LETTING DATE 11/18/2025

Bridge-Unspecified
BRF-078-1(26)--38-54
KEOKUK COUNTY

INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	**Title Sheets**
A.1	Title Sheet
A.2	Location Map Sheet
A.3 - 9	Concept
B Sheets	**Typical Cross Sections and Details**
B.1	Typical Cross Sections and Details
D Sheets	**Mainline Plan and Profile Sheets**
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 3	Iowa Highway 78
G Sheets	**Survey Sheets**
G.1 - 3	Reference Ties and Bench Marks
J Sheets	**Traffic Control and Staging Sheets**
J.1	Traffic Control Plan
W Sheets	**Mainline Cross Sections**
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 11	Mainline Cross Sections
	* Color Plan Sheets

IOWA DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

KEOKUK COUNTY

Bridge-Unspecified

Stream 3.4 mi W of IA 1

SCALES: As Noted

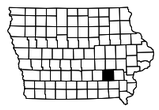
Refer to the Proposal Form for list of applicable specifications.

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
21-54-078-010
PROJECT NUMBER
BRF-078-1(26)--38-54
R.O.W. PROJECT NUMBER



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

PRELIMINARY PLANS

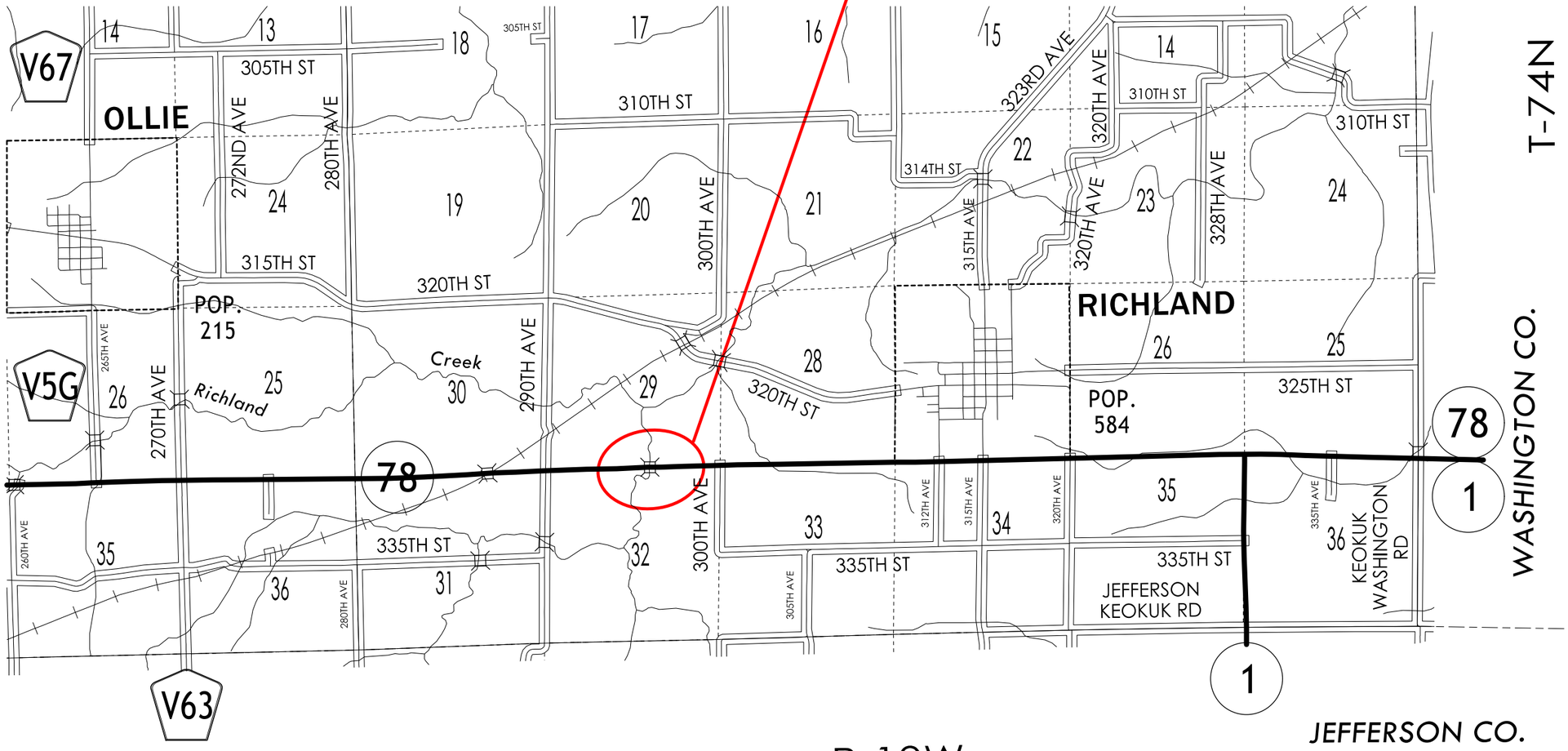
Subject to change by final design.

D2 PLAN: 11/15/2023

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell\Carlson	KEOKUK COUNTY	PROJECT NUMBER BRF-078-1(26)--38-54	SHEET NUMBER A.1

9:01:56 AM 11/14/2023 pcarls2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5407801021\Design\CADD_Files\Sheet_Files\A01_54078026Z13.dgn

EX FHWA# 32700
EX: MAINT. NO. 5409.7S078
PROP FHWA#: 32701
PROP MAINT. NO. :



LOCATION MAP SCALE
0 0.5 1
Miles

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell\Carlson	KEOKUK COUNTY	PROJECT NUMBER BRF-078-1(26)--38-54	SHEET NUMBER A.2

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IOWA DEPARTMENT OF TRANSPORTATION

TO OFFICE:	District 5	**DATE:**	January 24, 2023
ATTENTION:	Robert Younie	**PROJECT:**	Keokuk County BRF-078-1(26)--38-54 PIN: 21-54-078-010
FROM:	John E. Bartholomew		
BUREAU:	Design		
SUBJECT:	Project Concept Statement; (Final, D0)		

This project involves the replacement of the IA 78 bridge (5409.32700) over a stream 3.4 mi W of IA 1.

A concept review was held on December 12, 2022. Those present included Derrick Bielser, Anthony Blint, Dale Harmon, Jim Webb, Marvin May and Steve McElmeel from the District 5 Office; Jim Ellis from the Bridges and Structures Bureau; Brandy Beavers from the Location and Environment Bureau; Kevin Patel and Joe Adams from the Design Bureau.

The three alternatives considered were:

1. Replace the existing 3 span, 100'-0 x 26'-0 Continuous Steel I-Beam Bridge with a 130'-0 x 40'-0 Continuous Concrete Slab Bridge.

2. Replace the existing 3 span, 100'-0 x 26'-0 Continuous Steel I-Beam Bridge with a Reinforced Concrete Box (RCB) Culvert, this option was dismissed because of reduced flow rate.

3. Replace the 3 span, 100'-0 x 26'-0 Continuous Steel I-Beam Bridge with a single-span pretension prestressed concrete beam (PPCB) bridge, this option was dismissed due to increased beam depth.

Alternative 1 is preferred due to a low traffic count and availability of an offsite detour.

Additional right of way/right of entry may be required.

The Draft Project Concept Statement was sent out for review and comment with concerns to be resolved by Monday, January 23, 2023. Comments received during the review period have been considered and resolved.

JEB: jaa
Attach.
cc:

C. Purcell	M. J. Kennerly	K. D. Nicholson
M. Dell	J. S. Nelson	M. Nop
M. A. Swenson	R. A. Younie	D. E. Sprengeler
S. Majors	A. Poole	K. Brink
D. L. Newell	B. Bradley	J. W. Laaser-Webb
W. A. Sorenson	E. C. Wright	M. E. Ross
A. A. Welch	J. Harris	C. C. Poole
B. Hofer	G. Karssen	B. E. Azeltine
S. J. Gent	S. Anderson	D. Stokes
T. Jerman	K. K. Patel	Roadside
J. Vortherms	M. Todsen	M. Van Dyke
T. Lovan	L. Su	N. Abuissa
R. Meyer	J. Hauber	A. Abu-Hawash
M. E. Khoda	K. Olson	S. Neubauer
J. Ellis	S. Seivert	S. Sersland
S. McElmeel	J. R. Webb	B. Beavers
B. Lauderman	J. R. Phillips	J. Garton
J. Woodcock	B. M. Clancy	B. Porter
H. Torres-Cacho	M. Schmitt	FHWA

FINAL PROJECT CONCEPT STATEMENT

IA 78 Bridge over a stream, 3.4 mi W of IA 1.

Keokuk County
BRF-078-1(26)--38-54
PIN: 21-54-078-010
Maint. No. 5409.7S078
FHWA No. 32700

Highway Division
Design Bureau

John Bartholomew, P.E.
515-239-1540

January 24, 2023

I. STUDY AREA

A. Project Description

This project involves the replacement of the IA 78 bridge (Maint. No 5409.7S078) over a stream, 3.4 mi W of IA 1.

The three alternatives considered were:

1. Replace the existing 3 span, 100’-0 x 26’-0 Continuous Steel I-Beam Bridge with a 130’-0 x 40’-0 Continuous Concrete Slab Bridge.

2. Replace the existing 3 span, 100’-0 x 26’-0 Continuous Steel I-Beam Bridge with a Reinforced Concrete Box (RCB) Culvert, this option was dismissed because of reduced flow rate.

3. Replace the 3 span, 100’-0 x 26’-0 Continuous Steel I-Beam Bridge with a single-span pretension prestressed concrete beam (PPCB) bridge, this option was dismissed due to increased beam depth.

Alternative 1 is preferred due to a low traffic count and availability of an offsite detour.

B. Need for Project

This is a 100’ X 26’ steel beam bridge that was built in 1947. An overlay was added in 1978 with epoxy injections in 2017 and has reached the end of its service life. The deck has large hollows and leaching cracks. The steel beams have corrosion while the substructure has cracking, hollows, and spalls with exposed steel. The bridge was designed for live loads below current standards. Due to the overall condition of the bridge, a replacement is recommended.


With Route


Against Route


Right Profile


Far Right Profile

C. Present Facility

The existing structure is a 100 ft x 26 ft Continuous I-beam bridge constructed in 1946.

IA 78 in the project area is 24 ft wide HMA pavement with 3 ft wide granular shoulders and 3:1 foreslopes, constructed in 1950. HMA resurfacing was accomplished in 1980, 2001, and 2016.

D. Traffic Estimates

The 2026 construction year and 2046 design year average daily traffic estimates are 1600 ADT with 16 % trucks and 1700 ADT with 16 % trucks, respectively.

E. Sufficiency Ratings

IA 78 is classified as an Area Development route and is a maintenance service level "C" roadway. The Bridge Condition Index is 55.9.

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2016 through December 31, 2020, there were 0 crashes.

II. PROJECT CONCEPT

A. Feasible Alternatives

Alternative #1 - Replace with a bridge

The existing 100 ft x 26 ft Continuous I-beam bridge will be replaced with a 130'-0 x 40'-0 Continuous Concrete Slab bridge.

The typical cross-section of the bridge approach section will consist of a 24 ft PCC roadway with 8 ft full depth PCC shoulders and beyond the guardrail blisters it will have 3:1 foreslopes.

This bridge will be constructed on the existing vertical and horizontal alignment. New bridge approaches will be constructed. The existing guardrail will be replaced with new guardrail and the shoulders will be paved 20' beyond the ends of the guardrail. Class 10 will be necessary to flatten the existing foreslopes and to construct the new guardrail blisters. Class E revetment will be placed under the bridge for slope protection. New bridge end drains will be constructed on both ends of the bridge.

Apply erosion control and rural seeding and fertilizing to all disturbed areas.

Right of way may be required for this project.

Traffic will be maintained by an off-site detour.

Bridge Items	Estimated Costs
New Bridge	$ 676,000
Bridge Removal	26,000
Revetment	25,000
Mobilization - 10%	72,700
M & C - 20%	145,400
Bridge Costs	$ 945,100
Roadway Items	
Clearing and Grubbing	$6,700
Embankment in place, contractor furnished	700
Excavation Class 13 Waste	11,300
Modified Subbase	13,800
Bridge Approaches	157,900
Bridge End Drains	12,600
Guardrail (Includes Removal)	2,700
Removal of Pavement	5,700
Removal of Asbestos	5,000
Erosion Control	50,000
Wetland Mitigation	50,000
Seeding and Fertilizing	1,200
Composite-Paved shoulders	98,800
Composite-Class 10 Blister	19,000
Composite-Guardrail	15,200
Mobilization - 5%	31,800
Traffic Control - 5%	31,800
M & C - 20%	127,300
Roadway costs	**$ 641,500**
Project Total	**$1,586,600**

B. Detour Analysis

IA 78 will be closed and an offsite detour will be utilized. It is anticipated the detour will be in place for approximately 180 days. The detour would follow IA 1 south at the junction of IA 78 and IA 1 to County Road H17, then west on County Road H17 to County Road V53 then north to the junction of IA 78. Out of distance travel is 6.1 miles. The total distance user cost is anticipated to be $434,808. The cost for Keokuk county road maintenance will be $1,510, and Jefferson county road maintenance will be $5,300 as calculated by the Gas Tax Method. Detour signing costs will be $10,000.

C. Recommendations

It is recommended that the present structure be replaced, as described in Alternative No. 1.

D. Construction Sequence

It is anticipated that all work on this project will be awarded to one prime contractor. The Bridges and Structures Bureau will coordinate the plan preparation with assistance from the Design Bureau.

E. ADA Accommodations

There are no bike paths or sidewalks adjacent to IA 78; therefore, no ADA accommodations are planned in conjunction with this project.

F. Special Considerations

This will not be a traffic critical project.

The ABC Rating Score of 39 is less than the first stage filter threshold of 50, therefore this bridge will not be considered further as a candidate for ABC construction.

Asbestos has been identified in the joint filler located between the outside corner of the abutment and the bridge deck at the northeast corner of the bridge. The estimated quantity is 2 sq. ft. but the contractor should not rely on this quantity estimate. A permitted Iowa asbestos abatement contractor will be required to remove this material.

No bike path or sidewalk will be required as part of this project.

Right of Way may be required for this project.

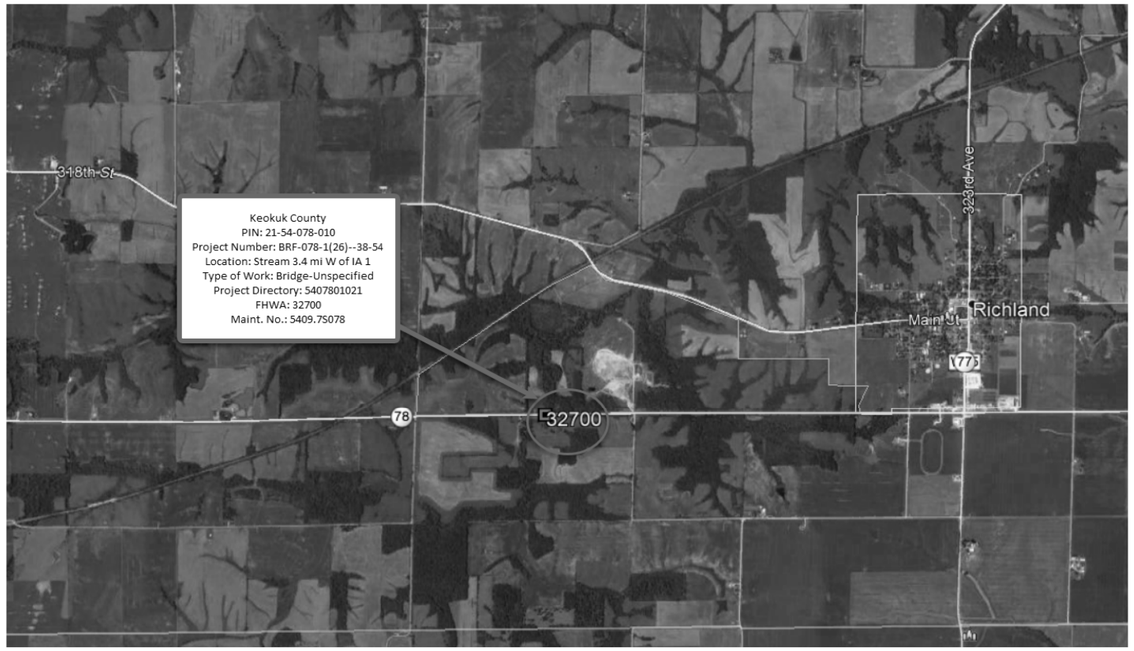
Waterway is not on a state water trail or paddling route.

The Location and Environment Bureau has reviewed this project and based on preliminary desktop observations, has determined that a Section 404 Permit will be required. It is expected that the work will be covered by Nationwide Permit 14.

G. Program Status

Site data has been developed by the Design Bureau. This project is listed in the 2023-2027 Iowa Transportation Improvement Program, with $5,000 programmed for right of way in FY 2026, and $1,430,000 for replacement in FY 2026. Costs for this project may be eligible for bridge replacement funds. A schedule of events will be developed following approval of the Project Concept.

JEB:jaa



FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	KEOKUK COUNTY	PROJECT NUMBER BRF-078-1(26)--38-54	SHEET NUMBER A.7	

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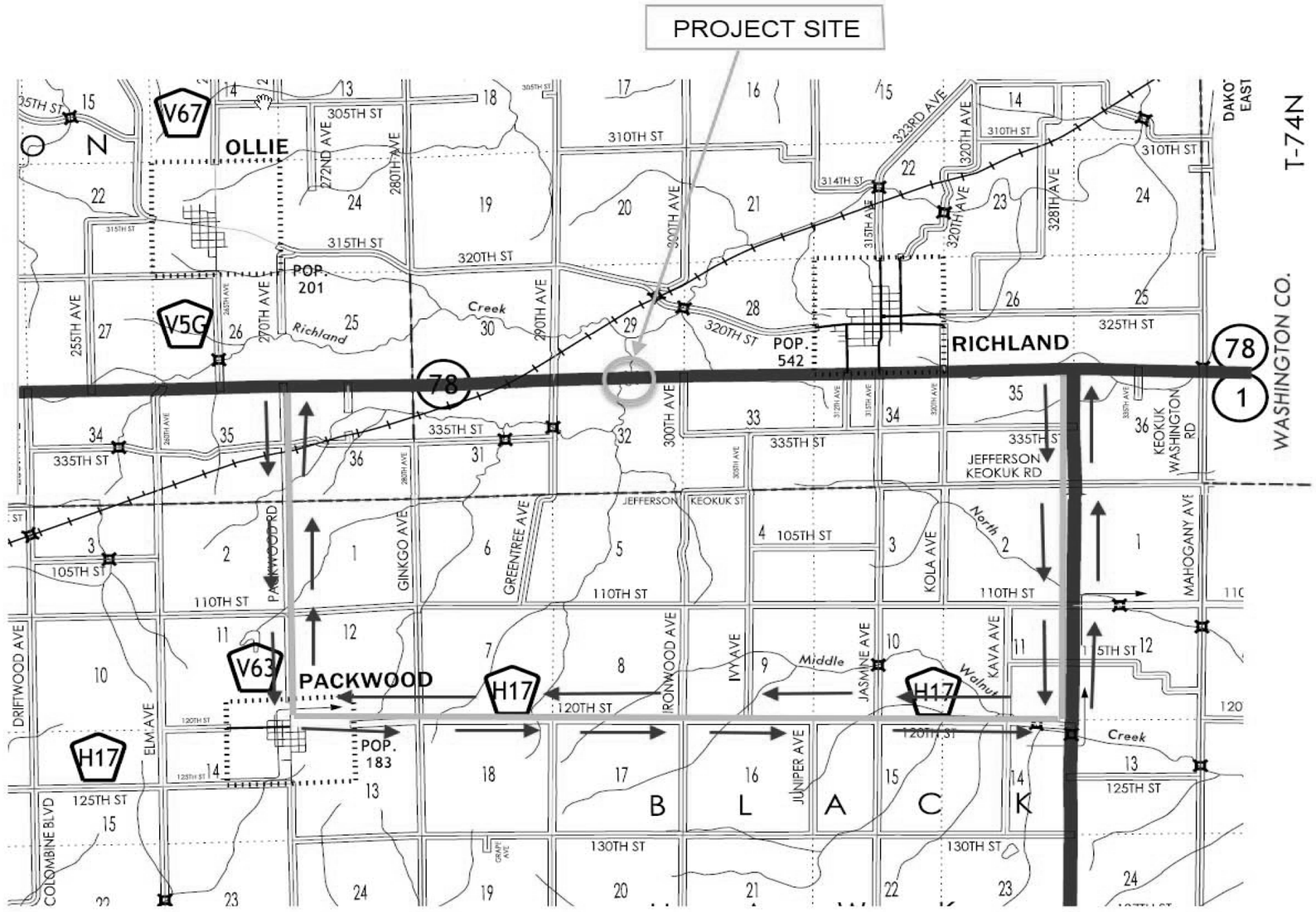

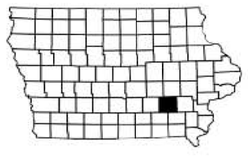

KEOKUK COUNTY

On IA 78 Over Stream 3.4 Mi W of IA 1

BRF-078-1(26)- -38-54

PIN: 21-54-078-010

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell\Carlson	KEOKUK COUNTY	PROJECT NUMBER BRF-078-1(26)--38-54	SHEET NUMBER A.8

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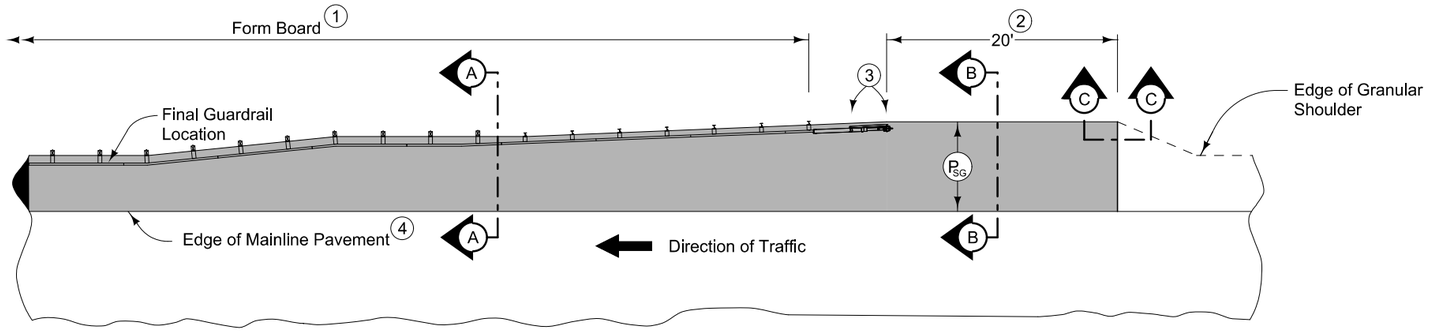
Utilities

Farmtel Communications
Ray Fear (Telephone)
rayfear@farmtel.com
319.256.2736 ext 5213

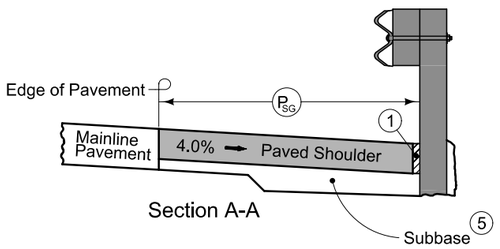
Wapello Rural Water Association
Krista Huffman
kristah@wapelloruralwater.com
641.682.8351

Windstream
Bryan Bogan
Bryan.Bogan@windstream.com
501.748.6919

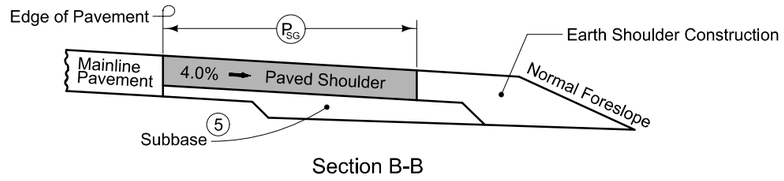
7156A
MODIFIED



PLAN VIEW

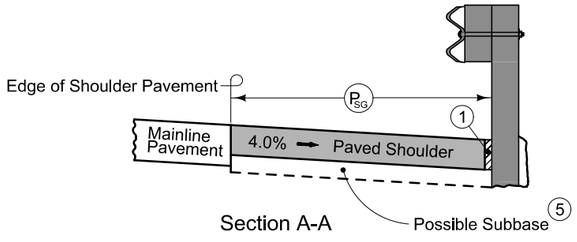


Section A-A

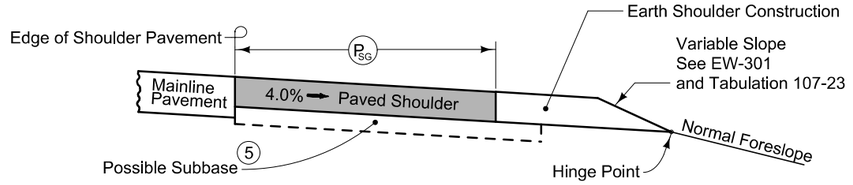


Section B-B

NEW CONSTRUCTION



Section A-A



Section B-B

EXISTING SHOULDER

8" PCC Paved Shoulder at guardrail with the following jointing layout:

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

Refer to Tabulation 112-9 for shoulder quantities.

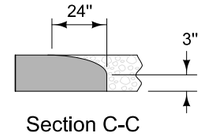
(1) When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.

(2) Continue paved shoulder 20 feet beyond the center of the first post.

(3) Shoulder may be notched for first 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.

(4) 'KT' joint (per PV-101) for PCC shoulder.

(5) Refer to other details in the plan.



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

PAVED SHOULDER AT GUARDRAIL
(GRANULAR SHOULDER ADJACENT TO MAINLINE)

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)
- 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

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

- FO — FO1D, Farmers & Merchants Mutual Telephone - Quality D
- W — WL1D, Wapello Rural Water Association - Quality D
- FO2 — FO2D, Windstream Communications - Quality D
- T1 — TL1D, Windstream Communications - 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
Yellow	(4)	Proposed Pavement Shading
Orange	(6)	Proposed Granular Shading
Orange	(70)	Proposed Shoulder Granular Shading
Yellow	(68)	Proposed Shoulder Paved Full Depth Shading
Yellow	(132)	Proposed Shoulder Paved Partial Depth Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Orange, Light	(134)	Proposed Granular Entrance Shading
Yellow	(220)	Proposed Paved Entrance Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading
Green, Light	(225)	Existing Pavement Shading
Red	(3)	Proposed Structure Shading
Red	(3)	Delineates Restricted Areas

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
- 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.	ENGLISH	DESIGN TEAM Flattery\Bell\Carlson	KEOKUK COUNTY	PROJECT NUMBER BRF-078-1(26)--38-54	SHEET NUMBER D.1

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Richland TWP.
T-74N R-10W
SEC. 29

610+00

615+00

620+00

Sta. 609+91.48 (ML078)
Begin Project

Sta. 611+72.33 (ML078)
Begin Construction

Sta. 614+43.42 (ML078)
End Construction

Sta. 616+27.02 (ML078)
End Project

+22 Type "C" Ent.
(U.A.C.)

36"x42.8'
H.D.P.E.
(U.A.C.)

18"X34.9'
C.M.P.
(U.A.C.)

+86 Type "C" Ent.
(U.A.C.)

78

78

APPROX. SEC. LINE

SIGN

F02
F0

T1

W

Sta. 613+06.4 (Survey)
100'x26'
Cont I-Beam Bridge
D.A.=7700 Ac. H-R (Plan)
(Remove)
Build 130'-0" x 40'-0"
Continuous Concrete Slab Bridge

Sect. No. 32

0 50
FEET

IA 78

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell\Carlson	KEOKUK COUNTY	PROJECT NUMBER BRF-078-1(26)--38-54	SHEET NUMBER D.2	

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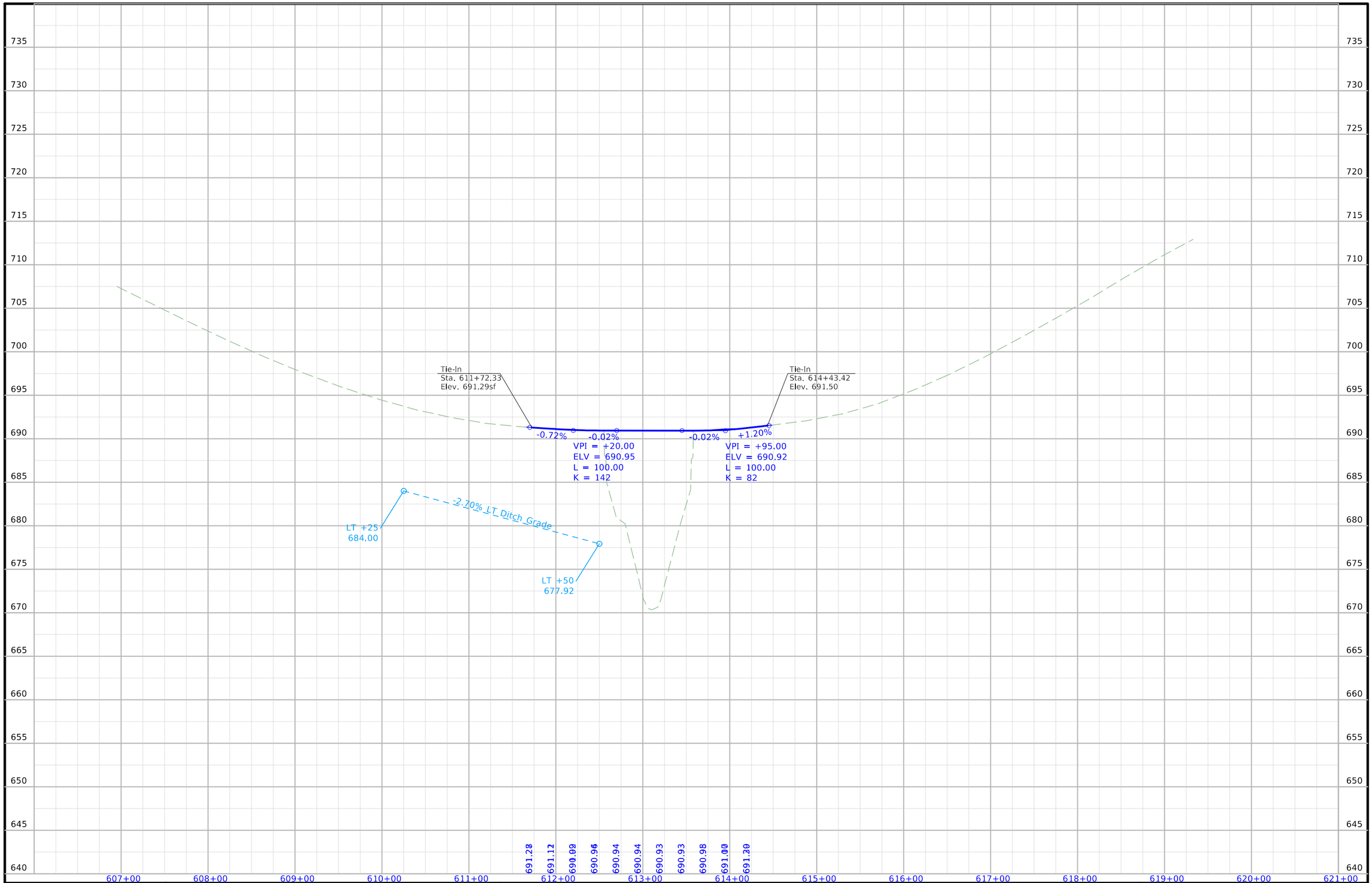

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell\Carlson	KEOKUK COUNTY	PROJECT NUMBER BRF-078-1(26)--38-54	SHEET NUMBER D.3

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SURVEY INDEX
Keokuk County
Project Number: BRF-078-1(26)—38-54
Location: Stream 3.4 mi W of IA 1
Type of Work: Bridge-Unspecified
Project Directory: 5407801021
SAP: 684.3

Survey Personnel
Nels Sutherland – Survey Party Chief
Myron Fox – Survey Party Chief
Sam Schilb – Assistant Survey Party Chief

Date(s) of Survey
Begin Date	01/24/2023
End Date	02/13/2023

General Information
This project involves the replacement of the IA 78 bridge over a stream 3.4 mi W of IA 1. This survey request was for the IA 78 corridor only. This project is a Full Field DTM survey.

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

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

PROJECT DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 ADJUSTMENT)
COORDINATE SYSTEM: IOWA REGIONAL COORDINATE SYSTEM ZONE 13 (U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018u3

Alignment Information
The horizontal alignment for U.S. Hwy 78 is a retrace of As-built Plans No. FH-78-1(3)--21-54. Survey stationing was equated to the plan PI at Sta. 584+01.2 and carried ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

PI Sta. 584+01.2 As-built Plans Project No. FH-78-1(3)--21-54
Survey PI Sta. 584+01.2 (Held)

PT Sta. 587+48.6 As-built Plans Project No. FH-78-1(3)--21-54
Survey PT Sta. 587+48.86

POT Sta. 601+17.5 As-built Plans Project No. FH-78-1(3)--21-54
Survey POT Sta. 601+17.23

PC Sta. 631+62.4 As-built Plans Project No. FH-78-1(3)--21-54
Survey PC Sta. 631+60.55

PI Sta. 634+62.4 As-built Plans Project No. FH-78-1(3)--21-54
Survey PI Sta. 634+60.44

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 13 (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 13 (U.S. Survey Foot)
VERT. DATUM: NAVD88
Geoid Model: 2018u3

Point Name	Northing	Easting	Elevation	Code Description
312	6738052.55	23466012.52	745.12	CP 4x4 CM from the intersection of hwy 78 and 290th ave proceed E 585' along Hwy 78 point is 61' S of CL Hwy 78 and 35' W of field ent 4" above ground
465	6735591.32	23476042.74	766.55	CP Keokuk Co monument 465 found as described in county data sht
300	6738084.04	23470804.57	747.70	CP 5/8th" x 42" Rebar from the intersection of Hwy 78 and 300th ave proceed S 85' point is E 47' from the CL of 300th ave 4" below surface

108-23A
08-01-08

TRAFFIC CONTROL PLAN

Traffic on IA 78 shall be maintained at all times via offsite detour
Detour to be placed and maintained by ?

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.

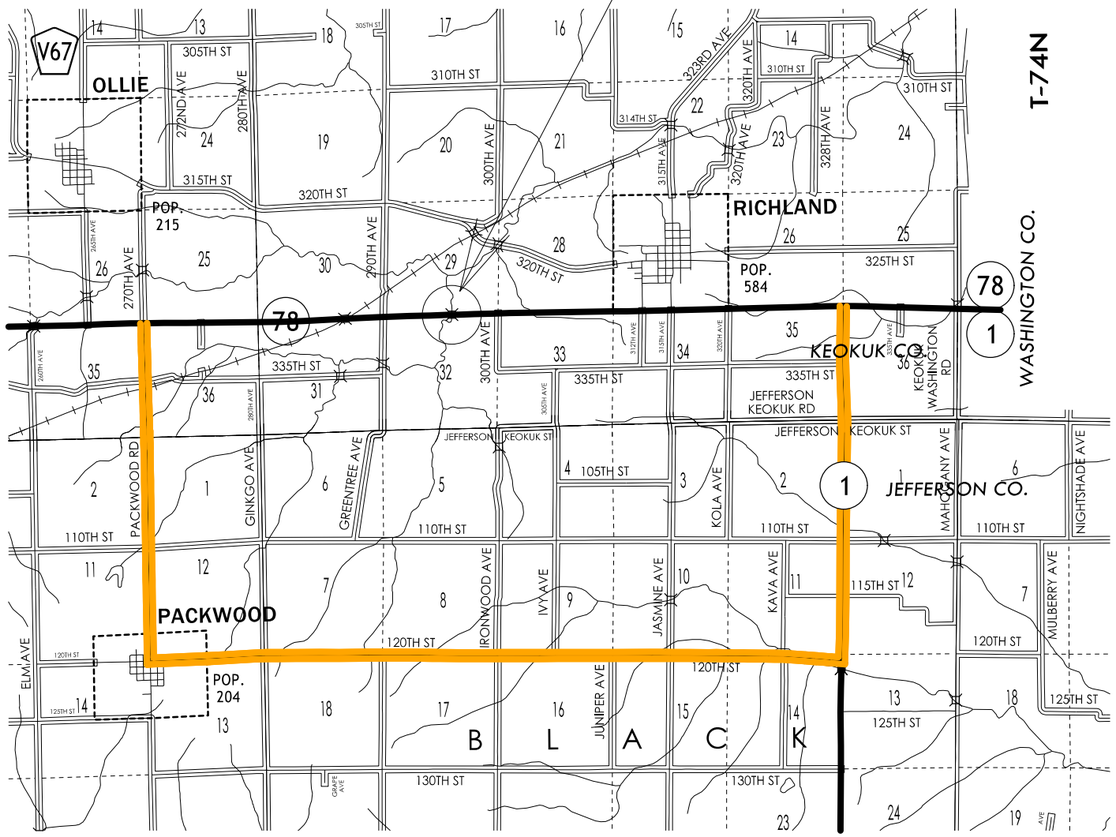
Project	Type of Work
None Provided	

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
			None Anticipated									

PROJECT LOCATION



LEGEND

DETOUR ROUTE

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell\Carlson	KEOKUK COUNTY	PROJECT NUMBER BRF-078-1(26)--38-54	SHEET NUMBER J.2

1:24:26 PM 10/19/2023 pcarls2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5407801021\Design\CADD_Files\Sheet_Files\J02_54078026Z13 new.dgn

CROSS SECTION VIEW COLOR LEGEND

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

NOTES:

Text

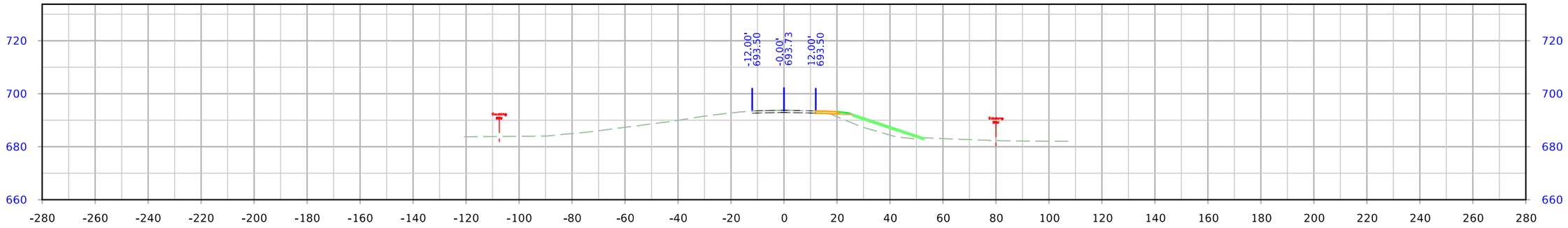
NOTES:

Text

CROSS SECTIONS
LEGEND AND INFORMATION SHEET

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

IA 78



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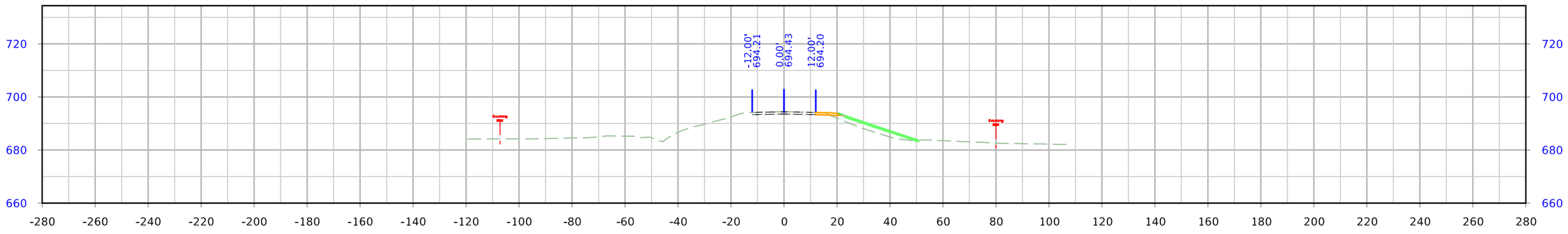

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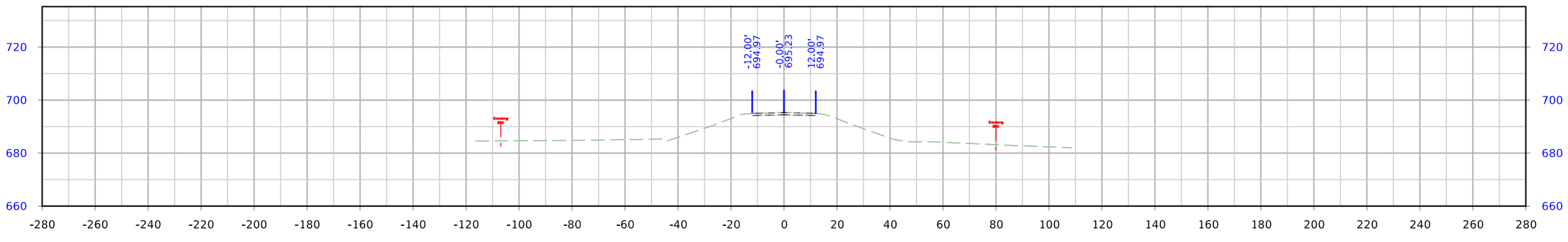

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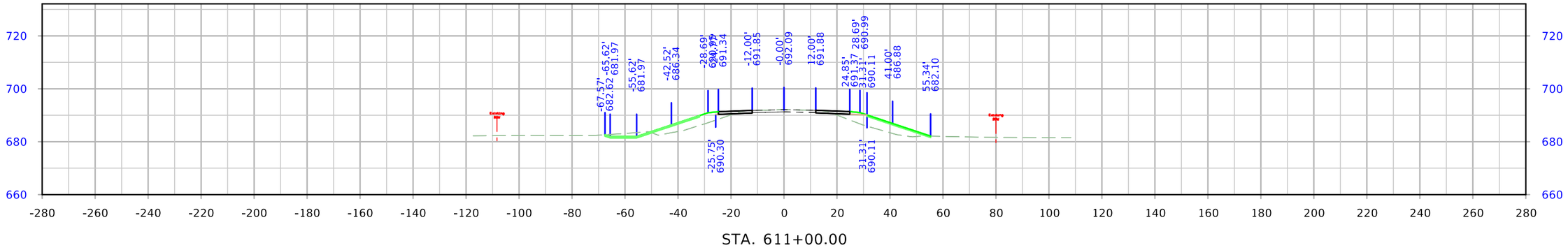

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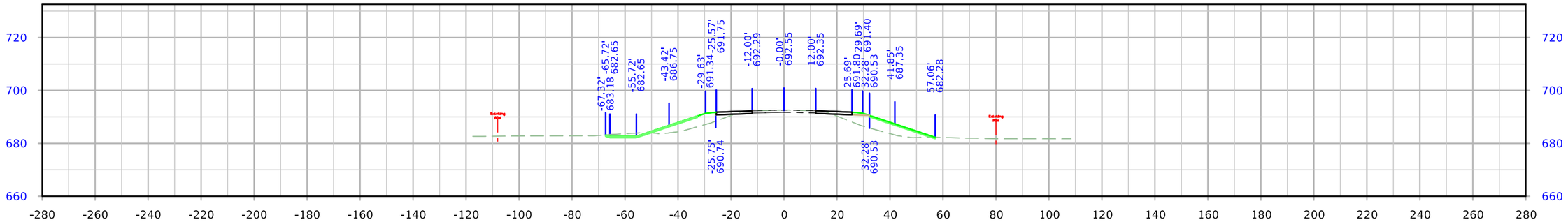

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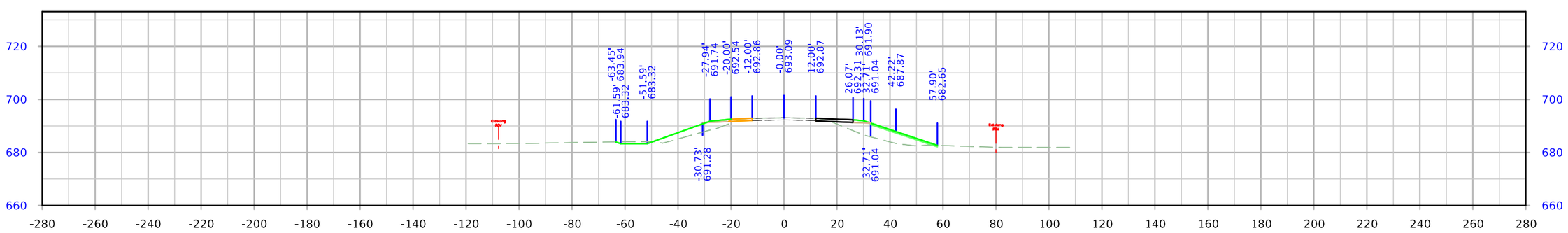

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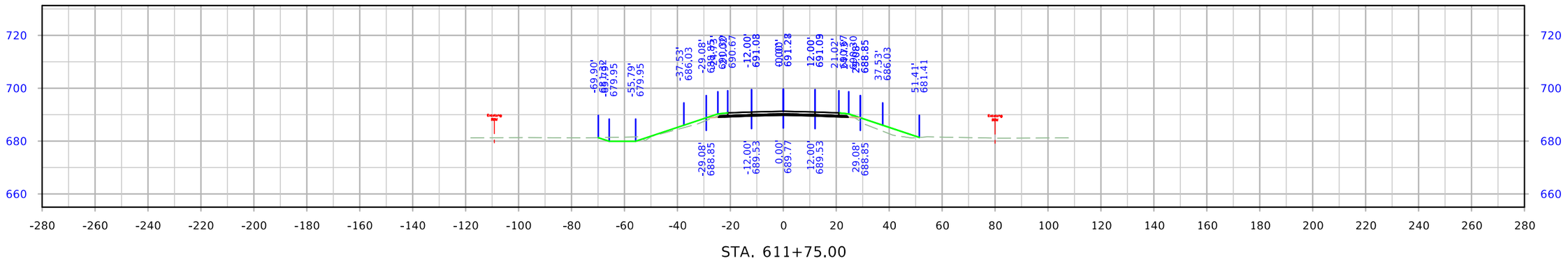

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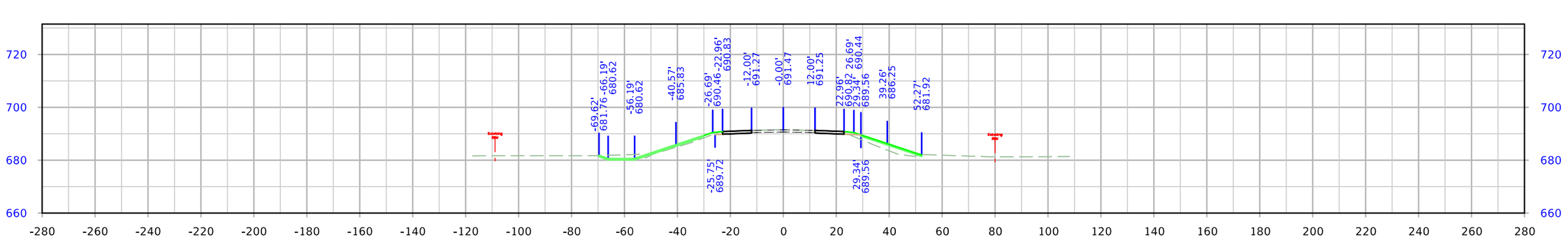

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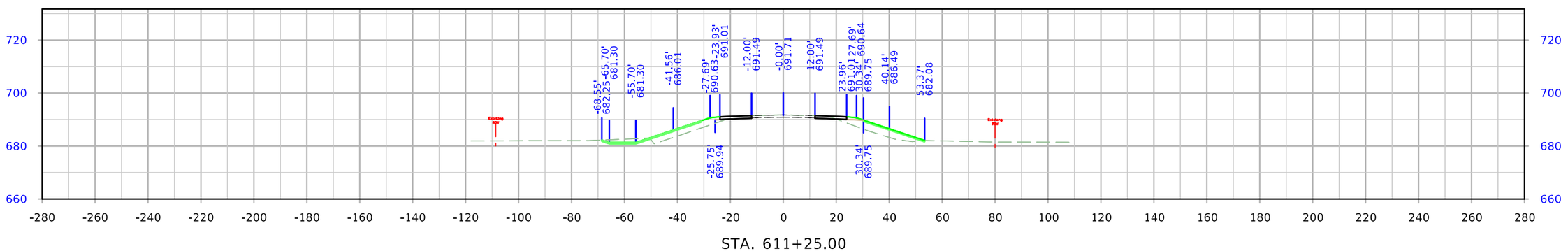

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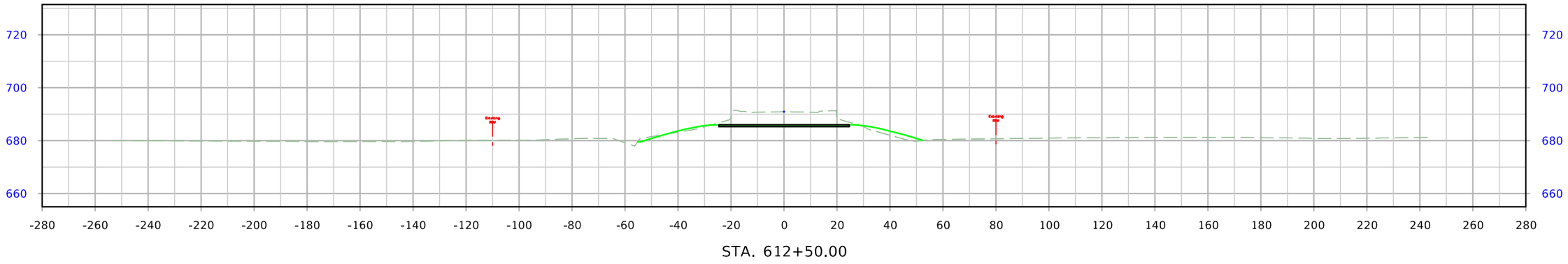

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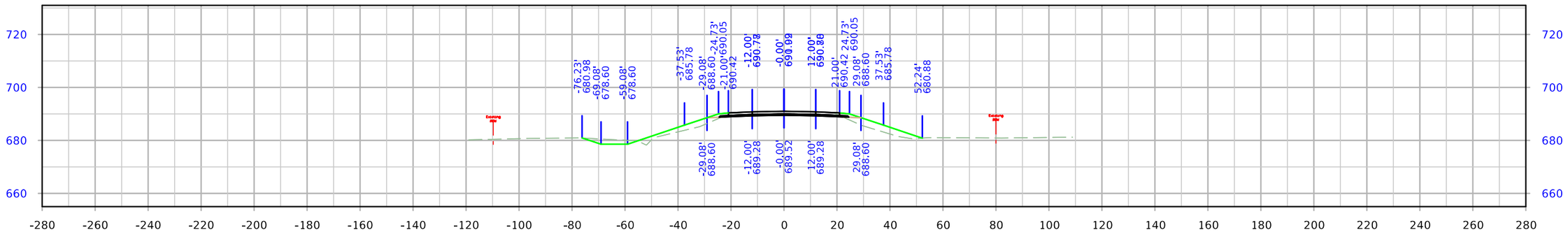

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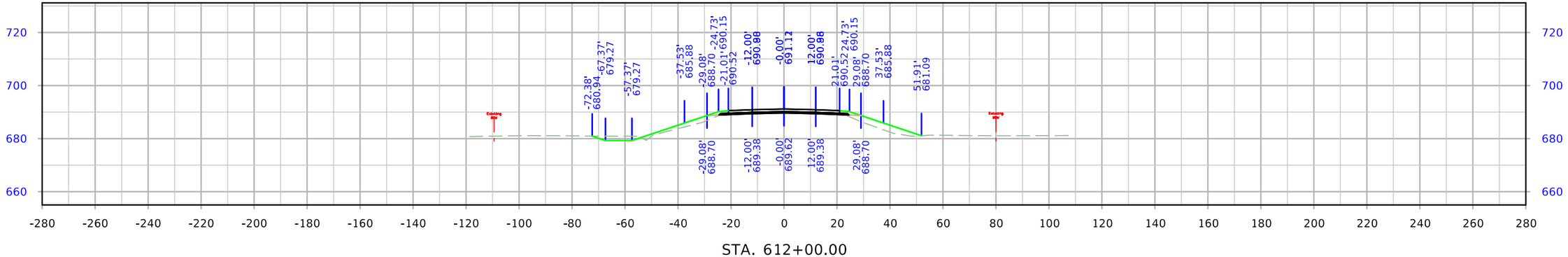

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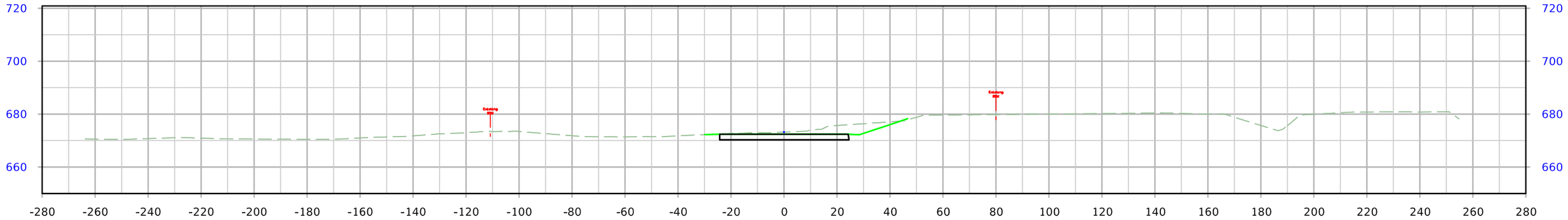

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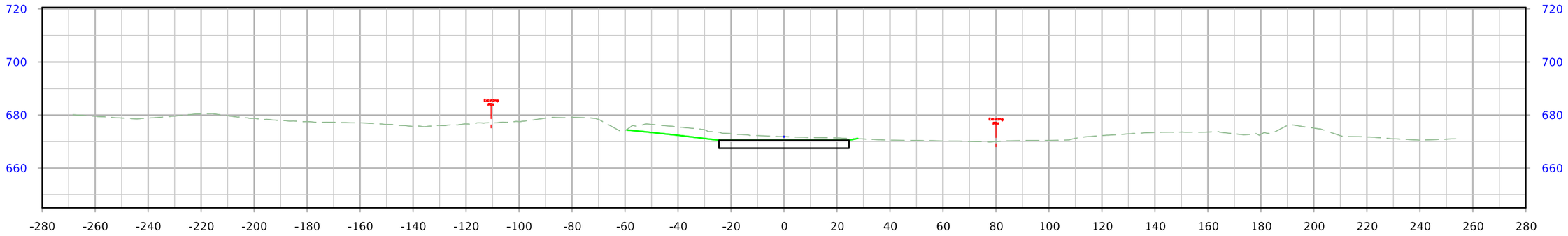

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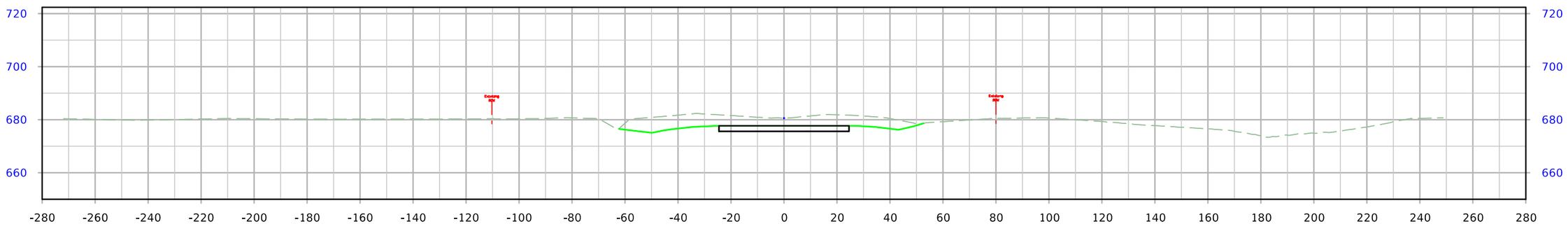

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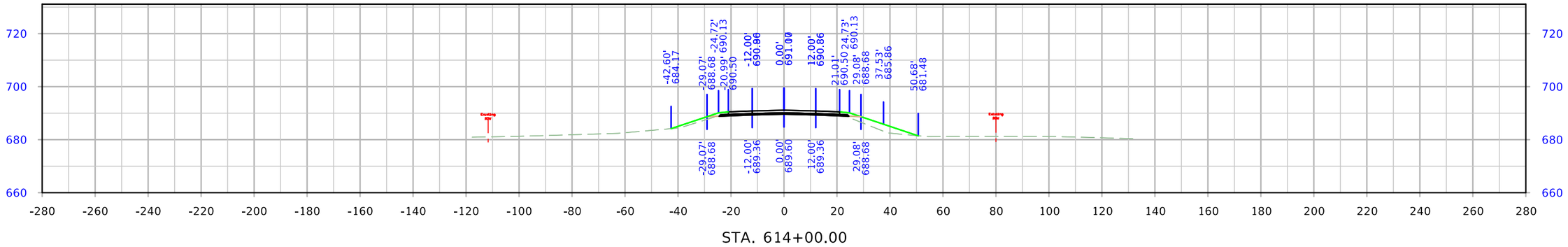
IA 78



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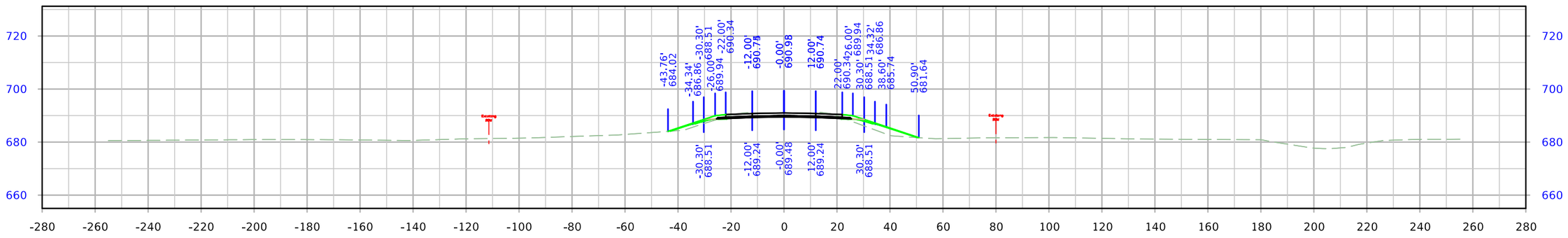

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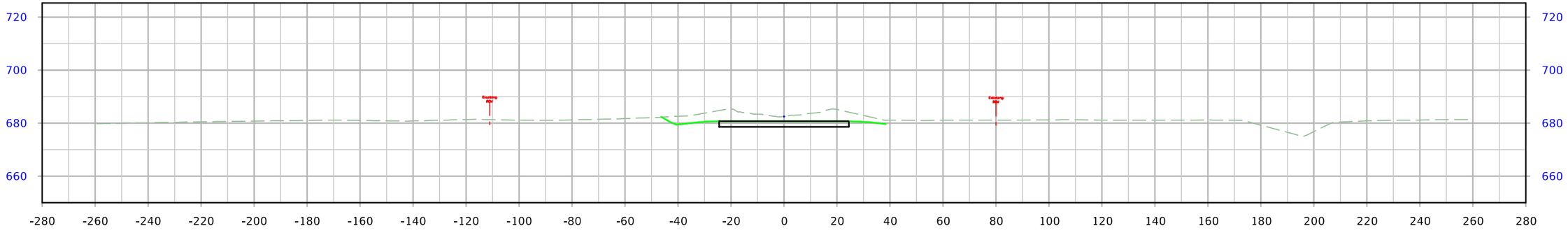

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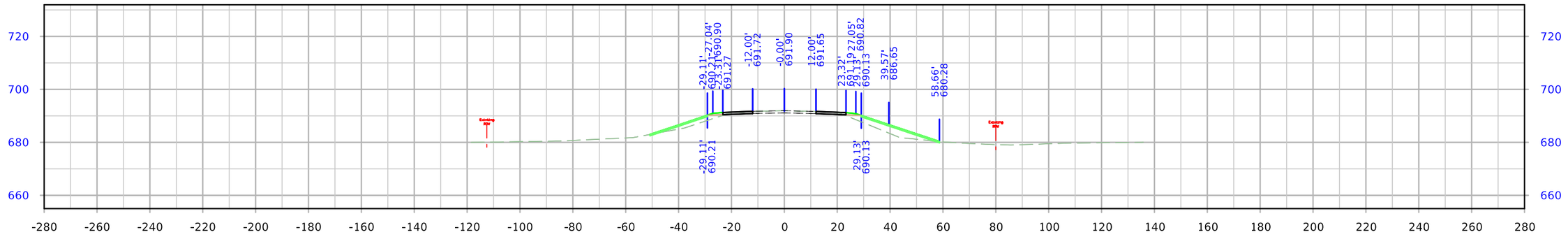
IA 78



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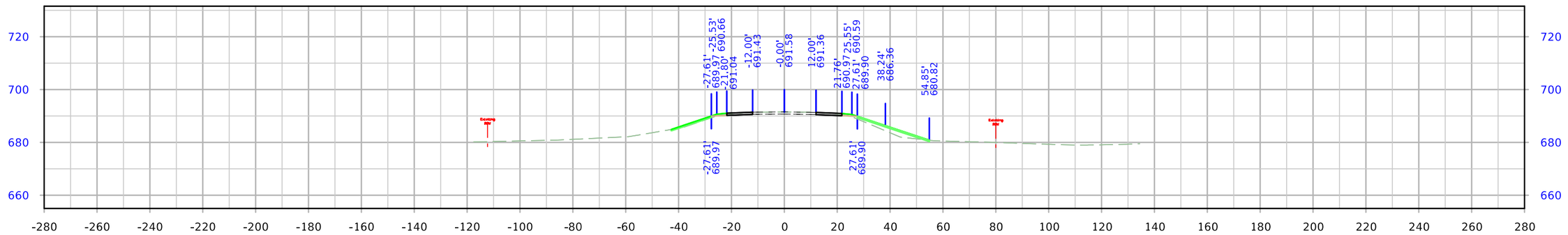

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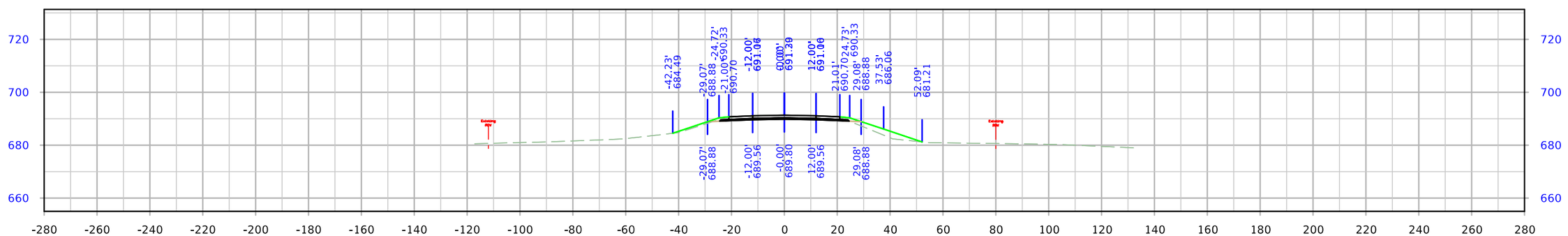

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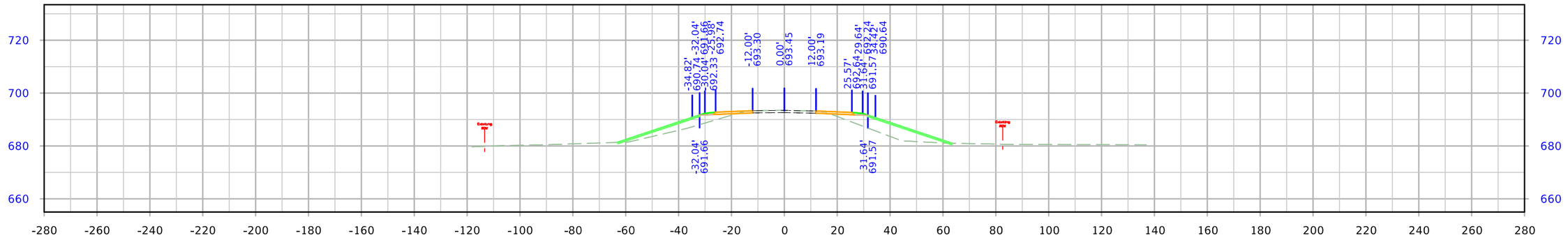

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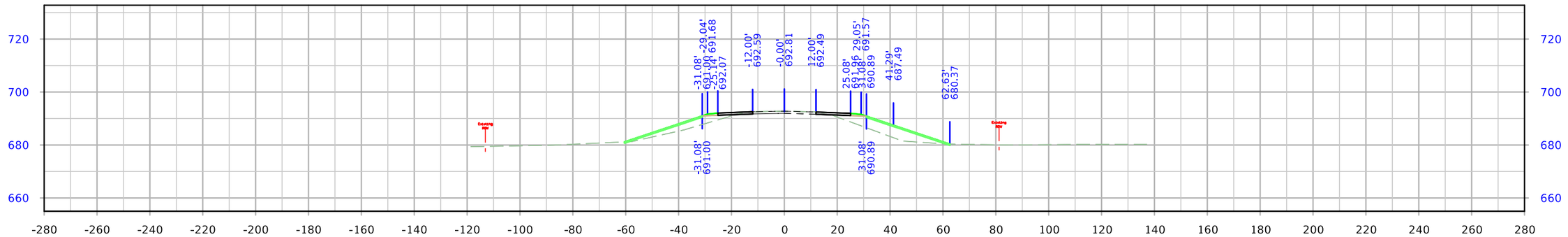

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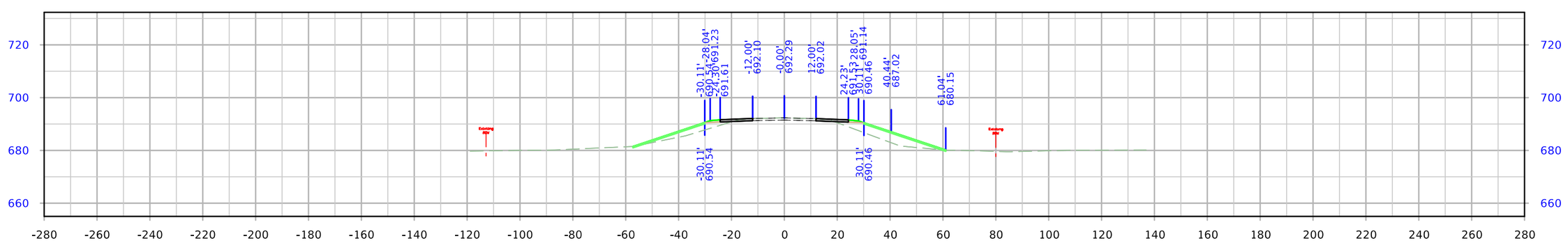

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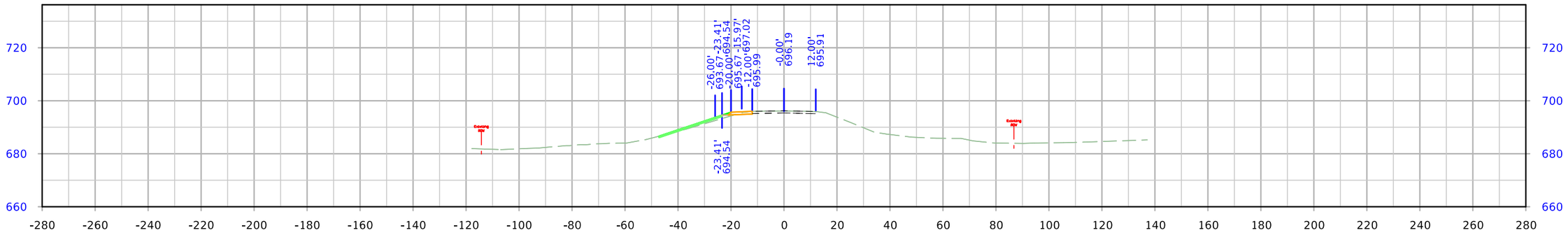

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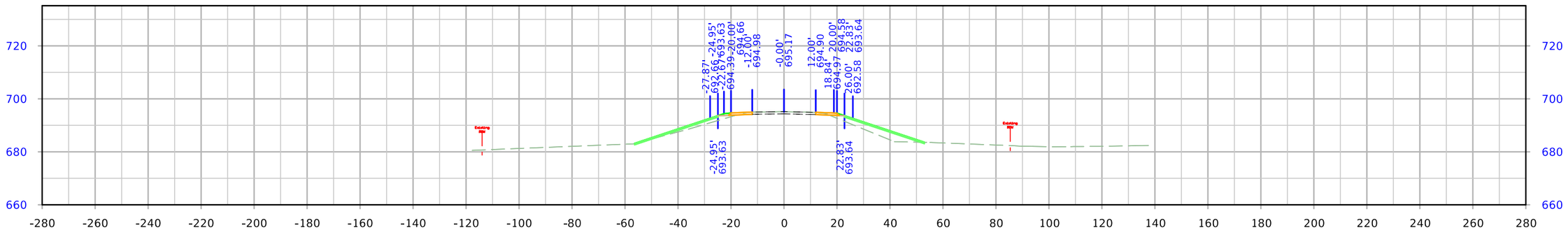

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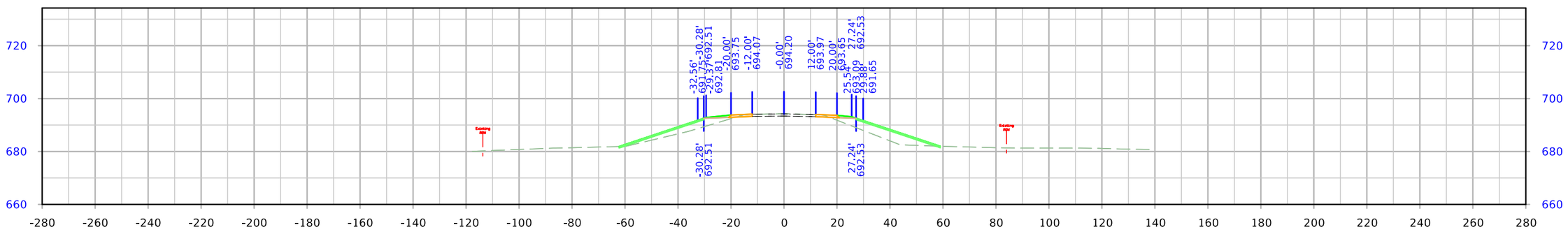

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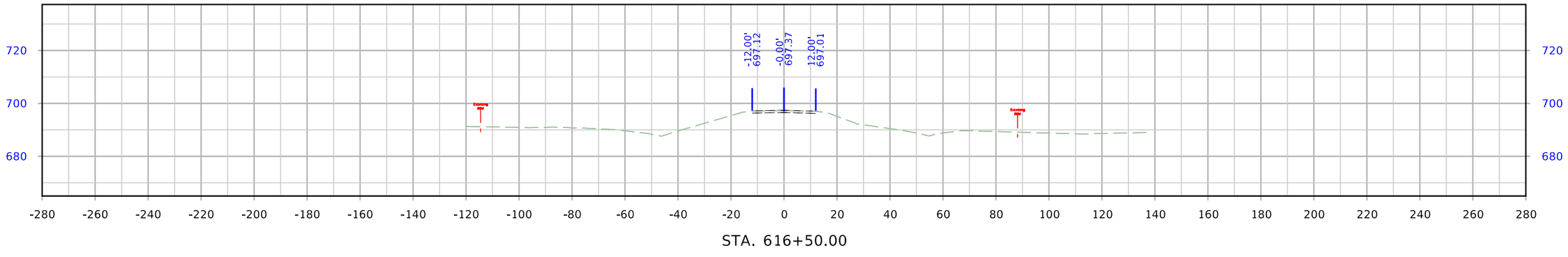

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