BRIDGE REPLACEMENT
BRF-034-7(154)--38-90

LETTING DATE
10-19-2027

WAPELLO COUNTY

## INDEX OF SHEETS



IOWA | DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

# PRIMARY ROAD SYSTEM
# WAPELLO COUNTY
## BRIDGE REPLACEMENT
BEAR CREEK AND CPKC RR 4.2 MI W OF CO RD H35

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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

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

REVISIONS

| | TOTAL |
|---|---|
| | .. |
| PROJECT IDENTIFICATION NUMBER | |
| 3-90-034-010 | |
| PROJECT NUMBER | |
| BRF-034-7(154)--38-90 | |
| R.O.W. PROJECT NUMBER | |
| STPN-281-1(053)--2J-07 | |

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

PROJECT EVENT DATES
D–4 – 06–22–2027
B03 – 08–03–2027

| WAPELLO COUNTY DESIGN DATA RURAL | | | |
|---|---|---|---|
| 2028 | AADT | 4,543 | V.P.D. |
| 2048 | AADT | 5,510 | V.P.D. |
| 2048 | DHV | 570 | V.P.H. |
| TRUCKS | | 14 | % |
| Total Design ESALs | | 2.33 million | |

INDEX OF SEALS

| SHEET NO. | NAME | TYPE | BID QUANTITY SHEETS |
|---|---|---|---|
| A.1 | X | Primary Signature Block | X |
| | | | |
| X | X | X | X |
| | | | |
| | | | |
| | | | |
| | | | |

PRELIMINARY PLANS

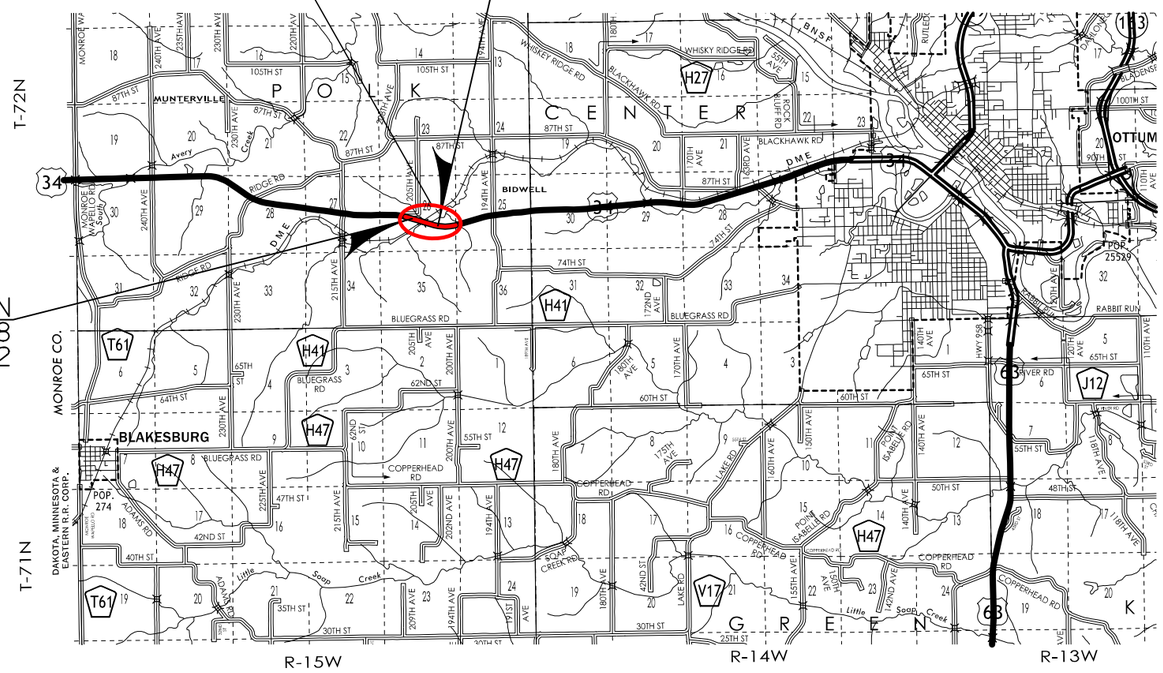
Subject to change by final design.

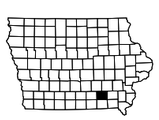
D5 PLAN – Date: 09–23–2025

PROJECT LOCATION
STA 249+89

END CONSTRUCTION
STA. 256+00
REF. LOC. 181.65

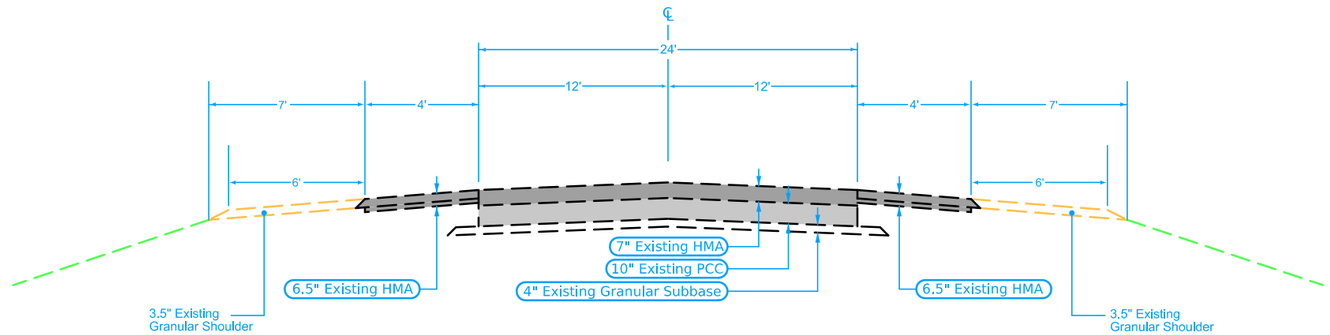
BEGIN CONSTRUCTION
STA. 244+08
REF. LOC. 181.42



LOCATION MAP SCALE
0 1 2 3
Miles

| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER A.2 |
|---|---|---|---|---|---|



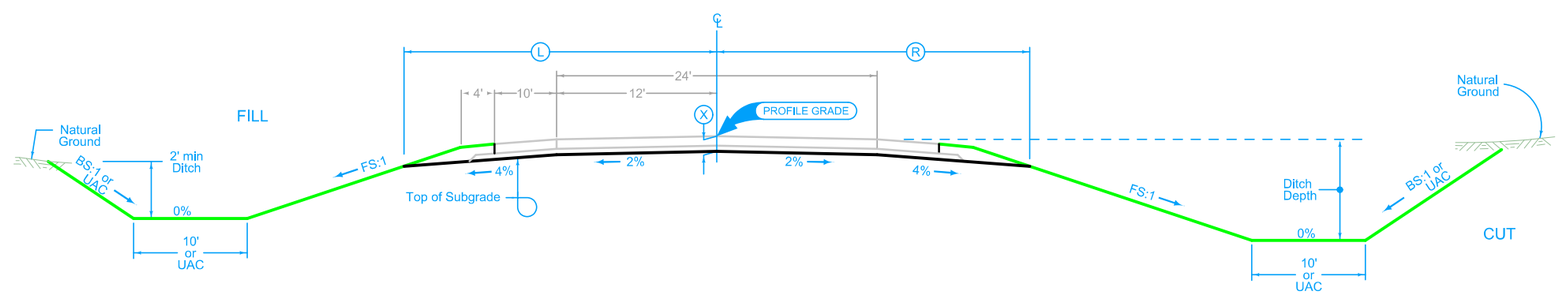

**US 34**
**Existing Pavement**

| LOCATION | | | DIMENSIONS | | | | |
|---|---|---|---|---|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | | (L) Feet | (R) Feet | (X) Inches | FS | BS |
| US 34 | 244+08 | 246+43 | 31.29 | 31.29 | 21.5 | 3 | 3 |
| US 34 | 253+35 | 256+00 | 31.29 | 31.29 | 21.5 | 3 | 3 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

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

See plan & profile sheets and cross sections for additional details of ditches and backslopes.

G_2_Grade
MODIFIED




**US 34**
**2 LANE GRADING**

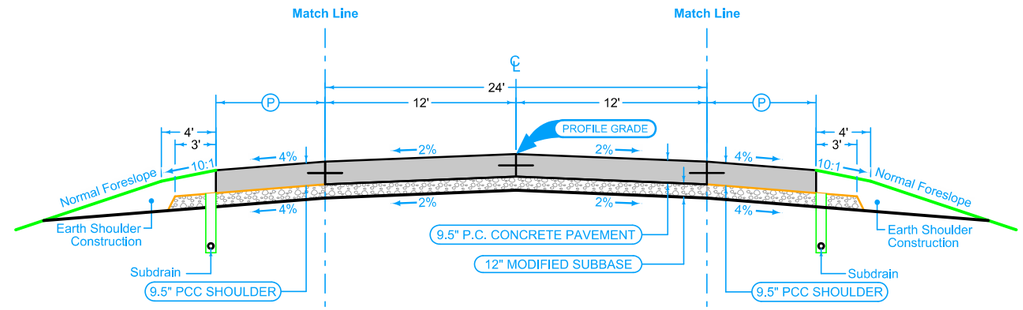
| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER B.1 |
|---|---|---|---|---|---|

9:02:30 AM 9/9/2025 jbahr1 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9003401023\Design\CADD_Files\Sheet_Files\SHT_90034154_B01.dgn

## Full Depth PCC Shoulder

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

| 2_P_FullPCC_ 04-20-21 | | |
|---|---|---|
| STATION TO STATION | | (P) Feet |
| 244+08 | 245+49 | 10 |
| 254+30 | 256+00 | 10 |
| | | |
| | | |




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

| 2P_ 04-21-20 | |
|---|---|
| STATION TO STATION | |
| 244+08 | 246+43 |
| 253+35 | 256+00 |
| | |
| | |

## Full Depth PCC Shoulder

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

| 2_P_FullPCC_ 04-20-21 | | |
|---|---|---|
| STATION TO STATION | | (P) Feet |
| 244+08 | 245+70 | 10 |
| 254+30 | 256+00 | 10 |
| | | |
| | | |

## Paved Shoulder at Guardrail

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

| 2_P_Guard_ 04-21-20 | | | |
|---|---|---|---|
| STATION TO STATION | | (P) Feet | (Pss) Feet Feet |
| 245+49 | 246+43 | 10 | See Detail 7158-M for Details |
| 253+35 | 254+30 | 10 | See Detail 7158-M for Details |
| | | | |
| | | | |


## Paved Shoulder at Guardrail

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

| 2_P_Guard_ 04-21-20 | | | |
|---|---|---|---|
| STATION TO STATION | | (P) Feet | (Pss) Feet Feet |
| 245+70 | 246+43 | 10 | See Detail 7158-M for Details |
| 253+35 | 254+30 | 10 | See Detail 7158-M for Details |
| | | | |
| | | | |

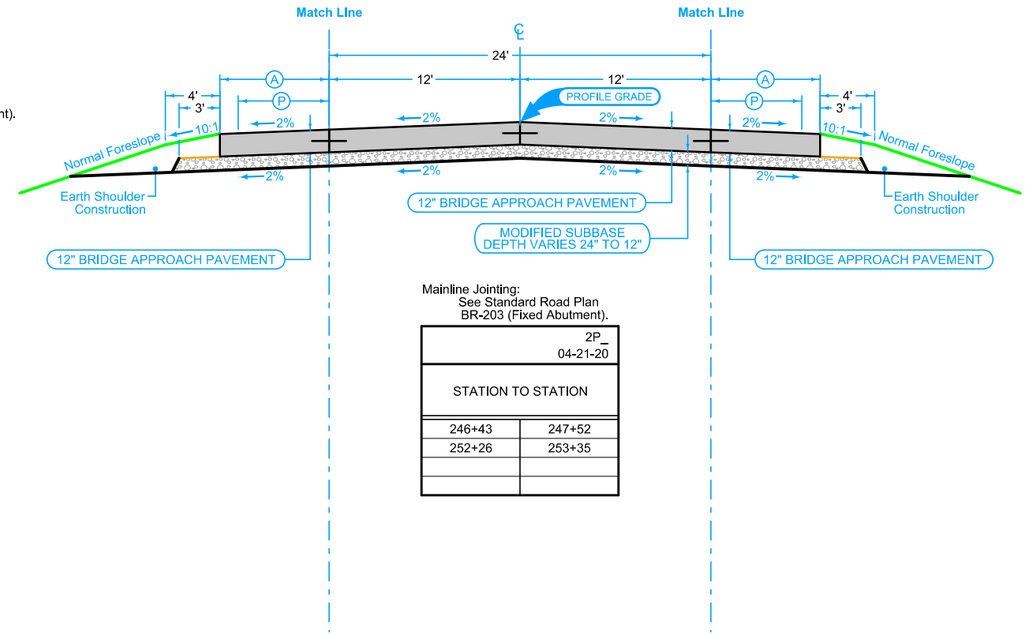
See Tab 100-24 or 100-25 for pavement quantities.
See Tab 112-9 for shoulder quantities.

**US 34**
**Mainline, Paved Shoulder, and Paved Shoulder at Guardrail**

## Shoulder at Bridge Approach

Mainline Jointing:
See Standard Road Plan BR-203 (Fixed Abutment).

| | | 2_P_FullPCC_ 04-20-21 | |
|---|---|---|---|
| STATION TO STATION | | (P) Feet | (A) Feet |
| 246+43 | 247+52 | 8 | 11.58 |
| 252+62 | 253+35 | 8 | 11.58 |
| | | | |
| | | | |




Mainline Jointing:
See Standard Road Plan BR-203 (Fixed Abutment).

| | 2P_ 04-21-20 |
|---|---|
| STATION TO STATION | |
| 246+43 | 247+52 |
| 252+26 | 253+35 |
| | |
| | |

## Shoulder at Bridge Approach

Mainline Jointing:
See Standard Road Plan BR-203 (Fixed Abutment).

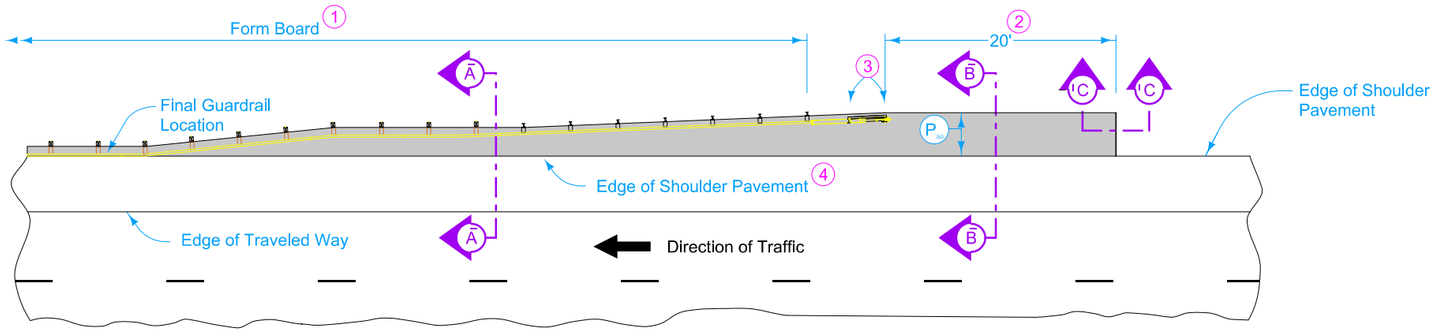
| | | 2_P_FullPCC_ 04-20-21 | |
|---|---|---|---|
| STATION TO STATION | | (P) Feet | (A) Feet |
| 246+43 | 247+16 | 8 | 11.58 |
| 252+26 | 253+35 | 8 | 11.58 |
| | | | |
| | | | |

See Tab 112-6 for Bridge Approach Pavement quantities.
See Standard Road Plan BR-203 (Fixed Abutment) for details.

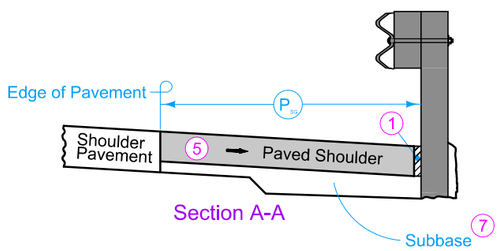
**US 34**

**Bridge Approach Pavement**

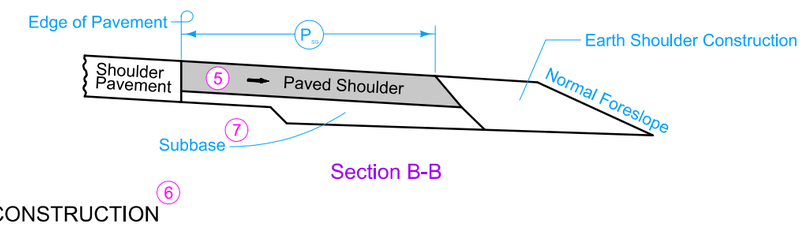
7158-M
MODIFIED




PLAN VIEW




Section A-A




Section B-B

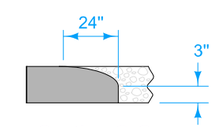
NEW CONSTRUCTION
6

9.5" PCC Paved Shoulder at Guardrail. See below for jointing layout:

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

Refer to Tabulation 112-9 for shoulder quantities.

1. When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown. Removal and reinstallation of guardrail will be allowed with no additional payment if disrupted during pavement installation.
2. Continue paved shoulder 20 feet beyond the center of the first post.
3. Shoulder may be notched for first 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
4. 'BT' (per PV-101) joint for PCC shoulder.
5. Match shoulder slope.
6. The Contractor has the option to pave the paved shoulder at guardrail and the full width paved shoulder as one operation.
7. Refer to other details in the plan.




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

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

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

## UTILITY LEGEND

— T1 —

***TL1D, Century Link - Quality D***

Steve Parker
(515) 265-9068
CTL-RDMV-IA@lumen.com

— FO —

***FO1D, Iowa Communications Network - Quality D***

Mike Dalen
(515) 725-4707
Mike.dalen@iowa.gov

The following utilities were marked 'CLEAR' by Survey and are hereby provided for information purposes:

***Citzens Mutual Telephone***

***Southern Iowa Electric Cooperative***

Greg Proctor
(641) 664-2277
gproctor@sie.coop

***Wapello Rural Water Association***

Krista Huffman
(641) 682-8351
kristah@wapelloruralwater.com

## 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. | | | Transparency |
|---|---|---|---|---|
| Pink, Dark | (13) | | Temporary Pavement Shading | 50% |
| Yellow | (4) | | Proposed Pavement Shading | 50% |
| Orange | (6) | | Proposed Granular Shading | 50% |
| Orange | (70) | | Proposed Shoulder Granular Shading | 50% |
| Yellow | (68) | | Proposed Shoulder Paved Full Depth Shading | 50% |
| Yellow | (132) | | Proposed Shoulder Paved Partial Depth Shading | 50% |
| Brown, Light | (236) | | Grading Shading | 50% |
| Orange, Light | (134) | | Proposed Granular Entrance Shading | 50% |
| Yellow | (220) | | Proposed Paved Entrance Shading | 50% |
| Tan | (8) | | Proposed Sidewalk Shading | 50% |
| Blue, Light | (230) | | Proposed Sidewalk Landing Shading | 50% |
| Pink | (11) | | Proposed Sidewalk Ramp Shading | 50% |
| Red | (3) | | Proposed Structure Shading | 50% |
| Red | (3) | | Delineates Restricted Areas | 0% |

## PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

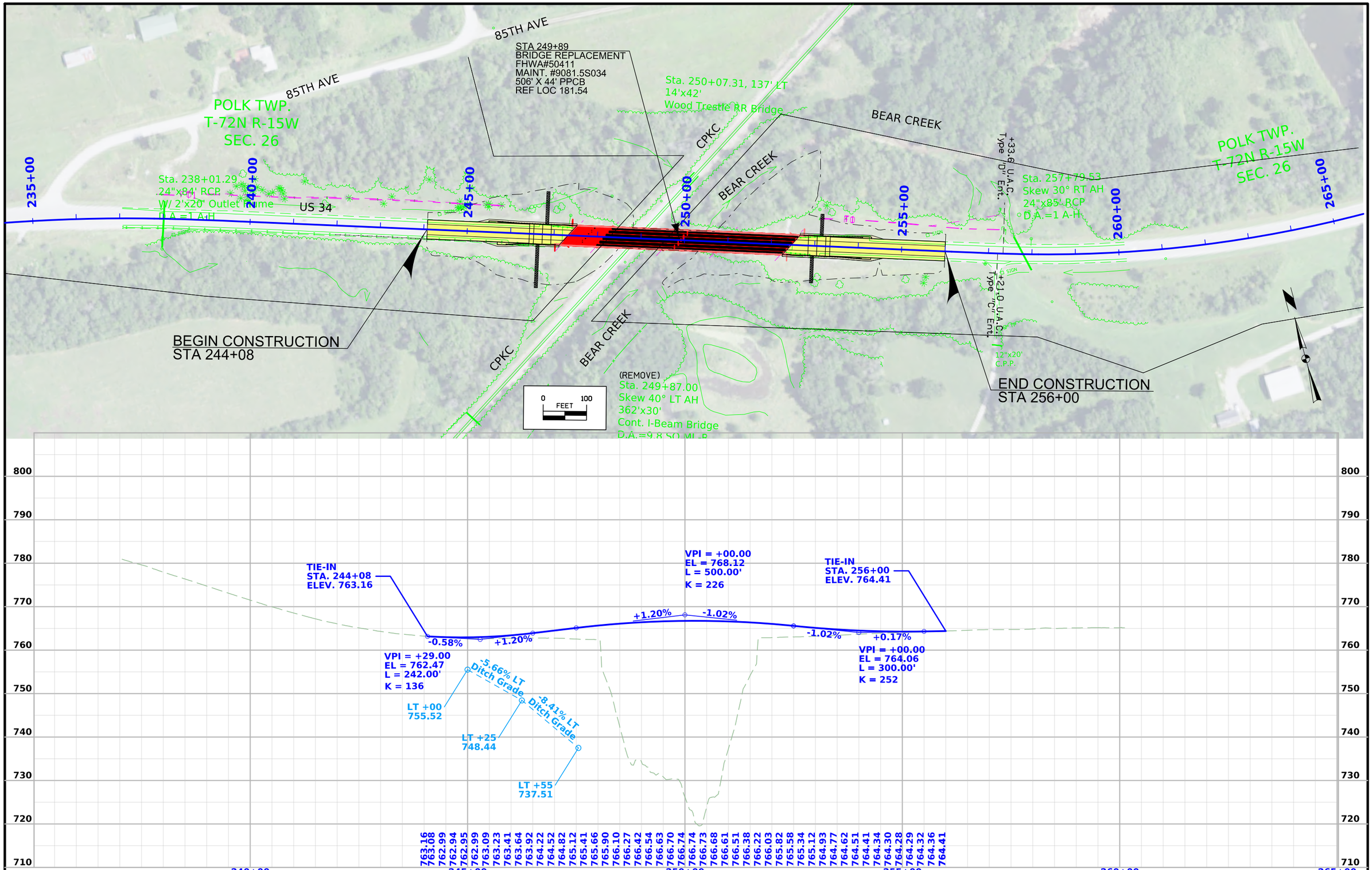
- Reference Point / Station — Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

## RIGHT-OF-WAY LEGEND

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

# PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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




| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER D.2 |
|---|---|---|---|---|---|

10:13:10 AM 9/23/2025 kjackso pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9003401023\Design\CADD_Files\Sheet_Files\SHT_90034154_D02.dgn

## SURVEY INDEX

**County: Wapello**
**PIN: 23-90-034-010**
**Project Number: BRF-034-7(154)--38-90**
**Location: 4.2 Miles West of Co. Rd. H35 over Bear Creek & ICE RR**
**Type of Work: Bridge Replacement**
**Project Directory: 9003401023**

## Survey Personnel

| | |
|---|---|
| Jeremy Leemon | Survey Project Manager |
| Chris Ries | Assistant Survey Project Manager |
| Jacob Powers | Instrument |
| Matt Goedken | Instrument |

## Date(s) of Survey

| | |
|---|---|
| Begin Date | 08/07/2024 |
| End Date | 10/21/2024 |

## General Information

This survey is for US Hwy 34 over Bear Creek and ICE RR, Wapello County. This project is a Full Field DTM survey.

## Utility Information

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

## Project Control

Project control was provided by the Design Bureau Preliminary Survey Office. A Site Calibration consisting of 3 rounds of 5 minute observations separated by 2 hour intervals was completed to aid in setting additional control along the route.
For additional details of the control survey, contact the Preliminary Survey department.

**PROJECT DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 ADJUSTMENT)**
**COORDINATE SYSTEM: IOWA REGIONAL COORDINATE SYSTEM ZONE 12 (U.S. SURVEY FOOT)**
**VERTICAL DATUM: NAVD88**
**GEOID MODEL: 2018u3**

## Alignment Information

The horizontal alignment for this survey is a retrace of As-built Plans Project No. 1027 (9). Survey stationing was equated to the measured center of bridge at Sta. 249+87 and carried back and ahead without equation throughout the survey. No alignment points were found in pavement so alignment was built using bridge center and right-of-way monuments.

Survey stationing relates to as built plan stationing as follows:

POT Sta. 220+24.1 As-built Plans Project No. 1027 (9)
Survey POT Sta. 220+24.10

TS Sta. 226+93.46 As-built Plans Project No. 1027 (9)
Survey TS Sta. 226+93.46

ST Sta. 239+52.34 As-built Plans Project No. 1027 (9)
Survey ST Sta. 239+52.34

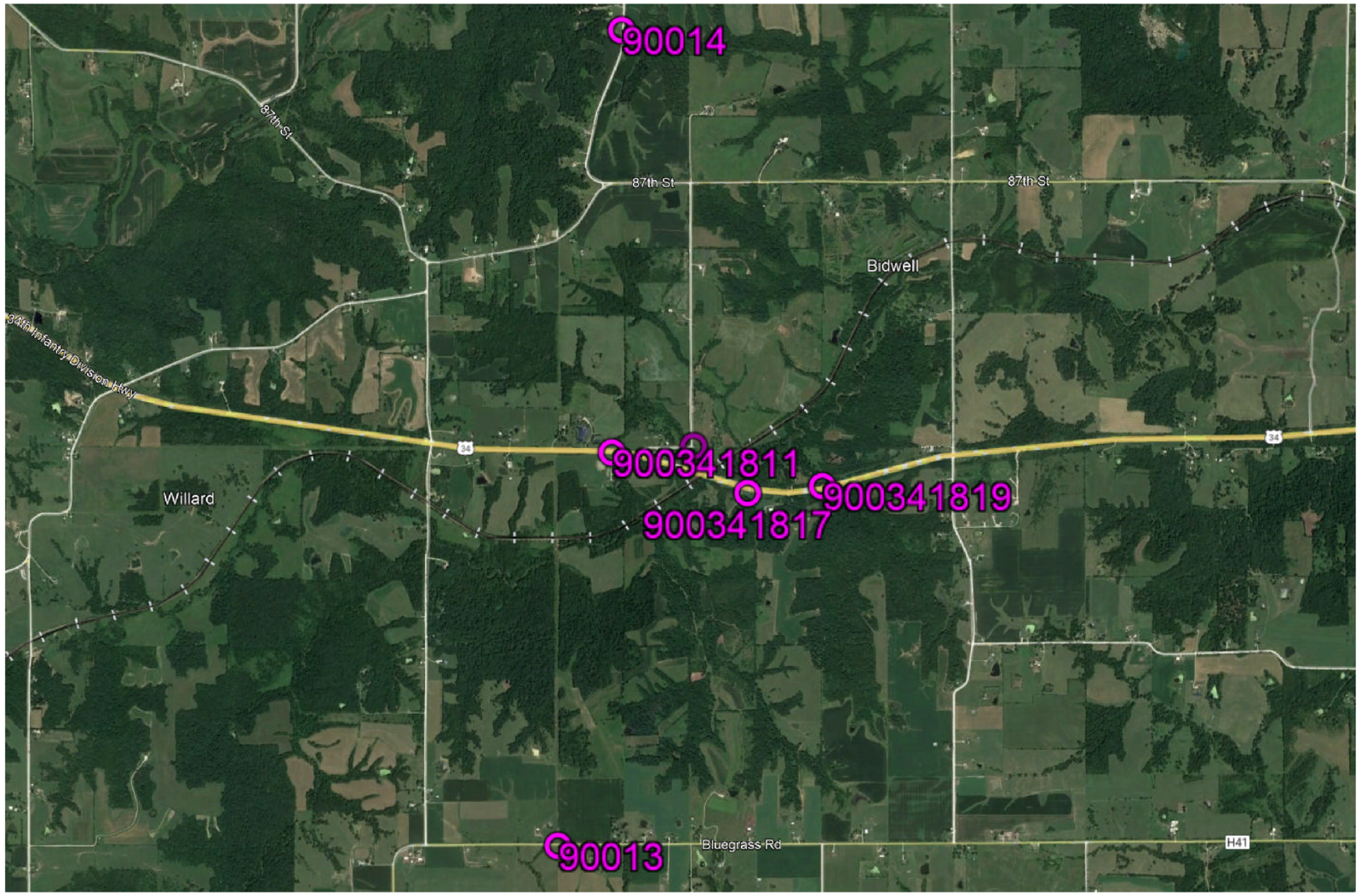
TS Sta. 256+15.0 As-built Plans Project No. 1027 (9)
Survey TS Sta. 256+15.00

ST Sta. 247+55.0 As-built Plans Project No. 1027 (9)
Survey ST Sta. 274+55.51

PC Sta. 291+30.5 As-built Plans Project No. 1027 (9)
Survey POT Sta. 291+31.01

## CONTROL POINT VICINITY MAP

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



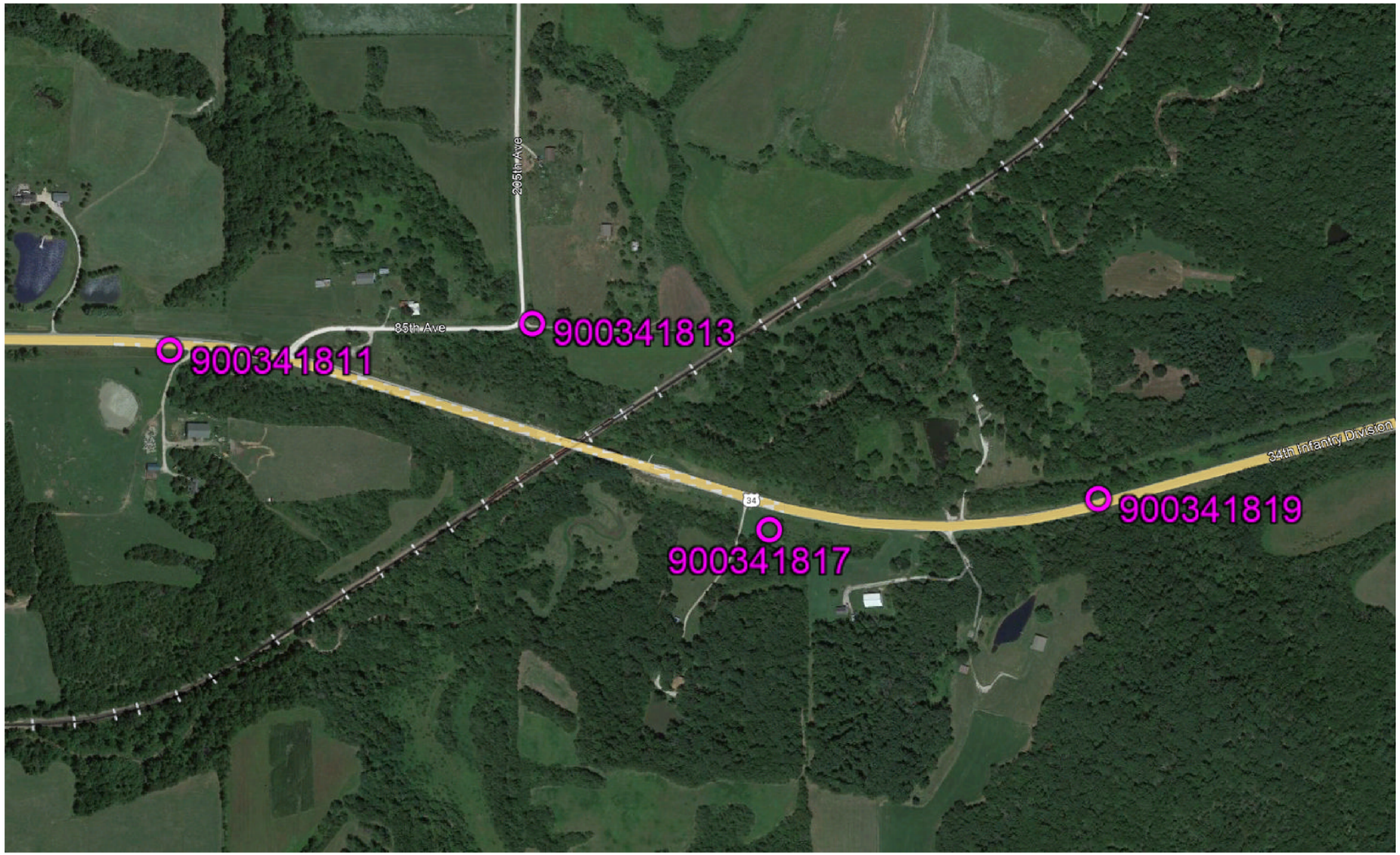

HORIZ. DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 Adjustment) - Iowa RCS Zone 12 (U.S. Survey Foot)

VERT. DATUM: NAVD88 - Geoid Model: 2018u3

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

## CONTROL POINT VICINITY MAP

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




HORIZ. DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 Adjustment) - Iowa RCS Zone 12 (U.S. Survey Foot)

VERT. DATUM: NAVD88 - Geoid Model: 2018u3

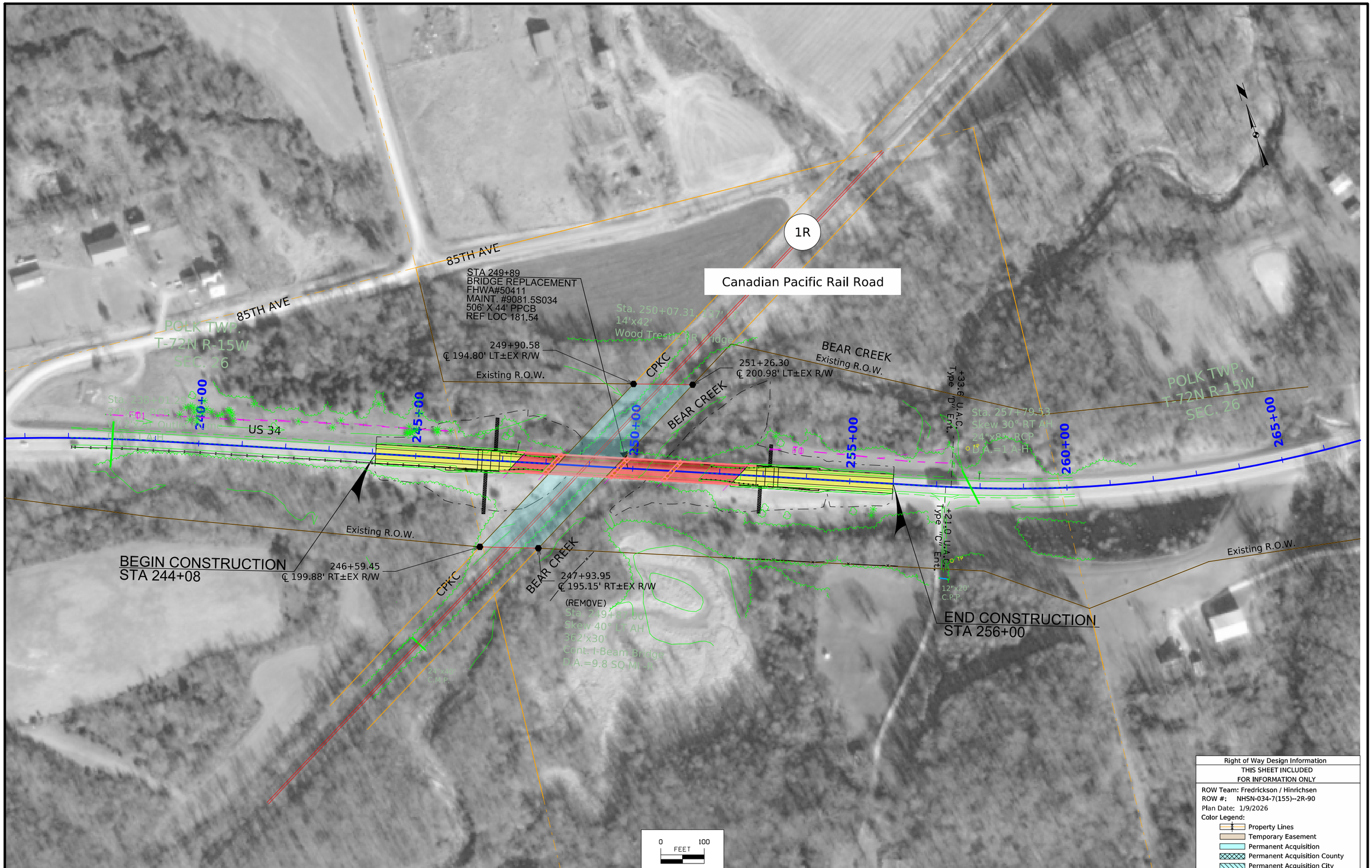
Coordinate listing from next sheet will be used with IaRTN for monument recovery. No other reference ties are given.

# HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 Adjustment)
Ia. Regional Coordinate System Zone 12 (U.S. Survey Foot)
VERT. DATUM: NAVD88
Geoid Model: 2018u3

| Point Name | Northing | Easting | Elevation | Code - Description |
|---|---|---|---|---|
| 900341811 | 6235745.87 | 22828740.91 | 798.84 | FENO SET -6in. Dp. located about 520ft West along IA. Hwy. 34 from 85th St. Intersection at 33.6ft South of CL IA34; and 17.2ft South of South Edge IA34 HMA Pavement; and 6.7ft North of Sta. 230 Sign; and 71.0ft W/SW. of Wood Mailbox Post (Res. #20814); and 81.1ft North of Center West Gate Post. |
| 900341813 | 6235894.35 | 22830371.98 | 737.30 | FENO SET -3.5in. Dp. located at NE. Corner Intersection of 85th St. and 205th Ave. at 13.0ft West of North I-Beam to Level-C Gate Post (Access to East); and 13.0ft North of CL Level-C Access Road; and 6.9ft W/SW of Stop Sign; and 27.5ft N/NW of South I-Beam Gate Post to Level-C Access East. |
| 900341817 | 6234973.25 | 22831466.72 | 784.27 | FENO SET -6in. Dp. located at about 2332ft SE. along IA. Hwy. 34 from 85th St. Intersection at 109.3ft Southwest of CL IA34; and 92.9ft SW. of SW'ly Edge IA34 HMA Pavement near Top of Backslope (Embankment); and 132.7ft SE. of Res. #20322 Metal Sign Post; and 88.2ft South/SE. of Top South End RCP; and 123.0ft Easterly of top center Phone Ped. Box. |
| 900341819 | 6235133.27 | 22832962.24 | 765.60 | FENO SET -6in. Dp. located about 2680ft West along IA. Hwy. 34 from 194th Ave. Intersection at 25.1ft North of CL IA34; and 9.2ft North/NW of Northerly Edge IA34 HMA Pavement; and 119.1ft NW. of Mile Marker 182 Metal Sign Post; and 128.0ft Easterly of West end Cable Barrier Anchor; and 4ft North/NW of Cable Barrier. |
| 90013 | 6227896.81 | 22827774.53 | 848.46 | CP Fnd. CCP Berntsen 6ft. L. Rod Mon. w/Cap under Access Cover flush w/Ground at Wapello County GPS Network CP #93-013 per Tie Sheet details. |
| 90014 | 6244156.33 | 22828822.72 | 848.46 | CP Fnd. CCP Berntsen 6ft. L. Rod Mon. w/Cap under Access Cover flush w/Ground at Wapello County GPS Network CP #93-014 per Tie Sheet details. |

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.




| FILE NO. 32799 | ENGLISH | DESIGN TEAM Schrock/Bahr/Jackson | Wapello COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER H1 |
|---|---|---|---|---|---|

1:51:33 PM 12/30/2025 thinric pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9003401023\ROW\ROW_90034155.dgn

108-23A
08-01-08

## TRAFFIC CONTROL PLAN

US 34:

A. Route will be closed during construction. Contractor shall install hard closure at MP 181.51 on US 34, per TC-252.

B. Access to all properties shall be maintained at all times.

C. Offsite detour will be provided and installed by the Contractor. Refer to J.2 for detour.

Contractor shall contact Jay Ridlen, Ottumwa Highway Maintenance Supervisor, (641) 684-8231 a minimum of 10-days in advance of the closure for the coordination of the detour signing.

D. The Contractor shall place two (2) portable digital message signs (PDMS) prior to closing US 34.

Place one PDMS on eastbound US 34, east of the intersection of US 34 and Monroe Wapello Road/T61 and one PDMS on westbound US 34, west of the intersection of US 34 and US 63.
Place PDMS 7-10 days prior to the closure/detour of US 34.

Use the following messages:
1st Display: "US 34 Closed"
2nd Display: "Starting (Add Date)"

Patching at the Northeast Corner of the Intersection of Main St and State St in Blakesburg (see Tab. 102-6C on C Sheets):

A. Traffic shall be maintained on Main St and State St at all times via TC-213 for patching operations.

B. Pedestrian traffic shall be detoured as shown in TC-601 during patching operations.

C. The following Special Events are expected to take place in the vicinity of this work:

a. Antique Airfield (22001 Bluegrass Rd, east of Blakesburg): AAA/APM Invitational Fly-In, Labor Day Weekend.
b. City of Blakesburg: Corn Carnival, September.

NOTE: The Contractor shall be responsible for contacting City officials prior to the events to confirm dates and plan not to work those dates. The Contractor shall allow normal traffic operations within the City of Blakesburg during the duration of the Special Events.

111-01
04-17-12

## COORDINATED OPERATIONS

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

| Project | Type of Work |
|---|---|
| To Be Determined | |

108-25
10-21-14

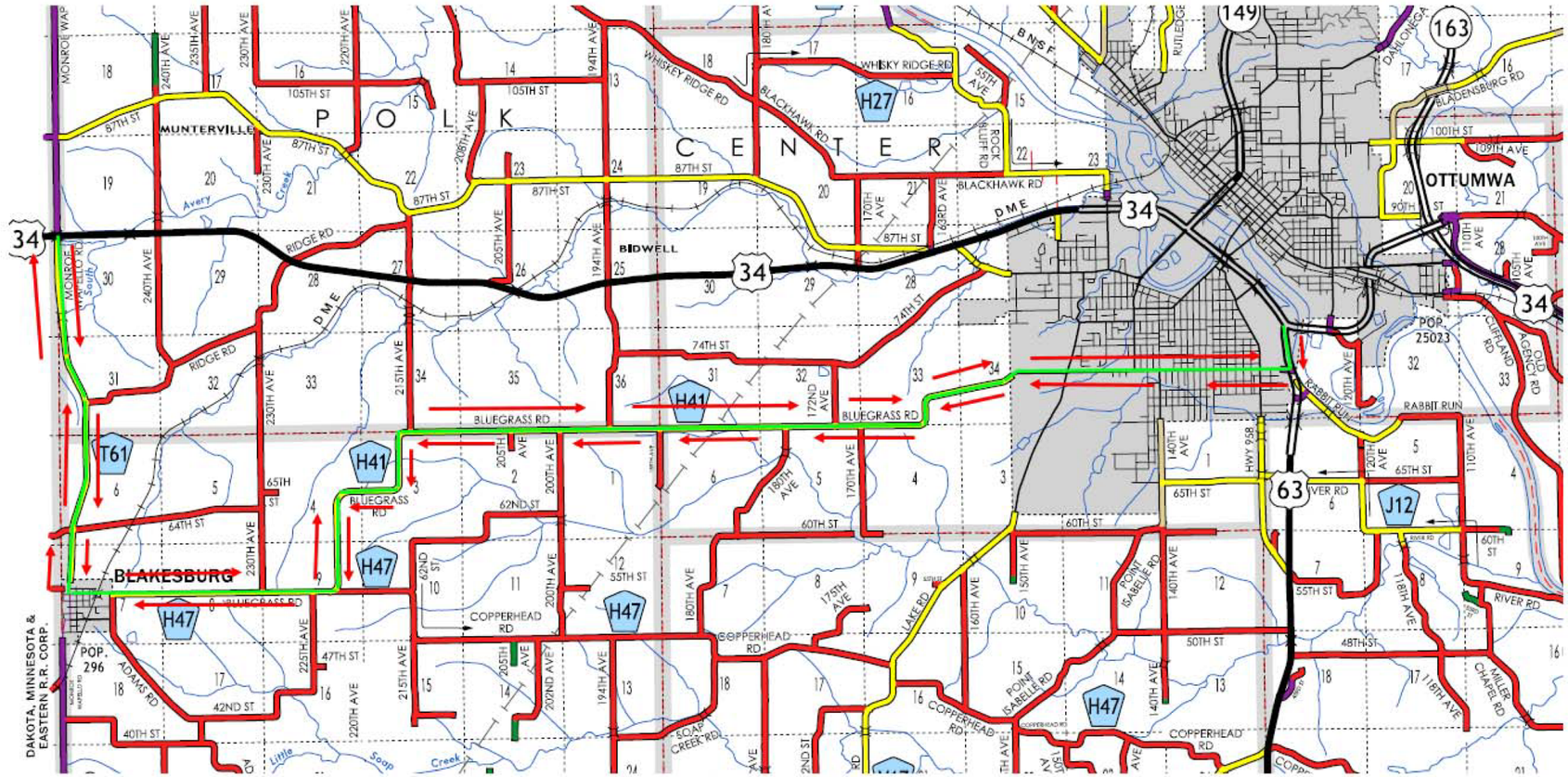
## 511 TRAVEL RESTRICTIONS

| Route | Direction | County | Location Description | Feature Crossed | Object Type | Maint. Bridge No., Structure ID, or FHWA No. | Type of Restriction | Existing Measurement | Construction Measurement | Construction Measurement as Signed | Projected As Built Measurement | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | No Travel Restrictions Expected | | | | | | | | | |

108-26A
08-01-08

## STAGING NOTES

A. Intersection patching operations in Blakesburg (see Tab 102-6C on C sheets) and Detour route preparations shall be completed prior to closing US 34 and initiating the Detour.




DETOUR

# Wapello County

**Bear Creek and ICE RR 4.2 mi W of Co Rd H35**
**BRF-034-7(154)--38-90**
**PIN:23-90-034-010**

90

| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER J.2 |
|---|---|---|---|---|---|

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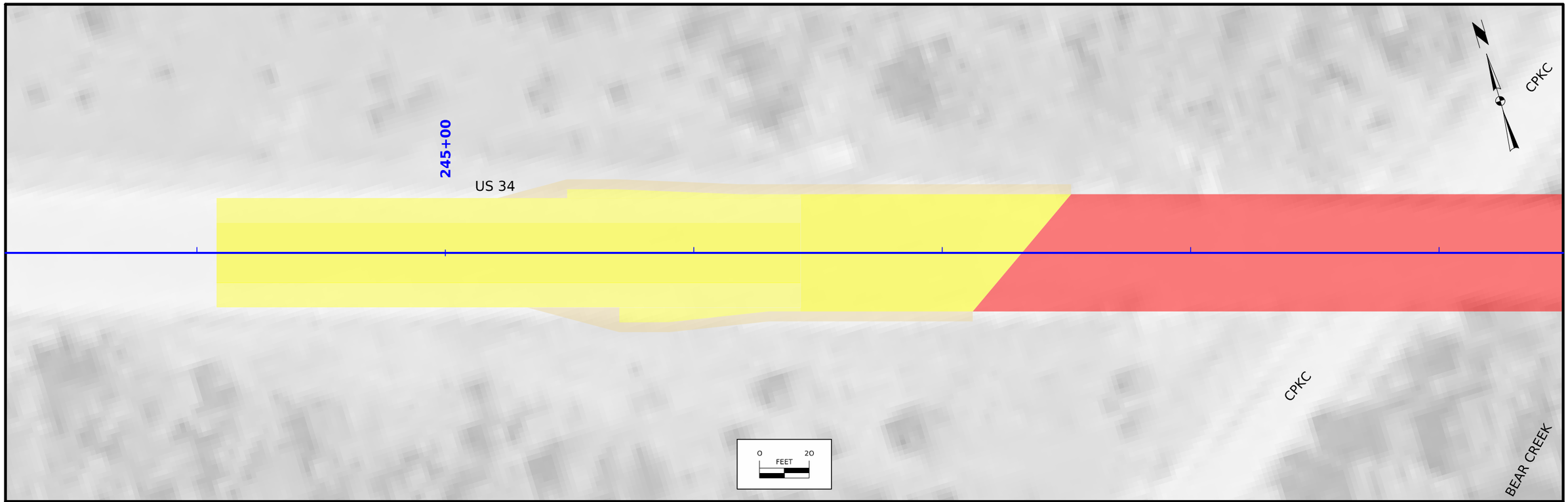


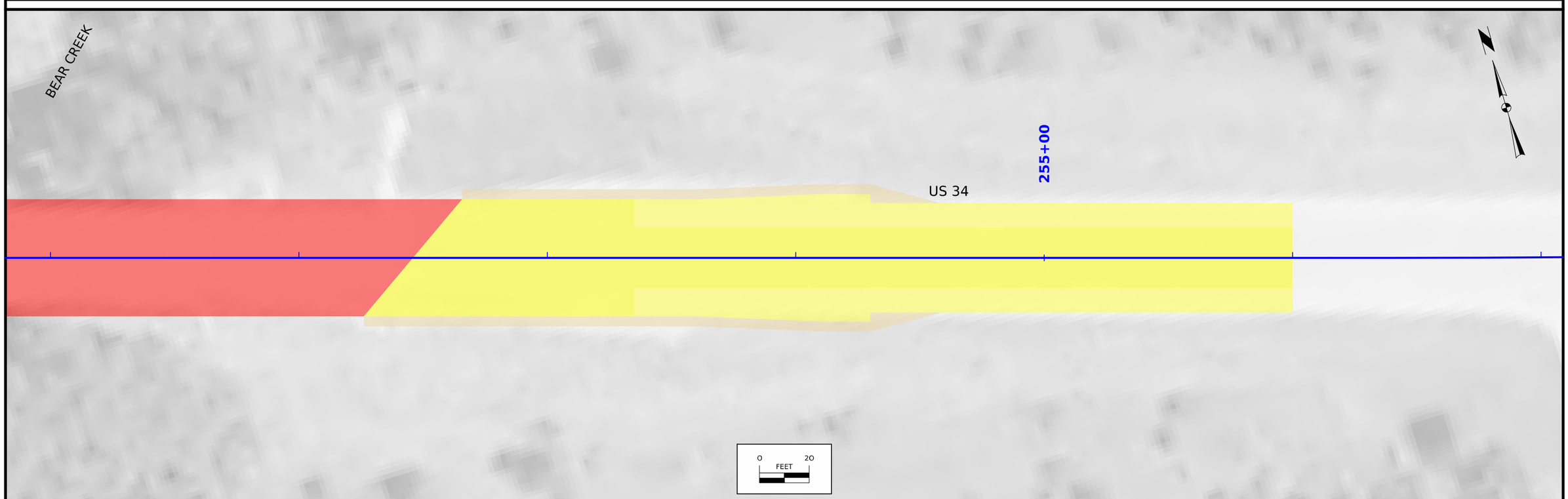


| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER L.1 |
|---|---|---|---|---|---|

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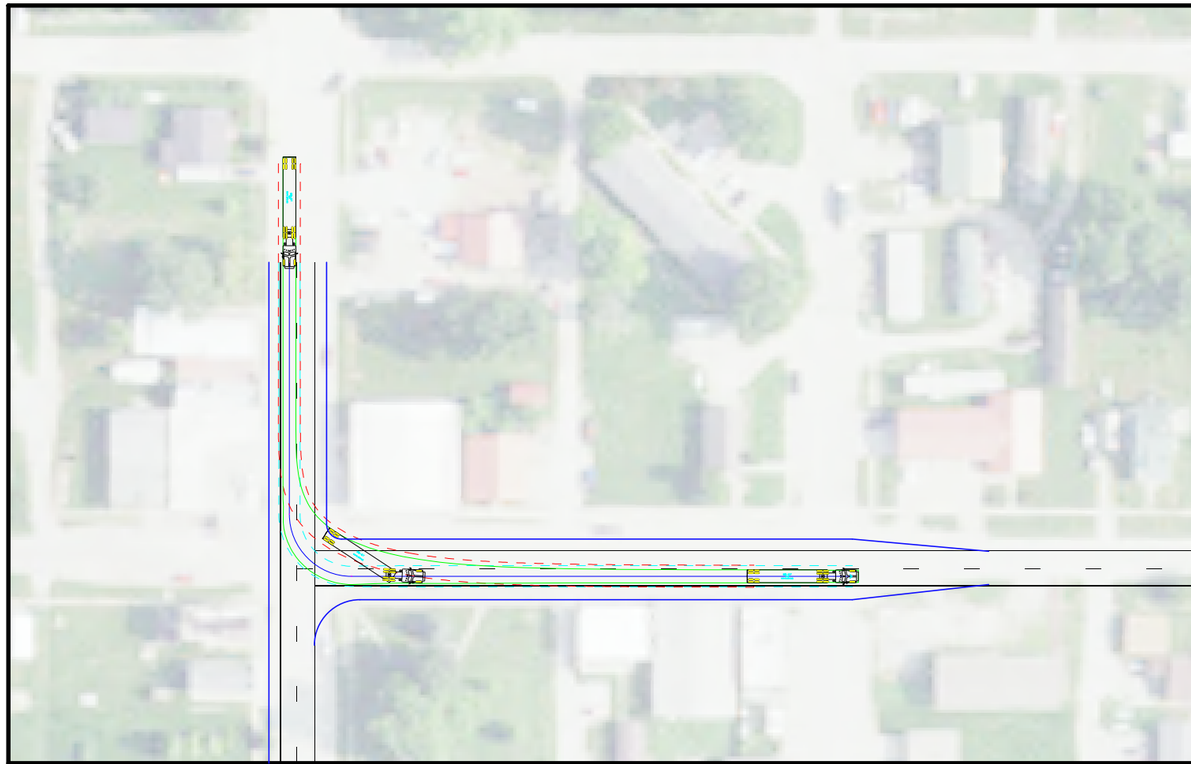
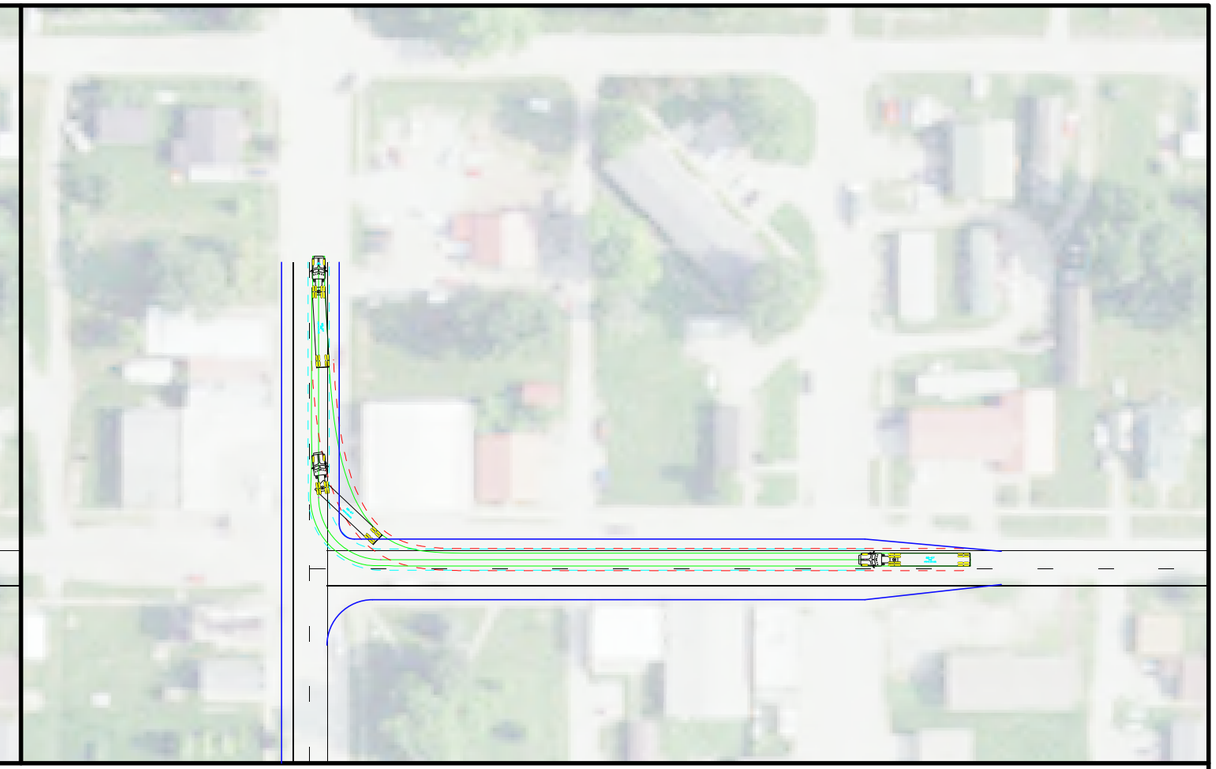
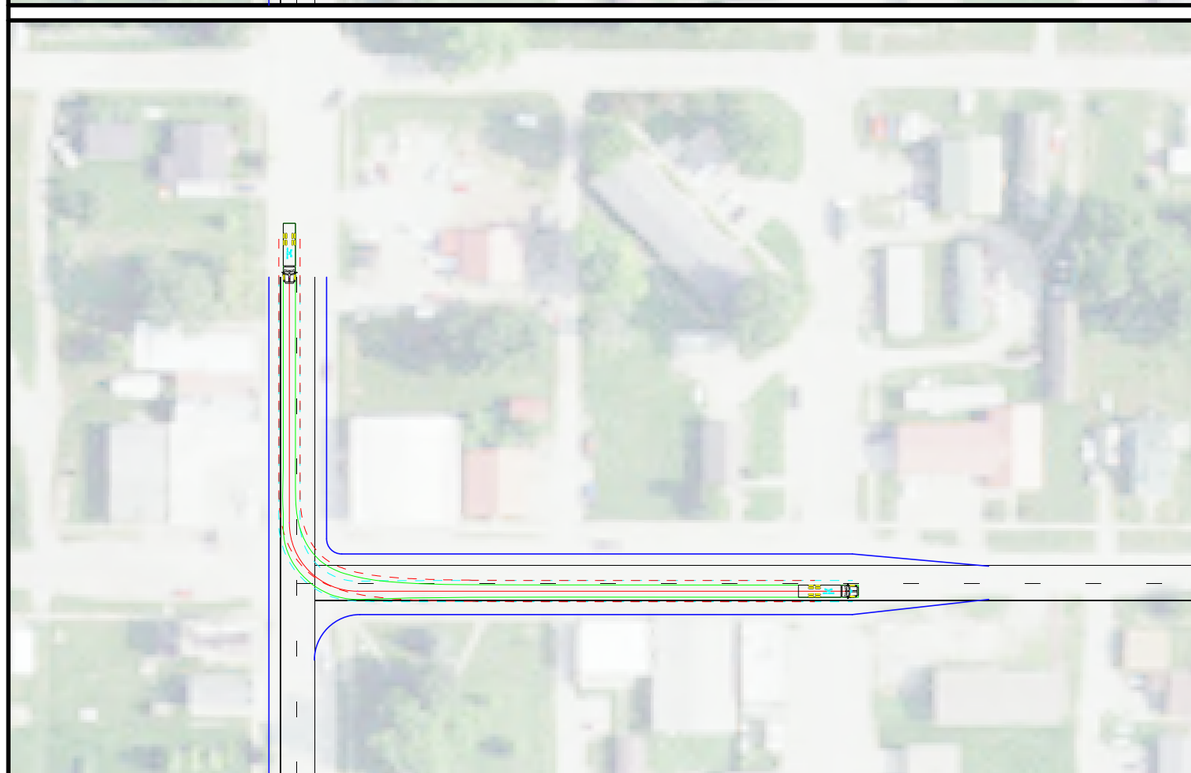
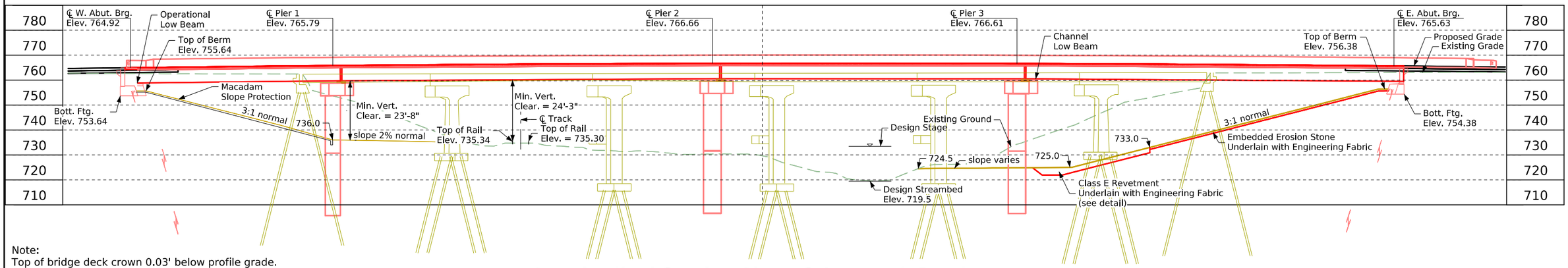






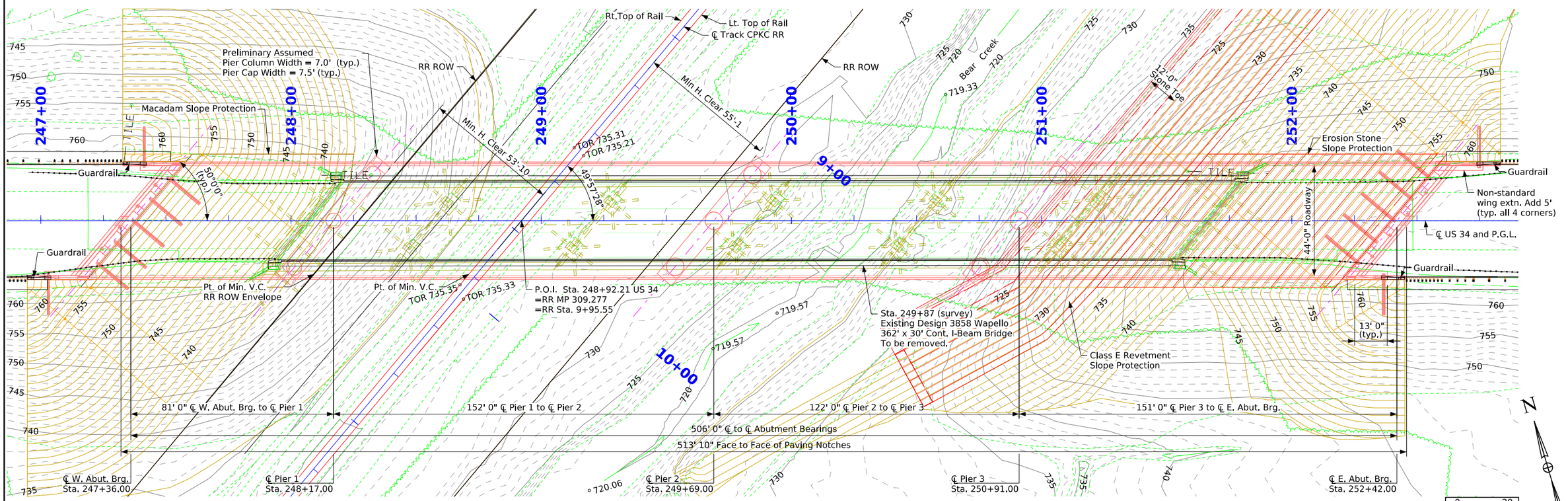
| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER U.1 |
|---|---|---|---|---|---|

Control Point: 900341817, Northing 6234973.25, Easting 22831466.72, Elev. 784.27, FENO SET - 6in. Dp. located at about 2332ft SE. along IA. Hwy 34 from 85th St. Intersection at 109.3ft Southwest of CL IA34; and 92.9ft SW of S W'ly Edge IA 34 HMA Pavement near Top of Backslope (Embankment); and 132.7ft SE of Res #20322 Metal Sign Post; and 88.2ft South/SE of Top South End RCP; and 123.0ft Easterly of top center Phone Ped. Box

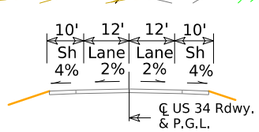



Note:
Top of bridge deck crown 0.03' below profile grade.

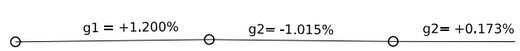
## Longitudinal Section Along ℄ Approach Roadway




Preliminary




## Typical Approach Section




VPT Sta. = 246+50.000
VPT Elev. = 763.920
Tangent L = 100.000'

VPI Sta. = 250+00.000
VC = 500.000'
VPI Elev. = 768.120

VPI Sta. = 254+00.000
VC = 300.000'
VPI Elev. = 764.060

## Proposed Profile Grade US 34

## Traffic Estimate

| | | |
|---|---|---|
| 2028 AADT | 4543 | V.P.D. |
| 2048 AADT | 5510 | V.P.D. |
| 2048 DHV | 570 | V.P.H. |
| TRUCKS | 14 | % |
| Total Design ESALs | 2.33 million | |

## Location

US 34 over CPKC RR and Bear Ck
T-72N R-15W
Section 26
Polk Township
Wapello County
FHWA No. 050411
Bridge Maint. No. 9081.5S034
FRA No. 375750W
Latitude 41.007382°
Longitude -92.551942°

General Notes:
1. This design is for the replacement of the existing 362' x 30' Continuous I-Beam Bridge (Wapello Design 3858, FHWA No. 050410, Maintenance No. 9081.5S034)

## Situation Plan

Design For 40 Degree Skew LA

# 506'-0 x 44'-0 Pretensioned, Prestressed Concrete Beam Bridge

81'-0, 151'-0 End Spans — 152'-0, 122'-0 Interior Span

## Situation Plan

STA. 249+89.00 (US 34) — Turn-in Date: September 2025

## Wapello County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 528 — Design Sheet No. 1 of 4 — FHWA No. 050411

| FILE NO. 32799 | ENGLISH | DESIGN TEAM AAA\BBB\CCC | Wapello COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER V.1 |
|---|---|---|---|---|---|

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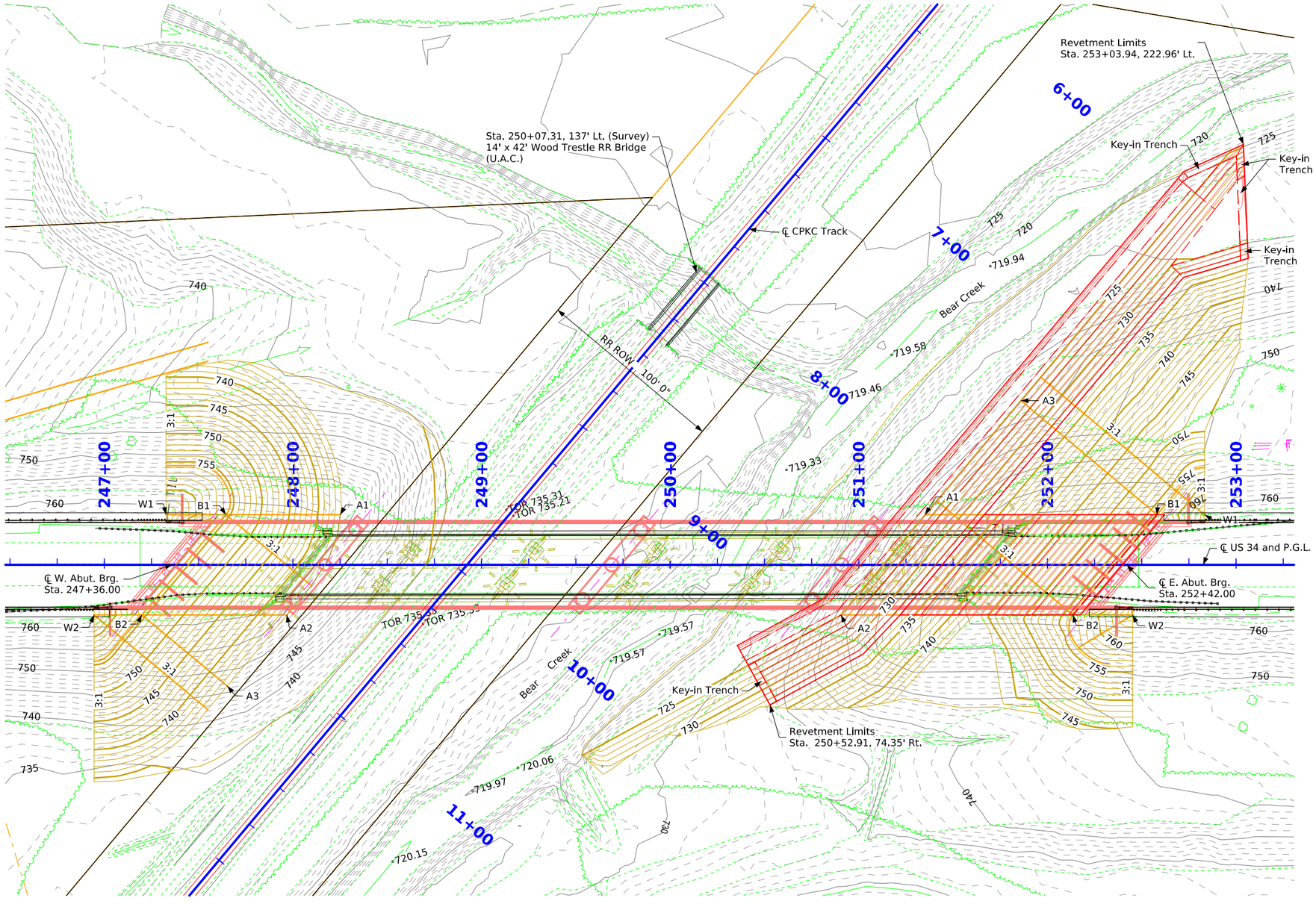
Control Point: 900341817, Northing 6234973.25, Easting 22831466.72, Elev. 784.27, FENO SET - 6in. Dp. located at about 2332ft SE. along IA. Hwy 34 from 85th St. Intersection at 109.3ft Southwest of CL IA34; and 92.9ft SW of S W'ly Edge IA 34 HMA Pavement near Top of Backslope (Embankment); and 132.7ft SE of Res #20322 Metal Sign Post; and 88.2ft South/SE of Top South End RCP; and 123.0ft Easterly of top center Phone Ped. Box

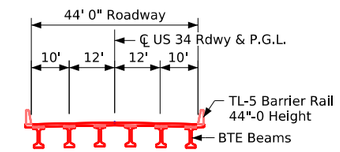



## Site Plan

## Minimum Vertical Clearance

Overhead Station = 248+71.15, Offset 21.33' Rt.
Overhead Elevation = 765.82
Depth of Superstructure = 6.13
Deck Thickness = 8.5 in.
Estimated Haunch = 2.0 in.
Beam Depth = 63 in.
Underpass Elevation = 735.42 (Top of West Rail)
Minimum Vertical Clearance = 24.27'

Envelope 50' from ℄ Track:
Overhead Station = 248+09.25, Offset 21.33' Rt.
Overhead Elevation = 765.33
Underpass Elevation = 735.50 (Top of West Rail)
Minimum Vertical Clearance = 23.70'




## Typical Bridge Section

## Utilities Note:

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

## General Utility Symbols:

E - Electric Line
G - Gas Line
SAN. - Sanitary Sewer
T - Telephone Line
W - Water Line
FO - Fiber Optic Line
GHP - Gas High Pressure
ST S - Storm Sewer
TV - TV
- Power Poles

Preliminary

Design For 40 Degree Skew LA

# 506'-0 x 44'-0 Pretensioned, Prestressed Concrete Beam Bridge

81'-0, 151'-0 End Spans — 152'-0, 122'-0 Interior Span

## Situation Plan - Site

STA. 249+89.00 (US 34) — Turn-in Date: September 2025

## Wapello County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 528 — Design Sheet No. 2 of 4 — FHWA No. 050411

| FILE NO. 32799 | ENGLISH | DESIGN TEAM AAA\BBB\CCC | Wapello COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER V.2 |
|---|---|---|---|---|---|

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Control Point: 900341817, Northing 6234973.25, Easting 22831466.72, Elev. 784.27, FENO SET - 6in. Dp. located at about 2332ft SE. along IA. Hwy 34 from 85th St. Intersection at 109.3ft Southwest of CL IA34; and 92.9ft SW of S W'ly Edge IA 34 HMA Pavement near Top of Backslope (Embankment); and 132.7ft SE of Res #20322 Metal Sign Post; and 88.2ft South/SE of Top South End RCP; and 123.0ft Easterly of top center Phone Ped. Box

## Hydraulic Data

RIDB: BearC_Wap_9.19
Drainage Area = 10.0 Sq. Mi.
Stream Slope (HGL) = 11.3 ft./Mi.
Avg. Low Water Stage = Not Available

Operational Low Beam = 758.2
Channel Low Beam = 760.0

$Q_{25}$ = 4280 cfs
Stage = 732.0

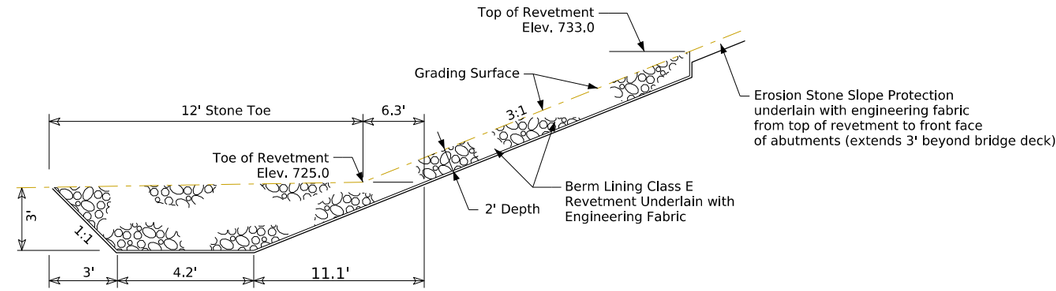
$Q_{50}$ = 5430 cfs
Stage = 732.8
Operational Freeboard = 25.4 ft.
Avg. Bridge Velocity = 5.9 fps

$Q_{100}$ = 6640 cfs (Design Event)
Stage = 733.4
Operational Freeboard = 24.8 ft.
Backwater = 1.2 ft.
Avg. Bridge Velocity = 6.7 fps

$Q_{200}$ = 7940 cfs
Stage = 734.1
Calculated Design Scour = 701.9

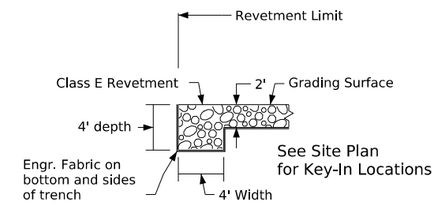
$Q_{500}$ = 9500 cfs
Stage = 734.8
Channel Freeboard = 25.2 ft.
Avg. Bridge Velocity = 8.1 fps
Calculated Check Scour = 700.4

Roadway Overtop 762.9
Sta. 244+86.42




(Not to Scale)

## Section Thru Embedded Revetment Berm




## Typical Section Thru Key-in Trench

### Estimated Berm Armoring Quantities

| Location | Revetment Class E (Ton) | Erosion Stone (Ton) | Engineering Fabric (SY) | CL. 10 Channel Excavation (CY) |
|---|---|---|---|---|
| Berm Lining - East Abutment | 1194.2 | 237.3 | 1908.9 | 944.4 |
| Stone Toe - East Abutment | 607.2 | 0.0 | 517.5 | 404.8 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Totals | 1801.4 | 237.3 | 2426.4 | 1349.2 |

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

### Berm Slope Location Table

| Points | West Abutment | | | East Abutment | | |
|---|---|---|---|---|---|---|
| | Station | Offset | Elev. | Station | Offset | Elev. |
| A1 | 248+25.13 | 26.58' Lt. | 736.00 | 251+35.21 | 26.58' Lt. | 725.00 |
| A2 | 247+96.82 | 26.58' Rt. | 736.00 | 250+90.60 | 26.58' Rt. | 725.00 |
| A3 | 247.65.21 | 64.25' Rt. | 736.00 | 251+85.99 | 87.10' Lt. | 725.00 |
| B1 | 247+64.51 | 26.58' Lt. | 755.64 | 252+58.11 | 26.58' Lt. | 756.38 |
| B2 | 247+19.89 | 26.58' Rt. | 755.64 | 252+13.49 | 26.58' Rt. | 756.38 |
| W1 | 247+32.80 | 26.58' Lt. | 764.32 | 252+83.37 | 26.58' Lt. | 764.68 |
| W2 | 246+94.63 | 26.58' Rt. | 763.87 | 252+45.20 | 26.58' Rt. | 765.04 |

Berm slope elevations reflect the grading surface.

TSL Designer Notes (To be removed by the final design engineer):

1. BTE Beams are proposed. BSB approval for 40 °skew greater than 30° has been received.
2. Stub abutments are shown. The final bridge designer is encouraged to consider semi-integral abutments in this case (506' long bridge on a 40 deg skew) since it is permitted (can use semi-integrals up to 575' at 45 degree skew) per BDM 6.5.1.1: The change to abutment type and geometry will need to be coordinated with Road Design.
3. Piers with drilled shafts are shown, however, final pier type determination will be verified during final design. The desire is to stay outside of the RR ROW and to minimize conflicts with existing foundations with steel battered piling. Piers were modeled hydraulically with up to 7.0' column width (cap is above the water surface elevations).
4. TL-5 barrier rail proposed. There is a taper down of the barrier rail to match the end rail height over the last 3'.
5. Aesthetics are not anticipated.
6. The District noted at the D2 there is a potential need for a utility conduit within the barrier rail for a FO line.
7. Non-standard wing extensions (+5') are proposed on all 4 corners of the bridge.
8. An Iowa DNR Flood Plain Permit is not required.
9. Generative Component abutments were modeled.
10. Density used for berm armoring quantity calculations, and for the final design bid item reference notes:
    1.5T/CY was utilized for Class E Revetment
    1.6T/CY was utilized for Erosion Stone
11. Deck drains shall not be located over the RR ROW.
12. The existing bridge is drawn in plan and profile based on existing plans and digitizing the existing bridge Situation Plan images. The linework and clearances should be checked by the final designer for any critical areas.

### 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.

Signature: Patricia G. Schwarz — Date: 9-8-2025

Printed or Typed Name: Patricia G. Schwarz

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: Situation Plan, Situation Plan-Site
Situation Plan-Misc., SS 1067

Preliminary

Design For 40 Degree Skew LA

506'-0 x 44'-0 Pretensioned, Prestressed Concrete Beam Bridge

81'-0, 151'-0 End Spans — 152'-0, 122'-0 Interior Span

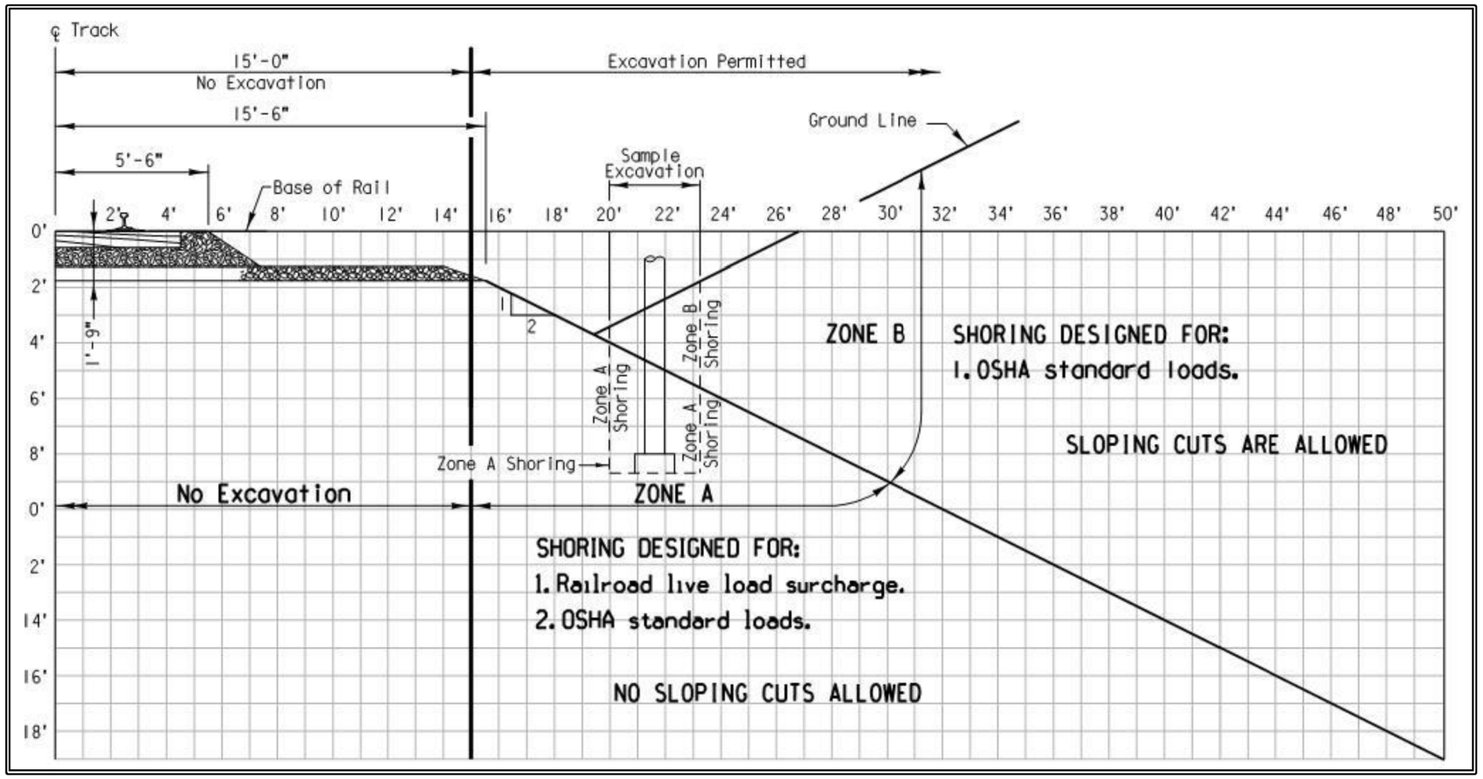
Situation Plan - Misc.

STA. 249+89.00 (US 34) — Turn-in Date: September 2025

Wapello County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 528 — Design Sheet No. 3 of 4 — FHWA No. 050411




## General Excavation Zones

Source: UPRR & BNSF Guideline for Temporary Shoring, 2021

## Railroad General Notes:

Railroad review and approval of shoring, erection, demolition, and falsework is required. Allow a minimum of four weeks for the review and approval of each submittal.

The proposed grade separation project shall not increase the quantity and/or characteristics of the flow in the railroad's ditches and/or drainage structures.

The elevation of the existing top-of-rail profile shall be verified before beginning construction. All discrepancies shall be brought to the attention of the railroad prior to construction.

The Contractor must submit a proposed method of erosion and sediment control and have the method approved by the railroad.

All shoring systems that impact the railroad's operations and/or supports the railroad's embankment shall be designed and constructed per current railroad guidelines for temporary shoring.

All demolitions within the railroad's right-of-way and/or demolition that may impact the railroad's tracks or operations shall be in compliance with the railroad's demolition guidelines.

Erection over the railroad's right-of-way shall be designed to cause no interruption to the railroad's operation, enabling the track(s) to remain open to traffic per the railroad's requirements.

All construction phasing that may impact the railroad operations shall be designed to cause no interruption to the railroad's operation, enabling the track(s) to remain open to traffic per the railroad's requirements.

False-work clearances shall comply with minimum construction clearances.

All permanent clearances shall be verified before project closing.

For railroad coordination please refer to the railroad coordination requirements as part of special provisions.

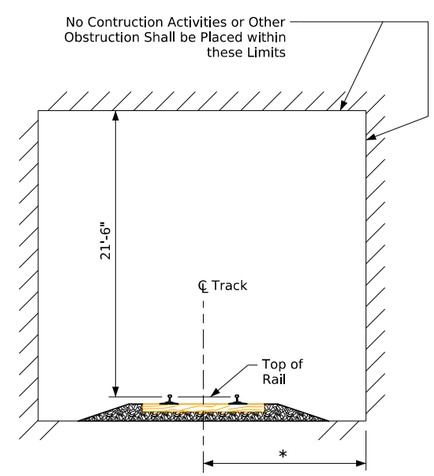
## General Shoring Notes:

All dimensions are measured perpendicular to track.

Prior to commencing any work, the Contractor shall submit for approval by the Railroad detailed plans indicating the nature and extent of the track protection shoring proposed. The Contractor shall install the temporary shoring system per the approved plans. Design of the temporary shoring system to comply with UPRR & BNSF Guidelines for Temporary Shoring.

For excavations which encroach into Zone A or B, shoring plans shall be accompanied by design calculations. Plans and calculations must be signed and stamped by a Professional Engineer registered in the State of Iowa.

Note:
BNSF = Burlington Northern Santa Fe Railroad
UPRR = Union Pacific Railroad




## Minimum Construction Clearance Envelope

(Normal to Railroad)

∗ 15'-0" for BNSF and 15'-0" for UPRR

## Top of Rail Elevations

(Stations Increase with Milepost Increase)

### Main Line

| Alignment: Left Rail | | Alignment: Right Rail | |
|---|---|---|---|
| Station | Elevation | Station | Elevation |
| 0+00 | 731.85 | 0+00 | 731.88 |
| 1+00 | 732.10 | 1+00 | 732.16 |
| 2+00 | 732.60 | 2+00 | 732.61 |
| 3+00 | 732.95 | 3+00 | 732.97 |
| 4+00 | 733.25 | 4+00 | 733.25 |
| 5+00 | 733.44 | 5+00 | 733.45 |
| 6+00 | 733.63 | 6+00 | 733.67 |
| 7+00 | 734.06 | 7+00 | 734.15 |
| 8+00 | 734.58 | 8+00 | 734.61 |
| 9+00 | 735.00 | 9+00 | 734.96 |
| (1)10+00 | 735.32 | (1)10+00 | 735.34 |
| 11+00 | 735.65 | 11+00 | 735.67 |
| 12+00 | 736.03 | 12+00 | 736.07 |
| 13+00 | 736.59 | 13+00 | 736.65 |
| 14+00 | 737.21 | 14+00 | 737.28 |
| 15+00 | 737.69 | 15+00 | 737.74 |
| 16+00 | 738.07 | 16+00 | 738.06 |
| 17+00 | 738.27 | 17+00 | 738.38 |
| 18+00 | 738.63 | 18+00 | 738.69 |
| 19+00 | 738.98 | 19+00 | 738.94 |
| 20+00 | 739.36 | 20+00 | 739.28 |

(1) Existing Track Sta. 10+00

Preliminary

Design For 40 Degree Skew LA

506'-0 x 44'-0 Pretensioned, Prestressed Concrete Beam Bridge

81'-0, 151'-0 End Spans 152'-0, 122'-0 Interior Span

BNSF & UPRR General Notes & Shoring

STA. 249+89.00 (US 34) Turn-in Date: September 2025

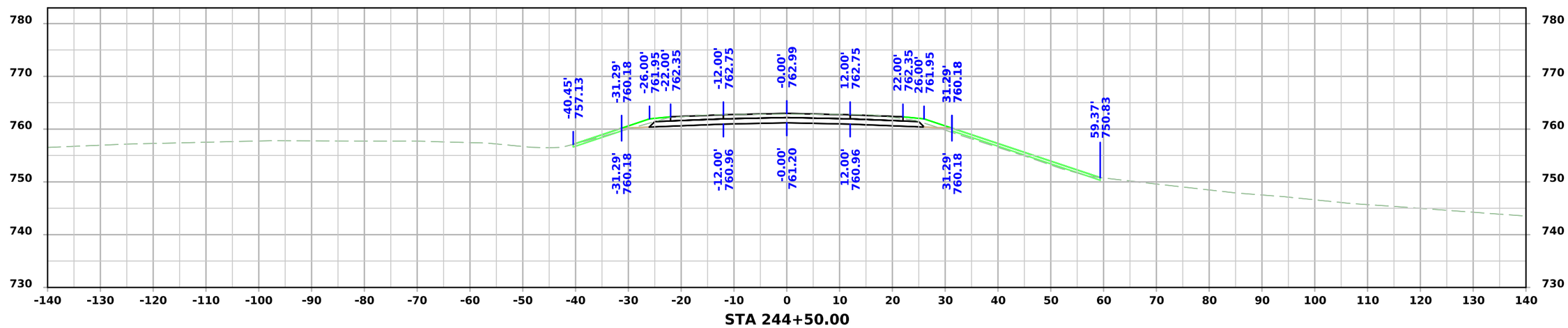
Wapello County

IOWA DEPARTMENT OF TRANSPORTATION

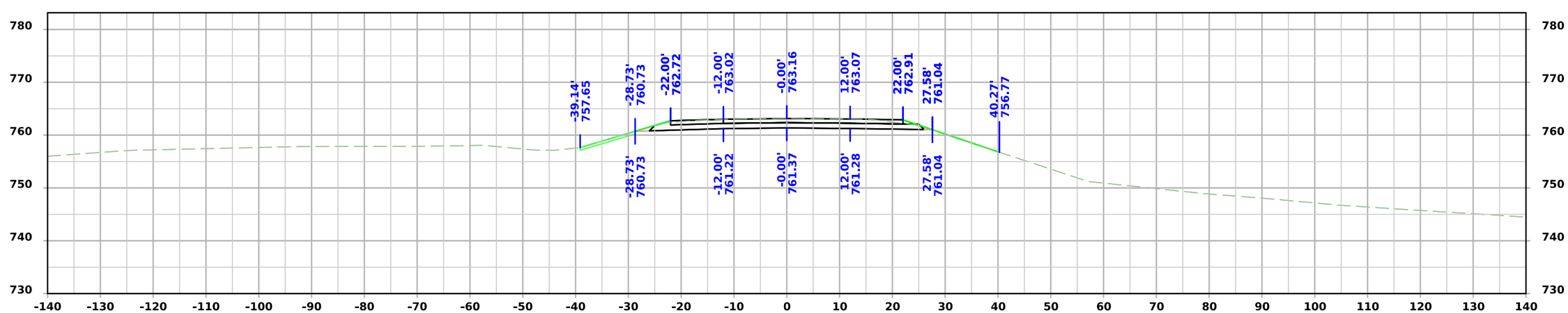
Design No. 528 Design Sheet No. 4 of 4 FHWA No. 050411

Revised 07-2019: For UPRR, Changed Horizontal Distance of Minimum Construction Clearance Envelope to 15'-0" (Was 12'-0").
Revised 03-2022: Updated "General Excavation Zones" Detail and "General Shoring Notes" to Follow the "UPRR & BNSF Guidelines for Temporary Shoring, 2021".
MiscellaneousBridges.dgn - 1067 - This Sheet Re-Issued 11-2023. Sheet Format Update.

# ML - US 34



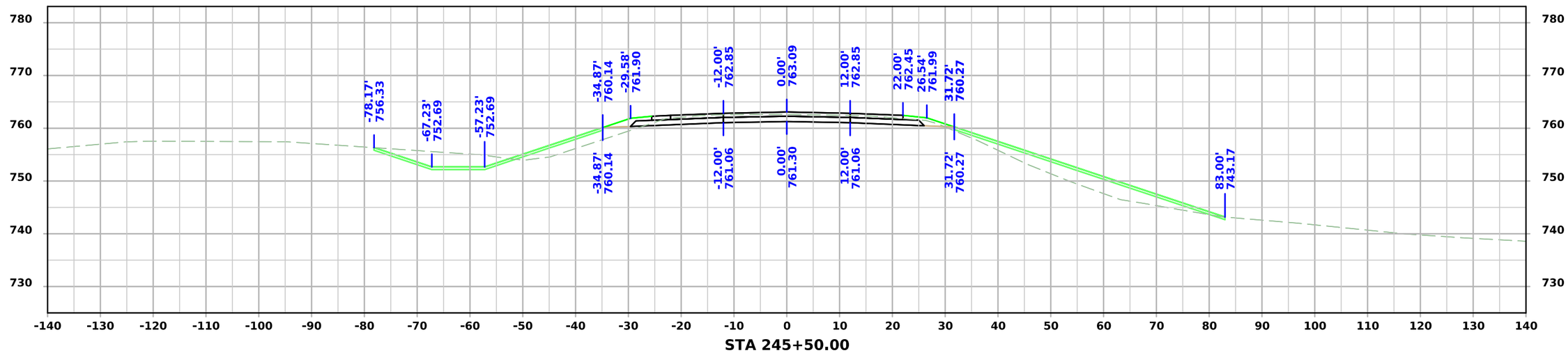

STA 244+50.00

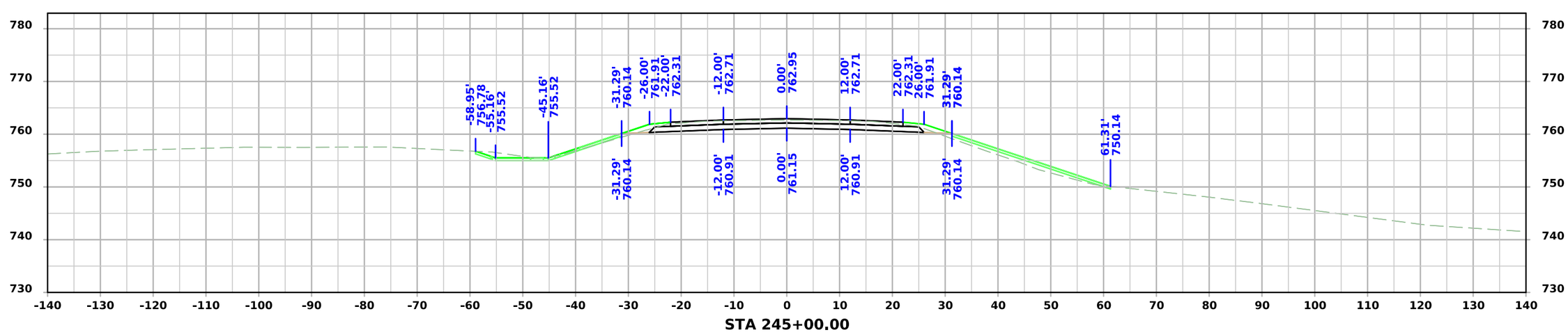



STA 244+08.00

| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER W.1 |
|---|---|---|---|---|---|

# ML - US 34




| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER W.2 |
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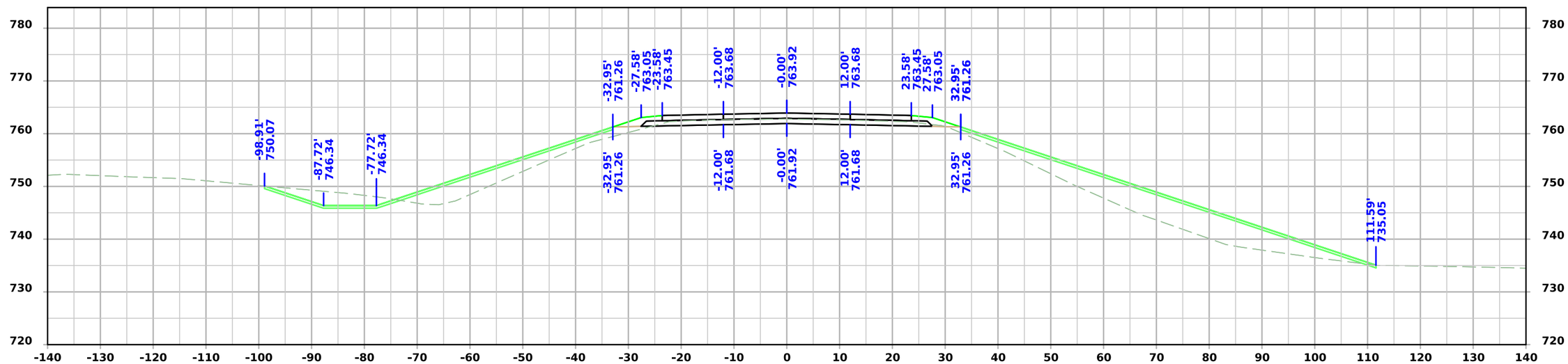
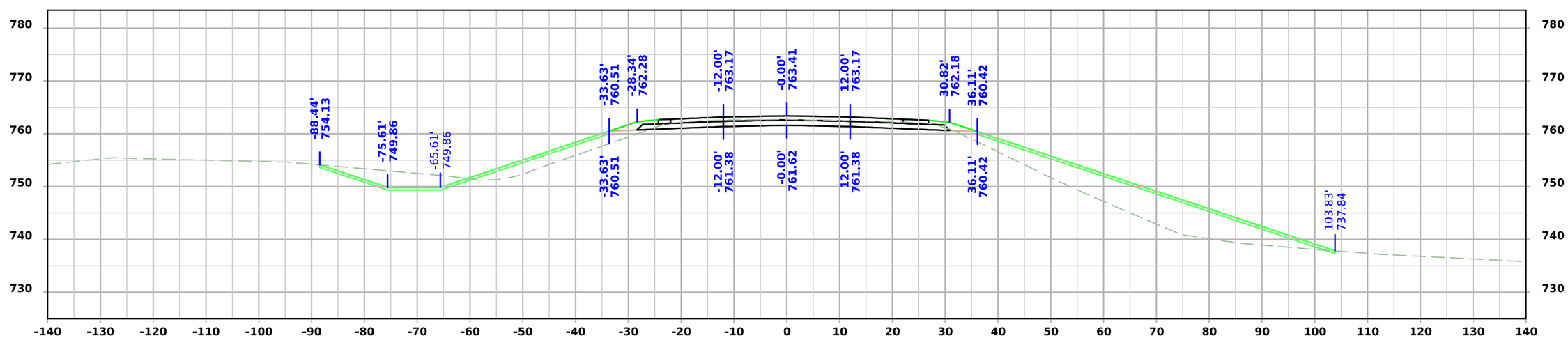
# ML - US 34




STA 246+50.00

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| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER W.3 |
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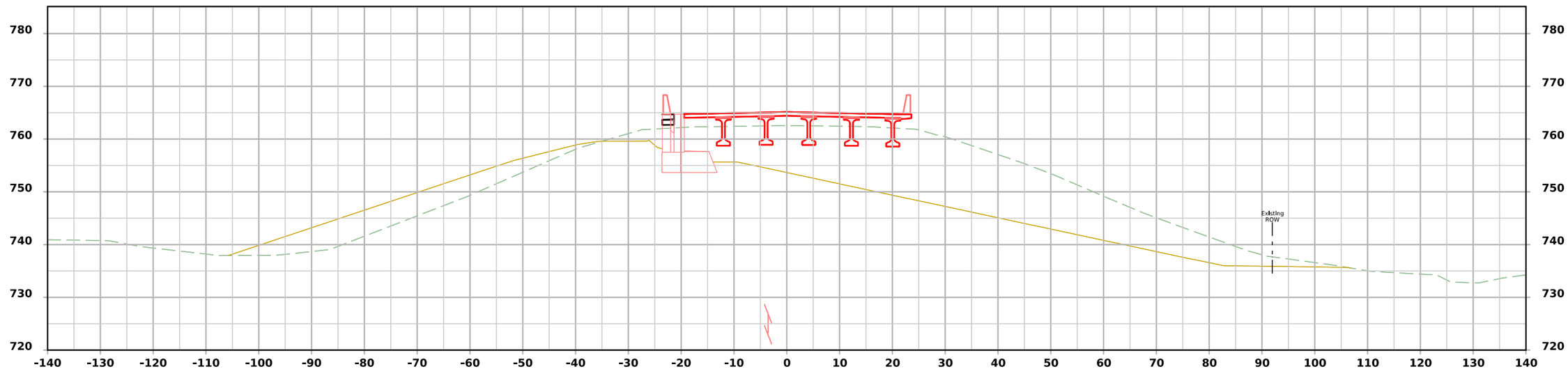
# ML - US 34

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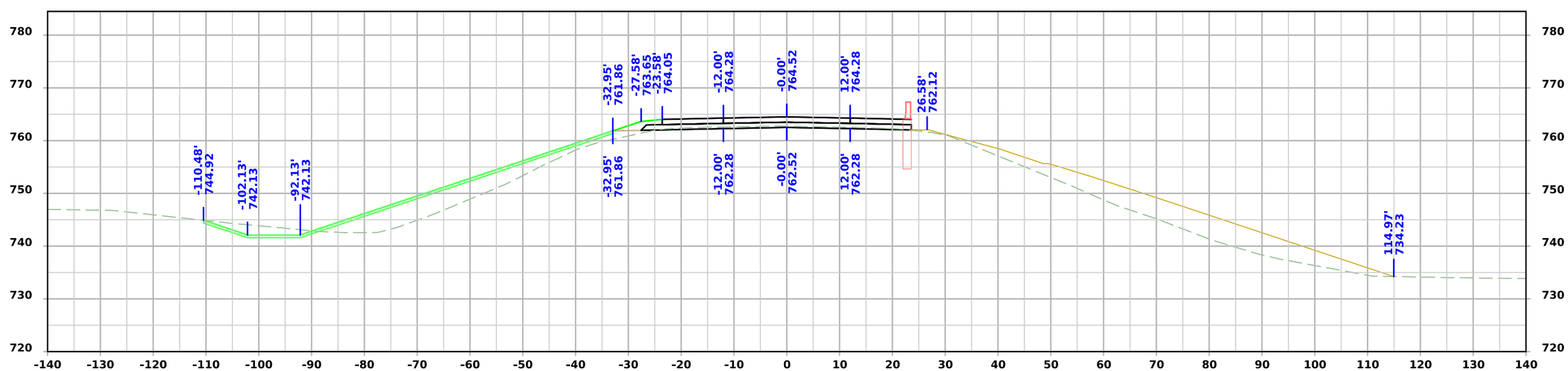


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| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER W.4 |
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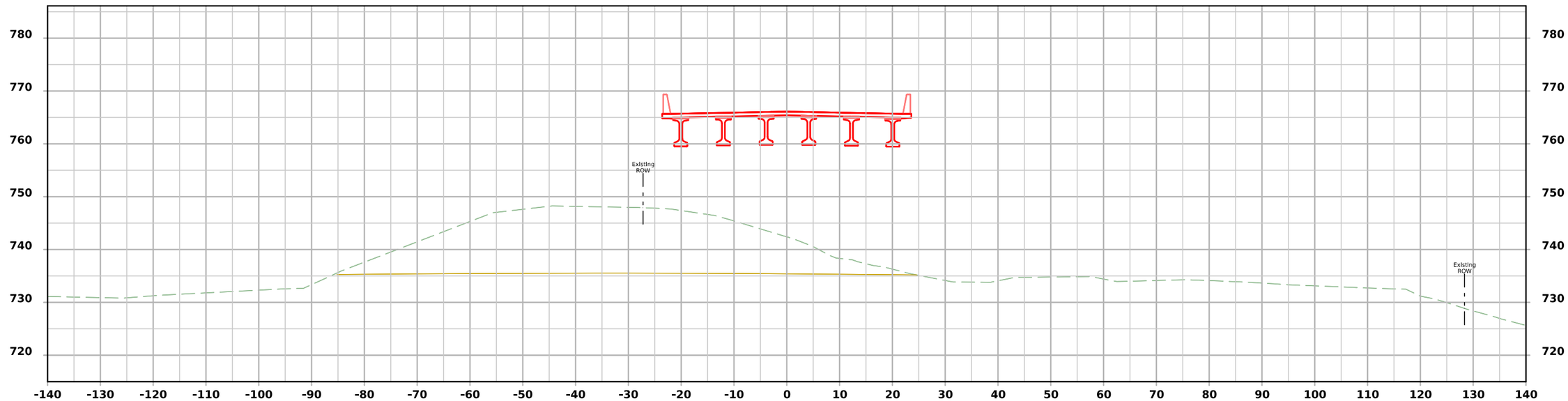
# ML - US 34

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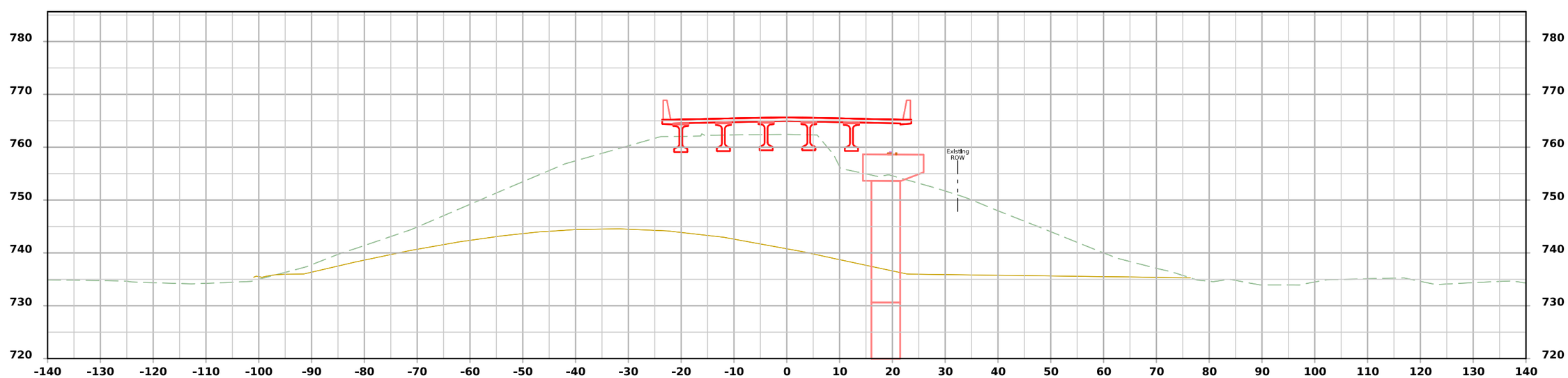


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| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER W.5 |
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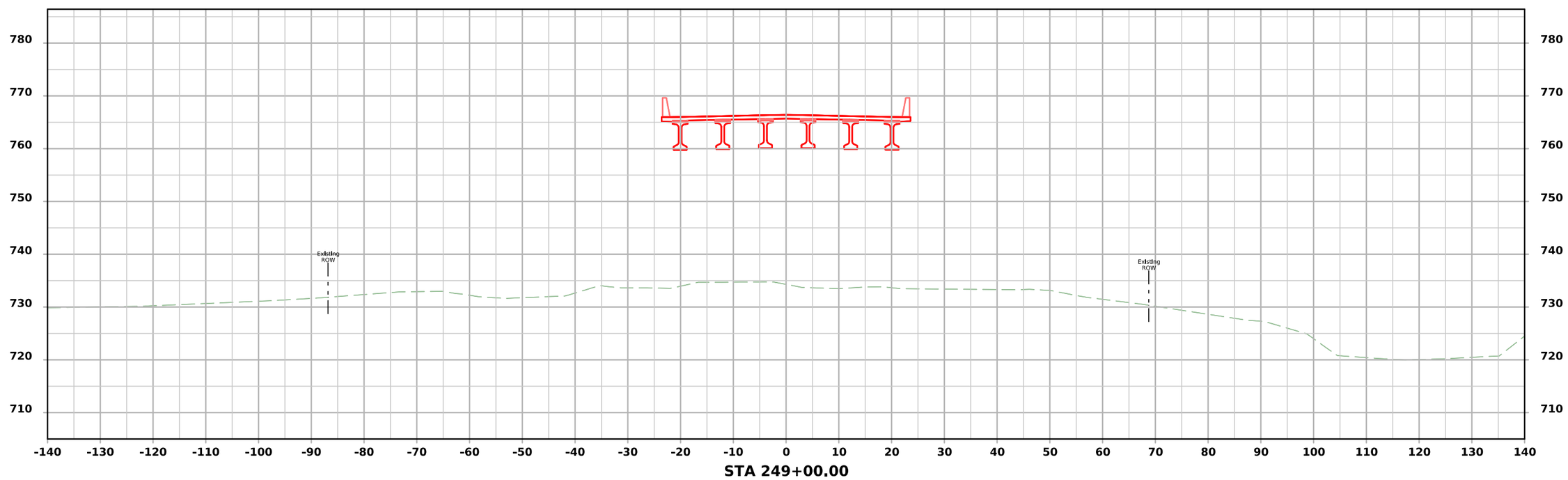
ML - US 34




| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER W.6 |
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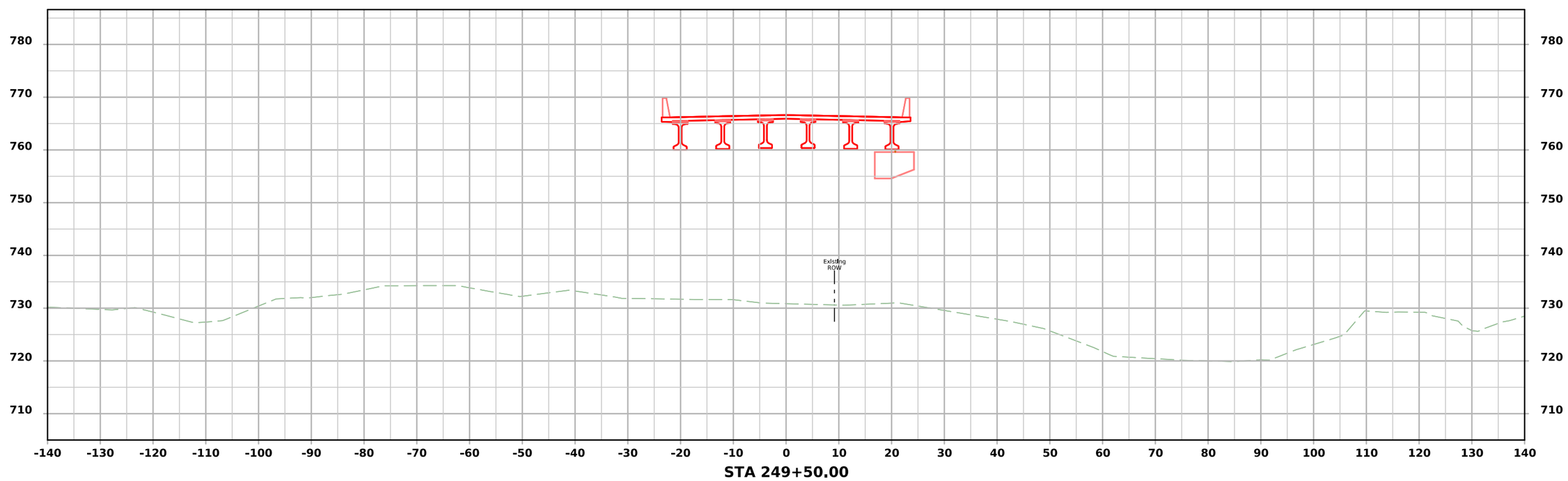


| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER W.7 |
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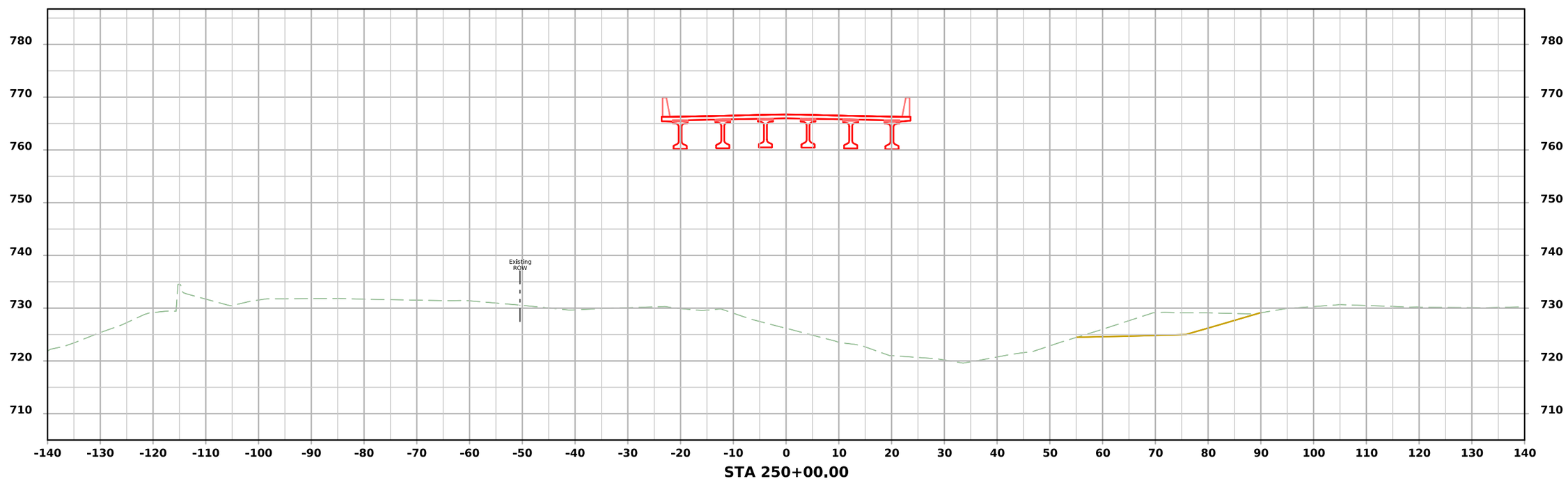


| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER W.8 |
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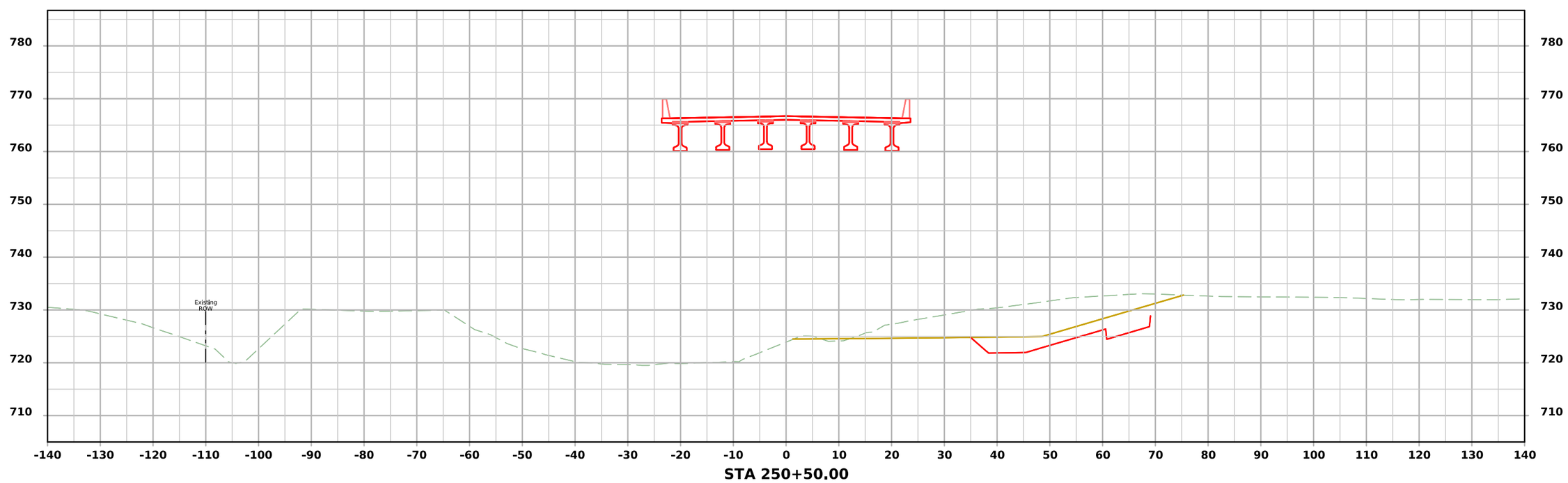


| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER W.9 |
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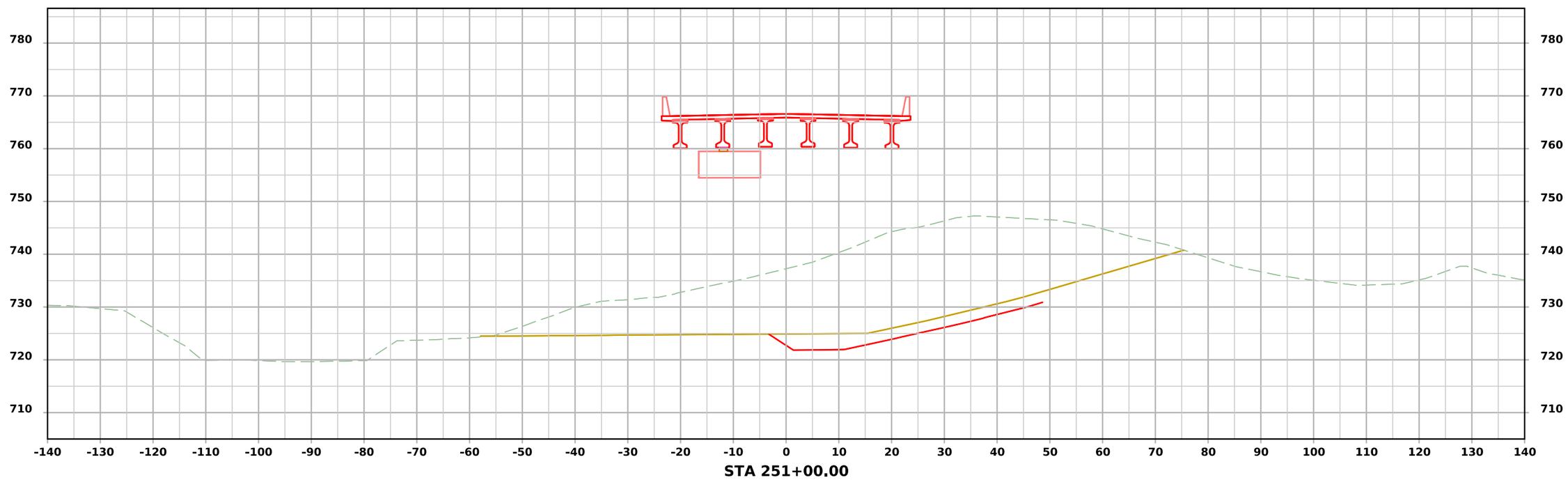
ML - US 34




| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER W.10 |
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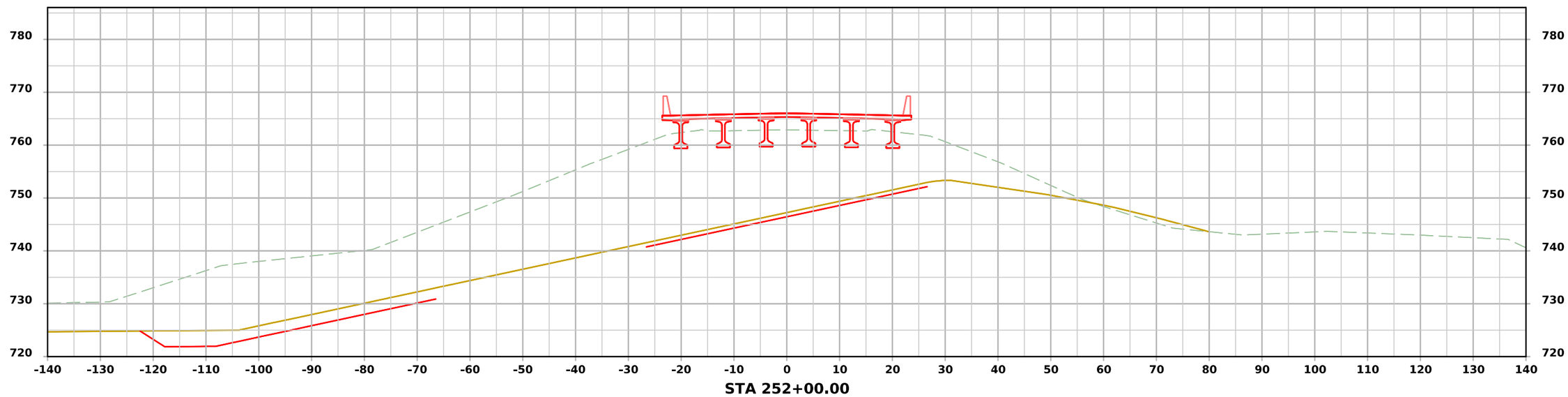
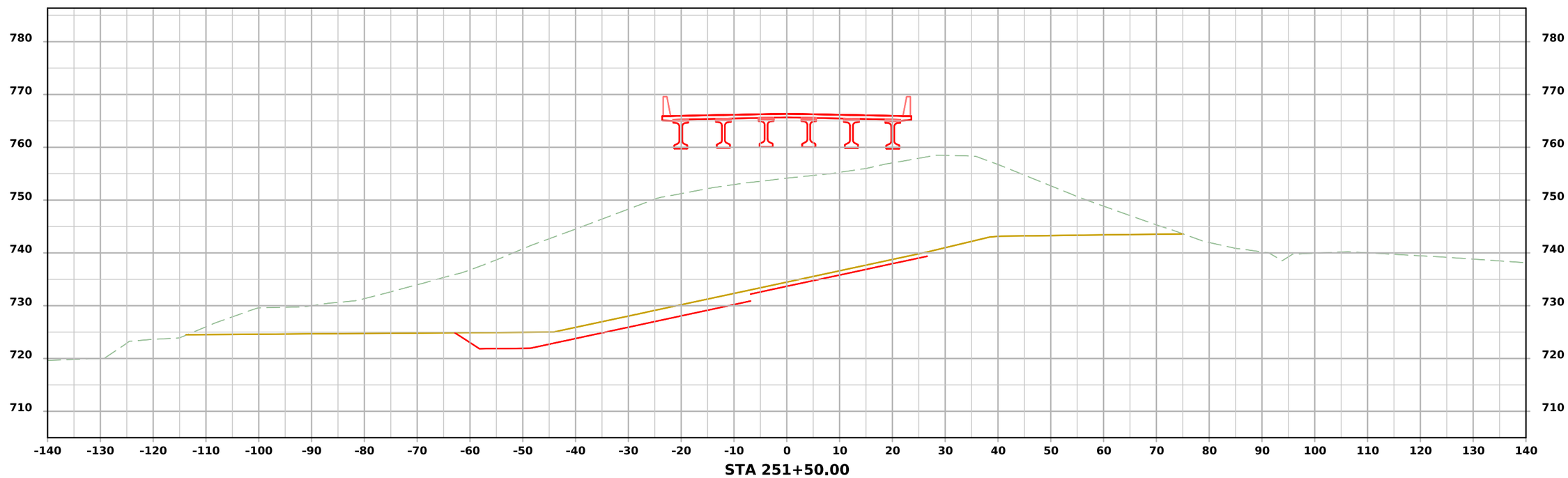
# ML - US 34




| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER W.11 |
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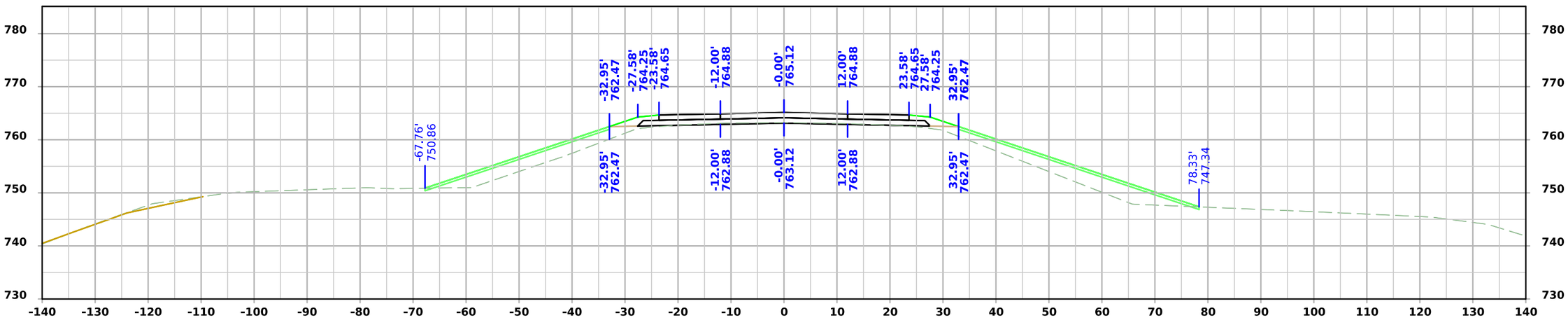
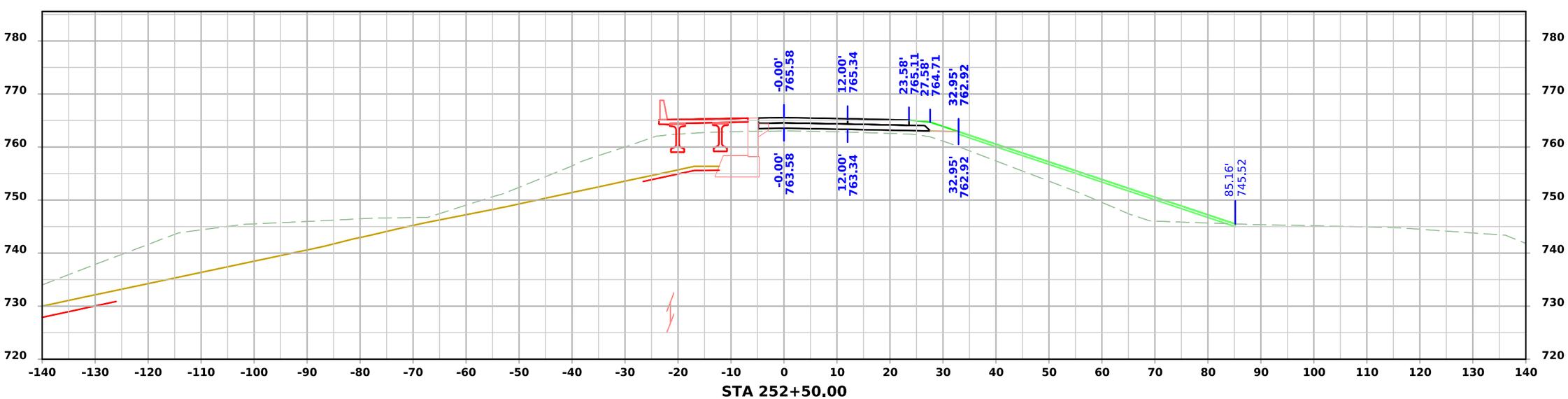
# ML - US 34




| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER W.12 |
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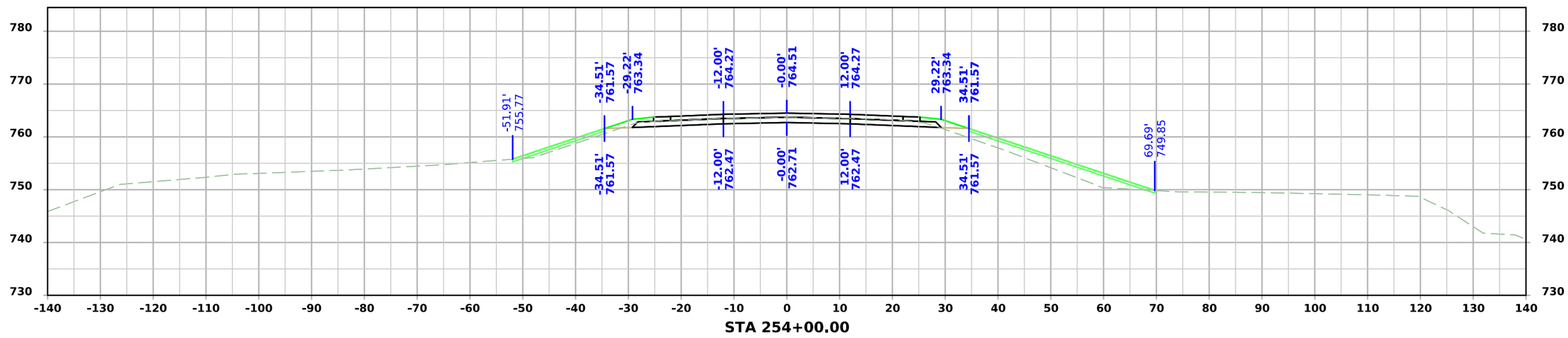
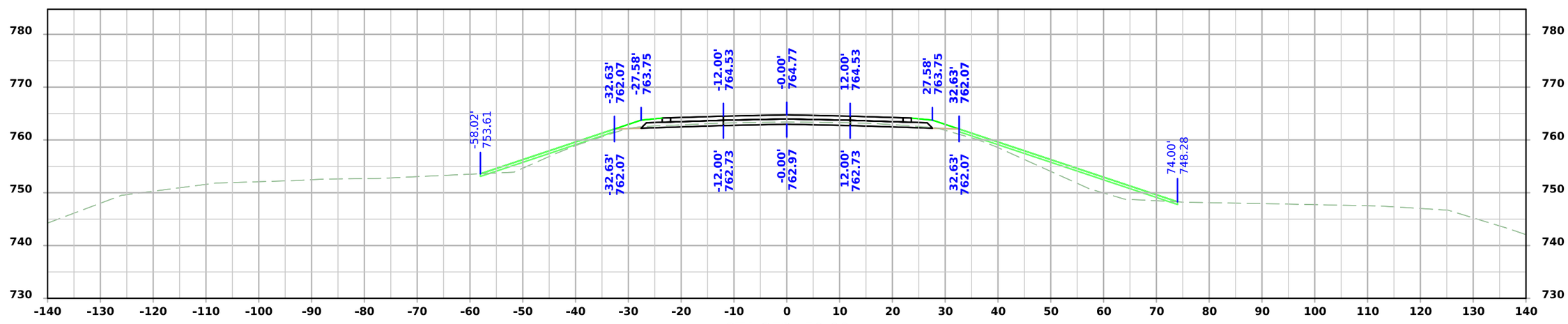
# ML - US 34




STA 254+00.00

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| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER W.13 |
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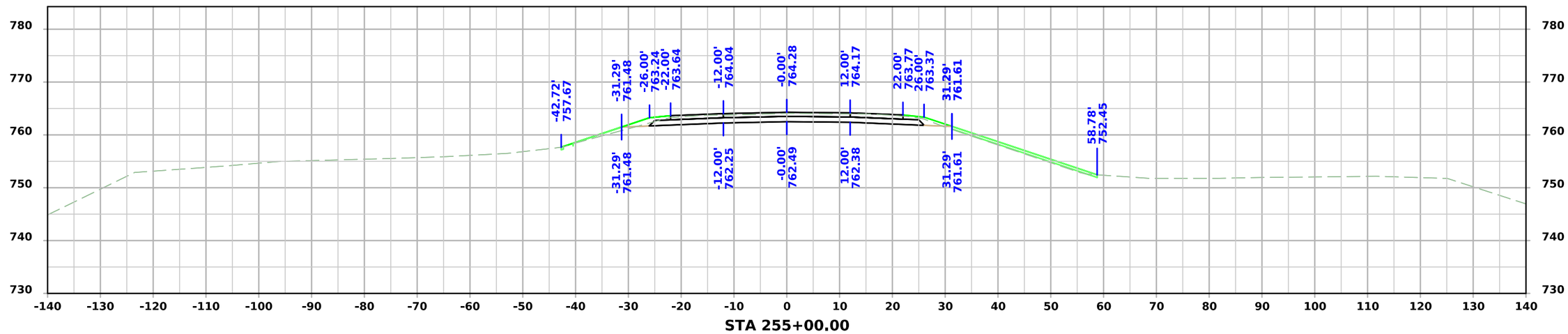
# ML - US 34

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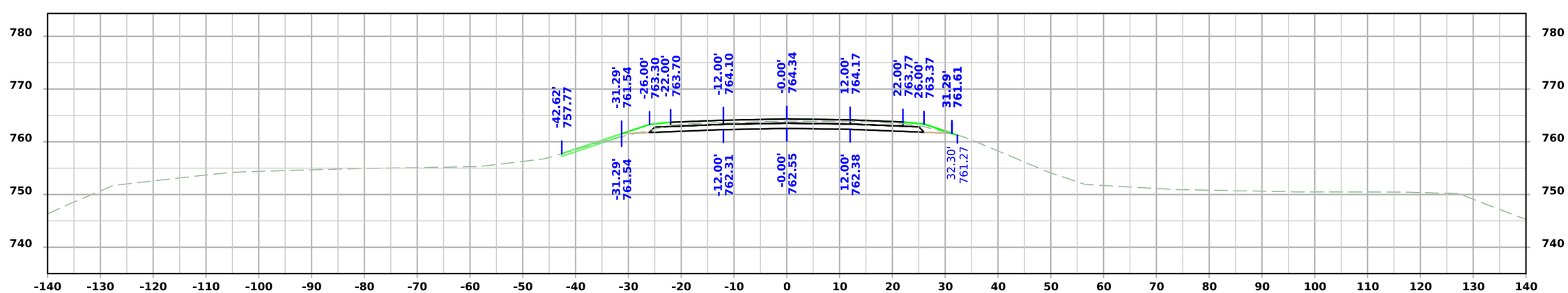


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| FILE NO. 32799 | ENGLISH | DESIGN TEAM SCHROCK/BAHR/JACKSON | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(154)--38-90 | SHEET NUMBER W.14 |
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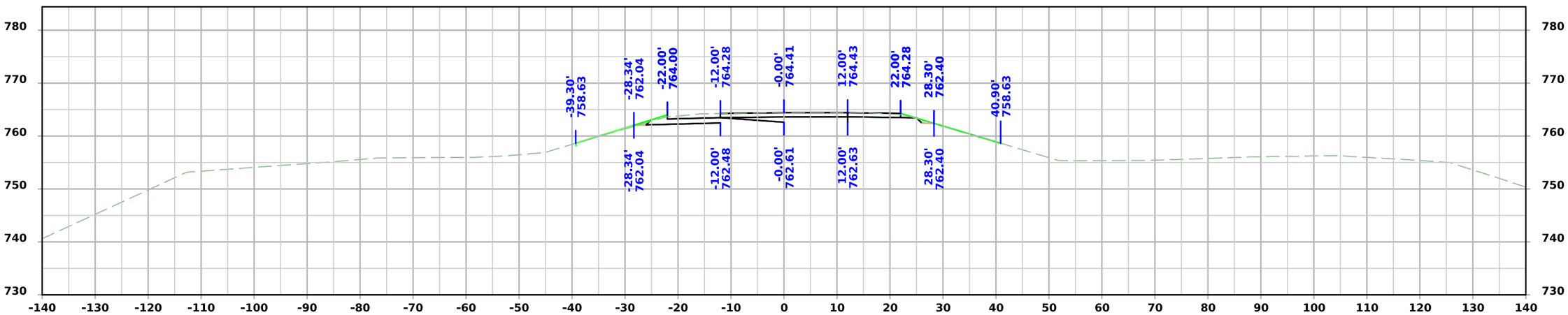
# ML - US 34

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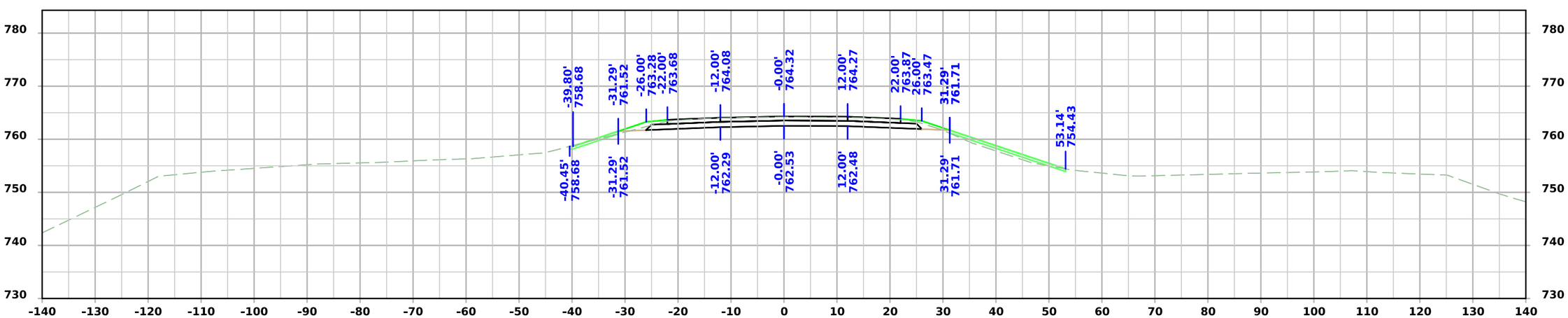


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