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PLANS OF PROPOSED IMPROVEMENT ON THE
INTERSTATE ROAD SYSTEM
Polk COUNTY
Unknown Pavement - Grade and New
W of 60th St to SW I-35/235 Interchange in West Des Moines (EB)

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
20-77-080-020-01
PROJECT NUMBER
IMX-080-3(309)122--02-77
R.O.W. PROJECT NUMBER

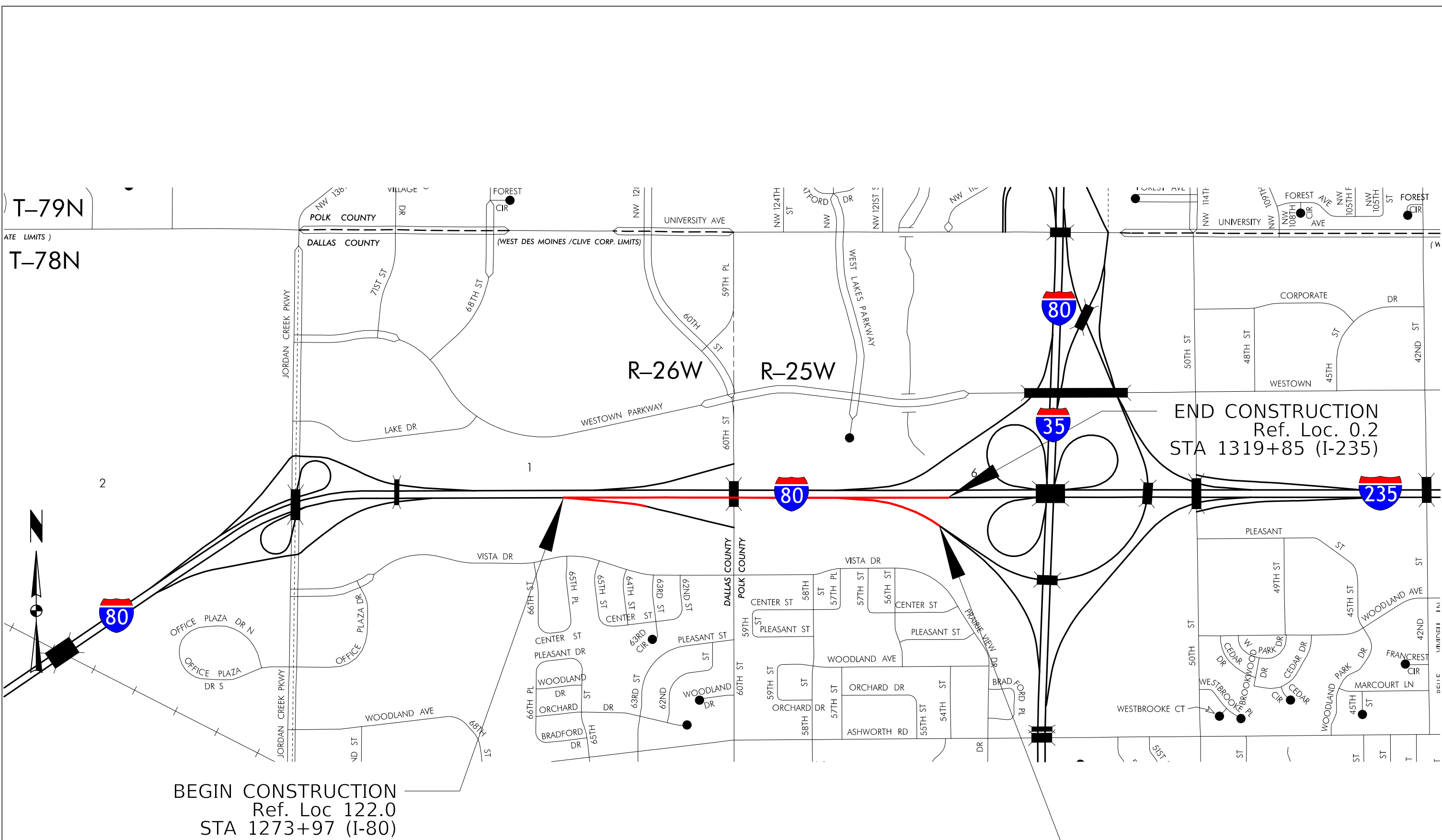
DESIGN DATA URBAN

2020	AADT	89,000	V.P.D.
2035	AADT	128,500	V.P.D.
20	-- DHV	--	V.P.H.
	TRUCKS	--	%
	Total		
	Design ESALs	--	

PRELIMINARY PLANS

Subject to change by final design.

D2 PLAN - Date: 03/17/2022



T-79N

T-78N

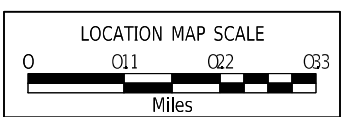
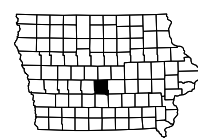
R-26W

R-25W

END CONSTRUCTION
Ref. Loc. 0.2
STA 1319+85 (I-235)

BEGIN CONSTRUCTION
Ref. Loc 122.0
STA 1273+97 (I-80)

END CONSTRUCTION
Ref. Loc. 122.9
STA 8516+90 (Ramp H)



FINAL PROJECT CONCEPT STATEMENT

Eastbound I-80 from West of 60th Street to W I-35/I-80/I-235 Systems Interchange

Polk County
 IMX-080-3(309)122--02-77
 PIN: 20-77-080-020

Highway Division
 District 1 Field Office

Benjamin Hucker, P.E., PTOE
 515-986-5458
 September 28, 2021

I. PROJECT BACKGROUND

A. Location Map



B. Project Description

This project will add a through lane to EB I-80 from west of 60th Street and realign the EB I-80 curve on the west side of the W I-35/I-80/I-235 Systems Interchange (Southwest Mixmaster - SWMM). This location has been identified as a bottleneck in the Des Moines Area Integrated Corridor Management (ICM) study. This additional lane will add capacity, improve traffic flow, and increase the weave area for I-80 and I-235 traffic. This project will match up with the existing four lanes from Jordan Creek Parkway to 60th Street, where the current fourth lane ends as an exit-only lane to 60th St.

Polk County
 IMX-080-3(309)122--02-77
 PIN: 20-77-080-020
 Page 2

C. Need for Project

This project is intended to eliminate a bottleneck between 60th Street and the SWMM to improve level of service along this corridor and add capacity. Overall, this area has a mainline LOS between C and D today and is approaching capacity. Significant weaving actions occur between Jordan Creek Parkway and the SWMM as vehicles from EB I-80 move to the right prepare to continue east on I-80 or south on I-35, while Jordan Creek Parkway traffic mixes with this stream as they move to the left side of the roadway to access the through I-235 lanes. The proposed improvements will not break up the weave between the SWMM and Jordan Creek Parkway, but four continuous lanes from Jordan Creek Parkway to the SWMM would significantly lengthen the weave distance and decrease density by more equally spreading the traffic volume across all available lanes. The current operation limits the number of vehicles that can use the outside lane of I-80 between Jordan Creek Parkway and 60th St. due to it being an exit-only lane to 60th St. This ramp carries a significantly lower volume of traffic and therefore, the current auxiliary lane between (Jordan Creek Parkway and 60th) would be better used as a through lane of traffic.

It is worth noting that the SWMM has known operational and capacity shortfalls. To that end, the District commissioned a large-scale study of the SWMM operations which offers opportunities to improve current and predicted future issues. While none of those improvements are yet programmed, the intent is to rebuild the interchange to address capacity issues in the area when funding allows. The improvement detailed in this concept is intended to address immediate concerns in the area but is not intended to address all known needs or challenges. However, this improvement is intended to align with and complement future improvements in the area.

D. Present Facility

West of the 60th St. exit ramp, EB I-80 has four 12' wide lanes with a 10' outside and a 6' inside shoulder and 6:1 foreslopes, constructed in 1988 and widened in 2002. From the 60th St. exit ramp to the Ramp 72M left exit (to EB I-235), EB I-80 has three 12' lanes with a 10' outside and a 6' inside shoulder and 6:1 foreslopes, constructed in 1988. At that point, EB I-80 curves south on two 12' wide lanes with a 10' outside and a 6' inside shoulder and 6:1 foreslopes, constructed in 1992 and Ramp 72M (to EB I-235) continues straight on two 12' wide lanes with a 10' outside and a 6' inside shoulder and 6:1 foreslopes, constructed in 1988.

E. Traffic Estimates

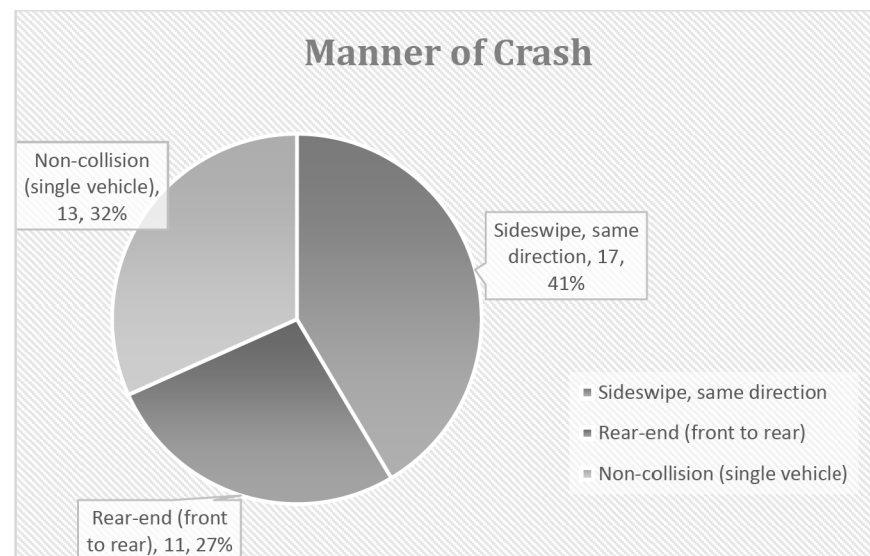
Traffic data was obtained from the Horizon Year 2045 Traffic Analysis memo completed by HDR for the adjacent widening project from 60th St. to Grand Prairie Parkway, using both HDR and Iowa DOT data accessed in May of 2020. Data shared below is specifically identified to cover the area East of 60th St. Traffic estimates indicate 89,000 vehicles per day in the study year of 2020. Assuming the widening to the west is completed, traffic volumes increase to 128,500 vehicles per day in the 2035 Design Year and 143,900 in the Horizon Year of 2045. Upon completion of this project in 2024, traffic volumes are estimated to be 105,700 vehicles per day.

F. Access Control

I-80 is a fully access controlled facility. Additional access rights will not be acquired for this project. No additional access will be allowed.

G. Crash History

Crashes from the five-year study period from January 1, 2016 through December 31, 2020, for eastbound I-80 from the EB Jordan Creek Parkway entrance ramp to the I-80/I-235 split (Ramp 72M) were evaluated. Forty-one non-animal crashes occurred in that period, of which seven were possible injury crashes and thirty-four were property damage only crashes. A summary of the types of crashes occurring in this area is shown on the following page.



All crashes noted above occurred within the weaving area. Eight crash reports specifically noted that it occurred due to weaving action and weaving action may have been a contributing factor in an additional twenty-four of those crashes. Based on a review of the crash reports, it is assumed a portion of the rear-end crashes were attributed to quick lane-change maneuvers (i.e. cutting someone off) and the majority of the single-vehicle collisions were not related to a weaving maneuver. Animal-related crashes were filtered out prior to the data being analyzed.

II. PROPOSED ALTERNATIVE

The proposed improvement will widen EB I-80 to four lanes by extending the existing fourth (auxiliary) lane from west of 60th St. to the split of I-80 and I-235 at the SWMM. This will be accomplished by realigning the exit ramp to 60th St. and also the curve at the I-235 left exit from I-80. Ramp 72M from EB I-80 to EB I-235 is

proposed to be widened to 3 lanes to allow for lane balance. The third lane will be dropped 500' east of the gore via a 60:1 taper. With this approach, lanes one and two will still flow directly into EB I-235 while lane three will become an option lane for either EB I-235 or EB I-80. The new fourth lane will be an exit-only lane to I-80 EB.

All new lanes are proposed to be 12' wide and include a 12' wide full-depth outside shoulder and a 4:1 foreslope. A plan view figure with sample cross sections is included in the appendix. Right of way does not appear to be required for this project with the above approach.

III. ALTERNATIVE EVALUATION

A. Operational Analysis

Current conditions contribute delays causing leading to an estimated \$70,000/year in additional costs. Additional analysis will be completed and presented in the Interchange and Operation Report (IOR), which will be forthcoming.

B. Crash Analysis

Additional analysis will be completed and presented in the Interchange Operation Report, which will be forthcoming.

C. Traffic Control

For the purposes of consistency between traffic control and to minimize conflicts between projects and prime contractors in the corridor, this project will be contractually tied to District 4's project IM-NHS-080-3(286)118--11-25, which is constructing the widening work west of 60th St. Since this project is traffic critical and significant, it will be included in D4's Traffic Management Plan (TMP) for their (286) project. IWZ principles and devices will be used as described in the TMP. Work on this project will be staged and expedited as needed to minimize impacts to traffic, maintaining at least one lane of traffic in each direction at all times.

D. ADA/Complete Streets Considerations

This project is limited to I-80; no ADA or Complete Street considerations are pertinent to this project.

E. Special Considerations

Survey is currently being gathered for this project.

The Design Bureau will be preparing the plans for this project.

F. Cost Estimate

The cost estimate for this work is \$2,051,000. A detailed estimate, prepared with iPDWeb, is included in the appendix.

J. Program Status

This project is not yet programmed but should be placed on the monitor list for FY 2024.

Cc:

C. Purcell	M. J. Kennerly	K. D. Nicholson
S. J. Megivern	J. S. Nelson	B. Walls
M. Nop	M. A. Swenson	R. A. Younie
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J. W. Laaser-Webb	W. A. Sorenson	D. E. Sprengeler
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J. Harris	C. C. Poole	B. Hofer
B. E. Azeltine	S. J. Gent	S. Anderson
D. Stokes	B. Meyer	G. Kretlow
K. K. Patel	S. Godbold	J. Vortherms
D. R. Claman	B. Beavers	M. Solberg
C. Brakke	T. Hanson	F. Today
E. Engle	M. Hobbs	J. Narigon
V. Brewer	M. Donovan	J. Scott
J. Garton	A. Loonan	T. Hildreth
B. Ellis	S. Nixon	P. Lafleur, FHWA
A. Smyth	B. Bradley	W. Mayberry
A. Yates	E. Ganson	S. Neilsen
D. Maifield	J. Bartholomew	M. Ortiz-Pagan
K. Younkin		

Appendix

Schedule

Event Description	Start Date	Finish Date
D00 - Pre-Design Concept	6/10/2021	9/20/2021
D01 - Survey Plan and Photogrammetry (DTM)	7/8/2021	10/1/2021
TE0 - Desktop Review	2/19/2021	10/22/2021
U00 - Preliminary Utility Review	9/23/2021	10/22/2021
W00 - Preliminary Wetland Review	7/20/2021	10/22/2021
D02 - Design Field Exam	10/7/2021	12/10/2021
D03 - Plans for Preliminary Bridge	11/18/2021	12/30/2021
H00 - Cultural Resources Assessment	12/16/2021	1/14/2022
B02 - Drainage Design and Miscellaneous Layout to Office of Design	11/12/2021	2/11/2022
IJR3 - Interchange Justification Report by District	10/13/2021	2/11/2022
NE10 - Signed PCE	1/3/2022	2/11/2022
D05 - Plans to Right Of Way	12/23/2021	2/25/2022
IJR5 - Interchange Justification Report Approval	12/15/2021	4/15/2022
S03 - Soils Design Complete	1/12/2023	4/7/2023
A01 - Approval of DOT Commission - Inclusion in 5-Year Program	6/14/2022	6/14/2022
DM5 - Design Methods Turn-In	8/29/2023	8/29/2023
D08 - Final Grade and Pave Plans	11/30/2022	10/3/2023
L03 - Letting-Combination Grade and Pave	10/3/2023	12/19/2023

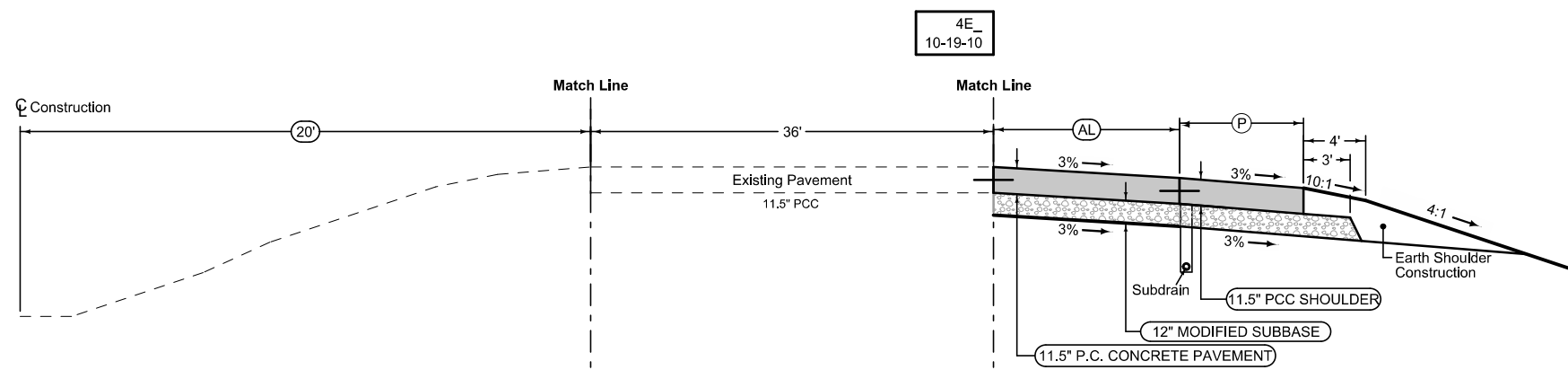
Cost Estimate

Item Number	Item Description	Units	Quantity	Cost Used	Suggested Cost	Line Total
2115-0100000	MODIFIED SUBBASE	CY	3,360.000	\$40.00	\$45.00	\$134,400.00
2122-5190012	PAVED SHLD, PCC, 12"	SY	4,580.000	\$75.00	\$173.22	\$343,500.00
2301-1004120	STD/S-F PCC PAVT, QM-C CL 3I, 12"	SY	5,500.000	\$100.00	\$242.54	\$550,000.00
2423-1060085	STEEL O'HEAD SIGN TRUSS, 85'	EA	2.000	\$85,000.00	\$0.00	\$170,000.00
2510-6745850	RMVL OF PAVT	SY	4,580.000	\$10.00	\$11.18	\$45,800.00
2533-4980005	MOBILIZATION	LS	1.000	\$80,000.00	5.16%	\$80,000.00
PCT-000-030-020	TEMPORARY TRAFFIC CONTROL (000-030-020)	% of Project	2,078,375.670	3.00%	4.05%	\$62,351.27
PCT-010-010	EARTHWORK (010-010)	% of Project	2,078,375.670	3.00%	9.13%	\$62,351.27
PCT-010-050-000	SUBDRAINS (010-050-000)	% of Project	2,078,375.670	2.00%	0.55%	\$41,567.51
PCT-040	EROSION CONTROL (040)	% of Project	2,078,375.670	1.00%	1.73%	\$20,783.76
PCT-050	SIGNS (050)	% of Project	2,078,375.670	1.00%	0.19%	\$20,783.76
PCT-999	UNQUANTIFIED	% of Project	2,078,375.670	25.00%		\$519,593.92
					Total:	\$2,051,131.49



Notes:
 1.) The outside shoulder may need to be reconstructed to fit the added fourth driving lane because it is only 10' wide and has a cross slope of 4%
 2.) A 10' shoulder will need to be constructed adjacent to the added fourth driving lane
 3.) There will be impacts to overhead sign structures and guardrail with the addition of the fourth driving lane
 4.) Further analysis is needed to determine gore impacts at both off-ramps in this location

EB I-80 - 60TH STREET TO SOUTHWEST MIXMASTER



4E_10-19-10

Auxiliary Lane Full Depth Shoulder

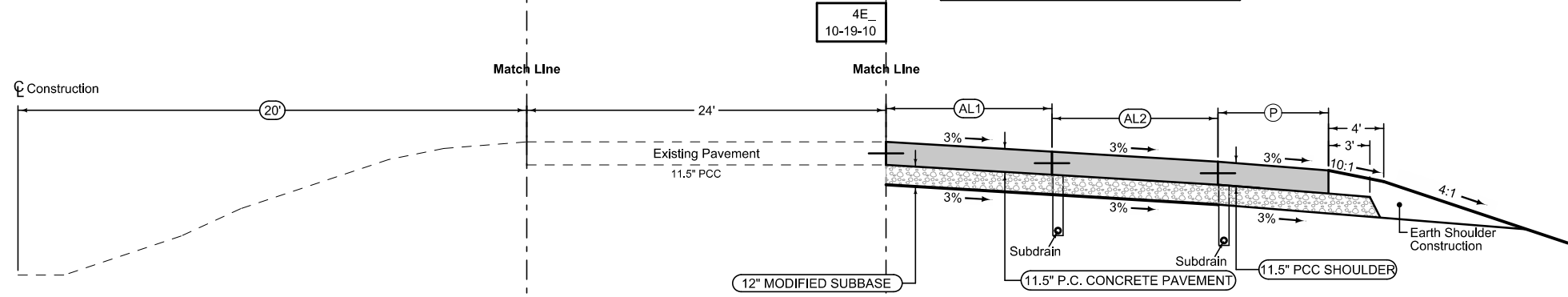
Shoulder Jointing:
 Longitudinal joint: L-2 or KT-2
 Transverse joints: C at 17' spacing

4_AL_Shldr_FullPCC_04-21-20

(P)
Feet
12'

Auxiliary Lane
 Longitudinal joint: L or KT
 Transverse joint: Match Mainline

4_AuxLane_PCC_10-18-16			
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet
EB			12'



4E_10-19-10

Auxiliary Lane Full Depth Shoulder

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

4_AL_Shldr_FullPCC_04-21-20

(P)
Feet
12'

Auxiliary Lane
 Longitudinal joint: L or KT
 Transverse joint: Match Mainline

4_AuxLane_PCC_10-18-16				
Direction of Travel	BEGIN STATION	END STATION	(AL1) Feet	(AL2) Feet
EB			12'	12'

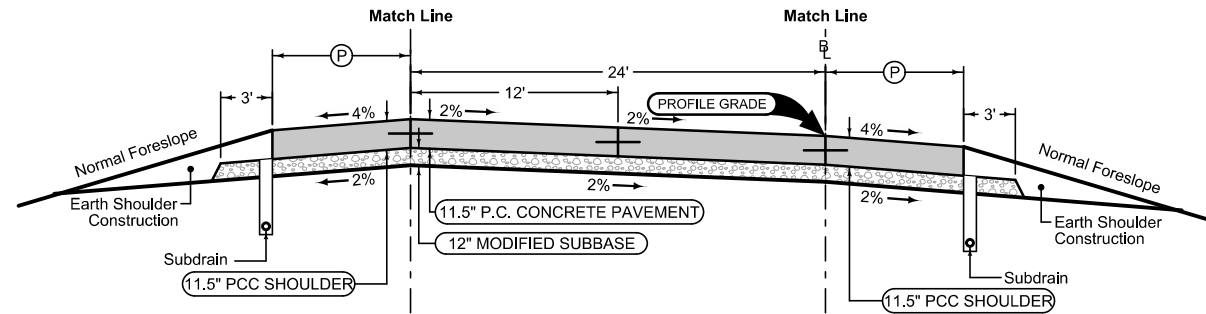
See Tab 100-24 or 100-25 for pavement quantities.
 See Tab 112-9 for shoulder quantities.

I-80 East Bound

Full Depth PCC Shoulder

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

2_P_FullPCC_MODIFIED	
STATION TO STATION	(P) Feet
	4'



Section shown in the direction of traffic.

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

2RP_04-21-20	
BEGIN STATION	END STATION

Full Depth PCC Shoulder

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

2_P_FullPCC_MODIFIED	
STATION TO STATION	(P) Feet
	6'

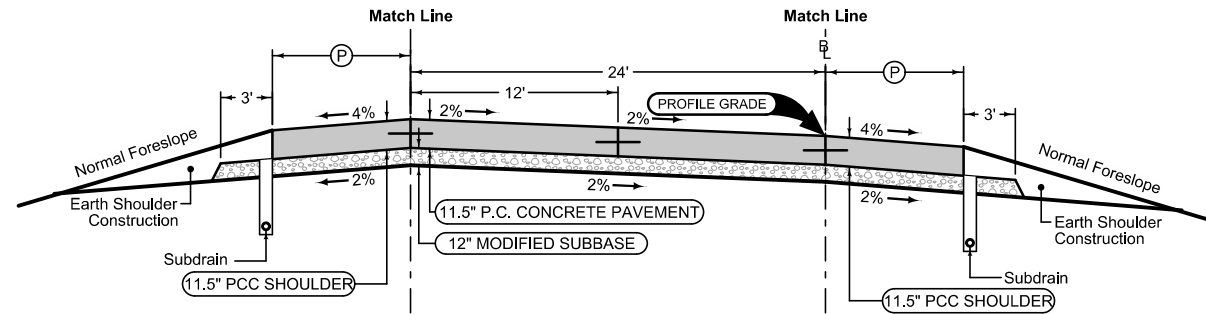
See Tab 100-24 or 100-25 for pavement quantities.
 See Tab 112-9 for shoulder quantities.

Ramp B 60th St

Full Depth PCC Shoulder

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

2_P_FullPCC_MODIFIED	
STATION TO STATION	(P) Feet
	6'



Section shown in the direction of traffic.

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

2RP_04-21-20	
BEGIN STATION	END STATION

Full Depth PCC Shoulder

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

2_P_FullPCC_MODIFIED	
STATION TO STATION	(P) Feet
	10'

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

Ramp H I-80 EB

SURVEY SYMBOLS

- 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
- Water Hook Up
- Radio Tower
- Tower Anchor
- Guardrail (Beam or Cable)
- Guard Post (one or two)
- Guard Post (over two)
- Filler Pipe
- Gas Valve
- Water Valve
- Speed Limit Sign
- Mile Marker Post
- Sign
- Traffic Signal Control Box
- Rail Road Signal Control Box
- Telephone Switch Box
- Electric Box

UTILITY LEGEND

- E1 - EL1D, Mid American Energy - Quality D
- E5 - EL5D, Iowa DOT - Quality D
- F013 - FO13D, Wells Fargo Home Mortgage - Quality D
- F0 - FO2D, Lumen (Century Link) - Quality D
- F04 - FO4D, Aureon Network Services - Quality D
- F08 - FO8D, City of West Des Moines Traffic - Quality D
- G - GL1D, Mid American Gas - Quality D
- TV - TV1D, Mediacom - Quality D

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

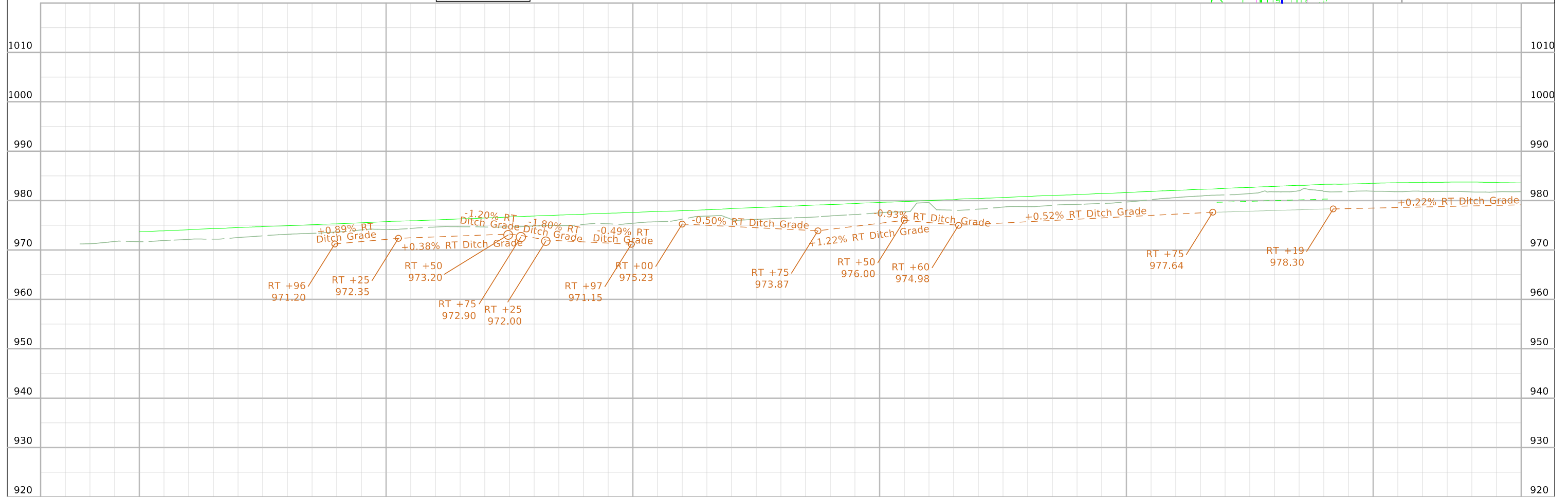
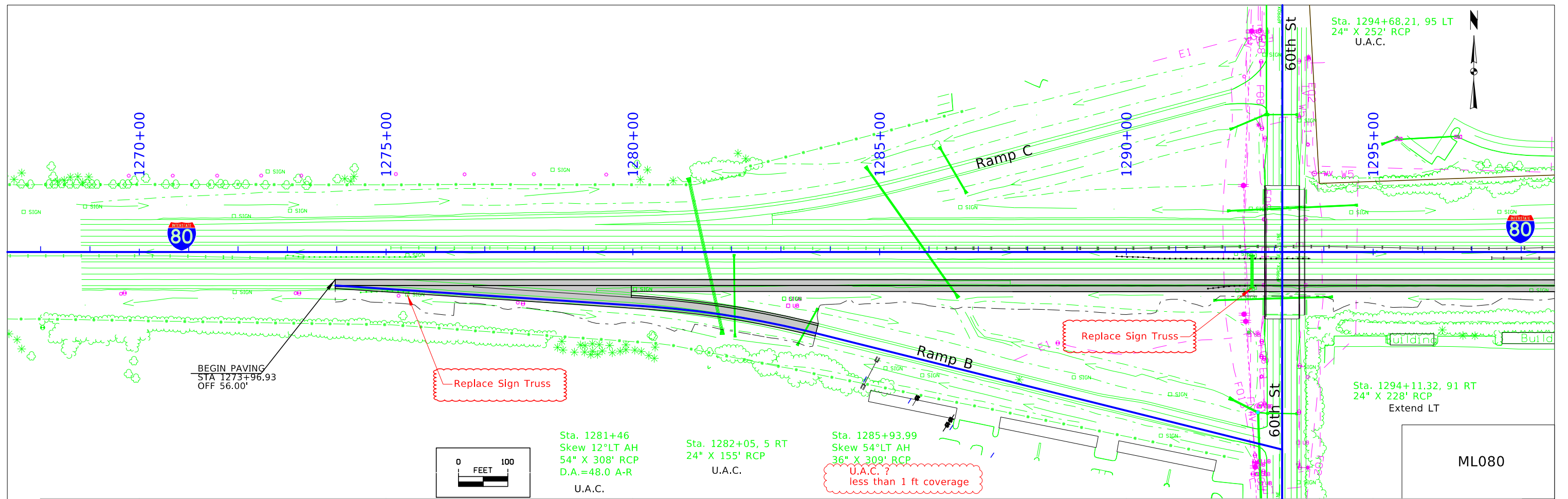
- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

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

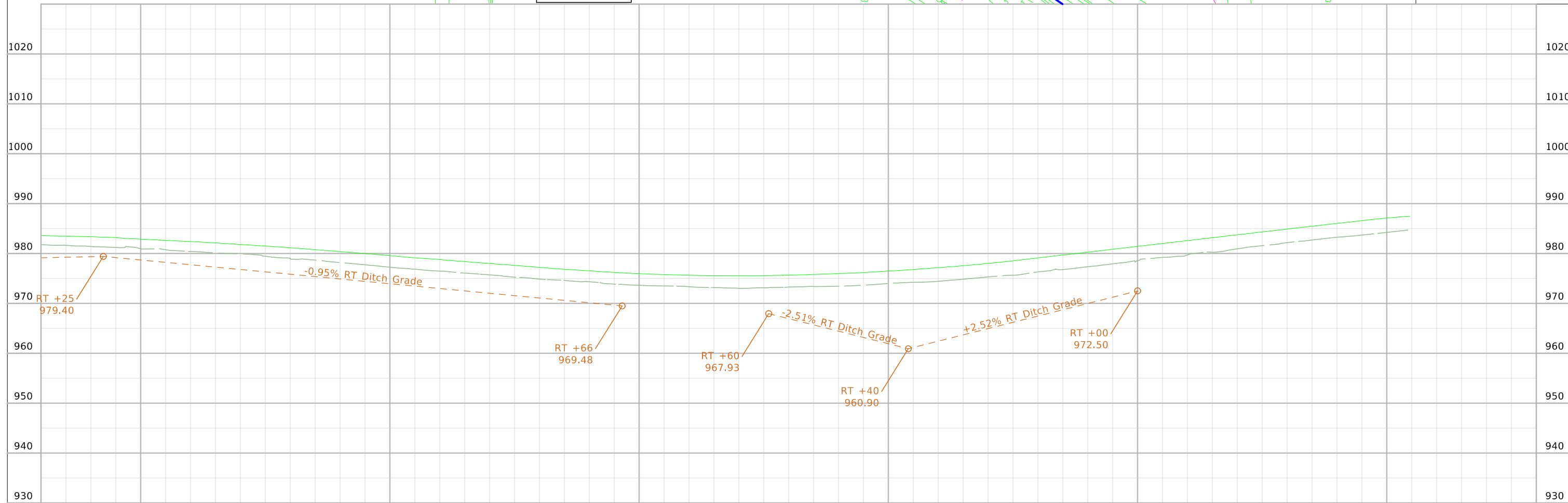
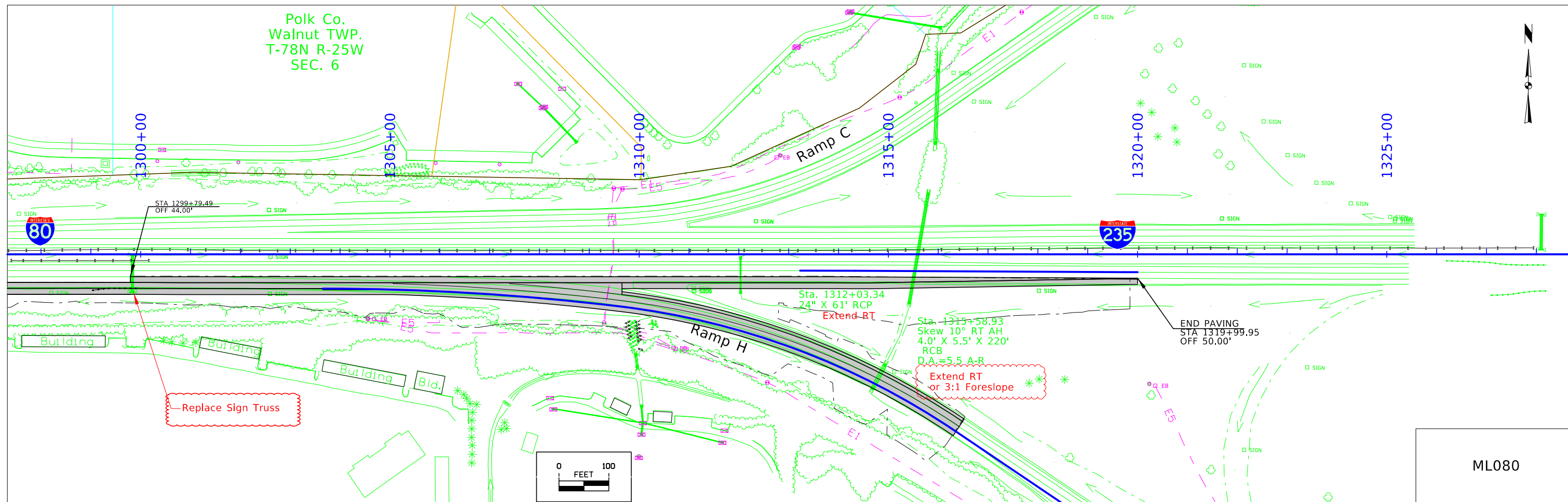
PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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



FILE NO. -	ENGLISH	DESIGN TEAM Holst/Strum/Janus	Polk COUNTY	PROJECT NUMBER IMX-080-3(309)122--02-77	SHEET NUMBER D.2
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Polk Co.
Walnut TWP.
T-78N R-25W
SEC. 6



FILE NO. -	ENGLISH	DESIGN TEAM Holst/Strum/Janus	Polk COUNTY	PROJECT NUMBER IMX-080-3(309)122--02-77	SHEET NUMBER D.3
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Survey Information

SURVEY INDEX

County: Dallas
PIN: 20-77-080-020
Project Number: IMX-080-3(299)122--02-77
Location: Westbound I-80 Ramp at W I-35/235 Interchange
Type of Work: Slide Repair
Project Directory: 5103401021

Party Personnel

Jody Budde - PLS
 Wes Shimp – PLS
 Jon Miranda – Party Chief
 Ben Sullivan – Party Chief
 Dave Overman - Party Chief
 Aaron Paulsen - Party Chief
 Lee Budde - Party Chief
 Levi Suhr – Assistant Survey Party Chief
 Jason Flaherty - Assistant Survey Party Chief
 Scott Dillavou - Assistant Survey Party Chief

Date(s) of Survey

Begin Date 08/21/2021
 End Date 09/30/2021

General Information

Measurement units for this survey are US survey feet. This survey is for converting the ramp from SB/WB I-35/80 to WB I-80 in the Southwest Mixmaster (SWMM) from the existing dual-lane, inside-merge entrance ramp to a dual lane entrance with dual auxiliary lanes. Project datum and control information is provided by Design Survey Office. This project is a Partial DTM with Photo control. This survey request was for the I-80 corridor only and partial interchange for I-80 / I-35 interchange for west section of the interchange. Project horizontal datum is NAD83 (2011), Iowa RCS Zone 8 (Ames – Des Moines).

Vertical Control

Vertical datum for this survey is relative to NAVD88 (computed using Geoid12B for the new FENO for this project: FENO 11. This survey consisted of observing one new, and two existing FENO 1-meter rod monuments using minimum 2hr initial static

observations along with data from 4 Iowa RTN CORS sites: Des Moines (IADM), De Soto (IADS), Martensdale (IAMD) and Boone (IABN).

POT Sta. 396+14.574 m = 1299+68.815 ft Plan
 = Survey POT Sta. 1299+68.80 ft

Two existing FENOs set by Foth during the prior 2019 I-80 Dallas County survey were observed and included for overall control adjustment:

POT Sta. 405+23.547 m = 1329+51.00 ft Plan
 = Survey POT Sta. 1329+50.92 ft

FENO 9 has a published Elv of: 964.37 usft

POT Sta. 411+07.574 m = 1348+67.10 ft Plan
 = Survey POT Sta. 1348+66.98 ft

FENO 10 has a published Elv of: 973.17 usft

The final vertical adjustment results show standard deviations were less than 0.02 ft. at 95% confidence level (2 sigma) for the new FENO monuments.

Horizontal Control

The project coordinate system for this survey is NAD83 (2011) Iowa RCS Zone 8 (Ames – Des Moines) US survey feet. This survey control is relative to IaRTN reference stations. IaRTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011) for Epoch 2010.00. Coordinates were determined by observing each mark for 120 minutes minimum for the first observation and 35 minutes minimum for the second observation with appropriate time spans between each session.

For the August 2021 survey portion which added FENO monument FENO11, the same three IaRTN CORS stations were utilized, in addition to Boone (IABN). FENO9 and FENO10 were re-observed as part of the establishment of the new FENO11 mark to complete out the survey project control network.

The horizontal standard deviation of these adjusted observations was less than 0.02 ft. at 95% confidence level (2 sigma).

Alignment Information

Alignment for this survey is a retrace of Metric As-built plans I-80-3(18)125--1-77. Stationing was converted from metric to English. Stationing was held at POT station 1293+12.65 and carried ahead without station equation throughout the project.

Survey stationing relates to As-built plan stationing as follows:

POT Sta. 394+14.574 m = 1293+12.65 ft Plan
 = Survey POT Sta. 1293+12.65 ft

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 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 08

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 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 08
Project Control Marks are Bench Marks

Pt. Num	N	E	Elevation	Description
FENO9	7488897.18	18476761.16	964.37	FENO Type monument. 4 ft North of chainlink fence, 43 feet SW of Light pole. 55 ft South from edge of pavement. 30 feet NW of edge of parking lot
FENO10	7489182.34	18481417.43	973.17	FENO Type monument. 9 ft South of chainlink fence, 11 ft NW of utility manhole. 48 ft North of edge of pavement and 327 ft West of Luminaire
FENO11	7489208.11	18487716.66	996.20	FENO Type monument. 16 ft West of 42nd Street centerline. 91 ft SW of light pole. 21 ft NW of bridge deck Centerline of Bridge over I-235. 134 ft SE of parking lot light pole

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)
1	SURML080	252+59.883 R1	7489020.59	18475720.46															
2	SURML080	293+12.650 R1	7489034.77	18479773.20															
3	SURML080	299+68.803 R1	7489037.02	18480429.35															
4	SURML080	329+50.923 R1	7489047.25	18483411.45															
4	SURML080	348+66.977 R1	7489053.82	18485327.50															
1	RPB060	273+96.392 R1	7488960.06	18477857.73															
2	RPB060							280+20.877 R1	7488920.70	18478480.98	281+99.174 R1	7488909.47	18478658.92	283+76.530 R1	7488866.93	18478832.07			
3	RPB060	293+50.199 R1	7488634.64	18479777.62															
1	RPH080							503+68.086 R1	7488969.38	18480825.89	506+67.906 R1	7488970.40	18481125.71	509+67.009 R1	7488935.60	18481423.51			
2	RPH080							509+67.009 R1	7488935.60	18481423.51	513+36.406 R1	7488892.71	18481790.41	516+91.930 R1	7488687.15	18482097.32			
4	RPH080							525+05.000 R1	7488234.68	18482772.86	539+65.035 R1	7487422.18	18483985.93	545+80.000 R1	7488793.54	18484487.00			
5	RPH080							545+80.000 R1	7488793.54	18484487.00	560+40.035 R1	7487422.18	18483985.93	566+55.000 R1	7488234.68	18482772.86			

SPIRAL OR CIRCULAR CURVE DATA

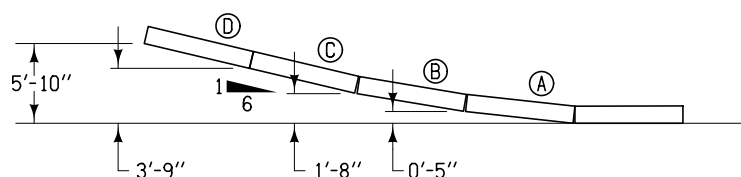
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			Spiral Data						Curve Data																
			θS	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	ΔC	T	L	R		E									
C1	RPB060																								
C1	RPH080																								
C4	RPH080																								
C2	RPH080																								

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



BARRIER OFFSETS FOR FLARE SECTIONS

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.	
Gray, Light	(48)	Traffic, Paved
Gray, Med	(48)	Traffic, Granular
Gray, Med	(80)	Proposed 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

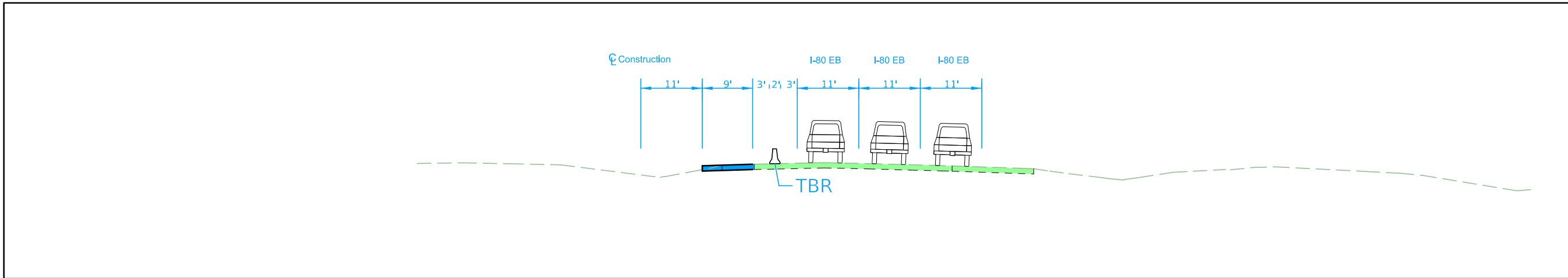
PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

●	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

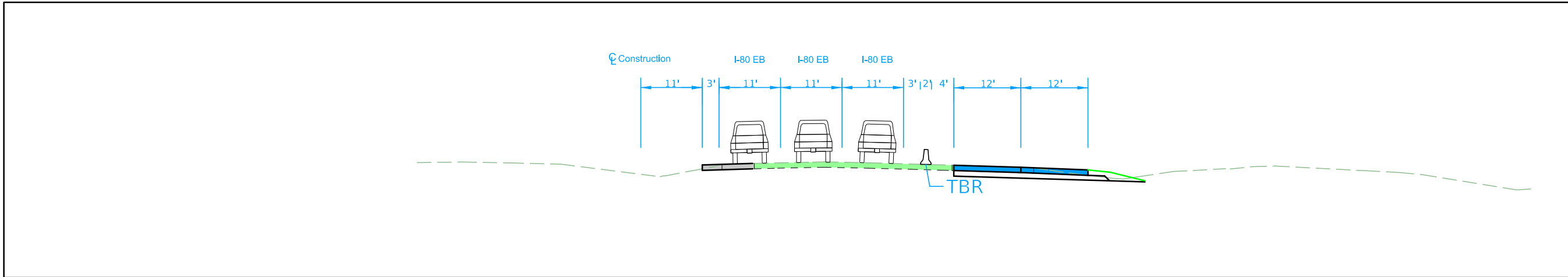
NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

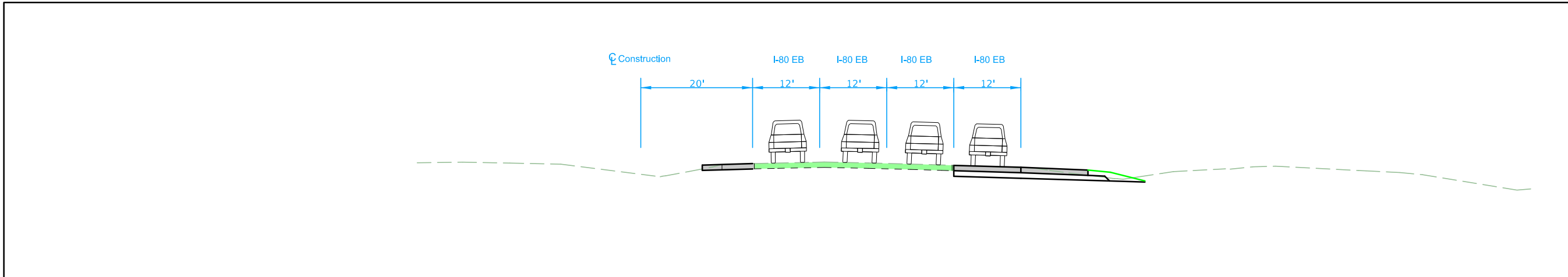
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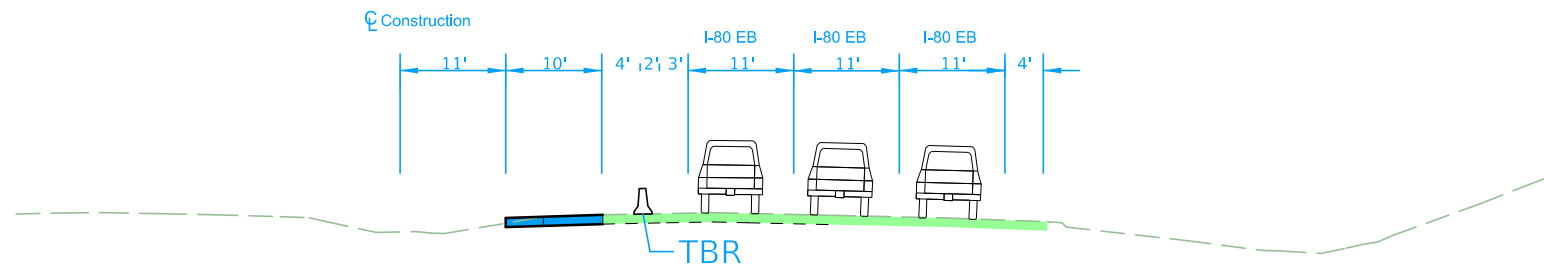
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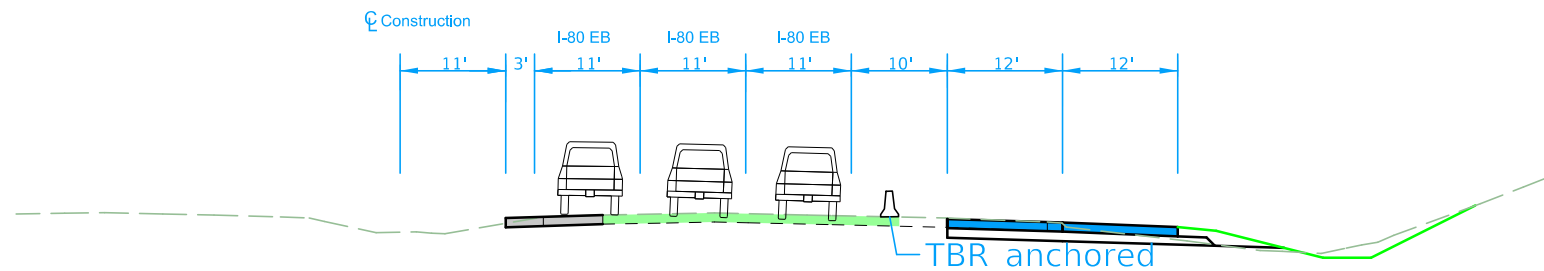
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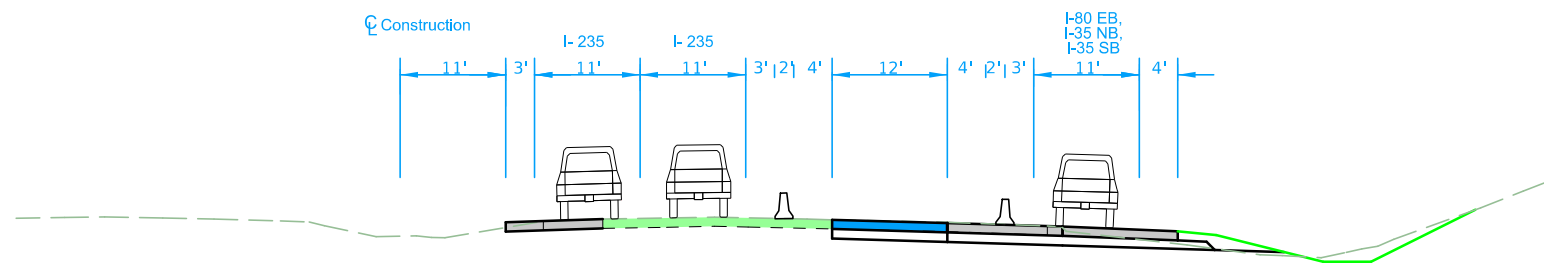
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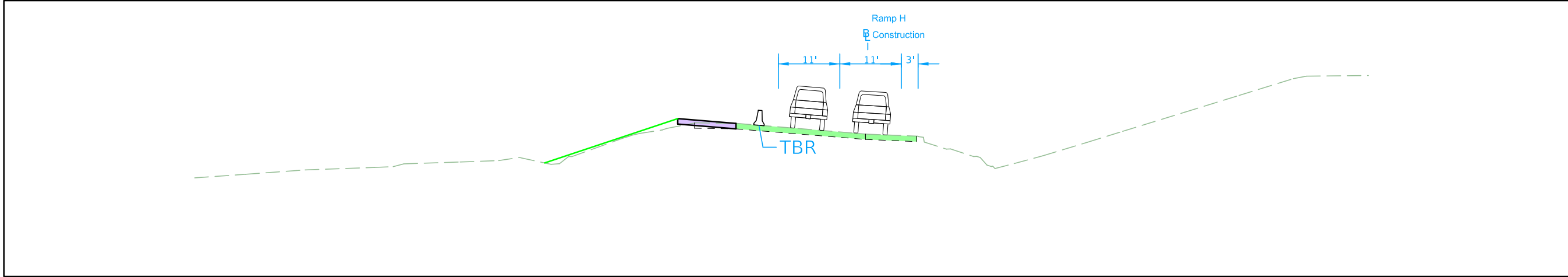
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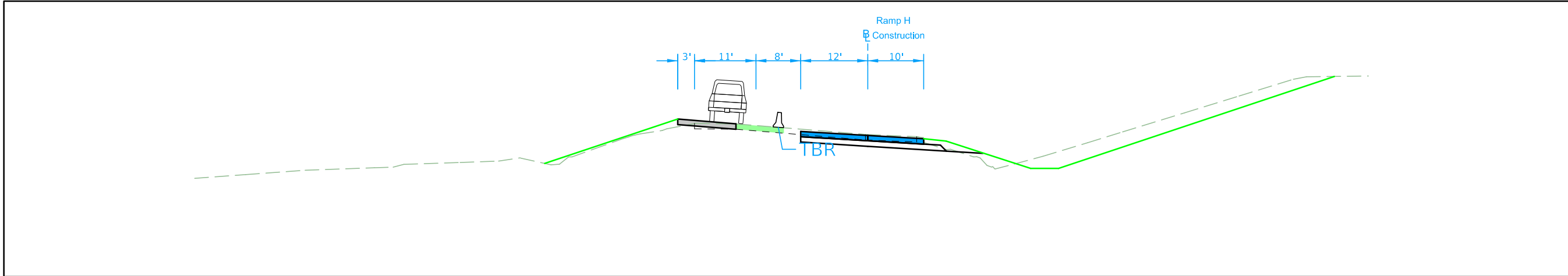
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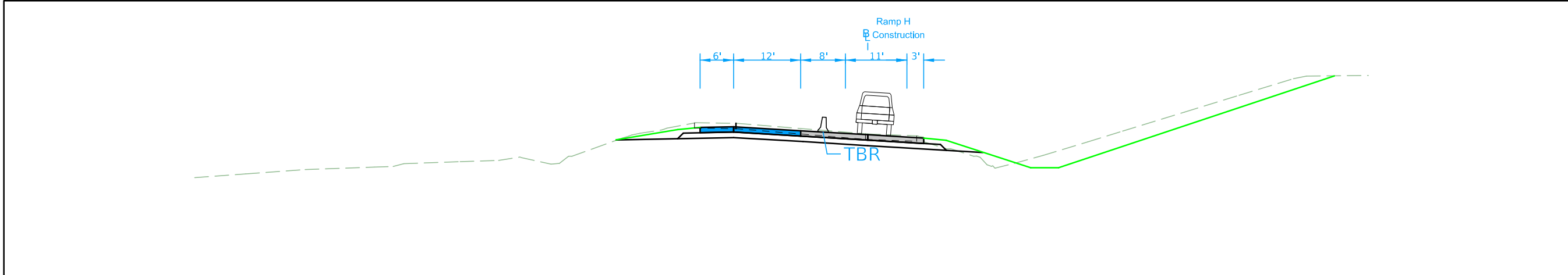
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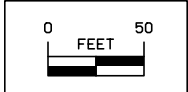
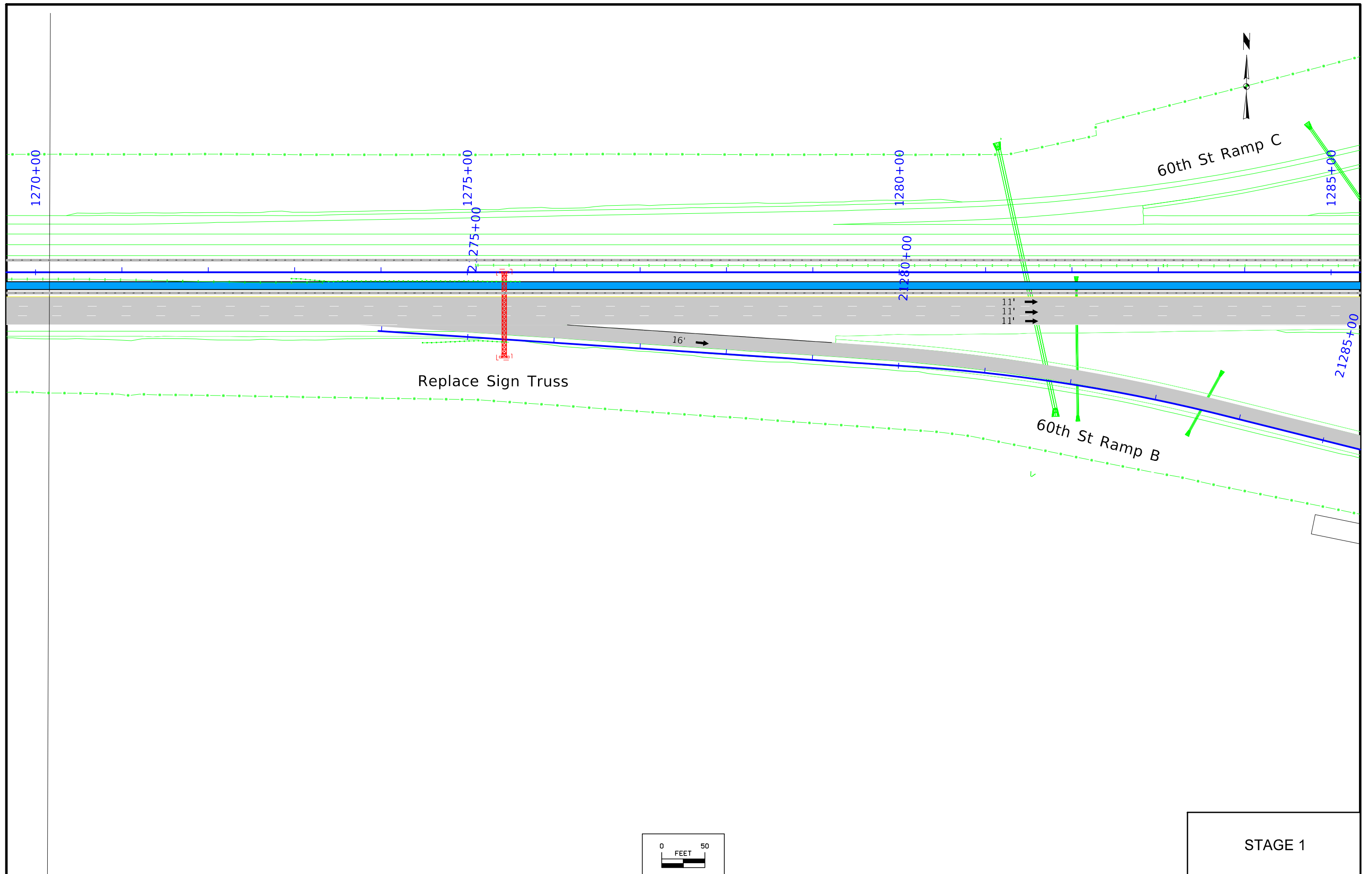
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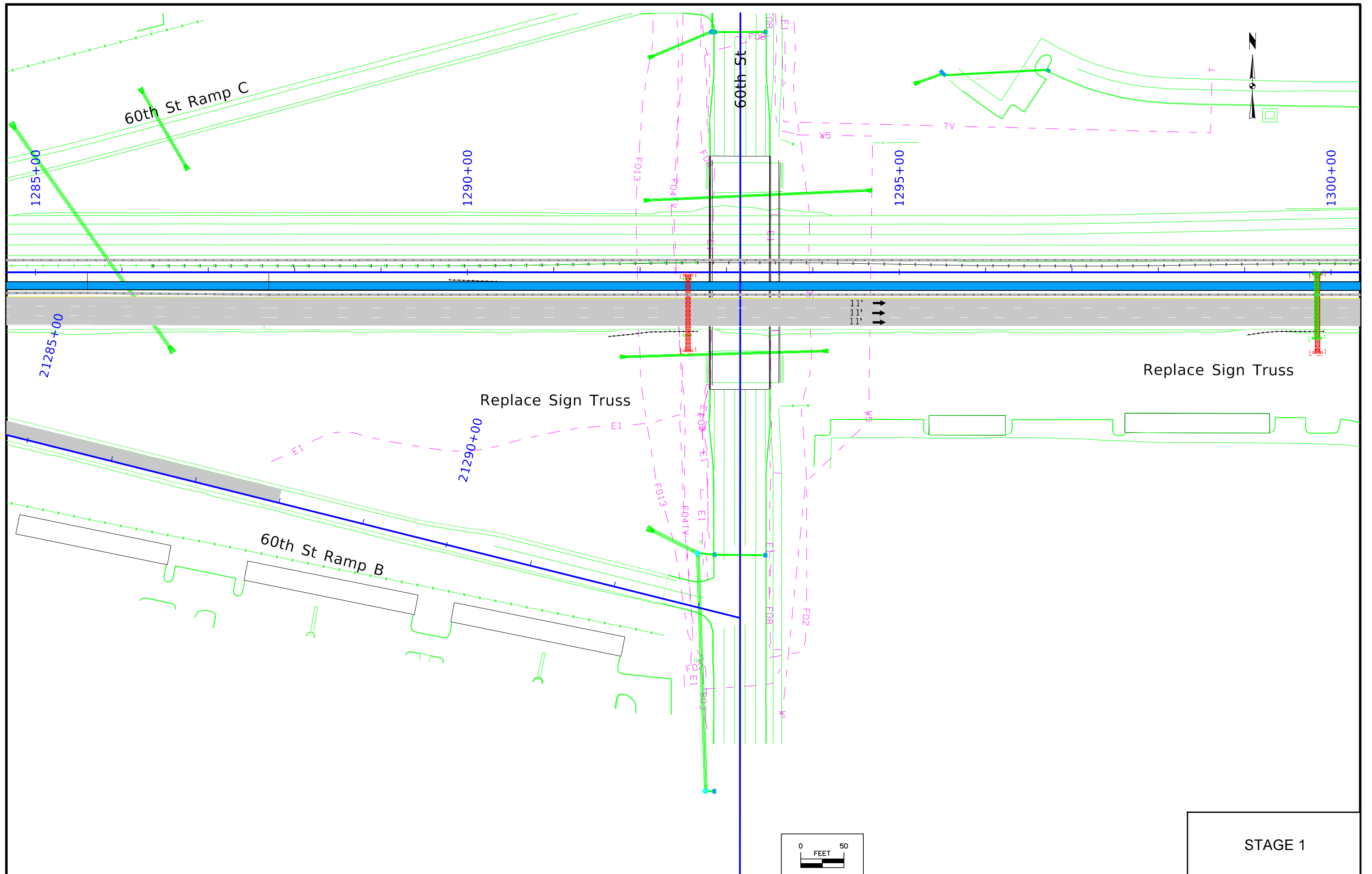
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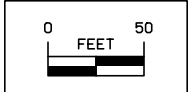
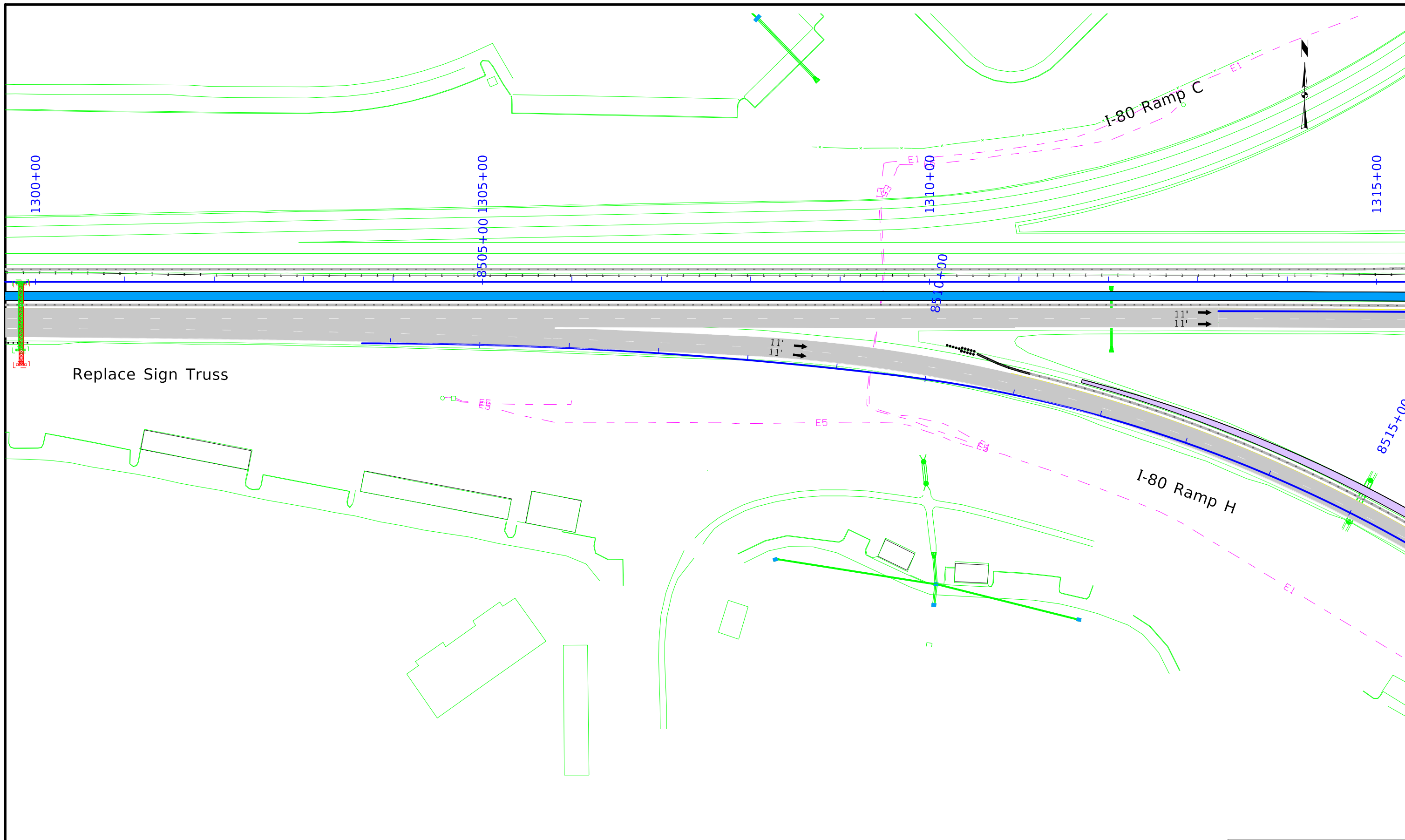
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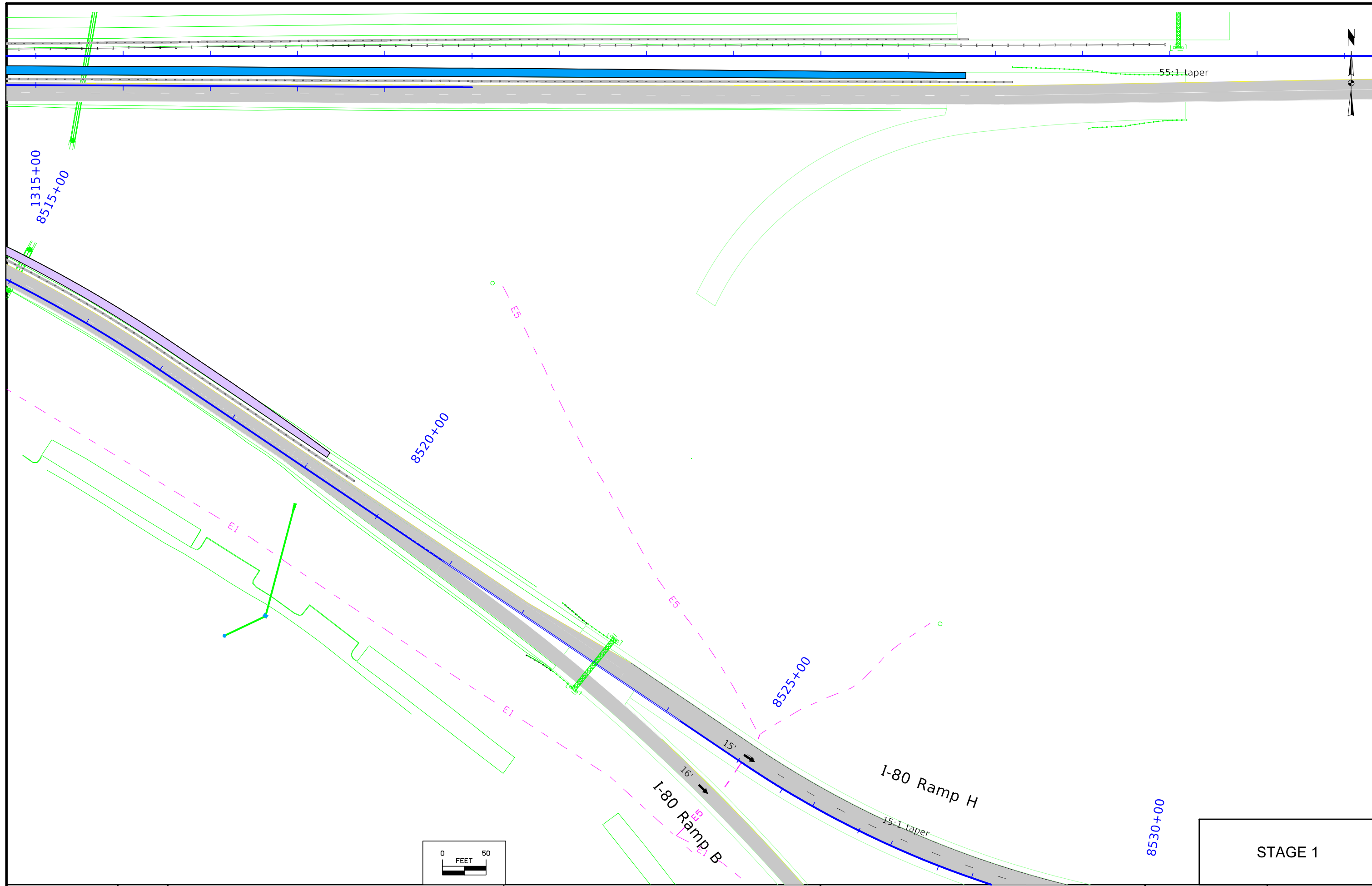
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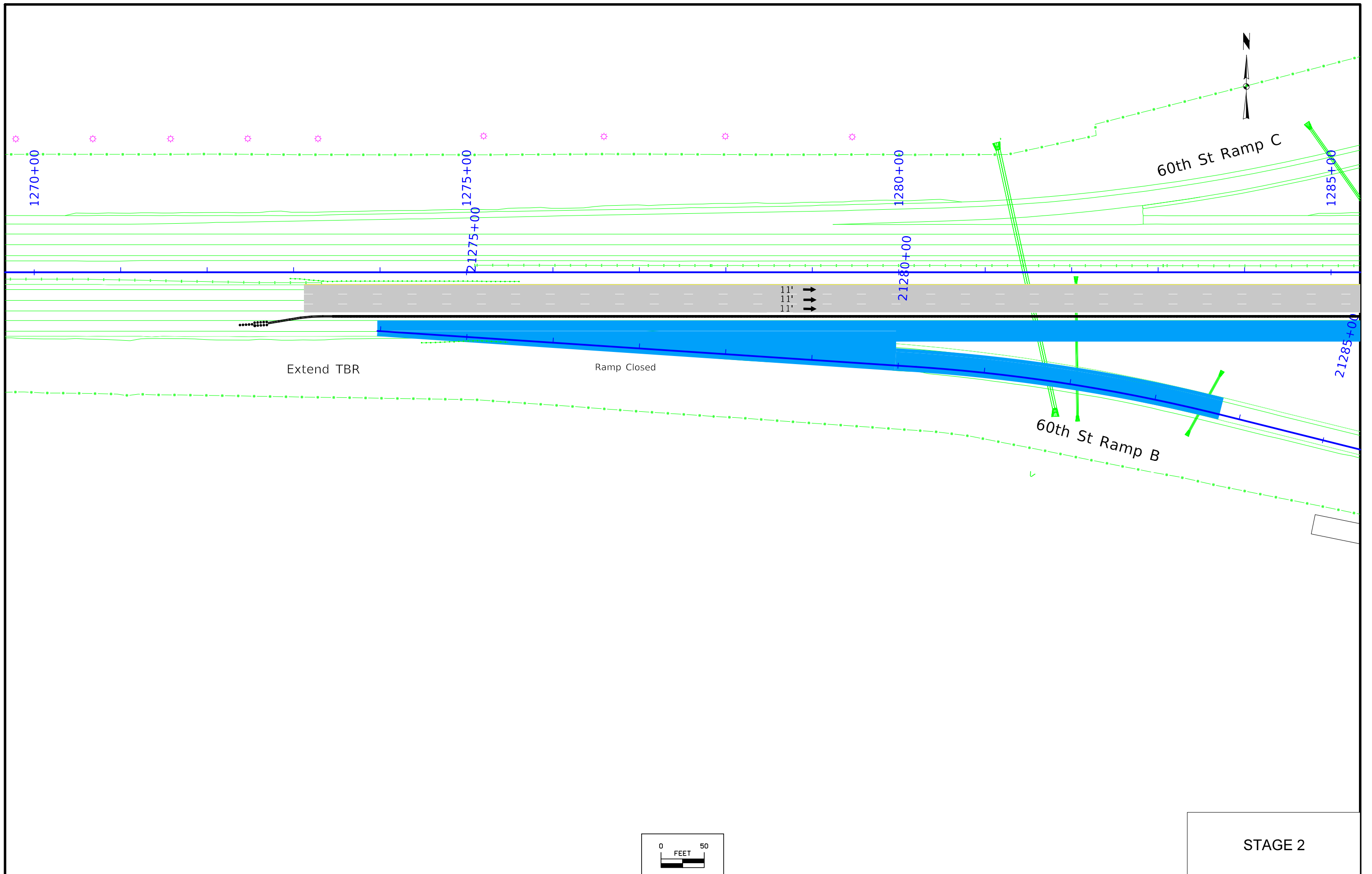
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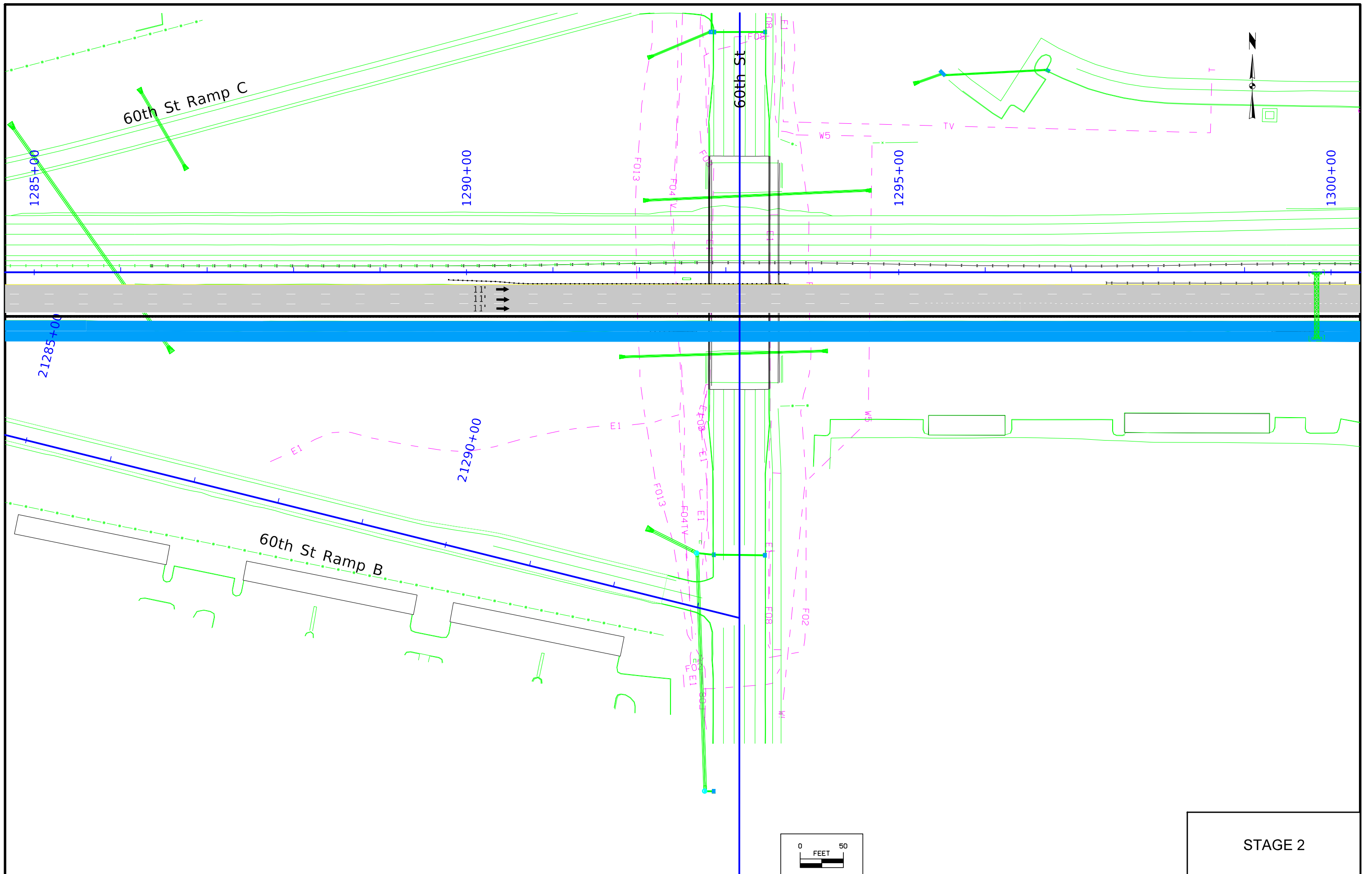
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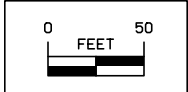
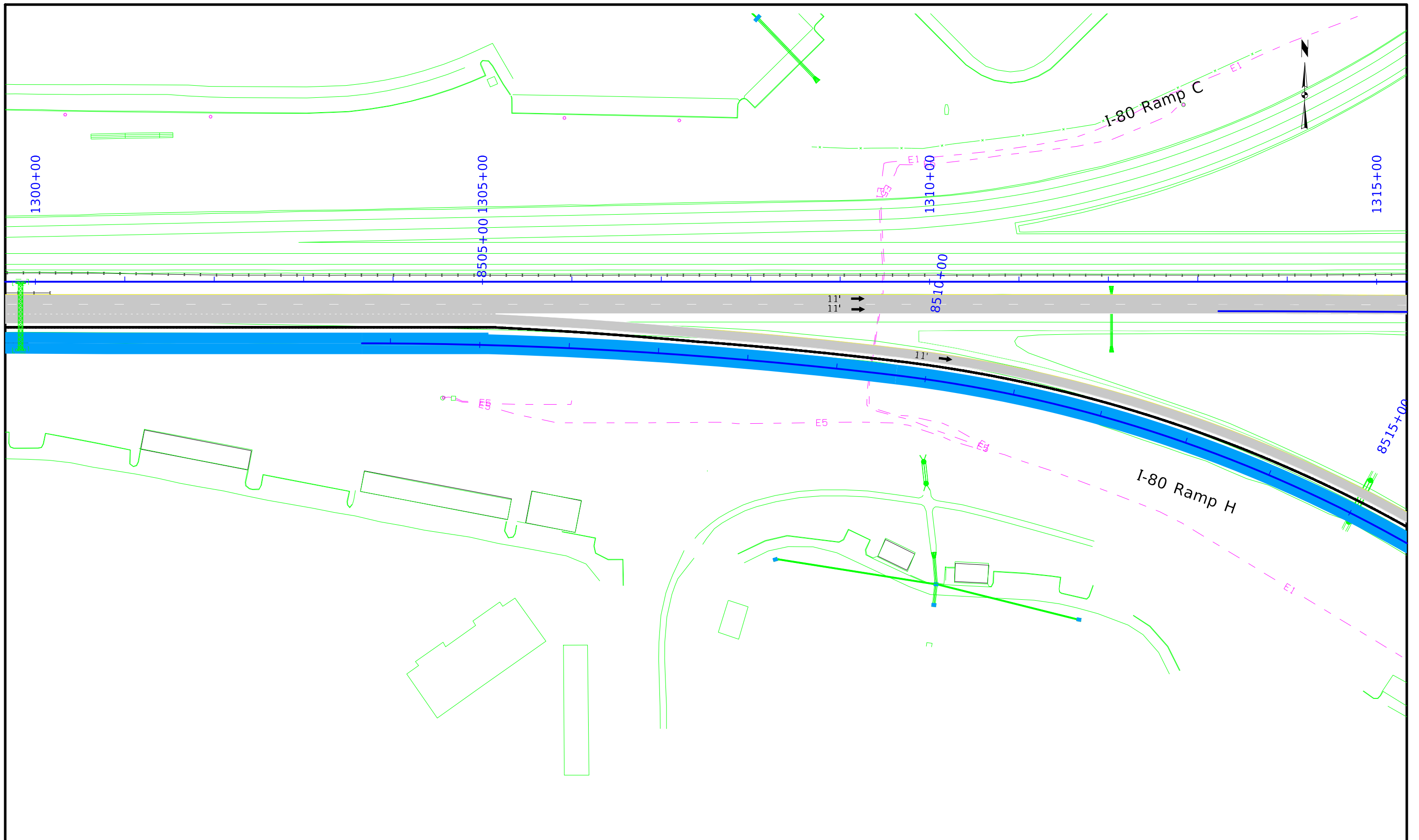
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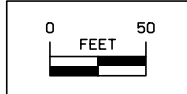
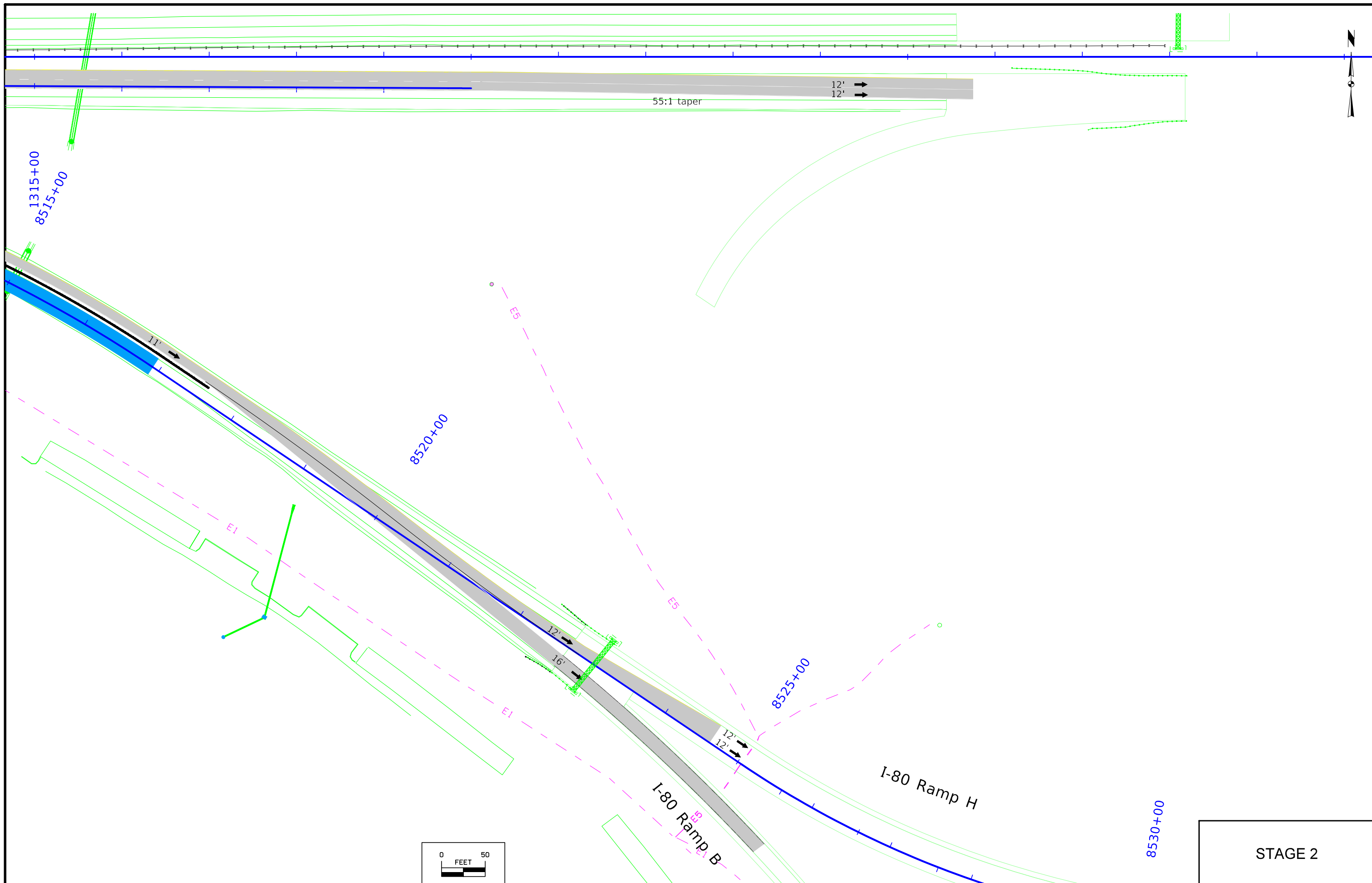
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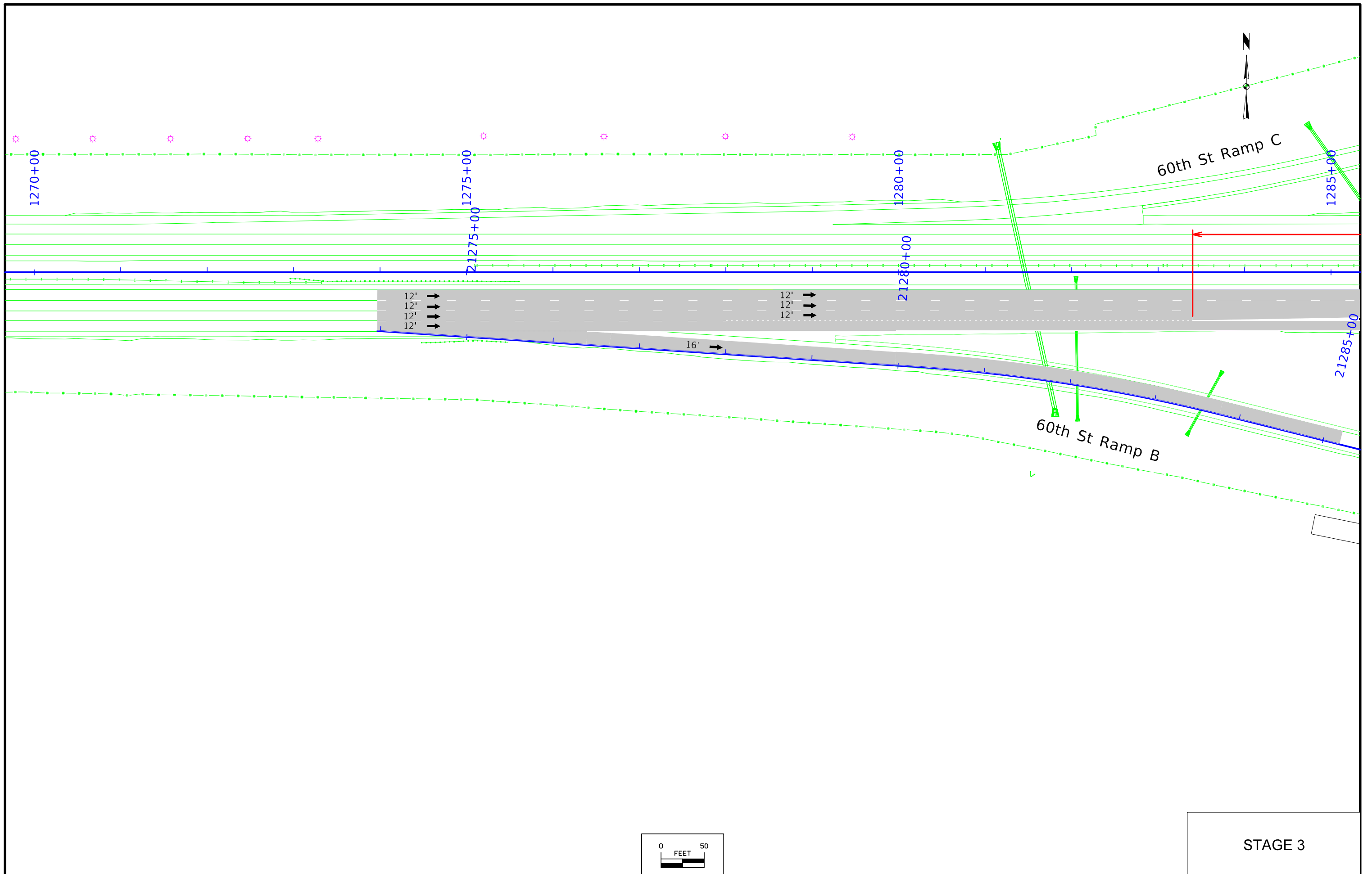
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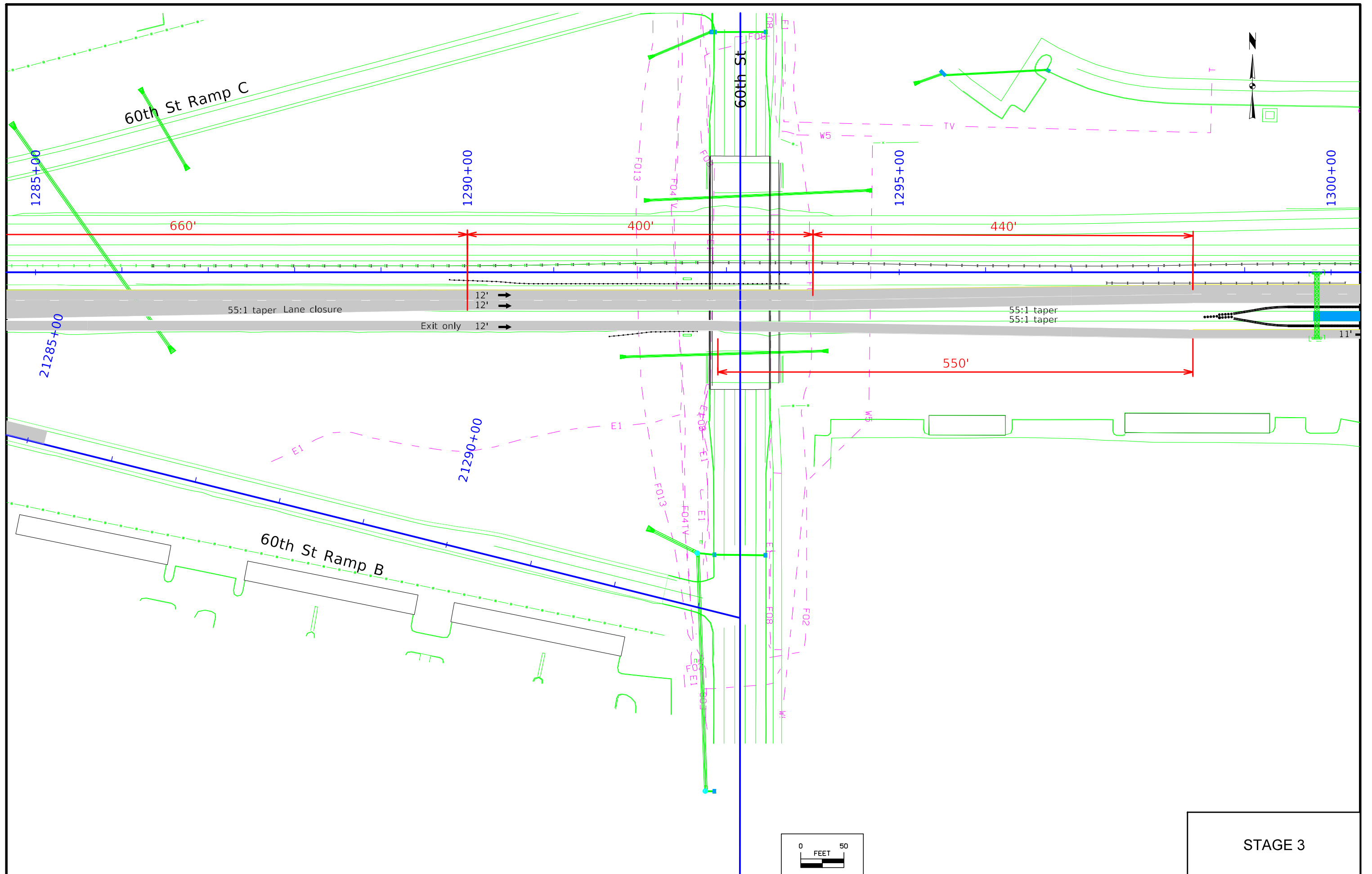


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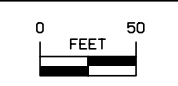


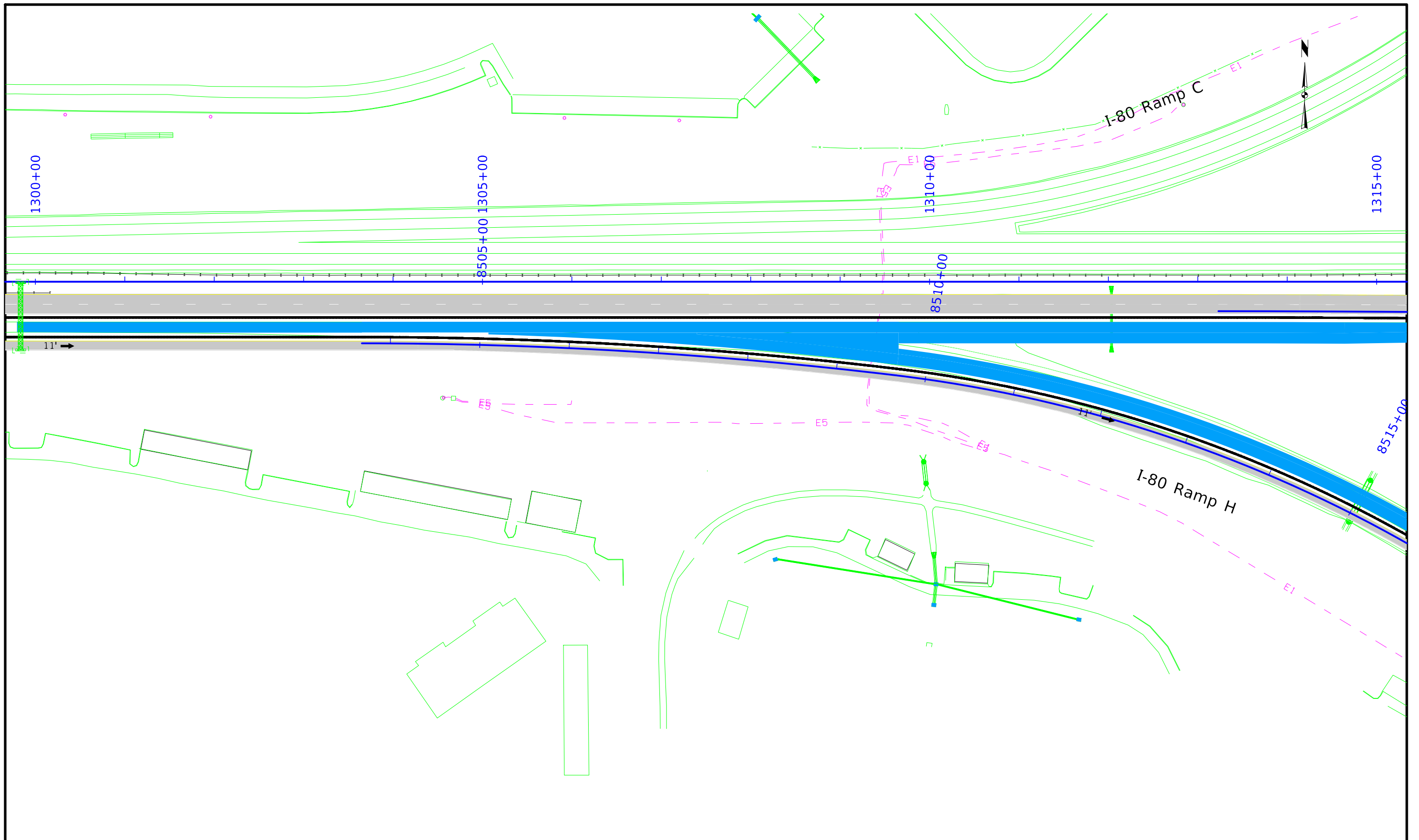
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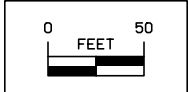


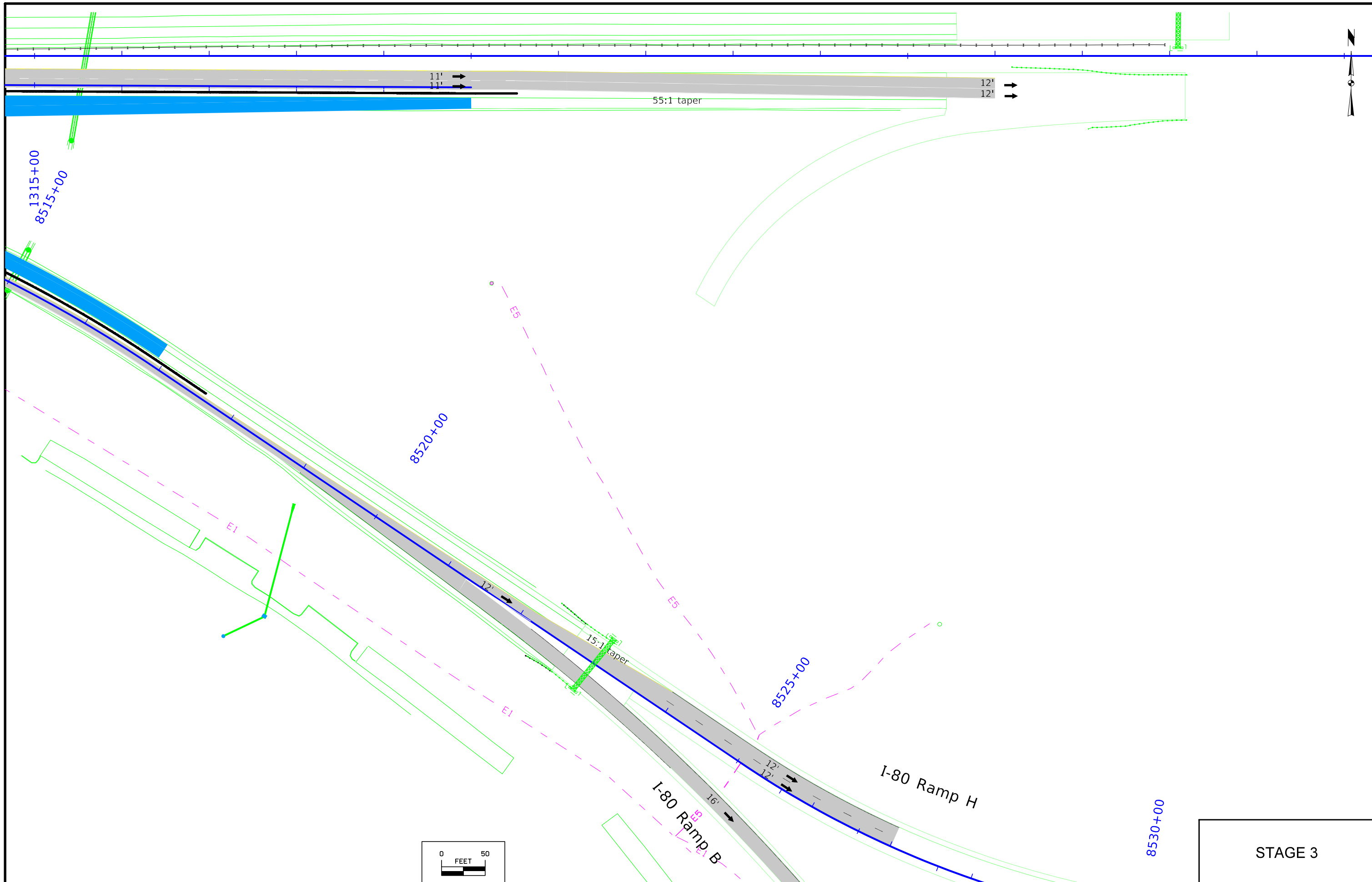
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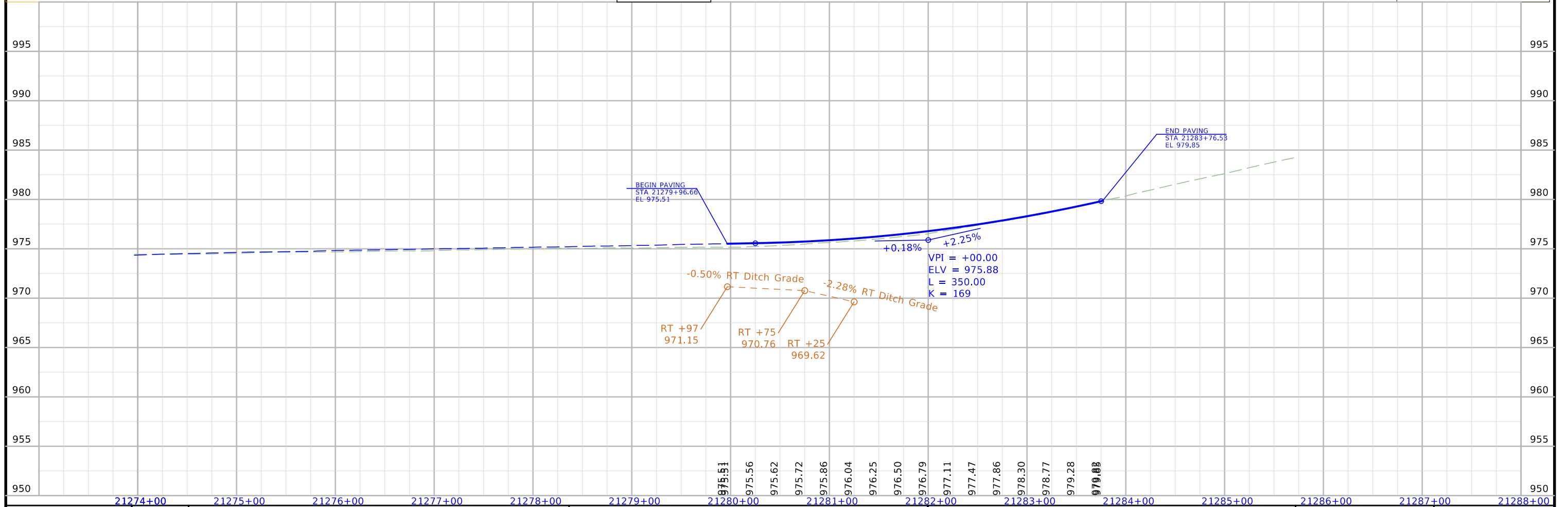
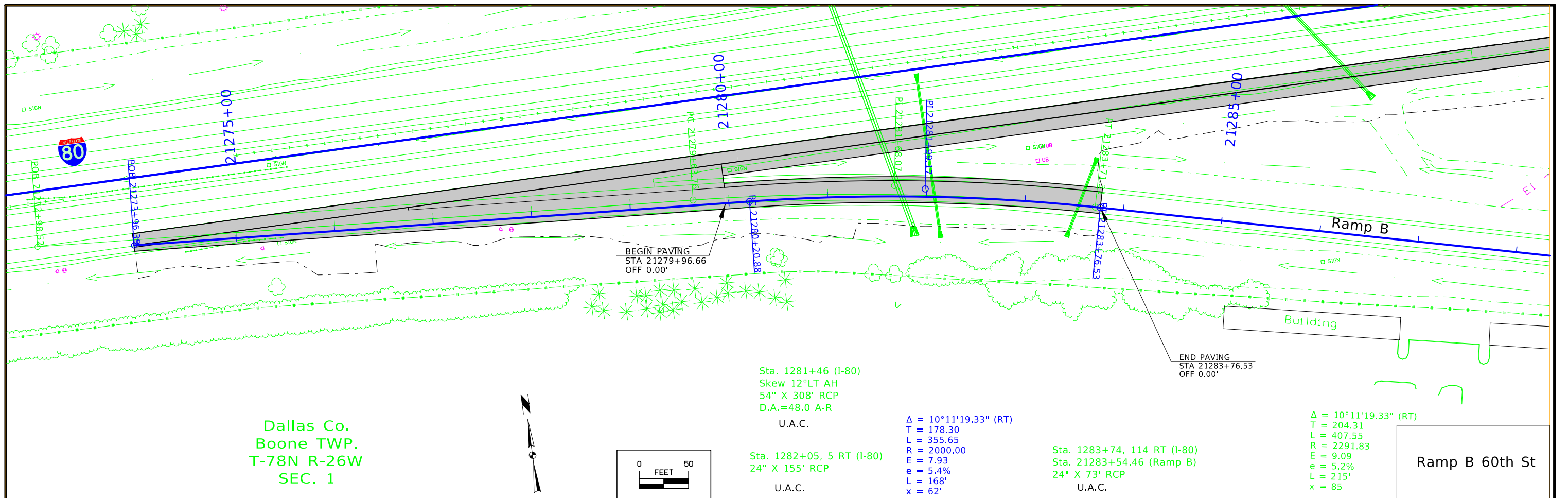


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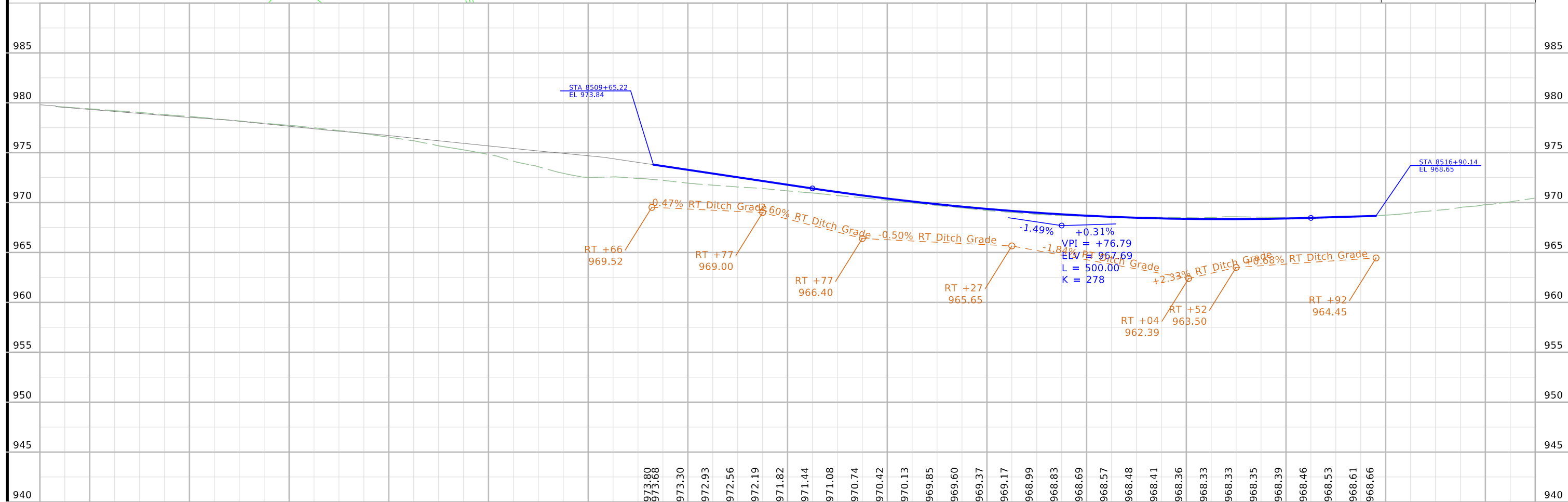
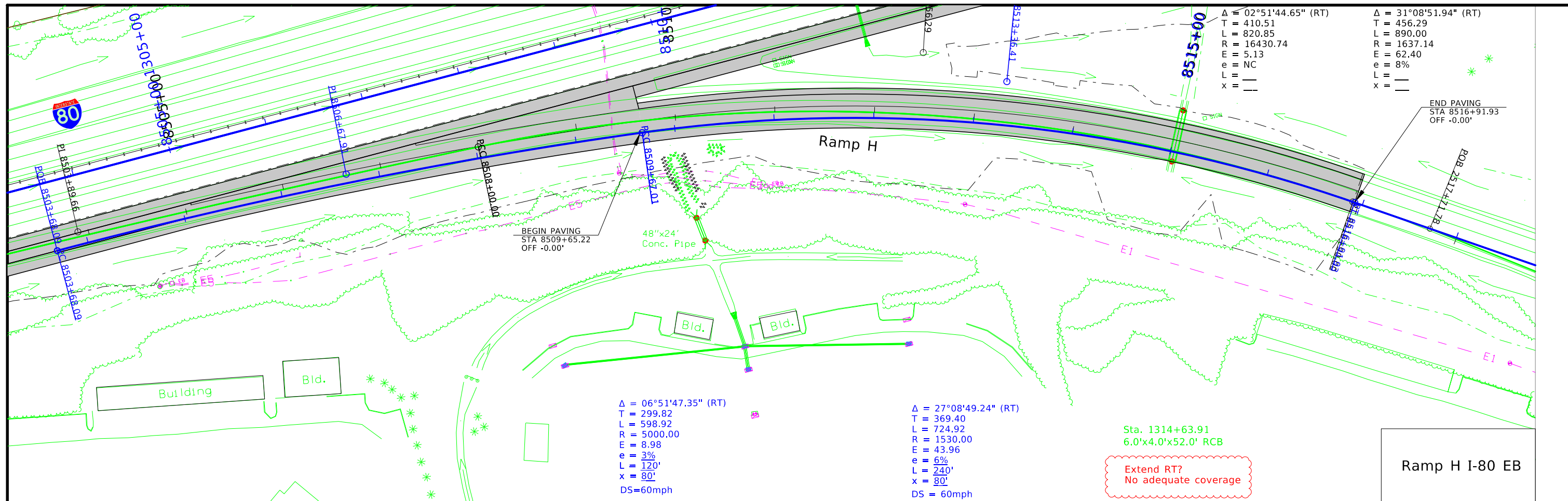




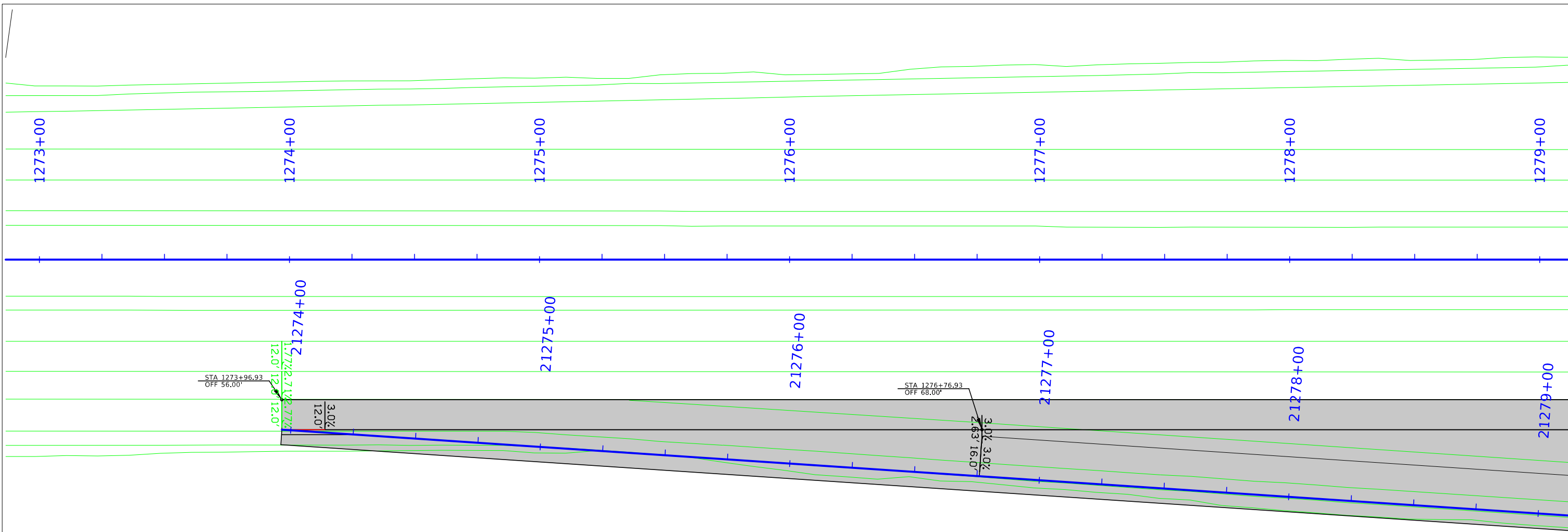
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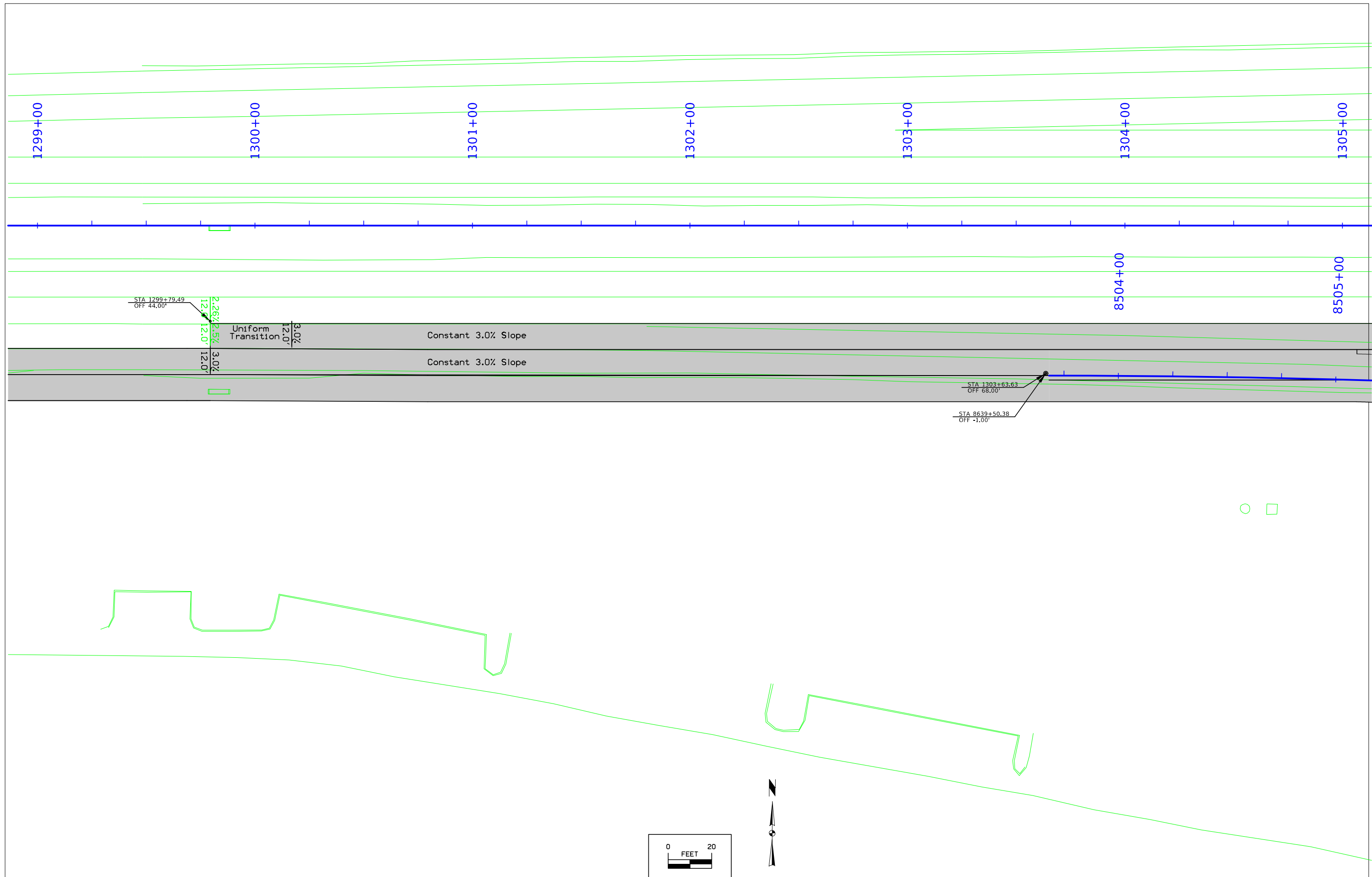


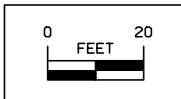
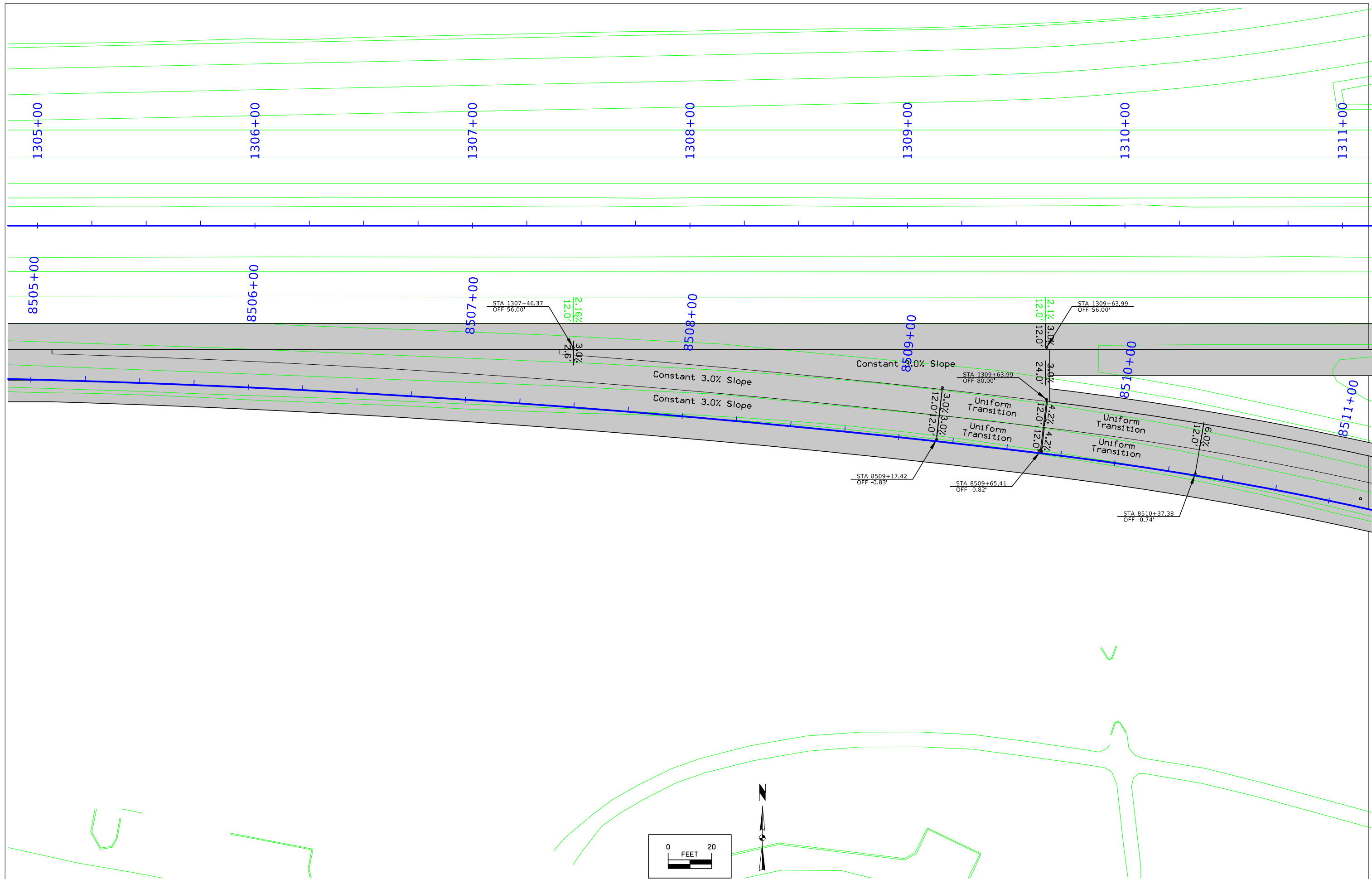
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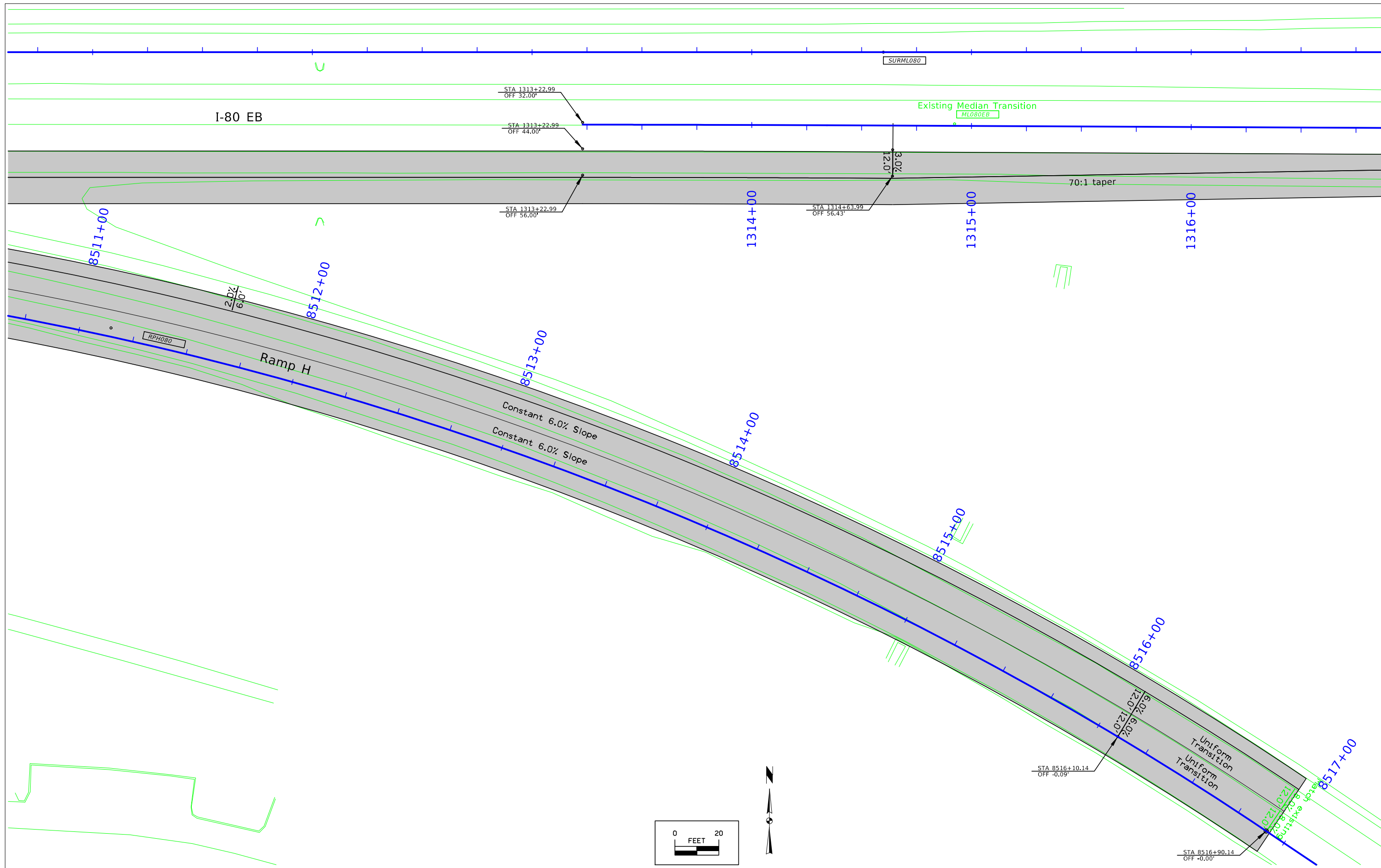


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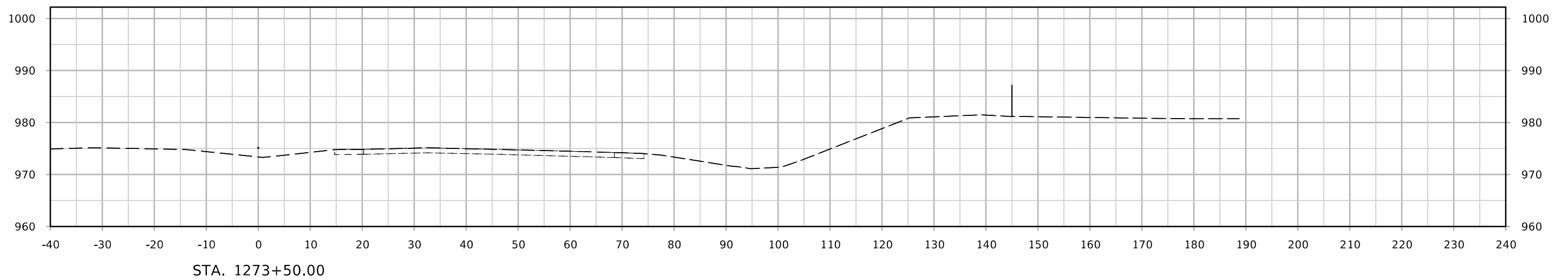
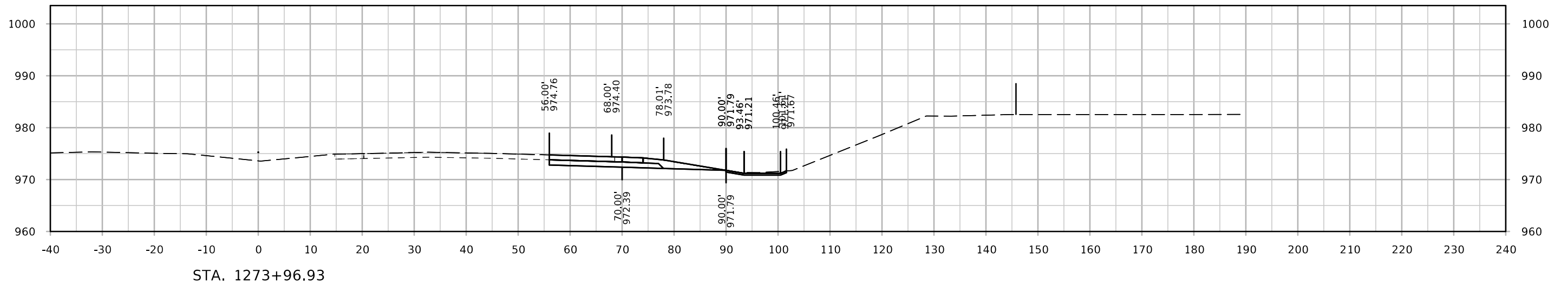
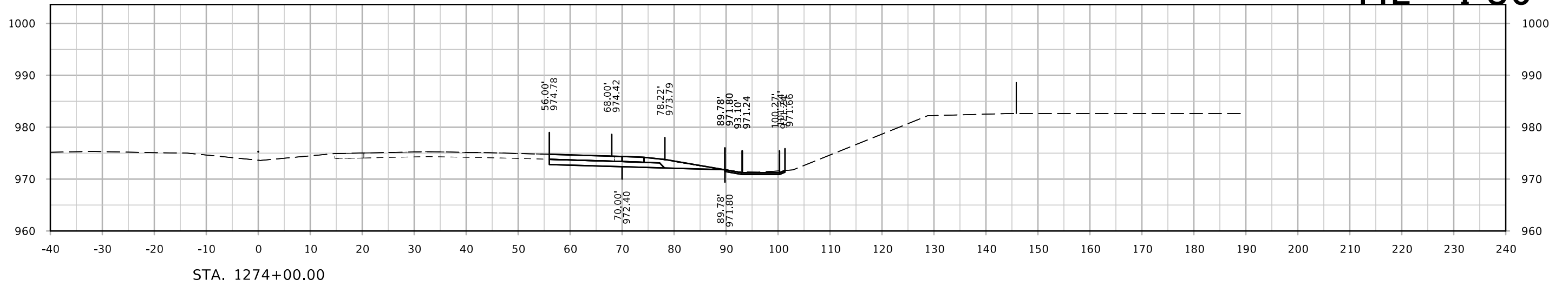




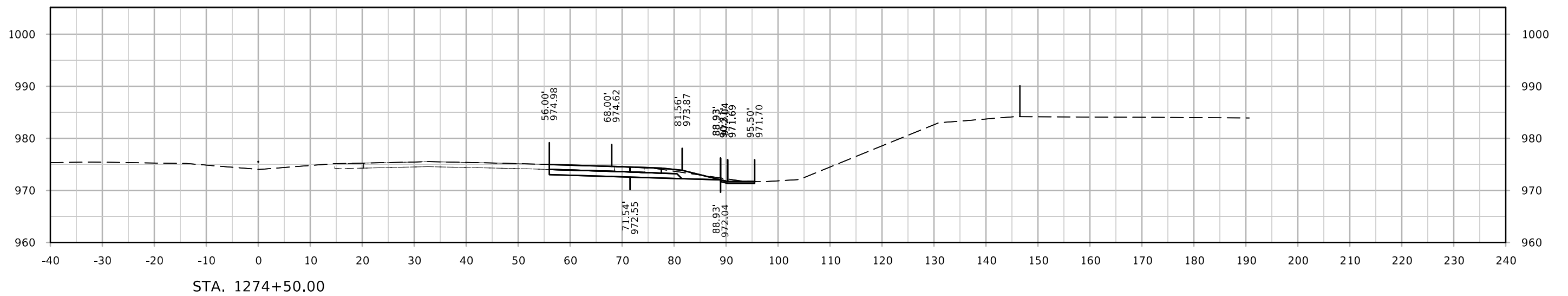
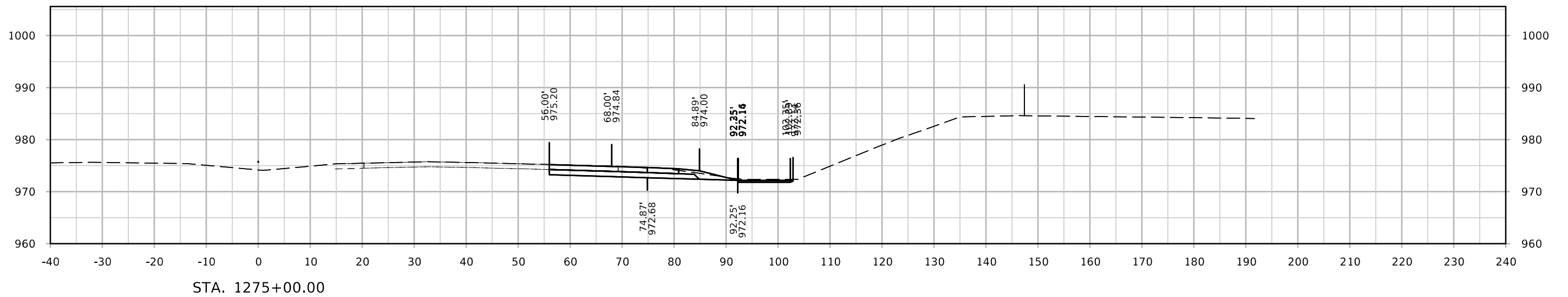




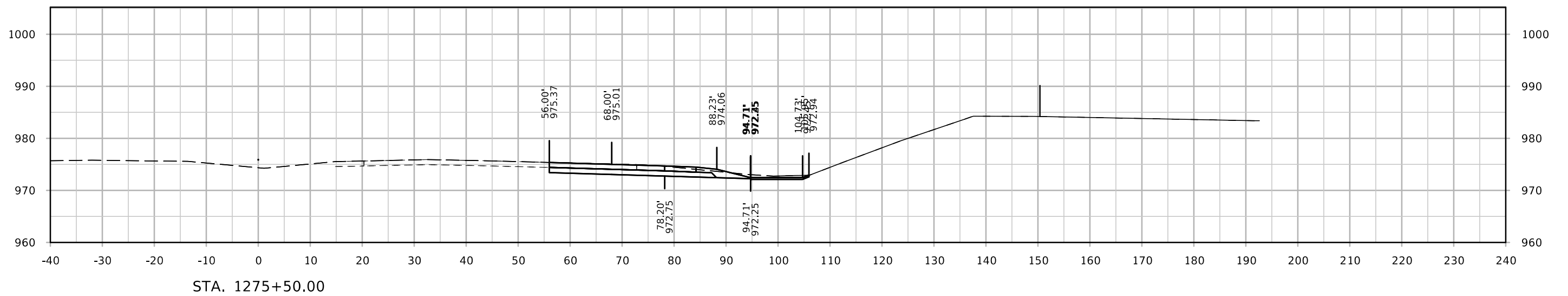
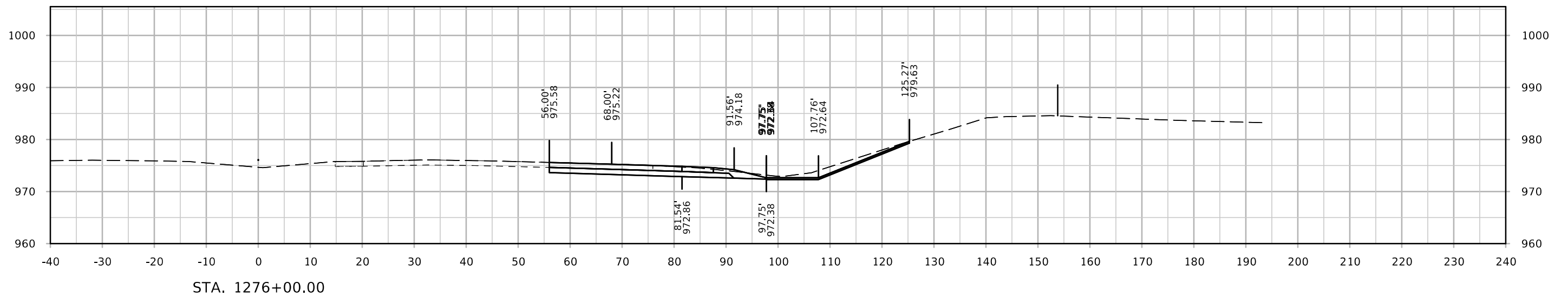
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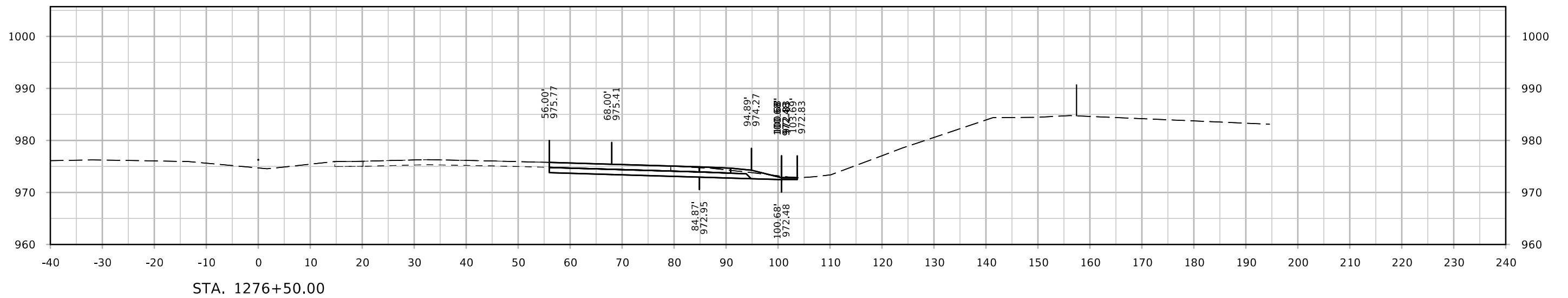
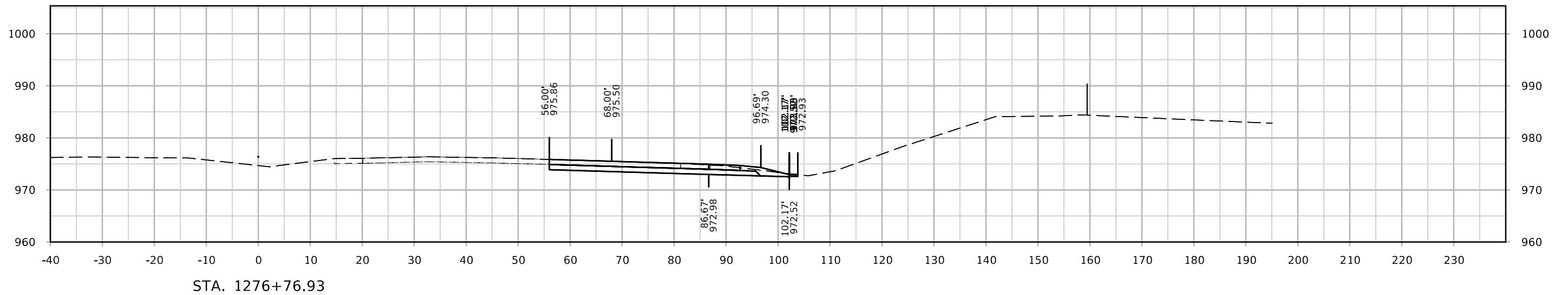
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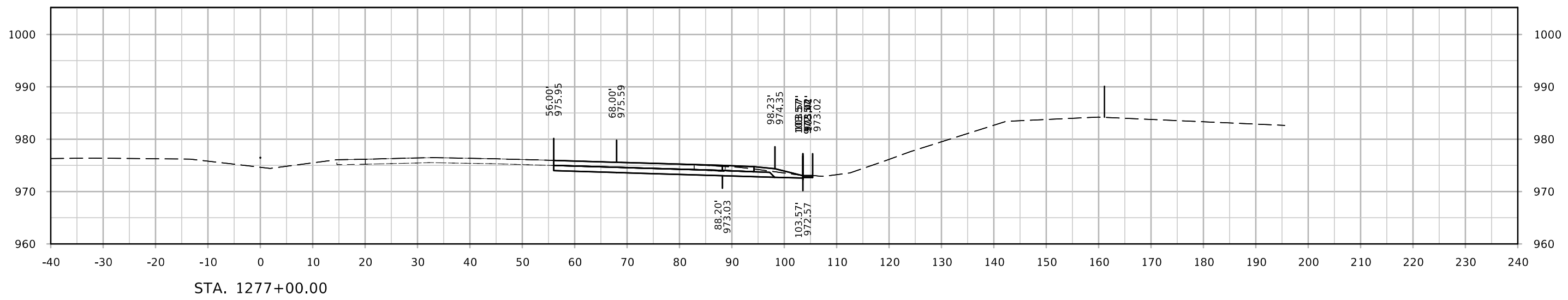
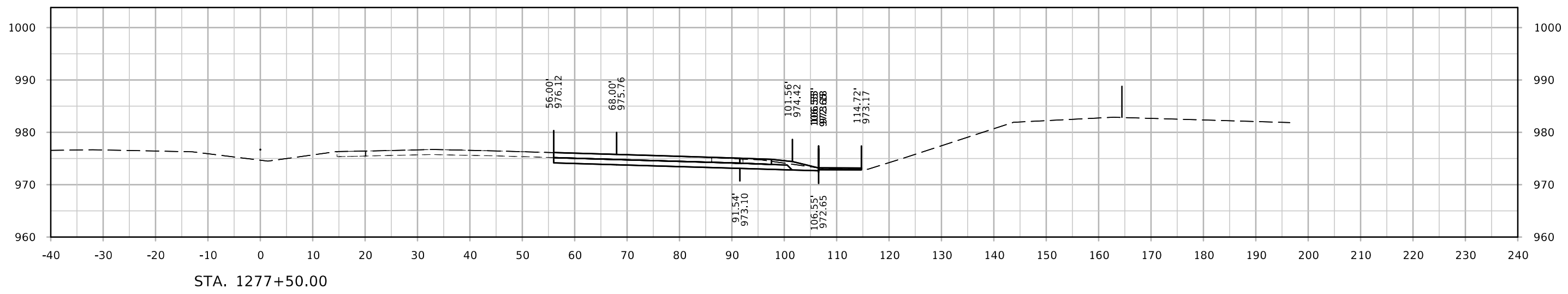
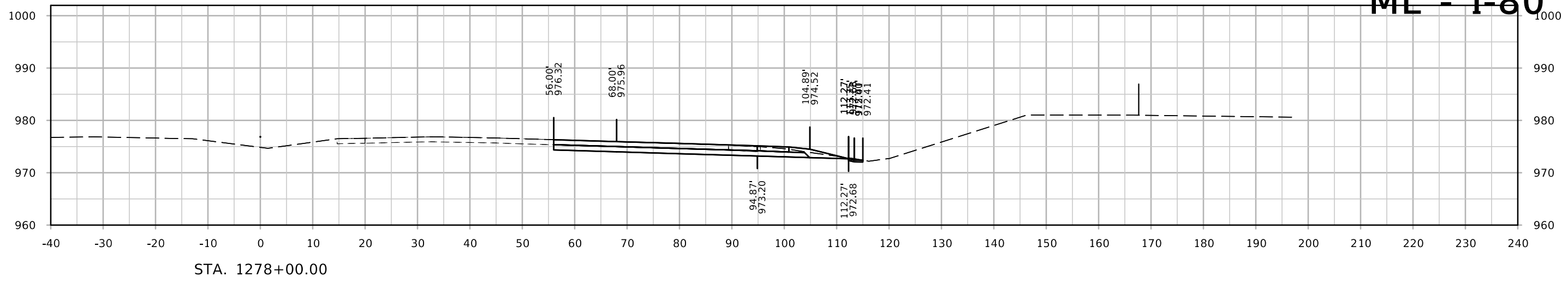
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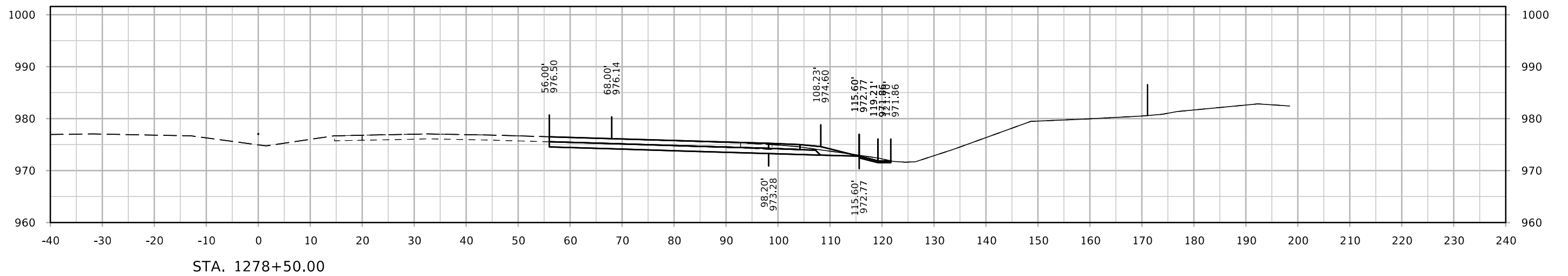
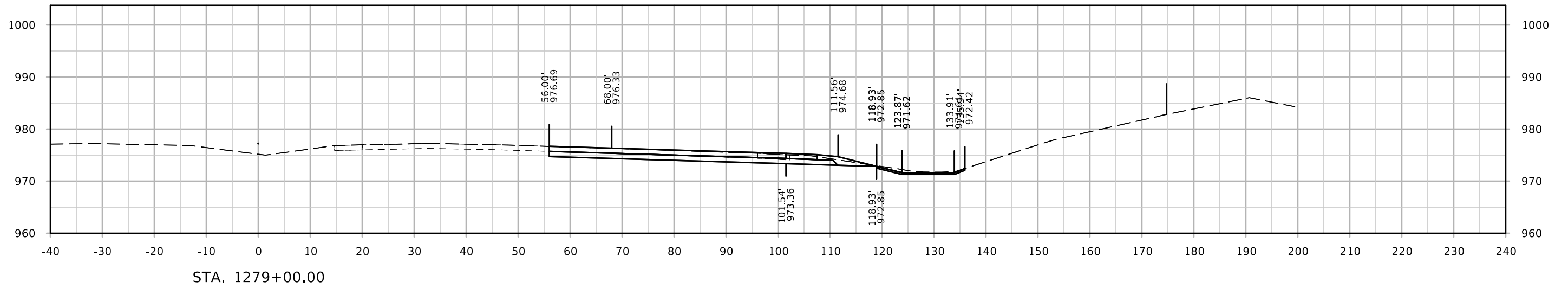
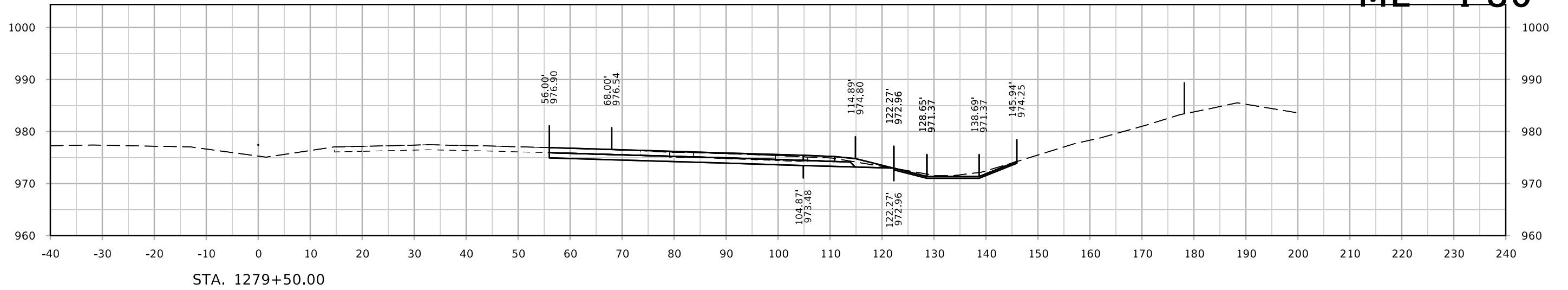
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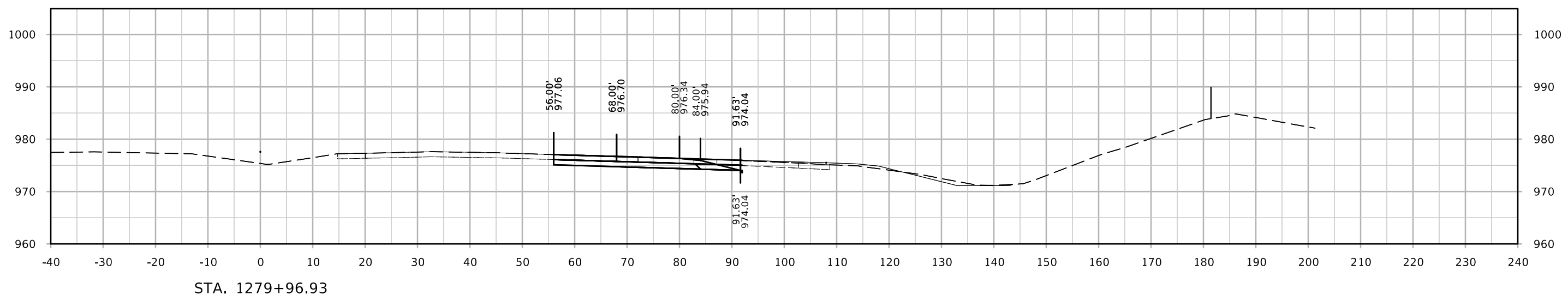
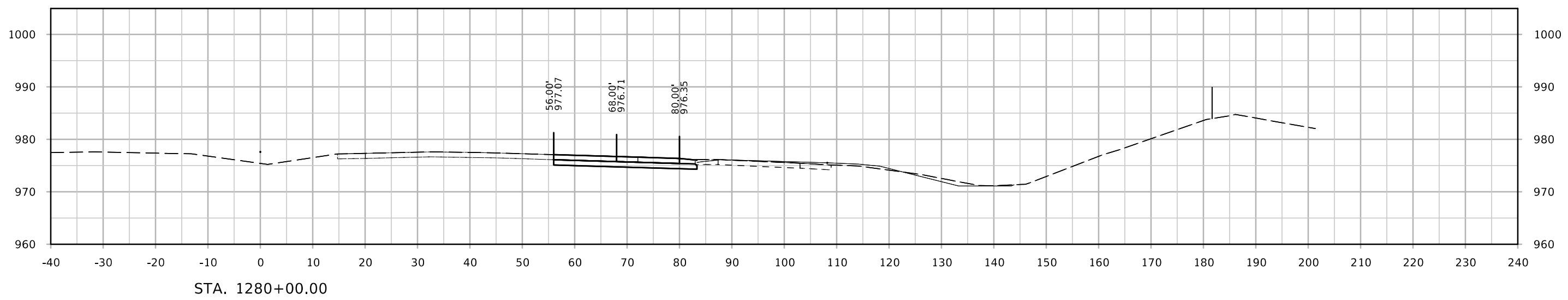
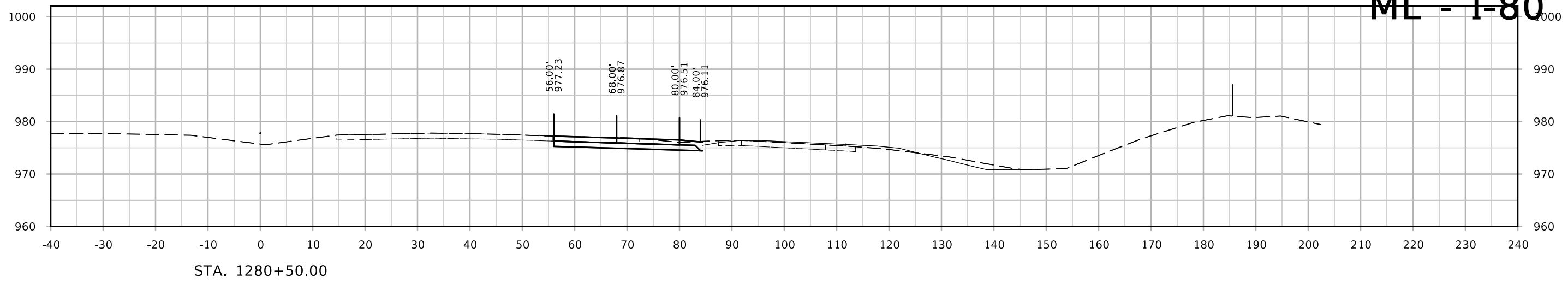
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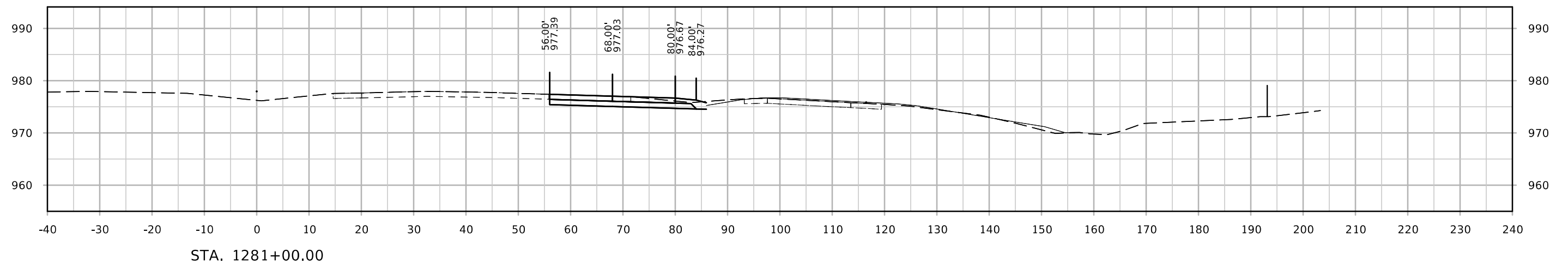
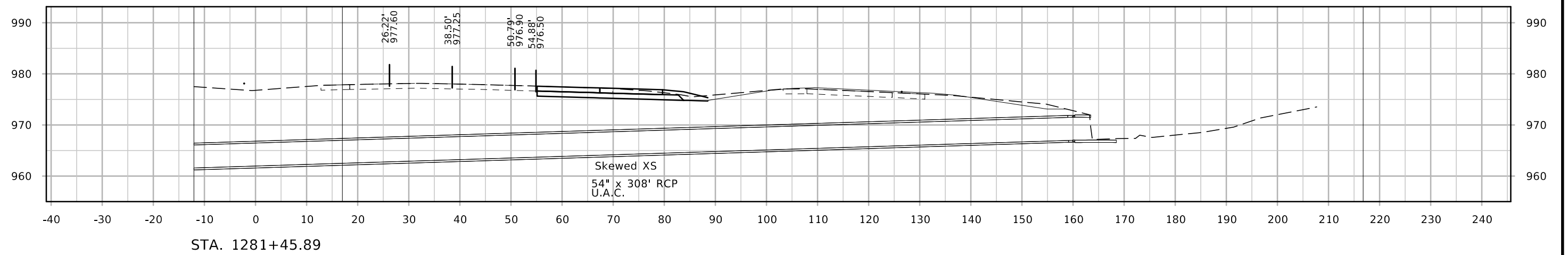
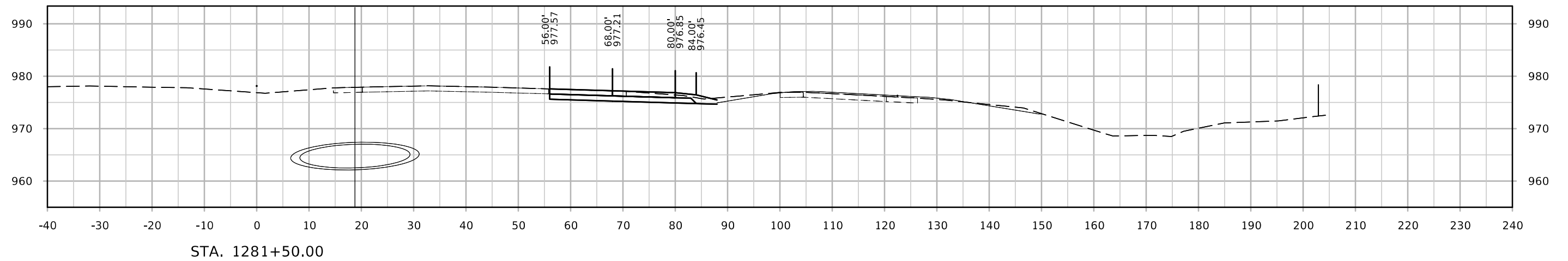
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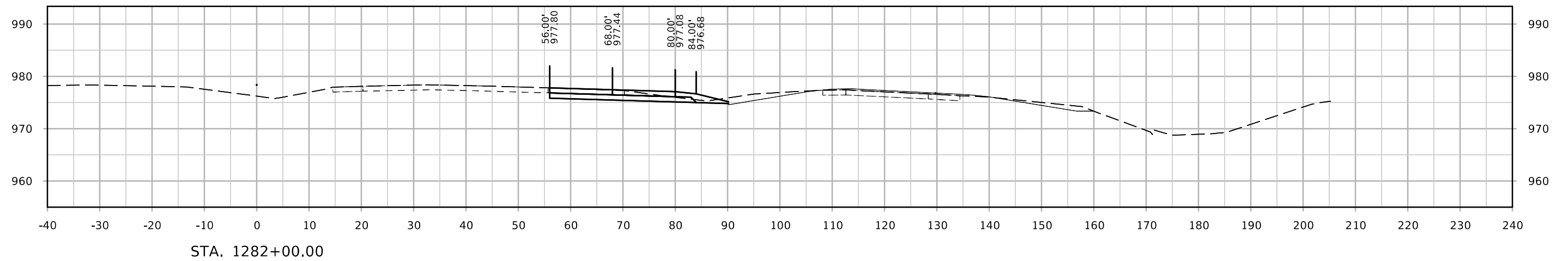
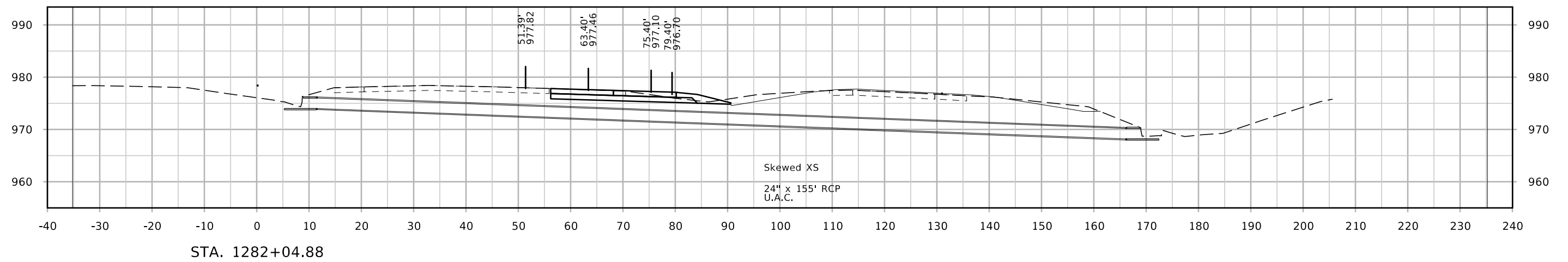
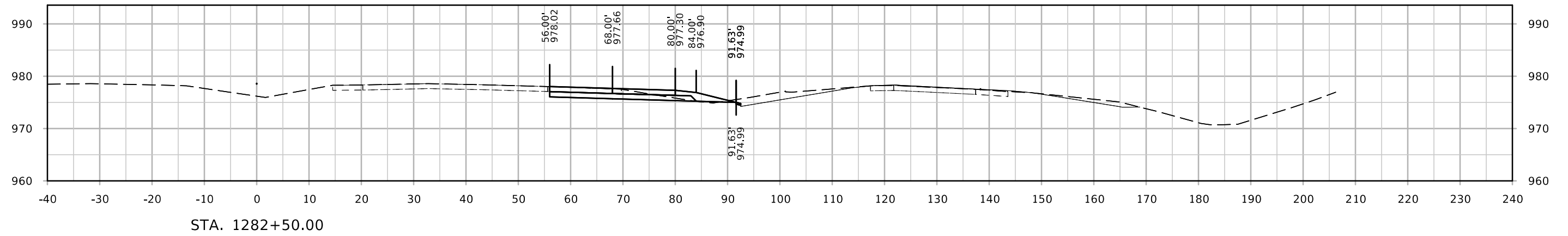
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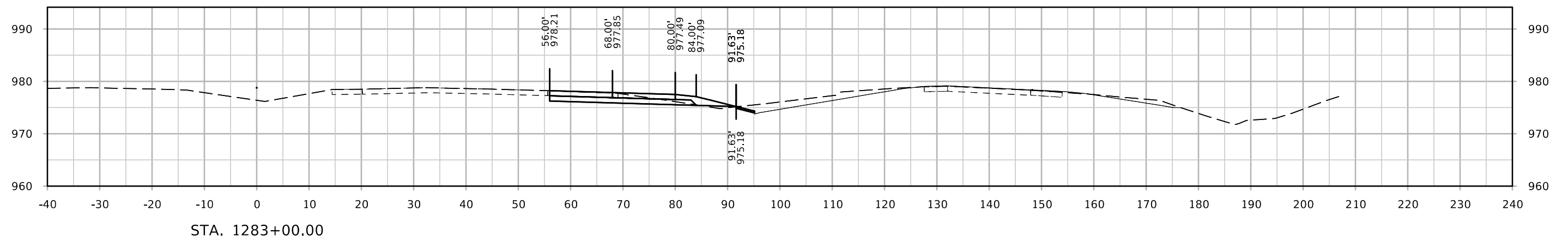
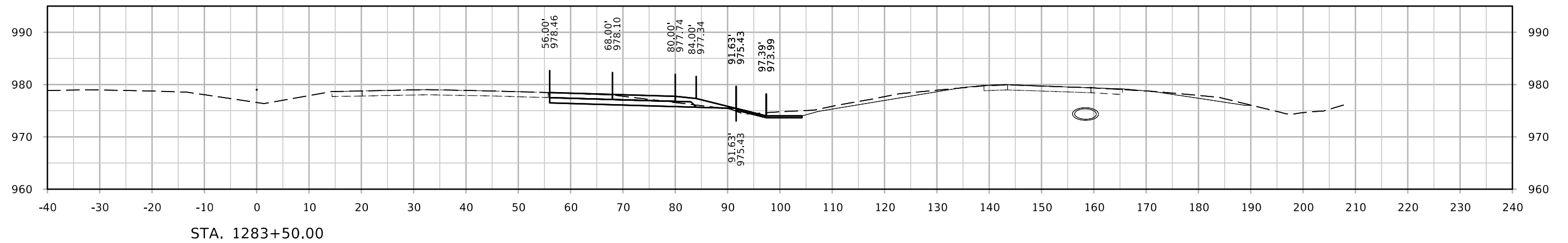
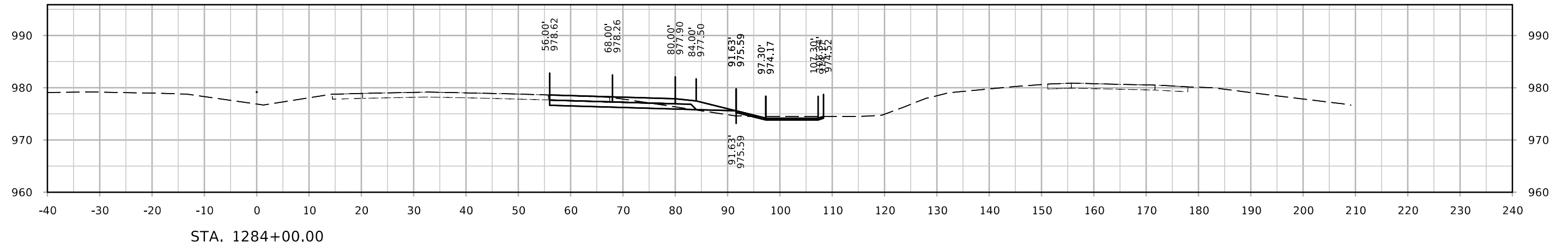
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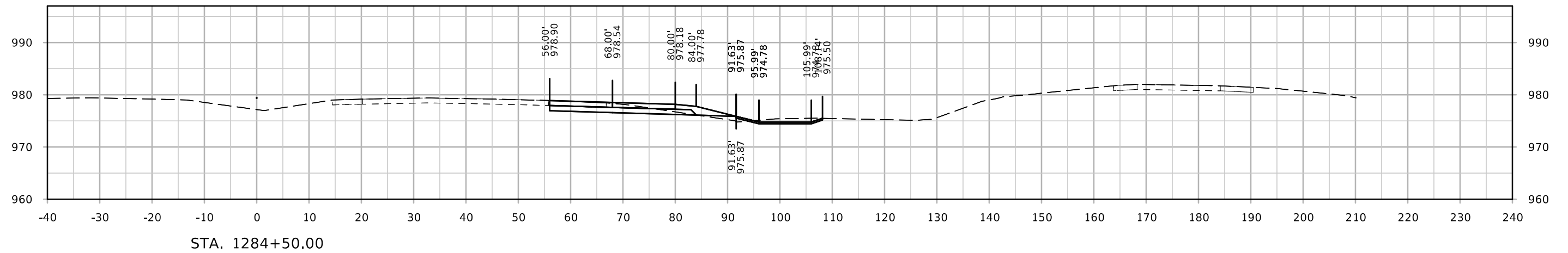
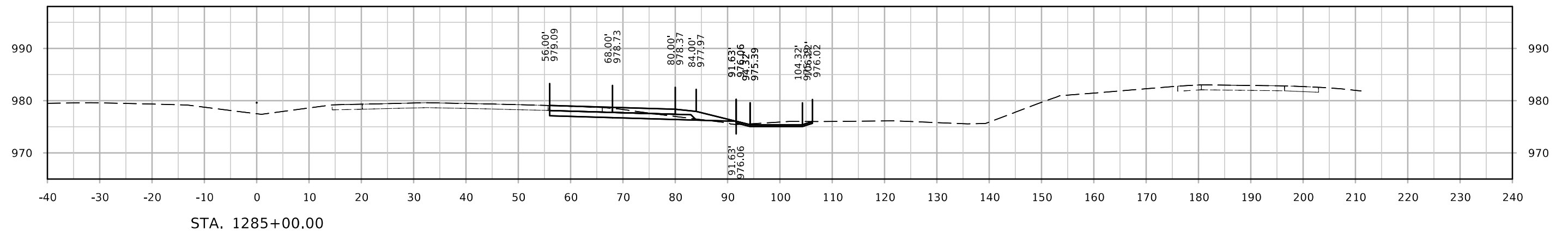
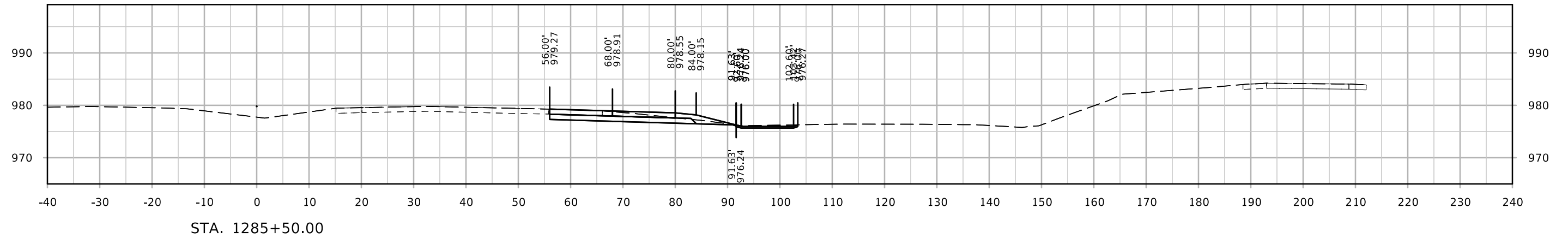
ML - I-80



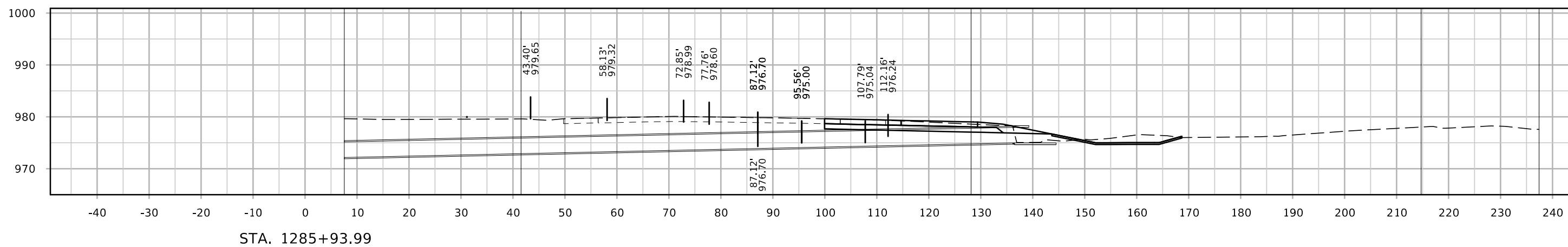
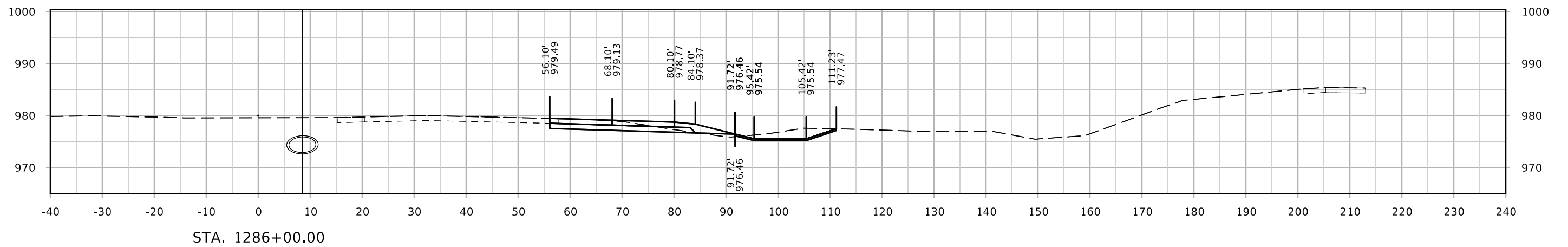
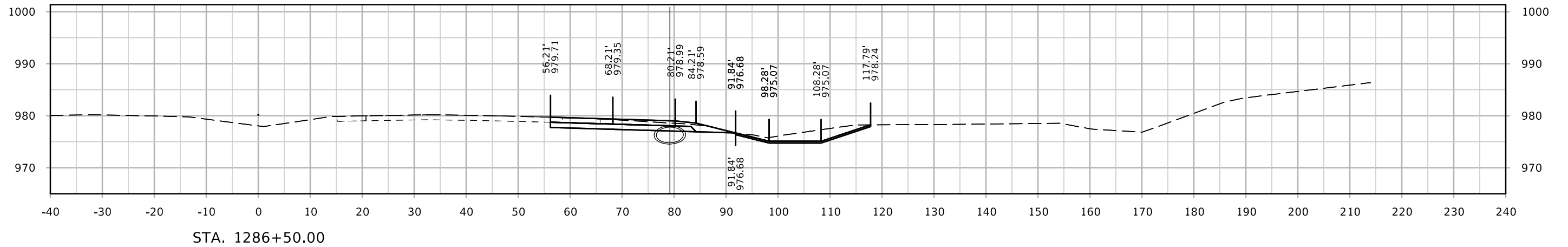
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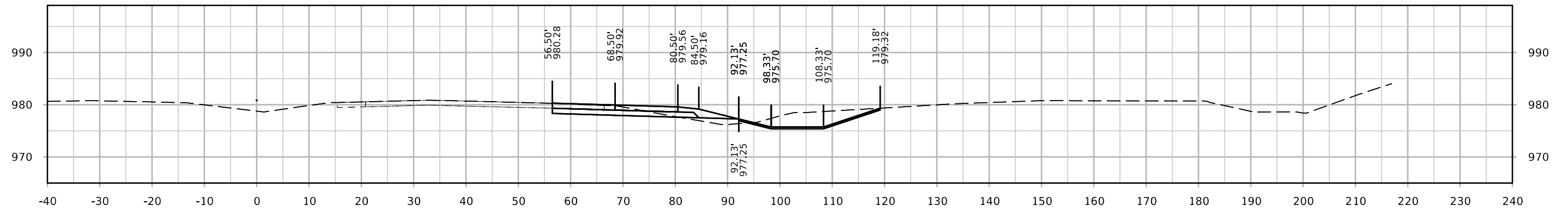
ML - I-80



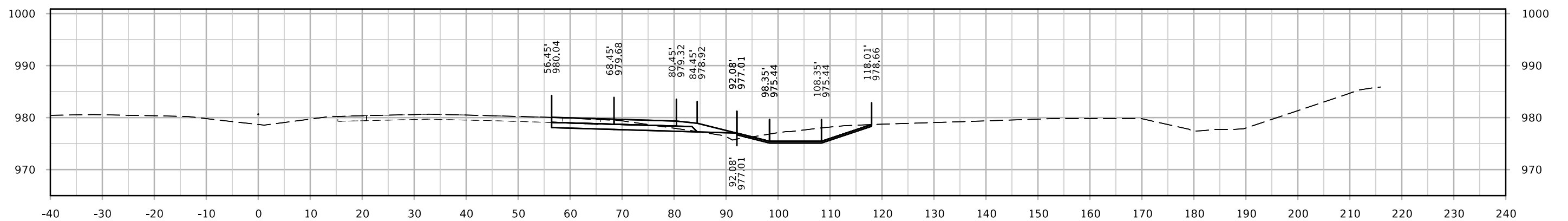
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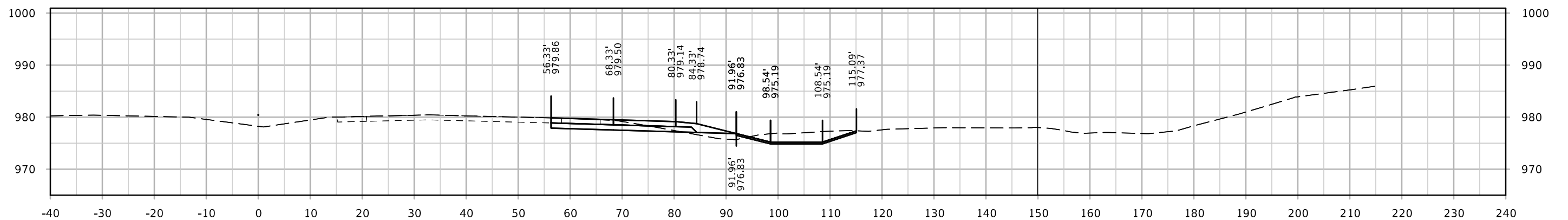
ML - I-80



STA. 1288+00.00

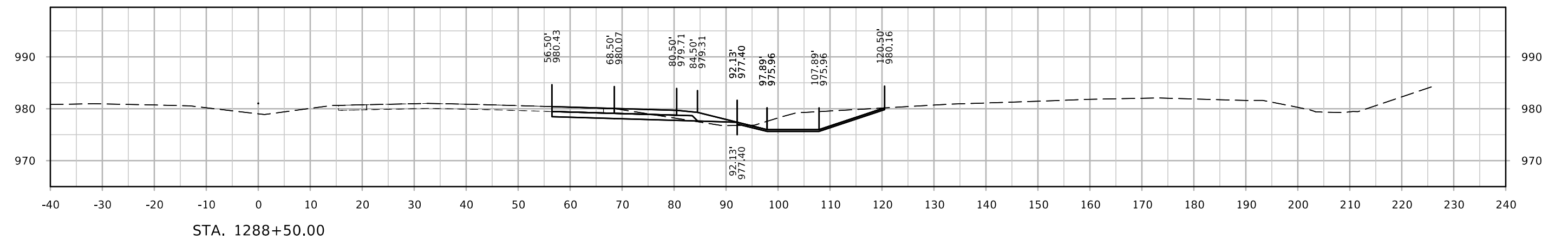
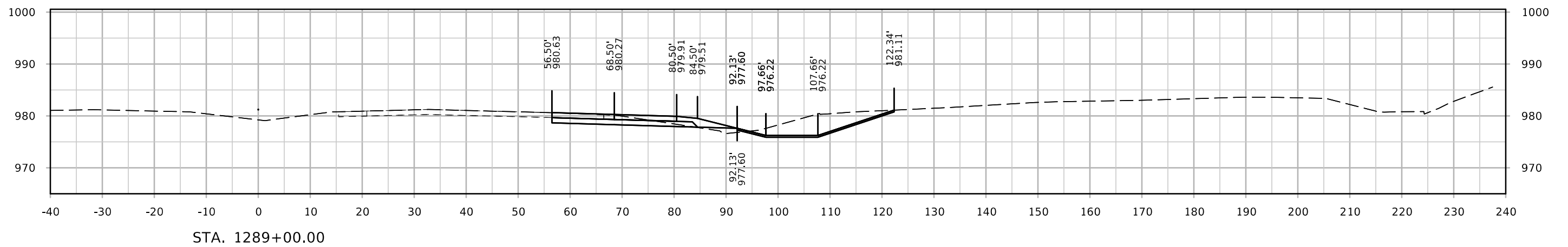
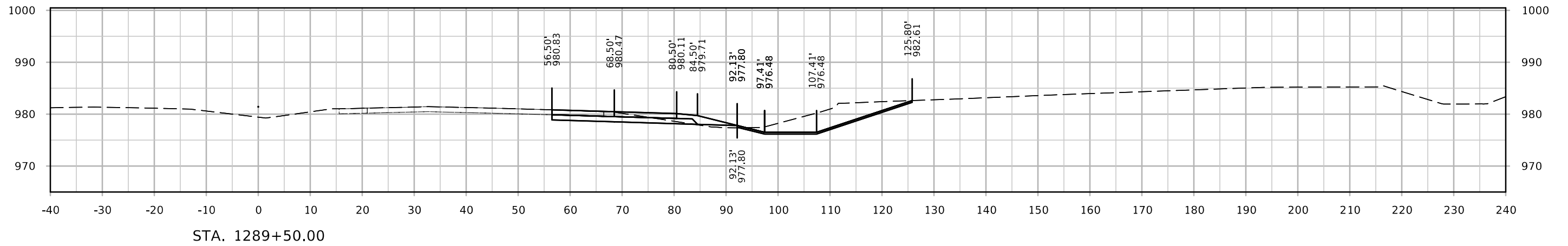


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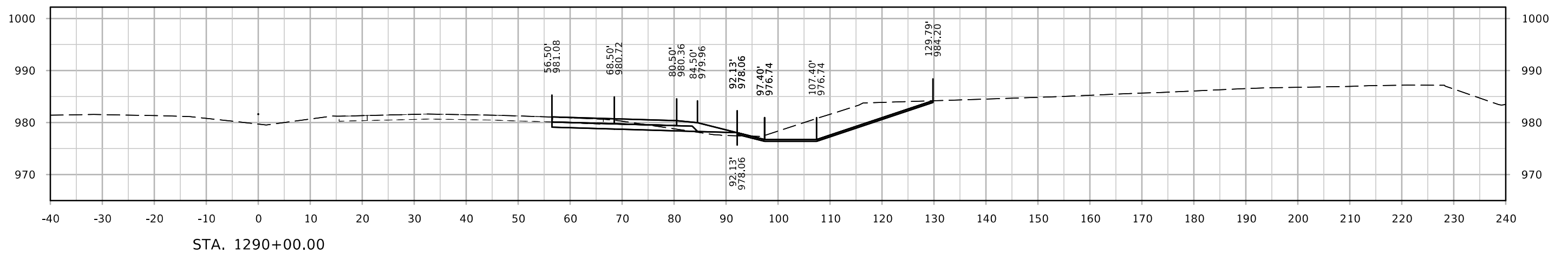
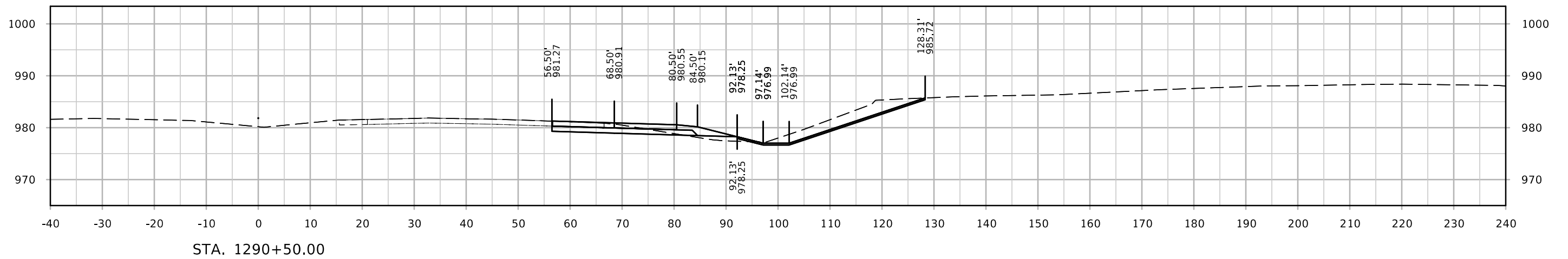
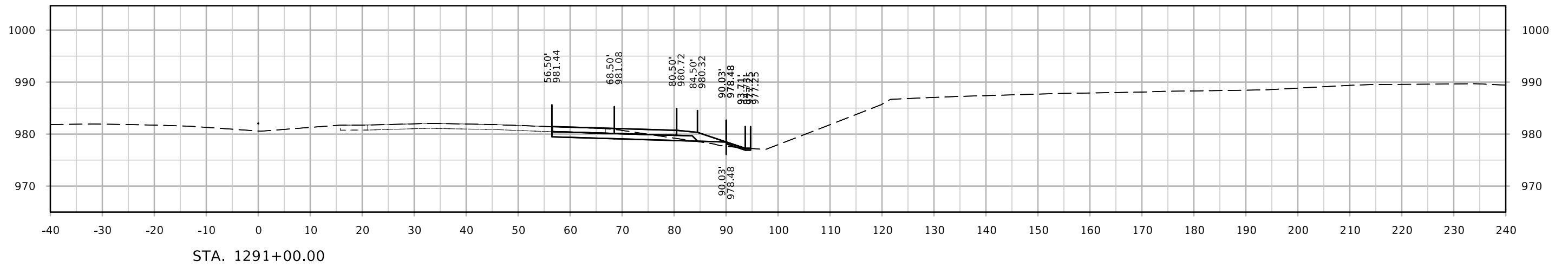


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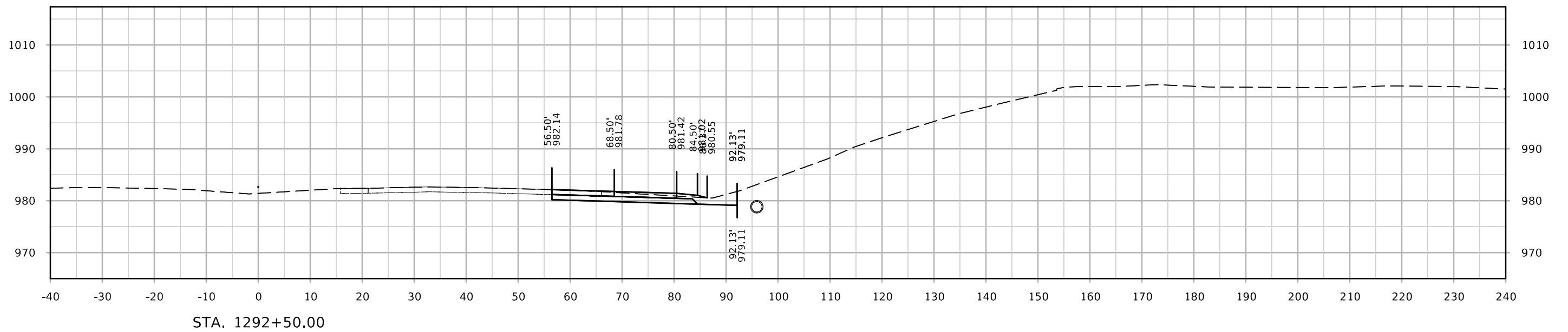
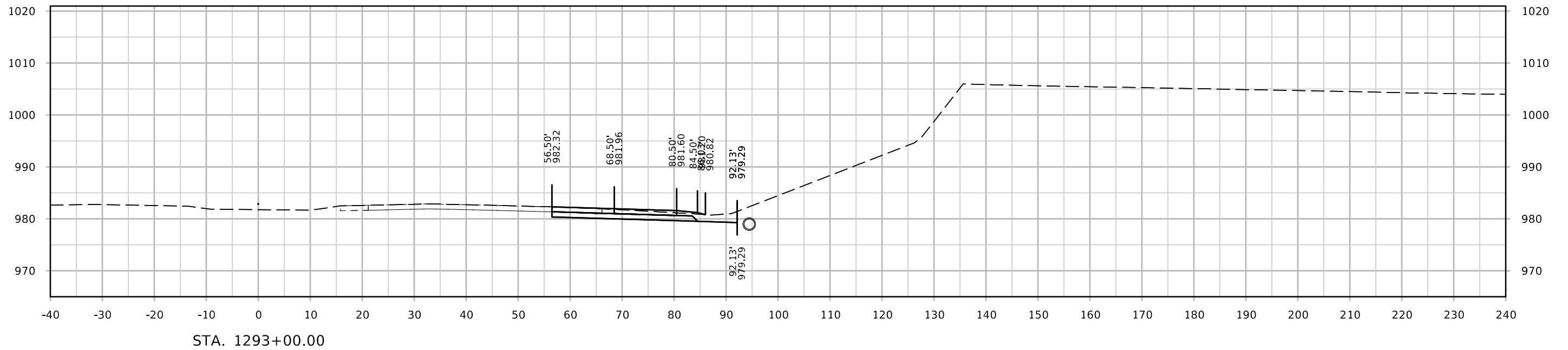
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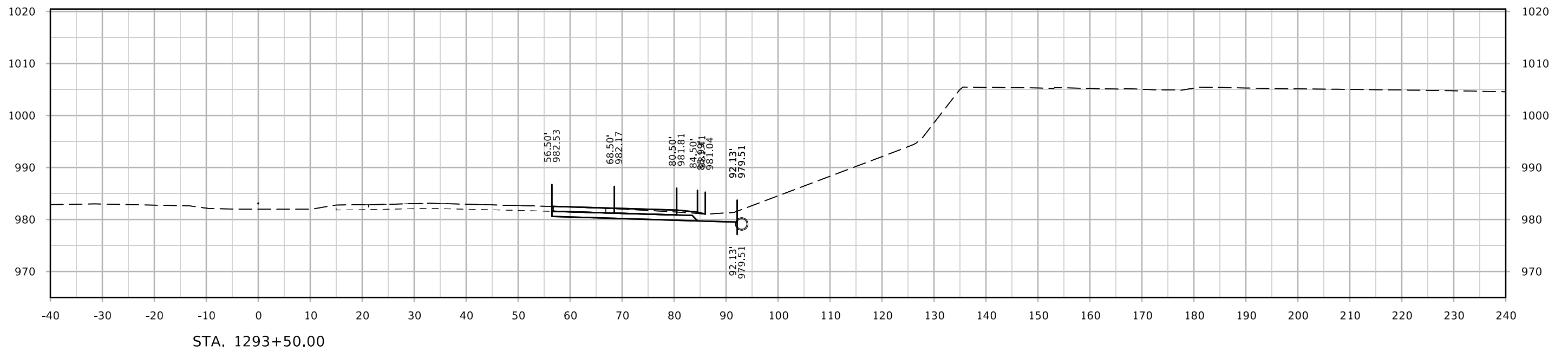
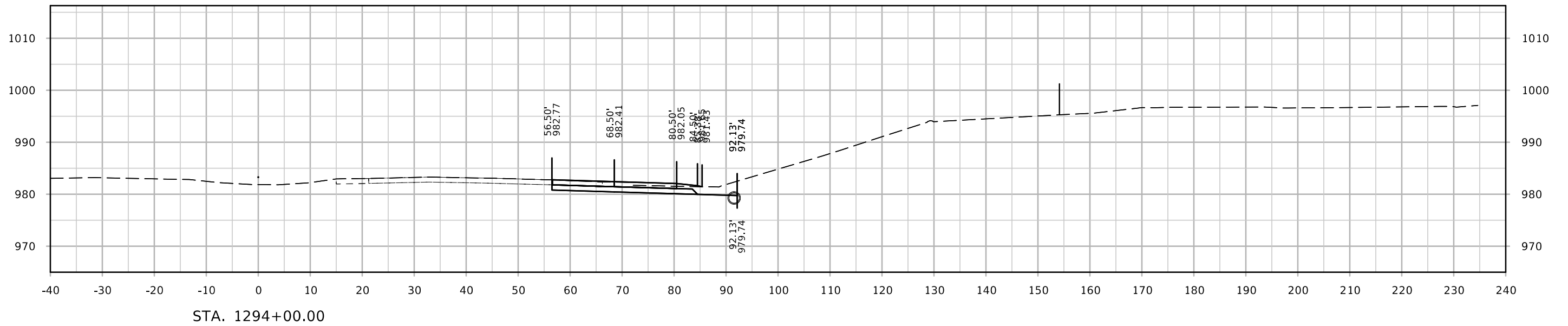
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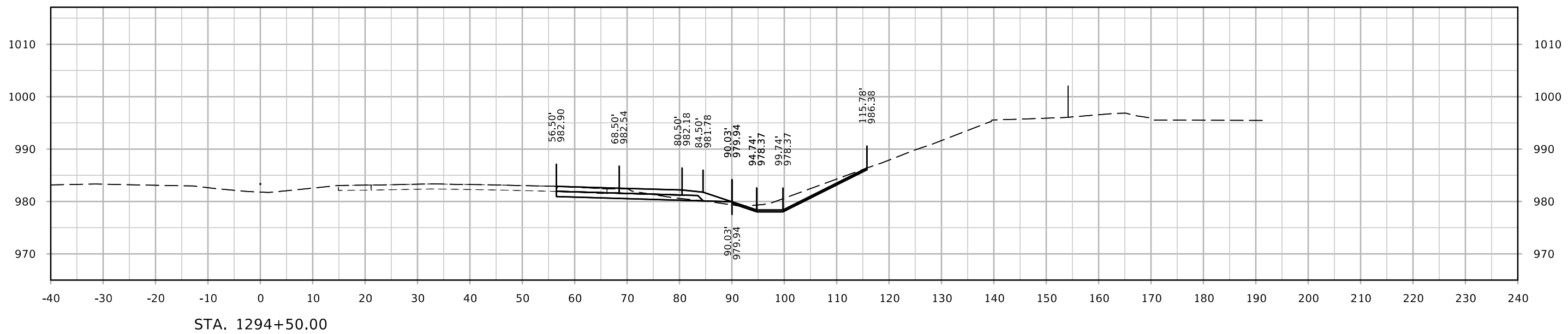
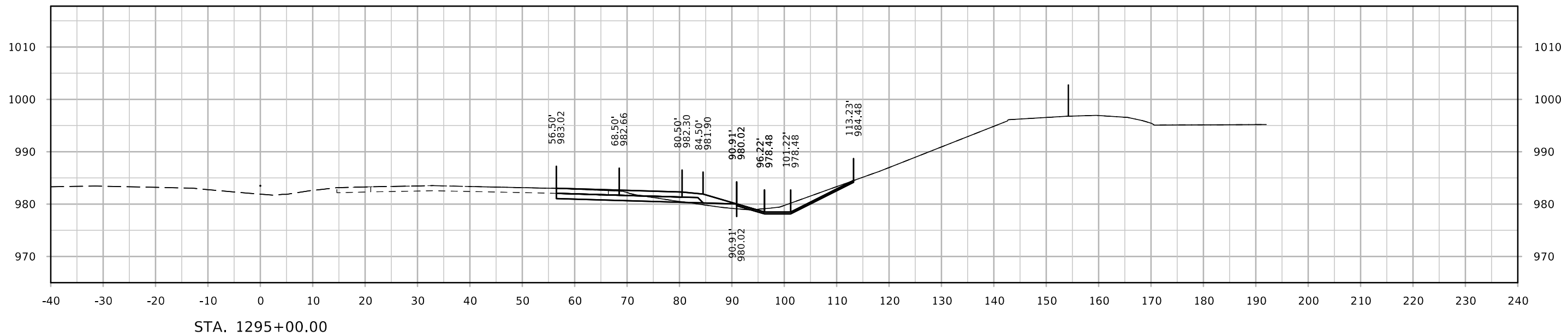
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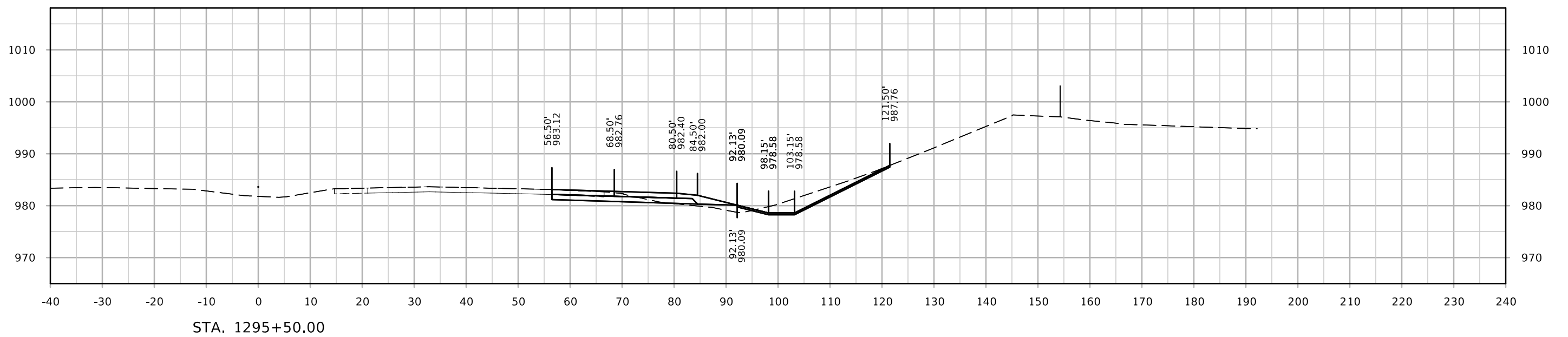
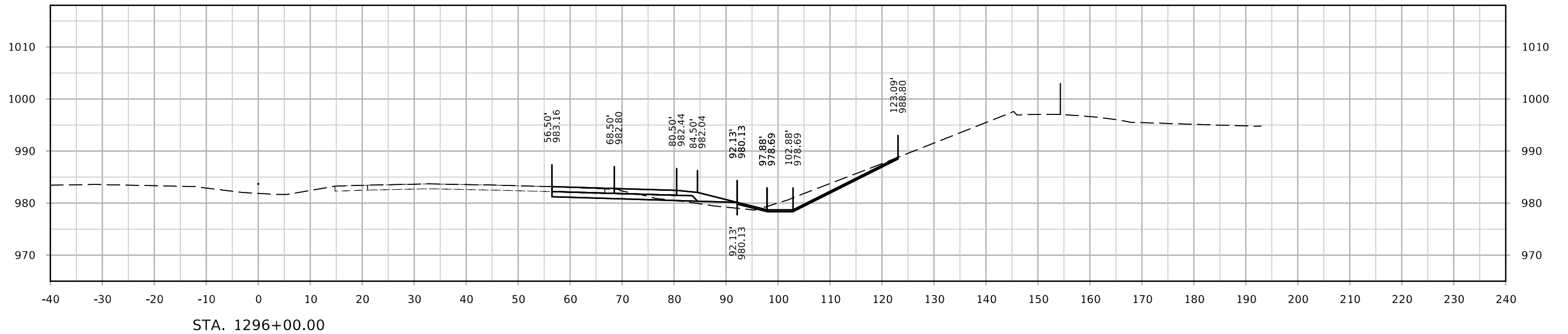
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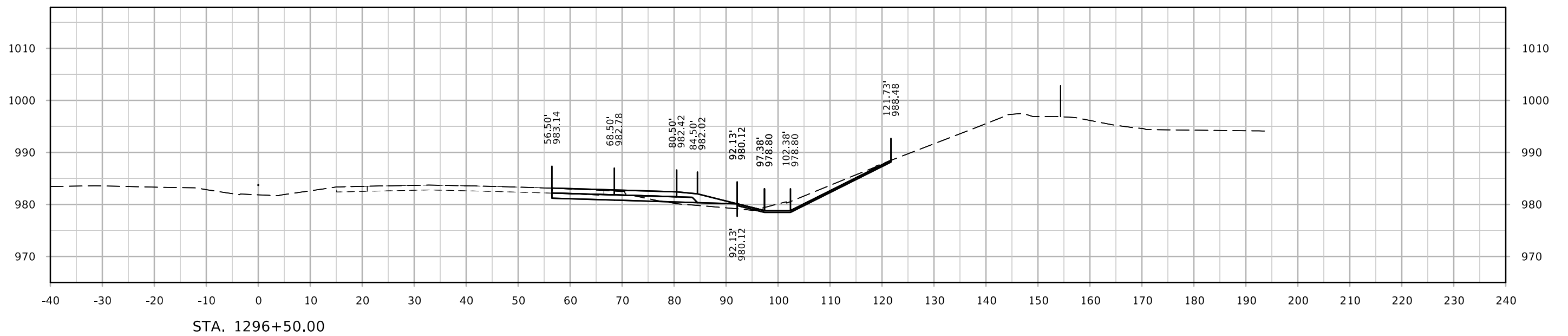
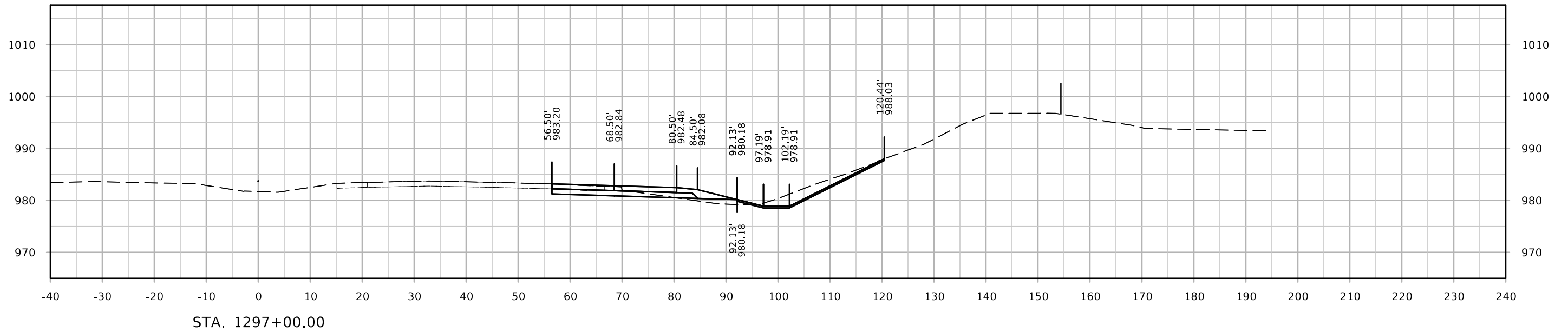
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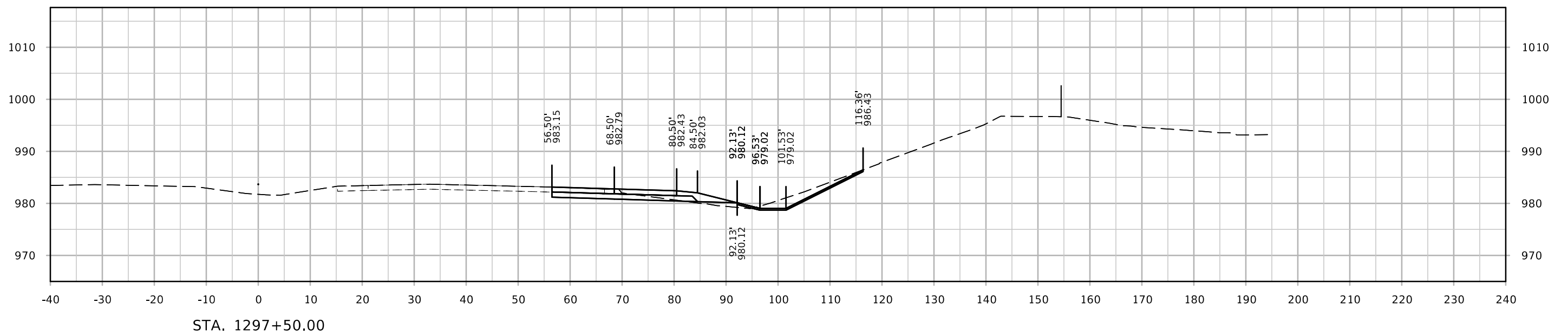
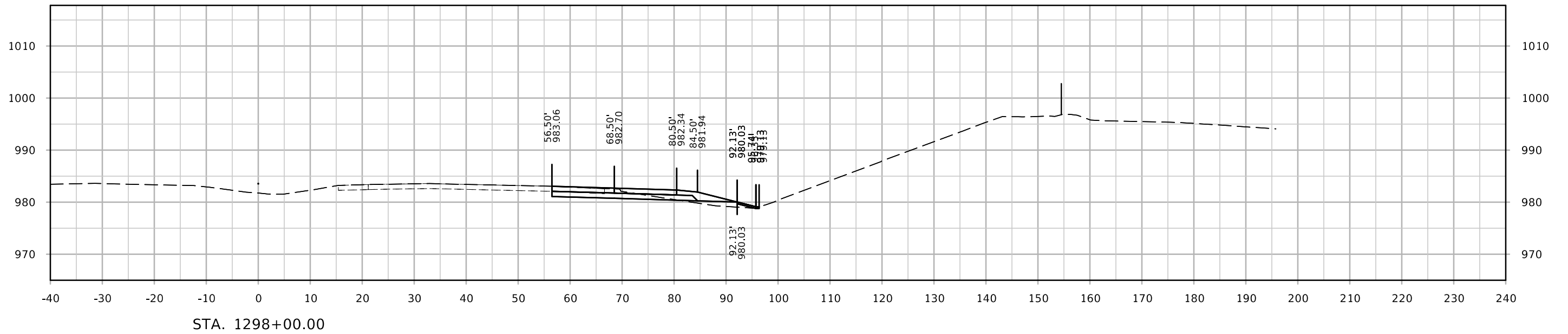
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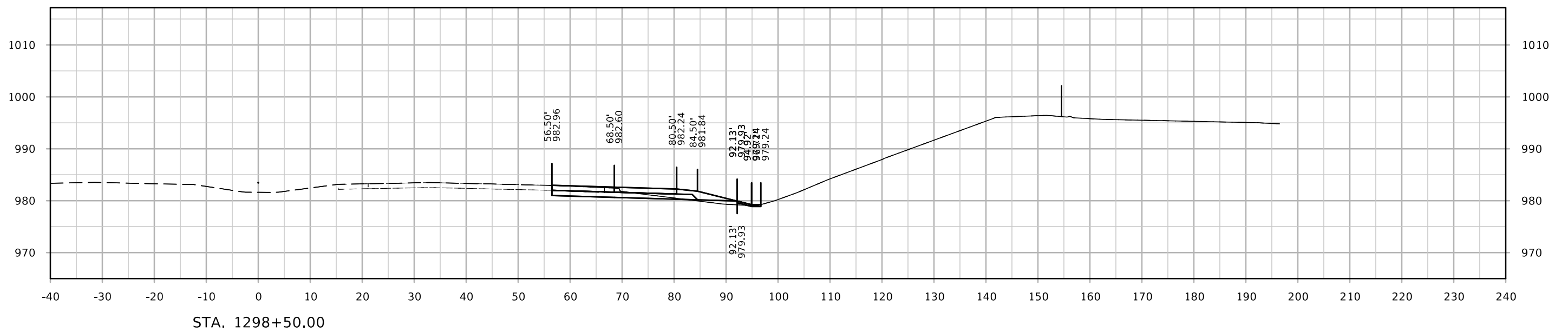
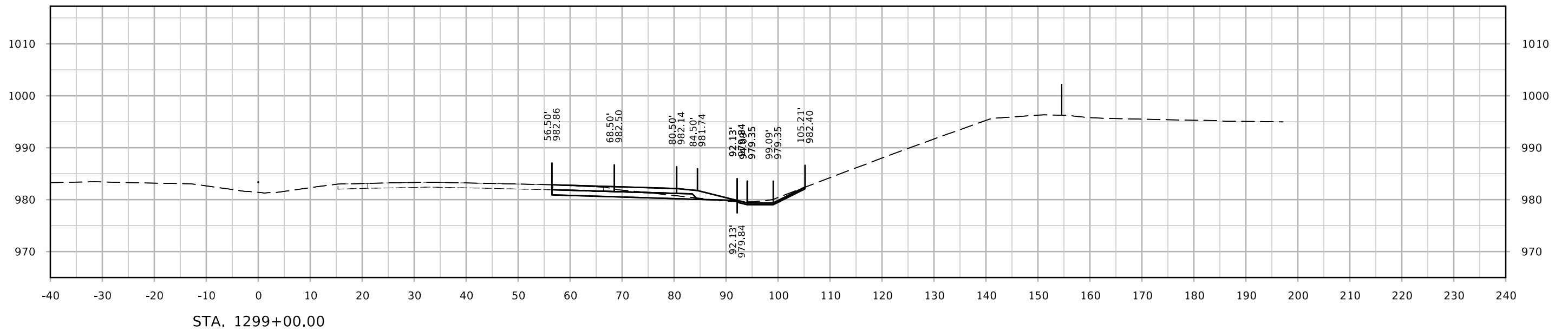
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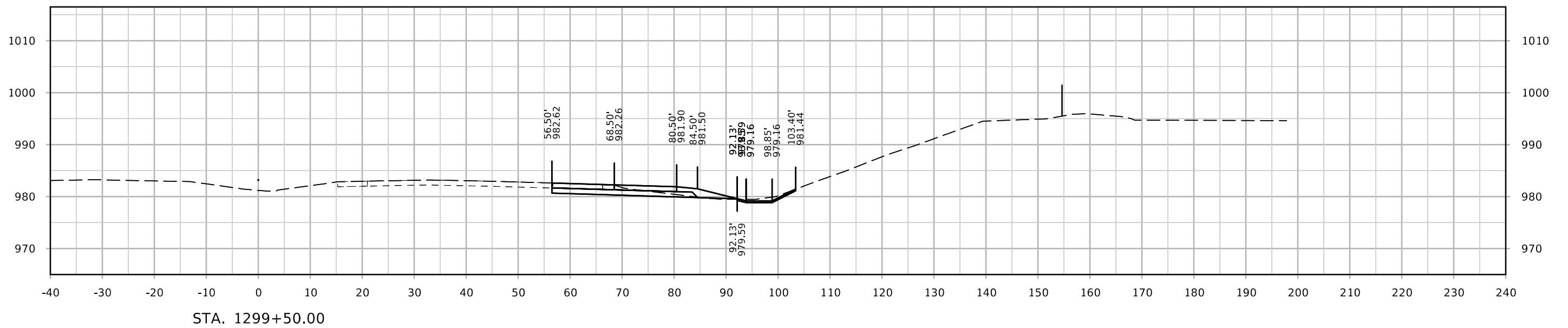
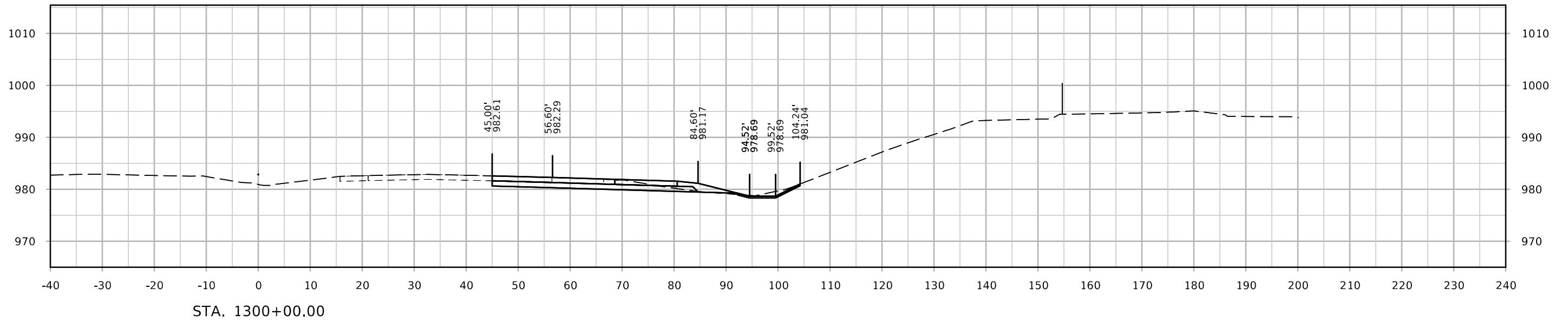
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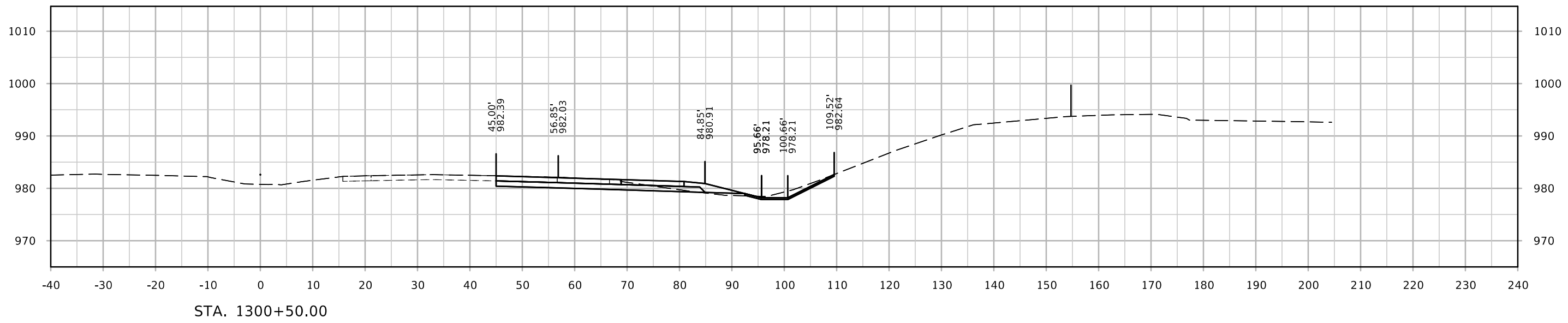
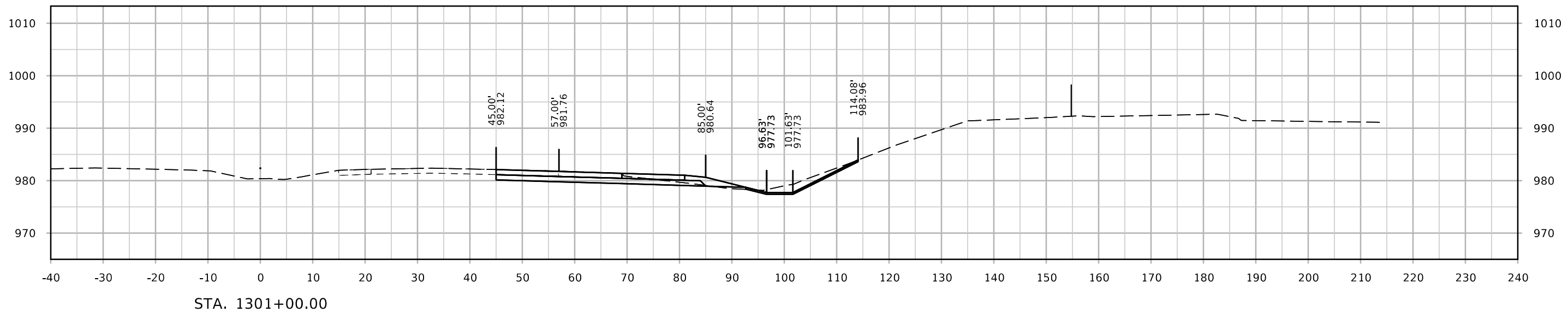
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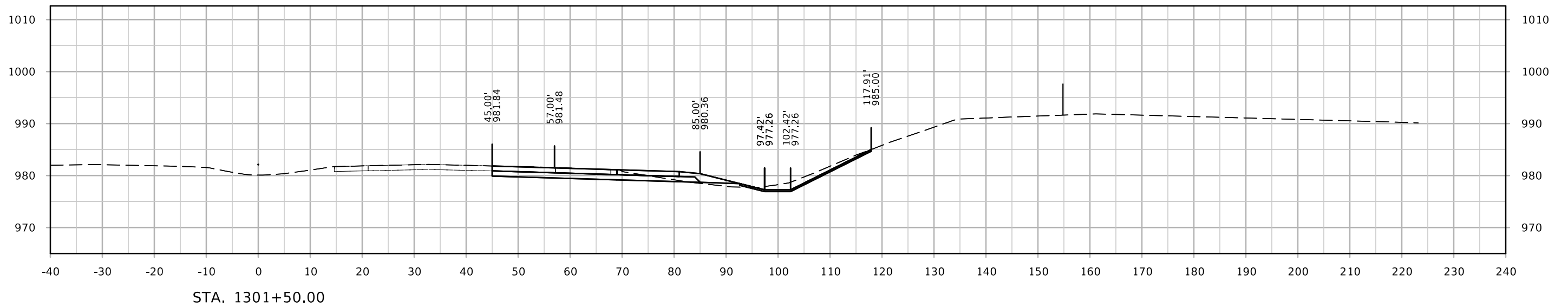
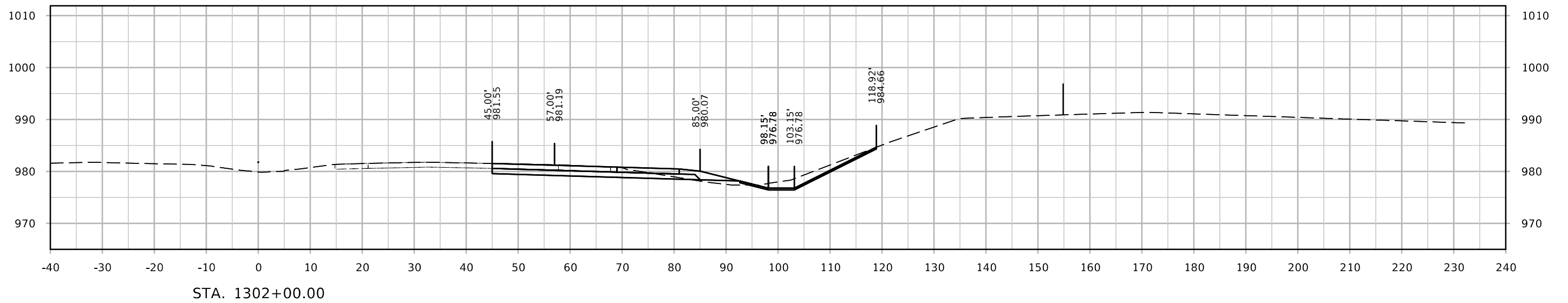
ML - I-80



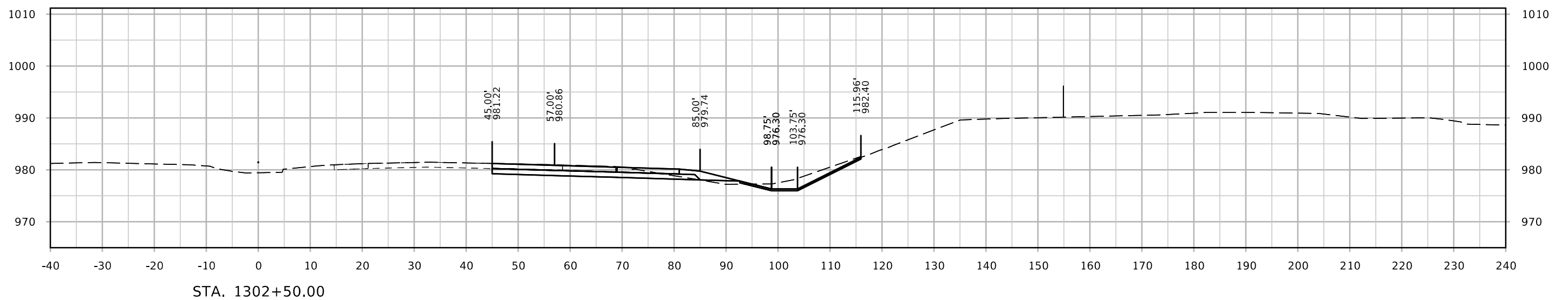
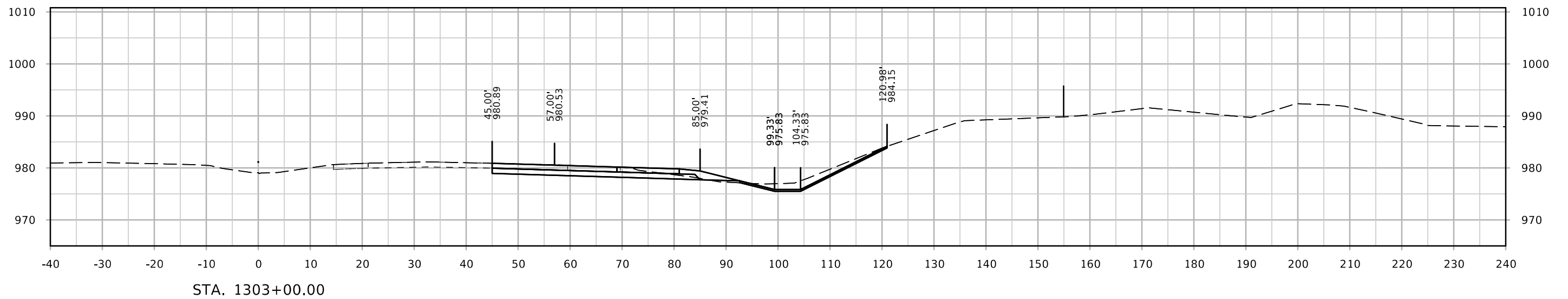
ML - I-80



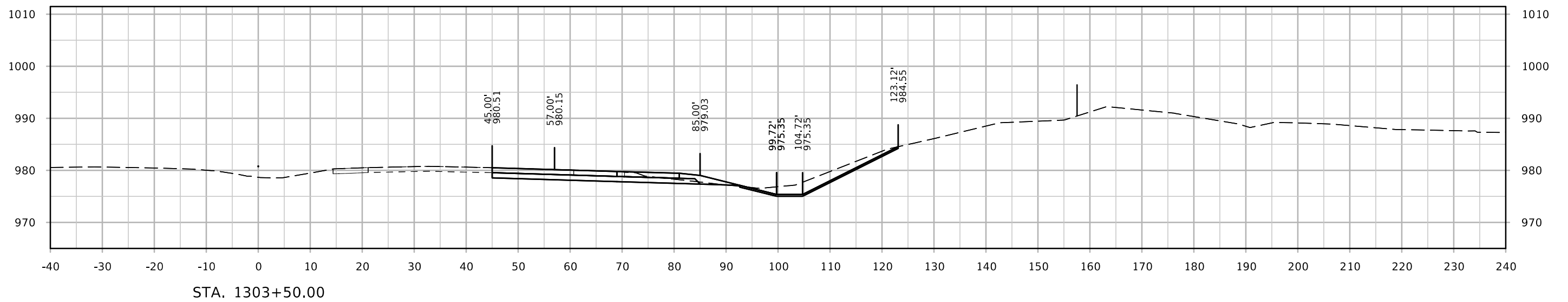
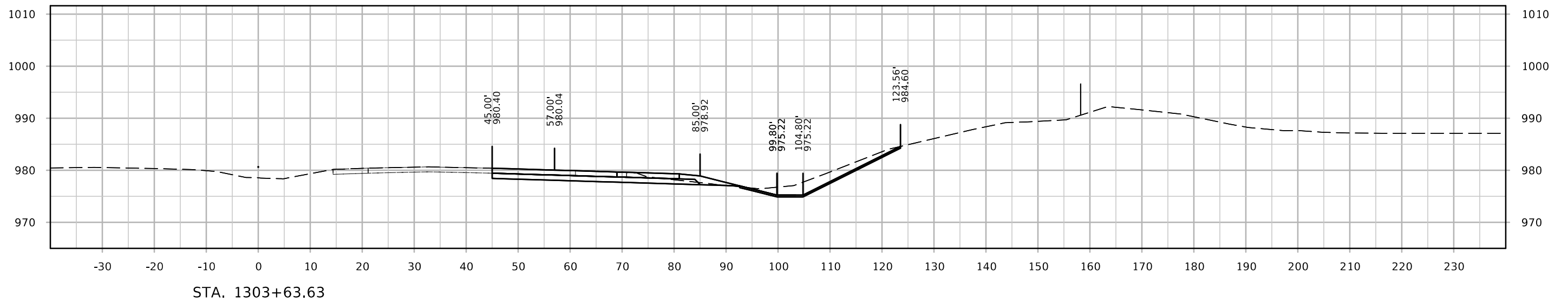
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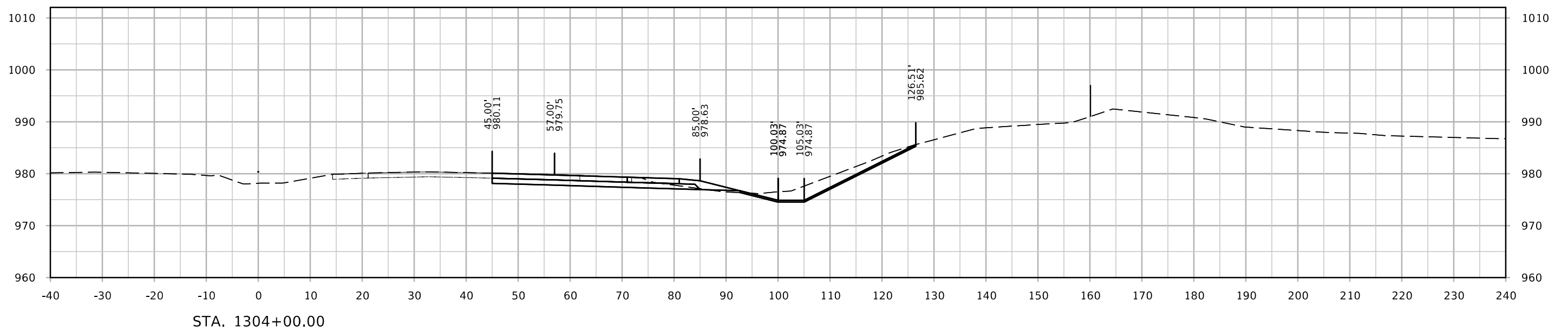
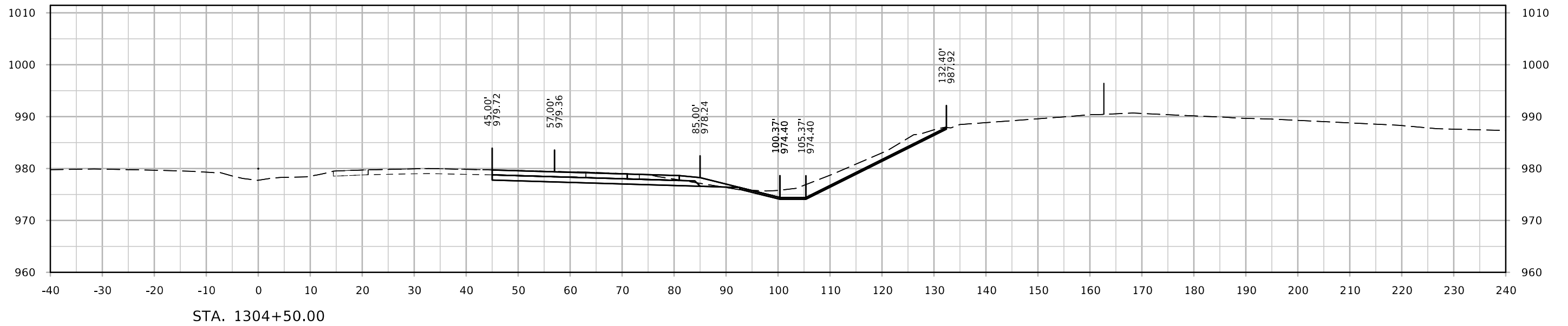
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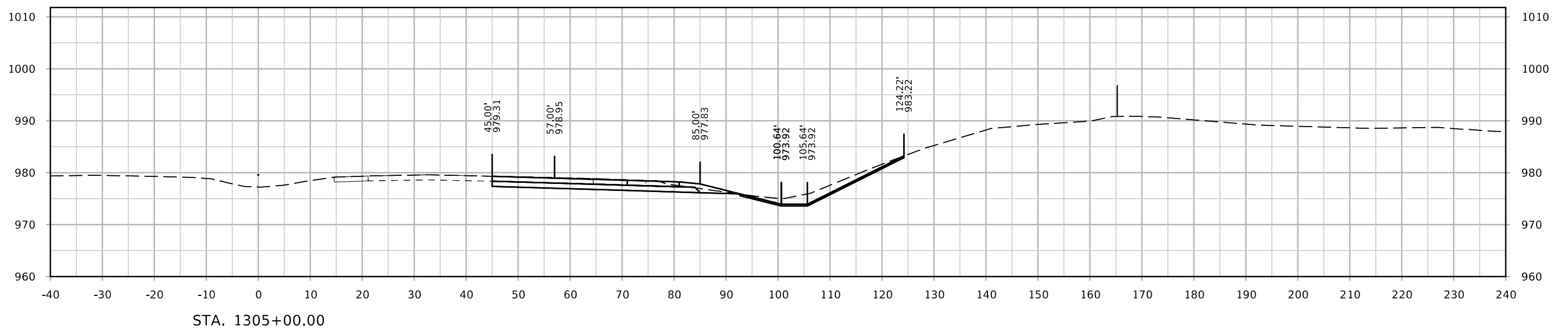
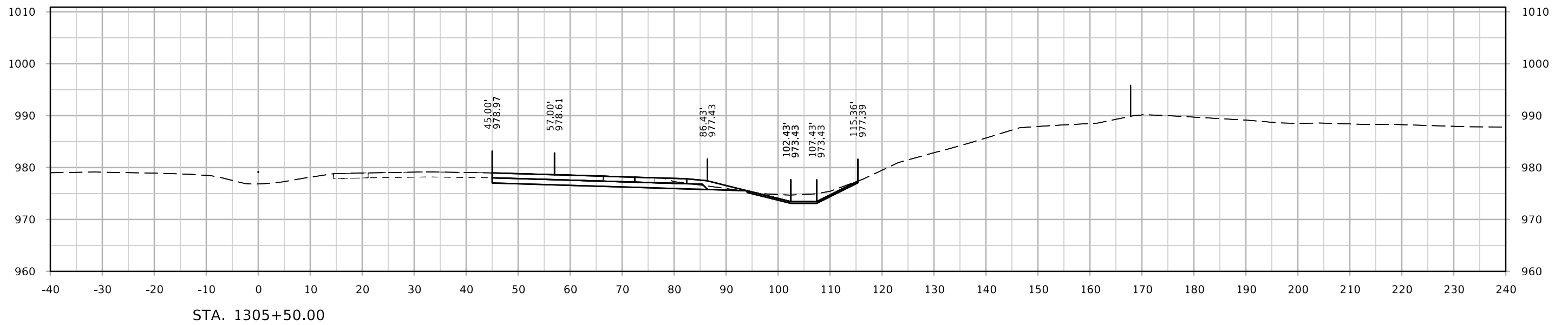
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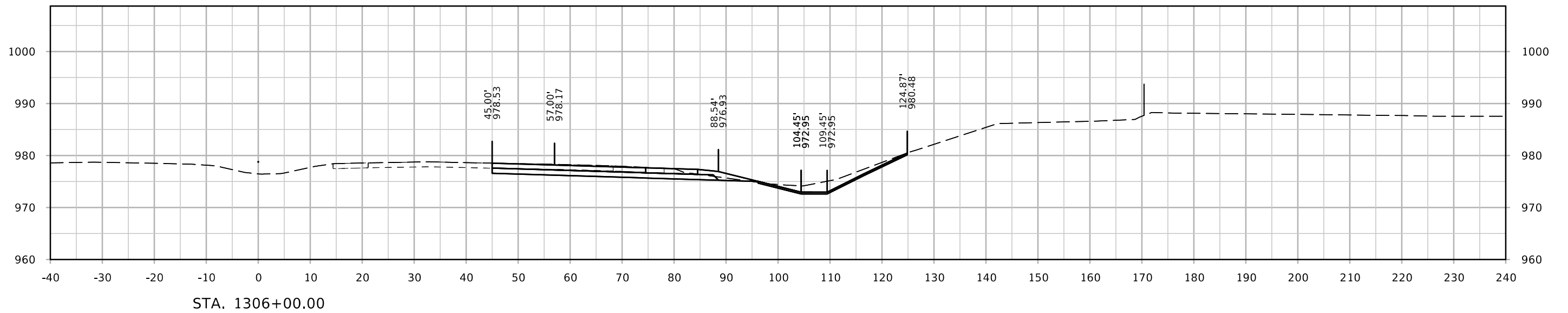
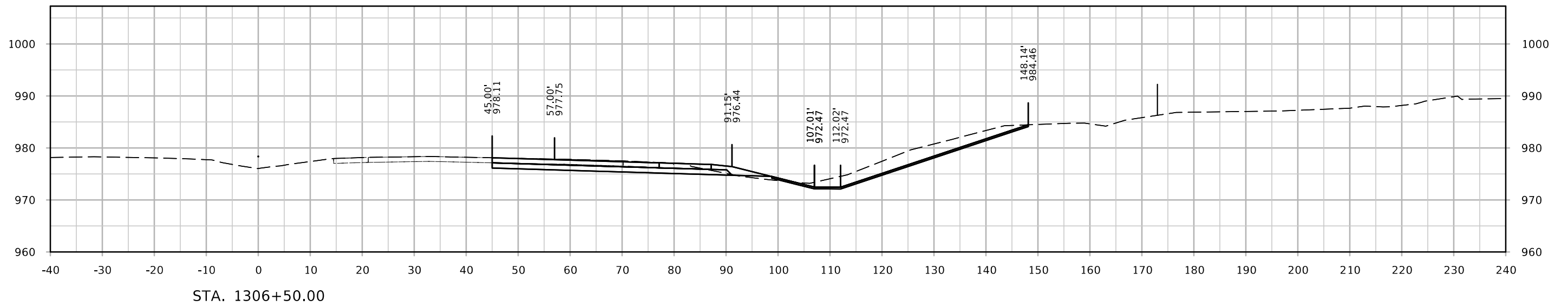
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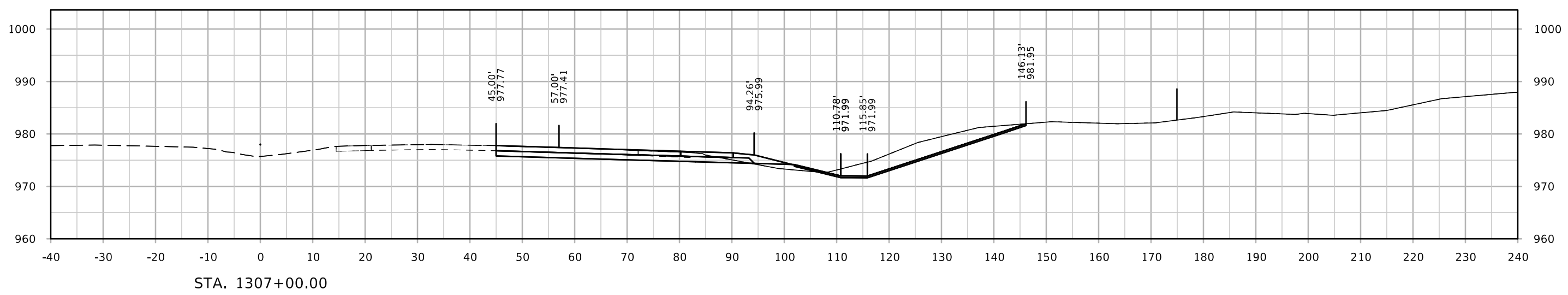
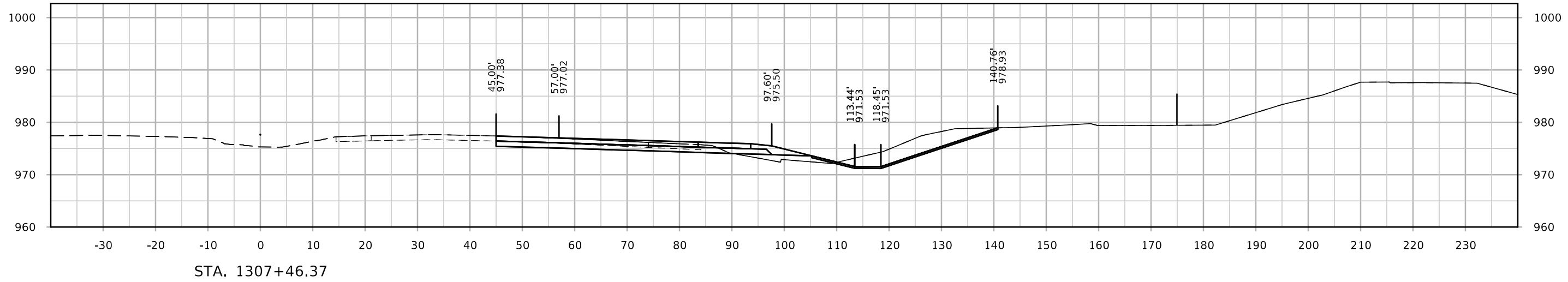
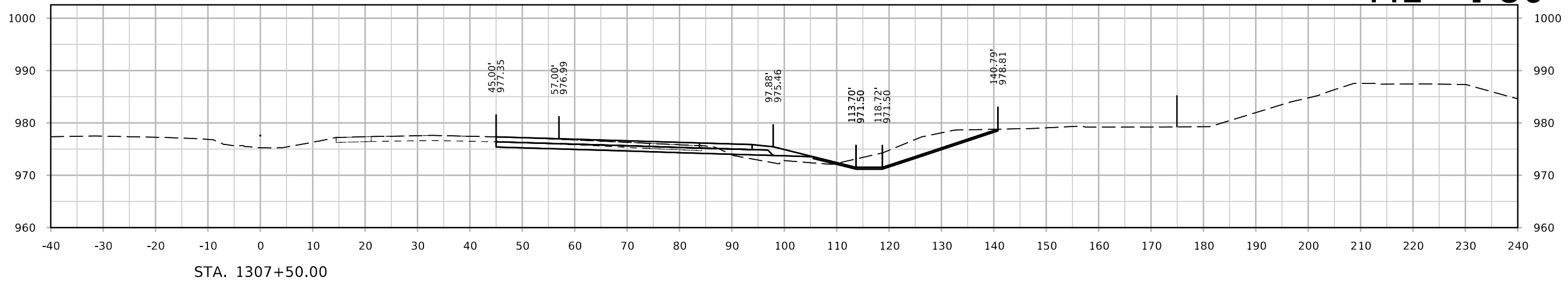
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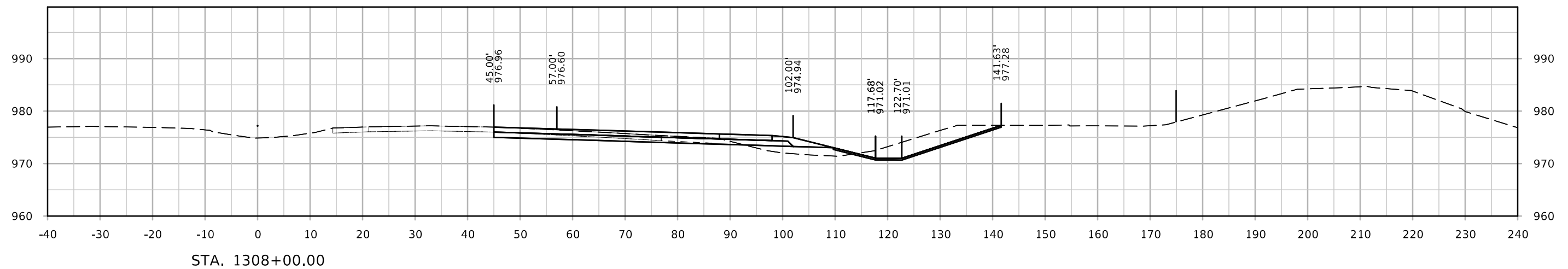
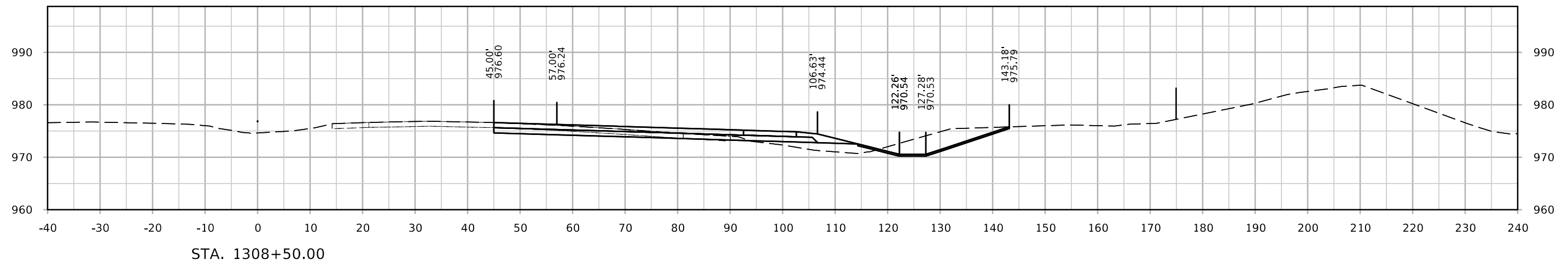
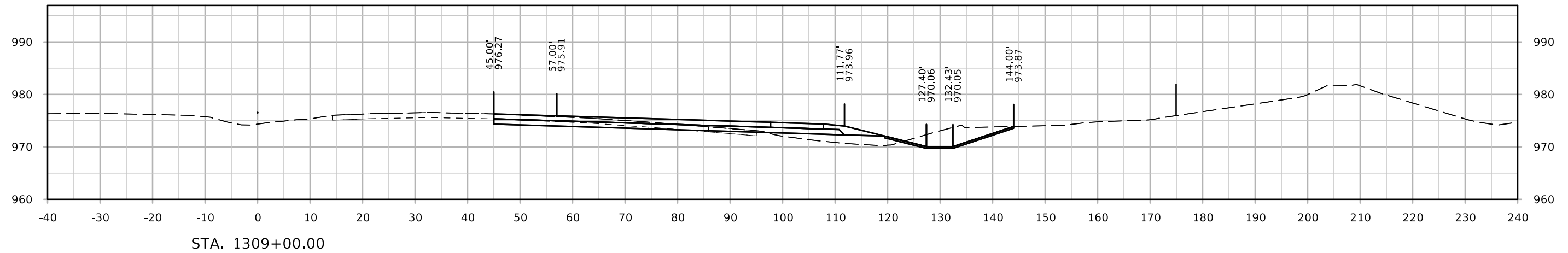
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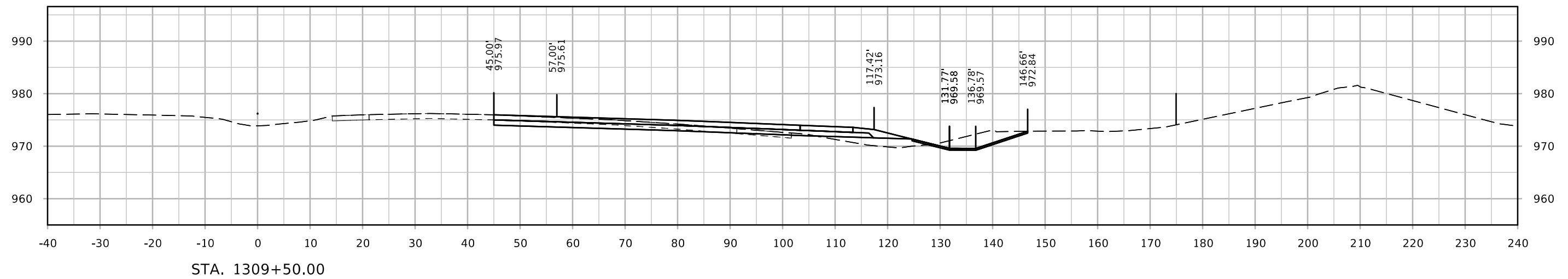
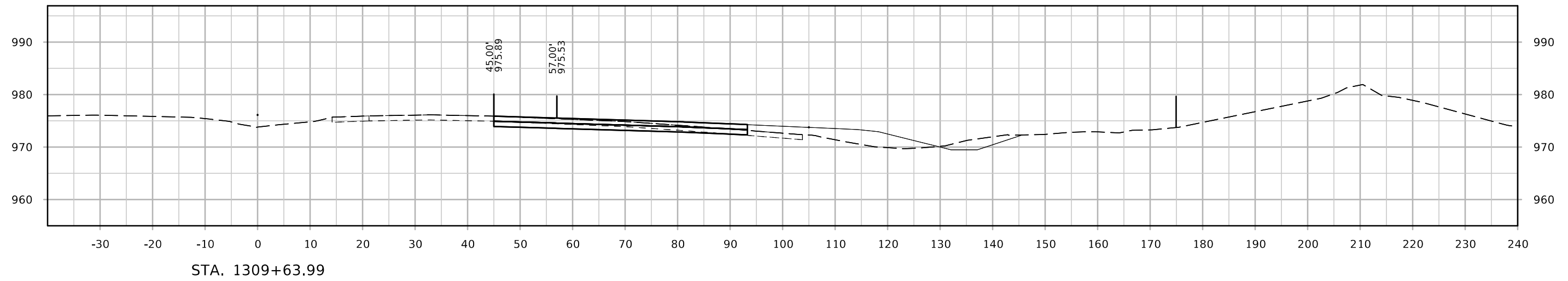
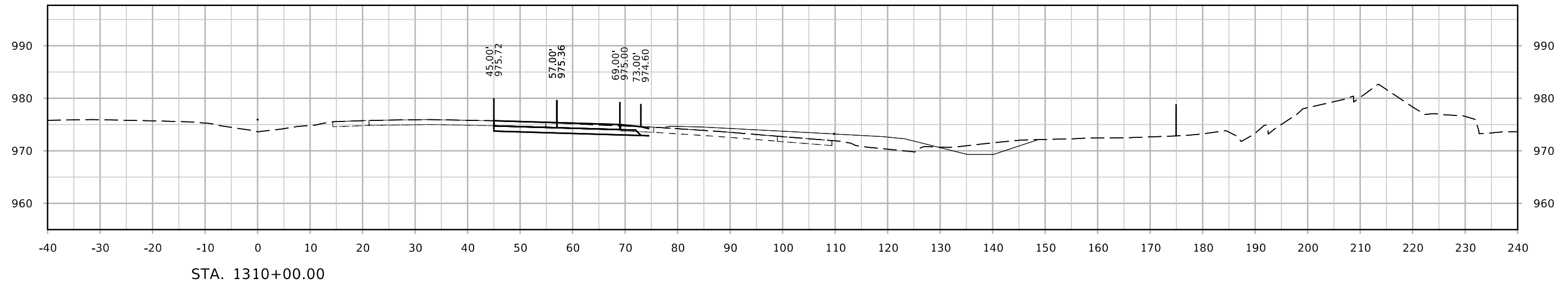
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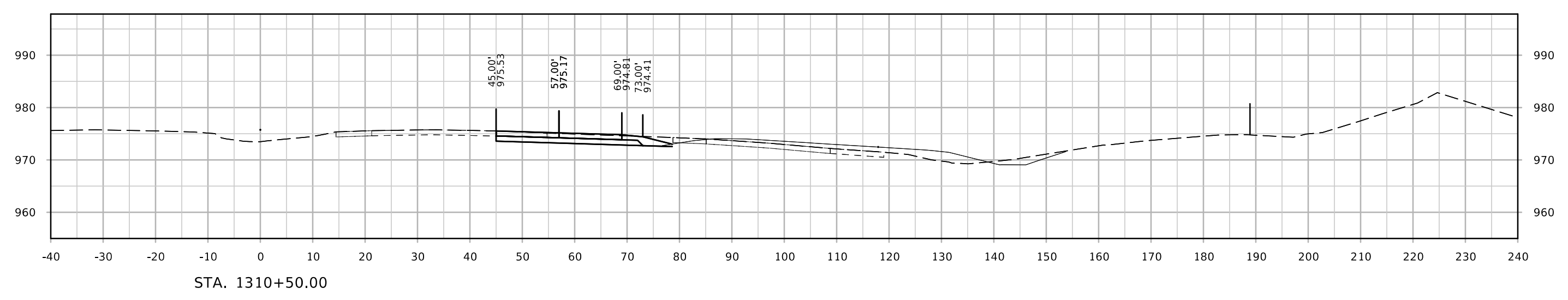
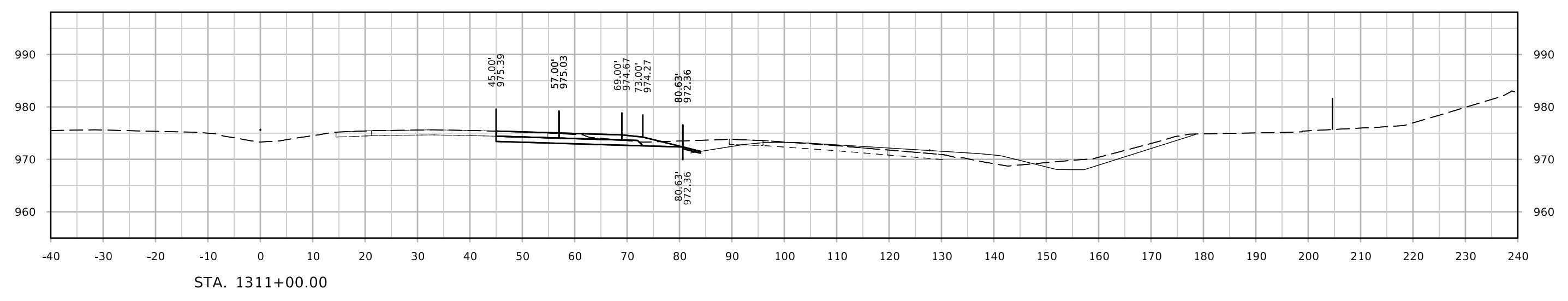
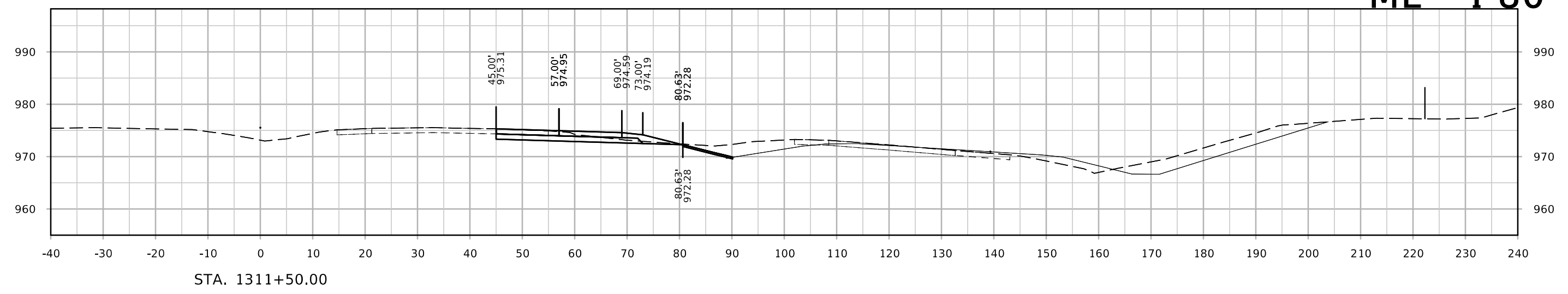
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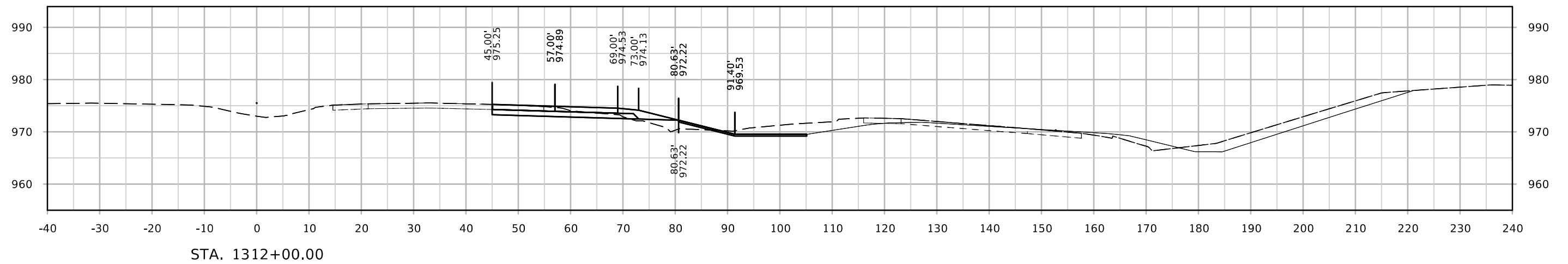
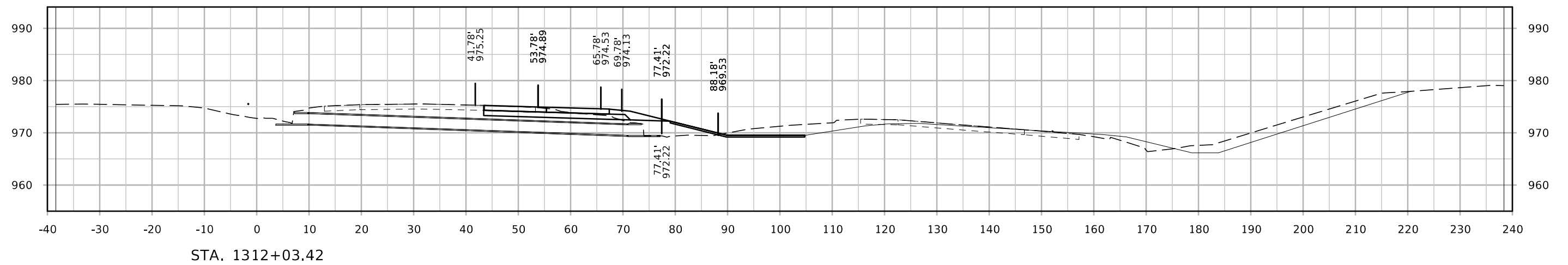
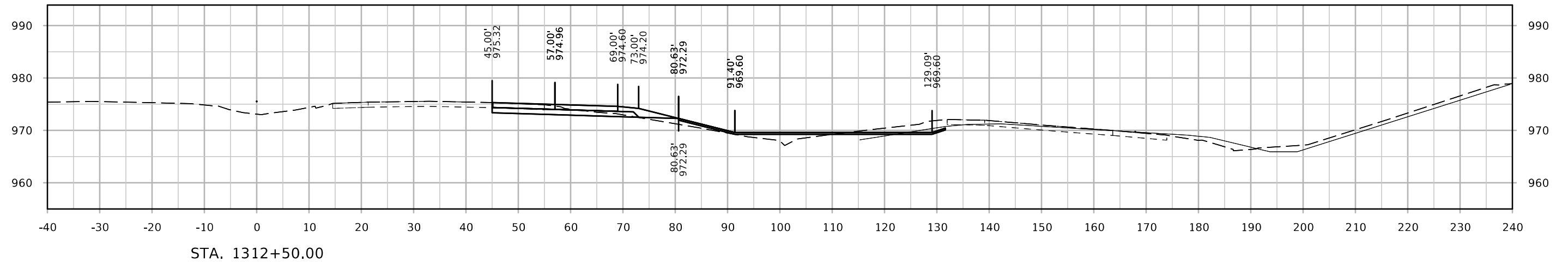
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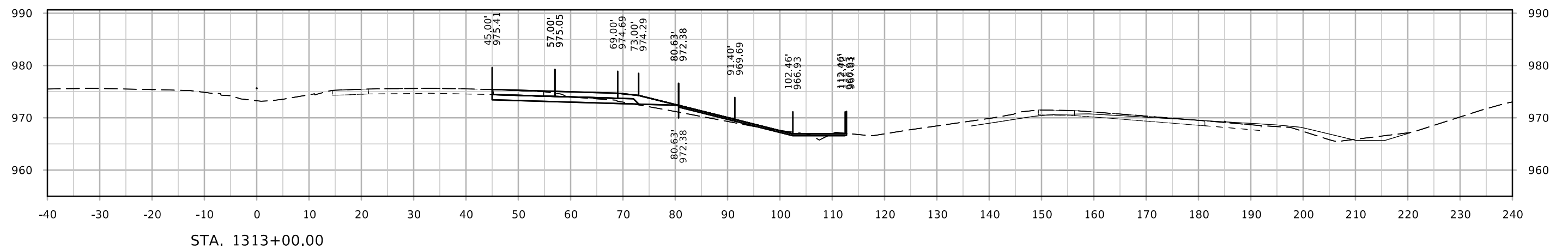
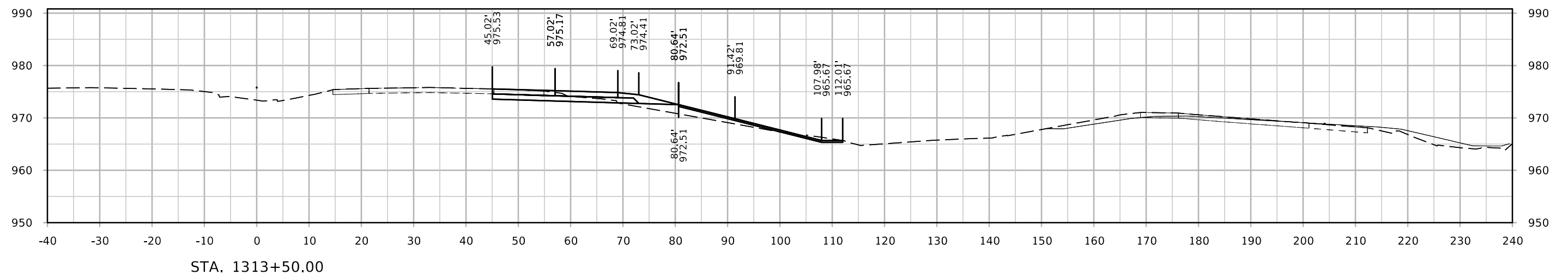
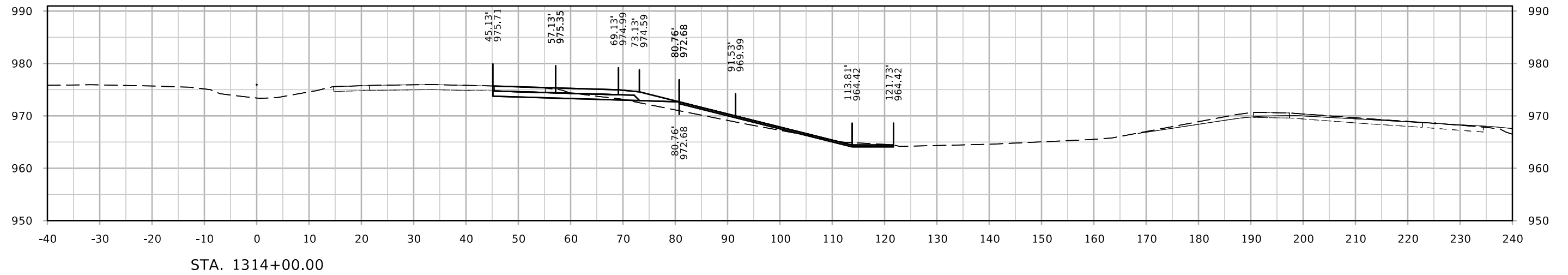
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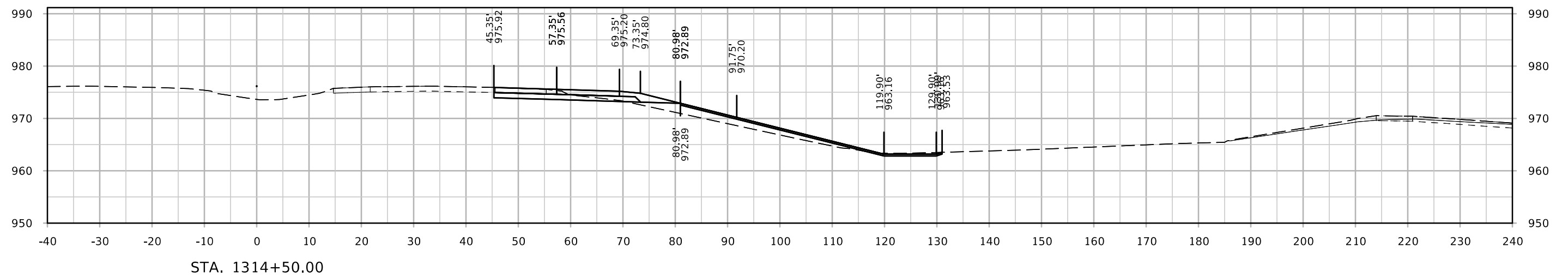
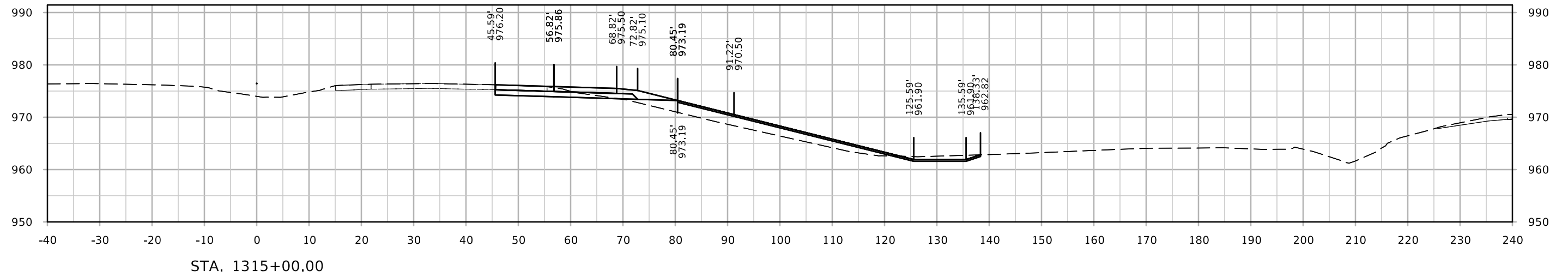
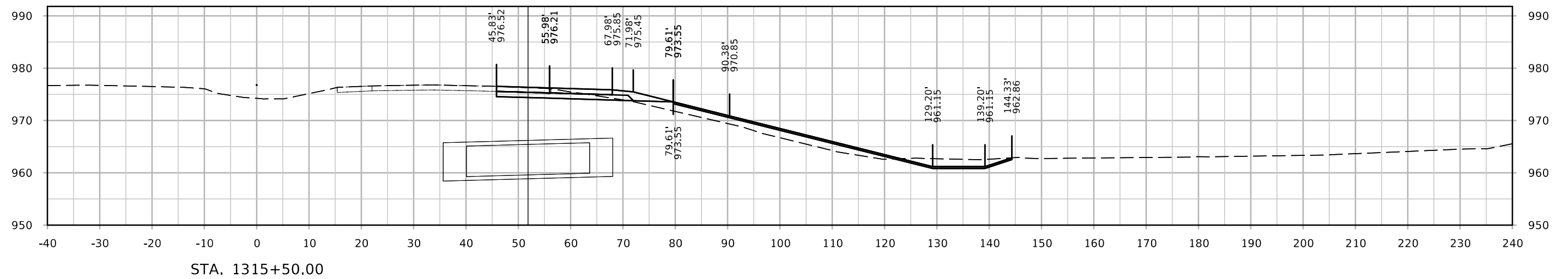
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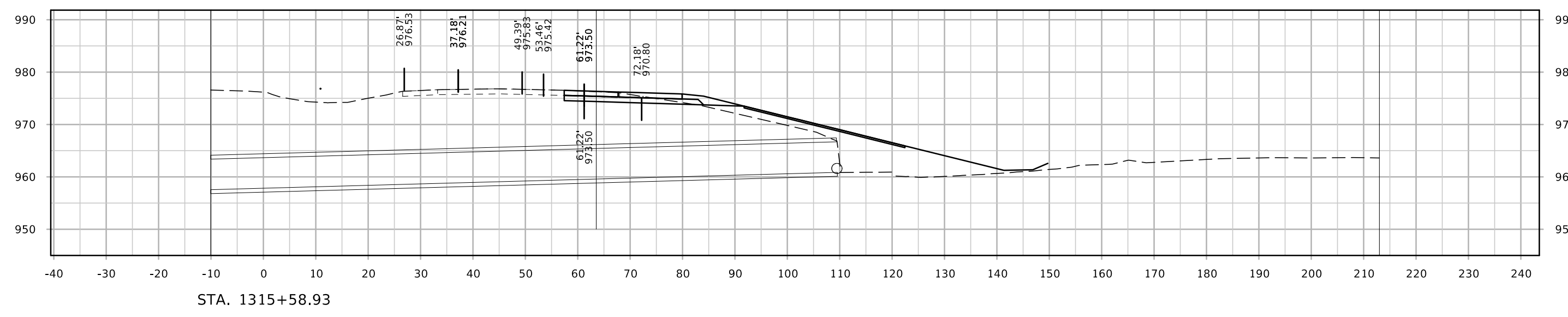
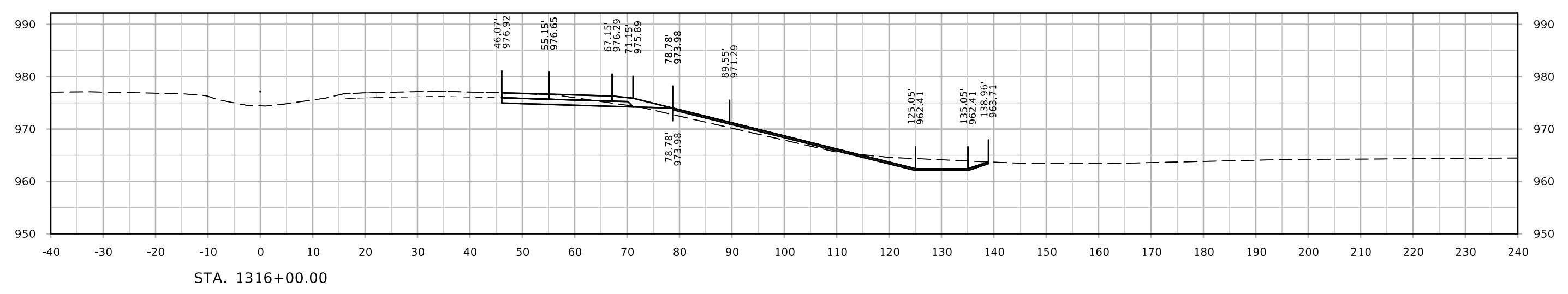
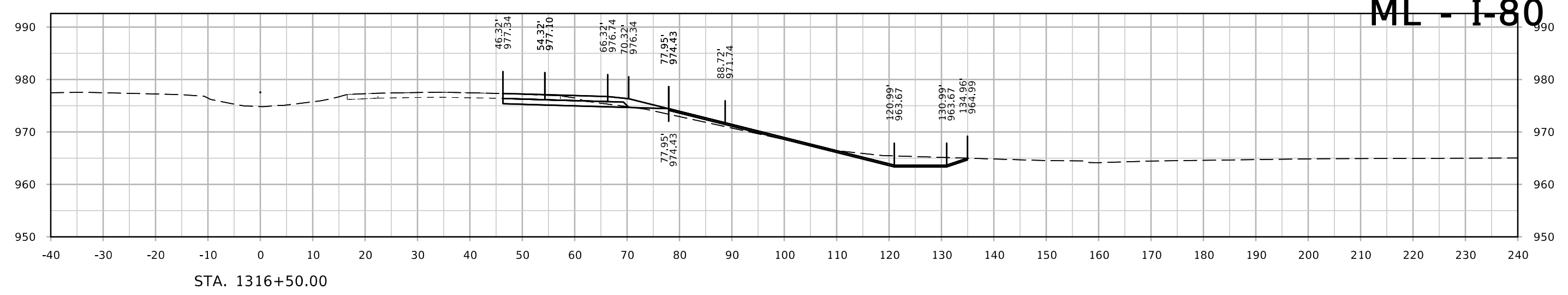
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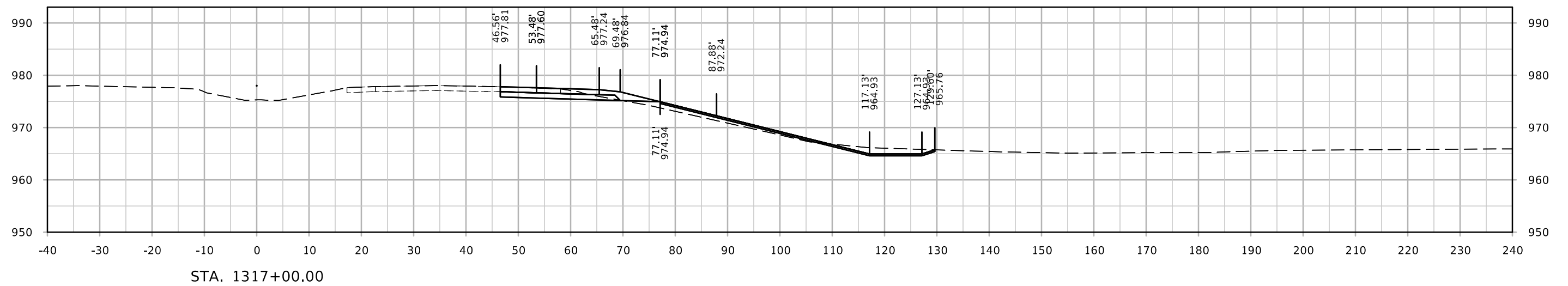
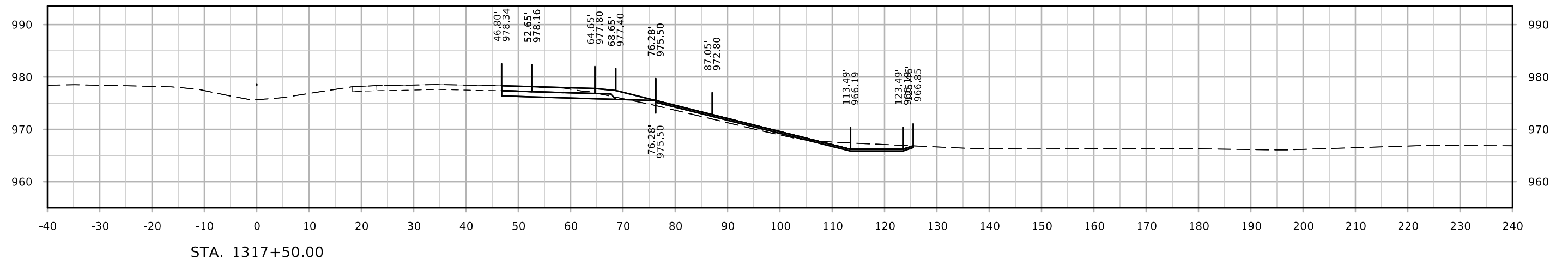
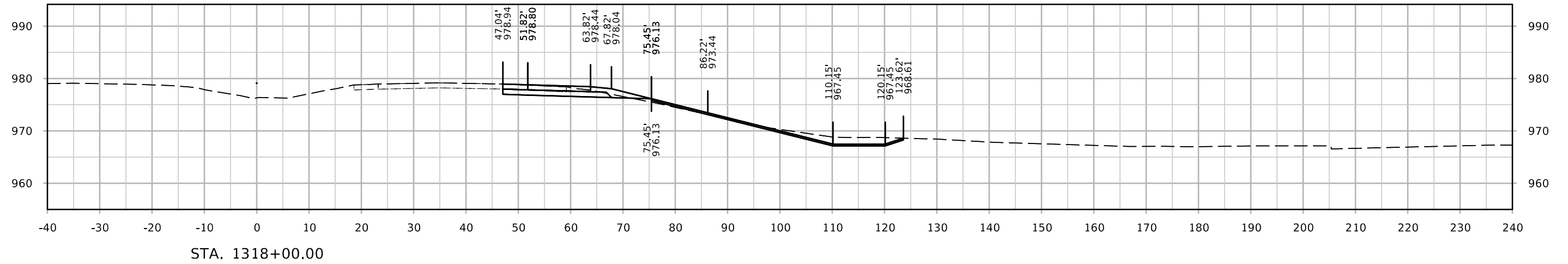
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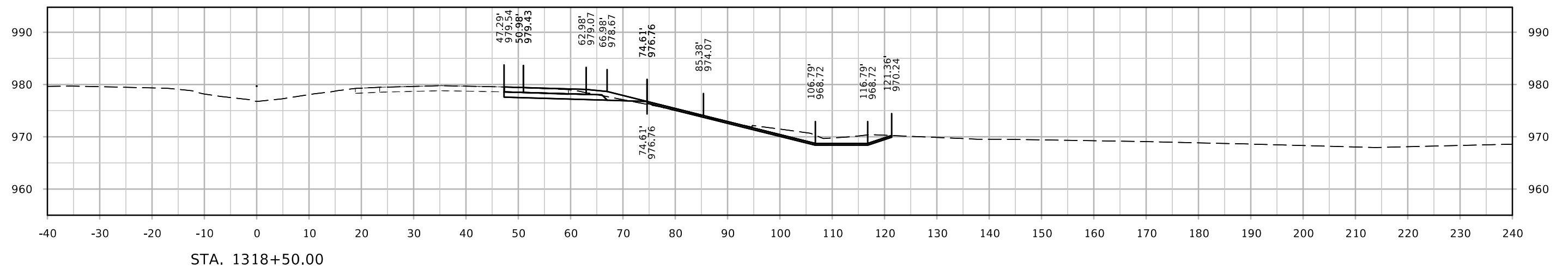
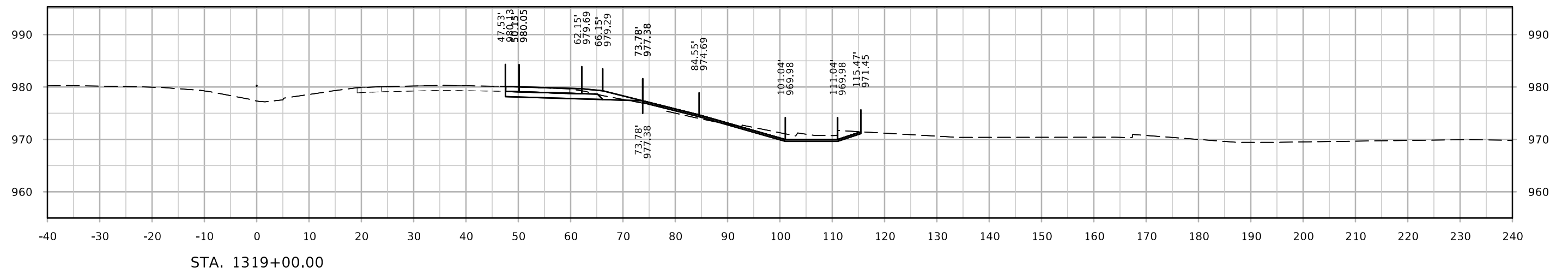
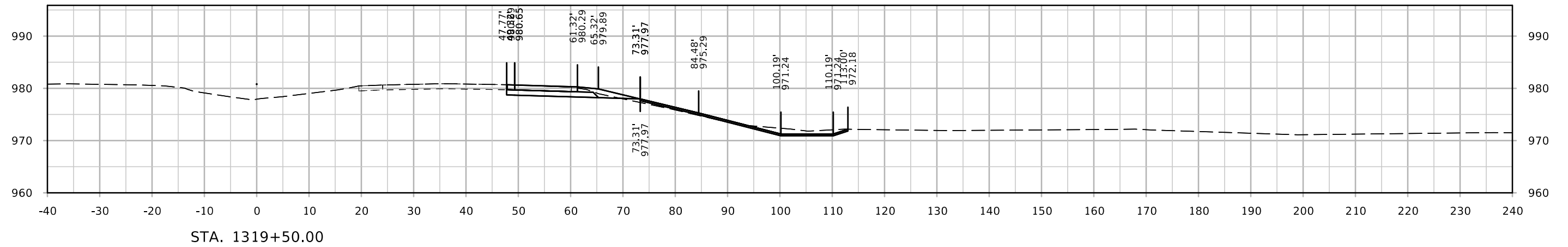
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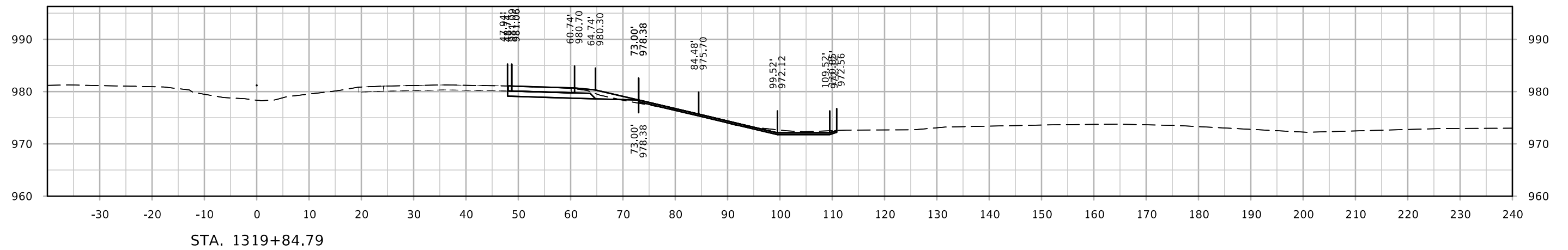
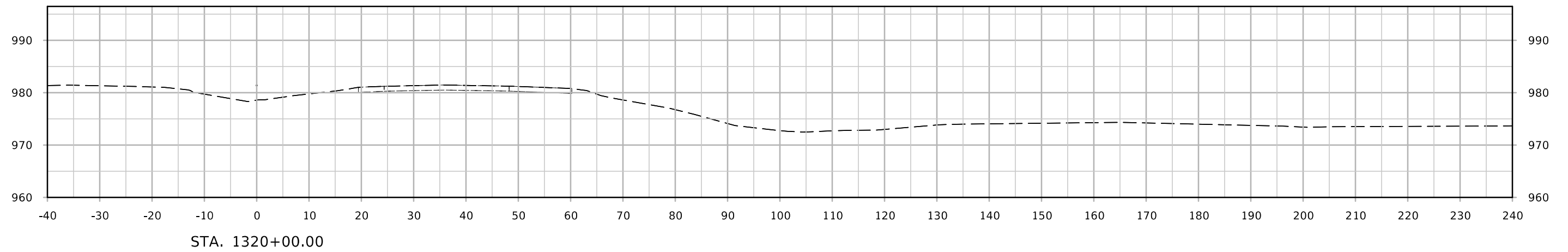
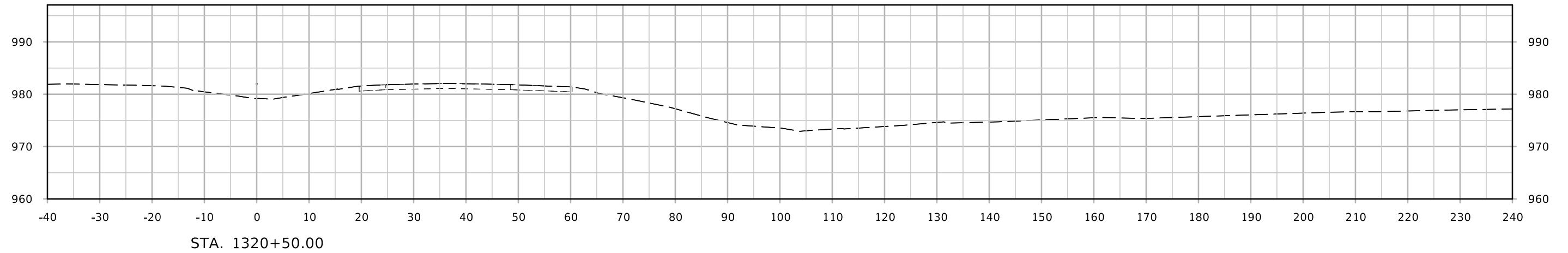
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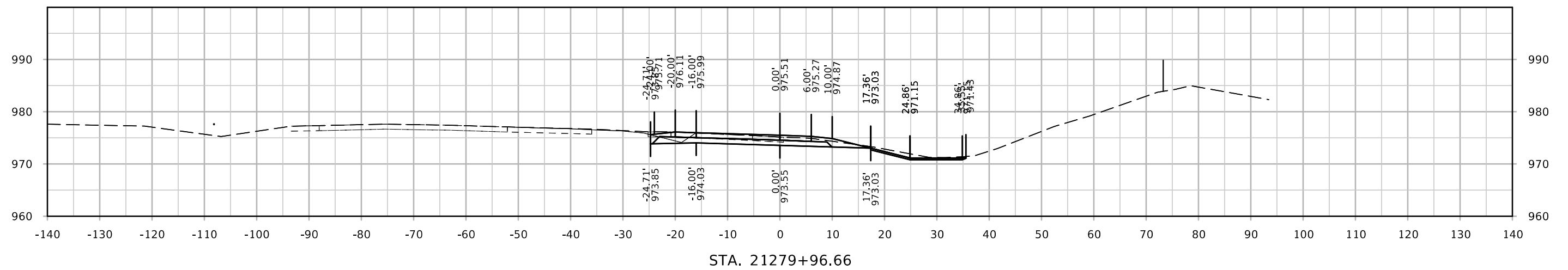
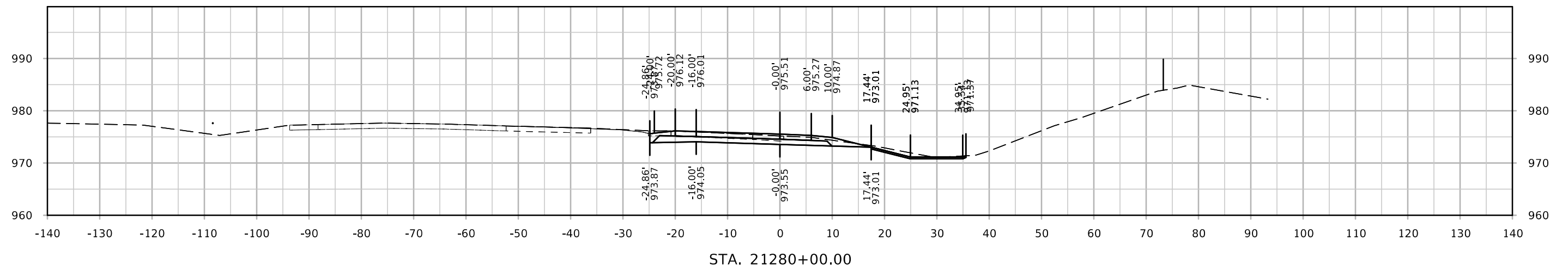
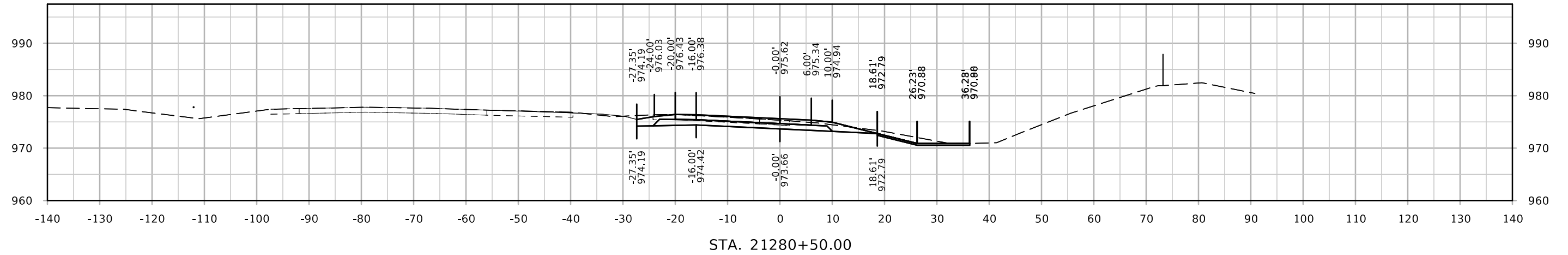
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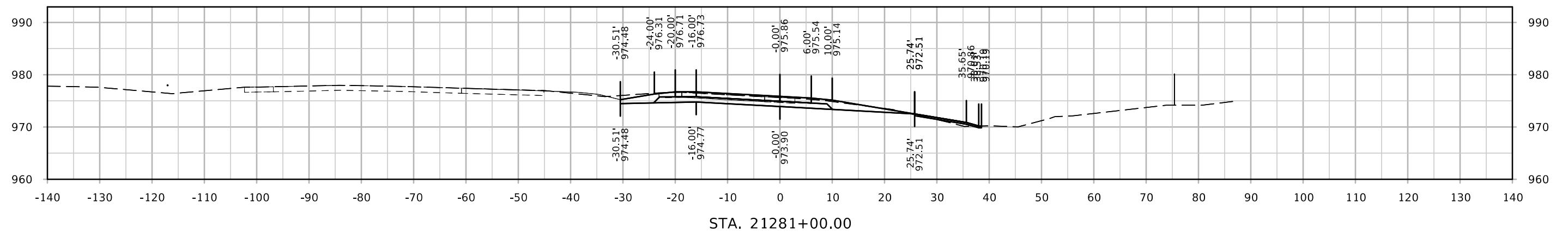
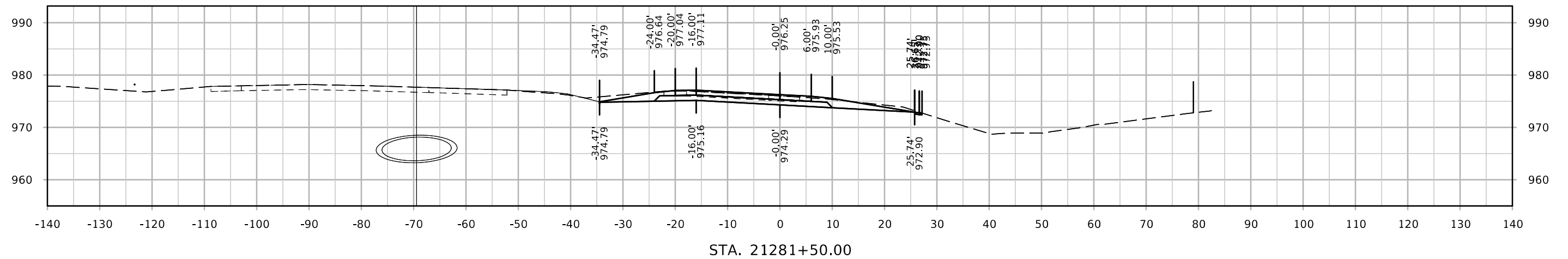
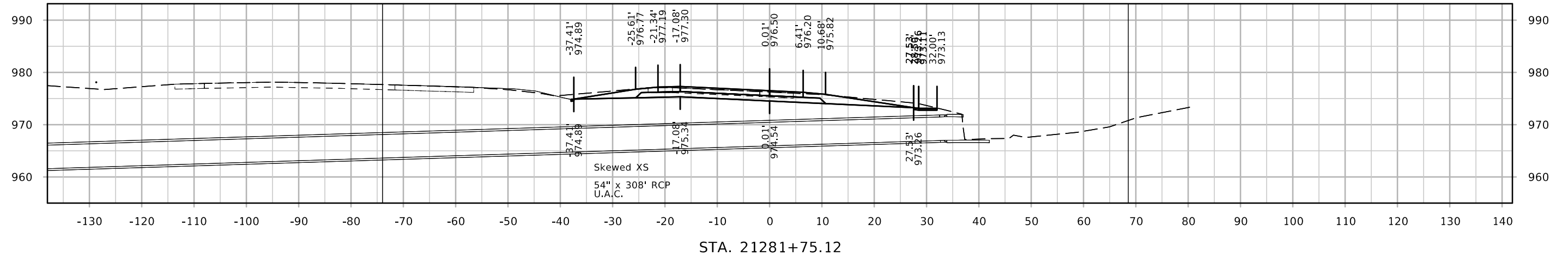
ML - I-80



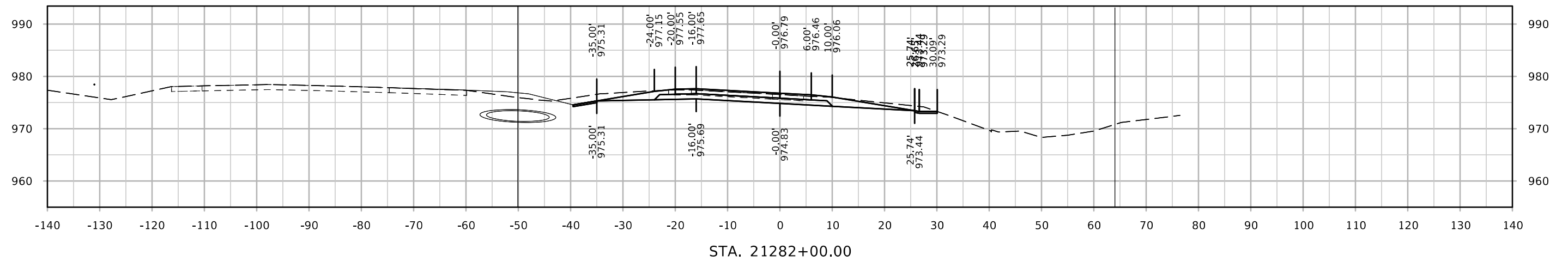
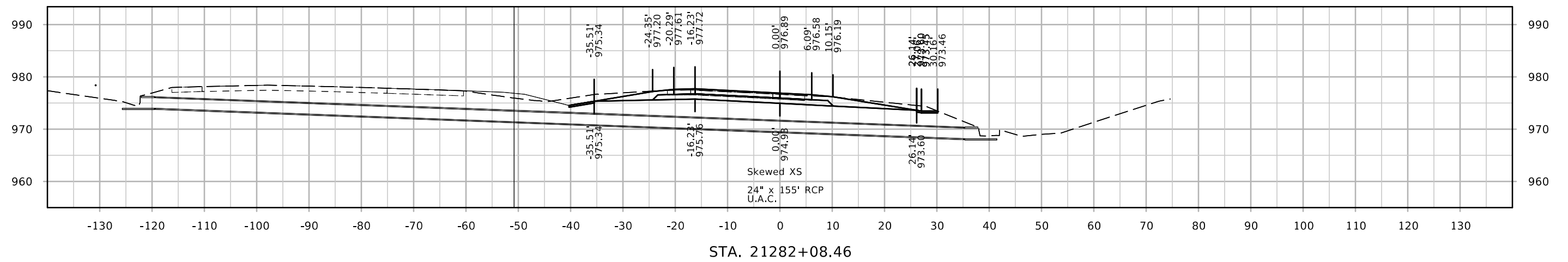
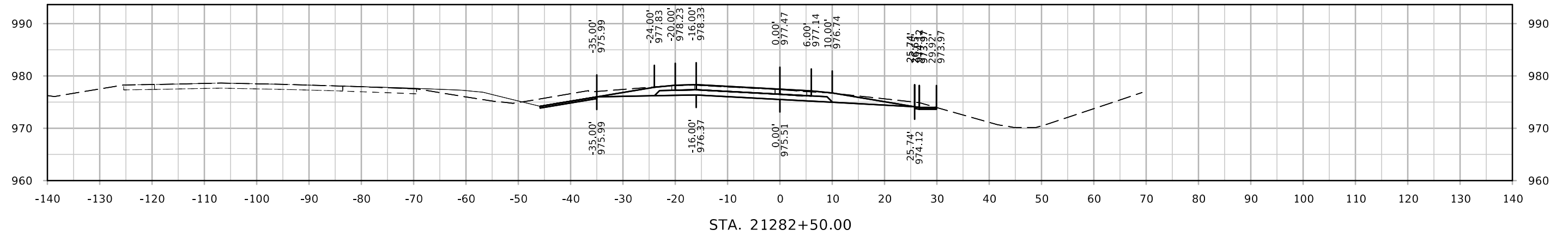
Ramp B 60th St



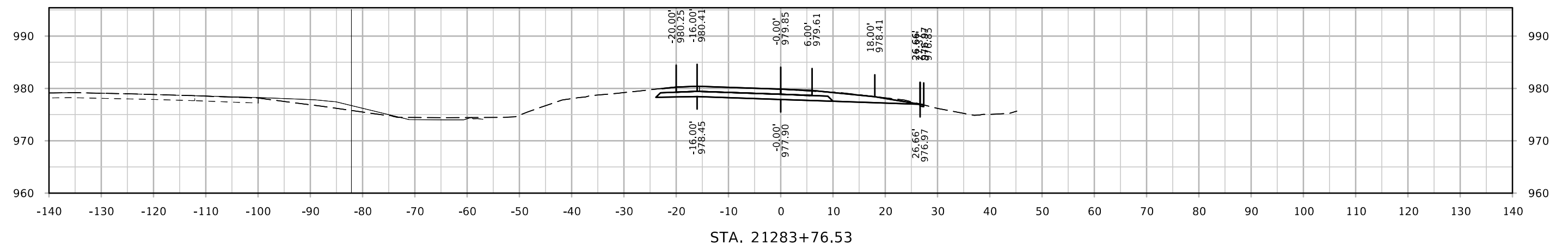
Ramp B 60th St



Ramp B 60th St

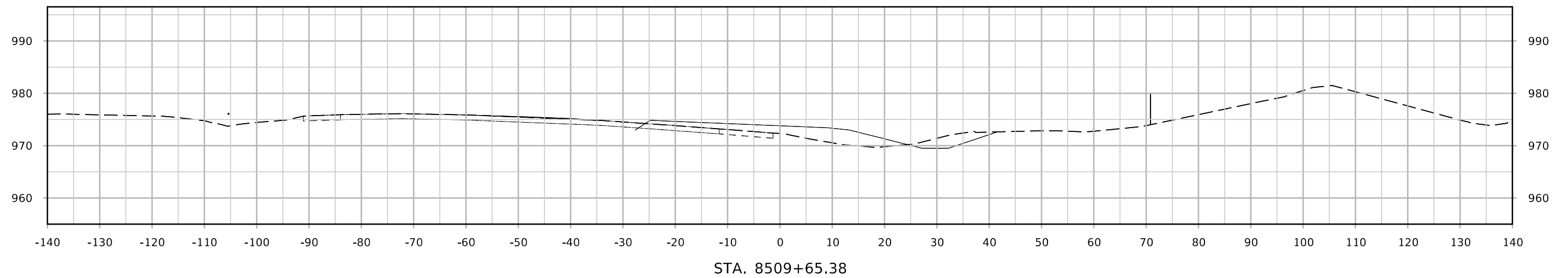
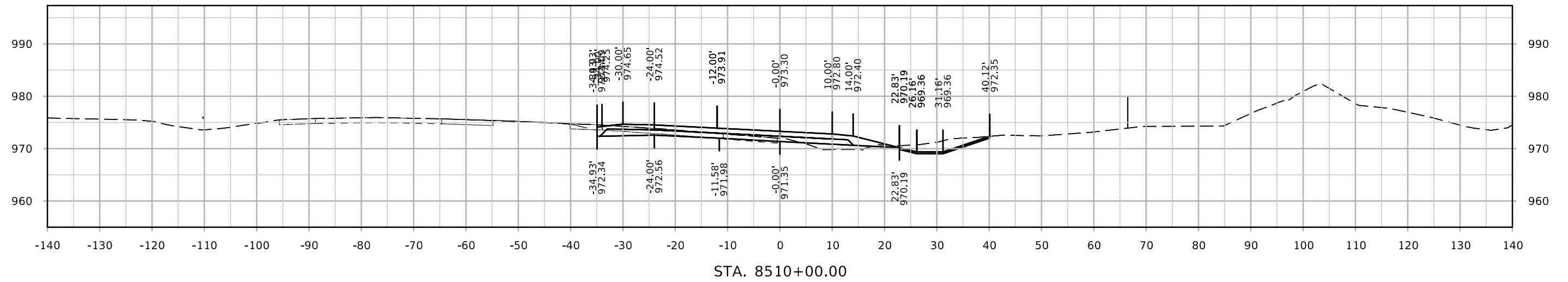
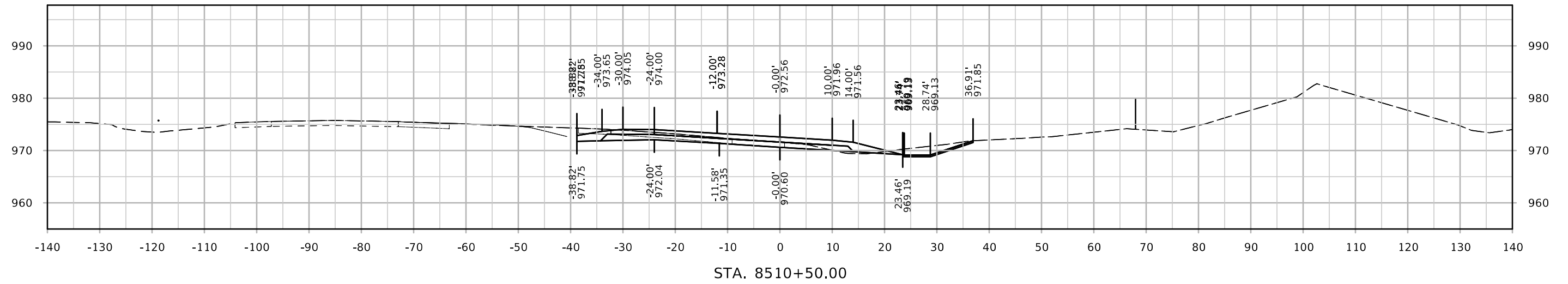


Ramp B 60th St

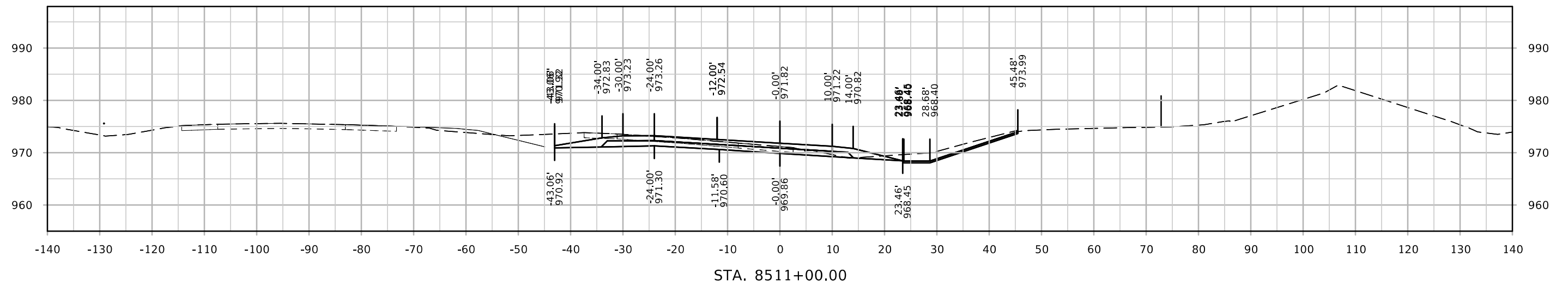
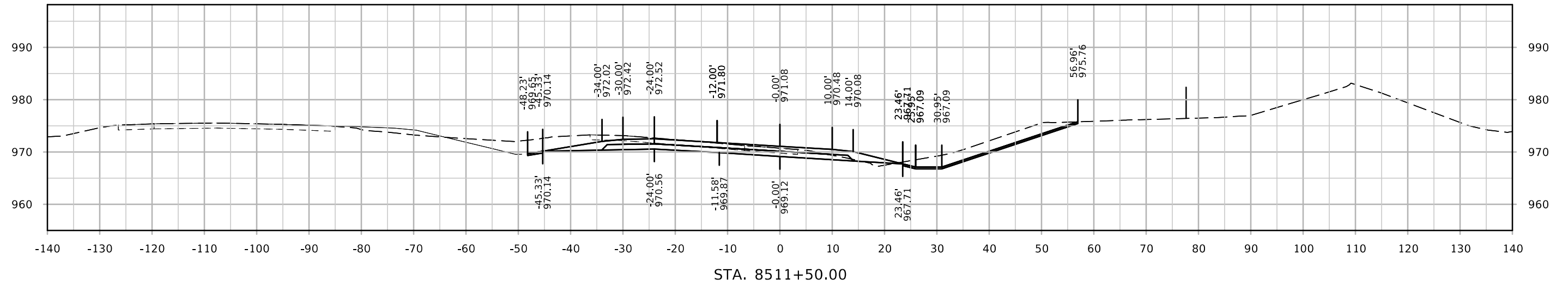
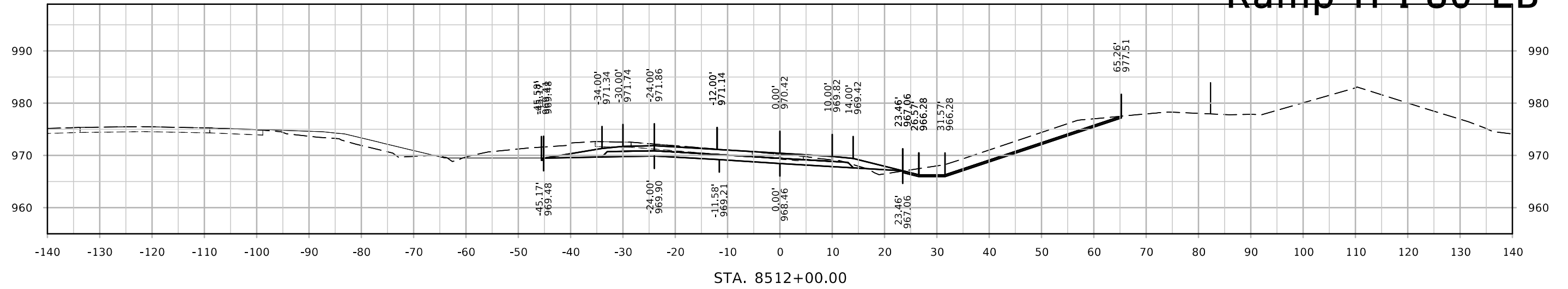


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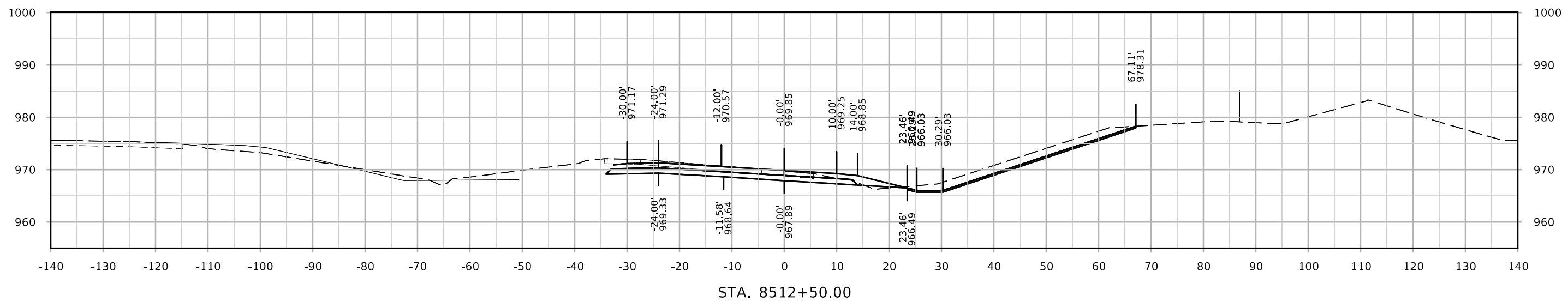
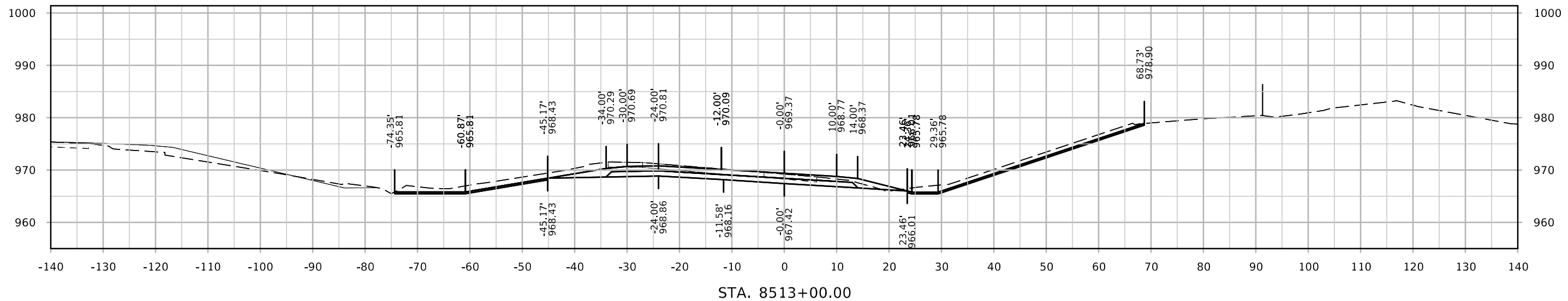
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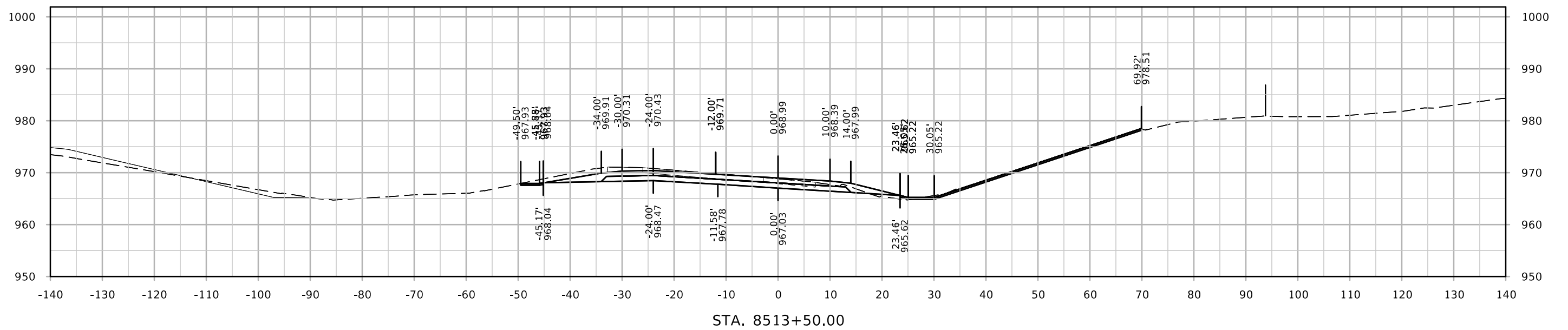
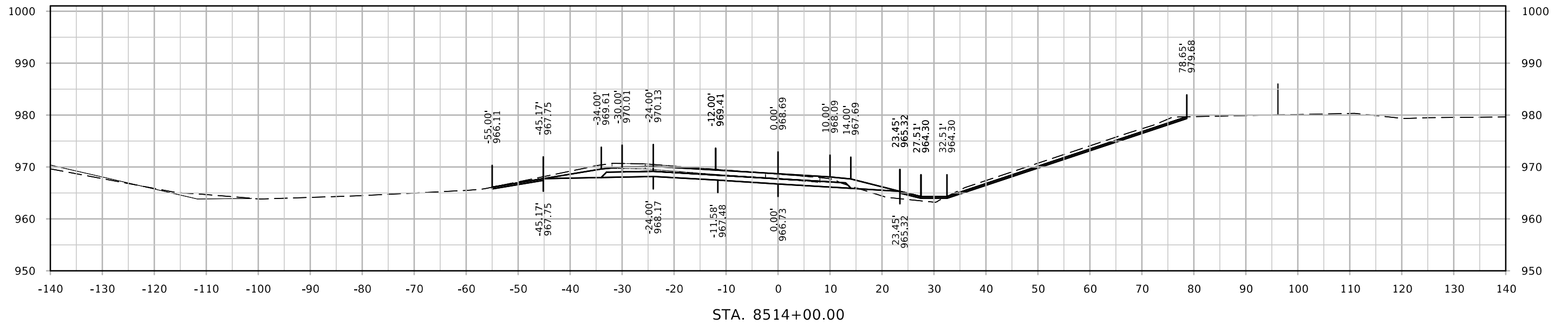
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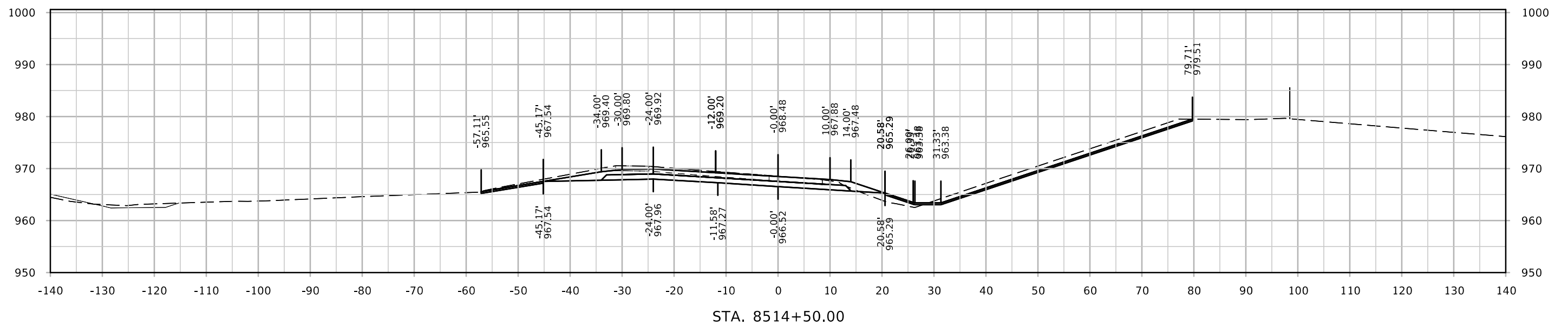
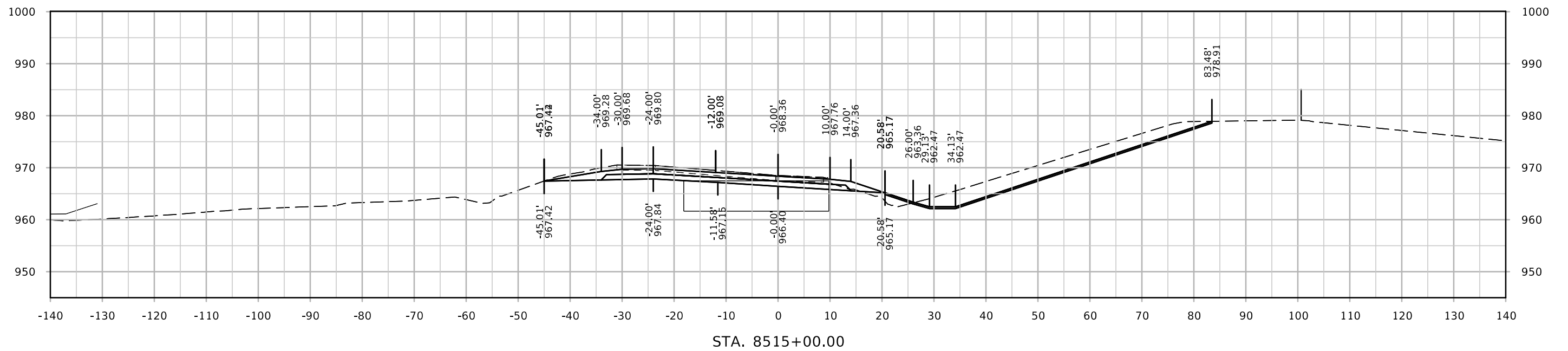
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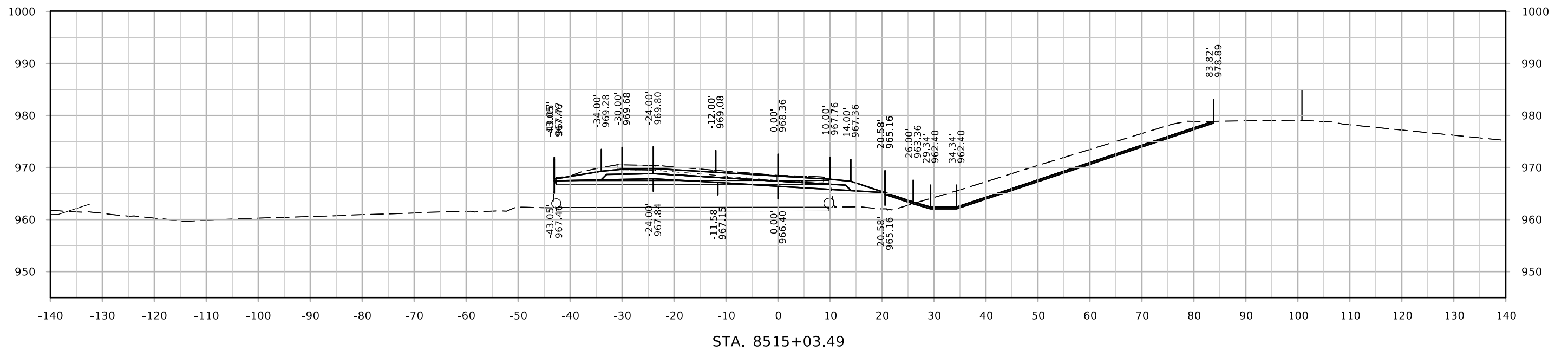
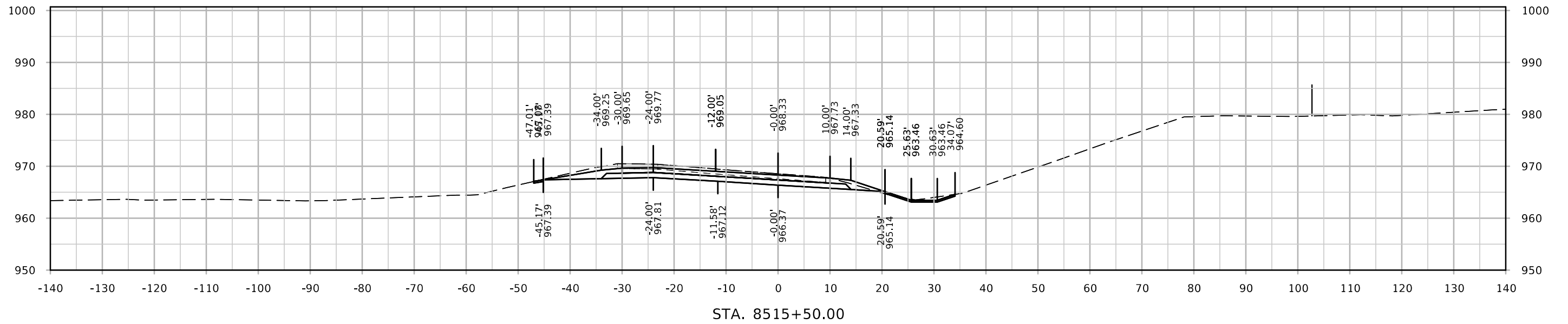
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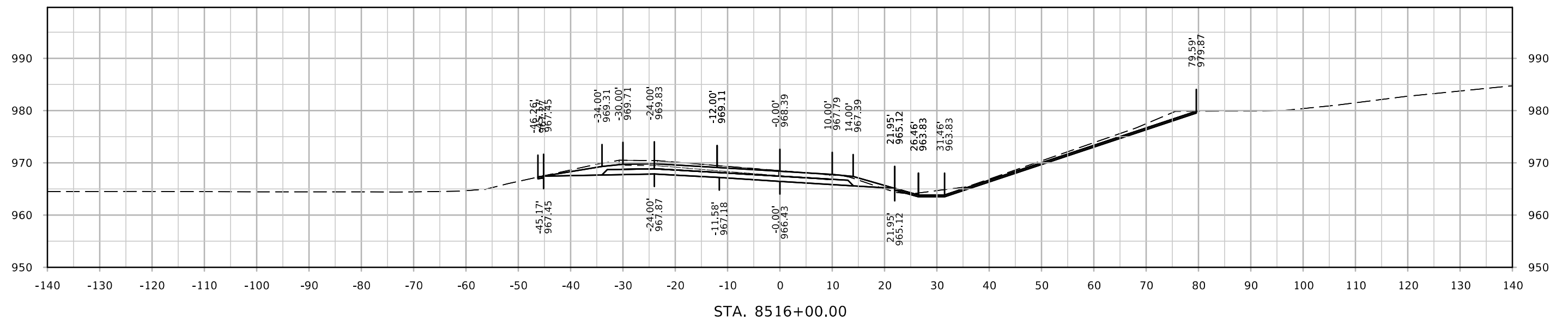
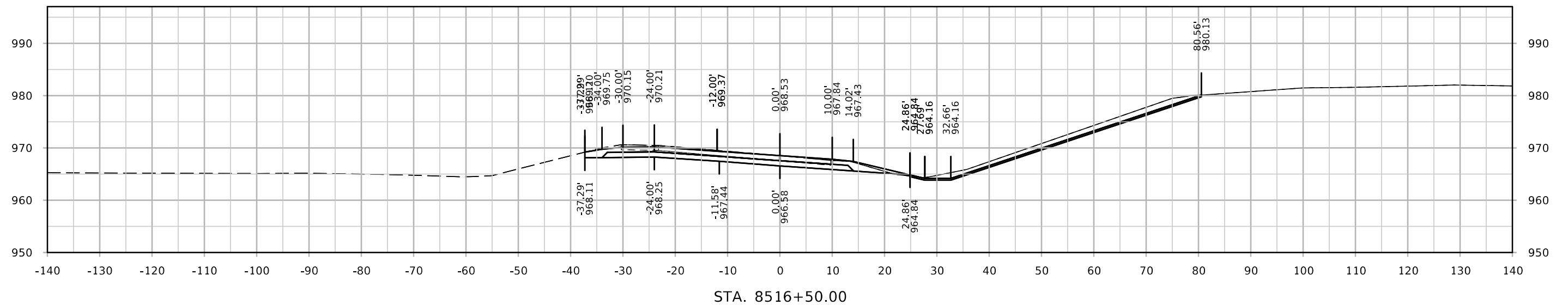
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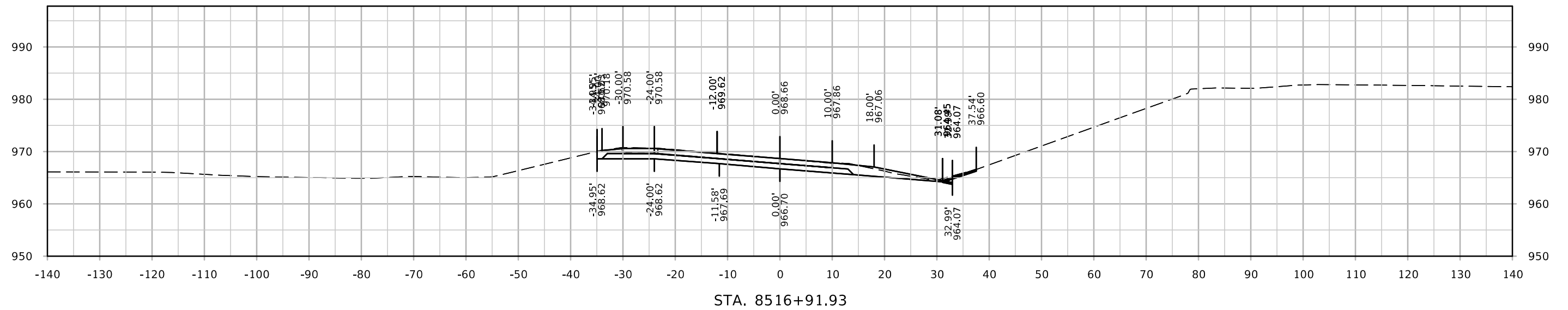
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Ramp H I-80 EB



STA. 8516+91.93