

PLYMOUTH CO.
BRIDGE REPLACEMENT - PPCB
BRFN-012-2(32)--39-75
 LETTING DATE
 01/20/2021

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Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM PLYMOUTH COUNTY BRIDGE REPLACEMENT - PPCB

IA 12 BRIDGE OVER INDIAN CREEK
4.0 MILES NORTH OF COUNTY ROAD C16

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



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

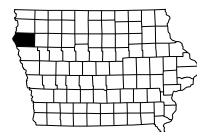
MILEAGE SUMMARY			
Div.	Location	Lin. Ft.	Miles
	IA Highway 12 Sta. 282+50.00 to Sta. 288+70.00	620.00	0.12
	Deduct Bridge at Sta. 285+35.00	217.30	0.04
	Total Length of Roadway	402.70	0.08
	Total Length of Bridge	217.30	0.04
	Total Length of Project	620.00	0.12

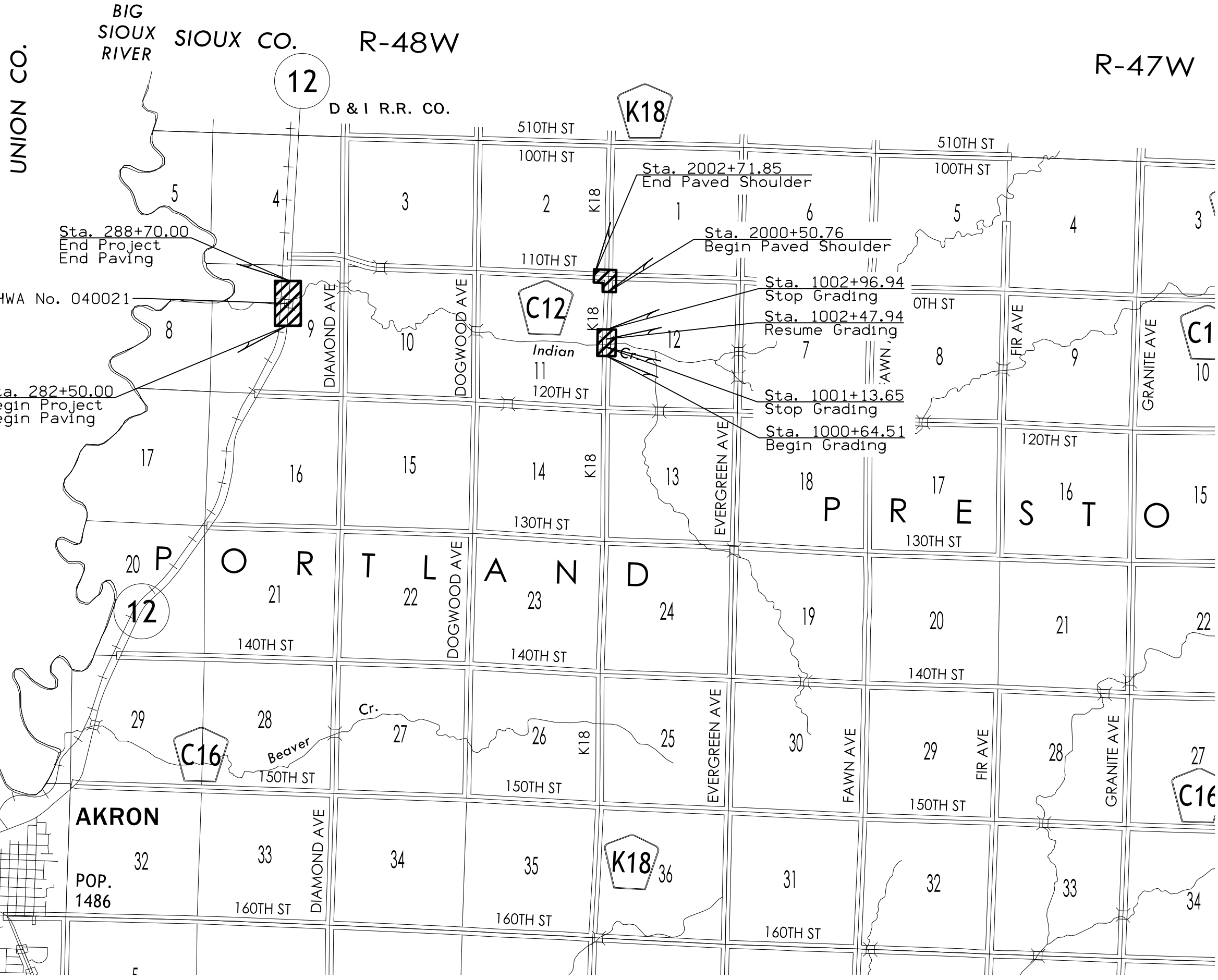
EARTHWORK SUMMARY		
Cut	840.1	CY
Fill +30%	6154.8	CY
Borrow	5314.7	CY

IA 12		101-4	
DESIGN DATA RURAL			
2021 AADT	1,200	V.P.D.	
2041 AADT	1,200	V.P.D.	
20 DHV	--	V.P.H.	
TRUCKS	20	%	
Total Design ESALs	--		

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Scott E. Port	Primary Signature Block
Q.1	Matthew D. Cushman	Geotechnical Design
V.1	Timothy J. Sheets	Hydraulic 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.
	D5 PLAN - Date: 11/06/18
Signature	Date
Printed or Typed Name	
My license renewal date is December 31, 20	
Pages or sheets covered by this seal: _____	



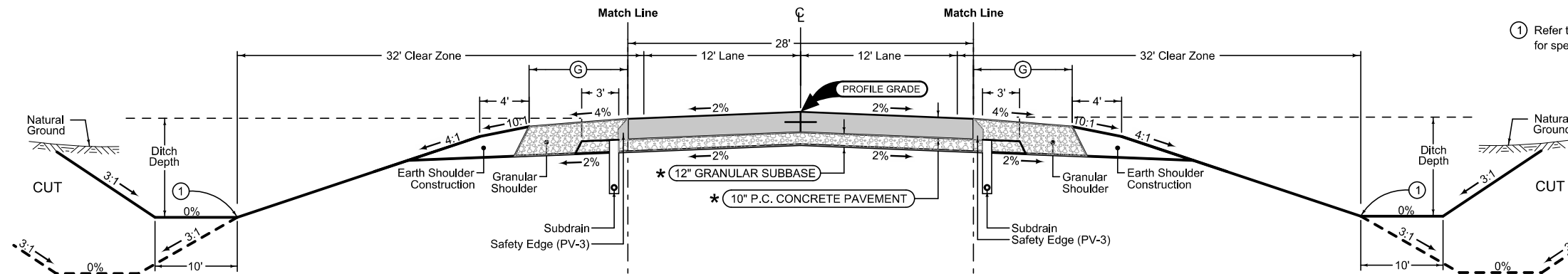


A



NOT TO SCALE





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

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

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

Granular Shoulder with Safety Edge

STATION TO STATION		② Feet
282+50.00	282+90.18	6
287+54.72	288+70.00	6

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

STATION TO STATION	
282+50.00	284+26.35
286+43.65	288+70.00

* NOTE: Iowa DOT to Design Pavement and Granular Subbase Thickness

Granular Shoulder with Safety Edge

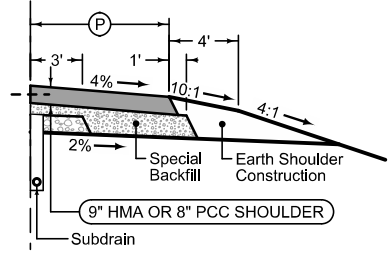
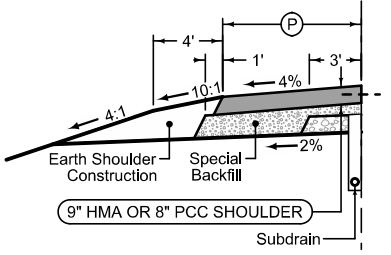
STATION TO STATION		② Feet
282+50.00	283+15.28	6
287+77.82	288+70.00	6

Paved Shoulder at Guardrail

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

STATION TO STATION		③ Feet
282+90.18	283+99.80	*Var.
286+70.20	287+54.72	*Var.

* Refer to Detail 7156 for paved shoulder width at guardrail.



Paved Shoulder at Guardrail

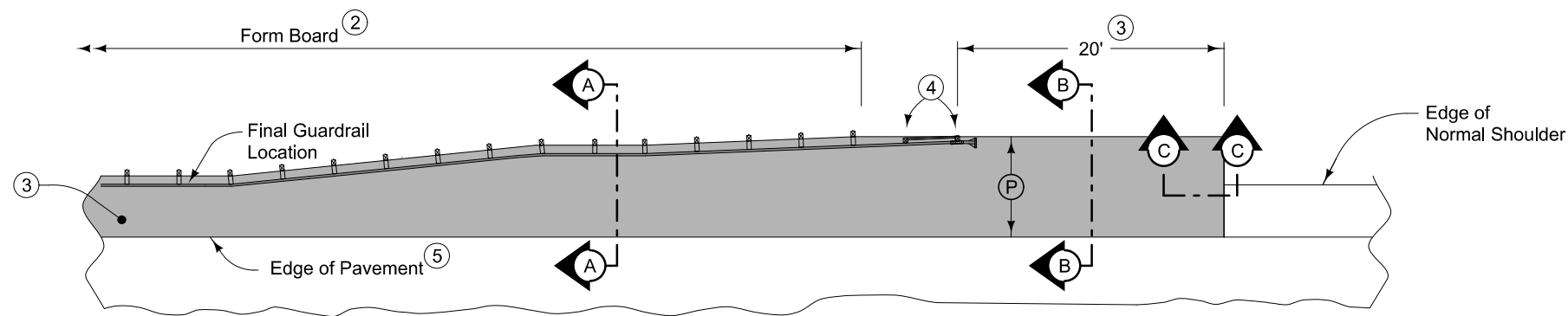
PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at mainline spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

STATION TO STATION		③ Feet
283+15.28	283+99.80	*Var.
286+70.20	287+77.82	*Var.

* Refer to Detail 7156 for paved shoulder width at guardrail.

Refer to Tab. 100-24 for Pavement Quantities
 Refer to Tab. 112-9 for Shoulder Quantities

**TYPICAL CROSS SECTION
 IOWA HIGHWAY 12**



PLAN VIEW

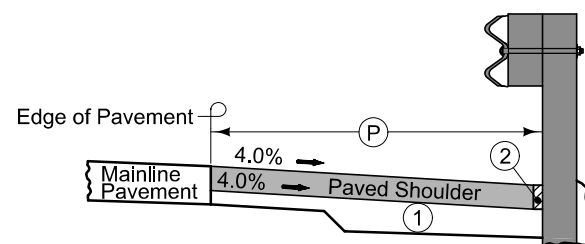
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

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

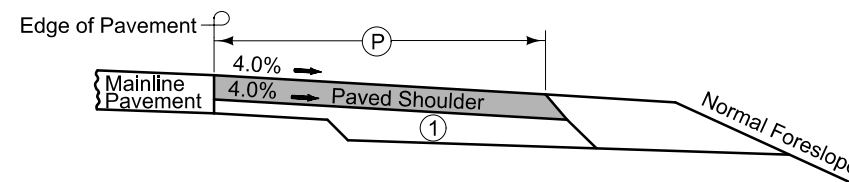
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

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

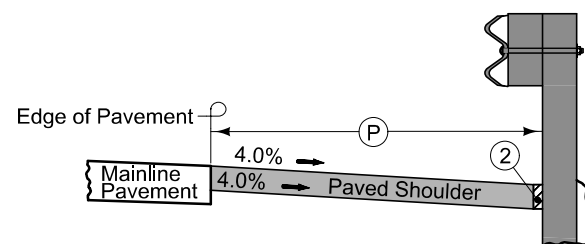


Section A-A

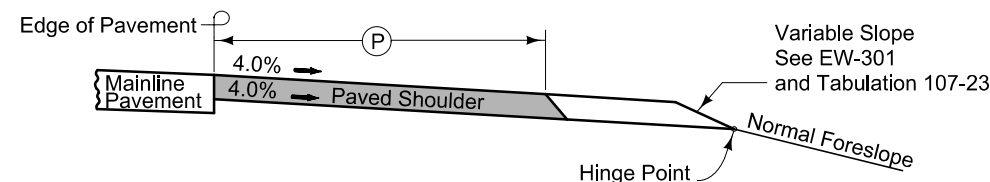


Section B-B

NEW CONSTRUCTION

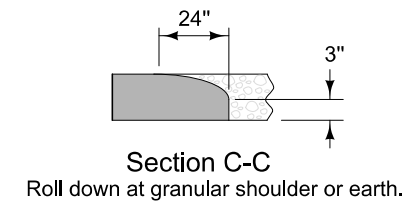


Section A-A



Section B-B

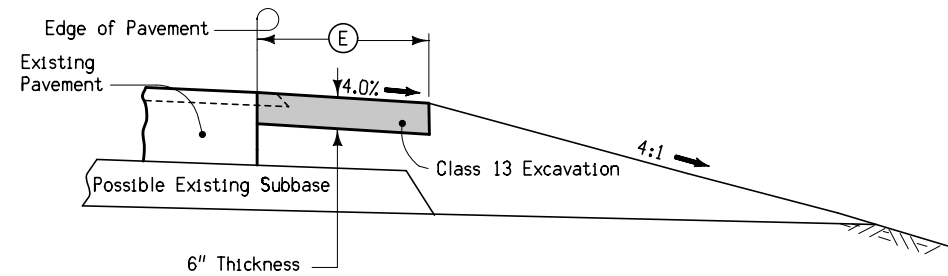
EXISTING SHOULDER



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

PAVED SHOULDER AT GUARDRAIL

7152
MODIFIED



① Refer to Sheet F.2 for Details.

**TYPICAL SECTION
RETROFIT HOT MIX ASPHALT PAVED SHOULDER**

Location		Side	① Feet
Road Identification			
C12/K18 INTERSECTION (SW CORNER)	RT		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		Water Hook Up
	Edge of Water		Radio Tower
	Existing Drainage		Tower Anchor
	Proposed Drainage		Guardrail (Beam or Cable)
	Right of Way Rail or Lot Corner		Guard Post (one or two)
	Concrete Monument		Guard Post (over two)
	Well		Filler Pipe
	Windmill		Gas Valve
	Beehive Intake		Water Valve
	Existing Intake		Speed Limit Sign
	Proposed Intake		Mile Marker Post
	Existing Utility Access (Manhole)		Sign
	Proposed Utility Access (Manhole)		Traffic Signal Control Box
	Fire Hydrant		Rail Road Signal Control Box
	Water Hydrant (Rural)		Telephone Switch Box
			Electric Box

UTILITY LEGEND

	PREMIER COMMUNICATIONS - FIBER Contact Name : Tim Dykshorn Contact Phone: 7127223451 Contact Email: timd@mypremieronline.com
	PREMIER COMMUNICATIONS - TELEPHONE Contact Name : Tim Dykshorn Contact Phone: 7127223451 Contact Email: timd@mypremieronline.com

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

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

Symbol	Description
	Proposed Right-of-Way
	Existing Right of Way
	Existing and Proposed Right-of-Way
	Easement and Existing Right-of-Way
	Easement (Temporary)
	Easement
	C/A Access Control
	Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

STA. 1000+64.51
BEGIN GRADING

STA. 1001+13.65
STOP GRADING

Protect Bridge and
Barrier Rail

Protect
Fiber

Protect
Electric

POT Sta 1000+00.00

1000

4' Shoulder

1001

Refer to BA-500

1002

Refer to BA-500

1003

FB
PB

POT Sta 1003+95.99

1003

22' Roadway

COUNTY HIGHWAY K18

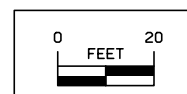
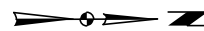
4' Shoulder

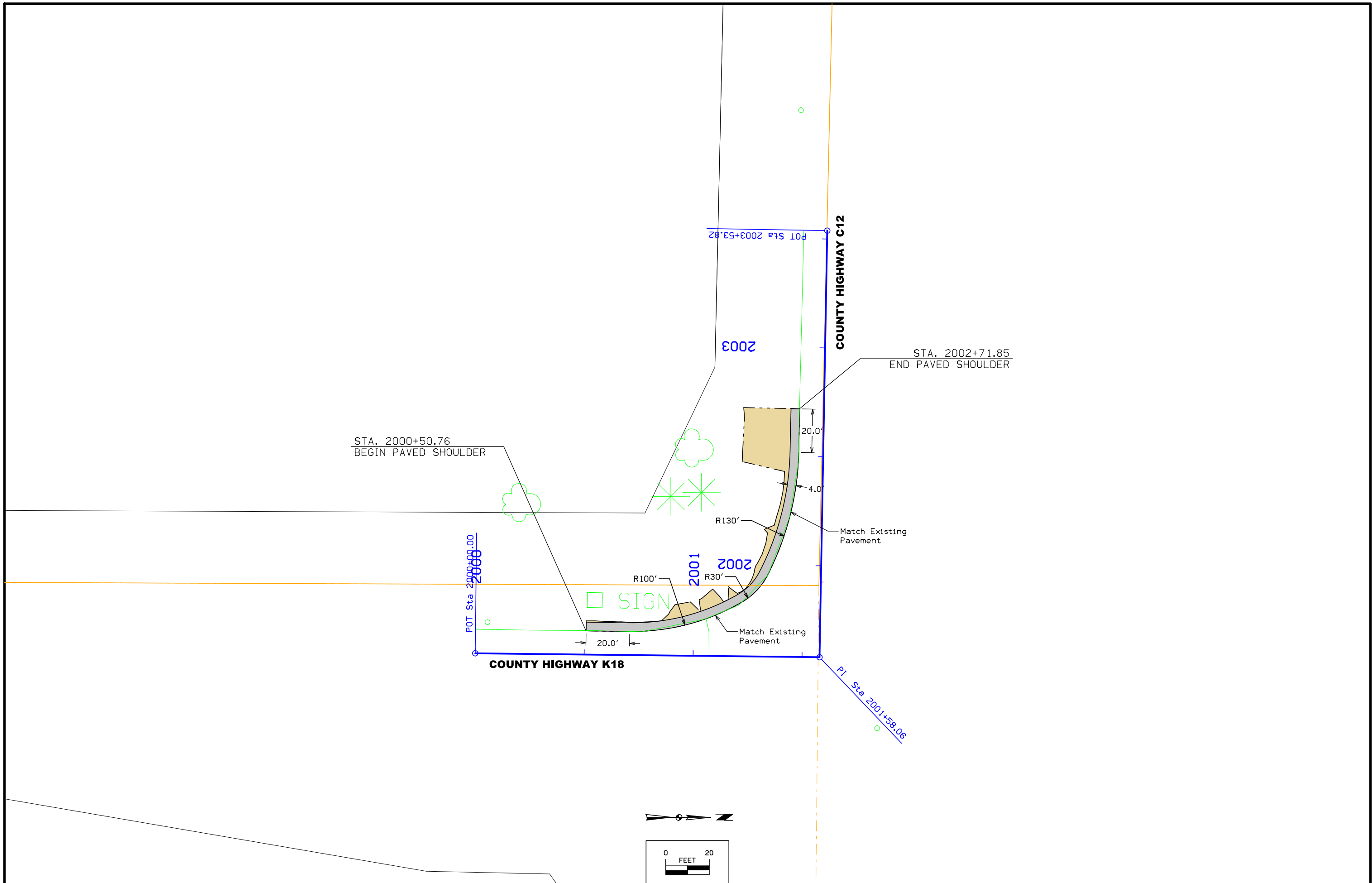
Refer to BA-500

Refer to BA-500

STA. 1002+96.94
END GRADING

STA. 1002+47.94
RESUME GRADING





Survey Information

Plymouth County
BRFN-012-2(32)--39-75
Bridge Replacement Indian Creek 4 mi N of Co. Rd C16
PIN 16-75-012-010
SAP-0924

General Information

Measurement units for this survey are US survey feet. This survey is for Preliminary/Engineering for the proposed bridge replacement over Indian Creek 4.0 miles north of County Road C16. This project is a Partial DTM survey.

Vertical Control

Vertical datum for this survey is relative to NAVD88, Geoid 12a.

Vertical positions were established by static observations and post processed using concurrent observations from the laRTN LeMars and Sioux City reference stations. Static observations were also collected on NGS Monument NM0809 and Plymouth County control points 024, 025 and A4581 with results shown below. Additional benchmarks were established with a digital level loop relative to CP1000.

NM0809 (NGS First Order Class II) has a published Elev. Of 1154.29
Survey Elev. = 1154.40

This survey observed three Plymouth County Control Monuments with published NAVD88 heights to compare to local ground control:

Plymouth County Control #024 has a published Elev. of 1279.30
Survey Elev. = 1279.35

Plymouth County Control #025 has a published Elev. of 1183.11
Survey Elev. = 1183.20

Plymouth County Control #A4581 has a published Elev. of 1179.69
Survey Elev. = 1173.78

Horizontal Control

The project coordinate system is the Iowa Regional Coordinate System, Zone 4. Horizontal datum is NAD83 (2011) for Epoch 2010.00. The projection parameters for Zone 4 of the laRCS is defined below:

Lambert Conformal Conic Projection North American Datum of 1983
Origin Lat: 42°32'00"N
Origin Central Meridian: 094°50'00"W
Central Meridian Scale: 1.000045
False Northing: 8,600,000
False Easting: 14,500,000

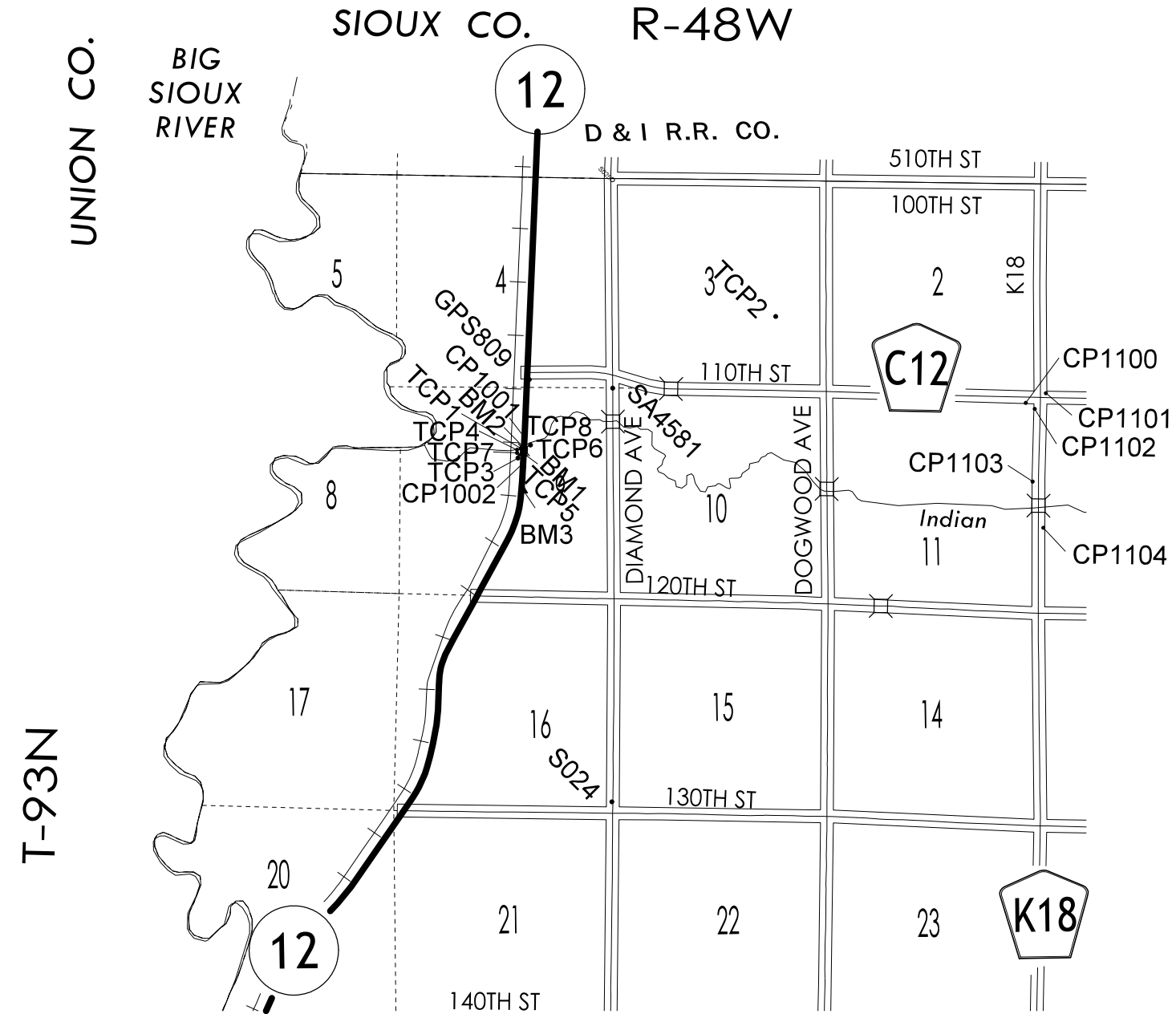
Horizontal positions for site control were established by static observations and post processed using concurrent observations from the laRTN LeMars and Sioux City reference stations

Alignment Information

Alignment was retraced by District 3 office.

CONTROL POINT VICINITY MAP

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



HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 4

Coordinate listing from 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 4

Point Name	Northing	Easting	Elevation	Feature Definition	Description
CP1000	8736633.914	14048777.302	1157.392	CP	SET 1/2IN REBAR W/ RED CAP, 50FT +/- N OF CL 110TH ST, 40FT +/- W OF CL HWY 12, 25FT +/- N OF RIGHT-LEFT SIGN
CP1001	8735019.747	14048725.890	1163.456	CP	SET 1/2IN REBAR W/ RED CAP, W SIDE HWY 12, 250FT +/- N OF N END OF BRIDGE OVER INDIAN CREEK
CP1002	8734344.407	14048695.720	1163.489	CP	
BM1	8734599.608	14048711.940	1167.419	BM	FND IDOT BRASS PLUG IN SW ABUTMENT BRIDGE ON HWY 12 OVER INDIAN CREEK
BM2	8734758.171	14048714.720	1165.269	BM	SET CUT X ON NW ABUTMENT BRIDGE ON HWY 12 OVER INDIAN CREEK
BM3	8733682.013	14048717.380	1164.071	BM	
S024	8726005.320	14050899.658	1279.350	CP	PLYMOUTH COUNTY CONTROL MONUMENT
GPS809	8736419.288	14048862.242	1154.405	CP	PLYMOUTH COUNTY CONTROL MONUMENT
SA4581	8736206.962	14050920.748	1173.780	CP	PLYMOUTH COUNTY CONTROL MONUMENT
S025	8741346.702	14050916.681	1183.197	CP	PLYMOUTH COUNTY CONTROL MONUMENT
CP1100	8735966.414	14061224.840	1259.876	CP	NAIL ON E SIDE ASPHALT BUMP-OUT FOR DRIVEWAY, S SIDE C12, W OF K18
CP1101	8736000.400	14061508.490	1250.990	CP	NAIL ON EDGE OF ROAD NEAR MID-RADIUS OF NE QUAD OF C12 AND K18
CP1102	8735821.746	14061459.270	1248.418	CP	1/2IN REBAR WITH OPC 3FT W OF W EDGE K18 +/- 150FT S OF C12
CP1103	8733678.699	14061413.010	1198.401	CP	5/8IN REBAR 3FT W OF W EDGE K18 +/-300 FT N OF BRIDGE (1/2 MILE S OF C12)
CP1104	8733068.528	14061439.050	1198.592	CP	5/8IN REBAR 3FT E OF E EDGE K18 +/-300 FT S OF BRIDGE (1/2 MILE S OF C12)

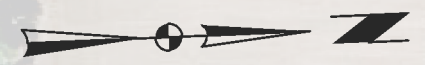
ALIGNMENT COORDINATES

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)
POINT ML012	IA HWY 12	276+89.42	8733840.16	14048679.31															
CURVE ML012	IA HWY 12						278+70.03	8734020.07	14048695.26	279+99.91	8734149.44	14048706.73	281+29.74	8734279.19	14048712.32				
POINT ML012	IA HWY 12	357+44.20	8741886.58	4049.040.317															
POINT DET11	CO HWY K18	1000+00.00	8733133.74	14061425.33															
POINT DET12	CO HWY K18	1003+95.99	8733529.73	14061426.68															
POINT DET21	CO HWY C12	2000+00.00	8735816.03	14061473.51															
POINT DET23	CO HWY C12	2001+58.06	8735974.07	14061475.86															
POINT DET24	CO HWY C12	2003+53.82	8735978.27	14061280.14															

SPIRAL OR CIRCULAR CURVE DATA

Name	Location	ΔSCS	Horizontal Alignment Data												Remarks											
			Spiral Data						Curve Data																	
			θS	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	ΔC	T	L	R		E										
ML012_3	IA HWY 12																									

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.



HARRIS-MANDELKO, IRENE
LIVING TRUST

283+25
CL 80'

TEMPORARY EASEMENT
TO SHAPE

(IR)
D & I
RAILROAD

286+75
CL 80'

STA. 282+50.00
BEGIN CONSTRUCTION

STA. 288+70.00
END CONSTRUCTION

280

285

290

FO

FO

FO

Protect
Fiber

IA HIGHWAY 12

Reconstruct
Wing Dike

Protect
Telephone

STA 285+35.00
INSTALL 213'-10"X40'
PPCB BRIDGE
WITH 30° SKEW

(REMOVE)
STA 285+34.67
D.A. = 62.3 SQ. MI.
150'X26' CONTINUOUS
STEEL I-BEAM BRIDGE

PORTLAND TWP.
T-93N R-48W
SEC. 9

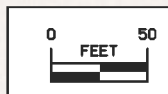
HARRIS-MANDELKO, IRENE
LIVING TRUST

Right of Way Design Information
THIS SHEET INCLUDED
FOR INFORMATION ONLY

ROW Team: CUVA /CARMAN
ROW #: STPN-012-2(33)--2J-75
Plan Date: 11/29/2018

Color Legend:

-  Property Lines
-  Temporary Easement
-  Permanent Acquisition



TRAFFIC CONTROL PLAN

Traffic control on this project shall be in accordance with the standard road plans shown in Tabulation 105-4 and the specific layouts shown in the plans. For additional complementary information, refer to Part 6 of the Manual of Uniform Traffic Control Devices (MUTCD) and the current standard specifications and supplemental specifications.

The Contractor shall coordinate traffic control with projects listed in Tabulation 111-01 and other projects in the area.

The Contractor shall notify the Resident Construction Engineer and Plymouth County two (2) weeks prior to temporary road closures and changes in traffic patterns during construction.

The Contractor shall be responsible for furnishing, installing, maintaining, and removing the signage for the temporary detours.

The Contractor shall remove existing signs and posts within the project limits, as required for construction. The Contractor shall provide Iowa DOT and Plymouth County two (2) weeks advance notice prior to removal of existing signs.

The Contractor shall maintain clean pavement in and out of the work area at all times.

All signs to be in place longer than three days must be post mounted.

The Contractor will be responsible for securing a safe storage area for equipment and materials to be used on the project.

STAGING NOTES

General Notes:

1. Access to properties shall be maintained at all times.
2. The Contractor shall coordinate traffic control with project listed in Tabulation 111-01 and other projects in the area.

Stage 1 - Traffic

- Utilize Iowa DOT Standard Road Plan TC-211 and TC-212 for patching along the detour route, C12 and K18 intersection shoulder improvements, and for temporary crash cushion construction at the Indian Creek bridge on County Road K18.

Stage 1 - Construction

- Install temporary traffic control as required for construction.
- Install patches as outlined in the C-sheets, install paved shoulder at the C12/K18 intersection, and install temporary crash cushion as required for the Indian Creek bridge on County Road K18.

Stage 2 - Traffic Control

- Utilize Iowa DOT Standard Road Plan TC-233 for pavement marking operations along the detour route.

Stage 2 - Construction

- Install pavement markings along County Roads C16, K18, and C12 as outlined in the C-sheets.

Stage 3 - Traffic Control

- Close Iowa Highway 12 to traffic utilizing Iowa DOT Standard Road Plan TC-252, Situation 1 (Rural).
- Maintain access to properties at all times.

Stage 3 - Construction

- Install temporary traffic control and erosion control.
- Remove existing bridge and install new bridge.
- Grade and pave approaches and adjacent pavement. Install pavement markings.
- Install final erosion control.

Stage 4 - Traffic Control

- Open traffic to Iowa Highway 12.
- Utilize Iowa DOT Standard Road Plan TC-211 for the removal of temporary crash cushions at Indian Creek bridge on County Road K18.

Stage 4 - Construction

- Remove remaining traffic control and temporary crash cushions on County Road K18 at Indian Creek Bridge.

COORDINATED OPERATIONS

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

Project	Type of Work










511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
IA 12	NB/SB	Plymouth	4.0 Miles North of County Road C16	Indian Creek	Bridge	40021	CLOSED					Note 1
Notes:												
1. Iowa Highway 12 is closed during bridge reconstruction. Detour route is in affect.												

**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)

DETOUR NOTES

As a part of the IA Highway 12 bridge replacement over Indian Creek, IA Highway 12 will be closed during construction and a detour as shown on J.3 will be used.





Refer to Traffic Control Plan and Staging Notes on Sheet J.1 for additional information.

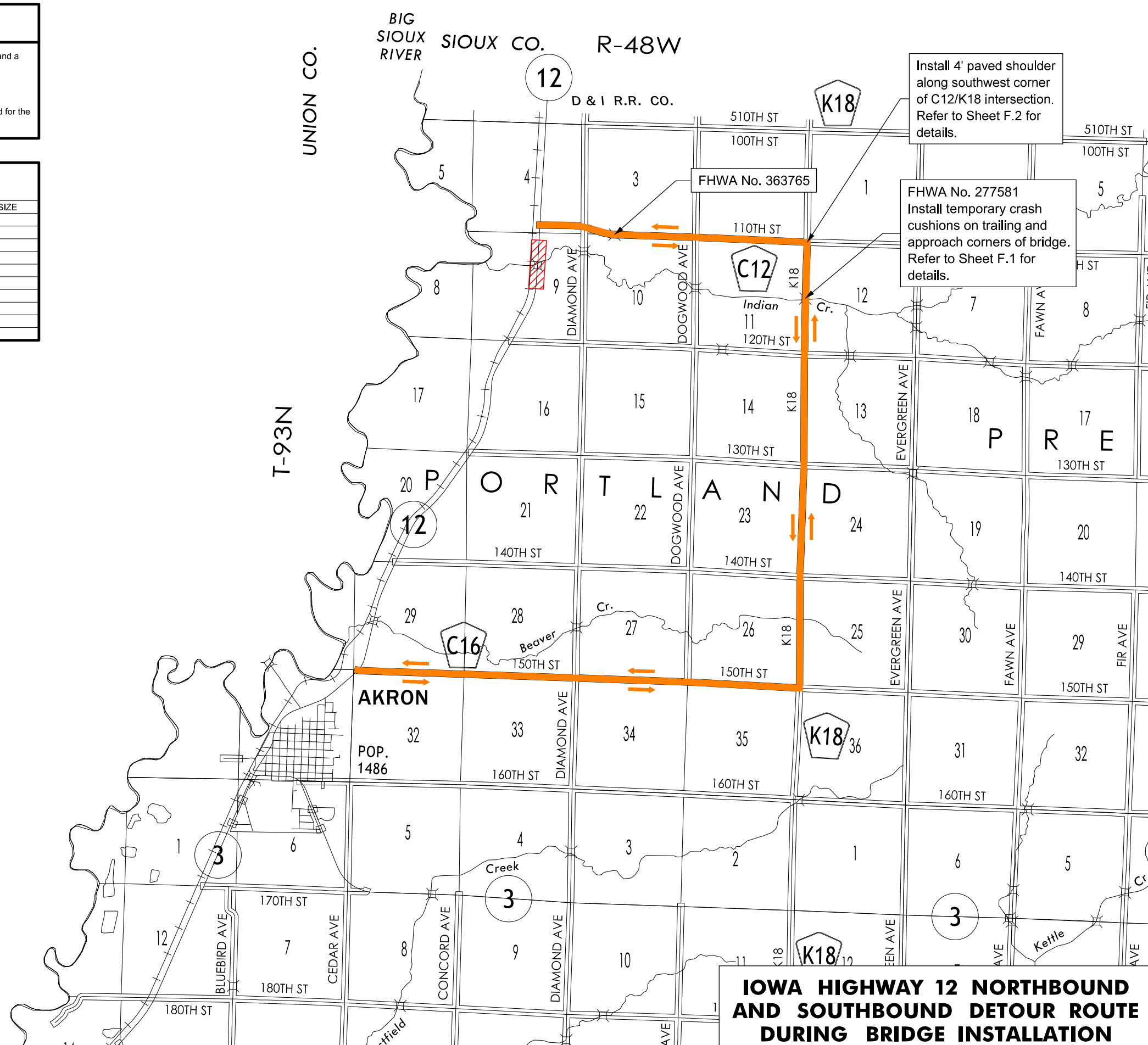
The bid item for Traffic Control will be considered full compensation for installing, covering and uncovering signs required for the detour. It is the Contractor's responsibility to set up, cover, uncover, and maintain all signs along the detour routes.

DETOUR SIGN TABULATION

No.	SIGN DESCRIPTION AND TYPE	QUANTITY	SIZE
TAB. TO BE FILLED DURING FINAL DESIGN			

LEGEND

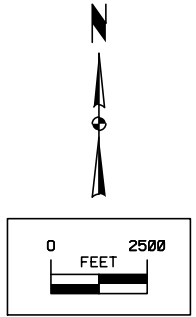
-  Project Location
-  Detour Route
-  Traffic Sign
-  Traffic Sign Identification

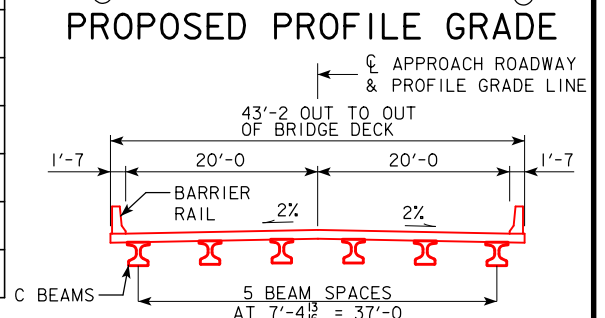
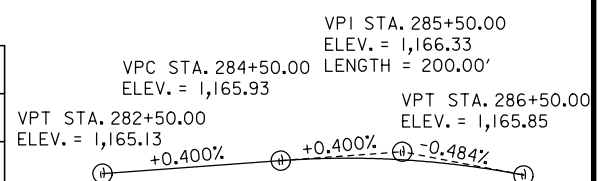
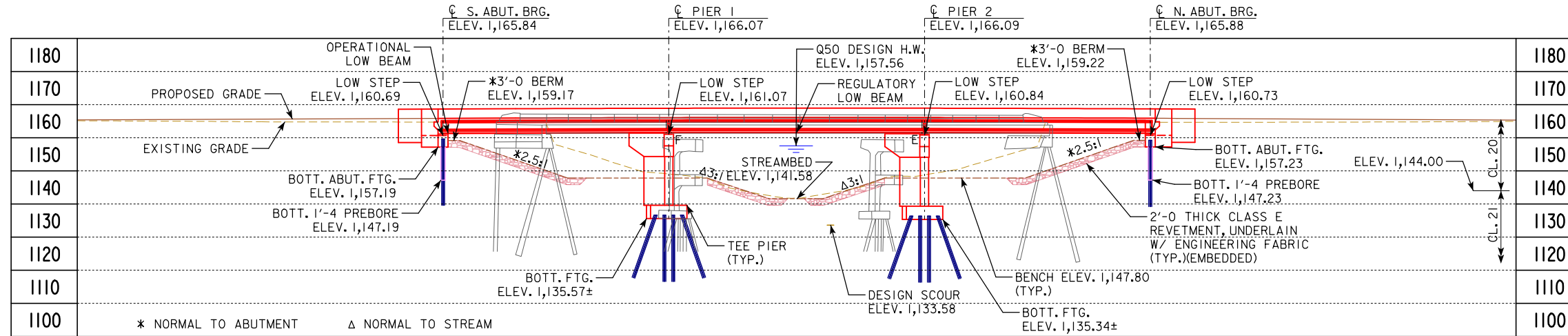


Install 4' paved shoulder along southwest corner of C12/K18 intersection. Refer to Sheet F.2 for details.

FHWA No. 277581
Install temporary crash cushions on trailing and approach corners of bridge. Refer to Sheet F.1 for details.

IOWA HIGHWAY 12 NORTHBOUND AND SOUTHBOUND DETOUR ROUTE DURING BRIDGE INSTALLATION





LONGITUDINAL SECTION ALONG CL APPROACH ROADWAY
(NOTE: CL ELEVATIONS SHOWN ARE AT PROFILE GRADE LINE)

NOTE: TOP OF BRIDGE DECK AT CENTERLINE ROADWAY IS 0.03' BELOW THE PROFILE GRADE TO ACCOUNT FOR DECK CROSS SLOPE AND PARABOLIC CROWN.

- NOTES:
- PROPOSED BRIDGE IS A H40-66 STANDARD
 - BARRIER RAIL TO BE TL-4. DESIGNED DURING FINAL DESIGN.
 - EXISTING PIERS ARE TO BE COMPLETELY REMOVED.
 - IDOT DISTRICT 3 WISHES TO KEEP EXISTING BRIDGE NUMBER SIGNS.

HYDRAULIC 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.

Timothy J. Sheets 10/09/2018
Signature Date

Printed or Typed Name: **Timothy J. Sheets**

My license renewal date is December 31, 2019

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

HYDRAULIC DATA

DRAINAGE AREA = 62.3 SQ. MI.
STREAM SLOPE = 3.17 FT./MI.
AVG. LOW WATER STAGE = 1,144.00

Q₅₀ = 11,200 CFS
STAGE = 1,157.56
REGULATORY LOW BEAM = 1,161.28
AVG. BRIDGE VELOCITY = 6.22 FPS

Q₁₀₀ = 13,400 CFS
STAGE = 1,157.86
OPERATIONAL LOW BEAM = 1,160.94
BACKWATER = 0.98 FT.
AVG. BRIDGE VELOCITY = 7.21 FPS

Q₂₀₀ = 15,700 CFS
STAGE = 1,158.30
CALCULATED DESIGN SCOUR = 1,133.58

Q₅₀₀ = 18,400 CFS
STAGE = 1,161.83
AVG. BRIDGE VELOCITY = 7.05 FPS
CALCULATED CHECK SCOUR = 1,137.90

ROADWAY OVERTOP 1,164.78
STA. 288+70.00

EXTREME HW STAGE = UNKNOWN
DATE = UNKNOWN

LOCATION

IA HWY 12
OVER INDIAN CREEK
T-93N R-48W
SECTION 09
PORTLAND TOWNSHIP
PLYMOUTH COUNTY
FHWA NO. 040021
BRIDGE MAINT. NO. 7538.95012
LATITUDE 42.890556°
LONGITUDE -96.517222°

TRAFFIC ESTIMATE

2021 AADT	1,200	V.P.D.
2041 AADT	1,200	V.P.D.
2021 DHV		V.P.H.
TRUCKS	20	%
TOTAL DESIGN ESALS		

UTILITIES LEGEND

- FO — FIBER OPTIC — PREMIER COMMUNICATIONS
- T1 — TELEPHONE — PREMIER COMMUNICATIONS

DESIGN FOR 30° SKEW (R.A.)

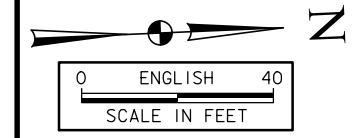
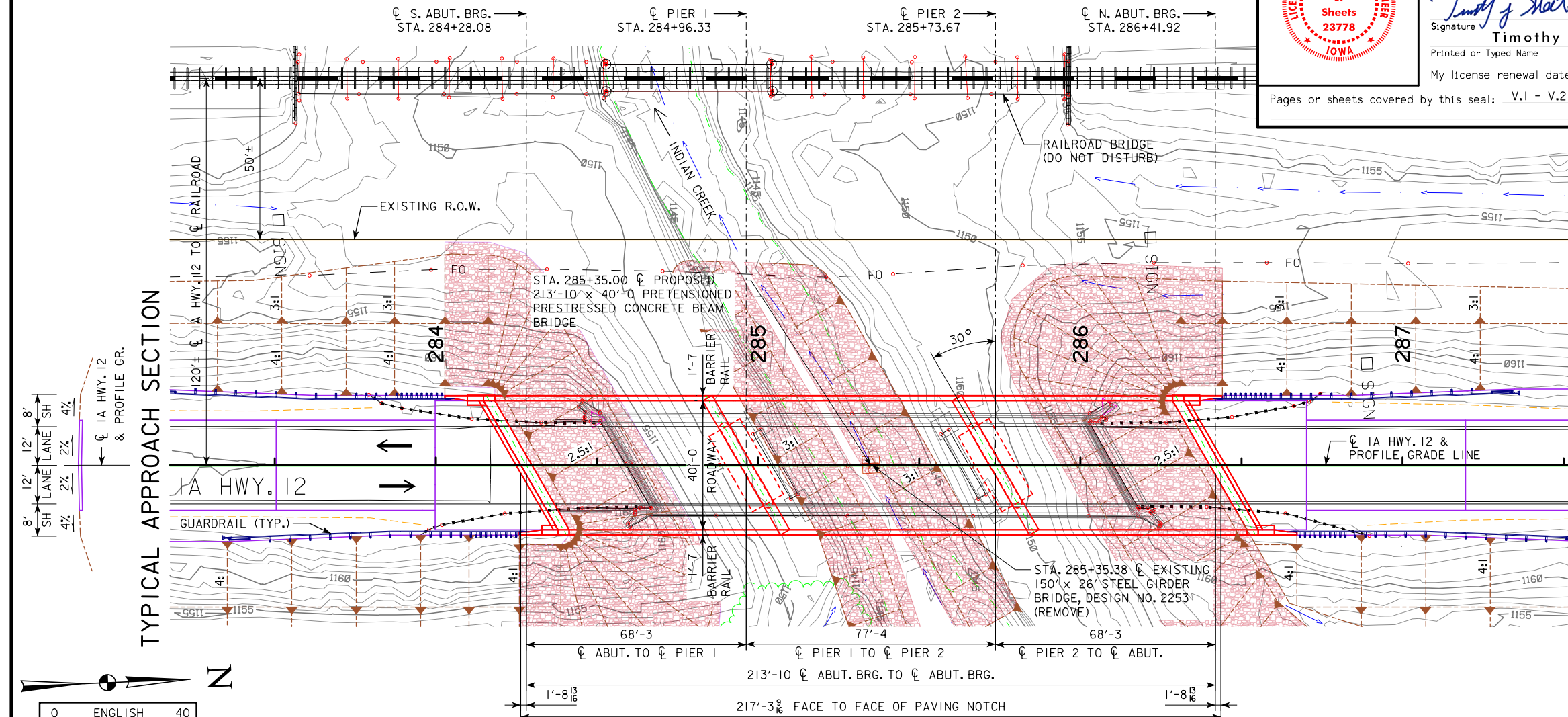
213'-10" x 40'-0" PRETENSIONED PRESTRESSED CONC. BEAM BRIDGE

68'-3" END SPANS 77'-4" INTERIOR SPAN

SITUATION PLAN

STA. 285+35.00 OCTOBER 2018
PLYMOUTH COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 2 FILE NO. 31633 DESIGN NO. 221



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)

- Topsoil (Class 10)
- Slope Dressing Only
- Class 10 Materials
- Select Loams And Clay-Loams
- Select Sand
- Unsuitable Type A Disposal
- Unsuitable Type B Disposal
- Unsuitable Type C Disposal
- Shale
- Waste
- Broken and Weathered Rock
- Solid Rock
- 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.

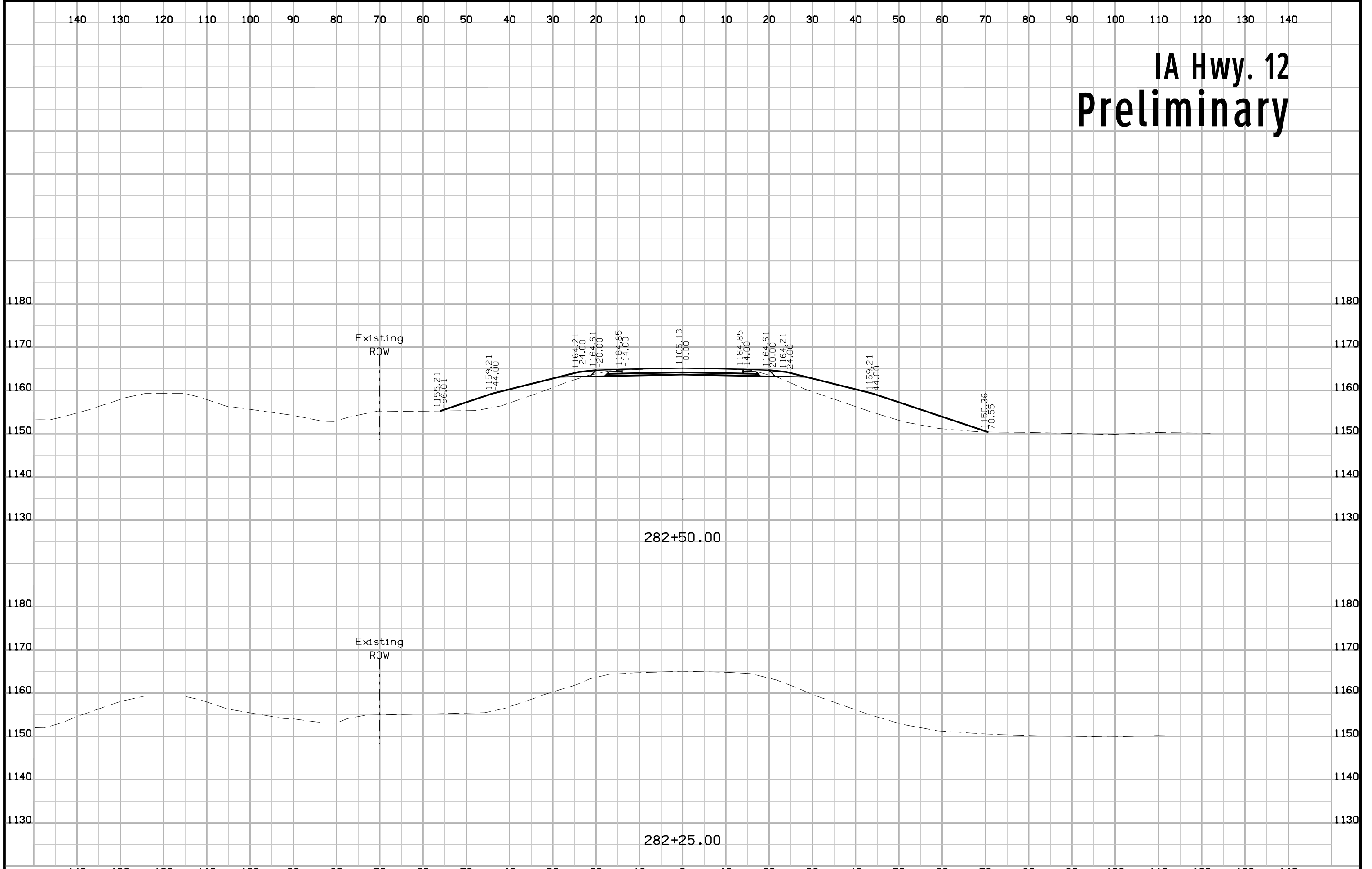
SYMBOL LEGEND OF CROSS SECTION SHEETS

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

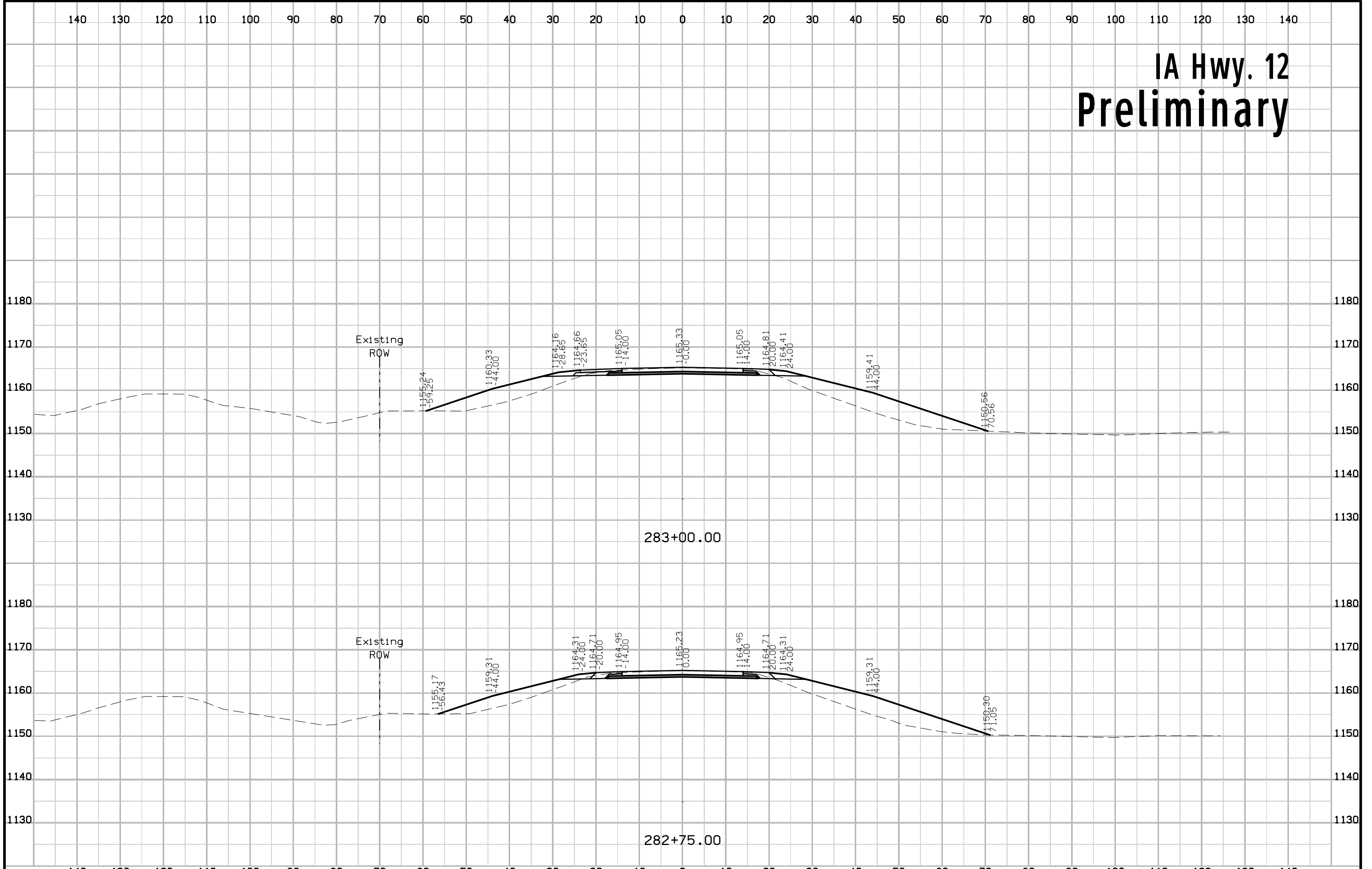
**CROSS SECTION
LEGEND AND SYMBOL
INFORMATION SHEET**

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

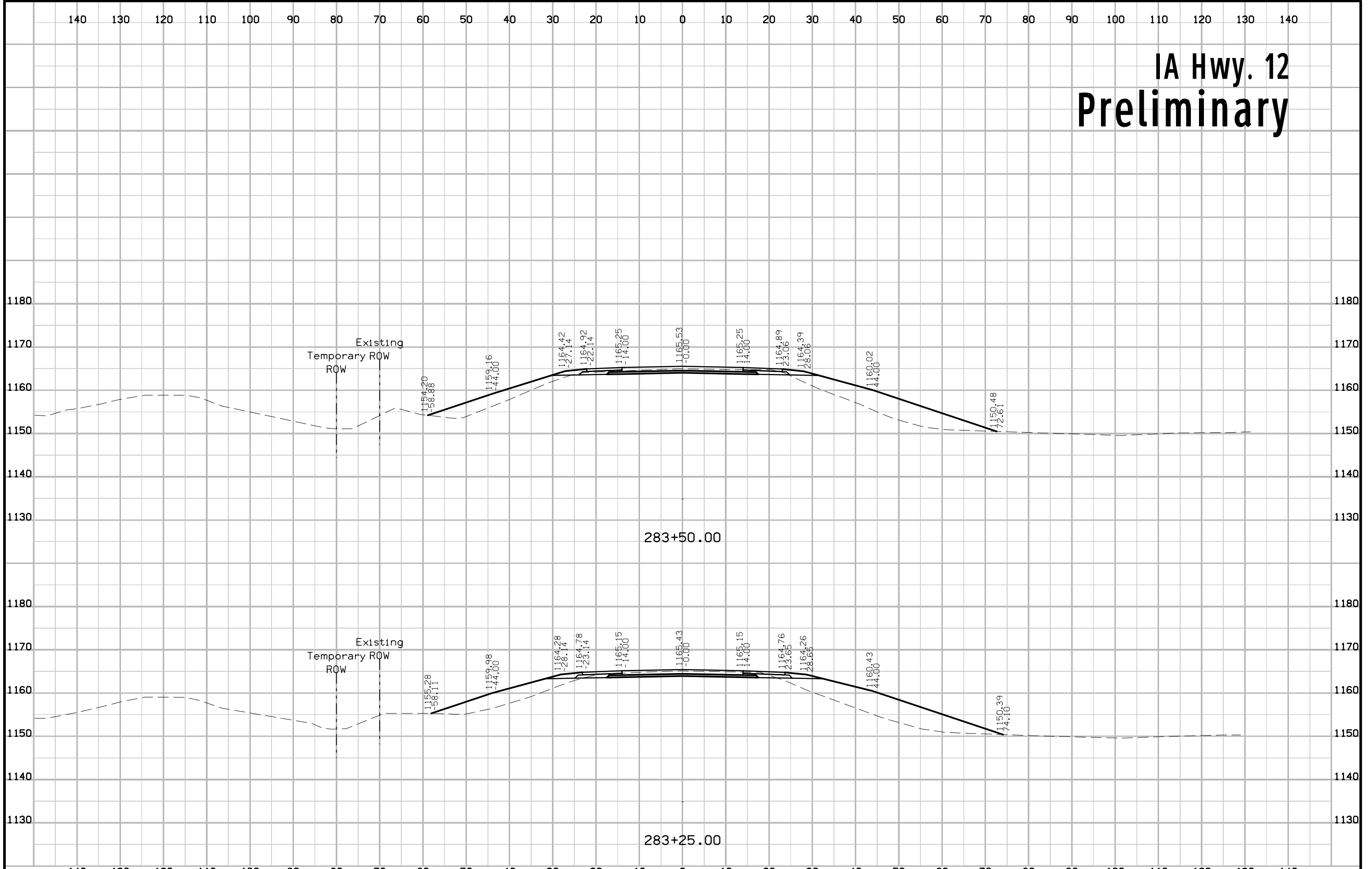
IA Hwy. 12 Preliminary



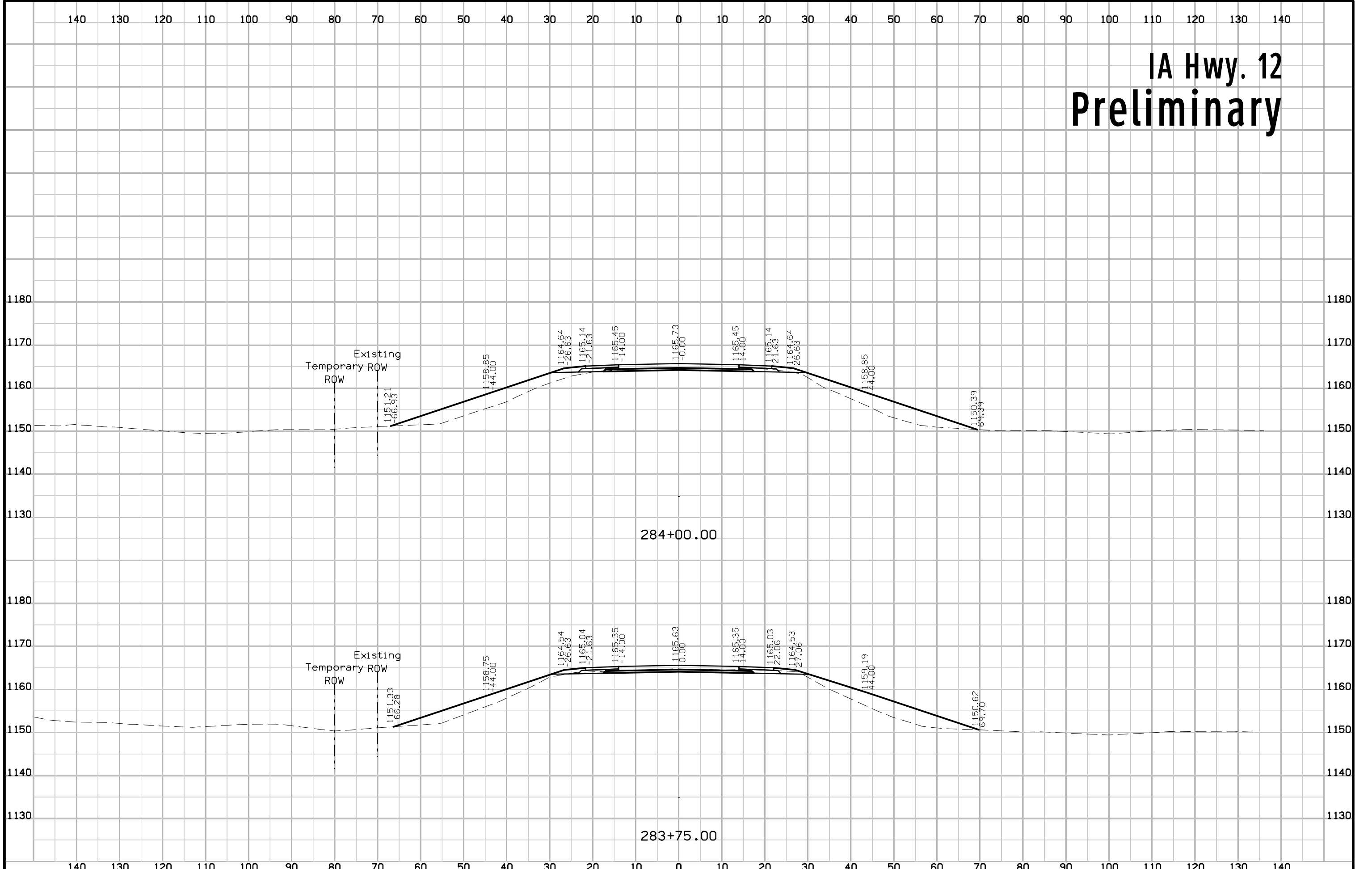
IA Hwy. 12 Preliminary



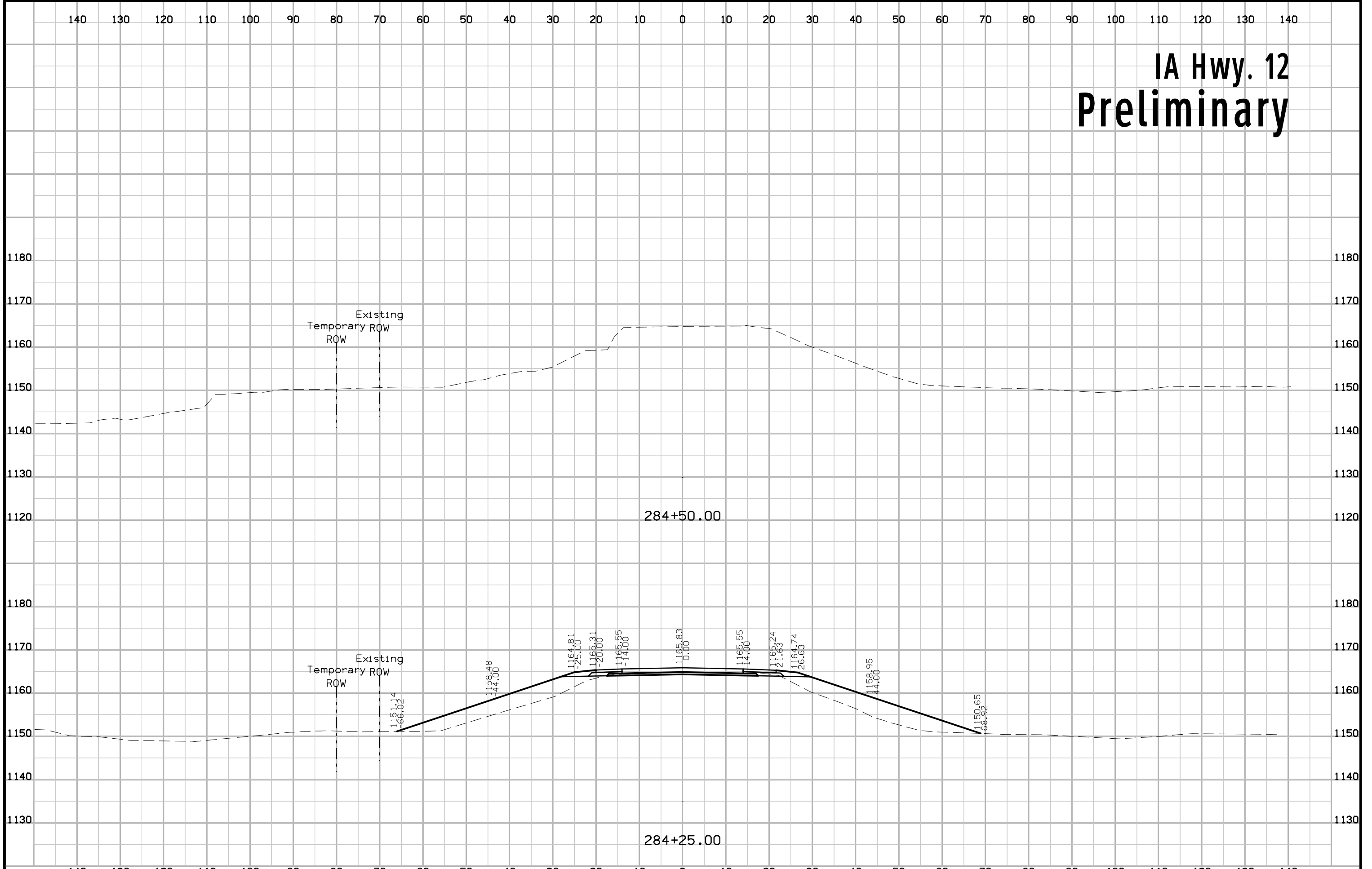
IA Hwy. 12 Preliminary



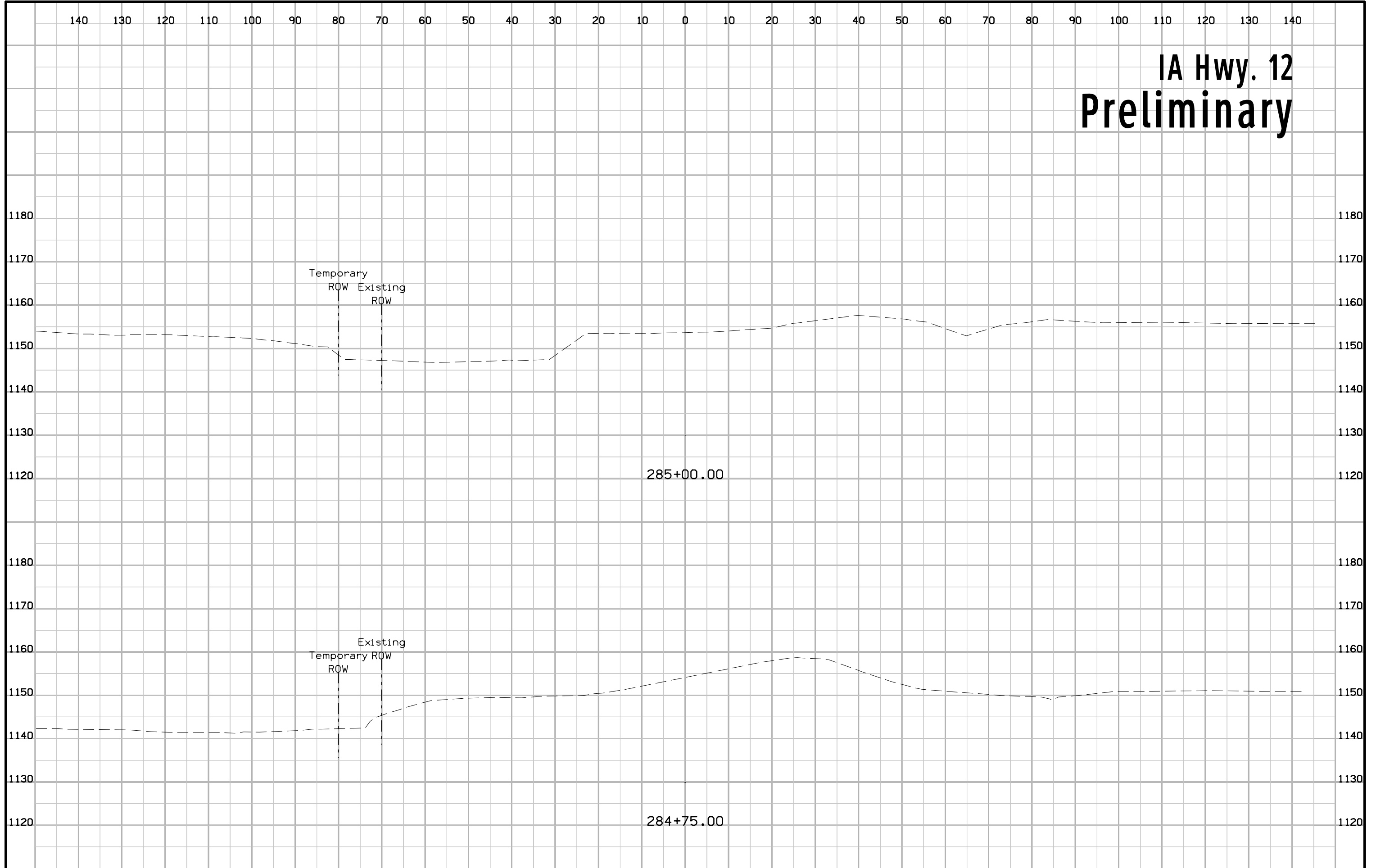
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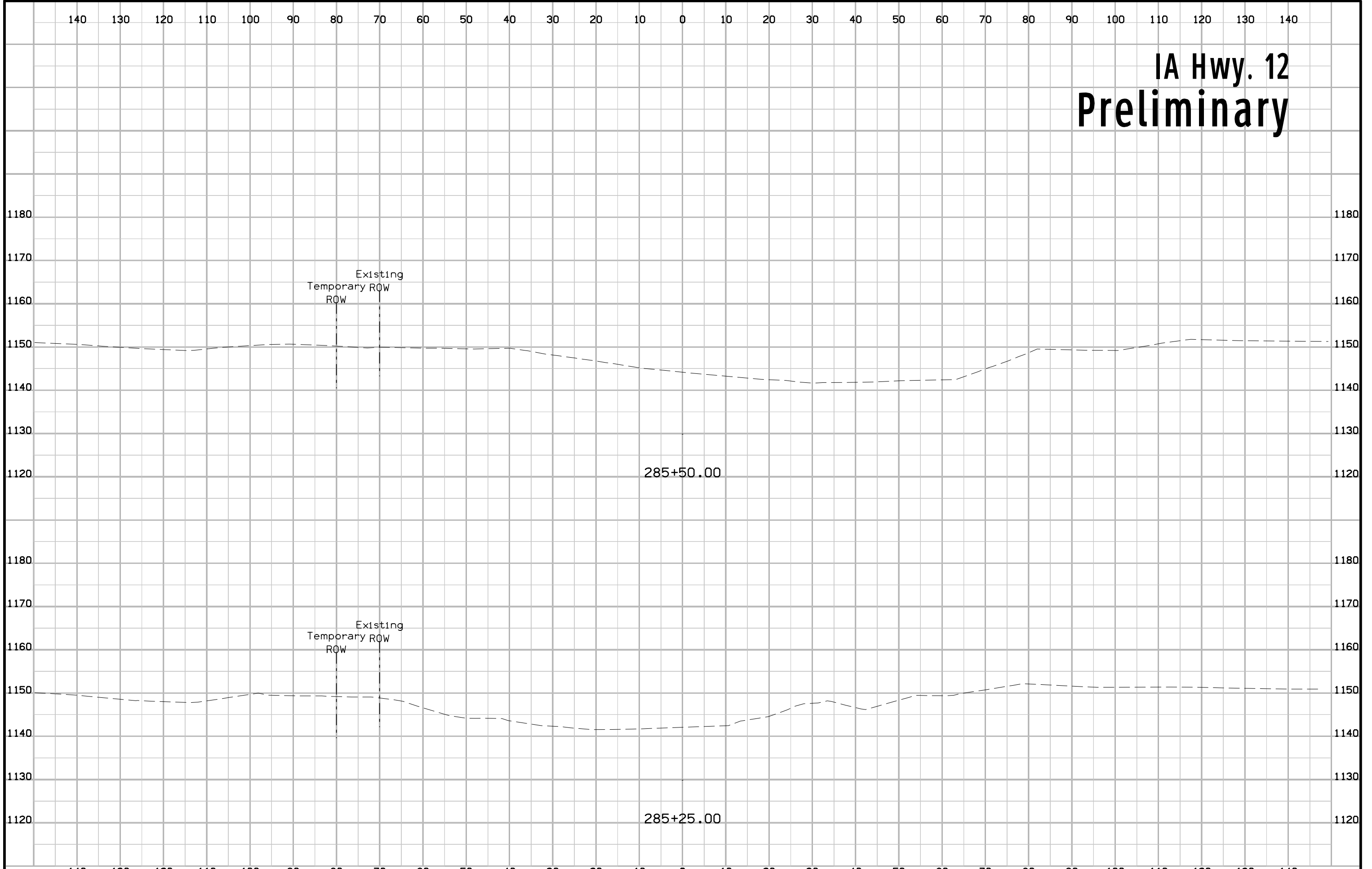
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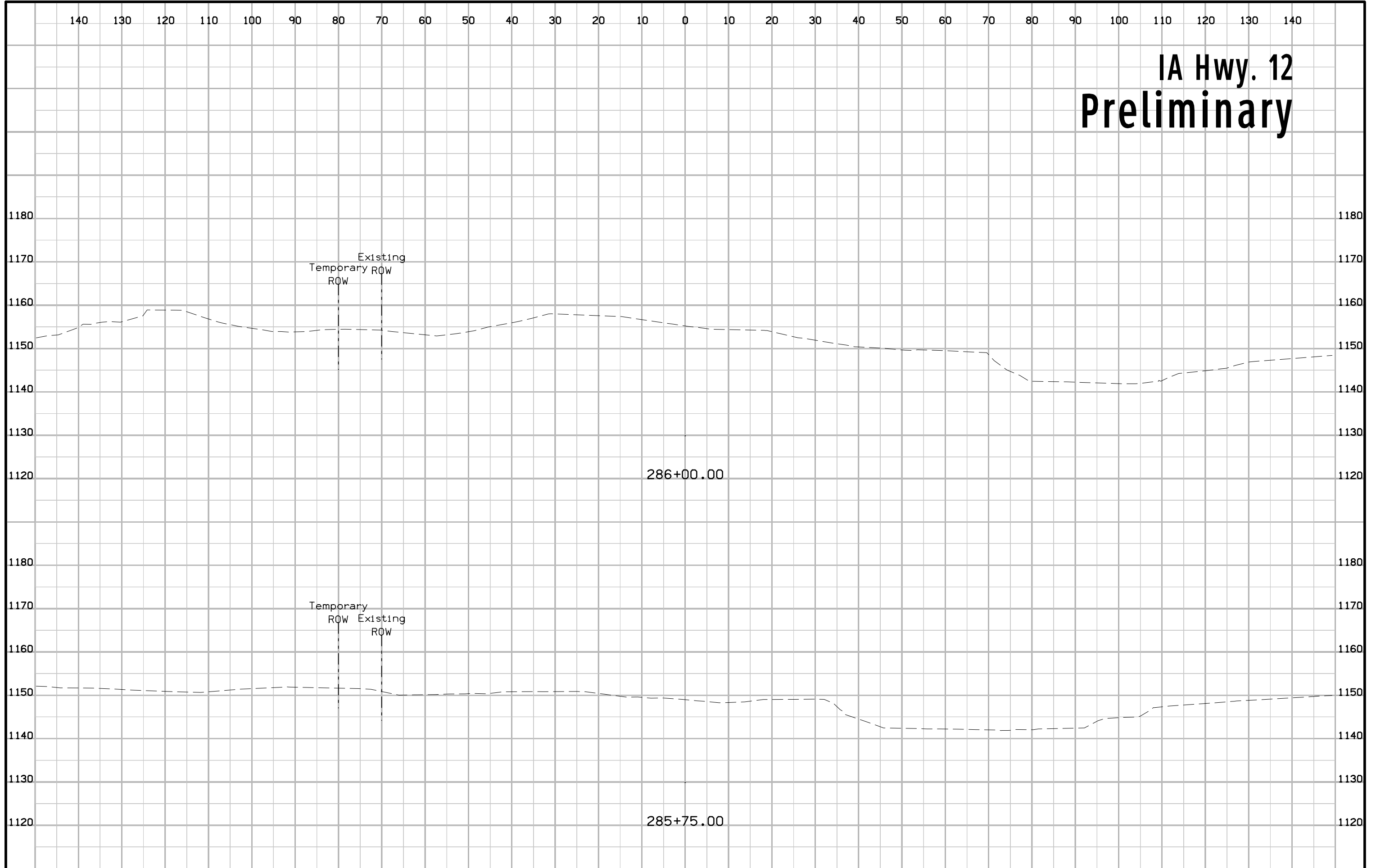
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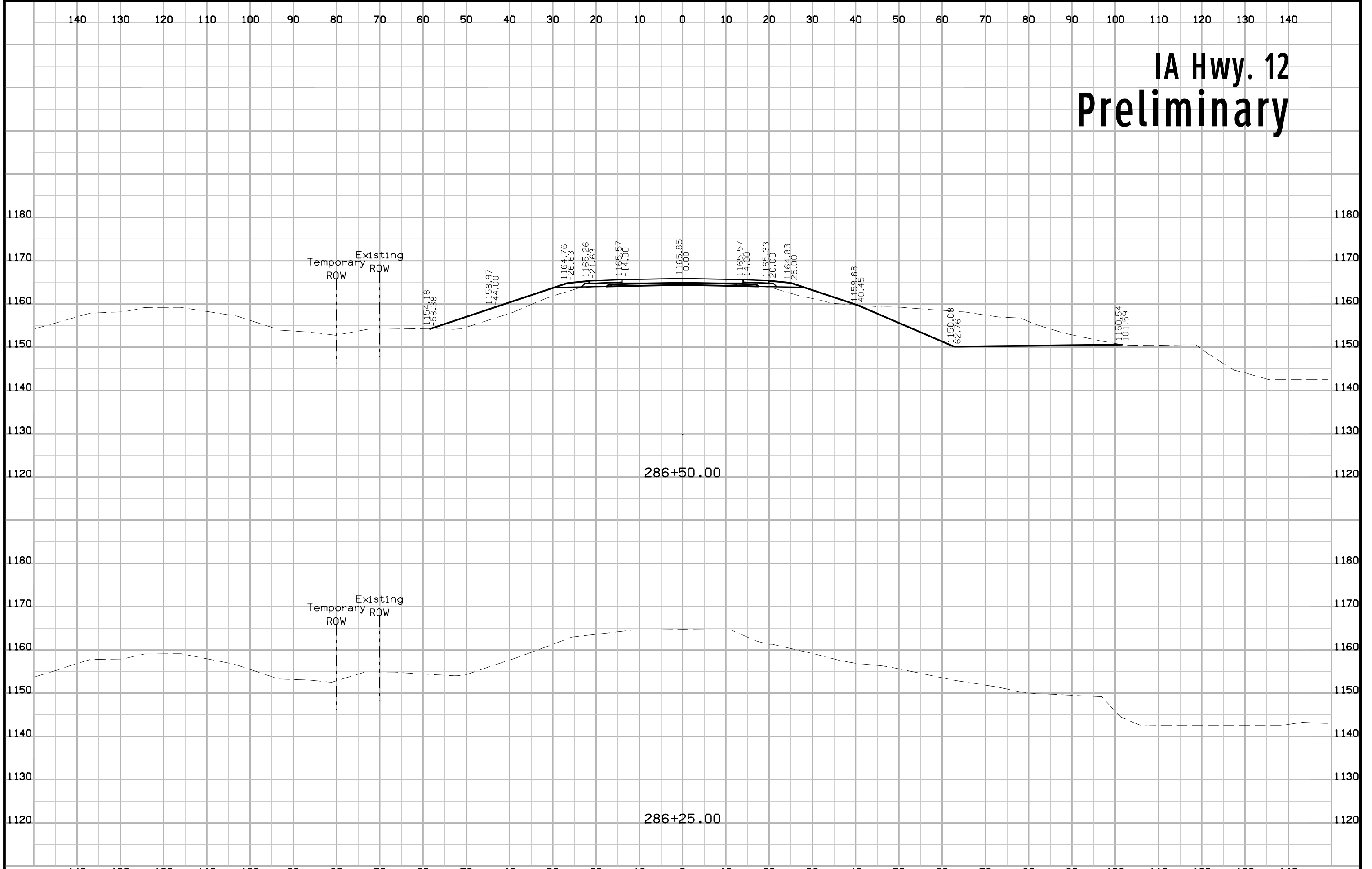
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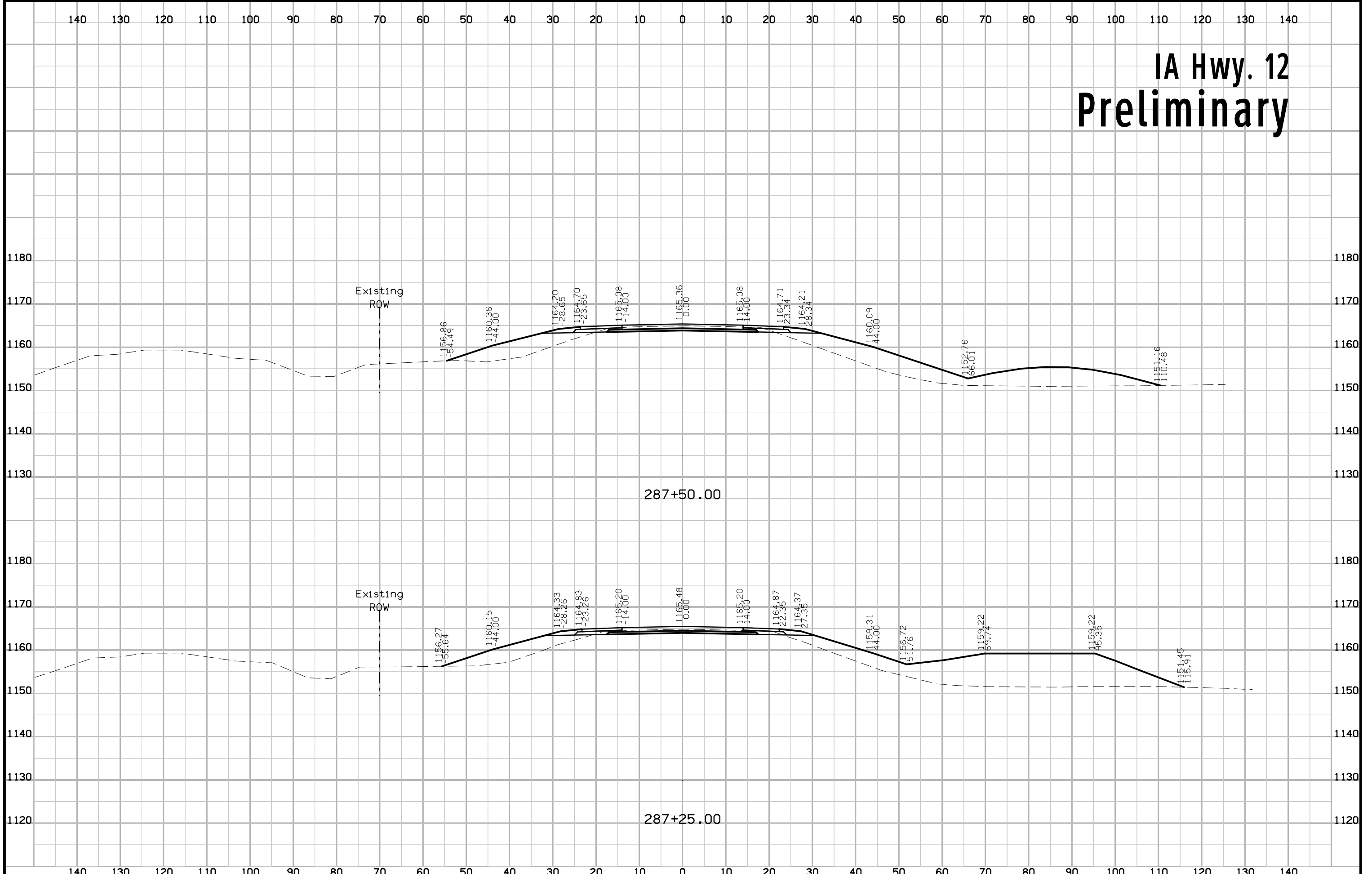
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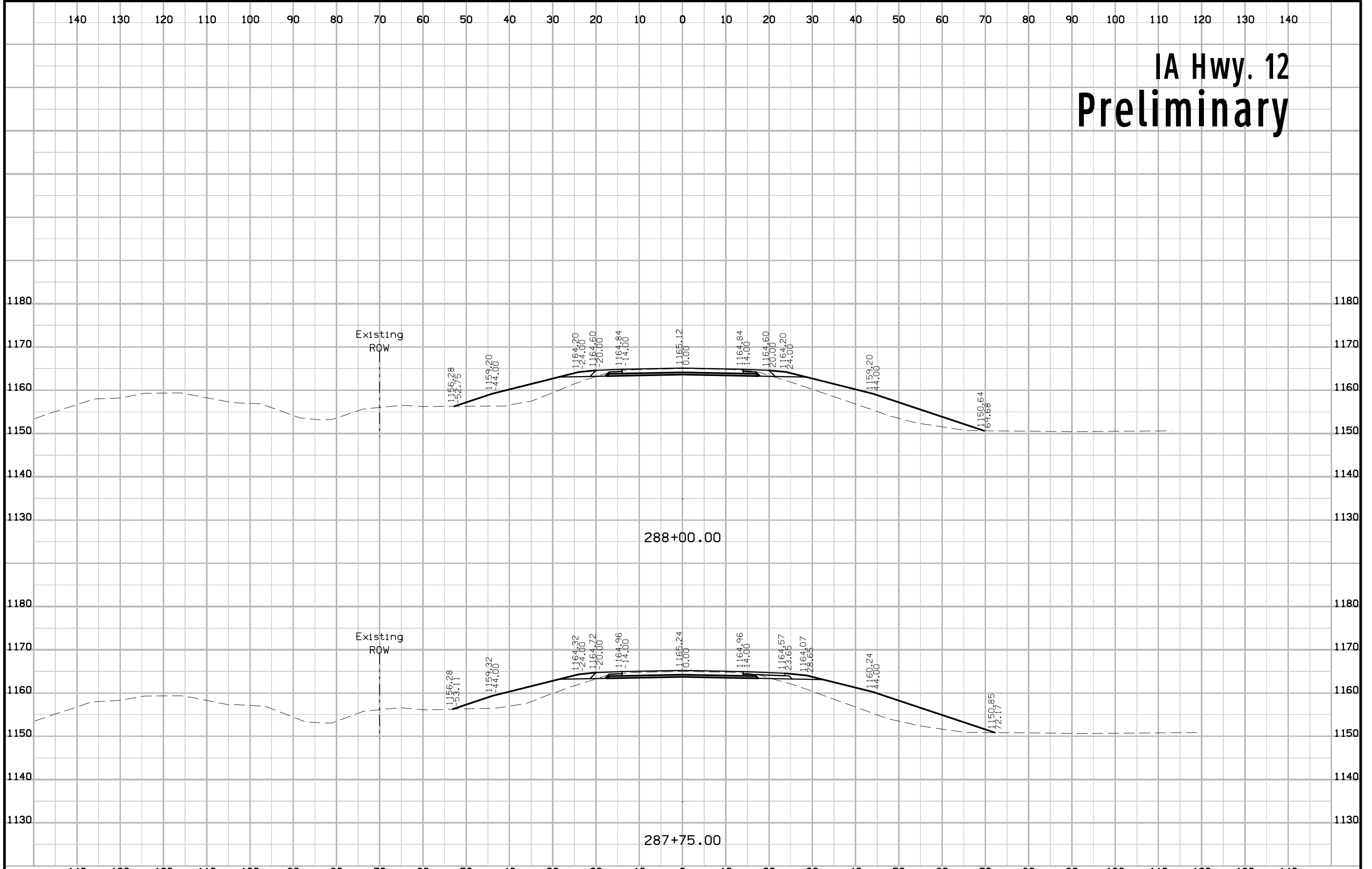
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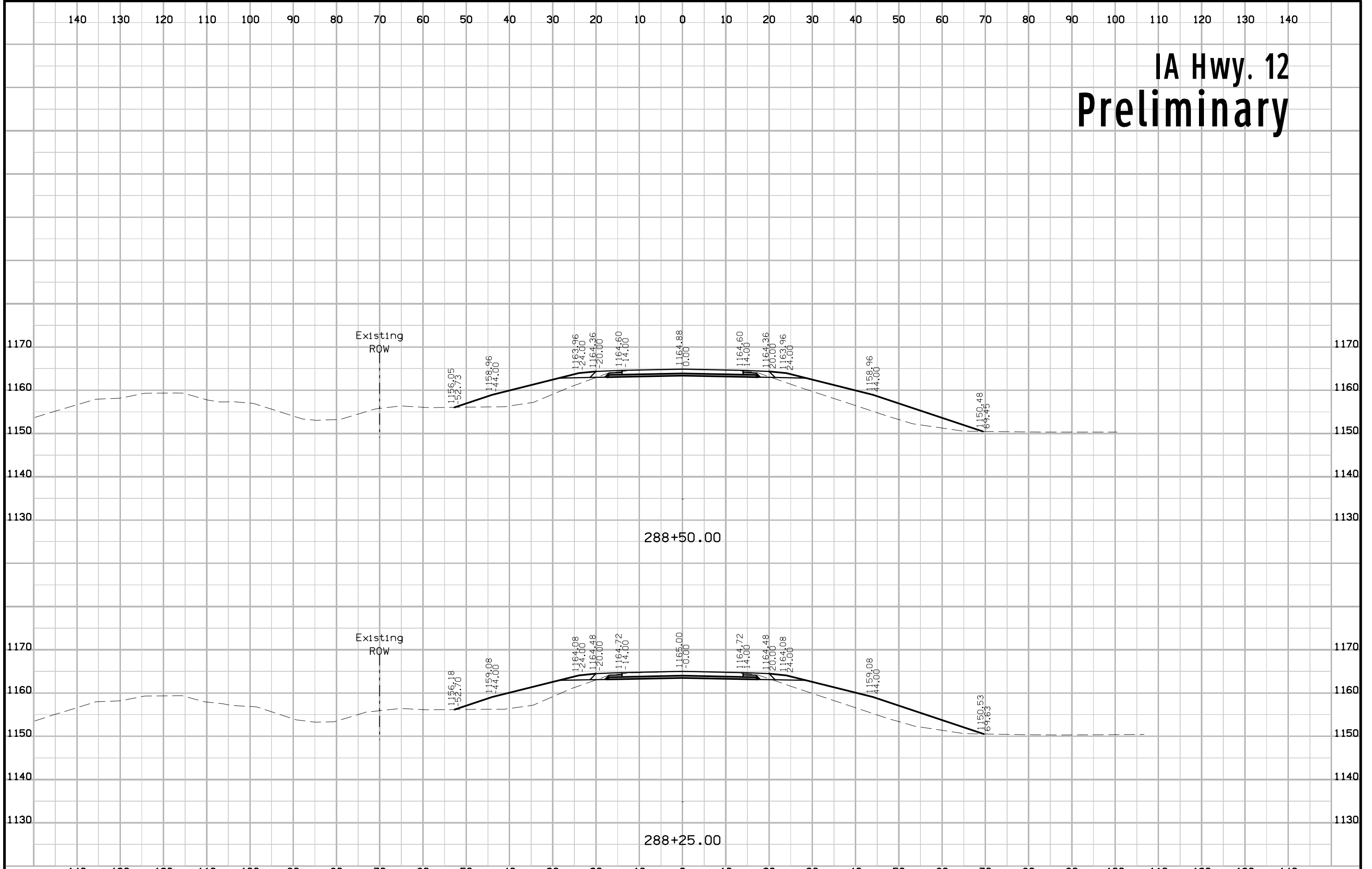
IA Hwy. 12 Preliminary



IA Hwy. 12 Preliminary



IA Hwy. 12 Preliminary



IA Hwy. 12 Preliminary

