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* D.2	IA 4
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G.3	Horizontal Control Tab. & Super for all Alignments
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	* Color Plan Sheets



PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

PALO ALTO COUNTY

Bridge Replacement - CCS

Drainage Ditch 1.3 mi S of Co Rd B57

SCALES: As Noted

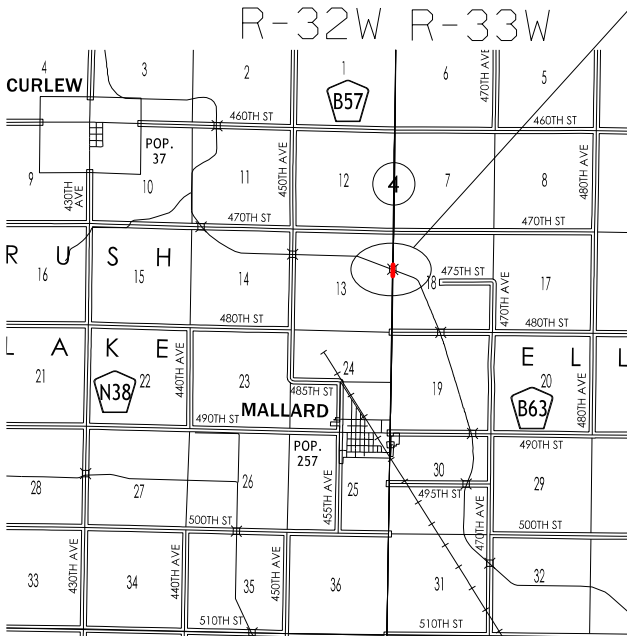
Refer to the Proposal Form for list of applicable specifications.

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



REVISIONS

TOTAL
..
PROJECT IDENTIFICATION NUMBER
22-74-004-010
PROJECT NUMBER
BRF-004-5(053)--38-74
R.O.W. PROJECT NUMBER
STPN-004-5(054)--2J-74



PROJECT LOCATION
FHWA 39200
REF LOC 102.6

DESIGN DATA RURAL			
2027	AADT	2800	V.P.D.
2047	AADT	2900	V.P.D.
20	-	DHV	- V.P.H.
		TRUCKS	13 %
		Total	
		Design ESALS	-

INDEX OF SEALS			
SHEET NO.	NAME	TYPE	BID QUANTITY SHEETS
A.1	X	Primary Signature Block	X
X	X	X	X

P9 PLAN - Date: 5/15/25
D4 PLAN - Date: 9/23/26

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN - Date: 2/4/25

Checking with Soils on Subdrain needs.

PCC Shoulder

Shoulder Jointing:
Longitudinal joint: BT-2 or L-2
Transverse joints: C, Match ML spacing

2_P_FullPCC_MODIFIED		
STATION TO STATION		(P) Feet
282+16.00	283+95.13	10
287+19.31	288+13.00	10

Paved Shoulder at Guardrail

Shoulder Jointing:
Longitudinal joint: BT-2 or L-2
Transverse joints: C, match ML spacing

2_P_FullPCC_MODIFIED		
STATION TO STATION		(P) Feet
283+95.13	284+41.24	Varies
286+32.18	287+19.31	Varies

PCC Shoulder

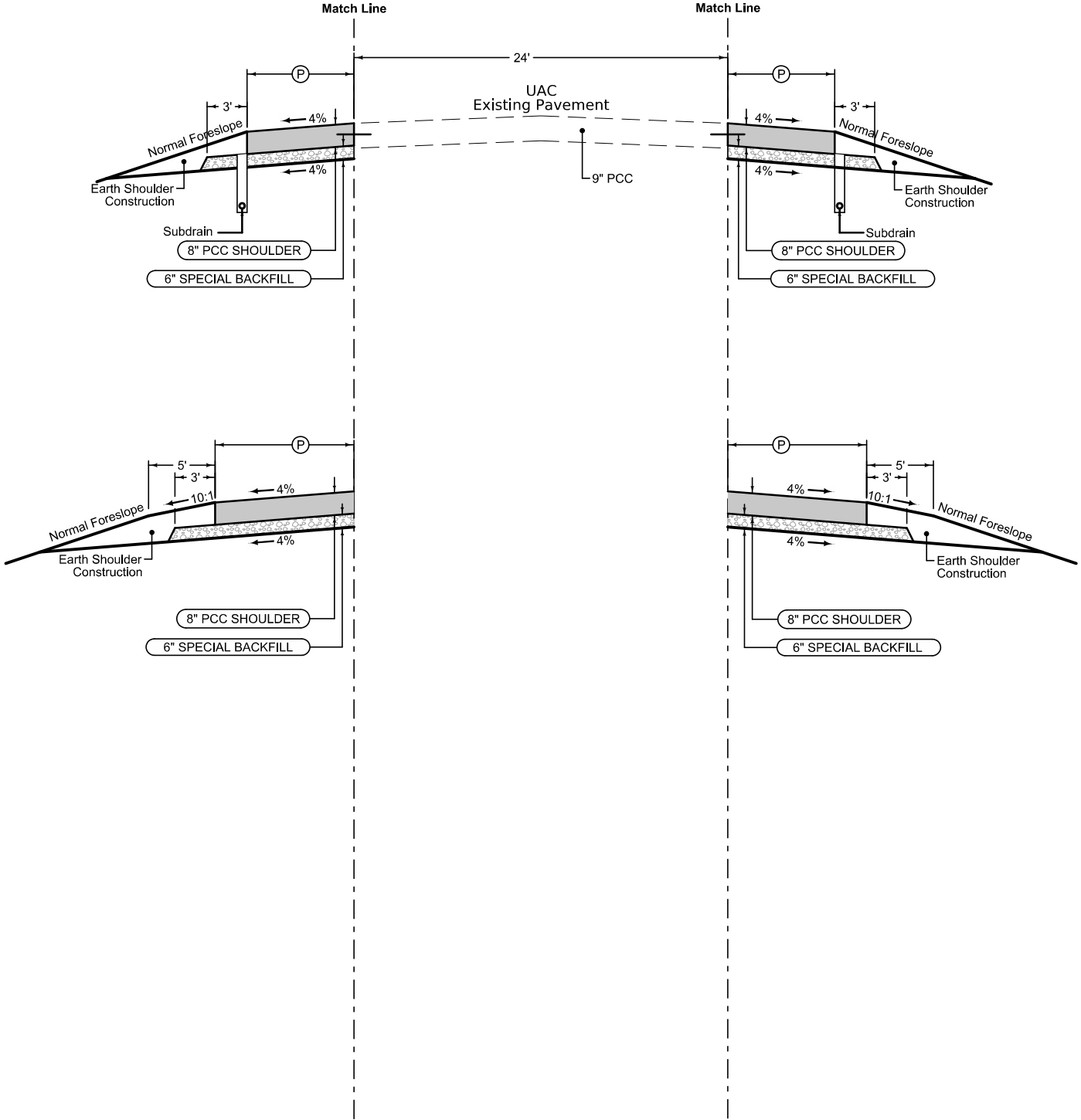
Shoulder Jointing:
Longitudinal joint: BT-2 or L-2
Transverse joints: C, match ML spacing

2_P_FullPCC_MODIFIED		
STATION TO STATION		(P) Feet
281+93.00	283+54.11	10
286+78.29	289+04.00	10

Paved Shoulder at Guardrail

Shoulder Jointing:
Longitudinal joint: BT-2 or L-2
Transverse joints: C, match ML spacing

2_P_FullPCC_MODIFIED		
STATION TO STATION		(P) Feet
283+54.11	284+41.24	Varies
286+32.18	286+78.29	Varies

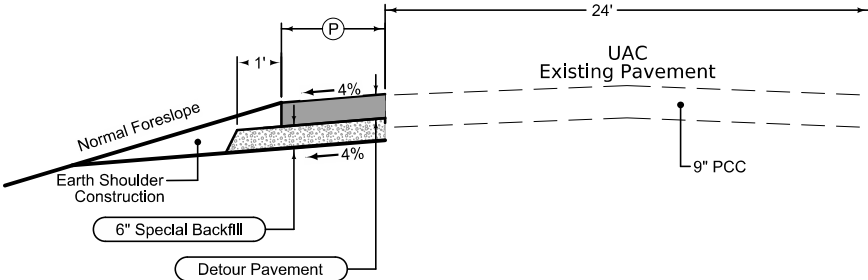


IA 4

Detour Pavement ①

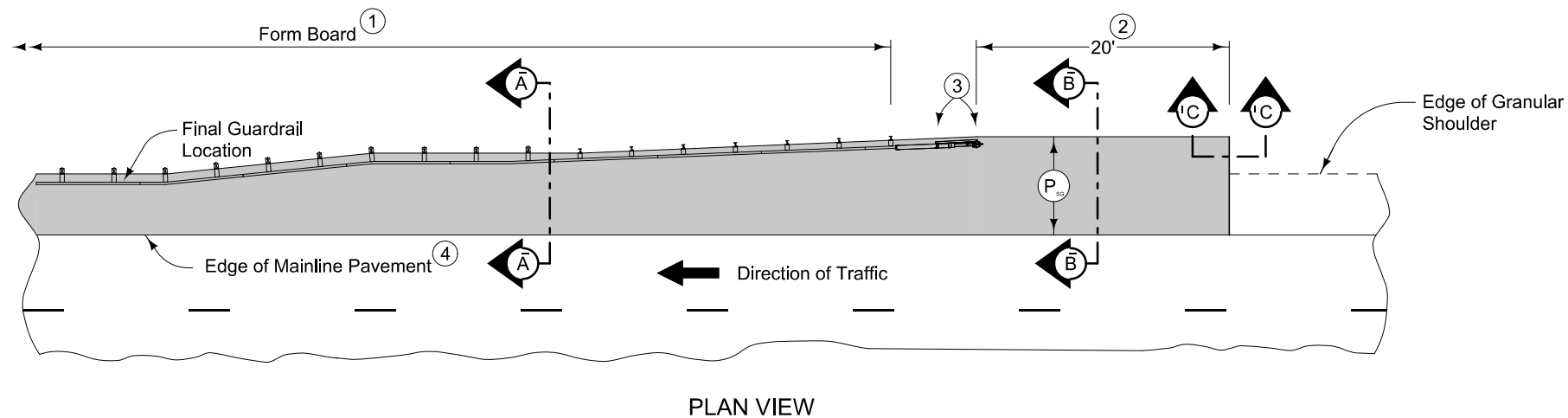
PCC Shoulder Jointing:
Longitudinal joint: B
Transverse joints: C
HMA Shoulder Jointing
Longitudinal joint: B

Custom				
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	SPECIAL BACKFILL (CY)
SB	284+41.24	285+28.59	3	6.5
SB	285+53.62	286+57.18	3	7.7



① Refer to J Sheets.

DETOUR PAVEMENT



DESIGNER
INFO

7156
MODIFIED

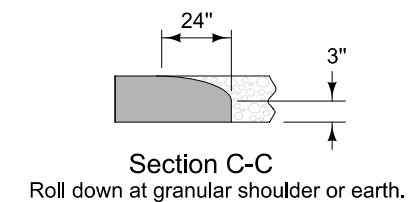
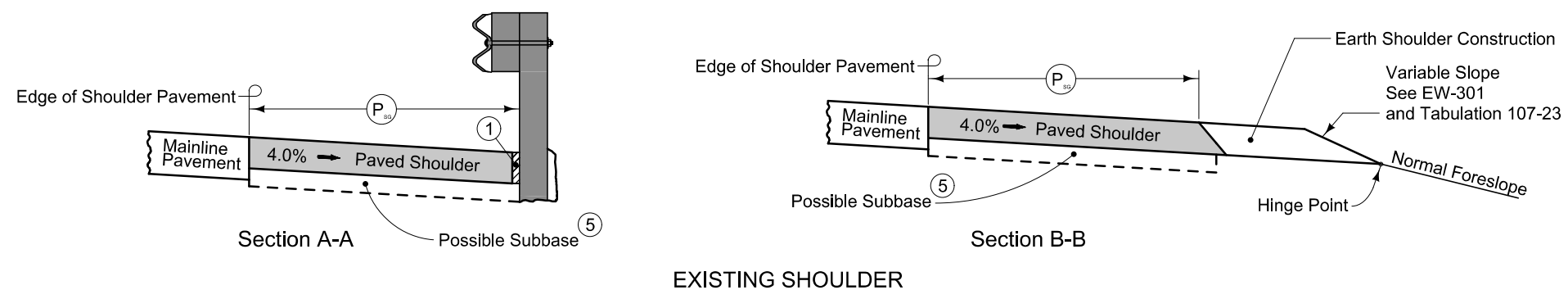
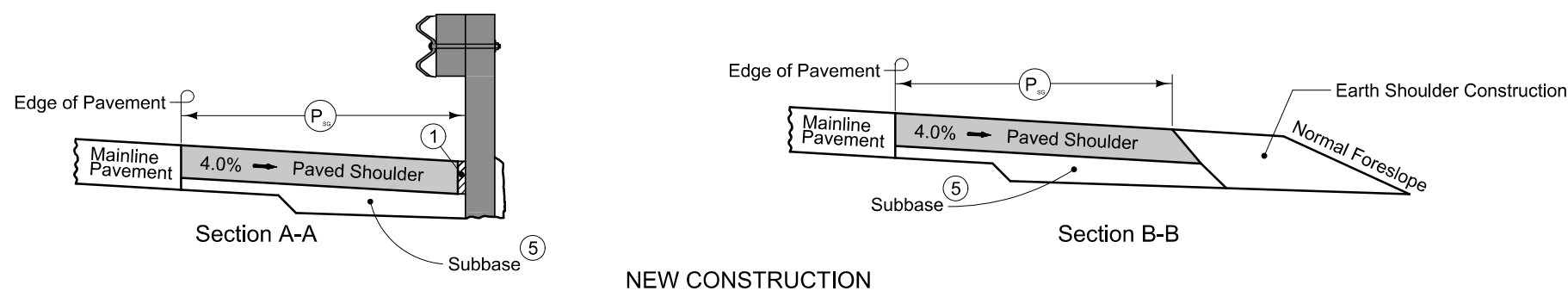
8" PCC Paved Shoulder at guardrail.
PCC jointing layout:

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.

Removal and reinstallation of guardrail will be allowed with no additional payment.

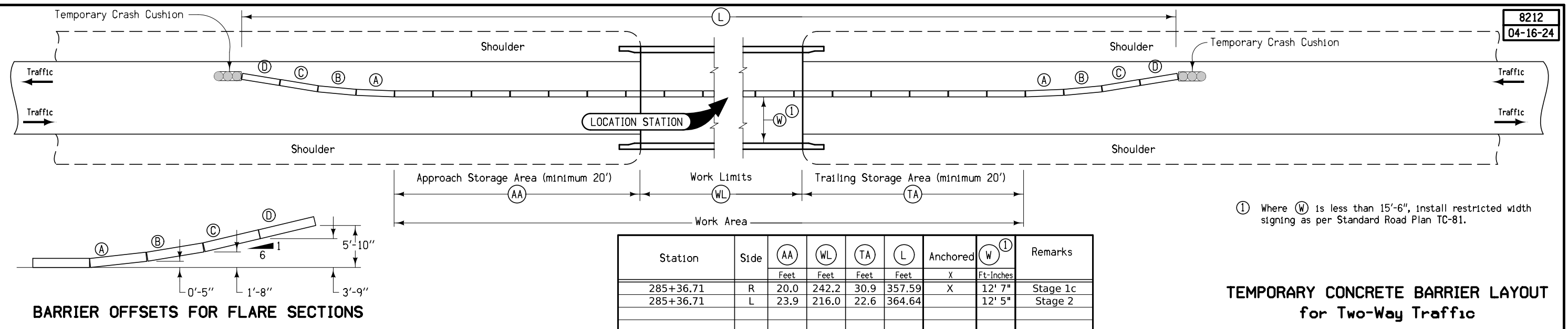
Refer to Tabulation 112-9 for shoulder quantities.

- ① 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.
- ② Continue paved shoulder 20 feet beyond the center of the first post.
- ③ Shoulder may be notched for first 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
- ④ 'BT' joint (per PV-101) for PCC shoulder.
- ⑤ Refer to other details in the plan.

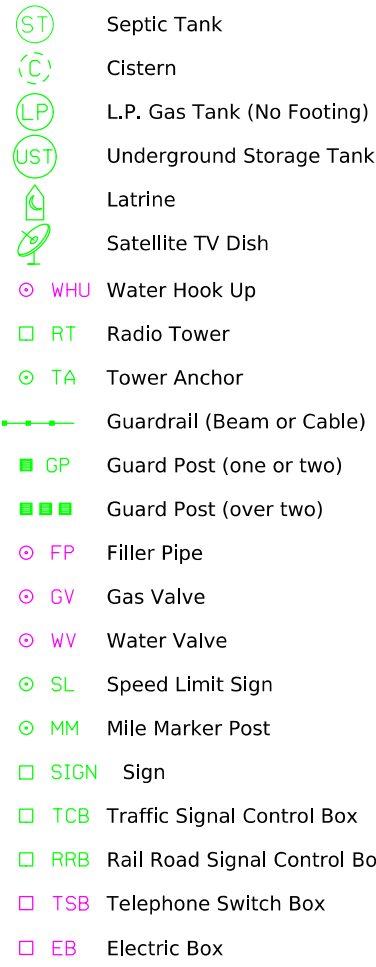


PAVED SHOULDER AT GUARDRAIL
(GRANULAR SHOULDER ADJACENT TO MAINLINE)

DESIGNER INFORMATION



	Interstate Highway Symbol
	U.S. Highway Symbol
	Iowa Highway Symbol
	County Road Highway Symbol
	Evergreen Tree
	Deciduous Tree
	Fruit Tree
	Shrub (Bushes)
	Timber
	Hedge
	Stump
	Swamp
	Rock Outcrop
	Broken Concrete
	Revetment (Rip Rap)
	Cemetery
	Grave
	Cave
	Sink Hole
	Board Fence
	Chain Link or Security Fence
	Wire Fence
	Terrace
	Earth Dam or Dike (Existing)
	Tile Outlet
	Edge of Water
	Existing Drainage
	Right of Way Rail or Lot Corner
	Concrete Monument
	Well
	Windmill
	Beehive Intake
	Existing Intake
	Existing Utility Access (Manhole)
	Fire Hydrant
	Water Hydrant (Rural)



Centurylink
Sadie Hull (Telephone)
sadie.hull@lumen.com
918.547.0147

— F02 —
Iowa Communications Network
Brandon Haines
brandon.haines@iowa.gov
800.572.3940

— E1 —
Iowa Lakes Electric COOP-Elec
Kay Dahl
ioc-dir@ilec.coop
712.362.2694

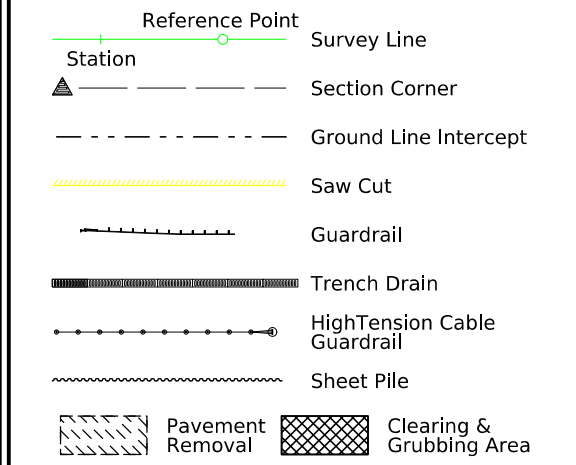
— F0 —
Windstream Communications
Locate Desk
locate.desk@windstream.com

— T1 —
800.289.1901

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

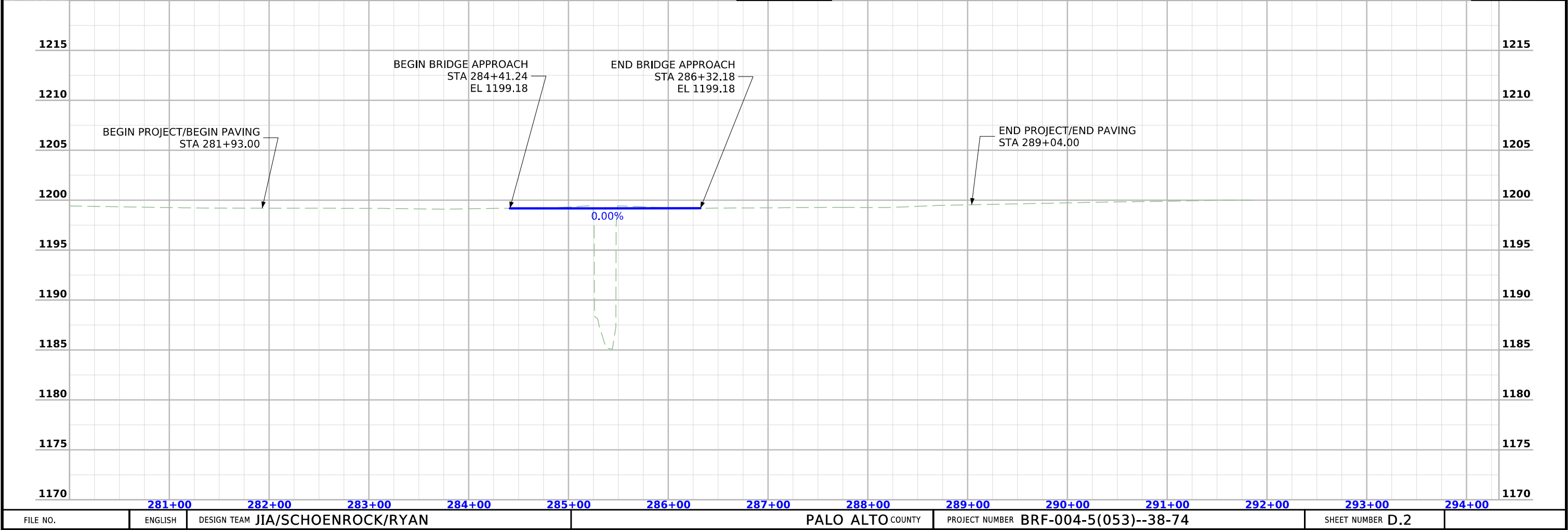
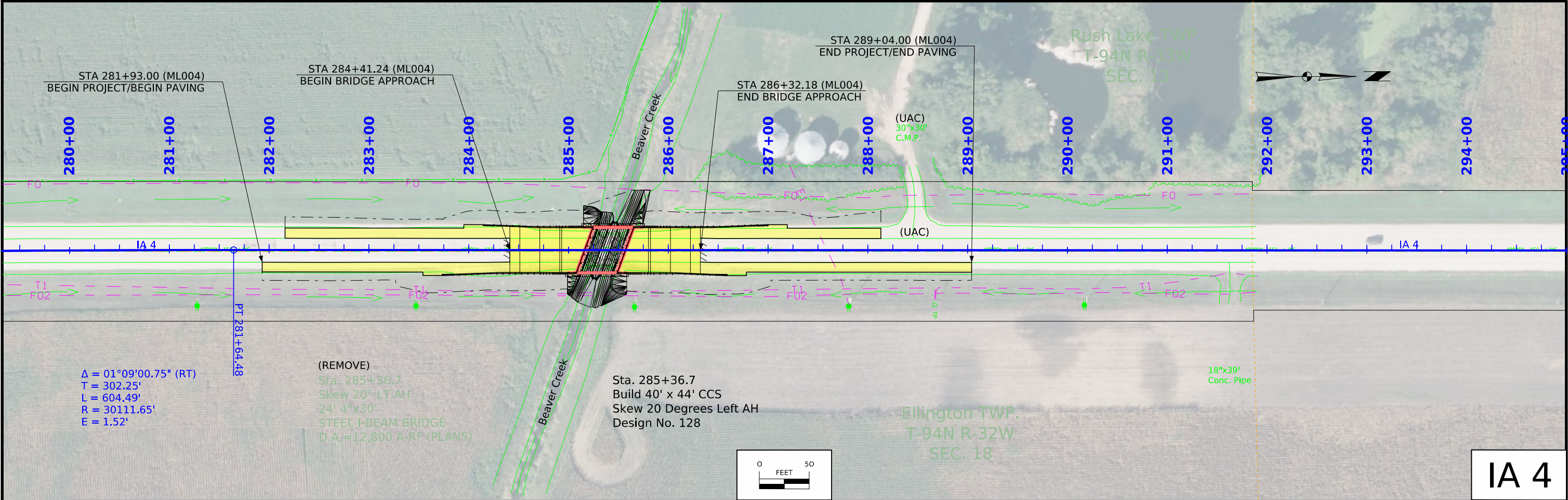
SHADING		Design Color No.		Transparency
Pink, Dark	(13)		Temporary Pavement Shading	50%
Yellow	(4)		Proposed Pavement Shading	50%
Orange	(6)		Proposed Granular Shading	50%
Orange	(70)		Proposed Shoulder Granular Shading	50%
Yellow	(68)		Proposed Shoulder Paved Full Depth Shading	50%
Yellow	(132)		Proposed Shoulder Paved Partial Depth Shading	50%
Brown, Light	(236)		Grading Shading	50%
Orange, Light	(134)		Proposed Granular Entrance Shading	50%
Yellow	(220)		Proposed Paved Entrance Shading	50%
Tan	(8)		Proposed Sidewalk Shading	50%
Blue, Light	(230)		Proposed Sidewalk Landing Shading	50%
Pink	(11)		Proposed Sidewalk Ramp Shading	50%
Red	(3)		Proposed Structure Shading	50%
Red	(3)		Delineates Restricted Areas	0%

LINEWORK	Design Color No.	
Green	(10)	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



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

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



Survey Information

SURVEY INDEX

Palo Alto County
BRF-004-5(53)--38-74
Drainage Ditch 1.3 mi S of Co Rd B57
PIN: 22-74-004-010
Type of Work: Bridge Replacement
Project Directory: 7400401022
SAP: 991.1

Survey Personnel

Daniel Duncan – Survey Party Chief

Date(s) of Survey

Begin Date 09/25/2023
End Date 11/16/2023

General Information

This survey is for the replacement of the Beaver Creek Bridge on IA 4 which is 1.3 miles South of County Road B57 in Palo Alto County. This project is a Full Field DTM survey.

Utility Information

For logging data and other utility details see Utility Survey and Ownership Report in the Utility folder of the PrelimSurvey project directory.

Project Control

Coordinates were determined for primary project control points by conducting concurrent six-hour static observations. Post processing is constrained to nearby Iowa Real Time Network reference stations. For additional details of the control survey, contact the Preliminary Survey department.

PROJECT DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 ADJUSTMENT)
COORDINATE SYSTEM: IOWA REGIONAL COORDINATE SYSTEM ZONE _01_
(U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018u3

Alignment Information

The horizontal alignment for IA. Hwy 4 this survey is a retrace of As-built Plans No. F-17-5(2)—20-74. Survey stationing was equated to the plan PI at Sta. 278+62.25 and carried back and ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

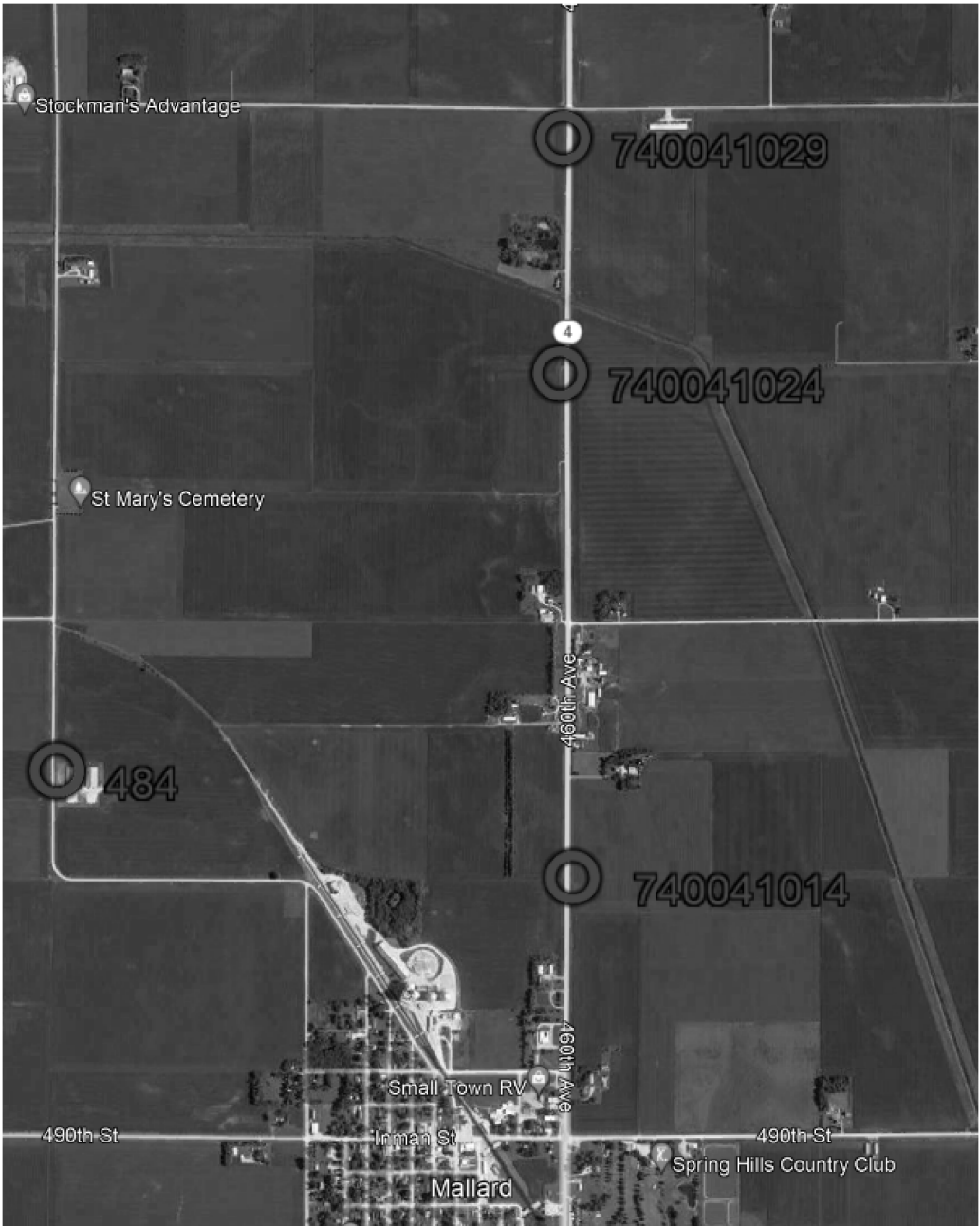
PC Sta. 275+62.25 As-built Plans Project No. F-17-5(2)—20-74
Survey PC Sta. 275+59.99

PI Sta. 278+62.25 As-built Plans Project No. F-17-5(2)—20-74
Survey PI Sta. 278+62.25

PI Sta. 305+07.23 As-built Plans Project No. F-17-5(2)—20-74
Survey PI Sta. 305+08.09

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) for EPOCH 2010.00 (IaRTN 2019 Adjustment) - Iowa RCS Zone 01 (U.S. Survey Foot)

VERT. DATUM: NAVD88 - Geoid Model: 2018u3

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

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING
HORIZ. DATUM: NAD83(2011) for EPOCH 2010.00 (laRTN 2019 Adjustment)
la. Regional Coordinate System Zone 01 (U.S. Survey Foot)
VERT. DATUM: NAVD88
Geoid Model: 2018u3

Point Name	Northing	Easting	Elevation	Feature Definition-Description
484	9508648.69	11647802.27	1246.25	CP FND PALO ALTO CO GPS CONTROL POINT AS DESCRIBED IN GOOD CONDITION .3MI South of 480th Street on 450th Ave in East Ditch
740041014	9507588.52	11653077.93	1205.46	CP FND IDOT CONC REF MON IN GOOD CONDITION WITH DIMPLE IN REBAR .5MI North of 490th Street in East Ditch
740041024	9512729.14	11652912.90	1198.52	CP FND IDOT CONC REF MON IN GOOD CONDITION WITH DIMPLE IN REBAR .5MI North of 480th Street in West Ditch
740041029	9515141.72	11652929.31	1198.63	CP FND IDOT ROW RAIL IN GOOD CONDITION SET DIMPLE IN BALL 300FT South of 470th Street in West Ditch

108_23A
8/15/22

TRAFFIC CONTROL PLAN

One lane of alternating traffic on IA 4 shall be maintained at all times. Refer to traffic control notes and staging plans. The Contractor shall provide access to entrances at all times.

511 TRAVEL RESTRICTIONS

Line No.	Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No. or Structure ID or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
1.0								None					No Restrictions

STAGING NOTES

STAGE 1A
Traffic:
Maintain one lane of alternating traffic on NB lane of IA 4 via temporary traffic signals.
Close SB lane.

Construction:
(1) Pave proposed SB shoulders from 282+16.00 to 284+41.24
(2) Pave temporary SB shoulders from 284+41.24 to 285+28.59
(3) Pave temporary SB shoulders from 285+53.62 to 286+57.18
(4) Pave proposed SB shoulders from 286+57.18 to 288+13.00

STAGE 1B
Traffic:
Maintain one lane of alternating traffic on SB lane of IA 4 via temporary traffic signals.
Close NB lane.

Construction:
(1) Pave proposed NB shoulders from 281+93.00 to 283+83.08
(2) Pave proposed NB shoulders from 286+57.18 to 289+04.00

STAGE 1C
Traffic:
Maintain one lane of alternating traffic on SB lane of IA 4 via temporary traffic signals and TBR.
Close NB lane.

Construction:
(1) Construct 18' of NB side of proposed bridge.
(2) Pave proposed NB shoulders from 283+83.08 to 284+41.24
(3) Pave NB side of Bridge approach on each side of the bridge.
(4) Pave proposed NB shoulders from 286+32.18 to 286+57.18

STAGE 2
Traffic:
Maintain one lane of alternating traffic on NB lane of IA 4 via temporary traffic signals and TBR.
Close SB lane.

Construction:
(1) Construct 26' of SB side of proposed bridge.
(2) Pave SB side of Bridge approach on each side of the bridge.
(3) Pave proposed SB shoulders from 286+32.18 to 286+57.18

111_01 10/14/22 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
BRF-004-5(51)--38-74	Bridge Replacement - PPCB

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	

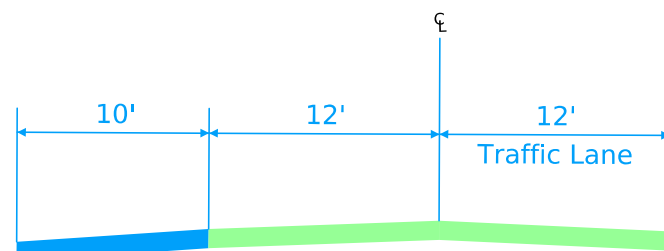
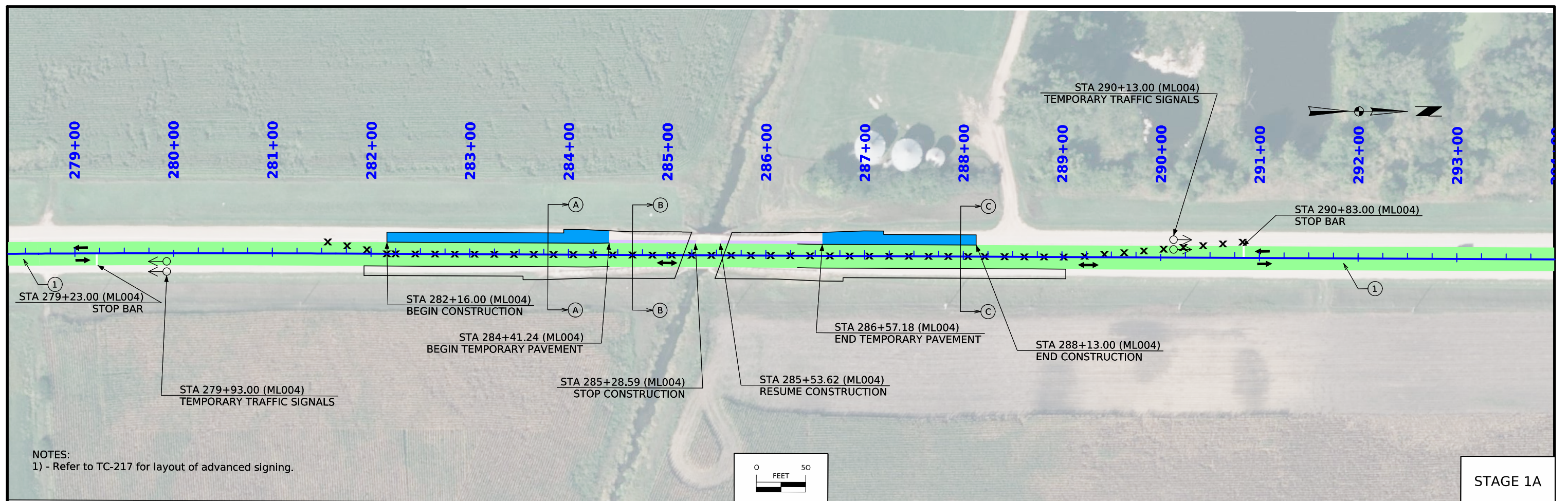
SHADING	Design Color No.		
Green, Light	(225)	Existing Pavement Shading	
Gray, Light	(48)	Previously Constructed Pavement Shading	
Gray, Med	(6)	Proposed Granular Surface Shading	
Gray, Med	(80)	Previously Constructed Granular Surface Shading	
Blue, Light	(230)	Proposed Pavement Shading	
Pink, Dark	(13)	Temporary Pavement Shading	
Brown, Light	(236)	Proposed Grading Limits Shading	
Cyan	(7)	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

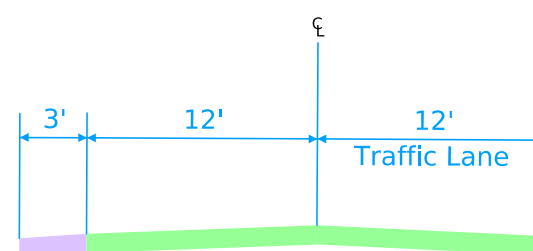
NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

TRAFFIC CONTROL
AND
STAGING
LEGEND AND SYMBOL
INFORMATION SHEET

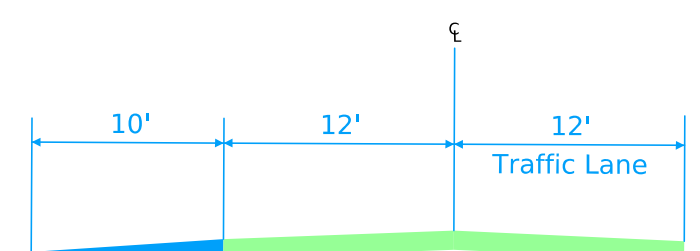
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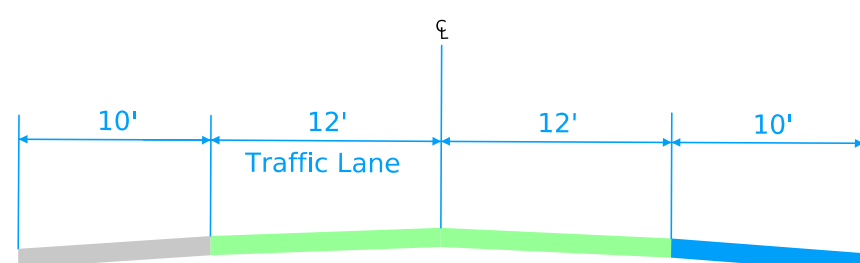
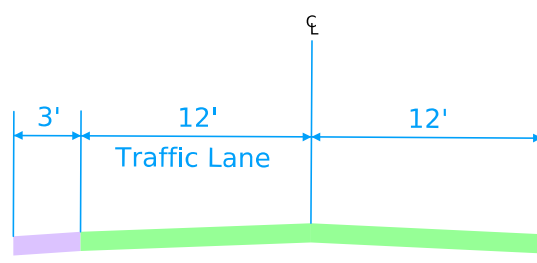
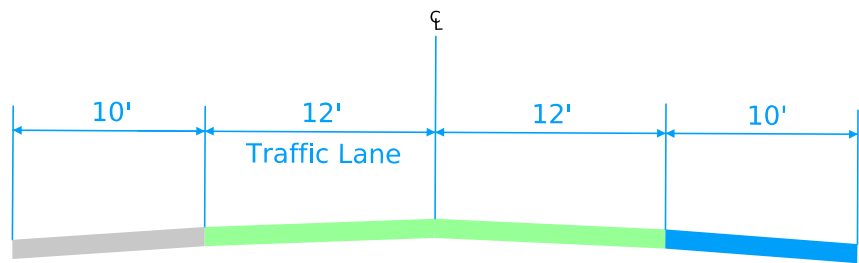
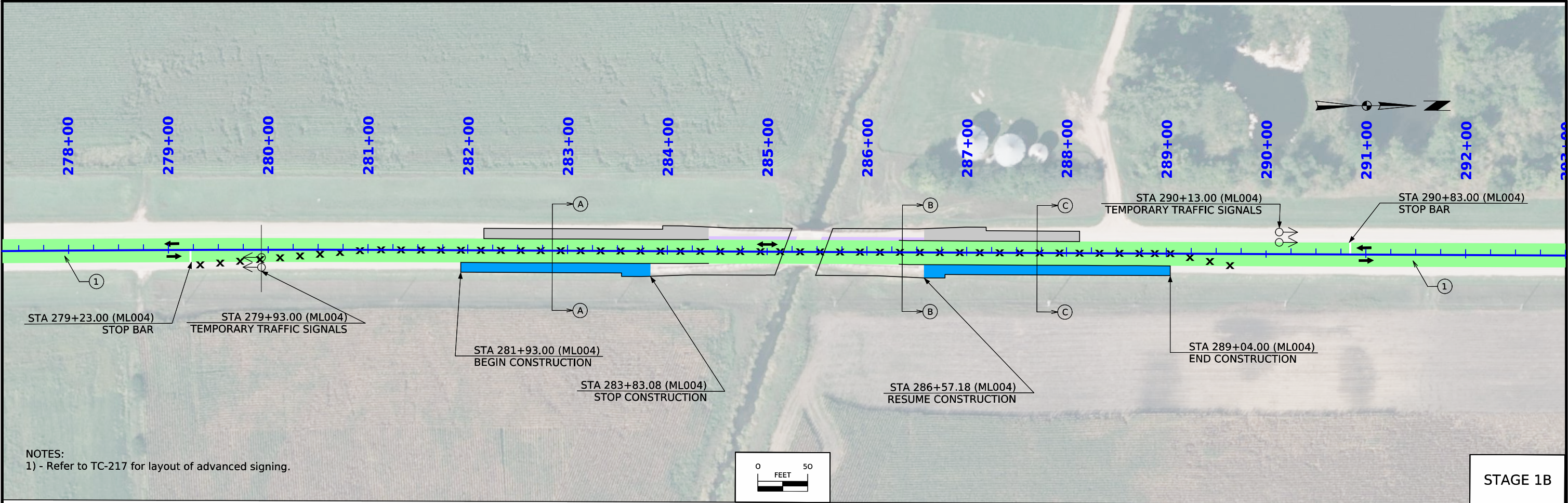
A-A

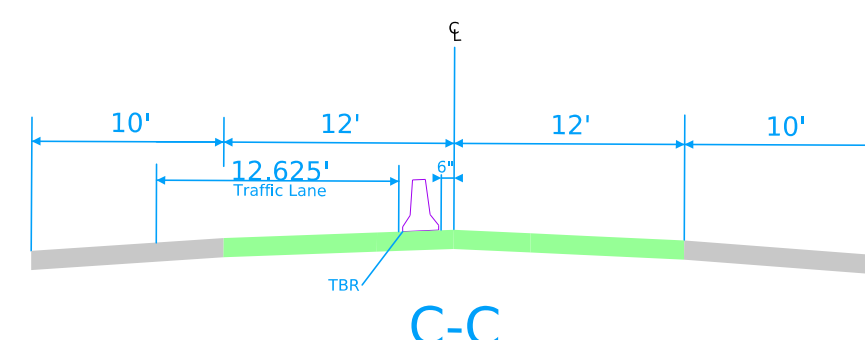
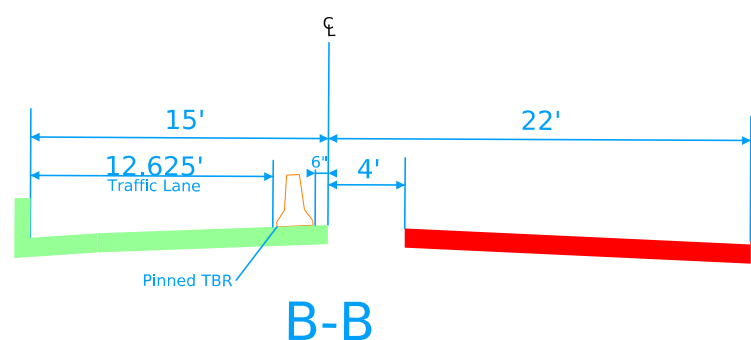
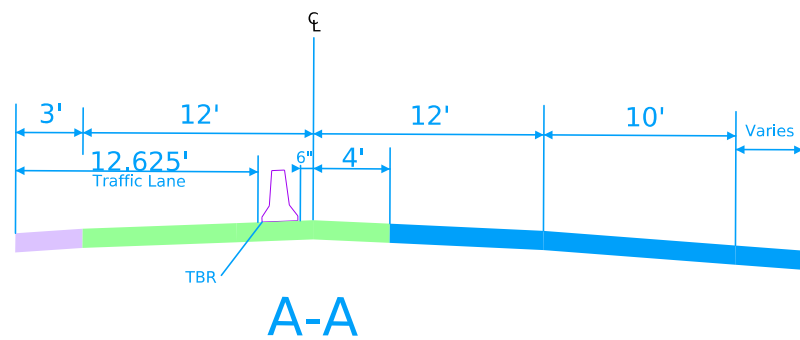
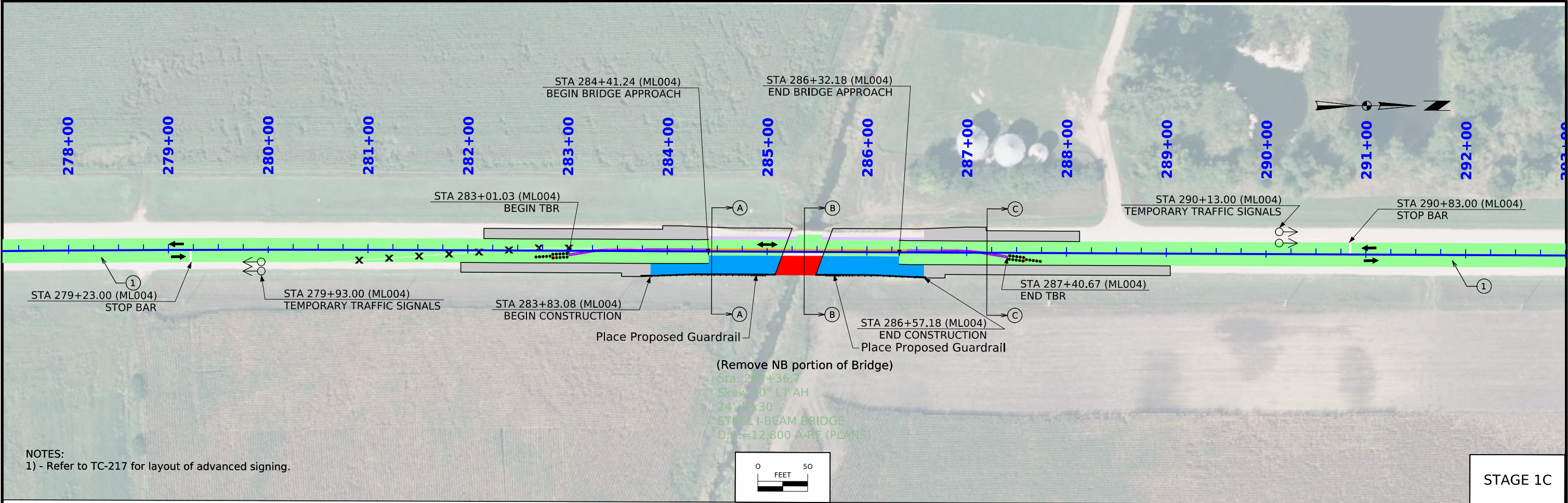


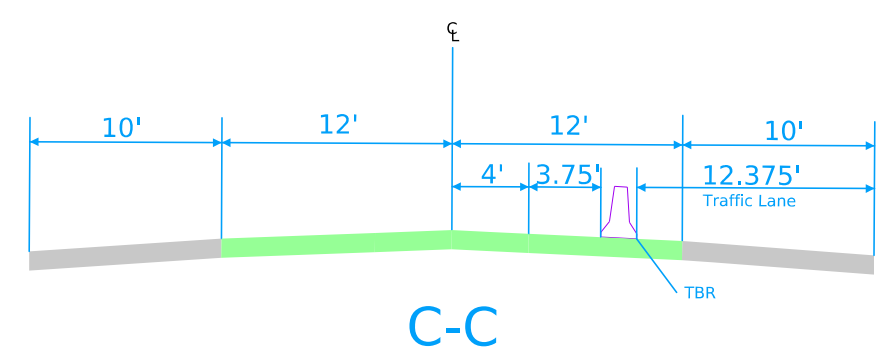
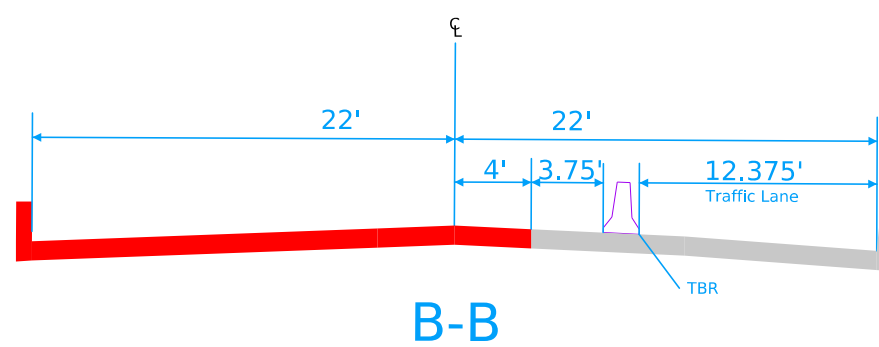
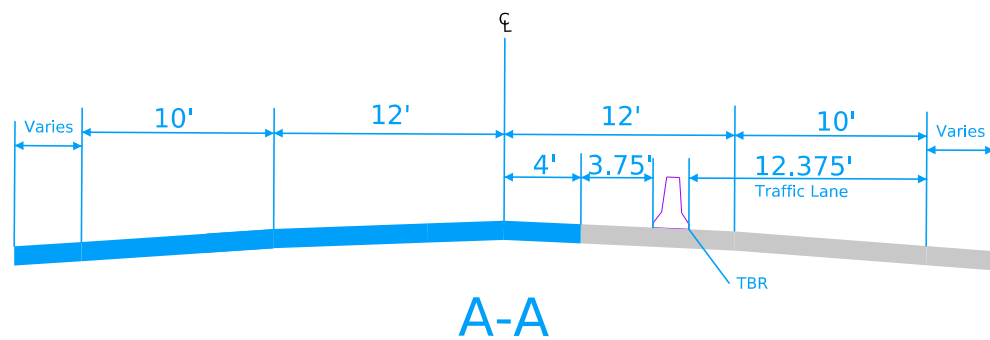
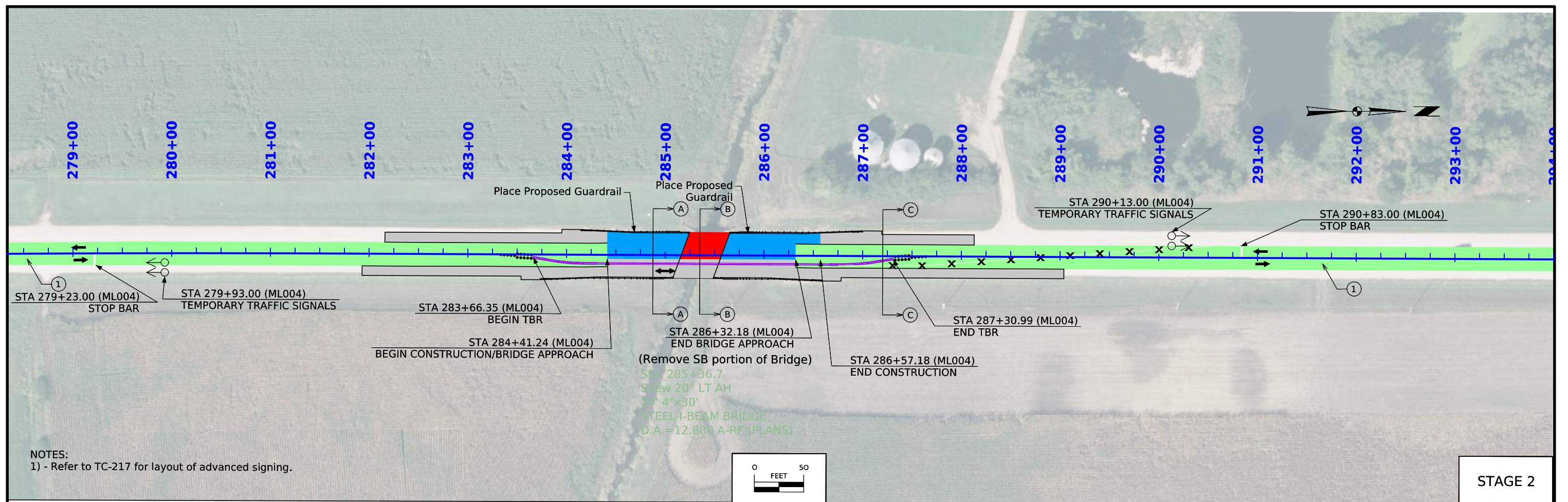
B-B

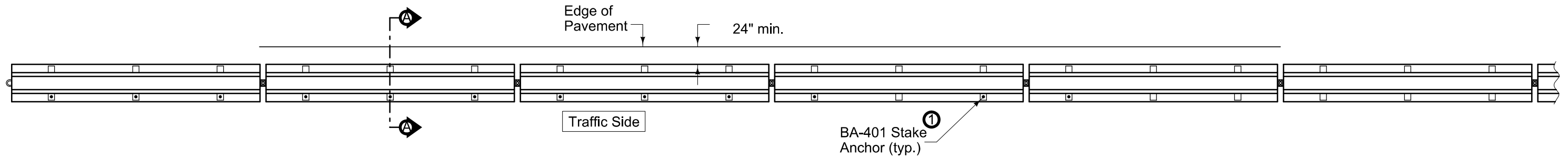


C-C

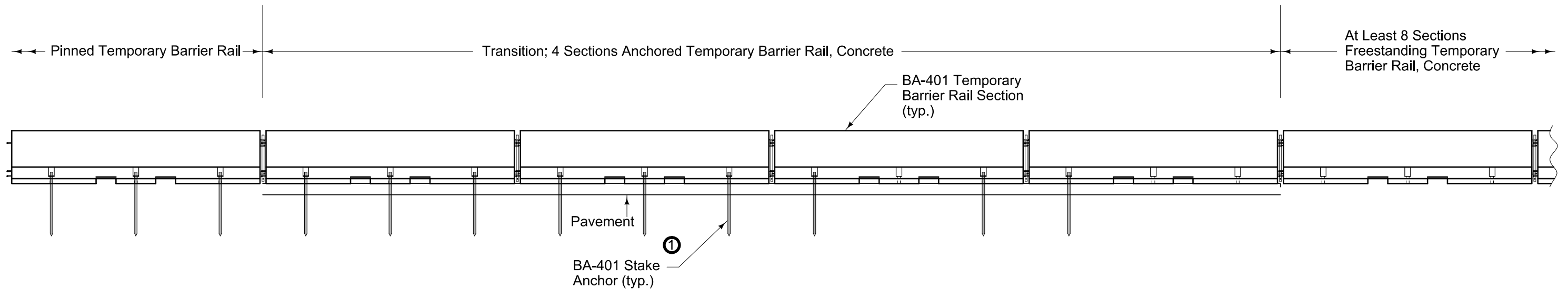








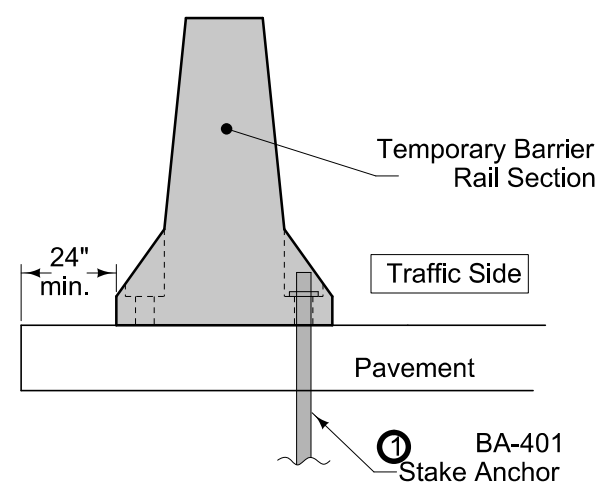
PLAN



ELEVATION

Install temporary barrier rail on a flat, level surface. Where anchored TBR sections are not located on existing pavement, construct a 2 inch minimum thickness HMA pad.

- ① Each transition requires nine (9) BA-401 stake anchors as shown. Use of the strap anchorage is not allowed in transition. When transition is placed on Composite or PCC Pavement pre-drill holes for stakes with 1 $\frac{5}{8}$ inch core bit.



SECTION A-A

Transition from
Pinned TBR to
Unpinned TBR

[illegible]

Proposed Profile

Grade 4 IA 4

- ### Longitudinal Section Along CL Approach Roadway



Q_{50} (Design) = 1,400 cfs
 Stage = 1195.68
 Operational Freeboard = 1.35 ft.
 Avg. Bridge Velocity = 6.3 fps

$Q_{100} = 1,670 \text{ cfs}$
 $\text{Stage} = 1196.19$
 $\text{Operational Freeboard} = 0.84 \text{ ft.}$
 $\text{Backwater} = 0.19 \text{ Ft.}$
 $\text{Avg. Bridge Velocity} = 6.9 \text{ fps}$

$Q_{200} = 1,970 \text{ cfs}$
 Stage = 1196.44
 Calculated Design Scour = 1181.1

$Q_{500} = 2,300 \text{ cfs}$
 Stage = 1196.77
 Operational Freeboard = 0.26 ft.
 Avg. Bridge Velocity = 8.8 fps
 Calculated Check Scour = 1179.3

Roadway Overtop 1199.10
Sta. 283+75

Utilities Note:

Utilities shown on this sheet are for information only. See Road Design sheets for utility information.

General Utility Symbols:

FO - Fiber Optic Line T - Telephone Line

Traffic Data

2023 AADT	2,350 V.P.D.
TRUCKS	15 %

Location

IA 4 over Beaver Creek (DD98)
T-94N R-33W
Section 13
Rush Lake Township
Palo Alto County
FHWA No. 39200 (Existing)
FHWA No. 39201 (Proposed)
Bridge Maint. No. 7402.6S004
Latitude 42.961136°
Longitude -94.678563°

Situation Plan



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.

Brian J. Birkland 1-28-2025
Signature Date
Brian J. Birkland

My license renewal date is December 31, 2026
 I: V.1-V.3

Pages or sheets covered by this seal: V.1-V.3

Preliminary

Design For 20 Degree LA

40'-0" x 44'-0" Single Span Concrete Slab Bridge

40'-0" Single Span

Situation Plan

Palo Alto County

IOWA DEPARTMENT OF TRANSPORTATION

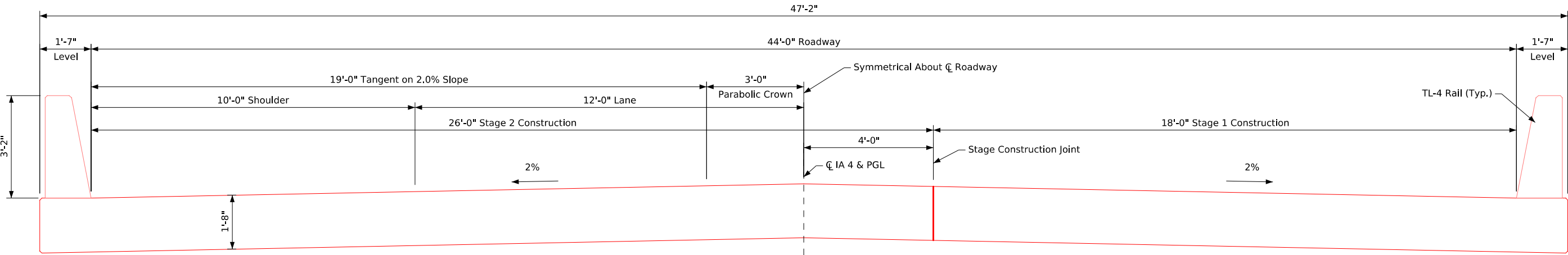
STA. 285+36.71 (IA 4)

Turn-in Date: Jan., 2025

Design No. 128

Design Sheet No. 1 of 3

FHWA No. 39201



Transverse Section

(Looking North)

General Notes:

--This design is for the replacement of the existing 24'-4" x 30'-0" Continuous I-Beam Bridge, Palo Alto County, Design 158, FHWA No. 39200, Maint. No. 7402.6S004.
--Work under this design shall include removal of remnants of Palo Alto Design 31-A (1918). Includes removal of remaining wings and footings below grade.

Plan Notes:

--Top of bridge deck at centerline roadway is 0.03' below the profile grade to account for deck cross slope and parabolic crown.
--Class E revetment stone is embedded.
--The bridge will be designed to withstand the applicable effects of ice and the horizontal stream loads and uplift forces associated with the Q_{100} flood.
--Faint lines indicate existing contours,

Design Notes:

--TL-4 Single Slope Bridge Railing Proposed
--Non-standard abutment footing depth is required due to top of berm elevations set approx. 2 ft. lower than typical to achieve required hydraulic open area. Maximum depth (top of deck to bottom of footing) is 8.5 ft.
--Non-standard abutment wing walls are required.
--There is a potential for conflicts with existing wing piles. Final Design shall design pile spacing to miss existing piles.
--Final design shall consider the need for temporary shoring to accommodate staging of bridge construction and include in the final plans as necessary.
-- 2' berm width in front of abutments and 1.8:1 berm slopes are needed to comply with drainage district requirements for 8' channel bottom width. Proposed berm slopes were approved by Preliminary Bridge Unit Leader. A slope stability analysis shall be included in the final Soils package (S4 report).
--The bridge does not meet Iowa DOT's desired 50-yr 3-foot operational freeboard per BDM 3.2.2.4. Rationale:
--The proposed 40' bridge provides channel freeboard greater than zero for the 500-yr event. A longer bridge than 40' will not pass the 500-yr event due to the need for a thicker bridge slab.
--Road grade overflow readily provides relief in the event the bridge opening is obstructed.
--Ice or debris is not expected to be a problem.
--The smaller drainage area has a relatively lower duration of peak flooding than larger streams.
--For a monolithic slab-reinforced bridge with no piers, the structure is similar in nature to a culvert, where the design flood flows are typically designed to be 1 to 2 feet above the culvert opening.
--Supplemental to hydraulic rationale, a grade raise is not desired by the Design Bureau.

Preliminary

Design For 20 Degree LA

40'-0" x 44'-0" Single Span Concrete Slab Bridge

40'-0" Single Span

Situation Plan - Misc.

STA. 285+36.71 (IA 4)

Turn-in Date: Jan., 2025

Palo Alto County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 128

Design Sheet No. 2 of 3

FHWA No. 39201

FILE NO. 32677

ENGLISH

DESIGN TEAM WHKS & Co.

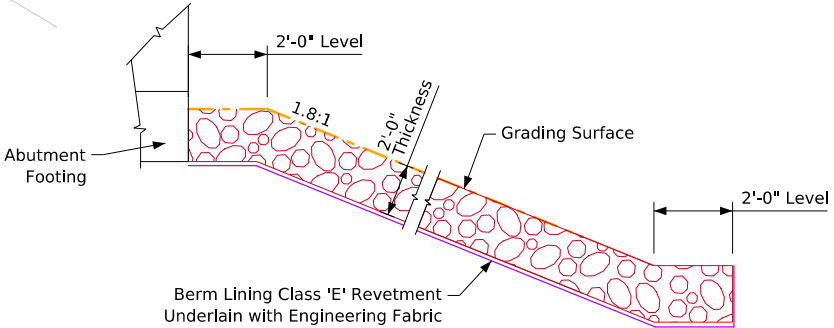
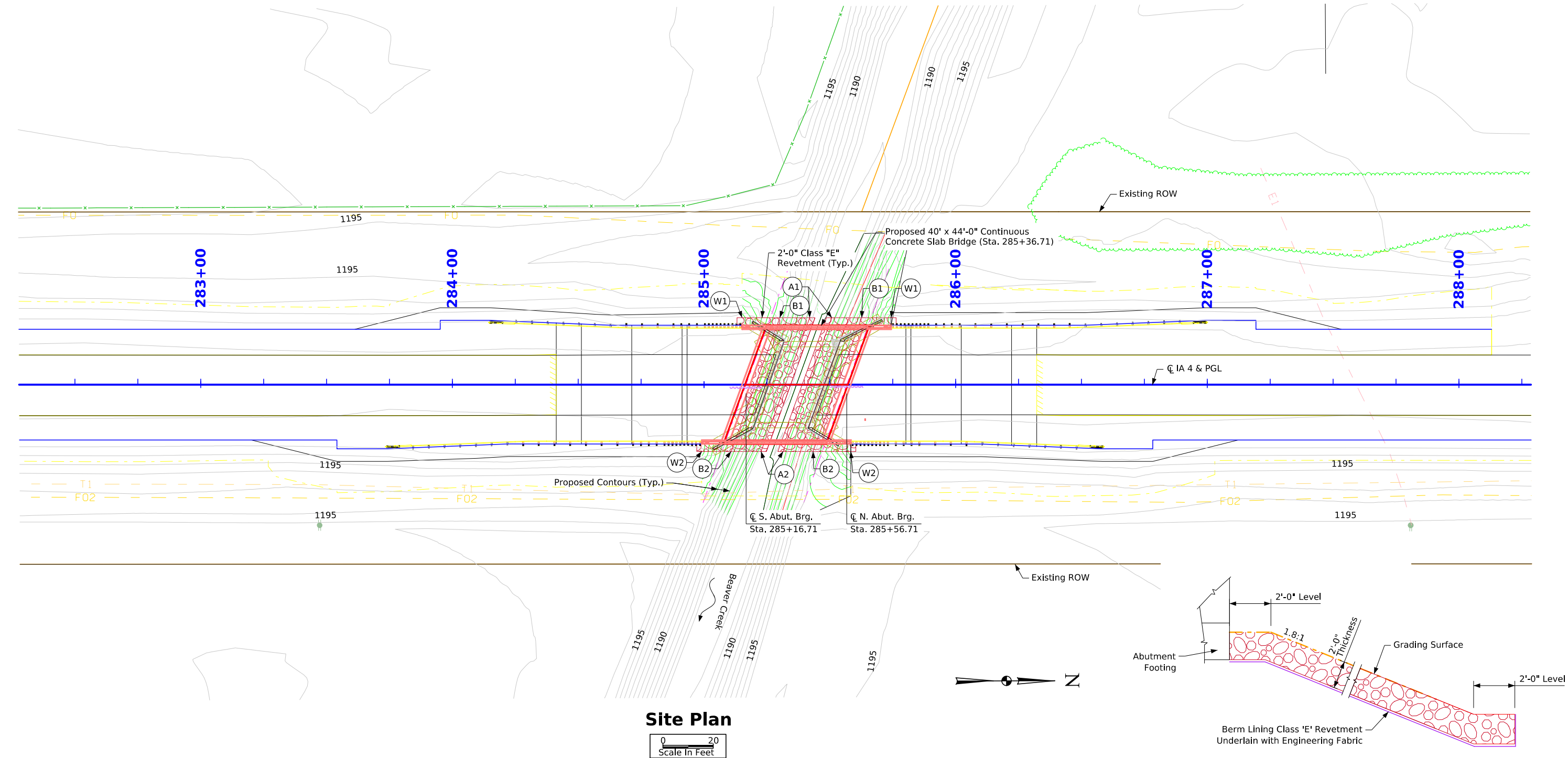
Palo Alto COUNTY

PROJECT NUMBER BRF-004-5(53)--38-74

SHEET NUMBER

V.2

Control Point: 740041024 FND IDOT CONC REF MON IN GOOD CONDITION WITH DIMPLE IN REBAR .5MI North of 480th Street in West Ditch, N=9512729.14, E=11652912.90, EL.=1198.52
740041029 FND IDOT ROW RAIL IN GOOD CONDITION SET DIMPLE IN BALL 300FT South of 470th Street in West Ditch, N=9515141.72, E=11652929.31, EL.=1198.63



Section Thru Embedded Berm Lining
Normal to Berm Slope

Berm Slope Location Table						
Points	South Abutment			North Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	285+41.99	26.58' Lt.	1186.50	285+50.79	26.58' Lt.	1186.50
A2	285+22.64	26.58' Rt.	1186.50	285+31.43	26.58' Rt.	1186.50
B1	285+30.11	26.58' Lt.	1192.70	285+62.66	26.58' Lt.	1192.70
B2	285+10.76	26.58' Rt.	1192.70	285+43.31	26.58' Rt.	1192.70
W1	285+15.12	26.58' Lt.	1198.59	285+74.32	26.58' Lt.	1198.59
W2	284+99.11	26.58' Rt.	1198.59	285+58.30	26.58' Rt.	1198.59

Berm slope elevations reflect the grading surface.

Estimated Berm Armoring Quantities			
Location	Revetment CL. E (Ton)	Engineering Fabric (SY)	CL. 10 Channel Excavation (CY)
South Abutment Berm	115.1	137.2	72.0
North Abutment Berm	115.2	137.3	72.0
Totals	230.3	274.5	144.0

Excavation quantity calculated from grading surface. Excavation quantity is for embedded revetment core out only, and does not include excavation to the grading surface. Excavation quantity to the grading surface is determined by Road Design and included in the Road Plans.

Preliminary

Design For 20 Degree LA

40'-0" x 44'-0" Single Span
Concrete Slab Bridge

40'-0" Single Span

Situation Plan - Site

STA. 285+36.71 (IA 4)

Turn-in Date: Jan., 2025

Palo Alto County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 128

Design Sheet No. 3 of 3

FHWA No. 39201

CROSS SECTION VIEW COLOR LEGEND			
Design Color No.	Feature	Design Color No.	Feature
Aggregate		Grading	
(64)	Choke Stone	(8)	Behind Curb Cut
(42)	Engineering Fabric	(6)	Granular
(8)	Flooded Backfill	(13)	Granular Back Fill
(92)	Macadam Stone	(48)	Rock Undercut
(20)	Modified	(8)	Shoulder Earth Fill
(12)	Plowing Shaping	(2)	Side Slopes
(14)	Porous Backfill	(226)	Side Slopes Dressing
(8)	Revetment Class A	Substrata	
(6)	Revetment Class B	(128)	Boulder
(62)	Revetment Class C	(209)	Boulder Removed
(188)	Revetment Class D	(48)	Broken Weathered
(28)	Revetment Class E	(210)	Broken Weathered Removed
(12)	Shoulder Special Backfill	(3)	Core Out
(12)	Special Backfill	(115)	Core Out Remove Only
(20)	Subbase	(195)	Core Out Remove and Replace
(20)	Subbase Lower	(203)	Existing Pavement
(20)	Subbase Upper	(184)	Existing Pavement Remove Only
(118)	Subgrade Treatment	(200)	Existing Pavement Remove and Replace
Asphalt		(6)	Loam
(207)	HMA Base Course	(211)	Loam Removed
(207)	HMA Interim Course	(80)	Rock
(207)	HMA Surface Course	(212)	Rock Removed
Bridge		(4)	Select Sand
(0)	Bridge	(214)	Select Sand Removed
Concrete		(3)	Shale
(0)	Barrier Concrete	(215)	Shale Removed
(0)	Barrier Concrete Footing	(10)	Topsoil
(0)	Curb Gutter	(2)	Topsoil Remove Only
(48)	Flowable Mortar	(4)	Topsoil Remove and Replace
(0)	Median Concrete	Unsuitable / Waste	
(0)	PCC Pavement	(3)	Unsuitable Type A
(0)	Sidewalk	(216)	Unsuitable Type A Removed
Existing		(13)	Unsuitable Type B
(0)	Existing Pavement	(217)	Unsuitable Type B Removed
Shoulder		(11)	Unsuitable Type C
(209)	Shoulder HMA	(218)	Unsuitable Type C Removed
(0)	Shoulder PCC	(3)	Waste
(6)	Shoulder Granular	(219)	Waste Removed
Structural			
(112)	Noise Wall		
(112)	Noise Wall Footing		
(112)	Retaining Wall Back		
(112)	Retaining Wall Back Excavate		
(112)	Retaining Wall Face		
(112)	Retaining Wall Front Excavate		
(112)	Retaining Wall Front Footing		
(112)	Retaining Wall MSE Gutter		
(112)	Retaining Wall Reinforced Earth		

NOTES:

Text

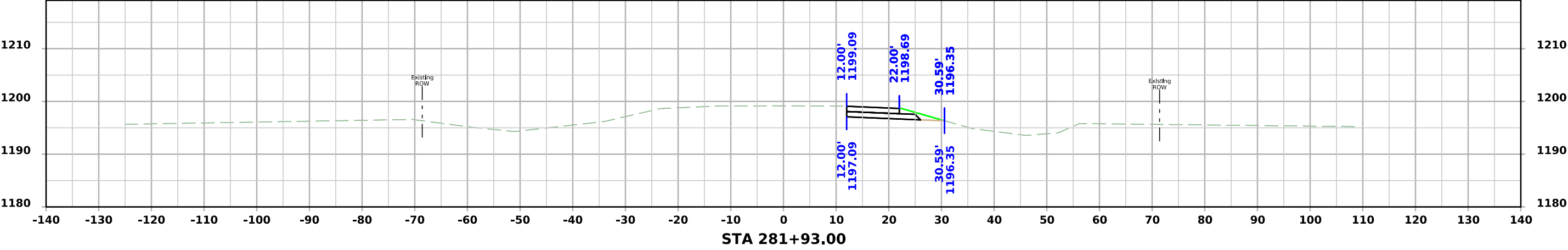
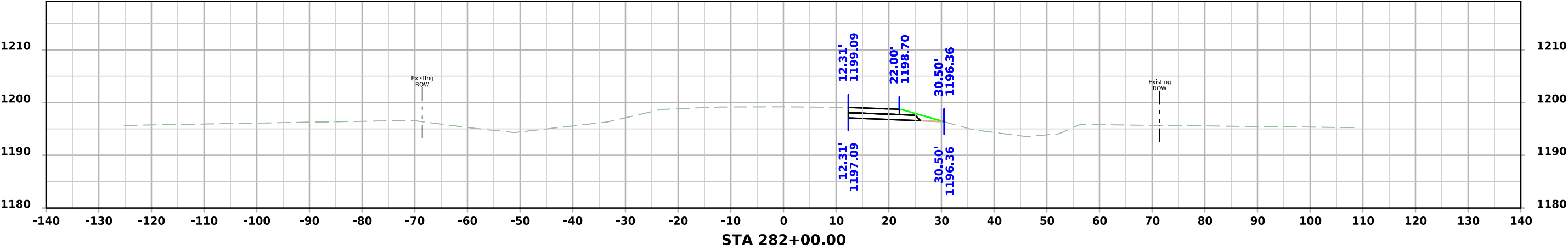
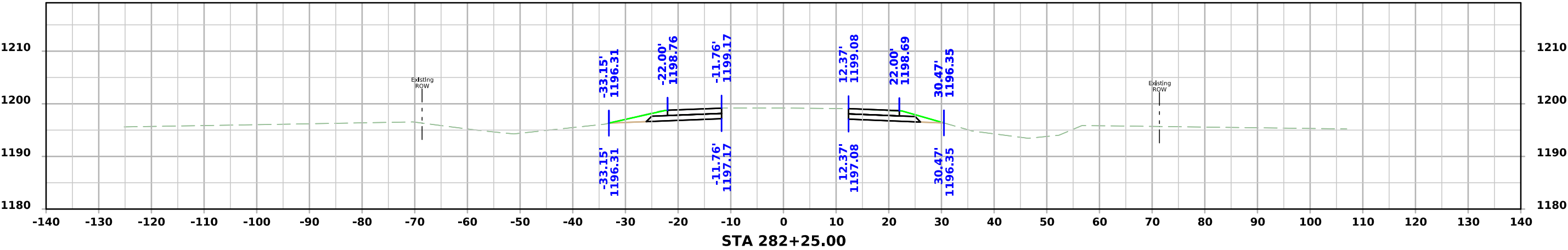
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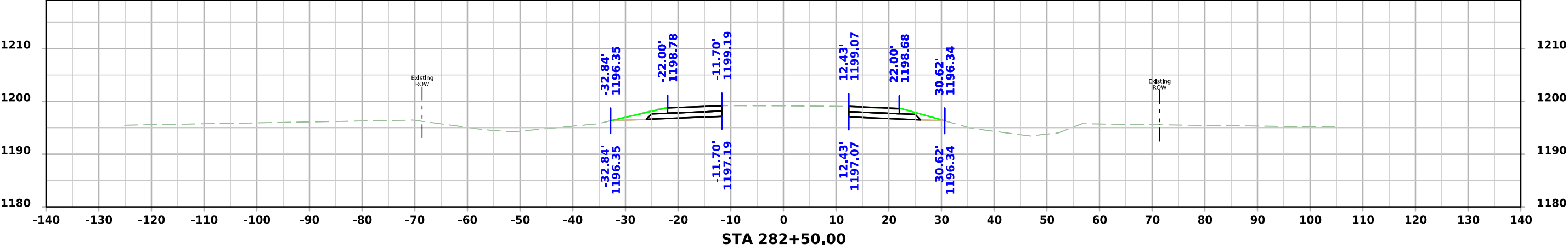
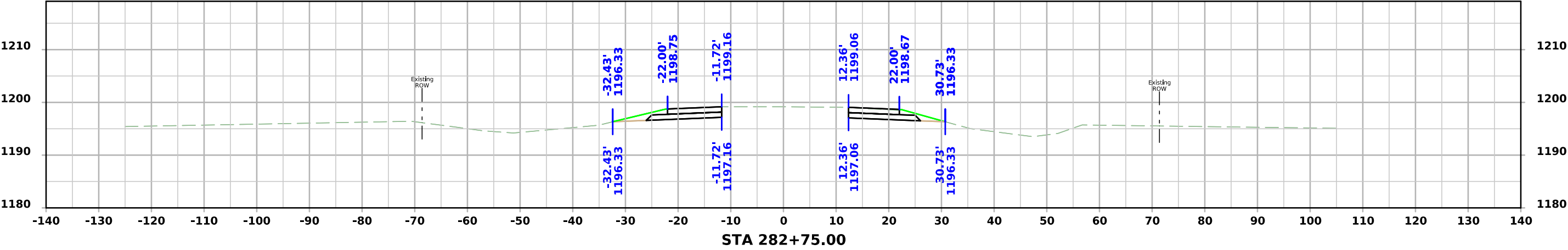
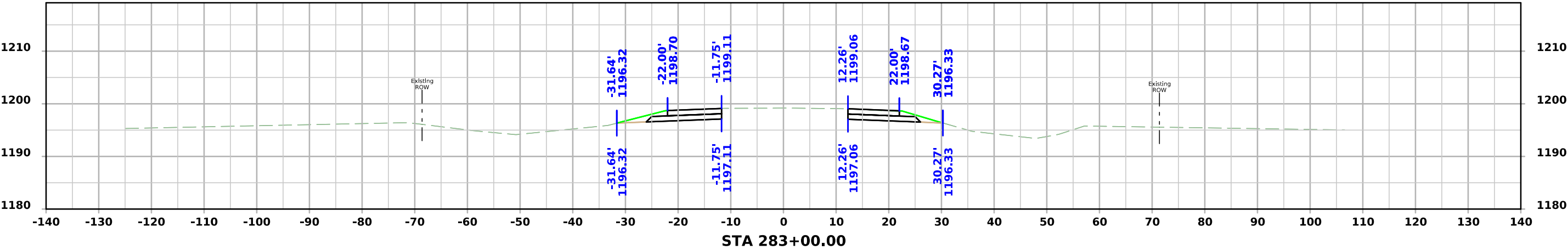
CROSS SECTIONS
LEGEND AND INFORMATION SHEET

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

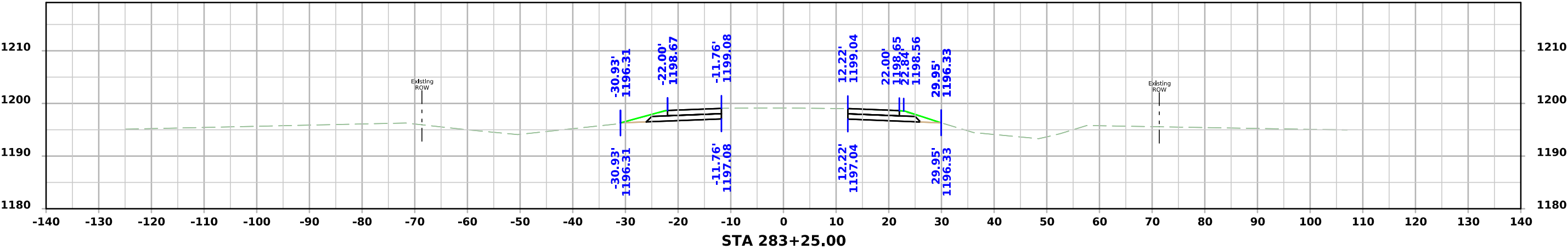
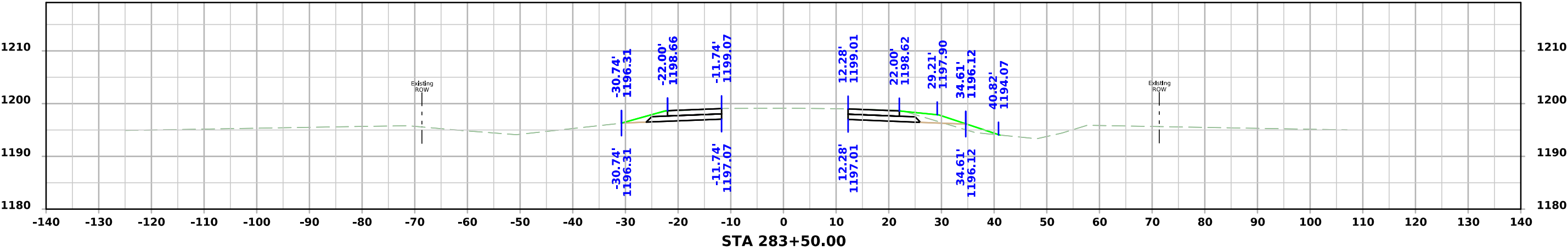
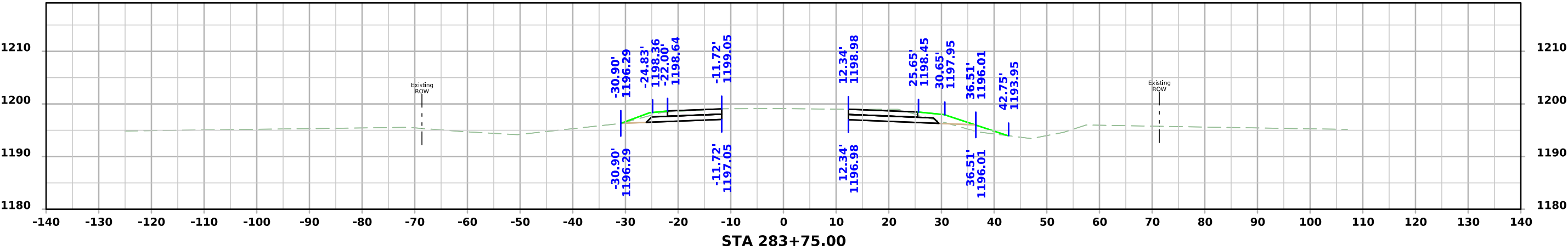
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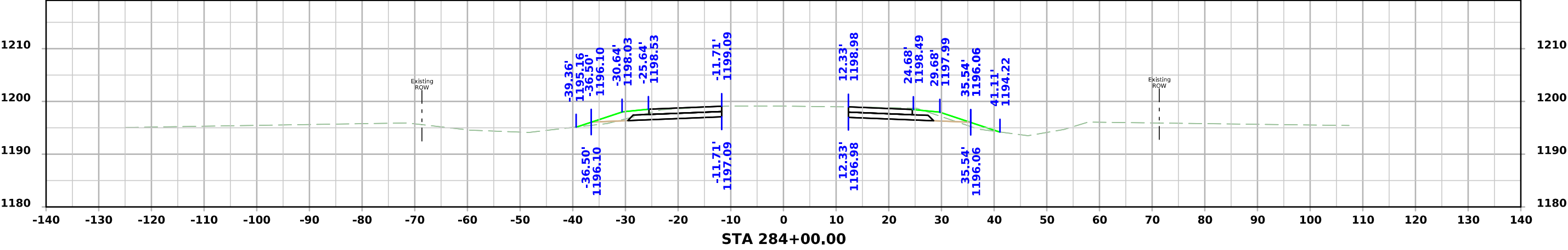
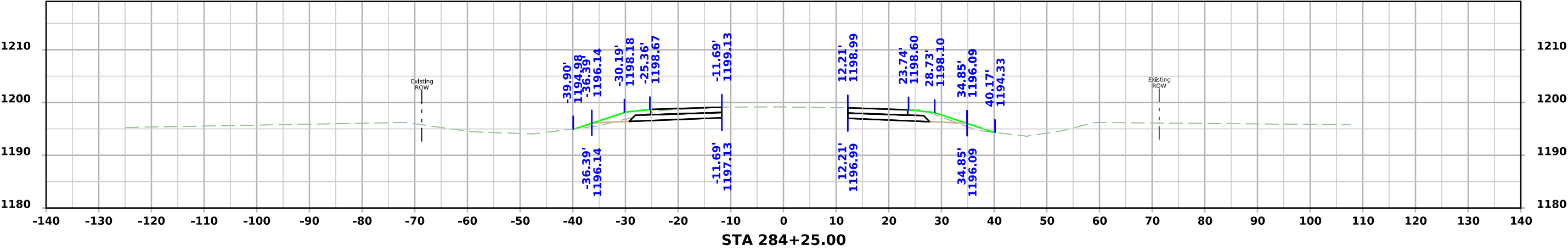
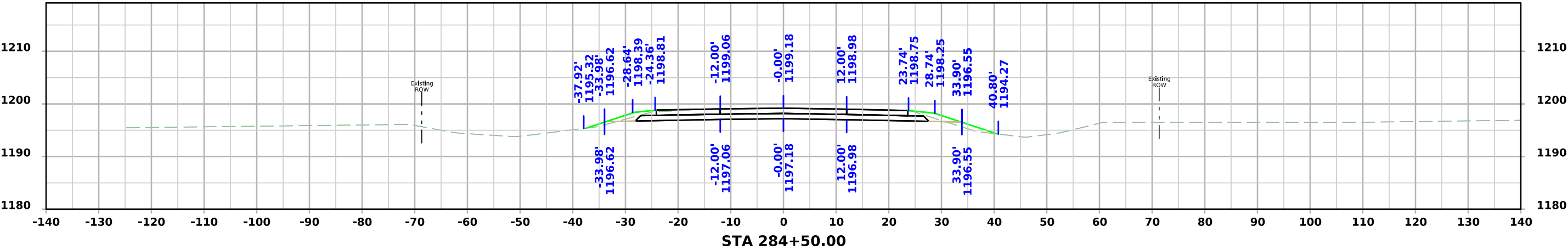
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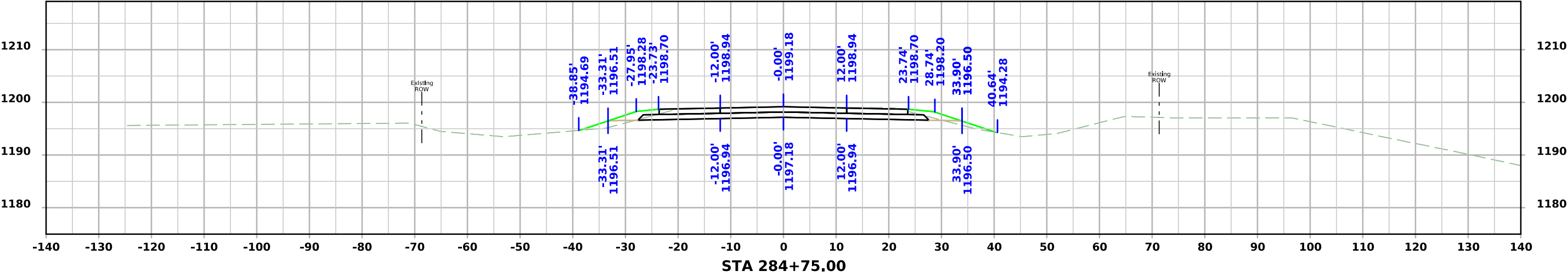
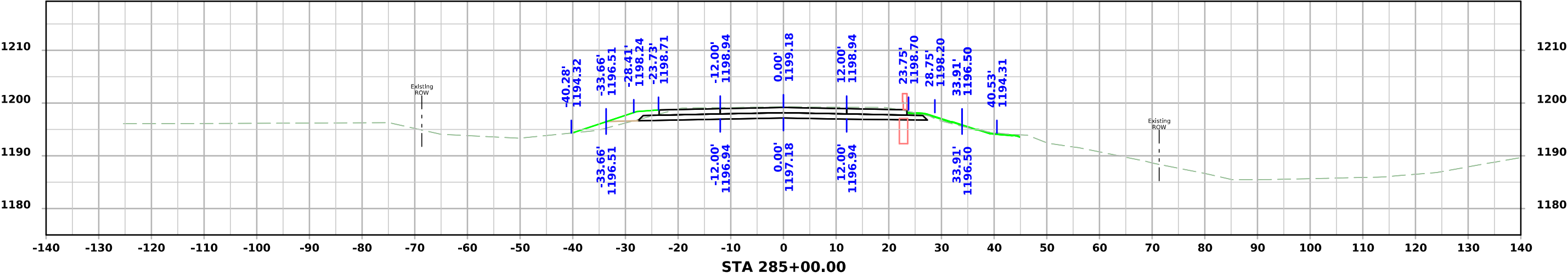
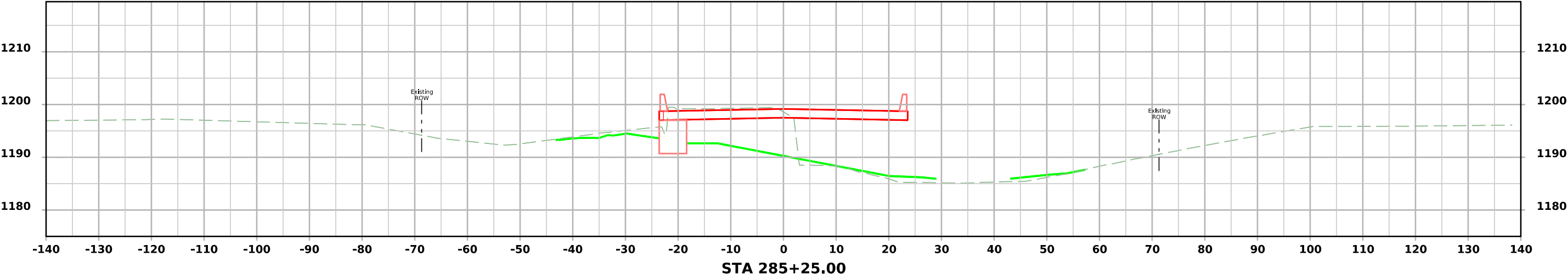
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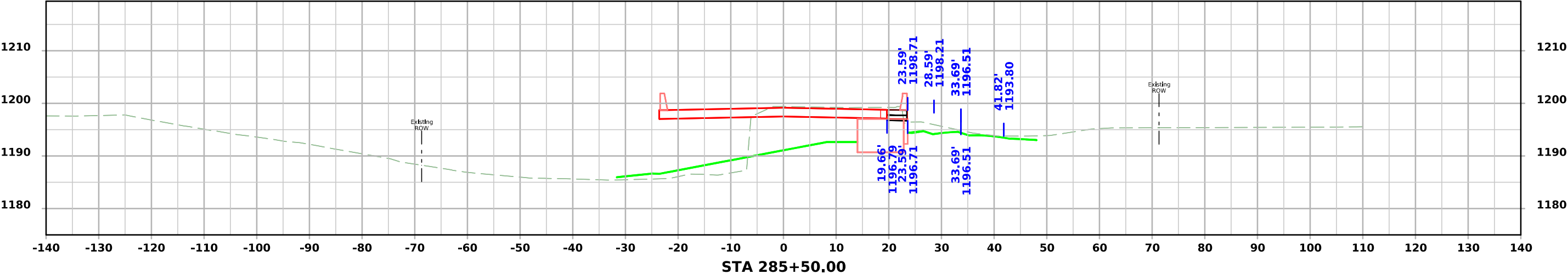
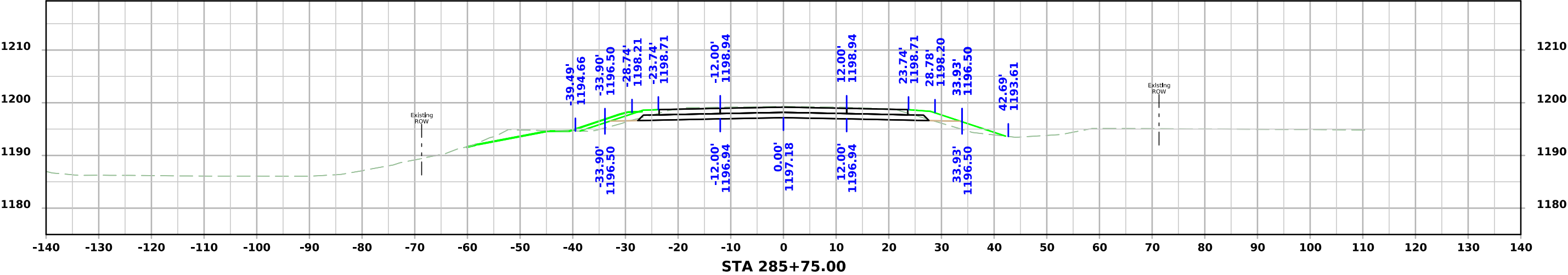
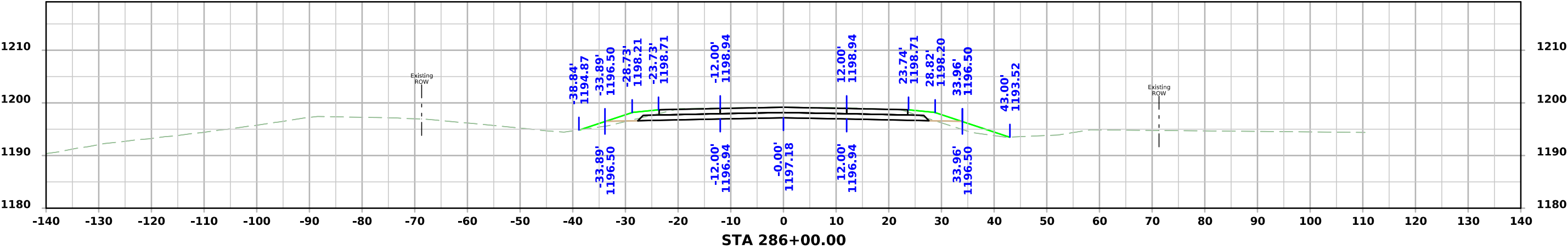
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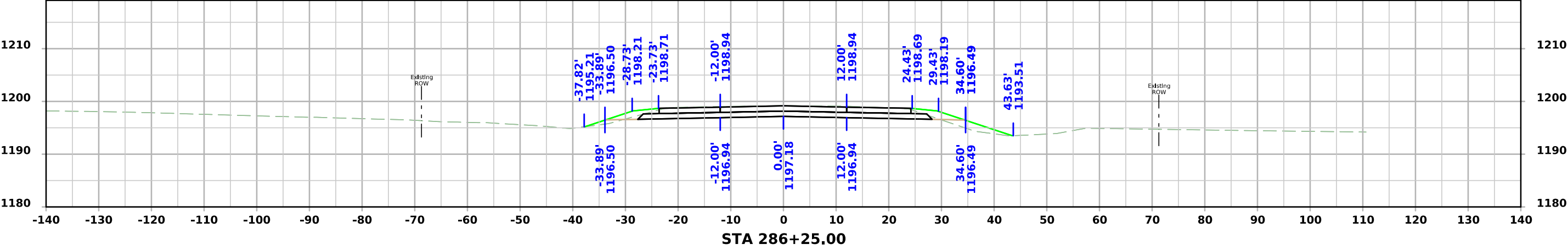
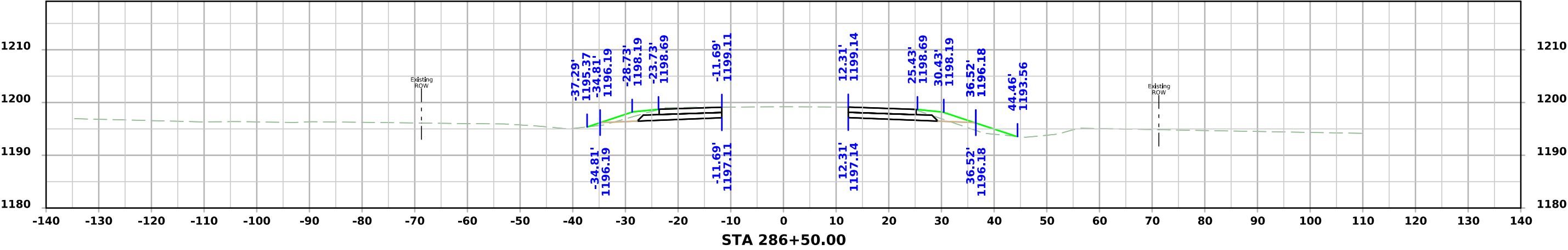
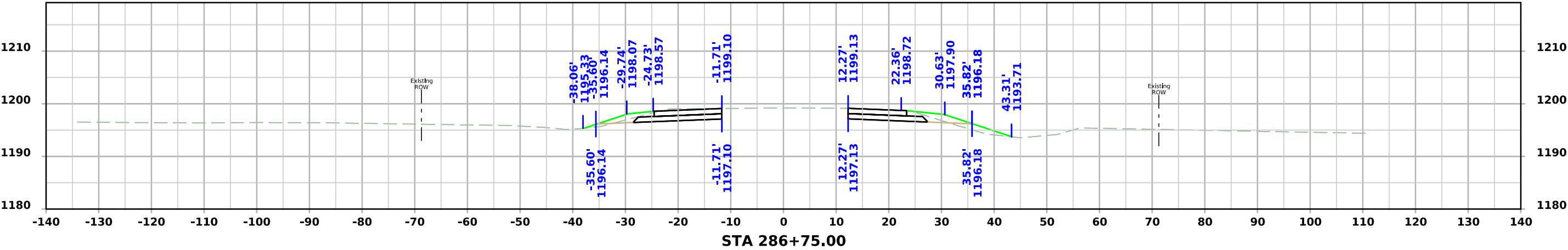
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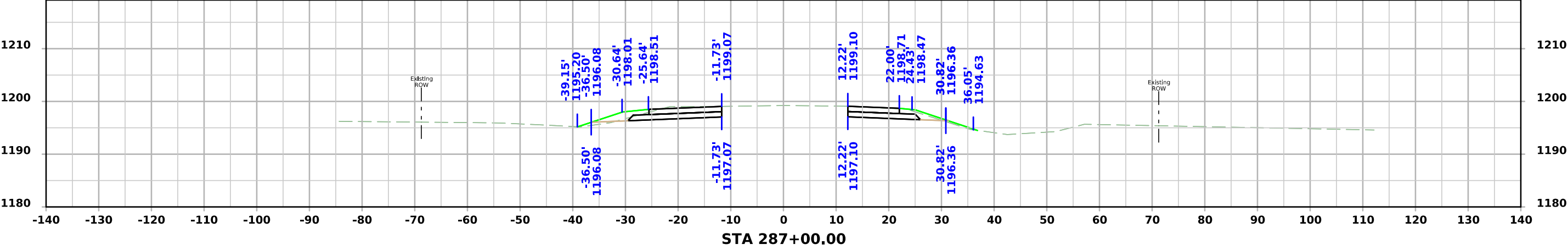
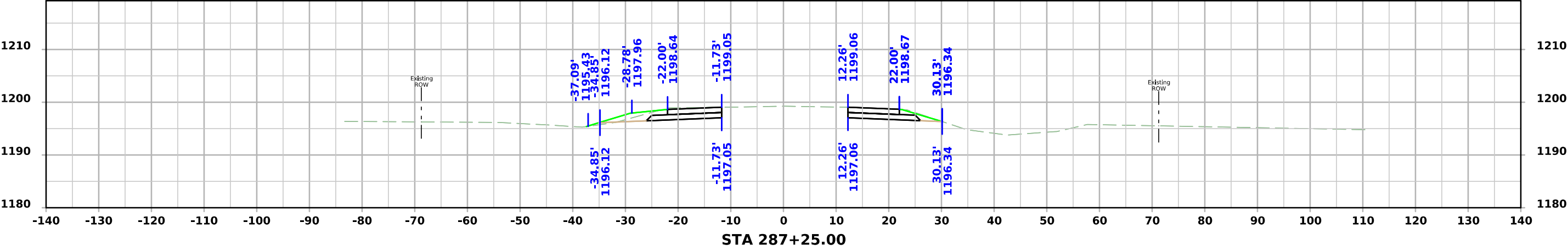
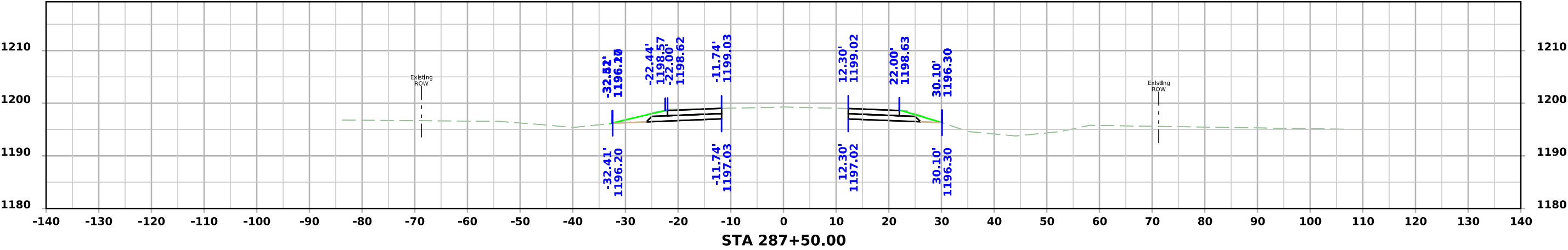
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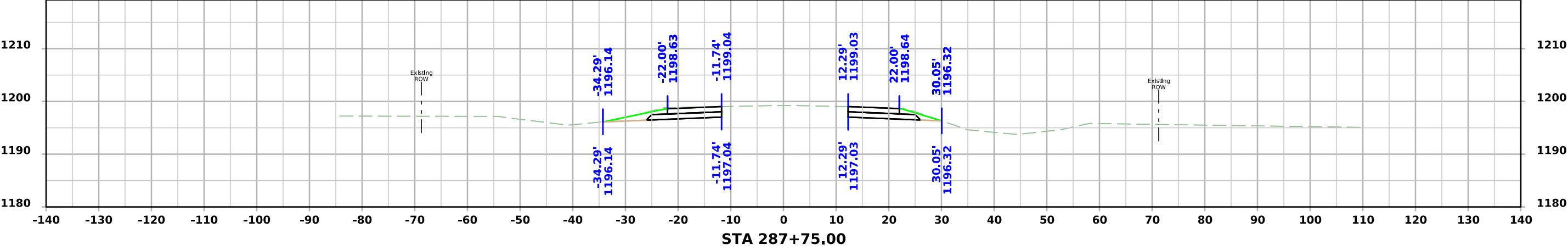
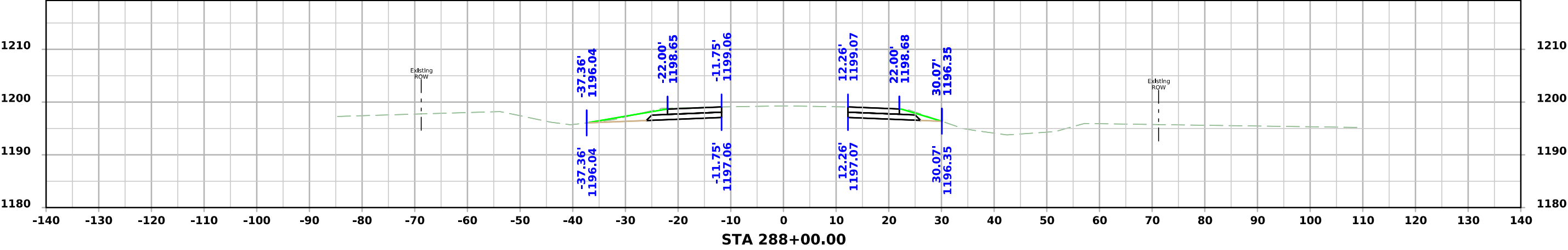
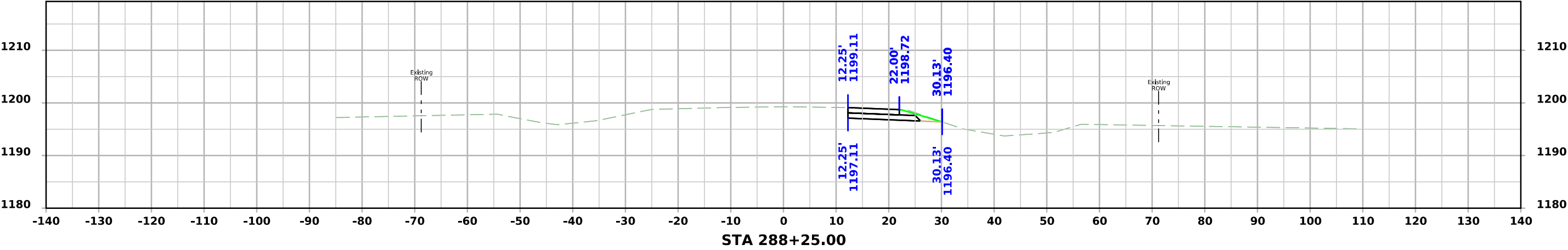
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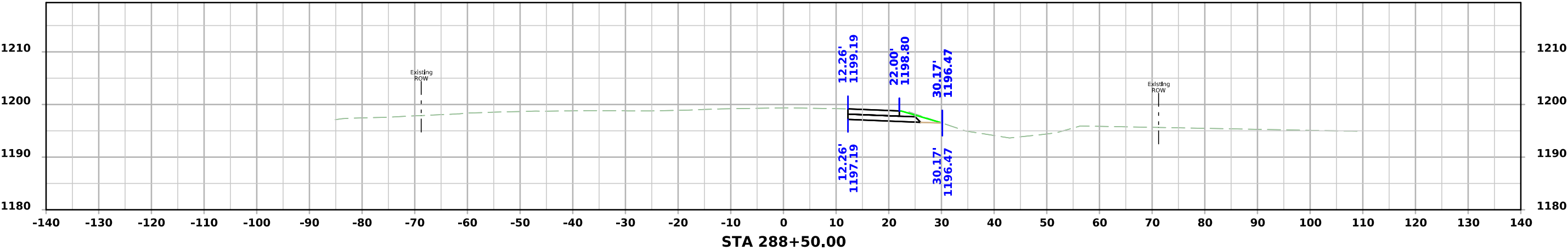
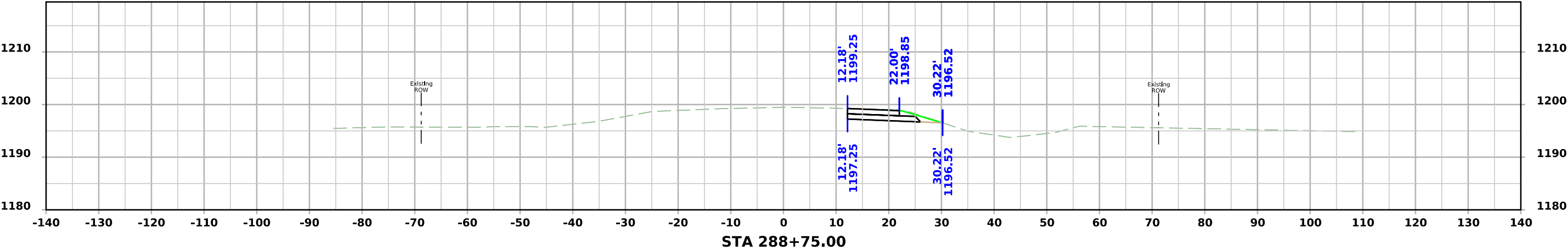
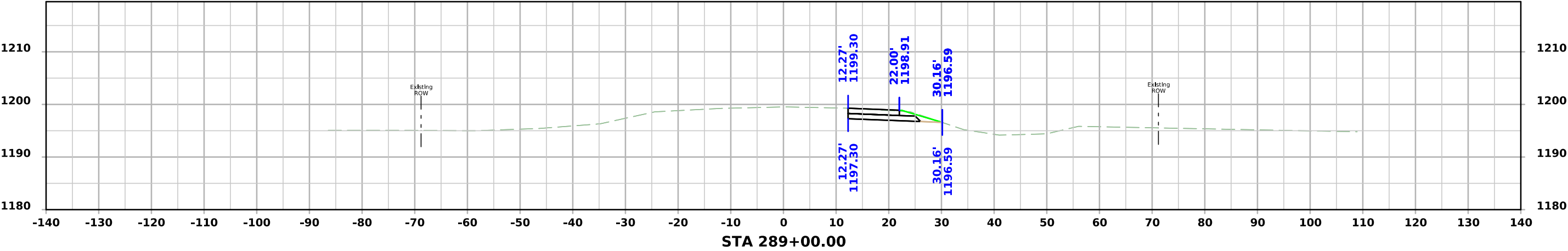
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