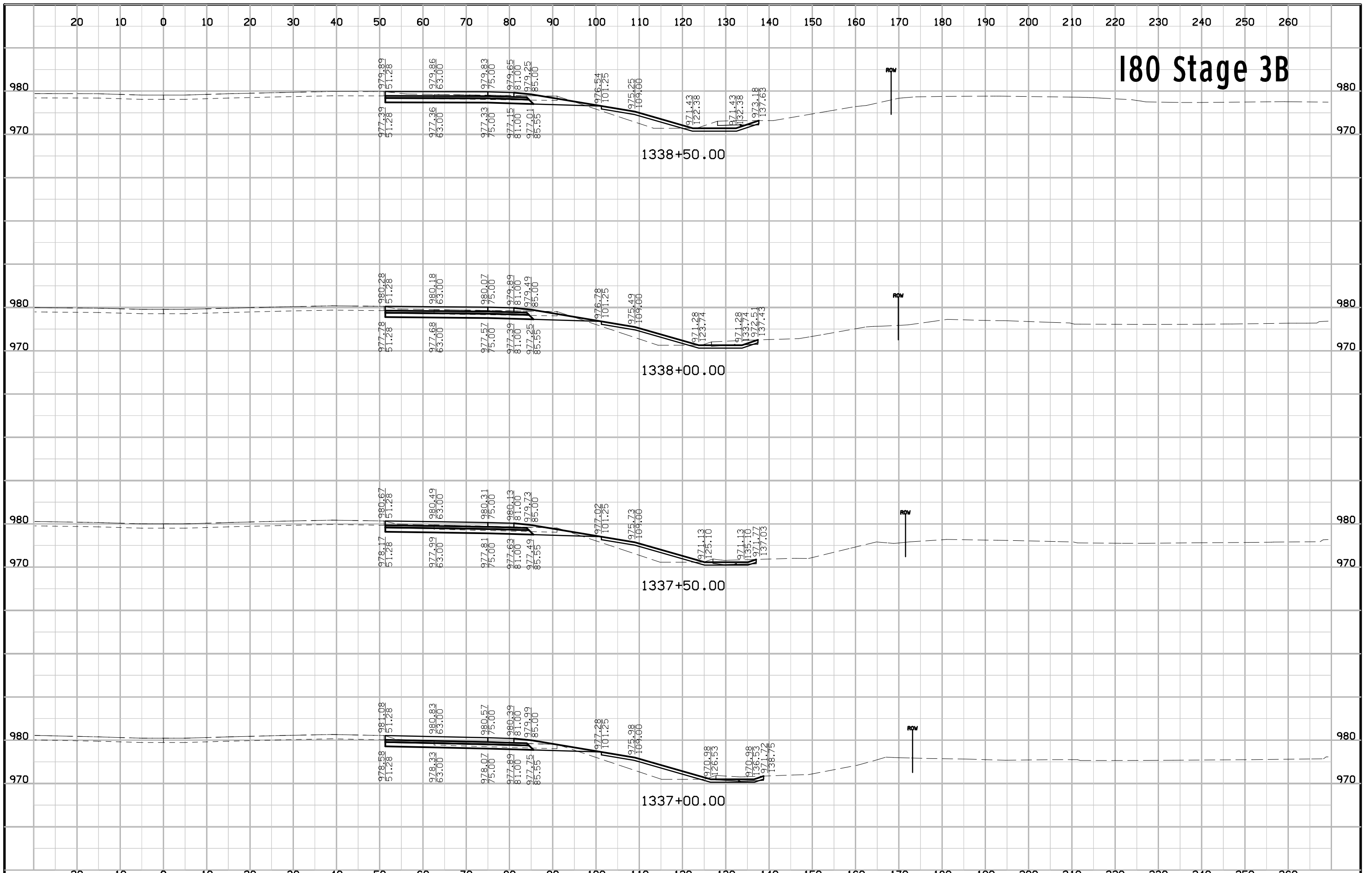
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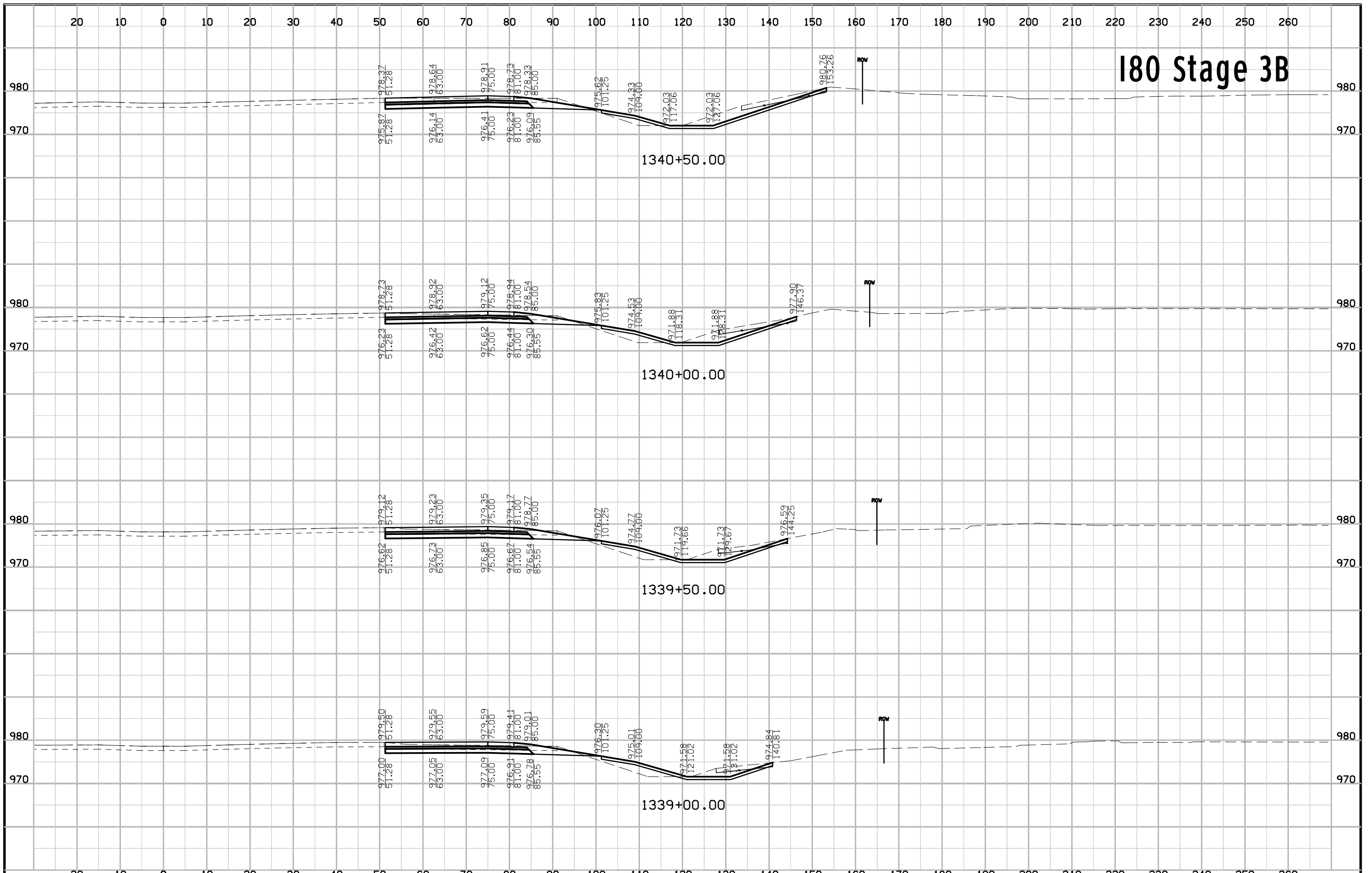
I80 Stage 3B



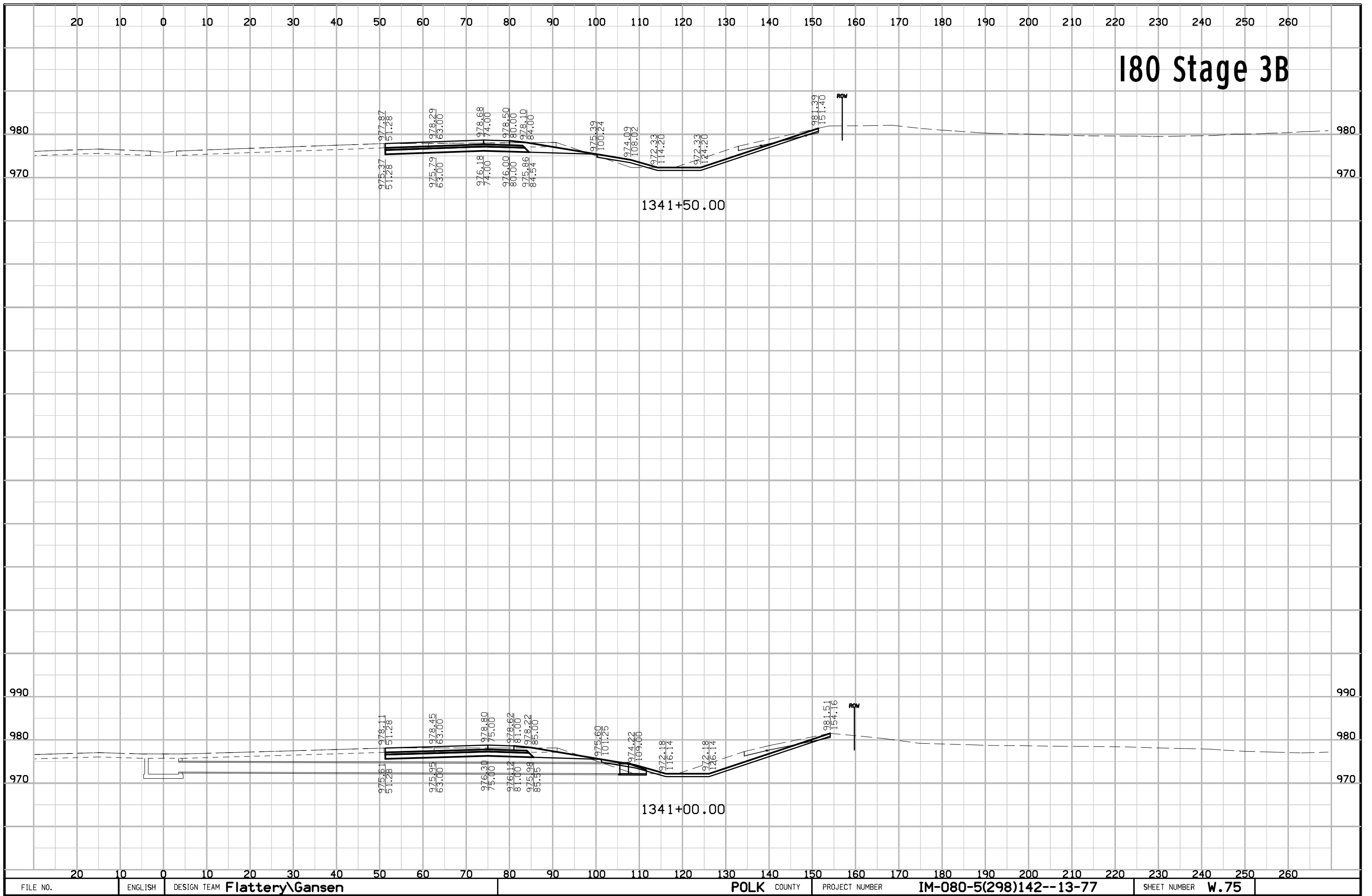
I80 Stage 3B



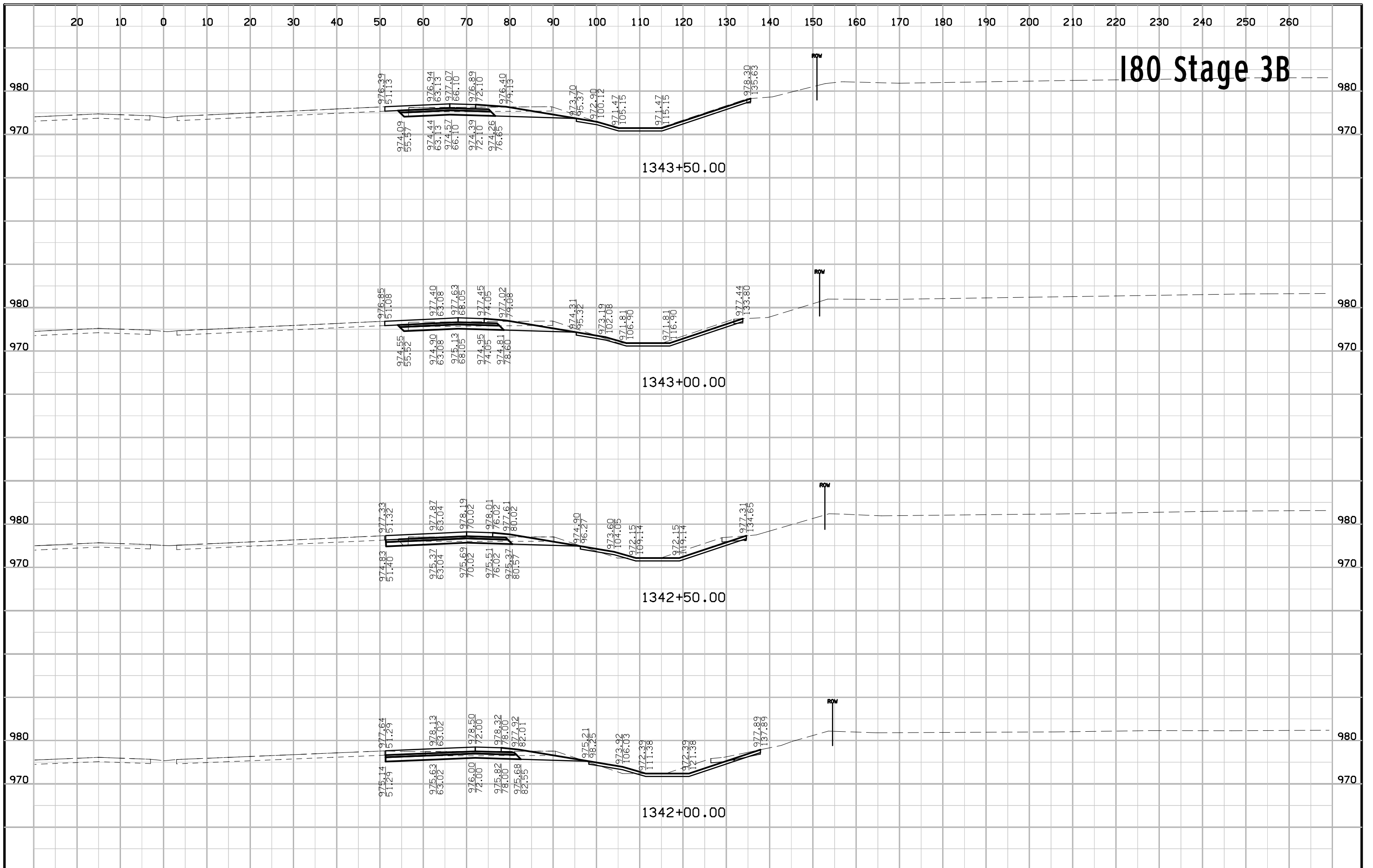
I80 Stage 3B



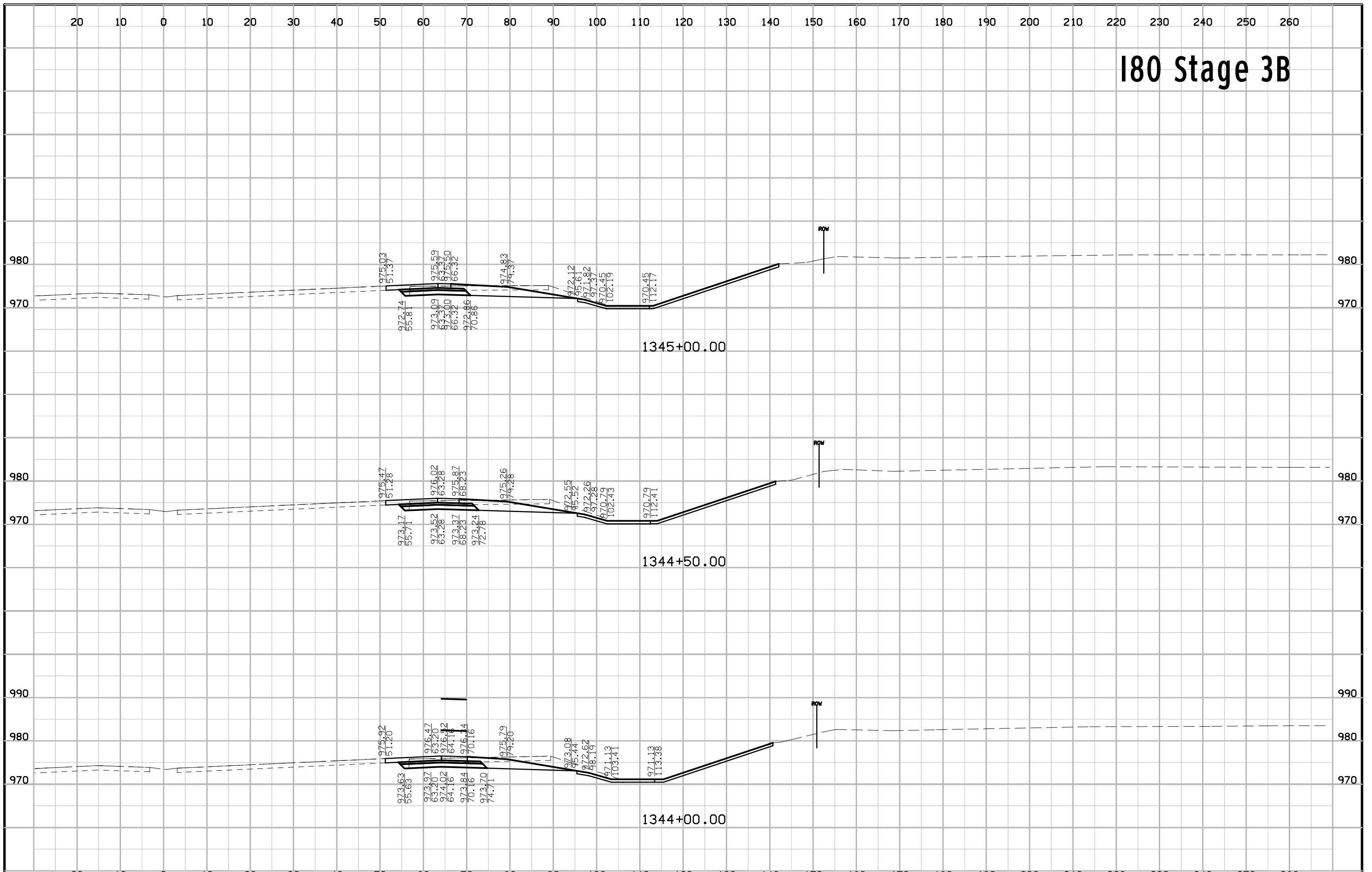
I80 Stage 3B

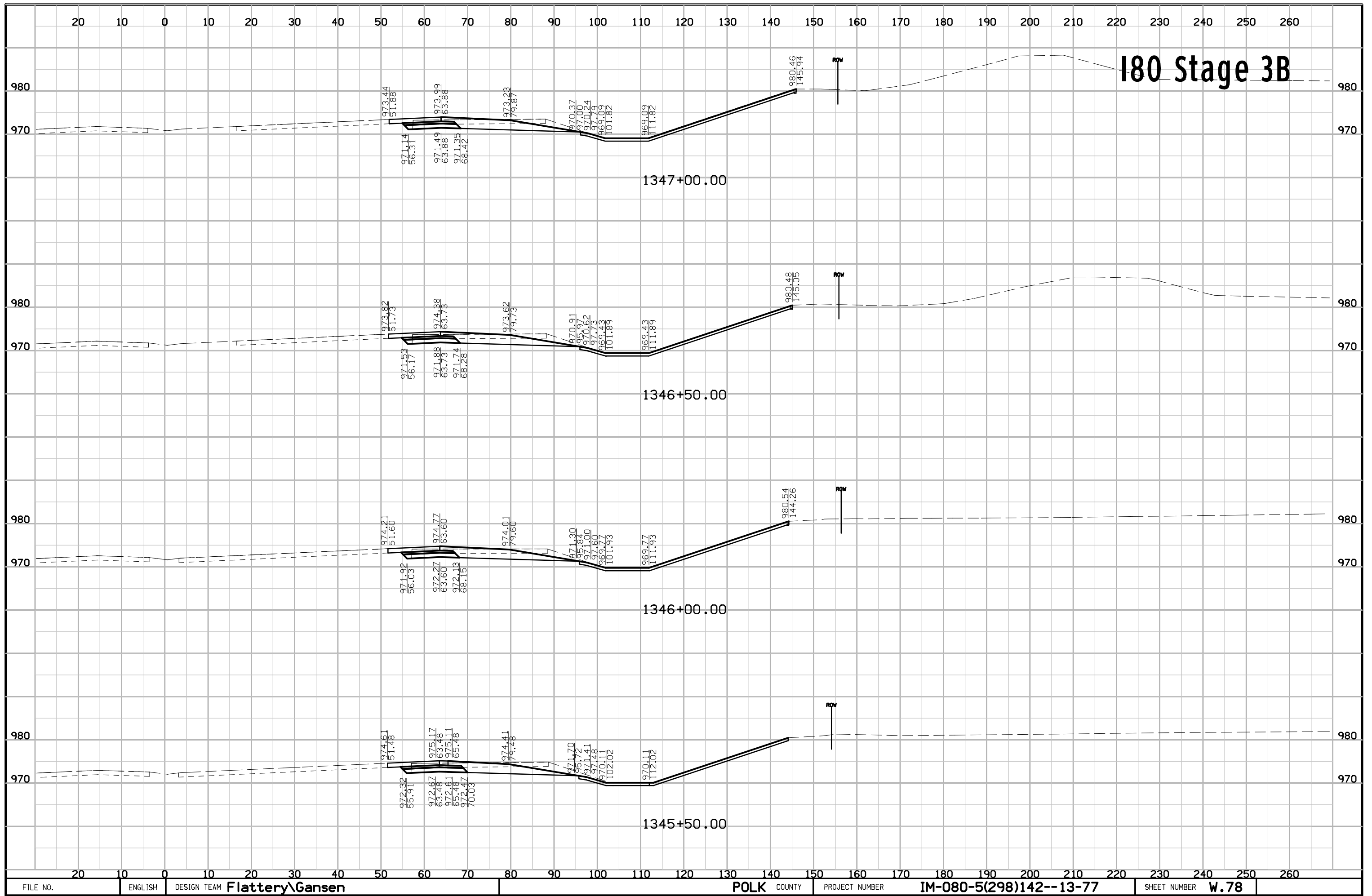


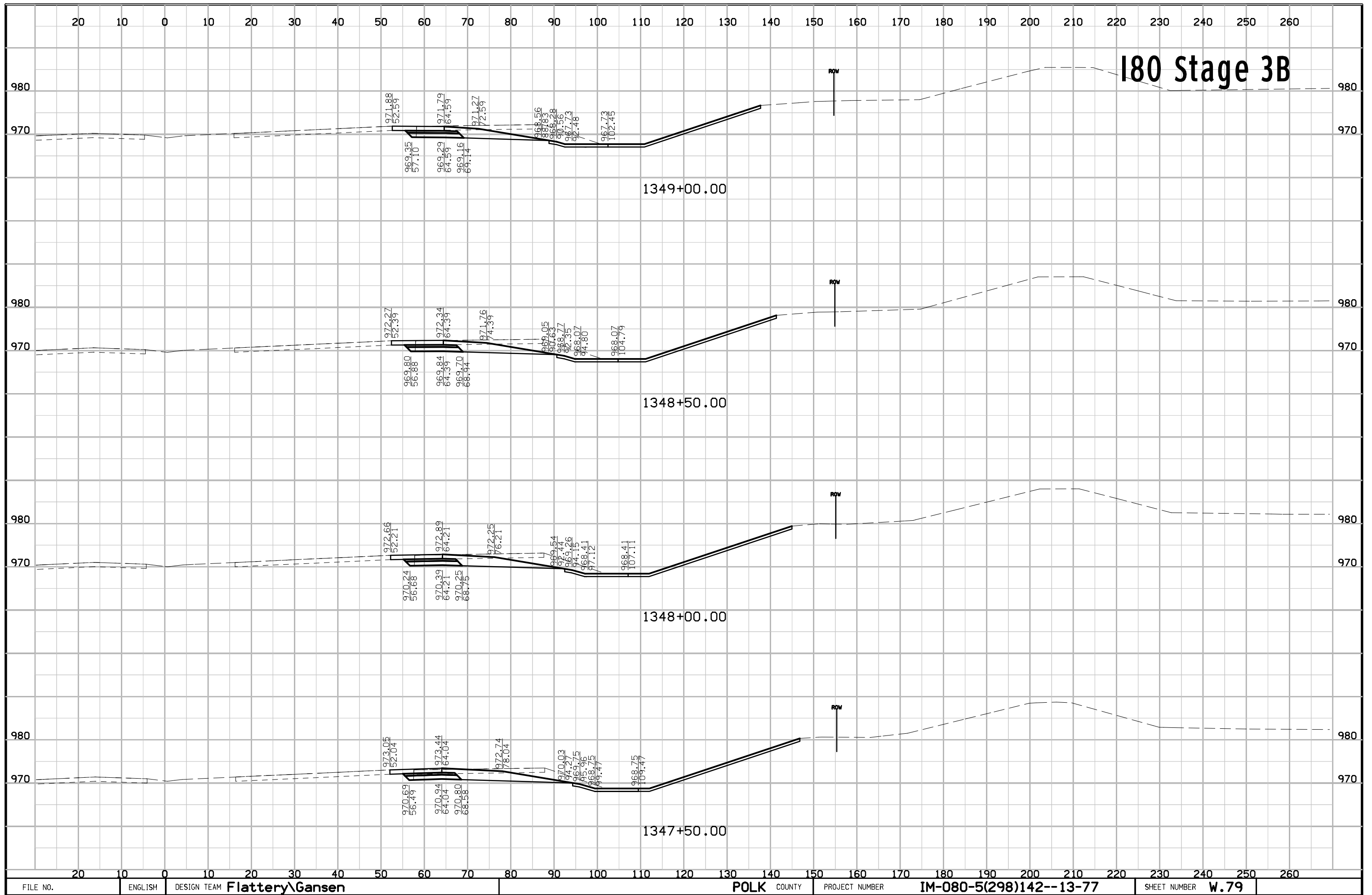
I80 Stage 3B



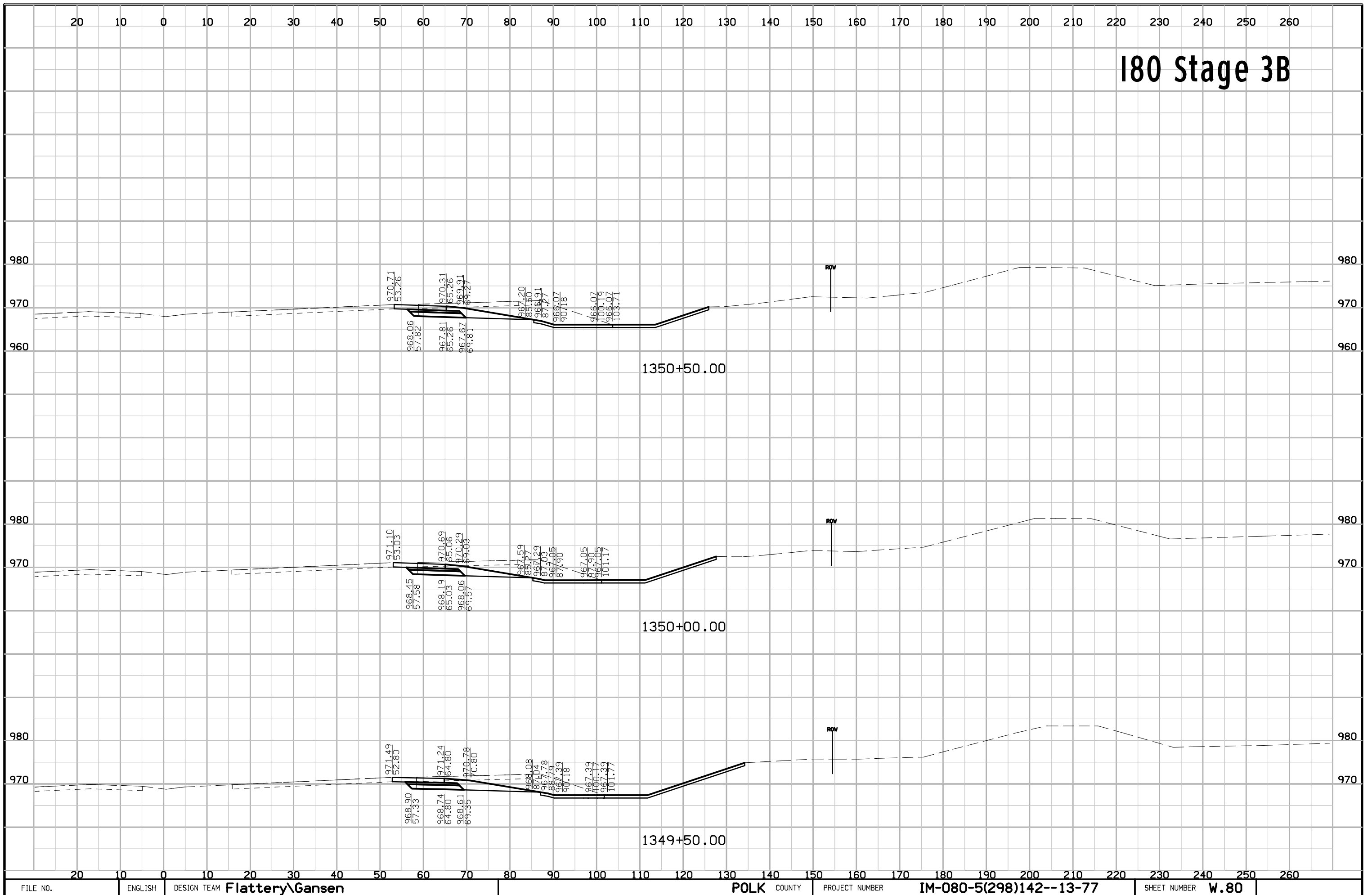
I80 Stage 3B



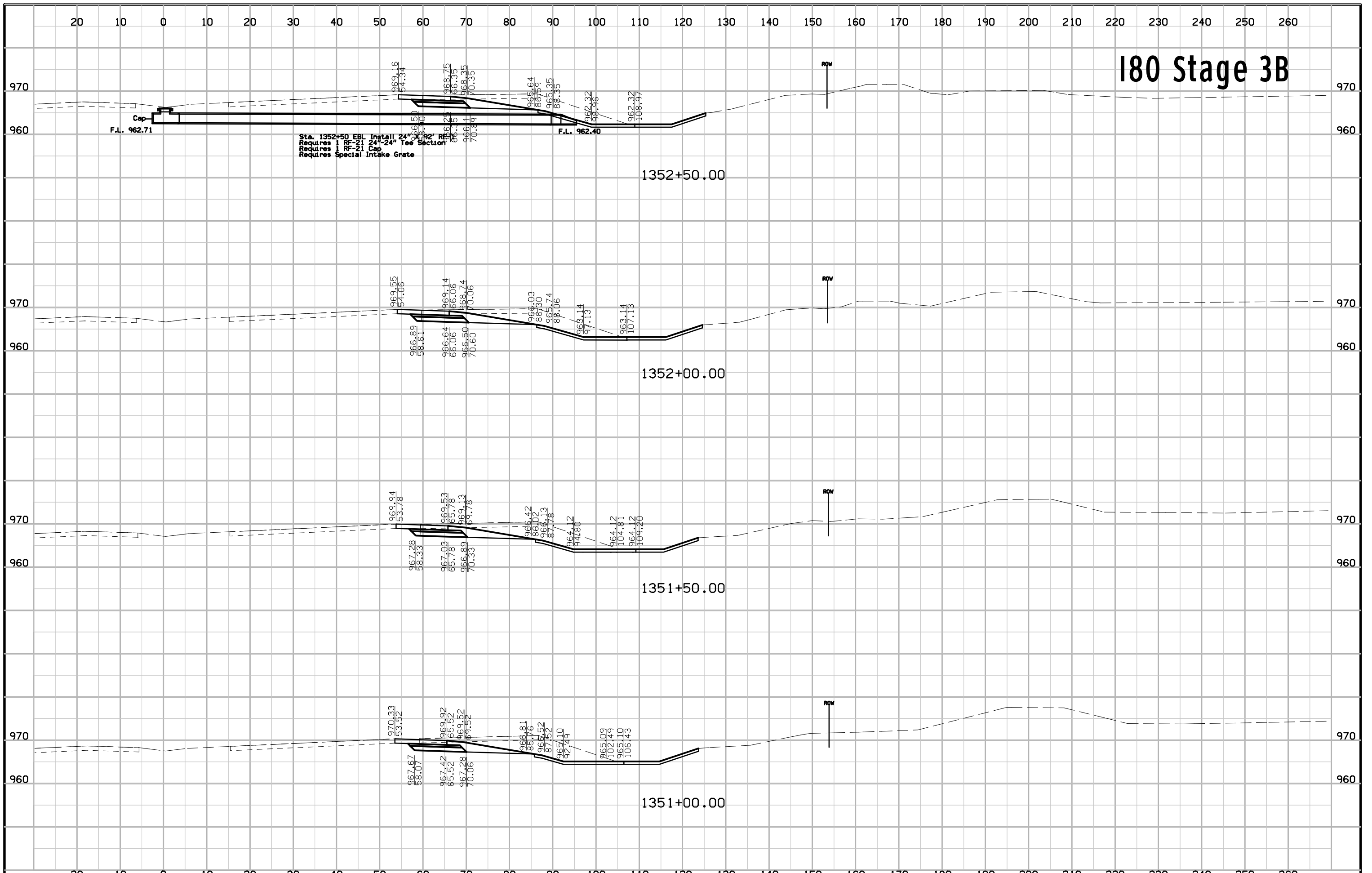




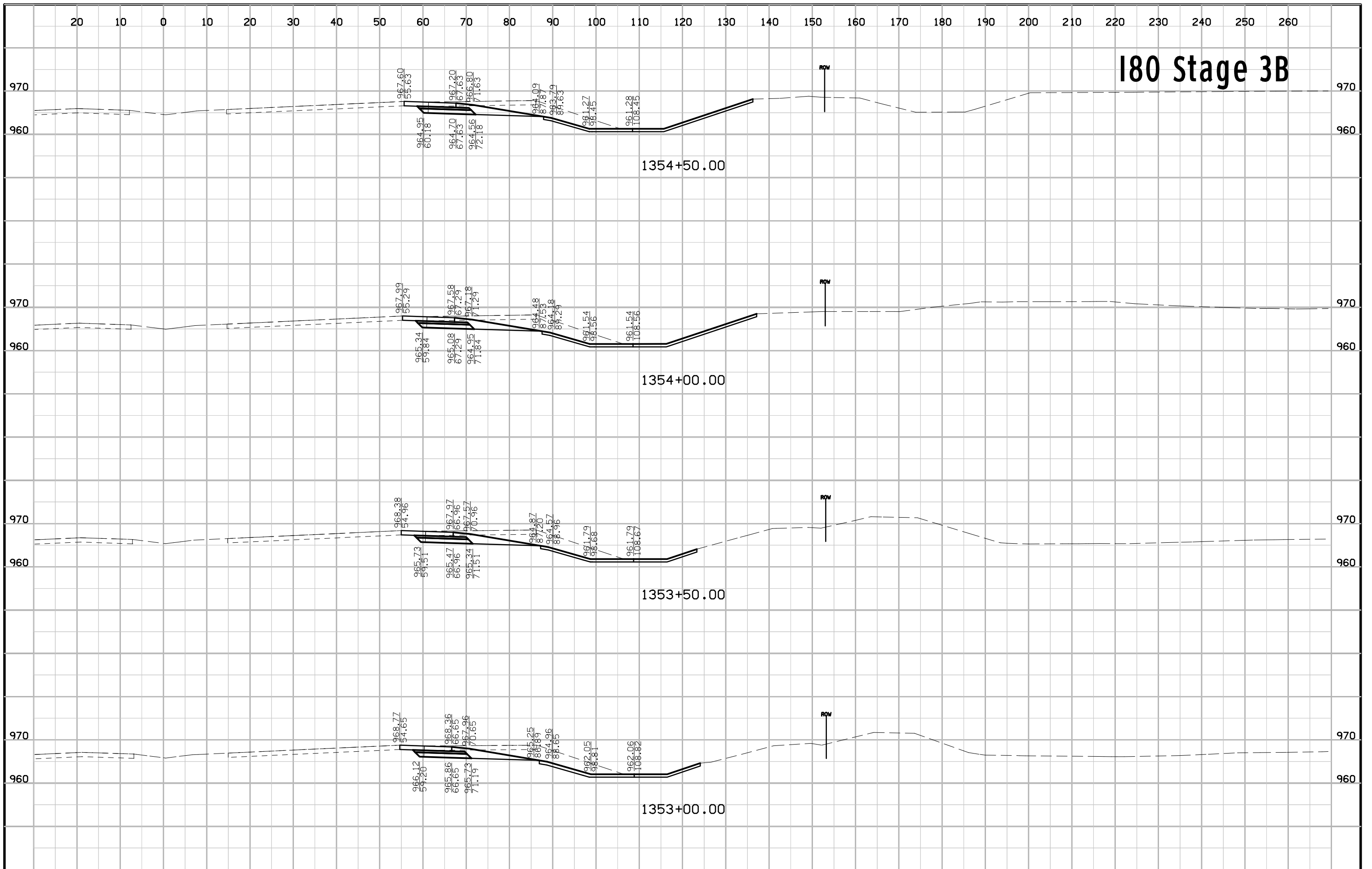
I80 Stage 3B



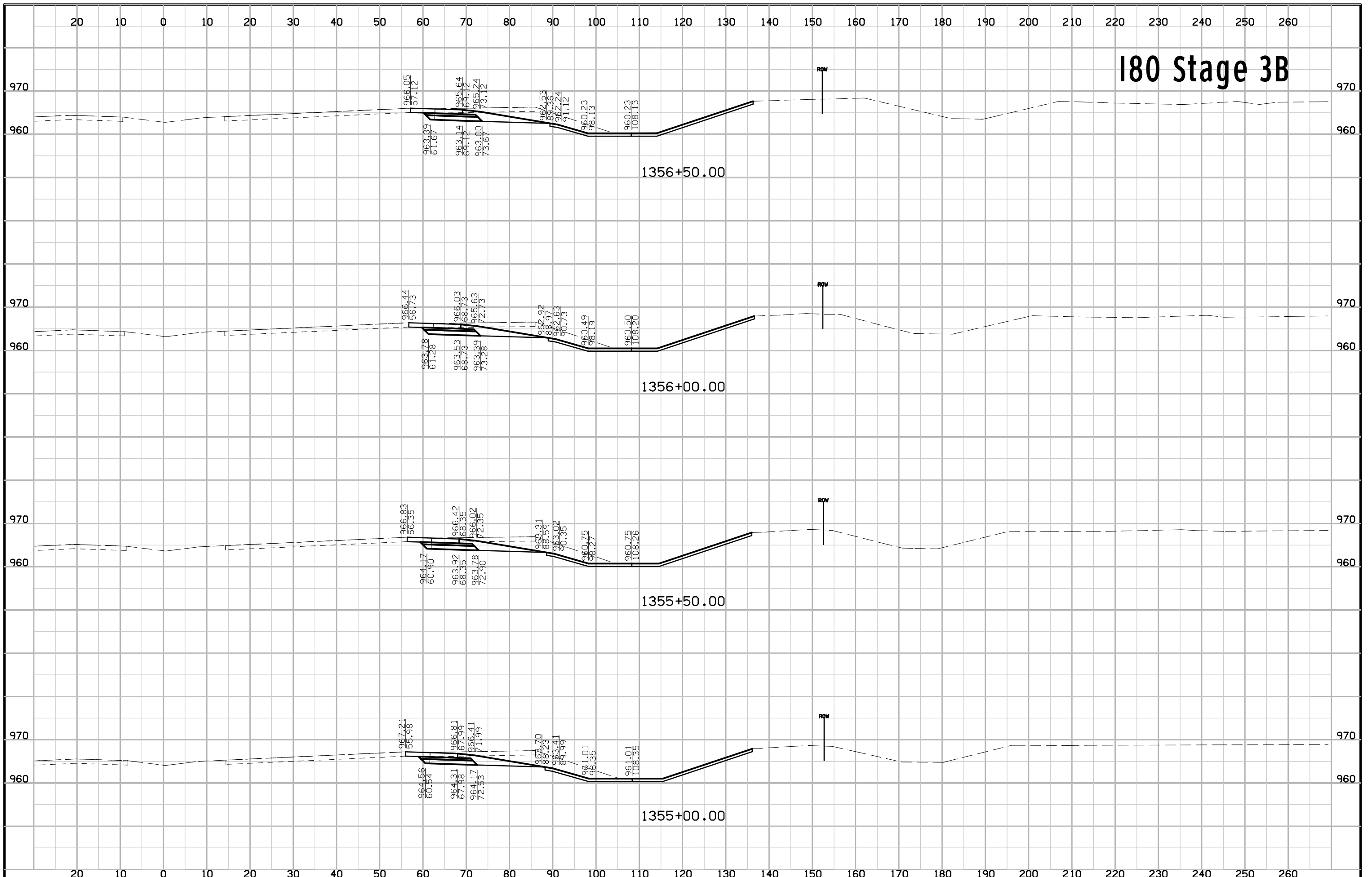
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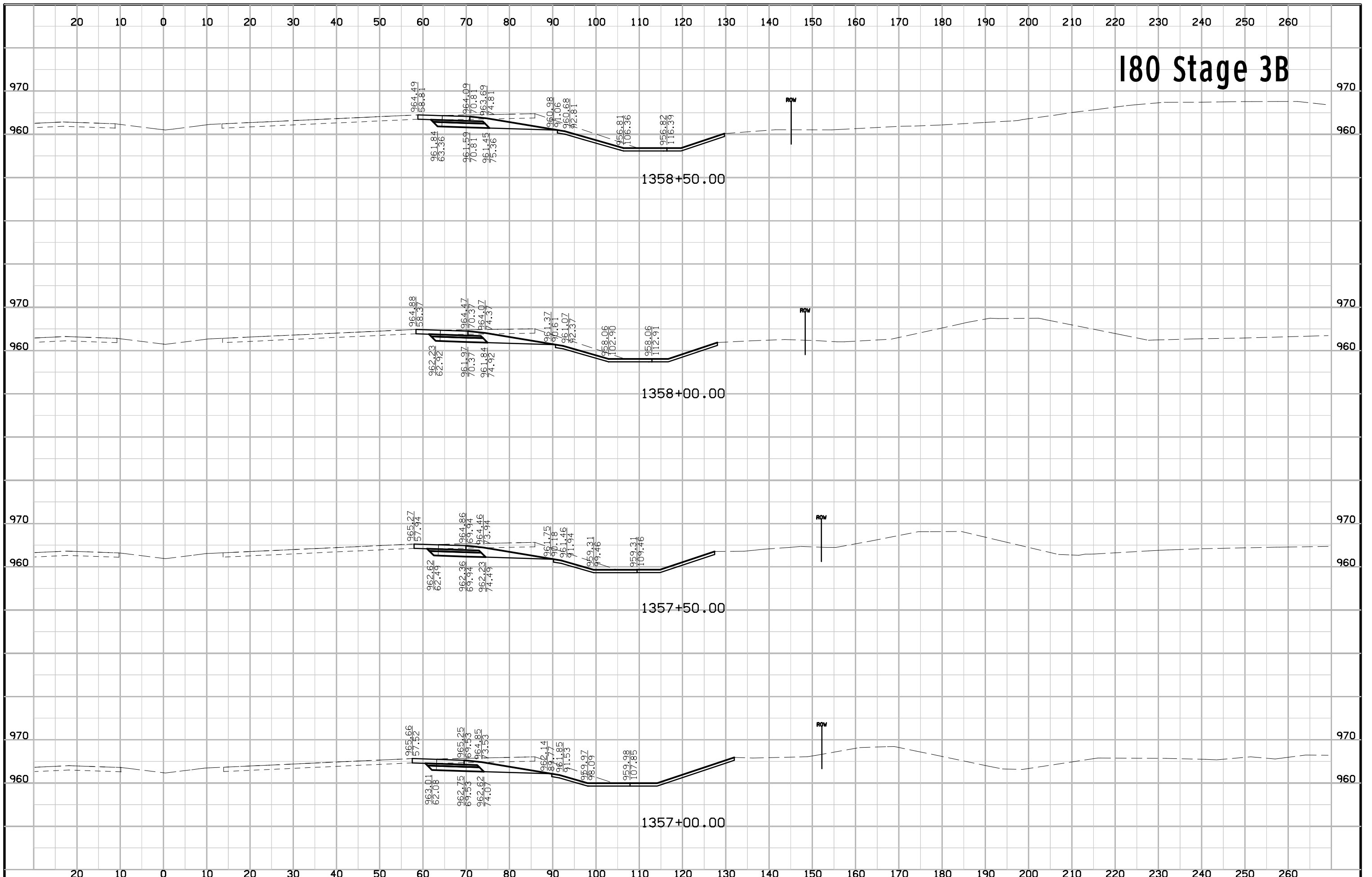
I80 Stage 3B



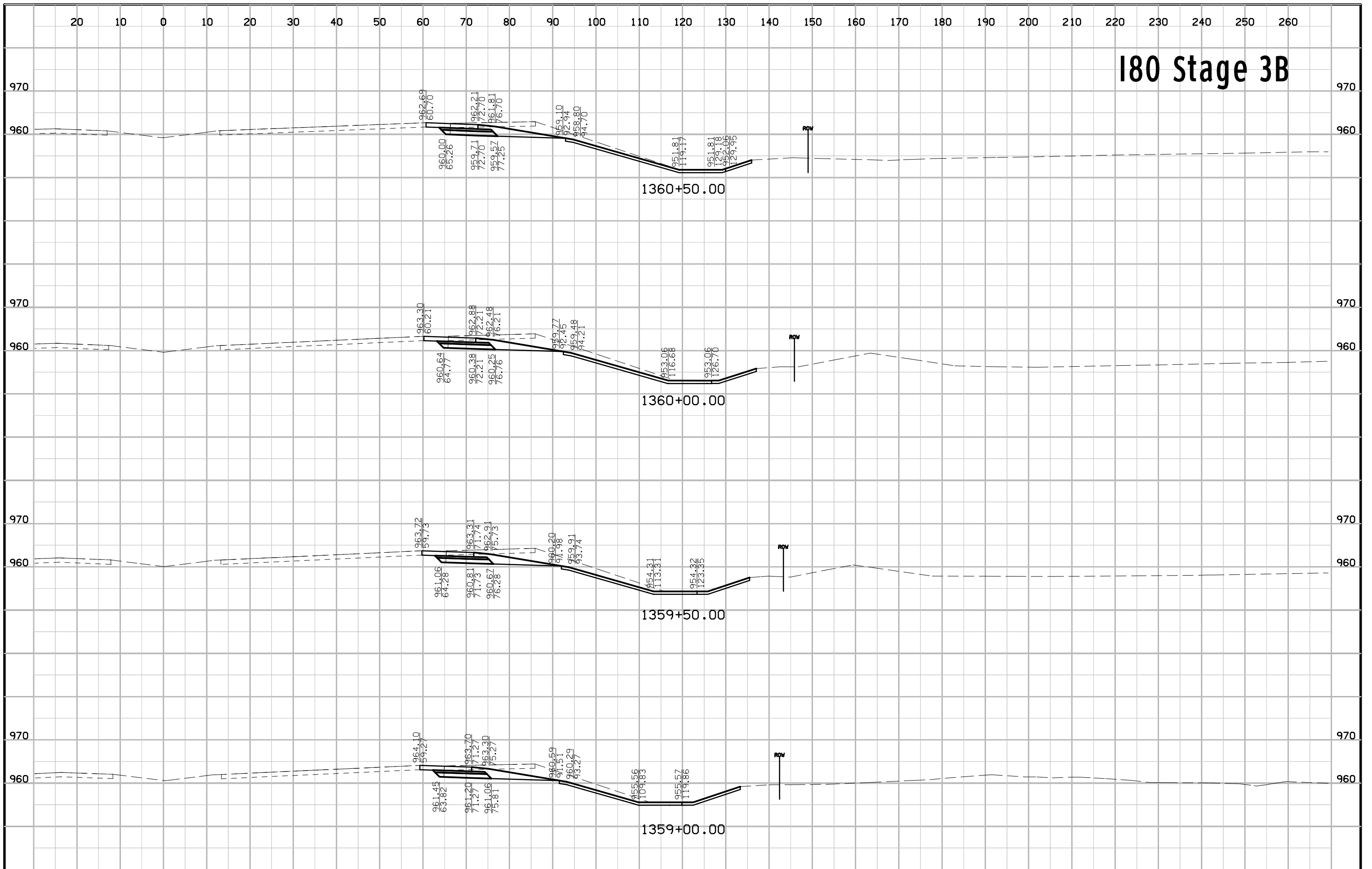
I80 Stage 3B



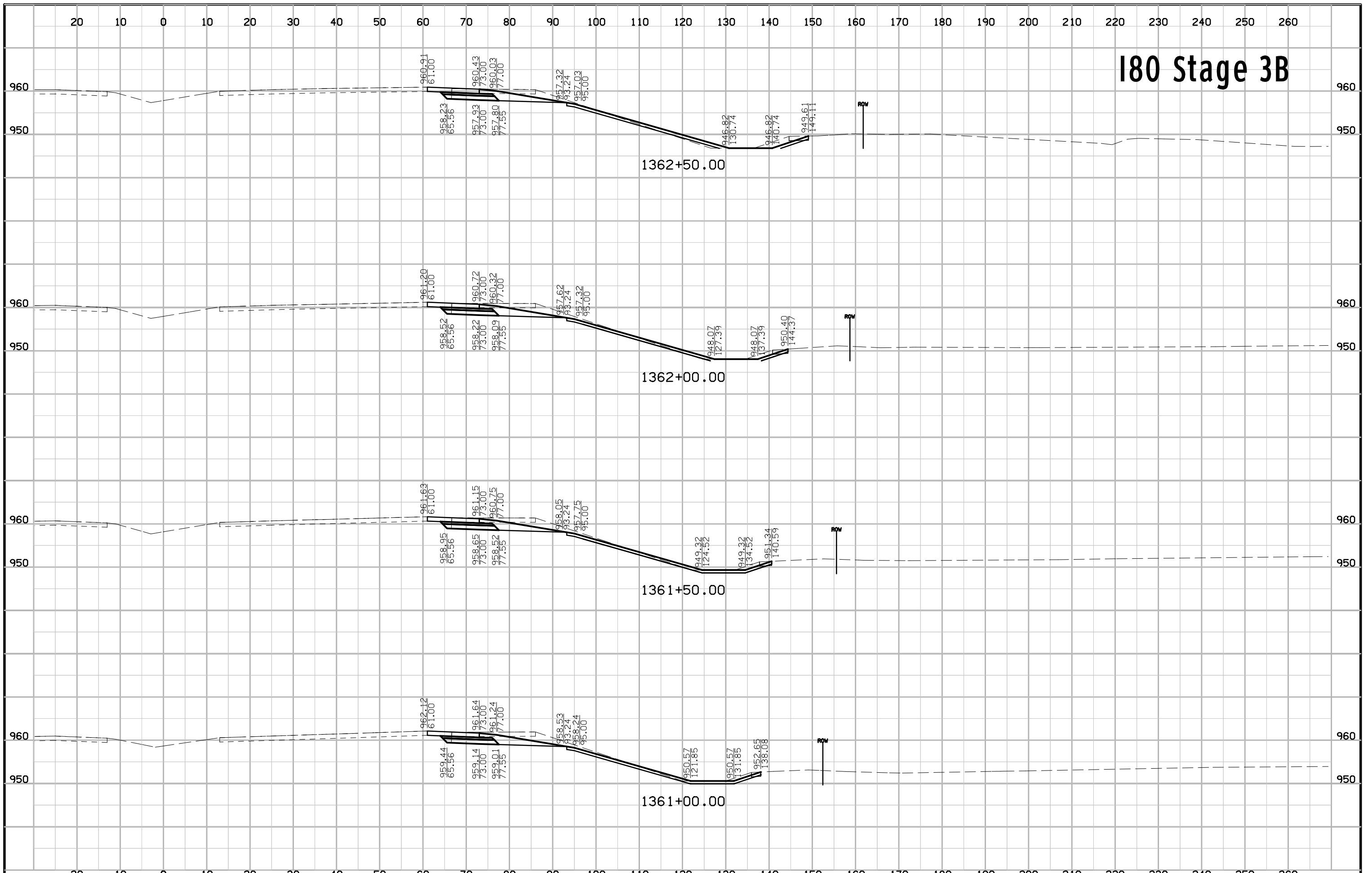
I80 Stage 3B



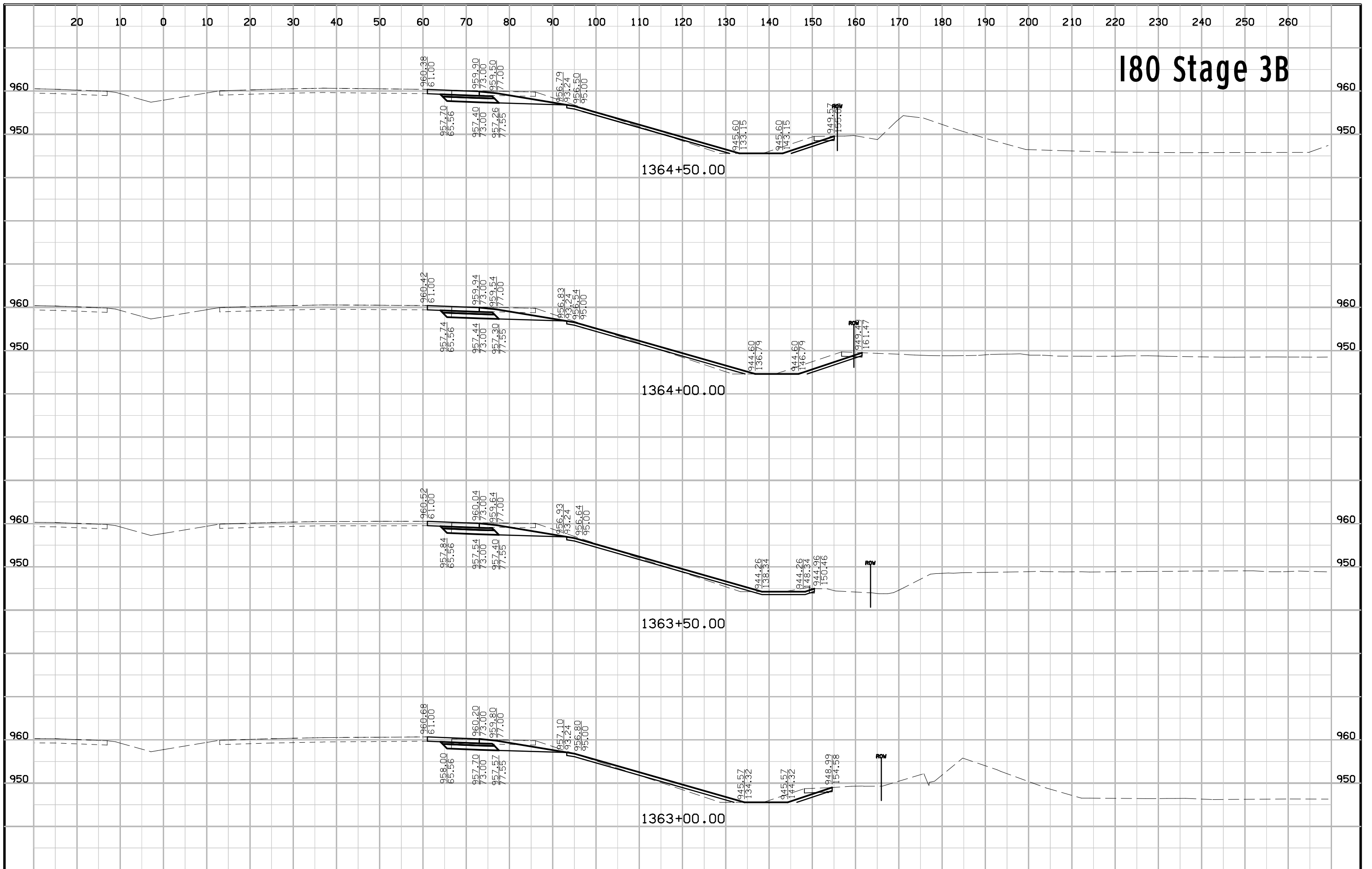
I80 Stage 3B



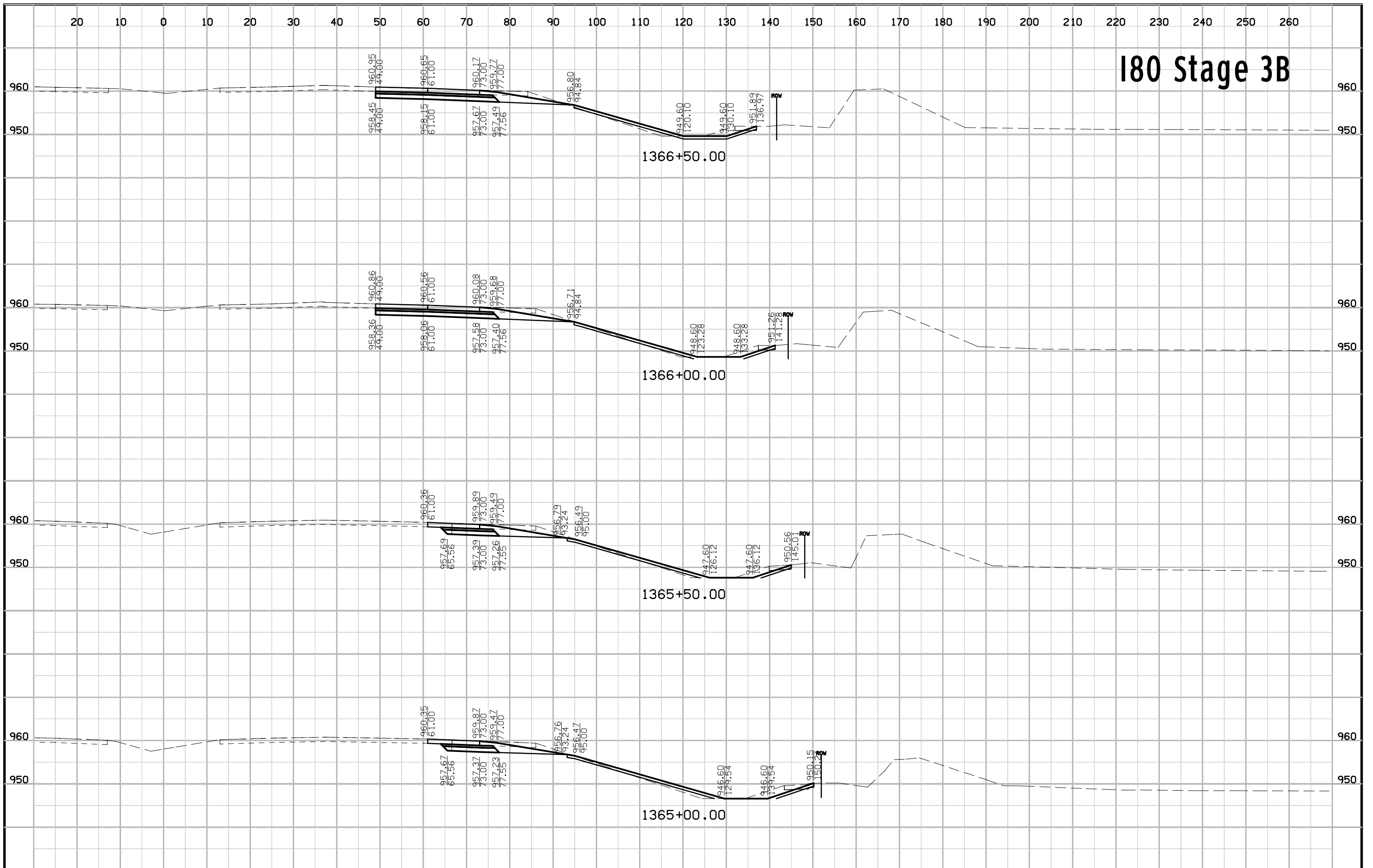
I80 Stage 3B



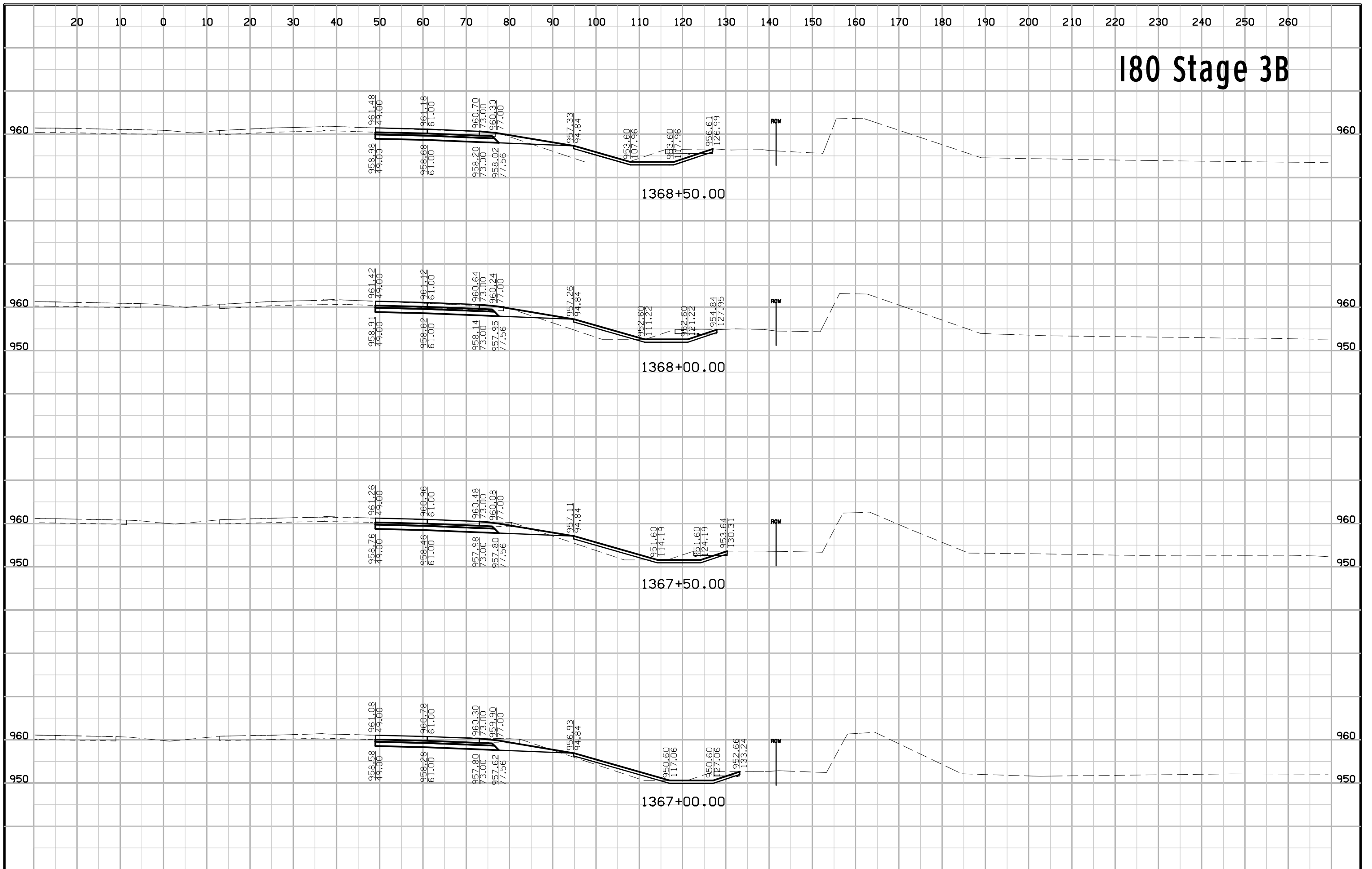
I80 Stage 3B



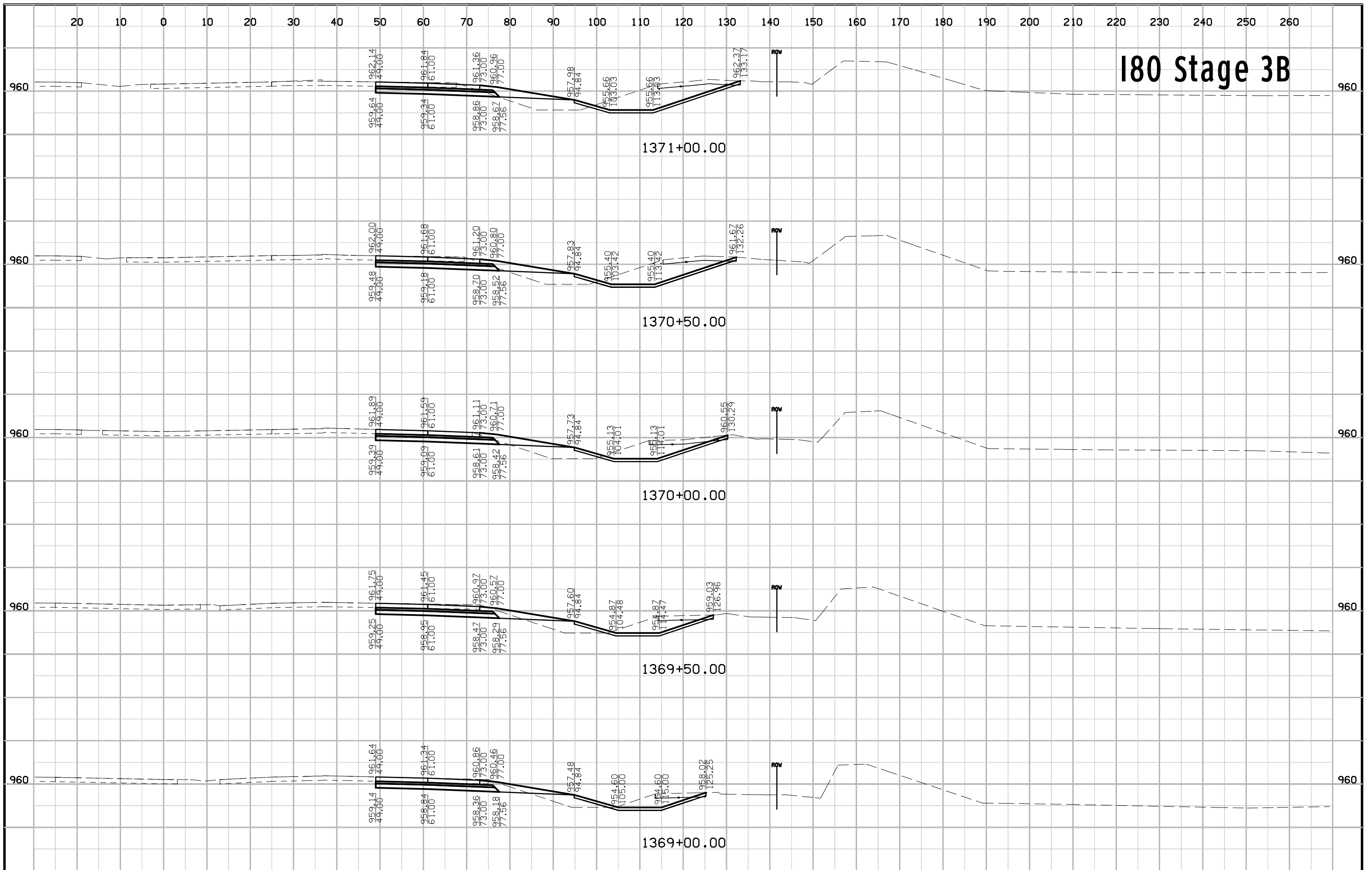
I80 Stage 3B



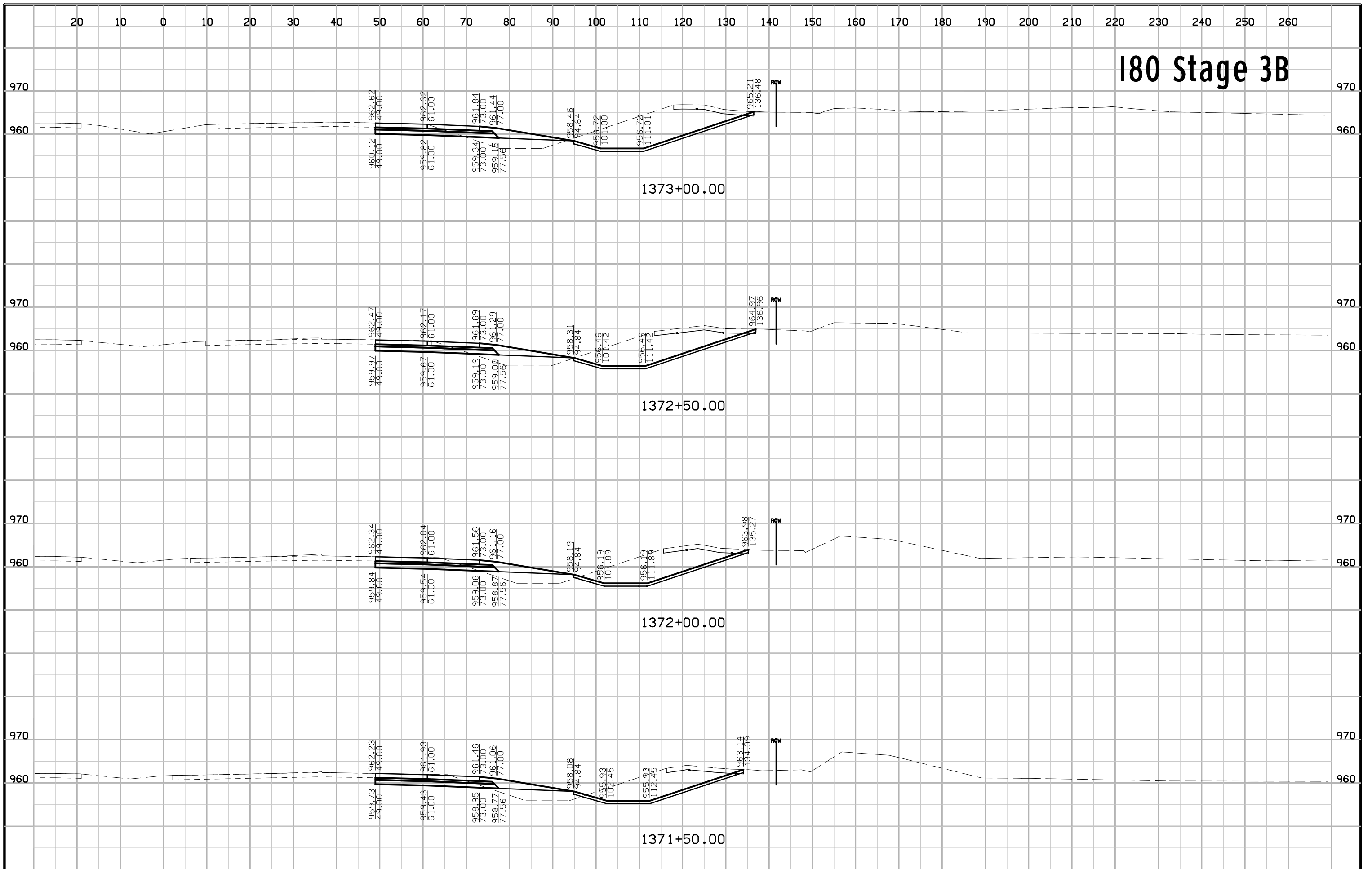
I80 Stage 3B



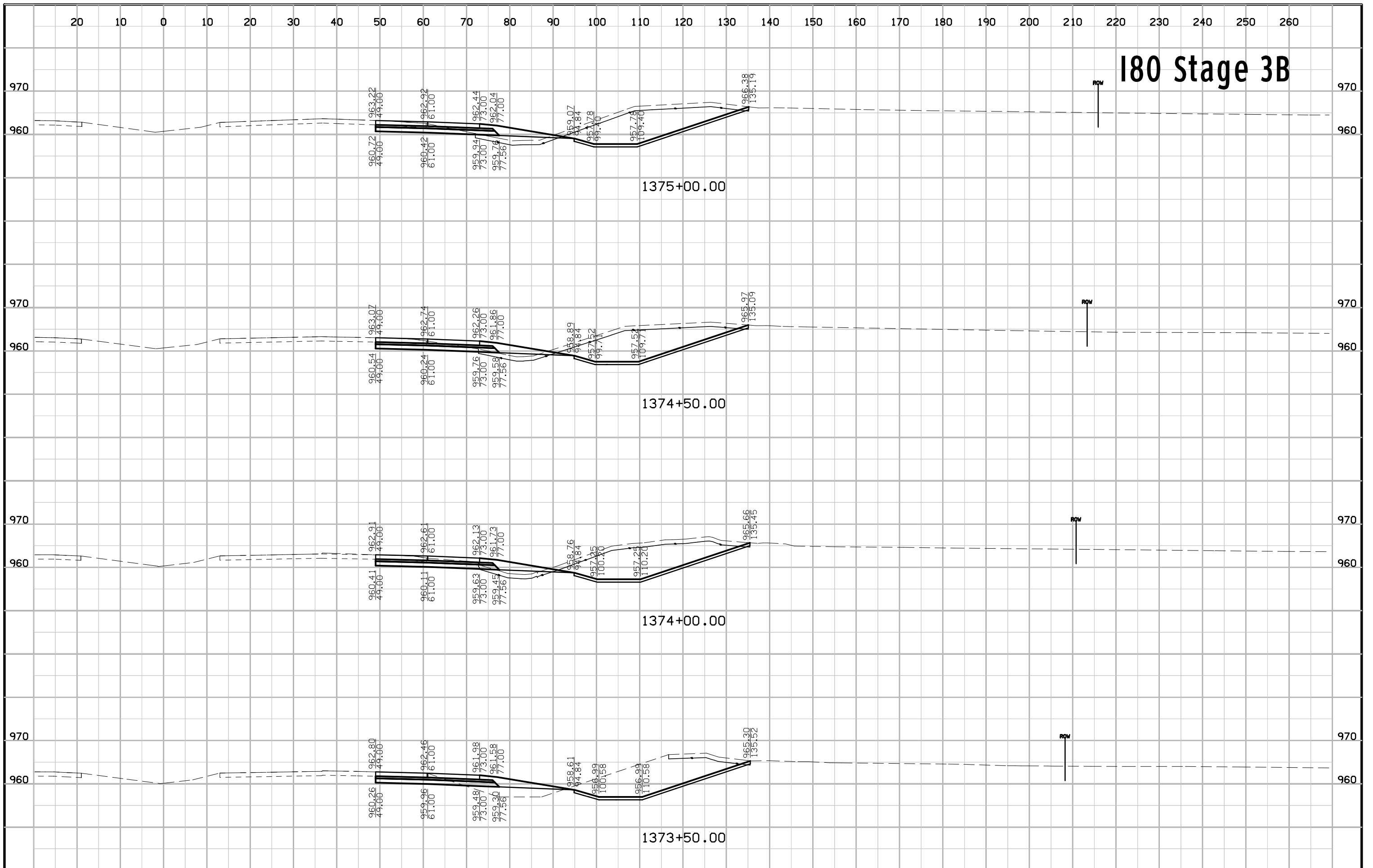
180 Stage 3B



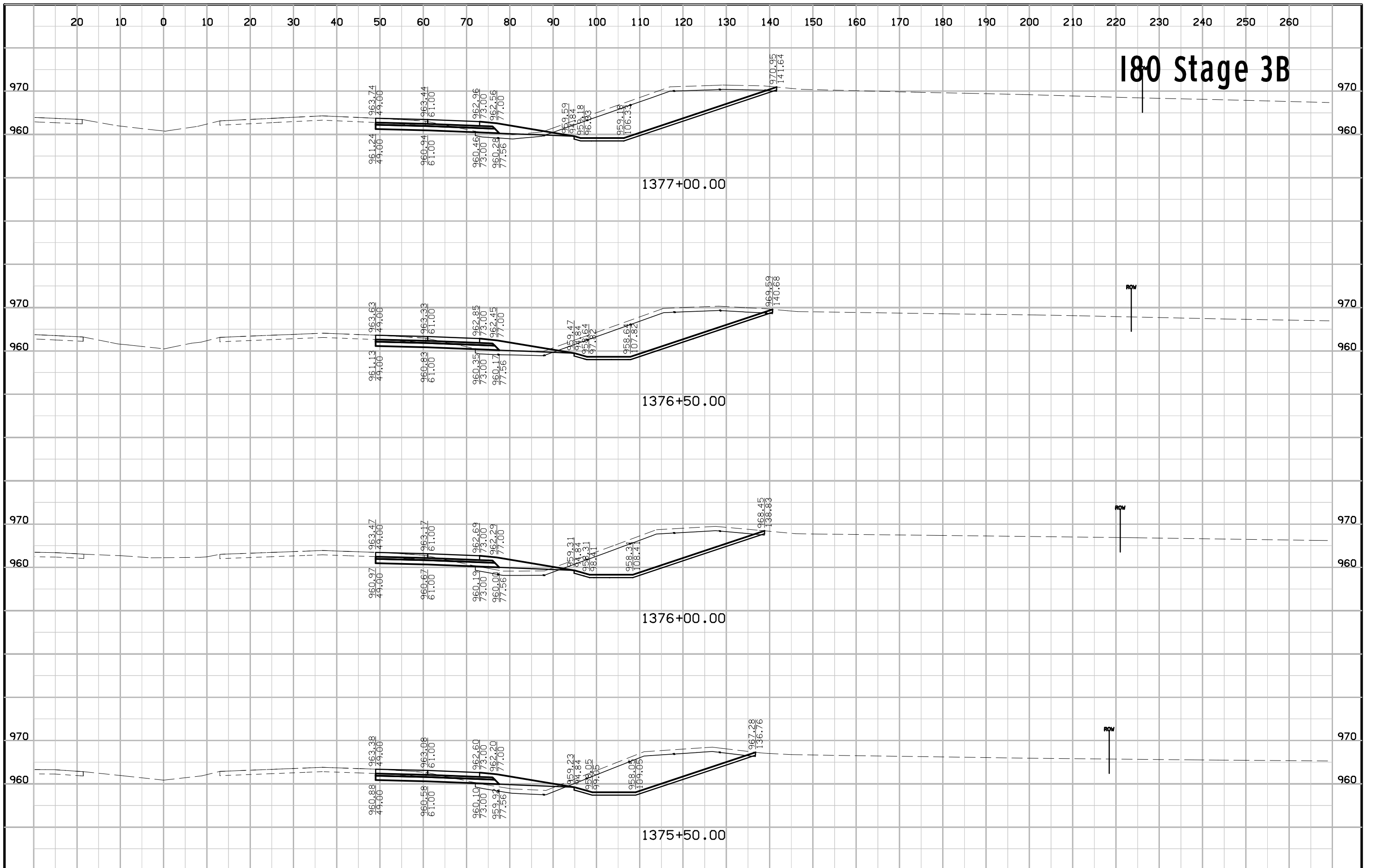
I80 Stage 3B



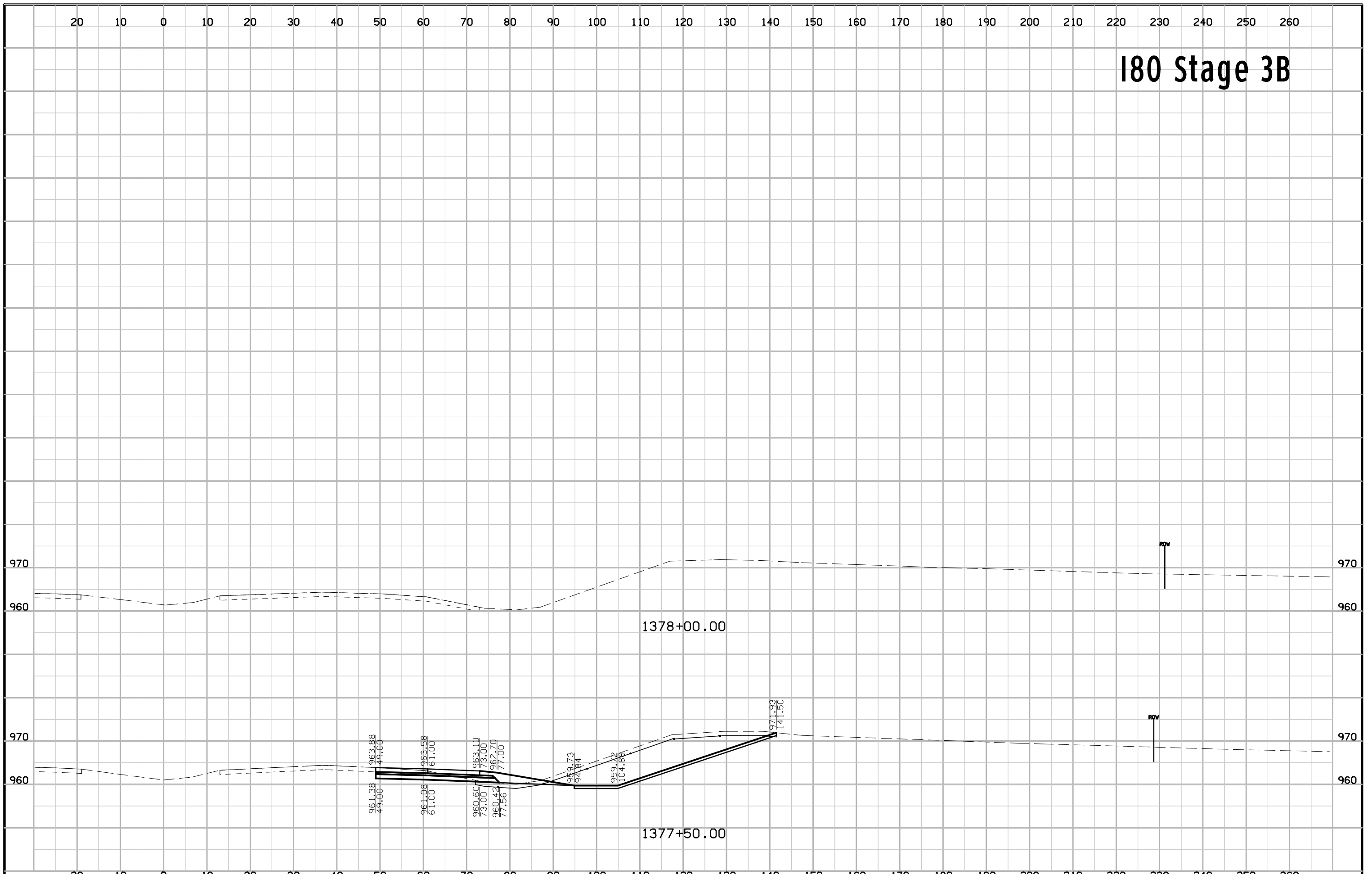
I80 Stage 3B

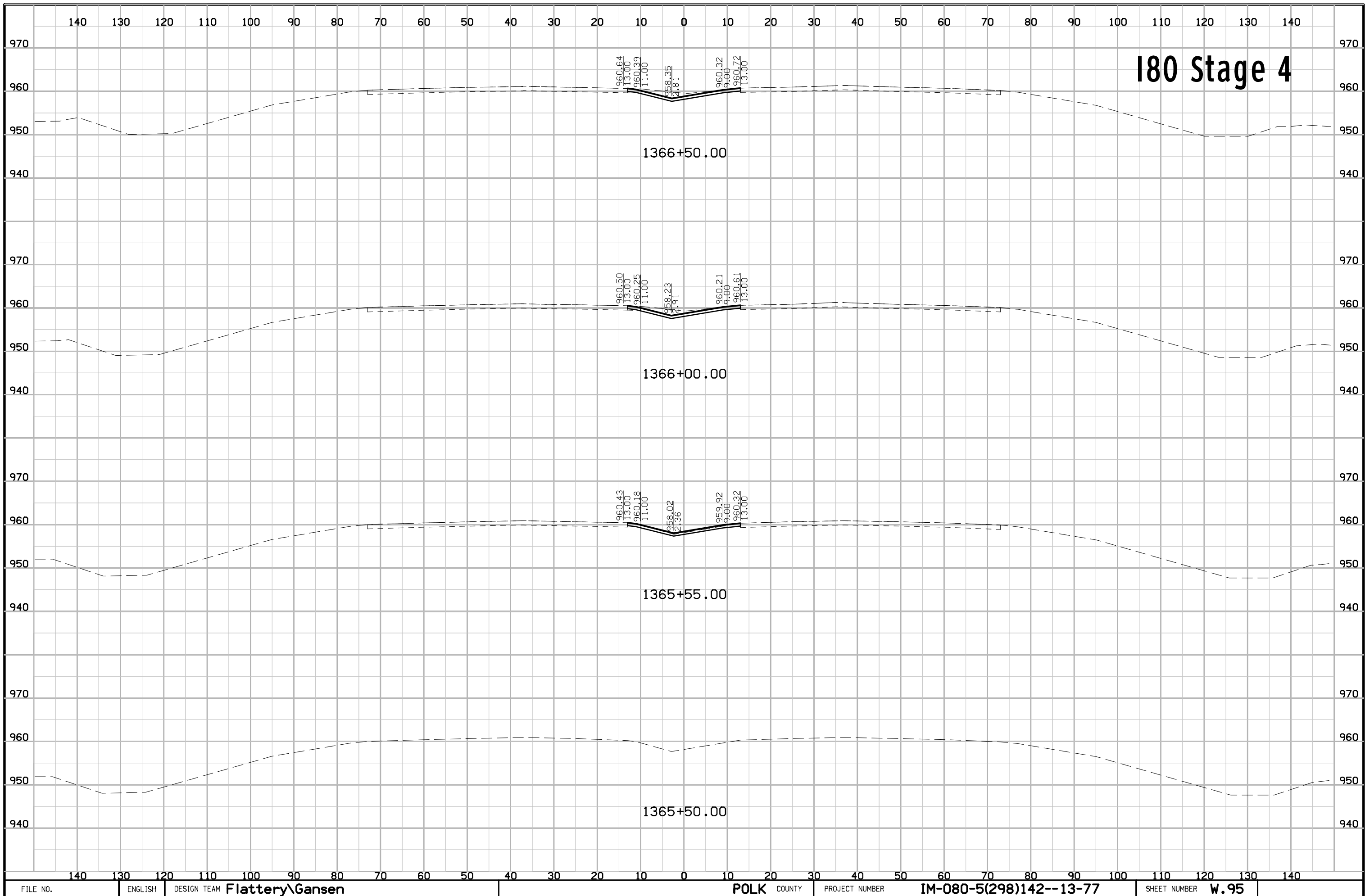


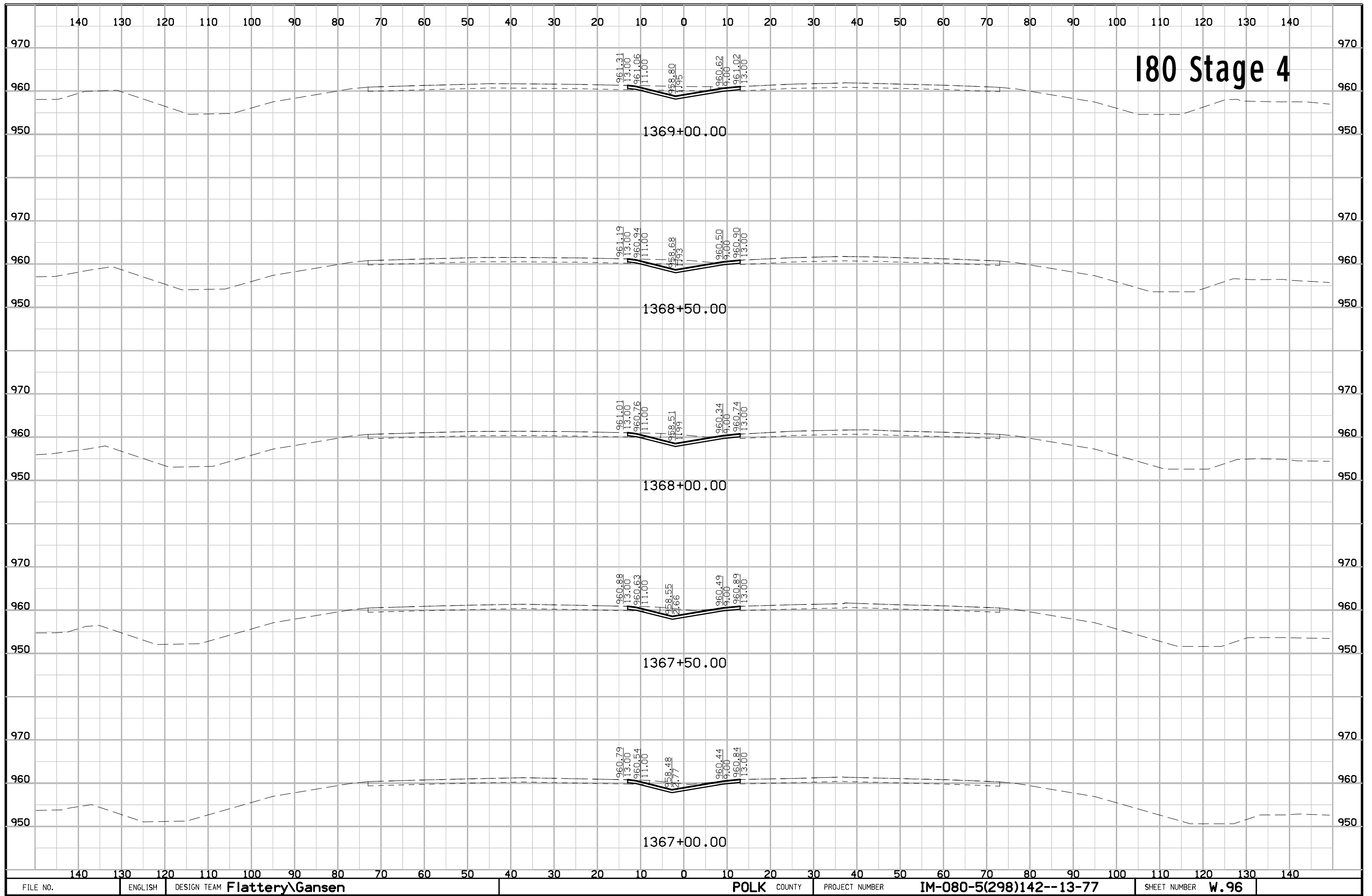
I80 Stage 3B

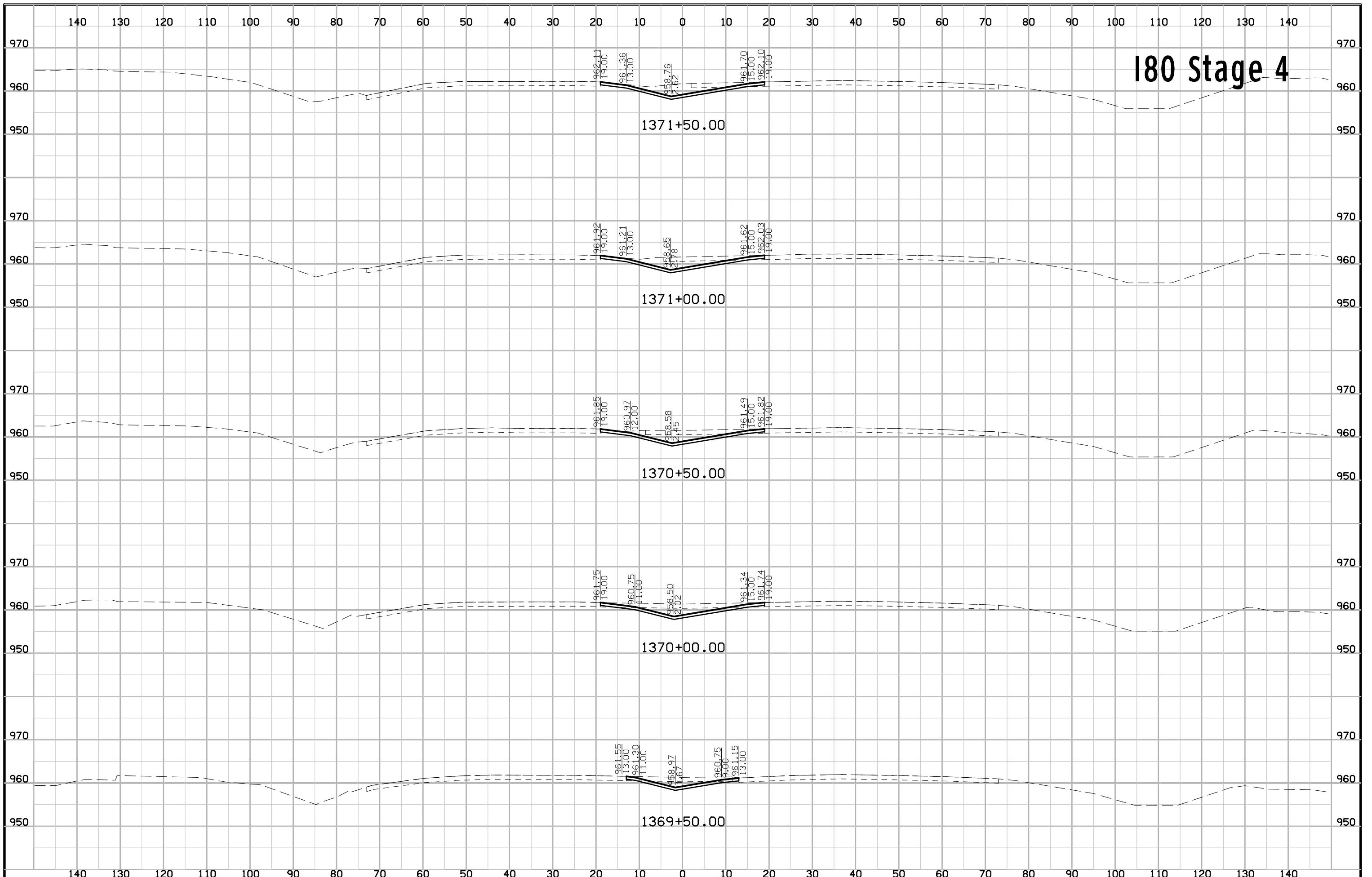


I80 Stage 3B

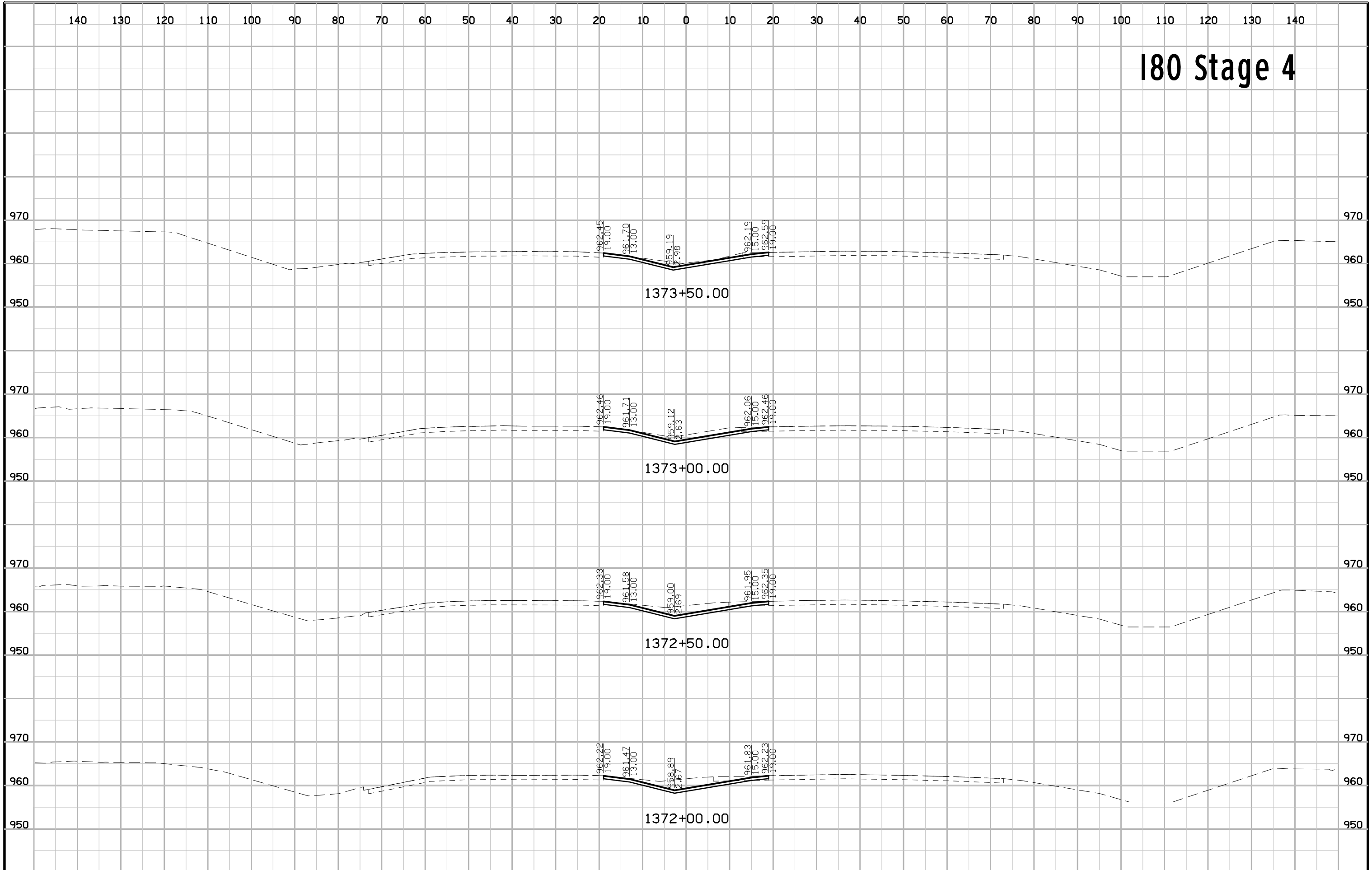




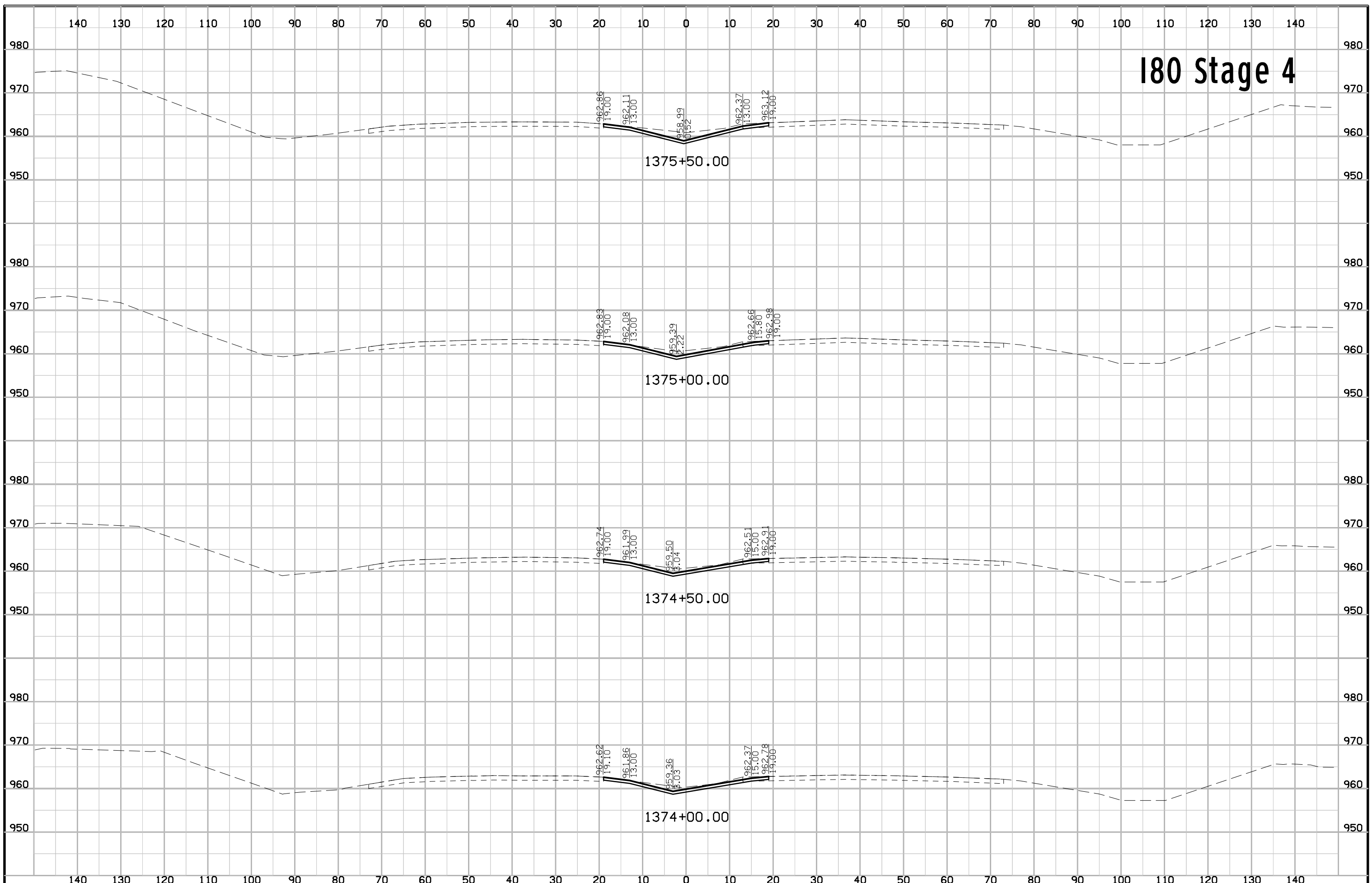


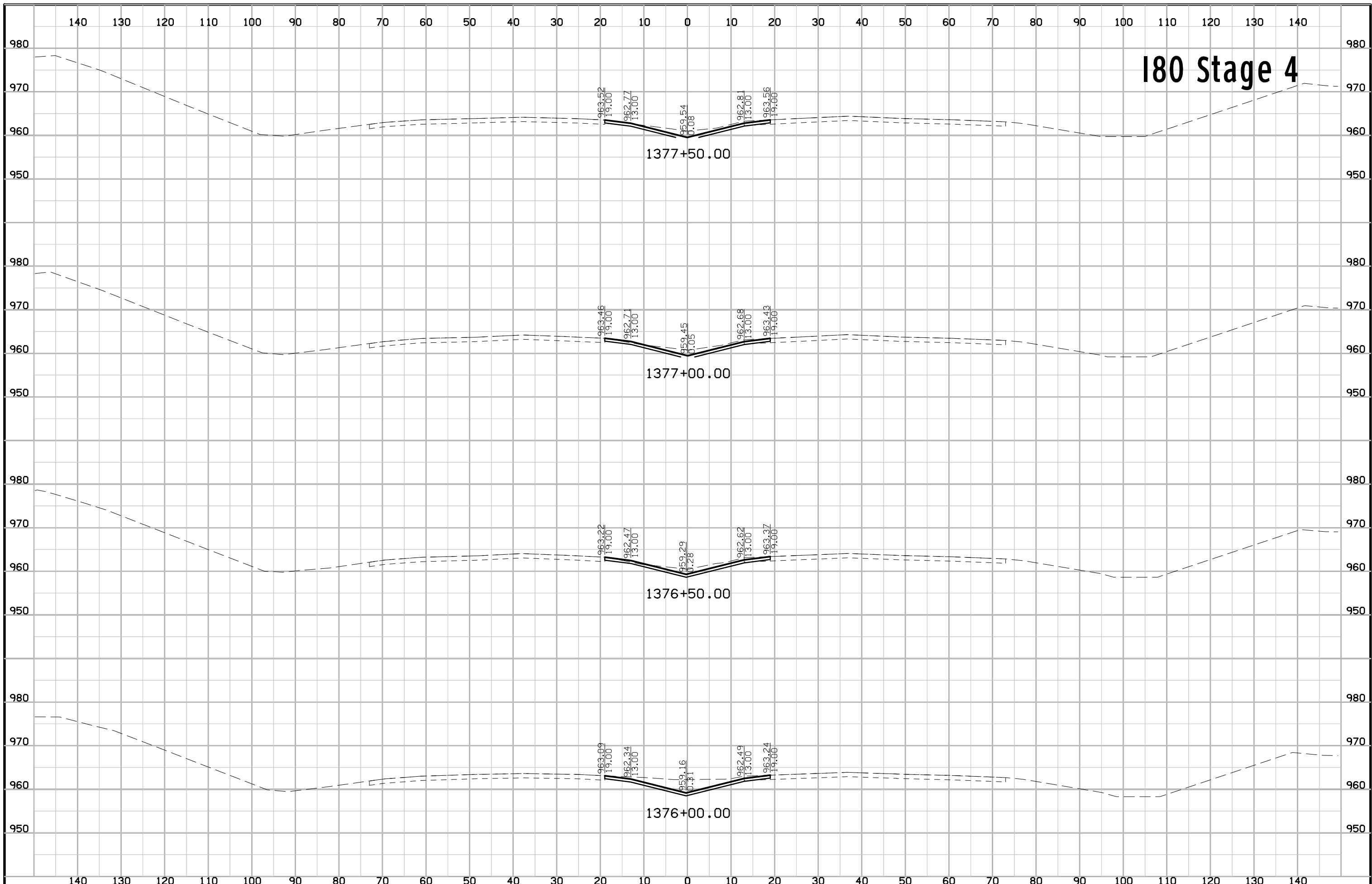


I80 Stage 4

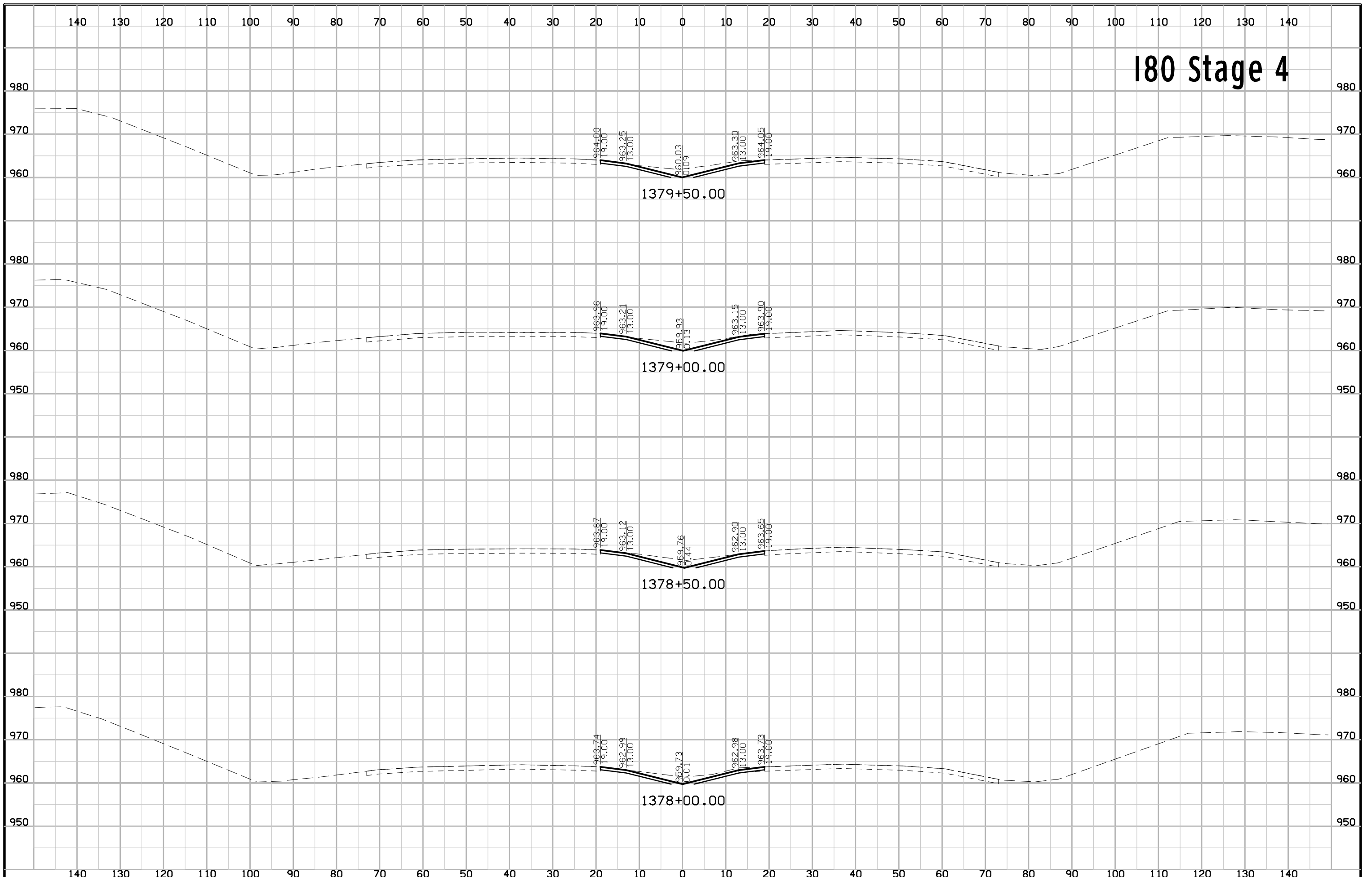


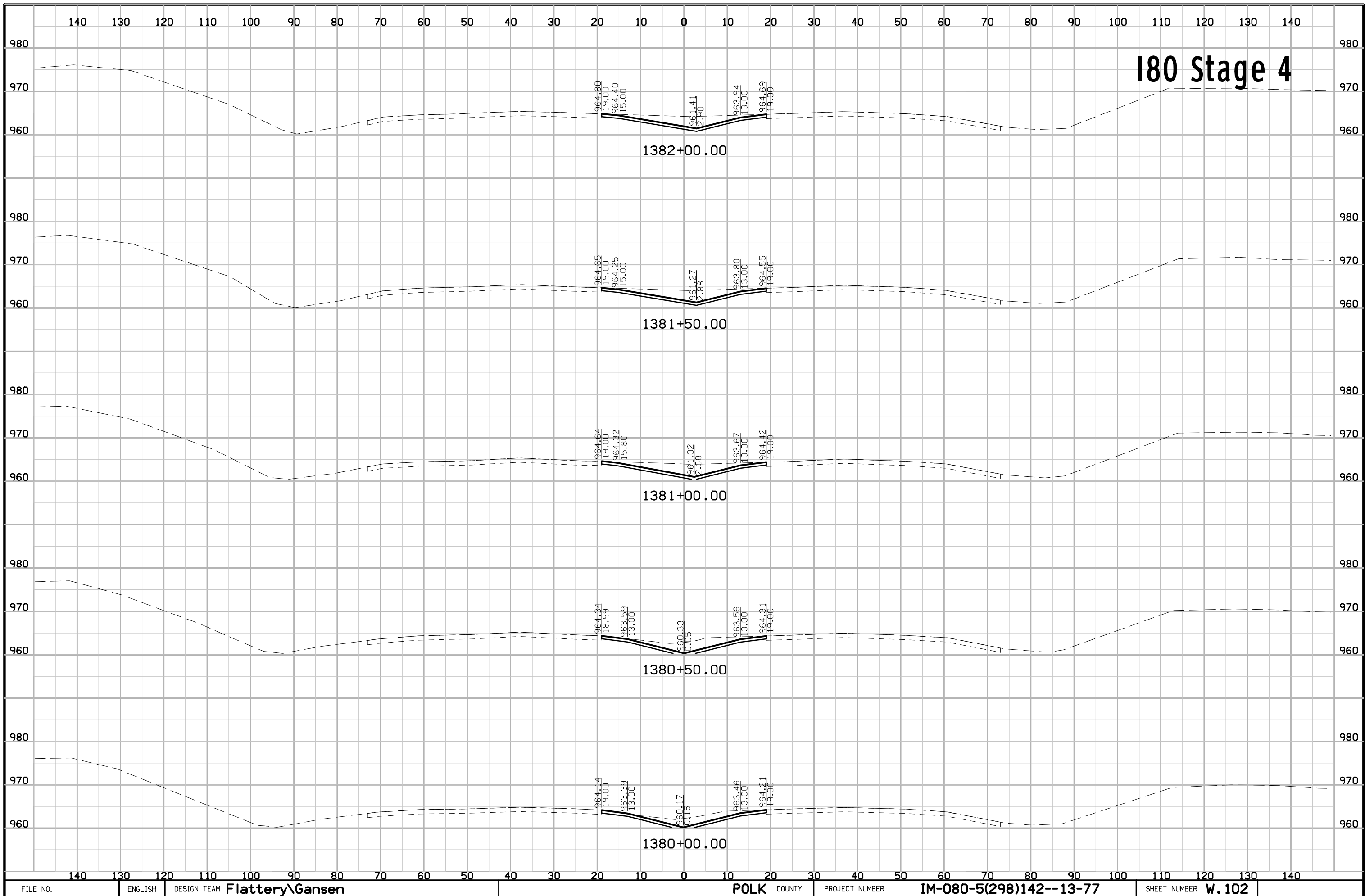
I80 Stage 4



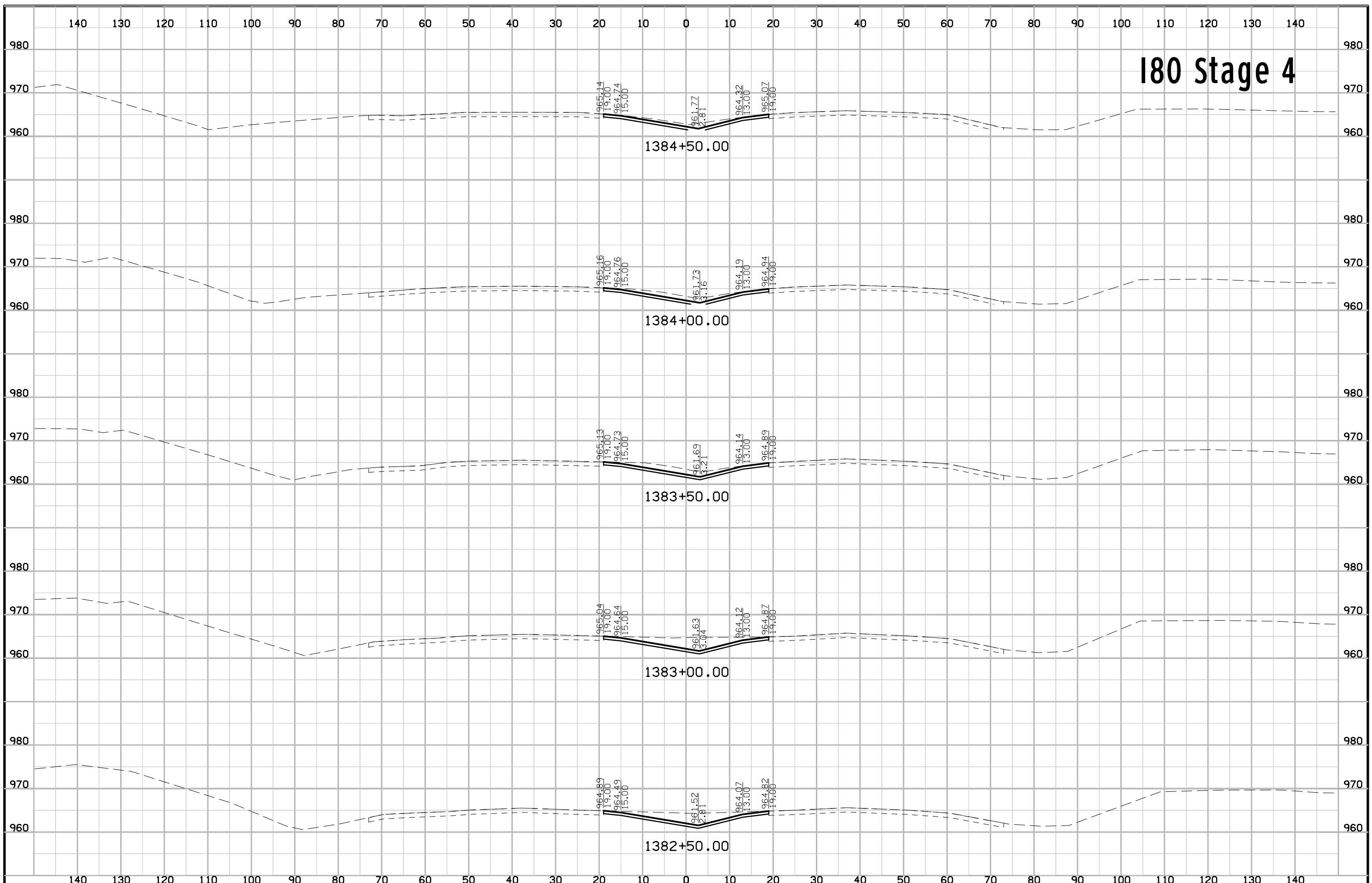


180 Stage 4

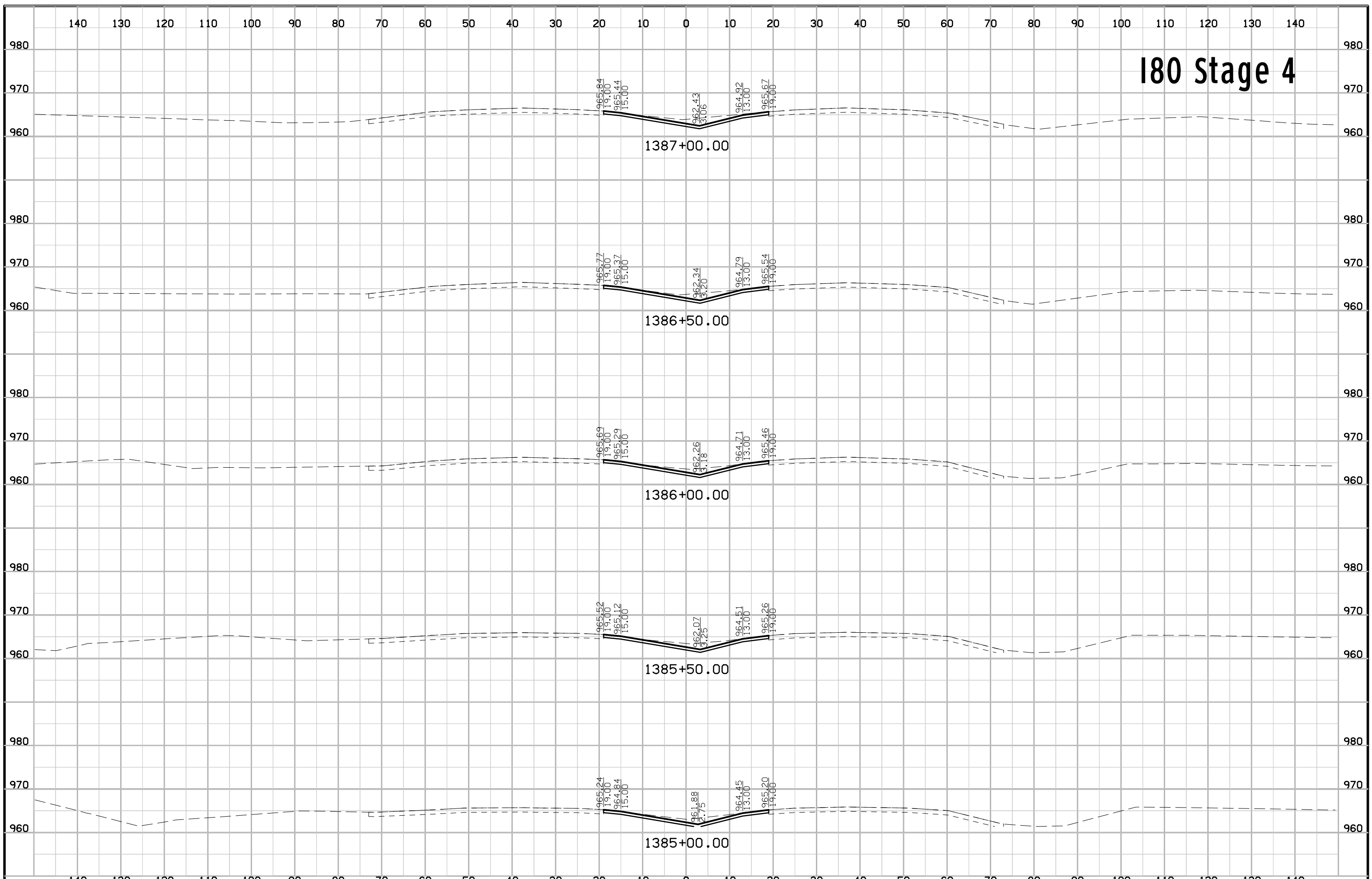




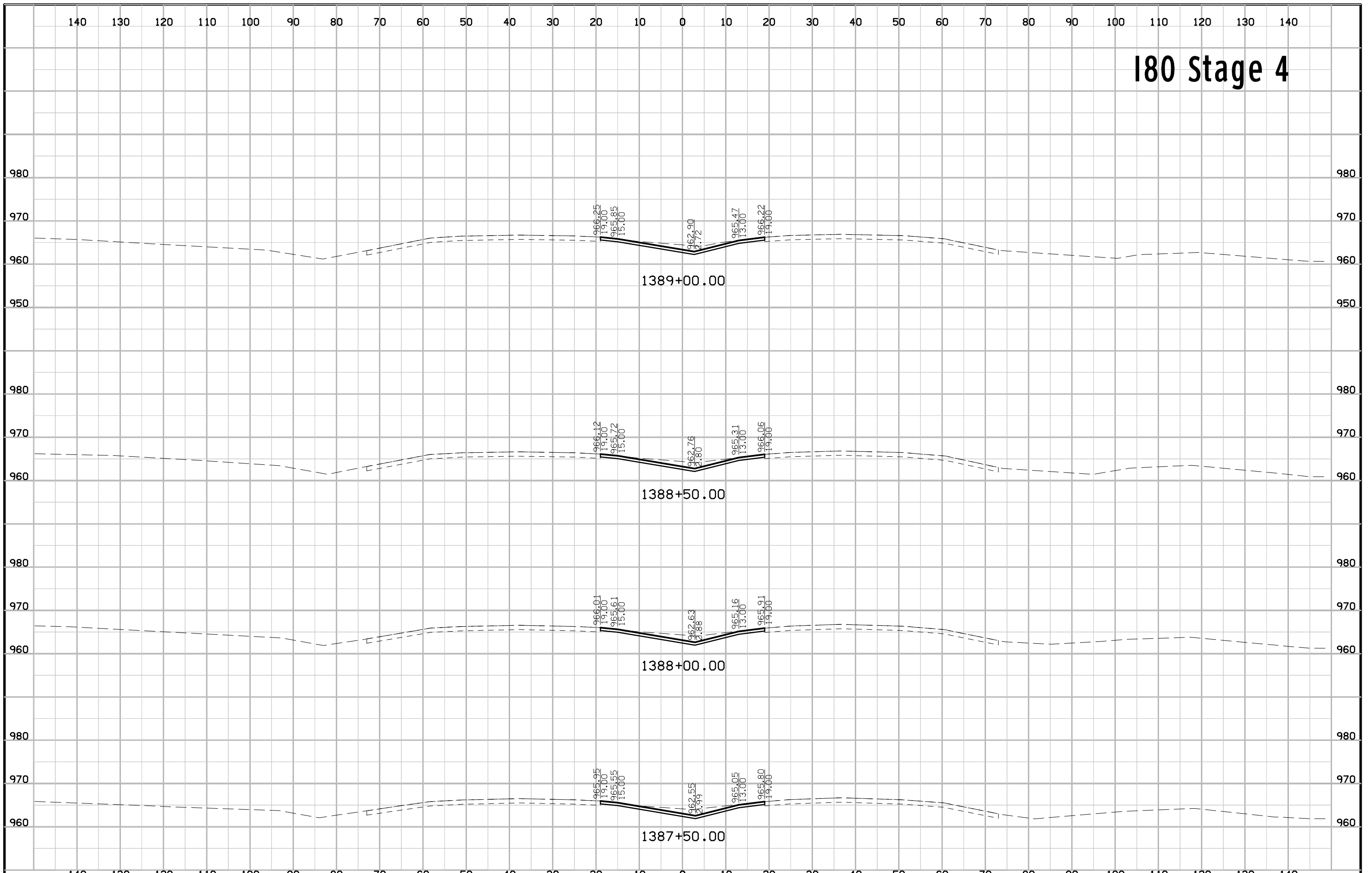
180 Stage 4



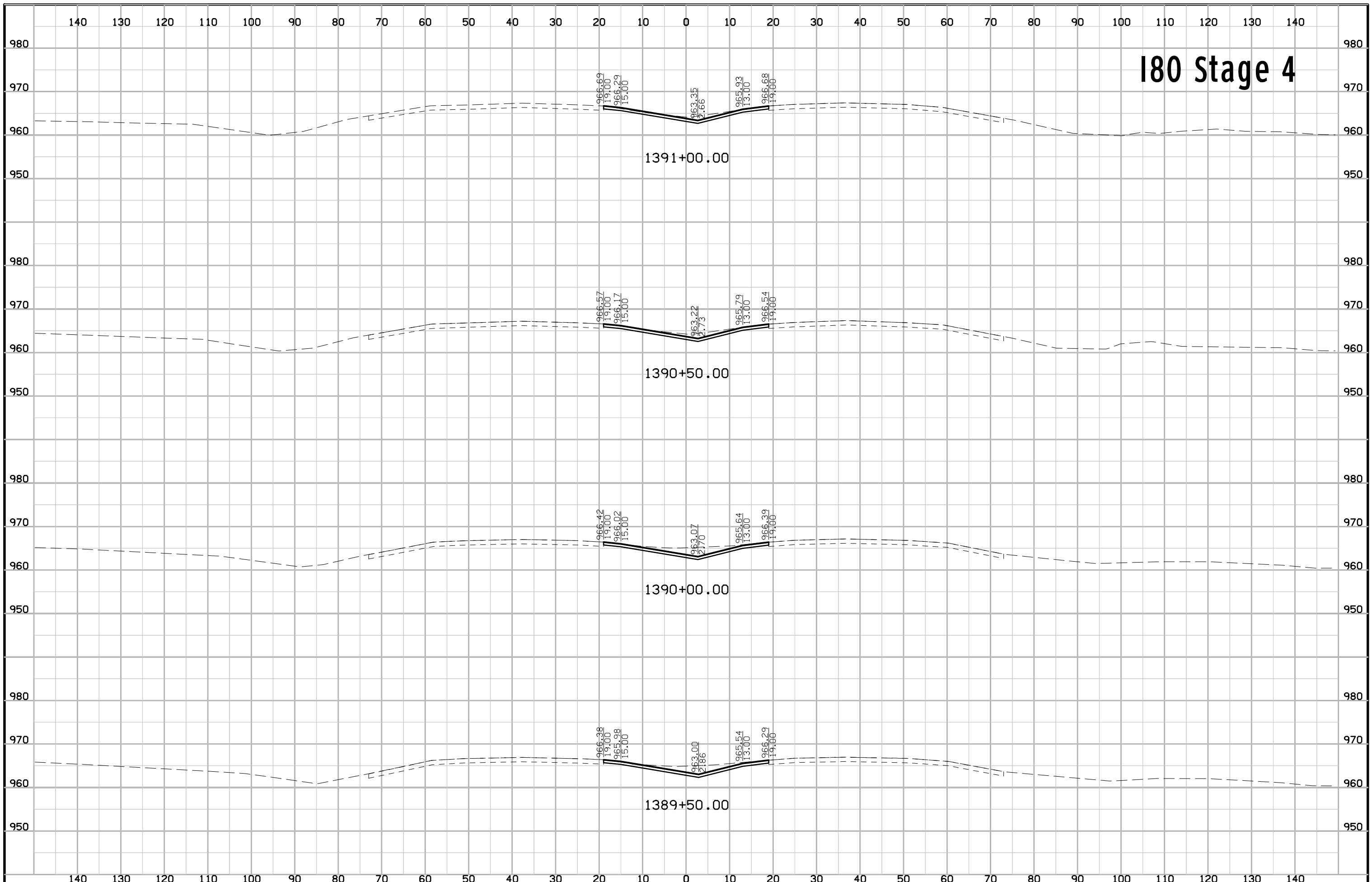
180 Stage 4

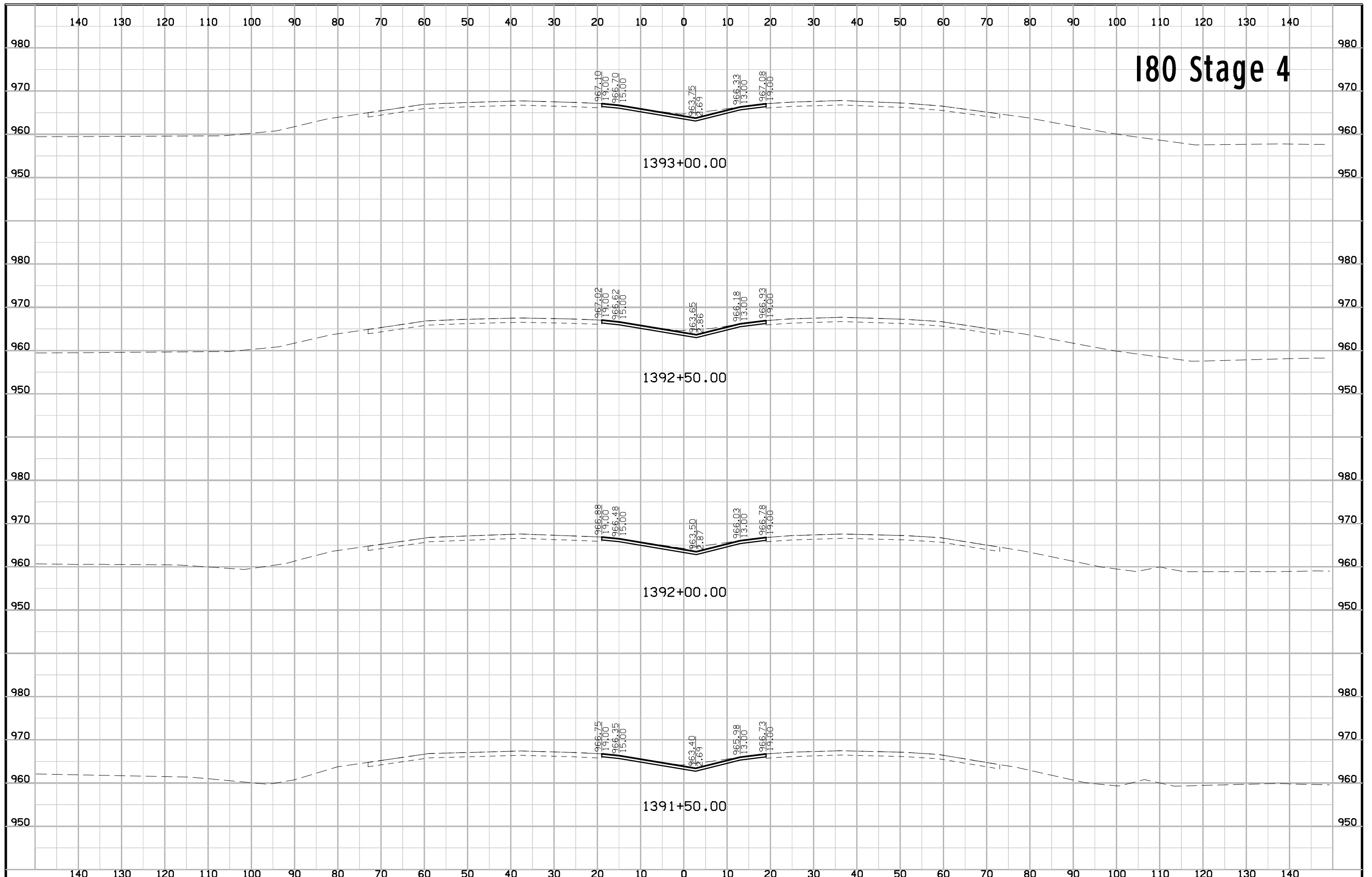


I80 Stage 4

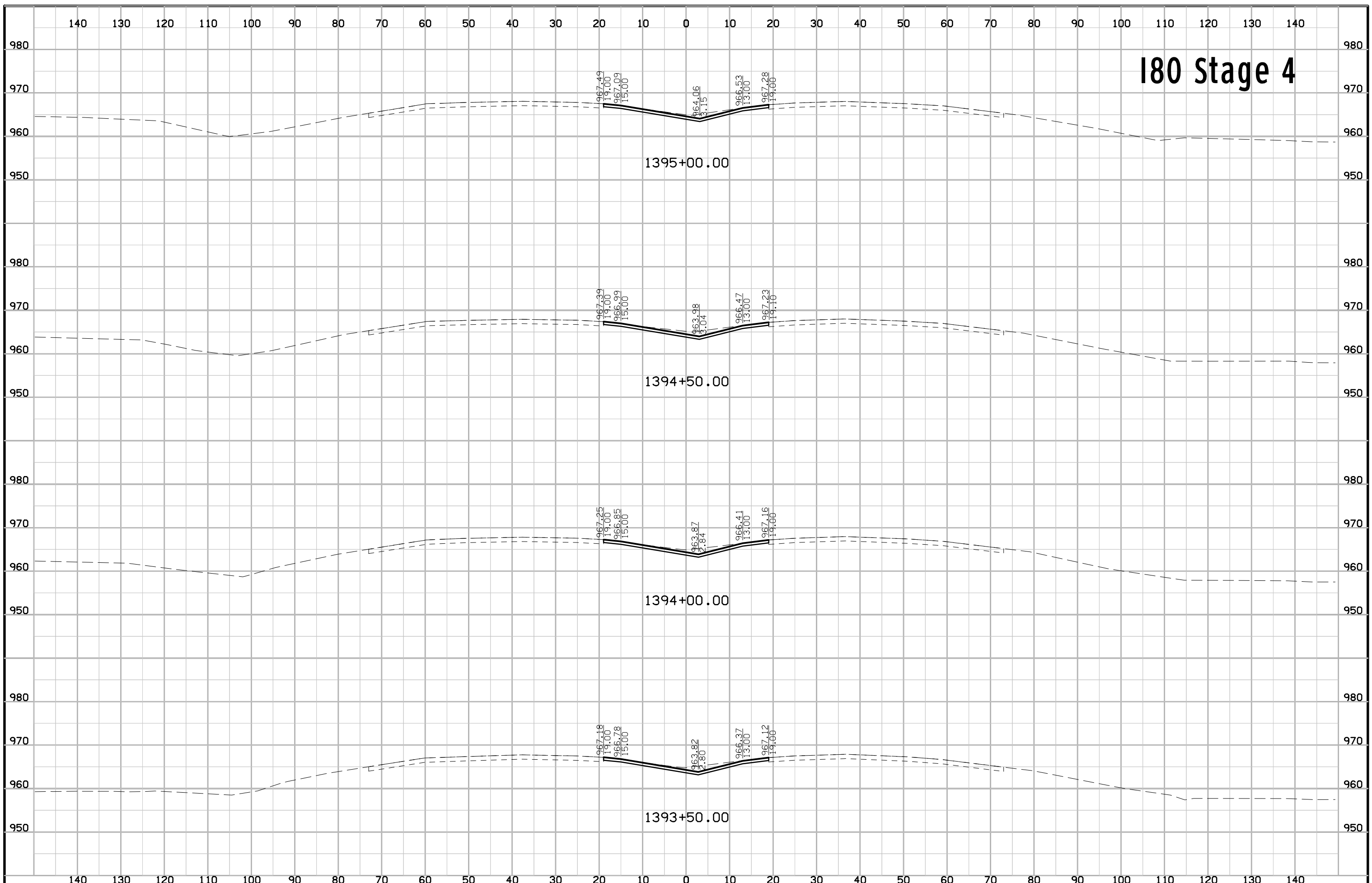


I80 Stage 4

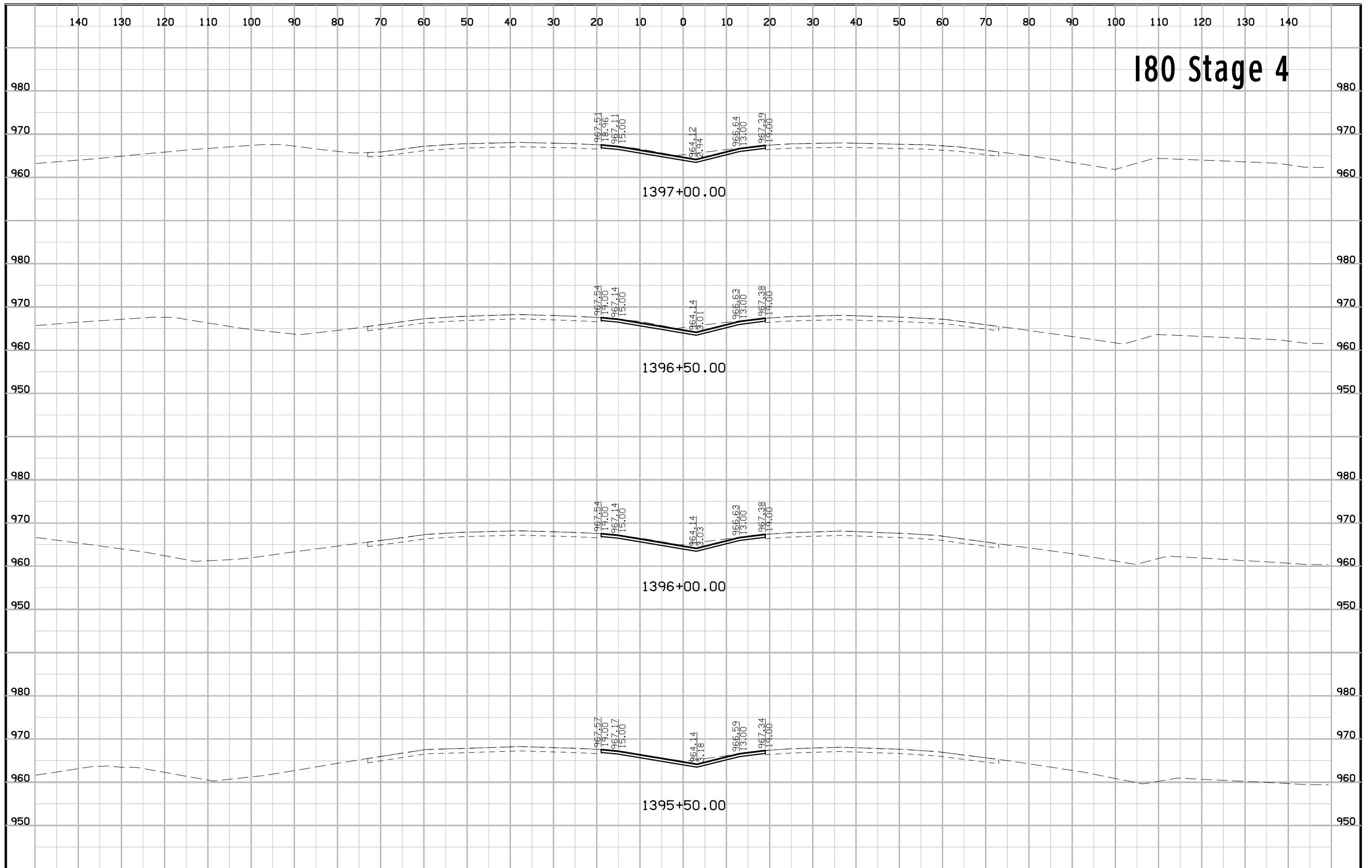


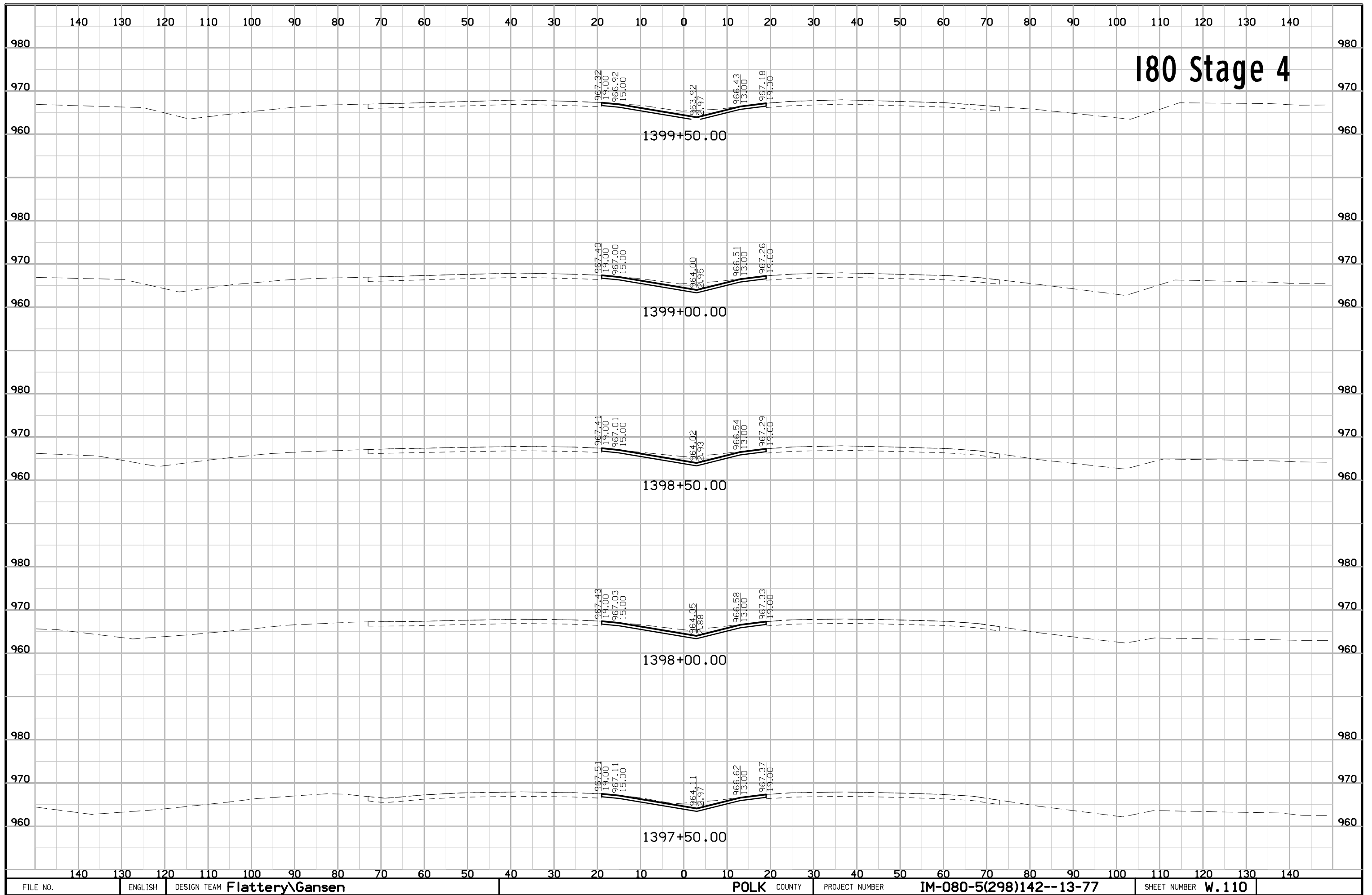


180 Stage 4

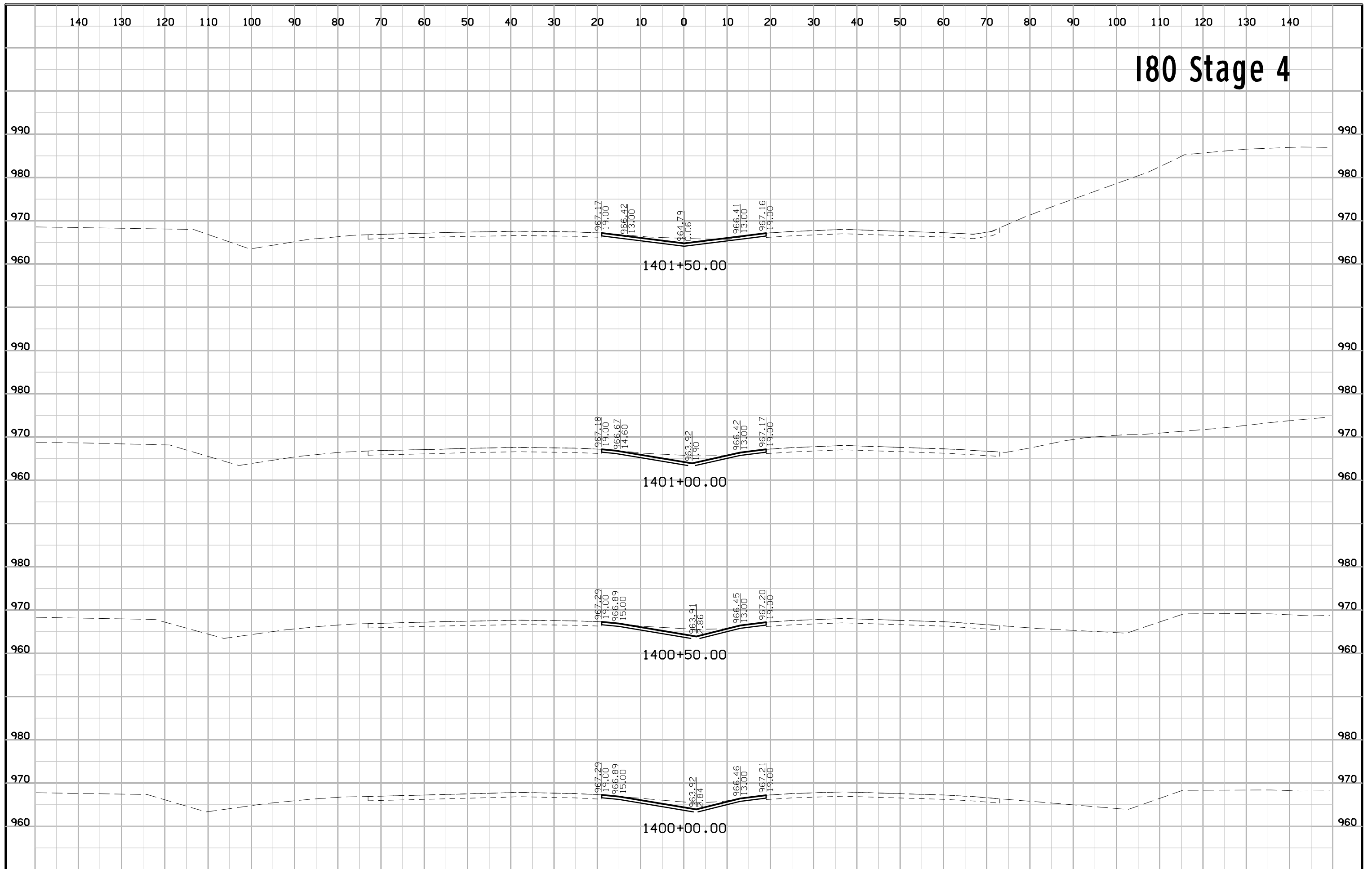


180 Stage 4

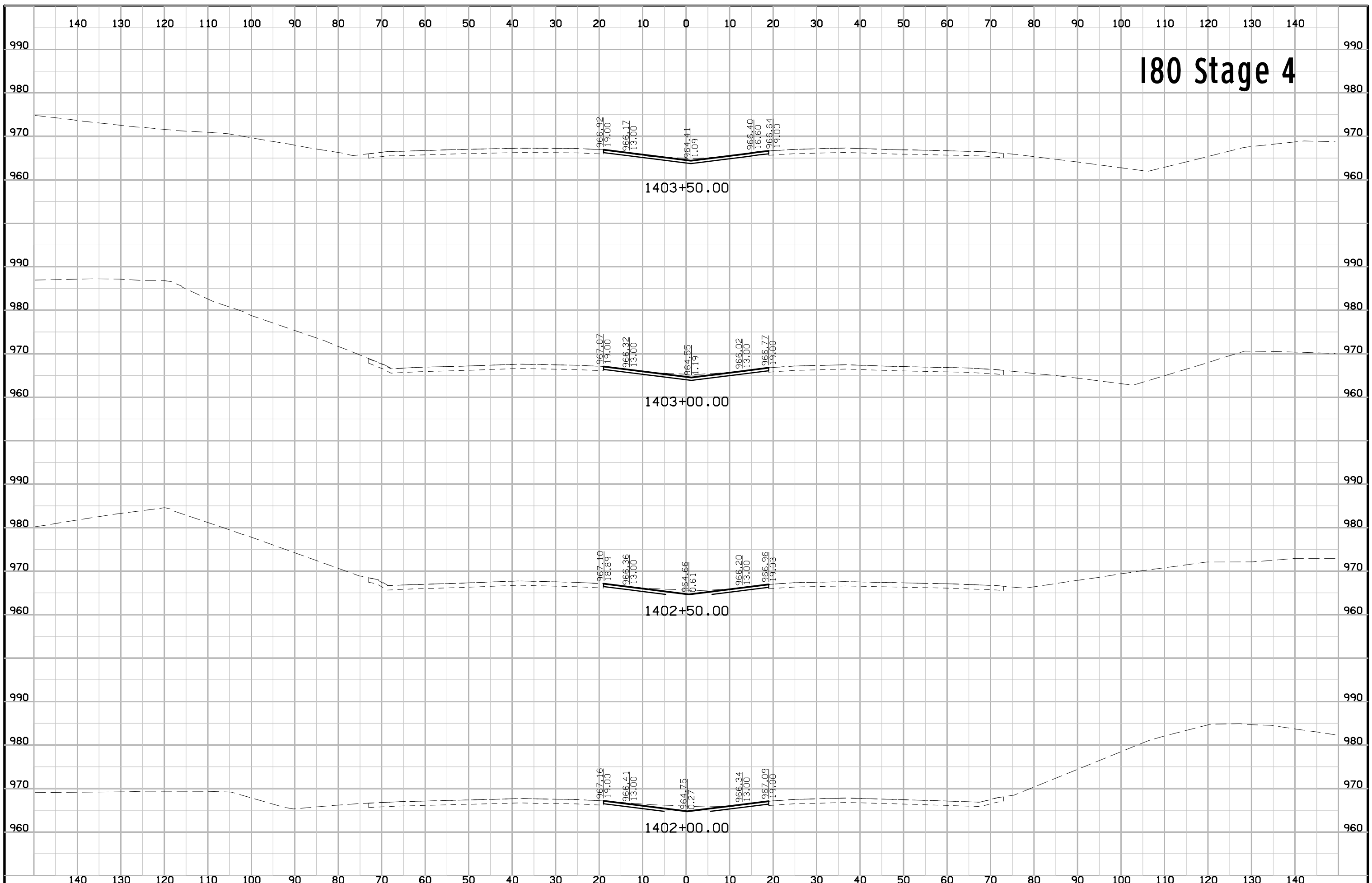




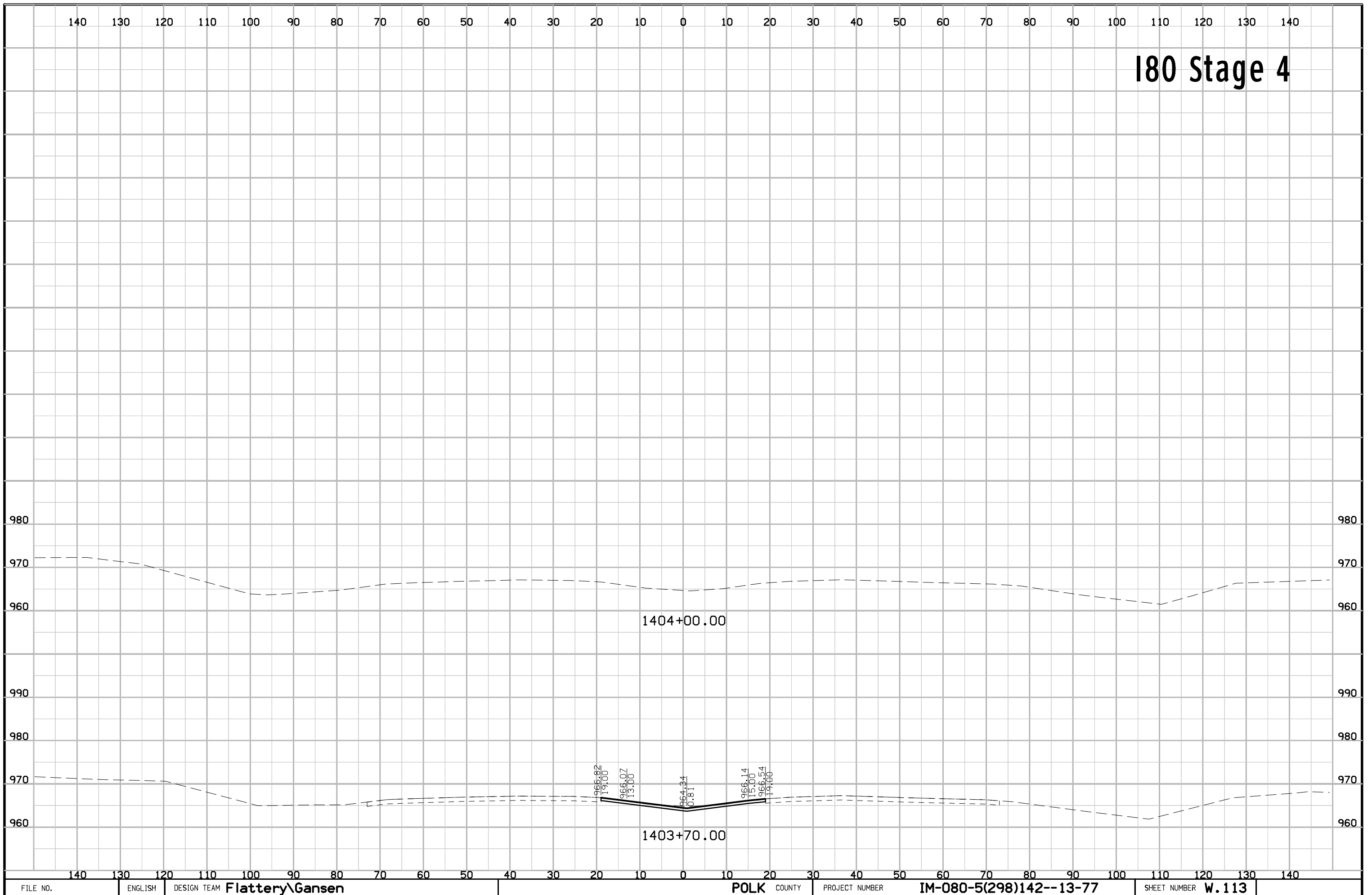
I80 Stage 4



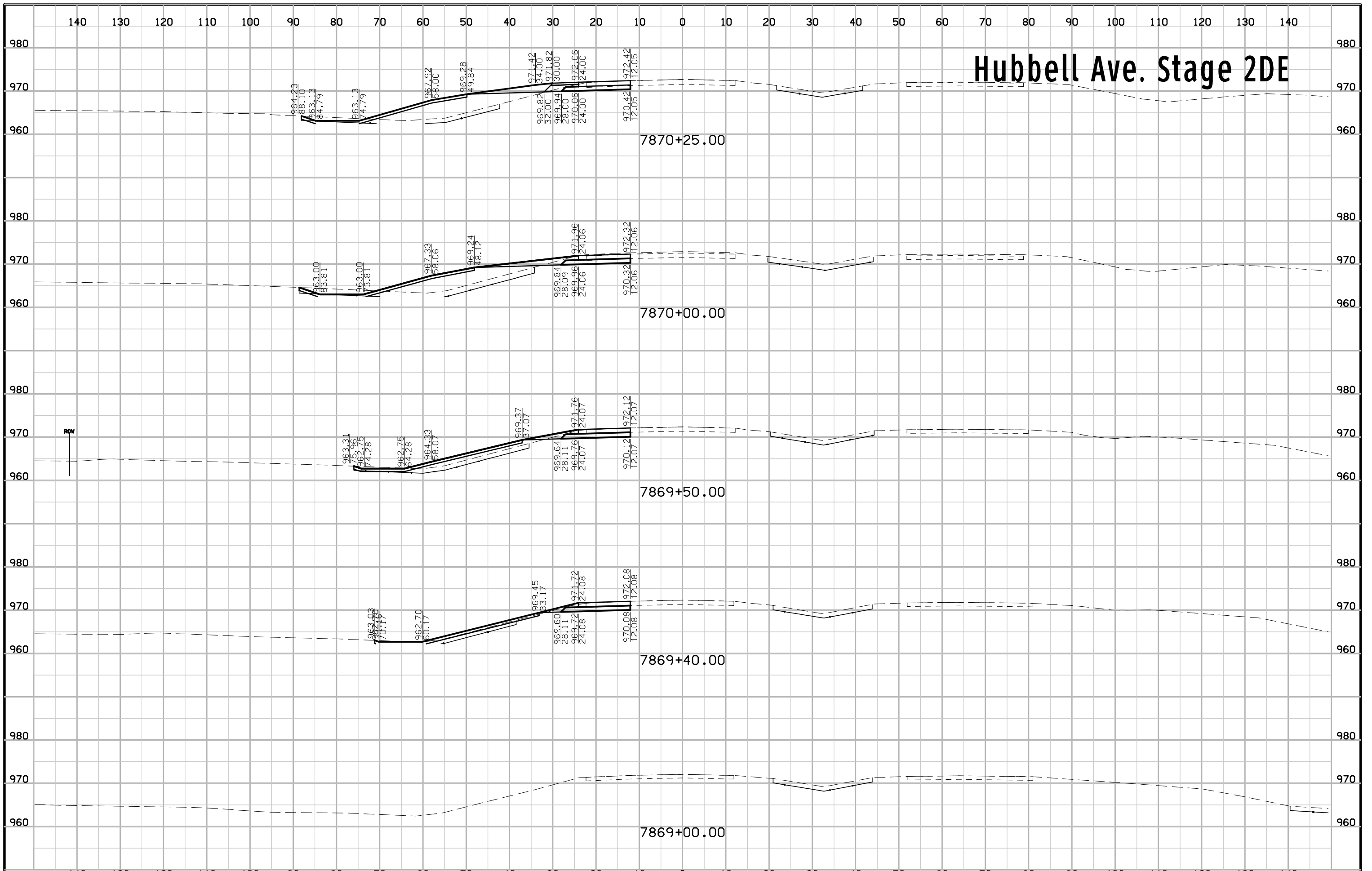
I80 Stage 4



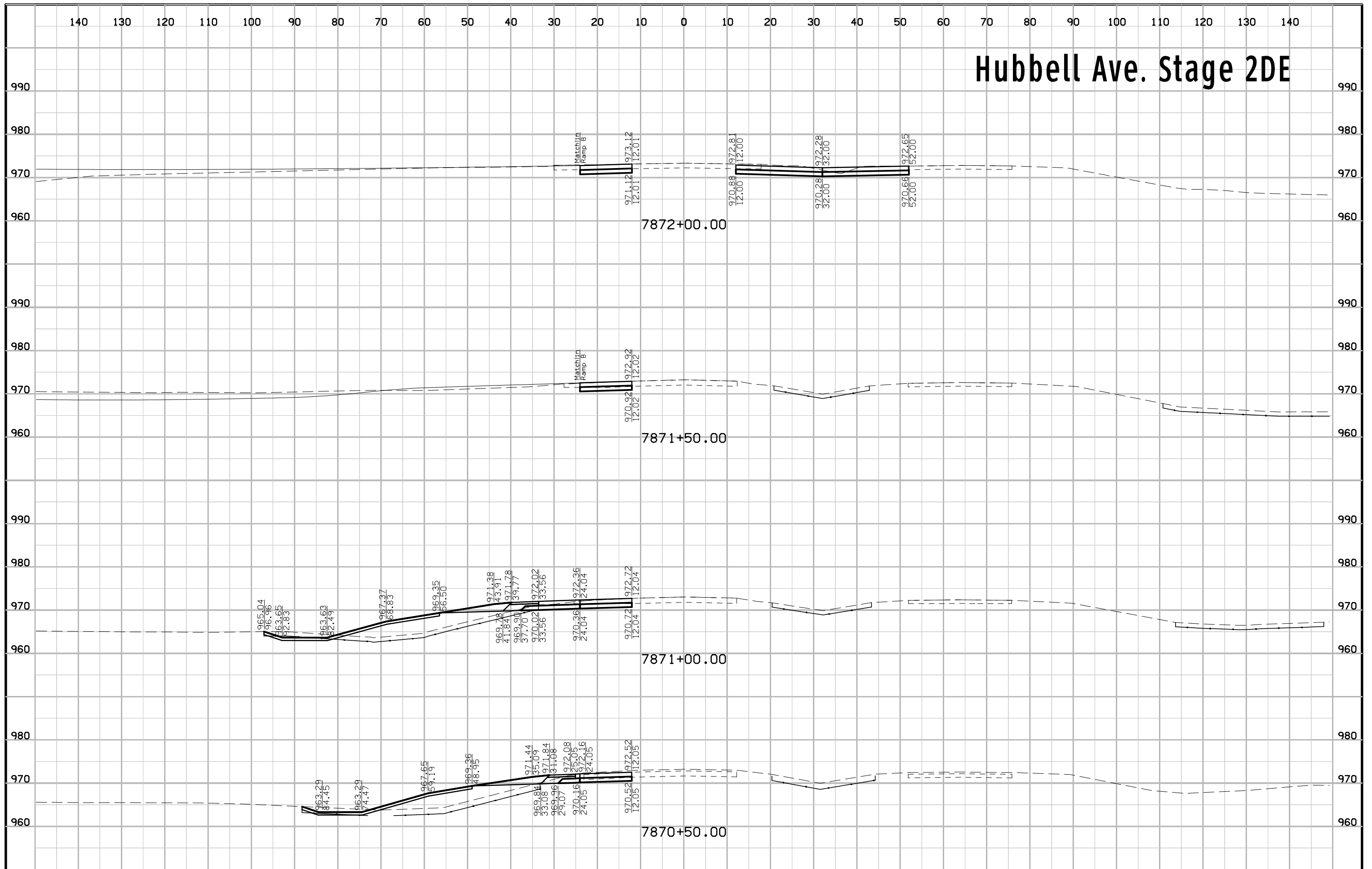
I80 Stage 4



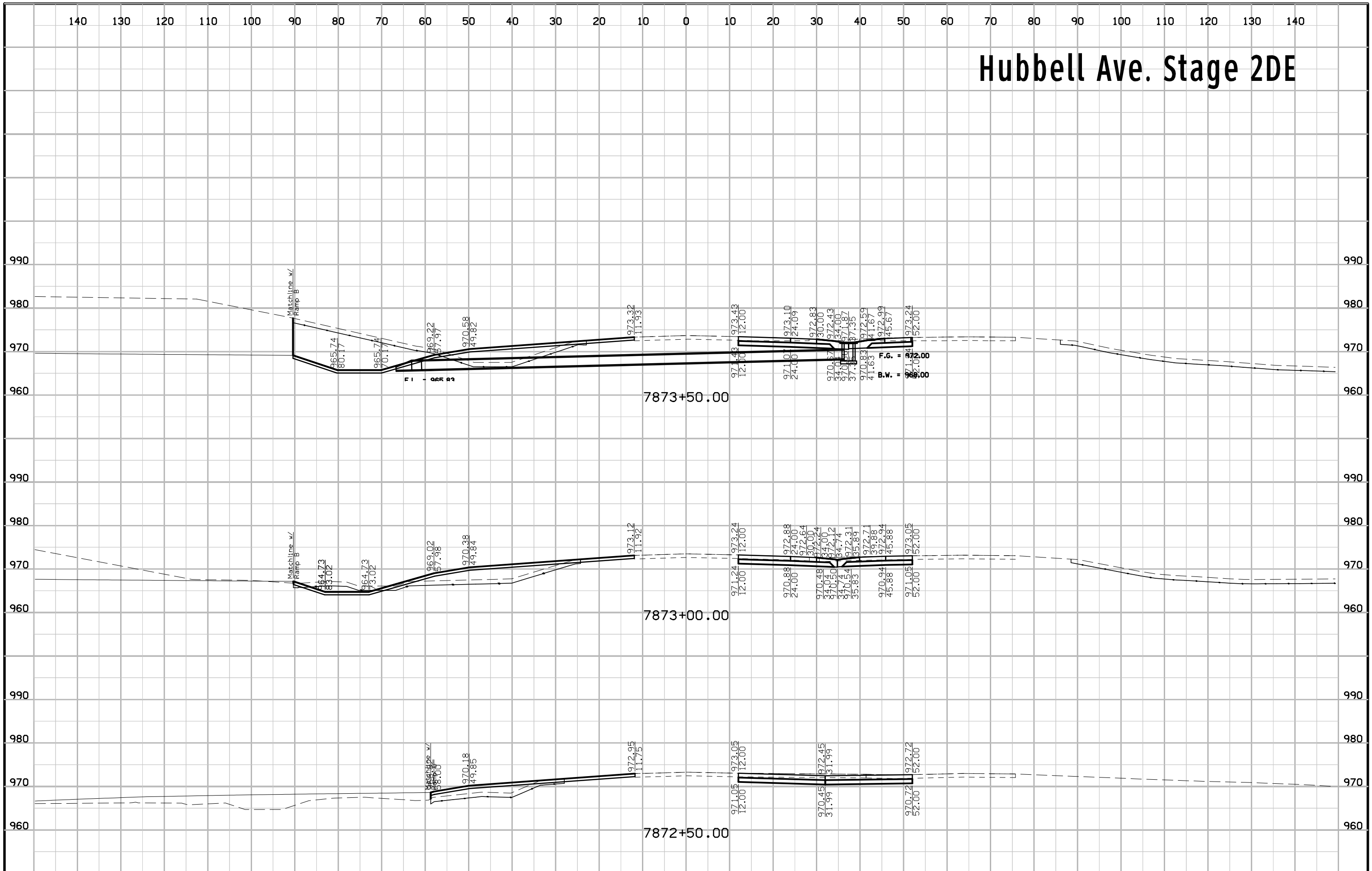
Hubbell Ave. Stage 2DE



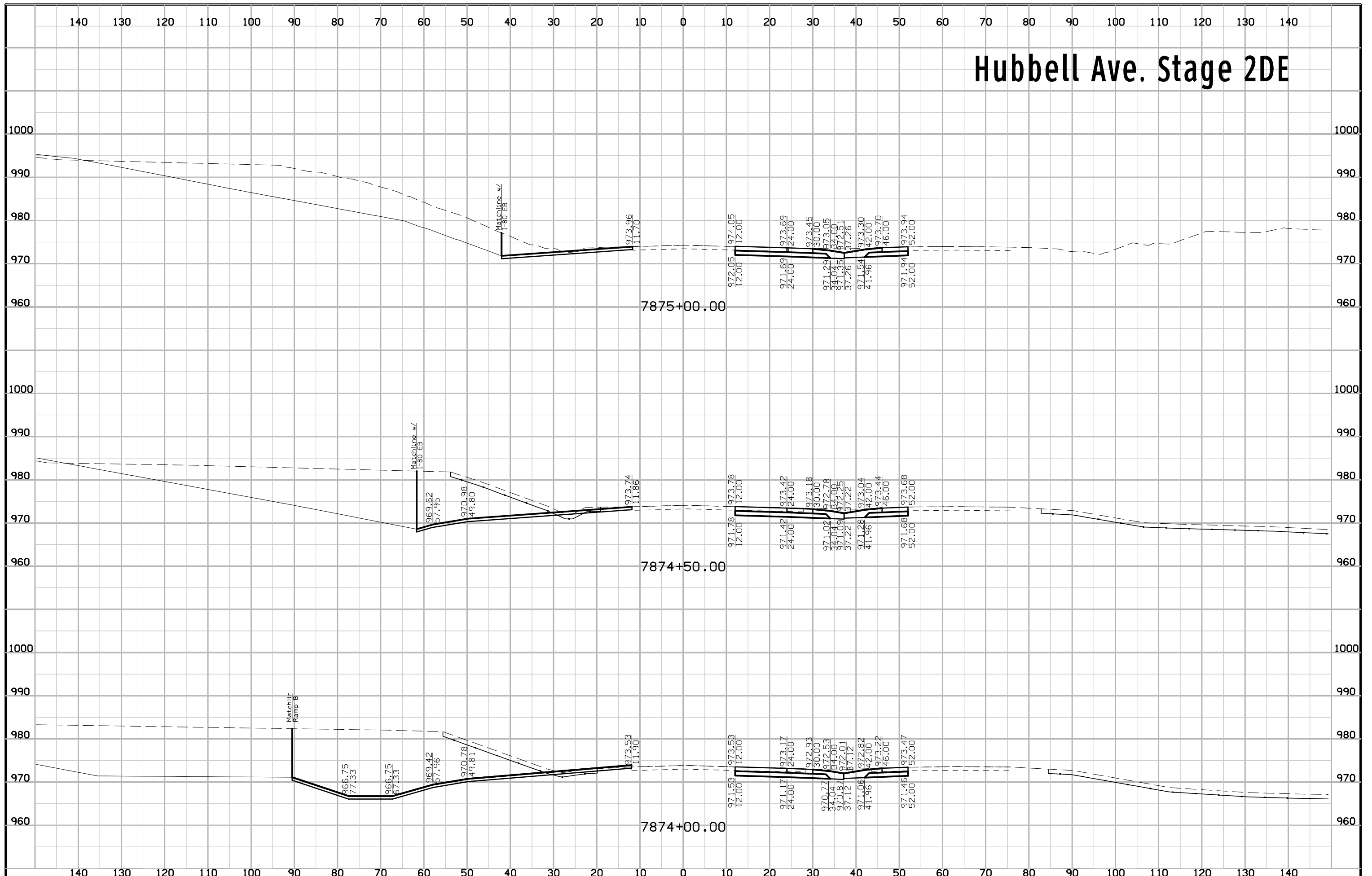
Hubbell Ave. Stage 2DE



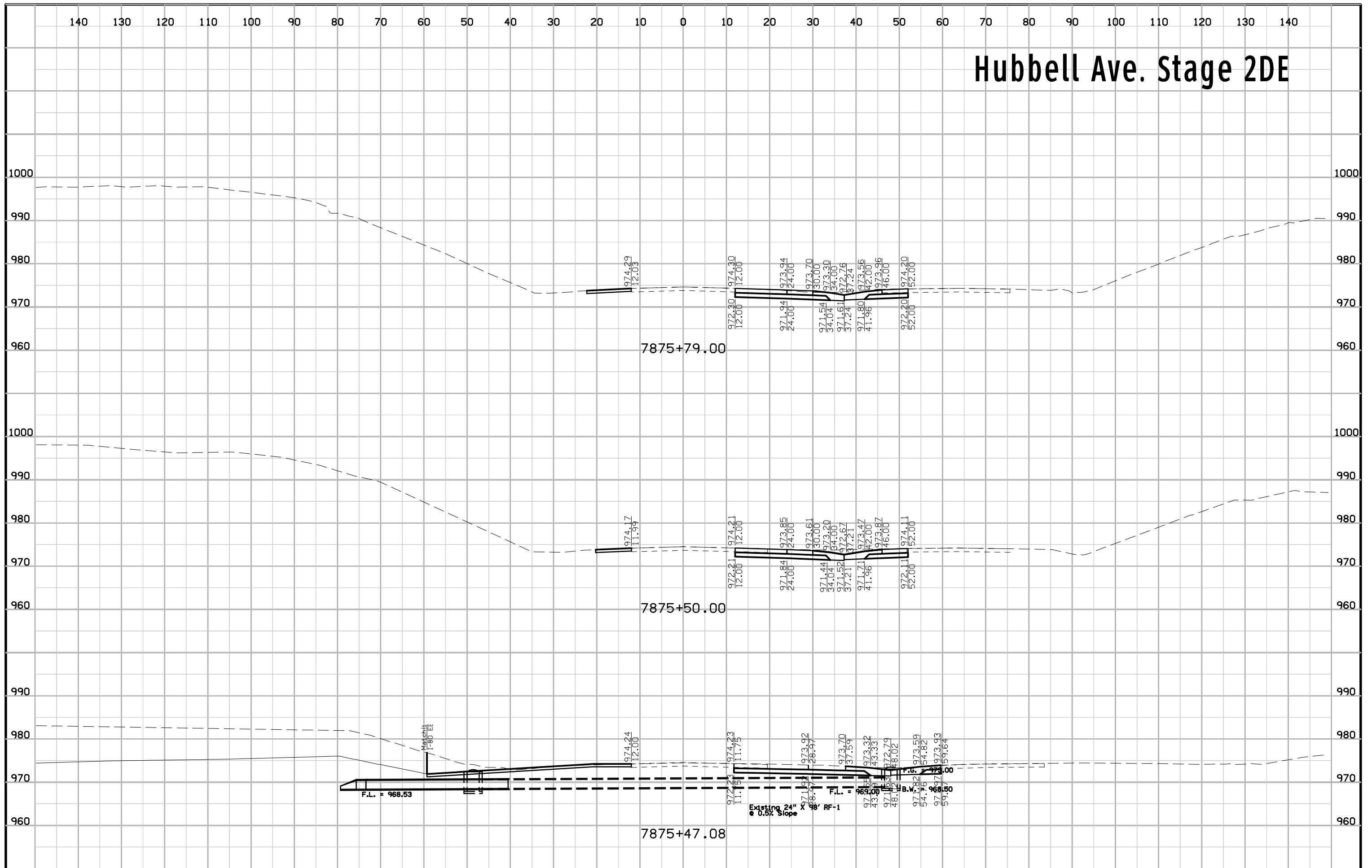
Hubbell Ave. Stage 2DE



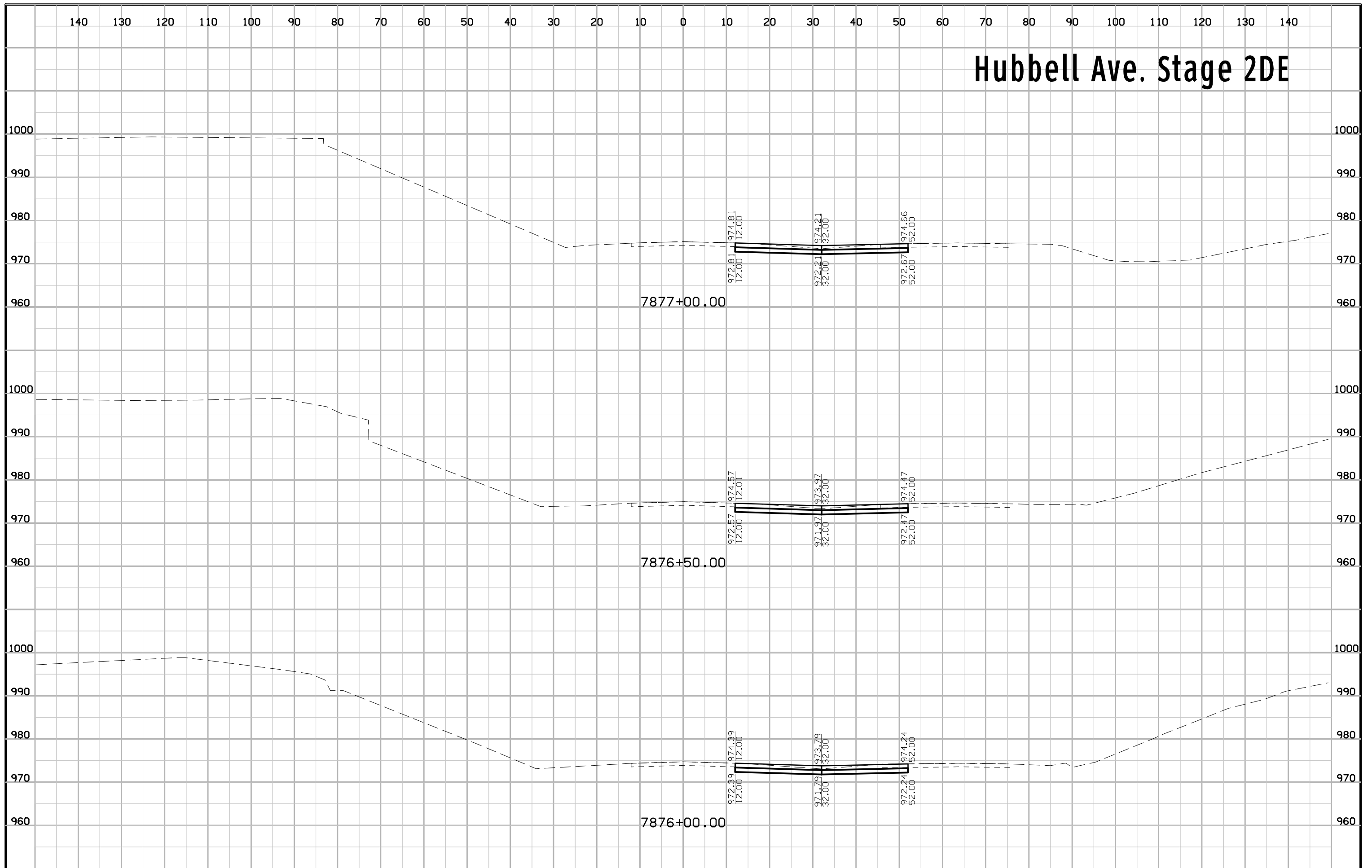
Hubbell Ave. Stage 2DE



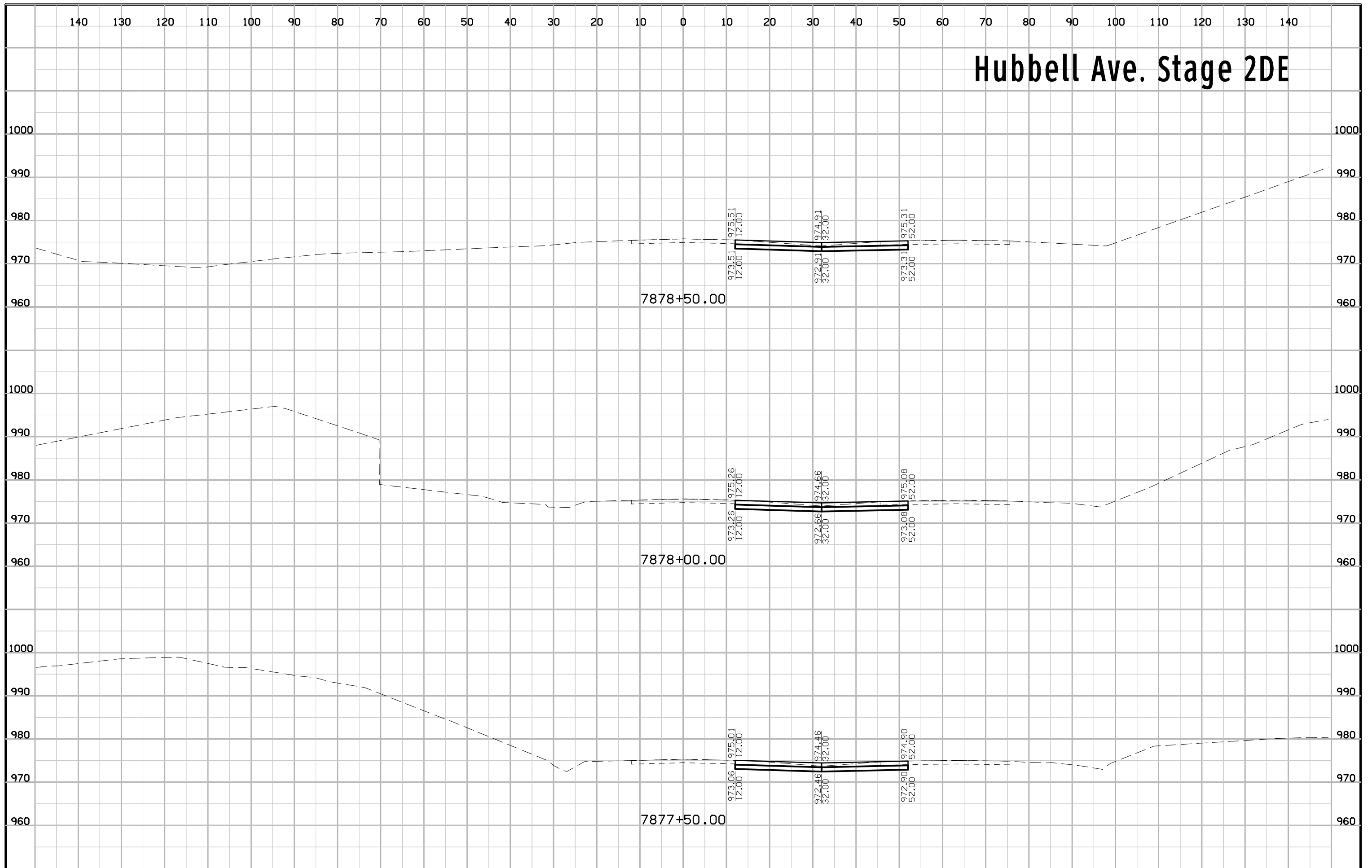
Hubbell Ave. Stage 2DE



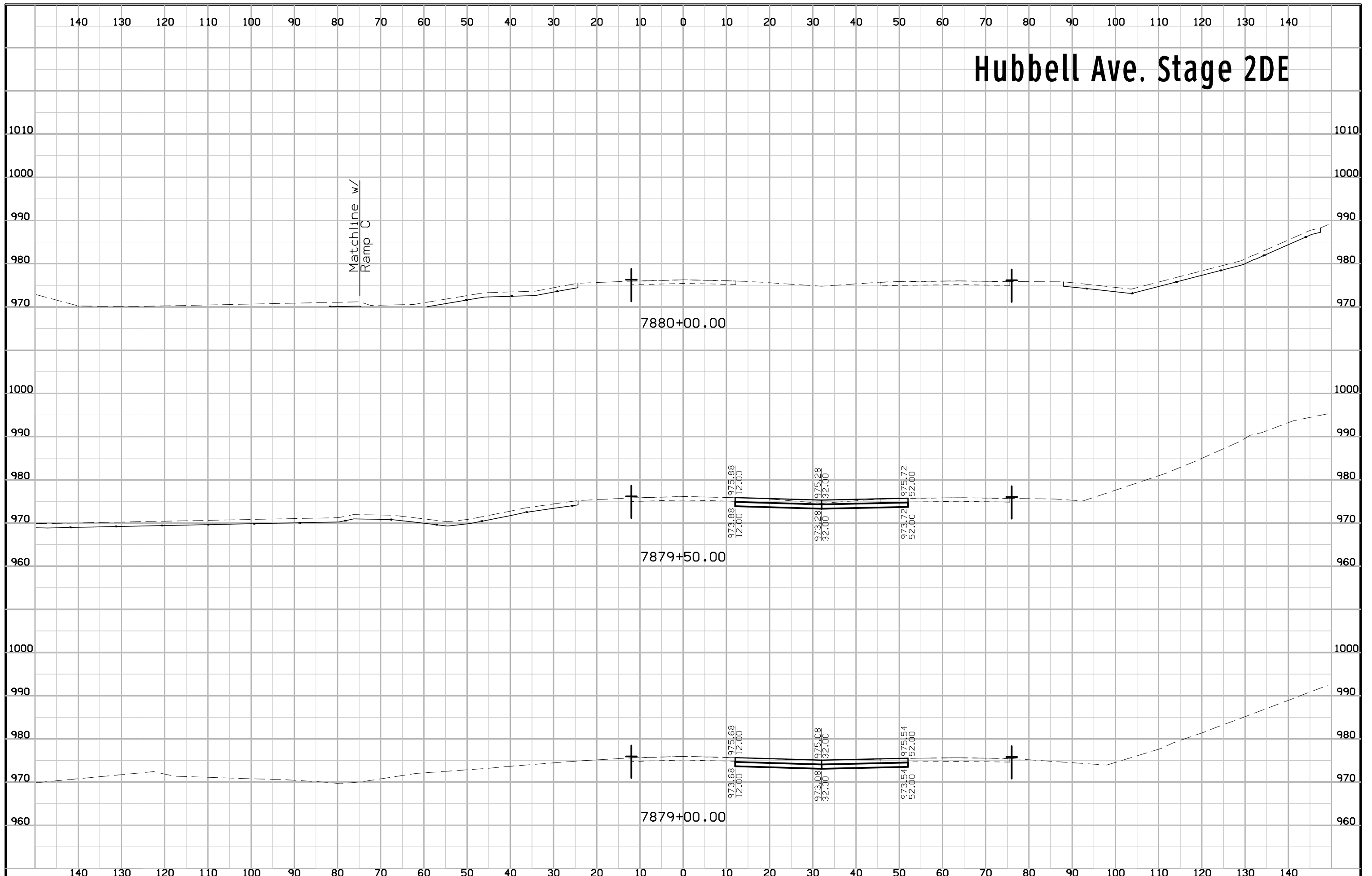
Hubbell Ave. Stage 2DE



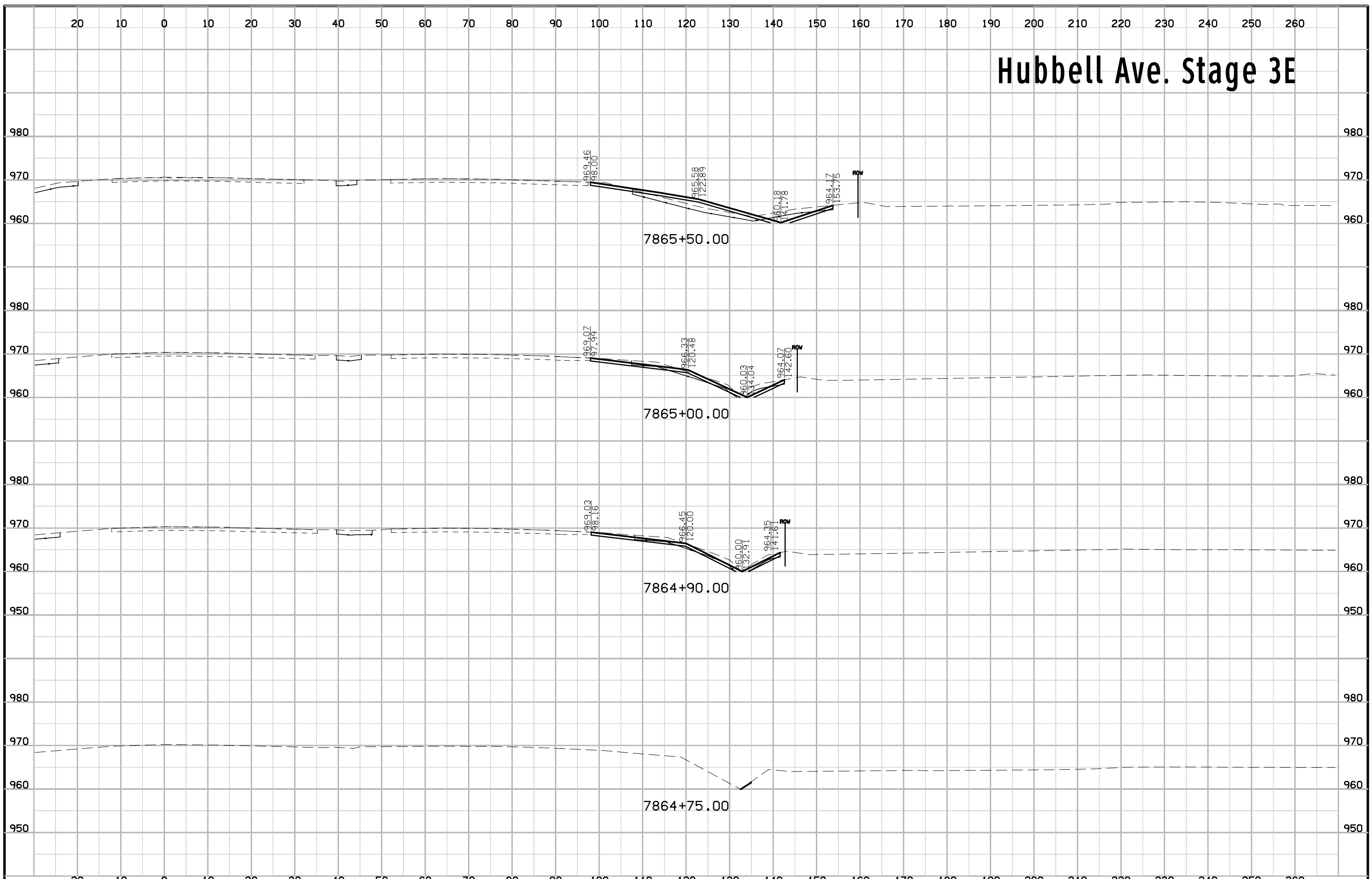
Hubbell Ave. Stage 2DE



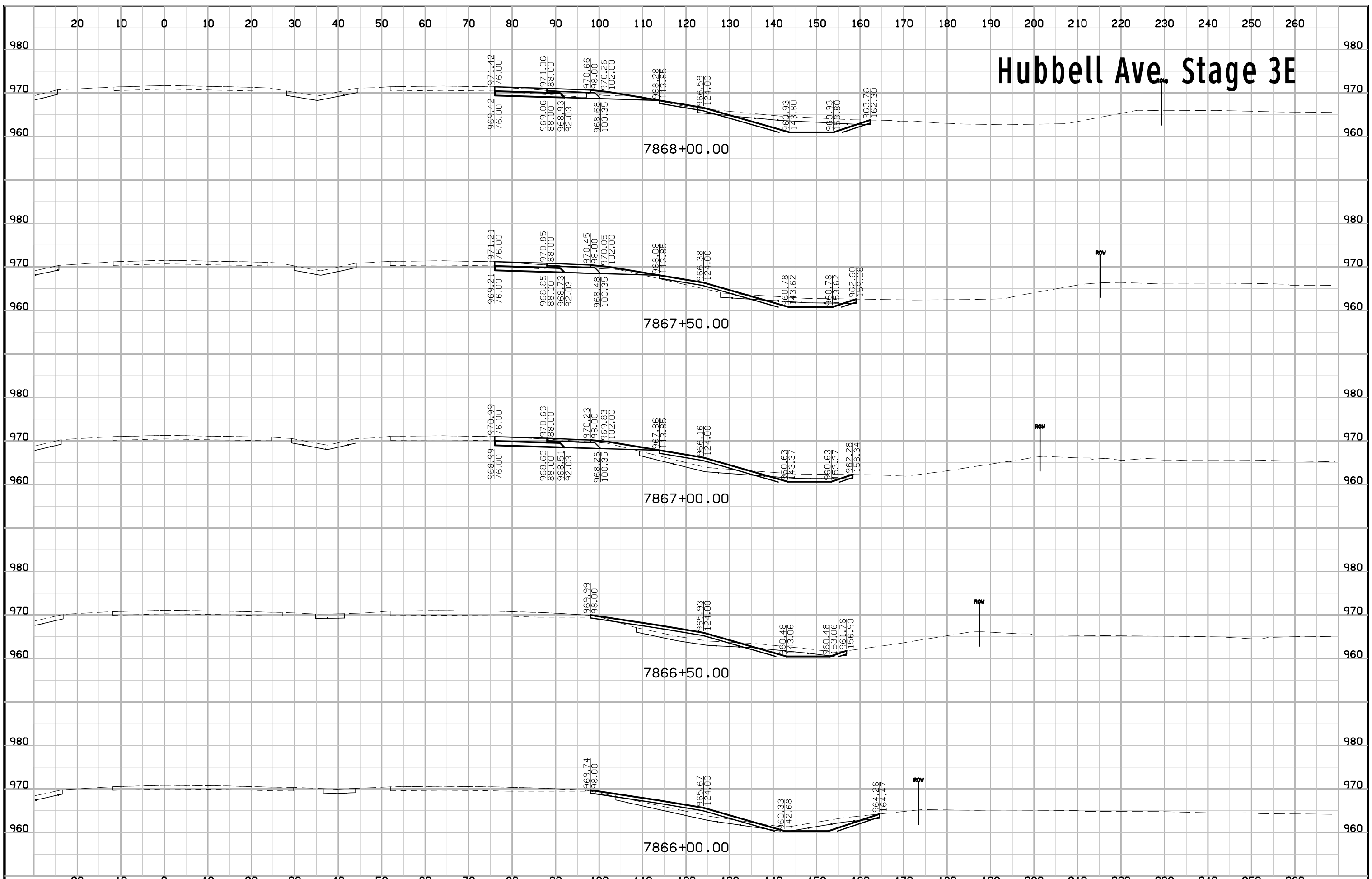
Hubbell Ave. Stage 2DE



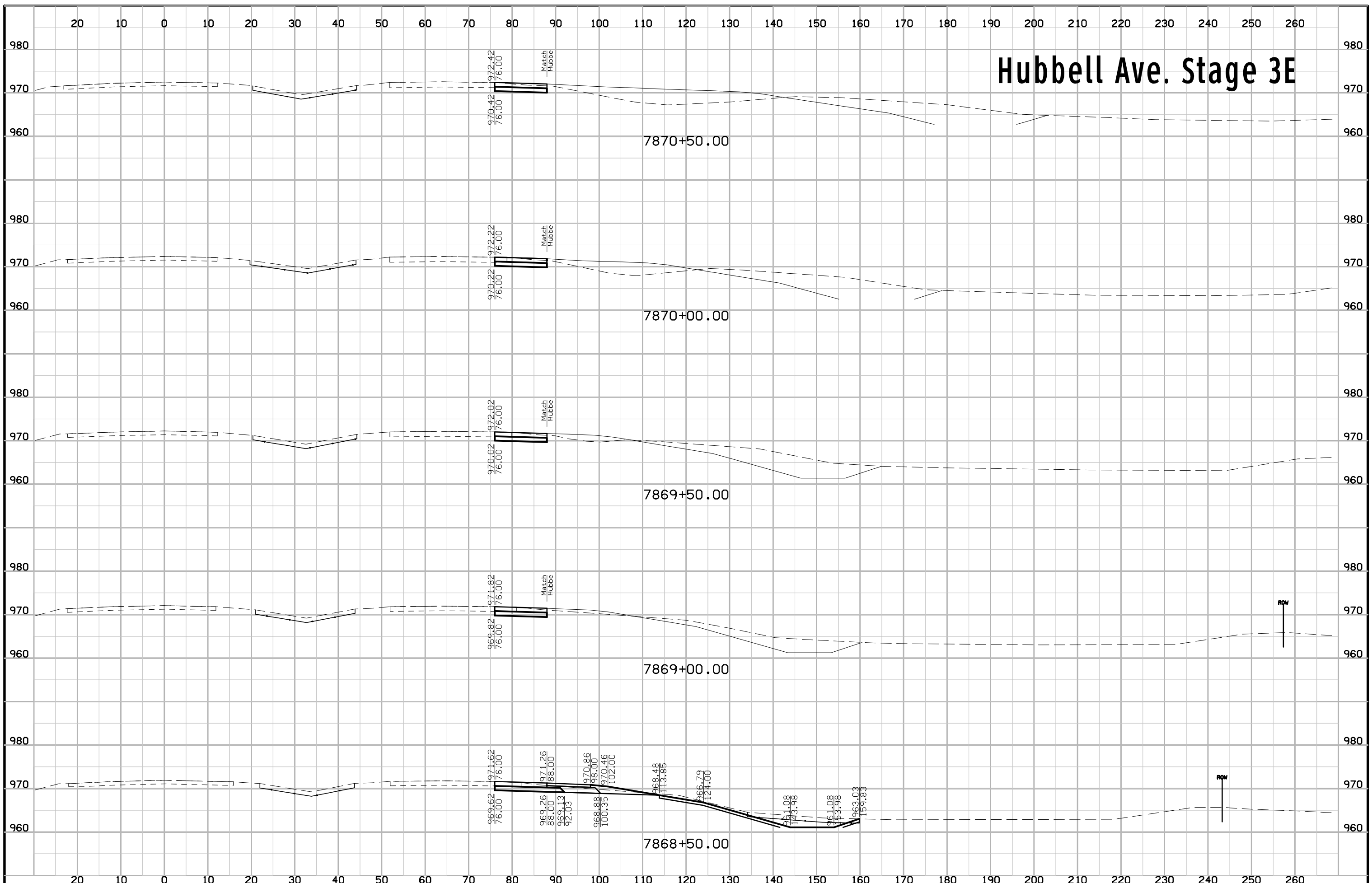
Hubbell Ave. Stage 3E



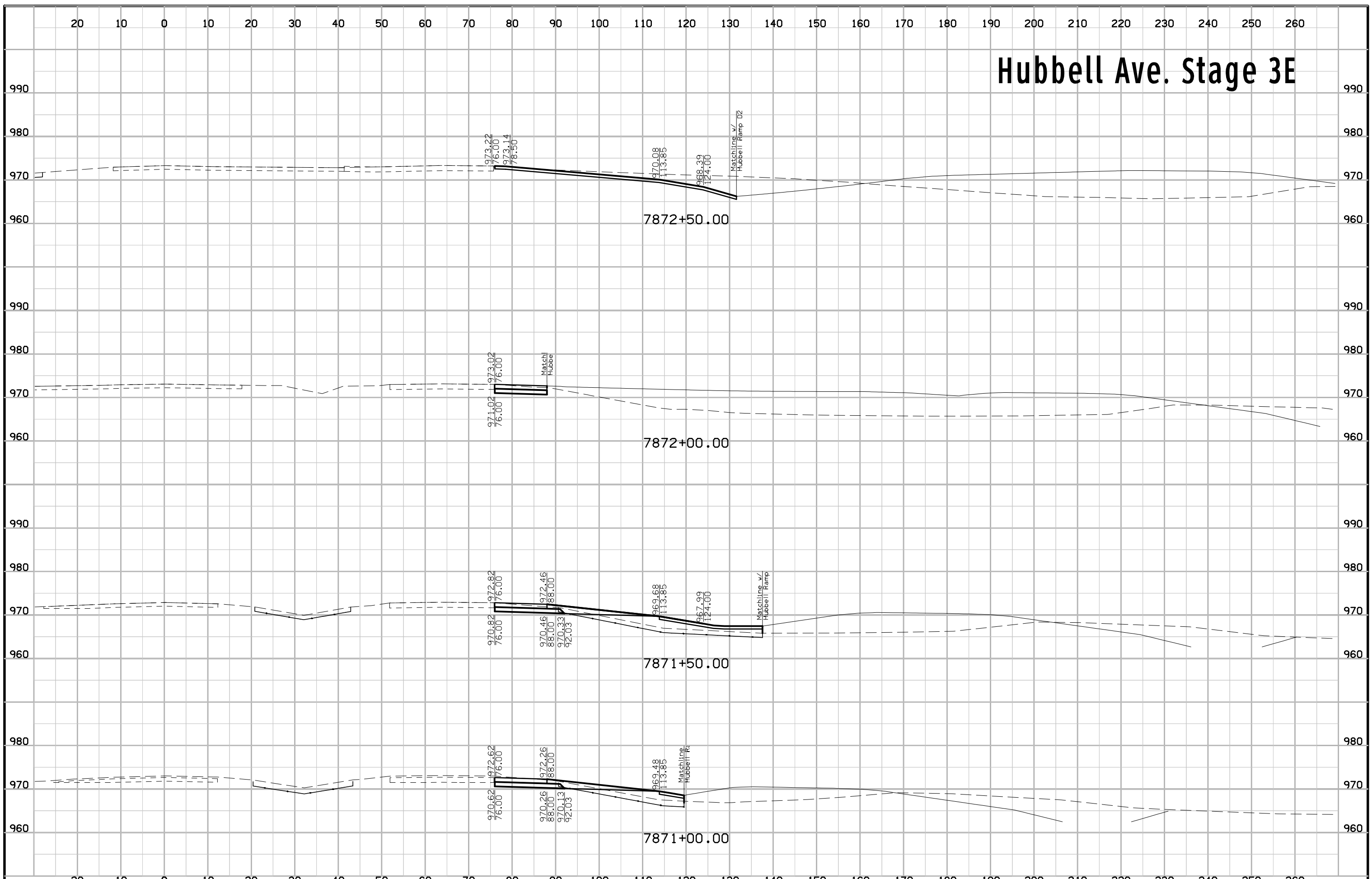
Hubbell Ave. Stage 3E



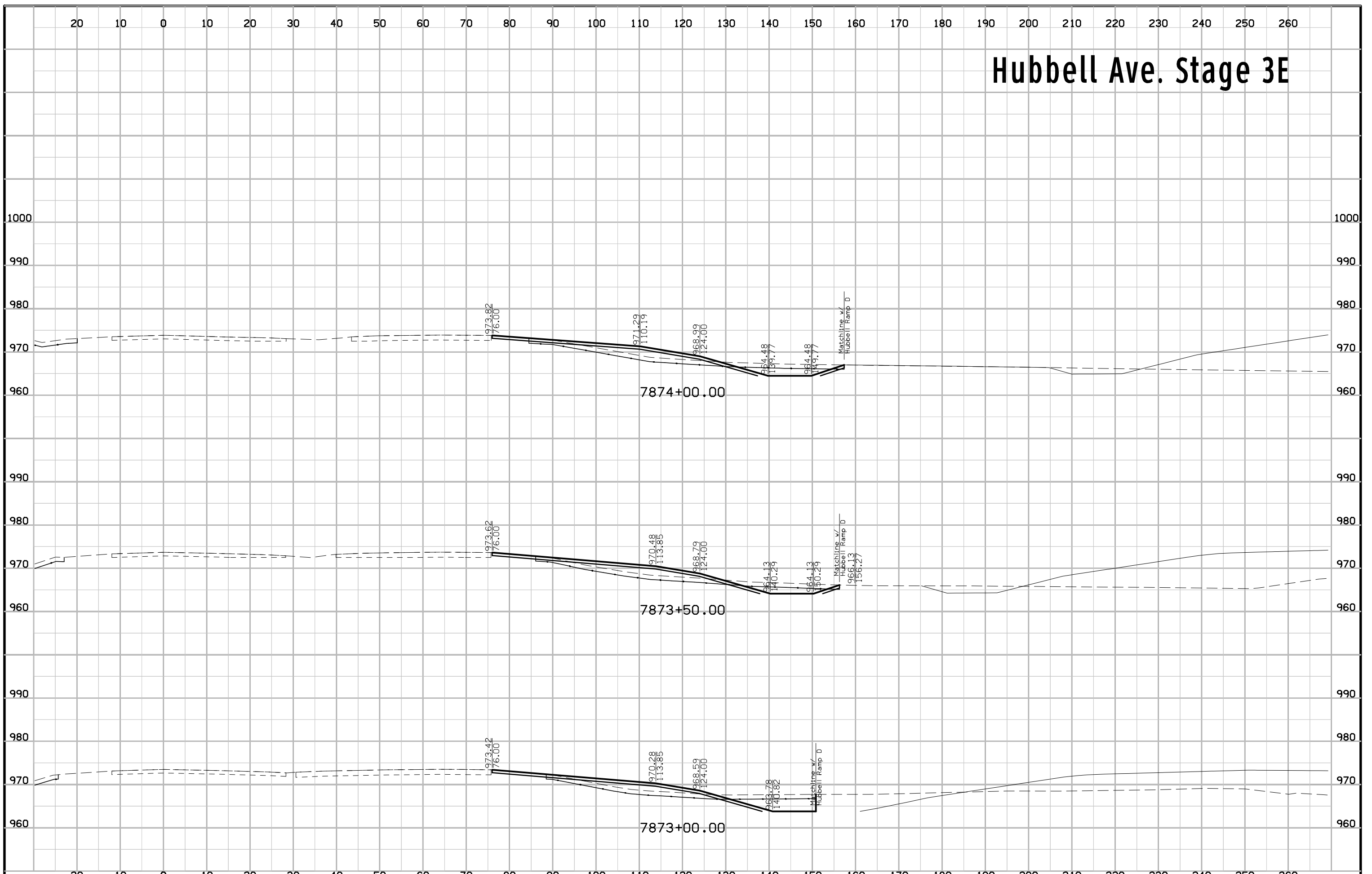
Hubbell Ave. Stage 3E



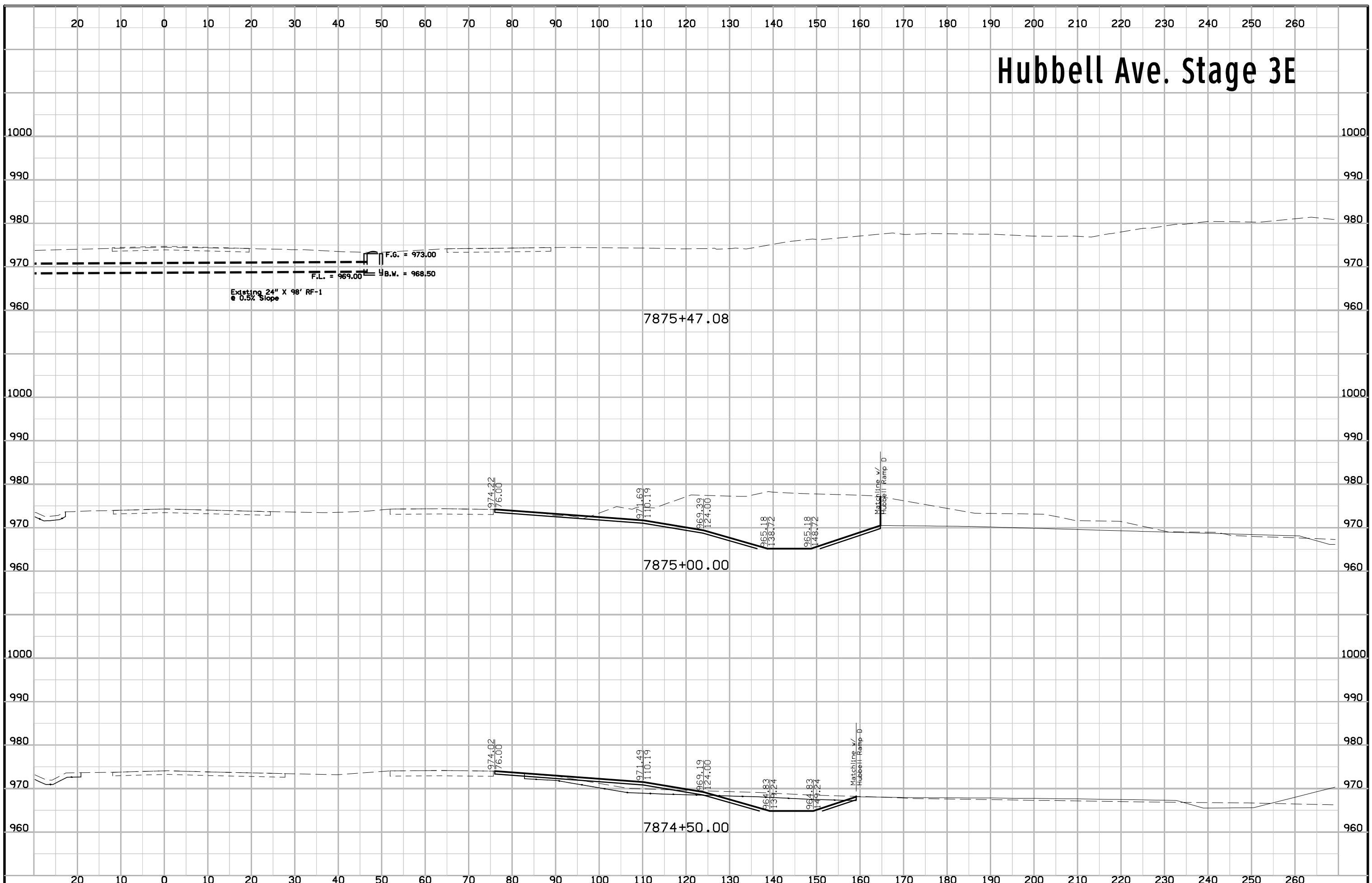
Hubbell Ave. Stage 3E



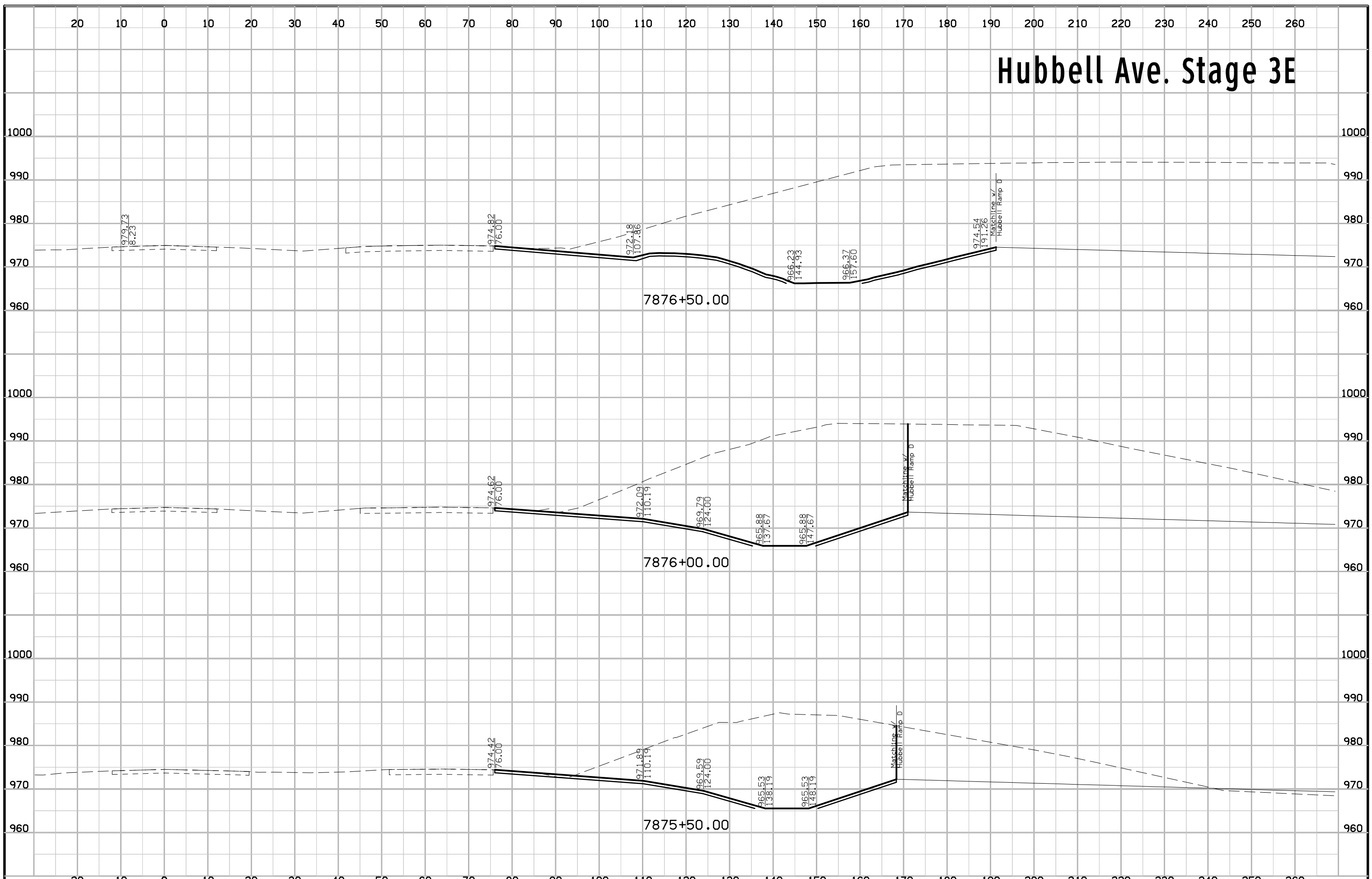
Hubbell Ave. Stage 3E



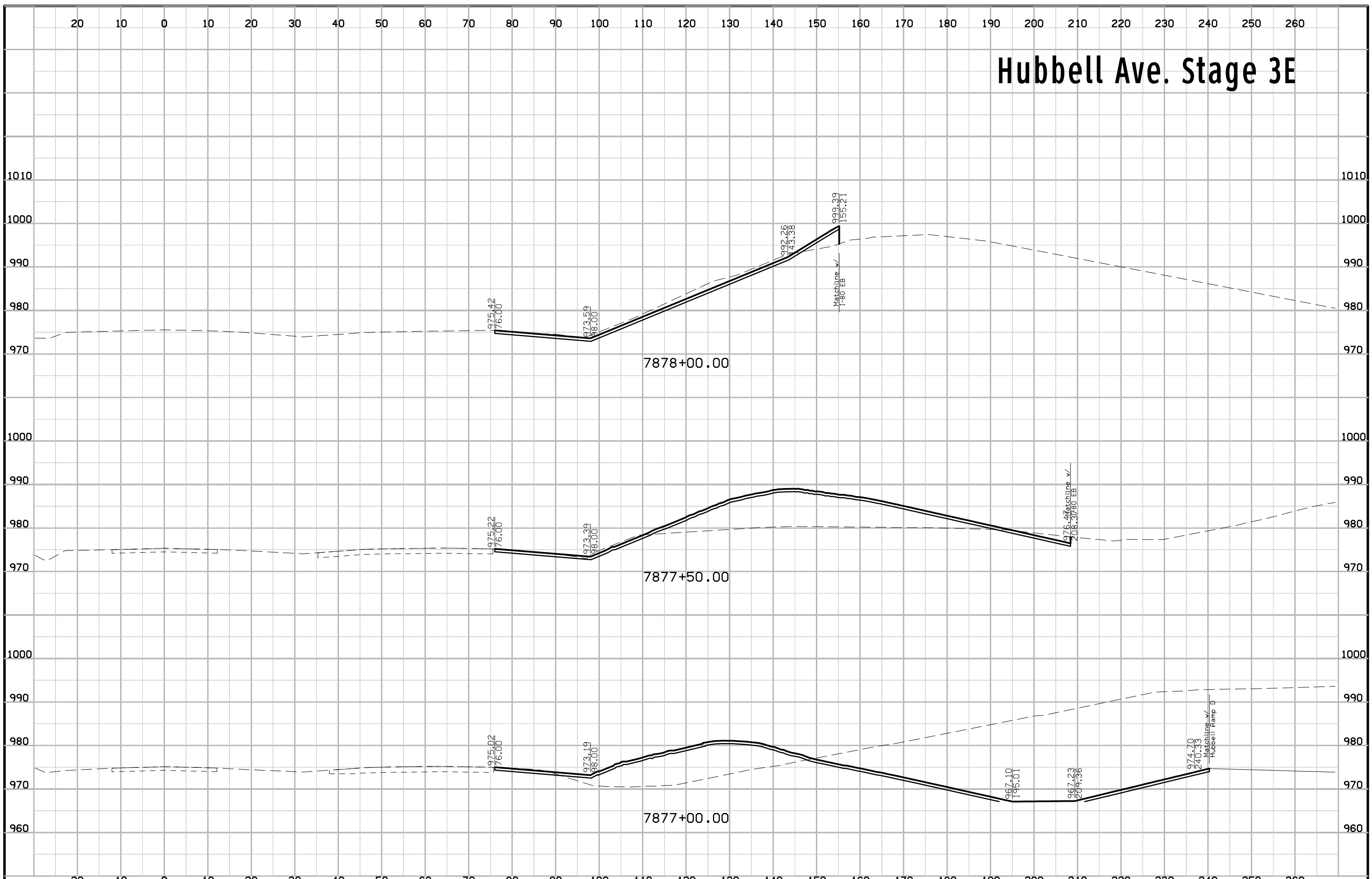
Hubbell Ave. Stage 3E



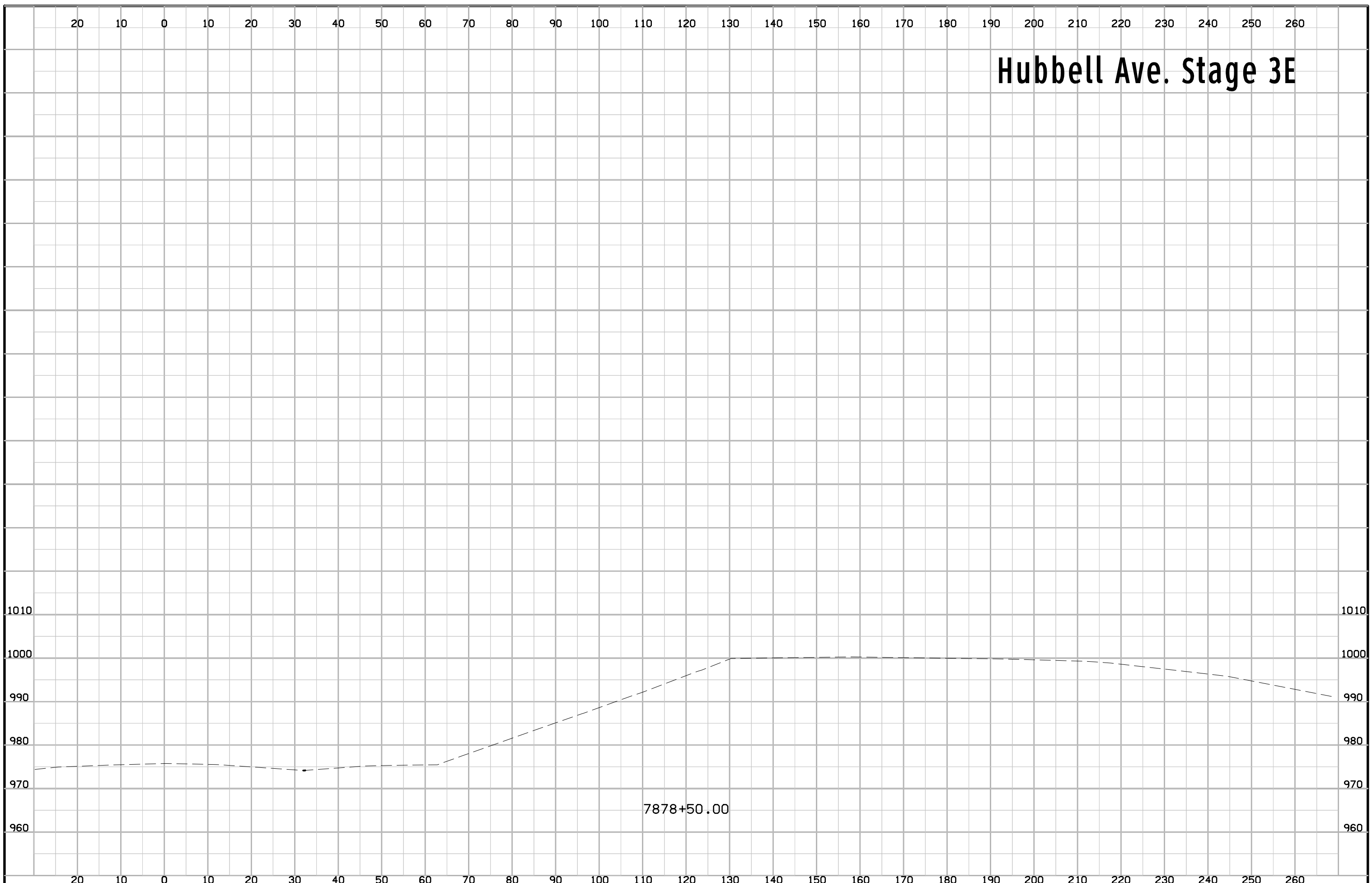
Hubbell Ave. Stage 3E



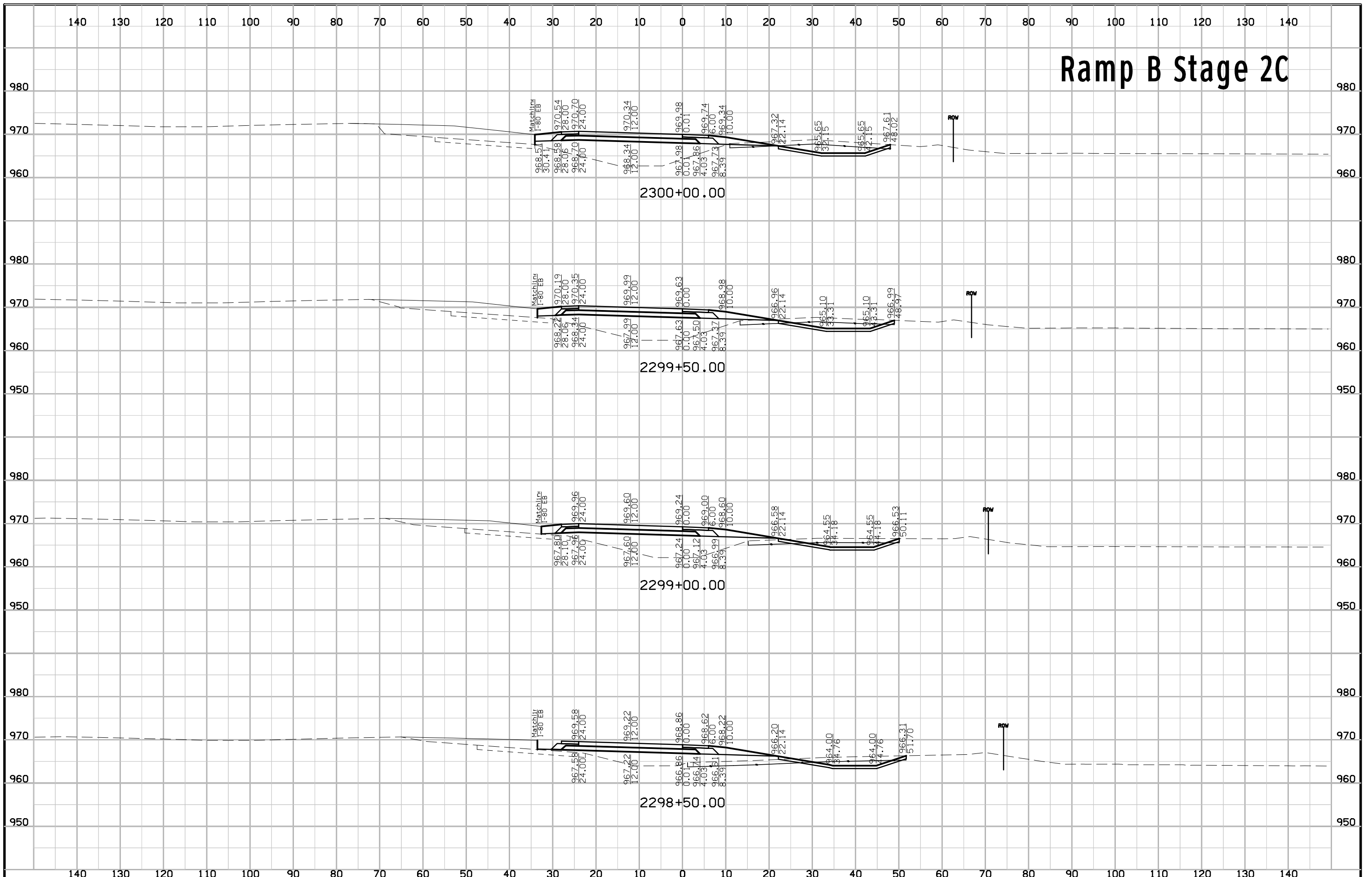
Hubbell Ave. Stage 3E

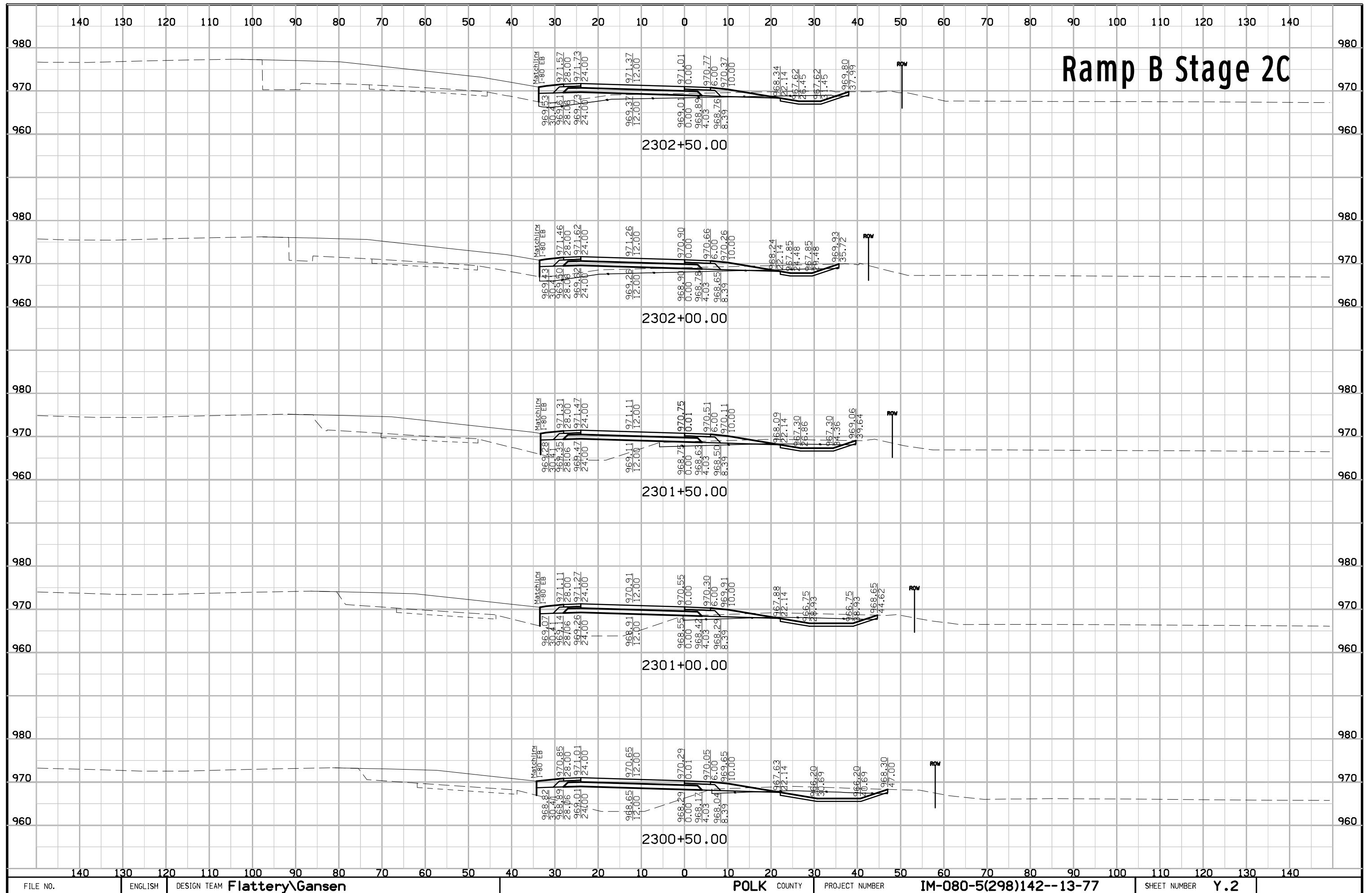


Hubbell Ave. Stage 3E

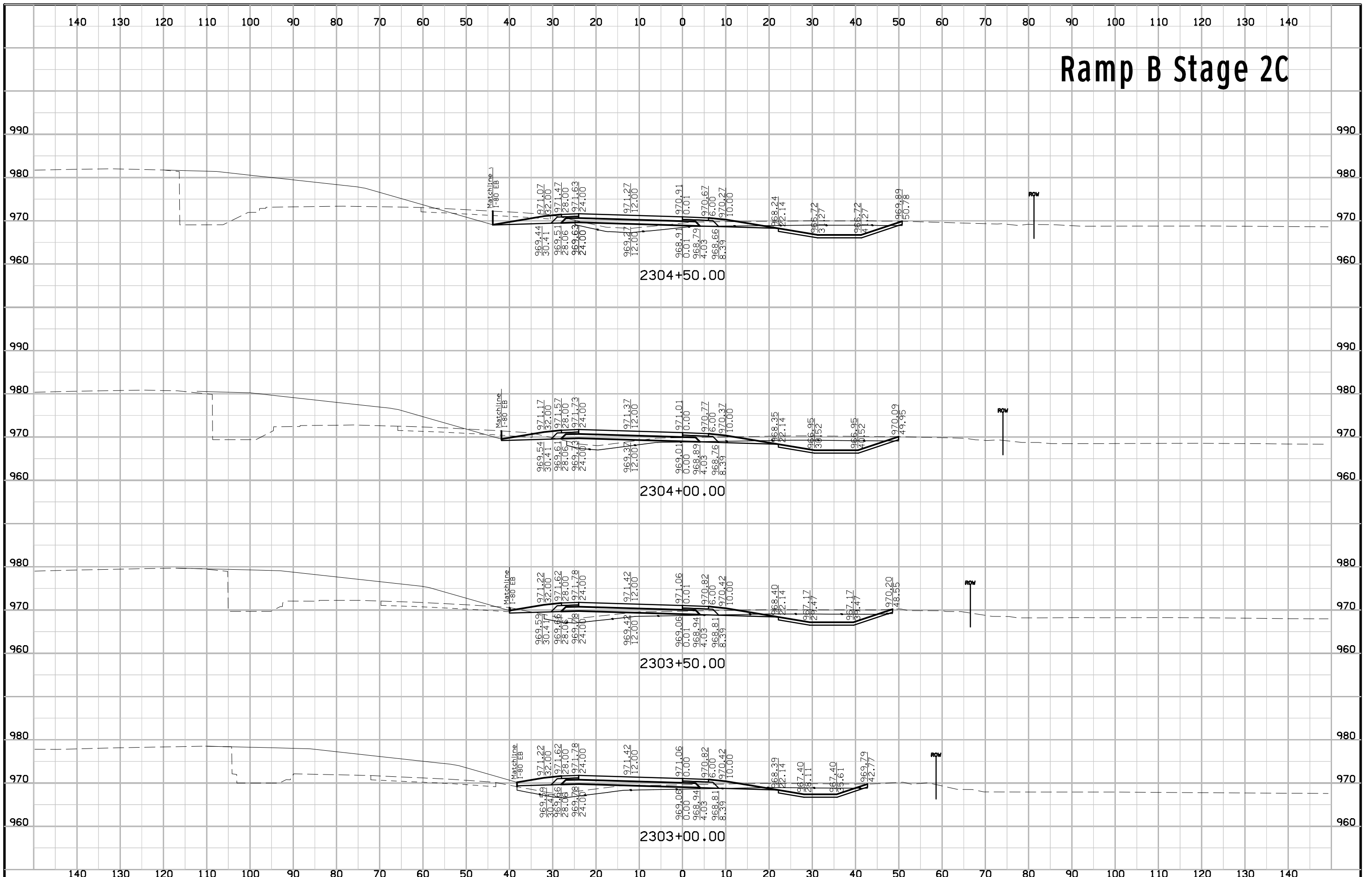


Ramp B Stage 2C

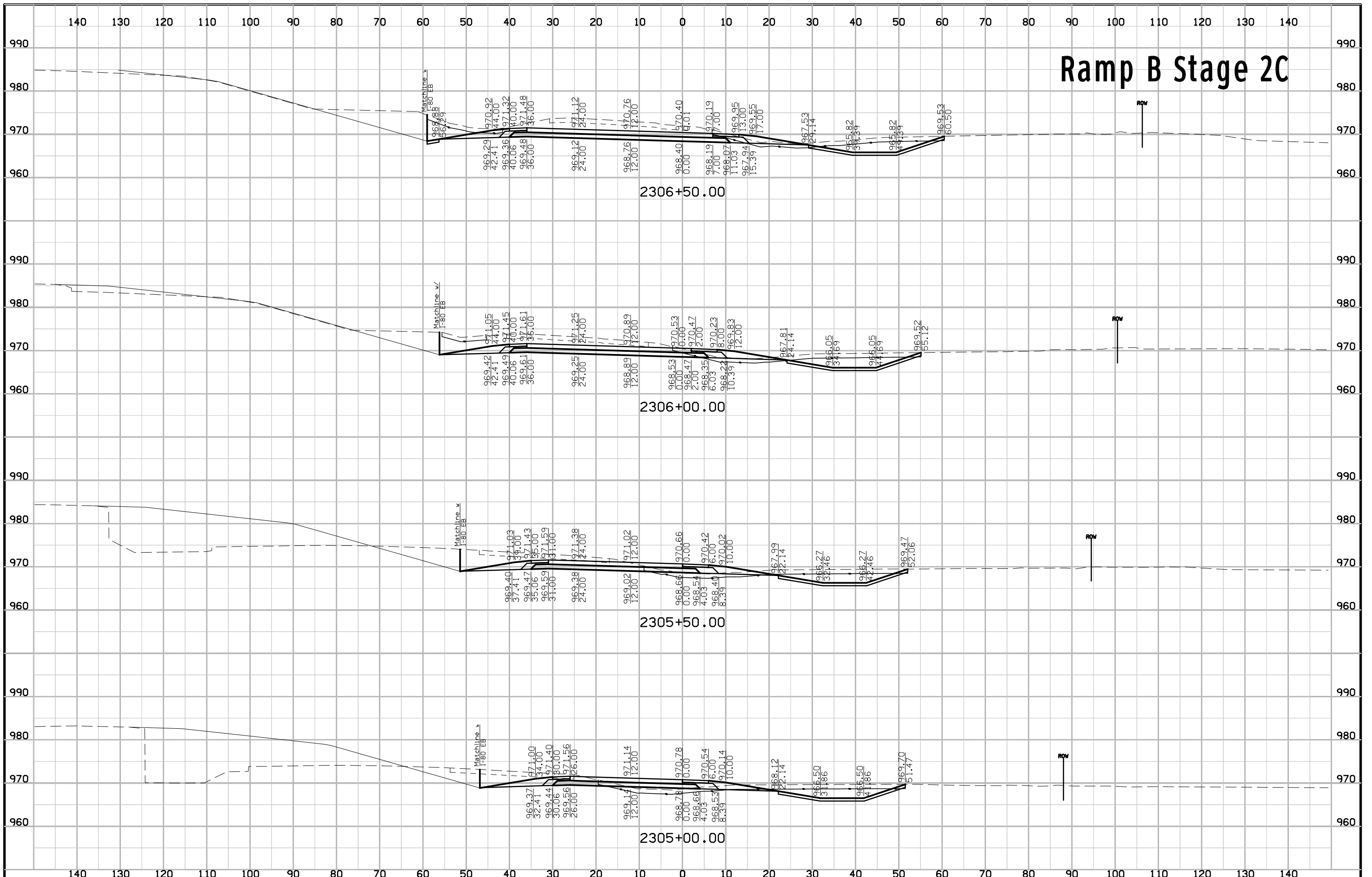




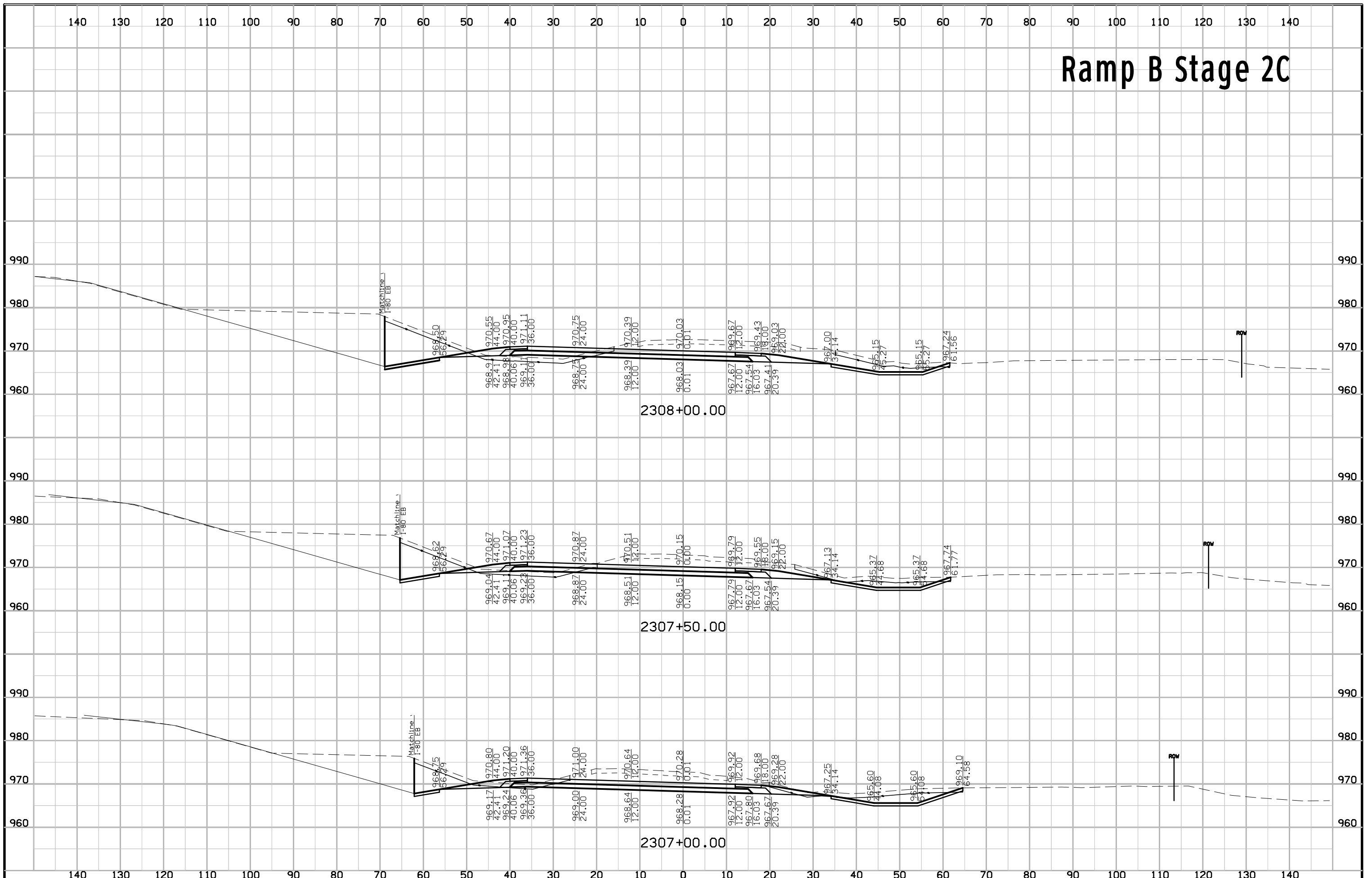
Ramp B Stage 2C



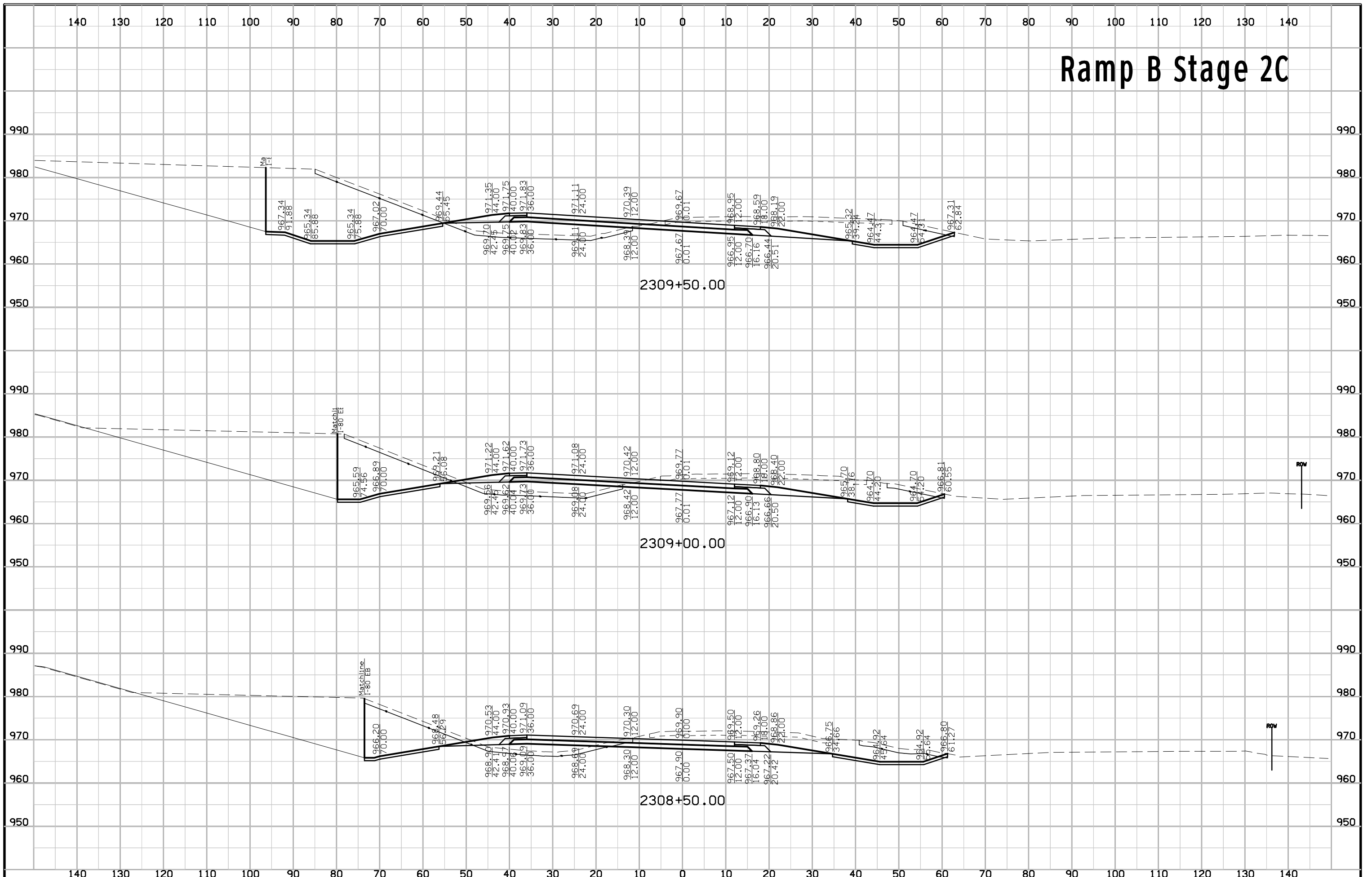
Ramp B Stage 2C



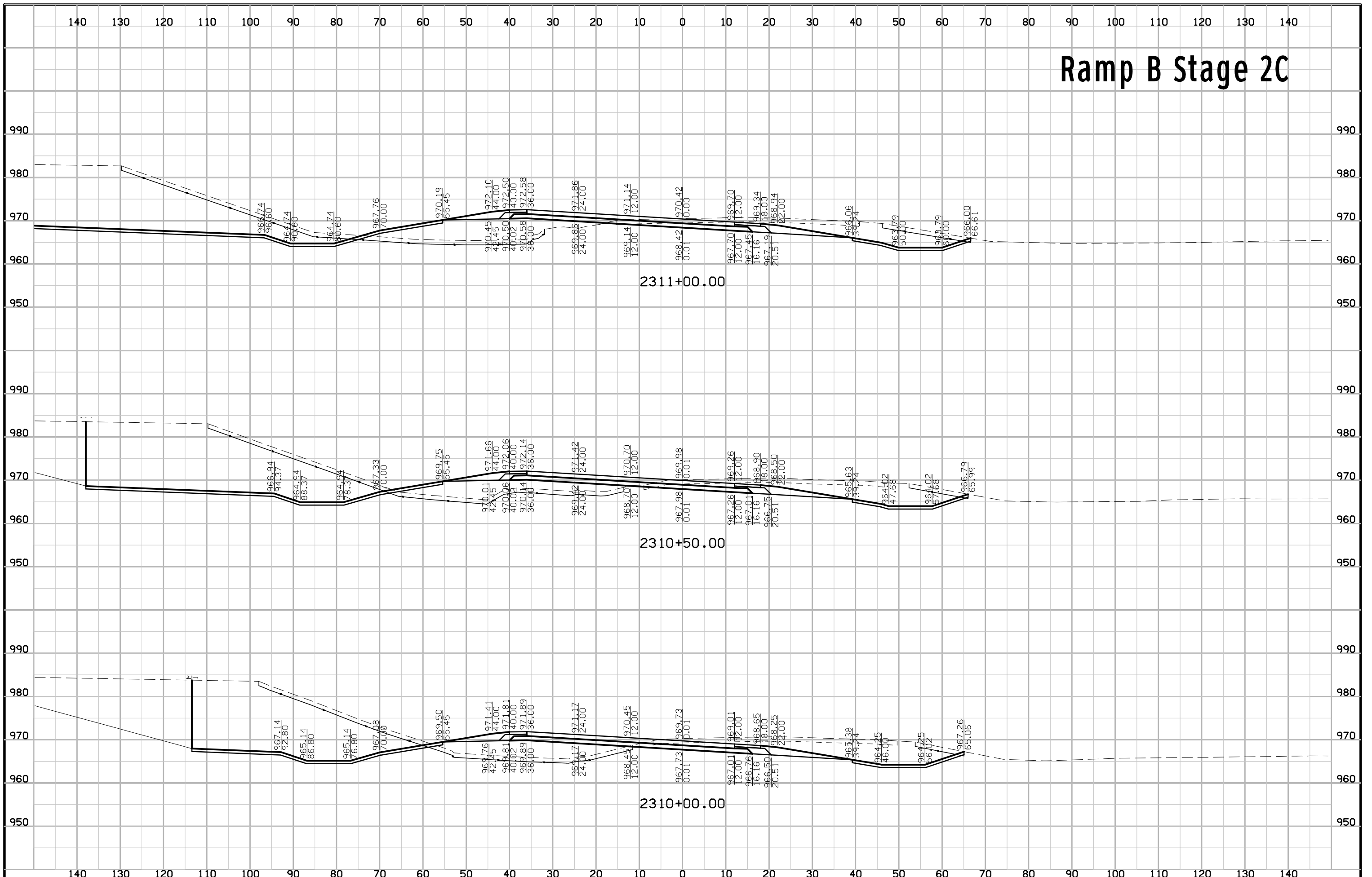
Ramp B Stage 2C



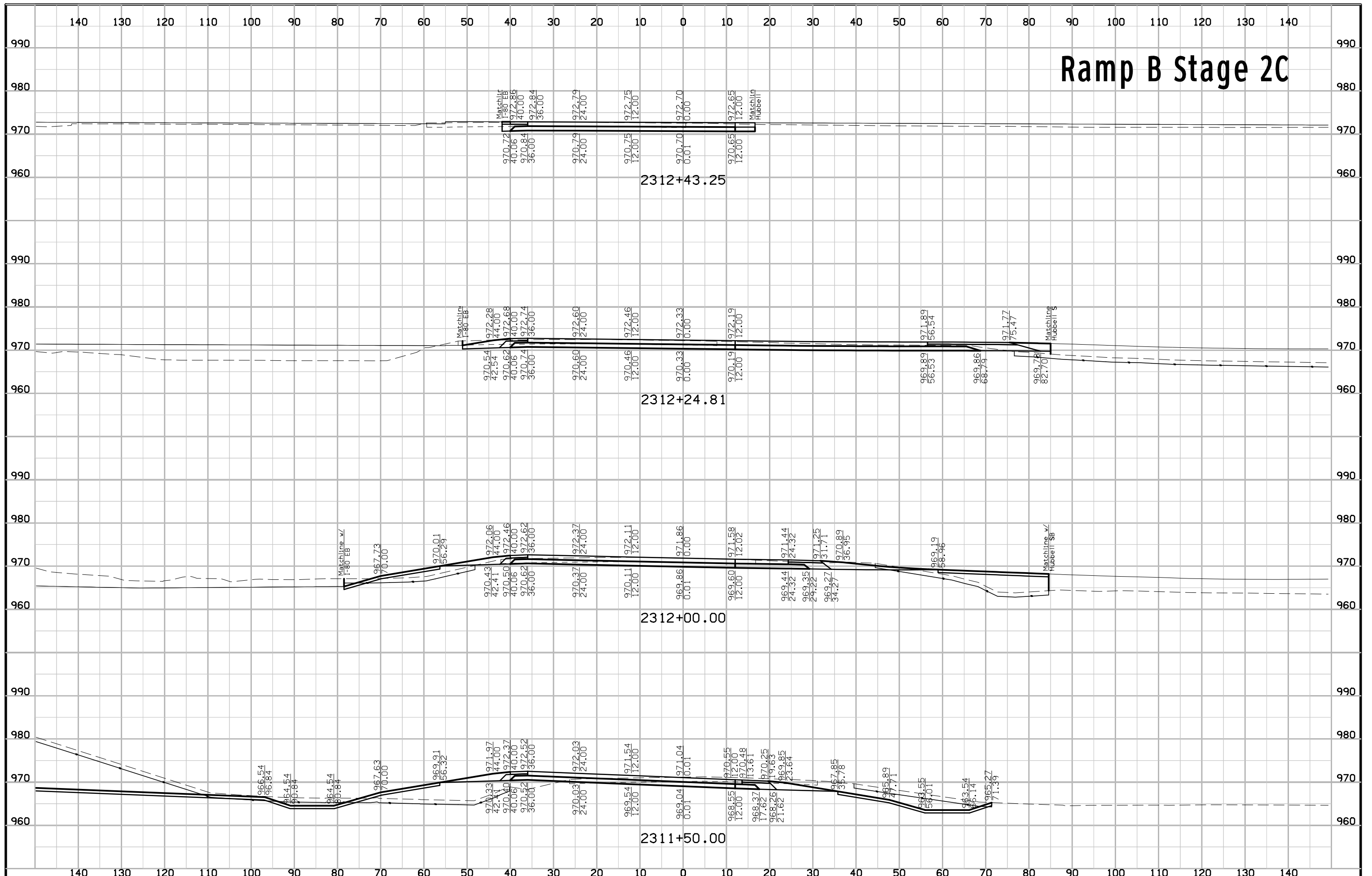
Ramp B Stage 2C



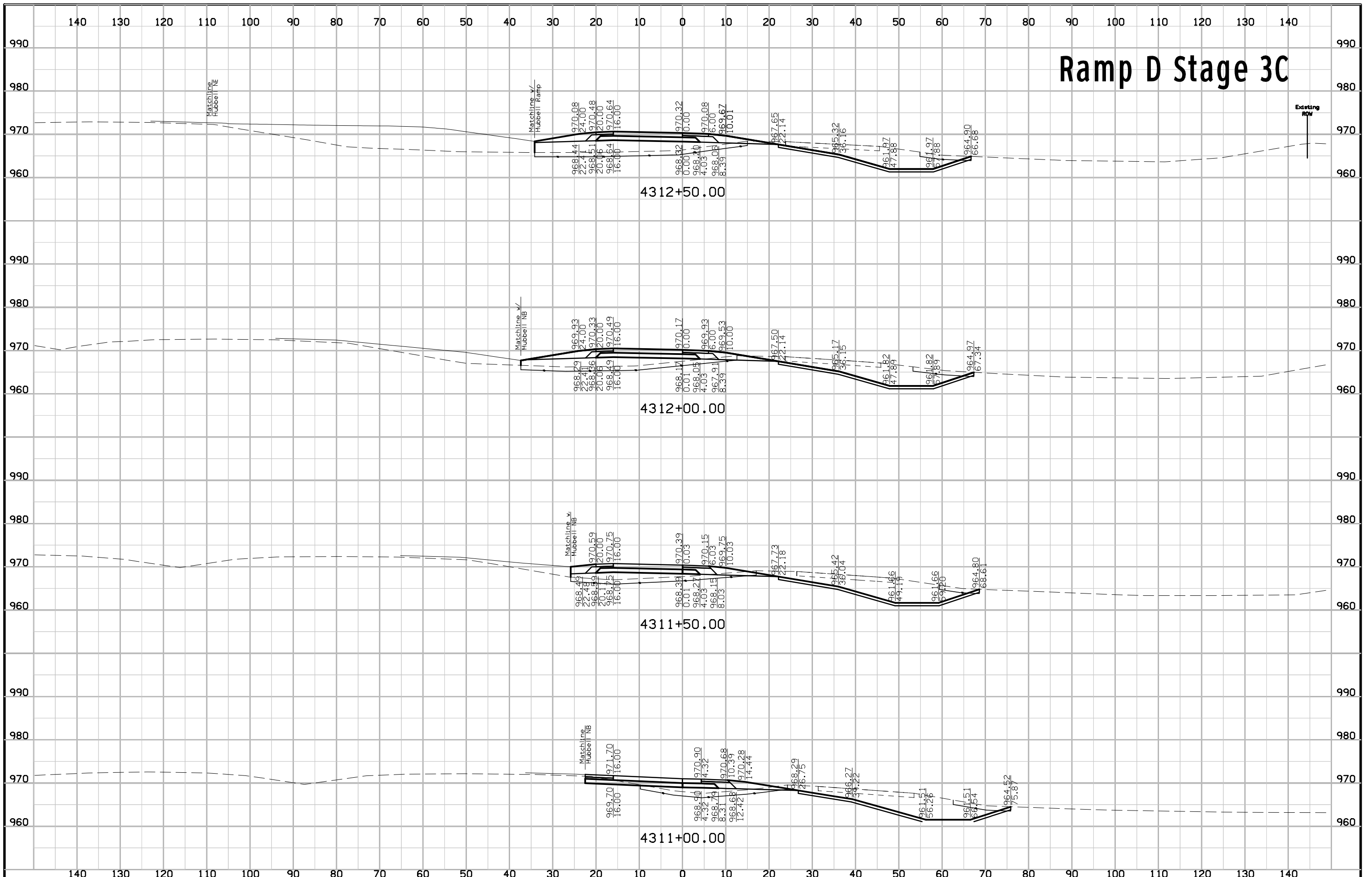
Ramp B Stage 2C



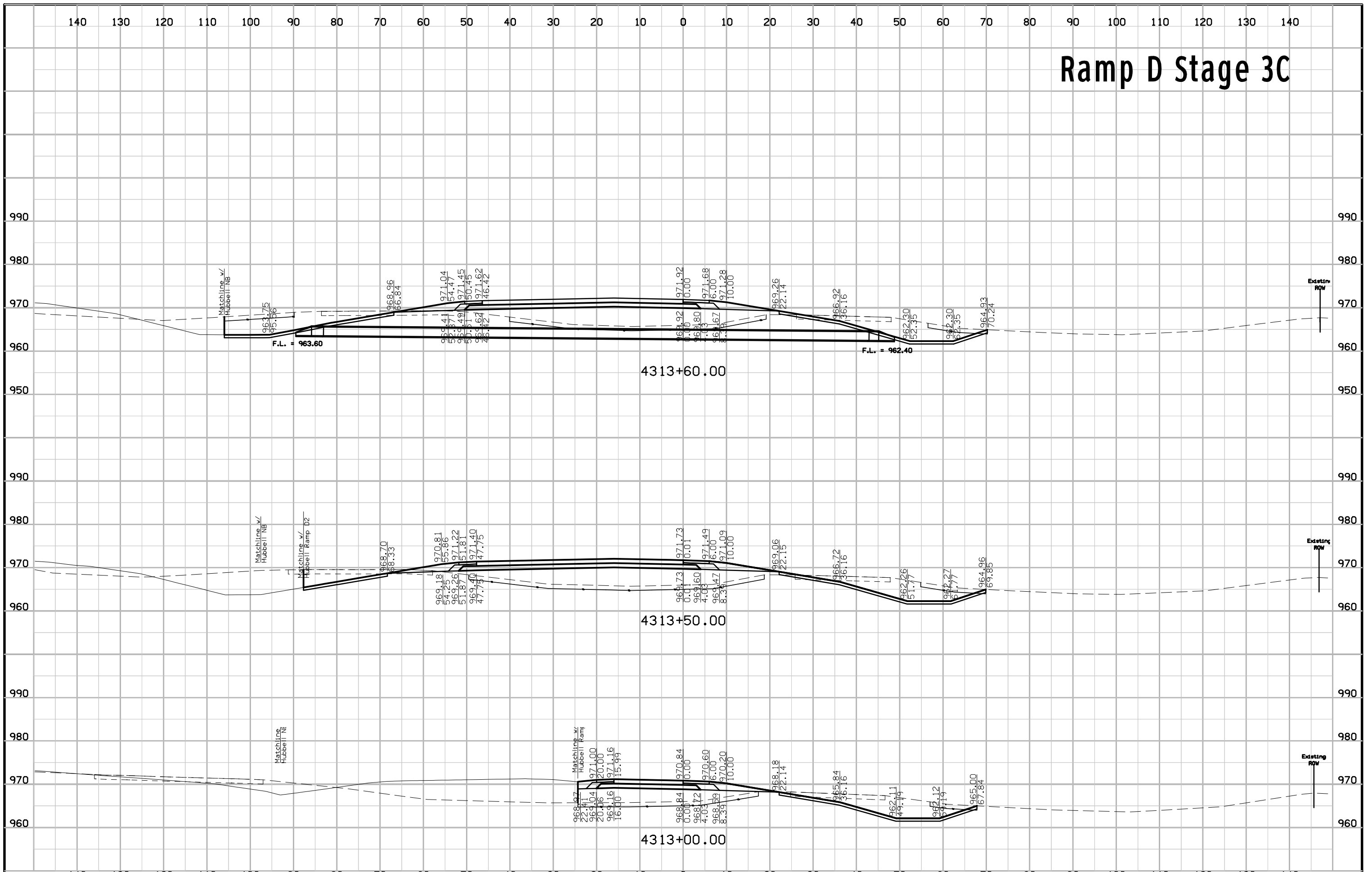
Ramp B Stage 2C



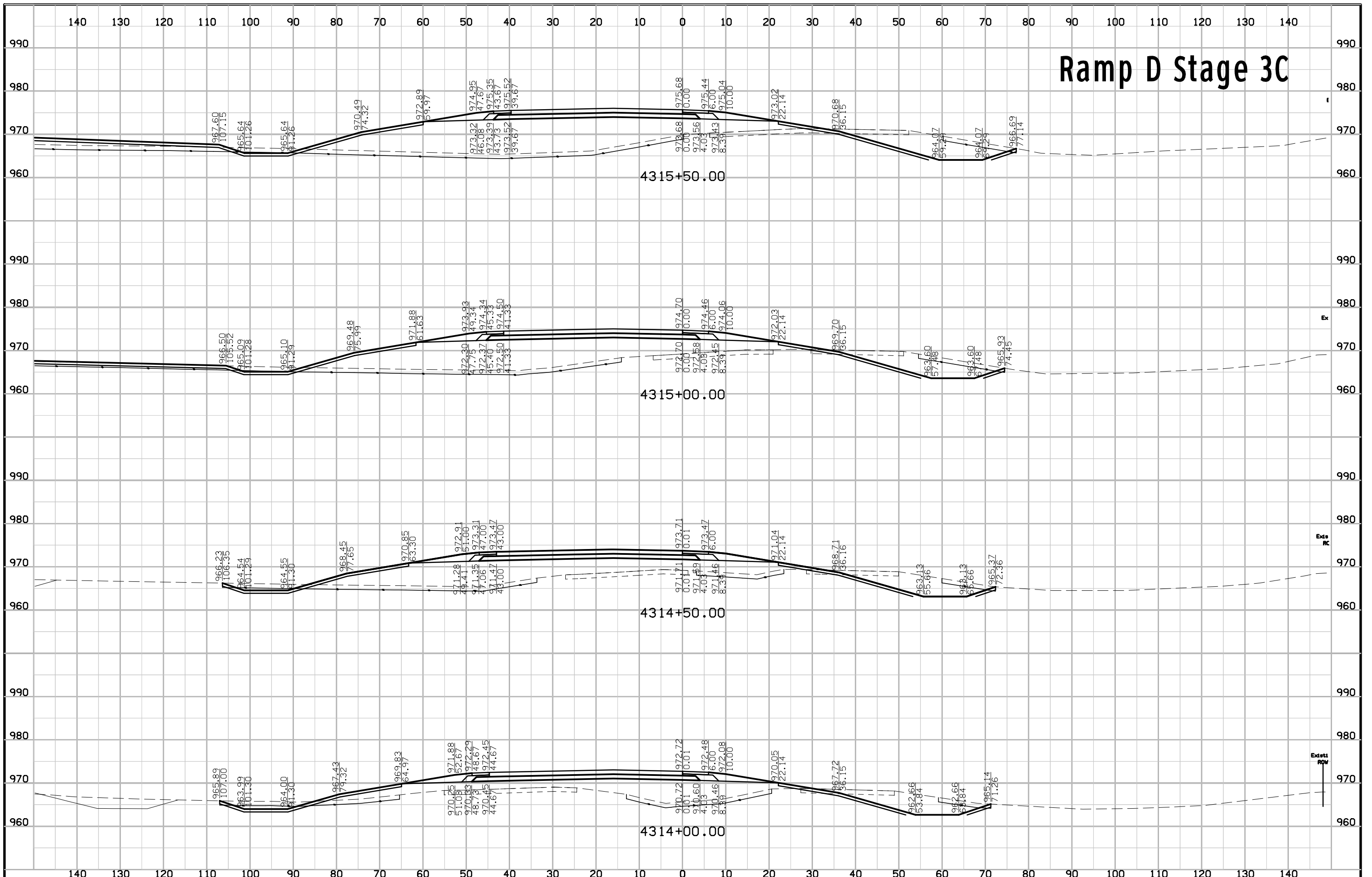
Ramp D Stage 3C



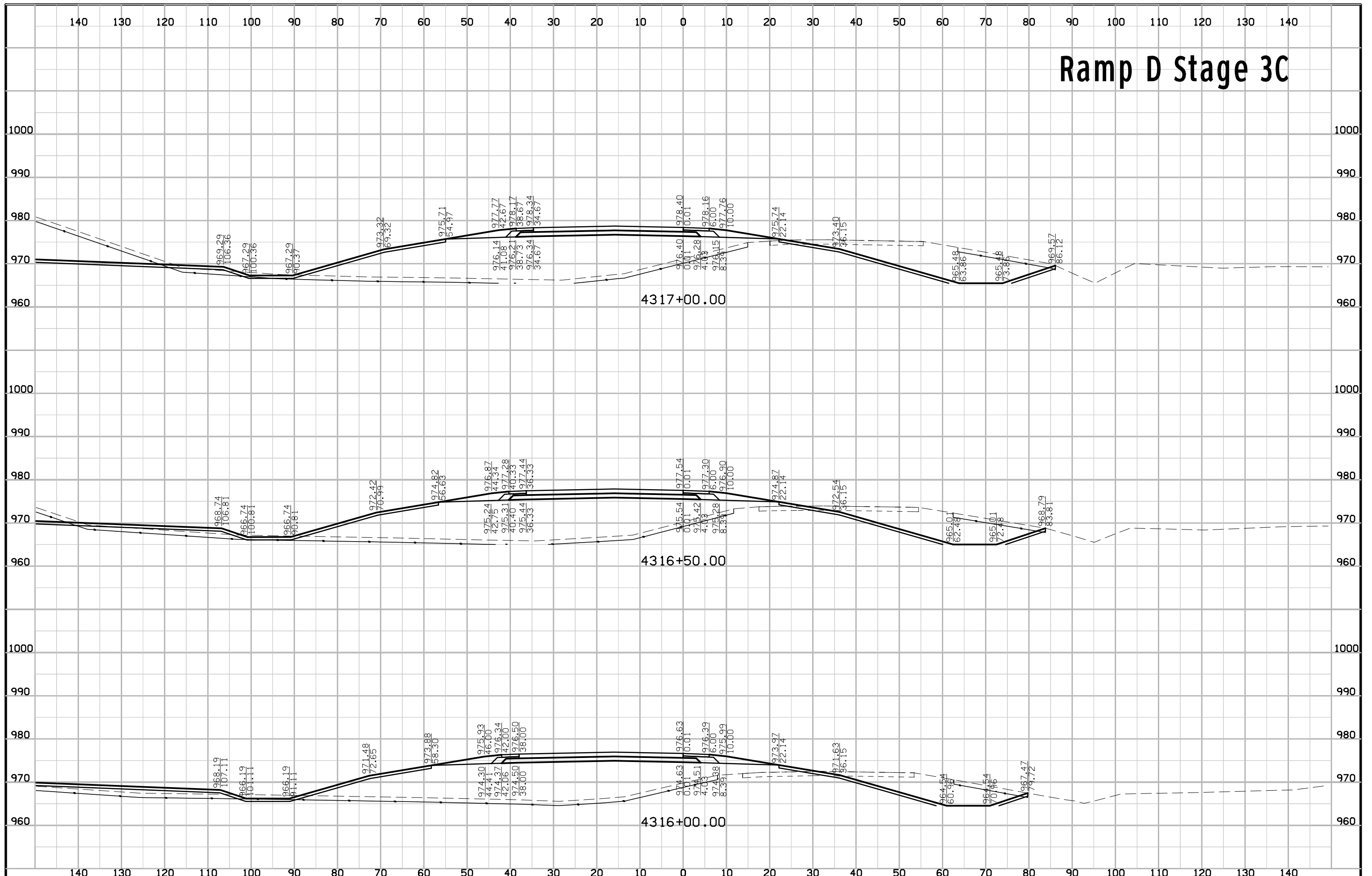
Ramp D Stage 3C



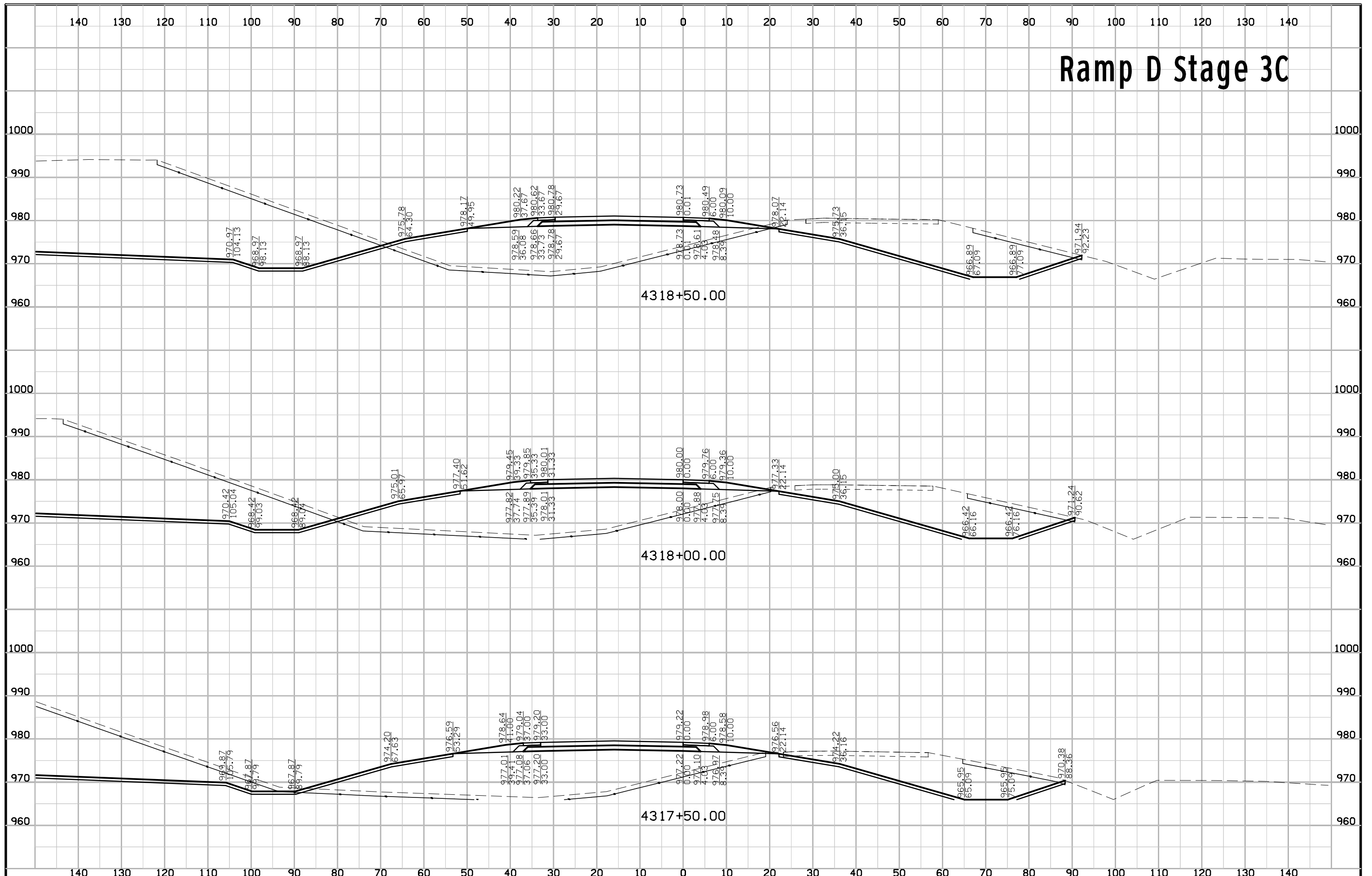
Ramp D Stage 3C



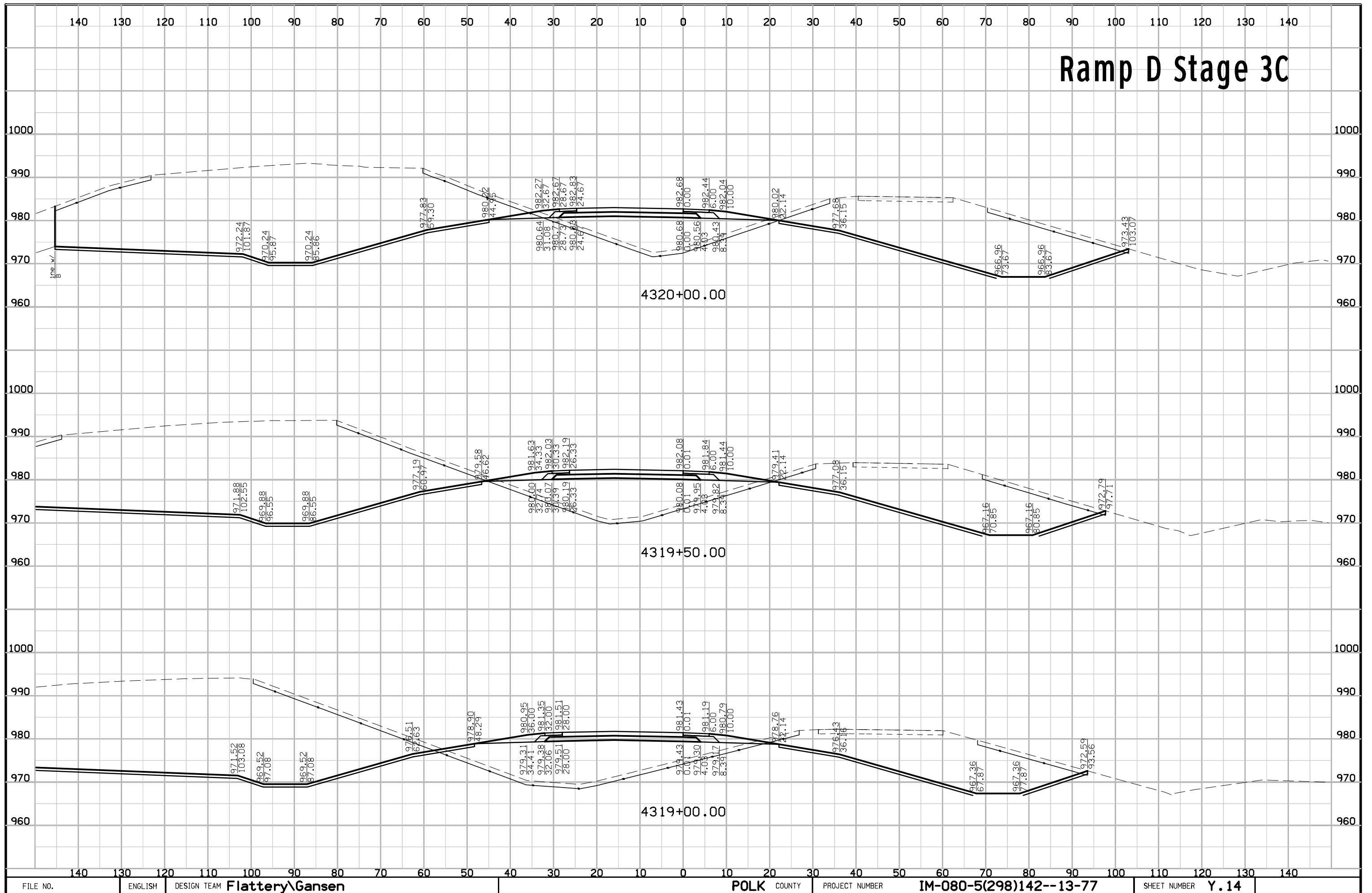
Ramp D Stage 3C



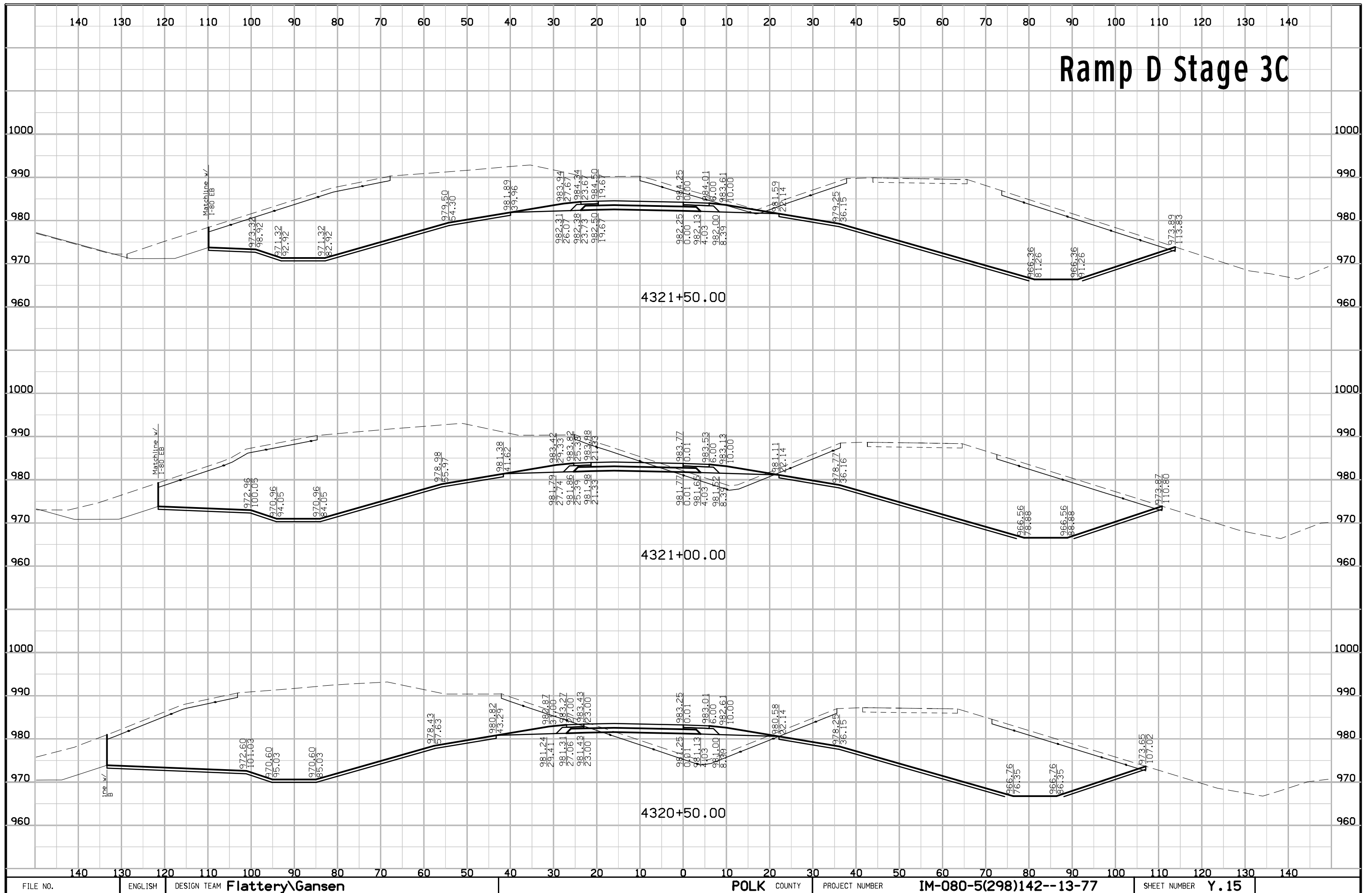
Ramp D Stage 3C



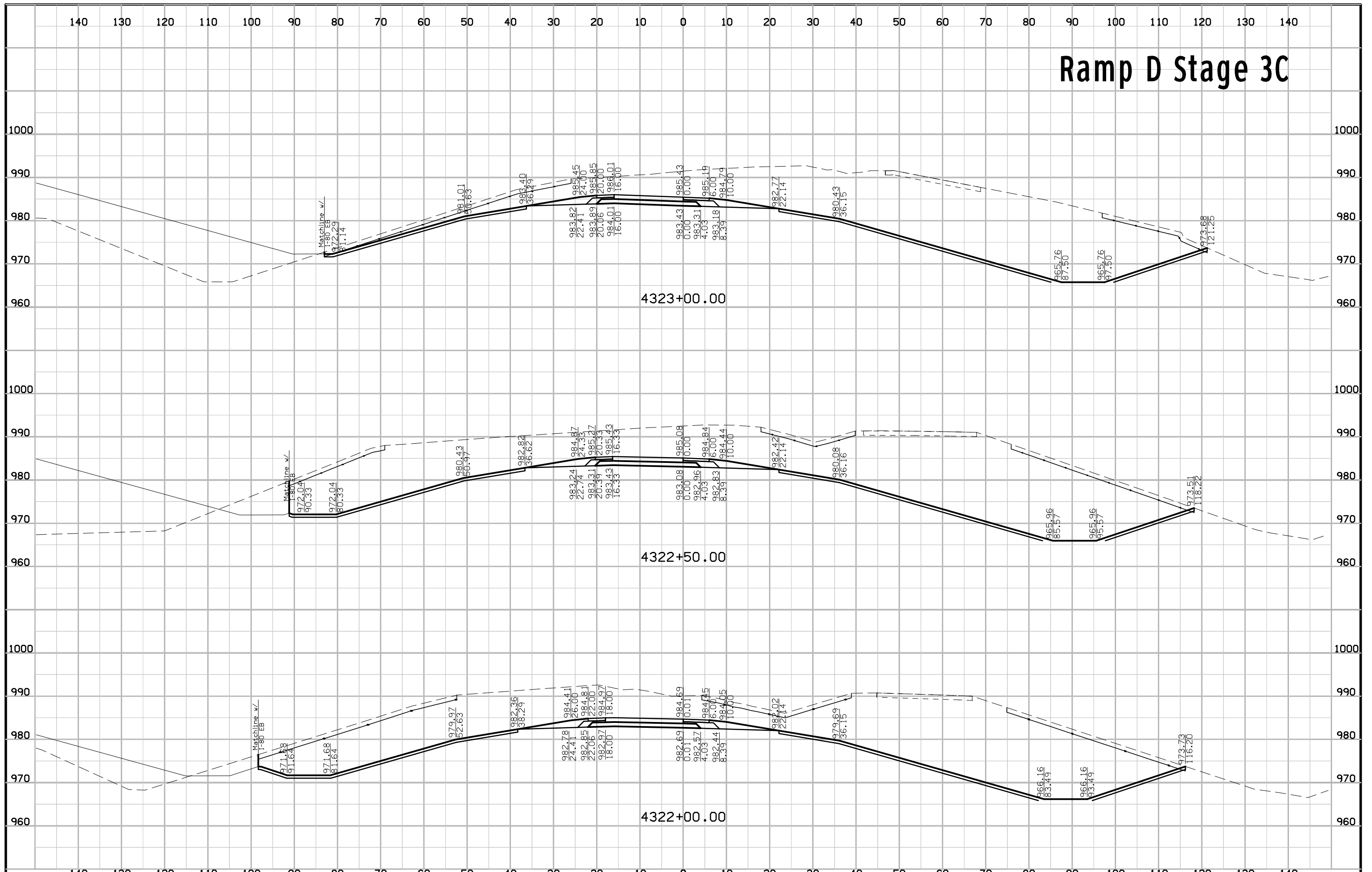
Ramp D Stage 3C



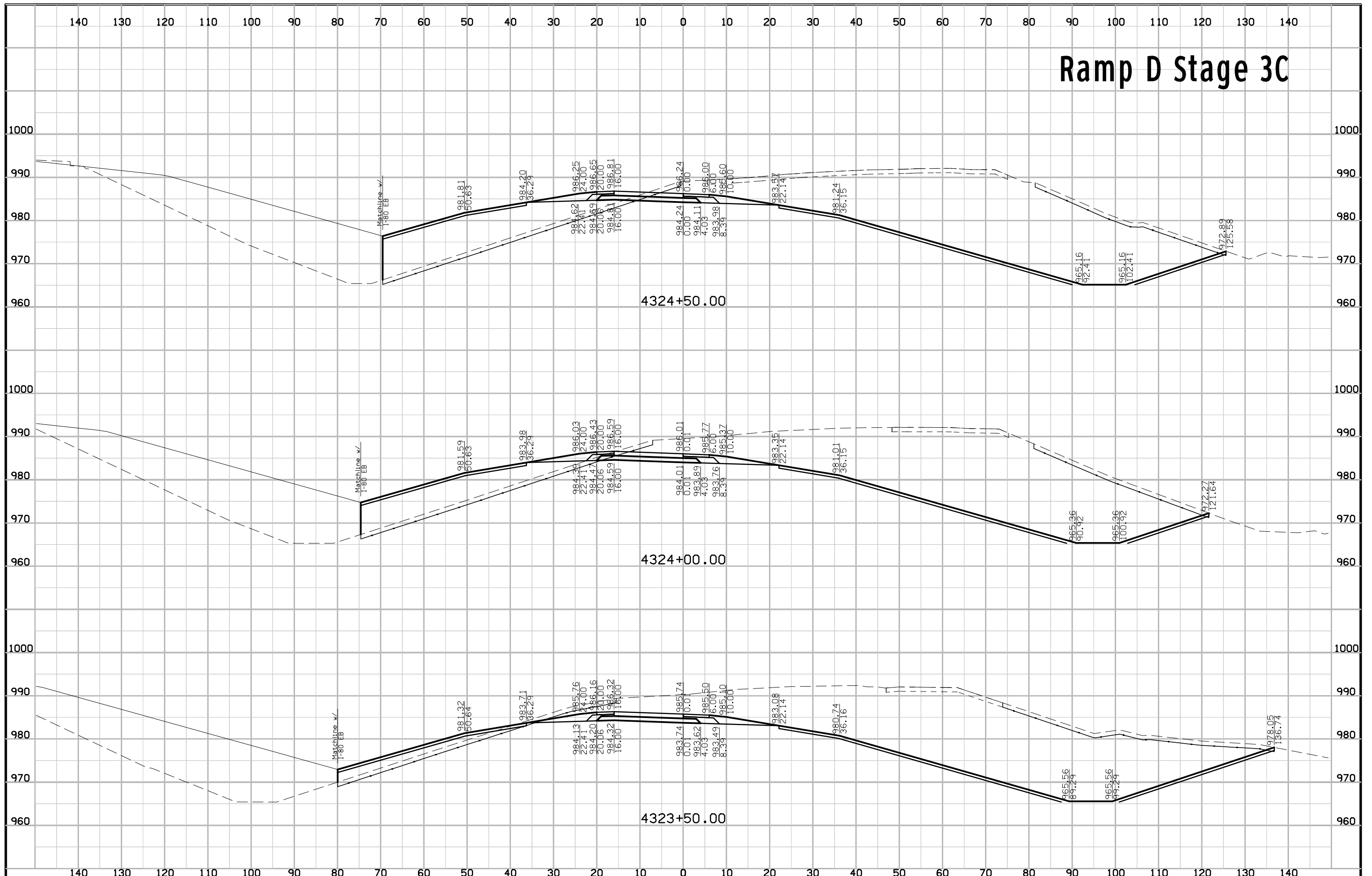
Ramp D Stage 3C



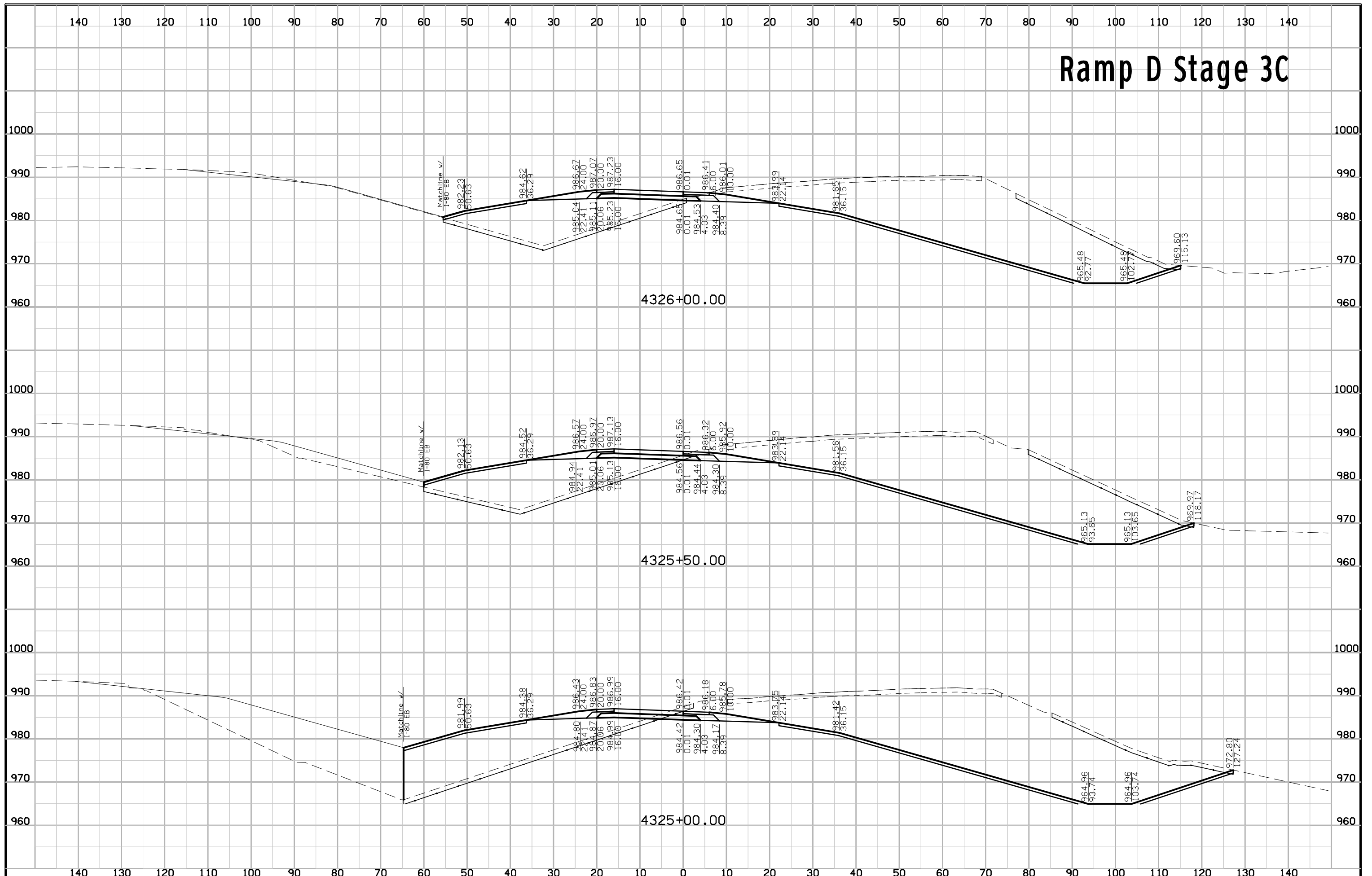
Ramp D Stage 3C



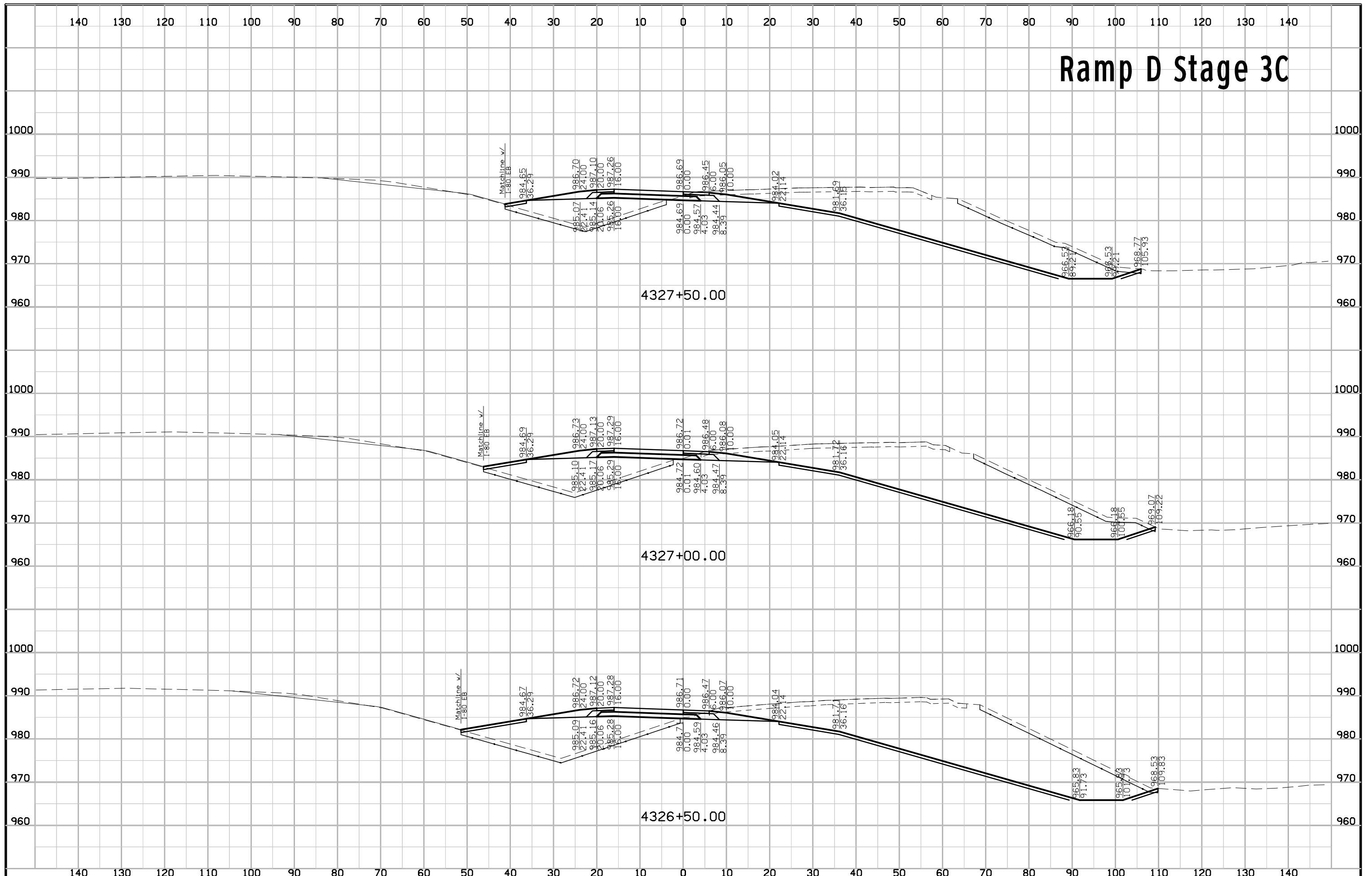
Ramp D Stage 3C



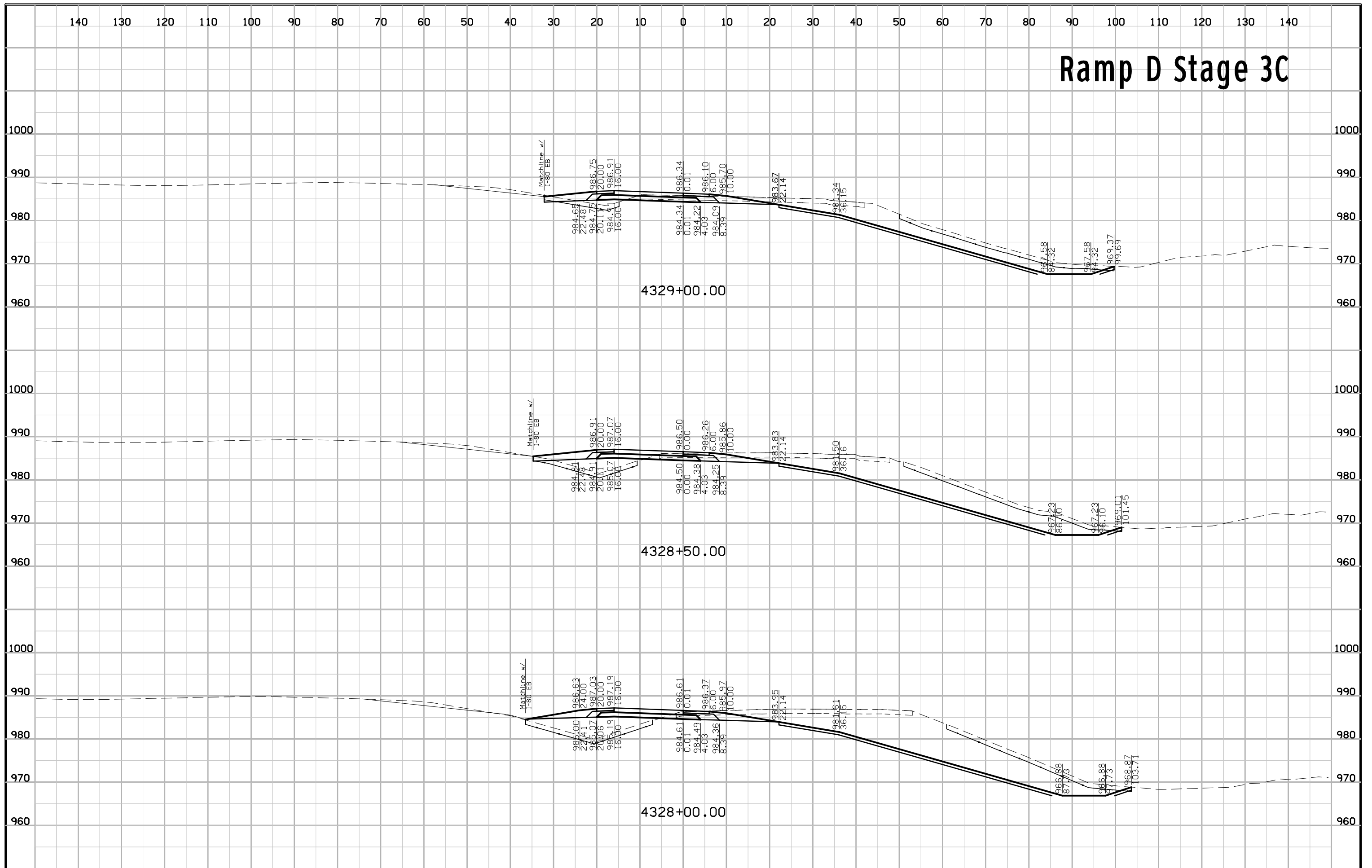
Ramp D Stage 3C



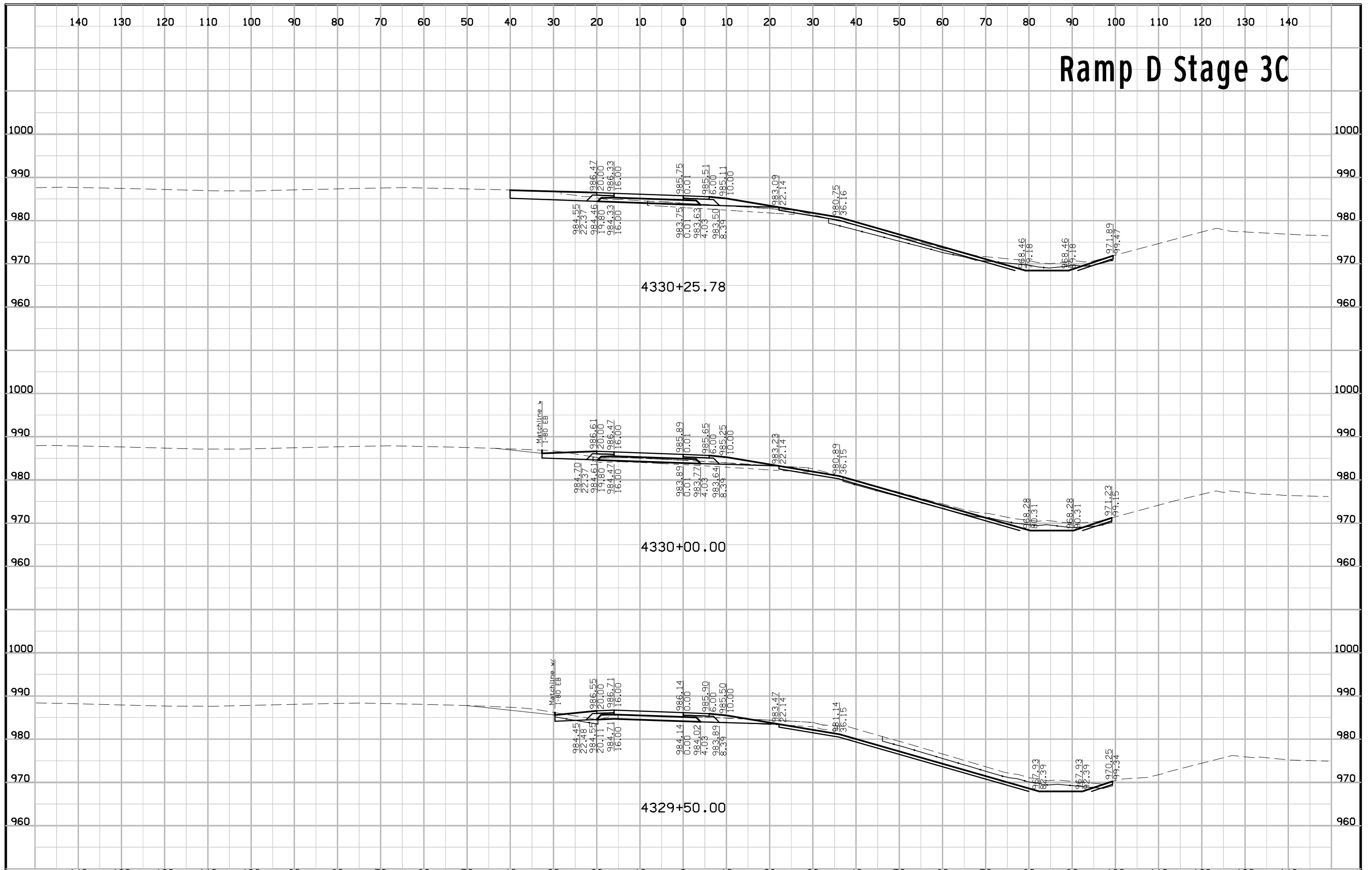
Ramp D Stage 3C



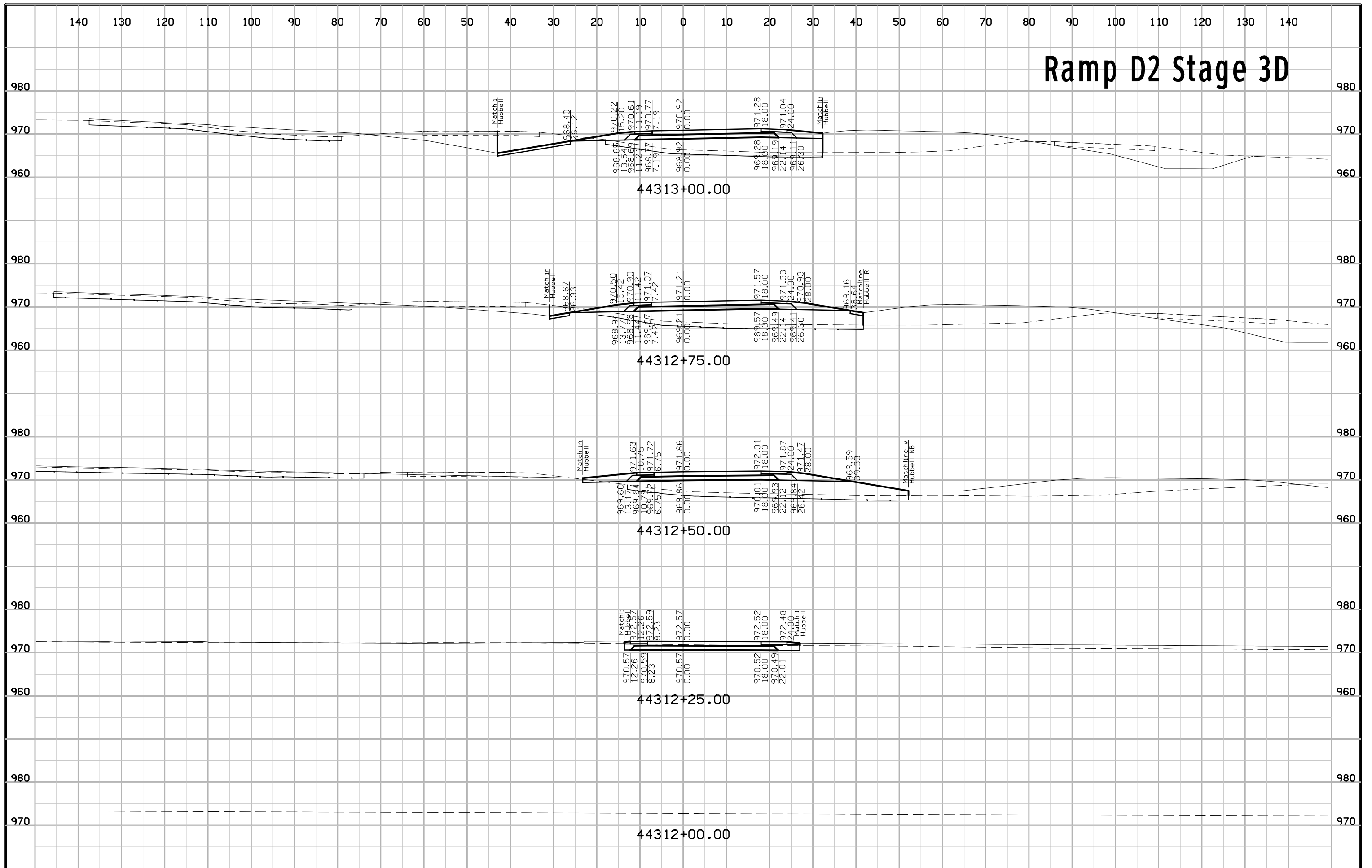
Ramp D Stage 3C



Ramp D Stage 3C



Ramp D2 Stage 3D



Ramp D2 Stage 3D

