LETTING DATE 10/17/2023

Bridges and Approaches-PPCB
BRF-003-6(69)--38-09

BREMER Co.

IOWA DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

BREMER COUNTY

Bridges and Approaches-PPCB

Cedar River 3.7 mi E of US 218 in Waverly

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
18-09-003-010
PROJECT NUMBER
BRF-003-6(69)--38-09
R.O.W. PROJECT NUMBER
NHSN-003-6(70)--2R-09

H Sheets

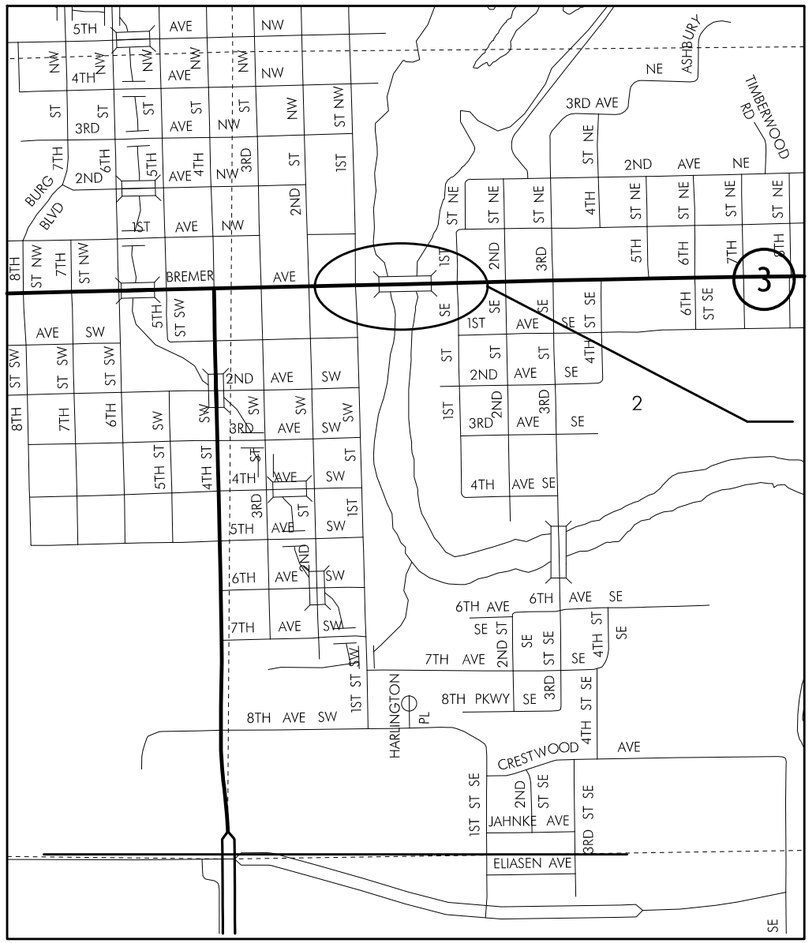
IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.

INDEX OF SHEETS

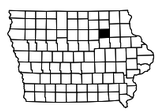
R–14W

T–92N

T–91N



PROJECT LOCATION



LOCATION MAP SCALE
0 0.1 0.2 0.3
Miles

DESIGN DATA URBAN			
2023	AADT	13,600	V.P.D.
2043	AADT	15,700	V.P.D.
2043	DHV	1,620	V.P.H.
TRUCKS		3% / 4%	%
Total Design ESALs			

PRELIMINARY PLANS

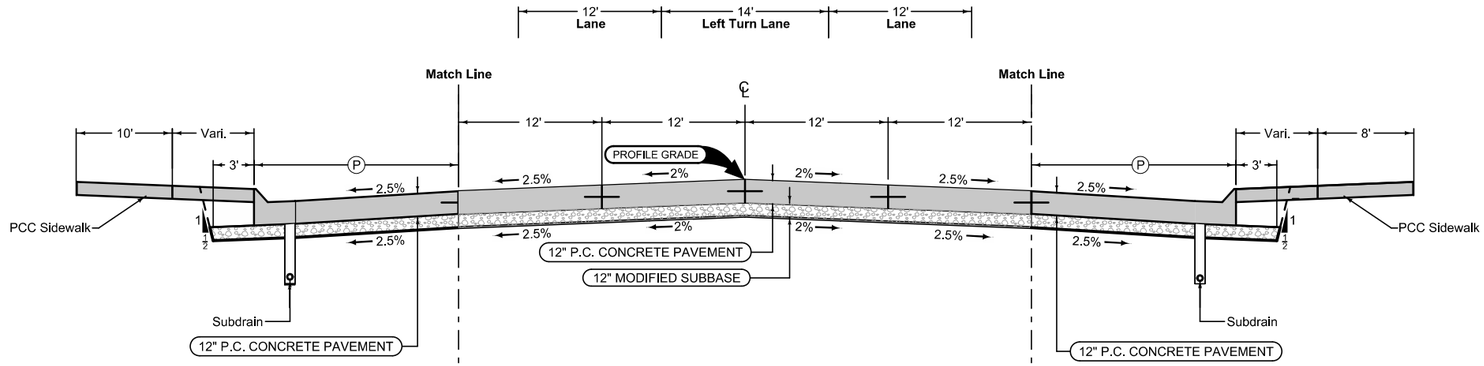
Subject to change by final design.

D5 PLAN – Date: 3/21/2022

FILE NO.	ENGLISH	DESIGN TEAM Strum \ Bennett	BREMER COUNTY	PROJECT NUMBER BRF-003-6(69)--38-09	SHEET NUMBER A.1

9:30:30 AM 3/28/2022 mbenne2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\0900301018\Design\CADD_Files\Sheet_Files\SHT_09003069Z05_A01.dgn

Lane Configuration



Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse: C at 17' spacing

			2_Curb_ 04-21-20
STATION TO STATION		(P) Feet	Curb Type See PV-102
137+97.42	138+37.42	9.5 - 3.0	6" Std.
138+37.42	138+67.42	3.0	6" Std.
142+19.58	142+49.58	3.0	6" Std.
142+49.58	142+89.58	3.0 - 9.5	6" Std.

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

4UP_ 04-21-20	
STATION TO STATION	
137+97.42	138+67.42
142+19.58	142+89.58

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse: C at 17' spacing

			2_Curb_ 04-21-20
STATION TO STATION		(P) Feet	Curb Type See PV-102
137+97.42	138+37.42	9.5 - 3.0	6" Std.
138+37.42	138+67.42	3.0	6" Std.
142+19.58	142+49.58	3.0	6" Std.
142+49.58	142+89.58	3.0 - 9.5	6" Std.

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

IA 3

SURVEY SYMBOLS

- BCL, Bridge Centerline
- BCL, Bridge Centerline
- BD, Bridge Deck
- BD, Bridge Deck
- BL, Topo Breakline
- BL, Topo Breakline
- BLD, Building or Foundation
- BLD, Building or Foundation
- BLS, Bridge Low Steel
- BLS, Bridge Low Steel
- BM, Bench Mark
- BRG, Bridge
- BRG, Bridge
- C, Centerline BL of Road -ML or SR
- C, Centerline BL of Road -ML or SR
- CON, Concrete or A/C Slab
- CON, Concrete or A/C Slab
- CP, Control Point
- CU, Back of Curb
- CU, Back of Curb
- DTM, Photogrammetry Elv Control Check
- EL1D, Electric Line Co. 1 - Quality D
- EL1D, Electric Line Co. 1 - Quality D
- ENT, Centerline BL of Entrance
- ENT, Centerline BL of Entrance
- FENO, FENO Monument
- FHD, Fire Hydrants
- FO1D, Fiber Optic Co. 1 - Quality D
- FO1D, Fiber Optic Co. 1 - Quality D
- FO2D, Fiber Optic Co. 2 - Quality D
- FO2D, Fiber Optic Co. 2 - Quality D
- GL1D, Gas Line Co. 1 - Quality D
- GL1D, Gas Line Co. 1 - Quality D
- GR, Ground Shot
- GU, Gutter In Front of Curb
- GU, Gutter In Front of Curb
- GV, Gas Valve
- IN, Storm Sewer Intake
- LIN, Miscellaneous Line
- LIN, Miscellaneous Line
- LUM, Luminaire
- MH, Utility Access -Manhole
- OUT, Tile Outlet
- PCP, Photo Control Point
- PIP, Pipe Culvert
- PIP, Pipe Culvert
- PLG, Location of General Photo
- PRO, Profile Shot
- SA1D, Sanitary Sewer Co. 1- Quality D
- SA1D, Sanitary Sewer Co. 1- Quality D
- SBR, Size of Bridge
- SI, Sign
- ST1D, Storm Sewer Co. 1 - Quality D
- ST1D, Storm Sewer Co. 1 - Quality D
- SWK, Sidewalk
- SWK, Sidewalk
- TL1D, Telephone Line Co. 1 - Quality D
- TL1D, Telephone Line Co. 1 - Quality D
- TOP, Top of Bridge Pier
- TOP, Top of Bridge Pier
- TSG, Traffic Signal
- TW, Top of Water
- WL1D, Water Line Co. 1 - Quality D
- WL1D, Water Line Co. 1 - Quality D
- WV, Water Valve

UTILITY LEGEND

SURVEYED UTILITY OWNER SYMBOLS

Sub-Surface Utility Mapping Quality Level is in accordance with CI/ASCE 38-02 Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data.

Remark Abbreviations
QLA Quality Level A Highest guideline quality level
QLD Quality Level D Lowest guideline quality level

- EL1D, Electric Line City of Waverly - Quality D
- FO1D, Fiber Optic City of Waverly - Quality D
- FO2D, Fiber Optic Century Link - Quality D
- GL1D, Gas Line MidAmerican - Quality D
- SAID, Sanitary Sewer City of Waverly- Quality D
- ST1D, Storm Sewer City of Waverly - Quality D
- WL1D, Water Line City of Waverly - 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
- FARM — 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
- C/A — Access Control
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

FILE NO. 32053	ENGLISH	DESIGN TEAM Strum / Bennett	BREMER COUNTY	PROJECT NUMBER BRF-003-6(69)--38-09	SHEET NUMBER D.01	REVISED

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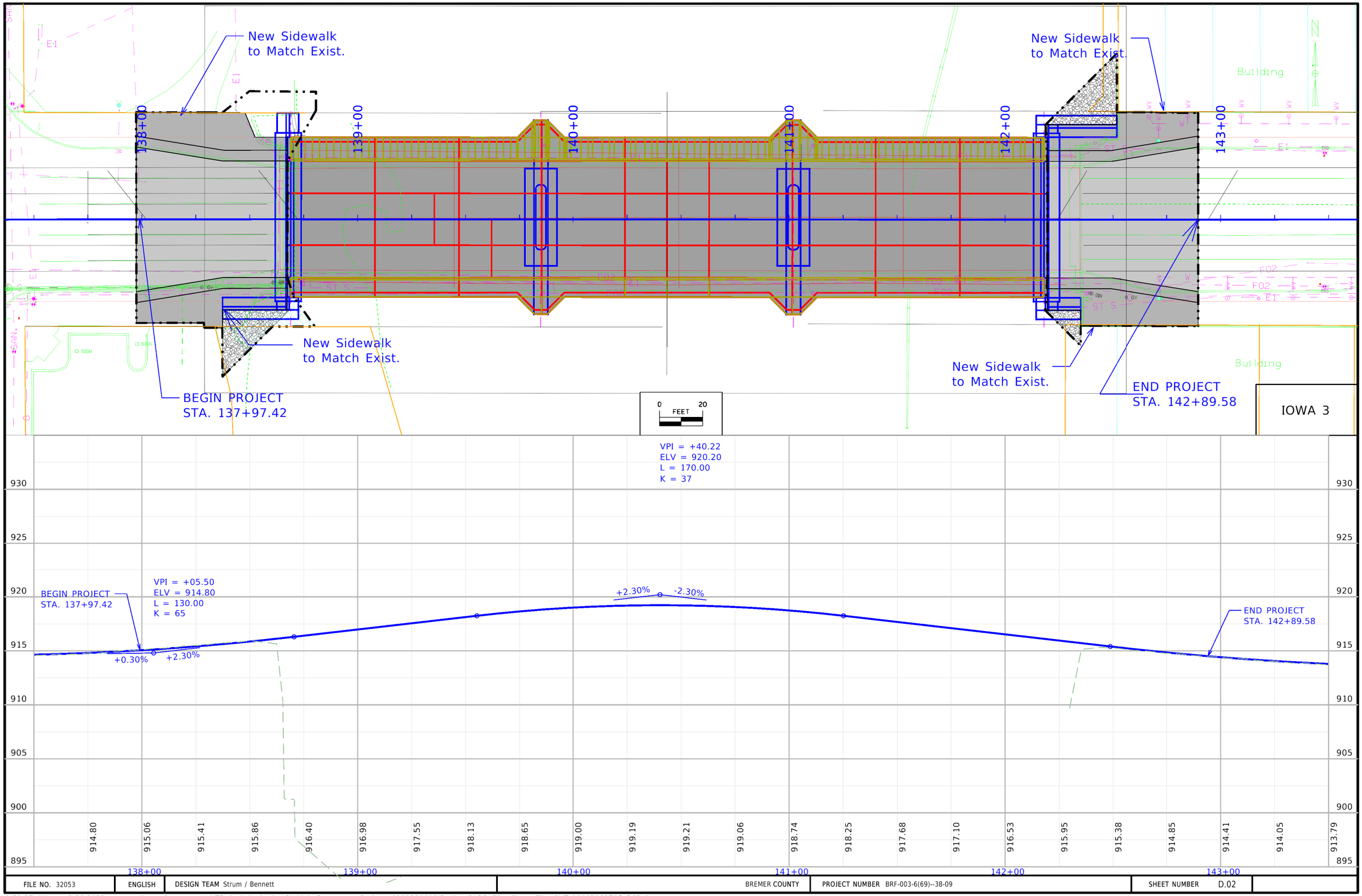

FILE NO. 32053	ENGLISH	DESIGN TEAM Strum / Bennett		BREMER COUNTY	PROJECT NUMBER BRF-003-6(69)--38-09	SHEET NUMBER D.02

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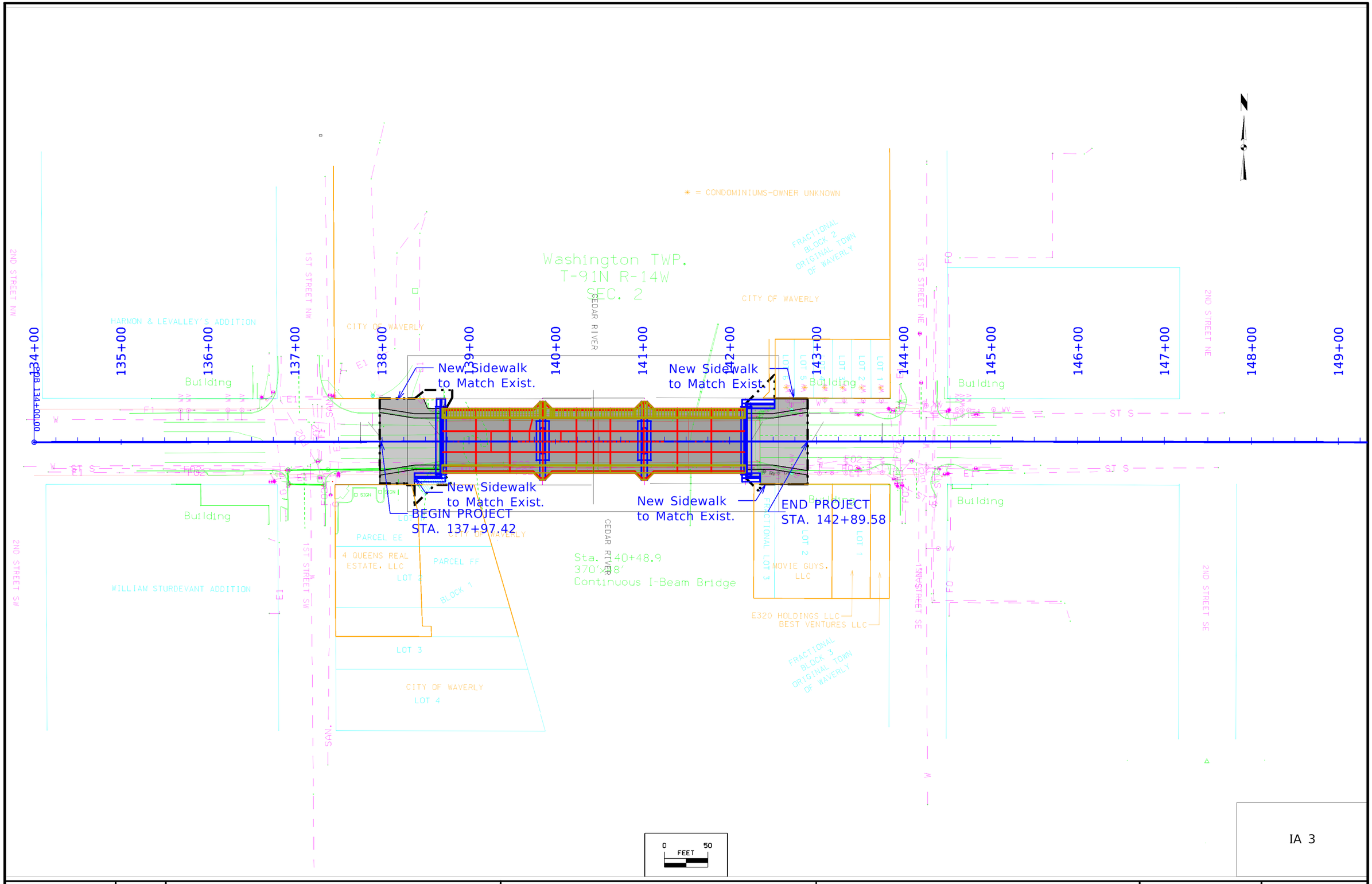

IA 3

FILE NO.	ENGLISH	DESIGN TEAM Strum / Bennett	BREMER COUNTY	PROJECT NUMBER BRF-003-6(69)--38-09	SHEET NUMBER D.03

9:02:25 AM 3/30/2022 mbenne2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\0900301018\Design\CADD_Files\Sheet_Files\SHT_09003069Z05_D03.dgn

Bremer County
BRF-003-6(69)—38-09
Cedar River 3.7 mi E of us 218 in Waverly
Bridge-Unspecified
PIN 18-09-003-010
Sap-588.2

Party Personnel

Jason Page- Survey Party Chief
John Hahn- Assistant Survey Party Chief

Date(s) of Survey

Begin Date	08/08/2019
End Date	03/01/2020

General Information

Measurement units for this survey are US survey feet. This survey is for proposed replacement of the IA 3 bridge over the Cedar River in Waverly. Project datum and control information is provided by Design Survey Office. This project is a Full DTM with Photo control. This survey request was for the IA 3 and 3rd St river corridors.

Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12b). GRS80 Ellipsoidal Height was computed at project control Pts. CP1, CP2, B 30 and WAVERLY by conducting one concurrent six-hour static observation. Additional benchmarks were placed throughout the project using a GNSS Base-Rover setup relative to Pt. CP1, WAVERLY and Pt. CP2. Two observations with a minimum of four-hours between were collected and used in a weighted average.

This survey observed 2 NGS Control Monuments with published NAVD88 heights to compare to local ground control:

NGS 2nd. order class 0 mark designated B 30 has a published Elev. of 936.69
Survey Elev. = 936.62

NGS 2nd. order class 0 mark designated WAVERLY has a published Elev. of 918.53
Survey Elev. = 918.46

This survey observed 2 As-Built plan bench marks to compare to local ground control:

BM 121 As-built Plans Project U-88(6) Elev. 944.02 =
BM 505 As-built Plans Project NHSN-003-6(63)—2R-09 Elev. 942.14
BM 501 this Survey Elev. = 942.08

BM 514 As-built Plans Project NHSN-003-6(63)—2R-09 Elev. 918.77
BM 506 this Survey Elev. = 918.69

Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 5 (U.S. 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 conducting one concurrent six-hour static observation at project control Pts. CP1, CP2, B 30 and WAVERLY. Additional control points were placed throughout the project using a GNSS Base-Rover setup relative to Pt. CP1, WAVERLY and Pt. CP2. Two observations with a minimum of four-hours between were collected and used in a weighted average.

Alignment Information

The horizontal alignment for this survey is a retrace of As-built Plans Project No. NHSN-003-6(63)—2R-09. Survey stationing was equated to the plan PI at Sta. 134+00.00 and run ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

PI Sta. 134+00.00 As-built Plans Project No. NHSN-003-6(63)—2R-09
Survey PI Sta. 134+00.00

PI Sta. 138+57.90 As-built Plans Project No. NHSN-003-6(63)—2R-09
Survey PI Sta. 138+57.89

PI Sta. 142+35.88 As-built Plans Project No. NHSN-003-6(63)—2R-09
Survey PI Sta. 142+36.03

PI Sta. 144+17.46 As-built Plans Project No. NHSN-003-6(63)—2R-09
Survey PI Sta. 144+17.47

PI Sta. 157+40.86 As-built Plans Project No. NHSN-003-6(63)—2R-09
Survey PI Sta. 157+40.81

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
Ia. Regional Coordinate System Zone 2

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) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 2

Project Control Marks are Bench Marks

Point Name	Northing	Easting	Elevation	Feature Code-Descriptions
CP1	8927867.402	15440475.46	913.6	FENO SET MON 175 FT NORTH OF IOWA 3 AND 135 FT EAST OF 1ST ST NW 5 FT SW OF SIDEWALK INTERSECTION AND 32 FT WEST OF CONC FLOOD WALL
CP2	8925795.342	15442028.1	895.79	FENO SET MON IN BROOKWOOD PARK 380 FT NORTH OF 6TH AVE SE AND 300 FT EAST OF 3RD ST SE STEELL TRUSS BRIDGE 45 FT SE OF S BANK CEDAR RIVER AND 44 FT WEST OF DISK GOLF BASKET AND 43 FT NW OF GRAVEL PARK DRIVE
WAVERLY	8928036.156	15441684.47	918.46	CP FD NGS SECOND ORDER CLASS 0 BM 35FT S OF CL OF 1ST AVE NE 32FT W OF CL OF 3RD ST NE PROJECTING 2IN ABOVE GROUND

Washington TWP.
T-91N R-14W
SEC. 2

CEDAR RIVER

1
CITY OF WAVERLY

TEMPORARY EASEMENT
TO SHAPE

138+48.00
℄64'

138+34.00
℄49'±Ex.R/W

138+86.00
℄64'

138+00
139+00
140+00
141+00
142+00
143+00

1
CITY OF WAVERLY

142+45±P
℄80'

142+45±P
℄57.29'

142+38±P
℄50.14'

142+52±P
℄80'

DO NOT DISTURB
BUILDING

LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
Building

138+34±P
℄49.67'

138+40±P
℄76'

138+85.00
℄50'±Ex.R/W

TEMPORARY EASEMENT
TO SHAPE

1
CITY OF WAVERLY

PARCEL EE
PARCEL FF
LOT 1
LOT 2
BLOCK 1

CEDAR RIVER

142+28±P
℄61'

142+34.00
℄61'

DO NOT DISTURB
BUILDING

2
MOVIE GUYS, LLC

FRACTIONAL LOT 3
LOT 1
LOT 2
Building

0 20
FEET

Right of Way Design Information

THIS SHEET INCLUDED
FOR INFORMATION ONLY

ROW Team: CARMAN / LARSON
ROW #: NHSN-003-6(70)--2R-09
Plan Date: 04/27/2022
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM		COUNTY	PROJECT NUMBER	SHEET NUMBER H.1	

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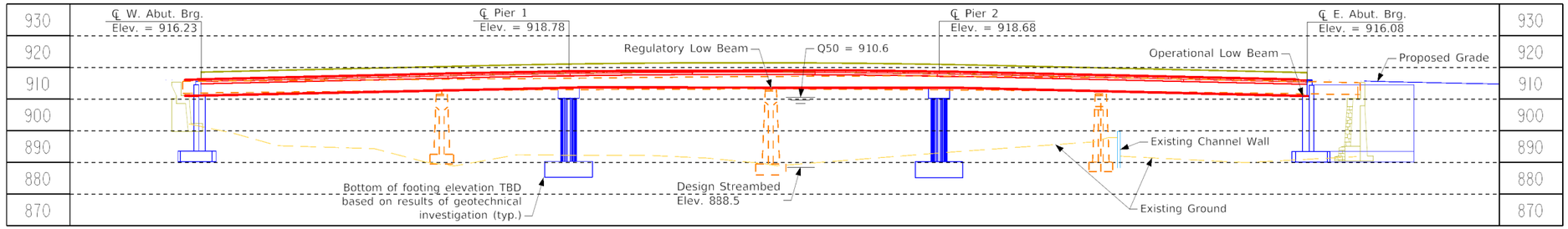
Control Point: CP1
Northing: 8927867.402 Easting: 15440475.46, Elev. 913.60
Feno set mon 175 ft north of iowa 3 and 135 ft east of 1st st nw, 5 ft sw of sidewalk intersection and 32 ft west of conc flood wall.



VPI Sta. = 138+05.50
VPI Elev. = 914.80
VC = 130.00'

VPI Sta. = 142+48.72
VPI Elev. = 915.40

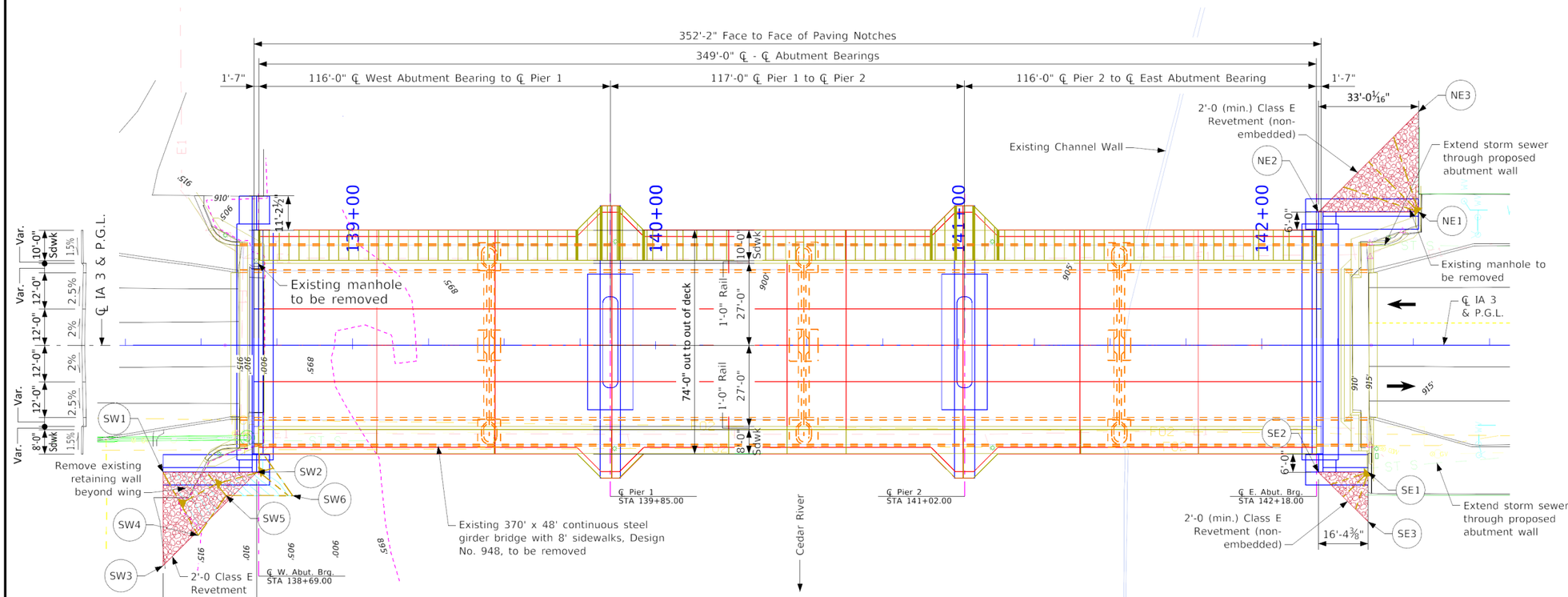
g1= +0.30% g2= +2.30% g3= -2.30%

VPI Sta. = 140+40.22
VPI Elev. = 920.20
VC = 170.00'

Proposed ProfileGrade IA3

LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY

Notes:
Top of bridge deck crown '0.03' below profile grade.
Class E revetment stone is either embedded or non-embedded as shown. See details on Design Sheet 2.



SITUATION PLAN

Grading and Revetment Table

Points	West Abutment			Points	East Abutment		
	Station	Offset	Elev.		Station	Offset	Elev.
SW1	138+37.35	42.00' Rt.	915.7	NE1	142+51.72	44.00' Lt.	893.7
SW2	138+68.33	42.00' Rt.	902.5	NE2	142+18.67	44.00' Lt.	893.7
SW3	138+37.35	72.98' Rt.	916.0	NE3	142+51.72	77.05' Lt.	905.3
SW4	138+48.92	62.86' Rt.	915.7	SE1	142+35.03	42.00' Rt.	891.8
SW5	138+58.25	49.73' Rt.	910.0	SE2	142+18.67	42.00' Rt.	891.8
SW6	138+80.20	49.75' Rt.	902.5	SE3	142+35.03	58.36' Rt.	897.5

Hydraulic Data

Drainage Area = 1560 sq. mi.
HGL downstream of bridge = 2 ft/mi
Avg. Low Water Stage = 894.5

Q25 = 33,900 cfs
Stage = 909.1

Q50 = 39,800 cfs
Stage = 910.6
Regulatory Low Beam = 913.97

Q100= 45,300 cfs
Stage = 911.7
Operational Low Beam = 910.87
Backwater = 0.1 ft.
Avg. Bridge Velocity = 6.8 fps

Q overtop= 49,500 cfs
Avg. Bridge Velocity = 7.2 fps
* Calc. Design and Check Scour:
West Abut. = 882.1
Pier 1 = 873.5
Pier 2 = 873.5
East Abut. = 867.5

Roadway Overtop 913.4
STA. 144+00

Q200 = 53,500 cfs
Q500 = 59,100 cfs

Extreme HW Stage = est. 914
Date = June 2008

City of Waverly F.I.S. LOMR
Dated 10-24-2014 Datum = NAVD88
is the same as the project datum.

* The project design and check scour will be limited by the elevation to competent rock.

Location

IA 3 over Cedar River
City of Waverly, Iowa
Section 2, T-91N R-14W
Washington Township
Bremer County
FHWA No. 15571
Bridge Maint. No. 0921.4S003
Latitude 42.725777°
Longitude -92.470744°

Preliminary

HYDRAULIC DESIGN

LICENSED PROFESSIONAL ENGINEER
Patricia G. Schwarz
13170
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Patricia G. Schwarz 1/27/2022
Signature Date

Patricia G. Schwarz
Printed or Typed Name

My license renewal date is December 31, 2022

Pages or sheets covered by this seal: Sheets 1-2

whks
engineers + planners + land surveyors

Design For 0° Skew
349'-0 x 54'-0 PPCB Bridge W/ 10'-0 & 8'-0 Sidewalks
116'-0" End Spans 117'-0" Interior Span

Situation Plan

STA. 140+43.50 (IA 3) January, 2022

Bremer County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0323 Design Sheet No. 1 of 2 FHWA No. 015571

FILE NO. 32053	ENGLISH	DESIGN TEAM WHKS	Bremer COUNTY	PROJECT NUMBER BRF-003-6(69)--38-09	SHEET NUMBER V. 1	REVISED

10:52:12 AM 2/7/2022 bbarker c:\pw_work\pwmain\bill.barker\d1115095\OBM_09003069_WHKS_0323_15571_Z05.dgn

Final Designer Notes:

1. Bridge Aesthetics are to be applied.
2. Projected deck overlooks located over the pier ends (4 total) with possible additional structure to support City installed elements.
3. Potential elevated trail connection at SW abutment wing extension, with bearing notch and additional piles likely, configuration to be determined in final design.
4. Separation barriers 1 foot wide with bike railing (TBD). Coordinate with Bridge Bureau Methods section.
5. Aesthetic railings (possibly side mounted to deck) on the bridge and on approach, including retaining wall tie-ins.
6. Bridge-mounted street/walkway lighting and flood lighting for the nearby dam.
7. Other aesthetic features (form liners, surface treatments).
8. Existing abutments are intended to remain in place with limited removals to accommodate approach pavement. Special consideration for backfill between the proposed and existing abutments will be required.Proposed abutments and wing walls will be non-standard. Potential conflicts between proposed and existing abutment foundations and existing or proposed utility locations shall be considered.
9. T-piers are shown, but pier type shall be verified in final design.
10. A DNR Flood Plain Permit is required. Preliminary Design has submitted the application and will place the permit in the PW Regulatory_Permits subdirectory folder upon receipt.
11. For Flood Plain Permit approval, a modeled "no rise" to upstream water surface is required as compared to existing conditions. Pier width of 3.5' was used in the hydraulic model, and a clear distance of 346' was used between front faces of the high abutments. Any proposed wider pier or reduced clear distance between abutments shall be coordinated with Preliminary Bridge Design before proceeding.
12. Requirements for a State Paddling Route are applicable. Signage, plan notes, and bid items shall be addressed by the Design Bureau and included in the Road Plans.
13. BT-C Beams proposed.
14. Provide vent holes in the end span beams.
15. Coordinate with Bureau of Location and Environment regarding the need for pre-construction building survey and vibration monitoring during construction.
16. There are several utilities that will need to be accommodated across the bridge. The need for utility conduits shall be coordinated during final design.
17. IA 3 through the bridge will be closed during construction. Traffic will be maintained on an off-site detour.
18. Shallow bedrock is anticipated. Soils testing to allow for consideration of drilled shaft foundations is desired.
19. There is a potential that the 10' sidewalk on the north side of the bridge will be part of a future trail. For that reason, the sidewalk rail/fence or other details shall meet trail requirements.
20. Final design shall include needed updates to the bridge model and the Situation Plan/Situation Plan-Site/Situation Plan-Misc. plan sheets.
21. Non-standard abutment wings - A 90° angle between the abutment and abutment wings is anticipated. Effort is needed in the scope to include a determination of the wing geometry (alignment/profile/tie-in locations, etc.) Coordination with Bridge Methods and BRPrelim is required. The design geometry is desired to be added to the 3D Connect Model.
22. Evaluate use of sem-integral abutments. High concrete abutments are likely.
23. Rock excavation adjacent to pier footings and the channel side of abutment and wing footings shall be stabilized by placing a layer of reinforced concrete not less than 8" thick over the limits of rock excavation. Joint material shall be placed between this concrete stabilizing layer and the pier footings and cofferdam (if used). Alternate methods of stabilization may be considered during Final Design.

General Notes: (To be incorporated into the General Notes of the final plan set. The final designer shall delete these notes from the final TS&L.)This design is for the replacement of the existing 370'-0 x48' continuous steel girder bridge with 2-8' sdwks, Design No. 948, FHWA No. 15570, Maint. No. 0921.4S003. Work under this design shall include removal of the existing retaining wall as required to construct the west abutment and southwest wing including portions extending south of the wing construction limits to support proposed grading shown on this plan.

Traffic Estimate

2023	AADT	13,600	V.P.D.
2043	AADT	15,700	V.P.D.
2043	DHV	1,620	V.P.H.
Trucks		3%/4%	%

Utilities Legend:

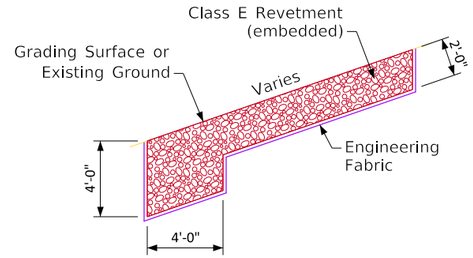
E1 - Electric Line
F02 - Fiber Optic
G - Gas Line
St S - Storm Sewer
W - Water Line

Utilities shown on this sheet are for information only, see Road Design Sheets for final utility information.

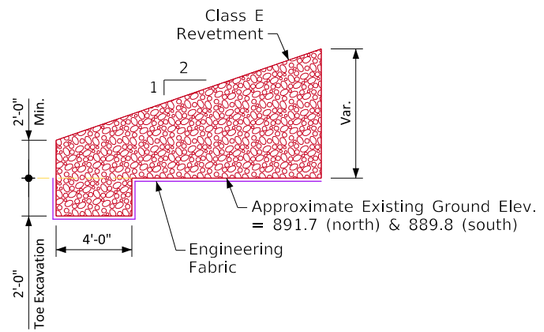
Estimated Revetment Quantities

Location	Revetment CL. E (Ton)	Enginering Fabric (SY)	Excavation Class 10 Channel (CY)
NE Corner	199.4	79.5	6.3
SE Corner	35.5	23.4	2.8
SW Corner	66.1	94.2	41.3
Totals	301.0	197.1	50.4

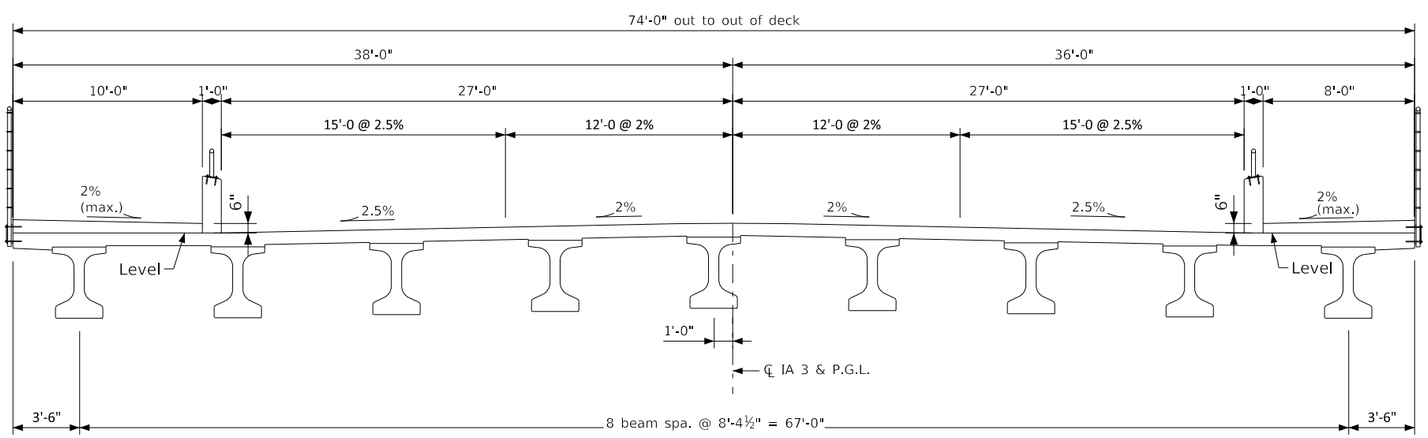
Excavation quantity is calculated from the existing surface at the east corners and from the grading surface or existing surface as applicable based on the limits at the southwest corner.



Section through southwest revetment wedge



Section through east revetment wedge



TYPICAL SECTION

Note:
The top surface of the widened portion of the deck and sidewalk at the overlooks shall be level.

whks
engineers + planners + land surveyors

Preliminary

Design For 0° Skew

349'-0 x 54'-0 PPCB Bridge W/ 10'-0 & 8'-0 Sidewalks

116'-0" End Spans 117'-0" Interior Span

Situation Plan - Misc.

STA. 140+43.50 (IA 3) January, 2022

Bremer

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0323 Design Sheet No. 2 of 2 FHWA No. 015571

FILE NO. 32053	ENGLISH	DESIGN TEAM WHKS	Bremer COUNTY	PROJECT NUMBER BRF-003-6(69)--38-09	SHEET NUMBER V.2	REVISED

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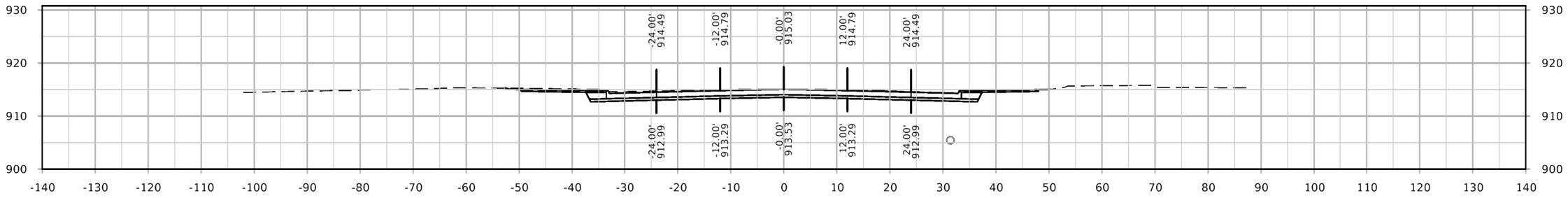
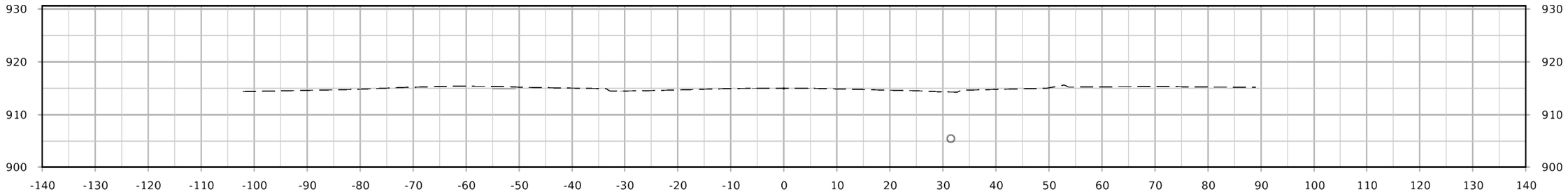


STA. 137+97.43



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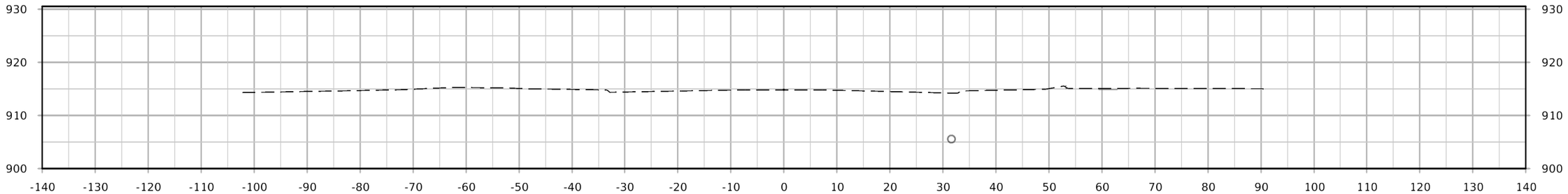

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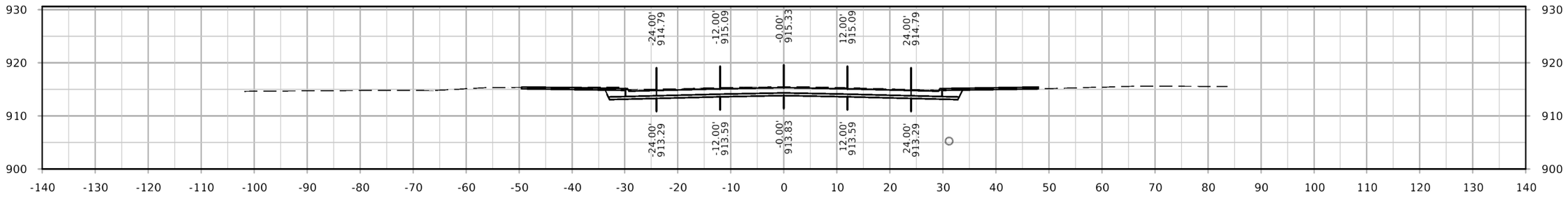

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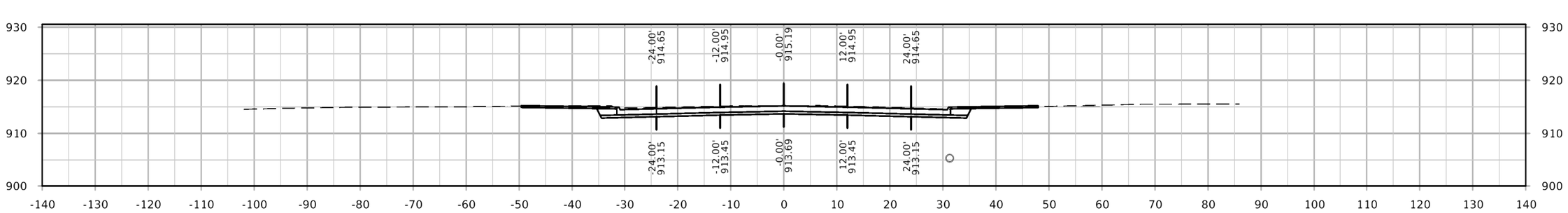

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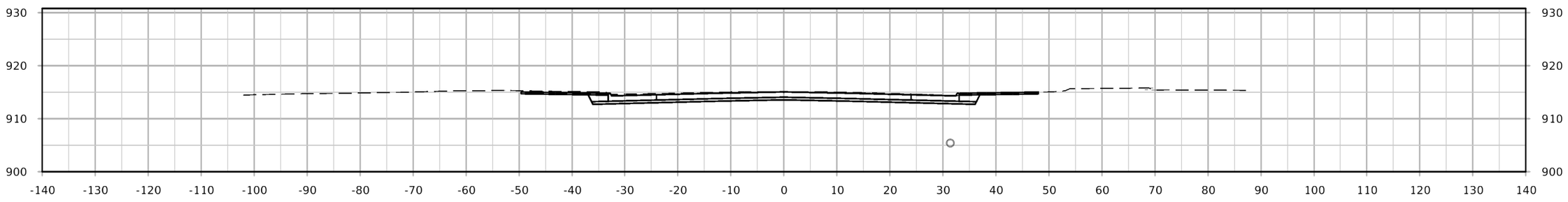

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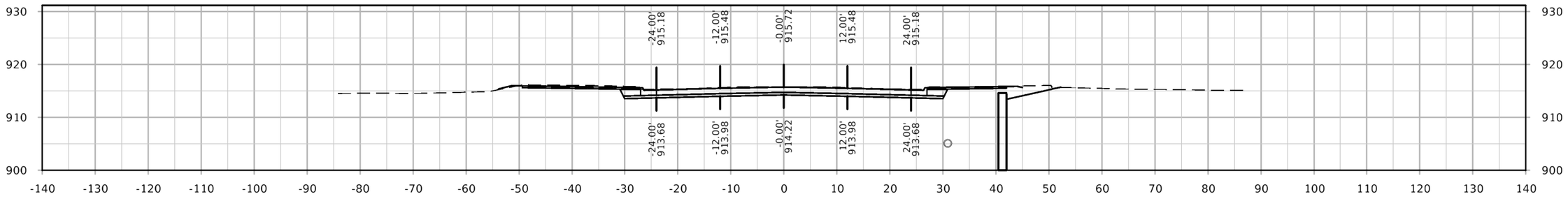

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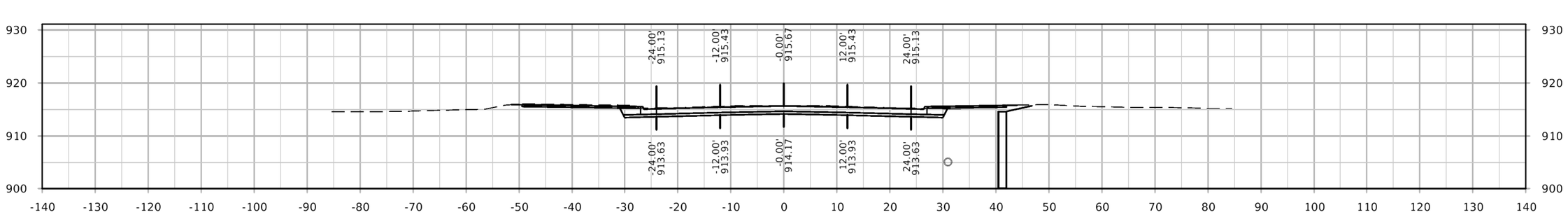

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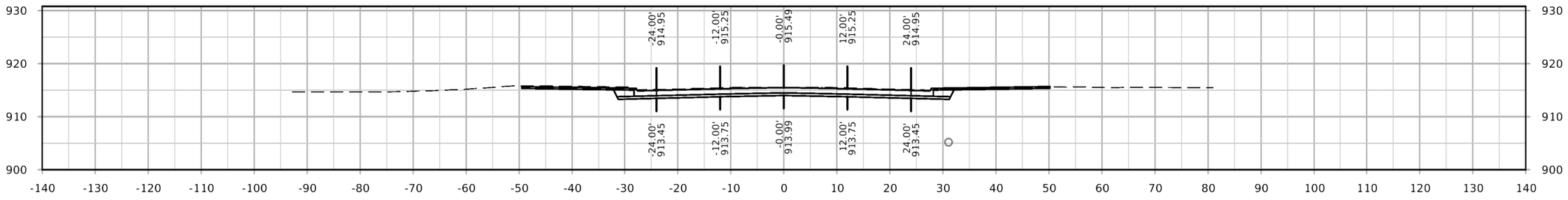

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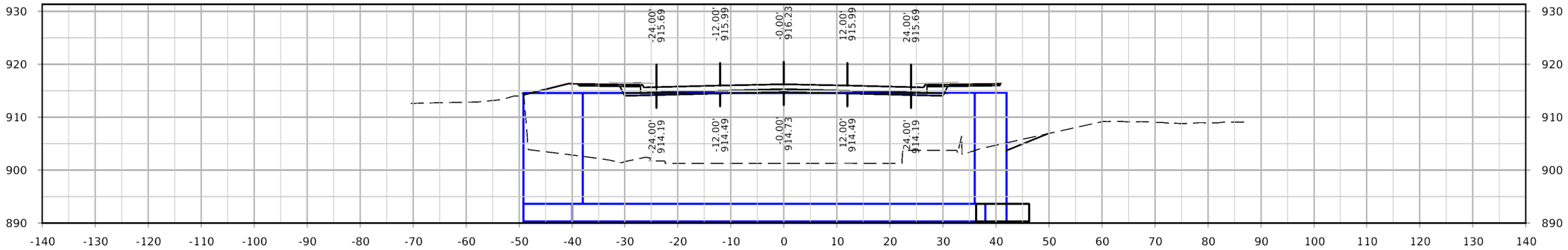

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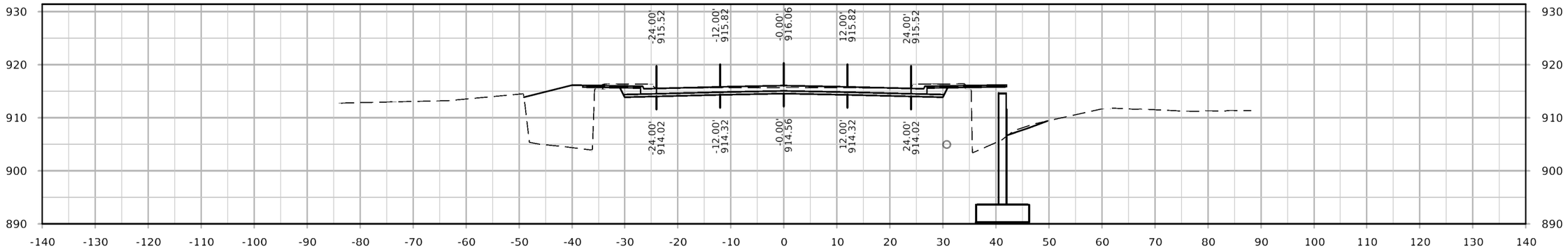

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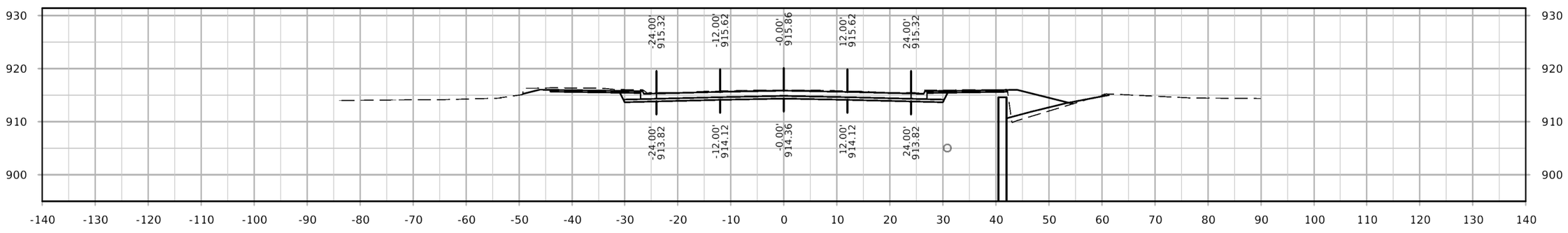

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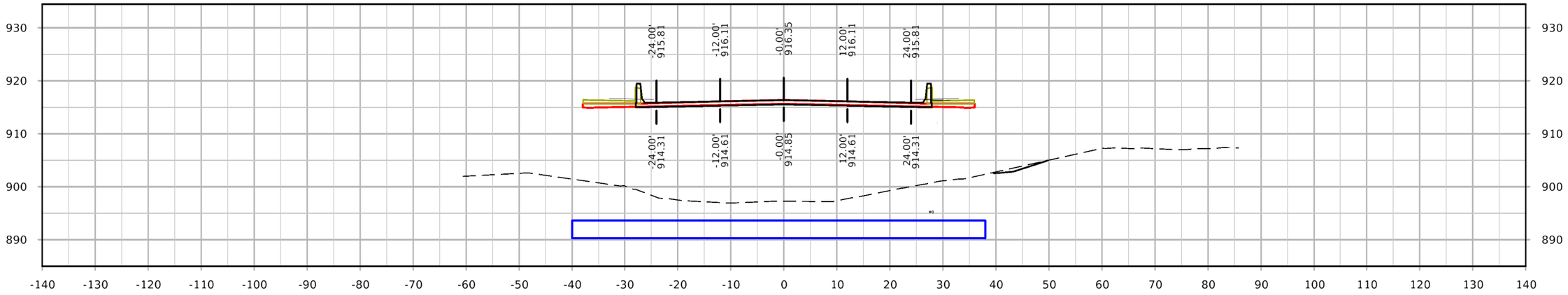

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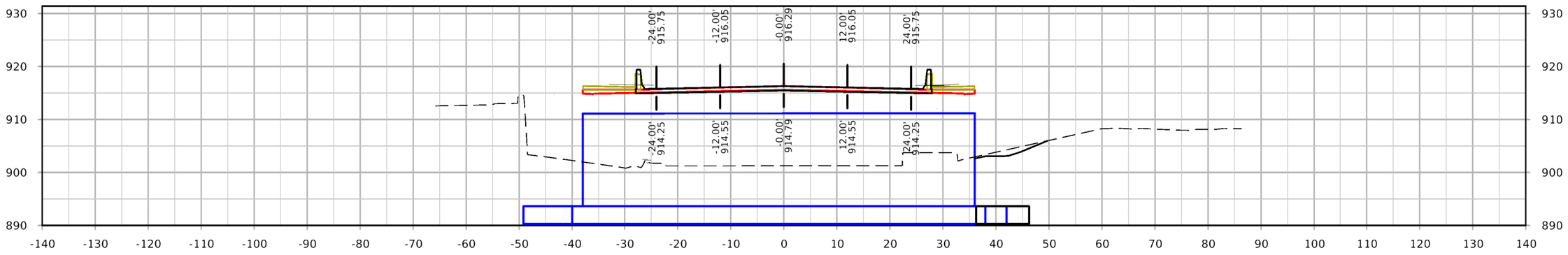

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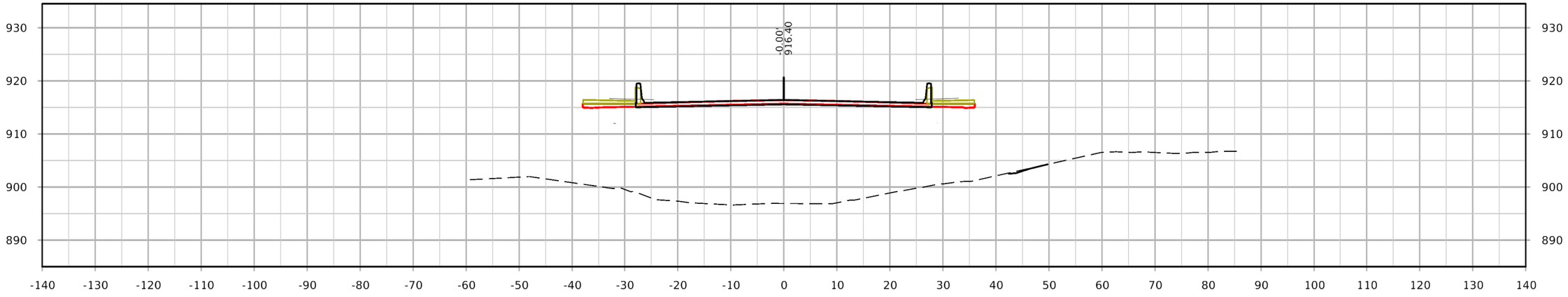

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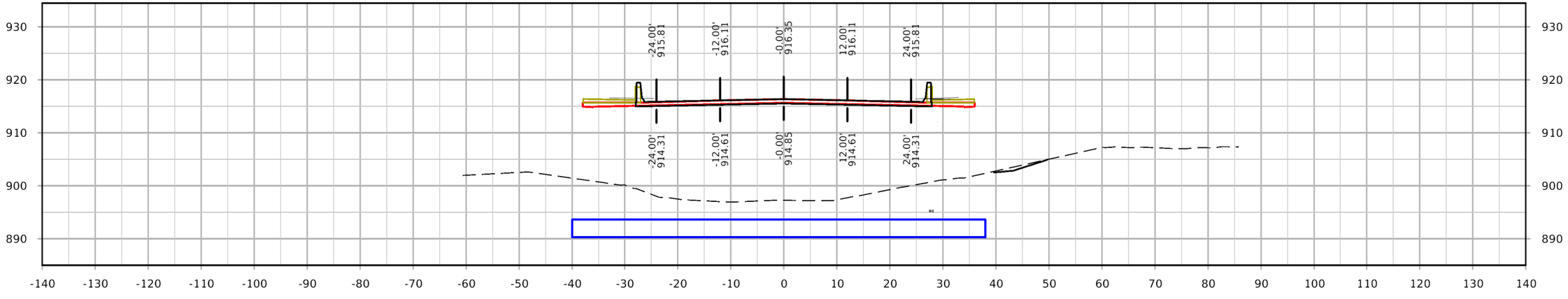

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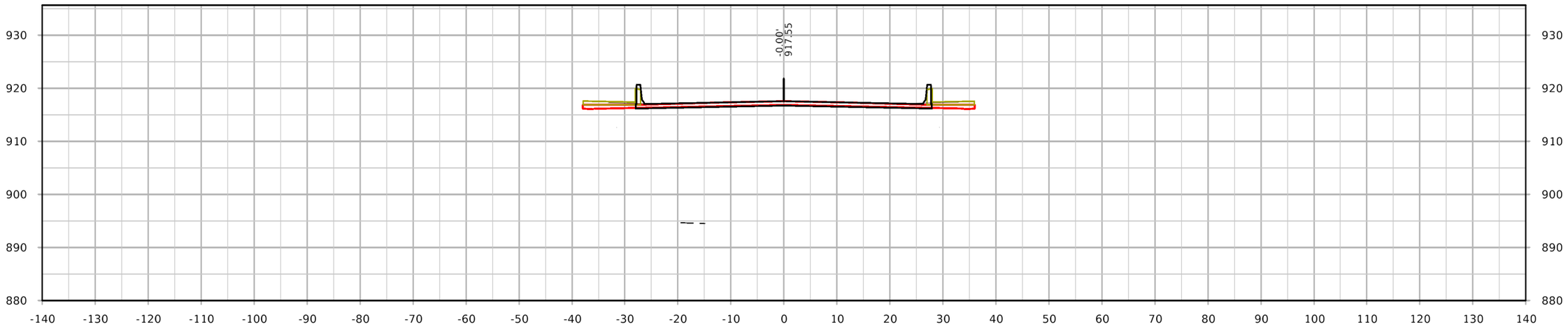

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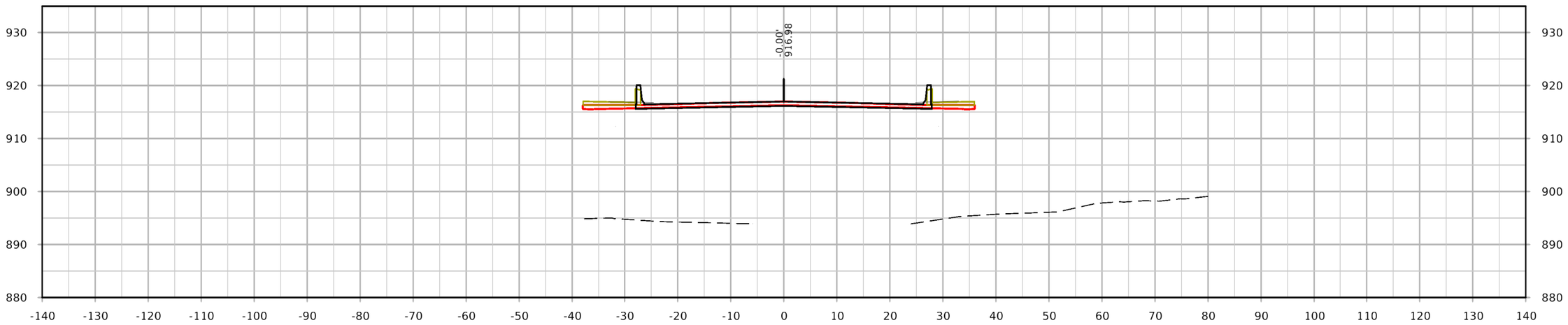

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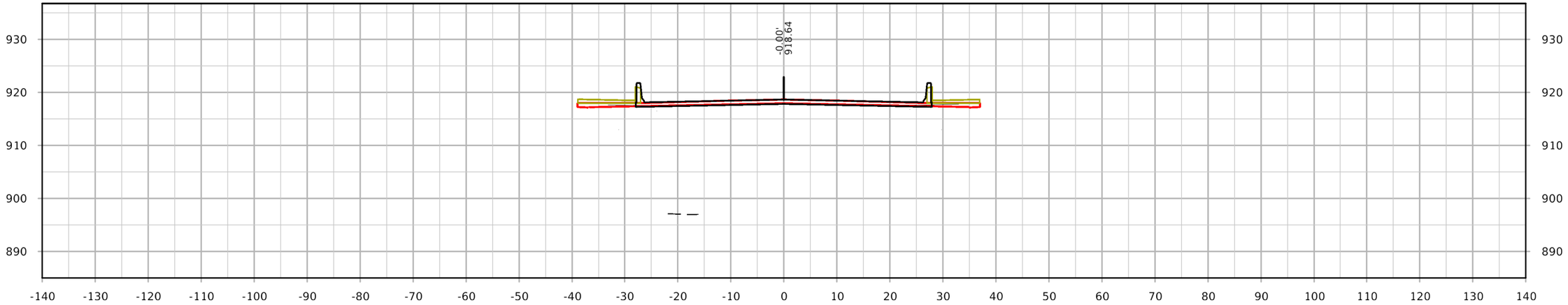

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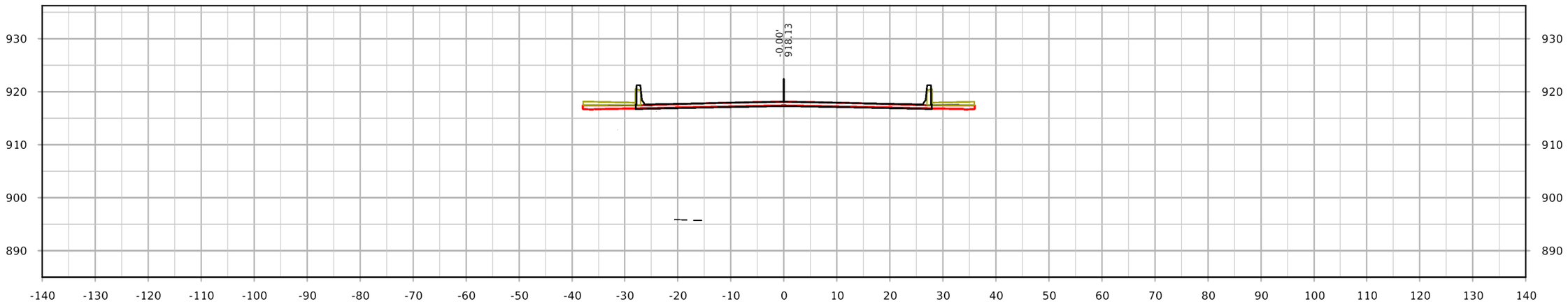

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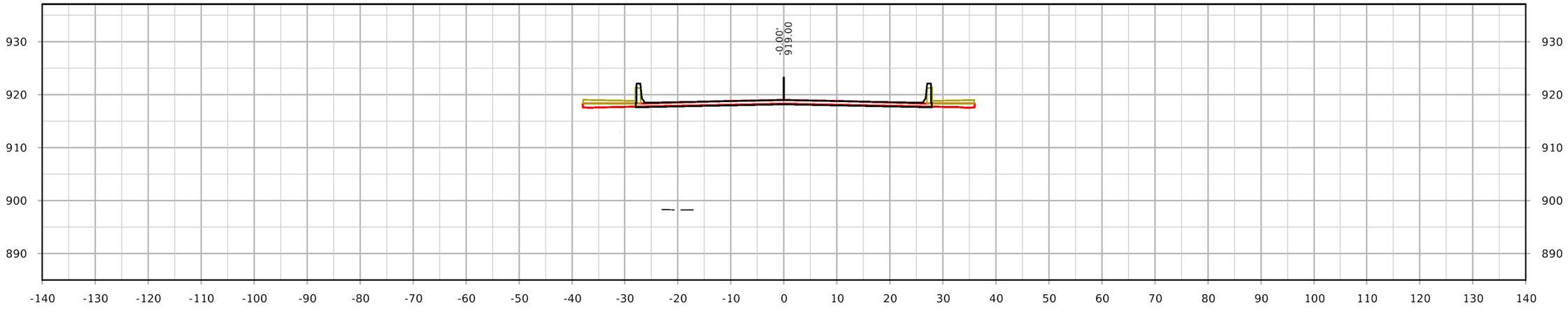

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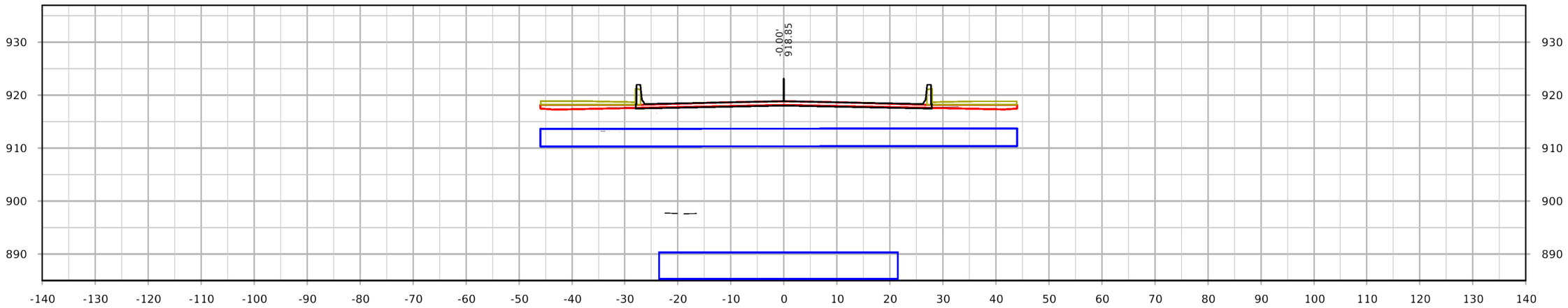

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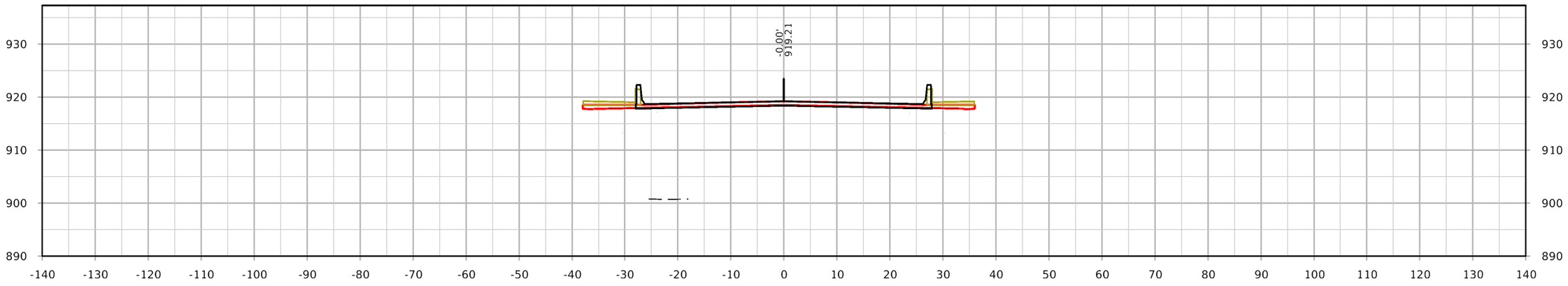

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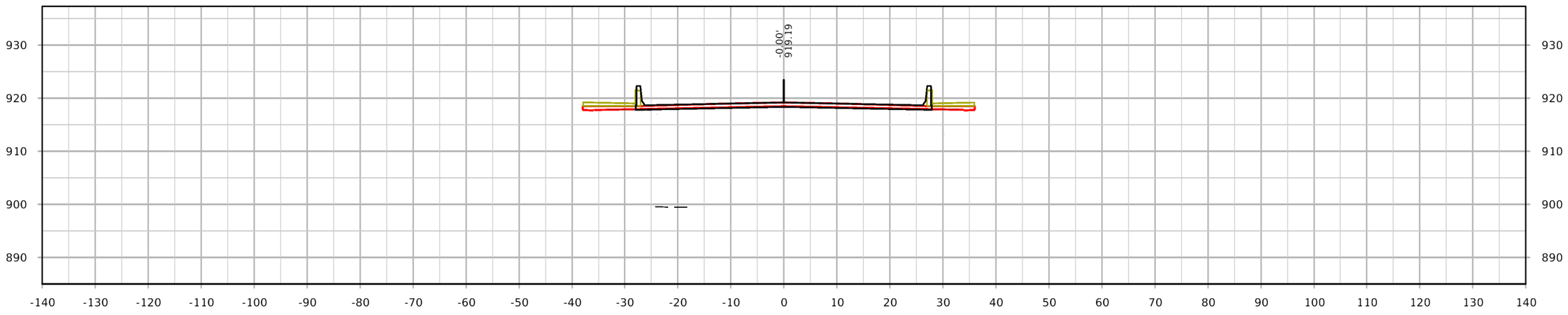

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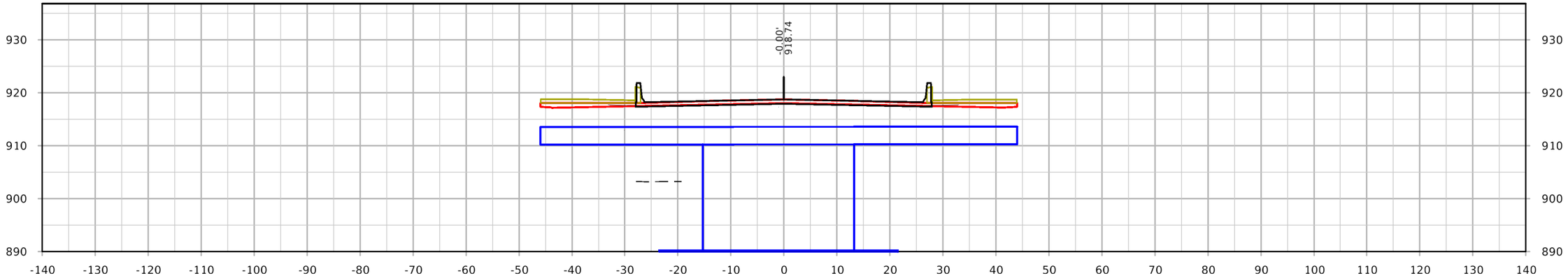

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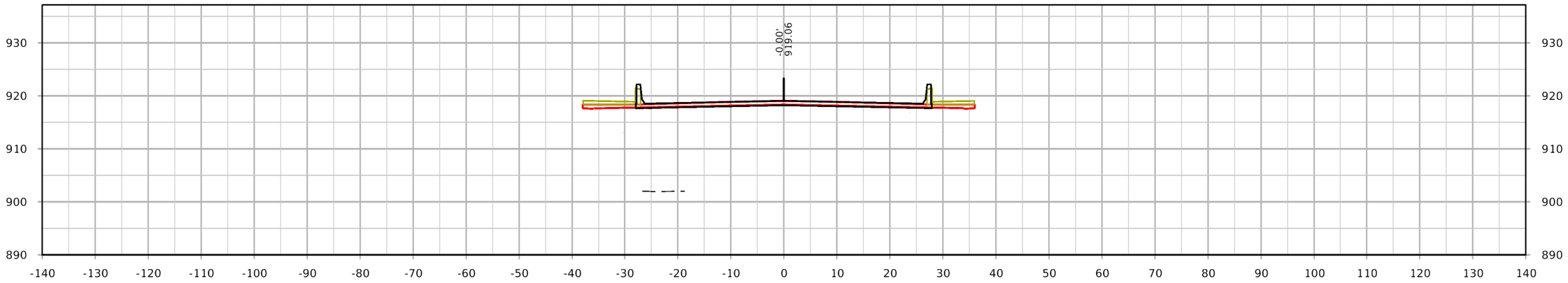

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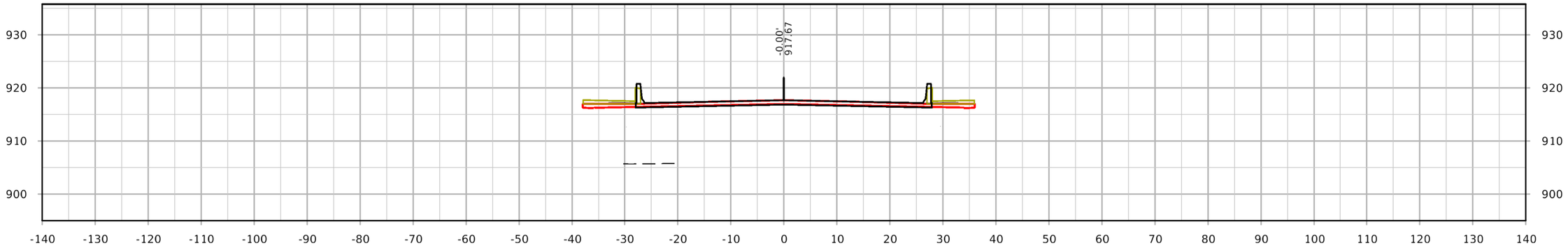

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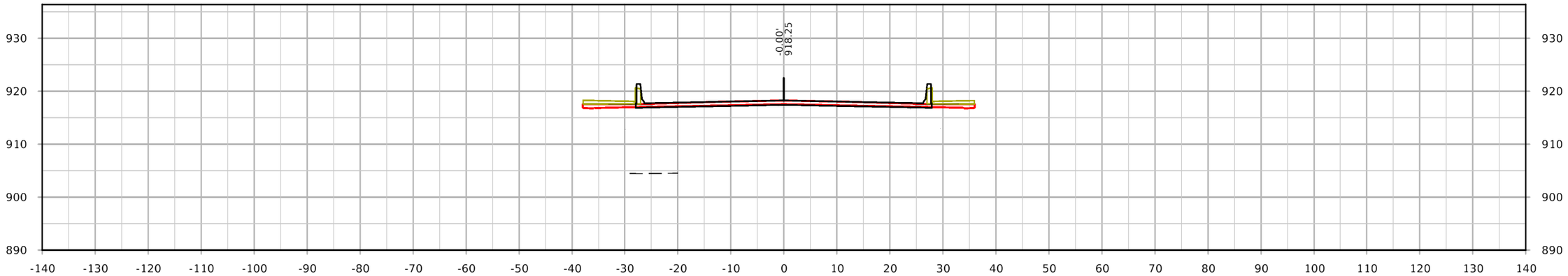

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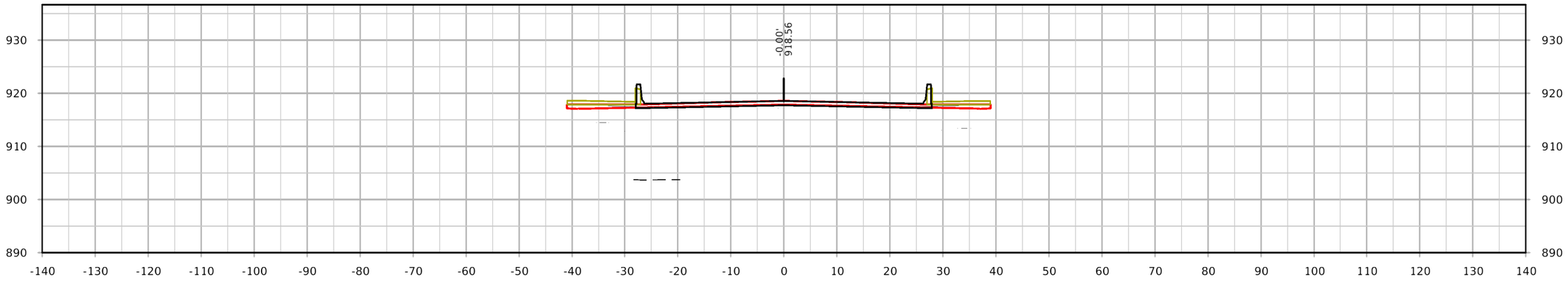

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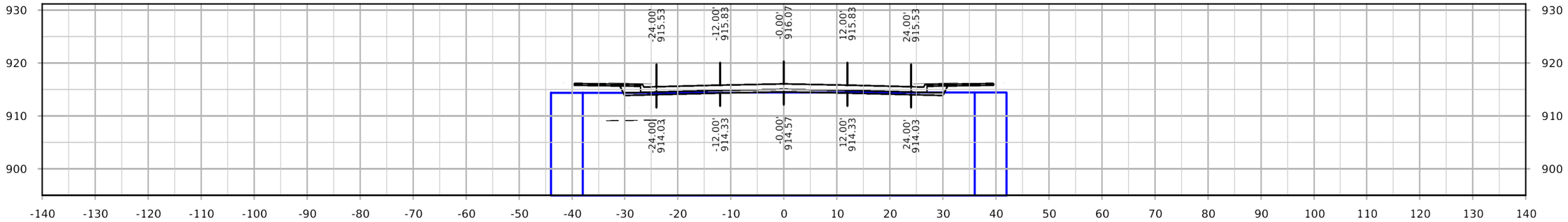

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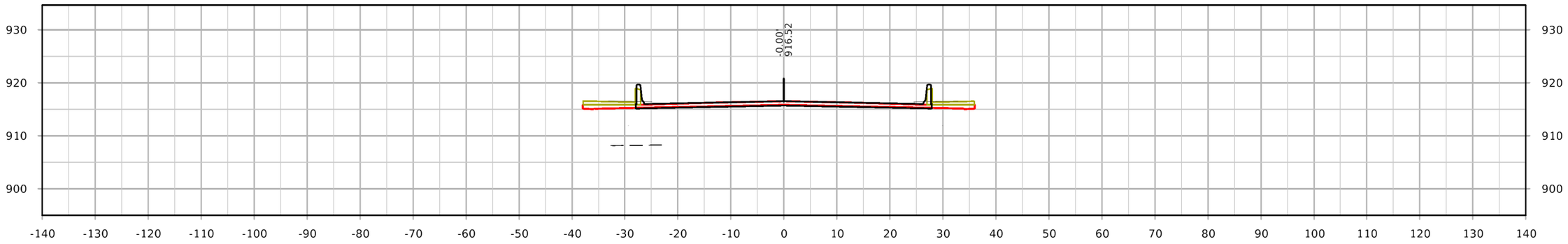

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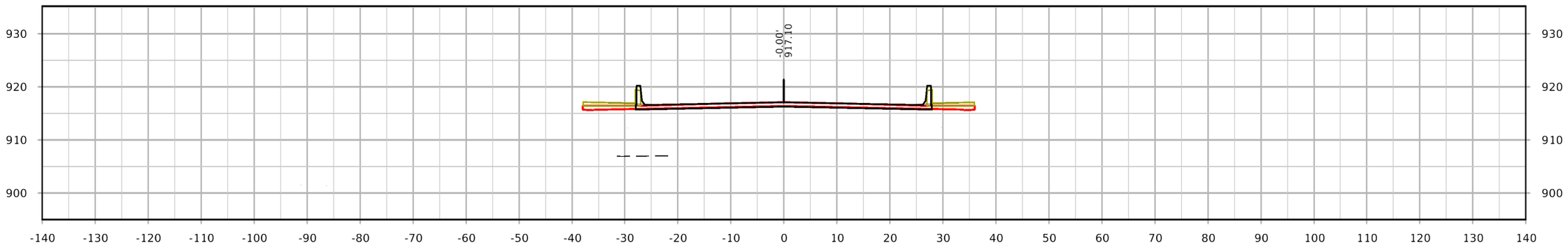

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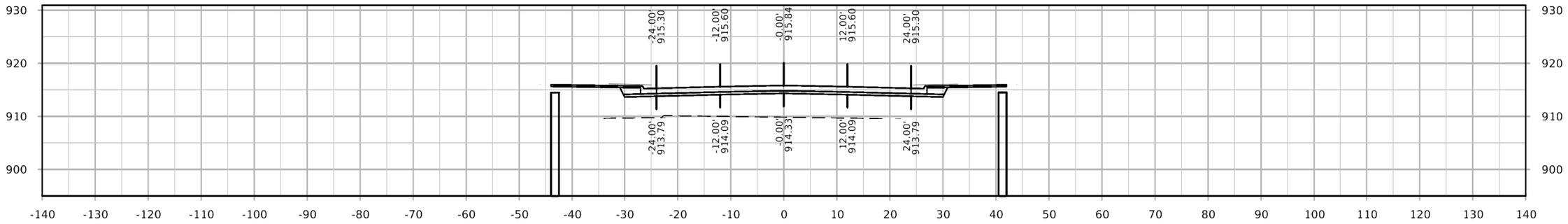

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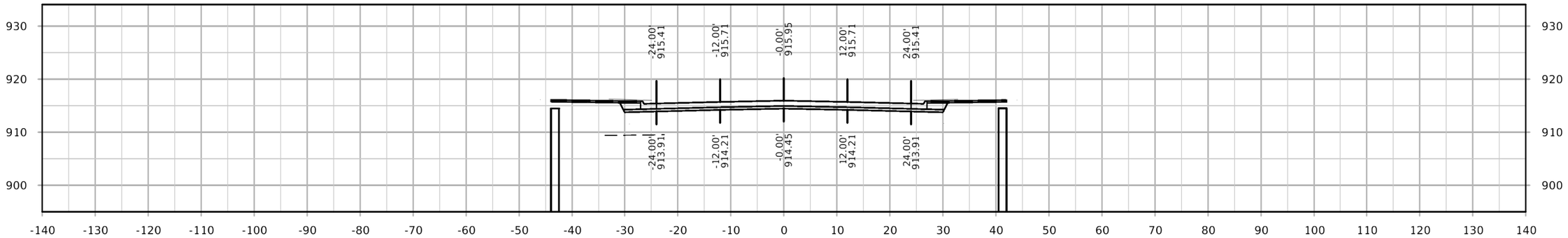

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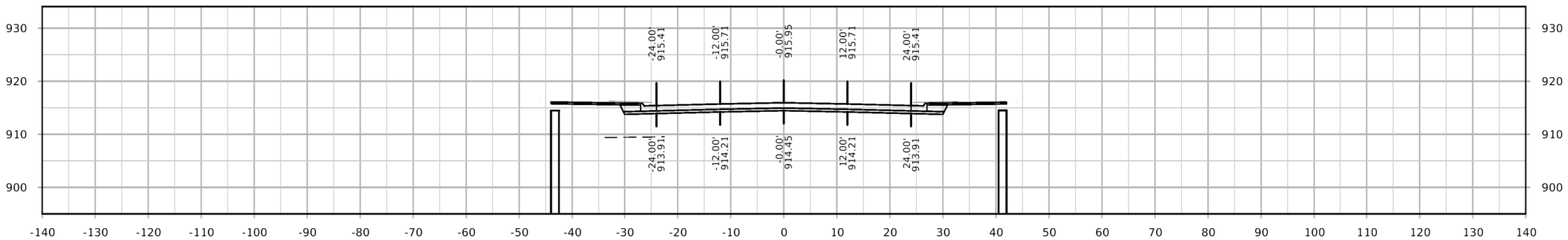

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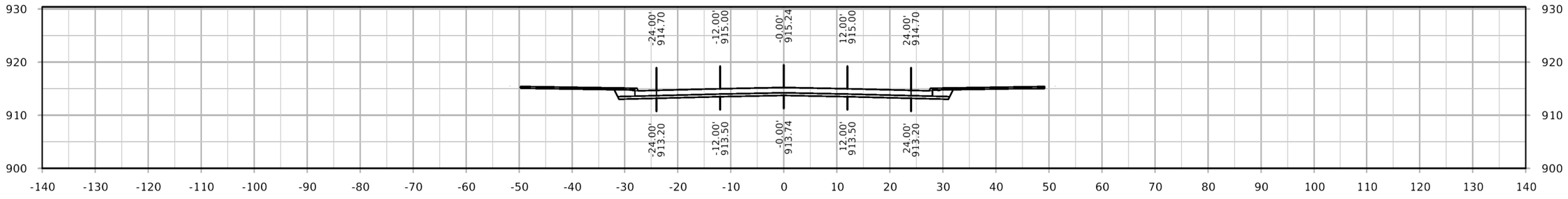

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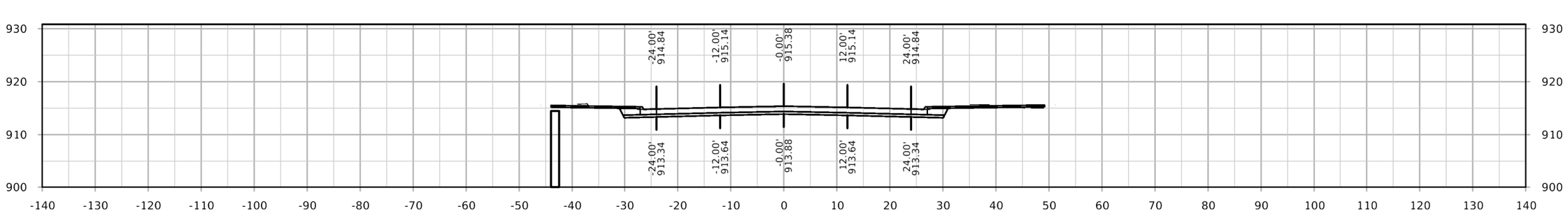

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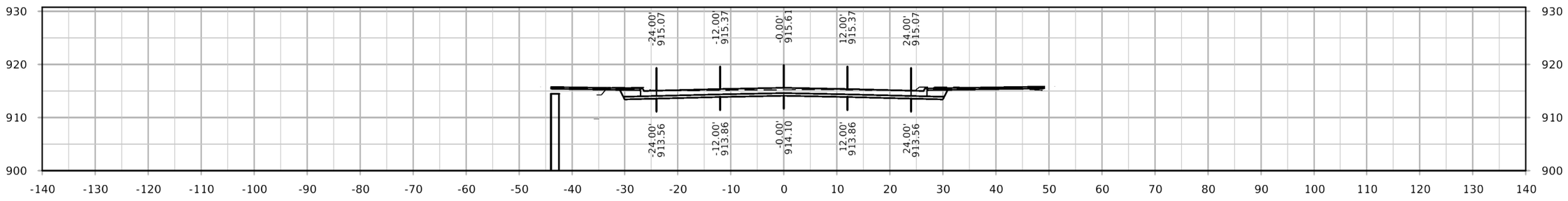

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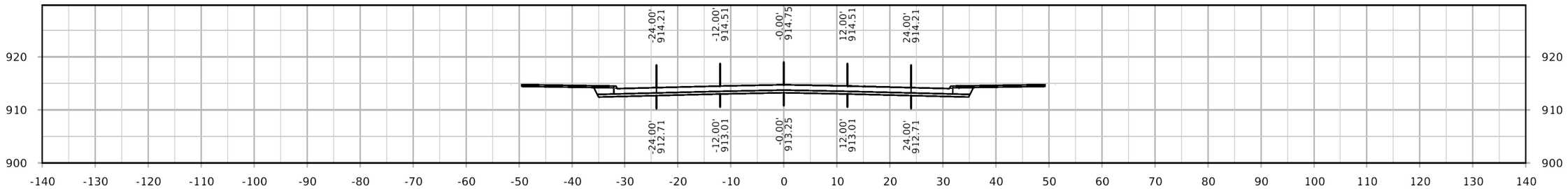

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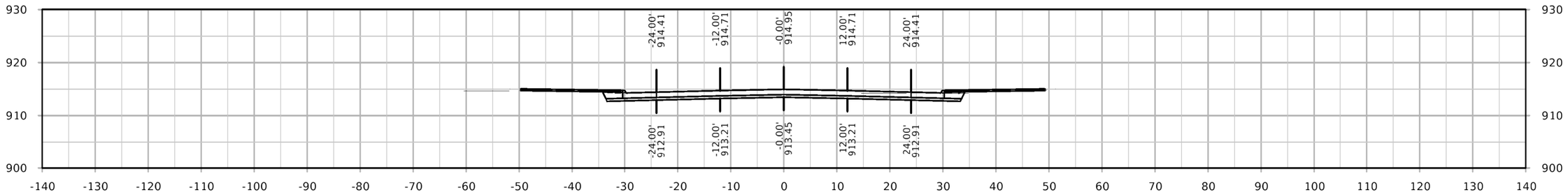

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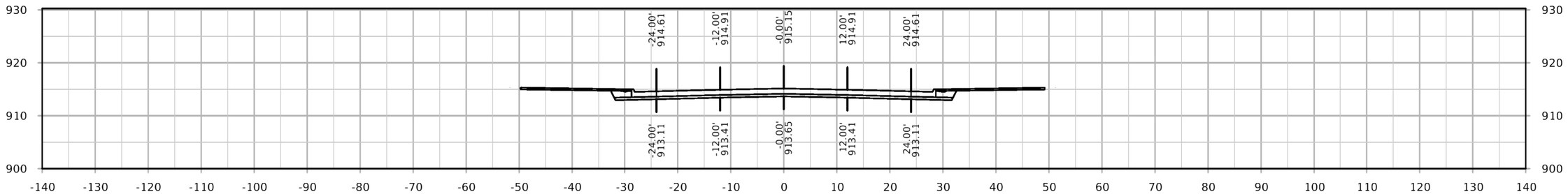
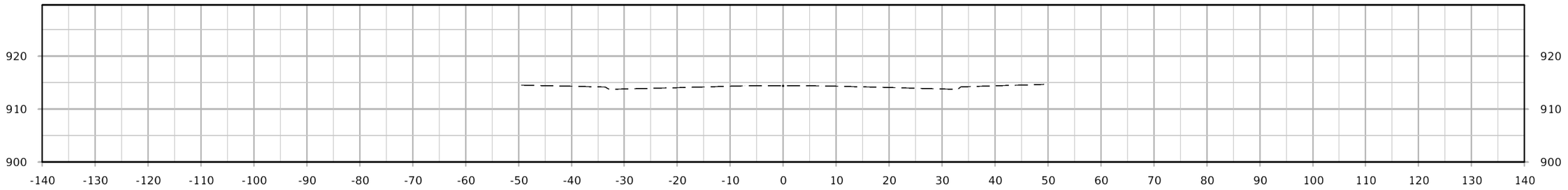


STA. 142+60.00

FILE NO. 32053	ENGLISH	DESIGN TEAM Strum/Bennett	BREMER COUNTY	PROJECT NUMBER BRF-003-6(69)--38-09	SHEET NUMBER W16



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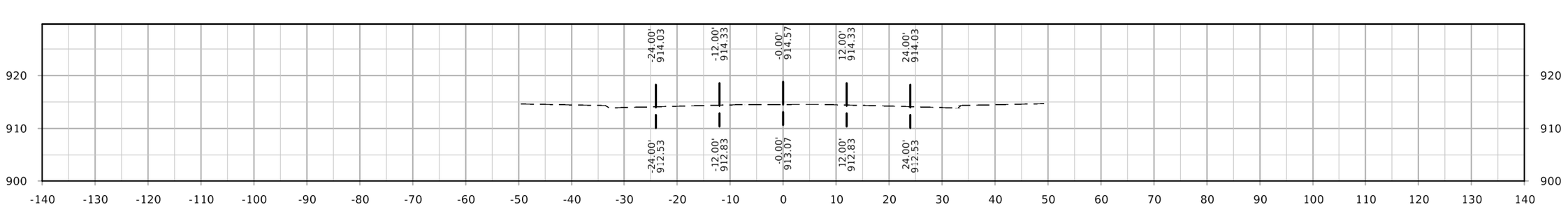
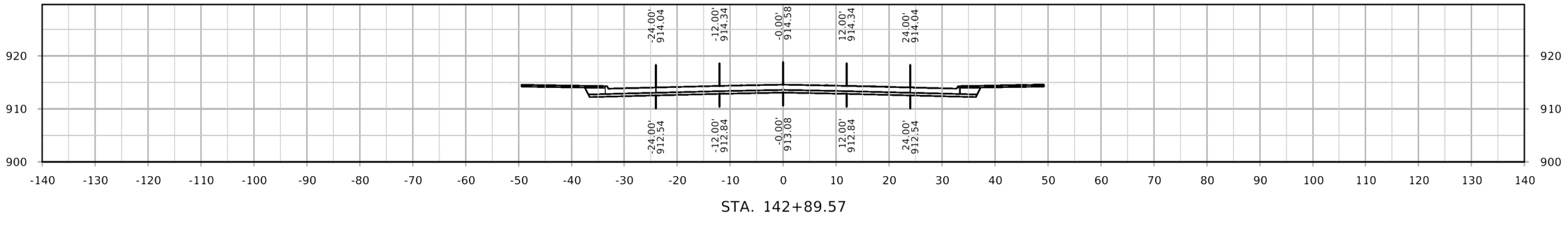
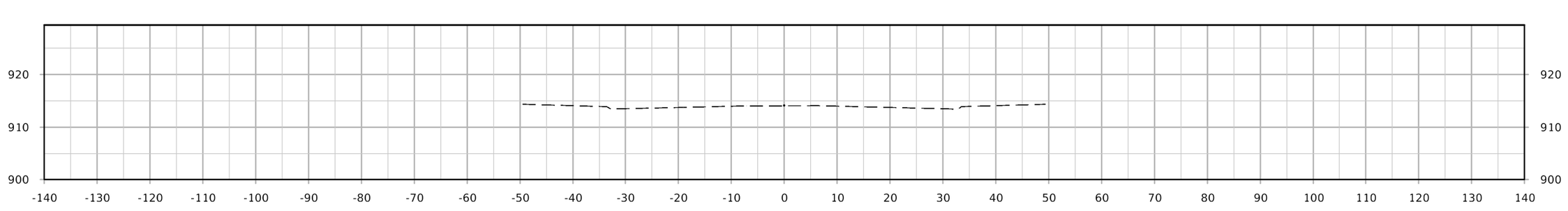


STA. 142+90.00



STA. 142+89.57

FILE NO. 32053	ENGLISH	DESIGN TEAM Strum/Bennett	BREMER COUNTY	PROJECT NUMBER BRF-003-6(69)--38-09	SHEET NUMBER W17



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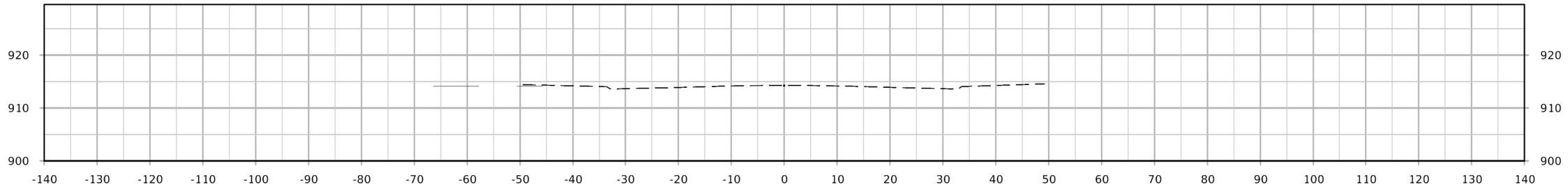

STA. 143+10.00