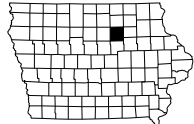


BUTLER COUNTY

BRIDGE - UNSPECIFIED
BRF-003-5(092)--38-12

LETTING DATE
11/16/27



PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
BUTLER COUNTY
BRIDGE - UNSPECIFIED
Boylan Creek 2.4 mi E of Co Rd T16

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



DESIGN DATA RURAL				
2028	AADT	1100	V.P.D.	
2048	AADT	1200	V.P.D.	
20	- DHV	--	V.P.H.	
TRUCKS		18	%	
Total				
Design ESALs		--		

REVISIONS

TOTAL

27

PROJECT IDENTIFICATION NUMBER

23-12-003-010

PROJECT NUMBER

BRF-003-5(092)--38-12

R.O.W. PROJECT NUMBER

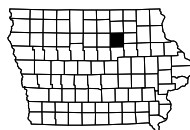
NHSN-003-5(093)--2R-12

D5 PLAN - 12/12/25
P9 PLAN - 05/06/26
D4 PLAN - 07/13/27
B3 PLAN - 09/07/27

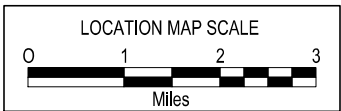
PRELIMINARY PLANS

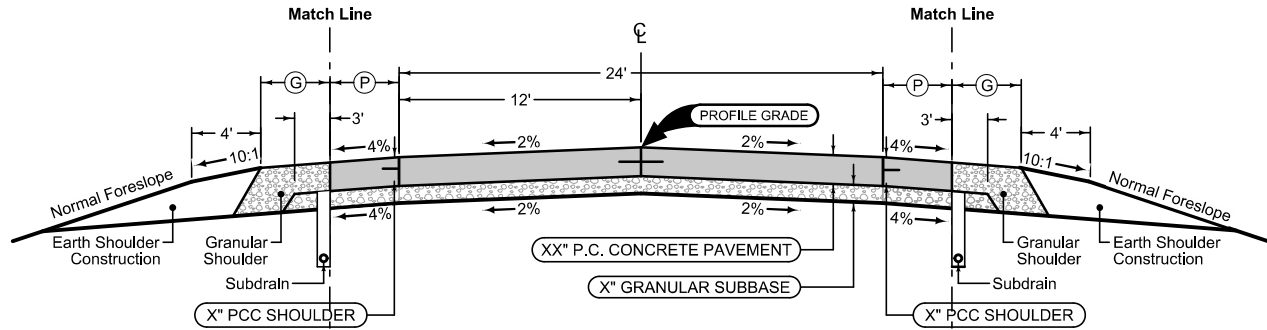
Subject to change by final design.

D3 PLAN - 11/12/2025



PROJECT LOCATION
MAINT. NO. 1297.2S003
FHWA NO. 16510

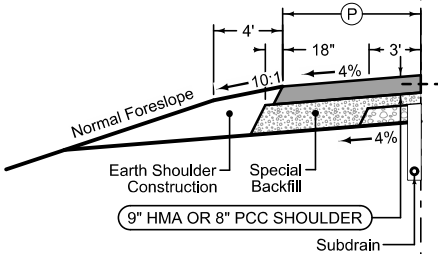




Full Depth PCC Combination Shoulder

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

2_C_FullPCC_04-15-25			
STATION TO STATION		(P) Feet	(G) Feet
280+00.00	283+19.45	4'	6'
283+19.45	283+72.63	4'	
286+67.51	287+58.05	4'	
287+58.05	288+44.45	4'	6'
288+44.45	288+97.63	4'	
291+22.51	292+13.05	4'	
292+13.05	294+50.00	4'	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

2_P_Guard_04-21-20		
STATION TO STATION		(P) Feet
283+19.45	283+72.63	Varies
286+67.51	287+58.05	Varies
288+44.45	288+97.63	Varies
291+22.51	292+13.05	Varies

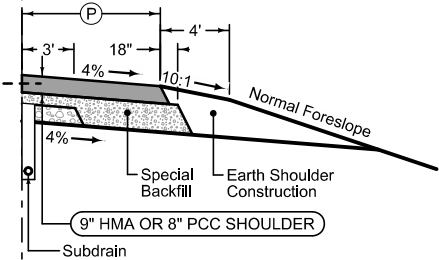
Mainline Jointing:
Transverse joints: CD at 17' spacing
Longitudinal joint: L-2

2P_04-21-20	
STATION TO STATION	
280+00.00	283+72.63
286+67.51	288+97.63
291+22.51	294+50.00

Full Depth PCC Combination Shoulder

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

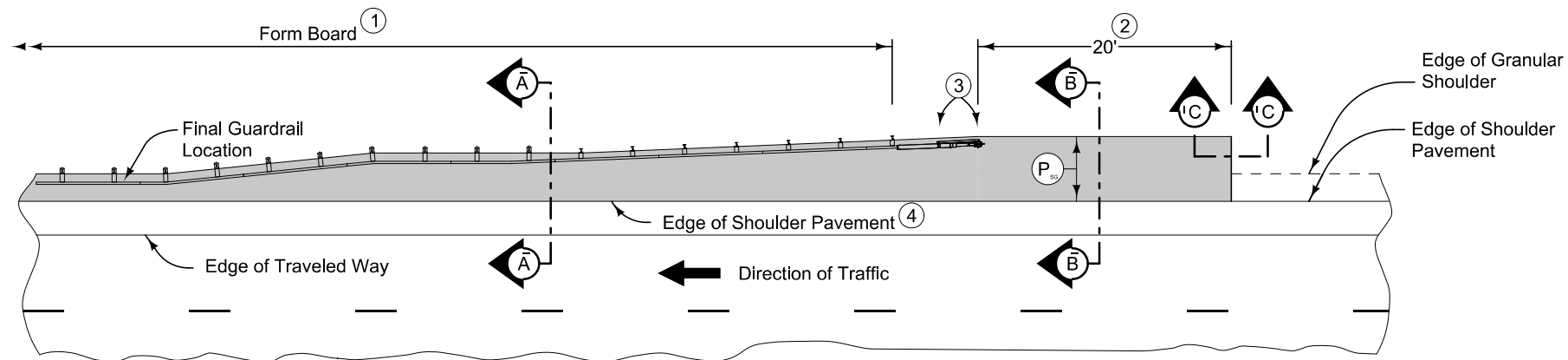
2_C_FullPCC_04-15-25			
STATION TO STATION		(P) Feet	(G) Feet
280+00.00	282+81.95	4'	6'
282+81.95	283+72.63	4'	
286+67.51	287+20.55	4'	
287+20.55	288+06.95	4'	6'
288+06.95	288+97.63	4'	
291+22.51	291+75.55	4'	
291+75.55	294+50.00	4'	6'



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

2_P_Guard_04-21-20		
STATION TO STATION		(P) Feet
282+81.95	283+72.63	Varies
286+67.51	287+20.55	Varies
288+06.95	288+97.63	Varies
291+22.51	291+75.55	Varies



PLAN VIEW

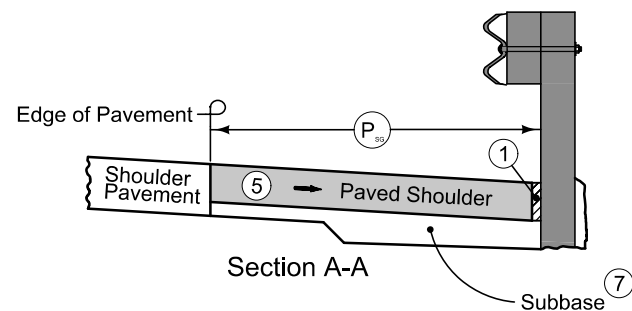
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

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.

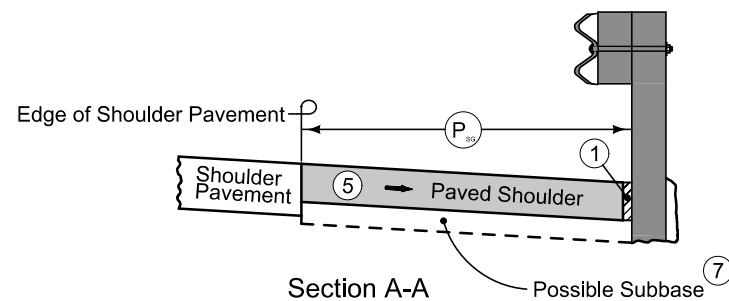
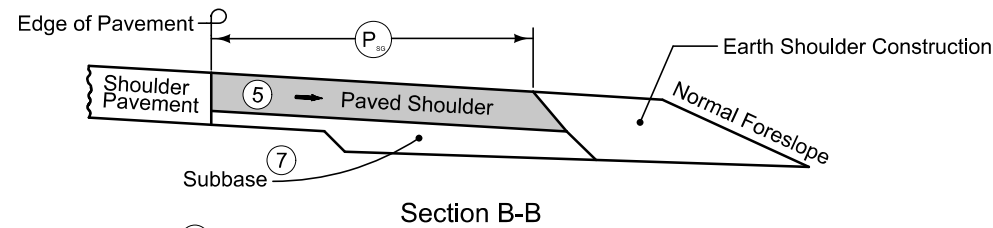
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

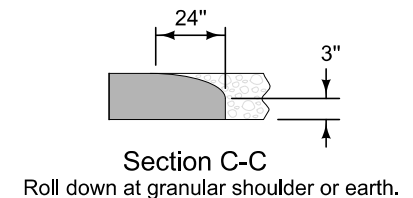
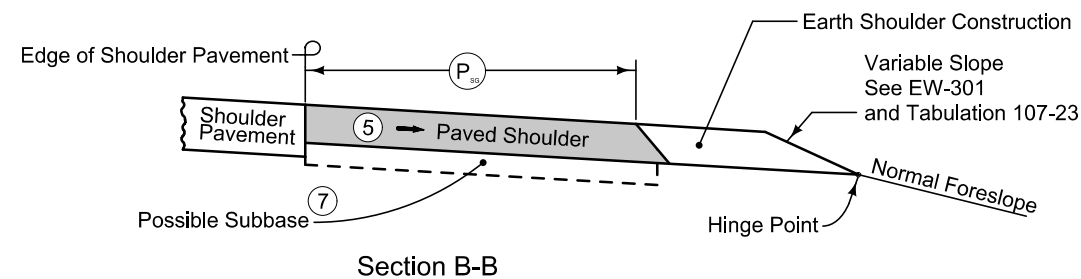
- ① PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.
- ② Continue paved shoulder 20 feet beyond the center of the first post.
- ③ Shoulder may be notched for first 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
- ④ 'BT' (per PV-101) joint for PCC shoulder.
'B' (per PV-101) joint for HMA shoulder.
- ⑤ Match shoulder slope.
- ⑥ The Contractor has the option to pave the paved shoulder at guardrail and the partial width paved shoulder as one operation.
- ⑦ Refer to other details in the plan.



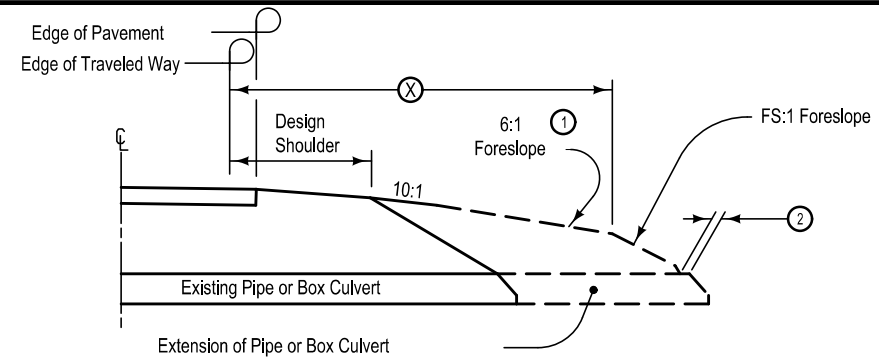
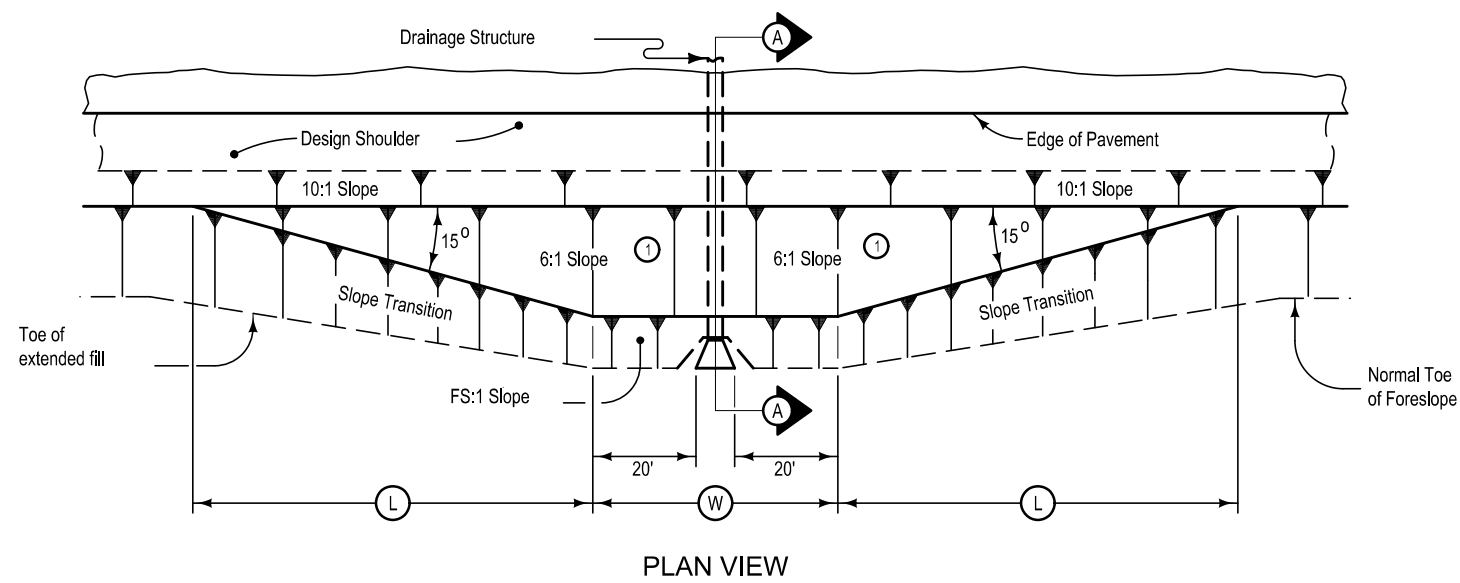
NEW CONSTRUCTION



EXISTING SHOULDER



PAVED SHOULDER AT GUARDRAIL
(ADJACENT TO PARTIAL WIDTH PAVED SHOULDER)



SECTION A-A

[illegible]

Notes:

At locations where an extended or newly constructed drainage structure extends beyond the normal foreslope cover, flatten the foreslope as indicated so as to cover the structure. Minimum earth cover is 6".

- ① Slope may be flatter than 6:1.
- ② 6" Minimum for pipe installations or to top of headwall on R.C.B.
- Ⓢ = Pipe or R.C.B. opening width plus 20 feet each side.

BARNROOF FORESLOPE AT DRAINAGE STRUCTURE

	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)

	Septic Tank
	Cistern
	L.P. Gas Tank (No Footing)
	Underground Storage Tank
	Latrine
	Satellite TV Dish
	WHU Water Hook Up
	RT Radio Tower
	TA Tower Anchor
	Guardrail (Beam or Cable)
	GP Guard Post (one or two)
	Guard Post (over two)
	FP Filler Pipe
	GV Gas Valve
	WV Water Valve
	SL Speed Limit Sign
	MM Mile Marker Post
	SIGN Sign
	TCB Traffic Signal Control Box
	RRB Rail Road Signal Control Box
	TSB Telephone Switch Box
	EB Electric Box

X FO — FO1D, Fiber Optic Dumont Telephone - Quality D
PPA, Power Pole MidAmerican Electric. 1

Dumont Telephone Company Fiber Distribution
Dumont Telephone Company Fiber Transmission
Dumont Telephone Company Telephone
Terry Arenholz, Operations Manager
506 Pine Street P. O. Box 349 Dumont, IA, 50625
ph: 6418573211
terryar@dumonttelephone.com

MidAmerican Energy Company Electric Distribution
David Kline, Sr. Distribution Engineer, P.E.
260 Fairview Ave Waterloo, IA, 50703
ph: (319) 231-4726 cell: (319) 230-2781
David.Kline@midamerican.com

MidAmerican Energy Company Electric Transmission
Joshua Birmingham, High Voltage Engineering Manager
 106 E 2nd St Davenport, IA, 52801
 ph: (563) 726-1832 cell: (309) 207-6472
joshua.birmingham@midamerican.com

**MidAmerican Energy Company Gas Distribution
MidAmerican Energy Company Gas Transmission
Molly Brouwer, Gas Engineering Tech
212 S. Main St. Clarksville, IA, 50619
ph: (319) 291-4737 cell: (319) 231-7606
mcbrouwer@midamerican.com**

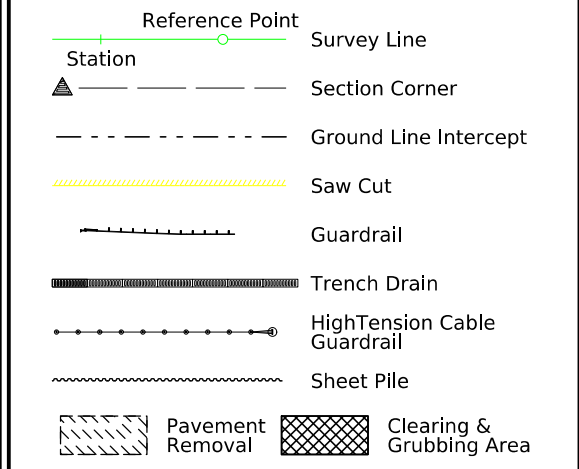
**Northern Natural Gas Company Gas Distribution
Northern Natural Gas Company Gas Transmission
Jennifer Sweny, Right of Way Agent
1120 Centre Pointe Dr. Ste. 400 Mendota Heights, MN, 55120
ph: (651) 456-1762 cell: (651) 402-1776
jennifer.sweny@nngco.com**

Rockwell Cooperative Telephone Association Telephone
Jason Dick, unknown
ph: 6418223000
rockwellcell@netins.net

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

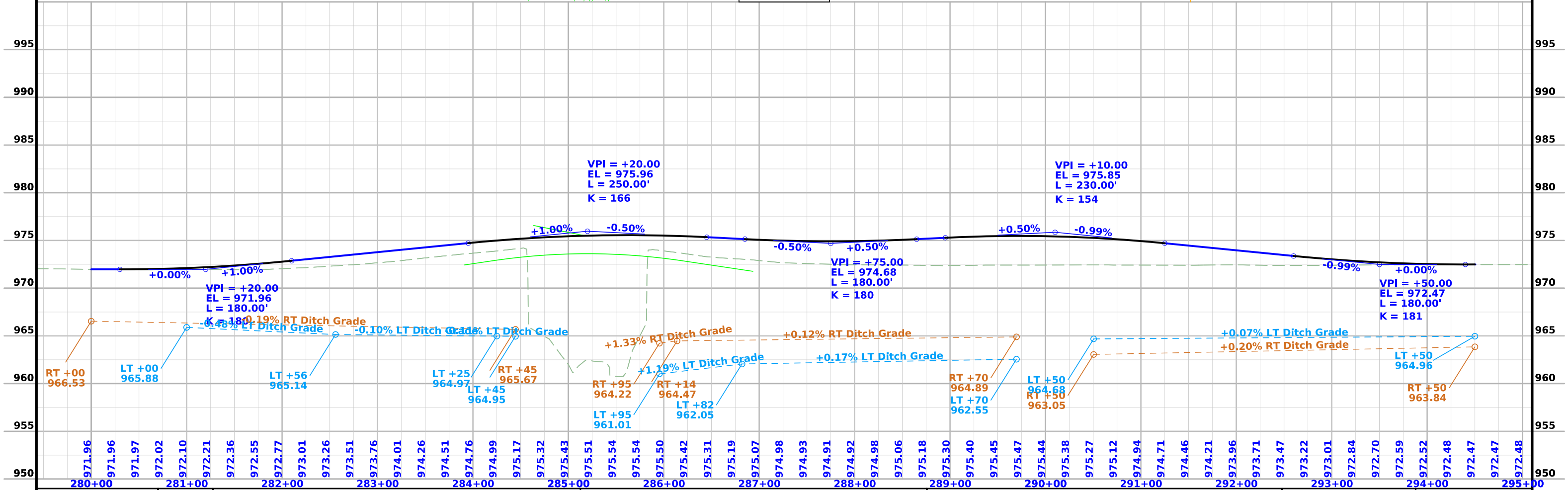
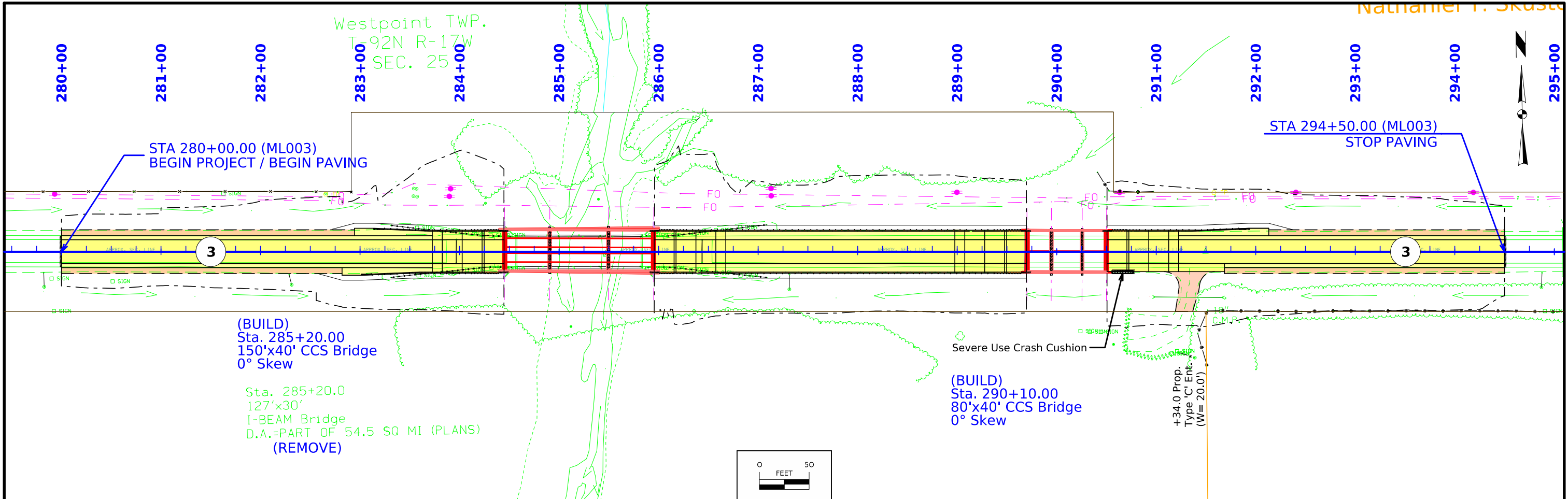
SHADING	Design Color No.		Transparency	
Pink, Dark	(13)		Temporary Pavement Shading	50%
Yellow	(4)		Proposed Pavement Shading	50%
Orange	(6)		Proposed Granular Shading	50%
Orange	(70)		Proposed Shoulder Granular Shading	50%
Yellow	(68)		Proposed Shoulder Paved Full Depth Shading	50%
Yellow	(132)		Proposed 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%

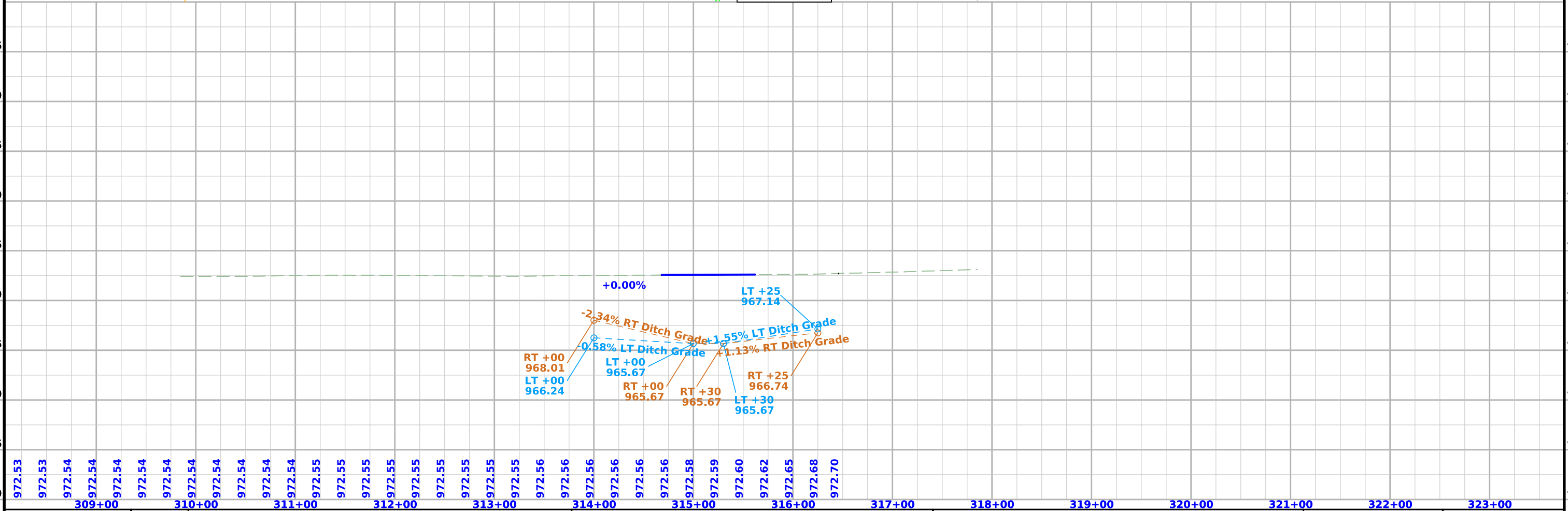
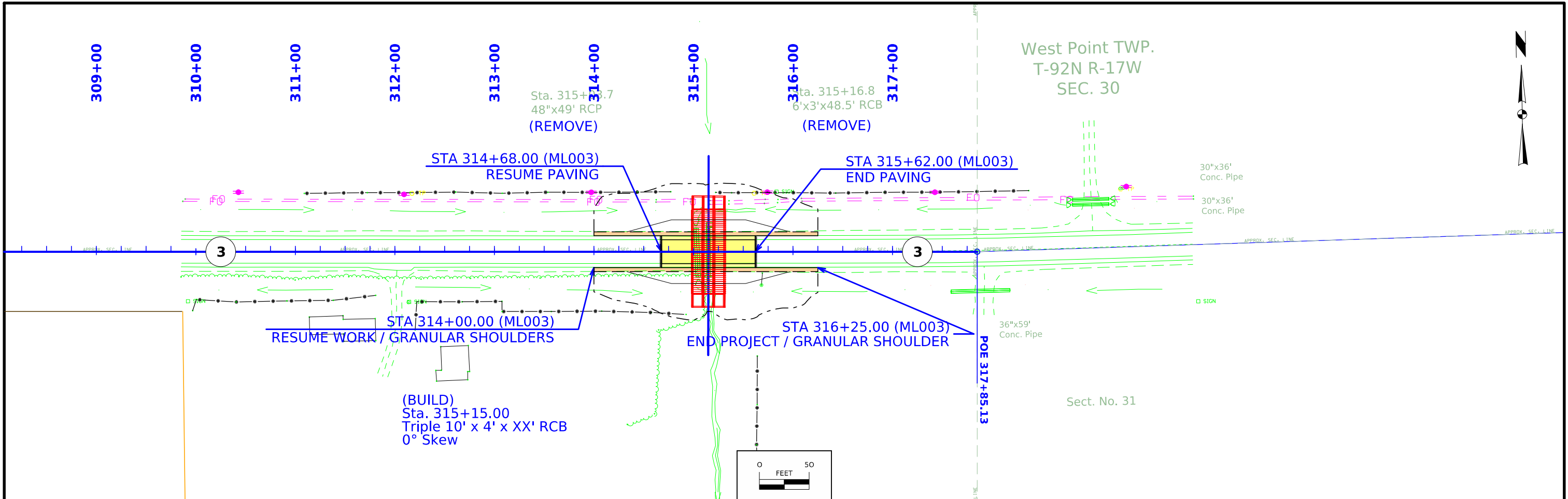
LINEWORK	Design Color No.	
Green	(10)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right



	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

County: Butler
Project Code: 23-12-003-010
Phase Number: BRF-003-5(092)--38-12
Location: Boylan Creek 2.4 mi E of Co Rd T16
Type of Work: Bridge-Unspecified
Project Directory: 1200301023

Survey Personnel

John Hahn – Survey Party Chief
Kokou Allade – Assistant Survey Party Chief

Date(s) of Survey

Begin Date 04/24/2024
End Date 11/4/2024

General Information

This survey is for the replacement of the IA 3 bridge (Maint. No 1297.2S003, FHWA 16510) over Boylan Creek. This survey request was for the IA Hwy 3 corridor only. 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 5
(U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018u3

Alignment Information

The horizontal alignment for State Highway 3 this survey is a retrace of As-built Plans No. FN-558. Survey stationing was equated to the plan POT at Sta. 291+49.5 and carried ahead and back without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

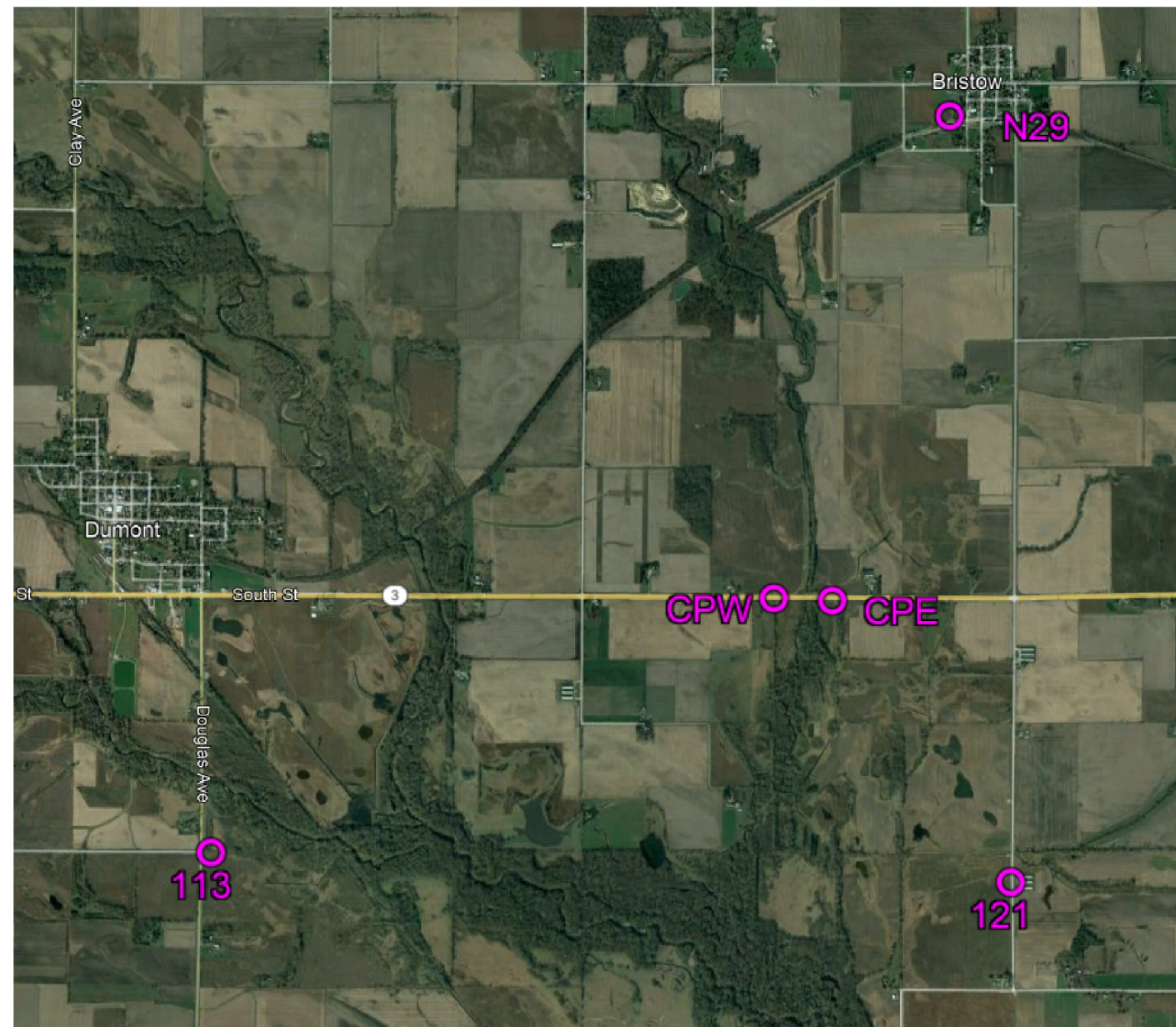
PI Sta. 265+29.0 As-built Plans Project No. FN-558
Survey POT Sta. 265+28.33

POT Sta. 291+49.5 As-built Plans Project No. FN-558
Survey PI Sta. 291+49.5

PI Sta. 317+85.0 As-built Plans Project No. FN-558
Survey POT Sta. 317+85.13

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 5 (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.

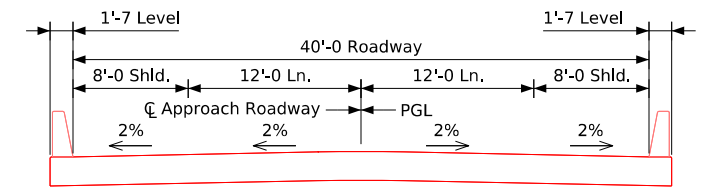
HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING
HORIZ. DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 Adjustment)
Ia. Regional Coordinate System Zone 5 (U.S. Survey Foot)
VERT. DATUM: NAVD88
Geoid Model: 2018u3

Point Name	Northing	Easting	Elevation	Code/Description
121	8929351.42	15324267.51	964.42	CP Fnd Butler Co GPS Control Point as described
171	8930104.23	15307574.11	971.81	CP Fnd Butler Co GPS Control Point as described
CPE	8935158.65	15320632.46	966.18	CP Set FENO monument
CPW	8935218.99	15319468	967.19	CP Set FENO monument
N29	8944648.68	15322189.75	1027.80	CP Fnd NGS Second Order Class 0 vertical mark as described

980		980
970		970
960		960
950		950
940	Note: 1' grade raise is required	940

Longitudinal Section Along C IA 3 Approach Roadway

— (2) Grading Surface. 2.5:1 max., normal



See Standard Road Plan EW-210 for wing dike details



Points	West Abutment			Points	East Abutment		
	Station	Offset	Elev.		Station	Offset	Elev.
A1	284+??	24.58' Lt.	???	A3	285+??	24.58' Lt.	???
A2	284+??	24.58' Rt.	???	A4	285+??	24.58' Rt.	???
B1	284+49.50	24.58' Lt.	???	B3	285+90.50	24.58' Lt.	???
B2	284+49.50	24.58' Rt.	???	B4	285+90.50	24.58' Rt.	???
W1	284+39.50	24.58' Lt.	???	W3	286+00.50	24.58' Lt.	???
W2	284+39.50	24.58' Rt.	???	W4	286+00.50	24.58' Rt.	???

General Notes
This design is for the replacement of the existing 126'-0" x 30'-0" I-Beam Bridge,
Original Design Number 1627, FHWA No. 16510, Maintenance Number 1297.2S003

Design Notes
TL-4 Bridge Railing Proposed
Pier Type - Pile Bent Pier - 2'-6" column width assumed, 3'-0" cap width assumed.
Design aspects of the pier including type, number of columns, pilings, geometry,
etc. to be determined / verified during final design.

RIDB: BoylanC_But_1.9
Drainage Area = 58.9 Sq. Mi.
Stream Slope (HGL) = ??? Ft./Mi.
Avg. Low Water Stage = ????

Q₅₀₀ = 5,871, (11,400) cfs
Stage = 971.94
Avg. Bridge Velocity = 5.3 fps
Calculated Check Scour = ????

- Q₂₅ = 3,619 (6,100) cfs
- Stage = 970.90
- Avg. Bridge Velocity = 3.8 fps

Q Overtop= 4,500 cfs
Avg. Bridge Velocity = ?? fps
Calculated Check Scour = ????

- Q₅₀ = 4,341 (7,300) cfs
- Stage = 971.23
- Regulatory Low Beam = ????
- Avg. Bridge Velocity = 4.3 fps

Roadway Overtop
ETW El. 971.8
CR El. 972.3
MP 197.2, Sta. ???+??
0.1 Mi. East of MC Bridge

$Q_{100} = 5,036 \text{ (8,500) cfs}$
 Stage = 971.55
 Operational Low Beam = ???.
 Backwater = -0.54 / 1.2 Ft.
 Avg. Bridge Velocity = 4.8 fps

Roadway Overtop
ETW El. 972.1
CR El. 972.3
MP 197.6. Sta. ???+??
0.3 Mi. East of MC Bridge

Q₂₀₀ = 5,731 (10,700) cfs
Stage = 971.88
Calculated Design Scour = ????

Extreme HW Stage = ????.?
Date = ????

Discharge in parenthesis represents total streamflow.

Backwater references change from existing / pre-development condition.

Iowa 3 over Boylan Creek
T-92N R-18W
Sections 25 and 36
Pittsford Township
Butler County
FHWA No. 0165xx
Bridge Maint. No. 1297.2500
Latitude 42.744805° (SIA)
Longitude -92.919919° (SIA)



0 40
scale in feet

Design For 0° Skew
150'-0 x 40'-0 Continuous
Concrete Slab Bridge

45'-6 End Spans 59'-0 Interior Span

Situation Plan

Sta. 285+20.00 (C IA 3)	TSL Date: March 2024
-------------------------	----------------------

Butler County

Design No. 0128 Design Sheet No. 1 of 1 FHWA No. 0165xx

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

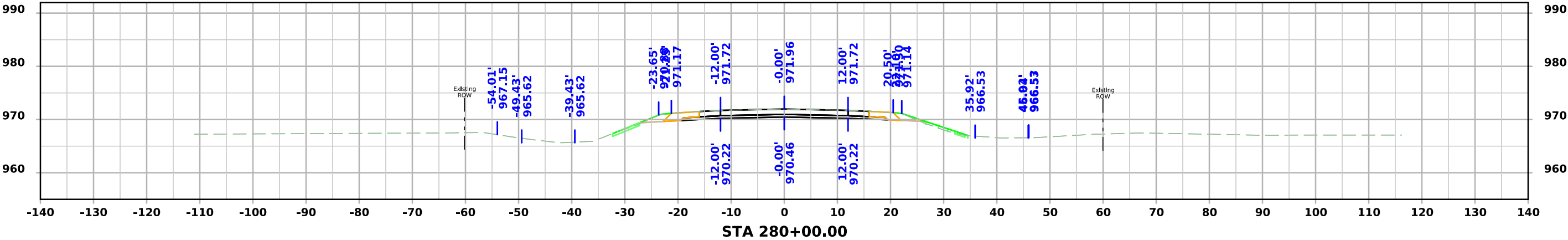
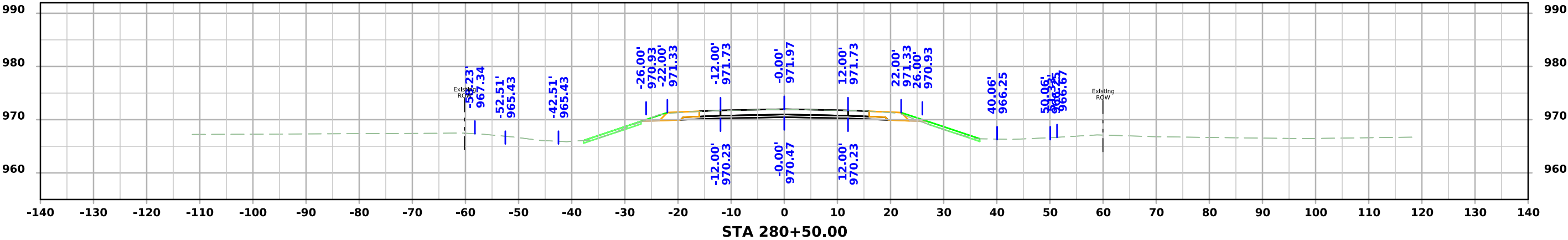
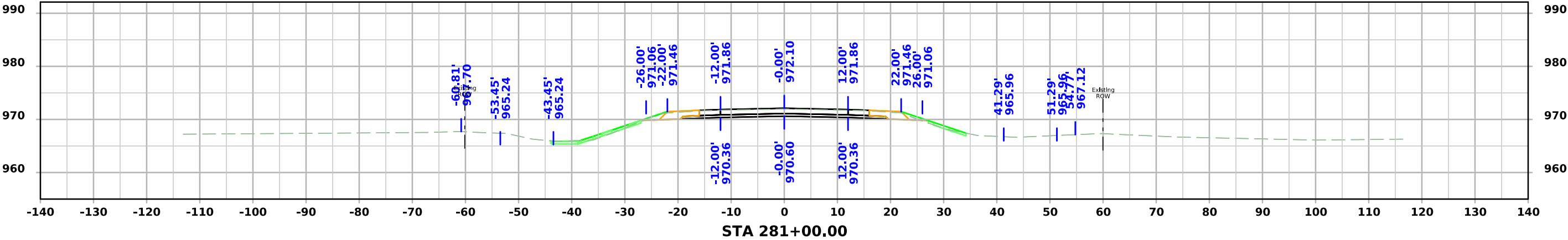
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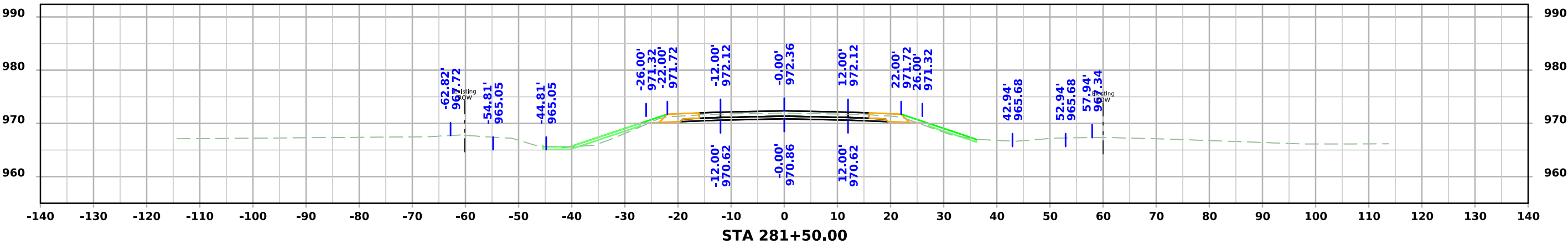
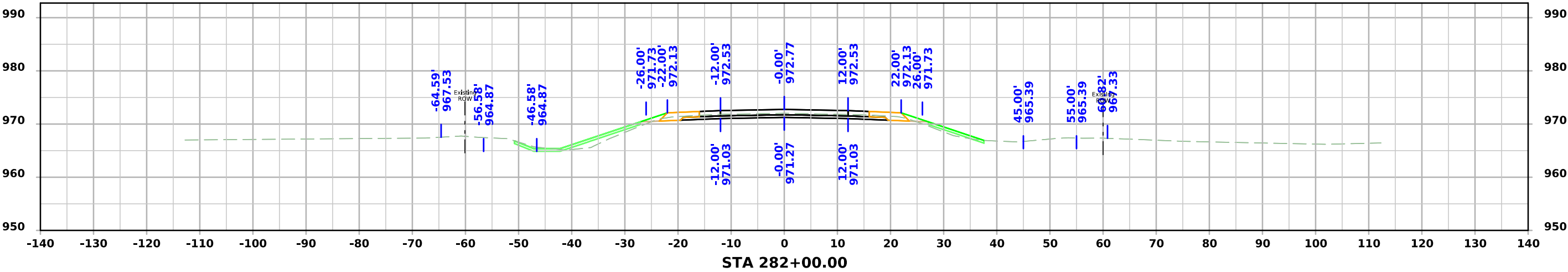
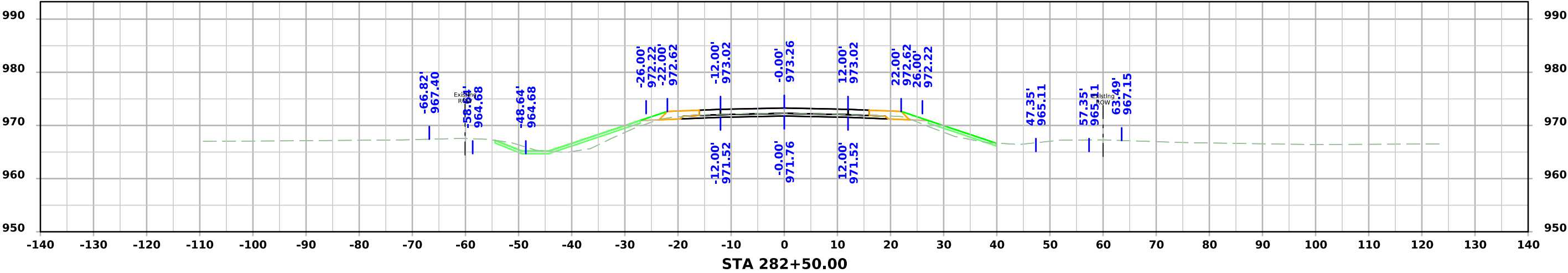
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LEGEND AND INFORMATION SHEET

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

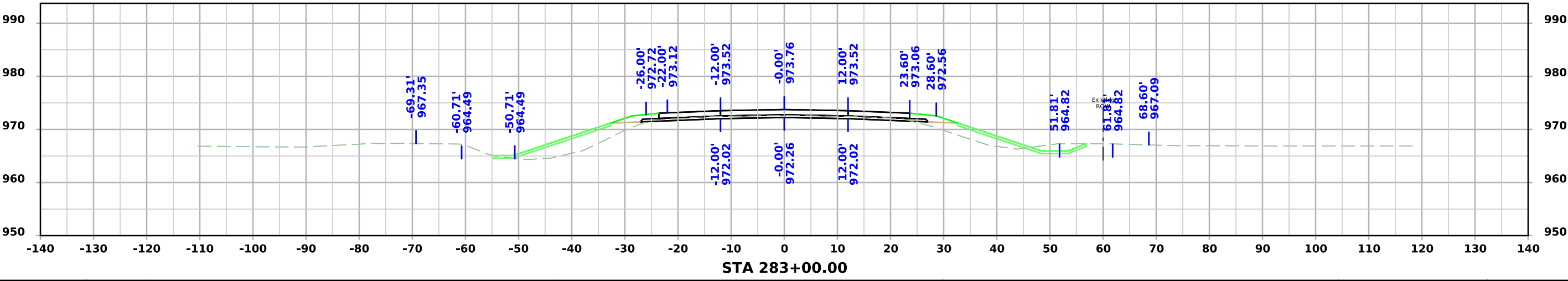
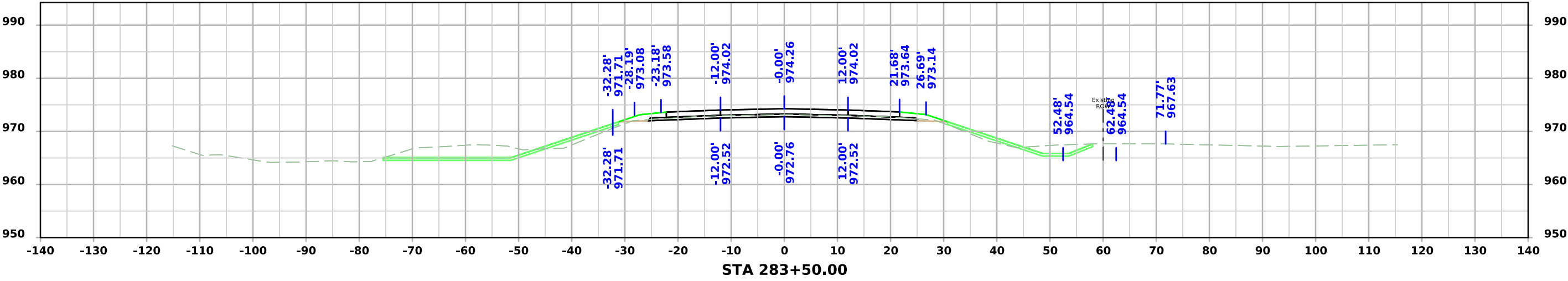
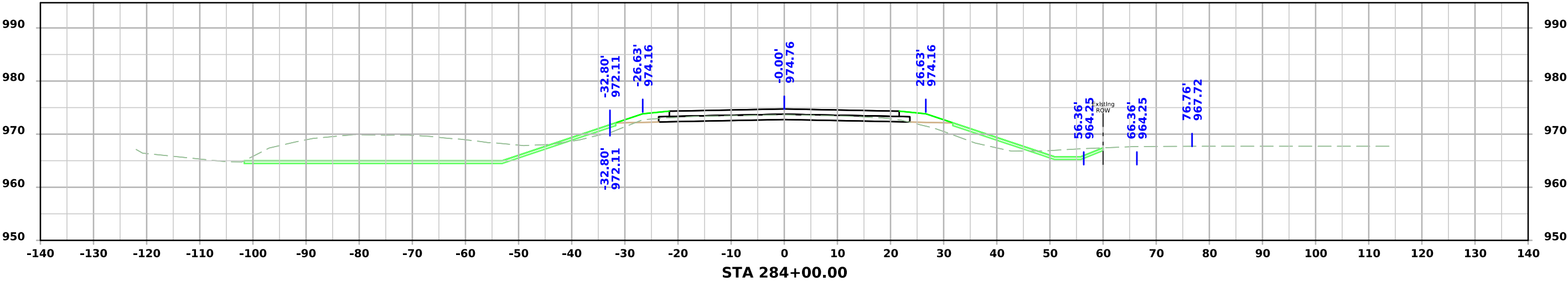
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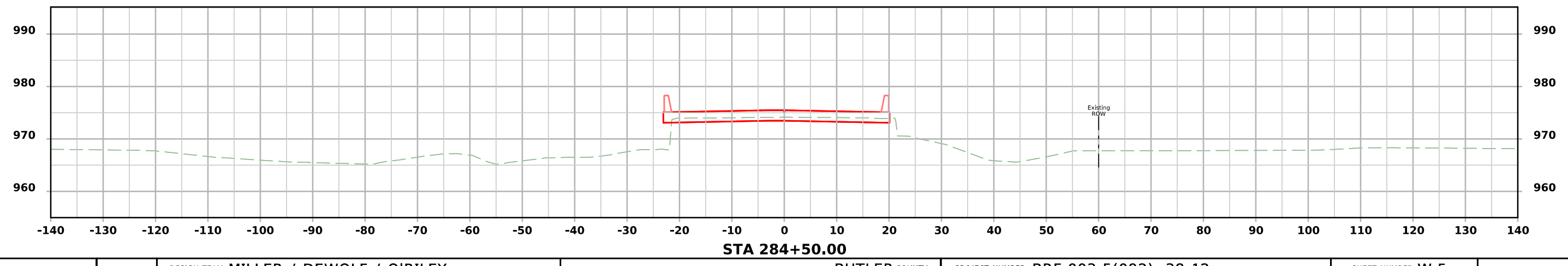
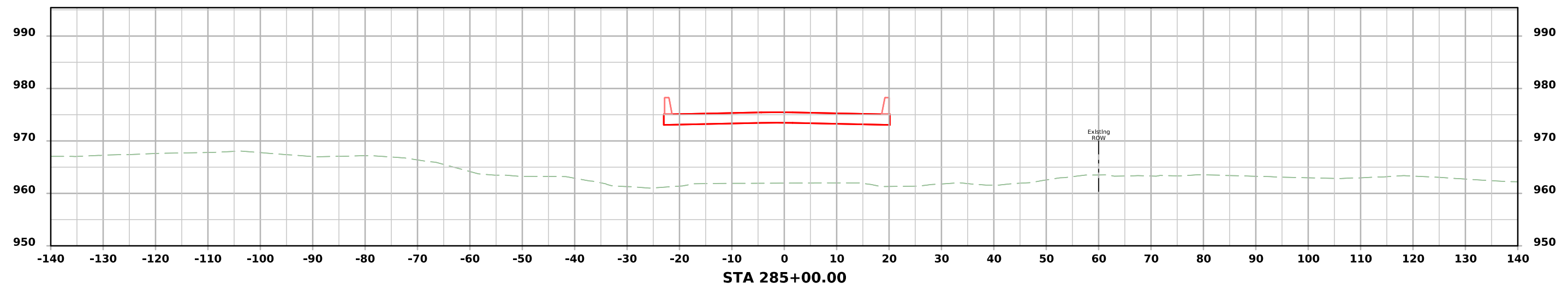
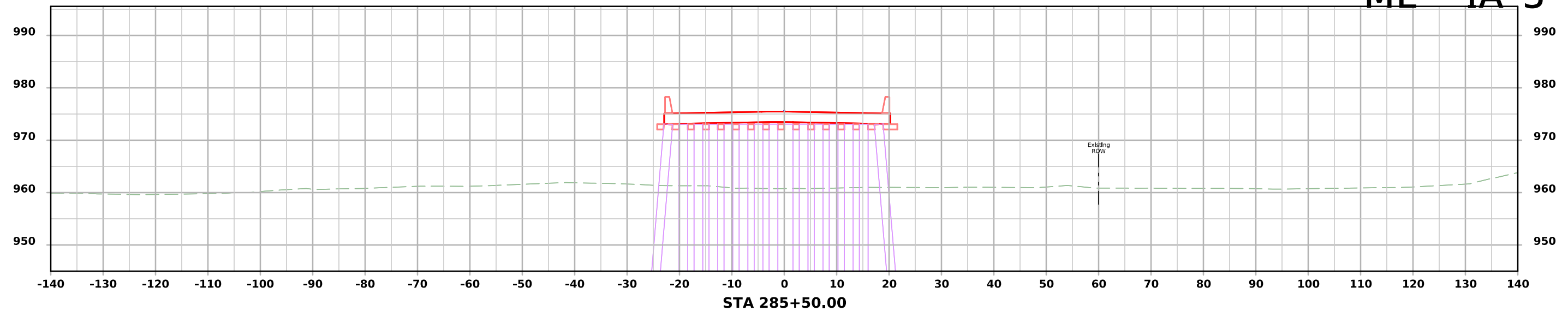
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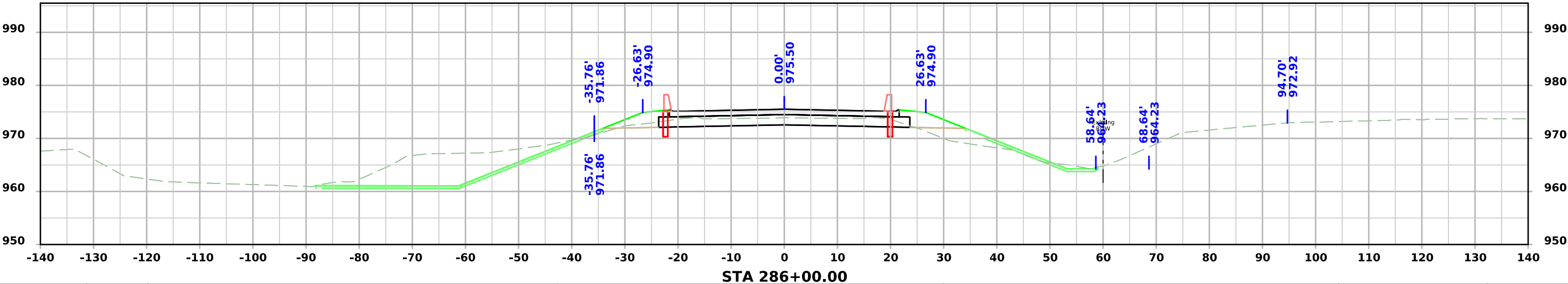
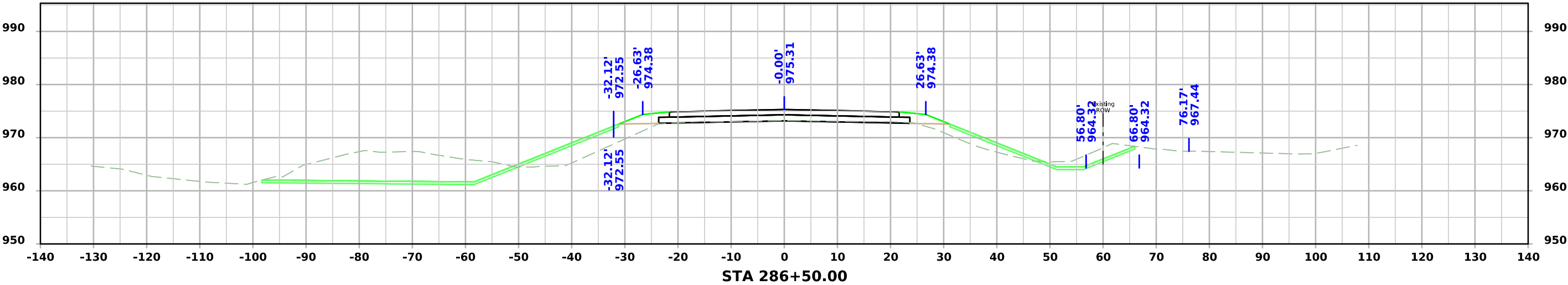
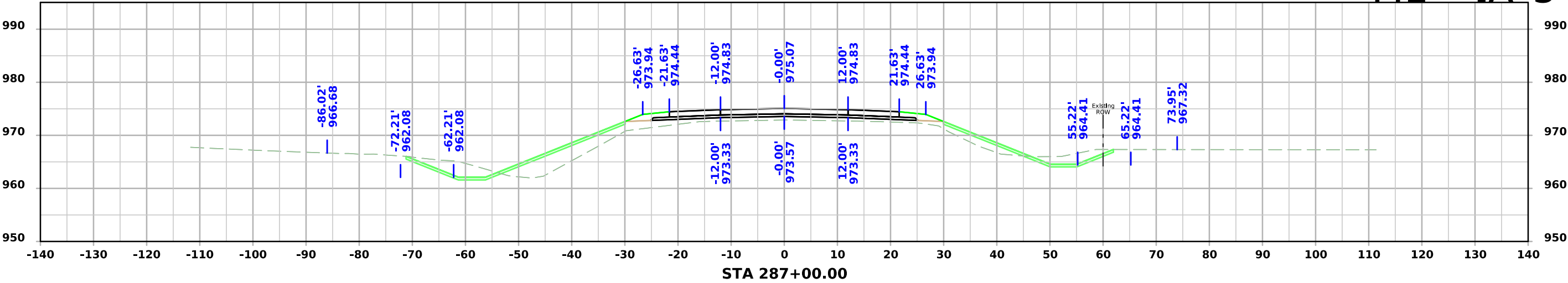
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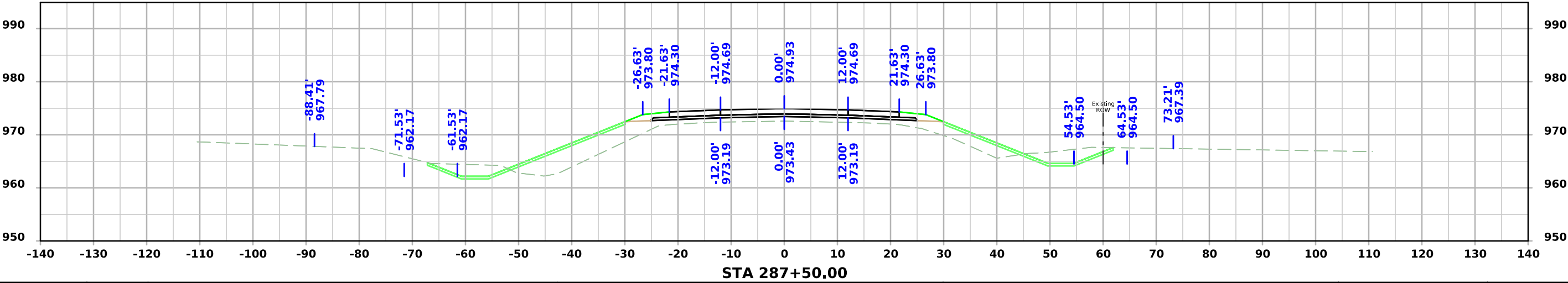
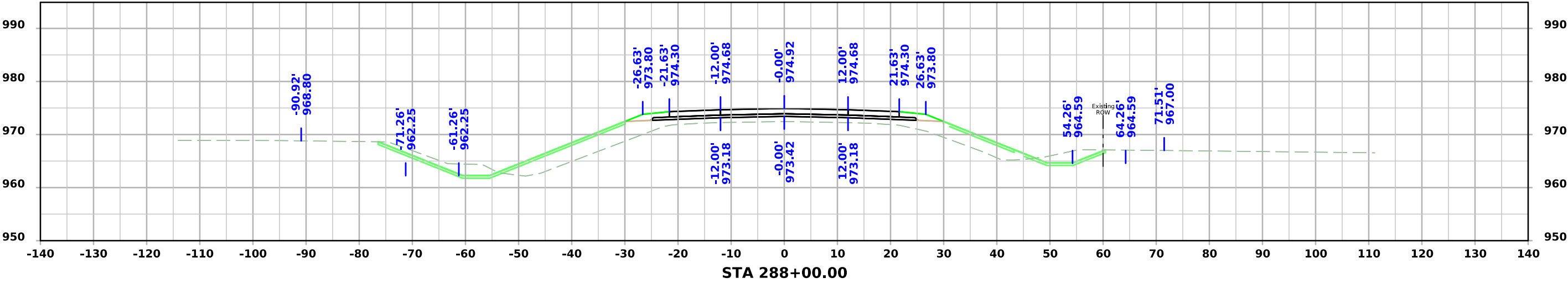
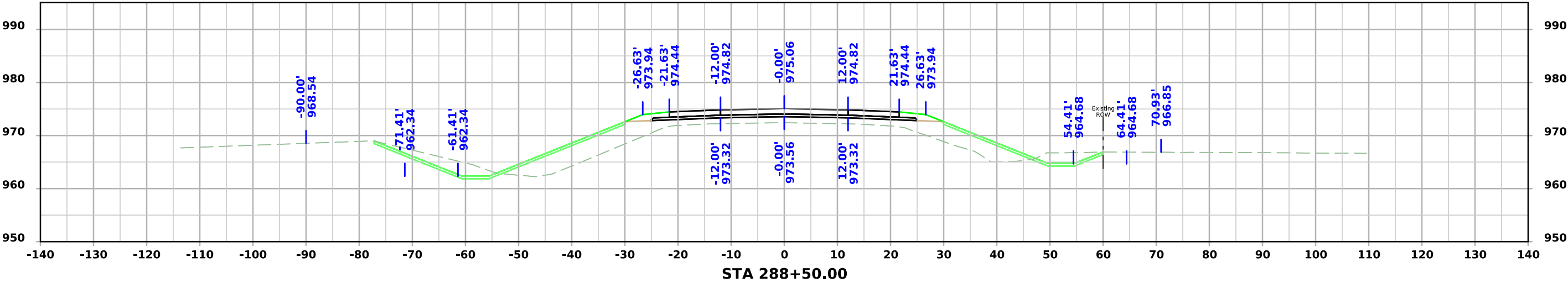
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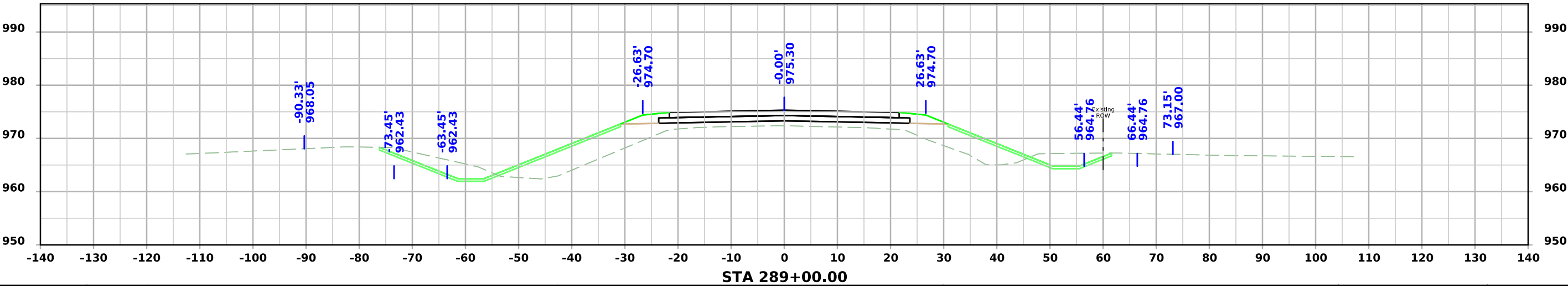
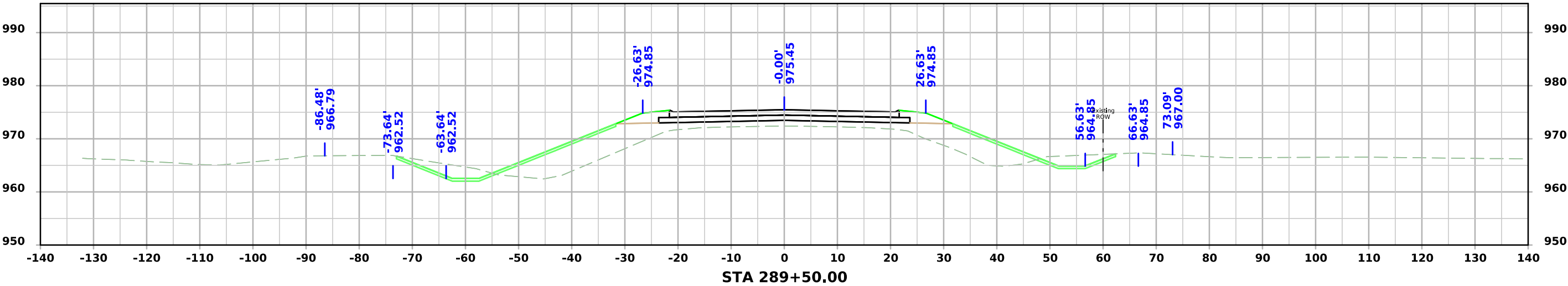
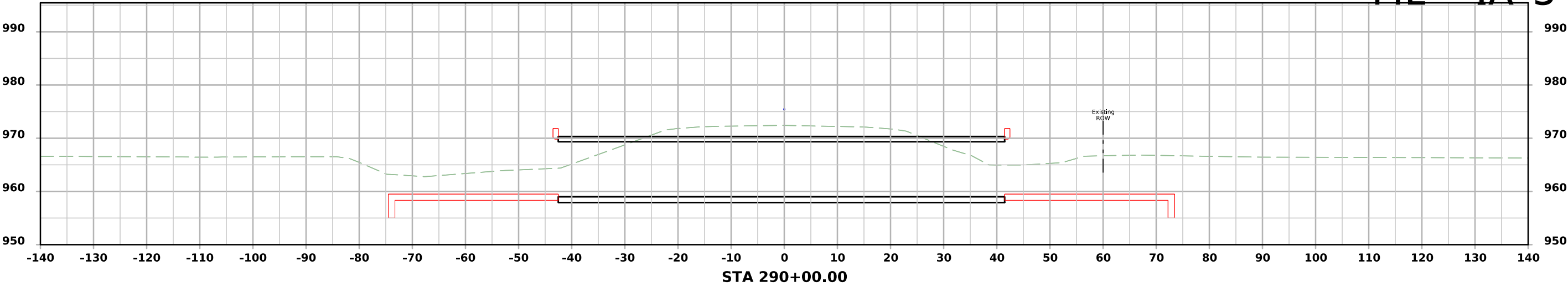
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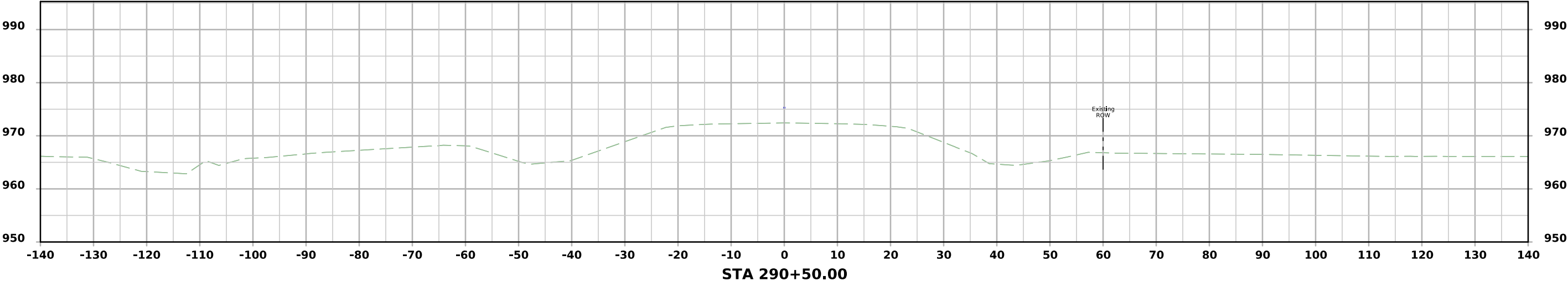
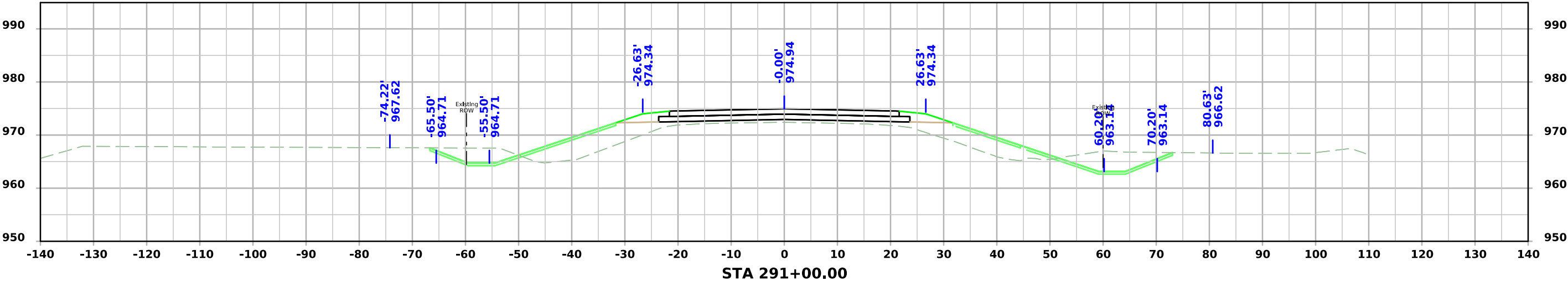
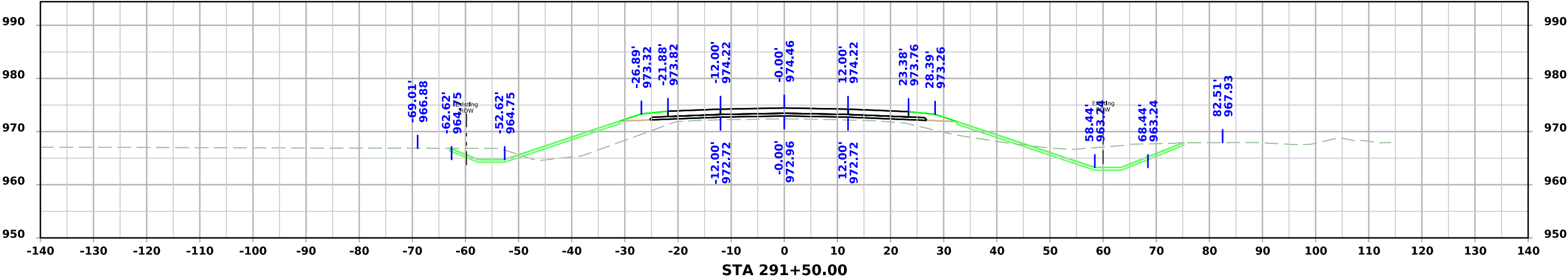
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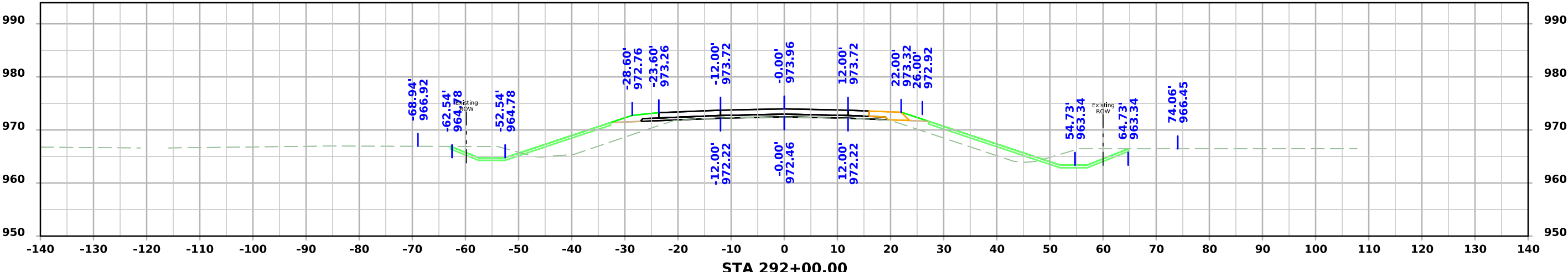
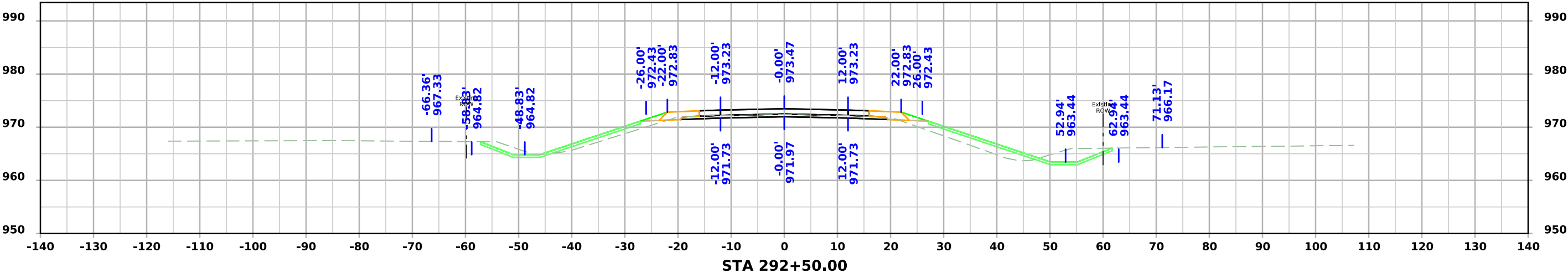
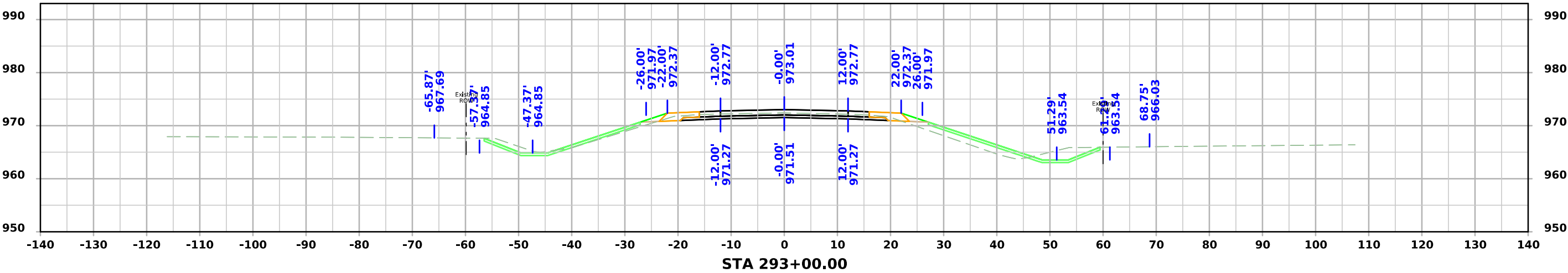
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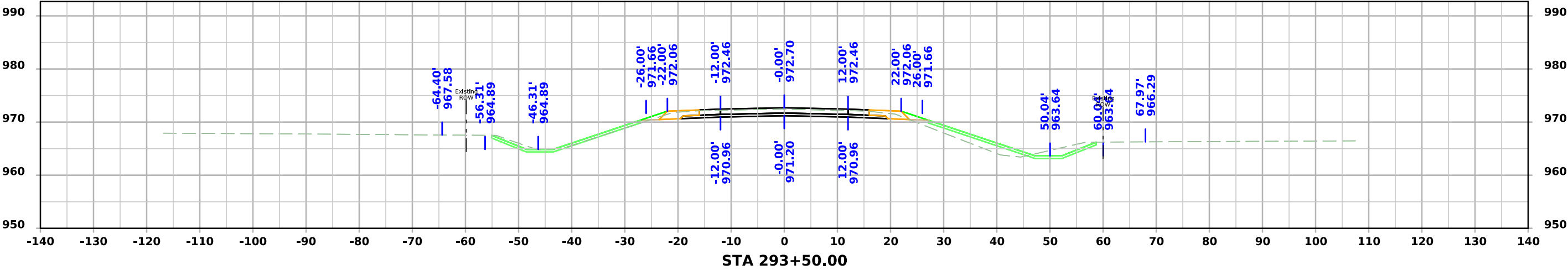
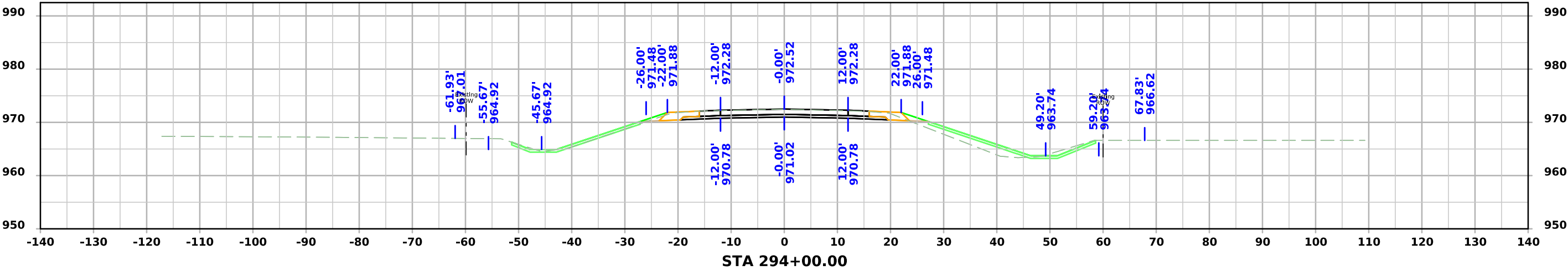
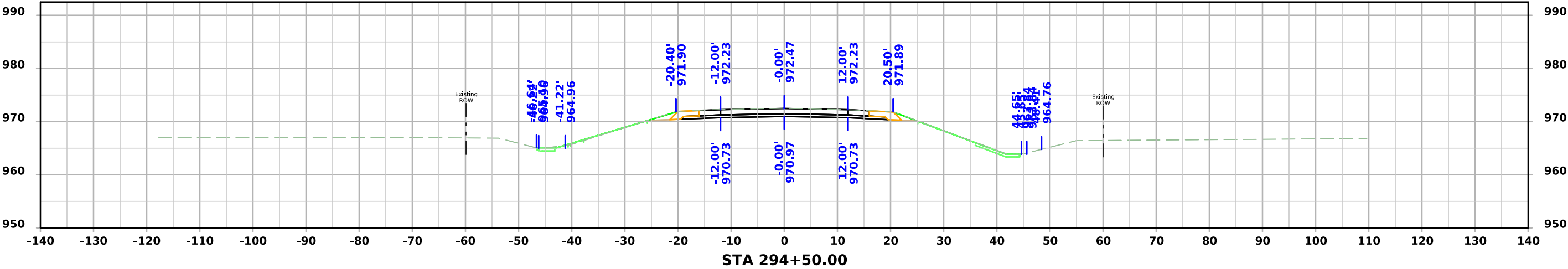
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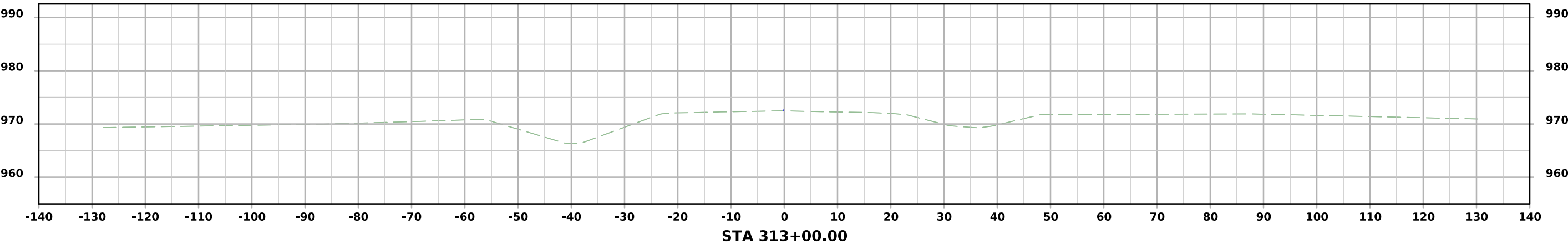
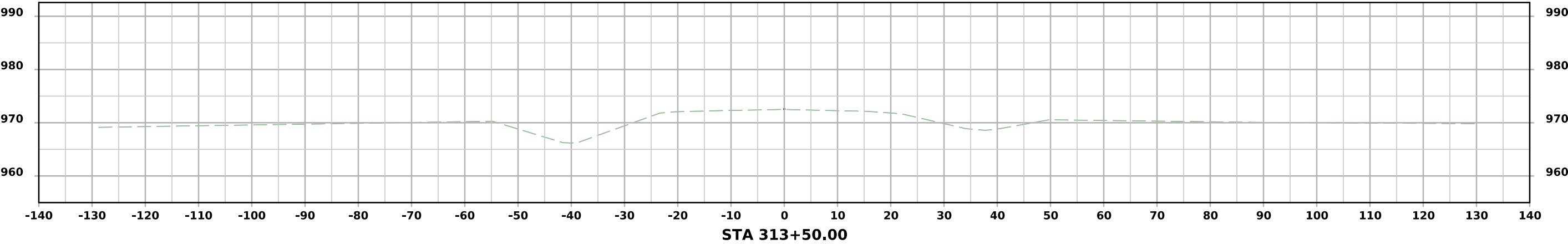
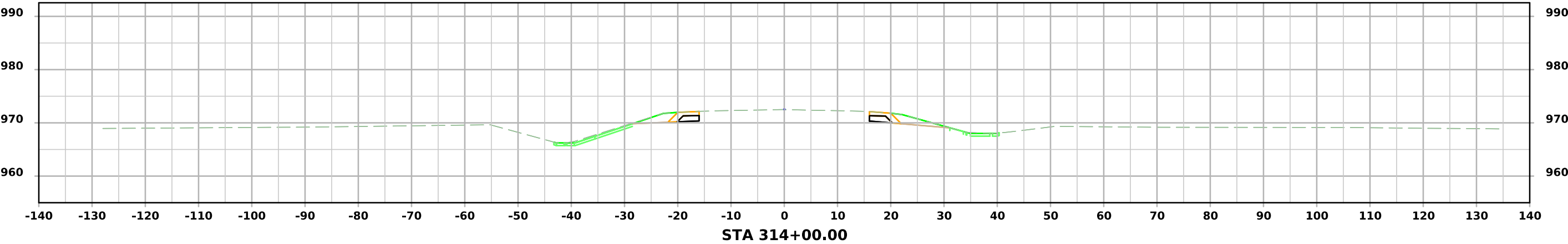
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