

POTTAWATTAMIE CO. BRIDGE REPLACEMENT

LETTING DATE

IMX-029-4(112)72--02-78

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105-3
10-18-05

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* COLOR PLANS
** PLAN SHEETS FOR METHODS SUBMITTAL ONLY



PLANS OF PROPOSED IMPROVEMENT ON THE

INTERSTATE ROAD SYSTEM POTTAWATTAMIE COUNTY

PCC PAVEMENT - GRADE & REPLACE

CO RD G12 INTERCHANGE 0.4 MI N OF N JCT I-680

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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

For Project Location Map
Refer to Sheet No. A.2

CUT = 4,158
FILL = 22,986
FILL (+30%) = 29,882
PROJECT NEED = 25,724 CY

MILEAGE SUMMARY

Div.	Location	Lin. Ft.	Miles
1	Rural:		
	Sta. 1867+95.00 to Sta. 1886+00.00	1805.00	
	Deduct Bridge at Sta. 1876+24.00	252.00	
	Sta. 3602+75.00 to Sta. 3604+64.22	189.22	
	Sta. 2600+50.00 to Sta. 2602+19.43	169.43	
	Total Net Length of Roadway in Project	1911.65	0.362
	Total Net Length of Bridge in Project	252.00	.048
	Total Net Length of Project	2163.65	0.410

PROJECT EVENT DATES

D02 - MARCH 16, 2018
D03 - APRIL 27, 2018
D05 - SEPTEMBER 28, 2018



04-30-02	G12	101-5
DESIGN DATA URBAN		
2022	AAVT	800 V.P.D.
2042	AAVT	800 V.P.D.
2042	DHV	90 V.P.H.
	TRUCKS	8 %
	Total	
	Design ESALs	-- 200,000

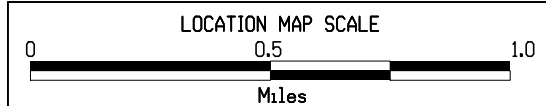
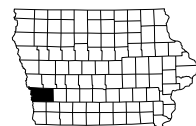
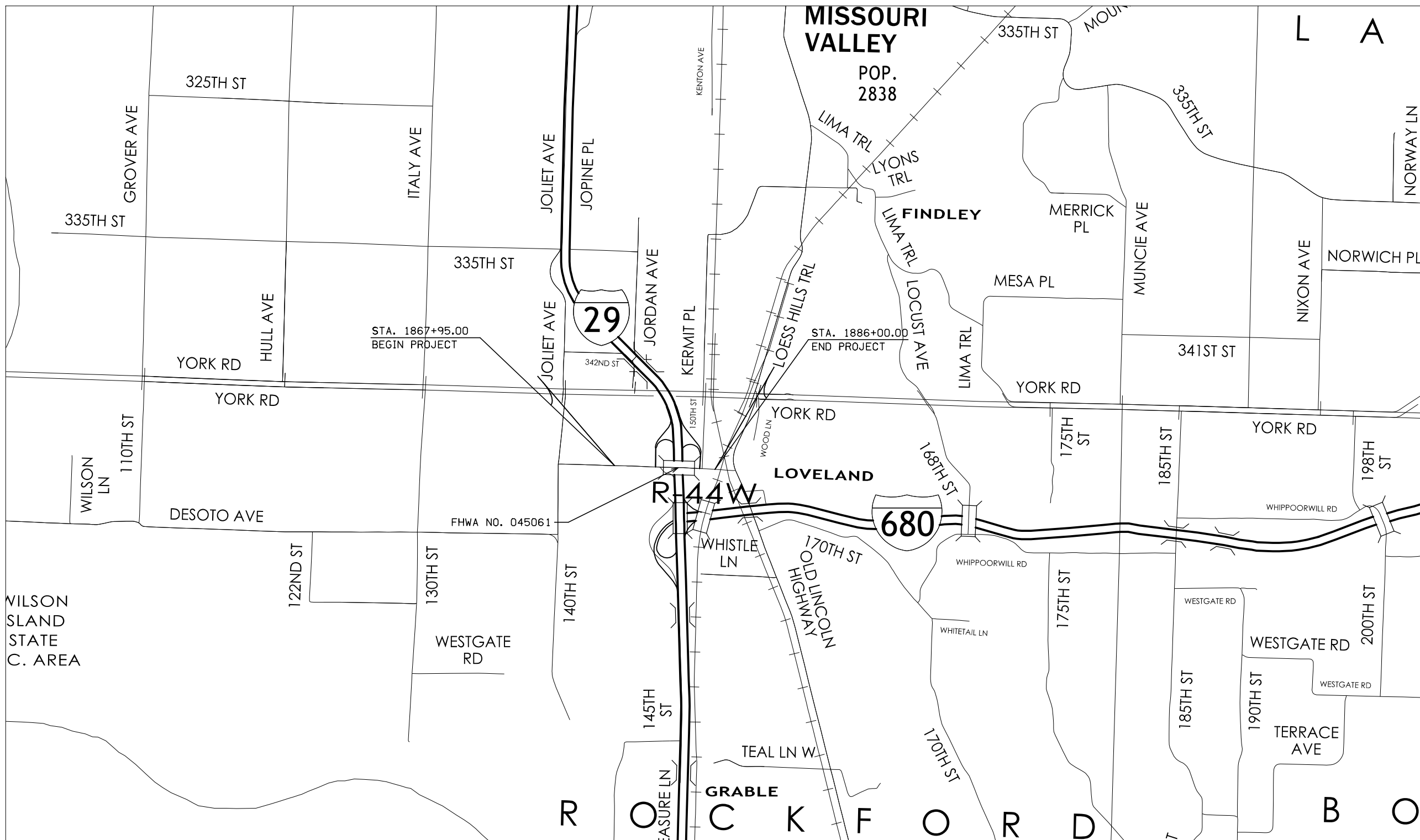
04-30-02	I-29	101-5
DESIGN DATA URBAN		
2016	AAVT	21,700 V.P.D.
2035	AAVT	V.P.D.
2035	DHV	V.P.H.
	TRUCKS	%
	Total	
	Design ESALs	--

INDEX OF SEALS

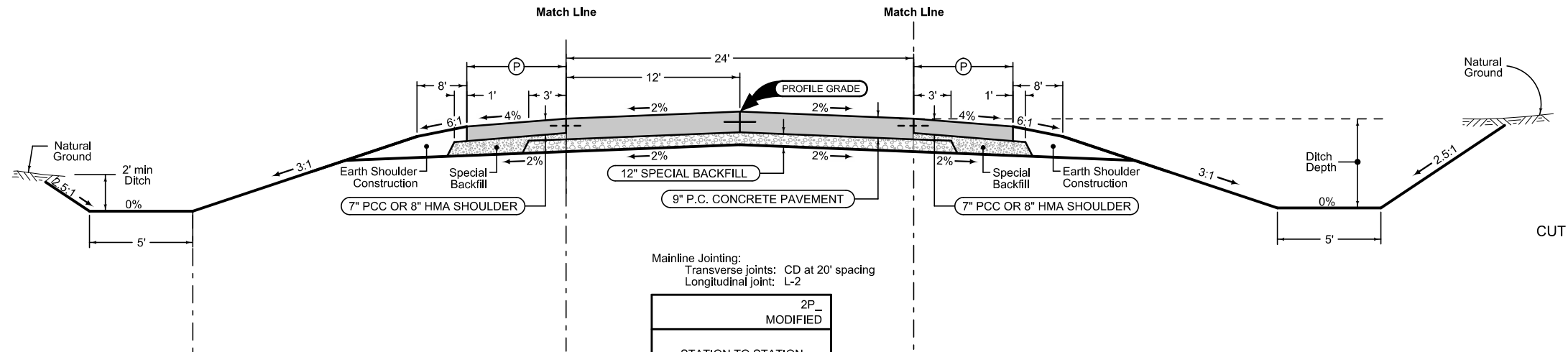
SHEET NO.	NAME	TYPE

PRELIMINARY PLANS

D-05 Date: 09-28-2018



PROJECT LOCATION



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

2P_ MODIFIED	
STATION TO STATION	
1867+95.00	1876+24.00
1878+76.00	1886+00.00

Paved Shoulder Alternates

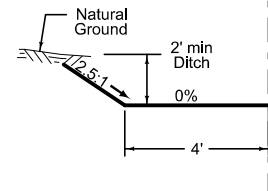
PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at 20' spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

2_P_ALT_ MODIFIED		
STATION TO STATION		(P) Feet
1867+95.00	1869+68.06	6
1871+43.00	1876+24.00	6
1878+76.00	1883+08.11	6
1884+83.70	1886+00.00	6

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

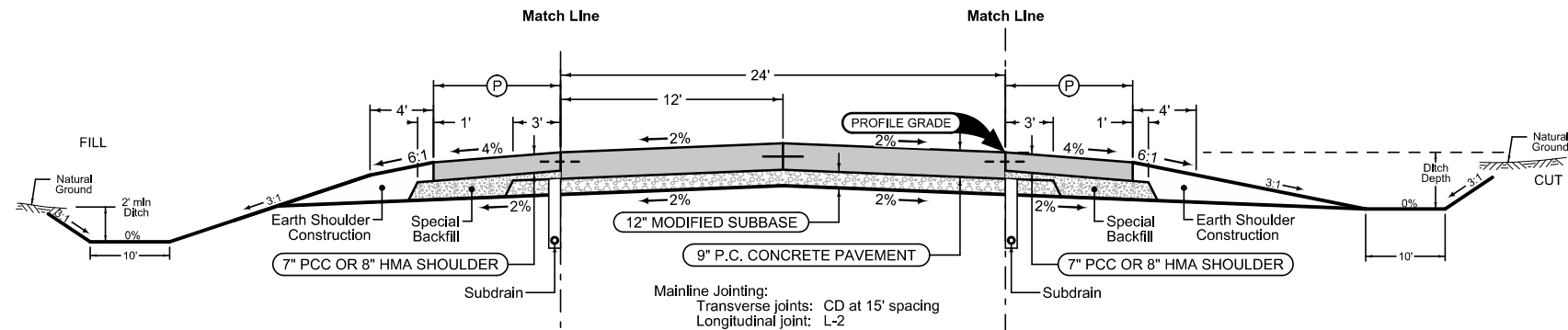
2_P_ALT_ MODIFIED		
STATION TO STATION		(P) Feet
1867+95.00	1876+24.00	6
1878+76.00	1885+60.19	6
1884+24.20	1886+00.00	6



Ditch Grading

2_P_ALT1_ MODIFIED	
STATION TO STATION	
1869+30.00	1870+15.78

TYPICAL SECTION
 COUNTY ROAD G12



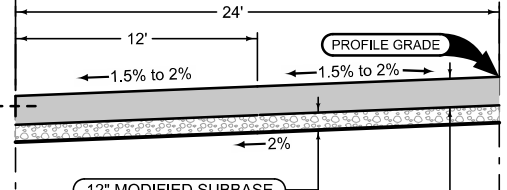
Mainline Jointing:
 Transverse joints: CD at 15' spacing
 Longitudinal joint: L-2

2RP_ MODIFIED	
STATION TO STATION	
2601+49.30	2602+19.43
3603+92.63	3604+64.22

Paved Shoulder Alternates

PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at 15' spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

2_P_ALT_ MODIFIED		
STATION TO STATION		(P) Feet
2600+50.00	2602+19.43	6
3602+75.00	3604+64.22	6



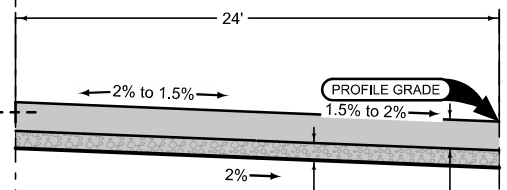
Mainline Jointing:
 Transverse joints: CD at 15' spacing
 Longitudinal joint: L-2

2RP_ MODIFIED	
STATION TO STATION	
2600+50.00	2601+49.30

Paved Shoulder Alternates

PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at 15' spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

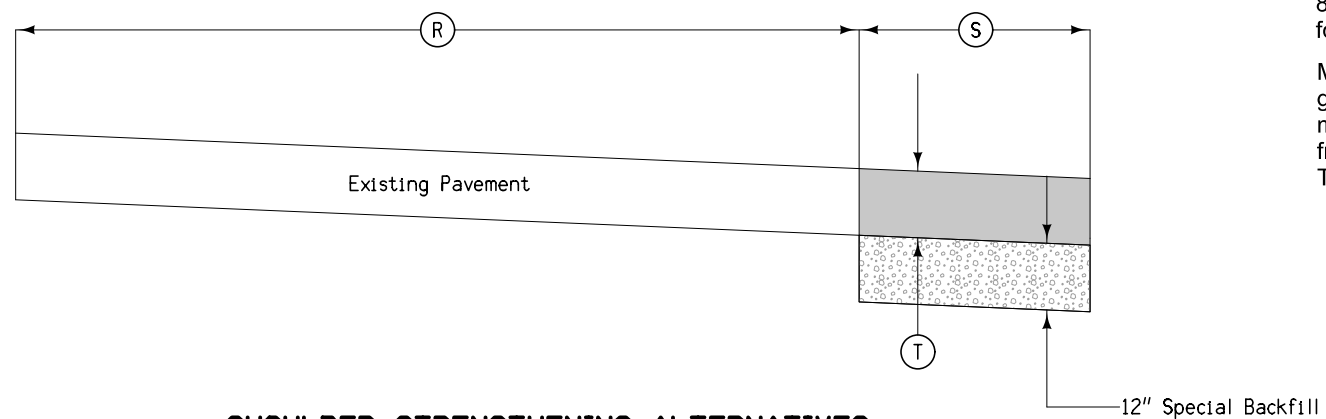
2_P_ALT_ MODIFIED		
STATION TO STATION		(P) Feet
2600+50.00	2602+19.43	6
3602+75.00	3604+64.22	6



Mainline Jointing:
 Transverse joints: CD at 15' spacing
 Longitudinal joint: L-2

2RP_ MODIFIED	
STATION TO STATION	
3602+75.00	3603+92.63

**TYPICAL SECTION
 For Ramp B and Ramp C**

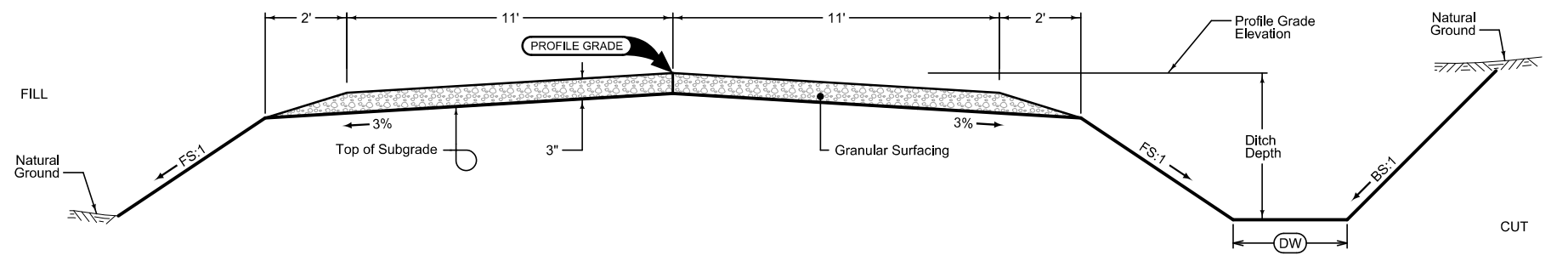


8" HMA Shoulder Strengthening. 7" PCC may be substituted with the following jointing layout:
 Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at S/2 from edge of mainline pavement when S is greater than 10' wide. Terminate longitudinal joint at transverse joint less than 10' in length.

SHOULDER STRENGTHENING ALTERNATIVES

LOCATION	Location		Pavement Alternates		Existing Pavement	Shoulder Strengthening	6" Special Backfill	Shoulder Strengthening	Class 13 Excavation Waste	Remarks
			HMA	PCC						
	Station to Station	(T)	(T)	(R)	(S)	Tons	SY	CY		
WEST	1866+91.97	3601+15.75	8	7	12	2 - 9	168.3	534.4	118.8	Stage 1
EAST	2598+91.04	1887+71.79	8	7	12	2 - 9	169.2	537.3	119.4	Stage 1
						TOTALS	337.5	1071.7	238.2	

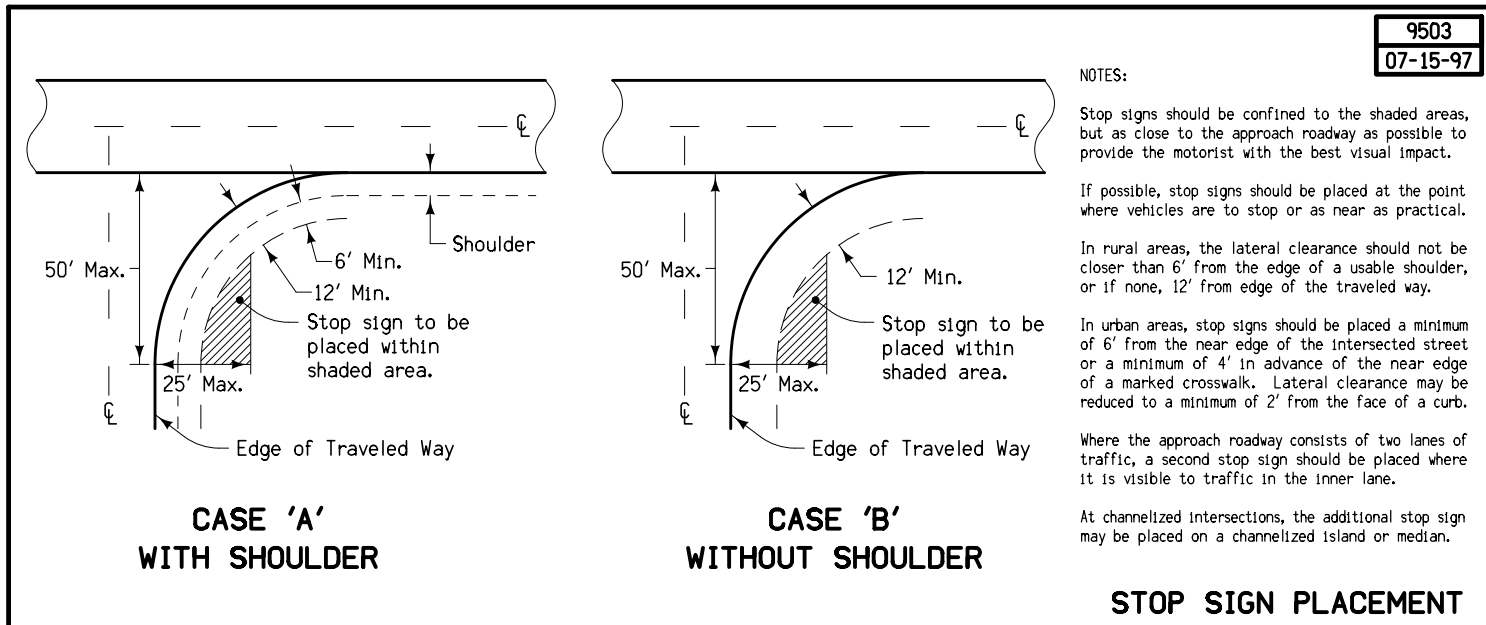
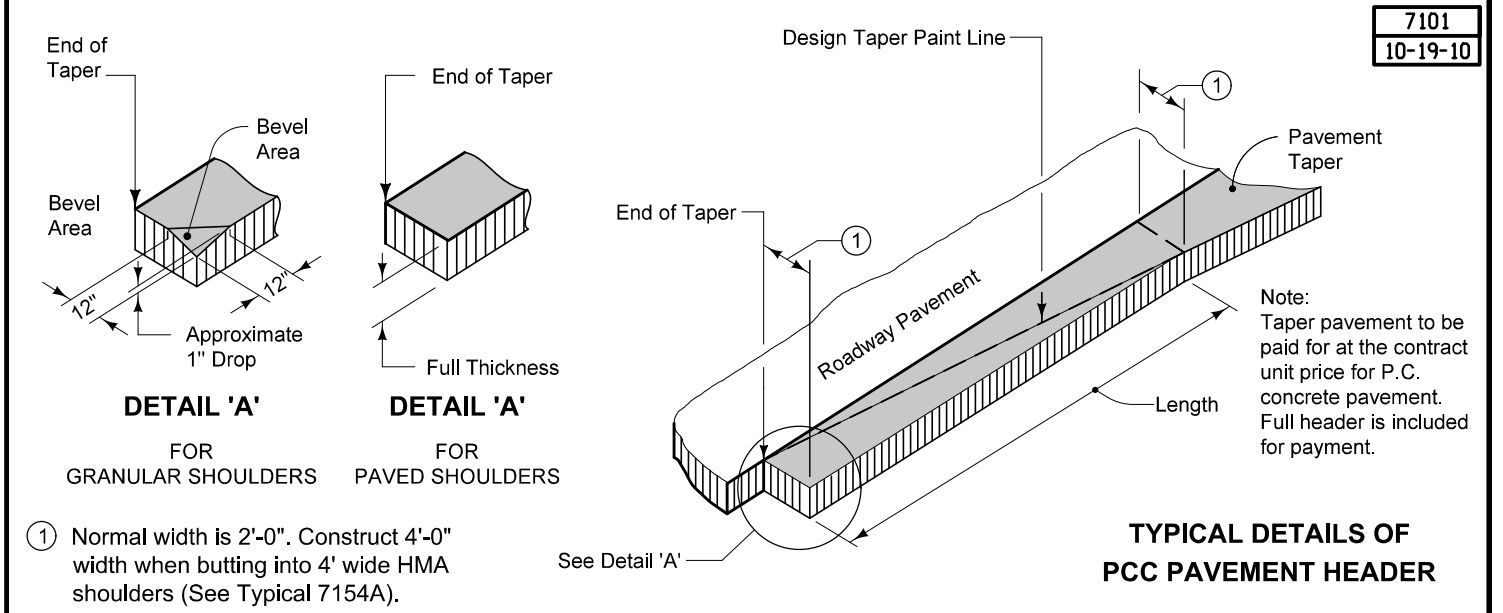
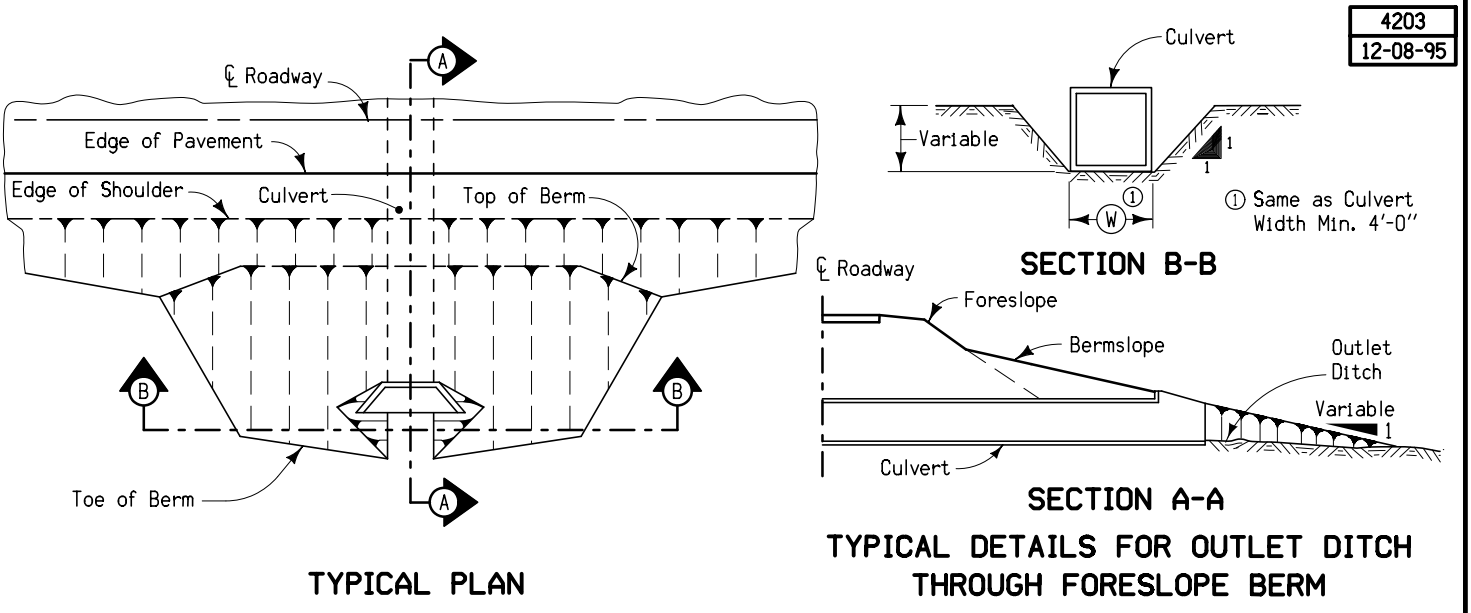
LOCATION			DIMENSIONS		
ROAD IDENTIFICATION	STATION TO STATION		FS	BS	(DW) Feet
145TH STREET	100+18.23	105+28.56	3	2.5	5

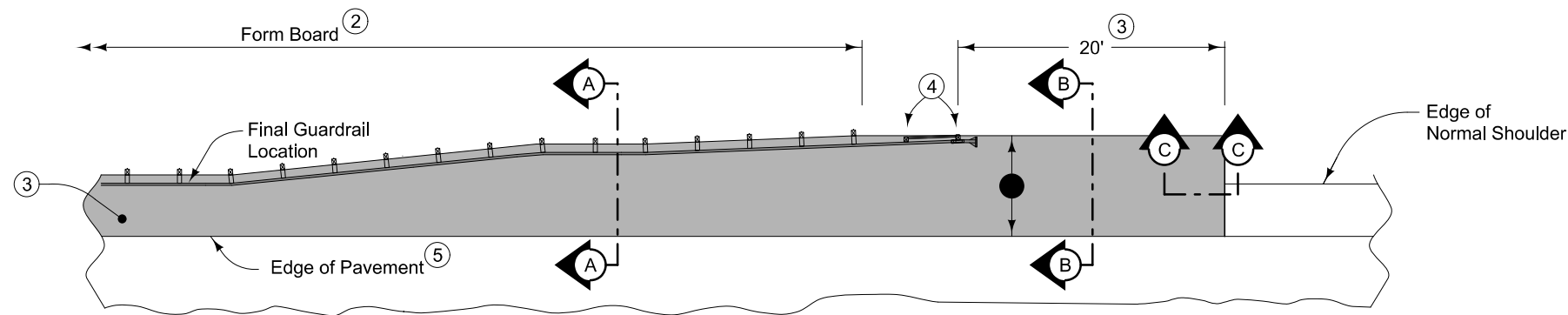


GRADING AND GRANULAR SURFACING

Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.
 See plan & profile sheets and cross sections for additional details of ditches and backslopes.

G_2_GradeGran
10-17-17





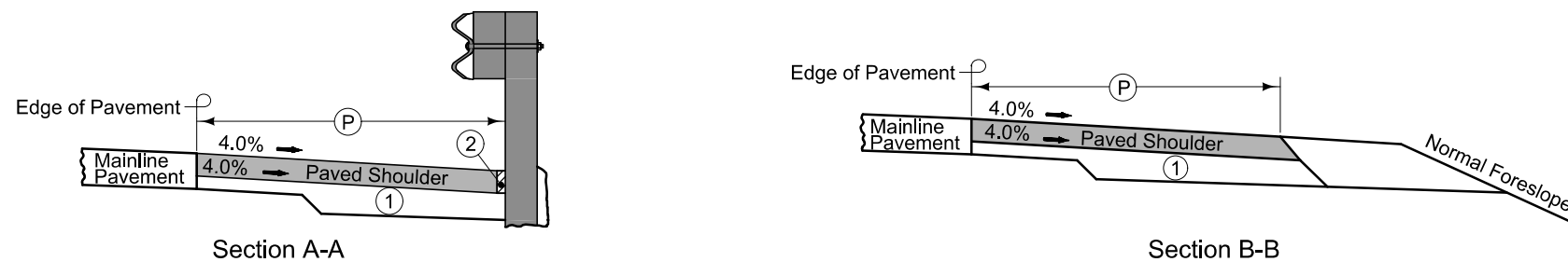
PLAN VIEW

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

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

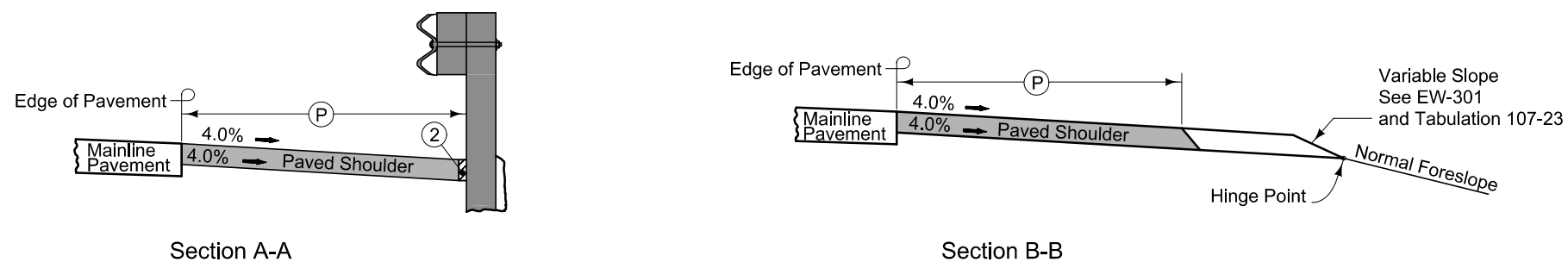
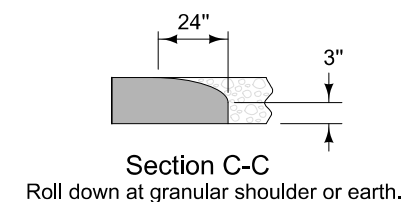
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.



NEW CONSTRUCTION

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



EXISTING SHOULDER

PAVED SHOULDER AT GUARDRAIL

100-1D
10-18-05

PROJECT DESCRIPTION

This project involves the bridge replacement at County Road G12 over I-29 in Pottawattamie County.

The work entails replacing the existing 223 ft. 9 in. x 24 ft. pre-tensioned pre-stressed concrete beam bridge on County Road G12 with a 2-span, 252 ft. - 0 in. x 36 ft. pre-tensioned, pre-stressed bulb tee concrete beam bridge on a new vertical alignment. The new vertical alignment will require G12 to be reconstructed for approximately 1805 ft. The access west of I-29 which accommodates the Southbound I-29 exit and entrance ramps will require approximately 190 ft. of reconstruction. The access east of I-29 which provides access to the Northbound I-29 entrance and exit ramps will require about 170 ft. of reconstruction.

105-4
10-18-11

STANDARD ROAD PLANS

The following Standard Road Plans apply to construction work on this project.		
Number	Date	Title
BA-200	10-18-16	Steel Beam Guardrail Components
BA-201	04-18-17	Steel Beam Guardrail Barrier Transition Section (MASH TL-3)
BA-202	10-20-15	Steel Beam Guardrail Bolted End Anchor
BA-205	04-19-16	Steel Beam Guardrail Tangent End Terminal (MASH TL-3)
BA-401	04-16-13	Temporary Barrier Rail (Precast Concrete)
BR-101	04-21-15	Bridge Approach Section (General Details)
BR-103	10-17-17	Bridge Approach Section (Two-Lane for Bridge Reconstruction, PCC Pavement)
BR-203	10-17-17	Double Reinforced 12" Approach
BR-211	10-17-17	Bridge Approach (Abutting PCC or Composite Pavement)
DR-101	04-18-17	Pipe Culvert (Bedding and Backfill)
DR-102	04-21-15	Pipe Culvert (Cover and Camber)
DR-103	04-21-15	Pipe Culvert (Installation Details)
DR-201	10-16-18	Concrete Aprons
DR-205	10-16-18	Concrete Apron with End Wall
DR-305	04-17-18	Subdrain Outlets (Standard Subdrain, Pressure Release and Special)
EC-201	10-16-18	Silt Fence
EC-204	04-18-17	Perimeter and Slope Sediment Control Devices
EW-203	10-17-17	Bridge Berm Grading with Recoverable Slope (Non-Barnroof Section)
EW-301	10-20-15	Guardrail Grading
EW-403	04-18-17	Temporary Erosion Control Measures
EW-501	10-20-15	Rural Entrance
LI-130	10-17-17	Temporary Floodlighting Luminaires
LI-201	04-18-17	Light Pole Foundation
MI-210	10-20-15	PCC Driveways and Alleys
PM-111	04-21-15	Symbols and Legends
PM-310	04-19-16	Entrance and Exit Ramps
PM-420	04-19-11	Two-Lane Roadway with no Turn Lanes (One-Way Stop Condition)
TC-1	04-16-13	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-202	04-21-15	Work Within 15 ft of Traveled Way
TC-213	04-17-12	Lane Closure with Flaggers
TC-216	10-18-16	Lane Closure with Signals
TC-252	04-19-16	Routes Closed to Traffic
TC-402	04-21-15	Work Within 15 ft of Traveled Way
TC-418	04-17-18	Lane Closure on Divided Highway
TC-420	10-16-18	Lane Closure at Ramps
TC-421	04-17-18	Lane Closure with TBR
TC-451	04-21-15	Temporary Road Closure on Divided Highway

111-25
10-18-11

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STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

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

- ① Lane(s) to which the obstacle is adjacent.
- ② Not a bid item. Incidental to guardrail installation.

No.	① Location		Layout Lengths					Long-Span System		Delineators and Object Markers ②						Bid Items								Remarks		
	Direction of Traffic	Side	Station	Offset	BA-250, BA-260, LS-630, or LS-635				STATION	TYPE	SI-211	SI-172	Object Marker SI-173			Bolted End Anchor	Post Adapter	Steel Beam Guardrail	Barrier Transition Section	BA-250 or LS-630					BA-260 or LS-635	
					VT1	VF	VT2	ET					Type 1	Type 2	Type 3					End Terminal					Barrier Transition Section	End Terminal
	FT	LF	LF	LF	White	OM2-2	OM3-L	OM3-R					BA-202	BA-210	BA-200					BA-201	Tangent	Flared	Tangent		Flared	BA-221
1	EB	O	1876+11.79	18.8	40.625	0.00	0.00	47.7			3						0.0	1	1							
2	EB	O	1878+90.79	18.8	40.625	0.00	0.00	47.7			3						0.0	1	1							
3	WB	O	1878+88.21	18.8	40.625	0.00	0.00	47.7			3						0.0	1	1							
4	WB	O	1876+09.21	18.8	40.625	0.00	0.00	47.7			3						0.0	1	1							

GRADING FOR GUARDRAIL INSTALLATIONS

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

Refer to EW-301

No.	① Location		Foreslope at Guardrail	Dimensions (Feet)									Earthwork		Remarks	
	Direction of Traffic	Side		X1	Y1	X2	Y2	X3	Y3	X4	Y4	Z	Excavation Class 10	Embankment In Place		
													CY	CY		
1	EB		1875+19.38	Rt	10	40.0	5.0					90.0	7.1	50.0	TBD	TBD
2	EB		1878+90.58	Rt	10	40.0	5.0					90.0	7.6	50.0	TBD	TBD
3	WB		1879+80.62	Lt	10	40.0	5.0					90.0	7.1	50.0	TBD	TBD
4	WB		1876+09.42	Lt	10	40.0	5.0					90.0	7.6	50.0	TBD	TBD

ACCESS POINTS AND SAFETY RAMPS

Refer to Cross-Sections

Length of Unclassified Pipe calculated is based on using Corrugated Metal Pipe.

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

*Predetermined for access point not constructed with this project.

Location		Type	Length of Opening ①			W	① ② PR	② SR	Pipe Culvert ③					Aprons	Driveway Surface Area		Driveway Surfacing Material	Remarks
Station	Side	A, B, C, Safety Ramp, or Predetermined*	Case	1 1/2" Dropped Curb	3" Dropped Curb				H	Size	Pipe Length	Lt.	Rt.		No.	HMA		
			1 or 2	LF	LF	FT	FT	FT	FT	IN	LF	LF	LF		SY	SY	TON	
1883+92.67	Rt	B				24.0	25.0	21.0	4.5	18.0	93.0	46.0	47.0	2			138.4	

BRIDGE APPROACH SECTION

Refer to the BR Series.

* Not a bid item

Bridge Station	End	Location		Approach Pavement					Standard Road Plans BR Series			Subdrain					Remarks		
		Skew Ahead Degrees	Thickness Inches	Pay Length FT	Non-Reinf. Pavement Area SY	Single-Reinf. Pavement Area SY	Double-Reinf. Pavement Area SY	Approach	Fixed or Movable Abutment	Abutting Pavement	Perforated Subdrain 4"	Subdrain Outlet		Porous Backfill CY	Class 'A' Crushed Stone Backfill CY	Modified Subbase TON		Polymer Grid SY	Special Backfill TON
												LEFT	RIGHT						
1876+24.00	West		3°42'30"	12.0	70.0	80.0	53.3	80.0	BR-203	Movable	BR-211	50.0	1875+62.45	Rt	1.4	0.2	228.785	242.1	
1878+76.00	East		3°42'30"	12.0	70.0	80.0	53.3	80.0	BR-203	Movable	BR-211	50.0	1879+37.54	Rt	1.4	0.2	228.785	242.1	

DRAINAGE STRUCTURE BY ROAD CONTRACTOR

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

* Not a bid item

① Diameter or equivalent diameter

② UNCL = Unclassified Pipe CMP = Corrugated Metal Pipe RCP = Reinforced Concrete Pipe LCP = Arch or Elliptical Low Clearance Pipe SARC = Steel Arch Pipe

③ Backfill according to DR-101

Drainage Area ACRE	Location	Type	Size IN	Kind Of Pipe	Length New Const. LF	Bedding Class	Design Cover (H) FT	Camber* (DR-102) FT	Apron No.	Apron Guard* (DR-213)		Elbow* (DR-141) No.	Diaphragm* (DR-501) No.	Tee Section* (DR-142) No.	"D" Section* (DR-141) No.	Reducer* No.	Type 'C' Connections* (DR-122) Type No.	Connected Pipe Joint* (DR-121) Type	4" Perforated Subdrain* FT	Flow Line Elevations				Dimensions Lin. Ft.				Skew Ahead Degrees		Dike			Class 20 CY	Flowable Mortar CY	Floodable* Backfill (A) CY	Porous* Backfill (B) CY	Flooded Backfill (A+B) CY	Remarks			
										IN	OUT									Lt.	Rt.	Other	Other	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Rt.							Location Station	Top Elevation	Type
										Total	Extensions									Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.							Rt.		
72.1	1868+29.00	CMP	30	CMP	67	B	3.2	0.08			2									992.52	991.39			32.0	35.0																
18.4	1883+17.00	RCP	30	RCP	99	B	7.1	0.17	1	1	2									995.76	995.00			52.0	47.0																
16.9	3604+00.00	RCP	24	RCP	71	B	2.0	0.08	1	1	2									995.16	994.70			23.0	48.0																

SILT DIKES

Refer to EW-403

Location		Side	Length LF	Remarks
Station to Station				
100+50.00	106+50.00	Rt	600.0	

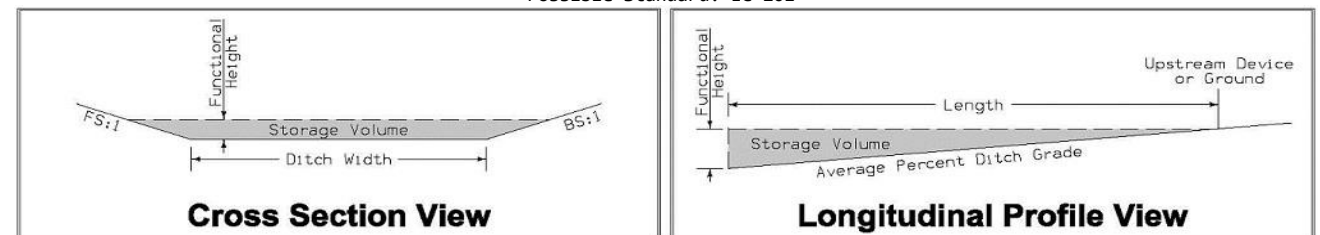
TABULATION OF SILT FENCES

Refer to EC-201

Location		Side	Length LF	Remarks
Begin Station	End Station			
1868+40.00	1870+14.00	Lt	175.0	Borders ROW
1868+60.00	1870+17.00	Rt	158.0	Borders ROW
1871+18.00	1875+90.00	Lt	474.0	
1871+55.00	1876+25.00	Rt	472.0	Border ROW
1878+78.00	1886+15.19	Lt	438.0	
1879+06.00	1883+75.00	Rt	472.0	
1884+75.00	1886+00.00	Rt	126.0	
1884+11.00	1886+00.00	Rt	181.0	
3602+75.00	3604+03.00	Rt	128.0	
3602+65.00	3604+16.00	Lt	153.0	
2600+75.00	2601+72.00	Rt	100.0	
2600+75.00	2601+83.00	Lt	112.0	
100+50.00	107+83.00	Rt	753.0	
100+51.00	107+83.00	Lt	645.0	

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.
* Volume equation: $[0.5 * Spacing * (0.5 * H^2 * FS + Dw * H + 0.5 * H^2 * BS)]$

Basin No.	Type	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
		Station	Side	Installation LF	Maintenance LF	Removal LF	Foreslope FS:1	Backslope BS:1	Ditch Width FT	Avg. % Slope Ditch Grade	Volume* CF	
1	4	1868+40.00	Lt	36.0	4.0	36.0	3.0	2.5	5.0	1.0%	904.8	
2	4	1868+40.00	Rt	36.0	4.0	36.0	3.0	2.5	5.0	1.8%	437.8	
3	4	1869+90.00	Lt	36.0	4.0	36.0	3.0	2.5	5.0	1.0%	904.8	
4	4	1869+15.00	Rt	36.0	4.0	36.0	3.0	2.5	5.0	1.8%	437.8	
5	4	1871+15.15	Lt	36.0	4.0	10.0	3.0	2.5	5.0	0.5%	1838.8	
6	4	1871+60.00	Rt	36.0	4.0	36.0	3.0	2.5	5.0	0.5%	1838.8	
7	4	1880+80.00	Lt	36.0	4.0	36.0	3.0	2.5	5.0	0.4%	1838.8	
8	4	1883+00.00	Lt	36.0	4.0	36.0	3.0	2.5	5.0	0.2%	1838.8	
9	4	1880+70.00	Rt	36.0	4.0	36.0	3.0	2.5	5.0	0.2%	1838.8	
10	4	1883+00.00	Rt	36.0	4.0	36.0	3.0	2.5	5.0	0.2%	1838.8	
11	4	1884+80.00	Lt	36.0	4.0	36.0	3.0	2.5	5.0	1.0%	904.8	
12	4	1886+00.00	Lt	36.0	4.0	36.0	3.0	2.5	5.0	1.0%	904.8	
13	4	1886+00.00	Rt	36.0	4.0	36.0	3.0	2.5	5.0	0.2%	1838.8	
14	4	3603+88.08	Rt	41.0	4.0	41.0	3.0	3.0	10.0	1.3%	942.0	
15	4	3603+88.08	Lt	41.0	4.0	41.0	3.0	3.0	10.0	1.0%	1460.2	
16	4	2601+80.00	Rt	41.0	4.0	41.0	3.0	3.0	10.0	0.5%	2967.4	

SURVEY SYMBOLS

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

	Existing Fiber Optics (Central Scott)
	Existing Fiber Optics (Moleod USA)
	Existing Fiber Optics (Qwest)
	Existing Fiber Optics (ATT)
	Existing Fiber Optics (MediaCom)
	Existing Fiber Optics (Bettendorf)
	Existing Fiber Optics (IowaDOT)
	Existing Power Line (MidAmerican)
	Existing Power Line (MidAmerican)
	Existing Power for Street Light or Traffic Light (Bettendorf)
	Existing Power Line (MidAmerican)
	Existing Power Line (MidAmerican)
	Existing Power Line (IowaDOT)
	Existing Gas Line (MidAmerican)
	Existing High Pressure Gas Line (MidAmerican)
	Existing Sanitary Sewer Line (Bettendorf)
	Existing Sanitary Sewer Line (Davenport)
	Existing Telephone Line (Qwest)
	Existing Cable Television Line (MediaCom)
	Existing Cable Television Line (MediaCom)
	Existing Water Line (IA American)

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS (ROAD)

LINE WORK	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			
SHADING	Design Color No.		
Yellow	(4)		Highlight for Critical Notes or Features
Red	(3)		Delineates Restricted Areas
Lavender	(9)		Detour Pavement Shading
Gray, Light	(48)		Proposed Pavement and Bridge Shading
Gray, Med	(80)		Proposed Granular Shading
Gray, Dark	(112)		Proposed Approach Pavement
Brown, Light	(236)		Grading Shading

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS (ROAD)

LINE WORK	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

CONVENTIONAL SIGNS

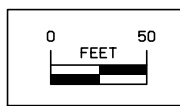
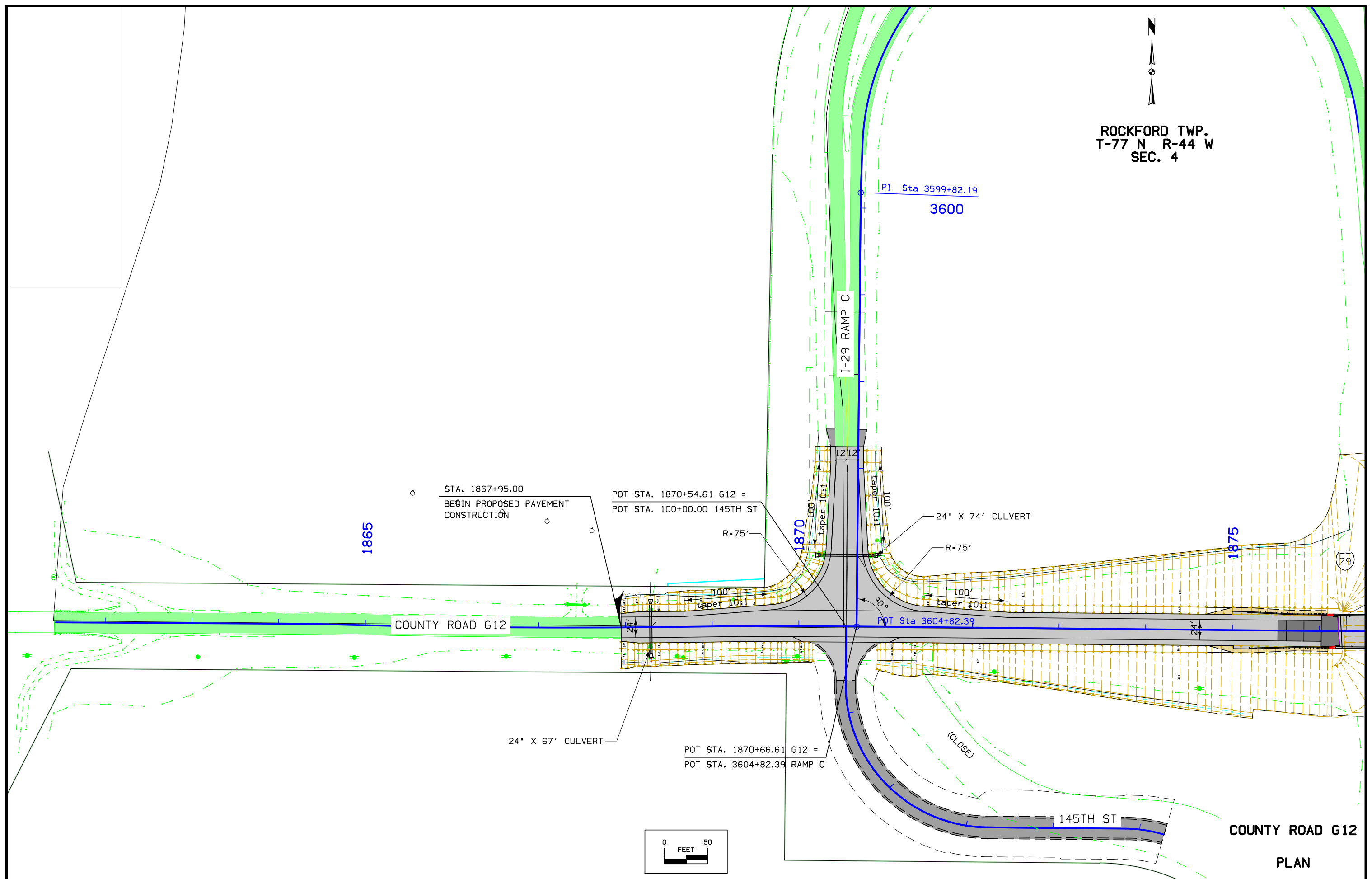
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	Station Reference Point
	Section Corner
	Ground Line Intercept
	Saw Cut
	Guardrail

RIGHT OF WAY LEGEND

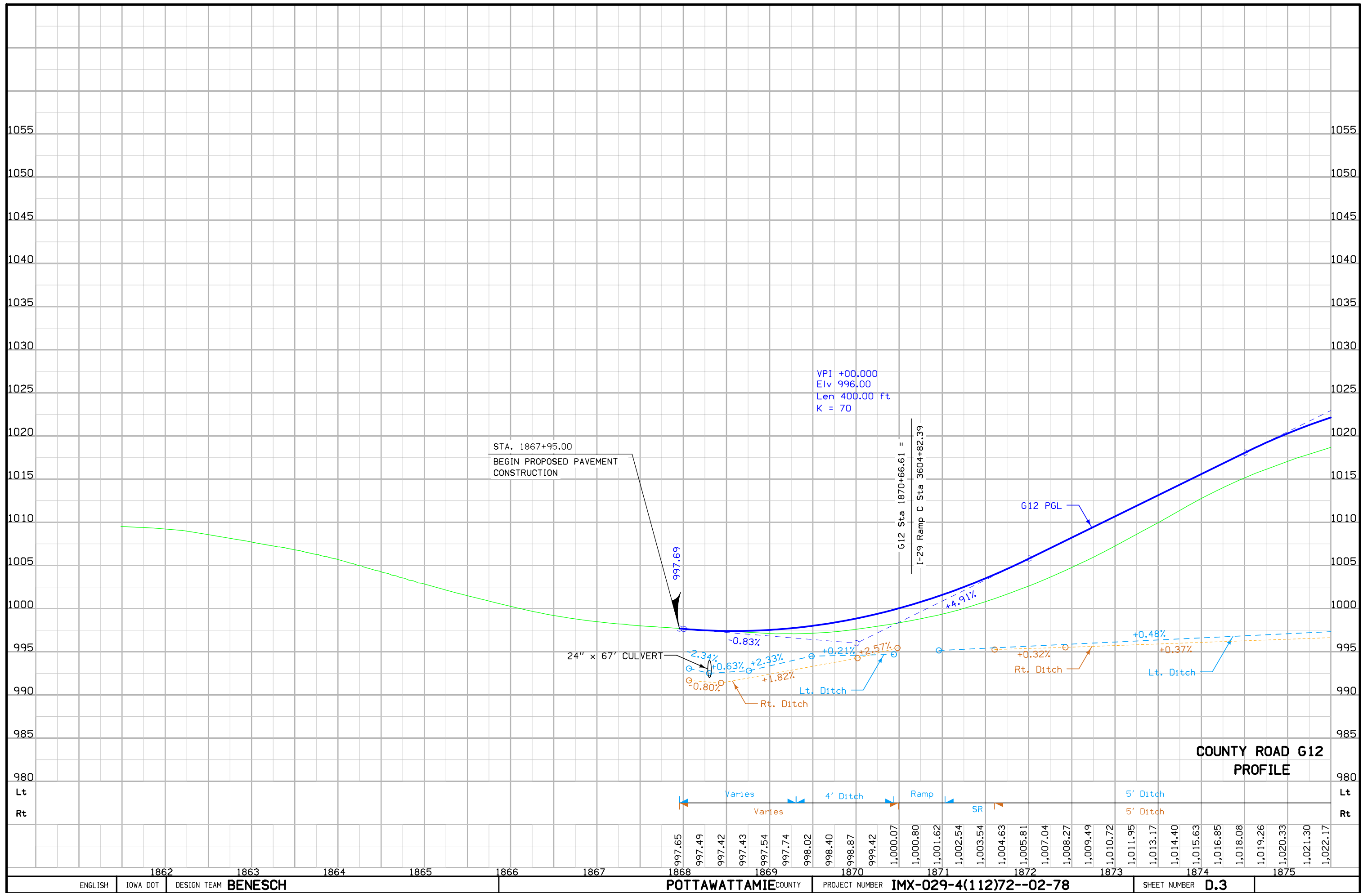
	Proposed Right of Way
	Existing and Proposed Right of Way
	Easement and Existing Right of Way
	Borrow
	Easement (Temporary)
	Easement
	Excess
	Access Control

Legend And Symbol Information Sheet
D, F, AND K SHEETS
 (Symbols are Typical Only)

ROCKFORD TWP.
T-77 N R-44 W
SEC. 4



COUNTY ROAD G12
PLAN



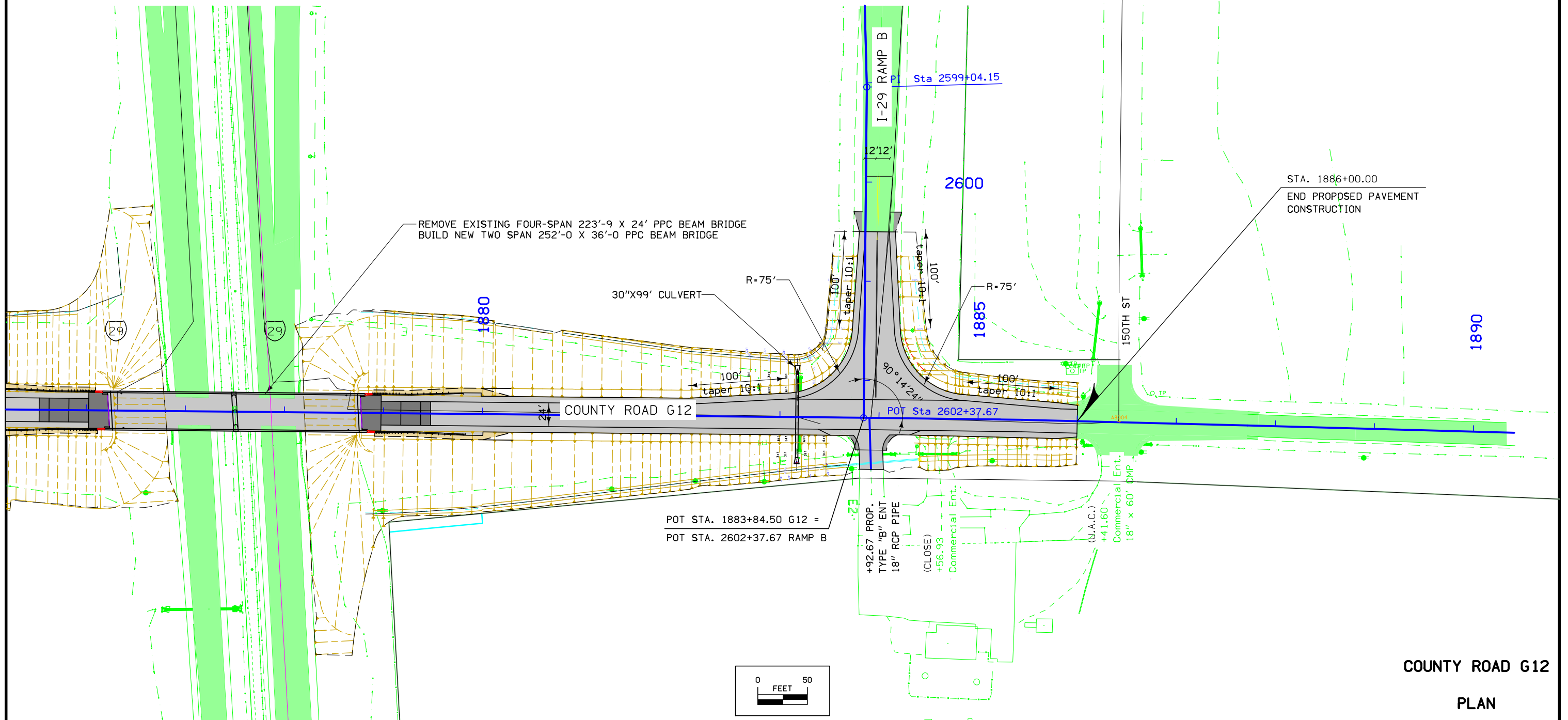
**COUNTY ROAD G12
PROFILE**

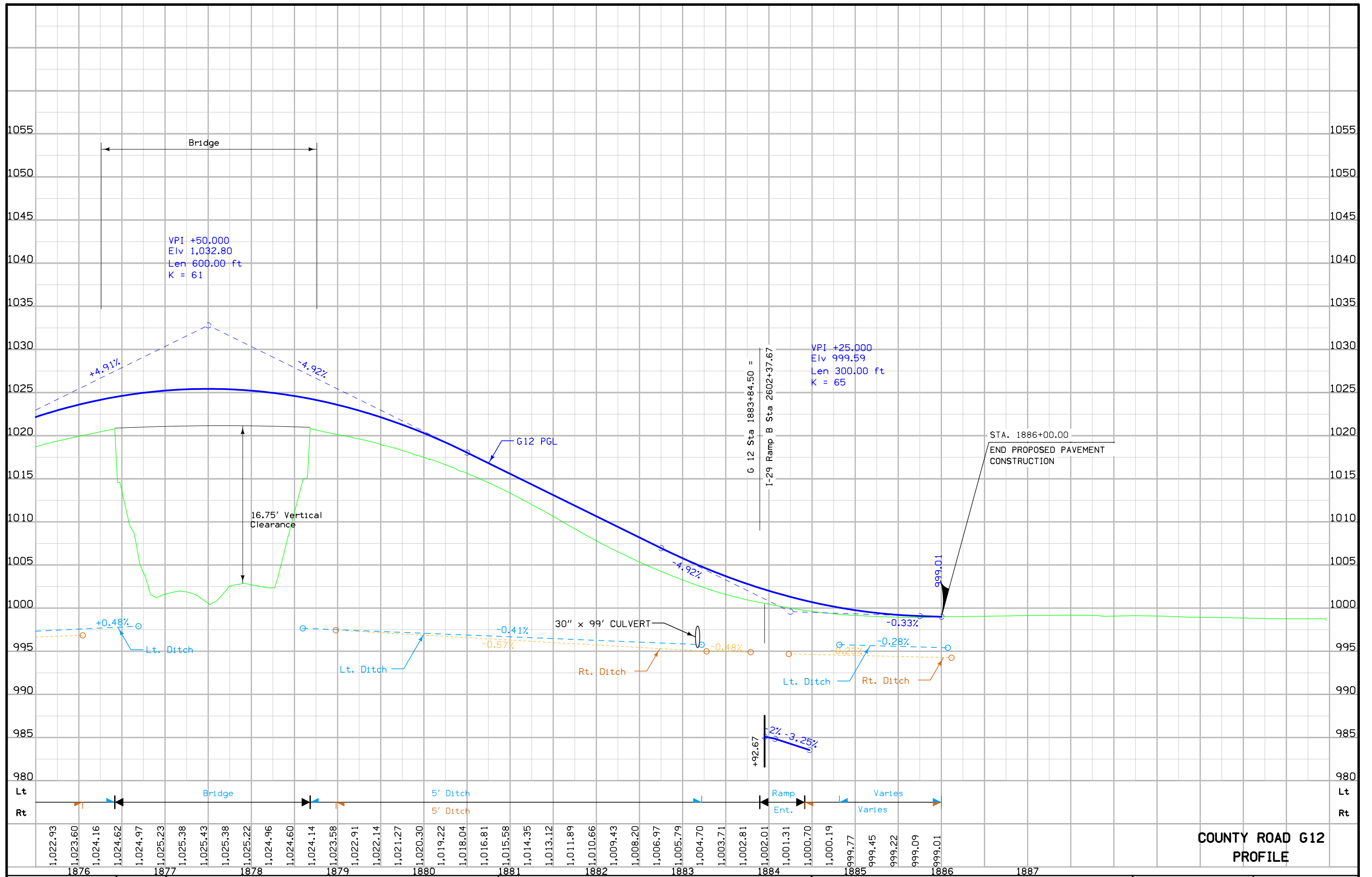
Varies 4' Ditch Ramp SR 5' Ditch

997.65 997.49 997.42 997.43 997.54 997.74 998.02 998.40 998.87 999.42 1,000.07 1,000.80 1,001.62 1,002.54 1,003.54 1,004.63 1,005.81 1,007.04 1,008.27 1,009.49 1,010.72 1,011.95 1,013.17 1,014.40 1,015.63 1,016.85 1,018.08 1,019.26 1,020.33 1,021.30 1,022.17

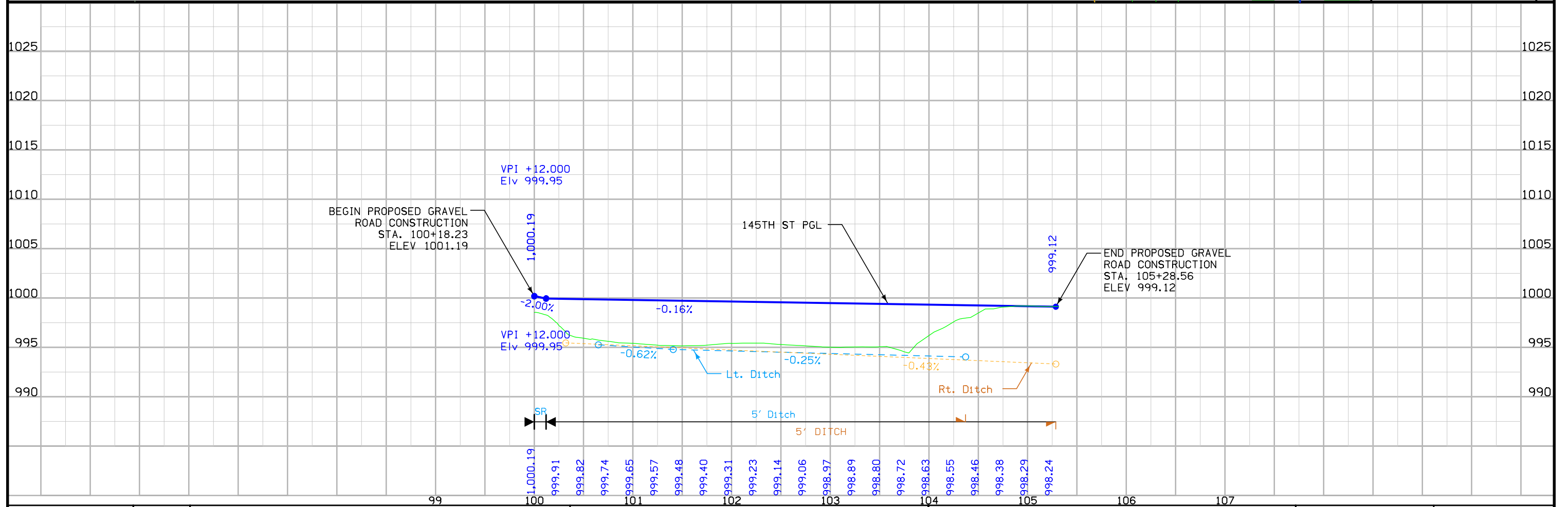
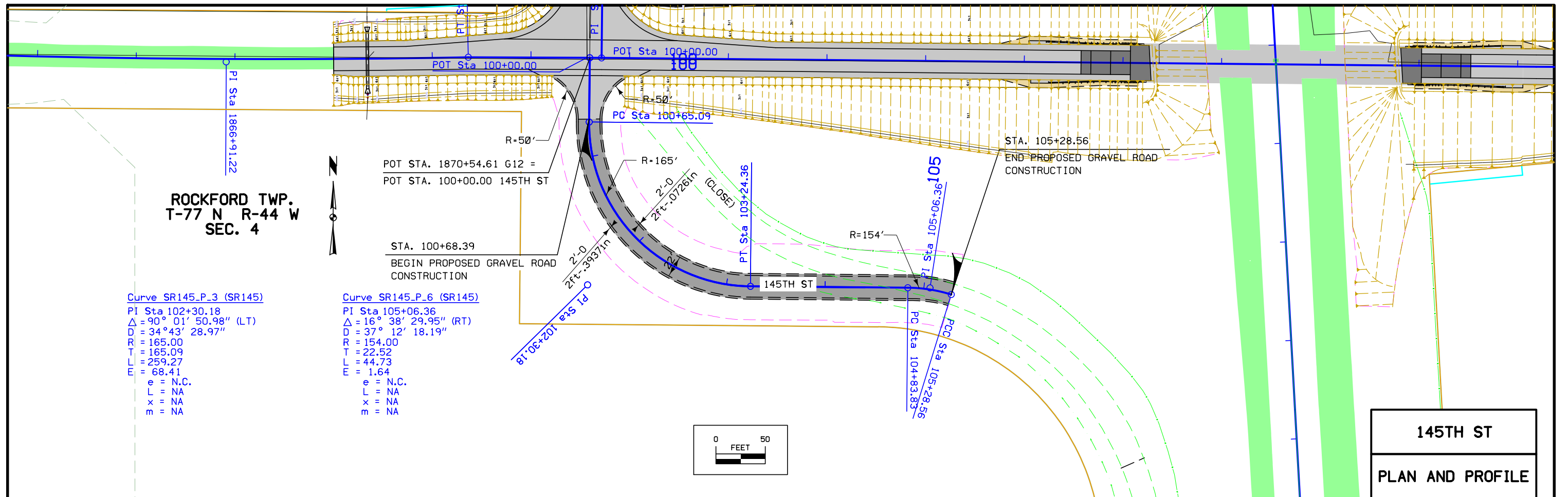


ROCKFORD TWP.
T-77 N R-44 W
SEC. 4



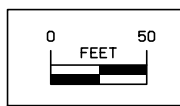
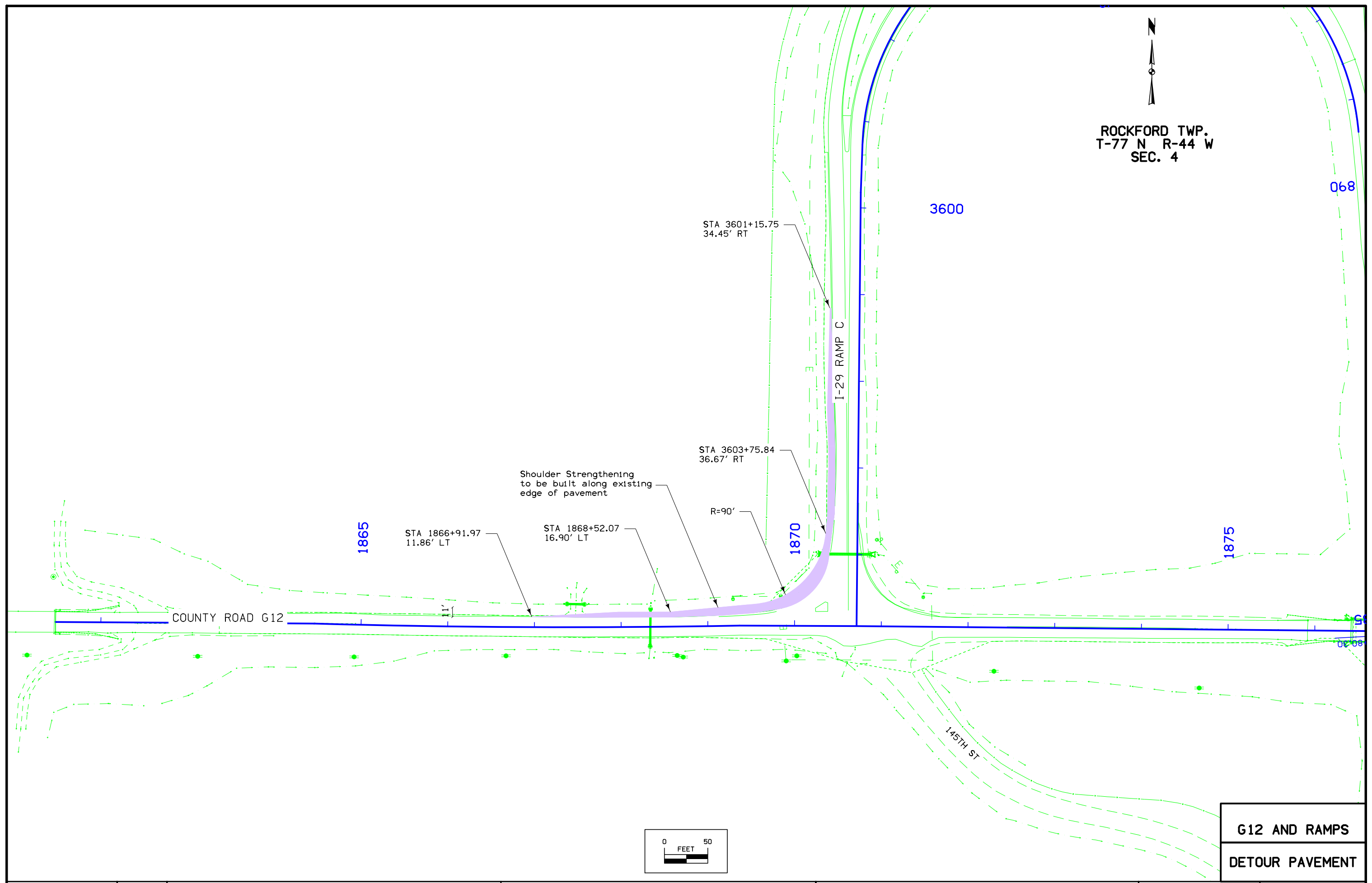


**COUNTY ROAD G12
PROFILE**





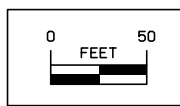
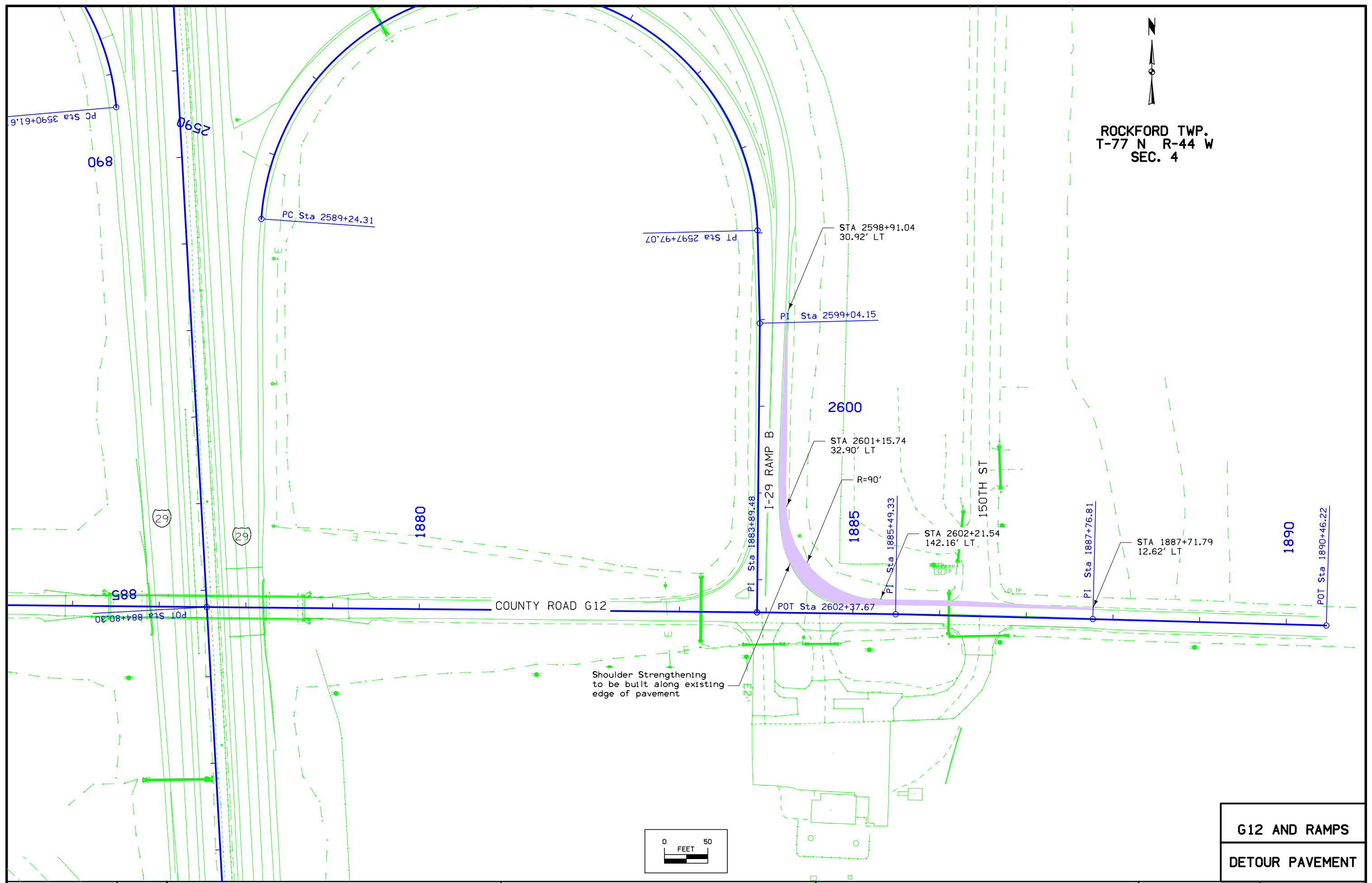
ROCKFORD TWP.
T-77 N R-44 W
SEC. 4



G12 AND RAMPS
DETOUR PAVEMENT



ROCKFORD TWP.
T-77 N R-44 W
SEC. 4



G12 AND RAMPS
DETOUR PAVEMENT

Survey Information

County: Pottawattamie
PIN: 16-78-029-070
Project Number: IMX-029-4(112)72- -02-78
Location: CO Rd G12 Interchange 0.4 mi N of N Jct I-680
Type of Work: PCC Pavement Grade and Replace
Project Directory: 7802907016
SAP 803.2

General Information

Measurement units for this survey are US survey feet. This survey is for preliminary engineering of County road G12 interchange I-29. This project is a combination of field survey and aerial survey. The existing drainage structures and changes made after lidar and aerial were the only features field surveyed for this project. The rest was surveyed using aerial photography and lidar mapping.

Vertical Control

Vertical Control was established on 5 monuments on the project designated as points B 140, H 180, N 180, E 138 and R 138. These monuments are stable and are expected to hold vertical reasonably well. The vertical datum is NAVD88. Datum was transferred from the Iowa RTN reference station at Le Mars to the projects monuments mentioned above by using concurrent 6 hour static measurements and post processing connecting vectors. Geoid 12 A was used in processing. The Council Bluffs reference station orthometric height used is 1001.974 US Survey Ft.

This survey observed 5 NGS Control Monuments with published NAVD88 heights to validate the reference station height used in computation of project heights. The county control has a stated vertical accuracy of + or 0.10 ft. The survey heights determined at the NGS monuments validate the NAVD 88 height used at the Council Bluffs reference station and the positions of the project control monuments within acceptable tolerance.

This survey observed 5 NGS Control Monuments with published NAVD88 heights to compare to local ground control:

NGS 1st. order class II mark designated B 140 has a published Elev. Of 1008.83
Survey Elev. = 1008.894

NGS 1st. order class II mark designated H 180 has a published Elev. Of 987.35
Survey Elev. = 987.401

NGS 1st. order class II mark designated N 180 has a published Elev. Of 988.05
Survey Elev. = 988.07

NGS 1st. order class II mark designated E 138 has a published Elev. Of 997.29
Survey Elev. = 997.214

NGS 1st. order class II mark designated R 138 has a published Elev. Of 991.20
Survey Elev. = 991.189

Horizontal Control

Horizontal Control was established on 5 monuments on the project designated as points B 140, H 180, N 180, E 138 and R 138. These monuments are stable and are expected to hold vertical reasonably well. The horizontal datum is NAD83(2011) (EPOCH 2010.00). Datum was transferred from the Iowa RTN reference station at Council Bluffs to the projects monuments mentioned above by using concurrent 6 hour static measurements and post processing connecting vectors. Iowa Regional Coordinate System Zone 6 is used. The Zone 6 coordinates used at the Council Bluffs reference station are: N= 6954894.981, E= 16467018.172.

Survey Alignment Information

The horizontal alignment for this survey is a retrace of As-built Plans Project No. I-29-4(22)73- -01-78. Survey stationing was equated to the plan at PI Sta. 793+25.5. and run ahead without equation throughout the survey. Alignment based off of station offsets splits of bridges.

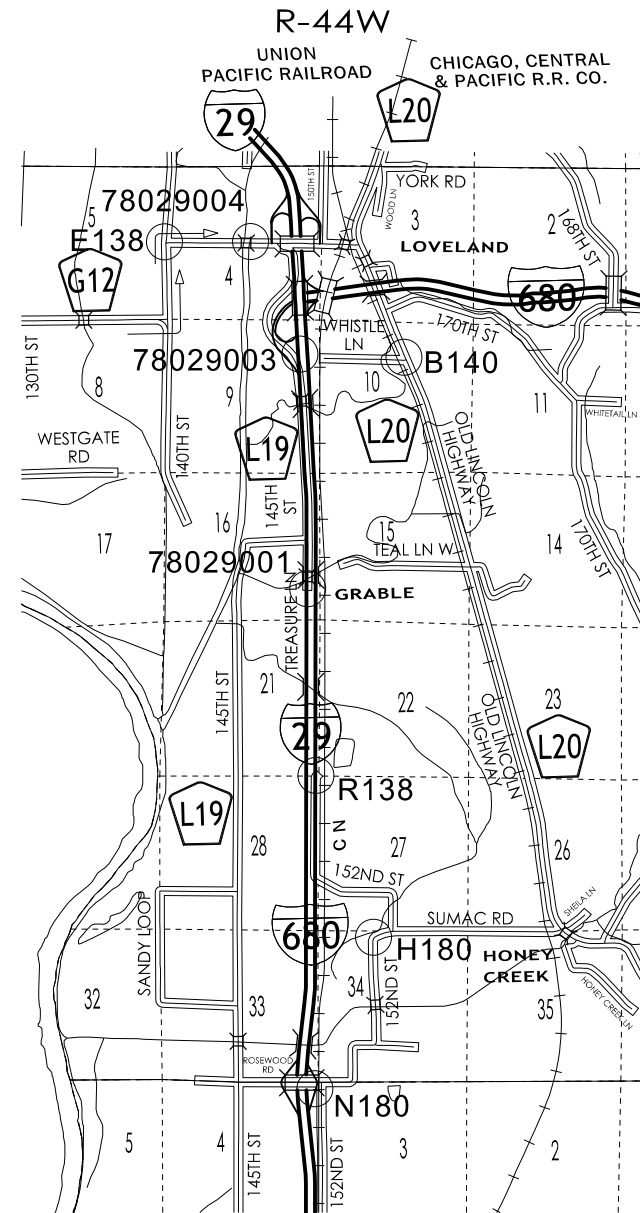
Survey stationing relates to as built plan stationing as follows:

PI Sta. 793+25.5 As-built Plans Project No. I-29-4(22)73- -01-78.
Survey PI Sta. 793+25.5

POT Sta. 884+80.30 As-built Plans Project No. I-29-4(22)73- -01-78.
Survey POT Sta. 884+76.74

CONTROL POINT VICINITY MAP

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



HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 6

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

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 6

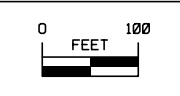
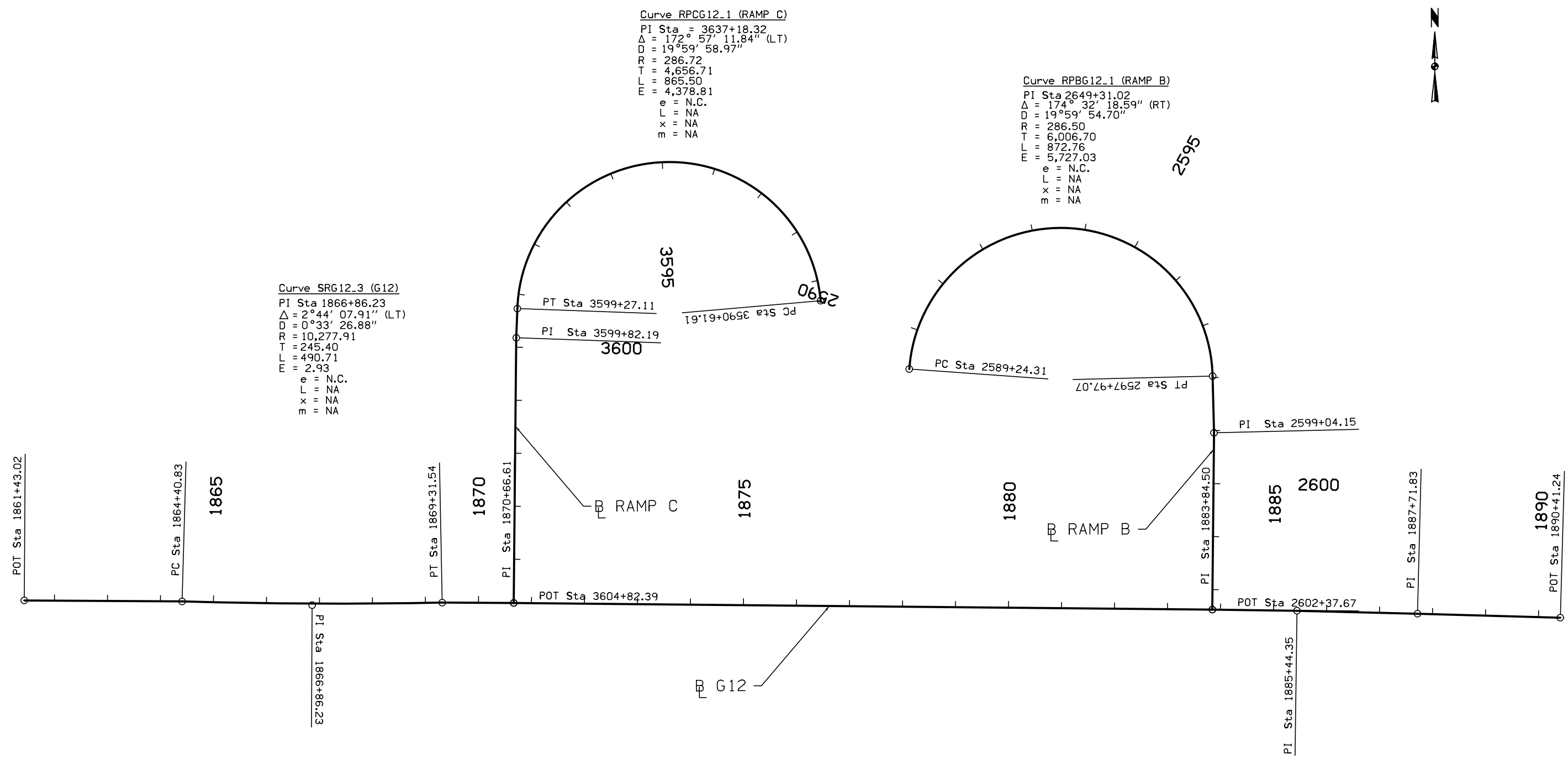
Point Name	Northing	Easting	Elevation	Feature Definition
H180	7031139.63	16456582.35	987.4	CP STAINLESS STEEL ROD 1.1 MI WEST OF CO. RD. L20 ON SUMAC RD 25' NE OF FIELD ENT 3' SW OF POWER POLE
N180	7025873.099	16454543.58	988.07	CP STAINLESS STEEL ROD ALONG HONEY CREEK OFF RAMP FROM I29 NB EXIT 66 230' SOUTH CL CO. RD. L19 140' WEST OF CL RR TRACKS 51' EAST OF RAMP NEAR ROW FENCE
R138	7036755.905	16454583.77	991.19	CP NGS DISK 1 MI WEST OF CO. RD. L20 ON SUMAC RD THEN 1.4 MI NORTH ON 152ND AVE IN RD DITCH 117' WEST OF CL RR TRACKS 12' WEST OF ELECTRIC METER PEDESTAL
B140	7051278.887	16457643.4	1008.89	CP NGS DISK 4.8 MI SOUTH OF MISSOURI VALLEY ON CO. RD. L20 IN ROAD DITCH 93' SW MILE MARKER 17 45' EAST OF CL RR TRACKS 96' NORTH OF CL FIELD ENT
78029001	7043243.11	16454292.95	996.08	CP FENO TYPE MONUMENT ALONG I29 SB IN BACKSLOPE 23' SOUTH OF ROW FENCE AND 36' EAST OF ROW FENCE 74' NW OF MILEPOST 69.65
78029003	7051391.748	16454031.43	997.65	CP FENO TYPE MONUMENT ALONG I29 SB 41' NW OF MILEPOST 71.15
78029004	7055297.605	16452312.12	1005.57	CP FENO TYPE MONUMENT FROM LOVELAND EXIT 72 I29 SB GO WEST 0.1 MI ON CO. RD. G12 38' NORTH OF NE CORNER OF BRIDGE OVER BOYER RIVER
E138	7055290.856	16449322.32	997.21	CP NGS DISK FROM LOVELAND EXIT 72 I29 SB GO WEST 0.7 MI ON CO. RD. G12 AT INTERSECTION DISK IS LOCATED IN FIELD 71' NW OF DESOTO AVE. & 140TH ST. SIGN



Curve RPCG12_1 (RAMP C)
 PI Sta = 3637+18.32
 $\Delta = 172^\circ 57' 11.84''$ (LT)
 $D = 19^\circ 59' 58.97''$
 R = 286.72
 T = 4,656.71
 L = 865.50
 E = 4,378.81
 e = N.C.
 L = NA
 x = NA
 m = NA

Curve RPBG12_1 (RAMP B)
 PI Sta 2649+31.02
 $\Delta = 174^\circ 32' 18.59''$ (RT)
 $D = 19^\circ 59' 54.70''$
 R = 286.50
 T = 6,006.70
 L = 872.76
 E = 5,727.03
 e = N.C.
 L = NA
 x = NA
 m = NA

Curve SRG12_3 (G12)
 PI Sta 1866+86.23
 $\Delta = 2^\circ 44' 07.91''$ (LT)
 $D = 0^\circ 33' 26.88''$
 R = 10,277.91
 T = 245.40
 L = 490.71
 E = 2.93
 e = N.C.
 L = NA
 x = NA
 m = NA



ALIGNMENTS
 G12,
 RAMP B AND C

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)
SRG12	COUNTY ROAD G12																		
SRG121		1861+43.02	7055245.56	16452314.71															
SRG12_3								1864+40.83	7055243.79	16452612.51	1866+86.23	7055236.78	16452857.81	1869+31.54	7055241.48	16453103.17			
SRG126		1870+66.61	7055240.86	16453238.24															
SRG128		1883+84.50	7055228.29	16454556.07															
SRG1210		1885+44.35	7055226.10	16454715.90															
SRG1212		1887+71.83	7055220.54	16454943.31															
SRG1213		1890+41.24	7055213.07	16455212.62															
RAMP B																			
RFBG12_1								2589+24.31	7055682.07	16453984.42	2649+31.02	7061673.74	16454409.11	2597+97.07	7055668.85	16454556.62			
RFBG124		2599+04.15	7055561.80	16454559.25															
RFBG125		2602+37.67	7055228.29	16454556.07															
RAMP C																			
RFCG12_1								3590+61.61	7055810.98	16453817.12	3637+18.32	7060449.87	16453410.03	3599+27.11	7055796.08	16453244.96			
RFCG124		3599+82.19	7055741.04	16453243.01															
RFCG125		3604+82.39	7055240.86	16453238.24															
145TH STREET																			
6		100+00.00	7055240.92	16453226.24															
SR145_P_3								100+65.09	7055175.83	16453225.62	102+30.18	7055010.75	16453224.05	103+24.36	7055009.26	16453389.13			
SR145_P_6								104+83.83	7055007.83	1645348.59	105+06.36	7055007.63	16453571.12	105+28.56	7054853.83	16453574.21			

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		
SRG12	COUNTY ROAD G12																	
SRG12_3																		
RFBG12	RAMP B																	
RFBG12_1																		
RFCG12	RAMP C																	
RFCG12_1																		
SR145	145TH STREET																	
SR145_P_3																		
SR145_P_6																		

Pottawattamie	ROW: IMN-029-4(114)72--0E-78			PIN	16-78-029-070														
	Co Rd G12 Interchange 0.4 mi N of N Jct I-680																		
		STATE		COUNTY		CITY			TEMP EASE	BORROW									
PARCEL NO.	OWNER NAME	FEE	EASE	FEE	EASE	FEE	EASE	EXCESS			FEE	T.E.	MITIGATION	OTHER	HOUSE	BUILDING(S)	A/C ONLY	TOTAL ACQ.	
1	Larry E Bostwick - Fee																		
2	Donald D Rief - Fee																		
2 Parcels	"TOTALS	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0.14 AC	0 AC	0 AC	0 AC						
		0 SF	0 SF	0 SF	0 SF	0 SF	0 SF	0 SF	0 SF	0 SF	0 SF	0 SF	0 SF						

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.

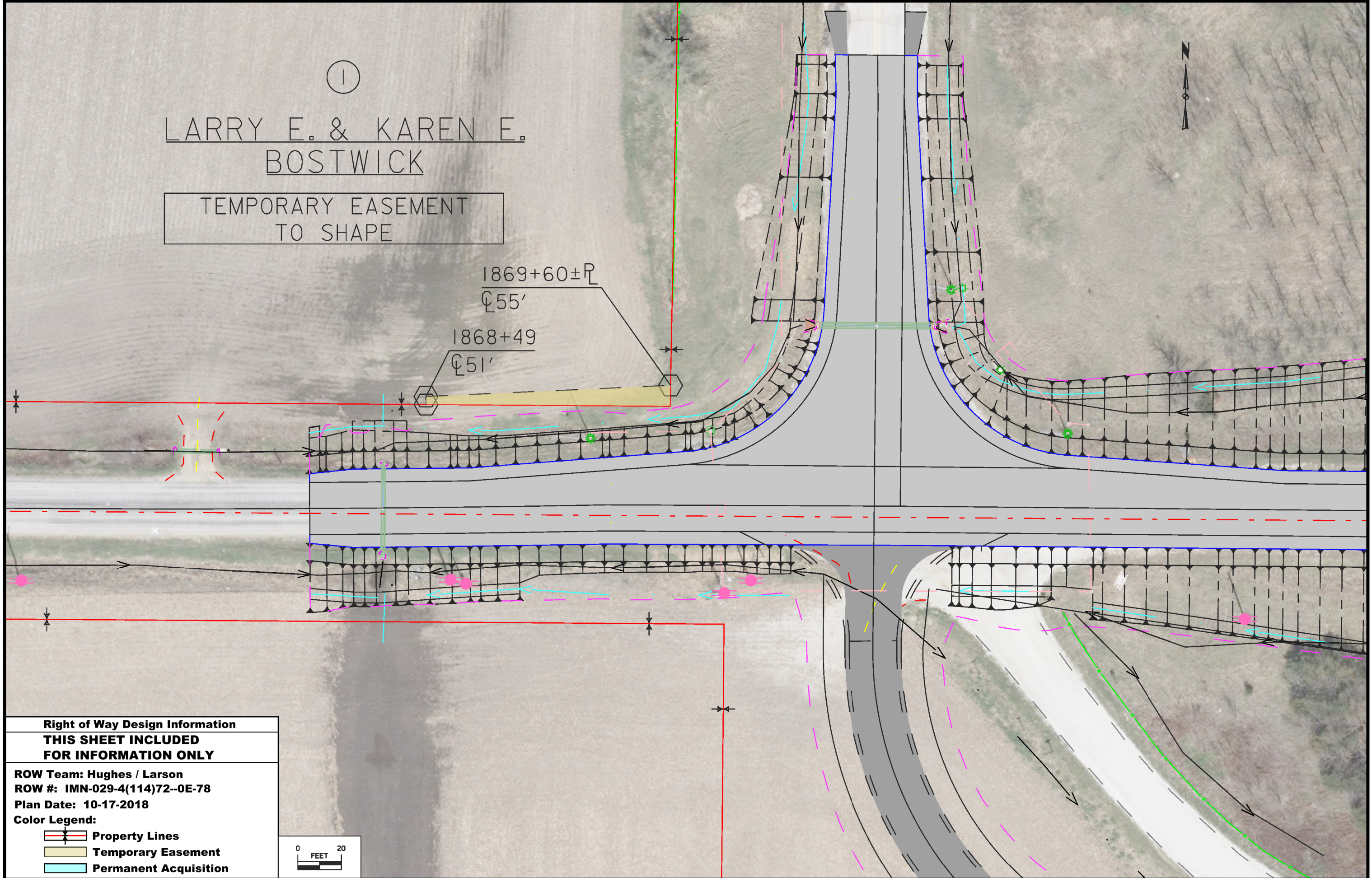
①

LARRY E. & KAREN E.
BOSTWICK

TEMPORARY EASEMENT
TO SHAPE

1869+60±P
C55'




1868+49
C51'




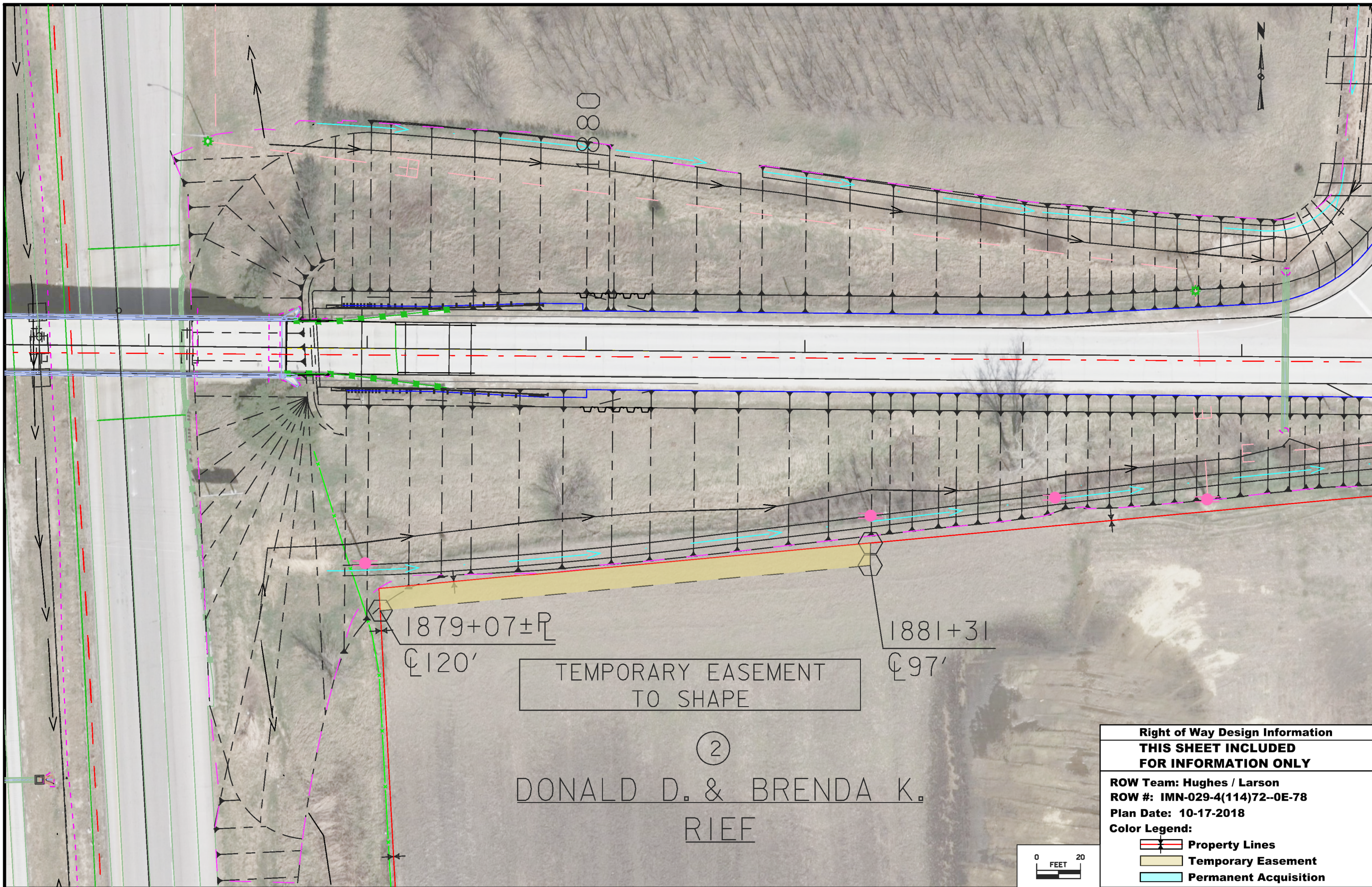
Right of Way Design Information
THIS SHEET INCLUDED
FOR INFORMATION ONLY

ROW Team: Hughes / Larson
 ROW #: IMN-029-4(114)72--0E-78
 Plan Date: 10-17-2018

Color Legend:




-  Property Lines
-  Temporary Easement
-  Permanent Acquisition



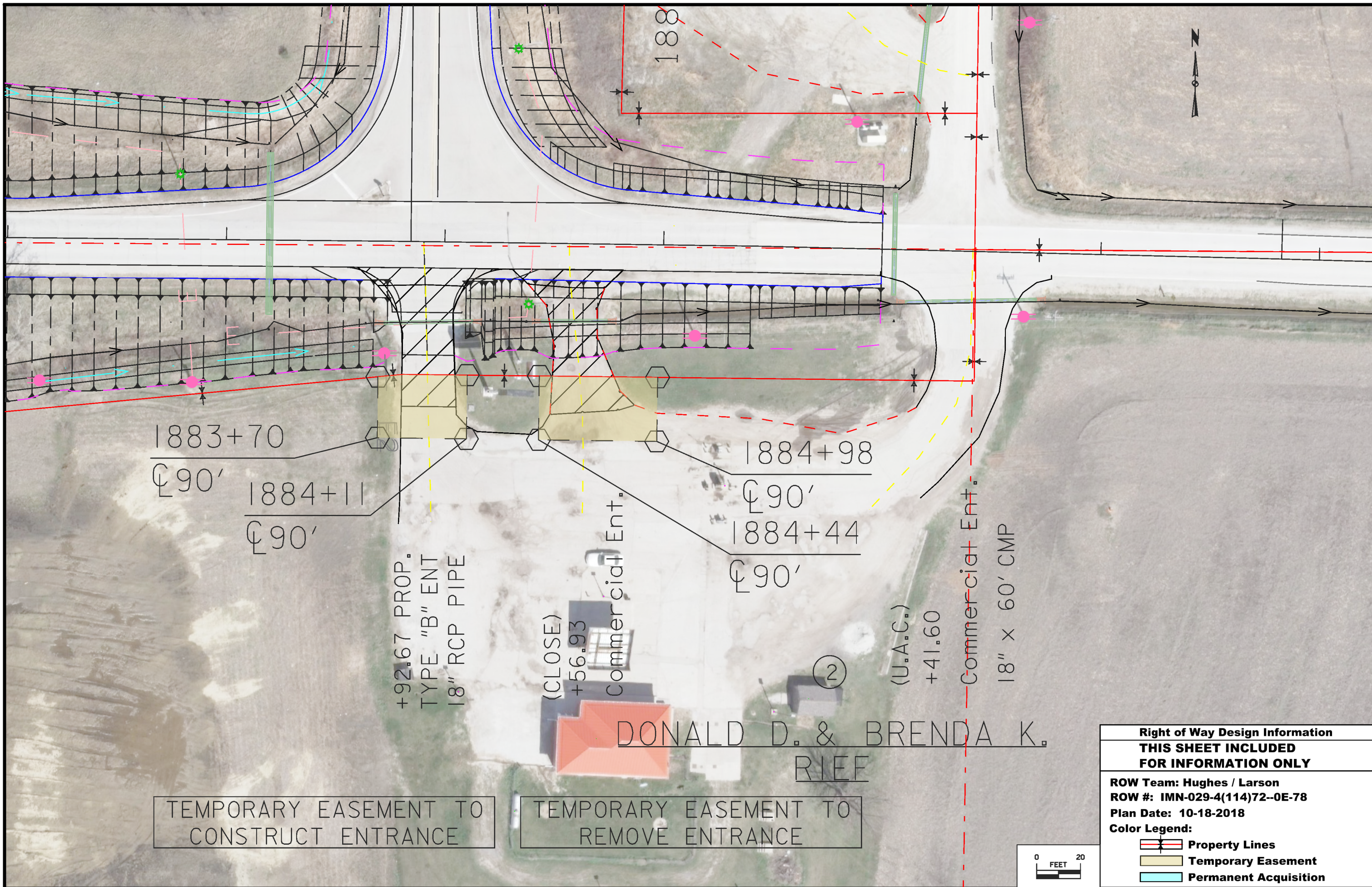


TEMPORARY EASEMENT
TO SHAPE

②
DONALD D. & BRENDA K.
RIEF




Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: Hughes / Larson	
ROW #: IMN-029-4(114)72--0E-78	
Plan Date: 10-17-2018	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition





TEMPORARY EASEMENT TO
CONSTRUCT ENTRANCE

TEMPORARY EASEMENT TO
REMOVE ENTRANCE

Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: Hughes / Larson	
ROW #: IMN-029-4(114)72--0E-78	
Plan Date: 10-18-2018	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition



TRAFFIC CONTROL PLAN

1. Traffic on I-29 Ramps will be open at all times.
2. Traffic on I-29 will be open at all times with Lane Closures for bridge demolition and bridge construction using TC-1, TC-418 and TC-421, except for beam removal and beam placement. Intermittent closure of I-29 for demolition and beam placement shall use TC-451. Closures shall be allowed Sunday thru Saturday from 8 PM to 6 AM.
3. Traffic on County Road G12 over I-29 will be detoured. See Detour Plans on Sheets J.6 and J.7.
4. Construction will be performed under 3 stages on G12 using strengthened shoulders and a lane closure with signals per Standard Road Plan TC-216.

STAGING NOTES

I-29 Staging
 Stage 1
 Demolition of County Road G12 bridge over I-29 using Standard Road Plans TC-1, TC-420 and TC-451.

Stage 2
 Construct median bridge pier for G12 bridge over I-29 using Standard Road Plans TC-1, TC-420 and TC-421. Remove and reinstall cable guardrail.

Stage 3
 Construct outside bridge abutments and macadam wall using TC-1 and TC-420. Erect beams with intermittent closures using Standard Road Plan TC-451.

County Road G12 Staging
 Stage 1
 Strengthen the shoulder in the northwest quadrant of the Ramp C intersection with County Road G12 and strengthen the shoulder of the northeast quadrant of the Ramp B intersection with County Road G12. Use Standard Road Plan TC-402. Begin construction of County Road G12 bridge and roadway between interchanges. The G-12 traffic over I-29 will be detoured.

Stage 2
 Build the south lanes of County Road G12 through the ramp intersections, the east lanes of Ramp C, and the west lanes of Ramp B along with all roadway construction between the interchange ramps. The traffic will use single lane signalized traffic control Standard Road Plan TC-216 as shown in plans. The traffic will ride on the existing pavement and strengthened shoulders. The G-12 traffic over I-29 will be detoured.

Stage 3
 Build the remaining sections of County Road G12, Ramps C and B, along with all roadway construction between the interchange ramps. The traffic will use single lane signalized traffic control Standard Road Plan TC-216 as shown in plans. The one lane of traffic will ride on the newly constructed pavement.










511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
G12	East	Pottawattamie	Bridge Reconstruction	County Road G12 over I-29	Bridge	7871.90029	Vertical					
G12	West	Pottawattamie	Bridge Reconstruction	County Road G12 over I-29	Bridge	7871.90029	Vertical					
I-29 Ramp C	South	Pottawattamie	Intersection Construction	County Road G12	Temporary Signal		Vertical					
I-29 Ramp B	North	Pottawattamie	Intersection Construction	County Road G12	Temporary Signal		Vertical					

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
Violet	(15)	Temporary barrier rail, Unpinned
Flush Orange	(228)	Temporary barrier rail, Pinned

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Proposed Granular Surface 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

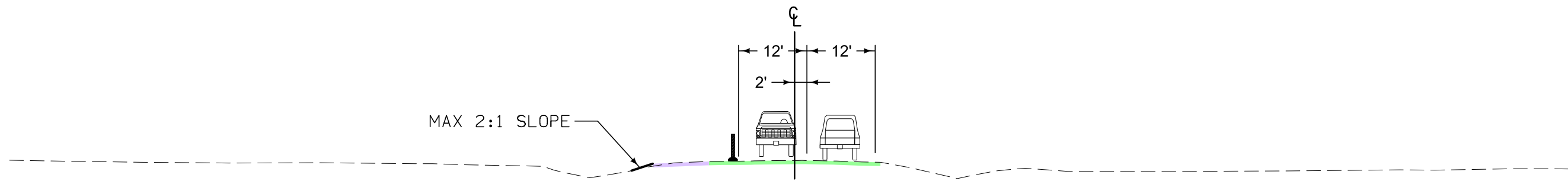
PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

	Channelizing Device		Crash Cushion (Temp or Perm)
	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
	Sand Barrel Layout		Lane Identification

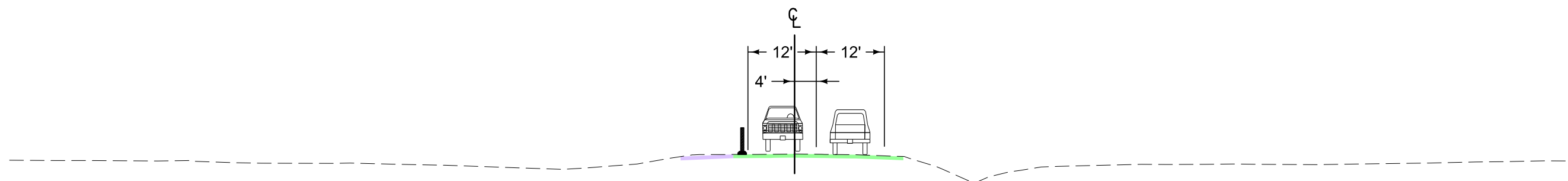
NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES J)



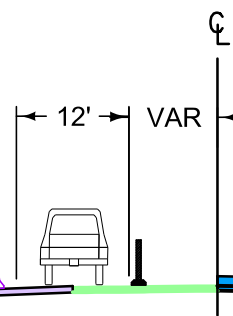
COUNTY ROAD G12
 STAGE 1
 WEST OF BRIDGE



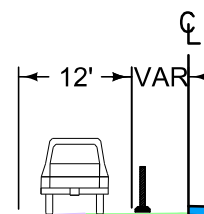
COUNTY ROAD G12
 STAGE 1
 EAST OF BRIDGE

TRAFFIC CONTROL BARRIER
RAMP C
STA. 3602+75 TO STA. 3604+10

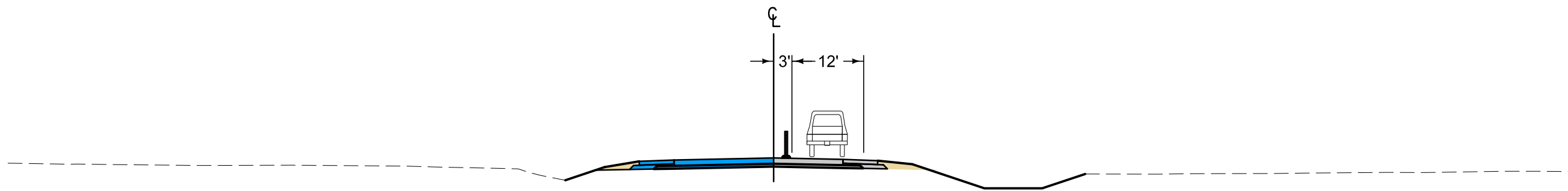
MAX 2:1 SLOPE



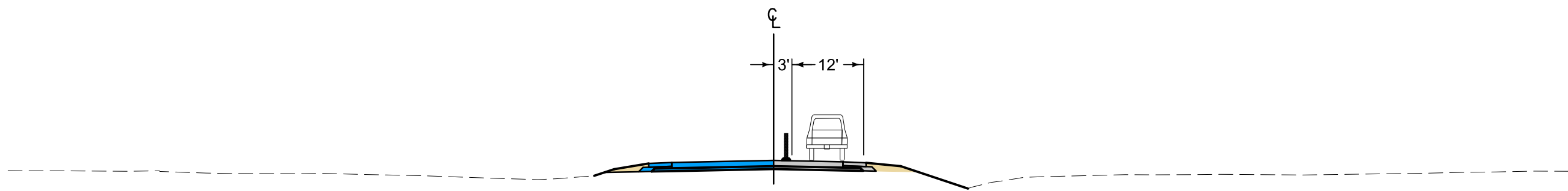
COUNTY ROAD G12
STAGE 2
WEST OF BRIDGE



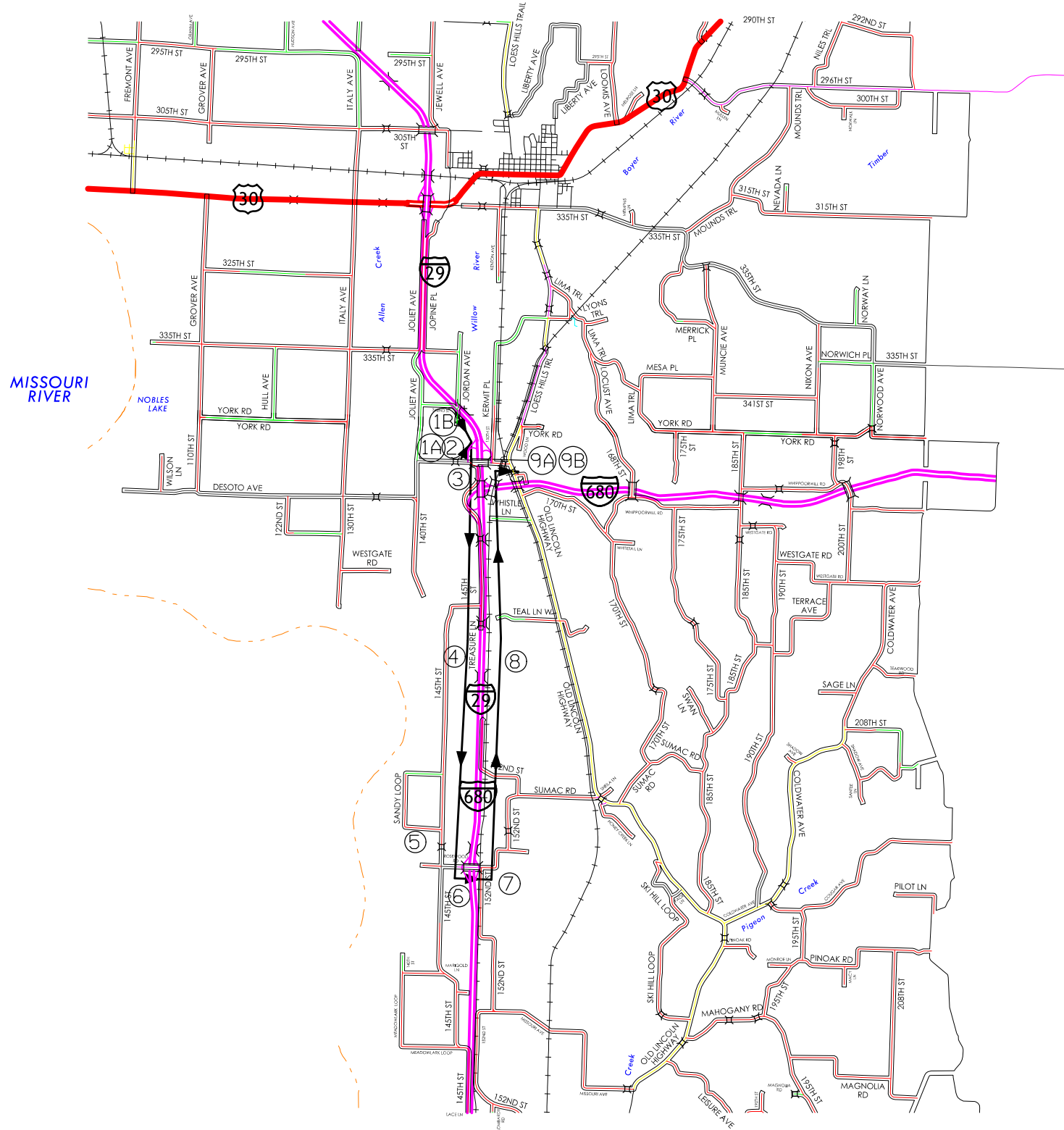
COUNTY ROAD G12
STAGE 2
EAST OF BRIDGE



COUNTY ROAD G12
 STAGE 3
 WEST OF BRIDGE

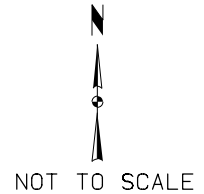


COUNTY ROAD G12
 STAGE 3
 EAST OF BRIDGE

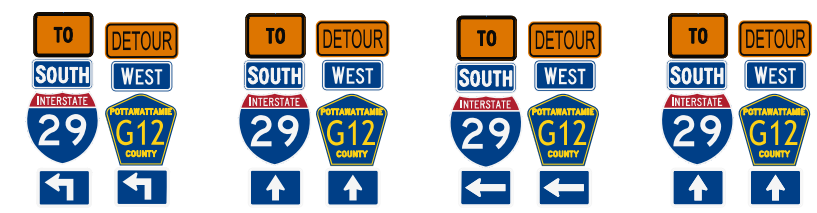
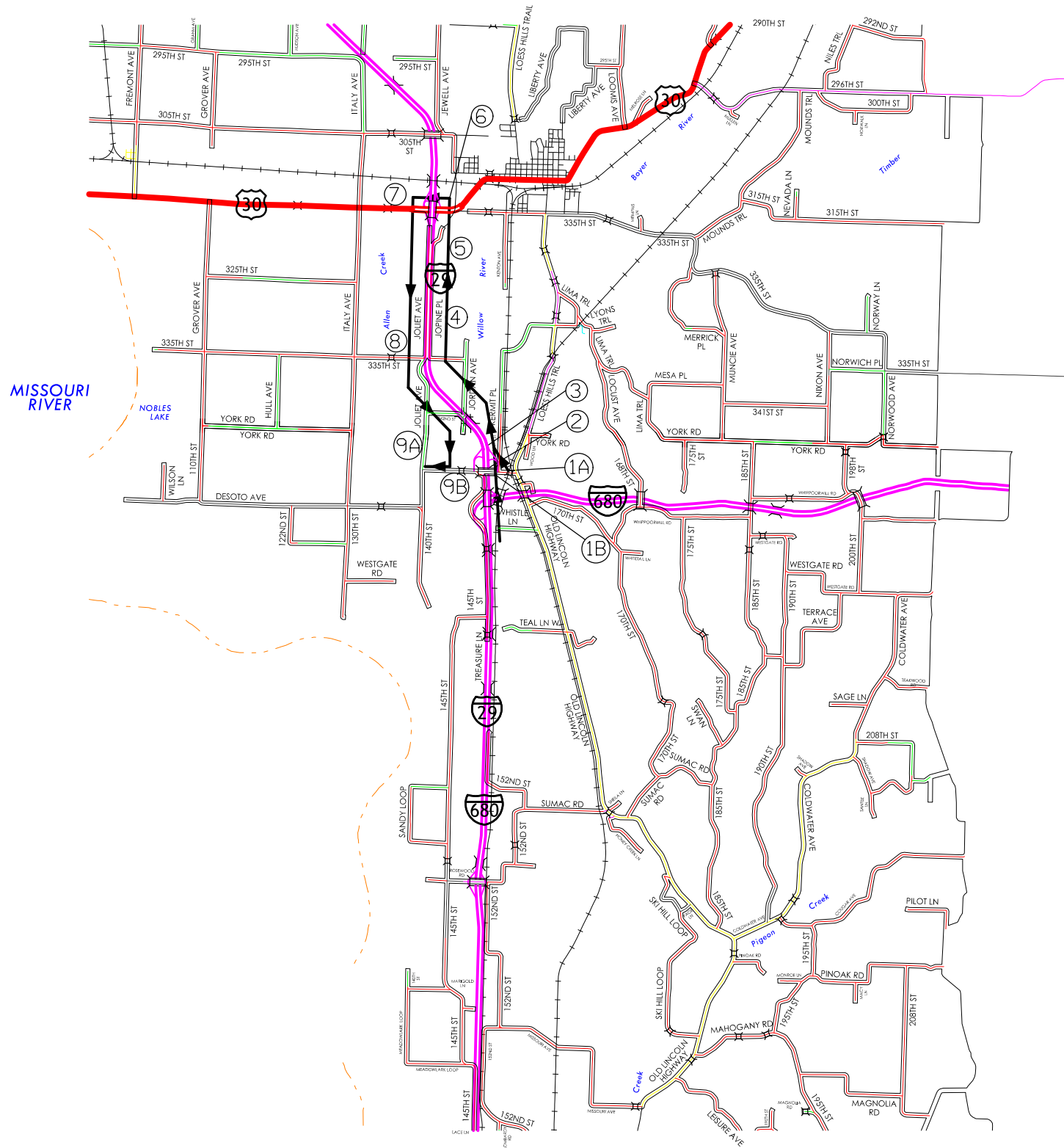


→ EB G12 DETOUR ROUTE

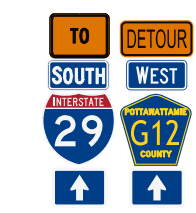
Note: All detour signs are to be provided, placed, maintained, and removed by the contractor.



**STAGE 1
DETOUR ROUTE OF
G12 EASTBOUND**



1A



1B



2



3



4



5



6



7



8



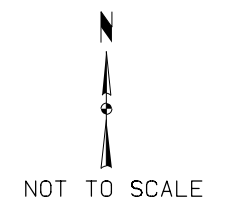
9A



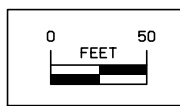
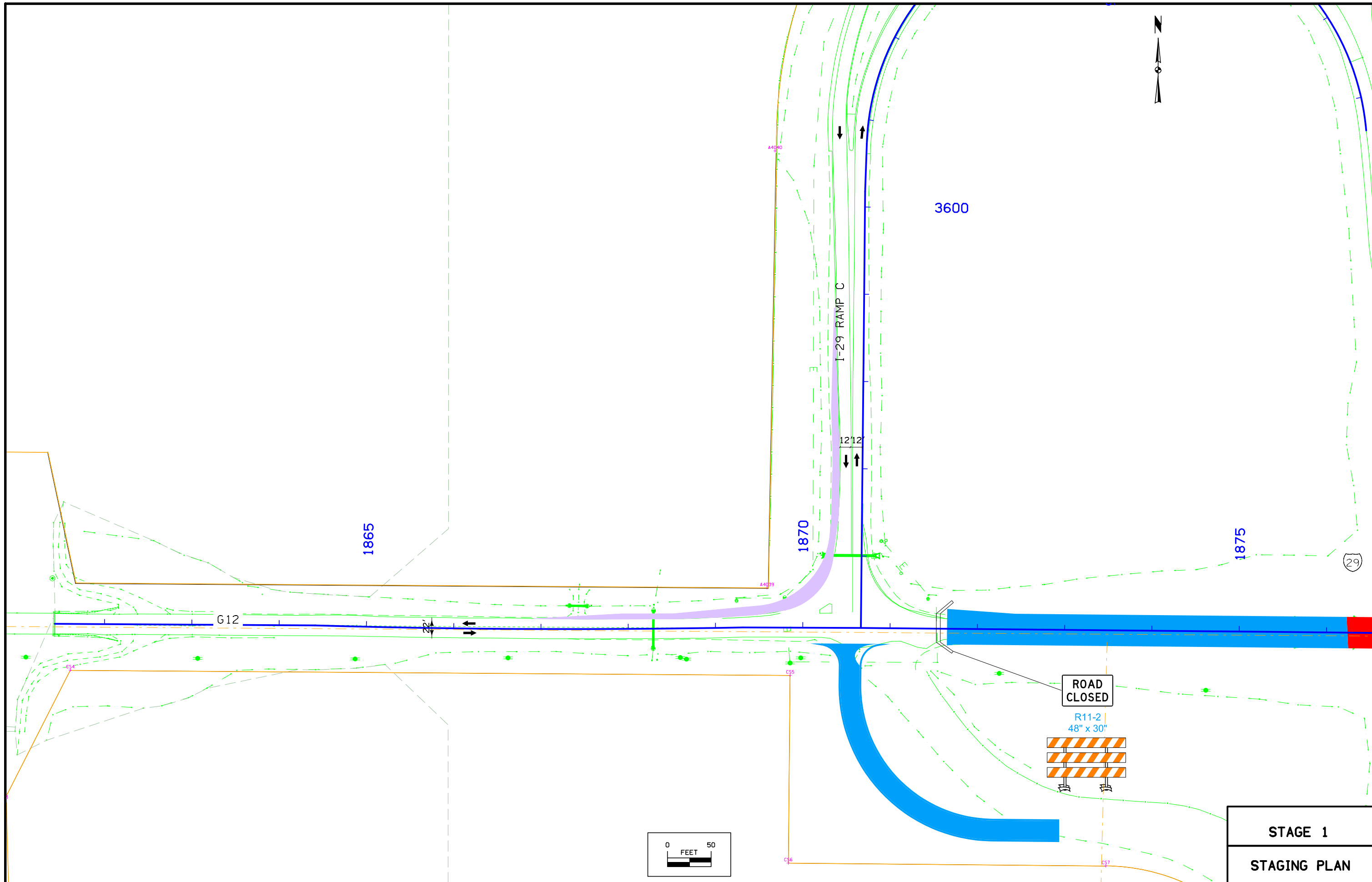
9B



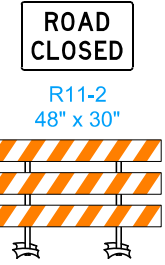
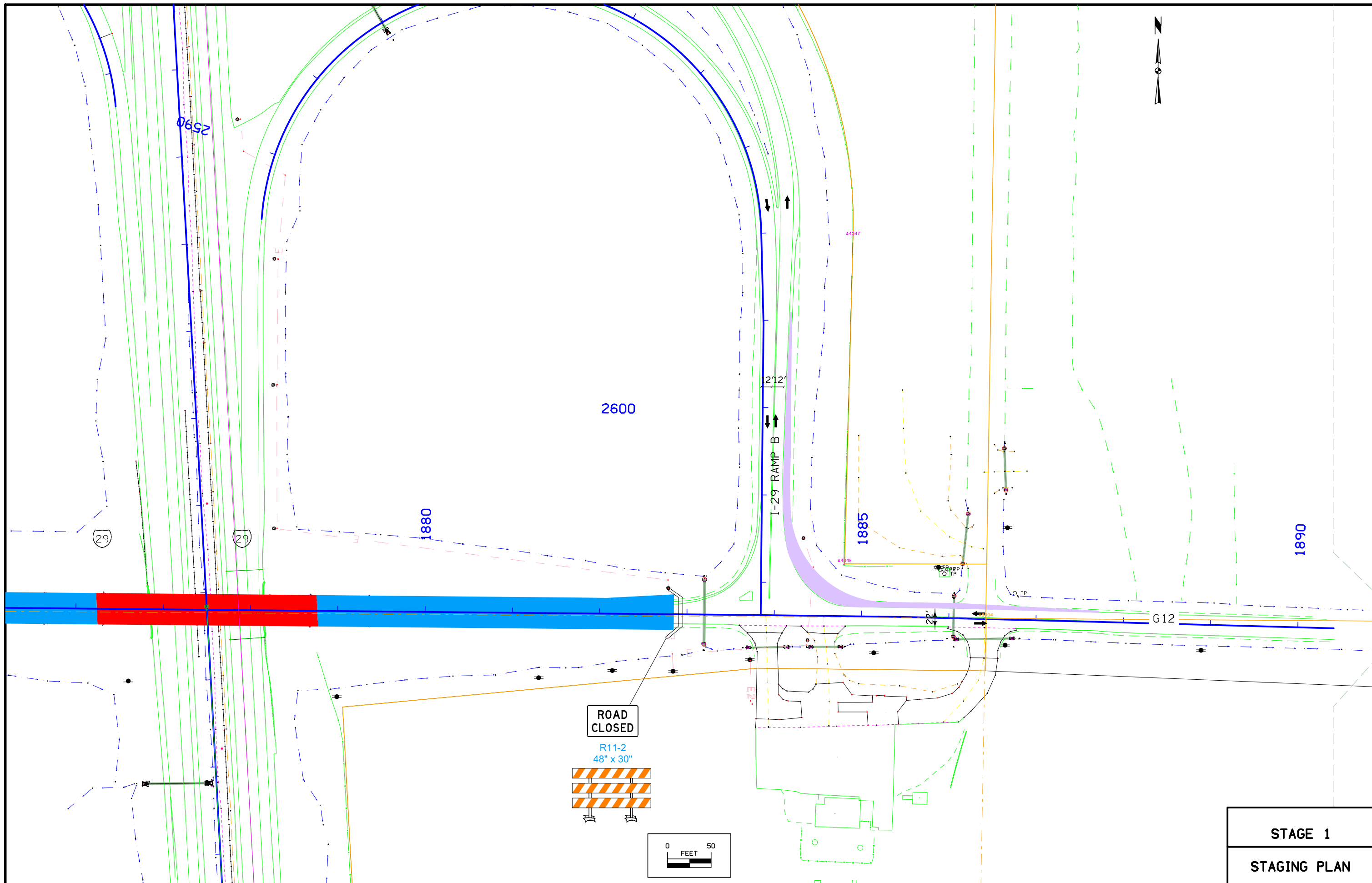
Note: All detour signs are to be provided, placed, maintained, and removed by the contractor.



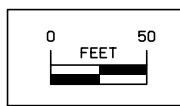
STAGE 1
DETOUR ROUTE
OF G12 WESTBOUND



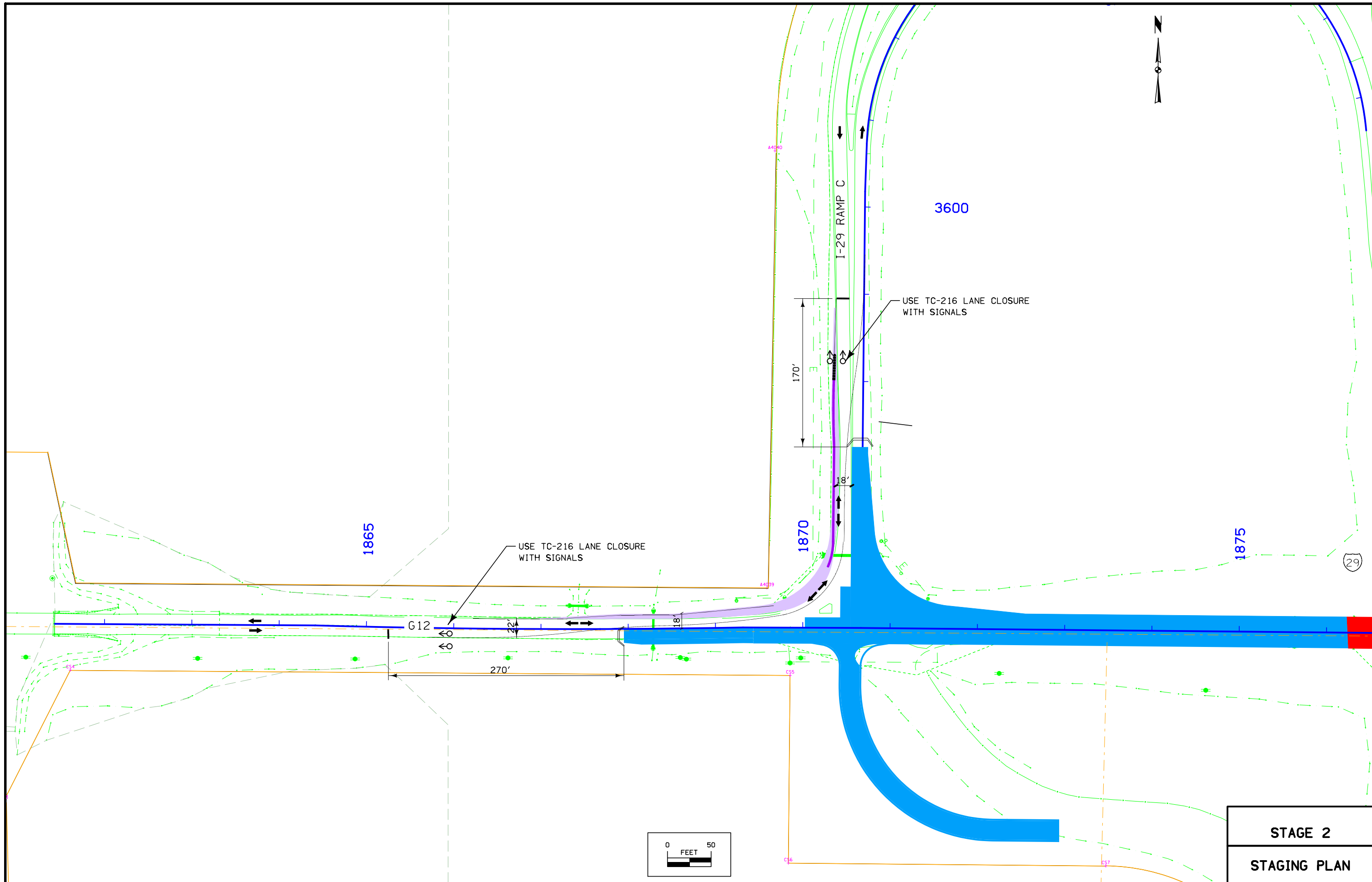
STAGE 1
STAGING PLAN



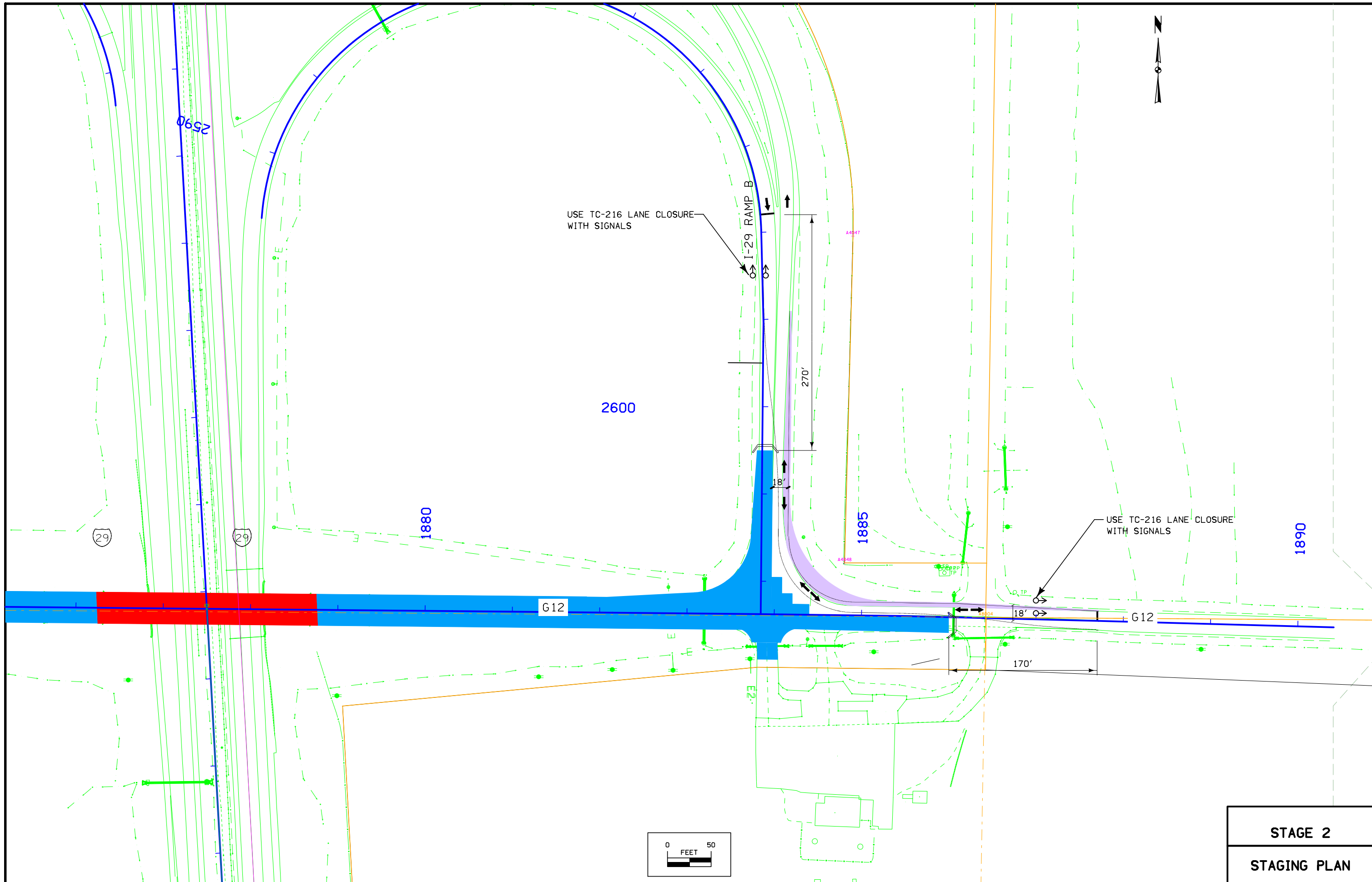
R11-2
48" x 30"



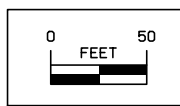
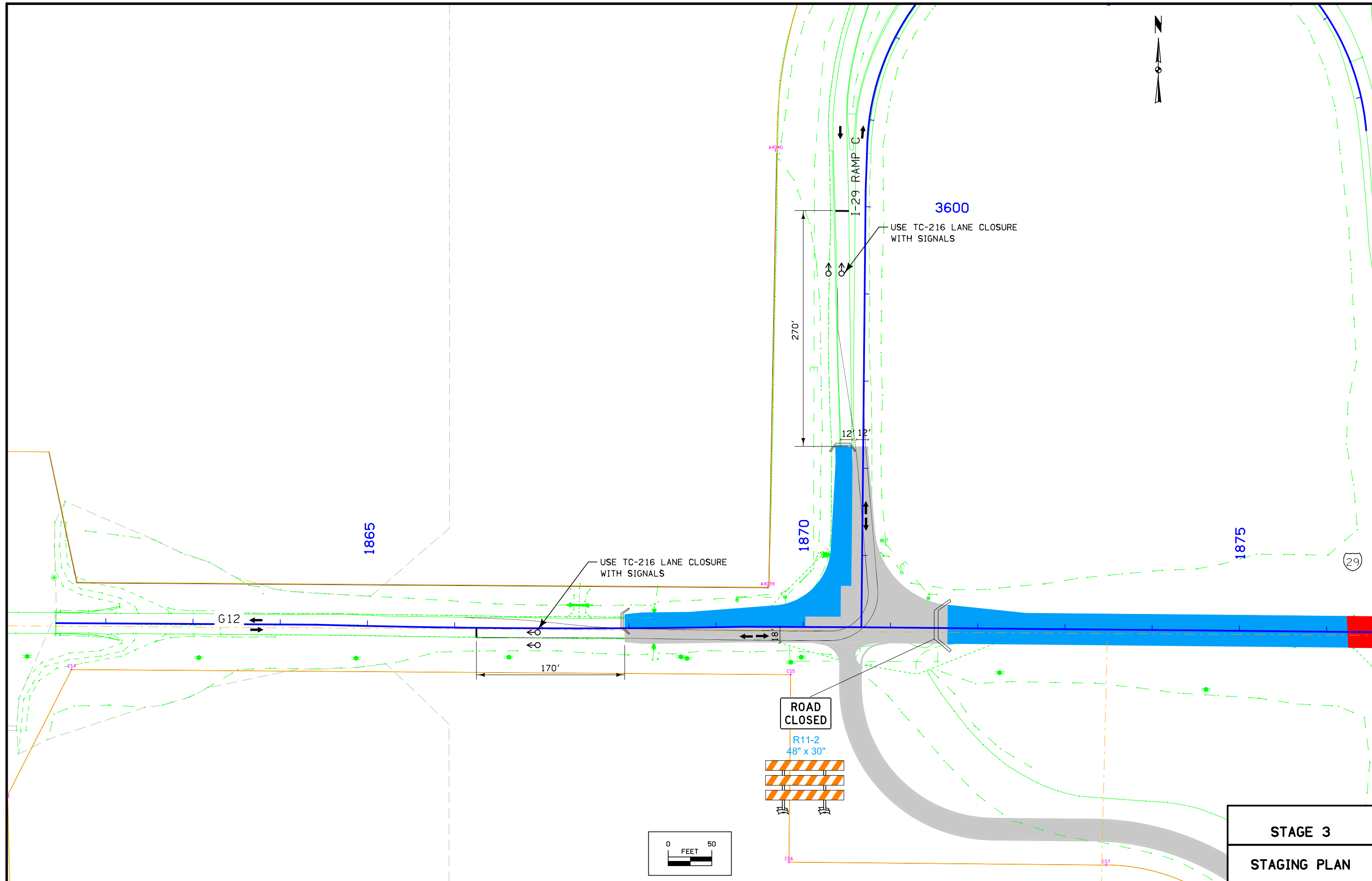
STAGE 1
STAGING PLAN



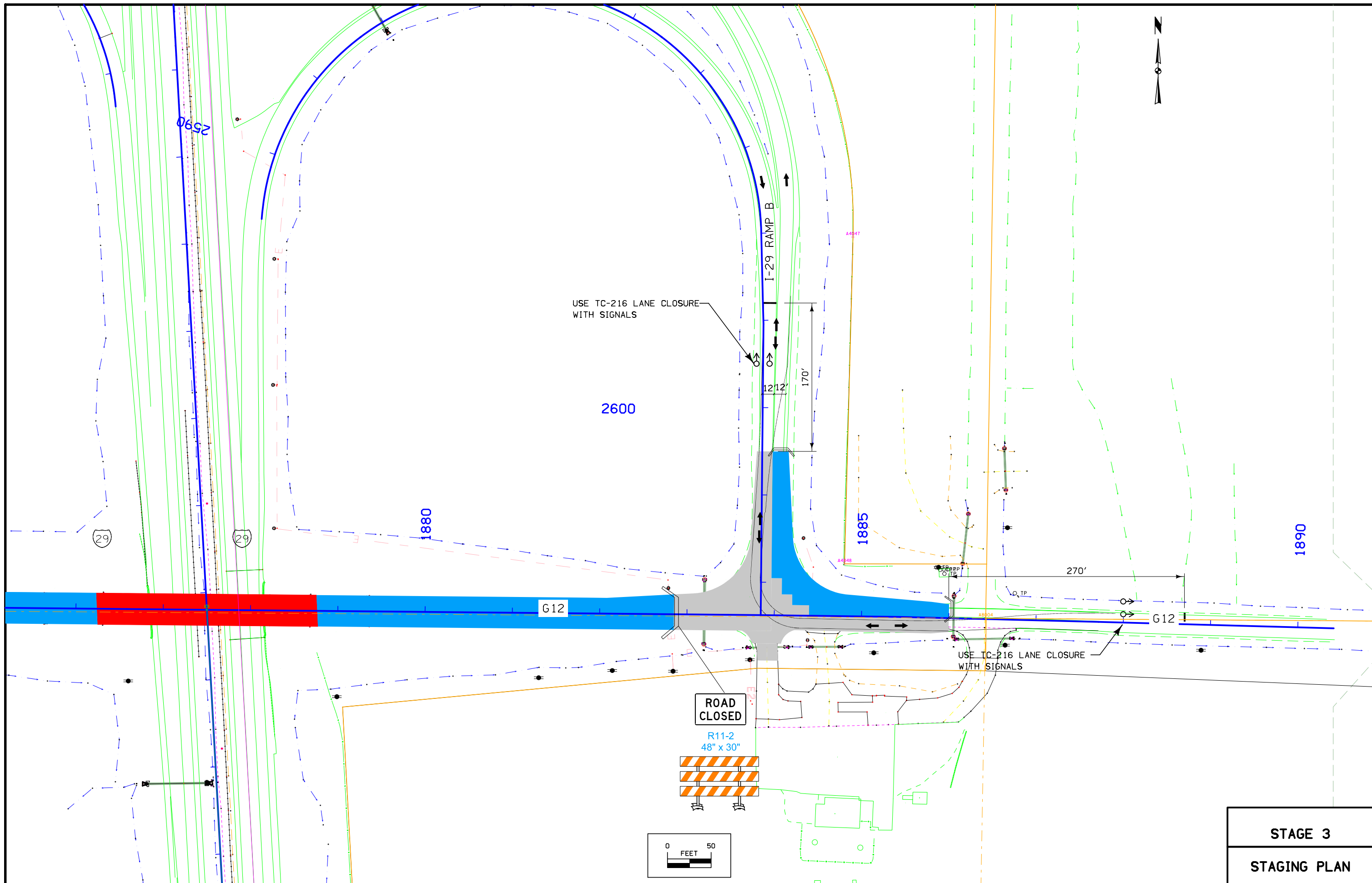
STAGE 2
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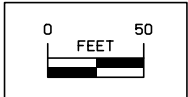
STAGE 2
STAGING PLAN

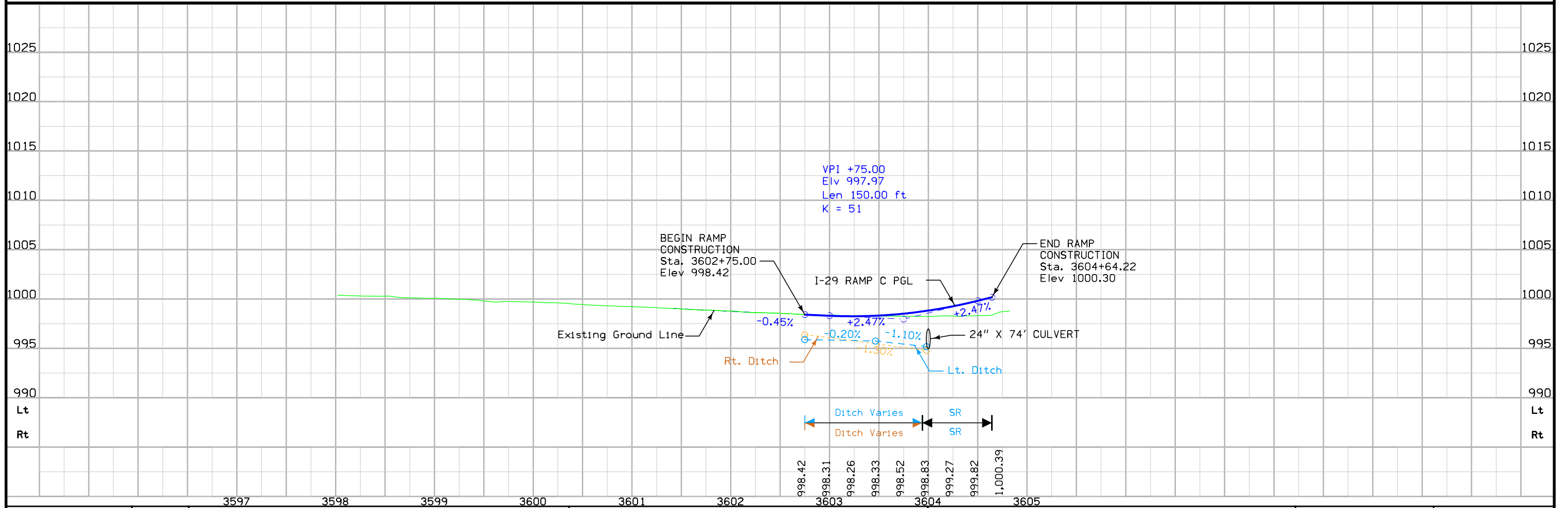
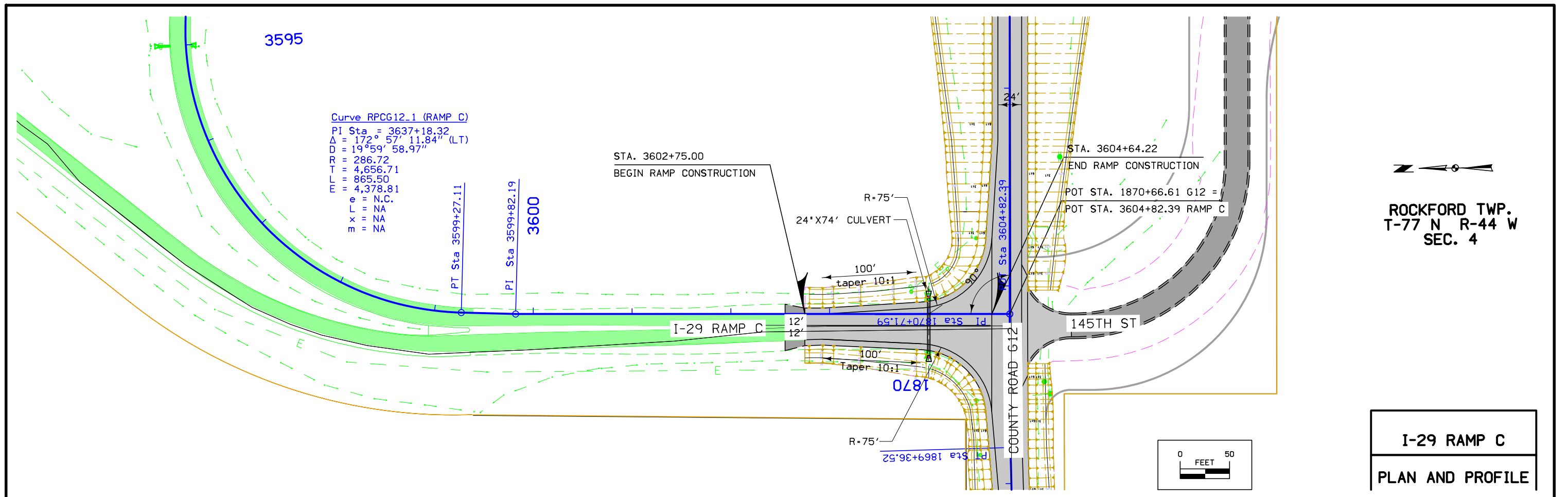


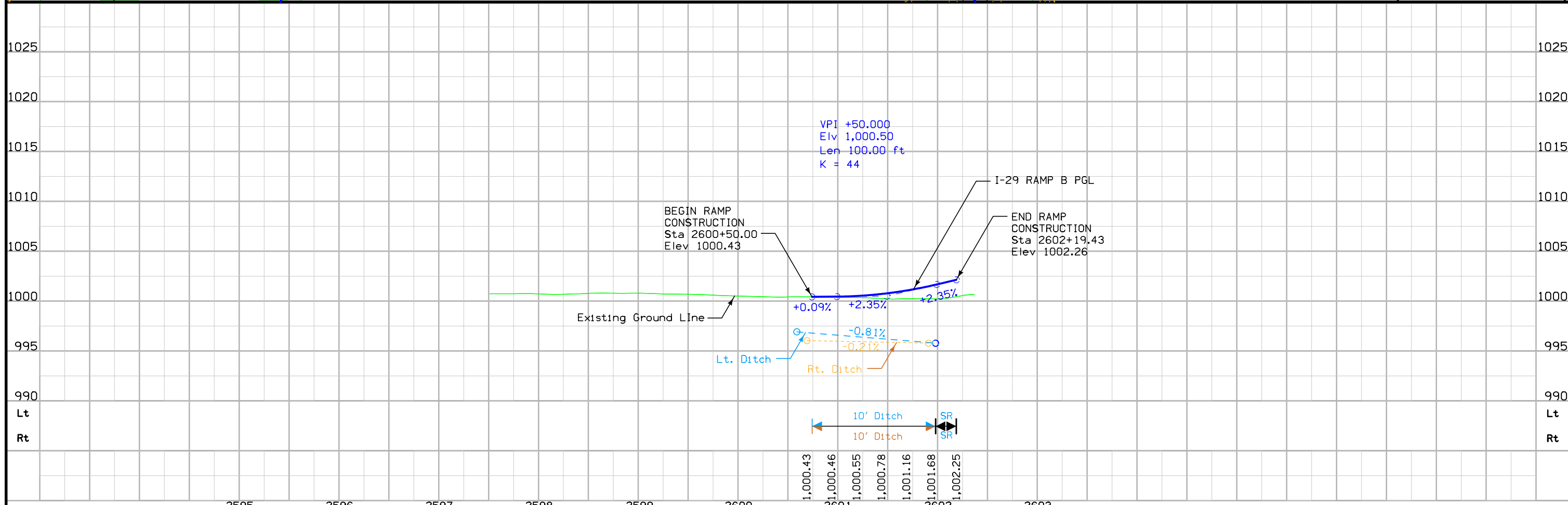
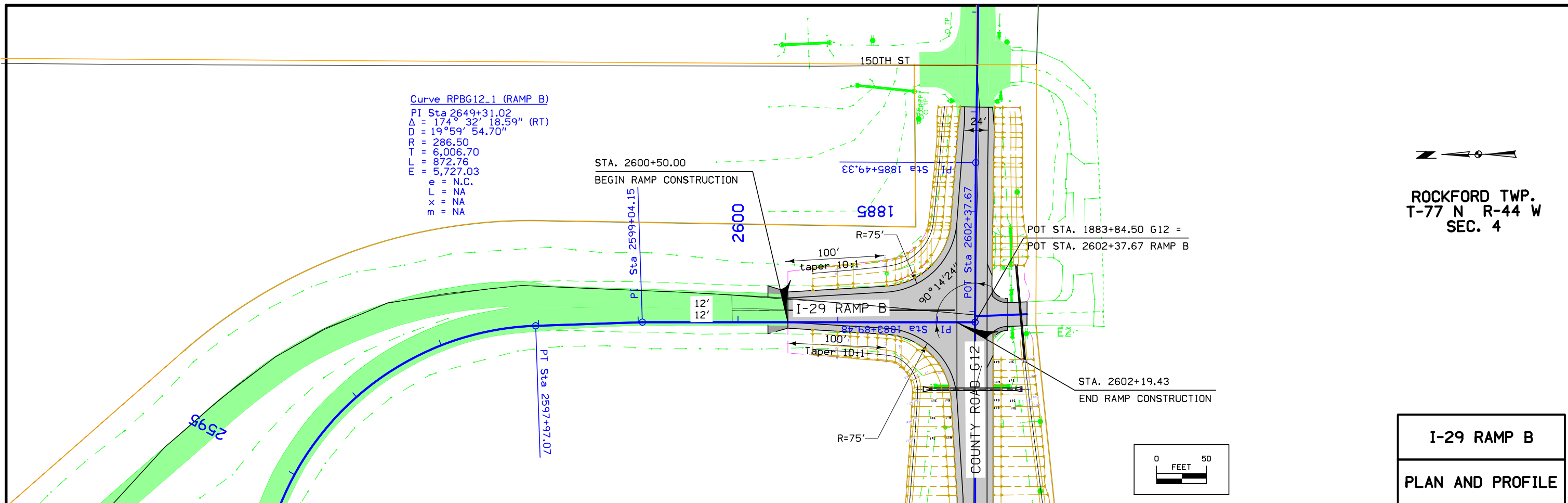
STAGE 3
STAGING PLAN

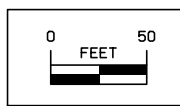
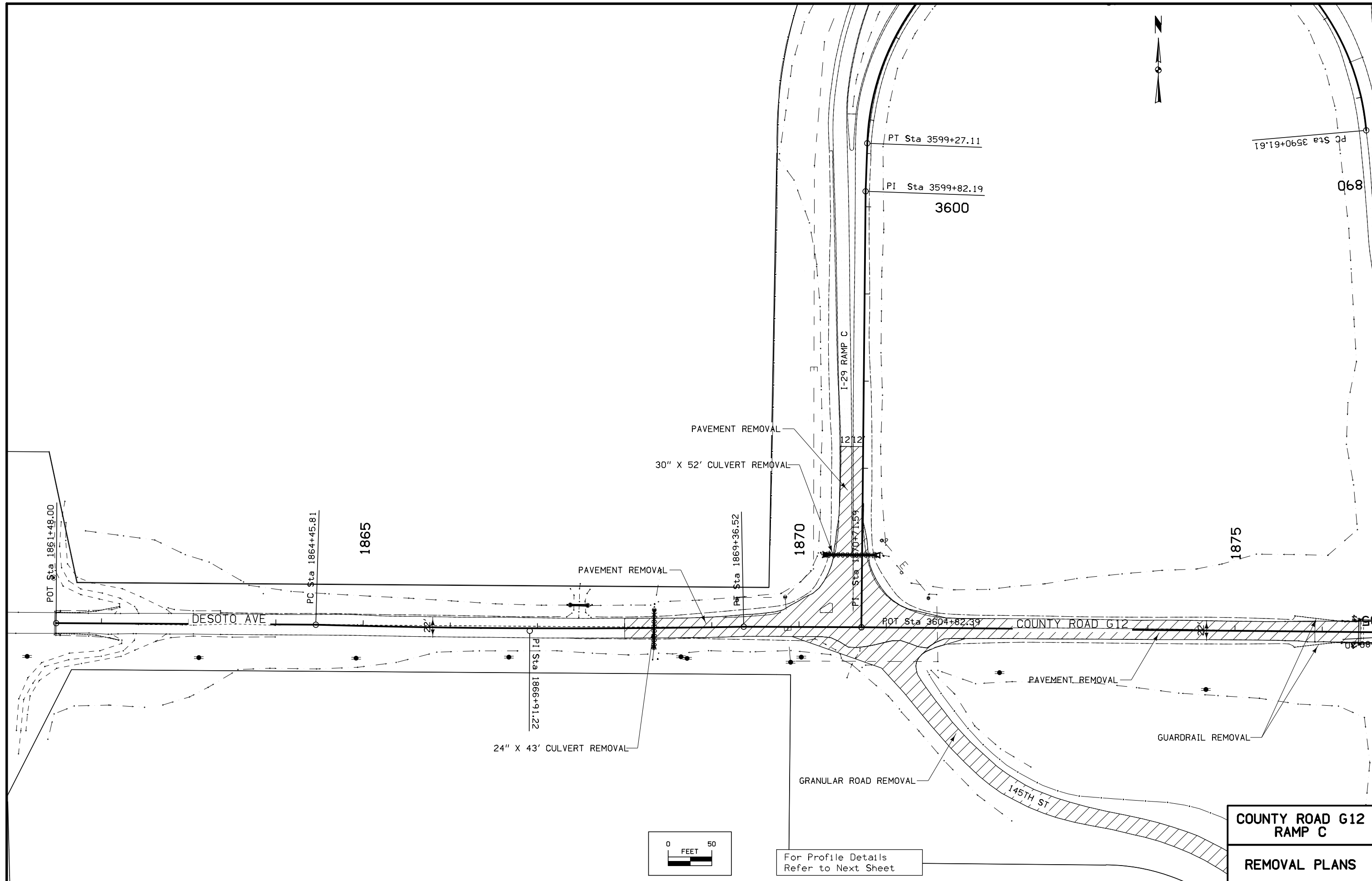


STAGE 3
STAGING PLAN



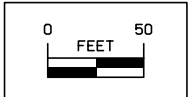
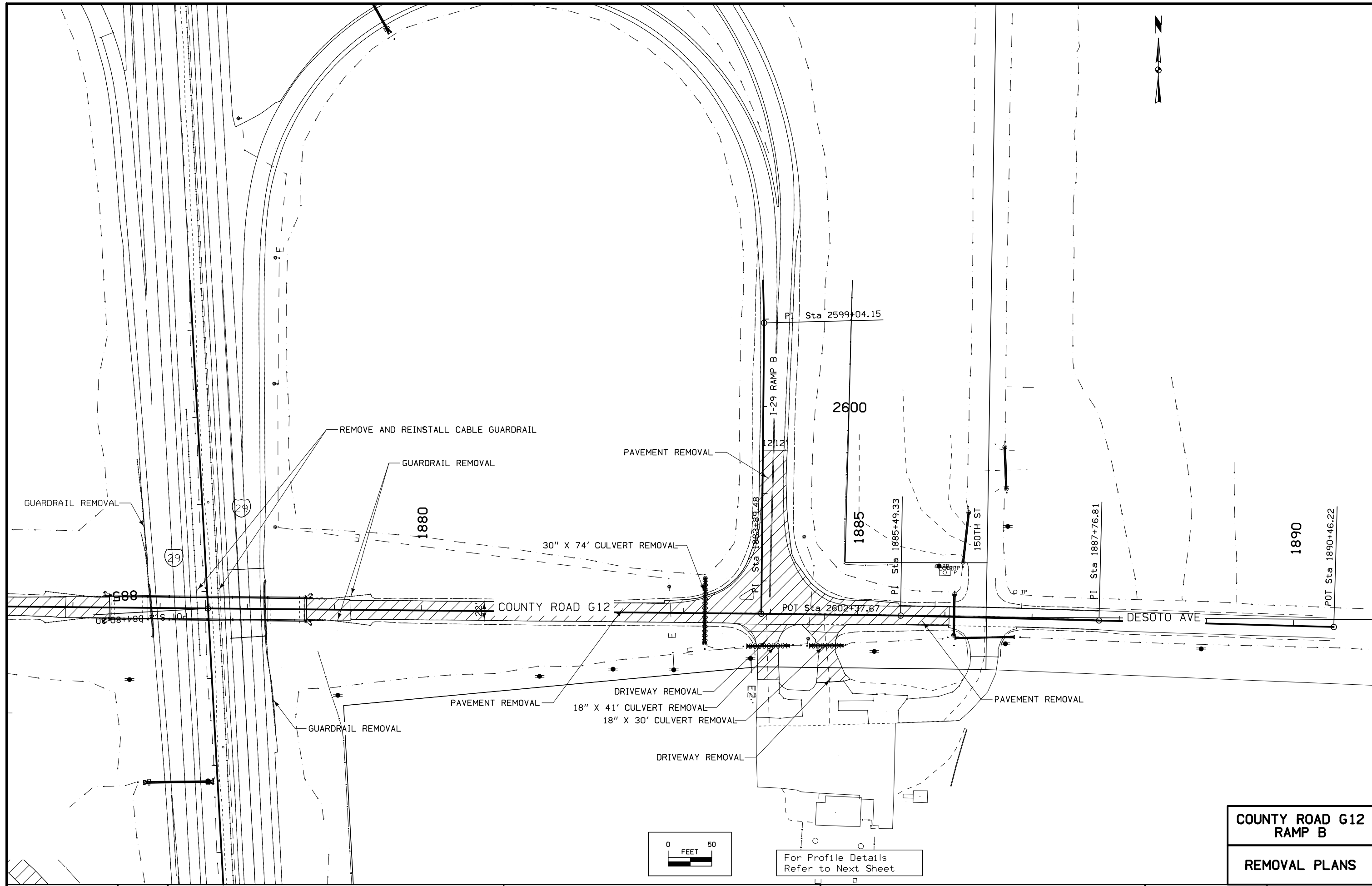






For Profile Details
Refer to Next Sheet

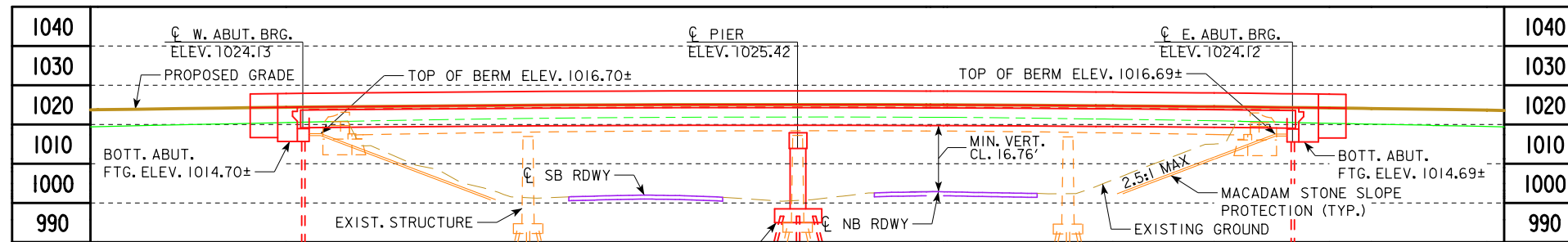
**COUNTY ROAD G12
RAMP C**
REMOVAL PLANS



For Profile Details
Refer to Next Sheet

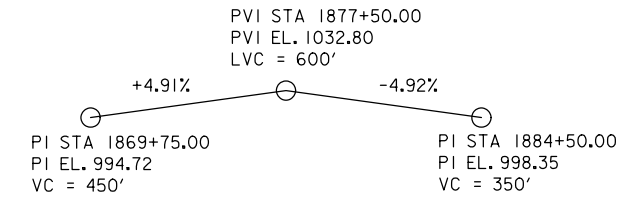
**COUNTY ROAD G12
RAMP B**

REMOVAL PLANS



LONGITUDINAL SECTION ALONG ϕ COUNTY ROAD G12

BENCH MARK NO. 78029004: NORTHING - 7055297.605, EASTING - 16452312.12, ELEV. 1005.57. FENO TYPE MONUMENT ON CO. RD. G12, 38' NORTH OF NE CORNER OF BRIDGE OVER BOYER RIVER, 0.1 MI. WEST OF I-29.



PROPOSED PROFILE ON ϕ COUNTY ROAD G12

MIN. VERT. CLEARANCE (PT. A)

COUNTY ROAD G12 STATION = 1877+86.17
 COUNTY ROAD G12 ELEVATION = 1024.99
 DEPTH OF SUPERSTRUCTURE = 5.33'
 I-29 STATION = 884+94.03
 I-29 ELEVATION = 1002.90
 REQUIRED MIN. VERT. CLEARANCE = 16.50'
 PROVIDED MIN. VERT. CLEARANCE = 16.76'

NOTES:

TOP OF BRIDGE DECK CROWN IS 0.03' BELOW PROFILE GRADE.
 PIER TYPE SHALL BE A FRAME, WALL OR TEE PIER.
 PIER SHALL BE DESIGNED FOR COLLISION FORCE.
 BEAM TYPE SHALL BE BULB TEE D BEAM (BTD).
 2-SPAN GRADING SHOWN (EW-204).
 TL-4 BRIDGE RAILING PROPOSED.
 ABUTMENT SLOPES TO BE CONFIRMED DURING FINAL DESIGN.
 SPOT ELEVATIONS FROM SURVEY SHOWN AT LANE LINES OF EXISTING I-29 USED FOR VERTICAL CLEARANCE.
 THE 3.71 DEGREE SKEW IS PREFERRED IN LIEU OF A WHOLE DEGREE IN ORDER TO BETTER MATCH WITH THE I-29 ALIGNMENT.

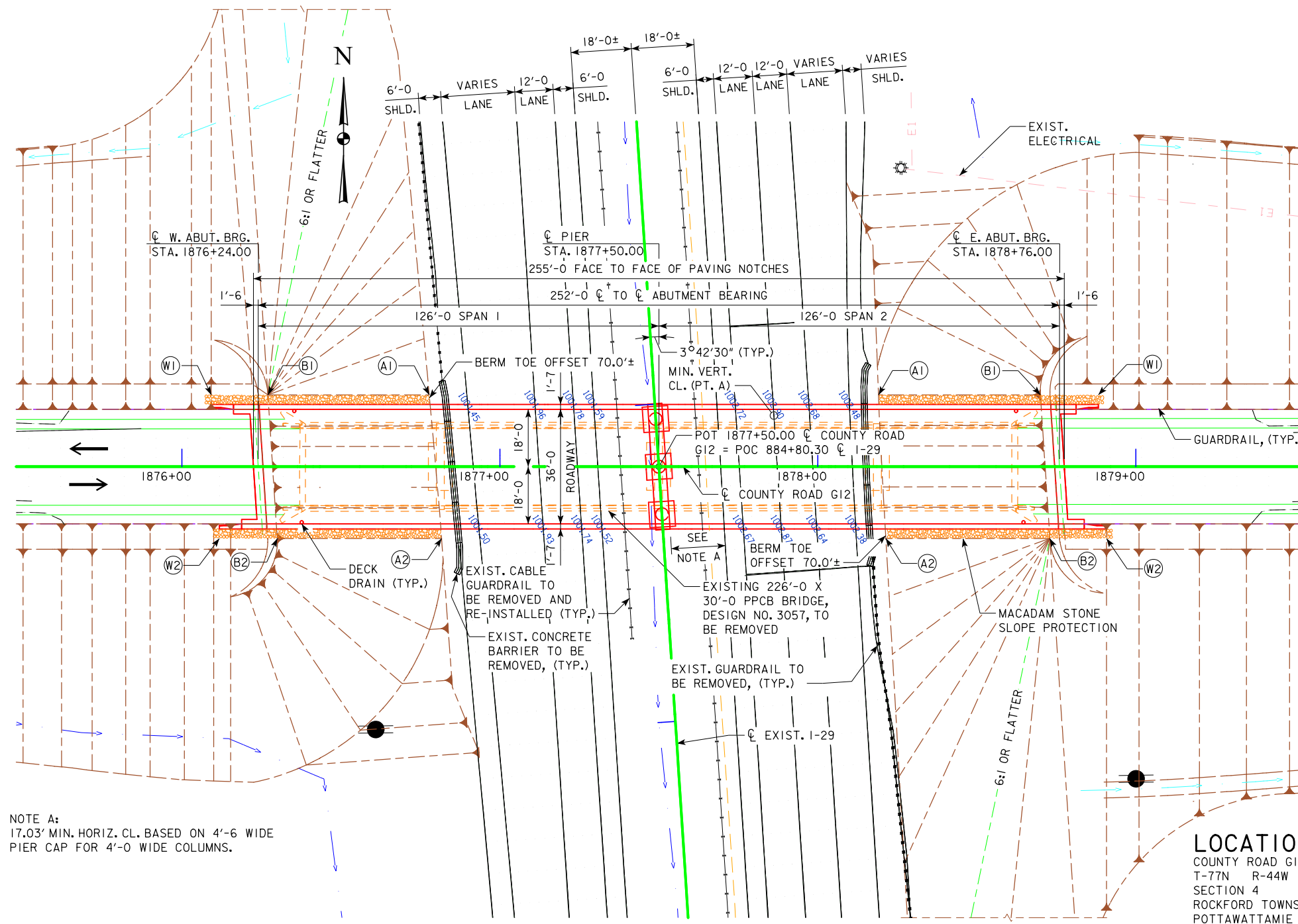
UTILITIES LEGEND:

- UTILITY POLE OVERHEAD ELECTRIC
- LIGHT POLE
- BURIED ELECTRIC
- FLOW OF DRAINAGE

TRAFFIC ESTIMATE

CO. RD. G12		I-29	
2022 AADT	800 V.P.D.	2014 AADT	21,000 V.P.D.
2042 AADT	800 V.P.D.	2042 AADT	- V.P.D.
2042 DHV	90 V.P.H.	2042 DHV	- V.P.H.
TRUCKS	8 %	TRUCKS	24 %
TOTAL DESIGN ESALS	-	TOTAL DESIGN ESALS	-

PRELIMINARY



NOTE A:
 17.03' MIN. HORIZ. CL. BASED ON 4'-6" WIDE PIER CAP FOR 4'-0" WIDE COLUMNS.



SITUATION PLAN

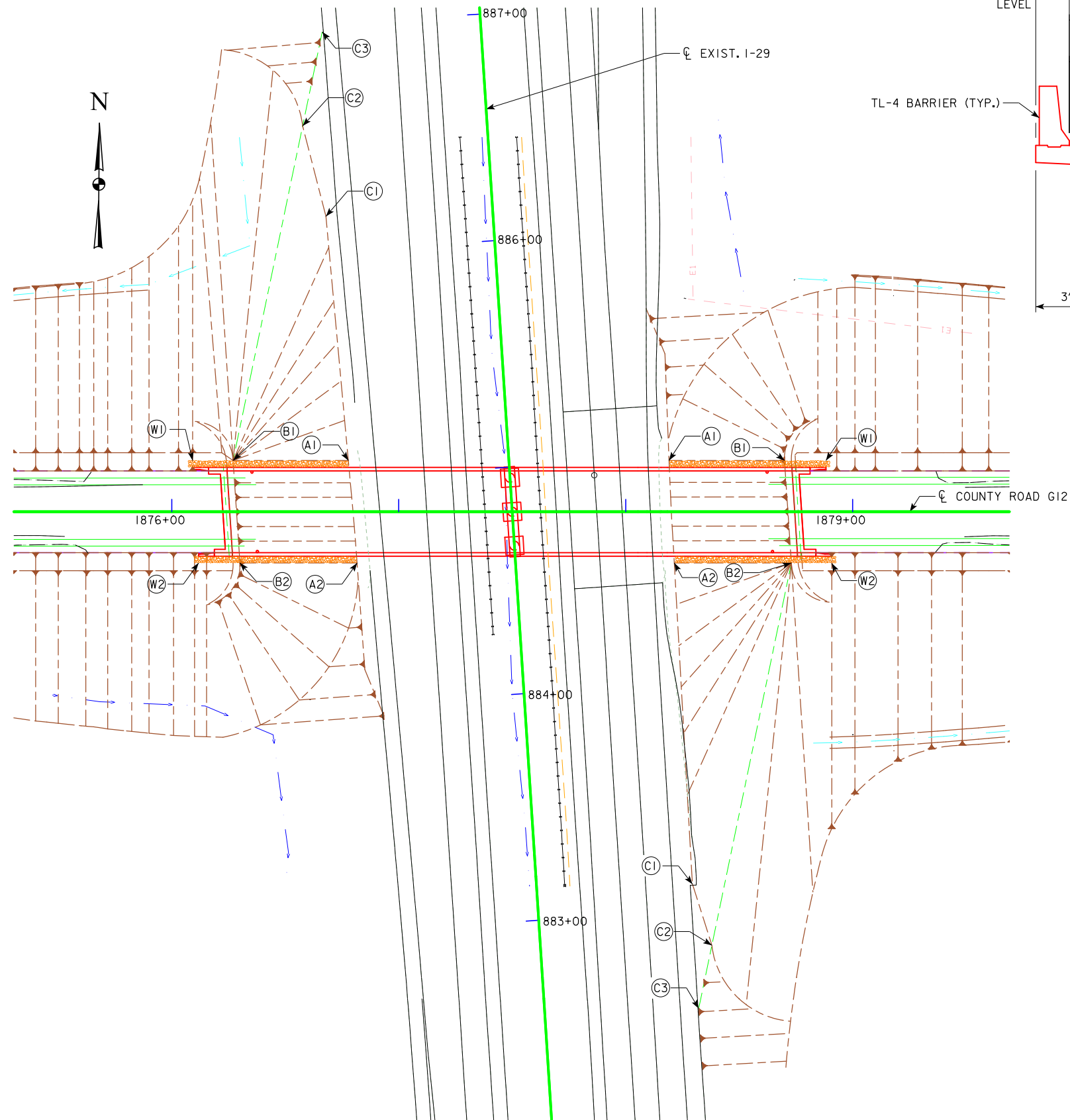
LOCATION

COUNTY ROAD G12 OVER I-29
 T-77N R-44W
 SECTION 4
 ROCKFORD TOWNSHIP
 POTTAWATTAMIE COUNTY
 FHWA NO. 045061
 BRIDGE MAINT. NO. 7871.90029
 LATITUDE 41.499308°
 LONGITUDE -95.900158°

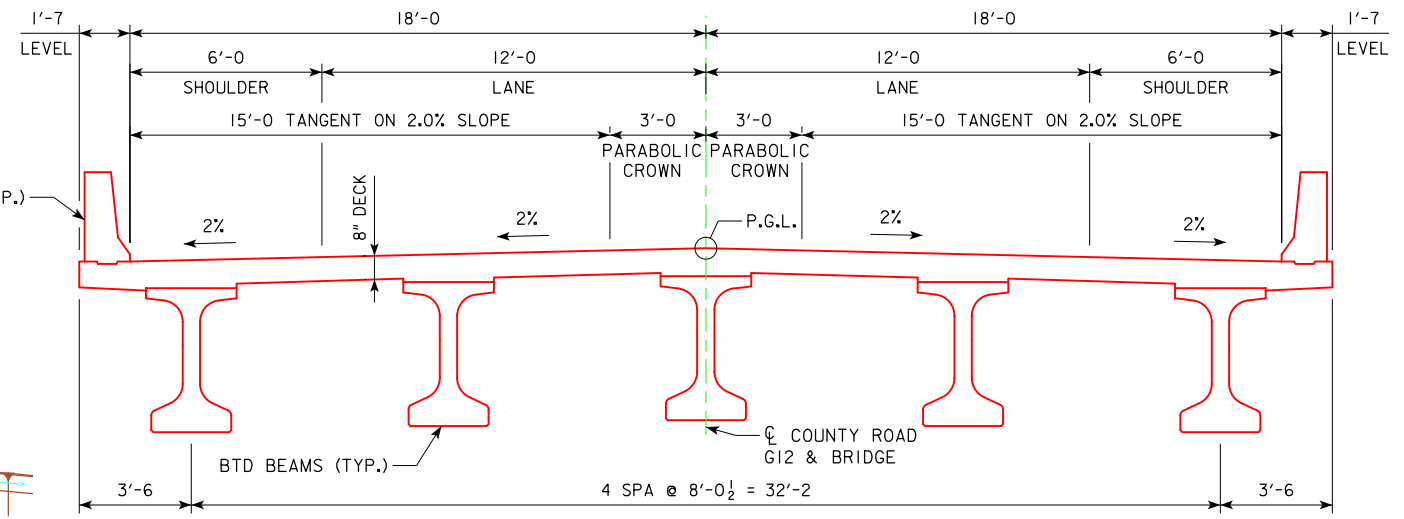
DESIGN FOR 3°42'30" SKEW (RA)
**252'-0" x 36'-0" PRETENSIONED
 PRESTRESSED CONCRETE BEAM BRIDGE**
 126'-0" END SPANS (BTD BEAM TYPE)

SITUATION PLAN
 STATION 1877+50.00 ϕ COUNTY ROAD G12
POTTAWATTAMIE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 2 FILE NO. 31459 DESIGN NO. 122

benesch
 Alfred Benesch & Company
 35 West Wacker Drive, Suite 3300
 Chicago, Illinois 60601
 312-565-0450 Job No. 10527.07



SITE PLAN



TYPICAL SECTION

BERM SLOPE LOCATION TABLE						
	WEST ABUTMENT			EAST ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	1876+77.77	22.58' LT.	1001.31	1878+19.09	22.58' LT.	1002.39
A2	1876+81.65	22.58' RT.	1001.25	1878+21.38	22.58' RT.	1002.28
B1	1876+27.03	22.58' LT.	1016.70	1878+70.01	22.58' LT.	1016.69
B2	1876+29.99	22.58' RT.	1016.70	1878+72.97	22.58' RT.	1016.69
W1	1876+09.21	22.58' LT.	1023.29	1878+88.21	22.58' LT.	1023.34
W2	1876+11.79	22.58' RT.	1023.35	1878+90.79	22.58' RT.	1023.28

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

RECOVERABLE BERM LOCATION TABLE						
POINTS	WEST ABUTMENT			EAST ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
C1	1876+67.88	130.13' LT.	1001.24	1878+29.57	164.51' RT.	1002.40
C2	1876+57.68	169.97' LT.	1000.66	1878+37.96	190.95' RT.	1002.07
C3	1876+66.29	211.37' LT.	1001.04	1878+32.16	218.81' RT.	1002.16
B	1876+27.03	22.58' LT.	1016.70	1878+72.97	22.58' RT.	1016.69

REFER TO EW-204 FOR TYPICAL LOCATIONS.

PRELIMINARY

DESIGN FOR 3°42'30" SKEW (RA)

**252'-0" x 36'-0" PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGE**

126'-0" END SPANS (BTD BEAM TYPE)

SITUATION PLAN - SITE

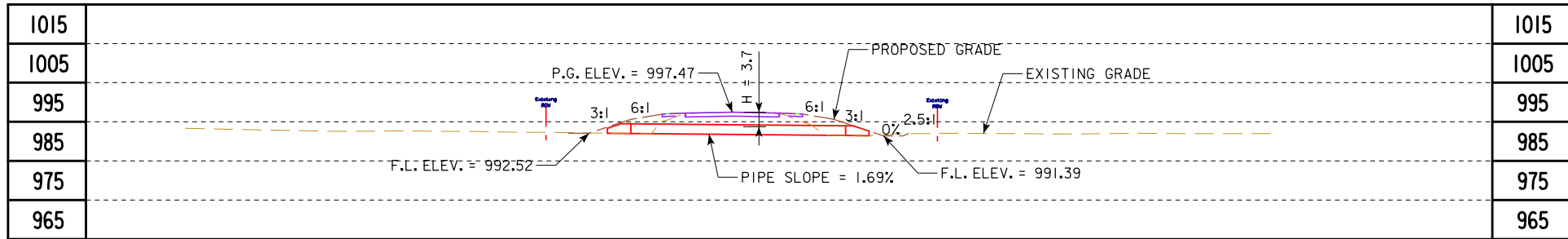
STATION 1877+50.00 @ COUNTY ROAD G12 JUNE 2018

POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 2 FILE NO. 31459 DESIGN NO. 122

benesch
Alfred Benesch & Company
35 West Wacker Drive, Suite 3300
Chicago, Illinois 60601
312-565-0450 Job No. 10527.07



LONGITUDINAL SECTION ALONG ϕ CULVERT

BENCH MARK NO. 78029004: NORTHING - 7055297.605, EASTING - 16452312.12, ELEV. 1005.57. FENO TYPE MONUMENT ON CO. RD. G12, 38' NORTH OF NE CORNER OF BRIDGE OVER BOYER RIVER, 0.1 MI. WEST OF I-29.

NOTES:

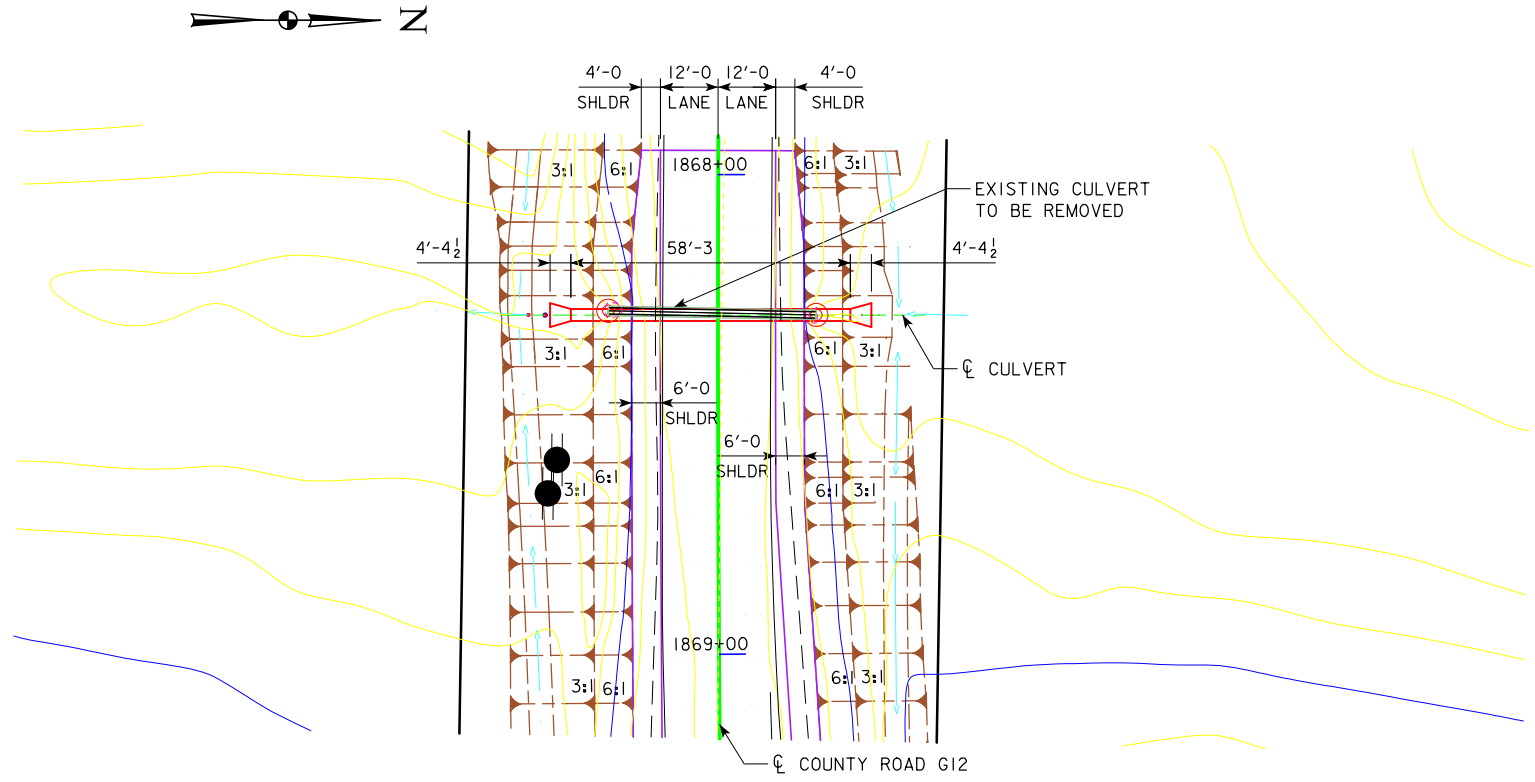
PIPE DIMENSIONS SHOWN IN PLAN VIEW ARE BASED ON LAYING LENGTH.

HYDRAULIC DATA

DRAINAGE AREA = 55.2 ACRES
 DESIGN DISCHARGE, Q50 = 43 CFS
 DESIGN HIGH WATER = 997.15

LOCATION

COUNTY ROAD G12 OVER I-29
 T-77N R-44W
 SECTION 4
 ROCKFORD TOWNSHIP
 POTTAWATTAMIE COUNTY



PLAT PLAN



PRELIMINARY

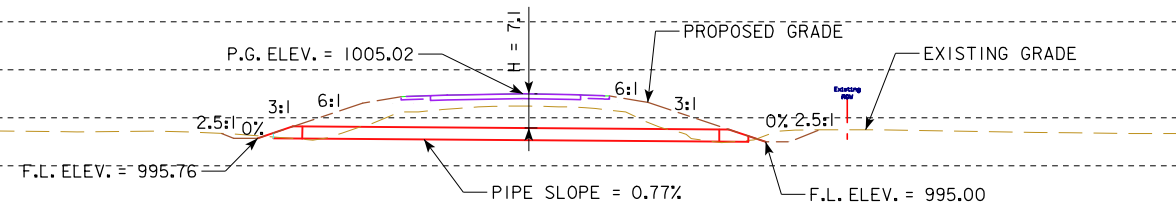
DESIGN FOR 0° SKEW
30" X 58'
CORRUGATED METAL PIPE

PLAT PLAN

STATION: 1868+29.00 JUNE 2018
POTTAWATTAMIE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 1 FILE NO. 31459 DESIGN NO.

benesch
 Alfred Benesch & Company
 35 West Wacker Drive, Suite 3300
 Chicago, Illinois 60601
 312-565-0450 Job No. 10527.07

1020		1020
1010		1010
1000		1000
990		990
980		980
970		970



LONGITUDINAL SECTION ALONG ϕ CULVERT

BENCH MARK NO. 78029004: NORTHING - 7055297.605, EASTING - 16452312.12, ELEV. 1005.57. FENO TYPE MONUMENT ON CO. RD. G12, 38' NORTH OF NE CORNER OF BRIDGE OVER BOYER RIVER, 0.1 MI. WEST OF I-29.

NOTES:

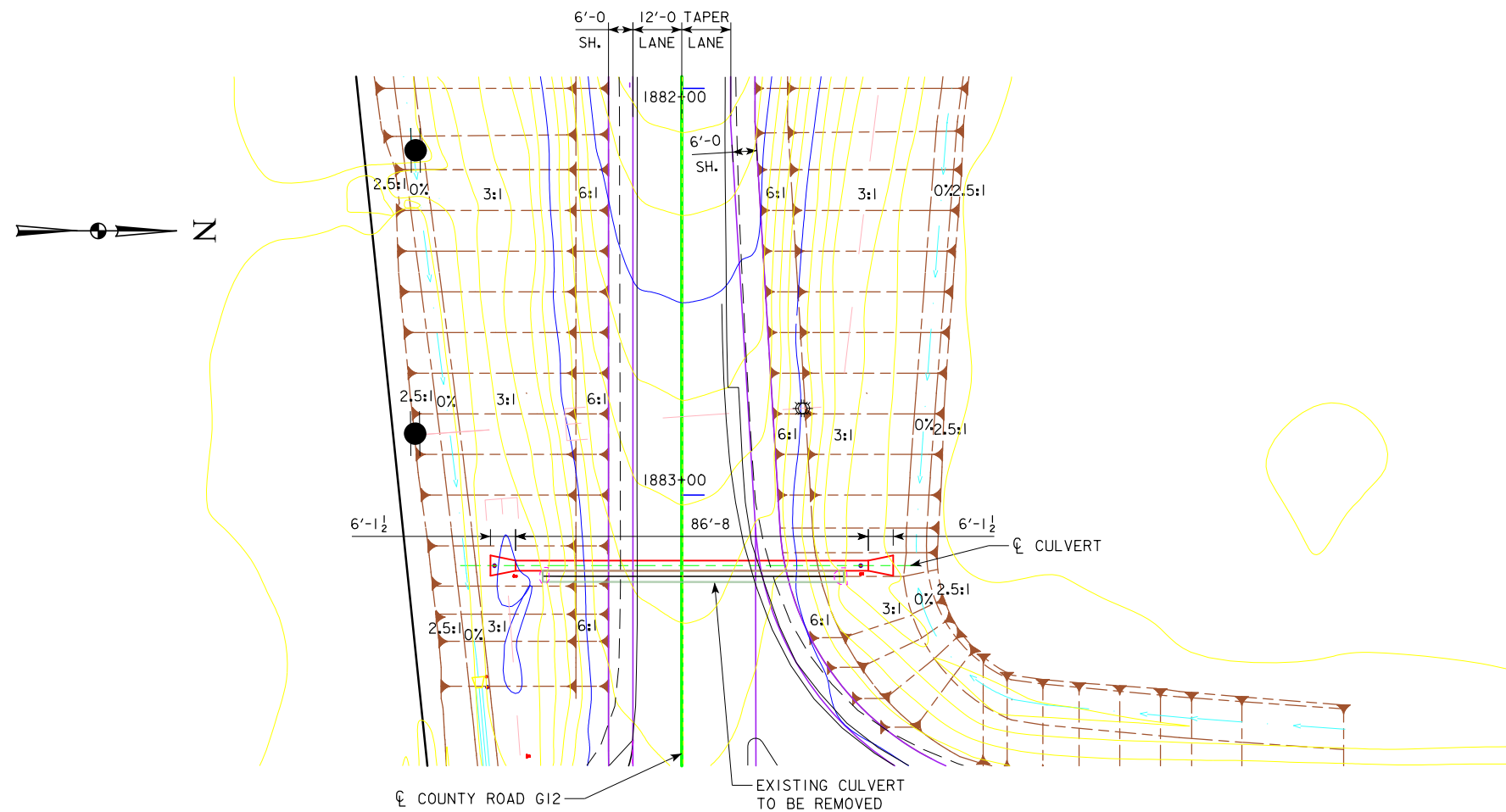
PIPE DIMENSIONS SHOWN IN PLAN VIEW ARE BASED ON LAYING LENGTH.

HYDRAULIC DATA

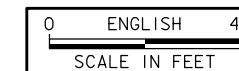
DRAINAGE AREA = 18.4 ACRES
 DESIGN DISCHARGE, Q50 = 27 CFS
 DESIGN HIGH WATER = 999.59

LOCATION

COUNTY ROAD G12 OVER I-29
 T-77N R-44W
 SECTION 4
 ROCKFORD TOWNSHIP
 POTTAWATTAMIE COUNTY



PLAT PLAN



PRELIMINARY

DESIGN FOR 0° SKEW
30" X 87'
 REINFORCED CONCRETE PIPE

PLAT PLAN

STATION: 1883+17.00 JUNE 2018
POTTAWATTAMIE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 1 FILE NO. 31459 DESIGN NO. _____

benesch
 Alfred Benesch & Company
 35 West Wacker Drive, Suite 3300
 Chicago, Illinois 60601
 312-565-0450 Job No. 10527.07

DESIGN TEAM BENESCH

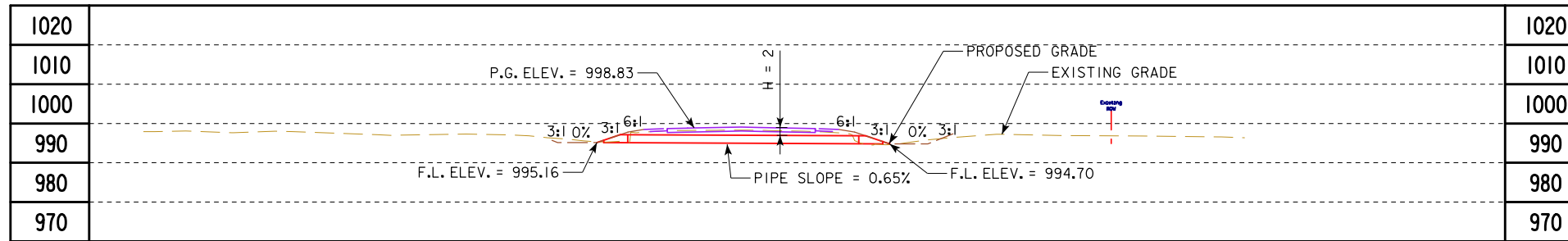
POTTAWATTAMIE COUNTY

PROJECT NUMBER

BRFIMX-029-4(113)72--14-78

SHEET NUMBER **V.4**

BENCH MARK NO. 78029004: NORTHING - 7055297.605, EASTING - 16452312.12,
 ELEV. 1005.57. FENO TYPE MONUMENT ON CO. RD. G12, 38' NORTH OF NE
 CORNER OF BRIDGE OVER BOYER RIVER, 0.1 MI. WEST OF I-29.



LONGITUDINAL SECTION ALONG CL CULVERT

NOTES:

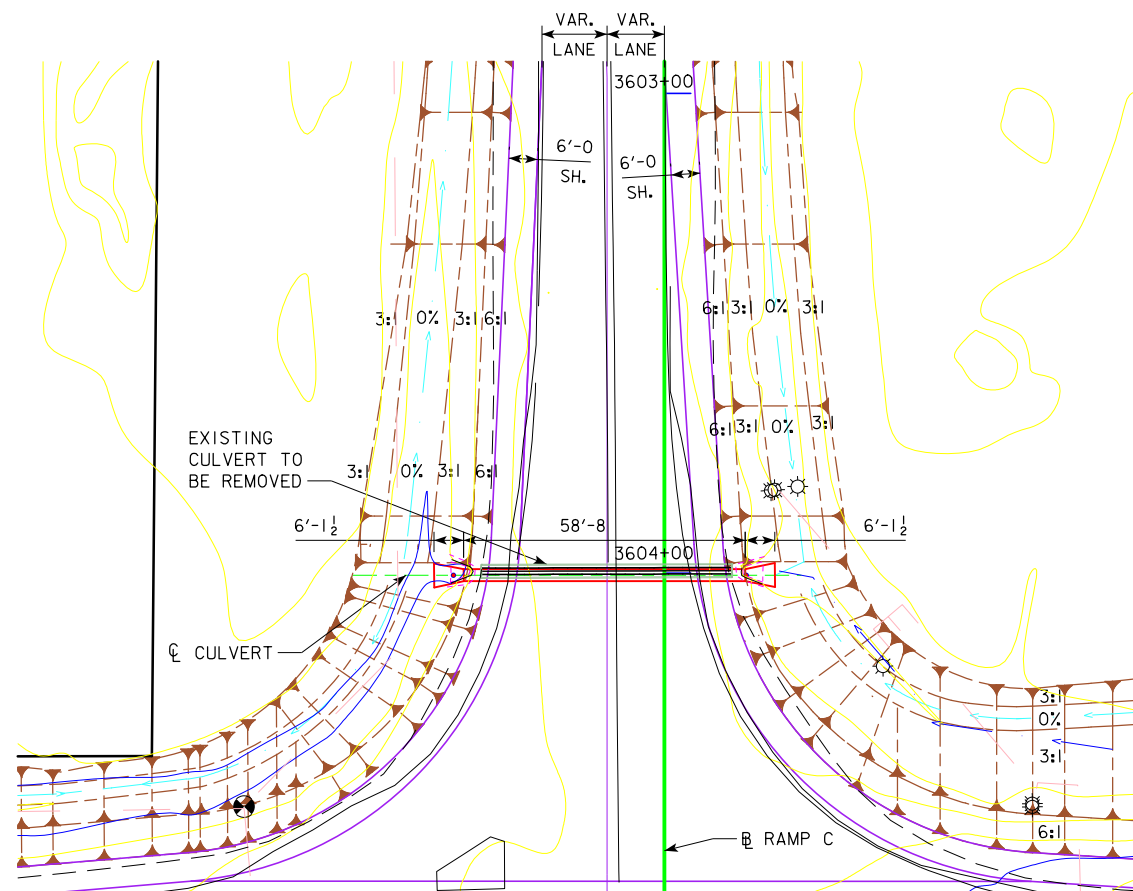
PIPE DIMENSIONS SHOWN IN PLAN VIEW ARE BASED ON LAYING LENGTH.

HYDRAULIC DATA

DRAINAGE AREA = 16.9 ACRES
 DESIGN DISCHARGE, Q50 = 19 CFS
 DESIGN HIGH WATER = 998.60

LOCATION

COUNTY ROAD G12 OVER I-29
 T-77N R-44W
 SECTION 4
 ROCKFORD TOWNSHIP
 POTTAWATTAMIE COUNTY



PLAT PLAN



PRELIMINARY

DESIGN FOR 0° SKEW
24" X 62'
 REINFORCED CONCRETE PIPE

PLAT PLAN

STATION: 3604+00.00 JUNE 2018
POTTAWATTAMIE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 1 FILE NO. 31459 DESIGN NO. _____

benesch
 Alfred Benesch & Company
 35 West Wacker Drive, Suite 3300
 Chicago, Illinois 60601
 312-565-0450 Job No. 10527.07

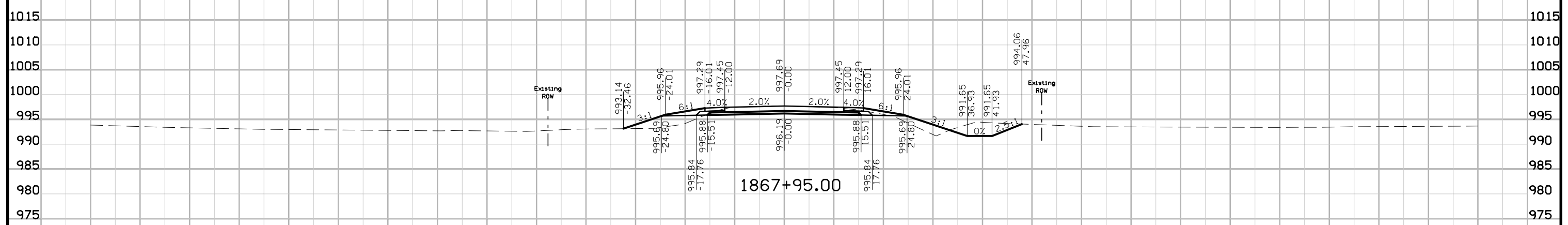
DESIGN TEAM BENESCH

POTTAWATTAMIE COUNTY

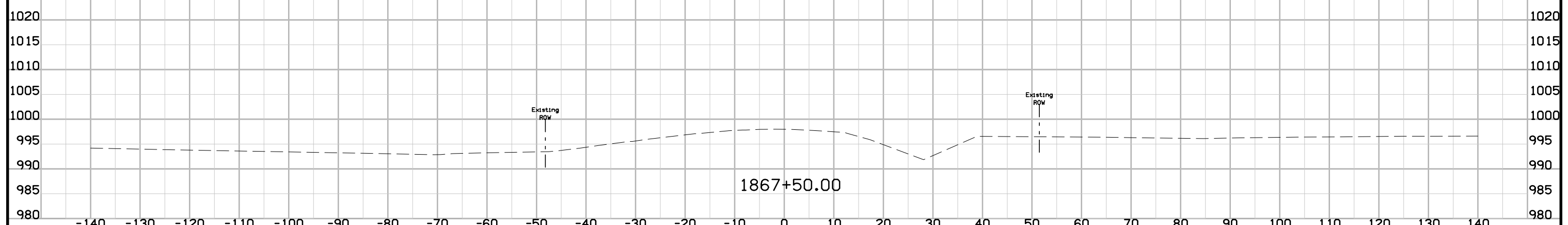
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BRF1MX-029-4(113)72--14-78

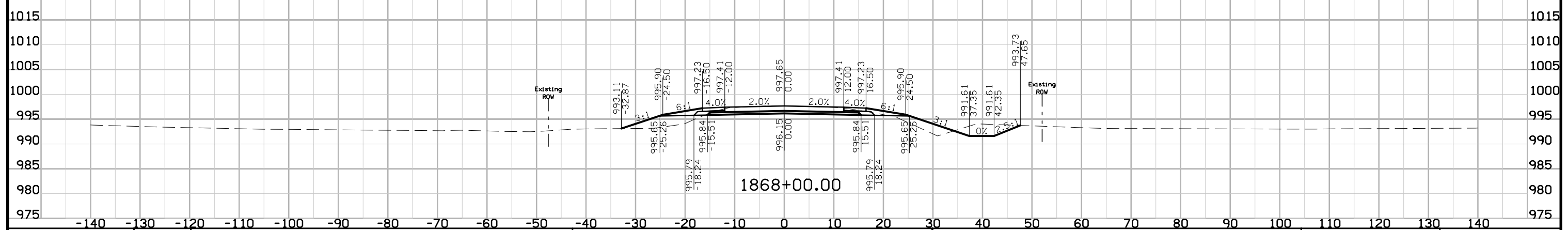
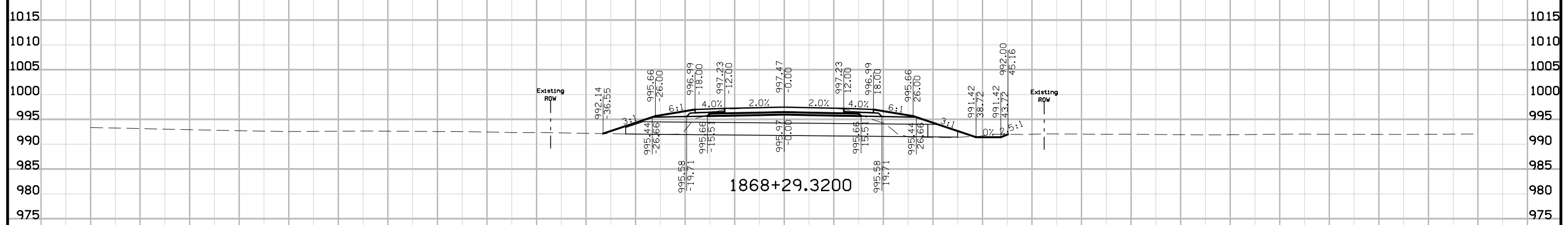
SHEET NUMBER **V.5**



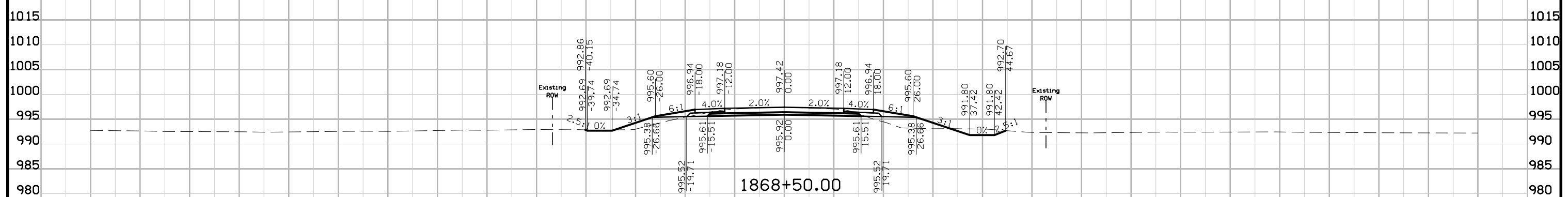
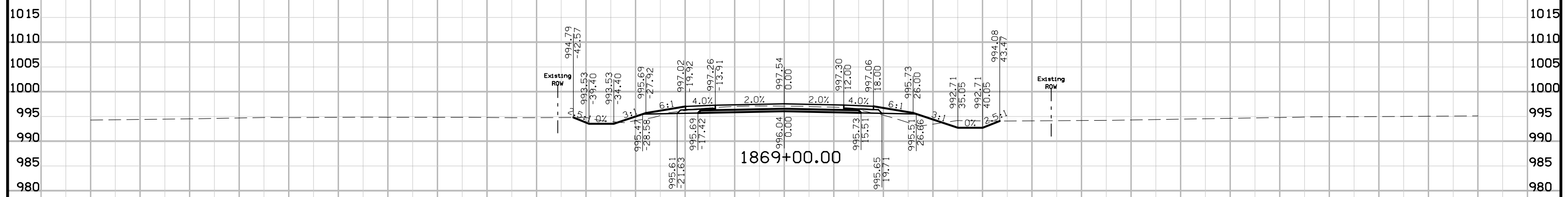
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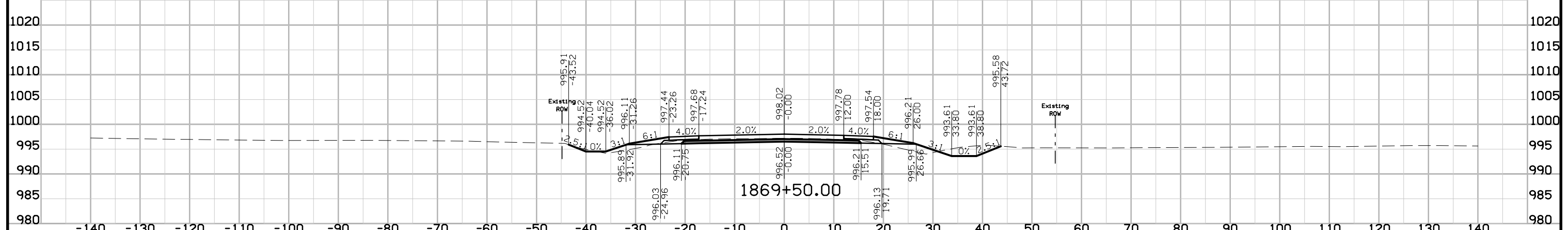
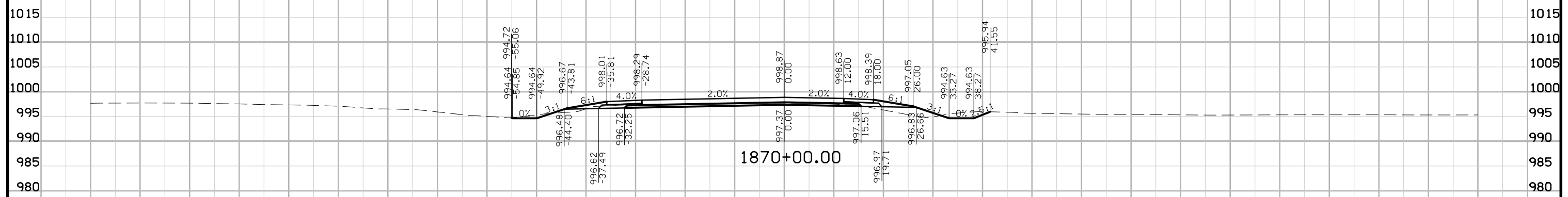


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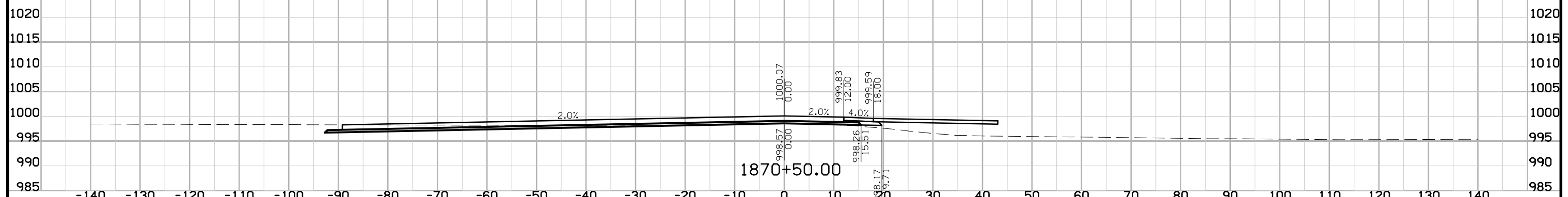
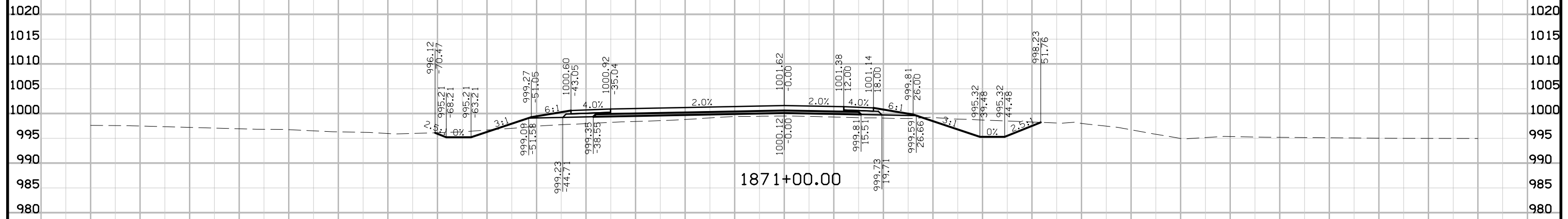


COUNTY ROAD G12

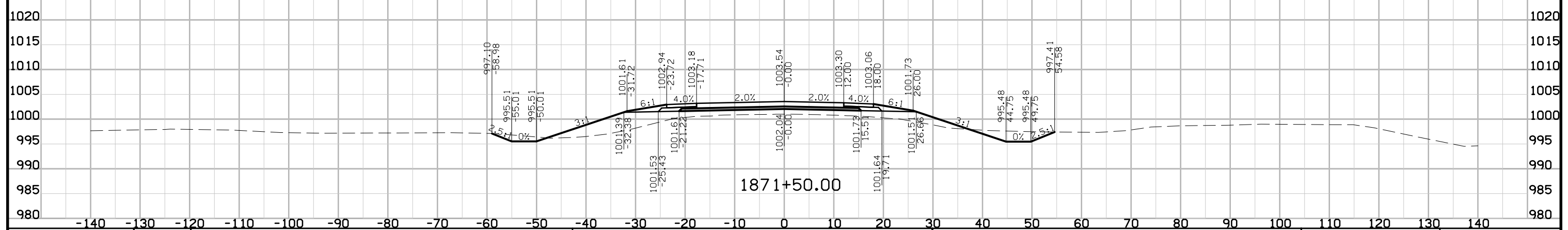
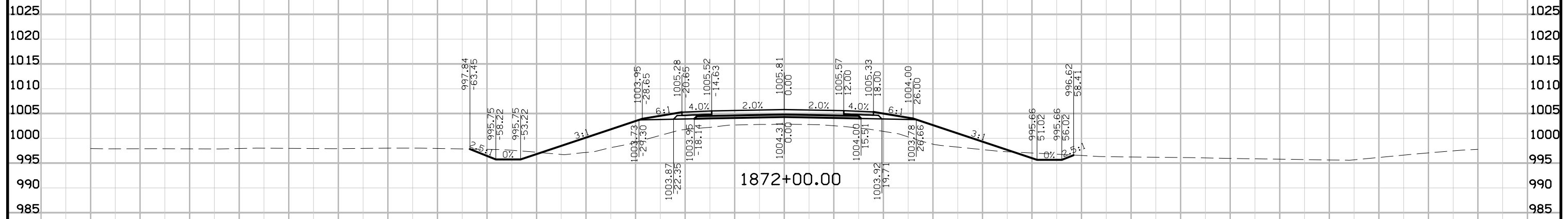


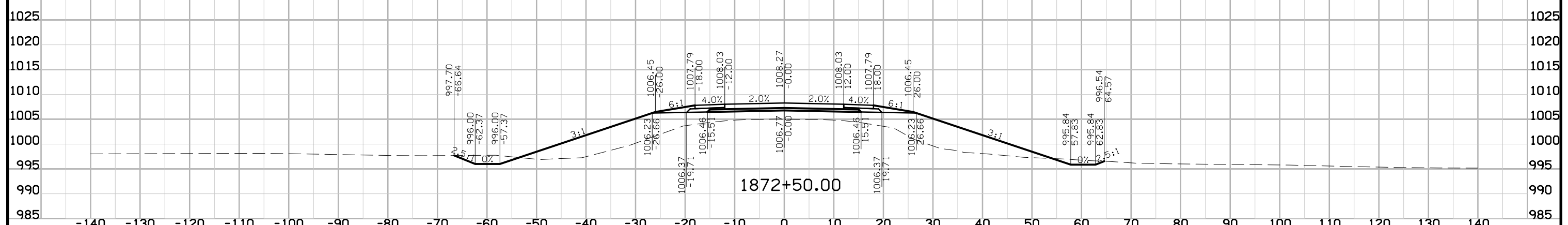
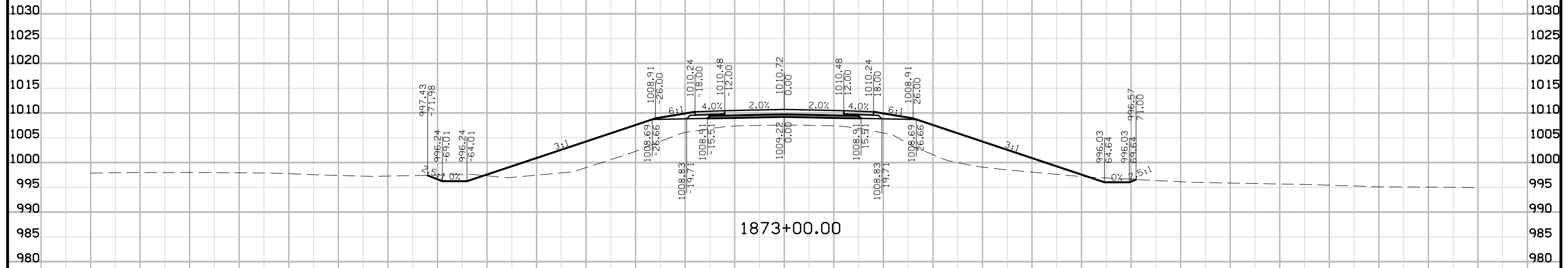


COUNTY ROAD G12

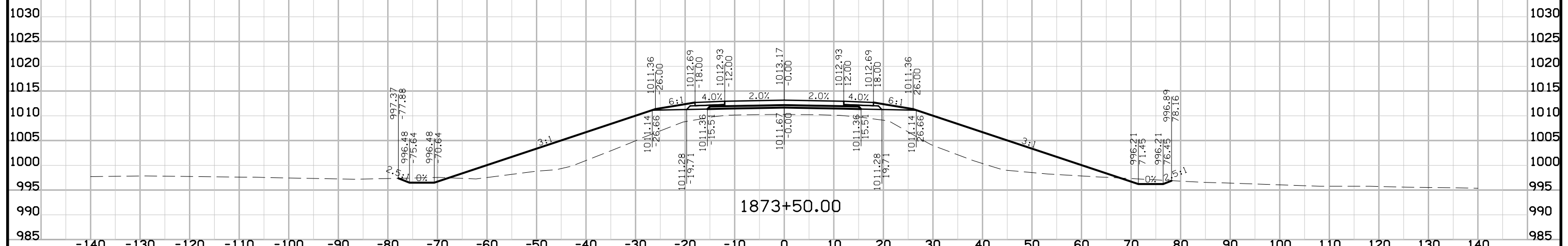
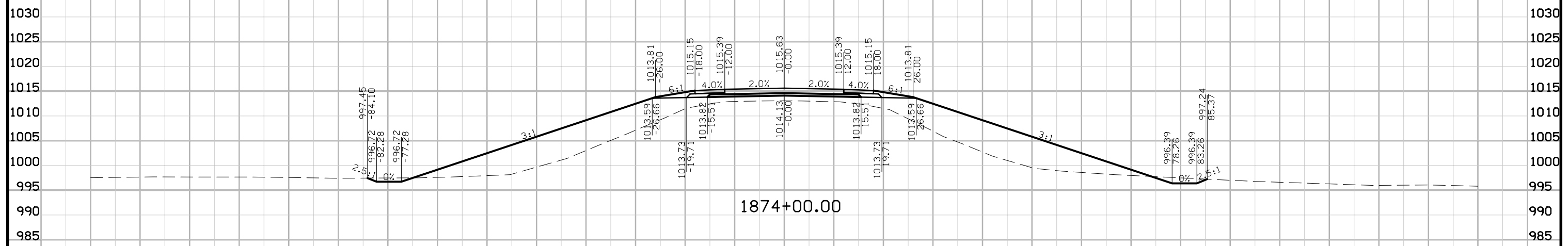


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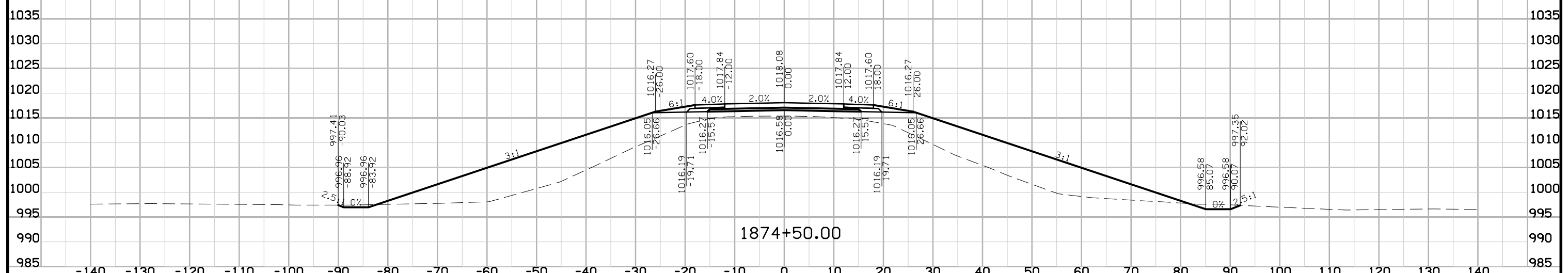
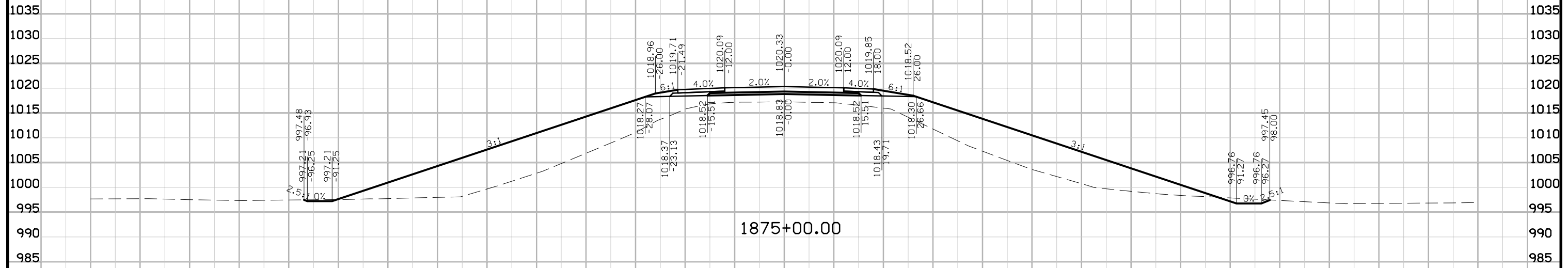




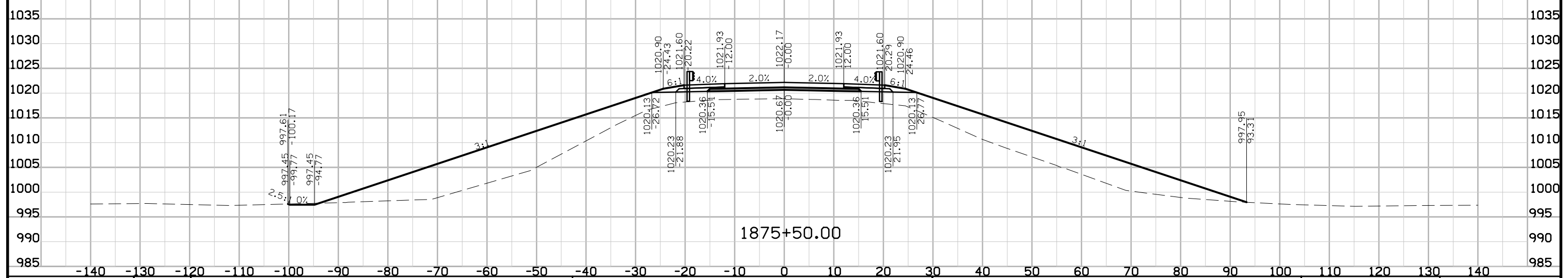
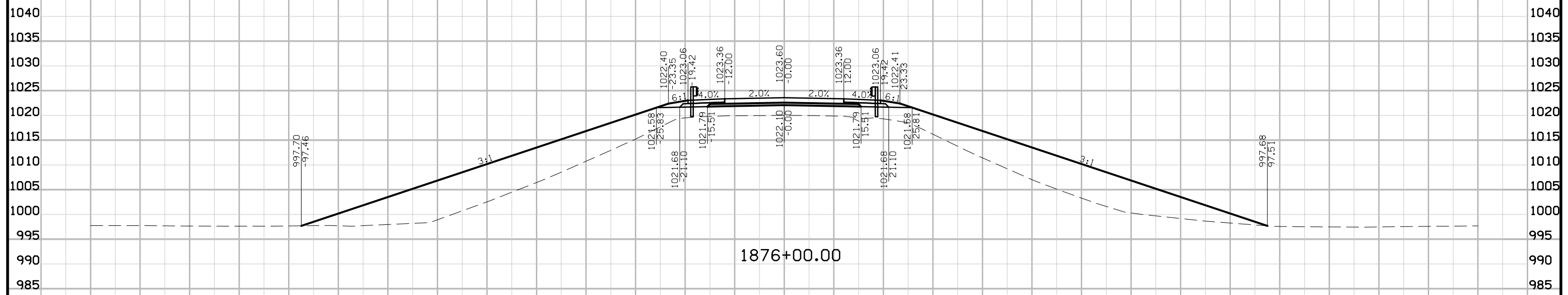
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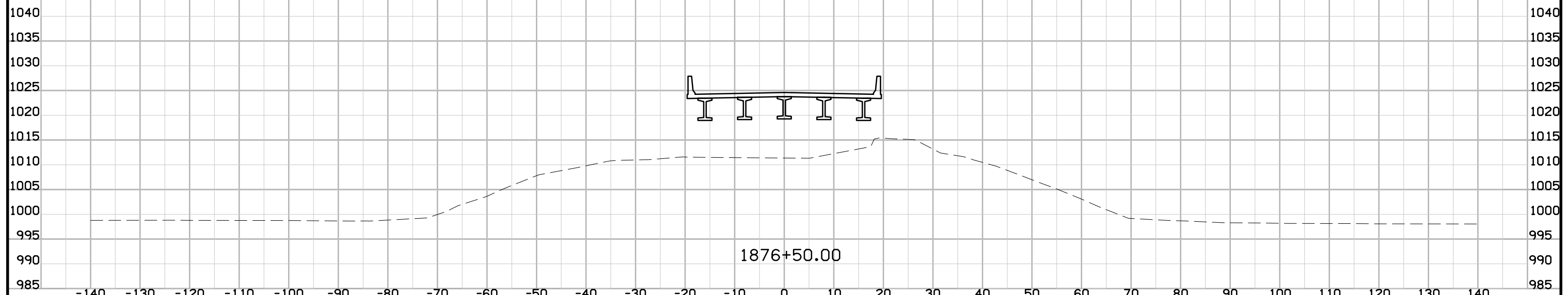
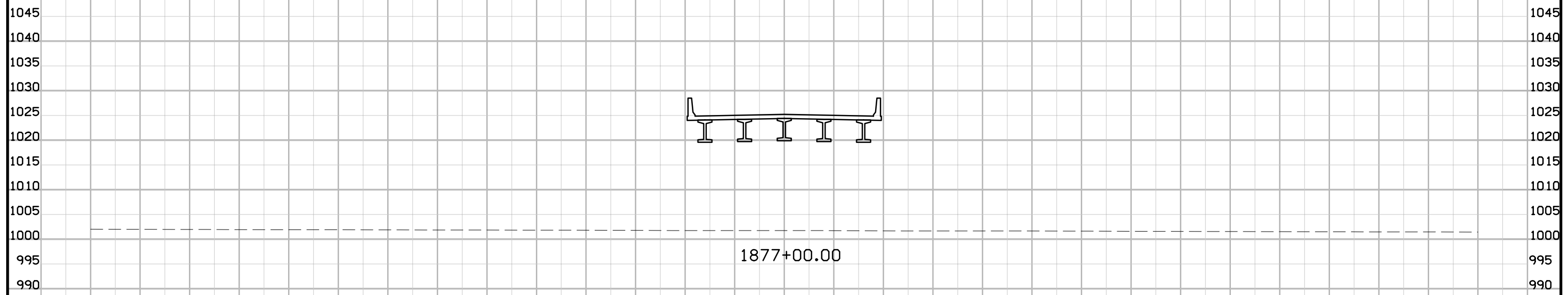
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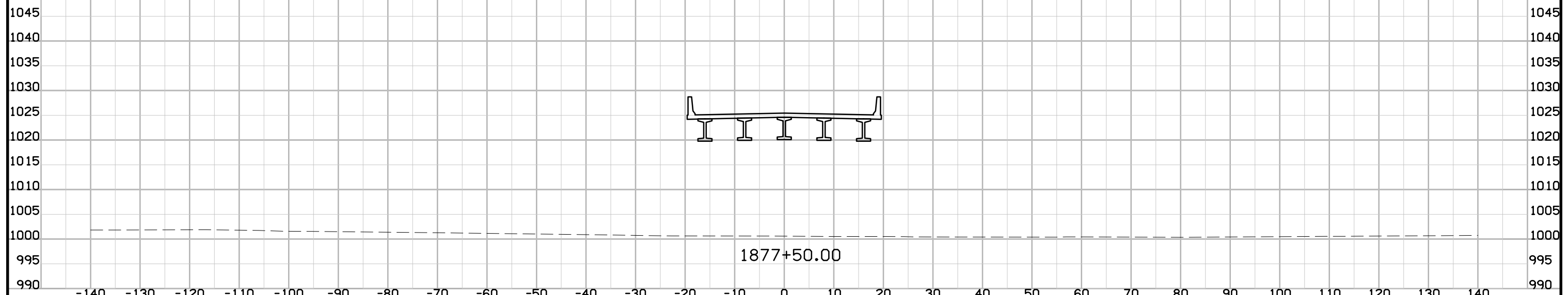
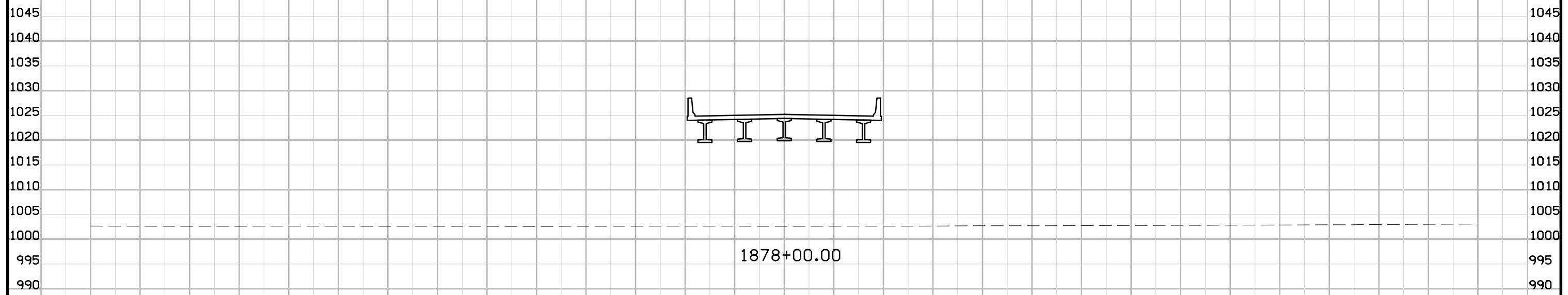
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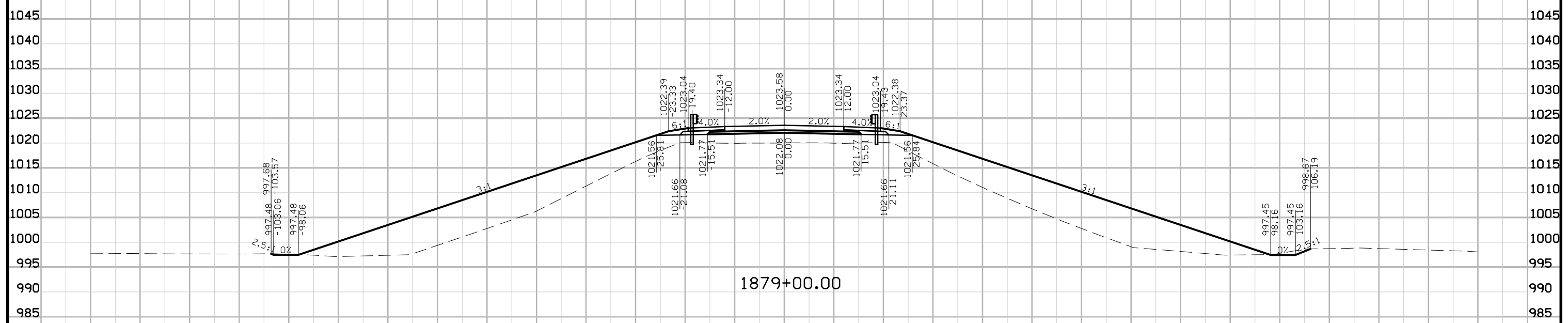
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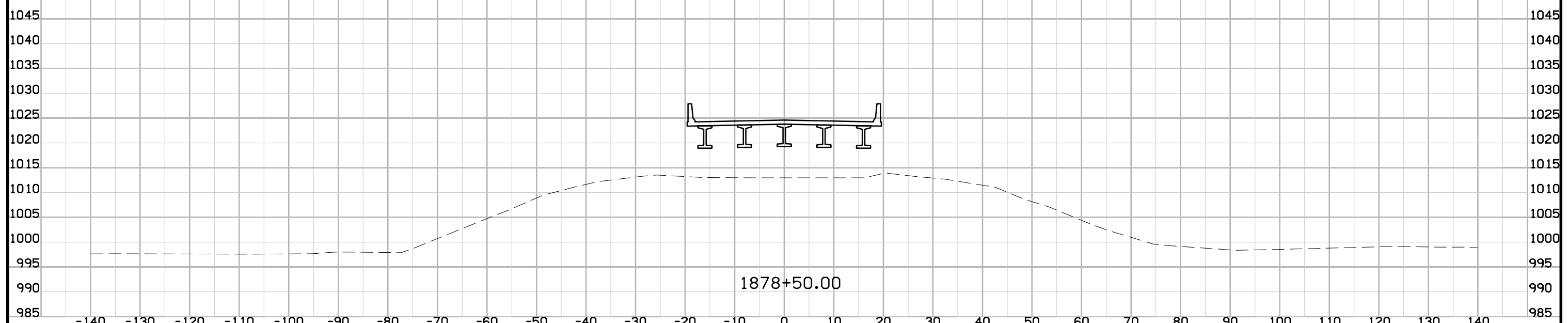
COUNTY ROAD G12



COUNTY ROAD G12

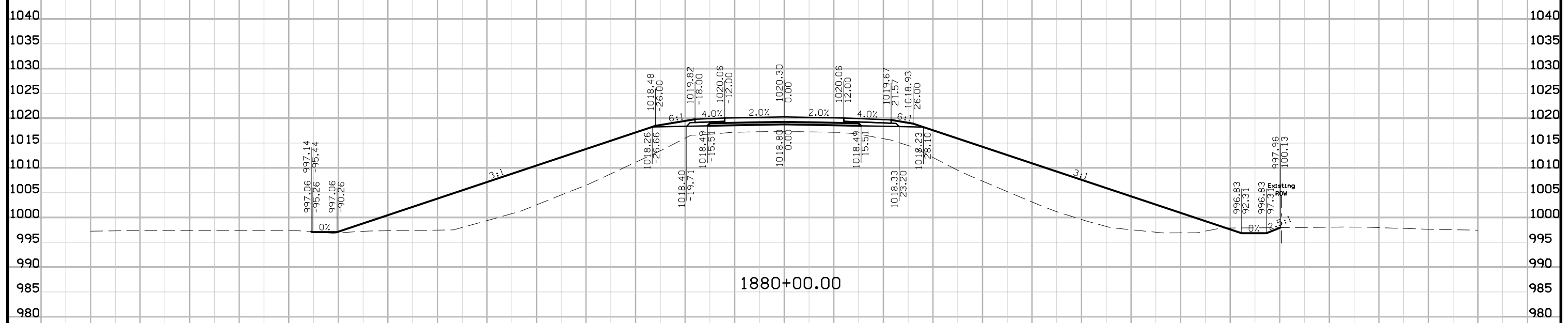


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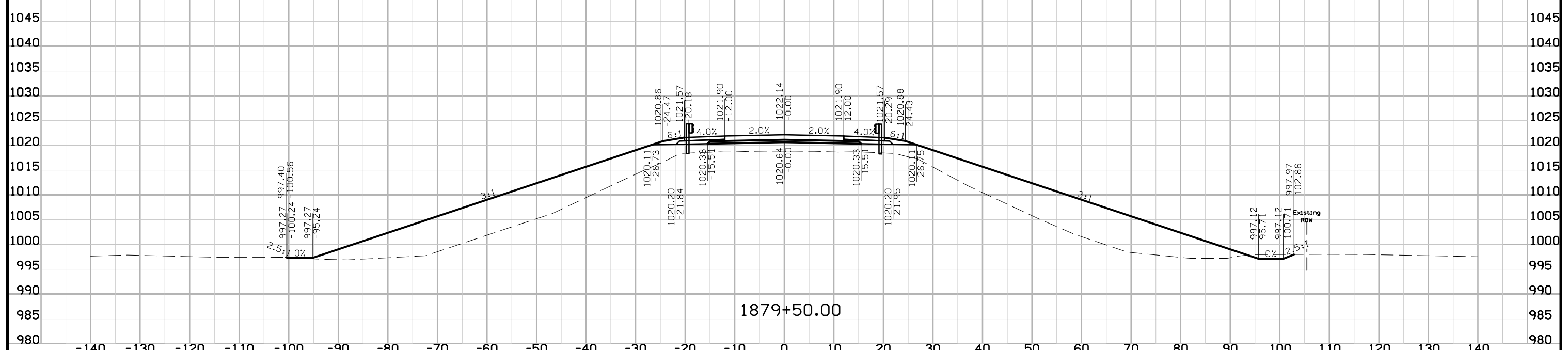


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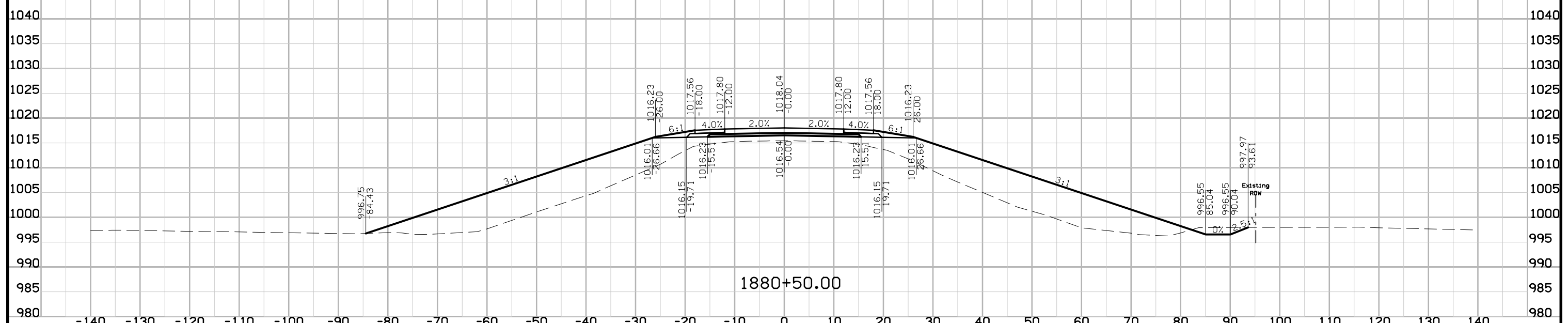
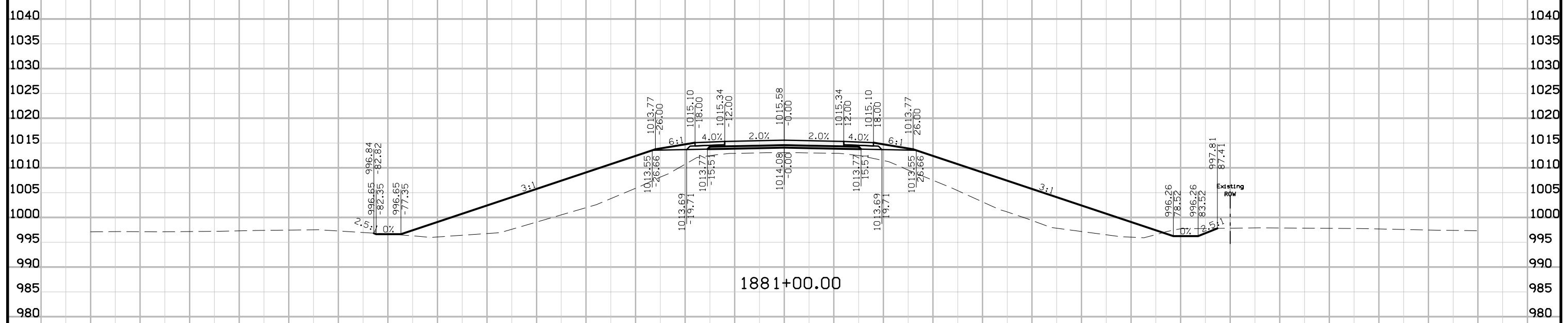
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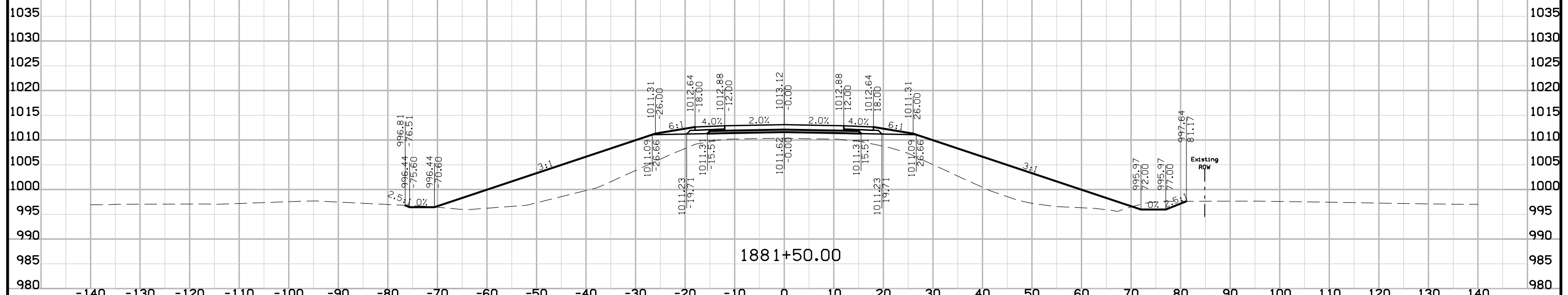
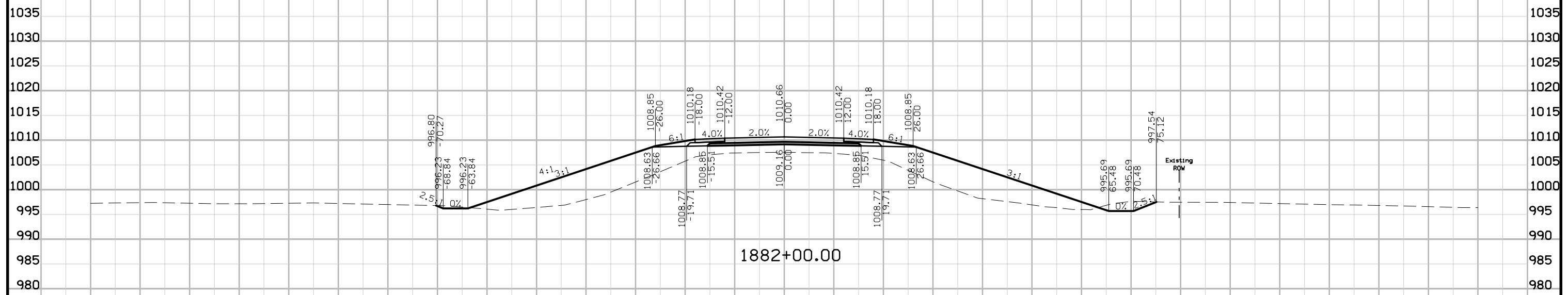
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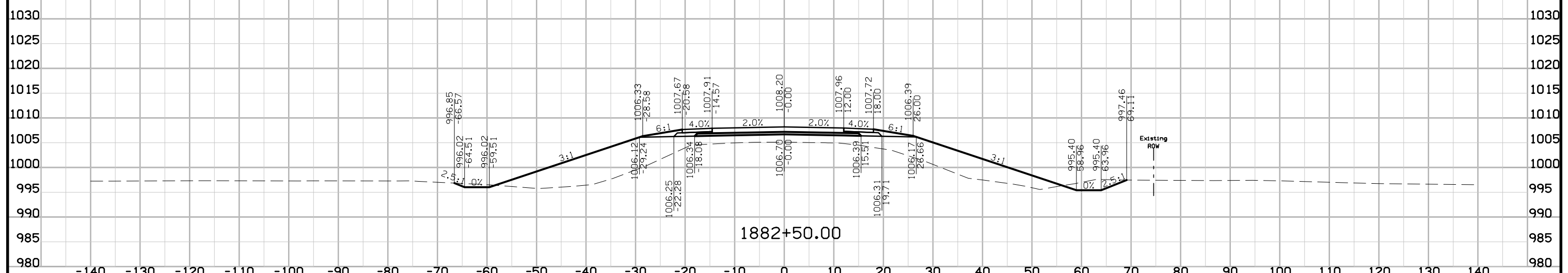
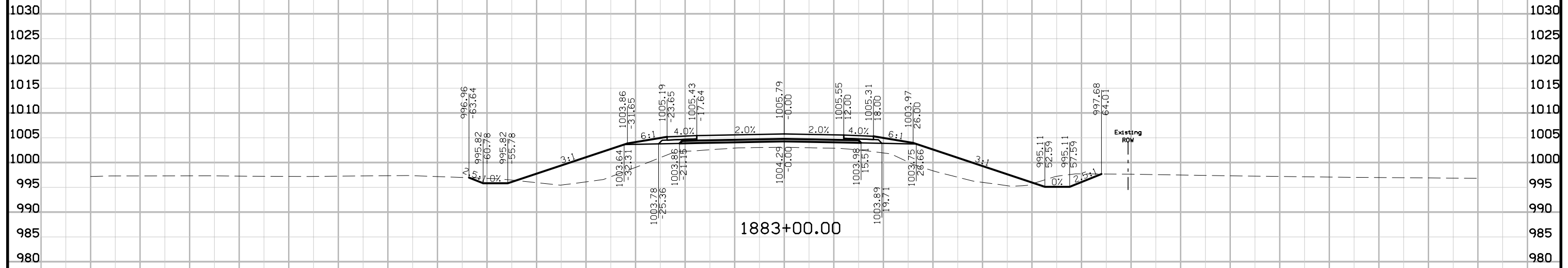
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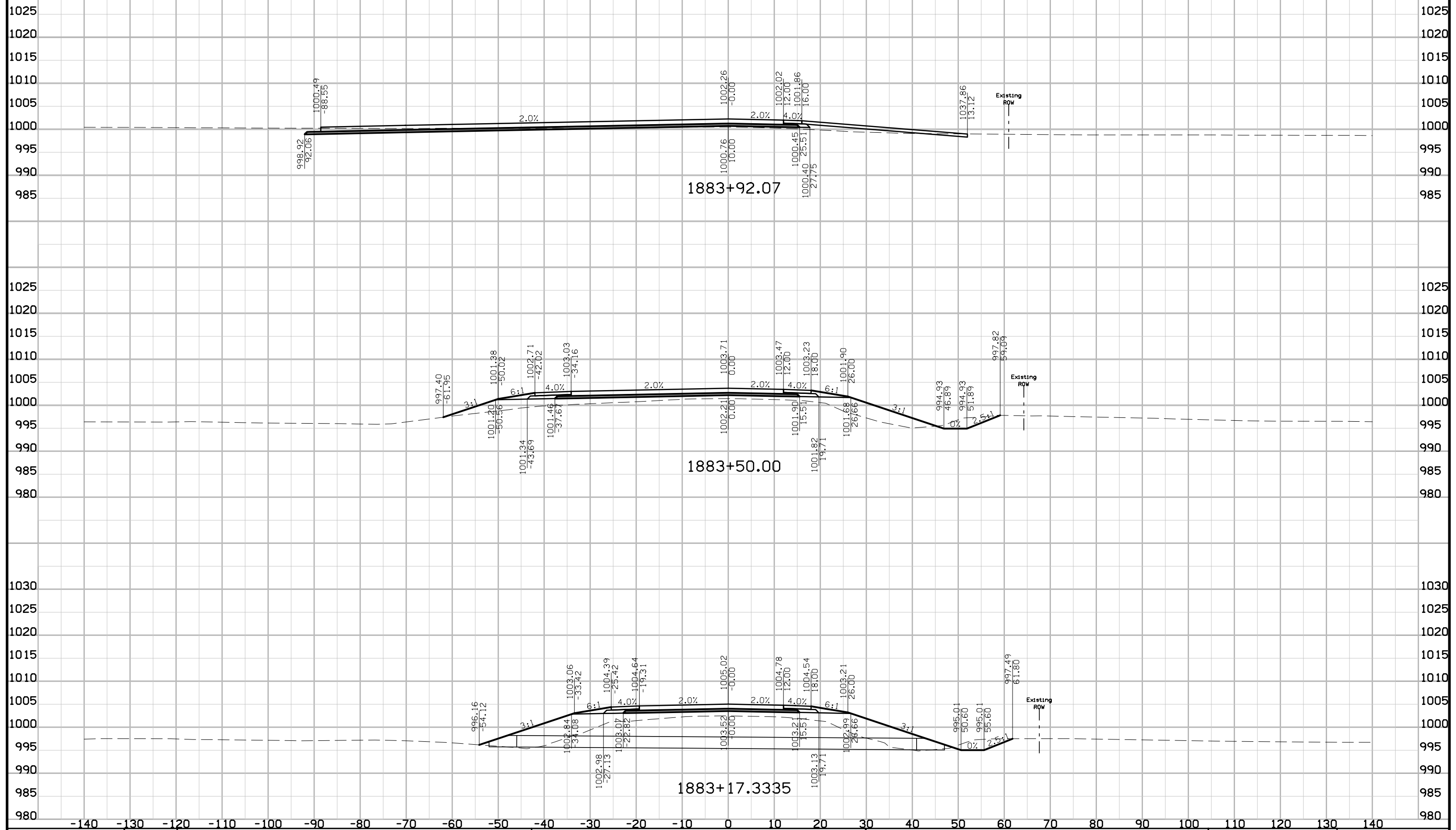
COUNTY ROAD G12



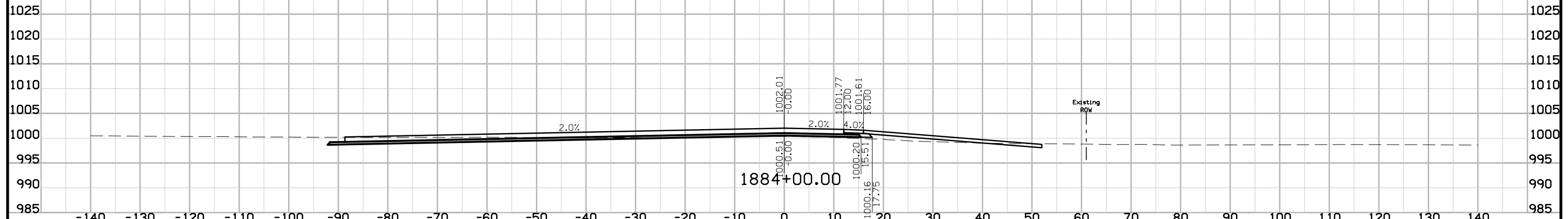
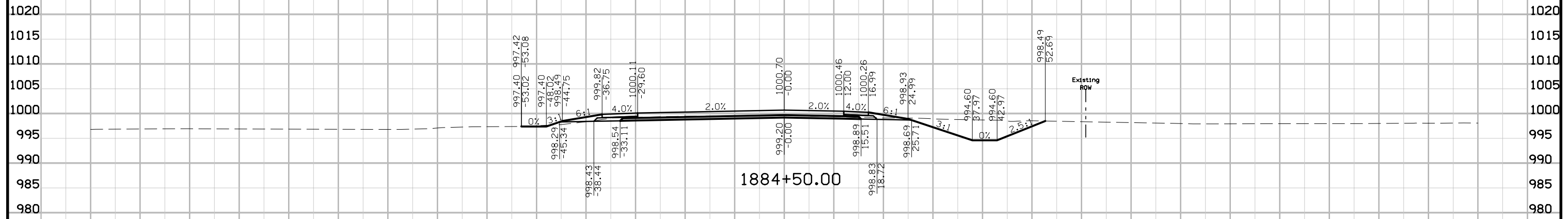
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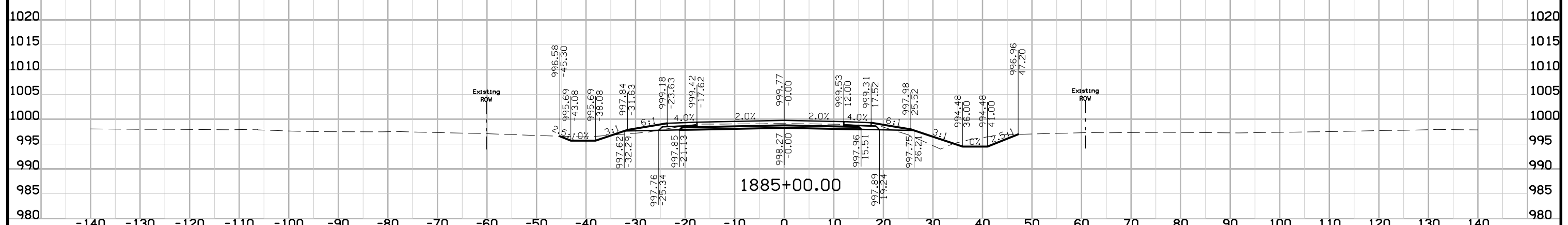
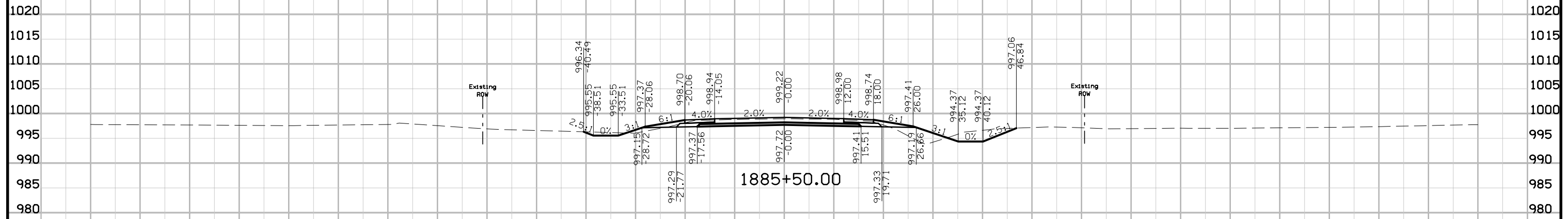
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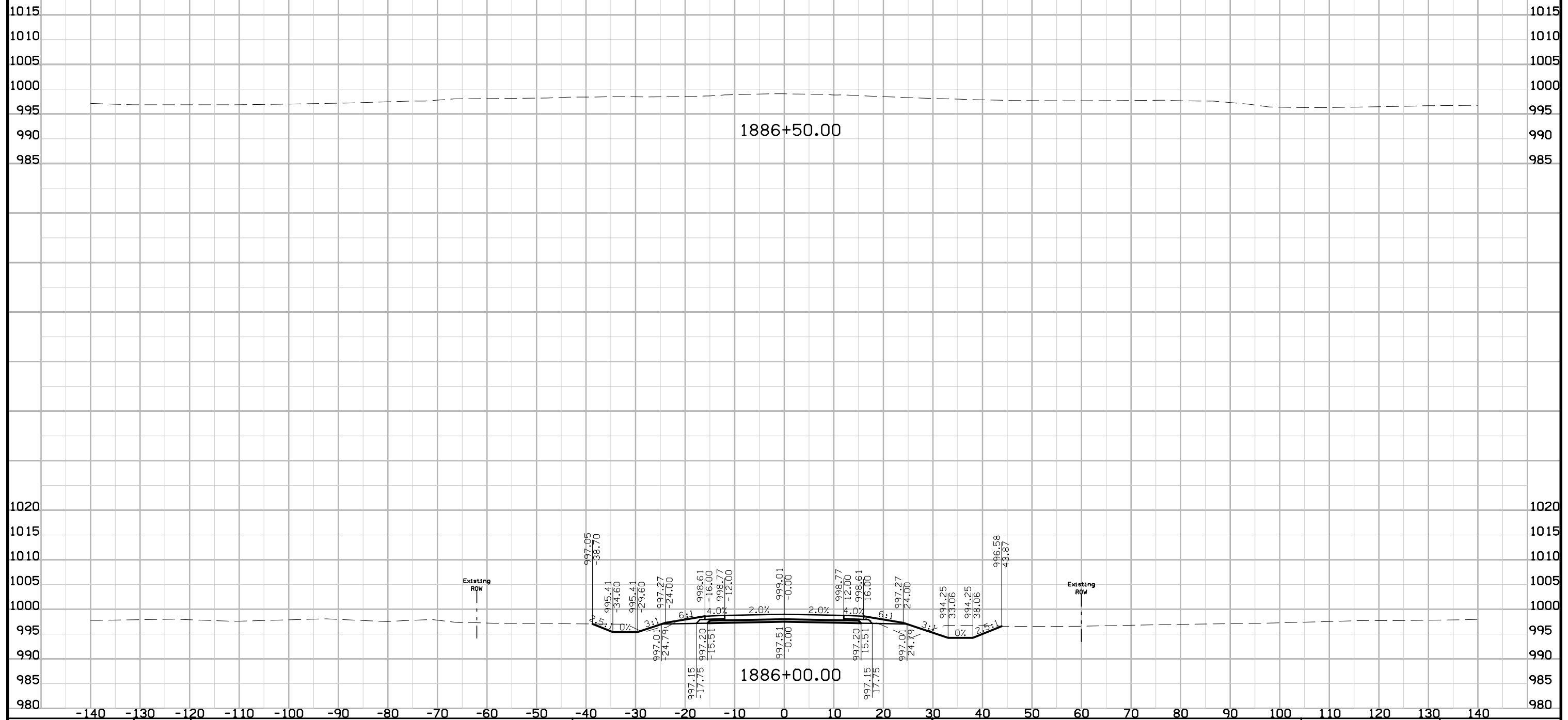


COUNTY ROAD G12

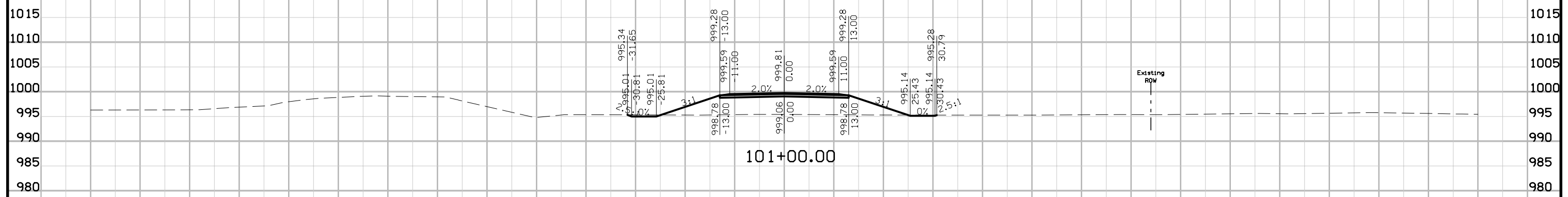


COUNTY ROAD G12

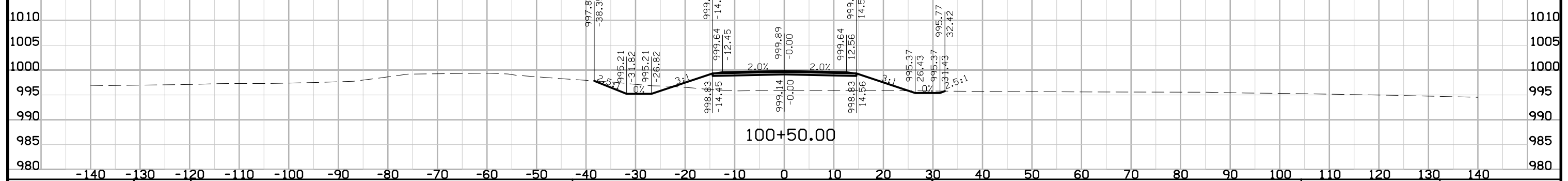




145th ST.

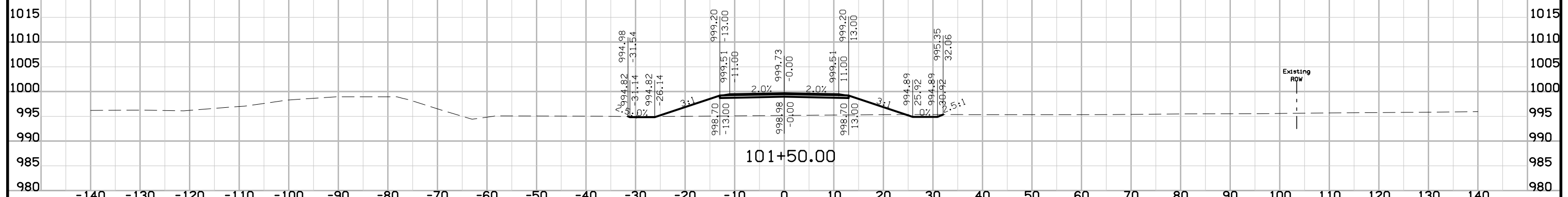
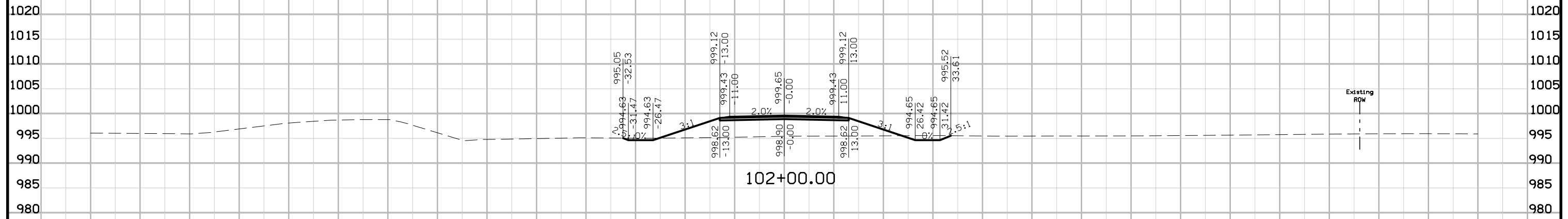


101+00.00

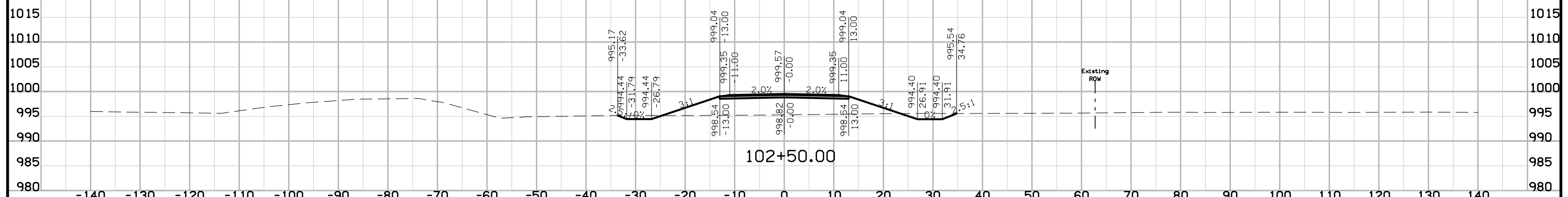
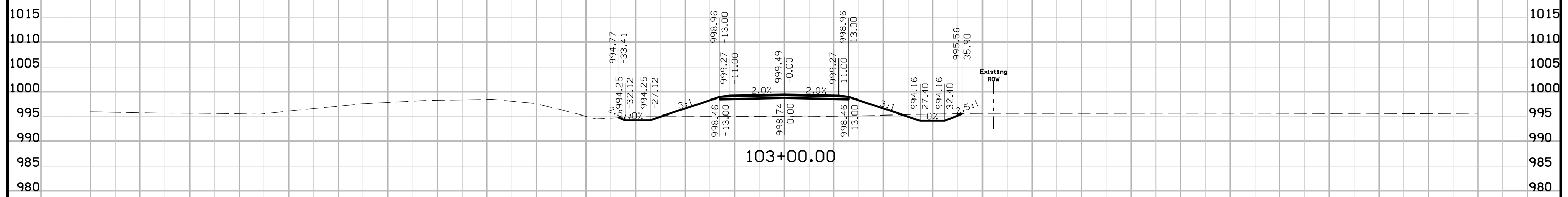


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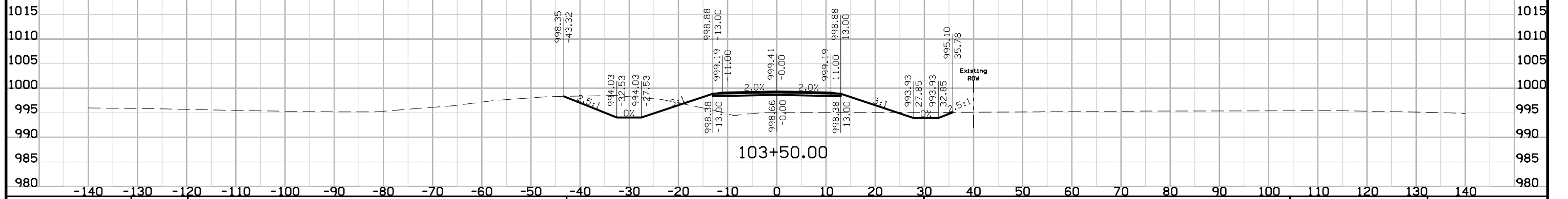
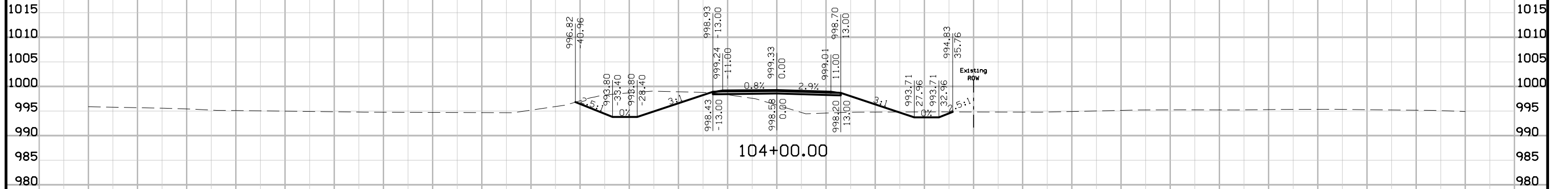
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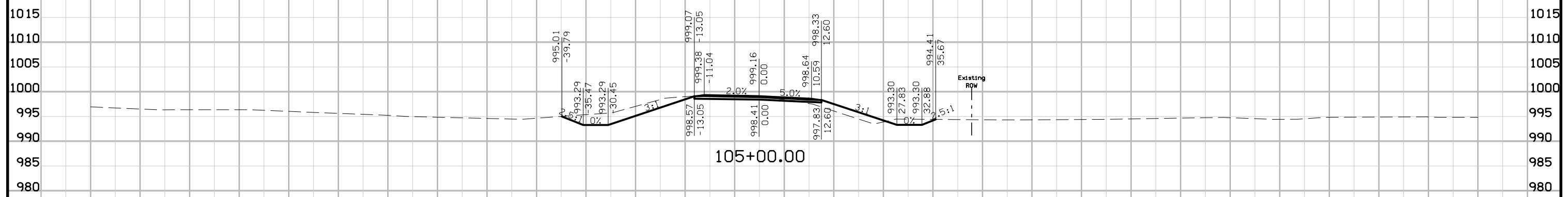
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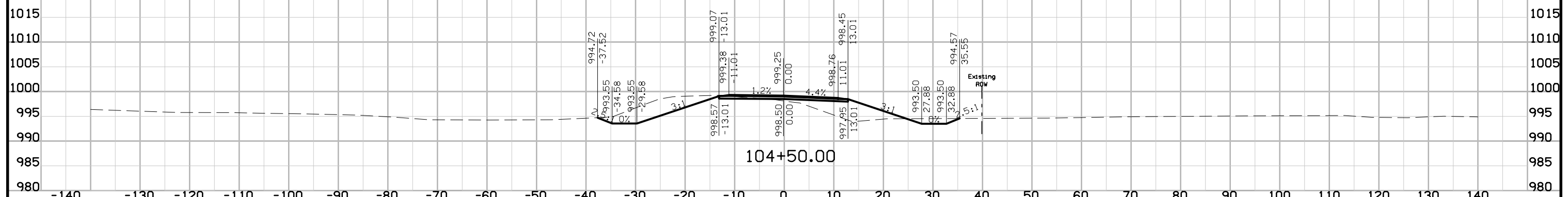
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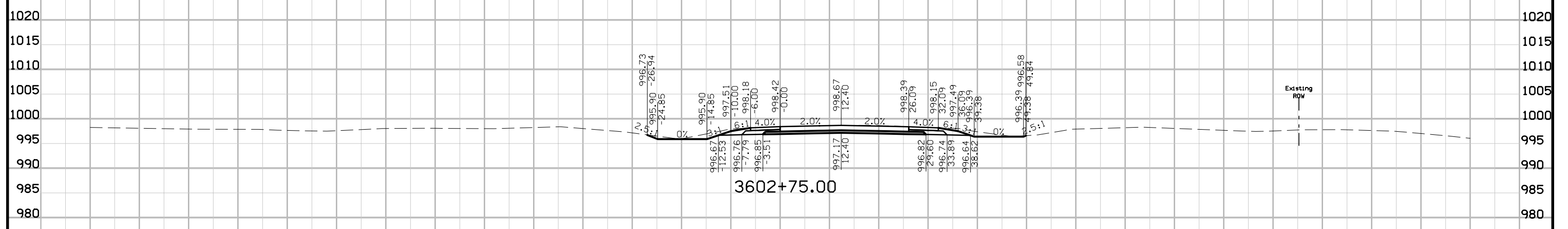
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105+00.00



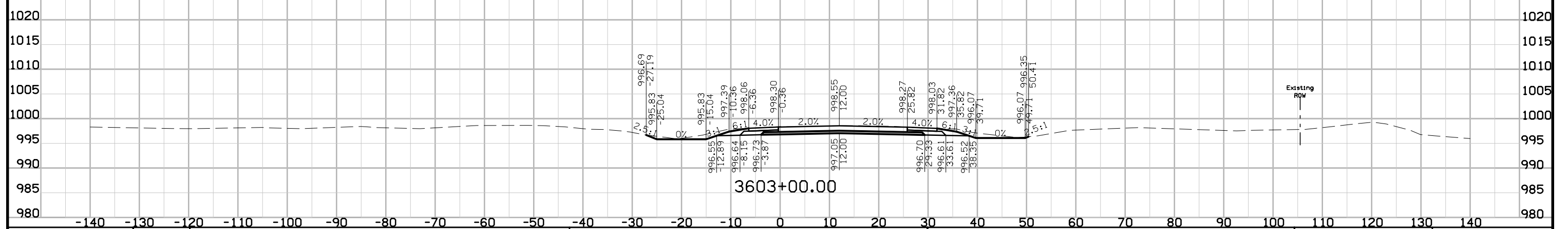
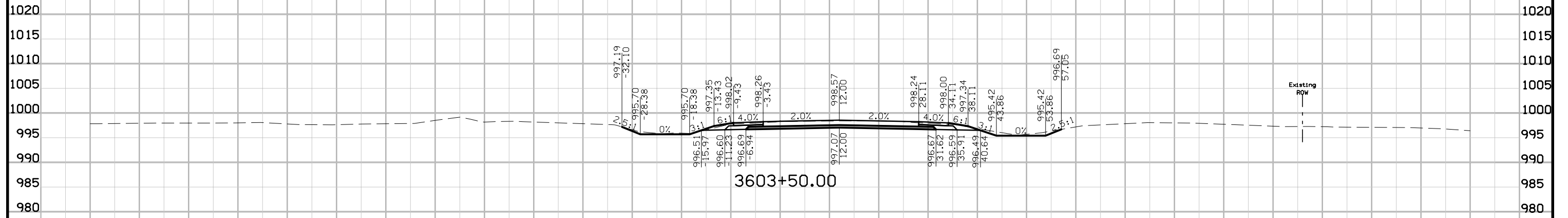
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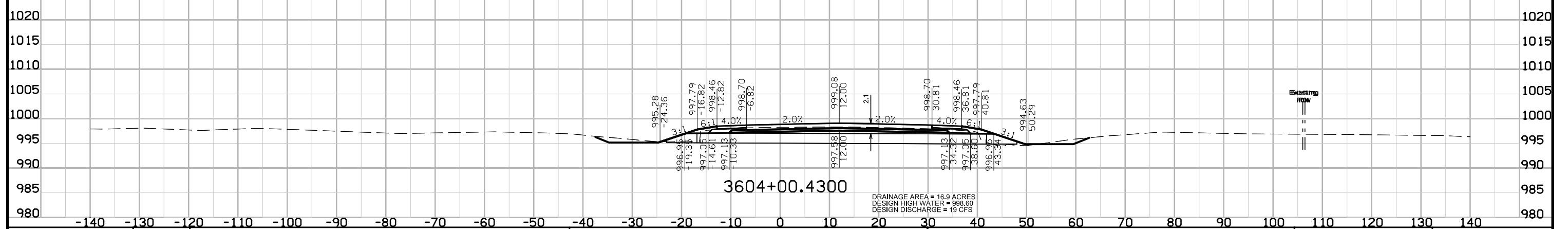
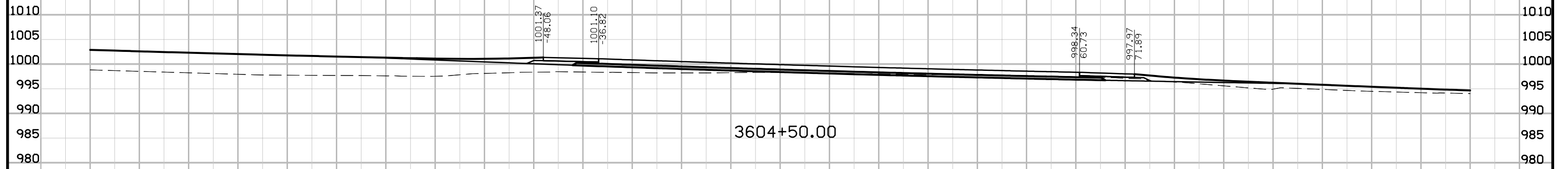


3602+75.00



3602+50.00





DRAINAGE AREA = 16.9 ACRES
 DESIGN HIGH WATER = 998.60
 DESIGN DISCHARGE = 16 CFS

